STORMWATER MANAGEMENT ANALYSIS

Warehouse/Industrial Development| 100 & 200 Financial Park | Franklin, MA

Project Address:	100 & 200 Financial Park Franklin, MA 02038
Date Prepared:	March 11, 2023 revised July 17, 2023 revised August 14, 2023 **revised October 5, 2023**
Project Number:	22051
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INTRODUCTION

This analysis summarizes pre- and post-development stormwater impacts associated with the construction of a 220,000± GSF flex-warehouse and a 65,000± GSF flex warehouse (the Project) located at 100 & 200 Financial Park (the Subject Property) in Franklin, Massachusetts. The Subject Property is shown on the Town of Franklin Assessors' Map as Parcels #312-020-000-000 and #312-020-001-000 and identified as lots 5A and lots 5B of Financial Park.

The combined land area of the two lots making up the Subject Property is approximately 51.05 ± acres. The Subject Property is located within the Limited Industrial Zoning District (LI) and the Water Resource Overlay District. The Subject Property is bounded by Washington Street to the East, an existing warehouse located at 300 Financial Park to the South, Town of Franklin owned property to the West and open/pond to the North. The Subject Property is accessed via a single curb cut off Washington Street, acting as the main entrance to Financial Park.

The Subject Property currently supports a 180,000± GSF office building constructed circa 1980 by Digital Equipment Corp. and is now operated as a data center by Marsh McLennan Co. (MMC). Adjacent to that building is a 65,000± GSF building operated today by Champagne Logistics; this building is to remain as part of the proposed Project. Surface parking to the Northwest and South serve both existing buildings as well as the adjacent building located at 300 Financial Park. The Subject Property contains a lined detention pond located to the North, just inside the ring road, providing stormwater detention and supplemental fire protection.

In its present condition, runoff from ground surfaces of the developed portion of the Subject Property flows in a predominantly Northwest direction and enters a series of catch basins located throughout the site, before discharging via two (2) existing - 36" reinforced-concrete pipes (RCP) to the onsite detention pond located to the North of the property. The detention pond provides a source of supplemental fire protection to the two existing buildings on site, while surplus stormwater exits the pond via an overflow structure and flows through a 12" reinforced-concrete pipe to the wetland located in the North portion of the property. Runoff from the existing two roofs enters a roof drainage collection system and connects to the previously mentioned catch basin network before discharging via the two (2) – 36" pipes at the detention pond. Majority of the runoff produced by the existing open space made up of lawn/landscape ground covers surrounding the detention pond flow overland directly into the detention pond to the North.

Runoff from a portion of the site located just to the north of the MMC building flows overland until eventually reaching two separate drywells. Each of the drywells have two (2) grates spaced approximately twenty (20) feet apart. Both drywells are self-contained on site and do not provide any overflow outlets for stormwater runoff.

Work associated with the proposed Project includes:

- Installation of erosion control devices, demolition of existing 180,000± GSF office building, existing fire pump house, pavement, and utilities.
- Construction of 220,000± GSF flex-warehouse with associated two-story office building and a 65,000± GSF flex-warehouse with associated two-story office building.
- Construction of landscape and hardscape improvements, modifications to existing parking areas to accommodate new building footprints, heavy duty bituminous concrete within trucking limits, concrete walkways, new surface parking and loading areas, and overall utility upgrades.

- Construction of stormwater management improvements, including new sub-surface infiltration/detention systems, sediment forebays, rain gardens, catch basins and water quality units with connections to existing on-site drainage prior to discharging to existing detention pond to mitigate peak runoff rates, mitigate impacts on water quality and promote groundwater recharge.
- Construction of all new utility infrastructure improvements, including gravity sewer, domestic and fire protection water services, gas service, underground electric, and telecommunication services.

For detailed information regarding existing site conditions and proposed development, refer to the plans entitled, "Warehouse/Industrial Development| 100/200 Financial Park | Franklin, Massachusetts," dated May 11, 2023, revised August 14, 2023 and prepared by Highpoint Engineering, Inc.

METHODOLOGY

The hydrologic analysis models the pre- and post-development stormwater characteristics for the Project and compares changes in peak rate of runoff and water quality associated with the proposed development. Where increases to peak rate of runoff or reductions in water quality are identified, Stormwater Best Management Practices (BMPs) and Low Impact Development (LID) techniques are considered. The analysis shall demonstrate that post-development hydrologic conditions generally mimic pre-development hydrologic conditions; that any potential impacts to downstream properties, infrastructure, or environmentally sensitive areas are mitigated; and that local and state stormwater management standards are met to the extent practicable.

The pre-development hydrologic model establishes the limits of the study area and down-gradient Points of Analysis (POAs), which are dependent on topographic and environmental conditions. The model quantifies sub-watershed stormwater runoff characteristics related to topography, land use/cover types and soil conditions, computing peak runoff rates for specific design storm frequencies under pre-development conditions at the POAs.

The post-development hydrologic model analyzes the same study area, and accounts for changes in sub-watershed area topography and land use/cover types associated with the proposed development. The model computes the changes to the peak runoff rates at the same POAs, and BMPs are implemented to mitigate stormwater impacts due to development. In addition, BMPs are also implemented to improve water quality and reduce Total Suspended Solid (TSS) pollutant concentrations to satisfy stormwater regulation requirements for the new construction.

For this analysis, three (3) POAs have been established, including:

- POA A (Pond – West): Existing West Detention Pond located on 300 Financial Way.
- POA C (Wetland – West): Existing wetland resource area boundary to the West of the Site.
- POA D (Wetland – North): Existing North Detention Pond located on Project site.

The hydrologic model, analysis, and proposed mitigation measures have been developed using the following resources:

- Hydrologic modeling techniques and methods established in NRCS - Technical Releases No. 20 and No. 55 (TR-20 and TR-55) using proprietary HydroCAD® stormwater modeling software.
- Massachusetts Department of Environmental Protection – Stormwater Handbook Volumes #1, #2, and #3 (as amended).
- Town of Franklin Stormwater Management Plan dated December 23, 2022.

RAINFALL DATA

Peak stormwater discharges have been determined for total rainfall estimated for the 2, 10, 25, and 100-year storm event recurrence intervals. For this analysis, the values used for the 24-hour rainfall calculations were taken from Appendix 1, Table 1.1, "Massachusetts rainfall data by town and county [inches]" of the Engineering Field Handbook – Chapter 2, March 2013. The rainfall depths for all storm events are outlined in Table 1.

Table 1. – Summary of Rainfall Data

Reference	Rainfall Recurrence Interval	24 Hour Rainfall Depth
"Massachusetts rainfall data by town and county [inches]" of the Engineering Field Handbook – Chapter 2, March 2013	2-Year Storm	3.22 inches
	10-Year Storm	4.86 inches
	25-Year Storm	6.15 inches
	100-Year Storm	8.80 inches

SOILS DATA

Based upon the USDA – NRCS Soil Conservation Service (SCS) Web Soil Survey for Norfolk County, soils underlying the Project (excluding surface water bodies) are classified as follows:

Table 2. – Summary of USDA Soil Classification

Soil Classification	Hydrologic Soil Group (HSG)
245C: Hinckley Loamy Sand, 8-15% slopes	A
626B: Merrimac-Urban Land Complex, 0 to 8% slopes	A
253D: Hinckley Loamy Sand, 15 to 35% slopes	A
254B: Merrimac Fine Loamy Sand, 3 to 8% slopes	A
245B: Hinckley Loamy Sand, 3 to 8% slopes	A
653: Udorthents, Sandy	A
422B: Canton Fine Sandy Loam, 0 to 8% slopes	B
53: Freetown Muck, 0 to 1% slopes	B/D
71B: Ridgebury Fine Sandy Loam, 3 to 8% slopes	D
73A: Whitman fine Sandy Loam, 0 to 3% slopes	D

Refer to the Preliminary Subsurface Assessment Report prepared by McArdle Gannon Associates, Inc. (MGA) dated May 19, 2023, included in Appendix C of this report, for further information regarding soil data and groundwater information. See also attached with this Report the plan entitled "Estimated Groundwater Map" that delineates estimated groundwater gradient based upon monitor well readings obtained by MGA.

PRE-DEVELOPMENT CONDITIONS

The portions of the Subject Property subject to this analysis comprise five (5) watershed areas as described below and analyzed at three (3) POAs described in the "Methodology" section in this report. Existing watershed areas include:

- EX-A1 – A 132,340 ft^2 area comprising of existing paved surface parking, associated existing access drives, and existing landscape area islands in and around the existing parking area. Surface runoff flows overland and is collected in existing catch basins before flowing through water quality units. The stormwater flows through a closed pipe drainage system prior to discharging into an existing stormwater pond to the West of the site.
- EX-A2 – A 99,071 ft^2 area comprising of existing open space having grass cover located to the south of Building #3. Surface runoff flows overland and is collected in existing catch basins before flowing through water quality units. The stormwater flows through a closed pipe drainage system prior to discharging into an existing stormwater pond to the West of the site.
- EX-C – A 82,149 ft^2 area consisting of existing roadway and adjacent landscape area. The stormwater runoff flows overland and is collected by two (2) existing catch basins. The stormwater flows through two closed pipes that discharge directly to the wetlands to the West of the site located outside of the ring road.
- EX-D – A 999,745 ft^2 area consisting of two existing building roof areas, associated surface parking lots, landscape areas, access roadways, and wooded area. The roof runoff is collected via a closed pipe drainage system and discharges into the existing detention basin/Fire Pond to the North of the site. The paved surface runoff is collected via catch basins and routed to the detention basin/Fire Pond. A portion of the watershed consisting of lawn and landscape flows overland directly into the detention/fire pond.
- EX-E – A 104,917 ft^2 area made up of majority wooded area, with adjacent landscaped area, an existing detached garage, and various walkways. The roof runoff is collected and discharged at the ground level. Surface runoff flows overland to two (2) drywells located on-site.

The existing drainage on site was originally designed by CE Maguire, Inc. and Sasaki Associates, respectively, and remains fully functional today. As per their design, a large majority of the site flows to the North Detention Pond, whether routed via closed pipes or overland flows. The closed pipe drainage from the site releases into the detention pond via two 36" drain-pipes with flared end sections and splashpads (Ex. Drain Outfall and Splashpad #1 and #2, as referred to on HEI's civil plans) both of which were designed with inlets below the normal standing water level of the pond at El. = 244.0.

Based upon Highpoint's pre-development conditions hydrology analysis and modeling of the North Detention Pond, the detention pond experiences a highwater elevation of 246.06' for the 25-year storm event. The two existing drain-pipe discharge inverts are El. = 239.95' and 240.50', respectively, resulting

in a fully submerged tailwater condition at all times. As a result, approximately 471 linear feet of closed drain-pipe upstream of the pipe discharge is assumed to be submerged.

Refer to the Pre-Development Watershed Plan under Figures for information and limits of the existing watershed areas.

For the pre-development watershed analysis, Table 3 presents a summary of the watershed areas, the weighted TR-55 runoff curve numbers (CN – based on ground cover types), and Times of Concentration (T_c) for the existing Watershed Areas:

Table 3. – Pre-Development Watershed Areas and Runoff Curve Numbers

	EX-A1	EX-A2	EX-C	EX-D	EX-E
Area	132,340 ft²	99,071 ft²	82,149 ft²	999,745 ft²	104,917 ft²
CN	75	39	60	73	52
T_c	6.5 min	7.2 min.	8.7 min	9.3 min	5.0

POST-DEVELOPMENT CONDITIONS

The project proposes to construct two new flex-warehouse buildings with internal office space and associated site improvements, including the following:

- Installation of erosion control devices, demolition of existing 180,000± GSF office building, existing fire pump house, pavement, and utilities.
- Construction of 220,000± GSF flex-warehouse with associated two-story office building and a 65,000± GSF flex-warehouse with associated two-story office building.
- Construction of landscape and hardscape improvements including modifications to existing parking areas to accommodate new building footprints, heavy duty bituminous concrete within trucking limits, concrete walkways, pervious pavers, new surface parking and loading areas.
- Construction of stormwater management improvements, including new sub-surface infiltration/detention systems, sediment forebays, rain gardens, catch basins and water quality units with connections to existing on-site drainage prior to discharging to existing detention/fire pond to mitigate peak runoff rates, mitigate impacts on water quality and promote groundwater recharge.
- Construction of utility infrastructure improvements, including site lighting improvements, new primary electrical and telecommunication, new fire protection and domestic water services, new gravity sewer connection to existing force main.

New drainage and utility infrastructure will be constructed to service the Project, and existing infrastructure will be re-used where feasible. The total impervious land cover of the affected Project area under post-development conditions is 926,081 ft^2 (21.2± acres) as opposed to 707,894 ft^2 (16.3± acres) under existing conditions, thus resulting in a 218,187 ft^2 (5.0± acres) increase in impervious area.

The portions of the Subject Property affected by the Project are divided into eleven (11) proposed watershed areas. The three (3) POAs remain unchanged.

- PR-A1 – A 132,340 ft^2 area comprising of existing paved surface parking, associated existing access drives, and existing landscape area islands in and around the existing parking area. Surface runoff

flows overland and is collected in existing catch basins before flowing through water quality units. The stormwater flows through a closed pipe drainage system prior to discharging into an existing stormwater pond to the West of the site.

- PR-A2 – A 28,873 ft^2 area comprising of open space having grass cover and a small portion of bituminous concrete serving as the access drive to new Building 3 loading area. Surface runoff flows overland and is collected in existing catch basins before flowing through water quality units. The stormwater flows through a closed pipe drainage system prior to discharging into an existing stormwater pond to the West of the site.
- PR-C – A 55,783 ft^2 area consisting of existing roadway and adjacent landscape area. The stormwater runoff flows overland and is collected by two (2) existing catch basins, one of which is proposed to be replaced by a water quality unit. The stormwater flows through two closed pipes that discharge directly to the wetlands to the West of the site located outside of the ring road.
- PR-D1 – A 214,605 ft^2 area consisting of existing surface parking, existing access drives, the entirety of existing Building #3 roof area, a new loading area to the rear of existing Building #3, new concrete walkways, and both existing and new landscaped areas along the perimeter of the new loading area. The roof runoff from the southern half of new Building #2 will be collected via a roof drainage collection system to the south of the building and conveyed via closed pipe system to sub-surface infiltration system (SWM-4). The existing surface parking area, existing access driveways, and existing landscape area's stormwater will flow overland into existing catch basins and flow through existing water quality units before flowing into SWM-4 via reinforced-concrete pipes. The existing roof collection system to capture roof runoff from Building #3 will be maintained and re-used, the end of the collection system will be re-routed into a series of closed pipes and directed to SWM-4. The stormwater runoff produced by the new loading area and adjacent landscape area to the South of existing Building #3 will flow overland and into new catch basins, conveyed to a new water quality unit and the treated stormwater will be routed to SWM-4. SWM-4 will have an overflow outlet made up of a single 30" HDPE pipe. The stormwater will then flow through a series of closed pipes until reaching the detention pond. From the detention pond the water will flow through the existing outlet control structure towards the North Wetlands via a 12" pipe.
- PR-D2 – A 274,599 ft^2 area consisting of the surface parking and access drive to the East, loading area between Buildings #1 and #2, concrete and pervious paved entrance walkways and associated landscaped areas. Runoff produced by the new surface parking, loading, concrete/pervious paver walkway and adjacent landscape areas will run overland and into new catch basins and conveyed by reinforced concrete pipes to a an isolator row prior to discharging into SWM-3. SWM-3 is then routed to the detention pond via a series of closed pipes. The overflow stormwater in the detention pond flows through the existing overflow structure and is routed to the North Wetlands via a 12" pipe.
- PR-D3 – A 108,531 ft^2 area consisting of the northern half of Building #1. The stormwater from this roof area is collected via a roof collection drainage system located on the northern side of the building and conveyed via reinforced concrete pipe to SWM-6. SWM-6 has an overflow outlet header consisting of four (4) – 12" pipes connected to a single 36" pipe. The 36" pipe is then routed to a water quality unit before discharging into eh existing detention pond. From the detention pond the excess stormwater follows the same path as previously stated to the North Wetlands.
- PR-D4 – A 37,021 ft^2 area consisting of existing roadway and access drive, a new surface parking area to the West of Building #3 with connecting concrete walkway and adjacent landscaped area. The stormwater runoff from this area flows overland and captured by new catch basins. The stormwater

is directed to an isolator row before flowing into SWM-4. From SWM-4, the excess stormwater follows the same flow path as previously stated until reaching the North Wetlands.

- PR-D5 – A 50,834 ft^2 area consisting of existing surface parking modified to accommodate trailer storage, concrete walkway and associated landscaped area. The stormwater runoff from this area flows west overland to a curb break in the proposed precast concrete curb and directed to a sediment forebay. From the sediment forebay, the stormwater flows through a spillway to rain garden #1. Rain garden #1 has three (3) overflow grates where the excess stormwater is directed north via closed pipes and ultimately reaches the detention pond. From the detention pond the excess stormwater follows the same path as previously stated to the North Wetlands.
- PR-D6 – A 40,781 ft^2 area consisting of existing surface parking modified to accommodate a new access drive, concrete walkway and associated landscaped area. The stormwater runoff from this area flows west overland to two curb breaks in the proposed precast concrete curb and is directed to a two (2) sediment forebays before flowing over their respective spillways to rain garden #2. Rain garden #2 has two (2) overflow grates where the excess stormwater is directed to north to join the overflow stormwater from rain garden #1. This stormwater is then directed North to the detention pond via a series of closed pipes. From the detention pond the excess stormwater follows the same path as previously stated to the North Wetlands.
- PR-D7 – A 332,987 area consisting of a large portion of the existing ring road, existing parking area to the Northwest modified to include a new access drive, new concrete walkways, building entrance steps and ramp, and associated landscaped areas surround the parking lot, ring road and detention pond. The stormwater runoff produced from the sites entrance will flow overland and into a proposed catch basin, from the catch basin the stormwater flows via closed pipe into a water quality unit before discharging into the existing detention pond before flowing to the North Wetlands. The stormwater runoff produced by portions of the existing ring road flow overland and are collected via an existing catch basin located to the North of the detention pond and is discharged directly into the pond. The runoff produced by the remaining pavement, concrete walkway, steps, and ramp flows overland and is collected via new catch basins and conveyed to a water quality unit via varying sized reinforced concrete pipes. From the water quality unit, the treated water is directed to the existing 36” pipe and discharged into the detention pond. From the detention pond the excess stormwater follows the same path as previously stated to the North Wetlands.
- PR-D8 – A 141,868 area consisting of the Southern half of Building #1 roof and the Northern half of Building #2 roof. The runoff from both roof areas will be collected by separate rood drainage collection headers and conveyed via closed pipe to SWM-2. SWM-2 has an overflow outlet comprising of a single 18” pipe discharging into SWM-3. Excess stormwater from SWM-3 is conveyed to the North Wetlands via closed pipes passing through the North detention pond as previously stated.

As previously mentioned, the proposed design intends to maintain the existing drain outfalls and existing splashpads discharging into the North Detention Pond. Based upon HEI’s post development stormwater analysis the 25-year high water elevation is 245.73’. The addition of post-development stormwater BMP’s and subsurface infiltration reduces the tailwater elevation by approximately 0.33’ (4”). Conversely, the reduced tailwater depth results in a reduction of submerged drain-pipe length of 167’, resulting in 304 LF of drain-pipe submerged under post-development. The downstream pipe segments subject to surcharge have been increased in size to facilitate conveyance. Additionally, based upon the Pipe Capacity Analysis, no upstream stormwater BMP’s are affected by the submerged conditions.

Refer to the Post-Development Watershed Plan under Figures for information and limits of the proposed watershed areas.

Table 4 presents a comparison of watershed area, the weighted TR-55 runoff curve number (CN – based on ground cover types), and Time of Concentration (T_c) for the proposed watersheds:

Table 4. – Post-Development Watershed Areas and Runoff Curve Numbers

	PR-A1	PR-A2	PR-C	PR-D1	PR-D2	PR-D3
Area (ft^2)	132,340	28,873	55,783	214,605	274,599	108,531
CN	75	45	64	89	82	98
T_c	6.5 min	6.5 min	8.7 min	7.5 min	5.7 min	5.0 min

	PR-D4	PR-D5	PR-D6	PR-D7	PR-D8
Area (ft^2)	37,021	50,834	40,781	332,987	141,868
CN	72	79	76	58	98
T_c	5.0 min	5.0 min	5.0 min	7.9 min	5.0 min.

STORMWATER MITIGATION

The stormwater management improvements are designed to meet the requirements of the Massachusetts Stormwater Handbook to provide the required water quality pretreatment of 1.0" of runoff for discharge to existing detention ponds and existing wetlands both to the north and west of the property. The Cultec sub-surface infiltration/detention systems are designed to drain completely in less than 72 hours, are located outside lines of influence from building foundations, and are geometrically coordinated with other utility infrastructure.

The Project results in a 218,187 ft^2 (5.0± acres) net increase in impervious site area. The stormwater management system and BMPs proposed for the Project are designed to mitigate water quality and quantity impacts prior to discharge to the detention ponds or adjacent bordering wetlands. The Project results in a decrease in peak runoff rates generated by all storm events up to and including the 100-year storm events for POA D.

POA C mitigates the peak rate for the 10-year, 25-year, and 100-year, however the peak rate is increased by 0.1 cfs for the 2-year storm event. This is caused by an overall watershed reduction of 26,366 ft^2 from EX-C to PR-C; of that 26,366 ft^2, 21,242 ft^2 is considered open space – good condition and the remaining 5,124 ft^2 being impervious. The large open space reduction between pre- and post-development results in the CN value to increase from 60 to 64 for the remaining watershed, resulting in the theoretical increase in peak rate for the 2-year storm event. Given the size of the receiving watershed area downstream of the discharge, this theoretical 0.1 CFS increase for the 2-yr storm is deminimus and negligible.

POA A resulted in the same peak rate of runoff pre vs. post for the 2-year and 10-year storm event, the 100-year storm event peak rate is reduced pre to post; however, the 25-year storm event peak rate is increased by 0.09 cfs. Although the peak rate of runoff is increased, the overall stormwater volume routed to POA decreased by 2,433.40 ft^3 for the 25-year storm. The total analyzed area was reduced by 70,198 ft^2 from pre to post, however of that total area reduction, there was a 72,998 ft^2 open space – good condition deduction and an impervious area increase of 2,800 ft^2. The impervious area increase consists of the entrance drive leading from the existing access roadway to the loading area located to the South of Building 3. The difference in areas resulted in a PR-A2 CN value increase from 39 in pre-development

conditions to 45 in post-development conditions, thus, causing the post development peak rate increases from pre to post for the 25-year storm.

In 1994 Sasaki designed the stormwater mitigation for the now-existing building and the surface parking lot. Sasaki designed POA A – Pond West to mitigate a proposed 1,317 car surface parking lot expansion, however after construction, what exists today, only approximately 42% of the lot was constructed. The 1994 Sasaki hydrology report indicates that the pond was designed to withstand a maximum inflow of 74 cfs, assuming the entire parking lot was constructed.

In 2016, HEI designed the drainage mitigation strategy for 300 Financial Park (a warehouse located directly to the South of the Project), routing excess stormwater to POA A – Pond North (POA A – Pond West, in this report). POA A – Pond North (known as Pond West in this report) in post development conditions was receiving an inflow of 51.60 cfs for the 100-year storm event. This is 22.4 cfs under the originally designed inflow value of 74.0 cfs.

For the current Project, POA A-Detention Pond West is receiving 21.17 cfs for the 100-year storm event. This remains below the allowable value of 22.4 cfs, which was determined during the design of 300 Financial Park. Therefore, the 0.09 cfs increase for the 25-year storm event does not exceed the West Detention Pond's original capacity to mitigate peak flows generated from the Project area as originally designed.

The proposed closed drainage collection system is designed to adequately collect and convey the 25-year storm event as required and stated within the Town of Franklin Stormwater Management Regulations.

The following is a summary of the drainage infrastructure and BMPs selected for the Project, as well as proposed improvements to existing BMPs and site improvements, where applicable:

- Deep-sump and hooded catch basins, four (4) and five (5) foot diameter drain manholes, and reinforced concrete pipe collection system.
- Roof drainage collection system to convey clean runoff from the proposed roof to the new underground detention/infiltration systems.
- Contech proprietary water quality units to treat the required 1" water quality volume prior to downstream discharge to the proposed underground infiltration systems and existing detention ponds and wetlands.
- Cultec proprietary separator (isolator) rows to treat the required 1" water quality volume prior to downstream discharge to the proposed underground infiltration systems and existing detention ponds and wetlands.
- Four (4) underground infiltration systems comprising of three (3) Cultec Recharge 902HD and one (1) Cultec Recharge 360HD, both embedded in crushed stone. These systems provide stormwater detention, infiltration, and controlled discharge to the existing detention pond to the North and eventually the existing North Wetlands.
- Three (3) sediment forebays sized providing water quality for the surface runoff flowing to it before reaching the spillway into the rain gardens.
- Two (2) rain gardens providing both surface and sub-surface water quality storage volume and infiltration through varying soil media and a perforated underdrain. Overflows grates are provided and connected to the proposed closed drainage system.
- An overflow grate is provided and connected to the sub-surface R-tank systems.

- Preservation of numerous existing catch basins located on the south side of Building #2, within the limits of the existing surface parking lots and access drives.
- Preservation of the existing detention/Fire Pond to the North of the site, and the detention pond to the west.
- Addition of new landscape island and removal of existing paved parking areas within the limits of the existing surface parking lot to the Northeast of the site.
- Landscape improvements to the existing lawn in poor condition surround the detention/fire pond to the North of the site.

The increase in impervious area is mitigated via the implementation of the rain gardens and underground infiltration system. Table 5 summarizes the pre- and post-development peak rates of runoff at the POAs for the Project after implementation of the selected stormwater BMPs for the 2-year, 10-year, 25-year and 100-year rainfall events.

Table 5. – Summary of Pre- and Post-Development Peak Rates of Runoff & Volumes

Design Storm	POA A: EXISTING POND - WEST		
	Pre-Dev	**Post-Dev**	**Change**
2 Year	3.71 cfs|12,218.40 ft^3	3.71 cfs |12,249.30 ft^3	0.00 cfs | +30.90 ft^3
10 Year	8.15 cfs|27,190.00 ft^3	8.15 cfs | 26,430.60 ft^3	0.00 cfs | -759.40 ft^3
25 Year	12.03 cfs|41,648.70 ft^3	12.12 cfs | 39,215.30 ft^3	+0.09 cfs | - 2,433.40 ft^3 (1)
100 Year	22.67 cfs|76,083.70 ft^3	21.17 cfs |68,042.20 ft^3	-1.50 cfs |- 8,041.50 ft^3

Design Storm	POA C: EXISTING WETLAND – WEST		
	Pre-Dev	**Post-Dev**	**Change**
2 Year	0.48 cfs | 2,848.90 ft^3	0.58 cfs | 2,642.80 ft^3	+0.10 cfs | -206.10 ft^3
10 Year	2.16 cfs | 8,352.80 ft^3	1.90 cfs | 6,928.30 ft^3	-0.26 cfs | -1,424.50 ft^3
25 Year	3.86 cfs | 13,830.80 ft^3	3.16 cfs |11,021.60 ft^3	-0.70 cfs | 2,809.20 ft^3
100 Year	7.87 cfs | 27,004.10 ft^3	6.05 cfs | 20,588.50 ft^3	-1.82 cfs | 6,415.60 ft^3

Design Storm	POA D: WETLAND - NORTH		
	Pre-Dev	**Post-Dev**	**Change**
2 Year	4.69 cfs | 82,496.10 ft^3	2.64 cfs | 27,710.10 ft^3	-2.05 cf | -54.786.00 ft^3
10 Year	5.17 cfs | 180,889.90 ft^3	4.92 cfs| 115,894.80 ft^3	-0.25 cfs | -64.995.10 ft^3
25 Year	5.56 cfs | 267,719.70 ft^3	5.39 cfs | 198,401.70 ft^3	-0.17 cfs | -69,318.00 ft^3
100 Year	6.32 cfs |460,299.80 ft^3	6.30 cfs | 404,325.00 ft^3	-0.02 cfs | -55,974.80 ft^3

(1)- Refer to the Stormwater Mitigation portion of this document on page 8.

Refer to Appendix C for TSS removal rates for each treatment train. The proposed TSS removal rates meet the Massachusetts Stormwater Policy Guidelines and the Town of Franklin Stormwater Management – New Development minimum removal rate of 90% prior to surface discharge.

Construction-Phase and Long-Term Stormwater Operation and Maintenance Plans (O&M Plans) have been included in Appendix D of this report and include information on the responsible party for the

O&M plan implementation, a project overview, and the structural and non-structural BMPs to be utilized on site.

CONCLUSION

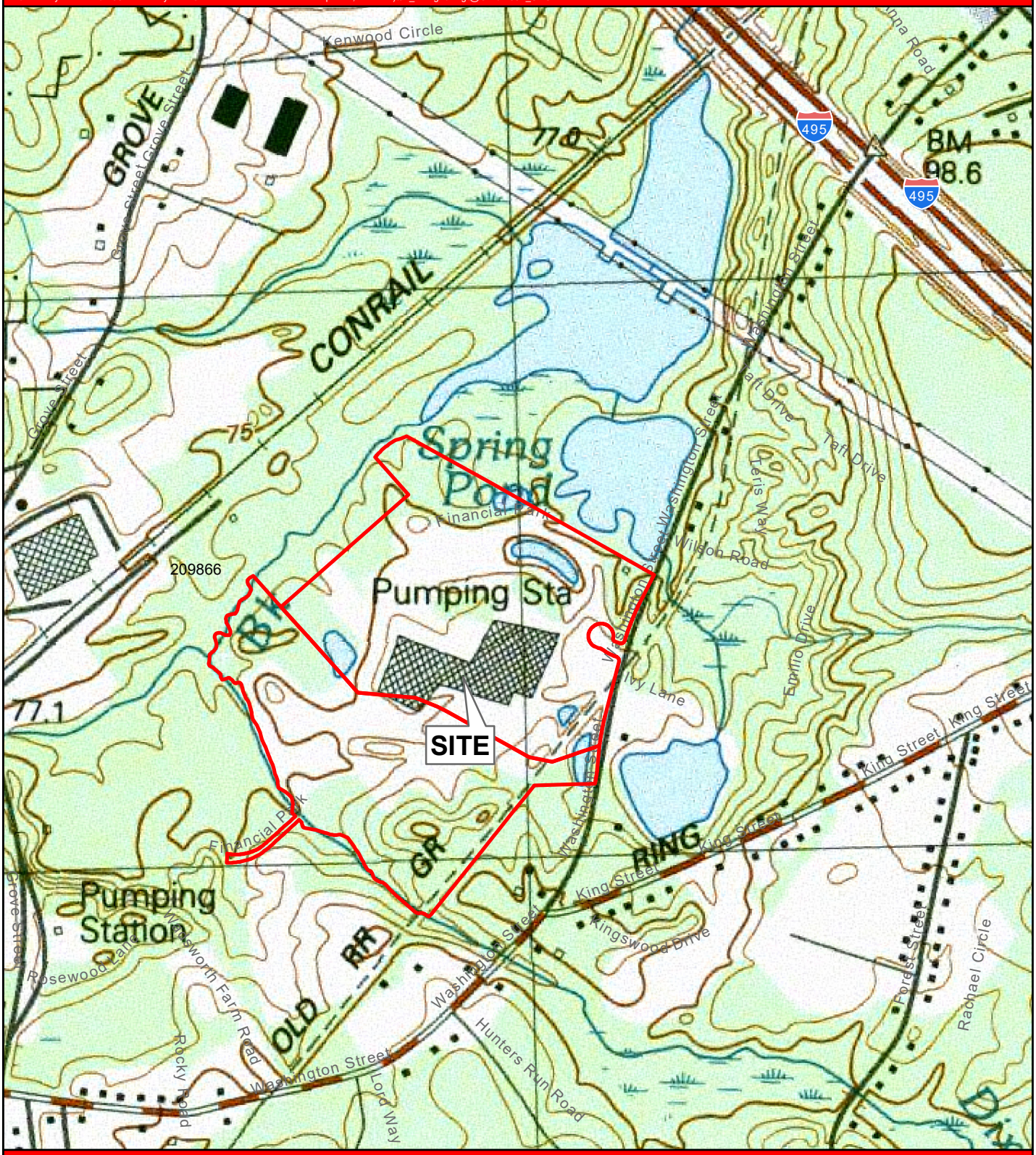
The Project will preserve the existing runoff patterns and off-site discharge locations of the Subject Property and will improve discharge conditions through implementation of stormwater infiltration BMPs and reducing the volume of uncontrolled and untreated off-site runoff. The Project will also implement water quality treatment measures while absence of existing BMPs currently exist on-site. Potential stormwater impacts associated with the development will be mitigated as required by State and Municipal Regulations.

The Project will comply with Standards outlined in the Massachusetts Stormwater Management Handbook as follows:

STANDARD **1**	No New Untreated Discharges	All existing discharge points are maintained. Mitigation is proposed to treat discharge impacts at existing points as feasible.
STANDARD **2**	Peak Rate Attenuation	Calculations are provided showing post-development peak discharge rate values for all three (3) POA's. POA D's peak discharge rate is mitigated for the 2-year, 10-year, and 25-year, and the 100-year, 24-hour storm event. POA C's peak discharge rate is mitigated for all storm events excluding the 2-year, 24-hour storm event. POA A's peak discharge rate is mitigated for all storm events excluding the 25-year, 24-hour storm event.
STANDARD **3**	Recharge	The required recharge volume for A-soils is provided within the four (4) Cultec sub-surface infiltration/detention systems, the two (2) isolator rows, and the (2) rain gardens.
STANDARD **4**	Water Quality	Contech water quality units, isolator rows, sediment forebays, and rain gardens have been sized to treat the full water quality and are designed to meet the minimum 90% TSS removal rate prior to discharge or the maximum extent practicable.
STANDARD **5**	Land Uses with Higher Potential Pollutant Loads	The proposed project is not a listed activity associated with a LUHPPL defined in the Handbook.
STANDARD **6**	Critical Areas	The Site does not discharge to a Critical Area. Appropriate methods are used to treat 1.0" of water quality volume.
STANDARD **7**	Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable	The proposed project is considered a new development. Stormwater management facilities and BMP designs are completed in full compliance with Massachusetts Stormwater Management Standards in accordance with DEP guidance.
STANDARD **8**	Construction Period Pollution Prevention and Erosion and Sedimentation Control	The project is required to obtain an EPA - NPDES Construction General Permit prior to construction. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared and filed with the EPA.
STANDARD **9**	Operation & Maintenance Plan	Construction Phase and Long-Term Operation and Maintenance (O&M) Plans are included in Appendix D.
STANDARD **10**	Prohibition of Illicit Discharges	A No Illicit Discharge Compliance Statement is included in Appendix C.

FIGURES

P:\Berkeley Partners\22051 Berkeley - Lot 5 Warehouse-Industrial Development, Franklin\)04_Design\Dwg\@GIS\22051_USGS.mxd



Source: Office of Geographic and Environmental Information (MassGIS); Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs; NearMap Ltd./NearMap US, Inc.

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USGS MAP

100 & 200 Financial Park
Franklin, MA 02038

2/7/2023

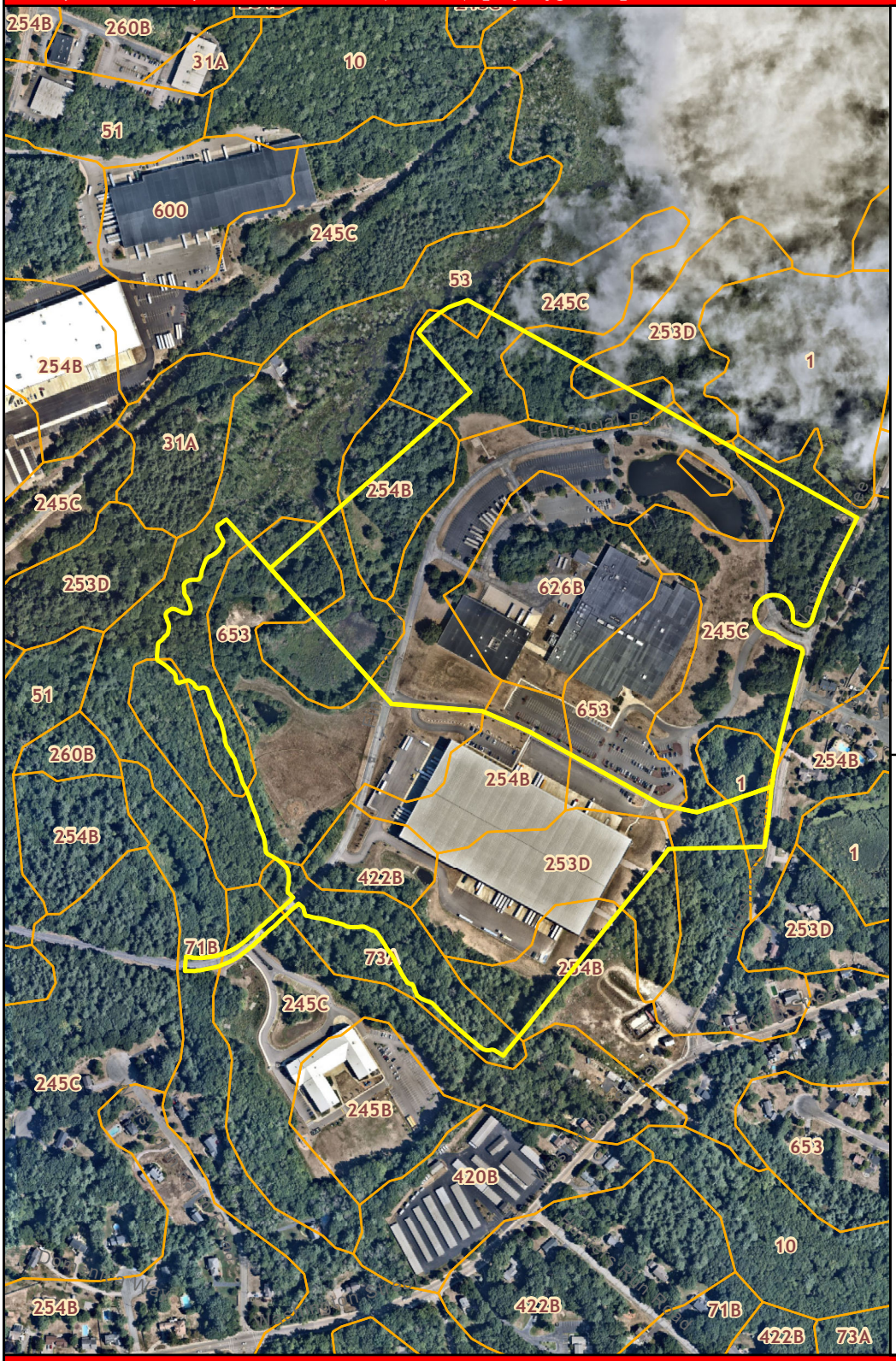
N
W E
S

0 410 820 1,640 Feet

1 in = 800 ft

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P:\Berkeley Partners\22051 Berkeley - Lot 5 Warehouse-Industrial Development, Franklin\)04_Design\Dwg\@GIS\22051_SOILS.mxd



LEGEND

- Town Boundary
- Soils

MassDOT Roads

Road Type

- Multi-lane Hwy, not limited access
- Other Numbered Highway
- Major Road, Collector
- Minor Road, Arterial
- Subject Propety

SOIL SUMMARY:

653-Udorthents, Sandy (HSG: A)
71B-Ridgebury Fine Sandy Loam,
3-8% Slopes (HSG: D)
73A-Whitman Fine Sandy Loam
0-3% Slopes (HSG: D)
422B-Canton Fine Sandy Loam
0-8% Slopes (HSG:B)
245B-Hinckley Loamy Sand
3-8% Slopes (HSG:A)
254B-Merrimac Fine Loamy Sand
3-8% Slopes (HSG:A)
253D-Hinckley Loamy Sand
15-35% Slopes (HSG:A)
626B-Merrimac-Urban Land Complex
0-8% Slopes (HSG: A)
53-Freetown Muck
0-1% Slopes (HSG: B/D)
245C-Hinckley Loamy Sand
8-15% Slopes (HSG:A)
1- Water

Source: United States Department of Agriculture Natural Resources Conservation Service

Source: Office of Geographic and Environmental Information (MassGIS); Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs; NearMap Ltd./NearMap US, Inc.

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SOILS MAP

100 Financial Park
Franklin, MA 02038
City/Town, MA ZIP

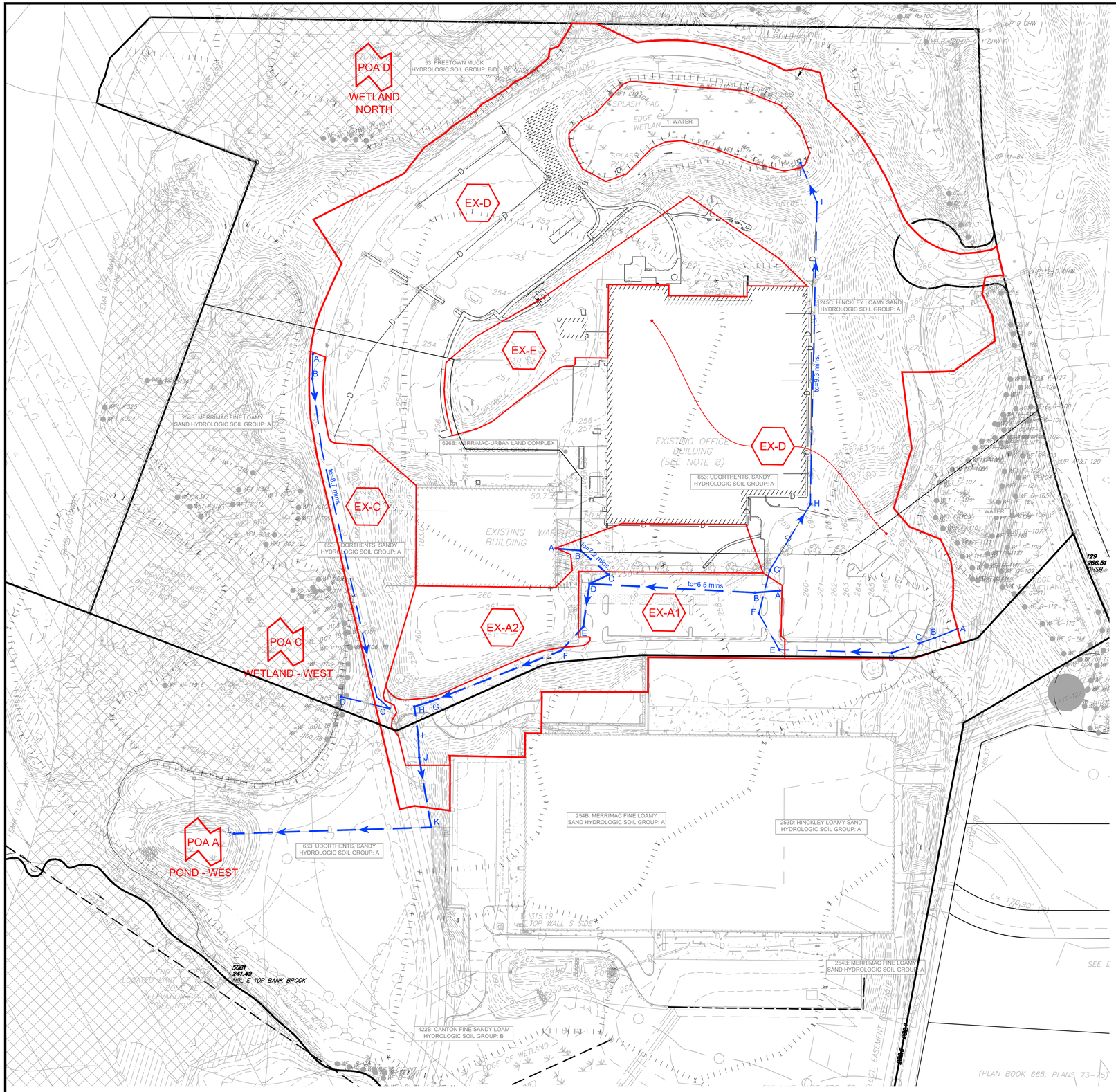
2/7/2023

N
W E
S

0 305 610 1,220 Feet

1 in = 600 ft

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SYMBOL LEGEND

	WATERSHED BOUNDARY
	TIME OF CONCENTRATION
	TIME OF CONCENTRATION FLOW PATH
POA A	POINT OF ANALYSIS DESIGNATION
EX-1	WATERSHED DESIGNATION
	SOIL BOUNDARY

PRE-DEVELOPMENT WATERSHED SUMMARY

WATERSHED AREA: EX-A1
- TOTAL AREA = 132,340 SF
- IMPERVIOUS = 80,020 SF
- PERVIOUS = 52,320 SF
- CURVE NUMBER (CN) = 75
- TIME OF CONCENTRATION (Tc) = 6.5 MIN.

WATERSHED AREA: EX-A2
- TOTAL AREA = 99,071 SF
- IMPERVIOUS = 0 SF
- PERVIOUS = 99,071 SF
- CURVE NUMBER (CN) = 39
- TIME OF CONCENTRATION (Tc) = 7.2 MIN.

WATERSHED AREA: EX-C
- TOTAL AREA = 82,149 SF
- IMPERVIOUS = 29,061 SF
- PERVIOUS = 53,088 SF
- CURVE NUMBER (CN) = 60
- TIME OF CONCENTRATION (Tc) = 8.7 MIN.

WATERSHED AREA: EX-D
- TOTAL AREA = 999,745 SF
- ROOF = 240,876 SF
- IMPERVIOUS = 341,183 SF
- PERVIOUS = 373,773 SF
- WOODS = 43,913 SF
- CURVE NUMBER (CN) = 73
- TIME OF CONCENTRATION (Tc) =9.3 MIN.

WATERSHED AREA: EX-E
- TOTAL AREA = 104,917 SF
- ROOF = 2,135 SF
- IMPERVIOUS = 14,619 SF
- PERVIOUS = 28,107 SF
- WOODS = 60,056
- CURVE NUMBER (CN) = 52
- TIME OF CONCENTRATION (Tc) =5.0 MIN.

100 0 50 100 200 400
GRAPHIC SCALE 1 inch = 100 ft.

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WAREHOUSE/INDUSTRIAL DEVELOPMENT

100/200 FINANCIAL PARK
FRAINKLIN, MA

OWNER/APPLICANT: BERKELEY PARTNERS

REV	DATE	DESCRIPTION
2	08.14.2023	RESPONSE TO COMMENTS
1	07.17.2023	RESPONSE TO COMMENTS

ISSUE TYPE:
PERMIT SET
ISSUE DATE:
05/11/2023
PROJECT NUMBER:
22051

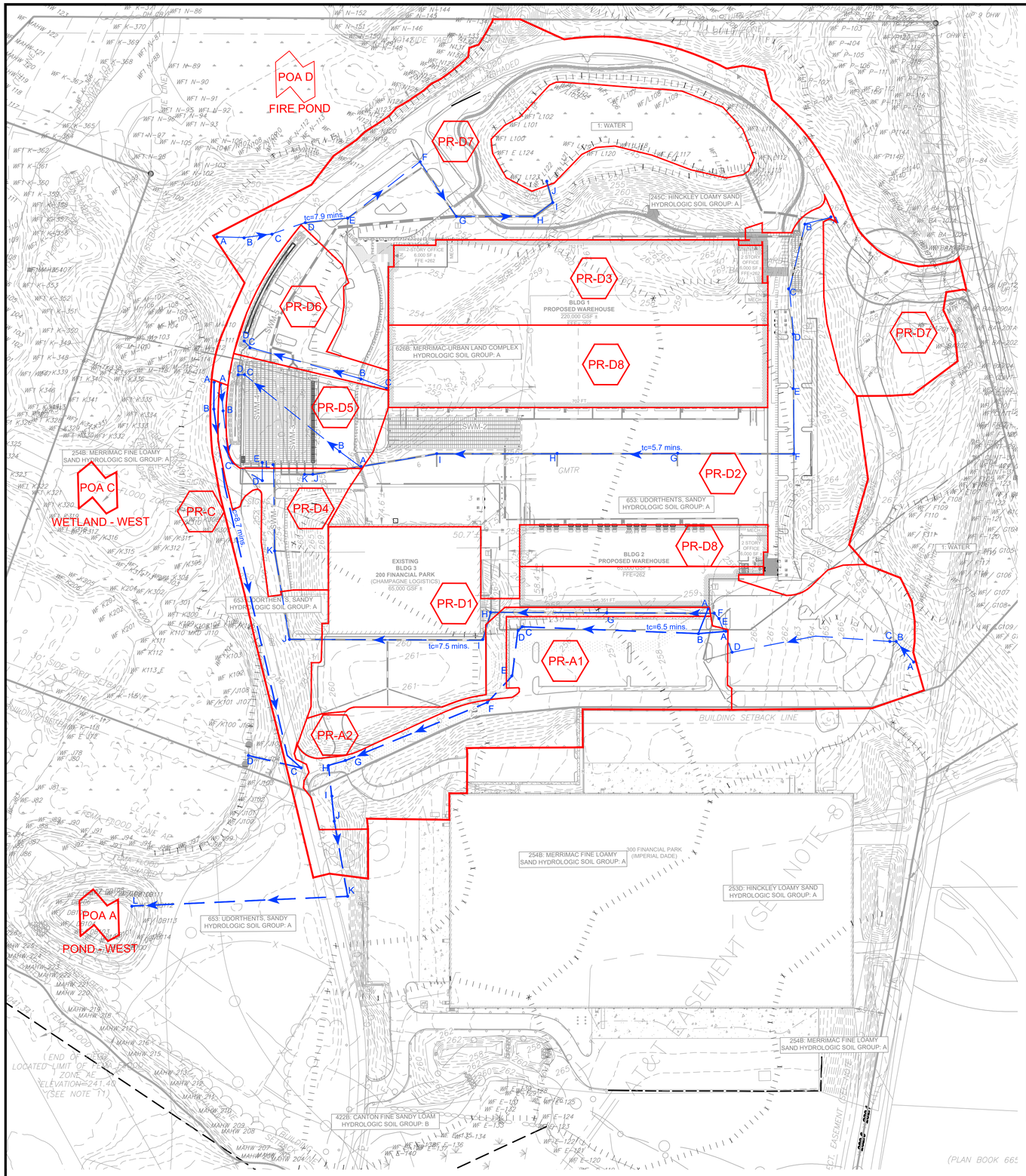
DRAWN BY: JMP
CHECKED BY: JJP/DJH

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SHEET TITLE:
PRE-DEV WATERSHED PLAN

SHEET NUMBER:
PRE-DEV

ISSUED FOR : PERMIT



POST-DEVELOPMENT WATERSHED SUMMARY

WATERSHED AREA: PR-A1
- TOTAL AREA = 132,340 SF
- IMPERVIOUS = 80,020 SF
- PERVIOUS = 52,320 SF
- CURVE NUMBER (CN) = 75
- TIME OF CONCENTRATION (Tc) = 6.5 MIN.

WATERSHED AREA: PR-A2
- TOTAL AREA = 28,873 SF
- IMPERVIOUS = 2,800 SF
- PERVIOUS = 26,073 SF
- CURVE NUMBER (CN) = 45
- TIME OF CONCENTRATION (Tc) = 6.5 MIN.

WATERSHED AREA: PR-C
- TOTAL AREA = 55,783 SF
- IMPERVIOUS = 23,937 SF
- PERVIOUS = 31,846 SF
- CURVE NUMBER (CN) = 64
- TIME OF CONCENTRATION (Tc) = 8.7 MIN.

WATERSHED AREA: PR-D1
- TOTAL AREA = 214,605 SF
- ROOF = 85,033 SF
- IMPERVIOUS = 96,079 SF
- PERVIOUS = 33,493 SF
- CURVE NUMBER (CN) = 89
- TIME OF CONCENTRATION (Tc) = 7.5 MIN.

WATERSHED AREA: PR-D2
- TOTAL AREA = 274,599 SF
- IMPERVIOUS = 199,574 SF
- PERVIOUS = 75,025 SF
- CURVE NUMBER (CN) = 82
- TIME OF CONCENTRATION (Tc) = 5.7 MIN.

WATERSHED AREA: PR-D3
- TOTAL AREA = 108,531 SF
- ROOF =108,531 SF
- CURVE NUMBER (CN) = 98
- TIME OF CONCENTRATION (Tc) = 5.0 MIN.

WATERSHED AREA: PR-D4
- TOTAL AREA = 37,021 SF
- IMPERVIOUS = 20,670 SF
- PERVIOIUS = 16,351 SF
- CURVE NUMBER (CN) = 72
- TIME OF CONCENTRATION (Tc) = 5.0 MIN.

WATERSHED AREA: PR-D5
- TOTAL AREA = 50,834 SF
- IMPERVIOUS = 34,446 SF
- PERVIOUS = 16,388 SF
- CURVE NUMBER (CN) = 79
- TIME OF CONCENTRATION (Tc) = 5.0 MIN.

WATERSHED AREA: PR-D6
- TOTAL AREA = 40,781 SF
- IMPERVIOUS = 25,487 SF
- PERVIOUS = 15,294 SF
- CURVE NUMBER (CN) = 76
- TIME OF CONCENTRATION (Tc) = 5.0 MIN.

WATERSHED AREA: PR-D7
- TOTAL AREA = 332,987 SF
- IMPERVIOUS = 110,140 SF
- PERVIOUS = 204,310 SF
- WOODS = 18,537 SF
- CURVE NUMBER (CN) = 58
- TIME OF CONCENTRATION (Tc) = 7.9 MIN.

WATERSHED AREA: PR-D8
- TOTAL AREA =141,868 SF
- ROOF = 141,868
- CURVE NUMBER (CN) = 98
- TIME OF CONCENTRATION (Tc) =5.0 MIN.

SYMBOL LEGEND

	WATERSHED BOUNDARY
	TIME OF CONCENTRATION
	TIME OF CONCENTRATION FLOW PATH
POA A	POINT OF ANALYSIS DESIGNATION
PR-A	WATERSHED DESIGNATION
	SOIL BOUNDARY

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OWNER/APPLICANT: BERKELEY PARTNERS

REV	DATE	DESCRIPTION
4	10.05.2023	RESPONSE TO COMMENTS
3	08.25.2023	RESPONSE TO COMMENTS
2	08.14.2023	RESPONSE TO COMMENTS
1	07.17.2023	RESPONSE TO COMMENTS

ISSUE TYPE:
PERMIT SET

ISSUE DATE:
05/11/2023

PROJECT NUMBER:
22051

DRAWN BY: JMP

CHECKED BY: DJH

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SHEET TITLE:
POST-DEV
WATERSHED
PLAN

SHEET NUMBER:
POST-DEV

ISSUED FOR : **PERMIT**

SUBCAT:CB-11
SUBCAT:CB-12
SUBCAT:CB-2
SUBCAT:CB-5
SUBCAT:CB-7
SUBCAT:CB-20
SUBCAT: DMH-19
SUBCAT:RG#2
SUBCAT: CB-18
SUBCAT: DMH-1
SUBCAT:CB-6
SUBCAT:RG#15
SUBCAT: CB-9
SUBCAT: CB-8
SUBCAT: CB-19
SUBCAT:CB-13
SUBCAT:CB-16
SUBCAT: CB-3
SUBCAT:CB-10
SUBCAT-30: EX DMH-23(1)
SUBCAT-29: DMH-11
SUBCAT: DMH-12
SUBCAT: DMH-9
SUBCAT EX CB-1
SUBCAT: CB-1
SUBCAT: EX CB-24A
SUBCAT: EX CB-24B
SUBCAT: EX CB-22A
SUBCAT: EX CB-22B
SUBCAT: CB-15
SUBCAT: CB-14
SUBCAT: CB-17
SWM-1
SWM-2
SWM-3
SWM-4
SWM-5

60 0 30 60 120 240
GRAPHIC SCALE 1 inch = 60 ft.

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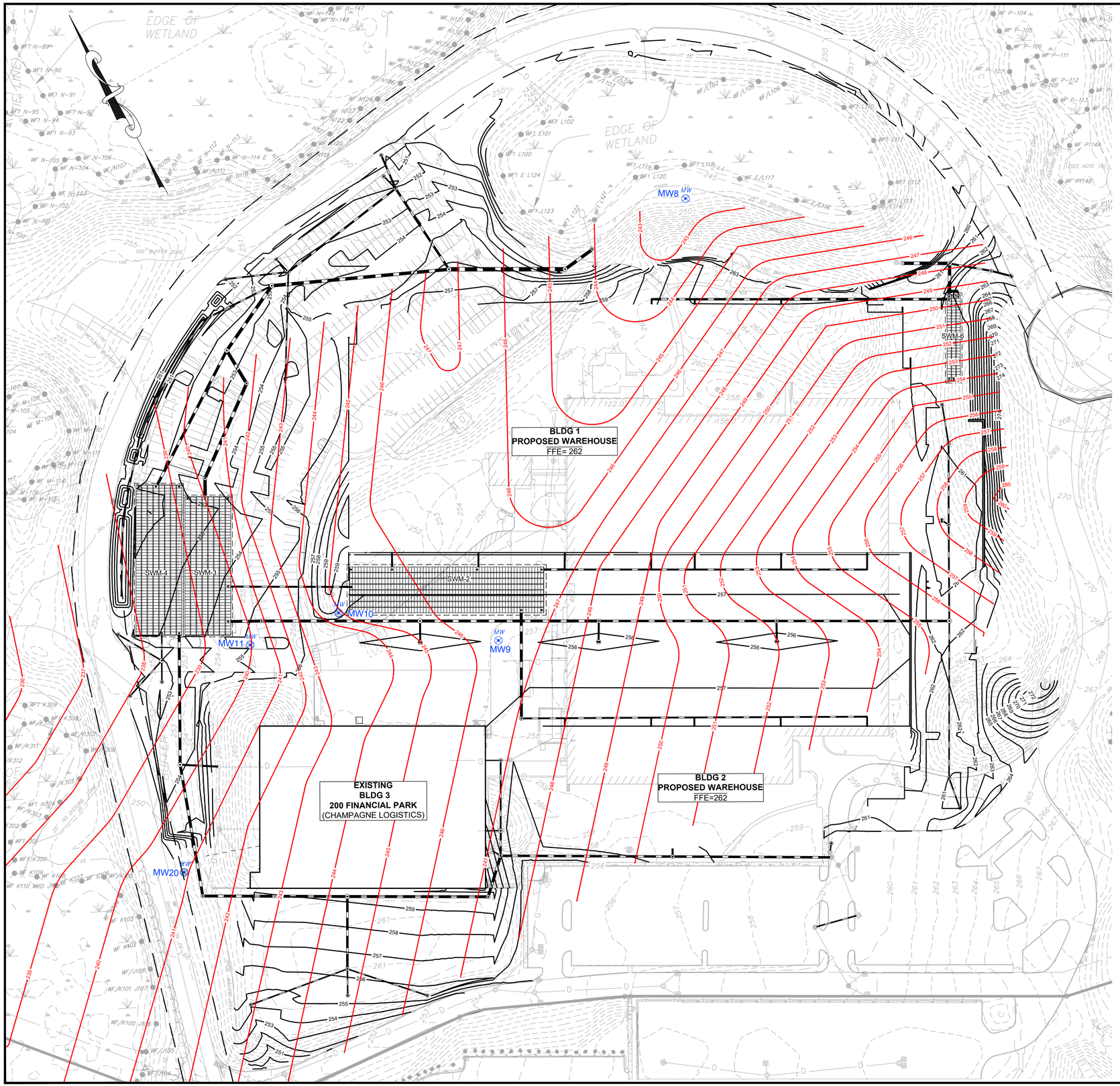
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ISSUE DATE: 05/11/2023
PROJECT NUMBER: 22051
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CHECKED BY: DJH

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SHEET TITLE:
PROPOSED SUBCATCHMENT PLAN

SHEET NUMBER:
SUBCAT

ISSUED FOR : PERMIT



EXISTING MONITORING WELL DATA

WELL NO.	ESTIMATED GROUND SURFACE ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW8	246.5	4.5 FT	242.0
MW9	256.0	9.7 FT	246.3
MW10	250.5	5.1 FT	245.4
MW11	255.0	15.3 FT	239.7
MW20	251.0	5.0 FT	240.9

NOTES:

1. MONITOR WELLS MEASURED IN FIELD BY McARDLE GANNON ASSOCIATES, INC ON MARCH 26, 2023.
2. GROUND SURFACE ELEVATION ESTIMATED FROM GROUND SURFACE CONTOURS SHOWN ON PLANS ENTITLED "LIMITED/COMPILED EXISTING CONDITIONS PLAN" DRAWING EC-1 THROUGH EC-5, DATED MARCH 17, 2023 BY HANCOCK ASSOCIATES.
3. A 1.3 FT FRIMPTER ADJUSTMENT HAS BEEN APPLIED TO THE WELL READINGS.

SYMBOL LEGEND

100	EXISTING ELEVATION CONTOUR
100	PROPOSED ELEVATION CONTOUR
100	MONITOR WELL GROUNDWATER ELEVATION CONTOUR
MW7	EXISTING MONITOR WELL LOCATION

60 0 30 60 120 240

GRAPHIC SCALE 1 inch = 60 ft.

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1	07.17.2023	RESPONSE TO COMMENTS

ISSUE TYPE:
PERMIT SET

ISSUE DATE:
05/11/2023

PROJECT NUMBER:
22051

DRAWN BY: JJP/JMP

CHECKED BY: DJH

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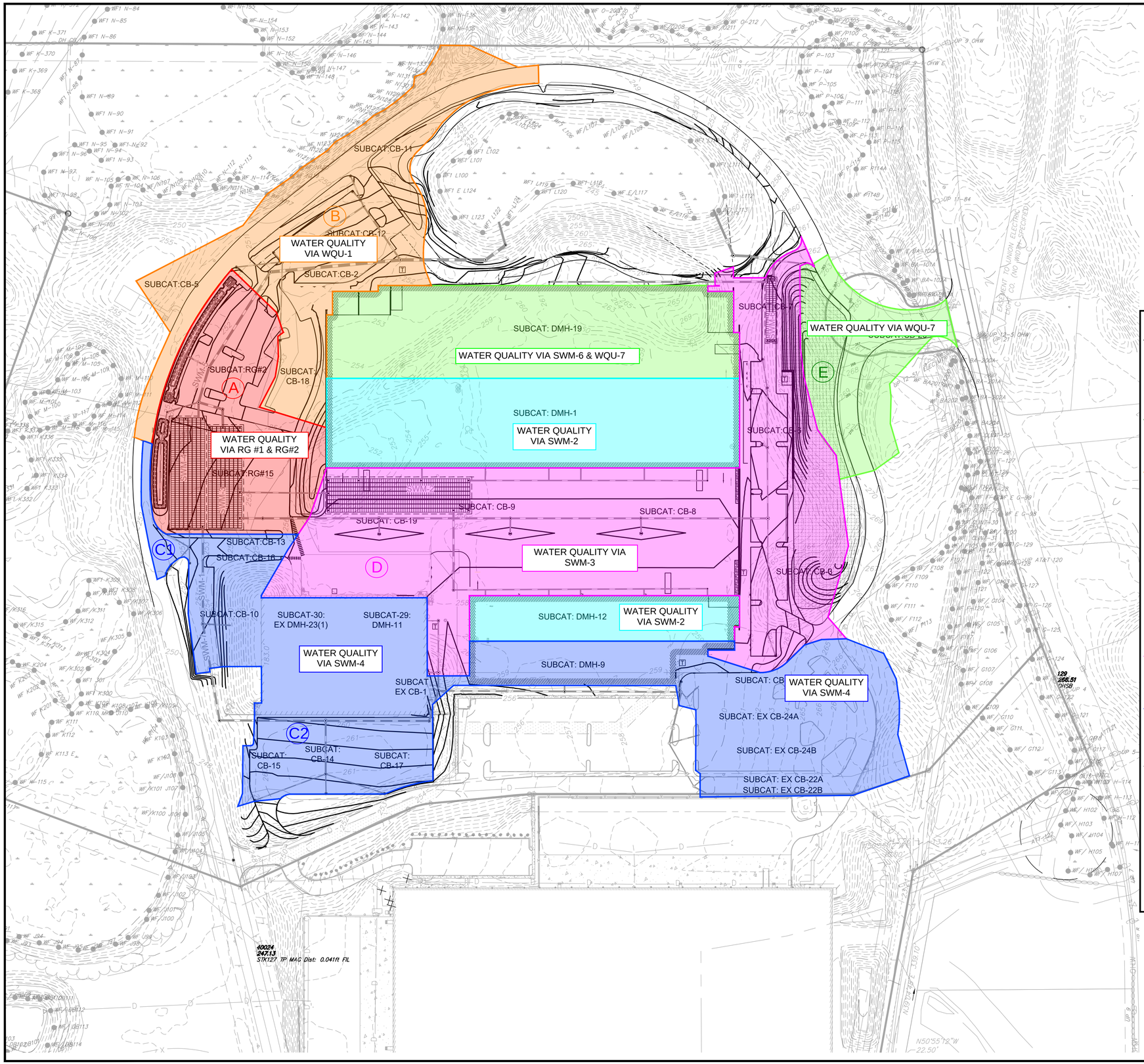
SHEET TITLE:

ESTIMATED GROUNDWATER MAP

SHEET NUMBER:

GW PLAN

ISSUED FOR : **PERMIT**



WATER QUALITY VOLUME SUMMARY

TOTAL IMPERVIOUS AREA ON SITE = 924,105 SF
REQUIRED WATER QUALITY VOLUME = 924,105 SF * 1/12 = 77,008.75 CF
= 77,009.00 CF

IMPERVIOUS AREA CONVEYED TO SWM-6 & WQU-7= 129,883 SF
REQUIRED WATER QUALITY VOLUME = 129,883 SF * 1/12 = 10,823.58 CF
PROVIDED VOLUME IN SWM-6 = 2,581 CF
WQU-7 FLOW RATE TO VOLUME = 10,823.58 CF

IMPERVIOUS AREA CONVEYED TO WQU-1 = 71,447 SF
REQUIRED WATER QUALITY VOLUME = 71,447 SF * 1/12 =5,953.91 CF
WQU-1 FLOW RATE TO VOLUME = 5,953.91 CF

IMPERVIOUS AREA CONVEYED TO RG#1 = 34,446 SF
REQUIRED WATER QUALITY VOLUME = 34,446 SF * 1/12 = 2,870.50
PROVIDED WATER QUALITY VOLUME = 3,031.00 CF

IMPERVIOUS AREA CONVEYED TO RG #2 = 25,487 SF
REQUIRED WATER QUALITY VOLUME = 25,487 SF * 1/12 = 2,123.92 CF
PROVIDED WATER QUALITY VOLUME = 2,250.00 CF

IMPERVIOUS AREA CONVEYED TO SWM-2 = 141,868 SF
REQUIRED WATER QUALITY VOLUME = 141,868 SF * 1/12 = 11,822.33 CF
PROVIDED WATER QUALITY VOLUME = 35,899.50 CF

IMPERVIOUS AREA CONVEYED TO SWM-3= 195,094 SF
REQUIRED WATER QUALITY VOLUME = 199,574 SF * 1/12 = 16,257.83 CF
PROVIDED WATER QUALITY VOLUME = 16,311.30 CF
ADDITIONAL VOLUME PROVIDED BY ISOLATOR ROW = 1,745.00 CF

IMPERVIOUS AREA CONVEYED TO SWM-4 = 181,112 SF
REQUIRED WATER QUALITY VOLUME = 181,112 SF * 1/12 = 15,092.66 CF
PROVIDED WATER QUALITY VOLUME = 16,118 CF
ADDITIONAL VOLUME PROVIDED BY ISOLATOR ROW = 198.20 CF

TOTAL VOLUME PROVIDED =
2,581.00 CF
\+ 3,031.00 CF
\+ 2,250.00 CF
\+ 35,899.50 CF
\+ 16,311.30 CF
\+ 1,745.00 CF
\+ 16,118.00 CF
\+ 198.20 CF
= 78,134.00 CF

TOTAL STATIC VOLUME PROVIDED:
78,134.00 CF > 77,008.75 CF

80 0 40 80 160 320
GRAPHIC SCALE 1 inch = 80 ft.

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4	10.05.2023	RESPONSE TO COMMENTS
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2	08.14.2023	RESPONSE TO COMMENTS
1	07.17.2023	RESPONSE TO COMMENTS

ISSUE TYPE: PERMIT SET
ISSUE DATE: 05/11/2023
PROJECT NUMBER: 22051
DRAWN BY: JMP
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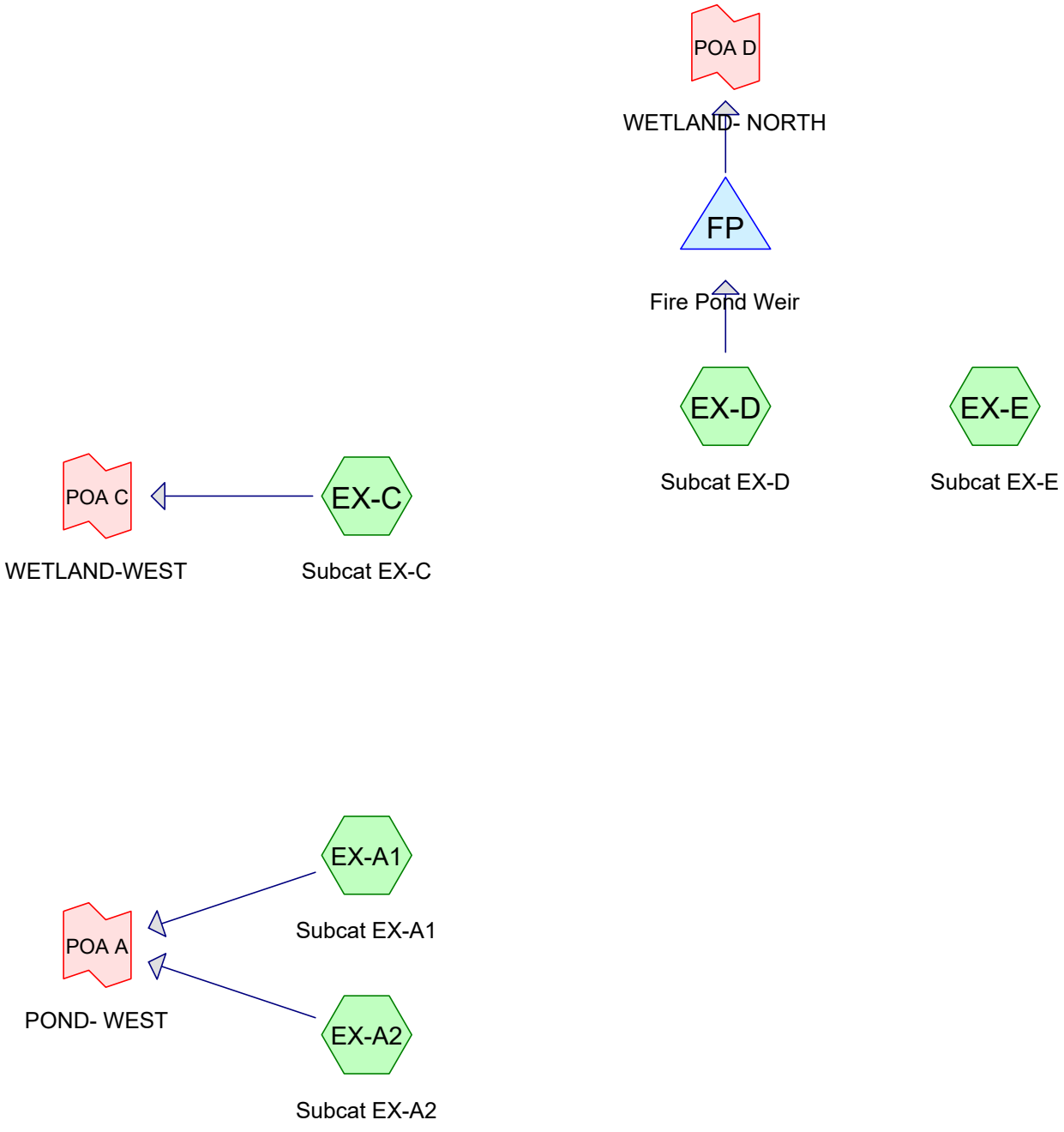
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SHEET TITLE:
WATER QUALITY VOLUME EXHIBIT

SHEET NUMBER:
WQV

ISSUED FOR : **PERMIT**

APPENDIX A – HYDROLOGIC CALCULATIONS



Routing Diagram for 22051_Pre Dev Conditions
Prepared by Highpoint Engineering, Inc, Printed 10/5/2023
HydroCAD® 10.20-3c s/n 08358 © 2023 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
606,359	39	>75% Grass cover, Good, HSG A (EX-A1, EX-A2, EX-C, EX-D, EX-E)
57,570	98	Champage Bldg (#200) (EX-D)
183,306	98	Office Bldg (#110) (EX-D)
2,135	98	Roof Area (EX-E)
464,883	98	Unconnected pavement, HSG A (EX-A1, EX-C, EX-D, EX-E)
103,969	36	Woods, Fair, HSG A (EX-D, EX-E)
1,418,222	**68**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
606,359	0	0	0	0	606,359	>75% Grass cover, Good	
0	0	0	0	57,570	57,570	Champage Bldg (#200)	
0	0	0	0	183,306	183,306	Office Bldg (#110)	
0	0	0	0	2,135	2,135	Roof Area	
464,883	0	0	0	0	464,883	Unconnected pavement	
103,969	0	0	0	0	103,969	Woods, Fair	
1,175,211	**0**	**0**	**0**	**243,011**	**1,418,222**	**TOTAL AREA**	

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-A1: Subcat EX-A1 Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=1.11"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=3.71 cfs 12,213.9 cf

Subcatchment EX-A2: Subcat EX-A2 Runoff Area=99,071 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=1,283' Tc=7.2 min CN=39 Runoff=0.00 cfs 4.4 cf

Subcatchment EX-C: Subcat EX-C Runoff Area=82,149 sf 35.38% Impervious Runoff Depth=0.42"
Flow Length=837' Tc=8.7 min CN=60 Runoff=0.48 cfs 2,848.9 cf

Subcatchment EX-D: Subcat EX-D Runoff Area=999,745 sf 58.22% Impervious Runoff Depth=1.00"
Flow Length=1,008' Tc=9.3 min CN=73 Runoff=22.35 cfs 82,946.1 cf

Subcatchment EX-E: Subcat EX-E Runoff Area=104,917 sf 15.97% Impervious Runoff Depth=0.01"
Tc=5.0 min UI Adjusted CN=42 Runoff=0.00 cfs 128.6 cf

Pond FP: Fire Pond Weir Peak Elev=244.43' Storage=257,319.2 cf Inflow=22.35 cfs 82,946.1 cf
Outflow=4.69 cfs 82,946.1 cf

Link POA A: POND- WEST Inflow=3.71 cfs 12,218.4 cf
Primary=3.71 cfs 12,218.4 cf

Link POA C: WETLAND-WEST Inflow=0.48 cfs 2,848.9 cf
Primary=0.48 cfs 2,848.9 cf

Link POA D: WETLAND-NORTH Inflow=4.69 cfs 82,946.1 cf
Primary=4.69 cfs 82,946.1 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 98,141.9 cf Average Runoff Depth = 0.83"
50.09% Pervious = 710,328 sf 49.91% Impervious = 707,894 sf

Summary for Subcatchment EX-A1: Subcat EX-A1

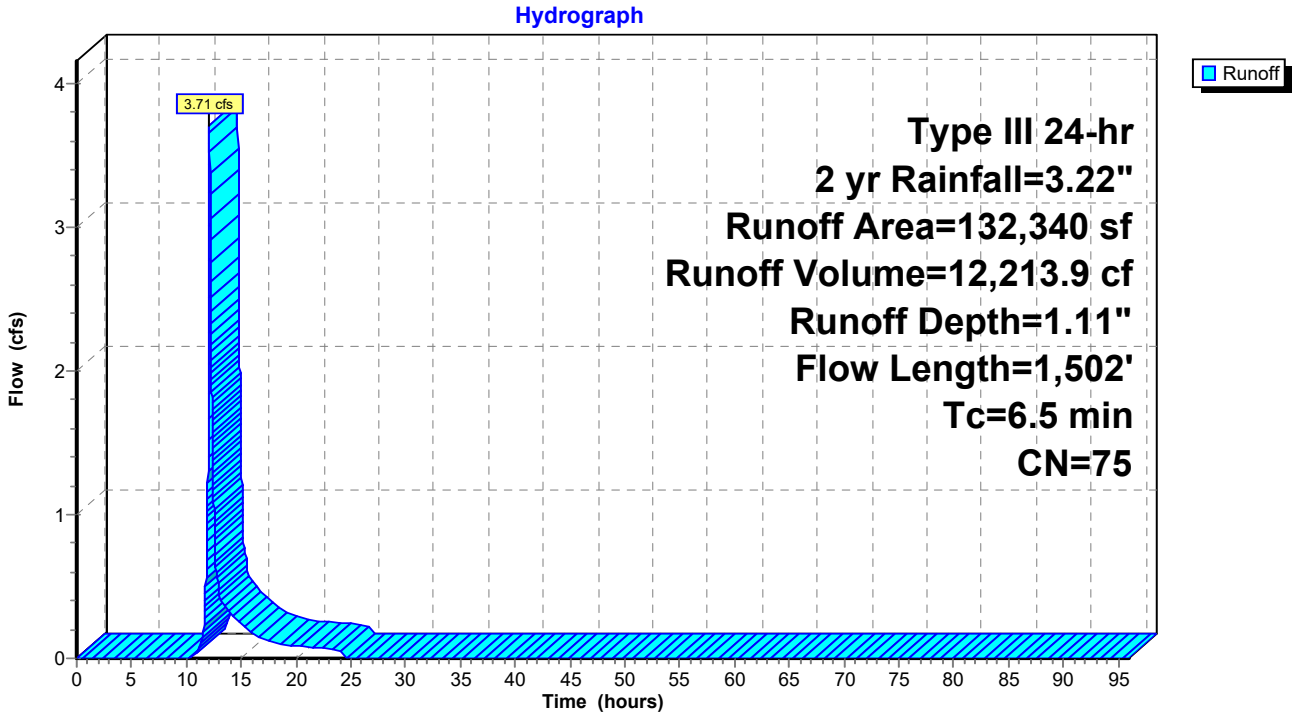
Runoff = 3.71 cfs @ 12.10 hrs, Volume= 12,213.9 cf, Depth= 1.11"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment EX-A1: Subcat EX-A1



Hydrograph for Subcatchment EX-A1: Subcat EX-A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.01	0.05
12.00	1.61	0.21	**1.84**
13.00	2.41	0.60	**0.46**
14.00	2.61	0.72	0.30
15.00	2.75	0.80	0.24
16.00	2.85	0.87	0.17
17.00	2.93	0.91	0.14
18.00	2.99	0.95	0.11
19.00	3.04	0.99	0.10
20.00	3.08	1.01	0.09
21.00	3.12	1.04	0.08
22.00	3.16	1.07	0.07
23.00	3.19	1.09	0.06
24.00	**3.22**	**1.11**	0.06
25.00	3.22	1.11	0.00
26.00	3.22	1.11	0.00
27.00	3.22	1.11	0.00
28.00	3.22	1.11	0.00
29.00	3.22	1.11	0.00
30.00	3.22	1.11	0.00
31.00	3.22	1.11	0.00
32.00	3.22	1.11	0.00
33.00	3.22	1.11	0.00
34.00	3.22	1.11	0.00
35.00	3.22	1.11	0.00
36.00	3.22	1.11	0.00
37.00	3.22	1.11	0.00
38.00	3.22	1.11	0.00
39.00	3.22	1.11	0.00
40.00	3.22	1.11	0.00
41.00	3.22	1.11	0.00
42.00	3.22	1.11	0.00
43.00	3.22	1.11	0.00
44.00	3.22	1.11	0.00
45.00	3.22	1.11	0.00
46.00	3.22	1.11	0.00
47.00	3.22	1.11	0.00
48.00	3.22	1.11	0.00
49.00	3.22	1.11	0.00
50.00	3.22	1.11	0.00
51.00	3.22	1.11	0.00
52.00	3.22	1.11	0.00
53.00	3.22	1.11	0.00
54.00	3.22	1.11	0.00
55.00	3.22	1.11	0.00
56.00	3.22	1.11	0.00
57.00	3.22	1.11	0.00
58.00	3.22	1.11	0.00
59.00	3.22	1.11	0.00
60.00	3.22	1.11	0.00
61.00	3.22	1.11	0.00
62.00	3.22	1.11	0.00
63.00	3.22	1.11	0.00
64.00	3.22	1.11	0.00
65.00	3.22	1.11	0.00
66.00	3.22	1.11	0.00
67.00	3.22	1.11	0.00
68.00	3.22	1.11	0.00
69.00	3.22	1.11	0.00
70.00	3.22	1.11	0.00
71.00	3.22	1.11	0.00
72.00	3.22	1.11	0.00
73.00	3.22	1.11	0.00
74.00	3.22	1.11	0.00
75.00	3.22	1.11	0.00
76.00	3.22	1.11	0.00
77.00	3.22	1.11	0.00
78.00	3.22	1.11	0.00
79.00	3.22	1.11	0.00
80.00	3.22	1.11	0.00
81.00	3.22	1.11	0.00
82.00	3.22	1.11	0.00
83.00	3.22	1.11	0.00
84.00	3.22	1.11	0.00
85.00	3.22	1.11	0.00
86.00	3.22	1.11	0.00
87.00	3.22	1.11	0.00
88.00	3.22	1.11	0.00
89.00	3.22	1.11	0.00
90.00	3.22	1.11	0.00
91.00	3.22	1.11	0.00
92.00	3.22	1.11	0.00
93.00	3.22	1.11	0.00
94.00	3.22	1.11	0.00
95.00	3.22	1.11	0.00
96.00	3.22	1.11	0.00

Summary for Subcatchment EX-A2: Subcat EX-A2

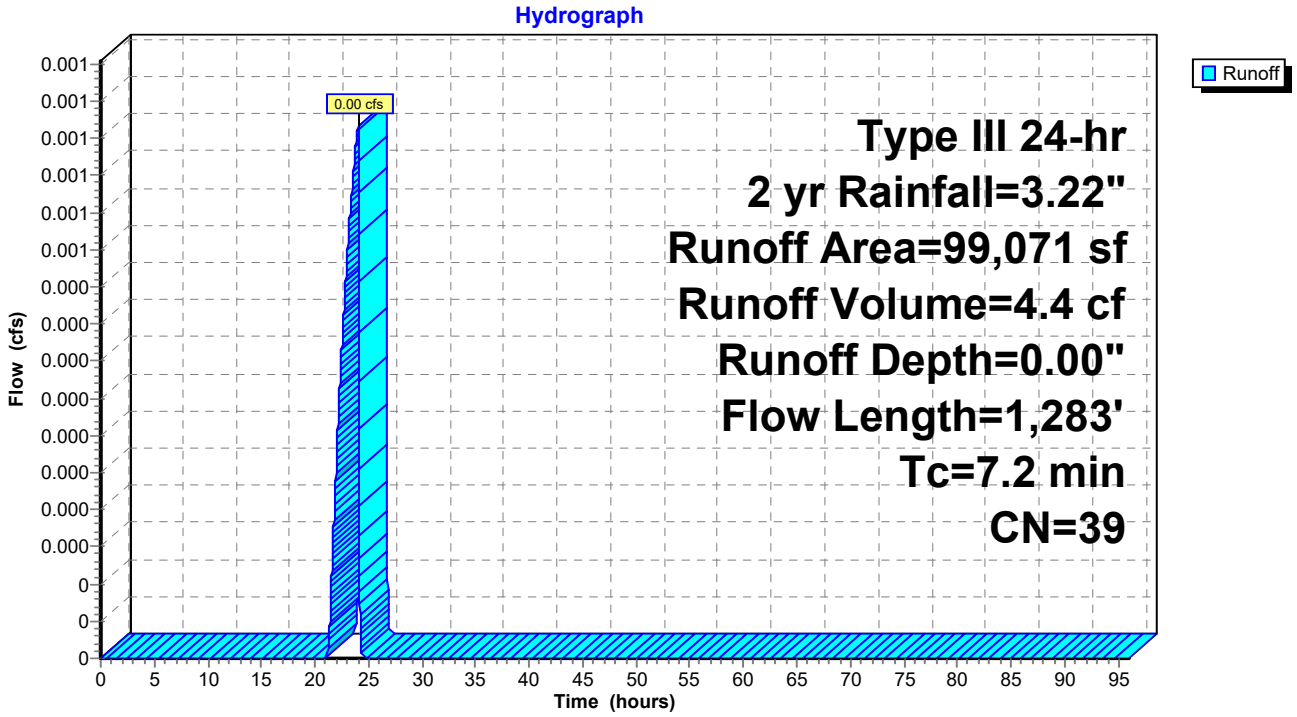
Runoff = 0.00 cfs @ 24.01 hrs, Volume= 4.4 cf, Depth= 0.00"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
	99,071	39	>75% Grass cover, Good, HSG A
*	0	98	imperv
	99,071	39	Weighted Average
	99,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0700	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.5	75	0.1133	2.36		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0046	1.38		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	88	0.0110	6.52	8.01	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011
0.1	66	0.0207	8.95	10.98	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
0.6	285	0.0086	7.89	24.79	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.1	33	0.0137	9.96	31.29	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	56	0.0025	4.94	24.24	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.2	50	0.0024	4.84	23.75	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.3	141	0.0071	8.32	40.85	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
1.1	396	0.0029	6.01	42.45	**Pipe Channel, K-L** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
7.2	1,283	Total			

Subcatchment EX-A2: Subcat EX-A2



Hydrograph for Subcatchment EX-A2: Subcat EX-A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.22	0.00	0.00
1.00	0.03	0.00	0.00	53.00	3.22	0.00	0.00
2.00	0.06	0.00	0.00	54.00	3.22	0.00	0.00
3.00	0.10	0.00	0.00	55.00	3.22	0.00	0.00
4.00	0.14	0.00	0.00	56.00	3.22	0.00	0.00
5.00	0.18	0.00	0.00	57.00	3.22	0.00	0.00
6.00	0.23	0.00	0.00	58.00	3.22	0.00	0.00
7.00	0.29	0.00	0.00	59.00	3.22	0.00	0.00
8.00	0.37	0.00	0.00	60.00	3.22	0.00	0.00
9.00	0.47	0.00	0.00	61.00	3.22	0.00	0.00
10.00	0.61	0.00	0.00	62.00	3.22	0.00	0.00
11.00	0.80	0.00	0.00	63.00	3.22	0.00	0.00
12.00	1.61	0.00	0.00	64.00	3.22	0.00	0.00
13.00	2.41	0.00	0.00	65.00	3.22	0.00	0.00
14.00	2.61	0.00	0.00	66.00	3.22	0.00	0.00
15.00	2.75	0.00	0.00	67.00	3.22	0.00	0.00
16.00	2.85	0.00	0.00	68.00	3.22	0.00	0.00
17.00	2.93	0.00	0.00	69.00	3.22	0.00	0.00
18.00	2.99	0.00	0.00	70.00	3.22	0.00	0.00
19.00	3.04	0.00	0.00	71.00	3.22	0.00	0.00
20.00	3.08	0.00	0.00	72.00	3.22	0.00	0.00
21.00	3.12	0.00	0.00	73.00	3.22	0.00	0.00
22.00	3.16	0.00	0.00	74.00	3.22	0.00	0.00
23.00	3.19	0.00	0.00	75.00	3.22	0.00	0.00
24.00	**3.22**	**0.00**	**0.00**	76.00	3.22	0.00	0.00
25.00	3.22	0.00	**0.00**	77.00	3.22	0.00	0.00
26.00	3.22	0.00	0.00	78.00	3.22	0.00	0.00
27.00	3.22	0.00	0.00	79.00	3.22	0.00	0.00
28.00	3.22	0.00	0.00	80.00	3.22	0.00	0.00
29.00	3.22	0.00	0.00	81.00	3.22	0.00	0.00
30.00	3.22	0.00	0.00	82.00	3.22	0.00	0.00
31.00	3.22	0.00	0.00	83.00	3.22	0.00	0.00
32.00	3.22	0.00	0.00	84.00	3.22	0.00	0.00
33.00	3.22	0.00	0.00	85.00	3.22	0.00	0.00
34.00	3.22	0.00	0.00	86.00	3.22	0.00	0.00
35.00	3.22	0.00	0.00	87.00	3.22	0.00	0.00
36.00	3.22	0.00	0.00	88.00	3.22	0.00	0.00
37.00	3.22	0.00	0.00	89.00	3.22	0.00	0.00
38.00	3.22	0.00	0.00	90.00	3.22	0.00	0.00
39.00	3.22	0.00	0.00	91.00	3.22	0.00	0.00
40.00	3.22	0.00	0.00	92.00	3.22	0.00	0.00
41.00	3.22	0.00	0.00	93.00	3.22	0.00	0.00
42.00	3.22	0.00	0.00	94.00	3.22	0.00	0.00
43.00	3.22	0.00	0.00	95.00	3.22	0.00	0.00
44.00	3.22	0.00	0.00	96.00	3.22	0.00	0.00
45.00	3.22	0.00	0.00				
46.00	3.22	0.00	0.00				
47.00	3.22	0.00	0.00				
48.00	3.22	0.00	0.00				
49.00	3.22	0.00	0.00				
50.00	3.22	0.00	0.00				
51.00	3.22	0.00	0.00				

Summary for Subcatchment EX-C: Subcat EX-C

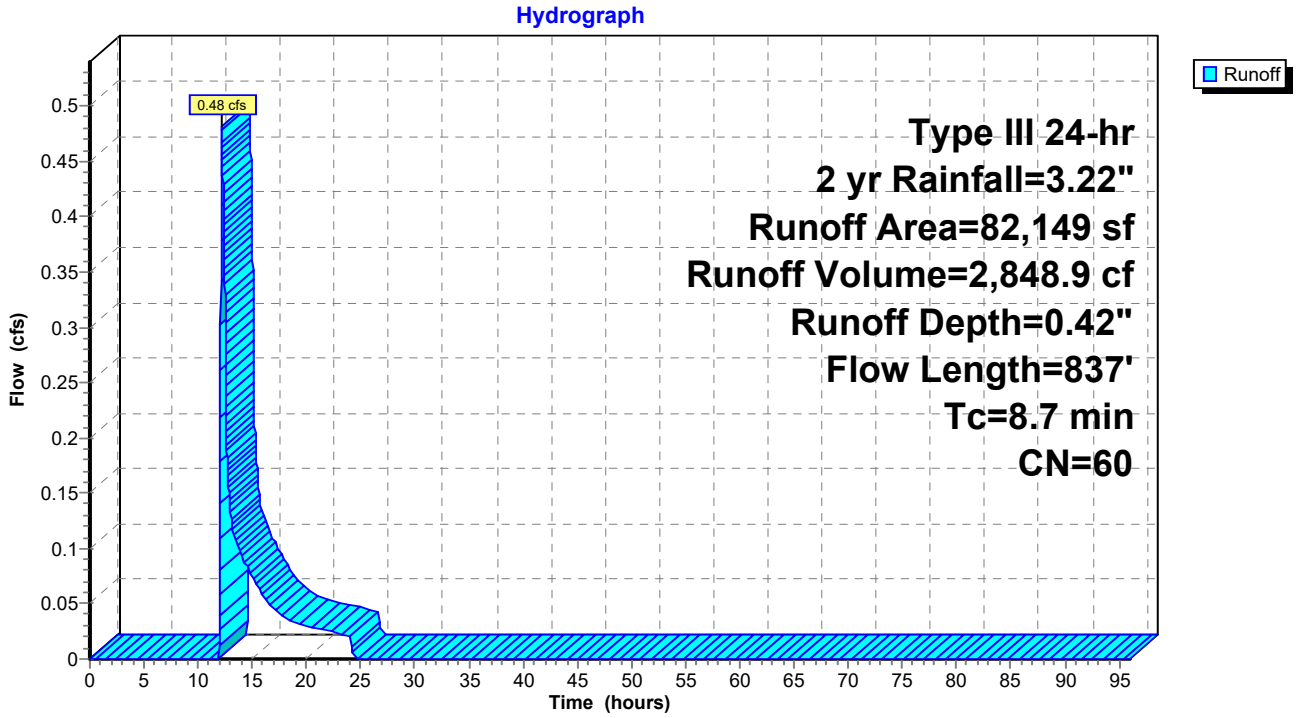
Runoff = 0.48 cfs @ 12.17 hrs, Volume= 2,848.9 cf, Depth= 0.42"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

Area (sf)	CN	Description
29,061	98	Unconnected pavement, HSG A
53,088	39	>75% Grass cover, Good, HSG A
82,149	60	Weighted Average
53,088		64.62% Pervious Area
29,061		35.38% Impervious Area
29,061		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	101	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	837	Total			

Subcatchment EX-C: Subcat EX-C



Hydrograph for Subcatchment EX-C: Subcat EX-C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.61	0.01	**0.03**
13.00	2.41	0.15	**0.13**
14.00	2.61	0.21	0.09
15.00	2.75	0.25	0.08
16.00	2.85	0.28	0.06
17.00	2.93	0.31	0.05
18.00	2.99	0.33	0.04
19.00	3.04	0.35	0.03
20.00	3.08	0.36	0.03
21.00	3.12	0.38	0.03
22.00	3.16	0.39	0.03
23.00	3.19	0.40	0.02
24.00	**3.22**	**0.42**	0.02
25.00	3.22	0.42	0.00
26.00	3.22	0.42	0.00
27.00	3.22	0.42	0.00
28.00	3.22	0.42	0.00
29.00	3.22	0.42	0.00
30.00	3.22	0.42	0.00
31.00	3.22	0.42	0.00
32.00	3.22	0.42	0.00
33.00	3.22	0.42	0.00
34.00	3.22	0.42	0.00
35.00	3.22	0.42	0.00
36.00	3.22	0.42	0.00
37.00	3.22	0.42	0.00
38.00	3.22	0.42	0.00
39.00	3.22	0.42	0.00
40.00	3.22	0.42	0.00
41.00	3.22	0.42	0.00
42.00	3.22	0.42	0.00
43.00	3.22	0.42	0.00
44.00	3.22	0.42	0.00
45.00	3.22	0.42	0.00
46.00	3.22	0.42	0.00
47.00	3.22	0.42	0.00
48.00	3.22	0.42	0.00
49.00	3.22	0.42	0.00
50.00	3.22	0.42	0.00
51.00	3.22	0.42	0.00
52.00	3.22	0.42	0.00
53.00	3.22	0.42	0.00
54.00	3.22	0.42	0.00
55.00	3.22	0.42	0.00
56.00	3.22	0.42	0.00
57.00	3.22	0.42	0.00
58.00	3.22	0.42	0.00
59.00	3.22	0.42	0.00
60.00	3.22	0.42	0.00
61.00	3.22	0.42	0.00
62.00	3.22	0.42	0.00
63.00	3.22	0.42	0.00
64.00	3.22	0.42	0.00
65.00	3.22	0.42	0.00
66.00	3.22	0.42	0.00
67.00	3.22	0.42	0.00
68.00	3.22	0.42	0.00
69.00	3.22	0.42	0.00
70.00	3.22	0.42	0.00
71.00	3.22	0.42	0.00
72.00	3.22	0.42	0.00
73.00	3.22	0.42	0.00
74.00	3.22	0.42	0.00
75.00	3.22	0.42	0.00
76.00	3.22	0.42	0.00
77.00	3.22	0.42	0.00
78.00	3.22	0.42	0.00
79.00	3.22	0.42	0.00
80.00	3.22	0.42	0.00
81.00	3.22	0.42	0.00
82.00	3.22	0.42	0.00
83.00	3.22	0.42	0.00
84.00	3.22	0.42	0.00
85.00	3.22	0.42	0.00
86.00	3.22	0.42	0.00
87.00	3.22	0.42	0.00
88.00	3.22	0.42	0.00
89.00	3.22	0.42	0.00
90.00	3.22	0.42	0.00
91.00	3.22	0.42	0.00
92.00	3.22	0.42	0.00
93.00	3.22	0.42	0.00
94.00	3.22	0.42	0.00
95.00	3.22	0.42	0.00
96.00	3.22	0.42	0.00

Summary for Subcatchment EX-D: Subcat EX-D

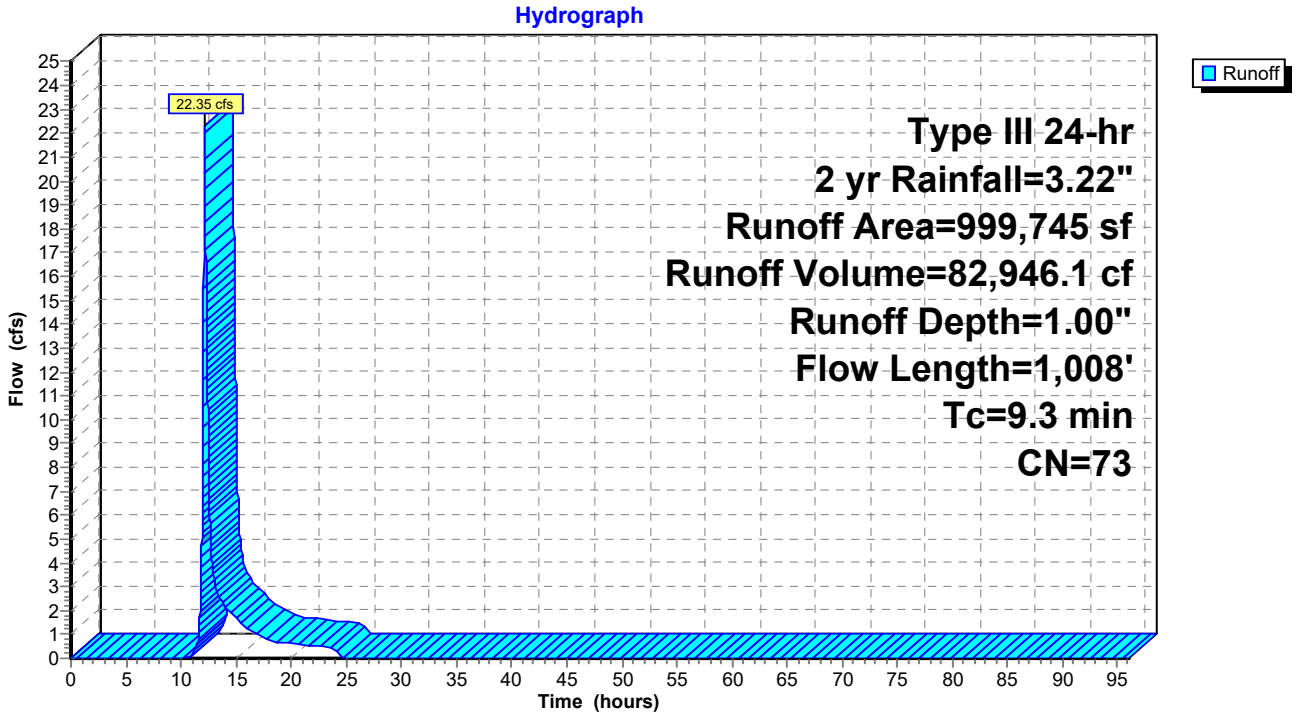
Runoff = 22.35 cfs @ 12.14 hrs, Volume= 82,946.1 cf, Depth= 1.00"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	57,570	98	Champage Bldg (#200)
*	183,306	98	Office Bldg (#110)
	341,183	98	Unconnected pavement, HSG A
	373,773	39	>75% Grass cover, Good, HSG A
*	43,913	36	Woods, Fair, HSG A
	999,745	73	Weighted Average
	417,686		41.78% Pervious Area
	582,059		58.22% Impervious Area
	341,183		58.62% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.22"
0.2	32	0.2180	3.27		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.3	58	0.0340	3.74		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	228	0.2197	9.52		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
0.3	84	0.0090	5.09	3.99	**Pipe Channel, E-F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	89	0.0680	25.75	126.41	**Pipe Channel, F-G** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
0.4	157	0.0030	6.11	43.17	**Pipe Channel, G-H** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.4	224	0.0062	8.78	62.07	**Pipe Channel, H-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.1	86	0.0116	12.01	84.90	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
9.3	1,008	Total			

Subcatchment EX-D: Subcat EX-D



Hydrograph for Subcatchment EX-D: Subcat EX-D

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.22	1.00	0.00
1.00	0.03	0.00	0.00	53.00	3.22	1.00	0.00
2.00	0.06	0.00	0.00	54.00	3.22	1.00	0.00
3.00	0.10	0.00	0.00	55.00	3.22	1.00	0.00
4.00	0.14	0.00	0.00	56.00	3.22	1.00	0.00
5.00	0.18	0.00	0.00	57.00	3.22	1.00	0.00
6.00	0.23	0.00	0.00	58.00	3.22	1.00	0.00
7.00	0.29	0.00	0.00	59.00	3.22	1.00	0.00
8.00	0.37	0.00	0.00	60.00	3.22	1.00	0.00
9.00	0.47	0.00	0.00	61.00	3.22	1.00	0.00
10.00	0.61	0.00	0.00	62.00	3.22	1.00	0.00
11.00	0.80	0.00	0.09	63.00	3.22	1.00	0.00
12.00	1.61	0.17	**8.86**	64.00	3.22	1.00	0.00
13.00	2.41	0.52	**3.34**	65.00	3.22	1.00	0.00
14.00	2.61	0.63	2.17	66.00	3.22	1.00	0.00
15.00	2.75	0.71	1.69	67.00	3.22	1.00	0.00
16.00	2.85	0.77	1.22	68.00	3.22	1.00	0.00
17.00	2.93	0.81	0.98	69.00	3.22	1.00	0.00
18.00	2.99	0.85	0.76	70.00	3.22	1.00	0.00
19.00	3.04	0.88	0.68	71.00	3.22	1.00	0.00
20.00	3.08	0.91	0.61	72.00	3.22	1.00	0.00
21.00	3.12	0.93	0.56	73.00	3.22	1.00	0.00
22.00	3.16	0.96	0.52	74.00	3.22	1.00	0.00
23.00	3.19	0.98	0.46	75.00	3.22	1.00	0.00
24.00	**3.22**	**1.00**	0.41	76.00	3.22	1.00	0.00
25.00	3.22	1.00	0.00	77.00	3.22	1.00	0.00
26.00	3.22	1.00	0.00	78.00	3.22	1.00	0.00
27.00	3.22	1.00	0.00	79.00	3.22	1.00	0.00
28.00	3.22	1.00	0.00	80.00	3.22	1.00	0.00
29.00	3.22	1.00	0.00	81.00	3.22	1.00	0.00
30.00	3.22	1.00	0.00	82.00	3.22	1.00	0.00
31.00	3.22	1.00	0.00	83.00	3.22	1.00	0.00
32.00	3.22	1.00	0.00	84.00	3.22	1.00	0.00
33.00	3.22	1.00	0.00	85.00	3.22	1.00	0.00
34.00	3.22	1.00	0.00	86.00	3.22	1.00	0.00
35.00	3.22	1.00	0.00	87.00	3.22	1.00	0.00
36.00	3.22	1.00	0.00	88.00	3.22	1.00	0.00
37.00	3.22	1.00	0.00	89.00	3.22	1.00	0.00
38.00	3.22	1.00	0.00	90.00	3.22	1.00	0.00
39.00	3.22	1.00	0.00	91.00	3.22	1.00	0.00
40.00	3.22	1.00	0.00	92.00	3.22	1.00	0.00
41.00	3.22	1.00	0.00	93.00	3.22	1.00	0.00
42.00	3.22	1.00	0.00	94.00	3.22	1.00	0.00
43.00	3.22	1.00	0.00	95.00	3.22	1.00	0.00
44.00	3.22	1.00	0.00	96.00	3.22	1.00	0.00
45.00	3.22	1.00	0.00				
46.00	3.22	1.00	0.00				
47.00	3.22	1.00	0.00				
48.00	3.22	1.00	0.00				
49.00	3.22	1.00	0.00				
50.00	3.22	1.00	0.00				
51.00	3.22	1.00	0.00				

Summary for Subcatchment EX-E: Subcat EX-E

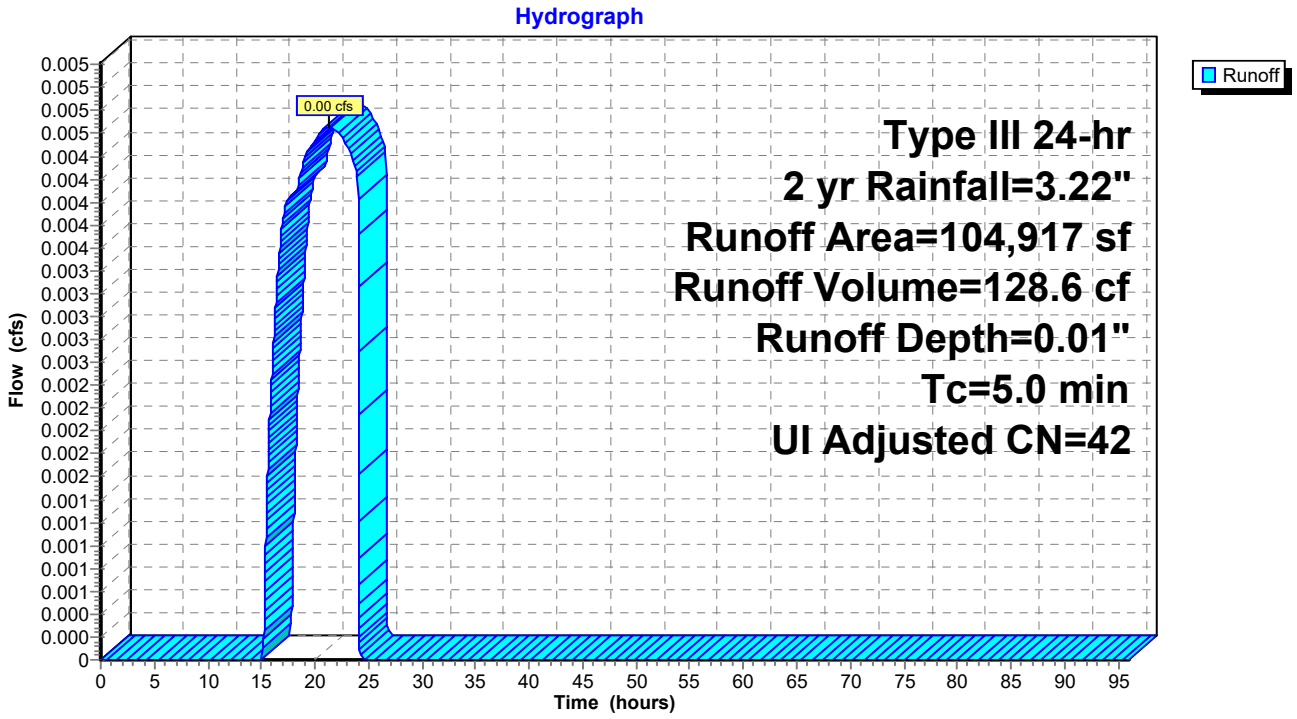
Runoff = 0.00 cfs @ 21.35 hrs, Volume= 128.6 cf, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Adj	Description
*	2,135	98		Roof Area
	14,619	98		Unconnected pavement, HSG A
	28,107	39		>75% Grass cover, Good, HSG A
	60,056	36		Woods, Fair, HSG A
	104,917	47	42	Weighted Average, UI Adjusted
	88,163			84.03% Pervious Area
	16,754			15.97% Impervious Area
	14,619			87.26% Unconnected

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

Subcatchment EX-E: Subcat EX-E



Hydrograph for Subcatchment EX-E: Subcat EX-E

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.61	0.00	0.00
13.00	2.41	0.00	0.00
14.00	2.61	0.00	0.00
15.00	2.75	0.00	0.00
16.00	2.85	0.00	0.00
17.00	2.93	0.00	0.00
18.00	2.99	0.00	0.00
19.00	3.04	0.01	0.00
20.00	3.08	0.01	0.00
21.00	3.12	0.01	**0.00**
22.00	3.16	0.01	**0.00**
23.00	3.19	0.01	0.00
24.00	**3.22**	**0.01**	0.00
25.00	3.22	0.01	0.00
26.00	3.22	0.01	0.00
27.00	3.22	0.01	0.00
28.00	3.22	0.01	0.00
29.00	3.22	0.01	0.00
30.00	3.22	0.01	0.00
31.00	3.22	0.01	0.00
32.00	3.22	0.01	0.00
33.00	3.22	0.01	0.00
34.00	3.22	0.01	0.00
35.00	3.22	0.01	0.00
36.00	3.22	0.01	0.00
37.00	3.22	0.01	0.00
38.00	3.22	0.01	0.00
39.00	3.22	0.01	0.00
40.00	3.22	0.01	0.00
41.00	3.22	0.01	0.00
42.00	3.22	0.01	0.00
43.00	3.22	0.01	0.00
44.00	3.22	0.01	0.00
45.00	3.22	0.01	0.00
46.00	3.22	0.01	0.00
47.00	3.22	0.01	0.00
48.00	3.22	0.01	0.00
49.00	3.22	0.01	0.00
50.00	3.22	0.01	0.00
51.00	3.22	0.01	0.00
52.00	3.22	0.01	0.00
53.00	3.22	0.01	0.00
54.00	3.22	0.01	0.00
55.00	3.22	0.01	0.00
56.00	3.22	0.01	0.00
57.00	3.22	0.01	0.00
58.00	3.22	0.01	0.00
59.00	3.22	0.01	0.00
60.00	3.22	0.01	0.00
61.00	3.22	0.01	0.00
62.00	3.22	0.01	0.00
63.00	3.22	0.01	0.00
64.00	3.22	0.01	0.00
65.00	3.22	0.01	0.00
66.00	3.22	0.01	0.00
67.00	3.22	0.01	0.00
68.00	3.22	0.01	0.00
69.00	3.22	0.01	0.00
70.00	3.22	0.01	0.00
71.00	3.22	0.01	0.00
72.00	3.22	0.01	0.00
73.00	3.22	0.01	0.00
74.00	3.22	0.01	0.00
75.00	3.22	0.01	0.00
76.00	3.22	0.01	0.00
77.00	3.22	0.01	0.00
78.00	3.22	0.01	0.00
79.00	3.22	0.01	0.00
80.00	3.22	0.01	0.00
81.00	3.22	0.01	0.00
82.00	3.22	0.01	0.00
83.00	3.22	0.01	0.00
84.00	3.22	0.01	0.00
85.00	3.22	0.01	0.00
86.00	3.22	0.01	0.00
87.00	3.22	0.01	0.00
88.00	3.22	0.01	0.00
89.00	3.22	0.01	0.00
90.00	3.22	0.01	0.00
91.00	3.22	0.01	0.00
92.00	3.22	0.01	0.00
93.00	3.22	0.01	0.00
94.00	3.22	0.01	0.00
95.00	3.22	0.01	0.00
96.00	3.22	0.01	0.00

Summary for Pond FP: Fire Pond Weir

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 1.00" for 2 yr event
Inflow = 22.35 cfs @ 12.14 hrs, Volume= 82,946.1 cf
Outflow = 4.69 cfs @ 12.68 hrs, Volume= 82,946.1 cf, Atten= 79%, Lag= 32.5 min
Primary = 4.69 cfs @ 12.68 hrs, Volume= 82,946.1 cf
Routed to Link POA D : WETLAND- NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 244.43' @ 12.68 hrs Surf.Area= 57,910 sf Storage= 257,319.2 cf (26,339.0 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 72.5 min (940.6 - 868.0)

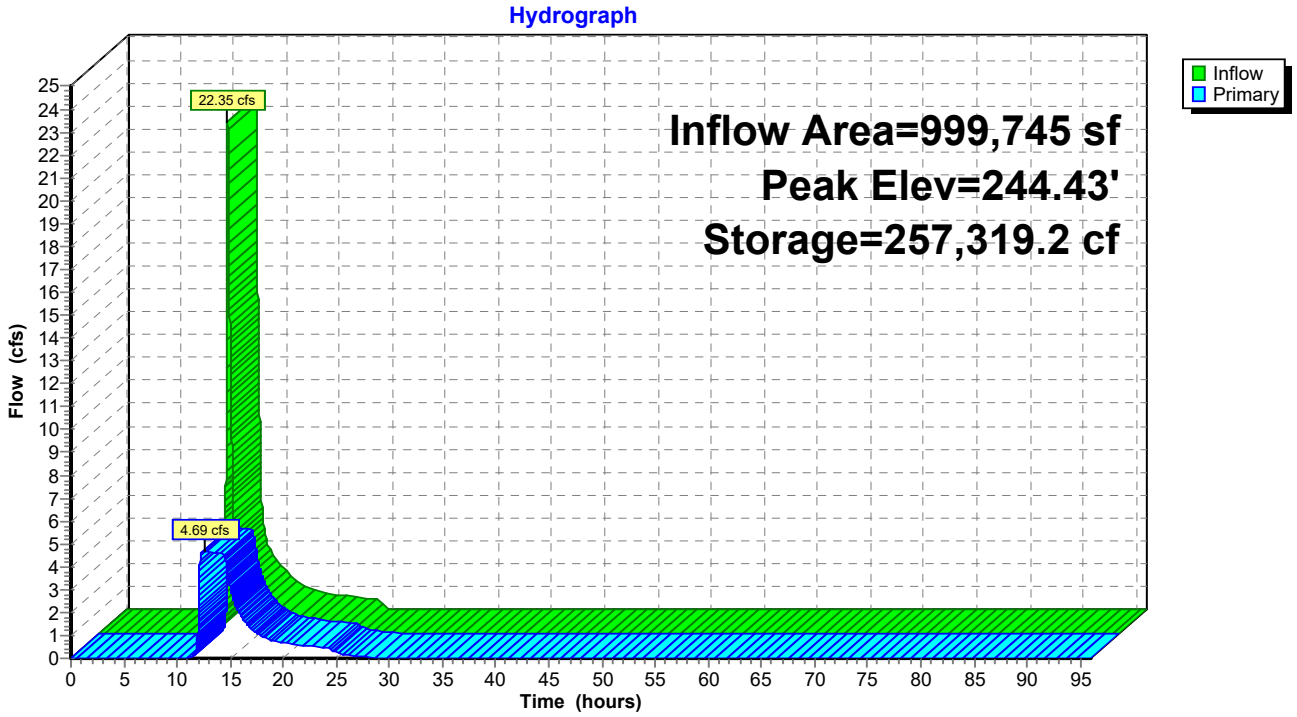
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

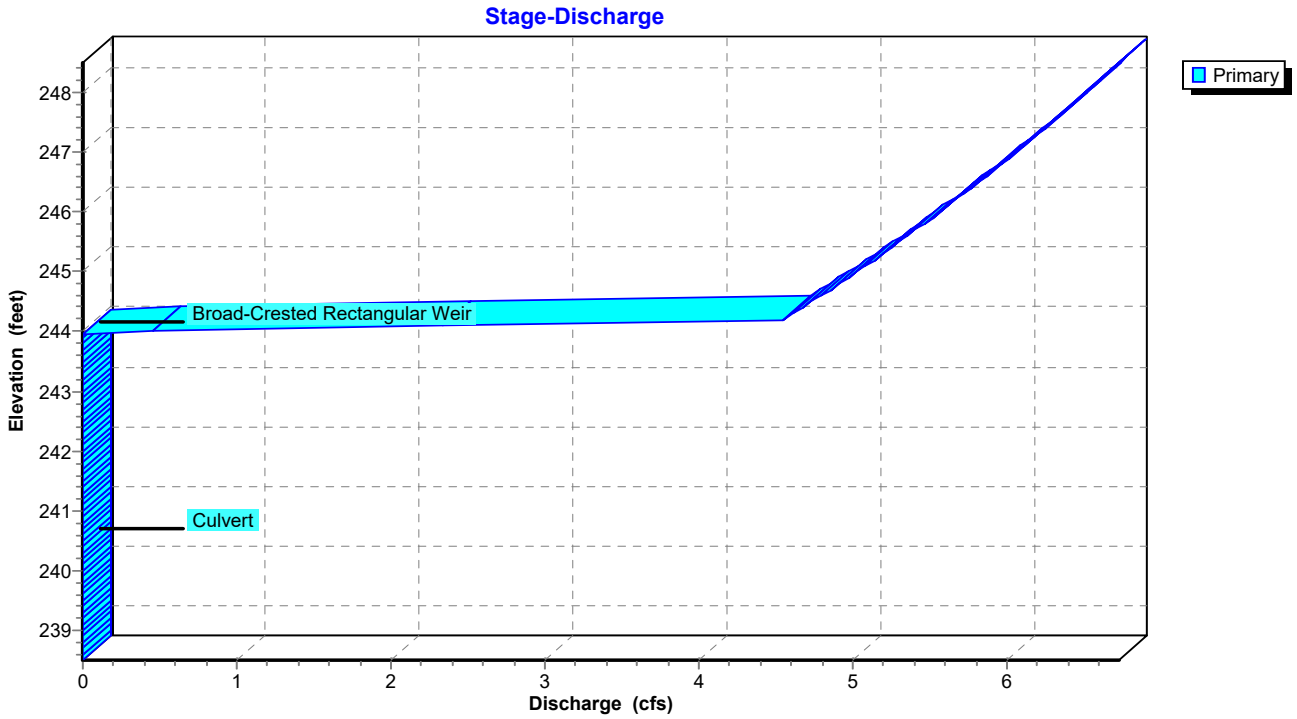
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=4.69 cfs @ 12.68 hrs HW=244.43' (Free Discharge)
↑**2=Culvert** (Barrel Controls 4.69 cfs @ 5.97 fps)
↑**1=Broad-Crested Rectangular Weir** (Passes 4.69 cfs of 13.83 cfs potential flow)

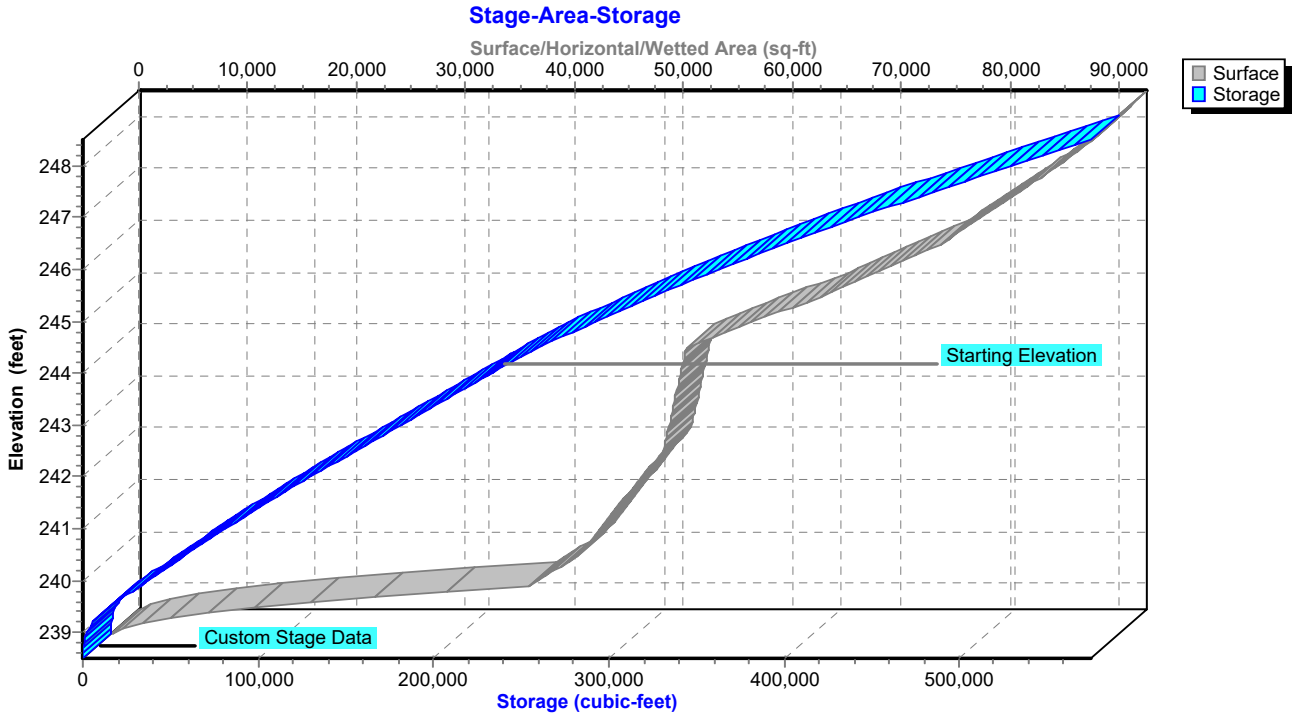
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.00	230,980.2	243.95	0.00
10.00	0.00	230,980.2	243.95	0.00
12.00	**8.86**	**236,188.7**	**244.05**	**1.36**
14.00	**2.17**	**249,156.1**	**244.29**	**4.60**
16.00	1.22	237,590.5	244.07	1.86
18.00	0.76	235,087.1	244.03	0.97
20.00	0.61	234,264.1	244.01	0.68
22.00	0.52	233,917.1	244.01	0.56
24.00	0.41	233,629.1	244.00	0.45
26.00	0.00	231,820.8	243.97	0.14
28.00	0.00	231,226.1	243.95	0.04
30.00	0.00	231,052.2	243.95	0.01
32.00	0.00	231,001.3	243.95	0.00
34.00	0.00	230,986.4	243.95	0.00
36.00	0.00	230,982.0	243.95	0.00
38.00	0.00	230,980.7	243.95	0.00
40.00	0.00	230,980.4	243.95	0.00
42.00	0.00	230,980.3	243.95	0.00
44.00	0.00	230,980.2	243.95	0.00
46.00	0.00	230,980.2	243.95	0.00
48.00	0.00	230,980.2	243.95	0.00
50.00	0.00	230,980.2	243.95	0.00
52.00	0.00	230,980.2	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

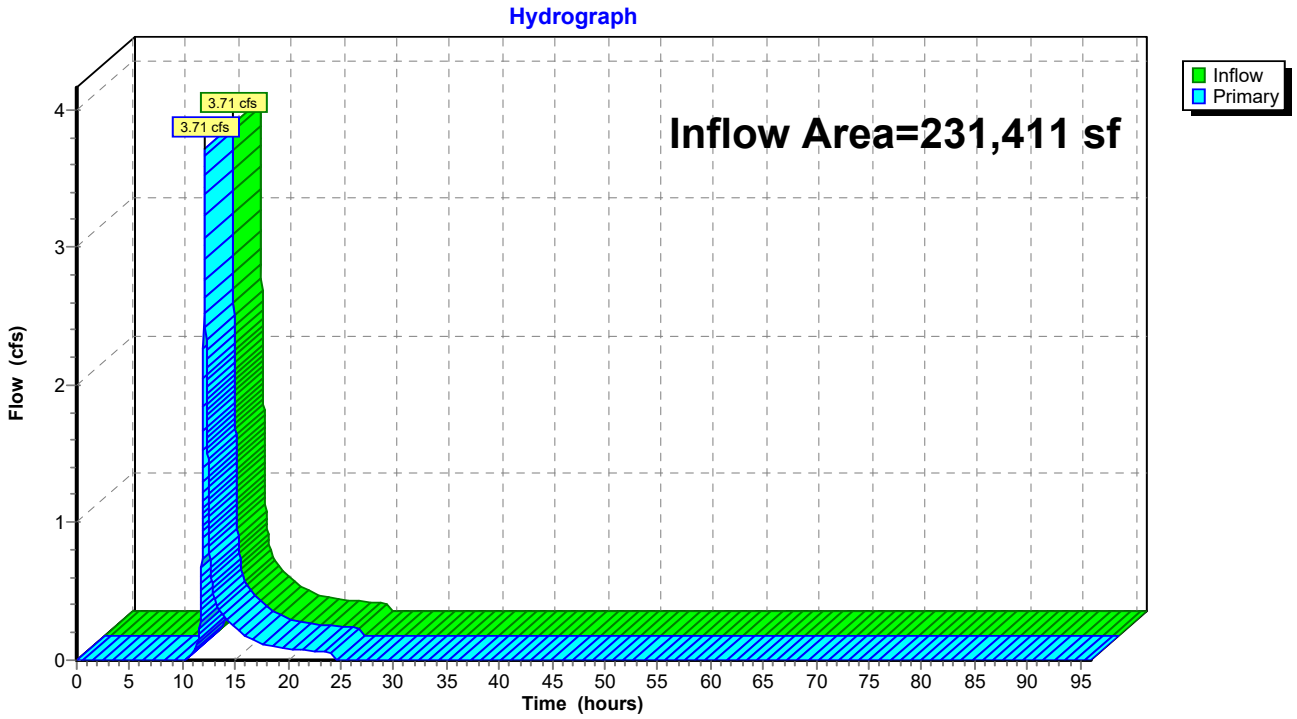
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Link POA A: POND- WEST

Inflow Area = 231,411 sf, 34.58% Impervious, Inflow Depth = 0.63" for 2 yr event
Inflow = 3.71 cfs @ 12.10 hrs, Volume= 12,218.4 cf
Primary = 3.71 cfs @ 12.10 hrs, Volume= 12,218.4 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

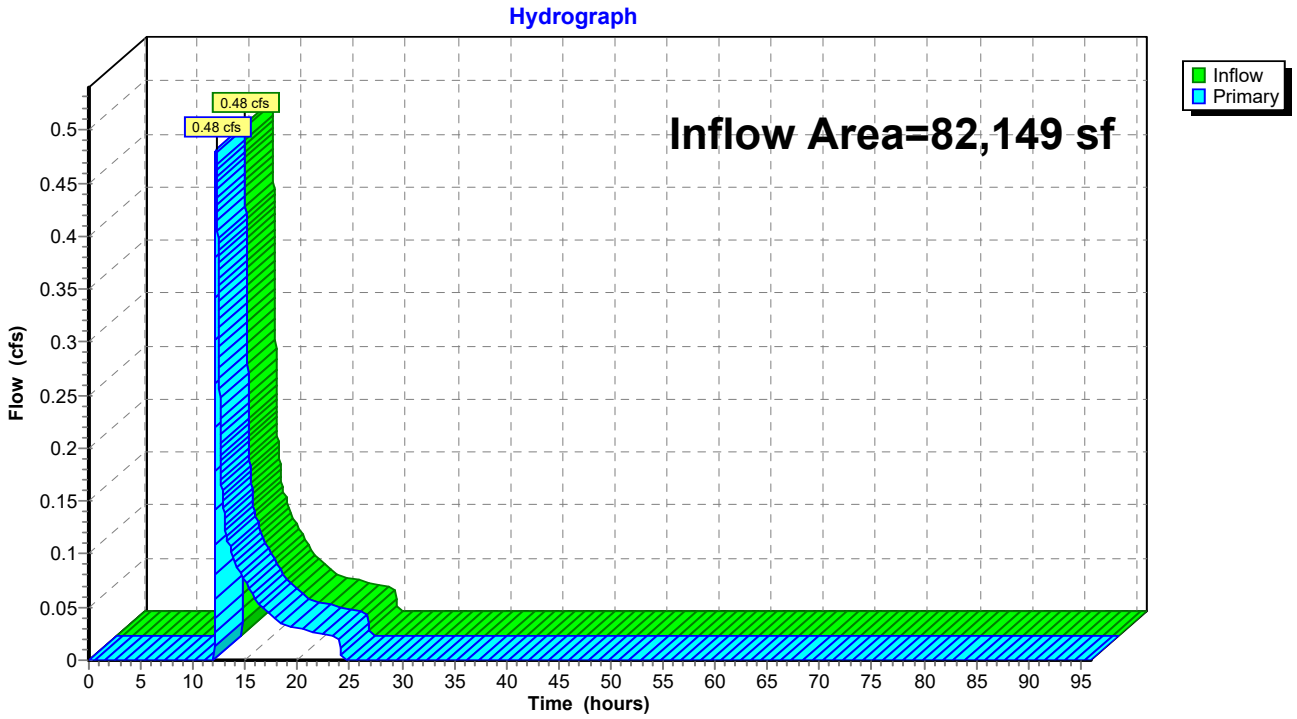
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.05	0.00	0.05	63.00	0.00	0.00	0.00
12.00	**1.84**	0.00	**1.84**	64.00	0.00	0.00	0.00
13.00	**0.46**	0.00	**0.46**	65.00	0.00	0.00	0.00
14.00	0.30	0.00	0.30	66.00	0.00	0.00	0.00
15.00	0.24	0.00	0.24	67.00	0.00	0.00	0.00
16.00	0.17	0.00	0.17	68.00	0.00	0.00	0.00
17.00	0.14	0.00	0.14	69.00	0.00	0.00	0.00
18.00	0.11	0.00	0.11	70.00	0.00	0.00	0.00
19.00	0.10	0.00	0.10	71.00	0.00	0.00	0.00
20.00	0.09	0.00	0.09	72.00	0.00	0.00	0.00
21.00	0.08	0.00	0.08	73.00	0.00	0.00	0.00
22.00	0.07	0.00	0.07	74.00	0.00	0.00	0.00
23.00	0.07	0.00	0.07	75.00	0.00	0.00	0.00
24.00	0.06	0.00	0.06	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 82,149 sf, 35.38% Impervious, Inflow Depth = 0.42" for 2 yr event
Inflow = 0.48 cfs @ 12.17 hrs, Volume= 2,848.9 cf
Primary = 0.48 cfs @ 12.17 hrs, Volume= 2,848.9 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

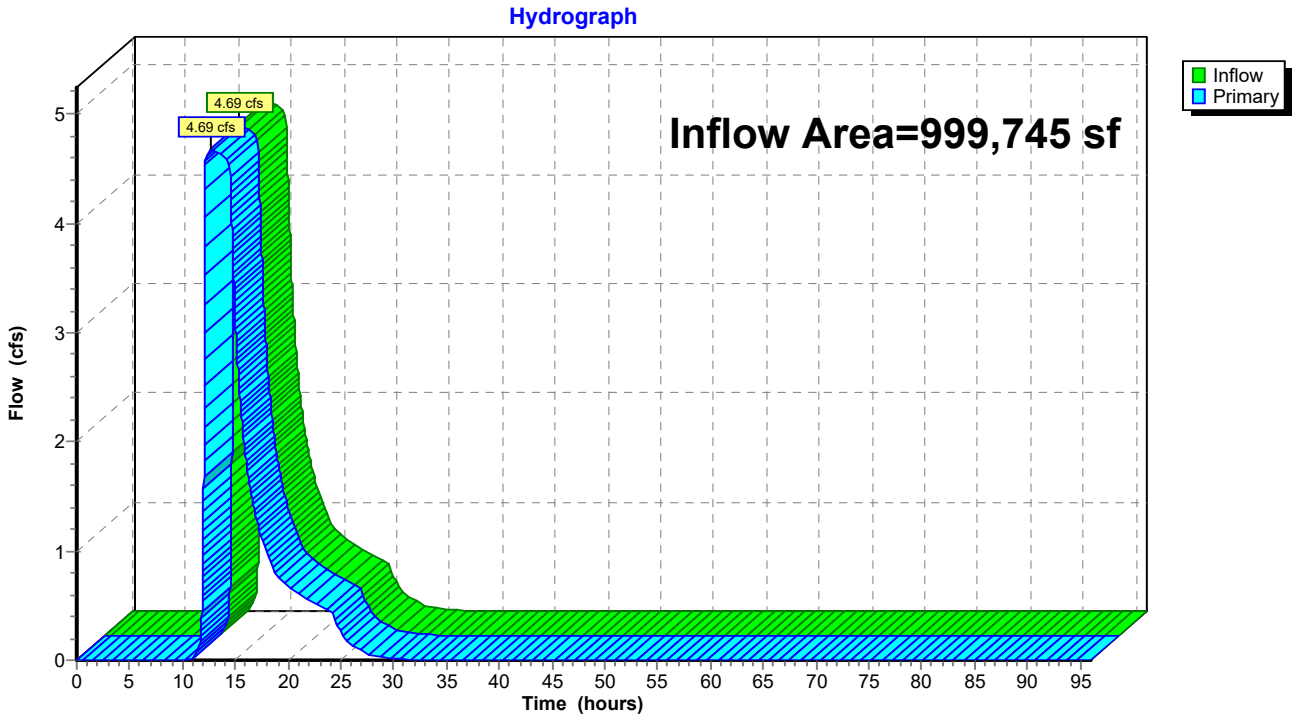
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	**0.03**	0.00	**0.03**	64.00	0.00	0.00	0.00
13.00	**0.13**	0.00	**0.13**	65.00	0.00	0.00	0.00
14.00	0.09	0.00	0.09	66.00	0.00	0.00	0.00
15.00	0.08	0.00	0.08	67.00	0.00	0.00	0.00
16.00	0.06	0.00	0.06	68.00	0.00	0.00	0.00
17.00	0.05	0.00	0.05	69.00	0.00	0.00	0.00
18.00	0.04	0.00	0.04	70.00	0.00	0.00	0.00
19.00	0.03	0.00	0.03	71.00	0.00	0.00	0.00
20.00	0.03	0.00	0.03	72.00	0.00	0.00	0.00
21.00	0.03	0.00	0.03	73.00	0.00	0.00	0.00
22.00	0.03	0.00	0.03	74.00	0.00	0.00	0.00
23.00	0.02	0.00	0.02	75.00	0.00	0.00	0.00
24.00	0.02	0.00	0.02	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND- NORTH

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 1.00" for 2 yr event
Inflow = 4.69 cfs @ 12.68 hrs, Volume= 82,946.1 cf
Primary = 4.69 cfs @ 12.68 hrs, Volume= 82,946.1 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND- NORTH



Hydrograph for Link POA D: WETLAND- NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00
12.00	**1.36**	0.00	**1.36**
13.00	**4.68**	0.00	**4.68**
14.00	4.60	0.00	4.60
15.00	3.14	0.00	3.14
16.00	1.86	0.00	1.86
17.00	1.28	0.00	1.28
18.00	0.97	0.00	0.97
19.00	0.78	0.00	0.78
20.00	0.68	0.00	0.68
21.00	0.61	0.00	0.61
22.00	0.56	0.00	0.56
23.00	0.50	0.00	0.50
24.00	0.45	0.00	0.45
25.00	0.27	0.00	0.27
26.00	0.14	0.00	0.14
27.00	0.08	0.00	0.08
28.00	0.04	0.00	0.04
29.00	0.02	0.00	0.02
30.00	0.01	0.00	0.01
31.00	0.01	0.00	0.01
32.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00
73.00	0.00	0.00	0.00
74.00	0.00	0.00	0.00
75.00	0.00	0.00	0.00
76.00	0.00	0.00	0.00
77.00	0.00	0.00	0.00
78.00	0.00	0.00	0.00
79.00	0.00	0.00	0.00
80.00	0.00	0.00	0.00
81.00	0.00	0.00	0.00
82.00	0.00	0.00	0.00
83.00	0.00	0.00	0.00
84.00	0.00	0.00	0.00
85.00	0.00	0.00	0.00
86.00	0.00	0.00	0.00
87.00	0.00	0.00	0.00
88.00	0.00	0.00	0.00
89.00	0.00	0.00	0.00
90.00	0.00	0.00	0.00
91.00	0.00	0.00	0.00
92.00	0.00	0.00	0.00
93.00	0.00	0.00	0.00
94.00	0.00	0.00	0.00
95.00	0.00	0.00	0.00
96.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-A1: Subcat EX-A1 Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=2.34"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=8.15 cfs 25,764.8 cf

Subcatchment EX-A2: Subcat EX-A2 Runoff Area=99,071 sf 0.00% Impervious Runoff Depth=0.17"
Flow Length=1,283' Tc=7.2 min CN=39 Runoff=0.06 cfs 1,425.2 cf

Subcatchment EX-C: Subcat EX-C Runoff Area=82,149 sf 35.38% Impervious Runoff Depth=1.22"
Flow Length=837' Tc=8.7 min CN=60 Runoff=2.16 cfs 8,352.8 cf

Subcatchment EX-D: Subcat EX-D Runoff Area=999,745 sf 58.22% Impervious Runoff Depth=2.17"
Flow Length=1,008' Tc=9.3 min CN=73 Runoff=51.66 cfs 180,889.9 cf

Subcatchment EX-E: Subcat EX-E Runoff Area=104,917 sf 15.97% Impervious Runoff Depth=0.28"
Tc=5.0 min UI Adjusted CN=42 Runoff=0.21 cfs 2,419.4 cf

Pond FP: Fire Pond Weir Peak Elev=245.26' Storage=309,607.2 cf Inflow=51.66 cfs 180,889.9 cf
Outflow=5.17 cfs 180,889.9 cf

Link POA A: POND- WEST Inflow=8.15 cfs 27,190.0 cf
Primary=8.15 cfs 27,190.0 cf

Link POA C: WETLAND-WEST Inflow=2.16 cfs 8,352.8 cf
Primary=2.16 cfs 8,352.8 cf

Link POA D: WETLAND-NORTH Inflow=5.17 cfs 180,889.9 cf
Primary=5.17 cfs 180,889.9 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 218,852.1 cf Average Runoff Depth = 1.85"
50.09% Pervious = 710,328 sf 49.91% Impervious = 707,894 sf

Summary for Subcatchment EX-A1: Subcat EX-A1

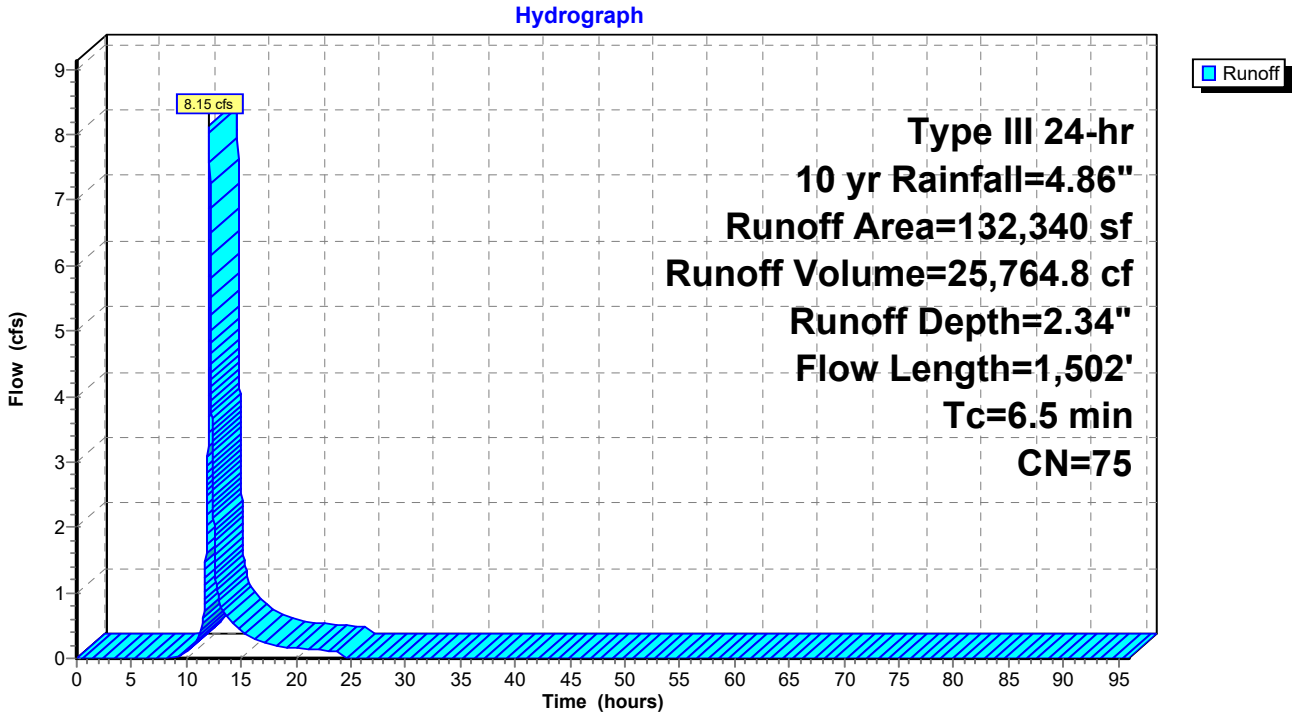
Runoff = 8.15 cfs @ 12.10 hrs, Volume= 25,764.8 cf, Depth= 2.34"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment EX-A1: Subcat EX-A1



Hydrograph for Subcatchment EX-A1: Subcat EX-A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.00	0.00
9.00	0.71	0.00	0.01
10.00	0.92	0.02	0.09
11.00	1.22	0.08	0.26
12.00	2.43	0.61	**4.41**
13.00	3.64	1.41	**0.88**
14.00	3.94	1.62	0.57
15.00	4.15	1.78	0.44
16.00	4.31	1.90	0.31
17.00	4.42	1.99	0.25
18.00	4.51	2.06	0.19
19.00	4.58	2.12	0.17
20.00	4.65	2.17	0.16
21.00	4.71	2.22	0.14
22.00	4.77	2.26	0.13
23.00	4.82	2.30	0.12
24.00	**4.86**	**2.34**	0.10
25.00	4.86	2.34	0.00
26.00	4.86	2.34	0.00
27.00	4.86	2.34	0.00
28.00	4.86	2.34	0.00
29.00	4.86	2.34	0.00
30.00	4.86	2.34	0.00
31.00	4.86	2.34	0.00
32.00	4.86	2.34	0.00
33.00	4.86	2.34	0.00
34.00	4.86	2.34	0.00
35.00	4.86	2.34	0.00
36.00	4.86	2.34	0.00
37.00	4.86	2.34	0.00
38.00	4.86	2.34	0.00
39.00	4.86	2.34	0.00
40.00	4.86	2.34	0.00
41.00	4.86	2.34	0.00
42.00	4.86	2.34	0.00
43.00	4.86	2.34	0.00
44.00	4.86	2.34	0.00
45.00	4.86	2.34	0.00
46.00	4.86	2.34	0.00
47.00	4.86	2.34	0.00
48.00	4.86	2.34	0.00
49.00	4.86	2.34	0.00
50.00	4.86	2.34	0.00
51.00	4.86	2.34	0.00
52.00	4.86	2.34	0.00
53.00	4.86	2.34	0.00
54.00	4.86	2.34	0.00
55.00	4.86	2.34	0.00
56.00	4.86	2.34	0.00
57.00	4.86	2.34	0.00
58.00	4.86	2.34	0.00
59.00	4.86	2.34	0.00
60.00	4.86	2.34	0.00
61.00	4.86	2.34	0.00
62.00	4.86	2.34	0.00
63.00	4.86	2.34	0.00
64.00	4.86	2.34	0.00
65.00	4.86	2.34	0.00
66.00	4.86	2.34	0.00
67.00	4.86	2.34	0.00
68.00	4.86	2.34	0.00
69.00	4.86	2.34	0.00
70.00	4.86	2.34	0.00
71.00	4.86	2.34	0.00
72.00	4.86	2.34	0.00
73.00	4.86	2.34	0.00
74.00	4.86	2.34	0.00
75.00	4.86	2.34	0.00
76.00	4.86	2.34	0.00
77.00	4.86	2.34	0.00
78.00	4.86	2.34	0.00
79.00	4.86	2.34	0.00
80.00	4.86	2.34	0.00
81.00	4.86	2.34	0.00
82.00	4.86	2.34	0.00
83.00	4.86	2.34	0.00
84.00	4.86	2.34	0.00
85.00	4.86	2.34	0.00
86.00	4.86	2.34	0.00
87.00	4.86	2.34	0.00
88.00	4.86	2.34	0.00
89.00	4.86	2.34	0.00
90.00	4.86	2.34	0.00
91.00	4.86	2.34	0.00
92.00	4.86	2.34	0.00
93.00	4.86	2.34	0.00
94.00	4.86	2.34	0.00
95.00	4.86	2.34	0.00
96.00	4.86	2.34	0.00

Summary for Subcatchment EX-A2: Subcat EX-A2

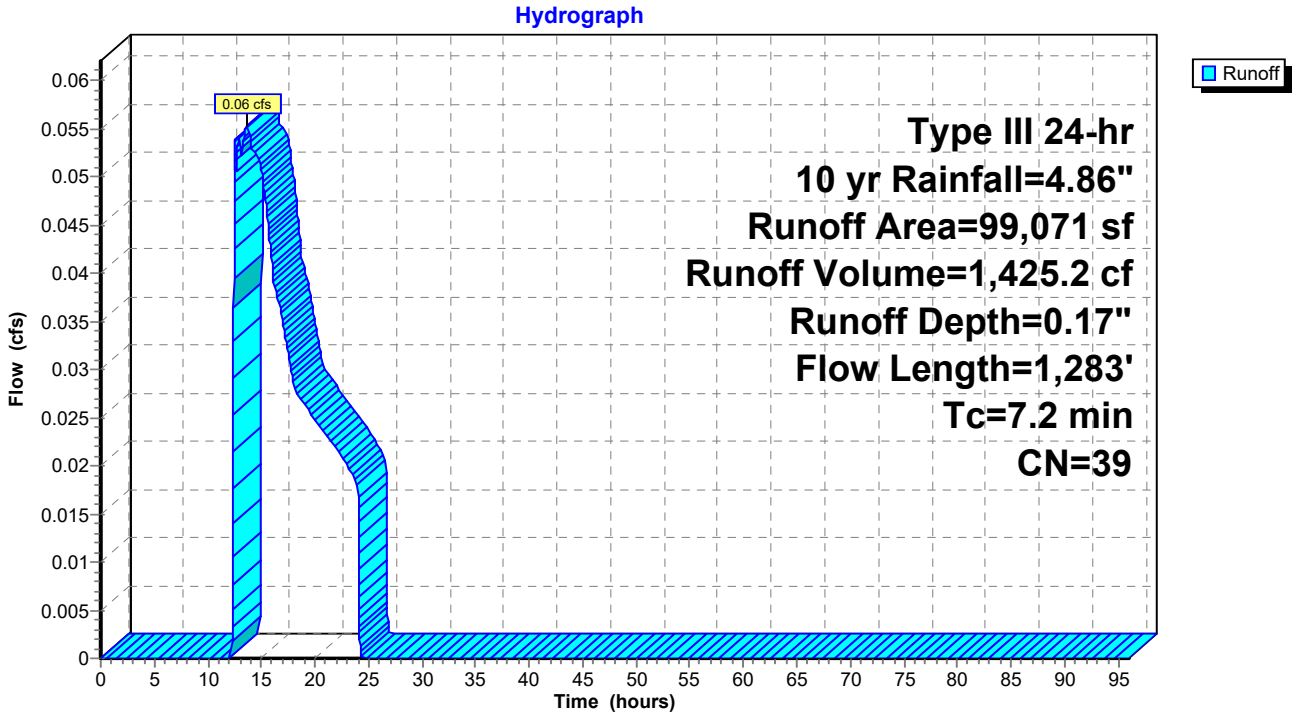
Runoff = 0.06 cfs @ 13.64 hrs, Volume= 1,425.2 cf, Depth= 0.17"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
	99,071	39	>75% Grass cover, Good, HSG A
*	0	98	imperv
	99,071	39	Weighted Average
	99,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0700	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.5	75	0.1133	2.36		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0046	1.38		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	88	0.0110	6.52	8.01	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011
0.1	66	0.0207	8.95	10.98	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
0.6	285	0.0086	7.89	24.79	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.1	33	0.0137	9.96	31.29	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	56	0.0025	4.94	24.24	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.2	50	0.0024	4.84	23.75	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.3	141	0.0071	8.32	40.85	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
1.1	396	0.0029	6.01	42.45	**Pipe Channel, K-L** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
7.2	1,283	Total			

Subcatchment EX-A2: Subcat EX-A2



Hydrograph for Subcatchment EX-A2: Subcat EX-A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.00	0.00
9.00	0.71	0.00	0.00
10.00	0.92	0.00	0.00
11.00	1.22	0.00	0.00
12.00	2.43	0.00	0.00
13.00	3.64	0.02	**0.05**
14.00	3.94	0.04	**0.05**
15.00	4.15	0.06	0.05
16.00	4.31	0.08	0.04
17.00	4.42	0.10	0.03
18.00	4.51	0.11	0.03
19.00	4.58	0.12	0.03
20.00	4.65	0.14	0.02
21.00	4.71	0.15	0.02
22.00	4.77	0.16	0.02
23.00	4.82	0.16	0.02
24.00	**4.86**	**0.17**	0.02
25.00	4.86	0.17	0.00
26.00	4.86	0.17	0.00
27.00	4.86	0.17	0.00
28.00	4.86	0.17	0.00
29.00	4.86	0.17	0.00
30.00	4.86	0.17	0.00
31.00	4.86	0.17	0.00
32.00	4.86	0.17	0.00
33.00	4.86	0.17	0.00
34.00	4.86	0.17	0.00
35.00	4.86	0.17	0.00
36.00	4.86	0.17	0.00
37.00	4.86	0.17	0.00
38.00	4.86	0.17	0.00
39.00	4.86	0.17	0.00
40.00	4.86	0.17	0.00
41.00	4.86	0.17	0.00
42.00	4.86	0.17	0.00
43.00	4.86	0.17	0.00
44.00	4.86	0.17	0.00
45.00	4.86	0.17	0.00
46.00	4.86	0.17	0.00
47.00	4.86	0.17	0.00
48.00	4.86	0.17	0.00
49.00	4.86	0.17	0.00
50.00	4.86	0.17	0.00
51.00	4.86	0.17	0.00
52.00	4.86	0.17	0.00
53.00	4.86	0.17	0.00
54.00	4.86	0.17	0.00
55.00	4.86	0.17	0.00
56.00	4.86	0.17	0.00
57.00	4.86	0.17	0.00
58.00	4.86	0.17	0.00
59.00	4.86	0.17	0.00
60.00	4.86	0.17	0.00
61.00	4.86	0.17	0.00
62.00	4.86	0.17	0.00
63.00	4.86	0.17	0.00
64.00	4.86	0.17	0.00
65.00	4.86	0.17	0.00
66.00	4.86	0.17	0.00
67.00	4.86	0.17	0.00
68.00	4.86	0.17	0.00
69.00	4.86	0.17	0.00
70.00	4.86	0.17	0.00
71.00	4.86	0.17	0.00
72.00	4.86	0.17	0.00
73.00	4.86	0.17	0.00
74.00	4.86	0.17	0.00
75.00	4.86	0.17	0.00
76.00	4.86	0.17	0.00
77.00	4.86	0.17	0.00
78.00	4.86	0.17	0.00
79.00	4.86	0.17	0.00
80.00	4.86	0.17	0.00
81.00	4.86	0.17	0.00
82.00	4.86	0.17	0.00
83.00	4.86	0.17	0.00
84.00	4.86	0.17	0.00
85.00	4.86	0.17	0.00
86.00	4.86	0.17	0.00
87.00	4.86	0.17	0.00
88.00	4.86	0.17	0.00
89.00	4.86	0.17	0.00
90.00	4.86	0.17	0.00
91.00	4.86	0.17	0.00
92.00	4.86	0.17	0.00
93.00	4.86	0.17	0.00
94.00	4.86	0.17	0.00
95.00	4.86	0.17	0.00
96.00	4.86	0.17	0.00

Summary for Subcatchment EX-C: Subcat EX-C

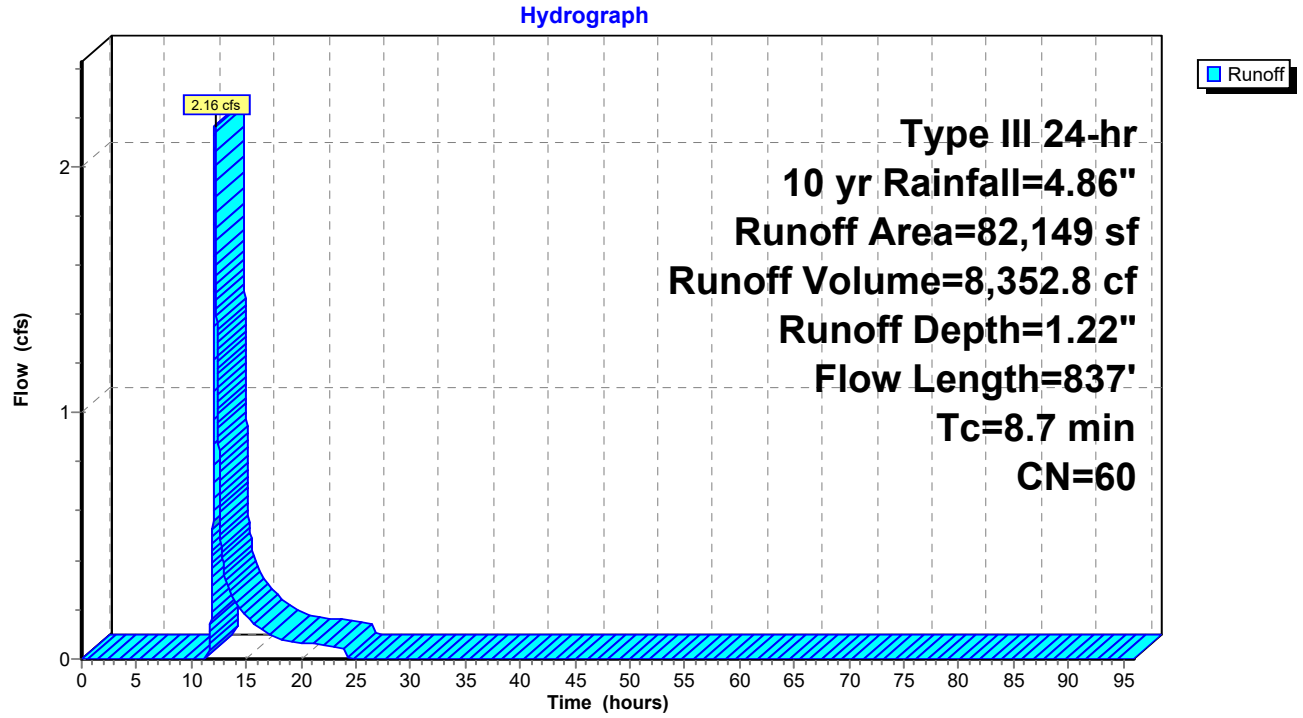
Runoff = 2.16 cfs @ 12.14 hrs, Volume= 8,352.8 cf, Depth= 1.22"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

Area (sf)	CN	Description
29,061	98	Unconnected pavement, HSG A
53,088	39	>75% Grass cover, Good, HSG A
82,149	60	Weighted Average
53,088		64.62% Pervious Area
29,061		35.38% Impervious Area
29,061		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	101	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	837	Total			

Subcatchment EX-C: Subcat EX-C



Hydrograph for Subcatchment EX-C: Subcat EX-C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.86	1.22	0.00
1.00	0.05	0.00	0.00	53.00	4.86	1.22	0.00
2.00	0.10	0.00	0.00	54.00	4.86	1.22	0.00
3.00	0.15	0.00	0.00	55.00	4.86	1.22	0.00
4.00	0.21	0.00	0.00	56.00	4.86	1.22	0.00
5.00	0.28	0.00	0.00	57.00	4.86	1.22	0.00
6.00	0.35	0.00	0.00	58.00	4.86	1.22	0.00
7.00	0.44	0.00	0.00	59.00	4.86	1.22	0.00
8.00	0.55	0.00	0.00	60.00	4.86	1.22	0.00
9.00	0.71	0.00	0.00	61.00	4.86	1.22	0.00
10.00	0.92	0.00	0.00	62.00	4.86	1.22	0.00
11.00	1.22	0.00	0.00	63.00	4.86	1.22	0.00
12.00	2.43	0.15	**0.79**	64.00	4.86	1.22	0.00
13.00	3.64	0.60	**0.35**	65.00	4.86	1.22	0.00
14.00	3.94	0.73	0.23	66.00	4.86	1.22	0.00
15.00	4.15	0.84	0.18	67.00	4.86	1.22	0.00
16.00	4.31	0.92	0.13	68.00	4.86	1.22	0.00
17.00	4.42	0.98	0.11	69.00	4.86	1.22	0.00
18.00	4.51	1.03	0.08	70.00	4.86	1.22	0.00
19.00	4.58	1.07	0.07	71.00	4.86	1.22	0.00
20.00	4.65	1.10	0.07	72.00	4.86	1.22	0.00
21.00	4.71	1.14	0.06	73.00	4.86	1.22	0.00
22.00	4.77	1.17	0.06	74.00	4.86	1.22	0.00
23.00	4.82	1.20	0.05	75.00	4.86	1.22	0.00
24.00	**4.86**	**1.22**	0.05	76.00	4.86	1.22	0.00
25.00	4.86	1.22	0.00	77.00	4.86	1.22	0.00
26.00	4.86	1.22	0.00	78.00	4.86	1.22	0.00
27.00	4.86	1.22	0.00	79.00	4.86	1.22	0.00
28.00	4.86	1.22	0.00	80.00	4.86	1.22	0.00
29.00	4.86	1.22	0.00	81.00	4.86	1.22	0.00
30.00	4.86	1.22	0.00	82.00	4.86	1.22	0.00
31.00	4.86	1.22	0.00	83.00	4.86	1.22	0.00
32.00	4.86	1.22	0.00	84.00	4.86	1.22	0.00
33.00	4.86	1.22	0.00	85.00	4.86	1.22	0.00
34.00	4.86	1.22	0.00	86.00	4.86	1.22	0.00
35.00	4.86	1.22	0.00	87.00	4.86	1.22	0.00
36.00	4.86	1.22	0.00	88.00	4.86	1.22	0.00
37.00	4.86	1.22	0.00	89.00	4.86	1.22	0.00
38.00	4.86	1.22	0.00	90.00	4.86	1.22	0.00
39.00	4.86	1.22	0.00	91.00	4.86	1.22	0.00
40.00	4.86	1.22	0.00	92.00	4.86	1.22	0.00
41.00	4.86	1.22	0.00	93.00	4.86	1.22	0.00
42.00	4.86	1.22	0.00	94.00	4.86	1.22	0.00
43.00	4.86	1.22	0.00	95.00	4.86	1.22	0.00
44.00	4.86	1.22	0.00	96.00	4.86	1.22	0.00
45.00	4.86	1.22	0.00				
46.00	4.86	1.22	0.00				
47.00	4.86	1.22	0.00				
48.00	4.86	1.22	0.00				
49.00	4.86	1.22	0.00				
50.00	4.86	1.22	0.00				
51.00	4.86	1.22	0.00				

Summary for Subcatchment EX-D: Subcat EX-D

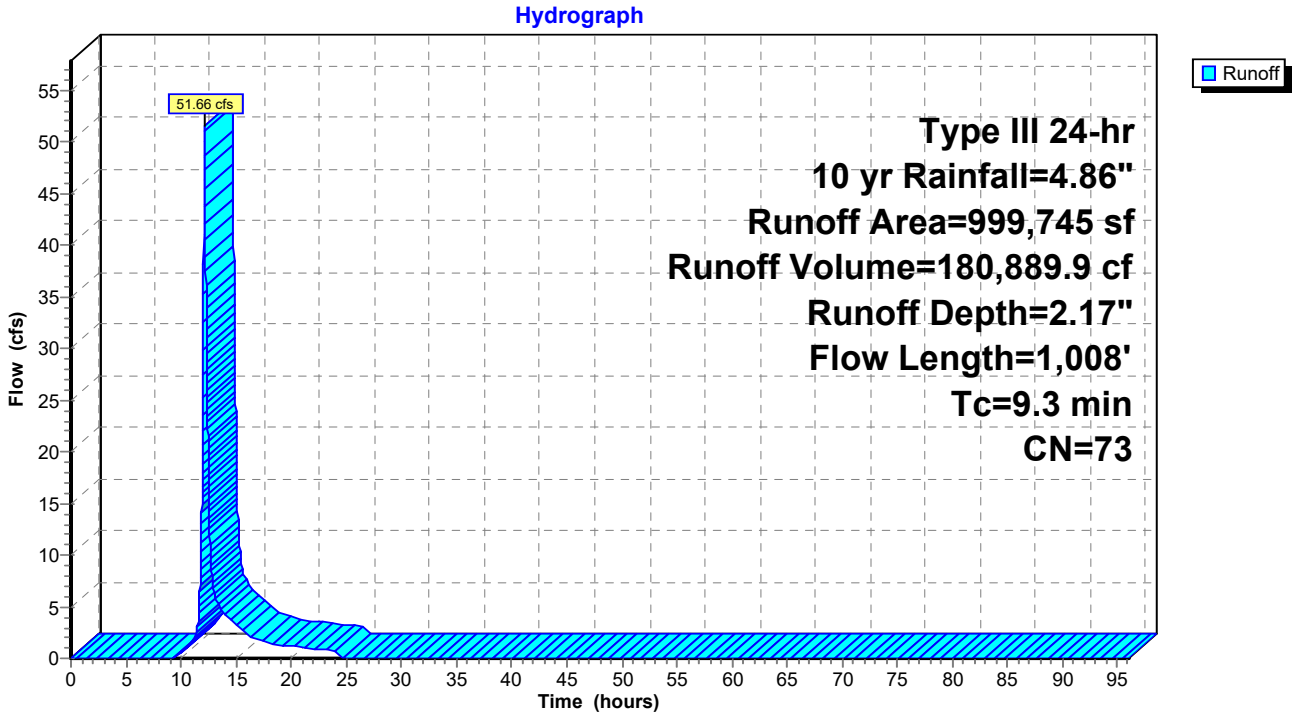
Runoff = 51.66 cfs @ 12.14 hrs, Volume= 180,889.9 cf, Depth= 2.17"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	57,570	98	Champage Bldg (#200)
*	183,306	98	Office Bldg (#110)
	341,183	98	Unconnected pavement, HSG A
	373,773	39	>75% Grass cover, Good, HSG A
*	43,913	36	Woods, Fair, HSG A
	999,745	73	Weighted Average
	417,686		41.78% Pervious Area
	582,059		58.22% Impervious Area
	341,183		58.62% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.22"
0.2	32	0.2180	3.27		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.3	58	0.0340	3.74		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	228	0.2197	9.52		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
0.3	84	0.0090	5.09	3.99	**Pipe Channel, E-F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	89	0.0680	25.75	126.41	**Pipe Channel, F-G** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
0.4	157	0.0030	6.11	43.17	**Pipe Channel, G-H** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.4	224	0.0062	8.78	62.07	**Pipe Channel, H-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.1	86	0.0116	12.01	84.90	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
9.3	1,008	Total			

Subcatchment EX-D: Subcat EX-D



Hydrograph for Subcatchment EX-D: Subcat EX-D

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.00	0.00
9.00	0.71	0.00	0.00
10.00	0.92	0.01	0.40
11.00	1.22	0.05	1.53
12.00	2.43	0.53	**23.55**
13.00	3.64	1.28	**6.60**
14.00	3.94	1.49	4.19
15.00	4.15	1.64	3.20
16.00	4.31	1.75	2.30
17.00	4.42	1.84	1.83
18.00	4.51	1.90	1.42
19.00	4.58	1.96	1.26
20.00	4.65	2.01	1.13
21.00	4.71	2.06	1.04
22.00	4.77	2.10	0.95
23.00	4.82	2.14	0.85
24.00	**4.86**	**2.17**	0.76
25.00	4.86	2.17	0.00
26.00	4.86	2.17	0.00
27.00	4.86	2.17	0.00
28.00	4.86	2.17	0.00
29.00	4.86	2.17	0.00
30.00	4.86	2.17	0.00
31.00	4.86	2.17	0.00
32.00	4.86	2.17	0.00
33.00	4.86	2.17	0.00
34.00	4.86	2.17	0.00
35.00	4.86	2.17	0.00
36.00	4.86	2.17	0.00
37.00	4.86	2.17	0.00
38.00	4.86	2.17	0.00
39.00	4.86	2.17	0.00
40.00	4.86	2.17	0.00
41.00	4.86	2.17	0.00
42.00	4.86	2.17	0.00
43.00	4.86	2.17	0.00
44.00	4.86	2.17	0.00
45.00	4.86	2.17	0.00
46.00	4.86	2.17	0.00
47.00	4.86	2.17	0.00
48.00	4.86	2.17	0.00
49.00	4.86	2.17	0.00
50.00	4.86	2.17	0.00
51.00	4.86	2.17	0.00
52.00	4.86	2.17	0.00
53.00	4.86	2.17	0.00
54.00	4.86	2.17	0.00
55.00	4.86	2.17	0.00
56.00	4.86	2.17	0.00
57.00	4.86	2.17	0.00
58.00	4.86	2.17	0.00
59.00	4.86	2.17	0.00
60.00	4.86	2.17	0.00
61.00	4.86	2.17	0.00
62.00	4.86	2.17	0.00
63.00	4.86	2.17	0.00
64.00	4.86	2.17	0.00
65.00	4.86	2.17	0.00
66.00	4.86	2.17	0.00
67.00	4.86	2.17	0.00
68.00	4.86	2.17	0.00
69.00	4.86	2.17	0.00
70.00	4.86	2.17	0.00
71.00	4.86	2.17	0.00
72.00	4.86	2.17	0.00
73.00	4.86	2.17	0.00
74.00	4.86	2.17	0.00
75.00	4.86	2.17	0.00
76.00	4.86	2.17	0.00
77.00	4.86	2.17	0.00
78.00	4.86	2.17	0.00
79.00	4.86	2.17	0.00
80.00	4.86	2.17	0.00
81.00	4.86	2.17	0.00
82.00	4.86	2.17	0.00
83.00	4.86	2.17	0.00
84.00	4.86	2.17	0.00
85.00	4.86	2.17	0.00
86.00	4.86	2.17	0.00
87.00	4.86	2.17	0.00
88.00	4.86	2.17	0.00
89.00	4.86	2.17	0.00
90.00	4.86	2.17	0.00
91.00	4.86	2.17	0.00
92.00	4.86	2.17	0.00
93.00	4.86	2.17	0.00
94.00	4.86	2.17	0.00
95.00	4.86	2.17	0.00
96.00	4.86	2.17	0.00

Summary for Subcatchment EX-E: Subcat EX-E

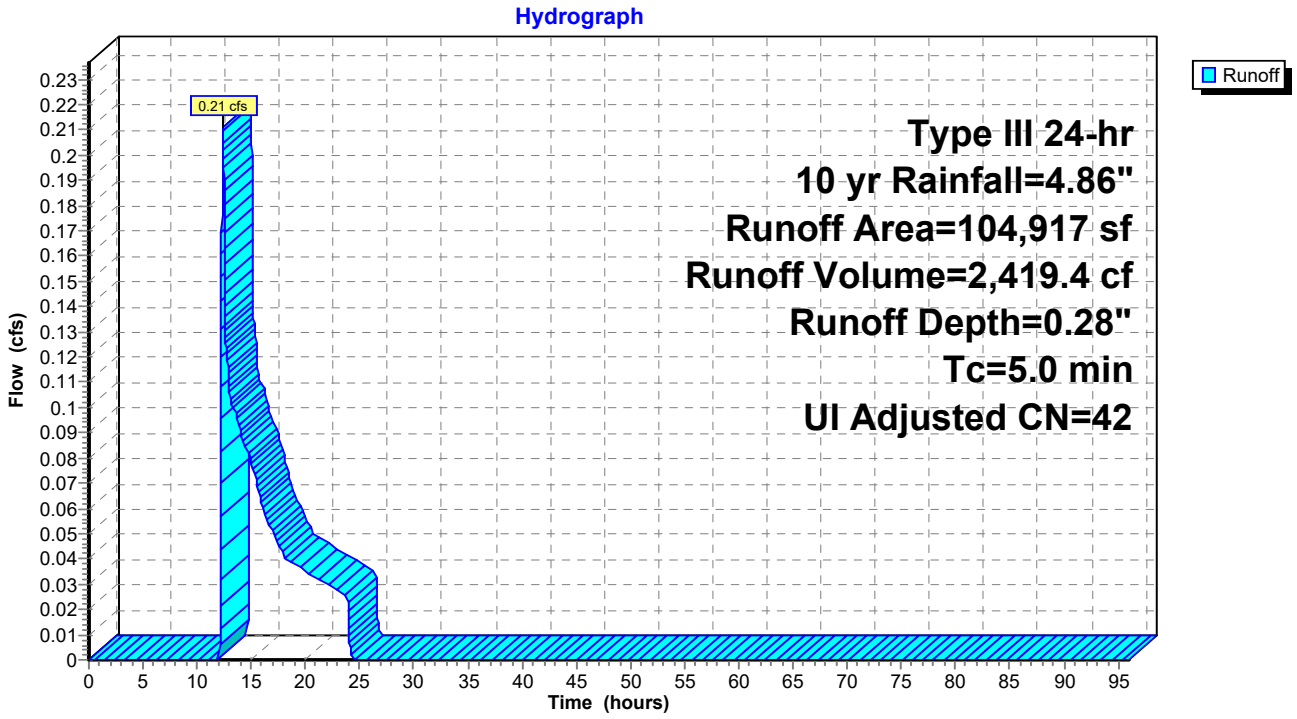
Runoff = 0.21 cfs @ 12.38 hrs, Volume= 2,419.4 cf, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Adj	Description
*	2,135	98		Roof Area
	14,619	98		Unconnected pavement, HSG A
	28,107	39		>75% Grass cover, Good, HSG A
	60,056	36		Woods, Fair, HSG A
	104,917	47	42	Weighted Average, UI Adjusted
	88,163			84.03% Pervious Area
	16,754			15.97% Impervious Area
	14,619			87.26% Unconnected

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

Subcatchment EX-E: Subcat EX-E



Hydrograph for Subcatchment EX-E: Subcat EX-E

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.00	0.00
9.00	0.71	0.00	0.00
10.00	0.92	0.00	0.00
11.00	1.22	0.00	0.00
12.00	2.43	0.00	**0.00**
13.00	3.64	0.05	**0.11**
14.00	3.94	0.09	0.09
15.00	4.15	0.13	0.08
16.00	4.31	0.16	0.06
17.00	4.42	0.18	0.05
18.00	4.51	0.20	0.04
19.00	4.58	0.21	0.04
20.00	4.65	0.23	0.03
21.00	4.71	0.24	0.03
22.00	4.77	0.25	0.03
23.00	4.82	0.27	0.03
24.00	**4.86**	**0.28**	0.02
25.00	4.86	0.28	0.00
26.00	4.86	0.28	0.00
27.00	4.86	0.28	0.00
28.00	4.86	0.28	0.00
29.00	4.86	0.28	0.00
30.00	4.86	0.28	0.00
31.00	4.86	0.28	0.00
32.00	4.86	0.28	0.00
33.00	4.86	0.28	0.00
34.00	4.86	0.28	0.00
35.00	4.86	0.28	0.00
36.00	4.86	0.28	0.00
37.00	4.86	0.28	0.00
38.00	4.86	0.28	0.00
39.00	4.86	0.28	0.00
40.00	4.86	0.28	0.00
41.00	4.86	0.28	0.00
42.00	4.86	0.28	0.00
43.00	4.86	0.28	0.00
44.00	4.86	0.28	0.00
45.00	4.86	0.28	0.00
46.00	4.86	0.28	0.00
47.00	4.86	0.28	0.00
48.00	4.86	0.28	0.00
49.00	4.86	0.28	0.00
50.00	4.86	0.28	0.00
51.00	4.86	0.28	0.00
52.00	4.86	0.28	0.00
53.00	4.86	0.28	0.00
54.00	4.86	0.28	0.00
55.00	4.86	0.28	0.00
56.00	4.86	0.28	0.00
57.00	4.86	0.28	0.00
58.00	4.86	0.28	0.00
59.00	4.86	0.28	0.00
60.00	4.86	0.28	0.00
61.00	4.86	0.28	0.00
62.00	4.86	0.28	0.00
63.00	4.86	0.28	0.00
64.00	4.86	0.28	0.00
65.00	4.86	0.28	0.00
66.00	4.86	0.28	0.00
67.00	4.86	0.28	0.00
68.00	4.86	0.28	0.00
69.00	4.86	0.28	0.00
70.00	4.86	0.28	0.00
71.00	4.86	0.28	0.00
72.00	4.86	0.28	0.00
73.00	4.86	0.28	0.00
74.00	4.86	0.28	0.00
75.00	4.86	0.28	0.00
76.00	4.86	0.28	0.00
77.00	4.86	0.28	0.00
78.00	4.86	0.28	0.00
79.00	4.86	0.28	0.00
80.00	4.86	0.28	0.00
81.00	4.86	0.28	0.00
82.00	4.86	0.28	0.00
83.00	4.86	0.28	0.00
84.00	4.86	0.28	0.00
85.00	4.86	0.28	0.00
86.00	4.86	0.28	0.00
87.00	4.86	0.28	0.00
88.00	4.86	0.28	0.00
89.00	4.86	0.28	0.00
90.00	4.86	0.28	0.00
91.00	4.86	0.28	0.00
92.00	4.86	0.28	0.00
93.00	4.86	0.28	0.00
94.00	4.86	0.28	0.00
95.00	4.86	0.28	0.00
96.00	4.86	0.28	0.00

Summary for Pond FP: Fire Pond Weir

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 2.17" for 10 yr event
Inflow = 51.66 cfs @ 12.14 hrs, Volume= 180,889.9 cf
Outflow = 5.17 cfs @ 13.43 hrs, Volume= 180,889.9 cf, Atten= 90%, Lag= 77.8 min
Primary = 5.17 cfs @ 13.43 hrs, Volume= 180,889.9 cf
Routed to Link POA D : WETLAND- NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 245.26' @ 13.43 hrs Surf.Area= 67,846 sf Storage= 309,607.2 cf (78,627.0 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 161.8 min (1,006.2 - 844.5)

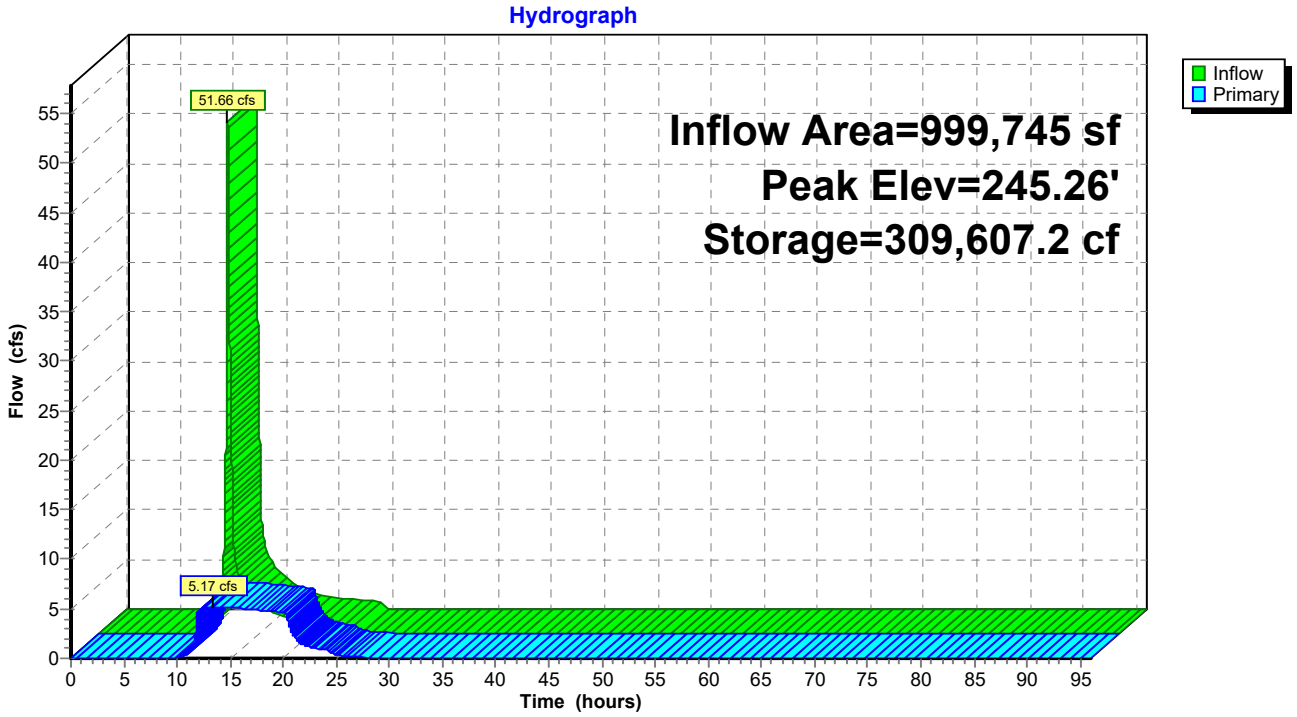
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

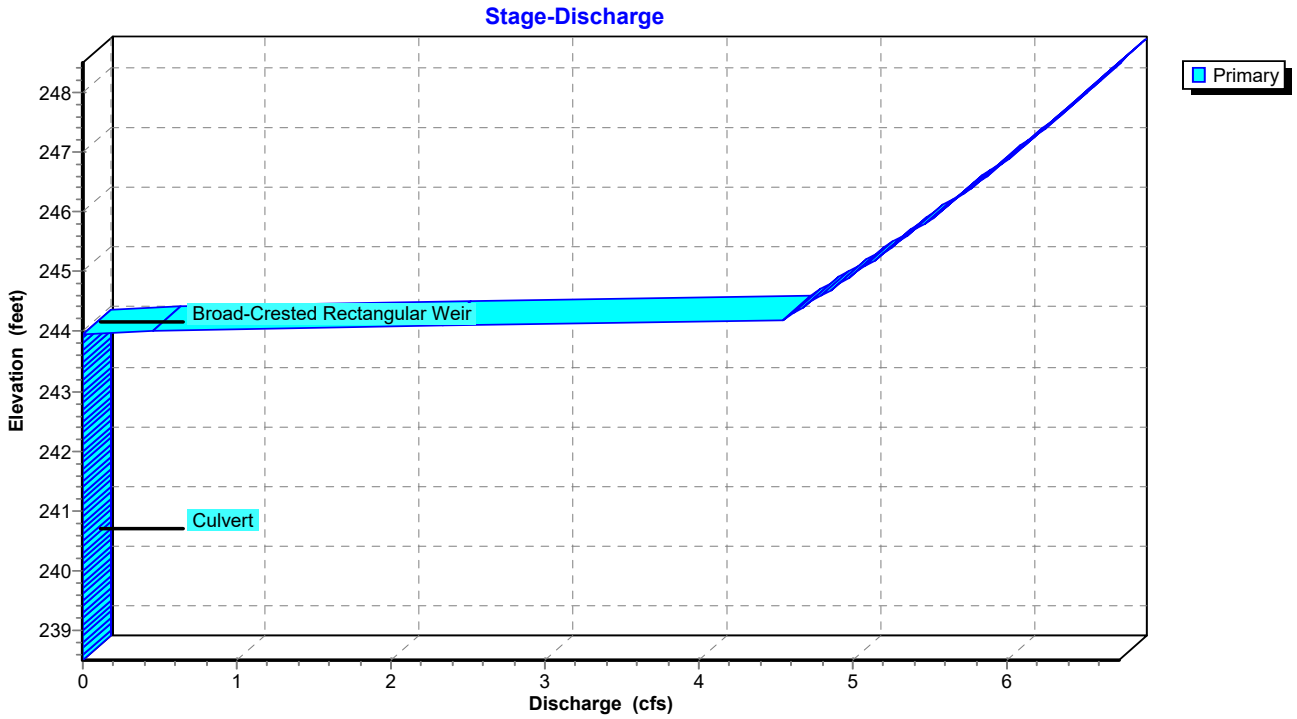
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=5.17 cfs @ 13.43 hrs HW=245.26' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 5.17 cfs @ 6.58 fps)
↑—**1=Broad-Crested Rectangular Weir** (Passes 5.17 cfs of 70.92 cfs potential flow)

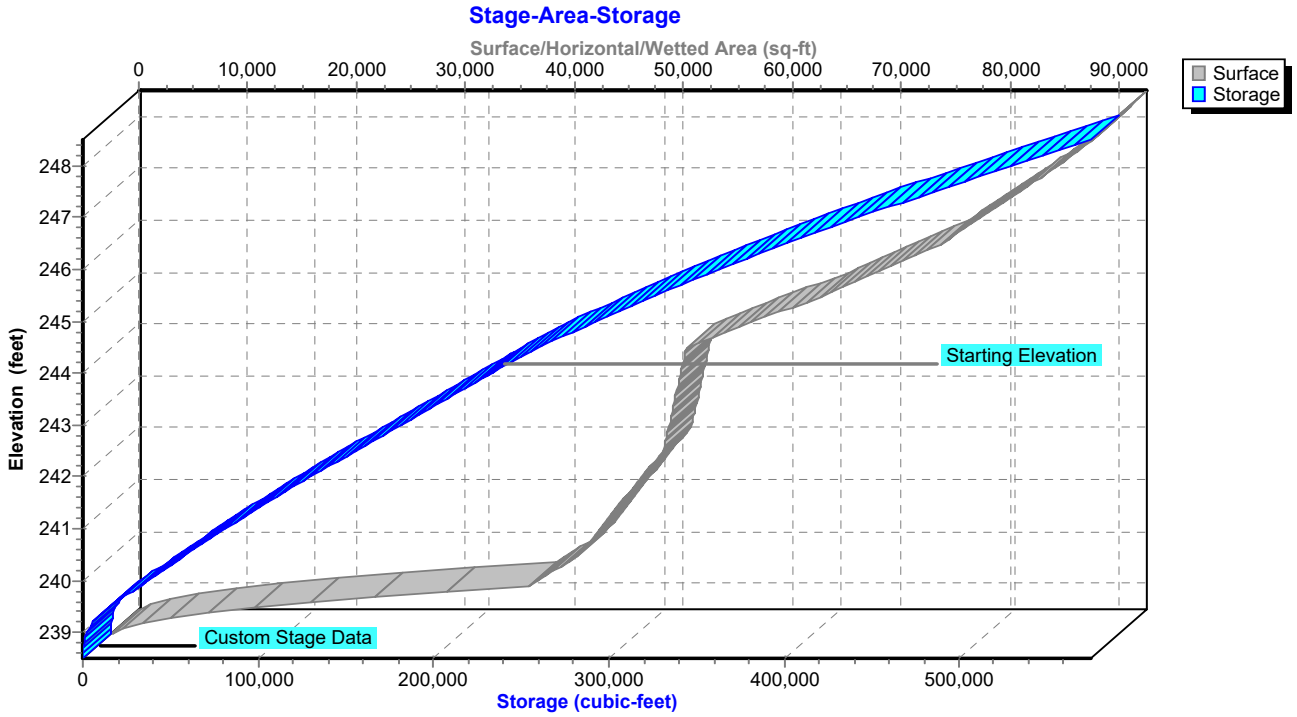
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.00	230,980.2	243.95	0.00
10.00	0.40	231,384.9	243.96	0.07
12.00	**23.55**	**248,333.1**	**244.27**	**4.59**
14.00	**4.19**	**308,637.0**	**245.24**	**5.16**
16.00	2.30	294,878.4	245.04	5.04
18.00	1.42	272,427.7	244.68	4.84
20.00	1.13	247,553.8	244.26	4.58
22.00	0.95	236,124.3	244.05	1.34
24.00	0.76	234,762.6	244.02	0.86
26.00	0.00	232,119.6	243.97	0.19
28.00	0.00	231,313.5	243.96	0.06
30.00	0.00	231,077.7	243.95	0.02
32.00	0.00	231,008.7	243.95	0.00
34.00	0.00	230,988.6	243.95	0.00
36.00	0.00	230,982.7	243.95	0.00
38.00	0.00	230,980.9	243.95	0.00
40.00	0.00	230,980.4	243.95	0.00
42.00	0.00	230,980.3	243.95	0.00
44.00	0.00	230,980.2	243.95	0.00
46.00	0.00	230,980.2	243.95	0.00
48.00	0.00	230,980.2	243.95	0.00
50.00	0.00	230,980.2	243.95	0.00
52.00	0.00	230,980.2	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

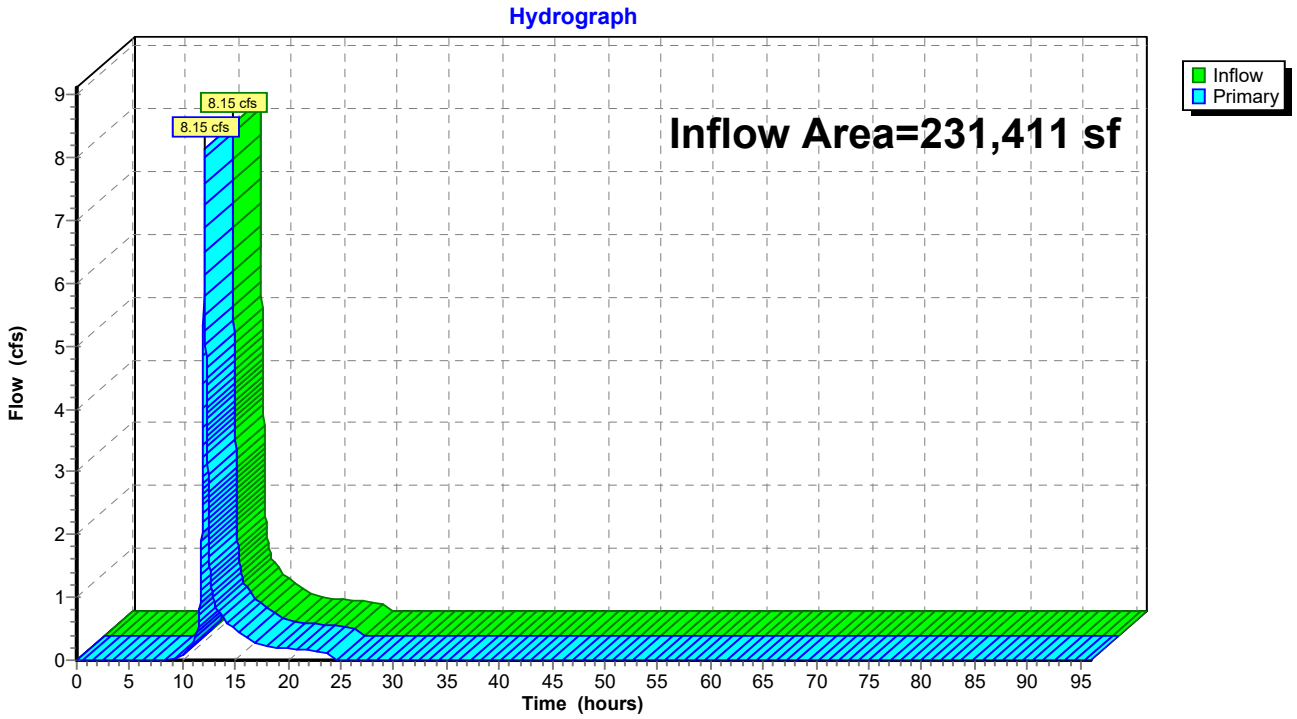
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Link POA A: POND- WEST

Inflow Area = 231,411 sf, 34.58% Impervious, Inflow Depth = 1.41" for 10 yr event
Inflow = 8.15 cfs @ 12.10 hrs, Volume= 27,190.0 cf
Primary = 8.15 cfs @ 12.10 hrs, Volume= 27,190.0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

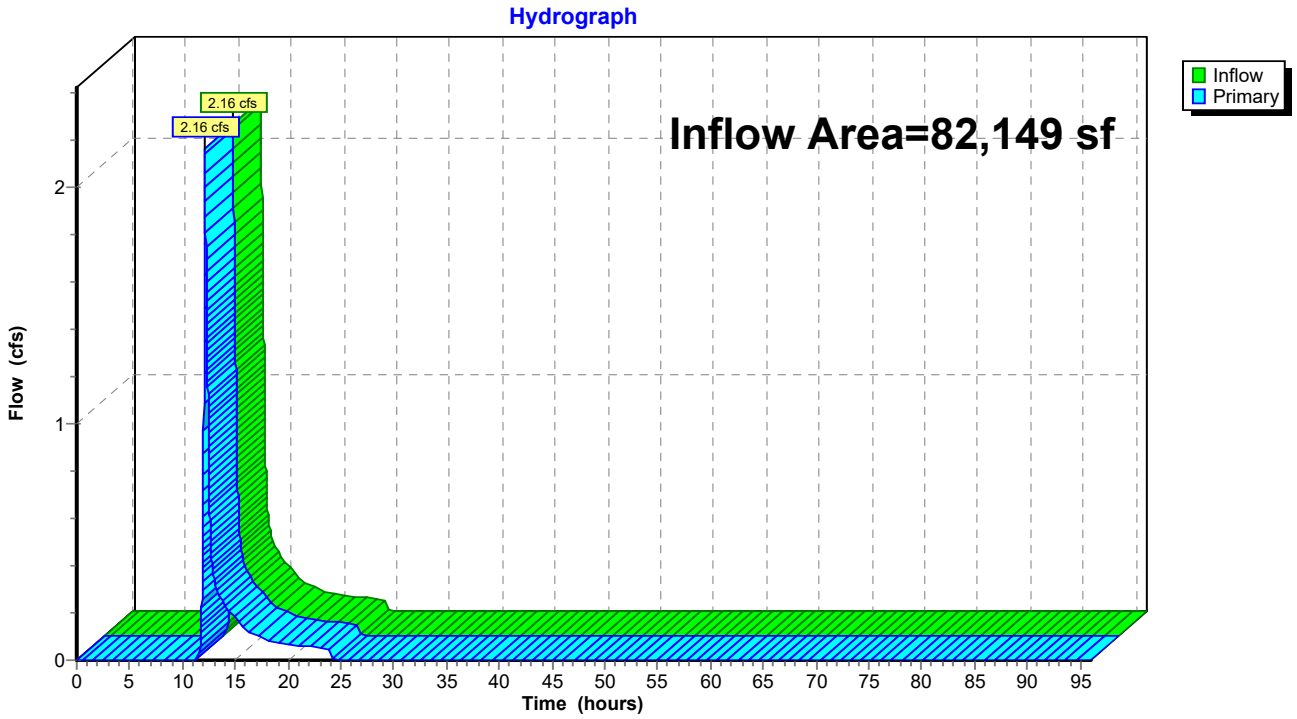
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.09	0.00	0.09	62.00	0.00	0.00	0.00
11.00	0.26	0.00	0.26	63.00	0.00	0.00	0.00
12.00	**4.41**	0.00	**4.41**	64.00	0.00	0.00	0.00
13.00	**0.93**	0.00	**0.93**	65.00	0.00	0.00	0.00
14.00	0.62	0.00	0.62	66.00	0.00	0.00	0.00
15.00	0.49	0.00	0.49	67.00	0.00	0.00	0.00
16.00	0.35	0.00	0.35	68.00	0.00	0.00	0.00
17.00	0.28	0.00	0.28	69.00	0.00	0.00	0.00
18.00	0.22	0.00	0.22	70.00	0.00	0.00	0.00
19.00	0.20	0.00	0.20	71.00	0.00	0.00	0.00
20.00	0.18	0.00	0.18	72.00	0.00	0.00	0.00
21.00	0.17	0.00	0.17	73.00	0.00	0.00	0.00
22.00	0.15	0.00	0.15	74.00	0.00	0.00	0.00
23.00	0.14	0.00	0.14	75.00	0.00	0.00	0.00
24.00	0.12	0.00	0.12	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 82,149 sf, 35.38% Impervious, Inflow Depth = 1.22" for 10 yr event
Inflow = 2.16 cfs @ 12.14 hrs, Volume= 8,352.8 cf
Primary = 2.16 cfs @ 12.14 hrs, Volume= 8,352.8 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

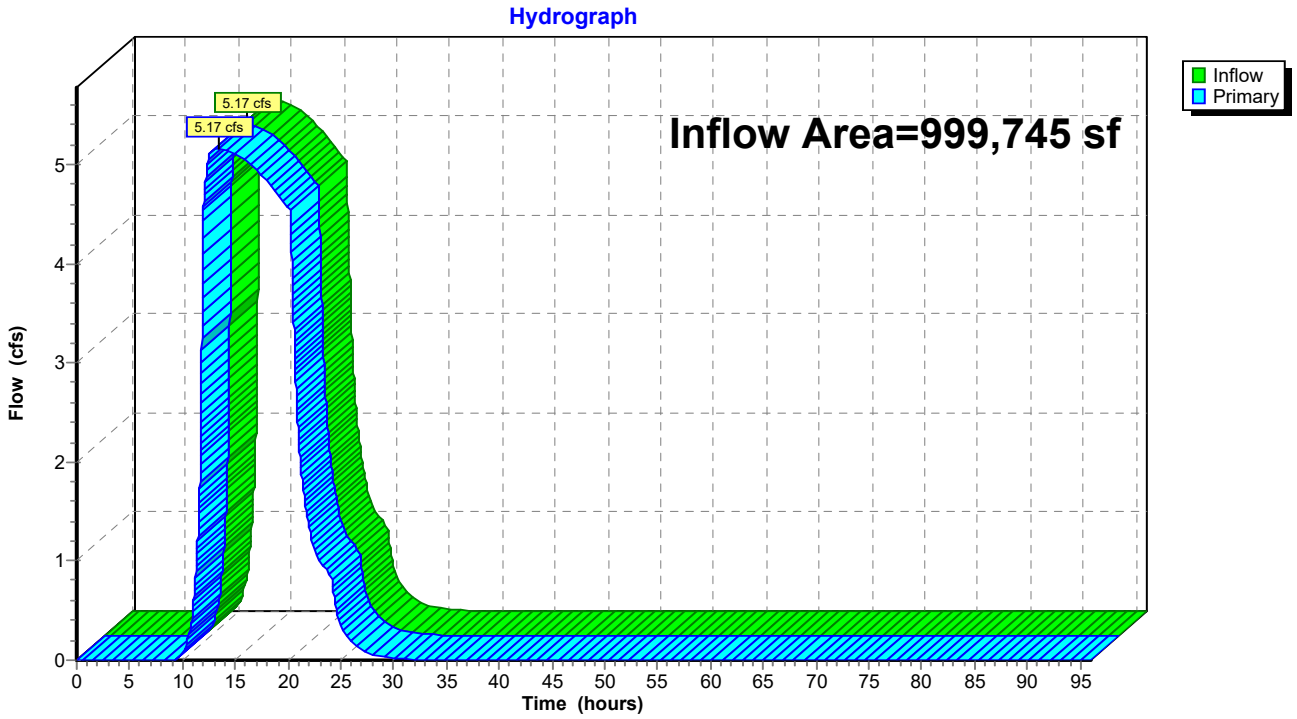
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	**0.79**	0.00	**0.79**	64.00	0.00	0.00	0.00
13.00	**0.35**	0.00	**0.35**	65.00	0.00	0.00	0.00
14.00	0.23	0.00	0.23	66.00	0.00	0.00	0.00
15.00	0.18	0.00	0.18	67.00	0.00	0.00	0.00
16.00	0.13	0.00	0.13	68.00	0.00	0.00	0.00
17.00	0.11	0.00	0.11	69.00	0.00	0.00	0.00
18.00	0.08	0.00	0.08	70.00	0.00	0.00	0.00
19.00	0.07	0.00	0.07	71.00	0.00	0.00	0.00
20.00	0.07	0.00	0.07	72.00	0.00	0.00	0.00
21.00	0.06	0.00	0.06	73.00	0.00	0.00	0.00
22.00	0.06	0.00	0.06	74.00	0.00	0.00	0.00
23.00	0.05	0.00	0.05	75.00	0.00	0.00	0.00
24.00	0.05	0.00	0.05	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND- NORTH

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 2.17" for 10 yr event
Inflow = 5.17 cfs @ 13.43 hrs, Volume= 180,889.9 cf
Primary = 5.17 cfs @ 13.43 hrs, Volume= 180,889.9 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND- NORTH



Hydrograph for Link POA D: WETLAND- NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00
10.00	0.07	0.00	0.07
11.00	0.50	0.00	0.50
12.00	4.59	0.00	4.59
13.00	**5.16**	0.00	**5.16**
14.00	**5.16**	0.00	**5.16**
15.00	5.11	0.00	5.11
16.00	5.04	0.00	5.04
17.00	4.95	0.00	4.95
18.00	4.84	0.00	4.84
19.00	4.71	0.00	4.71
20.00	4.58	0.00	4.58
21.00	2.25	0.00	2.25
22.00	1.34	0.00	1.34
23.00	1.01	0.00	1.01
24.00	0.86	0.00	0.86
25.00	0.36	0.00	0.36
26.00	0.19	0.00	0.19
27.00	0.11	0.00	0.11
28.00	0.06	0.00	0.06
29.00	0.03	0.00	0.03
30.00	0.02	0.00	0.02
31.00	0.01	0.00	0.01
32.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00
73.00	0.00	0.00	0.00
74.00	0.00	0.00	0.00
75.00	0.00	0.00	0.00
76.00	0.00	0.00	0.00
77.00	0.00	0.00	0.00
78.00	0.00	0.00	0.00
79.00	0.00	0.00	0.00
80.00	0.00	0.00	0.00
81.00	0.00	0.00	0.00
82.00	0.00	0.00	0.00
83.00	0.00	0.00	0.00
84.00	0.00	0.00	0.00
85.00	0.00	0.00	0.00
86.00	0.00	0.00	0.00
87.00	0.00	0.00	0.00
88.00	0.00	0.00	0.00
89.00	0.00	0.00	0.00
90.00	0.00	0.00	0.00
91.00	0.00	0.00	0.00
92.00	0.00	0.00	0.00
93.00	0.00	0.00	0.00
94.00	0.00	0.00	0.00
95.00	0.00	0.00	0.00
96.00	0.00	0.00	0.00

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-A1: Subcat EX-A1 Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=3.41"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=11.94 cfs 37,609.3 cf

Subcatchment EX-A2: Subcat EX-A2 Runoff Area=99,071 sf 0.00% Impervious Runoff Depth=0.49"
Flow Length=1,283' Tc=7.2 min CN=39 Runoff=0.46 cfs 4,039.4 cf

Subcatchment EX-C: Subcat EX-C Runoff Area=82,149 sf 35.38% Impervious Runoff Depth=2.02"
Flow Length=837' Tc=8.7 min CN=60 Runoff=3.86 cfs 13,830.8 cf

Subcatchment EX-D: Subcat EX-D Runoff Area=999,745 sf 58.22% Impervious Runoff Depth=3.21"
Flow Length=1,008' Tc=9.3 min CN=73 Runoff=77.16 cfs 267,719.7 cf

Subcatchment EX-E: Subcat EX-E Runoff Area=104,917 sf 15.97% Impervious Runoff Depth=0.67"
Tc=5.0 min UI Adjusted CN=42 Runoff=0.92 cfs 5,835.9 cf

Pond FP: Fire Pond Weir Peak Elev=246.00' Storage=362,696.9 cf Inflow=77.16 cfs 267,719.7 cf
Outflow=5.56 cfs 267,719.7 cf

Link POA A: POND- WEST Inflow=12.03 cfs 41,648.7 cf
Primary=12.03 cfs 41,648.7 cf

Link POA C: WETLAND-WEST Inflow=3.86 cfs 13,830.8 cf
Primary=3.86 cfs 13,830.8 cf

Link POA D: WETLAND-NORTH Inflow=5.56 cfs 267,719.7 cf
Primary=5.56 cfs 267,719.7 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 329,035.1 cf Average Runoff Depth = 2.78"
50.09% Pervious = 710,328 sf 49.91% Impervious = 707,894 sf

Summary for Subcatchment EX-A1: Subcat EX-A1

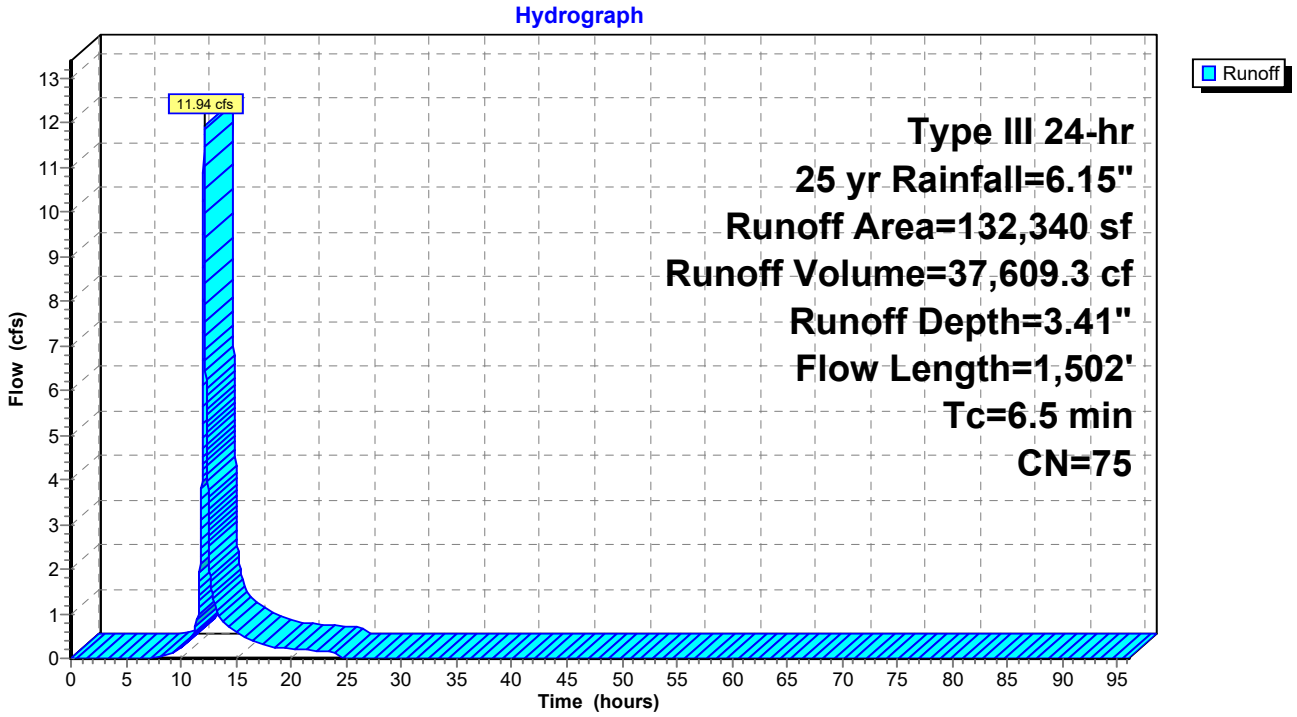
Runoff = 11.94 cfs @ 12.10 hrs, Volume= 37,609.3 cf, Depth= 3.41"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment EX-A1: Subcat EX-A1



Hydrograph for Subcatchment EX-A1: Subcat EX-A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.01
9.00	0.90	0.01	0.08
10.00	1.16	0.06	0.21
11.00	1.54	0.18	0.48
12.00	3.07	1.01	**6.65**
13.00	4.61	2.14	**1.22**
14.00	4.99	2.44	0.78
15.00	5.25	2.66	0.60
16.00	5.45	2.82	0.42
17.00	5.59	2.94	0.34
18.00	5.71	3.03	0.26
19.00	5.80	3.11	0.23
20.00	5.89	3.18	0.21
21.00	5.96	3.25	0.19
22.00	6.03	3.31	0.17
23.00	6.09	3.36	0.16
24.00	**6.15**	**3.41**	0.14
25.00	6.15	3.41	0.00
26.00	6.15	3.41	0.00
27.00	6.15	3.41	0.00
28.00	6.15	3.41	0.00
29.00	6.15	3.41	0.00
30.00	6.15	3.41	0.00
31.00	6.15	3.41	0.00
32.00	6.15	3.41	0.00
33.00	6.15	3.41	0.00
34.00	6.15	3.41	0.00
35.00	6.15	3.41	0.00
36.00	6.15	3.41	0.00
37.00	6.15	3.41	0.00
38.00	6.15	3.41	0.00
39.00	6.15	3.41	0.00
40.00	6.15	3.41	0.00
41.00	6.15	3.41	0.00
42.00	6.15	3.41	0.00
43.00	6.15	3.41	0.00
44.00	6.15	3.41	0.00
45.00	6.15	3.41	0.00
46.00	6.15	3.41	0.00
47.00	6.15	3.41	0.00
48.00	6.15	3.41	0.00
49.00	6.15	3.41	0.00
50.00	6.15	3.41	0.00
51.00	6.15	3.41	0.00
52.00	6.15	3.41	0.00
53.00	6.15	3.41	0.00
54.00	6.15	3.41	0.00
55.00	6.15	3.41	0.00
56.00	6.15	3.41	0.00
57.00	6.15	3.41	0.00
58.00	6.15	3.41	0.00
59.00	6.15	3.41	0.00
60.00	6.15	3.41	0.00
61.00	6.15	3.41	0.00
62.00	6.15	3.41	0.00
63.00	6.15	3.41	0.00
64.00	6.15	3.41	0.00
65.00	6.15	3.41	0.00
66.00	6.15	3.41	0.00
67.00	6.15	3.41	0.00
68.00	6.15	3.41	0.00
69.00	6.15	3.41	0.00
70.00	6.15	3.41	0.00
71.00	6.15	3.41	0.00
72.00	6.15	3.41	0.00
73.00	6.15	3.41	0.00
74.00	6.15	3.41	0.00
75.00	6.15	3.41	0.00
76.00	6.15	3.41	0.00
77.00	6.15	3.41	0.00
78.00	6.15	3.41	0.00
79.00	6.15	3.41	0.00
80.00	6.15	3.41	0.00
81.00	6.15	3.41	0.00
82.00	6.15	3.41	0.00
83.00	6.15	3.41	0.00
84.00	6.15	3.41	0.00
85.00	6.15	3.41	0.00
86.00	6.15	3.41	0.00
87.00	6.15	3.41	0.00
88.00	6.15	3.41	0.00
89.00	6.15	3.41	0.00
90.00	6.15	3.41	0.00
91.00	6.15	3.41	0.00
92.00	6.15	3.41	0.00
93.00	6.15	3.41	0.00
94.00	6.15	3.41	0.00
95.00	6.15	3.41	0.00
96.00	6.15	3.41	0.00

Summary for Subcatchment EX-A2: Subcat EX-A2

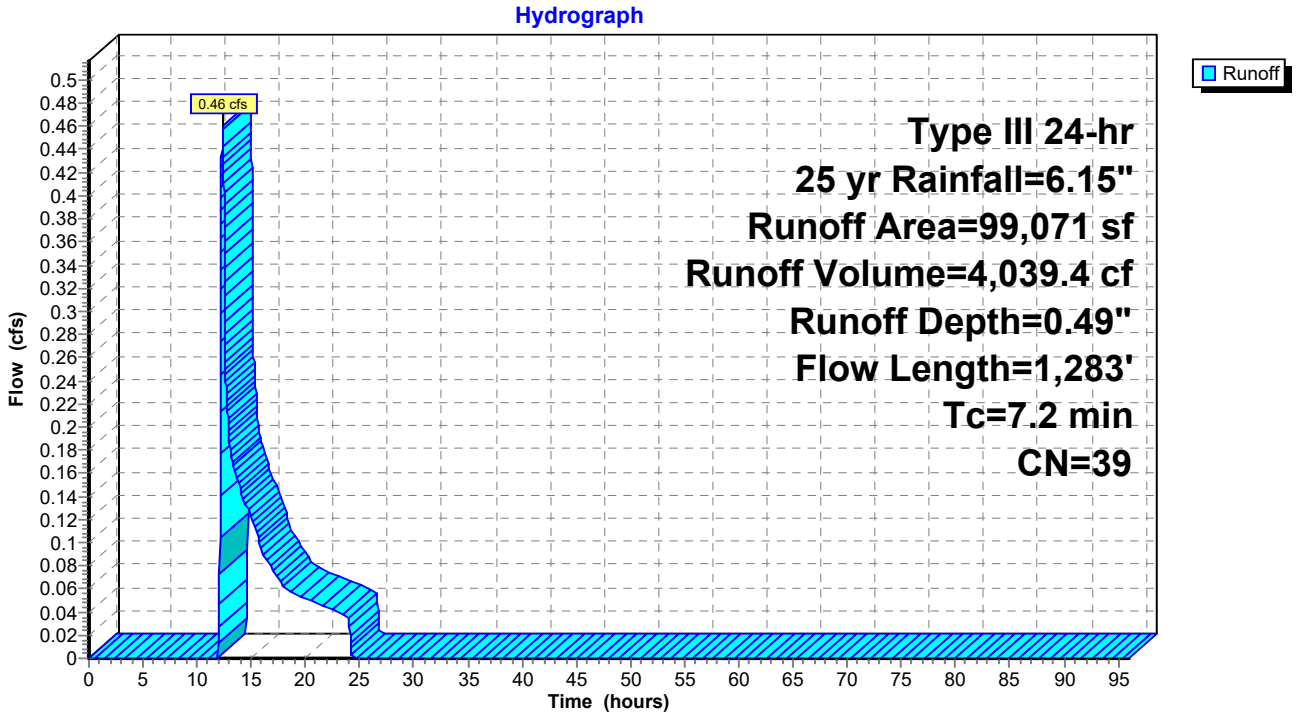
Runoff = 0.46 cfs @ 12.35 hrs, Volume= 4,039.4 cf, Depth= 0.49"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
	99,071	39	>75% Grass cover, Good, HSG A
*	0	98	imperv
	99,071	39	Weighted Average
	99,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0700	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.5	75	0.1133	2.36		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0046	1.38		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	88	0.0110	6.52	8.01	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011
0.1	66	0.0207	8.95	10.98	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
0.6	285	0.0086	7.89	24.79	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.1	33	0.0137	9.96	31.29	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	56	0.0025	4.94	24.24	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.2	50	0.0024	4.84	23.75	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.3	141	0.0071	8.32	40.85	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
1.1	396	0.0029	6.01	42.45	**Pipe Channel, K-L** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
7.2	1,283	Total			

Subcatchment EX-A2: Subcat EX-A2



Hydrograph for Subcatchment EX-A2: Subcat EX-A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.16	0.00	0.00
11.00	1.54	0.00	0.00
12.00	3.07	0.00	**0.00**
13.00	4.61	0.13	**0.19**
14.00	4.99	0.20	0.14
15.00	5.25	0.25	0.12
16.00	5.45	0.30	0.09
17.00	5.59	0.34	0.08
18.00	5.71	0.37	0.06
19.00	5.80	0.39	0.06
20.00	5.89	0.41	0.05
21.00	5.96	0.43	0.05
22.00	6.03	0.45	0.04
23.00	6.09	0.47	0.04
24.00	**6.15**	**0.49**	0.04
25.00	6.15	0.49	0.00
26.00	6.15	0.49	0.00
27.00	6.15	0.49	0.00
28.00	6.15	0.49	0.00
29.00	6.15	0.49	0.00
30.00	6.15	0.49	0.00
31.00	6.15	0.49	0.00
32.00	6.15	0.49	0.00
33.00	6.15	0.49	0.00
34.00	6.15	0.49	0.00
35.00	6.15	0.49	0.00
36.00	6.15	0.49	0.00
37.00	6.15	0.49	0.00
38.00	6.15	0.49	0.00
39.00	6.15	0.49	0.00
40.00	6.15	0.49	0.00
41.00	6.15	0.49	0.00
42.00	6.15	0.49	0.00
43.00	6.15	0.49	0.00
44.00	6.15	0.49	0.00
45.00	6.15	0.49	0.00
46.00	6.15	0.49	0.00
47.00	6.15	0.49	0.00
48.00	6.15	0.49	0.00
49.00	6.15	0.49	0.00
50.00	6.15	0.49	0.00
51.00	6.15	0.49	0.00
52.00	6.15	0.49	0.00
53.00	6.15	0.49	0.00
54.00	6.15	0.49	0.00
55.00	6.15	0.49	0.00
56.00	6.15	0.49	0.00
57.00	6.15	0.49	0.00
58.00	6.15	0.49	0.00
59.00	6.15	0.49	0.00
60.00	6.15	0.49	0.00
61.00	6.15	0.49	0.00
62.00	6.15	0.49	0.00
63.00	6.15	0.49	0.00
64.00	6.15	0.49	0.00
65.00	6.15	0.49	0.00
66.00	6.15	0.49	0.00
67.00	6.15	0.49	0.00
68.00	6.15	0.49	0.00
69.00	6.15	0.49	0.00
70.00	6.15	0.49	0.00
71.00	6.15	0.49	0.00
72.00	6.15	0.49	0.00
73.00	6.15	0.49	0.00
74.00	6.15	0.49	0.00
75.00	6.15	0.49	0.00
76.00	6.15	0.49	0.00
77.00	6.15	0.49	0.00
78.00	6.15	0.49	0.00
79.00	6.15	0.49	0.00
80.00	6.15	0.49	0.00
81.00	6.15	0.49	0.00
82.00	6.15	0.49	0.00
83.00	6.15	0.49	0.00
84.00	6.15	0.49	0.00
85.00	6.15	0.49	0.00
86.00	6.15	0.49	0.00
87.00	6.15	0.49	0.00
88.00	6.15	0.49	0.00
89.00	6.15	0.49	0.00
90.00	6.15	0.49	0.00
91.00	6.15	0.49	0.00
92.00	6.15	0.49	0.00
93.00	6.15	0.49	0.00
94.00	6.15	0.49	0.00
95.00	6.15	0.49	0.00
96.00	6.15	0.49	0.00

Summary for Subcatchment EX-C: Subcat EX-C

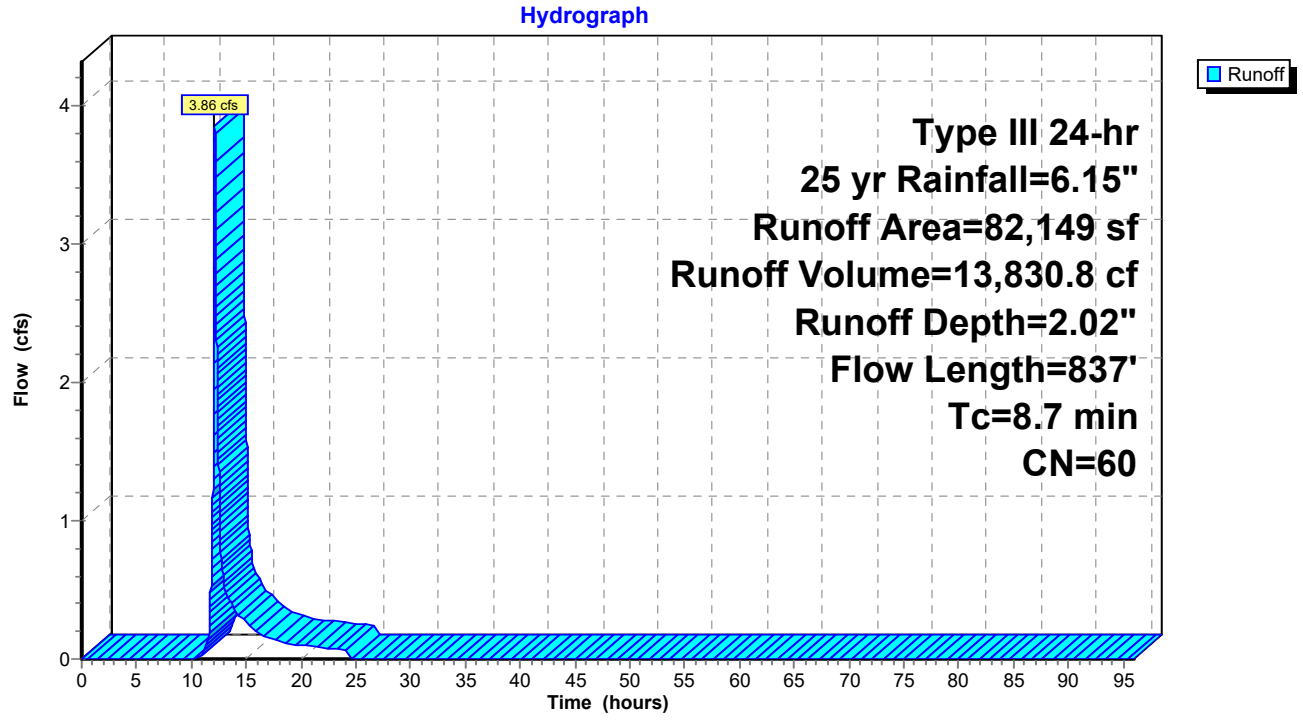
Runoff = 3.86 cfs @ 12.13 hrs, Volume= 13,830.8 cf, Depth= 2.02"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

Area (sf)	CN	Description
29,061	98	Unconnected pavement, HSG A
53,088	39	>75% Grass cover, Good, HSG A
82,149	60	Weighted Average
53,088		64.62% Pervious Area
29,061		35.38% Impervious Area
29,061		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	101	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	837	Total			

Subcatchment EX-C: Subcat EX-C



Hydrograph for Subcatchment EX-C: Subcat EX-C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.16	0.00	0.00
11.00	1.54	0.01	0.03
12.00	3.07	0.36	**1.62**
13.00	4.61	1.08	**0.54**
14.00	4.99	1.29	0.35
15.00	5.25	1.45	0.27
16.00	5.45	1.57	0.20
17.00	5.59	1.66	0.16
18.00	5.71	1.73	0.12
19.00	5.80	1.79	0.11
20.00	5.89	1.85	0.10
21.00	5.96	1.90	0.09
22.00	6.03	1.94	0.08
23.00	6.09	1.98	0.08
24.00	**6.15**	**2.02**	0.07
25.00	6.15	2.02	0.00
26.00	6.15	2.02	0.00
27.00	6.15	2.02	0.00
28.00	6.15	2.02	0.00
29.00	6.15	2.02	0.00
30.00	6.15	2.02	0.00
31.00	6.15	2.02	0.00
32.00	6.15	2.02	0.00
33.00	6.15	2.02	0.00
34.00	6.15	2.02	0.00
35.00	6.15	2.02	0.00
36.00	6.15	2.02	0.00
37.00	6.15	2.02	0.00
38.00	6.15	2.02	0.00
39.00	6.15	2.02	0.00
40.00	6.15	2.02	0.00
41.00	6.15	2.02	0.00
42.00	6.15	2.02	0.00
43.00	6.15	2.02	0.00
44.00	6.15	2.02	0.00
45.00	6.15	2.02	0.00
46.00	6.15	2.02	0.00
47.00	6.15	2.02	0.00
48.00	6.15	2.02	0.00
49.00	6.15	2.02	0.00
50.00	6.15	2.02	0.00
51.00	6.15	2.02	0.00
52.00	6.15	2.02	0.00
53.00	6.15	2.02	0.00
54.00	6.15	2.02	0.00
55.00	6.15	2.02	0.00
56.00	6.15	2.02	0.00
57.00	6.15	2.02	0.00
58.00	6.15	2.02	0.00
59.00	6.15	2.02	0.00
60.00	6.15	2.02	0.00
61.00	6.15	2.02	0.00
62.00	6.15	2.02	0.00
63.00	6.15	2.02	0.00
64.00	6.15	2.02	0.00
65.00	6.15	2.02	0.00
66.00	6.15	2.02	0.00
67.00	6.15	2.02	0.00
68.00	6.15	2.02	0.00
69.00	6.15	2.02	0.00
70.00	6.15	2.02	0.00
71.00	6.15	2.02	0.00
72.00	6.15	2.02	0.00
73.00	6.15	2.02	0.00
74.00	6.15	2.02	0.00
75.00	6.15	2.02	0.00
76.00	6.15	2.02	0.00
77.00	6.15	2.02	0.00
78.00	6.15	2.02	0.00
79.00	6.15	2.02	0.00
80.00	6.15	2.02	0.00
81.00	6.15	2.02	0.00
82.00	6.15	2.02	0.00
83.00	6.15	2.02	0.00
84.00	6.15	2.02	0.00
85.00	6.15	2.02	0.00
86.00	6.15	2.02	0.00
87.00	6.15	2.02	0.00
88.00	6.15	2.02	0.00
89.00	6.15	2.02	0.00
90.00	6.15	2.02	0.00
91.00	6.15	2.02	0.00
92.00	6.15	2.02	0.00
93.00	6.15	2.02	0.00
94.00	6.15	2.02	0.00
95.00	6.15	2.02	0.00
96.00	6.15	2.02	0.00

Summary for Subcatchment EX-D: Subcat EX-D

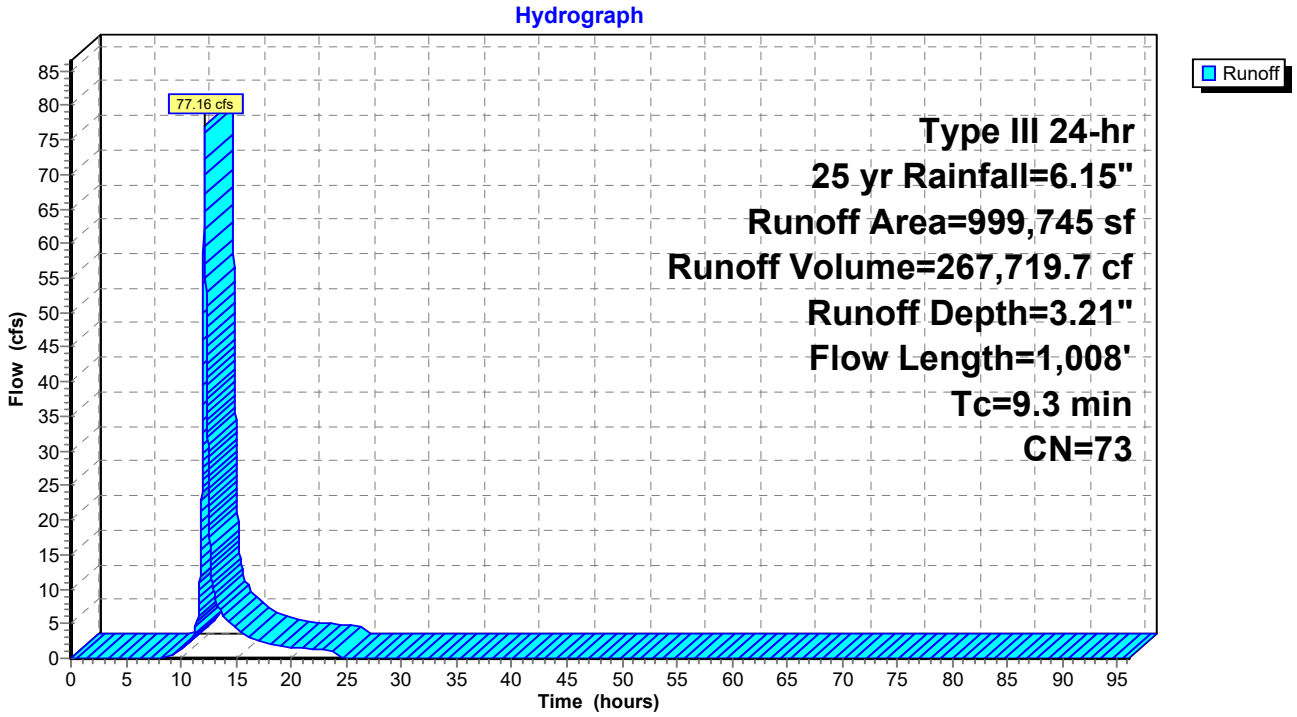
Runoff = 77.16 cfs @ 12.13 hrs, Volume= 267,719.7 cf, Depth= 3.21"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	57,570	98	Champage Bldg (#200)
*	183,306	98	Office Bldg (#110)
	341,183	98	Unconnected pavement, HSG A
	373,773	39	>75% Grass cover, Good, HSG A
*	43,913	36	Woods, Fair, HSG A
	999,745	73	Weighted Average
	417,686		41.78% Pervious Area
	582,059		58.22% Impervious Area
	341,183		58.62% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.22"
0.2	32	0.2180	3.27		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.3	58	0.0340	3.74		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	228	0.2197	9.52		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
0.3	84	0.0090	5.09	3.99	**Pipe Channel, E-F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	89	0.0680	25.75	126.41	**Pipe Channel, F-G** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
0.4	157	0.0030	6.11	43.17	**Pipe Channel, G-H** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.4	224	0.0062	8.78	62.07	**Pipe Channel, H-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.1	86	0.0116	12.01	84.90	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
9.3	1,008	Total			

Subcatchment EX-D: Subcat EX-D



Hydrograph for Subcatchment EX-D: Subcat EX-D

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.01	0.33
10.00	1.16	0.04	1.20
11.00	1.54	0.14	3.01
12.00	3.07	0.90	**36.80**
13.00	4.61	1.98	**9.28**
14.00	4.99	2.27	5.83
15.00	5.25	2.48	4.43
16.00	5.45	2.64	3.17
17.00	5.59	2.75	2.51
18.00	5.71	2.85	1.94
19.00	5.80	2.92	1.72
20.00	5.89	2.99	1.55
21.00	5.96	3.06	1.42
22.00	6.03	3.11	1.29
23.00	6.09	3.17	1.16
24.00	**6.15**	**3.21**	1.03
25.00	6.15	3.21	0.00
26.00	6.15	3.21	0.00
27.00	6.15	3.21	0.00
28.00	6.15	3.21	0.00
29.00	6.15	3.21	0.00
30.00	6.15	3.21	0.00
31.00	6.15	3.21	0.00
32.00	6.15	3.21	0.00
33.00	6.15	3.21	0.00
34.00	6.15	3.21	0.00
35.00	6.15	3.21	0.00
36.00	6.15	3.21	0.00
37.00	6.15	3.21	0.00
38.00	6.15	3.21	0.00
39.00	6.15	3.21	0.00
40.00	6.15	3.21	0.00
41.00	6.15	3.21	0.00
42.00	6.15	3.21	0.00
43.00	6.15	3.21	0.00
44.00	6.15	3.21	0.00
45.00	6.15	3.21	0.00
46.00	6.15	3.21	0.00
47.00	6.15	3.21	0.00
48.00	6.15	3.21	0.00
49.00	6.15	3.21	0.00
50.00	6.15	3.21	0.00
51.00	6.15	3.21	0.00
52.00	6.15	3.21	0.00
53.00	6.15	3.21	0.00
54.00	6.15	3.21	0.00
55.00	6.15	3.21	0.00
56.00	6.15	3.21	0.00
57.00	6.15	3.21	0.00
58.00	6.15	3.21	0.00
59.00	6.15	3.21	0.00
60.00	6.15	3.21	0.00
61.00	6.15	3.21	0.00
62.00	6.15	3.21	0.00
63.00	6.15	3.21	0.00
64.00	6.15	3.21	0.00
65.00	6.15	3.21	0.00
66.00	6.15	3.21	0.00
67.00	6.15	3.21	0.00
68.00	6.15	3.21	0.00
69.00	6.15	3.21	0.00
70.00	6.15	3.21	0.00
71.00	6.15	3.21	0.00
72.00	6.15	3.21	0.00
73.00	6.15	3.21	0.00
74.00	6.15	3.21	0.00
75.00	6.15	3.21	0.00
76.00	6.15	3.21	0.00
77.00	6.15	3.21	0.00
78.00	6.15	3.21	0.00
79.00	6.15	3.21	0.00
80.00	6.15	3.21	0.00
81.00	6.15	3.21	0.00
82.00	6.15	3.21	0.00
83.00	6.15	3.21	0.00
84.00	6.15	3.21	0.00
85.00	6.15	3.21	0.00
86.00	6.15	3.21	0.00
87.00	6.15	3.21	0.00
88.00	6.15	3.21	0.00
89.00	6.15	3.21	0.00
90.00	6.15	3.21	0.00
91.00	6.15	3.21	0.00
92.00	6.15	3.21	0.00
93.00	6.15	3.21	0.00
94.00	6.15	3.21	0.00
95.00	6.15	3.21	0.00
96.00	6.15	3.21	0.00

Summary for Subcatchment EX-E: Subcat EX-E

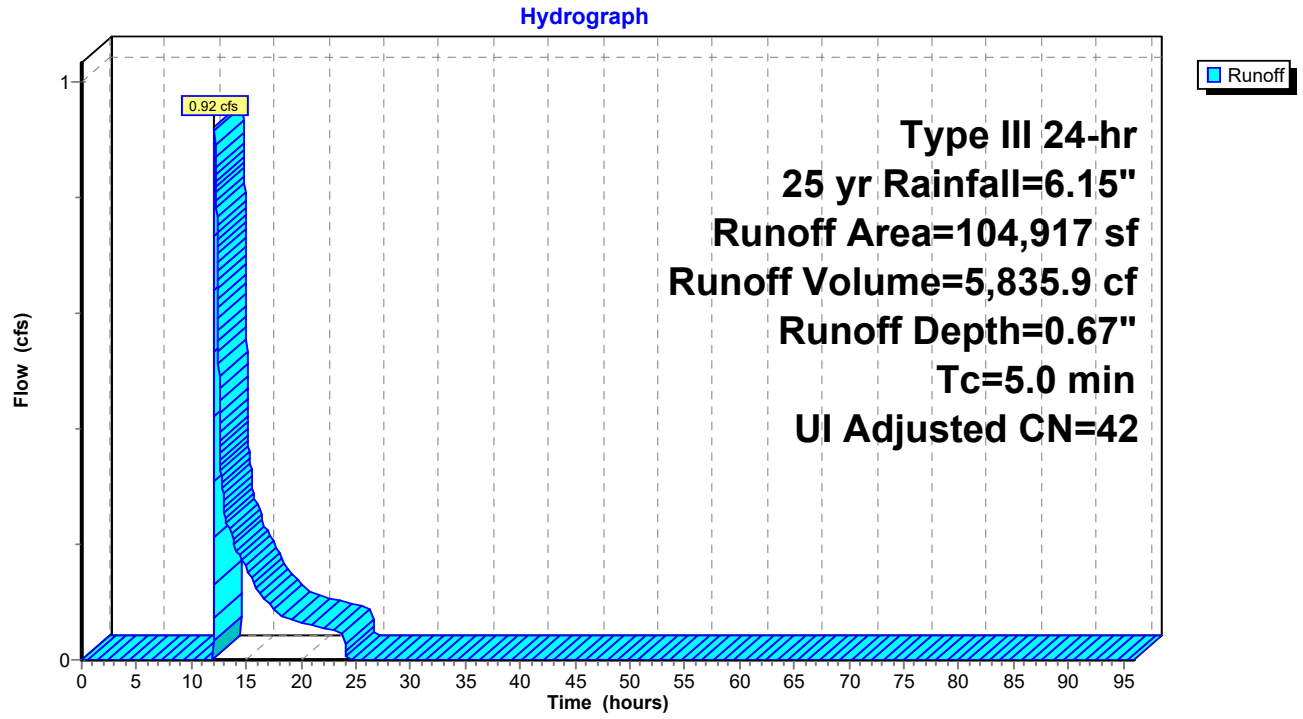
Runoff = 0.92 cfs @ 12.13 hrs, Volume= 5,835.9 cf, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Adj	Description
*	2,135	98		Roof Area
	14,619	98		Unconnected pavement, HSG A
	28,107	39		>75% Grass cover, Good, HSG A
	60,056	36		Woods, Fair, HSG A
	104,917	47	42	Weighted Average, UI Adjusted
	88,163			84.03% Pervious Area
	16,754			15.97% Impervious Area
	14,619			87.26% Unconnected

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

Subcatchment EX-E: Subcat EX-E



Hydrograph for Subcatchment EX-E: Subcat EX-E

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.16	0.00	0.00
11.00	1.54	0.00	0.00
12.00	3.07	0.01	**0.03**
13.00	4.61	0.22	**0.26**
14.00	4.99	0.31	0.19
15.00	5.25	0.38	0.16
16.00	5.45	0.44	0.12
17.00	5.59	0.48	0.10
18.00	5.71	0.52	0.08
19.00	5.80	0.55	0.07
20.00	5.89	0.58	0.07
21.00	5.96	0.60	0.06
22.00	6.03	0.63	0.06
23.00	6.09	0.65	0.05
24.00	**6.15**	**0.67**	0.05
25.00	6.15	0.67	0.00
26.00	6.15	0.67	0.00
27.00	6.15	0.67	0.00
28.00	6.15	0.67	0.00
29.00	6.15	0.67	0.00
30.00	6.15	0.67	0.00
31.00	6.15	0.67	0.00
32.00	6.15	0.67	0.00
33.00	6.15	0.67	0.00
34.00	6.15	0.67	0.00
35.00	6.15	0.67	0.00
36.00	6.15	0.67	0.00
37.00	6.15	0.67	0.00
38.00	6.15	0.67	0.00
39.00	6.15	0.67	0.00
40.00	6.15	0.67	0.00
41.00	6.15	0.67	0.00
42.00	6.15	0.67	0.00
43.00	6.15	0.67	0.00
44.00	6.15	0.67	0.00
45.00	6.15	0.67	0.00
46.00	6.15	0.67	0.00
47.00	6.15	0.67	0.00
48.00	6.15	0.67	0.00
49.00	6.15	0.67	0.00
50.00	6.15	0.67	0.00
51.00	6.15	0.67	0.00
52.00	6.15	0.67	0.00
53.00	6.15	0.67	0.00
54.00	6.15	0.67	0.00
55.00	6.15	0.67	0.00
56.00	6.15	0.67	0.00
57.00	6.15	0.67	0.00
58.00	6.15	0.67	0.00
59.00	6.15	0.67	0.00
60.00	6.15	0.67	0.00
61.00	6.15	0.67	0.00
62.00	6.15	0.67	0.00
63.00	6.15	0.67	0.00
64.00	6.15	0.67	0.00
65.00	6.15	0.67	0.00
66.00	6.15	0.67	0.00
67.00	6.15	0.67	0.00
68.00	6.15	0.67	0.00
69.00	6.15	0.67	0.00
70.00	6.15	0.67	0.00
71.00	6.15	0.67	0.00
72.00	6.15	0.67	0.00
73.00	6.15	0.67	0.00
74.00	6.15	0.67	0.00
75.00	6.15	0.67	0.00
76.00	6.15	0.67	0.00
77.00	6.15	0.67	0.00
78.00	6.15	0.67	0.00
79.00	6.15	0.67	0.00
80.00	6.15	0.67	0.00
81.00	6.15	0.67	0.00
82.00	6.15	0.67	0.00
83.00	6.15	0.67	0.00
84.00	6.15	0.67	0.00
85.00	6.15	0.67	0.00
86.00	6.15	0.67	0.00
87.00	6.15	0.67	0.00
88.00	6.15	0.67	0.00
89.00	6.15	0.67	0.00
90.00	6.15	0.67	0.00
91.00	6.15	0.67	0.00
92.00	6.15	0.67	0.00
93.00	6.15	0.67	0.00
94.00	6.15	0.67	0.00
95.00	6.15	0.67	0.00
96.00	6.15	0.67	0.00

Summary for Pond FP: Fire Pond Weir

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 3.21" for 25 yr event
Inflow = 77.16 cfs @ 12.13 hrs, Volume= 267,719.7 cf
Outflow = 5.56 cfs @ 14.11 hrs, Volume= 267,719.7 cf, Atten= 93%, Lag= 118.8 min
Primary = 5.56 cfs @ 14.11 hrs, Volume= 267,719.7 cf
Routed to Link POA D : WETLAND- NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 246.00' @ 14.11 hrs Surf.Area= 76,054 sf Storage= 362,696.9 cf (131,716.7 cf above start)

Plug-Flow detention time= 805.8 min calculated for 36,735.7 cf (14% of inflow)
Center-of-Mass det. time= 256.4 min (1,089.5 - 833.1)

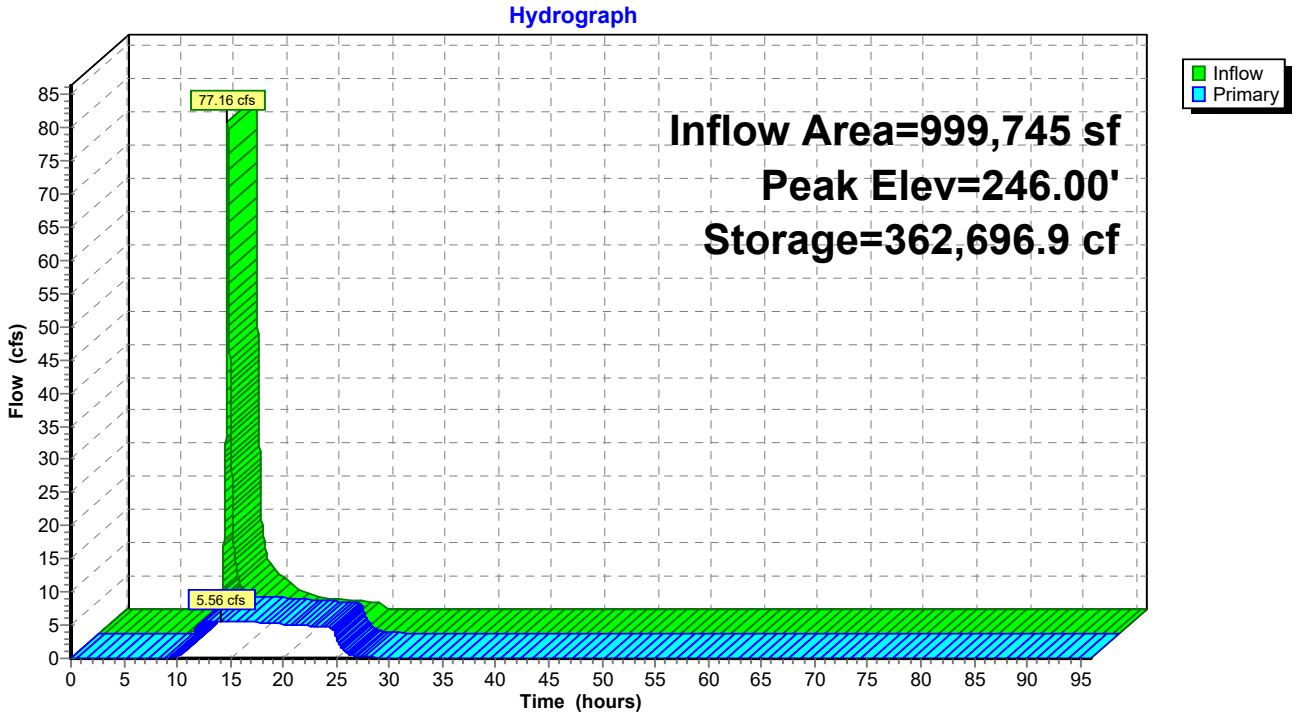
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

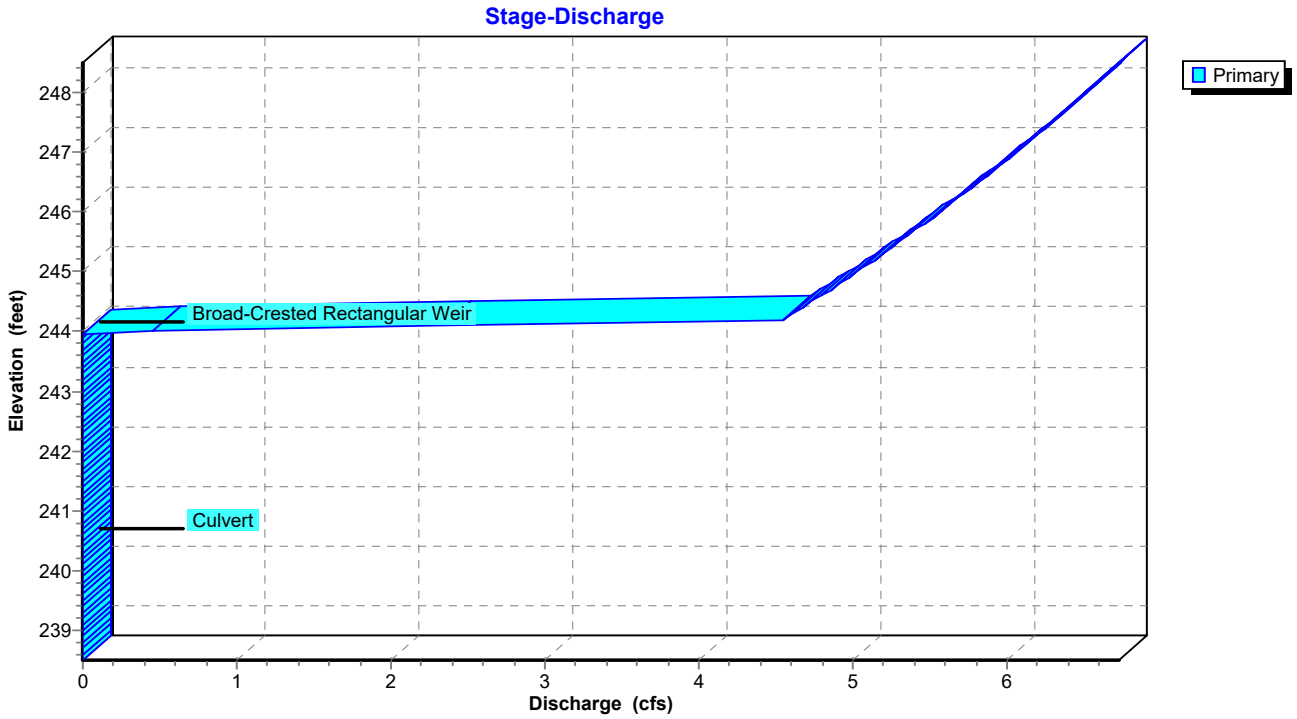
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=5.56 cfs @ 14.11 hrs HW=246.00' (Free Discharge)
↑**2=Culvert** (Barrel Controls 5.56 cfs @ 7.08 fps)
↑**1=Broad-Crested Rectangular Weir** (Passes 5.56 cfs of 141.50 cfs potential flow)

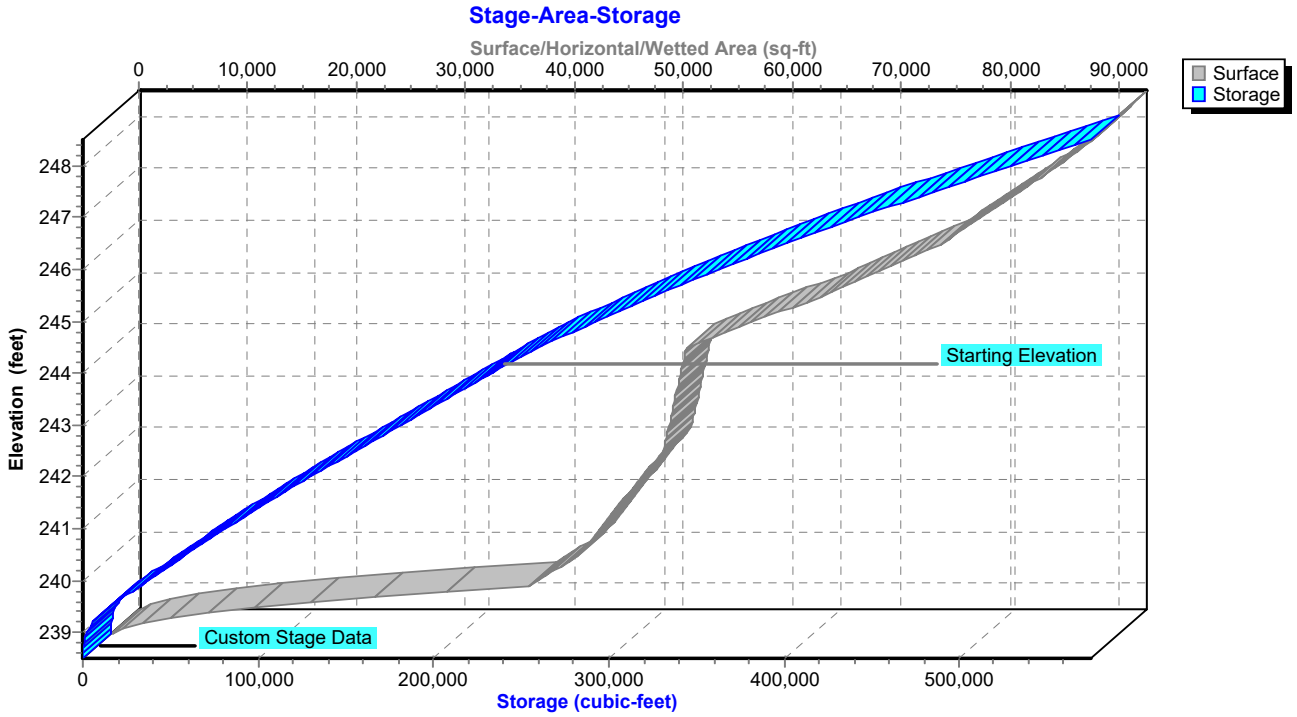
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.00	230,980.2	243.95	0.00
10.00	1.20	233,219.4	243.99	0.38
12.00	**36.80**	261,019.4	244.49	4.72
14.00	**5.83**	**362,646.4**	**246.00**	**5.56**
16.00	3.17	**354,645.0**	**245.89**	**5.50**
18.00	1.94	333,612.9	245.60	5.35
20.00	1.55	308,166.0	245.24	5.15
22.00	1.29	282,057.4	244.84	4.93
24.00	1.03	255,828.5	244.40	4.67
26.00	0.00	234,659.2	244.02	0.82
28.00	0.00	232,009.9	243.97	0.18
30.00	0.00	231,281.5	243.96	0.05
32.00	0.00	231,068.3	243.95	0.02
34.00	0.00	231,006.0	243.95	0.00
36.00	0.00	230,987.8	243.95	0.00
38.00	0.00	230,982.4	243.95	0.00
40.00	0.00	230,980.9	243.95	0.00
42.00	0.00	230,980.4	243.95	0.00
44.00	0.00	230,980.3	243.95	0.00
46.00	0.00	230,980.2	243.95	0.00
48.00	0.00	230,980.2	243.95	0.00
50.00	0.00	230,980.2	243.95	0.00
52.00	0.00	230,980.2	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

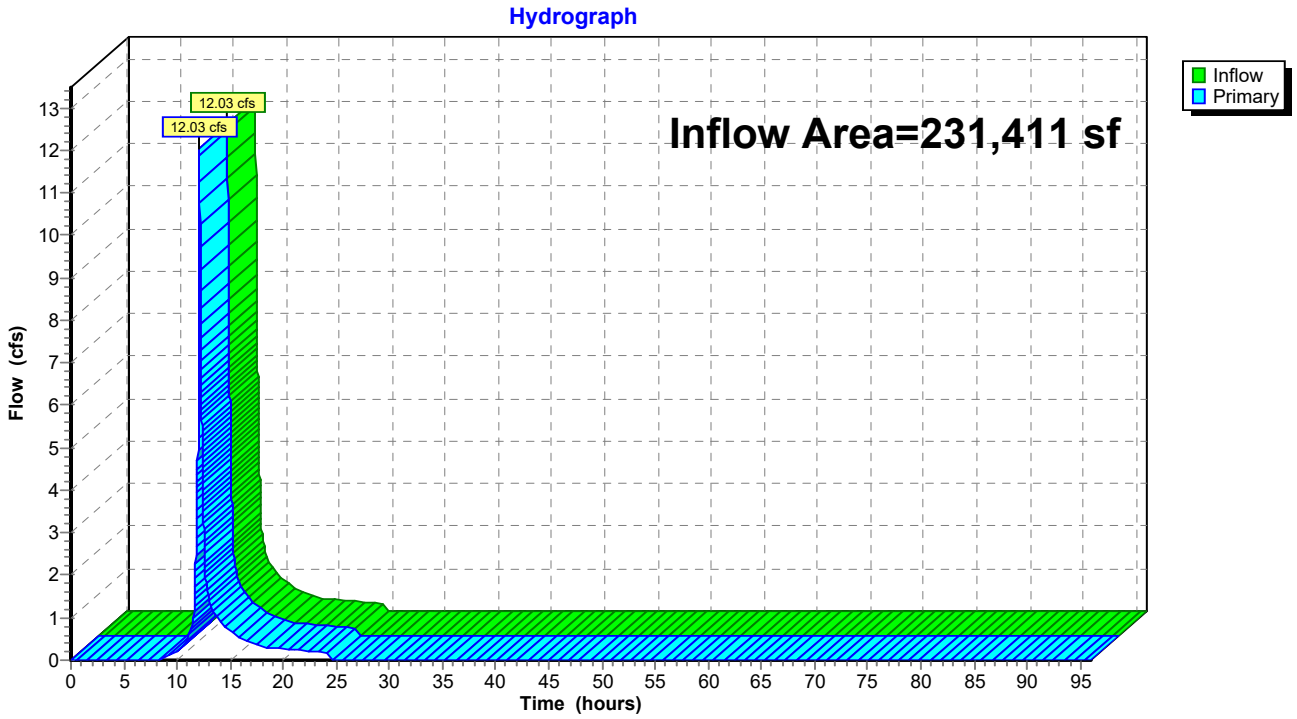
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Link POA A: POND- WEST

Inflow Area = 231,411 sf, 34.58% Impervious, Inflow Depth = 2.16" for 25 yr event
Inflow = 12.03 cfs @ 12.10 hrs, Volume= 41,648.7 cf
Primary = 12.03 cfs @ 12.10 hrs, Volume= 41,648.7 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

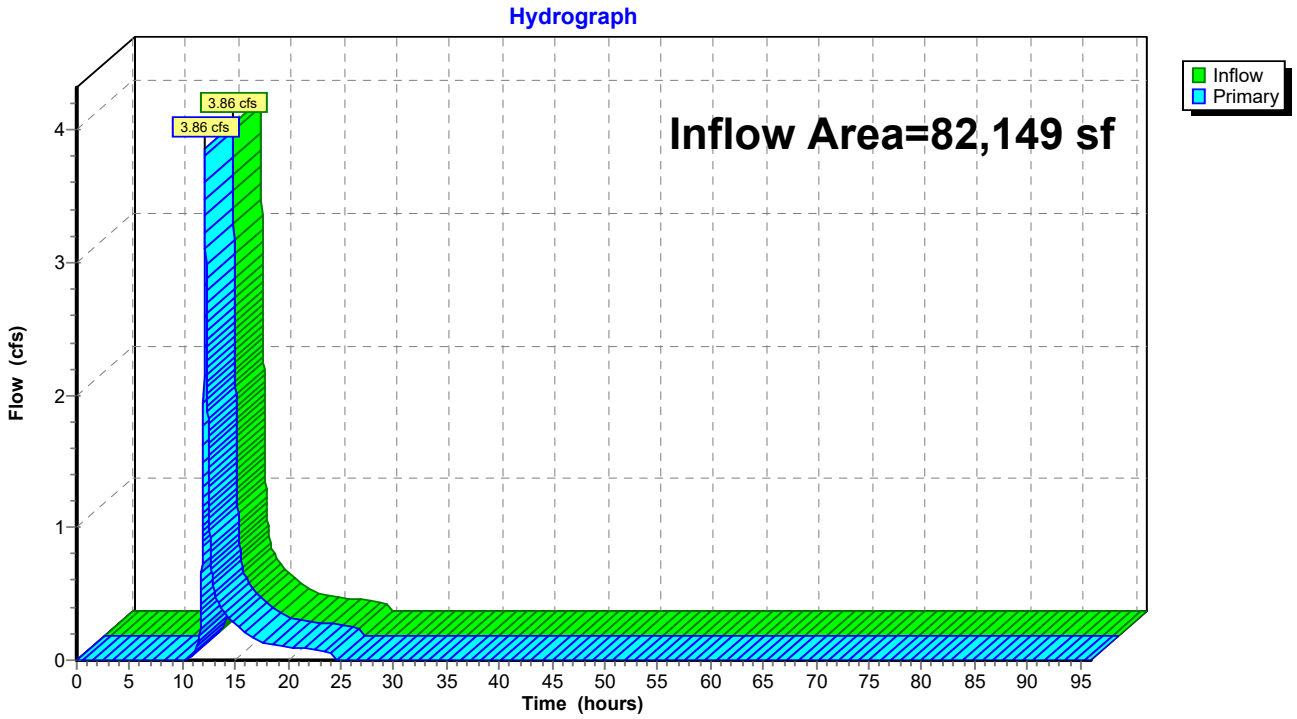
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.08	0.00	0.08	61.00	0.00	0.00	0.00
10.00	0.21	0.00	0.21	62.00	0.00	0.00	0.00
11.00	0.48	0.00	0.48	63.00	0.00	0.00	0.00
12.00	**6.65**	0.00	**6.65**	64.00	0.00	0.00	0.00
13.00	**1.41**	0.00	**1.41**	65.00	0.00	0.00	0.00
14.00	0.93	0.00	0.93	66.00	0.00	0.00	0.00
15.00	0.72	0.00	0.72	67.00	0.00	0.00	0.00
16.00	0.52	0.00	0.52	68.00	0.00	0.00	0.00
17.00	0.42	0.00	0.42	69.00	0.00	0.00	0.00
18.00	0.32	0.00	0.32	70.00	0.00	0.00	0.00
19.00	0.29	0.00	0.29	71.00	0.00	0.00	0.00
20.00	0.26	0.00	0.26	72.00	0.00	0.00	0.00
21.00	0.24	0.00	0.24	73.00	0.00	0.00	0.00
22.00	0.22	0.00	0.22	74.00	0.00	0.00	0.00
23.00	0.20	0.00	0.20	75.00	0.00	0.00	0.00
24.00	0.18	0.00	0.18	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 82,149 sf, 35.38% Impervious, Inflow Depth = 2.02" for 25 yr event
Inflow = 3.86 cfs @ 12.13 hrs, Volume= 13,830.8 cf
Primary = 3.86 cfs @ 12.13 hrs, Volume= 13,830.8 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

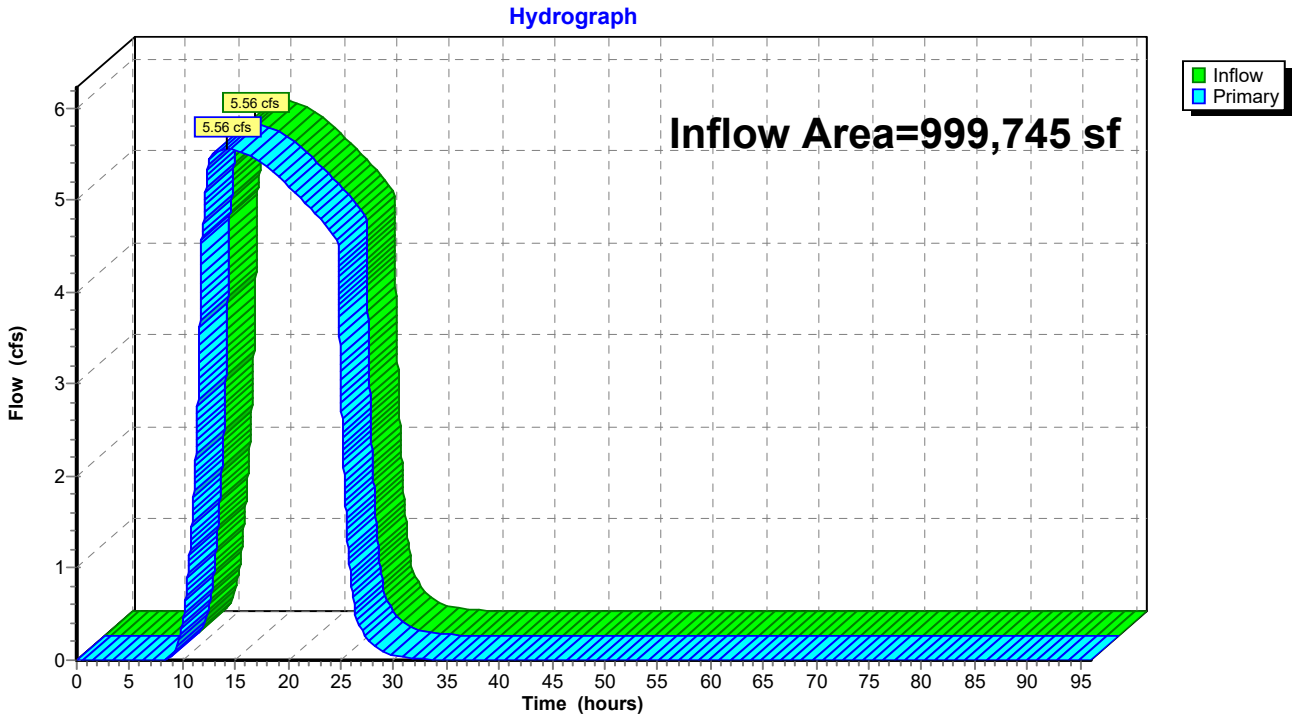
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.03	0.00	0.03	63.00	0.00	0.00	0.00
12.00	**1.62**	0.00	**1.62**	64.00	0.00	0.00	0.00
13.00	**0.54**	0.00	**0.54**	65.00	0.00	0.00	0.00
14.00	0.35	0.00	0.35	66.00	0.00	0.00	0.00
15.00	0.27	0.00	0.27	67.00	0.00	0.00	0.00
16.00	0.20	0.00	0.20	68.00	0.00	0.00	0.00
17.00	0.16	0.00	0.16	69.00	0.00	0.00	0.00
18.00	0.12	0.00	0.12	70.00	0.00	0.00	0.00
19.00	0.11	0.00	0.11	71.00	0.00	0.00	0.00
20.00	0.10	0.00	0.10	72.00	0.00	0.00	0.00
21.00	0.09	0.00	0.09	73.00	0.00	0.00	0.00
22.00	0.08	0.00	0.08	74.00	0.00	0.00	0.00
23.00	0.08	0.00	0.08	75.00	0.00	0.00	0.00
24.00	0.07	0.00	0.07	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND- NORTH

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 3.21" for 25 yr event
Inflow = 5.56 cfs @ 14.11 hrs, Volume= 267,719.7 cf
Primary = 5.56 cfs @ 14.11 hrs, Volume= 267,719.7 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND- NORTH



Hydrograph for Link POA D: WETLAND- NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.05	0.00	0.05	61.00	0.00	0.00	0.00
10.00	0.38	0.00	0.38	62.00	0.00	0.00	0.00
11.00	1.67	0.00	1.67	63.00	0.00	0.00	0.00
12.00	4.72	0.00	4.72	64.00	0.00	0.00	0.00
13.00	5.52	0.00	5.52	65.00	0.00	0.00	0.00
14.00	**5.56**	0.00	**5.56**	66.00	0.00	0.00	0.00
15.00	**5.55**	0.00	**5.55**	67.00	0.00	0.00	0.00
16.00	5.50	0.00	5.50	68.00	0.00	0.00	0.00
17.00	5.44	0.00	5.44	69.00	0.00	0.00	0.00
18.00	5.35	0.00	5.35	70.00	0.00	0.00	0.00
19.00	5.26	0.00	5.26	71.00	0.00	0.00	0.00
20.00	5.15	0.00	5.15	72.00	0.00	0.00	0.00
21.00	5.05	0.00	5.05	73.00	0.00	0.00	0.00
22.00	4.93	0.00	4.93	74.00	0.00	0.00	0.00
23.00	4.80	0.00	4.80	75.00	0.00	0.00	0.00
24.00	4.67	0.00	4.67	76.00	0.00	0.00	0.00
25.00	3.02	0.00	3.02	77.00	0.00	0.00	0.00
26.00	0.82	0.00	0.82	78.00	0.00	0.00	0.00
27.00	0.33	0.00	0.33	79.00	0.00	0.00	0.00
28.00	0.18	0.00	0.18	80.00	0.00	0.00	0.00
29.00	0.10	0.00	0.10	81.00	0.00	0.00	0.00
30.00	0.05	0.00	0.05	82.00	0.00	0.00	0.00
31.00	0.03	0.00	0.03	83.00	0.00	0.00	0.00
32.00	0.02	0.00	0.02	84.00	0.00	0.00	0.00
33.00	0.01	0.00	0.01	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX-A1: Subcat EX-A1 Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=5.77"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=20.04 cfs 63,622.4 cf

Subcatchment EX-A2: Subcat EX-A2 Runoff Area=99,071 sf 0.00% Impervious Runoff Depth=1.51"
Flow Length=1,283' Tc=7.2 min CN=39 Runoff=2.84 cfs 12,461.4 cf

Subcatchment EX-C: Subcat EX-C Runoff Area=82,149 sf 35.38% Impervious Runoff Depth=3.94"
Flow Length=837' Tc=8.7 min CN=60 Runoff=7.87 cfs 27,004.1 cf

Subcatchment EX-D: Subcat EX-D Runoff Area=999,745 sf 58.22% Impervious Runoff Depth=5.53"
Flow Length=1,008' Tc=9.3 min CN=73 Runoff=132.37 cfs 460,299.8 cf

Subcatchment EX-E: Subcat EX-E Runoff Area=104,917 sf 15.97% Impervious Runoff Depth=1.84"
Tc=5.0 min UI Adjusted CN=42 Runoff=4.44 cfs 16,060.4 cf

Pond FP: Fire Pond Weir Peak Elev=247.58' Storage=492,247.8 cf Inflow=132.37 cfs 460,299.8 cf
Outflow=6.32 cfs 460,299.8 cf

Link POA A: POND- WEST Inflow=22.67 cfs 76,083.7 cf
Primary=22.67 cfs 76,083.7 cf

Link POA C: WETLAND-WEST Inflow=7.87 cfs 27,004.1 cf
Primary=7.87 cfs 27,004.1 cf

Link POA D: WETLAND-NORTH Inflow=6.32 cfs 460,299.8 cf
Primary=6.32 cfs 460,299.8 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 579,448.0 cf Average Runoff Depth = 4.90"
50.09% Pervious = 710,328 sf 49.91% Impervious = 707,894 sf

Summary for Subcatchment EX-A1: Subcat EX-A1

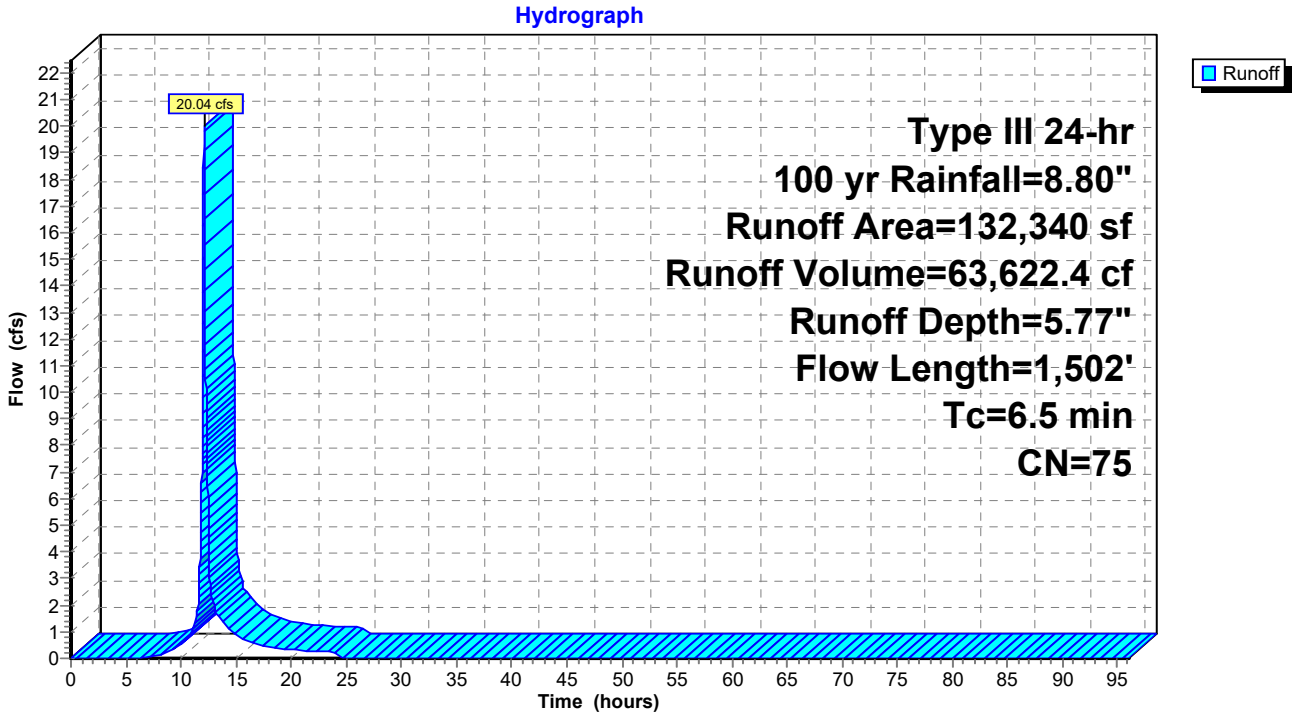
Runoff = 20.04 cfs @ 12.09 hrs, Volume= 63,622.4 cf, Depth= 5.77"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment EX-A1: Subcat EX-A1



Hydrograph for Subcatchment EX-A1: Subcat EX-A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.04
8.00	1.00	0.03	0.11
9.00	1.28	0.10	0.27
10.00	1.66	0.23	0.51
11.00	2.20	0.48	0.99
12.00	4.40	1.97	**11.54**
13.00	6.60	3.80	**1.93**
14.00	7.14	4.27	1.22
15.00	7.52	4.61	0.93
16.00	7.80	4.86	0.66
17.00	8.00	5.04	0.52
18.00	8.17	5.19	0.40
19.00	8.30	5.31	0.36
20.00	8.42	5.42	0.32
21.00	8.53	5.52	0.29
22.00	8.63	5.61	0.27
23.00	8.72	5.70	0.24
24.00	**8.80**	**5.77**	0.21
25.00	8.80	5.77	0.00
26.00	8.80	5.77	0.00
27.00	8.80	5.77	0.00
28.00	8.80	5.77	0.00
29.00	8.80	5.77	0.00
30.00	8.80	5.77	0.00
31.00	8.80	5.77	0.00
32.00	8.80	5.77	0.00
33.00	8.80	5.77	0.00
34.00	8.80	5.77	0.00
35.00	8.80	5.77	0.00
36.00	8.80	5.77	0.00
37.00	8.80	5.77	0.00
38.00	8.80	5.77	0.00
39.00	8.80	5.77	0.00
40.00	8.80	5.77	0.00
41.00	8.80	5.77	0.00
42.00	8.80	5.77	0.00
43.00	8.80	5.77	0.00
44.00	8.80	5.77	0.00
45.00	8.80	5.77	0.00
46.00	8.80	5.77	0.00
47.00	8.80	5.77	0.00
48.00	8.80	5.77	0.00
49.00	8.80	5.77	0.00
50.00	8.80	5.77	0.00
51.00	8.80	5.77	0.00
52.00	8.80	5.77	0.00
53.00	8.80	5.77	0.00
54.00	8.80	5.77	0.00
55.00	8.80	5.77	0.00
56.00	8.80	5.77	0.00
57.00	8.80	5.77	0.00
58.00	8.80	5.77	0.00
59.00	8.80	5.77	0.00
60.00	8.80	5.77	0.00
61.00	8.80	5.77	0.00
62.00	8.80	5.77	0.00
63.00	8.80	5.77	0.00
64.00	8.80	5.77	0.00
65.00	8.80	5.77	0.00
66.00	8.80	5.77	0.00
67.00	8.80	5.77	0.00
68.00	8.80	5.77	0.00
69.00	8.80	5.77	0.00
70.00	8.80	5.77	0.00
71.00	8.80	5.77	0.00
72.00	8.80	5.77	0.00
73.00	8.80	5.77	0.00
74.00	8.80	5.77	0.00
75.00	8.80	5.77	0.00
76.00	8.80	5.77	0.00
77.00	8.80	5.77	0.00
78.00	8.80	5.77	0.00
79.00	8.80	5.77	0.00
80.00	8.80	5.77	0.00
81.00	8.80	5.77	0.00
82.00	8.80	5.77	0.00
83.00	8.80	5.77	0.00
84.00	8.80	5.77	0.00
85.00	8.80	5.77	0.00
86.00	8.80	5.77	0.00
87.00	8.80	5.77	0.00
88.00	8.80	5.77	0.00
89.00	8.80	5.77	0.00
90.00	8.80	5.77	0.00
91.00	8.80	5.77	0.00
92.00	8.80	5.77	0.00
93.00	8.80	5.77	0.00
94.00	8.80	5.77	0.00
95.00	8.80	5.77	0.00
96.00	8.80	5.77	0.00

Summary for Subcatchment EX-A2: Subcat EX-A2

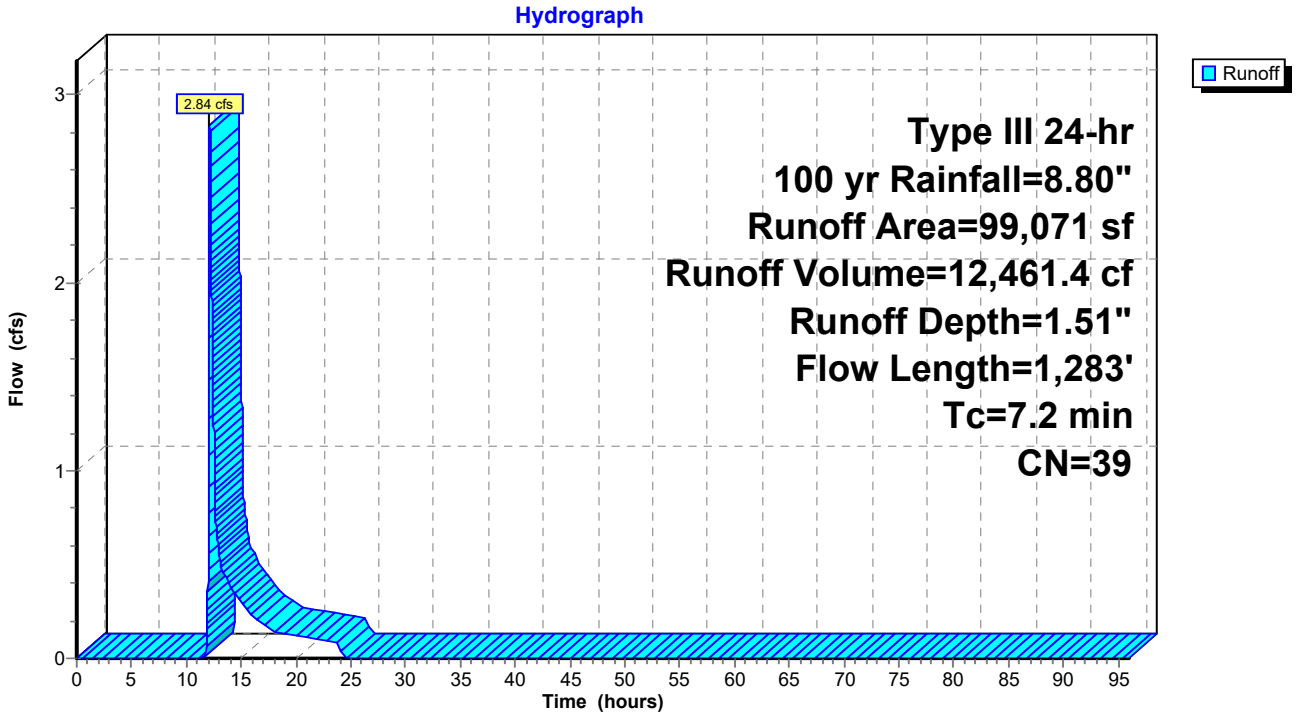
Runoff = 2.84 cfs @ 12.13 hrs, Volume= 12,461.4 cf, Depth= 1.51"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
	99,071	39	>75% Grass cover, Good, HSG A
*	0	98	imperv
	99,071	39	Weighted Average
	99,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0700	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.5	75	0.1133	2.36		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	43	0.0046	1.38		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.2	88	0.0110	6.52	8.01	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011
0.1	66	0.0207	8.95	10.98	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
0.6	285	0.0086	7.89	24.79	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.1	33	0.0137	9.96	31.29	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.011
0.2	56	0.0025	4.94	24.24	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.2	50	0.0024	4.84	23.75	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
0.3	141	0.0071	8.32	40.85	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011
1.1	396	0.0029	6.01	42.45	**Pipe Channel, K-L** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
7.2	1,283	Total			

Subcatchment EX-A2: Subcat EX-A2



Hydrograph for Subcatchment EX-A2: Subcat EX-A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.00
8.00	1.00	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.66	0.00	0.00
11.00	2.20	0.00	0.00
12.00	4.40	0.10	**0.78**
13.00	6.60	0.63	**0.55**
14.00	7.14	0.82	0.38
15.00	7.52	0.96	0.30
16.00	7.80	1.07	0.22
17.00	8.00	1.16	0.18
18.00	8.17	1.23	0.14
19.00	8.30	1.29	0.13
20.00	8.42	1.34	0.12
21.00	8.53	1.39	0.11
22.00	8.63	1.43	0.10
23.00	8.72	1.47	0.09
24.00	**8.80**	**1.51**	0.08
25.00	8.80	1.51	0.00
26.00	8.80	1.51	0.00
27.00	8.80	1.51	0.00
28.00	8.80	1.51	0.00
29.00	8.80	1.51	0.00
30.00	8.80	1.51	0.00
31.00	8.80	1.51	0.00
32.00	8.80	1.51	0.00
33.00	8.80	1.51	0.00
34.00	8.80	1.51	0.00
35.00	8.80	1.51	0.00
36.00	8.80	1.51	0.00
37.00	8.80	1.51	0.00
38.00	8.80	1.51	0.00
39.00	8.80	1.51	0.00
40.00	8.80	1.51	0.00
41.00	8.80	1.51	0.00
42.00	8.80	1.51	0.00
43.00	8.80	1.51	0.00
44.00	8.80	1.51	0.00
45.00	8.80	1.51	0.00
46.00	8.80	1.51	0.00
47.00	8.80	1.51	0.00
48.00	8.80	1.51	0.00
49.00	8.80	1.51	0.00
50.00	8.80	1.51	0.00
51.00	8.80	1.51	0.00
52.00	8.80	1.51	0.00
53.00	8.80	1.51	0.00
54.00	8.80	1.51	0.00
55.00	8.80	1.51	0.00
56.00	8.80	1.51	0.00
57.00	8.80	1.51	0.00
58.00	8.80	1.51	0.00
59.00	8.80	1.51	0.00
60.00	8.80	1.51	0.00
61.00	8.80	1.51	0.00
62.00	8.80	1.51	0.00
63.00	8.80	1.51	0.00
64.00	8.80	1.51	0.00
65.00	8.80	1.51	0.00
66.00	8.80	1.51	0.00
67.00	8.80	1.51	0.00
68.00	8.80	1.51	0.00
69.00	8.80	1.51	0.00
70.00	8.80	1.51	0.00
71.00	8.80	1.51	0.00
72.00	8.80	1.51	0.00
73.00	8.80	1.51	0.00
74.00	8.80	1.51	0.00
75.00	8.80	1.51	0.00
76.00	8.80	1.51	0.00
77.00	8.80	1.51	0.00
78.00	8.80	1.51	0.00
79.00	8.80	1.51	0.00
80.00	8.80	1.51	0.00
81.00	8.80	1.51	0.00
82.00	8.80	1.51	0.00
83.00	8.80	1.51	0.00
84.00	8.80	1.51	0.00
85.00	8.80	1.51	0.00
86.00	8.80	1.51	0.00
87.00	8.80	1.51	0.00
88.00	8.80	1.51	0.00
89.00	8.80	1.51	0.00
90.00	8.80	1.51	0.00
91.00	8.80	1.51	0.00
92.00	8.80	1.51	0.00
93.00	8.80	1.51	0.00
94.00	8.80	1.51	0.00
95.00	8.80	1.51	0.00
96.00	8.80	1.51	0.00

Summary for Subcatchment EX-C: Subcat EX-C

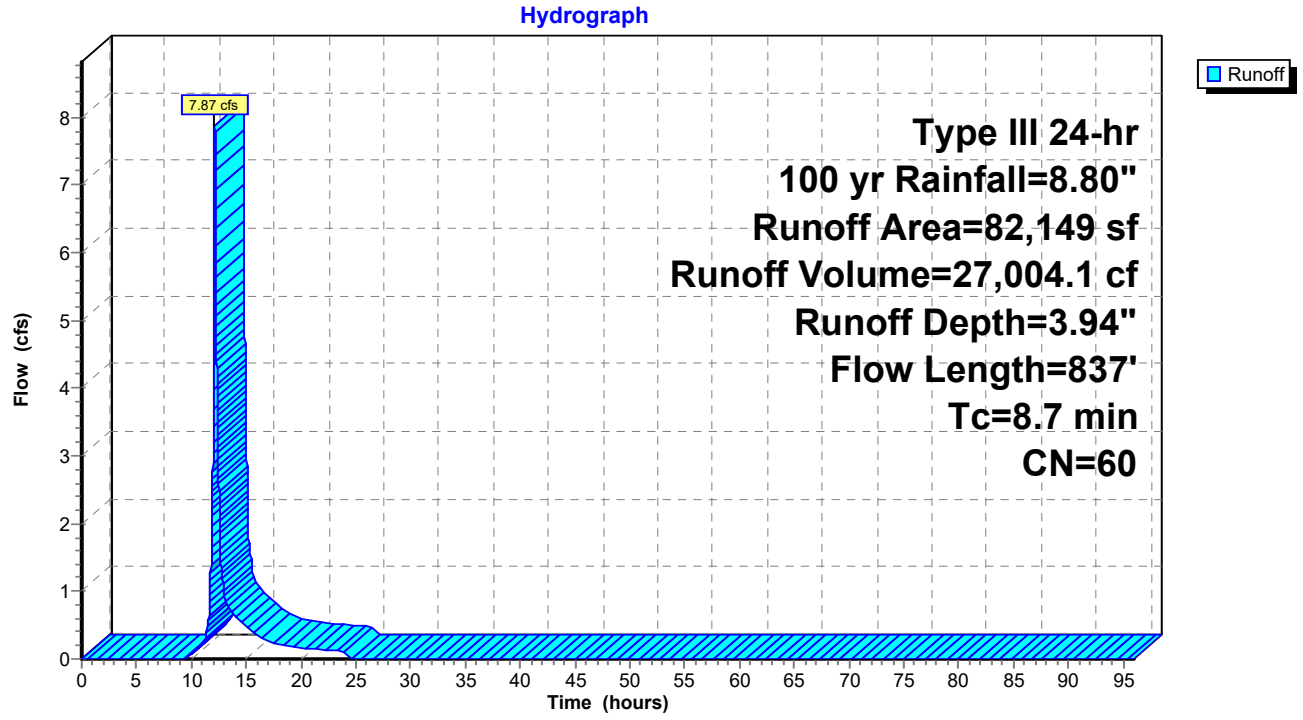
Runoff = 7.87 cfs @ 12.13 hrs, Volume= 27,004.1 cf, Depth= 3.94"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

Area (sf)	CN	Description
29,061	98	Unconnected pavement, HSG A
53,088	39	>75% Grass cover, Good, HSG A
82,149	60	Weighted Average
53,088		64.62% Pervious Area
29,061		35.38% Impervious Area
29,061		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	101	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	837	Total			

Subcatchment EX-C: Subcat EX-C



Hydrograph for Subcatchment EX-C: Subcat EX-C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.00
8.00	1.00	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.66	0.02	0.06
11.00	2.20	0.10	0.23
12.00	4.40	0.97	**3.69**
13.00	6.60	2.32	**0.98**
14.00	7.14	2.70	0.62
15.00	7.52	2.98	0.48
16.00	7.80	3.18	0.34
17.00	8.00	3.34	0.27
18.00	8.17	3.46	0.21
19.00	8.30	3.56	0.19
20.00	8.42	3.65	0.17
21.00	8.53	3.74	0.15
22.00	8.63	3.81	0.14
23.00	8.72	3.88	0.13
24.00	**8.80**	**3.94**	0.11
25.00	8.80	3.94	0.00
26.00	8.80	3.94	0.00
27.00	8.80	3.94	0.00
28.00	8.80	3.94	0.00
29.00	8.80	3.94	0.00
30.00	8.80	3.94	0.00
31.00	8.80	3.94	0.00
32.00	8.80	3.94	0.00
33.00	8.80	3.94	0.00
34.00	8.80	3.94	0.00
35.00	8.80	3.94	0.00
36.00	8.80	3.94	0.00
37.00	8.80	3.94	0.00
38.00	8.80	3.94	0.00
39.00	8.80	3.94	0.00
40.00	8.80	3.94	0.00
41.00	8.80	3.94	0.00
42.00	8.80	3.94	0.00
43.00	8.80	3.94	0.00
44.00	8.80	3.94	0.00
45.00	8.80	3.94	0.00
46.00	8.80	3.94	0.00
47.00	8.80	3.94	0.00
48.00	8.80	3.94	0.00
49.00	8.80	3.94	0.00
50.00	8.80	3.94	0.00
51.00	8.80	3.94	0.00
52.00	8.80	3.94	0.00
53.00	8.80	3.94	0.00
54.00	8.80	3.94	0.00
55.00	8.80	3.94	0.00
56.00	8.80	3.94	0.00
57.00	8.80	3.94	0.00
58.00	8.80	3.94	0.00
59.00	8.80	3.94	0.00
60.00	8.80	3.94	0.00
61.00	8.80	3.94	0.00
62.00	8.80	3.94	0.00
63.00	8.80	3.94	0.00
64.00	8.80	3.94	0.00
65.00	8.80	3.94	0.00
66.00	8.80	3.94	0.00
67.00	8.80	3.94	0.00
68.00	8.80	3.94	0.00
69.00	8.80	3.94	0.00
70.00	8.80	3.94	0.00
71.00	8.80	3.94	0.00
72.00	8.80	3.94	0.00
73.00	8.80	3.94	0.00
74.00	8.80	3.94	0.00
75.00	8.80	3.94	0.00
76.00	8.80	3.94	0.00
77.00	8.80	3.94	0.00
78.00	8.80	3.94	0.00
79.00	8.80	3.94	0.00
80.00	8.80	3.94	0.00
81.00	8.80	3.94	0.00
82.00	8.80	3.94	0.00
83.00	8.80	3.94	0.00
84.00	8.80	3.94	0.00
85.00	8.80	3.94	0.00
86.00	8.80	3.94	0.00
87.00	8.80	3.94	0.00
88.00	8.80	3.94	0.00
89.00	8.80	3.94	0.00
90.00	8.80	3.94	0.00
91.00	8.80	3.94	0.00
92.00	8.80	3.94	0.00
93.00	8.80	3.94	0.00
94.00	8.80	3.94	0.00
95.00	8.80	3.94	0.00
96.00	8.80	3.94	0.00

Summary for Subcatchment EX-D: Subcat EX-D

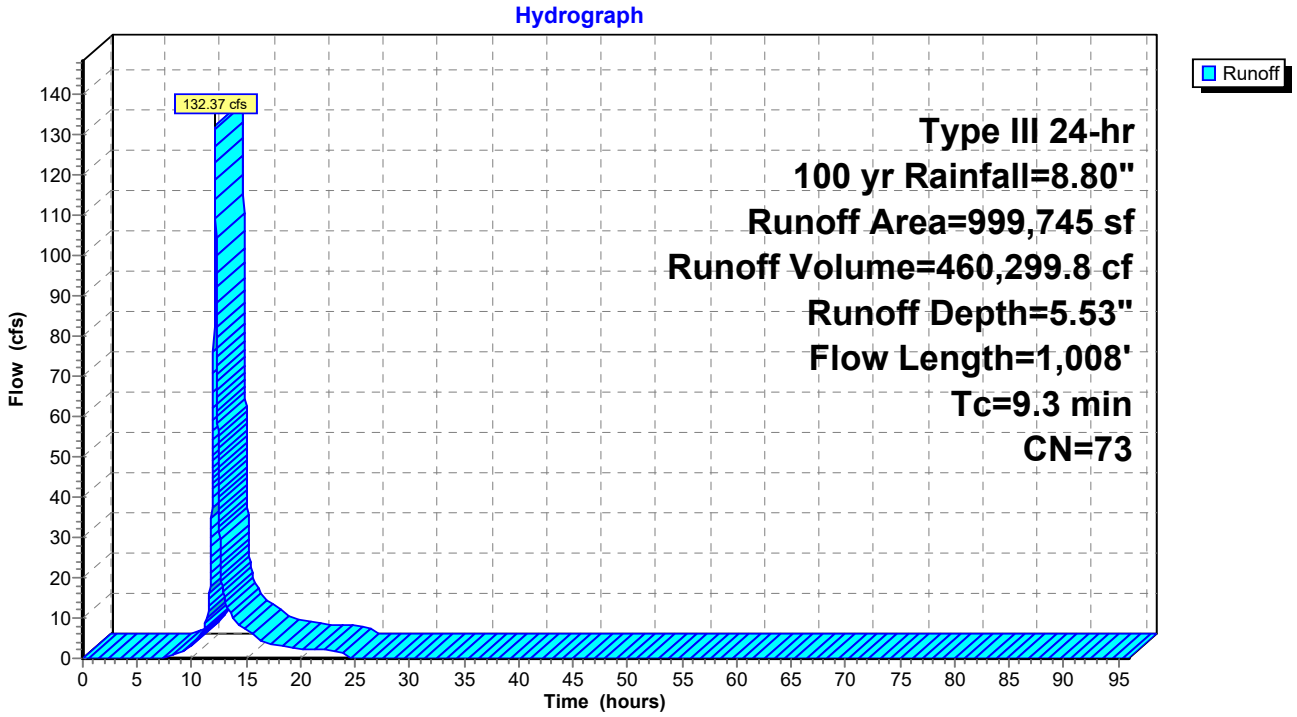
Runoff = 132.37 cfs @ 12.13 hrs, Volume= 460,299.8 cf, Depth= 5.53"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	57,570	98	Champage Bldg (#200)
*	183,306	98	Office Bldg (#110)
	341,183	98	Unconnected pavement, HSG A
	373,773	39	>75% Grass cover, Good, HSG A
*	43,913	36	Woods, Fair, HSG A
	999,745	73	Weighted Average
	417,686		41.78% Pervious Area
	582,059		58.22% Impervious Area
	341,183		58.62% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.22"
0.2	32	0.2180	3.27		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.3	58	0.0340	3.74		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	228	0.2197	9.52		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
0.3	84	0.0090	5.09	3.99	**Pipe Channel, E-F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
0.1	89	0.0680	25.75	126.41	**Pipe Channel, F-G** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.011 Concrete pipe, straight & clean
0.4	157	0.0030	6.11	43.17	**Pipe Channel, G-H** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.4	224	0.0062	8.78	62.07	**Pipe Channel, H-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
0.1	86	0.0116	12.01	84.90	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.011
9.3	1,008	Total			

Subcatchment EX-D: Subcat EX-D



Hydrograph for Subcatchment EX-D: Subcat EX-D

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.07
8.00	1.00	0.02	0.59
9.00	1.28	0.07	1.63
10.00	1.66	0.18	3.30
11.00	2.20	0.41	6.63
12.00	4.40	1.82	**66.18**
13.00	6.60	3.59	**14.86**
14.00	7.14	4.05	9.23
15.00	7.52	4.38	6.97
16.00	7.80	4.63	4.96
17.00	8.00	4.81	3.92
18.00	8.17	4.96	3.03
19.00	8.30	5.08	2.67
20.00	8.42	5.19	2.41
21.00	8.53	5.28	2.20
22.00	8.63	5.37	2.00
23.00	8.72	5.45	1.79
24.00	**8.80**	**5.53**	1.59
25.00	8.80	5.53	0.00
26.00	8.80	5.53	0.00
27.00	8.80	5.53	0.00
28.00	8.80	5.53	0.00
29.00	8.80	5.53	0.00
30.00	8.80	5.53	0.00
31.00	8.80	5.53	0.00
32.00	8.80	5.53	0.00
33.00	8.80	5.53	0.00
34.00	8.80	5.53	0.00
35.00	8.80	5.53	0.00
36.00	8.80	5.53	0.00
37.00	8.80	5.53	0.00
38.00	8.80	5.53	0.00
39.00	8.80	5.53	0.00
40.00	8.80	5.53	0.00
41.00	8.80	5.53	0.00
42.00	8.80	5.53	0.00
43.00	8.80	5.53	0.00
44.00	8.80	5.53	0.00
45.00	8.80	5.53	0.00
46.00	8.80	5.53	0.00
47.00	8.80	5.53	0.00
48.00	8.80	5.53	0.00
49.00	8.80	5.53	0.00
50.00	8.80	5.53	0.00
51.00	8.80	5.53	0.00
52.00	8.80	5.53	0.00
53.00	8.80	5.53	0.00
54.00	8.80	5.53	0.00
55.00	8.80	5.53	0.00
56.00	8.80	5.53	0.00
57.00	8.80	5.53	0.00
58.00	8.80	5.53	0.00
59.00	8.80	5.53	0.00
60.00	8.80	5.53	0.00
61.00	8.80	5.53	0.00
62.00	8.80	5.53	0.00
63.00	8.80	5.53	0.00
64.00	8.80	5.53	0.00
65.00	8.80	5.53	0.00
66.00	8.80	5.53	0.00
67.00	8.80	5.53	0.00
68.00	8.80	5.53	0.00
69.00	8.80	5.53	0.00
70.00	8.80	5.53	0.00
71.00	8.80	5.53	0.00
72.00	8.80	5.53	0.00
73.00	8.80	5.53	0.00
74.00	8.80	5.53	0.00
75.00	8.80	5.53	0.00
76.00	8.80	5.53	0.00
77.00	8.80	5.53	0.00
78.00	8.80	5.53	0.00
79.00	8.80	5.53	0.00
80.00	8.80	5.53	0.00
81.00	8.80	5.53	0.00
82.00	8.80	5.53	0.00
83.00	8.80	5.53	0.00
84.00	8.80	5.53	0.00
85.00	8.80	5.53	0.00
86.00	8.80	5.53	0.00
87.00	8.80	5.53	0.00
88.00	8.80	5.53	0.00
89.00	8.80	5.53	0.00
90.00	8.80	5.53	0.00
91.00	8.80	5.53	0.00
92.00	8.80	5.53	0.00
93.00	8.80	5.53	0.00
94.00	8.80	5.53	0.00
95.00	8.80	5.53	0.00
96.00	8.80	5.53	0.00

Summary for Subcatchment EX-E: Subcat EX-E

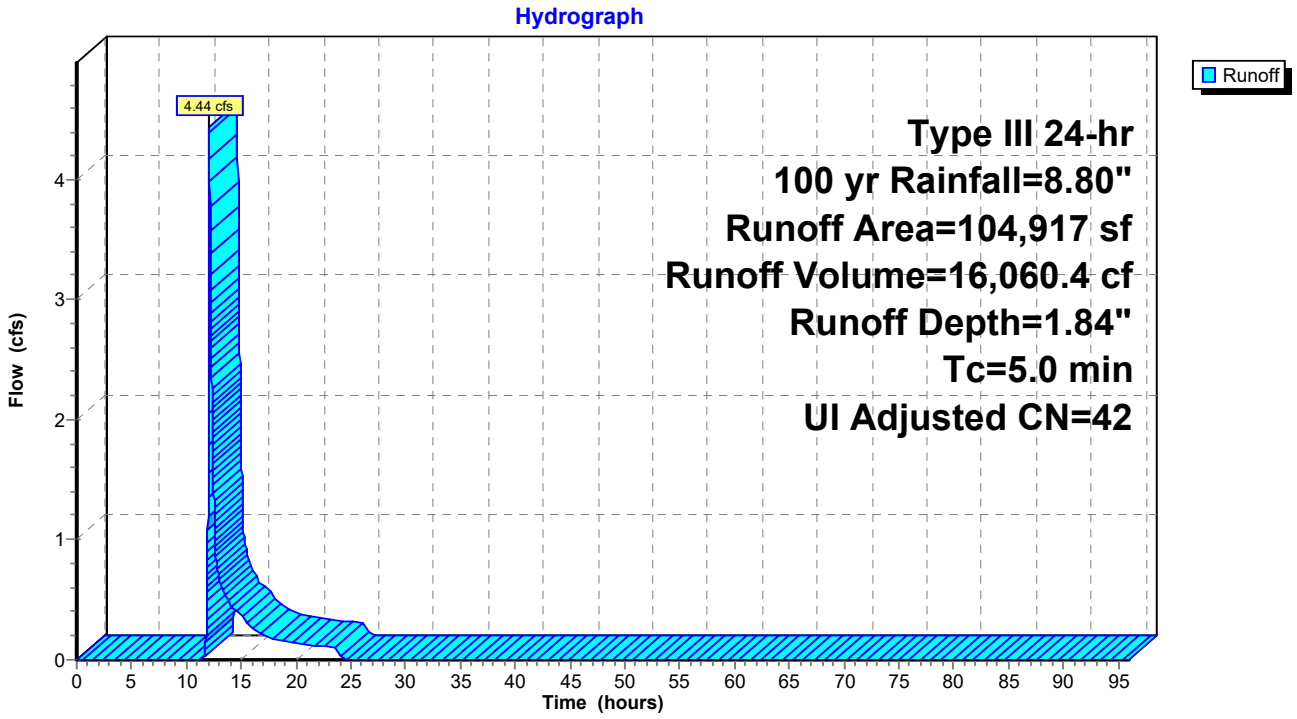
Runoff = 4.44 cfs @ 12.09 hrs, Volume= 16,060.4 cf, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Adj	Description
*	2,135	98		Roof Area
	14,619	98		Unconnected pavement, HSG A
	28,107	39		>75% Grass cover, Good, HSG A
	60,056	36		Woods, Fair, HSG A
	104,917	47	42	Weighted Average, UI Adjusted
	88,163			84.03% Pervious Area
	16,754			15.97% Impervious Area
	14,619			87.26% Unconnected

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

Subcatchment EX-E: Subcat EX-E



Hydrograph for Subcatchment EX-E: Subcat EX-E

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.00
8.00	1.00	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.66	0.00	0.00
11.00	2.20	0.00	0.00
12.00	4.40	0.17	**2.06**
13.00	6.60	0.83	**0.66**
14.00	7.14	1.05	0.46
15.00	7.52	1.22	0.37
16.00	7.80	1.35	0.27
17.00	8.00	1.44	0.22
18.00	8.17	1.52	0.17
19.00	8.30	1.59	0.15
20.00	8.42	1.65	0.14
21.00	8.53	1.70	0.13
22.00	8.63	1.75	0.12
23.00	8.72	1.80	0.11
24.00	**8.80**	**1.84**	0.09
25.00	8.80	1.84	0.00
26.00	8.80	1.84	0.00
27.00	8.80	1.84	0.00
28.00	8.80	1.84	0.00
29.00	8.80	1.84	0.00
30.00	8.80	1.84	0.00
31.00	8.80	1.84	0.00
32.00	8.80	1.84	0.00
33.00	8.80	1.84	0.00
34.00	8.80	1.84	0.00
35.00	8.80	1.84	0.00
36.00	8.80	1.84	0.00
37.00	8.80	1.84	0.00
38.00	8.80	1.84	0.00
39.00	8.80	1.84	0.00
40.00	8.80	1.84	0.00
41.00	8.80	1.84	0.00
42.00	8.80	1.84	0.00
43.00	8.80	1.84	0.00
44.00	8.80	1.84	0.00
45.00	8.80	1.84	0.00
46.00	8.80	1.84	0.00
47.00	8.80	1.84	0.00
48.00	8.80	1.84	0.00
49.00	8.80	1.84	0.00
50.00	8.80	1.84	0.00
51.00	8.80	1.84	0.00
52.00	8.80	1.84	0.00
53.00	8.80	1.84	0.00
54.00	8.80	1.84	0.00
55.00	8.80	1.84	0.00
56.00	8.80	1.84	0.00
57.00	8.80	1.84	0.00
58.00	8.80	1.84	0.00
59.00	8.80	1.84	0.00
60.00	8.80	1.84	0.00
61.00	8.80	1.84	0.00
62.00	8.80	1.84	0.00
63.00	8.80	1.84	0.00
64.00	8.80	1.84	0.00
65.00	8.80	1.84	0.00
66.00	8.80	1.84	0.00
67.00	8.80	1.84	0.00
68.00	8.80	1.84	0.00
69.00	8.80	1.84	0.00
70.00	8.80	1.84	0.00
71.00	8.80	1.84	0.00
72.00	8.80	1.84	0.00
73.00	8.80	1.84	0.00
74.00	8.80	1.84	0.00
75.00	8.80	1.84	0.00
76.00	8.80	1.84	0.00
77.00	8.80	1.84	0.00
78.00	8.80	1.84	0.00
79.00	8.80	1.84	0.00
80.00	8.80	1.84	0.00
81.00	8.80	1.84	0.00
82.00	8.80	1.84	0.00
83.00	8.80	1.84	0.00
84.00	8.80	1.84	0.00
85.00	8.80	1.84	0.00
86.00	8.80	1.84	0.00
87.00	8.80	1.84	0.00
88.00	8.80	1.84	0.00
89.00	8.80	1.84	0.00
90.00	8.80	1.84	0.00
91.00	8.80	1.84	0.00
92.00	8.80	1.84	0.00
93.00	8.80	1.84	0.00
94.00	8.80	1.84	0.00
95.00	8.80	1.84	0.00
96.00	8.80	1.84	0.00

Summary for Pond FP: Fire Pond Weir

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 5.53" for 100 yr event
Inflow = 132.37 cfs @ 12.13 hrs, Volume= 460,299.8 cf
Outflow = 6.32 cfs @ 15.33 hrs, Volume= 460,299.8 cf, Atten= 95%, Lag= 191.8 min
Primary = 6.32 cfs @ 15.33 hrs, Volume= 460,299.8 cf
Routed to Link POA D : WETLAND- NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 247.58' @ 15.33 hrs Surf.Area= 87,154 sf Storage= 492,247.8 cf (261,267.6 cf above start)

Plug-Flow detention time= 888.3 min calculated for 229,319.5 cf (50% of inflow)
Center-of-Mass det. time= 444.5 min (1,262.0 - 817.6)

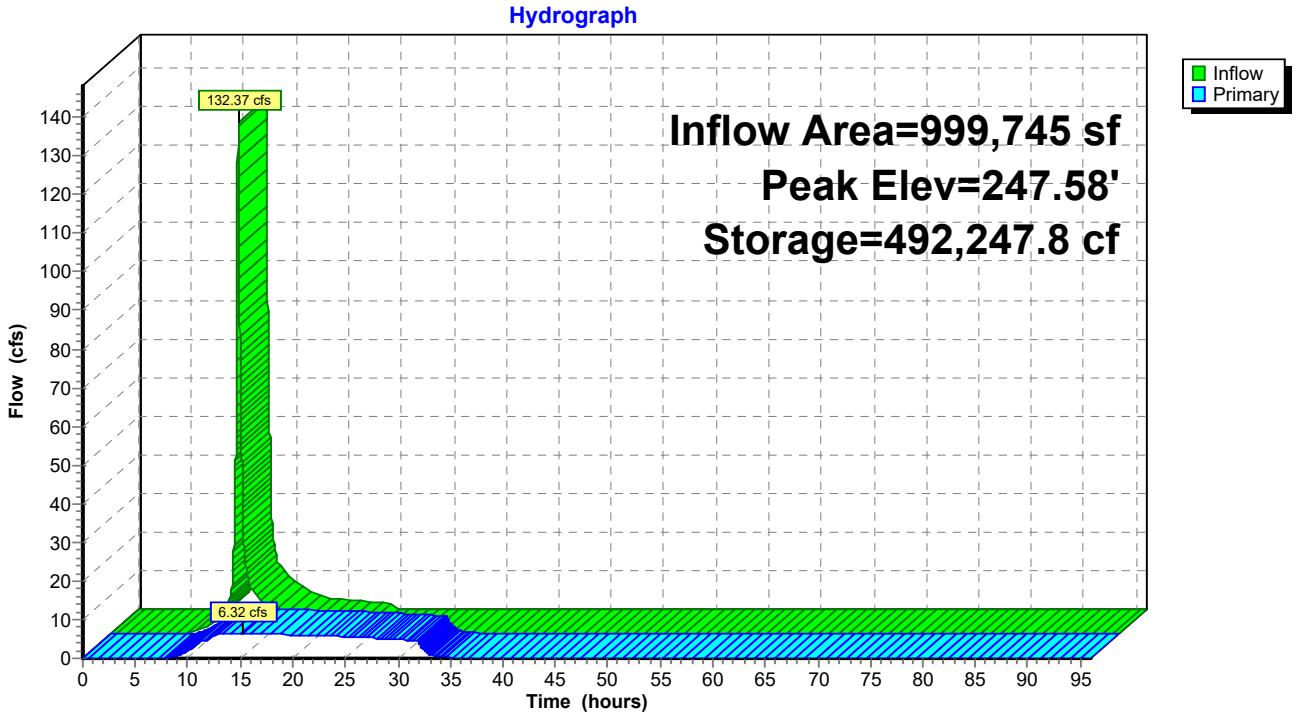
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

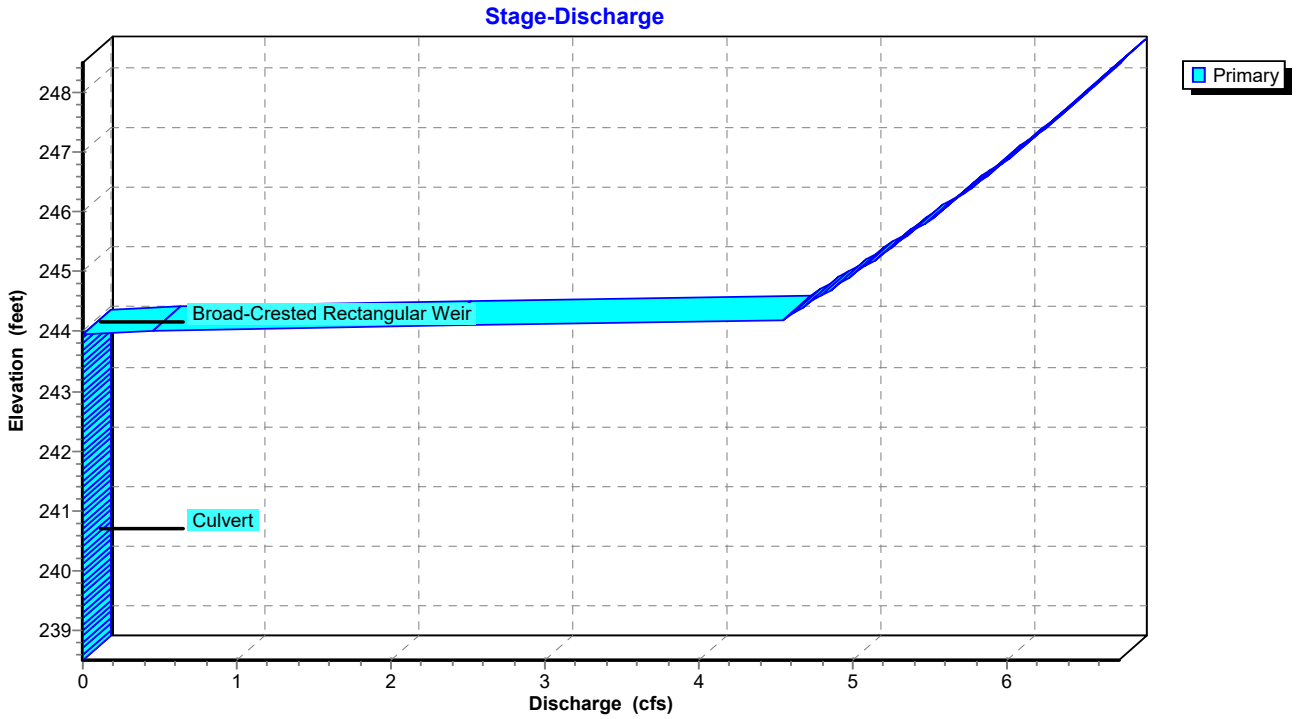
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=6.32 cfs @ 15.33 hrs HW=247.58' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 6.32 cfs @ 8.05 fps)
↑—**1=Broad-Crested Rectangular Weir** (Passes 6.32 cfs of 335.40 cfs potential flow)

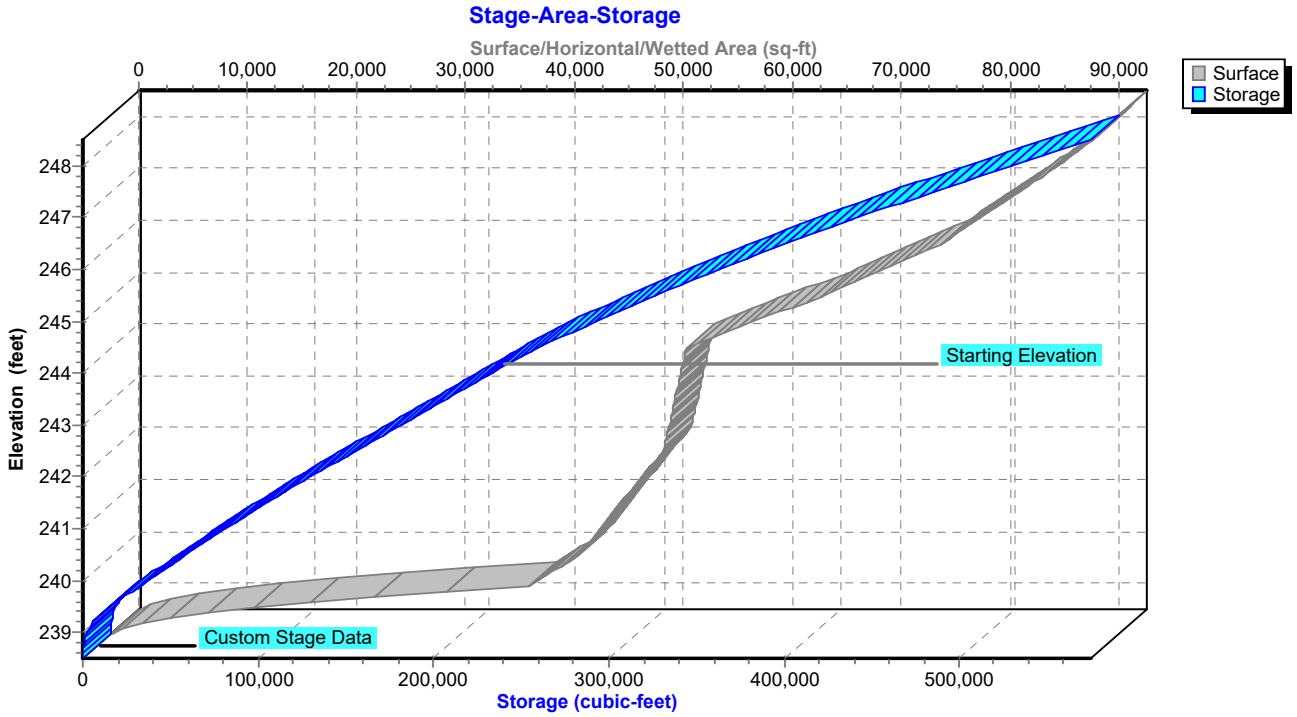
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.59	231,895.7	243.97	0.16
10.00	3.30	238,187.7	244.09	2.07
12.00	**66.18**	295,811.0	245.05	5.05
14.00	**9.23**	**485,857.2**	**247.51**	**6.29**
16.00	4.96	**490,615.5**	**247.56**	**6.31**
18.00	3.03	473,688.3	247.37	6.22
20.00	2.41	448,629.6	247.07	6.09
22.00	2.00	421,183.7	246.74	5.93
24.00	1.59	392,033.5	246.38	5.75
26.00	0.00	352,363.9	245.86	5.49
28.00	0.00	313,867.6	245.32	5.20
30.00	0.00	277,533.1	244.76	4.89
32.00	0.00	243,616.3	244.19	4.22
34.00	0.00	233,172.8	243.99	0.37
36.00	0.00	231,621.6	243.96	0.11
38.00	0.00	231,167.9	243.95	0.03
40.00	0.00	231,035.1	243.95	0.01
42.00	0.00	230,996.3	243.95	0.00
44.00	0.00	230,984.9	243.95	0.00
46.00	0.00	230,981.6	243.95	0.00
48.00	0.00	230,980.6	243.95	0.00
50.00	0.00	230,980.3	243.95	0.00
52.00	0.00	230,980.3	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

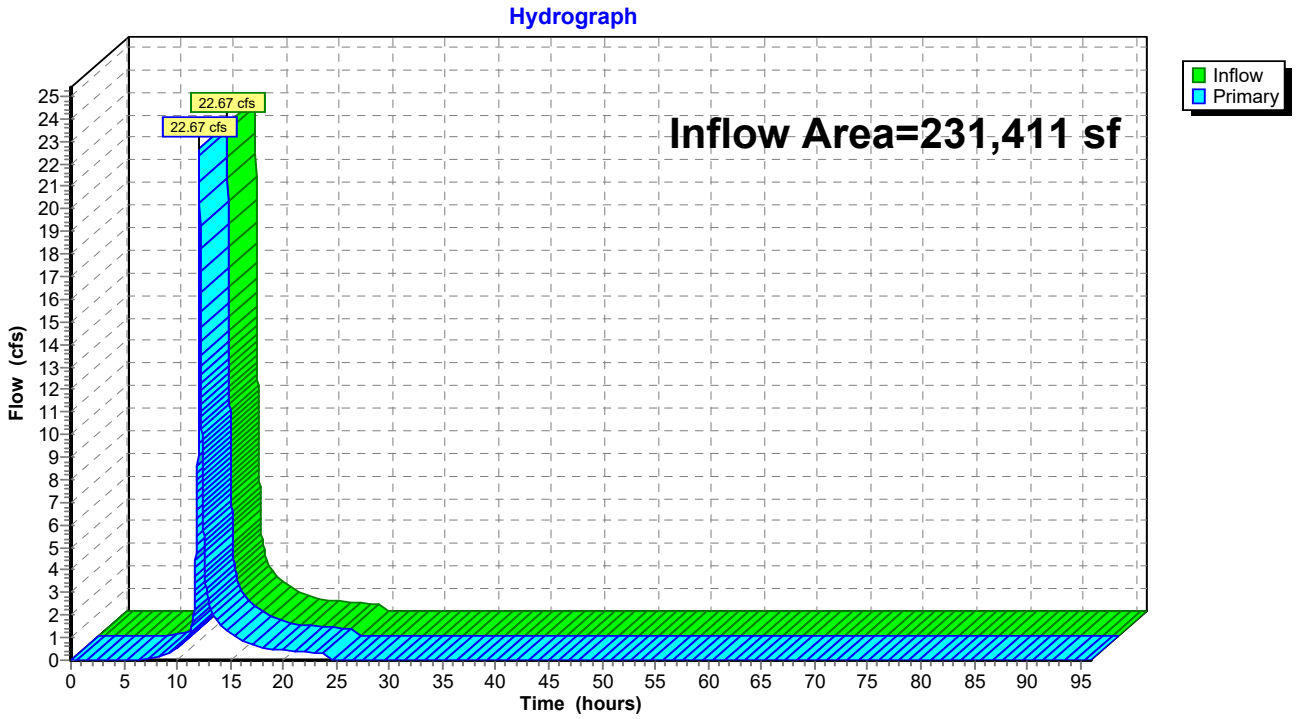
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Link POA A: POND- WEST

Inflow Area = 231,411 sf, 34.58% Impervious, Inflow Depth = 3.95" for 100 yr event
Inflow = 22.67 cfs @ 12.10 hrs, Volume= 76,083.7 cf
Primary = 22.67 cfs @ 12.10 hrs, Volume= 76,083.7 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

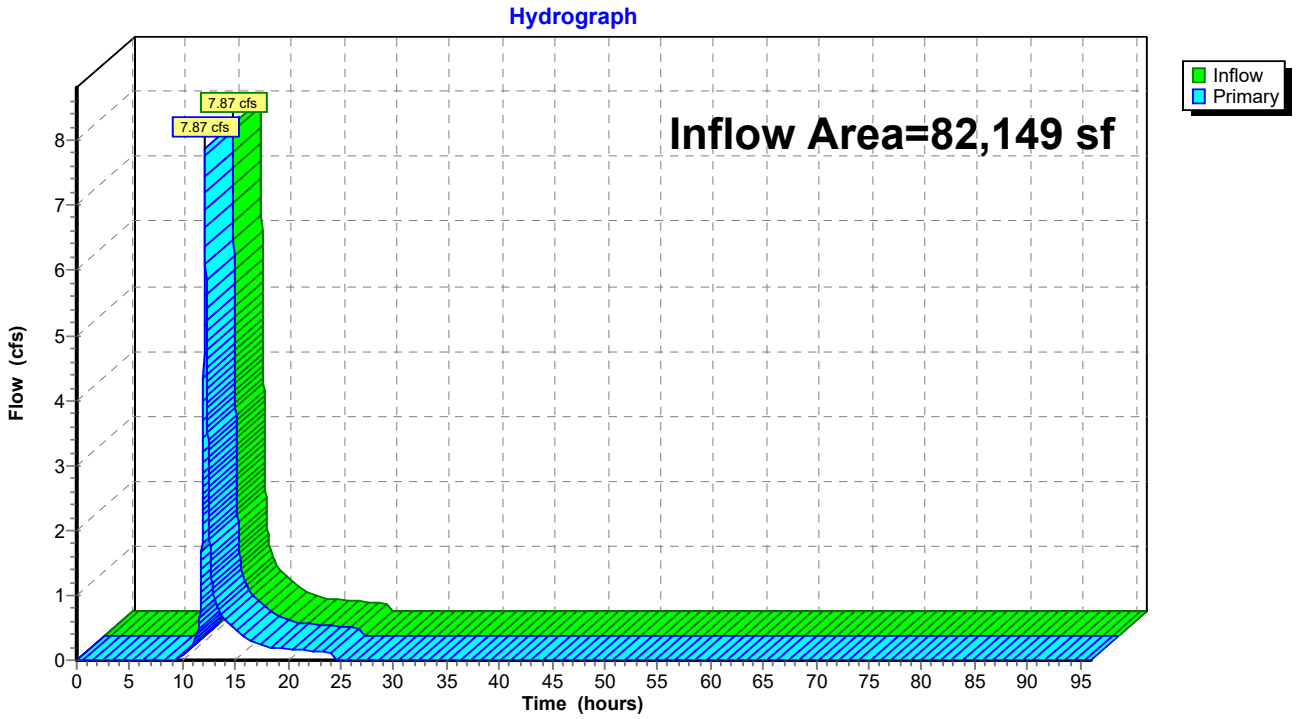
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.04	0.00	0.04	59.00	0.00	0.00	0.00
8.00	0.11	0.00	0.11	60.00	0.00	0.00	0.00
9.00	0.27	0.00	0.27	61.00	0.00	0.00	0.00
10.00	0.51	0.00	0.51	62.00	0.00	0.00	0.00
11.00	0.99	0.00	0.99	63.00	0.00	0.00	0.00
12.00	**12.32**	0.00	**12.32**	64.00	0.00	0.00	0.00
13.00	**2.47**	0.00	**2.47**	65.00	0.00	0.00	0.00
14.00	1.60	0.00	1.60	66.00	0.00	0.00	0.00
15.00	1.23	0.00	1.23	67.00	0.00	0.00	0.00
16.00	0.88	0.00	0.88	68.00	0.00	0.00	0.00
17.00	0.70	0.00	0.70	69.00	0.00	0.00	0.00
18.00	0.55	0.00	0.55	70.00	0.00	0.00	0.00
19.00	0.49	0.00	0.49	71.00	0.00	0.00	0.00
20.00	0.44	0.00	0.44	72.00	0.00	0.00	0.00
21.00	0.40	0.00	0.40	73.00	0.00	0.00	0.00
22.00	0.37	0.00	0.37	74.00	0.00	0.00	0.00
23.00	0.33	0.00	0.33	75.00	0.00	0.00	0.00
24.00	0.29	0.00	0.29	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 82,149 sf, 35.38% Impervious, Inflow Depth = 3.94" for 100 yr event
Inflow = 7.87 cfs @ 12.13 hrs, Volume= 27,004.1 cf
Primary = 7.87 cfs @ 12.13 hrs, Volume= 27,004.1 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

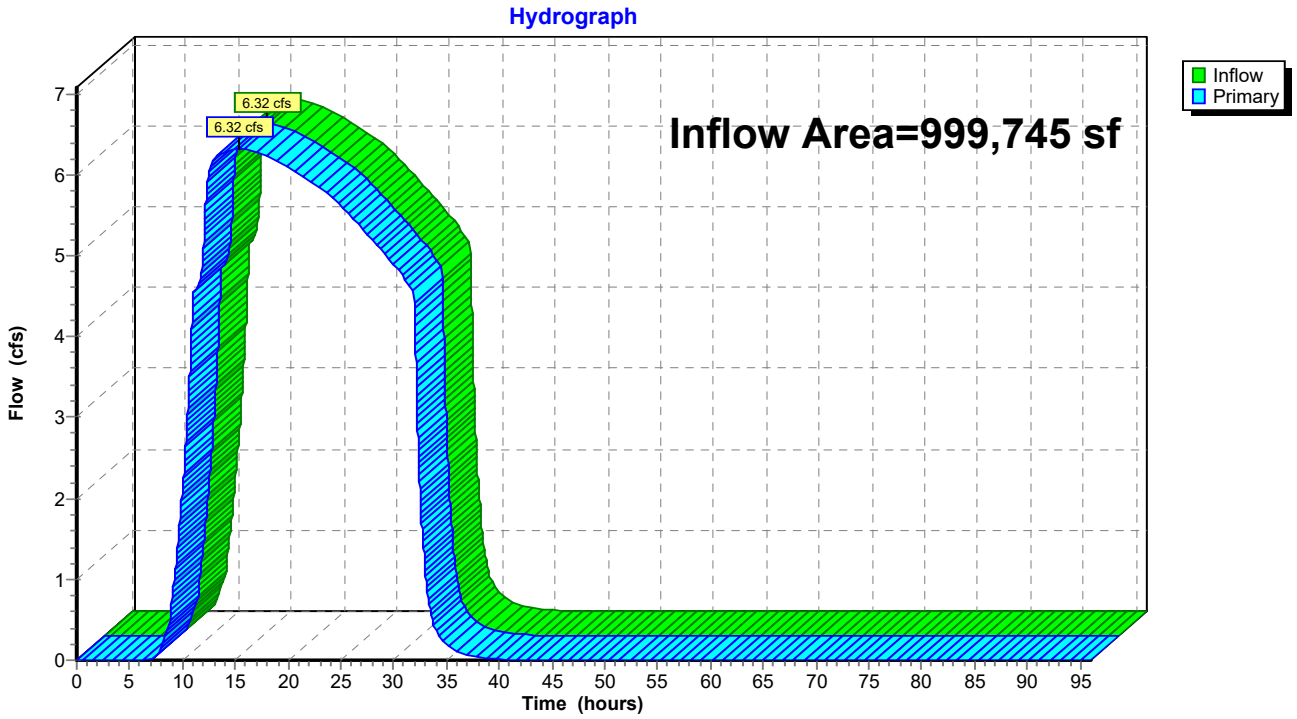
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.06	0.00	0.06	62.00	0.00	0.00	0.00
11.00	0.23	0.00	0.23	63.00	0.00	0.00	0.00
12.00	**3.69**	0.00	**3.69**	64.00	0.00	0.00	0.00
13.00	**0.98**	0.00	**0.98**	65.00	0.00	0.00	0.00
14.00	0.62	0.00	0.62	66.00	0.00	0.00	0.00
15.00	0.48	0.00	0.48	67.00	0.00	0.00	0.00
16.00	0.34	0.00	0.34	68.00	0.00	0.00	0.00
17.00	0.27	0.00	0.27	69.00	0.00	0.00	0.00
18.00	0.21	0.00	0.21	70.00	0.00	0.00	0.00
19.00	0.19	0.00	0.19	71.00	0.00	0.00	0.00
20.00	0.17	0.00	0.17	72.00	0.00	0.00	0.00
21.00	0.15	0.00	0.15	73.00	0.00	0.00	0.00
22.00	0.14	0.00	0.14	74.00	0.00	0.00	0.00
23.00	0.13	0.00	0.13	75.00	0.00	0.00	0.00
24.00	0.11	0.00	0.11	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND- NORTH

Inflow Area = 999,745 sf, 58.22% Impervious, Inflow Depth = 5.53" for 100 yr event
Inflow = 6.32 cfs @ 15.33 hrs, Volume= 460,299.8 cf
Primary = 6.32 cfs @ 15.33 hrs, Volume= 460,299.8 cf, Atten= 0%, Lag= 0.0 min

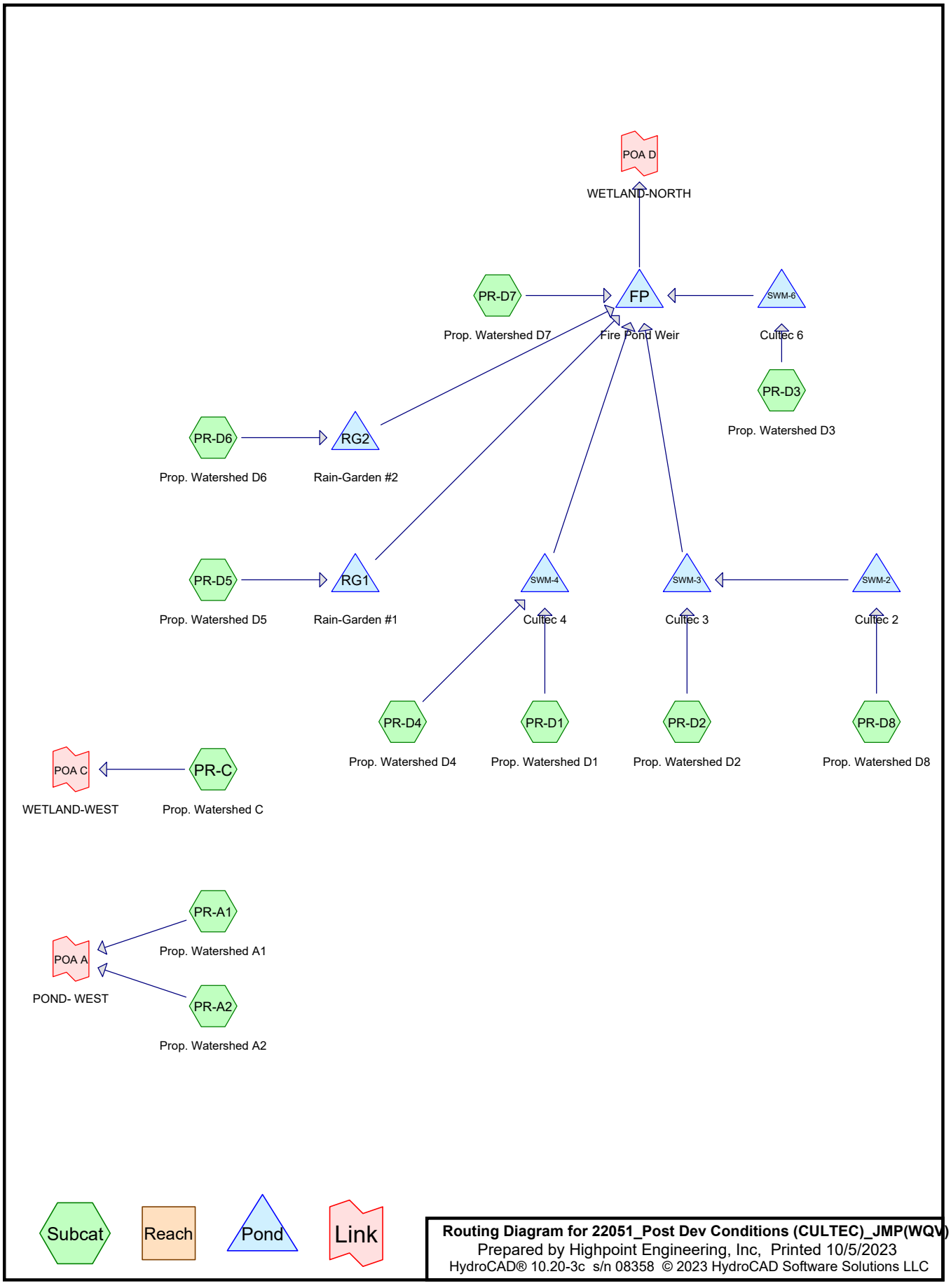
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND- NORTH



Hydrograph for Link POA D: WETLAND- NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.16	0.00	0.16	60.00	0.00	0.00	0.00
9.00	0.72	0.00	0.72	61.00	0.00	0.00	0.00
10.00	2.07	0.00	2.07	62.00	0.00	0.00	0.00
11.00	4.46	0.00	4.46	63.00	0.00	0.00	0.00
12.00	5.05	0.00	5.05	64.00	0.00	0.00	0.00
13.00	6.19	0.00	6.19	65.00	0.00	0.00	0.00
14.00	6.29	0.00	6.29	66.00	0.00	0.00	0.00
15.00	**6.32**	0.00	**6.32**	67.00	0.00	0.00	0.00
16.00	**6.31**	0.00	**6.31**	68.00	0.00	0.00	0.00
17.00	6.28	0.00	6.28	69.00	0.00	0.00	0.00
18.00	6.22	0.00	6.22	70.00	0.00	0.00	0.00
19.00	6.16	0.00	6.16	71.00	0.00	0.00	0.00
20.00	6.09	0.00	6.09	72.00	0.00	0.00	0.00
21.00	6.01	0.00	6.01	73.00	0.00	0.00	0.00
22.00	5.93	0.00	5.93	74.00	0.00	0.00	0.00
23.00	5.84	0.00	5.84	75.00	0.00	0.00	0.00
24.00	5.75	0.00	5.75	76.00	0.00	0.00	0.00
25.00	5.62	0.00	5.62	77.00	0.00	0.00	0.00
26.00	5.49	0.00	5.49	78.00	0.00	0.00	0.00
27.00	5.35	0.00	5.35	79.00	0.00	0.00	0.00
28.00	5.20	0.00	5.20	80.00	0.00	0.00	0.00
29.00	5.05	0.00	5.05	81.00	0.00	0.00	0.00
30.00	4.89	0.00	4.89	82.00	0.00	0.00	0.00
31.00	4.72	0.00	4.72	83.00	0.00	0.00	0.00
32.00	4.22	0.00	4.22	84.00	0.00	0.00	0.00
33.00	1.10	0.00	1.10	85.00	0.00	0.00	0.00
34.00	0.37	0.00	0.37	86.00	0.00	0.00	0.00
35.00	0.20	0.00	0.20	87.00	0.00	0.00	0.00
36.00	0.11	0.00	0.11	88.00	0.00	0.00	0.00
37.00	0.06	0.00	0.06	89.00	0.00	0.00	0.00
38.00	0.03	0.00	0.03	90.00	0.00	0.00	0.00
39.00	0.02	0.00	0.02	91.00	0.00	0.00	0.00
40.00	0.01	0.00	0.01	92.00	0.00	0.00	0.00
41.00	0.01	0.00	0.01	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				



Routing Diagram for 22051_Post Dev Conditions (CULTEC)_JMP(WQV)
Prepared by Highpoint Engineering, Inc, Printed 10/5/2023
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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
471,100	39	>75% Grass cover, Good, HSG A (PR-A1, PR-A2, PR-C, PR-D1, PR-D2, PR-D4, PR-D5, PR-D6, PR-D7)
108,531	98	Building 1 - North (PR-D3)
107,416	98	Building 1 - South (PR-D8)
34,452	98	Building 2 - North (PR-D8)
28,837	98	Building 2 - South (PR-D1)
28,101	98	Building 3 - East (PR-D1)
28,095	98	Building 3 - West (PR-D1)
3,868	98	Conc walk (PR-D2)
317,106	98	Pavement (PR-D2, PR-D4, PR-D7)
4,480	90	Perv Pavers (PR-D2)
262,769	98	Unconnected pavement, HSG A (PR-A1, PR-A2, PR-C, PR-D1, PR-D5, PR-D6)
4,930	98	Walkway Ramp/steps (PR-D7)
18,537	36	Woods, Fair, HSG A (PR-D7)
1,418,222	**78**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
471,100	0	0	0	0	471,100	>75% Grass cover, Good	
0	0	0	0	108,531	108,531	Building 1 - North	
0	0	0	0	107,416	107,416	Building 1 - South	
0	0	0	0	34,452	34,452	Building 2 - North	
0	0	0	0	28,837	28,837	Building 2 - South	
0	0	0	0	28,101	28,101	Building 3 - East	
0	0	0	0	28,095	28,095	Building 3 - West	
0	0	0	0	3,868	3,868	Conc walk	
0	0	0	0	317,106	317,106	Pavement	
0	0	0	0	4,480	4,480	Perv Pavers	
262,769	0	0	0	0	262,769	Unconnected pavement	
0	0	0	0	4,930	4,930	Walkway Ramp/steps	
18,537	0	0	0	0	18,537	Woods, Fair	
752,406	**0**	**0**	**0**	**665,816**	**1,418,222**	**TOTAL AREA**	

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-A1: Prop. Watershed Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=1.11"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=3.71 cfs 12,213.9 cf

Subcatchment PR-A2: Prop. Watershed A2 Runoff Area=28,873 sf 9.70% Impervious Runoff Depth=0.01"
Flow Length=1,502' Tc=6.5 min UI Adjusted CN=42 Runoff=0.00 cfs 35.4 cf

Subcatchment PR-C: Prop. Watershed C Runoff Area=55,783 sf 42.91% Impervious Runoff Depth=0.57"
Flow Length=836' Tc=8.7 min CN=64 Runoff=0.58 cfs 2,642.8 cf

Subcatchment PR-D1: Prop. Watershed Runoff Area=214,605 sf 84.39% Impervious Runoff Depth=2.10"
Flow Length=1,502' Tc=7.5 min CN=89 Runoff=11.44 cfs 37,552.4 cf

Subcatchment PR-D2: Prop. Watershed Runoff Area=274,599 sf 71.05% Impervious Runoff Depth=1.55"
Flow Length=1,350' Tc=5.7 min CN=82 Runoff=11.58 cfs 35,565.0 cf

Subcatchment PR-D3: Prop. Watershed Runoff Area=108,531 sf 100.00% Impervious Runoff Depth=2.99"
Tc=5.0 min CN=98 Runoff=8.07 cfs 27,018.9 cf

Subcatchment PR-D4: Prop. Watershed D4 Runoff Area=37,021 sf 55.83% Impervious Runoff Depth=0.94"
Tc=5.0 min CN=72 Runoff=0.90 cfs 2,906.4 cf

Subcatchment PR-D5: Prop. Watershed D5 Runoff Area=50,834 sf 67.76% Impervious Runoff Depth=1.35"
Tc=5.0 min CN=79 Runoff=1.89 cfs 5,726.2 cf

Subcatchment PR-D6: Prop. Watershed D6 Runoff Area=40,781 sf 62.50% Impervious Runoff Depth=1.17"
Tc=5.0 min CN=76 Runoff=1.28 cfs 3,962.4 cf

Subcatchment PR-D7: Prop. Watershed Runoff Area=332,987 sf 33.08% Impervious Runoff Depth=0.35"
Flow Length=763' Tc=7.9 min CN=58 Runoff=1.37 cfs 9,664.2 cf

Subcatchment PR-D8: Prop. Watershed Runoff Area=141,868 sf 100.00% Impervious Runoff Depth=2.99"
Tc=5.0 min CN=98 Runoff=10.55 cfs 35,318.2 cf

Pond FP: Fire Pond Weir Peak Elev=244.11' Storage=239,684.5 cf Inflow=8.18 cfs 27,710.1 cf
Outflow=2.64 cfs 27,710.1 cf

Pond RG1: Rain-Garden #1 Peak Elev=249.86' Storage=3,047.0 cf Inflow=1.89 cfs 5,726.2 cf
Discarded=0.06 cfs 5,314.4 cf Primary=0.08 cfs 411.8 cf Outflow=0.14 cfs 5,726.2 cf

Pond RG2: Rain-Garden #2 Peak Elev=249.83' Storage=2,228.4 cf Inflow=1.28 cfs 3,962.4 cf
Discarded=0.05 cfs 3,962.4 cf Primary=0.00 cfs 0.0 cf Outflow=0.05 cfs 3,962.4 cf

Pond SWM-2: Cultec 2 Peak Elev=250.87' Storage=12,789.2 cf Inflow=10.55 cfs 35,318.2 cf
Discarded=0.88 cfs 35,318.2 cf Primary=0.00 cfs 0.0 cf Outflow=0.88 cfs 35,318.2 cf

Pond SWM-3: Cultec 3 Peak Elev=246.24' Storage=17,065.2 cf Inflow=11.58 cfs 35,565.0 cf
Discarded=0.63 cfs 35,283.6 cf Primary=0.04 cfs 281.4 cf Outflow=0.68 cfs 35,565.0 cf

Pond SWM-4: Cultec 4 Peak Elev=245.23' Storage=18,356.3 cf Inflow=12.30 cfs 40,458.8 cf
Discarded=0.68 cfs 38,489.2 cf Primary=0.26 cfs 1,969.6 cf Outflow=0.94 cfs 40,458.8 cf

Pond SWM-6: Cultec 6 Peak Elev=258.25' Storage=4,547.5 cf Inflow=8.07 cfs 27,018.9 cf
Discarded=0.14 cfs 11,635.8 cf Primary=7.18 cfs 15,383.1 cf Outflow=7.33 cfs 27,018.9 cf

Link POA A: POND- WEST Inflow=3.71 cfs 12,249.3 cf
Primary=3.71 cfs 12,249.3 cf

Link POA C: WETLAND-WEST Inflow=0.58 cfs 2,642.8 cf
Primary=0.58 cfs 2,642.8 cf

Link POA D: WETLAND-NORTH Inflow=2.64 cfs 27,710.1 cf
Primary=2.64 cfs 27,710.1 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 172,605.9 cf Average Runoff Depth = 1.46"
34.84% Pervious = 494,117 sf 65.16% Impervious = 924,105 sf

Summary for Subcatchment PR-A1: Prop. Watershed A1

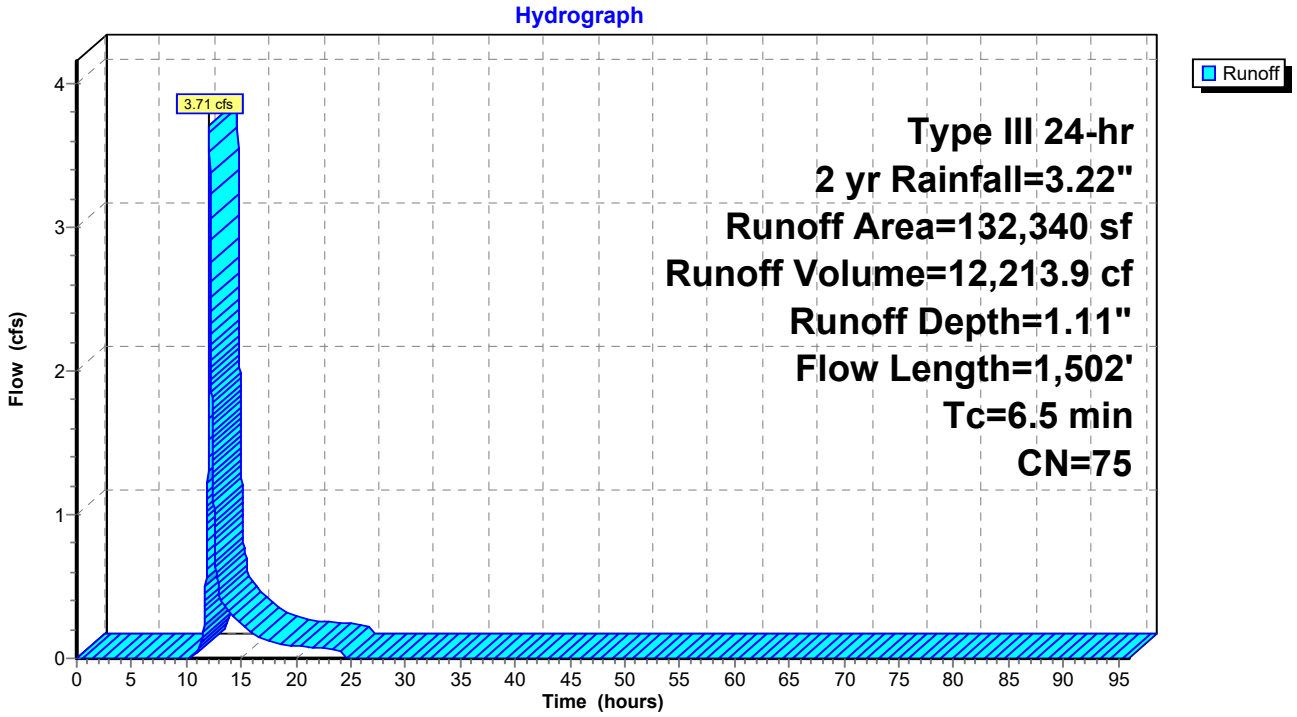
Runoff = 3.71 cfs @ 12.10 hrs, Volume= 12,213.9 cf, Depth= 1.11"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A1: Prop. Watershed A1



Hydrograph for Subcatchment PR-A1: Prop. Watershed A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.01	0.05
12.00	1.61	0.21	**1.84**
13.00	2.41	0.60	**0.46**
14.00	2.61	0.72	0.30
15.00	2.75	0.80	0.24
16.00	2.85	0.87	0.17
17.00	2.93	0.91	0.14
18.00	2.99	0.95	0.11
19.00	3.04	0.99	0.10
20.00	3.08	1.01	0.09
21.00	3.12	1.04	0.08
22.00	3.16	1.07	0.07
23.00	3.19	1.09	0.06
24.00	**3.22**	**1.11**	0.06
25.00	3.22	1.11	0.00
26.00	3.22	1.11	0.00
27.00	3.22	1.11	0.00
28.00	3.22	1.11	0.00
29.00	3.22	1.11	0.00
30.00	3.22	1.11	0.00
31.00	3.22	1.11	0.00
32.00	3.22	1.11	0.00
33.00	3.22	1.11	0.00
34.00	3.22	1.11	0.00
35.00	3.22	1.11	0.00
36.00	3.22	1.11	0.00
37.00	3.22	1.11	0.00
38.00	3.22	1.11	0.00
39.00	3.22	1.11	0.00
40.00	3.22	1.11	0.00
41.00	3.22	1.11	0.00
42.00	3.22	1.11	0.00
43.00	3.22	1.11	0.00
44.00	3.22	1.11	0.00
45.00	3.22	1.11	0.00
46.00	3.22	1.11	0.00
47.00	3.22	1.11	0.00
48.00	3.22	1.11	0.00
49.00	3.22	1.11	0.00
50.00	3.22	1.11	0.00
51.00	3.22	1.11	0.00
52.00	3.22	1.11	0.00
53.00	3.22	1.11	0.00
54.00	3.22	1.11	0.00
55.00	3.22	1.11	0.00
56.00	3.22	1.11	0.00
57.00	3.22	1.11	0.00
58.00	3.22	1.11	0.00
59.00	3.22	1.11	0.00
60.00	3.22	1.11	0.00
61.00	3.22	1.11	0.00
62.00	3.22	1.11	0.00
63.00	3.22	1.11	0.00
64.00	3.22	1.11	0.00
65.00	3.22	1.11	0.00
66.00	3.22	1.11	0.00
67.00	3.22	1.11	0.00
68.00	3.22	1.11	0.00
69.00	3.22	1.11	0.00
70.00	3.22	1.11	0.00
71.00	3.22	1.11	0.00
72.00	3.22	1.11	0.00
73.00	3.22	1.11	0.00
74.00	3.22	1.11	0.00
75.00	3.22	1.11	0.00
76.00	3.22	1.11	0.00
77.00	3.22	1.11	0.00
78.00	3.22	1.11	0.00
79.00	3.22	1.11	0.00
80.00	3.22	1.11	0.00
81.00	3.22	1.11	0.00
82.00	3.22	1.11	0.00
83.00	3.22	1.11	0.00
84.00	3.22	1.11	0.00
85.00	3.22	1.11	0.00
86.00	3.22	1.11	0.00
87.00	3.22	1.11	0.00
88.00	3.22	1.11	0.00
89.00	3.22	1.11	0.00
90.00	3.22	1.11	0.00
91.00	3.22	1.11	0.00
92.00	3.22	1.11	0.00
93.00	3.22	1.11	0.00
94.00	3.22	1.11	0.00
95.00	3.22	1.11	0.00
96.00	3.22	1.11	0.00

Summary for Subcatchment PR-A2: Prop. Watershed A2

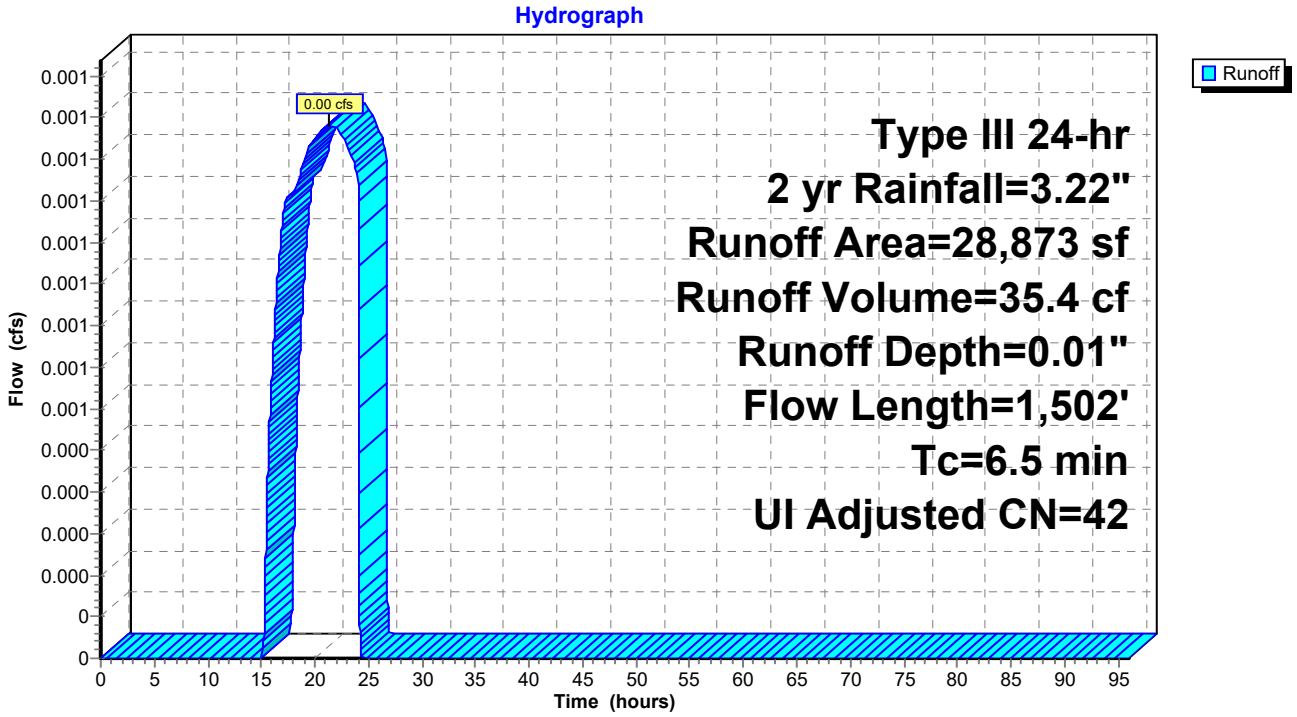
Runoff = 0.00 cfs @ 21.37 hrs, Volume= 35.4 cf, Depth= 0.01"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Adj	Description
*	2,800	98		Unconnected pavement, HSG A
	26,073	39		>75% Grass cover, Good, HSG A
	28,873	45	42	Weighted Average, UI Adjusted
	26,073			90.30% Pervious Area
	2,800			9.70% Impervious Area
	2,800			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A2: Prop. Watershed A2



Hydrograph for Subcatchment PR-A2: Prop. Watershed A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.61	0.00	0.00
13.00	2.41	0.00	0.00
14.00	2.61	0.00	0.00
15.00	2.75	0.00	0.00
16.00	2.85	0.00	0.00
17.00	2.93	0.00	0.00
18.00	2.99	0.00	0.00
19.00	3.04	0.01	0.00
20.00	3.08	0.01	0.00
21.00	3.12	0.01	**0.00**
22.00	3.16	0.01	**0.00**
23.00	3.19	0.01	0.00
24.00	**3.22**	**0.01**	0.00
25.00	3.22	0.01	0.00
26.00	3.22	0.01	0.00
27.00	3.22	0.01	0.00
28.00	3.22	0.01	0.00
29.00	3.22	0.01	0.00
30.00	3.22	0.01	0.00
31.00	3.22	0.01	0.00
32.00	3.22	0.01	0.00
33.00	3.22	0.01	0.00
34.00	3.22	0.01	0.00
35.00	3.22	0.01	0.00
36.00	3.22	0.01	0.00
37.00	3.22	0.01	0.00
38.00	3.22	0.01	0.00
39.00	3.22	0.01	0.00
40.00	3.22	0.01	0.00
41.00	3.22	0.01	0.00
42.00	3.22	0.01	0.00
43.00	3.22	0.01	0.00
44.00	3.22	0.01	0.00
45.00	3.22	0.01	0.00
46.00	3.22	0.01	0.00
47.00	3.22	0.01	0.00
48.00	3.22	0.01	0.00
49.00	3.22	0.01	0.00
50.00	3.22	0.01	0.00
51.00	3.22	0.01	0.00
52.00	3.22	0.01	0.00
53.00	3.22	0.01	0.00
54.00	3.22	0.01	0.00
55.00	3.22	0.01	0.00
56.00	3.22	0.01	0.00
57.00	3.22	0.01	0.00
58.00	3.22	0.01	0.00
59.00	3.22	0.01	0.00
60.00	3.22	0.01	0.00
61.00	3.22	0.01	0.00
62.00	3.22	0.01	0.00
63.00	3.22	0.01	0.00
64.00	3.22	0.01	0.00
65.00	3.22	0.01	0.00
66.00	3.22	0.01	0.00
67.00	3.22	0.01	0.00
68.00	3.22	0.01	0.00
69.00	3.22	0.01	0.00
70.00	3.22	0.01	0.00
71.00	3.22	0.01	0.00
72.00	3.22	0.01	0.00
73.00	3.22	0.01	0.00
74.00	3.22	0.01	0.00
75.00	3.22	0.01	0.00
76.00	3.22	0.01	0.00
77.00	3.22	0.01	0.00
78.00	3.22	0.01	0.00
79.00	3.22	0.01	0.00
80.00	3.22	0.01	0.00
81.00	3.22	0.01	0.00
82.00	3.22	0.01	0.00
83.00	3.22	0.01	0.00
84.00	3.22	0.01	0.00
85.00	3.22	0.01	0.00
86.00	3.22	0.01	0.00
87.00	3.22	0.01	0.00
88.00	3.22	0.01	0.00
89.00	3.22	0.01	0.00
90.00	3.22	0.01	0.00
91.00	3.22	0.01	0.00
92.00	3.22	0.01	0.00
93.00	3.22	0.01	0.00
94.00	3.22	0.01	0.00
95.00	3.22	0.01	0.00
96.00	3.22	0.01	0.00

Summary for Subcatchment PR-C: Prop. Watershed C

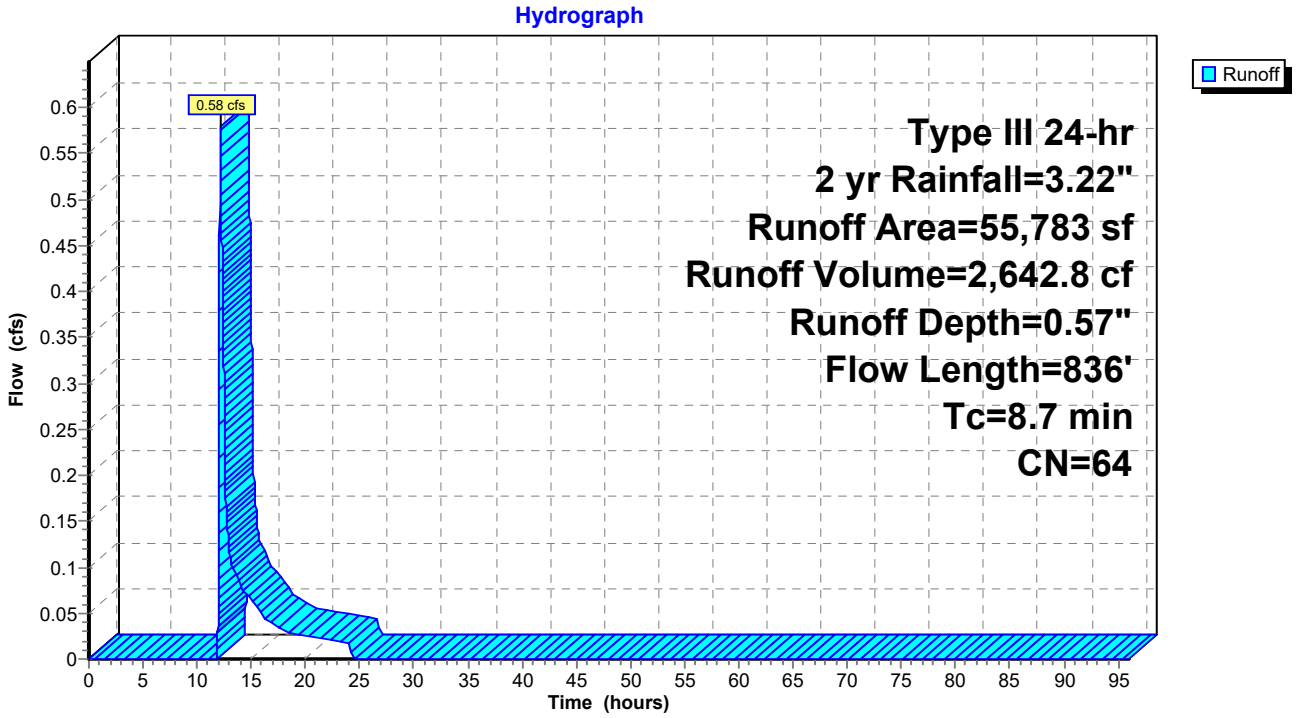
Runoff = 0.58 cfs @ 12.15 hrs, Volume= 2,642.8 cf, Depth= 0.57"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	23,937	98	Unconnected pavement, HSG A
	31,846	39	>75% Grass cover, Good, HSG A
	55,783	64	Weighted Average
	31,846		57.09% Pervious Area
	23,937		42.91% Impervious Area
	23,937		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	100	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	836	Total			

Subcatchment PR-C: Prop. Watershed C



Hydrograph for Subcatchment PR-C: Prop. Watershed C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.61	0.04	**0.14**
13.00	2.41	0.24	**0.12**
14.00	2.61	0.31	0.08
15.00	2.75	0.36	0.06
16.00	2.85	0.41	0.05
17.00	2.93	0.44	0.04
18.00	2.99	0.46	0.03
19.00	3.04	0.49	0.03
20.00	3.08	0.50	0.02
21.00	3.12	0.52	0.02
22.00	3.16	0.54	0.02
23.00	3.19	0.55	0.02
24.00	**3.22**	**0.57**	0.02
25.00	3.22	0.57	0.00
26.00	3.22	0.57	0.00
27.00	3.22	0.57	0.00
28.00	3.22	0.57	0.00
29.00	3.22	0.57	0.00
30.00	3.22	0.57	0.00
31.00	3.22	0.57	0.00
32.00	3.22	0.57	0.00
33.00	3.22	0.57	0.00
34.00	3.22	0.57	0.00
35.00	3.22	0.57	0.00
36.00	3.22	0.57	0.00
37.00	3.22	0.57	0.00
38.00	3.22	0.57	0.00
39.00	3.22	0.57	0.00
40.00	3.22	0.57	0.00
41.00	3.22	0.57	0.00
42.00	3.22	0.57	0.00
43.00	3.22	0.57	0.00
44.00	3.22	0.57	0.00
45.00	3.22	0.57	0.00
46.00	3.22	0.57	0.00
47.00	3.22	0.57	0.00
48.00	3.22	0.57	0.00
49.00	3.22	0.57	0.00
50.00	3.22	0.57	0.00
51.00	3.22	0.57	0.00
52.00	3.22	0.57	0.00
53.00	3.22	0.57	0.00
54.00	3.22	0.57	0.00
55.00	3.22	0.57	0.00
56.00	3.22	0.57	0.00
57.00	3.22	0.57	0.00
58.00	3.22	0.57	0.00
59.00	3.22	0.57	0.00
60.00	3.22	0.57	0.00
61.00	3.22	0.57	0.00
62.00	3.22	0.57	0.00
63.00	3.22	0.57	0.00
64.00	3.22	0.57	0.00
65.00	3.22	0.57	0.00
66.00	3.22	0.57	0.00
67.00	3.22	0.57	0.00
68.00	3.22	0.57	0.00
69.00	3.22	0.57	0.00
70.00	3.22	0.57	0.00
71.00	3.22	0.57	0.00
72.00	3.22	0.57	0.00
73.00	3.22	0.57	0.00
74.00	3.22	0.57	0.00
75.00	3.22	0.57	0.00
76.00	3.22	0.57	0.00
77.00	3.22	0.57	0.00
78.00	3.22	0.57	0.00
79.00	3.22	0.57	0.00
80.00	3.22	0.57	0.00
81.00	3.22	0.57	0.00
82.00	3.22	0.57	0.00
83.00	3.22	0.57	0.00
84.00	3.22	0.57	0.00
85.00	3.22	0.57	0.00
86.00	3.22	0.57	0.00
87.00	3.22	0.57	0.00
88.00	3.22	0.57	0.00
89.00	3.22	0.57	0.00
90.00	3.22	0.57	0.00
91.00	3.22	0.57	0.00
92.00	3.22	0.57	0.00
93.00	3.22	0.57	0.00
94.00	3.22	0.57	0.00
95.00	3.22	0.57	0.00
96.00	3.22	0.57	0.00

Summary for Subcatchment PR-D1: Prop. Watershed D1

Runoff = 11.44 cfs @ 12.11 hrs, Volume= 37,552.4 cf, Depth= 2.10"
Routed to Pond SWM-4 : Cultec 4

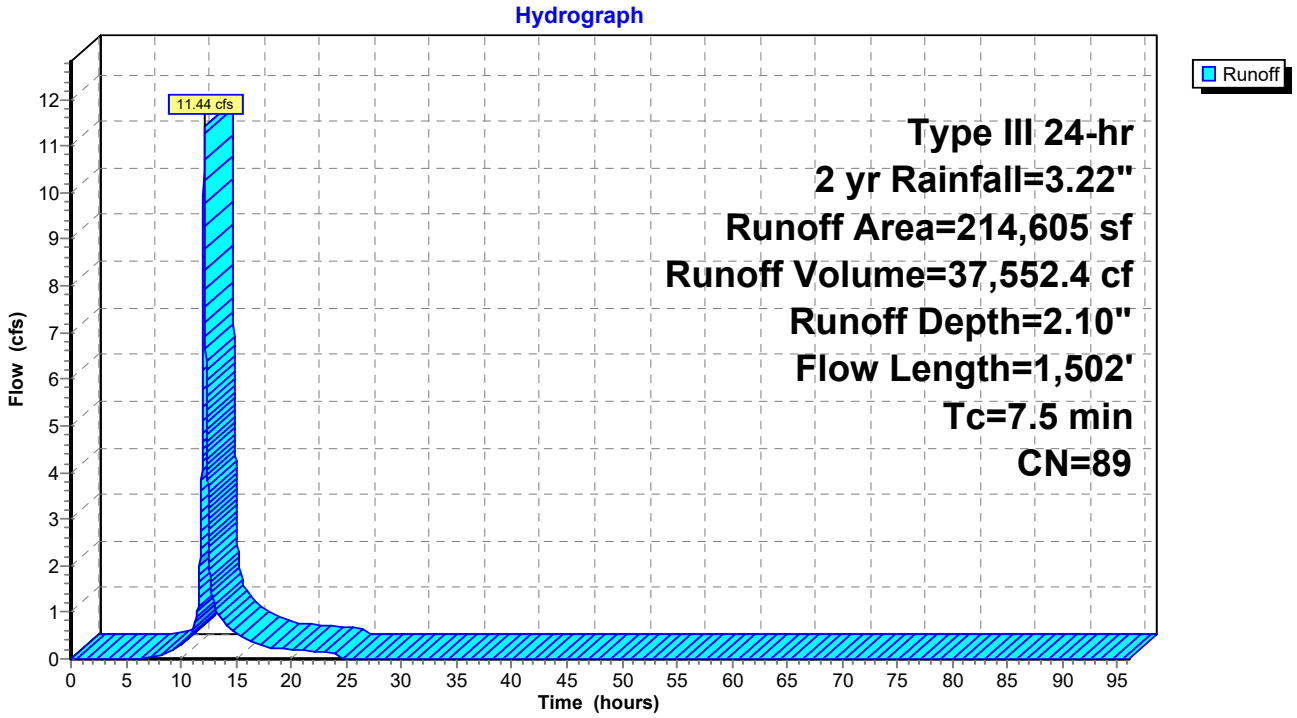
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	28,837	98	Building 2 - South
*	28,095	98	Building 3 - West
*	28,101	98	Building 3 - East
	96,079	98	Unconnected pavement, HSG A
	33,493	39	>75% Grass cover, Good, HSG A
	214,605	89	Weighted Average
	33,493		15.61% Pervious Area
	181,112		84.39% Impervious Area
	96,079		53.05% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	50	0.1600	0.34		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.22"
0.0	12	0.1250	5.69		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
1.3	296	0.0350	3.80		**Shallow Concentrated Flow, c-d** Paved Kv= 20.3 fps
0.2	64	0.0100	4.54	3.56	**Pipe Channel, d-e** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.0	13	0.0160	5.74	4.51	**Pipe Channel, e-f** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.8	196	0.0046	4.03	7.12	**Pipe Channel, f-g** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.9	213	0.0047	4.08	7.20	**Pipe Channel, g-h** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	56	0.0054	6.14	30.14	**Pipe Channel, h-i** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.8	282	0.0050	5.91	29.00	**Pipe Channel, i-j** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	162	0.0050	5.91	29.00	**Pipe Channel, j-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.4	158	0.0060	6.47	31.77	**Pipe Channel, k-l** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013

7.5	1,502	Total

Subcatchment PR-D1: Prop. Watershed D1



Hydrograph for Subcatchment PR-D1: Prop. Watershed D1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.02
8.00	0.37	0.01	0.06
9.00	0.47	0.03	0.15
10.00	0.61	0.08	0.30
11.00	0.80	0.17	0.57
12.00	1.61	0.71	**6.21**
13.00	2.41	1.38	**1.16**
14.00	2.61	1.55	0.73
15.00	2.75	1.68	0.55
16.00	2.85	1.77	0.39
17.00	2.93	1.84	0.31
18.00	2.99	1.89	0.24
19.00	3.04	1.93	0.21
20.00	3.08	1.97	0.19
21.00	3.12	2.01	0.17
22.00	3.16	2.04	0.16
23.00	3.19	2.07	0.14
24.00	**3.22**	**2.10**	0.13
25.00	3.22	2.10	0.00
26.00	3.22	2.10	0.00
27.00	3.22	2.10	0.00
28.00	3.22	2.10	0.00
29.00	3.22	2.10	0.00
30.00	3.22	2.10	0.00
31.00	3.22	2.10	0.00
32.00	3.22	2.10	0.00
33.00	3.22	2.10	0.00
34.00	3.22	2.10	0.00
35.00	3.22	2.10	0.00
36.00	3.22	2.10	0.00
37.00	3.22	2.10	0.00
38.00	3.22	2.10	0.00
39.00	3.22	2.10	0.00
40.00	3.22	2.10	0.00
41.00	3.22	2.10	0.00
42.00	3.22	2.10	0.00
43.00	3.22	2.10	0.00
44.00	3.22	2.10	0.00
45.00	3.22	2.10	0.00
46.00	3.22	2.10	0.00
47.00	3.22	2.10	0.00
48.00	3.22	2.10	0.00
49.00	3.22	2.10	0.00
50.00	3.22	2.10	0.00
51.00	3.22	2.10	0.00
52.00	3.22	2.10	0.00
53.00	3.22	2.10	0.00
54.00	3.22	2.10	0.00
55.00	3.22	2.10	0.00
56.00	3.22	2.10	0.00
57.00	3.22	2.10	0.00
58.00	3.22	2.10	0.00
59.00	3.22	2.10	0.00
60.00	3.22	2.10	0.00
61.00	3.22	2.10	0.00
62.00	3.22	2.10	0.00
63.00	3.22	2.10	0.00
64.00	3.22	2.10	0.00
65.00	3.22	2.10	0.00
66.00	3.22	2.10	0.00
67.00	3.22	2.10	0.00
68.00	3.22	2.10	0.00
69.00	3.22	2.10	0.00
70.00	3.22	2.10	0.00
71.00	3.22	2.10	0.00
72.00	3.22	2.10	0.00
73.00	3.22	2.10	0.00
74.00	3.22	2.10	0.00
75.00	3.22	2.10	0.00
76.00	3.22	2.10	0.00
77.00	3.22	2.10	0.00
78.00	3.22	2.10	0.00
79.00	3.22	2.10	0.00
80.00	3.22	2.10	0.00
81.00	3.22	2.10	0.00
82.00	3.22	2.10	0.00
83.00	3.22	2.10	0.00
84.00	3.22	2.10	0.00
85.00	3.22	2.10	0.00
86.00	3.22	2.10	0.00
87.00	3.22	2.10	0.00
88.00	3.22	2.10	0.00
89.00	3.22	2.10	0.00
90.00	3.22	2.10	0.00
91.00	3.22	2.10	0.00
92.00	3.22	2.10	0.00
93.00	3.22	2.10	0.00
94.00	3.22	2.10	0.00
95.00	3.22	2.10	0.00
96.00	3.22	2.10	0.00

Summary for Subcatchment PR-D2: Prop. Watershed D2

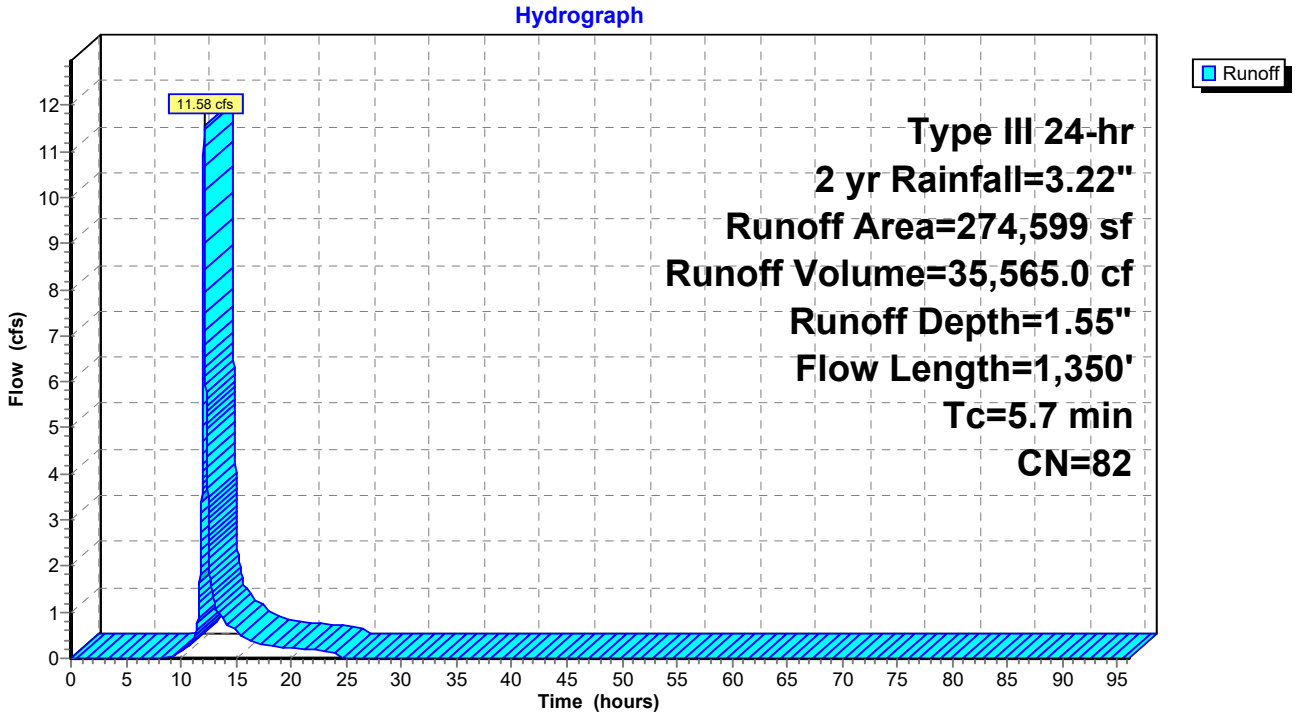
Runoff = 11.58 cfs @ 12.09 hrs, Volume= 35,565.0 cf, Depth= 1.55"
Routed to Pond SWM-3 : Cultec 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	191,226	98	Pavement
*	3,868	98	Conc walk
*	4,480	90	Perv Pavers
	75,025	39	>75% Grass cover, Good, HSG A
	274,599	82	Weighted Average
	79,505		28.95% Pervious Area
	195,094		71.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
1.0	124	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	84	0.0090	4.30	3.38	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.3	97	0.0090	4.99	6.13	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.4	116	0.0070	4.40	5.40	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.6	212	0.0070	6.02	18.93	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.7	218	0.0050	5.09	16.00	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.1	219	0.5000	59.09	290.03	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	193	0.0060	6.47	31.77	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.1	37	0.0060	6.47	31.77	**Pipe Channel, J-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
5.7	1,350	Total			

Subcatchment PR-D2: Prop. Watershed D2



Hydrograph for Subcatchment PR-D2: Prop. Watershed D2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.01
10.00	0.61	0.01	0.13
11.00	0.80	0.05	0.37
12.00	1.61	0.41	**6.66**
13.00	2.41	0.94	**1.20**
14.00	2.61	1.08	0.78
15.00	2.75	1.19	0.60
16.00	2.85	1.26	0.43
17.00	2.93	1.32	0.34
18.00	2.99	1.37	0.26
19.00	3.04	1.41	0.24
20.00	3.08	1.44	0.21
21.00	3.12	1.48	0.20
22.00	3.16	1.50	0.18
23.00	3.19	1.53	0.16
24.00	**3.22**	**1.55**	0.14
25.00	3.22	1.55	0.00
26.00	3.22	1.55	0.00
27.00	3.22	1.55	0.00
28.00	3.22	1.55	0.00
29.00	3.22	1.55	0.00
30.00	3.22	1.55	0.00
31.00	3.22	1.55	0.00
32.00	3.22	1.55	0.00
33.00	3.22	1.55	0.00
34.00	3.22	1.55	0.00
35.00	3.22	1.55	0.00
36.00	3.22	1.55	0.00
37.00	3.22	1.55	0.00
38.00	3.22	1.55	0.00
39.00	3.22	1.55	0.00
40.00	3.22	1.55	0.00
41.00	3.22	1.55	0.00
42.00	3.22	1.55	0.00
43.00	3.22	1.55	0.00
44.00	3.22	1.55	0.00
45.00	3.22	1.55	0.00
46.00	3.22	1.55	0.00
47.00	3.22	1.55	0.00
48.00	3.22	1.55	0.00
49.00	3.22	1.55	0.00
50.00	3.22	1.55	0.00
51.00	3.22	1.55	0.00
52.00	3.22	1.55	0.00
53.00	3.22	1.55	0.00
54.00	3.22	1.55	0.00
55.00	3.22	1.55	0.00
56.00	3.22	1.55	0.00
57.00	3.22	1.55	0.00
58.00	3.22	1.55	0.00
59.00	3.22	1.55	0.00
60.00	3.22	1.55	0.00
61.00	3.22	1.55	0.00
62.00	3.22	1.55	0.00
63.00	3.22	1.55	0.00
64.00	3.22	1.55	0.00
65.00	3.22	1.55	0.00
66.00	3.22	1.55	0.00
67.00	3.22	1.55	0.00
68.00	3.22	1.55	0.00
69.00	3.22	1.55	0.00
70.00	3.22	1.55	0.00
71.00	3.22	1.55	0.00
72.00	3.22	1.55	0.00
73.00	3.22	1.55	0.00
74.00	3.22	1.55	0.00
75.00	3.22	1.55	0.00
76.00	3.22	1.55	0.00
77.00	3.22	1.55	0.00
78.00	3.22	1.55	0.00
79.00	3.22	1.55	0.00
80.00	3.22	1.55	0.00
81.00	3.22	1.55	0.00
82.00	3.22	1.55	0.00
83.00	3.22	1.55	0.00
84.00	3.22	1.55	0.00
85.00	3.22	1.55	0.00
86.00	3.22	1.55	0.00
87.00	3.22	1.55	0.00
88.00	3.22	1.55	0.00
89.00	3.22	1.55	0.00
90.00	3.22	1.55	0.00
91.00	3.22	1.55	0.00
92.00	3.22	1.55	0.00
93.00	3.22	1.55	0.00
94.00	3.22	1.55	0.00
95.00	3.22	1.55	0.00
96.00	3.22	1.55	0.00

Summary for Subcatchment PR-D3: Prop. Watershed D3

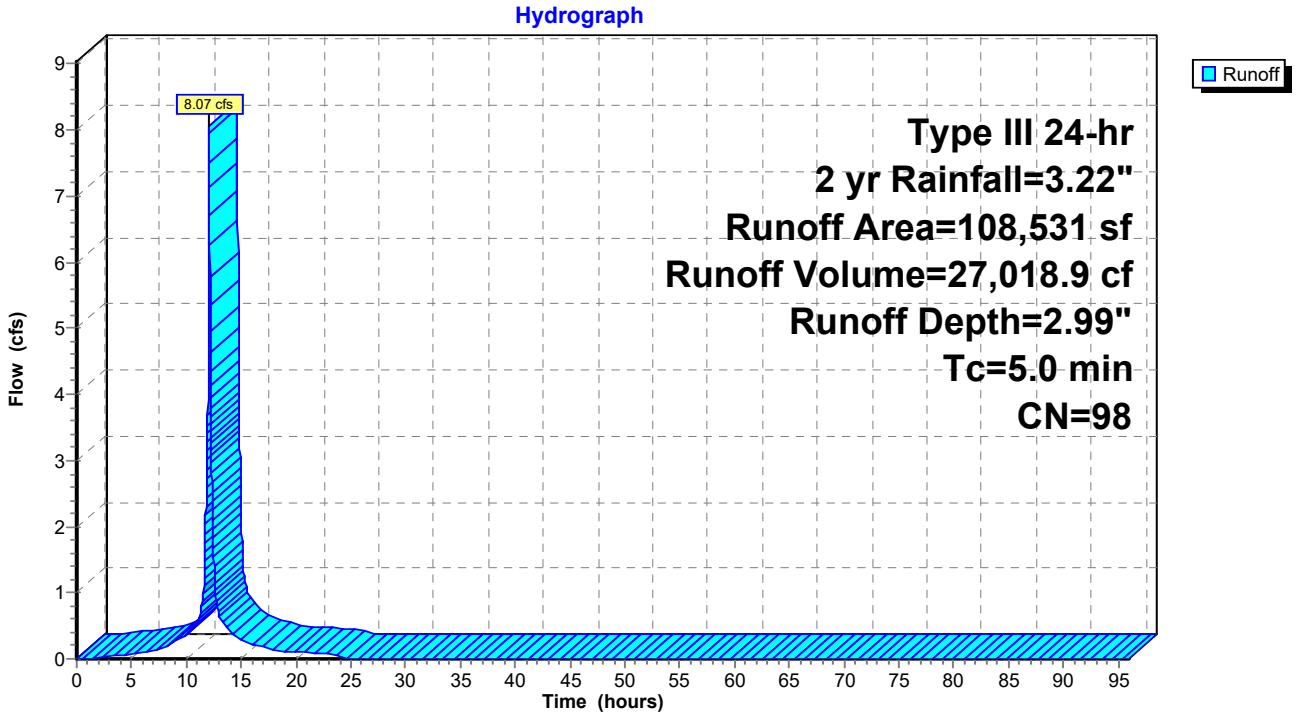
Runoff = 8.07 cfs @ 12.07 hrs, Volume= 27,018.9 cf, Depth= 2.99"
Routed to Pond SWM-6 : Cultec 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	108,531	98	Building 1 - North
	108,531		100.00% Impervious Area

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

Subcatchment PR-D3: Prop. Watershed D3



Hydrograph for Subcatchment PR-D3: Prop. Watershed D3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.01
3.00	0.10	0.01	0.04
4.00	0.14	0.03	0.06
5.00	0.18	0.06	0.08
6.00	0.23	0.09	0.09
7.00	0.29	0.14	0.13
8.00	0.37	0.20	0.18
9.00	0.47	0.29	0.26
10.00	0.61	0.42	0.36
11.00	0.80	0.60	0.55
12.00	1.61	1.39	**5.44**
13.00	2.41	2.19	**0.64**
14.00	2.61	2.38	0.41
15.00	2.75	2.52	0.31
16.00	2.85	2.62	0.22
17.00	2.93	2.70	0.17
18.00	2.99	2.76	0.13
19.00	3.04	2.81	0.12
20.00	3.08	2.85	0.11
21.00	3.12	2.89	0.10
22.00	3.16	2.93	0.09
23.00	3.19	2.96	0.08
24.00	**3.22**	**2.99**	0.07
25.00	3.22	2.99	0.00
26.00	3.22	2.99	0.00
27.00	3.22	2.99	0.00
28.00	3.22	2.99	0.00
29.00	3.22	2.99	0.00
30.00	3.22	2.99	0.00
31.00	3.22	2.99	0.00
32.00	3.22	2.99	0.00
33.00	3.22	2.99	0.00
34.00	3.22	2.99	0.00
35.00	3.22	2.99	0.00
36.00	3.22	2.99	0.00
37.00	3.22	2.99	0.00
38.00	3.22	2.99	0.00
39.00	3.22	2.99	0.00
40.00	3.22	2.99	0.00
41.00	3.22	2.99	0.00
42.00	3.22	2.99	0.00
43.00	3.22	2.99	0.00
44.00	3.22	2.99	0.00
45.00	3.22	2.99	0.00
46.00	3.22	2.99	0.00
47.00	3.22	2.99	0.00
48.00	3.22	2.99	0.00
49.00	3.22	2.99	0.00
50.00	3.22	2.99	0.00
51.00	3.22	2.99	0.00
52.00	3.22	2.99	0.00
53.00	3.22	2.99	0.00
54.00	3.22	2.99	0.00
55.00	3.22	2.99	0.00
56.00	3.22	2.99	0.00
57.00	3.22	2.99	0.00
58.00	3.22	2.99	0.00
59.00	3.22	2.99	0.00
60.00	3.22	2.99	0.00
61.00	3.22	2.99	0.00
62.00	3.22	2.99	0.00
63.00	3.22	2.99	0.00
64.00	3.22	2.99	0.00
65.00	3.22	2.99	0.00
66.00	3.22	2.99	0.00
67.00	3.22	2.99	0.00
68.00	3.22	2.99	0.00
69.00	3.22	2.99	0.00
70.00	3.22	2.99	0.00
71.00	3.22	2.99	0.00
72.00	3.22	2.99	0.00
73.00	3.22	2.99	0.00
74.00	3.22	2.99	0.00
75.00	3.22	2.99	0.00
76.00	3.22	2.99	0.00
77.00	3.22	2.99	0.00
78.00	3.22	2.99	0.00
79.00	3.22	2.99	0.00
80.00	3.22	2.99	0.00
81.00	3.22	2.99	0.00
82.00	3.22	2.99	0.00
83.00	3.22	2.99	0.00
84.00	3.22	2.99	0.00
85.00	3.22	2.99	0.00
86.00	3.22	2.99	0.00
87.00	3.22	2.99	0.00
88.00	3.22	2.99	0.00
89.00	3.22	2.99	0.00
90.00	3.22	2.99	0.00
91.00	3.22	2.99	0.00
92.00	3.22	2.99	0.00
93.00	3.22	2.99	0.00
94.00	3.22	2.99	0.00
95.00	3.22	2.99	0.00
96.00	3.22	2.99	0.00

Summary for Subcatchment PR-D4: Prop. Watershed D4

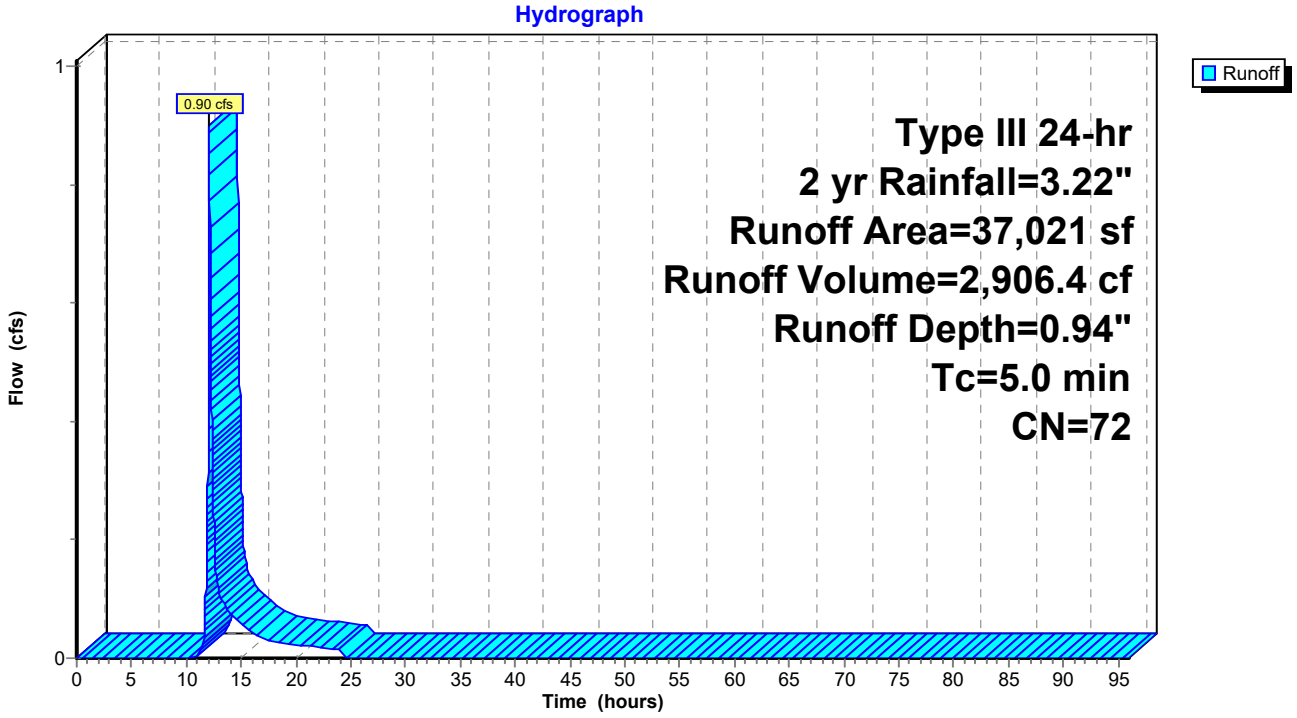
Runoff = 0.90 cfs @ 12.08 hrs, Volume= 2,906.4 cf, Depth= 0.94"
Routed to Pond SWM-4 : Cultec 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	20,670	98	Pavement
	16,351	39	>75% Grass cover, Good, HSG A
	37,021	72	Weighted Average
	16,351		44.17% Pervious Area
	20,670		55.83% Impervious Area

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

Subcatchment PR-D4: Prop. Watershed D4



Hydrograph for Subcatchment PR-D4: Prop. Watershed D4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.61	0.15	**0.49**
13.00	2.41	0.49	**0.11**
14.00	2.61	0.59	0.08
15.00	2.75	0.66	0.06
16.00	2.85	0.72	0.04
17.00	2.93	0.77	0.03
18.00	2.99	0.80	0.03
19.00	3.04	0.83	0.02
20.00	3.08	0.86	0.02
21.00	3.12	0.88	0.02
22.00	3.16	0.90	0.02
23.00	3.19	0.92	0.02
24.00	**3.22**	**0.94**	0.01
25.00	3.22	0.94	0.00
26.00	3.22	0.94	0.00
27.00	3.22	0.94	0.00
28.00	3.22	0.94	0.00
29.00	3.22	0.94	0.00
30.00	3.22	0.94	0.00
31.00	3.22	0.94	0.00
32.00	3.22	0.94	0.00
33.00	3.22	0.94	0.00
34.00	3.22	0.94	0.00
35.00	3.22	0.94	0.00
36.00	3.22	0.94	0.00
37.00	3.22	0.94	0.00
38.00	3.22	0.94	0.00
39.00	3.22	0.94	0.00
40.00	3.22	0.94	0.00
41.00	3.22	0.94	0.00
42.00	3.22	0.94	0.00
43.00	3.22	0.94	0.00
44.00	3.22	0.94	0.00
45.00	3.22	0.94	0.00
46.00	3.22	0.94	0.00
47.00	3.22	0.94	0.00
48.00	3.22	0.94	0.00
49.00	3.22	0.94	0.00
50.00	3.22	0.94	0.00
51.00	3.22	0.94	0.00
52.00	3.22	0.94	0.00
53.00	3.22	0.94	0.00
54.00	3.22	0.94	0.00
55.00	3.22	0.94	0.00
56.00	3.22	0.94	0.00
57.00	3.22	0.94	0.00
58.00	3.22	0.94	0.00
59.00	3.22	0.94	0.00
60.00	3.22	0.94	0.00
61.00	3.22	0.94	0.00
62.00	3.22	0.94	0.00
63.00	3.22	0.94	0.00
64.00	3.22	0.94	0.00
65.00	3.22	0.94	0.00
66.00	3.22	0.94	0.00
67.00	3.22	0.94	0.00
68.00	3.22	0.94	0.00
69.00	3.22	0.94	0.00
70.00	3.22	0.94	0.00
71.00	3.22	0.94	0.00
72.00	3.22	0.94	0.00
73.00	3.22	0.94	0.00
74.00	3.22	0.94	0.00
75.00	3.22	0.94	0.00
76.00	3.22	0.94	0.00
77.00	3.22	0.94	0.00
78.00	3.22	0.94	0.00
79.00	3.22	0.94	0.00
80.00	3.22	0.94	0.00
81.00	3.22	0.94	0.00
82.00	3.22	0.94	0.00
83.00	3.22	0.94	0.00
84.00	3.22	0.94	0.00
85.00	3.22	0.94	0.00
86.00	3.22	0.94	0.00
87.00	3.22	0.94	0.00
88.00	3.22	0.94	0.00
89.00	3.22	0.94	0.00
90.00	3.22	0.94	0.00
91.00	3.22	0.94	0.00
92.00	3.22	0.94	0.00
93.00	3.22	0.94	0.00
94.00	3.22	0.94	0.00
95.00	3.22	0.94	0.00
96.00	3.22	0.94	0.00

Summary for Subcatchment PR-D5: Prop. Watershed D5

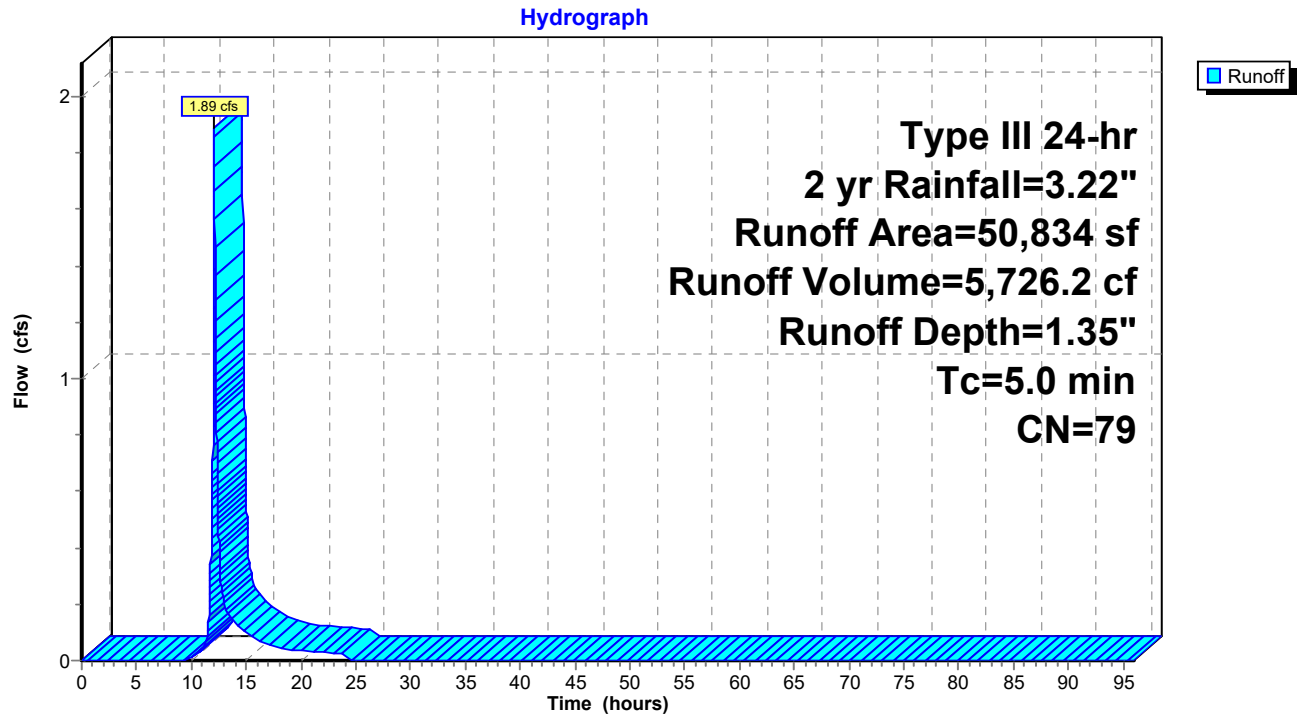
Runoff = 1.89 cfs @ 12.08 hrs, Volume= 5,726.2 cf, Depth= 1.35"
Routed to Pond RG1 : Rain-Garden #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

Area (sf)	CN	Description
34,446	98	Unconnected pavement, HSG A
16,388	39	>75% Grass cover, Good, HSG A
50,834	79	Weighted Average
16,388		32.24% Pervious Area
34,446		67.76% Impervious Area
34,446		100.00% Unconnected

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

Subcatchment PR-D5: Prop. Watershed D5



Hydrograph for Subcatchment PR-D5: Prop. Watershed D5

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.01
11.00	0.80	0.03	0.05
12.00	1.61	0.31	**1.13**
13.00	2.41	0.78	**0.20**
14.00	2.61	0.91	0.13
15.00	2.75	1.01	0.10
16.00	2.85	1.08	0.07
17.00	2.93	1.14	0.06
18.00	2.99	1.18	0.05
19.00	3.04	1.22	0.04
20.00	3.08	1.25	0.04
21.00	3.12	1.28	0.03
22.00	3.16	1.31	0.03
23.00	3.19	1.33	0.03
24.00	**3.22**	**1.35**	0.02
25.00	3.22	1.35	0.00
26.00	3.22	1.35	0.00
27.00	3.22	1.35	0.00
28.00	3.22	1.35	0.00
29.00	3.22	1.35	0.00
30.00	3.22	1.35	0.00
31.00	3.22	1.35	0.00
32.00	3.22	1.35	0.00
33.00	3.22	1.35	0.00
34.00	3.22	1.35	0.00
35.00	3.22	1.35	0.00
36.00	3.22	1.35	0.00
37.00	3.22	1.35	0.00
38.00	3.22	1.35	0.00
39.00	3.22	1.35	0.00
40.00	3.22	1.35	0.00
41.00	3.22	1.35	0.00
42.00	3.22	1.35	0.00
43.00	3.22	1.35	0.00
44.00	3.22	1.35	0.00
45.00	3.22	1.35	0.00
46.00	3.22	1.35	0.00
47.00	3.22	1.35	0.00
48.00	3.22	1.35	0.00
49.00	3.22	1.35	0.00
50.00	3.22	1.35	0.00
51.00	3.22	1.35	0.00
52.00	3.22	1.35	0.00
53.00	3.22	1.35	0.00
54.00	3.22	1.35	0.00
55.00	3.22	1.35	0.00
56.00	3.22	1.35	0.00
57.00	3.22	1.35	0.00
58.00	3.22	1.35	0.00
59.00	3.22	1.35	0.00
60.00	3.22	1.35	0.00
61.00	3.22	1.35	0.00
62.00	3.22	1.35	0.00
63.00	3.22	1.35	0.00
64.00	3.22	1.35	0.00
65.00	3.22	1.35	0.00
66.00	3.22	1.35	0.00
67.00	3.22	1.35	0.00
68.00	3.22	1.35	0.00
69.00	3.22	1.35	0.00
70.00	3.22	1.35	0.00
71.00	3.22	1.35	0.00
72.00	3.22	1.35	0.00
73.00	3.22	1.35	0.00
74.00	3.22	1.35	0.00
75.00	3.22	1.35	0.00
76.00	3.22	1.35	0.00
77.00	3.22	1.35	0.00
78.00	3.22	1.35	0.00
79.00	3.22	1.35	0.00
80.00	3.22	1.35	0.00
81.00	3.22	1.35	0.00
82.00	3.22	1.35	0.00
83.00	3.22	1.35	0.00
84.00	3.22	1.35	0.00
85.00	3.22	1.35	0.00
86.00	3.22	1.35	0.00
87.00	3.22	1.35	0.00
88.00	3.22	1.35	0.00
89.00	3.22	1.35	0.00
90.00	3.22	1.35	0.00
91.00	3.22	1.35	0.00
92.00	3.22	1.35	0.00
93.00	3.22	1.35	0.00
94.00	3.22	1.35	0.00
95.00	3.22	1.35	0.00
96.00	3.22	1.35	0.00

Summary for Subcatchment PR-D6: Prop. Watershed D6

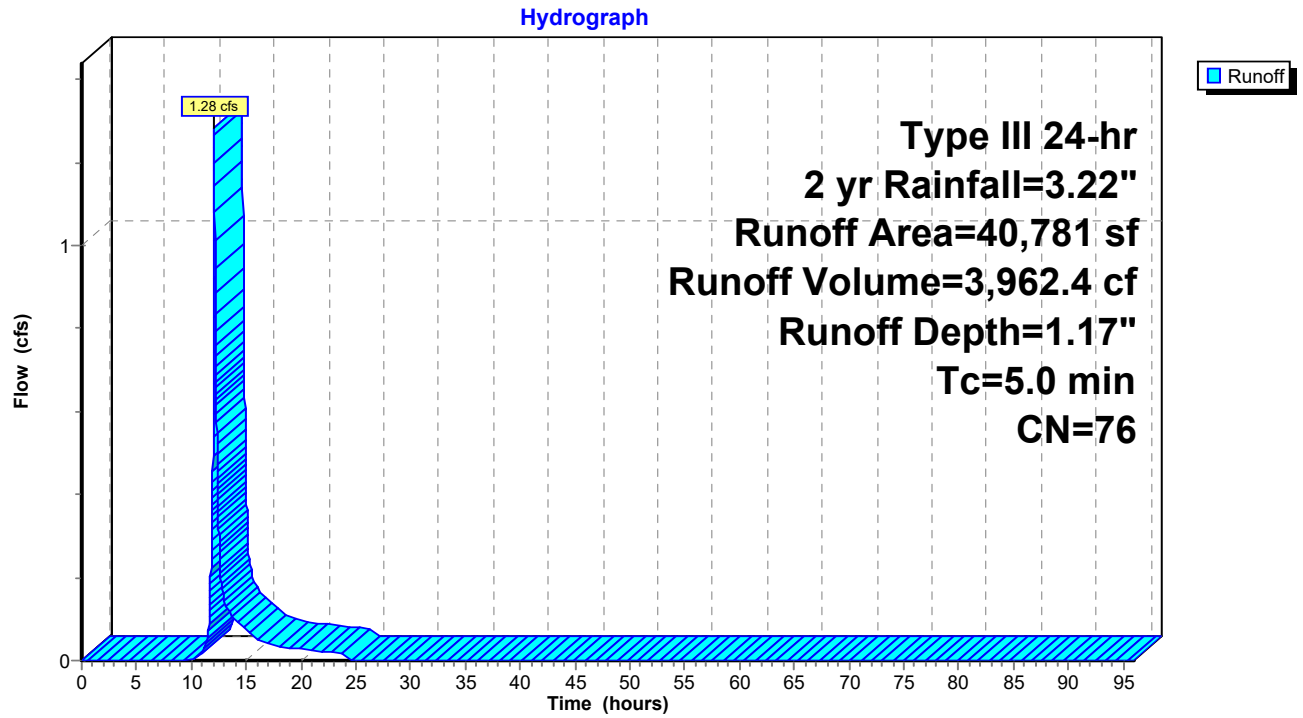
Runoff = 1.28 cfs @ 12.08 hrs, Volume= 3,962.4 cf, Depth= 1.17"
Routed to Pond RG2 : Rain-Garden #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

Area (sf)	CN	Description
25,487	98	Unconnected pavement, HSG A
15,294	39	>75% Grass cover, Good, HSG A
40,781	76	Weighted Average
15,294		37.50% Pervious Area
25,487		62.50% Impervious Area
25,487		100.00% Unconnected

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

Subcatchment PR-D6: Prop. Watershed D6



Hydrograph for Subcatchment PR-D6: Prop. Watershed D6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.01	0.02
12.00	1.61	0.23	**0.74**
13.00	2.41	0.64	**0.14**
14.00	2.61	0.76	0.10
15.00	2.75	0.85	0.07
16.00	2.85	0.92	0.05
17.00	2.93	0.97	0.04
18.00	2.99	1.01	0.03
19.00	3.04	1.04	0.03
20.00	3.08	1.07	0.03
21.00	3.12	1.10	0.02
22.00	3.16	1.12	0.02
23.00	3.19	1.15	0.02
24.00	**3.22**	**1.17**	0.02
25.00	3.22	1.17	0.00
26.00	3.22	1.17	0.00
27.00	3.22	1.17	0.00
28.00	3.22	1.17	0.00
29.00	3.22	1.17	0.00
30.00	3.22	1.17	0.00
31.00	3.22	1.17	0.00
32.00	3.22	1.17	0.00
33.00	3.22	1.17	0.00
34.00	3.22	1.17	0.00
35.00	3.22	1.17	0.00
36.00	3.22	1.17	0.00
37.00	3.22	1.17	0.00
38.00	3.22	1.17	0.00
39.00	3.22	1.17	0.00
40.00	3.22	1.17	0.00
41.00	3.22	1.17	0.00
42.00	3.22	1.17	0.00
43.00	3.22	1.17	0.00
44.00	3.22	1.17	0.00
45.00	3.22	1.17	0.00
46.00	3.22	1.17	0.00
47.00	3.22	1.17	0.00
48.00	3.22	1.17	0.00
49.00	3.22	1.17	0.00
50.00	3.22	1.17	0.00
51.00	3.22	1.17	0.00
52.00	3.22	1.17	0.00
53.00	3.22	1.17	0.00
54.00	3.22	1.17	0.00
55.00	3.22	1.17	0.00
56.00	3.22	1.17	0.00
57.00	3.22	1.17	0.00
58.00	3.22	1.17	0.00
59.00	3.22	1.17	0.00
60.00	3.22	1.17	0.00
61.00	3.22	1.17	0.00
62.00	3.22	1.17	0.00
63.00	3.22	1.17	0.00
64.00	3.22	1.17	0.00
65.00	3.22	1.17	0.00
66.00	3.22	1.17	0.00
67.00	3.22	1.17	0.00
68.00	3.22	1.17	0.00
69.00	3.22	1.17	0.00
70.00	3.22	1.17	0.00
71.00	3.22	1.17	0.00
72.00	3.22	1.17	0.00
73.00	3.22	1.17	0.00
74.00	3.22	1.17	0.00
75.00	3.22	1.17	0.00
76.00	3.22	1.17	0.00
77.00	3.22	1.17	0.00
78.00	3.22	1.17	0.00
79.00	3.22	1.17	0.00
80.00	3.22	1.17	0.00
81.00	3.22	1.17	0.00
82.00	3.22	1.17	0.00
83.00	3.22	1.17	0.00
84.00	3.22	1.17	0.00
85.00	3.22	1.17	0.00
86.00	3.22	1.17	0.00
87.00	3.22	1.17	0.00
88.00	3.22	1.17	0.00
89.00	3.22	1.17	0.00
90.00	3.22	1.17	0.00
91.00	3.22	1.17	0.00
92.00	3.22	1.17	0.00
93.00	3.22	1.17	0.00
94.00	3.22	1.17	0.00
95.00	3.22	1.17	0.00
96.00	3.22	1.17	0.00

Summary for Subcatchment PR-D7: Prop. Watershed D7

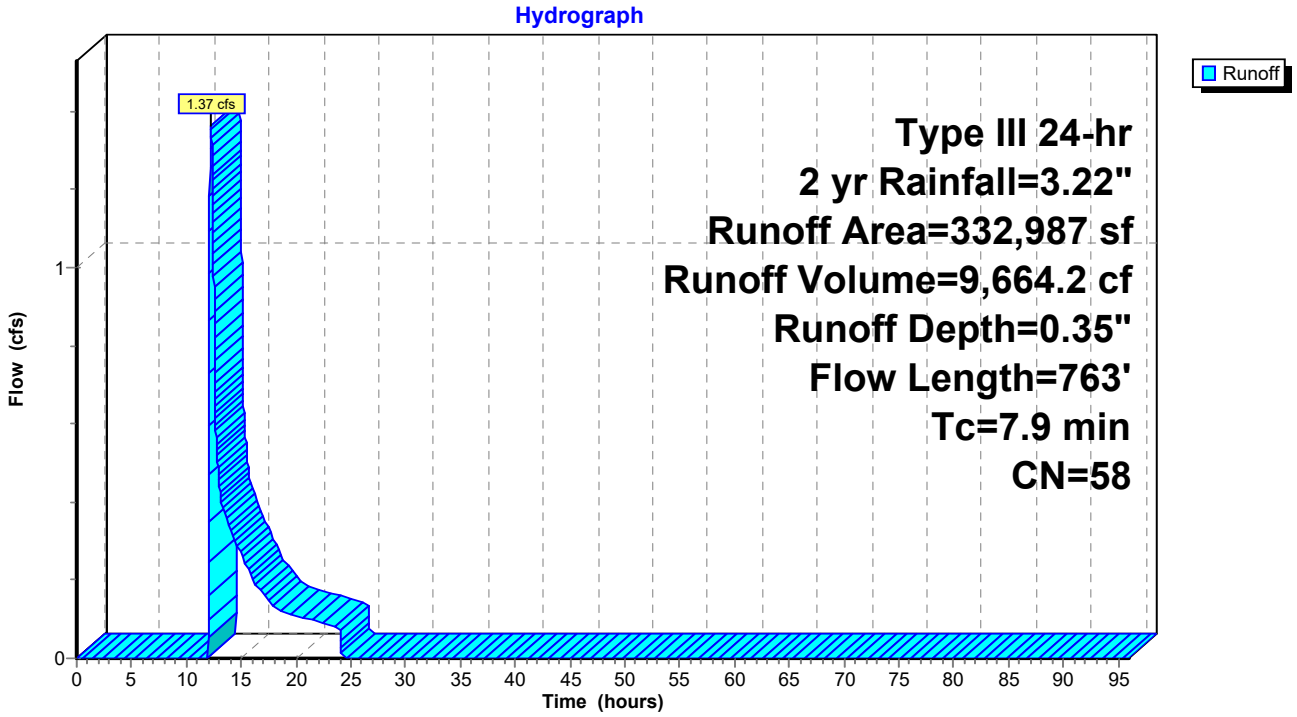
Runoff = 1.37 cfs @ 12.19 hrs, Volume= 9,664.2 cf, Depth= 0.35"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	105,210	98	Pavement
*	4,930	98	Walkway Ramp/steps
	204,310	39	>75% Grass cover, Good, HSG A
*	18,537	36	Woods, Fair, HSG A
	332,987	58	Weighted Average
	222,847		66.92% Pervious Area
	110,140		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.2	52	0.0670	4.17		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.0	66	0.0030	1.11		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	78	0.0064	4.21	5.17	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.7	170	0.0035	3.90	9.37	**Pipe Channel, E-F** 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.013
0.4	121	0.0041	4.61	14.49	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.3	145	0.0055	8.48	106.53	**Pipe Channel, G-H** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	40	0.0050	8.08	101.57	**Pipe Channel, H-I** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	41	0.0054	6.93	49.01	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.013
7.9	763	Total			

Subcatchment PR-D7: Prop. Watershed D7



Hydrograph for Subcatchment PR-D7: Prop. Watershed D7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.00
3.00	0.10	0.00	0.00
4.00	0.14	0.00	0.00
5.00	0.18	0.00	0.00
6.00	0.23	0.00	0.00
7.00	0.29	0.00	0.00
8.00	0.37	0.00	0.00
9.00	0.47	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.61	0.00	**0.01**
13.00	2.41	0.11	**0.45**
14.00	2.61	0.16	0.33
15.00	2.75	0.20	0.27
16.00	2.85	0.23	0.20
17.00	2.93	0.25	0.17
18.00	2.99	0.27	0.13
19.00	3.04	0.29	0.12
20.00	3.08	0.30	0.11
21.00	3.12	0.31	0.10
22.00	3.16	0.33	0.09
23.00	3.19	0.34	0.08
24.00	**3.22**	**0.35**	0.08
25.00	3.22	0.35	0.00
26.00	3.22	0.35	0.00
27.00	3.22	0.35	0.00
28.00	3.22	0.35	0.00
29.00	3.22	0.35	0.00
30.00	3.22	0.35	0.00
31.00	3.22	0.35	0.00
32.00	3.22	0.35	0.00
33.00	3.22	0.35	0.00
34.00	3.22	0.35	0.00
35.00	3.22	0.35	0.00
36.00	3.22	0.35	0.00
37.00	3.22	0.35	0.00
38.00	3.22	0.35	0.00
39.00	3.22	0.35	0.00
40.00	3.22	0.35	0.00
41.00	3.22	0.35	0.00
42.00	3.22	0.35	0.00
43.00	3.22	0.35	0.00
44.00	3.22	0.35	0.00
45.00	3.22	0.35	0.00
46.00	3.22	0.35	0.00
47.00	3.22	0.35	0.00
48.00	3.22	0.35	0.00
49.00	3.22	0.35	0.00
50.00	3.22	0.35	0.00
51.00	3.22	0.35	0.00
52.00	3.22	0.35	0.00
53.00	3.22	0.35	0.00
54.00	3.22	0.35	0.00
55.00	3.22	0.35	0.00
56.00	3.22	0.35	0.00
57.00	3.22	0.35	0.00
58.00	3.22	0.35	0.00
59.00	3.22	0.35	0.00
60.00	3.22	0.35	0.00
61.00	3.22	0.35	0.00
62.00	3.22	0.35	0.00
63.00	3.22	0.35	0.00
64.00	3.22	0.35	0.00
65.00	3.22	0.35	0.00
66.00	3.22	0.35	0.00
67.00	3.22	0.35	0.00
68.00	3.22	0.35	0.00
69.00	3.22	0.35	0.00
70.00	3.22	0.35	0.00
71.00	3.22	0.35	0.00
72.00	3.22	0.35	0.00
73.00	3.22	0.35	0.00
74.00	3.22	0.35	0.00
75.00	3.22	0.35	0.00
76.00	3.22	0.35	0.00
77.00	3.22	0.35	0.00
78.00	3.22	0.35	0.00
79.00	3.22	0.35	0.00
80.00	3.22	0.35	0.00
81.00	3.22	0.35	0.00
82.00	3.22	0.35	0.00
83.00	3.22	0.35	0.00
84.00	3.22	0.35	0.00
85.00	3.22	0.35	0.00
86.00	3.22	0.35	0.00
87.00	3.22	0.35	0.00
88.00	3.22	0.35	0.00
89.00	3.22	0.35	0.00
90.00	3.22	0.35	0.00
91.00	3.22	0.35	0.00
92.00	3.22	0.35	0.00
93.00	3.22	0.35	0.00
94.00	3.22	0.35	0.00
95.00	3.22	0.35	0.00
96.00	3.22	0.35	0.00

Summary for Subcatchment PR-D8: Prop. Watershed D8

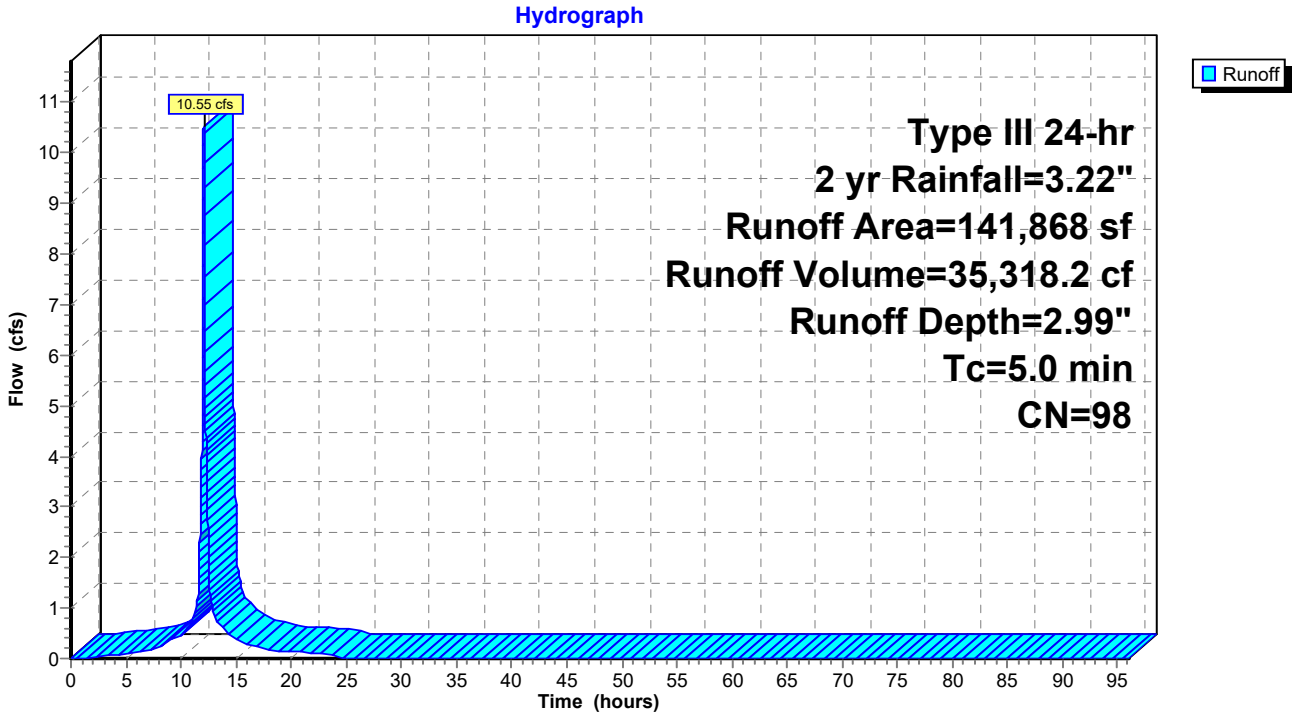
Runoff = 10.55 cfs @ 12.07 hrs, Volume= 35,318.2 cf, Depth= 2.99"
Routed to Pond SWM-2 : Cultec 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.22"

	Area (sf)	CN	Description
*	107,416	98	Building 1 - South
*	34,452	98	Building 2 - North
	141,868	98	Weighted Average
	141,868		100.00% Impervious Area

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

Subcatchment PR-D8: Prop. Watershed D8



Hydrograph for Subcatchment PR-D8: Prop. Watershed D8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.03	0.00	0.00
2.00	0.06	0.00	0.02
3.00	0.10	0.01	0.05
4.00	0.14	0.03	0.07
5.00	0.18	0.06	0.10
6.00	0.23	0.09	0.12
7.00	0.29	0.14	0.17
8.00	0.37	0.20	0.23
9.00	0.47	0.29	0.35
10.00	0.61	0.42	0.47
11.00	0.80	0.60	0.72
12.00	1.61	1.39	**7.12**
13.00	2.41	2.19	**0.84**
14.00	2.61	2.38	0.53
15.00	2.75	2.52	0.40
16.00	2.85	2.62	0.28
17.00	2.93	2.70	0.23
18.00	2.99	2.76	0.17
19.00	3.04	2.81	0.15
20.00	3.08	2.85	0.14
21.00	3.12	2.89	0.13
22.00	3.16	2.93	0.11
23.00	3.19	2.96	0.10
24.00	**3.22**	**2.99**	0.09
25.00	3.22	2.99	0.00
26.00	3.22	2.99	0.00
27.00	3.22	2.99	0.00
28.00	3.22	2.99	0.00
29.00	3.22	2.99	0.00
30.00	3.22	2.99	0.00
31.00	3.22	2.99	0.00
32.00	3.22	2.99	0.00
33.00	3.22	2.99	0.00
34.00	3.22	2.99	0.00
35.00	3.22	2.99	0.00
36.00	3.22	2.99	0.00
37.00	3.22	2.99	0.00
38.00	3.22	2.99	0.00
39.00	3.22	2.99	0.00
40.00	3.22	2.99	0.00
41.00	3.22	2.99	0.00
42.00	3.22	2.99	0.00
43.00	3.22	2.99	0.00
44.00	3.22	2.99	0.00
45.00	3.22	2.99	0.00
46.00	3.22	2.99	0.00
47.00	3.22	2.99	0.00
48.00	3.22	2.99	0.00
49.00	3.22	2.99	0.00
50.00	3.22	2.99	0.00
51.00	3.22	2.99	0.00
52.00	3.22	2.99	0.00
53.00	3.22	2.99	0.00
54.00	3.22	2.99	0.00
55.00	3.22	2.99	0.00
56.00	3.22	2.99	0.00
57.00	3.22	2.99	0.00
58.00	3.22	2.99	0.00
59.00	3.22	2.99	0.00
60.00	3.22	2.99	0.00
61.00	3.22	2.99	0.00
62.00	3.22	2.99	0.00
63.00	3.22	2.99	0.00
64.00	3.22	2.99	0.00
65.00	3.22	2.99	0.00
66.00	3.22	2.99	0.00
67.00	3.22	2.99	0.00
68.00	3.22	2.99	0.00
69.00	3.22	2.99	0.00
70.00	3.22	2.99	0.00
71.00	3.22	2.99	0.00
72.00	3.22	2.99	0.00
73.00	3.22	2.99	0.00
74.00	3.22	2.99	0.00
75.00	3.22	2.99	0.00
76.00	3.22	2.99	0.00
77.00	3.22	2.99	0.00
78.00	3.22	2.99	0.00
79.00	3.22	2.99	0.00
80.00	3.22	2.99	0.00
81.00	3.22	2.99	0.00
82.00	3.22	2.99	0.00
83.00	3.22	2.99	0.00
84.00	3.22	2.99	0.00
85.00	3.22	2.99	0.00
86.00	3.22	2.99	0.00
87.00	3.22	2.99	0.00
88.00	3.22	2.99	0.00
89.00	3.22	2.99	0.00
90.00	3.22	2.99	0.00
91.00	3.22	2.99	0.00
92.00	3.22	2.99	0.00
93.00	3.22	2.99	0.00
94.00	3.22	2.99	0.00
95.00	3.22	2.99	0.00
96.00	3.22	2.99	0.00

Summary for Pond FP: Fire Pond Weir

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 0.28" for 2 yr event
Inflow = 8.18 cfs @ 12.12 hrs, Volume= 27,710.1 cf
Outflow = 2.64 cfs @ 12.52 hrs, Volume= 27,710.1 cf, Atten= 68%, Lag= 24.2 min
Primary = 2.64 cfs @ 12.52 hrs, Volume= 27,710.1 cf
Routed to Link POA D : WETLAND-NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 244.11' @ 12.52 hrs Surf.Area= 54,136 sf Storage= 239,684.5 cf (8,704.3 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 71.7 min (900.5 - 828.8)

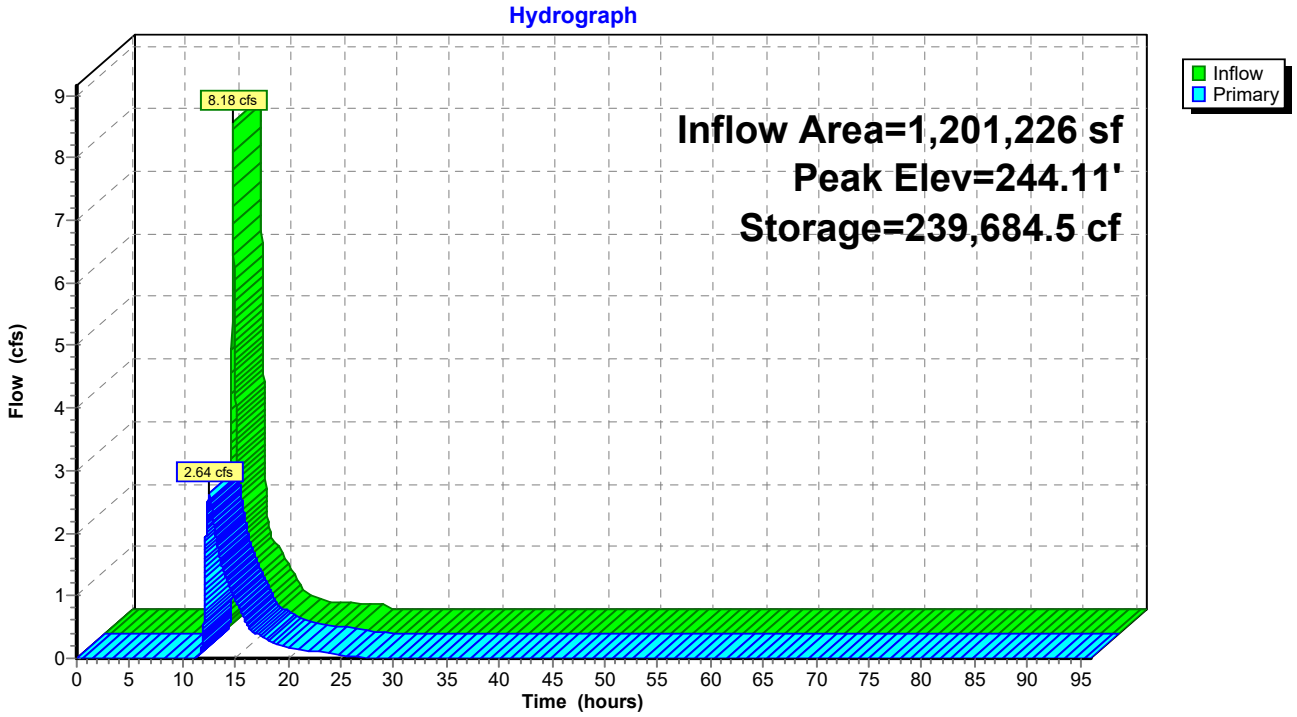
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

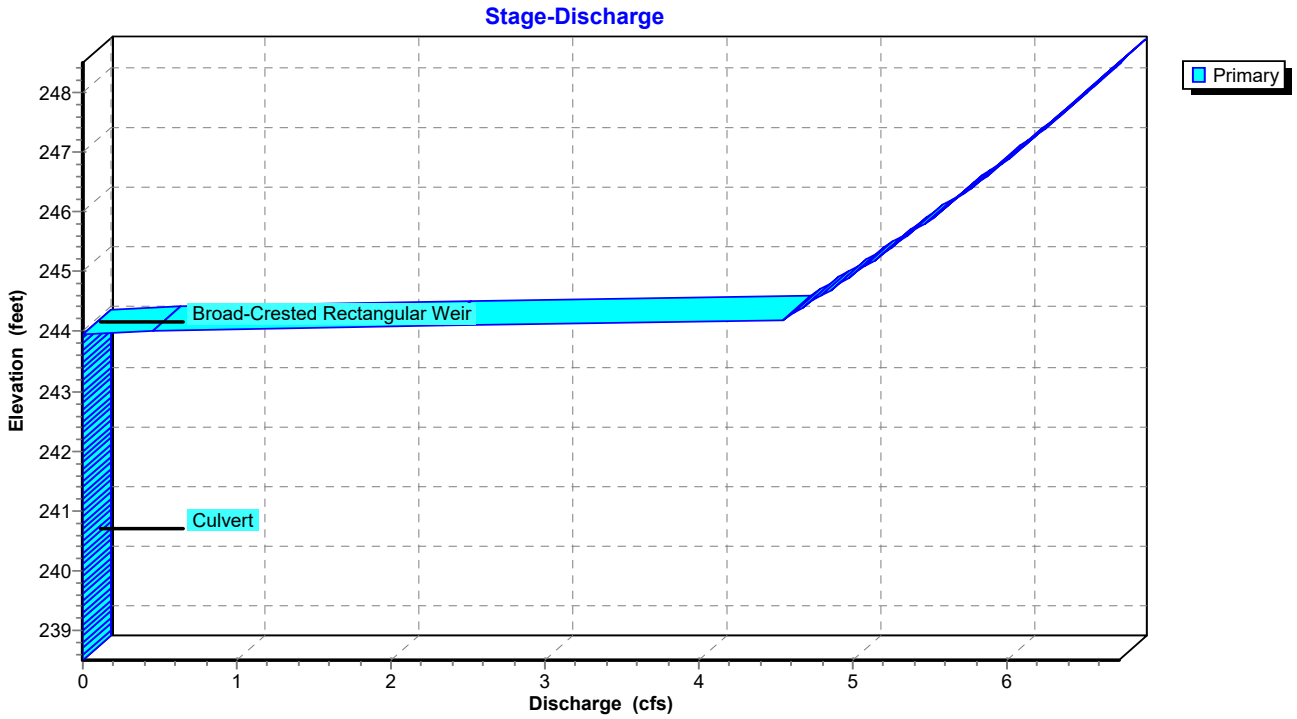
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.66 cfs @ 12.52 hrs HW=244.11' (Free Discharge)
↑**2=Culvert** (Passes 2.66 cfs of 4.49 cfs potential flow)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 2.66 cfs @ 1.12 fps)

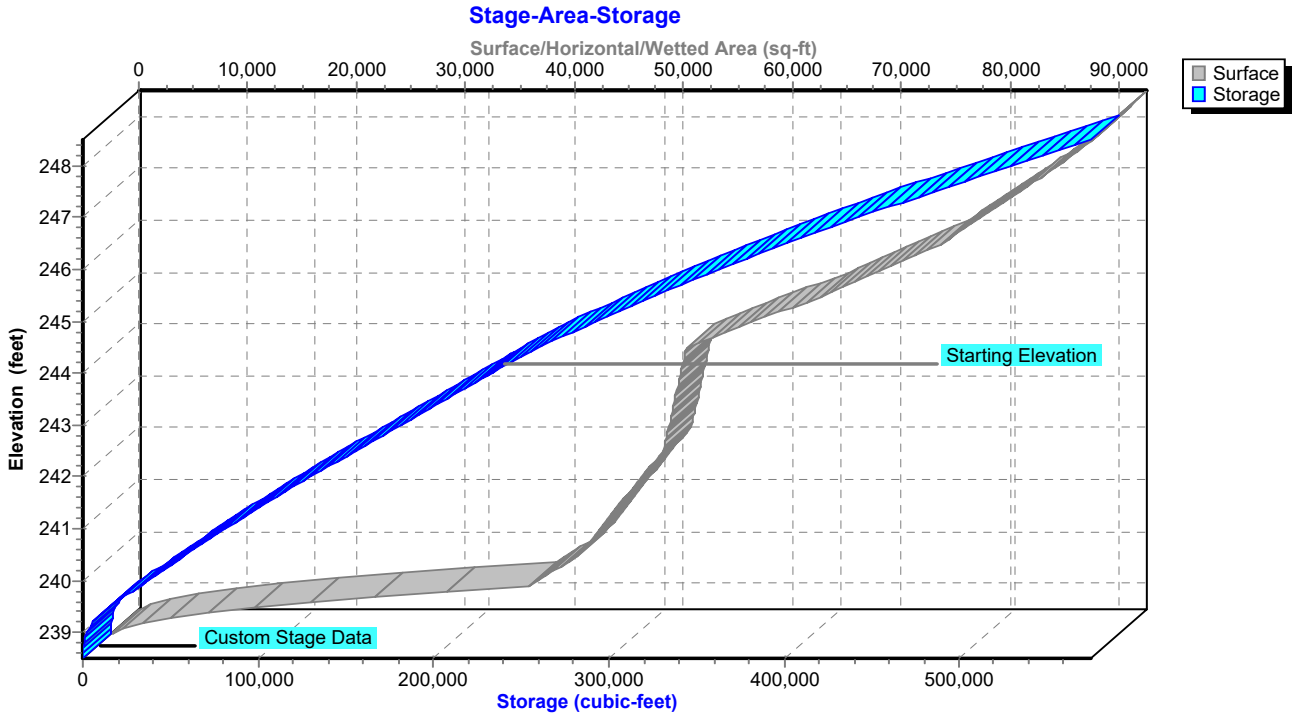
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.00	230,980.2	243.95	0.00
10.00	0.00	230,980.2	243.95	0.00
12.00	**3.85**	**233,550.0**	**244.00**	**0.44**
14.00	**0.98**	**236,149.3**	**244.05**	**1.35**
16.00	0.34	234,039.5	244.01	0.60
18.00	0.15	232,696.1	243.98	0.29
20.00	0.11	231,973.4	243.97	0.17
22.00	0.09	231,683.4	243.96	0.12
24.00	0.08	231,529.7	243.96	0.09
26.00	0.00	231,151.1	243.95	0.03
28.00	0.00	231,030.2	243.95	0.01
30.00	0.00	230,994.8	243.95	0.00
32.00	0.00	230,984.5	243.95	0.00
34.00	0.00	230,981.5	243.95	0.00
36.00	0.00	230,980.6	243.95	0.00
38.00	0.00	230,980.3	243.95	0.00
40.00	0.00	230,980.3	243.95	0.00
42.00	0.00	230,980.2	243.95	0.00
44.00	0.00	230,980.2	243.95	0.00
46.00	0.00	230,980.2	243.95	0.00
48.00	0.00	230,980.2	243.95	0.00
50.00	0.00	230,980.2	243.95	0.00
52.00	0.00	230,980.2	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Pond RG1: Rain-Garden #1

Inflow Area = 50,834 sf, 67.76% Impervious, Inflow Depth = 1.35" for 2 yr event
Inflow = 1.89 cfs @ 12.08 hrs, Volume= 5,726.2 cf
Outflow = 0.14 cfs @ 13.87 hrs, Volume= 5,726.2 cf, Atten= 93%, Lag= 107.6 min
Discarded = 0.06 cfs @ 11.32 hrs, Volume= 5,314.4 cf
Primary = 0.08 cfs @ 13.87 hrs, Volume= 411.8 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 249.86' @ 13.87 hrs Surf.Area= 3,974 sf Storage= 3,047.0 cf

Plug-Flow detention time= 500.6 min calculated for 5,725.6 cf (100% of inflow)
Center-of-Mass det. time= 500.7 min (1,345.4 - 844.7)

Volume	Invert	Avail.Storage	Storage Description
#1	249.00'	2,491.8 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,102.2 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	83.3 cf	**12.0" Round Perforated pipe** Inside #4 L= 106.0'
#4	243.00'	638.1 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,678.5 cf Overall - 83.3 cf Embedded = 1,595.2 cf x 40.0% Voids
		4,315.3 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	1,119	0.0	0.0
249.50	1,471	647.5	647.5
250.00	1,840	827.8	1,475.3
250.50	2,226	1,016.5	2,491.8

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	1,119	0.0	0.0	0.0
244.51	1,119	40.0	4.5	4.5
245.74	1,119	40.0	550.5	555.0
245.75	1,119	15.0	1.7	556.7
248.74	1,119	15.0	501.9	1,058.6
248.75	1,119	15.0	1.7	1,060.3
249.00	1,119	15.0	42.0	1,102.2

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
243.00	1,119	0.0	0.0
244.50	1,119	1,678.5	1,678.5

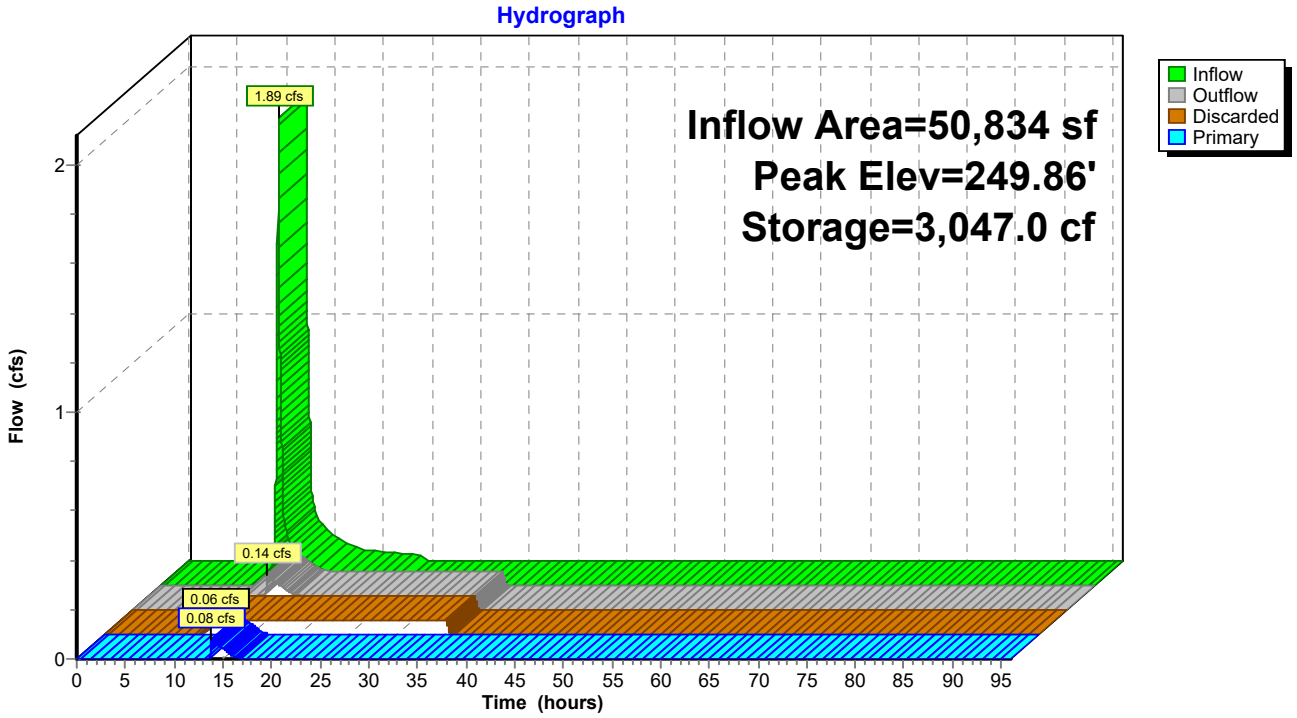
Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**0.06 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900

n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

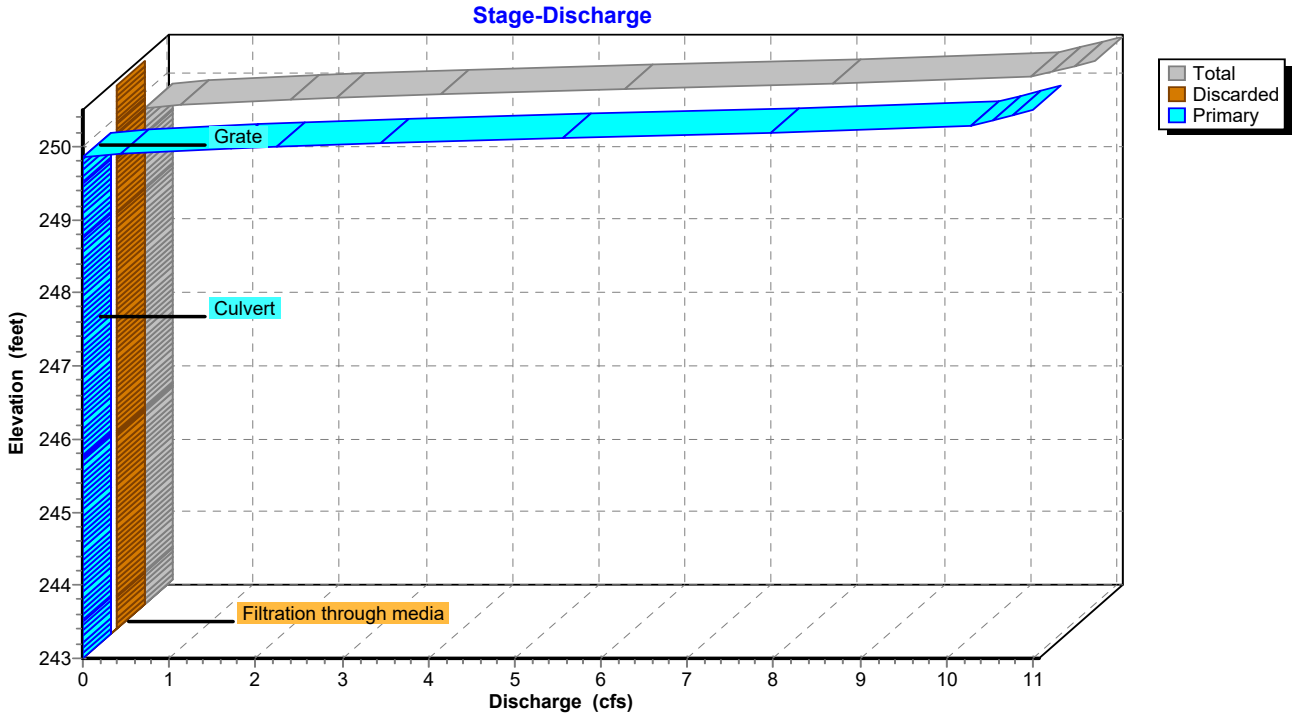
Discarded OutFlow Max=0.06 cfs @ 11.32 hrs HW=243.08' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.03 cfs @ 13.87 hrs HW=249.86' (Free Discharge)
└**3=Culvert** (Passes 0.03 cfs of 8.76 cfs potential flow)
└**2=Grate** (Weir Controls 0.03 cfs @ 0.31 fps)

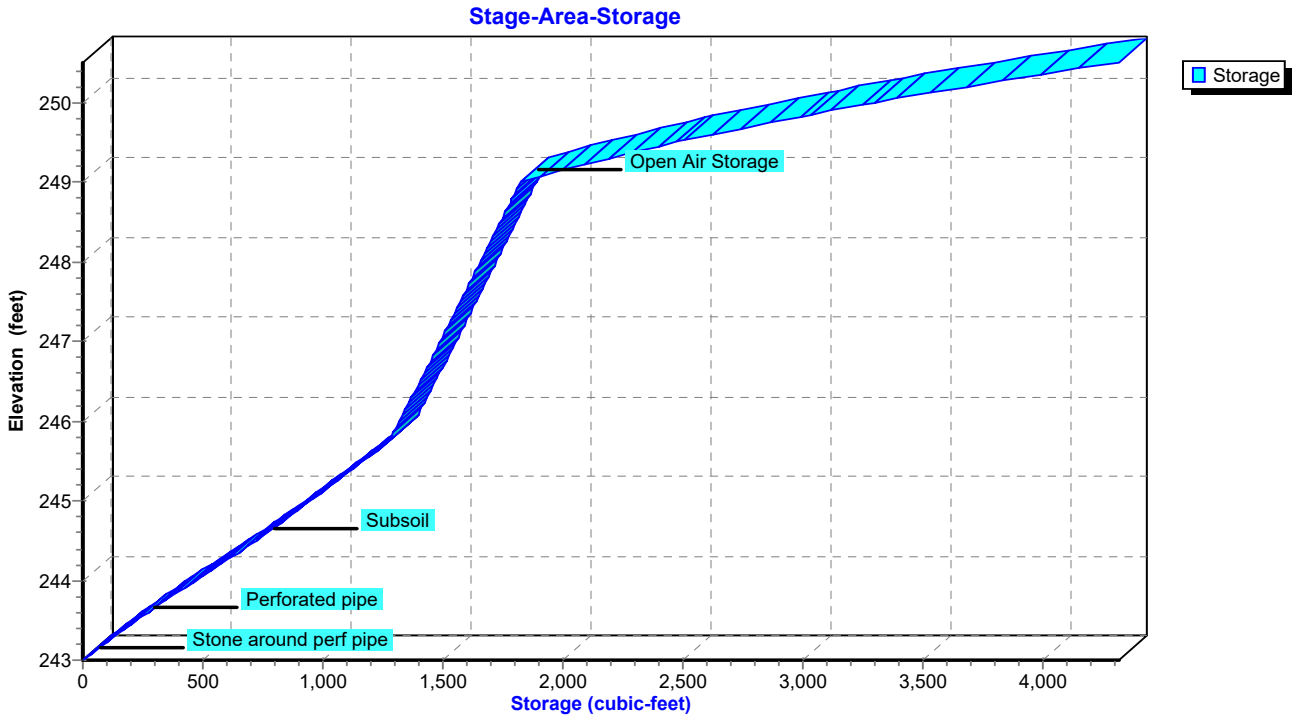
Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Hydrograph for Pond RG1: Rain-Garden #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.00	0.0	243.00	0.00	0.00	0.00
6.00	0.00	0.0	243.00	0.00	0.00	0.00
8.00	0.00	0.0	243.00	0.00	0.00	0.00
10.00	0.01	3.1	243.01	0.01	**0.01**	0.00
12.00	**1.13**	**619.2**	**244.29**	**0.06**	**0.06**	**0.00**
14.00	**0.13**	**3,046.3**	**249.86**	**0.13**	0.06	**0.07**
16.00	0.07	3,034.1	249.85	0.07	0.06	0.01
18.00	0.05	3,002.0	249.83	0.06	0.06	0.00
20.00	0.04	2,862.9	249.75	0.06	0.06	0.00
22.00	0.03	2,673.4	249.63	0.06	0.06	0.00
24.00	0.02	2,440.0	249.48	0.06	0.06	0.00
26.00	0.00	2,014.8	249.16	0.06	0.06	0.00
28.00	0.00	1,582.8	247.57	0.06	0.06	0.00
30.00	0.00	1,150.8	245.46	0.06	0.06	0.00
32.00	0.00	718.8	244.49	0.06	0.06	0.00
34.00	0.00	286.8	243.63	0.06	0.06	0.00
36.00	0.00	0.2	243.00	0.00	0.00	0.00
38.00	0.00	0.0	243.00	0.00	0.00	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond RG1: Rain-Garden #1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.06	**0.06**	0.00
243.20	0.06	0.06	0.00
243.30	0.06	0.06	0.00
243.40	0.06	0.06	0.00
243.50	0.06	0.06	0.00
243.60	0.06	0.06	0.00
243.70	0.06	0.06	0.00
243.80	0.06	0.06	0.00
243.90	0.06	0.06	0.00
244.00	0.06	0.06	0.00
244.10	0.06	0.06	0.00
244.20	0.06	0.06	0.00
244.30	0.06	0.06	0.00
244.40	0.06	0.06	0.00
244.50	0.06	0.06	0.00
244.60	0.06	0.06	0.00
244.70	0.06	0.06	0.00
244.80	0.06	0.06	0.00
244.90	0.06	0.06	0.00
245.00	0.06	0.06	0.00
245.10	0.06	0.06	0.00
245.20	0.06	0.06	0.00
245.30	0.06	0.06	0.00
245.40	0.06	0.06	0.00
245.50	0.06	0.06	0.00
245.60	0.06	0.06	0.00
245.70	0.06	0.06	0.00
245.80	0.06	0.06	0.00
245.90	0.06	0.06	0.00
246.00	0.06	0.06	0.00
246.10	0.06	0.06	0.00
246.20	0.06	0.06	0.00
246.30	0.06	0.06	0.00
246.40	0.06	0.06	0.00
246.50	0.06	0.06	0.00
246.60	0.06	0.06	0.00
246.70	0.06	0.06	0.00
246.80	0.06	0.06	0.00
246.90	0.06	0.06	0.00
247.00	0.06	0.06	0.00
247.10	0.06	0.06	0.00
247.20	0.06	0.06	0.00
247.30	0.06	0.06	0.00
247.40	0.06	0.06	0.00
247.50	0.06	0.06	0.00
247.60	0.06	0.06	0.00
247.70	0.06	0.06	0.00
247.80	0.06	0.06	0.00
247.90	0.06	0.06	0.00
248.00	0.06	0.06	0.00
248.10	0.06	0.06	0.00
248.20	0.06	0.06	0.00
248.30	0.06	0.06	0.00
248.40	0.06	0.06	0.00
248.50	0.06	0.06	0.00
248.60	0.06	0.06	0.00
248.70	0.06	0.06	0.00
248.80	0.06	0.06	0.00
248.90	0.06	0.06	0.00
249.00	0.06	0.06	0.00
249.10	0.06	0.06	0.00
249.20	0.06	0.06	0.00
249.30	0.06	0.06	0.00
249.40	0.06	0.06	0.00
249.50	0.06	0.06	0.00
249.60	0.06	0.06	0.00
249.70	0.06	0.06	0.00
249.80	0.06	0.06	0.00
249.90	0.49	0.06	0.43
250.00	2.30	0.06	2.24
250.10	4.88	0.06	4.82
250.20	8.04	0.06	7.98
250.30	10.42	0.06	10.36
250.40	10.75	0.06	10.69
250.50	**11.07**	0.06	**11.01**

Stage-Area-Storage for Pond RG1: Rain-Garden #1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
243.00	0.0	245.60	1,213.7	248.20	1,689.3
243.05	22.4	245.65	1,236.1	248.25	1,697.7
243.10	44.8	245.70	1,258.5	248.30	1,706.1
243.15	67.1	245.75	1,278.1	248.35	1,714.5
243.20	89.5	245.80	1,286.4	248.40	1,722.9
243.25	111.9	245.85	1,294.8	248.45	1,731.2
243.30	134.3	245.90	1,303.2	248.50	1,739.6
243.35	156.7	245.95	1,311.6	248.55	1,748.0
243.40	179.0	246.00	1,320.0	248.60	1,756.4
243.45	201.4	246.05	1,328.4	248.65	1,764.8
243.50	223.8	246.10	1,336.8	248.70	1,773.2
243.55	247.1	246.15	1,345.2	248.75	1,781.6
243.60	271.2	246.20	1,353.6	248.80	1,790.0
243.65	295.6	246.25	1,362.0	248.85	1,798.4
243.70	320.4	246.30	1,370.4	248.90	1,806.8
243.75	345.5	246.35	1,378.8	248.95	1,815.2
243.80	370.7	246.40	1,387.2	249.00	1,823.6
243.85	396.0	246.45	1,395.5	249.05	1,880.4
243.90	421.5	246.50	1,403.9	249.10	1,939.0
243.95	447.0	246.55	1,412.3	249.15	1,999.3
244.00	472.6	246.60	1,420.7	249.20	2,061.4
244.05	498.1	246.65	1,429.1	249.25	2,125.3
244.10	523.7	246.70	1,437.5	249.30	2,190.9
244.15	549.1	246.75	1,445.9	249.35	2,258.3
244.20	574.5	246.80	1,454.3	249.40	2,327.5
244.25	599.7	246.85	1,462.7	249.45	2,398.4
244.30	624.7	246.90	1,471.1	249.50	2,471.1
244.35	649.5	246.95	1,479.5	249.55	2,545.5
244.40	674.0	247.00	1,487.9	249.60	2,621.9
244.45	698.0	247.05	1,496.3	249.65	2,700.0
244.50	721.4	247.10	1,504.7	249.70	2,780.0
244.55	743.7	247.15	1,513.0	249.75	2,861.9
244.60	766.1	247.20	1,521.4	249.80	2,945.6
244.65	788.5	247.25	1,529.8	249.85	3,031.1
244.70	810.9	247.30	1,538.2	249.90	3,118.5
244.75	833.3	247.35	1,546.6	249.95	3,207.7
244.80	855.6	247.40	1,555.0	250.00	3,298.8
244.85	878.0	247.45	1,563.4	250.05	3,391.8
244.90	900.4	247.50	1,571.8	250.10	3,486.7
244.95	922.8	247.55	1,580.2	250.15	3,583.5
245.00	945.2	247.60	1,588.6	250.20	3,682.3
245.05	967.5	247.65	1,597.0	250.25	3,782.9
245.10	989.9	247.70	1,605.4	250.30	3,885.6
245.15	1,012.3	247.75	1,613.8	250.35	3,990.1
245.20	1,034.7	247.80	1,622.1	250.40	4,096.6
245.25	1,057.1	247.85	1,630.5	250.45	4,205.0
245.30	1,079.4	247.90	1,638.9	250.50	**4,315.3**
245.35	1,101.8	247.95	1,647.3		
245.40	1,124.2	248.00	1,655.7		
245.45	1,146.6	248.05	1,664.1		
245.50	1,169.0	248.10	1,672.5		
245.55	1,191.3	248.15	1,680.9		

Summary for Pond RG2: Rain-Garden #2

Inflow Area = 40,781 sf, 62.50% Impervious, Inflow Depth = 1.17" for 2 yr event
Inflow = 1.28 cfs @ 12.08 hrs, Volume= 3,962.4 cf
Outflow = 0.05 cfs @ 11.57 hrs, Volume= 3,962.4 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.05 cfs @ 11.57 hrs, Volume= 3,962.4 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.0 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 249.83' @ 16.27 hrs Surf.Area= 2,983 sf Storage= 2,228.4 cf

Plug-Flow detention time= 474.3 min calculated for 3,962.4 cf (100% of inflow)
Center-of-Mass det. time= 474.3 min (1,328.6 - 854.3)

Volume	Invert	Avail.Storage	Storage Description
#1	249.50'	1,404.5 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,179.1 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	133.5 cf	**12.0" Round Perforated pipe** Inside #4 L= 170.0'
#4	242.50'	585.0 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,596.0 cf Overall - 133.5 cf Embedded = 1,462.5 cf x 40.0% Voids
		3,302.1 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.50	803	0.0	0.0
250.00	1,386	547.3	547.3
250.50	2,043	857.3	1,404.5

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	995	0.0	0.0	0.0
244.51	995	40.0	4.0	4.0
246.24	995	40.0	688.5	692.5
246.25	995	15.0	1.5	694.0
249.24	995	15.0	446.3	1,140.3
249.25	995	15.0	1.5	1,141.8
249.50	995	15.0	37.3	1,179.1

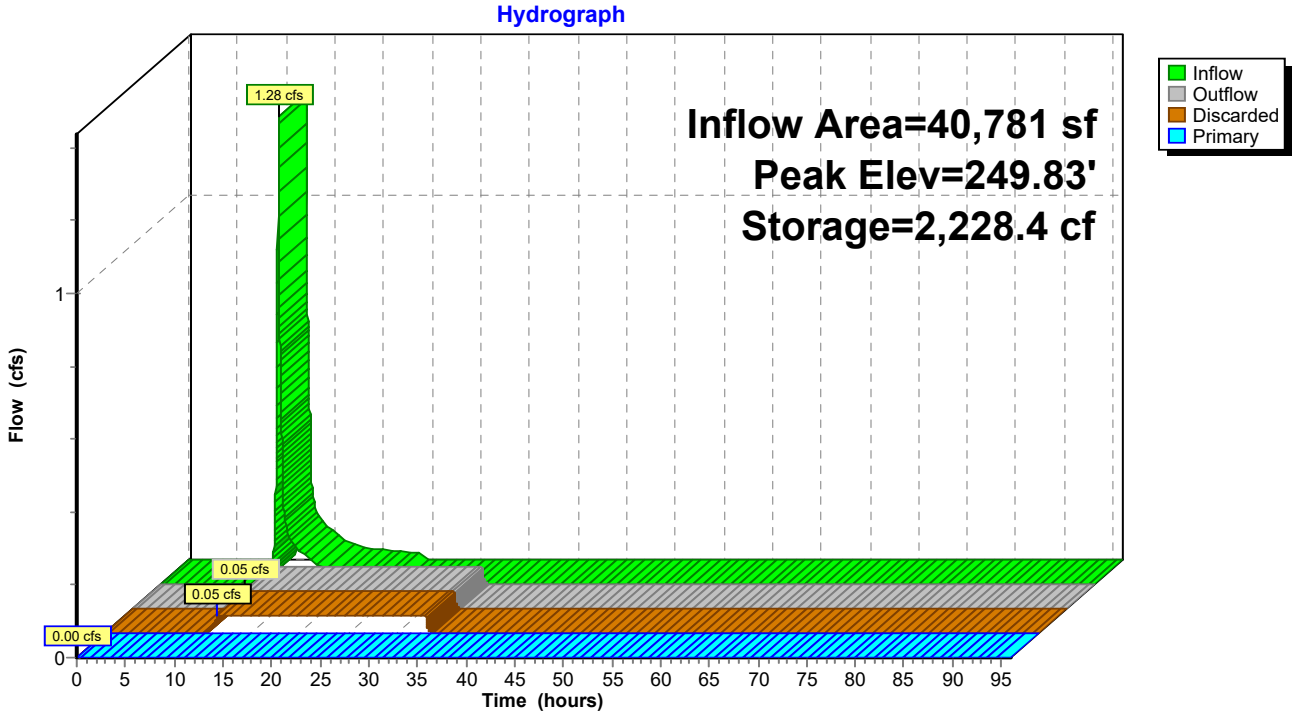
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	798	0.0	0.0
244.50	798	1,596.0	1,596.0

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.05 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

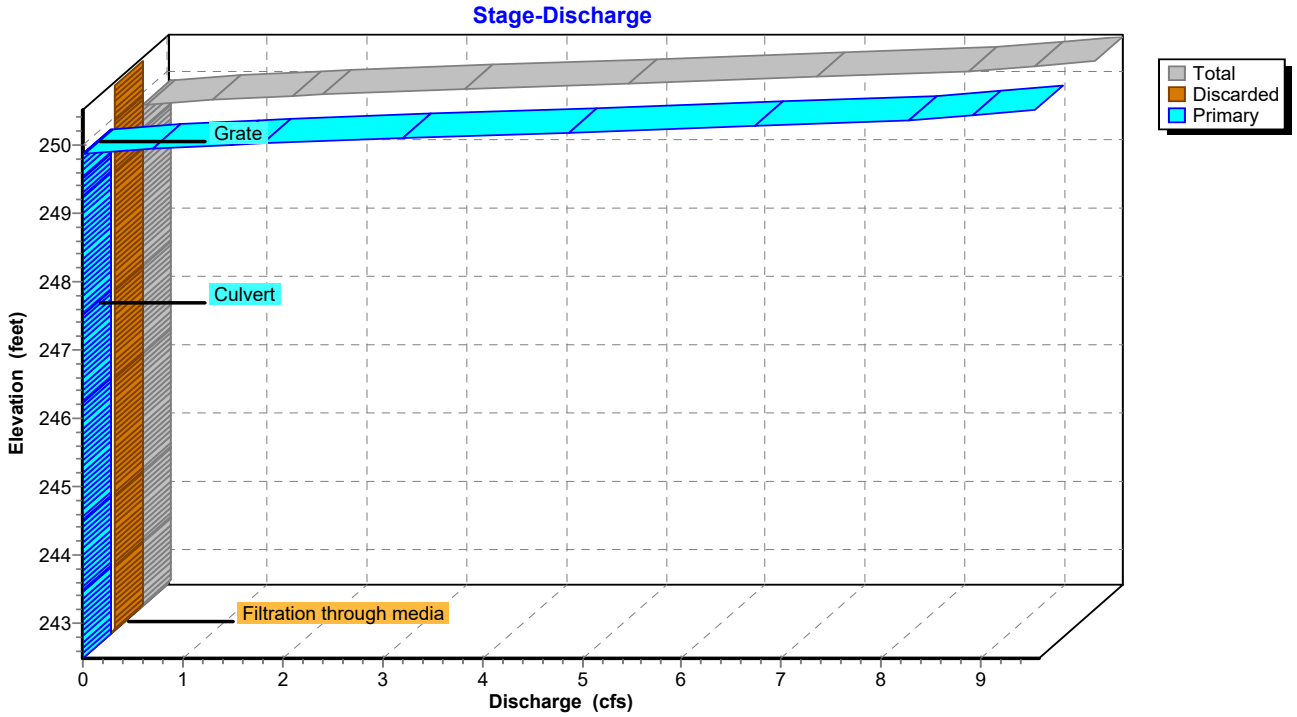
Discarded OutFlow Max=0.05 cfs @ 11.57 hrs HW=242.58' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' (Free Discharge)
└**3=Culvert** (Controls 0.00 cfs)
└**2=Grate** (Controls 0.00 cfs)

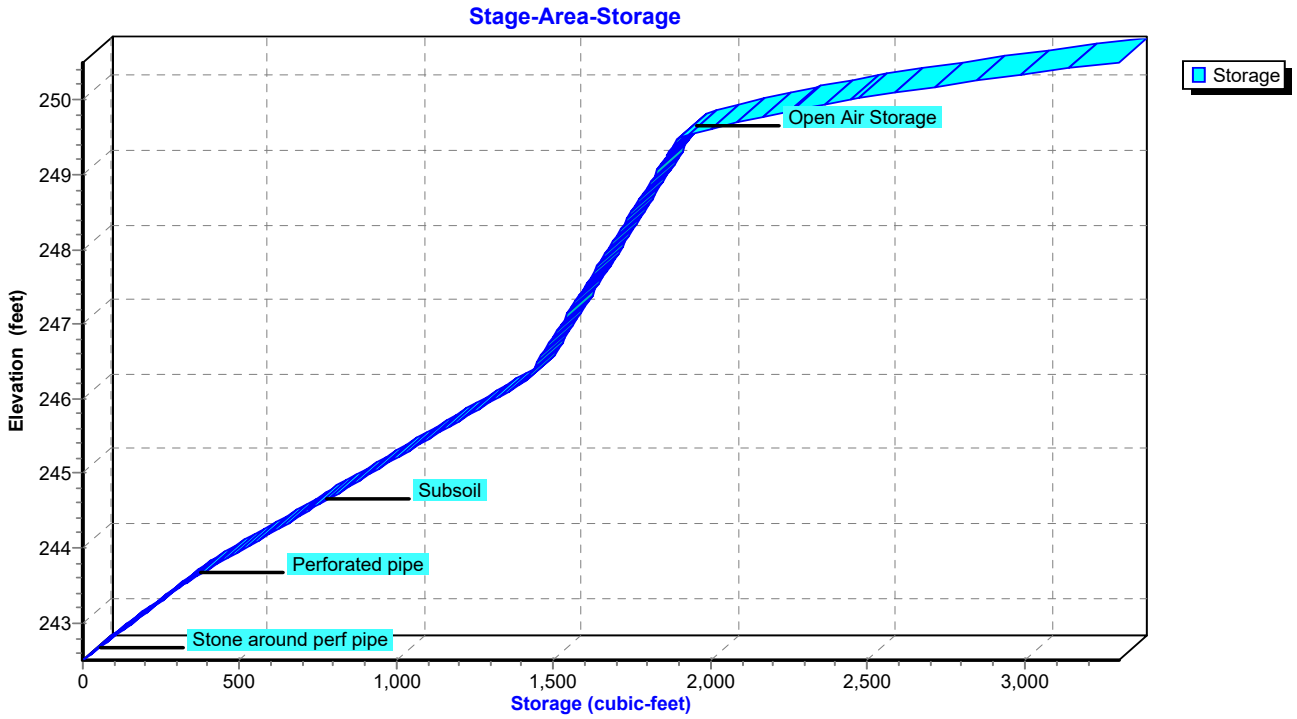
Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Hydrograph for Pond RG2: Rain-Garden #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	242.50	0.00	0.00	**0.00**
2.00	0.00	0.0	242.50	0.00	0.00	0.00
4.00	0.00	0.0	242.50	0.00	0.00	0.00
6.00	0.00	0.0	242.50	0.00	0.00	0.00
8.00	0.00	0.0	242.50	0.00	0.00	0.00
10.00	0.00	0.0	242.50	**0.00**	**0.00**	0.00
12.00	**0.74**	349.3	243.58	**0.05**	**0.05**	0.00
14.00	**0.10**	2,051.3	249.67	0.05	0.05	0.00
16.00	0.05	**2,227.5**	**249.83**	0.05	0.05	0.00
18.00	0.03	**2,178.1**	**249.79**	0.05	0.05	0.00
20.00	0.03	2,034.8	249.65	0.05	0.05	0.00
22.00	0.02	1,854.6	249.21	0.05	0.05	0.00
24.00	0.02	1,642.2	247.79	0.05	0.05	0.00
26.00	0.00	1,287.3	245.93	0.05	0.05	0.00
28.00	0.00	927.3	245.02	0.05	0.05	0.00
30.00	0.00	567.3	244.12	0.05	0.05	0.00
32.00	0.00	207.3	243.15	0.05	0.05	0.00
34.00	0.00	0.0	242.50	0.00	0.00	0.00
36.00	0.00	0.0	242.50	0.00	0.00	0.00
38.00	0.00	0.0	242.50	0.00	0.00	0.00
40.00	0.00	0.0	242.50	0.00	0.00	0.00
42.00	0.00	0.0	242.50	0.00	0.00	0.00
44.00	0.00	0.0	242.50	0.00	0.00	0.00
46.00	0.00	0.0	242.50	0.00	0.00	0.00
48.00	0.00	0.0	242.50	0.00	0.00	0.00
50.00	0.00	0.0	242.50	0.00	0.00	0.00
52.00	0.00	0.0	242.50	0.00	0.00	0.00
54.00	0.00	0.0	242.50	0.00	0.00	0.00
56.00	0.00	0.0	242.50	0.00	0.00	0.00
58.00	0.00	0.0	242.50	0.00	0.00	0.00
60.00	0.00	0.0	242.50	0.00	0.00	0.00
62.00	0.00	0.0	242.50	0.00	0.00	0.00
64.00	0.00	0.0	242.50	0.00	0.00	0.00
66.00	0.00	0.0	242.50	0.00	0.00	0.00
68.00	0.00	0.0	242.50	0.00	0.00	0.00
70.00	0.00	0.0	242.50	0.00	0.00	0.00
72.00	0.00	0.0	242.50	0.00	0.00	0.00
74.00	0.00	0.0	242.50	0.00	0.00	0.00
76.00	0.00	0.0	242.50	0.00	0.00	0.00
78.00	0.00	0.0	242.50	0.00	0.00	0.00
80.00	0.00	0.0	242.50	0.00	0.00	0.00
82.00	0.00	0.0	242.50	0.00	0.00	0.00
84.00	0.00	0.0	242.50	0.00	0.00	0.00
86.00	0.00	0.0	242.50	0.00	0.00	0.00
88.00	0.00	0.0	242.50	0.00	0.00	0.00
90.00	0.00	0.0	242.50	0.00	0.00	0.00
92.00	0.00	0.0	242.50	0.00	0.00	0.00
94.00	0.00	0.0	242.50	0.00	0.00	0.00
96.00	0.00	0.0	242.50	0.00	0.00	0.00

Stage-Discharge for Pond RG2: Rain-Garden #2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
242.50	0.00	**0.00**	0.00
242.60	0.05	**0.05**	0.00
242.70	0.05	0.05	0.00
242.80	0.05	0.05	0.00
242.90	0.05	0.05	0.00
243.00	0.05	0.05	0.00
243.10	0.05	0.05	0.00
243.20	0.05	0.05	0.00
243.30	0.05	0.05	0.00
243.40	0.05	0.05	0.00
243.50	0.05	0.05	0.00
243.60	0.05	0.05	0.00
243.70	0.05	0.05	0.00
243.80	0.05	0.05	0.00
243.90	0.05	0.05	0.00
244.00	0.05	0.05	0.00
244.10	0.05	0.05	0.00
244.20	0.05	0.05	0.00
244.30	0.05	0.05	0.00
244.40	0.05	0.05	0.00
244.50	0.05	0.05	0.00
244.60	0.05	0.05	0.00
244.70	0.05	0.05	0.00
244.80	0.05	0.05	0.00
244.90	0.05	0.05	0.00
245.00	0.05	0.05	0.00
245.10	0.05	0.05	0.00
245.20	0.05	0.05	0.00
245.30	0.05	0.05	0.00
245.40	0.05	0.05	0.00
245.50	0.05	0.05	0.00
245.60	0.05	0.05	0.00
245.70	0.05	0.05	0.00
245.80	0.05	0.05	0.00
245.90	0.05	0.05	0.00
246.00	0.05	0.05	0.00
246.10	0.05	0.05	0.00
246.20	0.05	0.05	0.00
246.30	0.05	0.05	0.00
246.40	0.05	0.05	0.00
246.50	0.05	0.05	0.00
246.60	0.05	0.05	0.00
246.70	0.05	0.05	0.00
246.80	0.05	0.05	0.00
246.90	0.05	0.05	0.00
247.00	0.05	0.05	0.00
247.10	0.05	0.05	0.00
247.20	0.05	0.05	0.00
247.30	0.05	0.05	0.00
247.40	0.05	0.05	0.00
247.50	0.05	0.05	0.00
247.60	0.05	0.05	0.00
247.70	0.05	0.05	0.00
247.80	0.05	0.05	0.00
247.90	0.05	0.05	0.00
248.00	0.05	0.05	0.00
248.10	0.05	0.05	0.00
248.20	0.05	0.05	0.00
248.30	0.05	0.05	0.00
248.40	0.05	0.05	0.00
248.50	0.05	0.05	0.00
248.60	0.05	0.05	0.00
248.70	0.05	0.05	0.00
248.80	0.05	0.05	0.00
248.90	0.05	0.05	0.00
249.00	0.05	0.05	0.00
249.10	0.05	0.05	0.00
249.20	0.05	0.05	0.00
249.30	0.05	0.05	0.00
249.40	0.05	0.05	0.00
249.50	0.05	0.05	0.00
249.60	0.05	0.05	0.00
249.70	0.05	0.05	0.00
249.80	0.05	0.05	0.00
249.90	0.34	0.05	0.29
250.00	1.54	0.05	1.49
250.10	3.26	0.05	3.21
250.20	5.37	0.05	5.32
250.30	7.80	0.05	7.75
250.40	8.81	0.05	8.76
250.50	**9.58**	0.05	**9.53**

Stage-Area-Storage for Pond RG2: Rain-Garden #2

Elevation (feet)	Storage (cubic-feet)
242.50	0.0
242.60	31.9
242.70	63.8
242.80	95.8
242.90	127.7
243.00	159.6
243.10	191.5
243.20	223.4
243.30	255.4
243.40	287.3
243.50	319.2
243.60	355.3
243.70	394.4
243.80	435.2
243.90	476.8
244.00	518.9
244.10	560.9
244.20	602.5
244.30	643.3
244.40	682.4
244.50	718.5
244.60	758.3
244.70	798.1
244.80	837.9
244.90	877.7
245.00	917.5
245.10	957.3
245.20	997.1
245.30	1,036.9
245.40	1,076.7
245.50	1,116.5
245.60	1,156.3
245.70	1,196.1
245.80	1,235.9
245.90	1,275.7
246.00	1,315.5
246.10	1,355.3
246.20	1,395.1
246.30	1,420.0
246.40	1,434.9
246.50	1,449.8
246.60	1,464.8
246.70	1,479.7
246.80	1,494.6
246.90	1,509.5
247.00	1,524.5
247.10	1,539.4
247.20	1,554.3
247.30	1,569.2
247.40	1,584.2
247.50	1,599.1
247.60	1,614.0
247.70	1,628.9
247.80	1,643.9
247.90	1,658.8
248.00	1,673.7
248.10	1,688.6
248.20	1,703.6
248.30	1,718.5
248.40	1,733.4
248.50	1,748.3
248.60	1,763.3
248.70	1,778.2
248.80	1,793.1
248.90	1,808.0
249.00	1,823.0
249.10	1,837.9
249.20	1,852.8
249.30	1,867.7
249.40	1,882.7
249.50	1,897.6
249.60	1,983.7
249.70	2,081.5
249.80	2,191.0
249.90	2,312.1
250.00	2,444.8
250.10	2,590.0
250.20	2,748.3
250.30	2,919.8
250.40	3,104.4
250.50	**3,302.1**

Summary for Pond SWM-2: Cultec 2

Inflow Area = 141,868 sf,100.00% Impervious, Inflow Depth = 2.99" for 2 yr event
Inflow = 10.55 cfs @ 12.07 hrs, Volume= 35,318.2 cf
Outflow = 0.88 cfs @ 11.34 hrs, Volume= 35,318.2 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.88 cfs @ 11.34 hrs, Volume= 35,318.2 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.0 cf
Routed to Pond SWM-3 : Cultec 3

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 250.87' @ 12.96 hrs Surf.Area= 15,751 sf Storage= 12,789.2 cf

Plug-Flow detention time= 105.4 min calculated for 35,314.5 cf (100% of inflow)
Center-of-Mass det. time= 105.4 min (860.7 - 755.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	249.50'	22,538.4 cf	**63.25'W x 249.03'L x 5.75'H Field A** 90,570.3 cf Overall - 34,224.2 cf Embedded = 56,346.1 cf x 40.0% Voids
#2A	250.25'	34,224.2 cf	**Cultec R-902HD** x 528 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 528 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		56,762.7 cf	Total Available Storage

Storage Group A created with Chamber Wizard

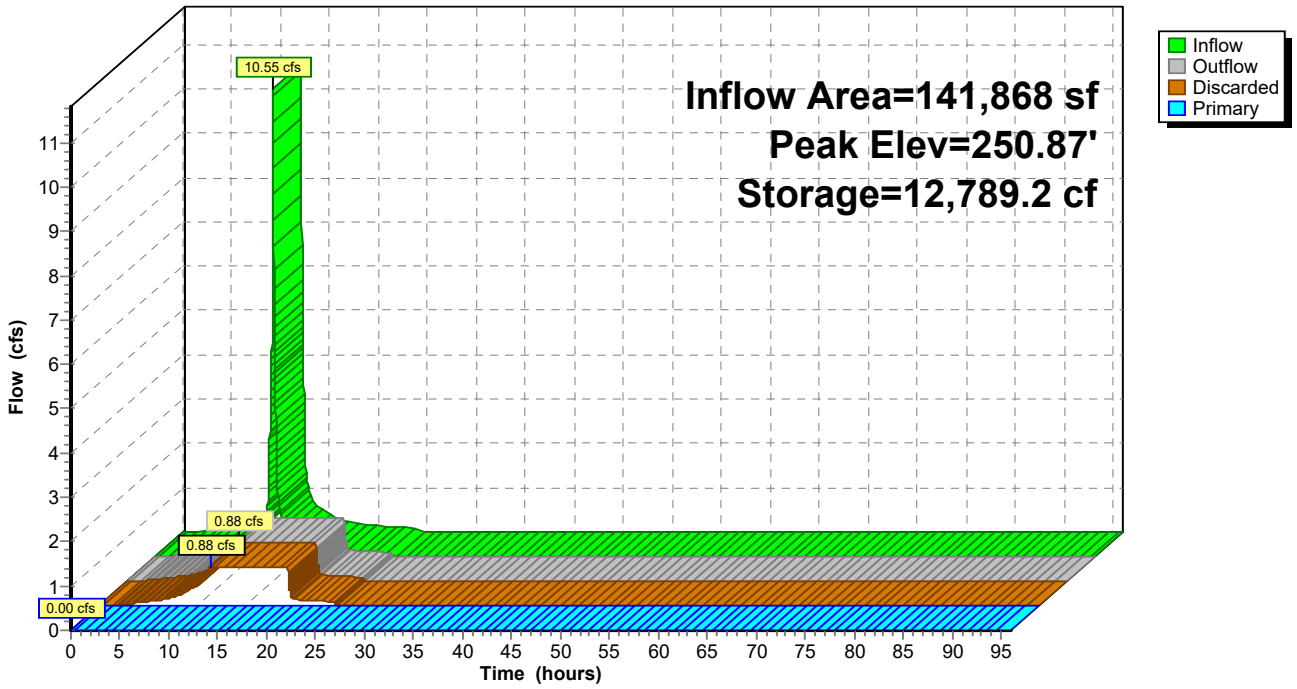
Device	Routing	Invert	Outlet Devices
#1	Discarded	249.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	252.75'	**12.0" Round Culvert** L= 189.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 246.50' S= 0.0331 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.88 cfs @ 11.34 hrs HW=249.56' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.88 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=249.50' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

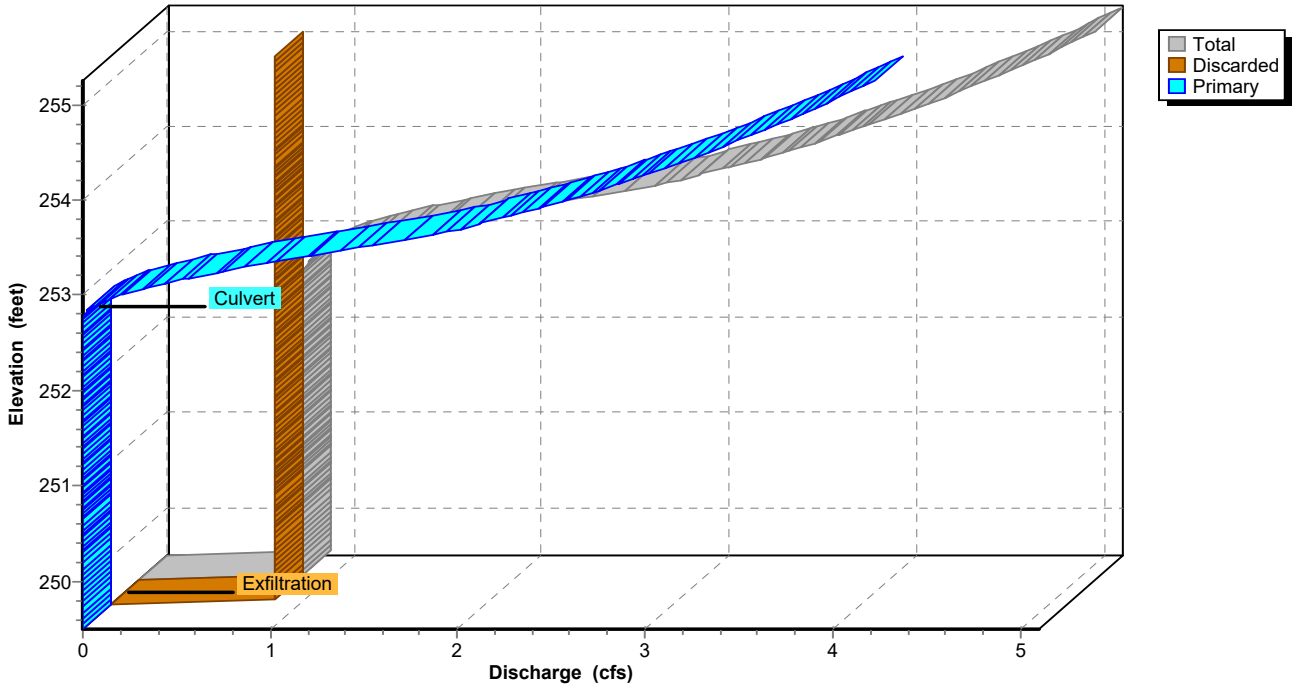
Pond SWM-2: Cultec 2

Hydrograph

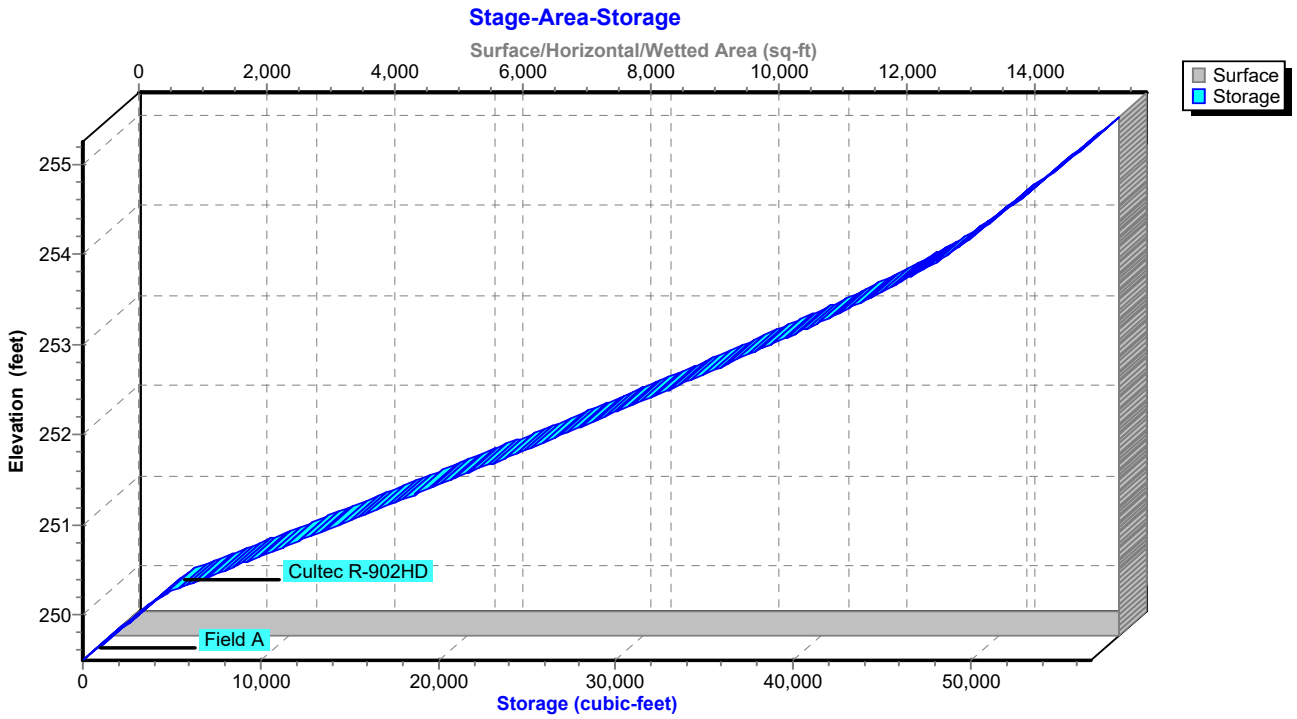


Pond SWM-2: Cultec 2

Stage-Discharge



Pond SWM-2: Cultec 2



Hydrograph for Pond SWM-2: Cultec 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	249.50	0.00	0.00	**0.00**
2.00	0.02	6.6	249.50	0.02	0.02	0.00
4.00	0.07	28.7	249.50	0.07	0.07	0.00
6.00	0.12	49.3	249.51	0.12	0.12	0.00
8.00	0.23	92.0	249.51	0.22	0.22	0.00
10.00	0.47	188.6	249.53	**0.46**	**0.46**	0.00
12.00	**7.12**	**4,208.6**	**250.17**	**0.88**	**0.88**	0.00
14.00	**0.53**	**12,011.4**	**250.81**	0.88	0.88	0.00
16.00	0.28	8,594.5	250.55	0.88	0.88	0.00
18.00	0.17	3,889.7	250.12	0.88	0.88	0.00
20.00	0.14	58.8	249.51	0.14	0.14	0.00
22.00	0.11	47.6	249.51	0.12	0.12	0.00
24.00	0.09	37.9	249.51	0.09	0.09	0.00
26.00	0.00	0.0	249.50	0.00	0.00	0.00
28.00	0.00	0.0	249.50	0.00	0.00	0.00
30.00	0.00	0.0	249.50	0.00	0.00	0.00
32.00	0.00	0.0	249.50	0.00	0.00	0.00
34.00	0.00	0.0	249.50	0.00	0.00	0.00
36.00	0.00	0.0	249.50	0.00	0.00	0.00
38.00	0.00	0.0	249.50	0.00	0.00	0.00
40.00	0.00	0.0	249.50	0.00	0.00	0.00
42.00	0.00	0.0	249.50	0.00	0.00	0.00
44.00	0.00	0.0	249.50	0.00	0.00	0.00
46.00	0.00	0.0	249.50	0.00	0.00	0.00
48.00	0.00	0.0	249.50	0.00	0.00	0.00
50.00	0.00	0.0	249.50	0.00	0.00	0.00
52.00	0.00	0.0	249.50	0.00	0.00	0.00
54.00	0.00	0.0	249.50	0.00	0.00	0.00
56.00	0.00	0.0	249.50	0.00	0.00	0.00
58.00	0.00	0.0	249.50	0.00	0.00	0.00
60.00	0.00	0.0	249.50	0.00	0.00	0.00
62.00	0.00	0.0	249.50	0.00	0.00	0.00
64.00	0.00	0.0	249.50	0.00	0.00	0.00
66.00	0.00	0.0	249.50	0.00	0.00	0.00
68.00	0.00	0.0	249.50	0.00	0.00	0.00
70.00	0.00	0.0	249.50	0.00	0.00	0.00
72.00	0.00	0.0	249.50	0.00	0.00	0.00
74.00	0.00	0.0	249.50	0.00	0.00	0.00
76.00	0.00	0.0	249.50	0.00	0.00	0.00
78.00	0.00	0.0	249.50	0.00	0.00	0.00
80.00	0.00	0.0	249.50	0.00	0.00	0.00
82.00	0.00	0.0	249.50	0.00	0.00	0.00
84.00	0.00	0.0	249.50	0.00	0.00	0.00
86.00	0.00	0.0	249.50	0.00	0.00	0.00
88.00	0.00	0.0	249.50	0.00	0.00	0.00
90.00	0.00	0.0	249.50	0.00	0.00	0.00
92.00	0.00	0.0	249.50	0.00	0.00	0.00
94.00	0.00	0.0	249.50	0.00	0.00	0.00
96.00	0.00	0.0	249.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-2: Cultec 2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
249.50	0.00	**0.00**	0.00
249.60	0.88	**0.88**	0.00
249.70	0.88	0.88	0.00
249.80	0.88	0.88	0.00
249.90	0.88	0.88	0.00
250.00	0.88	0.88	0.00
250.10	0.88	0.88	0.00
250.20	0.88	0.88	0.00
250.30	0.88	0.88	0.00
250.40	0.88	0.88	0.00
250.50	0.88	0.88	0.00
250.60	0.88	0.88	0.00
250.70	0.88	0.88	0.00
250.80	0.88	0.88	0.00
250.90	0.88	0.88	0.00
251.00	0.88	0.88	0.00
251.10	0.88	0.88	0.00
251.20	0.88	0.88	0.00
251.30	0.88	0.88	0.00
251.40	0.88	0.88	0.00
251.50	0.88	0.88	0.00
251.60	0.88	0.88	0.00
251.70	0.88	0.88	0.00
251.80	0.88	0.88	0.00
251.90	0.88	0.88	0.00
252.00	0.88	0.88	0.00
252.10	0.88	0.88	0.00
252.20	0.88	0.88	0.00
252.30	0.88	0.88	0.00
252.40	0.88	0.88	0.00
252.50	0.88	0.88	0.00
252.60	0.88	0.88	0.00
252.70	0.88	0.88	0.00
252.80	0.89	0.88	0.01
252.90	0.96	0.88	0.08
253.00	1.09	0.88	0.21
253.10	1.27	0.88	0.39
253.20	1.50	0.88	0.62
253.30	1.76	0.88	0.88
253.40	2.05	0.88	1.17
253.50	2.35	0.88	1.47
253.60	2.64	0.88	1.76
253.70	2.90	0.88	2.02
253.80	3.09	0.88	2.21
253.90	3.29	0.88	2.41
254.00	3.46	0.88	2.59
254.10	3.63	0.88	2.75
254.20	3.79	0.88	2.91
254.30	3.94	0.88	3.06
254.40	4.08	0.88	3.20
254.50	4.22	0.88	3.34
254.60	4.35	0.88	3.47
254.70	4.47	0.88	3.60
254.80	4.60	0.88	3.72
254.90	4.71	0.88	3.83
255.00	4.83	0.88	3.95
255.10	4.94	0.88	4.06
255.20	**5.05**	0.88	**4.17**

Stage-Area-Storage for Pond SWM-2: Cultec 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
249.50	**15,751**	0.0
249.60	15,751	630.1
249.70	15,751	1,260.1
249.80	15,751	1,890.2
249.90	15,751	2,520.2
250.00	15,751	3,150.3
250.10	15,751	3,780.3
250.20	15,751	4,410.4
250.30	15,751	5,375.4
250.40	15,751	6,677.3
250.50	15,751	7,981.2
250.60	15,751	9,277.2
250.70	15,751	10,569.7
250.80	15,751	11,856.8
250.90	15,751	13,142.8
251.00	15,751	14,426.0
251.10	15,751	15,700.9
251.20	15,751	16,967.8
251.30	15,751	18,232.9
251.40	15,751	19,496.2
251.50	15,751	20,751.5
251.60	15,751	21,998.6
251.70	15,751	23,242.3
251.80	15,751	24,479.5
251.90	15,751	25,710.2
252.00	15,751	26,937.5
252.10	15,751	28,156.6
252.20	15,751	29,372.4
252.30	15,751	30,580.7
252.40	15,751	31,776.9
252.50	15,751	32,969.3
252.60	15,751	34,149.4
252.70	15,751	35,318.2
252.80	15,751	36,477.6
252.90	15,751	37,621.3
253.00	15,751	38,751.1
253.10	15,751	39,864.2
253.20	15,751	40,957.6
253.30	15,751	42,033.3
253.40	15,751	43,084.8
253.50	15,751	44,111.3
253.60	15,751	45,112.5
253.70	15,751	46,083.1
253.80	15,751	47,018.1
253.90	15,751	47,901.3
254.00	15,751	48,715.4
254.10	15,751	49,454.7
254.20	15,751	50,135.9
254.30	15,751	50,777.2
254.40	15,751	51,407.2
254.50	15,751	52,037.3
254.60	15,751	52,667.3
254.70	15,751	53,297.4
254.80	15,751	53,927.4
254.90	15,751	54,557.5
255.00	15,751	55,187.5
255.10	15,751	55,817.6
255.20	15,751	**56,447.6**

Summary for Pond SWM-3: Cultec 3

Inflow Area = 416,467 sf, 80.91% Impervious, Inflow Depth = 1.02" for 2 yr event
Inflow = 11.58 cfs @ 12.09 hrs, Volume= 35,565.0 cf
Outflow = 0.68 cfs @ 14.54 hrs, Volume= 35,565.0 cf, Atten= 94%, Lag= 147.1 min
Discarded = 0.63 cfs @ 11.49 hrs, Volume= 35,283.6 cf
Primary = 0.04 cfs @ 14.54 hrs, Volume= 281.4 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 246.24' @ 14.54 hrs Surf.Area= 11,345 sf Storage= 17,065.2 cf

Plug-Flow detention time= 269.7 min calculated for 35,561.3 cf (100% of inflow)
Center-of-Mass det. time= 269.7 min (1,105.3 - 835.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	244.00'	16,339.6 cf	**63.25'W x 179.37'L x 5.75'H Field A** 65,233.4 cf Overall - 24,384.5 cf Embedded = 40,848.9 cf x 40.0% Voids
#2A	244.75'	24,384.5 cf	**Cultec R-902HD** x 376 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 376 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		40,724.1 cf	Total Available Storage

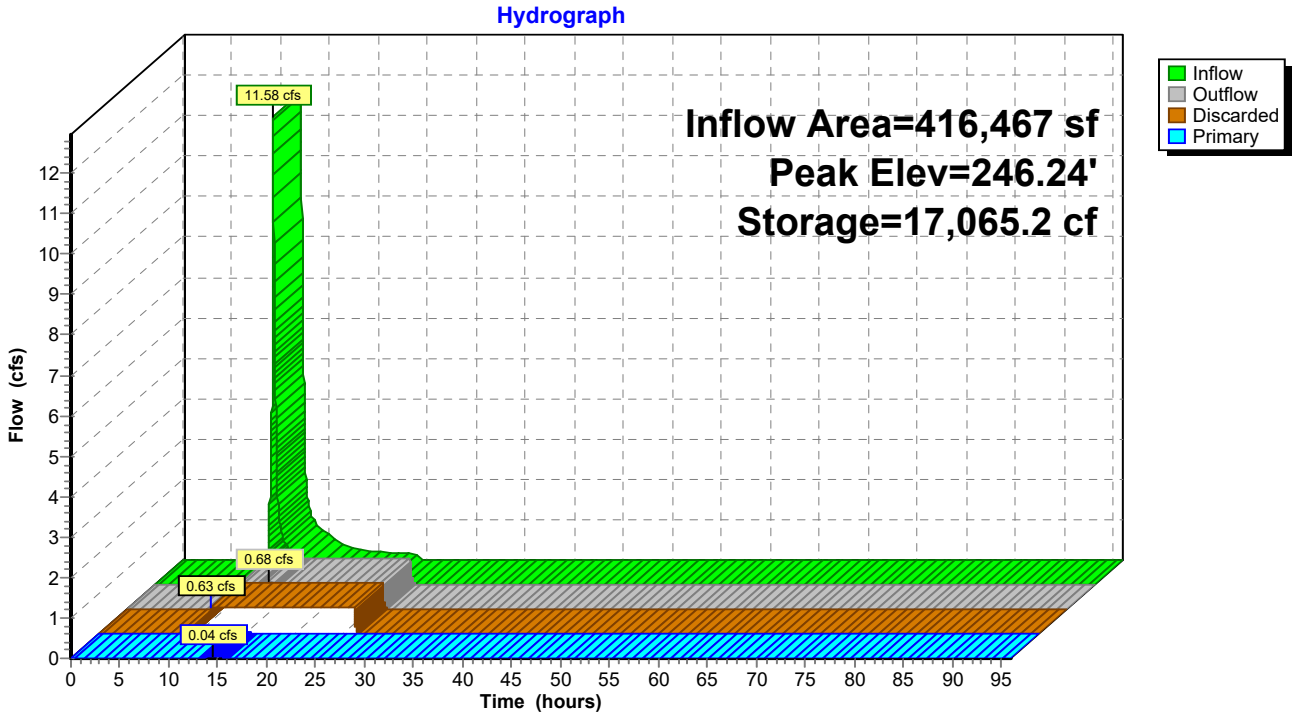
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	246.16'	**24.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	246.16'	**36.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.16' / 245.10' S= 0.0530 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

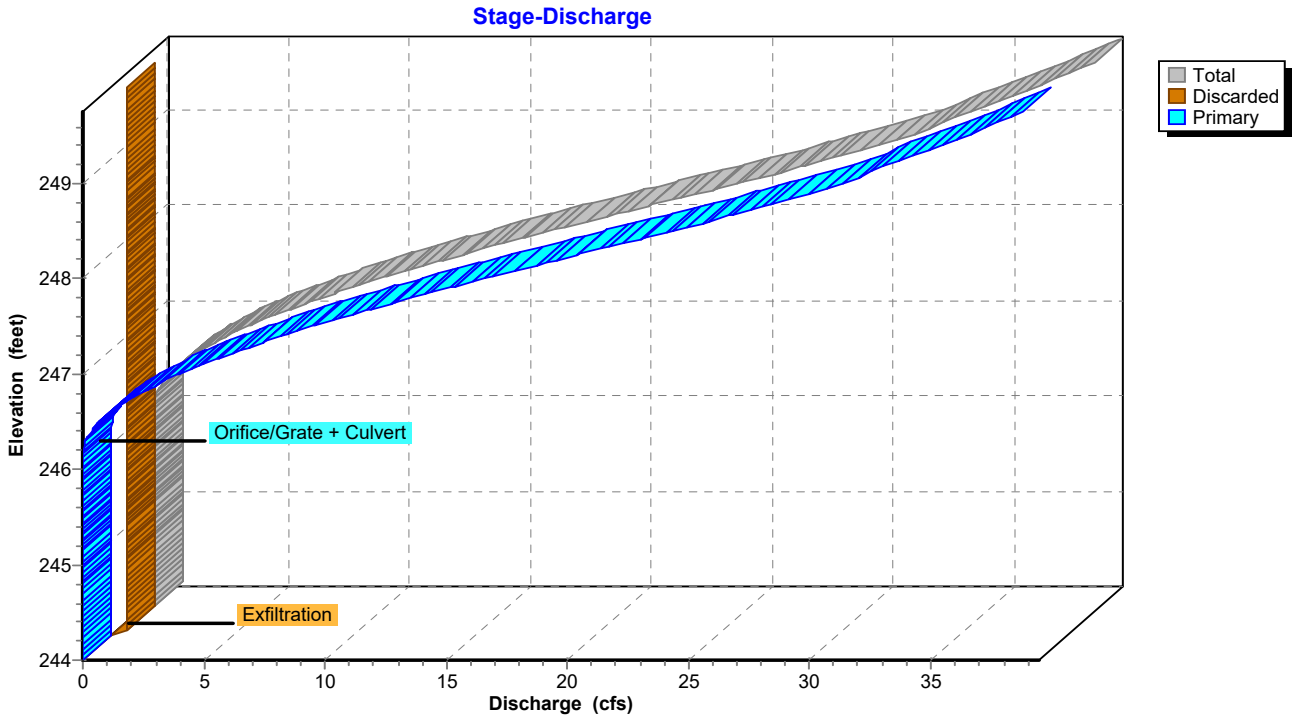
Discarded OutFlow Max=0.63 cfs @ 11.49 hrs HW=244.06' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.63 cfs)

Primary OutFlow Max=0.04 cfs @ 14.54 hrs HW=246.24' (Free Discharge)
└**3=Culvert** (Inlet Controls 0.04 cfs @ 0.78 fps)
└**2=Orifice/Grate** (Passes 0.04 cfs of 0.09 cfs potential flow)

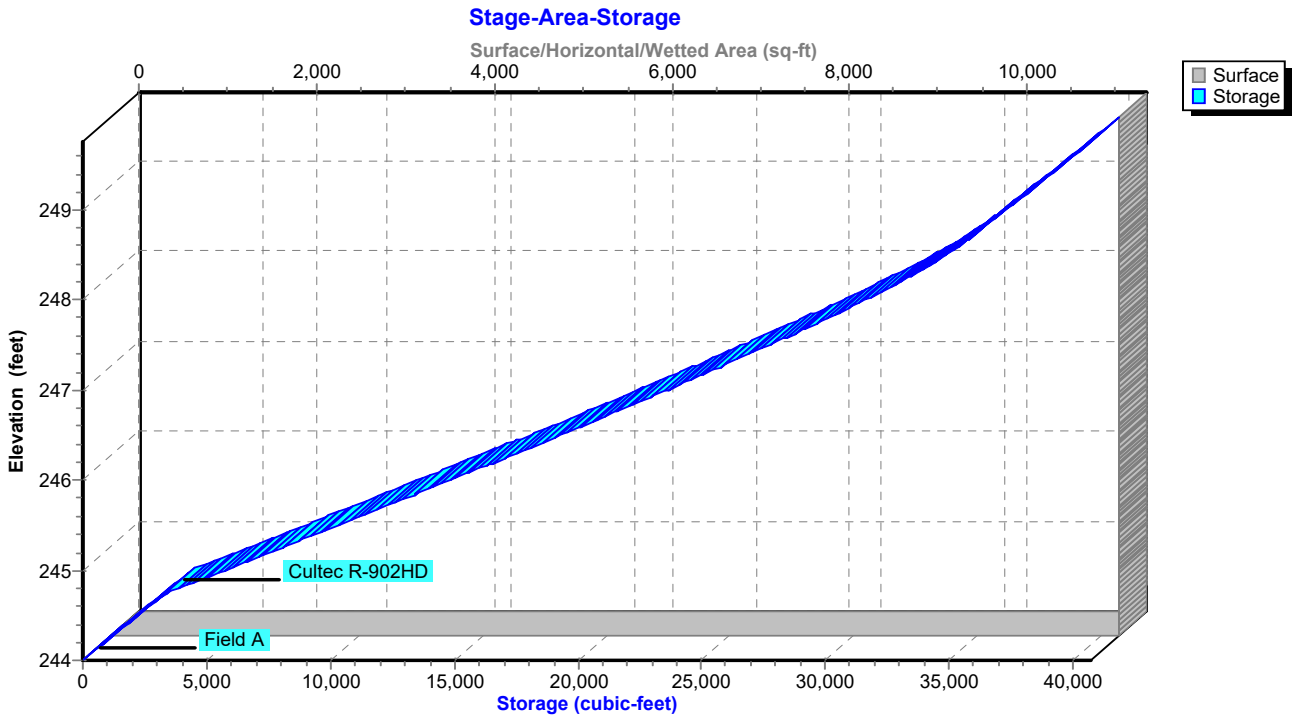
Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Hydrograph for Pond SWM-3: Cultec 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	244.00	0.00	0.00	0.00
2.00	0.00	0.0	244.00	0.00	0.00	0.00
4.00	0.00	0.0	244.00	0.00	0.00	0.00
6.00	0.00	0.0	244.00	0.00	0.00	0.00
8.00	0.00	0.0	244.00	0.00	0.00	0.00
10.00	0.13	45.5	244.01	0.11	**0.11**	0.00
12.00	**6.66**	3,479.4	244.76	0.63	**0.63**	0.00
14.00	**0.78**	**16,972.3**	**246.23**	**0.67**	0.63	**0.04**
16.00	0.43	**16,495.5**	**246.18**	**0.64**	0.63	**0.00**
18.00	0.26	14,401.0	245.95	0.63	0.63	0.00
20.00	0.21	11,547.9	245.63	0.63	0.63	0.00
22.00	0.18	8,397.5	245.29	0.63	0.63	0.00
24.00	0.14	4,990.9	244.92	0.63	0.63	0.00
26.00	0.00	478.8	244.11	0.63	0.63	0.00
28.00	0.00	0.0	244.00	0.00	0.00	0.00
30.00	0.00	0.0	244.00	0.00	0.00	0.00
32.00	0.00	0.0	244.00	0.00	0.00	0.00
34.00	0.00	0.0	244.00	0.00	0.00	0.00
36.00	0.00	0.0	244.00	0.00	0.00	0.00
38.00	0.00	0.0	244.00	0.00	0.00	0.00
40.00	0.00	0.0	244.00	0.00	0.00	0.00
42.00	0.00	0.0	244.00	0.00	0.00	0.00
44.00	0.00	0.0	244.00	0.00	0.00	0.00
46.00	0.00	0.0	244.00	0.00	0.00	0.00
48.00	0.00	0.0	244.00	0.00	0.00	0.00
50.00	0.00	0.0	244.00	0.00	0.00	0.00
52.00	0.00	0.0	244.00	0.00	0.00	0.00
54.00	0.00	0.0	244.00	0.00	0.00	0.00
56.00	0.00	0.0	244.00	0.00	0.00	0.00
58.00	0.00	0.0	244.00	0.00	0.00	0.00
60.00	0.00	0.0	244.00	0.00	0.00	0.00
62.00	0.00	0.0	244.00	0.00	0.00	0.00
64.00	0.00	0.0	244.00	0.00	0.00	0.00
66.00	0.00	0.0	244.00	0.00	0.00	0.00
68.00	0.00	0.0	244.00	0.00	0.00	0.00
70.00	0.00	0.0	244.00	0.00	0.00	0.00
72.00	0.00	0.0	244.00	0.00	0.00	0.00
74.00	0.00	0.0	244.00	0.00	0.00	0.00
76.00	0.00	0.0	244.00	0.00	0.00	0.00
78.00	0.00	0.0	244.00	0.00	0.00	0.00
80.00	0.00	0.0	244.00	0.00	0.00	0.00
82.00	0.00	0.0	244.00	0.00	0.00	0.00
84.00	0.00	0.0	244.00	0.00	0.00	0.00
86.00	0.00	0.0	244.00	0.00	0.00	0.00
88.00	0.00	0.0	244.00	0.00	0.00	0.00
90.00	0.00	0.0	244.00	0.00	0.00	0.00
92.00	0.00	0.0	244.00	0.00	0.00	0.00
94.00	0.00	0.0	244.00	0.00	0.00	0.00
96.00	0.00	0.0	244.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-3: Cultec 3

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
244.00	0.00	**0.00**	0.00
244.10	0.63	**0.63**	0.00
244.20	0.63	0.63	0.00
244.30	0.63	0.63	0.00
244.40	0.63	0.63	0.00
244.50	0.63	0.63	0.00
244.60	0.63	0.63	0.00
244.70	0.63	0.63	0.00
244.80	0.63	0.63	0.00
244.90	0.63	0.63	0.00
245.00	0.63	0.63	0.00
245.10	0.63	0.63	0.00
245.20	0.63	0.63	0.00
245.30	0.63	0.63	0.00
245.40	0.63	0.63	0.00
245.50	0.63	0.63	0.00
245.60	0.63	0.63	0.00
245.70	0.63	0.63	0.00
245.80	0.63	0.63	0.00
245.90	0.63	0.63	0.00
246.00	0.63	0.63	0.00
246.10	0.63	0.63	0.00
246.20	0.64	0.63	0.01
246.30	0.75	0.63	0.12
246.40	0.98	0.63	0.35
246.50	1.33	0.63	0.69
246.60	1.78	0.63	1.15
246.70	2.34	0.63	1.71
246.80	3.01	0.63	2.37
246.90	3.77	0.63	3.14
247.00	4.62	0.63	3.99
247.10	5.57	0.63	4.94
247.20	6.60	0.63	5.97
247.30	7.71	0.63	7.07
247.40	8.89	0.63	8.26
247.50	10.14	0.63	9.51
247.60	11.45	0.63	10.82
247.70	12.82	0.63	12.19
247.80	14.24	0.63	13.61
247.90	15.71	0.63	15.07
248.00	17.21	0.63	16.57
248.10	18.73	0.63	18.10
248.20	20.28	0.63	19.65
248.30	21.84	0.63	21.21
248.40	23.41	0.63	22.77
248.50	24.96	0.63	24.32
248.60	26.48	0.63	25.85
248.70	27.97	0.63	27.34
248.80	29.41	0.63	28.77
248.90	30.76	0.63	30.12
249.00	31.99	0.63	31.36
249.10	33.06	0.63	32.42
249.20	33.98	0.63	33.34
249.30	35.04	0.63	34.41
249.40	36.08	0.63	35.44
249.50	37.08	0.63	36.45
249.60	38.06	0.63	37.43
249.70	**39.01**	0.63	**38.38**

Stage-Area-Storage for Pond SWM-3: Cultec 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
244.00	**11,345**	0.0
244.10	11,345	453.8
244.20	11,345	907.6
244.30	11,345	1,361.4
244.40	11,345	1,815.2
244.50	11,345	2,269.0
244.60	11,345	2,722.8
244.70	11,345	3,176.6
244.80	11,345	3,869.0
244.90	11,345	4,801.5
245.00	11,345	5,735.4
245.10	11,345	6,663.7
245.20	11,345	7,589.5
245.30	11,345	8,511.4
245.40	11,345	9,432.6
245.50	11,345	10,351.7
245.60	11,345	11,265.0
245.70	11,345	12,172.6
245.80	11,345	13,078.8
245.90	11,345	13,983.8
246.00	11,345	14,883.1
246.10	11,345	15,776.5
246.20	11,345	16,667.5
246.30	11,345	17,553.9
246.40	11,345	18,435.6
246.50	11,345	19,315.0
246.60	11,345	20,188.5
246.70	11,345	21,059.6
246.80	11,345	21,925.4
246.90	11,345	22,782.6
247.00	11,345	23,637.1
247.10	11,345	24,482.8
247.20	11,345	25,320.4
247.30	11,345	26,151.3
247.40	11,345	26,971.1
247.50	11,345	27,781.0
247.60	11,345	28,578.9
247.70	11,345	29,362.9
247.80	11,345	30,134.2
247.90	11,345	30,888.3
248.00	11,345	31,624.5
248.10	11,345	32,342.7
248.20	11,345	33,039.2
248.30	11,345	33,710.3
248.40	11,345	34,344.4
248.50	11,345	34,929.4
248.60	11,345	35,461.0
248.70	11,345	35,951.2
248.80	11,345	36,413.0
248.90	11,345	36,866.8
249.00	11,345	37,320.6
249.10	11,345	37,774.4
249.20	11,345	38,228.2
249.30	11,345	38,682.0
249.40	11,345	39,135.8
249.50	11,345	39,589.6
249.60	11,345	40,043.4
249.70	11,345	**40,497.2**

Summary for Pond SWM-4: Cultec 4

Inflow Area = 251,626 sf, 80.19% Impervious, Inflow Depth = 1.93" for 2 yr event
Inflow = 12.30 cfs @ 12.10 hrs, Volume= 40,458.8 cf
Outflow = 0.94 cfs @ 13.61 hrs, Volume= 40,458.8 cf, Atten= 92%, Lag= 90.3 min
Discarded = 0.68 cfs @ 11.28 hrs, Volume= 38,489.2 cf
Primary = 0.26 cfs @ 13.61 hrs, Volume= 1,969.6 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 245.23' @ 13.61 hrs Surf.Area= 12,273 sf Storage= 18,356.3 cf

Plug-Flow detention time= 236.8 min calculated for 40,458.8 cf (100% of inflow)
Center-of-Mass det. time= 236.8 min (1,053.0 - 816.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	243.00'	17,644.6 cf	**63.25'W x 194.03'L x 5.75'H Field A** 70,567.5 cf Overall - 26,456.0 cf Embedded = 44,111.5 cf x 40.0% Voids
#2A	243.75'	26,456.0 cf	**Cultec R-902HD** x 408 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 408 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		44,100.6 cf	Total Available Storage

Storage Group A created with Chamber Wizard

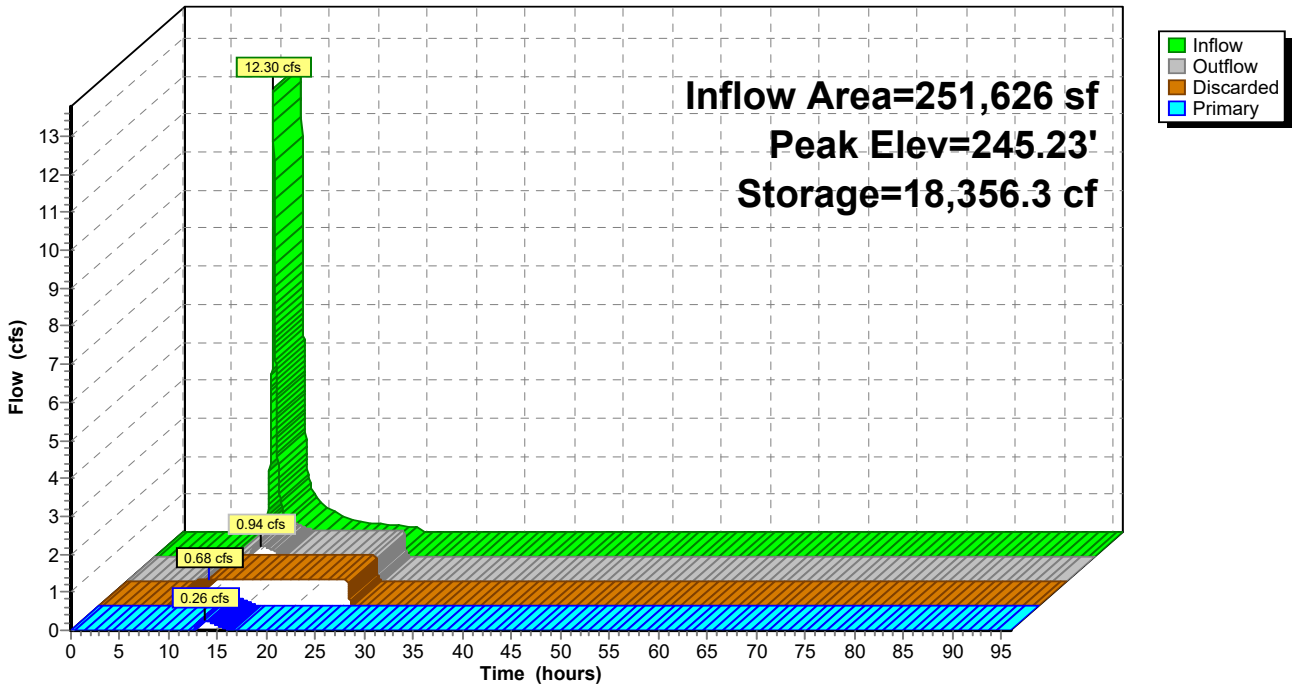
Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	245.00'	**30.0" Round Culvert** L= 188.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.00' / 244.30' S= 0.0037 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Discarded OutFlow Max=0.68 cfs @ 11.28 hrs HW=243.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.68 cfs)

Primary OutFlow Max=0.26 cfs @ 13.61 hrs HW=245.23' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 0.26 cfs @ 1.72 fps)

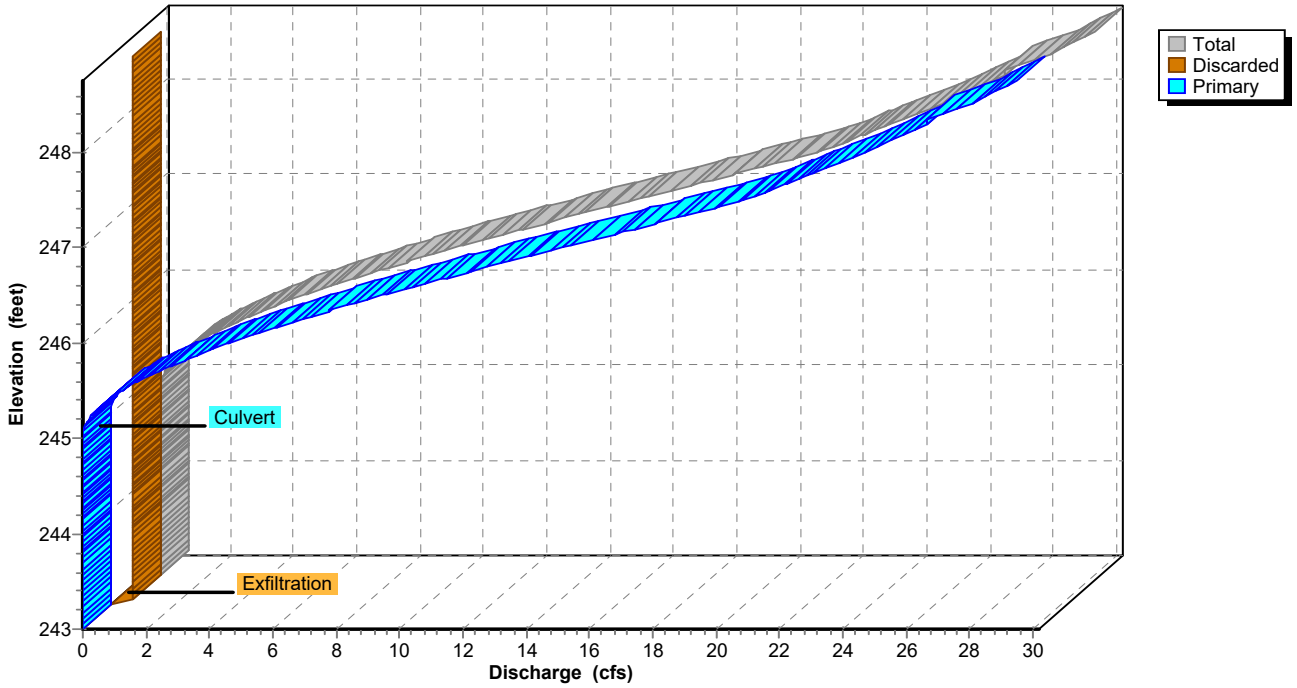
Pond SWM-4: Cultec 4

Hydrograph

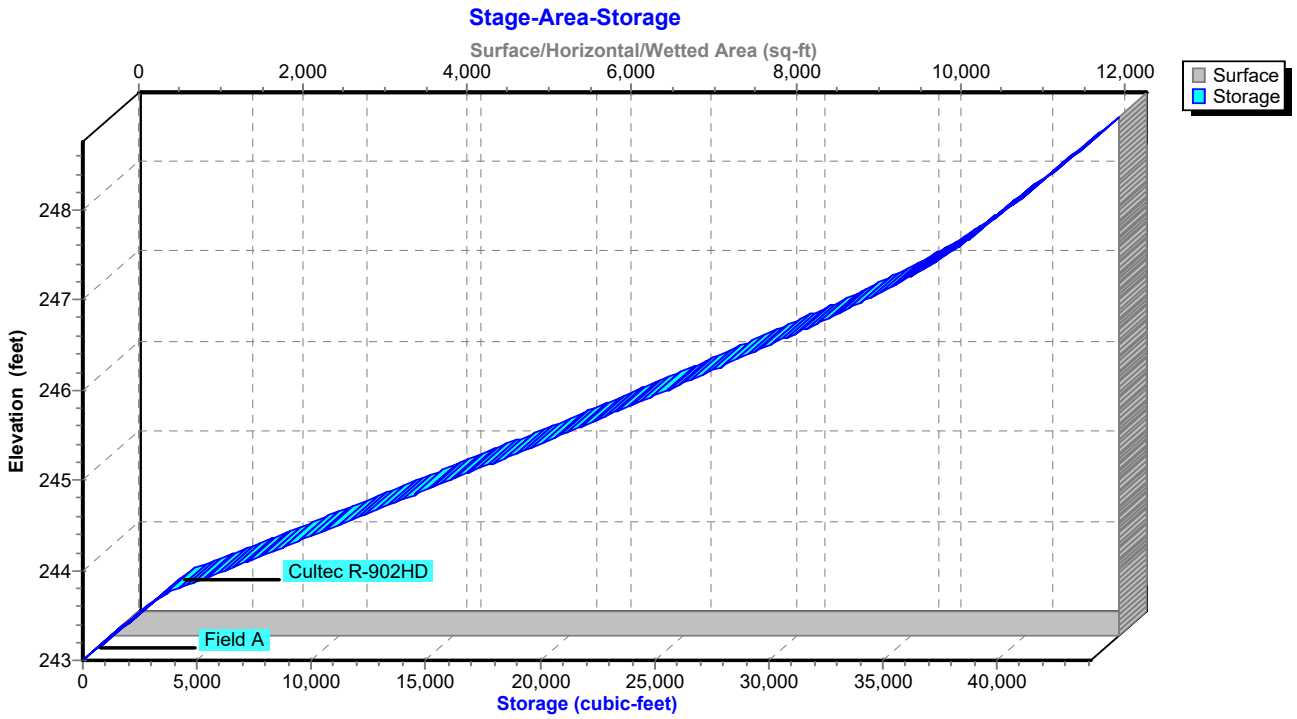


Pond SWM-4: Cultec 4

Stage-Discharge



Pond SWM-4: Cultec 4



Hydrograph for Pond SWM-4: Cultec 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.00	0.0	243.00	0.00	0.00	0.00
6.00	0.00	0.0	243.00	0.00	0.00	0.00
8.00	0.06	23.9	243.00	0.06	0.06	0.00
10.00	0.30	114.4	243.02	0.28	**0.28**	0.00
12.00	**6.70**	**4,253.5**	**243.81**	**0.68**	**0.68**	**0.00**
14.00	**0.80**	**18,268.3**	**245.22**	**0.92**	0.68	**0.24**
16.00	0.43	16,845.7	245.08	0.71	0.68	0.02
18.00	0.27	14,379.2	244.82	0.68	0.68	0.00
20.00	0.21	11,155.3	244.49	0.68	0.68	0.00
22.00	0.18	7,628.2	244.14	0.68	0.68	0.00
24.00	0.14	3,843.2	243.77	0.68	0.68	0.00
26.00	0.00	2.7	243.00	0.01	0.01	0.00
28.00	0.00	0.0	243.00	0.00	0.00	0.00
30.00	0.00	0.0	243.00	0.00	0.00	0.00
32.00	0.00	0.0	243.00	0.00	0.00	0.00
34.00	0.00	0.0	243.00	0.00	0.00	0.00
36.00	0.00	0.0	243.00	0.00	0.00	0.00
38.00	0.00	0.0	243.00	0.00	0.00	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-4: Cultec 4

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.68	**0.68**	0.00
243.20	0.68	0.68	0.00
243.30	0.68	0.68	0.00
243.40	0.68	0.68	0.00
243.50	0.68	0.68	0.00
243.60	0.68	0.68	0.00
243.70	0.68	0.68	0.00
243.80	0.68	0.68	0.00
243.90	0.68	0.68	0.00
244.00	0.68	0.68	0.00
244.10	0.68	0.68	0.00
244.20	0.68	0.68	0.00
244.30	0.68	0.68	0.00
244.40	0.68	0.68	0.00
244.50	0.68	0.68	0.00
244.60	0.68	0.68	0.00
244.70	0.68	0.68	0.00
244.80	0.68	0.68	0.00
244.90	0.68	0.68	0.00
245.00	0.68	0.68	0.00
245.10	0.73	0.68	0.04
245.20	0.87	0.68	0.19
245.30	1.12	0.68	0.44
245.40	1.47	0.68	0.79
245.50	1.92	0.68	1.23
245.60	2.45	0.68	1.76
245.70	3.06	0.68	2.38
245.80	3.75	0.68	3.06
245.90	4.50	0.68	3.82
246.00	5.32	0.68	4.64
246.10	6.20	0.68	5.51
246.20	7.13	0.68	6.44
246.30	8.10	0.68	7.42
246.40	9.12	0.68	8.44
246.50	10.18	0.68	9.49
246.60	11.26	0.68	10.58
246.70	12.37	0.68	11.69
246.80	13.51	0.68	12.83
246.90	14.66	0.68	13.98
247.00	15.82	0.68	15.14
247.10	16.99	0.68	16.30
247.20	18.15	0.68	17.47
247.30	19.31	0.68	18.62
247.40	20.45	0.68	19.76
247.50	21.55	0.68	20.86
247.60	22.37	0.68	21.68
247.70	23.15	0.68	22.47
247.80	23.92	0.68	23.23
247.90	24.65	0.68	23.97
248.00	25.37	0.68	24.68
248.10	26.06	0.68	25.38
248.20	26.74	0.68	26.06
248.30	27.40	0.68	26.72
248.40	27.78	0.68	27.09
248.50	28.61	0.68	27.93
248.60	29.29	0.68	28.60
248.70	**29.89**	0.68	**29.21**

Stage-Area-Storage for Pond SWM-4: Cultec 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
243.00	**12,273**	0.0
243.10	12,273	490.9
243.20	12,273	981.8
243.30	12,273	1,472.7
243.40	12,273	1,963.6
243.50	12,273	2,454.5
243.60	12,273	2,945.4
243.70	12,273	3,436.3
243.80	12,273	4,186.2
243.90	12,273	5,196.4
244.00	12,273	6,208.2
244.10	12,273	7,213.9
244.20	12,273	8,216.9
244.30	12,273	9,215.7
244.40	12,273	10,213.7
244.50	12,273	11,209.5
244.60	12,273	12,198.8
244.70	12,273	13,182.1
244.80	12,273	14,163.9
244.90	12,273	15,144.3
245.00	12,273	16,118.5
245.10	12,273	17,086.4
245.20	12,273	18,051.7
245.30	12,273	19,011.9
245.40	12,273	19,967.1
245.50	12,273	20,919.7
245.60	12,273	21,866.0
245.70	12,273	22,809.7
245.80	12,273	23,747.5
245.90	12,273	24,676.1
246.00	12,273	25,601.8
246.10	12,273	26,517.8
246.20	12,273	27,425.2
246.30	12,273	28,325.3
246.40	12,273	29,213.2
246.50	12,273	30,090.5
246.60	12,273	30,954.8
246.70	12,273	31,803.9
246.80	12,273	32,639.2
246.90	12,273	33,456.0
247.00	12,273	34,253.3
247.10	12,273	35,031.1
247.20	12,273	35,785.3
247.30	12,273	36,511.9
247.40	12,273	37,198.5
247.50	12,273	37,831.7
247.60	12,273	38,407.0
247.70	12,273	38,937.5
247.80	12,273	39,437.0
247.90	12,273	39,927.9
248.00	12,273	40,418.8
248.10	12,273	40,909.7
248.20	12,273	41,400.6
248.30	12,273	41,891.6
248.40	12,273	42,382.5
248.50	12,273	42,873.4
248.60	12,273	43,364.3
248.70	12,273	**43,855.2**

Summary for Pond SWM-6: Cultec 6

Inflow Area = 108,531 sf,100.00% Impervious, Inflow Depth = 2.99" for 2 yr event
Inflow = 8.07 cfs @ 12.07 hrs, Volume= 27,018.9 cf
Outflow = 7.33 cfs @ 12.10 hrs, Volume= 27,018.9 cf, Atten= 9%, Lag= 2.1 min
Discarded = 0.14 cfs @ 7.37 hrs, Volume= 11,635.8 cf
Primary = 7.18 cfs @ 12.10 hrs, Volume= 15,383.1 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 258.25' @ 12.10 hrs Surf.Area= 2,584 sf Storage= 4,547.5 cf

Plug-Flow detention time= 87.7 min calculated for 27,016.1 cf (100% of inflow)
Center-of-Mass det. time= 87.8 min (843.1 - 755.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	255.50'	2,843.3 cf	**22.50'W x 114.83'L x 4.00'H Field A** 10,335.0 cf Overall - 3,226.8 cf Embedded = 7,108.2 cf x 40.0% Voids
#2A	256.00'	3,226.8 cf	**Cultec R-360HD** x 87 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 87 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		6,070.1 cf	Total Available Storage

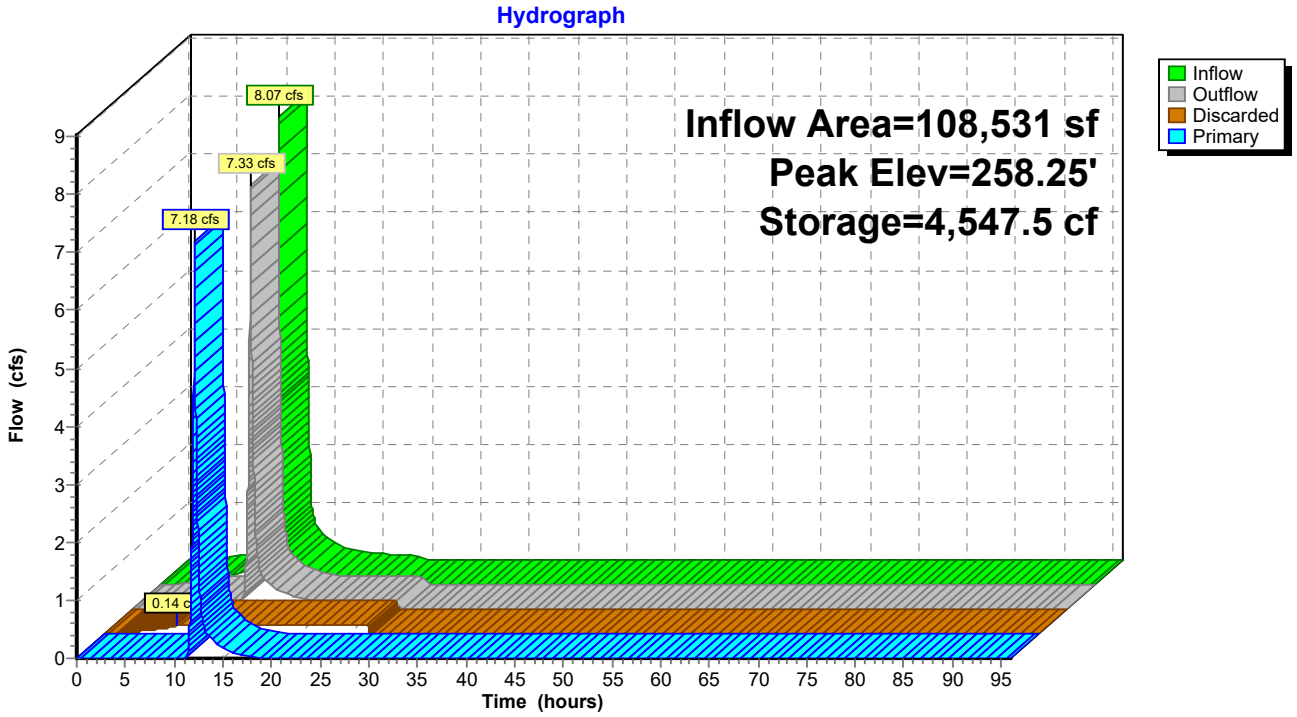
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	255.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	257.10'	**12.0" Vert. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	257.10'	**36.0" Round Culvert** L= 39.0' Ke= 0.900 Inlet / Outlet Invert= 257.10' / 256.60' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

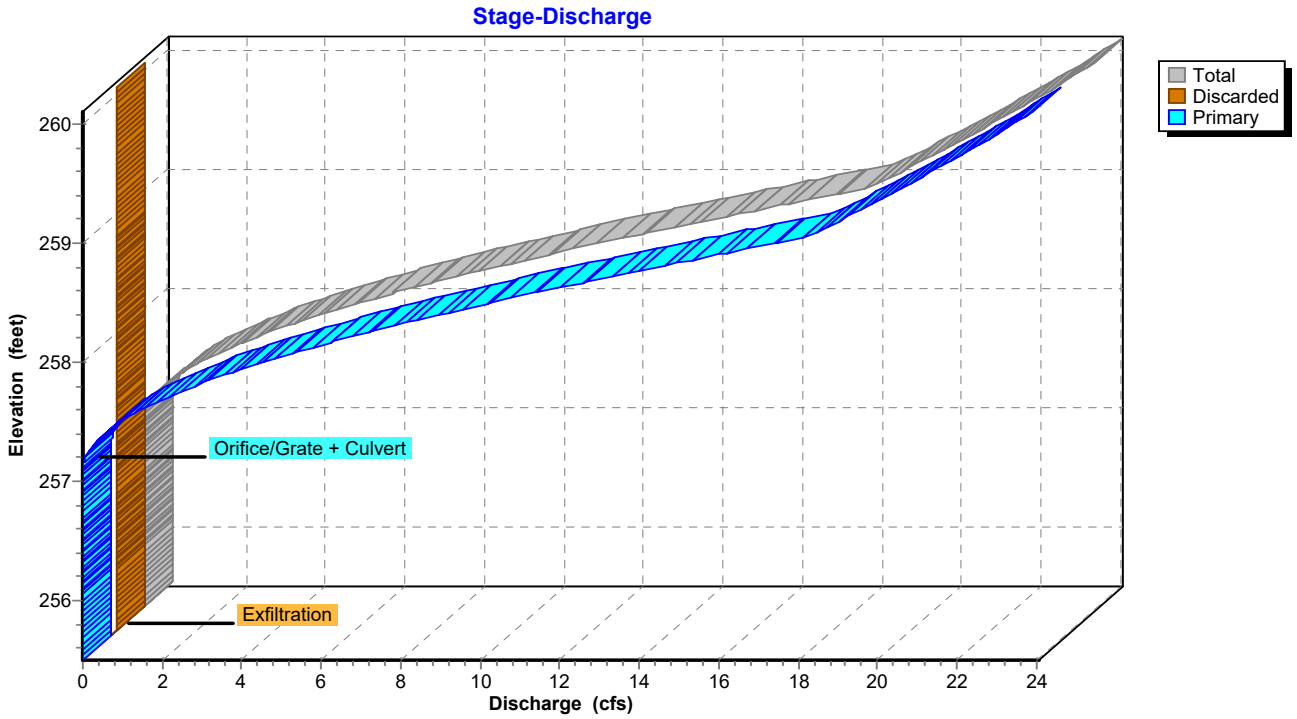
Discarded OutFlow Max=0.14 cfs @ 7.37 hrs HW=255.55' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=7.17 cfs @ 12.10 hrs HW=258.25' (Free Discharge)
↑└**3=Culvert** (Inlet Controls 7.17 cfs @ 2.88 fps)
↑└**2=Orifice/Grate** (Passes 7.17 cfs of 12.18 cfs potential flow)

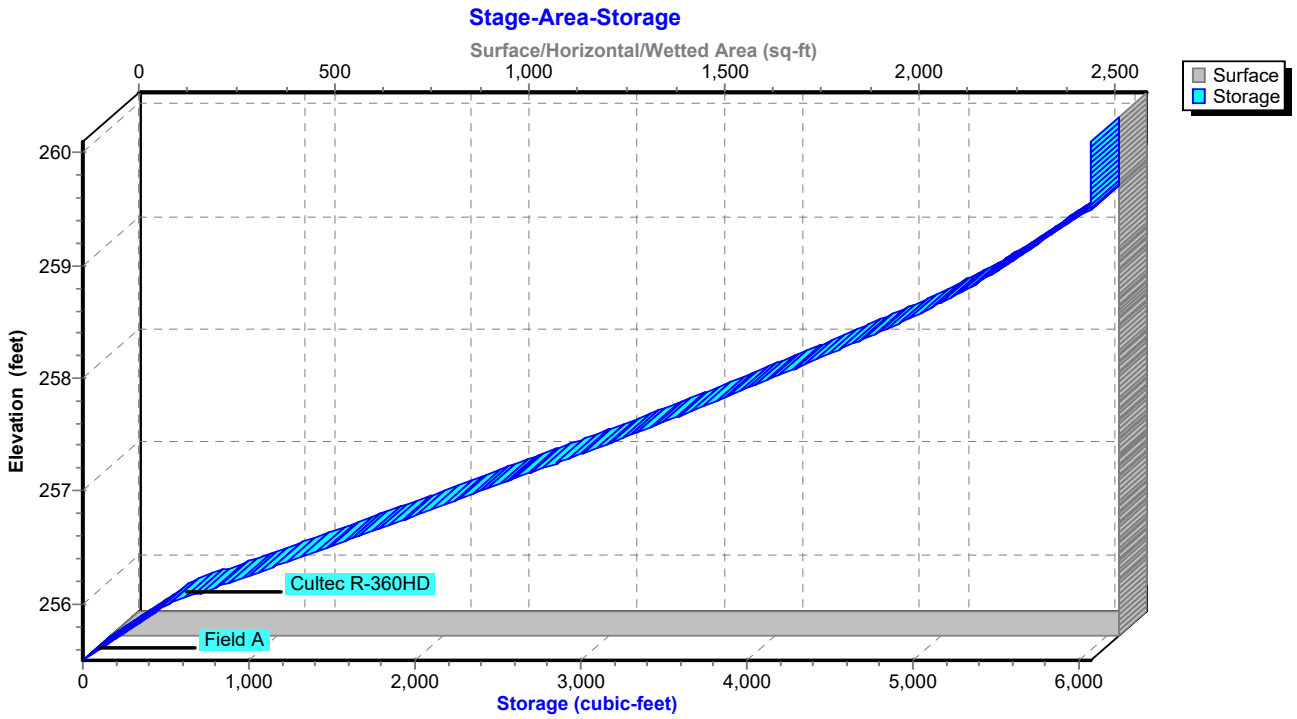
Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Hydrograph for Pond SWM-6: Cultec 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	255.50	0.00	0.00	0.00
2.00	0.01	4.2	255.50	0.01	0.01	0.00
4.00	0.06	17.7	255.52	0.05	0.05	0.00
6.00	0.09	30.3	255.53	0.09	**0.09**	0.00
8.00	0.18	87.9	255.59	0.14	**0.14**	0.00
10.00	0.36	960.1	256.23	0.14	0.14	0.00
12.00	**5.44**	**4,019.4**	**257.92**	**3.98**	0.14	**3.84**
14.00	**0.41**	**2,980.9**	**257.32**	**0.44**	0.14	**0.30**
16.00	0.22	2,809.5	257.23	0.24	0.14	0.10
18.00	0.13	2,661.7	257.14	0.16	0.14	0.01
20.00	0.11	2,454.1	257.03	0.14	0.14	0.00
22.00	0.09	2,110.3	256.84	0.14	0.14	0.00
24.00	0.07	1,636.1	256.59	0.14	0.14	0.00
26.00	0.00	617.5	256.05	0.14	0.14	0.00
28.00	0.00	0.0	255.50	0.00	0.00	0.00
30.00	0.00	0.0	255.50	0.00	0.00	0.00
32.00	0.00	0.0	255.50	0.00	0.00	0.00
34.00	0.00	0.0	255.50	0.00	0.00	0.00
36.00	0.00	0.0	255.50	0.00	0.00	0.00
38.00	0.00	0.0	255.50	0.00	0.00	0.00
40.00	0.00	0.0	255.50	0.00	0.00	0.00
42.00	0.00	0.0	255.50	0.00	0.00	0.00
44.00	0.00	0.0	255.50	0.00	0.00	0.00
46.00	0.00	0.0	255.50	0.00	0.00	0.00
48.00	0.00	0.0	255.50	0.00	0.00	0.00
50.00	0.00	0.0	255.50	0.00	0.00	0.00
52.00	0.00	0.0	255.50	0.00	0.00	0.00
54.00	0.00	0.0	255.50	0.00	0.00	0.00
56.00	0.00	0.0	255.50	0.00	0.00	0.00
58.00	0.00	0.0	255.50	0.00	0.00	0.00
60.00	0.00	0.0	255.50	0.00	0.00	0.00
62.00	0.00	0.0	255.50	0.00	0.00	0.00
64.00	0.00	0.0	255.50	0.00	0.00	0.00
66.00	0.00	0.0	255.50	0.00	0.00	0.00
68.00	0.00	0.0	255.50	0.00	0.00	0.00
70.00	0.00	0.0	255.50	0.00	0.00	0.00
72.00	0.00	0.0	255.50	0.00	0.00	0.00
74.00	0.00	0.0	255.50	0.00	0.00	0.00
76.00	0.00	0.0	255.50	0.00	0.00	0.00
78.00	0.00	0.0	255.50	0.00	0.00	0.00
80.00	0.00	0.0	255.50	0.00	0.00	0.00
82.00	0.00	0.0	255.50	0.00	0.00	0.00
84.00	0.00	0.0	255.50	0.00	0.00	0.00
86.00	0.00	0.0	255.50	0.00	0.00	0.00
88.00	0.00	0.0	255.50	0.00	0.00	0.00
90.00	0.00	0.0	255.50	0.00	0.00	0.00
92.00	0.00	0.0	255.50	0.00	0.00	0.00
94.00	0.00	0.0	255.50	0.00	0.00	0.00
96.00	0.00	0.0	255.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-6: Cultec 6

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
255.50	0.00	**0.00**	0.00
255.55	0.14	**0.14**	0.00
255.60	0.14	0.14	0.00
255.65	0.14	0.14	0.00
255.70	0.14	0.14	0.00
255.75	0.14	0.14	0.00
255.80	0.14	0.14	0.00
255.85	0.14	0.14	0.00
255.90	0.14	0.14	0.00
255.95	0.14	0.14	0.00
256.00	0.14	0.14	0.00
256.05	0.14	0.14	0.00
256.10	0.14	0.14	0.00
256.15	0.14	0.14	0.00
256.20	0.14	0.14	0.00
256.25	0.14	0.14	0.00
256.30	0.14	0.14	0.00
256.35	0.14	0.14	0.00
256.40	0.14	0.14	0.00
256.45	0.14	0.14	0.00
256.50	0.14	0.14	0.00
256.55	0.14	0.14	0.00
256.60	0.14	0.14	0.00
256.65	0.14	0.14	0.00
256.70	0.14	0.14	0.00
256.75	0.14	0.14	0.00
256.80	0.14	0.14	0.00
256.85	0.14	0.14	0.00
256.90	0.14	0.14	0.00
256.95	0.14	0.14	0.00
257.00	0.14	0.14	0.00
257.05	0.14	0.14	0.00
257.10	0.14	0.14	0.00
257.15	0.16	0.14	0.02
257.20	0.21	0.14	0.06
257.25	0.28	0.14	0.14
257.30	0.39	0.14	0.24
257.35	0.52	0.14	0.38
257.40	0.69	0.14	0.54
257.45	0.88	0.14	0.73
257.50	1.10	0.14	0.95
257.55	1.34	0.14	1.20
257.60	1.62	0.14	1.47
257.65	1.91	0.14	1.77
257.70	2.24	0.14	2.10
257.75	2.59	0.14	2.44
257.80	2.96	0.14	2.82
257.85	3.36	0.14	3.22
257.90	3.78	0.14	3.64
257.95	4.23	0.14	4.08
258.00	4.69	0.14	4.55
258.05	5.18	0.14	5.04
258.10	5.69	0.14	5.54
258.15	6.22	0.14	6.07
258.20	6.77	0.14	6.62
258.25	7.33	0.14	7.19
258.30	7.92	0.14	7.77
258.35	8.52	0.14	8.38
258.40	9.14	0.14	9.00
258.45	9.78	0.14	9.63
258.50	10.43	0.14	10.29
258.55	11.10	0.14	10.95
258.60	11.78	0.14	11.63
258.65	12.47	0.14	12.33
258.70	13.18	0.14	13.04
258.75	13.90	0.14	13.75
258.80	14.63	0.14	14.48
258.85	15.37	0.14	15.22
258.90	16.11	0.14	15.97
258.95	16.87	0.14	16.72
259.00	17.63	0.14	17.49
259.05	18.36	0.14	18.21
259.10	18.67	0.14	18.53
259.15	18.98	0.14	18.83
259.20	19.28	0.14	19.13
259.25	19.57	0.14	19.43
259.30	19.87	0.14	19.72
259.35	20.15	0.14	20.01
259.40	20.44	0.14	20.29
259.45	20.72	0.14	20.57
259.50	20.99	0.14	20.85
259.55	21.27	0.14	21.12
259.60	21.54	0.14	21.39
259.65	21.80	0.14	21.66
259.70	22.06	0.14	21.92
259.75	22.32	0.14	22.18
259.80	22.58	0.14	22.44
259.85	22.83	0.14	22.69
259.90	23.08	0.14	22.94
259.95	23.33	0.14	23.19
260.00	23.58	0.14	23.43
260.05	23.82	0.14	23.68
260.10	**24.06**	0.14	**23.92**

Stage-Area-Storage for Pond SWM-6: Cultec 6

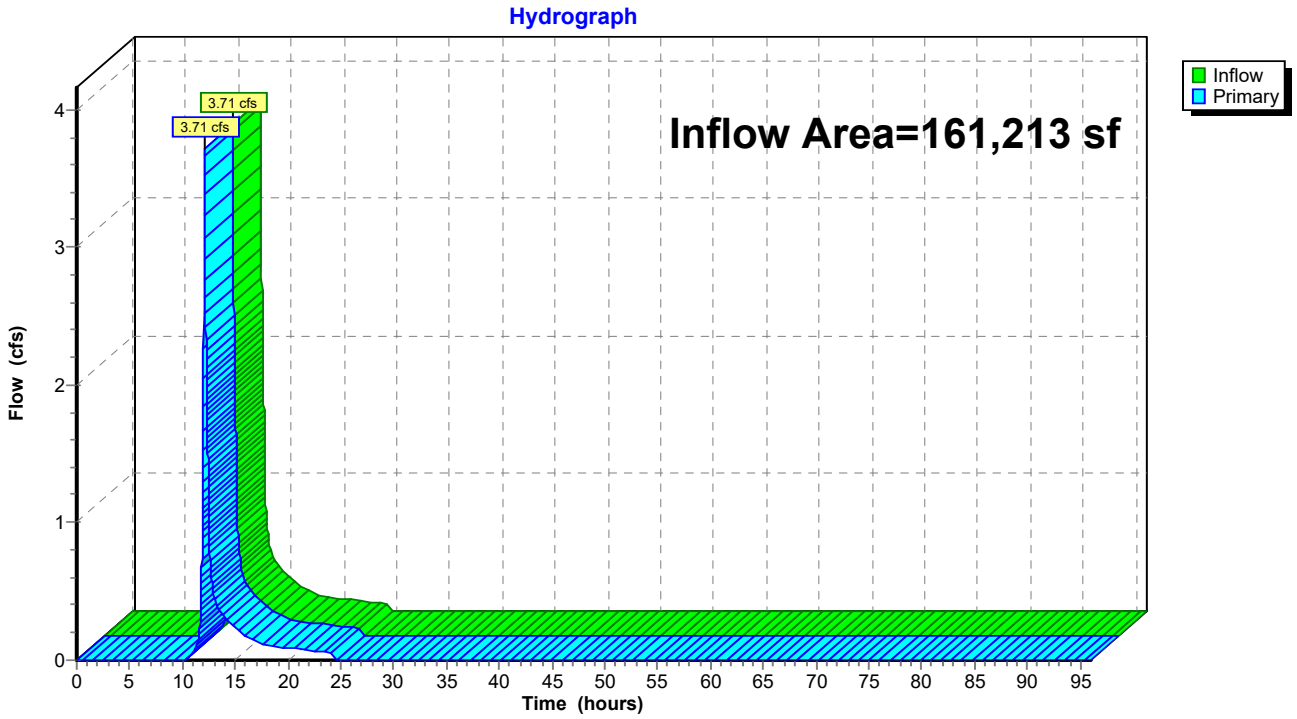
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
255.50	**2,584**	0.0
255.55	2,584	51.7
255.60	2,584	103.3
255.65	2,584	155.0
255.70	2,584	206.7
255.75	2,584	258.4
255.80	2,584	310.1
255.85	2,584	361.7
255.90	2,584	413.4
255.95	2,584	465.1
256.00	2,584	516.7
256.05	2,584	612.7
256.10	2,584	708.5
256.15	2,584	804.2
256.20	2,584	899.8
256.25	2,584	995.1
256.30	2,584	1,090.3
256.35	2,584	1,185.3
256.40	2,584	1,280.1
256.45	2,584	1,374.7
256.50	2,584	1,469.0
256.55	2,584	1,563.2
256.60	2,584	1,657.1
256.65	2,584	1,750.8
256.70	2,584	1,844.2
256.75	2,584	1,937.4
256.80	2,584	2,030.3
256.85	2,584	2,122.9
256.90	2,584	2,215.3
256.95	2,584	2,307.3
257.00	2,584	2,399.0
257.05	2,584	2,490.4
257.10	2,584	2,581.4
257.15	2,584	2,672.2
257.20	2,584	2,762.5
257.25	2,584	2,852.5
257.30	2,584	2,942.1
257.35	2,584	3,031.3
257.40	2,584	3,120.0
257.45	2,584	3,208.4
257.50	2,584	3,296.3
257.55	2,584	3,383.8
257.60	2,584	3,470.8
257.65	2,584	3,557.3
257.70	2,584	3,643.3
257.75	2,584	3,728.7
257.80	2,584	3,813.6
257.85	2,584	3,897.9
257.90	2,584	3,981.6
257.95	2,584	4,064.8
258.00	2,584	4,147.2
258.05	2,584	4,229.0
258.10	2,584	4,310.0
258.15	2,584	4,390.3
258.20	2,584	4,469.7
258.25	2,584	4,548.2
258.30	2,584	4,625.9
258.35	2,584	4,702.5
258.40	2,584	4,778.1
258.45	2,584	4,852.6
258.50	2,584	4,925.8
258.55	2,584	4,997.8
258.60	2,584	5,068.2
258.65	2,584	5,136.8
258.70	2,584	5,203.4
258.75	2,584	5,267.3
258.80	2,584	5,328.5
258.85	2,584	5,387.3
258.90	2,584	5,444.3
258.95	2,584	5,499.7
259.00	2,584	5,553.4
259.05	2,584	5,605.0
259.10	2,584	5,656.7
259.15	2,584	5,708.4
259.20	2,584	5,760.1
259.25	2,584	5,811.7
259.30	2,584	5,863.4
259.35	2,584	5,915.1
259.40	2,584	5,966.8
259.45	2,584	6,018.4
259.50	2,584	**6,070.1**
259.55	2,584	6,070.1
259.60	2,584	6,070.1
259.65	2,584	6,070.1
259.70	2,584	6,070.1
259.75	2,584	6,070.1
259.80	2,584	6,070.1
259.85	2,584	6,070.1
259.90	2,584	6,070.1
259.95	2,584	6,070.1
260.00	2,584	6,070.1
260.05	2,584	6,070.1
260.10	2,584	6,070.1

Summary for Link POA A: POND- WEST

Inflow Area = 161,213 sf, 51.37% Impervious, Inflow Depth = 0.91" for 2 yr event
Inflow = 3.71 cfs @ 12.10 hrs, Volume= 12,249.3 cf
Primary = 3.71 cfs @ 12.10 hrs, Volume= 12,249.3 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

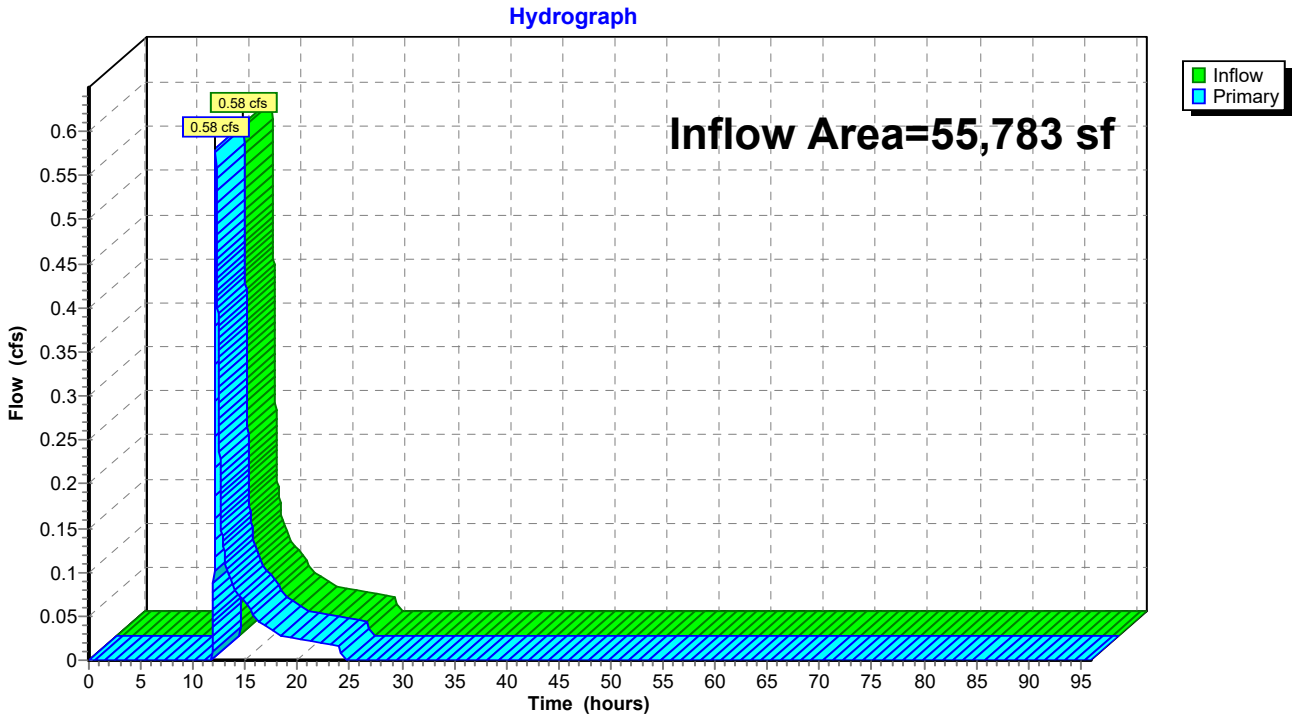
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.05	0.00	0.05	63.00	0.00	0.00	0.00
12.00	**1.84**	0.00	**1.84**	64.00	0.00	0.00	0.00
13.00	**0.46**	0.00	**0.46**	65.00	0.00	0.00	0.00
14.00	0.30	0.00	0.30	66.00	0.00	0.00	0.00
15.00	0.24	0.00	0.24	67.00	0.00	0.00	0.00
16.00	0.17	0.00	0.17	68.00	0.00	0.00	0.00
17.00	0.14	0.00	0.14	69.00	0.00	0.00	0.00
18.00	0.11	0.00	0.11	70.00	0.00	0.00	0.00
19.00	0.10	0.00	0.10	71.00	0.00	0.00	0.00
20.00	0.09	0.00	0.09	72.00	0.00	0.00	0.00
21.00	0.08	0.00	0.08	73.00	0.00	0.00	0.00
22.00	0.07	0.00	0.07	74.00	0.00	0.00	0.00
23.00	0.07	0.00	0.07	75.00	0.00	0.00	0.00
24.00	0.06	0.00	0.06	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 55,783 sf, 42.91% Impervious, Inflow Depth = 0.57" for 2 yr event
Inflow = 0.58 cfs @ 12.15 hrs, Volume= 2,642.8 cf
Primary = 0.58 cfs @ 12.15 hrs, Volume= 2,642.8 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

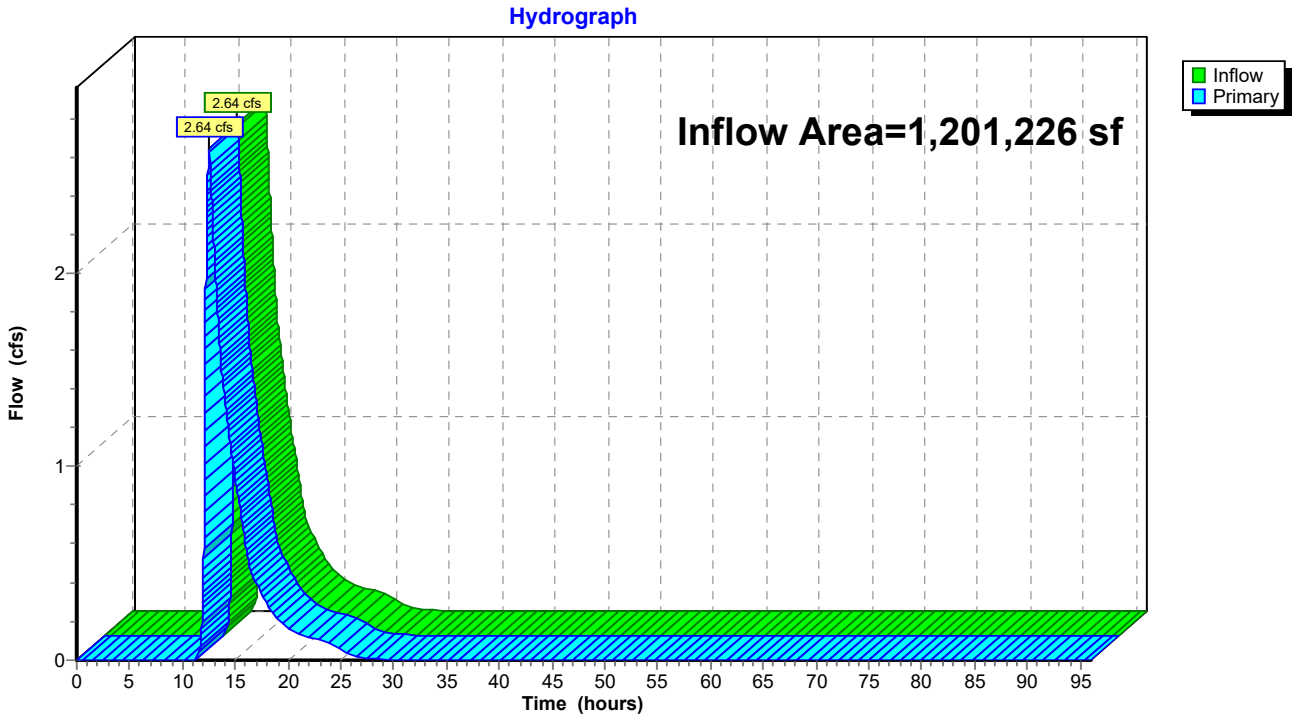
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	**0.14**	0.00	**0.14**	64.00	0.00	0.00	0.00
13.00	**0.12**	0.00	**0.12**	65.00	0.00	0.00	0.00
14.00	0.08	0.00	0.08	66.00	0.00	0.00	0.00
15.00	0.06	0.00	0.06	67.00	0.00	0.00	0.00
16.00	0.05	0.00	0.05	68.00	0.00	0.00	0.00
17.00	0.04	0.00	0.04	69.00	0.00	0.00	0.00
18.00	0.03	0.00	0.03	70.00	0.00	0.00	0.00
19.00	0.03	0.00	0.03	71.00	0.00	0.00	0.00
20.00	0.02	0.00	0.02	72.00	0.00	0.00	0.00
21.00	0.02	0.00	0.02	73.00	0.00	0.00	0.00
22.00	0.02	0.00	0.02	74.00	0.00	0.00	0.00
23.00	0.02	0.00	0.02	75.00	0.00	0.00	0.00
24.00	0.02	0.00	0.02	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND-NORTH

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 0.28" for 2 yr event
Inflow = 2.64 cfs @ 12.52 hrs, Volume= 27,710.1 cf
Primary = 2.64 cfs @ 12.52 hrs, Volume= 27,710.1 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND-NORTH



Hydrograph for Link POA D: WETLAND-NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	**0.44**	0.00	**0.44**	64.00	0.00	0.00	0.00
13.00	**2.12**	0.00	**2.12**	65.00	0.00	0.00	0.00
14.00	1.35	0.00	1.35	66.00	0.00	0.00	0.00
15.00	0.94	0.00	0.94	67.00	0.00	0.00	0.00
16.00	0.60	0.00	0.60	68.00	0.00	0.00	0.00
17.00	0.39	0.00	0.39	69.00	0.00	0.00	0.00
18.00	0.29	0.00	0.29	70.00	0.00	0.00	0.00
19.00	0.22	0.00	0.22	71.00	0.00	0.00	0.00
20.00	0.17	0.00	0.17	72.00	0.00	0.00	0.00
21.00	0.14	0.00	0.14	73.00	0.00	0.00	0.00
22.00	0.12	0.00	0.12	74.00	0.00	0.00	0.00
23.00	0.11	0.00	0.11	75.00	0.00	0.00	0.00
24.00	0.09	0.00	0.09	76.00	0.00	0.00	0.00
25.00	0.05	0.00	0.05	77.00	0.00	0.00	0.00
26.00	0.03	0.00	0.03	78.00	0.00	0.00	0.00
27.00	0.02	0.00	0.02	79.00	0.00	0.00	0.00
28.00	0.01	0.00	0.01	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-A1: Prop. Watershed Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=2.34"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=8.15 cfs 25,764.8 cf

Subcatchment PR-A2: Prop. Watershed A2 Runoff Area=28,873 sf 9.70% Impervious Runoff Depth=0.28"
Flow Length=1,502' Tc=6.5 min UI Adjusted CN=42 Runoff=0.06 cfs 665.8 cf

Subcatchment PR-C: Prop. Watershed C Runoff Area=55,783 sf 42.91% Impervious Runoff Depth=1.49"
Flow Length=836' Tc=8.7 min CN=64 Runoff=1.90 cfs 6,928.3 cf

Subcatchment PR-D1: Prop. Watershed Runoff Area=214,605 sf 84.39% Impervious Runoff Depth=3.64"
Flow Length=1,502' Tc=7.5 min CN=89 Runoff=19.42 cfs 65,061.7 cf

Subcatchment PR-D2: Prop. Watershed Runoff Area=274,599 sf 71.05% Impervious Runoff Depth=2.95"
Flow Length=1,350' Tc=5.7 min CN=82 Runoff=22.04 cfs 67,600.8 cf

Subcatchment PR-D3: Prop. Watershed Runoff Area=108,531 sf 100.00% Impervious Runoff Depth=4.62"
Tc=5.0 min CN=98 Runoff=12.27 cfs 41,815.1 cf

Subcatchment PR-D4: Prop. Watershed D4 Runoff Area=37,021 sf 55.83% Impervious Runoff Depth=2.09"
Tc=5.0 min CN=72 Runoff=2.13 cfs 6,449.7 cf

Subcatchment PR-D5: Prop. Watershed D5 Runoff Area=50,834 sf 67.76% Impervious Runoff Depth=2.68"
Tc=5.0 min CN=79 Runoff=3.81 cfs 11,359.4 cf

Subcatchment PR-D6: Prop. Watershed D6 Runoff Area=40,781 sf 62.50% Impervious Runoff Depth=2.42"
Tc=5.0 min CN=76 Runoff=2.75 cfs 8,226.3 cf

Subcatchment PR-D7: Prop. Watershed Runoff Area=332,987 sf 33.08% Impervious Runoff Depth=1.09"
Flow Length=763' Tc=7.9 min CN=58 Runoff=7.76 cfs 30,319.2 cf

Subcatchment PR-D8: Prop. Watershed Runoff Area=141,868 sf 100.00% Impervious Runoff Depth=4.62"
Tc=5.0 min CN=98 Runoff=16.04 cfs 54,659.3 cf

Pond FP: Fire Pond Weir Peak Elev=244.83' Storage=281,550.1 cf Inflow=22.90 cfs 115,894.8 cf
Outflow=4.92 cfs 115,894.8 cf

Pond RG1: Rain-Garden #1 Peak Elev=250.01' Storage=3,322.1 cf Inflow=3.81 cfs 11,359.4 cf
Discarded=0.06 cfs 6,116.5 cf Primary=2.54 cfs 5,242.9 cf Outflow=2.60 cfs 11,359.4 cf

Pond RG2: Rain-Garden #2 Peak Elev=250.00' Storage=2,444.9 cf Inflow=2.75 cfs 8,226.3 cf
Discarded=0.05 cfs 4,675.6 cf Primary=1.49 cfs 3,550.7 cf Outflow=1.54 cfs 8,226.3 cf

Pond SWM-2: Cultec 2 Peak Elev=251.70' Storage=23,219.7 cf Inflow=16.04 cfs 54,659.3 cf
Discarded=0.88 cfs 54,659.3 cf Primary=0.00 cfs 0.0 cf Outflow=0.88 cfs 54,659.3 cf

Pond SWM-3: Cultec 3 Peak Elev=247.18' Storage=25,138.3 cf Inflow=22.04 cfs 67,600.8 cf
Discarded=0.63 cfs 43,753.3 cf Primary=5.74 cfs 23,847.6 cf Outflow=6.37 cfs 67,600.8 cf

Pond SWM-4: Cultec 4 Peak Elev=246.13' Storage=26,755.9 cf Inflow=21.44 cfs 71,511.4 cf
Discarded=0.68 cfs 47,032.8 cf Primary=5.76 cfs 24,478.7 cf Outflow=6.44 cfs 71,511.4 cf

Pond SWM-6: Cultec 6 Peak Elev=258.58' Storage=5,038.7 cf Inflow=12.27 cfs 41,815.1 cf
Discarded=0.14 cfs 13,359.3 cf Primary=11.35 cfs 28,455.8 cf Outflow=11.49 cfs 41,815.1 cf

Link POA A: POND- WEST Inflow=8.15 cfs 26,430.6 cf
Primary=8.15 cfs 26,430.6 cf

Link POA C: WETLAND-WEST Inflow=1.90 cfs 6,928.3 cf
Primary=1.90 cfs 6,928.3 cf

Link POA D: WETLAND-NORTH Inflow=4.92 cfs 115,894.8 cf
Primary=4.92 cfs 115,894.8 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 318,850.4 cf Average Runoff Depth = 2.70"
34.84% Pervious = 494,117 sf 65.16% Impervious = 924,105 sf

Summary for Subcatchment PR-A1: Prop. Watershed A1

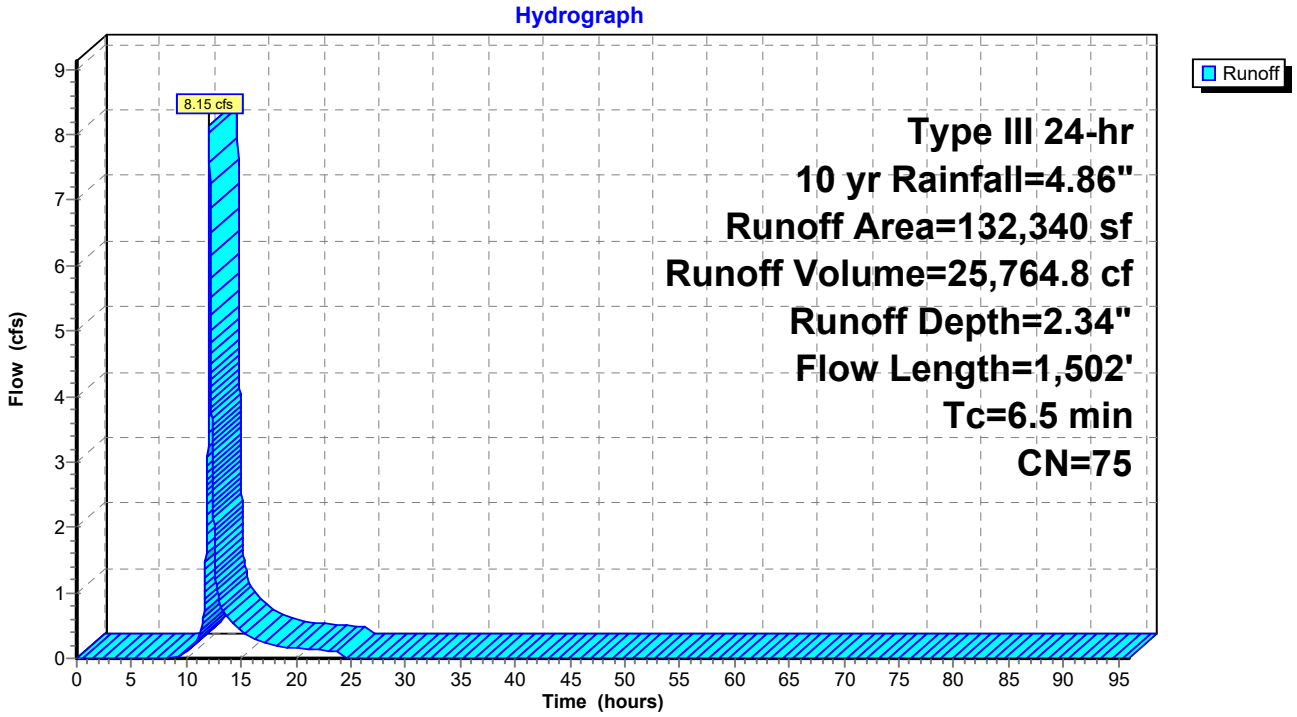
Runoff = 8.15 cfs @ 12.10 hrs, Volume= 25,764.8 cf, Depth= 2.34"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A1: Prop. Watershed A1



Hydrograph for Subcatchment PR-A1: Prop. Watershed A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.00	0.00
9.00	0.71	0.00	0.01
10.00	0.92	0.02	0.09
11.00	1.22	0.08	0.26
12.00	2.43	0.61	**4.41**
13.00	3.64	1.41	**0.88**
14.00	3.94	1.62	0.57
15.00	4.15	1.78	0.44
16.00	4.31	1.90	0.31
17.00	4.42	1.99	0.25
18.00	4.51	2.06	0.19
19.00	4.58	2.12	0.17
20.00	4.65	2.17	0.16
21.00	4.71	2.22	0.14
22.00	4.77	2.26	0.13
23.00	4.82	2.30	0.12
24.00	**4.86**	**2.34**	0.10
25.00	4.86	2.34	0.00
26.00	4.86	2.34	0.00
27.00	4.86	2.34	0.00
28.00	4.86	2.34	0.00
29.00	4.86	2.34	0.00
30.00	4.86	2.34	0.00
31.00	4.86	2.34	0.00
32.00	4.86	2.34	0.00
33.00	4.86	2.34	0.00
34.00	4.86	2.34	0.00
35.00	4.86	2.34	0.00
36.00	4.86	2.34	0.00
37.00	4.86	2.34	0.00
38.00	4.86	2.34	0.00
39.00	4.86	2.34	0.00
40.00	4.86	2.34	0.00
41.00	4.86	2.34	0.00
42.00	4.86	2.34	0.00
43.00	4.86	2.34	0.00
44.00	4.86	2.34	0.00
45.00	4.86	2.34	0.00
46.00	4.86	2.34	0.00
47.00	4.86	2.34	0.00
48.00	4.86	2.34	0.00
49.00	4.86	2.34	0.00
50.00	4.86	2.34	0.00
51.00	4.86	2.34	0.00
52.00	4.86	2.34	0.00
53.00	4.86	2.34	0.00
54.00	4.86	2.34	0.00
55.00	4.86	2.34	0.00
56.00	4.86	2.34	0.00
57.00	4.86	2.34	0.00
58.00	4.86	2.34	0.00
59.00	4.86	2.34	0.00
60.00	4.86	2.34	0.00
61.00	4.86	2.34	0.00
62.00	4.86	2.34	0.00
63.00	4.86	2.34	0.00
64.00	4.86	2.34	0.00
65.00	4.86	2.34	0.00
66.00	4.86	2.34	0.00
67.00	4.86	2.34	0.00
68.00	4.86	2.34	0.00
69.00	4.86	2.34	0.00
70.00	4.86	2.34	0.00
71.00	4.86	2.34	0.00
72.00	4.86	2.34	0.00
73.00	4.86	2.34	0.00
74.00	4.86	2.34	0.00
75.00	4.86	2.34	0.00
76.00	4.86	2.34	0.00
77.00	4.86	2.34	0.00
78.00	4.86	2.34	0.00
79.00	4.86	2.34	0.00
80.00	4.86	2.34	0.00
81.00	4.86	2.34	0.00
82.00	4.86	2.34	0.00
83.00	4.86	2.34	0.00
84.00	4.86	2.34	0.00
85.00	4.86	2.34	0.00
86.00	4.86	2.34	0.00
87.00	4.86	2.34	0.00
88.00	4.86	2.34	0.00
89.00	4.86	2.34	0.00
90.00	4.86	2.34	0.00
91.00	4.86	2.34	0.00
92.00	4.86	2.34	0.00
93.00	4.86	2.34	0.00
94.00	4.86	2.34	0.00
95.00	4.86	2.34	0.00
96.00	4.86	2.34	0.00

Summary for Subcatchment PR-A2: Prop. Watershed A2

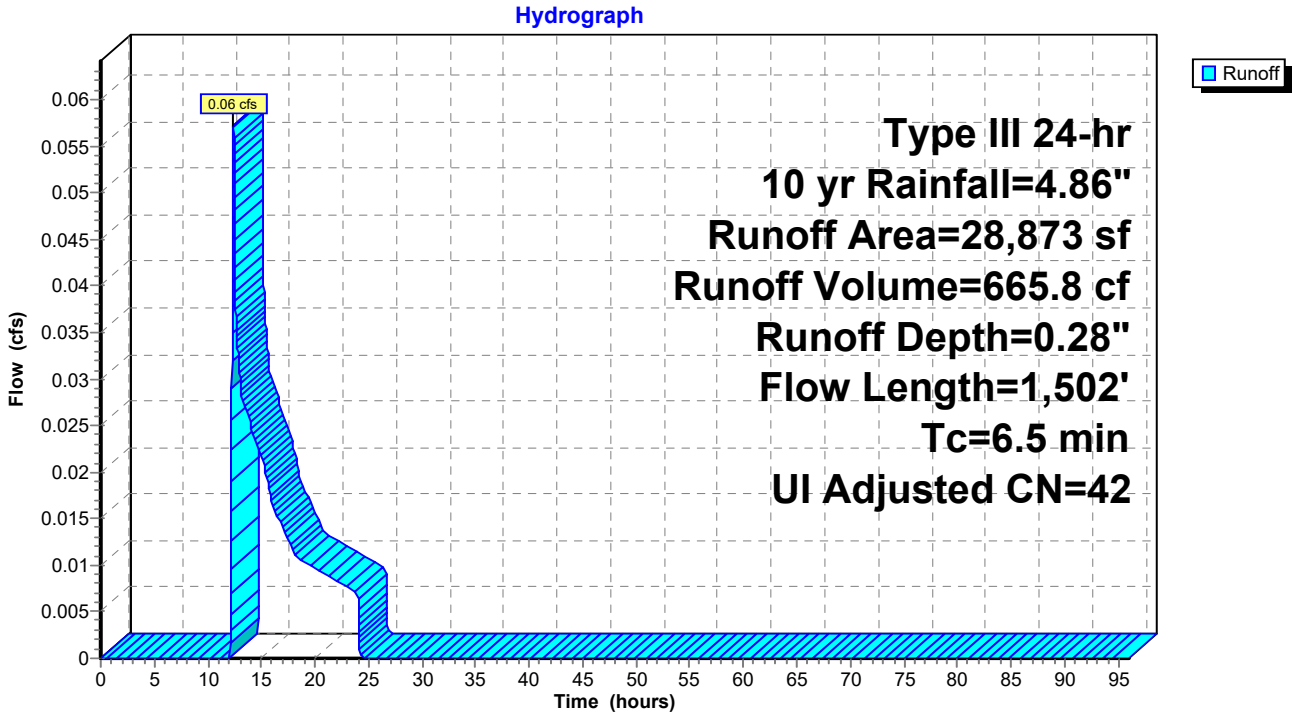
Runoff = 0.06 cfs @ 12.41 hrs, Volume= 665.8 cf, Depth= 0.28"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Adj	Description
*	2,800	98		Unconnected pavement, HSG A
	26,073	39		>75% Grass cover, Good, HSG A
	28,873	45	42	Weighted Average, UI Adjusted
	26,073			90.30% Pervious Area
	2,800			9.70% Impervious Area
	2,800			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A2: Prop. Watershed A2



Hydrograph for Subcatchment PR-A2: Prop. Watershed A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.86	0.28	0.00
1.00	0.05	0.00	0.00	53.00	4.86	0.28	0.00
2.00	0.10	0.00	0.00	54.00	4.86	0.28	0.00
3.00	0.15	0.00	0.00	55.00	4.86	0.28	0.00
4.00	0.21	0.00	0.00	56.00	4.86	0.28	0.00
5.00	0.28	0.00	0.00	57.00	4.86	0.28	0.00
6.00	0.35	0.00	0.00	58.00	4.86	0.28	0.00
7.00	0.44	0.00	0.00	59.00	4.86	0.28	0.00
8.00	0.55	0.00	0.00	60.00	4.86	0.28	0.00
9.00	0.71	0.00	0.00	61.00	4.86	0.28	0.00
10.00	0.92	0.00	0.00	62.00	4.86	0.28	0.00
11.00	1.22	0.00	0.00	63.00	4.86	0.28	0.00
12.00	2.43	0.00	**0.00**	64.00	4.86	0.28	0.00
13.00	3.64	0.05	**0.03**	65.00	4.86	0.28	0.00
14.00	3.94	0.09	0.02	66.00	4.86	0.28	0.00
15.00	4.15	0.13	0.02	67.00	4.86	0.28	0.00
16.00	4.31	0.16	0.02	68.00	4.86	0.28	0.00
17.00	4.42	0.18	0.01	69.00	4.86	0.28	0.00
18.00	4.51	0.20	0.01	70.00	4.86	0.28	0.00
19.00	4.58	0.21	0.01	71.00	4.86	0.28	0.00
20.00	4.65	0.23	0.01	72.00	4.86	0.28	0.00
21.00	4.71	0.24	0.01	73.00	4.86	0.28	0.00
22.00	4.77	0.25	0.01	74.00	4.86	0.28	0.00
23.00	4.82	0.27	0.01	75.00	4.86	0.28	0.00
24.00	**4.86**	**0.28**	0.01	76.00	4.86	0.28	0.00
25.00	4.86	0.28	0.00	77.00	4.86	0.28	0.00
26.00	4.86	0.28	0.00	78.00	4.86	0.28	0.00
27.00	4.86	0.28	0.00	79.00	4.86	0.28	0.00
28.00	4.86	0.28	0.00	80.00	4.86	0.28	0.00
29.00	4.86	0.28	0.00	81.00	4.86	0.28	0.00
30.00	4.86	0.28	0.00	82.00	4.86	0.28	0.00
31.00	4.86	0.28	0.00	83.00	4.86	0.28	0.00
32.00	4.86	0.28	0.00	84.00	4.86	0.28	0.00
33.00	4.86	0.28	0.00	85.00	4.86	0.28	0.00
34.00	4.86	0.28	0.00	86.00	4.86	0.28	0.00
35.00	4.86	0.28	0.00	87.00	4.86	0.28	0.00
36.00	4.86	0.28	0.00	88.00	4.86	0.28	0.00
37.00	4.86	0.28	0.00	89.00	4.86	0.28	0.00
38.00	4.86	0.28	0.00	90.00	4.86	0.28	0.00
39.00	4.86	0.28	0.00	91.00	4.86	0.28	0.00
40.00	4.86	0.28	0.00	92.00	4.86	0.28	0.00
41.00	4.86	0.28	0.00	93.00	4.86	0.28	0.00
42.00	4.86	0.28	0.00	94.00	4.86	0.28	0.00
43.00	4.86	0.28	0.00	95.00	4.86	0.28	0.00
44.00	4.86	0.28	0.00	96.00	4.86	0.28	0.00
45.00	4.86	0.28	0.00				
46.00	4.86	0.28	0.00				
47.00	4.86	0.28	0.00				
48.00	4.86	0.28	0.00				
49.00	4.86	0.28	0.00				
50.00	4.86	0.28	0.00				
51.00	4.86	0.28	0.00				

Summary for Subcatchment PR-C: Prop. Watershed C

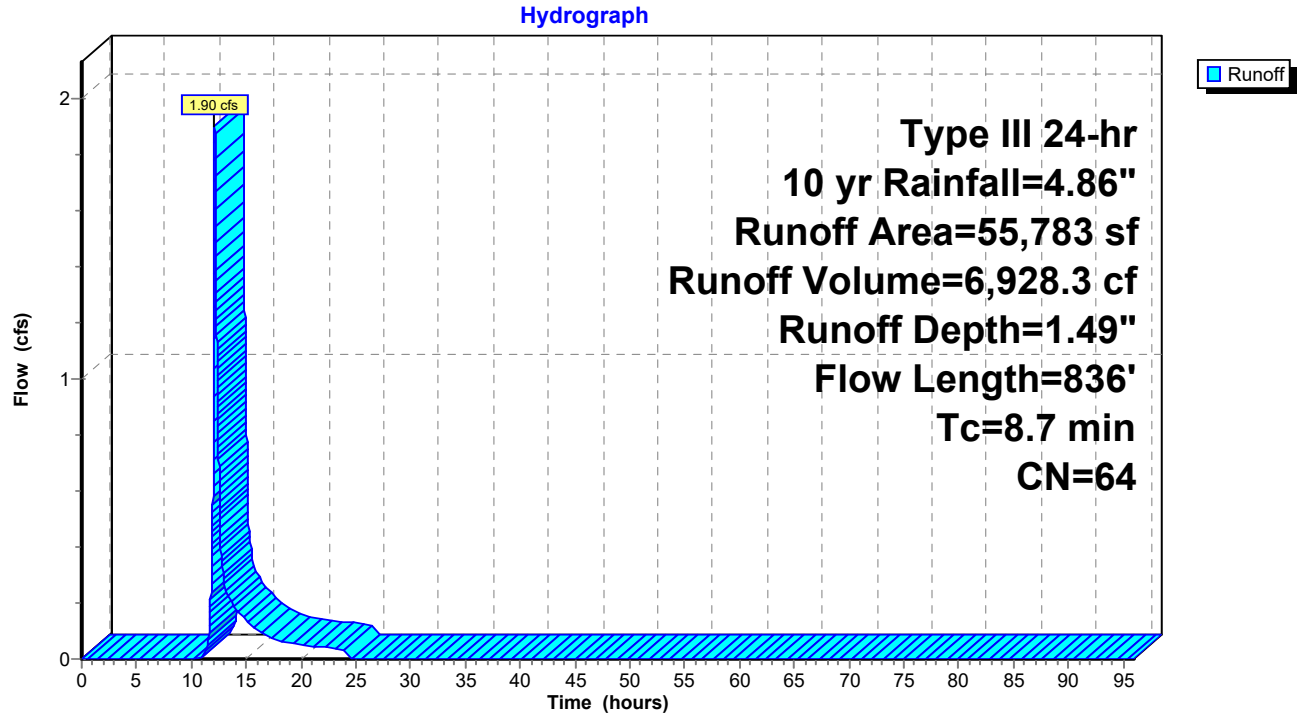
Runoff = 1.90 cfs @ 12.13 hrs, Volume= 6,928.3 cf, Depth= 1.49"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	23,937	98	Unconnected pavement, HSG A
	31,846	39	>75% Grass cover, Good, HSG A
	55,783	64	Weighted Average
	31,846		57.09% Pervious Area
	23,937		42.91% Impervious Area
	23,937		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	100	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	836	Total			

Subcatchment PR-C: Prop. Watershed C



Hydrograph for Subcatchment PR-C: Prop. Watershed C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.86	1.49	0.00
1.00	0.05	0.00	0.00	53.00	4.86	1.49	0.00
2.00	0.10	0.00	0.00	54.00	4.86	1.49	0.00
3.00	0.15	0.00	0.00	55.00	4.86	1.49	0.00
4.00	0.21	0.00	0.00	56.00	4.86	1.49	0.00
5.00	0.28	0.00	0.00	57.00	4.86	1.49	0.00
6.00	0.35	0.00	0.00	58.00	4.86	1.49	0.00
7.00	0.44	0.00	0.00	59.00	4.86	1.49	0.00
8.00	0.55	0.00	0.00	60.00	4.86	1.49	0.00
9.00	0.71	0.00	0.00	61.00	4.86	1.49	0.00
10.00	0.92	0.00	0.00	62.00	4.86	1.49	0.00
11.00	1.22	0.00	0.01	63.00	4.86	1.49	0.00
12.00	2.43	0.25	**0.78**	64.00	4.86	1.49	0.00
13.00	3.64	0.78	**0.28**	65.00	4.86	1.49	0.00
14.00	3.94	0.94	0.18	66.00	4.86	1.49	0.00
15.00	4.15	1.06	0.14	67.00	4.86	1.49	0.00
16.00	4.31	1.15	0.10	68.00	4.86	1.49	0.00
17.00	4.42	1.22	0.08	69.00	4.86	1.49	0.00
18.00	4.51	1.27	0.06	70.00	4.86	1.49	0.00
19.00	4.58	1.32	0.06	71.00	4.86	1.49	0.00
20.00	4.65	1.36	0.05	72.00	4.86	1.49	0.00
21.00	4.71	1.40	0.05	73.00	4.86	1.49	0.00
22.00	4.77	1.43	0.04	74.00	4.86	1.49	0.00
23.00	4.82	1.46	0.04	75.00	4.86	1.49	0.00
24.00	**4.86**	**1.49**	0.03	76.00	4.86	1.49	0.00
25.00	4.86	1.49	0.00	77.00	4.86	1.49	0.00
26.00	4.86	1.49	0.00	78.00	4.86	1.49	0.00
27.00	4.86	1.49	0.00	79.00	4.86	1.49	0.00
28.00	4.86	1.49	0.00	80.00	4.86	1.49	0.00
29.00	4.86	1.49	0.00	81.00	4.86	1.49	0.00
30.00	4.86	1.49	0.00	82.00	4.86	1.49	0.00
31.00	4.86	1.49	0.00	83.00	4.86	1.49	0.00
32.00	4.86	1.49	0.00	84.00	4.86	1.49	0.00
33.00	4.86	1.49	0.00	85.00	4.86	1.49	0.00
34.00	4.86	1.49	0.00	86.00	4.86	1.49	0.00
35.00	4.86	1.49	0.00	87.00	4.86	1.49	0.00
36.00	4.86	1.49	0.00	88.00	4.86	1.49	0.00
37.00	4.86	1.49	0.00	89.00	4.86	1.49	0.00
38.00	4.86	1.49	0.00	90.00	4.86	1.49	0.00
39.00	4.86	1.49	0.00	91.00	4.86	1.49	0.00
40.00	4.86	1.49	0.00	92.00	4.86	1.49	0.00
41.00	4.86	1.49	0.00	93.00	4.86	1.49	0.00
42.00	4.86	1.49	0.00	94.00	4.86	1.49	0.00
43.00	4.86	1.49	0.00	95.00	4.86	1.49	0.00
44.00	4.86	1.49	0.00	96.00	4.86	1.49	0.00
45.00	4.86	1.49	0.00				
46.00	4.86	1.49	0.00				
47.00	4.86	1.49	0.00				
48.00	4.86	1.49	0.00				
49.00	4.86	1.49	0.00				
50.00	4.86	1.49	0.00				
51.00	4.86	1.49	0.00				

Summary for Subcatchment PR-D1: Prop. Watershed D1

Runoff = 19.42 cfs @ 12.11 hrs, Volume= 65,061.7 cf, Depth= 3.64"
Routed to Pond SWM-4 : Cultec 4

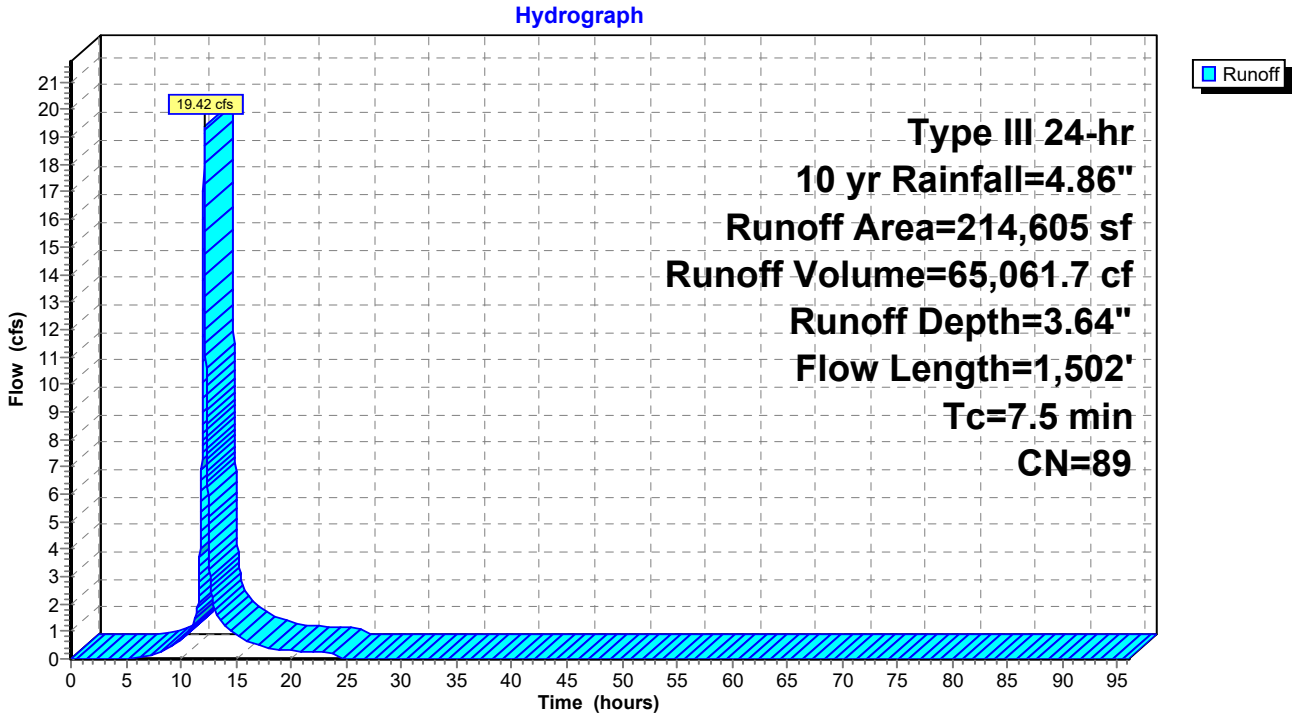
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	28,837	98	Building 2 - South
*	28,095	98	Building 3 - West
*	28,101	98	Building 3 - East
	96,079	98	Unconnected pavement, HSG A
	33,493	39	>75% Grass cover, Good, HSG A
	214,605	89	Weighted Average
	33,493		15.61% Pervious Area
	181,112		84.39% Impervious Area
	96,079		53.05% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	50	0.1600	0.34		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.22"
0.0	12	0.1250	5.69		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
1.3	296	0.0350	3.80		**Shallow Concentrated Flow, c-d** Paved Kv= 20.3 fps
0.2	64	0.0100	4.54	3.56	**Pipe Channel, d-e** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.0	13	0.0160	5.74	4.51	**Pipe Channel, e-f** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.8	196	0.0046	4.03	7.12	**Pipe Channel, f-g** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.9	213	0.0047	4.08	7.20	**Pipe Channel, g-h** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	56	0.0054	6.14	30.14	**Pipe Channel, h-i** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.8	282	0.0050	5.91	29.00	**Pipe Channel, i-j** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	162	0.0050	5.91	29.00	**Pipe Channel, j-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.4	158	0.0060	6.47	31.77	**Pipe Channel, k-l** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013

7.5 1,502 Total

Subcatchment PR-D1: Prop. Watershed D1



Hydrograph for Subcatchment PR-D1: Prop. Watershed D1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.01
6.00	0.35	0.01	0.05
7.00	0.44	0.03	0.12
8.00	0.55	0.06	0.21
9.00	0.71	0.13	0.40
10.00	0.92	0.24	0.65
11.00	1.22	0.43	1.14
12.00	2.43	1.39	**10.85**
13.00	3.64	2.49	**1.87**
14.00	3.94	2.77	1.17
15.00	4.15	2.97	0.88
16.00	4.31	3.11	0.62
17.00	4.42	3.22	0.49
18.00	4.51	3.30	0.38
19.00	4.58	3.38	0.34
20.00	4.65	3.44	0.30
21.00	4.71	3.50	0.28
22.00	4.77	3.55	0.25
23.00	4.82	3.60	0.22
24.00	**4.86**	**3.64**	0.20
25.00	4.86	3.64	0.00
26.00	4.86	3.64	0.00
27.00	4.86	3.64	0.00
28.00	4.86	3.64	0.00
29.00	4.86	3.64	0.00
30.00	4.86	3.64	0.00
31.00	4.86	3.64	0.00
32.00	4.86	3.64	0.00
33.00	4.86	3.64	0.00
34.00	4.86	3.64	0.00
35.00	4.86	3.64	0.00
36.00	4.86	3.64	0.00
37.00	4.86	3.64	0.00
38.00	4.86	3.64	0.00
39.00	4.86	3.64	0.00
40.00	4.86	3.64	0.00
41.00	4.86	3.64	0.00
42.00	4.86	3.64	0.00
43.00	4.86	3.64	0.00
44.00	4.86	3.64	0.00
45.00	4.86	3.64	0.00
46.00	4.86	3.64	0.00
47.00	4.86	3.64	0.00
48.00	4.86	3.64	0.00
49.00	4.86	3.64	0.00
50.00	4.86	3.64	0.00
51.00	4.86	3.64	0.00
52.00	4.86	3.64	0.00
53.00	4.86	3.64	0.00
54.00	4.86	3.64	0.00
55.00	4.86	3.64	0.00
56.00	4.86	3.64	0.00
57.00	4.86	3.64	0.00
58.00	4.86	3.64	0.00
59.00	4.86	3.64	0.00
60.00	4.86	3.64	0.00
61.00	4.86	3.64	0.00
62.00	4.86	3.64	0.00
63.00	4.86	3.64	0.00
64.00	4.86	3.64	0.00
65.00	4.86	3.64	0.00
66.00	4.86	3.64	0.00
67.00	4.86	3.64	0.00
68.00	4.86	3.64	0.00
69.00	4.86	3.64	0.00
70.00	4.86	3.64	0.00
71.00	4.86	3.64	0.00
72.00	4.86	3.64	0.00
73.00	4.86	3.64	0.00
74.00	4.86	3.64	0.00
75.00	4.86	3.64	0.00
76.00	4.86	3.64	0.00
77.00	4.86	3.64	0.00
78.00	4.86	3.64	0.00
79.00	4.86	3.64	0.00
80.00	4.86	3.64	0.00
81.00	4.86	3.64	0.00
82.00	4.86	3.64	0.00
83.00	4.86	3.64	0.00
84.00	4.86	3.64	0.00
85.00	4.86	3.64	0.00
86.00	4.86	3.64	0.00
87.00	4.86	3.64	0.00
88.00	4.86	3.64	0.00
89.00	4.86	3.64	0.00
90.00	4.86	3.64	0.00
91.00	4.86	3.64	0.00
92.00	4.86	3.64	0.00
93.00	4.86	3.64	0.00
94.00	4.86	3.64	0.00
95.00	4.86	3.64	0.00
96.00	4.86	3.64	0.00

Summary for Subcatchment PR-D2: Prop. Watershed D2

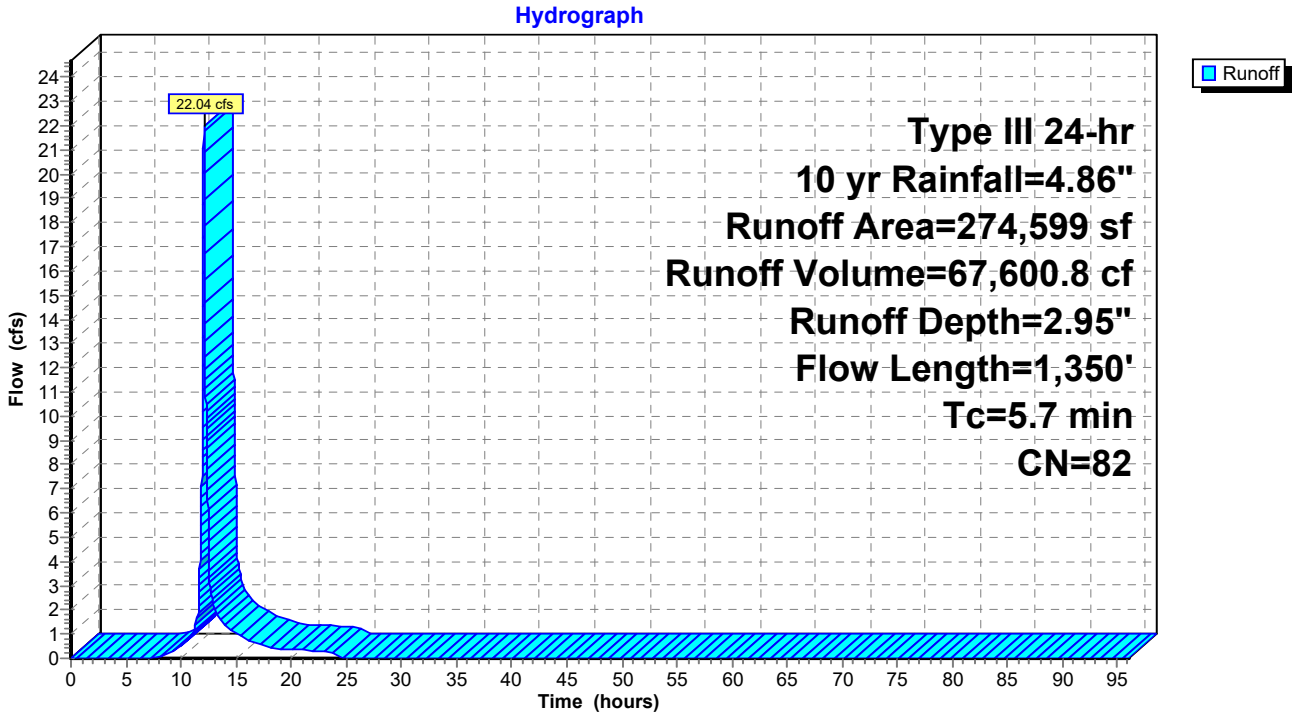
Runoff = 22.04 cfs @ 12.08 hrs, Volume= 67,600.8 cf, Depth= 2.95"
Routed to Pond SWM-3 : Cultec 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	191,226	98	Pavement
*	3,868	98	Conc walk
*	4,480	90	Perv Pavers
	75,025	39	>75% Grass cover, Good, HSG A
	274,599	82	Weighted Average
	79,505		28.95% Pervious Area
	195,094		71.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
1.0	124	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	84	0.0090	4.30	3.38	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.3	97	0.0090	4.99	6.13	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.4	116	0.0070	4.40	5.40	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.6	212	0.0070	6.02	18.93	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.7	218	0.0050	5.09	16.00	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.1	219	0.5000	59.09	290.03	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	193	0.0060	6.47	31.77	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.1	37	0.0060	6.47	31.77	**Pipe Channel, J-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
5.7	1,350	Total			

Subcatchment PR-D2: Prop. Watershed D2



Hydrograph for Subcatchment PR-D2: Prop. Watershed D2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.01	0.07
9.00	0.71	0.03	0.22
10.00	0.92	0.09	0.47
11.00	1.22	0.20	0.97
12.00	2.43	0.95	**13.24**
13.00	3.64	1.90	**2.09**
14.00	3.94	2.15	1.34
15.00	4.15	2.33	1.02
16.00	4.31	2.47	0.72
17.00	4.42	2.57	0.58
18.00	4.51	2.64	0.45
19.00	4.58	2.71	0.40
20.00	4.65	2.77	0.36
21.00	4.71	2.82	0.33
22.00	4.77	2.87	0.30
23.00	4.82	2.91	0.27
24.00	**4.86**	**2.95**	0.24
25.00	4.86	2.95	0.00
26.00	4.86	2.95	0.00
27.00	4.86	2.95	0.00
28.00	4.86	2.95	0.00
29.00	4.86	2.95	0.00
30.00	4.86	2.95	0.00
31.00	4.86	2.95	0.00
32.00	4.86	2.95	0.00
33.00	4.86	2.95	0.00
34.00	4.86	2.95	0.00
35.00	4.86	2.95	0.00
36.00	4.86	2.95	0.00
37.00	4.86	2.95	0.00
38.00	4.86	2.95	0.00
39.00	4.86	2.95	0.00
40.00	4.86	2.95	0.00
41.00	4.86	2.95	0.00
42.00	4.86	2.95	0.00
43.00	4.86	2.95	0.00
44.00	4.86	2.95	0.00
45.00	4.86	2.95	0.00
46.00	4.86	2.95	0.00
47.00	4.86	2.95	0.00
48.00	4.86	2.95	0.00
49.00	4.86	2.95	0.00
50.00	4.86	2.95	0.00
51.00	4.86	2.95	0.00
52.00	4.86	2.95	0.00
53.00	4.86	2.95	0.00
54.00	4.86	2.95	0.00
55.00	4.86	2.95	0.00
56.00	4.86	2.95	0.00
57.00	4.86	2.95	0.00
58.00	4.86	2.95	0.00
59.00	4.86	2.95	0.00
60.00	4.86	2.95	0.00
61.00	4.86	2.95	0.00
62.00	4.86	2.95	0.00
63.00	4.86	2.95	0.00
64.00	4.86	2.95	0.00
65.00	4.86	2.95	0.00
66.00	4.86	2.95	0.00
67.00	4.86	2.95	0.00
68.00	4.86	2.95	0.00
69.00	4.86	2.95	0.00
70.00	4.86	2.95	0.00
71.00	4.86	2.95	0.00
72.00	4.86	2.95	0.00
73.00	4.86	2.95	0.00
74.00	4.86	2.95	0.00
75.00	4.86	2.95	0.00
76.00	4.86	2.95	0.00
77.00	4.86	2.95	0.00
78.00	4.86	2.95	0.00
79.00	4.86	2.95	0.00
80.00	4.86	2.95	0.00
81.00	4.86	2.95	0.00
82.00	4.86	2.95	0.00
83.00	4.86	2.95	0.00
84.00	4.86	2.95	0.00
85.00	4.86	2.95	0.00
86.00	4.86	2.95	0.00
87.00	4.86	2.95	0.00
88.00	4.86	2.95	0.00
89.00	4.86	2.95	0.00
90.00	4.86	2.95	0.00
91.00	4.86	2.95	0.00
92.00	4.86	2.95	0.00
93.00	4.86	2.95	0.00
94.00	4.86	2.95	0.00
95.00	4.86	2.95	0.00
96.00	4.86	2.95	0.00

Summary for Subcatchment PR-D3: Prop. Watershed D3

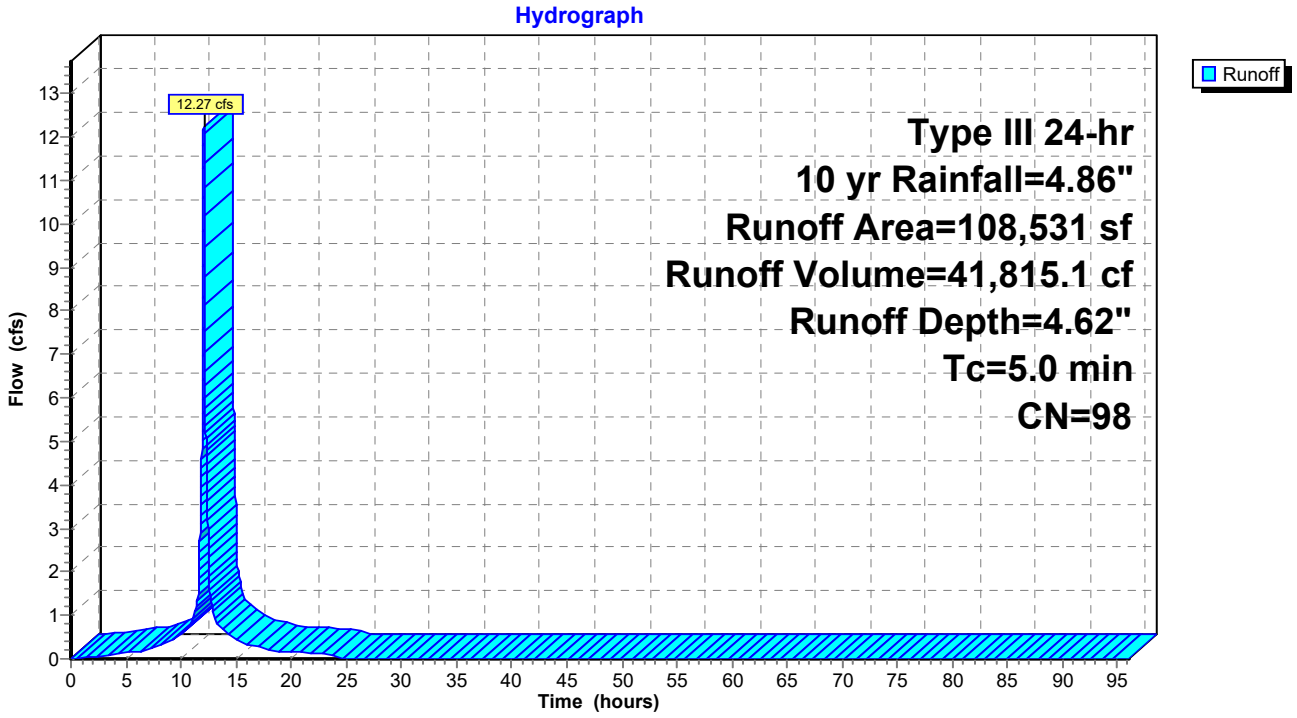
Runoff = 12.27 cfs @ 12.07 hrs, Volume= 41,815.1 cf, Depth= 4.62"
Routed to Pond SWM-6 : Cultec 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	108,531	98	Building 1 - North
	108,531		100.00% Impervious Area

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

Subcatchment PR-D3: Prop. Watershed D3



Hydrograph for Subcatchment PR-D3: Prop. Watershed D3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.86	4.62	0.00
1.00	0.05	0.00	0.00	53.00	4.86	4.62	0.00
2.00	0.10	0.01	0.04	54.00	4.86	4.62	0.00
3.00	0.15	0.04	0.08	55.00	4.86	4.62	0.00
4.00	0.21	0.08	0.11	56.00	4.86	4.62	0.00
5.00	0.28	0.13	0.14	57.00	4.86	4.62	0.00
6.00	0.35	0.19	0.16	58.00	4.86	4.62	0.00
7.00	0.44	0.26	0.22	59.00	4.86	4.62	0.00
8.00	0.55	0.37	0.29	60.00	4.86	4.62	0.00
9.00	0.71	0.51	0.42	61.00	4.86	4.62	0.00
10.00	0.92	0.71	0.57	62.00	4.86	4.62	0.00
11.00	1.22	1.00	0.85	63.00	4.86	4.62	0.00
12.00	2.43	2.20	**8.29**	64.00	4.86	4.62	0.00
13.00	3.64	3.41	**0.98**	65.00	4.86	4.62	0.00
14.00	3.94	3.71	0.62	66.00	4.86	4.62	0.00
15.00	4.15	3.92	0.47	67.00	4.86	4.62	0.00
16.00	4.31	4.07	0.33	68.00	4.86	4.62	0.00
17.00	4.42	4.18	0.26	69.00	4.86	4.62	0.00
18.00	4.51	4.27	0.20	70.00	4.86	4.62	0.00
19.00	4.58	4.35	0.18	71.00	4.86	4.62	0.00
20.00	4.65	4.41	0.16	72.00	4.86	4.62	0.00
21.00	4.71	4.48	0.15	73.00	4.86	4.62	0.00
22.00	4.77	4.53	0.13	74.00	4.86	4.62	0.00
23.00	4.82	4.58	0.12	75.00	4.86	4.62	0.00
24.00	**4.86**	**4.62**	0.10	76.00	4.86	4.62	0.00
25.00	4.86	4.62	0.00	77.00	4.86	4.62	0.00
26.00	4.86	4.62	0.00	78.00	4.86	4.62	0.00
27.00	4.86	4.62	0.00	79.00	4.86	4.62	0.00
28.00	4.86	4.62	0.00	80.00	4.86	4.62	0.00
29.00	4.86	4.62	0.00	81.00	4.86	4.62	0.00
30.00	4.86	4.62	0.00	82.00	4.86	4.62	0.00
31.00	4.86	4.62	0.00	83.00	4.86	4.62	0.00
32.00	4.86	4.62	0.00	84.00	4.86	4.62	0.00
33.00	4.86	4.62	0.00	85.00	4.86	4.62	0.00
34.00	4.86	4.62	0.00	86.00	4.86	4.62	0.00
35.00	4.86	4.62	0.00	87.00	4.86	4.62	0.00
36.00	4.86	4.62	0.00	88.00	4.86	4.62	0.00
37.00	4.86	4.62	0.00	89.00	4.86	4.62	0.00
38.00	4.86	4.62	0.00	90.00	4.86	4.62	0.00
39.00	4.86	4.62	0.00	91.00	4.86	4.62	0.00
40.00	4.86	4.62	0.00	92.00	4.86	4.62	0.00
41.00	4.86	4.62	0.00	93.00	4.86	4.62	0.00
42.00	4.86	4.62	0.00	94.00	4.86	4.62	0.00
43.00	4.86	4.62	0.00	95.00	4.86	4.62	0.00
44.00	4.86	4.62	0.00	96.00	4.86	4.62	0.00
45.00	4.86	4.62	0.00				
46.00	4.86	4.62	0.00				
47.00	4.86	4.62	0.00				
48.00	4.86	4.62	0.00				
49.00	4.86	4.62	0.00				
50.00	4.86	4.62	0.00				
51.00	4.86	4.62	0.00				

Summary for Subcatchment PR-D4: Prop. Watershed D4

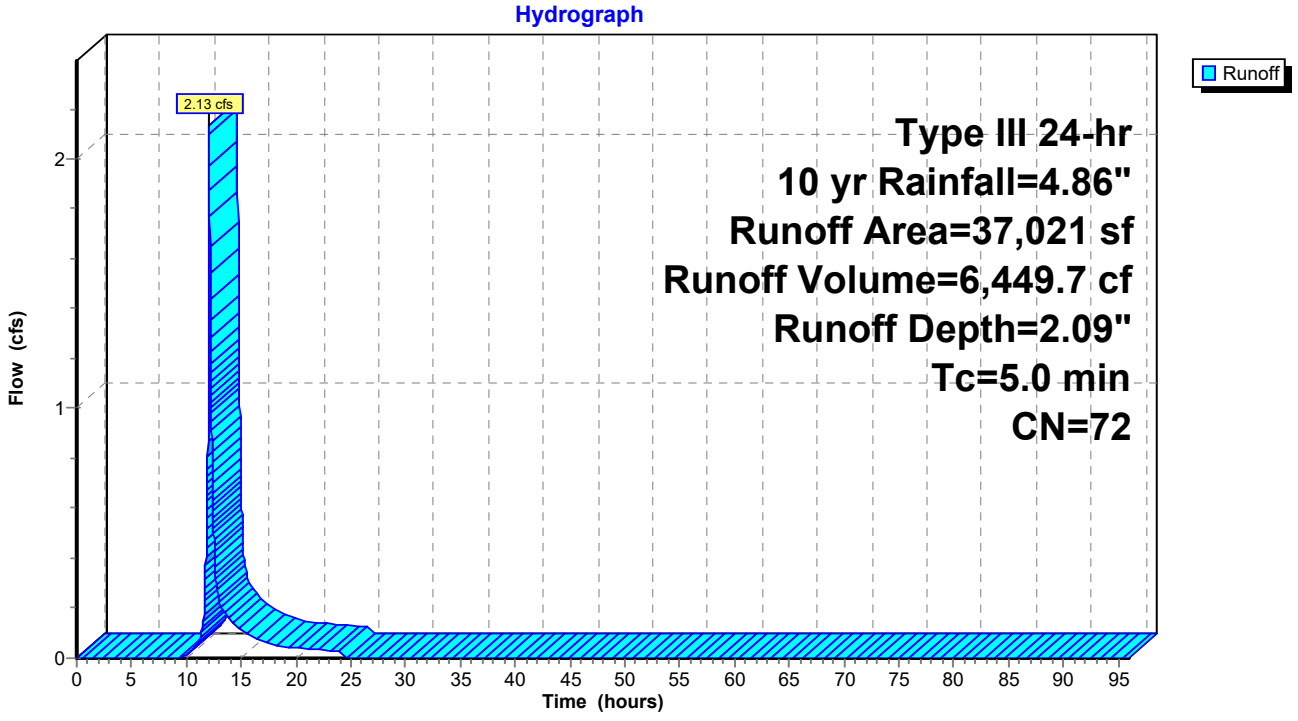
Runoff = 2.13 cfs @ 12.08 hrs, Volume= 6,449.7 cf, Depth= 2.09"
Routed to Pond SWM-4 : Cultec 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	20,670	98	Pavement
	16,351	39	>75% Grass cover, Good, HSG A
	37,021	72	Weighted Average
	16,351		44.17% Pervious Area
	20,670		55.83% Impervious Area

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

Subcatchment PR-D4: Prop. Watershed D4



Hydrograph for Subcatchment PR-D4: Prop. Watershed D4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.00	0.00
9.00	0.71	0.00	0.00
10.00	0.92	0.00	0.01
11.00	1.22	0.04	0.05
12.00	2.43	0.49	**1.28**
13.00	3.64	1.22	**0.22**
14.00	3.94	1.42	0.15
15.00	4.15	1.57	0.11
16.00	4.31	1.68	0.08
17.00	4.42	1.76	0.07
18.00	4.51	1.83	0.05
19.00	4.58	1.88	0.05
20.00	4.65	1.93	0.04
21.00	4.71	1.98	0.04
22.00	4.77	2.02	0.03
23.00	4.82	2.06	0.03
24.00	**4.86**	**2.09**	0.03
25.00	4.86	2.09	0.00
26.00	4.86	2.09	0.00
27.00	4.86	2.09	0.00
28.00	4.86	2.09	0.00
29.00	4.86	2.09	0.00
30.00	4.86	2.09	0.00
31.00	4.86	2.09	0.00
32.00	4.86	2.09	0.00
33.00	4.86	2.09	0.00
34.00	4.86	2.09	0.00
35.00	4.86	2.09	0.00
36.00	4.86	2.09	0.00
37.00	4.86	2.09	0.00
38.00	4.86	2.09	0.00
39.00	4.86	2.09	0.00
40.00	4.86	2.09	0.00
41.00	4.86	2.09	0.00
42.00	4.86	2.09	0.00
43.00	4.86	2.09	0.00
44.00	4.86	2.09	0.00
45.00	4.86	2.09	0.00
46.00	4.86	2.09	0.00
47.00	4.86	2.09	0.00
48.00	4.86	2.09	0.00
49.00	4.86	2.09	0.00
50.00	4.86	2.09	0.00
51.00	4.86	2.09	0.00
52.00	4.86	2.09	0.00
53.00	4.86	2.09	0.00
54.00	4.86	2.09	0.00
55.00	4.86	2.09	0.00
56.00	4.86	2.09	0.00
57.00	4.86	2.09	0.00
58.00	4.86	2.09	0.00
59.00	4.86	2.09	0.00
60.00	4.86	2.09	0.00
61.00	4.86	2.09	0.00
62.00	4.86	2.09	0.00
63.00	4.86	2.09	0.00
64.00	4.86	2.09	0.00
65.00	4.86	2.09	0.00
66.00	4.86	2.09	0.00
67.00	4.86	2.09	0.00
68.00	4.86	2.09	0.00
69.00	4.86	2.09	0.00
70.00	4.86	2.09	0.00
71.00	4.86	2.09	0.00
72.00	4.86	2.09	0.00
73.00	4.86	2.09	0.00
74.00	4.86	2.09	0.00
75.00	4.86	2.09	0.00
76.00	4.86	2.09	0.00
77.00	4.86	2.09	0.00
78.00	4.86	2.09	0.00
79.00	4.86	2.09	0.00
80.00	4.86	2.09	0.00
81.00	4.86	2.09	0.00
82.00	4.86	2.09	0.00
83.00	4.86	2.09	0.00
84.00	4.86	2.09	0.00
85.00	4.86	2.09	0.00
86.00	4.86	2.09	0.00
87.00	4.86	2.09	0.00
88.00	4.86	2.09	0.00
89.00	4.86	2.09	0.00
90.00	4.86	2.09	0.00
91.00	4.86	2.09	0.00
92.00	4.86	2.09	0.00
93.00	4.86	2.09	0.00
94.00	4.86	2.09	0.00
95.00	4.86	2.09	0.00
96.00	4.86	2.09	0.00

Summary for Subcatchment PR-D5: Prop. Watershed D5

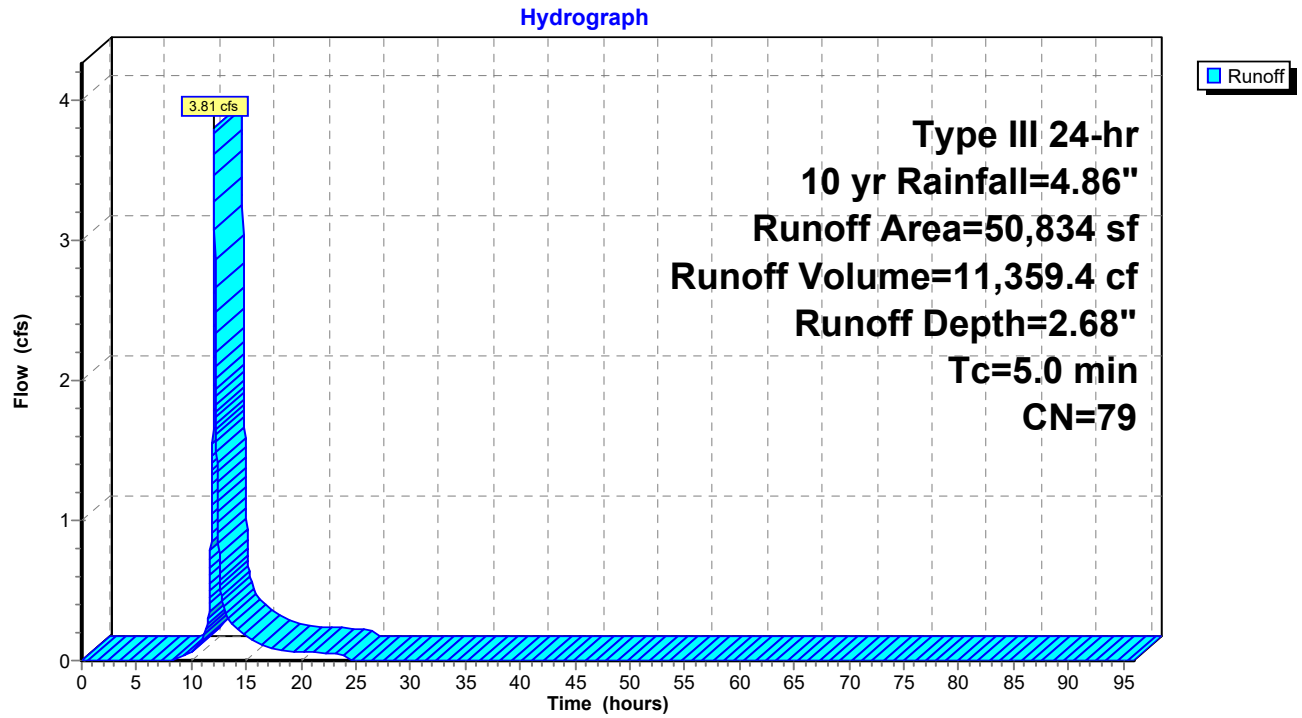
Runoff = 3.81 cfs @ 12.07 hrs, Volume= 11,359.4 cf, Depth= 2.68"
Routed to Pond RG1 : Rain-Garden #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

Area (sf)	CN	Description
34,446	98	Unconnected pavement, HSG A
16,388	39	>75% Grass cover, Good, HSG A
50,834	79	Weighted Average
16,388		32.24% Pervious Area
34,446		67.76% Impervious Area
34,446		100.00% Unconnected

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

Subcatchment PR-D5: Prop. Watershed D5



Hydrograph for Subcatchment PR-D5: Prop. Watershed D5

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.86	2.68	0.00
1.00	0.05	0.00	0.00	53.00	4.86	2.68	0.00
2.00	0.10	0.00	0.00	54.00	4.86	2.68	0.00
3.00	0.15	0.00	0.00	55.00	4.86	2.68	0.00
4.00	0.21	0.00	0.00	56.00	4.86	2.68	0.00
5.00	0.28	0.00	0.00	57.00	4.86	2.68	0.00
6.00	0.35	0.00	0.00	58.00	4.86	2.68	0.00
7.00	0.44	0.00	0.00	59.00	4.86	2.68	0.00
8.00	0.55	0.00	0.00	60.00	4.86	2.68	0.00
9.00	0.71	0.01	0.02	61.00	4.86	2.68	0.00
10.00	0.92	0.05	0.06	62.00	4.86	2.68	0.00
11.00	1.22	0.14	0.15	63.00	4.86	2.68	0.00
12.00	2.43	0.79	**2.38**	64.00	4.86	2.68	0.00
13.00	3.64	1.68	**0.36**	65.00	4.86	2.68	0.00
14.00	3.94	1.92	0.23	66.00	4.86	2.68	0.00
15.00	4.15	2.09	0.18	67.00	4.86	2.68	0.00
16.00	4.31	2.21	0.13	68.00	4.86	2.68	0.00
17.00	4.42	2.31	0.10	69.00	4.86	2.68	0.00
18.00	4.51	2.38	0.08	70.00	4.86	2.68	0.00
19.00	4.58	2.45	0.07	71.00	4.86	2.68	0.00
20.00	4.65	2.50	0.06	72.00	4.86	2.68	0.00
21.00	4.71	2.55	0.06	73.00	4.86	2.68	0.00
22.00	4.77	2.60	0.05	74.00	4.86	2.68	0.00
23.00	4.82	2.64	0.05	75.00	4.86	2.68	0.00
24.00	**4.86**	**2.68**	0.04	76.00	4.86	2.68	0.00
25.00	4.86	2.68	0.00	77.00	4.86	2.68	0.00
26.00	4.86	2.68	0.00	78.00	4.86	2.68	0.00
27.00	4.86	2.68	0.00	79.00	4.86	2.68	0.00
28.00	4.86	2.68	0.00	80.00	4.86	2.68	0.00
29.00	4.86	2.68	0.00	81.00	4.86	2.68	0.00
30.00	4.86	2.68	0.00	82.00	4.86	2.68	0.00
31.00	4.86	2.68	0.00	83.00	4.86	2.68	0.00
32.00	4.86	2.68	0.00	84.00	4.86	2.68	0.00
33.00	4.86	2.68	0.00	85.00	4.86	2.68	0.00
34.00	4.86	2.68	0.00	86.00	4.86	2.68	0.00
35.00	4.86	2.68	0.00	87.00	4.86	2.68	0.00
36.00	4.86	2.68	0.00	88.00	4.86	2.68	0.00
37.00	4.86	2.68	0.00	89.00	4.86	2.68	0.00
38.00	4.86	2.68	0.00	90.00	4.86	2.68	0.00
39.00	4.86	2.68	0.00	91.00	4.86	2.68	0.00
40.00	4.86	2.68	0.00	92.00	4.86	2.68	0.00
41.00	4.86	2.68	0.00	93.00	4.86	2.68	0.00
42.00	4.86	2.68	0.00	94.00	4.86	2.68	0.00
43.00	4.86	2.68	0.00	95.00	4.86	2.68	0.00
44.00	4.86	2.68	0.00	96.00	4.86	2.68	0.00
45.00	4.86	2.68	0.00				
46.00	4.86	2.68	0.00				
47.00	4.86	2.68	0.00				
48.00	4.86	2.68	0.00				
49.00	4.86	2.68	0.00				
50.00	4.86	2.68	0.00				
51.00	4.86	2.68	0.00				

Summary for Subcatchment PR-D6: Prop. Watershed D6

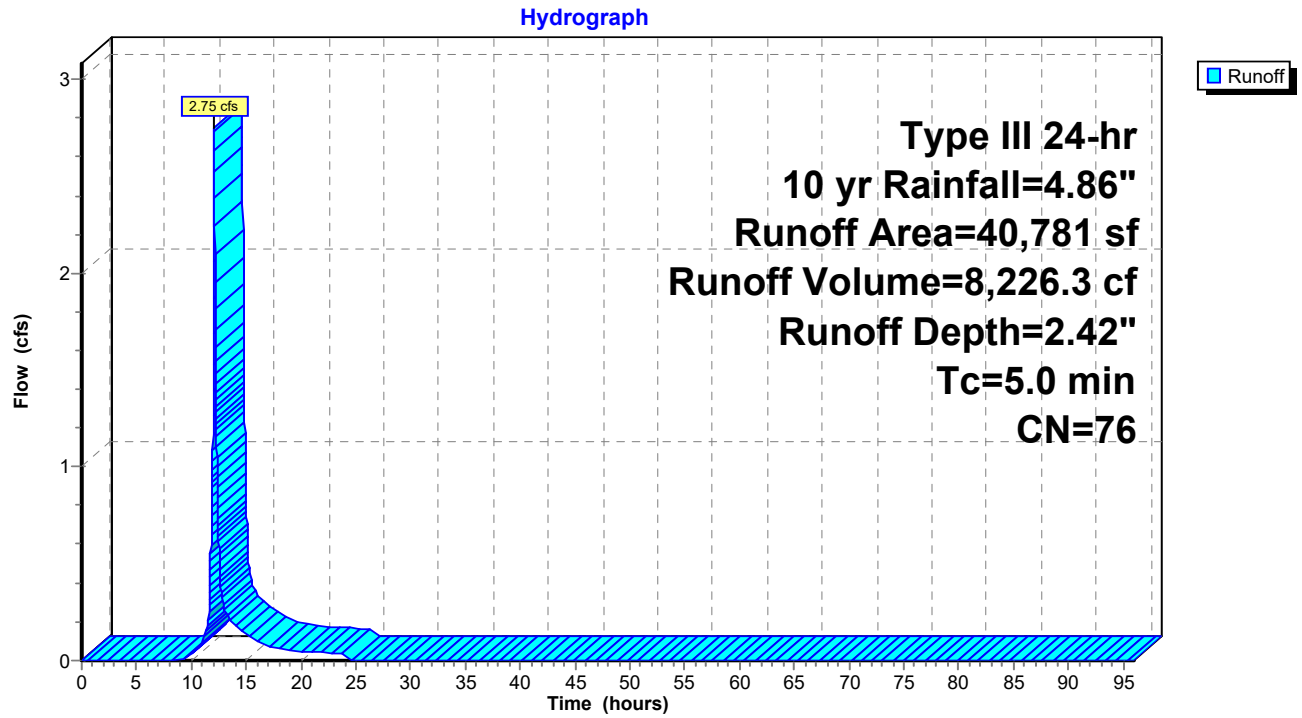
Runoff = 2.75 cfs @ 12.08 hrs, Volume= 8,226.3 cf, Depth= 2.42"
Routed to Pond RG2 : Rain-Garden #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

Area (sf)	CN	Description
25,487	98	Unconnected pavement, HSG A
15,294	39	>75% Grass cover, Good, HSG A
40,781	76	Weighted Average
15,294		37.50% Pervious Area
25,487		62.50% Impervious Area
25,487		100.00% Unconnected

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

Subcatchment PR-D6: Prop. Watershed D6



Hydrograph for Subcatchment PR-D6: Prop. Watershed D6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.86	2.42	0.00
1.00	0.05	0.00	0.00	53.00	4.86	2.42	0.00
2.00	0.10	0.00	0.00	54.00	4.86	2.42	0.00
3.00	0.15	0.00	0.00	55.00	4.86	2.42	0.00
4.00	0.21	0.00	0.00	56.00	4.86	2.42	0.00
5.00	0.28	0.00	0.00	57.00	4.86	2.42	0.00
6.00	0.35	0.00	0.00	58.00	4.86	2.42	0.00
7.00	0.44	0.00	0.00	59.00	4.86	2.42	0.00
8.00	0.55	0.00	0.00	60.00	4.86	2.42	0.00
9.00	0.71	0.00	0.01	61.00	4.86	2.42	0.00
10.00	0.92	0.02	0.03	62.00	4.86	2.42	0.00
11.00	1.22	0.09	0.09	63.00	4.86	2.42	0.00
12.00	2.43	0.65	**1.69**	64.00	4.86	2.42	0.00
13.00	3.64	1.47	**0.27**	65.00	4.86	2.42	0.00
14.00	3.94	1.69	0.18	66.00	4.86	2.42	0.00
15.00	4.15	1.86	0.14	67.00	4.86	2.42	0.00
16.00	4.31	1.98	0.10	68.00	4.86	2.42	0.00
17.00	4.42	2.07	0.08	69.00	4.86	2.42	0.00
18.00	4.51	2.14	0.06	70.00	4.86	2.42	0.00
19.00	4.58	2.20	0.05	71.00	4.86	2.42	0.00
20.00	4.65	2.25	0.05	72.00	4.86	2.42	0.00
21.00	4.71	2.30	0.04	73.00	4.86	2.42	0.00
22.00	4.77	2.34	0.04	74.00	4.86	2.42	0.00
23.00	4.82	2.38	0.04	75.00	4.86	2.42	0.00
24.00	**4.86**	**2.42**	0.03	76.00	4.86	2.42	0.00
25.00	4.86	2.42	0.00	77.00	4.86	2.42	0.00
26.00	4.86	2.42	0.00	78.00	4.86	2.42	0.00
27.00	4.86	2.42	0.00	79.00	4.86	2.42	0.00
28.00	4.86	2.42	0.00	80.00	4.86	2.42	0.00
29.00	4.86	2.42	0.00	81.00	4.86	2.42	0.00
30.00	4.86	2.42	0.00	82.00	4.86	2.42	0.00
31.00	4.86	2.42	0.00	83.00	4.86	2.42	0.00
32.00	4.86	2.42	0.00	84.00	4.86	2.42	0.00
33.00	4.86	2.42	0.00	85.00	4.86	2.42	0.00
34.00	4.86	2.42	0.00	86.00	4.86	2.42	0.00
35.00	4.86	2.42	0.00	87.00	4.86	2.42	0.00
36.00	4.86	2.42	0.00	88.00	4.86	2.42	0.00
37.00	4.86	2.42	0.00	89.00	4.86	2.42	0.00
38.00	4.86	2.42	0.00	90.00	4.86	2.42	0.00
39.00	4.86	2.42	0.00	91.00	4.86	2.42	0.00
40.00	4.86	2.42	0.00	92.00	4.86	2.42	0.00
41.00	4.86	2.42	0.00	93.00	4.86	2.42	0.00
42.00	4.86	2.42	0.00	94.00	4.86	2.42	0.00
43.00	4.86	2.42	0.00	95.00	4.86	2.42	0.00
44.00	4.86	2.42	0.00	96.00	4.86	2.42	0.00
45.00	4.86	2.42	0.00				
46.00	4.86	2.42	0.00				
47.00	4.86	2.42	0.00				
48.00	4.86	2.42	0.00				
49.00	4.86	2.42	0.00				
50.00	4.86	2.42	0.00				
51.00	4.86	2.42	0.00				

Summary for Subcatchment PR-D7: Prop. Watershed D7

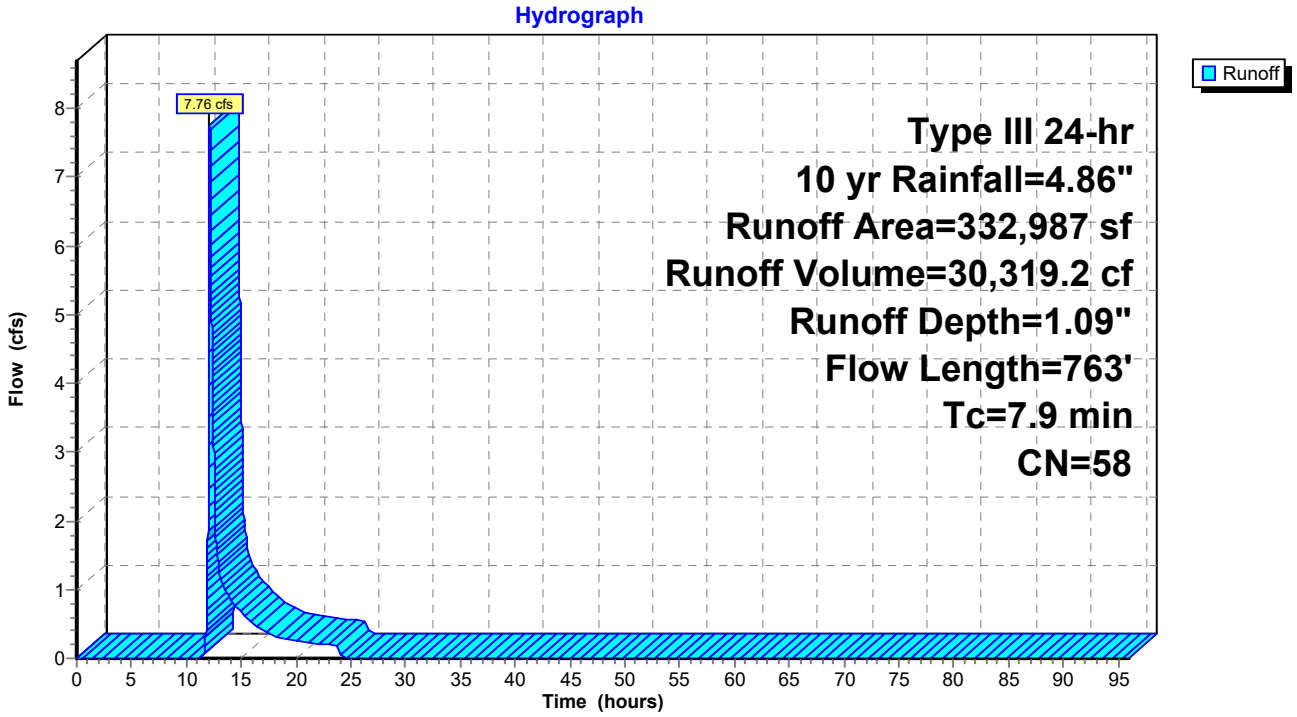
Runoff = 7.76 cfs @ 12.13 hrs, Volume= 30,319.2 cf, Depth= 1.09"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	105,210	98	Pavement
*	4,930	98	Walkway Ramp/steps
	204,310	39	>75% Grass cover, Good, HSG A
*	18,537	36	Woods, Fair, HSG A
	332,987	58	Weighted Average
	222,847		66.92% Pervious Area
	110,140		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.2	52	0.0670	4.17		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.0	66	0.0030	1.11		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	78	0.0064	4.21	5.17	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.7	170	0.0035	3.90	9.37	**Pipe Channel, E-F** 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.013
0.4	121	0.0041	4.61	14.49	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.3	145	0.0055	8.48	106.53	**Pipe Channel, G-H** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	40	0.0050	8.08	101.57	**Pipe Channel, H-I** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	41	0.0054	6.93	49.01	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.013
7.9	763	Total			

Subcatchment PR-D7: Prop. Watershed D7



Hydrograph for Subcatchment PR-D7: Prop. Watershed D7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.05	0.00	0.00
2.00	0.10	0.00	0.00
3.00	0.15	0.00	0.00
4.00	0.21	0.00	0.00
5.00	0.28	0.00	0.00
6.00	0.35	0.00	0.00
7.00	0.44	0.00	0.00
8.00	0.55	0.00	0.00
9.00	0.71	0.00	0.00
10.00	0.92	0.00	0.00
11.00	1.22	0.00	0.00
12.00	2.43	0.12	**2.77**
13.00	3.64	0.51	**1.28**
14.00	3.94	0.64	0.86
15.00	4.15	0.73	0.68
16.00	4.31	0.81	0.50
17.00	4.42	0.86	0.40
18.00	4.51	0.91	0.31
19.00	4.58	0.95	0.28
20.00	4.65	0.98	0.26
21.00	4.71	1.01	0.24
22.00	4.77	1.04	0.22
23.00	4.82	1.07	0.20
24.00	**4.86**	**1.09**	0.17
25.00	4.86	1.09	0.00
26.00	4.86	1.09	0.00
27.00	4.86	1.09	0.00
28.00	4.86	1.09	0.00
29.00	4.86	1.09	0.00
30.00	4.86	1.09	0.00
31.00	4.86	1.09	0.00
32.00	4.86	1.09	0.00
33.00	4.86	1.09	0.00
34.00	4.86	1.09	0.00
35.00	4.86	1.09	0.00
36.00	4.86	1.09	0.00
37.00	4.86	1.09	0.00
38.00	4.86	1.09	0.00
39.00	4.86	1.09	0.00
40.00	4.86	1.09	0.00
41.00	4.86	1.09	0.00
42.00	4.86	1.09	0.00
43.00	4.86	1.09	0.00
44.00	4.86	1.09	0.00
45.00	4.86	1.09	0.00
46.00	4.86	1.09	0.00
47.00	4.86	1.09	0.00
48.00	4.86	1.09	0.00
49.00	4.86	1.09	0.00
50.00	4.86	1.09	0.00
51.00	4.86	1.09	0.00
52.00	4.86	1.09	0.00
53.00	4.86	1.09	0.00
54.00	4.86	1.09	0.00
55.00	4.86	1.09	0.00
56.00	4.86	1.09	0.00
57.00	4.86	1.09	0.00
58.00	4.86	1.09	0.00
59.00	4.86	1.09	0.00
60.00	4.86	1.09	0.00
61.00	4.86	1.09	0.00
62.00	4.86	1.09	0.00
63.00	4.86	1.09	0.00
64.00	4.86	1.09	0.00
65.00	4.86	1.09	0.00
66.00	4.86	1.09	0.00
67.00	4.86	1.09	0.00
68.00	4.86	1.09	0.00
69.00	4.86	1.09	0.00
70.00	4.86	1.09	0.00
71.00	4.86	1.09	0.00
72.00	4.86	1.09	0.00
73.00	4.86	1.09	0.00
74.00	4.86	1.09	0.00
75.00	4.86	1.09	0.00
76.00	4.86	1.09	0.00
77.00	4.86	1.09	0.00
78.00	4.86	1.09	0.00
79.00	4.86	1.09	0.00
80.00	4.86	1.09	0.00
81.00	4.86	1.09	0.00
82.00	4.86	1.09	0.00
83.00	4.86	1.09	0.00
84.00	4.86	1.09	0.00
85.00	4.86	1.09	0.00
86.00	4.86	1.09	0.00
87.00	4.86	1.09	0.00
88.00	4.86	1.09	0.00
89.00	4.86	1.09	0.00
90.00	4.86	1.09	0.00
91.00	4.86	1.09	0.00
92.00	4.86	1.09	0.00
93.00	4.86	1.09	0.00
94.00	4.86	1.09	0.00
95.00	4.86	1.09	0.00
96.00	4.86	1.09	0.00

Summary for Subcatchment PR-D8: Prop. Watershed D8

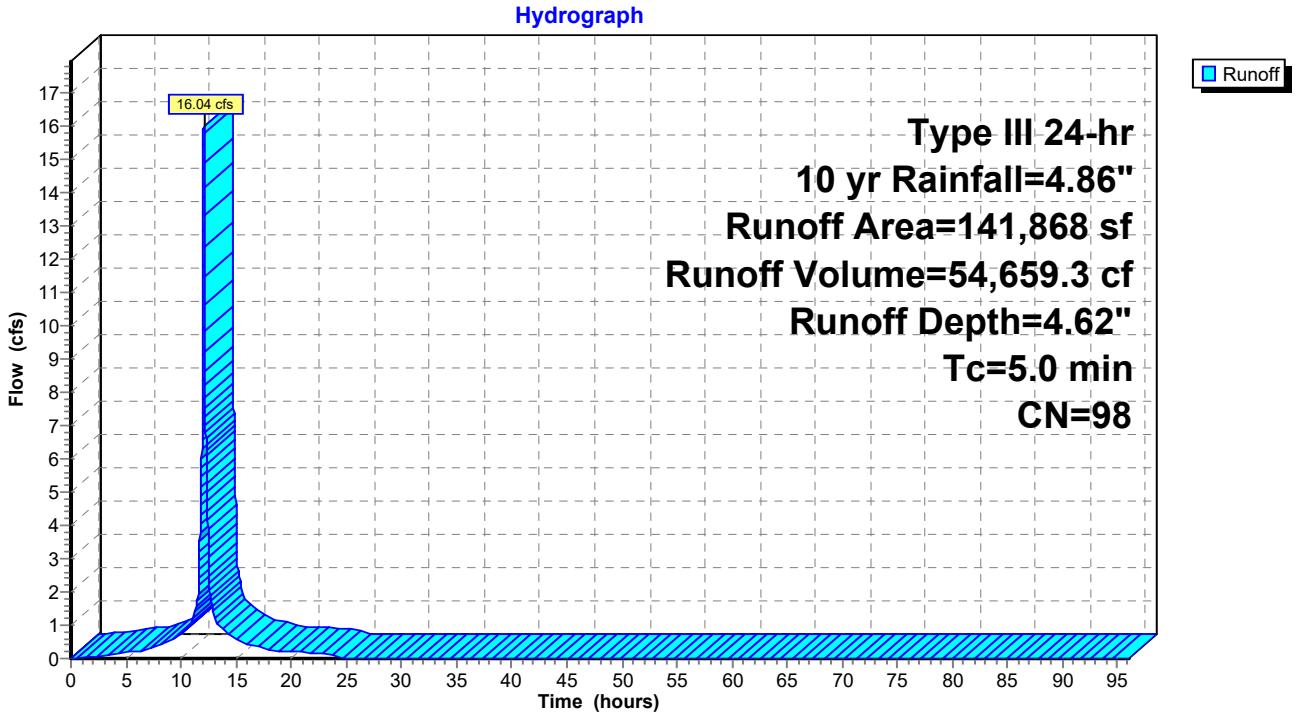
Runoff = 16.04 cfs @ 12.07 hrs, Volume= 54,659.3 cf, Depth= 4.62"
Routed to Pond SWM-2 : Cultec 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.86"

	Area (sf)	CN	Description
*	107,416	98	Building 1 - South
*	34,452	98	Building 2 - North
	141,868	98	Weighted Average
	141,868		100.00% Impervious Area

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

Subcatchment PR-D8: Prop. Watershed D8



Hydrograph for Subcatchment PR-D8: Prop. Watershed D8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.86	4.62	0.00
1.00	0.05	0.00	0.01	53.00	4.86	4.62	0.00
2.00	0.10	0.01	0.06	54.00	4.86	4.62	0.00
3.00	0.15	0.04	0.10	55.00	4.86	4.62	0.00
4.00	0.21	0.08	0.14	56.00	4.86	4.62	0.00
5.00	0.28	0.13	0.18	57.00	4.86	4.62	0.00
6.00	0.35	0.19	0.21	58.00	4.86	4.62	0.00
7.00	0.44	0.26	0.29	59.00	4.86	4.62	0.00
8.00	0.55	0.37	0.37	60.00	4.86	4.62	0.00
9.00	0.71	0.51	0.55	61.00	4.86	4.62	0.00
10.00	0.92	0.71	0.74	62.00	4.86	4.62	0.00
11.00	1.22	1.00	1.11	63.00	4.86	4.62	0.00
12.00	2.43	2.20	**10.84**	64.00	4.86	4.62	0.00
13.00	3.64	3.41	**1.27**	65.00	4.86	4.62	0.00
14.00	3.94	3.71	0.81	66.00	4.86	4.62	0.00
15.00	4.15	3.92	0.61	67.00	4.86	4.62	0.00
16.00	4.31	4.07	0.43	68.00	4.86	4.62	0.00
17.00	4.42	4.18	0.34	69.00	4.86	4.62	0.00
18.00	4.51	4.27	0.26	70.00	4.86	4.62	0.00
19.00	4.58	4.35	0.23	71.00	4.86	4.62	0.00
20.00	4.65	4.41	0.21	72.00	4.86	4.62	0.00
21.00	4.71	4.48	0.19	73.00	4.86	4.62	0.00
22.00	4.77	4.53	0.17	74.00	4.86	4.62	0.00
23.00	4.82	4.58	0.15	75.00	4.86	4.62	0.00
24.00	**4.86**	**4.62**	0.14	76.00	4.86	4.62	0.00
25.00	4.86	4.62	0.00	77.00	4.86	4.62	0.00
26.00	4.86	4.62	0.00	78.00	4.86	4.62	0.00
27.00	4.86	4.62	0.00	79.00	4.86	4.62	0.00
28.00	4.86	4.62	0.00	80.00	4.86	4.62	0.00
29.00	4.86	4.62	0.00	81.00	4.86	4.62	0.00
30.00	4.86	4.62	0.00	82.00	4.86	4.62	0.00
31.00	4.86	4.62	0.00	83.00	4.86	4.62	0.00
32.00	4.86	4.62	0.00	84.00	4.86	4.62	0.00
33.00	4.86	4.62	0.00	85.00	4.86	4.62	0.00
34.00	4.86	4.62	0.00	86.00	4.86	4.62	0.00
35.00	4.86	4.62	0.00	87.00	4.86	4.62	0.00
36.00	4.86	4.62	0.00	88.00	4.86	4.62	0.00
37.00	4.86	4.62	0.00	89.00	4.86	4.62	0.00
38.00	4.86	4.62	0.00	90.00	4.86	4.62	0.00
39.00	4.86	4.62	0.00	91.00	4.86	4.62	0.00
40.00	4.86	4.62	0.00	92.00	4.86	4.62	0.00
41.00	4.86	4.62	0.00	93.00	4.86	4.62	0.00
42.00	4.86	4.62	0.00	94.00	4.86	4.62	0.00
43.00	4.86	4.62	0.00	95.00	4.86	4.62	0.00
44.00	4.86	4.62	0.00	96.00	4.86	4.62	0.00
45.00	4.86	4.62	0.00				
46.00	4.86	4.62	0.00				
47.00	4.86	4.62	0.00				
48.00	4.86	4.62	0.00				
49.00	4.86	4.62	0.00				
50.00	4.86	4.62	0.00				
51.00	4.86	4.62	0.00				

Summary for Pond FP: Fire Pond Weir

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 1.16" for 10 yr event
Inflow = 22.90 cfs @ 12.16 hrs, Volume= 115,894.8 cf
Outflow = 4.92 cfs @ 13.58 hrs, Volume= 115,894.8 cf, Atten= 78%, Lag= 85.3 min
Primary = 4.92 cfs @ 13.58 hrs, Volume= 115,894.8 cf
Routed to Link POA D : WETLAND-NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 244.83' @ 13.58 hrs Surf.Area= 62,904 sf Storage= 281,550.1 cf (50,569.9 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 118.0 min (931.2 - 813.1)

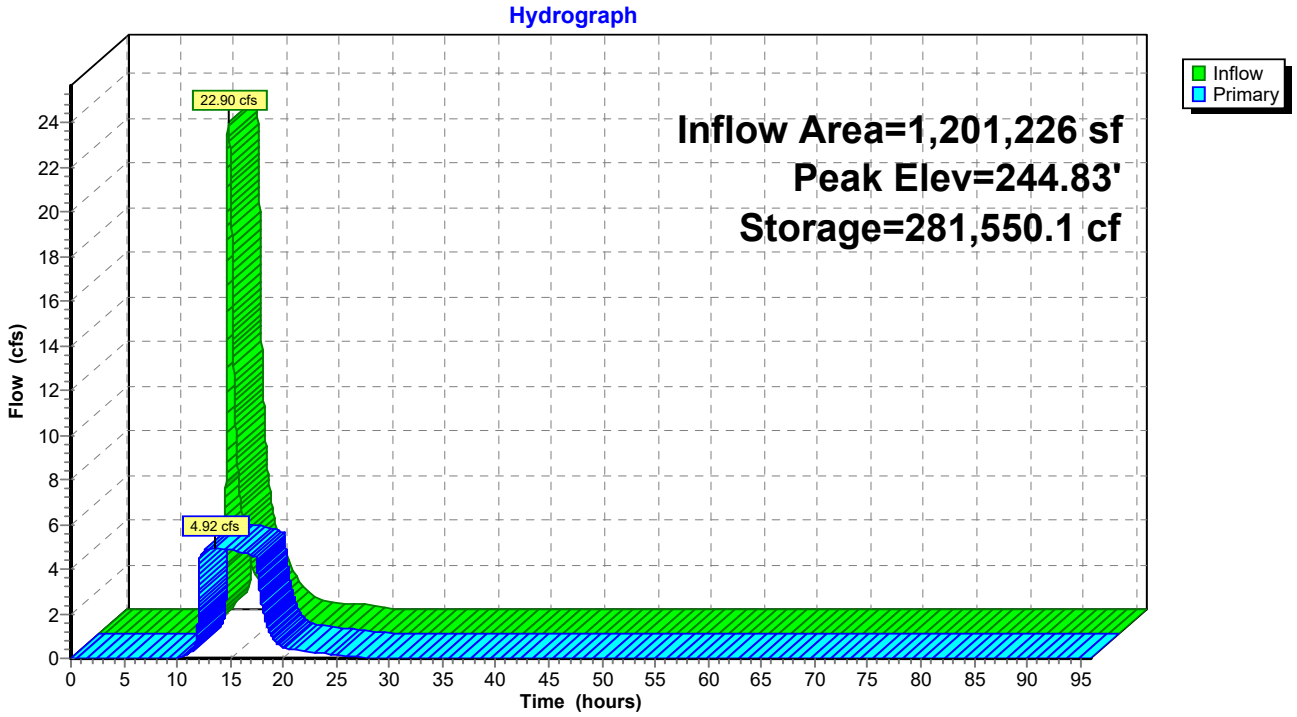
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

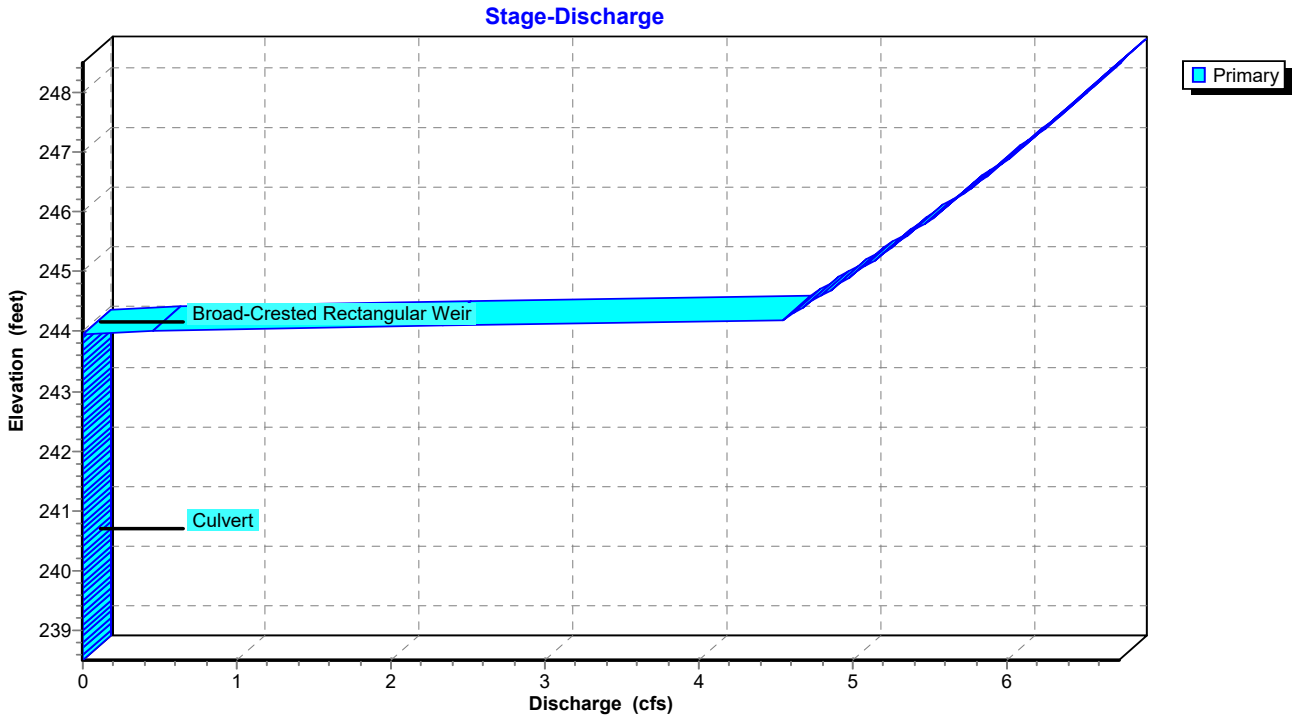
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=4.92 cfs @ 13.58 hrs HW=244.83' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 4.92 cfs @ 6.27 fps)
↑—**1=Broad-Crested Rectangular Weir** (Passes 4.92 cfs of 37.64 cfs potential flow)

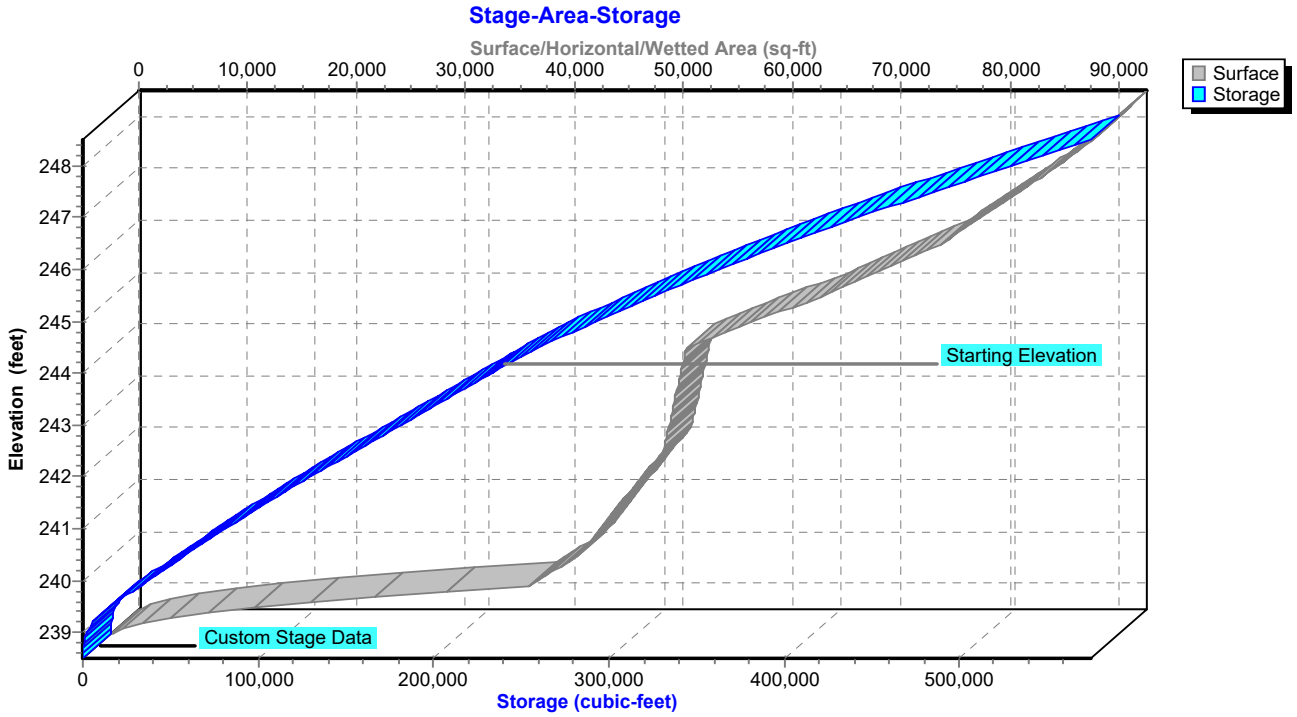
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.00	230,980.2	243.95	0.00
10.00	0.01	230,980.7	243.95	0.00
12.00	**8.99**	**237,687.7**	**244.08**	**1.89**
14.00	**3.83**	**280,713.8**	**244.82**	**4.92**
16.00	1.44	263,629.9	244.54	4.75
18.00	0.47	239,022.9	244.10	2.37
20.00	0.29	233,705.4	244.00	0.48
22.00	0.22	232,787.2	243.98	0.31
24.00	0.17	232,300.2	243.98	0.23
26.00	0.00	231,389.7	243.96	0.07
28.00	0.00	231,100.0	243.95	0.02
30.00	0.00	231,015.3	243.95	0.01
32.00	0.00	230,990.5	243.95	0.00
34.00	0.00	230,983.2	243.95	0.00
36.00	0.00	230,981.1	243.95	0.00
38.00	0.00	230,980.5	243.95	0.00
40.00	0.00	230,980.3	243.95	0.00
42.00	0.00	230,980.2	243.95	0.00
44.00	0.00	230,980.2	243.95	0.00
46.00	0.00	230,980.2	243.95	0.00
48.00	0.00	230,980.2	243.95	0.00
50.00	0.00	230,980.2	243.95	0.00
52.00	0.00	230,980.2	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Pond RG1: Rain-Garden #1

Inflow Area = 50,834 sf, 67.76% Impervious, Inflow Depth = 2.68" for 10 yr event
Inflow = 3.81 cfs @ 12.07 hrs, Volume= 11,359.4 cf
Outflow = 2.60 cfs @ 12.15 hrs, Volume= 11,359.4 cf, Atten= 32%, Lag= 4.8 min
Discarded = 0.06 cfs @ 10.09 hrs, Volume= 6,116.5 cf
Primary = 2.54 cfs @ 12.15 hrs, Volume= 5,242.9 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 250.01' @ 12.15 hrs Surf.Area= 4,088 sf Storage= 3,322.1 cf

Plug-Flow detention time= 301.4 min calculated for 11,358.2 cf (100% of inflow)
Center-of-Mass det. time= 301.4 min (1,126.2 - 824.8)

Volume	Invert	Avail.Storage	Storage Description
#1	249.00'	2,491.8 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,102.2 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	83.3 cf	**12.0" Round Perforated pipe** Inside #4 L= 106.0'
#4	243.00'	638.1 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,678.5 cf Overall - 83.3 cf Embedded = 1,595.2 cf x 40.0% Voids
		4,315.3 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	1,119	0.0	0.0
249.50	1,471	647.5	647.5
250.00	1,840	827.8	1,475.3
250.50	2,226	1,016.5	2,491.8

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	1,119	0.0	0.0	0.0
244.51	1,119	40.0	4.5	4.5
245.74	1,119	40.0	550.5	555.0
245.75	1,119	15.0	1.7	556.7
248.74	1,119	15.0	501.9	1,058.6
248.75	1,119	15.0	1.7	1,060.3
249.00	1,119	15.0	42.0	1,102.2

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
243.00	1,119	0.0	0.0
244.50	1,119	1,678.5	1,678.5

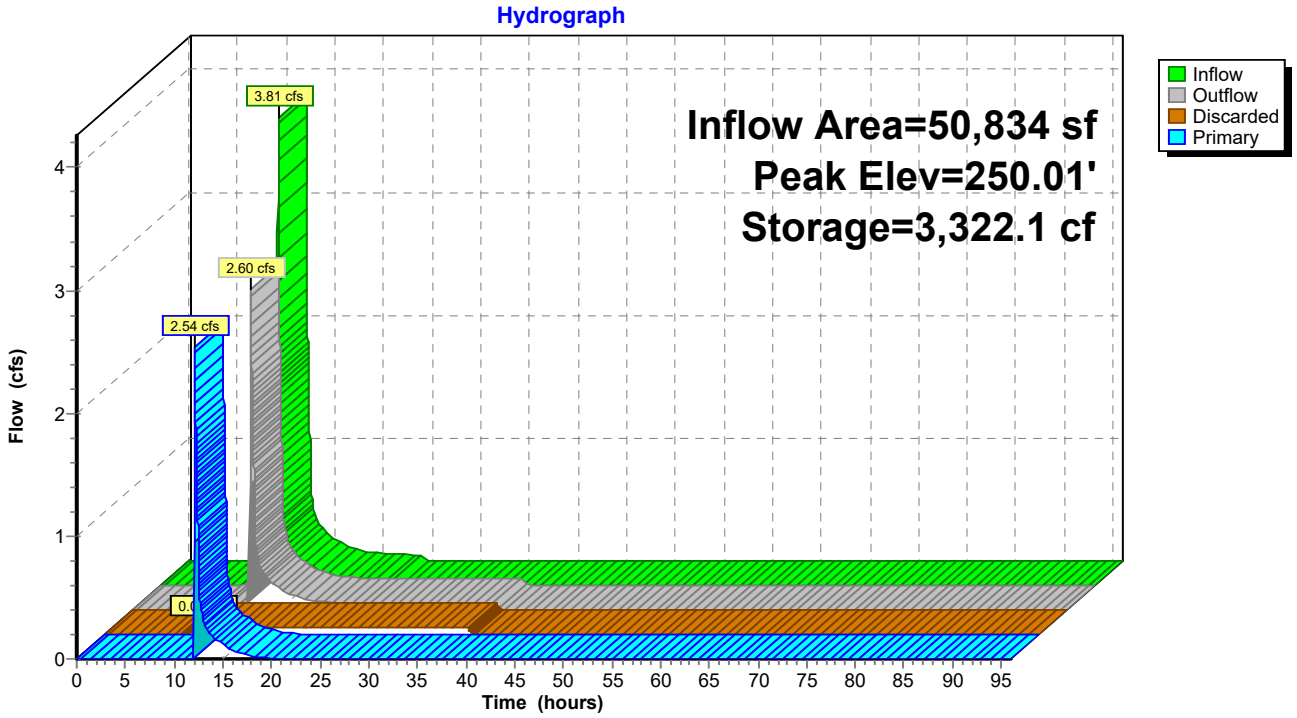
Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**0.06 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900

n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

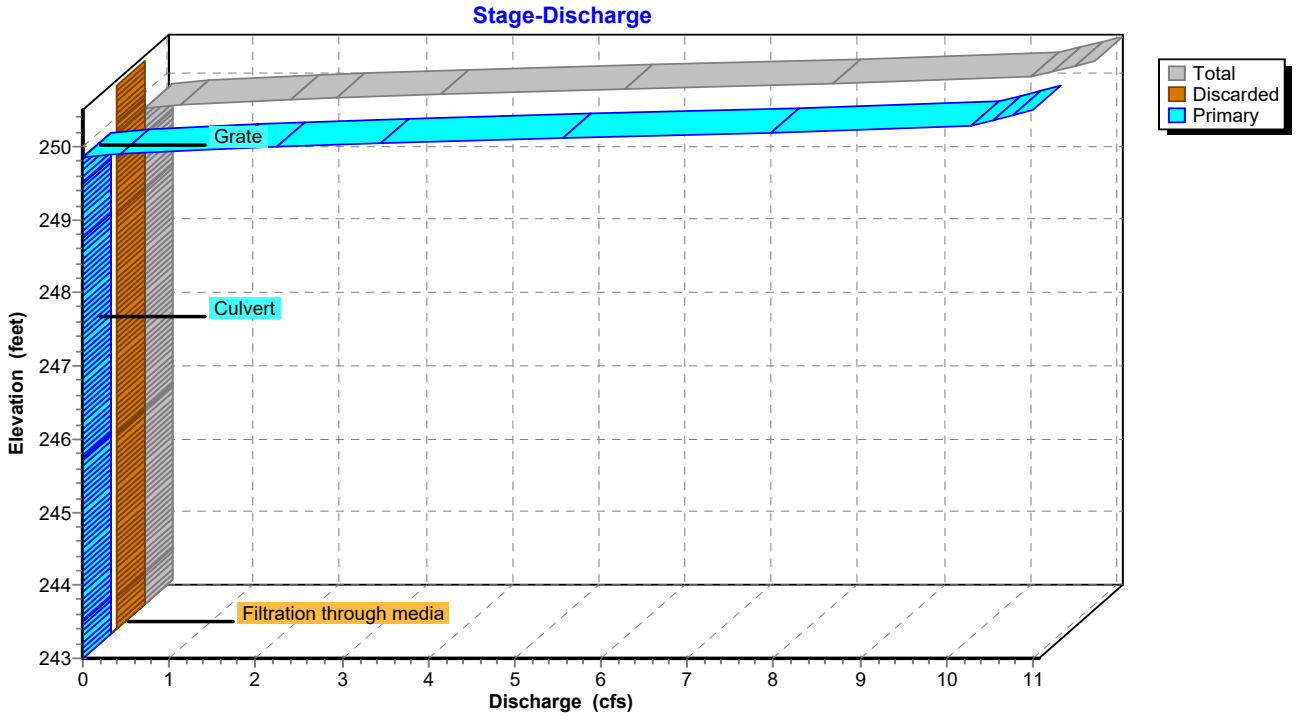
Discarded OutFlow Max=0.06 cfs @ 10.09 hrs HW=243.08' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=2.51 cfs @ 12.15 hrs HW=250.01' (Free Discharge)
└**3=Culvert** (Passes 2.51 cfs of 9.35 cfs potential flow)
└**2=Grate** (Weir Controls 2.51 cfs @ 1.32 fps)

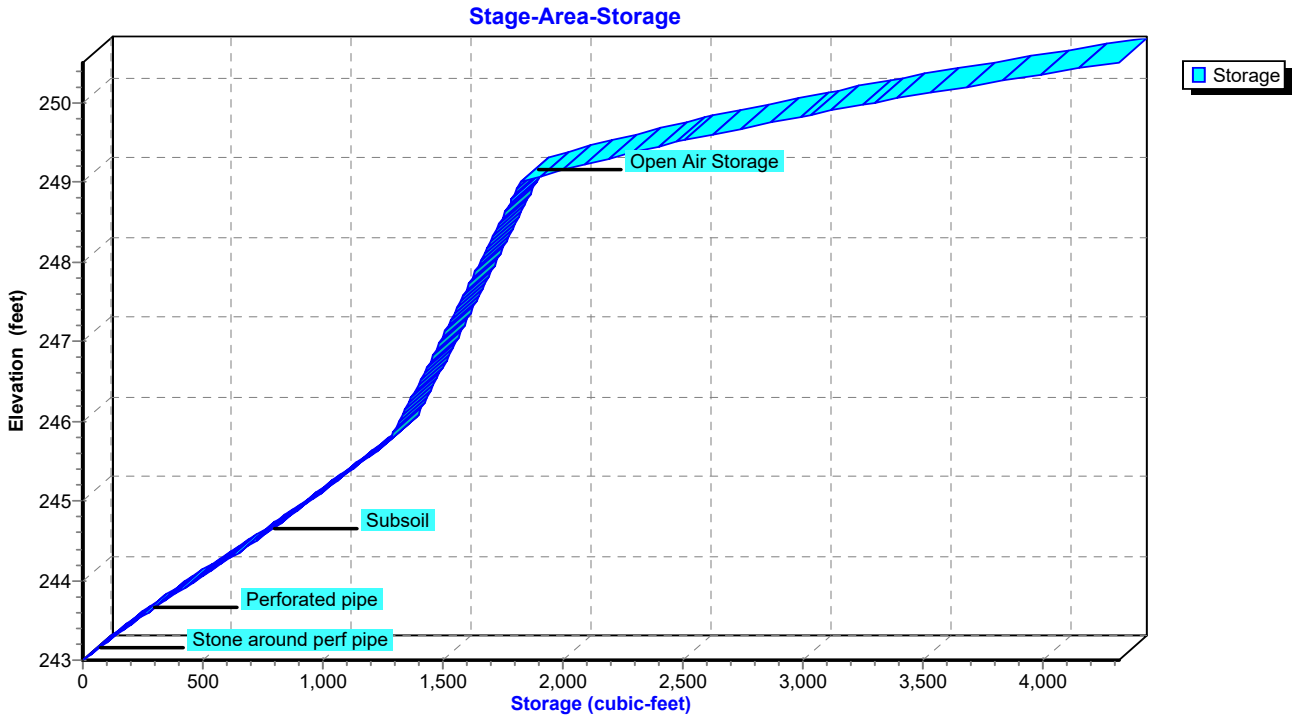
Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Hydrograph for Pond RG1: Rain-Garden #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.00	0.0	243.00	0.00	0.00	0.00
6.00	0.00	0.0	243.00	0.00	0.00	0.00
8.00	0.00	0.2	243.00	0.00	0.00	0.00
10.00	0.06	31.3	243.07	0.06	**0.06**	0.00
12.00	**2.38**	**1,882.2**	**249.05**	**0.06**	**0.06**	**0.00**
14.00	**0.23**	**3,067.8**	**249.87**	**0.24**	0.06	**0.18**
16.00	0.13	3,045.4	249.86	0.13	0.06	0.07
18.00	0.08	3,035.2	249.85	0.08	0.06	0.02
20.00	0.06	3,031.9	249.85	0.06	0.06	0.00
22.00	0.05	3,013.3	249.84	0.06	0.06	0.00
24.00	0.04	2,922.5	249.79	0.06	0.06	0.00
26.00	0.00	2,502.1	249.52	0.06	0.06	0.00
28.00	0.00	2,070.1	249.21	0.06	0.06	0.00
30.00	0.00	1,638.1	247.90	0.06	0.06	0.00
32.00	0.00	1,206.1	245.58	0.06	0.06	0.00
34.00	0.00	774.1	244.62	0.06	0.06	0.00
36.00	0.00	342.1	243.74	0.06	0.06	0.00
38.00	0.00	0.8	243.00	0.00	0.00	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond RG1: Rain-Garden #1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.06	**0.06**	0.00
243.20	0.06	0.06	0.00
243.30	0.06	0.06	0.00
243.40	0.06	0.06	0.00
243.50	0.06	0.06	0.00
243.60	0.06	0.06	0.00
243.70	0.06	0.06	0.00
243.80	0.06	0.06	0.00
243.90	0.06	0.06	0.00
244.00	0.06	0.06	0.00
244.10	0.06	0.06	0.00
244.20	0.06	0.06	0.00
244.30	0.06	0.06	0.00
244.40	0.06	0.06	0.00
244.50	0.06	0.06	0.00
244.60	0.06	0.06	0.00
244.70	0.06	0.06	0.00
244.80	0.06	0.06	0.00
244.90	0.06	0.06	0.00
245.00	0.06	0.06	0.00
245.10	0.06	0.06	0.00
245.20	0.06	0.06	0.00
245.30	0.06	0.06	0.00
245.40	0.06	0.06	0.00
245.50	0.06	0.06	0.00
245.60	0.06	0.06	0.00
245.70	0.06	0.06	0.00
245.80	0.06	0.06	0.00
245.90	0.06	0.06	0.00
246.00	0.06	0.06	0.00
246.10	0.06	0.06	0.00
246.20	0.06	0.06	0.00
246.30	0.06	0.06	0.00
246.40	0.06	0.06	0.00
246.50	0.06	0.06	0.00
246.60	0.06	0.06	0.00
246.70	0.06	0.06	0.00
246.80	0.06	0.06	0.00
246.90	0.06	0.06	0.00
247.00	0.06	0.06	0.00
247.10	0.06	0.06	0.00
247.20	0.06	0.06	0.00
247.30	0.06	0.06	0.00
247.40	0.06	0.06	0.00
247.50	0.06	0.06	0.00
247.60	0.06	0.06	0.00
247.70	0.06	0.06	0.00
247.80	0.06	0.06	0.00
247.90	0.06	0.06	0.00
248.00	0.06	0.06	0.00
248.10	0.06	0.06	0.00
248.20	0.06	0.06	0.00
248.30	0.06	0.06	0.00
248.40	0.06	0.06	0.00
248.50	0.06	0.06	0.00
248.60	0.06	0.06	0.00
248.70	0.06	0.06	0.00
248.80	0.06	0.06	0.00
248.90	0.06	0.06	0.00
249.00	0.06	0.06	0.00
249.10	0.06	0.06	0.00
249.20	0.06	0.06	0.00
249.30	0.06	0.06	0.00
249.40	0.06	0.06	0.00
249.50	0.06	0.06	0.00
249.60	0.06	0.06	0.00
249.70	0.06	0.06	0.00
249.80	0.06	0.06	0.00
249.90	0.49	0.06	0.43
250.00	2.30	0.06	2.24
250.10	4.88	0.06	4.82
250.20	8.04	0.06	7.98
250.30	10.42	0.06	10.36
250.40	10.75	0.06	10.69
250.50	**11.07**	0.06	**11.01**

Stage-Area-Storage for Pond RG1: Rain-Garden #1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
243.00	0.0	245.60	1,213.7	248.20	1,689.3
243.05	22.4	245.65	1,236.1	248.25	1,697.7
243.10	44.8	245.70	1,258.5	248.30	1,706.1
243.15	67.1	245.75	1,278.1	248.35	1,714.5
243.20	89.5	245.80	1,286.4	248.40	1,722.9
243.25	111.9	245.85	1,294.8	248.45	1,731.2
243.30	134.3	245.90	1,303.2	248.50	1,739.6
243.35	156.7	245.95	1,311.6	248.55	1,748.0
243.40	179.0	246.00	1,320.0	248.60	1,756.4
243.45	201.4	246.05	1,328.4	248.65	1,764.8
243.50	223.8	246.10	1,336.8	248.70	1,773.2
243.55	247.1	246.15	1,345.2	248.75	1,781.6
243.60	271.2	246.20	1,353.6	248.80	1,790.0
243.65	295.6	246.25	1,362.0	248.85	1,798.4
243.70	320.4	246.30	1,370.4	248.90	1,806.8
243.75	345.5	246.35	1,378.8	248.95	1,815.2
243.80	370.7	246.40	1,387.2	249.00	1,823.6
243.85	396.0	246.45	1,395.5	249.05	1,880.4
243.90	421.5	246.50	1,403.9	249.10	1,939.0
243.95	447.0	246.55	1,412.3	249.15	1,999.3
244.00	472.6	246.60	1,420.7	249.20	2,061.4
244.05	498.1	246.65	1,429.1	249.25	2,125.3
244.10	523.7	246.70	1,437.5	249.30	2,190.9
244.15	549.1	246.75	1,445.9	249.35	2,258.3
244.20	574.5	246.80	1,454.3	249.40	2,327.5
244.25	599.7	246.85	1,462.7	249.45	2,398.4
244.30	624.7	246.90	1,471.1	249.50	2,471.1
244.35	649.5	246.95	1,479.5	249.55	2,545.5
244.40	674.0	247.00	1,487.9	249.60	2,621.9
244.45	698.0	247.05	1,496.3	249.65	2,700.0
244.50	721.4	247.10	1,504.7	249.70	2,780.0
244.55	743.7	247.15	1,513.0	249.75	2,861.9
244.60	766.1	247.20	1,521.4	249.80	2,945.6
244.65	788.5	247.25	1,529.8	249.85	3,031.1
244.70	810.9	247.30	1,538.2	249.90	3,118.5
244.75	833.3	247.35	1,546.6	249.95	3,207.7
244.80	855.6	247.40	1,555.0	250.00	3,298.8
244.85	878.0	247.45	1,563.4	250.05	3,391.8
244.90	900.4	247.50	1,571.8	250.10	3,486.7
244.95	922.8	247.55	1,580.2	250.15	3,583.5
245.00	945.2	247.60	1,588.6	250.20	3,682.3
245.05	967.5	247.65	1,597.0	250.25	3,782.9
245.10	989.9	247.70	1,605.4	250.30	3,885.6
245.15	1,012.3	247.75	1,613.8	250.35	3,990.1
245.20	1,034.7	247.80	1,622.1	250.40	4,096.6
245.25	1,057.1	247.85	1,630.5	250.45	4,205.0
245.30	1,079.4	247.90	1,638.9	250.50	**4,315.3**
245.35	1,101.8	247.95	1,647.3		
245.40	1,124.2	248.00	1,655.7		
245.45	1,146.6	248.05	1,664.1		
245.50	1,169.0	248.10	1,672.5		
245.55	1,191.3	248.15	1,680.9		

Summary for Pond RG2: Rain-Garden #2

Inflow Area = 40,781 sf, 62.50% Impervious, Inflow Depth = 2.42" for 10 yr event
Inflow = 2.75 cfs @ 12.08 hrs, Volume= 8,226.3 cf
Outflow = 1.54 cfs @ 12.19 hrs, Volume= 8,226.3 cf, Atten= 44%, Lag= 6.9 min
Discarded = 0.05 cfs @ 10.51 hrs, Volume= 4,675.6 cf
Primary = 1.49 cfs @ 12.19 hrs, Volume= 3,550.7 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 250.00' @ 12.19 hrs Surf.Area= 3,179 sf Storage= 2,444.9 cf

Plug-Flow detention time= 290.0 min calculated for 8,225.5 cf (100% of inflow)
Center-of-Mass det. time= 290.0 min (1,122.8 - 832.7)

Volume	Invert	Avail.Storage	Storage Description
#1	249.50'	1,404.5 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,179.1 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	133.5 cf	**12.0" Round Perforated pipe** Inside #4 L= 170.0'
#4	242.50'	585.0 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,596.0 cf Overall - 133.5 cf Embedded = 1,462.5 cf x 40.0% Voids
		3,302.1 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.50	803	0.0	0.0
250.00	1,386	547.3	547.3
250.50	2,043	857.3	1,404.5

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	995	0.0	0.0	0.0
244.51	995	40.0	4.0	4.0
246.24	995	40.0	688.5	692.5
246.25	995	15.0	1.5	694.0
249.24	995	15.0	446.3	1,140.3
249.25	995	15.0	1.5	1,141.8
249.50	995	15.0	37.3	1,179.1

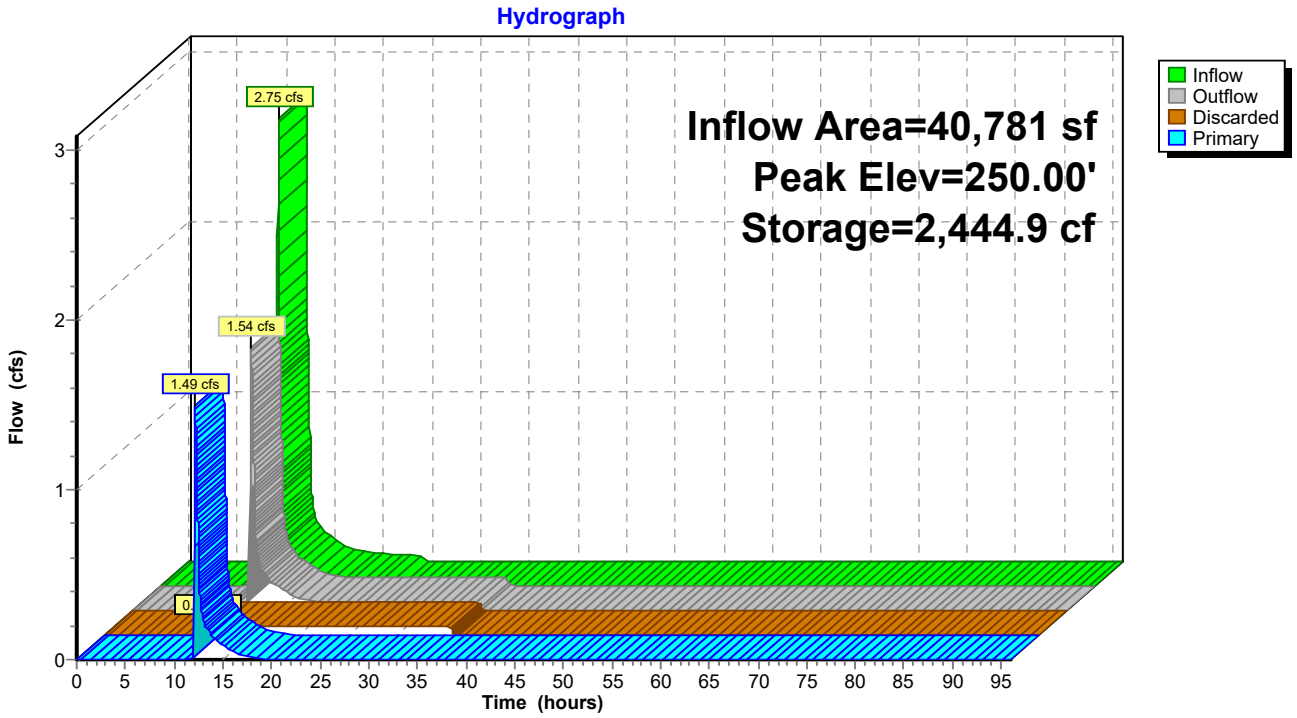
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	798	0.0	0.0
244.50	798	1,596.0	1,596.0

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.05 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

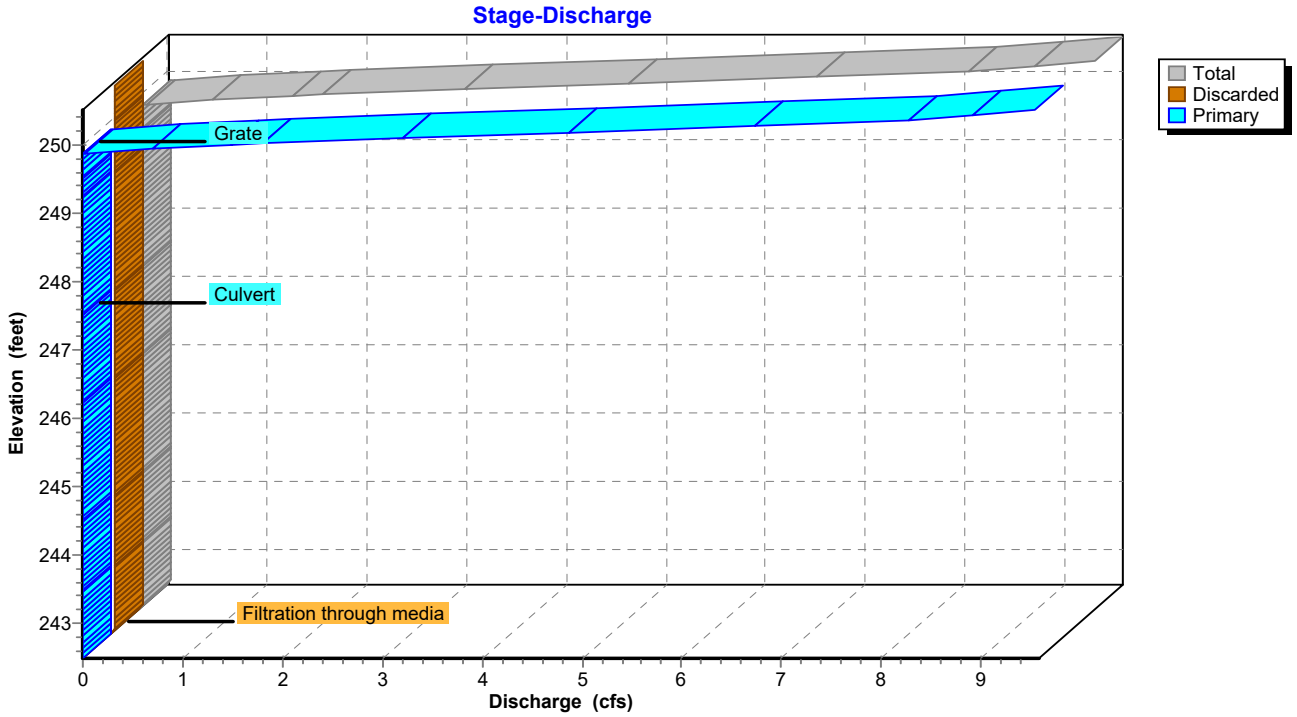
Discarded OutFlow Max=0.05 cfs @ 10.51 hrs HW=242.58' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=1.49 cfs @ 12.19 hrs HW=250.00' (Free Discharge)
└**3=Culvert** (Passes 1.49 cfs of 9.30 cfs potential flow)
└**2=Grate** (Weir Controls 1.49 cfs @ 1.27 fps)

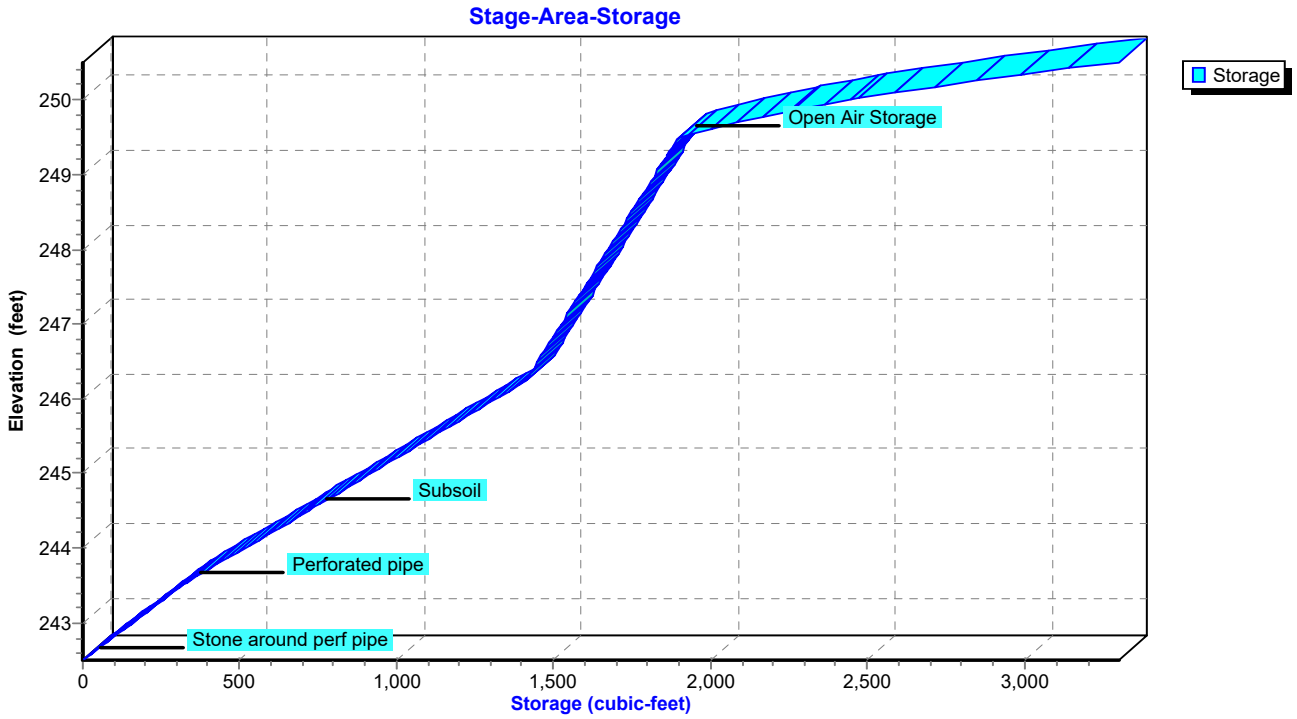
Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Hydrograph for Pond RG2: Rain-Garden #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	242.50	0.00	0.00	0.00
2.00	0.00	0.0	242.50	0.00	0.00	0.00
4.00	0.00	0.0	242.50	0.00	0.00	0.00
6.00	0.00	0.0	242.50	0.00	0.00	0.00
8.00	0.00	0.0	242.50	0.00	0.00	0.00
10.00	0.03	14.7	242.55	0.03	**0.03**	0.00
12.00	**1.69**	**1,193.7**	**245.69**	**0.05**	**0.05**	**0.00**
14.00	**0.18**	**2,278.2**	**249.87**	**0.18**	0.05	**0.13**
16.00	0.10	2,265.7	249.86	0.10	0.05	0.05
18.00	0.06	2,255.9	249.85	0.06	0.05	0.01
20.00	0.05	2,249.5	249.85	0.05	0.05	0.00
22.00	0.04	2,209.2	249.82	0.05	0.05	0.00
24.00	0.03	2,110.6	249.73	0.05	0.05	0.00
26.00	0.00	1,759.5	248.57	0.05	0.05	0.00
28.00	0.00	1,399.5	246.21	0.05	0.05	0.00
30.00	0.00	1,039.5	245.31	0.05	0.05	0.00
32.00	0.00	679.5	244.39	0.05	0.05	0.00
34.00	0.00	319.5	243.50	0.05	0.05	0.00
36.00	0.00	1.9	242.51	0.00	0.00	0.00
38.00	0.00	0.0	242.50	0.00	0.00	0.00
40.00	0.00	0.0	242.50	0.00	0.00	0.00
42.00	0.00	0.0	242.50	0.00	0.00	0.00
44.00	0.00	0.0	242.50	0.00	0.00	0.00
46.00	0.00	0.0	242.50	0.00	0.00	0.00
48.00	0.00	0.0	242.50	0.00	0.00	0.00
50.00	0.00	0.0	242.50	0.00	0.00	0.00
52.00	0.00	0.0	242.50	0.00	0.00	0.00
54.00	0.00	0.0	242.50	0.00	0.00	0.00
56.00	0.00	0.0	242.50	0.00	0.00	0.00
58.00	0.00	0.0	242.50	0.00	0.00	0.00
60.00	0.00	0.0	242.50	0.00	0.00	0.00
62.00	0.00	0.0	242.50	0.00	0.00	0.00
64.00	0.00	0.0	242.50	0.00	0.00	0.00
66.00	0.00	0.0	242.50	0.00	0.00	0.00
68.00	0.00	0.0	242.50	0.00	0.00	0.00
70.00	0.00	0.0	242.50	0.00	0.00	0.00
72.00	0.00	0.0	242.50	0.00	0.00	0.00
74.00	0.00	0.0	242.50	0.00	0.00	0.00
76.00	0.00	0.0	242.50	0.00	0.00	0.00
78.00	0.00	0.0	242.50	0.00	0.00	0.00
80.00	0.00	0.0	242.50	0.00	0.00	0.00
82.00	0.00	0.0	242.50	0.00	0.00	0.00
84.00	0.00	0.0	242.50	0.00	0.00	0.00
86.00	0.00	0.0	242.50	0.00	0.00	0.00
88.00	0.00	0.0	242.50	0.00	0.00	0.00
90.00	0.00	0.0	242.50	0.00	0.00	0.00
92.00	0.00	0.0	242.50	0.00	0.00	0.00
94.00	0.00	0.0	242.50	0.00	0.00	0.00
96.00	0.00	0.0	242.50	0.00	0.00	0.00

Stage-Discharge for Pond RG2: Rain-Garden #2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
242.50	0.00	**0.00**	0.00
242.60	0.05	**0.05**	0.00
242.70	0.05	0.05	0.00
242.80	0.05	0.05	0.00
242.90	0.05	0.05	0.00
243.00	0.05	0.05	0.00
243.10	0.05	0.05	0.00
243.20	0.05	0.05	0.00
243.30	0.05	0.05	0.00
243.40	0.05	0.05	0.00
243.50	0.05	0.05	0.00
243.60	0.05	0.05	0.00
243.70	0.05	0.05	0.00
243.80	0.05	0.05	0.00
243.90	0.05	0.05	0.00
244.00	0.05	0.05	0.00
244.10	0.05	0.05	0.00
244.20	0.05	0.05	0.00
244.30	0.05	0.05	0.00
244.40	0.05	0.05	0.00
244.50	0.05	0.05	0.00
244.60	0.05	0.05	0.00
244.70	0.05	0.05	0.00
244.80	0.05	0.05	0.00
244.90	0.05	0.05	0.00
245.00	0.05	0.05	0.00
245.10	0.05	0.05	0.00
245.20	0.05	0.05	0.00
245.30	0.05	0.05	0.00
245.40	0.05	0.05	0.00
245.50	0.05	0.05	0.00
245.60	0.05	0.05	0.00
245.70	0.05	0.05	0.00
245.80	0.05	0.05	0.00
245.90	0.05	0.05	0.00
246.00	0.05	0.05	0.00
246.10	0.05	0.05	0.00
246.20	0.05	0.05	0.00
246.30	0.05	0.05	0.00
246.40	0.05	0.05	0.00
246.50	0.05	0.05	0.00
246.60	0.05	0.05	0.00
246.70	0.05	0.05	0.00
246.80	0.05	0.05	0.00
246.90	0.05	0.05	0.00
247.00	0.05	0.05	0.00
247.10	0.05	0.05	0.00
247.20	0.05	0.05	0.00
247.30	0.05	0.05	0.00
247.40	0.05	0.05	0.00
247.50	0.05	0.05	0.00
247.60	0.05	0.05	0.00
247.70	0.05	0.05	0.00
247.80	0.05	0.05	0.00
247.90	0.05	0.05	0.00
248.00	0.05	0.05	0.00
248.10	0.05	0.05	0.00
248.20	0.05	0.05	0.00
248.30	0.05	0.05	0.00
248.40	0.05	0.05	0.00
248.50	0.05	0.05	0.00
248.60	0.05	0.05	0.00
248.70	0.05	0.05	0.00
248.80	0.05	0.05	0.00
248.90	0.05	0.05	0.00
249.00	0.05	0.05	0.00
249.10	0.05	0.05	0.00
249.20	0.05	0.05	0.00
249.30	0.05	0.05	0.00
249.40	0.05	0.05	0.00
249.50	0.05	0.05	0.00
249.60	0.05	0.05	0.00
249.70	0.05	0.05	0.00
249.80	0.05	0.05	0.00
249.90	0.34	0.05	0.29
250.00	1.54	0.05	1.49
250.10	3.26	0.05	3.21
250.20	5.37	0.05	5.32
250.30	7.80	0.05	7.75
250.40	8.81	0.05	8.76
250.50	**9.58**	0.05	**9.53**

Stage-Area-Storage for Pond RG2: Rain-Garden #2

Elevation (feet)	Storage (cubic-feet)
242.50	0.0
242.60	31.9
242.70	63.8
242.80	95.8
242.90	127.7
243.00	159.6
243.10	191.5
243.20	223.4
243.30	255.4
243.40	287.3
243.50	319.2
243.60	355.3
243.70	394.4
243.80	435.2
243.90	476.8
244.00	518.9
244.10	560.9
244.20	602.5
244.30	643.3
244.40	682.4
244.50	718.5
244.60	758.3
244.70	798.1
244.80	837.9
244.90	877.7
245.00	917.5
245.10	957.3
245.20	997.1
245.30	1,036.9
245.40	1,076.7
245.50	1,116.5
245.60	1,156.3
245.70	1,196.1
245.80	1,235.9
245.90	1,275.7
246.00	1,315.5
246.10	1,355.3
246.20	1,395.1
246.30	1,420.0
246.40	1,434.9
246.50	1,449.8
246.60	1,464.8
246.70	1,479.7
246.80	1,494.6
246.90	1,509.5
247.00	1,524.5
247.10	1,539.4
247.20	1,554.3
247.30	1,569.2
247.40	1,584.2
247.50	1,599.1
247.60	1,614.0
247.70	1,628.9
247.80	1,643.9
247.90	1,658.8
248.00	1,673.7
248.10	1,688.6
248.20	1,703.6
248.30	1,718.5
248.40	1,733.4
248.50	1,748.3
248.60	1,763.3
248.70	1,778.2
248.80	1,793.1
248.90	1,808.0
249.00	1,823.0
249.10	1,837.9
249.20	1,852.8
249.30	1,867.7
249.40	1,882.7
249.50	1,897.6
249.60	1,983.7
249.70	2,081.5
249.80	2,191.0
249.90	2,312.1
250.00	2,444.8
250.10	2,590.0
250.20	2,748.3
250.30	2,919.8
250.40	3,104.4
250.50	**3,302.1**

Summary for Pond SWM-2: Cultec 2

Inflow Area = 141,868 sf,100.00% Impervious, Inflow Depth = 4.62" for 10 yr event
Inflow = 16.04 cfs @ 12.07 hrs, Volume= 54,659.3 cf
Outflow = 0.88 cfs @ 10.52 hrs, Volume= 54,659.3 cf, Atten= 95%, Lag= 0.0 min
Discarded = 0.88 cfs @ 10.52 hrs, Volume= 54,659.3 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.0 cf
Routed to Pond SWM-3 : Cultec 3

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 251.70' @ 13.82 hrs Surf.Area= 15,751 sf Storage= 23,219.7 cf

Plug-Flow detention time= 211.0 min calculated for 54,653.6 cf (100% of inflow)
Center-of-Mass det. time= 211.0 min (958.6 - 747.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	249.50'	22,538.4 cf	**63.25'W x 249.03'L x 5.75'H Field A** 90,570.3 cf Overall - 34,224.2 cf Embedded = 56,346.1 cf x 40.0% Voids
#2A	250.25'	34,224.2 cf	**Cultec R-902HD** x 528 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 528 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		56,762.7 cf	Total Available Storage

Storage Group A created with Chamber Wizard

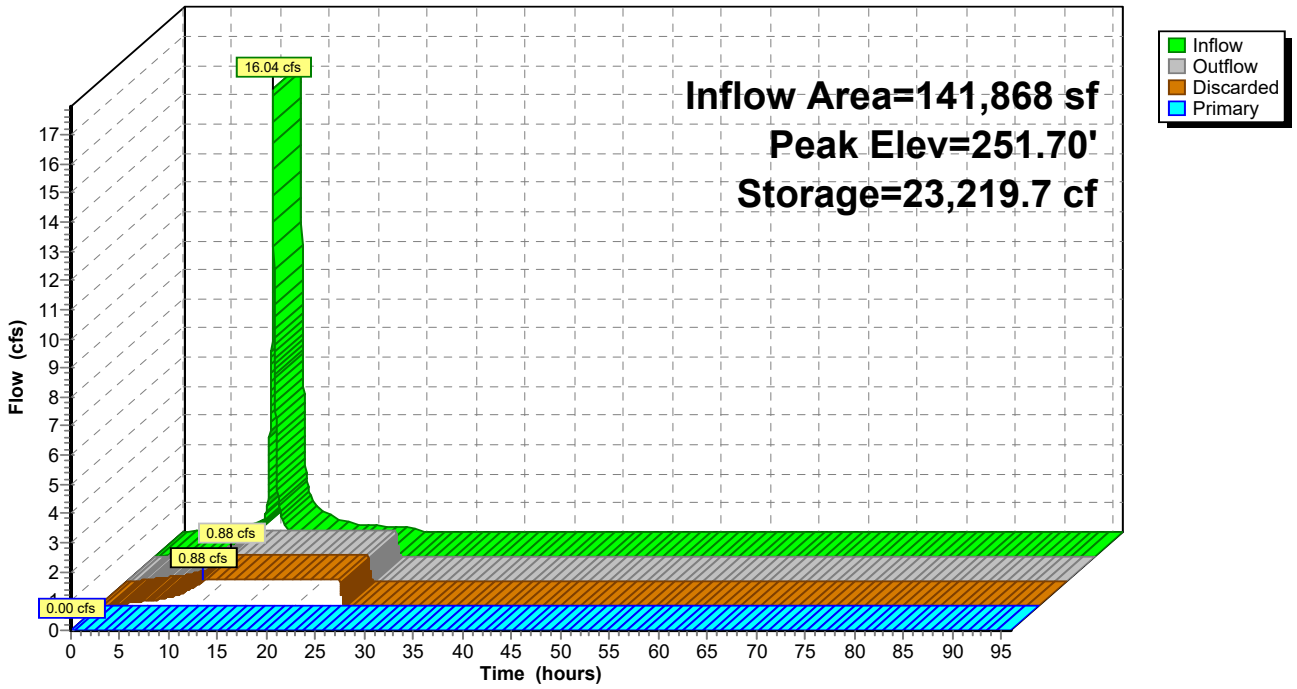
Device	Routing	Invert	Outlet Devices
#1	Discarded	249.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	252.75'	**12.0" Round Culvert** L= 189.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 246.50' S= 0.0331 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.88 cfs @ 10.52 hrs HW=249.56' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.88 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=249.50' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

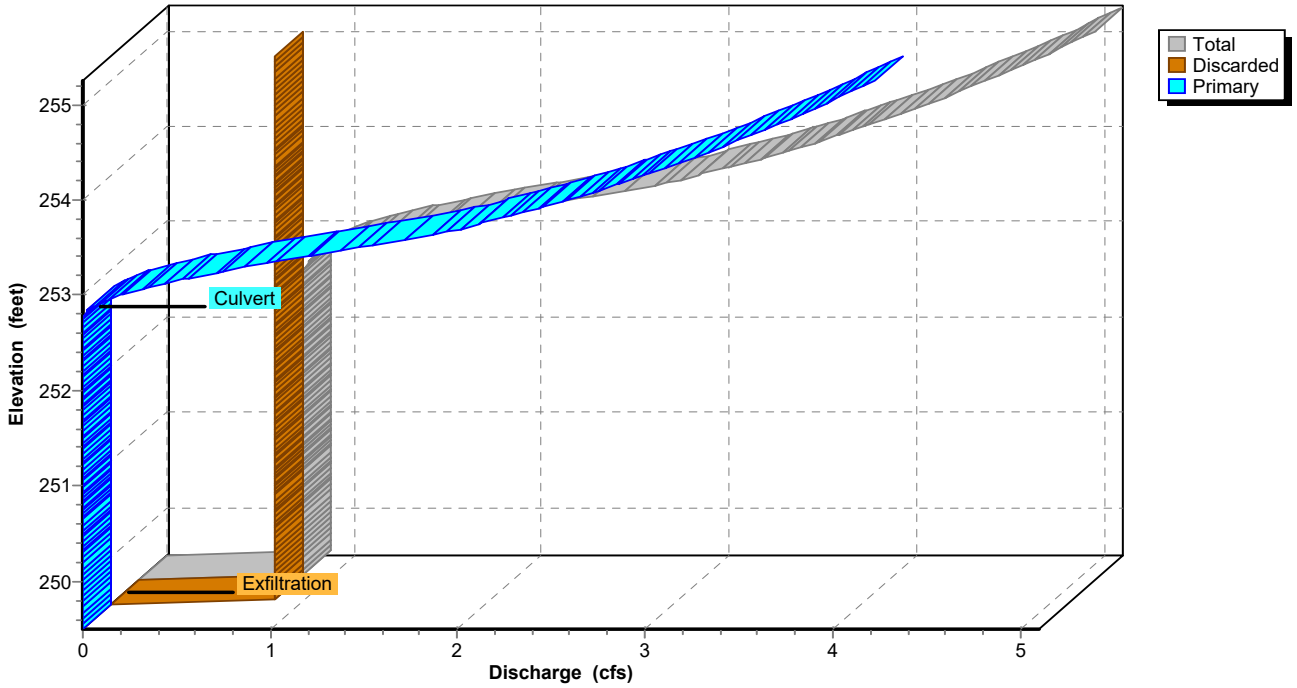
Pond SWM-2: Cultec 2

Hydrograph

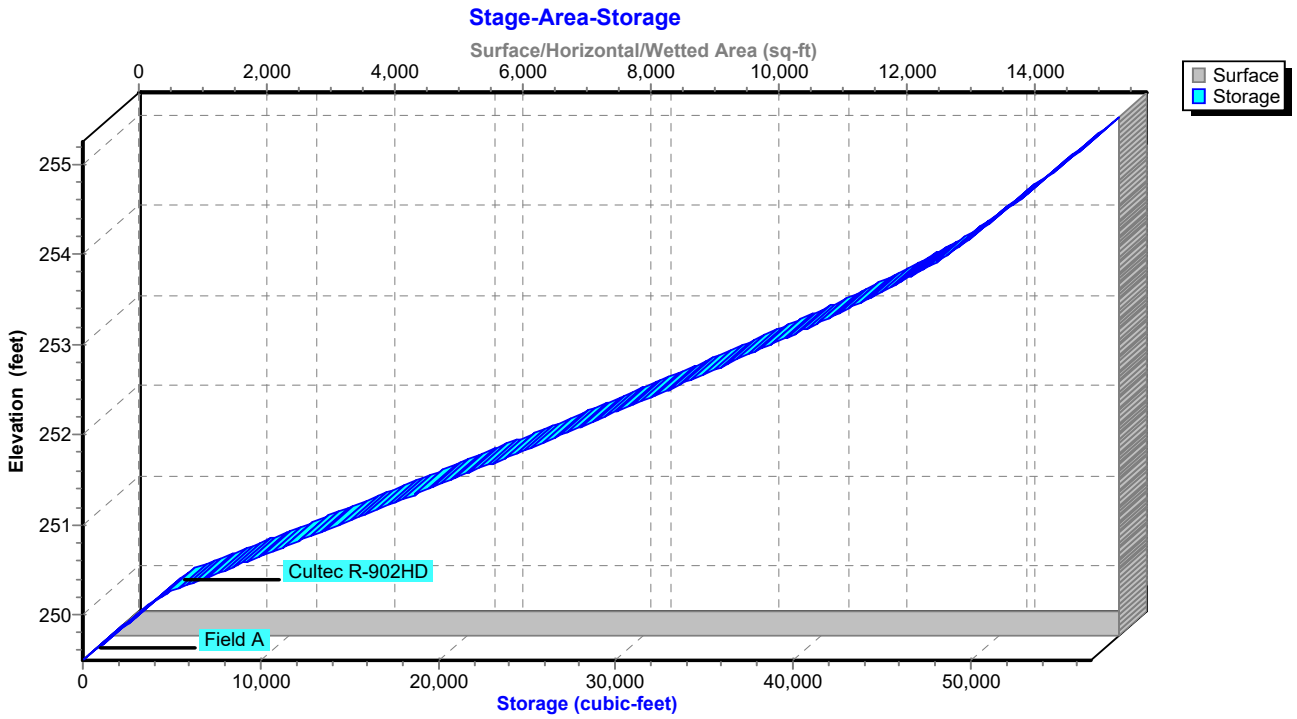


Pond SWM-2: Cultec 2

Stage-Discharge



Pond SWM-2: Cultec 2



Hydrograph for Pond SWM-2: Cultec 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	249.50	0.00	0.00	**0.00**
2.00	0.06	22.3	249.50	0.05	0.05	0.00
4.00	0.14	56.8	249.51	0.14	0.14	0.00
6.00	0.21	86.0	249.51	0.21	0.21	0.00
8.00	0.37	150.5	249.52	0.37	0.37	0.00
10.00	0.74	296.0	249.55	**0.72**	**0.72**	0.00
12.00	**10.84**	**8,085.4**	**250.51**	**0.88**	**0.88**	0.00
14.00	**0.81**	**23,196.9**	**251.70**	0.88	0.88	0.00
16.00	0.43	21,274.1	251.54	0.88	0.88	0.00
18.00	0.26	17,401.3	251.23	0.88	0.88	0.00
20.00	0.21	12,751.7	250.87	0.88	0.88	0.00
22.00	0.17	7,797.1	250.49	0.88	0.88	0.00
24.00	0.14	2,584.5	249.91	0.88	0.88	0.00
26.00	0.00	0.0	249.50	0.00	0.00	0.00
28.00	0.00	0.0	249.50	0.00	0.00	0.00
30.00	0.00	0.0	249.50	0.00	0.00	0.00
32.00	0.00	0.0	249.50	0.00	0.00	0.00
34.00	0.00	0.0	249.50	0.00	0.00	0.00
36.00	0.00	0.0	249.50	0.00	0.00	0.00
38.00	0.00	0.0	249.50	0.00	0.00	0.00
40.00	0.00	0.0	249.50	0.00	0.00	0.00
42.00	0.00	0.0	249.50	0.00	0.00	0.00
44.00	0.00	0.0	249.50	0.00	0.00	0.00
46.00	0.00	0.0	249.50	0.00	0.00	0.00
48.00	0.00	0.0	249.50	0.00	0.00	0.00
50.00	0.00	0.0	249.50	0.00	0.00	0.00
52.00	0.00	0.0	249.50	0.00	0.00	0.00
54.00	0.00	0.0	249.50	0.00	0.00	0.00
56.00	0.00	0.0	249.50	0.00	0.00	0.00
58.00	0.00	0.0	249.50	0.00	0.00	0.00
60.00	0.00	0.0	249.50	0.00	0.00	0.00
62.00	0.00	0.0	249.50	0.00	0.00	0.00
64.00	0.00	0.0	249.50	0.00	0.00	0.00
66.00	0.00	0.0	249.50	0.00	0.00	0.00
68.00	0.00	0.0	249.50	0.00	0.00	0.00
70.00	0.00	0.0	249.50	0.00	0.00	0.00
72.00	0.00	0.0	249.50	0.00	0.00	0.00
74.00	0.00	0.0	249.50	0.00	0.00	0.00
76.00	0.00	0.0	249.50	0.00	0.00	0.00
78.00	0.00	0.0	249.50	0.00	0.00	0.00
80.00	0.00	0.0	249.50	0.00	0.00	0.00
82.00	0.00	0.0	249.50	0.00	0.00	0.00
84.00	0.00	0.0	249.50	0.00	0.00	0.00
86.00	0.00	0.0	249.50	0.00	0.00	0.00
88.00	0.00	0.0	249.50	0.00	0.00	0.00
90.00	0.00	0.0	249.50	0.00	0.00	0.00
92.00	0.00	0.0	249.50	0.00	0.00	0.00
94.00	0.00	0.0	249.50	0.00	0.00	0.00
96.00	0.00	0.0	249.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-2: Cultec 2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
249.50	0.00	**0.00**	0.00
249.60	0.88	**0.88**	0.00
249.70	0.88	0.88	0.00
249.80	0.88	0.88	0.00
249.90	0.88	0.88	0.00
250.00	0.88	0.88	0.00
250.10	0.88	0.88	0.00
250.20	0.88	0.88	0.00
250.30	0.88	0.88	0.00
250.40	0.88	0.88	0.00
250.50	0.88	0.88	0.00
250.60	0.88	0.88	0.00
250.70	0.88	0.88	0.00
250.80	0.88	0.88	0.00
250.90	0.88	0.88	0.00
251.00	0.88	0.88	0.00
251.10	0.88	0.88	0.00
251.20	0.88	0.88	0.00
251.30	0.88	0.88	0.00
251.40	0.88	0.88	0.00
251.50	0.88	0.88	0.00
251.60	0.88	0.88	0.00
251.70	0.88	0.88	0.00
251.80	0.88	0.88	0.00
251.90	0.88	0.88	0.00
252.00	0.88	0.88	0.00
252.10	0.88	0.88	0.00
252.20	0.88	0.88	0.00
252.30	0.88	0.88	0.00
252.40	0.88	0.88	0.00
252.50	0.88	0.88	0.00
252.60	0.88	0.88	0.00
252.70	0.88	0.88	0.00
252.80	0.89	0.88	0.01
252.90	0.96	0.88	0.08
253.00	1.09	0.88	0.21
253.10	1.27	0.88	0.39
253.20	1.50	0.88	0.62
253.30	1.76	0.88	0.88
253.40	2.05	0.88	1.17
253.50	2.35	0.88	1.47
253.60	2.64	0.88	1.76
253.70	2.90	0.88	2.02
253.80	3.09	0.88	2.21
253.90	3.29	0.88	2.41
254.00	3.46	0.88	2.59
254.10	3.63	0.88	2.75
254.20	3.79	0.88	2.91
254.30	3.94	0.88	3.06
254.40	4.08	0.88	3.20
254.50	4.22	0.88	3.34
254.60	4.35	0.88	3.47
254.70	4.47	0.88	3.60
254.80	4.60	0.88	3.72
254.90	4.71	0.88	3.83
255.00	4.83	0.88	3.95
255.10	4.94	0.88	4.06
255.20	**5.05**	0.88	**4.17**

Stage-Area-Storage for Pond SWM-2: Cultec 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
249.50	**15,751**	0.0
249.60	15,751	630.1
249.70	15,751	1,260.1
249.80	15,751	1,890.2
249.90	15,751	2,520.2
250.00	15,751	3,150.3
250.10	15,751	3,780.3
250.20	15,751	4,410.4
250.30	15,751	5,375.4
250.40	15,751	6,677.3
250.50	15,751	7,981.2
250.60	15,751	9,277.2
250.70	15,751	10,569.7
250.80	15,751	11,856.8
250.90	15,751	13,142.8
251.00	15,751	14,426.0
251.10	15,751	15,700.9
251.20	15,751	16,967.8
251.30	15,751	18,232.9
251.40	15,751	19,496.2
251.50	15,751	20,751.5
251.60	15,751	21,998.6
251.70	15,751	23,242.3
251.80	15,751	24,479.5
251.90	15,751	25,710.2
252.00	15,751	26,937.5
252.10	15,751	28,156.6
252.20	15,751	29,372.4
252.30	15,751	30,580.7
252.40	15,751	31,776.9
252.50	15,751	32,969.3
252.60	15,751	34,149.4
252.70	15,751	35,318.2
252.80	15,751	36,477.6
252.90	15,751	37,621.3
253.00	15,751	38,751.1
253.10	15,751	39,864.2
253.20	15,751	40,957.6
253.30	15,751	42,033.3
253.40	15,751	43,084.8
253.50	15,751	44,111.3
253.60	15,751	45,112.5
253.70	15,751	46,083.1
253.80	15,751	47,018.1
253.90	15,751	47,901.3
254.00	15,751	48,715.4
254.10	15,751	49,454.7
254.20	15,751	50,135.9
254.30	15,751	50,777.2
254.40	15,751	51,407.2
254.50	15,751	52,037.3
254.60	15,751	52,667.3
254.70	15,751	53,297.4
254.80	15,751	53,927.4
254.90	15,751	54,557.5
255.00	15,751	55,187.5
255.10	15,751	55,817.6
255.20	15,751	**56,447.6**

Summary for Pond SWM-3: Cultec 3

Inflow Area = 416,467 sf, 80.91% Impervious, Inflow Depth = 1.95" for 10 yr event
Inflow = 22.04 cfs @ 12.08 hrs, Volume= 67,600.8 cf
Outflow = 6.37 cfs @ 12.43 hrs, Volume= 67,600.8 cf, Atten= 71%, Lag= 21.0 min
Discarded = 0.63 cfs @ 10.51 hrs, Volume= 43,753.3 cf
Primary = 5.74 cfs @ 12.43 hrs, Volume= 23,847.6 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 247.18' @ 12.43 hrs Surf.Area= 11,345 sf Storage= 25,138.3 cf

Plug-Flow detention time= 201.9 min calculated for 67,600.8 cf (100% of inflow)
Center-of-Mass det. time= 201.9 min (1,019.1 - 817.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	244.00'	16,339.6 cf	**63.25'W x 179.37'L x 5.75'H Field A** 65,233.4 cf Overall - 24,384.5 cf Embedded = 40,848.9 cf x 40.0% Voids
#2A	244.75'	24,384.5 cf	**Cultec R-902HD** x 376 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 376 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		40,724.1 cf	Total Available Storage

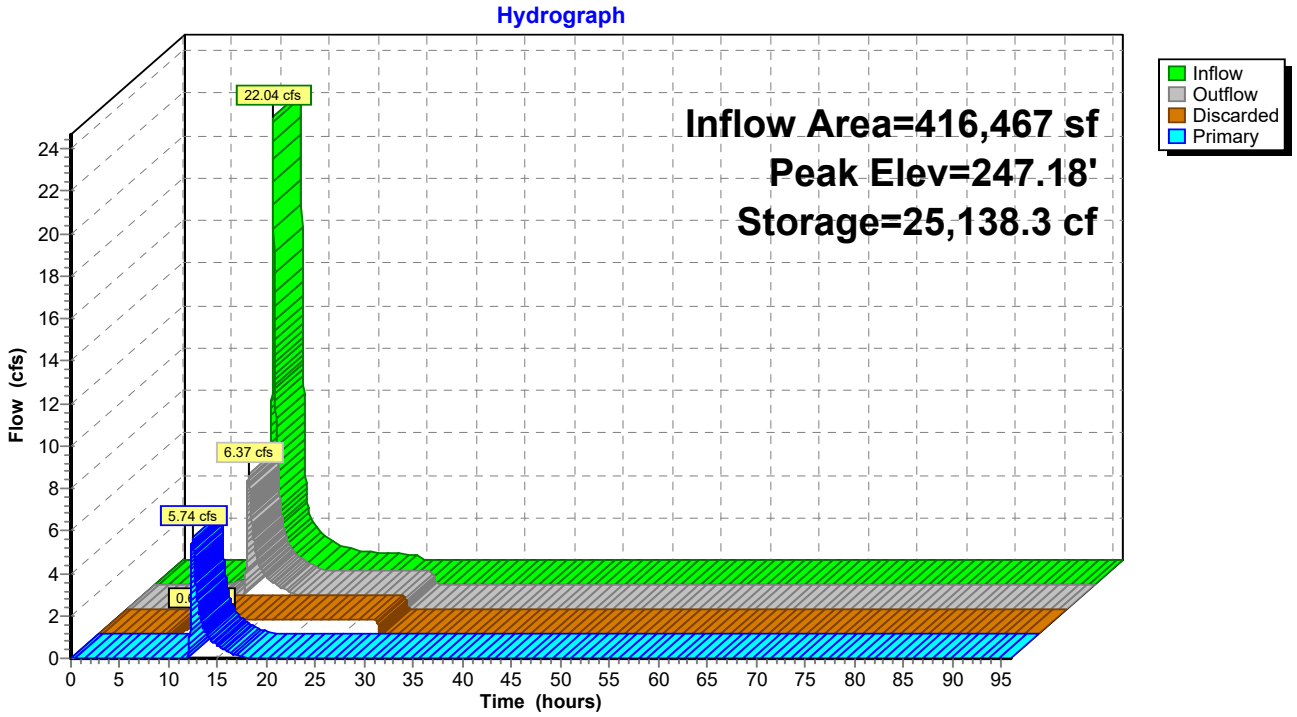
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	246.16'	**24.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	246.16'	**36.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.16' / 245.10' S= 0.0530 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

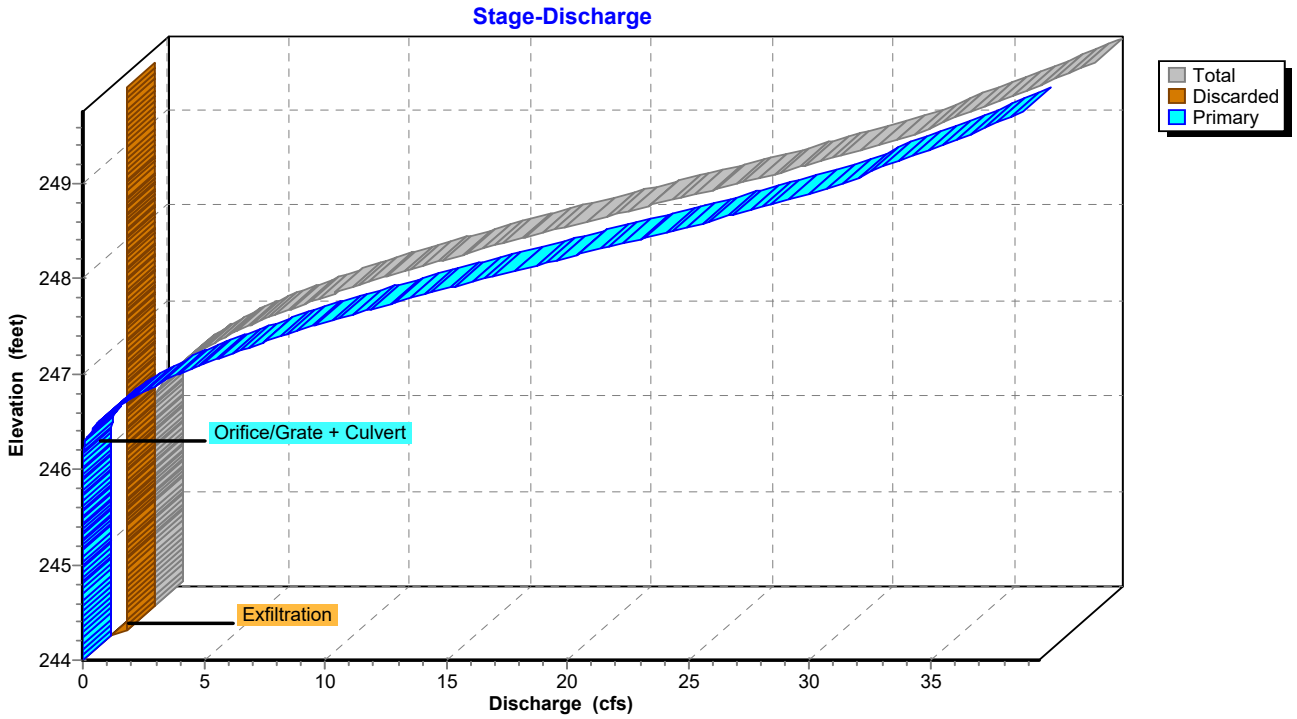
Discarded OutFlow Max=0.63 cfs @ 10.51 hrs HW=244.06' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.63 cfs)

Primary OutFlow Max=5.73 cfs @ 12.43 hrs HW=247.18' (Free Discharge)
└**3=Culvert** (Inlet Controls 5.73 cfs @ 2.71 fps)
└**2=Orifice/Grate** (Passes 5.73 cfs of 11.04 cfs potential flow)

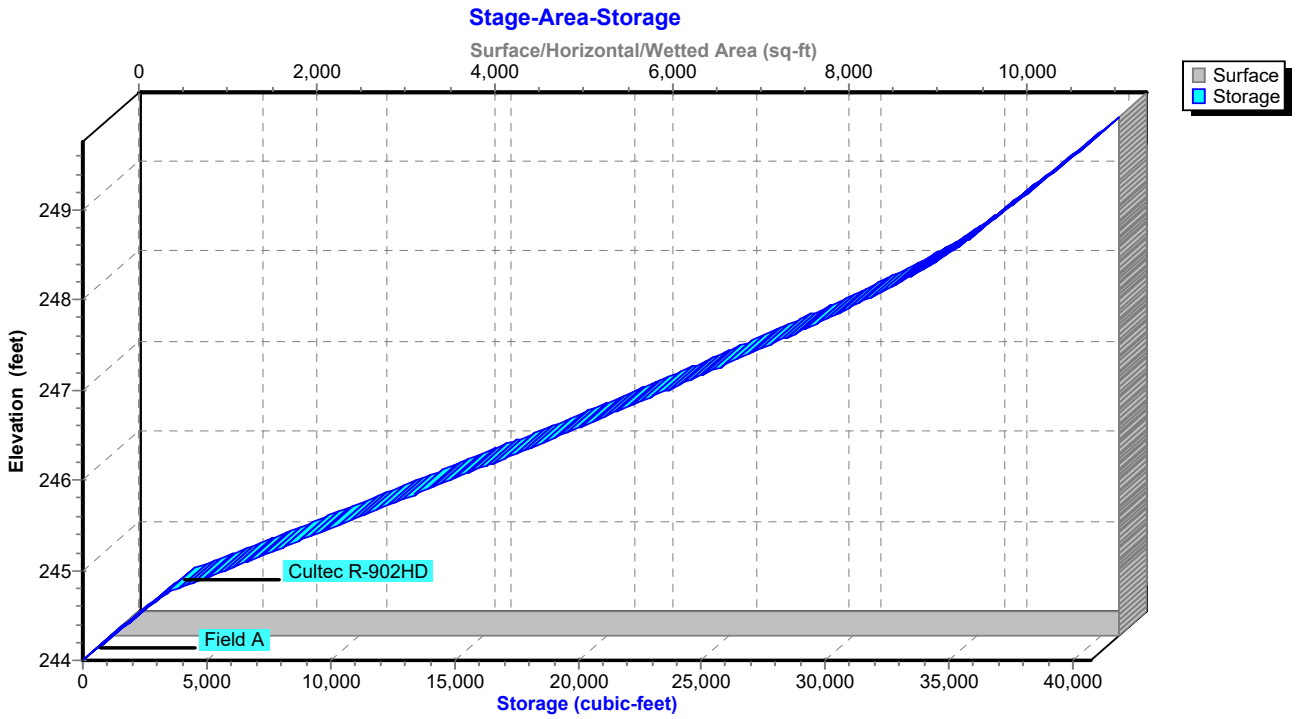
Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Hydrograph for Pond SWM-3: Cultec 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	244.00	0.00	0.00	0.00
2.00	0.00	0.0	244.00	0.00	0.00	0.00
4.00	0.00	0.0	244.00	0.00	0.00	0.00
6.00	0.00	0.0	244.00	0.00	0.00	0.00
8.00	0.07	24.7	244.01	0.06	0.06	0.00
10.00	0.47	179.8	244.04	0.44	**0.44**	0.00
12.00	**13.24**	**9,945.3**	**245.46**	**0.63**	**0.63**	**0.00**
14.00	**1.34**	**20,033.8**	**246.58**	**1.69**	0.63	**1.06**
16.00	0.72	18,335.1	246.39	0.95	0.63	0.32
18.00	0.45	16,899.2	246.23	0.66	0.63	0.03
20.00	0.36	15,176.8	246.03	0.63	0.63	0.00
22.00	0.30	12,975.8	245.79	0.63	0.63	0.00
24.00	0.24	10,340.0	245.50	0.63	0.63	0.00
26.00	0.00	5,857.8	245.01	0.63	0.63	0.00
28.00	0.00	1,300.9	244.29	0.63	0.63	0.00
30.00	0.00	0.0	244.00	0.00	0.00	0.00
32.00	0.00	0.0	244.00	0.00	0.00	0.00
34.00	0.00	0.0	244.00	0.00	0.00	0.00
36.00	0.00	0.0	244.00	0.00	0.00	0.00
38.00	0.00	0.0	244.00	0.00	0.00	0.00
40.00	0.00	0.0	244.00	0.00	0.00	0.00
42.00	0.00	0.0	244.00	0.00	0.00	0.00
44.00	0.00	0.0	244.00	0.00	0.00	0.00
46.00	0.00	0.0	244.00	0.00	0.00	0.00
48.00	0.00	0.0	244.00	0.00	0.00	0.00
50.00	0.00	0.0	244.00	0.00	0.00	0.00
52.00	0.00	0.0	244.00	0.00	0.00	0.00
54.00	0.00	0.0	244.00	0.00	0.00	0.00
56.00	0.00	0.0	244.00	0.00	0.00	0.00
58.00	0.00	0.0	244.00	0.00	0.00	0.00
60.00	0.00	0.0	244.00	0.00	0.00	0.00
62.00	0.00	0.0	244.00	0.00	0.00	0.00
64.00	0.00	0.0	244.00	0.00	0.00	0.00
66.00	0.00	0.0	244.00	0.00	0.00	0.00
68.00	0.00	0.0	244.00	0.00	0.00	0.00
70.00	0.00	0.0	244.00	0.00	0.00	0.00
72.00	0.00	0.0	244.00	0.00	0.00	0.00
74.00	0.00	0.0	244.00	0.00	0.00	0.00
76.00	0.00	0.0	244.00	0.00	0.00	0.00
78.00	0.00	0.0	244.00	0.00	0.00	0.00
80.00	0.00	0.0	244.00	0.00	0.00	0.00
82.00	0.00	0.0	244.00	0.00	0.00	0.00
84.00	0.00	0.0	244.00	0.00	0.00	0.00
86.00	0.00	0.0	244.00	0.00	0.00	0.00
88.00	0.00	0.0	244.00	0.00	0.00	0.00
90.00	0.00	0.0	244.00	0.00	0.00	0.00
92.00	0.00	0.0	244.00	0.00	0.00	0.00
94.00	0.00	0.0	244.00	0.00	0.00	0.00
96.00	0.00	0.0	244.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-3: Cultec 3

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
244.00	0.00	**0.00**	0.00
244.10	0.63	**0.63**	0.00
244.20	0.63	0.63	0.00
244.30	0.63	0.63	0.00
244.40	0.63	0.63	0.00
244.50	0.63	0.63	0.00
244.60	0.63	0.63	0.00
244.70	0.63	0.63	0.00
244.80	0.63	0.63	0.00
244.90	0.63	0.63	0.00
245.00	0.63	0.63	0.00
245.10	0.63	0.63	0.00
245.20	0.63	0.63	0.00
245.30	0.63	0.63	0.00
245.40	0.63	0.63	0.00
245.50	0.63	0.63	0.00
245.60	0.63	0.63	0.00
245.70	0.63	0.63	0.00
245.80	0.63	0.63	0.00
245.90	0.63	0.63	0.00
246.00	0.63	0.63	0.00
246.10	0.63	0.63	0.00
246.20	0.64	0.63	0.01
246.30	0.75	0.63	0.12
246.40	0.98	0.63	0.35
246.50	1.33	0.63	0.69
246.60	1.78	0.63	1.15
246.70	2.34	0.63	1.71
246.80	3.01	0.63	2.37
246.90	3.77	0.63	3.14
247.00	4.62	0.63	3.99
247.10	5.57	0.63	4.94
247.20	6.60	0.63	5.97
247.30	7.71	0.63	7.07
247.40	8.89	0.63	8.26
247.50	10.14	0.63	9.51
247.60	11.45	0.63	10.82
247.70	12.82	0.63	12.19
247.80	14.24	0.63	13.61
247.90	15.71	0.63	15.07
248.00	17.21	0.63	16.57
248.10	18.73	0.63	18.10
248.20	20.28	0.63	19.65
248.30	21.84	0.63	21.21
248.40	23.41	0.63	22.77
248.50	24.96	0.63	24.32
248.60	26.48	0.63	25.85
248.70	27.97	0.63	27.34
248.80	29.41	0.63	28.77
248.90	30.76	0.63	30.12
249.00	31.99	0.63	31.36
249.10	33.06	0.63	32.42
249.20	33.98	0.63	33.34
249.30	35.04	0.63	34.41
249.40	36.08	0.63	35.44
249.50	37.08	0.63	36.45
249.60	38.06	0.63	37.43
249.70	**39.01**	0.63	**38.38**

Stage-Area-Storage for Pond SWM-3: Cultec 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
244.00	**11,345**	0.0
244.10	11,345	453.8
244.20	11,345	907.6
244.30	11,345	1,361.4
244.40	11,345	1,815.2
244.50	11,345	2,269.0
244.60	11,345	2,722.8
244.70	11,345	3,176.6
244.80	11,345	3,869.0
244.90	11,345	4,801.5
245.00	11,345	5,735.4
245.10	11,345	6,663.7
245.20	11,345	7,589.5
245.30	11,345	8,511.4
245.40	11,345	9,432.6
245.50	11,345	10,351.7
245.60	11,345	11,265.0
245.70	11,345	12,172.6
245.80	11,345	13,078.8
245.90	11,345	13,983.8
246.00	11,345	14,883.1
246.10	11,345	15,776.5
246.20	11,345	16,667.5
246.30	11,345	17,553.9
246.40	11,345	18,435.6
246.50	11,345	19,315.0
246.60	11,345	20,188.5
246.70	11,345	21,059.6
246.80	11,345	21,925.4
246.90	11,345	22,782.6
247.00	11,345	23,637.1
247.10	11,345	24,482.8
247.20	11,345	25,320.4
247.30	11,345	26,151.3
247.40	11,345	26,971.1
247.50	11,345	27,781.0
247.60	11,345	28,578.9
247.70	11,345	29,362.9
247.80	11,345	30,134.2
247.90	11,345	30,888.3
248.00	11,345	31,624.5
248.10	11,345	32,342.7
248.20	11,345	33,039.2
248.30	11,345	33,710.3
248.40	11,345	34,344.4
248.50	11,345	34,929.4
248.60	11,345	35,461.0
248.70	11,345	35,951.2
248.80	11,345	36,413.0
248.90	11,345	36,866.8
249.00	11,345	37,320.6
249.10	11,345	37,774.4
249.20	11,345	38,228.2
249.30	11,345	38,682.0
249.40	11,345	39,135.8
249.50	11,345	39,589.6
249.60	11,345	40,043.4
249.70	11,345	**40,497.2**

Summary for Pond SWM-4: Cultec 4

Inflow Area = 251,626 sf, 80.19% Impervious, Inflow Depth = 3.41" for 10 yr event
Inflow = 21.44 cfs @ 12.10 hrs, Volume= 71,511.4 cf
Outflow = 6.44 cfs @ 12.45 hrs, Volume= 71,511.4 cf, Atten= 70%, Lag= 21.0 min
Discarded = 0.68 cfs @ 10.17 hrs, Volume= 47,032.8 cf
Primary = 5.76 cfs @ 12.45 hrs, Volume= 24,478.7 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 246.13' @ 12.45 hrs Surf.Area= 12,273 sf Storage= 26,755.9 cf

Plug-Flow detention time= 183.1 min calculated for 71,504.0 cf (100% of inflow)
Center-of-Mass det. time= 183.1 min (984.0 - 801.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	243.00'	17,644.6 cf	**63.25'W x 194.03'L x 5.75'H Field A** 70,567.5 cf Overall - 26,456.0 cf Embedded = 44,111.5 cf x 40.0% Voids
#2A	243.75'	26,456.0 cf	**Cultec R-902HD** x 408 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 408 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		44,100.6 cf	Total Available Storage

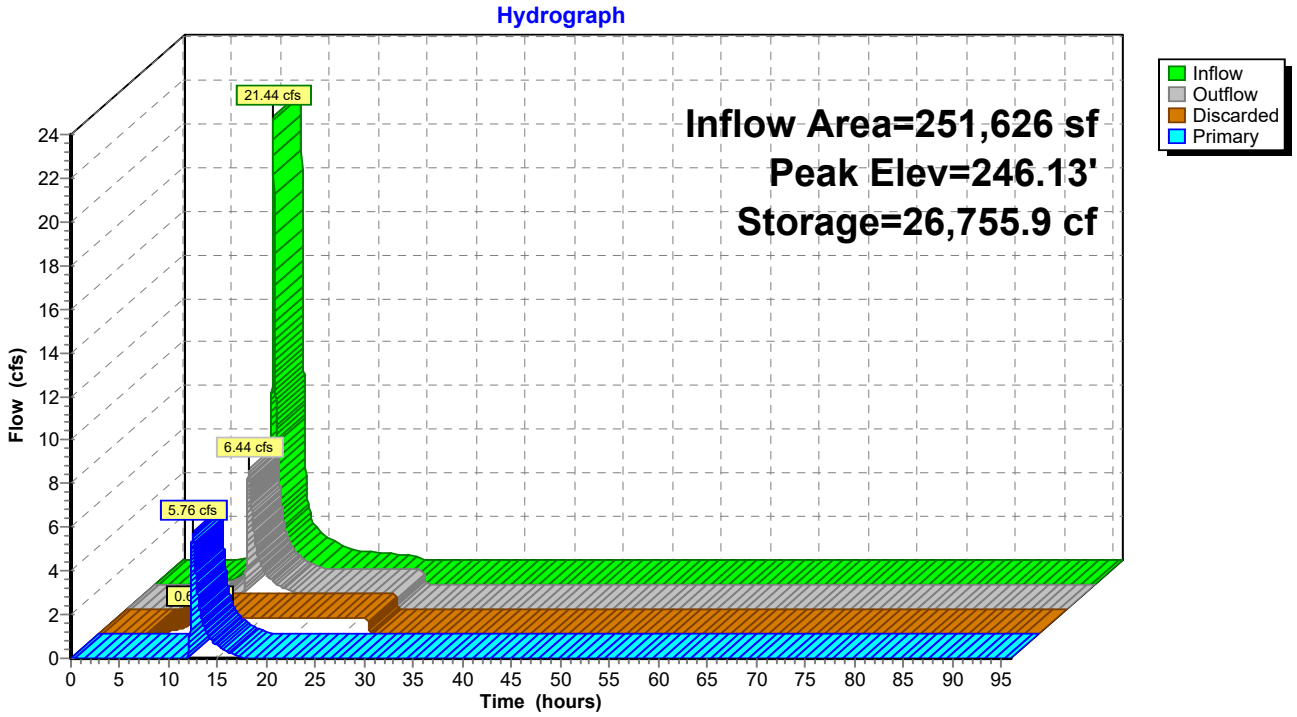
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	245.00'	**30.0" Round Culvert** L= 188.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.00' / 244.30' S= 0.0037 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

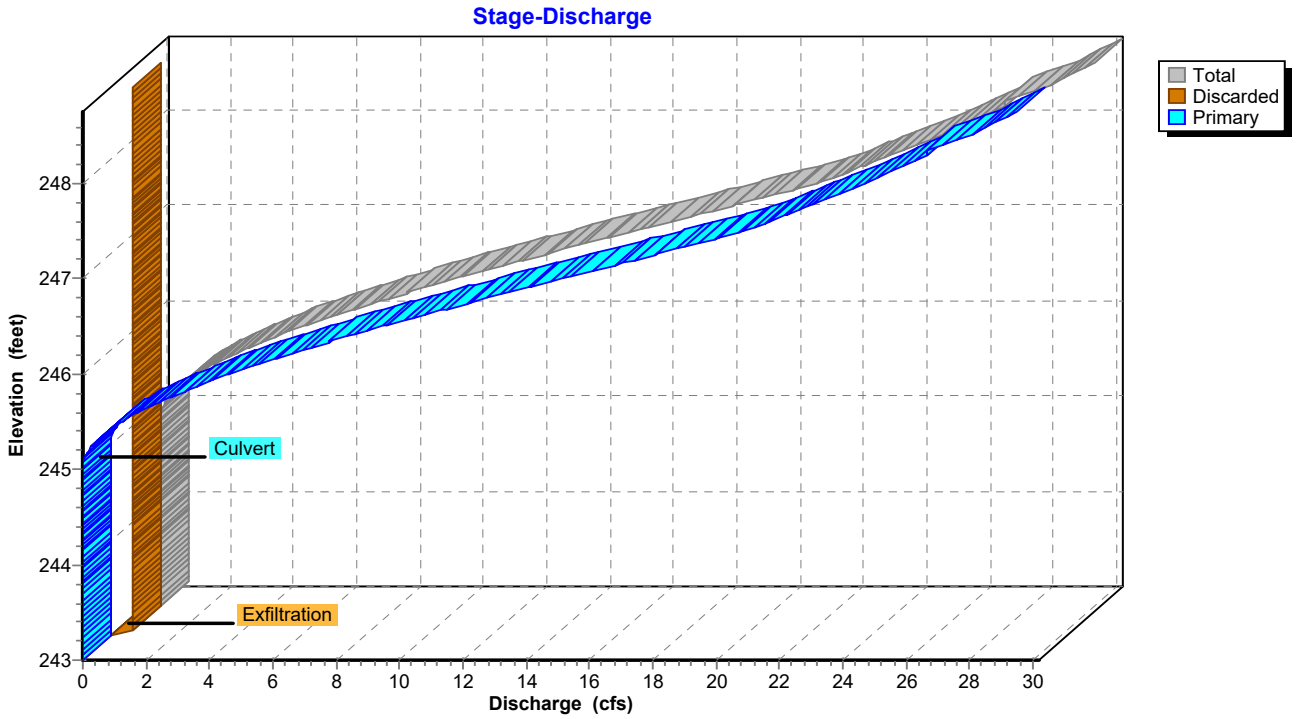
Discarded OutFlow Max=0.68 cfs @ 10.17 hrs HW=243.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.68 cfs)

Primary OutFlow Max=5.75 cfs @ 12.45 hrs HW=246.13' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 5.75 cfs @ 3.94 fps)

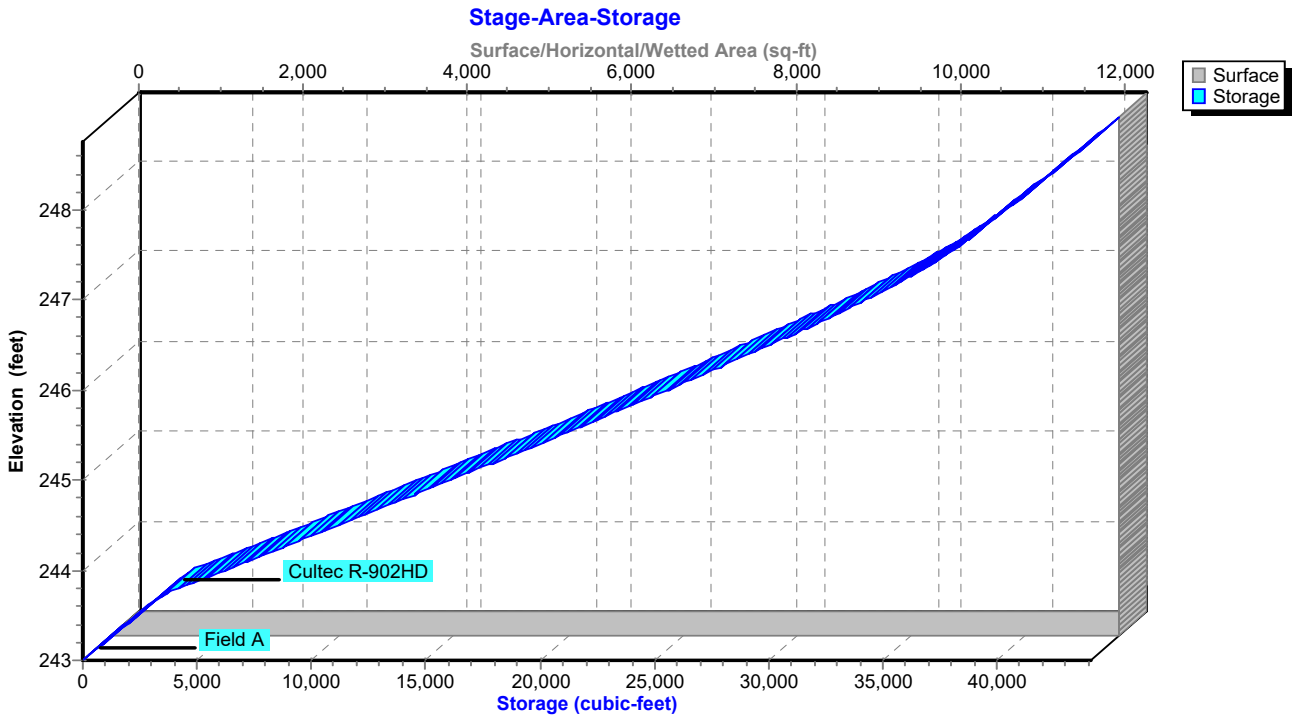
Pond SWM-4: Cultec 4



Pond SWM-4: Cultec 4



Pond SWM-4: Cultec 4



Hydrograph for Pond SWM-4: Cultec 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.00	0.0	243.00	0.00	0.00	0.00
6.00	0.05	19.4	243.00	0.05	0.05	0.00
8.00	0.21	82.7	243.02	0.20	0.20	0.00
10.00	0.67	260.3	243.05	0.63	**0.63**	0.00
12.00	**12.12**	**10,844.0**	**244.46**	**0.68**	**0.68**	**0.00**
14.00	**1.32**	**20,624.4**	**245.47**	**1.77**	0.68	**1.09**
16.00	0.70	18,483.6	245.24	0.97	0.68	0.29
18.00	0.43	16,704.7	245.06	0.70	0.68	0.02
20.00	0.34	14,513.9	244.84	0.68	0.68	0.00
22.00	0.28	11,843.1	244.56	0.68	0.68	0.00
24.00	0.23	8,753.3	244.25	0.68	0.68	0.00
26.00	0.00	3,913.9	243.77	0.68	0.68	0.00
28.00	0.00	2.8	243.00	0.01	0.01	0.00
30.00	0.00	0.0	243.00	0.00	0.00	0.00
32.00	0.00	0.0	243.00	0.00	0.00	0.00
34.00	0.00	0.0	243.00	0.00	0.00	0.00
36.00	0.00	0.0	243.00	0.00	0.00	0.00
38.00	0.00	0.0	243.00	0.00	0.00	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-4: Cultec 4

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.68	**0.68**	0.00
243.20	0.68	0.68	0.00
243.30	0.68	0.68	0.00
243.40	0.68	0.68	0.00
243.50	0.68	0.68	0.00
243.60	0.68	0.68	0.00
243.70	0.68	0.68	0.00
243.80	0.68	0.68	0.00
243.90	0.68	0.68	0.00
244.00	0.68	0.68	0.00
244.10	0.68	0.68	0.00
244.20	0.68	0.68	0.00
244.30	0.68	0.68	0.00
244.40	0.68	0.68	0.00
244.50	0.68	0.68	0.00
244.60	0.68	0.68	0.00
244.70	0.68	0.68	0.00
244.80	0.68	0.68	0.00
244.90	0.68	0.68	0.00
245.00	0.68	0.68	0.00
245.10	0.73	0.68	0.04
245.20	0.87	0.68	0.19
245.30	1.12	0.68	0.44
245.40	1.47	0.68	0.79
245.50	1.92	0.68	1.23
245.60	2.45	0.68	1.76
245.70	3.06	0.68	2.38
245.80	3.75	0.68	3.06
245.90	4.50	0.68	3.82
246.00	5.32	0.68	4.64
246.10	6.20	0.68	5.51
246.20	7.13	0.68	6.44
246.30	8.10	0.68	7.42
246.40	9.12	0.68	8.44
246.50	10.18	0.68	9.49
246.60	11.26	0.68	10.58
246.70	12.37	0.68	11.69
246.80	13.51	0.68	12.83
246.90	14.66	0.68	13.98
247.00	15.82	0.68	15.14
247.10	16.99	0.68	16.30
247.20	18.15	0.68	17.47
247.30	19.31	0.68	18.62
247.40	20.45	0.68	19.76
247.50	21.55	0.68	20.86
247.60	22.37	0.68	21.68
247.70	23.15	0.68	22.47
247.80	23.92	0.68	23.23
247.90	24.65	0.68	23.97
248.00	25.37	0.68	24.68
248.10	26.06	0.68	25.38
248.20	26.74	0.68	26.06
248.30	27.40	0.68	26.72
248.40	27.78	0.68	27.09
248.50	28.61	0.68	27.93
248.60	29.29	0.68	28.60
248.70	**29.89**	0.68	**29.21**

Stage-Area-Storage for Pond SWM-4: Cultec 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
243.00	**12,273**	0.0
243.10	12,273	490.9
243.20	12,273	981.8
243.30	12,273	1,472.7
243.40	12,273	1,963.6
243.50	12,273	2,454.5
243.60	12,273	2,945.4
243.70	12,273	3,436.3
243.80	12,273	4,186.2
243.90	12,273	5,196.4
244.00	12,273	6,208.2
244.10	12,273	7,213.9
244.20	12,273	8,216.9
244.30	12,273	9,215.7
244.40	12,273	10,213.7
244.50	12,273	11,209.5
244.60	12,273	12,198.8
244.70	12,273	13,182.1
244.80	12,273	14,163.9
244.90	12,273	15,144.3
245.00	12,273	16,118.5
245.10	12,273	17,086.4
245.20	12,273	18,051.7
245.30	12,273	19,011.9
245.40	12,273	19,967.1
245.50	12,273	20,919.7
245.60	12,273	21,866.0
245.70	12,273	22,809.7
245.80	12,273	23,747.5
245.90	12,273	24,676.1
246.00	12,273	25,601.8
246.10	12,273	26,517.8
246.20	12,273	27,425.2
246.30	12,273	28,325.3
246.40	12,273	29,213.2
246.50	12,273	30,090.5
246.60	12,273	30,954.8
246.70	12,273	31,803.9
246.80	12,273	32,639.2
246.90	12,273	33,456.0
247.00	12,273	34,253.3
247.10	12,273	35,031.1
247.20	12,273	35,785.3
247.30	12,273	36,511.9
247.40	12,273	37,198.5
247.50	12,273	37,831.7
247.60	12,273	38,407.0
247.70	12,273	38,937.5
247.80	12,273	39,437.0
247.90	12,273	39,927.9
248.00	12,273	40,418.8
248.10	12,273	40,909.7
248.20	12,273	41,400.6
248.30	12,273	41,891.6
248.40	12,273	42,382.5
248.50	12,273	42,873.4
248.60	12,273	43,364.3
248.70	12,273	**43,855.2**

Summary for Pond SWM-6: Cultec 6

Inflow Area = 108,531 sf,100.00% Impervious, Inflow Depth = 4.62" for 10 yr event
Inflow = 12.27 cfs @ 12.07 hrs, Volume= 41,815.1 cf
Outflow = 11.49 cfs @ 12.10 hrs, Volume= 41,815.1 cf, Atten= 6%, Lag= 1.7 min
Discarded = 0.14 cfs @ 5.38 hrs, Volume= 13,359.3 cf
Primary = 11.35 cfs @ 12.10 hrs, Volume= 28,455.8 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 258.58' @ 12.10 hrs Surf.Area= 2,584 sf Storage= 5,038.7 cf

Plug-Flow detention time= 72.6 min calculated for 41,810.8 cf (100% of inflow)
Center-of-Mass det. time= 72.6 min (820.2 - 747.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	255.50'	2,843.3 cf	**22.50'W x 114.83'L x 4.00'H Field A** 10,335.0 cf Overall - 3,226.8 cf Embedded = 7,108.2 cf x 40.0% Voids
#2A	256.00'	3,226.8 cf	**Cultec R-360HD** x 87 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 87 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		6,070.1 cf	Total Available Storage

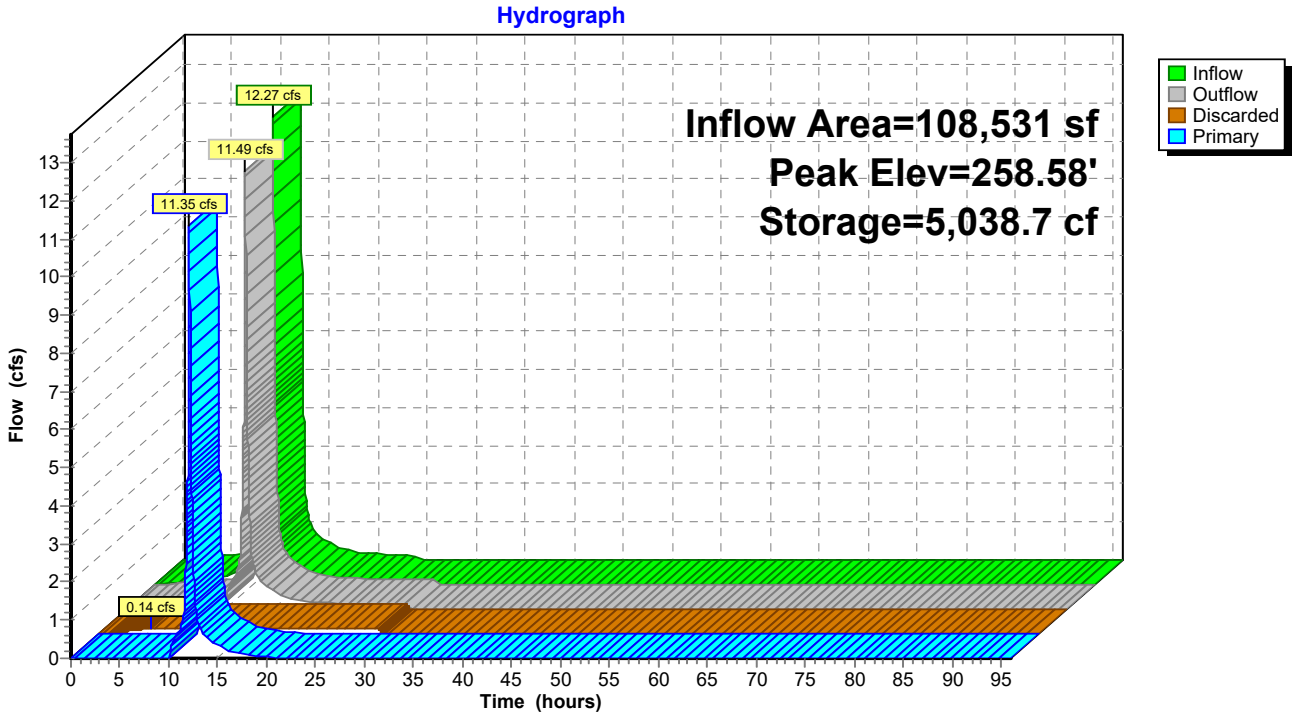
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	255.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	257.10'	**12.0" Vert. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	257.10'	**36.0" Round Culvert** L= 39.0' Ke= 0.900 Inlet / Outlet Invert= 257.10' / 256.60' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

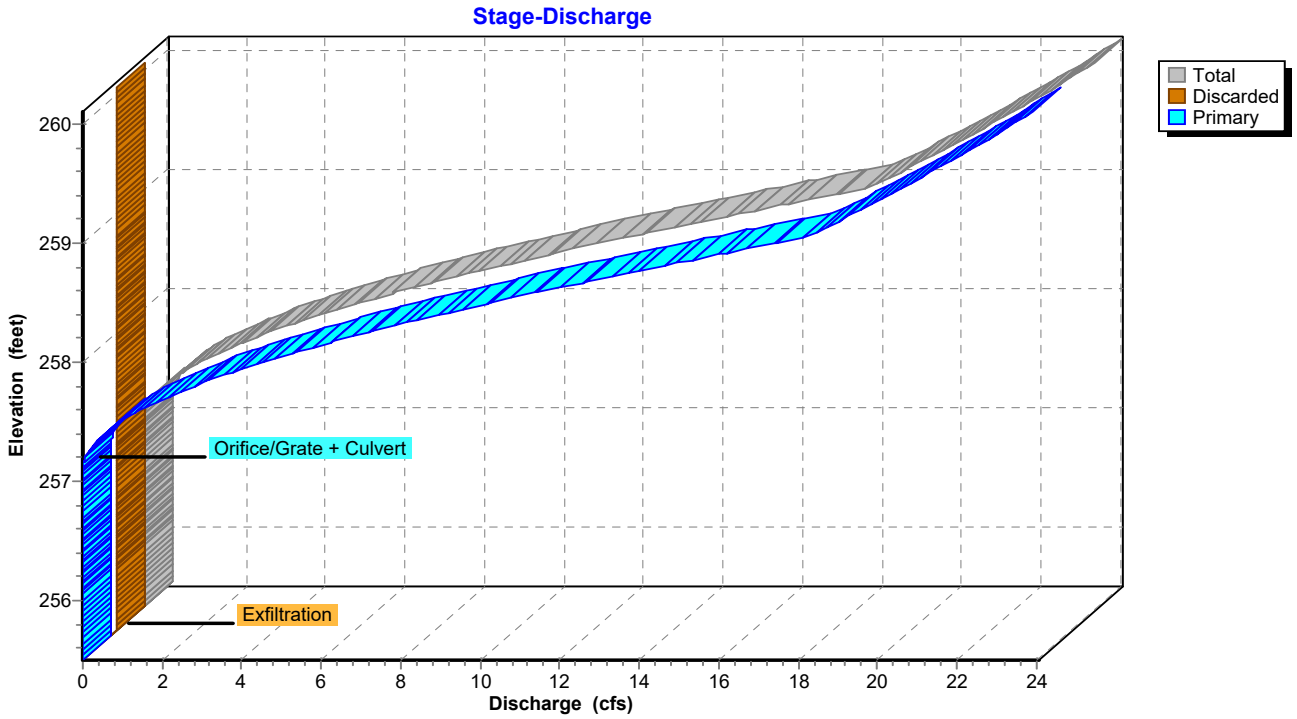
Discarded OutFlow Max=0.14 cfs @ 5.38 hrs HW=255.55' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=11.33 cfs @ 12.10 hrs HW=258.58' (Free Discharge)
↑**3=Culvert** (Inlet Controls 11.33 cfs @ 3.27 fps)
↑**2=Orifice/Grate** (Passes 11.33 cfs of 14.96 cfs potential flow)

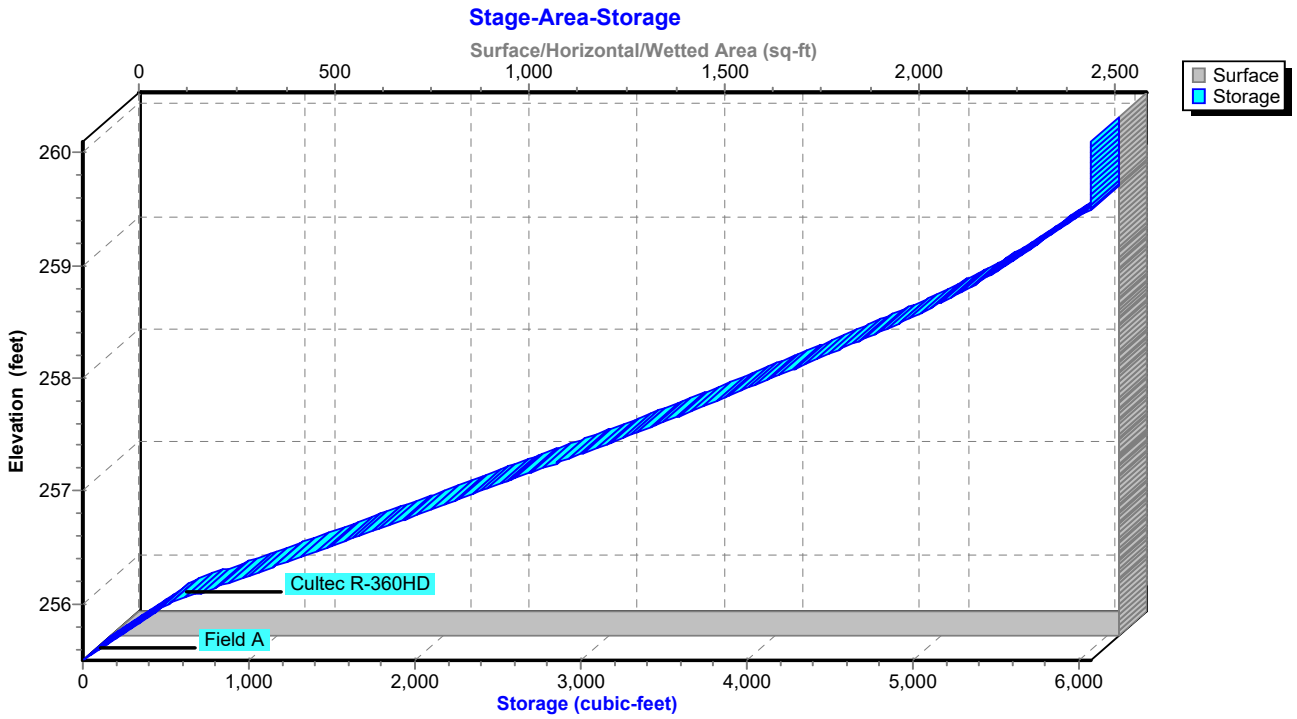
Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Hydrograph for Pond SWM-6: Cultec 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	255.50	0.00	0.00	0.00
2.00	0.04	13.9	255.51	0.04	0.04	0.00
4.00	0.11	35.0	255.53	0.11	**0.11**	0.00
6.00	0.16	71.2	255.57	0.14	**0.14**	0.00
8.00	0.29	635.8	256.06	0.14	0.14	0.00
10.00	0.57	2,638.8	257.13	0.15	0.14	0.01
12.00	**8.29**	**4,412.8**	**258.16**	**6.37**	0.14	**6.23**
14.00	**0.62**	**3,106.3**	**257.39**	**0.66**	0.14	**0.52**
16.00	0.33	2,917.8	257.29	0.36	0.14	0.21
18.00	0.20	2,779.7	257.21	0.22	0.14	0.08
20.00	0.16	2,697.5	257.16	0.17	0.14	0.03
22.00	0.13	2,609.7	257.12	0.15	0.14	0.00
24.00	0.10	2,422.8	257.01	0.14	0.14	0.00
26.00	0.00	1,414.0	256.47	0.14	0.14	0.00
28.00	0.00	376.2	255.86	0.14	0.14	0.00
30.00	0.00	0.0	255.50	0.00	0.00	0.00
32.00	0.00	0.0	255.50	0.00	0.00	0.00
34.00	0.00	0.0	255.50	0.00	0.00	0.00
36.00	0.00	0.0	255.50	0.00	0.00	0.00
38.00	0.00	0.0	255.50	0.00	0.00	0.00
40.00	0.00	0.0	255.50	0.00	0.00	0.00
42.00	0.00	0.0	255.50	0.00	0.00	0.00
44.00	0.00	0.0	255.50	0.00	0.00	0.00
46.00	0.00	0.0	255.50	0.00	0.00	0.00
48.00	0.00	0.0	255.50	0.00	0.00	0.00
50.00	0.00	0.0	255.50	0.00	0.00	0.00
52.00	0.00	0.0	255.50	0.00	0.00	0.00
54.00	0.00	0.0	255.50	0.00	0.00	0.00
56.00	0.00	0.0	255.50	0.00	0.00	0.00
58.00	0.00	0.0	255.50	0.00	0.00	0.00
60.00	0.00	0.0	255.50	0.00	0.00	0.00
62.00	0.00	0.0	255.50	0.00	0.00	0.00
64.00	0.00	0.0	255.50	0.00	0.00	0.00
66.00	0.00	0.0	255.50	0.00	0.00	0.00
68.00	0.00	0.0	255.50	0.00	0.00	0.00
70.00	0.00	0.0	255.50	0.00	0.00	0.00
72.00	0.00	0.0	255.50	0.00	0.00	0.00
74.00	0.00	0.0	255.50	0.00	0.00	0.00
76.00	0.00	0.0	255.50	0.00	0.00	0.00
78.00	0.00	0.0	255.50	0.00	0.00	0.00
80.00	0.00	0.0	255.50	0.00	0.00	0.00
82.00	0.00	0.0	255.50	0.00	0.00	0.00
84.00	0.00	0.0	255.50	0.00	0.00	0.00
86.00	0.00	0.0	255.50	0.00	0.00	0.00
88.00	0.00	0.0	255.50	0.00	0.00	0.00
90.00	0.00	0.0	255.50	0.00	0.00	0.00
92.00	0.00	0.0	255.50	0.00	0.00	0.00
94.00	0.00	0.0	255.50	0.00	0.00	0.00
96.00	0.00	0.0	255.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-6: Cultec 6

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
255.50	0.00	**0.00**	0.00
255.55	0.14	**0.14**	0.00
255.60	0.14	0.14	0.00
255.65	0.14	0.14	0.00
255.70	0.14	0.14	0.00
255.75	0.14	0.14	0.00
255.80	0.14	0.14	0.00
255.85	0.14	0.14	0.00
255.90	0.14	0.14	0.00
255.95	0.14	0.14	0.00
256.00	0.14	0.14	0.00
256.05	0.14	0.14	0.00
256.10	0.14	0.14	0.00
256.15	0.14	0.14	0.00
256.20	0.14	0.14	0.00
256.25	0.14	0.14	0.00
256.30	0.14	0.14	0.00
256.35	0.14	0.14	0.00
256.40	0.14	0.14	0.00
256.45	0.14	0.14	0.00
256.50	0.14	0.14	0.00
256.55	0.14	0.14	0.00
256.60	0.14	0.14	0.00
256.65	0.14	0.14	0.00
256.70	0.14	0.14	0.00
256.75	0.14	0.14	0.00
256.80	0.14	0.14	0.00
256.85	0.14	0.14	0.00
256.90	0.14	0.14	0.00
256.95	0.14	0.14	0.00
257.00	0.14	0.14	0.00
257.05	0.14	0.14	0.00
257.10	0.14	0.14	0.00
257.15	0.16	0.14	0.02
257.20	0.21	0.14	0.06
257.25	0.28	0.14	0.14
257.30	0.39	0.14	0.24
257.35	0.52	0.14	0.38
257.40	0.69	0.14	0.54
257.45	0.88	0.14	0.73
257.50	1.10	0.14	0.95
257.55	1.34	0.14	1.20
257.60	1.62	0.14	1.47
257.65	1.91	0.14	1.77
257.70	2.24	0.14	2.10
257.75	2.59	0.14	2.44
257.80	2.96	0.14	2.82
257.85	3.36	0.14	3.22
257.90	3.78	0.14	3.64
257.95	4.23	0.14	4.08
258.00	4.69	0.14	4.55
258.05	5.18	0.14	5.04
258.10	5.69	0.14	5.54
258.15	6.22	0.14	6.07
258.20	6.77	0.14	6.62
258.25	7.33	0.14	7.19
258.30	7.92	0.14	7.77
258.35	8.52	0.14	8.38
258.40	9.14	0.14	9.00
258.45	9.78	0.14	9.63
258.50	10.43	0.14	10.29
258.55	11.10	0.14	10.95
258.60	11.78	0.14	11.63
258.65	12.47	0.14	12.33
258.70	13.18	0.14	13.04
258.75	13.90	0.14	13.75
258.80	14.63	0.14	14.48
258.85	15.37	0.14	15.22
258.90	16.11	0.14	15.97
258.95	16.87	0.14	16.72
259.00	17.63	0.14	17.49
259.05	18.36	0.14	18.21
259.10	18.67	0.14	18.53
259.15	18.98	0.14	18.83
259.20	19.28	0.14	19.13
259.25	19.57	0.14	19.43
259.30	19.87	0.14	19.72
259.35	20.15	0.14	20.01
259.40	20.44	0.14	20.29
259.45	20.72	0.14	20.57
259.50	20.99	0.14	20.85
259.55	21.27	0.14	21.12
259.60	21.54	0.14	21.39
259.65	21.80	0.14	21.66
259.70	22.06	0.14	21.92
259.75	22.32	0.14	22.18
259.80	22.58	0.14	22.44
259.85	22.83	0.14	22.69
259.90	23.08	0.14	22.94
259.95	23.33	0.14	23.19
260.00	23.58	0.14	23.43
260.05	23.82	0.14	23.68
260.10	**24.06**	0.14	**23.92**

Stage-Area-Storage for Pond SWM-6: Cultec 6

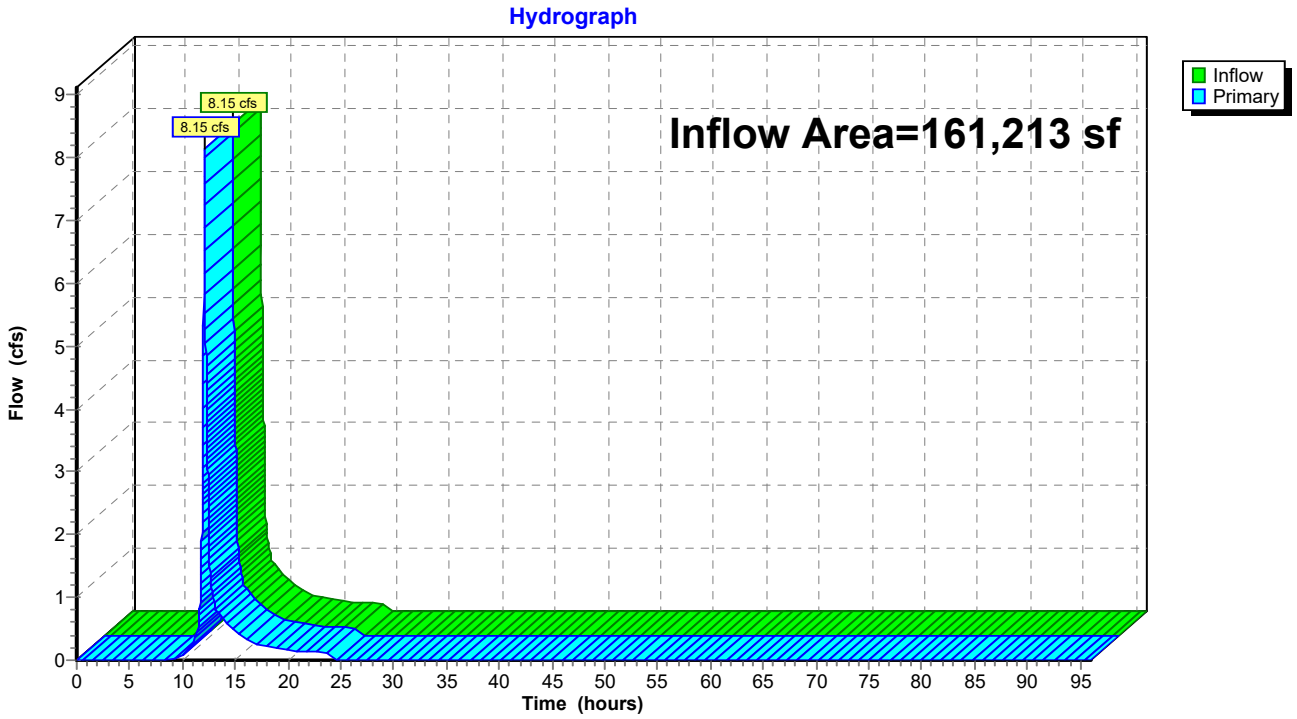
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
255.50	**2,584**	0.0
255.55	2,584	51.7
255.60	2,584	103.3
255.65	2,584	155.0
255.70	2,584	206.7
255.75	2,584	258.4
255.80	2,584	310.1
255.85	2,584	361.7
255.90	2,584	413.4
255.95	2,584	465.1
256.00	2,584	516.7
256.05	2,584	612.7
256.10	2,584	708.5
256.15	2,584	804.2
256.20	2,584	899.8
256.25	2,584	995.1
256.30	2,584	1,090.3
256.35	2,584	1,185.3
256.40	2,584	1,280.1
256.45	2,584	1,374.7
256.50	2,584	1,469.0
256.55	2,584	1,563.2
256.60	2,584	1,657.1
256.65	2,584	1,750.8
256.70	2,584	1,844.2
256.75	2,584	1,937.4
256.80	2,584	2,030.3
256.85	2,584	2,122.9
256.90	2,584	2,215.3
256.95	2,584	2,307.3
257.00	2,584	2,399.0
257.05	2,584	2,490.4
257.10	2,584	2,581.4
257.15	2,584	2,672.2
257.20	2,584	2,762.5
257.25	2,584	2,852.5
257.30	2,584	2,942.1
257.35	2,584	3,031.3
257.40	2,584	3,120.0
257.45	2,584	3,208.4
257.50	2,584	3,296.3
257.55	2,584	3,383.8
257.60	2,584	3,470.8
257.65	2,584	3,557.3
257.70	2,584	3,643.3
257.75	2,584	3,728.7
257.80	2,584	3,813.6
257.85	2,584	3,897.9
257.90	2,584	3,981.6
257.95	2,584	4,064.8
258.00	2,584	4,147.2
258.05	2,584	4,229.0
258.10	2,584	4,310.0
258.15	2,584	4,390.3
258.20	2,584	4,469.7
258.25	2,584	4,548.2
258.30	2,584	4,625.9
258.35	2,584	4,702.5
258.40	2,584	4,778.1
258.45	2,584	4,852.6
258.50	2,584	4,925.8
258.55	2,584	4,997.8
258.60	2,584	5,068.2
258.65	2,584	5,136.8
258.70	2,584	5,203.4
258.75	2,584	5,267.3
258.80	2,584	5,328.5
258.85	2,584	5,387.3
258.90	2,584	5,444.3
258.95	2,584	5,499.7
259.00	2,584	5,553.4
259.05	2,584	5,605.0
259.10	2,584	5,656.7
259.15	2,584	5,708.4
259.20	2,584	5,760.1
259.25	2,584	5,811.7
259.30	2,584	5,863.4
259.35	2,584	5,915.1
259.40	2,584	5,966.8
259.45	2,584	6,018.4
259.50	2,584	**6,070.1**
259.55	2,584	6,070.1
259.60	2,584	6,070.1
259.65	2,584	6,070.1
259.70	2,584	6,070.1
259.75	2,584	6,070.1
259.80	2,584	6,070.1
259.85	2,584	6,070.1
259.90	2,584	6,070.1
259.95	2,584	6,070.1
260.00	2,584	6,070.1
260.05	2,584	6,070.1
260.10	2,584	6,070.1

Summary for Link POA A: POND- WEST

Inflow Area = 161,213 sf, 51.37% Impervious, Inflow Depth = 1.97" for 10 yr event
Inflow = 8.15 cfs @ 12.10 hrs, Volume= 26,430.6 cf
Primary = 8.15 cfs @ 12.10 hrs, Volume= 26,430.6 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

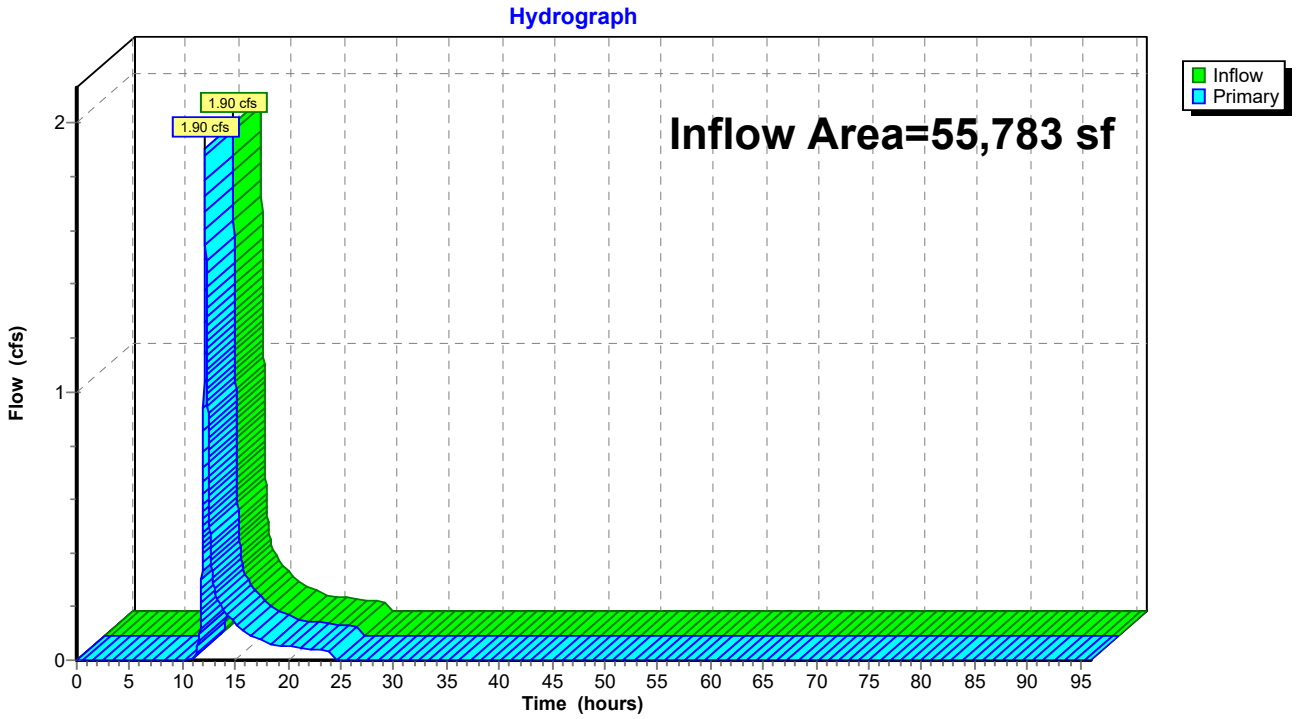
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.09	0.00	0.09	62.00	0.00	0.00	0.00
11.00	0.26	0.00	0.26	63.00	0.00	0.00	0.00
12.00	**4.41**	0.00	**4.41**	64.00	0.00	0.00	0.00
13.00	**0.91**	0.00	**0.91**	65.00	0.00	0.00	0.00
14.00	0.59	0.00	0.59	66.00	0.00	0.00	0.00
15.00	0.46	0.00	0.46	67.00	0.00	0.00	0.00
16.00	0.33	0.00	0.33	68.00	0.00	0.00	0.00
17.00	0.26	0.00	0.26	69.00	0.00	0.00	0.00
18.00	0.20	0.00	0.20	70.00	0.00	0.00	0.00
19.00	0.18	0.00	0.18	71.00	0.00	0.00	0.00
20.00	0.16	0.00	0.16	72.00	0.00	0.00	0.00
21.00	0.15	0.00	0.15	73.00	0.00	0.00	0.00
22.00	0.14	0.00	0.14	74.00	0.00	0.00	0.00
23.00	0.12	0.00	0.12	75.00	0.00	0.00	0.00
24.00	0.11	0.00	0.11	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 55,783 sf, 42.91% Impervious, Inflow Depth = 1.49" for 10 yr event
Inflow = 1.90 cfs @ 12.13 hrs, Volume= 6,928.3 cf
Primary = 1.90 cfs @ 12.13 hrs, Volume= 6,928.3 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

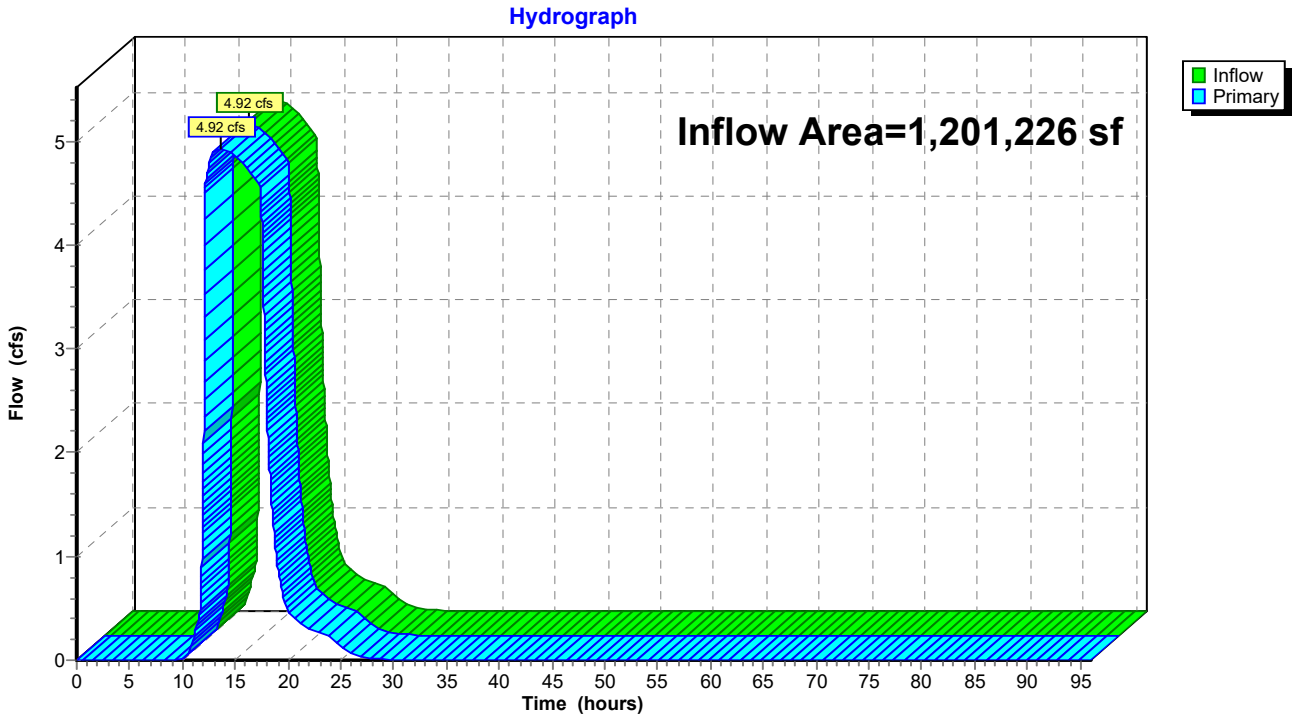
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	**0.78**	0.00	**0.78**	64.00	0.00	0.00	0.00
13.00	**0.28**	0.00	**0.28**	65.00	0.00	0.00	0.00
14.00	0.18	0.00	0.18	66.00	0.00	0.00	0.00
15.00	0.14	0.00	0.14	67.00	0.00	0.00	0.00
16.00	0.10	0.00	0.10	68.00	0.00	0.00	0.00
17.00	0.08	0.00	0.08	69.00	0.00	0.00	0.00
18.00	0.06	0.00	0.06	70.00	0.00	0.00	0.00
19.00	0.06	0.00	0.06	71.00	0.00	0.00	0.00
20.00	0.05	0.00	0.05	72.00	0.00	0.00	0.00
21.00	0.05	0.00	0.05	73.00	0.00	0.00	0.00
22.00	0.04	0.00	0.04	74.00	0.00	0.00	0.00
23.00	0.04	0.00	0.04	75.00	0.00	0.00	0.00
24.00	0.03	0.00	0.03	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND-NORTH

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 1.16" for 10 yr event
Inflow = 4.92 cfs @ 13.58 hrs, Volume= 115,894.8 cf
Primary = 4.92 cfs @ 13.58 hrs, Volume= 115,894.8 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND-NORTH



Hydrograph for Link POA D: WETLAND-NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.20	0.00	0.20	63.00	0.00	0.00	0.00
12.00	1.89	0.00	1.89	64.00	0.00	0.00	0.00
13.00	**4.90**	0.00	**4.90**	65.00	0.00	0.00	0.00
14.00	**4.92**	0.00	**4.92**	66.00	0.00	0.00	0.00
15.00	4.85	0.00	4.85	67.00	0.00	0.00	0.00
16.00	4.75	0.00	4.75	68.00	0.00	0.00	0.00
17.00	4.62	0.00	4.62	69.00	0.00	0.00	0.00
18.00	2.37	0.00	2.37	70.00	0.00	0.00	0.00
19.00	0.93	0.00	0.93	71.00	0.00	0.00	0.00
20.00	0.48	0.00	0.48	72.00	0.00	0.00	0.00
21.00	0.37	0.00	0.37	73.00	0.00	0.00	0.00
22.00	0.31	0.00	0.31	74.00	0.00	0.00	0.00
23.00	0.26	0.00	0.26	75.00	0.00	0.00	0.00
24.00	0.23	0.00	0.23	76.00	0.00	0.00	0.00
25.00	0.13	0.00	0.13	77.00	0.00	0.00	0.00
26.00	0.07	0.00	0.07	78.00	0.00	0.00	0.00
27.00	0.04	0.00	0.04	79.00	0.00	0.00	0.00
28.00	0.02	0.00	0.02	80.00	0.00	0.00	0.00
29.00	0.01	0.00	0.01	81.00	0.00	0.00	0.00
30.00	0.01	0.00	0.01	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-A1: Prop. Watershed Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=3.41"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=11.94 cfs 37,609.3 cf

Subcatchment PR-A2: Prop. Watershed A2 Runoff Area=28,873 sf 9.70% Impervious Runoff Depth=0.67"
Flow Length=1,502' Tc=6.5 min UI Adjusted CN=42 Runoff=0.24 cfs 1,606.0 cf

Subcatchment PR-C: Prop. Watershed C Runoff Area=55,783 sf 42.91% Impervious Runoff Depth=2.37"
Flow Length=836' Tc=8.7 min CN=64 Runoff=3.16 cfs 11,021.6 cf

Subcatchment PR-D1: Prop. Watershed Runoff Area=214,605 sf 84.39% Impervious Runoff Depth=4.88"
Flow Length=1,502' Tc=7.5 min CN=89 Runoff=25.66 cfs 87,287.7 cf

Subcatchment PR-D2: Prop. Watershed Runoff Area=274,599 sf 71.05% Impervious Runoff Depth=4.13"
Flow Length=1,350' Tc=5.7 min CN=82 Runoff=30.53 cfs 94,400.9 cf

Subcatchment PR-D3: Prop. Watershed Runoff Area=108,531 sf 100.00% Impervious Runoff Depth=5.91"
Tc=5.0 min CN=98 Runoff=15.56 cfs 53,466.9 cf

Subcatchment PR-D4: Prop. Watershed D4 Runoff Area=37,021 sf 55.83% Impervious Runoff Depth=3.12"
Tc=5.0 min CN=72 Runoff=3.22 cfs 9,614.2 cf

Subcatchment PR-D5: Prop. Watershed D5 Runoff Area=50,834 sf 67.76% Impervious Runoff Depth=3.81"
Tc=5.0 min CN=79 Runoff=5.39 cfs 16,156.2 cf

Subcatchment PR-D6: Prop. Watershed D6 Runoff Area=40,781 sf 62.50% Impervious Runoff Depth=3.51"
Tc=5.0 min CN=76 Runoff=3.99 cfs 11,928.1 cf

Subcatchment PR-D7: Prop. Watershed Runoff Area=332,987 sf 33.08% Impervious Runoff Depth=1.85"
Flow Length=763' Tc=7.9 min CN=58 Runoff=14.44 cfs 51,362.1 cf

Subcatchment PR-D8: Prop. Watershed Runoff Area=141,868 sf 100.00% Impervious Runoff Depth=5.91"
Tc=5.0 min CN=98 Runoff=20.34 cfs 69,890.1 cf

Pond FP: Fire Pond Weir Peak Elev=245.67' Storage=338,427.4 cf Inflow=52.27 cfs 198,401.7 cf
Outflow=5.39 cfs 198,401.7 cf

Pond RG1: Rain-Garden #1 Peak Elev=250.11' Storage=3,507.9 cf Inflow=5.39 cfs 16,156.2 cf
Discarded=0.06 cfs 6,420.3 cf Primary=5.16 cfs 9,735.9 cf Outflow=5.22 cfs 16,156.2 cf

Pond RG2: Rain-Garden #2 Peak Elev=250.13' Storage=2,628.4 cf Inflow=3.99 cfs 11,928.1 cf
Discarded=0.05 cfs 4,964.4 cf Primary=3.73 cfs 6,963.7 cf Outflow=3.78 cfs 11,928.1 cf

Pond SWM-2: Cultec 2 Peak Elev=252.49' Storage=32,801.0 cf Inflow=20.34 cfs 69,890.1 cf
Discarded=0.88 cfs 69,890.1 cf Primary=0.00 cfs 0.0 cf Outflow=0.88 cfs 69,890.1 cf

Pond SWM-3: Cultec 3 Peak Elev=247.80' Storage=30,097.4 cf Inflow=30.53 cfs 94,400.9 cf
Discarded=0.63 cfs 48,456.1 cf Primary=13.54 cfs 45,944.8 cf Outflow=14.17 cfs 94,400.9 cf

Pond SWM-4: Cultec 4 Peak Elev=246.75' Storage=32,221.3 cf Inflow=28.70 cfs 96,901.9 cf
Discarded=0.68 cfs 51,974.2 cf Primary=12.25 cfs 44,927.7 cf Outflow=12.94 cfs 96,901.9 cf

Pond SWM-6: Cultec 6 Peak Elev=258.81' Storage=5,346.0 cf Inflow=15.56 cfs 53,466.9 cf
Discarded=0.14 cfs 13,999.4 cf Primary=14.70 cfs 39,467.5 cf Outflow=14.84 cfs 53,466.9 cf

Link POA A: POND- WEST Inflow=12.12 cfs 39,215.3 cf
Primary=12.12 cfs 39,215.3 cf

Link POA C: WETLAND-WEST Inflow=3.16 cfs 11,021.6 cf
Primary=3.16 cfs 11,021.6 cf

Link POA D: WETLAND-NORTH Inflow=5.39 cfs 198,401.7 cf
Primary=5.39 cfs 198,401.7 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 444,343.0 cf Average Runoff Depth = 3.76"
34.84% Pervious = 494,117 sf 65.16% Impervious = 924,105 sf

Summary for Subcatchment PR-A1: Prop. Watershed A1

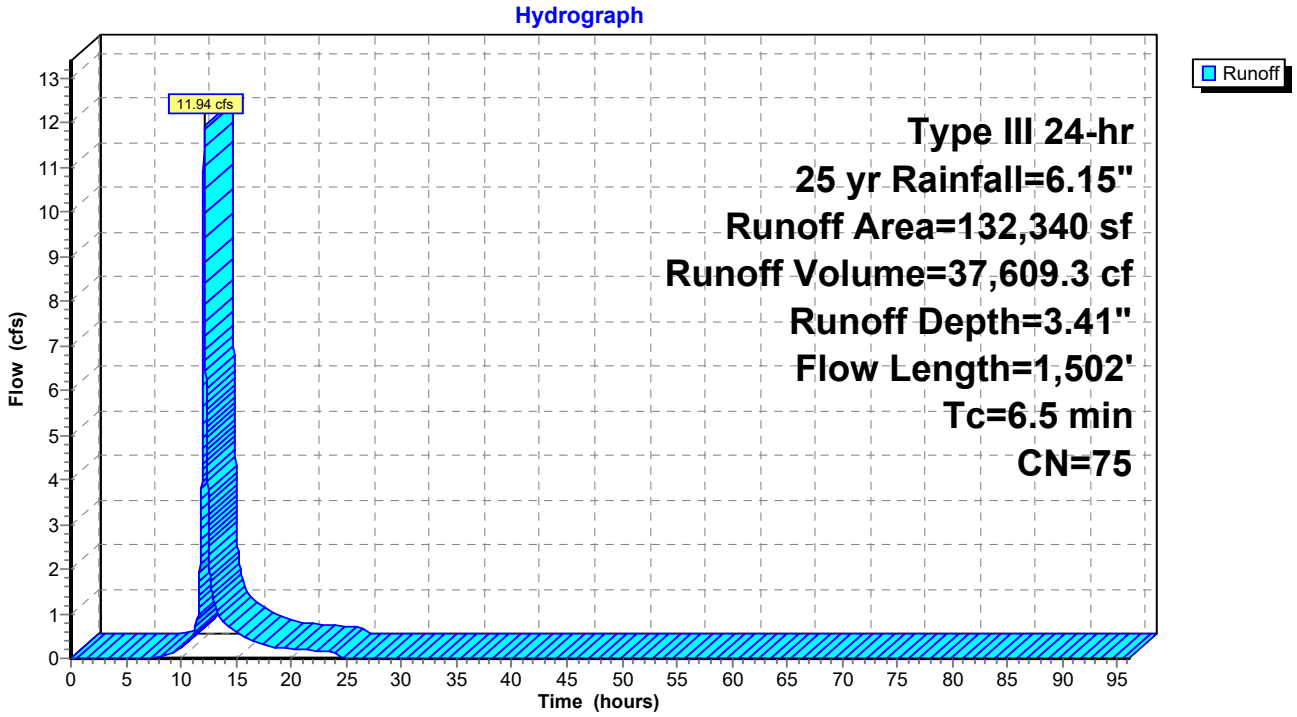
Runoff = 11.94 cfs @ 12.10 hrs, Volume= 37,609.3 cf, Depth= 3.41"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A1: Prop. Watershed A1



Hydrograph for Subcatchment PR-A1: Prop. Watershed A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.01
9.00	0.90	0.01	0.08
10.00	1.16	0.06	0.21
11.00	1.54	0.18	0.48
12.00	3.07	1.01	**6.65**
13.00	4.61	2.14	**1.22**
14.00	4.99	2.44	0.78
15.00	5.25	2.66	0.60
16.00	5.45	2.82	0.42
17.00	5.59	2.94	0.34
18.00	5.71	3.03	0.26
19.00	5.80	3.11	0.23
20.00	5.89	3.18	0.21
21.00	5.96	3.25	0.19
22.00	6.03	3.31	0.17
23.00	6.09	3.36	0.16
24.00	**6.15**	**3.41**	0.14
25.00	6.15	3.41	0.00
26.00	6.15	3.41	0.00
27.00	6.15	3.41	0.00
28.00	6.15	3.41	0.00
29.00	6.15	3.41	0.00
30.00	6.15	3.41	0.00
31.00	6.15	3.41	0.00
32.00	6.15	3.41	0.00
33.00	6.15	3.41	0.00
34.00	6.15	3.41	0.00
35.00	6.15	3.41	0.00
36.00	6.15	3.41	0.00
37.00	6.15	3.41	0.00
38.00	6.15	3.41	0.00
39.00	6.15	3.41	0.00
40.00	6.15	3.41	0.00
41.00	6.15	3.41	0.00
42.00	6.15	3.41	0.00
43.00	6.15	3.41	0.00
44.00	6.15	3.41	0.00
45.00	6.15	3.41	0.00
46.00	6.15	3.41	0.00
47.00	6.15	3.41	0.00
48.00	6.15	3.41	0.00
49.00	6.15	3.41	0.00
50.00	6.15	3.41	0.00
51.00	6.15	3.41	0.00
52.00	6.15	3.41	0.00
53.00	6.15	3.41	0.00
54.00	6.15	3.41	0.00
55.00	6.15	3.41	0.00
56.00	6.15	3.41	0.00
57.00	6.15	3.41	0.00
58.00	6.15	3.41	0.00
59.00	6.15	3.41	0.00
60.00	6.15	3.41	0.00
61.00	6.15	3.41	0.00
62.00	6.15	3.41	0.00
63.00	6.15	3.41	0.00
64.00	6.15	3.41	0.00
65.00	6.15	3.41	0.00
66.00	6.15	3.41	0.00
67.00	6.15	3.41	0.00
68.00	6.15	3.41	0.00
69.00	6.15	3.41	0.00
70.00	6.15	3.41	0.00
71.00	6.15	3.41	0.00
72.00	6.15	3.41	0.00
73.00	6.15	3.41	0.00
74.00	6.15	3.41	0.00
75.00	6.15	3.41	0.00
76.00	6.15	3.41	0.00
77.00	6.15	3.41	0.00
78.00	6.15	3.41	0.00
79.00	6.15	3.41	0.00
80.00	6.15	3.41	0.00
81.00	6.15	3.41	0.00
82.00	6.15	3.41	0.00
83.00	6.15	3.41	0.00
84.00	6.15	3.41	0.00
85.00	6.15	3.41	0.00
86.00	6.15	3.41	0.00
87.00	6.15	3.41	0.00
88.00	6.15	3.41	0.00
89.00	6.15	3.41	0.00
90.00	6.15	3.41	0.00
91.00	6.15	3.41	0.00
92.00	6.15	3.41	0.00
93.00	6.15	3.41	0.00
94.00	6.15	3.41	0.00
95.00	6.15	3.41	0.00
96.00	6.15	3.41	0.00

Summary for Subcatchment PR-A2: Prop. Watershed A2

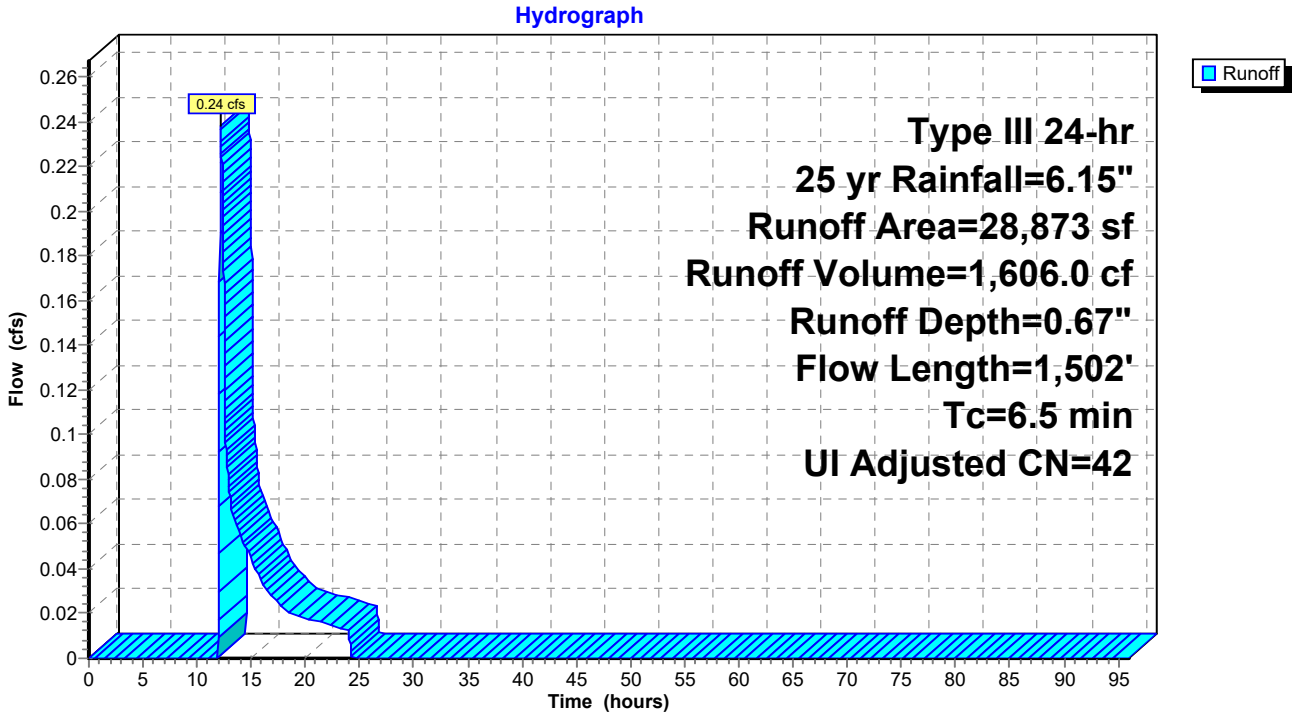
Runoff = 0.24 cfs @ 12.15 hrs, Volume= 1,606.0 cf, Depth= 0.67"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Adj	Description
*	2,800	98		Unconnected pavement, HSG A
	26,073	39		>75% Grass cover, Good, HSG A
	28,873	45	42	Weighted Average, UI Adjusted
	26,073			90.30% Pervious Area
	2,800			9.70% Impervious Area
	2,800			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A2: Prop. Watershed A2



Hydrograph for Subcatchment PR-A2: Prop. Watershed A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.16	0.00	0.00
11.00	1.54	0.00	0.00
12.00	3.07	0.01	**0.00**
13.00	4.61	0.22	**0.07**
14.00	4.99	0.31	0.05
15.00	5.25	0.38	0.04
16.00	5.45	0.44	0.03
17.00	5.59	0.48	0.03
18.00	5.71	0.52	0.02
19.00	5.80	0.55	0.02
20.00	5.89	0.58	0.02
21.00	5.96	0.60	0.02
22.00	6.03	0.63	0.02
23.00	6.09	0.65	0.01
24.00	**6.15**	**0.67**	0.01
25.00	6.15	0.67	0.00
26.00	6.15	0.67	0.00
27.00	6.15	0.67	0.00
28.00	6.15	0.67	0.00
29.00	6.15	0.67	0.00
30.00	6.15	0.67	0.00
31.00	6.15	0.67	0.00
32.00	6.15	0.67	0.00
33.00	6.15	0.67	0.00
34.00	6.15	0.67	0.00
35.00	6.15	0.67	0.00
36.00	6.15	0.67	0.00
37.00	6.15	0.67	0.00
38.00	6.15	0.67	0.00
39.00	6.15	0.67	0.00
40.00	6.15	0.67	0.00
41.00	6.15	0.67	0.00
42.00	6.15	0.67	0.00
43.00	6.15	0.67	0.00
44.00	6.15	0.67	0.00
45.00	6.15	0.67	0.00
46.00	6.15	0.67	0.00
47.00	6.15	0.67	0.00
48.00	6.15	0.67	0.00
49.00	6.15	0.67	0.00
50.00	6.15	0.67	0.00
51.00	6.15	0.67	0.00
52.00	6.15	0.67	0.00
53.00	6.15	0.67	0.00
54.00	6.15	0.67	0.00
55.00	6.15	0.67	0.00
56.00	6.15	0.67	0.00
57.00	6.15	0.67	0.00
58.00	6.15	0.67	0.00
59.00	6.15	0.67	0.00
60.00	6.15	0.67	0.00
61.00	6.15	0.67	0.00
62.00	6.15	0.67	0.00
63.00	6.15	0.67	0.00
64.00	6.15	0.67	0.00
65.00	6.15	0.67	0.00
66.00	6.15	0.67	0.00
67.00	6.15	0.67	0.00
68.00	6.15	0.67	0.00
69.00	6.15	0.67	0.00
70.00	6.15	0.67	0.00
71.00	6.15	0.67	0.00
72.00	6.15	0.67	0.00
73.00	6.15	0.67	0.00
74.00	6.15	0.67	0.00
75.00	6.15	0.67	0.00
76.00	6.15	0.67	0.00
77.00	6.15	0.67	0.00
78.00	6.15	0.67	0.00
79.00	6.15	0.67	0.00
80.00	6.15	0.67	0.00
81.00	6.15	0.67	0.00
82.00	6.15	0.67	0.00
83.00	6.15	0.67	0.00
84.00	6.15	0.67	0.00
85.00	6.15	0.67	0.00
86.00	6.15	0.67	0.00
87.00	6.15	0.67	0.00
88.00	6.15	0.67	0.00
89.00	6.15	0.67	0.00
90.00	6.15	0.67	0.00
91.00	6.15	0.67	0.00
92.00	6.15	0.67	0.00
93.00	6.15	0.67	0.00
94.00	6.15	0.67	0.00
95.00	6.15	0.67	0.00
96.00	6.15	0.67	0.00

Summary for Subcatchment PR-C: Prop. Watershed C

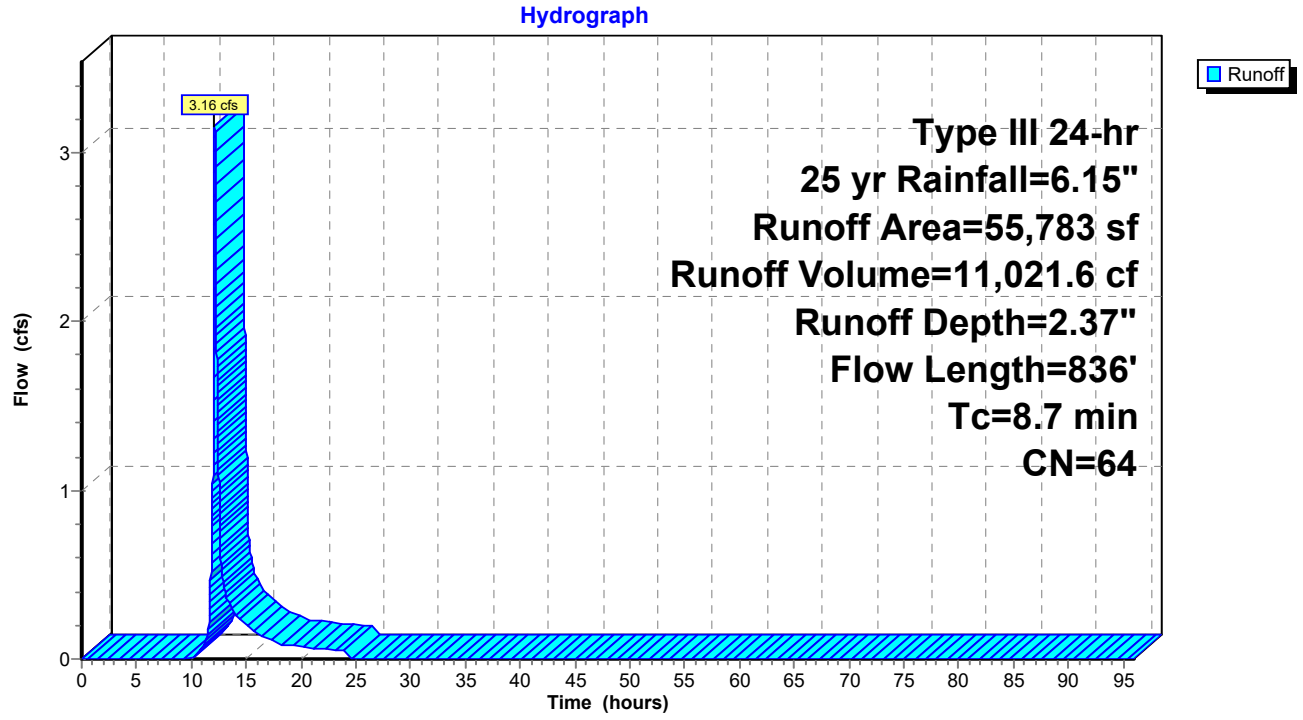
Runoff = 3.16 cfs @ 12.13 hrs, Volume= 11,021.6 cf, Depth= 2.37"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	23,937	98	Unconnected pavement, HSG A
	31,846	39	>75% Grass cover, Good, HSG A
	55,783	64	Weighted Average
	31,846		57.09% Pervious Area
	23,937		42.91% Impervious Area
	23,937		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	100	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	836	Total			

Subcatchment PR-C: Prop. Watershed C



Hydrograph for Subcatchment PR-C: Prop. Watershed C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.16	0.00	0.00
11.00	1.54	0.03	0.06
12.00	3.07	0.50	**1.41**
13.00	4.61	1.33	**0.42**
14.00	4.99	1.57	0.27
15.00	5.25	1.75	0.21
16.00	5.45	1.88	0.15
17.00	5.59	1.98	0.12
18.00	5.71	2.06	0.09
19.00	5.80	2.12	0.08
20.00	5.89	2.18	0.07
21.00	5.96	2.24	0.07
22.00	6.03	2.29	0.06
23.00	6.09	2.33	0.06
24.00	**6.15**	**2.37**	0.05
25.00	6.15	2.37	0.00
26.00	6.15	2.37	0.00
27.00	6.15	2.37	0.00
28.00	6.15	2.37	0.00
29.00	6.15	2.37	0.00
30.00	6.15	2.37	0.00
31.00	6.15	2.37	0.00
32.00	6.15	2.37	0.00
33.00	6.15	2.37	0.00
34.00	6.15	2.37	0.00
35.00	6.15	2.37	0.00
36.00	6.15	2.37	0.00
37.00	6.15	2.37	0.00
38.00	6.15	2.37	0.00
39.00	6.15	2.37	0.00
40.00	6.15	2.37	0.00
41.00	6.15	2.37	0.00
42.00	6.15	2.37	0.00
43.00	6.15	2.37	0.00
44.00	6.15	2.37	0.00
45.00	6.15	2.37	0.00
46.00	6.15	2.37	0.00
47.00	6.15	2.37	0.00
48.00	6.15	2.37	0.00
49.00	6.15	2.37	0.00
50.00	6.15	2.37	0.00
51.00	6.15	2.37	0.00
52.00	6.15	2.37	0.00
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61.00	6.15	2.37	0.00
62.00	6.15	2.37	0.00
63.00	6.15	2.37	0.00
64.00	6.15	2.37	0.00
65.00	6.15	2.37	0.00
66.00	6.15	2.37	0.00
67.00	6.15	2.37	0.00
68.00	6.15	2.37	0.00
69.00	6.15	2.37	0.00
70.00	6.15	2.37	0.00
71.00	6.15	2.37	0.00
72.00	6.15	2.37	0.00
73.00	6.15	2.37	0.00
74.00	6.15	2.37	0.00
75.00	6.15	2.37	0.00
76.00	6.15	2.37	0.00
77.00	6.15	2.37	0.00
78.00	6.15	2.37	0.00
79.00	6.15	2.37	0.00
80.00	6.15	2.37	0.00
81.00	6.15	2.37	0.00
82.00	6.15	2.37	0.00
83.00	6.15	2.37	0.00
84.00	6.15	2.37	0.00
85.00	6.15	2.37	0.00
86.00	6.15	2.37	0.00
87.00	6.15	2.37	0.00
88.00	6.15	2.37	0.00
89.00	6.15	2.37	0.00
90.00	6.15	2.37	0.00
91.00	6.15	2.37	0.00
92.00	6.15	2.37	0.00
93.00	6.15	2.37	0.00
94.00	6.15	2.37	0.00
95.00	6.15	2.37	0.00
96.00	6.15	2.37	0.00

Summary for Subcatchment PR-D1: Prop. Watershed D1

Runoff = 25.66 cfs @ 12.10 hrs, Volume= 87,287.7 cf, Depth= 4.88"
Routed to Pond SWM-4 : Cultec 4

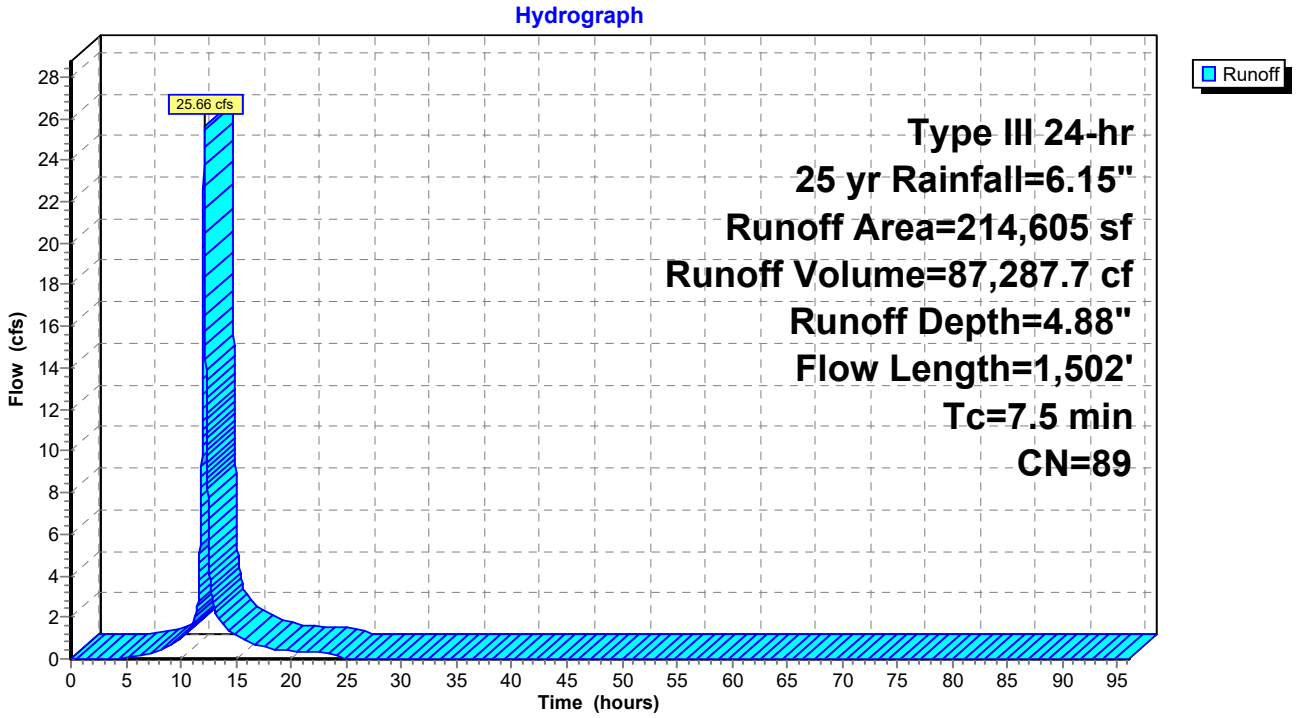
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	28,837	98	Building 2 - South
*	28,095	98	Building 3 - West
*	28,101	98	Building 3 - East
	96,079	98	Unconnected pavement, HSG A
	33,493	39	>75% Grass cover, Good, HSG A
	214,605	89	Weighted Average
	33,493		15.61% Pervious Area
	181,112		84.39% Impervious Area
	96,079		53.05% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	50	0.1600	0.34		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.22"
0.0	12	0.1250	5.69		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
1.3	296	0.0350	3.80		**Shallow Concentrated Flow, c-d** Paved Kv= 20.3 fps
0.2	64	0.0100	4.54	3.56	**Pipe Channel, d-e** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.0	13	0.0160	5.74	4.51	**Pipe Channel, e-f** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.8	196	0.0046	4.03	7.12	**Pipe Channel, f-g** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.9	213	0.0047	4.08	7.20	**Pipe Channel, g-h** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	56	0.0054	6.14	30.14	**Pipe Channel, h-i** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.8	282	0.0050	5.91	29.00	**Pipe Channel, i-j** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	162	0.0050	5.91	29.00	**Pipe Channel, j-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.4	158	0.0060	6.47	31.77	**Pipe Channel, k-l** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013

7.5	1,502	Total

Subcatchment PR-D1: Prop. Watershed D1



Hydrograph for Subcatchment PR-D1: Prop. Watershed D1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.01
5.00	0.35	0.01	0.06
6.00	0.44	0.03	0.12
7.00	0.56	0.06	0.22
8.00	0.70	0.12	0.35
9.00	0.90	0.22	0.62
10.00	1.16	0.39	0.96
11.00	1.54	0.66	1.61
12.00	3.07	1.97	**14.50**
13.00	4.61	3.40	**2.43**
14.00	4.99	3.76	1.51
15.00	5.25	4.02	1.14
16.00	5.45	4.20	0.80
17.00	5.59	4.34	0.64
18.00	5.71	4.45	0.49
19.00	5.80	4.54	0.43
20.00	5.89	4.62	0.39
21.00	5.96	4.70	0.36
22.00	6.03	4.77	0.32
23.00	6.09	4.83	0.29
24.00	**6.15**	**4.88**	0.26
25.00	6.15	4.88	0.00
26.00	6.15	4.88	0.00
27.00	6.15	4.88	0.00
28.00	6.15	4.88	0.00
29.00	6.15	4.88	0.00
30.00	6.15	4.88	0.00
31.00	6.15	4.88	0.00
32.00	6.15	4.88	0.00
33.00	6.15	4.88	0.00
34.00	6.15	4.88	0.00
35.00	6.15	4.88	0.00
36.00	6.15	4.88	0.00
37.00	6.15	4.88	0.00
38.00	6.15	4.88	0.00
39.00	6.15	4.88	0.00
40.00	6.15	4.88	0.00
41.00	6.15	4.88	0.00
42.00	6.15	4.88	0.00
43.00	6.15	4.88	0.00
44.00	6.15	4.88	0.00
45.00	6.15	4.88	0.00
46.00	6.15	4.88	0.00
47.00	6.15	4.88	0.00
48.00	6.15	4.88	0.00
49.00	6.15	4.88	0.00
50.00	6.15	4.88	0.00
51.00	6.15	4.88	0.00
52.00	6.15	4.88	0.00
53.00	6.15	4.88	0.00
54.00	6.15	4.88	0.00
55.00	6.15	4.88	0.00
56.00	6.15	4.88	0.00
57.00	6.15	4.88	0.00
58.00	6.15	4.88	0.00
59.00	6.15	4.88	0.00
60.00	6.15	4.88	0.00
61.00	6.15	4.88	0.00
62.00	6.15	4.88	0.00
63.00	6.15	4.88	0.00
64.00	6.15	4.88	0.00
65.00	6.15	4.88	0.00
66.00	6.15	4.88	0.00
67.00	6.15	4.88	0.00
68.00	6.15	4.88	0.00
69.00	6.15	4.88	0.00
70.00	6.15	4.88	0.00
71.00	6.15	4.88	0.00
72.00	6.15	4.88	0.00
73.00	6.15	4.88	0.00
74.00	6.15	4.88	0.00
75.00	6.15	4.88	0.00
76.00	6.15	4.88	0.00
77.00	6.15	4.88	0.00
78.00	6.15	4.88	0.00
79.00	6.15	4.88	0.00
80.00	6.15	4.88	0.00
81.00	6.15	4.88	0.00
82.00	6.15	4.88	0.00
83.00	6.15	4.88	0.00
84.00	6.15	4.88	0.00
85.00	6.15	4.88	0.00
86.00	6.15	4.88	0.00
87.00	6.15	4.88	0.00
88.00	6.15	4.88	0.00
89.00	6.15	4.88	0.00
90.00	6.15	4.88	0.00
91.00	6.15	4.88	0.00
92.00	6.15	4.88	0.00
93.00	6.15	4.88	0.00
94.00	6.15	4.88	0.00
95.00	6.15	4.88	0.00
96.00	6.15	4.88	0.00

Summary for Subcatchment PR-D2: Prop. Watershed D2

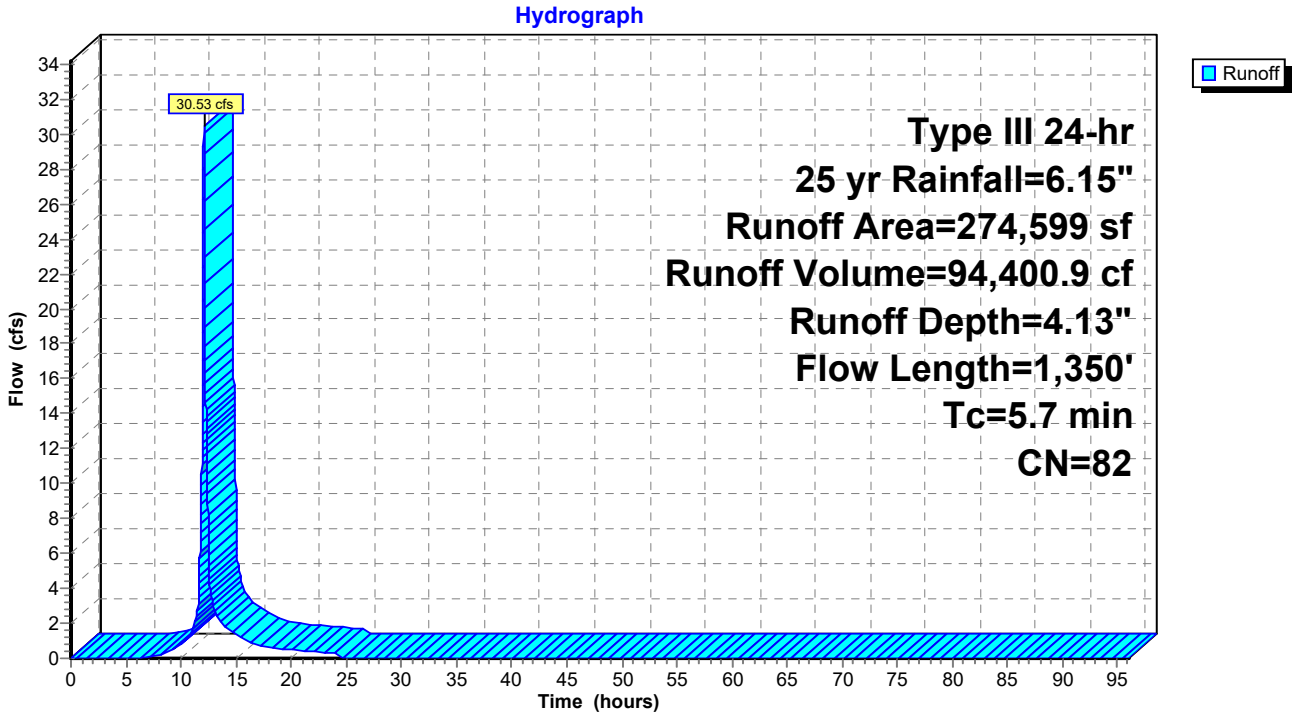
Runoff = 30.53 cfs @ 12.08 hrs, Volume= 94,400.9 cf, Depth= 4.13"
Routed to Pond SWM-3 : Cultec 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	191,226	98	Pavement
*	3,868	98	Conc walk
*	4,480	90	Perv Pavers
	75,025	39	>75% Grass cover, Good, HSG A
	274,599	82	Weighted Average
	79,505		28.95% Pervious Area
	195,094		71.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
1.0	124	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	84	0.0090	4.30	3.38	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.3	97	0.0090	4.99	6.13	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.4	116	0.0070	4.40	5.40	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.6	212	0.0070	6.02	18.93	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.7	218	0.0050	5.09	16.00	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.1	219	0.5000	59.09	290.03	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	193	0.0060	6.47	31.77	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.1	37	0.0060	6.47	31.77	**Pipe Channel, J-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
5.7	1,350	Total			

Subcatchment PR-D2: Prop. Watershed D2



Hydrograph for Subcatchment PR-D2: Prop. Watershed D2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.01	0.07
8.00	0.70	0.03	0.19
9.00	0.90	0.08	0.43
10.00	1.16	0.18	0.80
11.00	1.54	0.37	1.51
12.00	3.07	1.44	**18.66**
13.00	4.61	2.73	**2.79**
14.00	4.99	3.07	1.78
15.00	5.25	3.31	1.36
16.00	5.45	3.48	0.96
17.00	5.59	3.61	0.76
18.00	5.71	3.72	0.59
19.00	5.80	3.80	0.52
20.00	5.89	3.88	0.47
21.00	5.96	3.95	0.43
22.00	6.03	4.02	0.39
23.00	6.09	4.07	0.35
24.00	**6.15**	**4.13**	0.31
25.00	6.15	4.13	0.00
26.00	6.15	4.13	0.00
27.00	6.15	4.13	0.00
28.00	6.15	4.13	0.00
29.00	6.15	4.13	0.00
30.00	6.15	4.13	0.00
31.00	6.15	4.13	0.00
32.00	6.15	4.13	0.00
33.00	6.15	4.13	0.00
34.00	6.15	4.13	0.00
35.00	6.15	4.13	0.00
36.00	6.15	4.13	0.00
37.00	6.15	4.13	0.00
38.00	6.15	4.13	0.00
39.00	6.15	4.13	0.00
40.00	6.15	4.13	0.00
41.00	6.15	4.13	0.00
42.00	6.15	4.13	0.00
43.00	6.15	4.13	0.00
44.00	6.15	4.13	0.00
45.00	6.15	4.13	0.00
46.00	6.15	4.13	0.00
47.00	6.15	4.13	0.00
48.00	6.15	4.13	0.00
49.00	6.15	4.13	0.00
50.00	6.15	4.13	0.00
51.00	6.15	4.13	0.00
52.00	6.15	4.13	0.00
53.00	6.15	4.13	0.00
54.00	6.15	4.13	0.00
55.00	6.15	4.13	0.00
56.00	6.15	4.13	0.00
57.00	6.15	4.13	0.00
58.00	6.15	4.13	0.00
59.00	6.15	4.13	0.00
60.00	6.15	4.13	0.00
61.00	6.15	4.13	0.00
62.00	6.15	4.13	0.00
63.00	6.15	4.13	0.00
64.00	6.15	4.13	0.00
65.00	6.15	4.13	0.00
66.00	6.15	4.13	0.00
67.00	6.15	4.13	0.00
68.00	6.15	4.13	0.00
69.00	6.15	4.13	0.00
70.00	6.15	4.13	0.00
71.00	6.15	4.13	0.00
72.00	6.15	4.13	0.00
73.00	6.15	4.13	0.00
74.00	6.15	4.13	0.00
75.00	6.15	4.13	0.00
76.00	6.15	4.13	0.00
77.00	6.15	4.13	0.00
78.00	6.15	4.13	0.00
79.00	6.15	4.13	0.00
80.00	6.15	4.13	0.00
81.00	6.15	4.13	0.00
82.00	6.15	4.13	0.00
83.00	6.15	4.13	0.00
84.00	6.15	4.13	0.00
85.00	6.15	4.13	0.00
86.00	6.15	4.13	0.00
87.00	6.15	4.13	0.00
88.00	6.15	4.13	0.00
89.00	6.15	4.13	0.00
90.00	6.15	4.13	0.00
91.00	6.15	4.13	0.00
92.00	6.15	4.13	0.00
93.00	6.15	4.13	0.00
94.00	6.15	4.13	0.00
95.00	6.15	4.13	0.00
96.00	6.15	4.13	0.00

Summary for Subcatchment PR-D3: Prop. Watershed D3

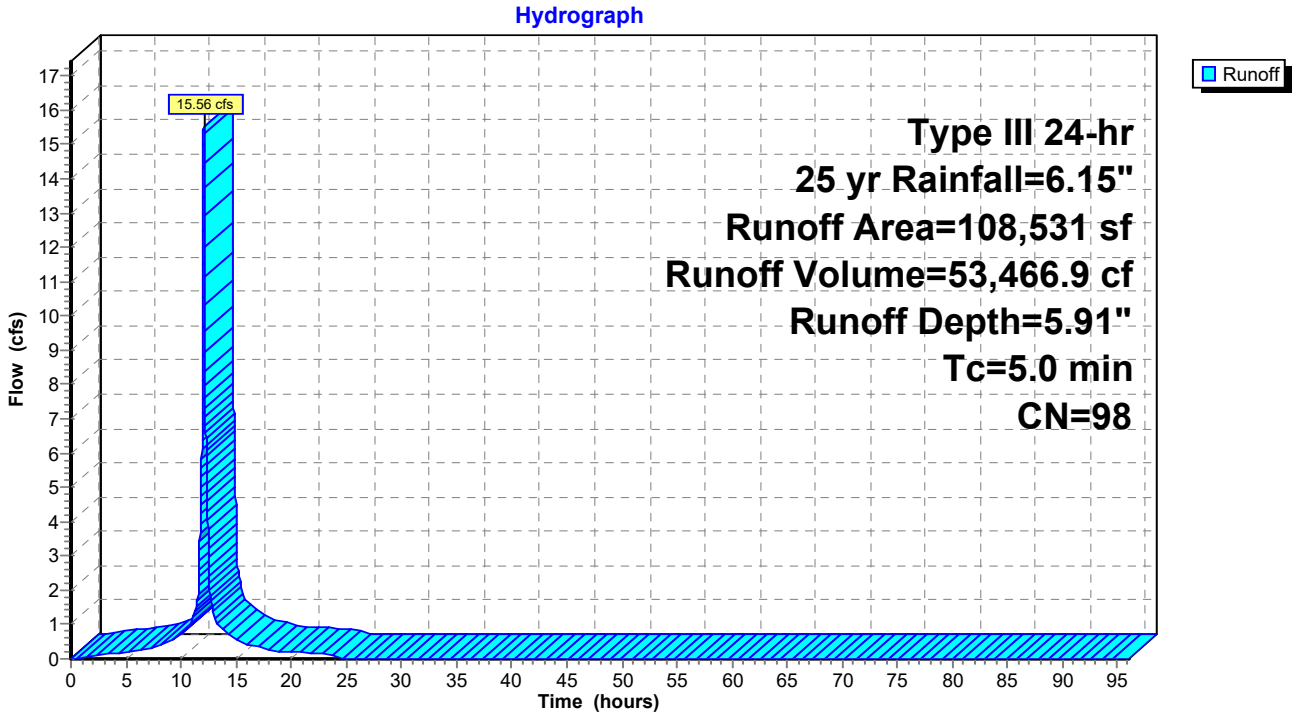
Runoff = 15.56 cfs @ 12.07 hrs, Volume= 53,466.9 cf, Depth= 5.91"
Routed to Pond SWM-6 : Cultec 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	108,531	98	Building 1 - North
	108,531		100.00% Impervious Area

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

Subcatchment PR-D3: Prop. Watershed D3



Hydrograph for Subcatchment PR-D3: Prop. Watershed D3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.02
2.00	0.12	0.02	0.07
3.00	0.19	0.06	0.12
4.00	0.26	0.12	0.15
5.00	0.35	0.19	0.19
6.00	0.44	0.27	0.22
7.00	0.56	0.37	0.29
8.00	0.70	0.50	0.37
9.00	0.90	0.69	0.54
10.00	1.16	0.95	0.73
11.00	1.54	1.32	1.08
12.00	3.07	2.84	**10.52**
13.00	4.61	4.38	**1.24**
14.00	4.99	4.75	0.78
15.00	5.25	5.02	0.59
16.00	5.45	5.21	0.41
17.00	5.59	5.36	0.33
18.00	5.71	5.47	0.25
19.00	5.80	5.56	0.23
20.00	5.89	5.65	0.20
21.00	5.96	5.72	0.18
22.00	6.03	5.79	0.17
23.00	6.09	5.86	0.15
24.00	**6.15**	**5.91**	0.13
25.00	6.15	5.91	0.00
26.00	6.15	5.91	0.00
27.00	6.15	5.91	0.00
28.00	6.15	5.91	0.00
29.00	6.15	5.91	0.00
30.00	6.15	5.91	0.00
31.00	6.15	5.91	0.00
32.00	6.15	5.91	0.00
33.00	6.15	5.91	0.00
34.00	6.15	5.91	0.00
35.00	6.15	5.91	0.00
36.00	6.15	5.91	0.00
37.00	6.15	5.91	0.00
38.00	6.15	5.91	0.00
39.00	6.15	5.91	0.00
40.00	6.15	5.91	0.00
41.00	6.15	5.91	0.00
42.00	6.15	5.91	0.00
43.00	6.15	5.91	0.00
44.00	6.15	5.91	0.00
45.00	6.15	5.91	0.00
46.00	6.15	5.91	0.00
47.00	6.15	5.91	0.00
48.00	6.15	5.91	0.00
49.00	6.15	5.91	0.00
50.00	6.15	5.91	0.00
51.00	6.15	5.91	0.00
52.00	6.15	5.91	0.00
53.00	6.15	5.91	0.00
54.00	6.15	5.91	0.00
55.00	6.15	5.91	0.00
56.00	6.15	5.91	0.00
57.00	6.15	5.91	0.00
58.00	6.15	5.91	0.00
59.00	6.15	5.91	0.00
60.00	6.15	5.91	0.00
61.00	6.15	5.91	0.00
62.00	6.15	5.91	0.00
63.00	6.15	5.91	0.00
64.00	6.15	5.91	0.00
65.00	6.15	5.91	0.00
66.00	6.15	5.91	0.00
67.00	6.15	5.91	0.00
68.00	6.15	5.91	0.00
69.00	6.15	5.91	0.00
70.00	6.15	5.91	0.00
71.00	6.15	5.91	0.00
72.00	6.15	5.91	0.00
73.00	6.15	5.91	0.00
74.00	6.15	5.91	0.00
75.00	6.15	5.91	0.00
76.00	6.15	5.91	0.00
77.00	6.15	5.91	0.00
78.00	6.15	5.91	0.00
79.00	6.15	5.91	0.00
80.00	6.15	5.91	0.00
81.00	6.15	5.91	0.00
82.00	6.15	5.91	0.00
83.00	6.15	5.91	0.00
84.00	6.15	5.91	0.00
85.00	6.15	5.91	0.00
86.00	6.15	5.91	0.00
87.00	6.15	5.91	0.00
88.00	6.15	5.91	0.00
89.00	6.15	5.91	0.00
90.00	6.15	5.91	0.00
91.00	6.15	5.91	0.00
92.00	6.15	5.91	0.00
93.00	6.15	5.91	0.00
94.00	6.15	5.91	0.00
95.00	6.15	5.91	0.00
96.00	6.15	5.91	0.00

Summary for Subcatchment PR-D4: Prop. Watershed D4

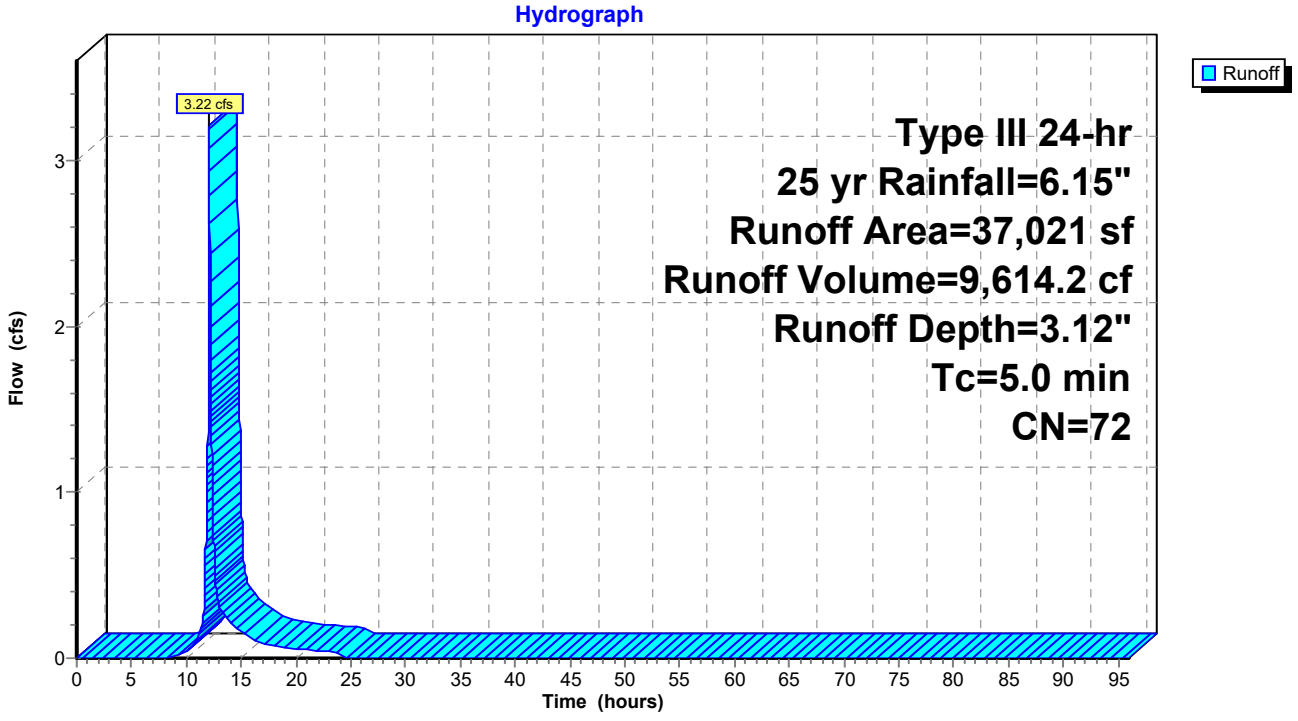
Runoff = 3.22 cfs @ 12.08 hrs, Volume= 9,614.2 cf, Depth= 3.12"
Routed to Pond SWM-4 : Cultec 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	20,670	98	Pavement
	16,351	39	>75% Grass cover, Good, HSG A
	37,021	72	Weighted Average
	16,351		44.17% Pervious Area
	20,670		55.83% Impervious Area

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

Subcatchment PR-D4: Prop. Watershed D4



Hydrograph for Subcatchment PR-D4: Prop. Watershed D4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.00	0.01
10.00	1.16	0.03	0.04
11.00	1.54	0.12	0.11
12.00	3.07	0.85	**1.99**
13.00	4.61	1.90	**0.31**
14.00	4.99	2.19	0.21
15.00	5.25	2.39	0.16
16.00	5.45	2.55	0.11
17.00	5.59	2.66	0.09
18.00	5.71	2.76	0.07
19.00	5.80	2.83	0.06
20.00	5.89	2.90	0.06
21.00	5.96	2.96	0.05
22.00	6.03	3.02	0.05
23.00	6.09	3.07	0.04
24.00	**6.15**	**3.12**	0.04
25.00	6.15	3.12	0.00
26.00	6.15	3.12	0.00
27.00	6.15	3.12	0.00
28.00	6.15	3.12	0.00
29.00	6.15	3.12	0.00
30.00	6.15	3.12	0.00
31.00	6.15	3.12	0.00
32.00	6.15	3.12	0.00
33.00	6.15	3.12	0.00
34.00	6.15	3.12	0.00
35.00	6.15	3.12	0.00
36.00	6.15	3.12	0.00
37.00	6.15	3.12	0.00
38.00	6.15	3.12	0.00
39.00	6.15	3.12	0.00
40.00	6.15	3.12	0.00
41.00	6.15	3.12	0.00
42.00	6.15	3.12	0.00
43.00	6.15	3.12	0.00
44.00	6.15	3.12	0.00
45.00	6.15	3.12	0.00
46.00	6.15	3.12	0.00
47.00	6.15	3.12	0.00
48.00	6.15	3.12	0.00
49.00	6.15	3.12	0.00
50.00	6.15	3.12	0.00
51.00	6.15	3.12	0.00
52.00	6.15	3.12	0.00
53.00	6.15	3.12	0.00
54.00	6.15	3.12	0.00
55.00	6.15	3.12	0.00
56.00	6.15	3.12	0.00
57.00	6.15	3.12	0.00
58.00	6.15	3.12	0.00
59.00	6.15	3.12	0.00
60.00	6.15	3.12	0.00
61.00	6.15	3.12	0.00
62.00	6.15	3.12	0.00
63.00	6.15	3.12	0.00
64.00	6.15	3.12	0.00
65.00	6.15	3.12	0.00
66.00	6.15	3.12	0.00
67.00	6.15	3.12	0.00
68.00	6.15	3.12	0.00
69.00	6.15	3.12	0.00
70.00	6.15	3.12	0.00
71.00	6.15	3.12	0.00
72.00	6.15	3.12	0.00
73.00	6.15	3.12	0.00
74.00	6.15	3.12	0.00
75.00	6.15	3.12	0.00
76.00	6.15	3.12	0.00
77.00	6.15	3.12	0.00
78.00	6.15	3.12	0.00
79.00	6.15	3.12	0.00
80.00	6.15	3.12	0.00
81.00	6.15	3.12	0.00
82.00	6.15	3.12	0.00
83.00	6.15	3.12	0.00
84.00	6.15	3.12	0.00
85.00	6.15	3.12	0.00
86.00	6.15	3.12	0.00
87.00	6.15	3.12	0.00
88.00	6.15	3.12	0.00
89.00	6.15	3.12	0.00
90.00	6.15	3.12	0.00
91.00	6.15	3.12	0.00
92.00	6.15	3.12	0.00
93.00	6.15	3.12	0.00
94.00	6.15	3.12	0.00
95.00	6.15	3.12	0.00
96.00	6.15	3.12	0.00

Summary for Subcatchment PR-D5: Prop. Watershed D5

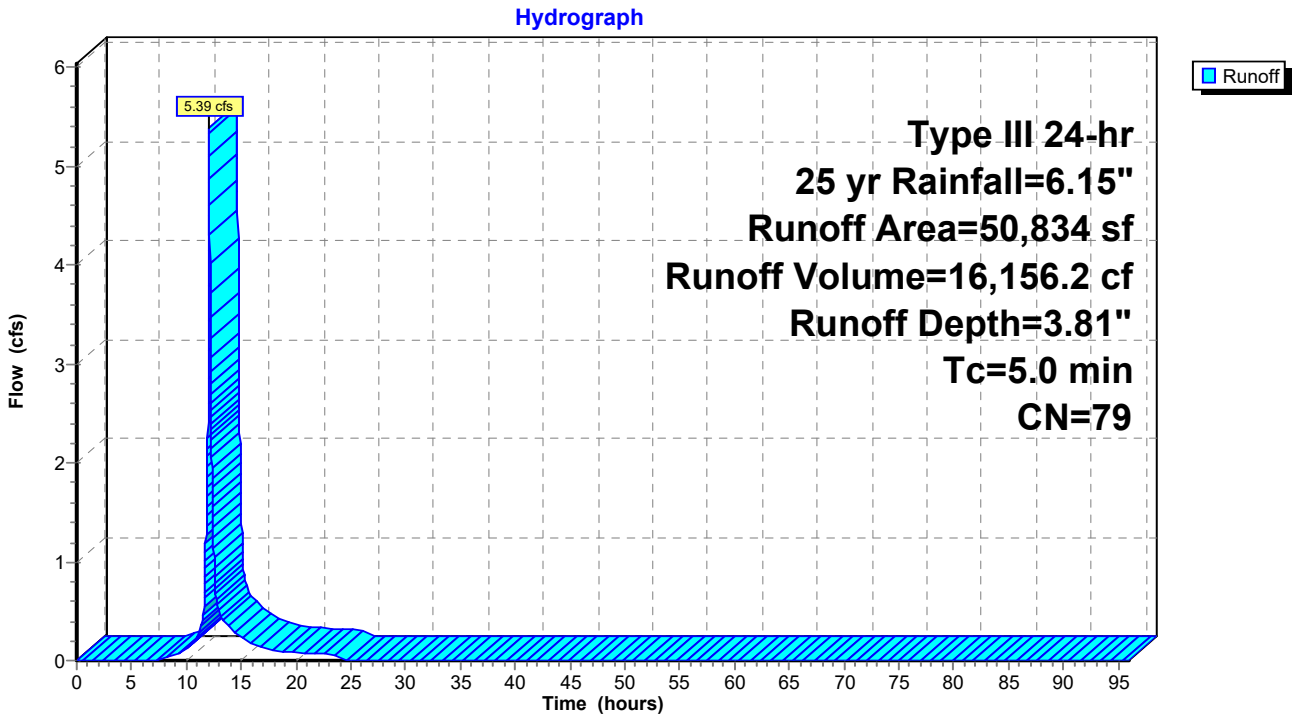
Runoff = 5.39 cfs @ 12.07 hrs, Volume= 16,156.2 cf, Depth= 3.81"
Routed to Pond RG1 : Rain-Garden #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

Area (sf)	CN	Description
34,446	98	Unconnected pavement, HSG A
16,388	39	>75% Grass cover, Good, HSG A
50,834	79	Weighted Average
16,388		32.24% Pervious Area
34,446		67.76% Impervious Area
34,446		100.00% Unconnected

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

Subcatchment PR-D5: Prop. Watershed D5



Hydrograph for Subcatchment PR-D5: Prop. Watershed D5

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.01	0.02
9.00	0.90	0.04	0.06
10.00	1.16	0.12	0.12
11.00	1.54	0.28	0.24
12.00	3.07	1.24	**3.44**
13.00	4.61	2.47	**0.49**
14.00	4.99	2.79	0.32
15.00	5.25	3.02	0.24
16.00	5.45	3.19	0.17
17.00	5.59	3.32	0.14
18.00	5.71	3.42	0.10
19.00	5.80	3.50	0.09
20.00	5.89	3.58	0.08
21.00	5.96	3.65	0.08
22.00	6.03	3.71	0.07
23.00	6.09	3.76	0.06
24.00	**6.15**	**3.81**	0.06
25.00	6.15	3.81	0.00
26.00	6.15	3.81	0.00
27.00	6.15	3.81	0.00
28.00	6.15	3.81	0.00
29.00	6.15	3.81	0.00
30.00	6.15	3.81	0.00
31.00	6.15	3.81	0.00
32.00	6.15	3.81	0.00
33.00	6.15	3.81	0.00
34.00	6.15	3.81	0.00
35.00	6.15	3.81	0.00
36.00	6.15	3.81	0.00
37.00	6.15	3.81	0.00
38.00	6.15	3.81	0.00
39.00	6.15	3.81	0.00
40.00	6.15	3.81	0.00
41.00	6.15	3.81	0.00
42.00	6.15	3.81	0.00
43.00	6.15	3.81	0.00
44.00	6.15	3.81	0.00
45.00	6.15	3.81	0.00
46.00	6.15	3.81	0.00
47.00	6.15	3.81	0.00
48.00	6.15	3.81	0.00
49.00	6.15	3.81	0.00
50.00	6.15	3.81	0.00
51.00	6.15	3.81	0.00
52.00	6.15	3.81	0.00
53.00	6.15	3.81	0.00
54.00	6.15	3.81	0.00
55.00	6.15	3.81	0.00
56.00	6.15	3.81	0.00
57.00	6.15	3.81	0.00
58.00	6.15	3.81	0.00
59.00	6.15	3.81	0.00
60.00	6.15	3.81	0.00
61.00	6.15	3.81	0.00
62.00	6.15	3.81	0.00
63.00	6.15	3.81	0.00
64.00	6.15	3.81	0.00
65.00	6.15	3.81	0.00
66.00	6.15	3.81	0.00
67.00	6.15	3.81	0.00
68.00	6.15	3.81	0.00
69.00	6.15	3.81	0.00
70.00	6.15	3.81	0.00
71.00	6.15	3.81	0.00
72.00	6.15	3.81	0.00
73.00	6.15	3.81	0.00
74.00	6.15	3.81	0.00
75.00	6.15	3.81	0.00
76.00	6.15	3.81	0.00
77.00	6.15	3.81	0.00
78.00	6.15	3.81	0.00
79.00	6.15	3.81	0.00
80.00	6.15	3.81	0.00
81.00	6.15	3.81	0.00
82.00	6.15	3.81	0.00
83.00	6.15	3.81	0.00
84.00	6.15	3.81	0.00
85.00	6.15	3.81	0.00
86.00	6.15	3.81	0.00
87.00	6.15	3.81	0.00
88.00	6.15	3.81	0.00
89.00	6.15	3.81	0.00
90.00	6.15	3.81	0.00
91.00	6.15	3.81	0.00
92.00	6.15	3.81	0.00
93.00	6.15	3.81	0.00
94.00	6.15	3.81	0.00
95.00	6.15	3.81	0.00
96.00	6.15	3.81	0.00

Summary for Subcatchment PR-D6: Prop. Watershed D6

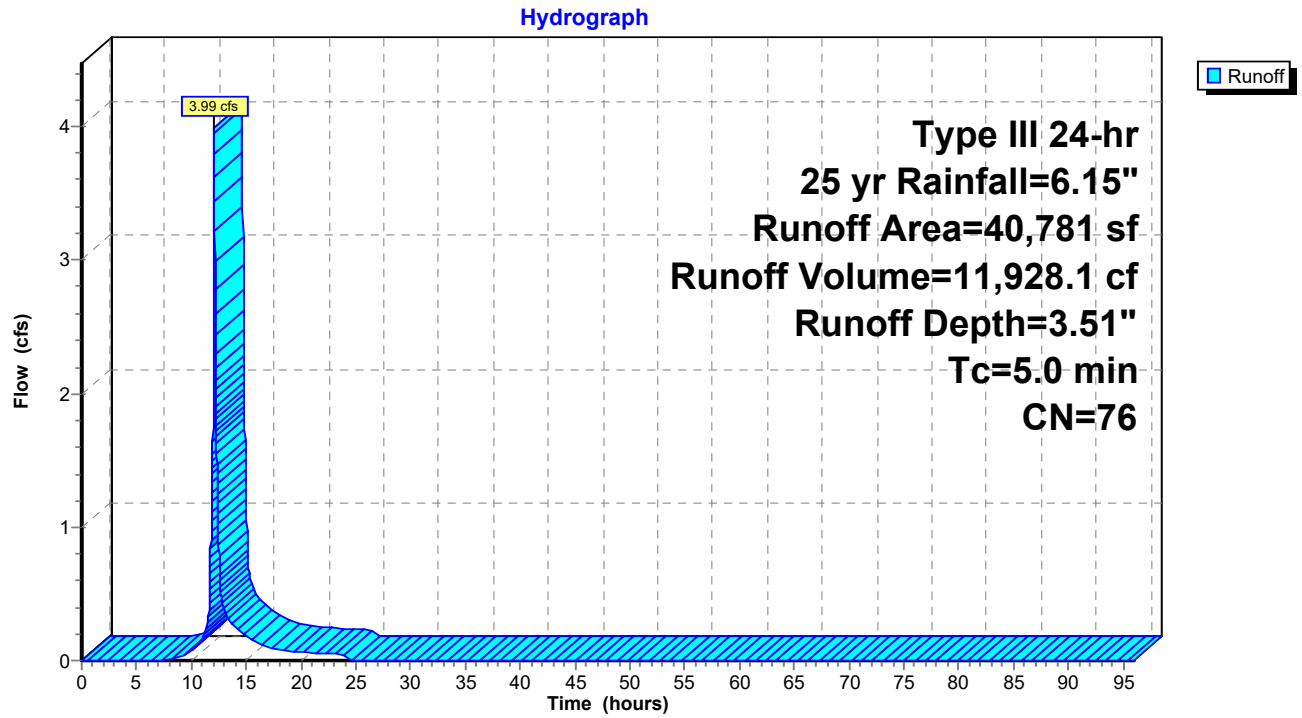
Runoff = 3.99 cfs @ 12.07 hrs, Volume= 11,928.1 cf, Depth= 3.51"
Routed to Pond RG2 : Rain-Garden #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

Area (sf)	CN	Description
25,487	98	Unconnected pavement, HSG A
15,294	39	>75% Grass cover, Good, HSG A
40,781	76	Weighted Average
15,294		37.50% Pervious Area
25,487		62.50% Impervious Area
25,487		100.00% Unconnected

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

Subcatchment PR-D6: Prop. Watershed D6



Hydrograph for Subcatchment PR-D6: Prop. Watershed D6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.01
9.00	0.90	0.02	0.03
10.00	1.16	0.08	0.07
11.00	1.54	0.20	0.16
12.00	3.07	1.07	**2.52**
13.00	4.61	2.22	**0.37**
14.00	4.99	2.53	0.24
15.00	5.25	2.75	0.19
16.00	5.45	2.91	0.13
17.00	5.59	3.03	0.11
18.00	5.71	3.13	0.08
19.00	5.80	3.21	0.07
20.00	5.89	3.28	0.07
21.00	5.96	3.35	0.06
22.00	6.03	3.41	0.05
23.00	6.09	3.46	0.05
24.00	**6.15**	**3.51**	0.04
25.00	6.15	3.51	0.00
26.00	6.15	3.51	0.00
27.00	6.15	3.51	0.00
28.00	6.15	3.51	0.00
29.00	6.15	3.51	0.00
30.00	6.15	3.51	0.00
31.00	6.15	3.51	0.00
32.00	6.15	3.51	0.00
33.00	6.15	3.51	0.00
34.00	6.15	3.51	0.00
35.00	6.15	3.51	0.00
36.00	6.15	3.51	0.00
37.00	6.15	3.51	0.00
38.00	6.15	3.51	0.00
39.00	6.15	3.51	0.00
40.00	6.15	3.51	0.00
41.00	6.15	3.51	0.00
42.00	6.15	3.51	0.00
43.00	6.15	3.51	0.00
44.00	6.15	3.51	0.00
45.00	6.15	3.51	0.00
46.00	6.15	3.51	0.00
47.00	6.15	3.51	0.00
48.00	6.15	3.51	0.00
49.00	6.15	3.51	0.00
50.00	6.15	3.51	0.00
51.00	6.15	3.51	0.00
52.00	6.15	3.51	0.00
53.00	6.15	3.51	0.00
54.00	6.15	3.51	0.00
55.00	6.15	3.51	0.00
56.00	6.15	3.51	0.00
57.00	6.15	3.51	0.00
58.00	6.15	3.51	0.00
59.00	6.15	3.51	0.00
60.00	6.15	3.51	0.00
61.00	6.15	3.51	0.00
62.00	6.15	3.51	0.00
63.00	6.15	3.51	0.00
64.00	6.15	3.51	0.00
65.00	6.15	3.51	0.00
66.00	6.15	3.51	0.00
67.00	6.15	3.51	0.00
68.00	6.15	3.51	0.00
69.00	6.15	3.51	0.00
70.00	6.15	3.51	0.00
71.00	6.15	3.51	0.00
72.00	6.15	3.51	0.00
73.00	6.15	3.51	0.00
74.00	6.15	3.51	0.00
75.00	6.15	3.51	0.00
76.00	6.15	3.51	0.00
77.00	6.15	3.51	0.00
78.00	6.15	3.51	0.00
79.00	6.15	3.51	0.00
80.00	6.15	3.51	0.00
81.00	6.15	3.51	0.00
82.00	6.15	3.51	0.00
83.00	6.15	3.51	0.00
84.00	6.15	3.51	0.00
85.00	6.15	3.51	0.00
86.00	6.15	3.51	0.00
87.00	6.15	3.51	0.00
88.00	6.15	3.51	0.00
89.00	6.15	3.51	0.00
90.00	6.15	3.51	0.00
91.00	6.15	3.51	0.00
92.00	6.15	3.51	0.00
93.00	6.15	3.51	0.00
94.00	6.15	3.51	0.00
95.00	6.15	3.51	0.00
96.00	6.15	3.51	0.00

Summary for Subcatchment PR-D7: Prop. Watershed D7

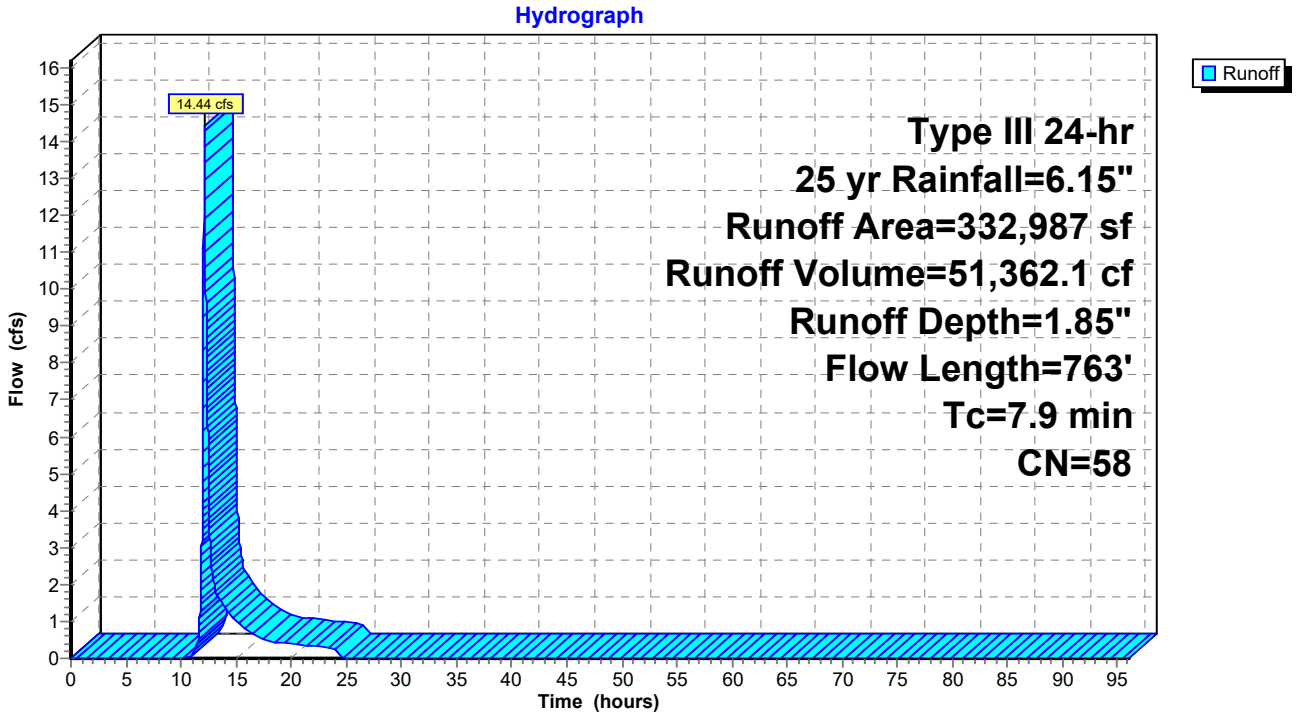
Runoff = 14.44 cfs @ 12.12 hrs, Volume= 51,362.1 cf, Depth= 1.85"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	105,210	98	Pavement
*	4,930	98	Walkway Ramp/steps
	204,310	39	>75% Grass cover, Good, HSG A
*	18,537	36	Woods, Fair, HSG A
	332,987	58	Weighted Average
	222,847		66.92% Pervious Area
	110,140		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.2	52	0.0670	4.17		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.0	66	0.0030	1.11		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	78	0.0064	4.21	5.17	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.7	170	0.0035	3.90	9.37	**Pipe Channel, E-F** 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.013
0.4	121	0.0041	4.61	14.49	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.3	145	0.0055	8.48	106.53	**Pipe Channel, G-H** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	40	0.0050	8.08	101.57	**Pipe Channel, H-I** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	41	0.0054	6.93	49.01	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.013
7.9	763	Total			

Subcatchment PR-D7: Prop. Watershed D7



Hydrograph for Subcatchment PR-D7: Prop. Watershed D7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.19	0.00	0.00
4.00	0.26	0.00	0.00
5.00	0.35	0.00	0.00
6.00	0.44	0.00	0.00
7.00	0.56	0.00	0.00
8.00	0.70	0.00	0.00
9.00	0.90	0.00	0.00
10.00	1.16	0.00	0.00
11.00	1.54	0.00	0.03
12.00	3.07	0.30	**6.15**
13.00	4.61	0.96	**2.04**
14.00	4.99	1.16	1.34
15.00	5.25	1.31	1.05
16.00	5.45	1.42	0.76
17.00	5.59	1.51	0.61
18.00	5.71	1.58	0.47
19.00	5.80	1.63	0.42
20.00	5.89	1.69	0.38
21.00	5.96	1.73	0.35
22.00	6.03	1.78	0.32
23.00	6.09	1.82	0.29
24.00	**6.15**	**1.85**	0.26
25.00	6.15	1.85	0.00
26.00	6.15	1.85	0.00
27.00	6.15	1.85	0.00
28.00	6.15	1.85	0.00
29.00	6.15	1.85	0.00
30.00	6.15	1.85	0.00
31.00	6.15	1.85	0.00
32.00	6.15	1.85	0.00
33.00	6.15	1.85	0.00
34.00	6.15	1.85	0.00
35.00	6.15	1.85	0.00
36.00	6.15	1.85	0.00
37.00	6.15	1.85	0.00
38.00	6.15	1.85	0.00
39.00	6.15	1.85	0.00
40.00	6.15	1.85	0.00
41.00	6.15	1.85	0.00
42.00	6.15	1.85	0.00
43.00	6.15	1.85	0.00
44.00	6.15	1.85	0.00
45.00	6.15	1.85	0.00
46.00	6.15	1.85	0.00
47.00	6.15	1.85	0.00
48.00	6.15	1.85	0.00
49.00	6.15	1.85	0.00
50.00	6.15	1.85	0.00
51.00	6.15	1.85	0.00
52.00	6.15	1.85	0.00
53.00	6.15	1.85	0.00
54.00	6.15	1.85	0.00
55.00	6.15	1.85	0.00
56.00	6.15	1.85	0.00
57.00	6.15	1.85	0.00
58.00	6.15	1.85	0.00
59.00	6.15	1.85	0.00
60.00	6.15	1.85	0.00
61.00	6.15	1.85	0.00
62.00	6.15	1.85	0.00
63.00	6.15	1.85	0.00
64.00	6.15	1.85	0.00
65.00	6.15	1.85	0.00
66.00	6.15	1.85	0.00
67.00	6.15	1.85	0.00
68.00	6.15	1.85	0.00
69.00	6.15	1.85	0.00
70.00	6.15	1.85	0.00
71.00	6.15	1.85	0.00
72.00	6.15	1.85	0.00
73.00	6.15	1.85	0.00
74.00	6.15	1.85	0.00
75.00	6.15	1.85	0.00
76.00	6.15	1.85	0.00
77.00	6.15	1.85	0.00
78.00	6.15	1.85	0.00
79.00	6.15	1.85	0.00
80.00	6.15	1.85	0.00
81.00	6.15	1.85	0.00
82.00	6.15	1.85	0.00
83.00	6.15	1.85	0.00
84.00	6.15	1.85	0.00
85.00	6.15	1.85	0.00
86.00	6.15	1.85	0.00
87.00	6.15	1.85	0.00
88.00	6.15	1.85	0.00
89.00	6.15	1.85	0.00
90.00	6.15	1.85	0.00
91.00	6.15	1.85	0.00
92.00	6.15	1.85	0.00
93.00	6.15	1.85	0.00
94.00	6.15	1.85	0.00
95.00	6.15	1.85	0.00
96.00	6.15	1.85	0.00

Summary for Subcatchment PR-D8: Prop. Watershed D8

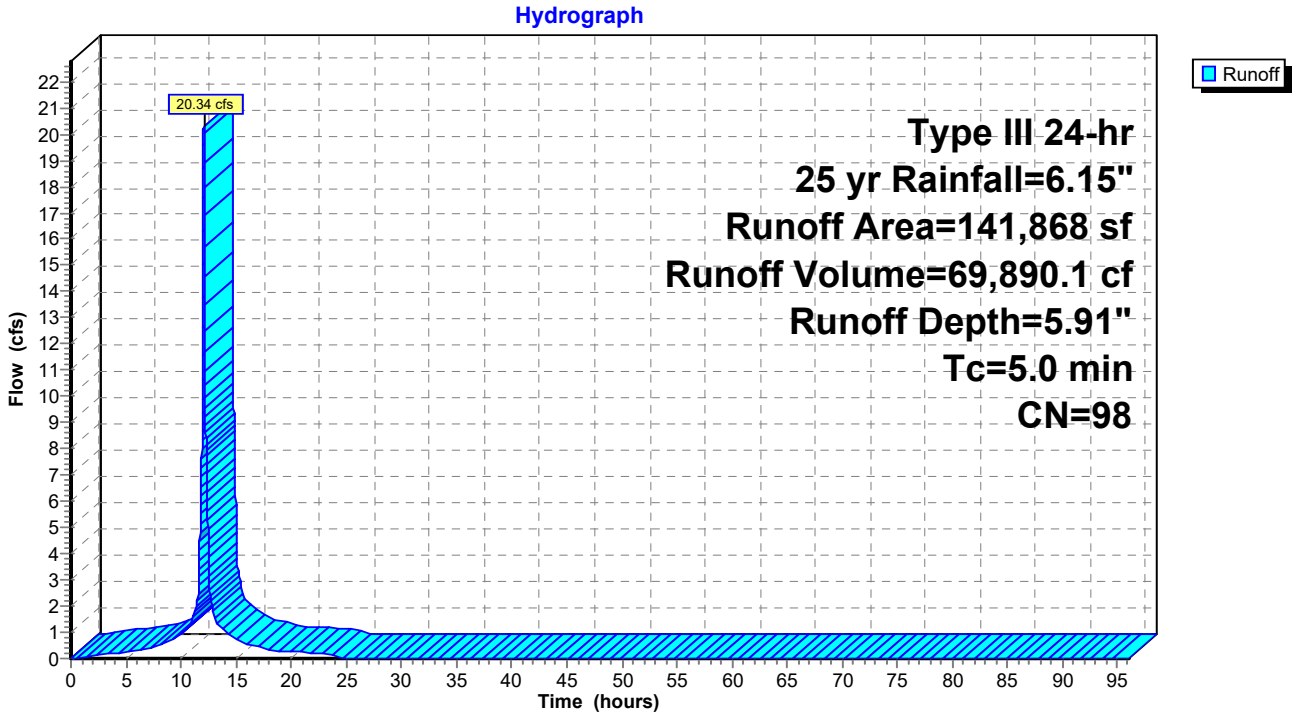
Runoff = 20.34 cfs @ 12.07 hrs, Volume= 69,890.1 cf, Depth= 5.91"
Routed to Pond SWM-2 : Cultec 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.15"

	Area (sf)	CN	Description
*	107,416	98	Building 1 - South
*	34,452	98	Building 2 - North
	141,868	98	Weighted Average
	141,868		100.00% Impervious Area

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

Subcatchment PR-D8: Prop. Watershed D8



Hydrograph for Subcatchment PR-D8: Prop. Watershed D8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.03
2.00	0.12	0.02	0.10
3.00	0.19	0.06	0.15
4.00	0.26	0.12	0.20
5.00	0.35	0.19	0.24
6.00	0.44	0.27	0.28
7.00	0.56	0.37	0.38
8.00	0.70	0.50	0.49
9.00	0.90	0.69	0.71
10.00	1.16	0.95	0.95
11.00	1.54	1.32	1.42
12.00	3.07	2.84	**13.75**
13.00	4.61	4.38	**1.61**
14.00	4.99	4.75	1.03
15.00	5.25	5.02	0.77
16.00	5.45	5.21	0.54
17.00	5.59	5.36	0.43
18.00	5.71	5.47	0.33
19.00	5.80	5.56	0.29
20.00	5.89	5.65	0.26
21.00	5.96	5.72	0.24
22.00	6.03	5.79	0.22
23.00	6.09	5.86	0.20
24.00	**6.15**	**5.91**	0.17
25.00	6.15	5.91	0.00
26.00	6.15	5.91	0.00
27.00	6.15	5.91	0.00
28.00	6.15	5.91	0.00
29.00	6.15	5.91	0.00
30.00	6.15	5.91	0.00
31.00	6.15	5.91	0.00
32.00	6.15	5.91	0.00
33.00	6.15	5.91	0.00
34.00	6.15	5.91	0.00
35.00	6.15	5.91	0.00
36.00	6.15	5.91	0.00
37.00	6.15	5.91	0.00
38.00	6.15	5.91	0.00
39.00	6.15	5.91	0.00
40.00	6.15	5.91	0.00
41.00	6.15	5.91	0.00
42.00	6.15	5.91	0.00
43.00	6.15	5.91	0.00
44.00	6.15	5.91	0.00
45.00	6.15	5.91	0.00
46.00	6.15	5.91	0.00
47.00	6.15	5.91	0.00
48.00	6.15	5.91	0.00
49.00	6.15	5.91	0.00
50.00	6.15	5.91	0.00
51.00	6.15	5.91	0.00
52.00	6.15	5.91	0.00
53.00	6.15	5.91	0.00
54.00	6.15	5.91	0.00
55.00	6.15	5.91	0.00
56.00	6.15	5.91	0.00
57.00	6.15	5.91	0.00
58.00	6.15	5.91	0.00
59.00	6.15	5.91	0.00
60.00	6.15	5.91	0.00
61.00	6.15	5.91	0.00
62.00	6.15	5.91	0.00
63.00	6.15	5.91	0.00
64.00	6.15	5.91	0.00
65.00	6.15	5.91	0.00
66.00	6.15	5.91	0.00
67.00	6.15	5.91	0.00
68.00	6.15	5.91	0.00
69.00	6.15	5.91	0.00
70.00	6.15	5.91	0.00
71.00	6.15	5.91	0.00
72.00	6.15	5.91	0.00
73.00	6.15	5.91	0.00
74.00	6.15	5.91	0.00
75.00	6.15	5.91	0.00
76.00	6.15	5.91	0.00
77.00	6.15	5.91	0.00
78.00	6.15	5.91	0.00
79.00	6.15	5.91	0.00
80.00	6.15	5.91	0.00
81.00	6.15	5.91	0.00
82.00	6.15	5.91	0.00
83.00	6.15	5.91	0.00
84.00	6.15	5.91	0.00
85.00	6.15	5.91	0.00
86.00	6.15	5.91	0.00
87.00	6.15	5.91	0.00
88.00	6.15	5.91	0.00
89.00	6.15	5.91	0.00
90.00	6.15	5.91	0.00
91.00	6.15	5.91	0.00
92.00	6.15	5.91	0.00
93.00	6.15	5.91	0.00
94.00	6.15	5.91	0.00
95.00	6.15	5.91	0.00
96.00	6.15	5.91	0.00

Summary for Pond FP: Fire Pond Weir

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 1.98" for 25 yr event
Inflow = 52.27 cfs @ 12.14 hrs, Volume= 198,401.7 cf
Outflow = 5.39 cfs @ 14.05 hrs, Volume= 198,401.7 cf, Atten= 90%, Lag= 114.5 min
Primary = 5.39 cfs @ 14.05 hrs, Volume= 198,401.7 cf
Routed to Link POA D : WETLAND-NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 245.67' @ 14.05 hrs Surf.Area= 72,360 sf Storage= 338,427.4 cf (107,447.2 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 217.9 min (1,025.3 - 807.4)

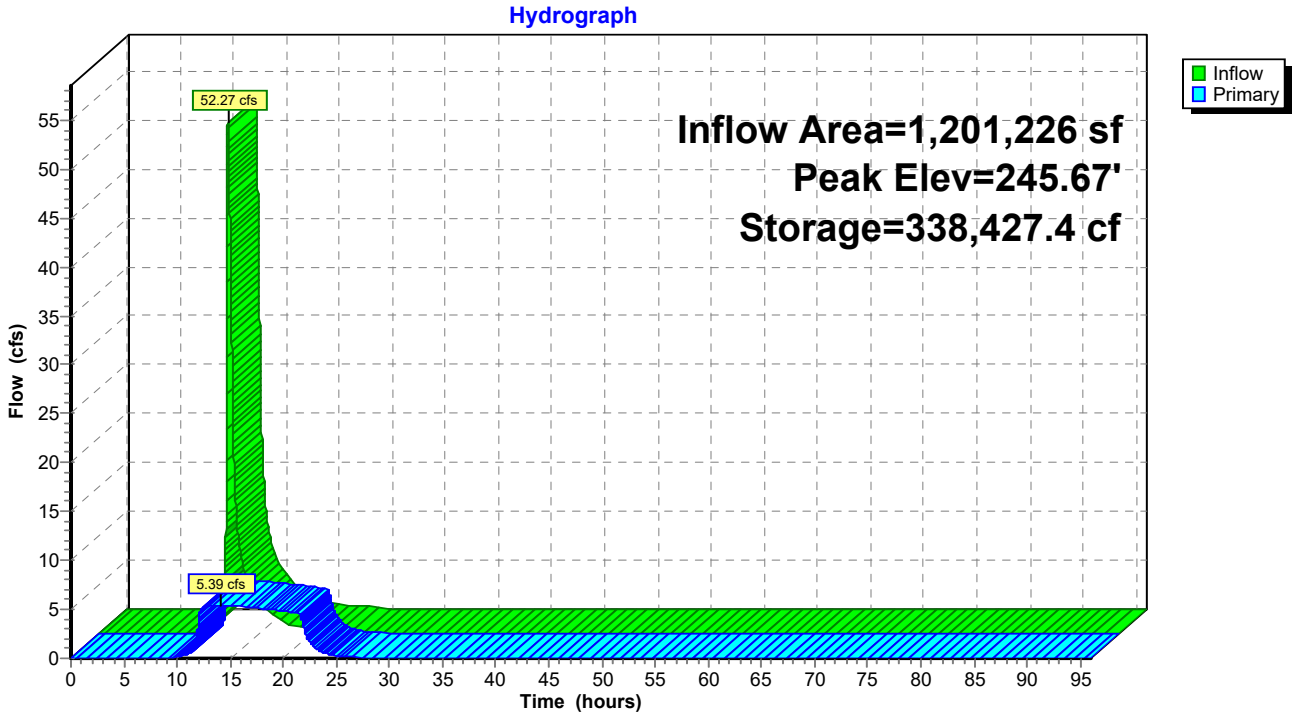
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

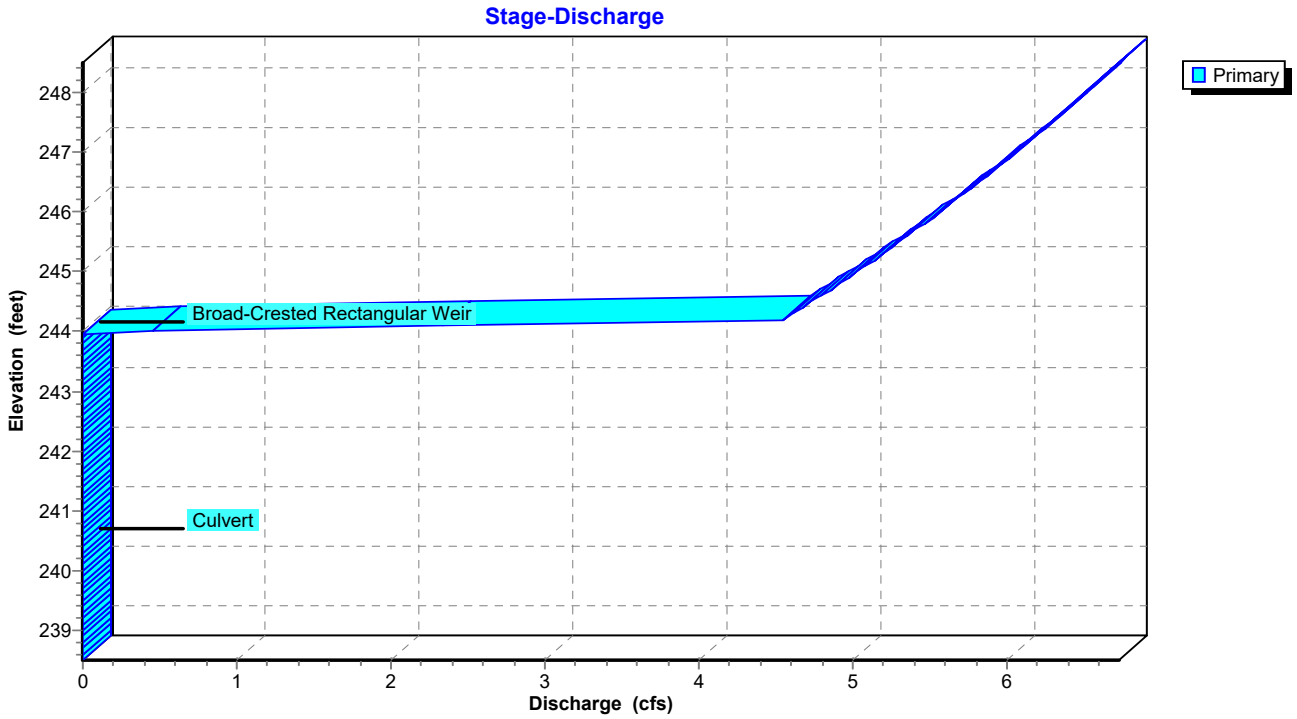
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=5.39 cfs @ 14.05 hrs HW=245.67' (Free Discharge)
↑**2=Culvert** (Barrel Controls 5.39 cfs @ 6.86 fps)
↑**1=Broad-Crested Rectangular Weir** (Passes 5.39 cfs of 109.00 cfs potential flow)

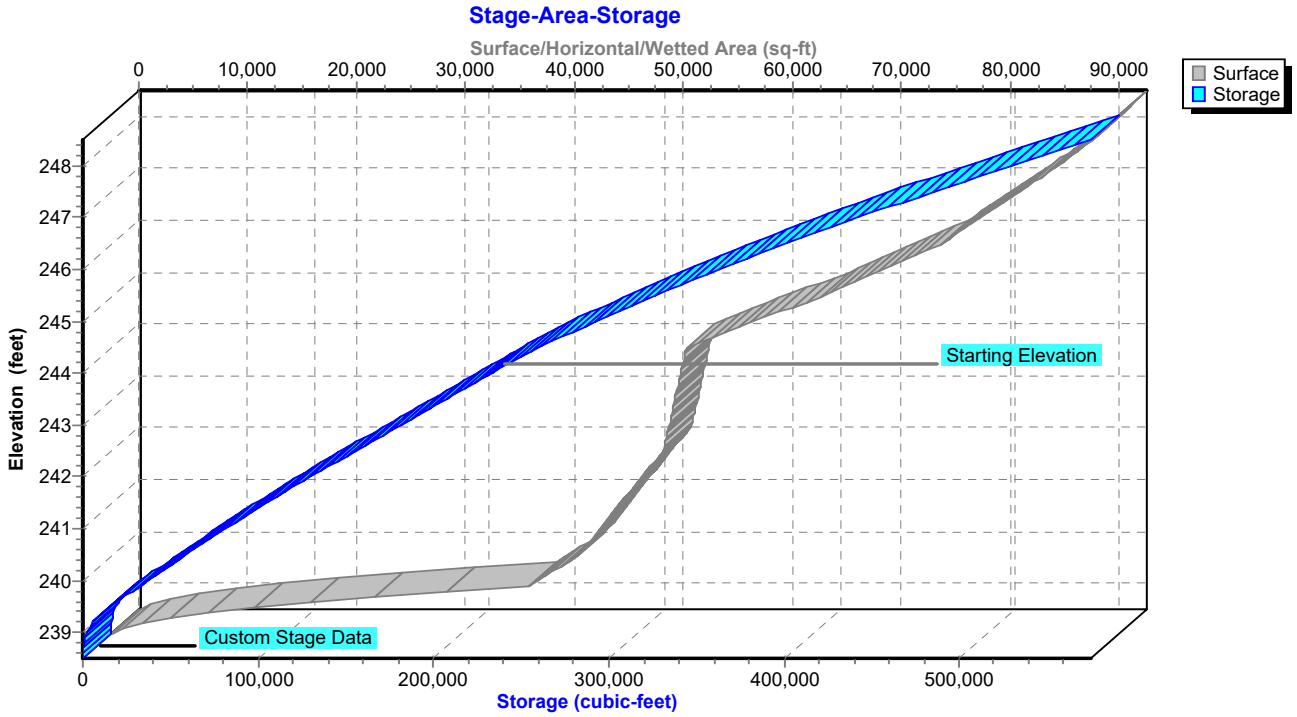
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.00	230,980.2	243.95	0.00
10.00	0.55	231,943.2	243.97	0.16
12.00	**15.55**	241,781.6	244.15	3.48
14.00	**5.55**	**338,423.5**	**245.67**	**5.39**
16.00	2.33	**326,773.9**	**245.51**	**5.30**
18.00	0.93	300,405.6	245.12	5.09
20.00	0.49	269,480.8	244.63	4.81
22.00	0.37	240,235.2	244.12	2.86
24.00	0.26	233,726.8	244.00	0.49
26.00	0.00	231,817.5	243.97	0.14
28.00	0.00	231,225.2	243.95	0.04
30.00	0.00	231,051.9	243.95	0.01
32.00	0.00	231,001.2	243.95	0.00
34.00	0.00	230,986.4	243.95	0.00
36.00	0.00	230,982.0	243.95	0.00
38.00	0.00	230,980.7	243.95	0.00
40.00	0.00	230,980.4	243.95	0.00
42.00	0.00	230,980.3	243.95	0.00
44.00	0.00	230,980.2	243.95	0.00
46.00	0.00	230,980.2	243.95	0.00
48.00	0.00	230,980.2	243.95	0.00
50.00	0.00	230,980.2	243.95	0.00
52.00	0.00	230,980.2	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Pond RG1: Rain-Garden #1

Inflow Area = 50,834 sf, 67.76% Impervious, Inflow Depth = 3.81" for 25 yr event
Inflow = 5.39 cfs @ 12.07 hrs, Volume= 16,156.2 cf
Outflow = 5.22 cfs @ 12.09 hrs, Volume= 16,156.2 cf, Atten= 3%, Lag= 1.2 min
Discarded = 0.06 cfs @ 9.20 hrs, Volume= 6,420.3 cf
Primary = 5.16 cfs @ 12.09 hrs, Volume= 9,735.9 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 250.11' @ 12.09 hrs Surf.Area= 4,164 sf Storage= 3,507.9 cf

Plug-Flow detention time= 222.1 min calculated for 16,154.6 cf (100% of inflow)
Center-of-Mass det. time= 222.2 min (1,036.9 - 814.7)

Volume	Invert	Avail.Storage	Storage Description
#1	249.00'	2,491.8 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,102.2 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	83.3 cf	**12.0" Round Perforated pipe** Inside #4 L= 106.0'
#4	243.00'	638.1 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,678.5 cf Overall - 83.3 cf Embedded = 1,595.2 cf x 40.0% Voids
		4,315.3 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	1,119	0.0	0.0
249.50	1,471	647.5	647.5
250.00	1,840	827.8	1,475.3
250.50	2,226	1,016.5	2,491.8

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	1,119	0.0	0.0	0.0
244.51	1,119	40.0	4.5	4.5
245.74	1,119	40.0	550.5	555.0
245.75	1,119	15.0	1.7	556.7
248.74	1,119	15.0	501.9	1,058.6
248.75	1,119	15.0	1.7	1,060.3
249.00	1,119	15.0	42.0	1,102.2

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
243.00	1,119	0.0	0.0
244.50	1,119	1,678.5	1,678.5

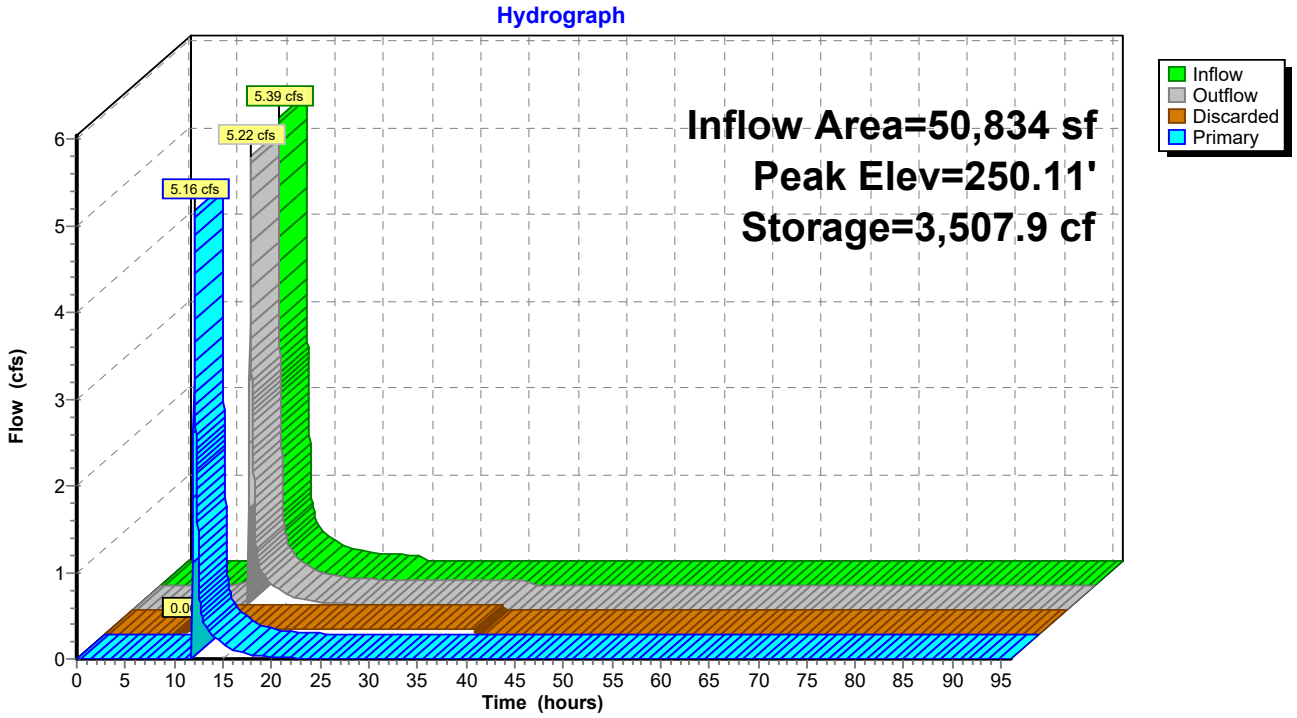
Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**0.06 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900

n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

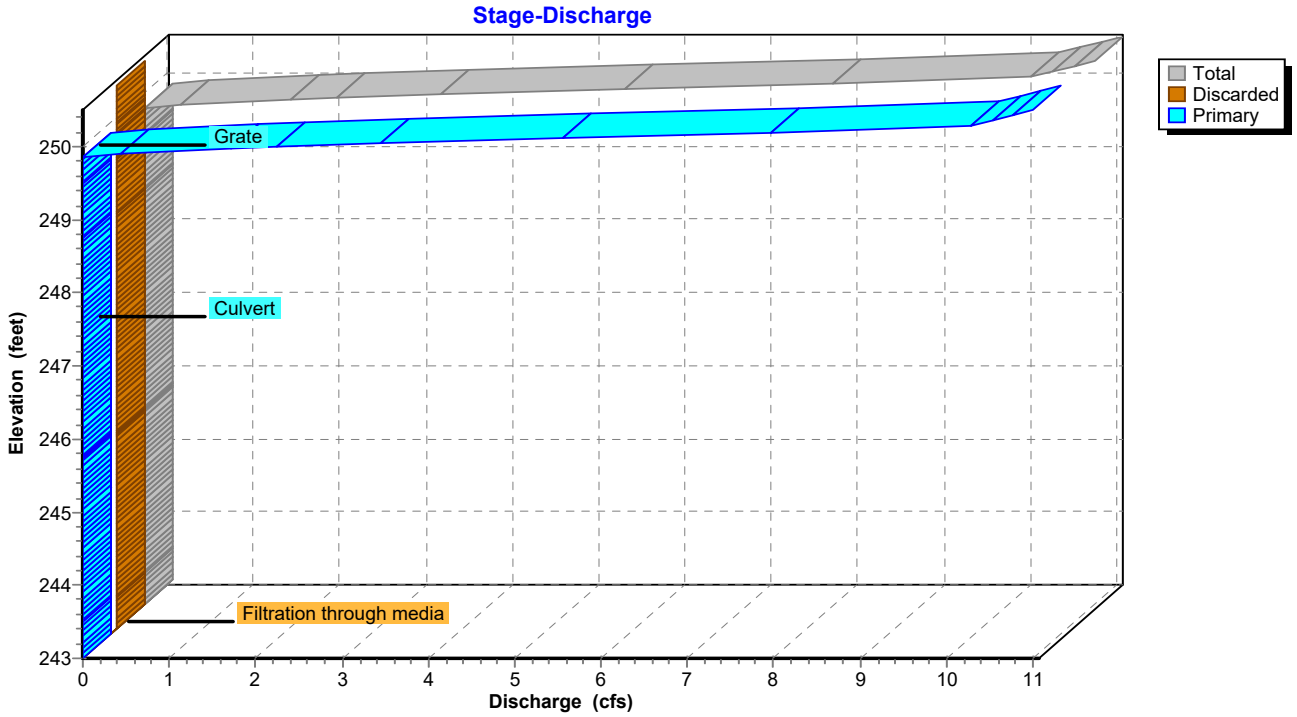
Discarded OutFlow Max=0.06 cfs @ 9.20 hrs HW=243.08' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=5.13 cfs @ 12.09 hrs HW=250.11' (Free Discharge)
└**3=Culvert** (Passes 5.13 cfs of 9.71 cfs potential flow)
└**2=Grate** (Weir Controls 5.13 cfs @ 1.67 fps)

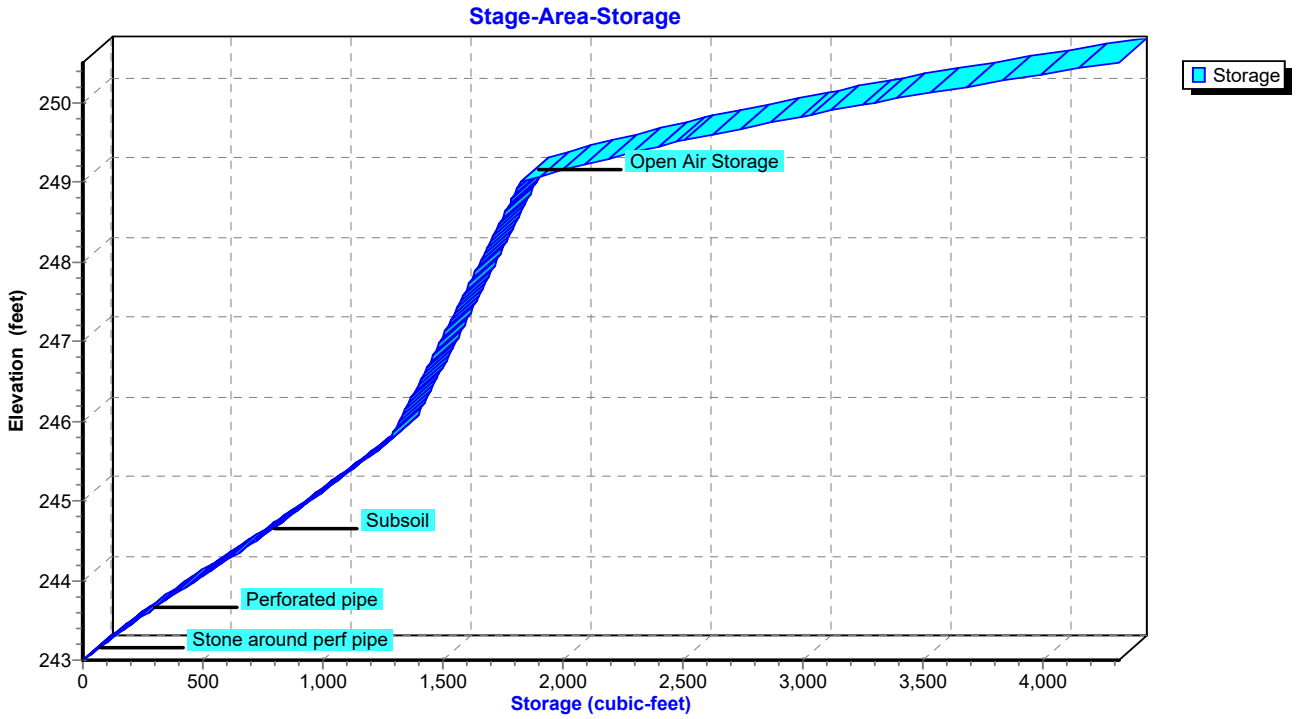
Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Hydrograph for Pond RG1: Rain-Garden #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.00	0.0	243.00	0.00	0.00	0.00
6.00	0.00	0.0	243.00	0.00	0.00	0.00
8.00	0.02	9.4	243.02	0.02	**0.02**	0.00
10.00	0.12	124.8	243.28	0.06	**0.06**	0.00
12.00	**3.44**	**3,191.4**	**249.94**	**1.18**	0.06	**1.12**
14.00	**0.32**	**3,084.8**	**249.88**	**0.32**	0.06	**0.26**
16.00	0.17	3,054.4	249.86	0.17	0.06	0.11
18.00	0.10	3,040.6	249.86	0.11	0.06	0.05
20.00	0.08	3,036.2	249.85	0.08	0.06	0.02
22.00	0.07	3,033.2	249.85	0.07	0.06	0.01
24.00	0.06	3,026.6	249.85	0.06	0.06	0.00
26.00	0.00	2,610.0	249.59	0.06	0.06	0.00
28.00	0.00	2,178.0	249.29	0.06	0.06	0.00
30.00	0.00	1,746.0	248.54	0.06	0.06	0.00
32.00	0.00	1,314.0	245.96	0.06	0.06	0.00
34.00	0.00	882.0	244.86	0.06	0.06	0.00
36.00	0.00	450.0	243.96	0.06	0.06	0.00
38.00	0.00	21.1	243.05	0.04	0.04	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond RG1: Rain-Garden #1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.06	**0.06**	0.00
243.20	0.06	0.06	0.00
243.30	0.06	0.06	0.00
243.40	0.06	0.06	0.00
243.50	0.06	0.06	0.00
243.60	0.06	0.06	0.00
243.70	0.06	0.06	0.00
243.80	0.06	0.06	0.00
243.90	0.06	0.06	0.00
244.00	0.06	0.06	0.00
244.10	0.06	0.06	0.00
244.20	0.06	0.06	0.00
244.30	0.06	0.06	0.00
244.40	0.06	0.06	0.00
244.50	0.06	0.06	0.00
244.60	0.06	0.06	0.00
244.70	0.06	0.06	0.00
244.80	0.06	0.06	0.00
244.90	0.06	0.06	0.00
245.00	0.06	0.06	0.00
245.10	0.06	0.06	0.00
245.20	0.06	0.06	0.00
245.30	0.06	0.06	0.00
245.40	0.06	0.06	0.00
245.50	0.06	0.06	0.00
245.60	0.06	0.06	0.00
245.70	0.06	0.06	0.00
245.80	0.06	0.06	0.00
245.90	0.06	0.06	0.00
246.00	0.06	0.06	0.00
246.10	0.06	0.06	0.00
246.20	0.06	0.06	0.00
246.30	0.06	0.06	0.00
246.40	0.06	0.06	0.00
246.50	0.06	0.06	0.00
246.60	0.06	0.06	0.00
246.70	0.06	0.06	0.00
246.80	0.06	0.06	0.00
246.90	0.06	0.06	0.00
247.00	0.06	0.06	0.00
247.10	0.06	0.06	0.00
247.20	0.06	0.06	0.00
247.30	0.06	0.06	0.00
247.40	0.06	0.06	0.00
247.50	0.06	0.06	0.00
247.60	0.06	0.06	0.00
247.70	0.06	0.06	0.00
247.80	0.06	0.06	0.00
247.90	0.06	0.06	0.00
248.00	0.06	0.06	0.00
248.10	0.06	0.06	0.00
248.20	0.06	0.06	0.00
248.30	0.06	0.06	0.00
248.40	0.06	0.06	0.00
248.50	0.06	0.06	0.00
248.60	0.06	0.06	0.00
248.70	0.06	0.06	0.00
248.80	0.06	0.06	0.00
248.90	0.06	0.06	0.00
249.00	0.06	0.06	0.00
249.10	0.06	0.06	0.00
249.20	0.06	0.06	0.00
249.30	0.06	0.06	0.00
249.40	0.06	0.06	0.00
249.50	0.06	0.06	0.00
249.60	0.06	0.06	0.00
249.70	0.06	0.06	0.00
249.80	0.06	0.06	0.00
249.90	0.49	0.06	0.43
250.00	2.30	0.06	2.24
250.10	4.88	0.06	4.82
250.20	8.04	0.06	7.98
250.30	10.42	0.06	10.36
250.40	10.75	0.06	10.69
250.50	**11.07**	0.06	**11.01**

Stage-Area-Storage for Pond RG1: Rain-Garden #1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
243.00	0.0	245.60	1,213.7	248.20	1,689.3
243.05	22.4	245.65	1,236.1	248.25	1,697.7
243.10	44.8	245.70	1,258.5	248.30	1,706.1
243.15	67.1	245.75	1,278.1	248.35	1,714.5
243.20	89.5	245.80	1,286.4	248.40	1,722.9
243.25	111.9	245.85	1,294.8	248.45	1,731.2
243.30	134.3	245.90	1,303.2	248.50	1,739.6
243.35	156.7	245.95	1,311.6	248.55	1,748.0
243.40	179.0	246.00	1,320.0	248.60	1,756.4
243.45	201.4	246.05	1,328.4	248.65	1,764.8
243.50	223.8	246.10	1,336.8	248.70	1,773.2
243.55	247.1	246.15	1,345.2	248.75	1,781.6
243.60	271.2	246.20	1,353.6	248.80	1,790.0
243.65	295.6	246.25	1,362.0	248.85	1,798.4
243.70	320.4	246.30	1,370.4	248.90	1,806.8
243.75	345.5	246.35	1,378.8	248.95	1,815.2
243.80	370.7	246.40	1,387.2	249.00	1,823.6
243.85	396.0	246.45	1,395.5	249.05	1,880.4
243.90	421.5	246.50	1,403.9	249.10	1,939.0
243.95	447.0	246.55	1,412.3	249.15	1,999.3
244.00	472.6	246.60	1,420.7	249.20	2,061.4
244.05	498.1	246.65	1,429.1	249.25	2,125.3
244.10	523.7	246.70	1,437.5	249.30	2,190.9
244.15	549.1	246.75	1,445.9	249.35	2,258.3
244.20	574.5	246.80	1,454.3	249.40	2,327.5
244.25	599.7	246.85	1,462.7	249.45	2,398.4
244.30	624.7	246.90	1,471.1	249.50	2,471.1
244.35	649.5	246.95	1,479.5	249.55	2,545.5
244.40	674.0	247.00	1,487.9	249.60	2,621.9
244.45	698.0	247.05	1,496.3	249.65	2,700.0
244.50	721.4	247.10	1,504.7	249.70	2,780.0
244.55	743.7	247.15	1,513.0	249.75	2,861.9
244.60	766.1	247.20	1,521.4	249.80	2,945.6
244.65	788.5	247.25	1,529.8	249.85	3,031.1
244.70	810.9	247.30	1,538.2	249.90	3,118.5
244.75	833.3	247.35	1,546.6	249.95	3,207.7
244.80	855.6	247.40	1,555.0	250.00	3,298.8
244.85	878.0	247.45	1,563.4	250.05	3,391.8
244.90	900.4	247.50	1,571.8	250.10	3,486.7
244.95	922.8	247.55	1,580.2	250.15	3,583.5
245.00	945.2	247.60	1,588.6	250.20	3,682.3
245.05	967.5	247.65	1,597.0	250.25	3,782.9
245.10	989.9	247.70	1,605.4	250.30	3,885.6
245.15	1,012.3	247.75	1,613.8	250.35	3,990.1
245.20	1,034.7	247.80	1,622.1	250.40	4,096.6
245.25	1,057.1	247.85	1,630.5	250.45	4,205.0
245.30	1,079.4	247.90	1,638.9	250.50	**4,315.3**
245.35	1,101.8	247.95	1,647.3		
245.40	1,124.2	248.00	1,655.7		
245.45	1,146.6	248.05	1,664.1		
245.50	1,169.0	248.10	1,672.5		
245.55	1,191.3	248.15	1,680.9		

Summary for Pond RG2: Rain-Garden #2

Inflow Area = 40,781 sf, 62.50% Impervious, Inflow Depth = 3.51" for 25 yr event
Inflow = 3.99 cfs @ 12.07 hrs, Volume= 11,928.1 cf
Outflow = 3.78 cfs @ 12.10 hrs, Volume= 11,928.1 cf, Atten= 5%, Lag= 1.6 min
Discarded = 0.05 cfs @ 9.67 hrs, Volume= 4,964.4 cf
Primary = 3.73 cfs @ 12.10 hrs, Volume= 6,963.7 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 250.13' @ 12.10 hrs Surf.Area= 3,343 sf Storage= 2,628.4 cf

Plug-Flow detention time= 212.5 min calculated for 11,926.8 cf (100% of inflow)
Center-of-Mass det. time= 212.6 min (1,034.6 - 822.0)

Volume	Invert	Avail.Storage	Storage Description
#1	249.50'	1,404.5 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,179.1 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	133.5 cf	**12.0" Round Perforated pipe** Inside #4 L= 170.0'
#4	242.50'	585.0 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,596.0 cf Overall - 133.5 cf Embedded = 1,462.5 cf x 40.0% Voids
		3,302.1 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.50	803	0.0	0.0
250.00	1,386	547.3	547.3
250.50	2,043	857.3	1,404.5

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	995	0.0	0.0	0.0
244.51	995	40.0	4.0	4.0
246.24	995	40.0	688.5	692.5
246.25	995	15.0	1.5	694.0
249.24	995	15.0	446.3	1,140.3
249.25	995	15.0	1.5	1,141.8
249.50	995	15.0	37.3	1,179.1

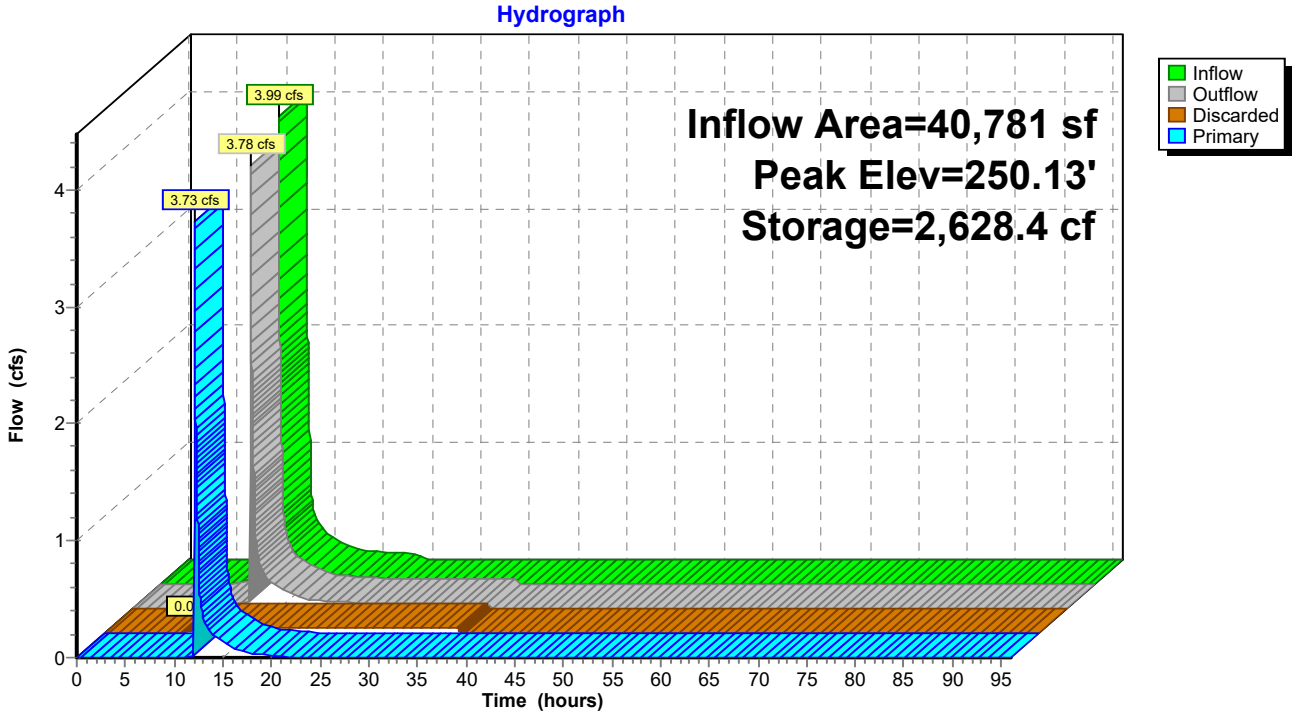
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	798	0.0	0.0
244.50	798	1,596.0	1,596.0

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.05 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

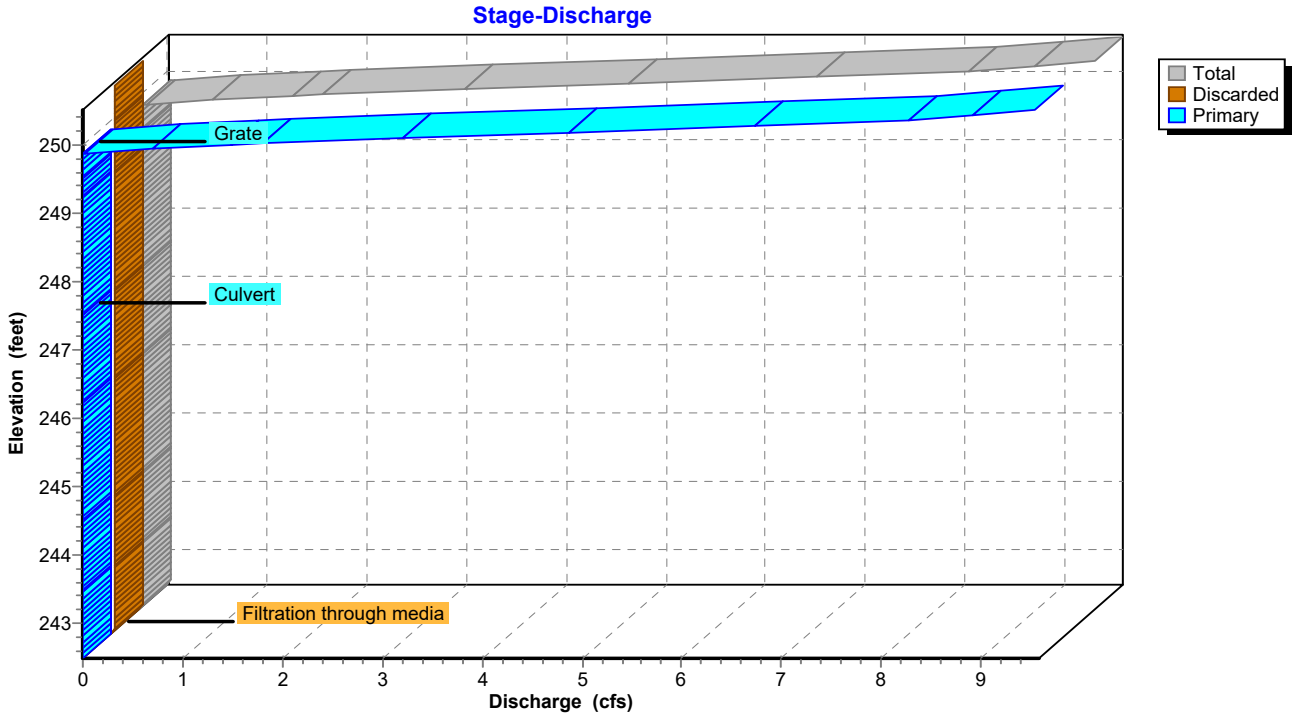
Discarded OutFlow Max=0.05 cfs @ 9.67 hrs HW=242.58' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=3.70 cfs @ 12.10 hrs HW=250.12' (Free Discharge)
└**3=Culvert** (Passes 3.70 cfs of 9.76 cfs potential flow)
└**2=Grate** (Weir Controls 3.70 cfs @ 1.71 fps)

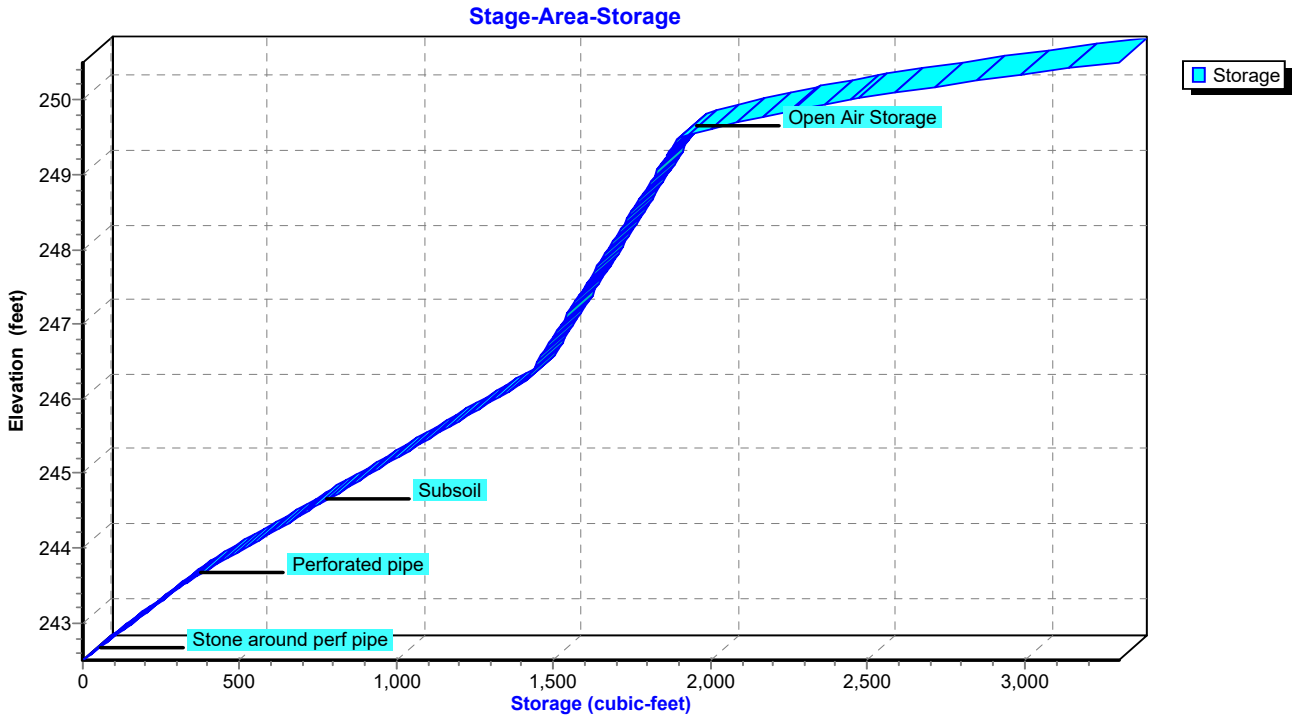
Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Hydrograph for Pond RG2: Rain-Garden #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	242.50	0.00	0.00	0.00
2.00	0.00	0.0	242.50	0.00	0.00	0.00
4.00	0.00	0.0	242.50	0.00	0.00	0.00
6.00	0.00	0.0	242.50	0.00	0.00	0.00
8.00	0.01	1.7	242.51	0.00	**0.00**	0.00
10.00	0.07	42.2	242.63	0.05	**0.05**	0.00
12.00	**2.52**	**2,141.0**	**249.75**	**0.05**	0.05	**0.00**
14.00	**0.24**	**2,288.3**	**249.88**	**0.25**	0.05	**0.20**
16.00	0.13	2,271.1	249.87	0.13	0.05	0.08
18.00	0.08	2,263.2	249.86	0.08	0.05	0.03
20.00	0.07	2,257.8	249.86	0.07	0.05	0.02
22.00	0.05	2,252.5	249.85	0.06	0.05	0.01
24.00	0.04	2,235.5	249.84	0.05	0.05	0.00
26.00	0.00	1,887.5	249.43	0.05	0.05	0.00
28.00	0.00	1,527.5	247.02	0.05	0.05	0.00
30.00	0.00	1,167.5	245.63	0.05	0.05	0.00
32.00	0.00	807.5	244.72	0.05	0.05	0.00
34.00	0.00	447.5	243.83	0.05	0.05	0.00
36.00	0.00	87.5	242.77	0.05	0.05	0.00
38.00	0.00	0.0	242.50	0.00	0.00	0.00
40.00	0.00	0.0	242.50	0.00	0.00	0.00
42.00	0.00	0.0	242.50	0.00	0.00	0.00
44.00	0.00	0.0	242.50	0.00	0.00	0.00
46.00	0.00	0.0	242.50	0.00	0.00	0.00
48.00	0.00	0.0	242.50	0.00	0.00	0.00
50.00	0.00	0.0	242.50	0.00	0.00	0.00
52.00	0.00	0.0	242.50	0.00	0.00	0.00
54.00	0.00	0.0	242.50	0.00	0.00	0.00
56.00	0.00	0.0	242.50	0.00	0.00	0.00
58.00	0.00	0.0	242.50	0.00	0.00	0.00
60.00	0.00	0.0	242.50	0.00	0.00	0.00
62.00	0.00	0.0	242.50	0.00	0.00	0.00
64.00	0.00	0.0	242.50	0.00	0.00	0.00
66.00	0.00	0.0	242.50	0.00	0.00	0.00
68.00	0.00	0.0	242.50	0.00	0.00	0.00
70.00	0.00	0.0	242.50	0.00	0.00	0.00
72.00	0.00	0.0	242.50	0.00	0.00	0.00
74.00	0.00	0.0	242.50	0.00	0.00	0.00
76.00	0.00	0.0	242.50	0.00	0.00	0.00
78.00	0.00	0.0	242.50	0.00	0.00	0.00
80.00	0.00	0.0	242.50	0.00	0.00	0.00
82.00	0.00	0.0	242.50	0.00	0.00	0.00
84.00	0.00	0.0	242.50	0.00	0.00	0.00
86.00	0.00	0.0	242.50	0.00	0.00	0.00
88.00	0.00	0.0	242.50	0.00	0.00	0.00
90.00	0.00	0.0	242.50	0.00	0.00	0.00
92.00	0.00	0.0	242.50	0.00	0.00	0.00
94.00	0.00	0.0	242.50	0.00	0.00	0.00
96.00	0.00	0.0	242.50	0.00	0.00	0.00

Stage-Discharge for Pond RG2: Rain-Garden #2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
242.50	0.00	**0.00**	0.00
242.60	0.05	**0.05**	0.00
242.70	0.05	0.05	0.00
242.80	0.05	0.05	0.00
242.90	0.05	0.05	0.00
243.00	0.05	0.05	0.00
243.10	0.05	0.05	0.00
243.20	0.05	0.05	0.00
243.30	0.05	0.05	0.00
243.40	0.05	0.05	0.00
243.50	0.05	0.05	0.00
243.60	0.05	0.05	0.00
243.70	0.05	0.05	0.00
243.80	0.05	0.05	0.00
243.90	0.05	0.05	0.00
244.00	0.05	0.05	0.00
244.10	0.05	0.05	0.00
244.20	0.05	0.05	0.00
244.30	0.05	0.05	0.00
244.40	0.05	0.05	0.00
244.50	0.05	0.05	0.00
244.60	0.05	0.05	0.00
244.70	0.05	0.05	0.00
244.80	0.05	0.05	0.00
244.90	0.05	0.05	0.00
245.00	0.05	0.05	0.00
245.10	0.05	0.05	0.00
245.20	0.05	0.05	0.00
245.30	0.05	0.05	0.00
245.40	0.05	0.05	0.00
245.50	0.05	0.05	0.00
245.60	0.05	0.05	0.00
245.70	0.05	0.05	0.00
245.80	0.05	0.05	0.00
245.90	0.05	0.05	0.00
246.00	0.05	0.05	0.00
246.10	0.05	0.05	0.00
246.20	0.05	0.05	0.00
246.30	0.05	0.05	0.00
246.40	0.05	0.05	0.00
246.50	0.05	0.05	0.00
246.60	0.05	0.05	0.00
246.70	0.05	0.05	0.00
246.80	0.05	0.05	0.00
246.90	0.05	0.05	0.00
247.00	0.05	0.05	0.00
247.10	0.05	0.05	0.00
247.20	0.05	0.05	0.00
247.30	0.05	0.05	0.00
247.40	0.05	0.05	0.00
247.50	0.05	0.05	0.00
247.60	0.05	0.05	0.00
247.70	0.05	0.05	0.00
247.80	0.05	0.05	0.00
247.90	0.05	0.05	0.00
248.00	0.05	0.05	0.00
248.10	0.05	0.05	0.00
248.20	0.05	0.05	0.00
248.30	0.05	0.05	0.00
248.40	0.05	0.05	0.00
248.50	0.05	0.05	0.00
248.60	0.05	0.05	0.00
248.70	0.05	0.05	0.00
248.80	0.05	0.05	0.00
248.90	0.05	0.05	0.00
249.00	0.05	0.05	0.00
249.10	0.05	0.05	0.00
249.20	0.05	0.05	0.00
249.30	0.05	0.05	0.00
249.40	0.05	0.05	0.00
249.50	0.05	0.05	0.00
249.60	0.05	0.05	0.00
249.70	0.05	0.05	0.00
249.80	0.05	0.05	0.00
249.90	0.34	0.05	0.29
250.00	1.54	0.05	1.49
250.10	3.26	0.05	3.21
250.20	5.37	0.05	5.32
250.30	7.80	0.05	7.75
250.40	8.81	0.05	8.76
250.50	**9.58**	0.05	**9.53**

Stage-Area-Storage for Pond RG2: Rain-Garden #2

Elevation (feet)	Storage (cubic-feet)
242.50	0.0
242.60	31.9
242.70	63.8
242.80	95.8
242.90	127.7
243.00	159.6
243.10	191.5
243.20	223.4
243.30	255.4
243.40	287.3
243.50	319.2
243.60	355.3
243.70	394.4
243.80	435.2
243.90	476.8
244.00	518.9
244.10	560.9
244.20	602.5
244.30	643.3
244.40	682.4
244.50	718.5
244.60	758.3
244.70	798.1
244.80	837.9
244.90	877.7
245.00	917.5
245.10	957.3
245.20	997.1
245.30	1,036.9
245.40	1,076.7
245.50	1,116.5
245.60	1,156.3
245.70	1,196.1
245.80	1,235.9
245.90	1,275.7
246.00	1,315.5
246.10	1,355.3
246.20	1,395.1
246.30	1,420.0
246.40	1,434.9
246.50	1,449.8
246.60	1,464.8
246.70	1,479.7
246.80	1,494.6
246.90	1,509.5
247.00	1,524.5
247.10	1,539.4
247.20	1,554.3
247.30	1,569.2
247.40	1,584.2
247.50	1,599.1
247.60	1,614.0
247.70	1,628.9
247.80	1,643.9
247.90	1,658.8
248.00	1,673.7
248.10	1,688.6
248.20	1,703.6
248.30	1,718.5
248.40	1,733.4
248.50	1,748.3
248.60	1,763.3
248.70	1,778.2
248.80	1,793.1
248.90	1,808.0
249.00	1,823.0
249.10	1,837.9
249.20	1,852.8
249.30	1,867.7
249.40	1,882.7
249.50	1,897.6
249.60	1,983.7
249.70	2,081.5
249.80	2,191.0
249.90	2,312.1
250.00	2,444.8
250.10	2,590.0
250.20	2,748.3
250.30	2,919.8
250.40	3,104.4
250.50	**3,302.1**

Summary for Pond SWM-2: Cultec 2

Inflow Area = 141,868 sf,100.00% Impervious, Inflow Depth = 5.91" for 25 yr event
Inflow = 20.34 cfs @ 12.07 hrs, Volume= 69,890.1 cf
Outflow = 0.88 cfs @ 9.83 hrs, Volume= 69,890.1 cf, Atten= 96%, Lag= 0.0 min
Discarded = 0.88 cfs @ 9.83 hrs, Volume= 69,890.1 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.0 cf
Routed to Pond SWM-3 : Cultec 3

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 252.49' @ 14.55 hrs Surf.Area= 15,751 sf Storage= 32,801.0 cf

Plug-Flow detention time= 308.5 min calculated for 69,882.8 cf (100% of inflow)
Center-of-Mass det. time= 308.5 min (1,052.3 - 743.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	249.50'	22,538.4 cf	**63.25'W x 249.03'L x 5.75'H Field A** 90,570.3 cf Overall - 34,224.2 cf Embedded = 56,346.1 cf x 40.0% Voids
#2A	250.25'	34,224.2 cf	**Cultec R-902HD** x 528 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 528 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		56,762.7 cf	Total Available Storage

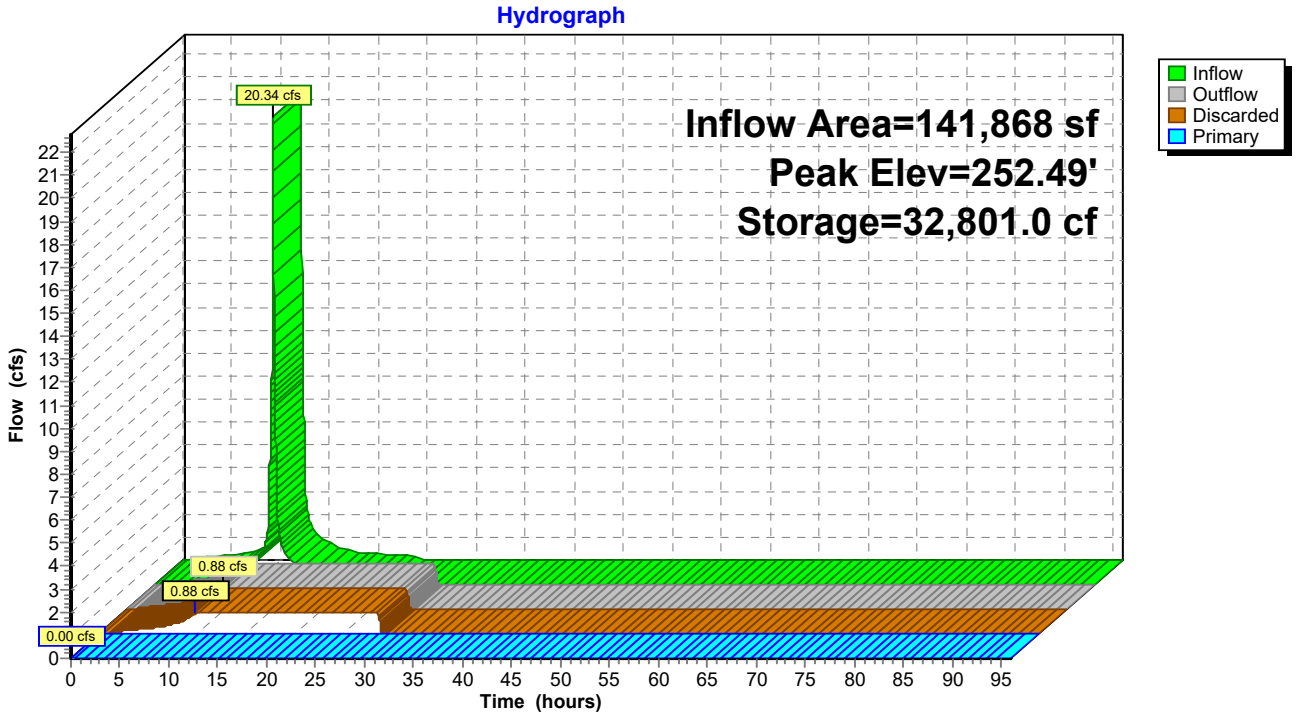
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	249.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	252.75'	**12.0" Round Culvert** L= 189.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 246.50' S= 0.0331 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

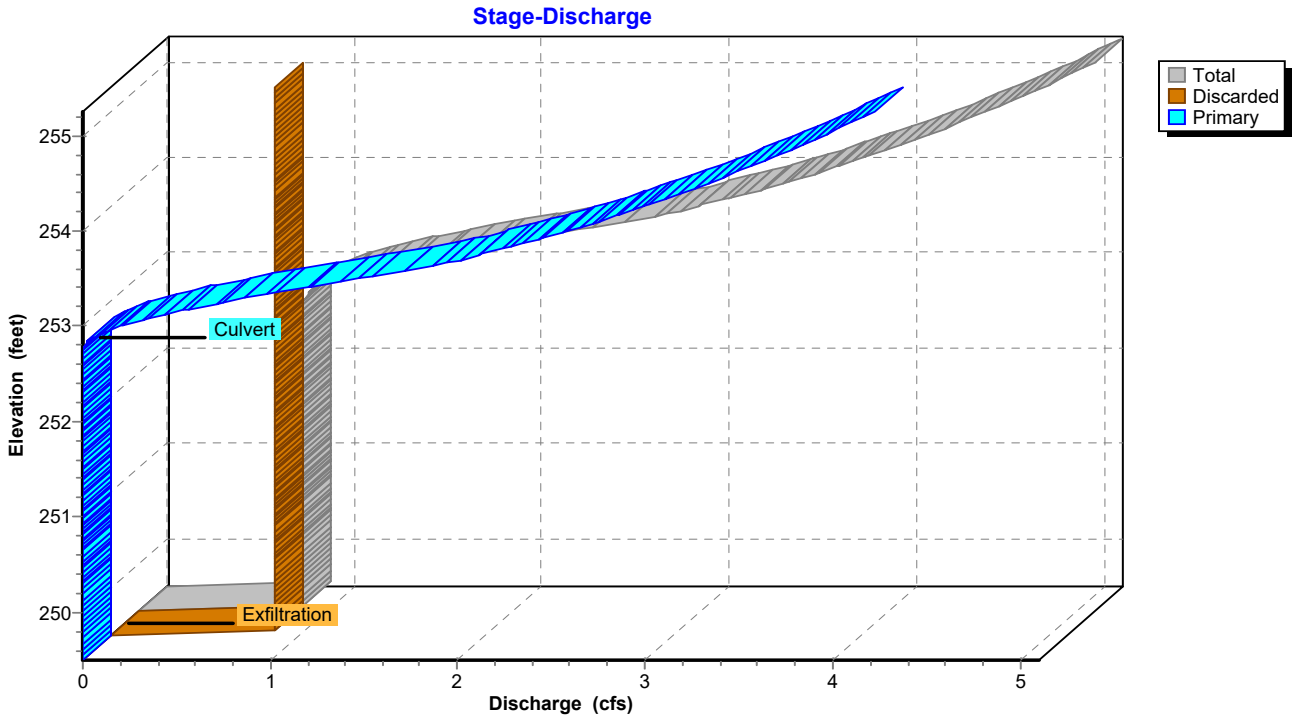
Discarded OutFlow Max=0.88 cfs @ 9.83 hrs HW=249.56' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.88 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=249.50' (Free Discharge)
↑—**2=Culvert** (Controls 0.00 cfs)

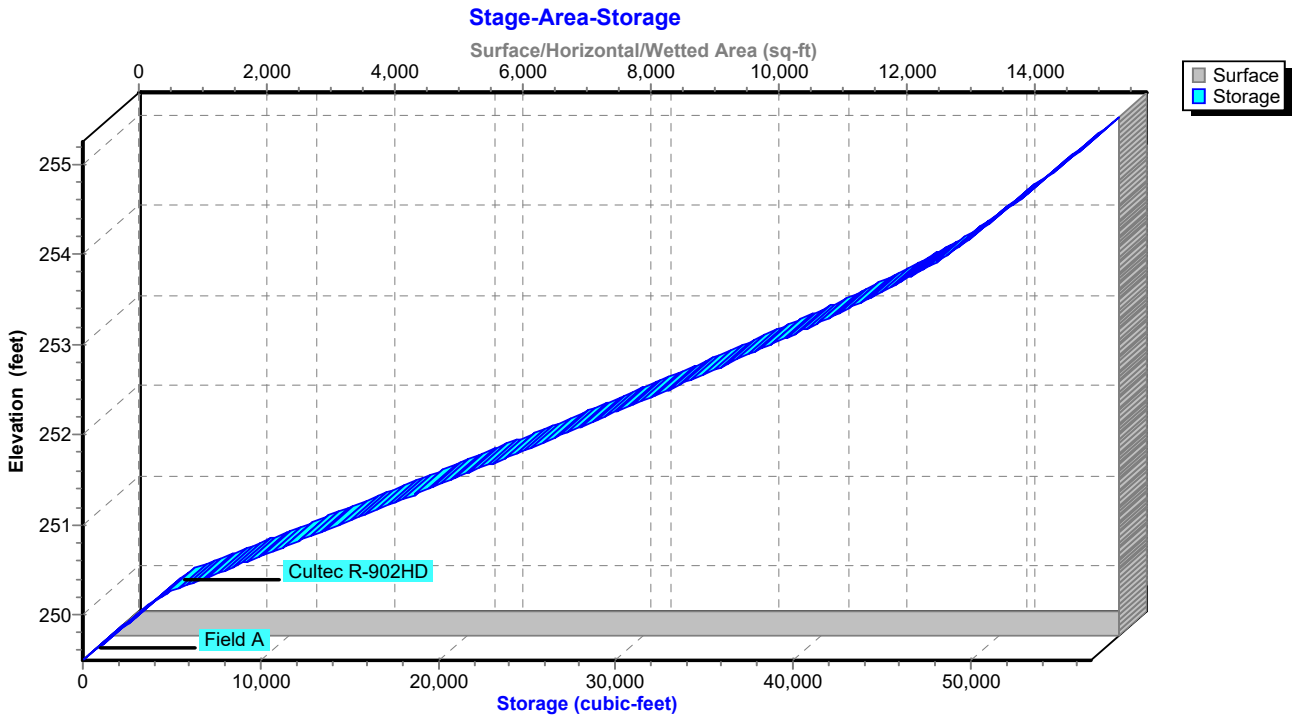
Pond SWM-2: Cultec 2



Pond SWM-2: Cultec 2



Pond SWM-2: Cultec 2



Hydrograph for Pond SWM-2: Cultec 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	249.50	0.00	0.00	**0.00**
2.00	0.10	37.1	249.51	0.09	0.09	0.00
4.00	0.20	79.9	249.51	0.19	0.19	0.00
6.00	0.28	115.0	249.52	0.28	0.28	0.00
8.00	0.49	196.0	249.53	**0.48**	**0.48**	0.00
10.00	0.95	392.9	249.56	**0.88**	**0.88**	0.00
12.00	**13.75**	11,825.3	250.80	0.88	0.88	0.00
14.00	**1.03**	**32,671.8**	**252.48**	0.88	0.88	0.00
16.00	0.54	**31,922.5**	**252.41**	0.88	0.88	0.00
18.00	0.33	28,703.4	252.14	0.88	0.88	0.00
20.00	0.26	24,500.4	251.80	0.88	0.88	0.00
22.00	0.22	19,911.2	251.43	0.88	0.88	0.00
24.00	0.17	14,995.2	251.04	0.88	0.88	0.00
26.00	0.00	8,716.4	250.56	0.88	0.88	0.00
28.00	0.00	2,389.6	249.88	0.88	0.88	0.00
30.00	0.00	0.0	249.50	0.00	0.00	0.00
32.00	0.00	0.0	249.50	0.00	0.00	0.00
34.00	0.00	0.0	249.50	0.00	0.00	0.00
36.00	0.00	0.0	249.50	0.00	0.00	0.00
38.00	0.00	0.0	249.50	0.00	0.00	0.00
40.00	0.00	0.0	249.50	0.00	0.00	0.00
42.00	0.00	0.0	249.50	0.00	0.00	0.00
44.00	0.00	0.0	249.50	0.00	0.00	0.00
46.00	0.00	0.0	249.50	0.00	0.00	0.00
48.00	0.00	0.0	249.50	0.00	0.00	0.00
50.00	0.00	0.0	249.50	0.00	0.00	0.00
52.00	0.00	0.0	249.50	0.00	0.00	0.00
54.00	0.00	0.0	249.50	0.00	0.00	0.00
56.00	0.00	0.0	249.50	0.00	0.00	0.00
58.00	0.00	0.0	249.50	0.00	0.00	0.00
60.00	0.00	0.0	249.50	0.00	0.00	0.00
62.00	0.00	0.0	249.50	0.00	0.00	0.00
64.00	0.00	0.0	249.50	0.00	0.00	0.00
66.00	0.00	0.0	249.50	0.00	0.00	0.00
68.00	0.00	0.0	249.50	0.00	0.00	0.00
70.00	0.00	0.0	249.50	0.00	0.00	0.00
72.00	0.00	0.0	249.50	0.00	0.00	0.00
74.00	0.00	0.0	249.50	0.00	0.00	0.00
76.00	0.00	0.0	249.50	0.00	0.00	0.00
78.00	0.00	0.0	249.50	0.00	0.00	0.00
80.00	0.00	0.0	249.50	0.00	0.00	0.00
82.00	0.00	0.0	249.50	0.00	0.00	0.00
84.00	0.00	0.0	249.50	0.00	0.00	0.00
86.00	0.00	0.0	249.50	0.00	0.00	0.00
88.00	0.00	0.0	249.50	0.00	0.00	0.00
90.00	0.00	0.0	249.50	0.00	0.00	0.00
92.00	0.00	0.0	249.50	0.00	0.00	0.00
94.00	0.00	0.0	249.50	0.00	0.00	0.00
96.00	0.00	0.0	249.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-2: Cultec 2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
249.50	0.00	**0.00**	0.00
249.60	0.88	**0.88**	0.00
249.70	0.88	0.88	0.00
249.80	0.88	0.88	0.00
249.90	0.88	0.88	0.00
250.00	0.88	0.88	0.00
250.10	0.88	0.88	0.00
250.20	0.88	0.88	0.00
250.30	0.88	0.88	0.00
250.40	0.88	0.88	0.00
250.50	0.88	0.88	0.00
250.60	0.88	0.88	0.00
250.70	0.88	0.88	0.00
250.80	0.88	0.88	0.00
250.90	0.88	0.88	0.00
251.00	0.88	0.88	0.00
251.10	0.88	0.88	0.00
251.20	0.88	0.88	0.00
251.30	0.88	0.88	0.00
251.40	0.88	0.88	0.00
251.50	0.88	0.88	0.00
251.60	0.88	0.88	0.00
251.70	0.88	0.88	0.00
251.80	0.88	0.88	0.00
251.90	0.88	0.88	0.00
252.00	0.88	0.88	0.00
252.10	0.88	0.88	0.00
252.20	0.88	0.88	0.00
252.30	0.88	0.88	0.00
252.40	0.88	0.88	0.00
252.50	0.88	0.88	0.00
252.60	0.88	0.88	0.00
252.70	0.88	0.88	0.00
252.80	0.89	0.88	0.01
252.90	0.96	0.88	0.08
253.00	1.09	0.88	0.21
253.10	1.27	0.88	0.39
253.20	1.50	0.88	0.62
253.30	1.76	0.88	0.88
253.40	2.05	0.88	1.17
253.50	2.35	0.88	1.47
253.60	2.64	0.88	1.76
253.70	2.90	0.88	2.02
253.80	3.09	0.88	2.21
253.90	3.29	0.88	2.41
254.00	3.46	0.88	2.59
254.10	3.63	0.88	2.75
254.20	3.79	0.88	2.91
254.30	3.94	0.88	3.06
254.40	4.08	0.88	3.20
254.50	4.22	0.88	3.34
254.60	4.35	0.88	3.47
254.70	4.47	0.88	3.60
254.80	4.60	0.88	3.72
254.90	4.71	0.88	3.83
255.00	4.83	0.88	3.95
255.10	4.94	0.88	4.06
255.20	**5.05**	0.88	**4.17**

Stage-Area-Storage for Pond SWM-2: Cultec 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
249.50	**15,751**	0.0
249.60	15,751	630.1
249.70	15,751	1,260.1
249.80	15,751	1,890.2
249.90	15,751	2,520.2
250.00	15,751	3,150.3
250.10	15,751	3,780.3
250.20	15,751	4,410.4
250.30	15,751	5,375.4
250.40	15,751	6,677.3
250.50	15,751	7,981.2
250.60	15,751	9,277.2
250.70	15,751	10,569.7
250.80	15,751	11,856.8
250.90	15,751	13,142.8
251.00	15,751	14,426.0
251.10	15,751	15,700.9
251.20	15,751	16,967.8
251.30	15,751	18,232.9
251.40	15,751	19,496.2
251.50	15,751	20,751.5
251.60	15,751	21,998.6
251.70	15,751	23,242.3
251.80	15,751	24,479.5
251.90	15,751	25,710.2
252.00	15,751	26,937.5
252.10	15,751	28,156.6
252.20	15,751	29,372.4
252.30	15,751	30,580.7
252.40	15,751	31,776.9
252.50	15,751	32,969.3
252.60	15,751	34,149.4
252.70	15,751	35,318.2
252.80	15,751	36,477.6
252.90	15,751	37,621.3
253.00	15,751	38,751.1
253.10	15,751	39,864.2
253.20	15,751	40,957.6
253.30	15,751	42,033.3
253.40	15,751	43,084.8
253.50	15,751	44,111.3
253.60	15,751	45,112.5
253.70	15,751	46,083.1
253.80	15,751	47,018.1
253.90	15,751	47,901.3
254.00	15,751	48,715.4
254.10	15,751	49,454.7
254.20	15,751	50,135.9
254.30	15,751	50,777.2
254.40	15,751	51,407.2
254.50	15,751	52,037.3
254.60	15,751	52,667.3
254.70	15,751	53,297.4
254.80	15,751	53,927.4
254.90	15,751	54,557.5
255.00	15,751	55,187.5
255.10	15,751	55,817.6
255.20	15,751	**56,447.6**

Summary for Pond SWM-3: Cultec 3

Inflow Area = 416,467 sf, 80.91% Impervious, Inflow Depth = 2.72" for 25 yr event
Inflow = 30.53 cfs @ 12.08 hrs, Volume= 94,400.9 cf
Outflow = 14.17 cfs @ 12.25 hrs, Volume= 94,400.9 cf, Atten= 54%, Lag= 10.2 min
Discarded = 0.63 cfs @ 9.70 hrs, Volume= 48,456.1 cf
Primary = 13.54 cfs @ 12.25 hrs, Volume= 45,944.8 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 247.80' @ 12.25 hrs Surf.Area= 11,345 sf Storage= 30,097.4 cf

Plug-Flow detention time= 167.2 min calculated for 94,391.1 cf (100% of inflow)
Center-of-Mass det. time= 167.2 min (974.9 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	244.00'	16,339.6 cf	**63.25'W x 179.37'L x 5.75'H Field A** 65,233.4 cf Overall - 24,384.5 cf Embedded = 40,848.9 cf x 40.0% Voids
#2A	244.75'	24,384.5 cf	**Cultec R-902HD** x 376 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 376 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		40,724.1 cf	Total Available Storage

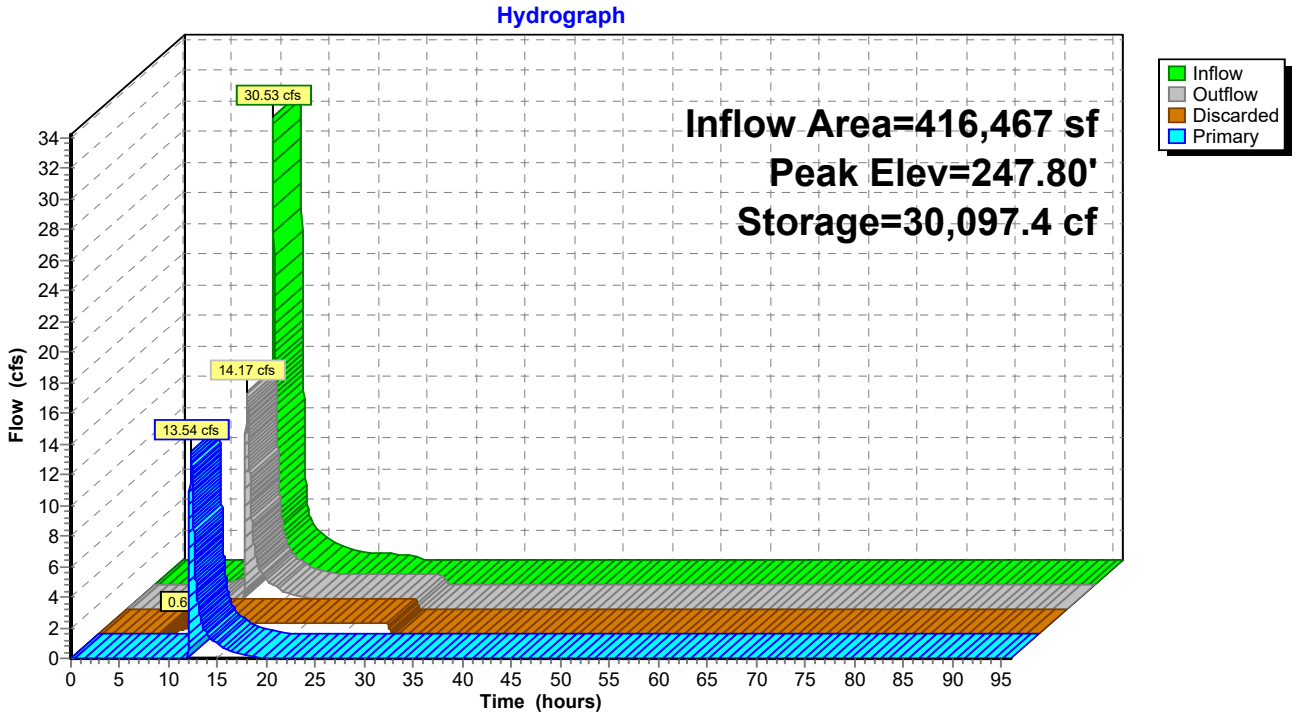
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	246.16'	**24.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	246.16'	**36.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.16' / 245.10' S= 0.0530 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

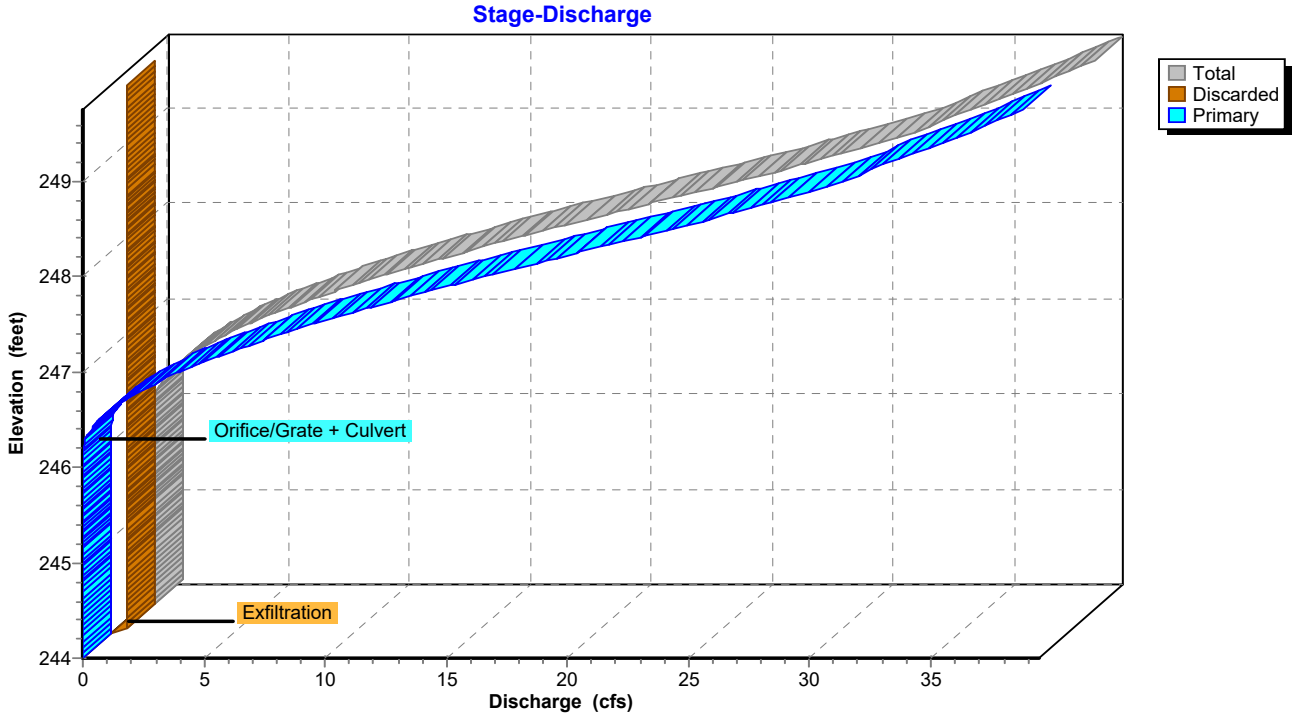
Discarded OutFlow Max=0.63 cfs @ 9.70 hrs HW=244.06' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.63 cfs)

Primary OutFlow Max=13.54 cfs @ 12.25 hrs HW=247.80' (Free Discharge)
└**3=Culvert** (Inlet Controls 13.54 cfs @ 3.44 fps)
└**2=Orifice/Grate** (Passes 13.54 cfs of 23.94 cfs potential flow)

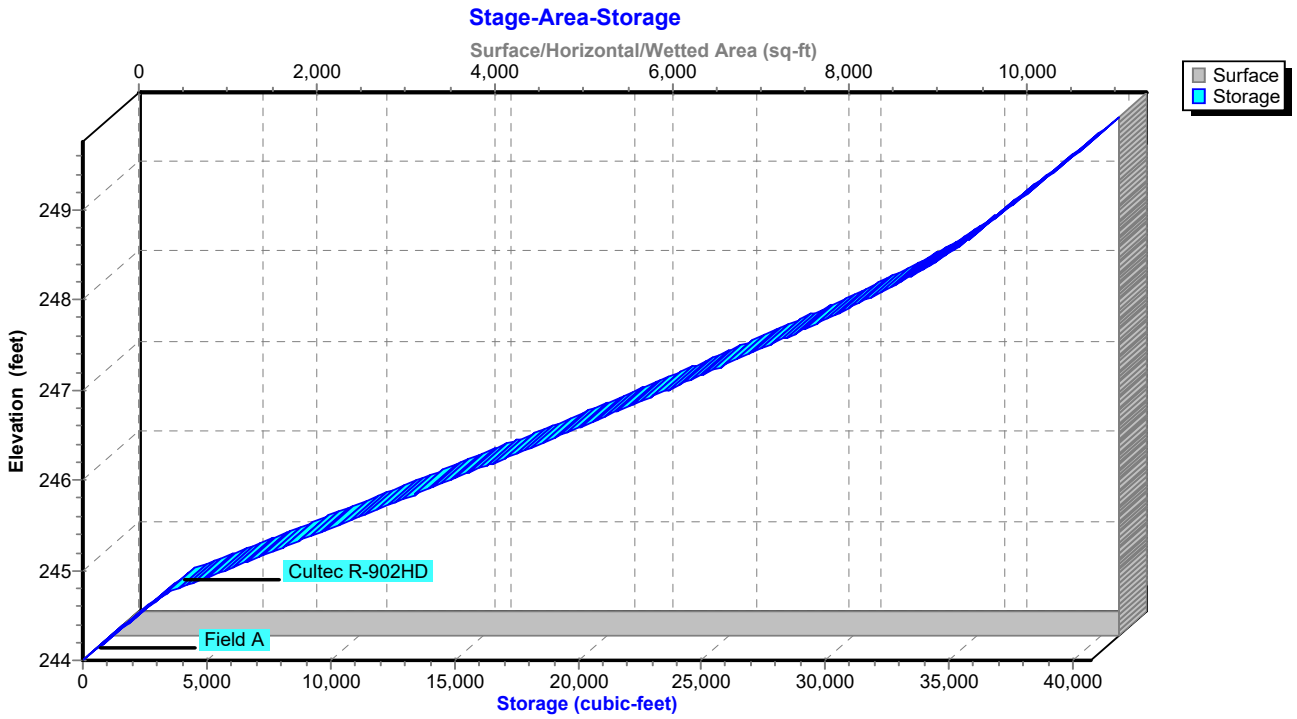
Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Hydrograph for Pond SWM-3: Cultec 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	244.00	0.00	0.00	0.00
2.00	0.00	0.0	244.00	0.00	0.00	0.00
4.00	0.00	0.0	244.00	0.00	0.00	0.00
6.00	0.00	0.0	244.00	0.00	0.00	0.00
8.00	0.19	73.0	244.02	0.18	**0.18**	0.00
10.00	0.80	371.7	244.08	0.63	**0.63**	0.00
12.00	**18.66**	**16,870.3**	**246.22**	**0.66**	0.63	**0.03**
14.00	**1.78**	**20,799.3**	**246.67**	**2.16**	0.63	**1.53**
16.00	0.96	19,014.9	246.47	1.20	0.63	0.56
18.00	0.59	17,653.1	246.31	0.77	0.63	0.14
20.00	0.47	16,481.1	246.18	0.64	0.63	0.00
22.00	0.39	15,020.4	246.02	0.63	0.63	0.00
24.00	0.31	12,986.0	245.79	0.63	0.63	0.00
26.00	0.00	8,527.1	245.30	0.63	0.63	0.00
28.00	0.00	3,970.2	244.81	0.63	0.63	0.00
30.00	0.00	10.1	244.00	0.02	0.02	0.00
32.00	0.00	0.0	244.00	0.00	0.00	0.00
34.00	0.00	0.0	244.00	0.00	0.00	0.00
36.00	0.00	0.0	244.00	0.00	0.00	0.00
38.00	0.00	0.0	244.00	0.00	0.00	0.00
40.00	0.00	0.0	244.00	0.00	0.00	0.00
42.00	0.00	0.0	244.00	0.00	0.00	0.00
44.00	0.00	0.0	244.00	0.00	0.00	0.00
46.00	0.00	0.0	244.00	0.00	0.00	0.00
48.00	0.00	0.0	244.00	0.00	0.00	0.00
50.00	0.00	0.0	244.00	0.00	0.00	0.00
52.00	0.00	0.0	244.00	0.00	0.00	0.00
54.00	0.00	0.0	244.00	0.00	0.00	0.00
56.00	0.00	0.0	244.00	0.00	0.00	0.00
58.00	0.00	0.0	244.00	0.00	0.00	0.00
60.00	0.00	0.0	244.00	0.00	0.00	0.00
62.00	0.00	0.0	244.00	0.00	0.00	0.00
64.00	0.00	0.0	244.00	0.00	0.00	0.00
66.00	0.00	0.0	244.00	0.00	0.00	0.00
68.00	0.00	0.0	244.00	0.00	0.00	0.00
70.00	0.00	0.0	244.00	0.00	0.00	0.00
72.00	0.00	0.0	244.00	0.00	0.00	0.00
74.00	0.00	0.0	244.00	0.00	0.00	0.00
76.00	0.00	0.0	244.00	0.00	0.00	0.00
78.00	0.00	0.0	244.00	0.00	0.00	0.00
80.00	0.00	0.0	244.00	0.00	0.00	0.00
82.00	0.00	0.0	244.00	0.00	0.00	0.00
84.00	0.00	0.0	244.00	0.00	0.00	0.00
86.00	0.00	0.0	244.00	0.00	0.00	0.00
88.00	0.00	0.0	244.00	0.00	0.00	0.00
90.00	0.00	0.0	244.00	0.00	0.00	0.00
92.00	0.00	0.0	244.00	0.00	0.00	0.00
94.00	0.00	0.0	244.00	0.00	0.00	0.00
96.00	0.00	0.0	244.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-3: Cultec 3

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
244.00	0.00	**0.00**	0.00
244.10	0.63	**0.63**	0.00
244.20	0.63	0.63	0.00
244.30	0.63	0.63	0.00
244.40	0.63	0.63	0.00
244.50	0.63	0.63	0.00
244.60	0.63	0.63	0.00
244.70	0.63	0.63	0.00
244.80	0.63	0.63	0.00
244.90	0.63	0.63	0.00
245.00	0.63	0.63	0.00
245.10	0.63	0.63	0.00
245.20	0.63	0.63	0.00
245.30	0.63	0.63	0.00
245.40	0.63	0.63	0.00
245.50	0.63	0.63	0.00
245.60	0.63	0.63	0.00
245.70	0.63	0.63	0.00
245.80	0.63	0.63	0.00
245.90	0.63	0.63	0.00
246.00	0.63	0.63	0.00
246.10	0.63	0.63	0.00
246.20	0.64	0.63	0.01
246.30	0.75	0.63	0.12
246.40	0.98	0.63	0.35
246.50	1.33	0.63	0.69
246.60	1.78	0.63	1.15
246.70	2.34	0.63	1.71
246.80	3.01	0.63	2.37
246.90	3.77	0.63	3.14
247.00	4.62	0.63	3.99
247.10	5.57	0.63	4.94
247.20	6.60	0.63	5.97
247.30	7.71	0.63	7.07
247.40	8.89	0.63	8.26
247.50	10.14	0.63	9.51
247.60	11.45	0.63	10.82
247.70	12.82	0.63	12.19
247.80	14.24	0.63	13.61
247.90	15.71	0.63	15.07
248.00	17.21	0.63	16.57
248.10	18.73	0.63	18.10
248.20	20.28	0.63	19.65
248.30	21.84	0.63	21.21
248.40	23.41	0.63	22.77
248.50	24.96	0.63	24.32
248.60	26.48	0.63	25.85
248.70	27.97	0.63	27.34
248.80	29.41	0.63	28.77
248.90	30.76	0.63	30.12
249.00	31.99	0.63	31.36
249.10	33.06	0.63	32.42
249.20	33.98	0.63	33.34
249.30	35.04	0.63	34.41
249.40	36.08	0.63	35.44
249.50	37.08	0.63	36.45
249.60	38.06	0.63	37.43
249.70	**39.01**	0.63	**38.38**

Stage-Area-Storage for Pond SWM-3: Cultec 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
244.00	**11,345**	0.0
244.10	11,345	453.8
244.20	11,345	907.6
244.30	11,345	1,361.4
244.40	11,345	1,815.2
244.50	11,345	2,269.0
244.60	11,345	2,722.8
244.70	11,345	3,176.6
244.80	11,345	3,869.0
244.90	11,345	4,801.5
245.00	11,345	5,735.4
245.10	11,345	6,663.7
245.20	11,345	7,589.5
245.30	11,345	8,511.4
245.40	11,345	9,432.6
245.50	11,345	10,351.7
245.60	11,345	11,265.0
245.70	11,345	12,172.6
245.80	11,345	13,078.8
245.90	11,345	13,983.8
246.00	11,345	14,883.1
246.10	11,345	15,776.5
246.20	11,345	16,667.5
246.30	11,345	17,553.9
246.40	11,345	18,435.6
246.50	11,345	19,315.0
246.60	11,345	20,188.5
246.70	11,345	21,059.6
246.80	11,345	21,925.4
246.90	11,345	22,782.6
247.00	11,345	23,637.1
247.10	11,345	24,482.8
247.20	11,345	25,320.4
247.30	11,345	26,151.3
247.40	11,345	26,971.1
247.50	11,345	27,781.0
247.60	11,345	28,578.9
247.70	11,345	29,362.9
247.80	11,345	30,134.2
247.90	11,345	30,888.3
248.00	11,345	31,624.5
248.10	11,345	32,342.7
248.20	11,345	33,039.2
248.30	11,345	33,710.3
248.40	11,345	34,344.4
248.50	11,345	34,929.4
248.60	11,345	35,461.0
248.70	11,345	35,951.2
248.80	11,345	36,413.0
248.90	11,345	36,866.8
249.00	11,345	37,320.6
249.10	11,345	37,774.4
249.20	11,345	38,228.2
249.30	11,345	38,682.0
249.40	11,345	39,135.8
249.50	11,345	39,589.6
249.60	11,345	40,043.4
249.70	11,345	**40,497.2**

Summary for Pond SWM-4: Cultec 4

Inflow Area = 251,626 sf, 80.19% Impervious, Inflow Depth = 4.62" for 25 yr event
Inflow = 28.70 cfs @ 12.10 hrs, Volume= 96,901.9 cf
Outflow = 12.94 cfs @ 12.31 hrs, Volume= 96,901.9 cf, Atten= 55%, Lag= 12.4 min
Discarded = 0.68 cfs @ 9.29 hrs, Volume= 51,974.2 cf
Primary = 12.25 cfs @ 12.31 hrs, Volume= 44,927.7 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 246.75' @ 12.31 hrs Surf.Area= 12,273 sf Storage= 32,221.3 cf

Plug-Flow detention time= 157.2 min calculated for 96,901.9 cf (100% of inflow)
Center-of-Mass det. time= 157.2 min (950.2 - 793.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	243.00'	17,644.6 cf	**63.25'W x 194.03'L x 5.75'H Field A** 70,567.5 cf Overall - 26,456.0 cf Embedded = 44,111.5 cf x 40.0% Voids
#2A	243.75'	26,456.0 cf	**Cultec R-902HD** x 408 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 408 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		44,100.6 cf	Total Available Storage

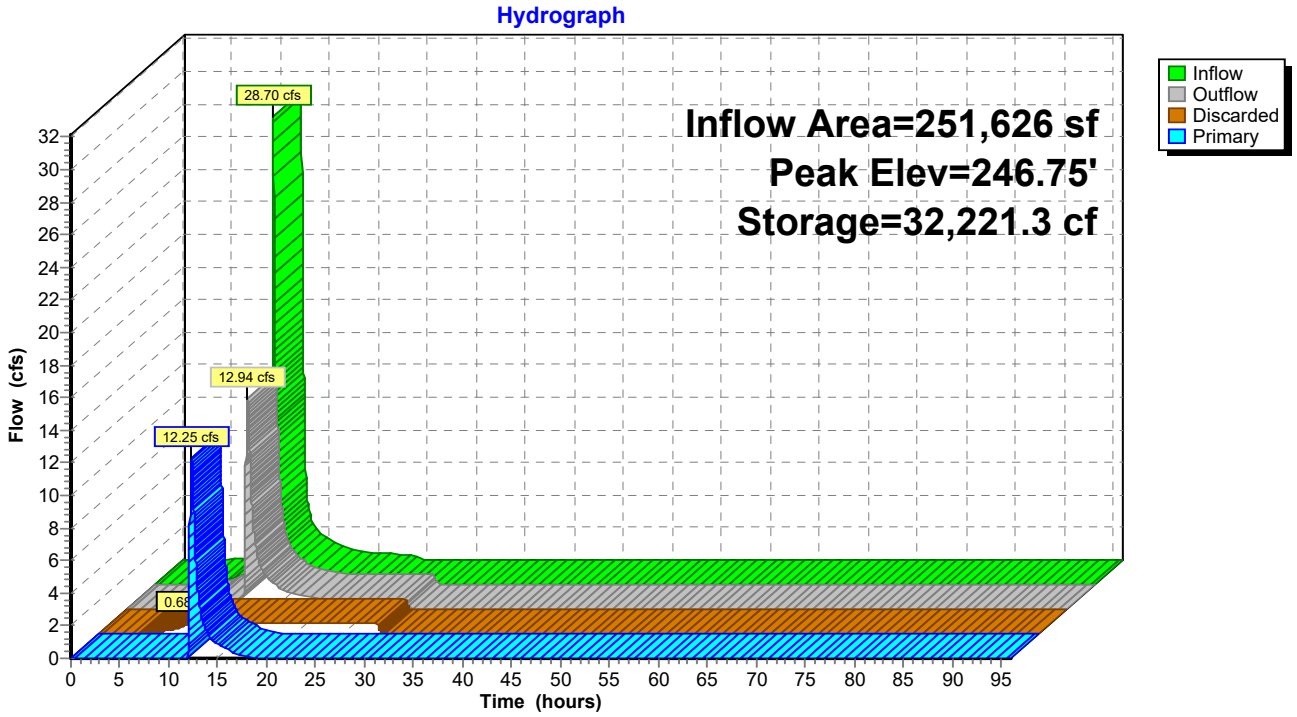
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	245.00'	**30.0" Round Culvert** L= 188.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.00' / 244.30' S= 0.0037 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

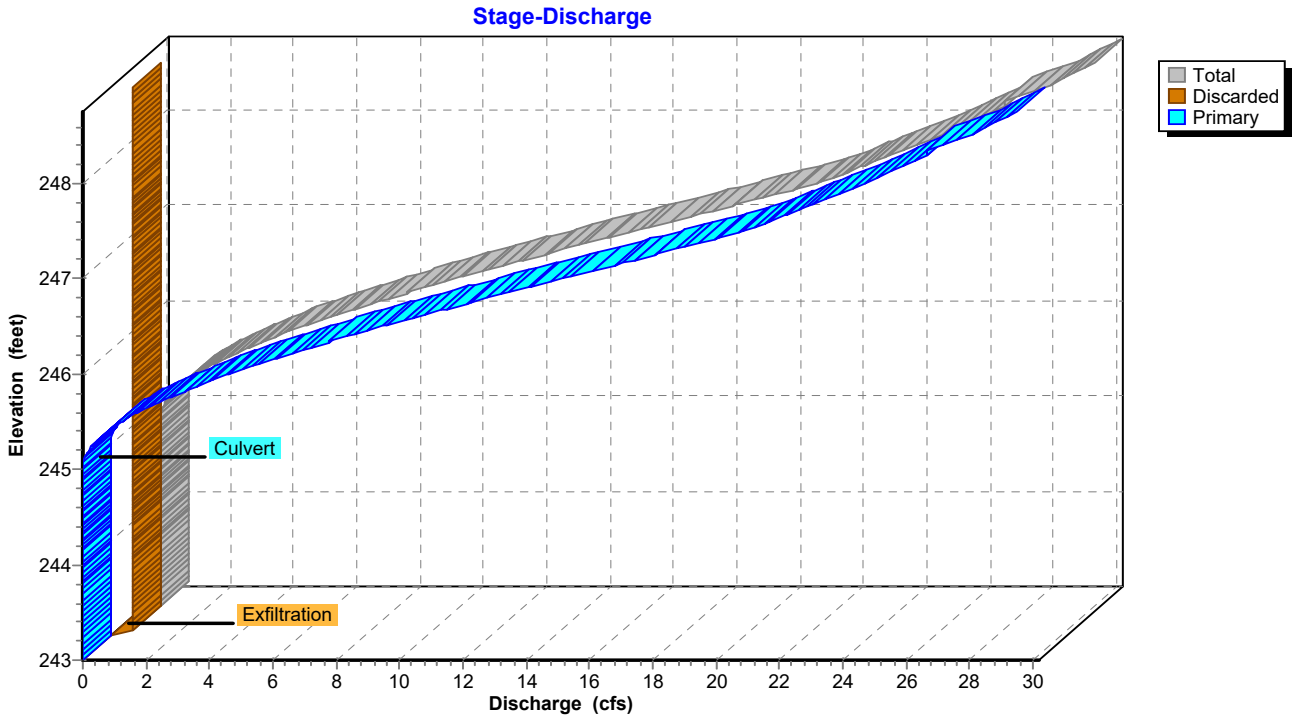
Discarded OutFlow Max=0.68 cfs @ 9.29 hrs HW=243.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.68 cfs)

Primary OutFlow Max=12.25 cfs @ 12.31 hrs HW=246.75' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 12.25 cfs @ 4.69 fps)

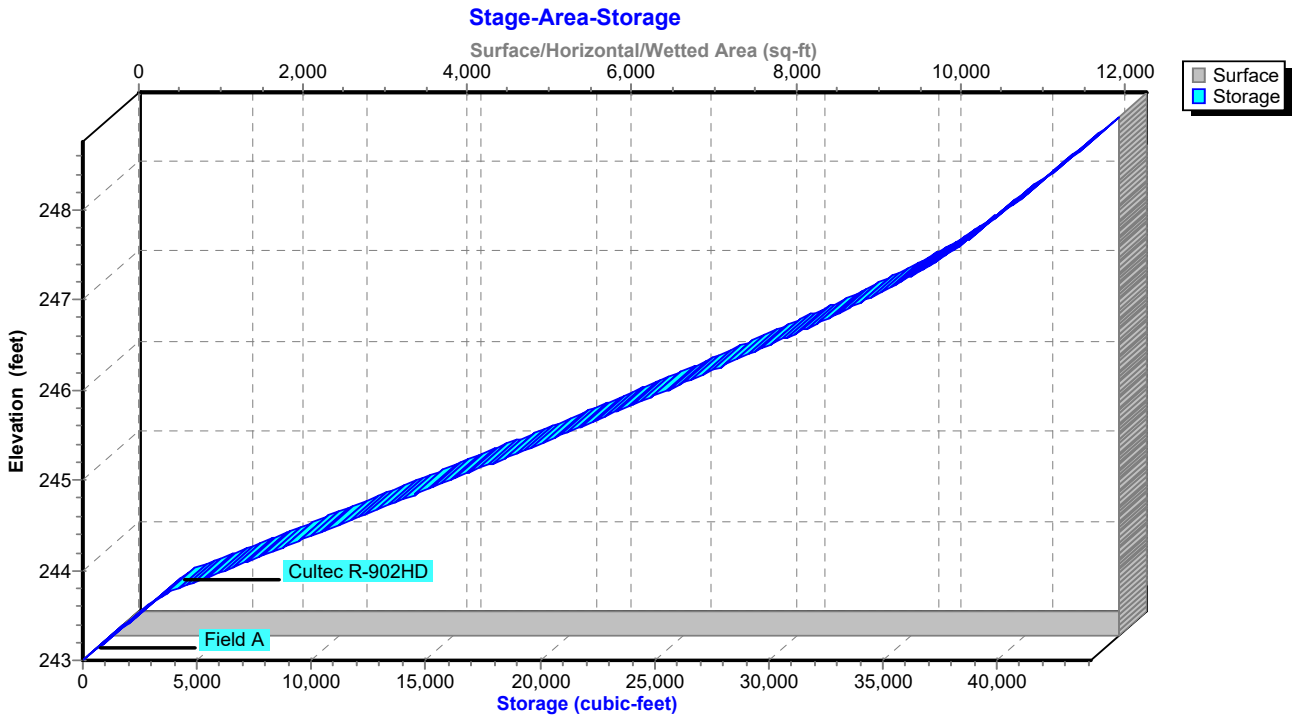
Pond SWM-4: Cultec 4



Pond SWM-4: Cultec 4



Pond SWM-4: Cultec 4



Hydrograph for Pond SWM-4: Cultec 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.01	0.8	243.00	0.00	0.00	0.00
6.00	0.12	45.5	243.01	0.11	0.11	0.00
8.00	0.35	138.3	243.03	0.34	**0.34**	0.00
10.00	1.00	735.1	243.15	0.68	**0.68**	0.00
12.00	**16.49**	**17,583.7**	**245.15**	**0.79**	0.68	**0.11**
14.00	**1.72**	**21,470.4**	**245.56**	**2.22**	0.68	**1.53**
16.00	0.92	19,226.4	245.32	1.19	0.68	0.51
18.00	0.56	17,566.1	245.15	0.79	0.68	0.10
20.00	0.45	15,984.1	244.99	0.68	0.68	0.00
22.00	0.37	13,982.4	244.78	0.68	0.68	0.00
24.00	0.29	11,435.9	244.52	0.68	0.68	0.00
26.00	0.00	6,622.8	244.04	0.68	0.68	0.00
28.00	0.00	1,693.3	243.34	0.68	0.68	0.00
30.00	0.00	0.0	243.00	0.00	0.00	0.00
32.00	0.00	0.0	243.00	0.00	0.00	0.00
34.00	0.00	0.0	243.00	0.00	0.00	0.00
36.00	0.00	0.0	243.00	0.00	0.00	0.00
38.00	0.00	0.0	243.00	0.00	0.00	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-4: Cultec 4

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.68	**0.68**	0.00
243.20	0.68	0.68	0.00
243.30	0.68	0.68	0.00
243.40	0.68	0.68	0.00
243.50	0.68	0.68	0.00
243.60	0.68	0.68	0.00
243.70	0.68	0.68	0.00
243.80	0.68	0.68	0.00
243.90	0.68	0.68	0.00
244.00	0.68	0.68	0.00
244.10	0.68	0.68	0.00
244.20	0.68	0.68	0.00
244.30	0.68	0.68	0.00
244.40	0.68	0.68	0.00
244.50	0.68	0.68	0.00
244.60	0.68	0.68	0.00
244.70	0.68	0.68	0.00
244.80	0.68	0.68	0.00
244.90	0.68	0.68	0.00
245.00	0.68	0.68	0.00
245.10	0.73	0.68	0.04
245.20	0.87	0.68	0.19
245.30	1.12	0.68	0.44
245.40	1.47	0.68	0.79
245.50	1.92	0.68	1.23
245.60	2.45	0.68	1.76
245.70	3.06	0.68	2.38
245.80	3.75	0.68	3.06
245.90	4.50	0.68	3.82
246.00	5.32	0.68	4.64
246.10	6.20	0.68	5.51
246.20	7.13	0.68	6.44
246.30	8.10	0.68	7.42
246.40	9.12	0.68	8.44
246.50	10.18	0.68	9.49
246.60	11.26	0.68	10.58
246.70	12.37	0.68	11.69
246.80	13.51	0.68	12.83
246.90	14.66	0.68	13.98
247.00	15.82	0.68	15.14
247.10	16.99	0.68	16.30
247.20	18.15	0.68	17.47
247.30	19.31	0.68	18.62
247.40	20.45	0.68	19.76
247.50	21.55	0.68	20.86
247.60	22.37	0.68	21.68
247.70	23.15	0.68	22.47
247.80	23.92	0.68	23.23
247.90	24.65	0.68	23.97
248.00	25.37	0.68	24.68
248.10	26.06	0.68	25.38
248.20	26.74	0.68	26.06
248.30	27.40	0.68	26.72
248.40	27.78	0.68	27.09
248.50	28.61	0.68	27.93
248.60	29.29	0.68	28.60
248.70	**29.89**	0.68	**29.21**

Stage-Area-Storage for Pond SWM-4: Cultec 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
243.00	**12,273**	0.0
243.10	12,273	490.9
243.20	12,273	981.8
243.30	12,273	1,472.7
243.40	12,273	1,963.6
243.50	12,273	2,454.5
243.60	12,273	2,945.4
243.70	12,273	3,436.3
243.80	12,273	4,186.2
243.90	12,273	5,196.4
244.00	12,273	6,208.2
244.10	12,273	7,213.9
244.20	12,273	8,216.9
244.30	12,273	9,215.7
244.40	12,273	10,213.7
244.50	12,273	11,209.5
244.60	12,273	12,198.8
244.70	12,273	13,182.1
244.80	12,273	14,163.9
244.90	12,273	15,144.3
245.00	12,273	16,118.5
245.10	12,273	17,086.4
245.20	12,273	18,051.7
245.30	12,273	19,011.9
245.40	12,273	19,967.1
245.50	12,273	20,919.7
245.60	12,273	21,866.0
245.70	12,273	22,809.7
245.80	12,273	23,747.5
245.90	12,273	24,676.1
246.00	12,273	25,601.8
246.10	12,273	26,517.8
246.20	12,273	27,425.2
246.30	12,273	28,325.3
246.40	12,273	29,213.2
246.50	12,273	30,090.5
246.60	12,273	30,954.8
246.70	12,273	31,803.9
246.80	12,273	32,639.2
246.90	12,273	33,456.0
247.00	12,273	34,253.3
247.10	12,273	35,031.1
247.20	12,273	35,785.3
247.30	12,273	36,511.9
247.40	12,273	37,198.5
247.50	12,273	37,831.7
247.60	12,273	38,407.0
247.70	12,273	38,937.5
247.80	12,273	39,437.0
247.90	12,273	39,927.9
248.00	12,273	40,418.8
248.10	12,273	40,909.7
248.20	12,273	41,400.6
248.30	12,273	41,891.6
248.40	12,273	42,382.5
248.50	12,273	42,873.4
248.60	12,273	43,364.3
248.70	12,273	**43,855.2**

Summary for Pond SWM-6: Cultec 6

Inflow Area = 108,531 sf,100.00% Impervious, Inflow Depth = 5.91" for 25 yr event
Inflow = 15.56 cfs @ 12.07 hrs, Volume= 53,466.9 cf
Outflow = 14.84 cfs @ 12.09 hrs, Volume= 53,466.9 cf, Atten= 5%, Lag= 1.4 min
Discarded = 0.14 cfs @ 3.87 hrs, Volume= 13,999.4 cf
Primary = 14.70 cfs @ 12.09 hrs, Volume= 39,467.5 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 258.81' @ 12.09 hrs Surf.Area= 2,584 sf Storage= 5,346.0 cf

Plug-Flow detention time= 63.1 min calculated for 53,461.3 cf (100% of inflow)
Center-of-Mass det. time= 63.2 min (807.0 - 743.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	255.50'	2,843.3 cf	**22.50'W x 114.83'L x 4.00'H Field A** 10,335.0 cf Overall - 3,226.8 cf Embedded = 7,108.2 cf x 40.0% Voids
#2A	256.00'	3,226.8 cf	**Cultec R-360HD** x 87 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 87 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		6,070.1 cf	Total Available Storage

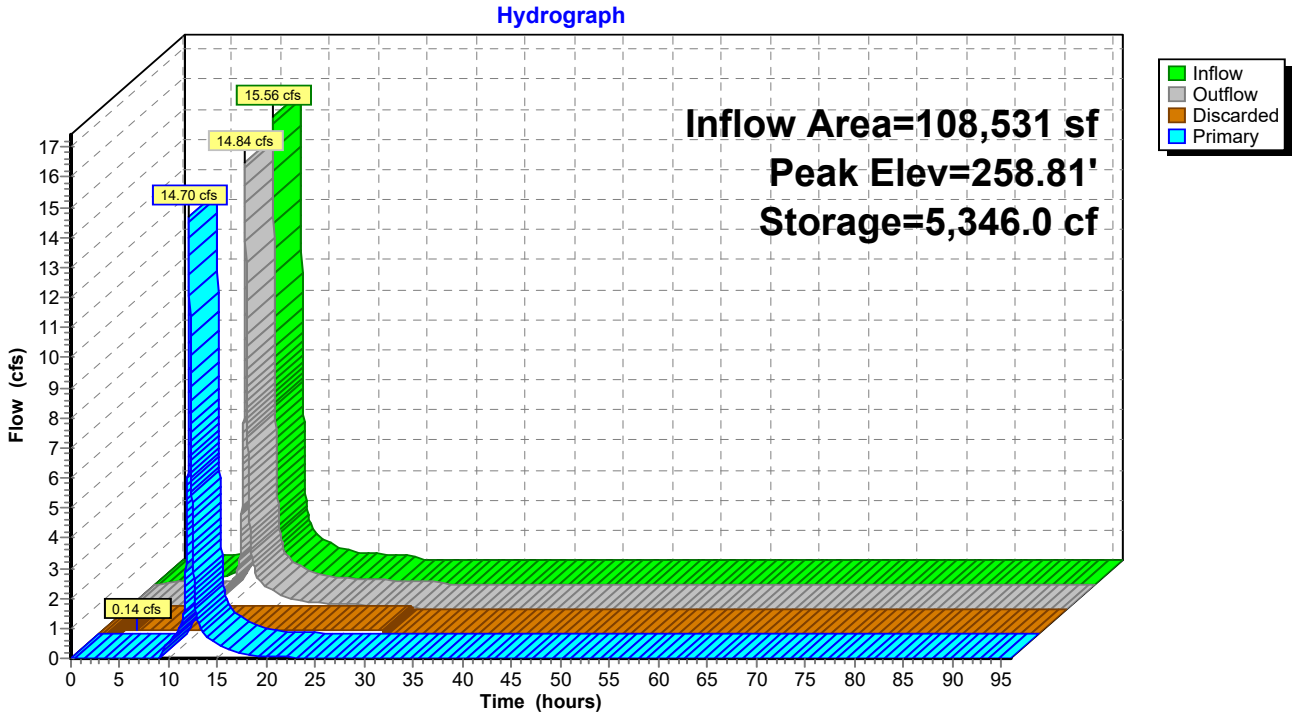
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	255.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	257.10'	**12.0" Vert. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	257.10'	**36.0" Round Culvert** L= 39.0' Ke= 0.900 Inlet / Outlet Invert= 257.10' / 256.60' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

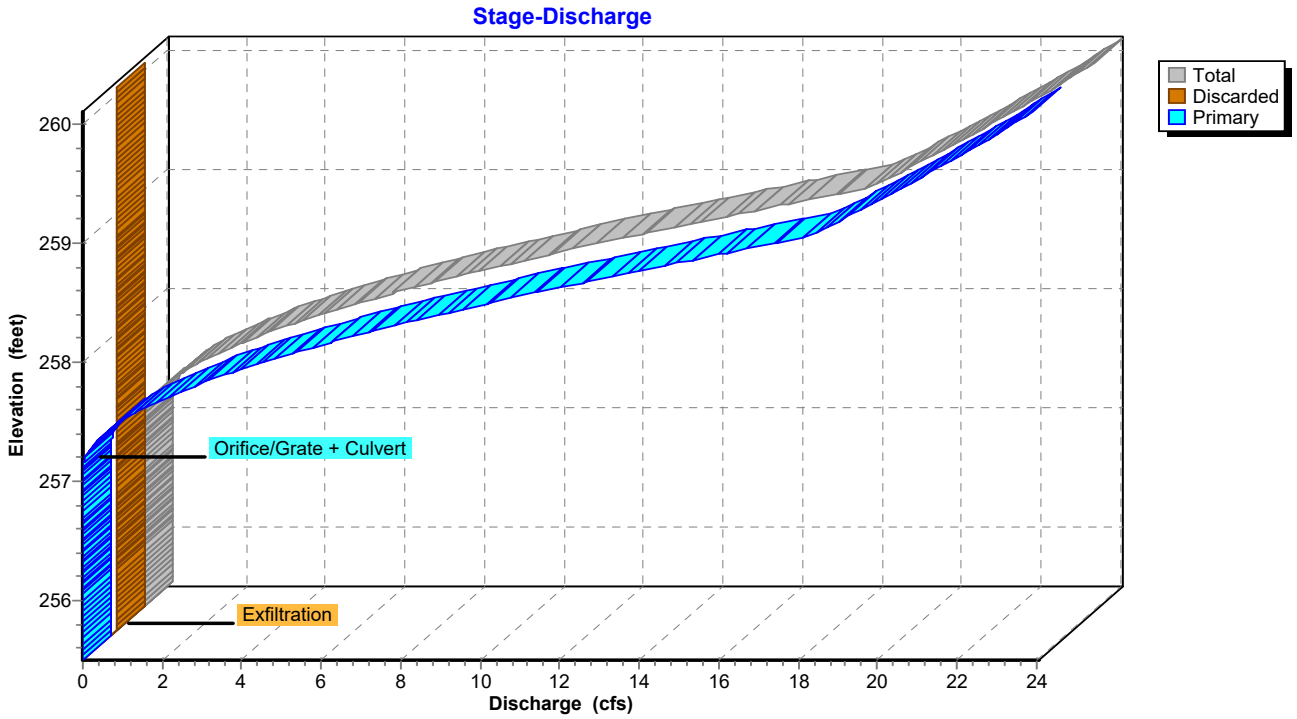
Discarded OutFlow Max=0.14 cfs @ 3.87 hrs HW=255.55' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=14.67 cfs @ 12.09 hrs HW=258.81' (Free Discharge)
↑**3=Culvert** (Inlet Controls 14.67 cfs @ 3.52 fps)
↑**2=Orifice/Grate** (Passes 14.67 cfs of 16.66 cfs potential flow)

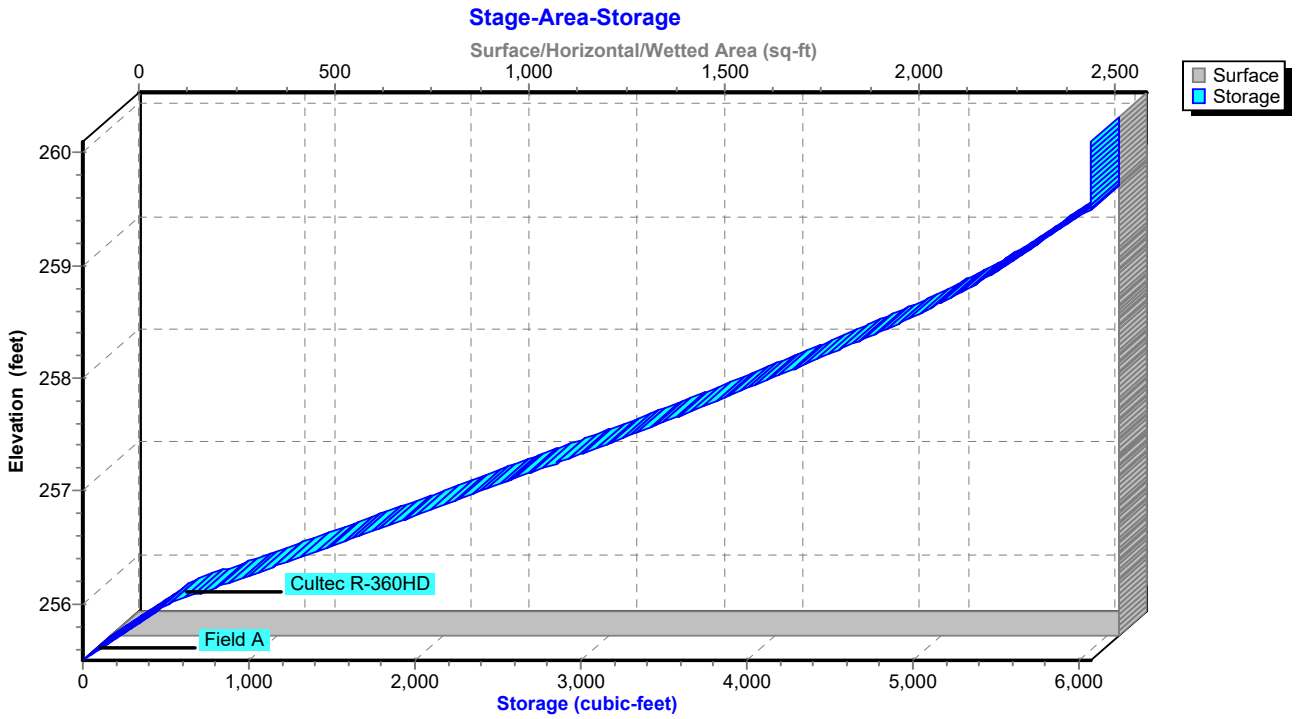
Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Hydrograph for Pond SWM-6: Cultec 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	255.50	0.00	0.00	0.00
2.00	0.07	23.0	255.52	0.07	**0.07**	0.00
4.00	0.15	50.5	255.55	0.14	**0.14**	0.00
6.00	0.22	348.6	255.84	0.14	0.14	0.00
8.00	0.37	1,417.4	256.47	0.14	0.14	0.00
10.00	0.73	3,125.0	257.40	0.70	0.14	0.55
12.00	**10.52**	**4,672.9**	**258.33**	**8.29**	0.14	**8.14**
14.00	**0.78**	**3,186.2**	**257.44**	**0.83**	0.14	**0.68**
16.00	0.41	2,982.8	257.32	0.45	0.14	0.30
18.00	0.25	2,843.2	257.24	0.27	0.14	0.13
20.00	0.20	2,768.5	257.20	0.21	0.14	0.07
22.00	0.17	2,709.5	257.17	0.18	0.14	0.03
24.00	0.13	2,621.8	257.12	0.15	0.14	0.01
26.00	0.00	1,619.2	256.58	0.14	0.14	0.00
28.00	0.00	581.3	256.03	0.14	0.14	0.00
30.00	0.00	0.0	255.50	0.00	0.00	0.00
32.00	0.00	0.0	255.50	0.00	0.00	0.00
34.00	0.00	0.0	255.50	0.00	0.00	0.00
36.00	0.00	0.0	255.50	0.00	0.00	0.00
38.00	0.00	0.0	255.50	0.00	0.00	0.00
40.00	0.00	0.0	255.50	0.00	0.00	0.00
42.00	0.00	0.0	255.50	0.00	0.00	0.00
44.00	0.00	0.0	255.50	0.00	0.00	0.00
46.00	0.00	0.0	255.50	0.00	0.00	0.00
48.00	0.00	0.0	255.50	0.00	0.00	0.00
50.00	0.00	0.0	255.50	0.00	0.00	0.00
52.00	0.00	0.0	255.50	0.00	0.00	0.00
54.00	0.00	0.0	255.50	0.00	0.00	0.00
56.00	0.00	0.0	255.50	0.00	0.00	0.00
58.00	0.00	0.0	255.50	0.00	0.00	0.00
60.00	0.00	0.0	255.50	0.00	0.00	0.00
62.00	0.00	0.0	255.50	0.00	0.00	0.00
64.00	0.00	0.0	255.50	0.00	0.00	0.00
66.00	0.00	0.0	255.50	0.00	0.00	0.00
68.00	0.00	0.0	255.50	0.00	0.00	0.00
70.00	0.00	0.0	255.50	0.00	0.00	0.00
72.00	0.00	0.0	255.50	0.00	0.00	0.00
74.00	0.00	0.0	255.50	0.00	0.00	0.00
76.00	0.00	0.0	255.50	0.00	0.00	0.00
78.00	0.00	0.0	255.50	0.00	0.00	0.00
80.00	0.00	0.0	255.50	0.00	0.00	0.00
82.00	0.00	0.0	255.50	0.00	0.00	0.00
84.00	0.00	0.0	255.50	0.00	0.00	0.00
86.00	0.00	0.0	255.50	0.00	0.00	0.00
88.00	0.00	0.0	255.50	0.00	0.00	0.00
90.00	0.00	0.0	255.50	0.00	0.00	0.00
92.00	0.00	0.0	255.50	0.00	0.00	0.00
94.00	0.00	0.0	255.50	0.00	0.00	0.00
96.00	0.00	0.0	255.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-6: Cultec 6

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
255.50	0.00	**0.00**	0.00
255.55	0.14	**0.14**	0.00
255.60	0.14	0.14	0.00
255.65	0.14	0.14	0.00
255.70	0.14	0.14	0.00
255.75	0.14	0.14	0.00
255.80	0.14	0.14	0.00
255.85	0.14	0.14	0.00
255.90	0.14	0.14	0.00
255.95	0.14	0.14	0.00
256.00	0.14	0.14	0.00
256.05	0.14	0.14	0.00
256.10	0.14	0.14	0.00
256.15	0.14	0.14	0.00
256.20	0.14	0.14	0.00
256.25	0.14	0.14	0.00
256.30	0.14	0.14	0.00
256.35	0.14	0.14	0.00
256.40	0.14	0.14	0.00
256.45	0.14	0.14	0.00
256.50	0.14	0.14	0.00
256.55	0.14	0.14	0.00
256.60	0.14	0.14	0.00
256.65	0.14	0.14	0.00
256.70	0.14	0.14	0.00
256.75	0.14	0.14	0.00
256.80	0.14	0.14	0.00
256.85	0.14	0.14	0.00
256.90	0.14	0.14	0.00
256.95	0.14	0.14	0.00
257.00	0.14	0.14	0.00
257.05	0.14	0.14	0.00
257.10	0.14	0.14	0.00
257.15	0.16	0.14	0.02
257.20	0.21	0.14	0.06
257.25	0.28	0.14	0.14
257.30	0.39	0.14	0.24
257.35	0.52	0.14	0.38
257.40	0.69	0.14	0.54
257.45	0.88	0.14	0.73
257.50	1.10	0.14	0.95
257.55	1.34	0.14	1.20
257.60	1.62	0.14	1.47
257.65	1.91	0.14	1.77
257.70	2.24	0.14	2.10
257.75	2.59	0.14	2.44
257.80	2.96	0.14	2.82
257.85	3.36	0.14	3.22
257.90	3.78	0.14	3.64
257.95	4.23	0.14	4.08
258.00	4.69	0.14	4.55
258.05	5.18	0.14	5.04
258.10	5.69	0.14	5.54
258.15	6.22	0.14	6.07
258.20	6.77	0.14	6.62
258.25	7.33	0.14	7.19
258.30	7.92	0.14	7.77
258.35	8.52	0.14	8.38
258.40	9.14	0.14	9.00
258.45	9.78	0.14	9.63
258.50	10.43	0.14	10.29
258.55	11.10	0.14	10.95
258.60	11.78	0.14	11.63
258.65	12.47	0.14	12.33
258.70	13.18	0.14	13.04
258.75	13.90	0.14	13.75
258.80	14.63	0.14	14.48
258.85	15.37	0.14	15.22
258.90	16.11	0.14	15.97
258.95	16.87	0.14	16.72
259.00	17.63	0.14	17.49
259.05	18.36	0.14	18.21
259.10	18.67	0.14	18.53
259.15	18.98	0.14	18.83
259.20	19.28	0.14	19.13
259.25	19.57	0.14	19.43
259.30	19.87	0.14	19.72
259.35	20.15	0.14	20.01
259.40	20.44	0.14	20.29
259.45	20.72	0.14	20.57
259.50	20.99	0.14	20.85
259.55	21.27	0.14	21.12
259.60	21.54	0.14	21.39
259.65	21.80	0.14	21.66
259.70	22.06	0.14	21.92
259.75	22.32	0.14	22.18
259.80	22.58	0.14	22.44
259.85	22.83	0.14	22.69
259.90	23.08	0.14	22.94
259.95	23.33	0.14	23.19
260.00	23.58	0.14	23.43
260.05	23.82	0.14	23.68
260.10	**24.06**	0.14	**23.92**

Stage-Area-Storage for Pond SWM-6: Cultec 6

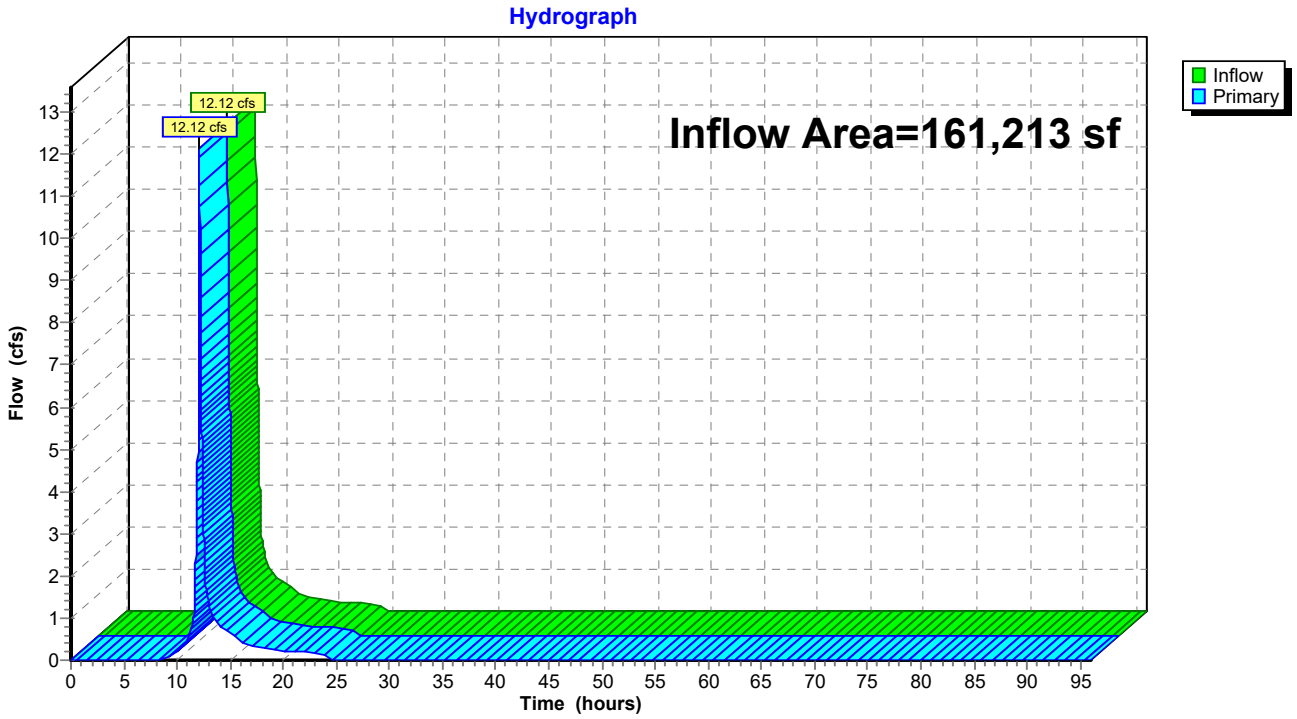
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
255.50	**2,584**	0.0
255.55	2,584	51.7
255.60	2,584	103.3
255.65	2,584	155.0
255.70	2,584	206.7
255.75	2,584	258.4
255.80	2,584	310.1
255.85	2,584	361.7
255.90	2,584	413.4
255.95	2,584	465.1
256.00	2,584	516.7
256.05	2,584	612.7
256.10	2,584	708.5
256.15	2,584	804.2
256.20	2,584	899.8
256.25	2,584	995.1
256.30	2,584	1,090.3
256.35	2,584	1,185.3
256.40	2,584	1,280.1
256.45	2,584	1,374.7
256.50	2,584	1,469.0
256.55	2,584	1,563.2
256.60	2,584	1,657.1
256.65	2,584	1,750.8
256.70	2,584	1,844.2
256.75	2,584	1,937.4
256.80	2,584	2,030.3
256.85	2,584	2,122.9
256.90	2,584	2,215.3
256.95	2,584	2,307.3
257.00	2,584	2,399.0
257.05	2,584	2,490.4
257.10	2,584	2,581.4
257.15	2,584	2,672.2
257.20	2,584	2,762.5
257.25	2,584	2,852.5
257.30	2,584	2,942.1
257.35	2,584	3,031.3
257.40	2,584	3,120.0
257.45	2,584	3,208.4
257.50	2,584	3,296.3
257.55	2,584	3,383.8
257.60	2,584	3,470.8
257.65	2,584	3,557.3
257.70	2,584	3,643.3
257.75	2,584	3,728.7
257.80	2,584	3,813.6
257.85	2,584	3,897.9
257.90	2,584	3,981.6
257.95	2,584	4,064.8
258.00	2,584	4,147.2
258.05	2,584	4,229.0
258.10	2,584	4,310.0
258.15	2,584	4,390.3
258.20	2,584	4,469.7
258.25	2,584	4,548.2
258.30	2,584	4,625.9
258.35	2,584	4,702.5
258.40	2,584	4,778.1
258.45	2,584	4,852.6
258.50	2,584	4,925.8
258.55	2,584	4,997.8
258.60	2,584	5,068.2
258.65	2,584	5,136.8
258.70	2,584	5,203.4
258.75	2,584	5,267.3
258.80	2,584	5,328.5
258.85	2,584	5,387.3
258.90	2,584	5,444.3
258.95	2,584	5,499.7
259.00	2,584	5,553.4
259.05	2,584	5,605.0
259.10	2,584	5,656.7
259.15	2,584	5,708.4
259.20	2,584	5,760.1
259.25	2,584	5,811.7
259.30	2,584	5,863.4
259.35	2,584	5,915.1
259.40	2,584	5,966.8
259.45	2,584	6,018.4
259.50	2,584	**6,070.1**
259.55	2,584	6,070.1
259.60	2,584	6,070.1
259.65	2,584	6,070.1
259.70	2,584	6,070.1
259.75	2,584	6,070.1
259.80	2,584	6,070.1
259.85	2,584	6,070.1
259.90	2,584	6,070.1
259.95	2,584	6,070.1
260.00	2,584	6,070.1
260.05	2,584	6,070.1
260.10	2,584	6,070.1

Summary for Link POA A: POND- WEST

Inflow Area = 161,213 sf, 51.37% Impervious, Inflow Depth = 2.92" for 25 yr event
Inflow = 12.12 cfs @ 12.10 hrs, Volume= 39,215.3 cf
Primary = 12.12 cfs @ 12.10 hrs, Volume= 39,215.3 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

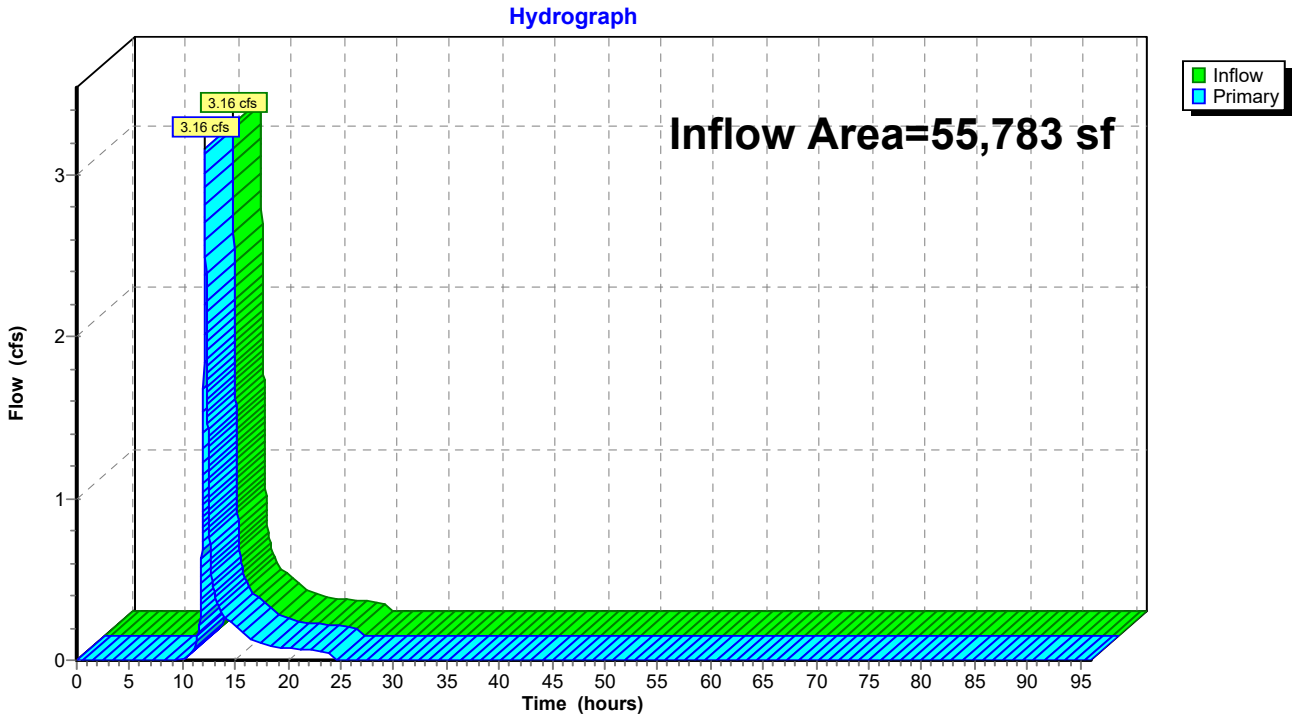
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.08	0.00	0.08	61.00	0.00	0.00	0.00
10.00	0.21	0.00	0.21	62.00	0.00	0.00	0.00
11.00	0.48	0.00	0.48	63.00	0.00	0.00	0.00
12.00	**6.66**	0.00	**6.66**	64.00	0.00	0.00	0.00
13.00	**1.29**	0.00	**1.29**	65.00	0.00	0.00	0.00
14.00	0.84	0.00	0.84	66.00	0.00	0.00	0.00
15.00	0.64	0.00	0.64	67.00	0.00	0.00	0.00
16.00	0.46	0.00	0.46	68.00	0.00	0.00	0.00
17.00	0.37	0.00	0.37	69.00	0.00	0.00	0.00
18.00	0.28	0.00	0.28	70.00	0.00	0.00	0.00
19.00	0.25	0.00	0.25	71.00	0.00	0.00	0.00
20.00	0.23	0.00	0.23	72.00	0.00	0.00	0.00
21.00	0.21	0.00	0.21	73.00	0.00	0.00	0.00
22.00	0.19	0.00	0.19	74.00	0.00	0.00	0.00
23.00	0.17	0.00	0.17	75.00	0.00	0.00	0.00
24.00	0.15	0.00	0.15	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 55,783 sf, 42.91% Impervious, Inflow Depth = 2.37" for 25 yr event
Inflow = 3.16 cfs @ 12.13 hrs, Volume= 11,021.6 cf
Primary = 3.16 cfs @ 12.13 hrs, Volume= 11,021.6 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

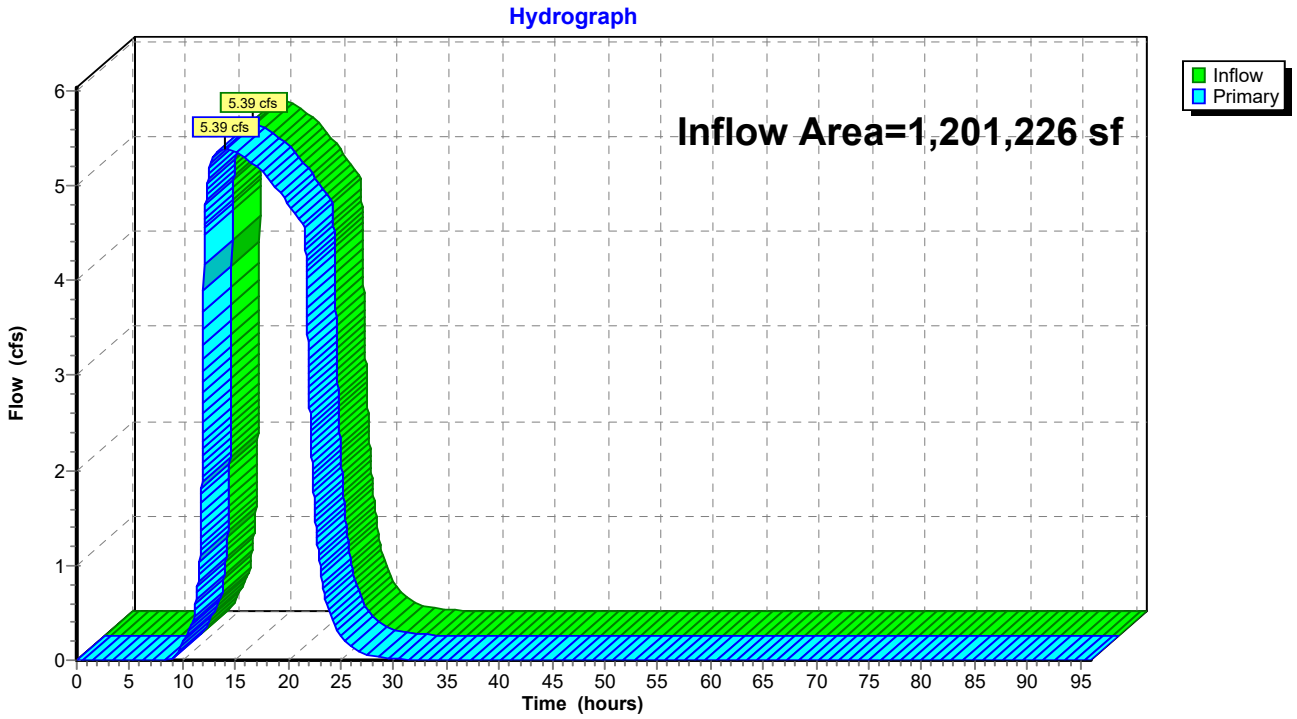
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.06	0.00	0.06	63.00	0.00	0.00	0.00
12.00	**1.41**	0.00	**1.41**	64.00	0.00	0.00	0.00
13.00	**0.42**	0.00	**0.42**	65.00	0.00	0.00	0.00
14.00	0.27	0.00	0.27	66.00	0.00	0.00	0.00
15.00	0.21	0.00	0.21	67.00	0.00	0.00	0.00
16.00	0.15	0.00	0.15	68.00	0.00	0.00	0.00
17.00	0.12	0.00	0.12	69.00	0.00	0.00	0.00
18.00	0.09	0.00	0.09	70.00	0.00	0.00	0.00
19.00	0.08	0.00	0.08	71.00	0.00	0.00	0.00
20.00	0.07	0.00	0.07	72.00	0.00	0.00	0.00
21.00	0.07	0.00	0.07	73.00	0.00	0.00	0.00
22.00	0.06	0.00	0.06	74.00	0.00	0.00	0.00
23.00	0.06	0.00	0.06	75.00	0.00	0.00	0.00
24.00	0.05	0.00	0.05	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND-NORTH

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 1.98" for 25 yr event
Inflow = 5.39 cfs @ 14.05 hrs, Volume= 198,401.7 cf
Primary = 5.39 cfs @ 14.05 hrs, Volume= 198,401.7 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND-NORTH



Hydrograph for Link POA D: WETLAND-NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.16	0.00	0.16	62.00	0.00	0.00	0.00
11.00	0.43	0.00	0.43	63.00	0.00	0.00	0.00
12.00	3.48	0.00	3.48	64.00	0.00	0.00	0.00
13.00	5.33	0.00	5.33	65.00	0.00	0.00	0.00
14.00	**5.39**	0.00	**5.39**	66.00	0.00	0.00	0.00
15.00	**5.37**	0.00	**5.37**	67.00	0.00	0.00	0.00
16.00	5.30	0.00	5.30	68.00	0.00	0.00	0.00
17.00	5.21	0.00	5.21	69.00	0.00	0.00	0.00
18.00	5.09	0.00	5.09	70.00	0.00	0.00	0.00
19.00	4.96	0.00	4.96	71.00	0.00	0.00	0.00
20.00	4.81	0.00	4.81	72.00	0.00	0.00	0.00
21.00	4.65	0.00	4.65	73.00	0.00	0.00	0.00
22.00	2.86	0.00	2.86	74.00	0.00	0.00	0.00
23.00	1.02	0.00	1.02	75.00	0.00	0.00	0.00
24.00	0.49	0.00	0.49	76.00	0.00	0.00	0.00
25.00	0.26	0.00	0.26	77.00	0.00	0.00	0.00
26.00	0.14	0.00	0.14	78.00	0.00	0.00	0.00
27.00	0.08	0.00	0.08	79.00	0.00	0.00	0.00
28.00	0.04	0.00	0.04	80.00	0.00	0.00	0.00
29.00	0.02	0.00	0.02	81.00	0.00	0.00	0.00
30.00	0.01	0.00	0.01	82.00	0.00	0.00	0.00
31.00	0.01	0.00	0.01	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-A1: Prop. Watershed Runoff Area=132,340 sf 60.47% Impervious Runoff Depth=5.77"
Flow Length=1,502' Tc=6.5 min CN=75 Runoff=20.04 cfs 63,622.4 cf

Subcatchment PR-A2: Prop. Watershed A2 Runoff Area=28,873 sf 9.70% Impervious Runoff Depth=1.84"
Flow Length=1,502' Tc=6.5 min UI Adjusted CN=42 Runoff=1.15 cfs 4,419.8 cf

Subcatchment PR-C: Prop. Watershed C Runoff Area=55,783 sf 42.91% Impervious Runoff Depth=4.43"
Flow Length=836' Tc=8.7 min CN=64 Runoff=6.05 cfs 20,588.5 cf

Subcatchment PR-D1: Prop. Watershed Runoff Area=214,605 sf 84.39% Impervious Runoff Depth=7.47"
Flow Length=1,502' Tc=7.5 min CN=89 Runoff=38.37 cfs 133,643.6 cf

Subcatchment PR-D2: Prop. Watershed Runoff Area=274,599 sf 71.05% Impervious Runoff Depth=6.62"
Flow Length=1,350' Tc=5.7 min CN=82 Runoff=48.08 cfs 151,540.3 cf

Subcatchment PR-D3: Prop. Watershed Runoff Area=108,531 sf 100.00% Impervious Runoff Depth=8.56"
Tc=5.0 min CN=98 Runoff=22.31 cfs 77,416.5 cf

Subcatchment PR-D4: Prop. Watershed D4 Runoff Area=37,021 sf 55.83% Impervious Runoff Depth=5.40"
Tc=5.0 min CN=72 Runoff=5.57 cfs 16,668.8 cf

Subcatchment PR-D5: Prop. Watershed D5 Runoff Area=50,834 sf 67.76% Impervious Runoff Depth=6.26"
Tc=5.0 min CN=79 Runoff=8.72 cfs 26,504.9 cf

Subcatchment PR-D6: Prop. Watershed D6 Runoff Area=40,781 sf 62.50% Impervious Runoff Depth=5.89"
Tc=5.0 min CN=76 Runoff=6.64 cfs 20,020.0 cf

Subcatchment PR-D7: Prop. Watershed Runoff Area=332,987 sf 33.08% Impervious Runoff Depth=3.70"
Flow Length=763' Tc=7.9 min CN=58 Runoff=30.61 cfs 102,772.5 cf

Subcatchment PR-D8: Prop. Watershed Runoff Area=141,868 sf 100.00% Impervious Runoff Depth=8.56"
Tc=5.0 min CN=98 Runoff=29.16 cfs 101,196.2 cf

Pond FP: Fire Pond Weir Peak Elev=247.53' Storage=488,019.0 cf Inflow=120.57 cfs 404,325.0 cf
Outflow=6.30 cfs 404,325.0 cf

Pond RG1: Rain-Garden #1 Peak Elev=250.22' Storage=3,712.3 cf Inflow=8.72 cfs 26,504.9 cf
Discarded=0.06 cfs 6,752.1 cf Primary=8.44 cfs 19,752.8 cf Outflow=8.50 cfs 26,504.9 cf

Pond RG2: Rain-Garden #2 Peak Elev=250.24' Storage=2,823.3 cf Inflow=6.64 cfs 20,020.0 cf
Discarded=0.05 cfs 5,244.5 cf Primary=6.38 cfs 14,775.5 cf Outflow=6.43 cfs 20,020.0 cf

Pond SWM-2: Cultec 2 Peak Elev=253.67' Storage=45,825.5 cf Inflow=29.16 cfs 101,196.2 cf
Discarded=0.88 cfs 84,624.7 cf Primary=1.96 cfs 16,571.5 cf Outflow=2.83 cfs 101,196.2 cf

Pond SWM-3: Cultec 3 Peak Elev=249.27' Storage=38,555.7 cf Inflow=48.08 cfs 168,111.9 cf
Discarded=0.63 cfs 54,897.9 cf Primary=34.12 cfs 113,214.0 cf Outflow=34.75 cfs 168,111.9 cf

Pond SWM-4: Cultec 4 Peak Elev=248.32' Storage=41,967.8 cf Inflow=43.61 cfs 150,312.4 cf
Discarded=0.68 cfs 59,330.8 cf Primary=26.65 cfs 90,981.7 cf Outflow=27.34 cfs 150,312.4 cf

Pond SWM-6: Cultec 6 Peak Elev=259.44' Storage=6,004.5 cf Inflow=22.31 cfs 77,416.5 cf
Discarded=0.14 cfs 14,587.9 cf Primary=20.50 cfs 62,828.6 cf Outflow=20.64 cfs 77,416.5 cf

Link POA A: POND- WEST Inflow=21.17 cfs 68,042.2 cf
Primary=21.17 cfs 68,042.2 cf

Link POA C: WETLAND-WEST Inflow=6.05 cfs 20,588.5 cf
Primary=6.05 cfs 20,588.5 cf

Link POA D: WETLAND-NORTH Inflow=6.30 cfs 404,325.0 cf
Primary=6.30 cfs 404,325.0 cf

Total Runoff Area = 1,418,222 sf Runoff Volume = 718,393.6 cf Average Runoff Depth = 6.08"
34.84% Pervious = 494,117 sf 65.16% Impervious = 924,105 sf

Summary for Subcatchment PR-A1: Prop. Watershed A1

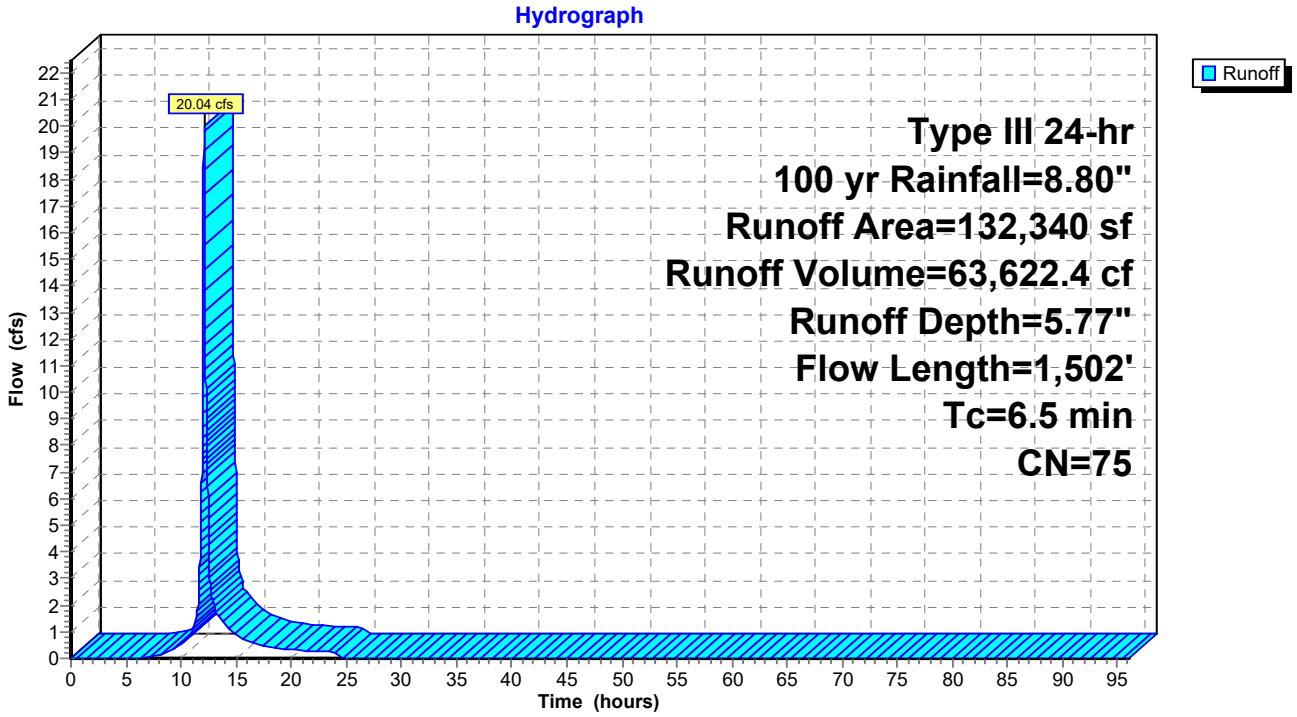
Runoff = 20.04 cfs @ 12.09 hrs, Volume= 63,622.4 cf, Depth= 5.77"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	80,020	98	Unconnected pavement, HSG A
	52,320	39	>75% Grass cover, Good, HSG A
	132,340	75	Weighted Average
	52,320		39.53% Pervious Area
	80,020		60.47% Impervious Area
	80,020		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A1: Prop. Watershed A1



Hydrograph for Subcatchment PR-A1: Prop. Watershed A1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.04
8.00	1.00	0.03	0.11
9.00	1.28	0.10	0.27
10.00	1.66	0.23	0.51
11.00	2.20	0.48	0.99
12.00	4.40	1.97	**11.54**
13.00	6.60	3.80	**1.93**
14.00	7.14	4.27	1.22
15.00	7.52	4.61	0.93
16.00	7.80	4.86	0.66
17.00	8.00	5.04	0.52
18.00	8.17	5.19	0.40
19.00	8.30	5.31	0.36
20.00	8.42	5.42	0.32
21.00	8.53	5.52	0.29
22.00	8.63	5.61	0.27
23.00	8.72	5.70	0.24
24.00	**8.80**	**5.77**	0.21
25.00	8.80	5.77	0.00
26.00	8.80	5.77	0.00
27.00	8.80	5.77	0.00
28.00	8.80	5.77	0.00
29.00	8.80	5.77	0.00
30.00	8.80	5.77	0.00
31.00	8.80	5.77	0.00
32.00	8.80	5.77	0.00
33.00	8.80	5.77	0.00
34.00	8.80	5.77	0.00
35.00	8.80	5.77	0.00
36.00	8.80	5.77	0.00
37.00	8.80	5.77	0.00
38.00	8.80	5.77	0.00
39.00	8.80	5.77	0.00
40.00	8.80	5.77	0.00
41.00	8.80	5.77	0.00
42.00	8.80	5.77	0.00
43.00	8.80	5.77	0.00
44.00	8.80	5.77	0.00
45.00	8.80	5.77	0.00
46.00	8.80	5.77	0.00
47.00	8.80	5.77	0.00
48.00	8.80	5.77	0.00
49.00	8.80	5.77	0.00
50.00	8.80	5.77	0.00
51.00	8.80	5.77	0.00
52.00	8.80	5.77	0.00
53.00	8.80	5.77	0.00
54.00	8.80	5.77	0.00
55.00	8.80	5.77	0.00
56.00	8.80	5.77	0.00
57.00	8.80	5.77	0.00
58.00	8.80	5.77	0.00
59.00	8.80	5.77	0.00
60.00	8.80	5.77	0.00
61.00	8.80	5.77	0.00
62.00	8.80	5.77	0.00
63.00	8.80	5.77	0.00
64.00	8.80	5.77	0.00
65.00	8.80	5.77	0.00
66.00	8.80	5.77	0.00
67.00	8.80	5.77	0.00
68.00	8.80	5.77	0.00
69.00	8.80	5.77	0.00
70.00	8.80	5.77	0.00
71.00	8.80	5.77	0.00
72.00	8.80	5.77	0.00
73.00	8.80	5.77	0.00
74.00	8.80	5.77	0.00
75.00	8.80	5.77	0.00
76.00	8.80	5.77	0.00
77.00	8.80	5.77	0.00
78.00	8.80	5.77	0.00
79.00	8.80	5.77	0.00
80.00	8.80	5.77	0.00
81.00	8.80	5.77	0.00
82.00	8.80	5.77	0.00
83.00	8.80	5.77	0.00
84.00	8.80	5.77	0.00
85.00	8.80	5.77	0.00
86.00	8.80	5.77	0.00
87.00	8.80	5.77	0.00
88.00	8.80	5.77	0.00
89.00	8.80	5.77	0.00
90.00	8.80	5.77	0.00
91.00	8.80	5.77	0.00
92.00	8.80	5.77	0.00
93.00	8.80	5.77	0.00
94.00	8.80	5.77	0.00
95.00	8.80	5.77	0.00
96.00	8.80	5.77	0.00

Summary for Subcatchment PR-A2: Prop. Watershed A2

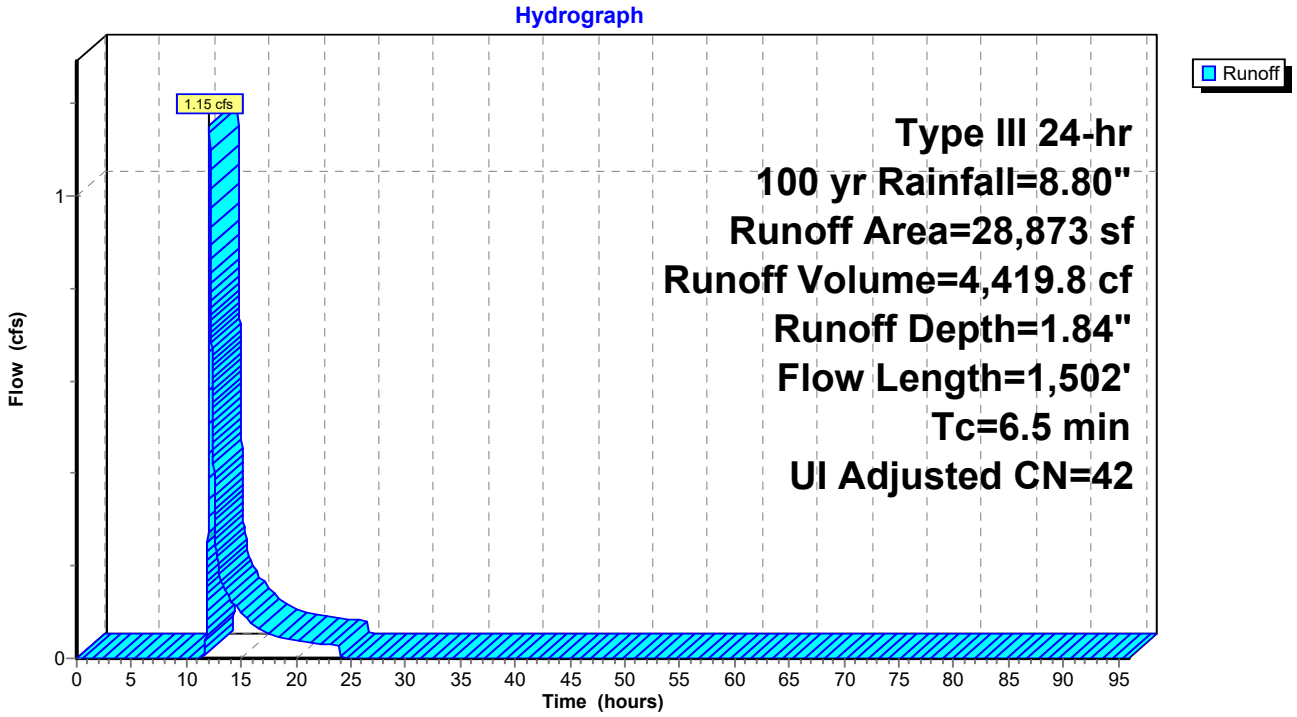
Runoff = 1.15 cfs @ 12.11 hrs, Volume= 4,419.8 cf, Depth= 1.84"
Routed to Link POA A : POND- WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Adj	Description
*	2,800	98		Unconnected pavement, HSG A
	26,073	39		>75% Grass cover, Good, HSG A
	28,873	45	42	Weighted Average, UI Adjusted
	26,073			90.30% Pervious Area
	2,800			9.70% Impervious Area
	2,800			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	50	0.0080	0.83		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
2.5	327	0.0120	2.22		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	10	0.0001	0.59	0.46	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.2	85	0.0110	7.18	8.81	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010 PVC, smooth interior
0.1	69	0.0180	9.18	11.27	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.010
0.6	284	0.0080	8.37	26.30	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.0	31	0.0145	11.27	35.41	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.010
0.2	58	0.0020	4.86	23.85	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.1	47	0.0025	5.43	26.66	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.6	140	0.0012	3.76	18.47	**Pipe Channel, J-K** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.010
0.9	401	0.0040	7.76	54.84	**Pipe Channel, h-I** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.010
6.5	1,502	Total			

Subcatchment PR-A2: Prop. Watershed A2



Hydrograph for Subcatchment PR-A2: Prop. Watershed A2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.00
8.00	1.00	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.66	0.00	0.00
11.00	2.20	0.00	0.00
12.00	4.40	0.17	**0.44**
13.00	6.60	0.83	**0.19**
14.00	7.14	1.05	0.13
15.00	7.52	1.22	0.10
16.00	7.80	1.35	0.07
17.00	8.00	1.44	0.06
18.00	8.17	1.52	0.05
19.00	8.30	1.59	0.04
20.00	8.42	1.65	0.04
21.00	8.53	1.70	0.04
22.00	8.63	1.75	0.03
23.00	8.72	1.80	0.03
24.00	**8.80**	**1.84**	0.03
25.00	8.80	1.84	0.00
26.00	8.80	1.84	0.00
27.00	8.80	1.84	0.00
28.00	8.80	1.84	0.00
29.00	8.80	1.84	0.00
30.00	8.80	1.84	0.00
31.00	8.80	1.84	0.00
32.00	8.80	1.84	0.00
33.00	8.80	1.84	0.00
34.00	8.80	1.84	0.00
35.00	8.80	1.84	0.00
36.00	8.80	1.84	0.00
37.00	8.80	1.84	0.00
38.00	8.80	1.84	0.00
39.00	8.80	1.84	0.00
40.00	8.80	1.84	0.00
41.00	8.80	1.84	0.00
42.00	8.80	1.84	0.00
43.00	8.80	1.84	0.00
44.00	8.80	1.84	0.00
45.00	8.80	1.84	0.00
46.00	8.80	1.84	0.00
47.00	8.80	1.84	0.00
48.00	8.80	1.84	0.00
49.00	8.80	1.84	0.00
50.00	8.80	1.84	0.00
51.00	8.80	1.84	0.00
52.00	8.80	1.84	0.00
53.00	8.80	1.84	0.00
54.00	8.80	1.84	0.00
55.00	8.80	1.84	0.00
56.00	8.80	1.84	0.00
57.00	8.80	1.84	0.00
58.00	8.80	1.84	0.00
59.00	8.80	1.84	0.00
60.00	8.80	1.84	0.00
61.00	8.80	1.84	0.00
62.00	8.80	1.84	0.00
63.00	8.80	1.84	0.00
64.00	8.80	1.84	0.00
65.00	8.80	1.84	0.00
66.00	8.80	1.84	0.00
67.00	8.80	1.84	0.00
68.00	8.80	1.84	0.00
69.00	8.80	1.84	0.00
70.00	8.80	1.84	0.00
71.00	8.80	1.84	0.00
72.00	8.80	1.84	0.00
73.00	8.80	1.84	0.00
74.00	8.80	1.84	0.00
75.00	8.80	1.84	0.00
76.00	8.80	1.84	0.00
77.00	8.80	1.84	0.00
78.00	8.80	1.84	0.00
79.00	8.80	1.84	0.00
80.00	8.80	1.84	0.00
81.00	8.80	1.84	0.00
82.00	8.80	1.84	0.00
83.00	8.80	1.84	0.00
84.00	8.80	1.84	0.00
85.00	8.80	1.84	0.00
86.00	8.80	1.84	0.00
87.00	8.80	1.84	0.00
88.00	8.80	1.84	0.00
89.00	8.80	1.84	0.00
90.00	8.80	1.84	0.00
91.00	8.80	1.84	0.00
92.00	8.80	1.84	0.00
93.00	8.80	1.84	0.00
94.00	8.80	1.84	0.00
95.00	8.80	1.84	0.00
96.00	8.80	1.84	0.00

Summary for Subcatchment PR-C: Prop. Watershed C

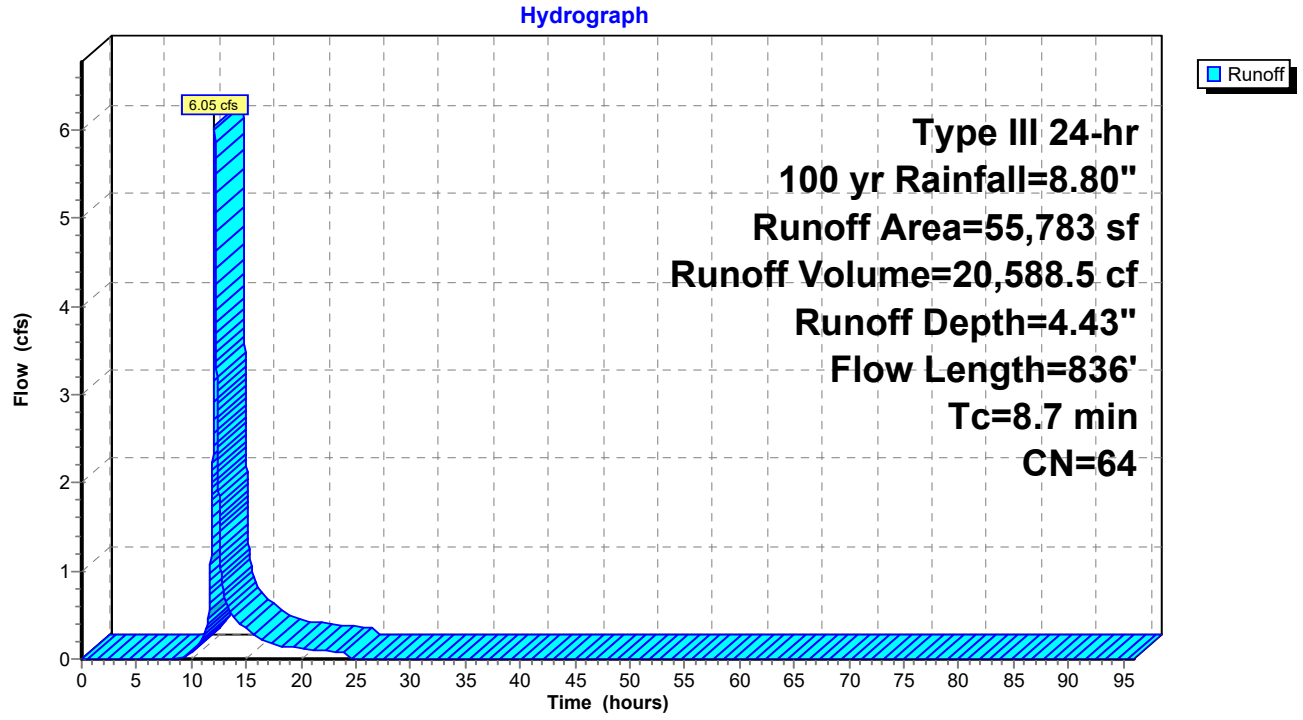
Runoff = 6.05 cfs @ 12.13 hrs, Volume= 20,588.5 cf, Depth= 4.43"
Routed to Link POA C : WETLAND-WEST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	23,937	98	Unconnected pavement, HSG A
	31,846	39	>75% Grass cover, Good, HSG A
	55,783	64	Weighted Average
	31,846		57.09% Pervious Area
	23,937		42.91% Impervious Area
	23,937		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
6.2	686	0.0083	1.85		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.8	100	0.0017	2.21	1.74	**Pipe Channel, C-D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011
8.7	836	Total			

Subcatchment PR-C: Prop. Watershed C



Hydrograph for Subcatchment PR-C: Prop. Watershed C

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.00
8.00	1.00	0.00	0.00
9.00	1.28	0.00	0.02
10.00	1.66	0.05	0.08
11.00	2.20	0.17	0.22
12.00	4.40	1.21	**2.92**
13.00	6.60	2.70	**0.72**
14.00	7.14	3.11	0.45
15.00	7.52	3.40	0.35
16.00	7.80	3.62	0.25
17.00	8.00	3.78	0.20
18.00	8.17	3.91	0.15
19.00	8.30	4.02	0.13
20.00	8.42	4.12	0.12
21.00	8.53	4.21	0.11
22.00	8.63	4.29	0.10
23.00	8.72	4.36	0.09
24.00	**8.80**	**4.43**	0.08
25.00	8.80	4.43	0.00
26.00	8.80	4.43	0.00
27.00	8.80	4.43	0.00
28.00	8.80	4.43	0.00
29.00	8.80	4.43	0.00
30.00	8.80	4.43	0.00
31.00	8.80	4.43	0.00
32.00	8.80	4.43	0.00
33.00	8.80	4.43	0.00
34.00	8.80	4.43	0.00
35.00	8.80	4.43	0.00
36.00	8.80	4.43	0.00
37.00	8.80	4.43	0.00
38.00	8.80	4.43	0.00
39.00	8.80	4.43	0.00
40.00	8.80	4.43	0.00
41.00	8.80	4.43	0.00
42.00	8.80	4.43	0.00
43.00	8.80	4.43	0.00
44.00	8.80	4.43	0.00
45.00	8.80	4.43	0.00
46.00	8.80	4.43	0.00
47.00	8.80	4.43	0.00
48.00	8.80	4.43	0.00
49.00	8.80	4.43	0.00
50.00	8.80	4.43	0.00
51.00	8.80	4.43	0.00
52.00	8.80	4.43	0.00
53.00	8.80	4.43	0.00
54.00	8.80	4.43	0.00
55.00	8.80	4.43	0.00
56.00	8.80	4.43	0.00
57.00	8.80	4.43	0.00
58.00	8.80	4.43	0.00
59.00	8.80	4.43	0.00
60.00	8.80	4.43	0.00
61.00	8.80	4.43	0.00
62.00	8.80	4.43	0.00
63.00	8.80	4.43	0.00
64.00	8.80	4.43	0.00
65.00	8.80	4.43	0.00
66.00	8.80	4.43	0.00
67.00	8.80	4.43	0.00
68.00	8.80	4.43	0.00
69.00	8.80	4.43	0.00
70.00	8.80	4.43	0.00
71.00	8.80	4.43	0.00
72.00	8.80	4.43	0.00
73.00	8.80	4.43	0.00
74.00	8.80	4.43	0.00
75.00	8.80	4.43	0.00
76.00	8.80	4.43	0.00
77.00	8.80	4.43	0.00
78.00	8.80	4.43	0.00
79.00	8.80	4.43	0.00
80.00	8.80	4.43	0.00
81.00	8.80	4.43	0.00
82.00	8.80	4.43	0.00
83.00	8.80	4.43	0.00
84.00	8.80	4.43	0.00
85.00	8.80	4.43	0.00
86.00	8.80	4.43	0.00
87.00	8.80	4.43	0.00
88.00	8.80	4.43	0.00
89.00	8.80	4.43	0.00
90.00	8.80	4.43	0.00
91.00	8.80	4.43	0.00
92.00	8.80	4.43	0.00
93.00	8.80	4.43	0.00
94.00	8.80	4.43	0.00
95.00	8.80	4.43	0.00
96.00	8.80	4.43	0.00

Summary for Subcatchment PR-D1: Prop. Watershed D1

Runoff = 38.37 cfs @ 12.10 hrs, Volume= 133,643.6 cf, Depth= 7.47"
Routed to Pond SWM-4 : Cultec 4

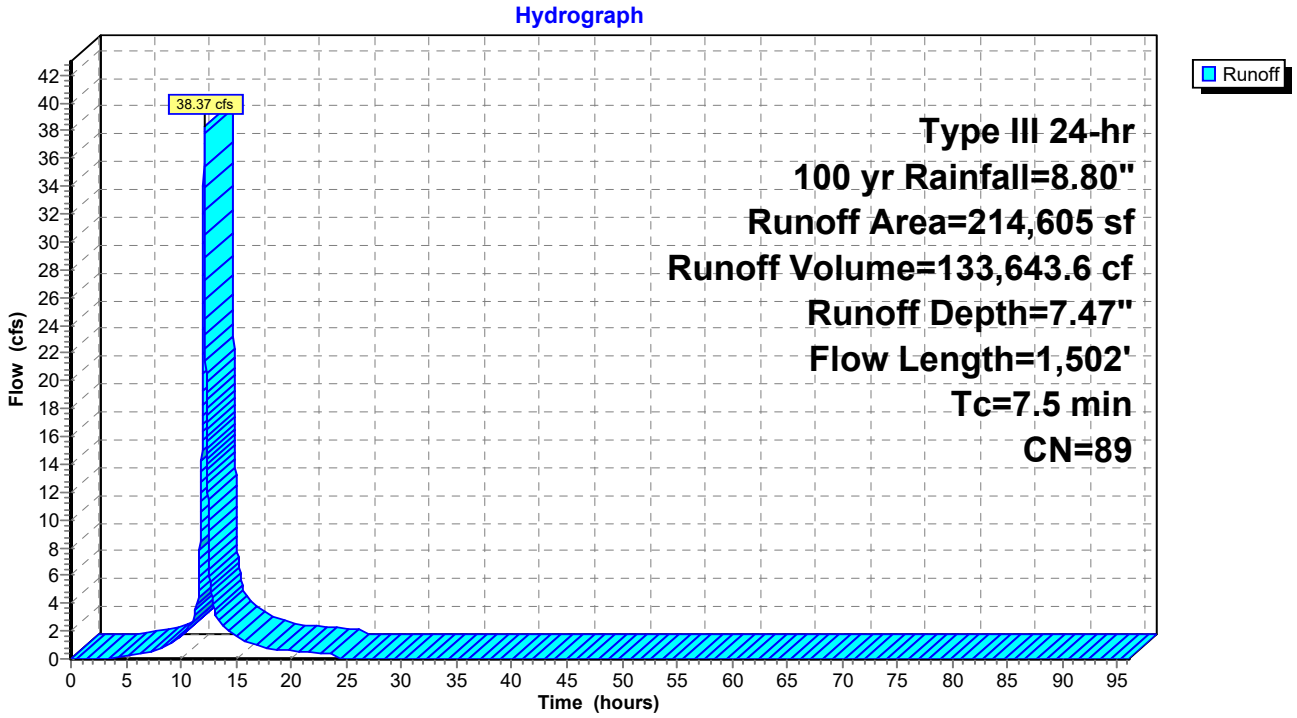
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	28,837	98	Building 2 - South
*	28,095	98	Building 3 - West
*	28,101	98	Building 3 - East
	96,079	98	Unconnected pavement, HSG A
	33,493	39	>75% Grass cover, Good, HSG A
	214,605	89	Weighted Average
	33,493		15.61% Pervious Area
	181,112		84.39% Impervious Area
	96,079		53.05% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	50	0.1600	0.34		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.22"
0.0	12	0.1250	5.69		**Shallow Concentrated Flow, b-c** Unpaved Kv= 16.1 fps
1.3	296	0.0350	3.80		**Shallow Concentrated Flow, c-d** Paved Kv= 20.3 fps
0.2	64	0.0100	4.54	3.56	**Pipe Channel, d-e** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.0	13	0.0160	5.74	4.51	**Pipe Channel, e-f** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
0.8	196	0.0046	4.03	7.12	**Pipe Channel, f-g** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.9	213	0.0047	4.08	7.20	**Pipe Channel, g-h** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	56	0.0054	6.14	30.14	**Pipe Channel, h-i** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.8	282	0.0050	5.91	29.00	**Pipe Channel, i-j** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	162	0.0050	5.91	29.00	**Pipe Channel, j-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.4	158	0.0060	6.47	31.77	**Pipe Channel, k-l** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013

7.5	1,502	Total

Subcatchment PR-D1: Prop. Watershed D1



Hydrograph for Subcatchment PR-D1: Prop. Watershed D1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.01
4.00	0.38	0.01	0.09
5.00	0.50	0.04	0.19
6.00	0.63	0.09	0.28
7.00	0.80	0.17	0.45
8.00	1.00	0.29	0.67
9.00	1.28	0.47	1.10
10.00	1.66	0.76	1.61
11.00	2.20	1.20	2.59
12.00	4.40	3.20	**21.94**
13.00	6.60	5.32	**3.56**
14.00	7.14	5.84	2.21
15.00	7.52	6.21	1.66
16.00	7.80	6.49	1.17
17.00	8.00	6.69	0.93
18.00	8.17	6.85	0.71
19.00	8.30	6.98	0.63
20.00	8.42	7.10	0.57
21.00	8.53	7.21	0.52
22.00	8.63	7.31	0.47
23.00	8.72	7.39	0.42
24.00	**8.80**	**7.47**	0.37
25.00	8.80	7.47	0.00
26.00	8.80	7.47	0.00
27.00	8.80	7.47	0.00
28.00	8.80	7.47	0.00
29.00	8.80	7.47	0.00
30.00	8.80	7.47	0.00
31.00	8.80	7.47	0.00
32.00	8.80	7.47	0.00
33.00	8.80	7.47	0.00
34.00	8.80	7.47	0.00
35.00	8.80	7.47	0.00
36.00	8.80	7.47	0.00
37.00	8.80	7.47	0.00
38.00	8.80	7.47	0.00
39.00	8.80	7.47	0.00
40.00	8.80	7.47	0.00
41.00	8.80	7.47	0.00
42.00	8.80	7.47	0.00
43.00	8.80	7.47	0.00
44.00	8.80	7.47	0.00
45.00	8.80	7.47	0.00
46.00	8.80	7.47	0.00
47.00	8.80	7.47	0.00
48.00	8.80	7.47	0.00
49.00	8.80	7.47	0.00
50.00	8.80	7.47	0.00
51.00	8.80	7.47	0.00
52.00	8.80	7.47	0.00
53.00	8.80	7.47	0.00
54.00	8.80	7.47	0.00
55.00	8.80	7.47	0.00
56.00	8.80	7.47	0.00
57.00	8.80	7.47	0.00
58.00	8.80	7.47	0.00
59.00	8.80	7.47	0.00
60.00	8.80	7.47	0.00
61.00	8.80	7.47	0.00
62.00	8.80	7.47	0.00
63.00	8.80	7.47	0.00
64.00	8.80	7.47	0.00
65.00	8.80	7.47	0.00
66.00	8.80	7.47	0.00
67.00	8.80	7.47	0.00
68.00	8.80	7.47	0.00
69.00	8.80	7.47	0.00
70.00	8.80	7.47	0.00
71.00	8.80	7.47	0.00
72.00	8.80	7.47	0.00
73.00	8.80	7.47	0.00
74.00	8.80	7.47	0.00
75.00	8.80	7.47	0.00
76.00	8.80	7.47	0.00
77.00	8.80	7.47	0.00
78.00	8.80	7.47	0.00
79.00	8.80	7.47	0.00
80.00	8.80	7.47	0.00
81.00	8.80	7.47	0.00
82.00	8.80	7.47	0.00
83.00	8.80	7.47	0.00
84.00	8.80	7.47	0.00
85.00	8.80	7.47	0.00
86.00	8.80	7.47	0.00
87.00	8.80	7.47	0.00
88.00	8.80	7.47	0.00
89.00	8.80	7.47	0.00
90.00	8.80	7.47	0.00
91.00	8.80	7.47	0.00
92.00	8.80	7.47	0.00
93.00	8.80	7.47	0.00
94.00	8.80	7.47	0.00
95.00	8.80	7.47	0.00
96.00	8.80	7.47	0.00

Summary for Subcatchment PR-D2: Prop. Watershed D2

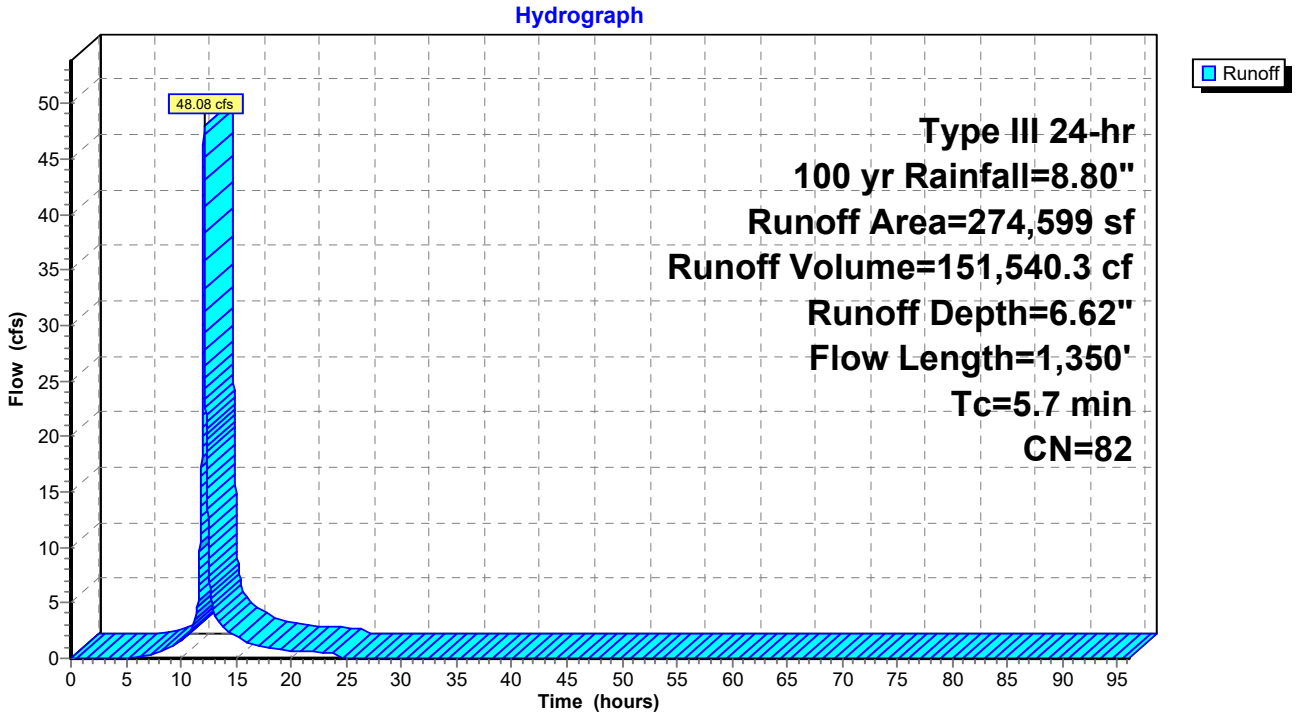
Runoff = 48.08 cfs @ 12.08 hrs, Volume= 151,540.3 cf, Depth= 6.62"
Routed to Pond SWM-3 : Cultec 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	191,226	98	Pavement
*	3,868	98	Conc walk
*	4,480	90	Perv Pavers
	75,025	39	>75% Grass cover, Good, HSG A
	274,599	82	Weighted Average
	79,505		28.95% Pervious Area
	195,094		71.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.0020	0.48		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.22"
1.0	124	0.0100	2.03		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.3	84	0.0090	4.30	3.38	**Pipe Channel, RCP_Round 12"** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.3	97	0.0090	4.99	6.13	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.4	116	0.0070	4.40	5.40	**Pipe Channel, E-F** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.6	212	0.0070	6.02	18.93	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.7	218	0.0050	5.09	16.00	**Pipe Channel, G-H** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.1	219	0.5000	59.09	290.03	**Pipe Channel, H-I** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.5	193	0.0060	6.47	31.77	**Pipe Channel, I-J** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.1	37	0.0060	6.47	31.77	**Pipe Channel, J-k** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
5.7	1,350	Total			

Subcatchment PR-D2: Prop. Watershed D2



Hydrograph for Subcatchment PR-D2: Prop. Watershed D2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.03
6.00	0.63	0.02	0.13
7.00	0.80	0.05	0.29
8.00	1.00	0.12	0.51
9.00	1.28	0.23	0.96
10.00	1.66	0.44	1.55
11.00	2.20	0.78	2.71
12.00	4.40	2.55	**29.95**
13.00	6.60	4.54	**4.22**
14.00	7.14	5.04	2.68
15.00	7.52	5.40	2.03
16.00	7.80	5.67	1.43
17.00	8.00	5.86	1.14
18.00	8.17	6.02	0.87
19.00	8.30	6.15	0.78
20.00	8.42	6.26	0.70
21.00	8.53	6.37	0.64
22.00	8.63	6.46	0.58
23.00	8.72	6.55	0.52
24.00	**8.80**	**6.62**	0.46
25.00	8.80	6.62	0.00
26.00	8.80	6.62	0.00
27.00	8.80	6.62	0.00
28.00	8.80	6.62	0.00
29.00	8.80	6.62	0.00
30.00	8.80	6.62	0.00
31.00	8.80	6.62	0.00
32.00	8.80	6.62	0.00
33.00	8.80	6.62	0.00
34.00	8.80	6.62	0.00
35.00	8.80	6.62	0.00
36.00	8.80	6.62	0.00
37.00	8.80	6.62	0.00
38.00	8.80	6.62	0.00
39.00	8.80	6.62	0.00
40.00	8.80	6.62	0.00
41.00	8.80	6.62	0.00
42.00	8.80	6.62	0.00
43.00	8.80	6.62	0.00
44.00	8.80	6.62	0.00
45.00	8.80	6.62	0.00
46.00	8.80	6.62	0.00
47.00	8.80	6.62	0.00
48.00	8.80	6.62	0.00
49.00	8.80	6.62	0.00
50.00	8.80	6.62	0.00
51.00	8.80	6.62	0.00
52.00	8.80	6.62	0.00
53.00	8.80	6.62	0.00
54.00	8.80	6.62	0.00
55.00	8.80	6.62	0.00
56.00	8.80	6.62	0.00
57.00	8.80	6.62	0.00
58.00	8.80	6.62	0.00
59.00	8.80	6.62	0.00
60.00	8.80	6.62	0.00
61.00	8.80	6.62	0.00
62.00	8.80	6.62	0.00
63.00	8.80	6.62	0.00
64.00	8.80	6.62	0.00
65.00	8.80	6.62	0.00
66.00	8.80	6.62	0.00
67.00	8.80	6.62	0.00
68.00	8.80	6.62	0.00
69.00	8.80	6.62	0.00
70.00	8.80	6.62	0.00
71.00	8.80	6.62	0.00
72.00	8.80	6.62	0.00
73.00	8.80	6.62	0.00
74.00	8.80	6.62	0.00
75.00	8.80	6.62	0.00
76.00	8.80	6.62	0.00
77.00	8.80	6.62	0.00
78.00	8.80	6.62	0.00
79.00	8.80	6.62	0.00
80.00	8.80	6.62	0.00
81.00	8.80	6.62	0.00
82.00	8.80	6.62	0.00
83.00	8.80	6.62	0.00
84.00	8.80	6.62	0.00
85.00	8.80	6.62	0.00
86.00	8.80	6.62	0.00
87.00	8.80	6.62	0.00
88.00	8.80	6.62	0.00
89.00	8.80	6.62	0.00
90.00	8.80	6.62	0.00
91.00	8.80	6.62	0.00
92.00	8.80	6.62	0.00
93.00	8.80	6.62	0.00
94.00	8.80	6.62	0.00
95.00	8.80	6.62	0.00
96.00	8.80	6.62	0.00

Summary for Subcatchment PR-D3: Prop. Watershed D3

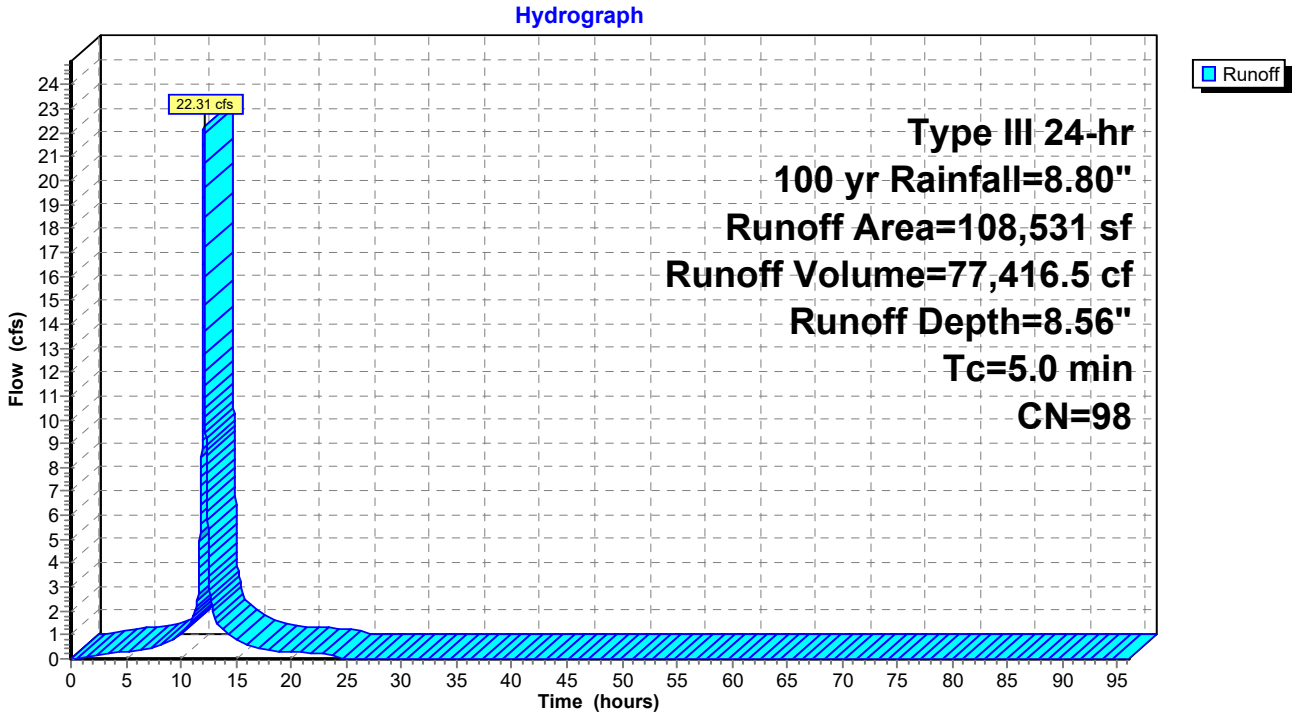
Runoff = 22.31 cfs @ 12.07 hrs, Volume= 77,416.5 cf, Depth= 8.56"
Routed to Pond SWM-6 : Cultec 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	108,531	98	Building 1 - North
	108,531		100.00% Impervious Area

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

Subcatchment PR-D3: Prop. Watershed D3



Hydrograph for Subcatchment PR-D3: Prop. Watershed D3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.01	0.07
2.00	0.18	0.05	0.14
3.00	0.27	0.12	0.19
4.00	0.38	0.21	0.24
5.00	0.50	0.32	0.29
6.00	0.63	0.44	0.33
7.00	0.80	0.59	0.43
8.00	1.00	0.79	0.55
9.00	1.28	1.07	0.79
10.00	1.66	1.44	1.05
11.00	2.20	1.97	1.56
12.00	4.40	4.16	**15.09**
13.00	6.60	6.36	**1.77**
14.00	7.14	6.90	1.12
15.00	7.52	7.28	0.85
16.00	7.80	7.56	0.59
17.00	8.00	7.76	0.47
18.00	8.17	7.93	0.36
19.00	8.30	8.06	0.32
20.00	8.42	8.18	0.29
21.00	8.53	8.29	0.26
22.00	8.63	8.39	0.24
23.00	8.72	8.48	0.21
24.00	**8.80**	**8.56**	0.19
25.00	8.80	8.56	0.00
26.00	8.80	8.56	0.00
27.00	8.80	8.56	0.00
28.00	8.80	8.56	0.00
29.00	8.80	8.56	0.00
30.00	8.80	8.56	0.00
31.00	8.80	8.56	0.00
32.00	8.80	8.56	0.00
33.00	8.80	8.56	0.00
34.00	8.80	8.56	0.00
35.00	8.80	8.56	0.00
36.00	8.80	8.56	0.00
37.00	8.80	8.56	0.00
38.00	8.80	8.56	0.00
39.00	8.80	8.56	0.00
40.00	8.80	8.56	0.00
41.00	8.80	8.56	0.00
42.00	8.80	8.56	0.00
43.00	8.80	8.56	0.00
44.00	8.80	8.56	0.00
45.00	8.80	8.56	0.00
46.00	8.80	8.56	0.00
47.00	8.80	8.56	0.00
48.00	8.80	8.56	0.00
49.00	8.80	8.56	0.00
50.00	8.80	8.56	0.00
51.00	8.80	8.56	0.00
52.00	8.80	8.56	0.00
53.00	8.80	8.56	0.00
54.00	8.80	8.56	0.00
55.00	8.80	8.56	0.00
56.00	8.80	8.56	0.00
57.00	8.80	8.56	0.00
58.00	8.80	8.56	0.00
59.00	8.80	8.56	0.00
60.00	8.80	8.56	0.00
61.00	8.80	8.56	0.00
62.00	8.80	8.56	0.00
63.00	8.80	8.56	0.00
64.00	8.80	8.56	0.00
65.00	8.80	8.56	0.00
66.00	8.80	8.56	0.00
67.00	8.80	8.56	0.00
68.00	8.80	8.56	0.00
69.00	8.80	8.56	0.00
70.00	8.80	8.56	0.00
71.00	8.80	8.56	0.00
72.00	8.80	8.56	0.00
73.00	8.80	8.56	0.00
74.00	8.80	8.56	0.00
75.00	8.80	8.56	0.00
76.00	8.80	8.56	0.00
77.00	8.80	8.56	0.00
78.00	8.80	8.56	0.00
79.00	8.80	8.56	0.00
80.00	8.80	8.56	0.00
81.00	8.80	8.56	0.00
82.00	8.80	8.56	0.00
83.00	8.80	8.56	0.00
84.00	8.80	8.56	0.00
85.00	8.80	8.56	0.00
86.00	8.80	8.56	0.00
87.00	8.80	8.56	0.00
88.00	8.80	8.56	0.00
89.00	8.80	8.56	0.00
90.00	8.80	8.56	0.00
91.00	8.80	8.56	0.00
92.00	8.80	8.56	0.00
93.00	8.80	8.56	0.00
94.00	8.80	8.56	0.00
95.00	8.80	8.56	0.00
96.00	8.80	8.56	0.00

Summary for Subcatchment PR-D4: Prop. Watershed D4

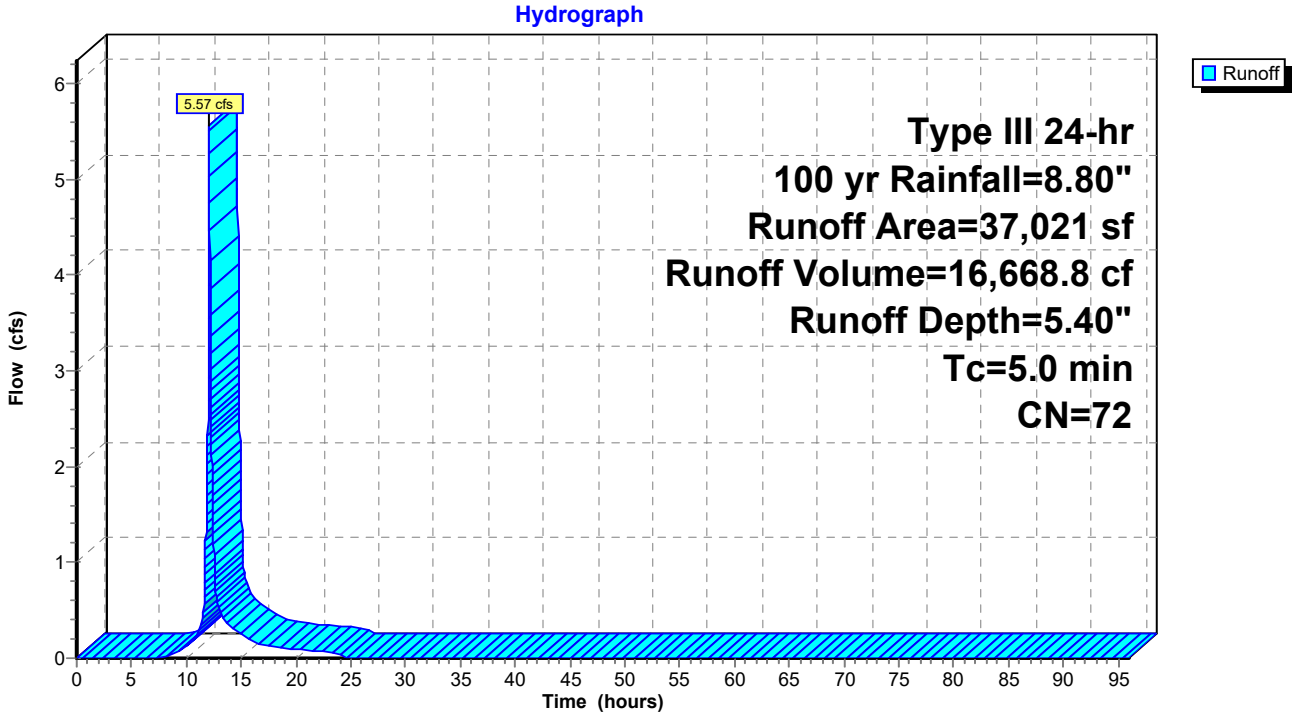
Runoff = 5.57 cfs @ 12.07 hrs, Volume= 16,668.8 cf, Depth= 5.40"
Routed to Pond SWM-4 : Cultec 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	20,670	98	Pavement
	16,351	39	>75% Grass cover, Good, HSG A
	37,021	72	Weighted Average
	16,351		44.17% Pervious Area
	20,670		55.83% Impervious Area

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

Subcatchment PR-D4: Prop. Watershed D4



Hydrograph for Subcatchment PR-D4: Prop. Watershed D4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.00
8.00	1.00	0.01	0.02
9.00	1.28	0.06	0.06
10.00	1.66	0.16	0.12
11.00	2.20	0.38	0.24
12.00	4.40	1.75	**3.55**
13.00	6.60	3.49	**0.51**
14.00	7.14	3.95	0.33
15.00	7.52	4.27	0.25
16.00	7.80	4.52	0.18
17.00	8.00	4.70	0.14
18.00	8.17	4.84	0.11
19.00	8.30	4.96	0.10
20.00	8.42	5.07	0.09
21.00	8.53	5.16	0.08
22.00	8.63	5.25	0.07
23.00	8.72	5.33	0.07
24.00	**8.80**	**5.40**	0.06
25.00	8.80	5.40	0.00
26.00	8.80	5.40	0.00
27.00	8.80	5.40	0.00
28.00	8.80	5.40	0.00
29.00	8.80	5.40	0.00
30.00	8.80	5.40	0.00
31.00	8.80	5.40	0.00
32.00	8.80	5.40	0.00
33.00	8.80	5.40	0.00
34.00	8.80	5.40	0.00
35.00	8.80	5.40	0.00
36.00	8.80	5.40	0.00
37.00	8.80	5.40	0.00
38.00	8.80	5.40	0.00
39.00	8.80	5.40	0.00
40.00	8.80	5.40	0.00
41.00	8.80	5.40	0.00
42.00	8.80	5.40	0.00
43.00	8.80	5.40	0.00
44.00	8.80	5.40	0.00
45.00	8.80	5.40	0.00
46.00	8.80	5.40	0.00
47.00	8.80	5.40	0.00
48.00	8.80	5.40	0.00
49.00	8.80	5.40	0.00
50.00	8.80	5.40	0.00
51.00	8.80	5.40	0.00
52.00	8.80	5.40	0.00
53.00	8.80	5.40	0.00
54.00	8.80	5.40	0.00
55.00	8.80	5.40	0.00
56.00	8.80	5.40	0.00
57.00	8.80	5.40	0.00
58.00	8.80	5.40	0.00
59.00	8.80	5.40	0.00
60.00	8.80	5.40	0.00
61.00	8.80	5.40	0.00
62.00	8.80	5.40	0.00
63.00	8.80	5.40	0.00
64.00	8.80	5.40	0.00
65.00	8.80	5.40	0.00
66.00	8.80	5.40	0.00
67.00	8.80	5.40	0.00
68.00	8.80	5.40	0.00
69.00	8.80	5.40	0.00
70.00	8.80	5.40	0.00
71.00	8.80	5.40	0.00
72.00	8.80	5.40	0.00
73.00	8.80	5.40	0.00
74.00	8.80	5.40	0.00
75.00	8.80	5.40	0.00
76.00	8.80	5.40	0.00
77.00	8.80	5.40	0.00
78.00	8.80	5.40	0.00
79.00	8.80	5.40	0.00
80.00	8.80	5.40	0.00
81.00	8.80	5.40	0.00
82.00	8.80	5.40	0.00
83.00	8.80	5.40	0.00
84.00	8.80	5.40	0.00
85.00	8.80	5.40	0.00
86.00	8.80	5.40	0.00
87.00	8.80	5.40	0.00
88.00	8.80	5.40	0.00
89.00	8.80	5.40	0.00
90.00	8.80	5.40	0.00
91.00	8.80	5.40	0.00
92.00	8.80	5.40	0.00
93.00	8.80	5.40	0.00
94.00	8.80	5.40	0.00
95.00	8.80	5.40	0.00
96.00	8.80	5.40	0.00

Summary for Subcatchment PR-D5: Prop. Watershed D5

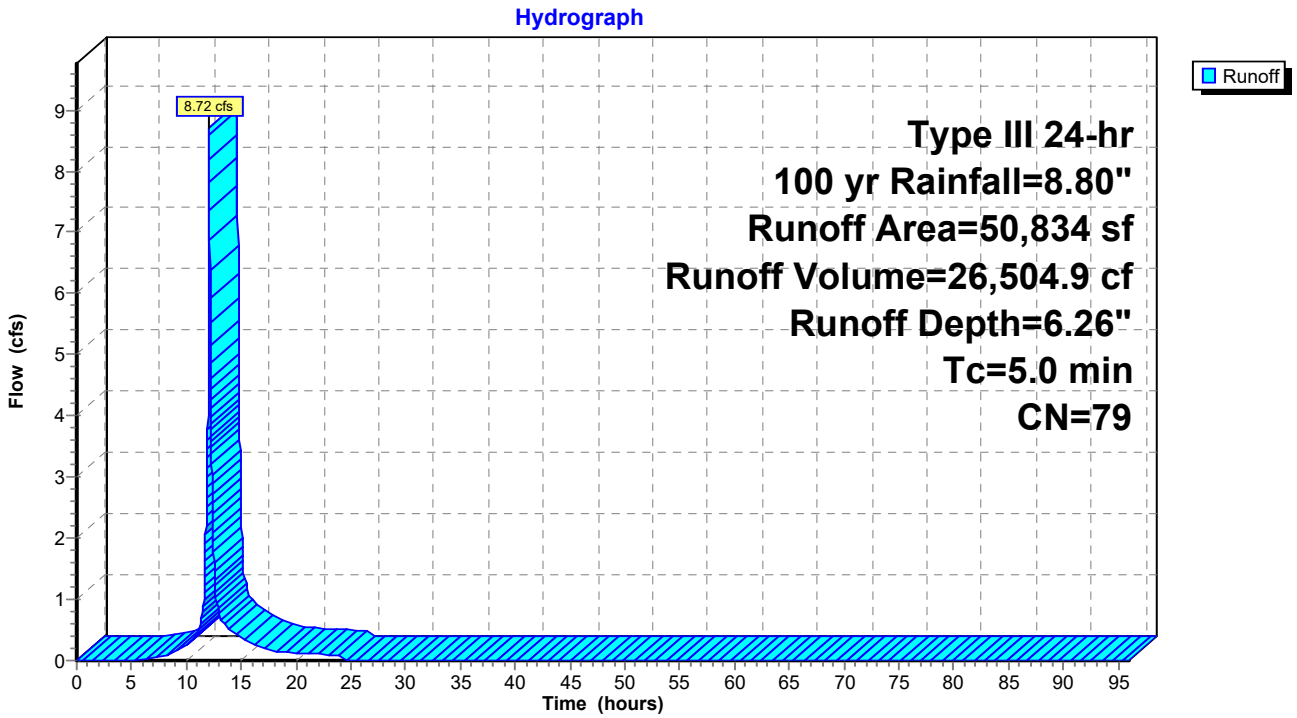
Runoff = 8.72 cfs @ 12.07 hrs, Volume= 26,504.9 cf, Depth= 6.26"
Routed to Pond RG1 : Rain-Garden #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

Area (sf)	CN	Description
34,446	98	Unconnected pavement, HSG A
16,388	39	>75% Grass cover, Good, HSG A
50,834	79	Weighted Average
16,388		32.24% Pervious Area
34,446		67.76% Impervious Area
34,446		100.00% Unconnected

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

Subcatchment PR-D5: Prop. Watershed D5



Hydrograph for Subcatchment PR-D5: Prop. Watershed D5

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.01
7.00	0.80	0.02	0.04
8.00	1.00	0.07	0.07
9.00	1.28	0.17	0.15
10.00	1.66	0.34	0.25
11.00	2.20	0.64	0.45
12.00	4.40	2.29	**5.68**
13.00	6.60	4.22	**0.75**
14.00	7.14	4.71	0.48
15.00	7.52	5.06	0.37
16.00	7.80	5.32	0.26
17.00	8.00	5.51	0.21
18.00	8.17	5.66	0.16
19.00	8.30	5.79	0.14
20.00	8.42	5.90	0.13
21.00	8.53	6.00	0.12
22.00	8.63	6.10	0.11
23.00	8.72	6.18	0.09
24.00	**8.80**	**6.26**	0.08
25.00	8.80	6.26	0.00
26.00	8.80	6.26	0.00
27.00	8.80	6.26	0.00
28.00	8.80	6.26	0.00
29.00	8.80	6.26	0.00
30.00	8.80	6.26	0.00
31.00	8.80	6.26	0.00
32.00	8.80	6.26	0.00
33.00	8.80	6.26	0.00
34.00	8.80	6.26	0.00
35.00	8.80	6.26	0.00
36.00	8.80	6.26	0.00
37.00	8.80	6.26	0.00
38.00	8.80	6.26	0.00
39.00	8.80	6.26	0.00
40.00	8.80	6.26	0.00
41.00	8.80	6.26	0.00
42.00	8.80	6.26	0.00
43.00	8.80	6.26	0.00
44.00	8.80	6.26	0.00
45.00	8.80	6.26	0.00
46.00	8.80	6.26	0.00
47.00	8.80	6.26	0.00
48.00	8.80	6.26	0.00
49.00	8.80	6.26	0.00
50.00	8.80	6.26	0.00
51.00	8.80	6.26	0.00
52.00	8.80	6.26	0.00
53.00	8.80	6.26	0.00
54.00	8.80	6.26	0.00
55.00	8.80	6.26	0.00
56.00	8.80	6.26	0.00
57.00	8.80	6.26	0.00
58.00	8.80	6.26	0.00
59.00	8.80	6.26	0.00
60.00	8.80	6.26	0.00
61.00	8.80	6.26	0.00
62.00	8.80	6.26	0.00
63.00	8.80	6.26	0.00
64.00	8.80	6.26	0.00
65.00	8.80	6.26	0.00
66.00	8.80	6.26	0.00
67.00	8.80	6.26	0.00
68.00	8.80	6.26	0.00
69.00	8.80	6.26	0.00
70.00	8.80	6.26	0.00
71.00	8.80	6.26	0.00
72.00	8.80	6.26	0.00
73.00	8.80	6.26	0.00
74.00	8.80	6.26	0.00
75.00	8.80	6.26	0.00
76.00	8.80	6.26	0.00
77.00	8.80	6.26	0.00
78.00	8.80	6.26	0.00
79.00	8.80	6.26	0.00
80.00	8.80	6.26	0.00
81.00	8.80	6.26	0.00
82.00	8.80	6.26	0.00
83.00	8.80	6.26	0.00
84.00	8.80	6.26	0.00
85.00	8.80	6.26	0.00
86.00	8.80	6.26	0.00
87.00	8.80	6.26	0.00
88.00	8.80	6.26	0.00
89.00	8.80	6.26	0.00
90.00	8.80	6.26	0.00
91.00	8.80	6.26	0.00
92.00	8.80	6.26	0.00
93.00	8.80	6.26	0.00
94.00	8.80	6.26	0.00
95.00	8.80	6.26	0.00
96.00	8.80	6.26	0.00

Summary for Subcatchment PR-D6: Prop. Watershed D6

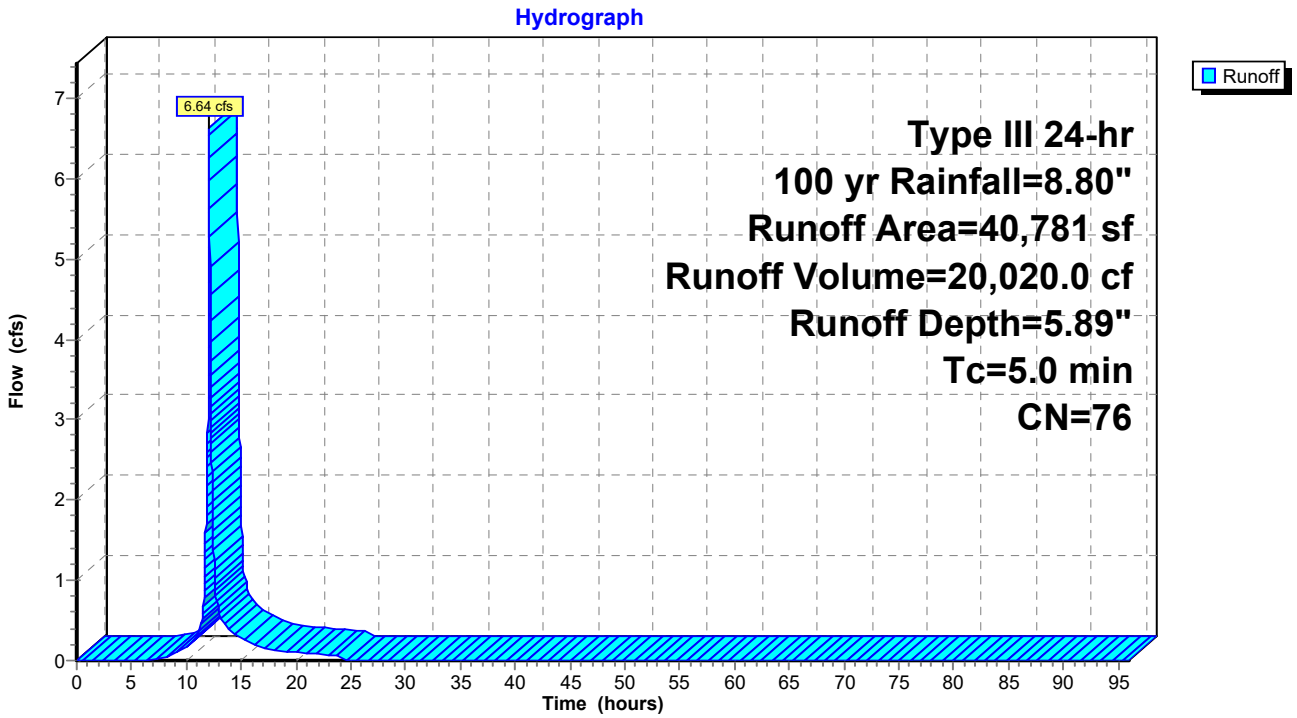
Runoff = 6.64 cfs @ 12.07 hrs, Volume= 20,020.0 cf, Depth= 5.89"
Routed to Pond RG2 : Rain-Garden #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

Area (sf)	CN	Description
25,487	98	Unconnected pavement, HSG A
15,294	39	>75% Grass cover, Good, HSG A
40,781	76	Weighted Average
15,294		37.50% Pervious Area
25,487		62.50% Impervious Area
25,487		100.00% Unconnected

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

Subcatchment PR-D6: Prop. Watershed D6



Hydrograph for Subcatchment PR-D6: Prop. Watershed D6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.01	0.02
8.00	1.00	0.04	0.04
9.00	1.28	0.11	0.09
10.00	1.66	0.25	0.17
11.00	2.20	0.52	0.32
12.00	4.40	2.05	**4.29**
13.00	6.60	3.90	**0.58**
14.00	7.14	4.38	0.38
15.00	7.52	4.72	0.29
16.00	7.80	4.97	0.20
17.00	8.00	5.16	0.16
18.00	8.17	5.31	0.12
19.00	8.30	5.43	0.11
20.00	8.42	5.54	0.10
21.00	8.53	5.64	0.09
22.00	8.63	5.73	0.08
23.00	8.72	5.82	0.07
24.00	**8.80**	**5.89**	0.07
25.00	8.80	5.89	0.00
26.00	8.80	5.89	0.00
27.00	8.80	5.89	0.00
28.00	8.80	5.89	0.00
29.00	8.80	5.89	0.00
30.00	8.80	5.89	0.00
31.00	8.80	5.89	0.00
32.00	8.80	5.89	0.00
33.00	8.80	5.89	0.00
34.00	8.80	5.89	0.00
35.00	8.80	5.89	0.00
36.00	8.80	5.89	0.00
37.00	8.80	5.89	0.00
38.00	8.80	5.89	0.00
39.00	8.80	5.89	0.00
40.00	8.80	5.89	0.00
41.00	8.80	5.89	0.00
42.00	8.80	5.89	0.00
43.00	8.80	5.89	0.00
44.00	8.80	5.89	0.00
45.00	8.80	5.89	0.00
46.00	8.80	5.89	0.00
47.00	8.80	5.89	0.00
48.00	8.80	5.89	0.00
49.00	8.80	5.89	0.00
50.00	8.80	5.89	0.00
51.00	8.80	5.89	0.00
52.00	8.80	5.89	0.00
53.00	8.80	5.89	0.00
54.00	8.80	5.89	0.00
55.00	8.80	5.89	0.00
56.00	8.80	5.89	0.00
57.00	8.80	5.89	0.00
58.00	8.80	5.89	0.00
59.00	8.80	5.89	0.00
60.00	8.80	5.89	0.00
61.00	8.80	5.89	0.00
62.00	8.80	5.89	0.00
63.00	8.80	5.89	0.00
64.00	8.80	5.89	0.00
65.00	8.80	5.89	0.00
66.00	8.80	5.89	0.00
67.00	8.80	5.89	0.00
68.00	8.80	5.89	0.00
69.00	8.80	5.89	0.00
70.00	8.80	5.89	0.00
71.00	8.80	5.89	0.00
72.00	8.80	5.89	0.00
73.00	8.80	5.89	0.00
74.00	8.80	5.89	0.00
75.00	8.80	5.89	0.00
76.00	8.80	5.89	0.00
77.00	8.80	5.89	0.00
78.00	8.80	5.89	0.00
79.00	8.80	5.89	0.00
80.00	8.80	5.89	0.00
81.00	8.80	5.89	0.00
82.00	8.80	5.89	0.00
83.00	8.80	5.89	0.00
84.00	8.80	5.89	0.00
85.00	8.80	5.89	0.00
86.00	8.80	5.89	0.00
87.00	8.80	5.89	0.00
88.00	8.80	5.89	0.00
89.00	8.80	5.89	0.00
90.00	8.80	5.89	0.00
91.00	8.80	5.89	0.00
92.00	8.80	5.89	0.00
93.00	8.80	5.89	0.00
94.00	8.80	5.89	0.00
95.00	8.80	5.89	0.00
96.00	8.80	5.89	0.00

Summary for Subcatchment PR-D7: Prop. Watershed D7

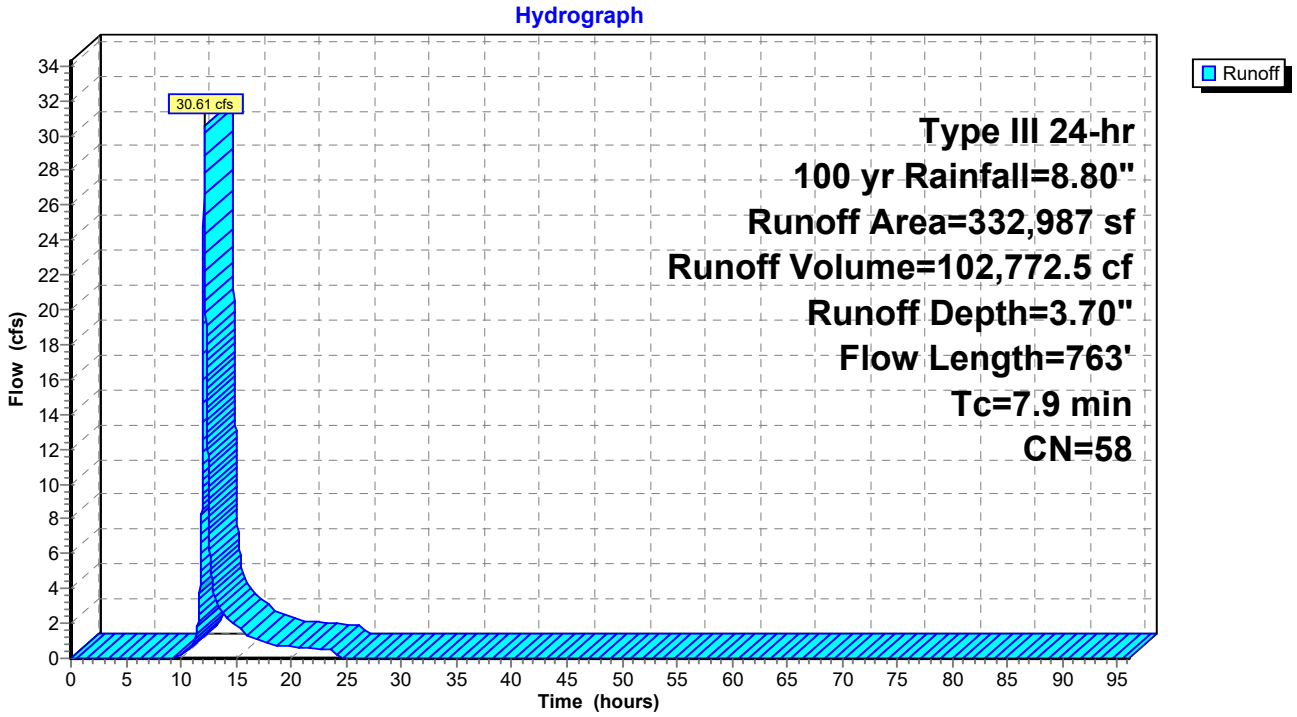
Runoff = 30.61 cfs @ 12.12 hrs, Volume= 102,772.5 cf, Depth= 3.70"
Routed to Pond FP : Fire Pond Weir

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	105,210	98	Pavement
*	4,930	98	Walkway Ramp/steps
	204,310	39	>75% Grass cover, Good, HSG A
*	18,537	36	Woods, Fair, HSG A
	332,987	58	Weighted Average
	222,847		66.92% Pervious Area
	110,140		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	50	0.0300	0.17		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.22"
0.2	52	0.0670	4.17		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.0	66	0.0030	1.11		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.3	78	0.0064	4.21	5.17	**Pipe Channel, D-E** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.7	170	0.0035	3.90	9.37	**Pipe Channel, E-F** 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.013
0.4	121	0.0041	4.61	14.49	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.3	145	0.0055	8.48	106.53	**Pipe Channel, G-H** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	40	0.0050	8.08	101.57	**Pipe Channel, H-I** 48.0" Round Area= 12.6 sf Perim= 12.6' r= 1.00' n= 0.013
0.1	41	0.0054	6.93	49.01	**Pipe Channel, I-J** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.013
7.9	763	Total			

Subcatchment PR-D7: Prop. Watershed D7



Hydrograph for Subcatchment PR-D7: Prop. Watershed D7

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.18	0.00	0.00
3.00	0.27	0.00	0.00
4.00	0.38	0.00	0.00
5.00	0.50	0.00	0.00
6.00	0.63	0.00	0.00
7.00	0.80	0.00	0.00
8.00	1.00	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.66	0.01	0.14
11.00	2.20	0.07	0.78
12.00	4.40	0.85	**14.66**
13.00	6.60	2.14	**3.74**
14.00	7.14	2.50	2.41
15.00	7.52	2.77	1.85
16.00	7.80	2.97	1.33
17.00	8.00	3.11	1.06
18.00	8.17	3.23	0.82
19.00	8.30	3.33	0.73
20.00	8.42	3.42	0.66
21.00	8.53	3.50	0.61
22.00	8.63	3.58	0.55
23.00	8.72	3.64	0.50
24.00	**8.80**	**3.70**	0.44
25.00	8.80	3.70	0.00
26.00	8.80	3.70	0.00
27.00	8.80	3.70	0.00
28.00	8.80	3.70	0.00
29.00	8.80	3.70	0.00
30.00	8.80	3.70	0.00
31.00	8.80	3.70	0.00
32.00	8.80	3.70	0.00
33.00	8.80	3.70	0.00
34.00	8.80	3.70	0.00
35.00	8.80	3.70	0.00
36.00	8.80	3.70	0.00
37.00	8.80	3.70	0.00
38.00	8.80	3.70	0.00
39.00	8.80	3.70	0.00
40.00	8.80	3.70	0.00
41.00	8.80	3.70	0.00
42.00	8.80	3.70	0.00
43.00	8.80	3.70	0.00
44.00	8.80	3.70	0.00
45.00	8.80	3.70	0.00
46.00	8.80	3.70	0.00
47.00	8.80	3.70	0.00
48.00	8.80	3.70	0.00
49.00	8.80	3.70	0.00
50.00	8.80	3.70	0.00
51.00	8.80	3.70	0.00
52.00	8.80	3.70	0.00
53.00	8.80	3.70	0.00
54.00	8.80	3.70	0.00
55.00	8.80	3.70	0.00
56.00	8.80	3.70	0.00
57.00	8.80	3.70	0.00
58.00	8.80	3.70	0.00
59.00	8.80	3.70	0.00
60.00	8.80	3.70	0.00
61.00	8.80	3.70	0.00
62.00	8.80	3.70	0.00
63.00	8.80	3.70	0.00
64.00	8.80	3.70	0.00
65.00	8.80	3.70	0.00
66.00	8.80	3.70	0.00
67.00	8.80	3.70	0.00
68.00	8.80	3.70	0.00
69.00	8.80	3.70	0.00
70.00	8.80	3.70	0.00
71.00	8.80	3.70	0.00
72.00	8.80	3.70	0.00
73.00	8.80	3.70	0.00
74.00	8.80	3.70	0.00
75.00	8.80	3.70	0.00
76.00	8.80	3.70	0.00
77.00	8.80	3.70	0.00
78.00	8.80	3.70	0.00
79.00	8.80	3.70	0.00
80.00	8.80	3.70	0.00
81.00	8.80	3.70	0.00
82.00	8.80	3.70	0.00
83.00	8.80	3.70	0.00
84.00	8.80	3.70	0.00
85.00	8.80	3.70	0.00
86.00	8.80	3.70	0.00
87.00	8.80	3.70	0.00
88.00	8.80	3.70	0.00
89.00	8.80	3.70	0.00
90.00	8.80	3.70	0.00
91.00	8.80	3.70	0.00
92.00	8.80	3.70	0.00
93.00	8.80	3.70	0.00
94.00	8.80	3.70	0.00
95.00	8.80	3.70	0.00
96.00	8.80	3.70	0.00

Summary for Subcatchment PR-D8: Prop. Watershed D8

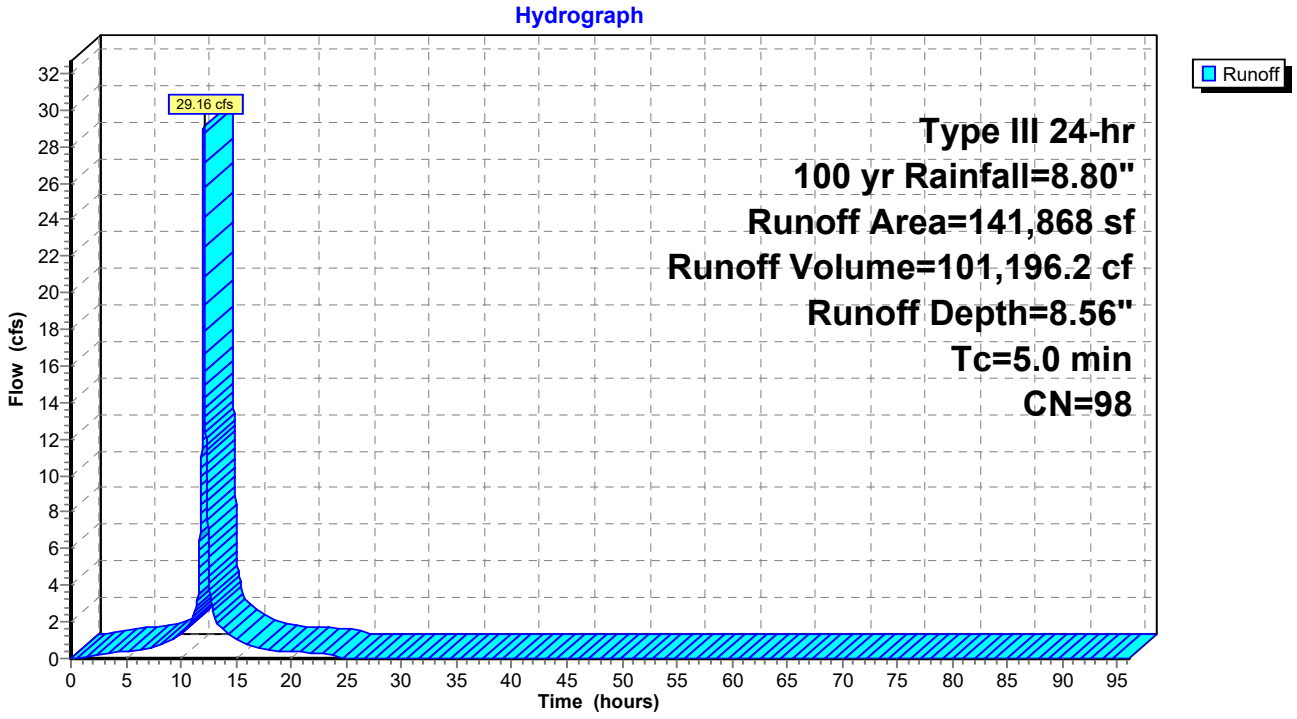
Runoff = 29.16 cfs @ 12.07 hrs, Volume= 101,196.2 cf, Depth= 8.56"
Routed to Pond SWM-2 : Cultec 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.80"

	Area (sf)	CN	Description
*	107,416	98	Building 1 - South
*	34,452	98	Building 2 - North
	141,868	98	Weighted Average
	141,868		100.00% Impervious Area

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

Subcatchment PR-D8: Prop. Watershed D8



Hydrograph for Subcatchment PR-D8: Prop. Watershed D8

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.01	0.09
2.00	0.18	0.05	0.18
3.00	0.27	0.12	0.25
4.00	0.38	0.21	0.32
5.00	0.50	0.32	0.38
6.00	0.63	0.44	0.43
7.00	0.80	0.59	0.57
8.00	1.00	0.79	0.72
9.00	1.28	1.07	1.04
10.00	1.66	1.44	1.37
11.00	2.20	1.97	2.04
12.00	4.40	4.16	**19.73**
13.00	6.60	6.36	**2.31**
14.00	7.14	6.90	1.47
15.00	7.52	7.28	1.11
16.00	7.80	7.56	0.78
17.00	8.00	7.76	0.62
18.00	8.17	7.93	0.47
19.00	8.30	8.06	0.42
20.00	8.42	8.18	0.38
21.00	8.53	8.29	0.35
22.00	8.63	8.39	0.31
23.00	8.72	8.48	0.28
24.00	**8.80**	**8.56**	0.25
25.00	8.80	8.56	0.00
26.00	8.80	8.56	0.00
27.00	8.80	8.56	0.00
28.00	8.80	8.56	0.00
29.00	8.80	8.56	0.00
30.00	8.80	8.56	0.00
31.00	8.80	8.56	0.00
32.00	8.80	8.56	0.00
33.00	8.80	8.56	0.00
34.00	8.80	8.56	0.00
35.00	8.80	8.56	0.00
36.00	8.80	8.56	0.00
37.00	8.80	8.56	0.00
38.00	8.80	8.56	0.00
39.00	8.80	8.56	0.00
40.00	8.80	8.56	0.00
41.00	8.80	8.56	0.00
42.00	8.80	8.56	0.00
43.00	8.80	8.56	0.00
44.00	8.80	8.56	0.00
45.00	8.80	8.56	0.00
46.00	8.80	8.56	0.00
47.00	8.80	8.56	0.00
48.00	8.80	8.56	0.00
49.00	8.80	8.56	0.00
50.00	8.80	8.56	0.00
51.00	8.80	8.56	0.00
52.00	8.80	8.56	0.00
53.00	8.80	8.56	0.00
54.00	8.80	8.56	0.00
55.00	8.80	8.56	0.00
56.00	8.80	8.56	0.00
57.00	8.80	8.56	0.00
58.00	8.80	8.56	0.00
59.00	8.80	8.56	0.00
60.00	8.80	8.56	0.00
61.00	8.80	8.56	0.00
62.00	8.80	8.56	0.00
63.00	8.80	8.56	0.00
64.00	8.80	8.56	0.00
65.00	8.80	8.56	0.00
66.00	8.80	8.56	0.00
67.00	8.80	8.56	0.00
68.00	8.80	8.56	0.00
69.00	8.80	8.56	0.00
70.00	8.80	8.56	0.00
71.00	8.80	8.56	0.00
72.00	8.80	8.56	0.00
73.00	8.80	8.56	0.00
74.00	8.80	8.56	0.00
75.00	8.80	8.56	0.00
76.00	8.80	8.56	0.00
77.00	8.80	8.56	0.00
78.00	8.80	8.56	0.00
79.00	8.80	8.56	0.00
80.00	8.80	8.56	0.00
81.00	8.80	8.56	0.00
82.00	8.80	8.56	0.00
83.00	8.80	8.56	0.00
84.00	8.80	8.56	0.00
85.00	8.80	8.56	0.00
86.00	8.80	8.56	0.00
87.00	8.80	8.56	0.00
88.00	8.80	8.56	0.00
89.00	8.80	8.56	0.00
90.00	8.80	8.56	0.00
91.00	8.80	8.56	0.00
92.00	8.80	8.56	0.00
93.00	8.80	8.56	0.00
94.00	8.80	8.56	0.00
95.00	8.80	8.56	0.00
96.00	8.80	8.56	0.00

Summary for Pond FP: Fire Pond Weir

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 4.04" for 100 yr event
Inflow = 120.57 cfs @ 12.13 hrs, Volume= 404,325.0 cf
Outflow = 6.30 cfs @ 15.32 hrs, Volume= 404,325.0 cf, Atten= 95%, Lag= 191.6 min
Primary = 6.30 cfs @ 15.32 hrs, Volume= 404,325.0 cf
Routed to Link POA D : WETLAND-NORTH

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Starting Elev= 243.95' Surf.Area= 52,754 sf Storage= 230,980.2 cf
Peak Elev= 247.53' @ 15.32 hrs Surf.Area= 86,836 sf Storage= 488,019.0 cf (257,038.7 cf above start)

Plug-Flow detention time= 865.5 min calculated for 173,344.8 cf (43% of inflow)
Center-of-Mass det. time= 440.5 min (1,245.3 - 804.8)

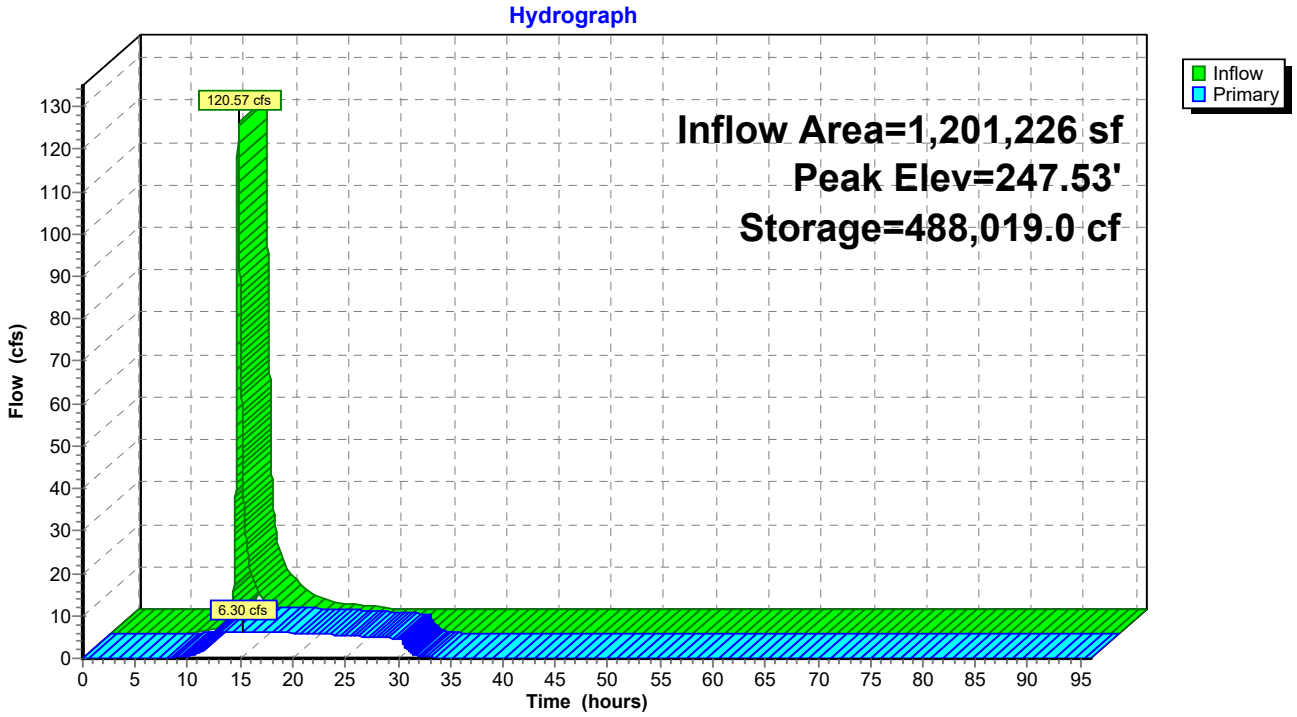
Volume	Invert	Avail.Storage	Storage Description
#1	238.50'	574,932.2 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
238.50	192	770.1	0.0	0.0	192
239.40	38,430	1,079.8	12,401.5	12,401.5	45,791
240.00	42,841	1,106.3	24,369.3	36,770.8	50,447
242.00	50,658	1,151.9	93,389.9	130,160.7	58,947
244.00	52,808	1,146.8	103,458.6	233,619.3	61,428
245.00	65,088	1,195.9	58,841.1	292,460.4	70,656
246.00	76,097	1,216.1	70,520.9	362,981.2	74,716
247.00	83,389	1,248.9	79,715.2	442,696.4	81,267
248.00	89,919	1,294.4	86,633.5	529,329.9	90,563
248.50	92,496	1,294.4	45,602.2	574,932.2	91,211

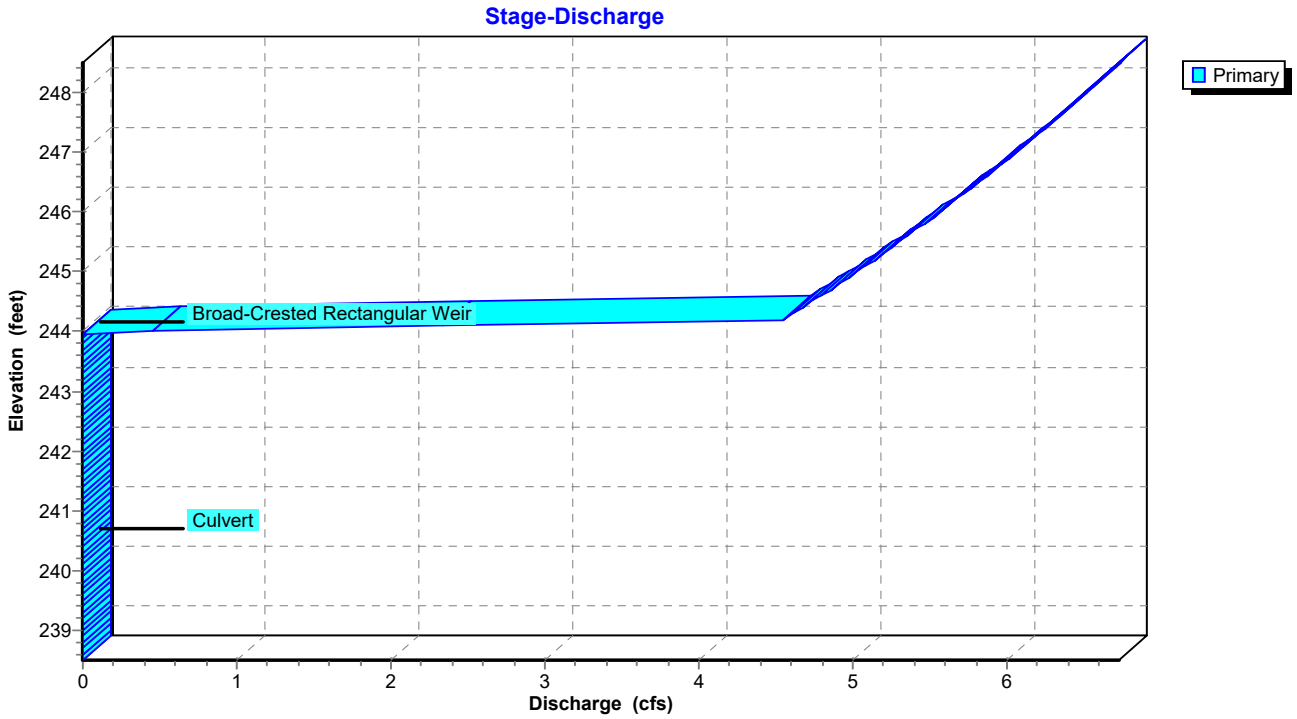
Device	Routing	Invert	Outlet Devices
#1	Device 2	243.95'	**14.6' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#2	Primary	240.50'	**12.0" Round Culvert** L= 183.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 240.50' / 239.58' S= 0.0050 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=6.30 cfs @ 15.32 hrs HW=247.53' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 6.30 cfs @ 8.02 fps)
↑—**1=Broad-Crested Rectangular Weir** (Passes 6.30 cfs of 328.68 cfs potential flow)

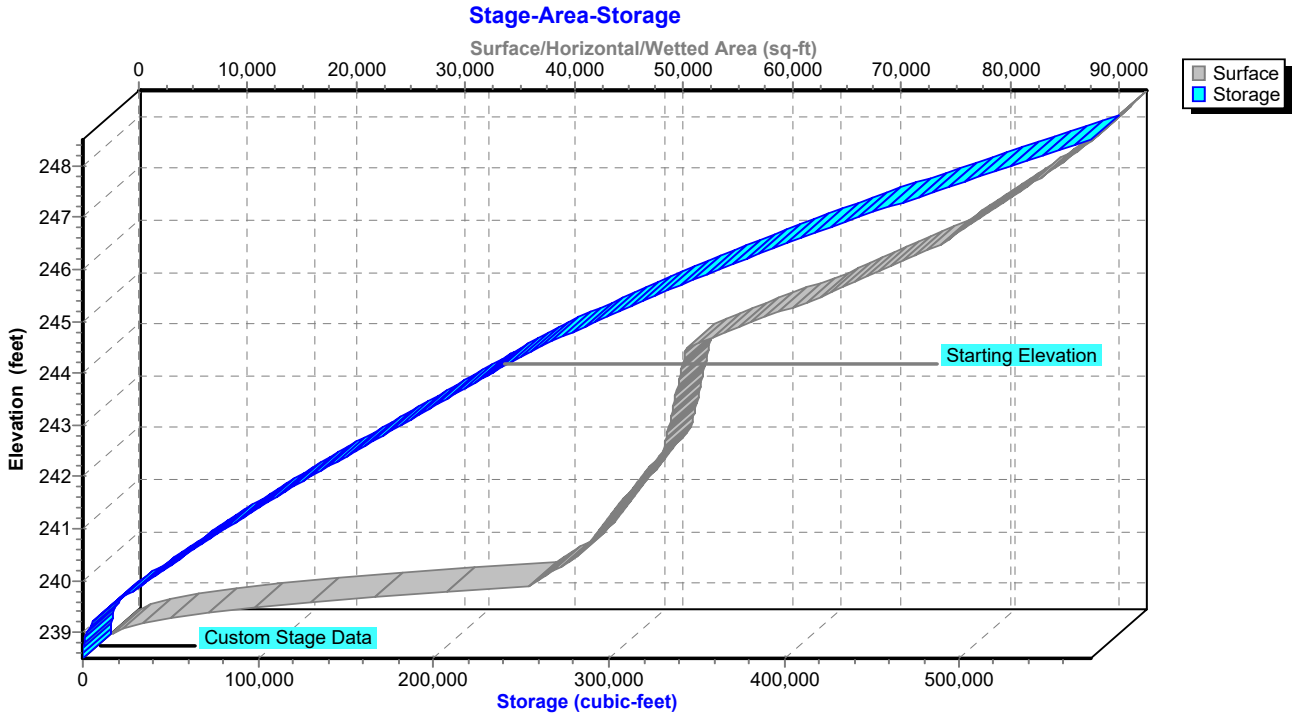
Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Pond FP: Fire Pond Weir



Hydrograph for Pond FP: Fire Pond Weir

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	230,980.2	243.95	0.00
2.00	0.00	230,980.2	243.95	0.00
4.00	0.00	230,980.2	243.95	0.00
6.00	0.00	230,980.2	243.95	0.00
8.00	0.36	231,410.0	243.96	0.07
10.00	1.02	233,944.2	244.01	0.57
12.00	**57.33**	265,126.0	244.56	4.77
14.00	**10.42**	**479,296.5**	**247.43**	**6.25**
16.00	4.66	**486,022.4**	**247.51**	**6.29**
18.00	2.09	464,242.3	247.26	6.17
20.00	1.21	431,706.6	246.87	5.99
22.00	0.79	396,417.8	246.43	5.78
24.00	0.54	360,363.3	245.97	5.54
26.00	0.00	321,678.5	245.43	5.26
28.00	0.00	284,879.6	244.88	4.95
30.00	0.00	250,415.8	244.31	4.61
32.00	0.00	233,816.7	244.00	0.52
34.00	0.00	231,807.8	243.97	0.14
36.00	0.00	231,222.3	243.95	0.04
38.00	0.00	231,051.1	243.95	0.01
40.00	0.00	231,000.9	243.95	0.00
42.00	0.00	230,986.3	243.95	0.00
44.00	0.00	230,982.0	243.95	0.00
46.00	0.00	230,980.7	243.95	0.00
48.00	0.00	230,980.4	243.95	0.00
50.00	0.00	230,980.3	243.95	0.00
52.00	0.00	230,980.2	243.95	0.00
54.00	0.00	230,980.2	243.95	0.00
56.00	0.00	230,980.2	243.95	0.00
58.00	0.00	230,980.2	243.95	0.00
60.00	0.00	230,980.2	243.95	0.00
62.00	0.00	230,980.2	243.95	0.00
64.00	0.00	230,980.2	243.95	0.00
66.00	0.00	230,980.2	243.95	0.00
68.00	0.00	230,980.2	243.95	0.00
70.00	0.00	230,980.2	243.95	0.00
72.00	0.00	230,980.2	243.95	0.00
74.00	0.00	230,980.2	243.95	0.00
76.00	0.00	230,980.2	243.95	0.00
78.00	0.00	230,980.2	243.95	0.00
80.00	0.00	230,980.2	243.95	0.00
82.00	0.00	230,980.2	243.95	0.00
84.00	0.00	230,980.2	243.95	0.00
86.00	0.00	230,980.2	243.95	0.00
88.00	0.00	230,980.2	243.95	0.00
90.00	0.00	230,980.2	243.95	0.00
92.00	0.00	230,980.2	243.95	0.00
94.00	0.00	230,980.2	243.95	0.00
96.00	0.00	230,980.2	243.95	0.00

Stage-Discharge for Pond FP: Fire Pond Weir

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
238.50	0.00	241.10	0.00	243.70	0.00	246.30	5.71
238.55	0.00	241.15	0.00	243.75	0.00	246.35	5.74
238.60	0.00	241.20	0.00	243.80	0.00	246.40	5.76
238.65	0.00	241.25	0.00	243.85	0.00	246.45	5.79
238.70	0.00	241.30	0.00	243.90	0.00	246.50	5.81
238.75	0.00	241.35	0.00	243.95	0.00	246.55	5.84
238.80	0.00	241.40	0.00	244.00	0.45	246.60	5.86
238.85	0.00	241.45	0.00	244.05	1.27	246.65	5.89
238.90	0.00	241.50	0.00	244.10	2.34	246.70	5.91
238.95	0.00	241.55	0.00	244.15	3.60	246.75	5.93
239.00	0.00	241.60	0.00	244.20	4.55	246.80	5.96
239.05	0.00	241.65	0.00	244.25	4.58	246.85	5.98
239.10	0.00	241.70	0.00	244.30	4.61	246.90	6.01
239.15	0.00	241.75	0.00	244.35	4.64	246.95	6.03
239.20	0.00	241.80	0.00	244.40	4.67	247.00	6.05
239.25	0.00	241.85	0.00	244.45	4.70	247.05	6.08
239.30	0.00	241.90	0.00	244.50	4.73	247.10	6.10
239.35	0.00	241.95	0.00	244.55	4.76	247.15	6.12
239.40	0.00	242.00	0.00	244.60	4.79	247.20	6.15
239.45	0.00	242.05	0.00	244.65	4.82	247.25	6.17
239.50	0.00	242.10	0.00	244.70	4.85	247.30	6.19
239.55	0.00	242.15	0.00	244.75	4.88	247.35	6.22
239.60	0.00	242.20	0.00	244.80	4.91	247.40	6.24
239.65	0.00	242.25	0.00	244.85	4.94	247.45	6.26
239.70	0.00	242.30	0.00	244.90	4.97	247.50	6.28
239.75	0.00	242.35	0.00	244.95	4.99	247.55	6.31
239.80	0.00	242.40	0.00	245.00	5.02	247.60	6.33
239.85	0.00	242.45	0.00	245.05	5.05	247.65	6.35
239.90	0.00	242.50	0.00	245.10	5.08	247.70	6.37
239.95	0.00	242.55	0.00	245.15	5.11	247.75	6.40
240.00	0.00	242.60	0.00	245.20	5.13	247.80	6.42
240.05	0.00	242.65	0.00	245.25	5.16	247.85	6.44
240.10	0.00	242.70	0.00	245.30	5.19	247.90	6.46
240.15	0.00	242.75	0.00	245.35	5.22	247.95	6.49
240.20	0.00	242.80	0.00	245.40	5.24	248.00	6.51
240.25	0.00	242.85	0.00	245.45	5.27	248.05	6.53
240.30	0.00	242.90	0.00	245.50	5.30	248.10	6.55
240.35	0.00	242.95	0.00	245.55	5.33	248.15	6.57
240.40	0.00	243.00	0.00	245.60	5.35	248.20	6.59
240.45	0.00	243.05	0.00	245.65	5.38	248.25	6.62
240.50	0.00	243.10	0.00	245.70	5.41	248.30	6.64
240.55	0.00	243.15	0.00	245.75	5.43	248.35	6.66
240.60	0.00	243.20	0.00	245.80	5.46	248.40	6.68
240.65	0.00	243.25	0.00	245.85	5.48	248.45	6.70
240.70	0.00	243.30	0.00	245.90	5.51	248.50	**6.72**
240.75	0.00	243.35	0.00	245.95	5.54		
240.80	0.00	243.40	0.00	246.00	5.56		
240.85	0.00	243.45	0.00	246.05	5.59		
240.90	0.00	243.50	0.00	246.10	5.61		
240.95	0.00	243.55	0.00	246.15	5.64		
241.00	0.00	243.60	0.00	246.20	5.66		
241.05	0.00	243.65	0.00	246.25	5.69		

Stage-Area-Storage for Pond FP: Fire Pond Weir

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
238.50	192	0.0
238.60	1,163	60.9
238.70	2,953	259.9
238.80	5,563	678.8
238.90	8,992	1,399.7
239.00	13,240	2,504.5
239.10	18,309	4,075.1
239.20	24,196	6,193.5
239.30	30,903	8,941.7
239.40	38,430	12,401.5
239.50	39,149	16,280.4
239.60	39,874	20,231.4
239.70	40,606	24,255.3
239.80	41,344	28,352.8
239.90	42,089	32,524.4
240.00	42,841	36,770.8
240.10	43,216	41,073.7
240.20	43,593	45,414.1
240.30	43,972	49,792.4
240.40	44,352	54,208.6
240.50	44,734	58,662.8
240.60	45,117	63,155.4
240.70	45,502	67,686.4
240.80	45,889	72,255.9
240.90	46,278	76,864.3
241.00	46,668	81,511.5
241.10	47,059	86,197.9
241.20	47,453	90,923.4
241.30	47,848	95,688.4
241.40	48,244	100,493.0
241.50	48,642	105,337.3
241.60	49,042	110,221.5
241.70	49,444	115,145.8
241.80	49,847	120,110.3
241.90	50,252	125,115.2
242.00	50,658	130,160.7
242.10	50,764	135,231.8
242.20	50,871	140,313.6
242.30	50,978	145,406.0
242.40	51,084	150,509.1
242.50	51,191	155,622.9
242.60	51,298	160,747.4
242.70	51,405	165,882.6
242.80	51,513	171,028.5
242.90	51,620	176,185.1
243.00	51,727	181,352.5
243.10	51,835	186,530.6
243.20	51,943	191,719.5
243.30	52,050	196,919.1
243.40	52,158	202,129.6
243.50	52,266	207,350.8
243.60	52,374	212,582.8
243.70	52,483	217,825.7
243.80	52,591	223,079.4
243.90	52,699	228,343.9
244.00	52,808	233,619.3
244.10	53,978	238,958.5
244.20	55,161	244,415.3
244.30	56,357	249,991.2
244.40	57,566	255,687.2
244.50	58,788	261,504.8
244.60	60,022	267,445.2
244.70	61,269	273,509.7
244.80	62,529	279,699.5
244.90	63,802	286,016.0
245.00	65,088	292,460.4
245.10	66,150	299,022.2
245.20	67,221	305,690.7
245.30	68,300	312,466.7
245.40	69,388	319,351.1
245.50	70,485	326,344.7
245.60	71,590	333,448.4
245.70	72,704	340,663.0
245.80	73,826	347,989.5
245.90	74,957	355,428.6
246.00	76,097	362,981.2
246.10	76,811	370,626.6
246.20	77,529	378,343.6
246.30	78,250	386,132.5
246.40	78,974	393,993.6
246.50	79,701	401,927.3
246.60	80,432	409,934.0
246.70	81,166	418,013.9
246.80	81,904	426,167.4
246.90	82,645	434,394.8
247.00	83,389	442,696.4
247.10	84,031	451,067.4
247.20	84,675	459,502.7
247.30	85,322	468,002.6
247.40	85,971	476,567.2
247.50	86,623	485,196.9
247.60	87,277	493,891.9
247.70	87,934	502,652.5
247.80	88,593	511,478.9
247.90	89,255	520,371.3
248.00	89,919	529,329.9
248.10	90,431	538,347.4
248.20	90,945	547,416.3
248.30	91,461	556,536.6
248.40	91,978	565,708.5
248.50	**92,496**	**574,932.2**

Summary for Pond RG1: Rain-Garden #1

Inflow Area = 50,834 sf, 67.76% Impervious, Inflow Depth = 6.26" for 100 yr event
Inflow = 8.72 cfs @ 12.07 hrs, Volume= 26,504.9 cf
Outflow = 8.50 cfs @ 12.09 hrs, Volume= 26,504.9 cf, Atten= 3%, Lag= 1.0 min
Discarded = 0.06 cfs @ 7.87 hrs, Volume= 6,752.1 cf
Primary = 8.44 cfs @ 12.09 hrs, Volume= 19,752.8 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 250.22' @ 12.09 hrs Surf.Area= 4,244 sf Storage= 3,712.3 cf

Plug-Flow detention time= 142.5 min calculated for 26,504.9 cf (100% of inflow)
Center-of-Mass det. time= 142.5 min (943.2 - 800.7)

Volume	Invert	Avail.Storage	Storage Description
#1	249.00'	2,491.8 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,102.2 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	83.3 cf	**12.0" Round Perforated pipe** Inside #4 L= 106.0'
#4	243.00'	638.1 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,678.5 cf Overall - 83.3 cf Embedded = 1,595.2 cf x 40.0% Voids
		4,315.3 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.00	1,119	0.0	0.0
249.50	1,471	647.5	647.5
250.00	1,840	827.8	1,475.3
250.50	2,226	1,016.5	2,491.8

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	1,119	0.0	0.0	0.0
244.51	1,119	40.0	4.5	4.5
245.74	1,119	40.0	550.5	555.0
245.75	1,119	15.0	1.7	556.7
248.74	1,119	15.0	501.9	1,058.6
248.75	1,119	15.0	1.7	1,060.3
249.00	1,119	15.0	42.0	1,102.2

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
243.00	1,119	0.0	0.0
244.50	1,119	1,678.5	1,678.5

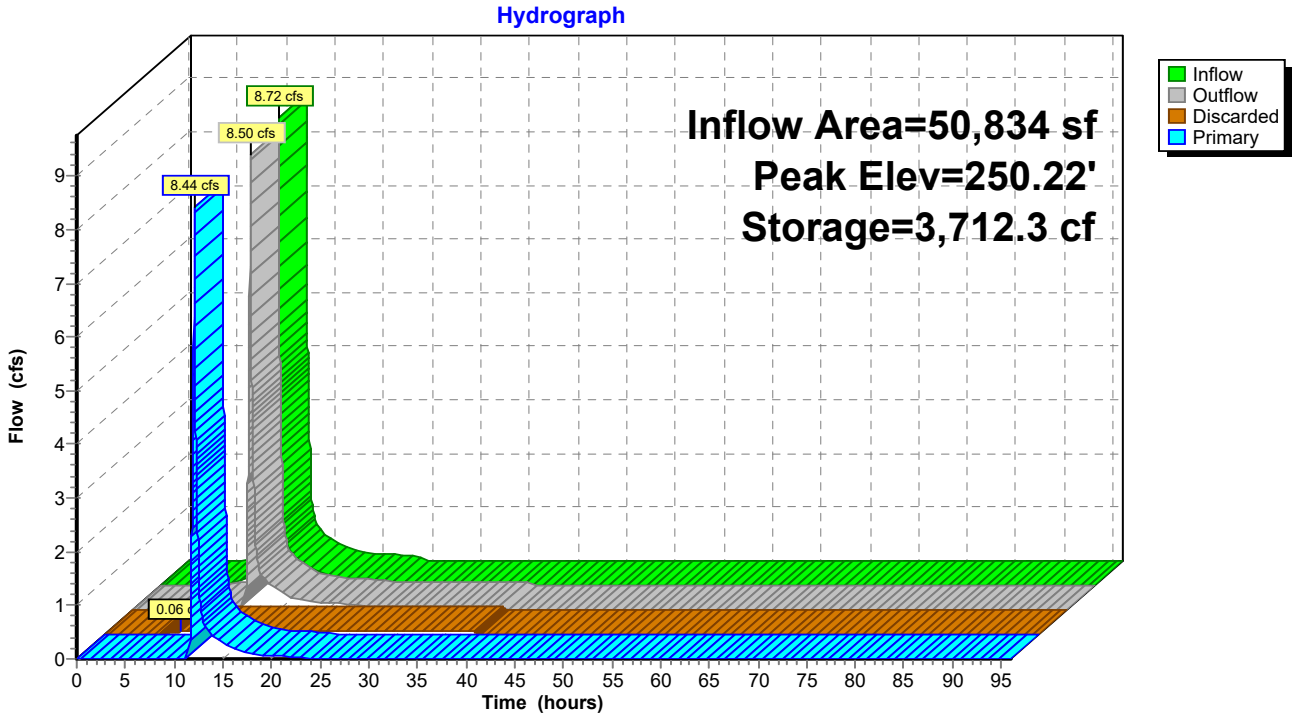
Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**0.06 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900

n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

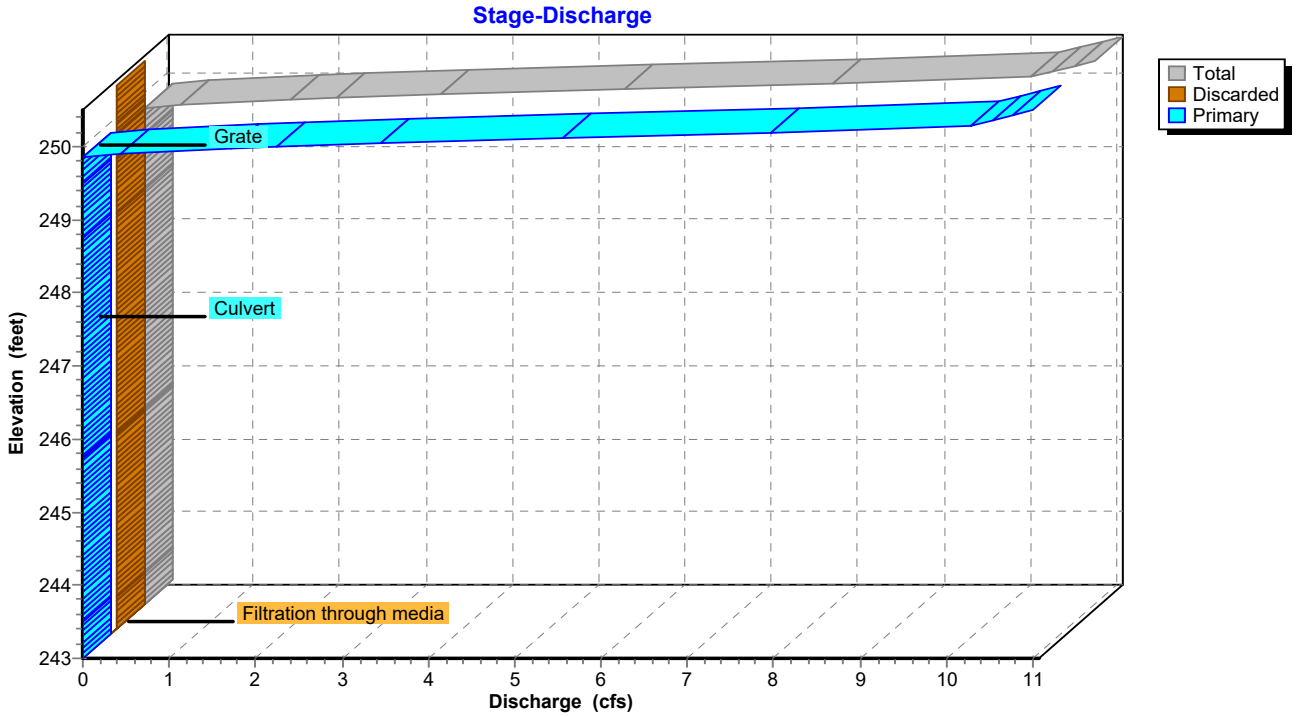
Discarded OutFlow Max=0.06 cfs @ 7.87 hrs HW=243.08' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=8.49 cfs @ 12.09 hrs HW=250.21' (Free Discharge)
└**3=Culvert** (Passes 8.49 cfs of 10.07 cfs potential flow)
└**2=Grate** (Weir Controls 8.49 cfs @ 1.98 fps)

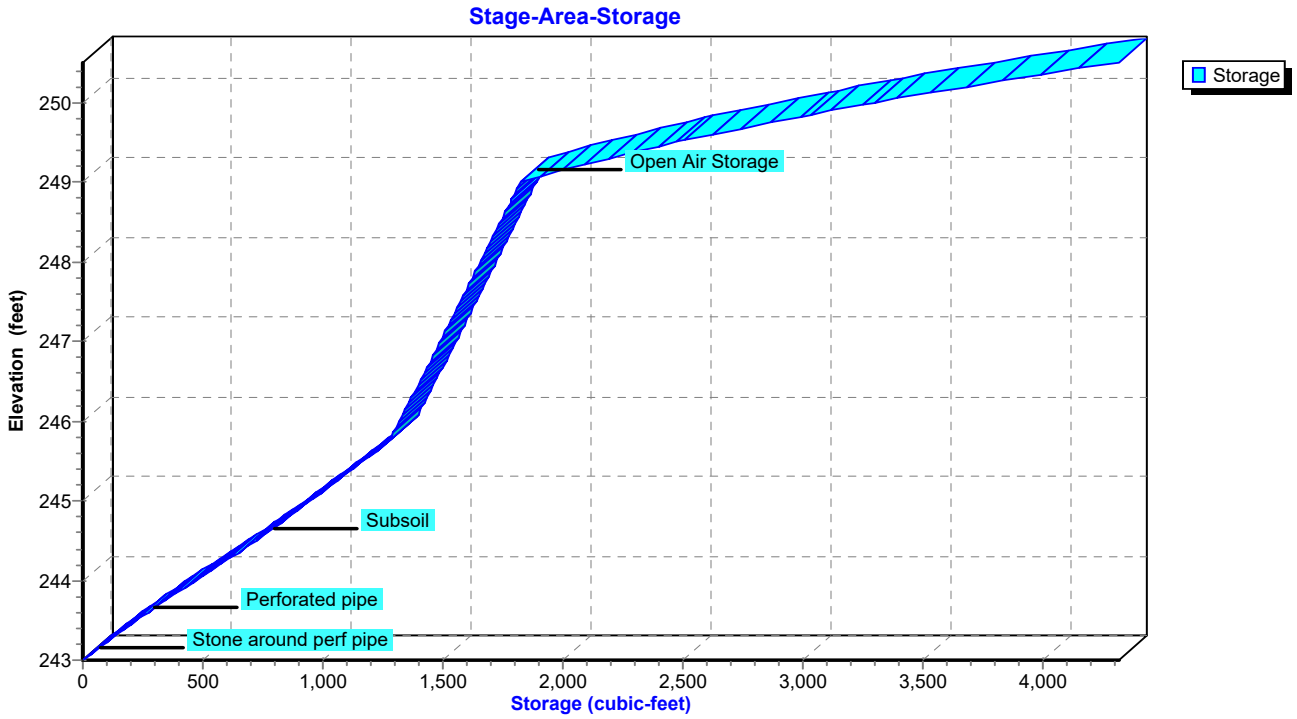
Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Pond RG1: Rain-Garden #1



Hydrograph for Pond RG1: Rain-Garden #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.00	0.0	243.00	0.00	0.00	0.00
6.00	0.01	4.6	243.01	0.01	**0.01**	0.00
8.00	0.07	38.0	243.08	0.06	**0.06**	0.00
10.00	0.25	686.4	244.43	0.06	0.06	0.00
12.00	**5.68**	**3,485.2**	**250.10**	**4.88**	0.06	**4.82**
14.00	**0.48**	**3,118.4**	**249.90**	**0.49**	0.06	**0.43**
16.00	0.26	3,072.6	249.87	0.26	0.06	0.20
18.00	0.16	3,051.6	249.86	0.16	0.06	0.10
20.00	0.13	3,044.9	249.86	0.13	0.06	0.07
22.00	0.11	3,040.4	249.86	0.11	0.06	0.05
24.00	0.08	3,036.0	249.85	0.08	0.06	0.02
26.00	0.00	2,621.4	249.60	0.06	0.06	0.00
28.00	0.00	2,189.4	249.30	0.06	0.06	0.00
30.00	0.00	1,757.4	248.61	0.06	0.06	0.00
32.00	0.00	1,325.4	246.03	0.06	0.06	0.00
34.00	0.00	893.4	244.88	0.06	0.06	0.00
36.00	0.00	461.4	243.98	0.06	0.06	0.00
38.00	0.00	29.7	243.07	0.05	0.05	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond RG1: Rain-Garden #1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.06	**0.06**	0.00
243.20	0.06	0.06	0.00
243.30	0.06	0.06	0.00
243.40	0.06	0.06	0.00
243.50	0.06	0.06	0.00
243.60	0.06	0.06	0.00
243.70	0.06	0.06	0.00
243.80	0.06	0.06	0.00
243.90	0.06	0.06	0.00
244.00	0.06	0.06	0.00
244.10	0.06	0.06	0.00
244.20	0.06	0.06	0.00
244.30	0.06	0.06	0.00
244.40	0.06	0.06	0.00
244.50	0.06	0.06	0.00
244.60	0.06	0.06	0.00
244.70	0.06	0.06	0.00
244.80	0.06	0.06	0.00
244.90	0.06	0.06	0.00
245.00	0.06	0.06	0.00
245.10	0.06	0.06	0.00
245.20	0.06	0.06	0.00
245.30	0.06	0.06	0.00
245.40	0.06	0.06	0.00
245.50	0.06	0.06	0.00
245.60	0.06	0.06	0.00
245.70	0.06	0.06	0.00
245.80	0.06	0.06	0.00
245.90	0.06	0.06	0.00
246.00	0.06	0.06	0.00
246.10	0.06	0.06	0.00
246.20	0.06	0.06	0.00
246.30	0.06	0.06	0.00
246.40	0.06	0.06	0.00
246.50	0.06	0.06	0.00
246.60	0.06	0.06	0.00
246.70	0.06	0.06	0.00
246.80	0.06	0.06	0.00
246.90	0.06	0.06	0.00
247.00	0.06	0.06	0.00
247.10	0.06	0.06	0.00
247.20	0.06	0.06	0.00
247.30	0.06	0.06	0.00
247.40	0.06	0.06	0.00
247.50	0.06	0.06	0.00
247.60	0.06	0.06	0.00
247.70	0.06	0.06	0.00
247.80	0.06	0.06	0.00
247.90	0.06	0.06	0.00
248.00	0.06	0.06	0.00
248.10	0.06	0.06	0.00
248.20	0.06	0.06	0.00
248.30	0.06	0.06	0.00
248.40	0.06	0.06	0.00
248.50	0.06	0.06	0.00
248.60	0.06	0.06	0.00
248.70	0.06	0.06	0.00
248.80	0.06	0.06	0.00
248.90	0.06	0.06	0.00
249.00	0.06	0.06	0.00
249.10	0.06	0.06	0.00
249.20	0.06	0.06	0.00
249.30	0.06	0.06	0.00
249.40	0.06	0.06	0.00
249.50	0.06	0.06	0.00
249.60	0.06	0.06	0.00
249.70	0.06	0.06	0.00
249.80	0.06	0.06	0.00
249.90	0.49	0.06	0.43
250.00	2.30	0.06	2.24
250.10	4.88	0.06	4.82
250.20	8.04	0.06	7.98
250.30	10.42	0.06	10.36
250.40	10.75	0.06	10.69
250.50	**11.07**	0.06	**11.01**

Stage-Area-Storage for Pond RG1: Rain-Garden #1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
243.00	0.0	245.60	1,213.7	248.20	1,689.3
243.05	22.4	245.65	1,236.1	248.25	1,697.7
243.10	44.8	245.70	1,258.5	248.30	1,706.1
243.15	67.1	245.75	1,278.1	248.35	1,714.5
243.20	89.5	245.80	1,286.4	248.40	1,722.9
243.25	111.9	245.85	1,294.8	248.45	1,731.2
243.30	134.3	245.90	1,303.2	248.50	1,739.6
243.35	156.7	245.95	1,311.6	248.55	1,748.0
243.40	179.0	246.00	1,320.0	248.60	1,756.4
243.45	201.4	246.05	1,328.4	248.65	1,764.8
243.50	223.8	246.10	1,336.8	248.70	1,773.2
243.55	247.1	246.15	1,345.2	248.75	1,781.6
243.60	271.2	246.20	1,353.6	248.80	1,790.0
243.65	295.6	246.25	1,362.0	248.85	1,798.4
243.70	320.4	246.30	1,370.4	248.90	1,806.8
243.75	345.5	246.35	1,378.8	248.95	1,815.2
243.80	370.7	246.40	1,387.2	249.00	1,823.6
243.85	396.0	246.45	1,395.5	249.05	1,880.4
243.90	421.5	246.50	1,403.9	249.10	1,939.0
243.95	447.0	246.55	1,412.3	249.15	1,999.3
244.00	472.6	246.60	1,420.7	249.20	2,061.4
244.05	498.1	246.65	1,429.1	249.25	2,125.3
244.10	523.7	246.70	1,437.5	249.30	2,190.9
244.15	549.1	246.75	1,445.9	249.35	2,258.3
244.20	574.5	246.80	1,454.3	249.40	2,327.5
244.25	599.7	246.85	1,462.7	249.45	2,398.4
244.30	624.7	246.90	1,471.1	249.50	2,471.1
244.35	649.5	246.95	1,479.5	249.55	2,545.5
244.40	674.0	247.00	1,487.9	249.60	2,621.9
244.45	698.0	247.05	1,496.3	249.65	2,700.0
244.50	721.4	247.10	1,504.7	249.70	2,780.0
244.55	743.7	247.15	1,513.0	249.75	2,861.9
244.60	766.1	247.20	1,521.4	249.80	2,945.6
244.65	788.5	247.25	1,529.8	249.85	3,031.1
244.70	810.9	247.30	1,538.2	249.90	3,118.5
244.75	833.3	247.35	1,546.6	249.95	3,207.7
244.80	855.6	247.40	1,555.0	250.00	3,298.8
244.85	878.0	247.45	1,563.4	250.05	3,391.8
244.90	900.4	247.50	1,571.8	250.10	3,486.7
244.95	922.8	247.55	1,580.2	250.15	3,583.5
245.00	945.2	247.60	1,588.6	250.20	3,682.3
245.05	967.5	247.65	1,597.0	250.25	3,782.9
245.10	989.9	247.70	1,605.4	250.30	3,885.6
245.15	1,012.3	247.75	1,613.8	250.35	3,990.1
245.20	1,034.7	247.80	1,622.1	250.40	4,096.6
245.25	1,057.1	247.85	1,630.5	250.45	4,205.0
245.30	1,079.4	247.90	1,638.9	250.50	**4,315.3**
245.35	1,101.8	247.95	1,647.3		
245.40	1,124.2	248.00	1,655.7		
245.45	1,146.6	248.05	1,664.1		
245.50	1,169.0	248.10	1,672.5		
245.55	1,191.3	248.15	1,680.9		

Summary for Pond RG2: Rain-Garden #2

Inflow Area = 40,781 sf, 62.50% Impervious, Inflow Depth = 5.89" for 100 yr event
Inflow = 6.64 cfs @ 12.07 hrs, Volume= 20,020.0 cf
Outflow = 6.43 cfs @ 12.09 hrs, Volume= 20,020.0 cf, Atten= 3%, Lag= 1.2 min
Discarded = 0.05 cfs @ 8.37 hrs, Volume= 5,244.5 cf
Primary = 6.38 cfs @ 12.09 hrs, Volume= 14,775.5 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 250.24' @ 12.09 hrs Surf.Area= 3,501 sf Storage= 2,823.3 cf

Plug-Flow detention time= 133.6 min calculated for 20,020.0 cf (100% of inflow)
Center-of-Mass det. time= 133.6 min (940.9 - 807.3)

Volume	Invert	Avail.Storage	Storage Description
#1	249.50'	1,404.5 cf	**Open Air Storage (Prismatic)** Listed below (Recalc)
#2	244.50'	1,179.1 cf	**Subsoil (Prismatic)** Listed below (Recalc)
#3	243.50'	133.5 cf	**12.0" Round Perforated pipe** Inside #4 L= 170.0'
#4	242.50'	585.0 cf	**Stone around perf pipe (Prismatic)** Listed below (Recalc) 1,596.0 cf Overall - 133.5 cf Embedded = 1,462.5 cf x 40.0% Voids
		3,302.1 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
249.50	803	0.0	0.0
250.00	1,386	547.3	547.3
250.50	2,043	857.3	1,404.5

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
244.50	995	0.0	0.0	0.0
244.51	995	40.0	4.0	4.0
246.24	995	40.0	688.5	692.5
246.25	995	15.0	1.5	694.0
249.24	995	15.0	446.3	1,140.3
249.25	995	15.0	1.5	1,141.8
249.50	995	15.0	37.3	1,179.1

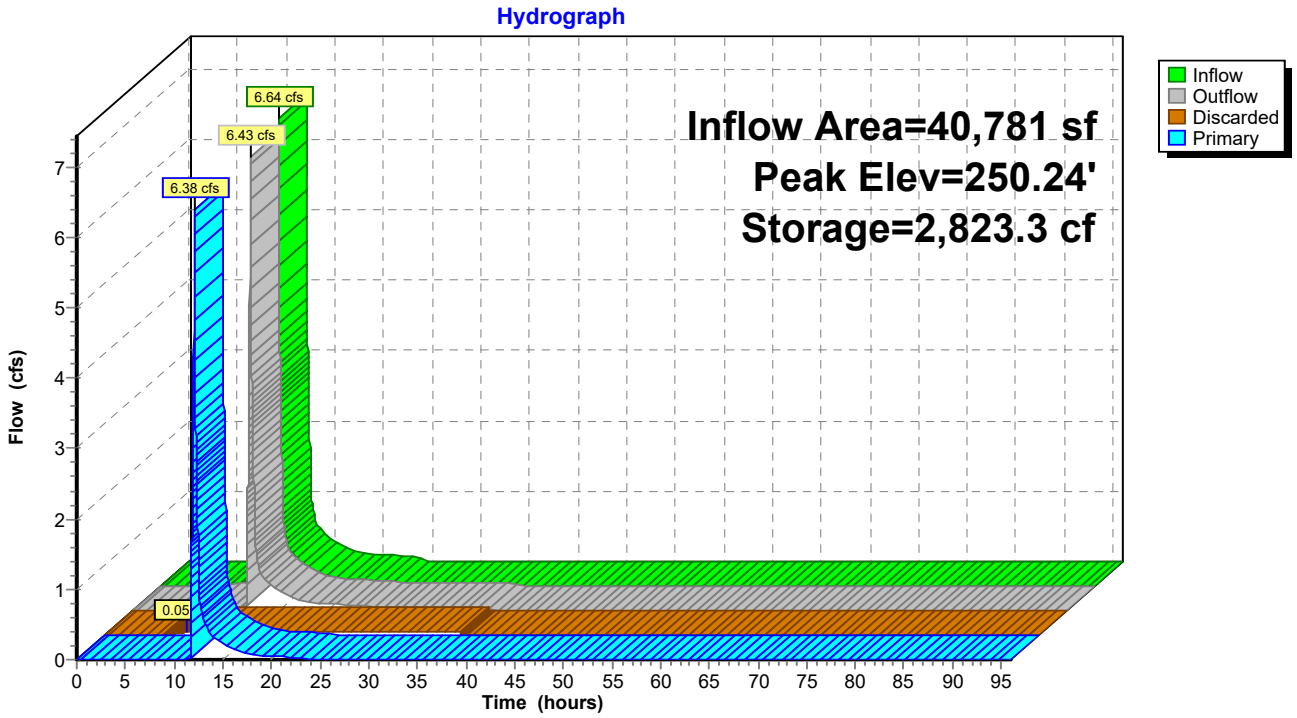
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	798	0.0	0.0
244.50	798	1,596.0	1,596.0

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.05 cfs Filtration through media at all elevations**
#2	Device 3	249.85'	**15.0" Horiz. Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	247.50'	**15.0" Round Culvert** L= 18.0' Ke= 0.100 Inlet / Outlet Invert= 247.50' / 247.50' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 1.23 sf

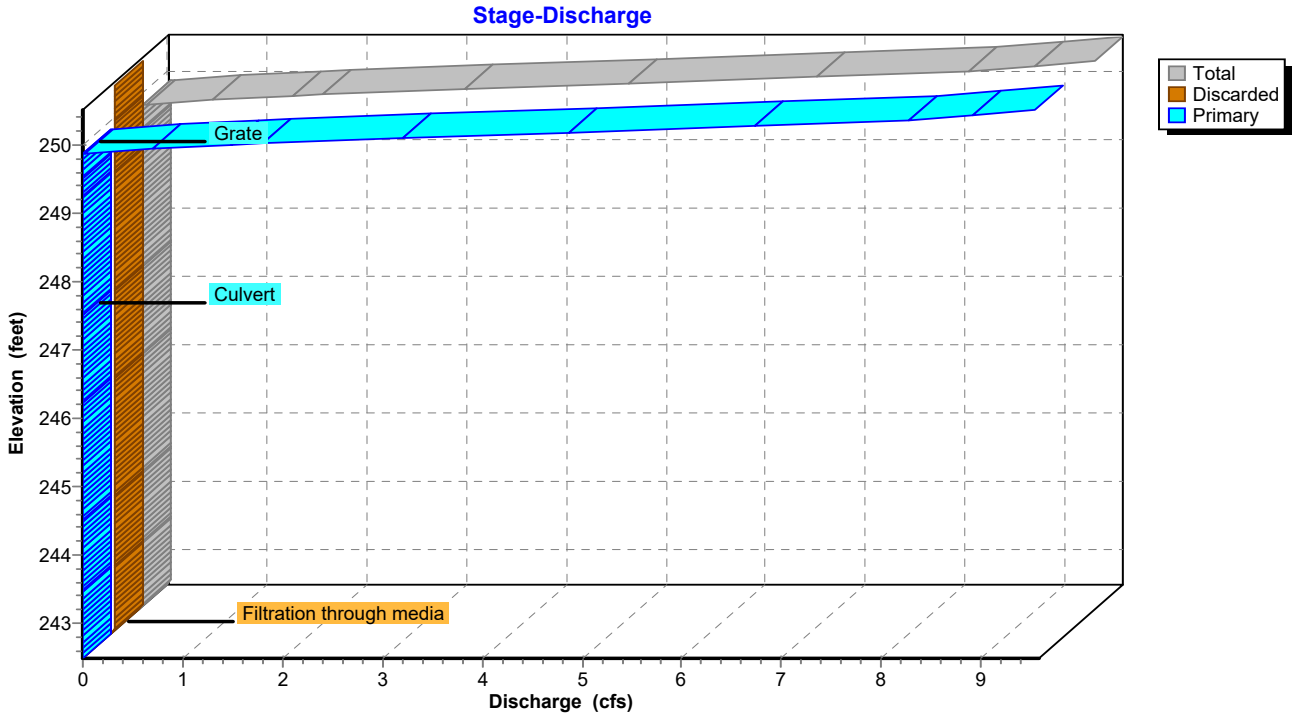
Discarded OutFlow Max=0.05 cfs @ 8.37 hrs HW=242.58' (Free Discharge)
└**1=Filtration through media** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=6.36 cfs @ 12.09 hrs HW=250.24' (Free Discharge)
└**3=Culvert** (Passes 6.36 cfs of 10.17 cfs potential flow)
└**2=Grate** (Weir Controls 6.36 cfs @ 2.05 fps)

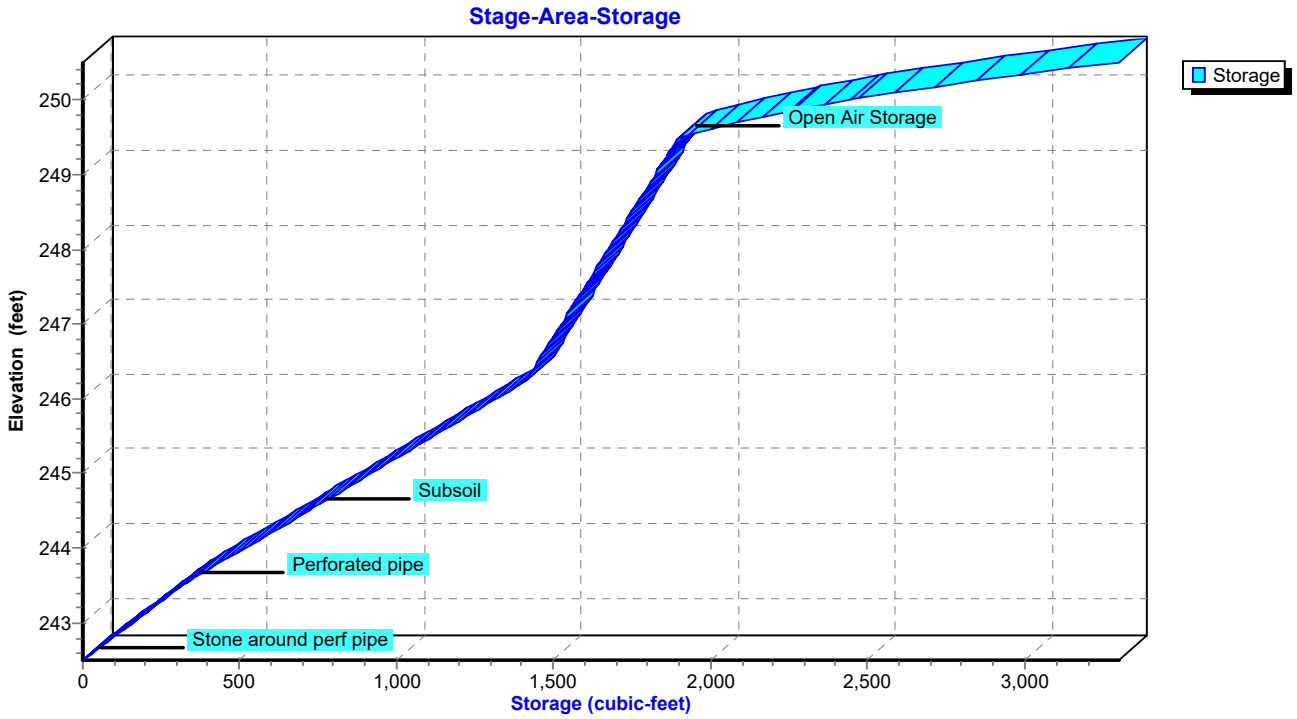
Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Pond RG2: Rain-Garden #2



Hydrograph for Pond RG2: Rain-Garden #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	242.50	0.00	0.00	0.00
2.00	0.00	0.0	242.50	0.00	0.00	0.00
4.00	0.00	0.0	242.50	0.00	0.00	0.00
6.00	0.00	0.0	242.50	0.00	0.00	0.00
8.00	0.04	18.7	242.56	0.04	**0.04**	0.00
10.00	0.17	362.4	243.62	0.05	**0.05**	0.00
12.00	**4.29**	**2,616.3**	**250.12**	**3.61**	0.05	**3.56**
14.00	**0.38**	**2,309.2**	**249.90**	**0.38**	0.05	**0.33**
16.00	0.20	2,282.0	249.88	0.21	0.05	0.16
18.00	0.12	2,269.8	249.87	0.13	0.05	0.08
20.00	0.10	2,266.0	249.86	0.10	0.05	0.05
22.00	0.08	2,263.4	249.86	0.08	0.05	0.03
24.00	0.07	2,258.1	249.86	0.07	0.05	0.02
26.00	0.00	1,911.4	249.52	0.05	0.05	0.00
28.00	0.00	1,551.4	247.18	0.05	0.05	0.00
30.00	0.00	1,191.4	245.69	0.05	0.05	0.00
32.00	0.00	831.4	244.78	0.05	0.05	0.00
34.00	0.00	471.4	243.89	0.05	0.05	0.00
36.00	0.00	111.4	242.85	0.05	0.05	0.00
38.00	0.00	0.0	242.50	0.00	0.00	0.00
40.00	0.00	0.0	242.50	0.00	0.00	0.00
42.00	0.00	0.0	242.50	0.00	0.00	0.00
44.00	0.00	0.0	242.50	0.00	0.00	0.00
46.00	0.00	0.0	242.50	0.00	0.00	0.00
48.00	0.00	0.0	242.50	0.00	0.00	0.00
50.00	0.00	0.0	242.50	0.00	0.00	0.00
52.00	0.00	0.0	242.50	0.00	0.00	0.00
54.00	0.00	0.0	242.50	0.00	0.00	0.00
56.00	0.00	0.0	242.50	0.00	0.00	0.00
58.00	0.00	0.0	242.50	0.00	0.00	0.00
60.00	0.00	0.0	242.50	0.00	0.00	0.00
62.00	0.00	0.0	242.50	0.00	0.00	0.00
64.00	0.00	0.0	242.50	0.00	0.00	0.00
66.00	0.00	0.0	242.50	0.00	0.00	0.00
68.00	0.00	0.0	242.50	0.00	0.00	0.00
70.00	0.00	0.0	242.50	0.00	0.00	0.00
72.00	0.00	0.0	242.50	0.00	0.00	0.00
74.00	0.00	0.0	242.50	0.00	0.00	0.00
76.00	0.00	0.0	242.50	0.00	0.00	0.00
78.00	0.00	0.0	242.50	0.00	0.00	0.00
80.00	0.00	0.0	242.50	0.00	0.00	0.00
82.00	0.00	0.0	242.50	0.00	0.00	0.00
84.00	0.00	0.0	242.50	0.00	0.00	0.00
86.00	0.00	0.0	242.50	0.00	0.00	0.00
88.00	0.00	0.0	242.50	0.00	0.00	0.00
90.00	0.00	0.0	242.50	0.00	0.00	0.00
92.00	0.00	0.0	242.50	0.00	0.00	0.00
94.00	0.00	0.0	242.50	0.00	0.00	0.00
96.00	0.00	0.0	242.50	0.00	0.00	0.00

Stage-Discharge for Pond RG2: Rain-Garden #2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
242.50	0.00	**0.00**	0.00
242.60	0.05	**0.05**	0.00
242.70	0.05	0.05	0.00
242.80	0.05	0.05	0.00
242.90	0.05	0.05	0.00
243.00	0.05	0.05	0.00
243.10	0.05	0.05	0.00
243.20	0.05	0.05	0.00
243.30	0.05	0.05	0.00
243.40	0.05	0.05	0.00
243.50	0.05	0.05	0.00
243.60	0.05	0.05	0.00
243.70	0.05	0.05	0.00
243.80	0.05	0.05	0.00
243.90	0.05	0.05	0.00
244.00	0.05	0.05	0.00
244.10	0.05	0.05	0.00
244.20	0.05	0.05	0.00
244.30	0.05	0.05	0.00
244.40	0.05	0.05	0.00
244.50	0.05	0.05	0.00
244.60	0.05	0.05	0.00
244.70	0.05	0.05	0.00
244.80	0.05	0.05	0.00
244.90	0.05	0.05	0.00
245.00	0.05	0.05	0.00
245.10	0.05	0.05	0.00
245.20	0.05	0.05	0.00
245.30	0.05	0.05	0.00
245.40	0.05	0.05	0.00
245.50	0.05	0.05	0.00
245.60	0.05	0.05	0.00
245.70	0.05	0.05	0.00
245.80	0.05	0.05	0.00
245.90	0.05	0.05	0.00
246.00	0.05	0.05	0.00
246.10	0.05	0.05	0.00
246.20	0.05	0.05	0.00
246.30	0.05	0.05	0.00
246.40	0.05	0.05	0.00
246.50	0.05	0.05	0.00
246.60	0.05	0.05	0.00
246.70	0.05	0.05	0.00
246.80	0.05	0.05	0.00
246.90	0.05	0.05	0.00
247.00	0.05	0.05	0.00
247.10	0.05	0.05	0.00
247.20	0.05	0.05	0.00
247.30	0.05	0.05	0.00
247.40	0.05	0.05	0.00
247.50	0.05	0.05	0.00
247.60	0.05	0.05	0.00
247.70	0.05	0.05	0.00
247.80	0.05	0.05	0.00
247.90	0.05	0.05	0.00
248.00	0.05	0.05	0.00
248.10	0.05	0.05	0.00
248.20	0.05	0.05	0.00
248.30	0.05	0.05	0.00
248.40	0.05	0.05	0.00
248.50	0.05	0.05	0.00
248.60	0.05	0.05	0.00
248.70	0.05	0.05	0.00
248.80	0.05	0.05	0.00
248.90	0.05	0.05	0.00
249.00	0.05	0.05	0.00
249.10	0.05	0.05	0.00
249.20	0.05	0.05	0.00
249.30	0.05	0.05	0.00
249.40	0.05	0.05	0.00
249.50	0.05	0.05	0.00
249.60	0.05	0.05	0.00
249.70	0.05	0.05	0.00
249.80	0.05	0.05	0.00
249.90	0.34	0.05	0.29
250.00	1.54	0.05	1.49
250.10	3.26	0.05	3.21
250.20	5.37	0.05	5.32
250.30	7.80	0.05	7.75
250.40	8.81	0.05	8.76
250.50	**9.58**	0.05	**9.53**

Stage-Area-Storage for Pond RG2: Rain-Garden #2

Elevation (feet)	Storage (cubic-feet)
242.50	0.0
242.60	31.9
242.70	63.8
242.80	95.8
242.90	127.7
243.00	159.6
243.10	191.5
243.20	223.4
243.30	255.4
243.40	287.3
243.50	319.2
243.60	355.3
243.70	394.4
243.80	435.2
243.90	476.8
244.00	518.9
244.10	560.9
244.20	602.5
244.30	643.3
244.40	682.4
244.50	718.5
244.60	758.3
244.70	798.1
244.80	837.9
244.90	877.7
245.00	917.5
245.10	957.3
245.20	997.1
245.30	1,036.9
245.40	1,076.7
245.50	1,116.5
245.60	1,156.3
245.70	1,196.1
245.80	1,235.9
245.90	1,275.7
246.00	1,315.5
246.10	1,355.3
246.20	1,395.1
246.30	1,420.0
246.40	1,434.9
246.50	1,449.8
246.60	1,464.8
246.70	1,479.7
246.80	1,494.6
246.90	1,509.5
247.00	1,524.5
247.10	1,539.4
247.20	1,554.3
247.30	1,569.2
247.40	1,584.2
247.50	1,599.1
247.60	1,614.0
247.70	1,628.9
247.80	1,643.9
247.90	1,658.8
248.00	1,673.7
248.10	1,688.6
248.20	1,703.6
248.30	1,718.5
248.40	1,733.4
248.50	1,748.3
248.60	1,763.3
248.70	1,778.2
248.80	1,793.1
248.90	1,808.0
249.00	1,823.0
249.10	1,837.9
249.20	1,852.8
249.30	1,867.7
249.40	1,882.7
249.50	1,897.6
249.60	1,983.7
249.70	2,081.5
249.80	2,191.0
249.90	2,312.1
250.00	2,444.8
250.10	2,590.0
250.20	2,748.3
250.30	2,919.8
250.40	3,104.4
250.50	**3,302.1**

Summary for Pond SWM-2: Cultec 2

Inflow Area = 141,868 sf,100.00% Impervious, Inflow Depth = 8.56" for 100 yr event
Inflow = 29.16 cfs @ 12.07 hrs, Volume= 101,196.2 cf
Outflow = 2.83 cfs @ 12.80 hrs, Volume= 101,196.2 cf, Atten= 90%, Lag= 44.0 min
Discarded = 0.88 cfs @ 8.65 hrs, Volume= 84,624.7 cf
Primary = 1.96 cfs @ 12.80 hrs, Volume= 16,571.5 cf
Routed to Pond SWM-3 : Cultec 3

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 253.67' @ 12.80 hrs Surf.Area= 15,751 sf Storage= 45,825.5 cf

Plug-Flow detention time= 325.6 min calculated for 101,185.7 cf (100% of inflow)
Center-of-Mass det. time= 325.6 min (1,064.7 - 739.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	249.50'	22,538.4 cf	**63.25'W x 249.03'L x 5.75'H Field A** 90,570.3 cf Overall - 34,224.2 cf Embedded = 56,346.1 cf x 40.0% Voids
#2A	250.25'	34,224.2 cf	**Cultec R-902HD** x 528 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 528 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		56,762.7 cf	Total Available Storage

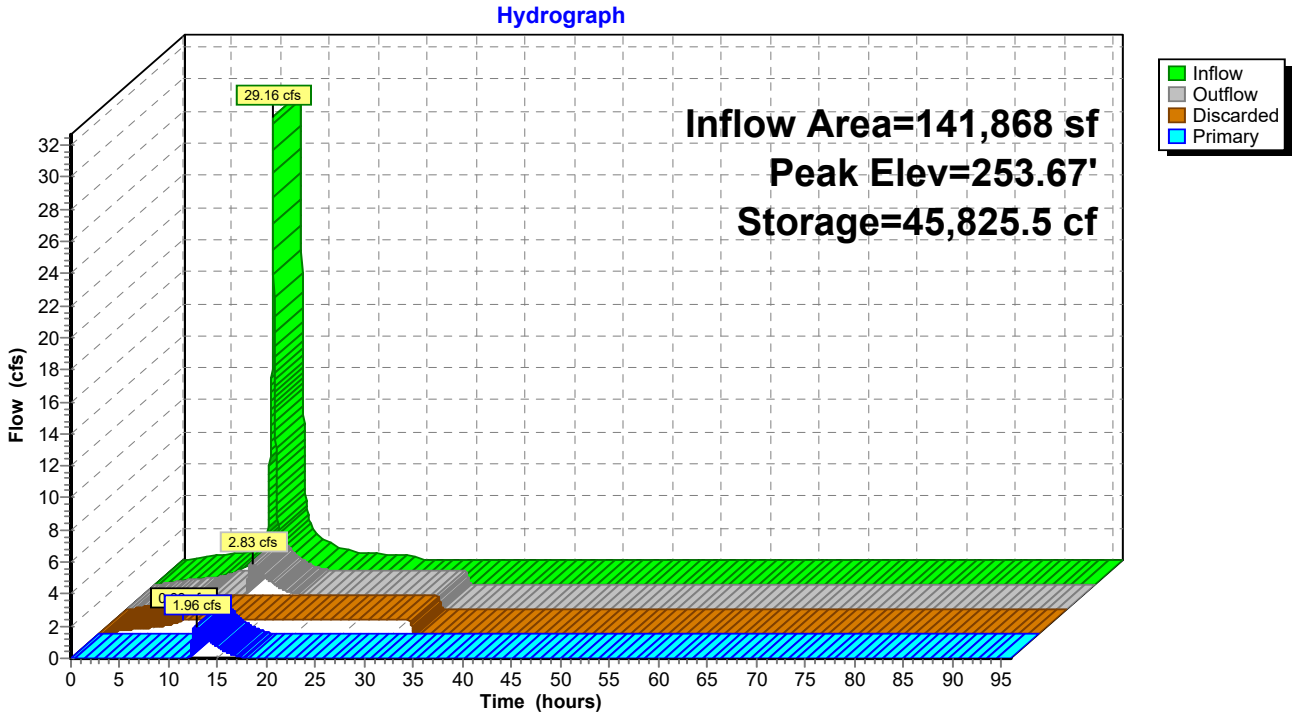
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	249.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	252.75'	**12.0" Round Culvert** L= 189.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.75' / 246.50' S= 0.0331 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

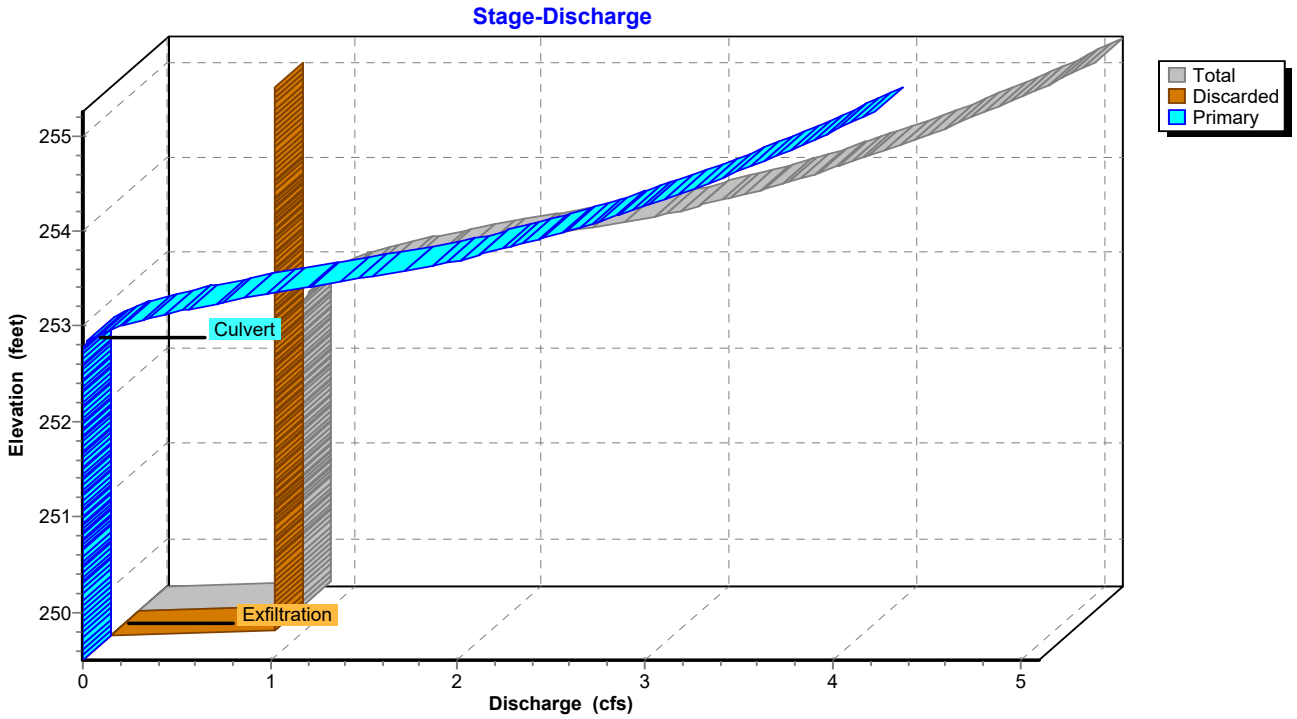
Discarded OutFlow Max=0.88 cfs @ 8.65 hrs HW=249.56' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.88 cfs)

Primary OutFlow Max=1.96 cfs @ 12.80 hrs HW=253.67' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 1.96 cfs @ 2.58 fps)

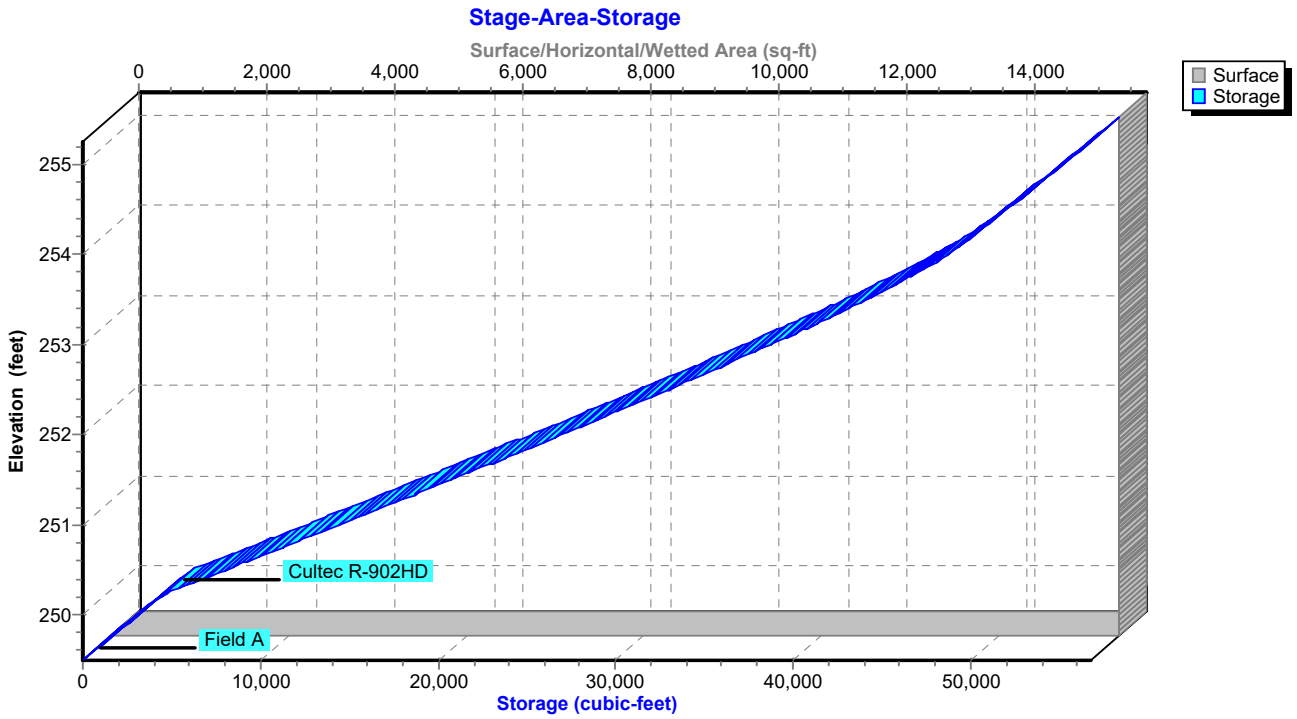
Pond SWM-2: Cultec 2



Pond SWM-2: Cultec 2



Pond SWM-2: Cultec 2



Hydrograph for Pond SWM-2: Cultec 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	249.50	0.00	0.00	0.00
2.00	0.18	71.2	249.51	0.17	0.17	0.00
4.00	0.32	128.1	249.52	0.31	0.31	0.00
6.00	0.43	174.0	249.53	0.42	0.42	0.00
8.00	0.72	288.5	249.55	0.70	**0.70**	0.00
10.00	1.37	1,659.5	249.76	0.88	**0.88**	0.00
12.00	**19.73**	**20,884.8**	**251.51**	**0.88**	0.88	**0.00**
14.00	**1.47**	**43,336.8**	**253.42**	**2.12**	0.88	**1.24**
16.00	0.78	39,684.7	253.08	1.24	0.88	0.36
18.00	0.47	36,721.4	252.82	0.90	0.88	0.02
20.00	0.38	33,421.3	252.54	0.88	0.88	0.00
22.00	0.31	29,582.2	252.22	0.88	0.88	0.00
24.00	0.25	25,275.2	251.86	0.88	0.88	0.00
26.00	0.00	19,017.1	251.36	0.88	0.88	0.00
28.00	0.00	12,690.3	250.86	0.88	0.88	0.00
30.00	0.00	6,363.5	250.38	0.88	0.88	0.00
32.00	0.00	147.5	249.52	0.36	0.36	0.00
34.00	0.00	0.0	249.50	0.00	0.00	0.00
36.00	0.00	0.0	249.50	0.00	0.00	0.00
38.00	0.00	0.0	249.50	0.00	0.00	0.00
40.00	0.00	0.0	249.50	0.00	0.00	0.00
42.00	0.00	0.0	249.50	0.00	0.00	0.00
44.00	0.00	0.0	249.50	0.00	0.00	0.00
46.00	0.00	0.0	249.50	0.00	0.00	0.00
48.00	0.00	0.0	249.50	0.00	0.00	0.00
50.00	0.00	0.0	249.50	0.00	0.00	0.00
52.00	0.00	0.0	249.50	0.00	0.00	0.00
54.00	0.00	0.0	249.50	0.00	0.00	0.00
56.00	0.00	0.0	249.50	0.00	0.00	0.00
58.00	0.00	0.0	249.50	0.00	0.00	0.00
60.00	0.00	0.0	249.50	0.00	0.00	0.00
62.00	0.00	0.0	249.50	0.00	0.00	0.00
64.00	0.00	0.0	249.50	0.00	0.00	0.00
66.00	0.00	0.0	249.50	0.00	0.00	0.00
68.00	0.00	0.0	249.50	0.00	0.00	0.00
70.00	0.00	0.0	249.50	0.00	0.00	0.00
72.00	0.00	0.0	249.50	0.00	0.00	0.00
74.00	0.00	0.0	249.50	0.00	0.00	0.00
76.00	0.00	0.0	249.50	0.00	0.00	0.00
78.00	0.00	0.0	249.50	0.00	0.00	0.00
80.00	0.00	0.0	249.50	0.00	0.00	0.00
82.00	0.00	0.0	249.50	0.00	0.00	0.00
84.00	0.00	0.0	249.50	0.00	0.00	0.00
86.00	0.00	0.0	249.50	0.00	0.00	0.00
88.00	0.00	0.0	249.50	0.00	0.00	0.00
90.00	0.00	0.0	249.50	0.00	0.00	0.00
92.00	0.00	0.0	249.50	0.00	0.00	0.00
94.00	0.00	0.0	249.50	0.00	0.00	0.00
96.00	0.00	0.0	249.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-2: Cultec 2

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
249.50	0.00	**0.00**	0.00
249.60	0.88	**0.88**	0.00
249.70	0.88	0.88	0.00
249.80	0.88	0.88	0.00
249.90	0.88	0.88	0.00
250.00	0.88	0.88	0.00
250.10	0.88	0.88	0.00
250.20	0.88	0.88	0.00
250.30	0.88	0.88	0.00
250.40	0.88	0.88	0.00
250.50	0.88	0.88	0.00
250.60	0.88	0.88	0.00
250.70	0.88	0.88	0.00
250.80	0.88	0.88	0.00
250.90	0.88	0.88	0.00
251.00	0.88	0.88	0.00
251.10	0.88	0.88	0.00
251.20	0.88	0.88	0.00
251.30	0.88	0.88	0.00
251.40	0.88	0.88	0.00
251.50	0.88	0.88	0.00
251.60	0.88	0.88	0.00
251.70	0.88	0.88	0.00
251.80	0.88	0.88	0.00
251.90	0.88	0.88	0.00
252.00	0.88	0.88	0.00
252.10	0.88	0.88	0.00
252.20	0.88	0.88	0.00
252.30	0.88	0.88	0.00
252.40	0.88	0.88	0.00
252.50	0.88	0.88	0.00
252.60	0.88	0.88	0.00
252.70	0.88	0.88	0.00
252.80	0.89	0.88	0.01
252.90	0.96	0.88	0.08
253.00	1.09	0.88	0.21
253.10	1.27	0.88	0.39
253.20	1.50	0.88	0.62
253.30	1.76	0.88	0.88
253.40	2.05	0.88	1.17
253.50	2.35	0.88	1.47
253.60	2.64	0.88	1.76
253.70	2.90	0.88	2.02
253.80	3.09	0.88	2.21
253.90	3.29	0.88	2.41
254.00	3.46	0.88	2.59
254.10	3.63	0.88	2.75
254.20	3.79	0.88	2.91
254.30	3.94	0.88	3.06
254.40	4.08	0.88	3.20
254.50	4.22	0.88	3.34
254.60	4.35	0.88	3.47
254.70	4.47	0.88	3.60
254.80	4.60	0.88	3.72
254.90	4.71	0.88	3.83
255.00	4.83	0.88	3.95
255.10	4.94	0.88	4.06
255.20	**5.05**	0.88	**4.17**

Stage-Area-Storage for Pond SWM-2: Cultec 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
249.50	**15,751**	0.0
249.60	15,751	630.1
249.70	15,751	1,260.1
249.80	15,751	1,890.2
249.90	15,751	2,520.2
250.00	15,751	3,150.3
250.10	15,751	3,780.3
250.20	15,751	4,410.4
250.30	15,751	5,375.4
250.40	15,751	6,677.3
250.50	15,751	7,981.2
250.60	15,751	9,277.2
250.70	15,751	10,569.7
250.80	15,751	11,856.8
250.90	15,751	13,142.8
251.00	15,751	14,426.0
251.10	15,751	15,700.9
251.20	15,751	16,967.8
251.30	15,751	18,232.9
251.40	15,751	19,496.2
251.50	15,751	20,751.5
251.60	15,751	21,998.6
251.70	15,751	23,242.3
251.80	15,751	24,479.5
251.90	15,751	25,710.2
252.00	15,751	26,937.5
252.10	15,751	28,156.6
252.20	15,751	29,372.4
252.30	15,751	30,580.7
252.40	15,751	31,776.9
252.50	15,751	32,969.3
252.60	15,751	34,149.4
252.70	15,751	35,318.2
252.80	15,751	36,477.6
252.90	15,751	37,621.3
253.00	15,751	38,751.1
253.10	15,751	39,864.2
253.20	15,751	40,957.6
253.30	15,751	42,033.3
253.40	15,751	43,084.8
253.50	15,751	44,111.3
253.60	15,751	45,112.5
253.70	15,751	46,083.1
253.80	15,751	47,018.1
253.90	15,751	47,901.3
254.00	15,751	48,715.4
254.10	15,751	49,454.7
254.20	15,751	50,135.9
254.30	15,751	50,777.2
254.40	15,751	51,407.2
254.50	15,751	52,037.3
254.60	15,751	52,667.3
254.70	15,751	53,297.4
254.80	15,751	53,927.4
254.90	15,751	54,557.5
255.00	15,751	55,187.5
255.10	15,751	55,817.6
255.20	15,751	**56,447.6**

Summary for Pond SWM-3: Cultec 3

Inflow Area = 416,467 sf, 80.91% Impervious, Inflow Depth = 4.84" for 100 yr event
Inflow = 48.08 cfs @ 12.08 hrs, Volume= 168,111.9 cf
Outflow = 34.75 cfs @ 12.15 hrs, Volume= 168,111.9 cf, Atten= 28%, Lag= 4.4 min
Discarded = 0.63 cfs @ 8.45 hrs, Volume= 54,897.9 cf
Primary = 34.12 cfs @ 12.15 hrs, Volume= 113,214.0 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 249.27' @ 12.15 hrs Surf.Area= 11,345 sf Storage= 38,555.7 cf

Plug-Flow detention time= 115.9 min calculated for 168,094.4 cf (100% of inflow)
Center-of-Mass det. time= 116.0 min (914.3 - 798.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	244.00'	16,339.6 cf	**63.25'W x 179.37'L x 5.75'H Field A** 65,233.4 cf Overall - 24,384.5 cf Embedded = 40,848.9 cf x 40.0% Voids
#2A	244.75'	24,384.5 cf	**Cultec R-902HD** x 376 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 376 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		40,724.1 cf	Total Available Storage

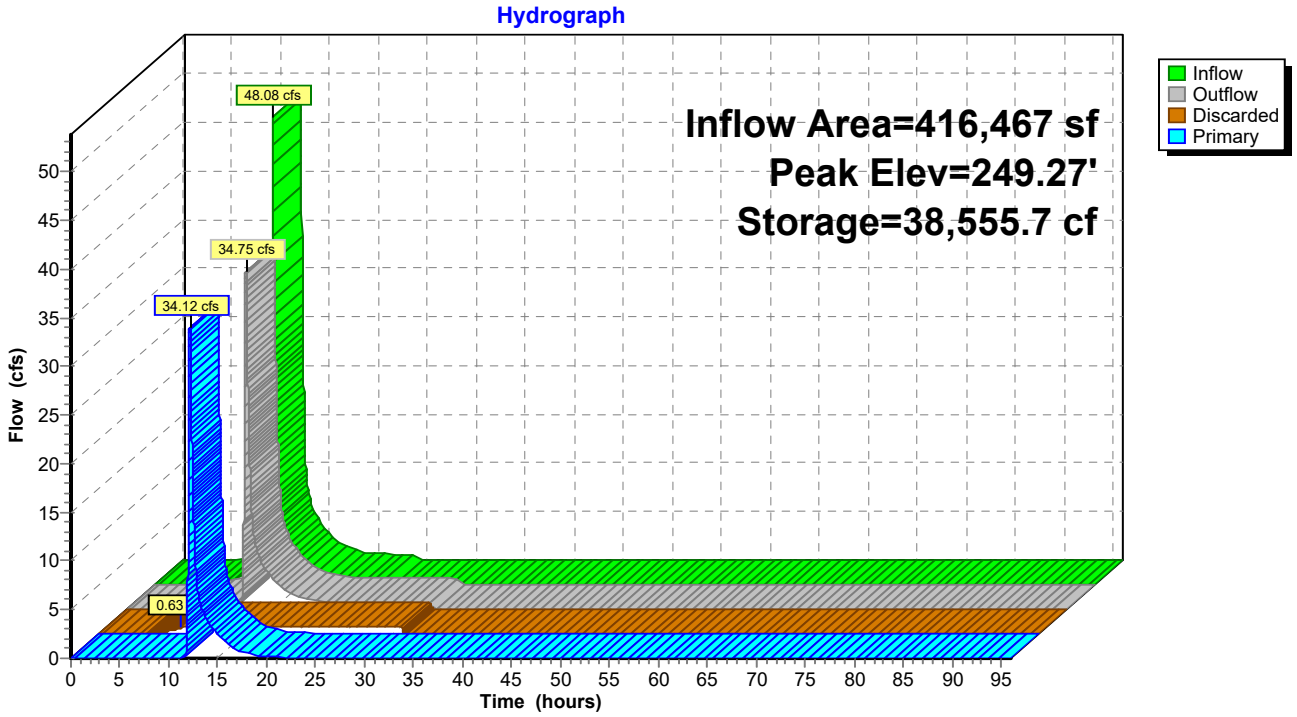
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	244.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	246.16'	**24.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	246.16'	**36.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 246.16' / 245.10' S= 0.0530 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

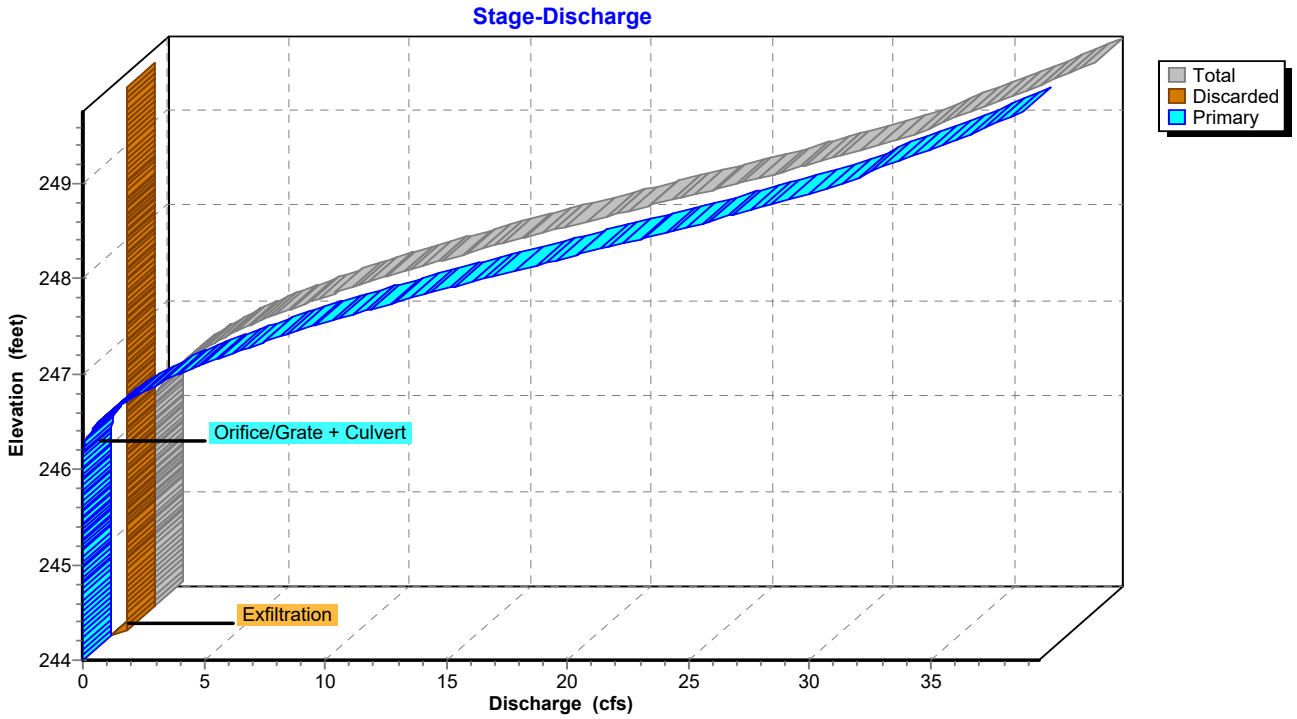
Discarded OutFlow Max=0.63 cfs @ 8.45 hrs HW=244.06' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.63 cfs)

Primary OutFlow Max=34.09 cfs @ 12.15 hrs HW=249.27' (Free Discharge)
└**3=Culvert** (Inlet Controls 34.09 cfs @ 4.82 fps)
└**2=Orifice/Grate** (Passes 34.09 cfs of 43.94 cfs potential flow)

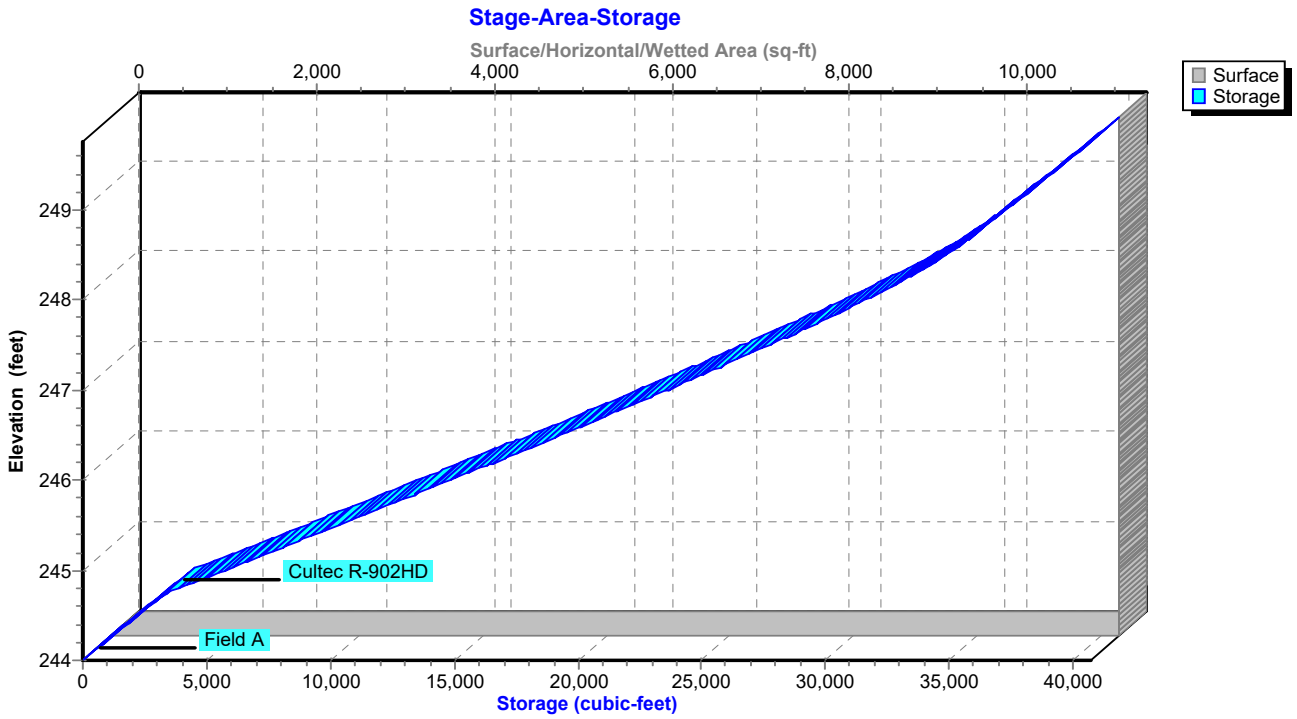
Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Pond SWM-3: Cultec 3



Hydrograph for Pond SWM-3: Cultec 3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	244.00	0.00	0.00	0.00
2.00	0.00	0.0	244.00	0.00	0.00	0.00
4.00	0.00	0.0	244.00	0.00	0.00	0.00
6.00	0.13	49.2	244.01	0.12	0.12	0.00
8.00	0.51	199.4	244.04	0.48	**0.48**	0.00
10.00	1.55	2,827.6	244.62	0.63	**0.63**	0.00
12.00	**29.95**	**29,642.7**	**247.74**	**13.33**	0.63	**12.70**
14.00	**3.93**	**23,454.6**	**246.98**	**4.44**	0.63	**3.80**
16.00	1.79	20,773.1	246.67	2.15	0.63	1.51
18.00	0.89	18,848.4	246.45	1.13	0.63	0.50
20.00	0.70	17,791.2	246.33	0.80	0.63	0.17
22.00	0.58	17,088.5	246.25	0.68	0.63	0.05
24.00	0.46	16,152.4	246.14	0.63	0.63	0.00
26.00	0.00	11,740.8	245.65	0.63	0.63	0.00
28.00	0.00	7,184.0	245.16	0.63	0.63	0.00
30.00	0.00	2,627.1	244.58	0.63	0.63	0.00
32.00	0.00	0.1	244.00	0.00	0.00	0.00
34.00	0.00	0.0	244.00	0.00	0.00	0.00
36.00	0.00	0.0	244.00	0.00	0.00	0.00
38.00	0.00	0.0	244.00	0.00	0.00	0.00
40.00	0.00	0.0	244.00	0.00	0.00	0.00
42.00	0.00	0.0	244.00	0.00	0.00	0.00
44.00	0.00	0.0	244.00	0.00	0.00	0.00
46.00	0.00	0.0	244.00	0.00	0.00	0.00
48.00	0.00	0.0	244.00	0.00	0.00	0.00
50.00	0.00	0.0	244.00	0.00	0.00	0.00
52.00	0.00	0.0	244.00	0.00	0.00	0.00
54.00	0.00	0.0	244.00	0.00	0.00	0.00
56.00	0.00	0.0	244.00	0.00	0.00	0.00
58.00	0.00	0.0	244.00	0.00	0.00	0.00
60.00	0.00	0.0	244.00	0.00	0.00	0.00
62.00	0.00	0.0	244.00	0.00	0.00	0.00
64.00	0.00	0.0	244.00	0.00	0.00	0.00
66.00	0.00	0.0	244.00	0.00	0.00	0.00
68.00	0.00	0.0	244.00	0.00	0.00	0.00
70.00	0.00	0.0	244.00	0.00	0.00	0.00
72.00	0.00	0.0	244.00	0.00	0.00	0.00
74.00	0.00	0.0	244.00	0.00	0.00	0.00
76.00	0.00	0.0	244.00	0.00	0.00	0.00
78.00	0.00	0.0	244.00	0.00	0.00	0.00
80.00	0.00	0.0	244.00	0.00	0.00	0.00
82.00	0.00	0.0	244.00	0.00	0.00	0.00
84.00	0.00	0.0	244.00	0.00	0.00	0.00
86.00	0.00	0.0	244.00	0.00	0.00	0.00
88.00	0.00	0.0	244.00	0.00	0.00	0.00
90.00	0.00	0.0	244.00	0.00	0.00	0.00
92.00	0.00	0.0	244.00	0.00	0.00	0.00
94.00	0.00	0.0	244.00	0.00	0.00	0.00
96.00	0.00	0.0	244.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-3: Cultec 3

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
244.00	0.00	**0.00**	0.00
244.10	0.63	**0.63**	0.00
244.20	0.63	0.63	0.00
244.30	0.63	0.63	0.00
244.40	0.63	0.63	0.00
244.50	0.63	0.63	0.00
244.60	0.63	0.63	0.00
244.70	0.63	0.63	0.00
244.80	0.63	0.63	0.00
244.90	0.63	0.63	0.00
245.00	0.63	0.63	0.00
245.10	0.63	0.63	0.00
245.20	0.63	0.63	0.00
245.30	0.63	0.63	0.00
245.40	0.63	0.63	0.00
245.50	0.63	0.63	0.00
245.60	0.63	0.63	0.00
245.70	0.63	0.63	0.00
245.80	0.63	0.63	0.00
245.90	0.63	0.63	0.00
246.00	0.63	0.63	0.00
246.10	0.63	0.63	0.00
246.20	0.64	0.63	0.01
246.30	0.75	0.63	0.12
246.40	0.98	0.63	0.35
246.50	1.33	0.63	0.69
246.60	1.78	0.63	1.15
246.70	2.34	0.63	1.71
246.80	3.01	0.63	2.37
246.90	3.77	0.63	3.14
247.00	4.62	0.63	3.99
247.10	5.57	0.63	4.94
247.20	6.60	0.63	5.97
247.30	7.71	0.63	7.07
247.40	8.89	0.63	8.26
247.50	10.14	0.63	9.51
247.60	11.45	0.63	10.82
247.70	12.82	0.63	12.19
247.80	14.24	0.63	13.61
247.90	15.71	0.63	15.07
248.00	17.21	0.63	16.57
248.10	18.73	0.63	18.10
248.20	20.28	0.63	19.65
248.30	21.84	0.63	21.21
248.40	23.41	0.63	22.77
248.50	24.96	0.63	24.32
248.60	26.48	0.63	25.85
248.70	27.97	0.63	27.34
248.80	29.41	0.63	28.77
248.90	30.76	0.63	30.12
249.00	31.99	0.63	31.36
249.10	33.06	0.63	32.42
249.20	33.98	0.63	33.34
249.30	35.04	0.63	34.41
249.40	36.08	0.63	35.44
249.50	37.08	0.63	36.45
249.60	38.06	0.63	37.43
249.70	**39.01**	0.63	**38.38**

Stage-Area-Storage for Pond SWM-3: Cultec 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
244.00	**11,345**	0.0
244.10	11,345	453.8
244.20	11,345	907.6
244.30	11,345	1,361.4
244.40	11,345	1,815.2
244.50	11,345	2,269.0
244.60	11,345	2,722.8
244.70	11,345	3,176.6
244.80	11,345	3,869.0
244.90	11,345	4,801.5
245.00	11,345	5,735.4
245.10	11,345	6,663.7
245.20	11,345	7,589.5
245.30	11,345	8,511.4
245.40	11,345	9,432.6
245.50	11,345	10,351.7
245.60	11,345	11,265.0
245.70	11,345	12,172.6
245.80	11,345	13,078.8
245.90	11,345	13,983.8
246.00	11,345	14,883.1
246.10	11,345	15,776.5
246.20	11,345	16,667.5
246.30	11,345	17,553.9
246.40	11,345	18,435.6
246.50	11,345	19,315.0
246.60	11,345	20,188.5
246.70	11,345	21,059.6
246.80	11,345	21,925.4
246.90	11,345	22,782.6
247.00	11,345	23,637.1
247.10	11,345	24,482.8
247.20	11,345	25,320.4
247.30	11,345	26,151.3
247.40	11,345	26,971.1
247.50	11,345	27,781.0
247.60	11,345	28,578.9
247.70	11,345	29,362.9
247.80	11,345	30,134.2
247.90	11,345	30,888.3
248.00	11,345	31,624.5
248.10	11,345	32,342.7
248.20	11,345	33,039.2
248.30	11,345	33,710.3
248.40	11,345	34,344.4
248.50	11,345	34,929.4
248.60	11,345	35,461.0
248.70	11,345	35,951.2
248.80	11,345	36,413.0
248.90	11,345	36,866.8
249.00	11,345	37,320.6
249.10	11,345	37,774.4
249.20	11,345	38,228.2
249.30	11,345	38,682.0
249.40	11,345	39,135.8
249.50	11,345	39,589.6
249.60	11,345	40,043.4
249.70	11,345	**40,497.2**

Summary for Pond SWM-4: Cultec 4

Inflow Area = 251,626 sf, 80.19% Impervious, Inflow Depth = 7.17" for 100 yr event
Inflow = 43.61 cfs @ 12.10 hrs, Volume= 150,312.4 cf
Outflow = 27.34 cfs @ 12.19 hrs, Volume= 150,312.4 cf, Atten= 37%, Lag= 5.5 min
Discarded = 0.68 cfs @ 8.09 hrs, Volume= 59,330.8 cf
Primary = 26.65 cfs @ 12.19 hrs, Volume= 90,981.7 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 248.32' @ 12.21 hrs Surf.Area= 12,273 sf Storage= 41,967.8 cf

Plug-Flow detention time= 126.1 min calculated for 150,296.8 cf (100% of inflow)
Center-of-Mass det. time= 126.1 min (908.0 - 781.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	243.00'	17,644.6 cf	**63.25'W x 194.03'L x 5.75'H Field A** 70,567.5 cf Overall - 26,456.0 cf Embedded = 44,111.5 cf x 40.0% Voids
#2A	243.75'	26,456.0 cf	**Cultec R-902HD** x 408 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap 408 Chambers in 8 Rows Cap Storage= 2.8 cf x 2 x 8 rows = 44.2 cf
		44,100.6 cf	Total Available Storage

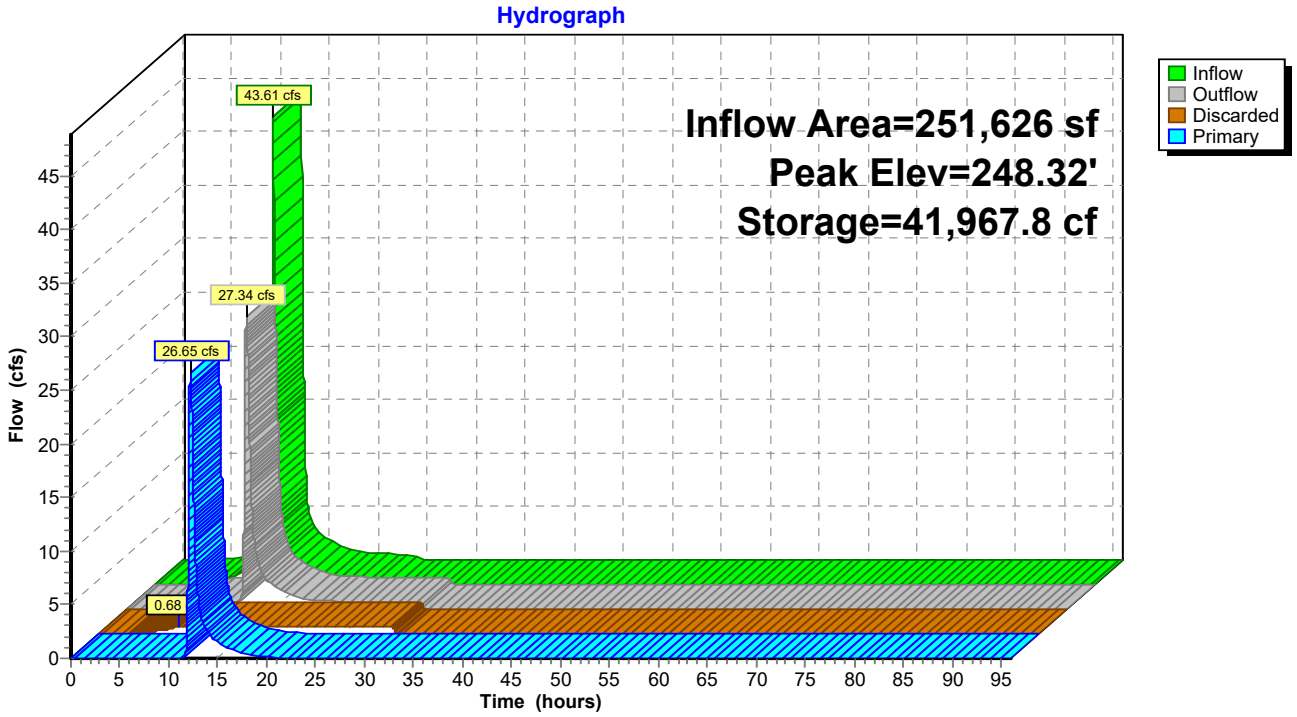
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	243.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	245.00'	**30.0" Round Culvert** L= 188.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 245.00' / 244.30' S= 0.0037 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

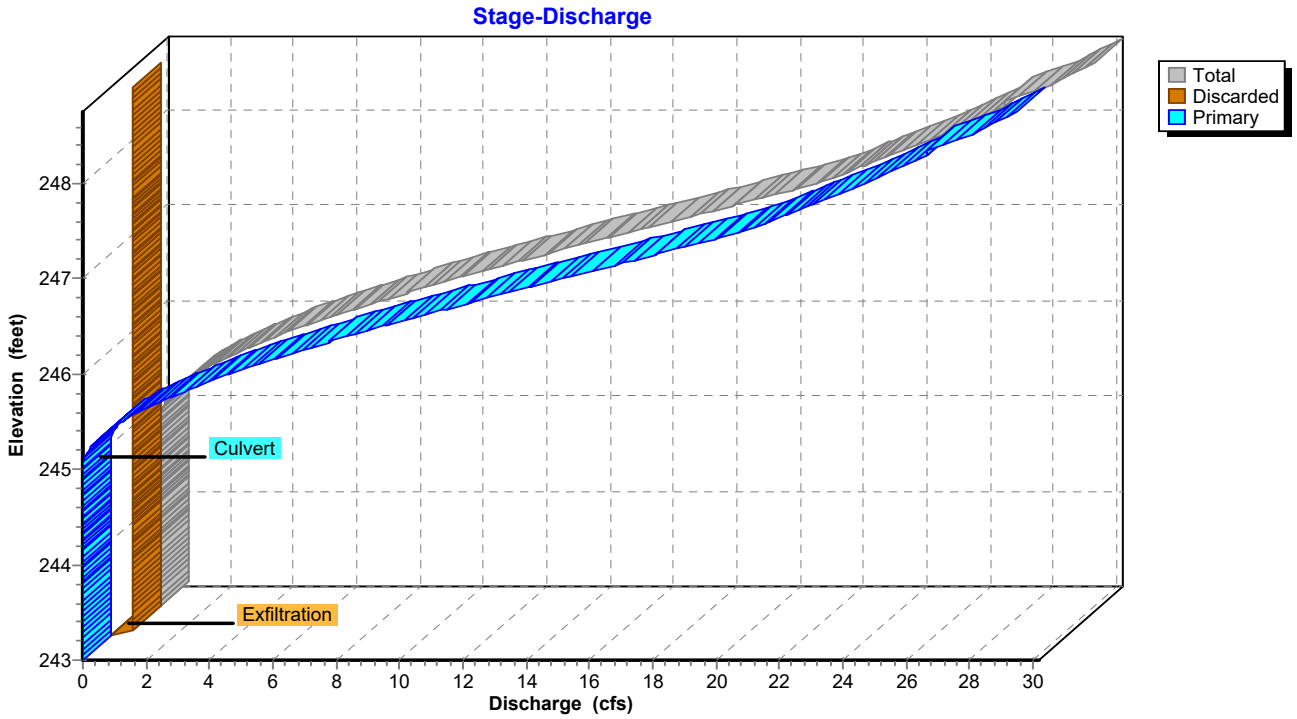
Discarded OutFlow Max=0.68 cfs @ 8.09 hrs HW=243.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.68 cfs)

Primary OutFlow Max=26.68 cfs @ 12.19 hrs HW=248.29' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 26.68 cfs @ 5.44 fps)

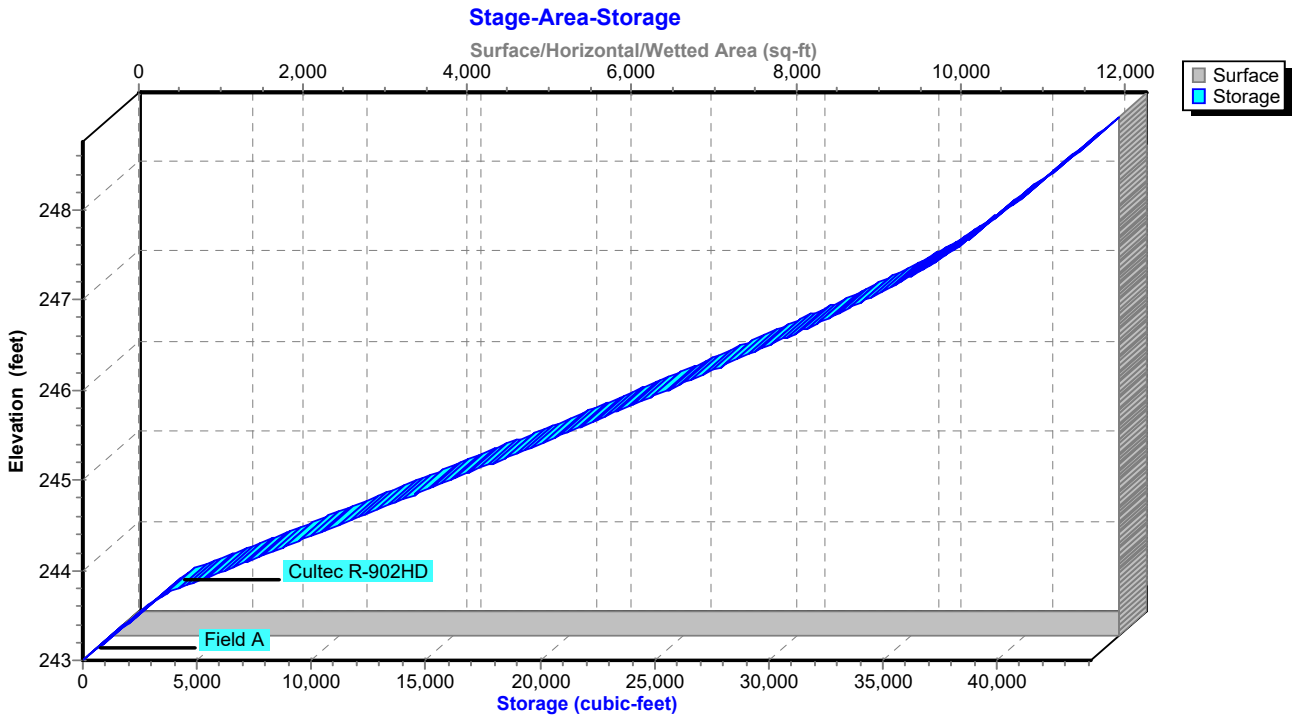
Pond SWM-4: Cultec 4



Pond SWM-4: Cultec 4



Pond SWM-4: Cultec 4



Hydrograph for Pond SWM-4: Cultec 4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	243.00	0.00	0.00	0.00
2.00	0.00	0.0	243.00	0.00	0.00	0.00
4.00	0.09	34.4	243.01	0.08	0.08	0.00
6.00	0.28	111.7	243.02	0.27	0.27	0.00
8.00	0.69	273.1	243.06	0.66	**0.66**	0.00
10.00	1.73	3,778.8	243.76	0.68	**0.68**	0.00
12.00	**25.49**	**30,013.2**	**246.49**	**10.08**	0.68	**9.40**
14.00	**2.54**	**22,855.7**	**245.70**	**3.09**	0.68	**2.41**
16.00	1.35	20,386.7	245.44	1.66	0.68	0.98
18.00	0.82	18,713.7	245.27	1.04	0.68	0.35
20.00	0.65	17,561.7	245.15	0.79	0.68	0.10
22.00	0.54	16,574.0	245.05	0.70	0.68	0.01
24.00	0.43	15,122.1	244.90	0.68	0.68	0.00
26.00	0.00	10,362.7	244.41	0.68	0.68	0.00
28.00	0.00	5,433.2	243.92	0.68	0.68	0.00
30.00	0.00	503.7	243.10	0.68	0.68	0.00
32.00	0.00	0.0	243.00	0.00	0.00	0.00
34.00	0.00	0.0	243.00	0.00	0.00	0.00
36.00	0.00	0.0	243.00	0.00	0.00	0.00
38.00	0.00	0.0	243.00	0.00	0.00	0.00
40.00	0.00	0.0	243.00	0.00	0.00	0.00
42.00	0.00	0.0	243.00	0.00	0.00	0.00
44.00	0.00	0.0	243.00	0.00	0.00	0.00
46.00	0.00	0.0	243.00	0.00	0.00	0.00
48.00	0.00	0.0	243.00	0.00	0.00	0.00
50.00	0.00	0.0	243.00	0.00	0.00	0.00
52.00	0.00	0.0	243.00	0.00	0.00	0.00
54.00	0.00	0.0	243.00	0.00	0.00	0.00
56.00	0.00	0.0	243.00	0.00	0.00	0.00
58.00	0.00	0.0	243.00	0.00	0.00	0.00
60.00	0.00	0.0	243.00	0.00	0.00	0.00
62.00	0.00	0.0	243.00	0.00	0.00	0.00
64.00	0.00	0.0	243.00	0.00	0.00	0.00
66.00	0.00	0.0	243.00	0.00	0.00	0.00
68.00	0.00	0.0	243.00	0.00	0.00	0.00
70.00	0.00	0.0	243.00	0.00	0.00	0.00
72.00	0.00	0.0	243.00	0.00	0.00	0.00
74.00	0.00	0.0	243.00	0.00	0.00	0.00
76.00	0.00	0.0	243.00	0.00	0.00	0.00
78.00	0.00	0.0	243.00	0.00	0.00	0.00
80.00	0.00	0.0	243.00	0.00	0.00	0.00
82.00	0.00	0.0	243.00	0.00	0.00	0.00
84.00	0.00	0.0	243.00	0.00	0.00	0.00
86.00	0.00	0.0	243.00	0.00	0.00	0.00
88.00	0.00	0.0	243.00	0.00	0.00	0.00
90.00	0.00	0.0	243.00	0.00	0.00	0.00
92.00	0.00	0.0	243.00	0.00	0.00	0.00
94.00	0.00	0.0	243.00	0.00	0.00	0.00
96.00	0.00	0.0	243.00	0.00	0.00	0.00

Stage-Discharge for Pond SWM-4: Cultec 4

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
243.00	0.00	**0.00**	0.00
243.10	0.68	**0.68**	0.00
243.20	0.68	0.68	0.00
243.30	0.68	0.68	0.00
243.40	0.68	0.68	0.00
243.50	0.68	0.68	0.00
243.60	0.68	0.68	0.00
243.70	0.68	0.68	0.00
243.80	0.68	0.68	0.00
243.90	0.68	0.68	0.00
244.00	0.68	0.68	0.00
244.10	0.68	0.68	0.00
244.20	0.68	0.68	0.00
244.30	0.68	0.68	0.00
244.40	0.68	0.68	0.00
244.50	0.68	0.68	0.00
244.60	0.68	0.68	0.00
244.70	0.68	0.68	0.00
244.80	0.68	0.68	0.00
244.90	0.68	0.68	0.00
245.00	0.68	0.68	0.00
245.10	0.73	0.68	0.04
245.20	0.87	0.68	0.19
245.30	1.12	0.68	0.44
245.40	1.47	0.68	0.79
245.50	1.92	0.68	1.23
245.60	2.45	0.68	1.76
245.70	3.06	0.68	2.38
245.80	3.75	0.68	3.06
245.90	4.50	0.68	3.82
246.00	5.32	0.68	4.64
246.10	6.20	0.68	5.51
246.20	7.13	0.68	6.44
246.30	8.10	0.68	7.42
246.40	9.12	0.68	8.44
246.50	10.18	0.68	9.49
246.60	11.26	0.68	10.58
246.70	12.37	0.68	11.69
246.80	13.51	0.68	12.83
246.90	14.66	0.68	13.98
247.00	15.82	0.68	15.14
247.10	16.99	0.68	16.30
247.20	18.15	0.68	17.47
247.30	19.31	0.68	18.62
247.40	20.45	0.68	19.76
247.50	21.55	0.68	20.86
247.60	22.37	0.68	21.68
247.70	23.15	0.68	22.47
247.80	23.92	0.68	23.23
247.90	24.65	0.68	23.97
248.00	25.37	0.68	24.68
248.10	26.06	0.68	25.38
248.20	26.74	0.68	26.06
248.30	27.40	0.68	26.72
248.40	27.78	0.68	27.09
248.50	28.61	0.68	27.93
248.60	29.29	0.68	28.60
248.70	**29.89**	0.68	**29.21**

Stage-Area-Storage for Pond SWM-4: Cultec 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
243.00	**12,273**	0.0
243.10	12,273	490.9
243.20	12,273	981.8
243.30	12,273	1,472.7
243.40	12,273	1,963.6
243.50	12,273	2,454.5
243.60	12,273	2,945.4
243.70	12,273	3,436.3
243.80	12,273	4,186.2
243.90	12,273	5,196.4
244.00	12,273	6,208.2
244.10	12,273	7,213.9
244.20	12,273	8,216.9
244.30	12,273	9,215.7
244.40	12,273	10,213.7
244.50	12,273	11,209.5
244.60	12,273	12,198.8
244.70	12,273	13,182.1
244.80	12,273	14,163.9
244.90	12,273	15,144.3
245.00	12,273	16,118.5
245.10	12,273	17,086.4
245.20	12,273	18,051.7
245.30	12,273	19,011.9
245.40	12,273	19,967.1
245.50	12,273	20,919.7
245.60	12,273	21,866.0
245.70	12,273	22,809.7
245.80	12,273	23,747.5
245.90	12,273	24,676.1
246.00	12,273	25,601.8
246.10	12,273	26,517.8
246.20	12,273	27,425.2
246.30	12,273	28,325.3
246.40	12,273	29,213.2
246.50	12,273	30,090.5
246.60	12,273	30,954.8
246.70	12,273	31,803.9
246.80	12,273	32,639.2
246.90	12,273	33,456.0
247.00	12,273	34,253.3
247.10	12,273	35,031.1
247.20	12,273	35,785.3
247.30	12,273	36,511.9
247.40	12,273	37,198.5
247.50	12,273	37,831.7
247.60	12,273	38,407.0
247.70	12,273	38,937.5
247.80	12,273	39,437.0
247.90	12,273	39,927.9
248.00	12,273	40,418.8
248.10	12,273	40,909.7
248.20	12,273	41,400.6
248.30	12,273	41,891.6
248.40	12,273	42,382.5
248.50	12,273	42,873.4
248.60	12,273	43,364.3
248.70	12,273	**43,855.2**

Summary for Pond SWM-6: Cultec 6

Inflow Area = 108,531 sf,100.00% Impervious, Inflow Depth = 8.56" for 100 yr event
Inflow = 22.31 cfs @ 12.07 hrs, Volume= 77,416.5 cf
Outflow = 20.64 cfs @ 12.10 hrs, Volume= 77,416.5 cf, Atten= 7%, Lag= 1.8 min
Discarded = 0.14 cfs @ 2.22 hrs, Volume= 14,587.9 cf
Primary = 20.50 cfs @ 12.10 hrs, Volume= 62,828.6 cf
Routed to Pond FP : Fire Pond Weir

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 259.44' @ 12.10 hrs Surf.Area= 2,584 sf Storage= 6,004.5 cf

Plug-Flow detention time= 50.3 min calculated for 77,416.5 cf (100% of inflow)
Center-of-Mass det. time= 50.3 min (789.4 - 739.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	255.50'	2,843.3 cf	**22.50'W x 114.83'L x 4.00'H Field A** 10,335.0 cf Overall - 3,226.8 cf Embedded = 7,108.2 cf x 40.0% Voids
#2A	256.00'	3,226.8 cf	**Cultec R-360HD** x 87 Inside #1 Effective Size= 54.9"W x 36.0"H => 9.99 sf x 3.67'L = 36.6 cf Overall Size= 60.0"W x 36.0"H x 4.17'L with 0.50' Overlap 87 Chambers in 3 Rows Cap Storage= 6.5 cf x 2 x 3 rows = 38.8 cf
		6,070.1 cf	Total Available Storage

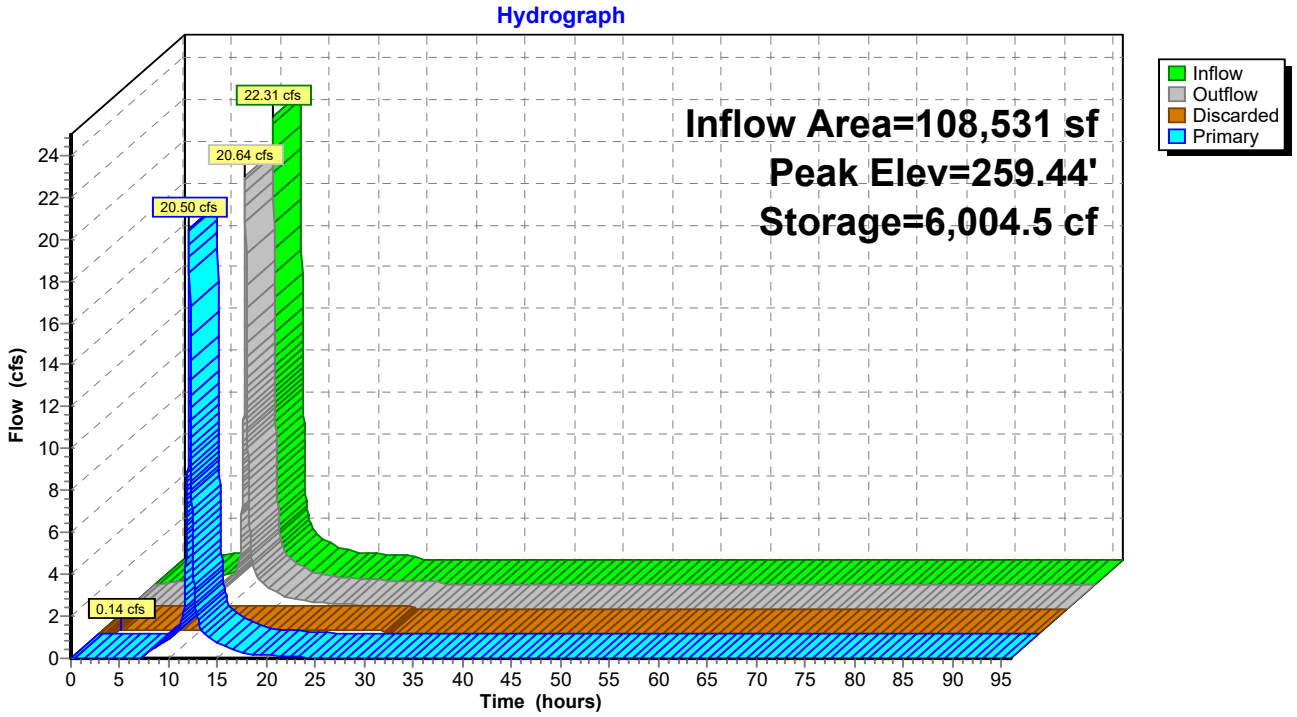
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	255.50'	**2.410 in/hr Exfiltration over Surface area**
#2	Device 3	257.10'	**12.0" Vert. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads
#3	Primary	257.10'	**36.0" Round Culvert** L= 39.0' Ke= 0.900 Inlet / Outlet Invert= 257.10' / 256.60' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

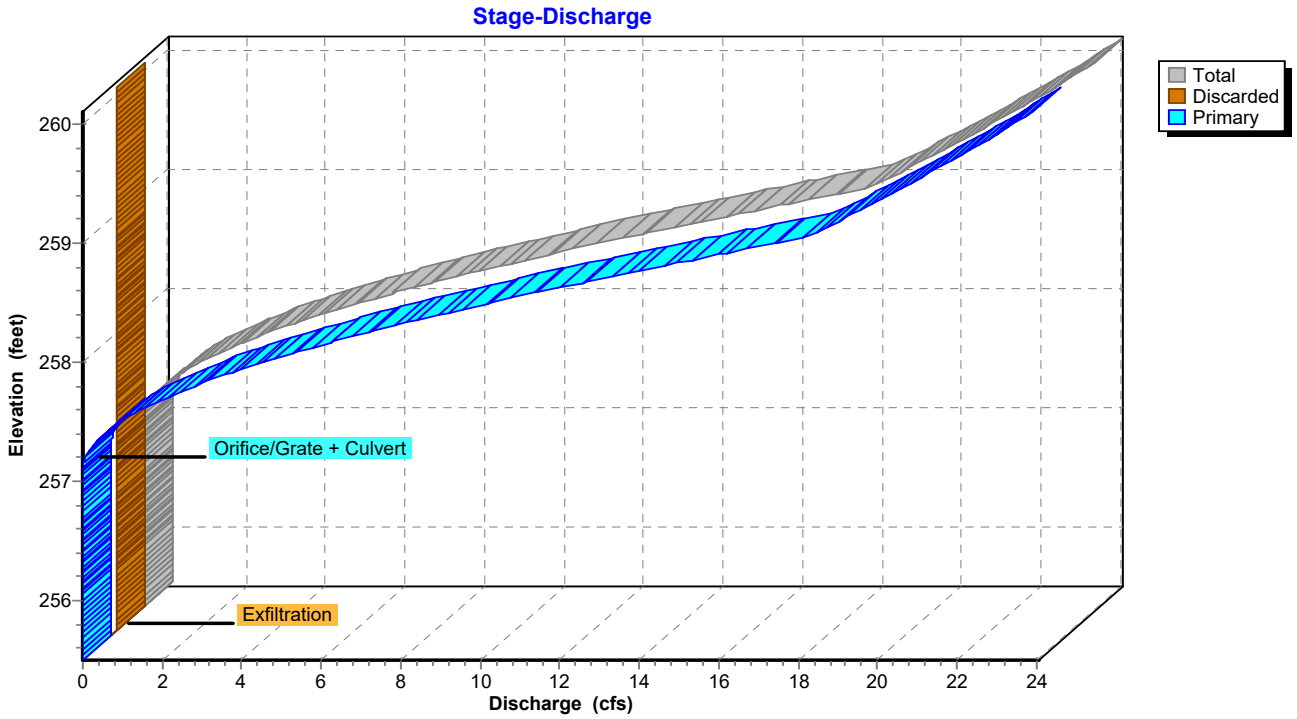
Discarded OutFlow Max=0.14 cfs @ 2.22 hrs HW=255.55' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=20.49 cfs @ 12.10 hrs HW=259.44' (Free Discharge)
↑**3=Culvert** (Passes 20.49 cfs of 24.25 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 20.49 cfs @ 6.52 fps)

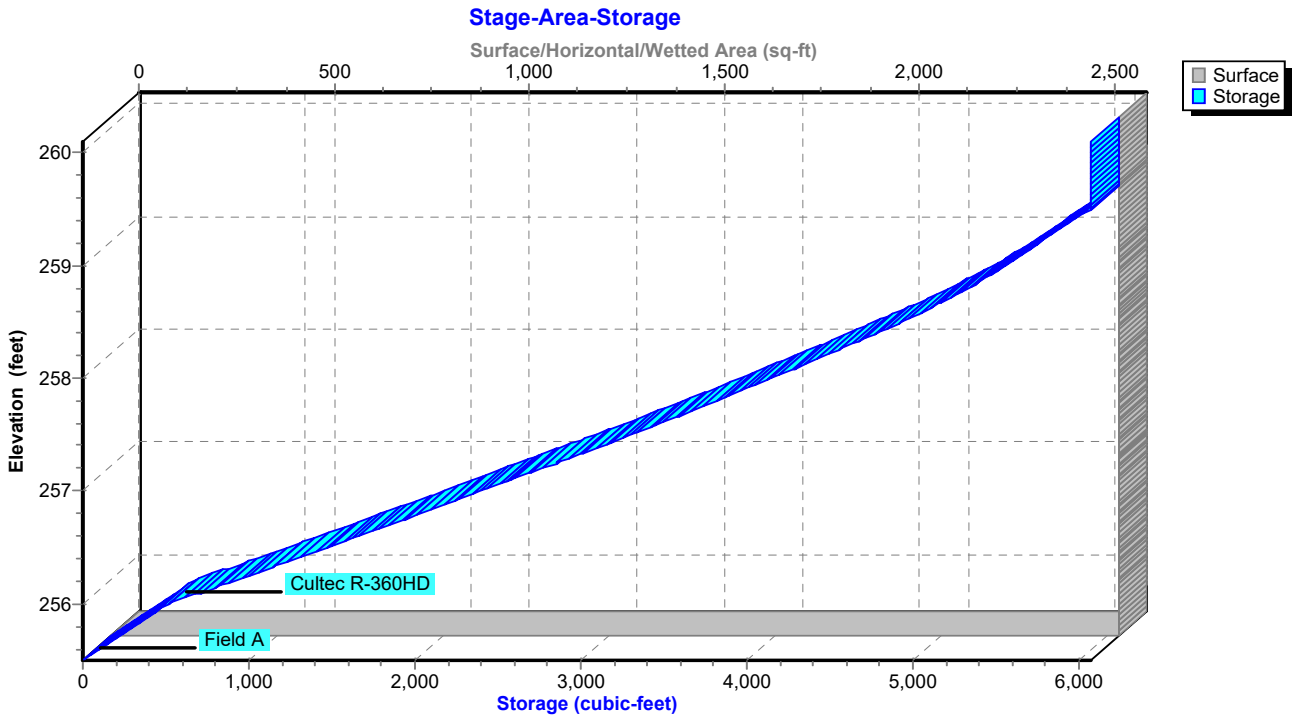
Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Pond SWM-6: Cultec 6



Hydrograph for Pond SWM-6: Cultec 6

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0.0	255.50	0.00	0.00	0.00
2.00	0.14	44.0	255.54	0.13	**0.13**	0.00
4.00	0.24	396.8	255.88	0.14	**0.14**	0.00
6.00	0.33	1,421.0	256.47	0.14	0.14	0.00
8.00	0.55	3,022.0	257.34	0.51	0.14	0.36
10.00	1.05	3,267.1	257.48	1.02	0.14	0.88
12.00	**15.09**	**5,123.9**	**258.64**	**12.34**	0.14	**12.20**
14.00	**1.12**	**3,325.1**	**257.52**	**1.18**	0.14	**1.03**
16.00	0.59	3,091.2	257.38	0.63	0.14	0.49
18.00	0.36	2,938.5	257.30	0.38	0.14	0.24
20.00	0.29	2,866.4	257.26	0.30	0.14	0.15
22.00	0.24	2,812.9	257.23	0.25	0.14	0.10
24.00	0.19	2,752.3	257.19	0.20	0.14	0.06
26.00	0.00	1,734.0	256.64	0.14	0.14	0.00
28.00	0.00	696.2	256.09	0.14	0.14	0.00
30.00	0.00	0.0	255.50	0.00	0.00	0.00
32.00	0.00	0.0	255.50	0.00	0.00	0.00
34.00	0.00	0.0	255.50	0.00	0.00	0.00
36.00	0.00	0.0	255.50	0.00	0.00	0.00
38.00	0.00	0.0	255.50	0.00	0.00	0.00
40.00	0.00	0.0	255.50	0.00	0.00	0.00
42.00	0.00	0.0	255.50	0.00	0.00	0.00
44.00	0.00	0.0	255.50	0.00	0.00	0.00
46.00	0.00	0.0	255.50	0.00	0.00	0.00
48.00	0.00	0.0	255.50	0.00	0.00	0.00
50.00	0.00	0.0	255.50	0.00	0.00	0.00
52.00	0.00	0.0	255.50	0.00	0.00	0.00
54.00	0.00	0.0	255.50	0.00	0.00	0.00
56.00	0.00	0.0	255.50	0.00	0.00	0.00
58.00	0.00	0.0	255.50	0.00	0.00	0.00
60.00	0.00	0.0	255.50	0.00	0.00	0.00
62.00	0.00	0.0	255.50	0.00	0.00	0.00
64.00	0.00	0.0	255.50	0.00	0.00	0.00
66.00	0.00	0.0	255.50	0.00	0.00	0.00
68.00	0.00	0.0	255.50	0.00	0.00	0.00
70.00	0.00	0.0	255.50	0.00	0.00	0.00
72.00	0.00	0.0	255.50	0.00	0.00	0.00
74.00	0.00	0.0	255.50	0.00	0.00	0.00
76.00	0.00	0.0	255.50	0.00	0.00	0.00
78.00	0.00	0.0	255.50	0.00	0.00	0.00
80.00	0.00	0.0	255.50	0.00	0.00	0.00
82.00	0.00	0.0	255.50	0.00	0.00	0.00
84.00	0.00	0.0	255.50	0.00	0.00	0.00
86.00	0.00	0.0	255.50	0.00	0.00	0.00
88.00	0.00	0.0	255.50	0.00	0.00	0.00
90.00	0.00	0.0	255.50	0.00	0.00	0.00
92.00	0.00	0.0	255.50	0.00	0.00	0.00
94.00	0.00	0.0	255.50	0.00	0.00	0.00
96.00	0.00	0.0	255.50	0.00	0.00	0.00

Stage-Discharge for Pond SWM-6: Cultec 6

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
255.50	0.00	**0.00**	0.00
255.55	0.14	**0.14**	0.00
255.60	0.14	0.14	0.00
255.65	0.14	0.14	0.00
255.70	0.14	0.14	0.00
255.75	0.14	0.14	0.00
255.80	0.14	0.14	0.00
255.85	0.14	0.14	0.00
255.90	0.14	0.14	0.00
255.95	0.14	0.14	0.00
256.00	0.14	0.14	0.00
256.05	0.14	0.14	0.00
256.10	0.14	0.14	0.00
256.15	0.14	0.14	0.00
256.20	0.14	0.14	0.00
256.25	0.14	0.14	0.00
256.30	0.14	0.14	0.00
256.35	0.14	0.14	0.00
256.40	0.14	0.14	0.00
256.45	0.14	0.14	0.00
256.50	0.14	0.14	0.00
256.55	0.14	0.14	0.00
256.60	0.14	0.14	0.00
256.65	0.14	0.14	0.00
256.70	0.14	0.14	0.00
256.75	0.14	0.14	0.00
256.80	0.14	0.14	0.00
256.85	0.14	0.14	0.00
256.90	0.14	0.14	0.00
256.95	0.14	0.14	0.00
257.00	0.14	0.14	0.00
257.05	0.14	0.14	0.00
257.10	0.14	0.14	0.00
257.15	0.16	0.14	0.02
257.20	0.21	0.14	0.06
257.25	0.28	0.14	0.14
257.30	0.39	0.14	0.24
257.35	0.52	0.14	0.38
257.40	0.69	0.14	0.54
257.45	0.88	0.14	0.73
257.50	1.10	0.14	0.95
257.55	1.34	0.14	1.20
257.60	1.62	0.14	1.47
257.65	1.91	0.14	1.77
257.70	2.24	0.14	2.10
257.75	2.59	0.14	2.44
257.80	2.96	0.14	2.82
257.85	3.36	0.14	3.22
257.90	3.78	0.14	3.64
257.95	4.23	0.14	4.08
258.00	4.69	0.14	4.55
258.05	5.18	0.14	5.04
258.10	5.69	0.14	5.54
258.15	6.22	0.14	6.07
258.20	6.77	0.14	6.62
258.25	7.33	0.14	7.19
258.30	7.92	0.14	7.77
258.35	8.52	0.14	8.38
258.40	9.14	0.14	9.00
258.45	9.78	0.14	9.63
258.50	10.43	0.14	10.29
258.55	11.10	0.14	10.95
258.60	11.78	0.14	11.63
258.65	12.47	0.14	12.33
258.70	13.18	0.14	13.04
258.75	13.90	0.14	13.75
258.80	14.63	0.14	14.48
258.85	15.37	0.14	15.22
258.90	16.11	0.14	15.97
258.95	16.87	0.14	16.72
259.00	17.63	0.14	17.49
259.05	18.36	0.14	18.21
259.10	18.67	0.14	18.53
259.15	18.98	0.14	18.83
259.20	19.28	0.14	19.13
259.25	19.57	0.14	19.43
259.30	19.87	0.14	19.72
259.35	20.15	0.14	20.01
259.40	20.44	0.14	20.29
259.45	20.72	0.14	20.57
259.50	20.99	0.14	20.85
259.55	21.27	0.14	21.12
259.60	21.54	0.14	21.39
259.65	21.80	0.14	21.66
259.70	22.06	0.14	21.92
259.75	22.32	0.14	22.18
259.80	22.58	0.14	22.44
259.85	22.83	0.14	22.69
259.90	23.08	0.14	22.94
259.95	23.33	0.14	23.19
260.00	23.58	0.14	23.43
260.05	23.82	0.14	23.68
260.10	**24.06**	0.14	**23.92**

Stage-Area-Storage for Pond SWM-6: Cultec 6

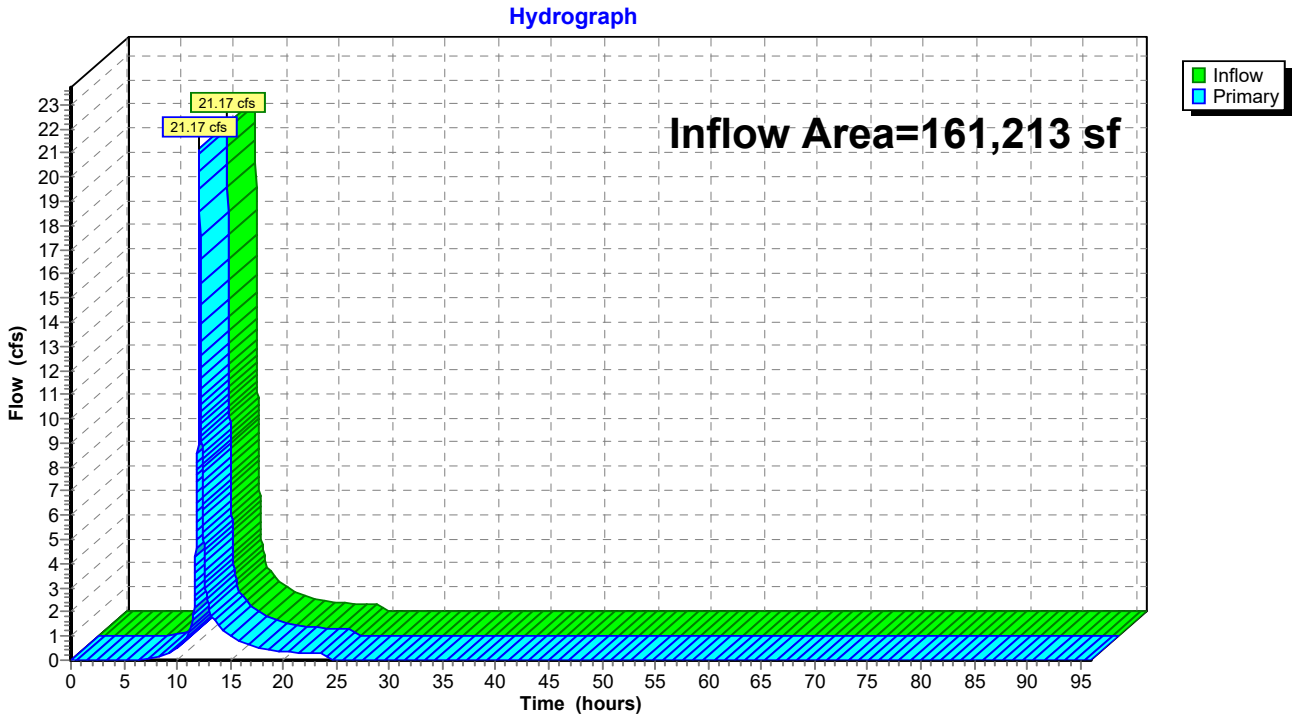
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
255.50	**2,584**	0.0
255.55	2,584	51.7
255.60	2,584	103.3
255.65	2,584	155.0
255.70	2,584	206.7
255.75	2,584	258.4
255.80	2,584	310.1
255.85	2,584	361.7
255.90	2,584	413.4
255.95	2,584	465.1
256.00	2,584	516.7
256.05	2,584	612.7
256.10	2,584	708.5
256.15	2,584	804.2
256.20	2,584	899.8
256.25	2,584	995.1
256.30	2,584	1,090.3
256.35	2,584	1,185.3
256.40	2,584	1,280.1
256.45	2,584	1,374.7
256.50	2,584	1,469.0
256.55	2,584	1,563.2
256.60	2,584	1,657.1
256.65	2,584	1,750.8
256.70	2,584	1,844.2
256.75	2,584	1,937.4
256.80	2,584	2,030.3
256.85	2,584	2,122.9
256.90	2,584	2,215.3
256.95	2,584	2,307.3
257.00	2,584	2,399.0
257.05	2,584	2,490.4
257.10	2,584	2,581.4
257.15	2,584	2,672.2
257.20	2,584	2,762.5
257.25	2,584	2,852.5
257.30	2,584	2,942.1
257.35	2,584	3,031.3
257.40	2,584	3,120.0
257.45	2,584	3,208.4
257.50	2,584	3,296.3
257.55	2,584	3,383.8
257.60	2,584	3,470.8
257.65	2,584	3,557.3
257.70	2,584	3,643.3
257.75	2,584	3,728.7
257.80	2,584	3,813.6
257.85	2,584	3,897.9
257.90	2,584	3,981.6
257.95	2,584	4,064.8
258.00	2,584	4,147.2
258.05	2,584	4,229.0
258.10	2,584	4,310.0
258.15	2,584	4,390.3
258.20	2,584	4,469.7
258.25	2,584	4,548.2
258.30	2,584	4,625.9
258.35	2,584	4,702.5
258.40	2,584	4,778.1
258.45	2,584	4,852.6
258.50	2,584	4,925.8
258.55	2,584	4,997.8
258.60	2,584	5,068.2
258.65	2,584	5,136.8
258.70	2,584	5,203.4
258.75	2,584	5,267.3
258.80	2,584	5,328.5
258.85	2,584	5,387.3
258.90	2,584	5,444.3
258.95	2,584	5,499.7
259.00	2,584	5,553.4
259.05	2,584	5,605.0
259.10	2,584	5,656.7
259.15	2,584	5,708.4
259.20	2,584	5,760.1
259.25	2,584	5,811.7
259.30	2,584	5,863.4
259.35	2,584	5,915.1
259.40	2,584	5,966.8
259.45	2,584	6,018.4
259.50	2,584	**6,070.1**
259.55	2,584	6,070.1
259.60	2,584	6,070.1
259.65	2,584	6,070.1
259.70	2,584	6,070.1
259.75	2,584	6,070.1
259.80	2,584	6,070.1
259.85	2,584	6,070.1
259.90	2,584	6,070.1
259.95	2,584	6,070.1
260.00	2,584	6,070.1
260.05	2,584	6,070.1
260.10	2,584	6,070.1

Summary for Link POA A: POND- WEST

Inflow Area = 161,213 sf, 51.37% Impervious, Inflow Depth = 5.06" for 100 yr event
Inflow = 21.17 cfs @ 12.09 hrs, Volume= 68,042.2 cf
Primary = 21.17 cfs @ 12.09 hrs, Volume= 68,042.2 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA A: POND- WEST



Hydrograph for Link POA A: POND- WEST

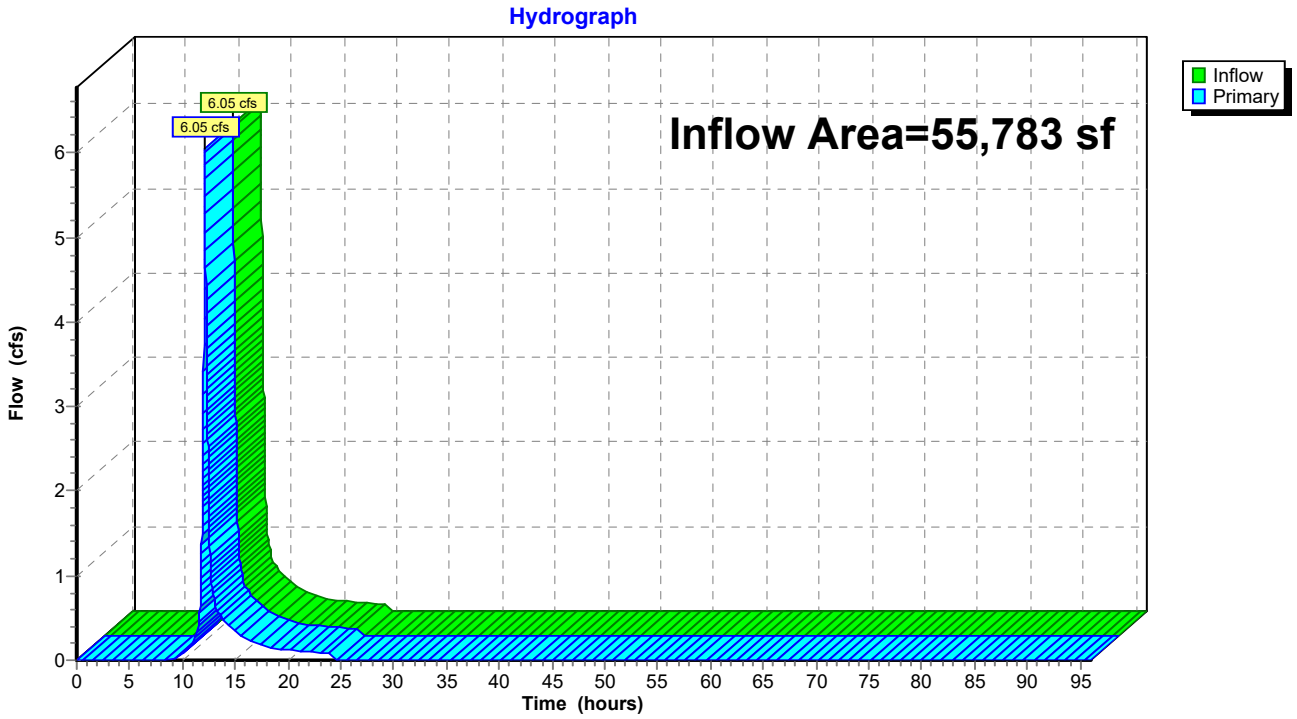
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.04	0.00	0.04	59.00	0.00	0.00	0.00
8.00	0.11	0.00	0.11	60.00	0.00	0.00	0.00
9.00	0.27	0.00	0.27	61.00	0.00	0.00	0.00
10.00	0.51	0.00	0.51	62.00	0.00	0.00	0.00
11.00	0.99	0.00	0.99	63.00	0.00	0.00	0.00
12.00	**11.98**	0.00	**11.98**	64.00	0.00	0.00	0.00
13.00	**2.11**	0.00	**2.11**	65.00	0.00	0.00	0.00
14.00	1.35	0.00	1.35	66.00	0.00	0.00	0.00
15.00	1.03	0.00	1.03	67.00	0.00	0.00	0.00
16.00	0.73	0.00	0.73	68.00	0.00	0.00	0.00
17.00	0.58	0.00	0.58	69.00	0.00	0.00	0.00
18.00	0.45	0.00	0.45	70.00	0.00	0.00	0.00
19.00	0.40	0.00	0.40	71.00	0.00	0.00	0.00
20.00	0.36	0.00	0.36	72.00	0.00	0.00	0.00
21.00	0.33	0.00	0.33	73.00	0.00	0.00	0.00
22.00	0.30	0.00	0.30	74.00	0.00	0.00	0.00
23.00	0.27	0.00	0.27	75.00	0.00	0.00	0.00
24.00	0.24	0.00	0.24	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA C: WETLAND-WEST

Inflow Area = 55,783 sf, 42.91% Impervious, Inflow Depth = 4.43" for 100 yr event
Inflow = 6.05 cfs @ 12.13 hrs, Volume= 20,588.5 cf
Primary = 6.05 cfs @ 12.13 hrs, Volume= 20,588.5 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA C: WETLAND-WEST



Hydrograph for Link POA C: WETLAND-WEST

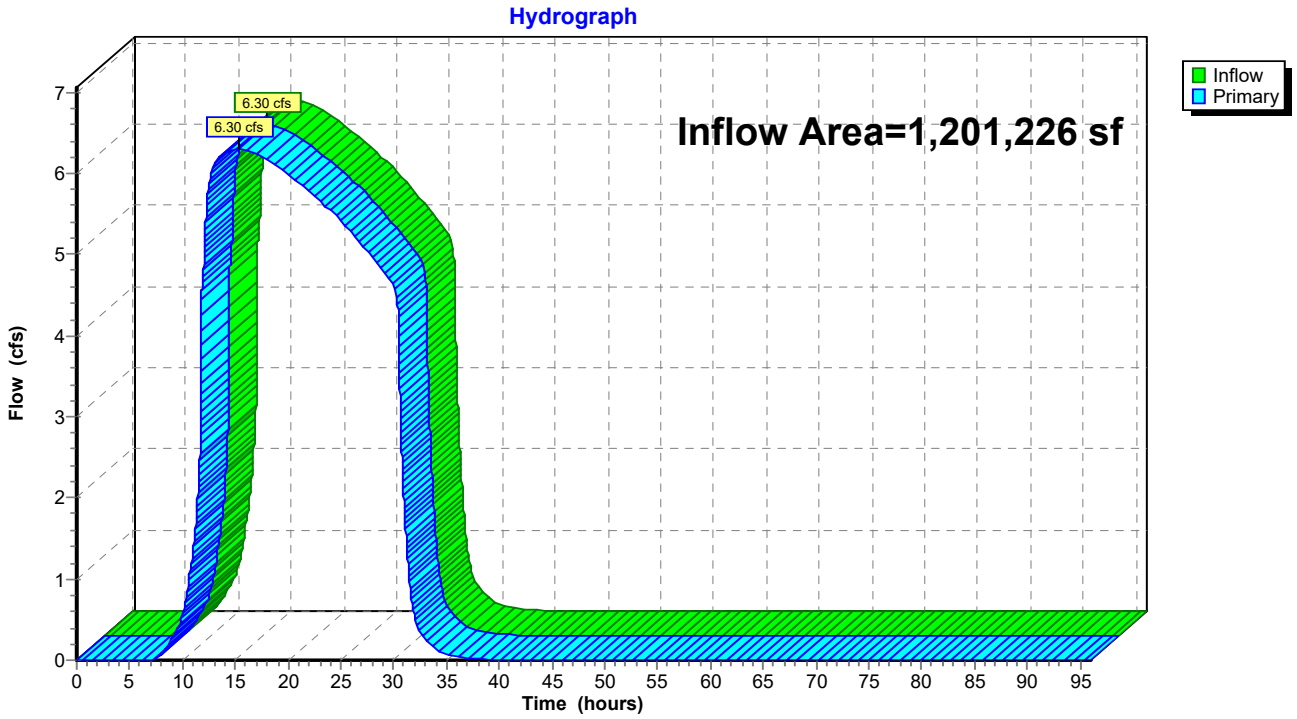
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.02	0.00	0.02	61.00	0.00	0.00	0.00
10.00	0.08	0.00	0.08	62.00	0.00	0.00	0.00
11.00	0.22	0.00	0.22	63.00	0.00	0.00	0.00
12.00	**2.92**	0.00	**2.92**	64.00	0.00	0.00	0.00
13.00	**0.72**	0.00	**0.72**	65.00	0.00	0.00	0.00
14.00	0.45	0.00	0.45	66.00	0.00	0.00	0.00
15.00	0.35	0.00	0.35	67.00	0.00	0.00	0.00
16.00	0.25	0.00	0.25	68.00	0.00	0.00	0.00
17.00	0.20	0.00	0.20	69.00	0.00	0.00	0.00
18.00	0.15	0.00	0.15	70.00	0.00	0.00	0.00
19.00	0.13	0.00	0.13	71.00	0.00	0.00	0.00
20.00	0.12	0.00	0.12	72.00	0.00	0.00	0.00
21.00	0.11	0.00	0.11	73.00	0.00	0.00	0.00
22.00	0.10	0.00	0.10	74.00	0.00	0.00	0.00
23.00	0.09	0.00	0.09	75.00	0.00	0.00	0.00
24.00	0.08	0.00	0.08	76.00	0.00	0.00	0.00
25.00	0.00	0.00	0.00	77.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00	78.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00	80.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00	81.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	82.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00	83.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00	84.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00	85.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00	89.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00	90.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link POA D: WETLAND-NORTH

Inflow Area = 1,201,226 sf, 68.04% Impervious, Inflow Depth = 4.04" for 100 yr event
Inflow = 6.30 cfs @ 15.32 hrs, Volume= 404,325.0 cf
Primary = 6.30 cfs @ 15.32 hrs, Volume= 404,325.0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA D: WETLAND-NORTH



Hydrograph for Link POA D: WETLAND-NORTH

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.07	0.00	0.07	60.00	0.00	0.00	0.00
9.00	0.27	0.00	0.27	61.00	0.00	0.00	0.00
10.00	0.57	0.00	0.57	62.00	0.00	0.00	0.00
11.00	1.34	0.00	1.34	63.00	0.00	0.00	0.00
12.00	4.77	0.00	4.77	64.00	0.00	0.00	0.00
13.00	6.11	0.00	6.11	65.00	0.00	0.00	0.00
14.00	6.25	0.00	6.25	66.00	0.00	0.00	0.00
15.00	**6.30**	0.00	**6.30**	67.00	0.00	0.00	0.00
16.00	**6.29**	0.00	**6.29**	68.00	0.00	0.00	0.00
17.00	6.24	0.00	6.24	69.00	0.00	0.00	0.00
18.00	6.17	0.00	6.17	70.00	0.00	0.00	0.00
19.00	6.09	0.00	6.09	71.00	0.00	0.00	0.00
20.00	5.99	0.00	5.99	72.00	0.00	0.00	0.00
21.00	5.89	0.00	5.89	73.00	0.00	0.00	0.00
22.00	5.78	0.00	5.78	74.00	0.00	0.00	0.00
23.00	5.66	0.00	5.66	75.00	0.00	0.00	0.00
24.00	5.54	0.00	5.54	76.00	0.00	0.00	0.00
25.00	5.41	0.00	5.41	77.00	0.00	0.00	0.00
26.00	5.26	0.00	5.26	78.00	0.00	0.00	0.00
27.00	5.11	0.00	5.11	79.00	0.00	0.00	0.00
28.00	4.95	0.00	4.95	80.00	0.00	0.00	0.00
29.00	4.79	0.00	4.79	81.00	0.00	0.00	0.00
30.00	4.61	0.00	4.61	82.00	0.00	0.00	0.00
31.00	1.86	0.00	1.86	83.00	0.00	0.00	0.00
32.00	0.52	0.00	0.52	84.00	0.00	0.00	0.00
33.00	0.26	0.00	0.26	85.00	0.00	0.00	0.00
34.00	0.14	0.00	0.14	86.00	0.00	0.00	0.00
35.00	0.08	0.00	0.08	87.00	0.00	0.00	0.00
36.00	0.04	0.00	0.04	88.00	0.00	0.00	0.00
37.00	0.02	0.00	0.02	89.00	0.00	0.00	0.00
38.00	0.01	0.00	0.01	90.00	0.00	0.00	0.00
39.00	0.01	0.00	0.01	91.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	92.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00	93.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00	95.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00	96.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

APPENDIX B – HYDRAULIC CALCULATIONS

RAIN GARDEN SIZING CALCULATIONS

This analysis is to evaluate sizing criteria of all proposed rain gardens according to "Volume 2 Chapter 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook." The proposed rain gardens will receive surface runoff prior to discharge to downstream infiltration BMPs.

Raingarden #1 (RG#1):

Tributary Impervious Area	=34,446 ft^2
Rain Garden Volume Required	= 1.0 inches per impervious acre
	= (34,446 ft^2) x (1 ft/12 inches) x (1 inch)
	= 2,870.50 ft^3
Raingarden 1 Volume Provided	= Volume below overflow grate elevation 249.85 ft
	= **3,031.10 ft^3 > 2870.50 ft^3**

Raingarden #2 (RG#2):

Tributary Impervious Area	=25,487 ft^2
Rain Garden Volume Required	= 1.0 inches per impervious acre
	= (25,487 ft^2) x (1 ft/12 inches) x (1 inch)
	= 2,123.92 ft^3
Raingarden 2 Volume Provided	= Volume below overflow grate elevation 249.85 ft
	= **2,250.10 ft^3 > 2,123.92 ft^3**

RAIN GARDEN INFILTRATION RATE CALCULATIONS

Constant Flow Rate: Q = V*A

where Q = Flow Rate (cfs)

V = Velocity (Rawls Rates - in/hr)
= (2.41 in/hr) * (1 ft/12 in)*(1 hr/60 min)*(1 min/60 sec)
= 0.0000557 ft/sec

A = Infiltration surface area (ft^2)

Raingarden #1 (RG #1):

V = 0.0000557 ft/hr

A = 1,119 ft^2

Q = (0.0000557 ft/sec) * (1,119 ft^2)
= **0.062 cfs**

Raingarden #2 (RG #2):

V = 0.0000557 ft/hr

A = 995 ft^2

Q = (0.0000557 ft/sec) * (995 ft^2)
= **0.055 cfs**

SEDIMENT FOREBAY SIZING CALCULATIONS

This analysis is to evaluate sizing criteria of all proposed sediment forebays according to "Volume 2 Chapter 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook." The proposed sediment forebay will receive surface runoff prior to discharge to downstream infiltration BMPs.

Forebay #1:

Tributary Impervious Area	= 34,446 ft^2
Forebay Volume Required	= 0.1 inches per impervious acre
	= (34,446 ft^2) x (1 ac/43,560 ft^2) x (0.1/12)
	= 0.0065 ac-ft
	= 283.15 ft^3
	= **284 ft^3**
Forebay 1 Volume Provided	= Volume below spillway elevation 250.50 ft
	= **396 ft^3 > 284 ft^3**

Forebay #2:

Tributary Impervious Area	= 14,135 ft^2
Forebay Volume Required	= 0.1 inches per impervious acre
	= (14,135 ft^2) x (1 ac/43,560 ft^2) x (0.1/12)
	= 0.0027 ac-ft
	= 117.61 ft^3
	= 118 ft^3
Forebay 1 Volume Provided	= Volume below spillway elevation 250.50 ft
	= **197 ft^3 > 118 ft^3**

Forebay #3:

Tributary Impervious Area	= 10,409 ft^2
Forebay Volume Required	= 0.1 inches per impervious acre
	= (10,409 ft^2) x (1 ac/43,560 ft^2) x (0.1/12)
	= 0.0019 ac-ft
	= 82.76 ft^3
	= **83 ft^3**
Forebay 1 Volume Provided	= Volume below spillway elevation 250.50 ft
	= **201 ft^3 > 83 ft^3**

ISOLATOR ROW SIZING CALCULATIONS

This analysis is to evaluate sizing criteria of all proposed Isolator Rows according to "Volume 2 Chapter 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook." The proposed isolator rows will receive surface runoff prior to discharge to downstream infiltration BMPs.

Isolator Row #1 providing treatment to SWM-4:

Tributary Impervious Area	= 20,670 ft^2
Forebay Volume Required	= 0.1 inches per impervious acre
	= (20,670 ft^2) x (0.1/12)
	= 172.25 ft^3
Forebay 1 Volume Provided	= Volume below invert 246.00 ft
	= **198.20 ft^3 >172.25 ft^3**

Isolator Row #2 providing treatment to SWM-3:

Tributary Impervious Area	= 208,676 ft^2
Forebay Volume Required	= 0.1 inches per impervious acre
	= (208,676ft^2) x (0.1/12)
	= 1,738.96 ft^3
Forebay 1 Volume Provided	= Volume below invert 245.97 ft
	= **1,745.00 ft^3 >1,738.96 ft^3**

GROUNDWATER RECHARGE CALCULATIONS

Review of the United States Department of Agricultural (USDA) Natural Resources Conservation Service (NRCS) indicates that the parent soils within the limit of Watersheds PR-A, PR-C, PR-D1, PR-D2, PR-D3, PR-D4, PR-D5, PR-D6, and PR-D7 comprising of many different soil types all of which are Hydrologic Soil Group A, refer to the Soils Map included in the Figures portion of this report.

The Massachusetts Stormwater Handbook determines the required recharge volume using a calculation of 0.60 inches of runoff for "A" soils multiplied by the total contributing impervious cover of the watersheds. Watersheds PR-D1 PR-D2, and PR-D3 comprise of impervious surface parking areas, access driveways, walkways, landscaped areas and roofs. PR-A, PR-C, PR-D5, PR-6 and PR-7 comprise of all the same excluding roof areas, where as, PR-D8 consists of only roof area. Runoff from these watersheds flow to overland to a combination of catch basin and surface drainage before reaching various BMP's including four (4) sub-surface infiltration systems and two (2) surface rain gardens.

A design infiltration rate of 2.41 inches per hour was conservatively used for the analysis based on the results of on-site soil testing performed on March 16, 2023.
The total impervious cover of Watersheds PR-A, PR-C, PR-D1, PR-D2, PR-D3, PR-D4, PR-D5, PR-D6, PR-D7 and PR-D8 is 924,105 ft², therefore:

Mass DEP Requirement

Required Recharge Volume = 0.60 inches x Total Impervious Area for "A" soils
= 0.60 inches x 924,105 ft² x (1/12 in/ft) = 46,205.25 ft³

Total Required Recharge Volume for Overall Project = 46,206 ft³

Recharge to Groundwater Provided

The required recharge volume is provided within the three (3) Cultec R902HD subsurface infiltration system, two (2) Cultec R902HD isolator rows, one (1) Cultec 360HD subsurface infiltration system, and two (2) surface infiltrating rain gardens

- SWM-2 consists of Cultec R902HD chambers having a bottom of chamber elevation of 250.25 and an invert out of 252.50. The **Volume Provided in SWM-2 = 35,899.5 ft³**
- SWM-3 consists of Cultec R902HD chambers having a bottom of chamber elevation of 244.75 and an invert out of 246.16. The **Volume Provided in SWM-3 = 16,311.30 ft³**
- SWM-4 consists of Cultec R902HD chambers having a bottom of chamber elevation of 243.75 and an invert out of 245.00. The **Volume Provided in SWM-4 = 16,118 ft³**
- SWM-6 consists of Cultec R360HD chambers having a bottom of chamber elevation of 256.00 and an invert out of 257.10. The **Volume Provided in SWM-6 = 2,581 ft³**
- RG #1 consists of surface stormwater storage, sub-surface soil media designed to filter and store stormwater, a 12" perforated underdrain and an overflow grate at elevation 249.85.
  The **Volume Provided in RG#1 = 3,031 ft³**
- RG #1 consists of surface stormwater storage, sub-surface soil media designed to filter and store stormwater, a 12" perforated underdrain and an overflow grate at elevation 249.85
  The **Volume Provided in RG#2 = 2,250 ft³**
- Isolator Row #1 (ISO-1) consists of 3 Cultec R902HD chambers having a bottom of chamber elevation of 243.75 and an invert in of 246.00. The **Volume provided in ISO-1 = 198.20 ft³.**
- Isolator Row #1 (ISO-1) consists of 3 Cultec R902HD chambers having a bottom of chamber elevation of 244.75 and an invert in of 245.97. The **Volume provided in ISO-1 = 1,745.00 ft³.**

The total recharge volume provided exceeds the minimum recharge requirement for "A" soils.

Total Recharge Volume Provided = 78,134.00 ft³
= 78,134 ft³ > 46,206 ft³

CONVERTING REQUIRED WATER QUALITY VOLUME (WQV) TO A DISCHARGE RATE (Q)

WQU #1 – CASCADE CS-4

The proposed Water Quality Unit #1 (WQU #1) will treat runoff from sub catchment areas 2,5, 11, 12 and 18. Prior to discharging into the detention pond, the required WQV of 1.0" for the contributing impervious area will utilize the Cascade CS-4 water quality unit (WQU #1) for pretreatment. The total impervious area to be pretreated is 71,447 sf.

Since manufactured proprietary stormwater separators are designed with respect to discharge rates and not volume, MassDEP requires a standardized method be used to convert the required WQV to a discharge rate (Q).

Mass DEP Requirement

Q = (qu)(A)(WQV), where;

Q = Peak Flow associated with first 1" of runoff, cfs
qu = Unit Peak Discharge = 774 csm/in
Tc = Time of Concentration = 6.0 min = 0.1 hours
A = Impervious Surface Drainage Area = 0.00256 mi²
WQV = 1"

Q = (774 csm/in)(0.00256 mi²)(1")

Q =1.98 cfs

WQU #3 – CONTECH CDS2015-5-C

The proposed Water Quality Unit #3 (WQU #3) will treat runoff from subcatchment areas 14,15 and 17. Prior to discharging into subsurface system #4, the required WQV of 1.0" for the contributing impervious area will utilize the Contech CDS2015-4-C water quality unit (WQU #3) for pretreatment. The total impervious area to be pretreated is 39,565 sf.

Since manufactured proprietary stormwater separators are designed with respect to discharge rates and not volume, MassDEP requires a standardized method be used to convert the required WQV to a discharge rate (Q).

Mass DEP Requirement

Q = (qu)(A)(WQV), where;

Q = Peak Flow associated with first 1" of runoff, cfs
qu = Unit Peak Discharge = 774 csm/in
Tc = Time of Concentration = 6.0 min = 0.1 hours
A = Impervious Surface Drainage Area = 0.00141 mi²
WQV = 1"

Q = (774 csm/in)(0.00141 mi²)(1")

Q =1.10 cfs

WQU #7 – SCICLONE-X SCX-6

The proposed Water Quality Unit #7 (WQU #7) will treat runoff from subcatchment area 20. Prior to discharging the North Detention Pond, the required WQV of 1.0" for the contributing impervious area will utilize the Contech CDS2015-4 water quality unit (WQU #7) for pretreatment. The total impervious area to be pretreated is 21,352 sf.

Since manufactured proprietary stormwater separators are designed with respect to discharge rates and not volume, MassDEP requires a standardized method be used to convert the required WQV to a discharge rate (Q).

Mass DEP Requirement

Q = (qu)(A)(WQV), where;

Q = Peak Flow associated with first 1" of runoff, cfs
qu = Unit Peak Discharge = 774 csm/in
Tc = Time of Concentration = 6.0 min = 0.1 hours
A = Impervious Surface Drainage Area = 0.00465 mi^2
WQV = 1"

Q = (774 csm/in)(0.00465 mi^2)(1")

Q =3.61 cfs

WATER QUALITY VOLUME CALCULATIONS

This analysis is to evaluate water quality volume criteria according to "Volume 1 Chapter 1: Stormwater Management Standards." The Project utilizes three (3) Cultec R902HD sub-surface infiltration systems, two (2) Cultec R902HD Isolator rows, one (1) Cultec360HD subsurface infiltration system, two (2) surface infiltrating rain gardens, one (1) SciClone X SCX-6 water quality unit and one (1) Cascade CS-4 water quality unit to achieve the required water quality volume.

Water Quality Volume Required:

Total Impervious Area	= 924,105 ft^2
Water Quality Volume Requirement	= 1 inch over the total impervious area = 924,105 ft^2 x (1in/12ft) = **77,008.75 ft^3** = **77,009 ft^3**

Water Quality Volume Provided in Infiltration BMPs:

SWM-2: Cultec R902HD	
Tributary Area=141,868 ft^2	Volume below elevation 252.50
141,868 ft^2 x (1in/12ft)	= **35,899.5 ft^3** [Source: HydroCAD]
WQV Required = 11,822.33 ft^3	**35,899.5 ft^3 >** 11,822.33 ft^3
SWM-3: Cultec R902HD	
Tributary Area=195,094 ft^2	= Volume below elevation 246.16
195,094 ft^2 x (1in/12ft)	= **16,311.30 ft^3** [Source: HydroCAD]
WQV Required = 16,257.83 ft^3	**16,311.30 ft^3 >** 16,257.83 ft^3
SWM-4: Cultec R902HD	
Tributary Area=181,112 ft^2	= Volume below elevation 245.00
181,112 ft^2 x (1in/12ft)	= **16,118** ft^3 [Source: HydroCAD]
WQV Required = 15,092.66 ft^3	**16,118.00 ft^3 >** 15,091.66 ft^3
SWM-6:Cultec R360HD & WQU-7: SciCloneX SCX-6	
Tributary Area=129,883 ft^2	= Volume below elevation 257.10
129,883 ft^2 x (1in/12ft)	= **2,581** ft^3 [Source: HydroCAD]
WQV Required = 10,823.58 ft^3	WQU-7 volume to flow sized for = **10,823.58 ft^3** Total WQV=**13,404.58 ft^3**[Source:Contech Sizing] **13,404.58 ft^3 >** 10,823.58 ft^3
RG#1: Rain Garden	= Volume below elevation 249.85 = **3,031.00** ft^3 [Source: HydroCAD] (Refer to Rain Garden Sizing in Appendix B)
RG#2: Rain Garden	= Volume below elevation 249.85 = **2,250.00** ft^3 [Source: HydroCAD] (Refer to Rain Garden Sizing in Appendix B)
WQU-1: Cascade CS-4	
Tributary Area=71,447 ft^2	WQU-1 volume to flow sized for = 5,953.91 ft^3
71,447 ft^2 x (1in/12ft)	= **5,953.91 ft^3** [Source:Contech Sizing]
WQV Required = 5,953.91 ft^3	**5,953.91 ft^3 = 5,953.91 ft^3**
ISO-1: Cultec R902HD Isolator Row	= Volume below elevation 246.00 = **198.20 ft^3** [Source: HydroCAD] (Refer to Isolator Row Sizing in Appendix B)
ISO-2: Cultec R902HD Isolator Row	= Volume below elevation 245.97 = **1,745.00 ft^3** [Source: HydroCAD] (Refer to Isolator Row Sizing in Appendix B)
Total Static Volume Provided (SWM-2, SWM-3,SWM-4,SWM-6 RG #1, RG #2, ISO-1, & ISO-2)	= **78,134.00 ft^3** = **78,134 ft^3 > 77,009 ft^3**

DRAWDOWN ANALYSIS

Drawdown Time:		T	= V / (K*A)
	where	T	= drawdown time (hours)
		V	= volume below outlet (ft^3)
		K	= hydraulic conductivity (ft/hr)
			= (2.41 in/hr) * (1 ft/12 in)
			= 0.2 ft/hr
		A	= bottom area of infiltration system (ft^2)
SWM-2: Cultec R902HD		V	=35,889.5 ft^3
		K	= 0.20 ft/hr
		A	= 15,751.15 ft^2
		T	= (35,889.5 ft^3) / (0.20 ft/hr)(15,751.15 ft^2)
			= **11.39 hours** < 72 hours
SWM-3: Cultec R902HD		V	= 16,311 ft^3
		K	= 0.20 ft/hr
		A	= 11,345.15 ft^2
		T	= (16,311 ft^3) / (0.20 ft/hr)(11,345.15 ft^2)
			= **7.18 hours** < 72 hours
SWM-4: Cultec R902HD		V	=16,118 ft^3
		K	= 0.20 ft/hr
		A	= 11,761.84 ft^2
		T	= (16,118 ft^3) / (0.20 ft/hr)(12,272.39 ft^2)
			= **6.56 hours** < 72 hours
SWM-6: Cultec R360HD		V	=2,581 ft^3
		K	= 0.20 ft/hr
		A	= 2,313.02 ft^2
		T	= (2,581 ft^3) / (0.20 ft/hr)(2,583.67 ft^2)
			= **4.99 hours** < 72 hours

RG #1: Raingarden #1	V	=3,031 ft^3
	K	= 0.20 ft/hr
	A	= 1,119 ft^2
	T	= (3,031 ft^3) / (0.20 ft/hr)(1119 ft^2)
		= **13.54 hours** < 72 hours
RG #2: Raingarden #2	V	= 2,250 ft^3
	K	= 0.20 ft/hr
	A	= 778 ft^2
	T	= (2,250ft^3) / (0.20 ft/hr)(778 ft^2)
		= **14.46 hours** < 72 hours
ISO-1: Cultec R902HD Isolator Row	V	= 198.20 ft^3
	K	= 0.20 ft/hr
	A	= 78.19 ft^2
	T	= (198.20) / (0.20 ft/hr)(78.19 ft^2)
		= **12.67 hours** < 72 hours
ISO-2: Cultec R902HD Isolator Row	V	= 1,745.00 ft^3
	K	= 0.20 ft/hr
	A	= 983.90 ft^2
	T	= (1,745.00) / (0.20 ft/hr)(983.90 ft^2)
		= **8.86 hours** < 72 hours

HIGHPOINT

Warehouse|Industrial Developement
100 and 200 Financial Park
Storm Pipe Analysis

Date Calculated: 05-09-2023 revised 10-04-2023
Calculated by: JMP
Strorm Event : 25-Year

Area	Drainage Node ID	Weighted Runoff Coefficient	Accumulated Precipitation	Total Runoff	Peak Runoff	Rainfall Intensity	Time of Concentration
(acres)			(inches)	(inches)	(cfs)	(inches/hr)	(days hh:mm:ss)
0.62	BLDG1_TEE1	0.9000	0.53	0.47	3.52	6.300	0 00:05:00
0.62	BLDG1-TEE2N	0.7200	0.53	0.38	2.81	6.300	0 00:05:00
0.62	BLDG1TEE3N	0.9000	0.53	0.47	3.52	6.300	0 00:05:00
0.35	RL_90	0.9000	0.53	0.47	1.98	6.300	0 00:05:00
0.35	RL_TEE1	0.9000	0.53	0.47	1.98	6.300	0 00:05:00
0.35	RL_TEE2	0.9000	0.53	0.47	1.98	6.300	0 00:05:00
0.35	RL_TEE3	0.9000	0.09	0.08	1.98	6.300	0 00:00:54
0.35	RL_TEE4	0.9000	0.53	0.47	1.98	6.300	0 00:05:00
0.16	BLDG2N90	0.9000	0.53	0.47	0.90	6.300	0 00:05:00
0.16	BLDG2-TEE1	0.9000	0.53	0.47	0.90	6.300	0 00:05:00
0.16	BLDG2-TEE2	0.9000	0.53	0.47	0.90	6.300	0 00:05:00
0.16	BLDG2_TEE3	0.9000	0.53	0.47	0.90	6.300	0 00:05:00
0.16	BLDG2-TEE4	0.9000	0.53	0.47	0.90	6.300	0 00:05:00
0.66	Bldg 2 - South	0.9000	0.53	0.47	3.74	6.300	0 00:05:00
1.12	CB-19	0.8600	0.53	0.45	6.07	6.300	0 00:05:00
0.62	BLDG_1_N90	0.9000	0.53	0.47	3.52	6.300	0 00:05:00
0.49	CB-1	0.6300	0.53	0.33	1.95	6.300	0 00:05:00
0.44	CB-10	0.5600	0.53	0.29	1.55	6.300	0 00:05:00
0.99	CB-11	0.5200	0.53	0.27	3.24	6.300	0 00:05:00
0.33	CB-12	0.7500	0.53	0.39	1.56	6.300	0 00:05:00
0.18	CB-13	0.7600	0.53	0.40	0.86	6.300	0 00:05:00
0.34	CB-14	0.8800	0.53	0.46	1.89	6.300	0 00:05:00
0.25	CB-15	0.8500	0.53	0.45	1.34	6.300	0 00:05:00
0.22	CB-16	0.6300	0.53	0.33	0.87	6.300	0 00:05:00
0.39	CB-17	0.8700	0.53	0.46	2.14	6.300	0 00:05:00
0.32	CB-18	0.7100	0.53	0.37	1.43	6.300	0 00:05:00
0.32	CB-2	0.7900	0.53	0.42	1.59	6.300	0 00:05:00
1.21	CB-20	0.5400	0.53	0.28	4.12	6.300	0 00:05:00
0.83	CB-3	0.5400	1.05	0.57	2.82	6.300	0 00:10:00
1.02	CB-5	0.6100	0.53	0.32	3.92	6.300	0 00:05:00
1.07	CB-6	0.5500	0.53	0.29	3.71	6.300	0 00:05:00
0.36	CB-7	0.6500	0.53	0.34	1.47	6.300	0 00:05:00
1.42	CB-8	0.8900	0.53	0.47	7.96	6.300	0 00:05:00
1.47	CB-9	0.7700	0.53	0.40	7.13	6.300	0 00:05:00
0.64	Ex. Bldg 3 - NE	0.9000	0.53	0.47	3.63	6.300	0 00:05:00
0.05	EX. CB-1	0.3000	0.53	0.16	0.09	6.300	0 00:05:00
0.30	EX. CB-22B	0.5400	0.53	0.28	1.02	6.300	0 00:05:00
0.47	EX. WQI-24	0.8000	0.53	0.42	2.37	6.300	0 00:05:00
0.48	EX. DMH-23	0.8100	0.53	0.43	2.45	6.300	0 00:05:00
0.64	EX. DMH 23(1)	0.9000	0.53	0.47	3.63	6.300	0 00:05:00
0.18	EX. CB-22A	0.6300	0.53	0.33	0.71	6.300	0 00:05:00

HIGHPOINT

Warehouse|Industrial Developement
100 and 200 Financial Park
Storm Pipe Analysis

Date Calculated: 05-09-2023 revised 10-04-2023
Calculated by: JMP
Strorm Event : 25-Year

From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Pipe Diameter	Manning's Roughness	Initial Flow	Peak Flow	Time of Peak Flow Occurrence	Max Flow Velocity	Travel Time	Design Flow Capacity	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged	Max Flow Depth	Reported Condition
		(ft)	(ft)	(ft)	(%)	(inches)		(cfs)	(cfs)	(days hh:mm)	(ft/sec)	(min)	(cfs)			(min)	(ft)	
Ex. Bldg 3 - NE	DMH-11	16.91	256.00	254.30	10.0500	8.040	0.0130	0.00	3.62	0 00:05	11.07	0.03	3.83	0.95	0.89	0.00	0.59	Calculated
CB-10	ICS-1	62.70	247.40	247.00	0.6400	12.000	0.0130	0.00	1.46	0 00:05	4.75	0.22	3.49	0.42	0.42	0.00	0.42	Calculated
CB-13	ICS-1	20.00	247.15	247.00	0.7500	12.000	0.0130	0.00	0.85	0 00:05	4.20	0.08	6.17	0.14	0.31	0.00	0.31	Calculated
CB-16	ICS-1	69.30	247.40	247.00	0.5800	12.000	0.0130	0.00	0.86	0 00:05	3.53	0.33	3.32	0.26	0.35	0.00	0.35	Calculated
DMH-9	DMH-10	213.02	250.40	249.40	0.4700	24.000	0.0130	0.00	10.67	0 00:06	4.48	0.79	15.50	0.69	0.71	0.00	1.42	Calculated
ICS-2	SWM-3	43.70	246.20	246.20	0.0000	30.000	0.0130	0.00	10.19	0 00:08	3.99	0.18	18.34	0.56	0.52	0.00	1.29	Calculated
DMH-30	DMH-7	65.04	241.20	241.00	0.3100	48.000	0.0130	0.00	57.64	0 00:00	5.82	0.19	79.65	0.72	1.00	1438.00	4.00	SURCHARGED
SWM6-OUT	DMH-25	27.10	257.10	255.50	5.9000	36.000	0.0130	14.70	36.11	0 00:00	12.22	0.04	162.07	0.22	0.77	0.00	2.32	Calculated
RL_TEE1	RL_TEE2	108.00	252.90	252.50	0.3700	18.000	0.0130	0.00	0.74	0 00:51	1.16	1.55	6.39	0.12	0.45	0.00	0.68	Calculated
RL_TEE2	RL_TEE3	54.50	252.50	252.30	0.3700	18.000	0.0130	0.00	1.91	0 00:24	2.15	0.42	6.36	0.30	0.64	0.00	0.96	Calculated
RL_TEE3	RL_TEE4	108.00	252.30	251.90	0.3700	18.000	0.0130	0.00	3.46	0 00:06	2.48	0.73	6.39	0.54	0.83	0.00	1.24	Calculated
RL_TEE4	SWM-2	26.00	251.90	251.50	1.5400	24.000	0.0130	0.00	8.64	0 00:05	3.88	0.11	28.06	0.31	0.86	0.00	1.70	Calculated
BLDG1_TEE1	BLDG1-TEE2N	108.00	257.35	257.00	0.3200	24.000	0.0130	0.00	6.68	0 00:05	2.52	0.71	13.77	0.49	0.92	0.00	1.83	Calculated
BLDG1-TEE2N	BLDG1TEE3N	108.00	257.00	256.60	0.3700	30.000	0.0130	0.00	11.15	0 00:01	3.51	0.51	27.91	0.40	0.84	0.00	2.08	Calculated
BLDG1TEE3N	SWM-6	100.00	256.60	256.25	0.3500	30.000	0.0130	0.00	17.08	0 00:00	4.19	0.40	30.42	0.56	0.98	0.00	2.42	Calculated
BLDG2-TEE1	BLDG2-TEE2	108.00	253.70	253.15	0.5100	18.000	0.0130	0.00	1.65	0 00:05	2.23	0.81	7.15	0.23	0.44	0.00	0.66	Calculated
BLDG2-TEE2	BLDG2_TEE3	54.00	253.15	252.90	0.4600	18.000	0.0130	0.00	2.37	0 00:06	2.24	0.40	6.39	0.37	0.58	0.00	0.87	Calculated
BLDG2_TEE3	BLDG2-TEE4	108.00	252.90	252.35	0.5100	18.000	0.0130	0.00	3.13	0 00:06	3.25	0.55	5.54	0.57	0.54	0.00	0.81	Calculated
CB-20	DMH-25	67.80	257.50	257.00	0.7400	18.000	0.0130	0.00	4.10	0 00:05	3.53	0.32	30.46	0.13	0.62	0.00	0.94	Calculated
DMH-8	DMH-13	55.80	244.80	244.50	0.5400	36.000	0.0150	0.00	40.46	0 00:00	6.53	0.14	42.38	0.95	0.85	0.00	2.10	Calculated
DMH-13	DMH-3	191.50	244.40	243.20	0.6300	36.000	0.0150	0.00	10.63	0 00:03	2.38	1.34	45.76	0.23	0.68	0.00	2.05	Calculated
WQU-7	EX. DMH-9	27.30	250.00	249.60	1.4700	36.000	0.0150	0.00	23.47	0 00:05	19.17	0.02	290.61	0.08	0.23	0.00	0.69	Calculated
AD-3	DMH-8	52.84	247.50	247.00	0.9500	15.000	0.0130	5.16	4.22	0 00:00	4.32	0.20	6.28	0.67	0.83	0.00	0.36	Calculated
DMH-19	WQU-1	12.50	246.90	246.85	0.4000	18.000	0.0150	0.00	0.88	0 00:06	1.96	0.11	5.76	0.15	0.30	0.00	0.45	Calculated
SWM3-OUT1	SWM-3 45 DEG	5.00	246.16	246.16	0.0000	24.000	0.0150	6.63	5.03	0 00:00	3.55	0.02	8.77	0.57	0.50	0.00	0.24	Calculated
SWM-3 45 DEG	SWM-3_WYE	10.00	246.16	246.16	0.0000	24.000	0.0150	0.00	2.07	0 00:00	2.62	0.06	8.77	0.24	0.30	0.00	0.60	Calculated
SWM-3-OUT2	SWM3-3 45 DEG	5.00	246.16	246.16	0.0000	24.000	0.0150	6.63	5.03	0 00:00	3.55	0.02	8.77	0.57	0.50	0.00	0.24	Calculated
SWM-3 45 DEG	SWM-3_WYE	10.00	246.16	246.16	0.0000	24.000	0.0150	0.00	2.07	0 00:00	2.62	0.06	8.77	0.24	0.30	0.00	0.60	Calculated
ICS-1	ISO-1	8.15	246.10	246.00	1.2300	18.000	0.0150	0.00	2.53	0 00:05	4.47	0.03	40.34	0.06	0.36	0.00	0.53	Calculated
SWM-2OUT	SMH-28	130.50	252.50	249.40	2.3800	12.000	0.0150	0.50	0.50	0 00:00	3.94	0.55	4.76	0.10	0.22	0.00	0.18	Calculated
SMH-28	DMH-29	73.80	249.10	247.80	1.7600	12.000	0.0150	0.00	0.00	0 00:00	0.00		4.10	0.00	0.01	0.00	0.01	Calculated
DMH-29	SWM-3IN	13.00	247.70	247.50	1.5400	12.000	0.0150	0.00	0.05	0 18:25	0.46	0.47	3.83	0.01	0.21	0.00	0.21	Calculated
ICS-2	SWM3ISO	19.80	246.05	245.97	0.4000	24.000	0.0150	0.00	11.32	0 00:08	4.79	0.07	15.89	0.71	0.70	0.00	1.41	Calculated
RG#2TEE	DMH-13	45.56	247.50	246.50	2.1900	15.000	0.0130	3.73	3.20	0 00:00	10.02	0.08	9.57	0.33	0.32	0.00	0.02	Calculated
DMH-11	DMH-18	88.09	252.60	252.00	0.6800	15.000	0.0130	0.00	3.50	0 00:05	4.25	0.35	5.33	0.66	0.64	0.00	0.80	Calculated
CB-1	EX. WQI-25	11.32	254.20	253.95	2.2100	12.000	0.0130	0.00	1.83	0 00:05	4.84	0.04	5.29	0.35	0.49	0.00	0.49	Calculated
CB-7	DMH-23	45.00	256.80	256.00	1.7800	12.000	0.0130	0.00	1.39	0 00:05	4.77	0.16	4.75	0.29	0.40	0.00	0.40	Calculated
DMH-23	DMH-21	99.21	255.90	255.00	0.9100	15.000	0.0130	0.00	1.38	0 00:05	2.02	0.82	6.15	0.22	0.54	0.00	0.68	Calculated
DMH-24	DMH-30	140.00	242.00	241.30	0.5000	48.000	0.0130	0.00	42.17	0 00:01	4.27	0.55	101.57	0.42	0.98	0.00	3.94	Calculated
EX. CB-1	DMH-10	11.69	254.00	253.89	0.9400	12.000	0.0130	0.00	0.09	0 00:05	1.19	0.16	3.46	0.03	0.15	0.00	0.15	Calculated
BLDG2N90	BLDG2-TEE1	108.00	254.20	253.70	0.4600	18.000	0.0130	0.00	0.87	0 00:05	2.05	0.88	6.39	0.14	0.29	0.00	0.43	Calculated
RL_90	RL_TEE1	107.50	253.30	252.90	0.3700	18.000	0.0130	0.00	1.87	0 00:05	3.11	0.58	6.41	0.29	0.38	0.00	0.56	Calculated
CB-18	DMH-14	133.60	248.40	247.70	0.5200	12.000	0.0130	0.00	1.36	0 00:05	2.98	0.75	2.58	0.53	0.57	0.00	0.57	Calculated
DMH-22	DMH-31	166.67	246.90	246.00	0.5400	30.000	0.0130	0.00	17.11	0 00:07	5.14	0.54	30.14	0.57	0.64	0.00	1.61	Calculated
CB-14	WQU-3	33.10	249.20	248.60	1.8100	12.000	0.0130	0.00	1.78	0 00:05	3.92	0.14	4.80	0.37	0.72	0.00	0.72	Calculated
DMH-25	WQU-7	41.40	251.00	250.50	1.2100	36.000	0.0130	0.00	23.47	0 00:05	4.97	0.14	243.11	0.10	0.63	0.00	1.90	Calculated
DMH-5	DMH-16	202.62	257.50	256.30	0.5900	12.000	0.0130	0.00	2.59	0 00:11	3.93	0.86	2.74	0.94	0.78	0.00	0.78	Calculated
DMH-21	DMH-16	114.29	254.90	254.00	0.7900	15.000	0.0130	0.00	4.71	0 00:06	5.05	0.38	6.04	0.78	0.72	0.00	0.89	Calculated

REFER TO REVISED STORMWATER PIPE ANALYSIS DATED 10-19-2023

HIGHPOINT

Warehouse|Industrial Developement
100 and 200 Financial Park
Storm Pipe Analysis

Date Calculated: 05-09-2023 revised 10-04-2023
Calculated by: JMP
Strorm Event : 25-Year

ICS-1	SWM-4.	30.83	246.50	246.50	0.0000	12.000	0.0130	0.00	0.61	0	00:05	3.07	0.17	3.51	0.17	0.30	0.00	0.30	Calculated
RG#2TEE	DMH-13	45.56	247.50	3.40	2.1900	15.000	0.0130	3.73	11.38	0	00:00	50.00	0.02	149.52	0.08	0.55	0.00	0.64	Calculated
DMH-10	DMH-6	51.62	249.30	249.00	0.5800	30.000	0.0130	0.00	13.75	0	00:06	4.83	0.18	31.27	0.44	0.57	0.00	1.42	Calculated
DMH-6	DMH-20	176.17	248.90	248.00	0.5100	30.000	0.0130	0.00	13.70	0	00:06	4.66	0.63	29.32	0.47	0.59	0.00	1.47	Calculated
DMH-20	DMH-22	180.67	247.90	247.00	0.5000	30.000	0.0130	0.00	17.26	0	00:07	5.33	0.56	28.95	0.60	0.63	0.00	1.58	Calculated
EX. DMH 23(1)	DMH-31	47.44	249.00	248.55	0.9500	18.000	0.0130	0.00	3.50	0	00:05	3.55	0.22	10.23	0.34	0.55	0.00	0.82	Calculated
CB-2	DMH-14	21.74	247.80	247.30	2.3000	12.000	0.0130	0.00	1.47	0	00:05	4.02	0.09	5.40	0.27	0.78	0.00	0.78	Calculated
DMH-14	WQU-1	167.46	247.20	246.60	0.3600	21.000	0.0130	0.00	5.95	0	00:06	4.14	0.67	9.48	0.63	0.58	0.00	1.01	Calculated
CB-12	DMH-19	18.00	248.00	248.75	-4.1700	12.000	0.0130	0.00	1.47	0	00:05	2.65	0.11	6.23	0.24	0.67	0.00	0.67	Calculated
WQU-1	DMH-24	110.35	246.50	246.00	0.4500	24.000	0.0130	0.00	5.06	0	00:07	4.00	0.46	15.23	0.33	0.42	0.00	0.85	Calculated
BLDG_1_N90	BLDG1_TEE1	53.99	257.50	257.35	0.2800	24.000	0.0130	0.00	4.10	0	00:02	1.90	0.47	13.77	0.30	0.82	0.00	1.64	Calculated
DMH-16	DMH-2	216.08	251.50	250.00	0.6900	24.000	0.0130	0.00	5.96	0	00:06	4.15	0.87	18.85	0.32	0.53	0.00	1.07	Calculated
DMH-2	DMH-15	222.07	249.90	248.70	0.5400	24.000	0.0130	0.00	12.17	0	00:07	4.80	0.77	16.63	0.73	0.75	0.00	1.51	Calculated
DMH-7	SPLASHPAD1	36.99	240.17	239.95	0.5900	36.000	0.0130	0.00	82.62	0	00:00	11.69	0.05	51.44	1.61	1.00	1440.00	3.00	SURCHARGED
EX. WQI-25	EX. DMH 25	6.75	253.70	253.60	1.4800	12.000	0.0130	0.00	1.83	0	00:05	4.20	0.03	4.34	0.42	0.54	0.00	0.54	Calculated
DMH-18	DMH-10	26.72	251.90	251.70	0.7500	18.000	0.0130	0.00	3.50	0	00:05	4.15	0.11	9.09	0.38	0.48	0.00	0.72	Calculated
EX. DMH-23	EX. DMH 25	87.08	251.77	251.53	0.2800	24.000	0.0130	0.00	3.89	0	00:05	2.60	0.56	11.88	0.33	0.49	0.00	0.97	Calculated
EX. WQI-22	EX. DMH-23	82.47	255.29	254.64	0.7900	12.000	0.0130	0.00	1.66	0	00:05	3.82	0.36	3.16	0.52	0.54	0.00	0.54	Calculated
EX. CB-22A	EX. WQI-22	24.30	255.75	255.54	0.8600	18.000	0.0130	0.00	0.70	0	00:05	2.75	0.15	9.77	0.07	0.21	0.00	0.32	Calculated
EX. CB-22B	EX. WQI-22	23.54	255.75	255.54	0.8900	18.000	0.0130	0.00	1.00	0	00:05	3.20	0.12	9.92	0.10	0.23	0.00	0.35	Calculated
EX. WQI-24	EX. DMH 25	8.83	254.11	253.90	2.3800	12.000	0.0130	0.00	2.35	0	00:05	5.13	0.03	5.49	0.43	0.57	0.00	0.56	Calculated
EX. DMH-9	SPLASHPAD2	84.80	241.00	240.00	1.1800	36.000	0.0130	0.00	58.85	0	00:00	8.33	0.17	51.22	1.15	1.00	1440.00	3.00	SURCHARGED
CB-17	WQU-3	105.25	249.30	248.60	0.6700	12.000	0.0130	0.00	2.01	0	00:05	3.32	0.53	2.91	0.69	0.77	0.00	0.77	Calculated
CB-6	DMH-21	10.13	255.70	255.00	6.9100	12.000	0.0130	0.00	3.52	0	00:05	12.02	0.01	25.03	0.14	0.62	0.00	0.62	Calculated
SWM-3_WYE	DMH-26	29.07	246.16	246.00	0.5500	24.000	0.0130	0.00	5.17	0	00:00	3.13	0.15	16.78	0.31	0.52	0.00	0.95	Calculated
DMH-26	DMH-8	42.00	245.90	245.30	1.4300	24.000	0.0130	0.00	12.50	0	00:00	4.99	0.14	27.04	0.46	0.80	0.00	1.57	Calculated
SWM-4 OUT	DMH-8	188.33	245.00	244.90	0.0500	30.000	0.0130	12.25	11.76	0	00:00	2.81	1.12	18.34	0.64	0.79	0.00	1.70	Calculated
DMH-31	SWM-4	160.87	245.90	245.00	0.5600	30.000	0.0130	0.00	19.00	0	00:08	5.94	0.45	30.68	0.62	0.62	0.00	1.56	Calculated
DMH-15	DMH-27	221.54	248.60	247.50	0.5000	30.000	0.0130	0.00	17.63	0	00:07	4.97	0.74	28.90	0.61	0.69	0.00	1.73	Calculated
DMH-27	ICS-2	232.00	247.40	246.30	0.4700	30.000	0.0130	0.00	21.52	0	00:07	5.90	0.66	28.24	0.76	0.70	0.00	1.75	Calculated
CB-19	DMH-27	22.00	248.50	247.50	4.5500	18.000	0.0130	0.00	5.18	0	00:05	6.65	0.06	22.40	0.23	0.79	0.00	1.18	Calculated
CB-8	DMH-2	21.00	250.90	250.50	1.9000	18.000	0.0130	0.00	6.57	0	00:06	6.23	0.06	14.50	0.45	0.63	0.00	0.94	Calculated
CB-3	DMH-5	39.41	258.10	257.80	0.7600	12.000	0.0130	0.00	2.70	0	00:10	3.95	0.17	3.11	0.87	0.81	0.00	0.81	Calculated
CB-9	DMH-15	22.00	249.50	248.70	3.6400	18.000	0.0130	0.00	5.98	0	00:05	6.32	0.06	20.03	0.30	0.80	0.00	1.20	Calculated
BLDG2-TEE4	DMH-17	54.30	252.35	252.10	0.4600	18.000	0.0130	0.00	3.88	0	00:06	3.20	0.28	11.93	0.33	0.73	0.00	1.09	Calculated
DMH-17	SWM-2.	132.00	252.00	251.25	0.5700	30.000	0.0130	0.00	7.98	0	00:00	2.44	0.90	30.92	0.26	0.75	0.00	1.88	Calculated
Bldg 2 - South	DMH-9	10.00	250.60	250.50	1.0000	18.000	0.0130	0.00	3.68	0	00:05	3.63	0.05	10.50	0.35	0.85	0.00	1.28	Calculated
EX. DMH 25	DMH-9	198.92	251.40	250.50	0.4500	24.000	0.0130	0.00	7.79	0	00:05	3.93	0.84	15.22	0.51	0.60	0.00	1.21	Calculated
CB-11	DMH-19	42.28	247.15	247.00	0.3500	15.000	0.0130	0.00	2.97	0	00:05	3.52	0.20	3.85	0.77	0.65	0.00	0.81	Calculated
CB-5	DMH-14	78.69	247.80	247.30	0.6400	15.000	0.0130	0.00	3.49	0	00:05	3.49	0.38	5.15	0.68	0.77	0.00	0.97	Calculated
DMH-3	DMH-24	222.47	243.10	242.10	0.4500	48.000	0.0130	0.00	29.32	0	00:01	3.82	0.97	96.30	0.30	0.81	0.00	3.23	Calculated
CB-15	WQU-3	128.71	249.30	248.60	0.5400	12.000	0.0130	0.00	1.24	0	00:05	2.49	0.86	2.63	0.47	0.72	0.00	0.72	Calculated
WQU-3	DMH-20	90.63	248.50	248.00	0.5500	24.000	0.0130	0.00	4.56	0	00:05	3.52	0.43	16.80	0.27	0.66	0.00	1.32	Calculated

REFER TO REVISED STORMWATER PIPE ANALYSIS DATED 10-19-2023

THE SECTION BELOW WAS TAKEN FROM THE

"TOWN OF FRANKLIN - STORMWATER MANAGEMENT PLAN
CHAPTER 153 STORMWATER MANAGEMENT
ARTICLE III. POST CONSTRUCTION STORMWATER MANAGEMENT
153-15 STORMWATER MANAGEMENT PLAN"

§ 153-16. Standards.

[Amended 7-13-2016 by Bylaw Amendment 16-763; 2-17-2021 by Bylaw Amendment 21-867]

A. Control of stormwater runoff shall meet all federal and state requirements, including the Massachusetts Stormwater Handbook (as amended), the requirements of the Town of Franklin's Subdivision of Land Stormwater Management Regulations, § **300-11**, the most recent Town of Franklin MS4 stormwater permit, and the Town of Franklin's Best Development Practices Guidebook. All assumptions, methodologies and procedures used to design stormwater treatment practices and stormwater management practices shall accompany the design. All activities, project design, stormwater treatment practices and stormwater management practices should aim to minimize stormwater runoff, maximize infiltration and recharge where appropriate, and minimize pollutants in stormwater runoff.

B. In addition to meeting the requirements of the Massachusetts Stormwater Standards, as required under the Town of Franklin MS4 stormwater permit, all stormwater management systems shall meet the following criteria:

(1) For new development sites, all stormwater management systems shall be designed to:

(a) Retain the volume of runoff equivalent to, or greater than, 1.0 inch multiplied by the total post-construction impervious surface area on the site; and/or

(b) Remove 90% of the average annual load of total suspended solids (TSS) generated from the total post-construction impervious area on the site and 60% of the average annual load of total phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, any federally or state approved BMP design guidance or performance standards (e.g., state stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.

(2) For redevelopment sites, stormwater management systems shall also improve existing conditions by being designed to the following criteria:

(a) Retain the volume of runoff equivalent to, or greater than, 0.80 inch multiplied by the total post-construction impervious surface area on the site; and/or

(b) Remove 80% of the average annual post-construction load of total suspended solids (TSS) generated from the total post-construction impervious area on the site and 50% of the average annual load of total phosphorus (TP) generated from the total post-construction impervious surface area on the site. Pollutant removal shall be calculated consistent with EPA Region 1's BMP Performance Extrapolation Tool or other BMP performance evaluation tool provided by EPA Region 1 where available. If EPA Region 1 tools do not address the planned or installed BMP performance, any federally or state approved BMP design guidance or performance standards (e.g., state stormwater handbooks and design guidance manuals) may be used to calculate BMP performance.

REFER TO THE WATER QUALITY VOLUME EXHIBIT FOR SPECIFIED TREATMENT TRAIN. MATCH COLOR AND LETTER FOR SPECIFIED TREATMENT TRAIN. (TYP. FOR ALL TSS SHEETS)

V

Version 1, Automated: Mar. 4, 2008

TSS Removal
Treatment train for stormwater conveyed to RG#1 and RG#2.
MIN= 44%

A

INSTRUCTIONS:
1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: 100 & 200 Financial Park, Franklin MA

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Sediment Forebay	0.25	1.00	0.25	0.75
Rain Garden	0.90	0.75	0.68	0.08
	0.00	0.08	0.00	0.08
	0.00	0.08	0.00	0.08
	0.00	0.08	0.00	0.08

Total TSS Removal = 93%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 8/14/2023

REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

TSS Removal
Treatment train for stormwater conveyed to WQU-1.
MIN= 44% for pretreatment
MIN= 90% for water quality (MEP)

B

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
WQU-1: CONTECH CASCADE CS-4	0.88	1.00	0.88	0.12

DISCHARGE POINT: NORTH DETENTION POND

Total TSS Removal = 88.0%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

THE PROPOSED DESIGN IS PROVIDING THE 1" WATER QUALITY VOLUME, THEREFORE, THE 90% IS NOT REQUIRED.

MEP = MAXIMUM EXTENT PRACTICABLE

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

TSS Removal
Treatment train for stormwater conveyed to SWM-4
MIN= 44%

C1

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
CULTEC R902HD SEPARATOR (ISOLATOR) ROW	0.80	1.00	0.80	0.20

INFILTRATION LOCATION: SWM-4

Total TSS Removal = 80.0%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

TSS Removal
Treatment train for stormwater conveyed to WQU-3.
MIN= 44%

C2

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
WQU-3: CONTECH CDS 2015-4	0.81	1.00	0.81	0.19

INFILTRATION LOCATION: SWM-4

Total TSS Removal = 81.0%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

TSS Removal
Treatment train for stormwater conveyed to SWM-3
MIN= 44%

D

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
CULTEC R902HD SEPARATOR (ISOLATOR) ROW	0.80	1.00	0.80	0.20

INFILTRATION LOCATION: SWM-4

Total TSS Removal = 80.0%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

TSS Removal
Treatment train for stormwater conveyed to WQU-7
MIN= 44% for pretreatment
MIN= 90% for water quality (MEP)

E

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
WQU-7: CDS2015-4-C	0.907	1.00	0.907	0.093

DISCHARGE POINT: NORTH DETENTION POND

Total TSS Removal = 90.7%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

THE PROPOSED DESIGN IS PROVIDING THE 1" WATER QUALITY VOLUME, THEREFORE, THE 90% IS NOT REQUIRED.

MEP = MAXIMUM EXTENT PRACTICABLE

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

C1

WATER QUALITY
Treatment train for stormwater conveyed through SWM-4.
MIN= 90%

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
SUB-SURFACE INFILTRATION SYSTEM (SWM-4) WITH CATCHBASIN & ISOLATOR ROW PRETREATMENT	0.80	**1.00**	0.80	0.20

DISCHARGE POINT: NORTH DETENTION POND

Total TSS Removal = 80.0%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

THE PROPOSED DESIGN IS PROVIDING THE 1" WATER QUALITY VOLUME, THEREFORE, THE 90% IS NOT REQUIRED.

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

WATER QUALITY
Treatment train for stormwater conveyed through SWM-4.
MIN= 90%

C2

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
SUB-SURFACE INFILTRATION SYSTEM (SWM-4) WITH WQU-3 PRETREATMENT	0.80	**1.00**	0.80	0.20

DISCHARGE POINT: NORTH DETENTION POND

Total TSS Removal = 80.0%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

THE PROPOSED DESIGN IS PROVIDING THE 1" WATER QUALITY VOLUME, THEREFORE, THE 90% IS NOT REQUIRED.

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

WATER QUALITY
Treatment train for stormwater conveyed through SWM-3.
MIN= 90%

D

Location: 100 & 200 FINANCIAL PARK - FRANKLIN, MA

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
SUB-SURFACE INFILTRATION SYSTEM (SWM-3) WITH CATCHBASIN & ISOLATOR ROW PRETREATMENT	0.80	**1.00**	0.80	0.20

DISCHARGE POINT: NORTH DETENTION POND

Total TSS Removal = 80.0%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 22051
Prepared By: JMP
Date: 08/14/2023
REV: 10/05/2023

*Equals remaining load from previous BMP (E) which enters the BMP

THE PROPOSED DESIGN IS PROVIDING THE 1" WATER QUALITY VOLUME, THEREFORE, THE 90% IS NOT REQUIRED.

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

SWM-2

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

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

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).

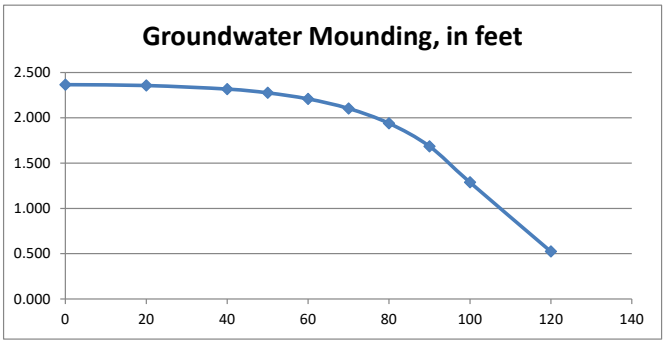
Input Values

4.8000	***R***	**Recharge (infiltration) rate (feet/day)**
0.800	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1)**
50.00	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
101.700	**x**	**1/2 length of basin (x direction, in feet)**
18.400	**y**	**1/2 width of basin (y direction, in feet)**
0.800	**t**	**duration of infiltration period (days)**
20.000	**hi(0)**	**initial thickness of saturated zone (feet)**

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

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.366	0
2.356	20
2.317	40
2.276	50
2.209	60
2.103	70
1.939	80
1.685	90
1.288	100
0.524	120

Re-Calculate Now



Disclaimer

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

SWM-3

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

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

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).

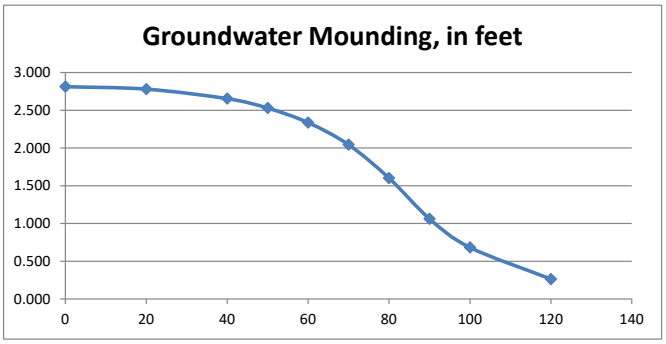
Input Values

4.8000	***R***	**Recharge (infiltration) rate (feet/day)**
0.800	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1)**
50.00	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
82.750	**x**	**1/2 length of basin (x direction, in feet)**
24.000	**y**	**1/2 width of basin (y direction, in feet)**
0.800	**t**	**duration of infiltration period (days)**
20.000	**hi(0)**	**initial thickness of saturated zone (feet)**

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

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.812	0
2.780	20
2.654	40
2.529	50
2.336	60
2.043	70
1.601	80
1.063	90
0.683	100
0.264	120

Re-Calculate Now



Disclaimer

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

SWM-4

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

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).

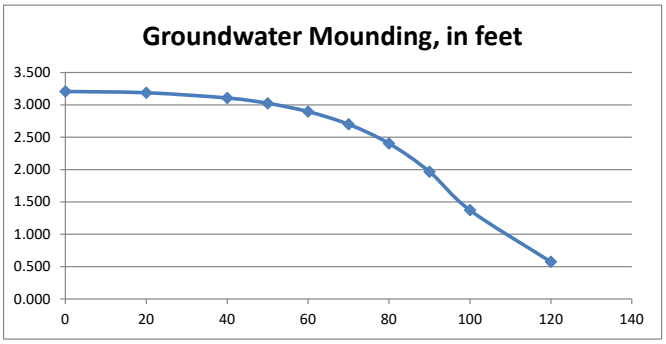
Input Values

4.8000	***R***	**Recharge (infiltration) rate (feet/day)**
0.800	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1)**
50.00	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
95.660	**x**	**1/2 length of basin (x direction, in feet)**
29.250	**y**	**1/2 width of basin (y direction, in feet)**
0.800	**t**	**duration of infiltration period (days)**
20.000	**hi(0)**	**initial thickness of saturated zone (feet)**

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

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
3.207	0
3.187	20
3.107	40
3.024	50
2.896	60
2.699	70
2.404	80
1.966	90
1.372	100
0.573	120

Re-Calculate Now



Disclaimer

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

SWM-6

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

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).

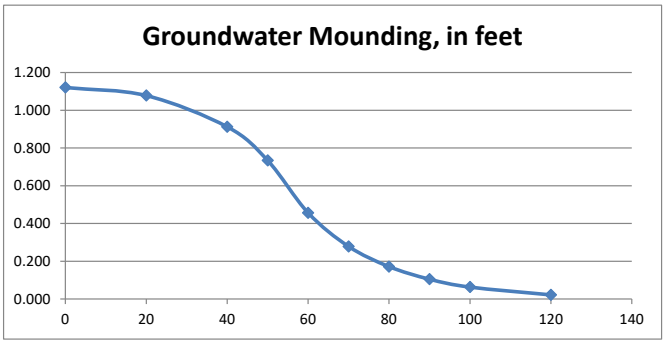
Input Values

4.8000	***R***	**Recharge (infiltration) rate (feet/day)**
0.800	**Sy**	**Specific yield, Sy (dimensionless, between 0 and 1)**
50.00	**K**	**Horizontal hydraulic conductivity, Kh (feet/day)***
54.780	**x**	**1/2 length of basin (x direction, in feet)**
7.900	**y**	**1/2 width of basin (y direction, in feet)**
0.800	**t**	**duration of infiltration period (days)**
20.000	**hi(0)**	**initial thickness of saturated zone (feet)**

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

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.121	0
1.078	20
0.912	40
0.734	50
0.456	60
0.278	70
0.172	80
0.105	90
0.063	100
0.022	120

Re-Calculate Now



Disclaimer

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

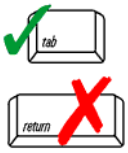
APPENDIX C – SUPPORTING INFORMATION

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

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 8[2]
- 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.

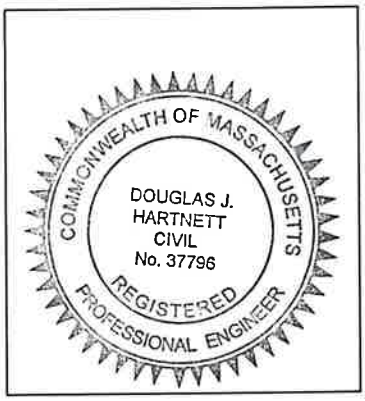
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the 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



10.05.2023

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:

- [X] 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
- [X] 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 Field[1]

☒ 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.

Project: Warehouse Industrial Development
Location: Franklin, MA
Prepared For: Highpoint Engineering

Purpose: To calculate the water quality flow rate (WQF) over a given site area. In this situation the WQF is derived from the first 1" of runoff from the contributing impervious surface.

Reference: Massachusetts Dept. of Environmental Protection Wetlands Program / United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Procedure: Determine unit peak discharge using Figure 1 or 2. Figure 2 is in tabular form so is preferred. Using the tc, read the unit peak discharge (qu) from Figure 1 or Table in Figure 2. qu is expressed in the following units: cfs/mi^2/watershed inches (csm/in).

Compute Q Rate using the following equation:

Q = (qu) (A) (WQV)

where:

Q = flow rate associated with first 1" of runoff
qu = the unit peak discharge, in csm/in.
A = impervious surface drainage area (in square miles)
WQV = water quality volume in watershed inches (1" in this case)

Structure Name	Impv. (acres)	A (miles^2)	t_c (min)	t_c (hr)	WQV (in)	qu (csm/in.)	Q (cfs)
WQU 1	1.64	0.0025628	6.0	0.100	1.00	774.00	1.98
~~WQU 2~~	~~0.47~~	~~0.0007414~~	~~6.0~~	~~0.100~~	~~1.00~~	~~774.00~~	~~0.57~~
WQU 3	0.91	0.0014192	6.0	0.100	1.00	774.00	1.10
~~WQU 4~~	~~4.79~~	~~0.0074852~~	~~6.0~~	~~0.100~~	~~1.00~~	~~774.00~~	~~5.79~~

The WQf sizing calculation selects the minimum size CDS/Cascade/StormCeptor model capable of operating at the computed WQf peak flowrate prior to bypassing. It assumes free discharge of the WQf through the unit and ignores the routing effect of any upstream storm drain piping. As with all hydrodynamic separators, there will be some impact to the Hydraulic Gradient of the corresponding drainage system, and evaluation of this impact should be considered in the design.

WQU-2 & WQU-4 have been removed from the proposed drainage design and replaced with Cultec R902HD Isolator Rows. (Refer to Appendix B for Isolator Row Sizing Information)

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

CONTECH ENGINEERED SOLUTIONS

CASCADE separator™

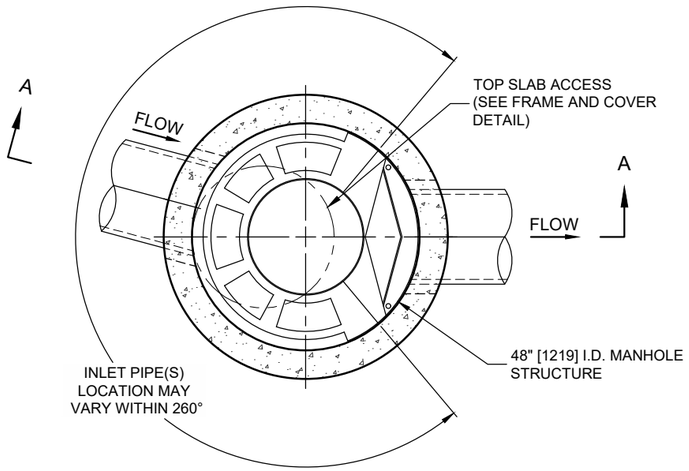
WAREHOUSE INDUSTRIAL DEV
FRANKLIN, MA
WQU 1

AREA	1.64	acres	CASCADE MODEL	CS-4	
WEIGHTED C	0.95		PARTICLE SIZE	110	microns
TC	6.00	minutes	RAINFALL STATION	68	

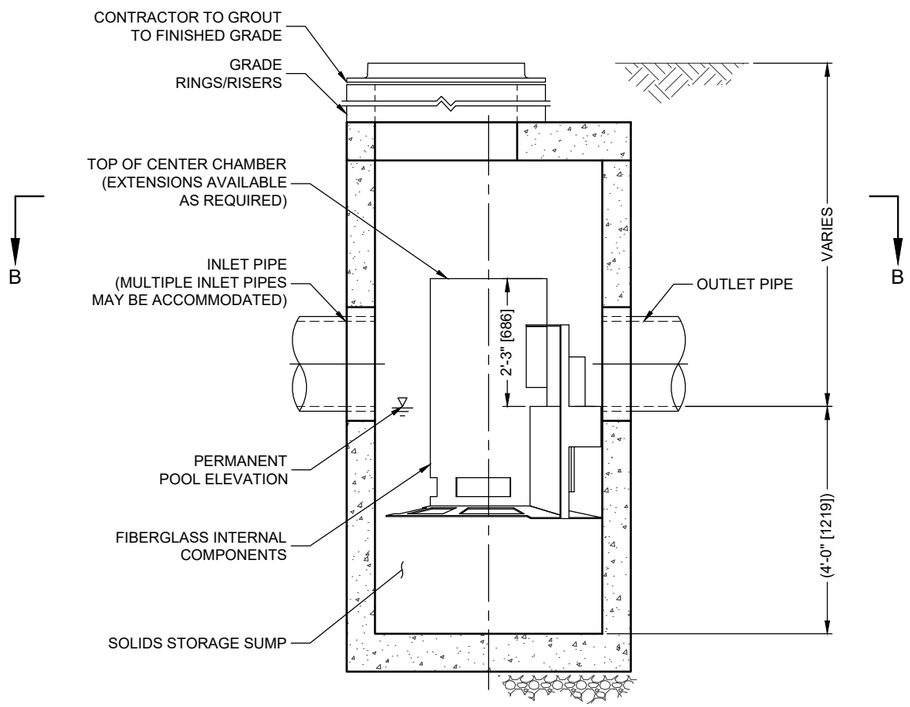
Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Hydraulic Loading Rate (gpm/ft2)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.3%	1.11	100.0	9.3
0.04	9.5%	2.23	100.0	9.5
0.06	8.7%	3.34	100.0	8.7
0.08	10.1%	4.45	100.0	10.1
0.10	7.2%	5.56	100.0	7.2
0.12	6.0%	6.68	100.0	6.0
0.14	6.3%	7.79	100.0	6.3
0.16	5.6%	8.90	100.0	5.6
0.18	4.7%	10.02	100.0	4.7
0.20	3.6%	11.13	100.0	3.6
0.25	8.2%	13.91	98.8	8.1
0.50	14.9%	27.82	85.7	12.8
0.75	3.2%	41.74	72.7	2.3
1.00	1.2%	55.65	59.6	0.7
1.50	0.7%	76.08	36.8	0.3
2.00	0.8%	76.08	27.6	0.2
				95.4
			Removal Efficiency Adjustment[2] =	6.5%
			Predicted % Annual Rainfall Treated =	93.2%
			Predicted Net Annual Load Removal Efficiency =	88.9%

1 - Based on 10 years of rainfall data from NCDC station 736, Blue Hill, Norfolk County, MA

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



PLAN VIEW B-B
NOT TO SCALE



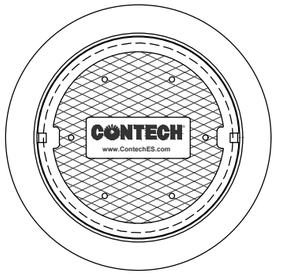
ELEVATION A-A
NOT TO SCALE

CASCADE
separator™

CASCADE SEPARATOR DESIGN NOTES

CS-4 RATED TREATMENT CAPACITY IS 2.0 CFS, OR PER LOCAL REGULATIONS.
THE STANDARD CS-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES / SPECIAL REQUIREMENTS:

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH
ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-4
CASCADE SEPARATOR
STANDARD DETAIL

I:\STORMWATER\JURISDICTIONS\USA\MA_SDE DESIGN TOOLS_STANDARD DETAILS\CASCADE\CS-4-DTL.DWG 4/16/2020 10:56 AM

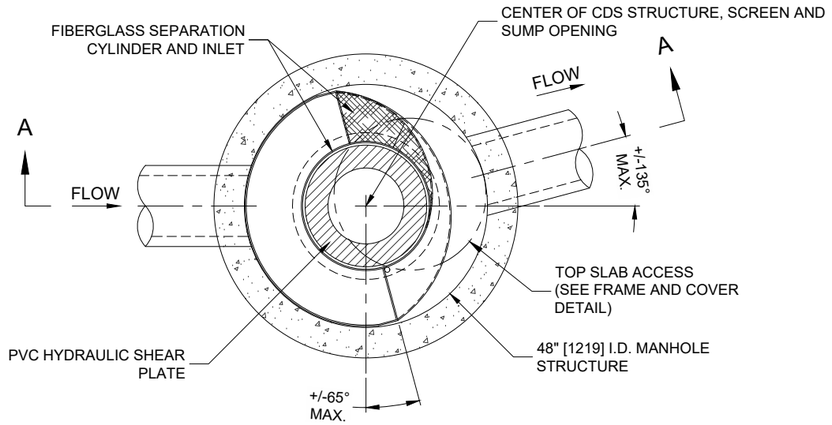
CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION
BASED ON THE RATIONAL RAINFALL METHOD

WAREHOUSE INDUSTRIAL DEVELOPMENT
FRANKLIN, MA

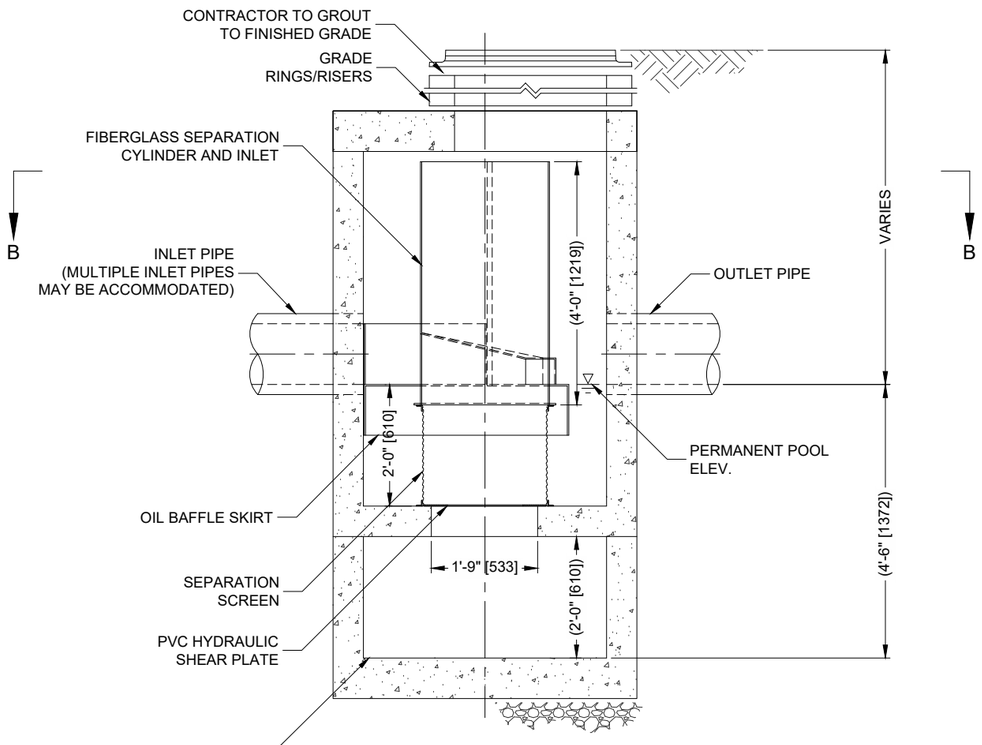
Area	**0.91 ac**	Unit Site Designation	**WQU 3**
Weighted C	**0.9**	Rainfall Station #	**68**
t_c	**6 min**		
CDS Model	**2015-4**	CDS Treatment Capacity	**1.4 cfs**

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Cumulative Rainfall Volume	Total Flowrate (cfs)	Treated Flowrate (cfs)	Incremental Removal (%)
0.02	9.3%	9.3%	0.02	0.02	9.0
0.04	9.5%	18.8%	0.03	0.03	9.1
0.06	8.7%	27.5%	0.05	0.05	8.3
0.08	10.1%	37.6%	0.07	0.07	9.5
0.10	7.2%	44.8%	0.08	0.08	6.7
0.12	6.0%	50.8%	0.10	0.10	5.6
0.14	6.3%	57.1%	0.11	0.11	5.8
0.16	5.6%	62.7%	0.13	0.13	5.1
0.18	4.7%	67.4%	0.15	0.15	4.2
0.20	3.6%	71.0%	0.16	0.16	3.2
0.25	8.2%	79.1%	0.20	0.20	7.1
0.50	14.9%	94.0%	0.41	0.41	11.5
0.75	3.2%	97.3%	0.61	0.61	2.2
1.00	1.2%	98.5%	0.82	0.82	0.7
1.50	0.7%	99.2%	1.23	1.23	0.3
2.00	0.8%	100.0%	1.63	1.40	0.2
0.00	0.0%	100.0%	0.00	0.00	0.0
0.00	0.0%	100.0%	0.00	0.00	0.0
0.00	0.0%	100.0%	0.00	0.00	0.0
0.00	0.0%	100.0%	0.00	0.00	0.0
0.00	0.0%	100.0%	0.00	0.00	0.0
0.00	0.0%	100.0%	0.00	0.00	0.0
0.00	0.0%	100.0%	0.00	0.00	0.0
0.00	0.0%	100.0%	0.00	0.00	0.0
					88.3
				Removal Efficiency Adjustment[2] =	6.5%
				Predicted % Annual Rainfall Treated =	93.4%
				Predicted Net Annual Load Removal Efficiency =	**81.9%**

1 - Based on 10 years of rainfall data from NCDC station 736, Blue Hill, Norfolk County, MA
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

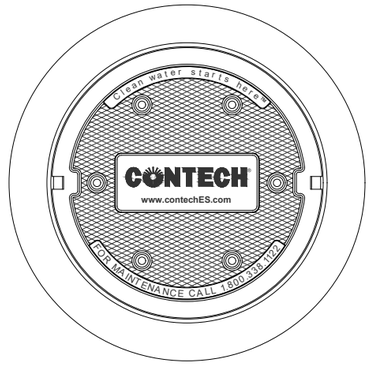
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,788,848; 6,641,720; 6,511,595; 6,581,783; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS2015-4-C DESIGN NOTES

CDS2015-4-C RATED TREATMENT CAPACITY IS 1.4 CFS, OR PER LOCAL REGULATIONS.

THE STANDARD CDS2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO..
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS2015-4-C
ONLINE CDS
STANDARD DETAIL

\\AD.CONTECH-CPI.COM\ROOT\STORMWATER\JURISDICTIONS\USA\MA_SDE DESIGN TOOLS_STANDARD DETAILS\CDS2015-4-C-DTL.DWG 8/6/2018 4:22 PM

Project: Warehouse Industrial Development
Location: Franklin, MA
Prepared For: Highpoint Engineering

Purpose: To calculate the water quality flow rate (WQF) over a given site area. In this situation the WQF is derived from the first 1" of runoff from the contributing impervious surface.

Reference: Massachusetts Dept. of Environmental Protection Wetlands Program / United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Procedure: Determine unit peak discharge using Figure 1 or 2. Figure 2 is in tabular form so is preferred. Using the tc, read the unit peak discharge (qu) from Figure 1 or Table in Figure 2. qu is expressed in the following units: cfs/mi^2/watershed inches (csm/in).

Compute Q Rate using the following equation:

Q = (qu) (A) (WQV)

where:

Q = flow rate associated with first 1" of runoff
qu = the unit peak discharge, in csm/in.
A = impervious surface drainage area (in square miles)
WQV = water quality volume in watershed inches (1" in this case)

Structure Name	Impv. (acres)	A (miles^2)	t_c (min)	t_c (hr)	WQV (in)	qu (csm/in.)	Q (cfs)
WQU 6	3.25	0.0050715	6.0	0.100	1.00	774.00	3.93
~~WQU 7~~	~~0.49~~	~~0.0007659~~	~~6.0~~	~~0.100~~	~~1.00~~	~~774.00~~	~~0.59~~

The WQf sizing calculation selects the minimum size CDS/Cascade/StormCeptor model capable of operating at the computed WQf peak flowrate prior to bypassing. It assumes free discharge of the WQf through the unit and ignores the routing effect of any upstream storm drain piping. As with all hydrodynamic separators, there will be some impact to the Hydraulic Gradient of the corresponding drainage system, and evaluation of this impact should be considered in the design.

WQU-7 HAS BEEN MODIFIED.
REFER TO NEXT PAGES FOR
WQU-7 INFORMATION

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

CONTECH ENGINEERED SOLUTIONS

CASCADE separator™

WAREHOUSE INDUSTRIAL DEV

FRANKLIN, MA

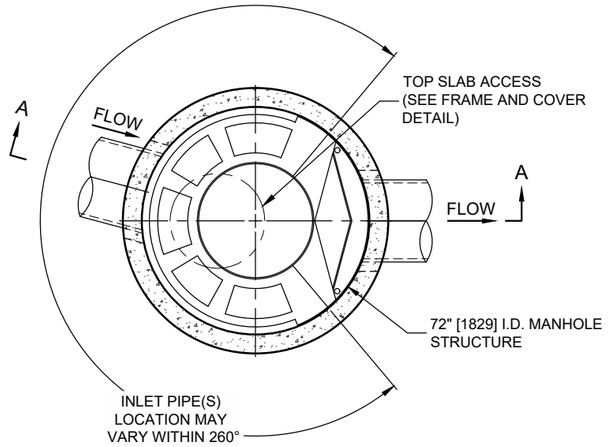
WQU 6

AREA	3.25	acres	**CASCADE MODEL**	CS-6	
WEIGHTED C	0.95		**PARTICLE SIZE**	110	microns
TC	6.00	minutes	**RAINFALL STATION**	68	

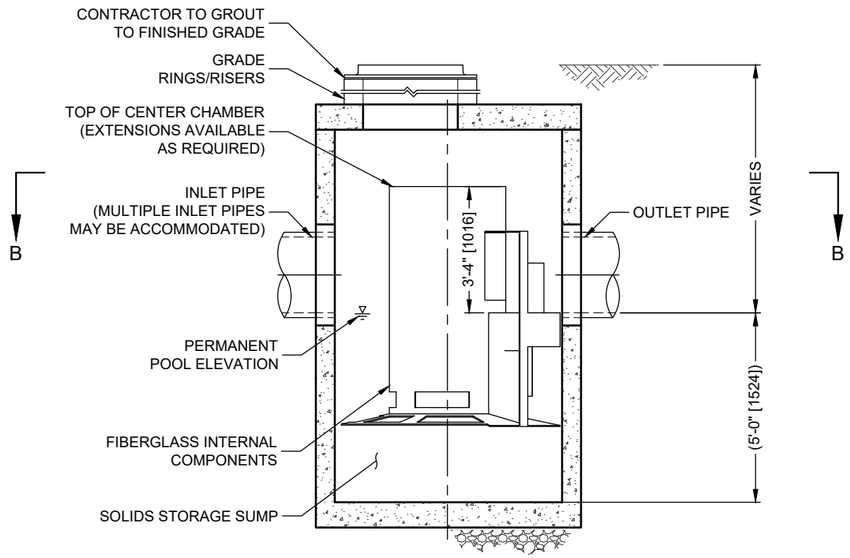
Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Hydraulic Loading Rate (gpm/ft2)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.3%	0.98	100.0	9.3
0.04	9.5%	1.96	100.0	9.5
0.06	8.7%	2.94	100.0	8.7
0.08	10.1%	3.92	100.0	10.1
0.10	7.2%	4.90	100.0	7.2
0.12	6.0%	5.88	100.0	6.0
0.14	6.3%	6.86	100.0	6.3
0.16	5.6%	7.84	100.0	5.6
0.18	4.7%	8.82	100.0	4.7
0.20	3.6%	9.80	100.0	3.6
0.25	8.2%	12.25	100.0	8.2
0.50	14.9%	24.51	88.9	13.3
0.75	3.2%	36.76	77.3	2.5
1.00	1.2%	49.01	65.8	0.8
1.50	0.7%	73.52	42.8	0.3
2.00	0.8%	98.02	19.8	0.2
				96.2
			Removal Efficiency Adjustment[2] =	6.5%
			Predicted % Annual Rainfall Treated =	93.5%
			Predicted Net Annual Load Removal Efficiency =	**89.7%**

1 - Based on 10 years of rainfall data from NCDC station 736, Blue Hill, Norfolk County, MA

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



PLAN VIEW B-B
NOT TO SCALE



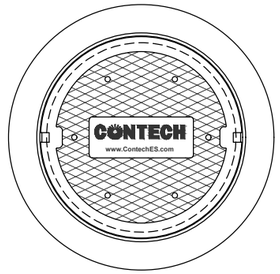
ELEVATION A-A
NOT TO SCALE

CASCADE
separator™

CASCADE SEPARATOR DESIGN NOTES

CS-6 RATED TREATMENT CAPACITY IS 5.6 CFS, OR PER LOCAL REGULATIONS.
THE STANDARD CS-6 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
RIM ELEVATION	

PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES / SPECIAL REQUIREMENTS:

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5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

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E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH
ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-6
CASCADE SEPARATOR
STANDARD DETAIL

I:\STORMWATER\JURISDICTIONS\USA\MA_SDE DESIGN TOOLS_STANDARD DETAILS\CASCADE\CS-6-DTL.DWG 4/10/2020 12:51 PM

Project: Warehouse Industrial Development
Location: Franklin, MA
Prepared For: Highpoint Engineering

Purpose: To calculate the water quality flow rate (WQF) over a given site area. In this situation the WQF is derived from the first 1" of runoff from the contributing impervious surface.

Reference: Massachusetts Dept. of Environmental Protection Wetlands Program / United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Procedure: Determine unit peak discharge using Figure 1 or 2. Figure 2 is in tabular form so is preferred. Using the tc, read the unit peak discharge (qu) from Figure 1 or Table in Figure 2. qu is expressed in the following units: cfs/mi^2/watershed inches (csm/in).

Compute Q Rate using the following equation:

$$Q = (qu)\ (A)\ (WQV)$$

where:

Q = flow rate associated with first 1" of runoff
qu = the unit peak discharge, in csm/in.
A = impervious surface drainage area (in square miles)
WQV = water quality volume in watershed inches (1" in this case)

Structure Name	Impv. (acres)	A (miles^2)	t_c (min)	t_c (hr)	WQV (in)	qu (csm/in.)	Q (cfs)
WQU 7	2.98	0.0046589	6.0	0.100	1.00	774.00	3.61

The WQf sizing calculation selects the minimum size CDS/Cascade/StormCeptor model capable of operating at the computed WQf peak flowrate prior to bypassing. It assumes free discharge of the WQf through the unit and ignores the routing effect of any upstream storm drain piping. As with all hydrodynamic separators, there will be some impact to the Hydraulic Gradient of the corresponding drainage system, and evaluation of this impact should be considered in the design.

Estimated Net Annual Solids Load Reduction
Based on the Rational Rainfall Method

CONTECH ENGINEERED SOLUTIONS

SciCloneX

WAREHOUSE INDUSTRIAL DEV

FRANKLIN, MA

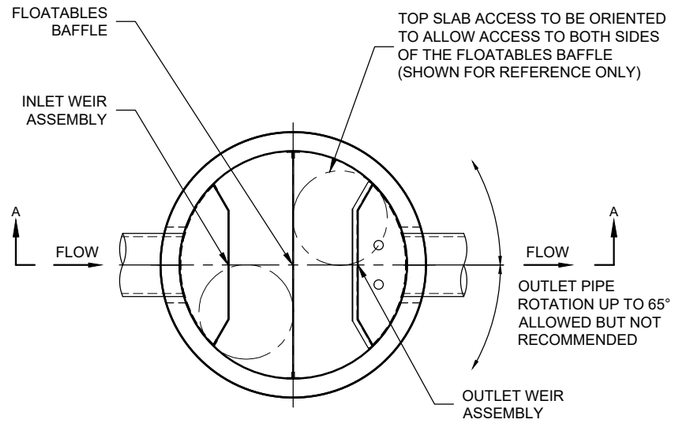
WQU 7

AREA	2.98	acres	**SCICLONEX MODEL**	SCX-6	
WEIGHTED C	0.95		**PARTICLE SIZE**	110	microns
TC	6.00	minutes	**RAINFALL STATION**	68	

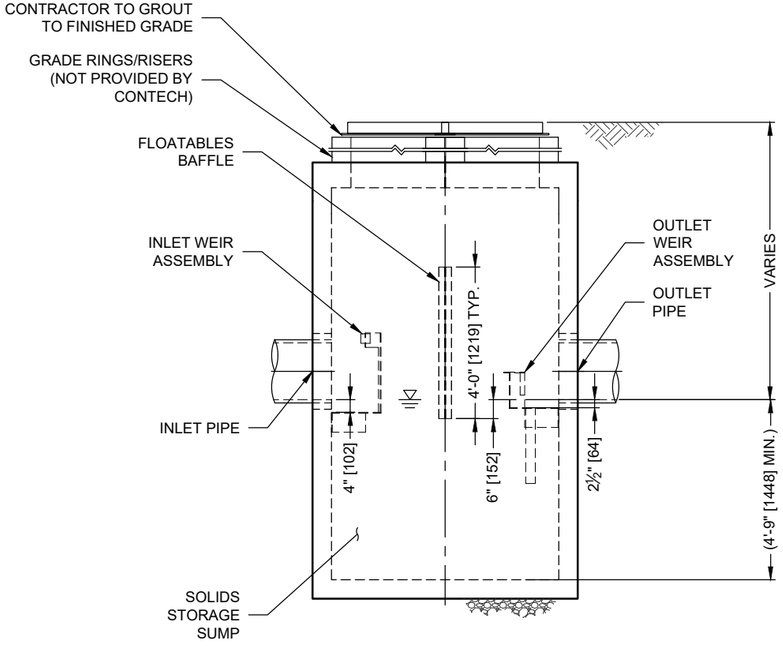
Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Hydraulic Loading Rate (gpm/ft2)	Removal Efficiency (%)	Incremental Removal (%)
0.02	9.3%	0.90	100.0	9.3
0.04	9.5%	1.80	100.0	9.5
0.06	8.7%	2.70	100.0	8.7
0.08	10.1%	3.60	100.0	10.1
0.10	7.2%	4.49	100.0	7.2
0.12	6.0%	5.39	100.0	6.0
0.14	6.3%	6.29	100.0	6.3
0.16	5.6%	7.19	100.0	5.6
0.18	4.7%	8.09	100.0	4.7
0.20	3.6%	8.99	100.0	3.6
0.25	8.2%	11.23	100.0	8.2
0.50	14.9%	22.47	91.7	13.7
0.75	3.2%	33.70	83.1	2.7
1.00	1.2%	44.94	74.6	0.9
1.50	0.7%	67.41	57.5	0.4
2.00	0.8%	89.88	40.4	0.3
				97.1
			Removal Efficiency Adjustment[2] =	6.5%
			Predicted % Annual Rainfall Treated =	93.5%
			Predicted Net Annual Load Removal Efficiency =	**90.7%**

1 - Based on 10 years of rainfall data from NCDC station 736, Blue Hill, Norfolk County, MA

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



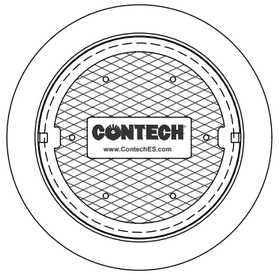
PLAN VIEW
TOP SLAB NOT SHOWN



SECTION A-A

SCICLONEX DESIGN NOTES

THE STANDARD SCX-06 CONFIGURATION IS SHOWN. **SCX-06 RATED TREATMENT CAPACITY IS 6.22 CFS OR PER LOCAL REGULATIONS**



FRAME AND COVER
(MAY VARY)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
RIM ELEVATION	

PIPE DATA:	INVERT	MATERIAL	DIAMETER
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INLET PIPE 2			
OUTLET PIPE			

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SciCloneX™
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

CONTECH ENGINEERED SOLUTIONS LLC
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800-328-2047 320-852-7500 320-852-7067 FAX

SCX-06
SCICLONEX
STANDARD DETAIL

I:\COMMON\CAD\TREATMENT\24 SCICLONEX\40 STANDARD DRAWINGS\IN PROCESS\SCX-06-DTL.DWG 2/15/2023 3:23 PM

		2-YR		10-YR	25-YR		100-YR
CARVER PLYMOUTH COUNTY NRCC-C	2.78	3.35	4.18	4.95	6.19	7.33	8.68
CHARLEMONT FRANKLIN COUNTY NRCC-C	2.48	3.02	3.70	4.33	5.32	6.22	7.29
CHARLTON WORCESTER COUNTY SOUTH NRCC-D	2.65	3.22	4.05	4.83	6.08	7.24	8.64
CHATHAM BARNSTABLE COUNTY EAST NRCC-C	2.74	3.26	4.03	4.74	5.88	6.92	8.15
CHELMSFORD MIDDLESEX COUNTY CENTRAL NRCC-D	2.58	3.09	3.90	4.65	5.87	7.00	8.36
CHELSEA SUFFOLK COUNTY NRCC-D	2.72	3.26	4.11	4.90	6.19	7.39	8.83
CHESHIRE BERKSHIRE COUNTY NORTH NRCC-B	2.42	2.81	3.48	4.09	5.07	5.97	7.04
CHESTER HAMPDEN COUNTY NRCC-C	2.60	3.11	3.89	4.60	5.74	6.80	8.05
CHESTERFIELD HAMPSHIRE COUNTY NRCC-C	2.55	3.07	3.80	4.47	5.54	6.52	7.68
CHICOPEE HAMPDEN COUNTY NRCC-C	2.60	3.11	3.89	4.60	5.74	6.80	8.05
CHILMARK DUKES COUNTY NRCC-C	2.80	3.31	4.14	4.91	6.16	7.30	8.67
CLARKSBURG BERKSHIRE COUNTY NORTH NRCC-B	2.42	2.81	3.48	4.09	5.07	5.97	7.04
CLINTON WORCESTER COUNTY CENTRAL NRCC-D	2.58	3.13	3.93	4.68	5.88	7.00	8.34
COHASSET NORFOLK COUNTY NRCC-C	2.69	3.22	4.07	4.86	6.15	7.35	8.80
COLRAIN FRANKLIN COUNTY NRCC-C	2.48	3.02	3.70	4.33	5.32	6.22	7.29
CONCORD MIDDLESEX COUNTY CENTRAL NRCC-D	2.58	3.09	3.90	4.65	5.87	7.00	8.36
CONWAY FRANKLIN COUNTY NRCC-C	2.48	3.02	3.70	4.33	5.32	6.22	7.29
CUMMINGTON HAMPSHIRE COUNTY NRCC-C	2.55	3.07	3.80	4.47	5.54	6.52	7.68
DALTON BERKSHIRE COUNTY NORTH NRCC-B	2.42	2.81	3.48	4.09	5.07	5.97	7.04
DANVERS ESSEX COUNTY NRCC-D	2.63	3.15	4.02	4.83	6.16	7.42	8.94
DARTMOUTH BRISTOL COUNTY NRCC-C	2.74	3.30	4.12	4.88	6.10	7.22	8.56
DEDHAM NORFOLK COUNTY NRCC-C	2.69	3.22	4.07	4.86	6.15	7.35	8.80
DEERFIELD FRANKLIN COUNTY NRCC-C	2.48	3.02	3.70	4.33	5.32	6.22	7.29
DENNIS BARNSTABLE COUNTY EAST NRCC-C	2.74	3.26	4.03	4.74	5.88	6.92	8.15
DIGHTON BRISTOL COUNTY NRCC-C	2.74	3.30	4.12	4.88	6.10	7.22	8.56
DOUGLAS WORCESTER COUNTY SOUTH NRCC-D	2.65	3.22	4.05	4.83	6.08	7.24	8.64
DOVER NORFOLK COUNTY NRCC-C	2.69	3.22	4.07	4.86	6.15	7.35	8.80
DRACUT MIDDLESEX COUNTY NORTH NRCC-C	2.52	3.00	3.76	4.46	5.60	6.66	7.92
DUDLEY WORCESTER COUNTY SOUTH NRCC-D	2.65	3.22	4.05	4.83	6.08	7.24	8.64
DUNSTABLE MIDDLESEX COUNTY NORTH NRCC-C	2.52	3.00	3.76	4.46	5.60	6.66	7.92
DUXBURY PLYMOUTH COUNTY NRCC-C	2.78	3.35	4.18	4.95	6.19	7.33	8.68
EAST BRIDGEWATER PLYMOUTH COUNTY NRCC-C	2.78	3.35	4.18	4.95	6.19	7.33	8.68
EAST BROOKFIELD WORCESTER COUNTY CENTRAL NRCC-D	2.58	3.13	3.93	4.68	5.88	7.00	8.34
EAST LONGMEADOW HAMPDEN COUNTY NRCC-C	2.60	3.11	3.89	4.60	5.74	6.80	8.05
EASTHAM BARNSTABLE COUNTY EAST NRCC-C	2.74	3.26	4.03	4.74	5.88	6.92	8.15
EASTHAMPTON HAMPSHIRE COUNTY NRCC-C	2.55	3.07	3.80	4.47	5.54	6.52	7.68
EASTON BRISTOL COUNTY NRCC-C	2.74	3.30	4.12	4.88	6.10	7.22	8.56
EDGARTOWN DUKES COUNTY NRCC-C	2.80	3.31	4.14	4.91	6.16	7.30	8.67
EGREMONT BERKSHIRE COUNTY SOUTH NRCC-C	2.50	2.94	3.69	4.38	5.50	6.54	7.78
ERVING FRANKLIN COUNTY NRCC-C	2.48	3.02	3.70	4.33	5.32	6.22	7.29
ESSEX ESSEX COUNTY NRCC-D	2.63	3.15	4.02	4.83	6.16	7.42	8.94
EVERETT MIDDLESEX COUNTY SOUTH NRCC-D	2.64	3.16	3.99	4.77	6.03	7.21	8.62
FAIRHAVEN BRISTOL COUNTY NRCC-C	2.74	3.30	4.12	4.88	6.10	7.22	8.56
FALL RIVER BRISTOL COUNTY NRCC-C	2.74	3.30	4.12	4.88	6.10	7.22	8.56
FALMOUTH BARNSTABLE COUNTY WEST NRCC-C	2.80	3.32	4.14	4.89	6.10	7.22	8.55
FITCHBURG WORCESTER COUNTY NORTH NRCC-C	2.47	2.95	3.68	4.35	5.43	6.42	7.60
FLORIDA BERKSHIRE COUNTY NORTH NRCC-B	2.42	2.81	3.48	4.09	5.07	5.97	7.04
FOXBOROUGH NORFOLK COUNTY NRCC-C	2.69	3.22	4.07	4.86	6.15	7.35	8.80
FRAMINGHAM MIDDLESEX COUNTY SOUTH NRCC-D	2.64	3.16	3.99	4.77	6.03	7.21	8.62
FRANKLIN NORFOLK COUNTY NRCC-C	2.69	3.22	4.07	4.86	6.15	7.35	8.80
FREETOWN BRISTOL COUNTY NRCC-C	2.74	3.30	4.12	4.88	6.10	7.22	8.56
GARDNER WORCESTER COUNTY NORTH NRCC-C	2.47	2.95	3.68	4.35	5.43	6.42	7.60
GEORGETOWN ESSEX COUNTY NRCC-D	2.63	3.15	4.02	4.83	6.16	7.42	8.94
GILL FRANKLIN COUNTY NRCC-C	2.48	3.02	3.70	4.33	5.32	6.22	7.29
GLOUCESTER ESSEX COUNTY NRCC-D	2.63	3.15	4.02	4.83	6.16	7.42	8.94
GOSHEN HAMPSHIRE COUNTY NRCC-C	2.55	3.07	3.80	4.47	5.54	6.52	7.68
GOSNOLD DUKES COUNTY NRCC-C	2.80	3.31	4.14	4.91	6.16	7.30	8.67
GRAFTON WORCESTER COUNTY SOUTH NRCC-D	2.65	3.22	4.05	4.83	6.08	7.24	8.64
GRANBY HAMPSHIRE COUNTY NRCC-C	2.55	3.07	3.80	4.47	5.54	6.52	7.68
GRANVILLE HAMPDEN COUNTY NRCC-C	2.60	3.11	3.89	4.60	5.74	6.80	8.05

DOWNSTREAM RECEIVING WATERBODY IMPAIRMENT ANALYSIS

The proposed project is located within the Charles River Watershed within the project site is most immediately tributary to Charles River by way of Dix Brook and Mine Brook to the West.

The "Massachusetts Year 2016 Integrated List of Waters," published December 2019, indicates Category 5 impairments for Mine Brook in the Charles River Watershed for Escherichia Coli (E. Coli).

The proposed project use will reduce the potential for effluent discharges to downstream receiving waters, thereby reducing the bacterial contamination of the Charles River.

The post-development site will not be open to the public, and there will be no public access contributing to pedestrian or pet traffic, thereby eliminating the prospect of pet waste entering the stormwater management system and discharging to downstream receiving waters through storm runoff. Future tenants will be advised not to dump waste into on-site drain inlets, rain gardens or sub-surface infiltration systems. Furthermore, the proposed project includes sanitary sewer service connection improvements, including precast concrete manholes and watertight PVC piping, which will replace existing on-site sewer infrastructure. This newer system will reduce the likelihood of unintentional subsurface sanitary waste discharges from old sewer infrastructure contaminating the groundwater table.

The proposed project will provide phosphorus and nitrogen removal via implementation of BMPs including two (2) surface infiltration rain gardens and four (4) subsurface infiltration systems, biannual catch basin sump cleaning, and leaf litter removal. The site will be subject to a Long-Term Operation and Maintenance Plan encompassing stormwater BMP inspection and maintenance, landscape management practices, good housekeeping, spill prevention and response, and snow removal per the recommendations of the Massachusetts Stormwater Management Standards. The removal of phosphorus will help reduce algae growth in downstream waterways, thereby reducing the consumption of dissolved oxygen through death and decomposition of algae.

The MS4 Stormwater Management Standards for development projects require a 60% minimum removal of the average annual load of total phosphorus and nitrogen from impervious areas prior to discharge. The following is an analysis of phosphorus and nitrogen removal efficiency for the proposed project. All calculations are per MA Small MS4 Permit Appendix F and Attachments 1 through 3 thereto.

POST-DEVELOPMENT PHOSPHORUS LOAD

Hydrologic Soil Group	= A	
Impervious Area	= 924,105 ft^2[1]	
Open Space Area	= 475,580 ft^2	
Wooded Area	= 18,537 ft^2	
P Load$_{IMP-IND}$	= (924,105/43,560) x 1.78	= 37.76 lb P/yr
P Load$_{PERV}$	= (475,580/43,560) x 0.21	= 2.29 lb P/yr
P Load$_{WOODED}$	= (18537/43,560) x 0.13	= 0.05 lb P/yr
P_{DEV}	= 37.76 + 2.29 + 0.05	= **40.10 lb P/yr**

TARGET TOTAL PHOSPHORUS LOAD REDUCTION

$TPLR_{60}$ = 40.10 x 0.6
= **24.06 lb P/yr**

ENHANCED SWEEPING CREDIT (BIANNUAL)

$Credit_{SWEEPING}$ = IA^2 x $PLE_{IC-LAND-USE}$ x $PRF_{SWEEPING}$[3]
= (578,530/43,560) x 1.78 x 0.01 = **0.24 lb P/yr**

CATCH BASIN CLEANING CREDIT (BIANNUAL)

$Credit_{CB-CLEANING}$ = IA^4 x $PLE_{IC-LAND-USE}$ x $PRF_{CB-CLEANING}$
= (530,716/43,560) x 1.78 x 0.02 = **0.43 lb P/yr**

LEAF LITTER REMOVAL CREDIT

$Credit_{LL-RMV}$ = $LLRA^5$ x $PLE_{IC-LAND-USE}$ x 0.05
= (1,064,253/43,560) x 1.78 x 0.05 = **2.17 lb/yr**

---

[1] Existing building roof excluded.

[2] Includes all on-site paved ground surface areas including loading areas. Does not include sidewalk/hardscape areas.

[3] Mechanical broom technology, biannual

[4] Includes all on-site impervious ground surface areas tributary to existing and proposed catch basins. Does not include areas not tributary to existing and proposed catch basins.

[5] Includes all on-site non-wooded ground surface areas. Does not include roof areas.

[6] Existing building roof excluded

Proposed BMPs: SWM-2, SWM-3, SWM-4, RG#1 & RG#2:

Infiltration Rate = 2.41in/hr

DSV_{UDS} = Chamber volume + stone void space volume below outlet invert

= 70,679.50 ft^3 (see Appendix B – Groundwater Recharge Calculations)

Impervious Area (IA_{UDS}) = 598,677 ft^2

Pervious Area (PA_{UDS}) = 161,031 ft^2

Runoff Depth from IA_{UDS} = (70,679.50 ft^3 / 598,677 ft^2) x (12 in/ft) = 1.41 inches

P Load Reduction$_{UDS}$ = 98.0% (per Appendix F Attachment 3, Figure 3-5)

P Load$_{UDS}$ = [(598,677 /43,560) x 1.78] + [(161,031 /43,560) x 0.21] = 25.23 lb P/yr

BMP Reduction$_{UDS}$ = 25.23 x 0.98 = **24.72 lb P/yr**

Proposed BMPs: SWM-6:

Infiltration Rate = 2.41 in/hr

DSV_{UDS} = Chamber volume + stone void space volume below outlet invert

= 2,581 ft^3 (see Appendix B – Groundwater Recharge Calculations)

Impervious Area (IA_{UDS}) = 108,531 ft^2

Pervious Area (PA_{UDS}) = 0 ft^2

Runoff Depth from IA_{UDS} = (2,581 ft^3 / 108,531 ft^2) x (12 in/ft) = 0.28 inches

P Load Reduction$_{UDS}$ = 65% (per Appendix F Attachment 3, Figure 3-5)

P Load$_{UDS}$ = [(108,531 /43,560) x 1.78] + [(0 /43,560) x 0.21] = 4.43 lb P/yr

BMP Reduction$_{UDS}$ = 4.43 x 0.65 = **2.88 lb P/yr**

CUMULATIVE TOTAL PHOSPHORUS LOAD REDUCTION

Σ Credits = $Credit_{SWEEPING}$ + $Credit_{CB\text{-}CLEANING}$ + $Credit_{LL\text{-}RMV}$

= 0.24 + 0.43+ 2.17 = **2.84 lb P/yr**

Σ BMP Reductions = BMP Reduction$_{UDS}$ + BMP Reduction$_{UDS}$

= 24.72 + 2.88 = **27.60 lb P/yr**

$TPLR_{TOTAL}$ = Σ Credits + Σ BMP Reductions

= 2.88 + 27.63

= **30.44 lb P/yr > 24.06 lb P/yr**

TP Load Reduction Rate = 30.44 / 40.10

= **75.9% > 60.0%**

POST-DEVELOPMENT NITROGEN LOAD

Hydrologic Soil Group	= A	
Impervious Area	= 924,105 ft^{2i}	
Open Space Area	= 475,580 ft^2	
Wooded Area	= 18,537 ft^2	
P $Load_{IMP-IND}$	= (924,105/43,560) x 15.0	= 318.22 lb N/yr
P $Load_{PERV}$	= (475,580/43,560) x 2.40	= 26.20 lb N/yr
P $Load_{WOODED}$	= (18,537/43,560) x 0.13	= 0.05 lb N/yr
P_{DEV}	= 318.22 + 26.20 + 0.05	= **344.47 lb N/yr**

TARGET TOTAL NITROGEN LOAD REDUCTION

$TPLR_{60}$	= 344.47x 0.6
	= **206.68 lb P/yr**

Proposed BMPs: SWM-1, SWM-2, SWM-3, SWM-4, SWM-5 RG#1 & RG#2:

Infiltration Rate	= 2.41in/hr
DSV_{UDS}	= Chamber volume + stone void space volume below outlet invert
	= 70,679.50 ft^3 (see Appendix B – Groundwater Recharge Calculations)
Impervious Area (IA_{UDS})	= 598,677 ft^2
Pervious Area (PA_{UDS})	= 161,031 ft^2
Runoff Depth from IA_{UDS}	= (70,679.5 ft^3/ 598,677 ft^2) x (12 in/ft) = 1.41 inches
N $Load\ Reduction_{UDS}$	= 98.0% (per Appendix F Attachment 3, Figure 3-5)
N $Load_{UDS}$	= [(598,677 /43,560) x 15.0] + [(161,031 /43,560) x 2.40] = 209.84 lb N/yr
BMP $Reduction_{UDS}$	= 209.84 x 0.98 = **205.64 lb N/yr**

Proposed BMPs: SWM-6:

Infiltration Rate = 2.41 in/hr

DSV_{UDS} = Chamber volume + stone void space volume below outlet invert

= 2,581 ft^3 (see Appendix B – Groundwater Recharge Calculations)

Impervious Area (IA_{UDS}) = 108,531 ft^2

Pervious Area (PA_{UDS}) = 0 ft^2

Runoff Depth from IA_{UDS} = (2,581 ft^3 / 108,531 ft^2) x (12 in/ft) = 0.28 inches

N Load $Reduction_{UDS}$ =65% (per Appendix F Attachment 3, Figure 3-5)

N $Load_{UDS}$ = [(108,531 /43,560) x 15.0] + [(0 /43,560) x 2.40] = 37.37 lb N/yr

BMP $Reduction_{UDS}$ = 37.37 x 0.65 = **24.29 lb N/yr**

CUMULATIVE TOTAL NITROGEN LOAD REDUCTION8

Σ BMP Reductions = BMP $Reduction_{UDS}$ + BMP $Reduction_{UDS}$

= 205.64 + 24.29 = **229.93 lb N/yr**

$TNLR_{TOTAL}$ = Σ BMP Reductions

= 229.93

= **229.93 lb N/yr > 206.68 lb N/yr**

TN Load Reduction Rate = 229.93 / 334.47

= **68.7% > 60.0%**

CONCLUSION

The proposed stormwater treatment train, including enhanced pavement sweeping, catch basin cleaning, and leaf litter removal practices incorporated into the Long-Term Operation and Maintenance Plan, achieves 75.9% total phosphorus removal and 68.7% total nitrogen removal for the project site.

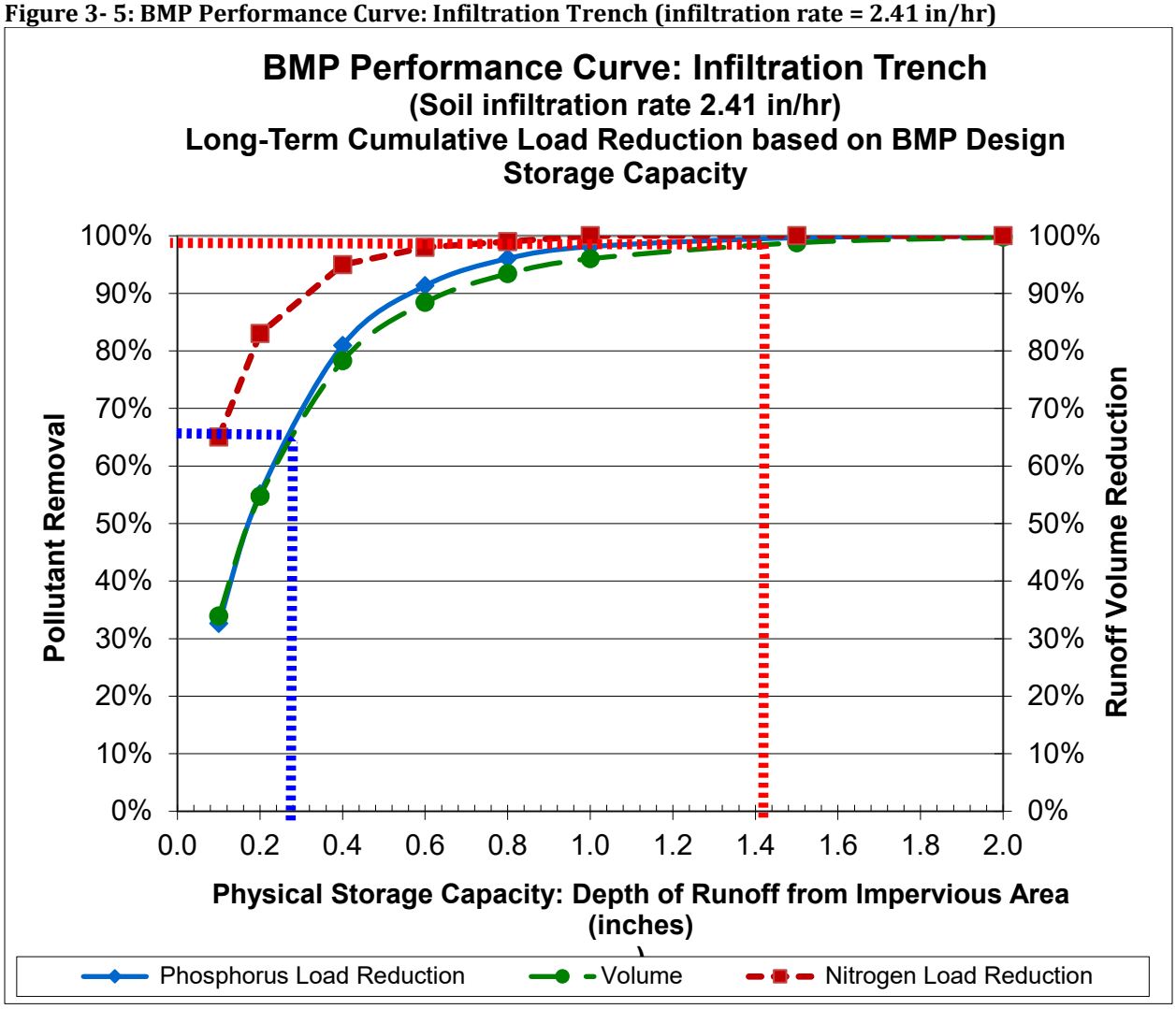
Additionally, the proposed use of the project site, including the implementation of the Long-Term Operation and Maintenance Plan, will not increase the likelihood of bacterial discharges to downstream receiving waters. The project proposes sanitary sewer service improvements which will prevent subsurface discharges of sanitary waste that could contaminate the groundwater table. The project site will not provide public access or amenities therefore pet waste will not be present on site.

The Long-Term Operation and Maintenance Plan is provided under Appendix D of the Stormwater Management Analysis.

Table 3- 10: Infiltration Trench (IR = 2.41 in/hr) BMP Performance Table

Infiltration Trench (IR = 2.41 in/hr) BMP Performance Table: Long-Term Phosphorus Load Reduction								
BMP Capacity: Depth of Runoff Treated from Impervious Area (inches)	0.1	0.2	0.4	0.6	0.8	1.0	1.5	2.0
Runoff Volume Reduction	34%	55%	78%	88%	93%	96%	99%	100%
Cumulative Phosphorus Load Reduction	33%	55%	81%	91%	96%	98%	100%	100%
Cumulative Nitrogen Load Reduction	65%	83%	95%	98%	99%	100%	100%	100%

Figure 3- 5: BMP Performance Curve: Infiltration Trench (infiltration rate = 2.41 in/hr)



PROPOSED BMPs: SWM-2, SWM-3, SWM-4, RG#1 AND RG#2
□□□PHOSPHORUS: 1.41 INCHES = 98.0%
NITROGEN: 1.41 INCHES = 98.0%

PROPOSED BMP: SWM-6□□□
PHOSPHORUS: 0.24 INCHES = 60.0%
NITROGEN: 0.28 = 65.0%

PRELIMINARY SUBSURFACE ASSESSMENT REPORT

PROPOSED RE-DEVELOPMENT
100-200 FINANCIAL PARK
FRANKLIN, MASSACHUSETTS

Prepared For:

Highpoint Engineering, Inc.
980 Washington Street, Suite 216
Dedham, Massachusetts 02026

Prepared By:

MGA McArdle Gannon Associates, Inc.
Engineers & Consultants

Pembroke, Massachusetts

MGA No. G0976
May 2023

McArdle Gannon Associates, Inc.
Engineers & Consultants

May 19, 2023
MGA No. G0976

Douglas Hartnett, P.E.
President
Highpoint Engineering, Inc.
980 Washington Street, Suite 216
Dedham, MA 02026

RE: Preliminary Subsurface Assessment Report for the Proposed Re-Development at 100-200 Financial Park in Franklin, Massachusetts.

Dear Doug:

This report summarizes the results of our preliminary subsurface assessment conducted at the site of the above referenced project. The purpose of our studies has been to assess subsurface conditions in the area of the proposed re-development at the site and provide preliminary geotechnical considerations for foundation, slab, pavement and stormwater infiltration design and related earthwork construction for the project.

This report had been prepared in accordance with our proposal to you dated January 18, 2023. The information contained in this report is subject to the Statement of Limitations attached as Appendix A.

BACKGROUND

Our understanding of the site and proposed project is based on our correspondence with you and review of the following:

- A plan entitled "Groundwater Contour Map, Spring 2010," Figure no. C.1, dated June 23, 2010, by Environmental Health & Engineering, Inc (EHE),
- An AutoCad File named "22051_Layout by Highpoint Engineering, Inc. (HEI), and
- Draft plans entitled "Limited/Complied Existing Conditions Plan," drawing no. EC-1 through EC-5, dated March 17, 2023, by Hancock Associates. (HA).

The subject site is located west of the intersection of Washington Street and Financial Park in Franklin, Massachusetts. A Site Locus is attached as Figure 1. The site is currently occupied by two buildings and associated pavement and landscape features. Financial Park encircles the subject property with residential properties to east, a commercial building to the south, and

wooded areas to the west and north of the property. Existing ground surface contours between about Elevation 242 and 270± feet are shown in the proposed development area on the referenced plans.

According to the above referenced plans, two warehouse buildings, a 224,300± square foot Building 1 and a 70,500± square feet Building 2, are planned at the site. Finish floors at Elevation of 262± feet are planned for the buildings. We understand that the smaller existing building at 200 Financial Park will remain and the larger building at 100 Financial Park will be razed to accommodate the re-development. Pavement areas and drainage improvements will also be included for the re-development.

SUBSURFACE EXPLORATIONS

M.J. Tuttle Excavating (MJT) of Holliston, Massachusetts excavated eight (8) test pits (TP-1 through TP-8) at the site on March 16, 2023 with a Caterpillar 416C backhoe. MJT excavated the pits to depths between about 11± and 14± feet below ground surface (bgs) and terminated the majority of the pits in natural granular soils. MJT ended test pit TP-14 in existing fill at 14± feet bgs.

A Massachusetts Licensed Soil Evaluator from our office observed and logged the test pits. "Form 11 – Soil Suitability Assessment for On-Site Sewage Disposal" logs are included as Appendix B. Pictures of the test pits are attached as Appendix C.

HA survey located and provided ground surface elevations at each test pit location. The elevations shown on the logs and discussed in the report are approximate. The approximate test pit locations are shown on the attached Figure 2: Exploration Location Plan.

LABORATORY TESTING

We performed gradation and moisture content tests on five (5) selected soil samples retrieved during the recent explorations for use in our preliminary studies. We performed the tests on samples of the natural granular soils to verify our field descriptions and to gain a preliminary understanding of the engineering behavior of the soils tested. The test results are attached as Appendix D. A summary of the lab test results is presented in Table I below:

TABLE I.
SUMMARY OF LABORATORY TEST RESULTS

Test Pit No.	Sample No.	Depth (feet)	Strata Description (USDA)	As Received Moisture (%)
TP-1	S-1	8-9	Sandy Loam	8.1
TP-3	S-1	5-6	Sand	5.3
TP-4	S-1	7-8	Sandy Loam	11
TP-6	S-1	4-5	Sand	4.7
TP-8	S-1	4-5	Silt Loam	17.9

SUBSURFACE CONDITIONS

The general subsurface profile encountered in the explorations at the site consists of topsoil, loam fill and granular fill underlain by natural granular soils (sand, sand and silt, sand and gravel, and silty sand and gravel). The approximate bottom of topsoil and fill depths and elevations are shown adjacent to each exploration on the attached Figure No. 2. Additional information can be found on the test pit logs attached as Appendix B.

The following is a general description of the subsurface strata encountered in the test pits performed at the site:

Topsoil or Loam Fill: Topsoil or loam fill (Soil Horizon Layer A or Ap on the logs) covers the ground surface at each exploration location. This layer is between about 0.5± to 2.7± feet thick and generally consists of dark brown, fine to medium sand with about 20 to 40 percent silt and up to about 15 percent roots/organic matter.

An approximate 0.5± to 0.7± feet thick buried topsoil layer (Soil Horizon A or Ap on the logs) exists below fill in test pits TP-1 and TP-2. The buried topsoil generally consists of dark brown, fine to medium sand with about 25 to 45 percent silt and up to 5 percent roots.

Fill: Fill below a loam fill layer at each test pit except TP-3, TP-5, and TP-6. The fill (including loam fill) is between about 0.8± and 9.3± feet thick, where penetrated, at the test pit locations. MJT terminated test pit TP-7 in fill at 14± feet bgs.

The existing fill is variable in its composition across the site. The fill is typically granular in nature, generally consisting of brown, fine to coarse sand with about 15 to 30 percent fine to coarse gravel, 10 to 20 percent silt, and 5 to 15 percent boulders and cobbles. The fill encountered in test pit TP-7 contains up to 15 percent roots.

Natural Granular Soils: The top of natural granular soil deposits (Soil Horizons C, C1 and C2 on the logs) are present below the topsoil, fill, and buried topsoil at between about 0.8 to 10± feet below existing ground surface in the test pit locations, except at test pit TP-7. These depths correspond to about Elevation 243.6± to 261.2± feet.

The granular soils encountered generally consist of sand, sand and silt, sand and gravel, and silty sand and gravel. The sand generally consists of beige, fine to medium/fine to coarse sand with up to about 15 percent fine/fine to coarse gravel, and up to 10 percent silt.

Natural Sand and Silt encountered at test pit TP-8 generally consists of beige, fine sand with about 45 percent silt.

Sand and gravel generally consist of light brown/orange-brown, fine to coarse sand with about 30 to 65 percent gravel, about 10 to 30 percent cobbles and boulders, and up to about 10 percent silt.

Silty Sand and gravel generally consist of olive-brown, fine to coarse sand with about 30 to 65 percent gravel, about 10 to 30 percent cobbles and boulders, and about 15 to 25 percent silt.

Groundwater: Groundwater was encountered at about 4.6± to 9± feet bgs during excavation of test pits TP-1, TP-2, TP-4 TP-5, and TP-8. These depths correspond to about Elevation 246.6± to 252.1± feet. Groundwater was not encountered to the depths explored during excavation of the remaining pits. We observed redoximorphic features, that are an indication of seasonal high groundwater levels, at a depth of about 5± to 5.2± feet below ground surface in test pit TP-5 and TP-8, corresponding to about Elevation 247.4± to 256.1± feet.

We measured the groundwater levels in several of the wells at the site shown on the referenced "Groundwater Contour Map, Spring 2010" on March 23, 2023. Those measurements are summarized in Table II below.

TABLE II.

March 26, 2023 Monitoring Well Measurement Summary

Well No.	Estimated Ground Surface Elevation[(1)] (feet±)	Water Level Depth (feet±)	Elevation of Water Level (feet±)
MW-5	247.0	7.0	240.0
MW-6	240.5	4.5	236.0
MW-8	246.5	4.5	242.0
MW-9	256.0	9.7	246.3
MW-10	250.5	5.1	245.4
MW-11	255.0	15.3	239.7
MW-16	246.0	4.1	241.9
MW-19	240.0	5.2	234.8
MW-20	251.0	10.1	240.9
MW-21	240.5	5.0	235.5

Notes:

(1) Ground surface elevation estimated from ground surface contours shown on plans entitled "Limited/Complied Existing Conditions Plan," drawing no. EC-1 through EC-5, dated March 17, 2023, by HA.

It should be noted that groundwater levels at the site will fluctuate due to varying climatic, surface, and subsurface conditions. Therefore, groundwater levels at the site at any given time may be different than those reported herein.

PRELIMINARY GEOTECHNICAL CONSIDERATIONS

Our preliminary conclusions and recommendations for the project are based on the results of the test pit explorations and laboratory tests discussed above and are addressed under the following subheadings:

Building Area Earthwork

The demolition of the existing building at 100 Financial Park and removal of numerous utilities and other structures is anticipated to accomplish the proposed re-development. Extensive excavations to remove building foundations and subsurface utilities and other structures will likely be performed. The existing fill and topsoil at the site are not considered suitable for support of the proposed buildings. The approximate depth/elevation of the bottom of fill and topsoil encountered at each test pit location is shown on the attached Figure No. 2.

The existing fill, topsoil, utilities to be abandoned, and other subsurface structures should be removed within building stress zones. Based on the subsurface conditions encountered at the exploration locations, we anticipate that the contractor may need to excavate to between about 2± to 11± feet below existing grades may be required to accomplish the removals. Deeper excavations may be required where deeper utilities or pockets of fill are encountered.

The contractor should place lifts of Granular Fill to backfill the above described excavations and fill to building subgrade elevations. The contractor should place Granular Fill within the proposed building areas in 12-inch maximum thick lifts up to proposed subgrade (bottom of base course) elevations. Each lift should be compacted to at least 95 percent of the material's maximum dry density as determined by ASTM D1557.

Granular Fill shall be free from ice and snow, roots, sod, rubbish and other deleterious or organic matter. Granular Fill shall conform to the following gradation requirements shown in Table III:

TABLE III.
GRANULAR FILL

Sieve Size	*Percent Passing by Weight*
*	100
No. 4	30 – 95
No. 40	10 – 70
No. 200	0 – 15**

*Two thirds (2/3) of the loose lift thickness.
**0 – 8 for free-draining fill behind retaining walls.

Foundations and Slabs

Provided that the contractor prepares the proposed building areas in accordance with our recommendations and under appropriate geotechnical observation, we expect that the proposed buildings can be supported on shallow spread footings. We envision that the building shallow foundations would be supported on undisturbed natural granular deposits or compacted Granular Fill. We will provide an allowable soil bearing capacity and other geotechnical criteria for use in footing design in our design phase Geotechnical Engineering Report for the project.

We anticipate that slab-on-grade construction will be appropriate for the building floor slabs. A base course layer of free-draining material consisting of sand and gravel or crushed stone will be

required below proposed slabs. We intend to provide recommendations for proposed base course thicknesses and subgrade modulus upon completion of design phase geotechnical studies.

Pavements

Topsoil, subsoil, existing surface vegetation, trees and stumps should be removed from proposed pavement areas. If present, we anticipate that existing fill soils would be suitable for the support of the proposed pavement provided that the surface of the existing fill is systematically densified. The densification would consist of compacting the fill surface with a specified number of passes of a large vibratory drum roller. Granular Fill placement would be similar to the proposed building area.

Proposed pavements could then be supported on a base course layer of free-draining fill. This layer typically consists of sand and gravel, dense graded aggregate, or a combination of the two. We intend to provide recommended pavements sections and associated earthwork construction guidance upon completion of design phase geotechnical studies and review of design traffic loads for the project.

Storm-water Infiltration

The subsurface conditions summarized on the Deep Observation Hole Logs attached as Appendix B are provided for consideration in the design of storm-water infiltration for the proposed re-development.

The natural soil deposits encountered in the test pits at the site contain variable gradations and percentages of gravel, sand, silt, and clay sized particles. As a result, the infiltration rates for these deposits will also be variable. We can conduct in-situ tests in proposed storm-water infiltration areas during our design phase studies to estimate the soil infiltration rates of the soils in these areas, if requested.

Estimated Seasonal High Groundwater (ESHG) levels are utilized to determine the design bottom of storm-water infiltration structures. In general, the groundwater levels that we documented at the time of the test pits correlate to the those shown on the referenced Figure C.1. The water level encountered during excavation of TP-1 and TP-2 differs from that shown on Figure C.1 and measured in monitoring wells on March 26, 2023 (see Table II on page 4). The water level encountered at these locations may be perched within in fill or around adjacent subsurface utilities. We recommend that we conduct additional subsurface explorations at these locations during the design phase to assess this condition.

Reuse of On-site Soils

We anticipate that the majority of the cuts to accomplish the proposed re-development grades at the site will be in natural granular soil or existing fill. Soils generated during cuts that meet the recommended gradation specification for Granular Fill (see Table III on page 5) that are maintained at suitable moisture contents for compaction should be suitable for reuse as fill to subgrade on the project. Cut soils that contain a percentages of fines (silt and clay sized

particles) greater than about 15 percent may be difficult to place and compact when wet. Therefore, maintaining these soils at moisture contents suitable for placement and compaction and keeping the work area dry will be caveats to the successful reuse of these soils.

Laboratory moisture content tests performed on samples of the natural soils encountered in the test pits indicate that these soils were at moisture contents between about 4.7 to 17.9 percent at the time of sampling. Therefore, the contractor may need to dry or wet (clean sand soils) soil generated during cuts to suitable moisture contents for compaction prior to reuse.

Design Phase Studies

The considerations that we have presented in this report are for concept and preliminary design. We recommend that we conduct design phase geotechnical studies, including additional subsurface explorations (test borings and test pits) once the proposed development layout is determined in order to provide recommendations for use in the preparation of the design documents and performance of earthwork construction.

We trust that this preliminary information meets your needs regarding the project at this time. We are available to meet with the project team to discuss this information, if requested. If you have any questions regarding this information, please do not hesitate to call.

Regards,

MCARDLE GANNON ASSOCIATES, INC.

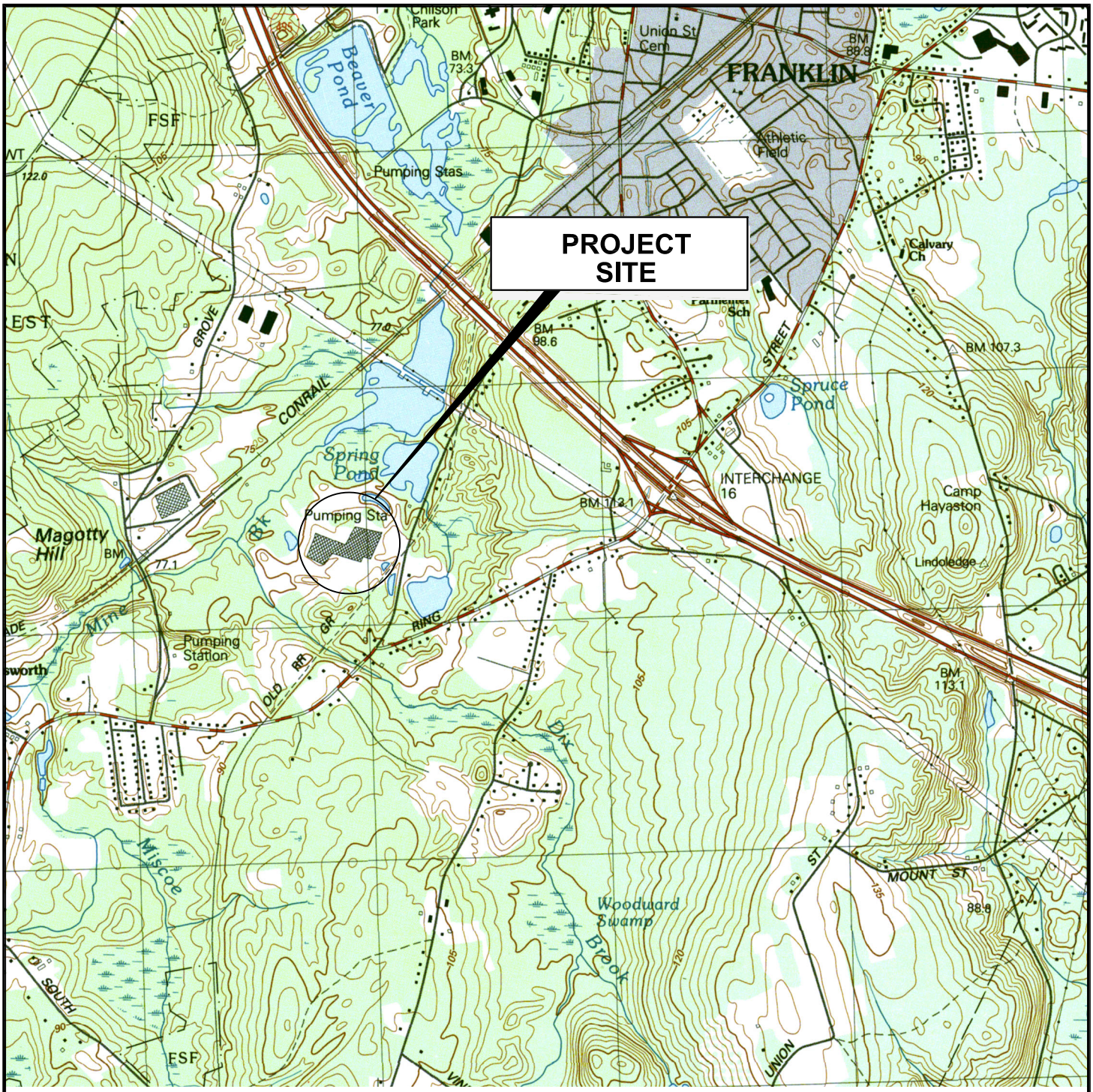
Robert E. Drown, P.E.
Geotechnical Engineer

John J. Gannon
Principal

RED/JJG/red

Attachments: Figure No. 1 – Locus Plan
Figure No. 2 – Exploration Location Plan
Figure No. C.1 – Groundwater Contour Map, Spring 2010
Appendix A – Statement of Limitations
Appendix B – Test Pit Logs
Appendix C – Test Pit Photos
Appendix D – Laboratory Test Results

FIGURES



SCALE: 1"=2000'

0 1000 2000 4000 FEET

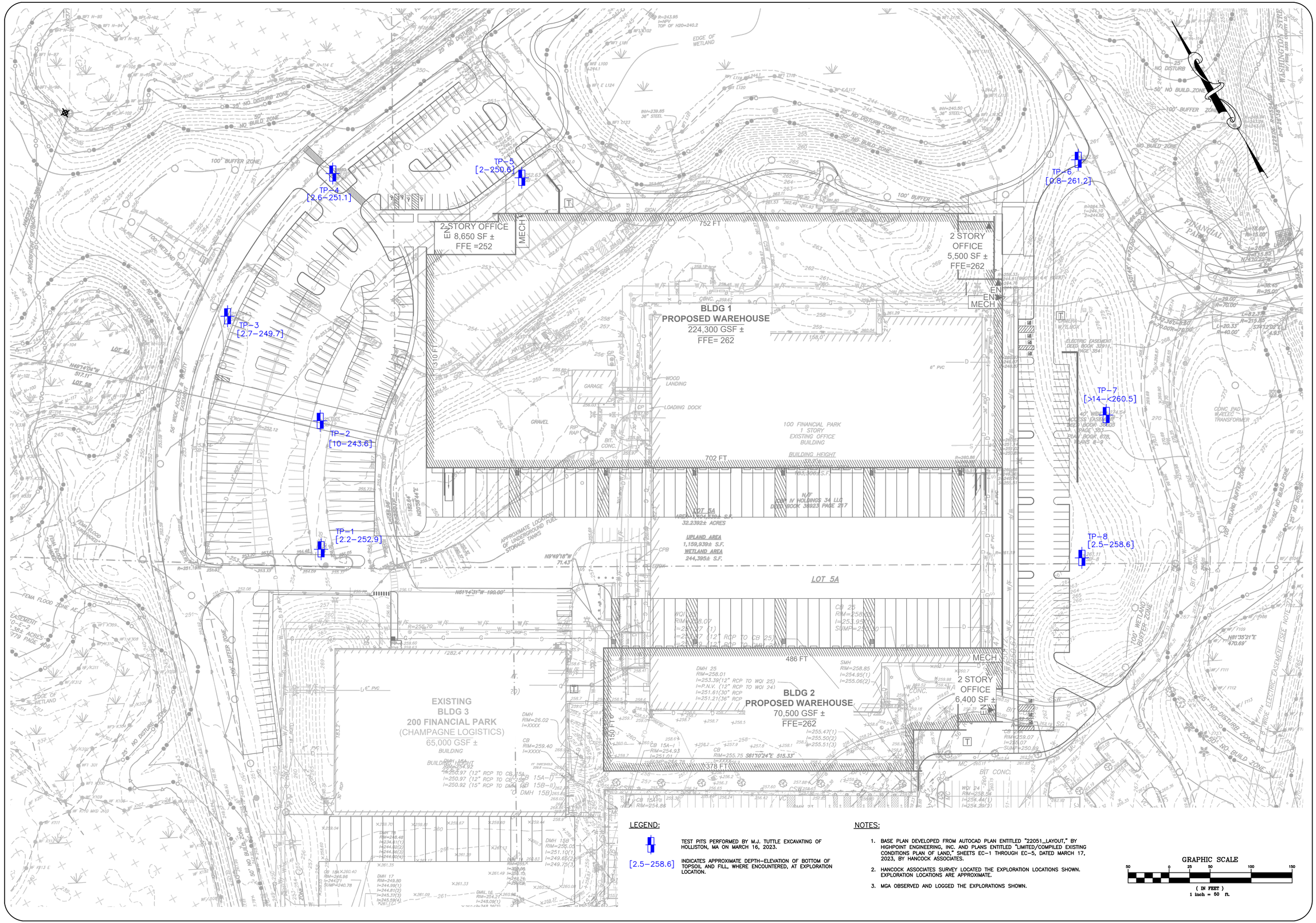
McArdle Gannon Associates, Inc.
Engineers & Consultants
300 Oak Street, Suite 460
Pembroke, MA 02359
781.826.0040 phone
781.735.0418 fax

LOCUS PLAN
PROPOSED REDEVELOPMENT
100-200 FINANCIAL PARK
FRANKLIN, MASSACHUSETTS

PROJECT: G0976 | DATE: 04/2023 | SCALE: AS NOTED

SKETCH NO.:
FIG. No. 1

DRAWN: RED
CHECKED: JJG



LEGEND:

TEST PITS PERFORMED BY M.J. TUTTLE EXCAVATING OF HOLLISTON, MA ON MARCH 16, 2023.

[2.5-258.6] INDICATES APPROXIMATE DEPTH-ELEVATION OF BOTTOM OF TOPSOIL AND FILL, WHERE ENCOUNTERED, AT EXPLORATION LOCATION.

NOTES:

1. BASE PLAN DEVELOPED FROM AUTOCAD PLAN ENTITLED "22051_LAYOUT," BY HIGHPOINT ENGINEERING, INC. AND PLANS ENTITLED "LIMITED/COMPILED EXISTING CONDITIONS PLAN OF LAND," SHEETS EC-1 THROUGH EC-5, DATED MARCH 17, 2023, BY HANCOCK ASSOCIATES.
2. HANCOCK ASSOCIATES SURVEY LOCATED THE EXPLORATION LOCATIONS SHOWN. EXPLORATION LOCATIONS ARE APPROXIMATE.
3. MGA OBSERVED AND LOGGED THE EXPLORATIONS SHOWN.

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)

1 inch = 50 ft.

REVISIONS

DRAWN BY: RED

DESIGNED BY: RED

CHECKED BY: JJG

McArdle Gannon Associates, Inc.
Engineers & Consultants
300 Oak Street, Suite 460
Pembroke, MA 02359
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EXPLORATION LOCATION PLAN

PROPOSED REDEVELOPMENT

100-200 FINANCIAL PARK, FRANKLIN, MASSACHUSETTS

APRIL 2023

SCALE: 1" = 50'

JOB No. G0976

FIG No. 2

SHEET 1 OF 1

APPENDIX A: STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS

Explorations

The analysis and recommendations submitted in this preliminary report are based in part upon the data obtained from subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

The stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

Water level readings have been made in the explorations at the time and under the conditions stated on the logs. This data has been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors that are different from the time the measurements were made.

Review

In the event that any change in the nature, design or location of the proposed structure are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this preliminary report modified or verified in writing.

It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork recommendations may be properly interpreted and implemented in the design and specifications.

Construction

It is recommended that this firm be retained to provide soil engineering services during the construction phase of the work. This is to observe compliance with design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

Use of Report

This preliminary report has been prepared for the exclusive use of Highpoint Engineering, Inc. for specific application to the proposed Re-development at 100-200 Financial Park in Franklin, Massachusetts, in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

APPENDIX B: TEST PIT LOGS

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-1 Ground Surface Elevation (ft): 255.05± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-9	A Fill	-	-	-	-	-	-	-	-	-	
9-20	Fill	-	-	-	-	-	-	-	-	-	
20-26	Ap	10YR 3/2	-	-	-	Sandy Loam	5	0	Massive	V. Friable	
26-64	C1	10YR 5/4	-	-	-	Loamy Sand	10-15	5-10	Massive	V. Friable	
64-132	C2D	10YR 4/3	-	-	-	Sandy Loam	25-30	15-20	Massive	V. Friable	(2)(3)(4)(5)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) Water slowly seeping into north, east and south sides of deep hole at 56 inches below ground surface (bgs).

(3) Sample collected from 96-108 inches bgs.

(4) No redoximorphic features observed.

(5) Refusal to backhoe bucket on large boulders within C2D layer at 132 inches. D = Dense

McArdle Gannon Associates, Inc.
Engineers & Consultants

300 Oak Street, Suite 460
Pembroke, MA 02359

Phone: 781.826.0040
Fax: 781.735.0418

Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-2 Ground Surface Elevation (ft): 253.55± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-20	A Fill	-	-	-	-	-	-	-	-	-	
20-112	Fill	-	-	-	-	-	-	-	-	-	-
112-120	A	10YR 3/2	-	-	-	Sandy Loam	5	0	Massive	V. Friable	(2)
120-168	C1	10YR 5/3	-	-	-	Sand	15-20	5-10	Single Grain	Loose	(3)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) Water slowly seeping into eastern and southern sides of hole at 84 inches bgs.

(3) No redoximorphic features observed.

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Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-3 Ground Surface Elevation (ft): 252.44± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-32	Ap	10YR 3/2	-	-	-	Sandy Loam	5-10	0	Massive	V. Friable	
32-168	C	10YR 6/2	-	-	-	Sand	5-10	0	Single Grain	Loose	(2)(3)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) Sample collected from 60-72 inches bgs.

(3) No groundwater or redoximorphic features observed.

McArdle Gannon Associates, Inc.
Engineers & Consultants

300 Oak Street, Suite 460
Pembroke, MA 02359

Phone: 781.826.0040
Fax: 781.735.0418

Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-4 Ground Surface Elevation (ft): 253.72± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-10	A Fill	-	-	-	-	-	-	-	-	-	
10-32	Fill	-	-	-	-	-	-	-	-	-	
32-72	C1	10YR 5/2	-	-	-	Sand	5-10	0	Single Grain	Loose	(2)
72-132	C2	10YR 5/4	-	-	-	Sandy Loam	25-30	5-10	Massive	V. Friable	(3)(4)(5)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) Groundwater flowing quickly into sides of hole at 60 inches bgs.

(3) Sample collected from 84-96 inches bgs.

(4) Deep hole walls collapsed from about 120 to 132 inches bgs.

(5) No redoximorphic features observed.

McArdle Gannon Associates, Inc.
Engineers & Consultants

300 Oak Street, Suite 460
Pembroke, MA 02359

Phone: 781.826.0040
Fax: 781.735.0418

Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-5 Ground Surface Elevation (ft): 252.63± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-24	A	10YR 3/2	-	-	-	Sandy Loam	5-10	0-5	Massive	V. Friable	
24-132	C1	10YR 5/4	62	5YR 5/8	30	Loamy Sand	15-20	5-10	Massive	V. Friable	(2)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) Groundwater seeping quickly into sides of hole at 72 inches bgs.

McArdle Gannon Associates, Inc.
Engineers & Consultants
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Pembroke, MA 02359
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Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-6 Ground Surface Elevation (ft): 262.02± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-10	A	10YR 4/3	-	-	-	Sandy Loam	5	0	Massive	V. Friable	
10-72	C1	10YR 5/3	-	-	-	Sand	30-25	15-20	Single Grain	Loose	
72-144	C2	10YR 5/2	-	-	-	Sand	5-10	5	Single Grain	Loose	(2)(3)(4)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) Sample collected from 48-60 inches bgs.

(3) Deep hole walls collapsed from about 120 to 144 inches bgs.

(4) No redoximorphic features observed.

McArdle Gannon Associates, Inc.
Engineers & Consultants
300 Oak Street, Suite 460
Pembroke, MA 02359
Phone: 781.826.0040
Fax: 781.735.0418

Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-7 Ground Surface Elevation (ft): 274.54± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6	Ap Fill	-	-	-	-	-	-	-	-	-	
6-168	Fill	-	-	-	-	-	-	-	-	-	(2)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) No groundwater or redoximorphic features observed.

McArdle Gannon Associates, Inc.
Engineers & Consultants

300 Oak Street, Suite 460 Phone: 781.826.0040
Pembroke, MA 02359 Fax: 781.735.0418

Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

Commonwealth of Massachusetts
City/Town of Franklin, MA

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

G0976 - Proposed Redevelopment, 100-200 Financial Park, Franklin, MA

C. On-Site Review (continued)

Deep Observation Hole Number: TP-8 Ground Surface Elevation (ft): 261.11± (1)

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12	A Fill	-	-	-	-	-	-	-	-	-	
12-30	Fill	-	-	-	-	-	-	-	-	-	
30-44	C1	10YR 6/8	-	-	-	Sand	25-30	10-15	Single Grain	Loose	
44-66	C2	10YR 5/2	60	5YR 5/8	20	Silt Loam	0	0	Massive	V. Friable	(2)
66-144	C3	10YR 5/4	-	-	-	Sandy Loam	20-25	5-10	Massive	Friable	(3)

Additional Notes:

(1) Ground surface elevation provided by Hancock Associates.

(2) Sample collected from 48-60 inches bgs.

(3) Groundwater seeping slowing into sides of hole at 108 inches bgs.

McArdle Gannon Associates, Inc.
Engineers & Consultants

300 Oak Street, Suite 460
Pembroke, MA 02359

Phone: 781.826.0040
Fax: 781.735.0418

Engineer: Robert E. Drown, P.E. #SE13855
Operator: Mike Tuttle
Equipment: Caterpillar 416C Backhoe
Date: 03/16/2023

APPENDIX C: TEST PIT PHOTOS



Photo #1: Looking northeast at test pit TP-1.



Photo #2: Looking northeast at soil excavated from test pit TP-1.



Photo #3: Looking southeast at test pit TP-2.



Photo #4: Looking northeast at soil excavated from test pit TP-2.



Photo #5: Looking east at test pit TP-3.



Photo #6: Looking northeast at soil excavated from test pit TP-3.



Photo #7: Looking southwest at test pit TP-4.



Photo #8: Looking southwest at soil excavated from test pit TP-4.



Photo #9: Looking south at test pit TP-5.



Photo #10: Looking southeast at soil excavated from test pit TP-5.



Photo #11: Looking northeast at test pit TP-6.



Photo #12: Looking north at soil excavated from test pit TP-6.



Photo #13: Looking northeast at test pit TP-7.



Photo #14: Looking north at soil excavated from test pit TP-7.



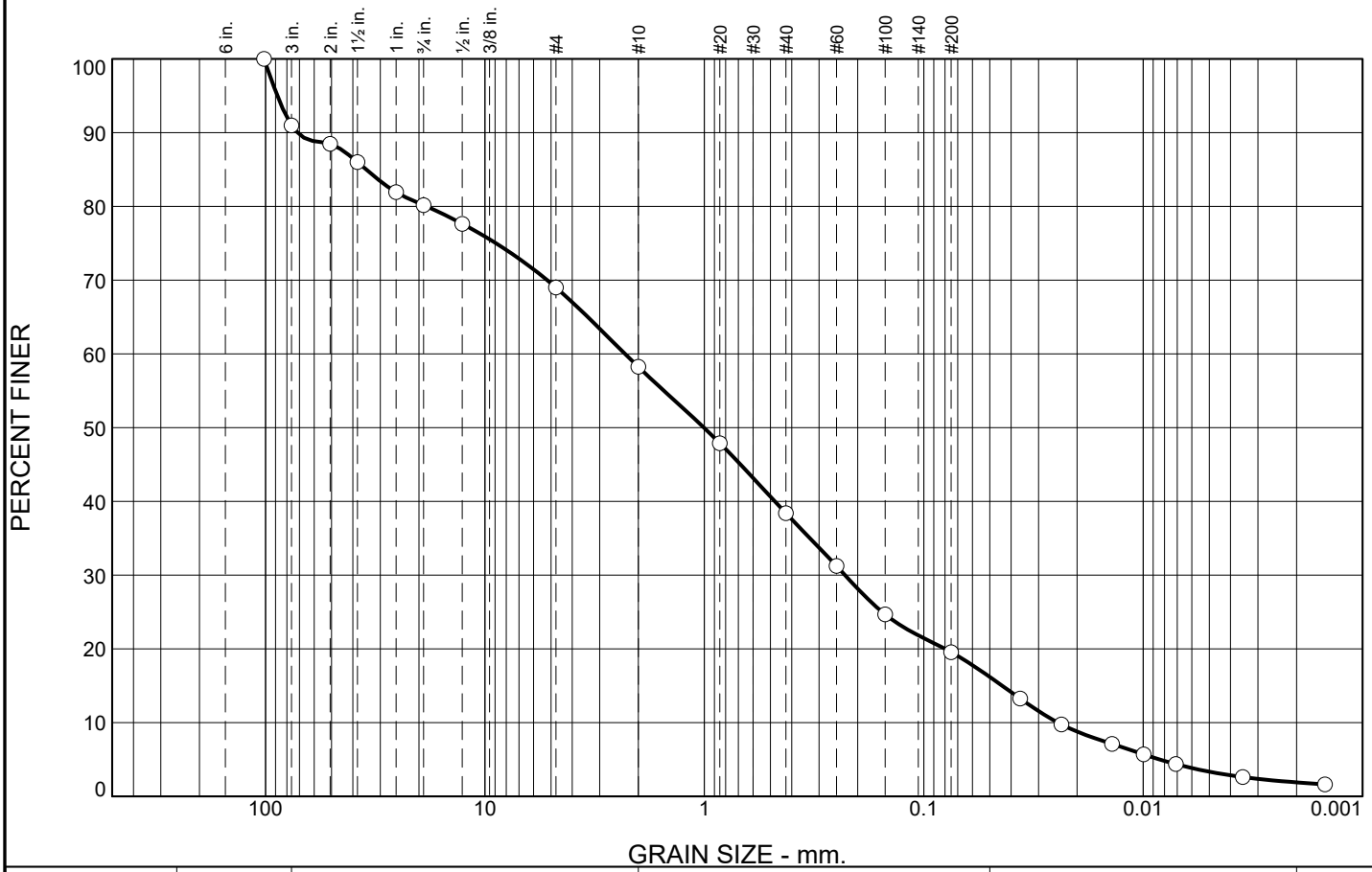
Photo #13: Looking east at test pit TP-8.



Photo #16: Looking northeast at soil excavated from test pit TP-8.

APPENDIX D: LABORATORY TEST RESULTS

PARTICLE SIZE DISTRIBUTION REPORT



% Stones	% +3"	% Gravel			% Sand					% Silt		% Clay
		Coarse	Medium	Fine	V. Crs.	Crs.	Med.	Fine	V. Fine	Crs.	Fine	
0.0	9.0	10.8	11.2	10.7	8.4	9.2	9.5	9.7	5.3	7.4	6.9	1.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4	100.0		
3	91.0		
2	88.5		
1.5	86.0		
1	81.9		
3/4	80.2		
1/2	77.6		
#4	69.0		
#10	58.3		
#20	47.9		
#40	38.4		
#60	31.2		
#100	24.7		
#200	19.5		
0.0364 mm.	13.3		
0.0236 mm.	9.8		
0.0139 mm.	7.1		
0.0100 mm.	5.7		
0.0071 mm.	4.4		
0.0035 mm.	2.6		
0.0015 mm.	1.6		

* (no specification provided)

Soil Description

USDA Classification: Sandy Loam

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 71.6662 D_{85}= 34.7661 D_{60}= 2.2984
D_{50}= 1.0050 D_{30}= 0.2286 D_{15}= 0.0439
D_{10}= 0.0245 C_u= 93.94 C_c= 0.93

Classification

USCS= AASHTO=

Remarks

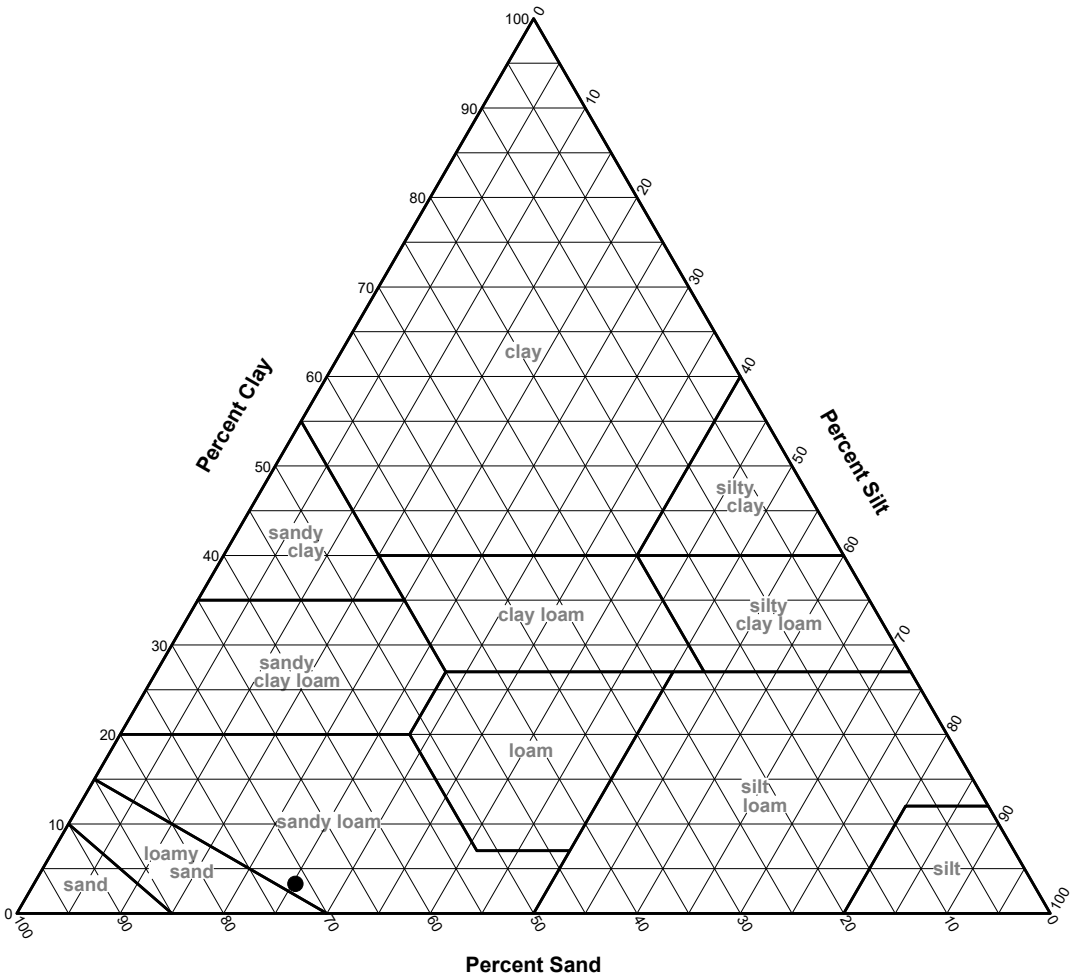
As received Moisture Content: 8.1%
SL-1971

Source of Sample: TP-1 **Depth:** 8-9'
Sample Number: S-1 **Date:** 3/20/23

McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.
Project: Proposed Redevelopment
100 Financial Park, Franklin, MA
Project No: G0976 **Figure**

USDA Soil Classification



SOIL DATA

	Source	Sample No.	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	
●	TP-1	S-1	8-9'	71.4	25.4	3.3	Sandy loam
■	TP-1						

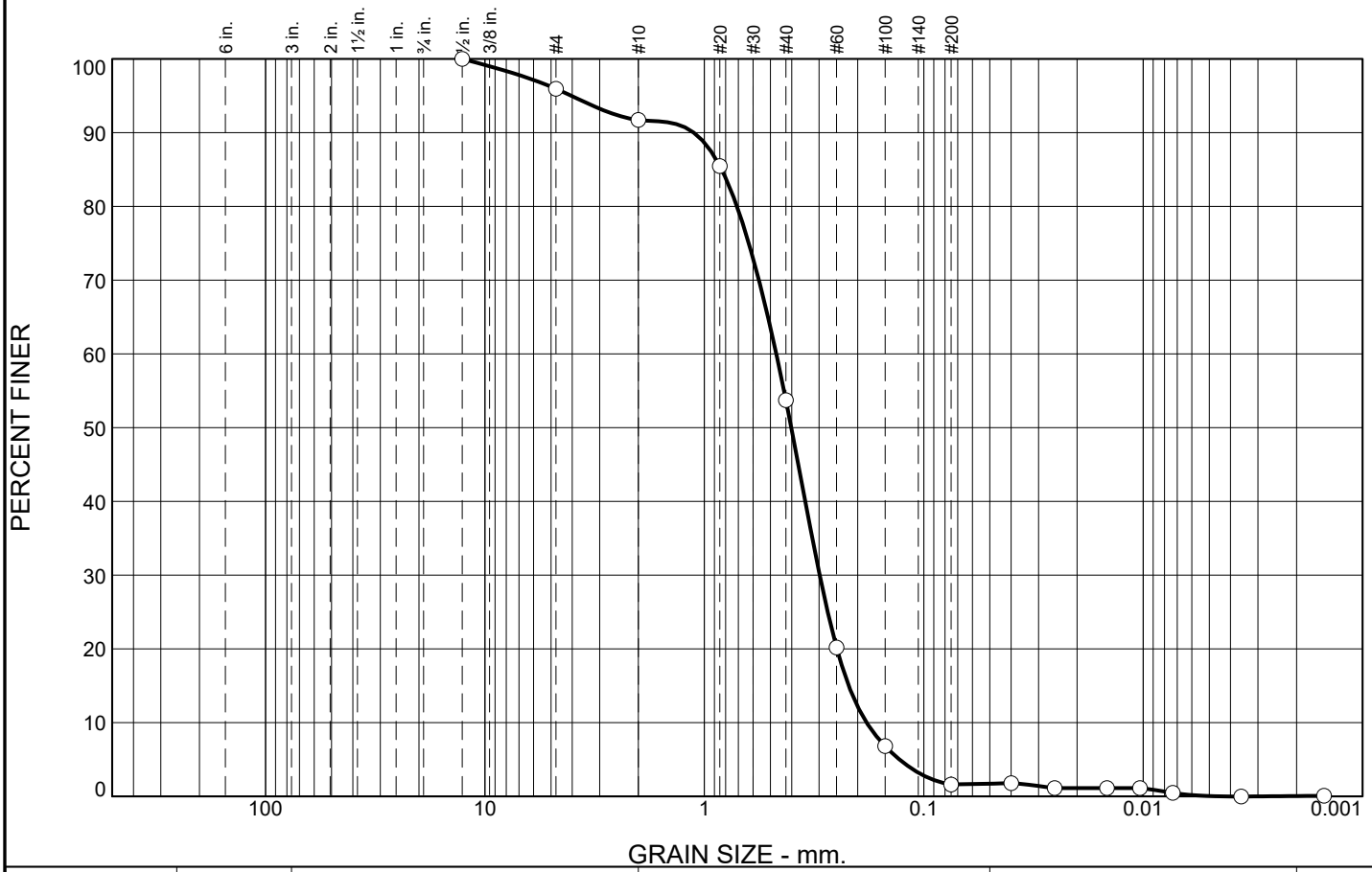
McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.

Project: Proposed Redevelopment
100 Financial Park, Franklin, MA

Project No.: G0976 **Figure**

PARTICLE SIZE DISTRIBUTION REPORT



% Stones	% +3"	% Gravel			% Sand					% Silt		% Clay
		Coarse	Medium	Fine	V. Crs.	Crs.	Med.	Fine	V. Fine	Crs.	Fine	
0.0	0.0	0.0	4.0	4.3	3.1	25.0	43.4	17.4	1.1	0.6	1.1	0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
#4	96.0		
#10	91.7		
#20	85.5		
#40	53.7		
#60	20.2		
#100	6.8		
#200	1.6		
0.0399 mm.	1.8		
0.0253 mm.	1.1		
0.0146 mm.	1.1		
0.0103 mm.	1.1		
0.0073 mm.	0.5		
0.0036 mm.			
0.0015 mm.	0.1		

* (no specification provided)

Soil Description

USDA Classification: Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.1174 D_{85}= 0.8342 D_{60}= 0.4700
D_{50}= 0.4016 D_{30}= 0.2981 D_{15}= 0.2198
D_{10}= 0.1823 C_u= 2.58 C_c= 1.04

Classification

USCS= SP AASHTO=

Remarks

As received Moisture Content: 5.3%
SL-1971

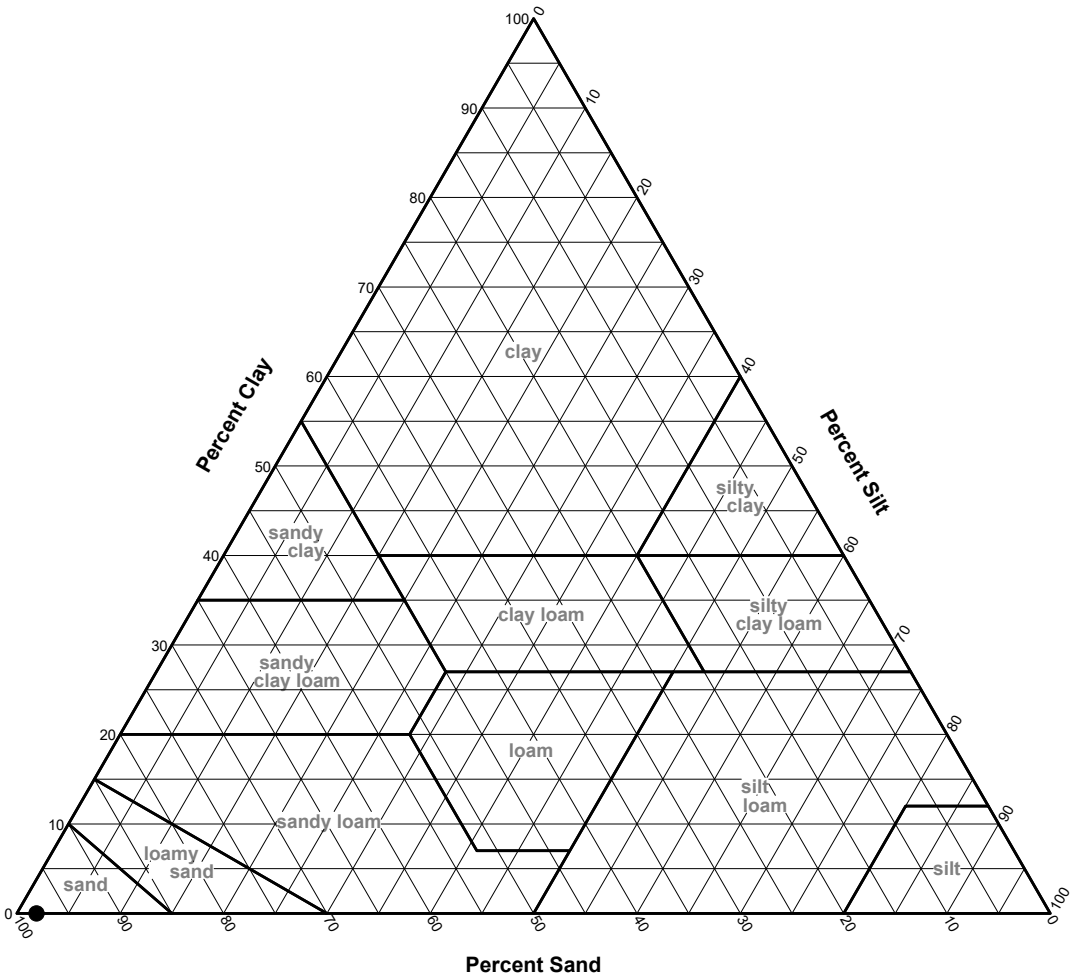
Source of Sample: TP-3 **Depth:** 5-6'
Sample Number: S-1

Date: 3/20/23

McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.
Project: Proposed Redevelopment
100 Financial Park, Franklin, MA
Project No: G0976 **Figure**

USDA Soil Classification



SOIL DATA

	Source	Sample No.	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	
●	TP-3	S-1	5-6'	98.1	1.9	0.0	Sand

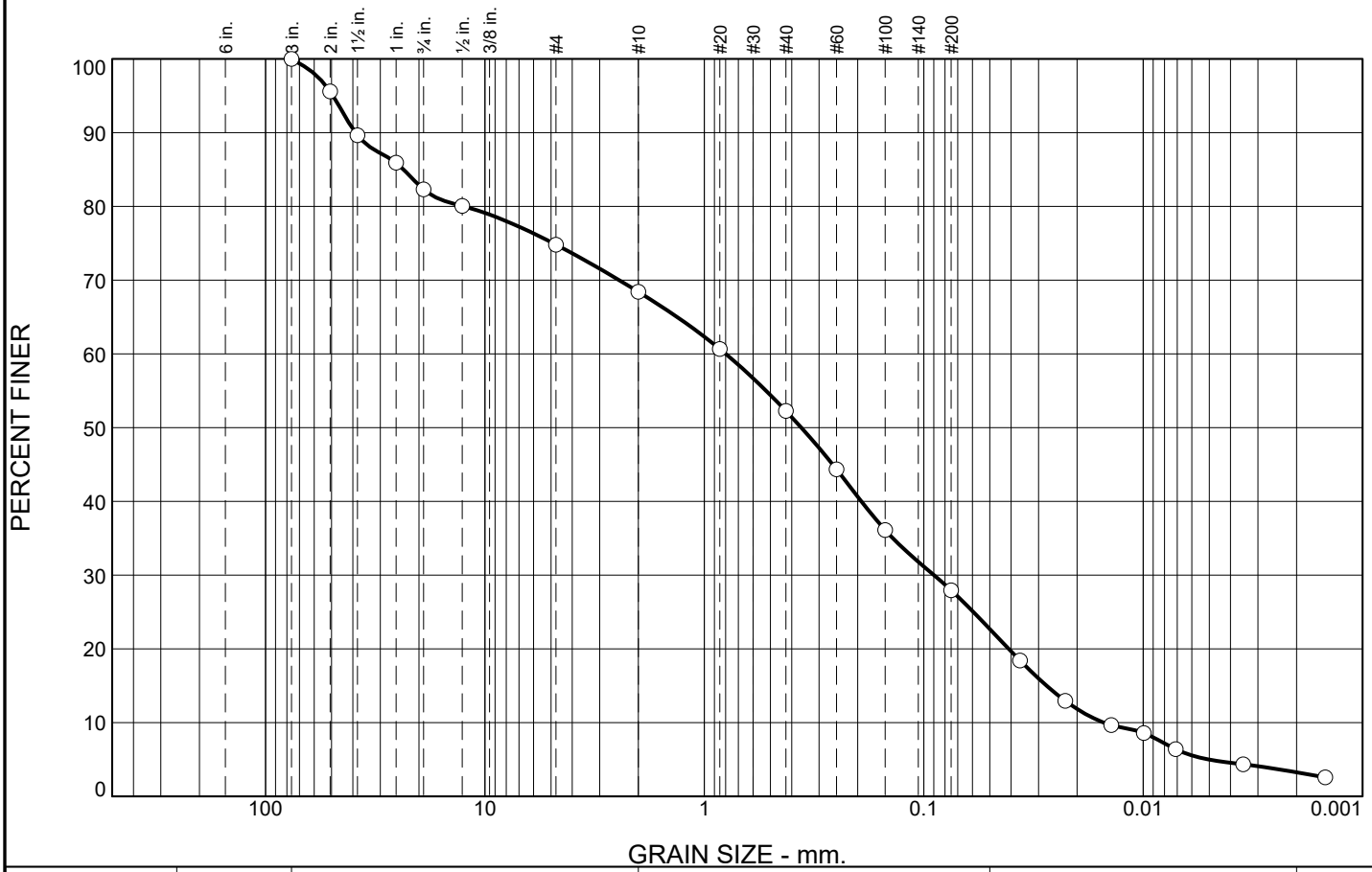
McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.

Project: Proposed Redevelopment
100 Financial Park, Franklin, MA

Project No.: G0976 **Figure**

PARTICLE SIZE DISTRIBUTION REPORT



% Stones	% +3"	% Gravel			% Sand					% Silt		% Clay
		Coarse	Medium	Fine	V. Crs.	Crs.	Med.	Fine	V. Fine	Crs.	Fine	
0.0	0.0	17.7	7.5	6.4	6.1	7.9	10.0	13.2	8.5	10.9	8.5	3.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	95.6		
1.5	89.6		
1	85.9		
3/4	82.3		
1/2	80.1		
#4	74.8		
#10	68.4		
#20	60.7		
#40	52.3		
#60	44.4		
#100	36.1		
#200	27.9		
0.0364 mm.	18.4		
0.0227 mm.	13.0		
0.0140 mm.	9.7		
0.0099 mm.	8.6		
0.0071 mm.	6.4		
0.0035 mm.	4.4		
0.0015 mm.	2.6		

* (no specification provided)

Soil Description

USDA Classification: Sandy Loam

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 38.9059 D_{85}= 23.4657 D_{60}= 0.7987
D_{50}= 0.3614 D_{30}= 0.0899 D_{15}= 0.0275
D_{10}= 0.0151 C_u= 52.92 C_c= 0.67

Classification

USCS= AASHTO=

Remarks

As received Moisture Content: 11%
SL-1971

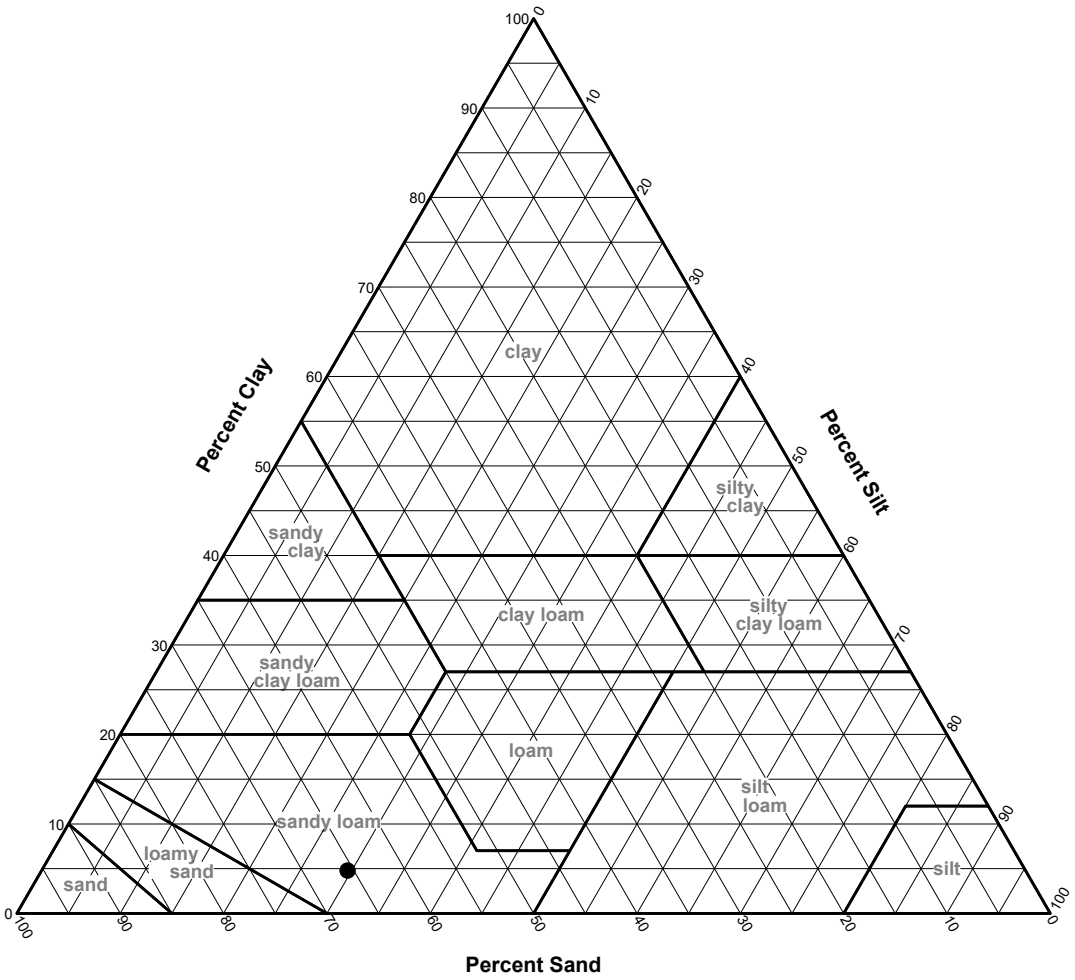
Source of Sample: TP-4 **Depth:** 7-8'
Sample Number: S-1

Date: 3/20/23

McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.
Project: Proposed Redevelopment
100 Financial Park, Franklin, MA
Project No: G0976 **Figure**

USDA Soil Classification



SOIL DATA

	Source	Sample No.	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	
●	TP-4	S-1	7-8'	65.6	29.5	4.8	Sandy loam

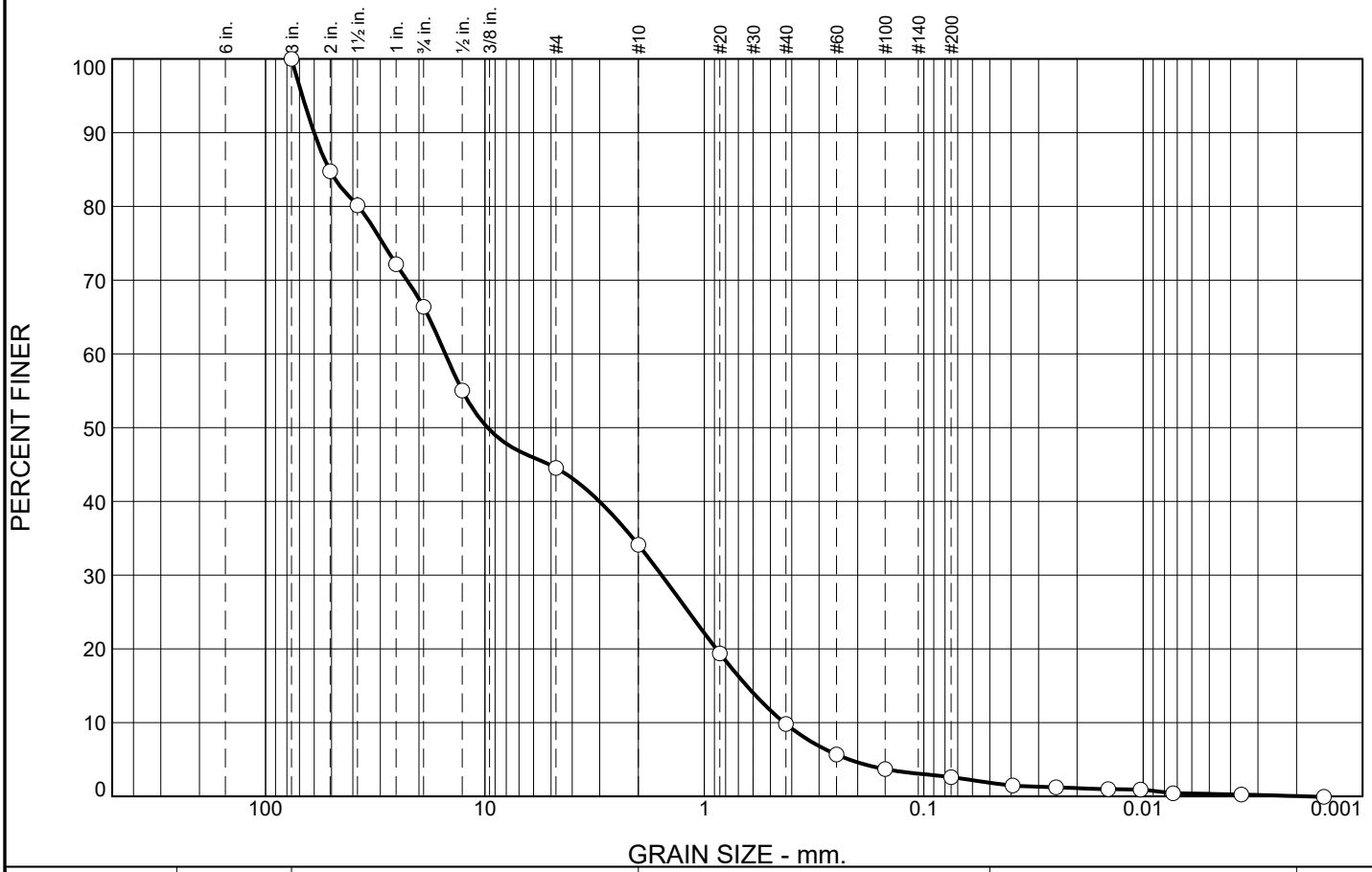
McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.

Project: Proposed Redevelopment
100 Financial Park, Franklin, MA

Project No.: G0976 **Figure**

PARTICLE SIZE DISTRIBUTION REPORT



% Stones	% +3"	% Gravel			% Sand					% Silt		% Clay
		Coarse	Medium	Fine	V. Crs.	Crs.	Med.	Fine	V. Fine	Crs.	Fine	
0.0	0.0	33.6	21.9	10.4	12.0	10.4	6.0	2.7	1.2	0.7	1.1	0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
2	84.8		
1.5	80.1		
1	72.2		
3/4	66.4		
1/2	55.0		
#4	44.5		
#10	34.1		
#20	19.4		
#40	9.8		
#60	5.7		
#100	3.7		
#200	2.6		
0.0393 mm.	1.5		
0.0249 mm.	1.2		
0.0144 mm.	1.0		
0.0103 mm.	0.9		
0.0073 mm.	0.4		
0.0036 mm.	0.2		
0.0015 mm.			

* (no specification provided)

Soil Description

USDA Classification: Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 60.0938 D_{85}= 51.2974 D_{60}= 15.1686
D_{50}= 9.7384 D_{30}= 1.5655 D_{15}= 0.6415
D_{10}= 0.4325 C_u= 35.07 C_c= 0.37

Classification

USCS= GP AASHTO=

Remarks

As received Moisture Content: 4.7%
SL-1971

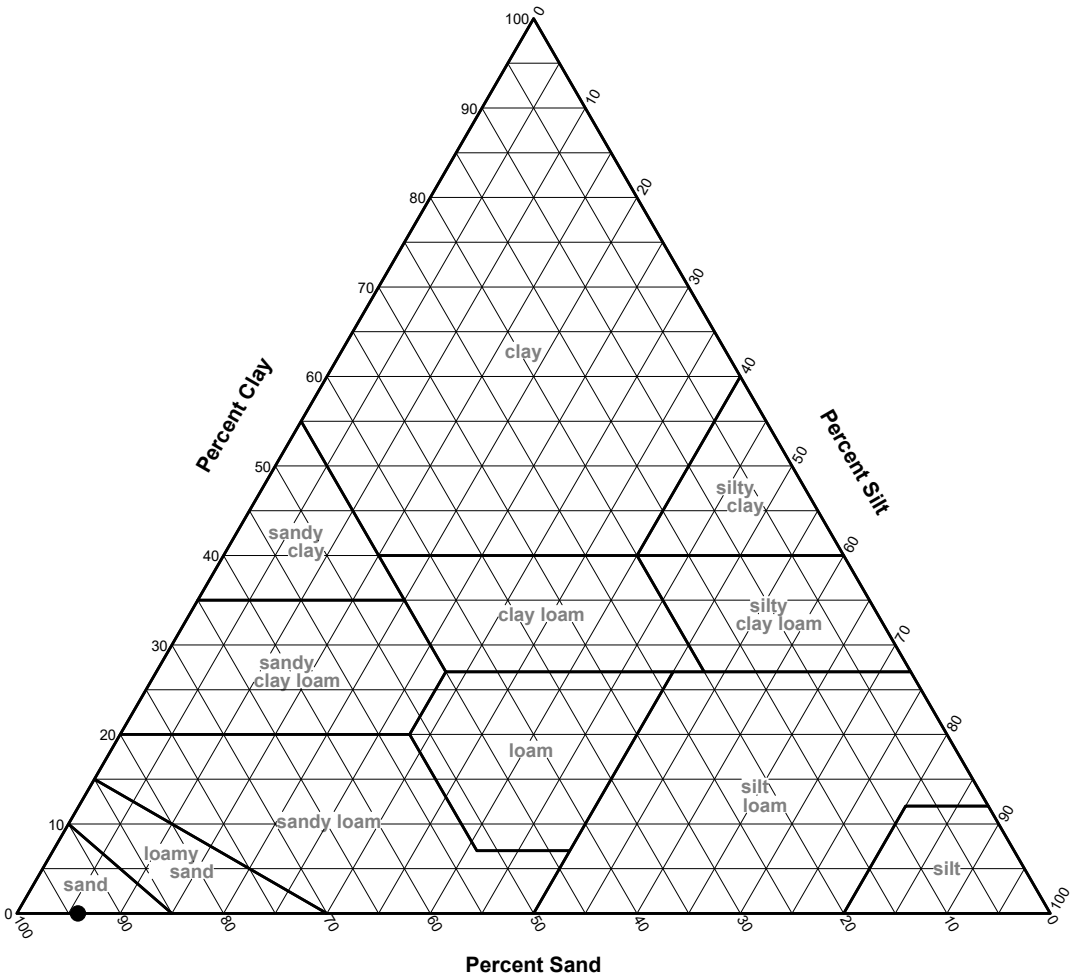
Source of Sample: TP-6 **Depth:** 4-5'
Sample Number: S-1

Date: 3/20/23

McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.
Project: Proposed Redevelopment
100 Financial Park, Franklin, MA
Project No: G0976 **Figure**

USDA Soil Classification



SOIL DATA

	Source	Sample No.	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	
●	TP-6	S-1	4-5'	94.1	5.9	0.0	Sand

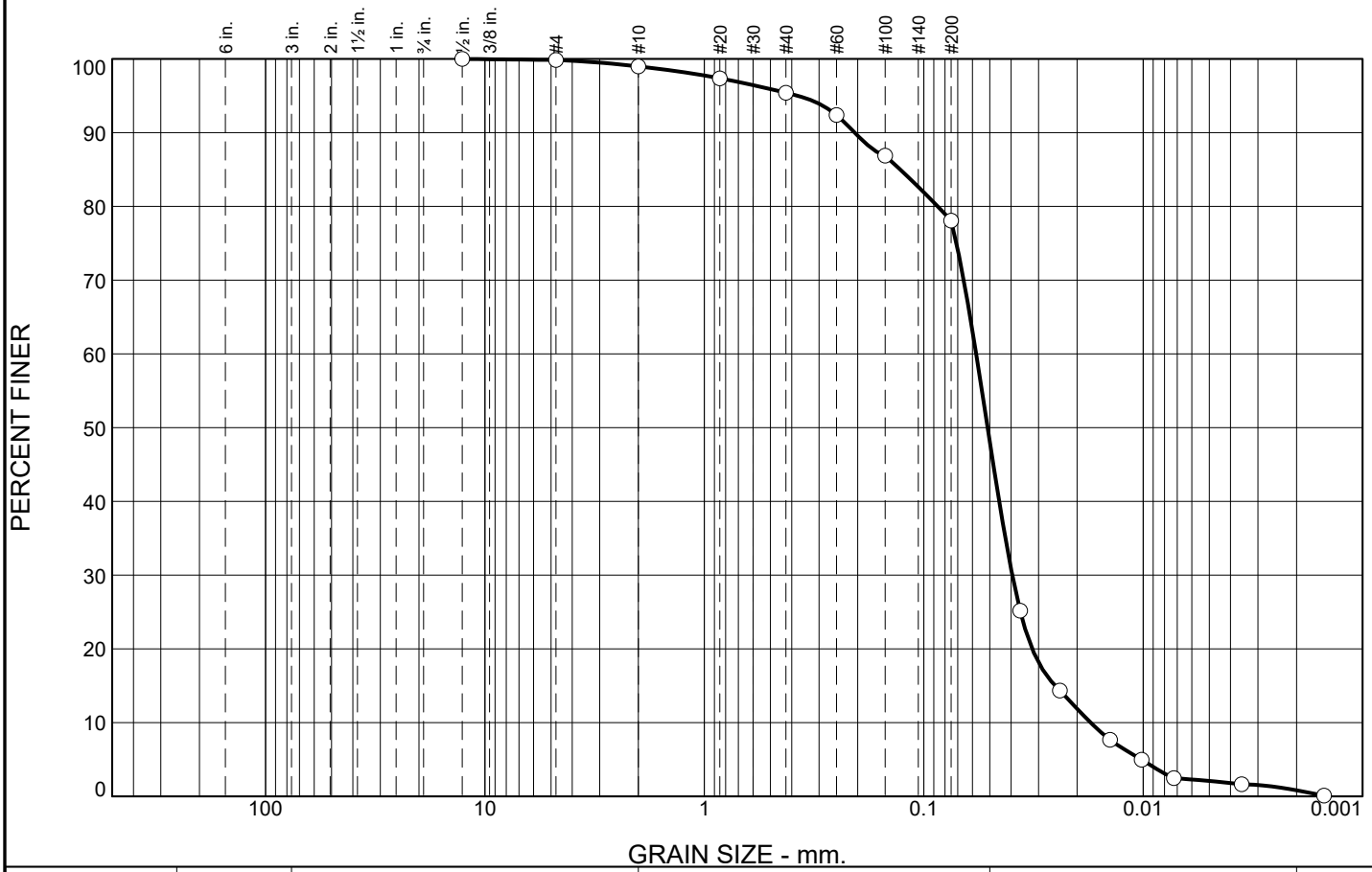
McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.

Project: Proposed Redevelopment
100 Financial Park, Franklin, MA

Project No.: G0976 **Figure**

PARTICLE SIZE DISTRIBUTION REPORT



% Stones	% +3"	% Gravel			% Sand					% Silt		% Clay
		Coarse	Medium	Fine	V. Crs.	Crs.	Med.	Fine	V. Fine	Crs.	Fine	
0.0	0.0	0.0	0.1	0.9	1.2	1.9	3.5	10.5	33.9	36.1	11.1	0.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
#4	99.9		
#10	99.0		
#20	97.4		
#40	95.4		
#60	92.4		
#100	86.9		
#200	78.1		
0.0364 mm.	25.2		
0.0240 mm.	14.3		
0.0142 mm.	7.7		
0.0102 mm.	5.0		
0.0072 mm.	2.5		
0.0036 mm.	1.6		
0.0015 mm.	0.1		

* (no specification provided)

Soil Description

USDA Classification: Silt Loam

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2062 D_{85}= 0.1280 D_{60}= 0.0577
D_{50}= 0.0512 D_{30}= 0.0395 D_{15}= 0.0251
D_{10}= 0.0174 C_u= 3.32 C_c= 1.56

Classification

USCS= AASHTO=

Remarks

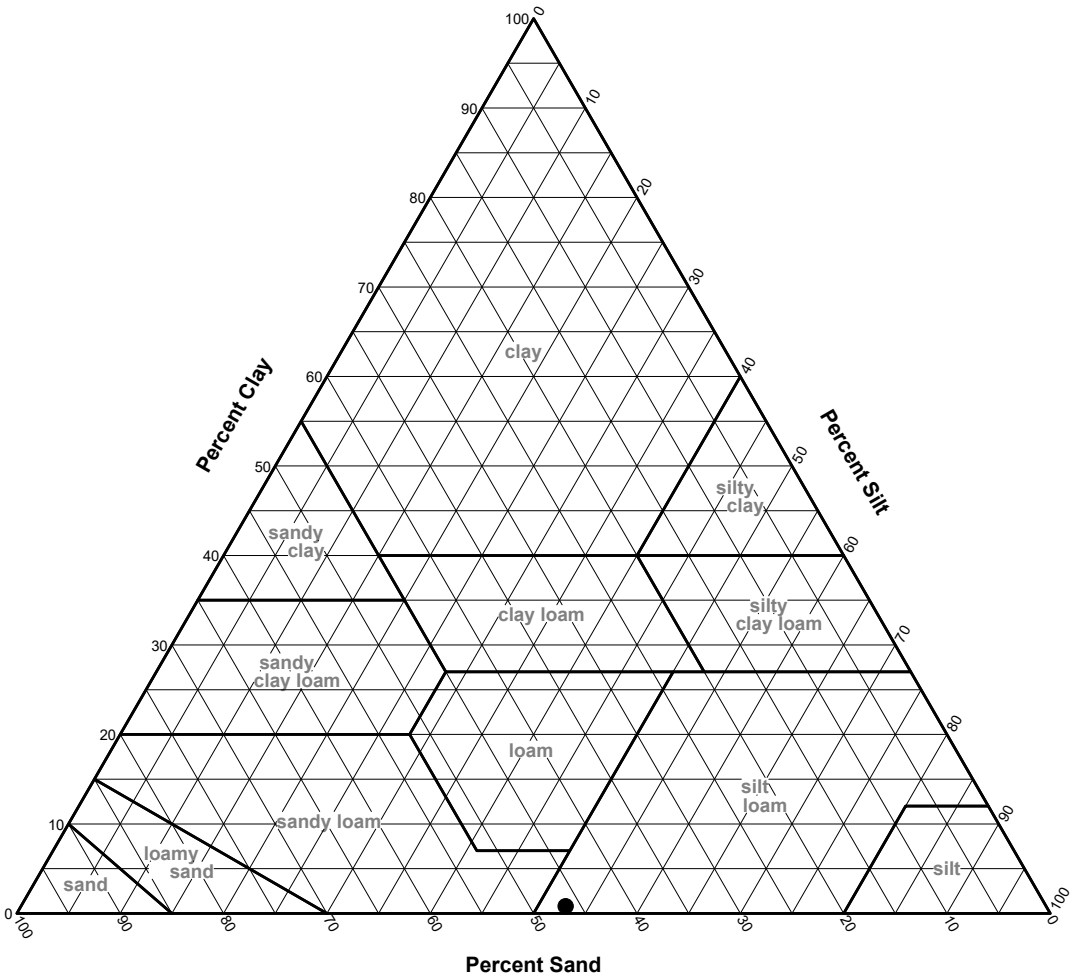
As received Moisture Content: 17.9%
SL-1971

Source of Sample: TP-8 **Depth:** 4-5'
Sample Number: S-1 **Date:** 3/20/23

McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.
Project: Proposed Redevelopment
100 Financial Park, Franklin, MA
Project No: G0976 **Figure**

USDA Soil Classification



SOIL DATA

	Source	Sample No.	Depth	Percentages From Material Passing a #10 Sieve			Classification
				Sand	Silt	Clay	
●	TP-8	S-1	4-5'	46.5	52.7	0.8	Silt loam

McArdle Gannon Associates, Inc.
Engineers & Consultants

Client: Highpoint Engineering, Inc.

Project: Proposed Redevelopment
100 Financial Park, Franklin, MA

Project No.: G0976 **Figure**

100 & 200 FINANCIAL PARK, FRANKLIN MA
SOIL TESTING RAINFALL DATA

Climatological Data for FRANKLIN, MA - March 2023

Date	Precipitation	New Snow	Snow Depth
2023-03-01	0.00	0.0	0
2023-03-02	0.18	0.0	0
2023-03-03	0.05	0.0	0
2023-03-04	0.52	**1.4**	**1**
2023-03-05	0.16	0.9	**1**
2023-03-06	0.00	0.0	0
2023-03-07	0.00	0.0	0
2023-03-08	0.00	0.0	0
2023-03-09	0.00	0.0	0
2023-03-10	0.00	0.0	0
2023-03-11	0.13	0.0	0
2023-03-12	T	0.0	0
2023-03-13	0.01	0.0	0
2023-03-14	**1.45**	0.0	0
2023-03-15	1.10	T	0
2023-03-16	0.00	0.0	0
2023-03-17	0.00	0.0	0
2023-03-18	0.00	0.0	0
2023-03-19	0.00	0.0	0
2023-03-20	0.00	0.0	0
2023-03-21	0.00	0.0	0
2023-03-22	0.00	0.0	0
2023-03-23	0.00	0.0	0
2023-03-24	0.00	0.0	0
2023-03-25	0.00	0.0	0
2023-03-26	0.16	0.0	0
2023-03-27	0.00	0.0	0
2023-03-28	0.50	0.0	0
2023-03-29	0.02	0.0	0
2023-03-30	0.00	0.0	0
2023-03-31	0.00	0.0	0
Sum	4.28	2.3	-
Average	-	-	0.1
Normal	4.73	10.7	-

Observations for each day cover the 24 hours ending at the time given below (Local Standard Time).
Precipitation : 7am
Snowfall : unknown
Snow Depth : 7am

NOTES:

1) SOIL TESTING PERFORMED ON MARCH 16, 2023

2) 2.55 INCHES OF RAINFALL IN FRANKLIN, MA IN THE 48 HOURS PRIOR TO SOIL TESTING

3) RAINFALL DATA SOURCED FROM THE NATIONAL WEATHER SERVICE (NOAA) NOWData"

4) "T" = LESS THAN 0.01 INCHES

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ILLICIT DISCHARGE COMPLIANCE STATEMENT

By: Berkeley Partners
Project Site: 100 & 200 Financial Park | Franklin, MA 02038

Illicit discharges to the stormwater management system are discharges that do not entirely comprise stormwater. Notwithstanding the foregoing, an illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing, and water used to clean residential buildings without detergents.

The Project was designed to eliminate potential illicit discharges to the stormwater management system in accordance with Standard 10 of the Massachusetts Stormwater Handbook. In accordance with Standard 10, to the best of my knowledge, information, and belief the stormwater management system as designed does not receive, nor contribute, any illicit discharges to regulated environmental resource areas or the municipal stormwater collection system.

The Long-Term Stormwater Operation and Maintenance Plan outlines measures to prevent future illicit discharges.

DocuSigned by:
AR
E2574A44DE5A43E...

7/17/2023

(signature) (date)

Andy Ramirez
ICBP IV Holdings 34, LLC c/o Berkeley Partners
1111 Broadway | Suite 1670
Oakland, CA 94607
(415) 450-1762

EXISTING

Brief Stormceptor Sizing Report - WQI 22

Project Information & Location			
Project Name	100 Financial Park Warehouse Development	**Project Number**	15015
City	Franklin	**State/ Province**	Massachusetts
Country	United States of America	**Date**	4/28/2016
Designer Information		**EOR Information (optional)**	
Name	Jesse Aguilar	**Name**	
Company	Highpoint Engineering	**Company**	
Phone #	778-177-0096	**Phone #**	
Email	jaguilar@highpointeng.com	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQI 22
Target TSS Removal (%)	73
TSS Removal (%) Provided	88
Recommended Stormceptor Model	STC 450i

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected practicle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	**% TSS Removal Provided**
STC 450i	88
STC 900	93
STC 1200	93
STC 1800	93
STC 2400	95
STC 3600	95
STC 4800	96
STC 6000	96
STC 7200	97
STC 11000	98
STC 13000	98
STC 16000	99
Stormceptor MAX	Custom

Sizing Details

Drainage Area	
Total Area (acres)	0.58
Imperviousness %	50.0

Rainfall	
Station Name	WORCESTER WSO AP
State/Province	Massachusetts
Station ID #	9923
Years of Records	58
Latitude	42°16'2"N
Longitude	71°52'34"W

Water Quality Objective	
TSS Removal (%)	73.3
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	0.36

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Particle Size Distribution (PSD)
The selected PSD defines TSS removal
Fine Distribution

Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Notes

• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
• Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
• For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications

EXISTING

Brief Stormceptor Sizing Report - WQI 24

Project Information & Location			
Project Name	100 Financial Park Warehouse Development	**Project Number**	15015
City	Franklin	**State/ Province**	Massachusetts
Country	United States of America	**Date**	4/28/2016
Designer Information		**EOR Information (optional)**	
Name	Jesse Aguilar	**Name**	
Company	Highpoint Engineering	**Company**	
Phone #	778-177-0096	**Phone #**	
Email	jaguilar@highpointeng.com	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQI 24
Target TSS Removal (%)	73
TSS Removal (%) Provided	77
Recommended Stormceptor Model	STC 450i

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected practicle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	**% TSS Removal Provided**
STC 450i	77
STC 900	84
STC 1200	84
STC 1800	84
STC 2400	88
STC 3600	88
STC 4800	91
STC 6000	91
STC 7200	93
STC 11000	95
STC 13000	95
STC 16000	96
Stormceptor MAX	Custom

Sizing Details

Drainage Area	
Total Area (acres)	1.3
Imperviousness %	81.0

Rainfall	
Station Name	WORCESTER WSO AP
State/Province	Massachusetts
Station ID #	9923
Years of Records	58
Latitude	42°16'2"N
Longitude	71°52'34"W

Water Quality Objective	
TSS Removal (%)	73.3
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	1.30

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Particle Size Distribution (PSD)
The selected PSD defines TSS removal
Fine Distribution

Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Notes

• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
• Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
• For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications

EXISTING

Brief Stormceptor Sizing Report - WQI 25

Project Information & Location			
Project Name	100 Financial Park Warehouse Development	**Project Number**	15015
City	Franklin	**State/ Province**	Massachusetts
Country	United States of America	**Date**	4/28/2016
Designer Information		**EOR Information (optional)**	
Name	Jesse Aguilar	**Name**	
Company	Highpoint Engineering	**Company**	
Phone #	778-177-0096	**Phone #**	
Email	jaguilar@highpointeng.com	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	WQI 25
Target TSS Removal (%)	73
TSS Removal (%) Provided	82
Recommended Stormceptor Model	STC 450i

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected practicle size distribution.

Stormceptor Sizing Summary	
Stormceptor Model	**% TSS Removal Provided**
STC 450i	82
STC 900	88
STC 1200	88
STC 1800	88
STC 2400	91
STC 3600	91
STC 4800	93
STC 6000	94
STC 7200	95
STC 11000	96
STC 13000	96
STC 16000	97
Stormceptor MAX	Custom

Sizing Details

Drainage Area	
Total Area (acres)	1.46
Imperviousness %	43.4

Rainfall	
Station Name	WORCESTER WSO AP
State/Province	Massachusetts
Station ID #	9923
Years of Records	58
Latitude	42°16'2"N
Longitude	71°52'34"W

Water Quality Objective	
TSS Removal (%)	73.3
Runoff Volume Capture (%)	
Oil Spill Capture Volume (Gal)	
Peak Conveyed Flow Rate (CFS)	
Water Quality Flow Rate (CFS)	0.79

Up Stream Storage	
Storage (ac-ft)	Discharge (cfs)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cfs)	

Particle Size Distribution (PSD)
The selected PSD defines TSS removal
Fine Distribution

Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Notes

• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
• Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
• For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications

◆ Verification Statement ◆ Verification Statement ◆ Verification Statement ◆

VERIFICATION STATEMENT

GLOBE Performance Solutions

Verifies the performance of

Cultec Separator™ Row Filtration System

Developed by Cultec, Inc.
Brookfield, Connecticut, USA

Registration: GPS-ETV_VR2021-03-31_v2

In accordance with

ISO 14034:2016

Environmental Management —
Environmental Technology Verification (ETV)

John D. Wiebe, PhD
Executive Chairman
GLOBE Performance Solutions

March 31, 2021
Vancouver, BC, Canada

GLOBE PERFORMANCE SOLUTIONS

Verification Body
GLOBE Performance Solutions
404 – 999 Canada Place | Vancouver, B.C | Canada |V6C 3E2

Technology description and application

Cultec Recharger and Contactor chambers are used for infiltration, detention and/or retention of stormwater underground. The system is comprised of thermoplastic arch-shaped chambers surrounded by clear crushed stone. Water enters the system through a Separator row and then flows through the stone and into a Chamber row prior to exiting. The Cultec stormwater system is sized based on the volume of stormwater which is stored in the voids created by the chamber and the voids in the clear stone surround, with a void ratio of 40%. The entire system is wrapped in a non-woven geotextile and/or impermeable geomembrane. In order to minimize fine particles and silts from blinding the voids in the clear stone surround, a single chamber row is wrapped in non-woven geotextile and placed on a woven geotextile. This row is connected to the inlet pipe of the Cultec system providing a filtration function as the surface stormwater run-off passes through the geotextile wrapped inlet row. Sediment is trapped within the Cultec Separator™ Row and may be removed through back flushing of this row. A typical system installation is illustrated in Figure 1 and Figure 2 below.

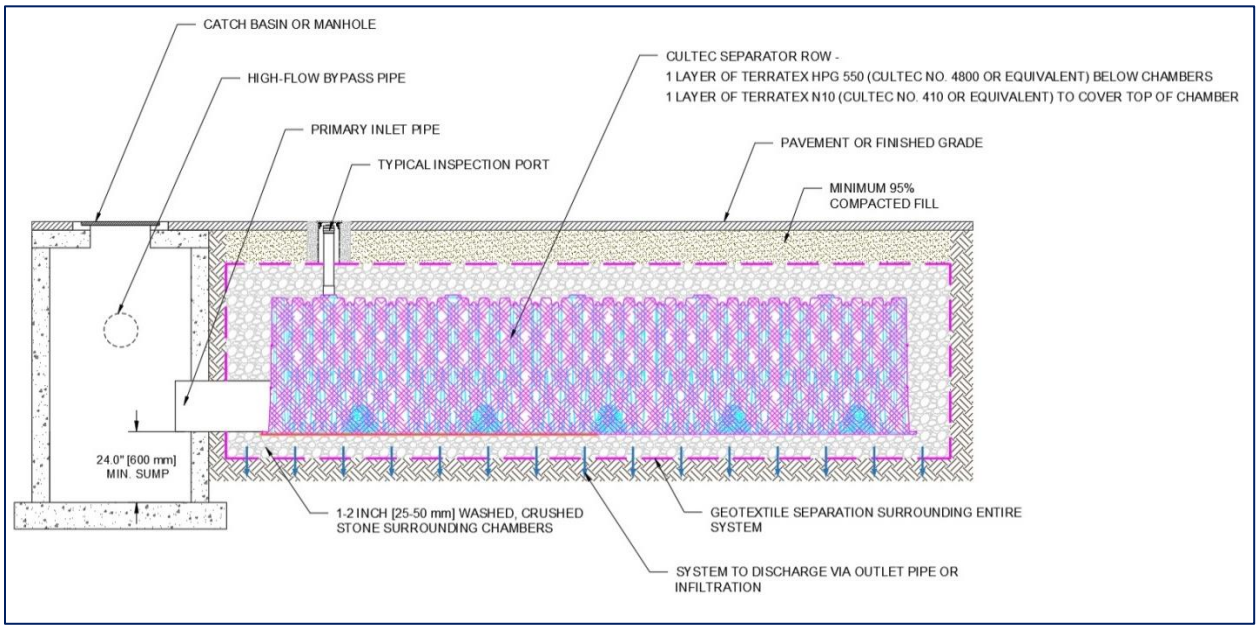


Figure 1: Cultec Separator™ Row Filtration System – Cross-Sectional View

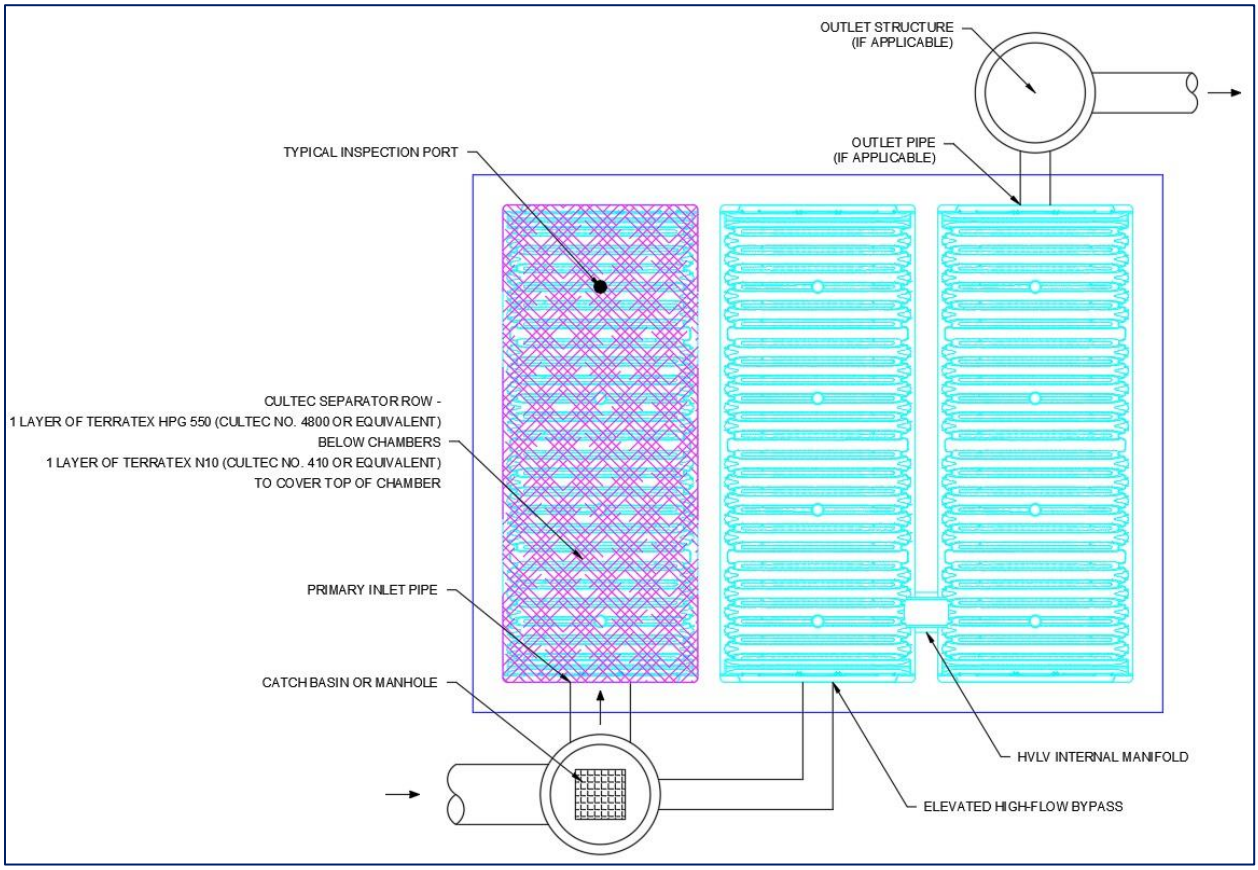


Figure 2: Cultec Separator™ Row Filtration System – Plan View

Performance & testing conditions

The data and results published in this Verification Statement were obtained from the testing program conducted on the Cultec Separator™ Row in accordance with a technology specific test plan (TSTP) developed and approved by the client and test lab (Good Harbour Laboratories, Mississauga, Ontario), and reviewed by Verification Expert and Verifying Organization, in compliance with ISO/IEC 14034.

The device tested was a Cultec Recharger 150XLHD R chamber with a base width of 838 mm (33″) and height of 470 mm (18.5″).

Test Setup

Two chambers were used for this study, a receiving chamber and a separation chamber. The two chambers were housed in a containment cell constructed out of wood, lined with an impermeable membrane. The dimensions of the test cell were 142” X 71” X 23.5” (3.58 m X 1.80 m X 0.60 m, L X W X H). The chambers were set up in the test cell in a manner consistent with a normal installation. The floor of the cell was covered with approximately 76 mm (3”) of washed, crushed, clear stone[1] which in turn was covered by one layer of woven geotextile fabric as required for the installation of the system. The two chambers sat next to each other, in parallel. Washed crushed stone filled in the space around the test units up to a height of approximately 51 mm (2”) from the base.[2] The test set-up is illustrated in Figure 3.

The geotextiles used for this study were:

Woven: Terratex HPG 550
Nonwoven: Terratex N10

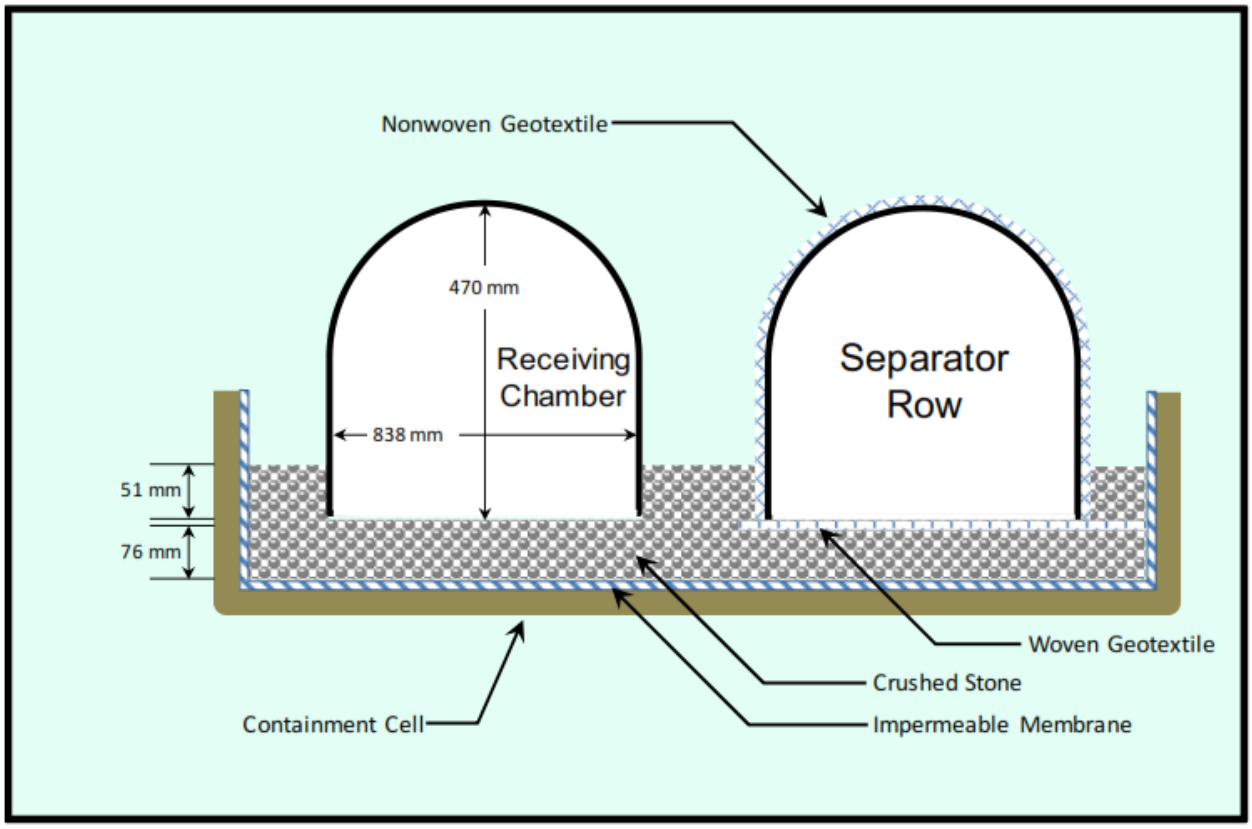


Figure 3: Test Cell Cross-Section for Model Recharger® 150XLHD R

[1] A normal installation would typically have a crushed stone depth of 150 mm (6").

[2] For a normal installation, the stone completely fills the column between chamber rows and up to a minimum of 6" above the top of the crown of the chamber.

The laboratory test set-up was a water flow loop, capable of moving water at a rate of up to 900 L/min. The loop was comprised of water reservoirs, pumps, stand pipe, receiving tank and a flow meter, in addition to the test cell.

Fresh water was pumped from the storage tank through a flow meter to the stand pipe, and from there it flowed by gravity through an inlet pipe to the separation chamber in the test cell. Sediment was added at an addition port in the inlet pipe upstream of the separation chamber.

From the water supply tanks, water was pumped by a centrifugal pump. Flow measurement was done using an electromagnetic type flow meter with an accuracy of ± 0.5% of reading (1 – 200 gpm). The data logger was configured to record a flow measurement once every minute.

The influent pipe was 100 mm (4 inches) in diameter and sediment addition was done through a port at the crown of the influent pipe, 4 pipe diameters (406 mm) upstream of the containment cell. The sediment feeder was a volumetric screw feeder with vibratory hopper.

Water flow exited the receiving chamber and terminated with a free-fall into the Receiving Tank. Water was pumped from the Receiving Tank back to the storage tanks to complete the flow loop.

Sample Collection & Parameter Measurement

Background water samples were collected in 1L jars from the standpipe. The sample was taken by submerging the jar below the surface of the water until full.

Effluent samples were also grabbed by hand. The effluent pipe drained freely into the Receiving Tank and the effluent sample was taken at that point. The sampling technique was to take the grab sample by sweeping a wide-mouth 1 L jar through the stream of effluent flow such that the jar was full after a single pass.

Effluent water temperature was taken using a data logger submerged into the receiving tank during each run and configured to take a temperature reading once every minute. Run and sampling times were measured using NIST traceable stopwatches. The sediment feed samples that were taken during the run were collected in 500 mL jars and weighed
on an analytical balance.

Test Sediment

The final test sediment particle size distribution (PSD) met the required tolerances of the Canada ETV Procedure for Laboratory Testing of Oil-Grit Separators (Rev. June 6, 2014 – Ver. 3.0). Three replicate samples of the test sediment blend were sent to a qualified 3rd party analytical laboratory for analysis of the sediment PSD in a manner consistent with ASTM method D422-63 (Reapproved 2007), "Standard Test Method for Particle-Size Analysis of Soils". The samples were composite samples created by taking samples throughout the blending process and in various positions within the blending drum.

Removal Efficiency Testing

The objective of this study was to establish a baseline for treatment performance (removal efficiency) over a range of flow rates up to 125% of the maximum treatment flow rate (MTFR) with an influent suspended sediment concentration (SSC) of 200 mg/L. Sediment removal efficiency testing was conducted at 25%, 50%, 75%, 100% and 125% MTFR. The sediment feed rate had a coefficient of variance (COV) ≤ 0.10 and the influent sediment concentration was maintained within ± 20 mg/L of target, based on the average sediment feed rate and water flow rate for the run. The water flow rates were held within 10% of target with a COV of 0.03 and water temperatures were maintained below 25°C.

A minimum of eight influent background samples were taken at regular intervals. A minimum of 15 effluent samples were collected during each test run. The first sample was collected after a minimum of 3 detention times (DT), at which time a constant flow and sediment feed were established. The interval between sequential effluent samples was evenly spaced; however, when the test sediment feed was interrupted for measurement, the next effluent sample was collected after waiting at least 3 DT to re-establish equilibrium conditions.

The system detention time was determined empirically by measuring the height of water in the containment cell during clean water flow at the chosen flow rate. The wet volume of the system was calculated and the approximate volume of the stones was subtracted. The remaining volume was the estimated water volume in the containment cell, which was divided by the flow rate to give detention time.

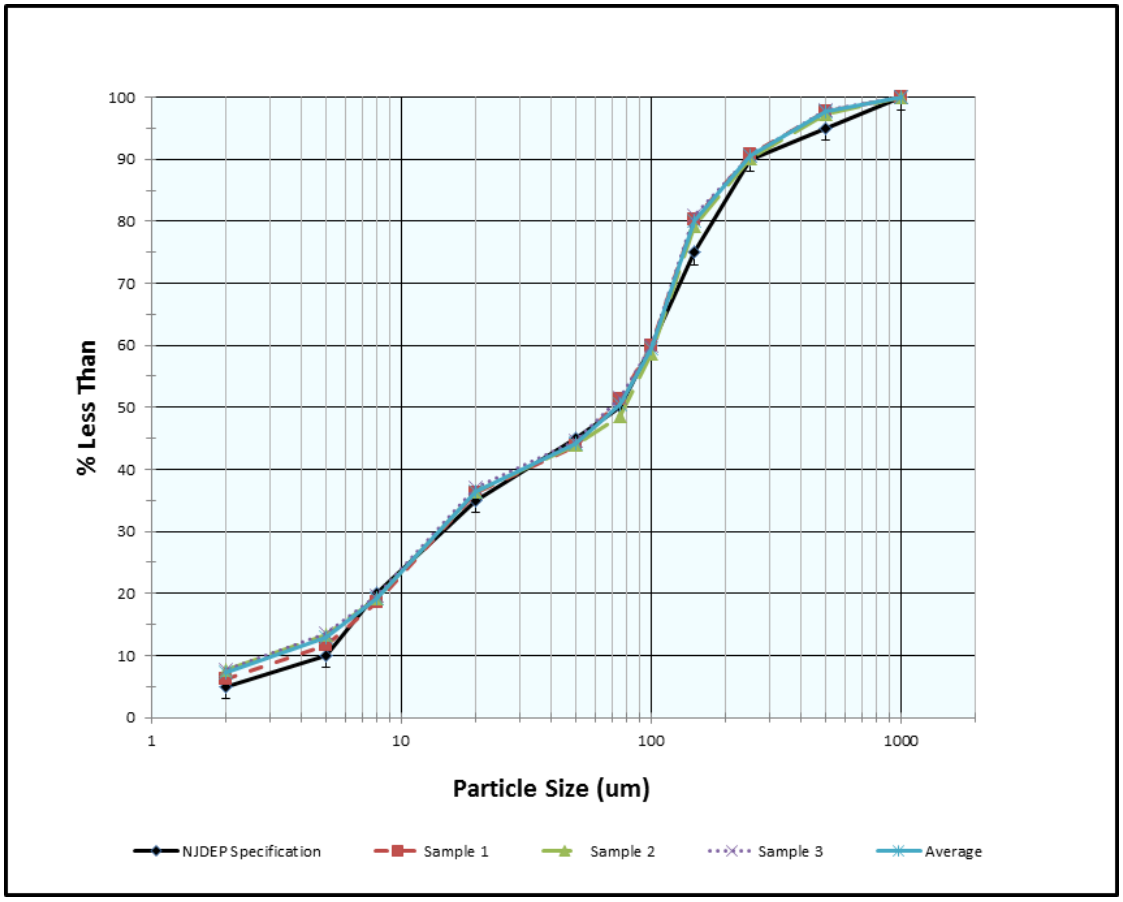
The sediment feed rate was checked using six calibration samples taken at evenly spaced intervals over the duration of each test run. Each sample was collected over an interval timed to the nearest 0.01 second and was a minimum of 0.1 liters, or the collection interval did not exceed one minute, whichever came first. The COV of the samples was < 0.10. The feed rate samples were also used to calculate an influent concentration in order to double check the concentration calculated by mass balance.

Performance claims

When installed with Terratex HPG 550 and Terratex N10 geotextiles, and tested with silica sediment having a particle size distribution conforming to the *Canadian Environmental Technology Verification Program Procedure for Laboratory Testing of Oil-Grit Separators*, the Cultec Recharger® 150XLHD Separator Row™ will remove at least the following fractions of suspended sediment at the corresponding flow rates: 80% at 24 gpm, 77% at 49 gpm, 73% at 73 gpm, 70% at 97 gpm, and 65% at 121 gpm. These performance claims are verified statistically at a 95% level of confidence.

Performance results

TEST SEDIMENT PARTICLE SIZE DISTRIBUTION IN RELATION TO SPECIFIED PSD



SUSPENDED SEDIMENT REMOVAL EFFICIENCY AT A FLOW RATE OF 24 GPM

	Suspended Sediment Concentration (mg/L)														
Sample #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Effluent	39.6	38.7	39.2	39.8	39.1	39.5	41.7	41.9	41.1	42.4	43.2	41.6	40.8	41.1	41.6
Background	2		2		2		2		2		2		2		2
Adjusted Effluent	37.6	36.7	37.2	37.8	37.1	37.5	39.7	39.9	39.1	40.4	41.2	39.6	38.8	39.1	39.6
Average Adjusted Effluent Concentration					38.8 mg/L			Removal Efficiency					80.2%		

SUSPENDED SEDIMENT REMOVAL EFFICIENCY AT A FLOW RATE OF 48 GPM

	Suspended Sediment Concentration (mg/L)														
Sample #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Effluent	47.1	47.0	47.1	46.8	47.3	47.3	49.0	50.1	49.5	50.4	49.1	50.2	52.2	49.7	51.8
Background	2		2		2		2		2		2		2		2
Adjusted Effluent	45.1	45.0	45.1	44.8	45.3	45.3	47.0	48.1	47.5	48.4	47.1	48.2	50.2	47.7	49.8
Average Adjusted Effluent Concentration					47.0 mg/L			Removal Efficiency					76.9%		

SUSPENDED SEDIMENT REMOVAL EFFICIENCY AT A FLOW RATE OF 73 GPM

	Suspended Sediment Concentration (mg/L)														
Sample #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Effluent	54.3	55.2	53.3	53.8	55.8	55.8	55.3	54.5	53.5	56.2	56.4	56.5	58.4	56.8	57.7
Background	2		2		2		2		2		2		2		2
Adjusted Effluent	52.3	53.2	51.3	51.8	53.8	53.8	53.3	52.5	51.5	54.2	54.4	54.5	56.4	54.8	55.7
Average Adjusted Effluent Concentration					53.6 mg/L			Removal Efficiency					73.3%		

SUSPENDED SEDIMENT REMOVAL EFFICIENCY AT A FLOW RATE OF 97 GPM

	Suspended Sediment Concentration (mg/L)														
Sample #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Effluent	58.4	59.4	59.0	61.2	61.6	61.1	58.9	60.4	59.9	63.9	63.3	62.5	61.9	61.0	61.0
Background	2		2		2		2		2		2		2		2
Adjusted Effluent	56.4	57.4	57.0	59.2	59.6	59.1	56.9	58.4	57.9	61.9	61.3	60.5	59.9	59.0	59.0
Average Adjusted Effluent Concentration					58.9 mg/L			Removal Efficiency					70.0 %		

SUSPENDED SEDIMENT REMOVAL EFFICIENCY AT A FLOW RATE OF 121 GPM

	Suspended Sediment Concentration (mg/L)														
Sample #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Effluent	72.0	72.8	71.7	72.1	70.1	72.1	69.3	72.3	77.2	71.0	70.7	72.7	71.1	70.4	73.0
Background	2		2		2		2		2		2		2		2
Adjusted Effluent	70.0	70.8	69.7	70.1	68.1	70.1	67.3	70.3	75.2*	69.0	68.7	70.7	69.1	68.4	71.0
Average Adjusted Effluent Concentration					69.9 mg/L			Removal Efficiency					65.3%		

*Note: This data point was considered to be a significant outlier and was therefore omitted as part of the overall statistical calculations to verify performance at a 95% level of confidence.

Verification

This verification was completed by the Verification Expert, the Centre for Advancement of Water and Wastewater Technologies ("CAWT"), contracted by GLOBE Performance Solutions, using the International Standard ***ISO 14034:2016 Environmental Management -- Environmental Technology Verification (ETV)***. Data and information provided by Cultec, Inc. to support the performance claim included the final test report prepared by Good Harbour Laboratories of Mississauga, Ontario and dated November 9, 2017. The test report is based on testing completed in compliance with the requirements of ISO/IEC 17025.

What is ISO14034:2016 Environmental Management – Environmental Technology Verification (ETV)?

ISO 14034:2016 specifies principles, procedures and requirements for environmental technology verification (ETV), and was developed and published by the *International Organization for Standardization (ISO)*. The objective of ETV is to provide credible, reliable and independent verification of the performance of environmental technologies. An environmental technology is a technology that either results in an environmental added value or measures parameters that indicate an environmental impact. Such technologies have an increasingly important role in addressing environmental challenges and achieving sustainable development.

For more information on the Cultec Separator™ Row Filtration System please contact:

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Brookfield, CT
06804 USA
Tel: 203.775.4416 / Toll Free: 1.800.4.CULTEC
custservice@cultec.com
www.cultec.com

For more information on ISO 14034:2016 / ETV please contact:

GLOBE Performance Solutions
404 – 999 Canada Place
Vancouver, BC
V6C 3E2 Canada
Tel: 604-695-5018 / Toll Free: 1-855-695-5018
etv@globeperformance.com
www.globeperformance.com

Limitation of verification: Registration: GPS-ETV_VR2021-03-31_v2
GLOBE Performance Solutions and the Verification Expert provide the verification services solely on the basis of the information supplied by the applicant or vendor and assume no liability thereafter. The responsibility for the information supplied remains solely with the applicant or vendor and the liability for the purchase, installation, and operation (whether consequential or otherwise) is not transferred to any other party as a result of the verification.

Date: 05/11/2023 revised July 17, 2023 & August 14, 2023

I. OWNER:

ICBP IV Holdings 34, LLC c/o Berkeley Partners
1111 Broadway | Suite 1670
Oakland, CA 94607
(415) 450-1762
aramirez@berkeleypartners.com

II. RESPONSIBLE PARTY:

Berkeley Partners
1 Washington Mall | Suite 701
Boston, MA
(802) 353-2523
bpellerin@berkeleypartners.com

III. PROJECT OVERVIEW:

Prevention of offsite flooding and improvements to existing runoff, water quality, and groundwater recharge characteristics are the main priorities of the project with respect to the drainage design. The project will improve existing stormwater management within the property with respect to the current site condition, which includes no existing stormwater management facilities, by installing a new stormwater management system comprising various Best Management Practices (BMPs) to mitigate runoff and water quality impacts associated with the proposed site development. Water quality BMPs to mitigate the runoff generated by the site improvements during construction include straw wattle erosion control barrier, temporary Siltsack® drainage inlet inserts in adjacent existing street drainage and new on-site catch basins, new on-site catch basins (as installed), construction entrance with anti-tracking pad, a temporary sediment basin at the most down gradient limit of work, and periodic street sweeping along the site frontage.

It is the intent of the stormwater management design to achieve an 90% Total Suspended Solids (TSS) removal efficiency or 45% removal efficiency prior to discharge as outlined in the DEP Stormwater Management Standards.

The construction-phase BMPs used in this design were chosen for their effectiveness and ease of maintenance. Providing for maintenance requirements that are practical is essential to achieve the desired result of improved stormwater quality and peak attenuation. This plan will be provided to the property owner, property manager, and general contractor to educate them on the recommendations of this plan and the DEP Stormwater Management Guidelines.

OPERATION & MAINTENANCE PLANS

IV. CONSTRUCTION PERIOD – BEST MANAGEMENT PRACTICES:

a) MONITORING

During construction operations, the stormwater management system will be inspected at least once every seven (7) calendar days, or once every fourteen (14) calendar days and within twenty-four (24) hours after a storm event of one quarter inch (0.25") or greater. Sediment accumulation shall be removed once a depth of one-third the height of perimeter sedimentation control devices is achieved unless stated otherwise. Damaged or underperforming sedimentation controls shall be replaced, modified, or otherwise supplemented immediately.

b) WASTE AND RECYCLING DISPOSAL

Metal dumpster type waste and recycling disposal receptacles will be located on-site and kept covered when not in active use. The project site will be policed daily by a person appointed by the general contractor to be kept the project site free of construction debris.

c) DUST MONITORING PLAN

A dust monitoring plan will be established prior to the start of construction and always kept on site. This will reduce the particulate levels in the air and reduce impacts to surrounding areas. Recommended methods for controlling dust include:

- Provide vegetative cover to disturbed areas at the end of earth disturbing activities as soon as practical, but no longer than 14 days.
- Apply a mulch layer to disturbed areas at the end of earth disturbing activities as soon as practical, but no longer than 14 days.
- Cover stockpiles unused for a maximum of 7 days with poly sheeting or tarps.
- Water surface materials and soil stockpiles.
- Use covered trucks.
- Minimize spoils stockpiled on site.
- Monitor construction practices to minimize unnecessary disturbance/ transfer of soils.
- Conduct periodic street cleaning along the site frontage during excavation activities.
- Pave driveways and parking surfaces as early as possible (where applicable and feasible).
- Assign personnel to remove windblown debris daily.
- Limit the idling of engines or stopped vehicles (except asphalt and cement concrete mixing trucks and equipment) to five minutes.

d) SPILL PREVENTION, CONTAINMENT, AND CLEANUP

Construction activities for this project will necessitate the use of equipment fuels, engine fluids, paints, and adhesives on the construction site and must be considered in the spill prevention and response practices for the project.

The general contractor will ensure areas where potential pollutants can occur are well protected with erosion control barriers and clean up equipment to prevent discharge of wastewater, fuels, and oil from vehicles and any other toxic or hazardous spills from the project site.

Spill kits comprising equipment necessary to attend to spills or leaks shall be stored on site in equipment sheds or similar covered enclosures and shall consist of the following:

- Safety goggles.
- Chemically resistant gloves and overshoe boots.
- Water and chemical fire extinguishers.
- Shovels.
- Absorbent materials.
- Containers suitable for storage of site-specific materials.
- First aid kits.

Spills and leaks shall be treated according to the type, volume, and location of the released material. Generally, mitigation shall consist of the following:

- Prevention of additional material storage.
- Containment of spilled material.
- Safe, thorough, and environmentally sound removal of spilled material.
- Remediation of environmental damage.

In the event of a spill, all materials used for containment and cleanup shall be replaced in kind in the spill kits immediately. The following describes specific preventative methods to be employed for materials used on site.

Fuels, Antifreeze, and Coolant for Construction Equipment and Generators:

In the case of a fuel spill on a pervious surface, the spill shall be contained and treated with absorbent polymer material immediately and the affected soil shall be excavated and stored in an impervious, bermed area, and the Licensed Site Professional shall be contacted to coordinate next steps regarding soil management. In the case of a fuel spill on an impervious surface, the spill shall be contained to prevent runoff and treated with absorbent material.

Adhesives and Paints:

Adhesive and paint materials shall be transferred to the site on an as needed basis. Any containers to be stored on site shall be clearly labeled and stored in non-flammable lockers. Wash water from paints shall be containerized; washing of paints into storm drainage systems shall be prohibited. Water-based and latex paints shall either be recycled or dried up and thrown out with the regular household trash, and oil-based paints and thinners shall be removed from the site by a local professional hazardous material removal company.

Town of Franklin Emergency Contacts are as Follows:

- Emergency Management: (888) 304-1133 (MassDEP 24-Hour Spill Reporting)
- Franklin Police Department: 911
- Franklin Fire Department: (508) 528-2323

For spills of less than five (5) gallons of material, mitigation shall consist of source control, containment, and clean-up with absorbent materials, unless an imminent hazard necessitates that a local professional hazardous material removal company become involved to mitigate the spill.

For spills greater than five (5) gallons of material, the incident shall be reported immediately to the MassDEP Hazardous Waste Incident Response Group at (617)-792-7653 and a professional emergency response contractor. Information that shall be provided to the said contractor is as follows:

- Type of material spilled.
- Quantity of material spilled.
- Location of the spill.
- Time of the spill.

The contractor shall then employ measures to prevent further spillage, contain and/or clean up the spill.

If a Reportable Quantity (RQ) of material is spilled during construction, the National Response Center (NRC) shall be notified immediately at (800) 424-8802. Reportable Quantities of hazardous material are available in 310 CMR 40: Massachusetts Contingency Plan Subpart P: Massachusetts Oil and Hazardous Material List. Within 14 days a report shall be submitted to the EPA New England Regional Office describing the following:

- Type of material released.
- Date and circumstances of the release.
- Measures taken to prevent future releases.

The report shall be submitted to the EPA New England Regional Office at the following address:

EPA New England, Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Frequent inspections of areas where potential spill could occur is key to prevention. Inspection shall take place, at a minimum of once every calendar days, or once every 14 calendar days and within 24 hours of the occurrence of a storm event of 0.25 inches or greater or the occurrence of runoff from snowmelt sufficient to cause a discharge.

An inspection report shall be completed within 24 hours of completing any site inspection. Each inspection report must include, at minimum, the following:

- The inspection date and time.
- The weather and temperature.
- Names and titles of personnel making the inspection.
- A summary of inspection findings, covering at a minimum the observations made in accordance with Part 4.6 of the 2022 Construction General Permit, including any necessary maintenance or corrective actions.
- If inspecting because of rainfall measuring 0.25 inches or greater, include the applicable rain gauge or weather station readings that triggered the inspection.
- If determined that it is unsafe to inspect a portion of the site, describe the reason found to be unsafe and specify the locations to which the conditions apply.

e) STATE & LOCAL SANITARY LAWS

Portable sanitary units will be placed on-site during construction and will be serviced weekly.

V. CONSTRUCTION PERIOD - STRUCTURAL BEST MANAGEMENT PRACTICES

Structural BMPs are those physical facilities that are designed to manage both stormwater quantity and quality. Proper maintenance of the proposed structural BMPs will ensure design performance, promote longevity, and decrease operator maintenance costs. The structural BMPs selected for the proposed site development include straw wattle erosion control barrier, temporary Siltsack® drainage inlet inserts in adjacent existing street drainage and new on-site catch basins (as installed),

a) STRAW WATTLE EROSION/SEDIMENTATION CONTROL BARRIER

Straw wattle erosion control barriers shall be installed as specified on the “Site Preparation & Erosion Control Plan” (plan sheet C200) prior to commencing construction activities. The straw wattle barriers shall be inspected daily and maintained throughout construction. Accumulated sediment shall be removed before it has accumulated to one-third of the above ground height of the filter sock. Any breach in the barriers shall be repaired within 24 hours or before next rainfall, whichever is sooner. Straw wattles shall remain in place for the duration of construction and may be supplemented and/or modified at any time. The general contractor shall maintain a stockpile of surplus straw wattles materials equivalent to 10

percent of the overall erosion/sedimentation control barrier length as depicted on plan sheet C200.

b) **SILTSACK® DRAINAGE INLET INSERTS FOR EXISTING AND PROPOSED CATCH BASINS**

The existing catch basin located in the existing ring road adjacent to the construction entrance, as well as all new catch basins upon installation, shall be equipped with Siltsacks® as shown on the "Site Preparation, & Erosion Control Plan (plan sheet C200).

Siltsacks® shall be regular flow units installed below grate castings and be equipped with internal emergency bypass devices. Siltsacks® are to remain in place until the end of the construction and the site is stabilized. During construction, all catch basins and Siltsacks® shall be inspected every fourteen (14) calendar days and after a storm of a quarter inch (0.25") or greater. Sediment accumulation shall be removed once sediment accumulates above the expansion restraint within the bag. Damaged Siltsacks® shall be replaced immediately. The contractor shall keep a minimum of two (2) extra Siltsacks® on site in case damaged units need to be replaced. Disposal of accumulated sediment and trash is to be in accordance with applicable local, state, and federal guidelines and regulations. Upon completion of the work, contractor is responsible for inspection and cleaning of units to ensure delivery of clean units to owner prior to completion of project.

c) **CONSTRUCTION ENTRANCE ANTI-TRACKING PAD**

A construction entrance anti-tracking pad shall be installed at the existing driveway entrances as shown on the "Site Preparation & Erosion Control Plan" (plan sheets C200 & C201) to minimize the track-out of sediment onto the street and sidewalk surfaces from vehicles leaving the construction site. The sub-base for the pad will be compacted and covered with a filter cloth. Crushed stone ranging in aggregate size from 1.5 to 3 inches will be placed on top of the filter cloth at a minimum thickness of 6 inches. The anti-tracking pad will remain in place and maintained until parking and loading areas receive an asphalt binder course or concrete slab-on-grade, depending on location.

The anti-tracking pad shall be installed prior to material and heavy equipment hauling commences. Maintenance requirements include:

- Construction vehicles will be restricted to using only the designated entrance/exit armored with the tracking pad until the site has been stabilized with asphalt binder course. The removed stone and sediment from the pad will be hauled off site and disposed in accordance with all applicable local, state, and federal regulations.

- The exit will be maintained in a condition that will prevent tracking or flowing of sediment off-site. This could require additional crushed stone to be placed within the exit. Sediment shall be swept form the anti-tracking pads at least weekly, or more often if necessary. If excess sediment has clogged the pads, they shall be top dressed using new crushed stone and re-leveled. Replacement of the entire pad may be necessary if

it becomes completely inundated with sediment. The pad will be reshaped as needed for drainage and runoff control depending on site conditions.

- Where sediment has been tracked into the public right of way from the construction site, the deposited sediment shall be removed by the end of the same workday. Sediment shall be removed by sweeping, shoveling, or vacuuming of these surfaces. Hosing or sweeping tracked-out sediment into a public or private stormwater system is prohibited.

- The exit will be inspected once every seven (7) calendar days and within 24 hours of storm events of 0.25 inches or greater, or the occurrence of runoff from snowmelt sufficient to cause a discharge.

END

LONG-TERM OPERATION AND MAINTENANCE PLAN

Warehouse/Industrial Development | 100 & 200 Financial Park | Franklin, MA

Project Address:	100 & 200 Financial Park Franklin, MA 02038
Date Prepared:	May 11, 2023 revised July 17, 2023 revised August 14, 2023 revised October 5, 2023
Project Number:	22051
Prepared for:	Berkeley Partners 1 Washington Street | Suite 701 Boston, MA 02108
Prepared by:	**Highpoint Engineering Inc.** Dedham Executive Center 980 Washington Street, Suite 216 Dedham, MA 02026 www.highpointeng.com



O&M UPDATE FORM

DATE OF UPDATE	DATE OF LAST UPDATE TO O&M PLAN

SECTIONS OUT OF DATE / REQUIRED UPDATES

MAINTENANCE LOG REVIEW

BMP	INSPECTION AND MAINTENANCE FREQUENCY		ACTION REQ'D?* (CIRCLE ONE)
	REQUIRED	ACTUAL	
CONTECH ®WATER QUALITY UNITS			Y N
DEEP SUMP/ HOODED CATCH BASINS			Y N
UNDERGROUND SYSTEM			Y N
CULTEC SEPARATOR ROWS			Y N
SEDIMENT FOREBAYS/RAIN GARDENS			Y N

*See next page for corrective action and training requirement updates (if applicable)

CORRECTIVE ACTION TO SCHEDULE(S) REQUIRED (IF YES TO ANY OF ABOVE)
EMPLOYEE AND CONTRACTOR TRAINING UPDATES (ATTACH BROCHURES AS NEEDED)

ANNUAL SITE INSPECTION AND UPDATE

OVERALL SITE CONDITION

_____
_____
_____
_____
_____

INSPECTION RESULTS

_____
_____
_____
_____
_____

EXCEPTIONAL CIRCUMSTANCES OBSERVED? _____

IF YES, DESCRIBE CIRCUMSTANCES AND CORRECTIVE ACTIONS NEEDED.

_____
_____
_____
_____
_____

OVERALL O&M PLAN EFFECTIVENESS (DESCRIBE)

_____
_____
_____
_____
_____

Reproduce update forms as necessary over the life of this Operation and Maintenance Plan.

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APPENDIX **Proprietary BMP Information**
- Contech Water Quality Units
- Cultec Separator Rows

Date: May 11, 2023 Revised July 17, 2023, August 14, 2023, **October 5, 2023**

I. OWNER:

ICBP IV Holdings 34, LLC c/o Berkeley Partners
1111 Broadway | Suite 1670
Oakland, CA 94607
(415) 450-1762
aramirez@berkeleypartners.com

II. RESPONSIBLE PARTY:

Berkeley Partners
1 Washington Mall | Suite 701
Boston, MA 02108
(802) 353-2523
bpellerin@berkeleypartners.com

PROJECT OVERVIEW

Prevention of offsite flooding and implementation of stormwater runoff, water quality, and groundwater recharge improvements where none currently exist on-site are the main priorities of the project with respect to drainage design. The project will improve existing stormwater management within the property with respect to the existing site condition, which currently includes no such improvements, by installing a stormwater management system comprising various Best Management Practices (BMPs). Long-term water quality BMPs to mitigate the runoff generated by the site improvements include three (3) Cultec Recharge 902HD and one (1) Cultec Recharge 360HD sub-surface infiltration systems, three (3) sediment forebays, two (2) rain gardens, seven (7) Contech water quality units and periodic mechanical sweeping to remove sand and sediment from paved surfaces.

It is the intent of the stormwater management design to achieve a 90% Total Suspended Solids (TSS) removal efficiency or 44% removal efficiency prior to discharge as outlined in the DEP Stormwater Management Standards.

The permanent BMPs used in this design were chosen for their effectiveness and ease of maintenance. Providing for maintenance requirements that are practical is essential to achieve the desired result of improved stormwater quality, and peak attenuation. This plan will be provided to the property owner, property manager, and general contractor to educate them on the recommendations of this plan and the DEP Stormwater Management Guidelines.

POST-CONSTRUCTION BEST MANAGEMENT PRACTICES

a) NON-STRUCTURAL BEST MANAGEMENT PRACTICES

Implementing source controls can aid in reducing the types and concentrations of contaminants in stormwater runoff. This principle for pollution prevention and non-structural controls, or BMPs, is to minimize the volume of runoff and to minimize contact of stormwater with potential pollutants. Measures such as street sweeping, managing snow removal, and educating the owner/operator of good maintenance practices are examples of non-structural BMPs.

i. PUBLIC AWARENESS

The responsible party shall issue periodic reminders to the building tenants to avoid dumping or releasing pollutants into the storm drains and onto the ground.

ii. STREET SWEEPING

Parking lot, driveway, and loading area sweeping is an integral part of the stormwater management plan as a fundamental component of source reduction efforts. Sweeping activities shall begin on or around April 1. However, sweeping may be done after winter thaw and the onset of early spring. It is critical to remove the accumulated sediment in the parking, loading, and driveway areas from the winter months as soon as possible before spring precipitation.

Sweeping activities should be performed a minimum of two times annually (April 1 and September 1).

iii. SNOW AND SNOWMELT MANAGEMENT

The removal contractor shall avoid stockpiling snow directly on top of catch basin grates and avoid stockpiled snow within the paved parking lot to allow normal vehicular maneuverability. Also avoid stockpiling snow in the, three (3) sediment forebays and two (2) raingardens located within the landscape islands in the trailer storage and surface parking areas to the west of the property.

It is suggested that during snowfall events, the snow be stockpiled in designated snow storage area throughout the site. These are located to the east of the Building 3 Parking area, the landscaped areas to the North and West of the trailer storage area, to the Northeast of the Building 1 parking area, along the West side of West parking lot, and to the south of the new Building 3 loading area, During significant snow fall event, six (6) inches or greater, accumulated snow shall be stockpiled in areas coordinated by the property owner and snow removal contractor and/or removed from the site by a snow removal contractor. It is the

responsibility of the owner to make sure the snow removal contractor utilizes previously approved areas. The owner shall remove sediment from snow storage areas every spring.

It is suggested that no de-icing compounds such as calcium chloride ($CaCl_2$), calcium magnesium acetate (CMA) or the like be used on the site. The snow removal contractor shall store all sand off-site. No quantities of sand compounds shall be stored on site.

iv. PUBLIC SAFETY FEATURES

The project has been designed with consideration for public safety and does not require any specific features as part of the stormwater management system.

b) STRUCTURAL BEST MANAGEMENT PRACTICES:

Structural BMPs are those physical facilities that are designed to manage both stormwater quantity and quality. Proper maintenance of the proposed structural BMPs will ensure design performance and promote longevity of the structure and may decrease operator maintenance costs.

i. DEEP-SUMP/HOODED CATCH BASINS

All proposed catch basins shall be a minimum of four feet in diameter and equipped with four-foot-deep sumps to trap sediments and any debris/trash. The pipe outlets shall be hooded to prevent floating debris and oils from entering the subsurface drainage conveyance system. The actual removal of sediments, trash, and associated pollutants only occurs when the deep sumps are cleaned out; therefore, frequent maintenance is required. The more frequent the cleaning, the less likely sediments will be re-suspended and subsequently discharged downstream. In addition, frequent cleaning also results in more volume available for future storms and enhances overall performance.

The recommended inspection frequency of the deep sumps is every three months, and cleaning two to three times per year, if necessary, post-construction. Disposal of accumulated sediment and trash is to be in accordance with all applicable local, state, and federal guidelines and regulations.

ii. CONTECH WATER QUALITY UNITS

Four (4) Contech© water quality units are proposed to prevent sediments and oils from entering the underground detention basin in the north loading area. The actual removal of sediments, trash, and associated pollutants only occurs when the structures are cleaned out; therefore, frequent maintenance is required. The more frequent the cleaning, the less likely sediments will be re-suspended and subsequently discharged. In addition, frequent cleaning also results in more volume available for future storms and enhances overall performance. Contech CDS structures are an approved means of BMP for storm water management. See the TSS Removal Calculation Worksheet included in the Appendix

B and the Contech unit sizing information in Appendix C for the specific TSS removals rate of the Contech© unit for this project.

Post-construction, the units shall be inspected every six months for the first year of operation to determine the oil and sediment accumulation rate. After the first year, inspections can be based on the first-year observations or local requirements. Cleaning, by full pump out, is recommended on an annual basis or when 15% of the units' storage capacity is filled with solids. Inspect the units immediately after an oil, fuel, or chemical spill. Maintenance shall be performed by conventional vacuum truck. Disposal of accumulated sediment, trash, and hydrocarbons shall be in accordance to all applicable local, state, and federal guidelines and regulations. Refer to product brochure in the Appendix for more information.

iii. UNDERGROUND INFILTRATION SYSTEM

Four (4) underground infiltration systems consisting of three (3) Cultec Recharge 902HD and one (1) Cultec Recharge 360HD chambers are proposed to provide detention volume for landscape, hardscape, and roof runoff for the proposed development. SWM-2 is located beneath the concrete loading area to the South of Building 1. SWM-3 and SWM-4 are located beneath the heavy duty bituminous concrete trailer storage to the West of Building 1. SWM-6 is located to the East of Building 1 beneath the bituminous concrete entrance/parking area. Refer to the "Grading and Drainage Plan" (Sheet C400 and C401) for exact sub-surface system locations. The infiltration systems are sized to provide groundwater recharge volume to the maximum extent practicable for all storm events up to and including the 100-year storm event and is designed to drain completely within 72 hours. Inspection ports with at-grade access will be installed to provide inspection and maintenance access to the chambers and stone bed.

The systems shall be inspected twice per year, at the beginning of July and late October/ early November, to determine if any loss of capacity has occurred. The system shall also be inspected 24 hours after a rainstorm of over 2.5 inches in a 24-hour period to ensure that the system is free of extraneous debris and fines and is draining adequately.

Removed materials shall be hauled off site and disposed of in compliance with all local, state, and federal guidelines and regulations. Refer to product brochure in the Appendix for more information.

iv. CULTEC SEPARATOR ROWS

Two (2) Cultec separator rows consisting of Cultec Recharge 902HD chambers, each wrapped in filter fabric and connected to an underground infiltration system via an inlet control structure and manifold piping, are proposed to capture sediment from the first flush of rain events prior to releasing pretreated runoff to infiltration systems. The separator rows are located adjacent to SWM-3 and SWM-4 beneath the heavy duty bituminous concrete trailer storage to the West of Building 1. Refer to the "Grading and

Drainage Plan" (Sheet C400 and C401) for exact separator row locations. The configuration is designed to trap any sediment and/or debris that may pass through the upstream structures (such as deep sump catch basins) and into the underground chambers.

The separator rows shall be inspected every six months for the first year of service and then at least annually thereafter. Inspections can be achieved via the inspection port installed in each of the separator rows.

When the depth of sediment observed in a separator row exceeds 3", the sediment shall be removed. Sediment and debris can be removed using high pressure water nozzles introduced via the access manholes to flush sediment and debris into the sump of the manhole for vacuuming.

Removed materials shall be hauled off site and disposed of in compliance with all local, state, and federal guidelines and regulations. Refer to product brochure in the Appendix for more information.

v. SEDIMENT FOREBAYS & RAINGARDENS

Two (2) rain gardens are proposed within the landscaped islands along the ring road to the West of the site. The rain gardens are equipped with overflow grates to allows controlled to allow controlled downstream discharge of overflow runoff toward the North Detention Pond. The two rain gardens are equipped with upstream sediment forebays, Raingarden #1 has a single forebay upstream of it, while rain garden #2 has two (2) forebays allowing runoff to enter from two curb breaks. The sediment forebays provide water quality pre-treatment of surface runoff from proposed surface parking and trailer storage areas. The rain gardens are sized to mitigate peak runoff increases associated with the proposed project for all storm events up to and including the 100-year storm. The basin is designed to drain completely within 72 hours.

The sediment forebays shall be inspected monthly, and cleaning shall be done on a quarterly basis. Check for erosion and cracking on side slopes and at spillways. Check for undesirable vegetative growth (i.e., trees) and differential settlement on side slopes and forebay floor. The stone apron up gradient of the forebay shall be checked for clogging and wash-out and cleaned and re-stabilized as conditions warrant. Mowing of side slopes and forebay floor shall be performed in conjunction with overall site mowing schedule; clippings shall be removed from forebay.

The rain gardens basin shall be inspected twice a year at minimum and cleaned as needed. Check for erosion and cracking on side slopes. Check for undesirable vegetative growth (i.e., trees) and differential settlement on side slopes and basin floors. Confirm overflow area drains are clear of trash, sediment, debris, organics, or other obstructions. Clogged surfaces shall be broken up by way of deep tilling and re-vegetated immediately. Light machinery shall be used for all maintenance to avoid compaction of underlying soil.

Mowing shall be performed in conjunction with overall site mowing schedule; clippings shall be removed from the basin.

Disposal of accumulated sediment and trash is to be in accordance with applicable local, state, and federal guidelines and regulations.

Once the plants are established, the rain garden maintenance schedule is as follows:

- The rain garden areas shall be inspected monthly, year-round. Repair eroded soils and remove liter and debris during this time.
- The mulch layer shall be inspected annually in the spring and replaced, at a minimum, every two years.
- Remove invasive species as needed to prevent these species from spreading into the bioretention area.
- Remove dead vegetation annually in the fall or spring. Replace dead vegetation annually in the spring.
- Prune established vegetation annually in the fall or spring.
- Replace entire media and all vegetation as necessary in the late spring/early summer.

Refer to the Massachusetts Stormwater Handbook, Volume 2, Chapter 2, Bioretention Areas & Rain Gardens for additional detail.

vi. DRAINAGE OUTFALLS AND SPLASHPADS

The North Detention Pond has two (2) existing outfalls with splashpads that are proposed to be maintained and reused. Both inverts are located below the normal water level of the pond, refer to the “Grading and Drainage Plan” (Sheet C400 and C401).

The outfall pipes and splashpads shall be inspected twice per year to ensure proper function and the following maintenance shall be performed if needed:

- Clear outfall and properly and remove and dispose any sediment, trash, leaf litter, debris or invasive vegetation.
- Repair areas of splashpad that show signs of channelization and deterioration.
- Repair or replace structural components.
- Provide or rehabilitate erosion control at the outlet, if needed.
- Stabilize or reconstruct eroded areas.

SITE FURNISHINGS BEST MANAGEMENT PRACTICES

Site furnishings, as they pertain to this Operation and Maintenance Plan, comprise driveways and parking lots; walkways and hardscape areas; fences, walls, and guardrails; landscape areas; and solid waste management facilities.

i. DRIVEWAYS AND PARKING LOTS

All driveways, parking lots, loading areas, and emergency access ways shall be inspected twice annually (early Spring and Fall) to assess damage, cracking, differential settlement, and fading of pavement markings. Deteriorated asphalt and damaged curbs and signage shall be repaired as needed based on observation. Faded striping shall be re-painted in kind as needed.

Landscape vegetation around the perimeter and in the interior of the parking areas and perimeter of the Fire Pond shall be inspected for overgrowth twice annually (early Spring and Summer) and pruned as needed based on inspection.

ii. WALKWAYS AND HARDSCAPE AREAS

All concrete walkways, landings, pads, and driveways shall be inspected annually for spalling, cracking, and heaving. Cracked or spalled concrete shall be patched and repaired with cement or grout as needed based on inspection. In the case of widespread structural damage to concrete surfaces, slabs shall be demolished and reconstructed in kind and sub-base shall be inspected for settlement or heaving and corrected and/or re-compacted as needed.

iii. FENCES, WALLS, AND GUARDRAILS

All existing to remain or new fences, retaining walls, and galvanized steel pipe bollards shall be inspected annually.

Walls (including all segmental retaining walls) shall be inspected for damage, subsidence, and settlement of adjacent surfaces. Any such observed defects shall be repaired immediately. The Responsible Party shall monitor repairs on a weekly basis once established to ensure integrity of corrective action and coordinate follow-up action immediately upon observation of resurgence of defects, if applicable.

Bollards adjacent to pad mounted equipment, building corners and loading docks shall be inspected for damage and rust upon observation. In the event of damage, pipes and concrete bases shall be replaced in kind immediately. In the event of rust, affected areas

shall be smoothed manually and pipes shall be re-painted with emergency yellow paint to prevent further deterioration.

iv. LANDSCAPE AREAS

Spring clean-up shall be conducted twice annually in the months of March and April. Spring clean-up comprises removal of winter wraps from trees, lawn raking/ leaf blowing, weeding, and fertilization as needed. Landscape edges shall also be inspected and re-established as needed during Spring clean-up activities.

Mulch areas shall be inspected once annually during the month of April. New mulch shall be added to planting beds as needed and washed-out mulch shall be removed from adjacent areas. Subgrade in washout areas shall be checked for erosion and re-graded as needed prior to replacement of mulch. Pre-emergent weed control shall be applied to planting beds concurrently with inspection activities.

Shrub and tree planting fertilization activities shall be limited to twice annually between April 15 and October 15 as needed. Fertilizer use shall be minimized to the extent practicable and shall never be applied before a heavy rainfall event, on frozen ground, or within vegetated stormwater management BMPs (i.e. Raingardens). Insect and disease sprays shall be used as needed on shrub and tree plantings throughout the Summer and never during frozen ground conditions or before heavy rainfall events.

The irrigation system shall operate between April and October. The irrigation system shall be winterized in advance of cold-weather months to prevent freeze damage.

Mowing shall be conducted as necessary between the months of May and October. Excess lawn clippings shall be removed from mowed surfaces prior to next rainfall, and no excess lawn clippings are to be left within vegetated surface BMPs. Shrub and ornamental tree pruning shall be conducted twice annually during the months of July and August. Structural tree pruning shall be conducted twice annually during the months of August and September.

Fall cleanup shall be conducted twice annually during the months of October and November. Fall cleanup activities comprise application of winter wraps to trees, raking/leaf blowing lawn areas, and weeding. Lawn fertilization, if conducted during fall cleanup, shall not occur after October 15. Lime application treatment for lawn areas shall be conducted once annually in the month of November.

v. SOLID WASTE MANAGEMENT FACILITIES

Dumpster enclosures shall be inspected weekly for damage, rust, leaks, and loose hardware. Any such defects shall be repaired immediately upon observation.

Concrete dumpster and compactor pads shall be inspected quarterly. Staining and accumulated spillage shall be managed by manual removal/sweeping and power washing. Power washing runoff shall be directed to catch basin inlets located in loading and waste disposal areas.

The site perimeter and the stormwater outfalls shall be inspected monthly for wind-blown trash and debris. Such trash and debris shall be hand collected and disposed of in the on-site dumpster containers.

SPILL PREVENTION, CONTAINMENT, AND COUNTERMEASURE PLAN

Landscape maintenance and parking and loading operations which occur on site necessitate the use of various materials and must be considered in the spill prevention and response practices. The following is a summary of pollutants and the respective property use and maintenance activities generating each:

Pollutant-Generating Activity	**Pollutants or Pollutant Constituents** (that could be discharged if exposed to stormwater)	**Location on Site**
Landscaping Maintenance Operations	Gasoline (from lawnmowers), fertilizers	Lawn and landscape areas throughout site
Parking and Loading Operations	Hydraulic oil/fluid, Antifreeze, diesel/gasoline (all from automobiles)	Driveway, parking, and loading areas throughout site

The Owner/Responsible Party shall be responsible for coordinating necessary containment and cleanup efforts in the event of a spill at any location on site. Should a spill occur, equipment necessary to attend to spills or leaks shall be stored on site in a designated storage area within the building and shall consist, at minimum, of the following:

- Safety goggles.
- Chemically resistant gloves and overshoe boots.
- Water and chemical fire extinguishers.
- Shovels.
- Absorbent materials.
- Proprietary compact spill containment berms.
- Containers suitable for storage of site-specific materials.
- First aid kits.

Spills and leaks shall be treated according to the type, volume, and location of the released material. Generally, mitigation shall consist of the following:

- Prevention of additional material storage.
- Containment of spilled material.
- Safe, thorough, and environmentally sound removal of spilled material.
- Remediation of environmental damage.

The following describes specific preventative methods to be employed for materials to be used on site.

SPILLS FROM VEHICLES ACCESSING PARKING AND LOADING AREAS

Spills due to vehicular operations are not anticipated on pervious surfaces. In the case of a spill in the driveway, parking or loading areas, the spill shall be contained using spill berms and/or adhesive drain seals at all vulnerable catch basin inlets to prevent entering the subsurface drainage system, and the spill shall then be treated with absorbent material.

SPILLS FROM LANDSCAPE AND LAWN MAINTENANCE EQUIPMENT

In the case of a spill on a pervious surface, the spill shall be contained and treated with absorbent polymer material immediately and the affected soil, mulch, and/or planted vegetation shall be excavated and stored in a proprietary spill containment berm (by Ultratech or the like) for removal by a professional hazardous material removal company.

Town of Franklin Emergency Contacts are as follows:

- Emergency Management: (888) 304-1133 (MassDEP 24-Hour Spill Reporting)
- Police Department: 911
- Fire Department: (508) 528-2323

For spills of less than five (5) gallons of material, mitigation shall consist of source control, containment, and clean-up with absorbent materials, unless an imminent hazard necessitates that a local professional hazardous material removal company become involved to mitigate the spill.

For spills greater than five (5) gallons of material, the incident shall be reported immediately to the MassDEP Hazardous Waste Incident Response Group at (617) 792-7653 and a professional emergency response contractor (ERC). Information that shall be provided to the said ERC is as follows:

- Type of material spilled.
- Quantity of material spilled.
- Location of the spill.
- Time of the spill.

The Owner/Responsible Party shall then employ measures to prevent further spillage, contain and/or clean up the spill.

If a Reportable Quantity (RQ) of material is spilled during site maintenance and access activities, the National Response Center (NRC) shall be notified immediately at (800) 424-8802. Reportable Quantities of hazardous material are available in 310 CMR 40: Massachusetts Contingency Plan Subpart P: Massachusetts Oil and Hazardous Material List. Within 14 days a report shall be submitted to the EPA New England Regional Office describing the following:

- Type of material released.
- Date and circumstances of the release.
- Measures taken to prevent future releases.

This Spill Prevention Plan shall then be updated to document any such preventive measures implemented. The report shall then be submitted to the EPA New England Regional Office at the following address:

EPA New England, Region 1
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Any inspection reports generated in accordance with a RQ spill shall be completed within 24 hours of completing any site inspection. A hard or electronic copy of the report must be retained on site for at least three (3) years from the date of reporting at the Responsible Party's office.

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MAINTENANCE AGREEMENT

I, the undersigned, hereby certify that we understand and accept the terms specified in Chapter 153 of the Town of Franklin bylaws entitled: "Stormwater Management" and acknowledge the following:

1. I am responsible for the maintenance of permanent BMPs on this Site.
2. During a transfer of ownership, I am responsible for informing prospective new owner(s) of the requirements of the Long-Term Operation and Maintenance Plan and of the requirement to amend the Maintenance Agreement with the Town Stormwater Authority (Town of Franklin Conservation Commission or its authorized Agent).
3. I am responsible for allocating and making funds available to perform the required operation and maintenance functions on site.
4. The Town Stormwater Authority may conduct inspections whenever deemed necessary to enforce any provision of the Town of Plainville Stormwater Management Bylaw and Regulations to determine compliance therewith.

I understand that failure to comply with the requirements of the approved Long-Term Operation and Maintenance Plan may result in fines and penalties in accordance with the Town of Franklin Stormwater Management Bylaw and Regulations.

Owner

DocuSigned by:
AR
E2574A44DE5A43E...
7/17/2023
(signature) (date)

Andy Ramirez
ICBP IV Holdings 34, LLC c/o Berkeley Partners
1111 Broadway | Suite 1670
(415) 450-1762
aramirez@berkeleypartners.com

Responsible Party

6/29/2023
(signature) (date)

Brendan Pellerin
Berkeley Partners
1 Washington Mall | Suite 701
(802) 353-2523
bpellerin@berkeleypartners.com

SECTION 2: INSPECTION AND MAINTENANCE LOGS

APPENDIX

Logs and Checklists

- BMP Maintenance Log
- Inspection Form: Deep Sump/ Hooded Catch Basin
- Inspection Form: Underground Infiltration Systems
- Inspection Form: Cultec Separator Row
- Inspection Form: Sediment Forebays and Raingardens
- Inspection Form: Contech Water Quality Unit

BMP MAINTENANCE LOG

DATE	NAME OF MAINTENANCE PERSONNEL/COMPANY	TYPE OF MAINTENANCE PERFORMED	ISSUES/NEED FOR FOLLOW-UP	WORK ORDER PROVIDED?

DATE	NAME OF MAINTENANCE PERSONNEL/COMPANY	TYPE OF MAINTENANCE PERFORMED	ISSUES/NEED FOR FOLLOW-UP	WORK ORDER PROVIDED?

Reproduce log sheets as necessary over the life of this Operation and Maintenance Plan.

INSPECTION FORM: DEEP SUMP/ HOODED CATCH BASIN

Unit Number: CB _____ (Refer to Site Grading and Drainage Plan)

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Routine (Every Three Months)
	Annual
	Post-Storm (Rainfall Depth =_____inches)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Check sediment depth (Sediment Depth =_____inches)
	Check for settlement/ cracking of pavement around frame and grate
	Remove floating trash and sediment
	Confirm water level in sump is at invert elevation
	Confirm oil/gas hood is secure and functioning
CORRECTIVE ACTION REQUIRED	
ADDITIONALNOTES/OBSERVATIONS	

INSPECTION FORM: UNDERGROUND INFILTRATION SYSTEM

Subsurface System Number: SWM-____ (Refer to Site Grading and Drainage Plan)

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Routine (Every Six Months)
	Annual
	Post-Storm (Depth =_____inches; Storm Duration =_____hrs; Storm End Date =_____)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Check for settlement/ cracking of pavement
	Check for ground settlement at inspection port locations
	Check for sediment accumulation at inlets/outlet via inspection ports
	Confirm dry condition within system
CORRECTIVE ACTION REQUIRED	
ADDITIONALNOTES/OBSERVATIONS	

INSPECTION FORM: CULTEC SEPARATOR ROW

Unit Number: ____ (Refer to Site Grading and Drainage Plan)

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Every six months (first year only)
	Annual (routine after first year)
	Post-Storm (Rainfall Depth =_____inches)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Check for ground settlement at inspection port locations.
	Check for sediment accumulation at inlets/outlet via inspection ports.
	Remove sediment and debris from chambers by flushing with high pressure water nozzle into the access manhole sump, if sediment depth in chambers is greater than 3”.
	Remove all sediment and debris from manhole sump by vacuum truck.
	Repeat flushing and vacuuming procedure until isolator row is completely free of sediment and debris.
	Securely seat manhole covers after inspection
CORRECTIVE ACTION REQUIRED	
ADDITIONALNOTES/OBSERVATIONS	

INSPECTION FORM: WQU #1

Unit Number: WQU -1 (Refer to Site Grading and Drainage Plan)

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Routine (Monthly)
	Annual
	Post-Storm (Rainfall Depth =_____inches)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Clear down pipe and riser pipe of debris and/or trash (as needed)
	Remove accumulated sediment from settling chamber (if >15% full of sediment)
	Remove floatables, oil, and hydrocarbons
	Ensure watertightness of structure
	Securely seat manhole cover after inspection
CORRECTIVE ACTION REQUIRED	
ADDITIONALNOTES/OBSERVATIONS	

INSPECTION FORM: WQU #3

Unit Number: WQU-3 (Refer to Site Grading and Drainage Plan)

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Routine (Every six months)
	Annual
	Post-Storm (Rainfall Depth =_____inches)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Vacuum out water from swirl chamber until water level in floatables chamber = lower aperture of swirl chamber
	Remove sediment from chambers other than swirl chamber if sediment level is within 18” of water level after drawdown
	Remove all sediment from swirl chamber by vacuum truck
	Remove oil and hydrocarbons using absorbent pads
	Clear internal baffles, apertures, and inlet/outlet of all obstructions
	Verify watertightness of structure
	Securely seat manhole covers after inspection
CORRECTIVE ACTION REQUIRED	
ADDITIONALNOTES/OBSERVATIONS	

INSPECTION FORM: WQU #5

Unit Number: WQU-5 (Refer to Site Grading and Drainage Plan)

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Routine (Every six months)
	Annual
	Post-Storm (Rainfall Depth =_____inches)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Vacuum out water from swirl chamber until water level in floatables chamber = lower aperture of swirl chamber
	Remove sediment from chambers other than swirl chamber if sediment level is within 18” of water level after drawdown
	Remove all sediment from swirl chamber by vacuum truck
	Remove oil and hydrocarbons using absorbent pads
	Clear internal baffles, apertures, and inlet/outlet of all obstructions
	Verify watertightness of structure
	Securely seat manhole covers after inspection
CORRECTIVE ACTION REQUIRED	
ADDITIONALNOTES/OBSERVATIONS	

INSPECTION FORM: WQU #7

Unit Number: WQU-7 (Refer to Site Grading and Drainage Plan)

Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Routine (Every six months)
	Annual
	Post-Storm (Rainfall Depth =_____inches)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Vacuum out water from swirl chamber until water level in floatables chamber = lower aperture of swirl chamber
	Remove sediment from chambers other than swirl chamber if sediment level is within 18” of water level after drawdown
	Remove all sediment from swirl chamber by vacuum truck
	Remove oil and hydrocarbons using absorbent pads
	Clear internal baffles, apertures, and inlet/outlet of all obstructions
	Verify watertightness of structure
	Securely seat manhole covers after inspection
CORRECTIVE ACTION REQUIRED	
ADDITIONALNOTES/OBSERVATIONS	

INSPECTION FORM: SEDIMENT FOREBAY & RAIN GARDEN

Basin Number: RG#____ (Refer to Site Grading and Drainage Plan)

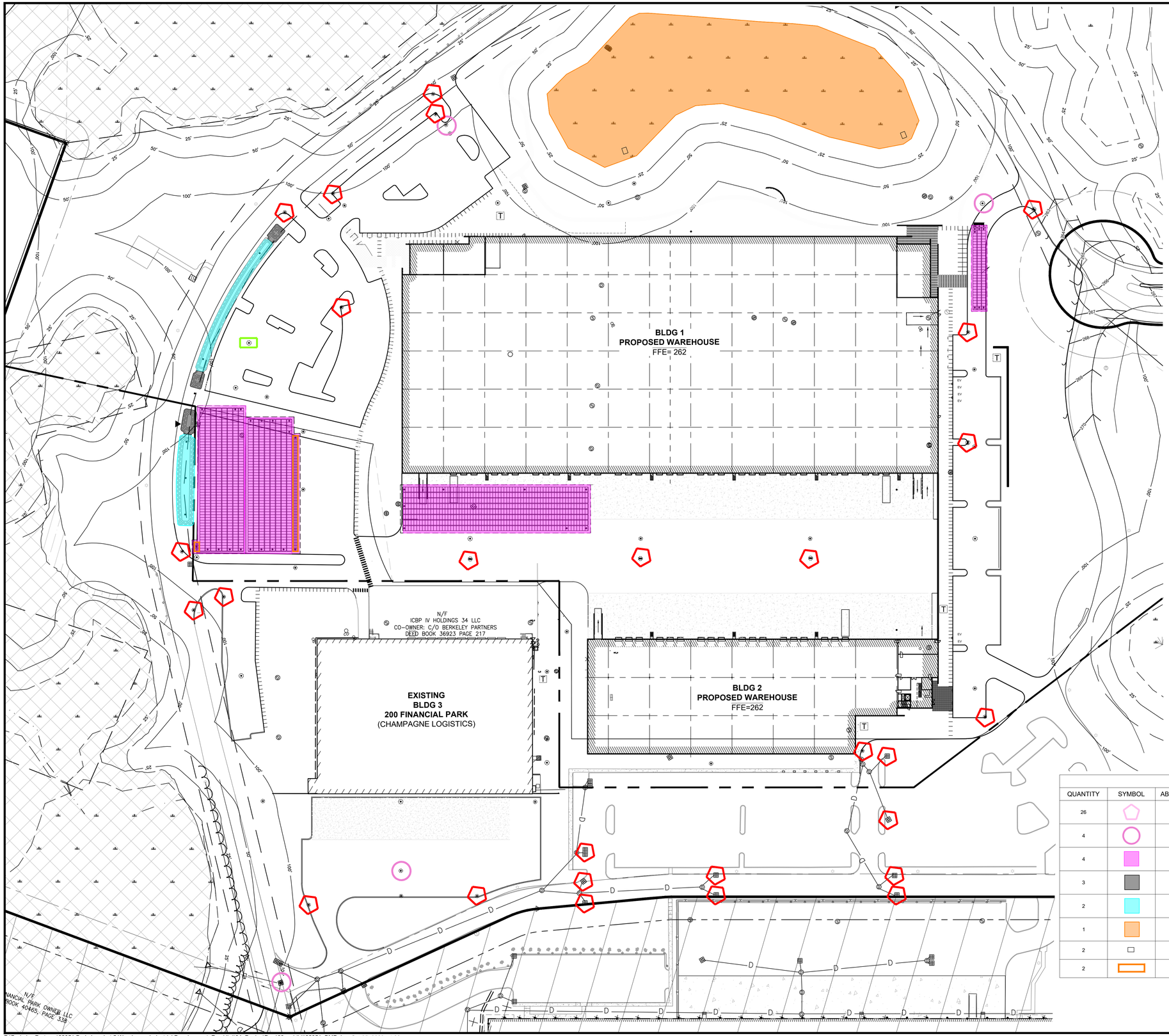
Inspector Name:

Date/Time:

Weather:

TYPE OF INSPECTION (CHECK ONE)	
	Monthly
	Post-Storm (Depth =_____inches; Storm Duration =_____hrs; Date =_____)
	Post-Spill (Time/Date of Spill:_____)

INSPECTION CHECKLIST (CHECK ALL THAT APPLY)	
	Check embankment and side slopes for subsidence, erosion, cracking, tree growth
	Remove accumulated sediment and floating or settled trash/debris
	Remove invasive species
	Remove and replace dead plantings
	Remove and replace mulch layer
	Prune established vegetation
	Check beehive grate and basin for sediment/ debris/ leaf litter accumulation
	Check inspection ports for sediment accumulation/ standing water in structural underdrain
	Check for pavement cracking/ settlement within footprint of structural underdrain
CORRECTIVE ACTION REQUIRED	
ADDITIONAL NOTES/OBSERVATIONS	



60 0 30 60 120 240

GRAPHIC SCALE 1 inch = 60 ft.

SYMBOL LEGEND

QUANTITY	SYMBOL	ABBREVIATION	DESCRIPTION
26		CB	CATCH BASIN
4		CDS	CONTECH CDS WATER QUALITY UNIT
4		UDS	UNDERGROUND INFILTRATION/DETENTION SYSTEM
3		SF	SEDIMENT FOREBAY
2		RG	RAIN GARDEN
1		FP	NORTH DETENTION POND
2		OF	OUTFALL
2		iSO	CULTEC SEPARATOR (ISOLATOR) ROWS

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PERMIT EXPEDITING
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CONSULTING
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DEDHAM, MA 02026
www.HighpointEng.com

CLIENT:
Berkeley Partners
1 WASHINGTON MALL | Suite 701
BOSTON, MA 02108

CONSULTANT:

SEAL

WAREHOUSE/INDUSTRIAL DEVELOPMENT

100/200 FINANCIAL PARK
FRANKLIN, MA

OWNER/APPLICANT: BERKELEY PARTNERS

REV	DATE	DESCRIPTION
4	10.05.2023	RESPONSE TO COMMENTS
3	08.25.2023	RESPONSE TO COMMENTS
2	08.14.2023	RESPONSE TO COMMENTS
1	07.17.2023	RESPONSE TO COMMENTS

ISSUE TYPE: PERMIT SET
ISSUE DATE: 05/11/2023
PROJECT NUMBER: 22051

DRAWN BY: JO
CHECKED BY: JJP

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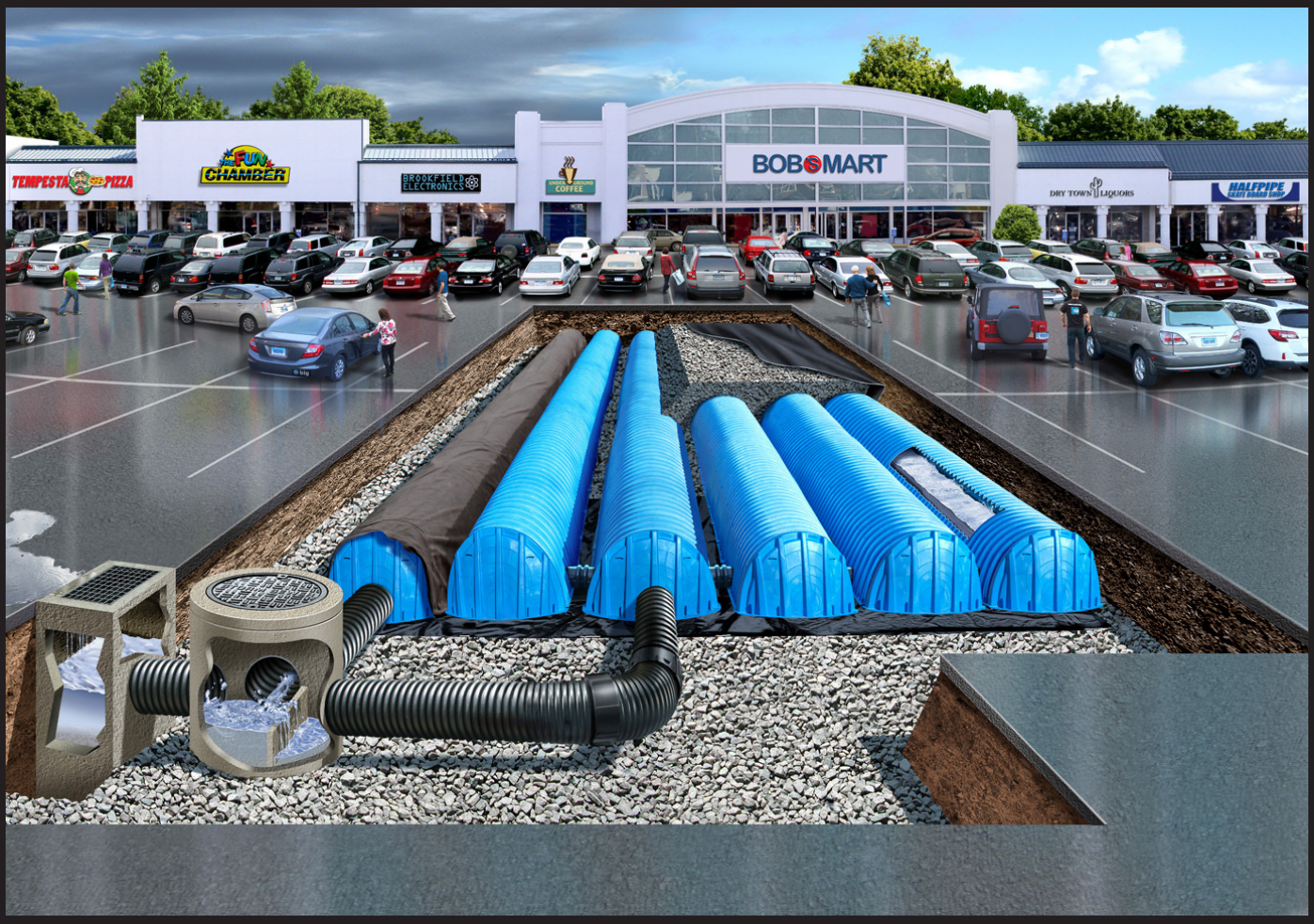
SHEET TITLE:
CAMPUS STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
CSW-1

ISSUED FOR : PERMIT

CULTEC SEPARATOR™ ROW

WATER QUALITY SYSTEM



OPERATION & MAINTENANCE GUIDE

FOR CULTEC STORMWATER MANAGEMENT SYSTEMS

GLOBE VERIFIED VÉRIFIÉ

STORMWATER MANAGEMENT SOLUTIONS

CULTEC®

Published by
CULTEC, Inc.
P.O. Box 280
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Brookfield, Connecticut 06804 USA
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For technical support, please call (203)775-4416 ext. 203 or e-mail tech@cultec.com.

Visit www.cultec.com/downloads.html for Product Downloads and CAD details.

Doc ID: CLT043 02-22
Feb 2022

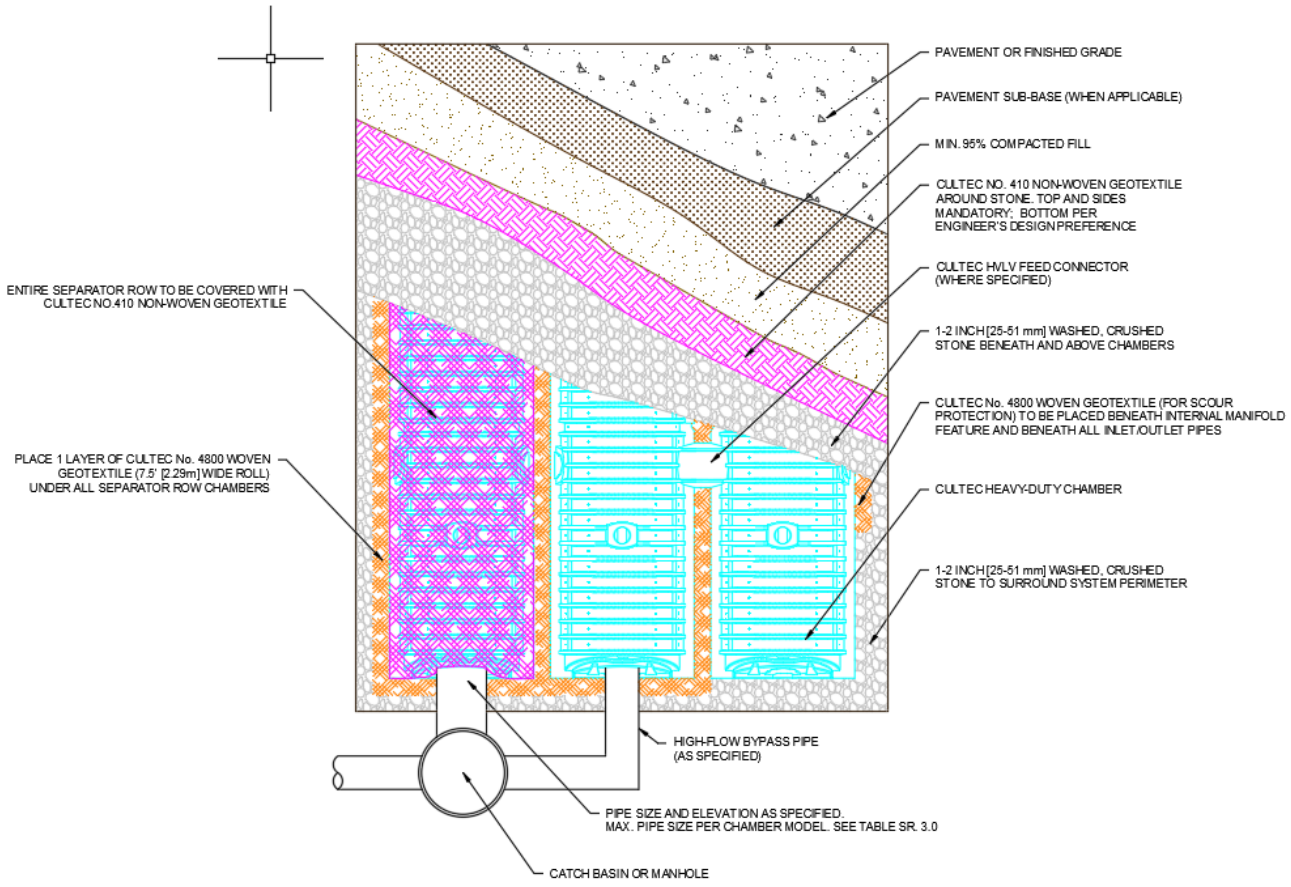
Introduction

CULTEC's Separator™ Row is an inexpensive means of removing Total Suspended Solids from the CULTEC chamber system, as well as providing easier access for inspection and maintenance. The Separator Row is designed to capture the First Flush of a rain event and is typically included as part of the "Treatment Train" for water quality.

The CULTEC Separator Row is a row of CULTEC Contactor or Recharger Chambers that are surrounded on all sides by filter fabric. One layer of CULTEC No. 4800™ Woven Geotextile are placed between the clean foundation stone and the chamber feet. The chambers are then completely wrapped with CULTEC No. 410™ non-woven geotextile. This configuration is designed to trap any sediment and/or debris that may pass through the upstream water-quality structures and into the chamber system.

A manhole is typically located adjacent to the separator row for ease of inspection and maintenance. This manhole is placed upstream of the system and can include a high-flow bypass pipe to pass peak-flows onto adjacent rows of chambers. The upstream manhole is designed with a sump to trap heavier sediment and allow for proper cleaning of the Separator Row. A JetVac process with a high pressure water nozzle is introduced down the Separator Row via the access manhole to clean all sediment and debris from the Separator Row. Captured pollutants are flushed into the sumped access manhole for vacuuming, and the process is repeated until the Separator Row is completely free of sediment and debris.

The Separator Row performance has been tested and verified to the protocols and procedures as defined by Environmental Technology Verification (ETV) Canada to achieve 80% TSS removal.



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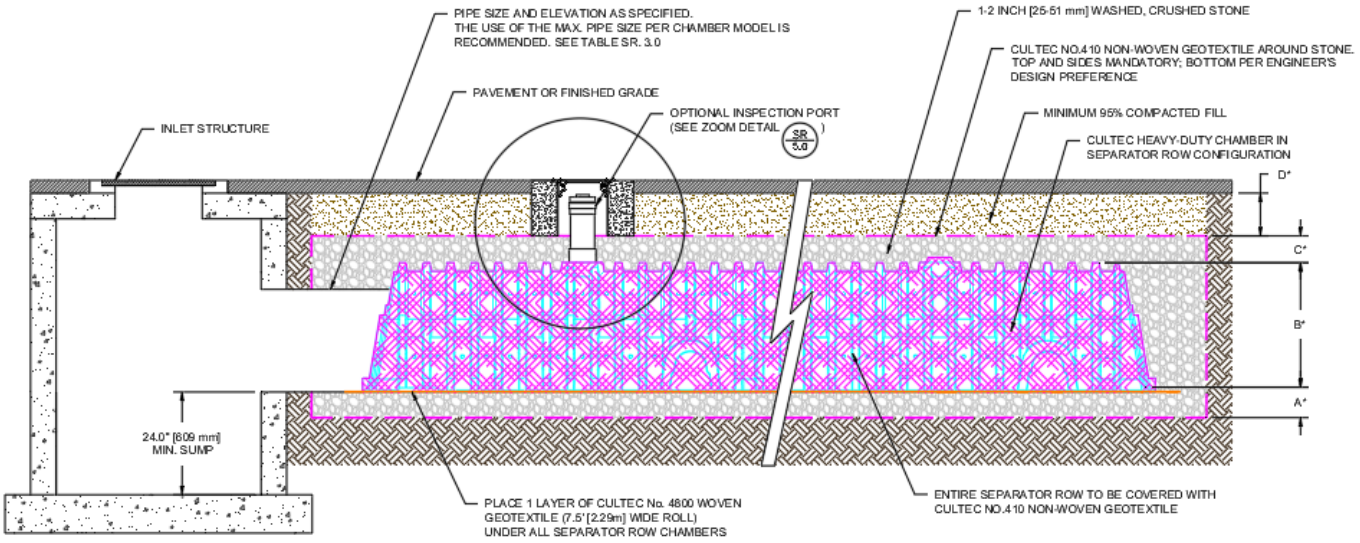
Design

There is no single design to achieve a high level of water quality. The CULTEC Separator Row should be designed as part of an overall best management practices water quality system. Pre-treatment devices such as sump catch basins, inlet baffles and proprietary oil-grit separators and filter systems can all be incorporated upstream of the CULTEC Separator Row. Sumped access/diversion manholes should be installed directly upstream of the Separator Row.

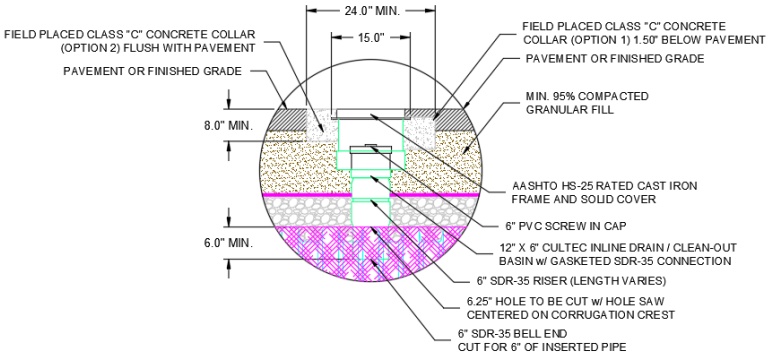
The following is a list of recommended design practices to ensure proper maintenance for the life of the system:

- Install sumped access/diversion manholes, including a minimum 24” (600 mm) sump, directly upstream of the Separator Row.
- Include a high-flow bypass pipe to divert peak flows that exceed the capacity of the Separator Row to adjacent rows.
- Connect the access manhole to the Separator Row with the largest diameter pipe allowable based on the CULTEC chamber model used.
- Maintain a minimum distance between the access manhole and the Separator Row to promote efficient maintenance.
- Include at least one inspection port per Separator Row for periodic inspection.

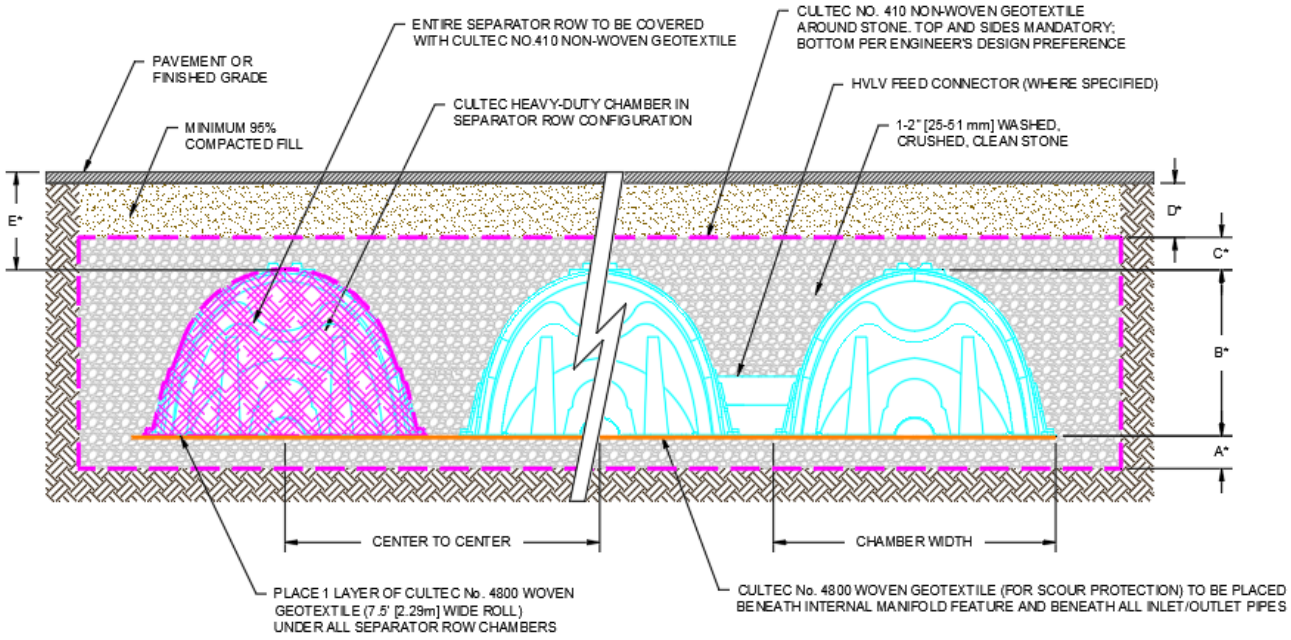
Note: Typical JetVac maintenance reels have a maximum of 400 feet (121.9 m) of available hose. Consider this when designing the length of the CULTEC Separator Rows.



*SEE SR 3.0 - CROSS SECTION TABLE REFERENCE



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*SEE SR 3.0 - CROSS SECTION TABLE REFERENCE

Table SR 3.0

	Description	Contactor 100HD	Recharger 150XLHD	Recharger 280HD	Recharger 330XLHD	Recharger 360HD	Recharger 902HD
A	Min. depth of stone base	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	9″ 229 m
B	Chamber height	12.5″ 318 mm	18.5″ 470 mm	26.5″ 673 mm	30.5″ 775 mm	36″ 914 mm	48″ 1219 mm
C	Min. depth of stone required above units for traffic applications	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	6″ 152 mm	12″ 305 mm
D	Min. depth required of 95% compacted fill for paved traffic application	8″ 203 mm	8″ 203 mm	8″ 203 mm	10″ 254 mm	12″ 305 mm	12″ 305 mm
E	Max. depth of cover allowed above crown of chamber	12′ 3.65 m	12′ 3.65 m	12′ 3.65 m	12′ 3.65 m	12′ 3.65 m	8.5′ 2.59 m
	Max. allowable pipe size into chamber end wall/end cap	10″ 250 mm	12″ 300 mm	18″ 450 mm	24″ 600 mm	24″ 600 mm	24″ 600 mm

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Inspection and Maintenance

CULTEC recommends inspection of the Separator Row to be performed every six months for the first year of service. Future inspection frequency can be adjusted based upon previous inspection observations. However annual inspections are recommended. Inspection of the Separator Row can be achieved via an inspection port riser installed during construction. This inspection port riser will connect the top of the Separator Row chambers to finished grade with a removable lid. Alternatively the Separator Row may be inspected via the manhole(s) located at the end(s) of the Separator Row. However this method of inspection requires confined space entry. If entry into the manhole is required, all local and OSHA rules for confined space entries must be strictly followed.

To inspect:

- Remove the inspection port lid from the floor box frame.
- Remove the riser pipe cap.
- With a flashlight and stadia rod, measure the depth of sediment.
- Record results in a maintenance log.
- When depth of sediment exceeds 3” (76 mm), use the JetVac procedure described below.

The JetVac process utilizes a high pressure water nozzle controlled from the surface. The high pressure nozzle is introduced down the Separator Row via the access manhole(s). The high pressure water cleans all sediment and debris from the Separator Row as the nozzle is retrieved. Captured pollutants are flushed into the sumped access manhole for vacuuming. This process is repeated until the Separator Row is completely free of sediment and debris. A small diameter culvert cleaning nozzle is recommended for this procedure.



High pressure water nozzle



Cleaning Separator Row and pipes with high pressure water nozzle



SEPARATOR ROW: Separator Row prior to cleaning



ADJACENT ROW: When the Separator Row is working properly, the adjacent rows will not show signs of sediment.

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Inspection and Maintenance Record

Date	Mode of Access	Frequency	Depth of Sediment	Actions	Expenses	Inspector	Notes
Ex.	Inspection Port	Semi-annually	2”	Measure sediment depth with stadia rod. Visually inspect	$100	DPG	Depth of Sediment was measured via Northeast Inspection Port Adjacent to MH-1. Sediment depth was found to be 2”. No further action required at this time.
Ex.	Access Manhole	Annually					

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RETENTION • DETENTION • INFILTRATION • WATER QUALITY

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