Stormwater Management Report

Maine Department of Corrections
Maine Correctional Center

17 Mallison Falls Road
Windham, Maine

Prepared for:

Maine Correctional Center
Mallison Falls Road
Windham, Maine

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Revised July 2019

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ATTACHMENTS

Stormwater Management Report

A. <u>General</u>

This Stormwater Management Plan has been prepared to address the potential impacts associated with the proposed modification in stormwater runoff characteristics for new buildings, utilities and walkways throughout the Maine Correction Center in Windham, Maine. The stormwater management controls that are outlined in this plan are designed to best suit the proposed development and to comply with applicable regulatory requirements to evaluate the pre- and post-development conditions.

The property is owned by the State of Maine and has been utilized as a State of Maine Correctional Center since the early 1900's. The physical address of the project is 17 Mallison Falls Road Windham, Maine and is approximately 108 acres in size. Existing land areas that will be disturbed for the project are primarily within the existing fenced area. Redevelopment will result in approximately 43.04 acres of total land disturbance, including 16.97 acres of impervious area and 26.07 acres of landscaped area. Renovations to the Correction Center have been split into two phases, with Phase 1 beginning in Fall, 2018. Phase 1 included the construction of a new Maintenance and Central Plant Building and associated landscape and stormwater features. The building will be 330 feet long and 60 feet wide, and will be surrounded by other impervious surfaces including an access drive, walkways and utility pads. Landscaped areas consist of vegetated sideslopes, shallow swales for stormwater conveyance, and stormwater best management practices (BMPs) for stormwater detention and treatment. Phase 2 renovations will include a complete modernization of the Windham Correctional Facility. The Phase 2 work will be in follow-on to the first phase of improvements that was recently approved by the Maine DEP and Town of Windham in the fall of 2018.

The project's subject parcel is currently permitted under a Maine Department of Environmental Protection (MDEP) Site Location of Development permit (#L-15483-26-H-B) therefore; an amended Site Location of Development (Site Law) permit is being submitted for the proposed project. The project's stormwater management plan will generally conform to Chapter 500 General Standard and the Flooding Standard for stormwater quality and quantity. Development will also meet the Basic Standards by providing an Erosion and Sedimentation Control Plan, and an Inspection, Maintenance, and Housekeeping Plan for use by the contractor/owner during and after construction is complete. The site is in the watershed of the Presumpscot River, which is not classified as most-at-risk or urban impaired according to <u>Chapter 502, Direct Watersheds of Lakes Most At Risk From New Development, And Urban Impaired Stream Standards.</u>

The Stormwater Management Plan is designed to treat and detain stormwater runoff discharged from the developed site by utilizing one underdrained soil filter, two wet ponds, two meadow buffers, and one drip edge filter. The underdrained soil filter and drip edge are being constructed as part of Phase 1, however the project's stormwater is being evaluated as a whole (Phase 1 and Phase 2 combined). A detention basin has also been designed to provide additional stormwater quantity control. Stormwater models were created to depict flow conditions in the pre- and post-development conditions during the 2-, 10- and 25-year storm events. New surfaces will be graded to direct surface runoff in a manner to best maintain existing drainage patterns. Modeling data demonstrates that peak rates of runoff in the post-development condition will decrease as compared to pre-development conditions, thus, satisfying the Flooding Standard. Proposed

stormwater BMPs will provide high levels of contaminant removal and stormwater attenuation before discharging to downstream properties and Presumpscot River.

B. Existing Conditions

The Maine Correctional Center is located on a ridge west of River Road in Windham. There is a single point of entry off Mallison Falls Road, which is the property's northern border. Down slope to the south west is an abandoned railroad line, further down slope to the west is the Presumpscot River. Colley Wright Brook borders the property to the south, and eventually flows west into the Presumpscot River.

Currently, the property has approximately 42.55 acres of developed land, of which 13.80 acres are impervious and 28.75 acres are landscaped.

The Maine Correctional Center is a multi-building campus used for a variety of purposes. The campus is entirely enclosed by chain link and razor wire fencing. There are paved and gravel walkways connecting buildings inside the fencing. At the northwest corner, closest to Mallison Falls Road, is a large building used as a meeting space for visitors and prisoners. Other buildings include dormitories, cafeterias, workshops, gymnasiums and an infirmary. A majority of buildings on the campus have flat roofs. Outside the fence at the far southern end of the site, are several large "out buildings" originally used as a dog training facility and piggery. These buildings are no longer used as such, and will be demolished as part of the redevelopment.

Exterior to the correctional facility, an existing gravel access drive generally follows the perimeter fence for routine patrol measures. Land areas gradually slope away from the perimeter fence, directing runoff west toward onsite forested, freshwater wetlands that ultimately drain to Colley Wright Brook and the Presumpscot River.

Existing stormwater features onsite include one detention pond, and four drainage pipes outletting onto the southwestern bank. All features eventually drain to the Presumpscot River. Reconstruction of the southern wet pond will be part of the project. The four culverts along the abandoned railroad bed will not be replaced during the redevelopment.

The prison currently has a limited storm drain system and associated catch basins. Stormwater is discharged at various locations throughout the campus. A large portion of the storm drain system is connected to the sewer system. The new design separates the two systems.

Phase 1 started in late fall of 2018 and included the construction of a new Maintenance and Central Plant Building. This portion of the project disturbed approximately 1.83 acres of land, including 45,283 square feet (1.04 acres) of impervious area and 34,594 square feet (0.79 acres) of landscaped area, and a 20,000 square foot building. The stormwater plan included the use of one drip edge filter, and one underdrained soil filter for stormwater quality and quantity control.

C. Proposed Site Improvements

The project will redevelop the majority of the correctional facility, resulting in approximately 1,954,155 square feet (44.86 acres) of total land disturbance. New impervious surfaces will be

comprised of additions to existing buildings, new buildings, a new perimeter road, new walkways and utility pads.

Proposed Development Summary	
Impervious Area	16.34 acres
Pervious Area	28.52 acres
Developed Area	44.86 acres

Landscaped areas consist of vegetated side slopes, shallow swales for stormwater conveyance and stormwater best management practices (BMPs) for stormwater detention and treatment.

A significant area of improvement will be a new, closed storm drain system. As mentioned earlier, the storm drain system is tied in with the sewer system. We plan on completely separating the two systems, thereby decreasing sewage flow.

The Stormwater Management Plan is designed so that existing drainage patterns will not be significantly altered. Impervious and vegetated surfaces will be graded to direct a majority of runoff as sheet, shallow concentrated and channelized flow toward one underdrained soil filter, two wet ponds, one drip edge filter and one wooded buffer for stormwater quantity and quality control. A new, closed storm drainage system is proposed for the site.

D. Soils

A Class 'D' Medium Intensity Soil Survey for the site was obtained from the Soil Survey of Cumberland County Maine, published by the United States Department of Agriculture (USDA) and Natural Resources Conservation Service, latest revision. Soil data was obtained from the Web Soil Survey. The Hydrologic Soil Group (HSG) of the site soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Type	Symbol	HSG	Drainage Class
Belgrade Sandy Loam	BgC2/ BgB	B/D	Poorly drained
Buxton Silt Loam	BuC2/ BuB	C/D	Poorly drained
Hartland Sandy Loam	HfC2/HfD2	B	Well drained
Rumney Sandy Loam	Ru	B/D	Poorly drained
Scantic Silt Loam	Sn	D	Poorly drained
Suffield Silt Loam	SuC2/SuE2	C	Well drained
Suffield Silt Loam	SuD2	D	Poorly drained

E. Methodology

The stormwater runoff analysis was developed using the "HydroCAD" computer modeling software, which incorporates the TR-55 and TR-20 methodologies as provided by the Soil Conservation Service of the U.S. Department of Agriculture. A minimum Time of Concentration of

6 minutes was used in the model for subcatchments with direct entry flow in order to comply with the above-mentioned methodologies.

Soils with hydrologic soil groups C/D or B/D as identified in the County Soil Survey were evaluated as group D in the stormwater analysis. Onsite test pits for stormwater design were observed and a geotechnical evaluation was completed that identify approximate depths for seasonal high groundwaterand ledge.

Peak runoff rates were calculated using a 24-hour duration storm event with a Type III rainfall distribution. The rainfall amounts for Cumberland County for the 2-year, 10-year and 25-year storm events are as follows:

Storm Frequency	24-hr Duration Rainfall (in.)
2-yr	3.1
10-yr	4.6
25-yr	5.8

F. Pre-Development Watershed Model

The pre-development watershed model consists of twenty-six (26) subcatchments that drain to six (6) study points.

Subcatchments 1S, 2S, 3S, 10S, 11S, 12S and 26S all drain to SP1, on Colley Wright BrookSubcatchment 4S is large and includes a large portion of the site's buildings, lawn and pavement. Subcatchment 4S drains through a wooded area to SP2, also on Colley Wright Brook.

Subcatchments 5S and 7S are both largely grassed areas, and flow to SP3 through a 48-inch galvanized pipe. Subcatchment 8S exclusively drains to the existing wet pond, 8P, and eventually outlets to SP3 as well.

Subcatchments 13S and 14S drain to 14P. 14P then outlets through subcatchment 15S, and ends up at SP4. 23S, which includes a large concrete generator pad, drains through subcatchment 6S, through a 24-inch plastic pipe, to SP4.

Subcatchments 20S, 21S and 22S are all portions of Phase 1's building. Each of those subcatchments has a designated catch basin to catch, that empties in underdrained soil filter 18P. Subcatchment 18S also drains to 18P, which then outlets to SP5 through a 12-inch concrete pipe. Subcatchment 24S also drains through a ditch to SP5.

Subcatchment 16S, which is primarily impervious pavement, drains through subcatchment 9S, and eventually to SP6 through a 12-inch concrete pipe.

G. Post-Development Watershed Model

The post-development watershed model consists of sixty-four (65) subcatchments with stormwater discharging to six (6) study points in the adjacent wetland. Modeling reflects on-

site ground cover changes to include proposed landscaping and impervious areas associated with the buildings, paved areas, gravel areas, and stormwater BMPs. Existing drainage patterns will be generally maintained with the proposed stormwater design.

Study Points SP1 and SP2 are both located on Colley Wright Brook. Study points SP3 through SP6 are all adjacent to the Presumpscot River. Colley Wright Brook ultimately drains into the Presumpscot River.

SP1 receives water from surface runoff as well as storm drain outlets. Subcatchments 1S, 2S, 5S and 61S all contribute to the surface runoff. Subcatchments 1S and 2S are primarily outside the prison's fencing, and are nearly entirely grassed. Subcatchments 5S and 61S area is a mix of impervious pavement and mowed grass. All of that water makes its' way though reaches 1R, 2R and 3R and on to SP1.

All water from the subcatchments draining into the storm drain system outlet into proposed Wet Pond 1. Wet Pond 1 is in subcatchment 4S and receives a small amount of runoff. The water eventually makes its' way through reaches 1R, 2R and 3R, and ultimately to SP1.

Subcatchments 6S through 9S, 14S and 15S all drain to Study Point 2 (SP2). Subcatchments 9S, 14S and 15S all utilized the storm drain system that outlets to SP2. The remaining subcatchments are primarily undeveloped land with stormwater flowing overland to SP2.

Study Point 3 (SP3) outlets to the Presumpscot River, and receives a large portion of the site's storm drain water. Twenty-four subcatchments drain into the storm drain system. These subcatchments contain impervious areas from roofs, pavement and concrete pads. All of these subcatchments ultimately end up in the redeveloped stormwater pond, Wet Pond 2. The pond outlets through a 48-inch galvanized pipe to Study Point 3. Subcatchment 66S directly sheet flows to Study Point 3.

Study Point 4 (SP4) receives surface runoff through a 24-inch plastic pipe from two subcatchments, 35S and 49S.

Study Point 5 (SP5) receives runoff from Phase 1's new 20,000 SF building through the new storm drain system. The water from three of the roof subcatchments, 43S, 44S and 45S, enter the storm drain system and outlet to an underdrained soil filter. Water from subcatchment 62S, which accounts for approximately half of Phase 1's roof, flows onto the drip edge located on the west side of the building, and outlets through a 12-inch concrete pipe.

Study point 6 (SP6) receives water from both the storm drain system as well as surface runoff. Subcatchments 50S and 51S account for most of the new visitor parking area, and are primarily bituminous pavement. The water from 50S does not enter the storm drain system, but flows overland to SP6. The remaining subcatchments that have water going to SP6 are also largely impervious areas. These areas entering into a detention basin where it will be detained and slowly drains out over a 24-hour time period. Subcatchment 65S contains the proposed parking lot south west of the main parking lot. The stormwater from this parking lot will flow through a meadow buffer prior to existing the property. Stormwater from these subcatchments, exit the property through a 12-inch concrete pipe.

H. Stormwater Quality Management

Stormwater BMPS are designed to generally satisfy Maine DEP's General Standard. Maine DEP's <u>Volume III. BMP Technical Design Manual</u> was referenced as the basis for design and evaluation of BMP's. Per Chapter 500 Section 4, subsection C (d) allows for scaling of land uses to calculate the level of treatment required. Redevelopment standards apply since the proposed project will involve complete redevelopment of the prison site. The total redevelopment footprint evaluated is 44.86 acres as depicted on the drainage plans. Approximately 21,334 square feet (0.49 acres) of woods will be cleared for the project. As described in §4.C(2)(d) of Chapter 500, the ranked impact change due to redevelopment is calculated to be -0.0053, requiring 50% of the developed area to be treated. , Runoff from approximately 56.43% of developed surfaces will be treated through new BMPs to be constructed as part of this project, including <u>35.51%</u> of developed landscape areas and <u>20.92%</u> of impervious areas. Runoff from the existing site is not treated. Please refer to Attachment A for water quality calculations.

Stormwater BMPs include one underdrained soil filter, one drip edge filter, two meadow buffers and two wet ponds for stormwater treatment and detention. The underdrained soil filter and drip edge are filtration BMPs designed in general conformance with Sections 7.1 and 7.5 of the BMPs Technical Design Manual, respectively. Channel protection volumes are designed to provide the minimum volume to detain 1-inch of runoff. Filtration through a sand layer will provide a high level of contaminant removal prior to discharge to downstream drainage ways.

Two large wet ponds are designed to mitigate changes in water quality and quantity of runoff from a large portion of the site. The wet ponds were designed to generally conform to Chapter 4 of the BMPs Technical Design Manual. The wet pond design will help to protect downgradient streams from channel erosion and will cool runoff to reduce thermal impacts on the downstream receiving areas. Central portions of the developed site will be graded to drain directly towards the wet ponds, or be conveyed via a closed storm drainage system that discharges to the ponds' forebay. Wet Pond 1 will discharge to a riprap apron prior to flowing to the existing wetland. Wet Pond 2 will discharge to a riprap apron prior to flowing to an existing stabilized swale. Test pits were evaluated for both ponds. BMP sizing and treatment calculations are provided in Attachment A.

Two meadow buffers area are designed in general compliance with Section 5.1 of the BMPs Technical Design Manual. The designated buffer area was designed in accordance with the standards of Table 5.2 for a buffer located immediately adjacent to residential, largely pervious or small impervious areas. Buffers provide an additional means of capturing containments from stormwater discharged from the project, therefore further enhancing water quality of runoff before ultimately discharging to onsite wetlands.

Due to size of the drainage area of the parking lot adjacent to Mallison Falls Road, steep side slopes surrounding to the southwest of the parking lot and the presence of wetlands, a traditional BMP meeting the Chapter 500 sizing criteria was not the best fit to treat stormwater in this location. Approximately 1.26 acres of impervious area along Mallison Falls Road and proposed roof will be directed to a detention basin. The detention basin will be

constructed with a sand base and perforated underdrains to allow stormwater to slowly drain out over a 24-hour period. The majority of the parking lot west of the main entrance will flow to a vegetated swale. Curbing has been eliminated from the parking lot to allow stormwater to flow directly into the vegetated swale. Stone check dams will be installed in the vegetated swale to slow the flow of stormwater and to collect sediment from the parking lot and Mallison Falls Road.

A test pit was observed within the general footprints of the underdrained soil filter (TP-2). Test pit logs are included as part of **Attachment A**. The seasonal high groundwater table depth observed at TP-2 was shallow, thus indicating the need for an impermeable membrane to prevent groundwater from comingling with the treated runoff. Excavation for construction of BMPs may require bedrock blasting, and if encountered, a minimum 12-inch vertical separation will be maintained between the bottom of underdrain and surface of bedrock.

Please also note that natural wooded areas located along the Presumpscot River will mostly remain undisturbed and wooded. This wooded area of land down gradient from the developed site and Presumpscot River will provide an additional means of capturing contaminants from stormwater discharged from the project, further enhancing the water quality of runoff before ultimately discharging offsite.

As proposed, the stormwater management design will exceed Maine DEP Chapter 500 General Standards for treatment requirements. Stormwater management design calculations for the BMPs used on this site are enclosed as part of **Attachment A.**

I.   Stormwater Quantity Management (Flooding Standard)

Existing drainage patterns are not anticipated to be significantly altered with the proposed Stormwater Management Plan. Proposed impervious and landscaped surfaces will be graded to direct runoff toward drainage swales or a closed storm drainage system for conveyance to stormwater BMPs for flooding control before ultimate discharge to one of the 6 study points. Prior to discharge, stormwater quantity will be managed via two wet ponds and associated drainage swales.

Additionally, one detention basin will be constructed to the southwest of the large visitors parking lot. This basin is intended collect runoff from subcatchments 51S, 52S, 54S, 56S, 57S and 58S. As the basin is constructed to fully drain over a 24-36 hour period, no permanent pool volume is anticipated. All collected stormwater is expected to exit the basin through a 6-inch outlet pipe, and will ultimately be conveyed in stretches of shallow concentrated and channelized flow to the Presumpscot River.

The following table summarizes the results of stormwater calculations for the design storm events for the project area. Calculations and computer modeling data sheets are provided with this report. The HydroCAD model predicts decreases in peak flow rates during the 2-year, 10- and 25-year storm events at the study point. Therefore, there are no anticipated detrimental impacts to downstream drainage ways and the flow characteristics of the existing wetland.

| Stormwater Peak Discharge Summary Table | | | | | | | | | |
| Study Point | 2-Year Storm | | | 10-Year Storm | | | 25-Year Storm | | |
	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)
SP-1	30.90	28.64	-2.26	64.58	60.33	-4.25	94.00	87.98	-6.02
SP-2	39.83	36.21	-3.62	83.30	77.83	-5.47	121.14	114.34	-6.80
SP-3	6.42	5.89	-0.53	18.45	15.73	-2.72	30.13	25.34	-4.79
SP-4	4.64	1.38	-3.26	9.67	2.83	-6.84	14.43	4.08	-10.35
SP-5	2.66	2.57	-0.09	5.95	5.07	-0.88	10.05	9.96	-0.09
SP-6	4.48	4.45	-0.03	10.55	9.86	-0.69	18.93	18.22	-0.71

J.   **Inspection & Maintenance**

Provisions for periodic inspection and maintenance of the grassed underdrained soil filter, detention basin, drip edge, meadow buffers and wet ponds are included in the Inspection, Maintenance, and Housekeeping Plan within this section of the application.

K.   **Summary**

An Erosion and Sedimentation Control Plan has been developed for the project site placing emphasis on the installation of sedimentation barriers and revegetation to minimize erosion potential from development activities during and after construction. The Erosion Control Plan is incorporated into the design plans and includes the locations of the erosion control provisions (i.e., silt fence, construction entrance) along with a narrative and construction details for reference by the contractor during construction. The Erosion Control and Sedimentation Plan calls for permanent or temporary measures to be in place on any disturbed ground resulting from construction by use of riprap, seed, mulch, or other ground cover within one week from the time it was actively worked.

The proposed development will include the construction of one underdrained soil filter, drip edge, two meadow buffers, one detention basin and two wet pond BMPs, which will provide treatment and detention of runoff from the majority of new impervious and developed surfaces. Runoff from the project site will continue to ultimately discharge to the onsite wetlands. Decreases in post-development peak flow rates during the 2-, 10-, and 25-year storm events are anticipated to have negligible impact on flow characteristics. With incorporation of these measures, no significant impacts to off-site drainage ways are anticipated due to the development of the facility.

Prepared by,

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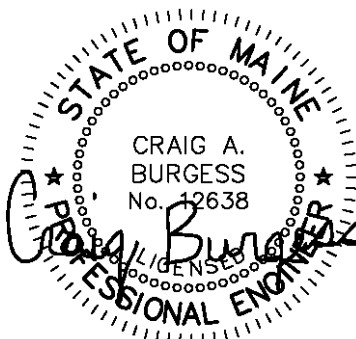
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Attachment A

Water Quality, BMP Sizing, Test Pit Logs

Table 1: MDEP GENERAL STANDARD CALCULATIONS

Job # 16405

AREA ID	WATERSHED SIZE (S.F.)	EXISTING ONSITE IMPERVIOUS AREA (S.F.)	NEW ONSITE IMPERVIOUS AREA (S.F.)	EXISTING ONSITE LANDSCAPED AREA (S.F.)	NEW ONSITE LANDSCAPED AREA (S.F.)	NET NEW DEVELOPED AREA (S.F.)	NET EXISTING DEVELOPED AREAS (S.F.)	NET UNDEVELOPED AREAS (S.F.)	TREATMENT PROVIDED?	EXISTING IMPERVIOUS AREA TREATED (S.F.)	NEW IMPERVIOUS AREA TREATED (S.F.)	EXISTING LANDSCAPED AREA TREATED* (S.F.)	NEW LANDSCAPED AREA TREATED* (S.F.)	TOTAL DEVELOPED AREA TREATED (S.F.)	TREATMENT BMP
1S	578,364	0	38,327	0	67,402	105,729	0	472,635	NO	0	0	0	0	0	None
2S	687,981	0	11,106	0	0	11,106	0	676,875	NO	0	0	0	0	0	None
3S	136,619	0	0	0	0	0	0	136,619	NO	0	0	0	0	0	None
4S	86,070	0	3,390	0	20,943	24,333	0	61,737	YES	0	3,390	0	20,943	24,333	Wet Pond-1
5S	25,709	0	8,547	0	17,162	25,709	0	0	NO	0	0	0	0	0	None
6S	330,507	1,242	29,984	0	43,080	73,064	1,242	256,201	NO	0	0	0	0	0	None
7S	98,828	0	14,186	0	84,642	98,828	0	0	NO	0	0	0	0	0	None
8S	27,538	0	0	0	0	0	0	27,538	NO	0	0	0	0	0	None
9S	6,009	0	1,295	0	4,714	6,009	0	0	NO	0	0	0	0	0	None
10S	102,734	0	2,236	0	100,498	102,734	0	0	NO	0	0	0	0	0	None
11S	182,692	0	11,969	0	170,723	182,692	0	0	YES	0	11,969	0	170,723	182,692	Wet Pond-2
12S	41,424	0	7,486	0	33,938	41,424	0	0	YES	0	7,486	0	33,938	41,424	Wet Pond-2
13S	16,743	0	16,743	0	0	16,743	0	0	YES	0	16,743	0	0	16,743	Wet Pond-2
14S	13,471	0	13,471	0	0	13,471	0	0	NO	0	0	0	0	0	None
15S	31,583	0	6,449	0	24,577	31,026	0	557	NO	0	0	0	0	0	None
16S	19,321	19,321	0	0	0	0	19,321	0	YES	19,321	0	0	0	19,321	Wet Pond-2
17S	1,743	0	0	0	1,743	1,743	0	0	YES	0	0	0	1,743	1,743	Wet Pond-2
18S	9,122	0	4,721	0	4,401	9,122	0	0	YES	0	4,721	0	4,401	9,122	Wet Pond-2
19S	32,847	0	446	0	32,401	32,847	0	0	YES	0	446	0	32,401	32,847	Wet Pond-2
20S	13,568	0	13,568	0	0	13,568	0	0	YES	0	13,568	0	0	13,568	Wet Pond-2
21S	31,386	0	15,540	0	15,846	31,386	0	0	YES	0	15,540	0	15,846	31,386	Wet Pond-1
22S	31,961	31,263	24	0	674	698	31,263	0	YES	31,263	24	0	674	31,961	Wet Pond-1
23S	24,081	0	1,165	0	22,916	24,081	0	0	YES	0	1,165	0	22,916	24,081	Wet Pond-1
24S	7,955	7,955	0	0	0	0	7,955	0	YES	7,955	0	0	0	7,955	Wet Pond-1
25S	40,544	0	29,138	0	11,406	40,544	0	0	YES	0	29,138	0	11,406	40,544	Wet Pond-1
26S	8,835	0	8,835	0	0	8,835	0	0	YES	0	8,835	0	0	8,835	Wet Pond-1
27S	12,220	0	12,220	0	0	12,220	0	0	YES	0	12,220	0	0	12,220	Wet Pond-1
28S	6,466	6,466	0	0	0	0	6,466	0	YES	6,466	0	0	0	6,466	Wet Pond-2
29S	18,162	0	1,013	0	17,149	18,162	0	0	YES	0	1,013	0	17,149	18,162	Wet Pond-2
30S	6,450	6,450	0	0	0	0	6,450	0	YES	6,450	0	0	0	6,450	Wet Pond-2
31S	19,528	0	9,349	0	10,179	19,528	0	0	YES	0	9,349	0	10,179	19,528	Wet Pond-2
32S	21,435	0	2,551	0	18,884	21,435	0	0	YES	0	2,551	0	18,884	21,435	Wet Pond-2
33S	50,937	0	18,905	0	32,032	50,937	0	0	YES	0	18,905	0	32,032	50,937	Wet Pond-2
34S	11,734	0	11,734	0	0	11,734	0	0	YES	0	11,734	0	0	11,734	Wet Pond-2
35S	10,666	0	4,544	0	6,122	10,666	0	0	NO	0	0	0	0	0	None
36S	22,658	0	22,658	0	0	22,658	0	0	YES	0	22,658	0	0	22,658	Wet Pond-2
37S	44,822	0	852	0	43,970	44,822	0	0	YES	0	852	0	43,970	44,822	Wet Pond-1
38S	28,217	0	15,685	0	12,532	28,217	0	0	YES	0	15,685	0	12,532	28,217	Wet Pond-1
39S	11,156	11,156	0	0	0	0	11,156	0	YES	11,156	0	0	0	11,156	Wet Pond-1
40S	41,287	0	12,953	0	28,334	41,287	0	0	YES	0	12,953	0	28,334	41,287	Wet Pond-2
41S	22,703	0	6,726	0	15,977	22,703	0	0	YES	0	6,726	0	15,977	22,703	Wet Pond-2
42S	1,070	0	1,070	0	0	1,070	0	0	NO	0	0	0	0	0	None
43S	10,083	0	10,083	0	0	10,083	0	0	YES	0	10,083	0	0	10,083	UDSF-1
44S	10,169	0	10,169	0	0	10,169	0	0	YES	0	10,169	0	0	10,169	UDSF-1
45S	6,437	0	6,437	0	0	6,437	0	0	YES	0	6,437	0	0	6,437	UDSF-1
46S	86,272	11,156	3,133	0	10,683	13,816	0	72,456	NO	11,156	0	0	0	0	None
47S	10,192	0	1,447	0	8,745	10,192	0	0	YES	0	1,447	0	8,745	10,192	UDSF-1
48S	50,448	0	13,793	0	36,655	50,448	0	0	NO	0	0	0	0	0	None

Table 1: MDEP GENERAL STANDARD CALCULATIONS

Job # 16405

AREA ID	WATERSHED SIZE (S.F.)	EXISTING ONSITE IMPERVIOUS AREA (S.F.)	NEW ONSITE IMPERVIOUS AREA (S.F.)	EXISTING ONSITE LANDSCAPED AREA (S.F.)	NEW ONSITE LANDSCAPED AREA (S.F.)	NET NEW DEVELOPED AREA (S.F.)	NET EXISTING DEVELOPED AREAS (S.F.)	NET UNDEVELOPED AREAS (S.F.)	TREATMENT PROVIDED?	EXISTING IMPERVIOUS AREA TREATED (S.F.)	NEW IMPERVIOUS AREA TREATED (S.F.)	EXISTING LANDSCAPED AREA TREATED* (S.F.)	NEW LANDSCAPED AREA TREATED* (S.F.)	TOTAL DEVELOPED AREA TREATED (S.F.)	TREATMENT BMP
49S	60,949	0	2,341	0	8,115	10,456	0	50,493	NO	0	0	0	0	0	None
50S	156,043	0	71,476	0	52,010	123,486	0	32,557	NO	0	0	0	0	0	None
51S	19,586	0	19,075	0	511	19,586	0	0	NO	0	0	0	0	0	None
52S	22,942	0	22,942	0	0	22,942	0	0	NO	0	0	0	0	0	None
53S	16,121	0	16,121	0	0	16,121	0	0	YES	0	16,121	0	0	16,121	Wet Pond-2
54S	837	0	0	0	837	837	0	0	NO	0	0	0	0	0	None
55S	212,856	0	16,270	0	47,528	63,798	0	149,058	NO	0	0	0	0	0	None
56S	3,283	0	0	0	3,283	3,283	0	0	NO	0	0	0	0	0	None
57S	5,849	0	4,615	0	1,234	5,849	0	0	NO	0	0	0	0	0	None
58S	33,565	0	8,634	0	24,931	33,565	0	0	NO	0	0	0	0	0	None
59S	46,015	0	774	0	45,241	46,015	0	0	YES	0	774	0	45,241	46,015	Wet Pond-1
60S	14,440	4,009	10,431	0	0	10,431	4,009	0	NO	0	0	0	0	0	None
61S	22,331	0	18,852	0	3,479	22,331	0	0	NO	0	0	0	0	0	None
62S	11,024	0	11,024	0	0	11,024	0	0	YES	0	11,024	0	0	11,024	Drip Edge
63S	125,641	0	11,346	0	114,295	125,641	0	0	YES	0	11,346	0	114,295	125,641	Meadow Buff
64S	93,400	2,924	0	0	35,191	35,191	2,924	55,285	NO	0	0	0	0	0	None
65S	33,206	0	12,618	0	0	12,618	0	20,588	YES	0	12,618	0	0	12,618	Meadow Buff
TOTAL (S.F.)	3,968,835	90,786	630,467	0	1,234,983	1,865,450	90,786	2,012,599		82,611	307,690	0	662,329	1,052,630	

TOTAL NEW DEVELOPED AREA (S.F.)	1,865,450
EXISTING DEVELOPED AREA RECEIVING TREATMENT (S.F.)	82,611
NEW DEVELOPED AREA RECEIVING TREATMENT (S.F.)	970,019
TOTAL DEVELEOPED AREA REQUIRING TREATMENT (S.F.) (50% of New Developed Area)	932,725
TOTAL DEVELOPED AREA RECEIVING TREATMENT (S.F.)	1,052,630
% OF DEVELOPED AREA RECEIVING TREATMENT	56.43%

Redevelopment Calculations
(Calculations based on Chapter 500, Section 4.C.d)

Redevelopment Footprint	**1,954,155**	**SF**	**=**	**44.86**	**AC**

Per Table 2: Pollutant Impact Rankings of Various Redevelopment Land Uses

Existing Use	Existing Area (SF)	Existing Area (AC)	Pollutant Ranking	Weighted Ave. Impact
Roof - Pitched Asphalt and Metal	35,990	0.83	3	2.48
Roof - Flat Asphalt	150,014	3.44	2	6.89
Medium Use Parking Lots	128,037	2.94	4	11.76
Concrete	27,022	0.62	3	1.86
Existing Gravel	95,191	2.19	3	6.56
Water	33,306	0.76	1	0.76
Sidewalk	18,322	0.42	2	0.84
Pavement	157,287	3.61	3	10.83
Landscape elements	4,168	0.10	1	0.10
Grassed Areas	1,304,818	29.95	2	59.91
	1,954,155		Sum	101.98

Proposed Use	Proposed Area (SF)	Proposed Area (AC)	Pollutant Ranking	Weighted Ave. Impact
Roof - Pitched Asphalt and Metal	4,142	0.10	3	0.29
Roof - Flat Asphalt	256,289	5.88	2	11.77
Concrete Apron at Building Front	19,275	0.44	3	1.33
Driveways	173,050	3.97	3	11.92
Medium Use Parking Lots	103,097	2.37	4	9.47
Walkways	92,986	2.13	2	4.27
Utility, Dumpster & Back Concrete Pads**	2,222	0.05	2	0.10
Proposed Gravel	60,887	1.40	3	4.19
New/ Existing Grassed Areas	1,208,274	27.74	2	55.48
Lawn - BMP Area	33,933	0.78	1	0.78
	1,954,155		Sum	99.59

* Light use building pollutant ranking for metal roof (other rooftop classification)
** No vehicular traffic

a.	Existing Impact Rating =	101.98
b.	Proposed Impact Rating =	99.59
c.	Existing Impact Rating per Acre of Development =	2.273
d	Proposed Impact Rating per Acre of Development =	2.220
e	Redevelopment Rating Difference	-0.053

Therefore 50% of Developed Area must be treated
(per Table 3 - Treatment Levels for Redevelopment Projects)

Note: The wet pond is sized in accordance with Chapter 4 of the <u>Maine Department of Environmental Protection BMPs</u> <u>Technical Design Manual</u>, latest revision.

Treatment Sizing Calculations for Proposed Wet Pond 1:

(CPV = Channel Protection Volume)
(PPV = Permenant Pool Volume)

Wet Pond-1

Tributary Areas
Impervious Area = 122,457 sf
Landscaped Area = 157,682 sf

Permenant Pool Volume Calculation
PPV = 2.0" x Impervious + 0.8"x Landscape = 30,922 cf
Provided PPV (El. 127.00)= 65,583 cf

Mean Depth Calculation @ El. 126.00= 51,990 cf / 12,826 sf= 4.05 feet
(El. 126.00 = -1' from Permenant Pool Elevation)

Channel Protection Volume Calculation
CPV = 1" x Impervious + 0.4"x Landscape = 15,461 cf
Provided Volume Above Permenant Pool (El. 127.0)= 26,775 cf

Underdrained Gravel Trench Calculation
Trench Length = 3' x (CPV / 1,000 cf) = 80 feet   Provided= 80 feet

Emergency Spillway & Berm Design Calculations

Top of Berm Elevation 132.00

Emergency Spillway Width 25.00

Emergency Spillway Elevation 129.00

25-Year Peak Elevation 129.33
(assume outlet control structure plugged)

25-Year Freeboard 2.67

100-Year Peak Elevation 129.40

100-Year Free Board 2.60

SEBAGO TECHNICS, INC.
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South Portland, ME 04106
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JOB		16405		
SHEET NO.		2	OF	2
CALCULATED BY		BJB	DATE	3/14/2019
CHECKED BY			DATE	
FILE NAME		16405-WQC - PHASE 2	PRINT DATE	7/18/2019

Sediment Pre-Treatment

Per Reference 2, Chapter 4.3.1.15
"Pretreatment devices shall be provided to minimize discharge of sediment to the wetpond."

Annual Sediment Load: 500 lbs/acre to be sanded at 10 storms per year, assumed density of sand 90lbs/cf

Area to be sanded: 122,457 SF

Required Pre-treatment Volume=   156 CF
Provided Pre-treatment Volume=   **2,425** CF

Orifice Sizing Calculation

Orifice Equation $Q = CA \sqrt{2gh}$

Q = Rate of Discharge (cfs)
A = Orifice Area (sf)
G = Gravitational Constant (32.2 ft/s^2)
h = Depth of water above the flow line (center) of the orifice (ft)
C = Orifice coefficient (usually assumed = 0.6)

Average discharge rate required to drawdown the treatment volume in a
desired amount of time is:

$Q = \dfrac{TV}{tCF}$

TV= Treatment Volume (cf)
t = Recovery Time (hrs)
CF = Conversion Factor = 3600 sec/hr

TV =   26,775   cf
t =   24   hr

$Q = \dfrac{TV}{tCF}$ **0.31**   cfs

surface area of filter =   **14,360**   SF

h =   **1.86**   ft

$A = \dfrac{Q}{C\sqrt{2gh}}$ A =   **0.047**   sf   =   6.79   sq. in.

Diam =   **2.94**   in

Note: **The wet pond is sized in accordance with Chapter 4 of the** <u>Maine Department of Environmental Protection BMPs</u> <u>**Technical Design Manual**</u>**, latest revision.**

<u>**Treatment Sizing Calculations for Proposed Wet Pond 2:**</u>

(CPV = Channel Protection Volume)
(PPV = Permenant Pool Volume)

Wet Pond-2

Tributary Areas
Impervious Area =   204,720 sf
Landscaped Area =   381,607 sf

Permenant Pool Volume Calculation
PPV = 2.0" x Impervious + 0.8"x Landscape =   59,560 cf
Provided PPV (El. 113.00)=   76,867 cf

Mean Depth Calculation @ El. 112.00=   83,813 cf / 18,045 sf=   4.64 feet
(El. 112.00 = -1' from Permenant Pool Elevation)

Channel Protection Volume Calculation
CPV = 1" x Impervious + 0.4"x Landscape =   29,780 cf
Provided Volume Above Permenant Pool (El. 113.00)=   65,289 cf

Underdrained Gravel Trench Calculation
Trench Length = 3' x (CPV / 1,000 cf) =   196 feet   Provided=   196 feet

<u>**Emergency Spillway & Berm Design Calculations**</u>

Top of Berm Elevation   118.00

Emergency Spillway Width   25.00

Emergency Spillway Elevation   116.30

25-Year Peak Elevation   116.62
(assume outlet control structure plugged)

25-Year Freeboard   1.38

100-Year Peak Elevation   116.84

100-Year Free Board   1.16

Sediment Pre-Treatment

Per Reference 2, Chapter 4.3.1.15
"Pretreatment devices shall be provided to minimize discharge of sediment to the wetpond."

Annual Sediment Load: 500 lbs/acre to be sanded at 10 storms per year, assumed density of sand 90lbs/cf

Area to be sanded: 204,720 SF

Required Pre-treatment Volume=   261 CF
Provided Pre-treatment Volume=   **1,046** CF

Orifice Sizing Calculation

Orifice Equation $Q = CA \sqrt{2gh}$

Q = Rate of Discharge (cfs)
A = Orifice Area (sf)
G = Gravitational Constant (32.2 ft/s^2)
h = Depth of water above the flow line (center) of the orifice (ft)
C = Orifice coefficient (usually assumed = 0.6)

Average discharge rate required to drawdown the treatment volume in a desired amount of time is:

$$Q = \frac{TV}{tCF}$$

TV= Treatment Volume (cf)
t = Recovery Time (hrs)
CF = Conversion Factor = 3600 sec/hr

TV =   65,289   cf
t =   24   hr

$$Q = \frac{TV}{tCF}$$ **0.76**   cfs

surface area of filter =   **20,063**   SF

h =   **3.25**   ft

$$A = \frac{Q}{C\sqrt{2gh}}$$ A =   **0.087**   sf   =   12.53   sq. in.

Diam =   **3.99**   in

Note: Buffers are sized in accordance with Chapter 5 of the Maine Department of Environmental Protection BMPs Technical Design Manual, latest revision.

Meadow Buffer 1 (WB-1)					
Type of Buffer :	Buffer with Stone Bermed Level Spreader				
Existing Cover :	Meadow				
Soils :	Belgrade				
Buffer Slope :	4.2%				
Buffer Length :	150	feet			
Tributary Area					
Impervious :	11,346	sf			
Landscaped :	114,295	sf			
Per Table 5-5 of Manual for Soil Group B Fine Sandy Loam:					
Berm Length per acre of impervious :		75	ft		
Berm Length per acre of landscaped :		25	ft		
Required Level Spreader Berm Length :		85.1	ft		
Provided Level Spreader Berm Length :		100.0	ft		

SEBAGO TECHNICS, INC.

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JOB	16405	
SHEET NO.	2	OF 2
CALCULATED BY	CAB	DATE 4/1/2019
CHECKED BY		
FILE NAME	16405 WQC	PRINT DATE 7/18/2019

MDEP Site Location of Development Submission

Note: Buffers are sized in accordance with Chapter 5 of the <u>Maine Department of Environmental Protection</u> <u>BMPs Technical Design Manual</u>, latest revision.

Meadow Buffer 2 (WB-2)						
Type of Buffer :	Buffer with Stone Bermed Level Spreader					
Existing Cover :	Meadow					
Soils :	Hartland					
Buffer Slope :	11.0%					
Buffer Length :	75	feet				
Tributary Area						
Impervious :	12,684	sf				
Landscaped :	24,344	sf				
Per Table 5-5 of Manual for Soil Group B Fine Sandy Loam:						
Berm Length per acre of impervious :		180	ft			
Berm Length per acre of landscaped :		54	ft			
Required Level Spreader Berm Length :		82.6	ft			
Provided Level Spreader Berm Length :		104.0	ft			

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75 John Roberts Road, Suite 4A
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JOB		16405		
SHEET NO.		1	OF	1
CALCULATED BY		BJB	DATE	5/2/2019
CHECKED BY		CAB		
FILE NAME	16405 WQC		PRINT DATE	7/18/2019

MDEP Site Location of Development Submission

Treatment Calculations for Proposed Detention Basin

WQV Calculation

(WQV = Water Quality Volume)

Total Impervious Area =   55,266   sf

Total Landscaped Area=   30,796   sf

Storage Volume =   18,146   cf

Sediment Pre-Treatment

Per Reference 2, Chapter 4.3.1.15
"Pretreatment devices shall be provided to minimize discharge of sediment to the wetpond."

Annual Sediment Load: 500 lbs/acre to be sanded at 10 storms per year, assumed density of sand 90lbs/cf

Area to be sanded: 55,266 SF

Required Pre-treatment Volume=   70 CF
Provided Pre-treatment Volume=   **223** CF

Orifice Sizing Calculation

Orifice Equation $Q = CA\sqrt{2gh}$

   Q = Rate of Discharge (cfs)
   A = Orifice Area (sf)
   G = Gravitational Constant (32.2 ft/s^2)
   h = Depth of water above the flow line (center) of the orifice (ft)
   C = Orifice coefficient (usually assumed = 0.6)

Average discharge rate required to drawdown the treatment volume in a
desired amount of time is:
$$Q = \frac{TV}{tCF}$$

   TV= Treatment Volume (cf)
   t = Recovery Time (hrs)
   CF = Conversion Factor = 3600 sec/hr

   TV =   18,146   cf
   t =   36   hr

   $Q = \frac{TV}{tCF}$ **0.14**   cfs

surface area of filter =   4,582   SF

   h =   **3.96**   ft

   $A = \frac{Q}{C\sqrt{2gh}}$ A =   **0.015** sf   =   2.10   sq. in.

                        Diam =   **1.64**   in

SOIL PROFILE/CLASSIFICATION INFORMATION

Detailed Description of Subsurface Conditions at Project Sites

Project Name:	Applicant Name:	Project Location (municipality):
MAINE CORRECTIONAL CENTER	**SMRT, INC.**	**WINDHAM**

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP-ST1 — ■ Test Pit ☐ Boring

0-1 * Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
	FRIABLE	5Y 5/1	
		GRAY	
SILTY			
CLAY			
			COMMON, MEDIUM, & DISTINCT
		5Y 4/1	
	FIRM	DARK GRAY	
		5Y 4/2	
		OLIVE GRAY	

LIMIT OF EXCAVATION = 12'

■ hydric ☐ non-hydric	Slope % 0-3	Limiting factor 6"	■ ground water ☐ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: **SCANTIC** — **PD** Drainage Class — **D** Hydrologic Group

L.S.E. Soil Classification: ___ Profile ___ Drainage Class ___ Design Class
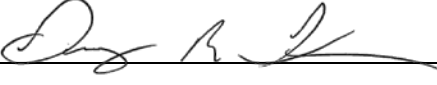
SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP-ST2 — ■ Test Pit ☐ Boring

0-1 * Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
CRUSHED	FRIABLE		
ROCK			
FILL			
		5Y 4/2	
SANDY			
LOAM	FIRM	OLIVE GRAY	NONE
WITH			OBSERVED
CLAY FILL			
		5Y 3/2	
		DARK	
		OLIVE GRAY	
GRAVELLY			
LOAMY	FRIABLE		
FILL			

LIMIT OF EXCAVATION = 60"

☐ hydric ■ non-hydric	Slope % 0-3	Limiting factor >60"	■ ground water ☐ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: **UNDETERMINED (FILL SITE)** — **WD** Drainage Class — **0** Hydrologic Group

L.S.E. Soil Classification: ___ Profile ___ Drainage Class ___ Design Class

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP-ST3 — ■ Test Pit ☐ Boring

0-1 * Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		2.5Y 4/3	
SILT	FRIABLE		
LOAM		OLIVE BROWN	
		2.5Y 5/4	
		LT. OLIVE BROWN	
SILTY			
CLAY		5Y 5/3	COMMON,
LOAM			MEDIUM,
	FIRM	OLIVE	& DISTINCT
		5Y 5/2	
SILTY			
CLAY		OLIVE GRAY	

LIMIT OF EXCAVATION = 12'

☐ hydric ■ non-hydric	Slope % 8-15	Limiting factor 18"	■ ground water ■ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: **BUXTON** — **MWD** Drainage Class — **D** Hydrologic Group

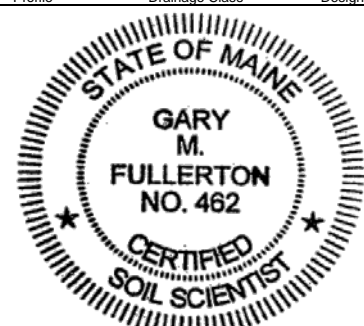**L.S.E.** Soil Classification: ___ Profile ___ Drainage Class ___ Design Class

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP-ST4 — ■ Test Pit ☐ Boring

0-1 * Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILT			
LOAM		2.5Y 4/2	
	FRIABLE	DARK	
		GRAYISH	
		BROWN	
FINE			
SANDY			
LOAM			
COARSE		2.5Y 5/4	
SAND		LT. OLIVE BROWN	
LOAMY		2.5Y 6/3	
FINE SAND		LIGHT YELLOWISH	COMMON,
		BROWN	MEDIUM,
SILTY CLAY	FIRM	5Y 5/2	& DISTINCT
		OLIVE GRAY	
MEDIUM SAND	FRIABLE	5G 5/1	
		GREENISH GRAY	

LIMIT OF EXCAVATION = 12'

☐ hydric ■ non-hydric	Slope % 3-8	Limiting factor 34"	■ ground water ☐ restrictive layer ☐ bedrock

C.S.S. Soil Series / phase name: **ELMWOOD** — **MWD** Drainage Class — **B** Hydrologic Group

L.S.E. Soil Classification: ___ Profile ___ Drainage Class ___ Design Class

---

Professional Endorsements *(as applicable)*

C.S.S.
signature: *[signature]*
name printed/typed: **Gary M. Fullerton**
Date: **4/24/19**
Lic.#: **462**

L.S.E.
signature:
name printed/typed:
Date:
Lic.#:

affix professional seal

[Seal: STATE OF MAINE — GARY M. FULLERTON NO. 462 — CERTIFIED SOIL SCIENTIST]

SOIL PROFILE/CLASSIFICATION INFORMATION
Detailed Description of Subsurface Conditions at Project Sites

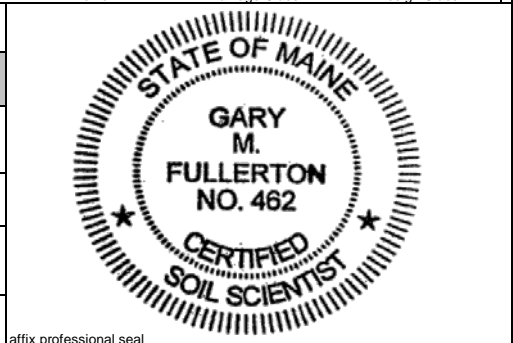| Project Name:	Applicant Name:	Project Location (municipality):
MAINE CORRECTIONAL CENTER	**SMRT, INC.**	**WINDHAM**

SOIL DESCRIPTION AND CLASSIFICATION (TP-ST5)

Exploration Symbol: **TP-ST5** ☑ Test Pit ☐ Boring

0-1 " Depth of Organic Horizon Above Mineral Soil

Depth (Inches)	Texture	Consistency	Color	Mottling
0				
3			10YR 3/4	
5	FINE		DARK	
6	SANDY		YELLOWISH	
7	LOAM		BROWN	
12		FRIABLE		
16			2.5Y 5/4	
18	LOAMY			
20	SAND		LIGHT OLIVE	
			BROWN	
30			2.5Y 5/3	
	SANDY			
48	LOAM		LIGHT OLIVE BROWN	
52				COMMON,
	SILTY CLAY		5Y 5/2	MEDIUM,
	LOAM	FIRM	OLIVE GRAY	& DISTINCT

LIMIT OF EXCAVATION = 60"

hydric ☐ / non-hydric ■	Slope %	Limiting factor	☐ ground water ■
	0-3	**48"**	☐ restrictive layer / ☐ bedrock

C.S.S. Soil Series / phase name: **MELROSE** **WD** (Drainage Class) **C** (Hydrologic Group)

L.S.E. Soil Classification: ___ Profile ___ Drainage Class ___ Design Class

SOIL DESCRIPTION AND CLASSIFICATION (blank)

Exploration Symbol: _____ ☐ Test Pit ☐ Boring

___ " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

hydric ☐ / non-hydric ☐	Slope %	Limiting factor	☐ ground water
	___	___	☐ restrictive layer / ☐ bedrock

C.S.S. Soil Series / phase name: ___ Drainage Class ___ Hydrologic Group

L.S.E. Soil Classification: ___ Profile ___ Drainage Class ___ Design Class

SOIL DESCRIPTION AND CLASSIFICATION (blank)

Exploration Symbol: _____ ☐ Test Pit ☐ Boring

___ " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

hydric ☐ / non-hydric ☐	Slope %	Limiting factor	☐ ground water
	___	___	☐ restrictive layer / ☐ bedrock

C.S.S. Soil Series / phase name: ___ Drainage Class ___ Hydrologic Group

L.S.E. Soil Classification: ___ Profile ___ Drainage Class ___ Design Class

SOIL DESCRIPTION AND CLASSIFICATION (blank)

Exploration Symbol: _____ ☐ Test Pit ☐ Boring

___ " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

hydric ☐ / non-hydric ☐	Slope %	Limiting factor	☐ ground water
	___	___	☐ restrictive layer / ☐ bedrock

C.S.S. Soil Series / phase name: ___ Drainage Class ___ Hydrologic Group

L.S.E. Soil Classification: ___ Profile ___ Drainage Class ___ Design Class

Professional Endorsements (as applicable)

C.S.S.
signature: _(signed)_
name printed/typed: **Gary M. Fullerton**
Date: **4/24/19**
Lic.#: **462**

L.S.E.
signature: ___
name printed/typed: ___
Date: ___
Lic.#: ___

affix professional seal

(Seal: STATE OF MAINE — GARY M. FULLERTON NO. 462 — CERTIFIED SOIL SCIENTIST)

Sebago Technics, Inc.
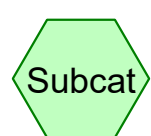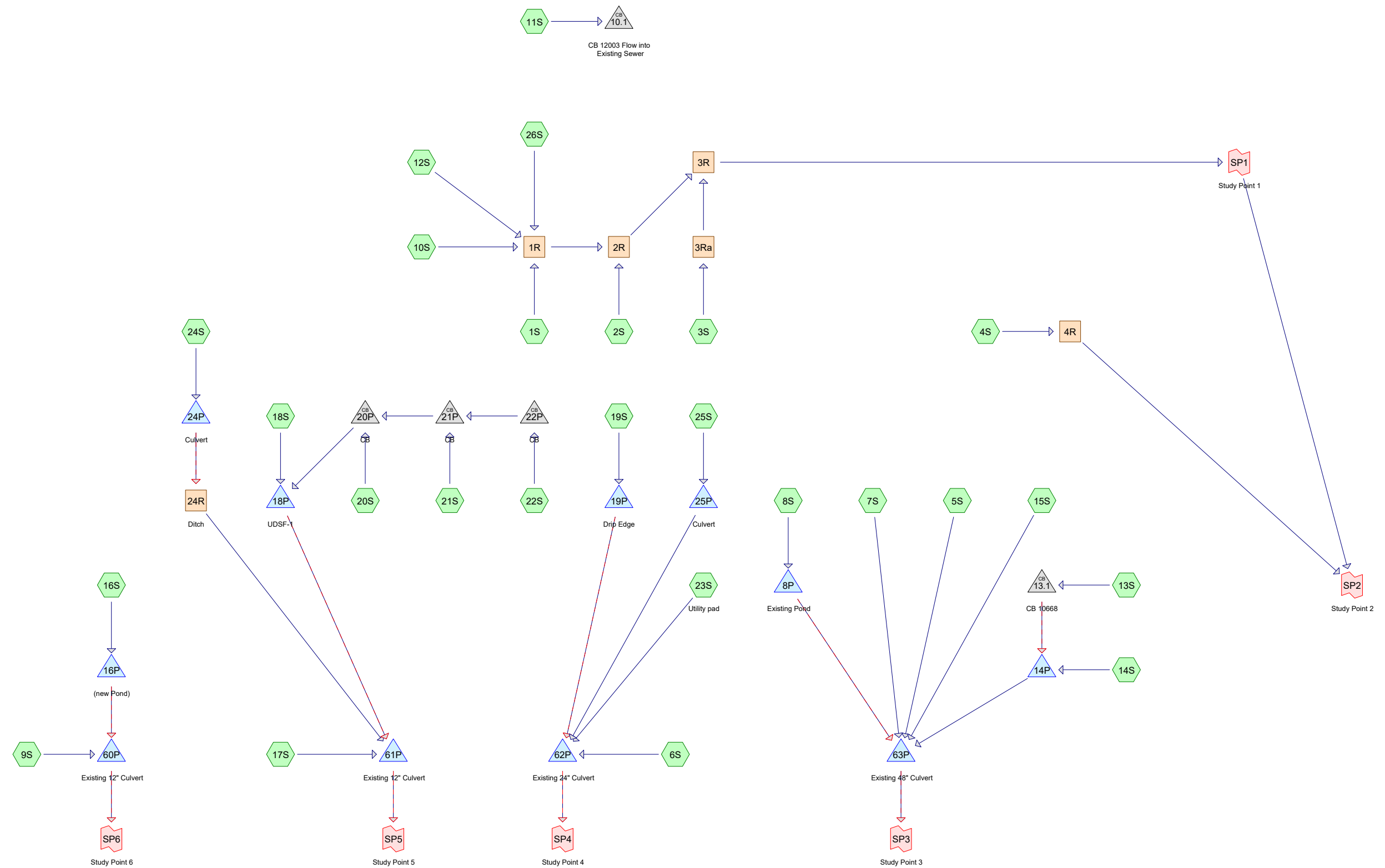
Attachment B

Pre-Development Stormwater Modeling
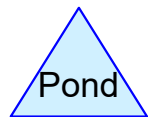
Routing Diagram for 16405 PRE-DEV PHASE2
Prepared by Sebago Technics, Printed 7/18/2019
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
381,728	61	>75% Grass cover, Good, HSG B (4S, 8S, 10S, 12S, 13S, 15S, 16S, 18S, 24S, 25S)
43,604	74	>75% Grass cover, Good, HSG C (4S)
166,492	80	>75% Grass cover, Good, HSG D (4S, 6S, 8S, 15S, 16S, 18S, 23S, 24S, 25S)
74,124	96	Gravel surface, HSG B (4S, 6S, 8S, 9S, 10S, 13S, 14S, 15S, 16S, 17S, 24S, 25S)
13,834	96	Gravel surface, HSG C (4S)
7,233	96	Gravel surface, HSG D (3S, 4S, 6S, 8S, 9S, 14S, 15S, 17S, 24S)
99,136	58	Meadow, non-grazed, HSG B (1S, 15S)
343,677	71	Meadow, non-grazed, HSG C (1S)
140,914	78	Meadow, non-grazed, HSG D (1S)
520,956	61	Pasture/grassland/range, Good, HSG B (3S, 4S, 5S, 7S, 8S, 9S, 14S, 17S)
607,138	74	Pasture/grassland/range, Good, HSG C (2S, 3S, 4S, 7S)
447,160	80	Pasture/grassland/range, Good, HSG D (2S, 3S, 7S, 9S, 14S, 17S)
33,212	98	Paved parking, HSG B (3S, 25S)
733	98	Paved parking, HSG C (3S)
2,751	98	Paved parking, HSG D (3S, 6S, 25S)
2,083	98	Paved parking, HSG D concrete (20S, 23S)
203,302	98	Pavement, HSG B (1S, 4S, 9S, 10S, 12S, 13S, 15S, 16S)
29,842	98	Pavement, HSG C (1S, 4S)
50,045	98	Pavement, HSG D (1S, 2S, 4S, 9S, 16S, 17S, 20S, 21S, 22S)
151,729	98	Roofs, HSG B (4S, 7S, 8S, 10S, 11S, 12S, 13S, 16S, 24S, 25S, 26S)
9,364	98	Roofs, HSG C (4S)
24,911	98	Roofs, HSG D (8S, 19S, 20S, 21S, 22S)
565	98	Unconnected pavement, HSG D concrete (21S, 22S)
11,188	98	Water Surface, HSG B (14S)
22,118	98	Water Surface, HSG D (8S)
248,863	55	Woods, Good, HSG B (9S, 14S, 15S, 17S)
200,827	70	Woods, Good, HSG C (4S, 5S)
118,603	77	Woods, Good, HSG D (5S, 6S, 9S, 15S, 17S)
10,555	79	Woods/grass comb., Good, HSG D (15S)
2,148	80	riprap, HSG D (19S)
3,968,835	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
1,724,238	HSG B	1S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 24S, 25S, 26S
1,249,019	HSG C	1S, 2S, 3S, 4S, 5S, 7S
995,578	HSG D	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 14S, 15S, 16S, 17S, 18S, 19S, 20S, 21S, 22S, 23S, 24S, 25S
0	Other	
3,968,835		**TOTAL AREA**

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Type III 24-hr 2 YR Rainfall=3.10"
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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S:
Runoff Area=544,206 sf 3.88% Impervious Runoff Depth=0.92"
Flow Length=760' Tc=13.5 min CN=73 Runoff=9.76 cfs 41,698 cf

Subcatchment2S:
Runoff Area=403,070 sf 0.48% Impervious Runoff Depth=1.14"
Flow Length=910' Tc=16.2 min CN=77 Runoff=8.75 cfs 38,321 cf

Subcatchment3S:
Runoff Area=440,468 sf 0.51% Impervious Runoff Depth=1.14"
Flow Length=595' Tc=18.7 min CN=77 Runoff=9.03 cfs 41,877 cf

Subcatchment4S:
Runoff Area=661,138 sf 21.30% Impervious Runoff Depth=1.08"
Flow Length=496' Tc=29.8 min CN=76 Runoff=10.47 cfs 59,666 cf

Subcatchment5S:
Runoff Area=244,881 sf 0.00% Impervious Runoff Depth=0.55"
Flow Length=835' Tc=25.7 min CN=65 Runoff=1.70 cfs 11,275 cf

Subcatchment6S:
Runoff Area=76,147 sf 1.26% Impervious Runoff Depth=1.20"
Flow Length=405' Tc=10.3 min CN=78 Runoff=2.07 cfs 7,618 cf

Subcatchment7S:
Runoff Area=167,005 sf 1.26% Impervious Runoff Depth=0.77"
Flow Length=658' Tc=11.4 min CN=70 Runoff=2.53 cfs 10,723 cf

Subcatchment8S:
Runoff Area=209,898 sf 15.39% Impervious Runoff Depth=1.08"
Flow Length=670' Tc=24.9 min CN=76 Runoff=3.60 cfs 18,943 cf

Subcatchment9S:
Runoff Area=206,223 sf 6.51% Impervious Runoff Depth=0.48"
Flow Length=400' Tc=10.3 min CN=63 Runoff=1.53 cfs 8,169 cf

Subcatchment10S:
Runoff Area=65,598 sf 78.34% Impervious Runoff Depth=2.16"
Tc=6.0 min CN=91 Runoff=3.77 cfs 11,833 cf

Subcatchment11S:
Runoff Area=8,227 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.57 cfs 1,966 cf

Subcatchment12S:
Runoff Area=54,543 sf 93.95% Impervious Runoff Depth=2.65"
Tc=6.0 min CN=96 Runoff=3.63 cfs 12,047 cf

Subcatchment13S:
Runoff Area=74,282 sf 37.72% Impervious Runoff Depth=1.08"
Flow Length=168' Tc=8.4 min CN=76 Runoff=1.91 cfs 6,704 cf

Subcatchment14S:
Runoff Area=36,754 sf 30.44% Impervious Runoff Depth=1.03"
Flow Length=192' Tc=11.5 min CN=75 Runoff=0.80 cfs 3,145 cf

Subcatchment15S:
Runoff Area=277,539 sf 3.32% Impervious Runoff Depth=0.44"
Flow Length=840' Tc=25.4 min CN=62 Runoff=1.36 cfs 10,151 cf

Subcatchment16S:
Runoff Area=94,887 sf 53.93% Impervious Runoff Depth=1.75"
Flow Length=415' Tc=6.0 min CN=86 Runoff=4.47 cfs 13,826 cf

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Subcatchment17S: Runoff Area=75,724 sf 1.21% Impervious Runoff Depth=0.59"
Flow Length=274' Tc=12.3 min CN=66 Runoff=0.77 cfs 3,743 cf

Subcatchment18S: Runoff Area=9,130 sf 0.00% Impervious Runoff Depth=1.08"
Tc=6.0 min CN=76 Runoff=0.26 cfs 824 cf

Subcatchment19S: Runoff Area=11,630 sf 81.53% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=95 Runoff=0.76 cfs 2,469 cf

Subcatchment20S: Runoff Area=6,713 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.46 cfs 1,604 cf

Subcatchment21S: Runoff Area=10,154 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.70 cfs 2,427 cf

Subcatchment22S: Runoff Area=9,349 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.65 cfs 2,234 cf

Subcatchment23S: Utility pad Runoff Area=2,475 sf 82.42% Impervious Runoff Depth=2.55"
Flow Length=85' Slope=0.0570 '/' Tc=12.3 min CN=95 Runoff=0.13 cfs 525 cf

Subcatchment24S: Runoff Area=102,056 sf 7.95% Impervious Runoff Depth=0.97"
Flow Length=380' Tc=13.8 min CN=74 Runoff=1.94 cfs 8,269 cf

Subcatchment25S: Runoff Area=155,922 sf 31.39% Impervious Runoff Depth=1.03"
Flow Length=580' Tc=18.6 min CN=75 Runoff=2.82 cfs 13,341 cf

Subcatchment26S: Runoff Area=20,816 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.44 cfs 4,975 cf

Reach 1R: Avg. Flow Depth=0.53' Max Vel=3.62 fps Inflow=15.91 cfs 70,553 cf
n=0.030 L=370.0' S=0.0243 '/' Capacity=6,152.65 cfs Outflow=15.70 cfs 70,553 cf

Reach 2R: Avg. Flow Depth=0.65' Max Vel=3.67 fps Inflow=23.72 cfs 108,874 cf
n=0.030 L=875.0' S=0.0194 '/' Capacity=20,929.72 cfs Outflow=22.75 cfs 108,874 cf

Reach 3R: Avg. Flow Depth=0.45' Max Vel=1.61 fps Inflow=31.44 cfs 150,751 cf
n=0.030 L=300.0' S=0.0033 '/' Capacity=2,325.16 cfs Outflow=30.90 cfs 150,751 cf

Reach 3Ra: Avg. Flow Depth=0.32' Max Vel=3.94 fps Inflow=9.03 cfs 41,877 cf
n=0.030 L=515.0' S=0.0388 '/' Capacity=18,877.70 cfs Outflow=8.94 cfs 41,877 cf

Reach 4R: Avg. Flow Depth=0.54' Max Vel=5.41 fps Inflow=10.47 cfs 59,666 cf
n=0.030 L=301.0' S=0.0465 '/' Capacity=5,556.65 cfs Outflow=10.46 cfs 59,666 cf

Reach 24R: Ditch Avg. Flow Depth=0.25' Max Vel=2.83 fps Inflow=1.94 cfs 8,269 cf
n=0.030 L=85.0' S=0.0294 '/' Capacity=144.15 cfs Outflow=1.94 cfs 8,269 cf

Pond 8P: Existing Pond Peak Elev=115.12' Storage=21,615 cf Inflow=3.60 cfs 18,943 cf
Primary=0.81 cfs 25,127 cf Secondary=0.00 cfs 0 cf Outflow=0.81 cfs 25,127 cf

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Pond 10.1: CB 12003 Flow into Existing Sewer   Peak Elev=156.46' Inflow=0.57 cfs 1,966 cf
6.0" Round Culvert n=0.013 L=10.0' S=0.0000 '/' Outflow=0.57 cfs 1,966 cf

Pond 13.1: CB 10668   Peak Elev=140.18' Inflow=1.91 cfs 6,704 cf
Primary=1.91 cfs 6,704 cf Secondary=0.00 cfs 0 cf Outflow=1.91 cfs 6,704 cf

Pond 14P: Peak Elev=138.21' Storage=271 cf Inflow=2.67 cfs 9,849 cf
Outflow=2.58 cfs 9,849 cf

Pond 16P: (new Pond)   Peak Elev=151.36' Storage=460 cf Inflow=4.47 cfs 13,826 cf
Primary=3.99 cfs 13,826 cf Secondary=0.00 cfs 0 cf Outflow=3.99 cfs 13,826 cf

Pond 18P: UDSF-1   Peak Elev=143.85' Storage=4,922 cf Inflow=2.06 cfs 7,089 cf
Primary=0.05 cfs 7,043 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 7,043 cf

Pond 19P: Drip Edge   Peak Elev=148.69' Storage=936 cf Inflow=0.76 cfs 2,469 cf
Primary=0.15 cfs 2,455 cf Secondary=0.00 cfs 0 cf Outflow=0.15 cfs 2,455 cf

Pond 20P: CB   Peak Elev=145.24' Inflow=1.81 cfs 6,265 cf
12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=1.81 cfs 6,265 cf

Pond 21P: CB   Peak Elev=145.85' Inflow=1.35 cfs 4,661 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=1.35 cfs 4,661 cf

Pond 22P: CB   Peak Elev=146.33' Inflow=0.65 cfs 2,234 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=0.65 cfs 2,234 cf

Pond 24P: Culvert   Peak Elev=146.45' Storage=0 cf Inflow=1.94 cfs 8,269 cf
Primary=1.94 cfs 8,269 cf Secondary=0.00 cfs 0 cf Outflow=1.94 cfs 8,269 cf

Pond 25P: Culvert   Peak Elev=147.00' Storage=0 cf Inflow=2.82 cfs 13,341 cf
Outflow=2.82 cfs 13,341 cf

Pond 60P: Existing 12" Culvert   Peak Elev=116.90' Storage=943 cf Inflow=5.39 cfs 21,995 cf
Primary=4.48 cfs 21,995 cf Secondary=0.00 cfs 0 cf Outflow=4.48 cfs 21,995 cf

Pond 61P: Existing 12" Culvert   Peak Elev=116.99' Storage=255 cf Inflow=2.75 cfs 19,055 cf
Primary=2.66 cfs 19,051 cf Secondary=0.00 cfs 0 cf Outflow=2.66 cfs 19,051 cf

Pond 62P: Existing 24" Culvert   Peak Elev=110.92' Storage=751 cf Inflow=4.73 cfs 23,940 cf
Primary=4.64 cfs 23,938 cf Secondary=0.00 cfs 0 cf Outflow=4.64 cfs 23,938 cf

Pond 63P: Existing 48" Culvert   Peak Elev=94.87' Storage=285 cf Inflow=6.42 cfs 67,125 cf
Primary=6.42 cfs 67,124 cf Secondary=0.00 cfs 0 cf Outflow=6.42 cfs 67,124 cf

Link SP1: Study Point 1   Inflow=30.90 cfs 150,751 cf
Primary=30.90 cfs 150,751 cf

Link SP2: Study Point 2   Inflow=39.83 cfs 210,416 cf
Primary=39.83 cfs 210,416 cf

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Link SP3: Study Point 3

Inflow=6.42 cfs 67,124 cf
Primary=6.42 cfs 67,124 cf

Link SP4: Study Point 4

Inflow=4.64 cfs 23,938 cf
Primary=4.64 cfs 23,938 cf

Link SP5: Study Point 5

Inflow=2.66 cfs 19,051 cf
Primary=2.66 cfs 19,051 cf

Link SP6: Study Point 6

Inflow=4.48 cfs 21,995 cf
Primary=4.48 cfs 21,995 cf

Total Runoff Area = 3,968,835 sf   Runoff Volume = 338,374 cf   Average Runoff Depth = 1.02"
86.35% Pervious = 3,426,992 sf   13.65% Impervious = 541,843 sf

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Type III 24-hr 10 YR Rainfall=4.60"
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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S:
Runoff Area=544,206 sf   3.88% Impervious   Runoff Depth=1.97"
Flow Length=760' Tc=13.5 min   CN=73   Runoff=22.38 cfs 89,405 cf

Subcatchment2S:
Runoff Area=403,070 sf   0.48% Impervious   Runoff Depth=2.29"
Flow Length=910' Tc=16.2 min   CN=77   Runoff=18.21 cfs 76,989 cf

Subcatchment3S:
Runoff Area=440,468 sf   0.51% Impervious   Runoff Depth=2.29"
Flow Length=595' Tc=18.7 min   CN=77   Runoff=18.75 cfs 84,133 cf

Subcatchment4S:
Runoff Area=661,138 sf   21.30% Impervious   Runoff Depth=2.21"
Flow Length=496' Tc=29.8 min   CN=76   Runoff=22.21 cfs 121,753 cf

Subcatchment5S:
Runoff Area=244,881 sf   0.00% Impervious   Runoff Depth=1.39"
Flow Length=835' Tc=25.7 min   CN=65   Runoff=5.17 cfs 28,435 cf

Subcatchment6S:
Runoff Area=76,147 sf   1.26% Impervious   Runoff Depth=2.38"
Flow Length=405' Tc=10.3 min   CN=78   Runoff=4.21 cfs 15,075 cf

Subcatchment7S:
Runoff Area=167,005 sf   1.26% Impervious   Runoff Depth=1.74"
Flow Length=658' Tc=11.4 min   CN=70   Runoff=6.36 cfs 24,284 cf

Subcatchment8S:
Runoff Area=209,898 sf   15.39% Impervious   Runoff Depth=2.21"
Flow Length=670' Tc=24.9 min   CN=76   Runoff=7.62 cfs 38,654 cf

Subcatchment9S:
Runoff Area=206,223 sf   6.51% Impervious   Runoff Depth=1.26"
Flow Length=400' Tc=10.3 min   CN=63   Runoff=5.47 cfs 21,685 cf

Subcatchment10S:
Runoff Area=65,598 sf   78.34% Impervious   Runoff Depth=3.59"
Tc=6.0 min   CN=91   Runoff=6.11 cfs 19,650 cf

Subcatchment11S:
Runoff Area=8,227 sf   100.00% Impervious   Runoff Depth=4.36"
Tc=6.0 min   CN=98   Runoff=0.85 cfs 2,992 cf

Subcatchment12S:
Runoff Area=54,543 sf   93.95% Impervious   Runoff Depth=4.14"
Tc=6.0 min   CN=96   Runoff=5.52 cfs 18,795 cf

Subcatchment13S:
Runoff Area=74,282 sf   37.72% Impervious   Runoff Depth=2.21"
Flow Length=168' Tc=8.4 min   CN=76   Runoff=4.05 cfs 13,680 cf

Subcatchment14S:
Runoff Area=36,754 sf   30.44% Impervious   Runoff Depth=2.13"
Flow Length=192' Tc=11.5 min   CN=75   Runoff=1.74 cfs 6,521 cf

Subcatchment15S:
Runoff Area=277,539 sf   3.32% Impervious   Runoff Depth=1.20"
Flow Length=840' Tc=25.4 min   CN=62   Runoff=4.87 cfs 27,708 cf

Subcatchment16S:
Runoff Area=94,887 sf   53.93% Impervious   Runoff Depth=3.10"
Flow Length=415' Tc=6.0 min   CN=86   Runoff=7.83 cfs 24,477 cf

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Type III 24-hr 10 YR Rainfall=4.60"
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Subcatchment17S:
Runoff Area=75,724 sf 1.21% Impervious Runoff Depth=1.46"
Flow Length=274' Tc=12.3 min CN=66 Runoff=2.27 cfs 9,220 cf

Subcatchment18S:
Runoff Area=9,130 sf 0.00% Impervious Runoff Depth=2.21"
Tc=6.0 min CN=76 Runoff=0.54 cfs 1,681 cf

Subcatchment19S:
Runoff Area=11,630 sf 81.53% Impervious Runoff Depth=4.02"
Tc=6.0 min CN=95 Runoff=1.16 cfs 3,900 cf

Subcatchment20S:
Runoff Area=6,713 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.69 cfs 2,441 cf

Subcatchment21S:
Runoff Area=10,154 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.05 cfs 3,693 cf

Subcatchment22S:
Runoff Area=9,349 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.96 cfs 3,400 cf

Subcatchment23S: Utility pad
Runoff Area=2,475 sf 82.42% Impervious Runoff Depth=4.02"
Flow Length=85' Slope=0.0570 '/' Tc=12.3 min CN=95 Runoff=0.20 cfs 830 cf

Subcatchment24S:
Runoff Area=102,056 sf 7.95% Impervious Runoff Depth=2.05"
Flow Length=380' Tc=13.8 min CN=74 Runoff=4.35 cfs 17,431 cf

Subcatchment25S:
Runoff Area=155,922 sf 31.39% Impervious Runoff Depth=2.13"
Flow Length=580' Tc=18.6 min CN=75 Runoff=6.15 cfs 27,664 cf

Subcatchment26S:
Runoff Area=20,816 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=2.15 cfs 7,570 cf

Reach 1R:
Avg. Flow Depth=0.72' Max Vel=4.32 fps Inflow=31.75 cfs 135,420 cf
n=0.030 L=370.0' S=0.0243 '/' Capacity=6,152.65 cfs Outflow=31.50 cfs 135,420 cf

Reach 2R:
Avg. Flow Depth=0.90' Max Vel=4.41 fps Inflow=48.73 cfs 212,409 cf
n=0.030 L=875.0' S=0.0194 '/' Capacity=20,929.72 cfs Outflow=47.18 cfs 212,409 cf

Reach 3R:
Avg. Flow Depth=0.69' Max Vel=2.10 fps Inflow=65.29 cfs 296,542 cf
n=0.030 L=300.0' S=0.0033 '/' Capacity=2,325.16 cfs Outflow=64.58 cfs 296,542 cf

Reach 3Ra:
Avg. Flow Depth=0.48' Max Vel=4.87 fps Inflow=18.75 cfs 84,133 cf
n=0.030 L=515.0' S=0.0388 '/' Capacity=18,877.70 cfs Outflow=18.61 cfs 84,133 cf

Reach 4R:
Avg. Flow Depth=0.77' Max Vel=6.61 fps Inflow=22.21 cfs 121,753 cf
n=0.030 L=301.0' S=0.0465 '/' Capacity=5,556.65 cfs Outflow=22.18 cfs 121,753 cf

Reach 24R: Ditch
Avg. Flow Depth=0.38' Max Vel=3.58 fps Inflow=4.34 cfs 17,431 cf
n=0.030 L=85.0' S=0.0294 '/' Capacity=144.15 cfs Outflow=4.34 cfs 17,431 cf

Pond 8P: Existing Pond
Peak Elev=115.50' Storage=29,552 cf Inflow=7.62 cfs 38,654 cf
Primary=2.21 cfs 44,817 cf Secondary=0.00 cfs 1 cf Outflow=2.21 cfs 44,818 cf

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Type III 24-hr 10 YR Rainfall=4.60"
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Pond 10.1: CB 12003 Flow into Existing Sewer   Peak Elev=156.83' Inflow=0.85 cfs 2,992 cf
6.0" Round Culvert n=0.013 L=10.0' S=0.0000 '/' Outflow=0.85 cfs 2,992 cf

Pond 13.1: CB 10668   Peak Elev=141.35' Inflow=4.05 cfs 13,680 cf
Primary=4.05 cfs 13,680 cf Secondary=0.00 cfs 0 cf Outflow=4.05 cfs 13,680 cf

Pond 14P: Peak Elev=138.35' Storage=570 cf Inflow=5.70 cfs 20,201 cf
Outflow=5.50 cfs 20,201 cf

Pond 16P: (new Pond)   Peak Elev=151.74' Storage=753 cf Inflow=7.83 cfs 24,477 cf
Primary=4.93 cfs 23,401 cf Secondary=2.80 cfs 1,076 cf Outflow=7.73 cfs 24,477 cf

Pond 18P: UDSF-1   Peak Elev=144.52' Storage=7,235 cf Inflow=3.25 cfs 11,215 cf
Primary=0.05 cfs 8,967 cf Secondary=0.16 cfs 1,237 cf Outflow=0.22 cfs 10,203 cf

Pond 19P: Drip Edge   Peak Elev=149.50' Storage=1,414 cf Inflow=1.16 cfs 3,900 cf
Primary=0.18 cfs 3,763 cf Secondary=0.26 cfs 123 cf Outflow=0.45 cfs 3,886 cf

Pond 20P: CB   Peak Elev=145.58' Inflow=2.71 cfs 9,534 cf
12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=2.71 cfs 9,534 cf

Pond 21P: CB   Peak Elev=146.17' Inflow=2.01 cfs 7,092 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=2.01 cfs 7,092 cf

Pond 22P: CB   Peak Elev=146.54' Inflow=0.96 cfs 3,400 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=0.96 cfs 3,400 cf

Pond 24P: Culvert   Peak Elev=146.74' Storage=13 cf Inflow=4.35 cfs 17,431 cf
Primary=4.34 cfs 17,431 cf Secondary=0.00 cfs 0 cf Outflow=4.34 cfs 17,431 cf

Pond 25P: Culvert   Peak Elev=147.00' Storage=0 cf Inflow=6.15 cfs 27,664 cf
Outflow=6.15 cfs 27,664 cf

Pond 60P: Existing 12" Culvert   Peak Elev=118.58' Storage=3,724 cf Inflow=12.61 cfs 46,162 cf
Primary=6.63 cfs 44,680 cf Secondary=3.92 cfs 1,482 cf Outflow=10.55 cfs 46,162 cf

Pond 61P: Existing 12" Culvert   Peak Elev=118.53' Storage=1,326 cf Inflow=6.64 cfs 36,854 cf
Primary=5.38 cfs 36,764 cf Secondary=0.57 cfs 81 cf Outflow=5.95 cfs 36,846 cf

Pond 62P: Existing 24" Culvert   Peak Elev=111.42' Storage=1,385 cf Inflow=9.88 cfs 47,454 cf
Primary=9.67 cfs 47,453 cf Secondary=0.00 cfs 0 cf Outflow=9.67 cfs 47,453 cf

Pond 63P: Existing 48" Culvert   Peak Elev=95.52' Storage=820 cf Inflow=18.47 cfs 145,445 cf
Primary=18.45 cfs 145,444 cf Secondary=0.00 cfs 0 cf Outflow=18.45 cfs 145,444 cf

Link SP1: Study Point 1   Inflow=64.58 cfs 296,542 cf
Primary=64.58 cfs 296,542 cf

Link SP2: Study Point 2   Inflow=83.30 cfs 418,295 cf
Primary=83.30 cfs 418,295 cf

Link SP3: Study Point 3   Inflow=18.45 cfs 145,444 cf
                                                        Primary=18.45 cfs 145,444 cf

Link SP4: Study Point 4   Inflow=9.67 cfs 47,453 cf
                                                         Primary=9.67 cfs 47,453 cf

Link SP5: Study Point 5   Inflow=5.95 cfs 36,846 cf
                                                         Primary=5.95 cfs 36,846 cf

Link SP6: Study Point 6   Inflow=10.55 cfs 46,162 cf
                                                        Primary=10.55 cfs 46,162 cf

Total Runoff Area = 3,968,835 sf   Runoff Volume = 692,065 cf   Average Runoff Depth = 2.09"
86.35% Pervious = 3,426,992 sf   13.65% Impervious = 541,843 sf

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Type III 24-hr 25 YR Rainfall=5.80"
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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Runoff Area=544,206 sf 3.88% Impervious Runoff Depth=2.92"
Flow Length=760' Tc=13.5 min CN=73 Runoff=33.62 cfs 132,581 cf

Subcatchment2S: Runoff Area=403,070 sf 0.48% Impervious Runoff Depth=3.31"
Flow Length=910' Tc=16.2 min CN=77 Runoff=26.38 cfs 111,014 cf

Subcatchment3S: Runoff Area=440,468 sf 0.51% Impervious Runoff Depth=3.31"
Flow Length=595' Tc=18.7 min CN=77 Runoff=27.15 cfs 121,314 cf

Subcatchment4S: Runoff Area=661,138 sf 21.30% Impervious Runoff Depth=3.21"
Flow Length=496' Tc=29.8 min CN=76 Runoff=32.44 cfs 176,756 cf

Subcatchment5S: Runoff Area=244,881 sf 0.00% Impervious Runoff Depth=2.21"
Flow Length=835' Tc=25.7 min CN=65 Runoff=8.55 cfs 45,037 cf

Subcatchment6S: Runoff Area=76,147 sf 1.26% Impervious Runoff Depth=3.40"
Flow Length=405' Tc=10.3 min CN=78 Runoff=6.04 cfs 21,593 cf

Subcatchment7S: Runoff Area=167,005 sf 1.26% Impervious Runoff Depth=2.65"
Flow Length=658' Tc=11.4 min CN=70 Runoff=9.85 cfs 36,844 cf

Subcatchment8S: Runoff Area=209,898 sf 15.39% Impervious Runoff Depth=3.21"
Flow Length=670' Tc=24.9 min CN=76 Runoff=11.12 cfs 56,116 cf

Subcatchment9S: Runoff Area=206,223 sf 6.51% Impervious Runoff Depth=2.04"
Flow Length=400' Tc=10.3 min CN=63 Runoff=9.37 cfs 35,021 cf

Subcatchment10S: Runoff Area=65,598 sf 78.34% Impervious Runoff Depth=4.76"
Tc=6.0 min CN=91 Runoff=7.97 cfs 26,029 cf

Subcatchment11S: Runoff Area=8,227 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.07 cfs 3,813 cf

Subcatchment12S: Runoff Area=54,543 sf 93.95% Impervious Runoff Depth=5.33"
Tc=6.0 min CN=96 Runoff=7.03 cfs 24,218 cf

Subcatchment13S: Runoff Area=74,282 sf 37.72% Impervious Runoff Depth=3.21"
Flow Length=168' Tc=8.4 min CN=76 Runoff=5.91 cfs 19,859 cf

Subcatchment14S: Runoff Area=36,754 sf 30.44% Impervious Runoff Depth=3.11"
Flow Length=192' Tc=11.5 min CN=75 Runoff=2.57 cfs 9,533 cf

Subcatchment15S: Runoff Area=277,539 sf 3.32% Impervious Runoff Depth=1.95"
Flow Length=840' Tc=25.4 min CN=62 Runoff=8.46 cfs 45,212 cf

Subcatchment16S: Runoff Area=94,887 sf 53.93% Impervious Runoff Depth=4.22"
Flow Length=415' Tc=6.0 min CN=86 Runoff=10.55 cfs 33,366 cf

Subcatchment17S: Runoff Area=75,724 sf 1.21% Impervious Runoff Depth=2.29"
Flow Length=274' Tc=12.3 min CN=66 Runoff=3.71 cfs 14,470 cf

Subcatchment18S: Runoff Area=9,130 sf 0.00% Impervious Runoff Depth=3.21"
Tc=6.0 min CN=76 Runoff=0.79 cfs 2,441 cf

Subcatchment19S: Runoff Area=11,630 sf 81.53% Impervious Runoff Depth=5.21"
Tc=6.0 min CN=95 Runoff=1.48 cfs 5,052 cf

Subcatchment20S: Runoff Area=6,713 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.88 cfs 3,112 cf

Subcatchment21S: Runoff Area=10,154 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.32 cfs 4,706 cf

Subcatchment22S: Runoff Area=9,349 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.22 cfs 4,333 cf

Subcatchment23S: Utility pad   Runoff Area=2,475 sf 82.42% Impervious Runoff Depth=5.21"
Flow Length=85' Slope=0.0570 '/' Tc=12.3 min CN=95 Runoff=0.26 cfs 1,075 cf

Subcatchment24S: Runoff Area=102,056 sf 7.95% Impervious Runoff Depth=3.02"
Flow Length=380' Tc=13.8 min CN=74 Runoff=6.47 cfs 25,662 cf

Subcatchment25S: Runoff Area=155,922 sf 31.39% Impervious Runoff Depth=3.11"
Flow Length=580' Tc=18.6 min CN=75 Runoff=9.08 cfs 40,440 cf

Subcatchment26S: Runoff Area=20,816 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.72 cfs 9,648 cf

Reach 1R: Avg. Flow Depth=0.84' Max Vel=4.74 fps Inflow=45.63 cfs 192,477 cf
n=0.030 L=370.0' S=0.0243 '/' Capacity=6,152.65 cfs Outflow=45.34 cfs 192,477 cf

Reach 2R: Avg. Flow Depth=1.05' Max Vel=4.85 fps Inflow=70.49 cfs 303,490 cf
n=0.030 L=875.0' S=0.0194 '/' Capacity=20,929.72 cfs Outflow=68.60 cfs 303,490 cf

Reach 3R: Avg. Flow Depth=0.86' Max Vel=2.40 fps Inflow=94.84 cfs 424,804 cf
n=0.030 L=300.0' S=0.0033 '/' Capacity=2,325.16 cfs Outflow=94.00 cfs 424,804 cf

Reach 3Ra: Avg. Flow Depth=0.59' Max Vel=5.41 fps Inflow=27.15 cfs 121,314 cf
n=0.030 L=515.0' S=0.0388 '/' Capacity=18,877.70 cfs Outflow=26.99 cfs 121,314 cf

Reach 4R: Avg. Flow Depth=0.93' Max Vel=7.30 fps Inflow=32.44 cfs 176,756 cf
n=0.030 L=301.0' S=0.0465 '/' Capacity=5,556.65 cfs Outflow=32.40 cfs 176,756 cf

Reach 24R: Ditch   Avg. Flow Depth=0.47' Max Vel=3.99 fps Inflow=6.39 cfs 25,662 cf
n=0.030 L=85.0' S=0.0294 '/' Capacity=144.15 cfs Outflow=6.39 cfs 25,662 cf

Pond 8P: Existing Pond   Peak Elev=115.72' Storage=34,233 cf Inflow=11.12 cfs 56,116 cf
Primary=2.83 cfs 56,172 cf Secondary=2.66 cfs 6,097 cf Outflow=5.49 cfs 62,270 cf

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Pond 10.1: CB 12003 Flow into Existing Sewer Peak Elev=157.22' Inflow=1.07 cfs 3,813 cf
6.0" Round Culvert n=0.013 L=10.0' S=0.0000 '/' Outflow=1.07 cfs 3,813 cf

Pond 13.1: CB 10668 Peak Elev=143.43' Inflow=5.91 cfs 19,859 cf
Primary=5.91 cfs 19,859 cf Secondary=0.00 cfs 0 cf Outflow=5.91 cfs 19,859 cf

Pond 14P: Peak Elev=138.44' Storage=843 cf Inflow=8.34 cfs 29,392 cf
Outflow=8.03 cfs 29,392 cf

Pond 16P: (new Pond) Peak Elev=151.86' Storage=857 cf Inflow=10.55 cfs 33,366 cf
Primary=5.18 cfs 30,514 cf Secondary=5.29 cfs 2,852 cf Outflow=10.47 cfs 33,366 cf

Pond 18P: UDSF-1 Peak Elev=144.60' Storage=7,506 cf Inflow=4.21 cfs 14,592 cf
Primary=0.05 cfs 9,169 cf Secondary=1.40 cfs 4,310 cf Outflow=1.45 cfs 13,480 cf

Pond 19P: Drip Edge Peak Elev=149.51' Storage=1,429 cf Inflow=1.48 cfs 5,052 cf
Primary=0.18 cfs 4,383 cf Secondary=1.28 cfs 656 cf Outflow=1.46 cfs 5,038 cf

Pond 20P: CB Peak Elev=146.08' Inflow=3.42 cfs 12,151 cf
12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=3.42 cfs 12,151 cf

Pond 21P: CB Peak Elev=146.95' Inflow=2.54 cfs 9,040 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=2.54 cfs 9,040 cf

Pond 22P: CB Peak Elev=147.14' Inflow=1.22 cfs 4,333 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=1.22 cfs 4,333 cf

Pond 24P: Culvert Peak Elev=147.15' Storage=84 cf Inflow=6.47 cfs 25,662 cf
Primary=6.39 cfs 25,662 cf Secondary=0.00 cfs 0 cf Outflow=6.39 cfs 25,662 cf

Pond 25P: Culvert Peak Elev=147.00' Storage=0 cf Inflow=9.08 cfs 40,440 cf
Outflow=9.08 cfs 40,440 cf

Pond 60P: Existing 12" Culvert Peak Elev=118.67' Storage=3,936 cf Inflow=18.97 cfs 68,387 cf
Primary=6.73 cfs 59,670 cf Secondary=12.20 cfs 8,717 cf Outflow=18.93 cfs 68,387 cf

Pond 61P: Existing 12" Culvert Peak Elev=118.61' Storage=1,403 cf Inflow=10.05 cfs 53,612 cf
Primary=5.49 cfs 49,256 cf Secondary=4.56 cfs 4,347 cf Outflow=10.05 cfs 53,603 cf

Pond 62P: Existing 24" Culvert Peak Elev=111.90' Storage=2,147 cf Inflow=15.03 cfs 68,146 cf
Primary=14.43 cfs 68,145 cf Secondary=0.00 cfs 0 cf Outflow=14.43 cfs 68,145 cf

Pond 63P: Existing 48" Culvert Peak Elev=96.00' Storage=1,381 cf Inflow=30.16 cfs 218,755 cf
Primary=30.13 cfs 218,754 cf Secondary=0.00 cfs 0 cf Outflow=30.13 cfs 218,754 cf

Link SP1: Study Point 1 Inflow=94.00 cfs 424,804 cf
Primary=94.00 cfs 424,804 cf

Link SP2: Study Point 2 Inflow=121.14 cfs 601,560 cf
Primary=121.14 cfs 601,560 cf

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Link SP3: Study Point 3

Inflow=30.13 cfs 218,754 cf
Primary=30.13 cfs 218,754 cf

Link SP4: Study Point 4

Inflow=14.43 cfs 68,145 cf
Primary=14.43 cfs 68,145 cf

Link SP5: Study Point 5

Inflow=10.05 cfs 53,603 cf
Primary=10.05 cfs 53,603 cf

Link SP6: Study Point 6

Inflow=18.93 cfs 68,387 cf
Primary=18.93 cfs 68,387 cf

Total Runoff Area = 3,968,835 sf   Runoff Volume = 1,009,247 cf   Average Runoff Depth = 3.05"
86.35% Pervious = 3,426,992 sf   13.65% Impervious = 541,843 sf

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 1S:

Runoff = 33.62 cfs @ 12.19 hrs, Volume= 132,581 cf, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
	140,914	78	Meadow, non-grazed, HSG D
	343,677	71	Meadow, non-grazed, HSG C
	38,519	58	Meadow, non-grazed, HSG B
*	4,674	98	Pavement, HSG B
*	2,910	98	Pavement, HSG D
*	13,512	98	Pavement, HSG C
	544,206	73	Weighted Average
	523,110		96.12% Pervious Area
	21,096		3.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1700	0.27		**Sheet Flow, A-B sheet flow**
					Grass: Dense n= 0.240 P2= 3.10"
2.8	310	0.0700	1.85		**Shallow Concentrated Flow, B-C shallow concentrate**
					Short Grass Pasture Kv= 7.0 fps
4.5	350	0.0340	1.29		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
13.5	760	Total			
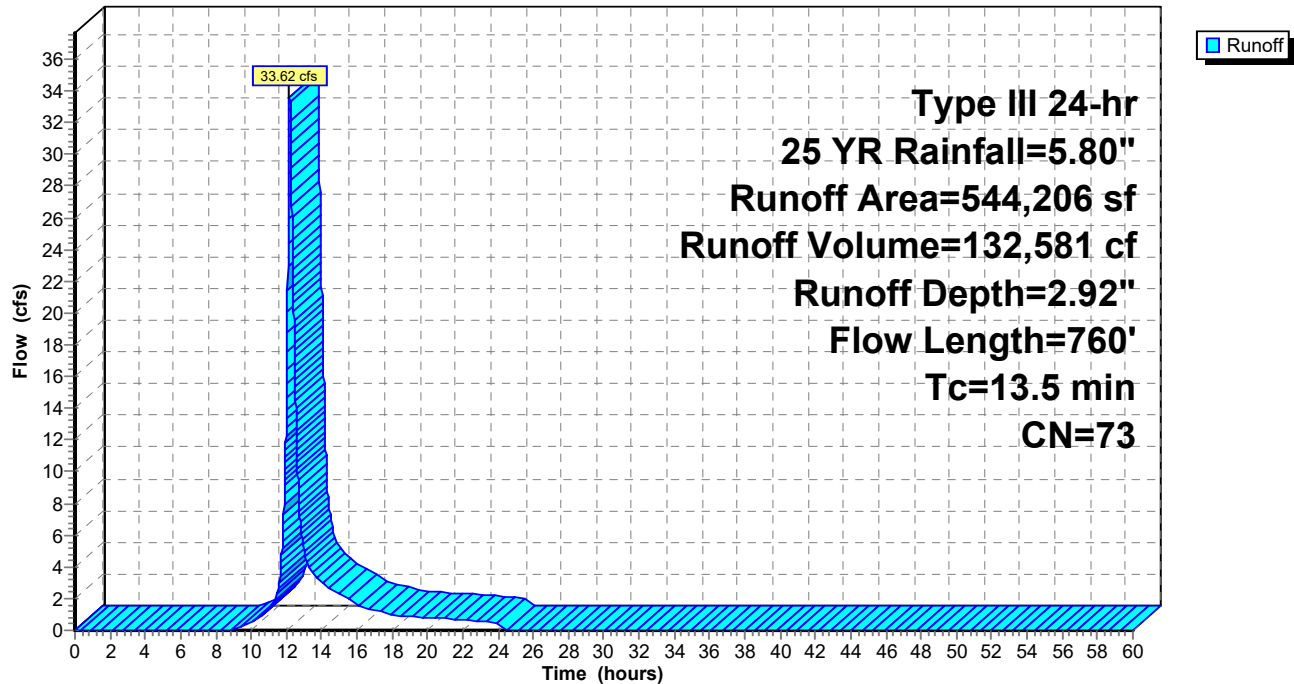
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Type III 24-hr 25 YR Rainfall=5.80"
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Subcatchment 1S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=544,206 sf
Runoff Volume=132,581 cf
Runoff Depth=2.92"
Flow Length=760'
Tc=13.5 min
CN=73

33.62 cfs

☐ Runoff

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 2S:

Runoff   =   26.38 cfs @   12.22 hrs, Volume=   111,014 cf, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	1,920	98	Pavement, HSG D
	169,764	80	Pasture/grassland/range, Good, HSG D
	231,386	74	Pasture/grassland/range, Good, HSG C
	403,070	77	Weighted Average
	401,150		99.52% Pervious Area
	1,920		0.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0600	0.18		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
1.6	180	0.0700	1.85		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
5.3	630	0.0800	1.98		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
16.2	910				Total

Subcatchment 2S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=403,070 sf
Runoff Volume=111,014 cf
Runoff Depth=3.31"
Flow Length=910'
Tc=16.2 min
CN=77

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 3S:

Runoff   =   27.15 cfs @ 12.26 hrs, Volume=   121,314 cf, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
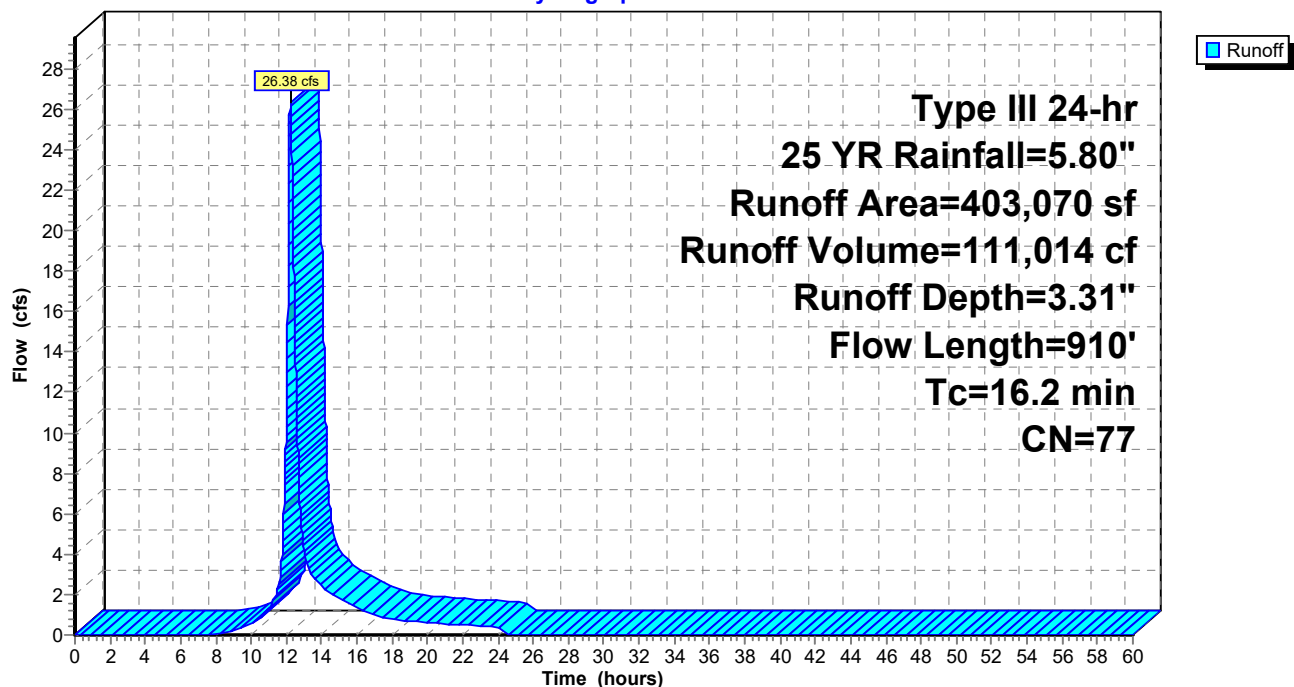Type III 24-hr 25 YR Rainfall=5.80"

Area (sf)	CN	Description
1,821	61	Pasture/grassland/range, Good, HSG B
236,312	74	Pasture/grassland/range, Good, HSG C
199,695	80	Pasture/grassland/range, Good, HSG D
411	96	Gravel surface, HSG D
731	98	Paved parking, HSG B
733	98	Paved parking, HSG C
765	98	Paved parking, HSG D
440,468	77	Weighted Average
438,239		99.49% Pervious Area
2,229		0.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0200	0.11		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
2.1	180	0.0400	1.40		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
2.1	315	0.1300	2.52		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
18.7	595	Total			

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Type III 24-hr 25 YR Rainfall=5.80"
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Subcatchment 3S:

Hydrograph

**Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=440,468 sf
Runoff Volume=121,314 cf
Runoff Depth=3.31"
Flow Length=595'
Tc=18.7 min
CN=77**

27.15 cfs

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 4S:
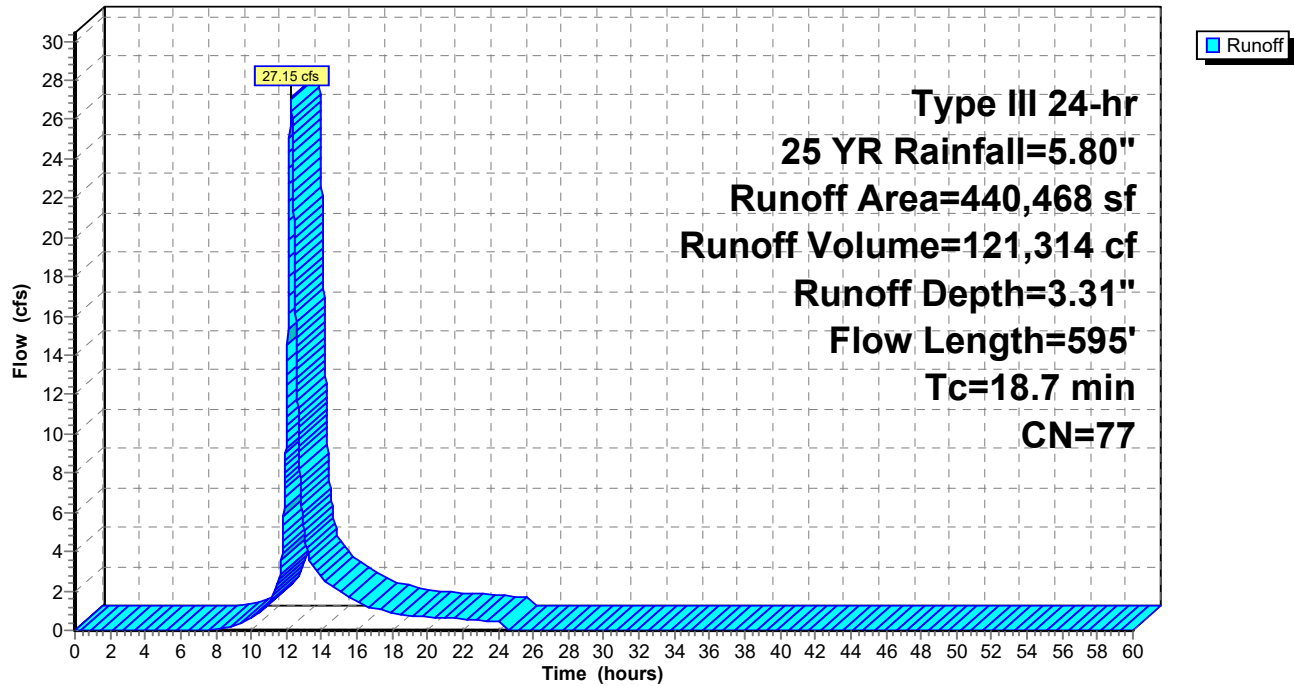
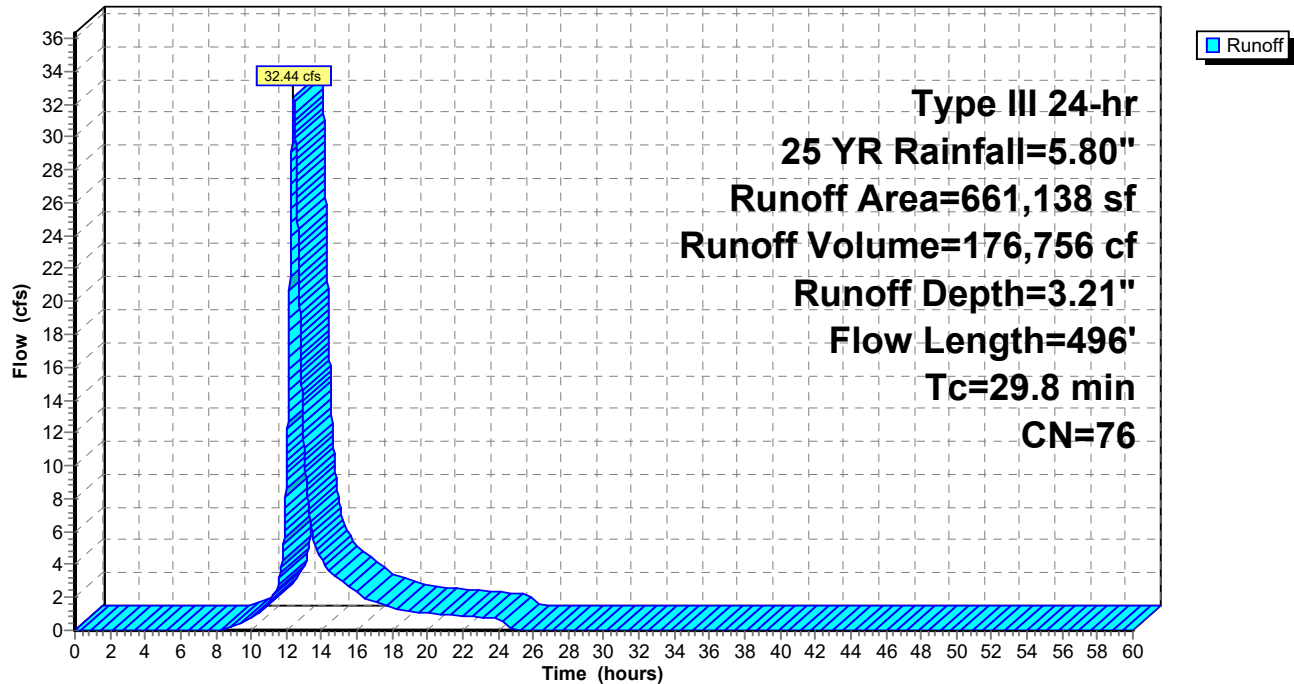Runoff   =   32.44 cfs @ 12.42 hrs, Volume=   176,756 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
	17,327	96	Gravel surface, HSG B
	13,834	96	Gravel surface, HSG C
	1,731	96	Gravel surface, HSG D
*	61,584	98	Roofs, HSG B
	9,364	98	Roofs, HSG C
*	46,167	98	Pavement, HSG B
*	16,330	98	Pavement, HSG C
*	7,378	98	Pavement, HSG D
	96,371	61	Pasture/grassland/range, Good, HSG B
	132,205	74	Pasture/grassland/range, Good, HSG C
	129,869	70	Woods, Good, HSG C
	78,543	61	>75% Grass cover, Good, HSG B
	43,604	74	>75% Grass cover, Good, HSG C
	6,831	80	>75% Grass cover, Good, HSG D
	661,138	76	Weighted Average
	520,315		78.70% Pervious Area
	140,823		21.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	100	0.0050	0.07		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
2.3	96	0.0100	0.70		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
2.3	300	0.1000	2.21		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
29.8	496		Total		

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Type III 24-hr 25 YR Rainfall=5.80"
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Subcatchment 4S:

Hydrograph

**Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=661,138 sf
Runoff Volume=176,756 cf
Runoff Depth=3.21"
Flow Length=496'
Tc=29.8 min
CN=76**

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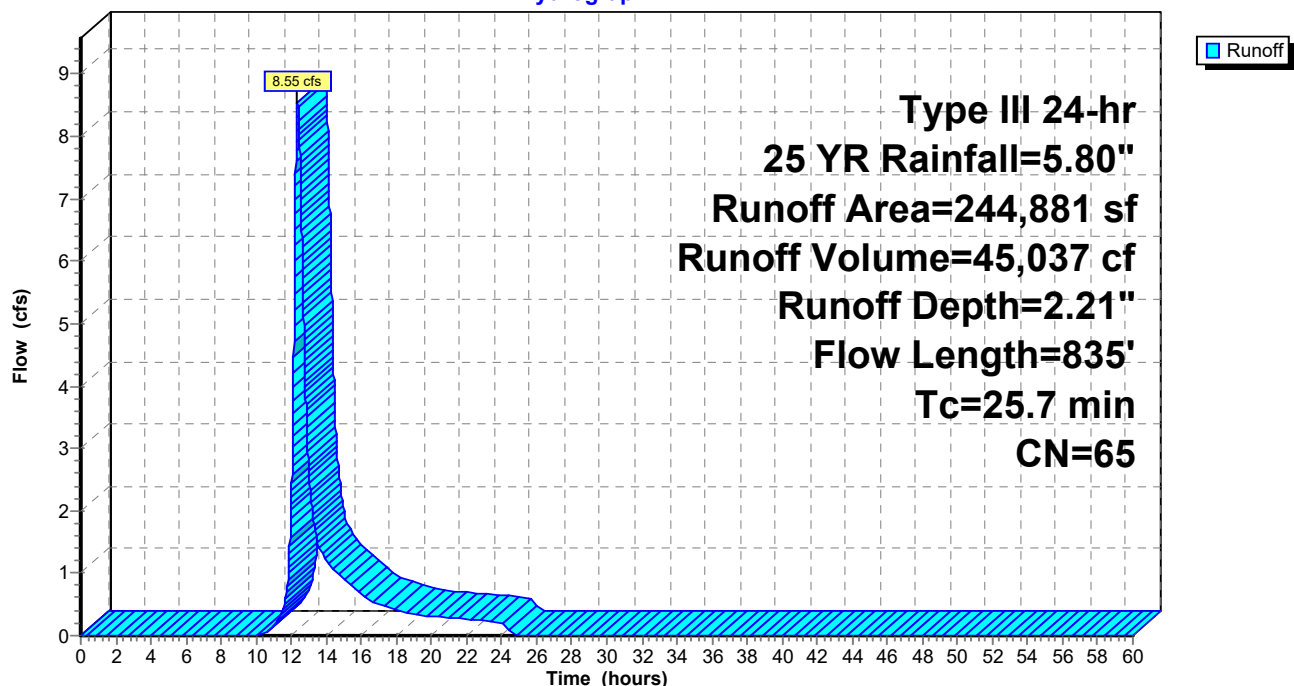## Summary for Subcatchment 5S:

Runoff   =   8.55 cfs @   12.37 hrs, Volume=   45,037 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

Area (sf)	CN	Description
151,819	61	Pasture/grassland/range, Good, HSG B
22,104	77	Woods, Good, HSG D
70,958	70	Woods, Good, HSG C
244,881	65	Weighted Average
244,881		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0100	0.09		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
5.3	500	0.0500	1.57		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.9	180	0.2200	3.28		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
0.4	55	0.0900	2.10		**Shallow Concentrated Flow, D-E**
					Short Grass Pasture Kv= 7.0 fps
25.7	835	Total			

Subcatchment 5S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=244,881 sf
Runoff Volume=45,037 cf
Runoff Depth=2.21"
Flow Length=835'
Tc=25.7 min
CN=65

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 6S:

Runoff   =   6.04 cfs @ 12.14 hrs, Volume=   21,593 cf, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

Area (sf)	CN	Description
60,637	77	Woods, Good, HSG D
13,593	80	>75% Grass cover, Good, HSG D
323	96	Gravel surface, HSG B
631	96	Gravel surface, HSG D
963	98	Paved parking, HSG D
76,147	78	Weighted Average
75,184		98.74% Pervious Area
963		1.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0700	0.19		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
1.2	155	0.1000	2.21		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.3	150	0.1200	8.25	824.91	**Channel Flow, C-D**
					Area= 100.0 sf Perim= 300.0' r= 0.33'
					n= 0.030 Earth, grassed & winding
10.3	405	Total			

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Type III 24-hr 25 YR Rainfall=5.80"
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Subcatchment 6S:

Hydrograph
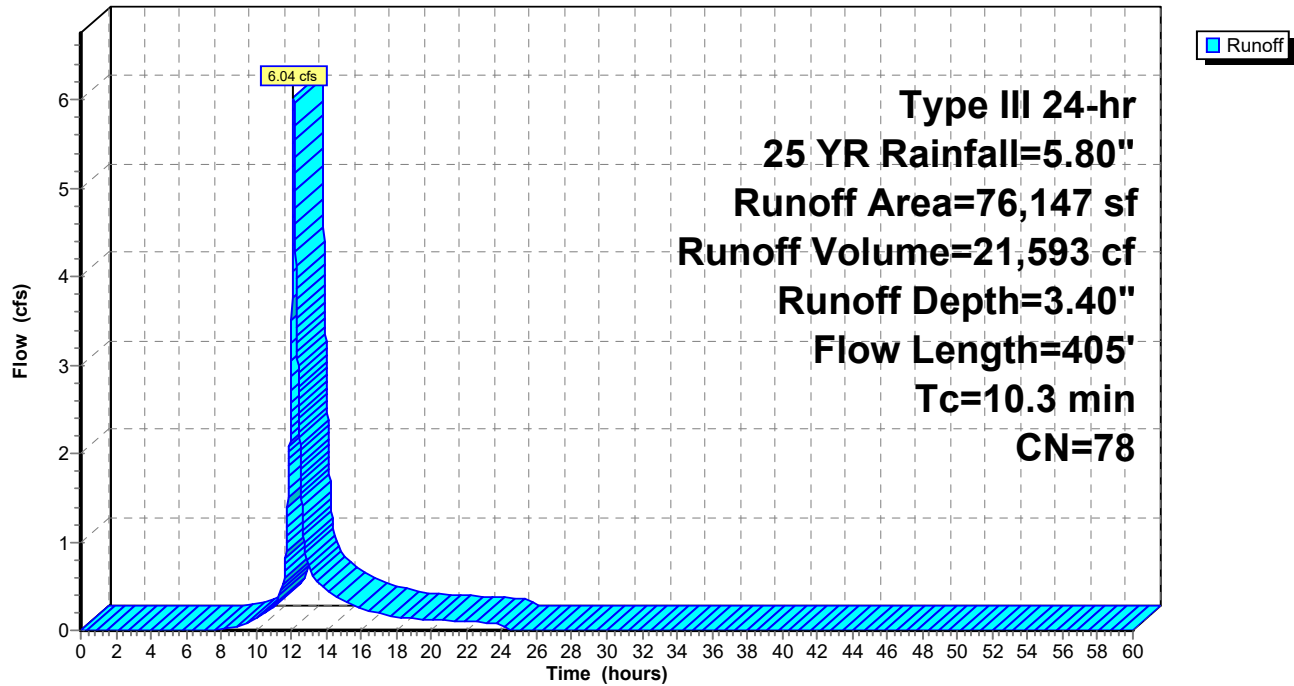
Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=76,147 sf
Runoff Volume=21,593 cf
Runoff Depth=3.40"
Flow Length=405'
Tc=10.3 min
CN=78

Summary for Subcatchment 7S:

Runoff   =   9.85 cfs @   12.16 hrs, Volume=   36,844 cf, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
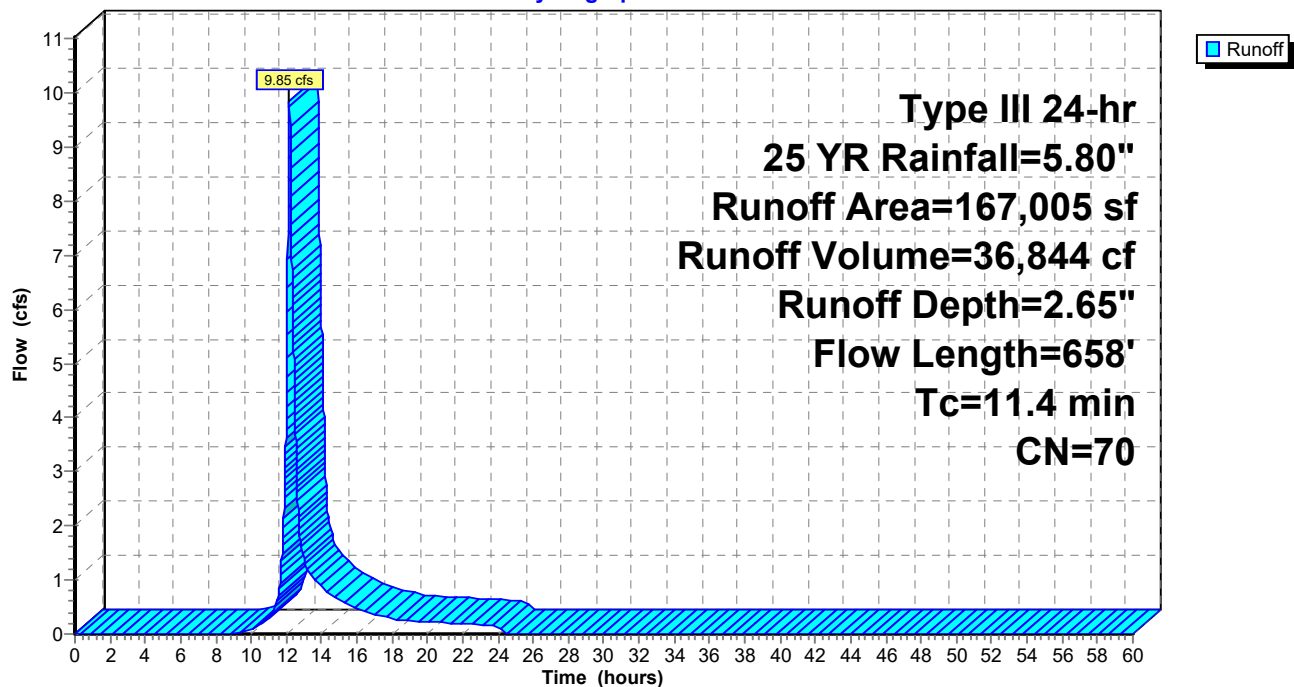Type III 24-hr 25 YR Rainfall=5.80"

Area (sf)	CN	Description
2,111	98	Roofs, HSG B
90,624	61	Pasture/grassland/range, Good, HSG B
67,035	80	Pasture/grassland/range, Good, HSG D
7,235	74	Pasture/grassland/range, Good, HSG C
167,005	70	Weighted Average
164,894		98.74% Pervious Area
2,111		1.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	35	0.0200	0.09		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
5.0	523	0.0630	1.76		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.1	100	0.1800	26.46	846.74	**Trap/Vee/Rect Channel Flow,**
					Bot.W=10.00' D=2.00' Z= 3.0 '/' Top.W=22.00'
					n= 0.030 Earth, grassed & winding
11.4	658	Total			

Subcatchment 7S:

Hydrograph

Summary for Subcatchment 8S:

Runoff   =   11.12 cfs @ 12.34 hrs, Volume=   56,116 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	6,125	98	Roofs, HSG D
*	4,067	98	Roofs, HSG B
	17,062	96	Gravel surface, HSG B
	48,929	61	Pasture/grassland/range, Good, HSG B
	67,673	80	>75% Grass cover, Good, HSG D
	22,118	98	Water Surface, HSG D
	527	96	Gravel surface, HSG D
	43,397	61	>75% Grass cover, Good, HSG B
	209,898	76	Weighted Average
	177,588		84.61% Pervious Area
	32,310		15.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	25	0.0010	0.31		**Sheet Flow, A-B GRAVEL WALKWAY**
					Smooth surfaces n= 0.011 P2= 3.10"
15.2	75	0.0100	0.08		**Sheet Flow, B-C**
					Grass: Dense n= 0.240 P2= 3.10"
4.4	185	0.0100	0.70		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
0.2	15	0.0100	1.61		**Shallow Concentrated Flow, D-E**
					Unpaved Kv= 16.1 fps
3.7	350	0.0500	1.57		**Shallow Concentrated Flow, E-F**
					Short Grass Pasture Kv= 7.0 fps
0.1	20	0.4500	4.70		**Shallow Concentrated Flow, F-G**
					Short Grass Pasture Kv= 7.0 fps
24.9	670	Total			

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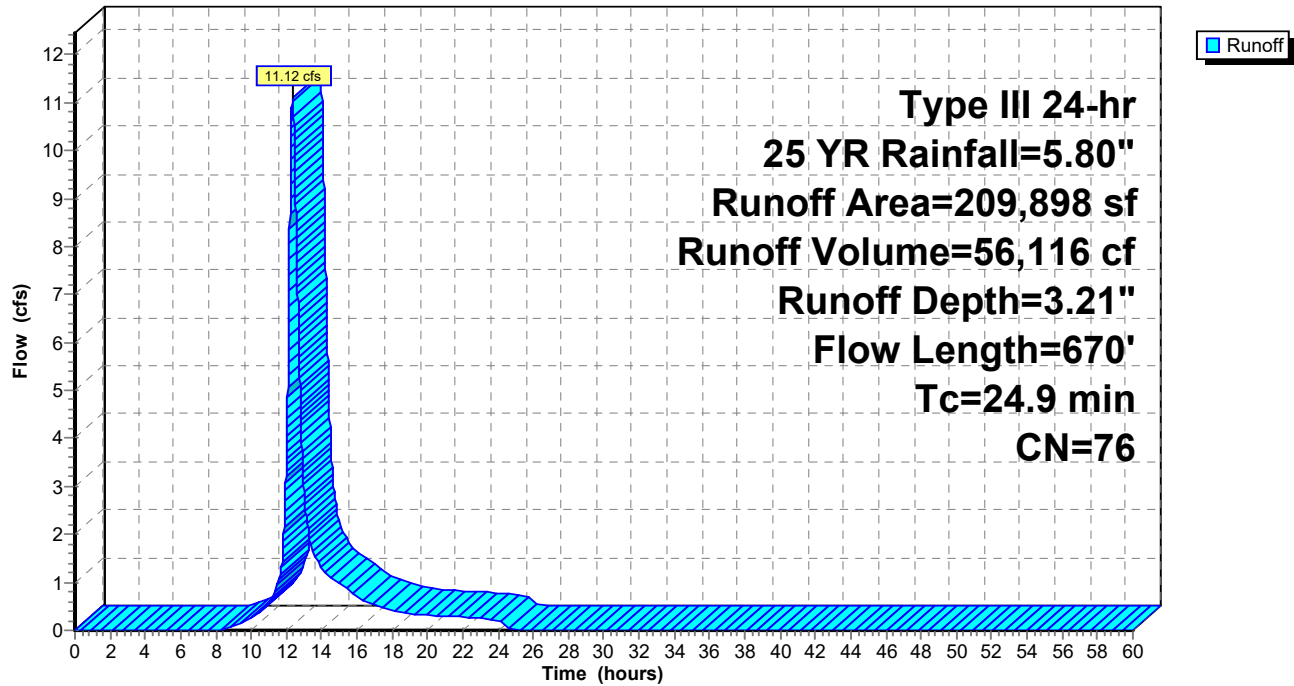*Type III 24-hr 25 YR Rainfall=5.80"*
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Subcatchment 8S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=209,898 sf
Runoff Volume=56,116 cf
Runoff Depth=3.21"
Flow Length=670'
Tc=24.9 min
CN=76

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 9S:

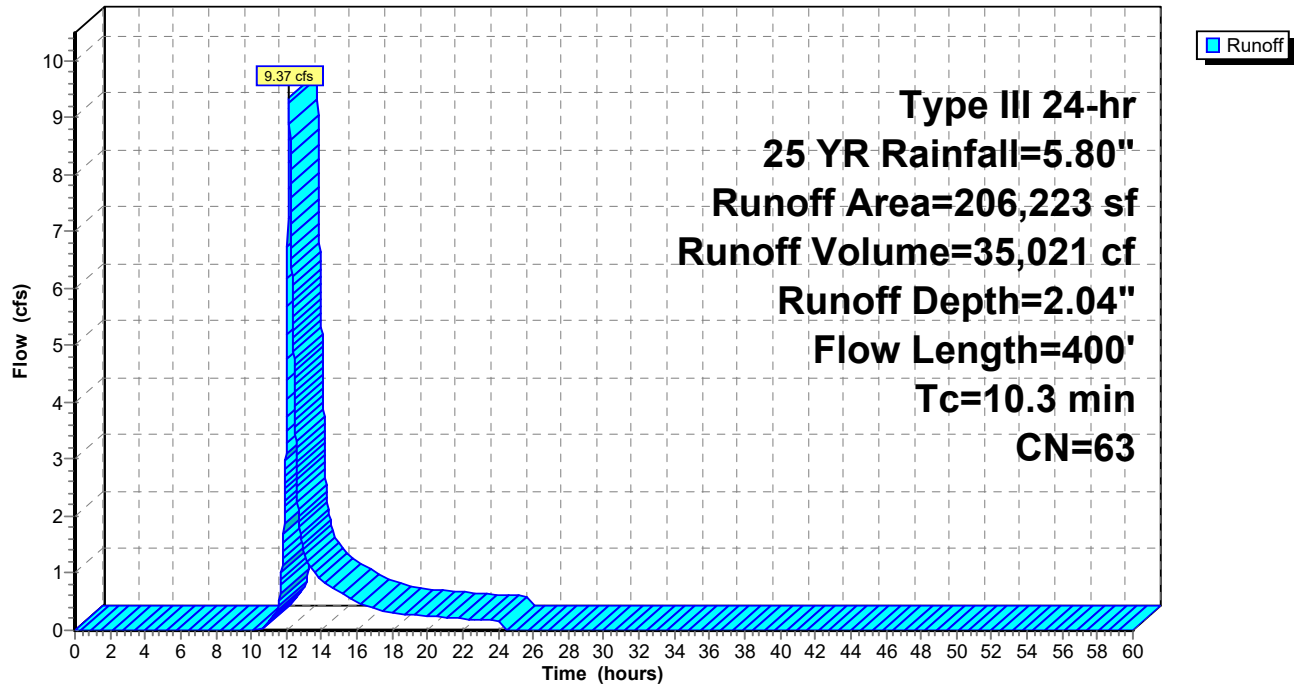Runoff   =   9.37 cfs @ 12.15 hrs, Volume=   35,021 cf, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
	115,309	61	Pasture/grassland/range, Good, HSG B
	2,980	80	Pasture/grassland/range, Good, HSG D
	6,149	96	Gravel surface, HSG B
	1,220	96	Gravel surface, HSG D
*	12,462	98	Pavement, HSG B
*	954	98	Pavement, HSG D
	66,680	55	Woods, Good, HSG B
	469	77	Woods, Good, HSG D
	206,223	63	Weighted Average
	192,807		93.49% Pervious Area
	13,416		6.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	63	0.0300	0.12		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
0.2	22	0.0100	1.61		**Shallow Concentrated Flow, B-C**
					Unpaved Kv= 16.1 fps
1.6	315	0.0950	3.28	26.24	**Trap/Vee/Rect Channel Flow, CD**
					Bot.W=3.00' D=1.00' Z= 5.0 '/' Top.W=13.00'
					n= 0.100 Earth, dense brush, high stage
10.3	400				Total

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Type III 24-hr 25 YR Rainfall=5.80"
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Subcatchment 9S:

Hydrograph

**Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=206,223 sf
Runoff Volume=35,021 cf
Runoff Depth=2.04"
Flow Length=400'
Tc=10.3 min
CN=63**

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 10S:

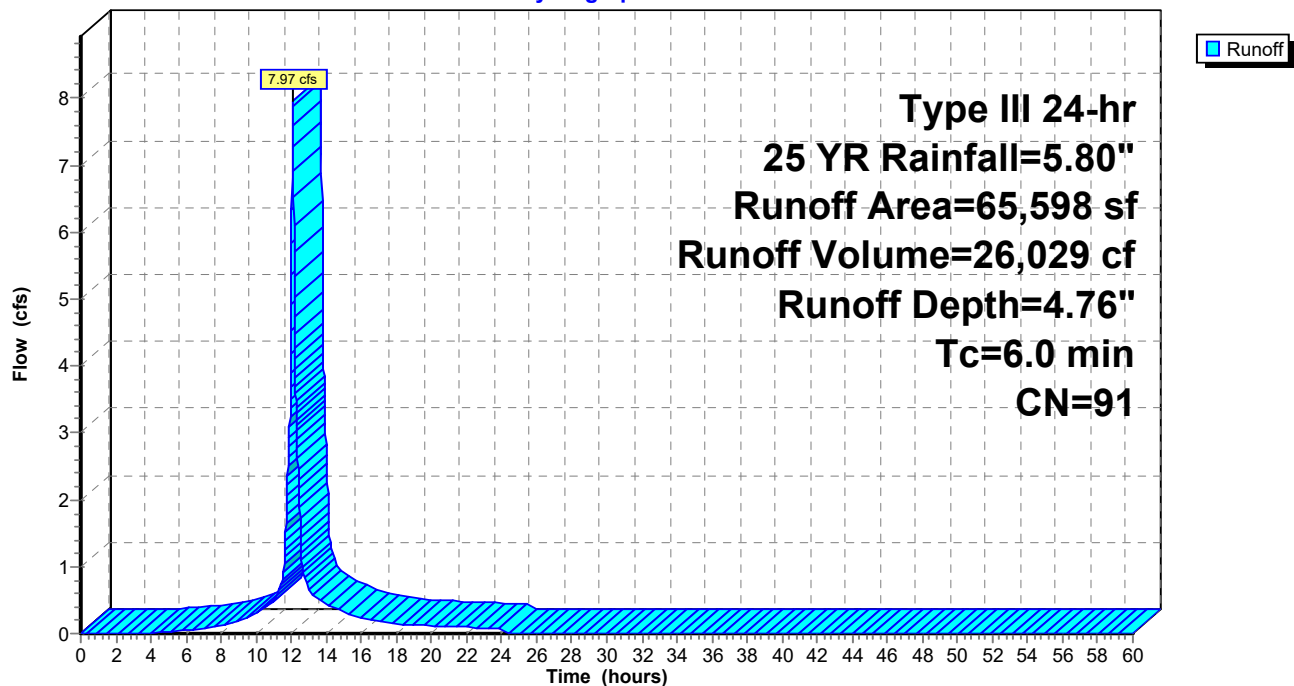Runoff   =   7.97 cfs @   12.08 hrs, Volume=   26,029 cf, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	40,628	98	Pavement, HSG B
	12,913	61	>75% Grass cover, Good, HSG B
	10,759	98	Roofs, HSG B
	1,298	96	Gravel surface, HSG B
	65,598	91	Weighted Average
	14,211		21.66% Pervious Area
	51,387		78.34% Impervious Area

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

Subcatchment 10S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=65,598 sf
Runoff Volume=26,029 cf
Runoff Depth=4.76"
Tc=6.0 min
CN=91

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 11S:

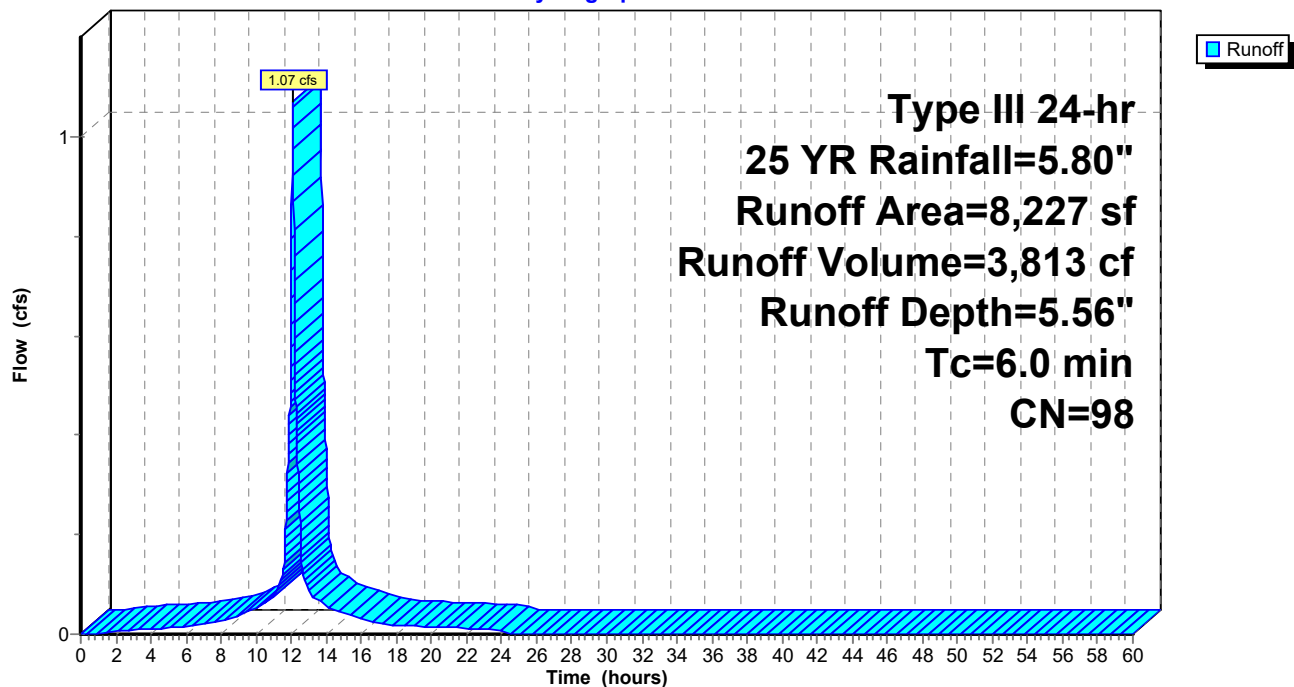Runoff   =   1.07 cfs @   12.08 hrs, Volume=   3,813 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	8,227	98	Roofs, HSG B
	8,227		100.00% Impervious Area

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

Subcatchment 11S:

Summary for Subcatchment 12S:

Runoff   =   7.03 cfs @   12.08 hrs, Volume=   24,218 cf, Depth= 5.33"
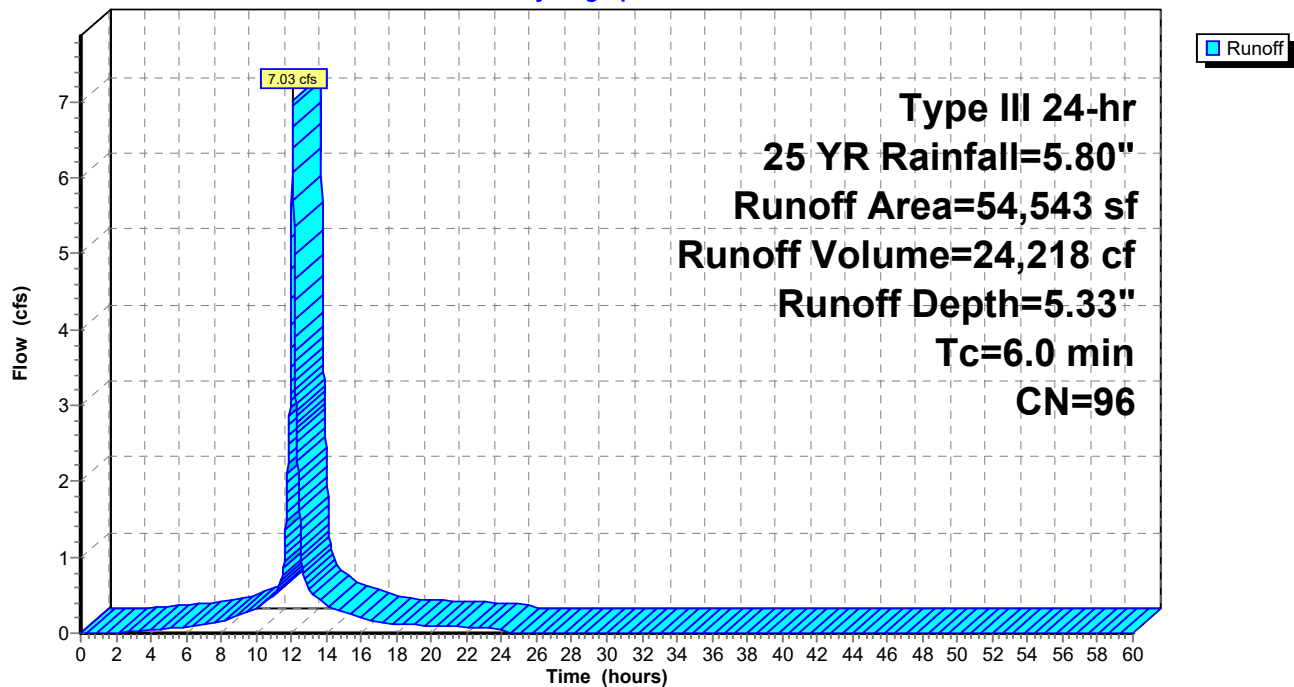
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	50,455	98	Pavement, HSG B
	3,300	61	>75% Grass cover, Good, HSG B
	788	98	Roofs, HSG B
	54,543	96	Weighted Average
	3,300		6.05% Pervious Area
	51,243		93.95% Impervious Area

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

Subcatchment 12S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=54,543 sf
Runoff Volume=24,218 cf
Runoff Depth=5.33"
Tc=6.0 min
CN=96

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 13S:

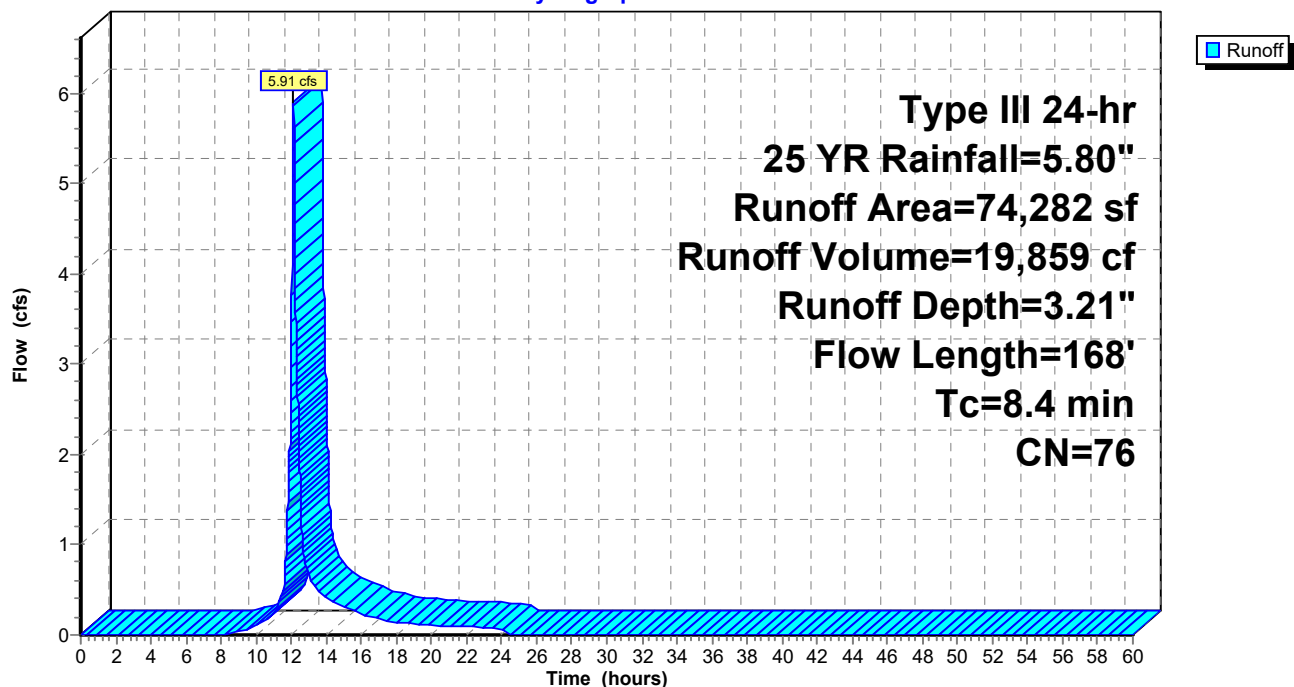Runoff   =   5.91 cfs @ 12.12 hrs, Volume=   19,859 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
	43,776	61	>75% Grass cover, Good, HSG B
*	16,676	98	Roofs, HSG B
	2,485	96	Gravel surface, HSG B
*	11,345	98	Pavement, HSG B
	74,282	76	Weighted Average
	46,261		62.28% Pervious Area
	28,021		37.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.1000	0.22		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
0.7	68	0.0580	1.69		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.1					**Direct Entry, DIRECT ENTRY**
8.4	168				Total

Subcatchment 13S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=74,282 sf
Runoff Volume=19,859 cf
Runoff Depth=3.21"
Flow Length=168'
Tc=8.4 min
CN=76

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 14S:

Runoff   =   2.57 cfs @ 12.16 hrs, Volume=   9,533 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
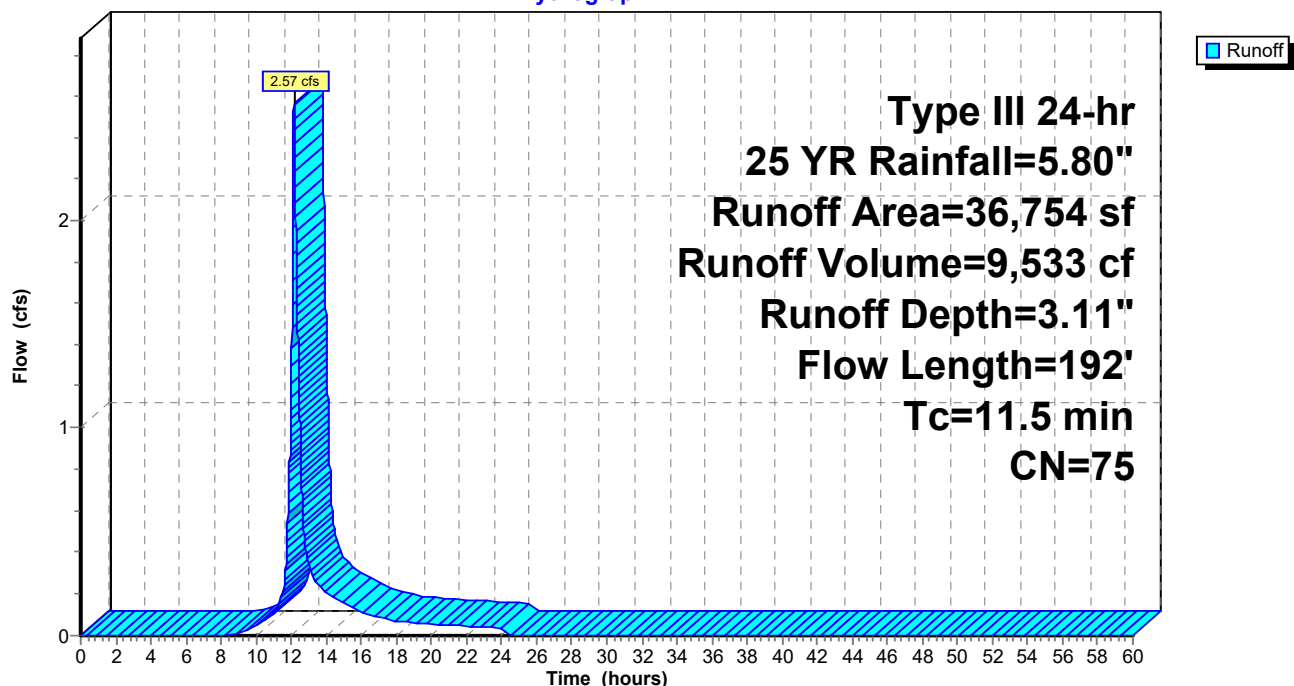Type III 24-hr 25 YR Rainfall=5.80"

Area (sf)	CN	Description
10,524	61	Pasture/grassland/range, Good, HSG B
1,728	80	Pasture/grassland/range, Good, HSG D
2,959	96	Gravel surface, HSG B
433	96	Gravel surface, HSG D
9,922	55	Woods, Good, HSG B
11,188	98	Water Surface, HSG B
36,754	75	Weighted Average
25,566		69.56% Pervious Area
11,188		30.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
1.5	92	0.0430	1.04		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
11.5	192	Total			

Subcatchment 14S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=36,754 sf
Runoff Volume=9,533 cf
Runoff Depth=3.11"
Flow Length=192'
Tc=11.5 min
CN=75

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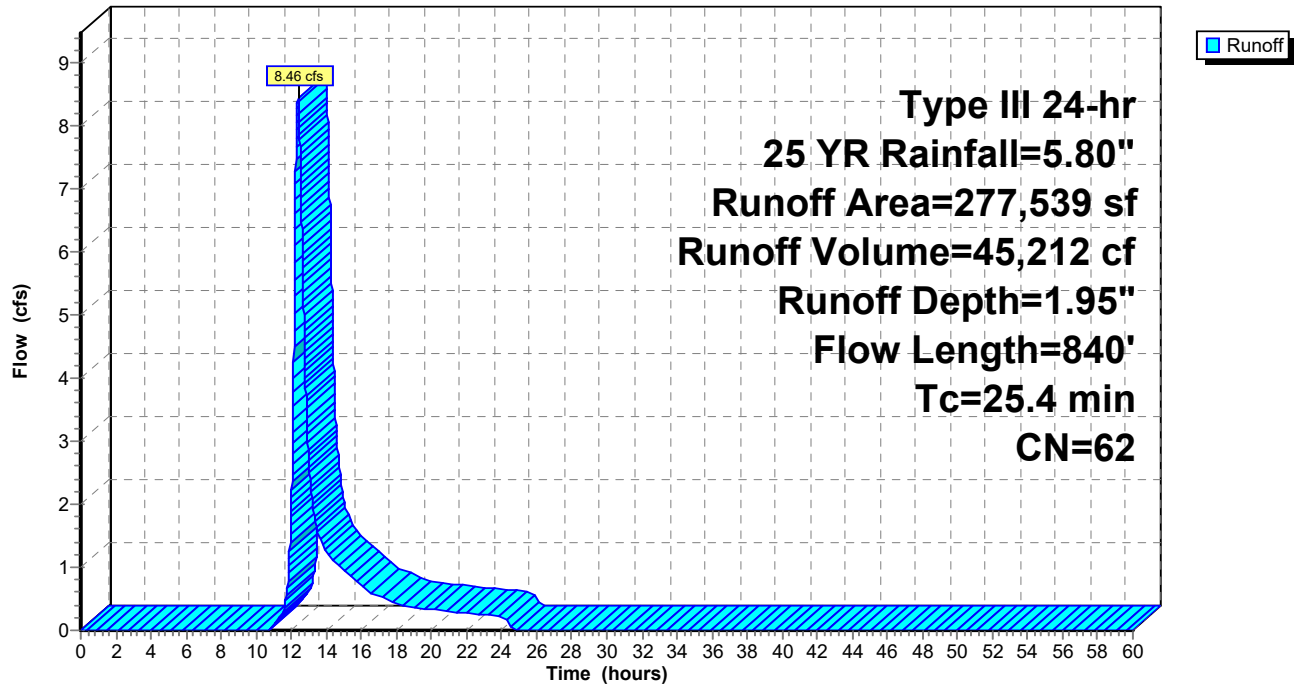*Type III 24-hr 25 YR Rainfall=5.80"*
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Summary for Subcatchment 15S:

Runoff   =   8.46 cfs @ 12.39 hrs, Volume=   45,212 cf, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

Area (sf)	CN	Description
134,899	55	Woods, Good, HSG B
60,617	58	Meadow, non-grazed, HSG B
* 9,214	98	Pavement, HSG B
11,159	96	Gravel surface, HSG B
10,555	79	Woods/grass comb., Good, HSG D
37,045	61	>75% Grass cover, Good, HSG B
9,909	77	Woods, Good, HSG D
4,016	80	>75% Grass cover, Good, HSG D
125	96	Gravel surface, HSG D
277,539	62	Weighted Average
268,325		96.68% Pervious Area
9,214		3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	10	0.0010	0.26		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.10"
15.2	75	0.0100	0.08		**Sheet Flow, B-C**
					Grass: Dense n= 0.240 P2= 3.10"
2.2	170	0.0350	1.31		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0350	3.01		**Shallow Concentrated Flow, D-E**
					Unpaved Kv= 16.1 fps
2.8	250	0.0450	1.48		**Shallow Concentrated Flow, E-F**
					Short Grass Pasture Kv= 7.0 fps
4.4	290	0.0480	1.10		**Shallow Concentrated Flow, F-G**
					Woodland Kv= 5.0 fps
25.4	840	Total			

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Type III 24-hr 25 YR Rainfall=5.80"
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Subcatchment 15S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=277,539 sf
Runoff Volume=45,212 cf
Runoff Depth=1.95"
Flow Length=840'
Tc=25.4 min
CN=62

8.46 cfs

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 16S:
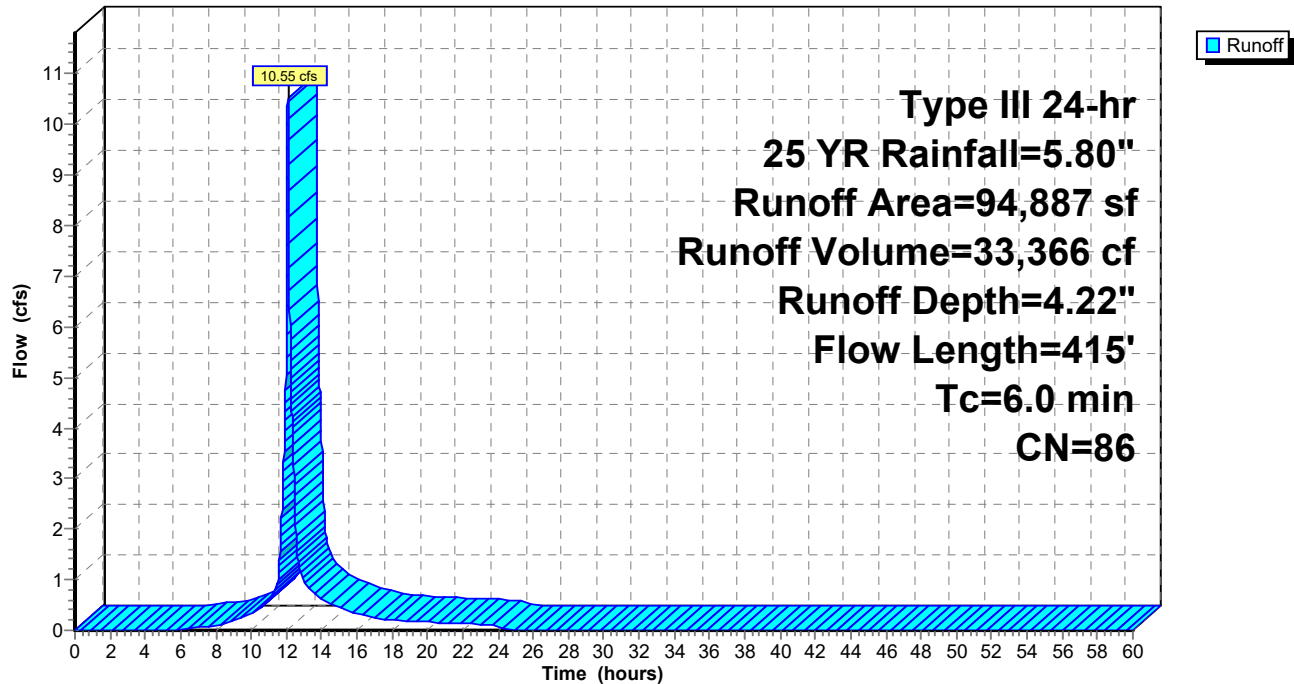
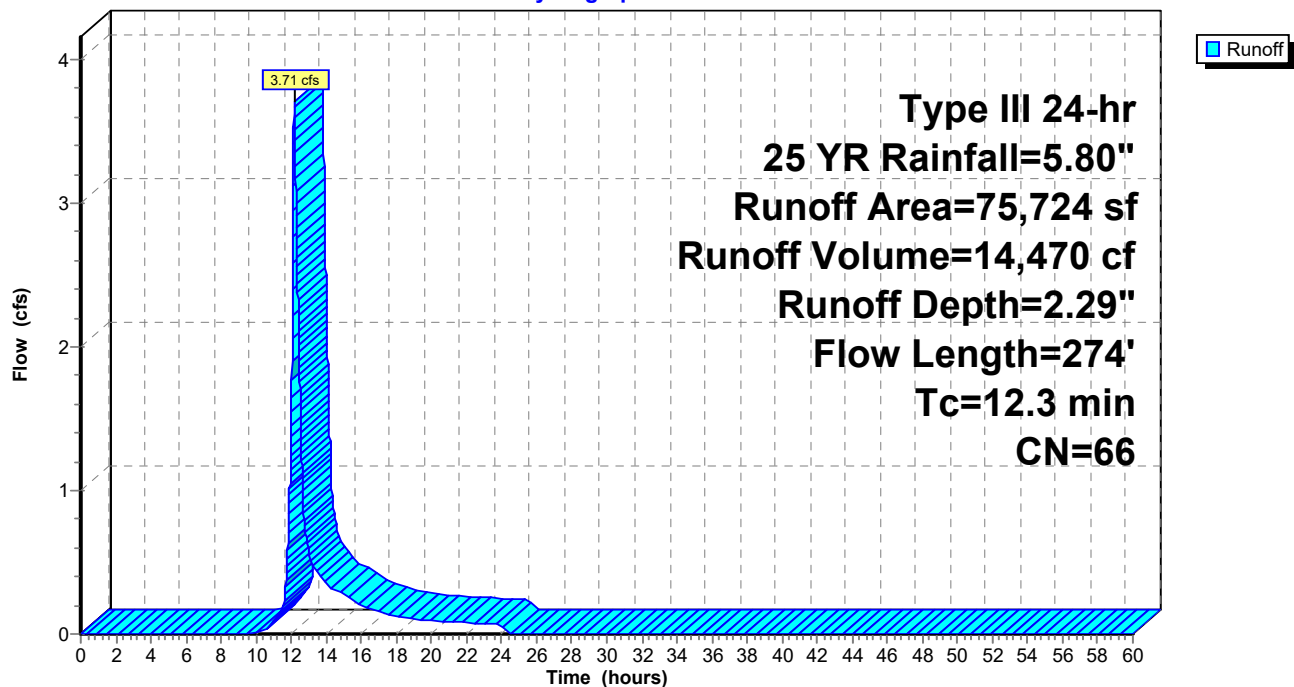Runoff   =   10.55 cfs @ 12.09 hrs, Volume=   33,366 cf, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	28,357	98	Pavement, HSG B
*	19,665	98	Pavement, HSG D
	17,187	80	>75% Grass cover, Good, HSG D
	22,545	61	>75% Grass cover, Good, HSG B
	3,984	96	Gravel surface, HSG B
	3,149	98	Roofs, HSG B
	94,887	86	Weighted Average
	43,716		46.07% Pervious Area
	51,171		53.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0280	1.55		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.10"
1.7	285	0.0200	2.87		**Shallow Concentrated Flow, B-C**
					Paved Kv= 20.3 fps
0.5	30	0.0200	0.99		**Shallow Concentrated Flow, C-D**
					Short Grass Pasture Kv= 7.0 fps
2.7					**Direct Entry, DIRECT ENTRY**
6.0	415	Total			

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Type III 24-hr 25 YR Rainfall=5.80"
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Subcatchment 16S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=94,887 sf
Runoff Volume=33,366 cf
Runoff Depth=4.22"
Flow Length=415'
Tc=6.0 min
CN=86

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 17S:

Runoff   =   3.71 cfs @ 12.18 hrs, Volume=   14,470 cf, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
	37,362	55	Woods, Good, HSG B
	25,484	77	Woods, Good, HSG D
	5,958	80	Pasture/grassland/range, Good, HSG D
	5,559	61	Pasture/grassland/range, Good, HSG B
	357	96	Gravel surface, HSG D
	90	96	Gravel surface, HSG B
*	914	98	Pavement, HSG D
	75,724	66	Weighted Average
	74,810		98.79% Pervious Area
	914		1.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0550	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
2.6	174	0.0510	1.13		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.3	274	Total			

Subcatchment 17S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=75,724 sf
Runoff Volume=14,470 cf
Runoff Depth=2.29"
Flow Length=274'
Tc=12.3 min
CN=66

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 18S:

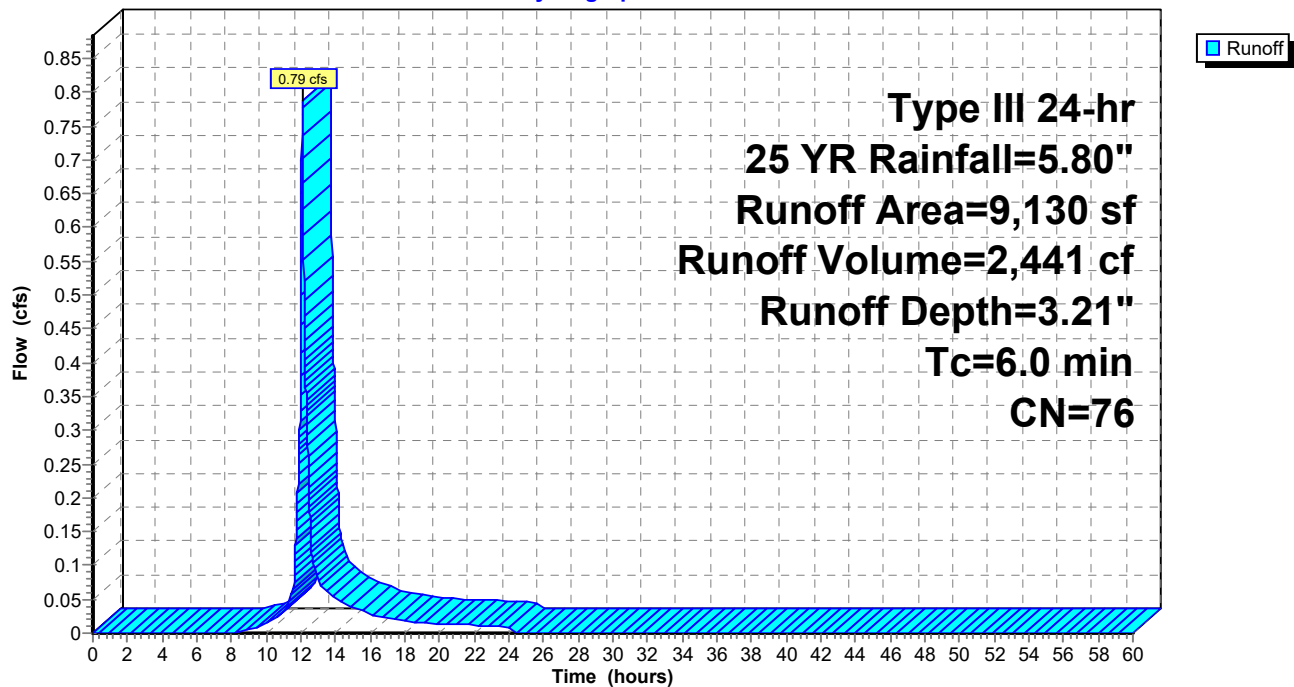Runoff   =   0.79 cfs @ 12.09 hrs, Volume=   2,441 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	6,983	80	>75% Grass cover, Good, HSG D
*	2,147	61	>75% Grass cover, Good, HSG B
	9,130	76	Weighted Average
	9,130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TC Time < 6 Mins**

Subcatchment 18S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=9,130 sf
Runoff Volume=2,441 cf
Runoff Depth=3.21"
Tc=6.0 min
CN=76

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 19S:

Runoff   =   1.48 cfs @   12.08 hrs, Volume=   5,052 cf, Depth= 5.21"
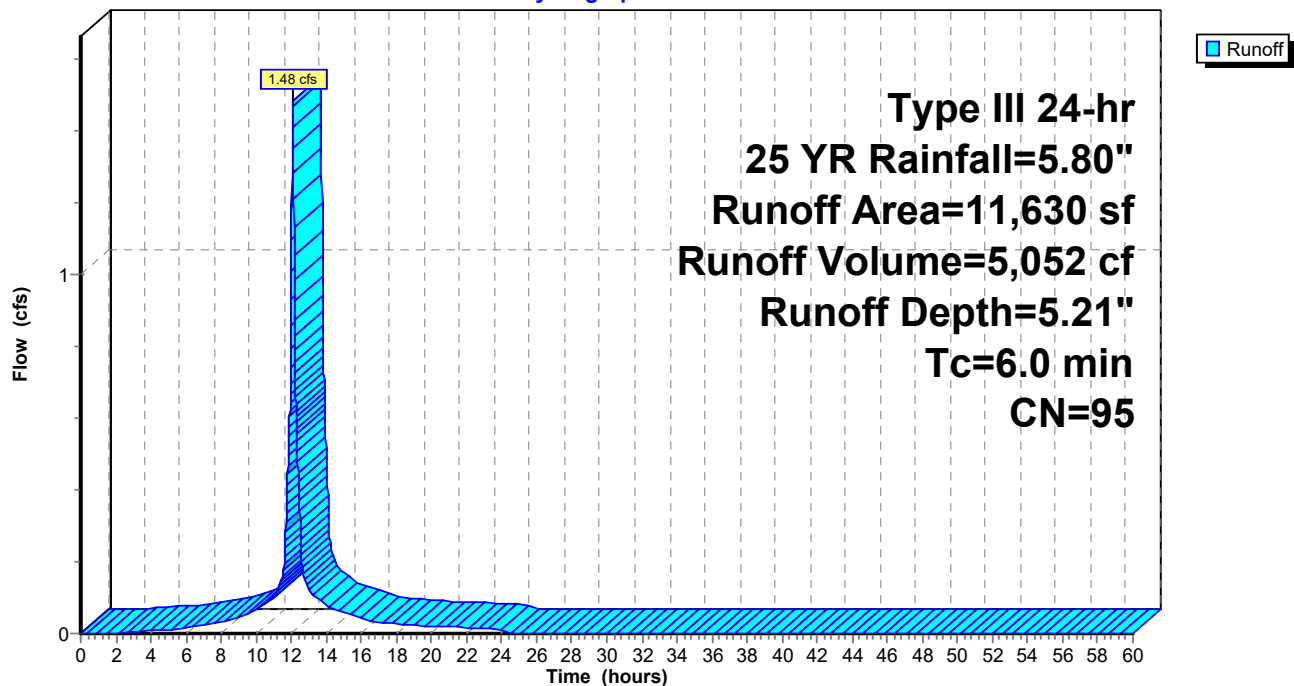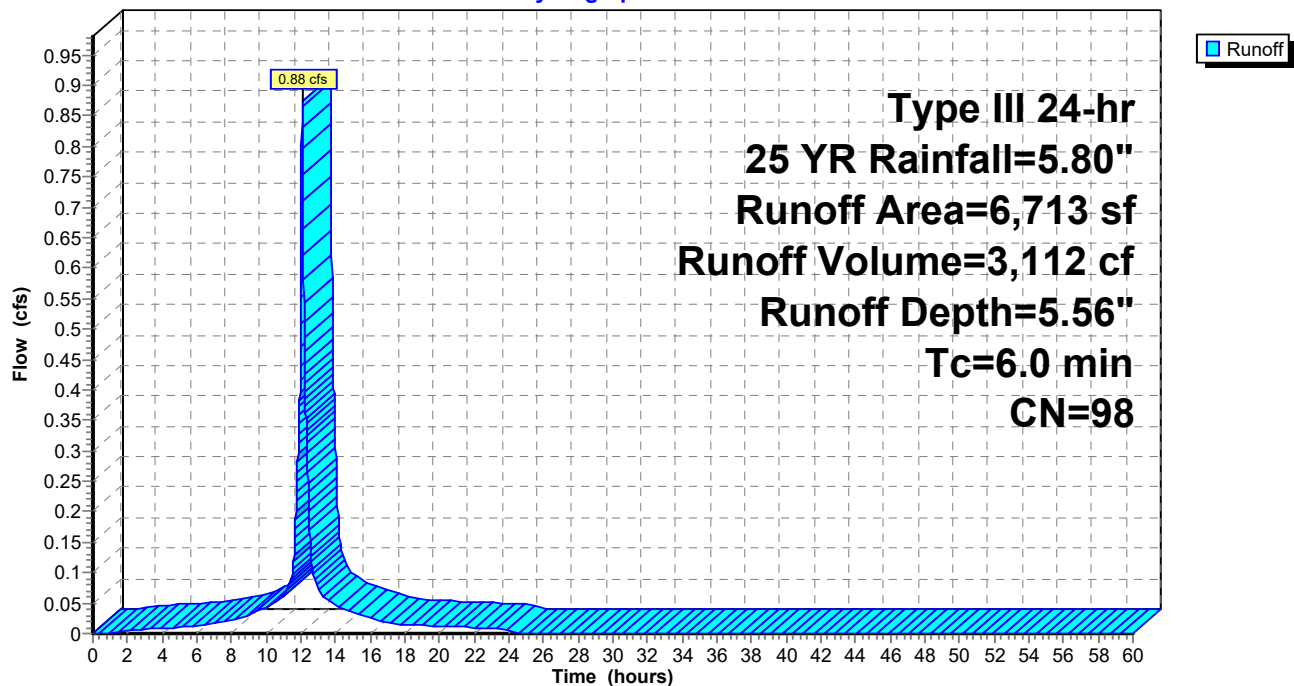
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
	9,482	98	Roofs, HSG D
*	2,148	80	riprap, HSG D
	11,630	95	Weighted Average
	2,148		18.47% Pervious Area
	9,482		81.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TC Time < 6 Mins**

Subcatchment 19S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=11,630 sf
Runoff Volume=5,052 cf
Runoff Depth=5.21"
Tc=6.0 min
CN=95

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Summary for Subcatchment 20S:

Runoff   =   0.88 cfs @ 12.08 hrs, Volume=   3,112 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	4,883	98	Pavement, HSG D
	1,787	98	Roofs, HSG D
*	43	98	Paved parking, HSG D concrete
	6,713	98	Weighted Average
	6,713		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TC < 6 Mins**

Subcatchment 20S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=6,713 sf
Runoff Volume=3,112 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 21S:

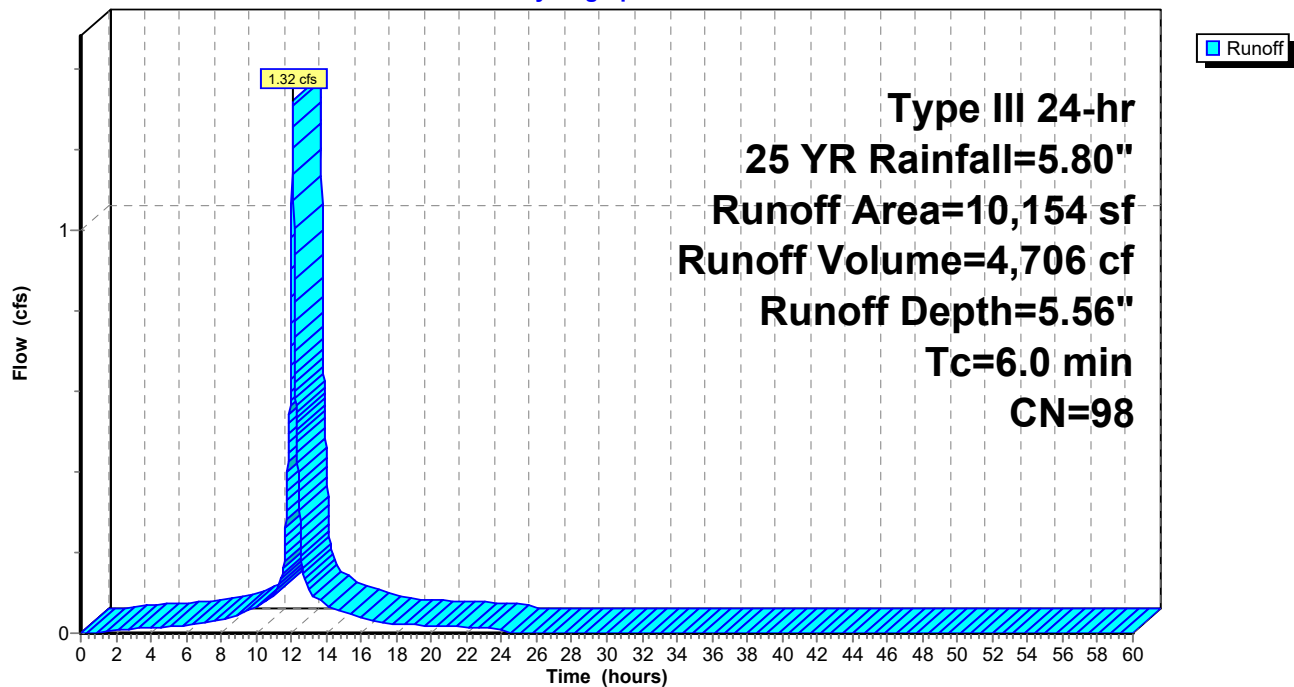Runoff   =   1.32 cfs @   12.08 hrs, Volume=   4,706 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	5,824	98	Pavement, HSG D
	3,884	98	Roofs, HSG D
*	446	98	Unconnected pavement, HSG D concrete
	10,154	98	Weighted Average
	10,154		100.00% Impervious Area
	446		4.39% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TC < 6 Mins**

Subcatchment 21S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=10,154 sf
Runoff Volume=4,706 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 22S:

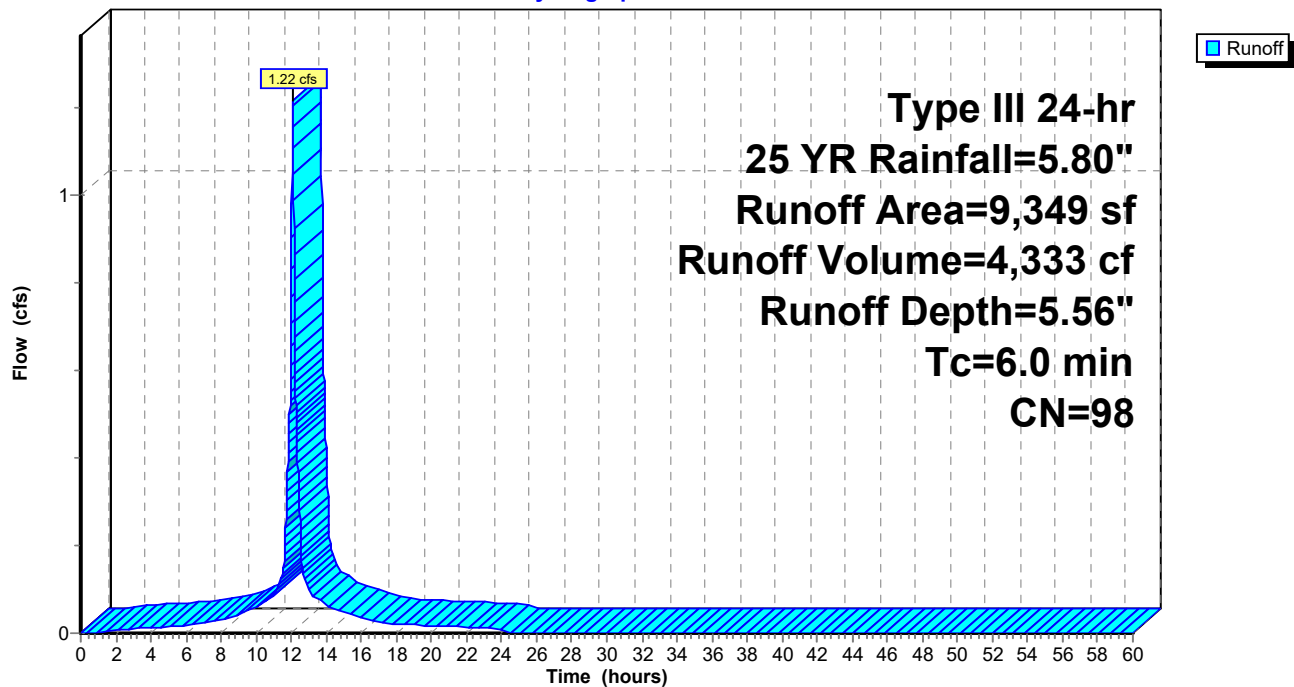Runoff   =   1.22 cfs @ 12.08 hrs, Volume=   4,333 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
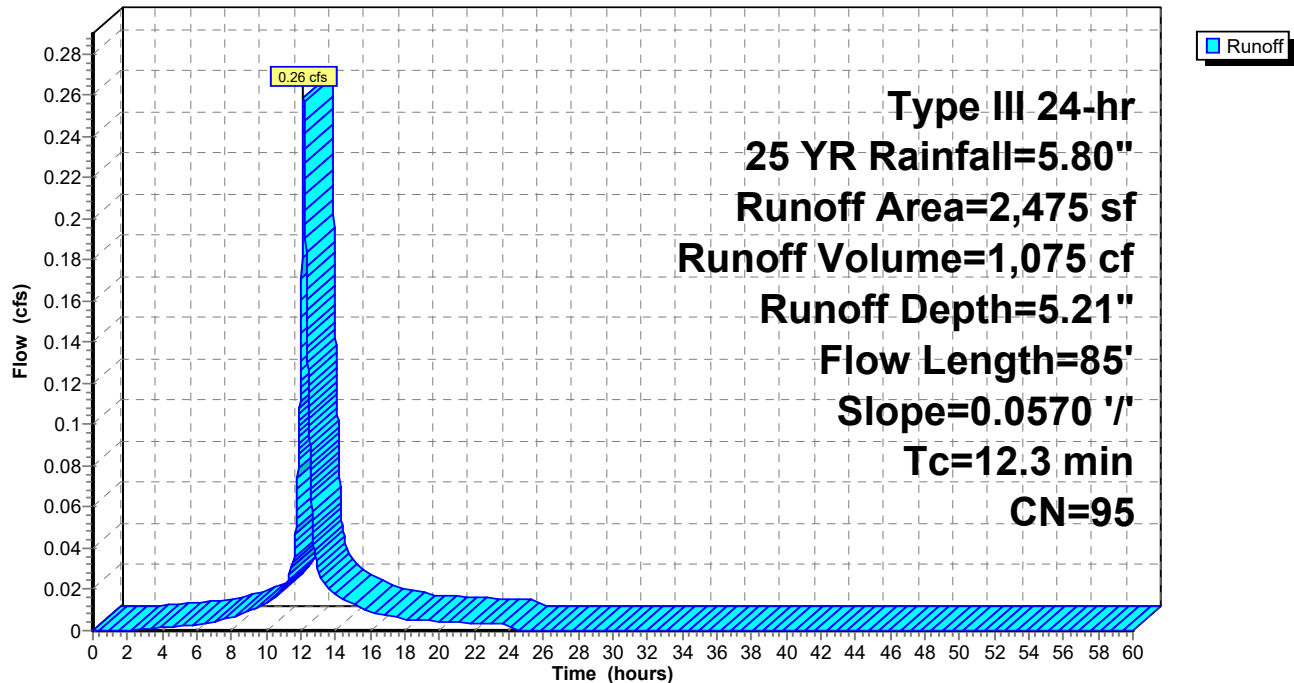Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	5,597	98	Pavement, HSG D
	3,633	98	Roofs, HSG D
*	119	98	Unconnected pavement, HSG D concrete
	9,349	98	Weighted Average
	9,349		100.00% Impervious Area
	119		1.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TC < 6 Mins**

Subcatchment 22S:

Hydrograph

1.22 cfs

**Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=9,349 sf
Runoff Volume=4,333 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98**

☐ Runoff

Flow (cfs)

Time (hours)

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 23S: Utility pad

Runoff   =   0.26 cfs @ 12.16 hrs, Volume=   1,075 cf, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	2,040	98	Paved parking, HSG D concrete
*	435	80	>75% Grass cover, Good, HSG D
	2,475	95	Weighted Average
	435		17.58% Pervious Area
	2,040		82.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	35	0.0570	0.14		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
8.2	50	0.0570	0.10		**Sheet Flow, B-C**
					Woods: Light underbrush n= 0.400 P2= 3.10"
12.3	85	Total			

Subcatchment 23S: Utility pad

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=2,475 sf
Runoff Volume=1,075 cf
Runoff Depth=5.21"
Flow Length=85'
Slope=0.0570 '/'
Tc=12.3 min
CN=95

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 24S:

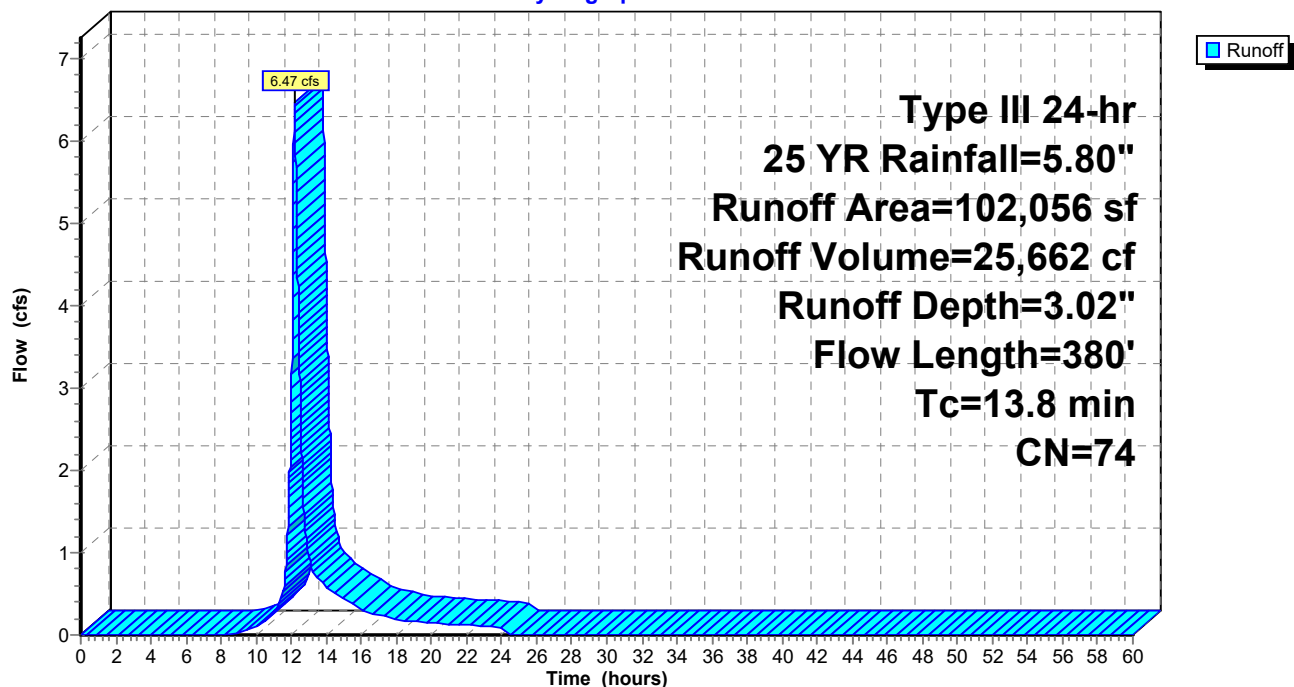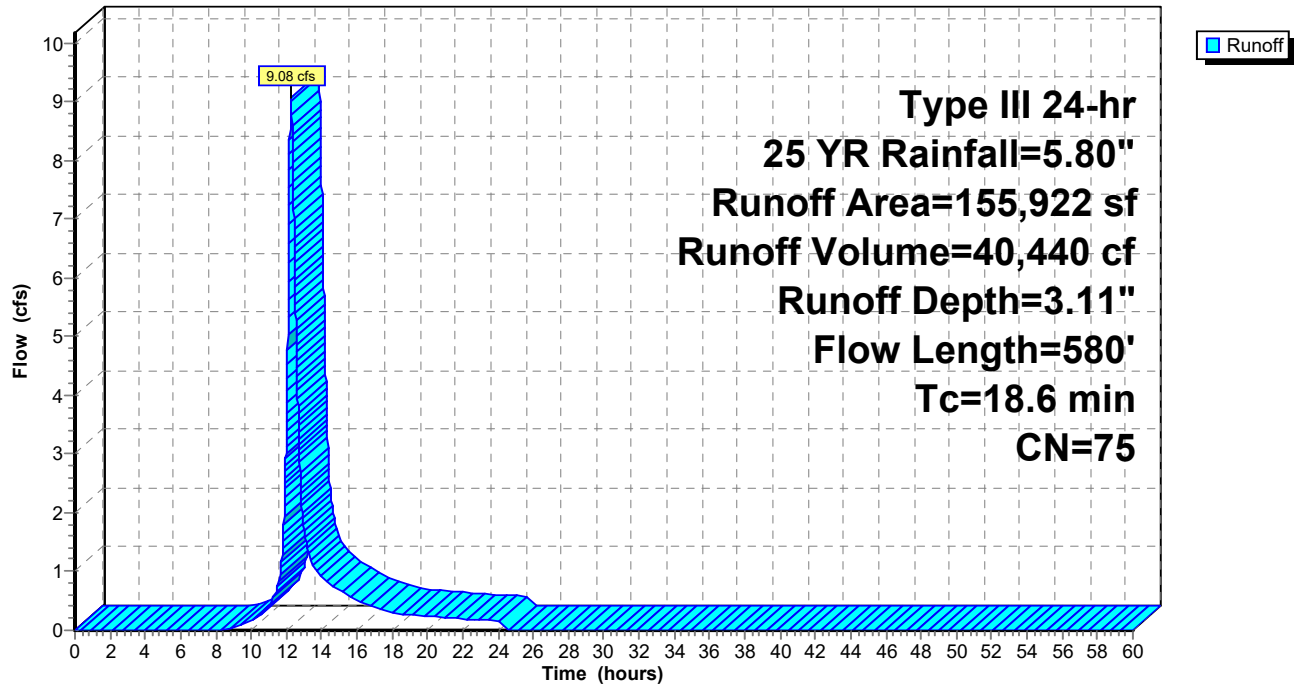Runoff   =   6.47 cfs @ 12.19 hrs, Volume=   25,662 cf, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
*	5,454	96	Gravel surface, HSG B
*	1,798	96	Gravel surface, HSG D
	47,332	61	>75% Grass cover, Good, HSG B
	39,354	80	>75% Grass cover, Good, HSG D
	8,118	98	Roofs, HSG B
	102,056	74	Weighted Average
	93,938		92.05% Pervious Area
	8,118		7.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
3.8	280	0.0300	1.21		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
13.8	380	Total			

Subcatchment 24S:

Hydrograph

**Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=102,056 sf
Runoff Volume=25,662 cf
Runoff Depth=3.02"
Flow Length=380'
Tc=13.8 min
CN=74**

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 25S:

Runoff   =   9.08 cfs @ 12.26 hrs, Volume=   40,440 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

	Area (sf)	CN	Description
	15,434	98	Roofs, HSG B
	90,730	61	>75% Grass cover, Good, HSG B
	10,420	80	>75% Grass cover, Good, HSG D
	1,023	98	Paved parking, HSG D
*	5,834	96	Gravel surface, HSG B
	32,481	98	Paved parking, HSG B
	155,922	75	Weighted Average
	106,984		68.61% Pervious Area
	48,938		31.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0300	0.14		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
4.7	280	0.0200	0.99		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
1.6	200	0.0200	2.12		**Shallow Concentrated Flow, C-D Swale**
					Grassed Waterway Kv= 15.0 fps
18.6	580	Total			

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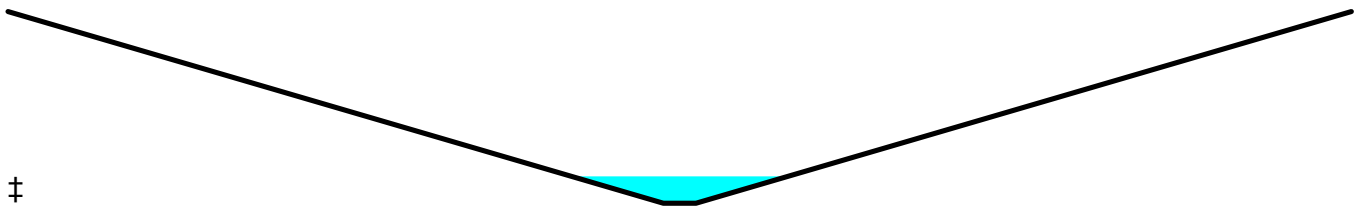*Type III 24-hr 25 YR Rainfall=5.80"*
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Subcatchment 25S:

Hydrograph

Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=155,922 sf
Runoff Volume=40,440 cf
Runoff Depth=3.11"
Flow Length=580'
Tc=18.6 min
CN=75

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Subcatchment 26S:

Runoff   =   2.72 cfs @   12.08 hrs, Volume=   9,648 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.80"

Area (sf)	CN	Description
20,816	98	Roofs, HSG B
20,816		100.00% Impervious Area

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

Subcatchment 26S:

Hydrograph
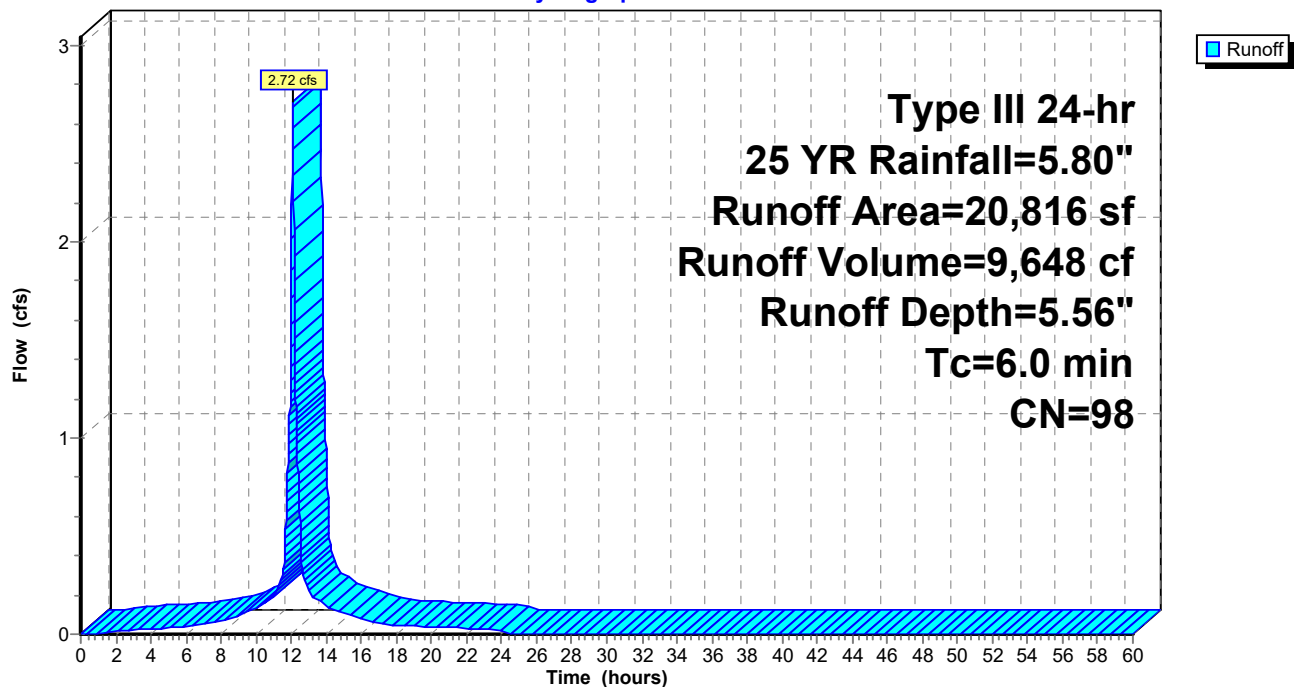
Type III 24-hr
25 YR Rainfall=5.80"
Runoff Area=20,816 sf
Runoff Volume=9,648 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Reach 1R:

Inflow Area =   685,163 sf, 21.10% Impervious, Inflow Depth =   3.37"   for 25 YR event
Inflow   =   45.63 cfs @   12.14 hrs, Volume=   192,477 cf
Outflow   =   45.34 cfs @   12.16 hrs, Volume=   192,477 cf, Atten= 1%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.74 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.73 fps, Avg. Travel Time= 3.6 min

Peak Storage= 3,536 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 6.00' Flow Area= 378.0 sf, Capacity= 6,152.65 cfs

3.00' x 6.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/'   Top Width= 123.00'
Length= 370.0'   Slope= 0.0243 '/'
Inlet Invert= 102.00', Outlet Invert= 93.00'

‡

Reach 1R:

Hydrograph
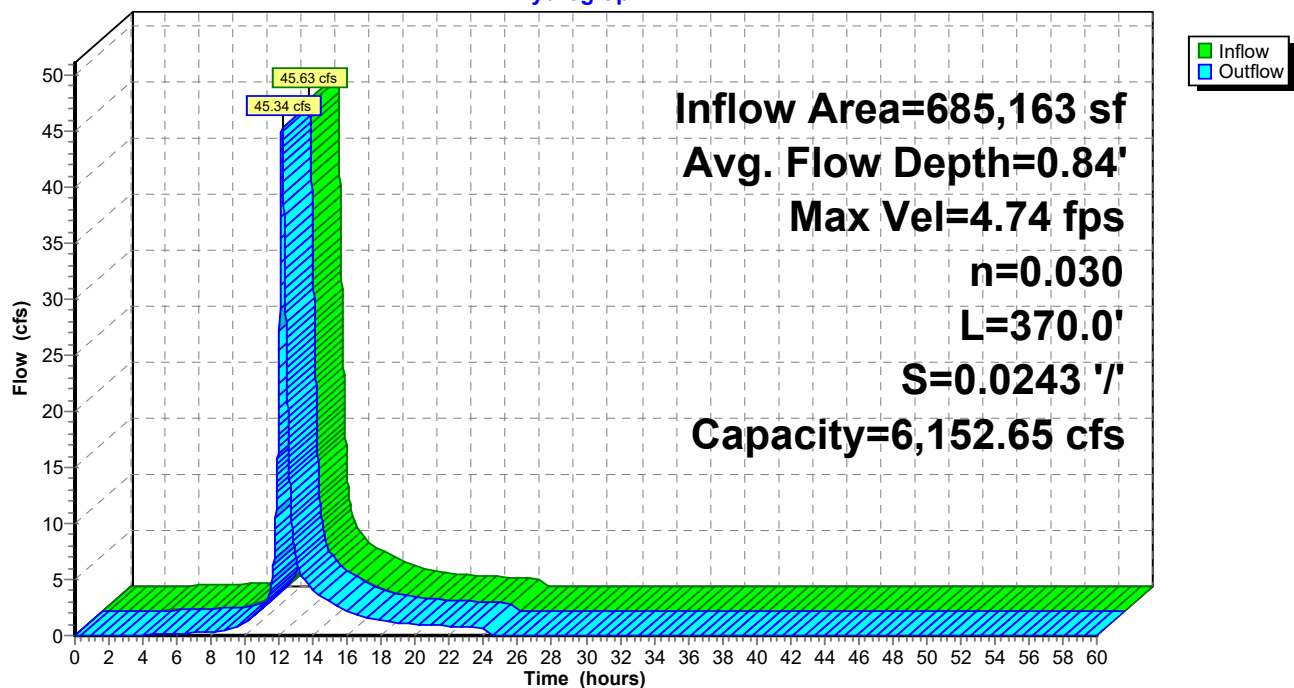
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Type III 24-hr 25 YR Rainfall=5.80"
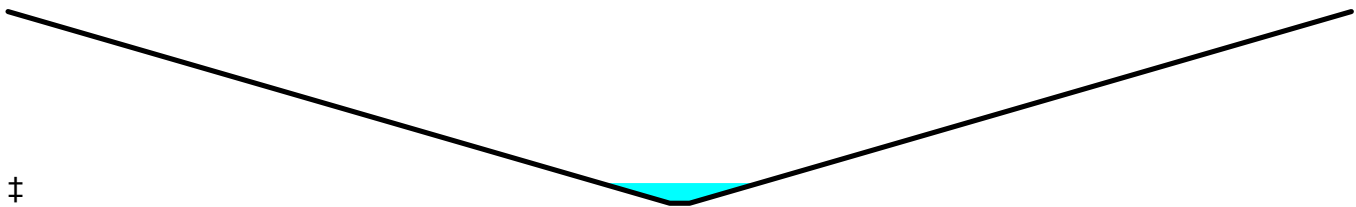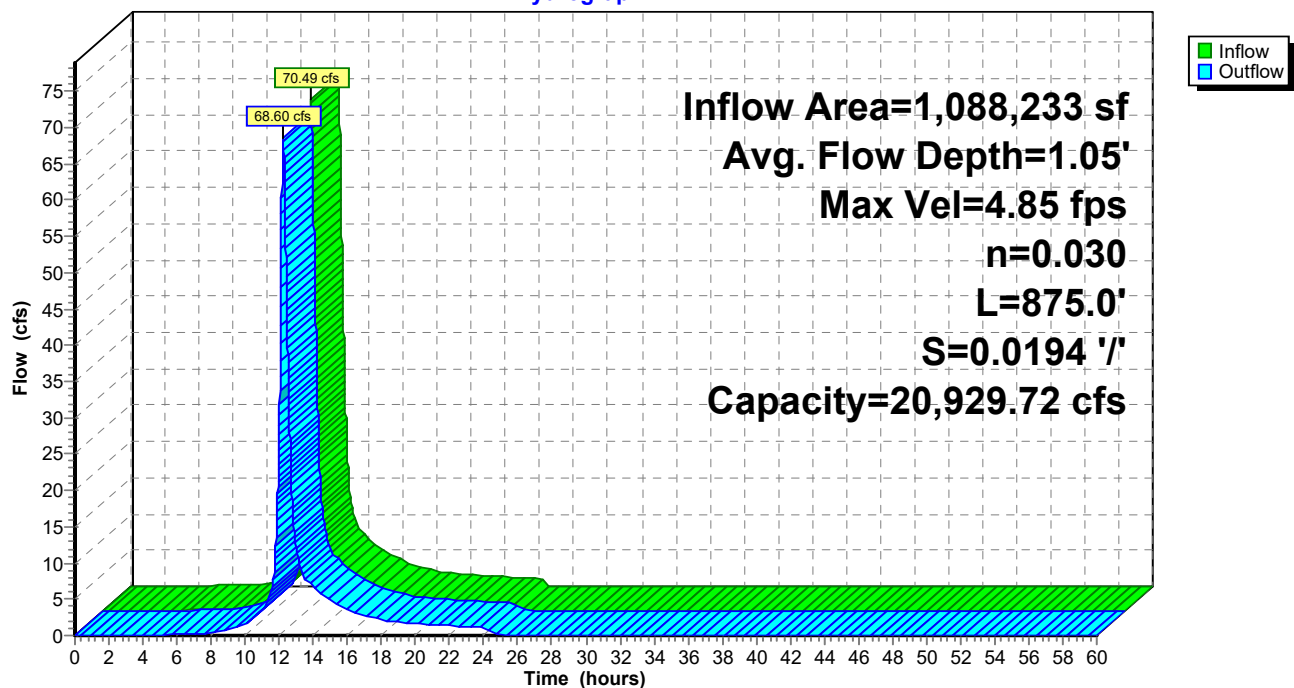Printed 7/18/2019
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Summary for Reach 2R:

Inflow Area =   1,088,233 sf, 13.46% Impervious, Inflow Depth = 3.35"   for 25 YR event
Inflow   =   70.49 cfs @   12.19 hrs, Volume=   303,490 cf
Outflow   =   68.60 cfs @   12.23 hrs, Volume=   303,490 cf, Atten= 3%, Lag= 2.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.85 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 7.9 min

Peak Storage= 12,375 cf @ 12.23 hrs
Average Depth at Peak Storage= 1.05'
Bank-Full Depth= 10.00' Flow Area= 1,030.0 sf, Capacity= 20,929.72 cfs

3.00' x 10.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/'   Top Width= 203.00'
Length= 875.0'   Slope= 0.0194 '/'
Inlet Invert= 93.00', Outlet Invert= 76.00'

‡

Reach 2R:

Hydrograph

Inflow Area=1,088,233 sf
Avg. Flow Depth=1.05'
Max Vel=4.85 fps
n=0.030
L=875.0'
S=0.0194 '/'
Capacity=20,929.72 cfs

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Reach 3R:

Inflow Area =   1,528,701 sf,   9.73% Impervious, Inflow Depth =   3.33"   for 25 YR event
Inflow   =   94.84 cfs @   12.24 hrs, Volume=   424,804 cf
Outflow   =   94.00 cfs @   12.27 hrs, Volume=   424,804 cf, Atten= 1%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.40 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.63 fps, Avg. Travel Time= 7.9 min

Peak Storage= 11,746 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.86'
Bank-Full Depth= 5.00' Flow Area= 356.3 sf, Capacity= 2,325.16 cfs

40.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
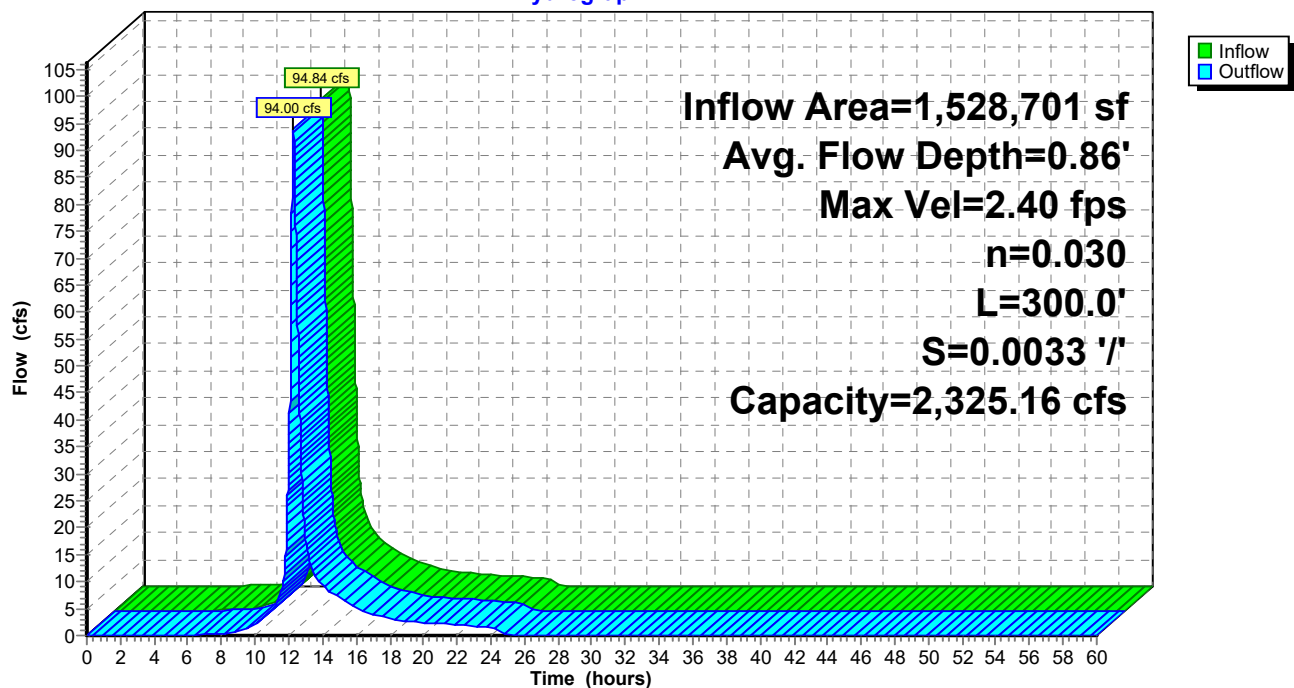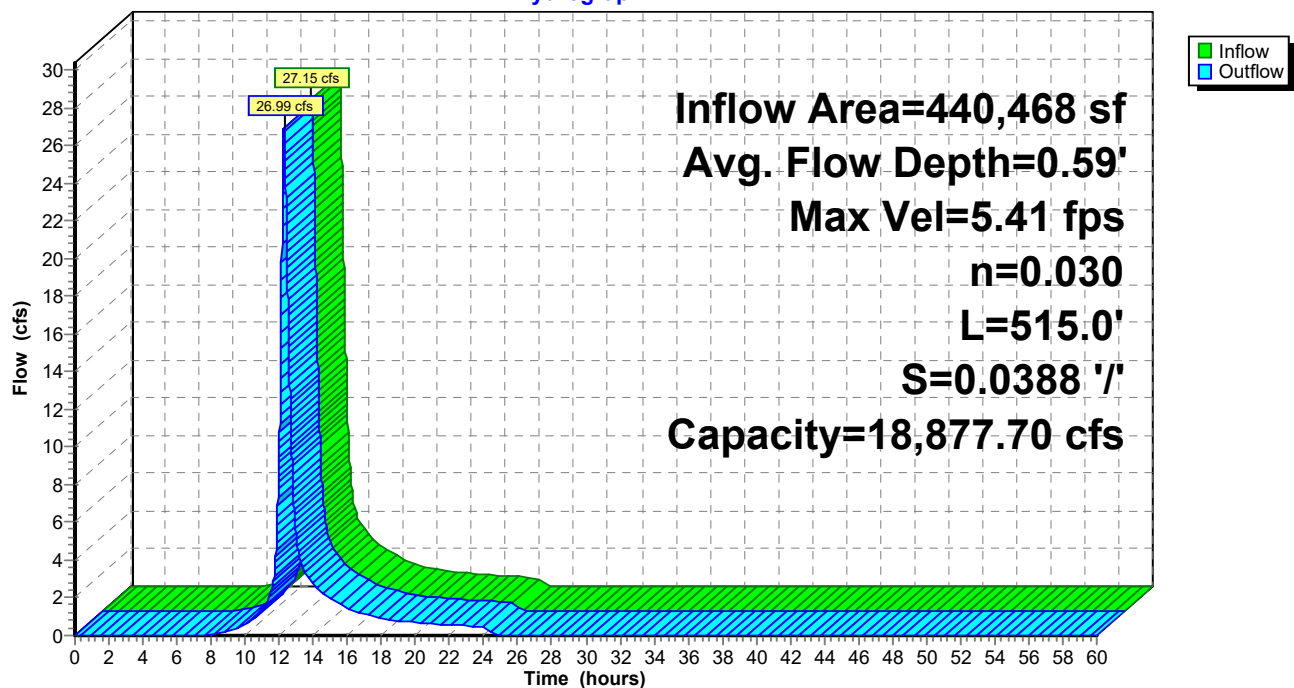Side Slope Z-value= 7.5 5.0 '/'   Top Width= 102.50'
Length= 300.0'   Slope= 0.0033 '/'
Inlet Invert= 76.00', Outlet Invert= 75.00'

‡

Reach 3R:

Hydrograph

Inflow Area=1,528,701 sf
Avg. Flow Depth=0.86'
Max Vel=2.40 fps
n=0.030
L=300.0'
S=0.0033 '/'
Capacity=2,325.16 cfs

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Reach 3Ra:

Inflow Area =   440,468 sf,   0.51% Impervious, Inflow Depth = 3.31"   for 25 YR event
Inflow   =   27.15 cfs @   12.26 hrs, Volume=   121,314 cf
Outflow   =   26.99 cfs @   12.28 hrs, Volume=   121,314 cf, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.41 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.28 fps, Avg. Travel Time= 3.8 min

Peak Storage= 2,570 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 10.00' Flow Area= 650.0 sf, Capacity= 18,877.70 cfs

5.00' x 10.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 6.0 '/'   Top Width= 125.00'
Length= 515.0'   Slope= 0.0388 '/'
Inlet Invert= 98.00', Outlet Invert= 78.00'

‡

Reach 3Ra:

Hydrograph

Inflow Area=440,468 sf
Avg. Flow Depth=0.59'
Max Vel=5.41 fps
n=0.030
L=515.0'
S=0.0388 '/'
Capacity=18,877.70 cfs

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Reach 4R:

Inflow Area =   661,138 sf, 21.30% Impervious, Inflow Depth =   3.21"   for 25 YR event
Inflow   =   32.44 cfs @   12.42 hrs, Volume=   176,756 cf
Outflow   =   32.40 cfs @   12.42 hrs, Volume=   176,756 cf, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.30 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 3.12 fps, Avg. Travel Time= 1.6 min

Peak Storage= 1,336 cf @ 12.42 hrs
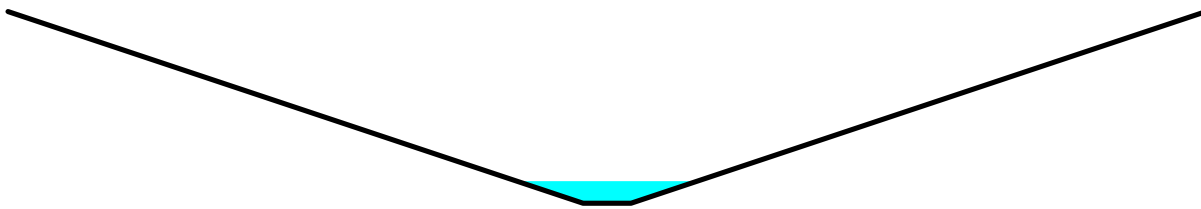Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 8.00' Flow Area= 208.0 sf, Capacity= 5,556.65 cfs

2.00' x 8.00' deep channel, n= 0.030 Earth, grassed & winding
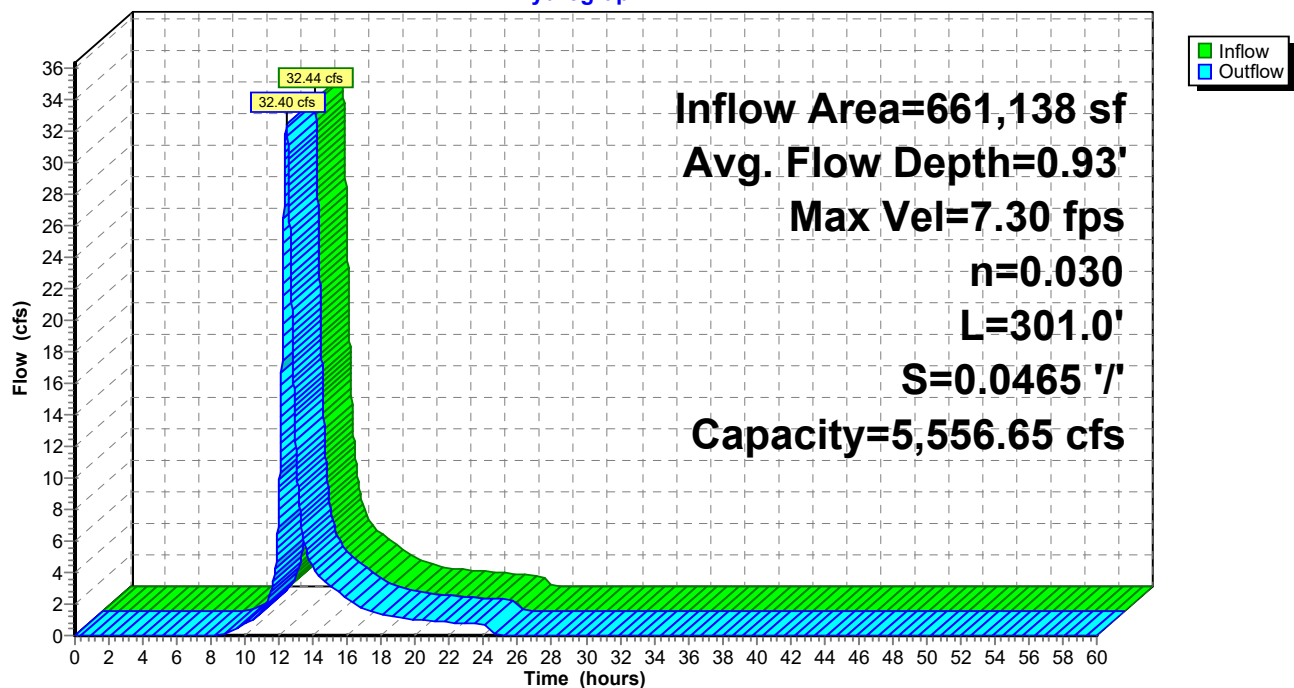Side Slope Z-value= 3.0 '/'   Top Width= 50.00'
Length= 301.0'   Slope= 0.0465 '/'
Inlet Invert= 90.00', Outlet Invert= 76.00'

Reach 4R:

Hydrograph

Inflow Area=661,138 sf
Avg. Flow Depth=0.93'
Max Vel=7.30 fps
n=0.030
L=301.0'
S=0.0465 '/'
Capacity=5,556.65 cfs

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Reach 24R: Ditch

Inflow Area =   102,056 sf,   7.95% Impervious, Inflow Depth =   3.02"   for 25 YR event
Inflow   =   6.39 cfs @   12.21 hrs, Volume=   25,662 cf
Outflow   =   6.39 cfs @   12.22 hrs, Volume=   25,662 cf, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.99 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.44 fps, Avg. Travel Time= 1.0 min

Peak Storage= 136 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 144.15 cfs

2.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
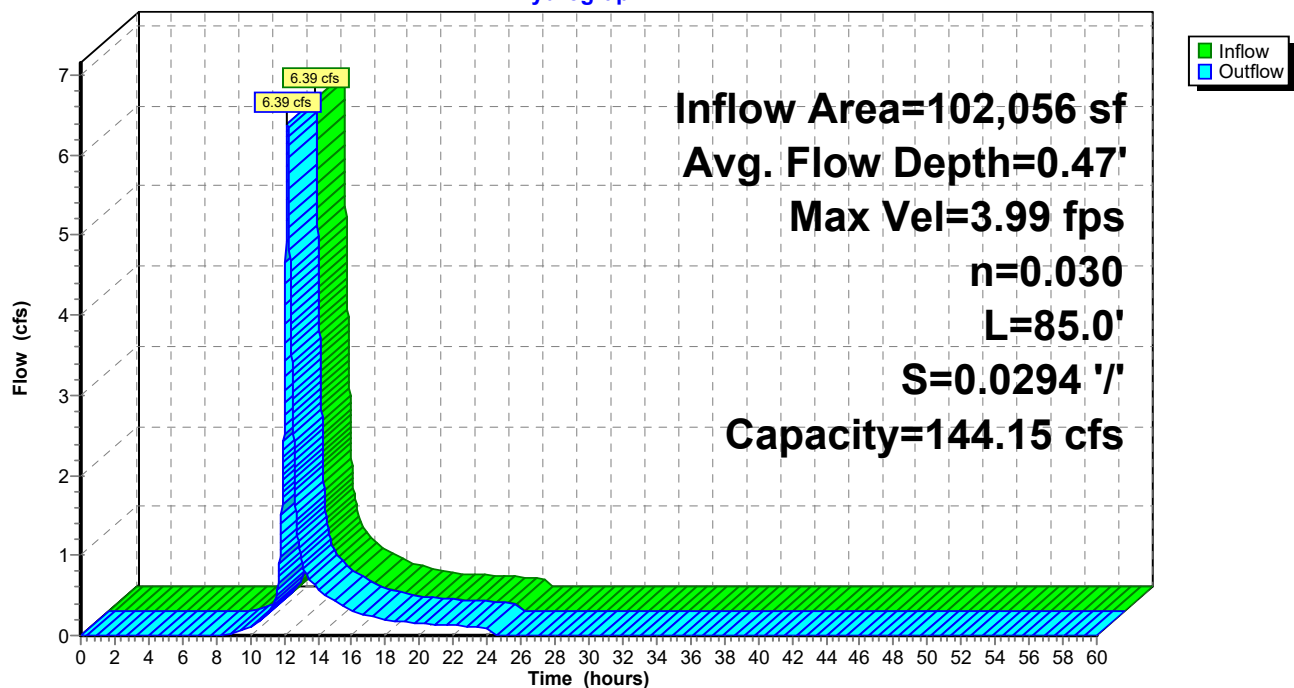Side Slope Z-value= 3.0 '/'   Top Width= 14.00'
Length= 85.0'   Slope= 0.0294 '/'
Inlet Invert= 145.00', Outlet Invert= 142.50'

Reach 24R: Ditch

Hydrograph

Inflow Area=102,056 sf
Avg. Flow Depth=0.47'
Max Vel=3.99 fps
n=0.030
L=85.0'
S=0.0294 '/'
Capacity=144.15 cfs

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Pond 8P: Existing Pond

Inflow Area =   209,898 sf, 15.39% Impervious, Inflow Depth = 3.21"   for 25 YR event
Inflow   =   11.12 cfs @   12.34 hrs, Volume=   56,116 cf
Outflow   =   5.49 cfs @   12.73 hrs, Volume=   62,270 cf, Atten= 51%, Lag= 23.4 min
Primary   =   2.83 cfs @   12.73 hrs, Volume=   56,172 cf
Secondary =   2.66 cfs @   12.73 hrs, Volume=   6,097 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 115.00' Surf.Area= 20,159 sf Storage= 19,179 cf
Peak Elev= 115.72' @ 12.73 hrs Surf.Area= 21,572 sf Storage= 34,233 cf (15,054 cf above start)
Flood Elev= 118.00' Surf.Area= 22,117 sf Storage= 40,317 cf (21,138 cf above start)

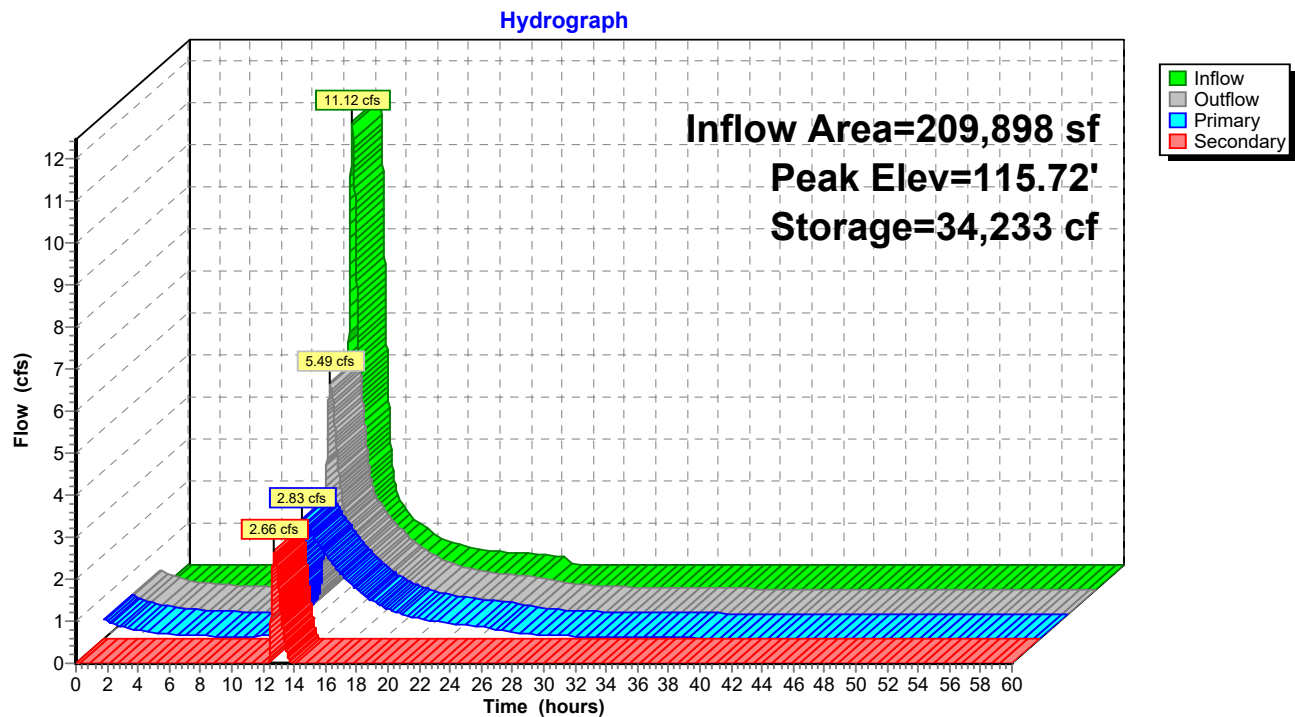Plug-Flow detention time= 324.4 min calculated for 43,083 cf (77% of inflow)
Center-of-Mass det. time= 93.2 min (936.3 - 843.0)

Volume	Invert	Avail.Storage	Storage Description
#1	114.00'	40,317 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
114.00	18,200	0	0
116.00	22,117	40,317	40,317

Device	Routing	Invert	Outlet Devices
#1	Primary	114.66'	**12.0" Round Culvert** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 114.66' / 114.03' S= 0.1260 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	115.50'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.83 cfs @ 12.73 hrs HW=115.72' TW=95.54'   (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.83 cfs @ 3.61 fps)

Secondary OutFlow Max=2.65 cfs @ 12.73 hrs HW=115.72' TW=95.54'   (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 2.65 cfs @ 1.20 fps)

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Pond 8P: Existing Pond

Hydrograph

Inflow Area=209,898 sf
Peak Elev=115.72'
Storage=34,233 cf

Legend:
- Inflow
- Outflow
- Primary
- Secondary

11.12 cfs
5.49 cfs
2.83 cfs
2.66 cfs

Flow (cfs)

Time (hours)

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Summary for Pond 10.1: CB 12003 Flow into Existing Sewer

Inflow Area =   8,227 sf,100.00% Impervious, Inflow Depth =   5.56"   for 25 YR event
Inflow   =   1.07 cfs @   12.08 hrs, Volume=   3,813 cf
Outflow   =   1.07 cfs @   12.08 hrs, Volume=   3,813 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.07 cfs @   12.08 hrs, Volume=   3,813 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 157.22' @ 12.08 hrs
Flood Elev= 161.04'

Device	Routing	Invert	Outlet Devices
#1	Primary	155.66'	**6.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 155.66' / 155.66' S= 0.0000 '/' Cc= 0.900 n= 0.013 Clay tile, Flow Area= 0.20 sf

Primary OutFlow Max=1.07 cfs @ 12.08 hrs HW=157.22'   (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.07 cfs @ 5.46 fps)

Pond 10.1: CB 12003 Flow into Existing Sewer
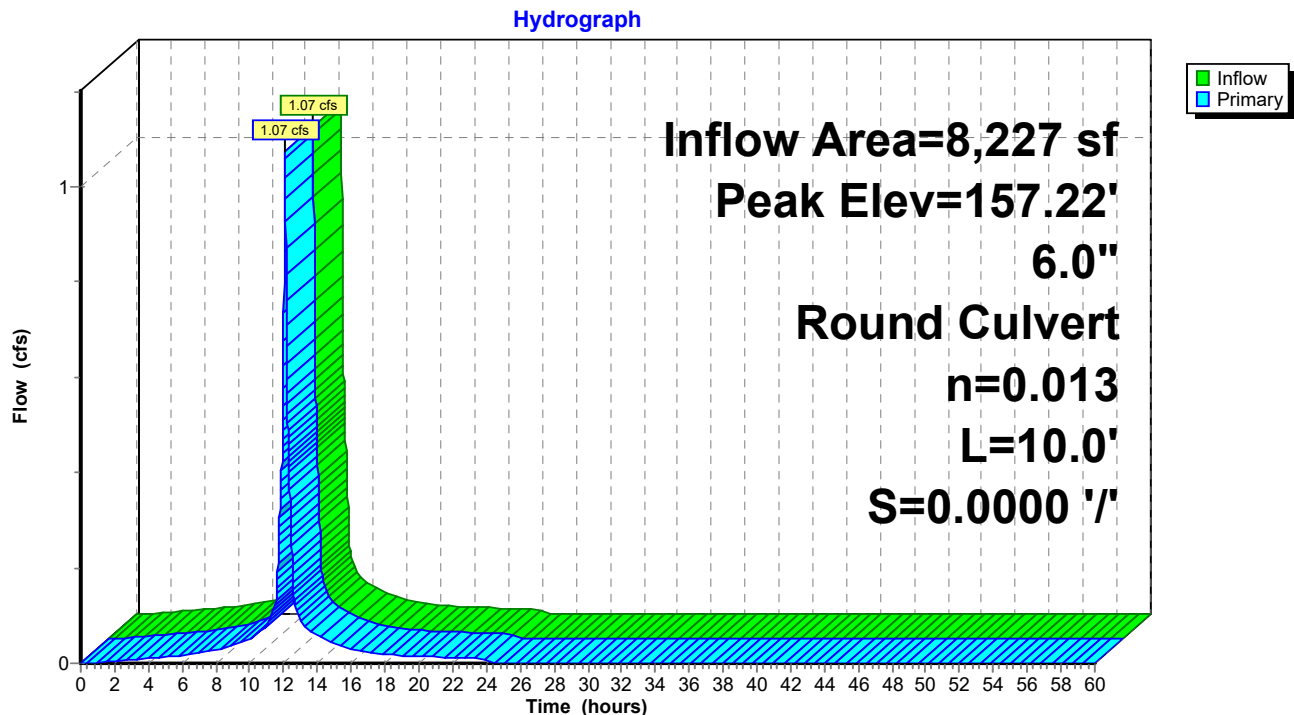
Hydrograph

Inflow Area=8,227 sf
Peak Elev=157.22'
6.0"
Round Culvert
n=0.013
L=10.0'
S=0.0000 '/'

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Summary for Pond 13.1: CB 10668

Inflow Area =   74,282 sf, 37.72% Impervious, Inflow Depth = 3.21"   for 25 YR event
Inflow   =   5.91 cfs @ 12.12 hrs, Volume=   19,859 cf
Outflow   =   5.91 cfs @ 12.12 hrs, Volume=   19,859 cf, Atten= 0%, Lag= 0.0 min
Primary   =   5.91 cfs @ 12.12 hrs, Volume=   19,859 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 143.43' @ 12.12 hrs
Flood Elev= 143.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	139.42'	**12.0" Round Culvert: Assumed pipe material and outlet elevation** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 139.42' / 138.50' S= 0.0230 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.79 sf
#2	Secondary	143.60'	**20.0' long x 16.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.91 cfs @ 12.12 hrs HW=143.43' TW=138.42' (Dynamic Tailwater)
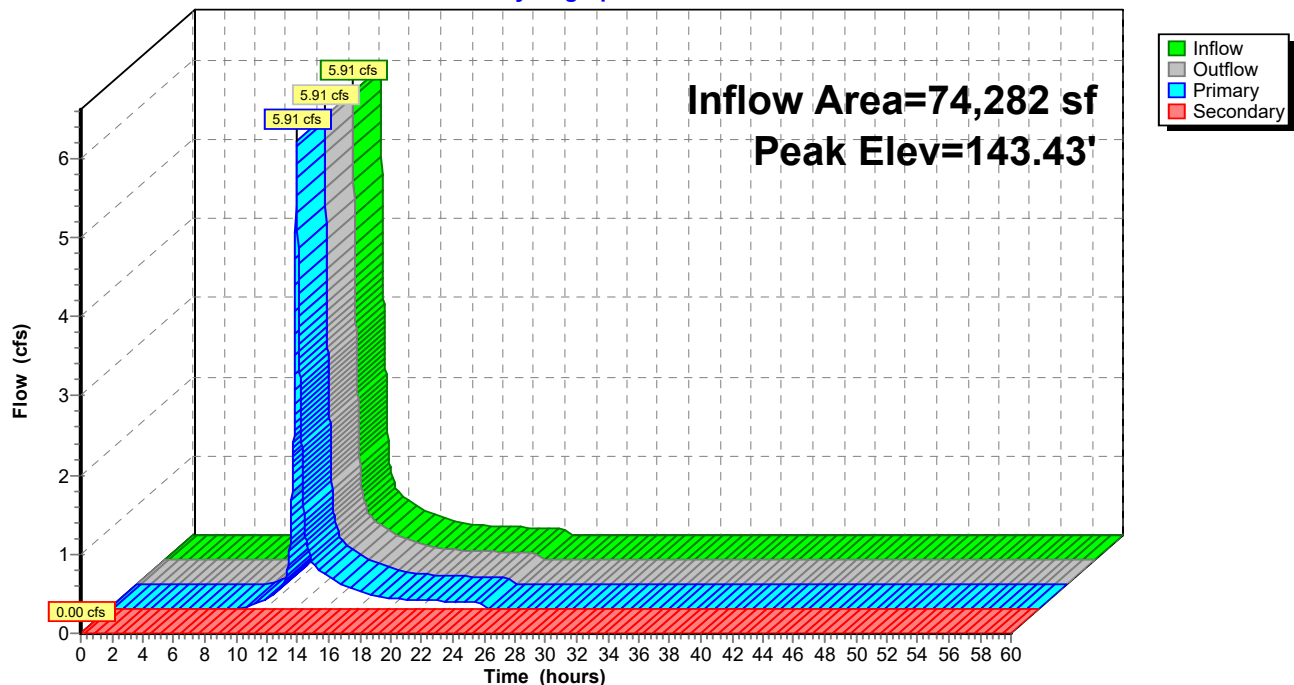└─1=Culvert: Assumed pipe material and outlet elevation(Barrel Controls 5.91 cfs @ 7.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=139.42' TW=138.00' (Dynamic Tailwater)
└─2=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 13.1: CB 10668

Hydrograph

Inflow Area=74,282 sf
Peak Elev=143.43'

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Summary for Pond 14P:

Inflow Area =   111,036 sf, 35.31% Impervious, Inflow Depth =   3.18"   for 25 YR event
Inflow   =   8.34 cfs @ 12.13 hrs, Volume=   29,392 cf
Outflow   =   8.03 cfs @ 12.16 hrs, Volume=   29,392 cf, Atten= 4%, Lag= 1.8 min
Primary   =   8.03 cfs @ 12.16 hrs, Volume=   29,392 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 138.44' @ 12.16 hrs   Surf.Area= 3,060 sf   Storage= 843 cf
Flood Elev= 139.56'   Surf.Area= 8,892 sf   Storage= 7,520 cf

Plug-Flow detention time= 2.1 min calculated for 29,387 cf (100% of inflow)
Center-of-Mass det. time= 2.1 min (831.6 - 829.5)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	11,938 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	750	0	0
140.00	11,188	11,938	11,938

Device	Routing	Invert	Outlet Devices
#1	Primary	138.00'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=8.03 cfs @ 12.16 hrs HW=138.44' TW=95.89'   (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 8.03 cfs @ 1.81 fps)
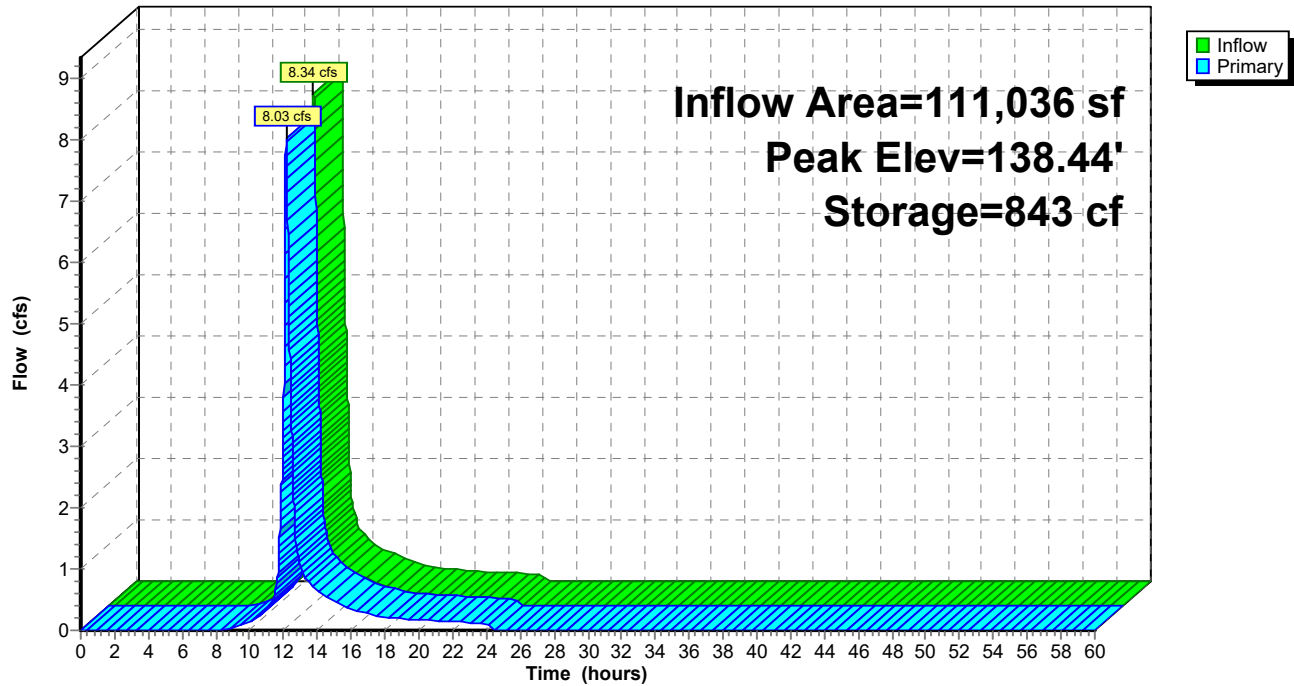
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Pond 14P:

Hydrograph

Inflow Area=111,036 sf
Peak Elev=138.44'
Storage=843 cf

Legend:
- Inflow (green)
- Primary (blue)

8.34 cfs
8.03 cfs

Flow (cfs) — vertical axis: 0 to 9
Time (hours) — horizontal axis: 0 to 60

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Summary for Pond 16P: (new Pond)

Inflow Area =   94,887 sf, 53.93% Impervious, Inflow Depth = 4.22"   for 25 YR event
Inflow   =   10.55 cfs @ 12.09 hrs, Volume=   33,366 cf
Outflow   =   10.47 cfs @ 12.10 hrs, Volume=   33,366 cf, Atten= 1%, Lag= 0.6 min
Primary   =   5.18 cfs @ 12.10 hrs, Volume=   30,514 cf
Secondary =   5.29 cfs @ 12.10 hrs, Volume=   2,852 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 151.86' @ 12.10 hrs   Surf.Area= 915 sf   Storage= 857 cf
Flood Elev= 152.00'   Surf.Area= 984 sf   Storage= 992 cf

Plug-Flow detention time= 1.4 min calculated for 33,360 cf (100% of inflow)
Center-of-Mass det. time= 1.4 min (800.3 - 798.9)

Volume	Invert	Avail.Storage	Storage Description
#1	150.00'	992 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
150.00	0	0	0
151.00	500	250	250
152.00	984	742	992

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**15.0" Round Culvert** L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 150.00' / 148.39' S= 0.0268 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf
#2	Secondary	151.50'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=5.18 cfs @ 12.10 hrs HW=151.86' TW=118.65'   (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 5.18 cfs @ 4.22 fps)

Secondary OutFlow Max=5.27 cfs @ 12.10 hrs HW=151.86' TW=118.65'   (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 5.27 cfs @ 1.47 fps)

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Type III 24-hr 25 YR Rainfall=5.80"
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Pond 16P: (new Pond)

Hydrograph

Inflow Area=94,887 sf
Peak Elev=151.86'
Storage=857 cf

Legend:
- Inflow
- Outflow
- Primary
- Secondary

10.55 cfs
10.47 cfs
5.18 cfs
5.29 cfs

Flow (cfs) — y-axis: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Time (hours) — x-axis: 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60

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Summary for Pond 18P: UDSF-1

Inflow Area =   35,346 sf, 74.17% Impervious, Inflow Depth = 4.95"   for 25 YR event
Inflow   =   4.21 cfs @ 12.08 hrs, Volume=   14,592 cf
Outflow   =   1.45 cfs @ 12.36 hrs, Volume=   13,480 cf, Atten= 65%, Lag= 16.3 min
Primary   =   0.05 cfs @ 12.36 hrs, Volume=   9,169 cf
Secondary =   1.40 cfs @ 12.36 hrs, Volume=   4,310 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 144.60' @ 12.36 hrs   Surf.Area= 3,784 sf Storage= 7,506 cf
Flood Elev= 145.00'   Surf.Area= 4,113 sf Storage= 9,105 cf

Plug-Flow detention time= 853.7 min calculated for 13,480 cf (92% of inflow)
Center-of-Mass det. time= 812.6 min (1,571.6 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1	140.33'	9,105 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.33	2,113	0.0	0	0
140.34	2,113	30.0	6	6
142.49	2,113	30.0	1,363	1,369
142.50	2,113	100.0	21	1,390
143.00	2,438	100.0	1,138	2,528
144.00	3,301	100.0	2,870	5,398
145.00	4,113	100.0	3,707	9,105

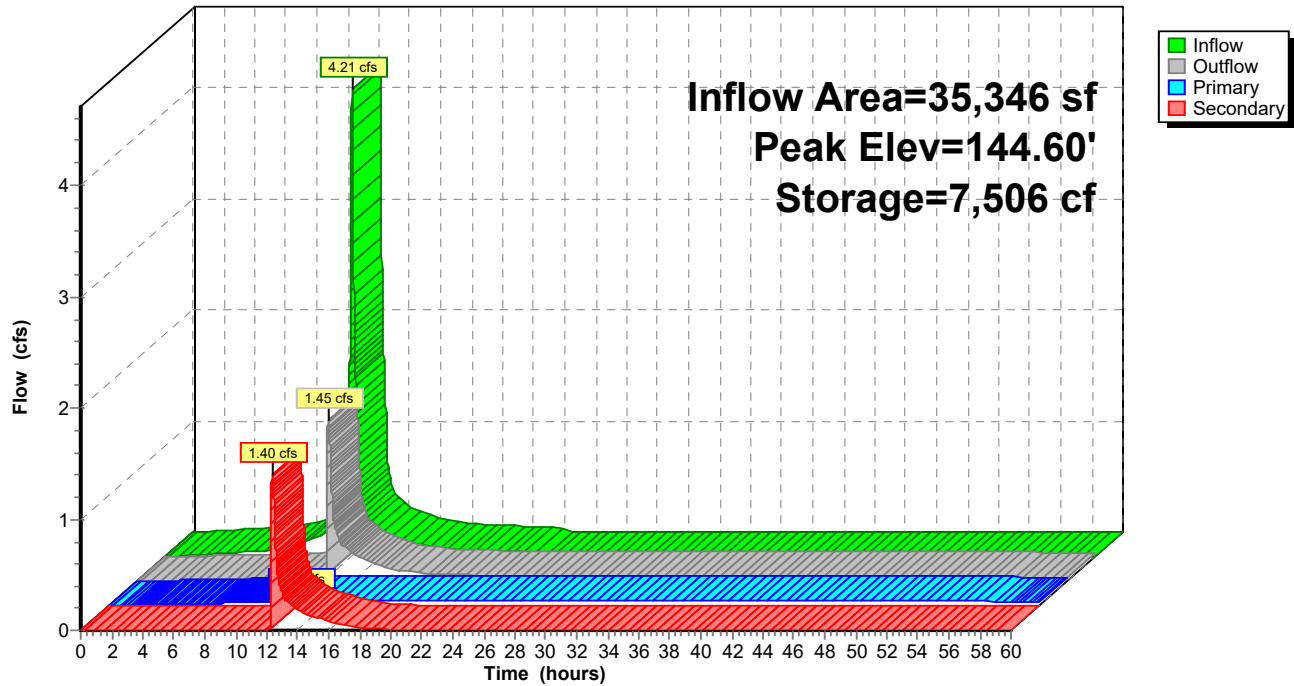| Device	Routing	Invert	Outlet Devices
#1	Primary	140.20'	**6.0" Round UD Outlet Pipe** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 140.20' / 140.00' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	140.30'	**1.0" Vert. Orifice** C= 0.600
#3	Secondary	144.50'	**20.0' long x 4.0' breadth Emergency Overflow Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.05 cfs @ 12.36 hrs HW=144.60' TW=118.58' (Dynamic Tailwater)
└─**1=UD Outlet Pipe** (Passes 0.05 cfs of 1.48 cfs potential flow)
  └─**2=Orifice** (Orifice Controls 0.05 cfs @ 9.93 fps)

Secondary OutFlow Max=1.40 cfs @ 12.36 hrs HW=144.60' TW=118.58' (Dynamic Tailwater)
└─**3=Emergency Overflow Spillway** (Weir Controls 1.40 cfs @ 0.73 fps)

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Pond 18P: UDSF-1

Hydrograph

Inflow Area=35,346 sf
Peak Elev=144.60'
Storage=7,506 cf

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Summary for Pond 19P: Drip Edge

Inflow Area =   11,630 sf, 81.53% Impervious, Inflow Depth = 5.21"   for 25 YR event
Inflow   =   1.48 cfs @ 12.08 hrs, Volume=   5,052 cf
Outflow   =   1.46 cfs @ 12.13 hrs, Volume=   5,038 cf, Atten= 2%, Lag= 3.0 min
Primary   =   0.18 cfs @ 12.13 hrs, Volume=   4,383 cf
Secondary =   1.28 cfs @ 12.13 hrs, Volume=   656 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 149.51' @ 12.13 hrs   Surf.Area= 1,662 sf   Storage= 1,429 cf
Flood Elev= 149.60'   Surf.Area= 3,136 sf   Storage= 1,635 cf

Plug-Flow detention time= 88.6 min calculated for 5,038 cf (100% of inflow)
Center-of-Mass det. time= 86.8 min (851.2 - 764.5)

Volume	Invert	Avail.Storage	Storage Description
#1	146.62'	4,262 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
146.62	1,420	0.0	0	0
146.63	1,420	30.0	4	4
148.29	1,420	30.0	707	711
148.30	1,420	40.0	6	717
149.49	1,420	40.0	676	1,393
149.50	1,420	100.0	14	1,407
150.00	10,000	100.0	2,855	4,262

Device	Routing	Invert	Outlet Devices
#1	Primary	146.63'	**4.0" Round Underdrain** L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 146.63' / 146.63' S= 0.0000 '/' Cc= 0.900 n= 0.012 Wood, planed, Flow Area= 0.09 sf
#2	Secondary	149.50'	**300.0' long x 4.0' breadth Overflow** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.18 cfs @ 12.13 hrs HW=149.51' TW=111.57'   (Dynamic Tailwater)
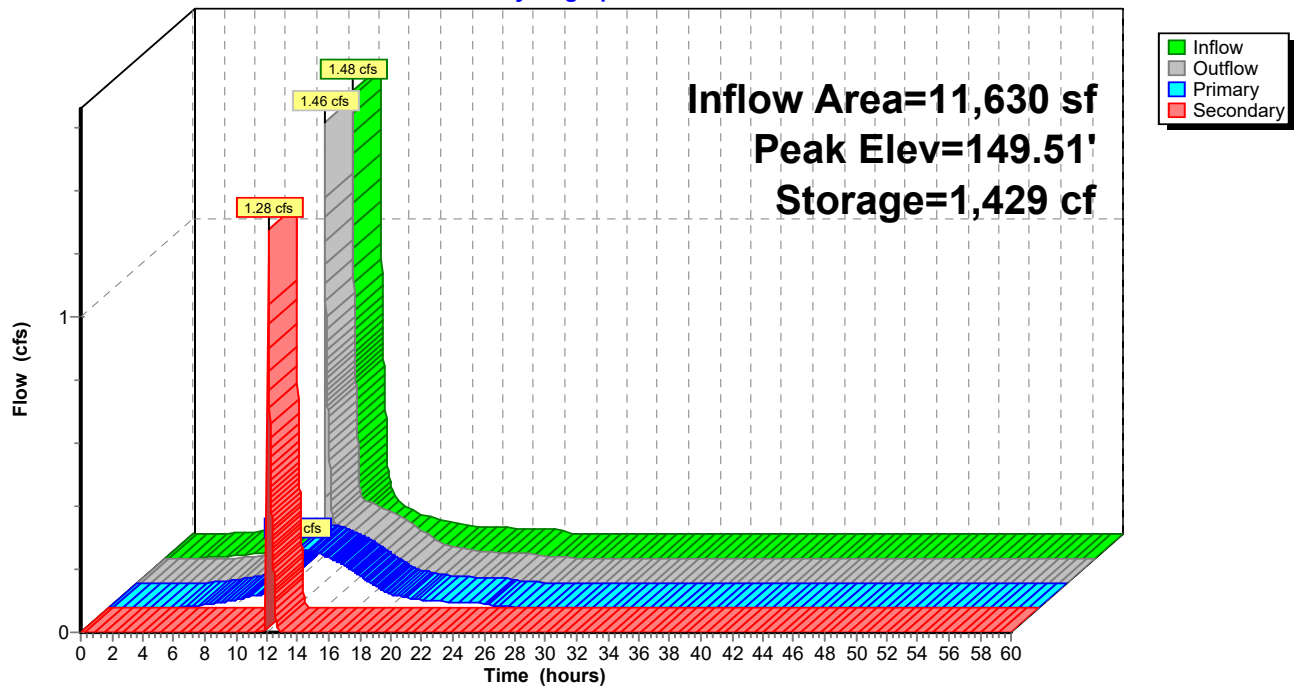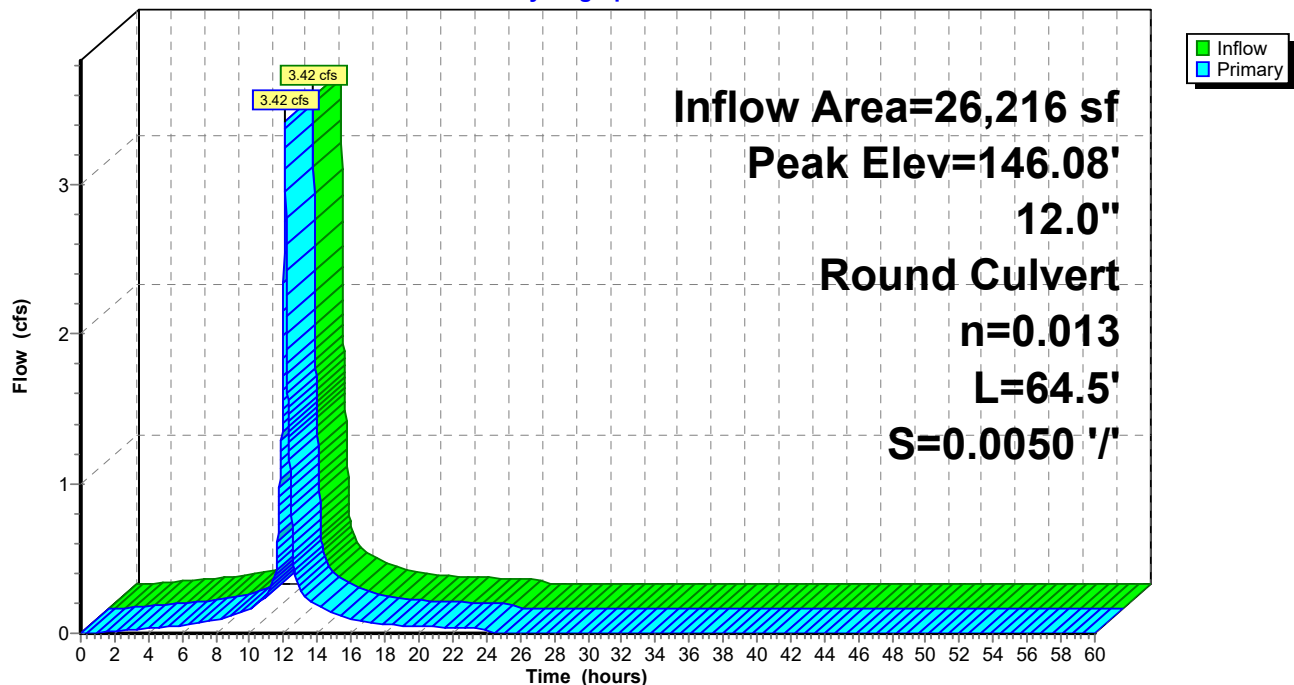└─**1=Underdrain** (Barrel Controls 0.18 cfs @ 2.12 fps)

Secondary OutFlow Max=1.14 cfs @ 12.13 hrs HW=149.51' TW=111.59'   (Dynamic Tailwater)
└─**2=Overflow** (Weir Controls 1.14 cfs @ 0.28 fps)

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Pond 19P: Drip Edge

Hydrograph

Inflow Area=11,630 sf
Peak Elev=149.51'
Storage=1,429 cf

Legend:
- Inflow
- Outflow
- Primary
- Secondary

1.48 cfs
1.46 cfs
1.28 cfs
cfs

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Summary for Pond 20P: CB

Inflow Area =   26,216 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 YR event
Inflow   =   3.42 cfs @ 12.08 hrs, Volume=   12,151 cf
Outflow   =   3.42 cfs @ 12.08 hrs, Volume=   12,151 cf, Atten= 0%, Lag= 0.0 min
Primary   =   3.42 cfs @ 12.08 hrs, Volume=   12,151 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
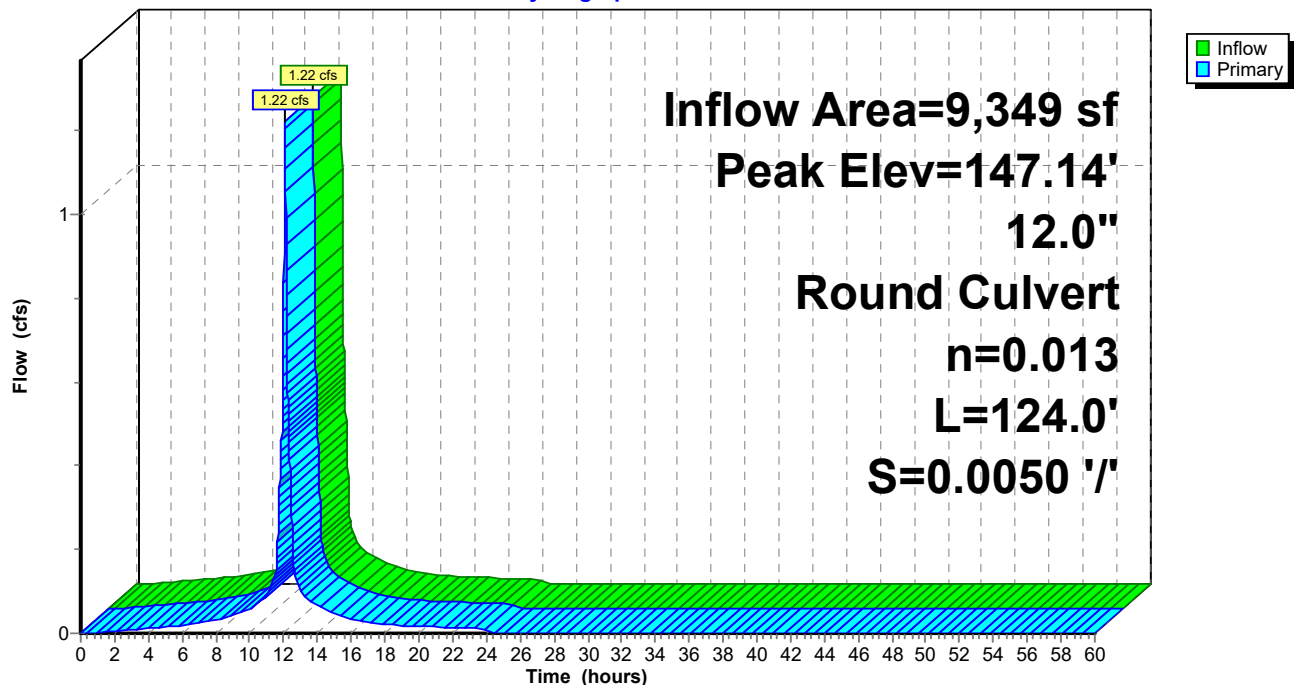Peak Elev= 146.08' @ 12.08 hrs
Flood Elev= 148.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.36'	**12.0" Round Stormdrain** L= 64.5' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.36' / 144.04' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.41 cfs @ 12.08 hrs HW=146.07' TW=144.05'   (Dynamic Tailwater)
└─1=Stormdrain (Barrel Controls 3.41 cfs @ 4.35 fps)

Pond 20P: CB

Hydrograph

Inflow Area=26,216 sf
Peak Elev=146.08'
12.0"
Round Culvert
n=0.013
L=64.5'
S=0.0050 '/'

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Type III 24-hr 25 YR Rainfall=5.80"
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Summary for Pond 21P: CB

Inflow Area =   19,503 sf, 100.00% Impervious, Inflow Depth = 5.56"   for 25 YR event
Inflow   =   2.54 cfs @ 12.08 hrs, Volume=   9,040 cf
Outflow   =   2.54 cfs @ 12.08 hrs, Volume=   9,040 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.54 cfs @ 12.08 hrs, Volume=   9,040 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.95' @ 12.09 hrs
Flood Elev= 148.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.08'	**12.0" Round Stormdrain** L= 124.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.08' / 144.46' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.52 cfs @ 12.08 hrs HW=146.94' TW=146.07'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 2.52 cfs @ 3.21 fps)

Pond 21P: CB

Hydrograph
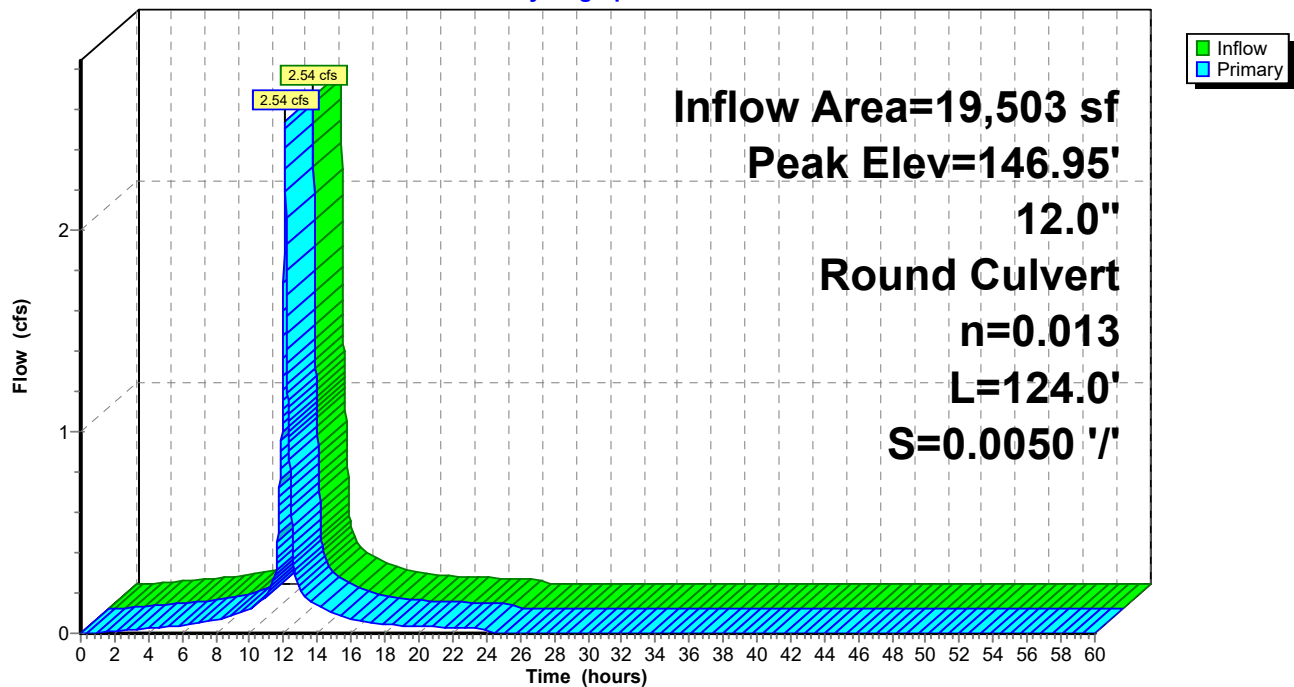
Inflow Area=19,503 sf
Peak Elev=146.95'
12.0"
Round Culvert
n=0.013
L=124.0'
S=0.0050 '/'

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Summary for Pond 22P: CB

Inflow Area =   9,349 sf, 100.00% Impervious, Inflow Depth = 5.56"   for 25 YR event
Inflow   =   1.22 cfs @ 12.08 hrs, Volume=   4,333 cf
Outflow   =   1.22 cfs @ 12.08 hrs, Volume=   4,333 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.22 cfs @ 12.08 hrs, Volume=   4,333 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.14' @ 12.10 hrs
Flood Elev= 148.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.80'	**12.0" Round Stormdrain** L= 124.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.80' / 145.18' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.08 hrs HW=147.06' TW=146.94'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 1.01 cfs @ 1.32 fps)

Pond 22P: CB

Hydrograph

Inflow Area=9,349 sf
Peak Elev=147.14'
12.0"
Round Culvert
n=0.013
L=124.0'
S=0.0050 '/'

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Summary for Pond 24P: Culvert

Inflow Area =   102,056 sf,   7.95% Impervious, Inflow Depth = 3.02"   for 25 YR event
Inflow   =   6.47 cfs @ 12.19 hrs, Volume=   25,662 cf
Outflow   =   6.39 cfs @ 12.21 hrs, Volume=   25,662 cf, Atten= 1%, Lag= 1.3 min
Primary   =   6.39 cfs @ 12.21 hrs, Volume=   25,662 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.15' @ 12.21 hrs   Surf.Area= 344 sf   Storage= 84 cf
Flood Elev= 149.50'   Surf.Area= 6,189 sf   Storage= 4,808 cf

Plug-Flow detention time= 0.0 min calculated for 25,662 cf (100% of inflow)
Center-of-Mass det. time= 0.0 min (837.6 - 837.6)

Volume	Invert	Avail.Storage	Storage Description
#1	146.45'	8,856 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
146.45	6	0	0
147.00	160	46	46
148.00	1,352	756	802
149.00	2,378	1,865	2,667
150.00	10,000	6,189	8,856

Device	Routing	Invert	Outlet Devices
#1	Primary	145.50'	**18.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 145.50' / 145.20' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	149.10'	**50.0' long x 16.0' breadth Overflow at Drive** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=6.39 cfs @ 12.21 hrs HW=147.15' TW=145.47'   (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 6.39 cfs @ 3.61 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=146.45' TW=145.00'   (Dynamic Tailwater)
└**2=Overflow at Drive** (Controls 0.00 cfs)

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Pond 24P: Culvert

Hydrograph
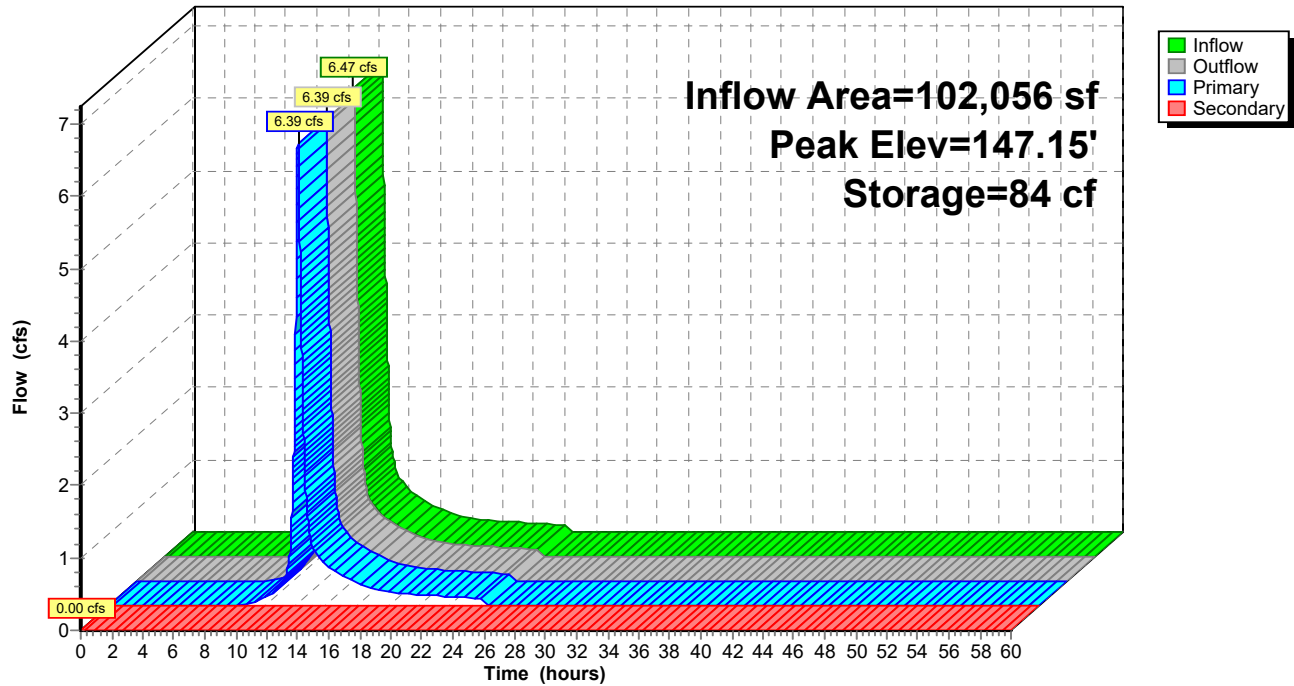
Inflow Area=102,056 sf
Peak Elev=147.15'
Storage=84 cf

Legend:
- Inflow
- Outflow
- Primary
- Secondary

6.47 cfs
6.39 cfs
6.39 cfs
0.00 cfs

Flow (cfs)

Time (hours)

Summary for Pond 25P: Culvert

Inflow Area = 155,922 sf, 31.39% Impervious, Inflow Depth = 3.11" for 25 YR event
Inflow = 9.08 cfs @ 12.26 hrs, Volume= 40,440 cf
Outflow = 9.08 cfs @ 12.26 hrs, Volume= 40,440 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.08 cfs @ 12.26 hrs, Volume= 40,440 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.00' @ 12.26 hrs Surf.Area= 20 sf Storage= 0 cf
Flood Elev= 149.50' Surf.Area= 6,073 sf Storage= 3,643 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (839.6 - 839.6)

Volume	Invert	Avail.Storage	Storage Description
#1	147.00'	7,661 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
147.00	20	0	0
148.00	505	263	263
149.00	2,146	1,326	1,588
150.00	10,000	6,073	7,661

Device	Routing	Invert	Outlet Devices
#1	Primary	144.70'	**24.0" Round Culvert** L= 142.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 144.70' / 141.40' S= 0.0232 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	149.50'	**50.0' long x 16.0' breadth Overflow at Drive** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=13.62 cfs @ 12.26 hrs HW=147.00' TW=111.89' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 13.62 cfs @ 4.33 fps)
└─**2=Overflow at Drive** (Controls 0.00 cfs)

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Pond 25P: Culvert

Hydrograph
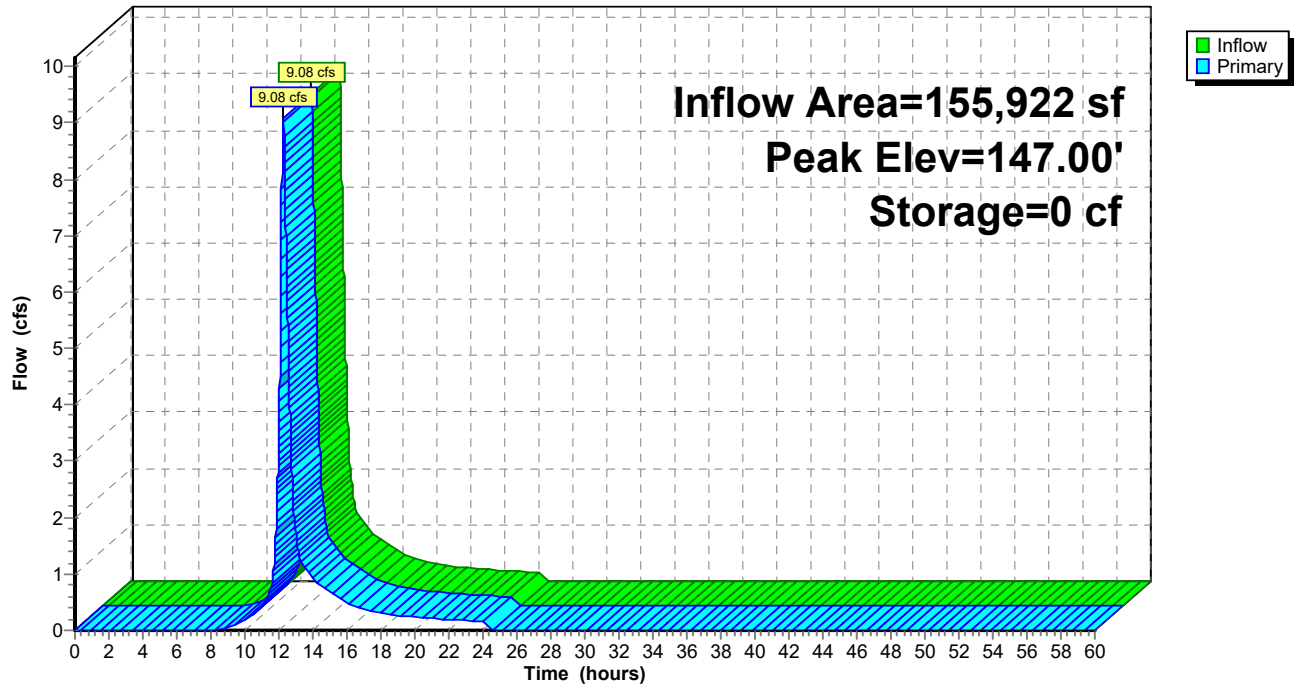
Inflow Area=155,922 sf
Peak Elev=147.00'
Storage=0 cf

9.08 cfs
9.08 cfs

Flow (cfs)

Time (hours)

Inflow
Primary

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Summary for Pond 60P: Existing 12" Culvert

Inflow Area =   301,110 sf, 21.45% Impervious, Inflow Depth = 2.73"   for 25 YR event
Inflow   =   18.97 cfs @ 12.12 hrs, Volume=   68,387 cf
Outflow   =   18.93 cfs @ 12.12 hrs, Volume=   68,387 cf, Atten= 0%, Lag= 0.4 min
Primary   =   6.73 cfs @ 12.12 hrs, Volume=   59,670 cf
Secondary =   12.20 cfs @ 12.12 hrs, Volume=   8,717 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 118.67' @ 12.12 hrs   Surf.Area= 2,443 sf   Storage= 3,936 cf
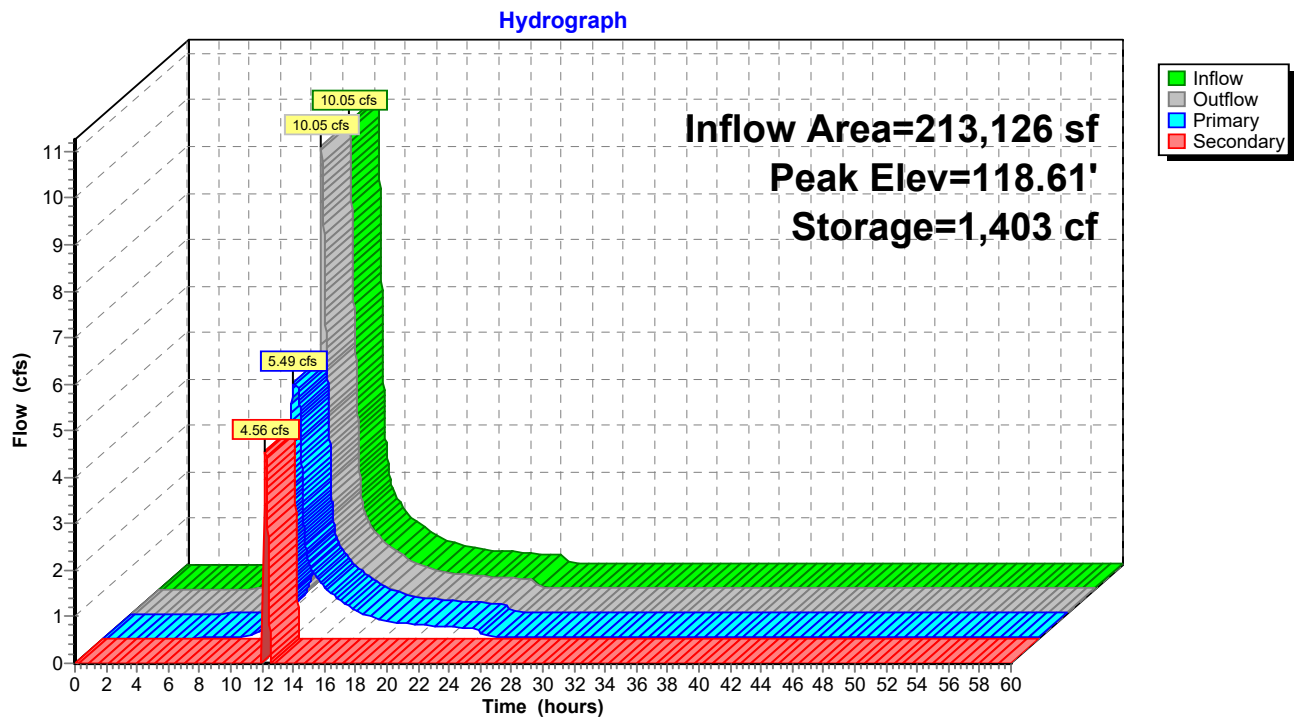Flood Elev= 119.00'   Surf.Area= 2,750 sf   Storage= 4,803 cf

Plug-Flow detention time= 4.2 min calculated for 68,387 cf (100% of inflow)
Center-of-Mass det. time= 4.0 min (835.5 - 831.4)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	4,803 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	250	0	0
116.00	371	311	311
118.00	1,831	2,202	2,513
119.00	2,750	2,291	4,803

Device	Routing	Invert	Outlet Devices
#1	Primary	115.00'	**12.0" Round Culvert** L= 70.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 115.00' / 104.00' S= 0.1571 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	118.50'	**70.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=6.73 cfs @ 12.12 hrs HW=118.67' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 6.73 cfs @ 8.57 fps)

Secondary OutFlow Max=12.17 cfs @ 12.12 hrs HW=118.67' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir**(Weir Controls 12.17 cfs @ 1.05 fps)

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Pond 60P: Existing 12" Culvert

Hydrograph

Inflow Area=301,110 sf
Peak Elev=118.67'
Storage=3,936 cf

Legend: Inflow, Outflow, Primary, Secondary

18.97 cfs
18.93 cfs
12.20 cfs
cfs

Flow (cfs)

Time (hours)

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Summary for Pond 61P: Existing 12" Culvert

Inflow Area =   213,126 sf, 16.54% Impervious, Inflow Depth > 3.02"   for 25 YR event
Inflow   =   10.05 cfs @ 12.20 hrs, Volume=   53,612 cf
Outflow   =   10.05 cfs @ 12.20 hrs, Volume=   53,603 cf, Atten= 0%, Lag= 0.2 min
Primary   =   5.49 cfs @ 12.20 hrs, Volume=   49,256 cf
Secondary =   4.56 cfs @ 12.20 hrs, Volume=   4,347 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 118.61' @ 12.20 hrs   Surf.Area= 999 sf   Storage= 1,403 cf
Flood Elev= 119.00'   Surf.Area= 1,142 sf   Storage= 1,826 cf

Plug-Flow detention time= 2.4 min calculated for 53,603 cf (100% of inflow)
Center-of-Mass det. time= 1.9 min (1,029.3 - 1,027.3)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	1,826 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	85	0	0
118.00	780	865	865
119.00	1,142	961	1,826

Device	Routing	Invert	Outlet Devices
#1	Primary	116.00'	**12.0" Round Culvert** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 116.00' / 112.00' S= 0.0889 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	118.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.49 cfs @ 12.20 hrs HW=118.61' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 5.49 cfs @ 6.99 fps)

Secondary OutFlow Max=4.56 cfs @ 12.20 hrs HW=118.61' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 4.56 cfs @ 0.87 fps)

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Pond 61P: Existing 12" Culvert

Hydrograph

Legend:
- Inflow (green)
- Outflow (gray)
- Primary (blue)
- Secondary (red)

Inflow Area=213,126 sf
Peak Elev=118.61'
Storage=1,403 cf

10.05 cfs
10.05 cfs
5.49 cfs
4.56 cfs

Flow (cfs) vs Time (hours)

Summary for Pond 62P: Existing 24" Culvert

Inflow Area =   246,174 sf, 24.95% Impervious, Inflow Depth = 3.32"   for 25 YR event
Inflow   =   15.03 cfs @ 12.19 hrs, Volume=   68,146 cf
Outflow   =   14.43 cfs @ 12.25 hrs, Volume=   68,145 cf, Atten= 4%, Lag= 3.7 min
Primary   =   14.43 cfs @ 12.25 hrs, Volume=   68,145 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 111.90' @ 12.25 hrs   Surf.Area= 1,755 sf   Storage= 2,147 cf
Flood Elev= 118.00'   Surf.Area= 10,789 sf   Storage= 36,873 cf

Plug-Flow detention time= 3.9 min calculated for 68,134 cf (100% of inflow)
Center-of-Mass det. time= 3.9 min (838.5 - 834.6)

Volume	Invert	Avail.Storage	Storage Description
#1	110.00'	36,873 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.00	510	0	0
112.00	1,824	2,334	2,334
114.00	3,894	5,718	8,052
116.00	7,069	10,963	19,015
118.00	10,789	17,858	36,873

Device	Routing	Invert	Outlet Devices
#1	Primary	110.00'	**24.0" Round Culvert** L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 110.00' / 100.00' S= 0.1333 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Secondary	117.50'	**110.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=14.43 cfs @ 12.25 hrs HW=111.90' TW=0.00'   (Dynamic Tailwater)
└—**1=Culvert** (Inlet Controls 14.43 cfs @ 4.69 fps)

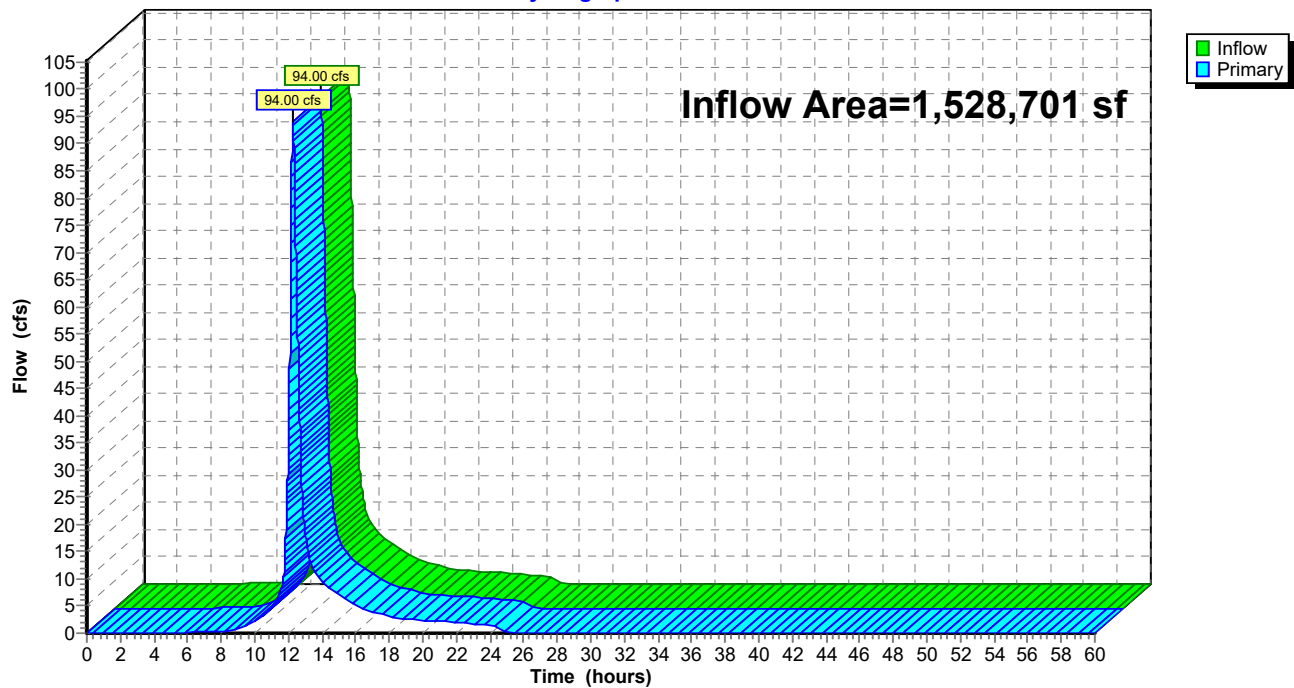**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=110.00' TW=0.00'   (Dynamic Tailwater)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Pond 62P: Existing 24" Culvert

Inflow Area=246,174 sf
Peak Elev=111.90'
Storage=2,147 cf

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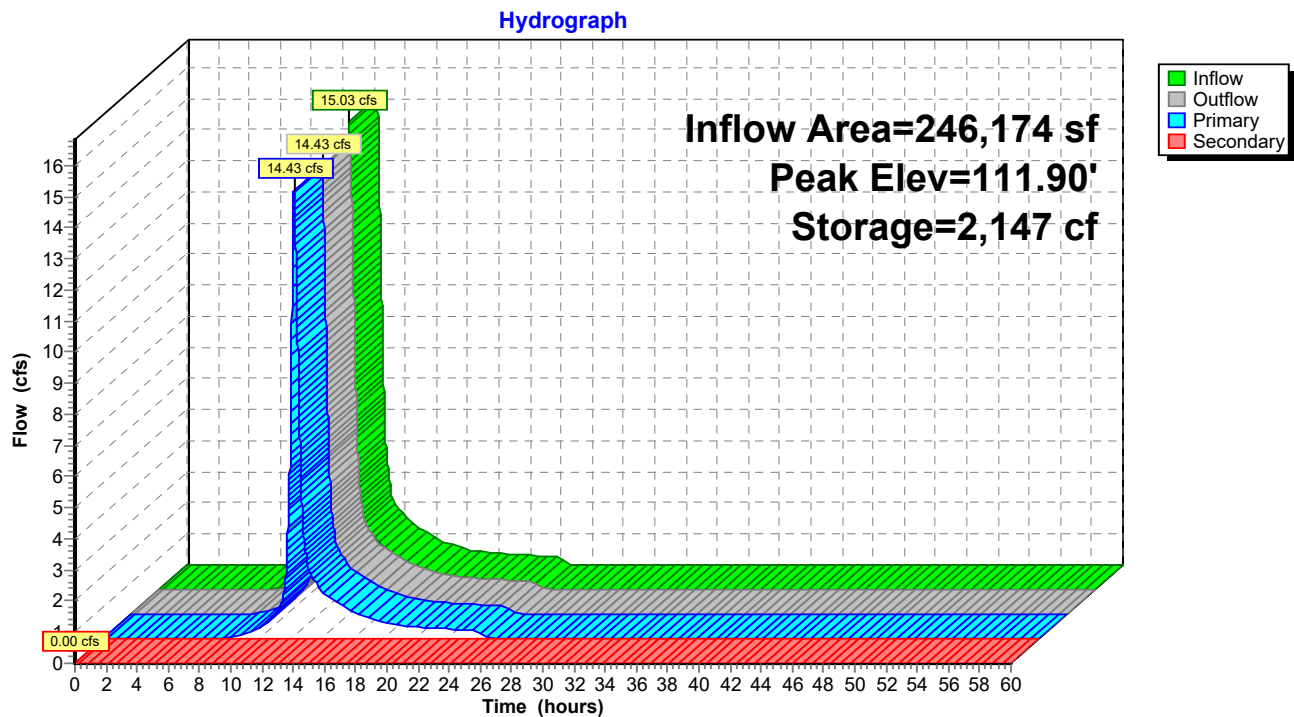
Summary for Pond 63P: Existing 48" Culvert

Inflow Area =   1,010,359 sf,   8.20% Impervious, Inflow Depth > 2.60"   for 25 YR event
Inflow   =   30.16 cfs @ 12.25 hrs, Volume=   218,755 cf
Outflow   =   30.13 cfs @ 12.26 hrs, Volume=   218,754 cf, Atten= 0%, Lag= 0.8 min
Primary   =   30.13 cfs @ 12.26 hrs, Volume=   218,754 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 96.00' @ 12.26 hrs   Surf.Area= 1,339 sf   Storage= 1,381 cf
Flood Elev= 110.00'   Surf.Area= 16,594 sf   Storage= 74,583 cf

Plug-Flow detention time= 0.9 min calculated for 218,711 cf (100% of inflow)
Center-of-Mass det. time= 0.8 min (881.9 - 881.1)

Volume	Invert	Avail.Storage	Storage Description
#1	94.00'	74,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.00	45	0	0
96.00	1,342	1,387	1,387
98.00	2,988	4,330	5,717
100.00	5,187	8,175	13,892
102.00	7,746	12,933	26,825
104.00	11,709	19,455	46,280
106.00	16,594	28,303	74,583

Device	Routing	Invert	Outlet Devices
#1	Primary	94.00'	**48.0" Round Culvert** L= 78.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 94.00' / 90.00' S= 0.0513 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 12.57 sf
#2	Secondary	109.40'	**100.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=30.13 cfs @ 12.26 hrs HW=96.00' TW=0.00'   (Dynamic Tailwater)
└─1=Culvert (Inlet Controls 30.13 cfs @ 4.81 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=94.09' TW=0.00'   (Dynamic Tailwater)
└─2=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

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Pond 63P: Existing 48" Culvert

Hydrograph

Inflow Area=1,010,359 sf
Peak Elev=96.00'
Storage=1,381 cf

Legend: Inflow, Outflow, Primary, Secondary

30.16 cfs
30.13 cfs
30.13 cfs
0.00 cfs

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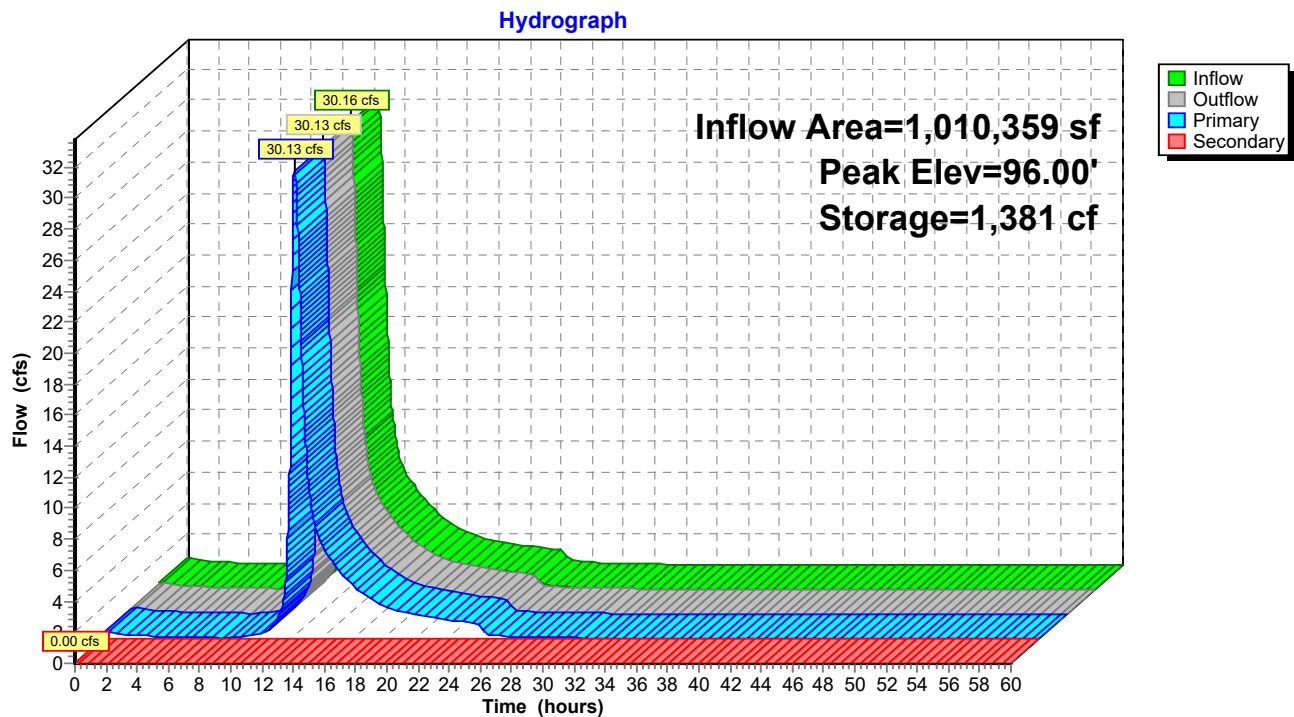
Summary for Link SP1: Study Point 1

Inflow Area =   1,528,701 sf,   9.73% Impervious, Inflow Depth =   3.33"   for 25 YR event
Inflow   =   94.00 cfs @   12.27 hrs, Volume=   424,804 cf
Primary   =   94.00 cfs @   12.27 hrs, Volume=   424,804 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP1: Study Point 1

Hydrograph

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Summary for Link SP2: Study Point 2

Inflow Area =   2,189,839 sf, 13.22% Impervious, Inflow Depth =   3.30"   for 25 YR event
Inflow   =   121.14 cfs @   12.29 hrs, Volume=   601,560 cf
Primary   =   121.14 cfs @   12.29 hrs, Volume=   601,560 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP2: Study Point 2

Hydrograph

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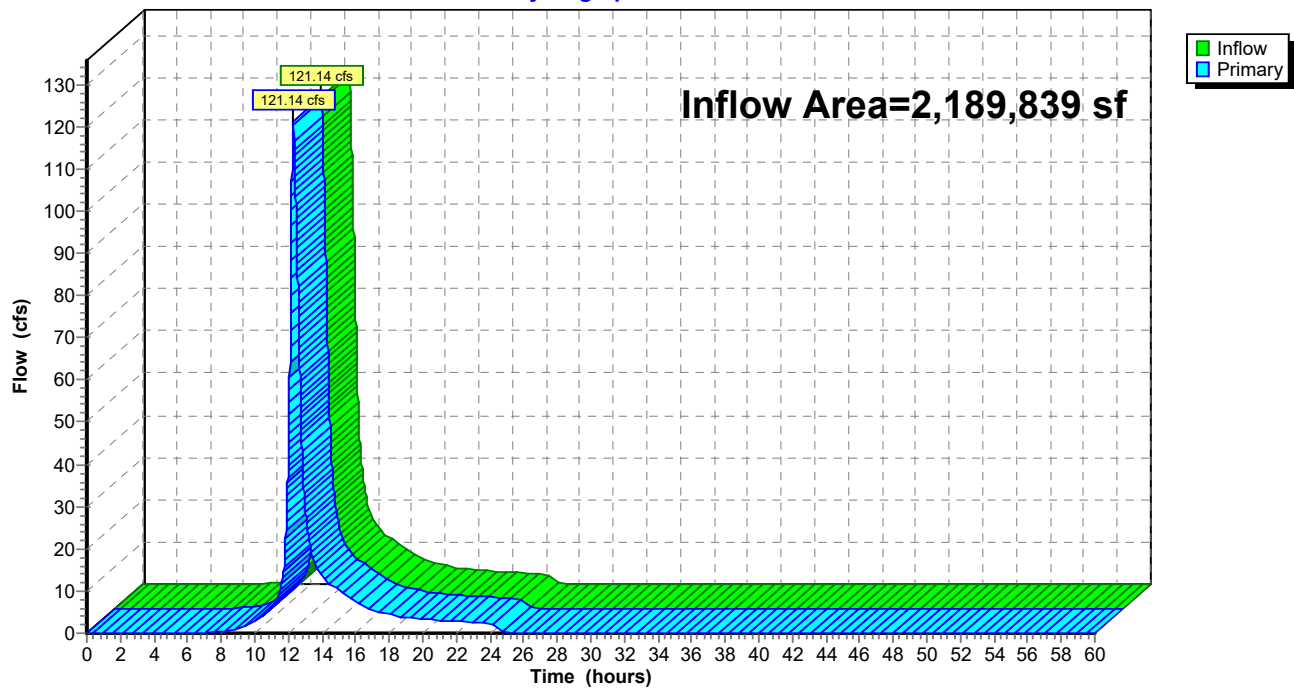
Summary for Link SP3: Study Point 3

Inflow Area =   1,010,359 sf,   8.20% Impervious, Inflow Depth > 2.60"   for 25 YR event
Inflow   =   30.13 cfs @   12.26 hrs, Volume=   218,754 cf
Primary   =   30.13 cfs @   12.26 hrs, Volume=   218,754 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP3: Study Point 3

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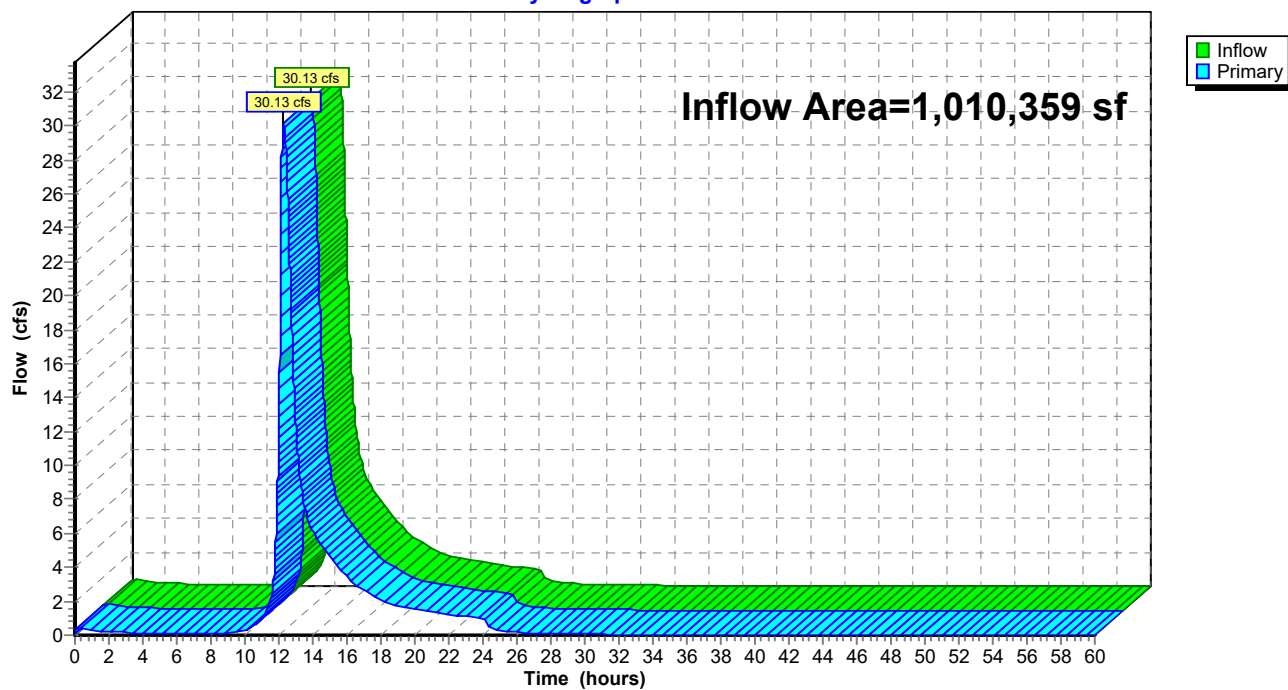
Summary for Link SP4: Study Point 4

Inflow Area =   246,174 sf, 24.95% Impervious, Inflow Depth =   3.32"   for 25 YR event
Inflow   =   14.43 cfs @   12.25 hrs, Volume=   68,145 cf
Primary   =   14.43 cfs @   12.25 hrs, Volume=   68,145 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP4: Study Point 4

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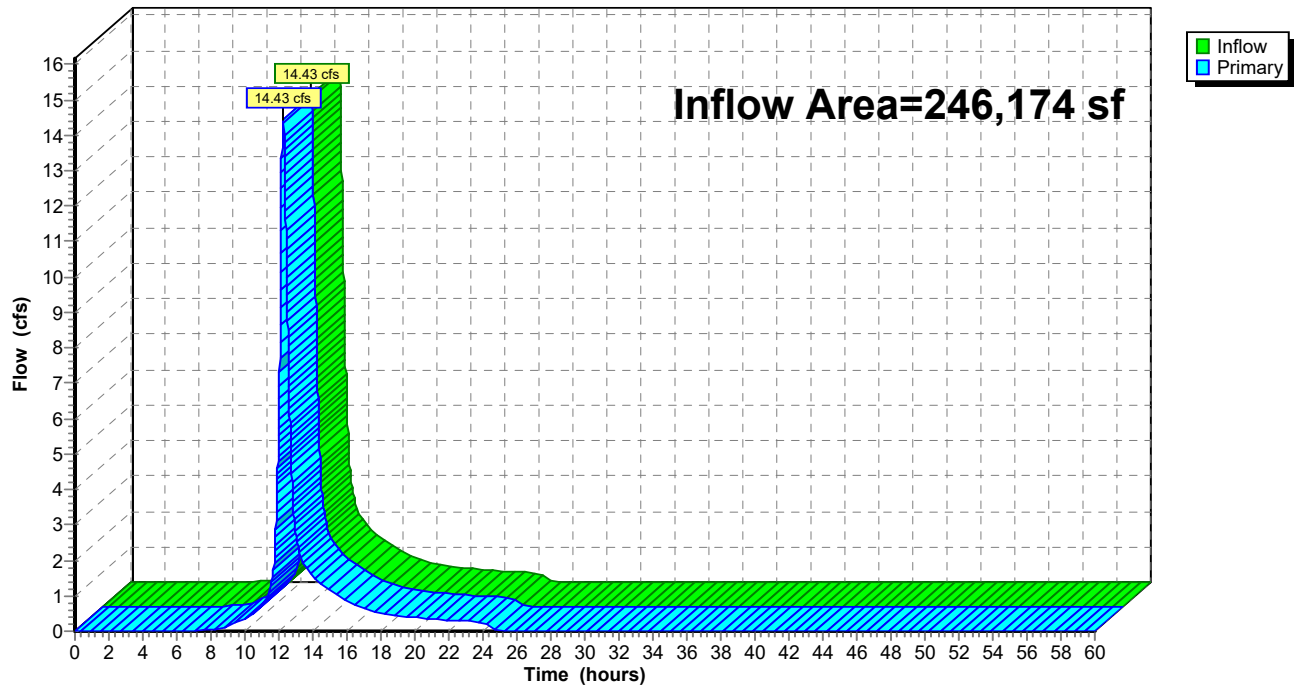
Summary for Link SP5: Study Point 5

Inflow Area =   213,126 sf, 16.54% Impervious, Inflow Depth >   3.02"   for 25 YR event
Inflow   =   10.05 cfs @   12.20 hrs, Volume=   53,603 cf
Primary   =   10.05 cfs @   12.20 hrs, Volume=   53,603 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP5: Study Point 5

Hydrograph

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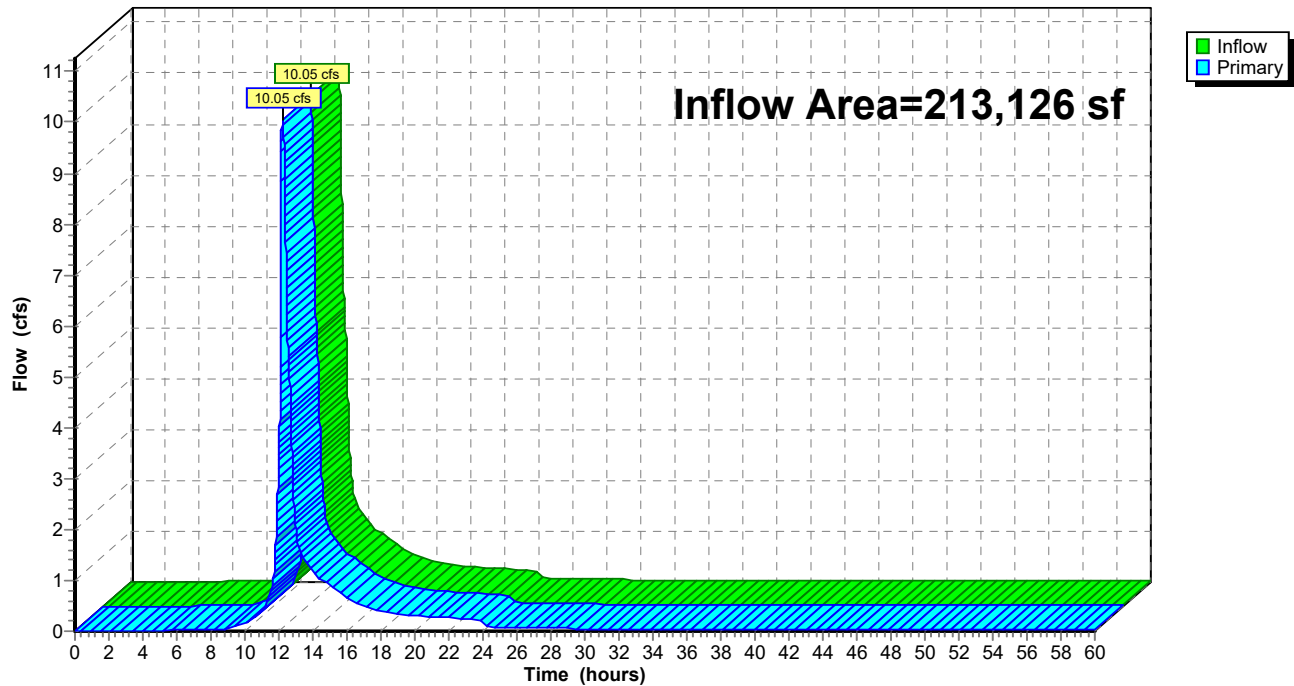
Summary for Link SP6: Study Point 6

Inflow Area =   301,110 sf, 21.45% Impervious, Inflow Depth = 2.73"   for 25 YR event
Inflow   =   18.93 cfs @ 12.12 hrs, Volume=   68,387 cf
Primary   =   18.93 cfs @ 12.12 hrs, Volume=   68,387 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP6: Study Point 6

Hydrograph
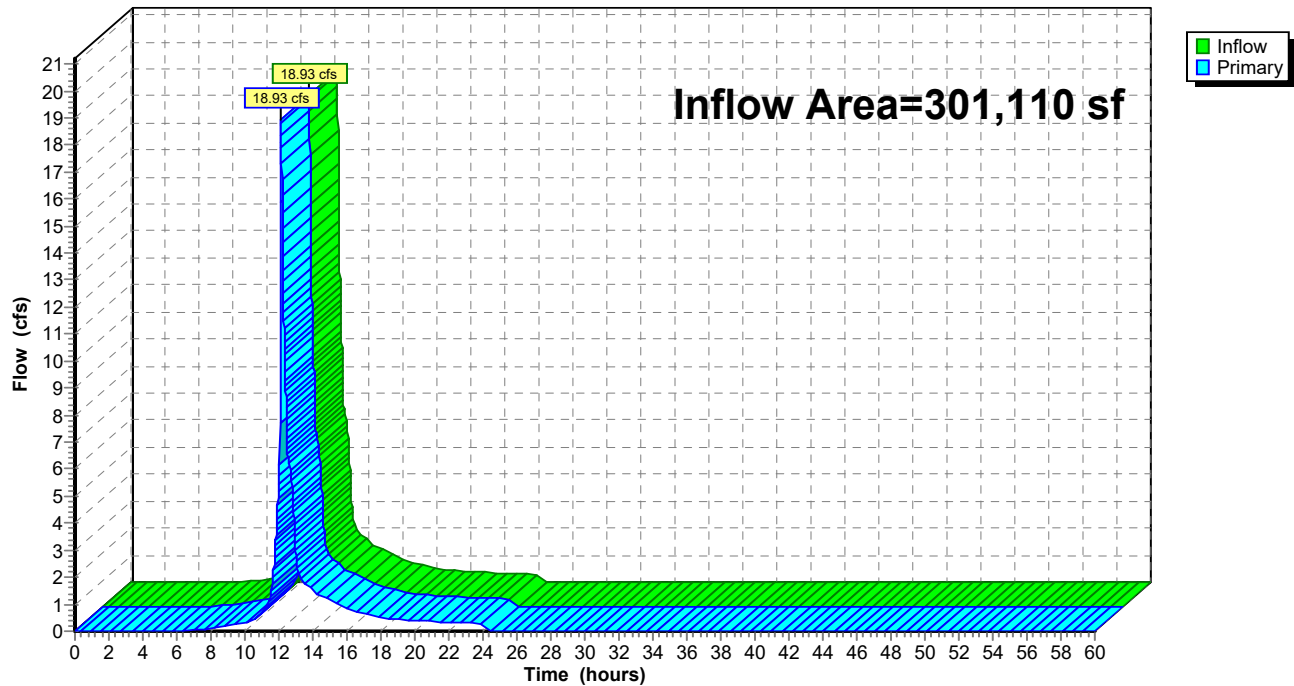
Attachment C

Post-Development Stormwater Modeling
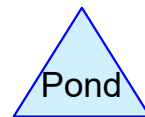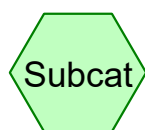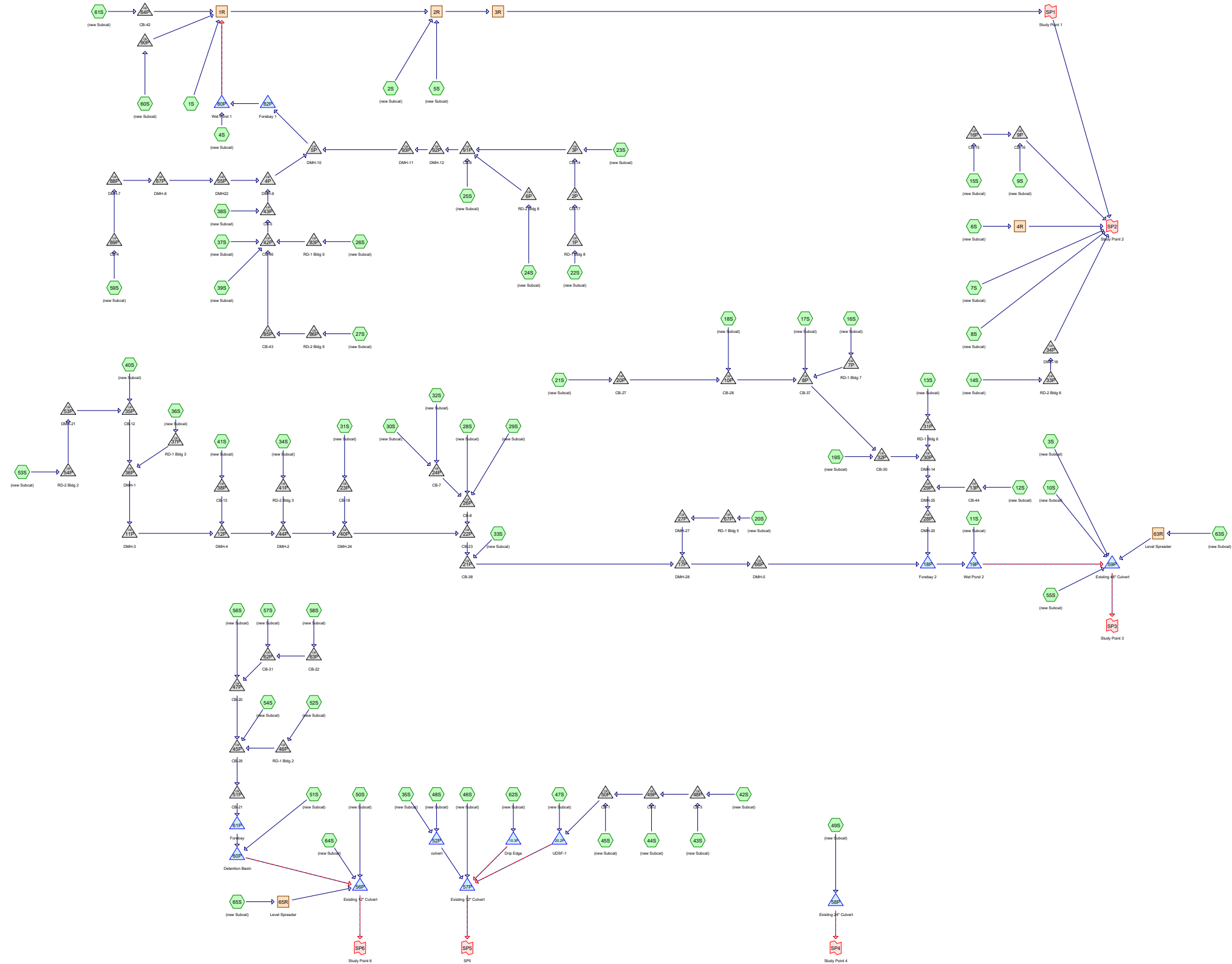
Routing Diagram for 16405 POST-DEV PHASE2
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Subcat Reach Pond Link

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
898,582	61	>75% Grass cover, Good, HSG B (1S, 6S, 7S, 9S, 10S, 11S, 12S, 15S, 17S, 18S, 19S, 21S, 22S, 23S, 25S, 29S, 31S, 32S, 33S, 35S, 37S, 38S, 40S, 41S, 47S, 48S, 50S, 51S, 54S, 55S, 56S, 57S, 58S, 59S, 61S, 63S, 64S, 65S)
138,923	74	>75% Grass cover, Good, HSG C (4S, 5S, 6S, 7S, 9S, 15S, 25S, 37S, 38S)
227,197	80	>75% Grass cover, Good, HSG D (5S, 6S, 10S, 11S, 23S, 25S, 33S, 35S, 47S, 48S, 50S, 51S, 54S, 55S)
27,040	96	Gravel surface, HSG B (7S, 10S, 11S, 33S, 55S, 63S)
18,731	96	Gravel surface, HSG C (1S, 2S, 4S, 5S, 6S, 7S)
15,116	96	Gravel surface, HSG D (2S, 5S, 6S, 10S, 11S, 33S, 55S)
60,481	61	Pasture/grassland/range, Good, HSG B (3S, 6S, 8S, 46S)
886,777	74	Pasture/grassland/range, Good, HSG C (1S, 2S, 3S, 6S, 8S)
487,631	80	Pasture/grassland/range, Good, HSG D (1S, 2S, 46S, 49S)
246,529	98	Paved parking, HSG B (1S, 6S, 7S, 9S, 10S, 11S, 12S, 15S, 18S, 19S, 21S, 23S, 25S, 29S, 31S, 32S, 33S, 35S, 38S, 40S, 41S, 48S, 50S, 51S, 55S, 57S, 58S, 59S, 61S, 63S, 64S, 65S)
47,305	98	Paved parking, HSG C (1S, 5S, 6S, 7S, 9S, 25S, 38S)
83,714	98	Paved parking, HSG D (5S, 6S, 11S, 25S, 33S, 42S, 43S, 44S, 45S, 46S, 47S, 48S, 49S, 50S, 51S)
213,906	98	Roofs, HSG B (7S, 13S, 14S, 16S, 20S, 22S, 23S, 24S, 26S, 27S, 28S, 30S, 31S, 34S, 36S, 38S, 39S, 52S, 53S, 60S)
15,604	98	Roofs, HSG C (6S, 16S, 23S, 26S)
30,921	98	Roofs, HSG D (22S, 43S, 44S, 45S, 52S, 62S)
202	98	Unconnected pavement, HSG B (1S)
11,404	98	Unconnected pavement, HSG B concrete (6S, 7S, 12S, 15S, 21S, 22S, 24S, 25S, 29S, 31S, 32S, 35S, 37S, 38S, 40S, 41S, 48S, 50S, 57S, 58S, 59S, 61S)
182	98	Unconnected pavement, HSG C (1S)
490	98	Unconnected pavement, HSG C concrete (6S, 9S, 25S)
1,838	98	Unconnected pavement, HSG D (49S)
7,381	98	Unconnected pavement, HSG D concrete (43S, 44S, 45S, 46S, 47S, 48S, 50S, 62S)
890	80	Unconnected pavement, HSG D riprap (62S)
14,302	98	Water Surface, HSG C (4S)
20,063	98	Water Surface, HSG D (11S)
266,094	55	Woods, Good, HSG B (46S, 50S, 55S, 64S)
126,705	70	Woods, Good, HSG C (3S, 6S)
120,827	77	Woods, Good, HSG D (3S, 6S, 46S, 49S, 55S)
3,968,835	**75**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
1,724,238	HSG B	1S, 3S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S, 20S, 21S, 22S, 23S, 24S, 25S, 26S, 27S, 28S, 29S, 30S, 31S, 32S, 33S, 34S, 35S, 36S, 37S, 38S, 39S, 40S, 41S, 46S, 47S, 48S, 50S, 51S, 52S, 53S, 54S, 55S, 56S, 57S, 58S, 59S, 60S, 61S, 63S, 64S, 65S
1,249,019	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 15S, 16S, 23S, 25S, 26S, 37S, 38S
995,578	HSG D	1S, 2S, 3S, 5S, 6S, 10S, 11S, 22S, 23S, 25S, 33S, 35S, 42S, 43S, 44S, 45S, 46S, 47S, 48S, 49S, 50S, 51S, 52S, 54S, 55S, 62S
0	Other	
3,968,835		**TOTAL AREA**

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S:
Runoff Area=578,364 sf 6.55% Impervious Runoff Depth=1.08"
Flow Length=832' Tc=13.9 min CN=76 Runoff=12.52 cfs 52,196 cf

Subcatchment2S: (new Subcat)
Runoff Area=687,981 sf 0.00% Impervious Runoff Depth=1.14"
Flow Length=831' Tc=13.2 min CN=77 Runoff=16.17 cfs 65,409 cf

Subcatchment3S: (new Subcat)
Runoff Area=136,619 sf 0.00% Impervious Runoff Depth=0.87"
Flow Length=310' Tc=8.9 min CN=72 Runoff=2.63 cfs 9,885 cf

Subcatchment4S: (new Subcat)
Runoff Area=86,070 sf 16.62% Impervious Runoff Depth=1.26"
Flow Length=265' Tc=12.2 min CN=79 Runoff=2.34 cfs 9,052 cf

Subcatchment5S: (new Subcat)
Runoff Area=25,709 sf 20.78% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=84 Runoff=1.11 cfs 3,426 cf

Subcatchment6S: (new Subcat)
Runoff Area=330,507 sf 7.29% Impervious Runoff Depth=0.97"
Flow Length=632' Tc=17.6 min CN=74 Runoff=5.74 cfs 26,779 cf

Subcatchment7S: (new Subcat)
Runoff Area=98,828 sf 9.37% Impervious Runoff Depth=0.64"
Flow Length=714' Tc=22.4 min CN=67 Runoff=0.89 cfs 5,232 cf

Subcatchment8S: (new Subcat)
Runoff Area=27,538 sf 0.00% Impervious Runoff Depth=0.55"
Flow Length=200' Tc=16.6 min CN=65 Runoff=0.22 cfs 1,268 cf

Subcatchment9S: (new Subcat)
Runoff Area=6,009 sf 21.55% Impervious Runoff Depth=1.26"
Tc=6.0 min CN=79 Runoff=0.20 cfs 632 cf

Subcatchment10S: (new Subcat)
Runoff Area=102,734 sf 1.00% Impervious Runoff Depth=0.87"
Flow Length=449' Tc=8.1 min CN=72 Runoff=2.04 cfs 7,433 cf

Subcatchment11S: (new Subcat)
Runoff Area=182,692 sf 14.21% Impervious Runoff Depth=1.08"
Flow Length=389' Tc=17.1 min CN=76 Runoff=3.65 cfs 16,487 cf

Subcatchment12S: (new Subcat)
Runoff Area=41,424 sf 18.07% Impervious Runoff Depth=0.68"
Flow Length=221' Tc=14.6 min CN=68 Runoff=0.48 cfs 2,344 cf

Subcatchment13S: (new Subcat)
Runoff Area=16,743 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.16 cfs 4,001 cf

Subcatchment14S: (new Subcat)
Runoff Area=13,471 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.93 cfs 3,219 cf

Subcatchment15S: (new Subcat)
Runoff Area=31,583 sf 20.42% Impervious Runoff Depth=0.72"
Flow Length=165' Tc=19.7 min CN=69 Runoff=0.36 cfs 1,905 cf

Subcatchment16S: (new Subcat)
Runoff Area=19,321 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.33 cfs 4,618 cf

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Subcatchment17S: (new Subcat) Runoff Area=1,743 sf 0.00% Impervious Runoff Depth=0.40"
Tc=6.0 min CN=61 Runoff=0.01 cfs 59 cf

Subcatchment18S: (new Subcat) Runoff Area=9,122 sf 51.75% Impervious Runoff Depth=1.33"
Tc=6.0 min CN=80 Runoff=0.32 cfs 1,008 cf

Subcatchment19S: (new Subcat) Runoff Area=32,847 sf 1.36% Impervious Runoff Depth=0.44"
Flow Length=156' Tc=17.2 min CN=62 Runoff=0.18 cfs 1,201 cf

Subcatchment20S: (new Subcat) Runoff Area=13,568 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.94 cfs 3,243 cf

Subcatchment21S: (new Subcat) Runoff Area=31,386 sf 49.51% Impervious Runoff Depth=1.26"
Tc=6.0 min CN=79 Runoff=1.05 cfs 3,301 cf

Subcatchment22S: (new Subcat) Runoff Area=31,961 sf 97.89% Impervious Runoff Depth=2.76"
Tc=6.0 min CN=97 Runoff=2.17 cfs 7,344 cf

Subcatchment23S: (new Subcat) Runoff Area=24,081 sf 4.84% Impervious Runoff Depth=1.08"
Flow Length=165' Slope=0.0100 '/' Tc=21.7 min CN=76 Runoff=0.44 cfs 2,173 cf

Subcatchment24S: (new Subcat) Runoff Area=7,955 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.55 cfs 1,901 cf

Subcatchment25S: (new Subcat) Runoff Area=40,544 sf 71.87% Impervious Runoff Depth=2.26"
Flow Length=280' Slope=0.0300 '/' Tc=6.0 min CN=92 Runoff=2.41 cfs 7,621 cf

Subcatchment26S: (new Subcat) Runoff Area=8,835 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.61 cfs 2,111 cf

Subcatchment27S: (new Subcat) Runoff Area=12,220 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.84 cfs 2,920 cf

Subcatchment28S: (new Subcat) Runoff Area=6,466 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.45 cfs 1,545 cf

Subcatchment29S: (new Subcat) Runoff Area=18,162 sf 5.58% Impervious Runoff Depth=0.48"
Flow Length=223' Tc=16.6 min CN=63 Runoff=0.12 cfs 719 cf

Subcatchment30S: (new Subcat) Runoff Area=6,450 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.45 cfs 1,541 cf

Subcatchment31S: (new Subcat) Runoff Area=19,528 sf 47.87% Impervious Runoff Depth=1.26"
Flow Length=120' Tc=10.5 min CN=79 Runoff=0.56 cfs 2,054 cf

Subcatchment32S: (new Subcat) Runoff Area=21,435 sf 11.90% Impervious Runoff Depth=0.55"
Flow Length=163' Tc=10.6 min CN=65 Runoff=0.20 cfs 987 cf

Subcatchment33S: (new Subcat) Runoff Area=50,937 sf 25.74% Impervious Runoff Depth=1.20"
Flow Length=255' Tc=7.0 min CN=78 Runoff=1.55 cfs 5,096 cf

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Subcatchment34S: (new Subcat) Runoff Area=11,734 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 2,804 cf

Subcatchment35S: (new Subcat) Runoff Area=10,666 sf 42.60% Impervious Runoff Depth=1.26"
Tc=6.0 min CN=79 Runoff=0.36 cfs 1,122 cf

Subcatchment36S: (new Subcat) Runoff Area=22,658 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.56 cfs 5,415 cf

Subcatchment37S: (new Subcat) Runoff Area=44,822 sf 1.90% Impervious Runoff Depth=0.44"
Flow Length=262' Tc=16.4 min CN=62 Runoff=0.25 cfs 1,639 cf

Subcatchment38S: (new Subcat) Runoff Area=28,217 sf 55.59% Impervious Runoff Depth=1.67"
Flow Length=270' Tc=6.0 min CN=85 Runoff=1.27 cfs 3,933 cf

Subcatchment39S: (new Subcat) Runoff Area=11,156 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.77 cfs 2,666 cf

Subcatchment40S: (new Subcat) Runoff Area=41,287 sf 31.37% Impervious Runoff Depth=0.92"
Flow Length=185' Slope=0.0100 '/' Tc=17.5 min CN=73 Runoff=0.67 cfs 3,163 cf

Subcatchment41S: (new Subcat) Runoff Area=22,703 sf 29.63% Impervious Runoff Depth=0.87"
Flow Length=130' Tc=10.4 min CN=72 Runoff=0.42 cfs 1,643 cf

Subcatchment42S: (new Subcat) Runoff Area=1,070 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.07 cfs 256 cf

Subcatchment43S: (new Subcat) Runoff Area=10,083 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.70 cfs 2,410 cf

Subcatchment44S: (new Subcat) Runoff Area=10,169 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.70 cfs 2,430 cf

Subcatchment45S: (new Subcat) Runoff Area=6,437 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.44 cfs 1,538 cf

Subcatchment46S: (new Subcat) Runoff Area=86,272 sf 3.63% Impervious Runoff Depth=0.59"
Flow Length=250' Tc=12.2 min CN=66 Runoff=0.87 cfs 4,265 cf

Subcatchment47S: (new Subcat) Runoff Area=10,192 sf 14.20% Impervious Runoff Depth=1.14"
Tc=6.0 min UI Adjusted CN=77 Runoff=0.30 cfs 969 cf

Subcatchment48S: (new Subcat) Runoff Area=50,448 sf 27.34% Impervious Runoff Depth=1.20"
Flow Length=175' Tc=12.2 min UI Adjusted CN=78 Runoff=1.29 cfs 5,047 cf

Subcatchment49S: (new Subcat) Runoff Area=60,949 sf 3.84% Impervious Runoff Depth=1.20"
Flow Length=335' Tc=15.3 min CN=78 Runoff=1.44 cfs 6,098 cf

Subcatchment50S: (new Subcat) Runoff Area=156,043 sf 45.81% Impervious Runoff Depth=1.20"
Flow Length=716' Tc=6.0 min CN=78 Runoff=4.92 cfs 15,612 cf

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Subcatchment51S: (new Subcat)   Runoff Area=19,586 sf 97.39% Impervious Runoff Depth=2.76"
Tc=6.0 min CN=97 Runoff=1.33 cfs 4,501 cf

Subcatchment52S: (new Subcat)   Runoff Area=22,942 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.58 cfs 5,483 cf

Subcatchment53S: (new Subcat)   Runoff Area=16,121 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.11 cfs 3,853 cf

Subcatchment54S: (new Subcat)   Runoff Area=837 sf 0.00% Impervious Runoff Depth=0.77"
Tc=6.0 min CN=70 Runoff=0.02 cfs 54 cf

Subcatchment55S: (new Subcat)   Runoff Area=212,856 sf 2.27% Impervious Runoff Depth=0.40"
Flow Length=380' Tc=13.7 min CN=61 Runoff=1.08 cfs 7,163 cf

Subcatchment56S: (new Subcat)   Runoff Area=3,283 sf 0.00% Impervious Runoff Depth=0.40"
Tc=6.0 min CN=61 Runoff=0.02 cfs 110 cf

Subcatchment57S: (new Subcat)   Runoff Area=5,849 sf 78.90% Impervious Runoff Depth=2.08"
Tc=6.0 min CN=90 Runoff=0.32 cfs 1,012 cf

Subcatchment58S: (new Subcat)   Runoff Area=33,565 sf 25.72% Impervious Runoff Depth=0.77"
Flow Length=202' Slope=0.0100 '/' Tc=21.5 min UI Adjusted CN=70 Runoff=0.40 cfs 2,155 cf

Subcatchment59S: (new Subcat)   Runoff Area=46,015 sf 1.68% Impervious Runoff Depth=0.44"
Flow Length=295' Slope=0.0200 '/' Tc=17.8 min CN=62 Runoff=0.25 cfs 1,683 cf

Subcatchment60S: (new Subcat)   Runoff Area=14,440 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.00 cfs 3,451 cf

Subcatchment61S: (new Subcat)   Runoff Area=22,331 sf 84.42% Impervious Runoff Depth=2.26"
Flow Length=190' Tc=6.8 min CN=92 Runoff=1.29 cfs 4,198 cf

Subcatchment62S: (new Subcat)   Runoff Area=11,024 sf 91.93% Impervious Runoff Depth=2.76"
Tc=6.0 min CN=97 Runoff=0.75 cfs 2,533 cf

Subcatchment63S: (new Subcat)   Runoff Area=125,641 sf 4.11% Impervious Runoff Depth=0.51"
Flow Length=897' Tc=23.0 min CN=64 Runoff=0.81 cfs 5,374 cf

Subcatchment64S: (new Subcat)   Runoff Area=93,400 sf 3.13% Impervious Runoff Depth=0.34"
Flow Length=375' Tc=16.1 min CN=59 Runoff=0.34 cfs 2,629 cf

Subcatchment65S: (new Subcat)   Runoff Area=33,206 sf 38.00% Impervious Runoff Depth=1.03"
Flow Length=178' Tc=6.0 min CN=75 Runoff=0.87 cfs 2,841 cf

Reach 1R: Avg. Flow Depth=0.50' Max Vel=3.52 fps Inflow=14.27 cfs 125,668 cf
n=0.030 L=370.0' S=0.0243 '/' Capacity=6,152.65 cfs Outflow=14.11 cfs 125,631 cf

Reach 2R: Avg. Flow Depth=0.73' Max Vel=3.91 fps Inflow=30.83 cfs 194,465 cf
n=0.030 L=875.0' S=0.0194 '/' Capacity=20,929.72 cfs Outflow=29.35 cfs 194,389 cf

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Reach 3R: Avg. Flow Depth=0.43' Max Vel=1.56 fps Inflow=29.35 cfs 194,389 cf
n=0.030   L=300.0'   S=0.0033 '/'   Capacity=2,325.16 cfs   Outflow=28.64 cfs 194,299 cf

Reach 4R: Avg. Flow Depth=0.39' Max Vel=4.57 fps Inflow=5.74 cfs 26,779 cf
n=0.030   L=301.0'   S=0.0465 '/'   Capacity=5,556.65 cfs   Outflow=5.71 cfs 26,779 cf

Reach 63R: Level Spreader Avg. Flow Depth=0.04' Max Vel=0.15 fps Inflow=0.81 cfs 5,374 cf
n=0.240   L=150.0'   S=0.0400 '/'   Capacity=839.01 cfs   Outflow=0.63 cfs 5,374 cf

Reach 65R: Level Spreader Avg. Flow Depth=0.03' Max Vel=0.21 fps Inflow=0.87 cfs 2,841 cf
n=0.240   L=100.0'   S=0.1200 '/'   Capacity=1,453.20 cfs   Outflow=0.66 cfs 2,841 cf

Pond 1P: RD-1 Bldg 8 Peak Elev=140.90' Inflow=2.17 cfs 7,344 cf
15.0" Round Culvert n=0.013 L=12.0' S=0.0092 '/' Outflow=2.17 cfs 7,344 cf

Pond 2P: CB-17 Peak Elev=140.59' Inflow=2.17 cfs 7,344 cf
15.0" Round Culvert n=0.013 L=144.0' S=0.0075 '/' Outflow=2.17 cfs 7,344 cf

Pond 3P: CB-14 Peak Elev=139.41' Inflow=2.36 cfs 9,517 cf
18.0" Round Culvert n=0.013 L=132.0' S=0.0075 '/' Outflow=2.36 cfs 9,517 cf

Pond 4P: DMH-9 Peak Elev=139.09' Inflow=3.59 cfs 14,953 cf
24.0" Round Culvert n=0.013 L=86.0' S=0.0150 '/' Outflow=3.59 cfs 14,953 cf

Pond 5P: DMH-10 Peak Elev=135.90' Inflow=8.91 cfs 33,993 cf
24.0" Round Culvert n=0.013 L=77.0' S=0.0100 '/' Outflow=8.91 cfs 33,993 cf

Pond 6P: RD-2 Bldg 8 Peak Elev=143.37' Inflow=0.55 cfs 1,901 cf
12.0" Round Culvert n=0.013 L=36.0' S=0.0556 '/' Outflow=0.55 cfs 1,901 cf

Pond 7P: RD-1 Bldg 7 Peak Elev=144.21' Inflow=1.33 cfs 4,618 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0414 '/' Outflow=1.33 cfs 4,618 cf

Pond 8P: CB-37 Peak Elev=140.80' Inflow=2.71 cfs 8,985 cf
18.0" Round Culvert n=0.013 L=138.0' S=0.0050 '/' Outflow=2.71 cfs 8,985 cf

Pond 9P: CB-16 Peak Elev=134.11' Inflow=0.45 cfs 2,537 cf
12.0" Round Culvert n=0.013 L=140.0' S=0.0699 '/' Outflow=0.45 cfs 2,537 cf

Pond 10.3P: Drip Edge Peak Elev=148.69' Storage=938 cf Inflow=0.75 cfs 2,533 cf
Primary=0.15 cfs 2,519 cf   Secondary=0.00 cfs 0 cf   Outflow=0.15 cfs 2,519 cf

Pond 10P: CB-28 Peak Elev=141.21' Inflow=1.37 cfs 4,309 cf
18.0" Round Culvert n=0.013 L=42.0' S=0.0055 '/' Outflow=1.37 cfs 4,309 cf

Pond 11P: DMH-3 Peak Elev=146.56' Inflow=3.01 cfs 12,431 cf
18.0" Round Culvert n=0.013 L=46.0' S=0.0098 '/' Outflow=3.01 cfs 12,431 cf

Pond 12P: DMH-4 Peak Elev=145.99' Inflow=3.34 cfs 14,074 cf
18.0" Round Culvert n=0.013 L=241.0' S=0.0161 '/' Outflow=3.34 cfs 14,074 cf

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Pond 13P: CB-44

Peak Elev=138.32' Inflow=0.48 cfs 2,344 cf
15.0" Round Culvert n=0.013 L=163.0' S=0.0075 '/' Outflow=0.48 cfs 2,344 cf

Pond 16P: CB-15

Peak Elev=135.73' Inflow=0.36 cfs 1,905 cf
12.0" Round Culvert n=0.013 L=78.0' S=0.0200 '/' Outflow=0.36 cfs 1,905 cf

Pond 17P: DMH-28

Peak Elev=134.76' Inflow=8.15 cfs 32,064 cf
24.0" Round Culvert n=0.013 L=98.0' S=0.0099 '/' Outflow=8.15 cfs 32,064 cf

Pond 18P: Forebay 2

Peak Elev=117.36' Storage=1,524 cf Inflow=12.29 cfs 48,595 cf
Outflow=12.25 cfs 47,549 cf

Pond 19P: Wet Pond 2

Peak Elev=113.77' Storage=94,363 cf Inflow=14.55 cfs 64,036 cf
Primary=0.74 cfs 99,689 cf Secondary=0.00 cfs 0 cf Outflow=0.74 cfs 99,689 cf

Pond 20.2P: UDSF-1

Peak Elev=143.98' Storage=5,345 cf Inflow=2.22 cfs 7,603 cf
Primary=0.05 cfs 7,471 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 7,471 cf

Pond 20P: CB-27

Peak Elev=141.54' Inflow=1.05 cfs 3,301 cf
18.0" Round Culvert n=0.013 L=110.0' S=0.0051 '/' Outflow=1.05 cfs 3,301 cf

Pond 21P: CB-38

Peak Elev=136.12' Inflow=7.23 cfs 28,821 cf
24.0" Round Culvert n=0.013 L=138.0' S=0.0100 '/' Outflow=7.23 cfs 28,821 cf

Pond 22P: CB-23

Peak Elev=136.82' Inflow=5.68 cfs 23,725 cf
12.0" Round Culvert x 3.00 n=0.013 L=67.0' S=0.0149 '/' Outflow=5.68 cfs 23,725 cf

Pond 23P: CB-18

Peak Elev=141.21' Inflow=0.56 cfs 2,054 cf
8.0" Round Culvert n=0.013 L=185.0' S=0.0125 '/' Outflow=0.56 cfs 2,054 cf

Pond 24P: CB-7

Peak Elev=143.13' Inflow=0.59 cfs 2,528 cf
12.0" Round Culvert n=0.013 L=81.0' S=0.0360 '/' Outflow=0.59 cfs 2,528 cf

Pond 26P: CB-8

Peak Elev=140.22' Inflow=1.06 cfs 4,793 cf
15.0" Round Culvert n=0.013 L=36.0' S=0.0481 '/' Outflow=1.06 cfs 4,793 cf

Pond 27P: DMH-27

Peak Elev=143.46' Inflow=0.94 cfs 3,243 cf
8.0" Round Culvert n=0.013 L=185.0' S=0.0503 '/' Outflow=0.94 cfs 3,243 cf

Pond 28P: DMH-20

Peak Elev=137.05' Inflow=4.15 cfs 16,531 cf
24.0" Round Culvert n=0.013 L=194.0' S=0.0834 '/' Outflow=4.15 cfs 16,531 cf

Pond 29P: DMH-25

Peak Elev=137.32' Inflow=4.15 cfs 16,531 cf
12.0" Round Culvert x 4.00 n=0.013 L=37.0' S=0.0100 '/' Outflow=4.15 cfs 16,531 cf

Pond 30P: DMH-14

Peak Elev=138.88' Inflow=3.90 cfs 14,188 cf
24.0" Round Culvert n=0.013 L=129.0' S=0.0100 '/' Outflow=3.90 cfs 14,188 cf

Pond 31P: RD-1 Bldg 6

Peak Elev=143.06' Inflow=1.16 cfs 4,001 cf
12.0" Round Culvert n=0.013 L=32.0' S=0.0769 '/' Outflow=1.16 cfs 4,001 cf

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Pond 32P: CB-30

Peak Elev=139.99' Inflow=2.74 cfs 10,186 cf
18.0" Round Culvert n=0.013 L=191.0' S=0.0051 '/' Outflow=2.74 cfs 10,186 cf

Pond 33P: RD-2 Bldg 6

Peak Elev=143.50' Inflow=0.93 cfs 3,219 cf
12.0" Round Culvert n=0.013 L=10.0' S=0.0280 '/' Outflow=0.93 cfs 3,219 cf

Pond 34P: DMH-16

Peak Elev=143.12' Inflow=0.93 cfs 3,219 cf
12.0" Round Culvert n=0.013 L=126.0' S=0.0763 '/' Outflow=0.93 cfs 3,219 cf

Pond 35P: CB-12

Peak Elev=148.26' Inflow=1.46 cfs 7,016 cf
15.0" Round Culvert n=0.013 L=126.0' S=0.0102 '/' Outflow=1.46 cfs 7,016 cf

Pond 36P: DMH-1

Peak Elev=147.16' Inflow=3.01 cfs 12,431 cf
18.0" Round Culvert n=0.013 L=49.0' S=0.0100 '/' Outflow=3.01 cfs 12,431 cf

Pond 37P: RD-1 Bldg 3

Peak Elev=149.89' Inflow=1.56 cfs 5,415 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0403 '/' Outflow=1.56 cfs 5,415 cf

Pond 38P: CB-13

Peak Elev=146.26' Inflow=0.42 cfs 1,643 cf
12.0" Round Culvert n=0.013 L=29.0' S=0.0234 '/' Outflow=0.42 cfs 1,643 cf

Pond 40P: DMH-24

Peak Elev=138.26' Inflow=4.63 cfs 18,932 cf
18.0" Round Culvert n=0.013 L=111.0' S=0.0100 '/' Outflow=4.63 cfs 18,932 cf

Pond 41P: RD-2 Bldg 3

Peak Elev=148.74' Inflow=0.81 cfs 2,804 cf
12.0" Round Culvert n=0.013 L=23.0' S=0.0109 '/' Outflow=0.81 cfs 2,804 cf

Pond 42P: CB-46

Peak Elev=145.81' Inflow=2.27 cfs 9,337 cf
18.0" Round Culvert n=0.013 L=68.0' S=0.0060 '/' Outflow=2.27 cfs 9,337 cf

Pond 43P: CB-5

Peak Elev=145.15' Inflow=3.54 cfs 13,270 cf
12.0" Round Culvert x 3.00 n=0.013 L=119.0' S=0.0060 '/' Outflow=3.54 cfs 13,270 cf

Pond 44P: DMH-2

Peak Elev=142.12' Inflow=4.15 cfs 16,878 cf
18.0" Round Culvert n=0.013 L=153.0' S=0.0250 '/' Outflow=4.15 cfs 16,878 cf

Pond 45P: CB-29

Peak Elev=149.14' Inflow=2.08 cfs 8,814 cf
15.0" Round Culvert n=0.013 L=101.0' S=0.0075 '/' Outflow=2.08 cfs 8,814 cf

Pond 46P: RD-1 Bldg 2

Peak Elev=152.25' Inflow=1.58 cfs 5,483 cf
12.0" Round Culvert n=0.013 L=6.0' S=0.0217 '/' Outflow=1.58 cfs 5,483 cf

Pond 47P: CB-20

Peak Elev=149.68' Inflow=0.55 cfs 3,278 cf
12.0" Round Culvert n=0.013 L=115.0' S=0.0076 '/' Outflow=0.55 cfs 3,278 cf

Pond 48P: CB-3

Peak Elev=146.31' Inflow=0.77 cfs 2,665 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0042 '/' Outflow=0.77 cfs 2,665 cf

Pond 49P: CB-2

Peak Elev=145.90' Inflow=1.47 cfs 5,096 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=1.47 cfs 5,096 cf

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Pond 50P: CB-1

Peak Elev=145.27' Inflow=1.92 cfs 6,634 cf
12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=1.92 cfs 6,634 cf

Pond 51P: CB-21

Peak Elev=148.53' Inflow=2.08 cfs 8,814 cf
15.0" Round Culvert n=0.013 L=235.0' S=0.0099 '/' Outflow=2.08 cfs 8,814 cf

Pond 52P: culvert

Peak Elev=146.28' Storage=528 cf Inflow=1.56 cfs 6,169 cf
18.0" Round Culvert n=0.013 L=107.0' S=0.0051 '/' Outflow=1.30 cfs 6,169 cf

Pond 53P: DMH-21

Peak Elev=151.15' Inflow=1.11 cfs 3,853 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0401 '/' Outflow=1.11 cfs 3,853 cf

Pond 54P: RD-2 Bldg 2

Peak Elev=151.45' Inflow=1.11 cfs 3,853 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0108 '/' Outflow=1.11 cfs 3,853 cf

Pond 55P: DMH22

Peak Elev=140.22' Inflow=0.25 cfs 1,683 cf
24.0" Round Culvert n=0.013 L=108.0' S=0.0151 '/' Outflow=0.25 cfs 1,683 cf

Pond 56P: Existing 12" Culvert

Peak Elev=116.88' Storage=924 cf Inflow=5.59 cfs 34,175 cf
Primary=4.45 cfs 34,175 cf Secondary=0.00 cfs 0 cf Outflow=4.45 cfs 34,175 cf

Pond 57P: Existing 12" Culvert

Peak Elev=116.87' Storage=206 cf Inflow=2.34 cfs 20,424 cf
Primary=2.31 cfs 20,419 cf Secondary=0.00 cfs 0 cf Outflow=2.31 cfs 20,419 cf

Pond 58P: Existing 24" Culvert

Peak Elev=110.48' Storage=322 cf Inflow=1.44 cfs 6,098 cf
Primary=1.38 cfs 6,098 cf Secondary=0.00 cfs 0 cf Outflow=1.38 cfs 6,098 cf

Pond 59P: Existing 48" Culvert

Peak Elev=94.83' Storage=262 cf Inflow=5.92 cfs 129,543 cf
Primary=5.89 cfs 129,541 cf Secondary=0.00 cfs 0 cf Outflow=5.89 cfs 129,541 cf

Pond 60P: Detention Basin

Peak Elev=143.44' Storage=7,622 cf Inflow=3.39 cfs 13,092 cf
Primary=0.12 cfs 13,094 cf Secondary=0.00 cfs 0 cf Outflow=0.12 cfs 13,094 cf

Pond 61P: Forebay

Peak Elev=145.27' Storage=309 cf Inflow=2.08 cfs 8,814 cf
Outflow=2.07 cfs 8,592 cf

Pond 62P: CB-31

Peak Elev=151.28' Inflow=0.53 cfs 3,167 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0074 '/' Outflow=0.53 cfs 3,167 cf

Pond 63P: CB-22

Peak Elev=151.31' Inflow=0.40 cfs 2,155 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0070 '/' Outflow=0.40 cfs 2,155 cf

Pond 64P: CB-42

Peak Elev=155.17' Inflow=1.29 cfs 4,198 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=1.29 cfs 4,198 cf

Pond 66P: DMH-5

Peak Elev=133.63' Inflow=8.15 cfs 32,064 cf
24.0" Round Culvert n=0.013 L=287.0' S=0.0361 '/' Outflow=8.15 cfs 32,064 cf

Pond 67P: RD-1 Bldg 5

Peak Elev=143.77' Inflow=0.94 cfs 3,243 cf
8.0" Round Culvert n=0.013 L=8.0' S=0.0100 '/' Outflow=0.94 cfs 3,243 cf

Pond 80P: Wet Pond 1   Peak Elev=127.70' Storage=77,047 cf Inflow=10.73 cfs 38,654 cf
Primary=0.41 cfs 65,824 cf Secondary=0.00 cfs 0 cf Outflow=0.41 cfs 65,824 cf

Pond 82P: Forebay 1   Peak Elev=129.27' Storage=5,020 cf Inflow=8.91 cfs 33,993 cf
Outflow=8.80 cfs 29,601 cf

Pond 83P: RD-1 Bldg 9   Peak Elev=146.39' Inflow=0.61 cfs 2,111 cf
12.0" Round Culvert n=0.013 L=23.0' S=0.0200 '/' Outflow=0.61 cfs 2,111 cf

Pond 85P: CB-43   Peak Elev=146.22' Inflow=0.84 cfs 2,920 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=0.84 cfs 2,920 cf

Pond 86P: RD-2 Bldg 9   Peak Elev=146.61' Inflow=0.84 cfs 2,920 cf
8.0" Round Culvert n=0.013 L=18.0' S=0.0194 '/' Outflow=0.84 cfs 2,920 cf

Pond 87P: DMH-8   Peak Elev=141.79' Inflow=0.25 cfs 1,683 cf
24.0" Round Culvert n=0.013 L=80.0' S=0.0184 '/' Outflow=0.25 cfs 1,683 cf

Pond 88P: DMH-7   Peak Elev=146.10' Inflow=0.25 cfs 1,683 cf
24.0" Round Culvert n=0.013 L=206.0' S=0.0204 '/' Outflow=0.25 cfs 1,683 cf

Pond 89P: CB-4   Peak Elev=149.17' Inflow=0.25 cfs 1,683 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0368 '/' Outflow=0.25 cfs 1,683 cf

Pond 90P: Peak Elev=158.02' Inflow=1.00 cfs 3,451 cf
12.0" Round Culvert n=0.013 L=176.0' S=0.0230 '/' Outflow=1.00 cfs 3,451 cf

Pond 91P: CB-6   Peak Elev=138.42' Inflow=5.32 cfs 19,040 cf
12.0" Round Culvert x 3.00 n=0.013 L=137.0' S=0.0075 '/' Outflow=5.32 cfs 19,040 cf

Pond 92P: DMH-12   Peak Elev=137.56' Inflow=5.32 cfs 19,040 cf
24.0" Round Culvert n=0.013 L=67.5' S=0.0074 '/' Outflow=5.32 cfs 19,040 cf

Pond 93P: DMH-11   Peak Elev=136.90' Inflow=5.32 cfs 19,040 cf
24.0" Round Culvert n=0.013 L=111.0' S=0.0075 '/' Outflow=5.32 cfs 19,040 cf

Link SP1: Study Point 1   Inflow=28.64 cfs 194,299 cf
Primary=28.64 cfs 194,299 cf

Link SP2: Study Point 2   Inflow=36.21 cfs 233,335 cf
Primary=36.21 cfs 233,335 cf

Link SP3: Study Point 3   Inflow=5.89 cfs 129,541 cf
Primary=5.89 cfs 129,541 cf

Link SP4: Study Point 4   Inflow=1.38 cfs 6,098 cf
Primary=1.38 cfs 6,098 cf

Link SP5: SP5   Inflow=2.31 cfs 20,419 cf
Primary=2.31 cfs 20,419 cf

Link SP6: Study Point 6 Inflow=4.45 cfs 34,175 cf
Primary=4.45 cfs 34,175 cf

Total Runoff Area = 3,968,835 sf   Runoff Volume = 366,762 cf   Average Runoff Depth = 1.11"
82.52% Pervious = 3,274,994 sf   17.48% Impervious = 693,841 sf

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S:

Runoff Area=578,364 sf 6.55% Impervious Runoff Depth=2.21"
Flow Length=832' Tc=13.9 min CN=76 Runoff=26.64 cfs 106,510 cf

Subcatchment2S: (new Subcat)

Runoff Area=687,981 sf 0.00% Impervious Runoff Depth=2.29"
Flow Length=831' Tc=13.2 min CN=77 Runoff=33.60 cfs 131,409 cf

Subcatchment3S: (new Subcat)

Runoff Area=136,619 sf 0.00% Impervious Runoff Depth=1.89"
Flow Length=310' Tc=8.9 min CN=72 Runoff=6.19 cfs 21,570 cf

Subcatchment4S: (new Subcat)

Runoff Area=86,070 sf 16.62% Impervious Runoff Depth=2.46"
Flow Length=265' Tc=12.2 min CN=79 Runoff=4.65 cfs 17,649 cf

Subcatchment5S: (new Subcat)

Runoff Area=25,709 sf 20.78% Impervious Runoff Depth=2.91"
Tc=6.0 min CN=84 Runoff=2.00 cfs 6,227 cf

Subcatchment6S: (new Subcat)

Runoff Area=330,507 sf 7.29% Impervious Runoff Depth=2.05"
Flow Length=632' Tc=17.6 min CN=74 Runoff=12.78 cfs 56,450 cf

Subcatchment7S: (new Subcat)

Runoff Area=98,828 sf 9.37% Impervious Runoff Depth=1.53"
Flow Length=714' Tc=22.4 min CN=67 Runoff=2.48 cfs 12,602 cf

Subcatchment8S: (new Subcat)

Runoff Area=27,538 sf 0.00% Impervious Runoff Depth=1.39"
Flow Length=200' Tc=16.6 min CN=65 Runoff=0.69 cfs 3,198 cf

Subcatchment9S: (new Subcat)

Runoff Area=6,009 sf 21.55% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=79 Runoff=0.40 cfs 1,232 cf

Subcatchment10S: (new Subcat)

Runoff Area=102,734 sf 1.00% Impervious Runoff Depth=1.89"
Flow Length=449' Tc=8.1 min CN=72 Runoff=4.79 cfs 16,220 cf

Subcatchment11S: (new Subcat)

Runoff Area=182,692 sf 14.21% Impervious Runoff Depth=2.21"
Flow Length=389' Tc=17.1 min CN=76 Runoff=7.75 cfs 33,644 cf

Subcatchment12S: (new Subcat)

Runoff Area=41,424 sf 18.07% Impervious Runoff Depth=1.60"
Flow Length=221' Tc=14.6 min CN=68 Runoff=1.30 cfs 5,525 cf

Subcatchment13S: (new Subcat)

Runoff Area=16,743 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.73 cfs 6,089 cf

Subcatchment14S: (new Subcat)

Runoff Area=13,471 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.39 cfs 4,899 cf

Subcatchment15S: (new Subcat)

Runoff Area=31,583 sf 20.42% Impervious Runoff Depth=1.67"
Flow Length=165' Tc=19.7 min CN=69 Runoff=0.93 cfs 4,401 cf

Subcatchment16S: (new Subcat)

Runoff Area=19,321 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.99 cfs 7,026 cf

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Subcatchment17S: (new Subcat)
Runoff Area=1,743 sf 0.00% Impervious Runoff Depth=1.14"
Tc=6.0 min CN=61 Runoff=0.05 cfs 165 cf

Subcatchment18S: (new Subcat)
Runoff Area=9,122 sf 51.75% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=80 Runoff=0.63 cfs 1,936 cf

Subcatchment19S: (new Subcat)
Runoff Area=32,847 sf 1.36% Impervious Runoff Depth=1.20"
Flow Length=156' Tc=17.2 min CN=62 Runoff=0.67 cfs 3,279 cf

Subcatchment20S: (new Subcat)
Runoff Area=13,568 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.40 cfs 4,934 cf

Subcatchment21S: (new Subcat)
Runoff Area=31,386 sf 49.51% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=79 Runoff=2.08 cfs 6,436 cf

Subcatchment22S: (new Subcat)
Runoff Area=31,961 sf 97.89% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=97 Runoff=3.27 cfs 11,316 cf

Subcatchment23S: (new Subcat)
Runoff Area=24,081 sf 4.84% Impervious Runoff Depth=2.21"
Flow Length=165' Slope=0.0100 '/' Tc=21.7 min CN=76 Runoff=0.93 cfs 4,435 cf

Subcatchment24S: (new Subcat)
Runoff Area=7,955 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.82 cfs 2,893 cf

Subcatchment25S: (new Subcat)
Runoff Area=40,544 sf 71.87% Impervious Runoff Depth=3.70"
Flow Length=280' Slope=0.0300 '/' Tc=6.0 min CN=92 Runoff=3.85 cfs 12,499 cf

Subcatchment26S: (new Subcat)
Runoff Area=8,835 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.91 cfs 3,213 cf

Subcatchment27S: (new Subcat)
Runoff Area=12,220 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.26 cfs 4,444 cf

Subcatchment28S: (new Subcat)
Runoff Area=6,466 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.67 cfs 2,351 cf

Subcatchment29S: (new Subcat)
Runoff Area=18,162 sf 5.58% Impervious Runoff Depth=1.26"
Flow Length=223' Tc=16.6 min CN=63 Runoff=0.40 cfs 1,910 cf

Subcatchment30S: (new Subcat)
Runoff Area=6,450 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.67 cfs 2,346 cf

Subcatchment31S: (new Subcat)
Runoff Area=19,528 sf 47.87% Impervious Runoff Depth=2.46"
Flow Length=120' Tc=10.5 min CN=79 Runoff=1.11 cfs 4,004 cf

Subcatchment32S: (new Subcat)
Runoff Area=21,435 sf 11.90% Impervious Runoff Depth=1.39"
Flow Length=163' Tc=10.6 min CN=65 Runoff=0.64 cfs 2,489 cf

Subcatchment33S: (new Subcat)
Runoff Area=50,937 sf 25.74% Impervious Runoff Depth=2.38"
Flow Length=255' Tc=7.0 min CN=78 Runoff=3.14 cfs 10,084 cf

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Subcatchment34S: (new Subcat)
Runoff Area=11,734 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 4,267 cf

Subcatchment35S: (new Subcat)
Runoff Area=10,666 sf 42.60% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=79 Runoff=0.71 cfs 2,187 cf

Subcatchment36S: (new Subcat)
Runoff Area=22,658 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=2.34 cfs 8,240 cf

Subcatchment37S: (new Subcat)
Runoff Area=44,822 sf 1.90% Impervious Runoff Depth=1.20"
Flow Length=262' Tc=16.4 min CN=62 Runoff=0.94 cfs 4,475 cf

Subcatchment38S: (new Subcat)
Runoff Area=28,217 sf 55.59% Impervious Runoff Depth=3.00"
Flow Length=270' Tc=6.0 min CN=85 Runoff=2.26 cfs 7,055 cf

Subcatchment39S: (new Subcat)
Runoff Area=11,156 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.15 cfs 4,057 cf

Subcatchment40S: (new Subcat)
Runoff Area=41,287 sf 31.37% Impervious Runoff Depth=1.97"
Flow Length=185' Slope=0.0100 '/' Tc=17.5 min CN=73 Runoff=1.53 cfs 6,783 cf

Subcatchment41S: (new Subcat)
Runoff Area=22,703 sf 29.63% Impervious Runoff Depth=1.89"
Flow Length=130' Tc=10.4 min CN=72 Runoff=0.98 cfs 3,584 cf

Subcatchment42S: (new Subcat)
Runoff Area=1,070 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.11 cfs 389 cf

Subcatchment43S: (new Subcat)
Runoff Area=10,083 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.04 cfs 3,667 cf

Subcatchment44S: (new Subcat)
Runoff Area=10,169 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.05 cfs 3,698 cf

Subcatchment45S: (new Subcat)
Runoff Area=6,437 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.66 cfs 2,341 cf

Subcatchment46S: (new Subcat)
Runoff Area=86,272 sf 3.63% Impervious Runoff Depth=1.46"
Flow Length=250' Tc=12.2 min CN=66 Runoff=2.59 cfs 10,504 cf

Subcatchment47S: (new Subcat)
Runoff Area=10,192 sf 14.20% Impervious Runoff Depth=2.29"
Tc=6.0 min UI Adjusted CN=77 Runoff=0.63 cfs 1,947 cf

Subcatchment48S: (new Subcat)
Runoff Area=50,448 sf 27.34% Impervious Runoff Depth=2.38"
Flow Length=175' Tc=12.2 min UI Adjusted CN=78 Runoff=2.63 cfs 9,987 cf

Subcatchment49S: (new Subcat)
Runoff Area=60,949 sf 3.84% Impervious Runoff Depth=2.38"
Flow Length=335' Tc=15.3 min CN=78 Runoff=2.92 cfs 12,066 cf

Subcatchment50S: (new Subcat)
Runoff Area=156,043 sf 45.81% Impervious Runoff Depth=2.38"
Flow Length=716' Tc=6.0 min CN=78 Runoff=9.98 cfs 30,892 cf

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Subcatchment51S: (new Subcat) Runoff Area=19,586 sf 97.39% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=97 Runoff=2.00 cfs 6,934 cf

Subcatchment52S: (new Subcat) Runoff Area=22,942 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=2.37 cfs 8,343 cf

Subcatchment53S: (new Subcat) Runoff Area=16,121 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.66 cfs 5,862 cf

Subcatchment54S: (new Subcat) Runoff Area=837 sf 0.00% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=70 Runoff=0.04 cfs 122 cf

Subcatchment55S: (new Subcat) Runoff Area=212,856 sf 2.27% Impervious Runoff Depth=1.14"
Flow Length=380' Tc=13.7 min CN=61 Runoff=4.43 cfs 20,142 cf

Subcatchment56S: (new Subcat) Runoff Area=3,283 sf 0.00% Impervious Runoff Depth=1.14"
Tc=6.0 min CN=61 Runoff=0.09 cfs 311 cf

Subcatchment57S: (new Subcat) Runoff Area=5,849 sf 78.90% Impervious Runoff Depth=3.49"
Tc=6.0 min CN=90 Runoff=0.53 cfs 1,702 cf

Subcatchment58S: (new Subcat) Runoff Area=33,565 sf 25.72% Impervious Runoff Depth=1.74"
Flow Length=202' Slope=0.0100 '/' Tc=21.5 min UI Adjusted CN=70 Runoff=1.00 cfs 4,881 cf

Subcatchment59S: (new Subcat) Runoff Area=46,015 sf 1.68% Impervious Runoff Depth=1.20"
Flow Length=295' Slope=0.0200 '/' Tc=17.8 min CN=62 Runoff=0.93 cfs 4,594 cf

Subcatchment60S: (new Subcat) Runoff Area=14,440 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.49 cfs 5,251 cf

Subcatchment61S: (new Subcat) Runoff Area=22,331 sf 84.42% Impervious Runoff Depth=3.70"
Flow Length=190' Tc=6.8 min CN=92 Runoff=2.06 cfs 6,884 cf

Subcatchment62S: (new Subcat) Runoff Area=11,024 sf 91.93% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=97 Runoff=1.13 cfs 3,903 cf

Subcatchment63S: (new Subcat) Runoff Area=125,641 sf 4.11% Impervious Runoff Depth=1.33"
Flow Length=897' Tc=23.0 min CN=64 Runoff=2.62 cfs 13,894 cf

Subcatchment64S: (new Subcat) Runoff Area=93,400 sf 3.13% Impervious Runoff Depth=1.01"
Flow Length=375' Tc=16.1 min CN=59 Runoff=1.57 cfs 7,895 cf

Subcatchment65S: (new Subcat) Runoff Area=33,206 sf 38.00% Impervious Runoff Depth=2.13"
Flow Length=178' Tc=6.0 min CN=75 Runoff=1.89 cfs 5,891 cf

Reach 1R: Avg. Flow Depth=0.69' Max Vel=4.24 fps Inflow=29.29 cfs 211,222 cf
n=0.030 L=370.0' S=0.0243 '/' Capacity=6,152.65 cfs Outflow=29.03 cfs 211,147 cf

Reach 2R: Avg. Flow Depth=1.00' Max Vel=4.71 fps Inflow=63.69 cfs 348,784 cf
n=0.030 L=875.0' S=0.0194 '/' Capacity=20,929.72 cfs Outflow=61.29 cfs 348,635 cf

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Reach 3R: Avg. Flow Depth=0.67' Max Vel=2.05 fps Inflow=61.29 cfs 348,635 cf
n=0.030 L=300.0' S=0.0033 '/' Capacity=2,325.16 cfs Outflow=60.33 cfs 348,464 cf

Reach 4R: Avg. Flow Depth=0.59' Max Vel=5.71 fps Inflow=12.78 cfs 56,450 cf
n=0.030 L=301.0' S=0.0465 '/' Capacity=5,556.65 cfs Outflow=12.76 cfs 56,450 cf

Reach 63R: Level Spreader   Avg. Flow Depth=0.09' Max Vel=0.24 fps Inflow=2.62 cfs 13,894 cf
n=0.240 L=150.0' S=0.0400 '/' Capacity=839.01 cfs Outflow=2.31 cfs 13,894 cf

Reach 65R: Level Spreader   Avg. Flow Depth=0.05' Max Vel=0.29 fps Inflow=1.89 cfs 5,891 cf
n=0.240 L=100.0' S=0.1200 '/' Capacity=1,453.20 cfs Outflow=1.60 cfs 5,891 cf

Pond 1P: RD-1 Bldg 8   Peak Elev=141.19' Inflow=3.27 cfs 11,316 cf
15.0" Round Culvert n=0.013 L=12.0' S=0.0092 '/' Outflow=3.27 cfs 11,316 cf

Pond 2P: CB-17   Peak Elev=140.87' Inflow=3.27 cfs 11,316 cf
15.0" Round Culvert n=0.013 L=144.0' S=0.0075 '/' Outflow=3.27 cfs 11,316 cf

Pond 3P: CB-14   Peak Elev=139.81' Inflow=3.73 cfs 15,750 cf
18.0" Round Culvert n=0.013 L=132.0' S=0.0075 '/' Outflow=3.73 cfs 15,750 cf

Pond 4P: DMH-9   Peak Elev=139.41' Inflow=6.49 cfs 27,838 cf
24.0" Round Culvert n=0.013 L=86.0' S=0.0150 '/' Outflow=6.49 cfs 27,838 cf

Pond 5P: DMH-10   Peak Elev=136.48' Inflow=14.88 cfs 58,980 cf
24.0" Round Culvert n=0.013 L=77.0' S=0.0100 '/' Outflow=14.88 cfs 58,980 cf

Pond 6P: RD-2 Bldg 8   Peak Elev=143.46' Inflow=0.82 cfs 2,893 cf
12.0" Round Culvert n=0.013 L=36.0' S=0.0556 '/' Outflow=0.82 cfs 2,893 cf

Pond 7P: RD-1 Bldg 7   Peak Elev=144.38' Inflow=1.99 cfs 7,026 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0414 '/' Outflow=1.99 cfs 7,026 cf

Pond 8P: CB-37   Peak Elev=141.21' Inflow=4.74 cfs 15,563 cf
18.0" Round Culvert n=0.013 L=138.0' S=0.0050 '/' Outflow=4.74 cfs 15,563 cf

Pond 9P: CB-16   Peak Elev=134.33' Inflow=1.11 cfs 5,633 cf
12.0" Round Culvert n=0.013 L=140.0' S=0.0699 '/' Outflow=1.11 cfs 5,633 cf

Pond 10.3P: Drip Edge   Peak Elev=149.50' Storage=1,413 cf Inflow=1.13 cfs 3,903 cf
Primary=0.18 cfs 3,805 cf Secondary=0.20 cfs 84 cf Outflow=0.38 cfs 3,889 cf

Pond 10P: CB-28   Peak Elev=141.57' Inflow=2.71 cfs 8,372 cf
18.0" Round Culvert n=0.013 L=42.0' S=0.0055 '/' Outflow=2.71 cfs 8,372 cf

Pond 11P: DMH-3   Peak Elev=146.92' Inflow=4.88 cfs 20,885 cf
18.0" Round Culvert n=0.013 L=46.0' S=0.0098 '/' Outflow=4.88 cfs 20,885 cf

Pond 12P: DMH-4   Peak Elev=146.33' Inflow=5.73 cfs 24,469 cf
18.0" Round Culvert n=0.013 L=241.0' S=0.0161 '/' Outflow=5.73 cfs 24,469 cf

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Pond 13P: CB-44   Peak Elev=138.58' Inflow=1.30 cfs 5,525 cf
          15.0" Round Culvert n=0.013 L=163.0' S=0.0075 '/' Outflow=1.30 cfs 5,525 cf

Pond 16P: CB-15   Peak Elev=135.93' Inflow=0.93 cfs 4,401 cf
          12.0" Round Culvert n=0.013 L=78.0' S=0.0200 '/' Outflow=0.93 cfs 4,401 cf

Pond 17P: DMH-28   Peak Elev=135.46' Inflow=14.50 cfs 56,855 cf
          24.0" Round Culvert n=0.013 L=98.0' S=0.0099 '/' Outflow=14.50 cfs 56,855 cf

Pond 18P: Forebay 2   Peak Elev=117.52' Storage=1,756 cf Inflow=22.12 cfs 87,310 cf
          Outflow=22.07 cfs 86,264 cf

Pond 19P: Wet Pond 2   Peak Elev=115.42' Storage=139,769 cf Inflow=27.43 cfs 119,908 cf
          Primary=0.92 cfs 148,568 cf Secondary=0.00 cfs 0 cf Outflow=0.92 cfs 148,568 cf

Pond 20.2P: UDSF-1   Peak Elev=144.53' Storage=7,275 cf Inflow=3.49 cfs 12,041 cf
          Primary=0.05 cfs 9,014 cf Secondary=0.29 cfs 1,981 cf Outflow=0.35 cfs 10,996 cf

Pond 20P: CB-27   Peak Elev=141.88' Inflow=2.08 cfs 6,436 cf
          18.0" Round Culvert n=0.013 L=110.0' S=0.0051 '/' Outflow=2.08 cfs 6,436 cf

Pond 21P: CB-38   Peak Elev=136.79' Inflow=13.14 cfs 51,921 cf
          24.0" Round Culvert n=0.013 L=138.0' S=0.0100 '/' Outflow=13.14 cfs 51,921 cf

Pond 22P: CB-23   Peak Elev=137.79' Inflow=10.00 cfs 41,836 cf
          12.0" Round Culvert x 3.00 n=0.013 L=67.0' S=0.0149 '/' Outflow=10.00 cfs 41,836 cf

Pond 23P: CB-18   Peak Elev=141.54' Inflow=1.11 cfs 4,004 cf
          8.0" Round Culvert n=0.013 L=185.0' S=0.0125 '/' Outflow=1.11 cfs 4,004 cf

Pond 24P: CB-7   Peak Elev=143.32' Inflow=1.20 cfs 4,835 cf
          12.0" Round Culvert n=0.013 L=81.0' S=0.0360 '/' Outflow=1.20 cfs 4,835 cf

Pond 26P: CB-8   Peak Elev=140.44' Inflow=2.08 cfs 9,096 cf
          15.0" Round Culvert n=0.013 L=36.0' S=0.0481 '/' Outflow=2.08 cfs 9,096 cf

Pond 27P: DMH-27   Peak Elev=143.85' Inflow=1.40 cfs 4,934 cf
          8.0" Round Culvert n=0.013 L=185.0' S=0.0503 '/' Outflow=1.40 cfs 4,934 cf

Pond 28P: DMH-20   Peak Elev=137.41' Inflow=7.62 cfs 30,456 cf
          24.0" Round Culvert n=0.013 L=194.0' S=0.0834 '/' Outflow=7.62 cfs 30,456 cf

Pond 29P: DMH-25   Peak Elev=137.71' Inflow=7.62 cfs 30,456 cf
          12.0" Round Culvert x 4.00 n=0.013 L=37.0' S=0.0100 '/' Outflow=7.62 cfs 30,456 cf

Pond 30P: DMH-14   Peak Elev=139.19' Inflow=6.79 cfs 24,931 cf
          24.0" Round Culvert n=0.013 L=129.0' S=0.0100 '/' Outflow=6.79 cfs 24,931 cf

Pond 31P: RD-1 Bldg 6   Peak Elev=143.21' Inflow=1.73 cfs 6,089 cf
          12.0" Round Culvert n=0.013 L=32.0' S=0.0769 '/' Outflow=1.73 cfs 6,089 cf

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Pond 32P: CB-30
Peak Elev=140.40' Inflow=5.06 cfs 18,842 cf
18.0" Round Culvert n=0.013 L=191.0' S=0.0051 '/' Outflow=5.06 cfs 18,842 cf

Pond 33P: RD-2 Bldg 6
Peak Elev=143.64' Inflow=1.39 cfs 4,899 cf
12.0" Round Culvert n=0.013 L=10.0' S=0.0280 '/' Outflow=1.39 cfs 4,899 cf

Pond 34P: DMH-16
Peak Elev=143.25' Inflow=1.39 cfs 4,899 cf
12.0" Round Culvert n=0.013 L=126.0' S=0.0763 '/' Outflow=1.39 cfs 4,899 cf

Pond 35P: CB-12
Peak Elev=148.54' Inflow=2.58 cfs 12,645 cf
15.0" Round Culvert n=0.013 L=126.0' S=0.0102 '/' Outflow=2.58 cfs 12,645 cf

Pond 36P: DMH-1
Peak Elev=147.52' Inflow=4.88 cfs 20,885 cf
18.0" Round Culvert n=0.013 L=49.0' S=0.0100 '/' Outflow=4.88 cfs 20,885 cf

Pond 37P: RD-1 Bldg 3
Peak Elev=150.10' Inflow=2.34 cfs 8,240 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0403 '/' Outflow=2.34 cfs 8,240 cf

Pond 38P: CB-13
Peak Elev=146.55' Inflow=0.98 cfs 3,584 cf
12.0" Round Culvert n=0.013 L=29.0' S=0.0234 '/' Outflow=0.98 cfs 3,584 cf

Pond 40P: DMH-24
Peak Elev=138.92' Inflow=7.92 cfs 32,741 cf
18.0" Round Culvert n=0.013 L=111.0' S=0.0100 '/' Outflow=7.92 cfs 32,741 cf

Pond 41P: RD-2 Bldg 3
Peak Elev=148.87' Inflow=1.21 cfs 4,267 cf
12.0" Round Culvert n=0.013 L=23.0' S=0.0109 '/' Outflow=1.21 cfs 4,267 cf

Pond 42P: CB-46
Peak Elev=146.08' Inflow=3.79 cfs 16,189 cf
18.0" Round Culvert n=0.013 L=68.0' S=0.0060 '/' Outflow=3.79 cfs 16,189 cf

Pond 43P: CB-5
Peak Elev=145.41' Inflow=6.05 cfs 23,244 cf
12.0" Round Culvert x 3.00 n=0.013 L=119.0' S=0.0060 '/' Outflow=6.05 cfs 23,244 cf

Pond 44P: DMH-2
Peak Elev=142.54' Inflow=6.92 cfs 28,736 cf
18.0" Round Culvert n=0.013 L=153.0' S=0.0250 '/' Outflow=6.92 cfs 28,736 cf

Pond 45P: CB-29
Peak Elev=149.49' Inflow=3.49 cfs 15,358 cf
15.0" Round Culvert n=0.013 L=101.0' S=0.0075 '/' Outflow=3.49 cfs 15,358 cf

Pond 46P: RD-1 Bldg 2
Peak Elev=152.48' Inflow=2.37 cfs 8,343 cf
12.0" Round Culvert n=0.013 L=6.0' S=0.0217 '/' Outflow=2.37 cfs 8,343 cf

Pond 47P: CB-20
Peak Elev=149.97' Inflow=1.27 cfs 6,893 cf
12.0" Round Culvert n=0.013 L=115.0' S=0.0076 '/' Outflow=1.27 cfs 6,893 cf

Pond 48P: CB-3
Peak Elev=146.63' Inflow=1.15 cfs 4,056 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0042 '/' Outflow=1.15 cfs 4,056 cf

Pond 49P: CB-2
Peak Elev=146.37' Inflow=2.20 cfs 7,754 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=2.20 cfs 7,754 cf

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Pond 50P: CB-1

Peak Elev=145.77' Inflow=2.86 cfs 10,095 cf
12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=2.86 cfs 10,095 cf

Pond 51P: CB-21

Peak Elev=148.80' Inflow=3.49 cfs 15,358 cf
15.0" Round Culvert n=0.013 L=235.0' S=0.0099 '/' Outflow=3.49 cfs 15,358 cf

Pond 52P: culvert

Peak Elev=146.56' Storage=1,074 cf Inflow=3.15 cfs 12,174 cf
18.0" Round Culvert n=0.013 L=107.0' S=0.0051 '/' Outflow=2.61 cfs 12,174 cf

Pond 53P: DMH-21

Peak Elev=151.30' Inflow=1.66 cfs 5,862 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0401 '/' Outflow=1.66 cfs 5,862 cf

Pond 54P: RD-2 Bldg 2

Peak Elev=151.63' Inflow=1.66 cfs 5,862 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0108 '/' Outflow=1.66 cfs 5,862 cf

Pond 55P: DMH22

Peak Elev=140.41' Inflow=0.93 cfs 4,594 cf
24.0" Round Culvert n=0.013 L=108.0' S=0.0151 '/' Outflow=0.93 cfs 4,594 cf

Pond 56P: Existing 12" Culvert

Peak Elev=118.57' Storage=3,702 cf Inflow=12.27 cfs 66,750 cf
Primary=6.62 cfs 65,610 cf Secondary=3.23 cfs 1,139 cf Outflow=9.86 cfs 66,749 cf

Pond 57P: Existing 12" Culvert

Peak Elev=118.07' Storage=919 cf Inflow=5.32 cfs 37,564 cf
Primary=4.74 cfs 37,555 cf Secondary=0.00 cfs 0 cf Outflow=4.74 cfs 37,555 cf

Pond 58P: Existing 24" Culvert

Peak Elev=110.71' Storage=523 cf Inflow=2.92 cfs 12,066 cf
Primary=2.83 cfs 12,066 cf Secondary=0.00 cfs 0 cf Outflow=2.83 cfs 12,066 cf

Pond 59P: Existing 48" Culvert

Peak Elev=95.40' Storage=696 cf Inflow=15.82 cfs 220,393 cf
Primary=15.73 cfs 220,371 cf Secondary=0.00 cfs 0 cf Outflow=15.73 cfs 220,371 cf

Pond 60P: Detention Basin

Peak Elev=144.53' Storage=14,693 cf Inflow=5.46 cfs 22,070 cf
Primary=0.14 cfs 22,071 cf Secondary=0.00 cfs 0 cf Outflow=0.14 cfs 22,071 cf

Pond 61P: Forebay

Peak Elev=145.38' Storage=346 cf Inflow=3.49 cfs 15,358 cf
Outflow=3.47 cfs 15,135 cf

Pond 62P: CB-31

Peak Elev=151.51' Inflow=1.22 cfs 6,582 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0074 '/' Outflow=1.22 cfs 6,582 cf

Pond 63P: CB-22

Peak Elev=151.61' Inflow=1.00 cfs 4,881 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0070 '/' Outflow=1.00 cfs 4,881 cf

Pond 64P: CB-42

Peak Elev=155.42' Inflow=2.06 cfs 6,884 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=2.06 cfs 6,884 cf

Pond 66P: DMH-5

Peak Elev=134.25' Inflow=14.50 cfs 56,855 cf
24.0" Round Culvert n=0.013 L=287.0' S=0.0361 '/' Outflow=14.50 cfs 56,855 cf

Pond 67P: RD-1 Bldg 5

Peak Elev=144.54' Inflow=1.40 cfs 4,934 cf
8.0" Round Culvert n=0.013 L=8.0' S=0.0100 '/' Outflow=1.40 cfs 4,934 cf

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Pond 80P: Wet Pond 1

Peak Elev=128.55' Storage=93,447 cf Inflow=18.74 cfs 72,236 cf
Primary=2.41 cfs 92,577 cf Secondary=0.00 cfs 0 cf Outflow=2.41 cfs 92,577 cf

Pond 82P: Forebay 1

Peak Elev=129.37' Storage=5,273 cf Inflow=14.88 cfs 58,980 cf
Outflow=14.76 cfs 54,587 cf

Pond 83P: RD-1 Bldg 9

Peak Elev=146.50' Inflow=0.91 cfs 3,213 cf
12.0" Round Culvert n=0.013 L=23.0' S=0.0200 '/' Outflow=0.91 cfs 3,213 cf

Pond 85P: CB-43

Peak Elev=146.44' Inflow=1.26 cfs 4,444 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=1.26 cfs 4,444 cf

Pond 86P: RD-2 Bldg 9

Peak Elev=146.99' Inflow=1.26 cfs 4,444 cf
8.0" Round Culvert n=0.013 L=18.0' S=0.0194 '/' Outflow=1.26 cfs 4,444 cf

Pond 87P: DMH-8

Peak Elev=141.98' Inflow=0.93 cfs 4,594 cf
24.0" Round Culvert n=0.013 L=80.0' S=0.0184 '/' Outflow=0.93 cfs 4,594 cf

Pond 88P: DMH-7

Peak Elev=146.29' Inflow=0.93 cfs 4,594 cf
24.0" Round Culvert n=0.013 L=206.0' S=0.0204 '/' Outflow=0.93 cfs 4,594 cf

Pond 89P: CB-4

Peak Elev=149.42' Inflow=0.93 cfs 4,594 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0368 '/' Outflow=0.93 cfs 4,594 cf

Pond 90P:

Peak Elev=158.15' Inflow=1.49 cfs 5,251 cf
12.0" Round Culvert n=0.013 L=176.0' S=0.0230 '/' Outflow=1.49 cfs 5,251 cf

Pond 91P: CB-6

Peak Elev=139.13' Inflow=8.40 cfs 31,142 cf
12.0" Round Culvert x 3.00 n=0.013 L=137.0' S=0.0075 '/' Outflow=8.40 cfs 31,142 cf

Pond 92P: DMH-12

Peak Elev=138.00' Inflow=8.40 cfs 31,142 cf
24.0" Round Culvert n=0.013 L=67.5' S=0.0074 '/' Outflow=8.40 cfs 31,142 cf

Pond 93P: DMH-11

Peak Elev=137.35' Inflow=8.40 cfs 31,142 cf
24.0" Round Culvert n=0.013 L=111.0' S=0.0075 '/' Outflow=8.40 cfs 31,142 cf

Link SP1: Study Point 1

Inflow=60.33 cfs 348,464 cf
Primary=60.33 cfs 348,464 cf

Link SP2: Study Point 2

Inflow=77.83 cfs 431,244 cf
Primary=77.83 cfs 431,244 cf

Link SP3: Study Point 3

Inflow=15.73 cfs 220,371 cf
Primary=15.73 cfs 220,371 cf

Link SP4: Study Point 4

Inflow=2.83 cfs 12,066 cf
Primary=2.83 cfs 12,066 cf

Link SP5: SP5

Inflow=4.74 cfs 37,555 cf
Primary=4.74 cfs 37,555 cf

Link SP6: Study Point 6   Inflow=9.86 cfs 66,749 cf
                                                             Primary=9.86 cfs 66,749 cf

Total Runoff Area = 3,968,835 sf   Runoff Volume = 726,130 cf   Average Runoff Depth = 2.20"
82.52% Pervious = 3,274,994 sf   17.48% Impervious = 693,841 sf

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S:
Runoff Area=578,364 sf 6.55% Impervious Runoff Depth=3.21"
Flow Length=832' Tc=13.9 min CN=76 Runoff=38.92 cfs 154,626 cf

Subcatchment2S: (new Subcat)
Runoff Area=687,981 sf 0.00% Impervious Runoff Depth=3.31"
Flow Length=831' Tc=13.2 min CN=77 Runoff=48.60 cfs 189,484 cf

Subcatchment3S: (new Subcat)
Runoff Area=136,619 sf 0.00% Impervious Runoff Depth=2.83"
Flow Length=310' Tc=8.9 min CN=72 Runoff=9.39 cfs 32,225 cf

Subcatchment4S: (new Subcat)
Runoff Area=86,070 sf 16.62% Impervious Runoff Depth=3.50"
Flow Length=265' Tc=12.2 min CN=79 Runoff=6.62 cfs 25,115 cf

Subcatchment5S: (new Subcat)
Runoff Area=25,709 sf 20.78% Impervious Runoff Depth=4.01"
Tc=6.0 min CN=84 Runoff=2.74 cfs 8,590 cf

Subcatchment6S: (new Subcat)
Runoff Area=330,507 sf 7.29% Impervious Runoff Depth=3.02"
Flow Length=632' Tc=17.6 min CN=74 Runoff=19.02 cfs 83,107 cf

Subcatchment7S: (new Subcat)
Runoff Area=98,828 sf 9.37% Impervious Runoff Depth=2.38"
Flow Length=714' Tc=22.4 min CN=67 Runoff=3.99 cfs 19,602 cf

Subcatchment8S: (new Subcat)
Runoff Area=27,538 sf 0.00% Impervious Runoff Depth=2.21"
Flow Length=200' Tc=16.6 min CN=65 Runoff=1.15 cfs 5,065 cf

Subcatchment9S: (new Subcat)
Runoff Area=6,009 sf 21.55% Impervious Runoff Depth=3.50"
Tc=6.0 min CN=79 Runoff=0.57 cfs 1,753 cf

Subcatchment10S: (new Subcat)
Runoff Area=102,734 sf 1.00% Impervious Runoff Depth=2.83"
Flow Length=449' Tc=8.1 min CN=72 Runoff=7.25 cfs 24,232 cf

Subcatchment11S: (new Subcat)
Runoff Area=182,692 sf 14.21% Impervious Runoff Depth=3.21"
Flow Length=389' Tc=17.1 min CN=76 Runoff=11.33 cfs 48,843 cf

Subcatchment12S: (new Subcat)
Runoff Area=41,424 sf 18.07% Impervious Runoff Depth=2.47"
Flow Length=221' Tc=14.6 min CN=68 Runoff=2.07 cfs 8,520 cf

Subcatchment13S: (new Subcat)
Runoff Area=16,743 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.18 cfs 7,761 cf

Subcatchment14S: (new Subcat)
Runoff Area=13,471 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.76 cfs 6,244 cf

Subcatchment15S: (new Subcat)
Runoff Area=31,583 sf 20.42% Impervious Runoff Depth=2.56"
Flow Length=165' Tc=19.7 min CN=69 Runoff=1.46 cfs 6,731 cf

Subcatchment16S: (new Subcat)
Runoff Area=19,321 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.52 cfs 8,955 cf

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Subcatchment17S: (new Subcat) Runoff Area=1,743 sf 0.00% Impervious Runoff Depth=1.87"
Tc=6.0 min CN=61 Runoff=0.08 cfs 272 cf

Subcatchment18S: (new Subcat) Runoff Area=9,122 sf 51.75% Impervious Runoff Depth=3.60"
Tc=6.0 min CN=80 Runoff=0.88 cfs 2,738 cf

Subcatchment19S: (new Subcat) Runoff Area=32,847 sf 1.36% Impervious Runoff Depth=1.95"
Flow Length=156' Tc=17.2 min CN=62 Runoff=1.17 cfs 5,351 cf

Subcatchment20S: (new Subcat) Runoff Area=13,568 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.77 cfs 6,289 cf

Subcatchment21S: (new Subcat) Runoff Area=31,386 sf 49.51% Impervious Runoff Depth=3.50"
Tc=6.0 min CN=79 Runoff=2.95 cfs 9,158 cf

Subcatchment22S: (new Subcat) Runoff Area=31,961 sf 97.89% Impervious Runoff Depth=5.44"
Tc=6.0 min CN=97 Runoff=4.15 cfs 14,501 cf

Subcatchment23S: (new Subcat) Runoff Area=24,081 sf 4.84% Impervious Runoff Depth=3.21"
Flow Length=165' Slope=0.0100 '/' Tc=21.7 min CN=76 Runoff=1.35 cfs 6,438 cf

Subcatchment24S: (new Subcat) Runoff Area=7,955 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.04 cfs 3,687 cf

Subcatchment25S: (new Subcat) Runoff Area=40,544 sf 71.87% Impervious Runoff Depth=4.87"
Flow Length=280' Slope=0.0300 '/' Tc=6.0 min CN=92 Runoff=5.00 cfs 16,464 cf

Subcatchment26S: (new Subcat) Runoff Area=8,835 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.15 cfs 4,095 cf

Subcatchment27S: (new Subcat) Runoff Area=12,220 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.59 cfs 5,664 cf

Subcatchment28S: (new Subcat) Runoff Area=6,466 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.84 cfs 2,997 cf

Subcatchment29S: (new Subcat) Runoff Area=18,162 sf 5.58% Impervious Runoff Depth=2.04"
Flow Length=223' Tc=16.6 min CN=63 Runoff=0.69 cfs 3,084 cf

Subcatchment30S: (new Subcat) Runoff Area=6,450 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.84 cfs 2,990 cf

Subcatchment31S: (new Subcat) Runoff Area=19,528 sf 47.87% Impervious Runoff Depth=3.50"
Flow Length=120' Tc=10.5 min CN=79 Runoff=1.58 cfs 5,698 cf

Subcatchment32S: (new Subcat) Runoff Area=21,435 sf 11.90% Impervious Runoff Depth=2.21"
Flow Length=163' Tc=10.6 min CN=65 Runoff=1.06 cfs 3,942 cf

Subcatchment33S: (new Subcat) Runoff Area=50,937 sf 25.74% Impervious Runoff Depth=3.40"
Flow Length=255' Tc=7.0 min CN=78 Runoff=4.50 cfs 14,444 cf

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Subcatchment34S: (new Subcat)   Runoff Area=11,734 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 5,439 cf

Subcatchment35S: (new Subcat)   Runoff Area=10,666 sf 42.60% Impervious Runoff Depth=3.50"
Tc=6.0 min CN=79 Runoff=1.00 cfs 3,112 cf

Subcatchment36S: (new Subcat)   Runoff Area=22,658 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.96 cfs 10,502 cf

Subcatchment37S: (new Subcat)   Runoff Area=44,822 sf 1.90% Impervious Runoff Depth=1.95"
Flow Length=262' Tc=16.4 min CN=62 Runoff=1.63 cfs 7,302 cf

Subcatchment38S: (new Subcat)   Runoff Area=28,217 sf 55.59% Impervious Runoff Depth=4.11"
Flow Length=270' Tc=6.0 min CN=85 Runoff=3.07 cfs 9,674 cf

Subcatchment39S: (new Subcat)   Runoff Area=11,156 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.46 cfs 5,171 cf

Subcatchment40S: (new Subcat)   Runoff Area=41,287 sf 31.37% Impervious Runoff Depth=2.92"
Flow Length=185' Slope=0.0100 '/' Tc=17.5 min CN=73 Runoff=2.30 cfs 10,058 cf

Subcatchment41S: (new Subcat)   Runoff Area=22,703 sf 29.63% Impervious Runoff Depth=2.83"
Flow Length=130' Tc=10.4 min CN=72 Runoff=1.49 cfs 5,355 cf

Subcatchment42S: (new Subcat)   Runoff Area=1,070 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.14 cfs 496 cf

Subcatchment43S: (new Subcat)   Runoff Area=10,083 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.32 cfs 4,674 cf

Subcatchment44S: (new Subcat)   Runoff Area=10,169 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.33 cfs 4,713 cf

Subcatchment45S: (new Subcat)   Runoff Area=6,437 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.84 cfs 2,984 cf

Subcatchment46S: (new Subcat)   Runoff Area=86,272 sf 3.63% Impervious Runoff Depth=2.29"
Flow Length=250' Tc=12.2 min CN=66 Runoff=4.24 cfs 16,486 cf

Subcatchment47S: (new Subcat)   Runoff Area=10,192 sf 14.20% Impervious Runoff Depth=3.31"
Tc=6.0 min UI Adjusted CN=77 Runoff=0.91 cfs 2,807 cf

Subcatchment48S: (new Subcat)   Runoff Area=50,448 sf 27.34% Impervious Runoff Depth=3.40"
Flow Length=175' Tc=12.2 min UI Adjusted CN=78 Runoff=3.77 cfs 14,306 cf

Subcatchment49S: (new Subcat)   Runoff Area=60,949 sf 3.84% Impervious Runoff Depth=3.40"
Flow Length=335' Tc=15.3 min CN=78 Runoff=4.19 cfs 17,283 cf

Subcatchment50S: (new Subcat)   Runoff Area=156,043 sf 45.81% Impervious Runoff Depth=3.40"
Flow Length=716' Tc=6.0 min CN=78 Runoff=14.29 cfs 44,249 cf

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Subcatchment51S: (new Subcat) Runoff Area=19,586 sf 97.39% Impervious Runoff Depth=5.44"
Tc=6.0 min CN=97 Runoff=2.54 cfs 8,887 cf

Subcatchment52S: (new Subcat) Runoff Area=22,942 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.99 cfs 10,634 cf

Subcatchment53S: (new Subcat) Runoff Area=16,121 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.10 cfs 7,472 cf

Subcatchment54S: (new Subcat) Runoff Area=837 sf 0.00% Impervious Runoff Depth=2.65"
Tc=6.0 min CN=70 Runoff=0.06 cfs 185 cf

Subcatchment55S: (new Subcat) Runoff Area=212,856 sf 2.27% Impervious Runoff Depth=1.87"
Flow Length=380' Tc=13.7 min CN=61 Runoff=7.89 cfs 33,222 cf

Subcatchment56S: (new Subcat) Runoff Area=3,283 sf 0.00% Impervious Runoff Depth=1.87"
Tc=6.0 min CN=61 Runoff=0.16 cfs 512 cf

Subcatchment57S: (new Subcat) Runoff Area=5,849 sf 78.90% Impervious Runoff Depth=4.65"
Tc=6.0 min CN=90 Runoff=0.70 cfs 2,267 cf

Subcatchment58S: (new Subcat) Runoff Area=33,565 sf 25.72% Impervious Runoff Depth=2.65"
Flow Length=202' Slope=0.0100 '/' Tc=21.5 min UI Adjusted CN=70 Runoff=1.55 cfs 7,405 cf

Subcatchment59S: (new Subcat) Runoff Area=46,015 sf 1.68% Impervious Runoff Depth=1.95"
Flow Length=295' Slope=0.0200 '/' Tc=17.8 min CN=62 Runoff=1.62 cfs 7,496 cf

Subcatchment60S: (new Subcat) Runoff Area=14,440 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.88 cfs 6,693 cf

Subcatchment61S: (new Subcat) Runoff Area=22,331 sf 84.42% Impervious Runoff Depth=4.87"
Flow Length=190' Tc=6.8 min CN=92 Runoff=2.68 cfs 9,068 cf

Subcatchment62S: (new Subcat) Runoff Area=11,024 sf 91.93% Impervious Runoff Depth=5.44"
Tc=6.0 min CN=97 Runoff=1.43 cfs 5,002 cf

Subcatchment63S: (new Subcat) Runoff Area=125,641 sf 4.11% Impervious Runoff Depth=2.12"
Flow Length=897' Tc=23.0 min CN=64 Runoff=4.40 cfs 22,217 cf

Subcatchment64S: (new Subcat) Runoff Area=93,400 sf 3.13% Impervious Runoff Depth=1.71"
Flow Length=375' Tc=16.1 min CN=59 Runoff=2.91 cfs 13,327 cf

Subcatchment65S: (new Subcat) Runoff Area=33,206 sf 38.00% Impervious Runoff Depth=3.11"
Flow Length=178' Tc=6.0 min CN=75 Runoff=2.78 cfs 8,612 cf

Reach 1R: Avg. Flow Depth=0.81' Max Vel=4.65 fps Inflow=42.26 cfs 291,168 cf
n=0.030 L=370.0' S=0.0243 '/' Capacity=6,152.65 cfs Outflow=41.96 cfs 291,090 cf

Reach 2R: Avg. Flow Depth=1.17' Max Vel=5.18 fps Inflow=92.06 cfs 489,164 cf
n=0.030 L=875.0' S=0.0194 '/' Capacity=20,929.72 cfs Outflow=89.12 cfs 489,009 cf

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Reach 3R: Avg. Flow Depth=0.83' Max Vel=2.35 fps Inflow=89.12 cfs 489,009 cf
n=0.030 L=300.0' S=0.0033 '/' Capacity=2,325.16 cfs Outflow=87.98 cfs 488,832 cf

Reach 4R: Avg. Flow Depth=0.72' Max Vel=6.34 fps Inflow=19.02 cfs 83,107 cf
n=0.030 L=301.0' S=0.0465 '/' Capacity=5,556.65 cfs Outflow=18.99 cfs 83,107 cf

Reach 63R: Level Spreader Avg. Flow Depth=0.12' Max Vel=0.29 fps Inflow=4.40 cfs 22,217 cf
n=0.240 L=150.0' S=0.0400 '/' Capacity=839.01 cfs Outflow=4.01 cfs 22,217 cf

Reach 65R: Level Spreader Avg. Flow Depth=0.07' Max Vel=0.34 fps Inflow=2.78 cfs 8,612 cf
n=0.240 L=100.0' S=0.1200 '/' Capacity=1,453.20 cfs Outflow=2.44 cfs 8,612 cf

Pond 1P: RD-1 Bldg 8 Peak Elev=142.01' Inflow=4.15 cfs 14,501 cf
15.0" Round Culvert n=0.013 L=12.0' S=0.0092 '/' Outflow=4.15 cfs 14,501 cf

Pond 2P: CB-17 Peak Elev=141.58' Inflow=4.15 cfs 14,501 cf
15.0" Round Culvert n=0.013 L=144.0' S=0.0075 '/' Outflow=4.15 cfs 14,501 cf

Pond 3P: CB-14 Peak Elev=140.79' Inflow=4.85 cfs 20,940 cf
18.0" Round Culvert n=0.013 L=132.0' S=0.0075 '/' Outflow=4.85 cfs 20,940 cf

Pond 4P: DMH-9 Peak Elev=139.65' Inflow=9.06 cfs 39,402 cf
24.0" Round Culvert n=0.013 L=86.0' S=0.0150 '/' Outflow=9.06 cfs 39,402 cf

Pond 5P: DMH-10 Peak Elev=137.28' Inflow=19.91 cfs 80,493 cf
24.0" Round Culvert n=0.013 L=77.0' S=0.0100 '/' Outflow=19.91 cfs 80,493 cf

Pond 6P: RD-2 Bldg 8 Peak Elev=143.53' Inflow=1.04 cfs 3,687 cf
12.0" Round Culvert n=0.013 L=36.0' S=0.0556 '/' Outflow=1.04 cfs 3,687 cf

Pond 7P: RD-1 Bldg 7 Peak Elev=144.54' Inflow=2.52 cfs 8,955 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0414 '/' Outflow=2.52 cfs 8,955 cf

Pond 8P: CB-37 Peak Elev=141.61' Inflow=6.44 cfs 21,123 cf
18.0" Round Culvert n=0.013 L=138.0' S=0.0050 '/' Outflow=6.44 cfs 21,123 cf

Pond 9P: CB-16 Peak Elev=134.49' Inflow=1.72 cfs 8,484 cf
12.0" Round Culvert n=0.013 L=140.0' S=0.0699 '/' Outflow=1.72 cfs 8,484 cf

Pond 10.3P: Drip Edge Peak Elev=149.51' Storage=1,427 cf Inflow=1.43 cfs 5,002 cf
Primary=0.18 cfs 4,408 cf Secondary=1.12 cfs 580 cf Outflow=1.31 cfs 4,988 cf

Pond 10P: CB-28 Peak Elev=141.92' Inflow=3.84 cfs 11,896 cf
18.0" Round Culvert n=0.013 L=42.0' S=0.0055 '/' Outflow=3.84 cfs 11,896 cf

Pond 11P: DMH-3 Peak Elev=147.28' Inflow=6.44 cfs 28,033 cf
18.0" Round Culvert n=0.013 L=46.0' S=0.0098 '/' Outflow=6.44 cfs 28,033 cf

Pond 12P: DMH-4 Peak Elev=146.70' Inflow=7.77 cfs 33,388 cf
18.0" Round Culvert n=0.013 L=241.0' S=0.0161 '/' Outflow=7.77 cfs 33,388 cf

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Pond 13P: CB-44   Peak Elev=138.81' Inflow=2.07 cfs 8,520 cf
          15.0" Round Culvert n=0.013 L=163.0' S=0.0075 '/' Outflow=2.07 cfs 8,520 cf

Pond 16P: CB-15   Peak Elev=136.08' Inflow=1.46 cfs 6,731 cf
          12.0" Round Culvert n=0.013 L=78.0' S=0.0200 '/' Outflow=1.46 cfs 6,731 cf

Pond 17P: DMH-28   Peak Elev=136.81' Inflow=19.94 cfs 78,271 cf
          24.0" Round Culvert n=0.013 L=98.0' S=0.0099 '/' Outflow=19.94 cfs 78,271 cf

Pond 18P: Forebay 2   Peak Elev=117.64' Storage=1,936 cf Inflow=30.57 cfs 121,026 cf
          Outflow=30.51 cfs 119,980 cf

Pond 19P: Wet Pond 2   Peak Elev=115.75' Storage=149,599 cf Inflow=38.63 cfs 168,823 cf
          Primary=5.16 cfs 194,852 cf Secondary=0.00 cfs 0 cf Outflow=5.16 cfs 194,852 cf

Pond 20.2P: UDSF-1   Peak Elev=144.62' Storage=7,583 cf Inflow=4.53 cfs 15,674 cf
          Primary=0.05 cfs 9,207 cf Secondary=1.87 cfs 5,334 cf Outflow=1.92 cfs 14,541 cf

Pond 20P: CB-27   Peak Elev=142.20' Inflow=2.95 cfs 9,158 cf
          18.0" Round Culvert n=0.013 L=110.0' S=0.0051 '/' Outflow=2.95 cfs 9,158 cf

Pond 21P: CB-38   Peak Elev=138.48' Inflow=18.22 cfs 71,982 cf
          24.0" Round Culvert n=0.013 L=138.0' S=0.0100 '/' Outflow=18.22 cfs 71,982 cf

Pond 22P: CB-23   Peak Elev=140.34' Inflow=13.72 cfs 57,538 cf
          12.0" Round Culvert x 3.00 n=0.013 L=67.0' S=0.0149 '/' Outflow=13.72 cfs 57,538 cf

Pond 23P: CB-18   Peak Elev=145.91' Inflow=1.58 cfs 5,698 cf
          8.0" Round Culvert n=0.013 L=185.0' S=0.0125 '/' Outflow=1.58 cfs 5,698 cf

Pond 24P: CB-7   Peak Elev=143.47' Inflow=1.77 cfs 6,932 cf
          12.0" Round Culvert n=0.013 L=81.0' S=0.0360 '/' Outflow=1.77 cfs 6,932 cf

Pond 26P: CB-8   Peak Elev=140.79' Inflow=3.02 cfs 13,013 cf
          15.0" Round Culvert n=0.013 L=36.0' S=0.0481 '/' Outflow=3.02 cfs 13,013 cf

Pond 27P: DMH-27   Peak Elev=144.26' Inflow=1.77 cfs 6,289 cf
          8.0" Round Culvert n=0.013 L=185.0' S=0.0503 '/' Outflow=1.77 cfs 6,289 cf

Pond 28P: DMH-20   Peak Elev=137.69' Inflow=10.65 cfs 42,755 cf
          24.0" Round Culvert n=0.013 L=194.0' S=0.0834 '/' Outflow=10.65 cfs 42,755 cf

Pond 29P: DMH-25   Peak Elev=138.18' Inflow=10.65 cfs 42,755 cf
          12.0" Round Culvert x 4.00 n=0.013 L=37.0' S=0.0100 '/' Outflow=10.65 cfs 42,755 cf

Pond 30P: DMH-14   Peak Elev=139.48' Inflow=9.25 cfs 34,235 cf
          24.0" Round Culvert n=0.013 L=129.0' S=0.0100 '/' Outflow=9.25 cfs 34,235 cf

Pond 31P: RD-1 Bldg 6   Peak Elev=143.34' Inflow=2.18 cfs 7,761 cf
          12.0" Round Culvert n=0.013 L=32.0' S=0.0769 '/' Outflow=2.18 cfs 7,761 cf

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Pond 32P: CB-30

Peak Elev=140.78' Inflow=7.07 cfs 26,474 cf
18.0" Round Culvert n=0.013 L=191.0' S=0.0051 '/' Outflow=7.07 cfs 26,474 cf

Pond 33P: RD-2 Bldg 6

Peak Elev=143.75' Inflow=1.76 cfs 6,244 cf
12.0" Round Culvert n=0.013 L=10.0' S=0.0280 '/' Outflow=1.76 cfs 6,244 cf

Pond 34P: DMH-16

Peak Elev=143.34' Inflow=1.76 cfs 6,244 cf
12.0" Round Culvert n=0.013 L=126.0' S=0.0763 '/' Outflow=1.76 cfs 6,244 cf

Pond 35P: CB-12

Peak Elev=148.80' Inflow=3.56 cfs 17,531 cf
15.0" Round Culvert n=0.013 L=126.0' S=0.0102 '/' Outflow=3.56 cfs 17,531 cf

Pond 36P: DMH-1

Peak Elev=147.87' Inflow=6.44 cfs 28,033 cf
18.0" Round Culvert n=0.013 L=49.0' S=0.0100 '/' Outflow=6.44 cfs 28,033 cf

Pond 37P: RD-1 Bldg 3

Peak Elev=150.33' Inflow=2.96 cfs 10,502 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0403 '/' Outflow=2.96 cfs 10,502 cf

Pond 38P: CB-13

Peak Elev=146.88' Inflow=1.49 cfs 5,355 cf
12.0" Round Culvert n=0.013 L=29.0' S=0.0234 '/' Outflow=1.49 cfs 5,355 cf

Pond 40P: DMH-24

Peak Elev=142.27' Inflow=10.71 cfs 44,525 cf
18.0" Round Culvert n=0.013 L=111.0' S=0.0100 '/' Outflow=10.71 cfs 44,525 cf

Pond 41P: RD-2 Bldg 3

Peak Elev=148.97' Inflow=1.53 cfs 5,439 cf
12.0" Round Culvert n=0.013 L=23.0' S=0.0109 '/' Outflow=1.53 cfs 5,439 cf

Pond 42P: CB-46

Peak Elev=146.34' Inflow=5.12 cfs 22,232 cf
18.0" Round Culvert n=0.013 L=68.0' S=0.0060 '/' Outflow=5.12 cfs 22,232 cf

Pond 43P: CB-5

Peak Elev=145.66' Inflow=8.18 cfs 31,906 cf
12.0" Round Culvert x 3.00 n=0.013 L=119.0' S=0.0060 '/' Outflow=8.18 cfs 31,906 cf

Pond 44P: DMH-2

Peak Elev=143.94' Inflow=9.27 cfs 38,827 cf
18.0" Round Culvert n=0.013 L=153.0' S=0.0250 '/' Outflow=9.27 cfs 38,827 cf

Pond 45P: CB-29

Peak Elev=149.87' Inflow=4.67 cfs 21,003 cf
15.0" Round Culvert n=0.013 L=101.0' S=0.0075 '/' Outflow=4.67 cfs 21,003 cf

Pond 46P: RD-1 Bldg 2

Peak Elev=152.68' Inflow=2.99 cfs 10,634 cf
12.0" Round Culvert n=0.013 L=6.0' S=0.0217 '/' Outflow=2.99 cfs 10,634 cf

Pond 47P: CB-20

Peak Elev=150.30' Inflow=1.92 cfs 10,185 cf
12.0" Round Culvert n=0.013 L=115.0' S=0.0076 '/' Outflow=1.92 cfs 10,185 cf

Pond 48P: CB-3

Peak Elev=147.52' Inflow=1.45 cfs 5,169 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0042 '/' Outflow=1.45 cfs 5,169 cf

Pond 49P: CB-2

Peak Elev=147.25' Inflow=2.78 cfs 9,883 cf
12.0" Round Culvert n=0.013 L=124.0' S=0.0050 '/' Outflow=2.78 cfs 9,883 cf

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Pond 50P: CB-1

Peak Elev=146.20' Inflow=3.62 cfs 12,866 cf
12.0" Round Culvert n=0.013 L=64.5' S=0.0050 '/' Outflow=3.62 cfs 12,866 cf

Pond 51P: CB-21

Peak Elev=149.07' Inflow=4.67 cfs 21,003 cf
15.0" Round Culvert n=0.013 L=235.0' S=0.0099 '/' Outflow=4.67 cfs 21,003 cf

Pond 52P: culvert

Peak Elev=146.75' Storage=1,575 cf Inflow=4.52 cfs 17,418 cf
18.0" Round Culvert n=0.013 L=107.0' S=0.0051 '/' Outflow=3.69 cfs 17,418 cf

Pond 53P: DMH-21

Peak Elev=151.41' Inflow=2.10 cfs 7,472 cf
12.0" Round Culvert n=0.013 L=71.0' S=0.0401 '/' Outflow=2.10 cfs 7,472 cf

Pond 54P: RD-2 Bldg 2

Peak Elev=151.77' Inflow=2.10 cfs 7,472 cf
12.0" Round Culvert n=0.013 L=12.0' S=0.0108 '/' Outflow=2.10 cfs 7,472 cf

Pond 55P: DMH22

Peak Elev=140.54' Inflow=1.62 cfs 7,496 cf
24.0" Round Culvert n=0.013 L=108.0' S=0.0151 '/' Outflow=1.62 cfs 7,496 cf

Pond 56P: Existing 12" Culvert

Peak Elev=118.66' Storage=3,921 cf Inflow=18.27 cfs 94,489 cf
Primary=6.72 cfs 86,378 cf Secondary=11.50 cfs 8,071 cf Outflow=18.22 cfs 94,450 cf

Pond 57P: Existing 12" Culvert

Peak Elev=118.60' Storage=1,402 cf Inflow=9.96 cfs 53,432 cf
Primary=5.48 cfs 49,785 cf Secondary=4.47 cfs 3,638 cf Outflow=9.96 cfs 53,423 cf

Pond 58P: Existing 24" Culvert

Peak Elev=110.86' Storage=681 cf Inflow=4.19 cfs 17,283 cf
Primary=4.08 cfs 17,283 cf Secondary=0.00 cfs 0 cf Outflow=4.08 cfs 17,283 cf

Pond 59P: Existing 48" Culvert

Peak Elev=95.81' Storage=1,145 cf Inflow=25.49 cfs 306,747 cf
Primary=25.34 cfs 306,723 cf Secondary=0.00 cfs 0 cf Outflow=25.34 cfs 306,723 cf

Pond 60P: Detention Basin

Peak Elev=145.06' Storage=18,579 cf Inflow=7.18 cfs 29,667 cf
Primary=0.15 cfs 25,392 cf Secondary=0.32 cfs 2,909 cf Outflow=0.47 cfs 28,301 cf

Pond 61P: Forebay

Peak Elev=145.45' Storage=374 cf Inflow=4.67 cfs 21,003 cf
Outflow=4.66 cfs 20,780 cf

Pond 62P: CB-31

Peak Elev=151.69' Inflow=1.84 cfs 9,672 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0074 '/' Outflow=1.84 cfs 9,672 cf

Pond 63P: CB-22

Peak Elev=151.90' Inflow=1.55 cfs 7,405 cf
12.0" Round Culvert n=0.013 L=64.0' S=0.0070 '/' Outflow=1.56 cfs 7,405 cf

Pond 64P: CB-42

Peak Elev=155.68' Inflow=2.68 cfs 9,068 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=2.68 cfs 9,068 cf

Pond 66P: DMH-5

Peak Elev=135.09' Inflow=19.94 cfs 78,271 cf
24.0" Round Culvert n=0.013 L=287.0' S=0.0361 '/' Outflow=19.94 cfs 78,271 cf

Pond 67P: RD-1 Bldg 5

Peak Elev=145.36' Inflow=1.77 cfs 6,289 cf
8.0" Round Culvert n=0.013 L=8.0' S=0.0100 '/' Outflow=1.77 cfs 6,289 cf

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Pond 80P: Wet Pond 1   Peak Elev=128.97' Storage=101,960 cf Inflow=25.52 cfs 101,216 cf
Primary=6.28 cfs 120,780 cf Secondary=0.00 cfs 0 cf Outflow=6.28 cfs 120,780 cf

Pond 82P: Forebay 1   Peak Elev=129.45' Storage=5,455 cf Inflow=19.91 cfs 80,493 cf
Outflow=19.80 cfs 76,100 cf

Pond 83P: RD-1 Bldg 9   Peak Elev=146.65' Inflow=1.15 cfs 4,095 cf
12.0" Round Culvert n=0.013 L=23.0' S=0.0200 '/' Outflow=1.15 cfs 4,095 cf

Pond 85P: CB-43   Peak Elev=146.66' Inflow=1.59 cfs 5,664 cf
12.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=1.59 cfs 5,664 cf

Pond 86P: RD-2 Bldg 9   Peak Elev=147.53' Inflow=1.59 cfs 5,664 cf
8.0" Round Culvert n=0.013 L=18.0' S=0.0194 '/' Outflow=1.59 cfs 5,664 cf

Pond 87P: DMH-8   Peak Elev=142.11' Inflow=1.62 cfs 7,496 cf
24.0" Round Culvert n=0.013 L=80.0' S=0.0184 '/' Outflow=1.62 cfs 7,496 cf

Pond 88P: DMH-7   Peak Elev=146.42' Inflow=1.62 cfs 7,496 cf
24.0" Round Culvert n=0.013 L=206.0' S=0.0204 '/' Outflow=1.62 cfs 7,496 cf

Pond 89P: CB-4   Peak Elev=149.61' Inflow=1.62 cfs 7,496 cf
12.0" Round Culvert n=0.013 L=82.0' S=0.0368 '/' Outflow=1.62 cfs 7,496 cf

Pond 90P: Peak Elev=158.26' Inflow=1.88 cfs 6,693 cf
12.0" Round Culvert n=0.013 L=176.0' S=0.0230 '/' Outflow=1.88 cfs 6,693 cf

Pond 91P: CB-6   Peak Elev=140.35' Inflow=10.88 cfs 41,091 cf
12.0" Round Culvert x 3.00 n=0.013 L=137.0' S=0.0075 '/' Outflow=10.88 cfs 41,091 cf

Pond 92P: DMH-12   Peak Elev=138.50' Inflow=10.88 cfs 41,091 cf
24.0" Round Culvert n=0.013 L=67.5' S=0.0074 '/' Outflow=10.88 cfs 41,091 cf

Pond 93P: DMH-11   Peak Elev=137.94' Inflow=10.88 cfs 41,091 cf
24.0" Round Culvert n=0.013 L=111.0' S=0.0075 '/' Outflow=10.88 cfs 41,091 cf

Link SP1: Study Point 1   Inflow=87.98 cfs 488,832 cf
Primary=87.98 cfs 488,832 cf

Link SP2: Study Point 2   Inflow=114.34 cfs 611,334 cf
Primary=114.34 cfs 611,334 cf

Link SP3: Study Point 3   Inflow=25.34 cfs 306,723 cf
Primary=25.34 cfs 306,723 cf

Link SP4: Study Point 4   Inflow=4.08 cfs 17,283 cf
Primary=4.08 cfs 17,283 cf

Link SP5: SP5   Inflow=9.96 cfs 53,423 cf
Primary=9.96 cfs 53,423 cf

Link SP6: Study Point 6 Inflow=18.22 cfs 94,450 cf
Primary=18.22 cfs 94,450 cf

Total Runoff Area = 3,968,835 sf   Runoff Volume = 1,046,275 cf   Average Runoff Depth = 3.16"
82.52% Pervious = 3,274,994 sf   17.48% Impervious = 693,841 sf

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 1S:

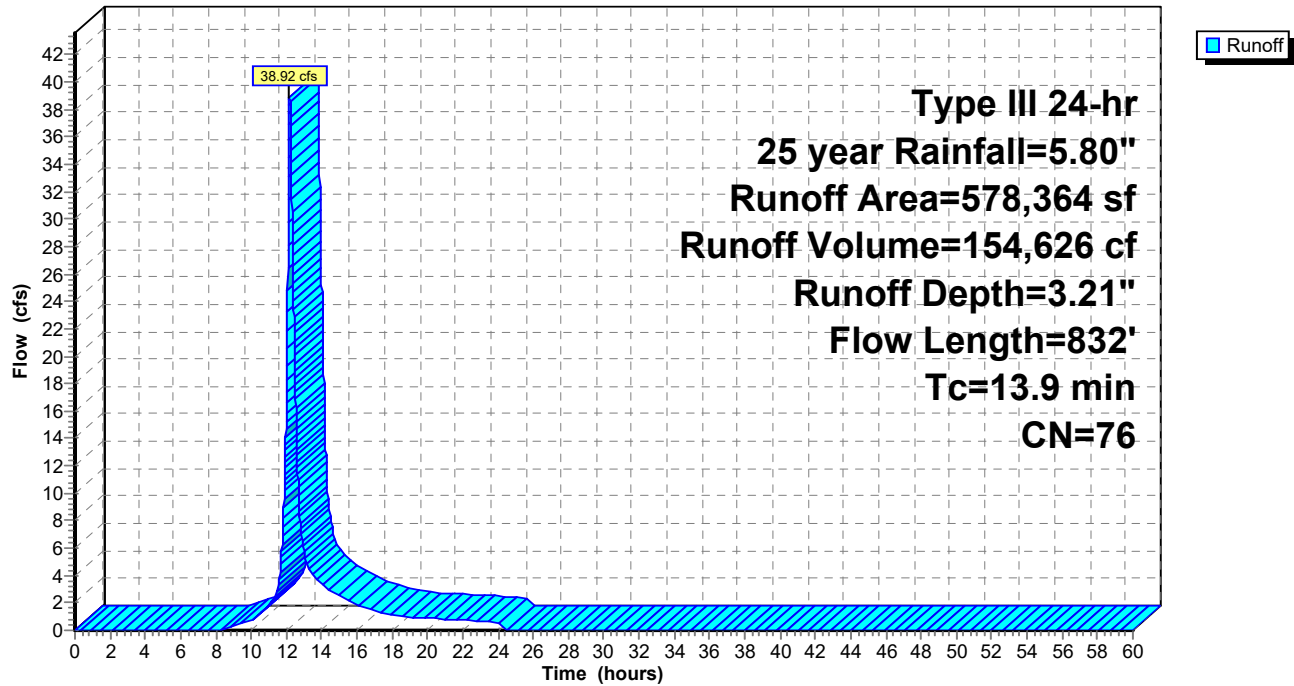Runoff   =   38.92 cfs @ 12.19 hrs, Volume=   154,626 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
67,402	61	>75% Grass cover, Good, HSG B
328,280	74	Pasture/grassland/range, Good, HSG C
144,355	80	Pasture/grassland/range, Good, HSG D
435	96	Gravel surface, HSG C
33,675	98	Paved parking, HSG B
3,833	98	Paved parking, HSG C
182	98	Unconnected pavement, HSG C
202	98	Unconnected pavement, HSG B
578,364	76	Weighted Average
540,472		93.45% Pervious Area
37,892		6.55% Impervious Area
384		1.01% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	31	0.0100	0.81		**Sheet Flow, AB**
					Smooth surfaces n= 0.011 P2= 3.10"
6.0	81	0.1200	0.23		**Sheet Flow, BC**
					Grass: Dense n= 0.240 P2= 3.10"
7.3	720	0.0550	1.64		**Shallow Concentrated Flow, EF**
					Short Grass Pasture Kv= 7.0 fps
13.9	832	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 1S:

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=578,364 sf
Runoff Volume=154,626 cf
Runoff Depth=3.21"
Flow Length=832'
Tc=13.9 min
CN=76

38.92 cfs

Runoff

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 2S: (new Subcat)

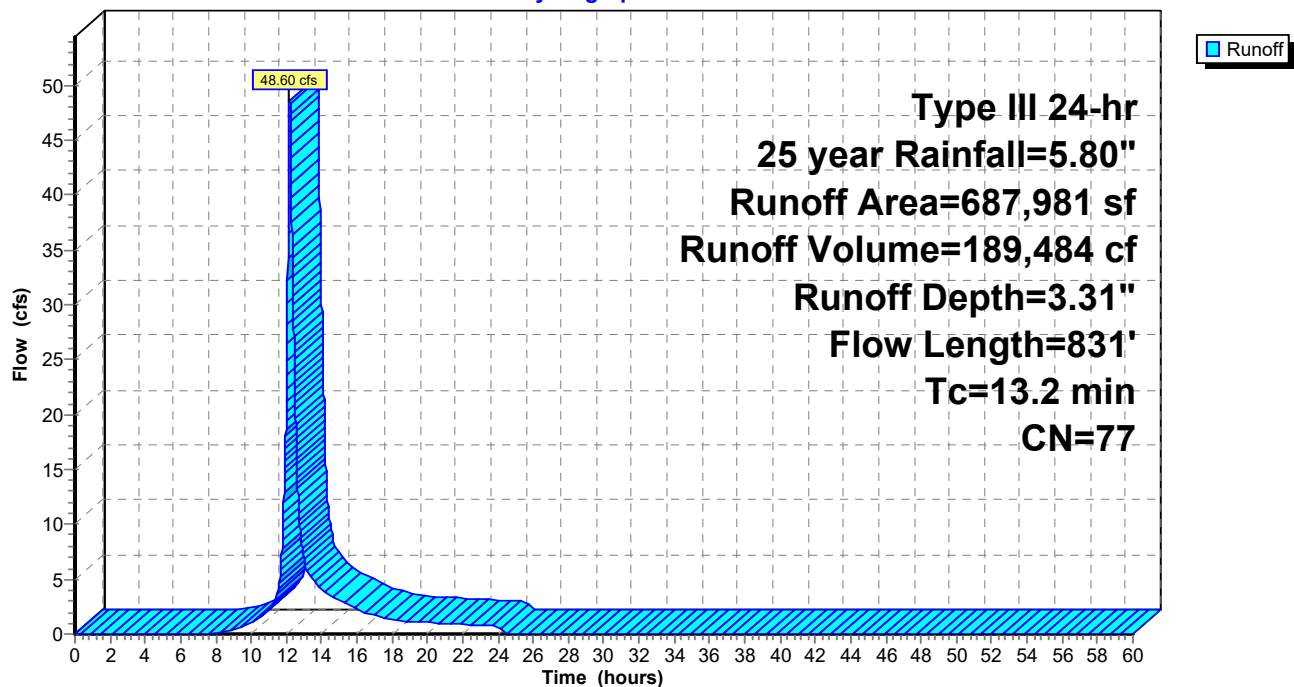Runoff   =   48.60 cfs @ 12.18 hrs, Volume=   189,484 cf, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
347,149	74	Pasture/grassland/range, Good, HSG C
329,726	80	Pasture/grassland/range, Good, HSG D
6,236	96	Gravel surface, HSG C
4,870	96	Gravel surface, HSG D
687,981	77	Weighted Average
687,981		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.1300	0.24		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
1.0	95	0.0500	1.57		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
0.1	20	0.0200	2.28		**Shallow Concentrated Flow, CD**
					Unpaved Kv= 16.1 fps
5.2	616	0.0800	1.98		**Shallow Concentrated Flow, DE**
					Short Grass Pasture Kv= 7.0 fps
13.2	831	Total			

Subcatchment 2S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=687,981 sf
Runoff Volume=189,484 cf
Runoff Depth=3.31"
Flow Length=831'
Tc=13.2 min
CN=77

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 3S: (new Subcat)

Runoff   =   9.39 cfs @ 12.13 hrs, Volume=   32,225 cf, Depth= 2.83"
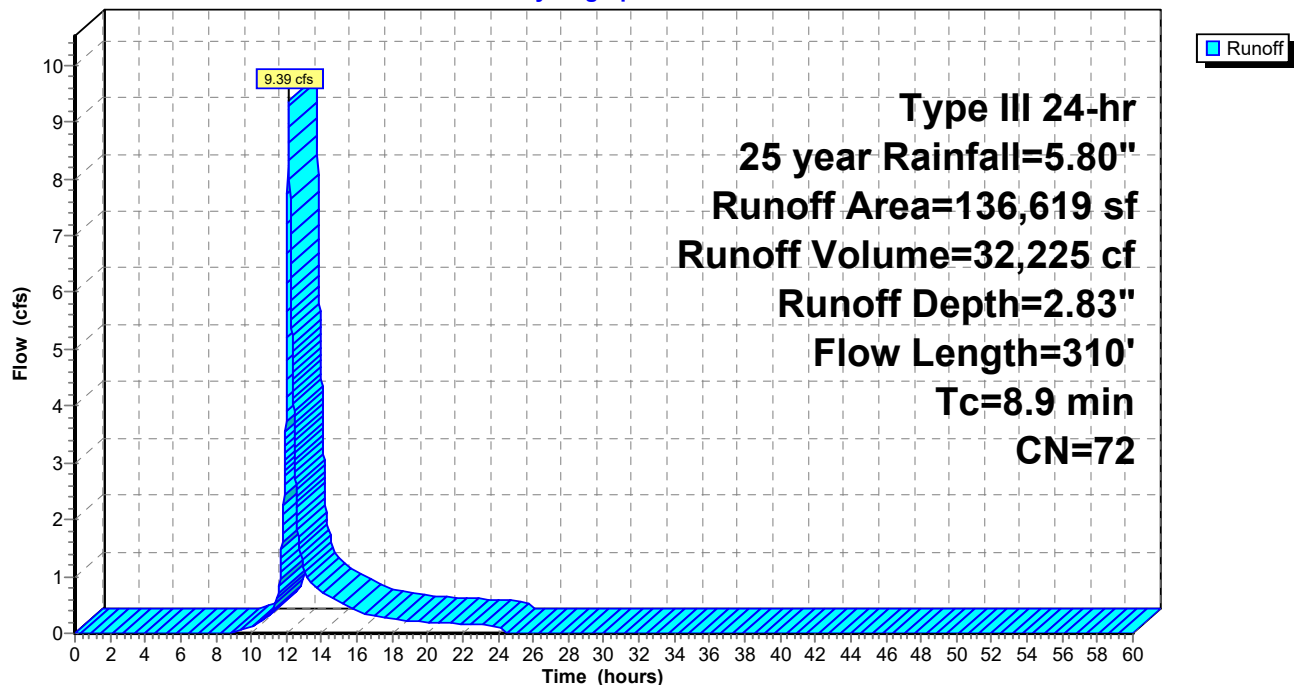
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
27,341	61	Pasture/grassland/range, Good, HSG B
83,760	74	Pasture/grassland/range, Good, HSG C
3,422	70	Woods, Good, HSG C
22,096	77	Woods, Good, HSG D
136,619	72	Weighted Average
136,619		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	100	0.0900	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
1.0	210	0.2300	3.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.9	310	Total			

Subcatchment 3S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=136,619 sf
Runoff Volume=32,225 cf
Runoff Depth=2.83"
Flow Length=310'
Tc=8.9 min
CN=72

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 4S: (new Subcat)

Runoff   =   6.62 cfs @ 12.17 hrs, Volume=   25,115 cf, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
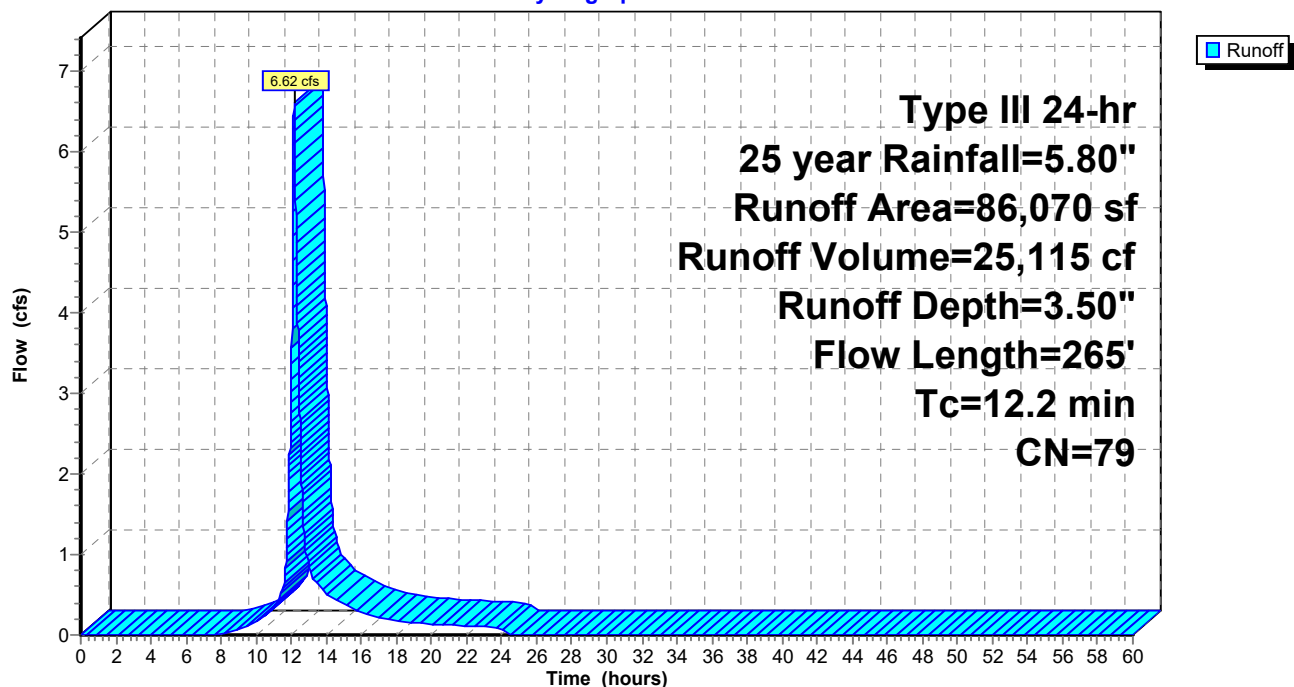Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
68,378	74	>75% Grass cover, Good, HSG C
14,302	98	Water Surface, HSG C
3,390	96	Gravel surface, HSG C
86,070	79	Weighted Average
71,768		83.38% Pervious Area
14,302		16.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	71	0.0200	0.11		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.1	15	0.0200	2.28		**Shallow Concentrated Flow, BC**
					Unpaved Kv= 16.1 fps
1.1	179	0.1400	2.62		**Shallow Concentrated Flow,**
					Short Grass Pasture Kv= 7.0 fps
12.2	265				Total

Subcatchment 4S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=86,070 sf
Runoff Volume=25,115 cf
Runoff Depth=3.50"
Flow Length=265'
Tc=12.2 min
CN=79

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 5S: (new Subcat)

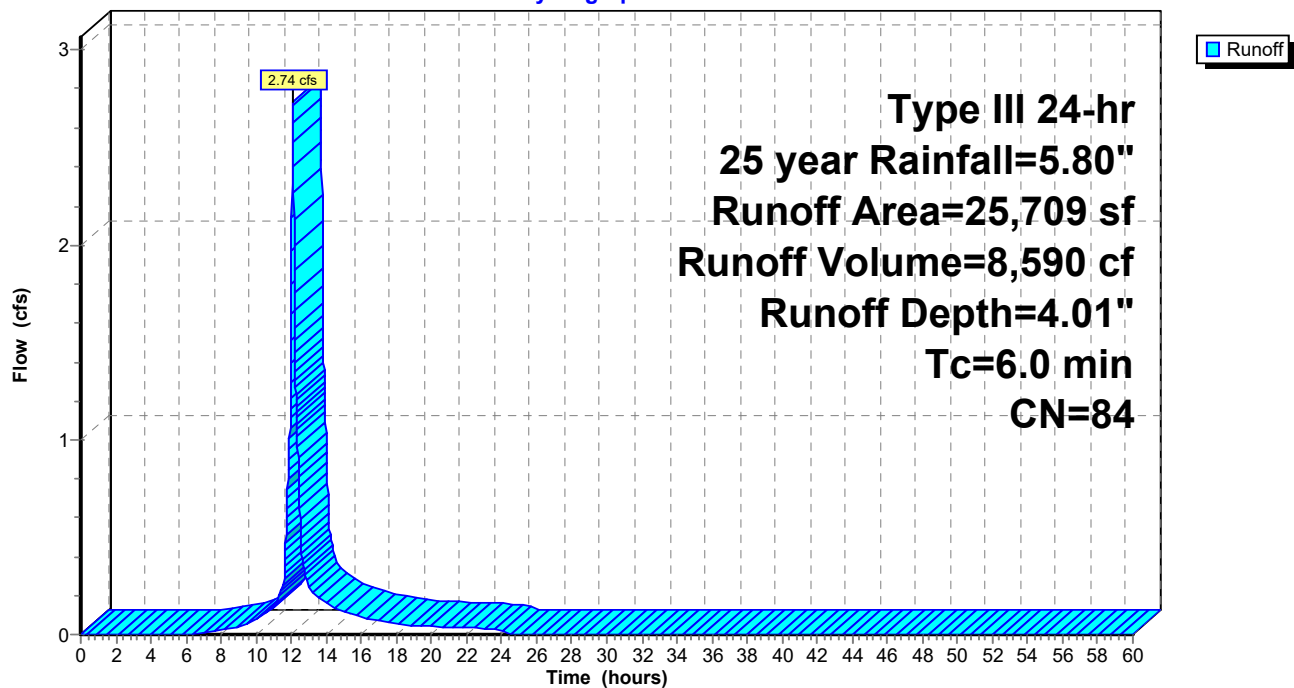Runoff   =   2.74 cfs @ 12.09 hrs, Volume=   8,590 cf, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
8,515	80	>75% Grass cover, Good, HSG D
8,647	74	>75% Grass cover, Good, HSG C
722	96	Gravel surface, HSG C
2,482	96	Gravel surface, HSG D
4,425	98	Paved parking, HSG D
918	98	Paved parking, HSG C
25,709	84	Weighted Average
20,366		79.22% Pervious Area
5,343		20.78% Impervious Area

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

Subcatchment 5S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=25,709 sf
Runoff Volume=8,590 cf
Runoff Depth=4.01"
Tc=6.0 min
CN=84

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Type III 24-hr 25 year Rainfall=5.80"
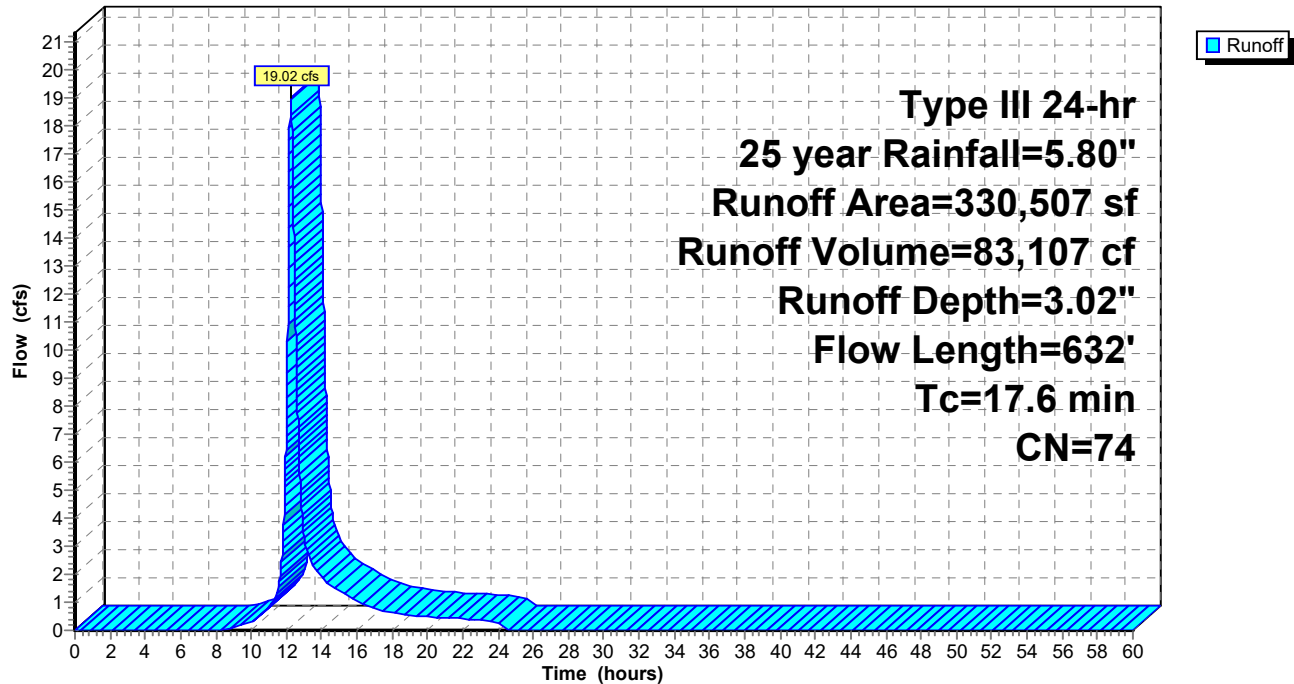Printed 7/18/2019
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Summary for Subcatchment 6S: (new Subcat)

Runoff   =   19.02 cfs @ 12.24 hrs, Volume=   83,107 cf, Depth= 3.02"
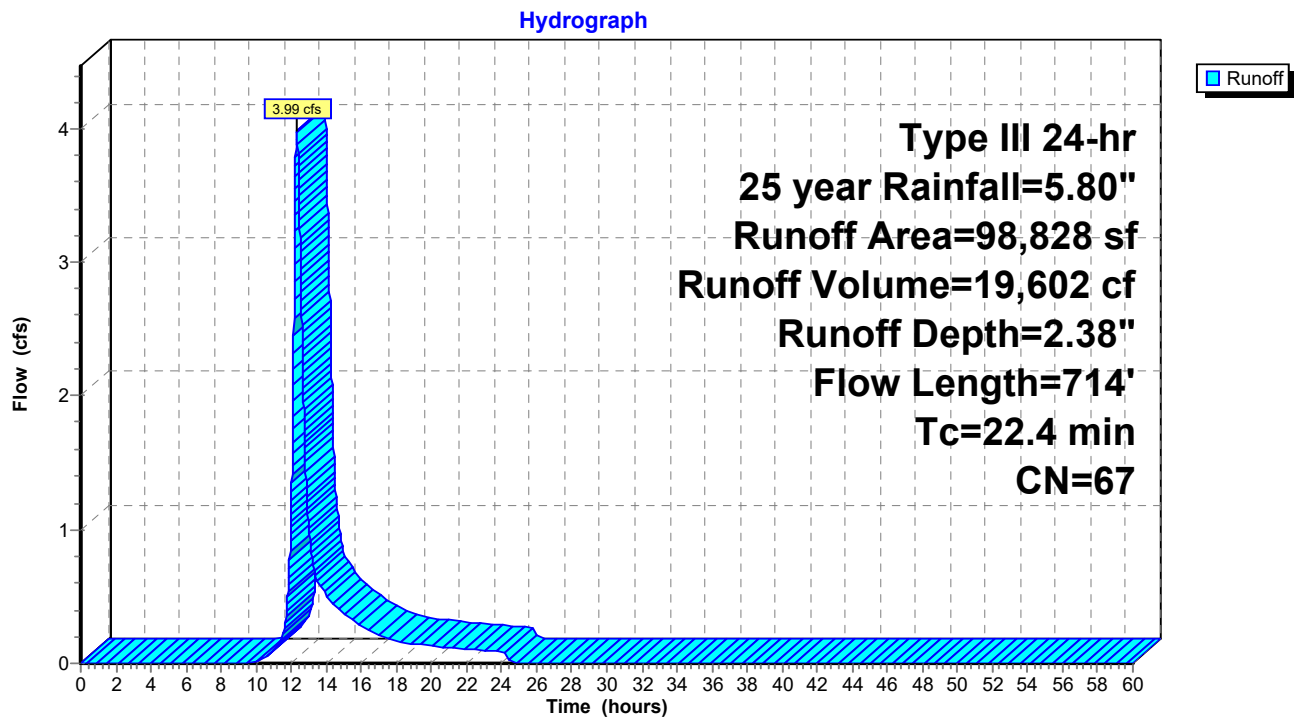
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	1,242	98	Roofs, HSG C
	15,070	98	Paved parking, HSG C
	1,941	98	Paved parking, HSG B
	5,632	98	Paved parking, HSG D
	7,971	61	Pasture/grassland/range, Good, HSG B
	119,971	74	Pasture/grassland/range, Good, HSG C
	3,036	61	>75% Grass cover, Good, HSG B
	35,824	74	>75% Grass cover, Good, HSG C
	4,220	80	>75% Grass cover, Good, HSG D
	6,968	96	Gravel surface, HSG C
	162	96	Gravel surface, HSG D
	123,283	70	Woods, Good, HSG C
	4,976	77	Woods, Good, HSG D
*	186	98	Unconnected pavement, HSG C concrete
*	25	98	Unconnected pavement, HSG B concrete
	330,507	74	Weighted Average
	306,411		92.71% Pervious Area
	24,096		7.29% Impervious Area
	211		0.88% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	60	0.0100	0.08		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
1.2	100	0.0200	1.35		**Sheet Flow, BC**
					Smooth surfaces n= 0.011 P2= 3.10"
1.0	40	0.0100	0.70		**Shallow Concentrated Flow, CD**
					Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0100	1.61		**Shallow Concentrated Flow, DE**
					Unpaved Kv= 16.1 fps
2.6	420	0.1500	2.71		**Shallow Concentrated Flow, EF**
					Short Grass Pasture Kv= 7.0 fps
17.6	632	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 6S: (new Subcat)

Hydrograph

**Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=330,507 sf
Runoff Volume=83,107 cf
Runoff Depth=3.02"
Flow Length=632'
Tc=17.6 min
CN=74**

19.02 cfs

Runoff

Flow (cfs)

Time (hours)

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 7S: (new Subcat)

Runoff   =   3.99 cfs @ 12.32 hrs, Volume=   19,602 cf, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
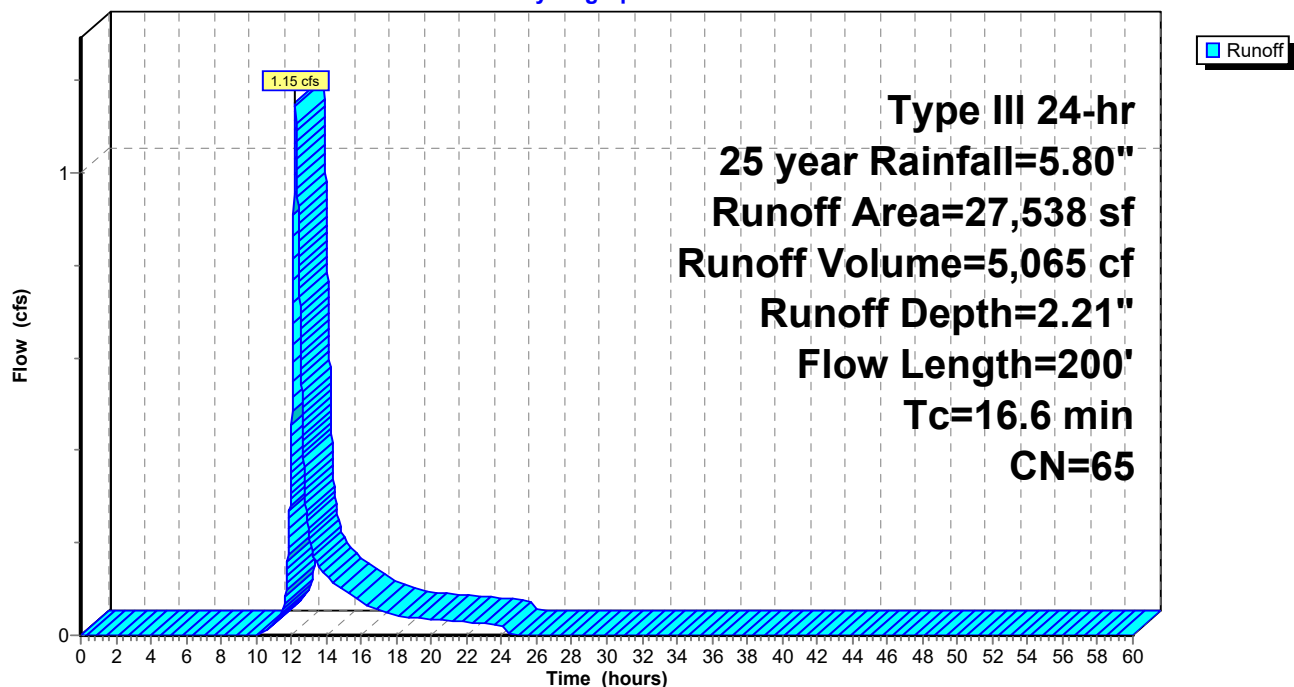Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
77,789	61	>75% Grass cover, Good, HSG B
6,853	74	>75% Grass cover, Good, HSG C
3,948	96	Gravel surface, HSG B
980	96	Gravel surface, HSG C
7,719	98	Paved parking, HSG B
1,043	98	Paved parking, HSG C
* 368	98	Unconnected pavement, HSG B concrete
128	98	Roofs, HSG B
98,828	67	Weighted Average
89,570		90.63% Pervious Area
9,258		9.37% Impervious Area
368		3.97% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0150	0.10		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
3.6	187	0.0150	0.86		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0200	2.87		**Shallow Concentrated Flow, CD**
					Paved Kv= 20.3 fps
0.7	40	0.0200	0.99		**Shallow Concentrated Flow, DE**
					Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0200	2.28		**Shallow Concentrated Flow, EF**
					Unpaved Kv= 16.1 fps
1.6	363	0.0100	3.69	22.15	**Trap/Vee/Rect Channel Flow,**
					Bot.W=3.00' D=1.00' Z= 3.0 '/' Top.W=9.00'
					n= 0.030 Earth, grassed & winding
22.4	714	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 7S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=98,828 sf
Runoff Volume=19,602 cf
Runoff Depth=2.38"
Flow Length=714'
Tc=22.4 min
CN=67

3.99 cfs

Runoff

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 8S: (new Subcat)

Runoff   =   1.15 cfs @ 12.23 hrs, Volume=   5,065 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
19,921	61	Pasture/grassland/range, Good, HSG B
7,617	74	Pasture/grassland/range, Good, HSG C
27,538	65	Weighted Average
27,538		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0200	0.11		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.8	60	0.0300	1.21		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
1.3	40	0.0100	0.50		**Shallow Concentrated Flow, CD**
					Woodland Kv= 5.0 fps
16.6	200	Total			

Subcatchment 8S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=27,538 sf
Runoff Volume=5,065 cf
Runoff Depth=2.21"
Flow Length=200'
Tc=16.6 min
CN=65

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 9S: (new Subcat)

Runoff   =   0.57 cfs @ 12.09 hrs, Volume=   1,753 cf, Depth= 3.50"
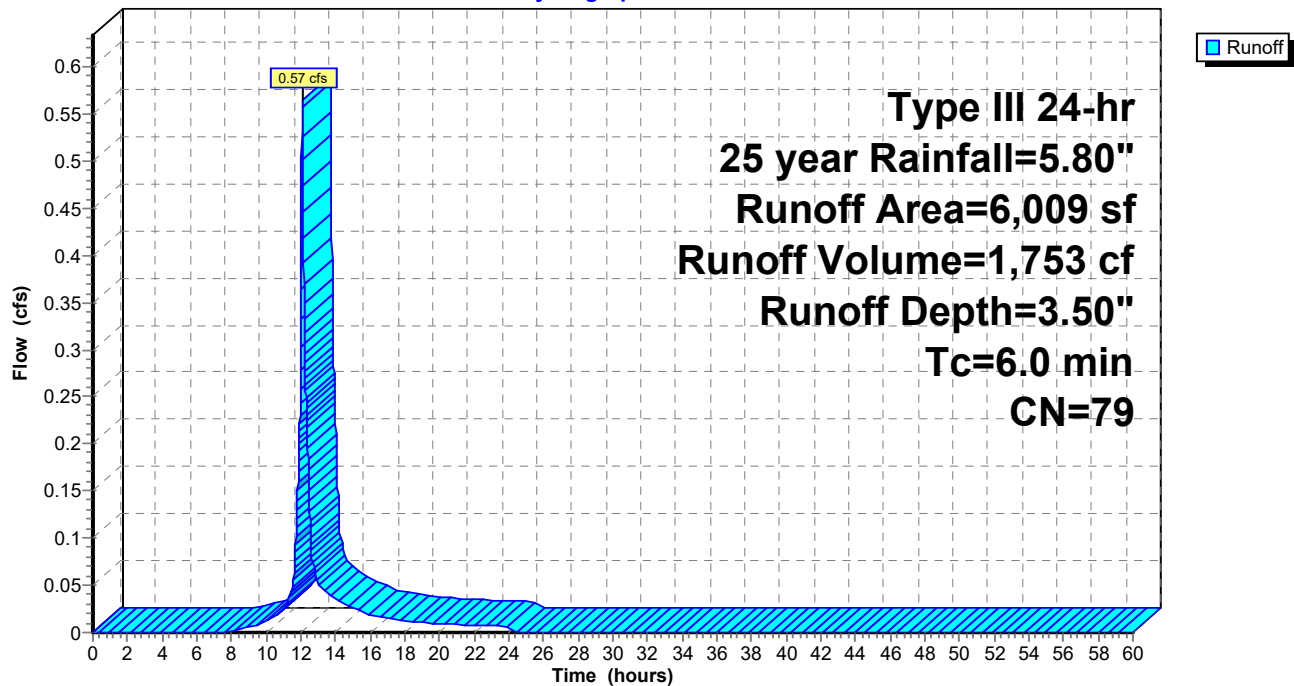
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	25	61	>75% Grass cover, Good, HSG B
	4,689	74	>75% Grass cover, Good, HSG C
	1,125	98	Paved parking, HSG C
	120	98	Paved parking, HSG B
*	50	98	Unconnected pavement, HSG C concrete
	6,009	79	Weighted Average
	4,714		78.45% Pervious Area
	1,295		21.55% Impervious Area
	50		3.86% Unconnected

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

Subcatchment 9S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=6,009 sf
Runoff Volume=1,753 cf
Runoff Depth=3.50"
Tc=6.0 min
CN=79

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 10S: (new Subcat)

Runoff   =   7.25 cfs @ 12.12 hrs, Volume=   24,232 cf, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
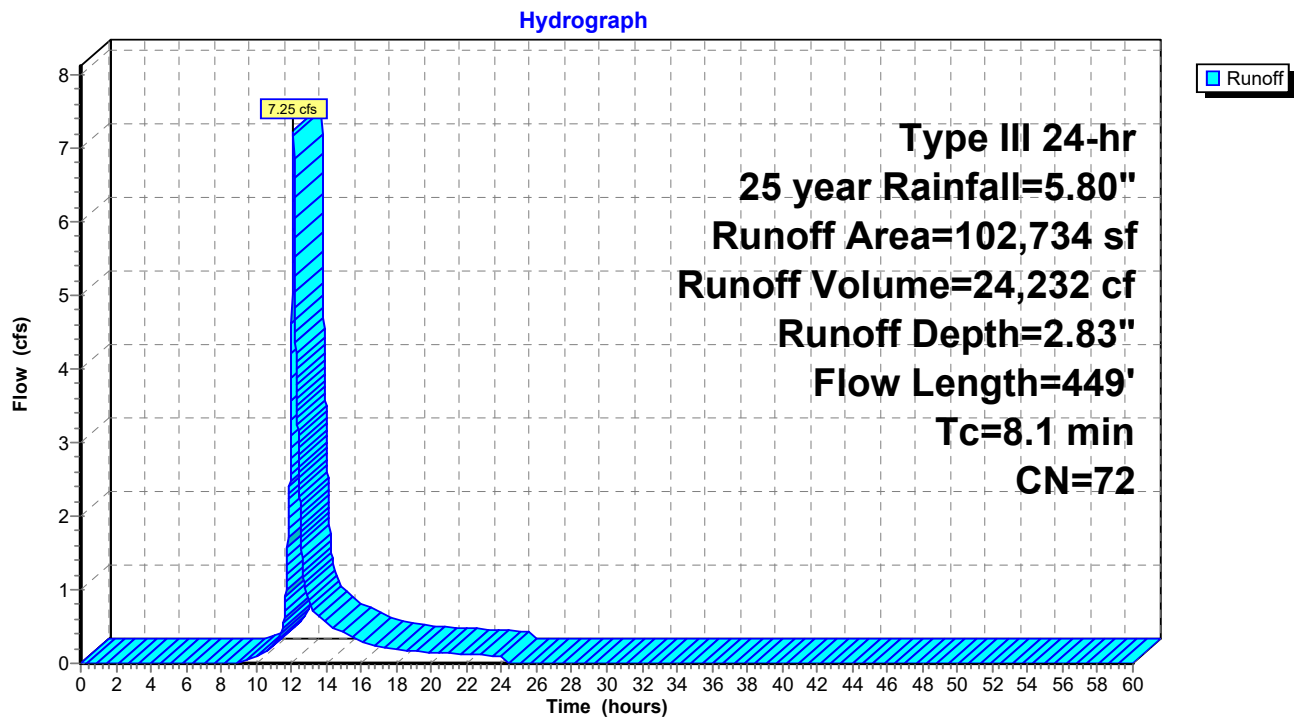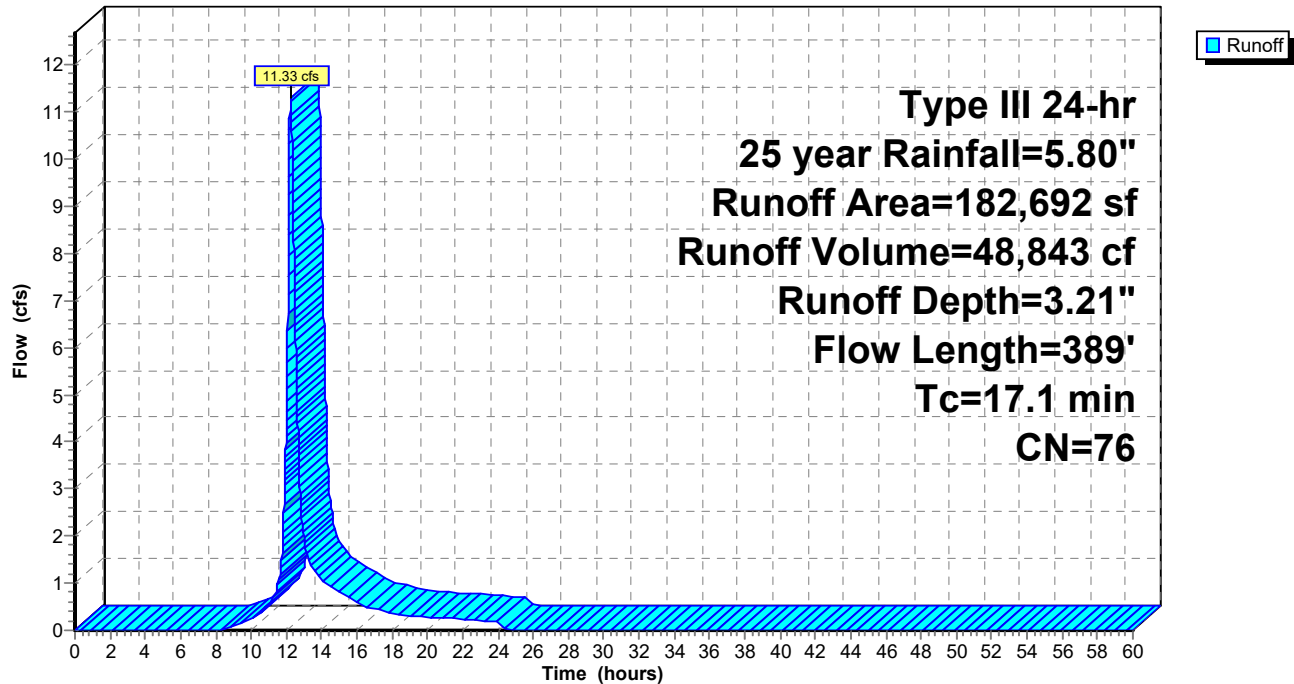Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
1,025	98	Paved parking, HSG B
499	96	Gravel surface, HSG B
712	96	Gravel surface, HSG D
43,938	61	>75% Grass cover, Good, HSG B
56,560	80	>75% Grass cover, Good, HSG D
102,734	72	Weighted Average
101,709		99.00% Pervious Area
1,025		1.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0200	0.09		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.2	12	0.0200	0.89		**Sheet Flow, BC**
					Smooth surfaces n= 0.011 P2= 3.10"
0.7	40	0.0200	0.99		**Shallow Concentrated Flow, CD**
					Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0200	2.28		**Shallow Concentrated Flow, DE**
					Unpaved Kv= 16.1 fps
0.4	106	0.3400	4.08		**Shallow Concentrated Flow, EF**
					Short Grass Pasture Kv= 7.0 fps
1.2	144	0.0830	2.02		**Shallow Concentrated Flow, FG**
					Short Grass Pasture Kv= 7.0 fps
0.7	110	0.1500	2.71		**Shallow Concentrated Flow, GH**
					Short Grass Pasture Kv= 7.0 fps
8.1	449	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 10S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=102,734 sf
Runoff Volume=24,232 cf
Runoff Depth=2.83"
Flow Length=449'
Tc=8.1 min
CN=72

7.25 cfs

☐ Runoff

Flow (cfs)

Time (hours)

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 11S: (new Subcat)

Runoff   =   11.33 cfs @ 12.24 hrs, Volume=   48,843 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
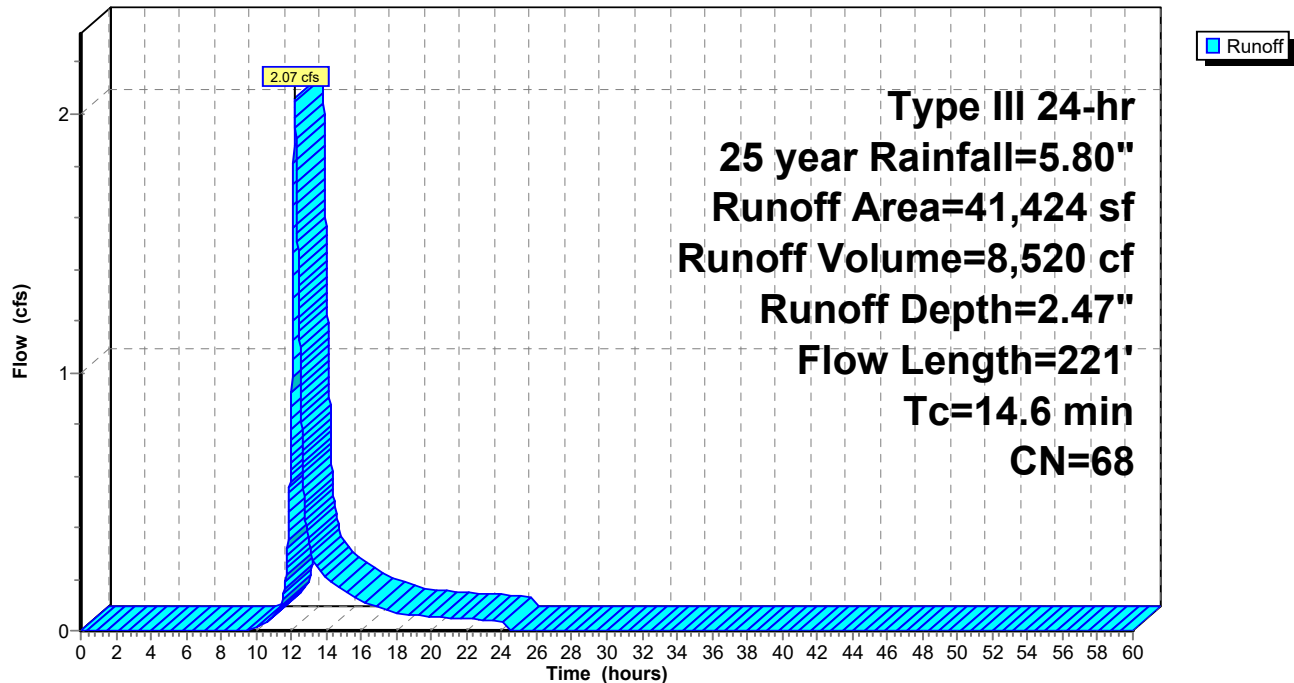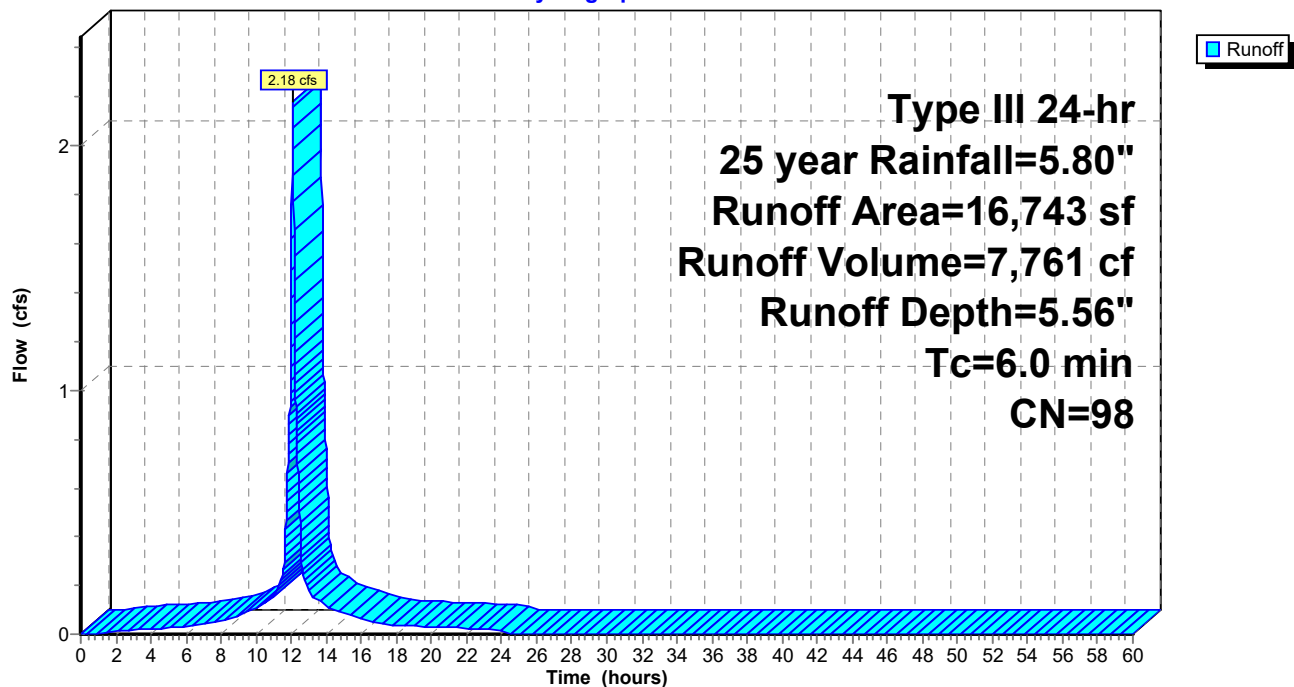Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
63,455	61	>75% Grass cover, Good, HSG B
87,205	80	>75% Grass cover, Good, HSG D
5,316	98	Paved parking, HSG B
586	98	Paved parking, HSG D
3,539	96	Gravel surface, HSG B
2,528	96	Gravel surface, HSG D
20,063	98	Water Surface, HSG D
182,692	76	Weighted Average
156,727		85.79% Pervious Area
25,965		14.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0200	0.11		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.10"
0.4	24	0.0200	0.99		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0200	2.87		**Shallow Concentrated Flow, CD** Paved Kv= 20.3 fps
0.7	40	0.0200	0.99		**Shallow Concentrated Flow, DE** Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0200	2.28		**Shallow Concentrated Flow, EF** Unpaved Kv= 16.1 fps
1.3	201	0.1300	2.52		**Shallow Concentrated Flow, FG** Short Grass Pasture Kv= 7.0 fps
17.1	389	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 11S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=182,692 sf
Runoff Volume=48,843 cf
Runoff Depth=3.21"
Flow Length=389'
Tc=17.1 min
CN=76

11.33 cfs

☐ Runoff

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 12S: (new Subcat)

Runoff   =   2.07 cfs @ 12.21 hrs, Volume=   8,520 cf, Depth= 2.47"
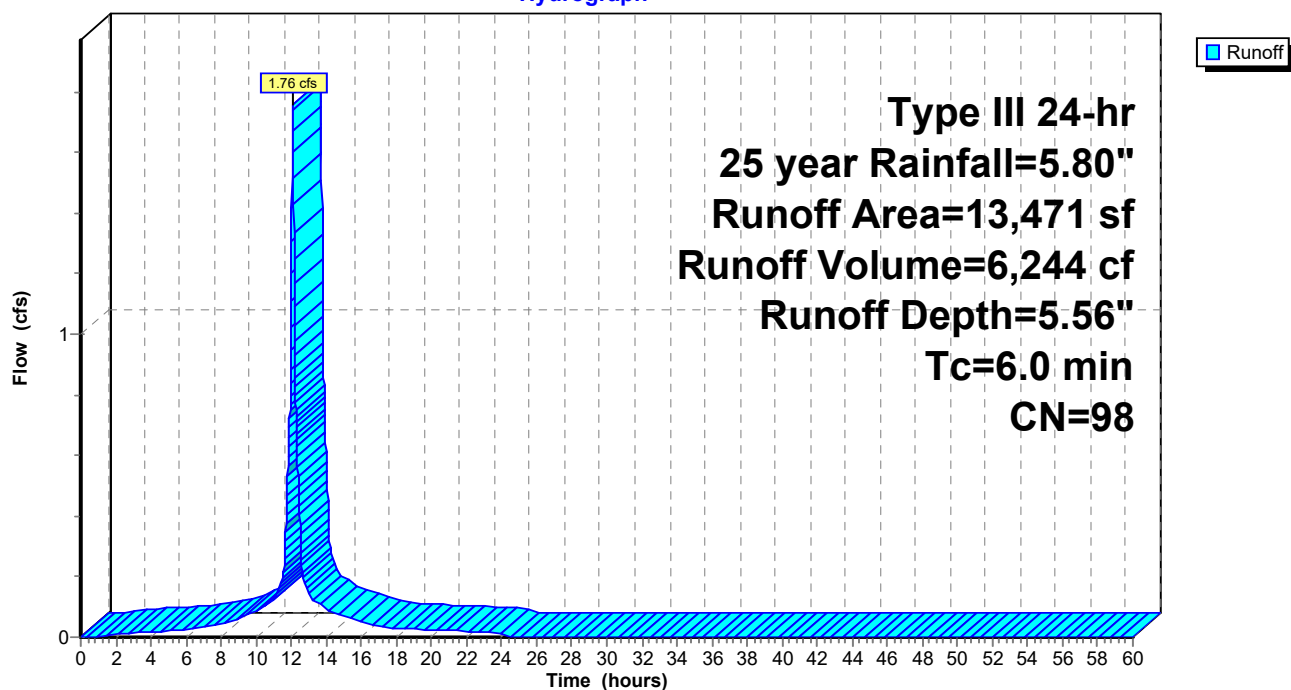
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	33,938	61	>75% Grass cover, Good, HSG B
	7,426	98	Paved parking, HSG B
*	60	98	Unconnected pavement, HSG B concrete
	41,424	68	Weighted Average
	33,938		81.93% Pervious Area
	7,486		18.07% Impervious Area
	60		0.80% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	76	0.0260	0.12		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
4.1	145	0.0070	0.59		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
14.6	221				Total

Subcatchment 12S: (new Subcat)

Hydrograph

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 13S: (new Subcat)

Runoff   =   2.18 cfs @ 12.08 hrs, Volume=   7,761 cf, Depth= 5.56"
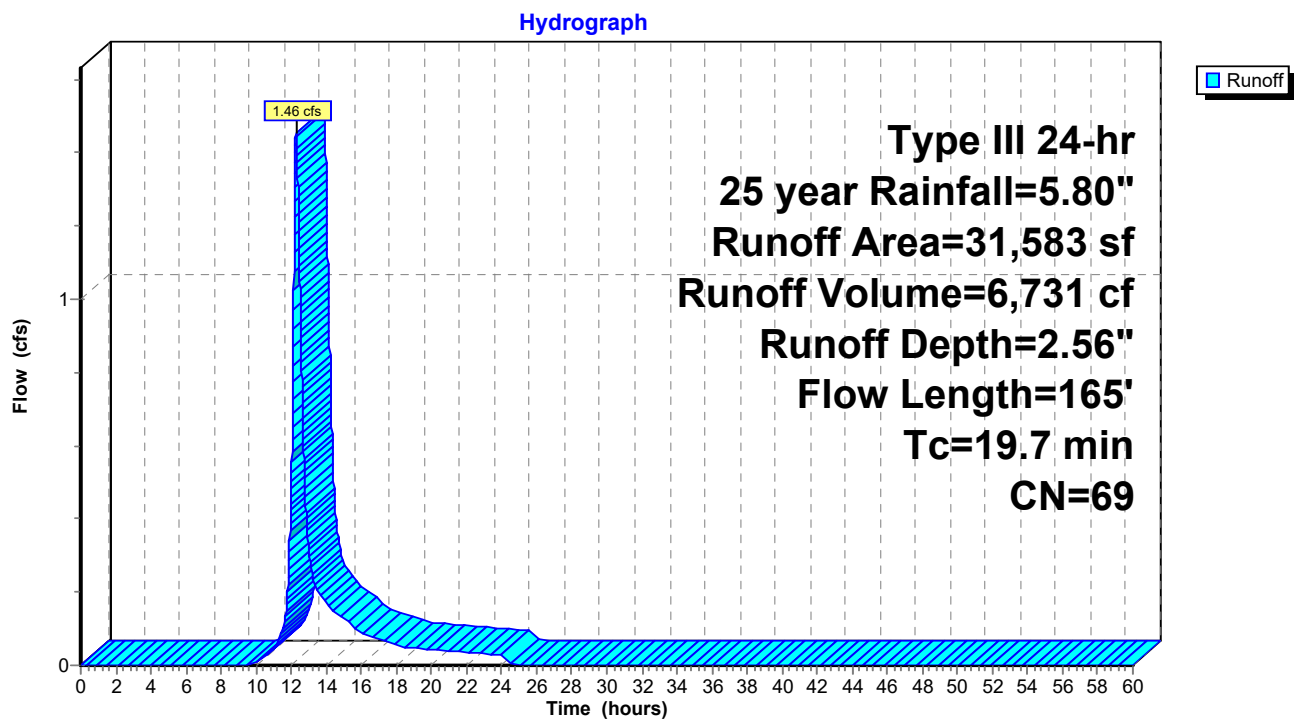
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
16,743	98	Roofs, HSG B
16,743		100.00% Impervious Area

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

Subcatchment 13S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=16,743 sf
Runoff Volume=7,761 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 14S: (new Subcat)

Runoff   =   1.76 cfs @   12.08 hrs, Volume=   6,244 cf, Depth= 5.56"
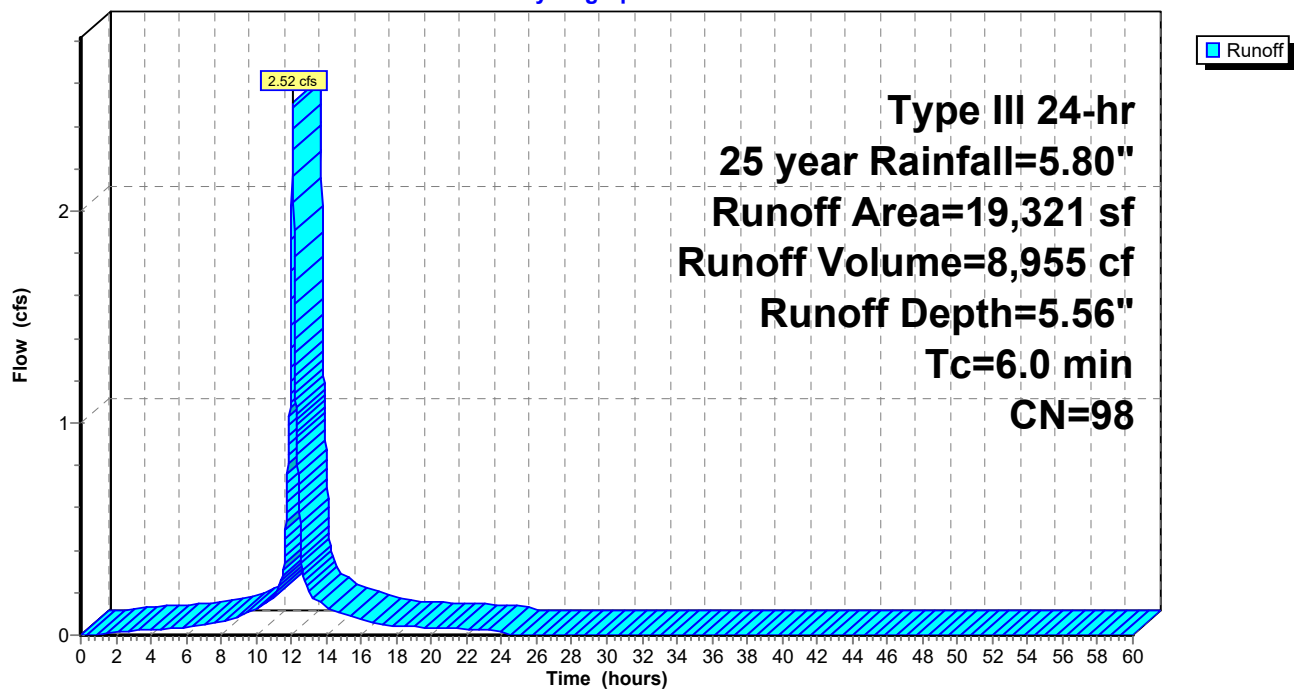
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
13,471	98	Roofs, HSG B
13,471		100.00% Impervious Area

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

Subcatchment 14S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=13,471 sf
Runoff Volume=6,244 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 15S: (new Subcat)

Runoff   =   1.46 cfs @ 12.28 hrs, Volume=   6,731 cf, Depth= 2.56"
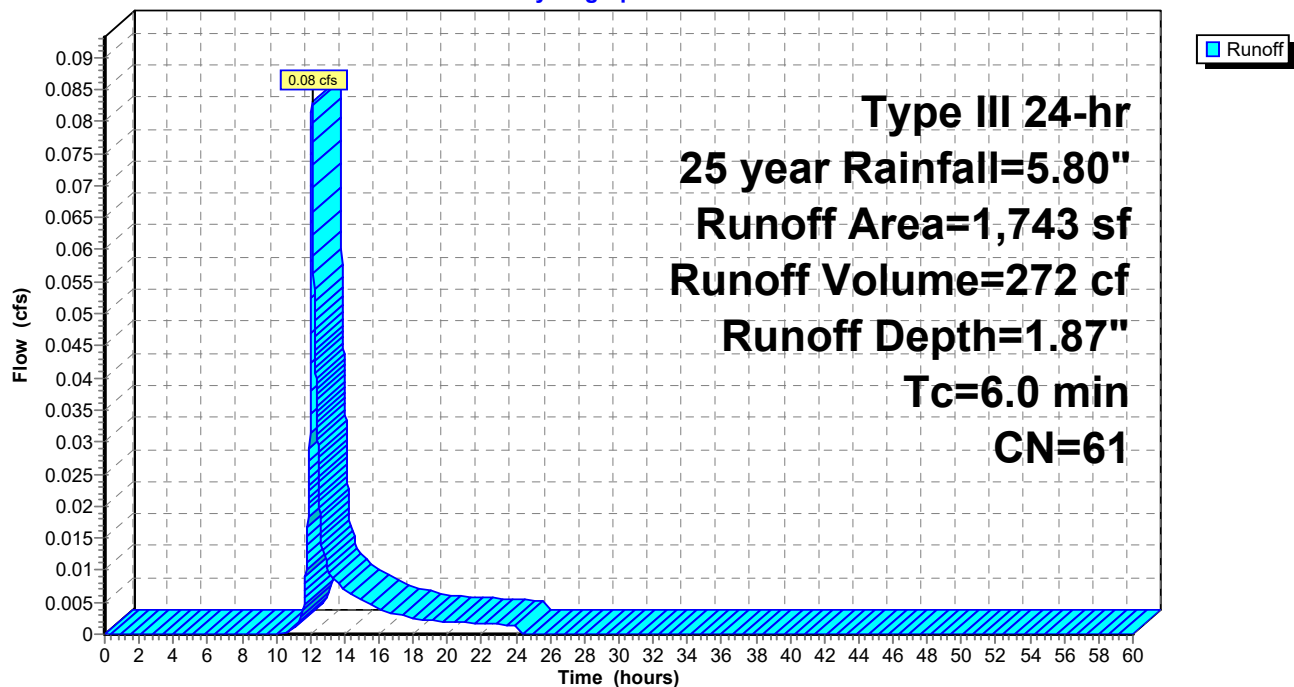
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	24,577	61	>75% Grass cover, Good, HSG B
	557	74	>75% Grass cover, Good, HSG C
	6,344	98	Paved parking, HSG B
*	105	98	Unconnected pavement, HSG B concrete
	31,583	69	Weighted Average
	25,134		79.58% Pervious Area
	6,449		20.42% Impervious Area
	105		1.63% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	25	0.0100	0.07		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.4	20	0.0100	0.74		**Sheet Flow, BC**
					Smooth surfaces n= 0.011 P2= 3.10"
11.9	55	0.0100	0.08		**Sheet Flow, CD**
					Grass: Dense n= 0.240 P2= 3.10"
1.1	65	0.0200	0.99		**Shallow Concentrated Flow, DE**
					Short Grass Pasture Kv= 7.0 fps
19.7	165	Total			

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Subcatchment 15S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=31,583 sf
Runoff Volume=6,731 cf
Runoff Depth=2.56"
Flow Length=165'
Tc=19.7 min
CN=69

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 16S: (new Subcat)

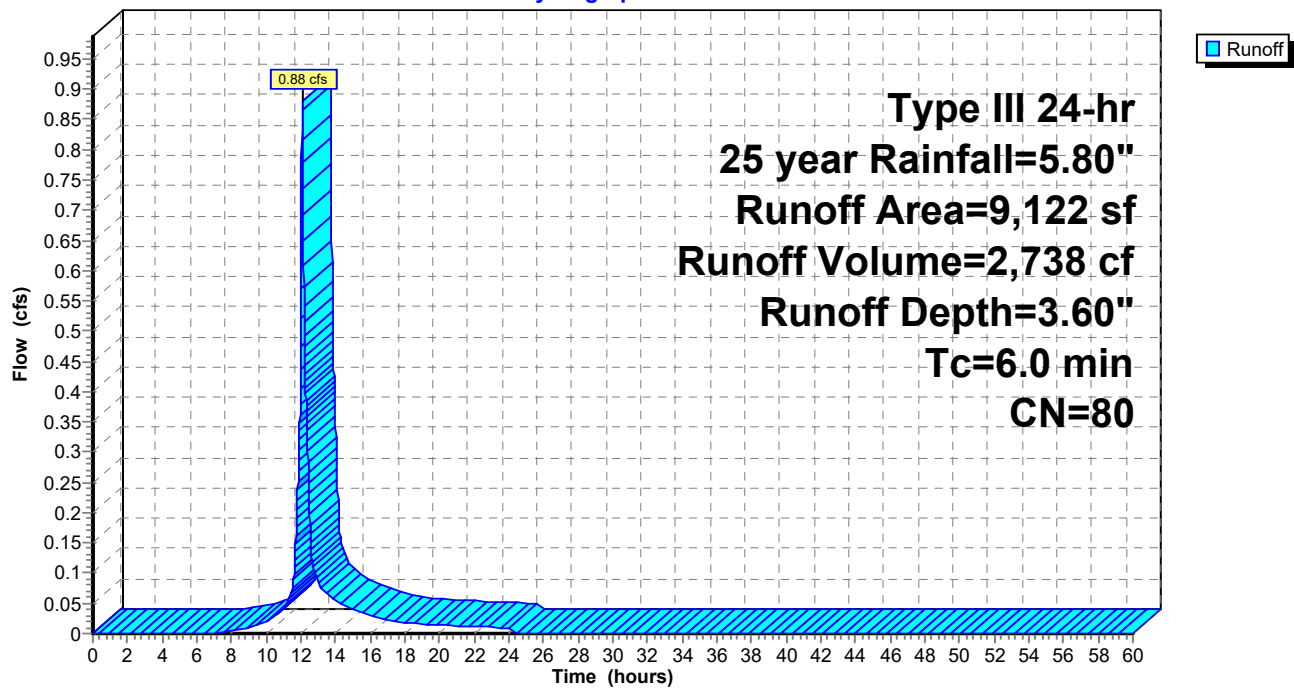Runoff   =   2.52 cfs @ 12.08 hrs, Volume=   8,955 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
11,196	98	Roofs, HSG B
8,125	98	Roofs, HSG C
19,321	98	Weighted Average
19,321		100.00% Impervious Area

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

Subcatchment 16S: (new Subcat)

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Summary for Subcatchment 17S: (new Subcat)

Runoff   =   0.08 cfs @ 12.10 hrs, Volume=   272 cf, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

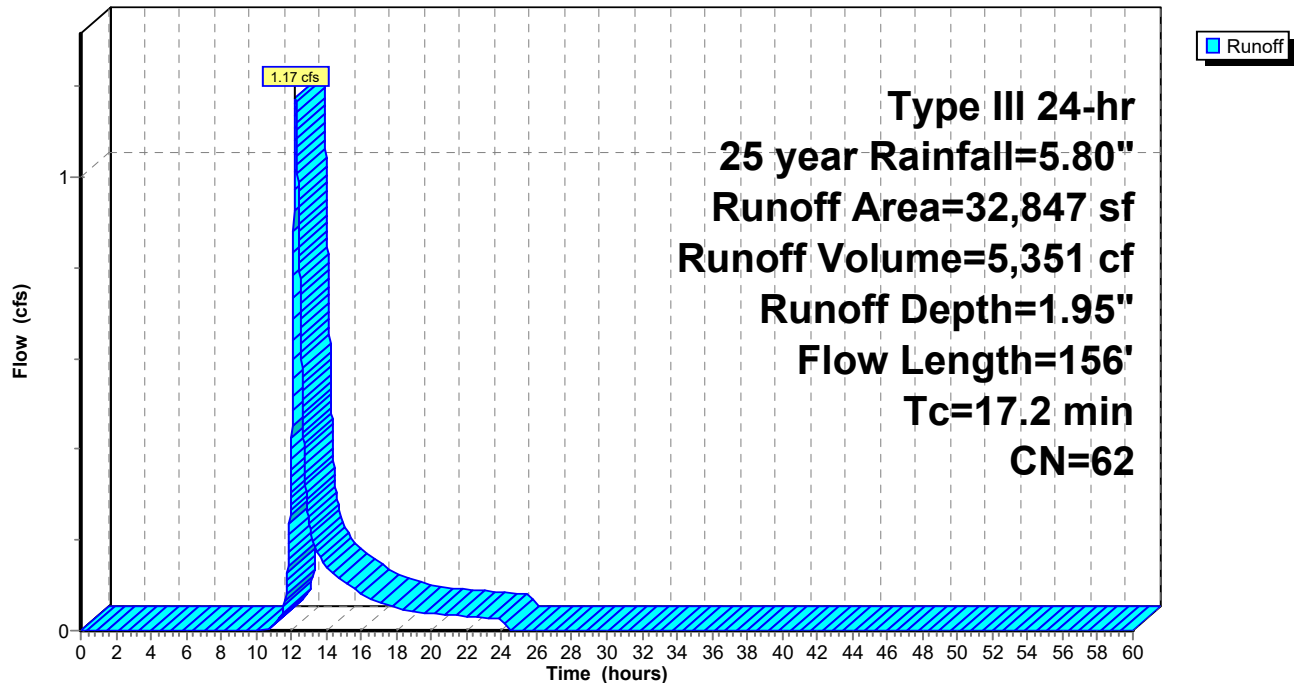| Area (sf)	CN	Description
1,743	61	>75% Grass cover, Good, HSG B
1,743		100.00% Pervious Area

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

Subcatchment 17S: (new Subcat)

Hydrograph

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Summary for Subcatchment 18S: (new Subcat)

Runoff   =   0.88 cfs @ 12.09 hrs, Volume=   2,738 cf, Depth= 3.60"
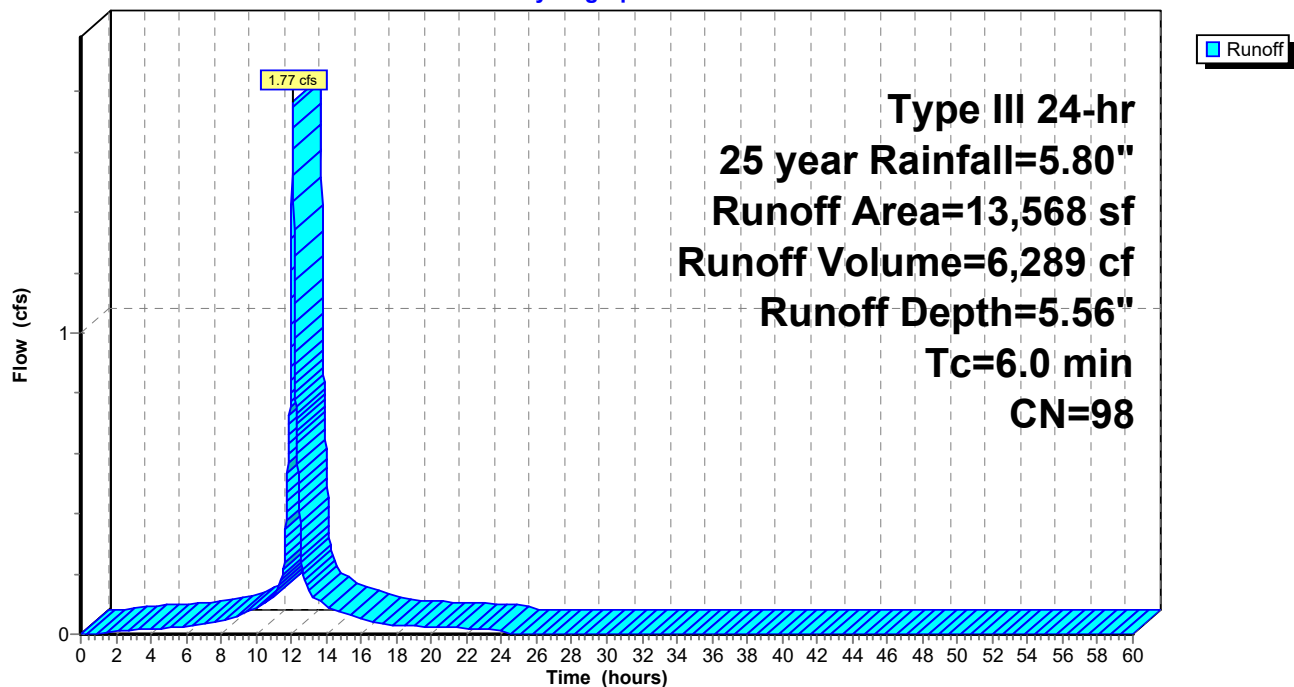
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
4,401	61	>75% Grass cover, Good, HSG B
4,721	98	Paved parking, HSG B
9,122	80	Weighted Average
4,401		48.25% Pervious Area
4,721		51.75% Impervious Area

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

Subcatchment 18S: (new Subcat)

Hydrograph

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 19S: (new Subcat)

Runoff   =   1.17 cfs @ 12.25 hrs, Volume=   5,351 cf, Depth= 1.95"
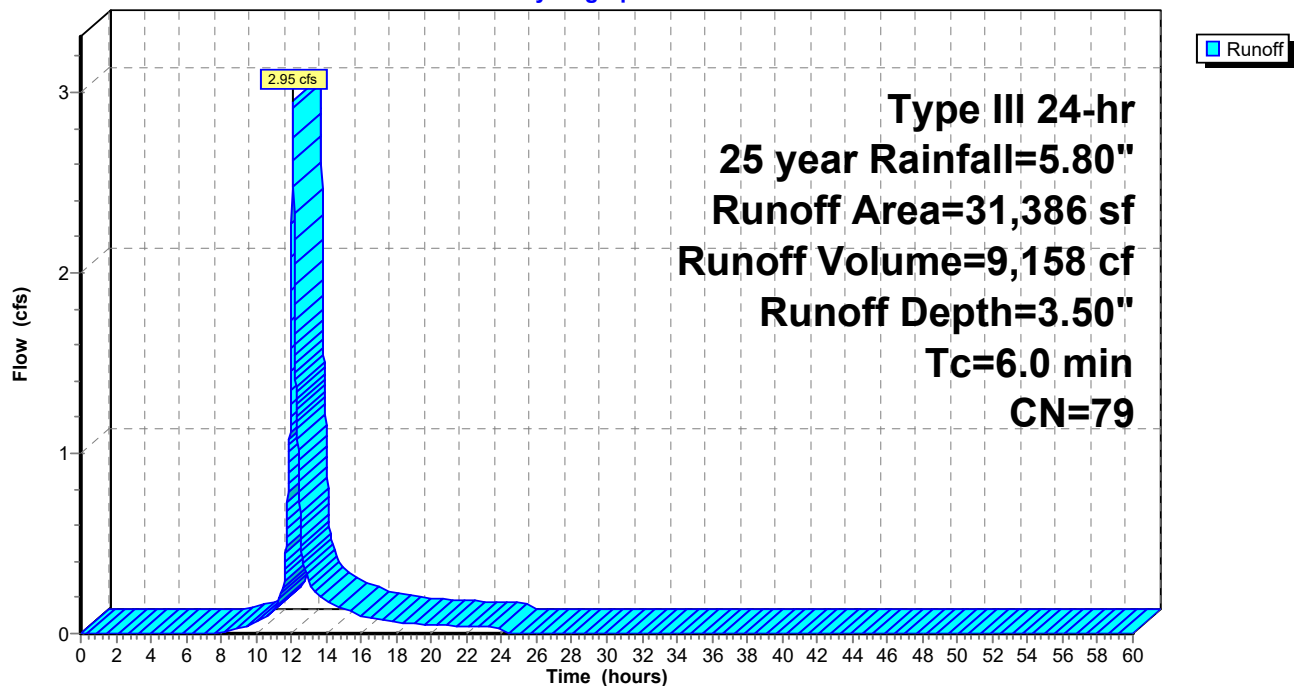
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
32,401	61	>75% Grass cover, Good, HSG B
446	98	Paved parking, HSG B
32,847	62	Weighted Average
32,401		98.64% Pervious Area
446		1.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0150	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
0.9	56	0.0220	1.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.2	156	Total			

Subcatchment 19S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=32,847 sf
Runoff Volume=5,351 cf
Runoff Depth=1.95"
Flow Length=156'
Tc=17.2 min
CN=62

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Summary for Subcatchment 20S: (new Subcat)

Runoff   =   1.77 cfs @   12.08 hrs, Volume=   6,289 cf, Depth= 5.56"
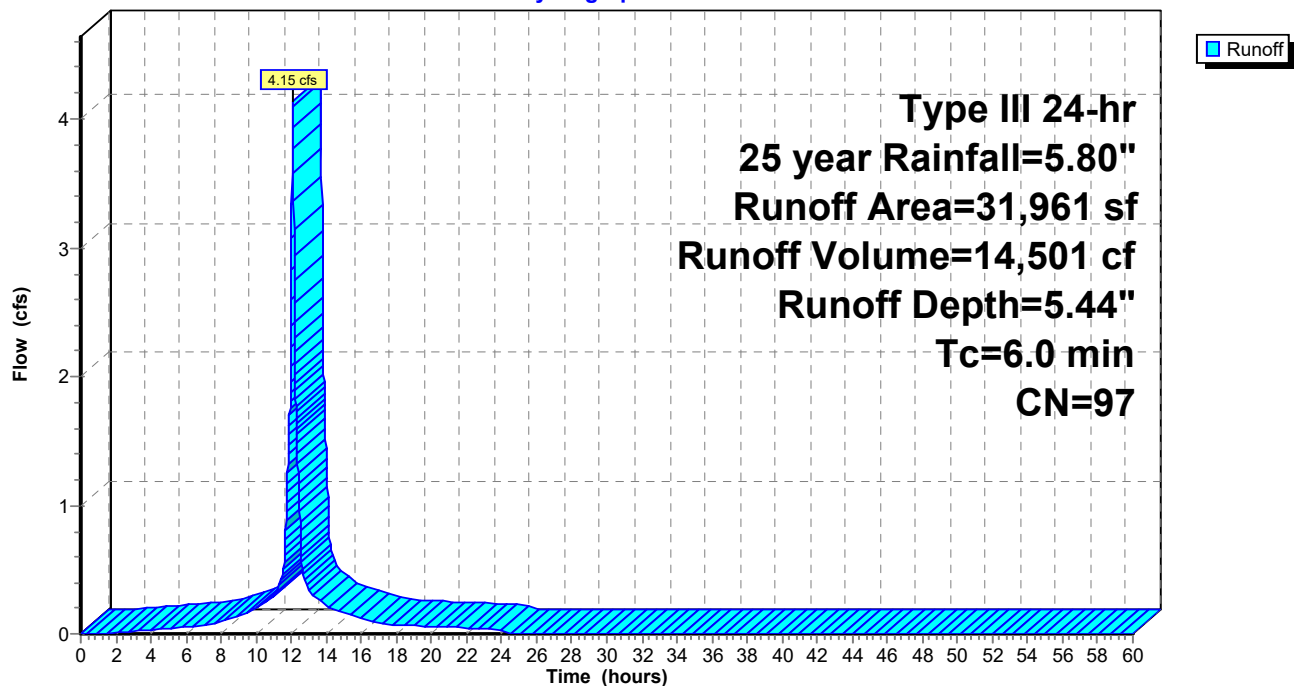
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
13,568	98	Roofs, HSG B
13,568		100.00% Impervious Area

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

Subcatchment 20S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=13,568 sf
Runoff Volume=6,289 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Summary for Subcatchment 21S: (new Subcat)

Runoff   =   2.95 cfs @ 12.09 hrs, Volume=   9,158 cf, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	15,846	61	>75% Grass cover, Good, HSG B
	14,958	98	Paved parking, HSG B
*	582	98	Unconnected pavement, HSG B concrete
	31,386	79	Weighted Average
	15,846		50.49% Pervious Area
	15,540		49.51% Impervious Area
	582		3.75% Unconnected

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

Subcatchment 21S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=31,386 sf
Runoff Volume=9,158 cf
Runoff Depth=3.50"
Tc=6.0 min
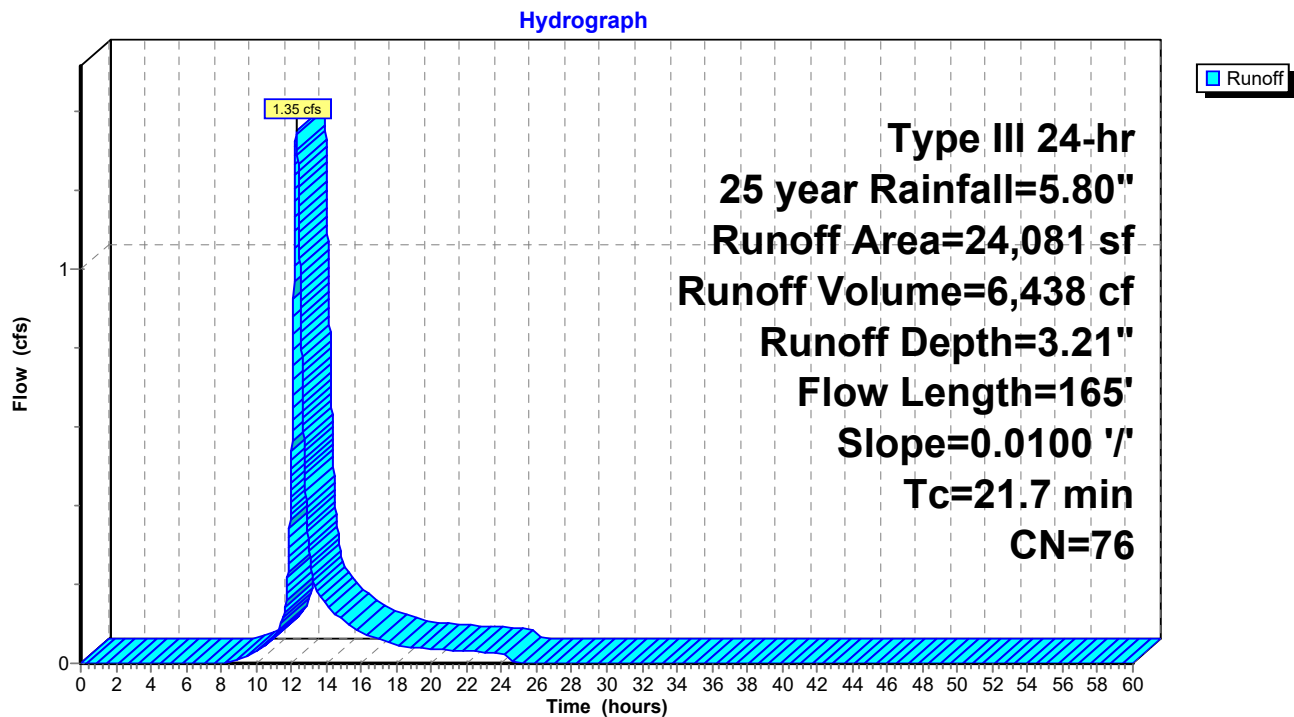CN=79

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 22S: (new Subcat)

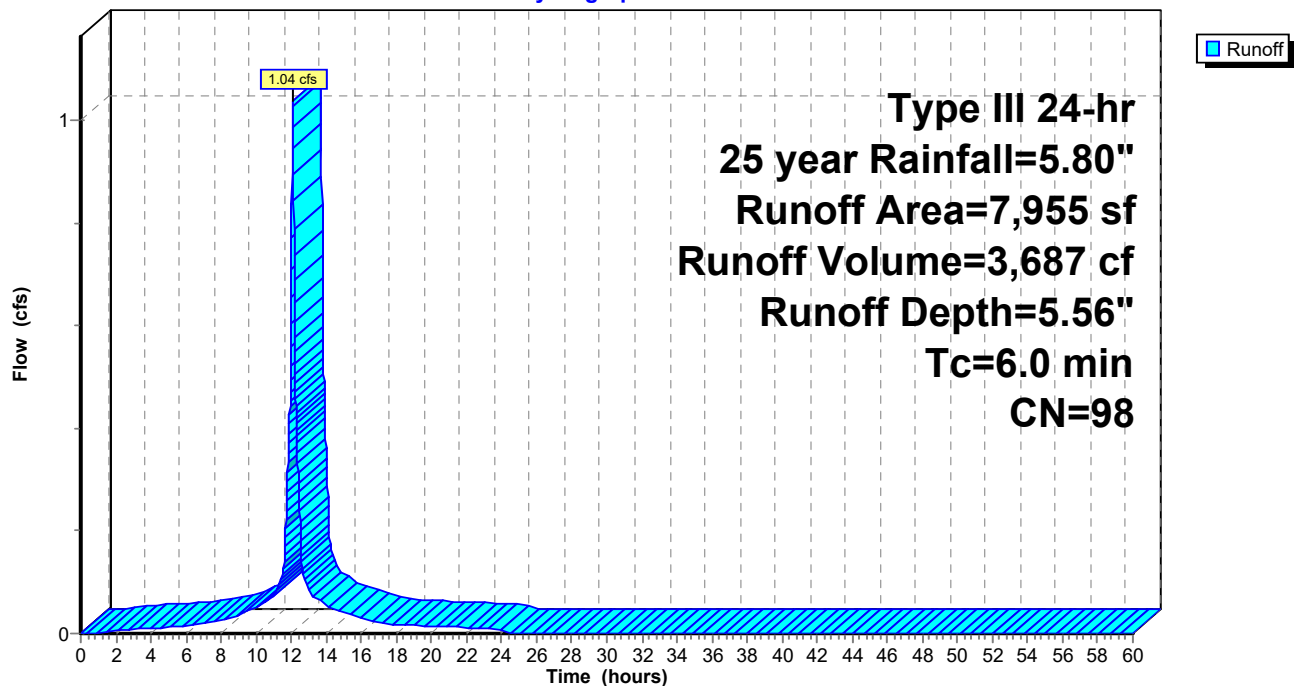Runoff   =   4.15 cfs @ 12.08 hrs, Volume=   14,501 cf, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	31,077	98	Roofs, HSG B
	186	98	Roofs, HSG D
	674	61	>75% Grass cover, Good, HSG B
*	24	98	Unconnected pavement, HSG B concrete
	31,961	97	Weighted Average
	674		2.11% Pervious Area
	31,287		97.89% Impervious Area
	24		0.08% Unconnected

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

Subcatchment 22S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=31,961 sf
Runoff Volume=14,501 cf
Runoff Depth=5.44"
Tc=6.0 min
CN=97

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 23S: (new Subcat)

Runoff   =   1.35 cfs @ 12.30 hrs, Volume=   6,438 cf, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
6,438	61	>75% Grass cover, Good, HSG B
16,478	80	>75% Grass cover, Good, HSG D
652	98	Paved parking, HSG B
327	98	Roofs, HSG B
186	98	Roofs, HSG C
24,081	76	Weighted Average
22,916		95.16% Pervious Area
1,165		4.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	25	0.0100	0.07		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.3	10	0.0100	0.65		**Sheet Flow, BC**
					Smooth surfaces n= 0.011 P2= 3.10"
13.6	65	0.0100	0.08		**Sheet Flow, CD**
					Grass: Dense n= 0.240 P2= 3.10"
1.5	65	0.0100	0.70		**Shallow Concentrated Flow, DE**
					Short Grass Pasture Kv= 7.0 fps
21.7	165	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 23S: (new Subcat)

Hydrograph

☐ Runoff

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=24,081 sf
Runoff Volume=6,438 cf
Runoff Depth=3.21"
Flow Length=165'
Slope=0.0100 '/'
Tc=21.7 min
CN=76

1.35 cfs

Flow (cfs)

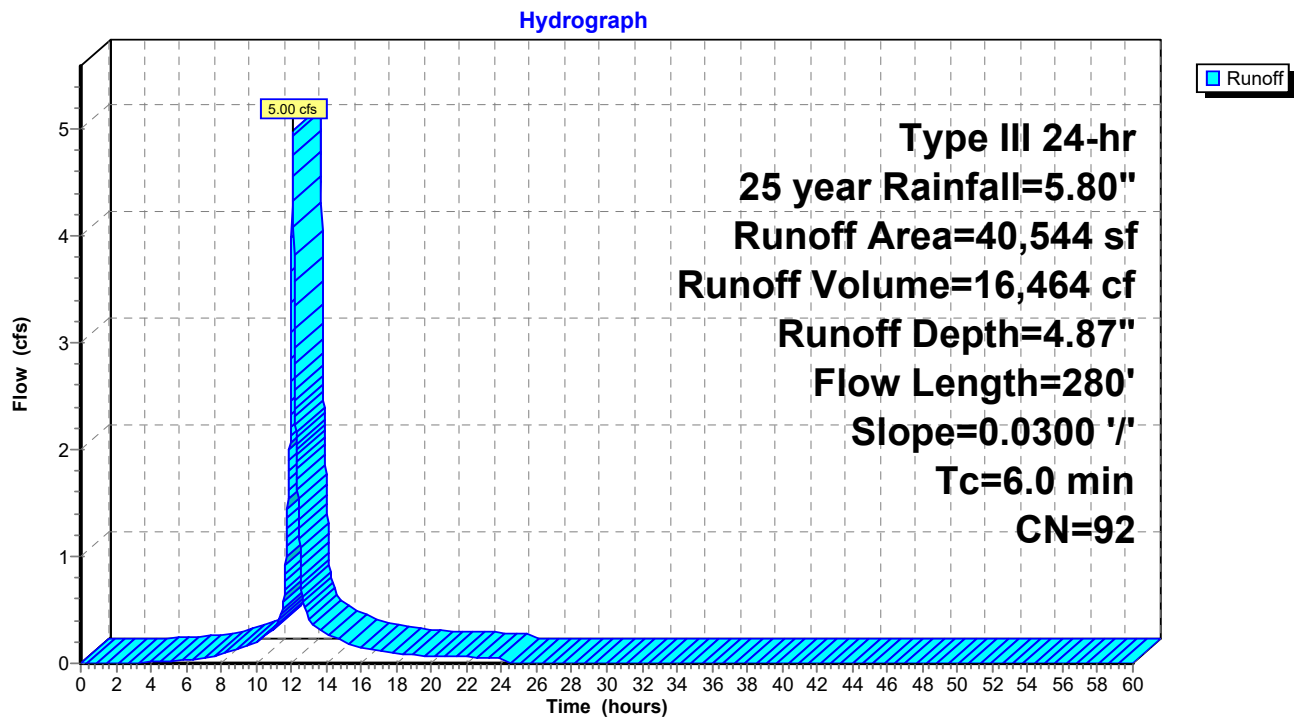Time (hours)

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 24S: (new Subcat)

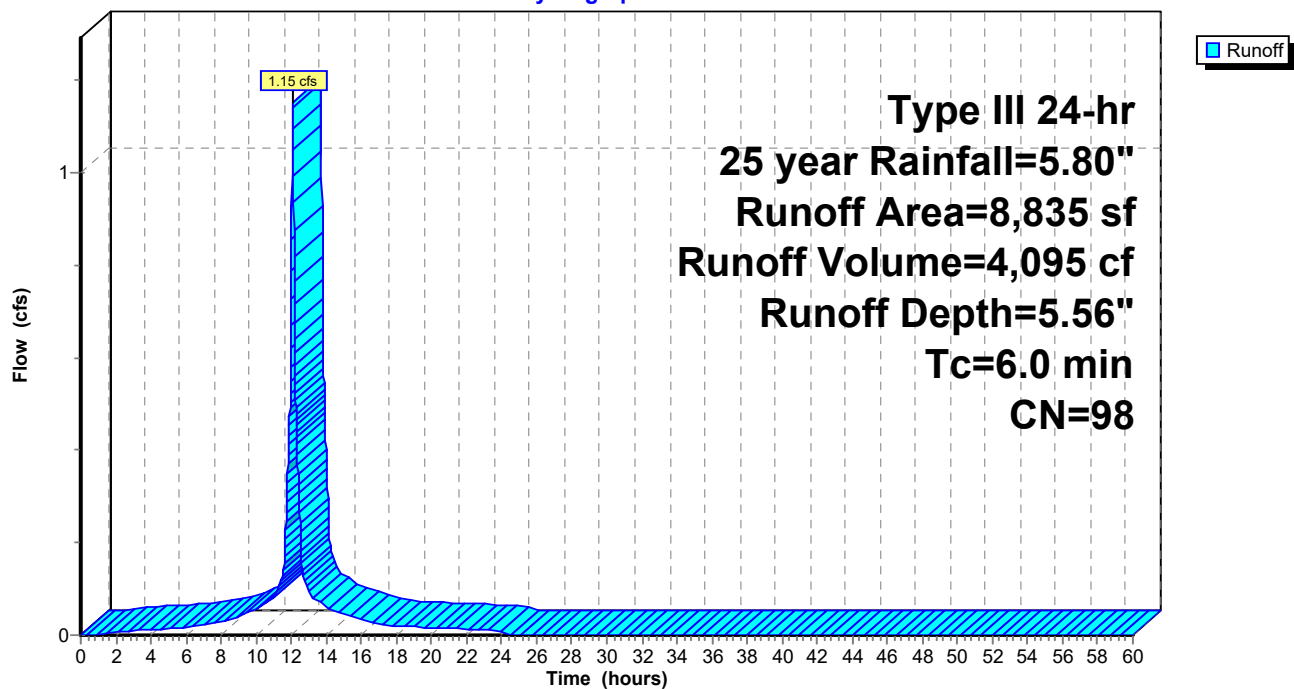Runoff   =   1.04 cfs @ 12.08 hrs, Volume=   3,687 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
*	25	98	Unconnected pavement, HSG B concrete
	7,930	98	Roofs, HSG B
	7,955	98	Weighted Average
	7,955		100.00% Impervious Area
	25		0.31% Unconnected

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

Subcatchment 24S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=7,955 sf
Runoff Volume=3,687 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 25S: (new Subcat)

Runoff   =   5.00 cfs @ 12.08 hrs, Volume=   16,464 cf, Depth= 4.87"
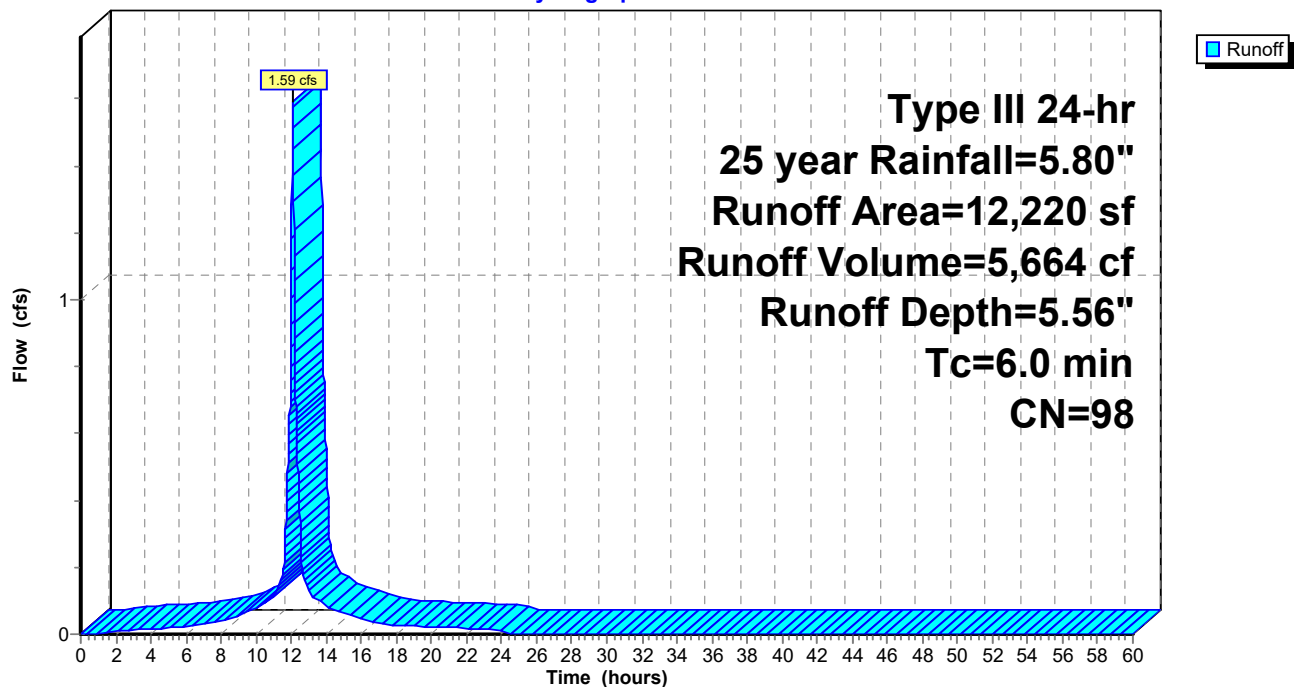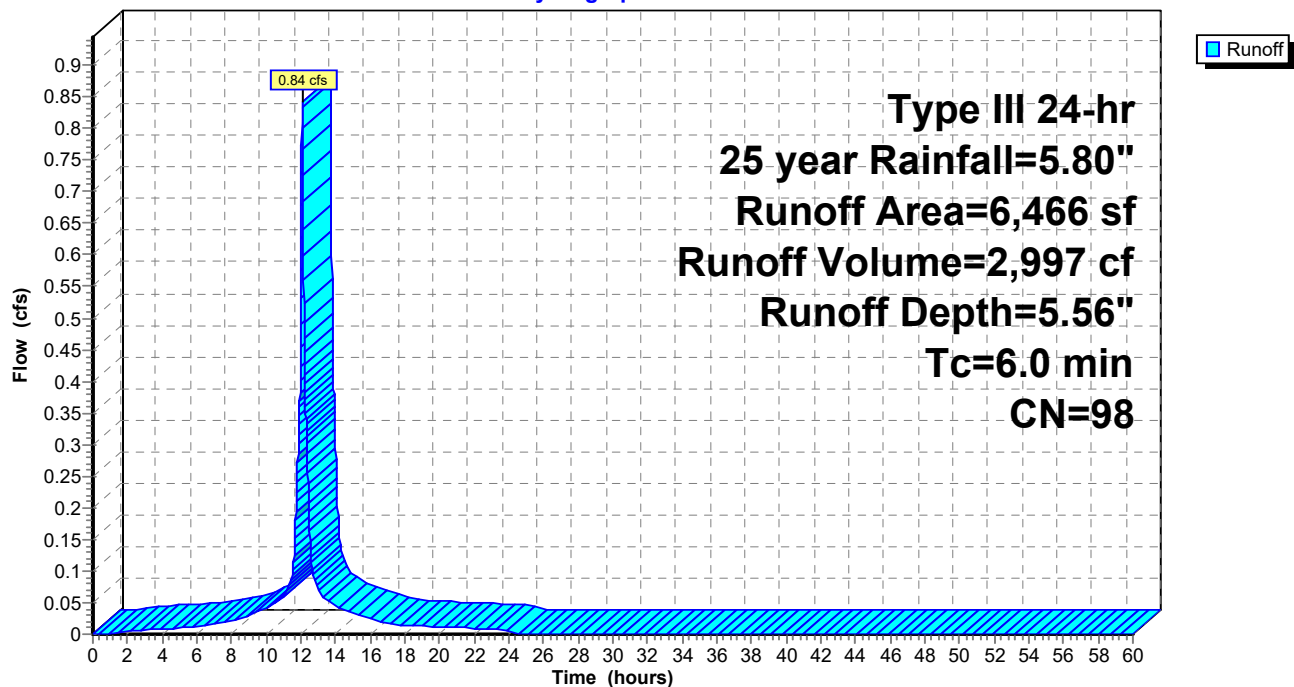
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	4,474	98	Paved parking, HSG B
	3,875	98	Paved parking, HSG D
	20,029	98	Paved parking, HSG C
	4,068	74	>75% Grass cover, Good, HSG C
	1,359	61	>75% Grass cover, Good, HSG B
	5,979	80	>75% Grass cover, Good, HSG D
*	506	98	Unconnected pavement, HSG B concrete
*	254	98	Unconnected pavement, HSG C concrete
	40,544	92	Weighted Average
	11,406		28.13% Pervious Area
	29,138		71.87% Impervious Area
	760		2.61% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.59		**Sheet Flow, AB**
					Smooth surfaces n= 0.011 P2= 3.10"
0.4	90	0.0300	3.52		**Shallow Concentrated Flow, BC**
					Paved Kv= 20.3 fps
1.2	90	0.0300	1.21		**Shallow Concentrated Flow, CD**
					Short Grass Pasture Kv= 7.0 fps
3.4					**Direct Entry, DIRECT ENTRY**
6.0	280	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 25S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=40,544 sf
Runoff Volume=16,464 cf
Runoff Depth=4.87"
Flow Length=280'
Slope=0.0300 '/'
Tc=6.0 min
CN=92

5.00 cfs

☐ Runoff

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 26S: (new Subcat)

Runoff   =   1.15 cfs @ 12.08 hrs, Volume=   4,095 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
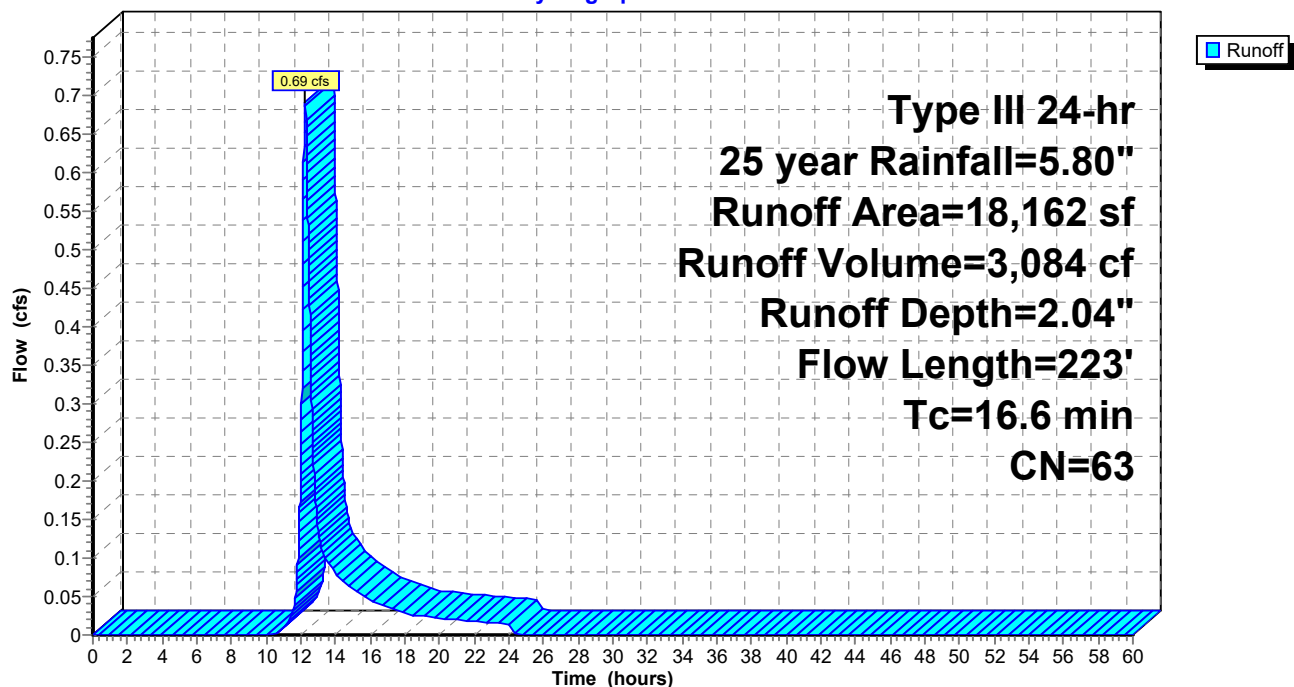Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
2,784	98	Roofs, HSG B
6,051	98	Roofs, HSG C
8,835	98	Weighted Average
8,835		100.00% Impervious Area

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

Subcatchment 26S: (new Subcat)

Hydrograph

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 27S: (new Subcat)

Runoff   =   1.59 cfs @ 12.08 hrs, Volume=   5,664 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
12,220	98	Roofs, HSG B
12,220		100.00% Impervious Area

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

Subcatchment 27S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=12,220 sf
Runoff Volume=5,664 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 28S: (new Subcat)

Runoff   =   0.84 cfs @ 12.08 hrs, Volume=   2,997 cf, Depth= 5.56"
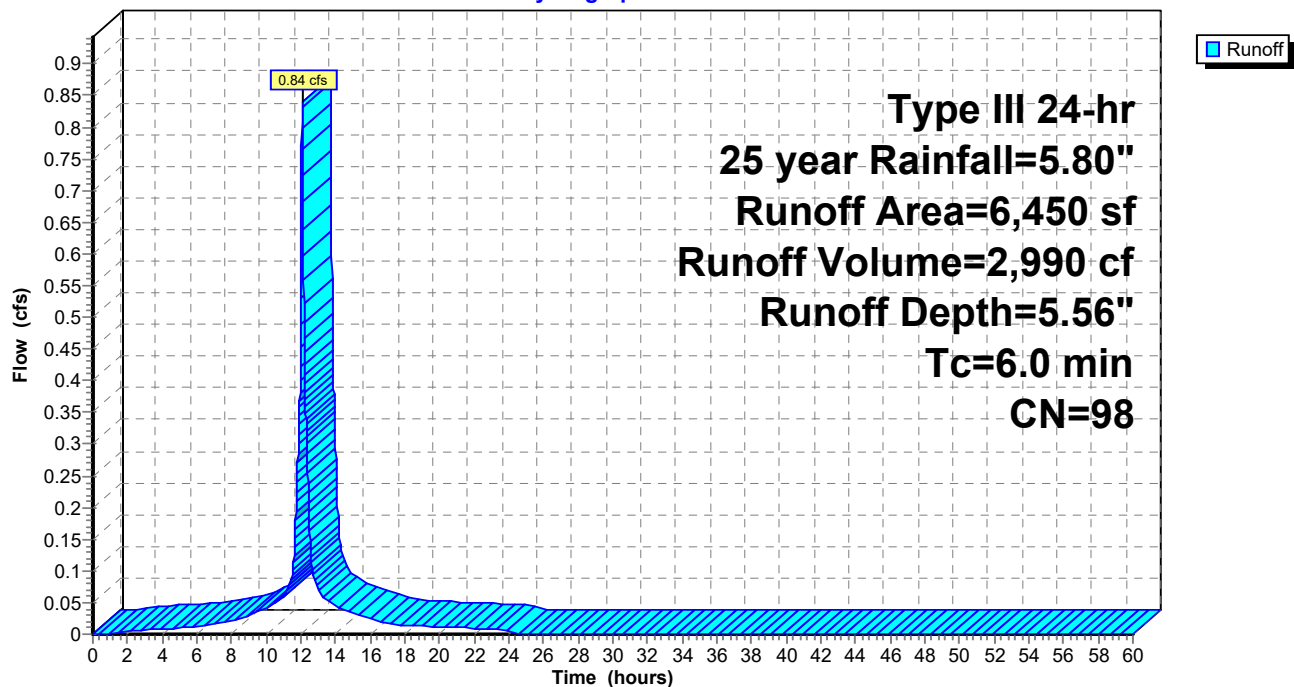
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
6,466	98	Roofs, HSG B
6,466		100.00% Impervious Area

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

Subcatchment 28S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=6,466 sf
Runoff Volume=2,997 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 29S: (new Subcat)

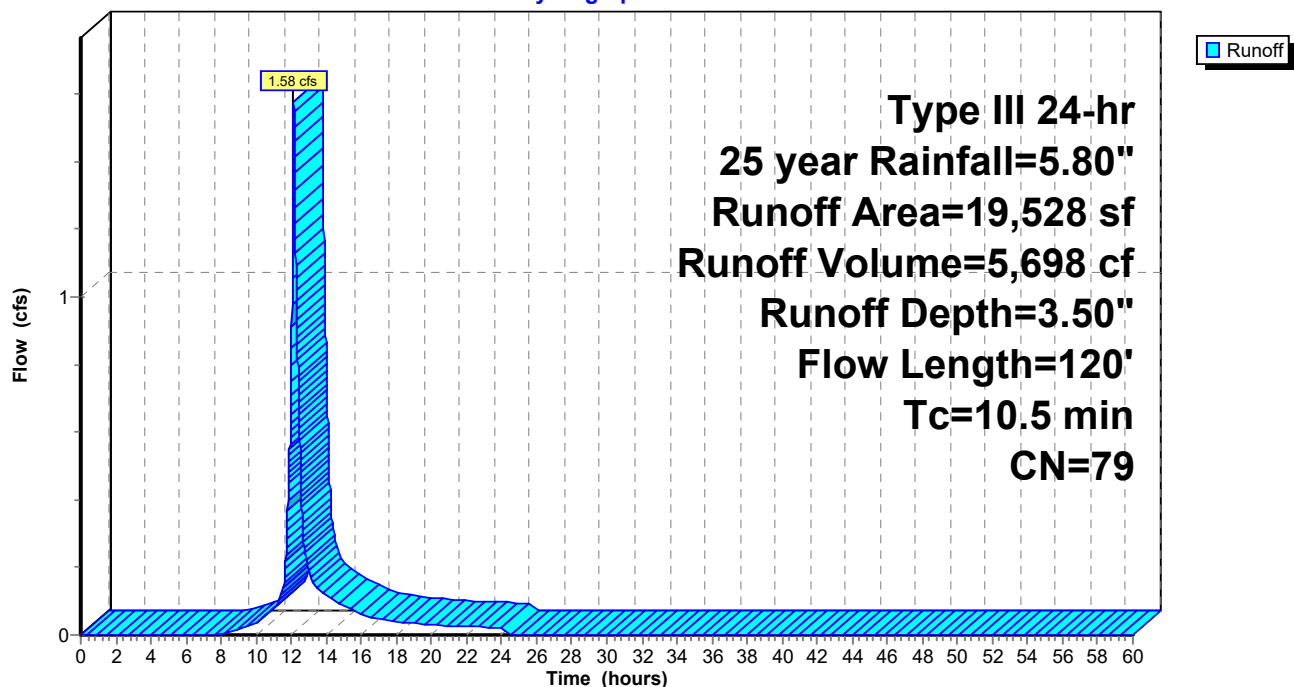Runoff   =   0.69 cfs @ 12.24 hrs, Volume=   3,084 cf, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	882	98	Paved parking, HSG B
*	131	98	Unconnected pavement, HSG B concrete
	17,149	61	>75% Grass cover, Good, HSG B
	18,162	63	Weighted Average
	17,149		94.42% Pervious Area
	1,013		5.58% Impervious Area
	131		12.93% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	98	0.0150	0.10		**Sheet Flow,**
					Grass: Dense n= 0.240 P2= 3.10"
0.6	125	0.0100	3.66	32.90	**Trap/Vee/Rect Channel Flow,**
					Bot.W=4.00' D=1.00' Z= 5.0 '/' Top.W=14.00'
					n= 0.030 Earth, grassed & winding
16.6	223	Total			

Subcatchment 29S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=18,162 sf
Runoff Volume=3,084 cf
Runoff Depth=2.04"
Flow Length=223'
Tc=16.6 min
CN=63

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 30S: (new Subcat)

Runoff   =   0.84 cfs @ 12.08 hrs, Volume=   2,990 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
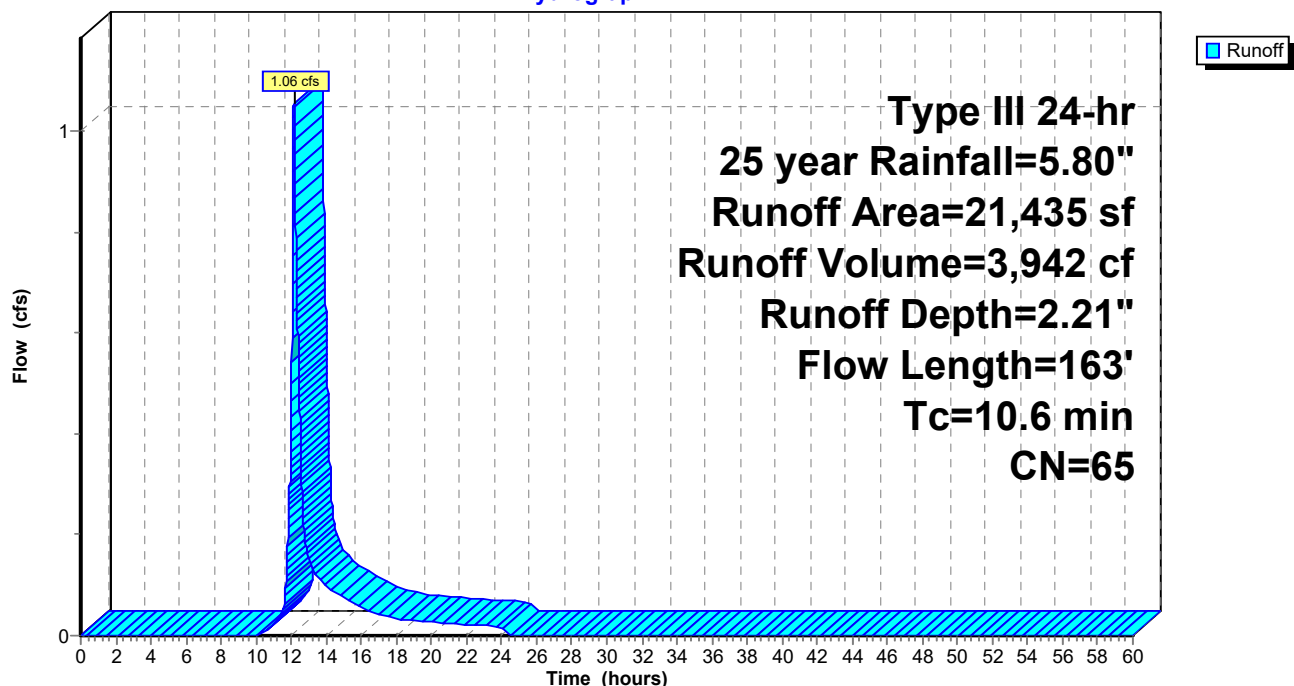Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
6,450	98	Roofs, HSG B
6,450		100.00% Impervious Area

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

Subcatchment 30S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=6,450 sf
Runoff Volume=2,990 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 31S: (new Subcat)

Runoff   =   1.58 cfs @ 12.15 hrs, Volume=   5,698 cf, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
*	695	98	Unconnected pavement, HSG B concrete
	10,179	61	>75% Grass cover, Good, HSG B
	204	98	Roofs, HSG B
	8,450	98	Paved parking, HSG B
	19,528	79	Weighted Average
	10,179		52.13% Pervious Area
	9,349		47.87% Impervious Area
	695		7.43% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.5	20	0.0100	0.70		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
10.5	120				Total

Subcatchment 31S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=19,528 sf
Runoff Volume=5,698 cf
Runoff Depth=3.50"
Flow Length=120'
Tc=10.5 min
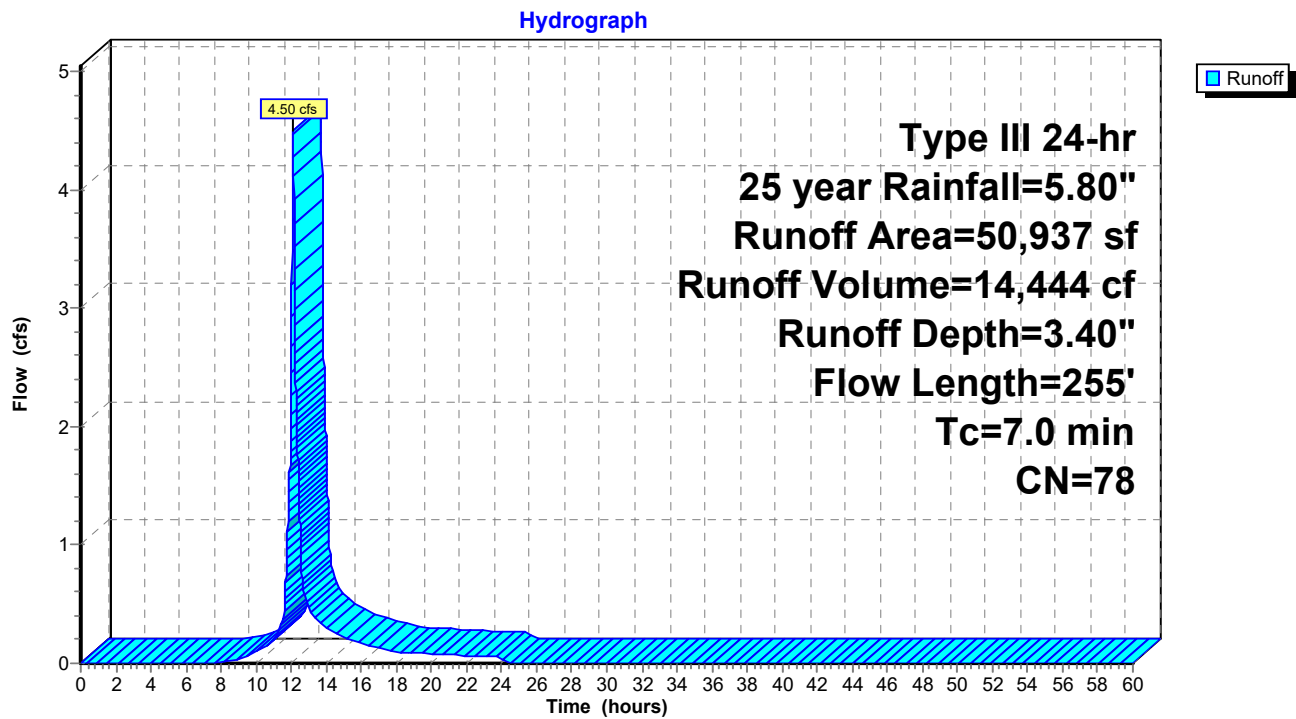CN=79

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 32S: (new Subcat)

Runoff   =   1.06 cfs @ 12.15 hrs, Volume=   3,942 cf, Depth= 2.21"
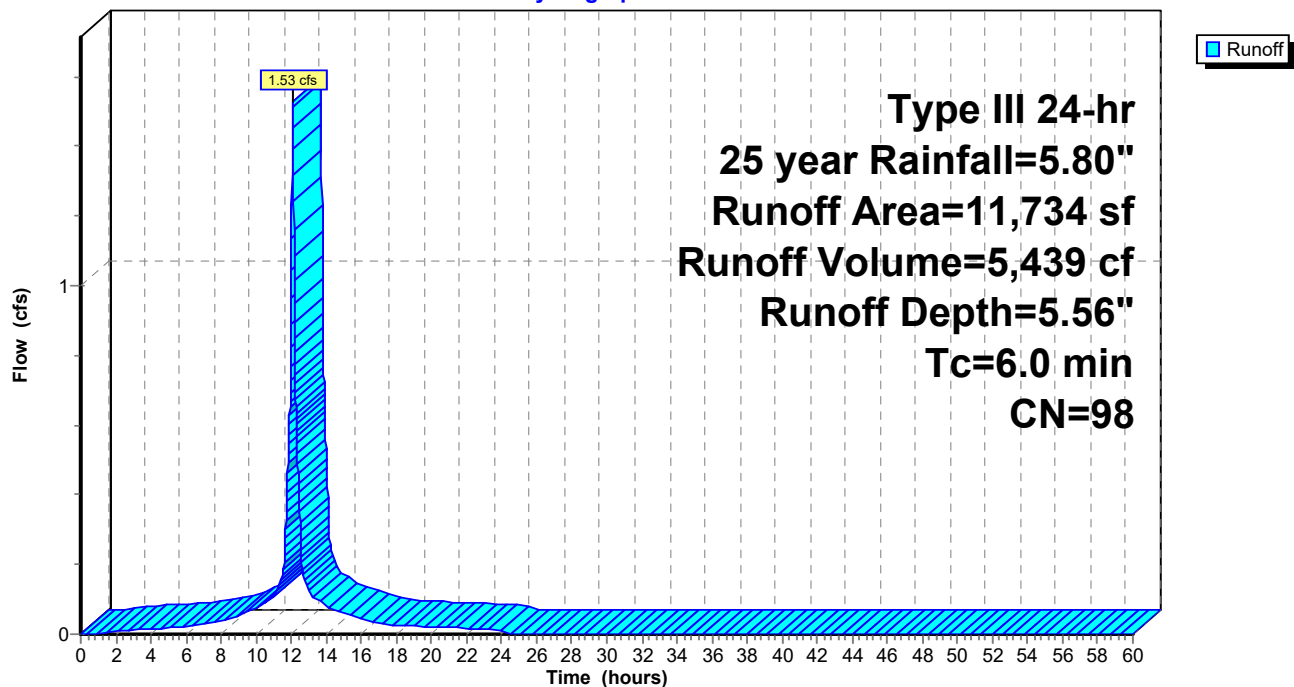
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	18,884	61	>75% Grass cover, Good, HSG B
	2,446	98	Paved parking, HSG B
*	105	98	Unconnected pavement, HSG B concrete
	21,435	65	Weighted Average
	18,884		88.10% Pervious Area
	2,551		11.90% Impervious Area
	105		4.12% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	115	0.0700	0.20		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.1	8	0.0200	0.99		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
0.7	40	0.0200	0.99		**Shallow Concentrated Flow, CD**
					Short Grass Pasture Kv= 7.0 fps
10.6	163	Total			

Subcatchment 32S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=21,435 sf
Runoff Volume=3,942 cf
Runoff Depth=2.21"
Flow Length=163'
Tc=10.6 min
CN=65

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 33S: (new Subcat)

Runoff   =   4.50 cfs @ 12.10 hrs, Volume=   14,444 cf, Depth= 3.40"
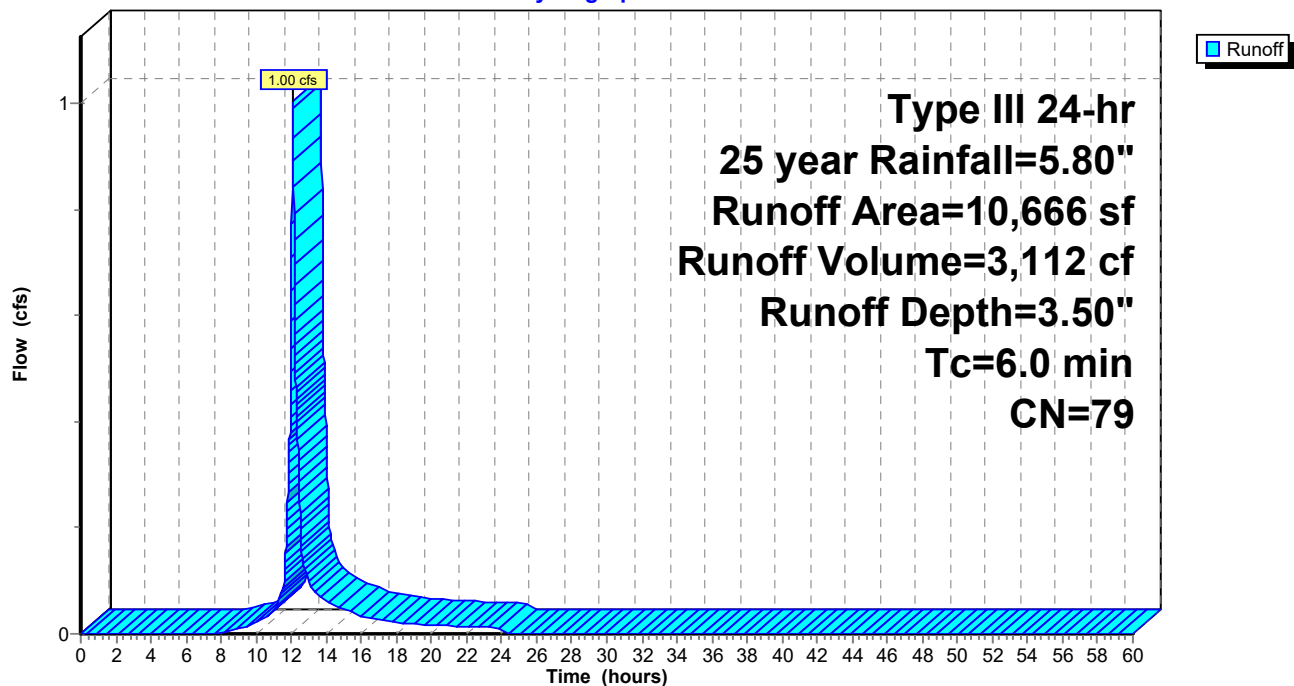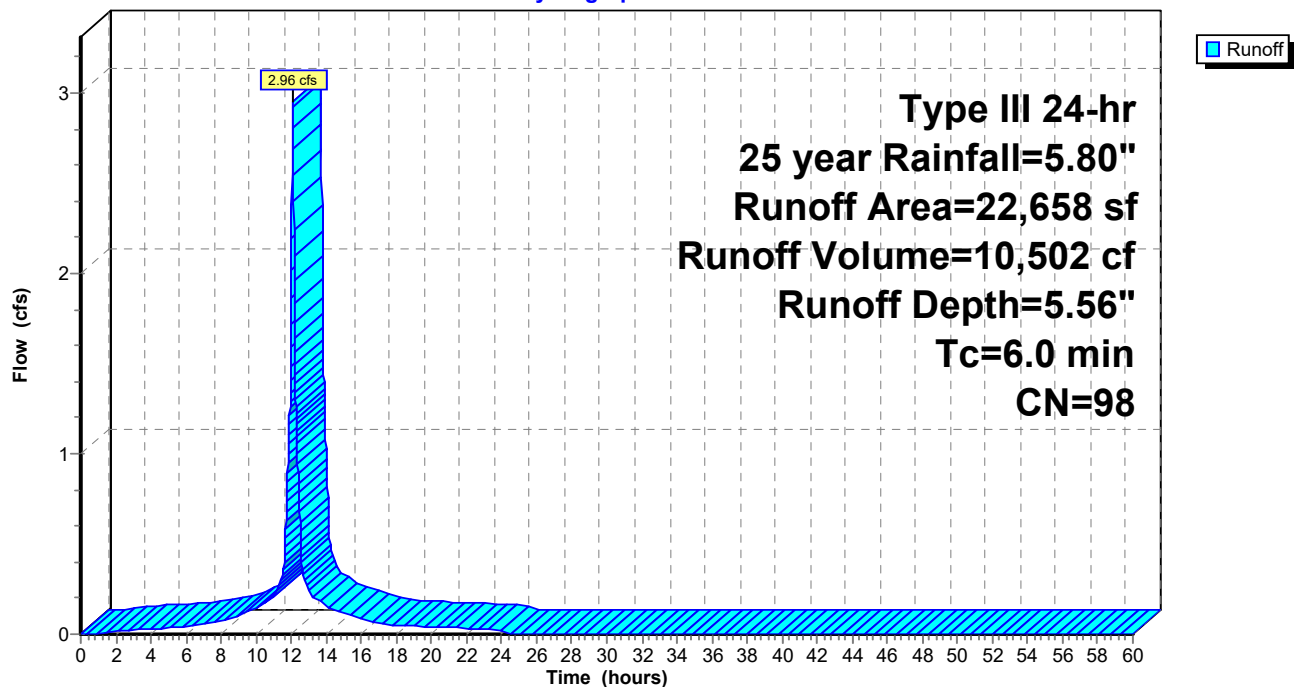
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
23,354	61	>75% Grass cover, Good, HSG B
8,678	80	>75% Grass cover, Good, HSG D
3,437	96	Gravel surface, HSG B
2,358	96	Gravel surface, HSG D
11,747	98	Paved parking, HSG B
1,363	98	Paved parking, HSG D
50,937	78	Weighted Average
37,827		74.26% Pervious Area
13,110		25.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	55	0.0500	0.15		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.10"
0.1	43	0.1000	6.42		**Shallow Concentrated Flow, BC** Paved Kv= 20.3 fps
0.1	12	0.0200	2.28		**Shallow Concentrated Flow, CD** Unpaved Kv= 16.1 fps
0.6	145	0.0150	4.32	21.59	**Trap/Vee/Rect Channel Flow, DE** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.030 Earth, grassed & winding
7.0	255				Total

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 33S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=50,937 sf
Runoff Volume=14,444 cf
Runoff Depth=3.40"
Flow Length=255'
Tc=7.0 min
CN=78

4.50 cfs

☐ Runoff

Flow (cfs)

Time (hours)

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 34S: (new Subcat)

Runoff   =   1.53 cfs @ 12.08 hrs, Volume=   5,439 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
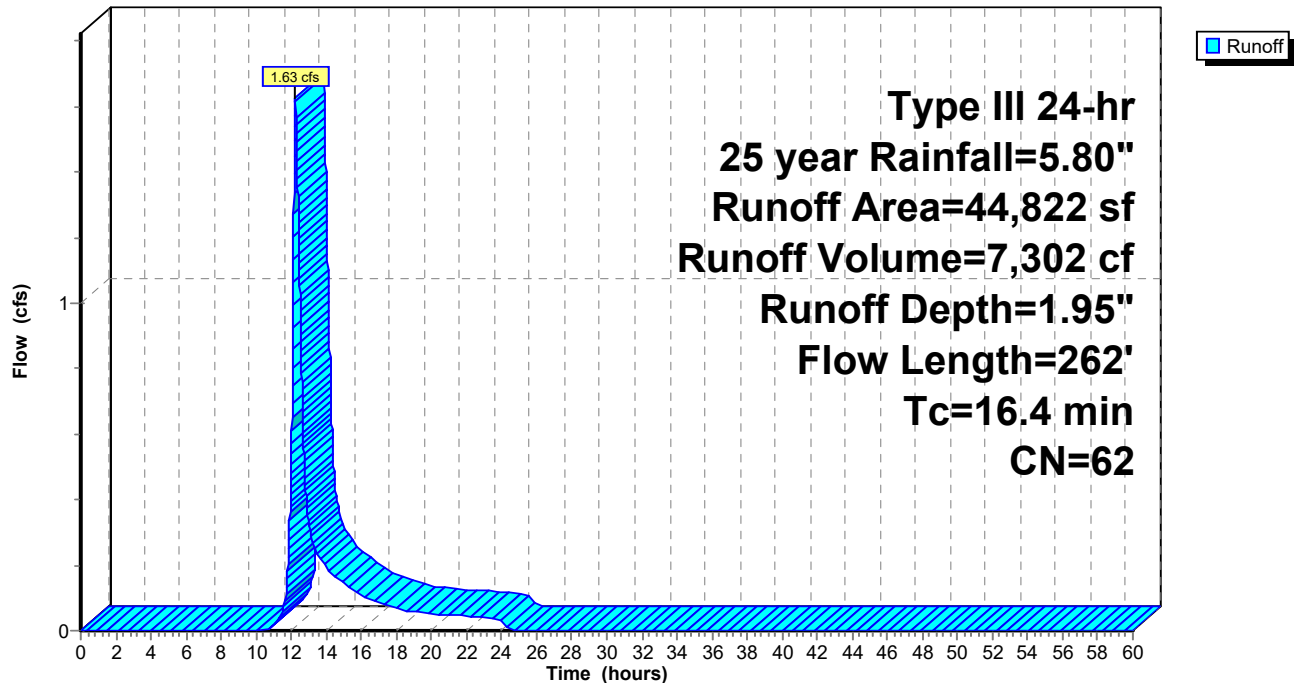Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
11,734	98	Roofs, HSG B
11,734		100.00% Impervious Area

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

Subcatchment 34S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=11,734 sf
Runoff Volume=5,439 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 35S: (new Subcat)
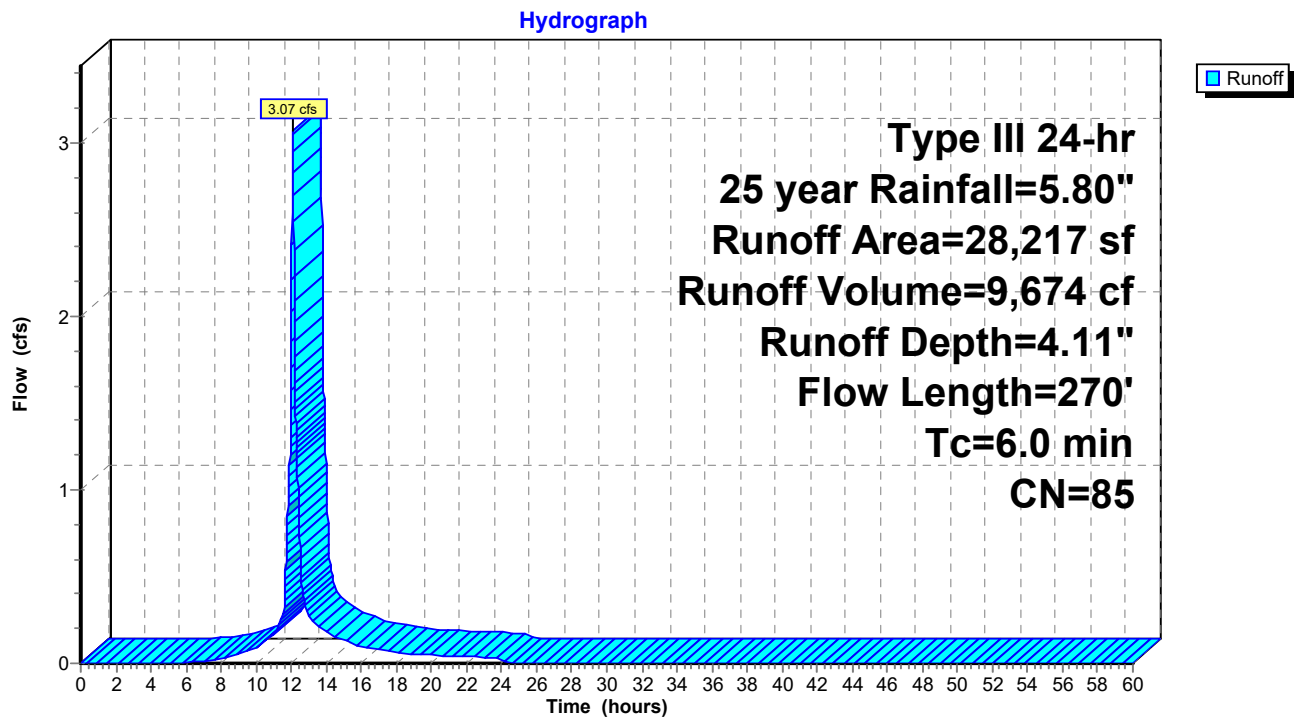
Runoff   =   1.00 cfs @ 12.09 hrs, Volume=   3,112 cf, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
4,919	61	>75% Grass cover, Good, HSG B
1,203	80	>75% Grass cover, Good, HSG D
4,230	98	Paved parking, HSG B
* 314	98	Unconnected pavement, HSG B concrete
10,666	79	Weighted Average
6,122		57.40% Pervious Area
4,544		42.60% Impervious Area
314		6.91% Unconnected

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

Subcatchment 35S: (new Subcat)

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 36S: (new Subcat)

Runoff   =   2.96 cfs @ 12.08 hrs, Volume=   10,502 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
22,658	98	Roofs, HSG B
22,658		100.00% Impervious Area

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

Subcatchment 36S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=22,658 sf
Runoff Volume=10,502 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 37S: (new Subcat)

Runoff   =   1.63 cfs @ 12.24 hrs, Volume=   7,302 cf, Depth= 1.95"
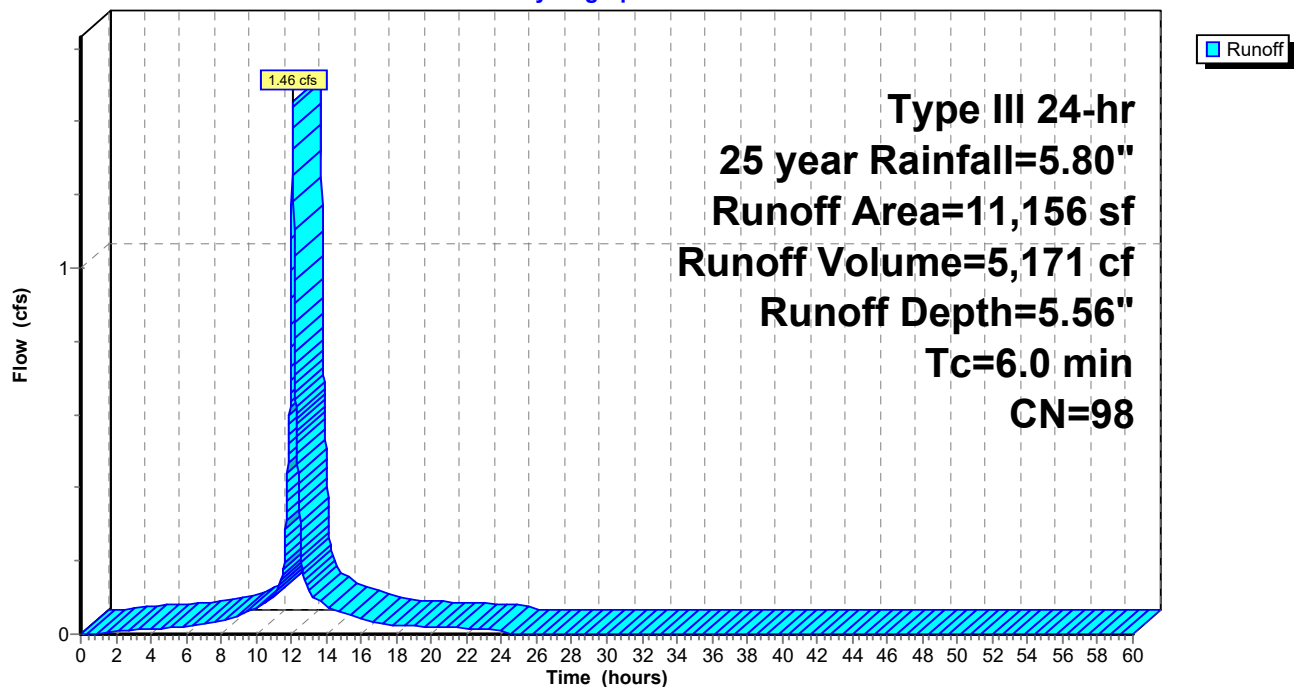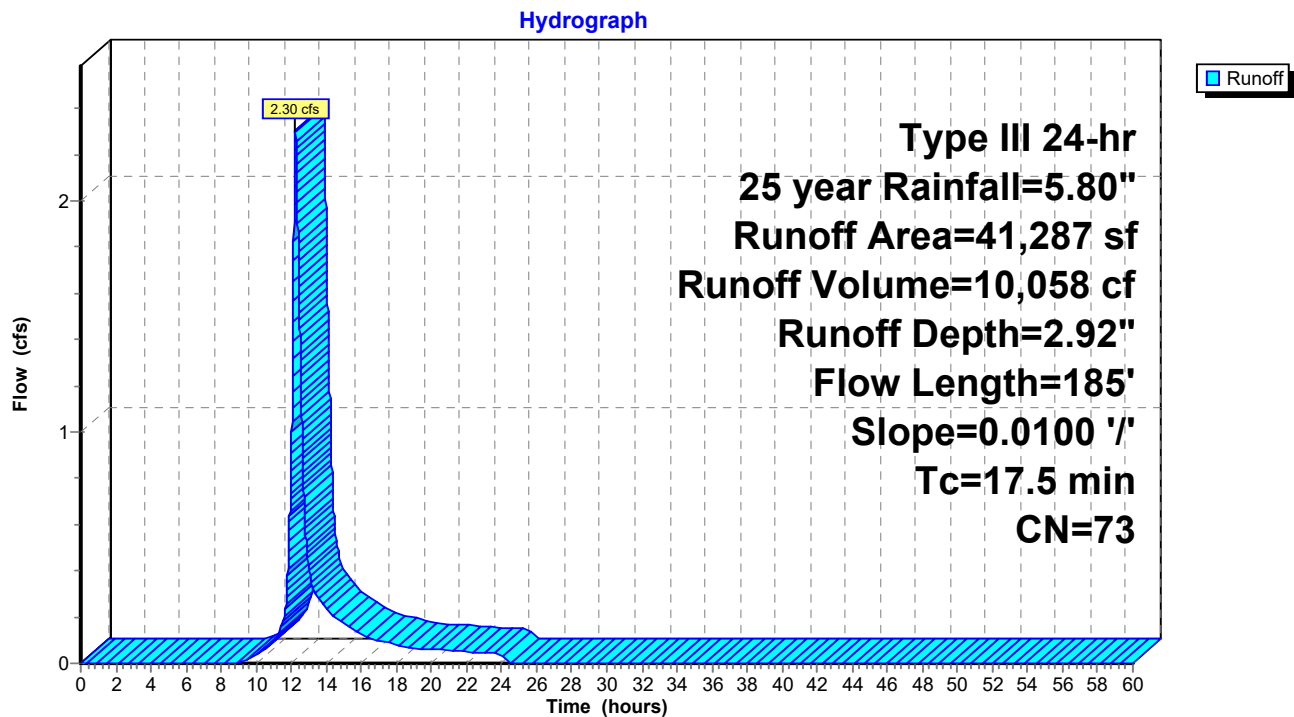
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	41,869	61	>75% Grass cover, Good, HSG B
	2,101	74	>75% Grass cover, Good, HSG C
*	852	98	Unconnected pavement, HSG B concrete
	44,822	62	Weighted Average
	43,970		98.10% Pervious Area
	852		1.90% Impervious Area
	852		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0200	0.11		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
1.9	162	0.0400	1.40		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
16.4	262	Total			

Subcatchment 37S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=44,822 sf
Runoff Volume=7,302 cf
Runoff Depth=1.95"
Flow Length=262'
Tc=16.4 min
CN=62

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 38S: (new Subcat)

Runoff   =   3.07 cfs @ 12.09 hrs, Volume=   9,674 cf, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
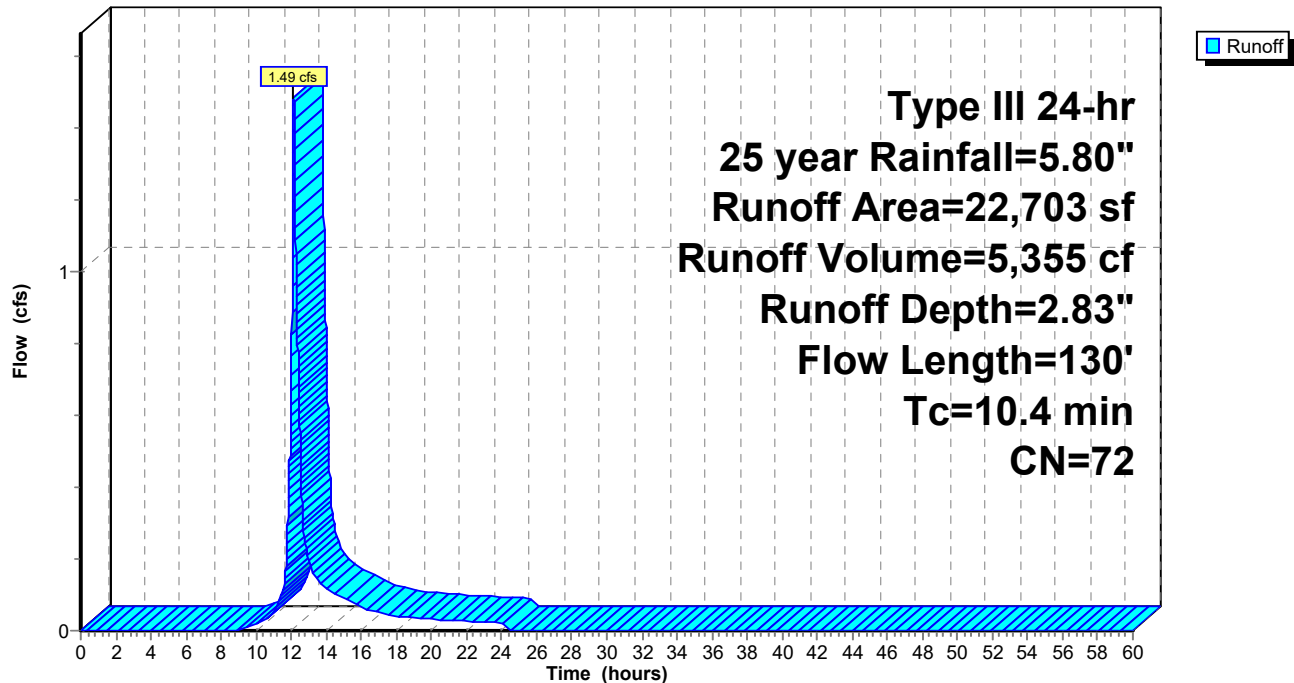Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	2,889	98	Roofs, HSG B
	7,806	74	>75% Grass cover, Good, HSG C
	4,726	61	>75% Grass cover, Good, HSG B
	5,287	98	Paved parking, HSG C
	7,010	98	Paved parking, HSG B
*	499	98	Unconnected pavement, HSG B concrete
	28,217	85	Weighted Average
	12,532		44.41% Pervious Area
	15,685		55.59% Impervious Area
	499		3.18% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0200	1.03		**Sheet Flow, AB**
					Smooth surfaces n= 0.011 P2= 3.10"
4.3	22	0.0200	0.08		**Sheet Flow, BC**
					Grass: Dense n= 0.240 P2= 3.10"
1.0	222	0.0180	3.66	13.74	**Trap/Vee/Rect Channel Flow, CD**
					Bot.W=6.00' D=0.50' Z= 3.0 '/' Top.W=9.00'
					n= 0.030 Earth, grassed & winding
0.3					**Direct Entry,**
6.0	270	Total			

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Subcatchment 38S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=28,217 sf
Runoff Volume=9,674 cf
Runoff Depth=4.11"
Flow Length=270'
Tc=6.0 min
CN=85

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 39S: (new Subcat)

Runoff   =   1.46 cfs @ 12.08 hrs, Volume=   5,171 cf, Depth= 5.56"
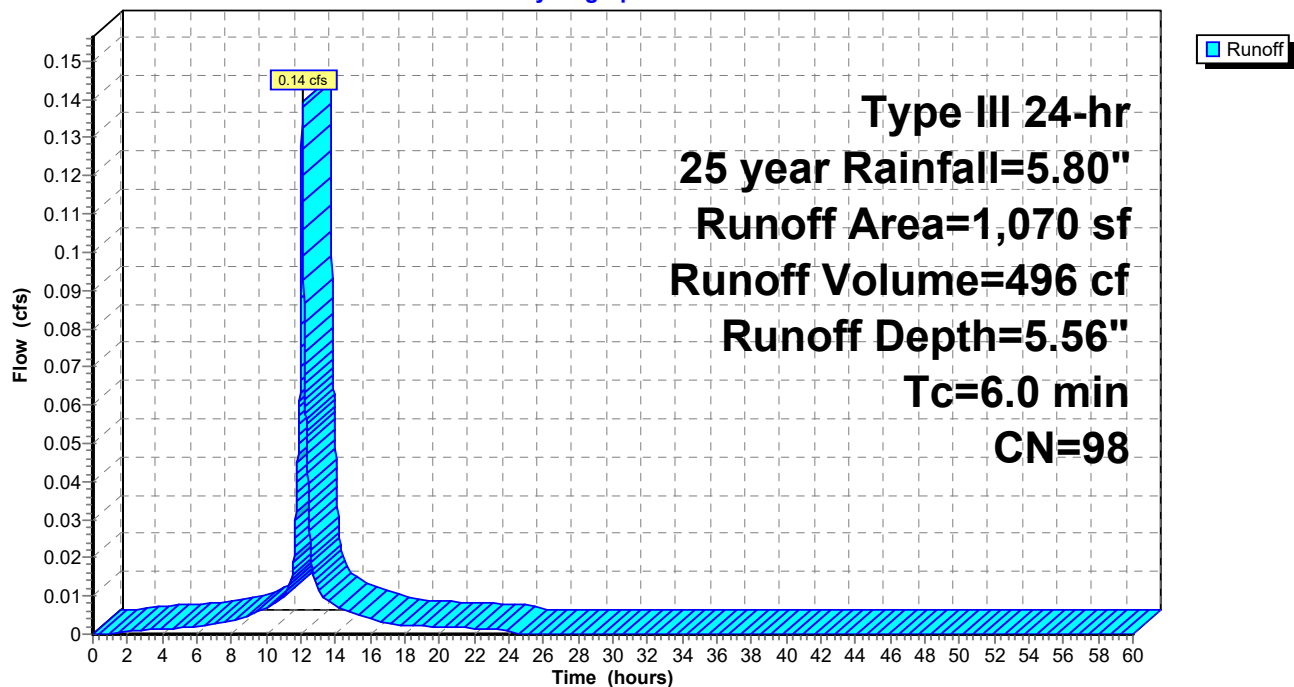
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
11,156	98	Roofs, HSG B
11,156		100.00% Impervious Area

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

Subcatchment 39S: (new Subcat)

Hydrograph

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 40S: (new Subcat)

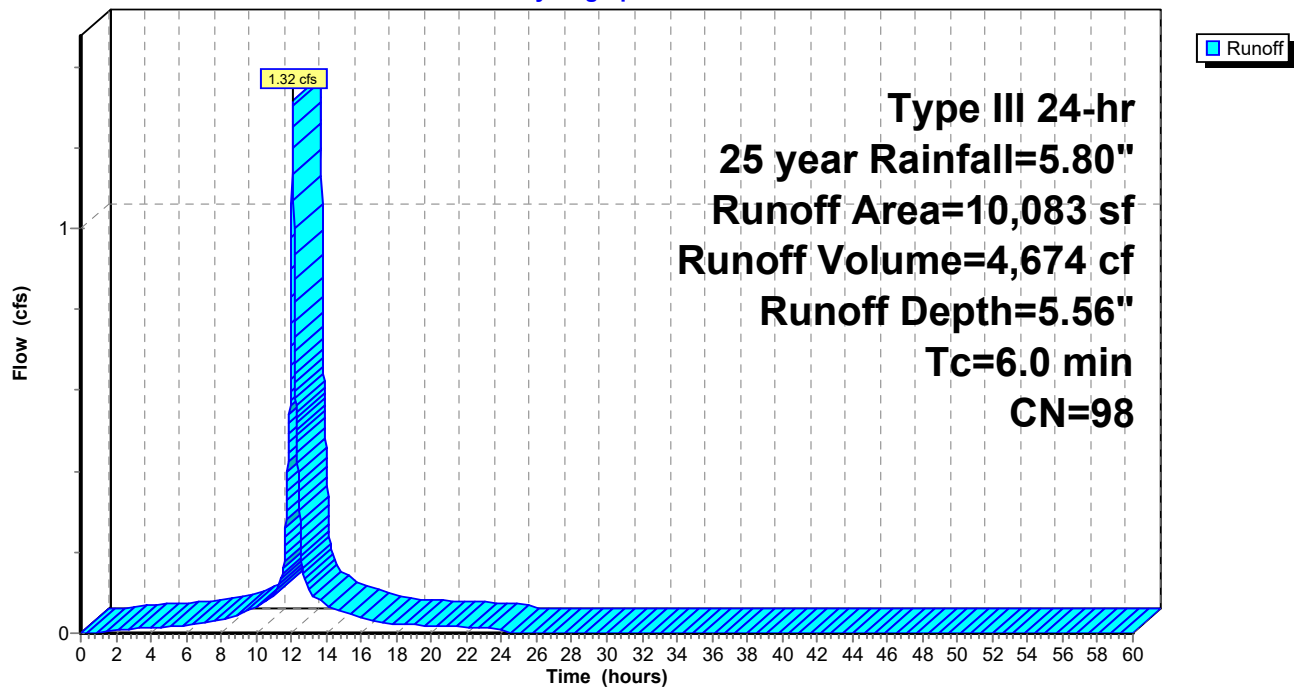Runoff   =   2.30 cfs @ 12.24 hrs, Volume=   10,058 cf, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	28,334	61	>75% Grass cover, Good, HSG B
	12,490	98	Paved parking, HSG B
*	463	98	Unconnected pavement, HSG B concrete
	41,287	73	Weighted Average
	28,334		68.63% Pervious Area
	12,953		31.37% Impervious Area
	463		3.57% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	75	0.0100	0.08		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.3	10	0.0100	0.65		**Sheet Flow, BC**
					Smooth surfaces n= 0.011 P2= 3.10"
1.8	75	0.0100	0.70		**Shallow Concentrated Flow, CD**
					Short Grass Pasture Kv= 7.0 fps
0.2	25	0.0100	2.03		**Shallow Concentrated Flow, DE**
					Paved Kv= 20.3 fps
17.5	185	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 40S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=41,287 sf
Runoff Volume=10,058 cf
Runoff Depth=2.92"
Flow Length=185'
Slope=0.0100 '/'
Tc=17.5 min
CN=73

2.30 cfs

☐ Runoff

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Summary for Subcatchment 41S: (new Subcat)

Runoff   =   1.49 cfs @ 12.15 hrs, Volume=   5,355 cf, Depth= 2.83"
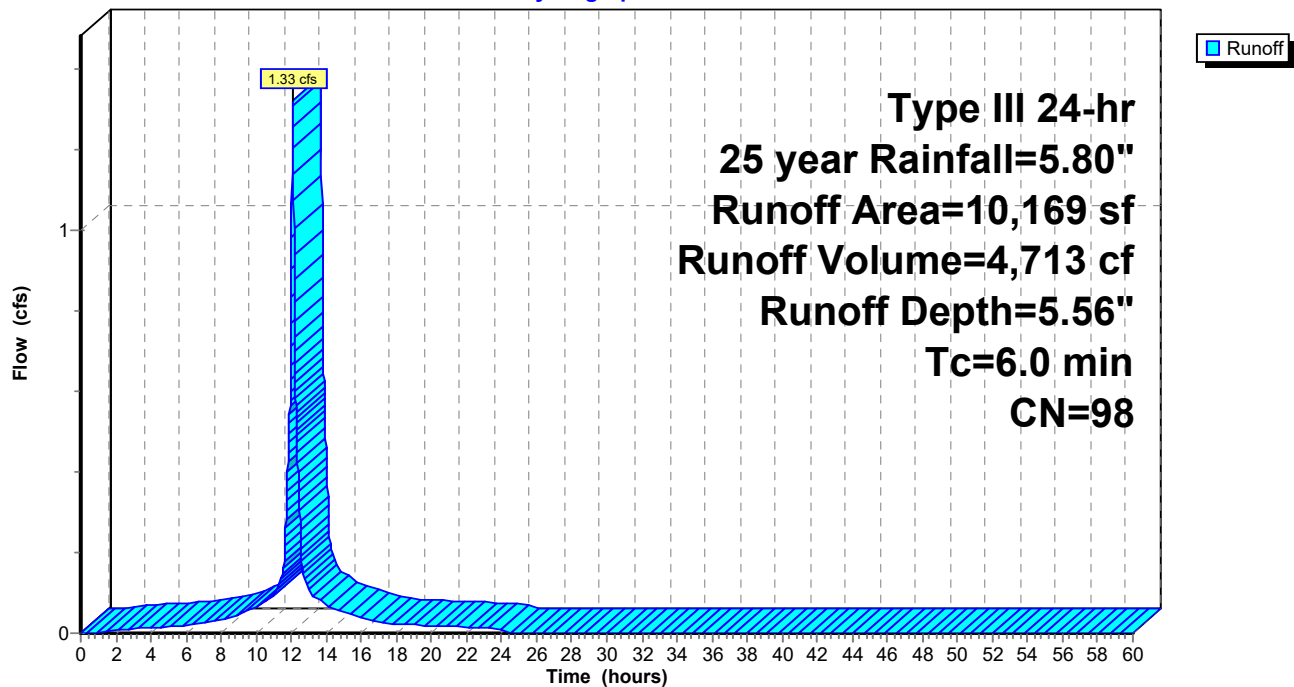
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	15,977	61	>75% Grass cover, Good, HSG B
	6,700	98	Paved parking, HSG B
*	26	98	Unconnected pavement, HSG B concrete
	22,703	72	Weighted Average
	15,977		70.37% Pervious Area
	6,726		29.63% Impervious Area
	26		0.39% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.4	30	0.0400	1.40		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
10.4	130				Total

Subcatchment 41S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=22,703 sf
Runoff Volume=5,355 cf
Runoff Depth=2.83"
Flow Length=130'
Tc=10.4 min
CN=72

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 42S: (new Subcat)

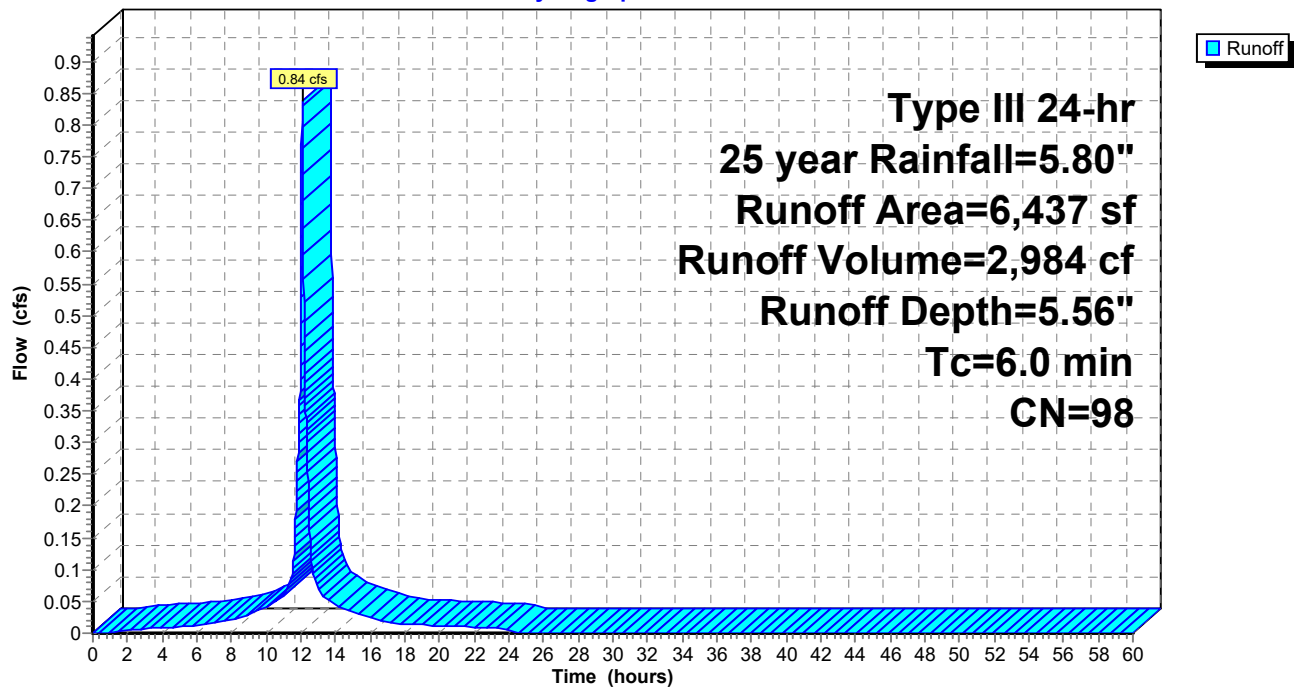Runoff   =   0.14 cfs @ 12.08 hrs, Volume=   496 cf, Depth= 5.56"
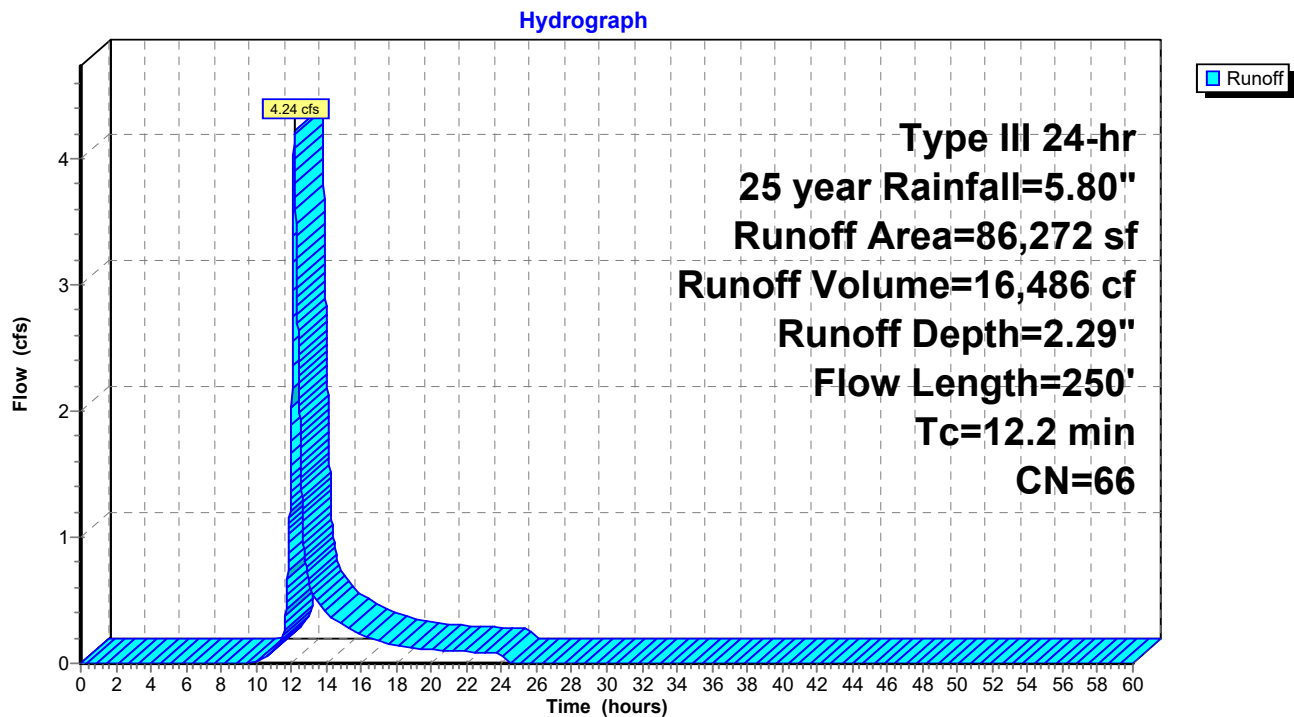
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
1,070	98	Paved parking, HSG D
1,070		100.00% Impervious Area

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

Subcatchment 42S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=1,070 sf
Runoff Volume=496 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Summary for Subcatchment 43S: (new Subcat)

Runoff   =   1.32 cfs @ 12.08 hrs, Volume=   4,674 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	4,369	98	Roofs, HSG D
	5,506	98	Paved parking, HSG D
*	208	98	Unconnected pavement, HSG D concrete
	10,083	98	Weighted Average
	10,083		100.00% Impervious Area
	208		2.06% Unconnected

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

Subcatchment 43S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=10,083 sf
Runoff Volume=4,674 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 44S: (new Subcat)

Runoff   =   1.33 cfs @ 12.08 hrs, Volume=   4,713 cf, Depth= 5.56"
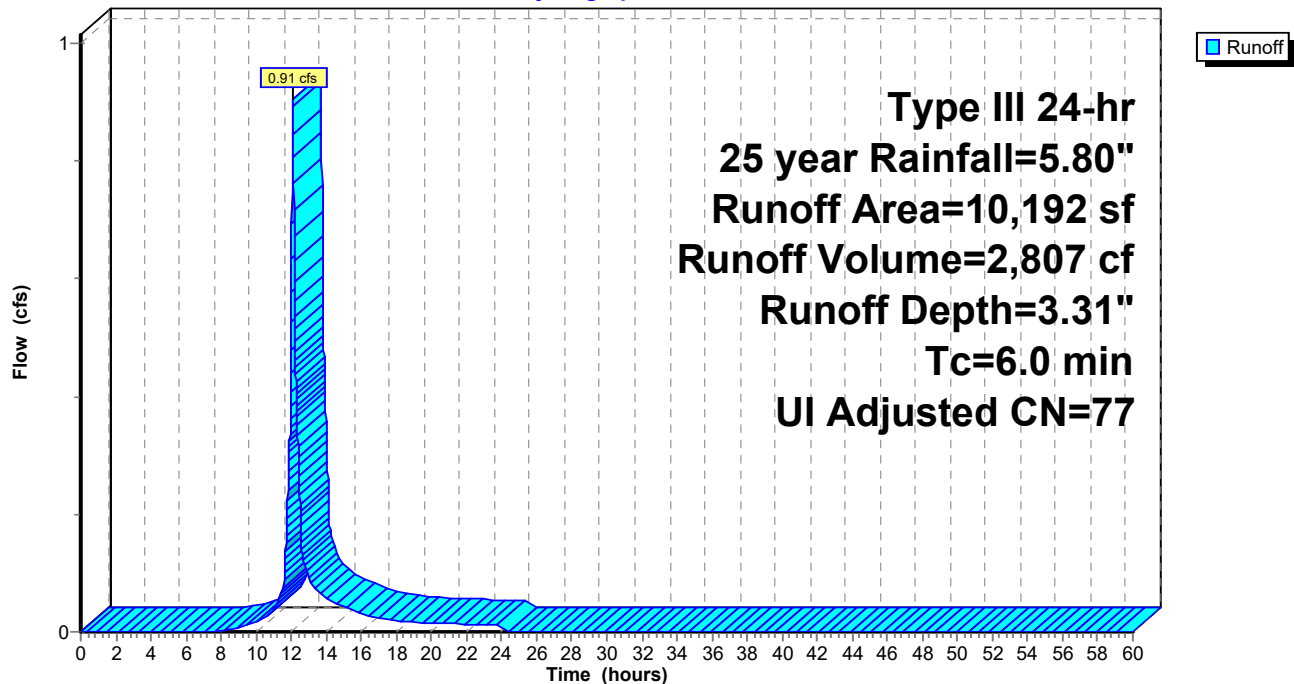
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	3,895	98	Roofs, HSG D
	5,750	98	Paved parking, HSG D
*	524	98	Unconnected pavement, HSG D concrete
	10,169	98	Weighted Average
	10,169		100.00% Impervious Area
	524		5.15% Unconnected

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

Subcatchment 44S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=10,169 sf
Runoff Volume=4,713 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 45S: (new Subcat)

Runoff   =   0.84 cfs @ 12.08 hrs, Volume=   2,984 cf, Depth= 5.56"
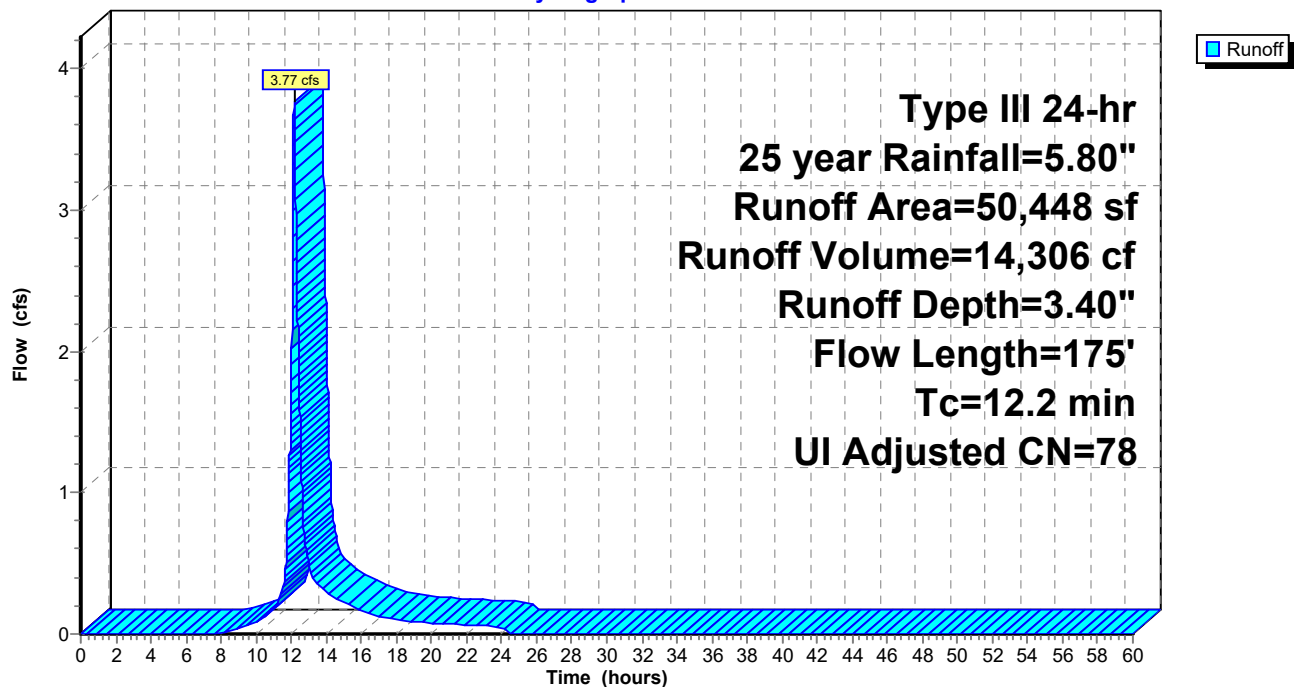
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	4,615	98	Paved parking, HSG D
	1,794	98	Roofs, HSG D
*	28	98	Unconnected pavement, HSG D concrete
	6,437	98	Weighted Average
	6,437		100.00% Impervious Area
	28		0.43% Unconnected

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

Subcatchment 45S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=6,437 sf
Runoff Volume=2,984 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 46S: (new Subcat)

Runoff   =   4.24 cfs @ 12.18 hrs, Volume=   16,486 cf, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
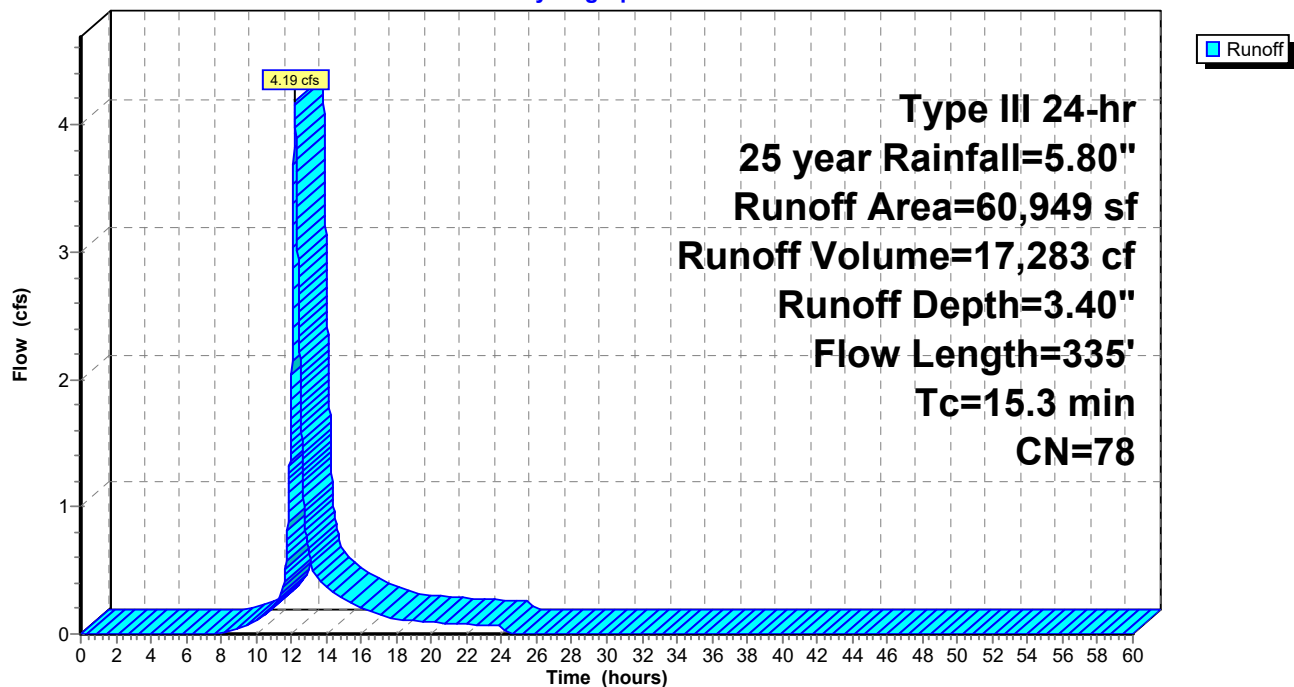Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	5,248	61	Pasture/grassland/range, Good, HSG B
	42,139	55	Woods, Good, HSG B
	30,317	77	Woods, Good, HSG D
	5,435	80	Pasture/grassland/range, Good, HSG D
*	2,080	98	Unconnected pavement, HSG D concrete
	1,053	98	Paved parking, HSG D
	86,272	66	Weighted Average
	83,139		96.37% Pervious Area
	3,133		3.63% Impervious Area
	2,080		66.39% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	40	0.1500	0.21		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
6.9	60	0.1300	0.15		**Sheet Flow, BC**
					Woods: Light underbrush n= 0.400 P2= 3.10"
2.2	150	0.0500	1.12		**Shallow Concentrated Flow, CD**
					Woodland Kv= 5.0 fps
12.2	250	Total			

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Subcatchment 46S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=86,272 sf
Runoff Volume=16,486 cf
Runoff Depth=2.29"
Flow Length=250'
Tc=12.2 min
CN=66

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 47S: (new Subcat)

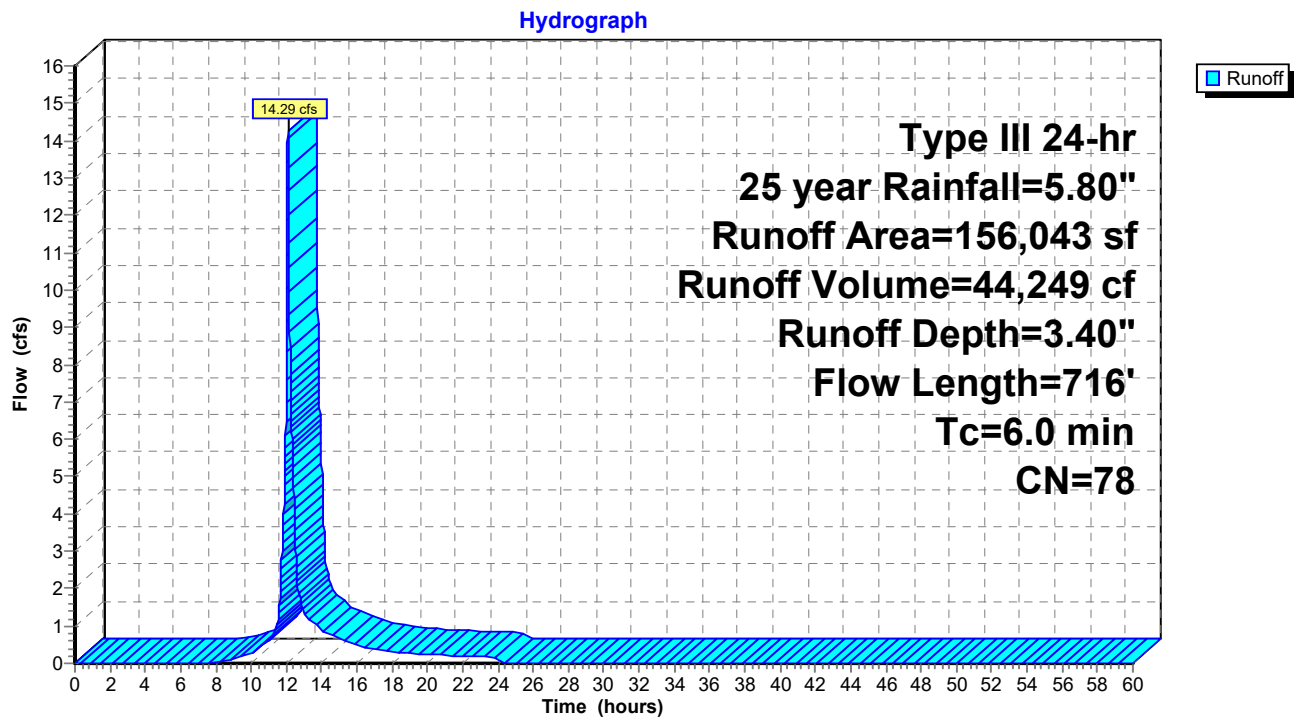Runoff   =   0.91 cfs @ 12.09 hrs, Volume=   2,807 cf, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Adj	Description
	2,620	61		>75% Grass cover, Good, HSG B
	6,125	80		>75% Grass cover, Good, HSG D
*	349	98		Unconnected pavement, HSG D concrete
	1,098	98		Paved parking, HSG D
	10,192	78	77	Weighted Average, UI Adjusted
	8,745			85.80% Pervious Area
	1,447			14.20% Impervious Area
	349			24.12% Unconnected

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

Subcatchment 47S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=10,192 sf
Runoff Volume=2,807 cf
Runoff Depth=3.31"
Tc=6.0 min
UI Adjusted CN=77

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 48S: (new Subcat)

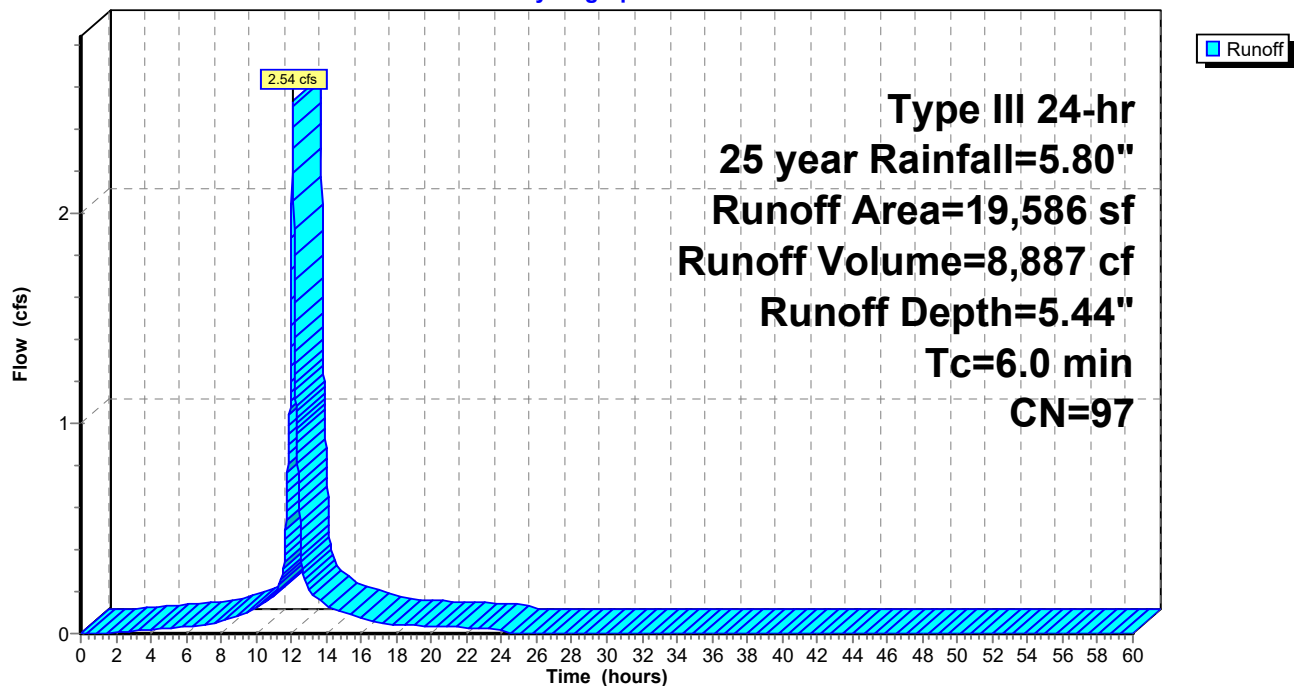Runoff   =   3.77 cfs @ 12.17 hrs, Volume=   14,306 cf, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Adj	Description
	20,314	80		>75% Grass cover, Good, HSG D
	16,341	61		>75% Grass cover, Good, HSG B
*	81	98		Unconnected pavement, HSG B concrete
	5,836	98		Paved parking, HSG D
	5,384	98		Paved parking, HSG B
*	2,492	98		Unconnected pavement, HSG D concrete
	50,448	79	78	Weighted Average, UI Adjusted
	36,655			72.66% Pervious Area
	13,793			27.34% Impervious Area
	2,573			18.65% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0350	0.14		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.6	75	0.0900	2.10		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
12.2	175	Total			

Subcatchment 48S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=50,448 sf
Runoff Volume=14,306 cf
Runoff Depth=3.40"
Flow Length=175'
Tc=12.2 min
UI Adjusted CN=78

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 49S: (new Subcat)

Runoff   =   4.19 cfs @ 12.21 hrs, Volume=   17,283 cf, Depth= 3.40"
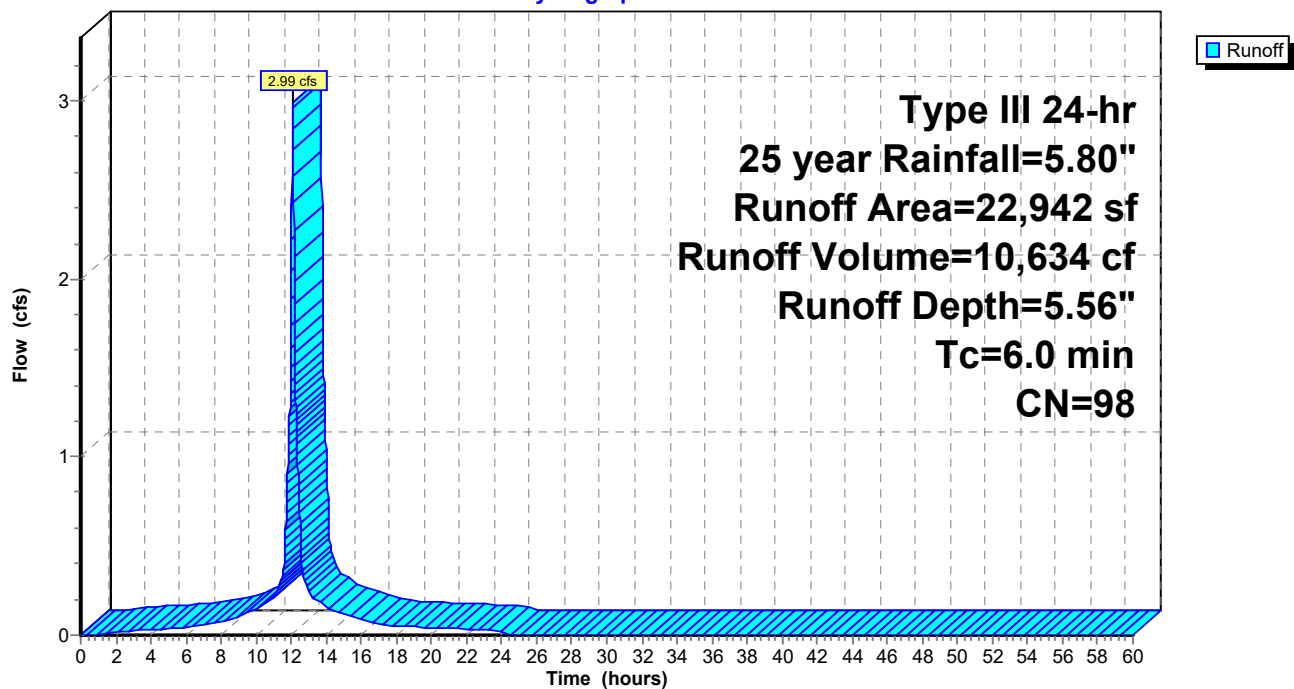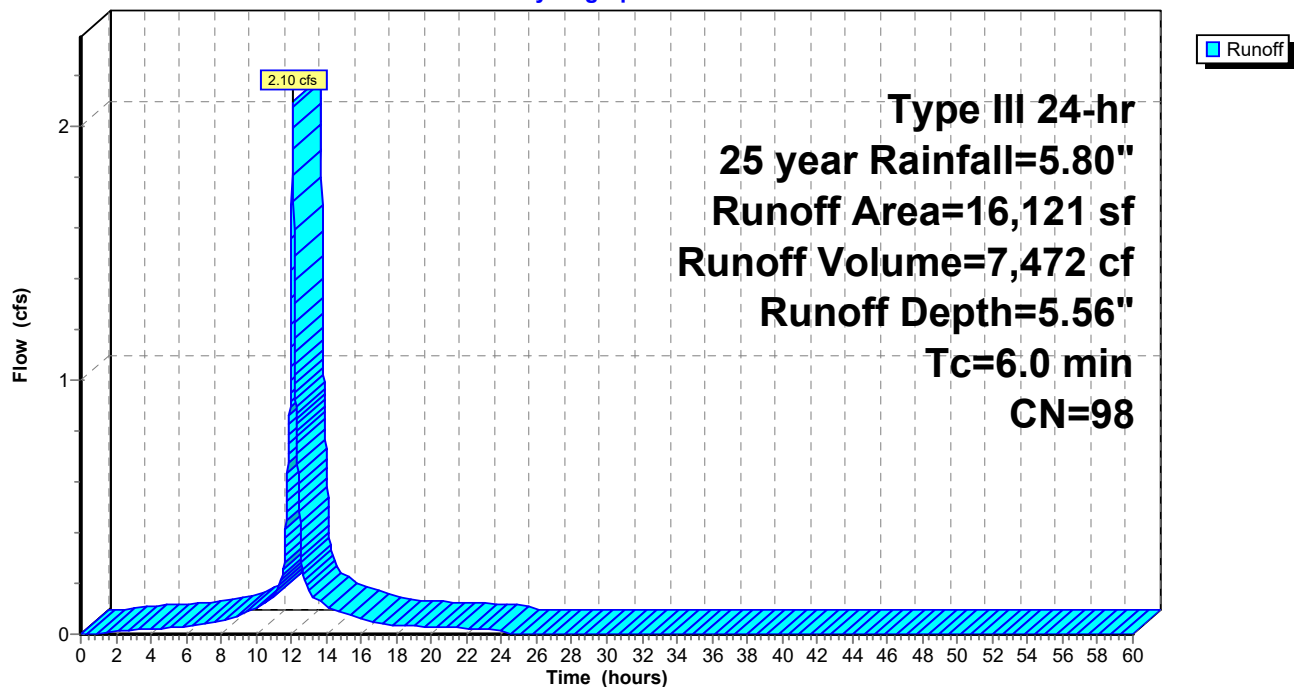
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
8,115	80	Pasture/grassland/range, Good, HSG D
50,493	77	Woods, Good, HSG D
1,838	98	Unconnected pavement, HSG D
503	98	Paved parking, HSG D
60,949	78	Weighted Average
58,608		96.16% Pervious Area
2,341		3.84% Impervious Area
1,838		78.51% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	70	0.0600	0.17		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
5.8	30	0.0500	0.09		**Sheet Flow, BC**
					Woods: Light underbrush n= 0.400 P2= 3.10"
2.5	235	0.1000	1.58		**Shallow Concentrated Flow, CD**
					Woodland Kv= 5.0 fps
15.3	335	Total			

Subcatchment 49S: (new Subcat)

Hydrograph

**Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=60,949 sf
Runoff Volume=17,283 cf
Runoff Depth=3.40"
Flow Length=335'
Tc=15.3 min
CN=78**

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 50S: (new Subcat)

Runoff   =   14.29 cfs @ 12.09 hrs, Volume=   44,249 cf, Depth= 3.40"
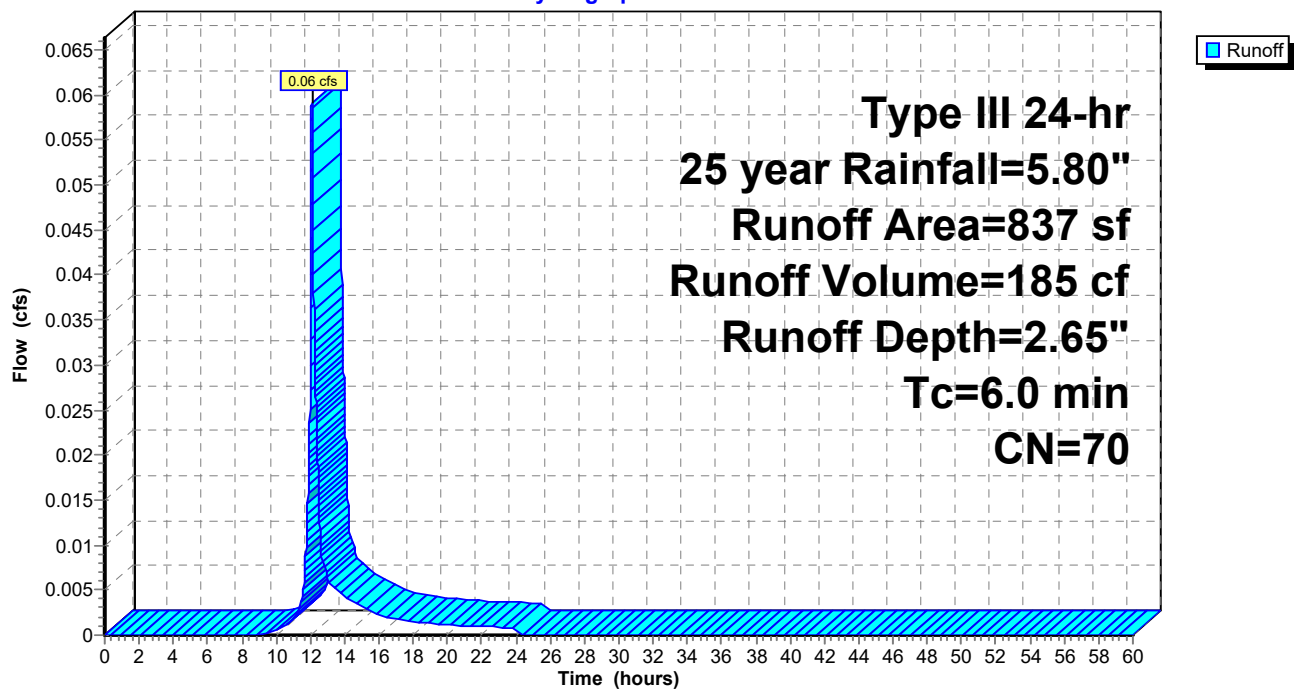
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	32,557	55	Woods, Good, HSG B
	43,734	61	>75% Grass cover, Good, HSG B
	8,276	80	>75% Grass cover, Good, HSG D
*	3,512	98	Unconnected pavement, HSG B concrete
	31,559	98	Paved parking, HSG B
	34,760	98	Paved parking, HSG D
*	1,645	98	Unconnected pavement, HSG D concrete
	156,043	78	Weighted Average
	84,567		54.19% Pervious Area
	71,476		45.81% Impervious Area
	5,157		7.22% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0300	1.59		**Sheet Flow, AB**
					Smooth surfaces n= 0.011 P2= 3.10"
0.4	100	0.0400	4.06		**Shallow Concentrated Flow, BC**
					Paved Kv= 20.3 fps
0.7	201	0.0180	4.73	23.65	**Trap/Vee/Rect Channel Flow, CD**
					Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00'
					n= 0.030 Earth, grassed & winding
1.6	315	0.0950	3.28	26.24	**Trap/Vee/Rect Channel Flow, DE**
					Bot.W=3.00' D=1.00' Z= 5.0 '/' Top.W=13.00'
					n= 0.100 Earth, dense brush, high stage
2.3					**Direct Entry, DIRECT ENTRY**
6.0	716	Total			

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Subcatchment 50S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=156,043 sf
Runoff Volume=44,249 cf
Runoff Depth=3.40"
Flow Length=716'
Tc=6.0 min
CN=78

14.29 cfs

■ Runoff

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 51S: (new Subcat)

Runoff   =   2.54 cfs @ 12.08 hrs, Volume=   8,887 cf, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
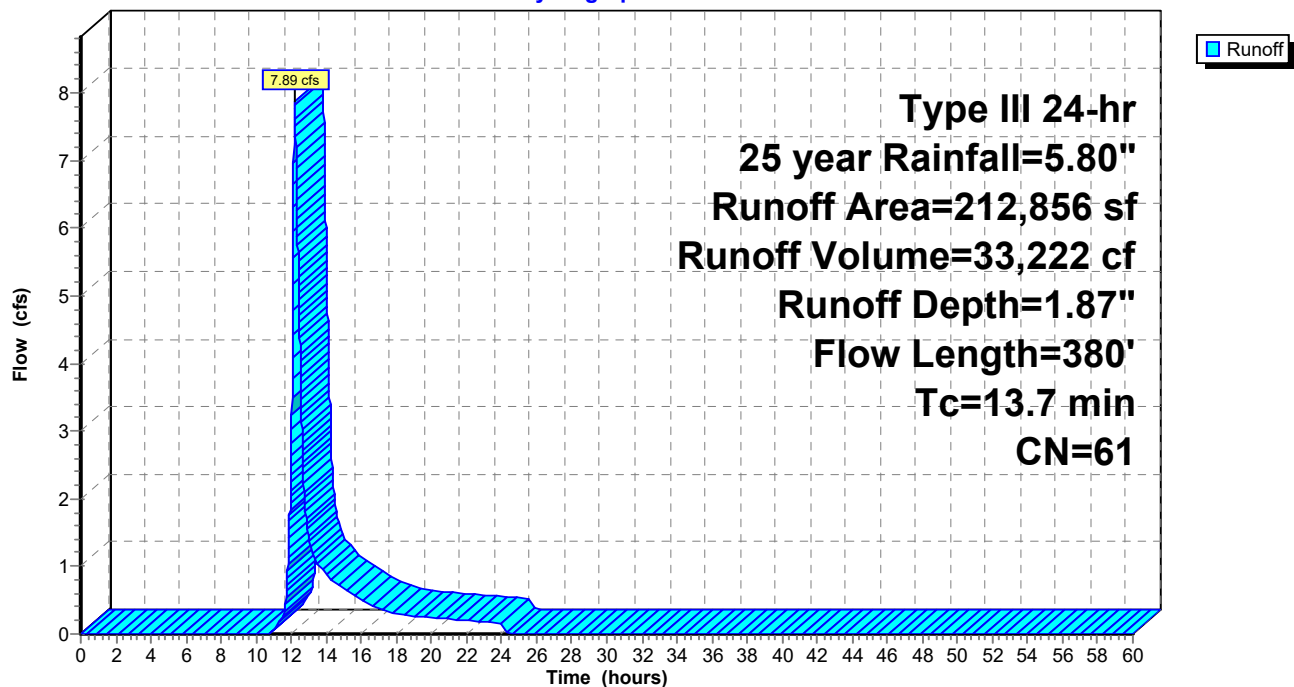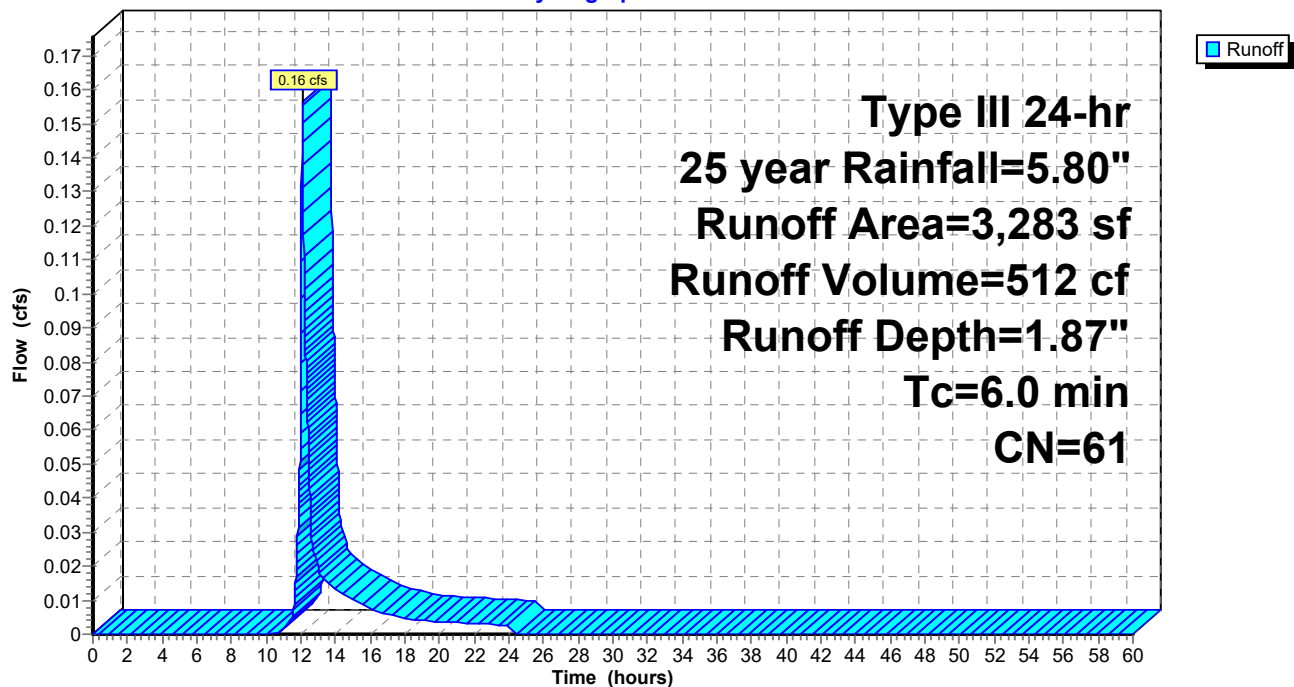Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
11,433	98	Paved parking, HSG B
7,642	98	Paved parking, HSG D
339	61	>75% Grass cover, Good, HSG B
172	80	>75% Grass cover, Good, HSG D
19,586	97	Weighted Average
511		2.61% Pervious Area
19,075		97.39% Impervious Area

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

Subcatchment 51S: (new Subcat)

Hydrograph

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 52S: (new Subcat)

Runoff   =   2.99 cfs @ 12.08 hrs, Volume=   10,634 cf, Depth= 5.56"
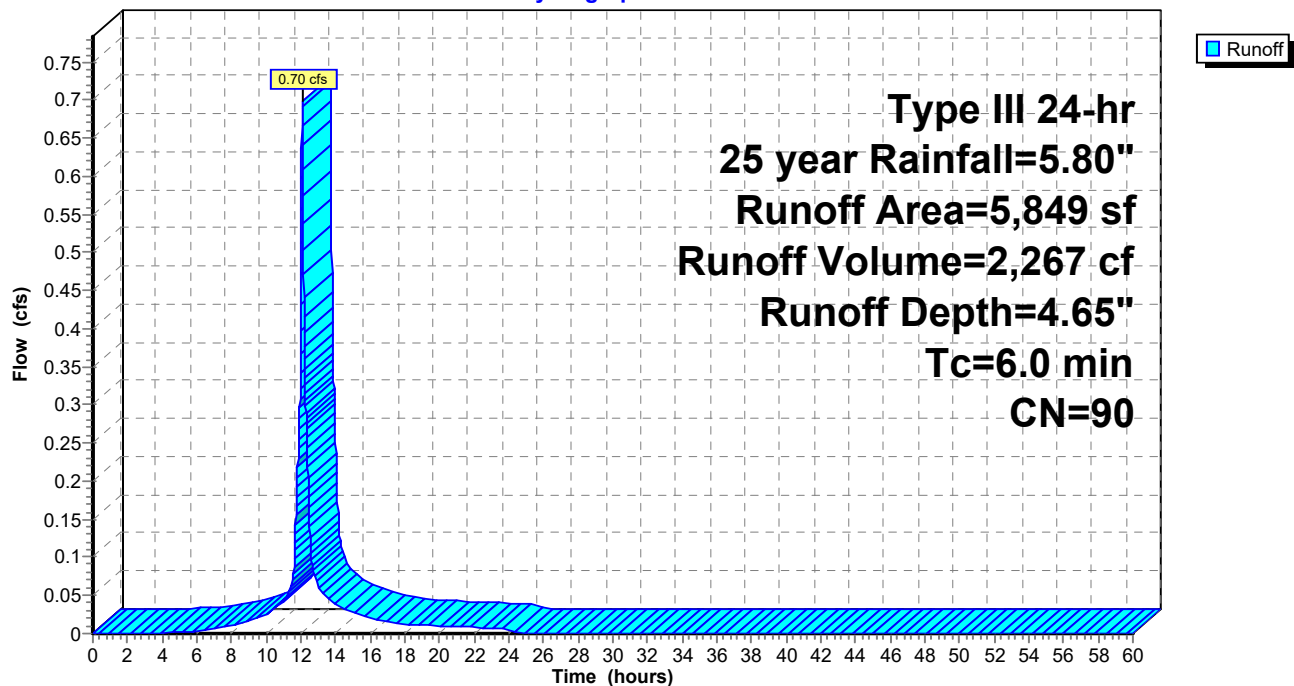
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
12,344	98	Roofs, HSG B
10,598	98	Roofs, HSG D
22,942	98	Weighted Average
22,942		100.00% Impervious Area

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

Subcatchment 52S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=22,942 sf
Runoff Volume=10,634 cf
Runoff Depth=5.56"
Tc=6.0 min
CN=98

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 53S: (new Subcat)

Runoff   =   2.10 cfs @ 12.08 hrs, Volume=   7,472 cf, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
16,121	98	Roofs, HSG B
16,121		100.00% Impervious Area

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

Subcatchment 53S: (new Subcat)

Hydrograph

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 54S: (new Subcat)

Runoff   =   0.06 cfs @ 12.09 hrs, Volume=   185 cf, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
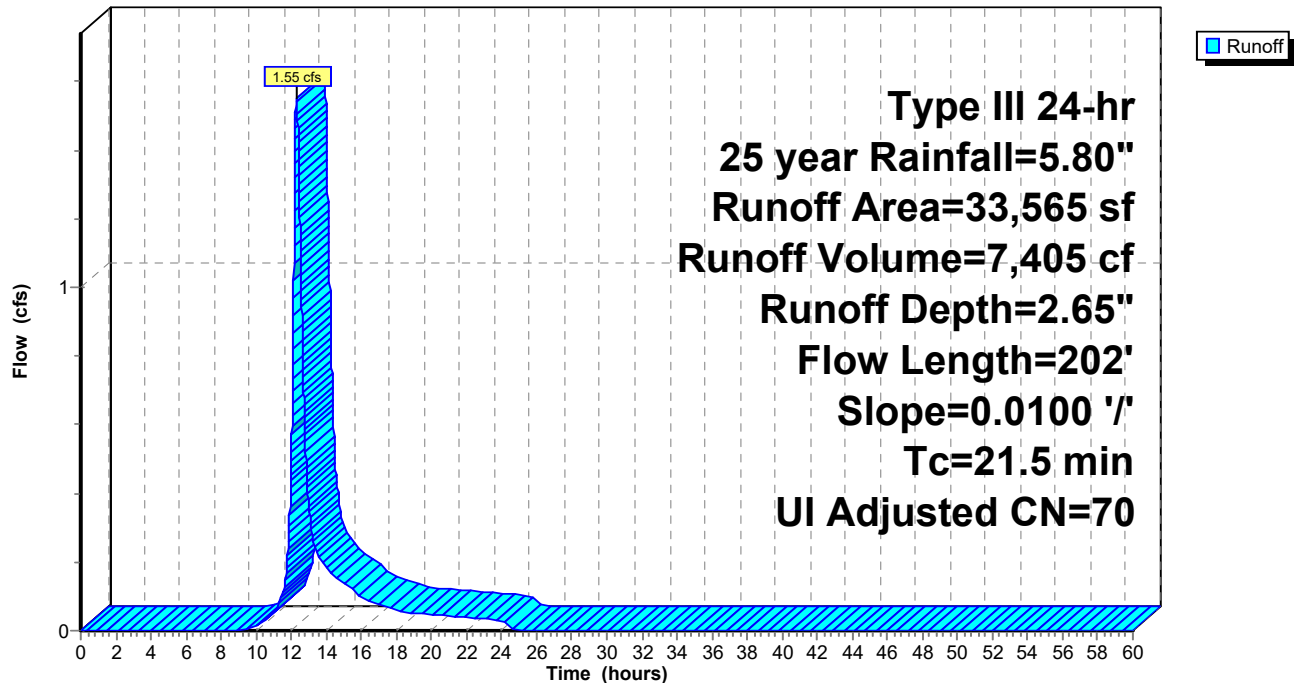Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
413	80	>75% Grass cover, Good, HSG D
424	61	>75% Grass cover, Good, HSG B
837	70	Weighted Average
837		100.00% Pervious Area

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

Subcatchment 54S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=837 sf
Runoff Volume=185 cf
Runoff Depth=2.65"
Tc=6.0 min
CN=70

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 55S: (new Subcat)

Runoff = 7.89 cfs @ 12.20 hrs, Volume= 33,222 cf, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
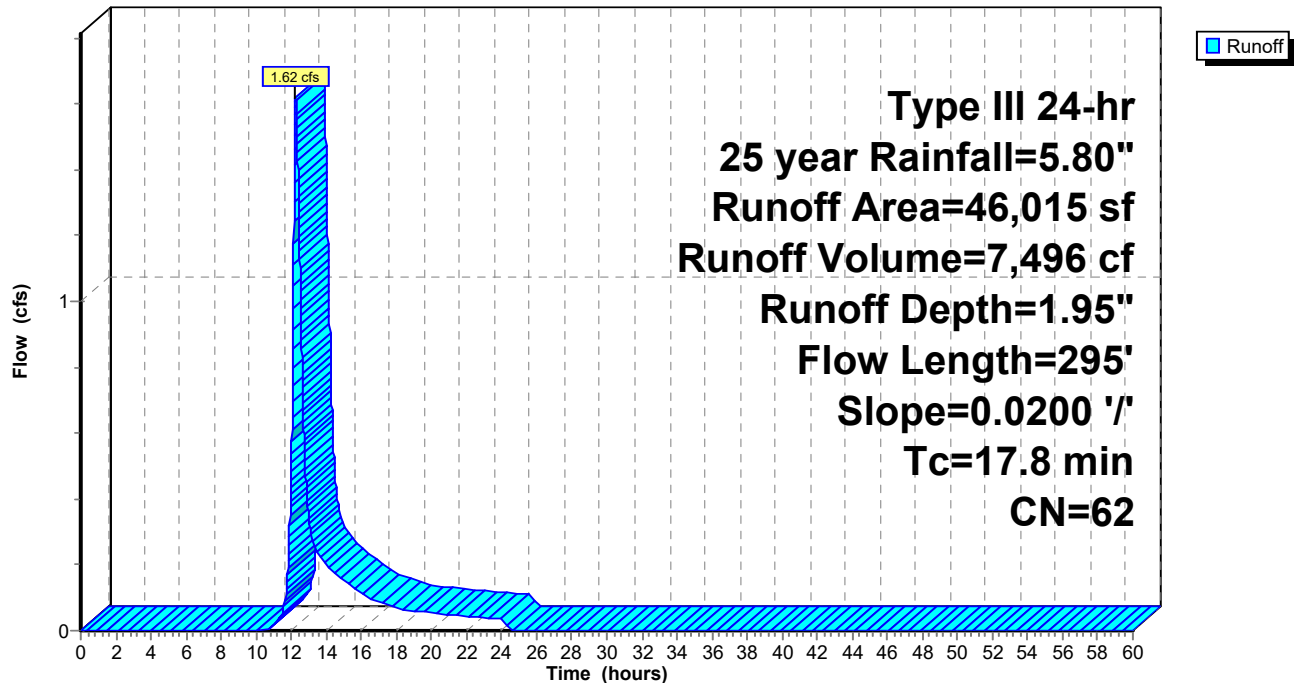Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
9,441	96	Gravel surface, HSG B
2,004	96	Gravel surface, HSG D
4,825	98	Paved parking, HSG B
44,469	61	>75% Grass cover, Good, HSG B
3,059	80	>75% Grass cover, Good, HSG D
136,113	55	Woods, Good, HSG B
12,945	77	Woods, Good, HSG D
212,856	61	Weighted Average
208,031		97.73% Pervious Area
4,825		2.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0800	0.20		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
5.4	280	0.0300	0.87		**Shallow Concentrated Flow, BC**
					Woodland Kv= 5.0 fps
13.7	380	Total			

Subcatchment 55S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=212,856 sf
Runoff Volume=33,222 cf
Runoff Depth=1.87"
Flow Length=380'
Tc=13.7 min
CN=61

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 56S: (new Subcat)

Runoff   =   0.16 cfs @ 12.10 hrs, Volume=   512 cf, Depth= 1.87"
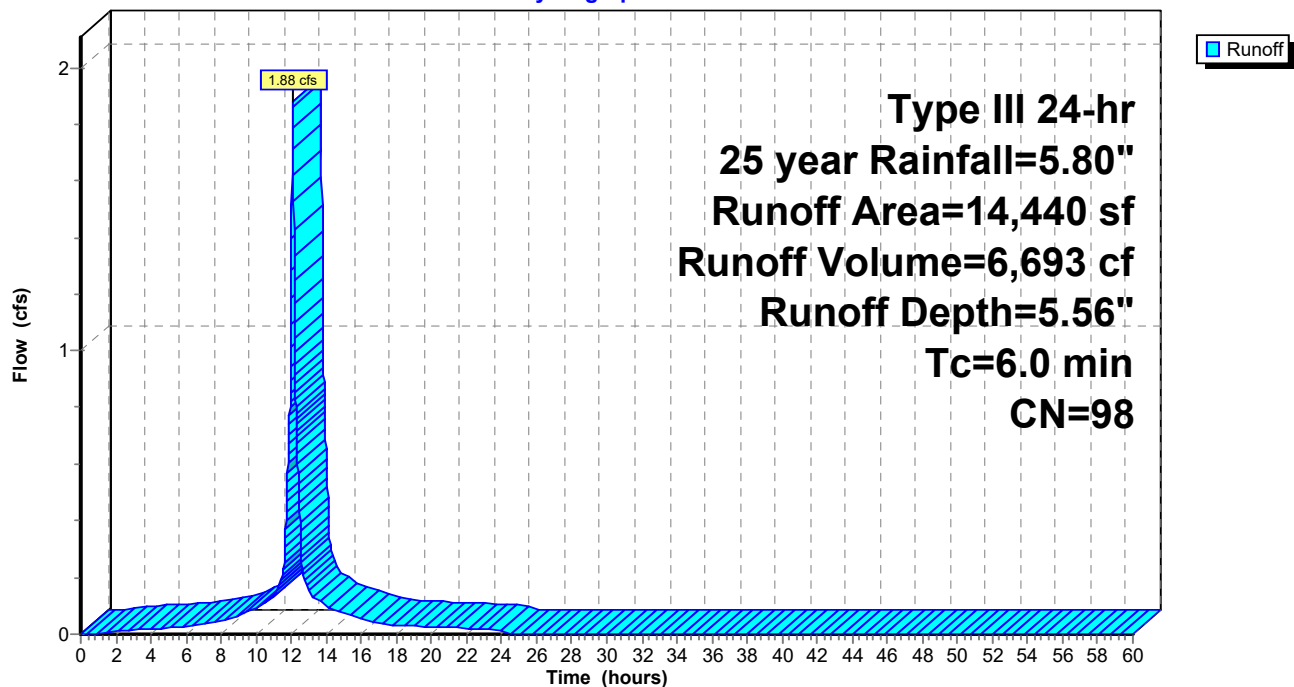
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
3,283	61	>75% Grass cover, Good, HSG B
3,283		100.00% Pervious Area

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

Subcatchment 56S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=3,283 sf
Runoff Volume=512 cf
Runoff Depth=1.87"
Tc=6.0 min
CN=61

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 57S: (new Subcat)

Runoff   =   0.70 cfs @ 12.08 hrs, Volume=   2,267 cf, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
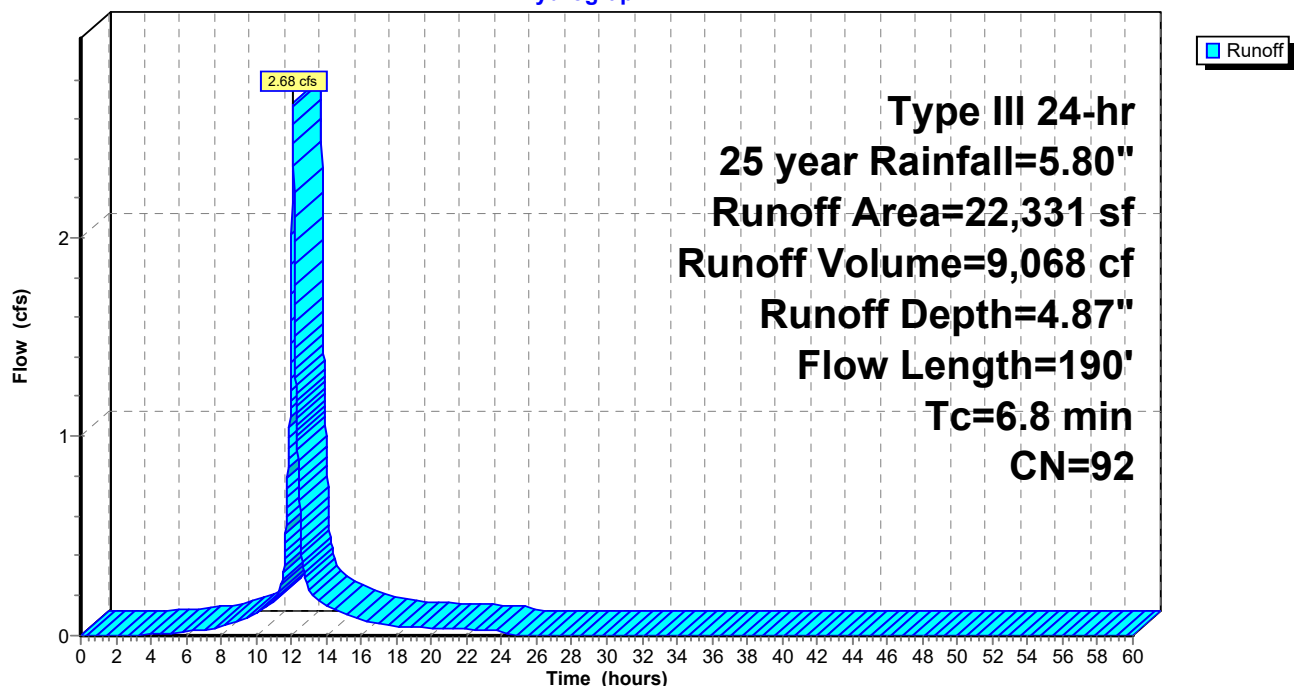Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	1,234	61	>75% Grass cover, Good, HSG B
*	448	98	Unconnected pavement, HSG B concrete
	4,167	98	Paved parking, HSG B
	5,849	90	Weighted Average
	1,234		21.10% Pervious Area
	4,615		78.90% Impervious Area
	448		9.71% Unconnected

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

Subcatchment 57S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=5,849 sf
Runoff Volume=2,267 cf
Runoff Depth=4.65"
Tc=6.0 min
CN=90

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 58S: (new Subcat)

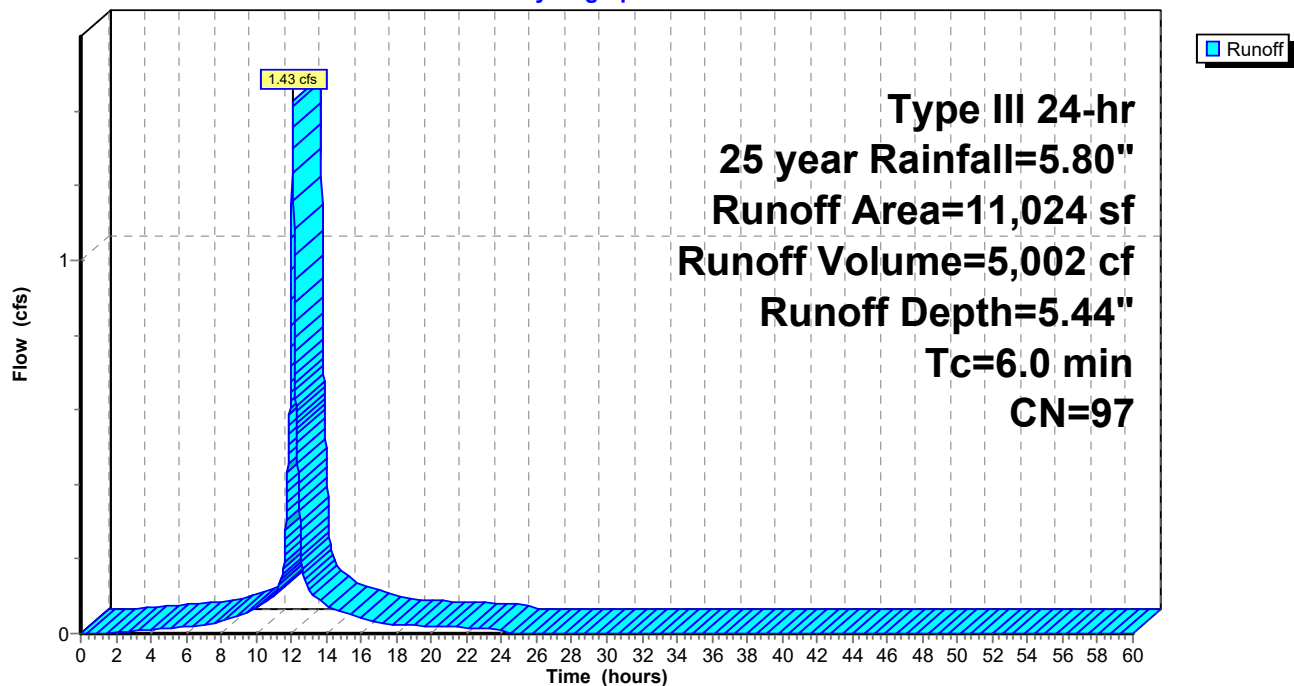Runoff   =   1.55 cfs @ 12.30 hrs, Volume=   7,405 cf, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Adj	Description
*	1,384	98		Unconnected pavement, HSG B concrete
	24,931	61		>75% Grass cover, Good, HSG B
	7,250	98		Paved parking, HSG B
	33,565	71	70	Weighted Average, UI Adjusted
	24,931			74.28% Pervious Area
	8,634			25.72% Impervious Area
	1,384			16.03% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0100	0.09		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
2.4	102	0.0100	0.70		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
21.5	202				Total

Subcatchment 58S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=33,565 sf
Runoff Volume=7,405 cf
Runoff Depth=2.65"
Flow Length=202'
Slope=0.0100 '/'
Tc=21.5 min
UI Adjusted CN=70

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 59S: (new Subcat)

Runoff   =   1.62 cfs @ 12.26 hrs, Volume=   7,496 cf, Depth= 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	45,241	61	>75% Grass cover, Good, HSG B
	724	98	Paved parking, HSG B
*	50	98	Unconnected pavement, HSG B concrete
	46,015	62	Weighted Average
	45,241		98.32% Pervious Area
	774		1.68% Impervious Area
	50		6.46% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0200	0.11		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
3.3	195	0.0200	0.99		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
17.8	295	Total			

Subcatchment 59S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=46,015 sf
Runoff Volume=7,496 cf
Runoff Depth=1.95"
Flow Length=295'
Slope=0.0200 '/'
Tc=17.8 min
CN=62

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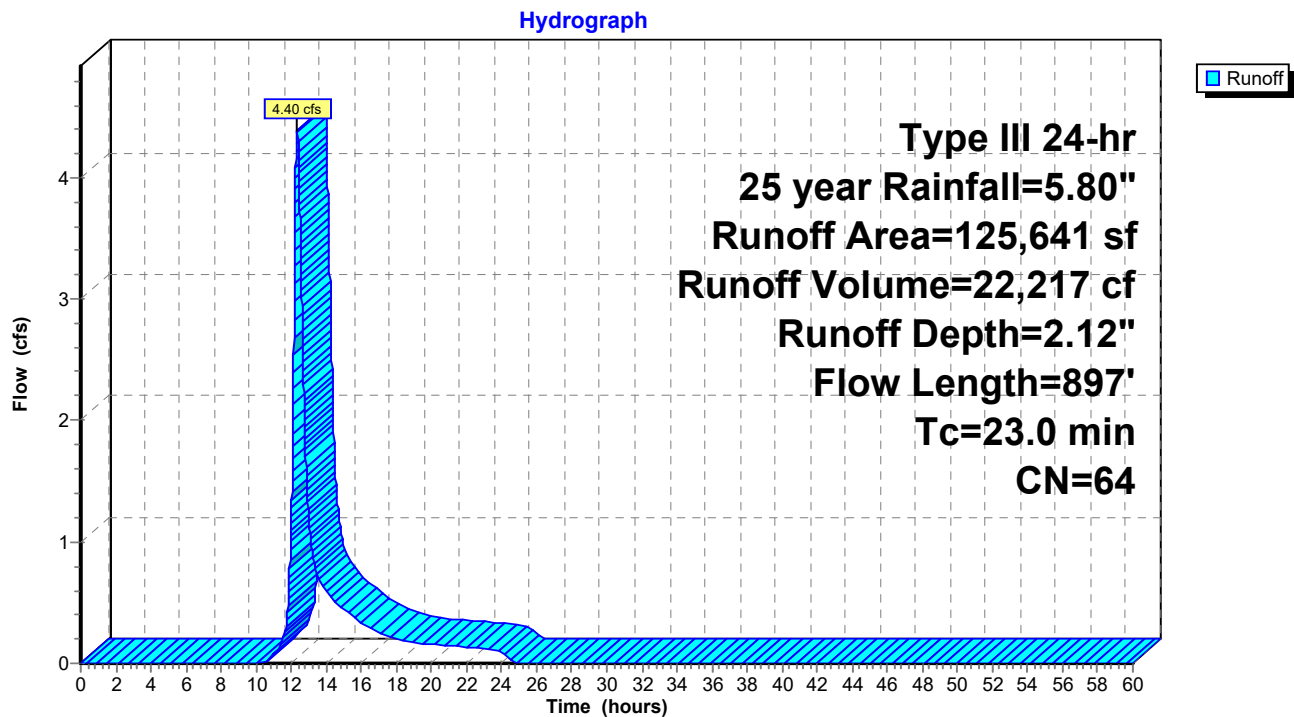HydroCAD® 10.00-24 s/n 01856 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 60S: (new Subcat)

Runoff   =   1.88 cfs @ 12.08 hrs, Volume=   6,693 cf, Depth= 5.56"
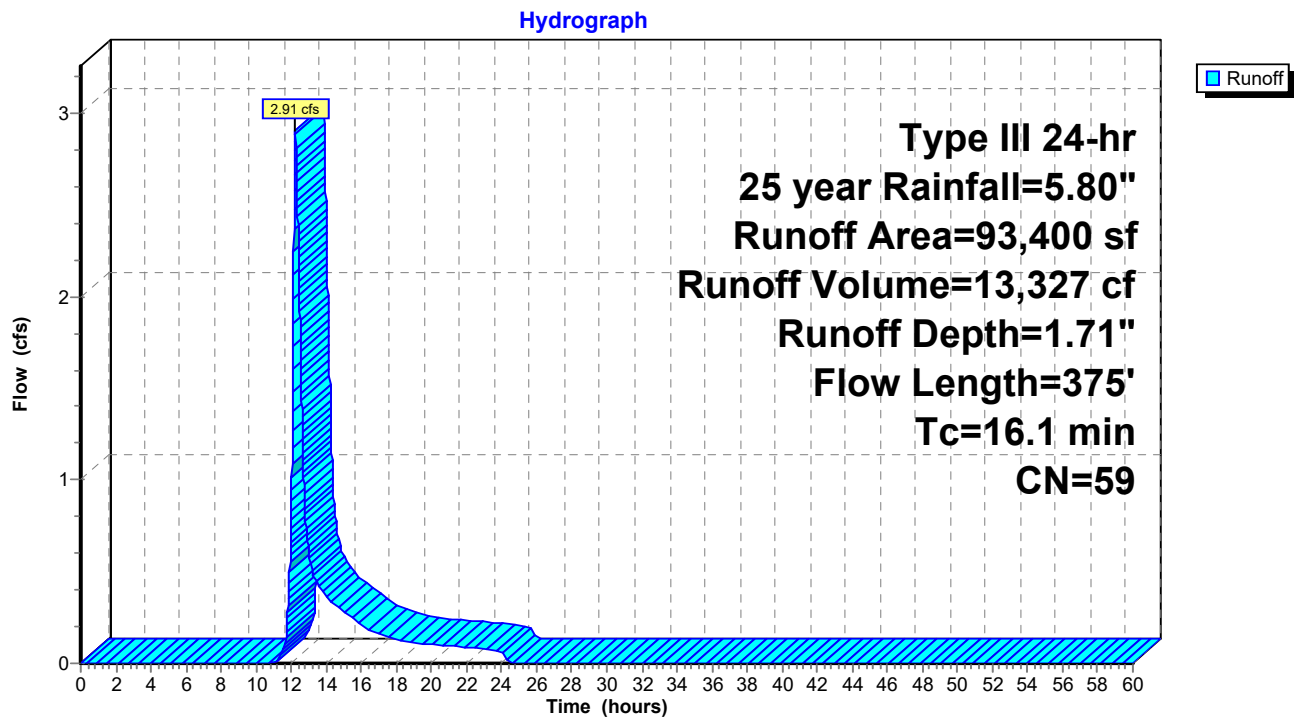
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
14,440	98	Roofs, HSG B
14,440		100.00% Impervious Area

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

Subcatchment 60S: (new Subcat)

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 61S: (new Subcat)

Runoff   =   2.68 cfs @ 12.09 hrs, Volume=   9,068 cf, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	17,703	98	Paved parking, HSG B
	3,479	61	>75% Grass cover, Good, HSG B
*	1,149	98	Unconnected pavement, HSG B concrete
	22,331	92	Weighted Average
	3,479		15.58% Pervious Area
	18,852		84.42% Impervious Area
	1,149		6.09% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	20	0.0100	0.06		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
1.0	80	0.0200	1.29		**Sheet Flow, BC**
					Smooth surfaces n= 0.011 P2= 3.10"
0.5	90	0.0250	3.21		**Shallow Concentrated Flow, CD**
					Paved Kv= 20.3 fps
6.8	190	Total			

Subcatchment 61S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=22,331 sf
Runoff Volume=9,068 cf
Runoff Depth=4.87"
Flow Length=190'
Tc=6.8 min
CN=92

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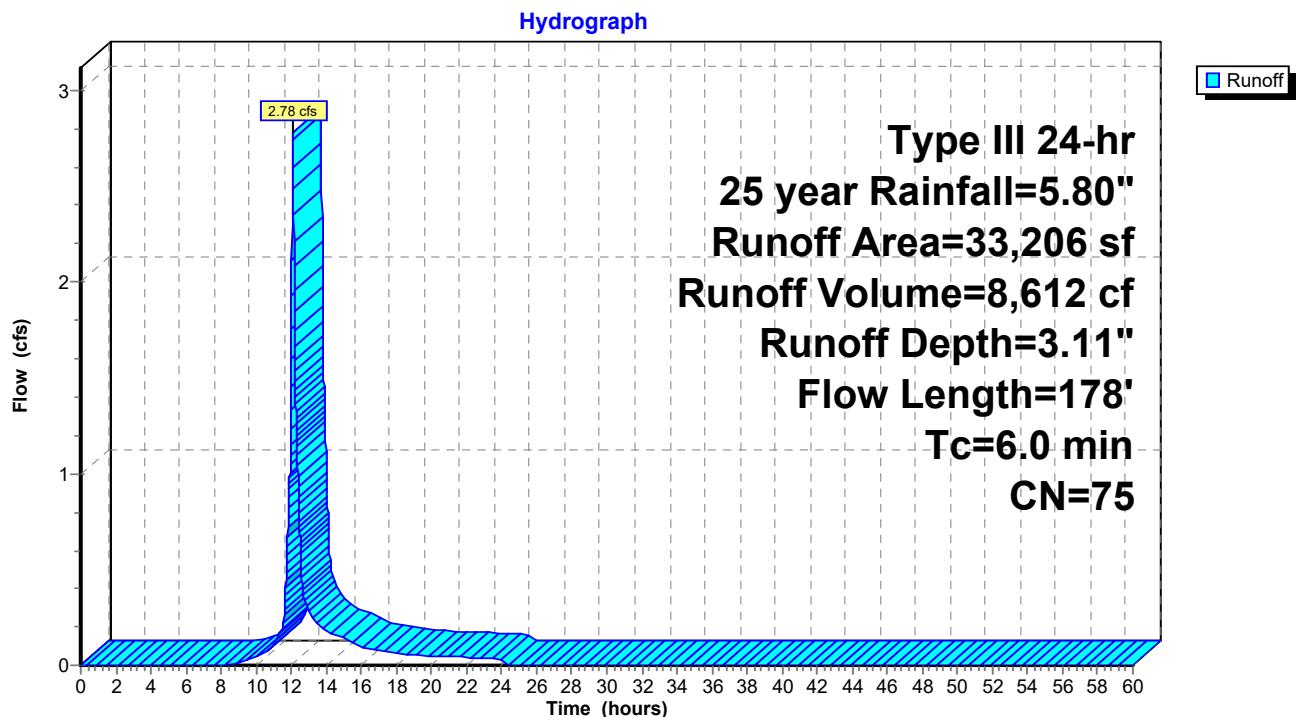Page 108

Summary for Subcatchment 62S: (new Subcat)

Runoff   =   1.43 cfs @ 12.08 hrs, Volume=   5,002 cf, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

	Area (sf)	CN	Description
	10,079	98	Roofs, HSG D
*	55	98	Unconnected pavement, HSG D concrete
*	890	80	Unconnected pavement, HSG D riprap
	11,024	97	Weighted Average
	890		8.07% Pervious Area
	10,134		91.93% Impervious Area
	55		0.54% Unconnected

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

Subcatchment 62S: (new Subcat)

Hydrograph

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Summary for Subcatchment 63S: (new Subcat)

Runoff   =   4.40 cfs @ 12.34 hrs, Volume=   22,217 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
5,170	98	Paved parking, HSG B
6,176	96	Gravel surface, HSG B
114,295	61	>75% Grass cover, Good, HSG B
125,641	64	Weighted Average
120,471		95.89% Pervious Area
5,170		4.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	100	0.0150	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.10"
3.4	173	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	40	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	12	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.4	560	0.0100	3.82	26.76	**Trap/Vee/Rect Channel Flow,** Bot.W=4.00' D=1.00' Z= 3.0 '/' Top.W=10.00' n= 0.030 Earth, grassed & winding
23.0	897				Total

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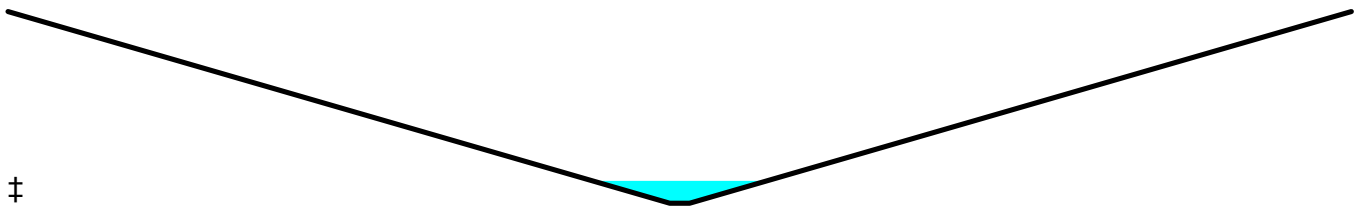*Type III 24-hr 25 year Rainfall=5.80"*
Printed 7/18/2019
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Subcatchment 63S: (new Subcat)

Hydrograph

**Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=125,641 sf
Runoff Volume=22,217 cf
Runoff Depth=2.12"
Flow Length=897'
Tc=23.0 min
CN=64**

Runoff

4.40 cfs

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Subcatchment 64S: (new Subcat)

Runoff   =   2.91 cfs @ 12.24 hrs, Volume=   13,327 cf, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
55,285	55	Woods, Good, HSG B
35,191	61	>75% Grass cover, Good, HSG B
2,924	98	Paved parking, HSG B
93,400	59	Weighted Average
90,476		96.87% Pervious Area
2,924		3.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	100	0.0200	0.11		**Sheet Flow, AB**
					Grass: Dense n= 0.240 P2= 3.10"
0.1	22	0.1800	2.97		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
0.5	61	0.1600	2.00		**Shallow Concentrated Flow, CD**
					Woodland Kv= 5.0 fps
1.0	192	0.0950	3.28	26.24	**Trap/Vee/Rect Channel Flow, DE**
					Bot.W=3.00' D=1.00' Z= 5.0 '/' Top.W=13.00'
					n= 0.100 Earth, dense brush, high stage
16.1	375	Total			

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Type III 24-hr 25 year Rainfall=5.80"
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Subcatchment 64S: (new Subcat)

Hydrograph

Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=93,400 sf
Runoff Volume=13,327 cf
Runoff Depth=1.71"
Flow Length=375'
Tc=16.1 min
CN=59

■ Runoff

2.91 cfs

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Summary for Subcatchment 65S: (new Subcat)

Runoff   =   2.78 cfs @   12.09 hrs, Volume=   8,612 cf, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.80"

Area (sf)	CN	Description
20,588	61	>75% Grass cover, Good, HSG B
12,618	98	Paved parking, HSG B
33,206	75	Weighted Average
20,588		62.00% Pervious Area
12,618		38.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	60	0.0200	1.22		**Sheet Flow, AB**
					Smooth surfaces n= 0.011 P2= 3.10"
1.4	118	0.0400	1.40		**Shallow Concentrated Flow, BC**
					Short Grass Pasture Kv= 7.0 fps
3.8					**Direct Entry,**
6.0	178	Total			

Subcatchment 65S: (new Subcat)

Hydrograph

**Type III 24-hr
25 year Rainfall=5.80"
Runoff Area=33,206 sf
Runoff Volume=8,612 cf
Runoff Depth=3.11"
Flow Length=178'
Tc=6.0 min
CN=75**

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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Reach 1R:

Inflow Area =   957,011 sf, 21.37% Impervious, Inflow Depth > 3.65"   for 25 year event
Inflow   =   42.26 cfs @   12.18 hrs, Volume=   291,168 cf
Outflow   =   41.96 cfs @   12.20 hrs, Volume=   291,090 cf, Atten= 1%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.65 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 4.0 min

Peak Storage= 3,336 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 6.00' Flow Area= 378.0 sf, Capacity= 6,152.65 cfs

3.00' x 6.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/'   Top Width= 123.00'
Length= 370.0'   Slope= 0.0243 '/'
Inlet Invert= 102.00', Outlet Invert= 93.00'

‡

Reach 1R:

Hydrograph

Inflow Area=957,011 sf
Avg. Flow Depth=0.81'
Max Vel=4.65 fps
n=0.030
L=370.0'
S=0.0243 '/'
Capacity=6,152.65 cfs
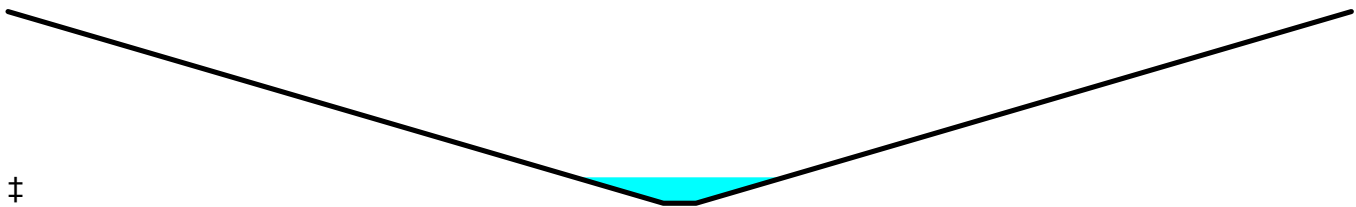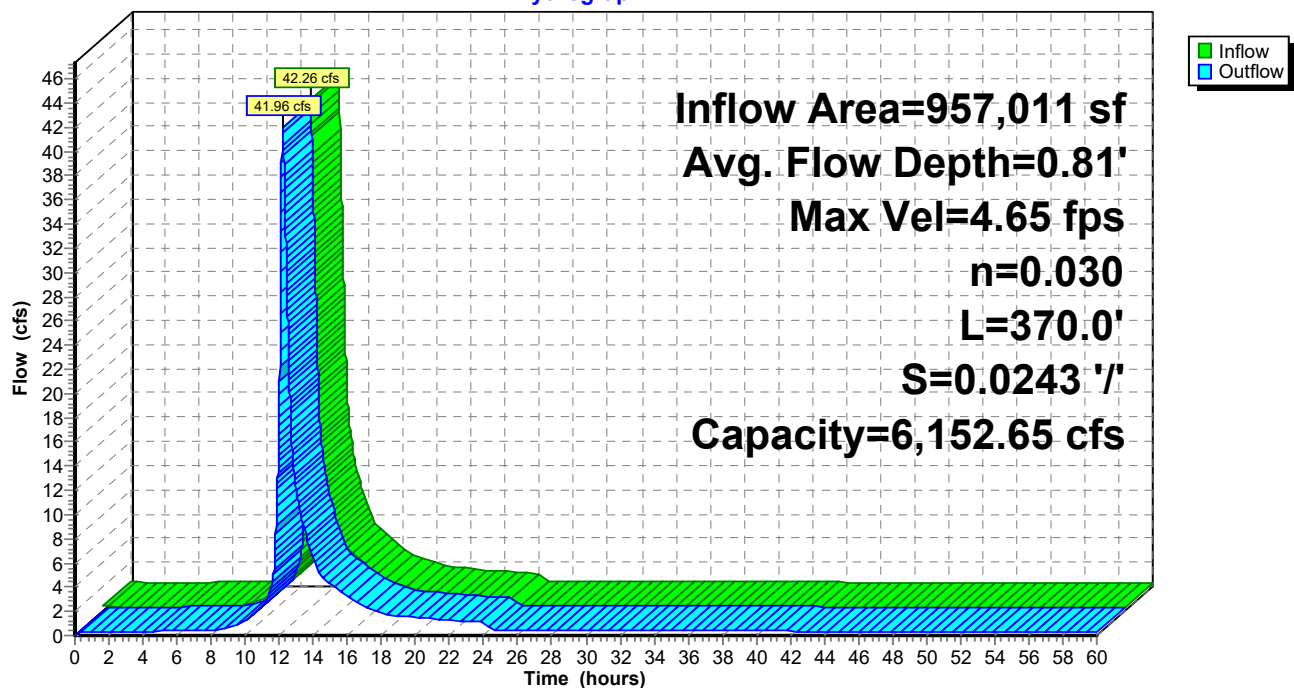
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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Reach 2R:

Inflow Area =   1,670,701 sf, 12.56% Impervious, Inflow Depth > 3.51"   for 25 year event
Inflow   =   92.06 cfs @   12.19 hrs, Volume=   489,164 cf
Outflow   =   89.12 cfs @   12.22 hrs, Volume=   489,009 cf, Atten= 3%, Lag= 2.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.18 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 9.2 min

Peak Storage= 15,055 cf @ 12.22 hrs
Average Depth at Peak Storage= 1.17'
Bank-Full Depth= 10.00' Flow Area= 1,030.0 sf, Capacity= 20,929.72 cfs

3.00' x 10.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/'   Top Width= 203.00'
Length= 875.0'   Slope= 0.0194 '/'
Inlet Invert= 93.00', Outlet Invert= 76.00'

‡

Reach 2R:

Hydrograph
Inflow Area=1,670,701 sf
Avg. Flow Depth=1.17'
Max Vel=5.18 fps
n=0.030
L=875.0'
S=0.0194 '/'
Capacity=20,929.72 cfs
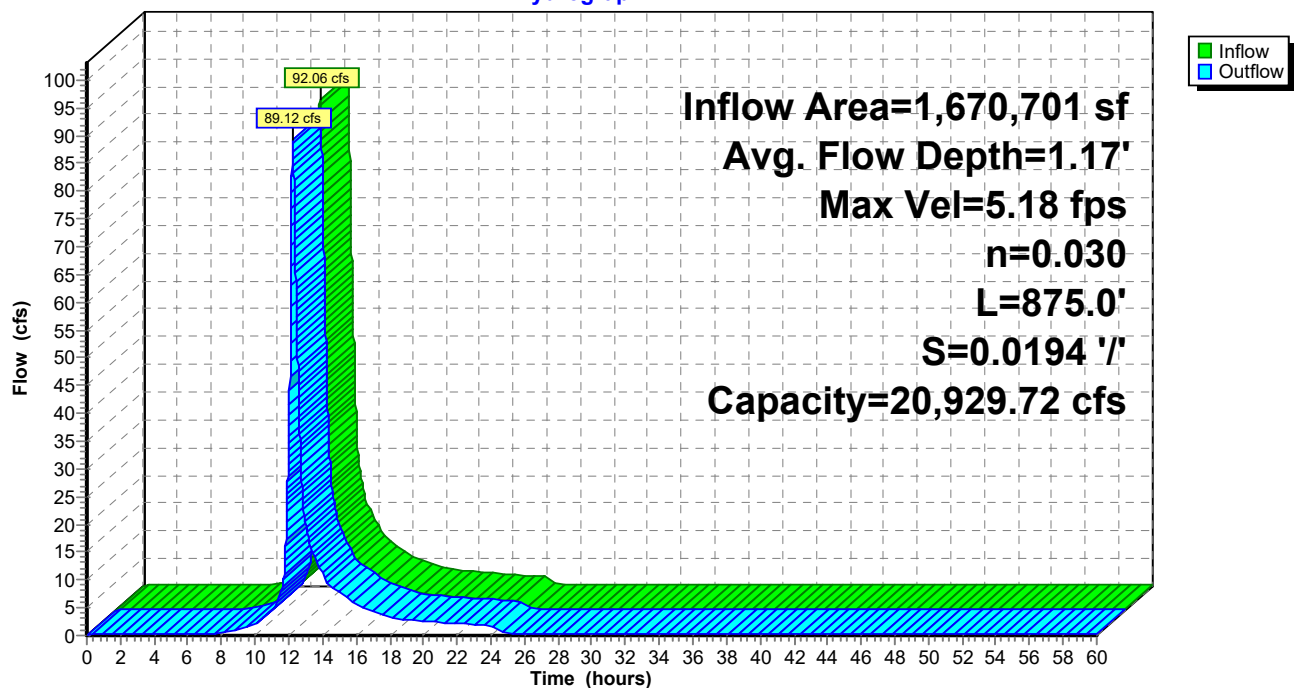
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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Reach 3R:

Inflow Area =   1,670,701 sf, 12.56% Impervious, Inflow Depth > 3.51"   for 25 year event
Inflow   =   89.12 cfs @ 12.22 hrs, Volume=   489,009 cf
Outflow   =   87.98 cfs @ 12.25 hrs, Volume=   488,832 cf, Atten= 1%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 10.1 min

Peak Storage= 11,251 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 5.00' Flow Area= 356.3 sf, Capacity= 2,325.16 cfs

40.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 7.5 5.0 '/' Top Width= 102.50'
Length= 300.0'   Slope= 0.0033 '/'
Inlet Invert= 76.00', Outlet Invert= 75.00'

‡

Reach 3R:

Hydrograph

Inflow Area=1,670,701 sf
Avg. Flow Depth=0.83'
Max Vel=2.35 fps
n=0.030
L=300.0'
S=0.0033 '/'
Capacity=2,325.16 cfs
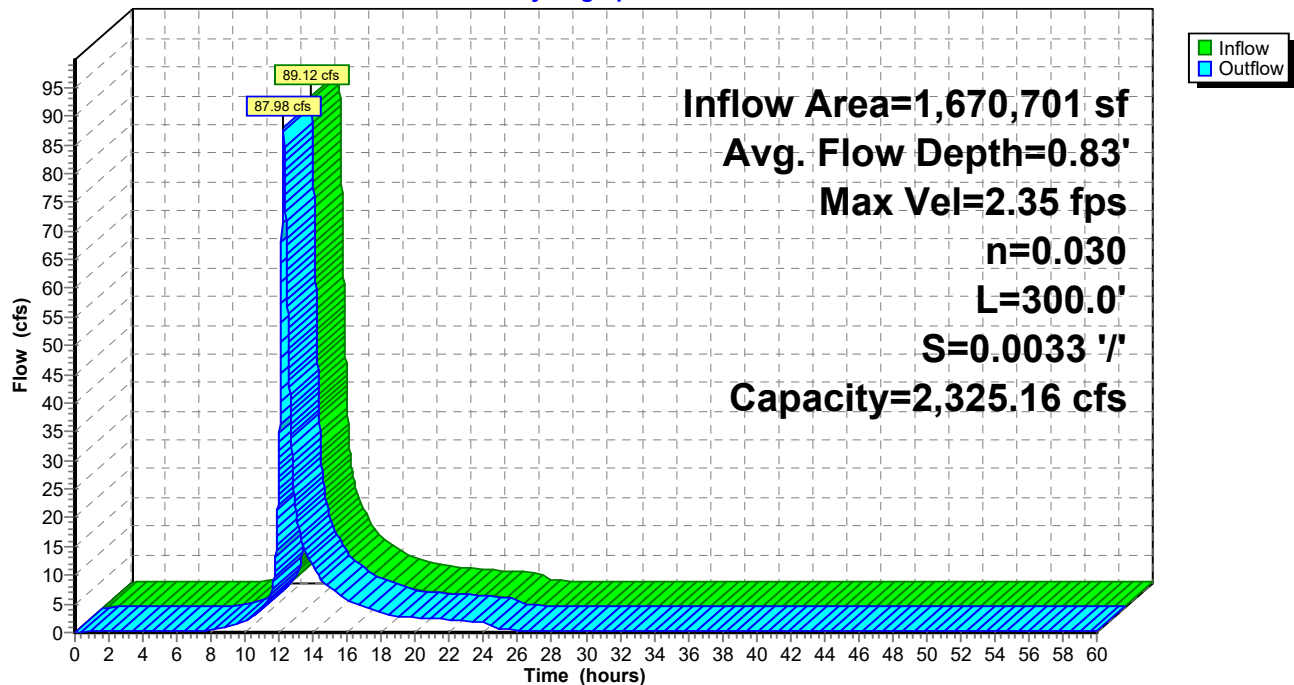
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Summary for Reach 4R:

Inflow Area =   330,507 sf,   7.29% Impervious, Inflow Depth =   3.02"   for 25 year event
Inflow   =   19.02 cfs @   12.24 hrs, Volume=   83,107 cf
Outflow   =   18.99 cfs @   12.26 hrs, Volume=   83,107 cf, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.34 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.58 fps, Avg. Travel Time= 1.9 min

Peak Storage= 902 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 8.00' Flow Area= 208.0 sf, Capacity= 5,556.65 cfs

2.00' x 8.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/'   Top Width= 50.00'
Length= 301.0'   Slope= 0.0465 '/'
Inlet Invert= 90.00', Outlet Invert= 76.00'

Reach 4R:

Hydrograph

Inflow Area=330,507 sf
Avg. Flow Depth=0.72'
Max Vel=6.34 fps
n=0.030
L=301.0'
S=0.0465 '/'
Capacity=5,556.65 cfs
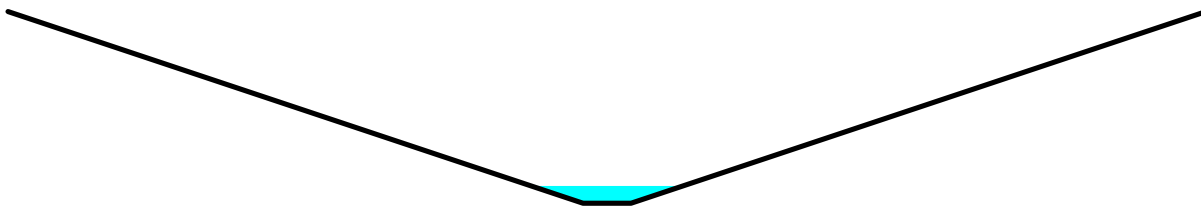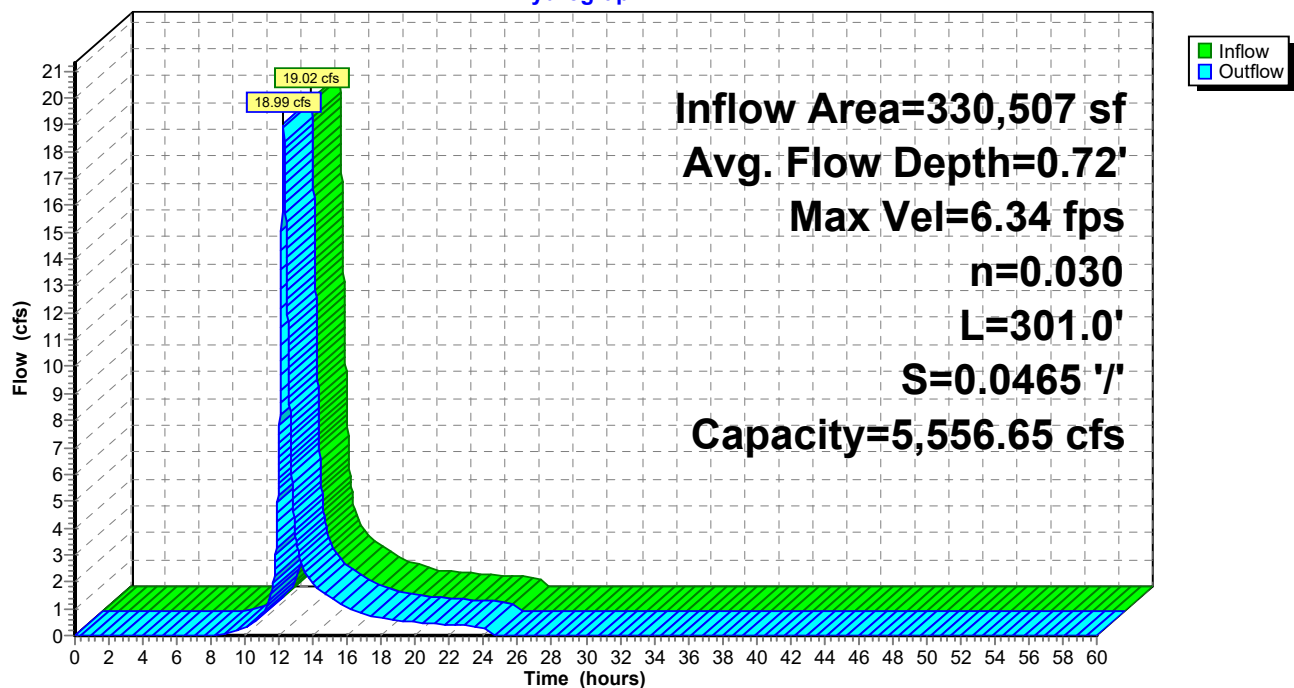
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Summary for Reach 63R: Level Spreader

Inflow Area =   125,641 sf,   4.11% Impervious, Inflow Depth = 2.12"   for 25 year event
Inflow   =   4.40 cfs @   12.34 hrs, Volume=   22,217 cf
Outflow   =   4.01 cfs @   12.44 hrs, Volume=   22,217 cf, Atten= 9%, Lag= 6.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.29 fps, Min. Travel Time= 8.7 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 22.8 min

Peak Storage= 2,091 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 2.00' Flow Area= 600.0 sf, Capacity= 839.01 cfs

100.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 100.0 '/'   Top Width= 500.00'
Length= 150.0'   Slope= 0.0400 '/'
Inlet Invert= 128.00', Outlet Invert= 122.00'

‡

Reach 63R: Level Spreader

Inflow Area=125,641 sf
Avg. Flow Depth=0.12'
Max Vel=0.29 fps
n=0.240
L=150.0'
S=0.0400 '/'
Capacity=839.01 cfs

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Summary for Reach 65R: Level Spreader

Inflow Area =   33,206 sf, 38.00% Impervious, Inflow Depth =   3.11"   for 25 year event
Inflow   =   2.78 cfs @   12.09 hrs, Volume=   8,612 cf
Outflow   =   2.44 cfs @   12.13 hrs, Volume=   8,612 cf, Atten= 12%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.34 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 10.3 min

Peak Storage= 712 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 2.00' Flow Area= 600.0 sf, Capacity= 1,453.20 cfs

100.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 100.0 '/'   Top Width= 500.00'
Length= 100.0'   Slope= 0.1200 '/'
Inlet Invert= 148.00', Outlet Invert= 136.00'

‡

Reach 65R: Level Spreader

Hydrograph
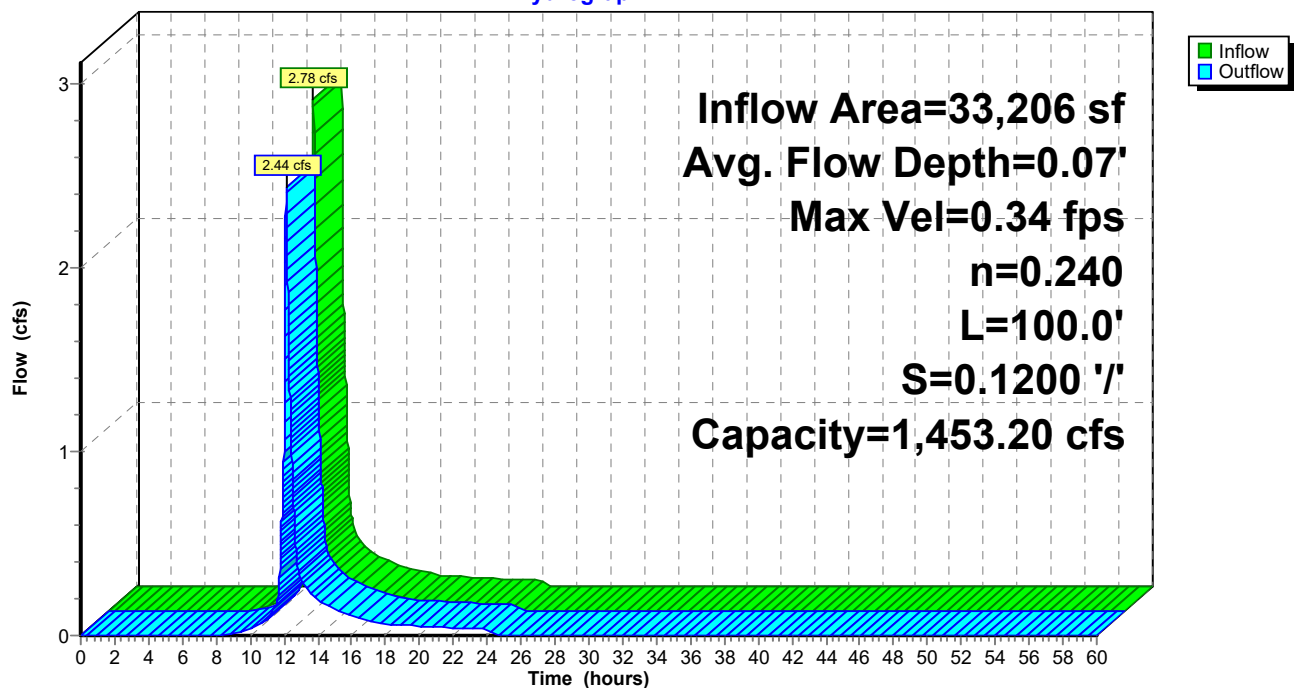
Inflow Area=33,206 sf
Avg. Flow Depth=0.07'
Max Vel=0.34 fps
n=0.240
L=100.0'
S=0.1200 '/'
Capacity=1,453.20 cfs

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Summary for Pond 1P: RD-1 Bldg 8

Inflow Area =   31,961 sf, 97.89% Impervious, Inflow Depth = 5.44"   for 25 year event
Inflow   =   4.15 cfs @ 12.08 hrs, Volume=   14,501 cf
Outflow   =   4.15 cfs @ 12.08 hrs, Volume=   14,501 cf, Atten= 0%, Lag= 0.0 min
Primary   =   4.15 cfs @ 12.08 hrs, Volume=   14,501 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 142.01' @ 12.11 hrs
Flood Elev= 146.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	140.03'	**15.0" Round Stormdrain** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.03' / 139.92' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.71 cfs @ 12.08 hrs HW=141.67' TW=141.28'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 3.71 cfs @ 3.02 fps)

Pond 1P: RD-1 Bldg 8
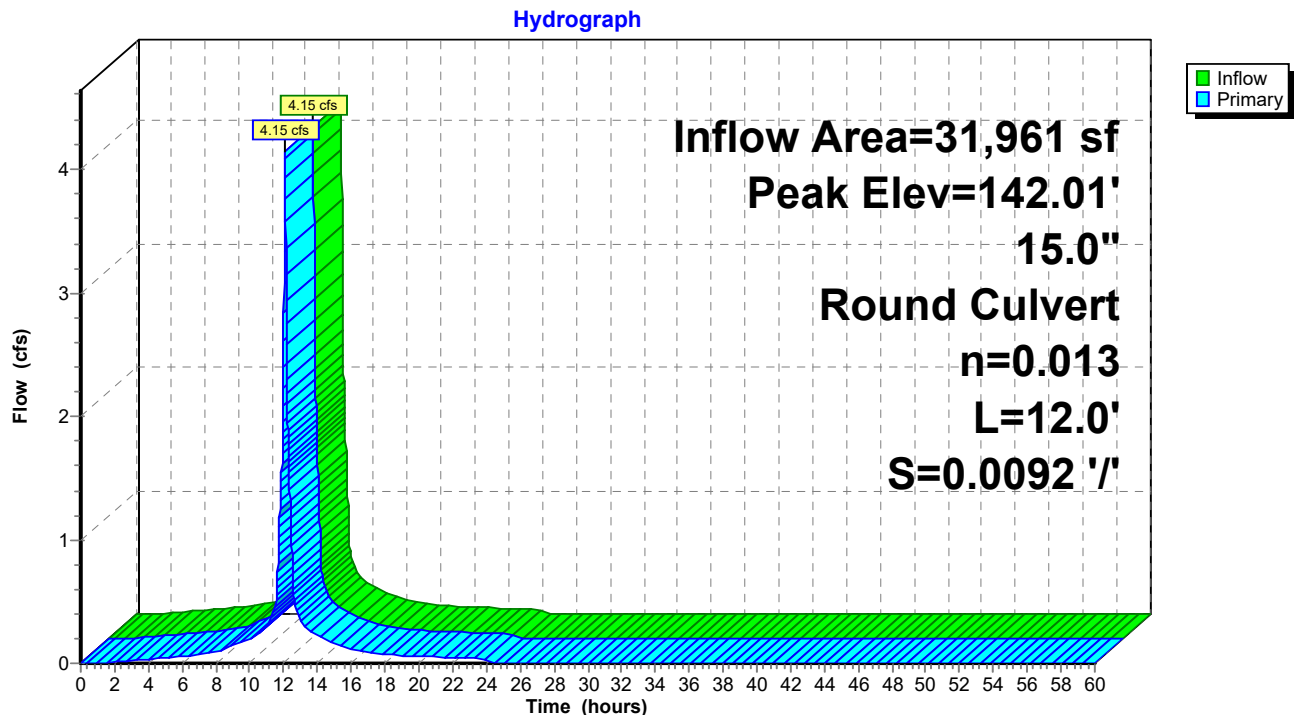
Hydrograph

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Summary for Pond 2P: CB-17

Inflow Area =   31,961 sf, 97.89% Impervious, Inflow Depth = 5.44"   for 25 year event
Inflow   =   4.15 cfs @ 12.08 hrs, Volume=   14,501 cf
Outflow   =   4.15 cfs @ 12.08 hrs, Volume=   14,501 cf, Atten= 0%, Lag= 0.0 min
Primary   =   4.15 cfs @ 12.08 hrs, Volume=   14,501 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 141.58' @ 12.11 hrs
Flood Elev= 146.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	139.82'	**15.0" Round Stormdrain** L= 144.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 139.82' / 138.74' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.69 cfs @ 12.08 hrs HW=141.28' TW=140.60'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 3.69 cfs @ 3.25 fps)

Pond 2P: CB-17
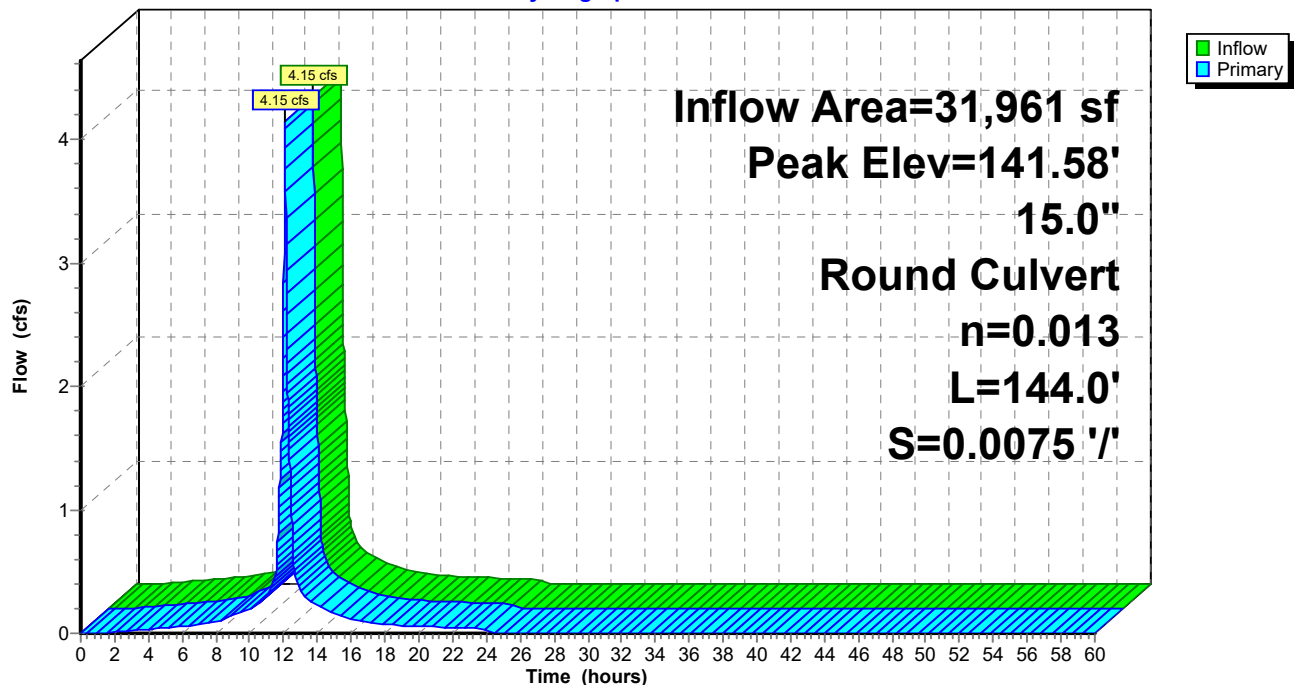
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Summary for Pond 3P: CB-14

Inflow Area =   56,042 sf, 57.91% Impervious, Inflow Depth = 4.48"   for 25 year event
Inflow   =   4.85 cfs @ 12.09 hrs, Volume=   20,940 cf
Outflow   =   4.85 cfs @ 12.09 hrs, Volume=   20,940 cf, Atten= 0%, Lag= 0.0 min
Primary   =   4.85 cfs @ 12.09 hrs, Volume=   20,940 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 140.79' @ 12.10 hrs
Flood Elev= 144.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	138.64'	**18.0" Round Stormdrain** L= 132.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 138.64' / 137.65' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.39 cfs @ 12.09 hrs HW=140.71' TW=140.33'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 4.39 cfs @ 2.49 fps)

Pond 3P: CB-14

Hydrograph
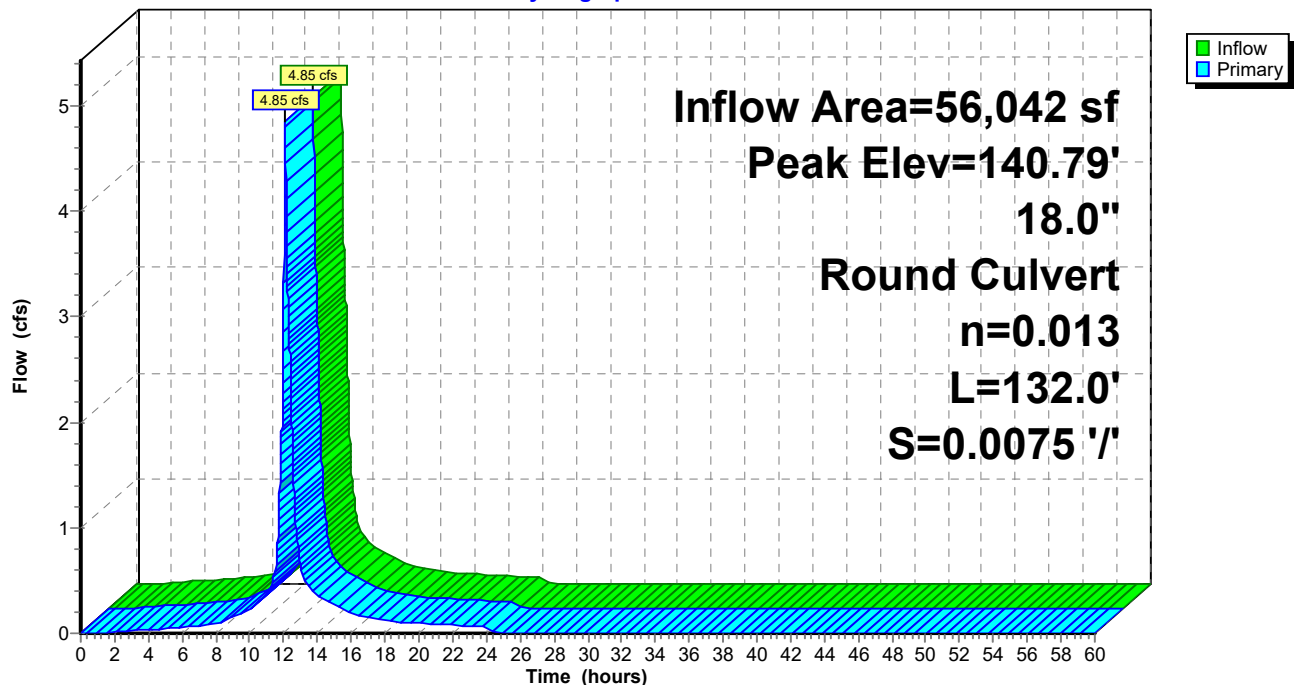
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Summary for Pond 4P: DMH-9

Inflow Area =   151,265 sf, 32.74% Impervious, Inflow Depth = 3.13"   for 25 year event
Inflow   =   9.06 cfs @ 12.10 hrs, Volume=   39,402 cf
Outflow   =   9.06 cfs @ 12.10 hrs, Volume=   39,402 cf, Atten= 0%, Lag= 0.0 min
Primary   =   9.06 cfs @ 12.10 hrs, Volume=   39,402 cf

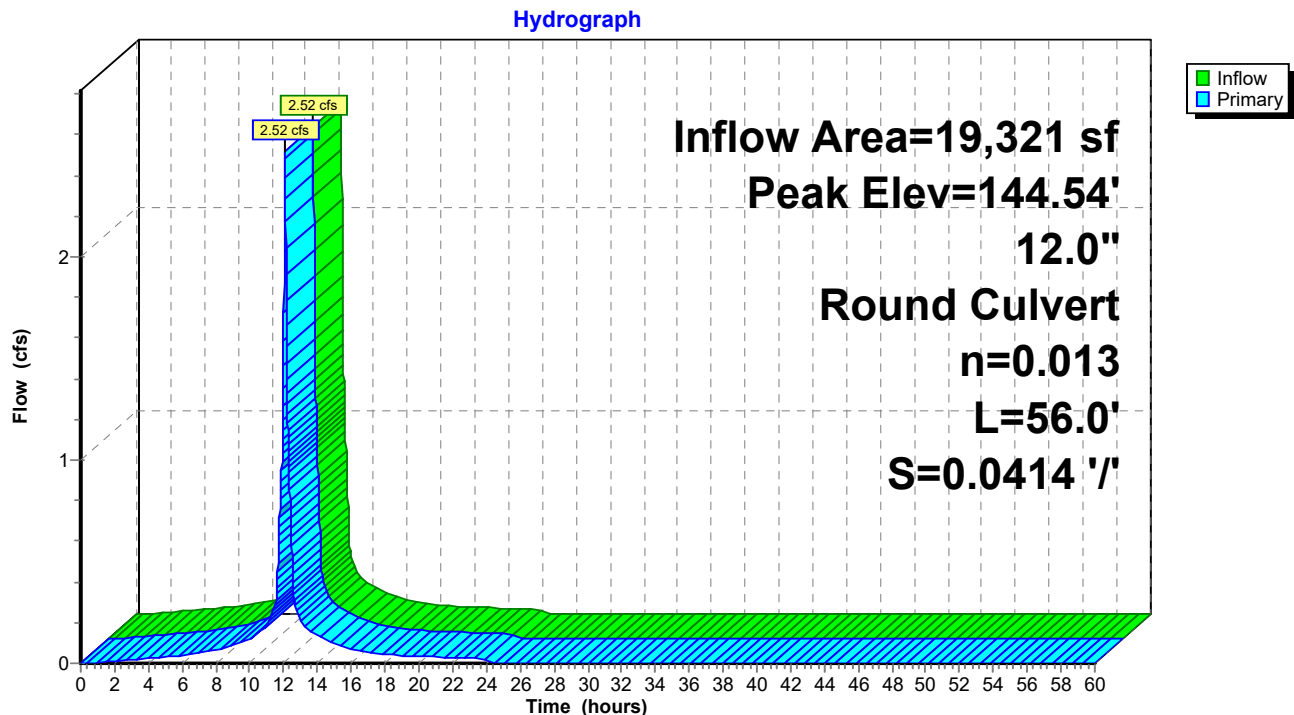Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 139.65' @ 12.10 hrs
Flood Elev= 152.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	138.29'	**24.0" Round Stormdrain** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 138.29' / 137.00' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.05 cfs @ 12.10 hrs HW=139.65' TW=137.27'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 9.05 cfs @ 3.97 fps)

Pond 4P: DMH-9

Hydrograph
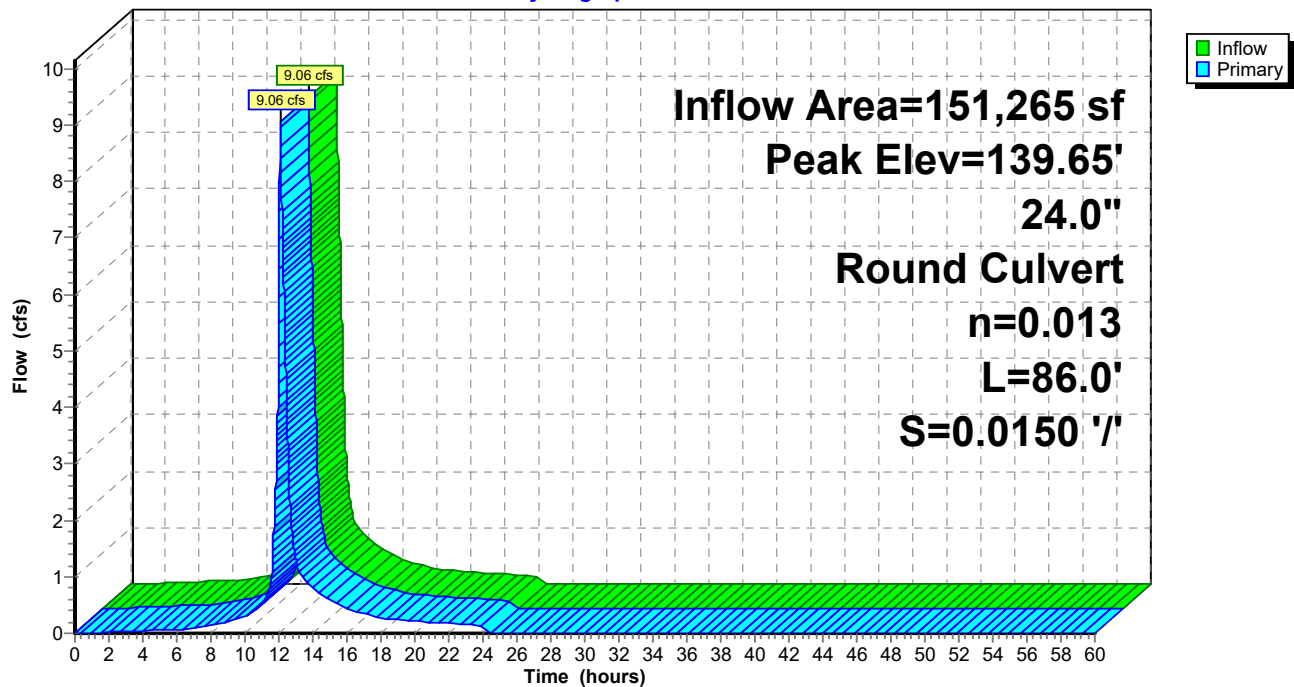
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Summary for Pond 5P: DMH-10

Inflow Area =   255,806 sf, 46.55% Impervious, Inflow Depth =   3.78"   for 25 year event
Inflow   =   19.91 cfs @ 12.09 hrs, Volume=   80,493 cf
Outflow   =   19.91 cfs @ 12.09 hrs, Volume=   80,493 cf, Atten= 0%, Lag= 0.0 min
Primary   =   19.91 cfs @ 12.09 hrs, Volume=   80,493 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 137.28' @ 12.09 hrs
Flood Elev= 143.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	134.52'	**24.0" Round Stormdrain** L= 77.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.52' / 133.75' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=19.91 cfs @ 12.09 hrs HW=137.28' TW=129.44'   (Dynamic Tailwater)
└—**1=Stormdrain** (Barrel Controls 19.91 cfs @ 6.34 fps)

Pond 5P: DMH-10

Hydrograph
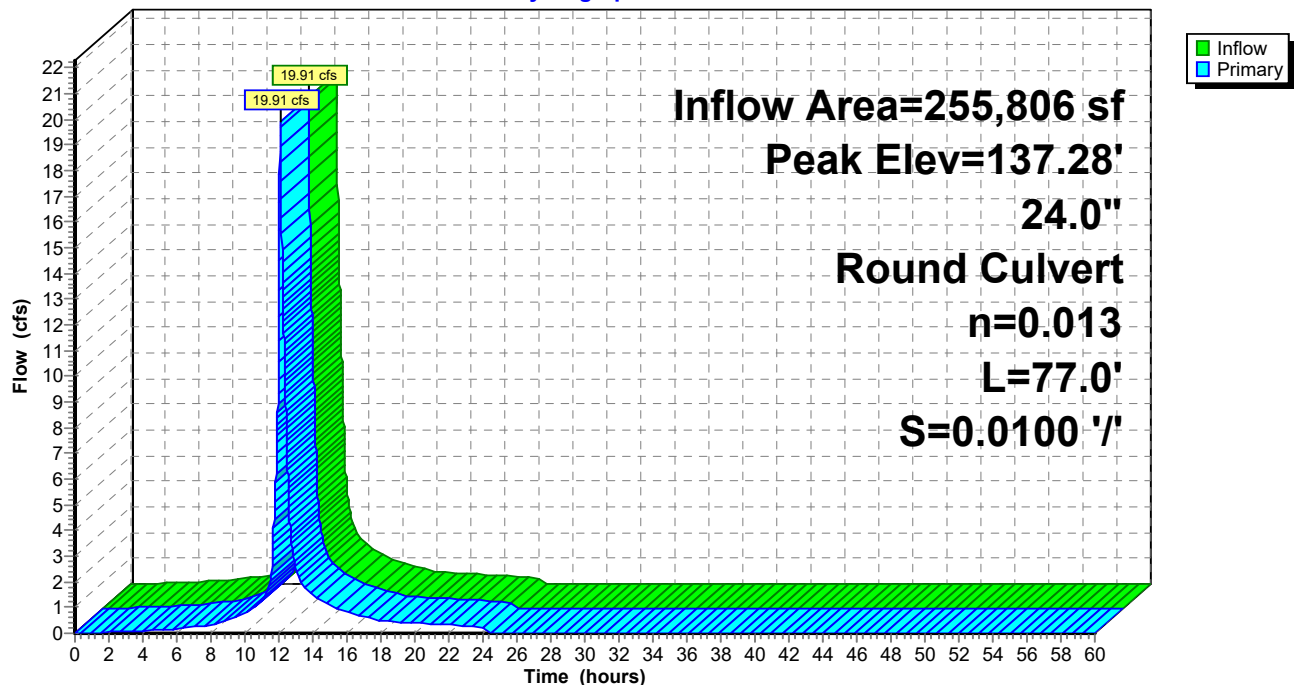
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Summary for Pond 6P: RD-2 Bldg 8

Inflow Area =		7,955 sf,100.00% Impervious,	Inflow Depth = 5.56"	for 25 year event		
Inflow	=	1.04 cfs @ 12.08 hrs,	Volume=	3,687 cf		
Outflow	=	1.04 cfs @ 12.08 hrs,	Volume=	3,687 cf,	Atten= 0%,	Lag= 0.0 min
Primary	=	1.04 cfs @ 12.08 hrs,	Volume=	3,687 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 143.53' @ 12.08 hrs
Flood Elev= 148.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	143.00'	**12.0" Round Stormdrain** L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 143.00' / 141.00' S= 0.0556 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.04 cfs @ 12.08 hrs HW=143.53' TW=140.29'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.04 cfs @ 2.47 fps)

Pond 6P: RD-2 Bldg 8
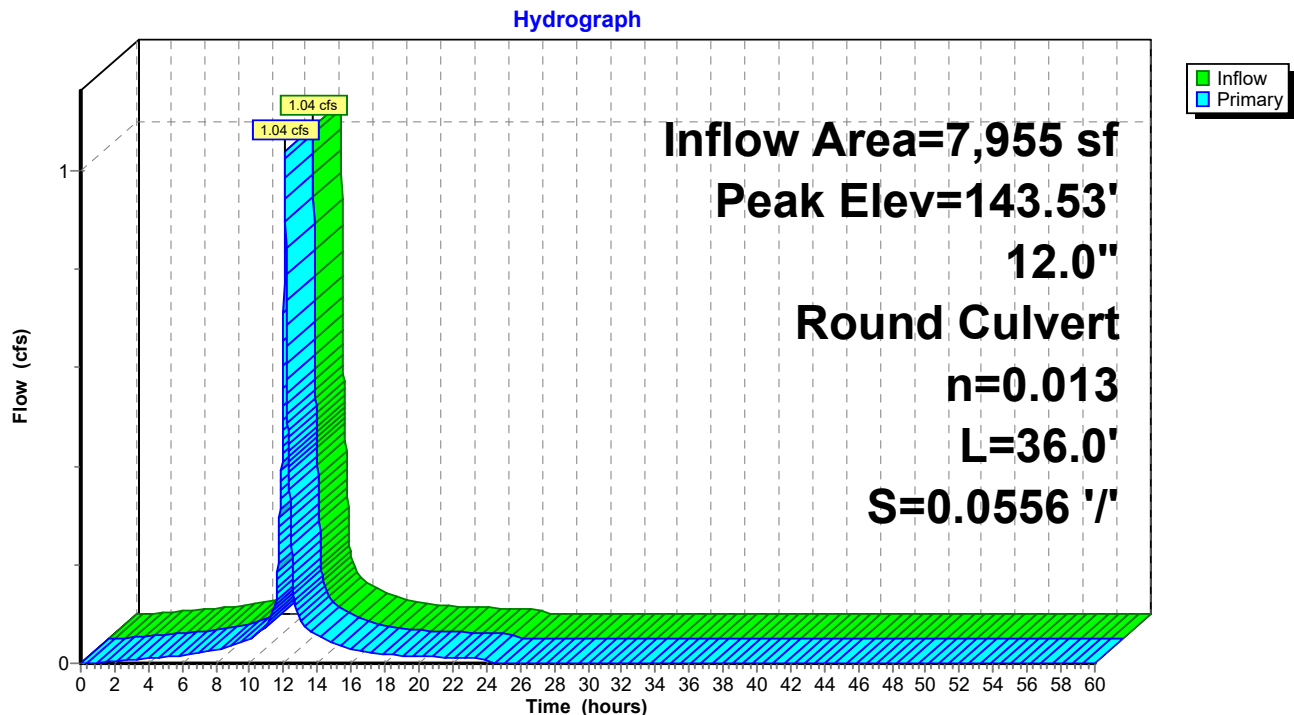
Hydrograph

Inflow Area=7,955 sf
Peak Elev=143.53'
12.0"
Round Culvert
n=0.013
L=36.0'
S=0.0556 '/'

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Summary for Pond 7P: RD-1 Bldg 7

Inflow Area =   19,321 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   2.52 cfs @ 12.08 hrs, Volume=   8,955 cf
Outflow   =   2.52 cfs @ 12.08 hrs, Volume=   8,955 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.52 cfs @ 12.08 hrs, Volume=   8,955 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 144.54' @ 12.08 hrs
Flood Elev= 148.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	143.60'	**12.0" Round Stormdrain** L= 56.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 143.60' / 141.28' S= 0.0414 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.52 cfs @ 12.08 hrs HW=144.54' TW=141.59'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 2.52 cfs @ 3.29 fps)

Pond 7P: RD-1 Bldg 7

Hydrograph

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Summary for Pond 8P: CB-37

Inflow Area =   61,572 sf, 64.29% Impervious, Inflow Depth = 4.12"   for 25 year event
Inflow   =   6.44 cfs @ 12.09 hrs, Volume=   21,123 cf
Outflow   =   6.44 cfs @ 12.09 hrs, Volume=   21,123 cf, Atten= 0%, Lag= 0.0 min
Primary   =   6.44 cfs @ 12.09 hrs, Volume=   21,123 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 141.61' @ 12.09 hrs
Flood Elev= 146.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	139.90'	**18.0" Round Stormdrain** L= 138.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 139.90' / 139.21' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.31 cfs @ 12.09 hrs HW=141.60' TW=140.77'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 6.31 cfs @ 3.95 fps)

Pond 8P: CB-37
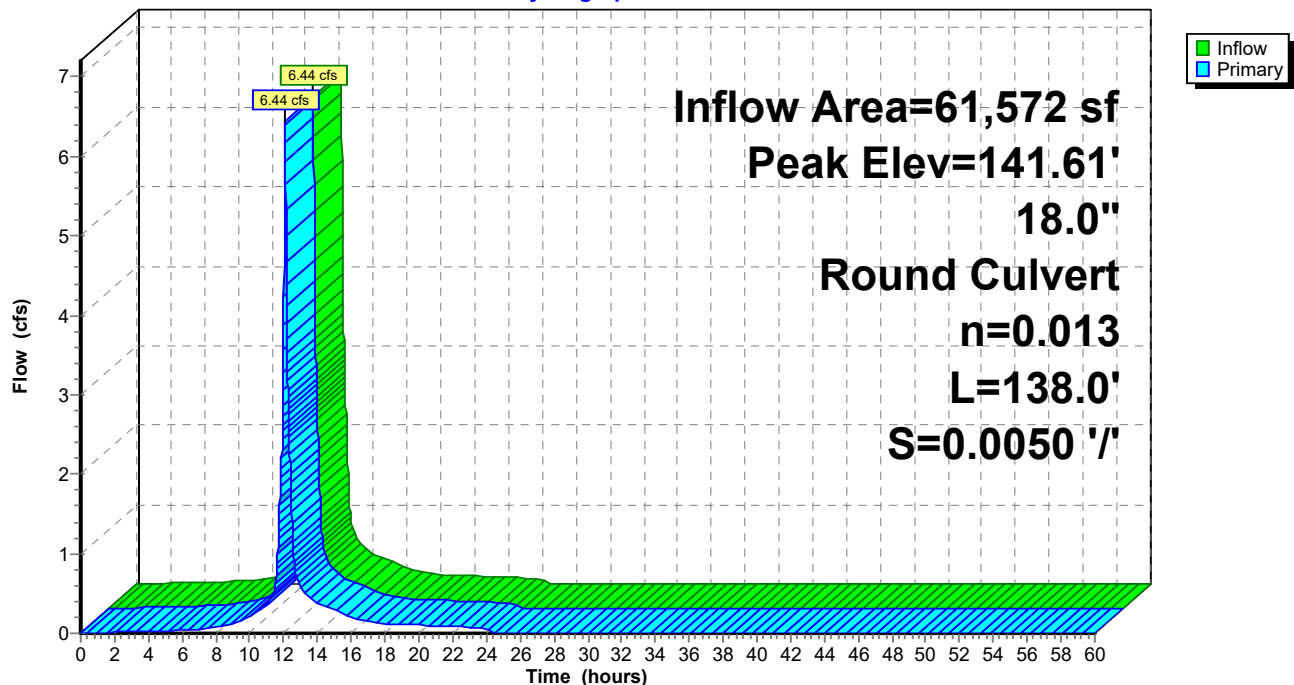
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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Pond 9P: CB-16

Inflow Area =   37,592 sf, 20.60% Impervious, Inflow Depth = 2.71"   for 25 year event
Inflow   =   1.72 cfs @ 12.26 hrs, Volume=   8,484 cf
Outflow   =   1.72 cfs @ 12.26 hrs, Volume=   8,484 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.72 cfs @ 12.26 hrs, Volume=   8,484 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 134.49' @ 12.26 hrs
Flood Elev= 143.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.78'	**12.0" Round Culvert** L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.78' / 124.00' S= 0.0699 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.71 cfs @ 12.26 hrs HW=134.49' TW=0.00'   (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.71 cfs @ 2.87 fps)

Pond 9P: CB-16

Hydrograph
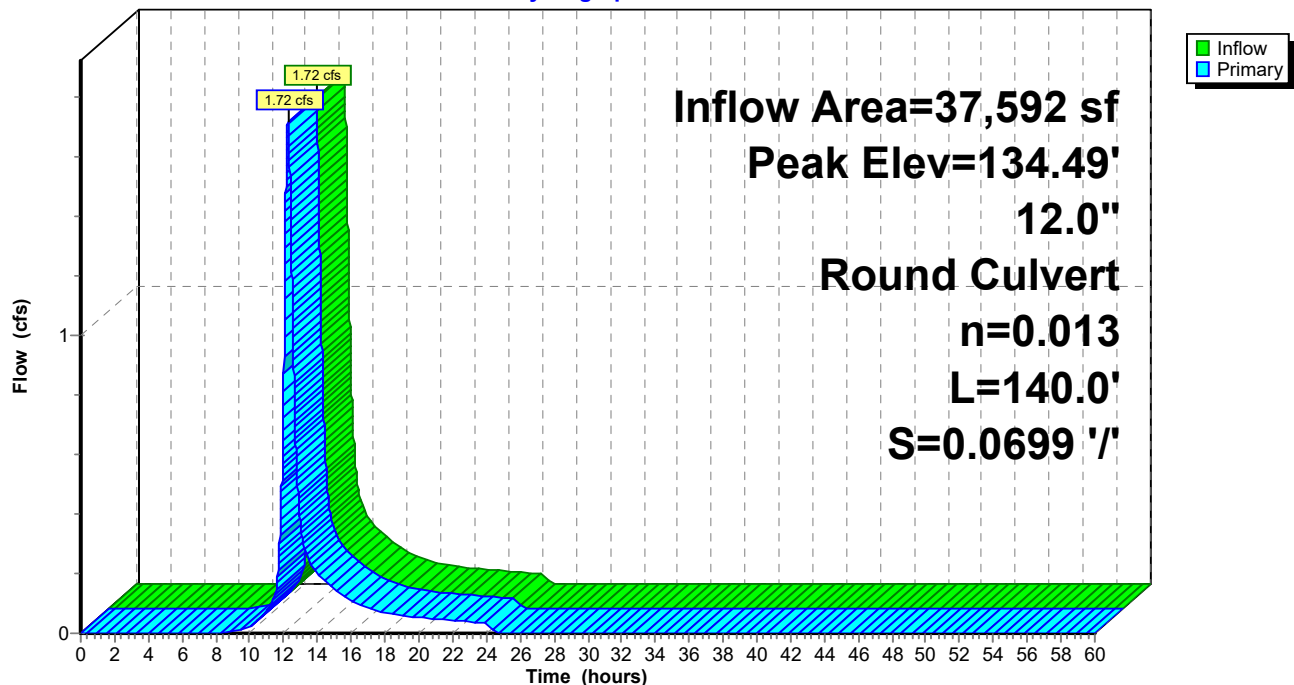
Inflow Area=37,592 sf
Peak Elev=134.49'
12.0"
Round Culvert
n=0.013
L=140.0'
S=0.0699 '/'

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Summary for Pond 10.3P: Drip Edge

Inflow Area =   11,024 sf, 91.93% Impervious, Inflow Depth = 5.44"   for 25 year event
Inflow   =   1.43 cfs @   12.08 hrs, Volume=   5,002 cf
Outflow   =   1.31 cfs @   12.14 hrs, Volume=   4,988 cf, Atten= 8%, Lag= 3.6 min
Primary   =   0.18 cfs @   12.14 hrs, Volume=   4,408 cf
Secondary =   1.12 cfs @   12.14 hrs, Volume=   580 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 149.51' @ 12.14 hrs   Surf.Area= 1,644 sf Storage= 1,427 cf
Flood Elev= 149.60'   Surf.Area= 3,136 sf Storage= 1,635 cf

Plug-Flow detention time= 89.7 min calculated for 4,988 cf (100% of inflow)
Center-of-Mass det. time= 87.8 min (840.6 - 752.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	146.62'	4,262 cf	**Custom Stage Data (Prismatic)**	Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
146.62	1,420	0.0	0	0
146.63	1,420	30.0	4	4
148.29	1,420	30.0	707	711
148.30	1,420	40.0	6	717
149.49	1,420	40.0	676	1,393
149.50	1,420	100.0	14	1,407
150.00	10,000	100.0	2,855	4,262

Device	Routing	Invert	Outlet Devices
#1	Primary	146.63'	**4.0" Round Underdrain** L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 146.63' / 146.63' S= 0.0000 '/' Cc= 0.900 n= 0.012 Wood, planed, Flow Area= 0.09 sf
#2	Secondary	149.50'	**300.0' long x 4.0' breadth Overflow** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.18 cfs @ 12.14 hrs HW=149.51' TW=118.23' (Dynamic Tailwater)
└─**1=Underdrain** (Barrel Controls 0.18 cfs @ 2.12 fps)

Secondary OutFlow Max=1.02 cfs @ 12.14 hrs HW=149.51' TW=118.27' (Dynamic Tailwater)
└─**2=Overflow** (Weir Controls 1.02 cfs @ 0.27 fps)
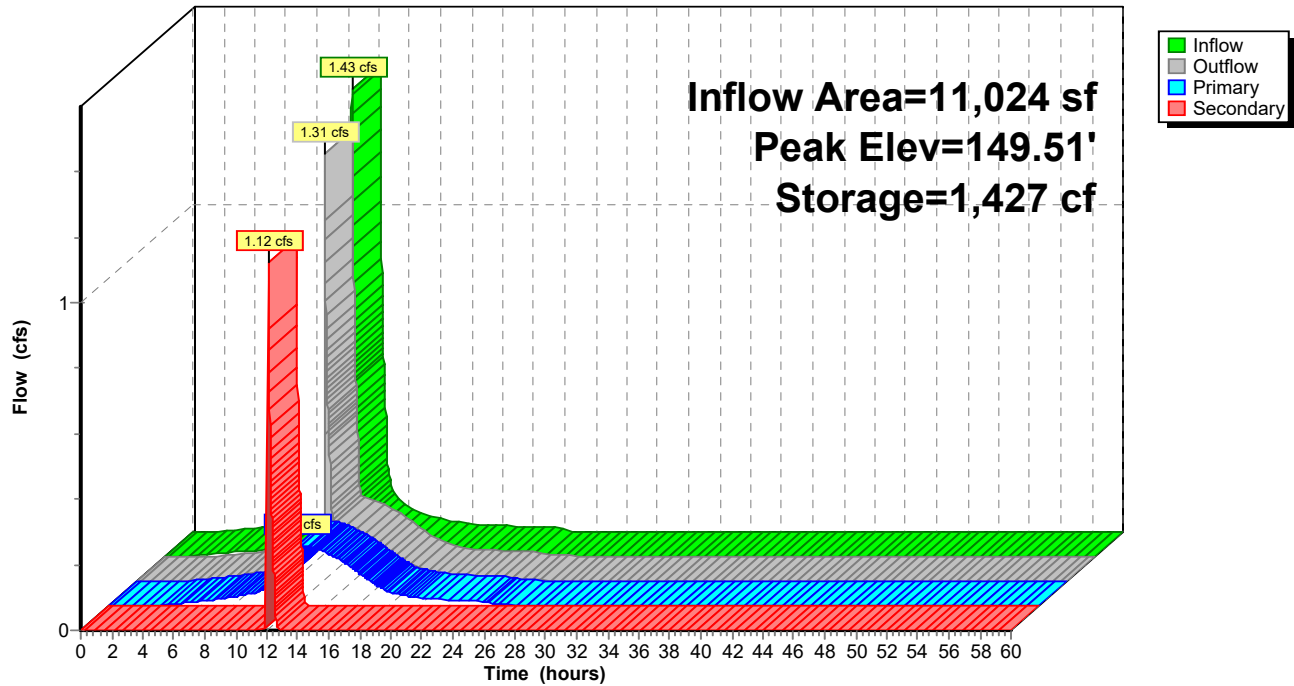
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Pond 10.3P: Drip Edge

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Summary for Pond 10P: CB-28

Inflow Area =   40,508 sf, 50.02% Impervious, Inflow Depth =   3.52"   for 25 year event
Inflow   =   3.84 cfs @ 12.09 hrs, Volume=   11,896 cf
Outflow   =   3.84 cfs @ 12.09 hrs, Volume=   11,896 cf, Atten= 0%, Lag= 0.0 min
Primary   =   3.84 cfs @ 12.09 hrs, Volume=   11,896 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 141.92' @ 12.10 hrs
Flood Elev= 146.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	140.60'	**18.0" Round Stormdrain** L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.60' / 140.37' S= 0.0055 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.66 cfs @ 12.09 hrs HW=141.90' TW=141.60'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 3.66 cfs @ 3.00 fps)

Pond 10P: CB-28

Hydrograph
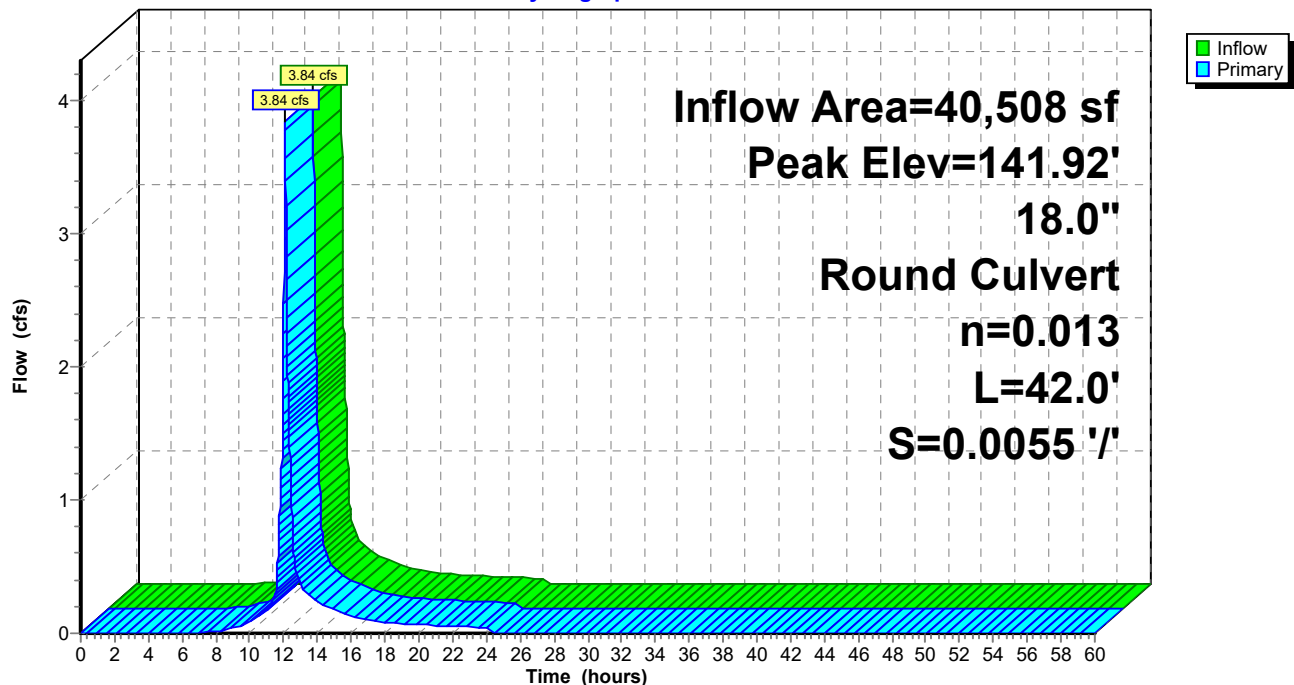
Inflow Area=40,508 sf
Peak Elev=141.92'
18.0"
Round Culvert
n=0.013
L=42.0'
S=0.0055 '/'

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Summary for Pond 11P: DMH-3

Inflow Area =   80,066 sf, 64.61% Impervious, Inflow Depth = 4.20"   for 25 year event
Inflow   =   6.44 cfs @ 12.09 hrs, Volume=   28,033 cf
Outflow   =   6.44 cfs @ 12.09 hrs, Volume=   28,033 cf, Atten= 0%, Lag= 0.0 min
Primary   =   6.44 cfs @ 12.09 hrs, Volume=   28,033 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.28' @ 12.11 hrs
Flood Elev= 153.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.67'	**18.0" Round Stormdrain** L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.67' / 145.22' S= 0.0098 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.31 cfs @ 12.09 hrs HW=147.27' TW=146.70'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 6.31 cfs @ 4.16 fps)

Pond 11P: DMH-3

Hydrograph
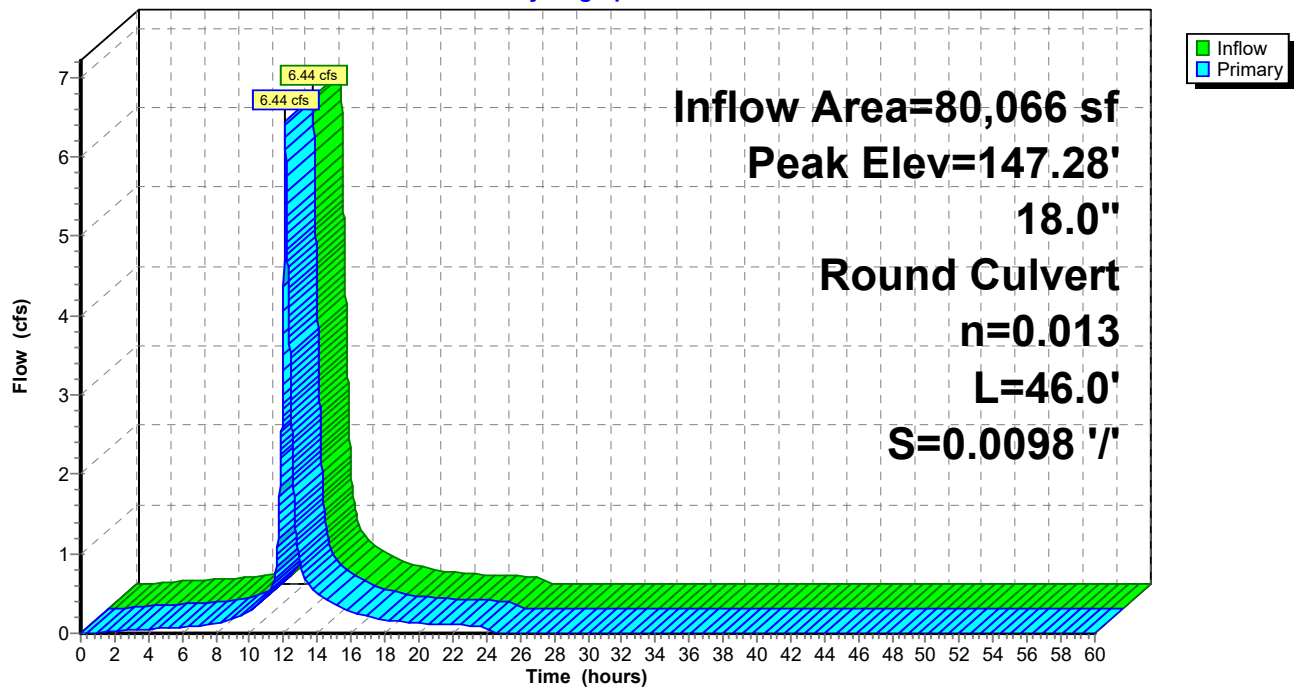
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Summary for Pond 12P: DMH-4

Inflow Area =   102,769 sf, 56.88% Impervious, Inflow Depth = 3.90" for 25 year event
Inflow   =   7.77 cfs @ 12.10 hrs, Volume=   33,388 cf
Outflow   =   7.77 cfs @ 12.10 hrs, Volume=   33,388 cf, Atten= 0%, Lag= 0.0 min
Primary   =   7.77 cfs @ 12.10 hrs, Volume=   33,388 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.70' @ 12.10 hrs
Flood Elev= 152.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.12'	**18.0" Round Stormdrain** L= 241.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.12' / 141.24' S= 0.0161 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.76 cfs @ 12.10 hrs HW=146.70' TW=143.24' (Dynamic Tailwater)
└**1=Stormdrain** (Inlet Controls 7.76 cfs @ 4.39 fps)

Pond 12P: DMH-4

Hydrograph
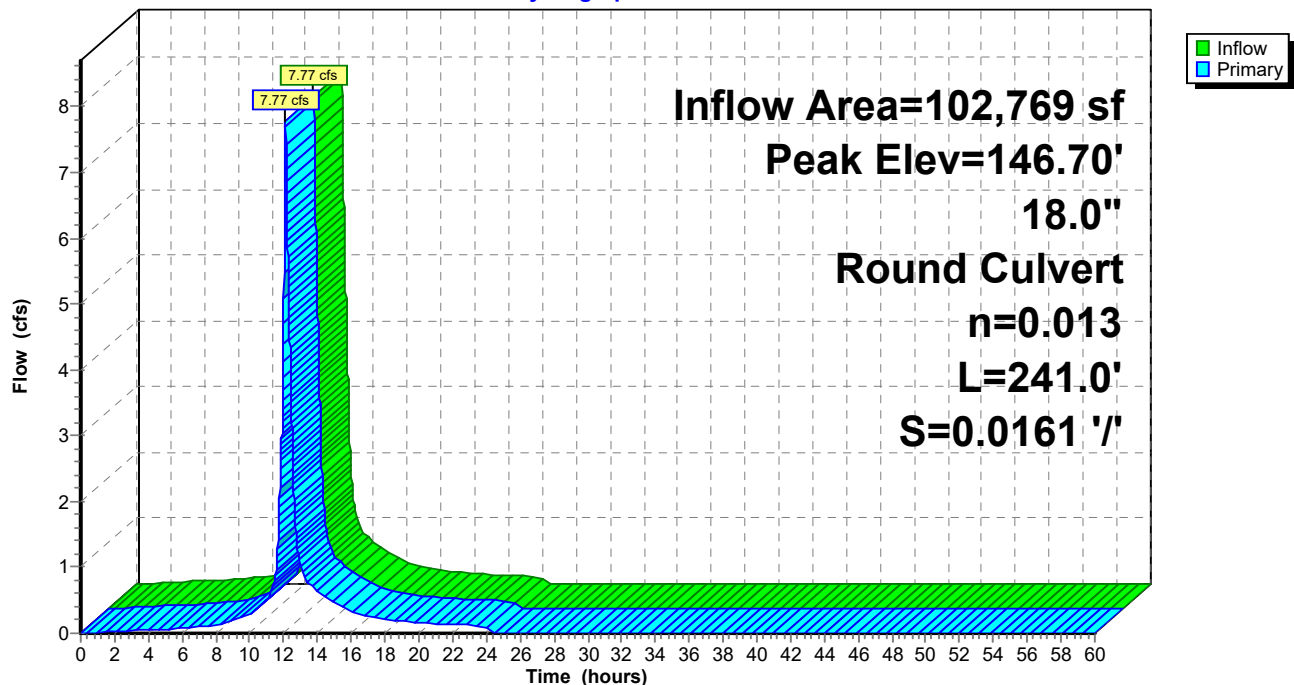
Inflow Area=102,769 sf
Peak Elev=146.70'
18.0"
Round Culvert
n=0.013
L=241.0'
S=0.0161 '/'

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Summary for Pond 13P: CB-44

Inflow Area =   41,424 sf, 18.07% Impervious, Inflow Depth = 2.47"   for 25 year event
Inflow   =   2.07 cfs @   12.21 hrs, Volume=   8,520 cf
Outflow   =   2.07 cfs @   12.21 hrs, Volume=   8,520 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.07 cfs @   12.21 hrs, Volume=   8,520 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 138.81' @ 12.15 hrs
Flood Elev= 143.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	137.97'	**15.0" Round Stormdrain** L= 163.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 137.97' / 136.75' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.09 cfs @ 12.21 hrs HW=138.78' TW=137.76'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 2.09 cfs @ 3.51 fps)

Pond 13P: CB-44

Hydrograph
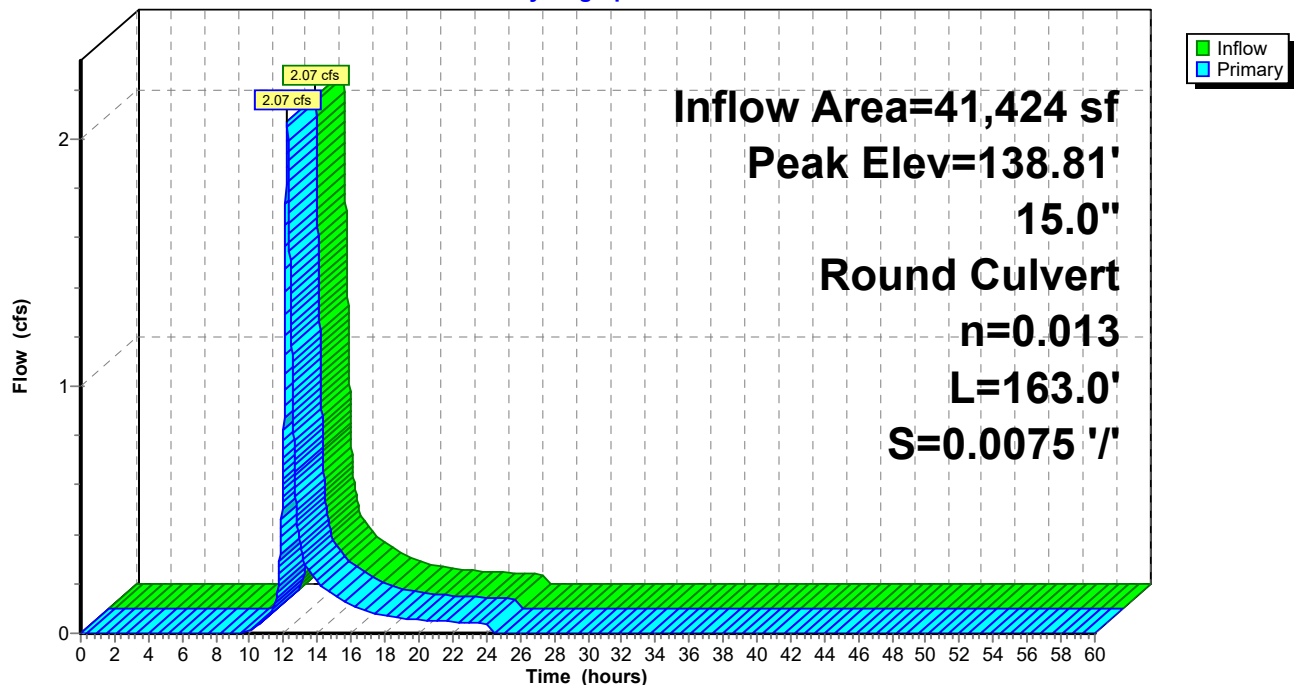
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Summary for Pond 16P: CB-15

Inflow Area =		31,583 sf, 20.42% Impervious, Inflow Depth = 2.56" for 25 year event
Inflow	=	1.46 cfs @ 12.28 hrs, Volume=	6,731 cf
Outflow	=	1.46 cfs @ 12.28 hrs, Volume=	6,731 cf, Atten= 0%, Lag= 0.0 min
Primary	=	1.46 cfs @ 12.28 hrs, Volume=	6,731 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 136.08' @ 12.28 hrs
Flood Elev= 143.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.44'	**12.0" Round Stormdrain** L= 78.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.44' / 133.88' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.46 cfs @ 12.28 hrs HW=136.08' TW=134.49'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.46 cfs @ 2.73 fps)

Pond 16P: CB-15

Hydrograph
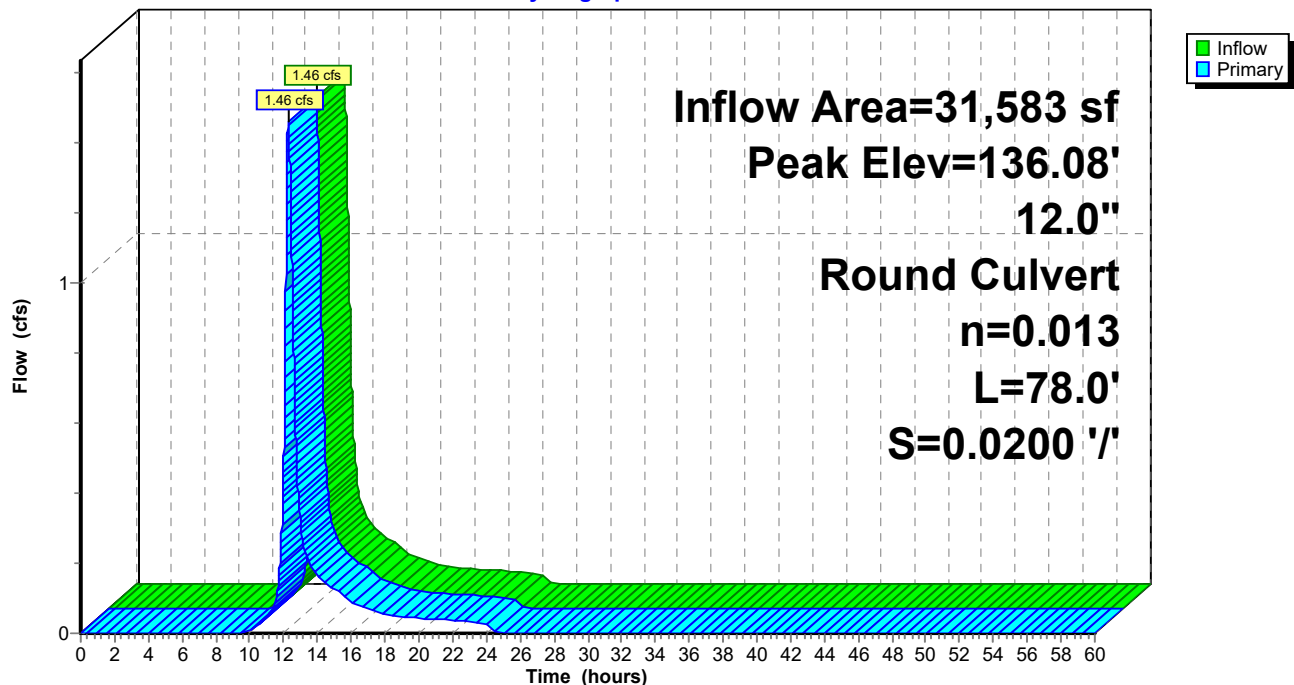
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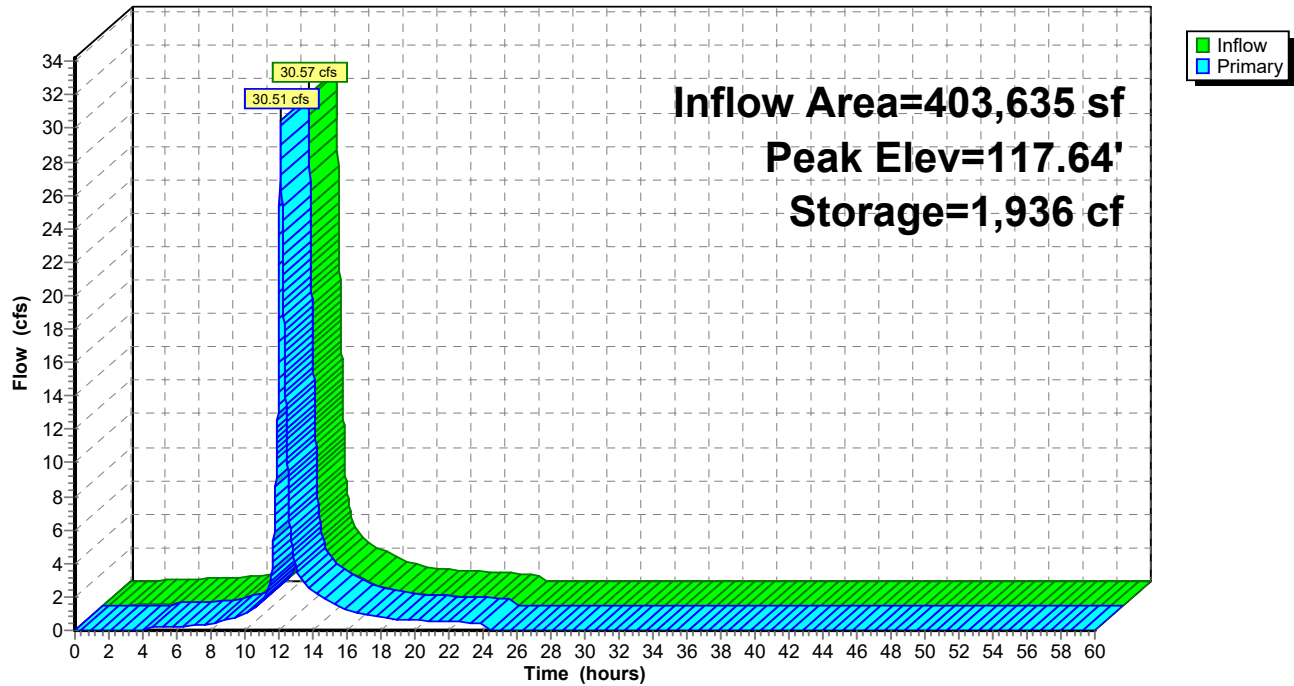Printed 7/18/2019
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Summary for Pond 17P: DMH-28

Inflow Area =   251,049 sf, 48.87% Impervious, Inflow Depth = 3.74"   for 25 year event
Inflow   =   19.94 cfs @ 12.10 hrs, Volume=   78,271 cf
Outflow   =   19.94 cfs @ 12.10 hrs, Volume=   78,271 cf, Atten= 0%, Lag= 0.0 min
Primary   =   19.94 cfs @ 12.10 hrs, Volume=   78,271 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 136.81' @ 12.11 hrs
Flood Elev= 144.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.42'	**24.0" Round Stormdrain** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.42' / 132.45' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=19.81 cfs @ 12.10 hrs HW=136.80' TW=135.08'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 19.81 cfs @ 6.31 fps)

Pond 17P: DMH-28

Hydrograph
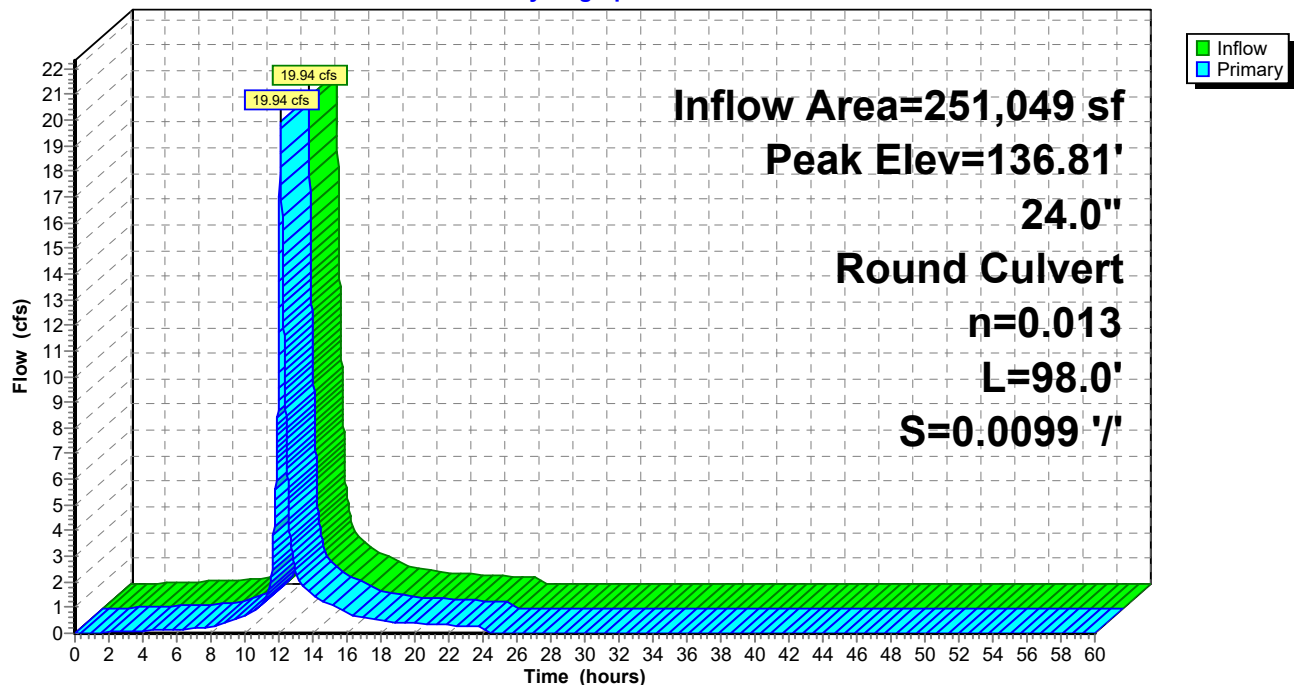
Inflow Area=251,049 sf
Peak Elev=136.81'
24.0"
Round Culvert
n=0.013
L=98.0'
S=0.0099 '/'

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Summary for Pond 18P: Forebay 2

Inflow Area =   403,635 sf, 46.32% Impervious, Inflow Depth = 3.60"   for 25 year event
Inflow   =   30.57 cfs @ 12.10 hrs, Volume=   121,026 cf
Outflow   =   30.51 cfs @ 12.11 hrs, Volume=   119,980 cf, Atten= 0%, Lag= 0.4 min
Primary   =   30.51 cfs @ 12.11 hrs, Volume=   119,980 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 117.64' @ 12.11 hrs   Surf.Area= 1,523 sf   Storage= 1,936 cf
Flood Elev= 120.00'   Surf.Area= 1,680 sf   Storage= 2,505 cf

Plug-Flow detention time= 11.9 min calculated for 119,980 cf (99% of inflow)
Center-of-Mass det. time= 6.4 min (804.1 - 797.6)

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	2,505 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	854	0	0
117.00	1,238	1,046	1,046
118.00	1,680	1,459	2,505

Device	Routing	Invert	Outlet Devices
#1	Primary	117.00'	**22.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=30.47 cfs @ 12.11 hrs HW=117.64' TW=114.01'   (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 30.47 cfs @ 2.15 fps)

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Pond 18P: Forebay 2

Hydrograph

Inflow Area=403,635 sf
Peak Elev=117.64'
Storage=1,936 cf

Legend: Inflow (green), Primary (blue)

Labels on peak: 30.57 cfs, 30.51 cfs

Flow (cfs) vs Time (hours)

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Summary for Pond 19P: Wet Pond 2

Inflow Area =   586,327 sf, 36.31% Impervious, Inflow Depth =   3.46"   for 25 year event
Inflow   =   38.63 cfs @ 12.12 hrs, Volume=   168,823 cf
Outflow   =   5.16 cfs @ 13.10 hrs, Volume=   194,852 cf, Atten= 87%, Lag= 58.7 min
Primary   =   5.16 cfs @ 13.10 hrs, Volume=   194,852 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 113.00'   Surf.Area= 40,126 sf   Storage= 76,867 cf
Peak Elev= 115.75' @ 13.10 hrs   Surf.Area= 50,185 sf   Storage= 149,599 cf   (72,732 cf above start)
Flood Elev= 118.00'   Surf.Area= 55,508 sf   Storage= 223,353 cf   (146,486 cf above start)

Plug-Flow detention time= 1,379.6 min calculated for 117,965 cf (70% of inflow)
Center-of-Mass det. time= 726.3 min (1,539.6 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	104.00'	76,867 cf	**PPV (Prismatic)**Listed below (Recalc)
#2	113.00'	146,486 cf	**CPV (Prismatic)**Listed below (Recalc)
		223,353 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
104.00	1,582	0	0
106.00	7,359	8,941	8,941
108.00	10,554	17,913	26,854
110.00	1,180	11,734	38,588
112.00	18,045	19,225	57,813
113.00	20,063	19,054	76,867

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
113.00	20,063	0	0
113.80	25,720	18,313	18,313
114.00	26,160	5,188	23,501
116.00	30,690	56,850	80,351
118.00	35,445	66,135	146,486

Device	Routing	Invert	Outlet Devices
#1	Primary	110.40'	**36.0" Round Outlet** L= 53.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.40' / 106.00' S= 0.0830 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	110.50'	**4.0" Vert. Orifice** C= 0.600
#3	Device 2	110.50'	**6.0" Round 6" UD Trench** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 110.50' / 110.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#4	Device 1	115.50'	**1.0" x 9.0" Horiz. Grate at OCS-2 X 28.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	116.30'	**25.0' long x 8.0' breadth Broad-Crested Rectangular Weir**

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Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
2.50 3.00 3.50 4.00 4.50 5.00 5.50
Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64
2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=5.16 cfs @ 13.10 hrs HW=115.75' TW=95.08'   (Dynamic Tailwater)
└─**1=Outlet** (Passes 5.16 cfs of 52.72 cfs potential flow)
 └─**2=Orifice** (Orifice Controls 0.95 cfs @ 10.86 fps)
  └─**3=6" UD Trench** (Passes 0.95 cfs of 1.29 cfs potential flow)
 └─**4=Grate at OCS-2** (Orifice Controls 4.21 cfs @ 2.40 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.00' TW=94.11'   (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Pond 19P: Wet Pond 2

Hydrograph
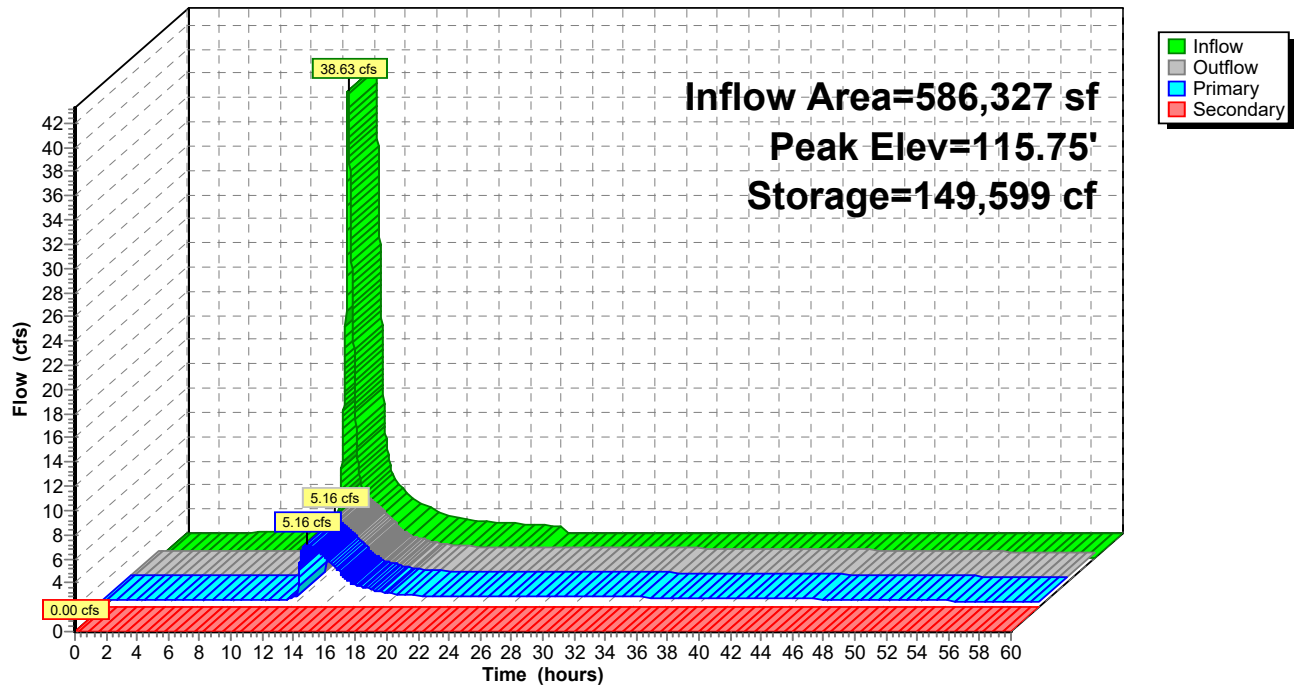
Inflow Area=586,327 sf
Peak Elev=115.75'
Storage=149,599 cf

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Summary for Pond 20.2P: UDSF-1

Inflow Area =   37,951 sf, 76.96% Impervious, Inflow Depth = 4.96"   for 25 year event
Inflow   =   4.53 cfs @ 12.08 hrs, Volume=   15,674 cf
Outflow   =   1.92 cfs @ 12.28 hrs, Volume=   14,541 cf, Atten= 58%, Lag= 11.8 min
Primary   =   0.05 cfs @ 12.28 hrs, Volume=   9,207 cf
Secondary =   1.87 cfs @ 12.28 hrs, Volume=   5,334 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 144.62' @ 12.28 hrs Surf.Area= 3,801 sf Storage= 7,583 cf
Flood Elev= 145.00' Surf.Area= 4,113 sf Storage= 9,105 cf

Plug-Flow detention time= 796.1 min calculated for 14,541 cf (93% of inflow)
Center-of-Mass det. time= 756.8 min (1,516.3 - 759.5)

Volume	Invert	Avail.Storage	Storage Description
#1	140.33'	9,105 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.33	2,113	0.0	0	0
140.34	2,113	30.0	6	6
142.49	2,113	30.0	1,363	1,369
142.50	2,113	100.0	21	1,390
143.00	2,438	100.0	1,138	2,528
144.00	3,301	100.0	2,870	5,398
145.00	4,113	100.0	3,707	9,105

Device	Routing	Invert	Outlet Devices
#1	Primary	140.20'	**6.0" Round UD Outlet Pipe** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 140.20' / 140.00' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	140.30'	**1.0" Vert. Orifice** C= 0.600
#3	Secondary	144.50'	**20.0' long x 4.0' breadth Emergency Overflow Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.05 cfs @ 12.28 hrs HW=144.62' TW=118.60'   (Dynamic Tailwater)
└─**1=UD Outlet Pipe** (Passes 0.05 cfs of 1.48 cfs potential flow)
  └─**2=Orifice** (Orifice Controls 0.05 cfs @ 9.95 fps)

Secondary OutFlow Max=1.87 cfs @ 12.28 hrs HW=144.62' TW=118.60'   (Dynamic Tailwater)
└─**3=Emergency Overflow Spillway** (Weir Controls 1.87 cfs @ 0.81 fps)

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Pond 20.2P: UDSF-1

Hydrograph
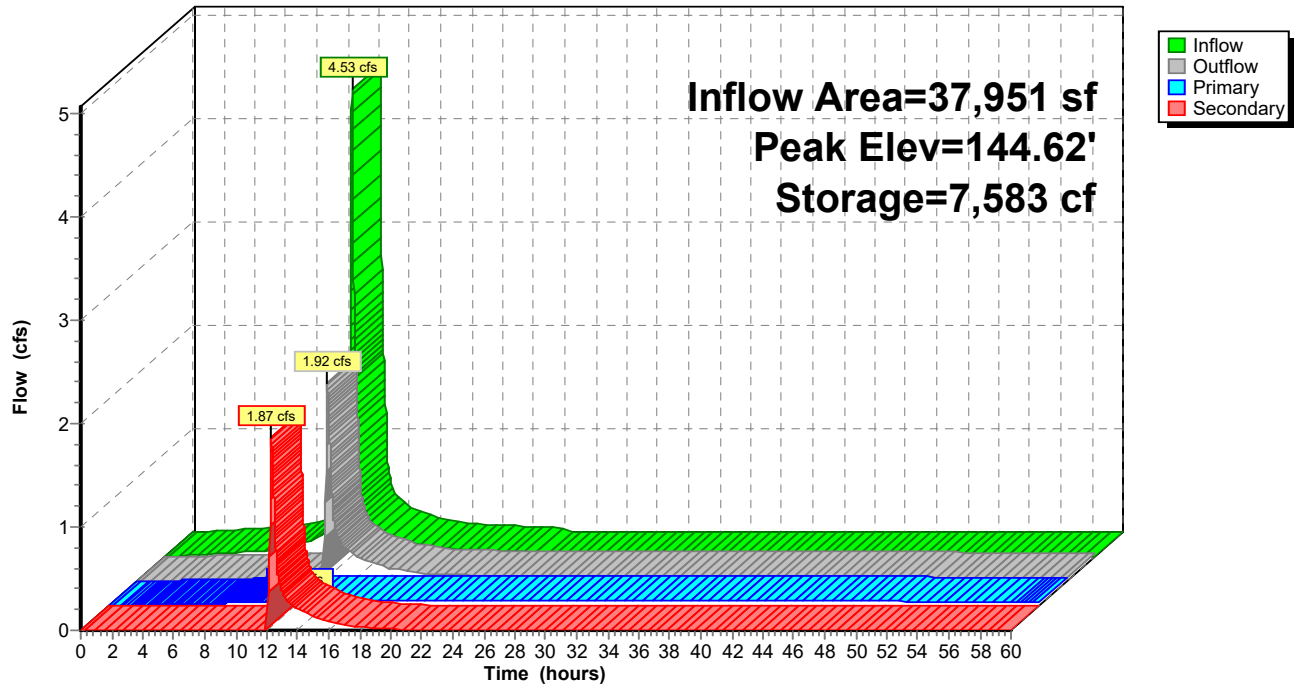
Inflow Area=37,951 sf
Peak Elev=144.62'
Storage=7,583 cf

Legend:
- Inflow
- Outflow
- Primary
- Secondary

4.53 cfs
1.92 cfs
1.87 cfs

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Summary for Pond 20P: CB-27

Inflow Area =   31,386 sf, 49.51% Impervious, Inflow Depth = 3.50"   for 25 year event
Inflow   =   2.95 cfs @ 12.09 hrs, Volume=   9,158 cf
Outflow   =   2.95 cfs @ 12.09 hrs, Volume=   9,158 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.95 cfs @ 12.09 hrs, Volume=   9,158 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 142.20' @ 12.10 hrs
Flood Elev= 146.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	140.90'	**18.0" Round Stormdrain** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.90' / 140.34' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.79 cfs @ 12.09 hrs HW=142.18' TW=141.90'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 2.79 cfs @ 2.35 fps)

Pond 20P: CB-27

Hydrograph
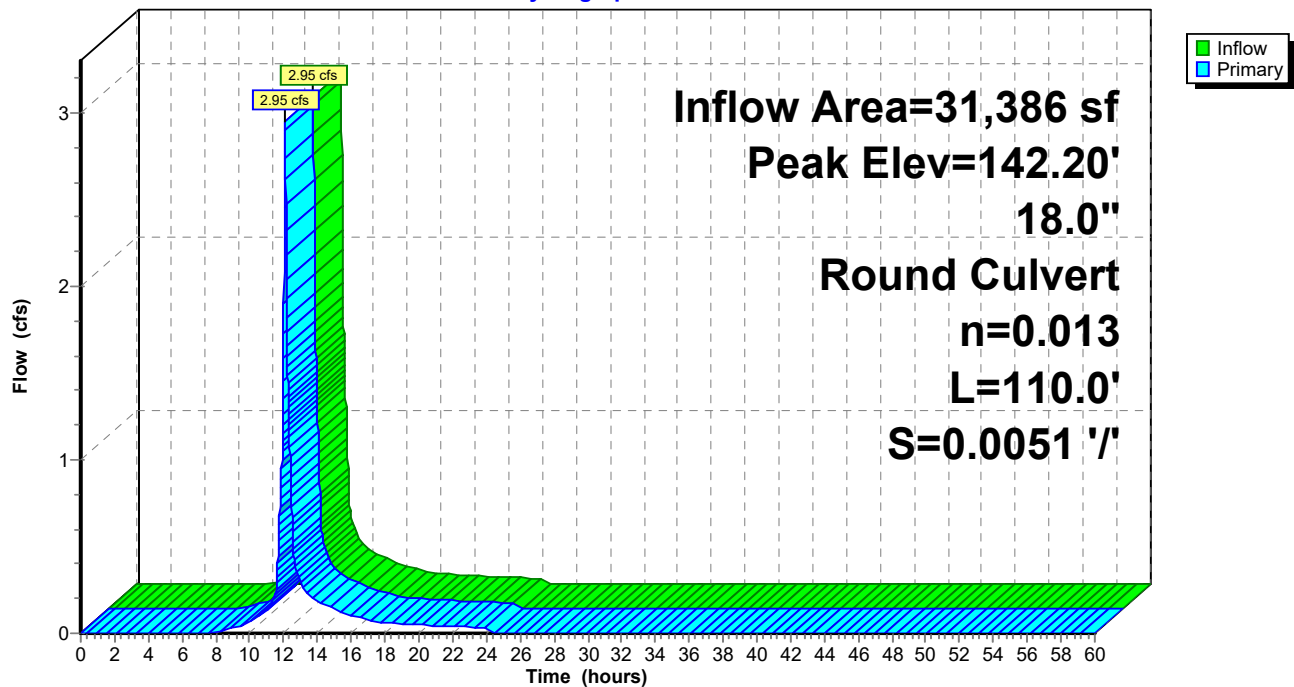
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Summary for Pond 21P: CB-38

Inflow Area =   237,481 sf, 45.95% Impervious, Inflow Depth = 3.64"   for 25 year event
Inflow   =   18.22 cfs @ 12.10 hrs, Volume=   71,982 cf
Outflow   =   18.22 cfs @ 12.10 hrs, Volume=   71,982 cf, Atten= 0%, Lag= 0.0 min
Primary   =   18.22 cfs @ 12.10 hrs, Volume=   71,982 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 138.48' @ 12.11 hrs
Flood Elev= 144.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	134.90'	**24.0" Round Stormdrain** L= 138.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.90' / 133.52' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.89 cfs @ 12.10 hrs HW=138.42' TW=136.80'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 17.89 cfs @ 5.69 fps)

Pond 21P: CB-38

Hydrograph
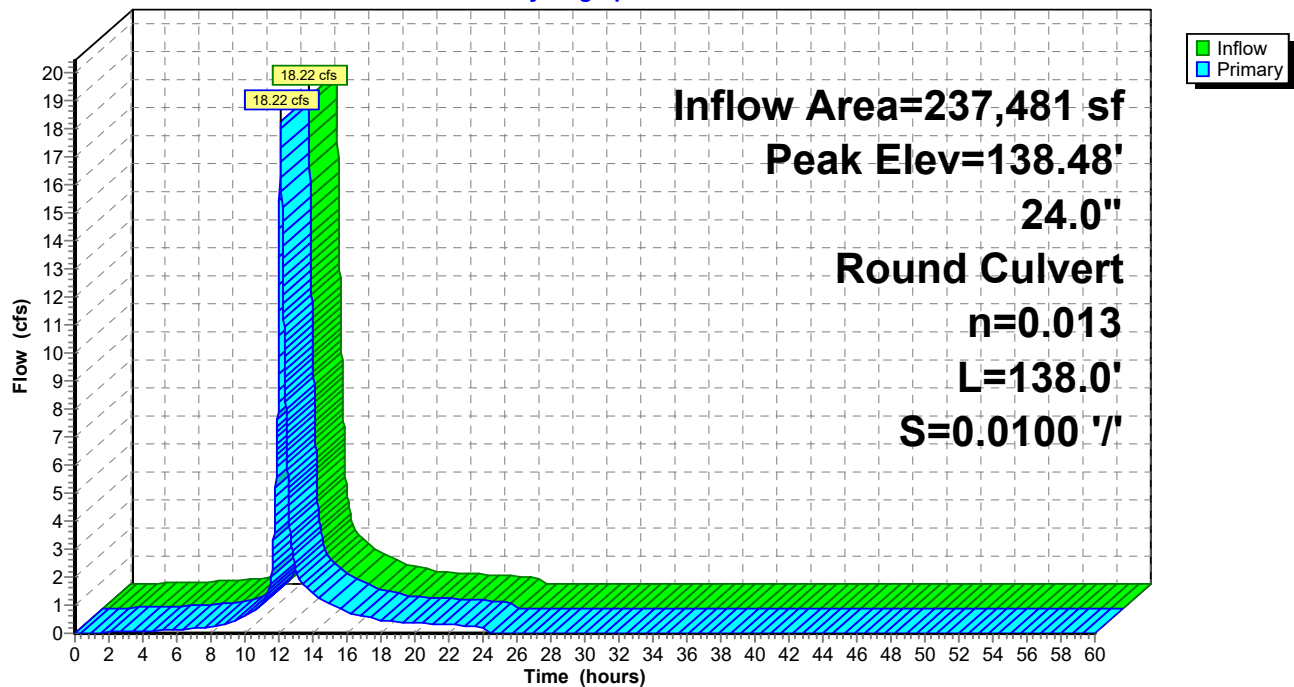
Inflow Area=237,481 sf
Peak Elev=138.48'
24.0"
Round Culvert
n=0.013
L=138.0'
S=0.0100 '/'

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Summary for Pond 22P: CB-23

Inflow Area =   186,544 sf, 51.47% Impervious, Inflow Depth =   3.70"   for 25 year event
Inflow   =   13.72 cfs @ 12.11 hrs, Volume=   57,538 cf
Outflow   =   13.72 cfs @ 12.11 hrs, Volume=   57,538 cf, Atten= 0%, Lag= 0.0 min
Primary   =   13.72 cfs @ 12.11 hrs, Volume=   57,538 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 140.34' @ 12.12 hrs
Flood Elev= 145.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.00'	**12.0" Round Stormdrain X 3.00** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.00' / 135.00' S= 0.0149 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=13.24 cfs @ 12.11 hrs HW=140.21' TW=138.44'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 13.24 cfs @ 5.62 fps)

Pond 22P: CB-23

Hydrograph
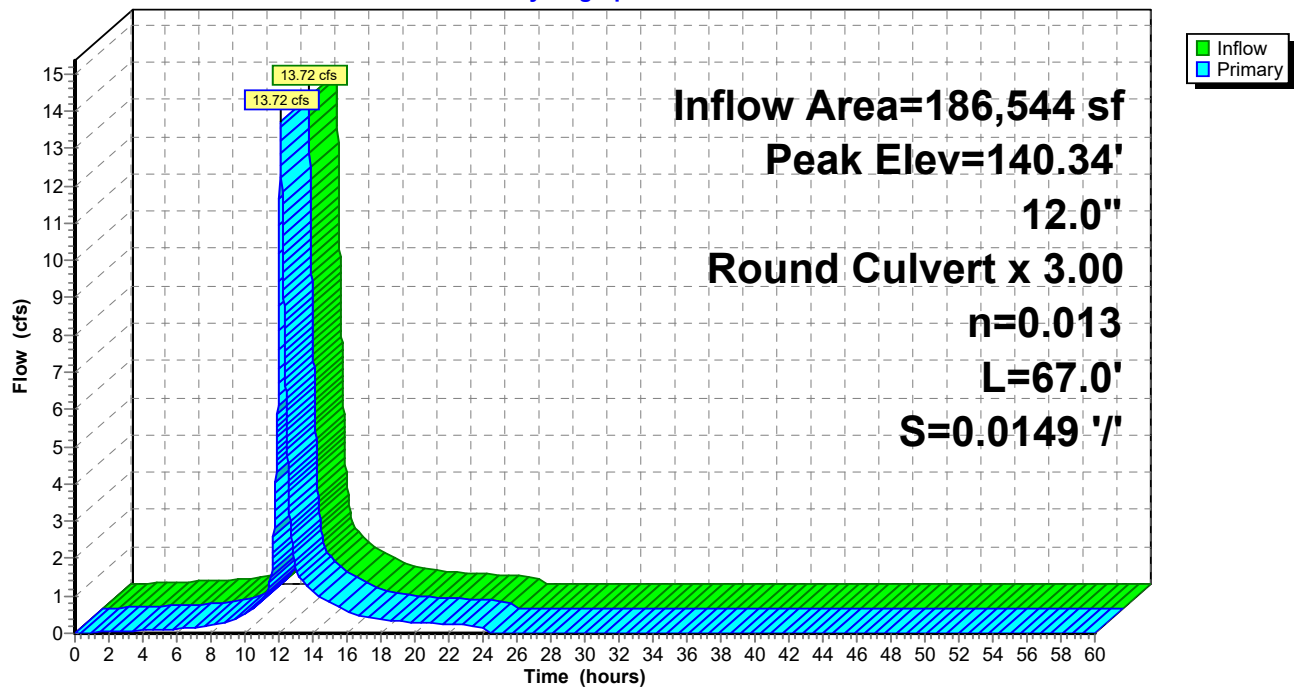
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Summary for Pond 23P: CB-18

Inflow Area =		19,528 sf, 47.87% Impervious, Inflow Depth = 3.50" for 25 year event	
Inflow	=	1.58 cfs @ 12.15 hrs, Volume=	5,698 cf
Outflow	=	1.58 cfs @ 12.15 hrs, Volume=	5,698 cf, Atten= 0%, Lag= 0.0 min
Primary	=	1.58 cfs @ 12.15 hrs, Volume=	5,698 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 145.91' @ 12.14 hrs
Flood Elev= 147.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	140.77'	**8.0" Round Stormdrain** L= 185.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.77' / 138.46' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.62 cfs @ 12.15 hrs HW=145.83' TW=141.97'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 1.62 cfs @ 4.65 fps)

Pond 23P: CB-18
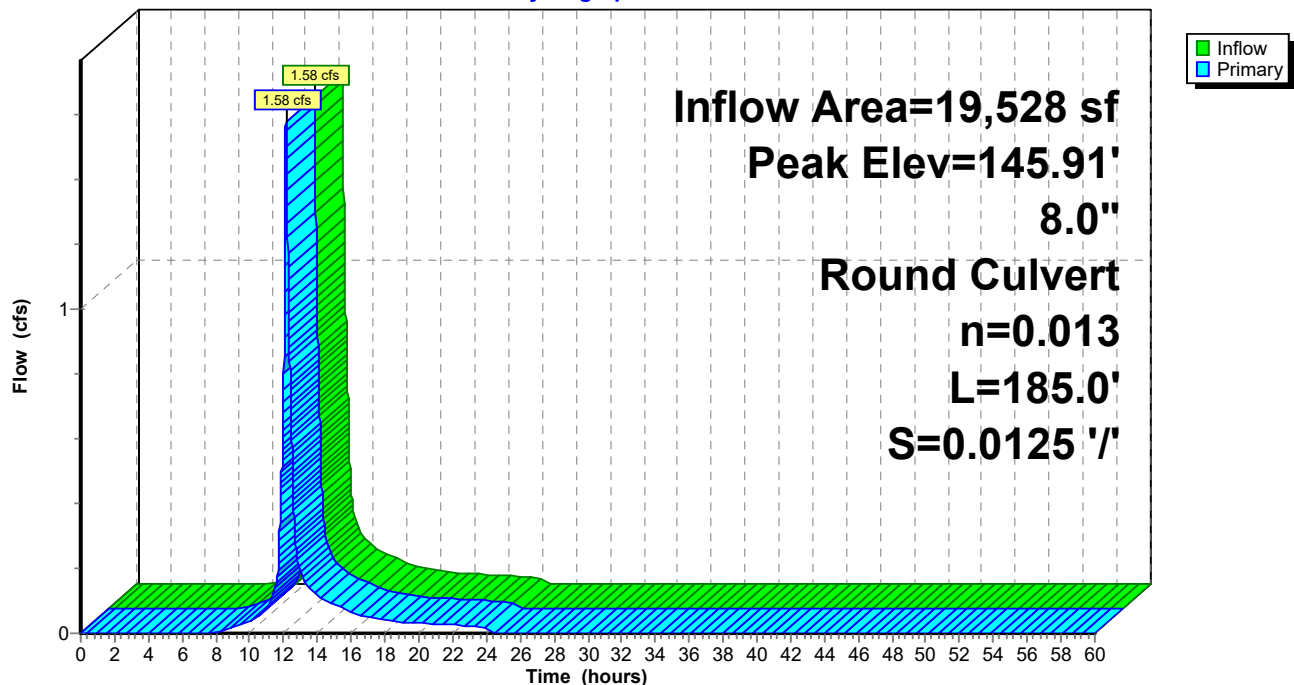
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Summary for Pond 24P: CB-7

Inflow Area =   27,885 sf, 32.28% Impervious, Inflow Depth = 2.98"   for 25 year event
Inflow   =   1.77 cfs @   12.12 hrs, Volume=   6,932 cf
Outflow   =   1.77 cfs @   12.12 hrs, Volume=   6,932 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.77 cfs @   12.12 hrs, Volume=   6,932 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 143.47' @ 12.12 hrs
Flood Elev= 146.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.75'	**12.0" Round Stormdrain**
			L= 81.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 142.75' / 139.83' S= 0.0360 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.77 cfs @ 12.12 hrs HW=143.47' TW=140.74'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.77 cfs @ 2.90 fps)

Pond 24P: CB-7

Hydrograph
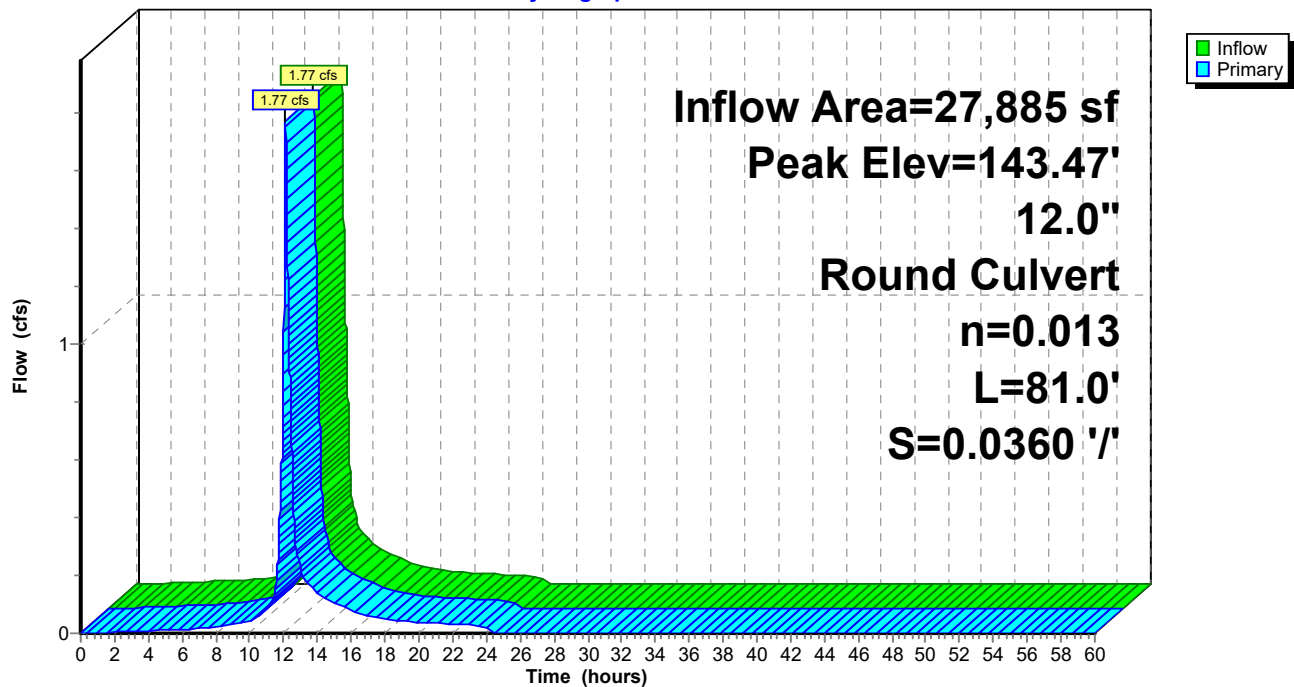
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Summary for Pond 26P: CB-8

Inflow Area = 52,513 sf, 31.38% Impervious, Inflow Depth = 2.97"   for 25 year event
Inflow   =   3.02 cfs @ 12.11 hrs, Volume=   13,013 cf
Outflow   =   3.02 cfs @ 12.11 hrs, Volume=   13,013 cf, Atten= 0%, Lag= 0.0 min
Primary   =   3.02 cfs @ 12.11 hrs, Volume=   13,013 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 140.79' @ 12.13 hrs
Flood Elev= 144.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	139.73'	**15.0" Round Stormdrain** L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 139.73' / 138.00' S= 0.0481 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.62 cfs @ 12.11 hrs HW=140.72' TW=140.31'   (Dynamic Tailwater)
└—**1=Stormdrain** (Outlet Controls 2.62 cfs @ 3.45 fps)

Pond 26P: CB-8

Hydrograph
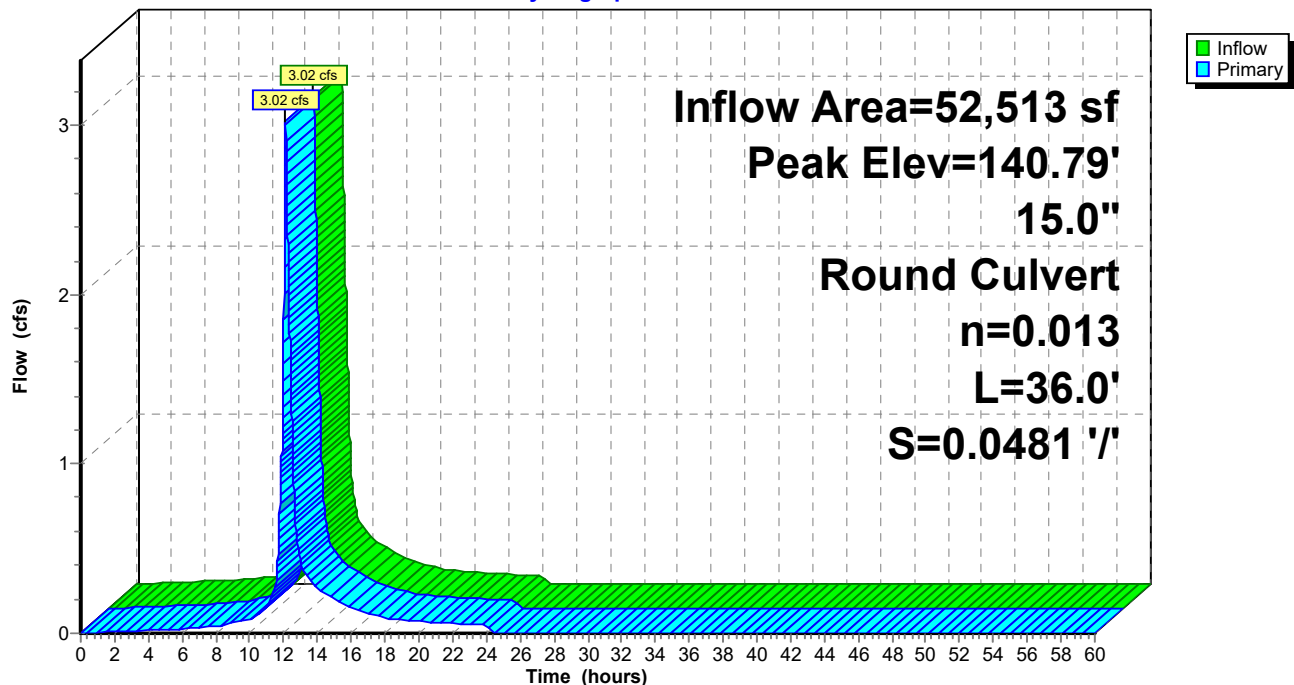
Inflow Area=52,513 sf
Peak Elev=140.79'
15.0"
Round Culvert
n=0.013
L=36.0'
S=0.0481 '/'

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Summary for Pond 27P: DMH-27

Inflow Area =   13,568 sf,100.00% Impervious, Inflow Depth =   5.56"   for 25 year event
Inflow   =   1.77 cfs @   12.08 hrs, Volume=   6,289 cf
Outflow   =   1.77 cfs @   12.08 hrs, Volume=   6,289 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.77 cfs @   12.08 hrs, Volume=   6,289 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 144.26' @ 12.08 hrs
Flood Elev= 148.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.82'	**8.0" Round Stormdrain** L= 185.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 142.82' / 133.52' S= 0.0503 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.77 cfs @ 12.08 hrs HW=144.26' TW=136.59'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.77 cfs @ 5.06 fps)

Pond 27P: DMH-27

Hydrograph
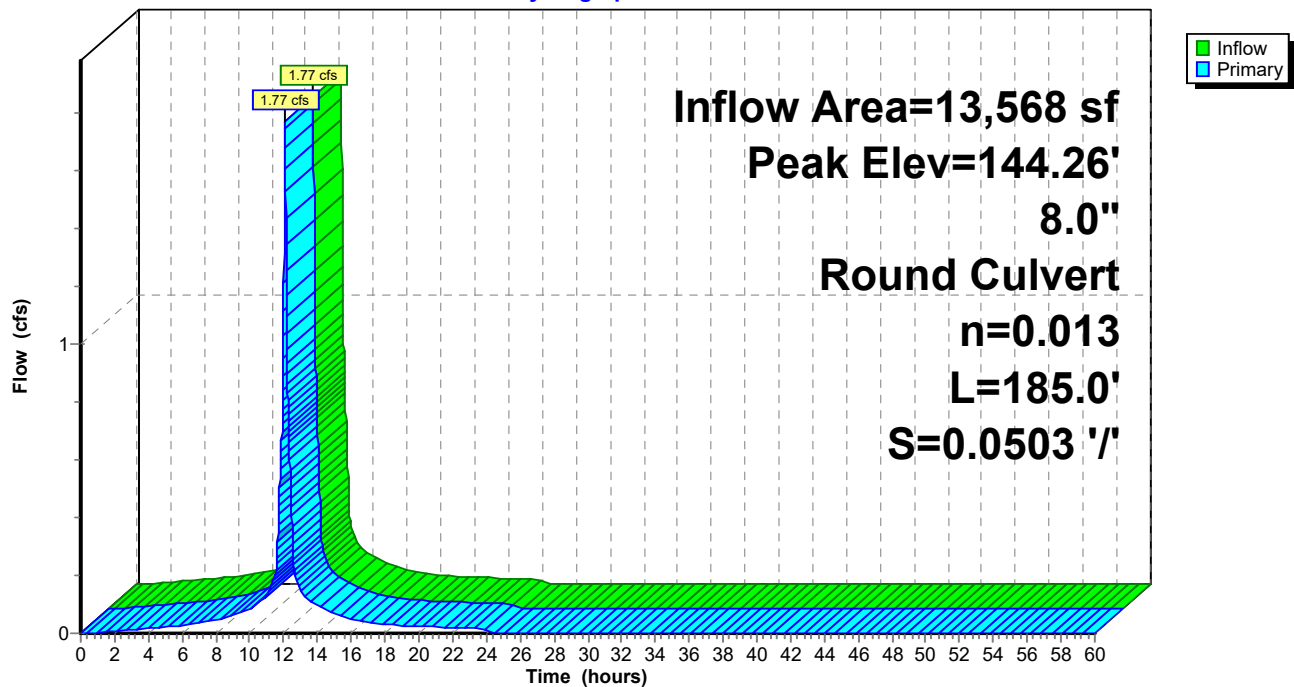
Inflow Area=13,568 sf
Peak Elev=144.26'
8.0"
Round Culvert
n=0.013
L=185.0'
S=0.0503 '/'

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Summary for Pond 28P: DMH-20

Inflow Area =   152,586 sf, 42.11% Impervious, Inflow Depth =   3.36"   for 25 year event
Inflow   =   10.65 cfs @ 12.10 hrs, Volume=   42,755 cf
Outflow   =   10.65 cfs @ 12.10 hrs, Volume=   42,755 cf, Atten= 0%, Lag= 0.0 min
Primary   =   10.65 cfs @ 12.10 hrs, Volume=   42,755 cf

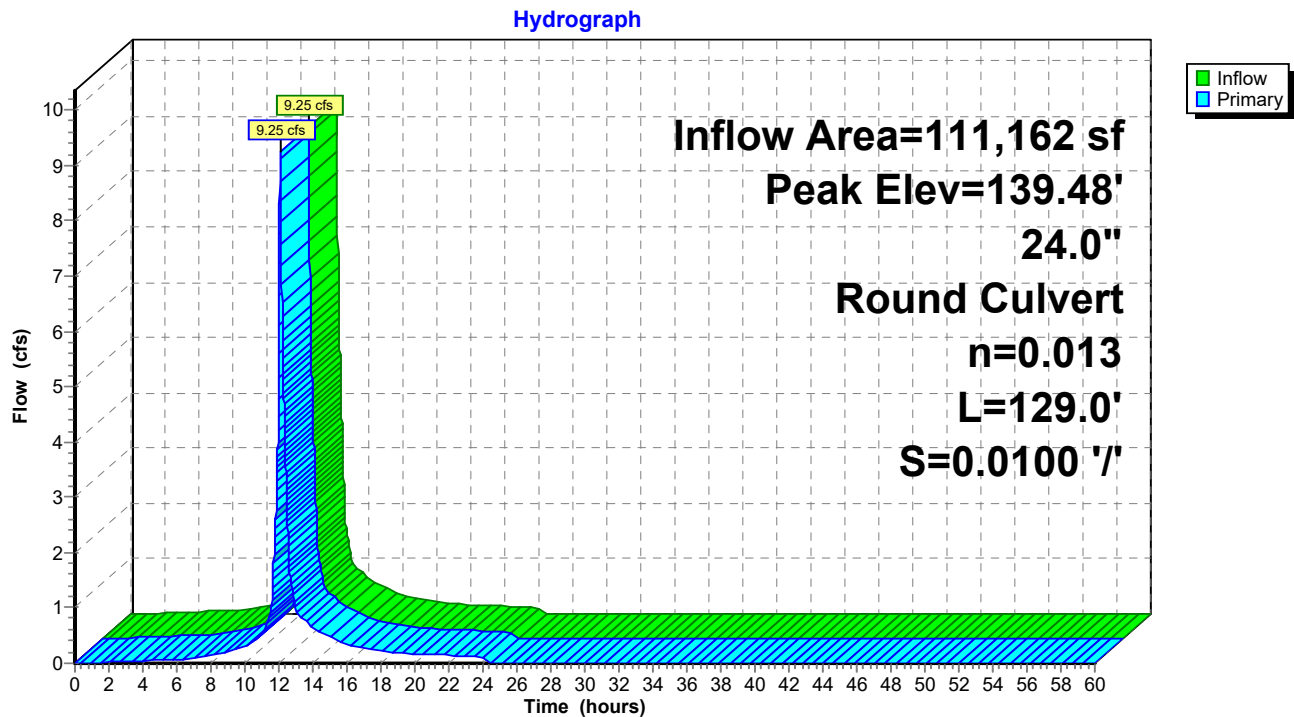Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 137.69' @ 12.10 hrs
Flood Elev= 144.37'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.18'	**24.0" Round Stormdrain** L= 194.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.18' / 120.00' S= 0.0834 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.63 cfs @ 12.10 hrs HW=137.69' TW=117.64'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 10.63 cfs @ 4.18 fps)

Pond 28P: DMH-20

Hydrograph
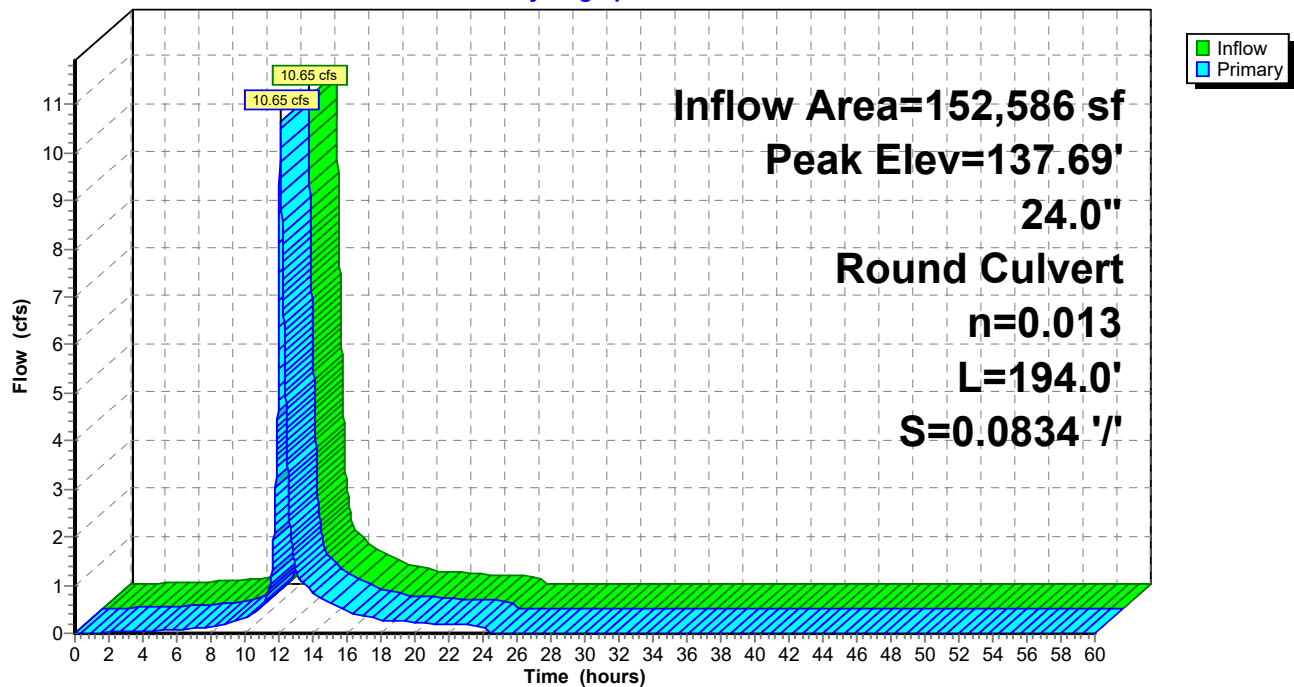
Inflow Area=152,586 sf
Peak Elev=137.69'
24.0"
Round Culvert
n=0.013
L=194.0'
S=0.0834 '/'

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Summary for Pond 29P: DMH-25

Inflow Area =   152,586 sf, 42.11% Impervious, Inflow Depth = 3.36"   for 25 year event
Inflow   =   10.65 cfs @ 12.10 hrs, Volume=   42,755 cf
Outflow   =   10.65 cfs @ 12.10 hrs, Volume=   42,755 cf, Atten= 0%, Lag= 0.0 min
Primary   =   10.65 cfs @ 12.10 hrs, Volume=   42,755 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 138.18' @ 12.10 hrs
Flood Elev= 145.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.65'	**12.0" Round Stormdrain X 4.00** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.65' / 136.28' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=10.57 cfs @ 12.10 hrs HW=138.18' TW=137.69'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 10.57 cfs @ 3.36 fps)

Pond 29P: DMH-25

Hydrograph
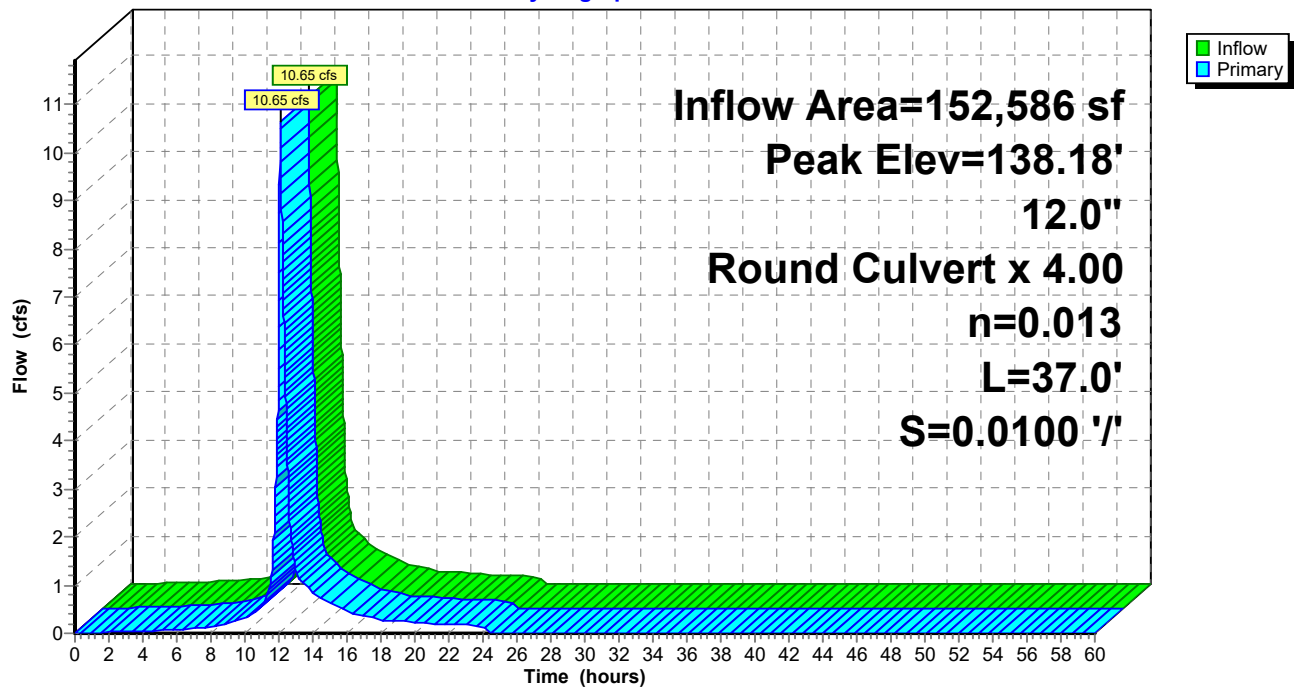
Inflow Area=152,586 sf
Peak Elev=138.18'
12.0"
Round Culvert x 4.00
n=0.013
L=37.0'
S=0.0100 '/'

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Summary for Pond 30P: DMH-14

Inflow Area =   111,162 sf, 51.07% Impervious, Inflow Depth = 3.70"   for 25 year event
Inflow   =   9.25 cfs @ 12.09 hrs, Volume=   34,235 cf
Outflow   =   9.25 cfs @ 12.09 hrs, Volume=   34,235 cf, Atten= 0%, Lag= 0.0 min
Primary   =   9.25 cfs @ 12.09 hrs, Volume=   34,235 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 139.48' @ 12.10 hrs
Flood Elev= 145.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	138.04'	**24.0" Round Stormdrain** L= 129.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 138.04' / 136.75' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.10 cfs @ 12.09 hrs HW=139.47' TW=138.16'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 9.10 cfs @ 5.29 fps)

Pond 30P: DMH-14

Hydrograph

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Summary for Pond 31P: RD-1 Bldg 6

Inflow Area =   16,743 sf,100.00% Impervious, Inflow Depth =   5.56"   for 25 year event
Inflow   =   2.18 cfs @   12.08 hrs, Volume=   7,761 cf
Outflow   =   2.18 cfs @   12.08 hrs, Volume=   7,761 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.18 cfs @   12.08 hrs, Volume=   7,761 cf

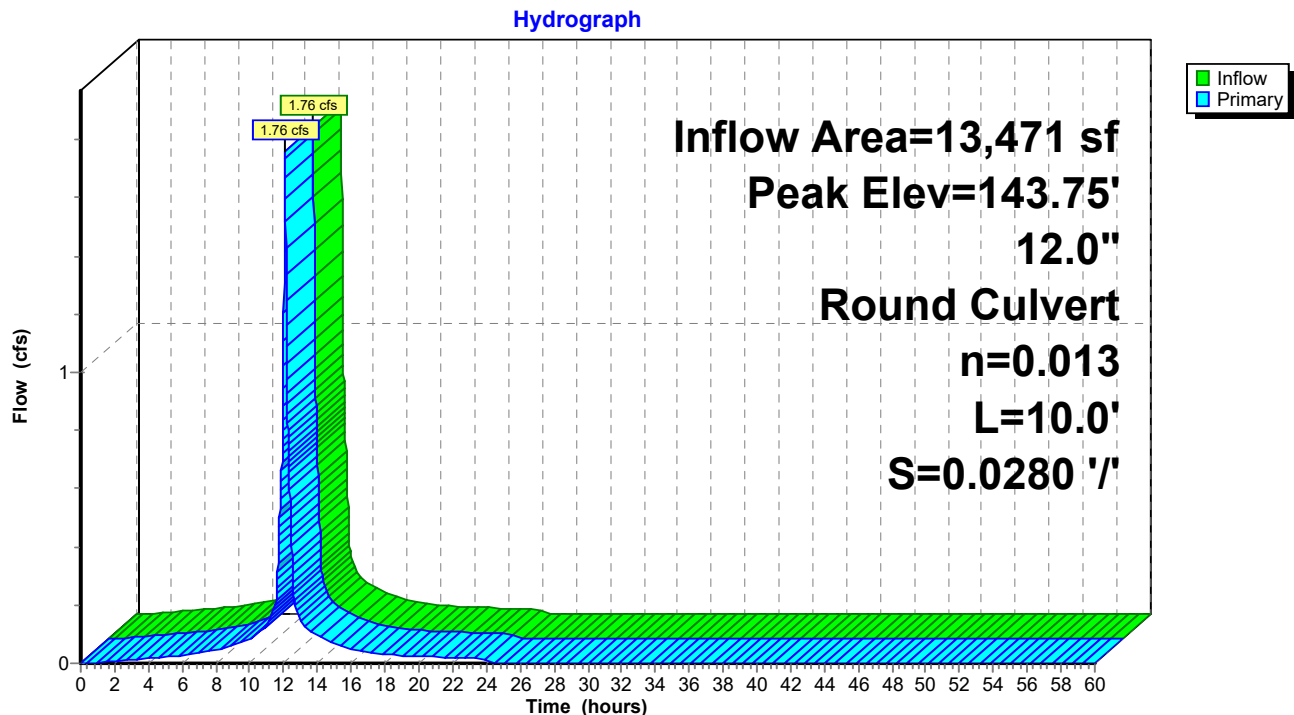Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 143.34' @ 12.08 hrs
Flood Elev= 148.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.50'	**12.0" Round Stormdrain** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 142.50' / 140.04' S= 0.0769 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.18 cfs @ 12.08 hrs HW=143.34' TW=139.46'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 2.18 cfs @ 3.11 fps)

Pond 31P: RD-1 Bldg 6
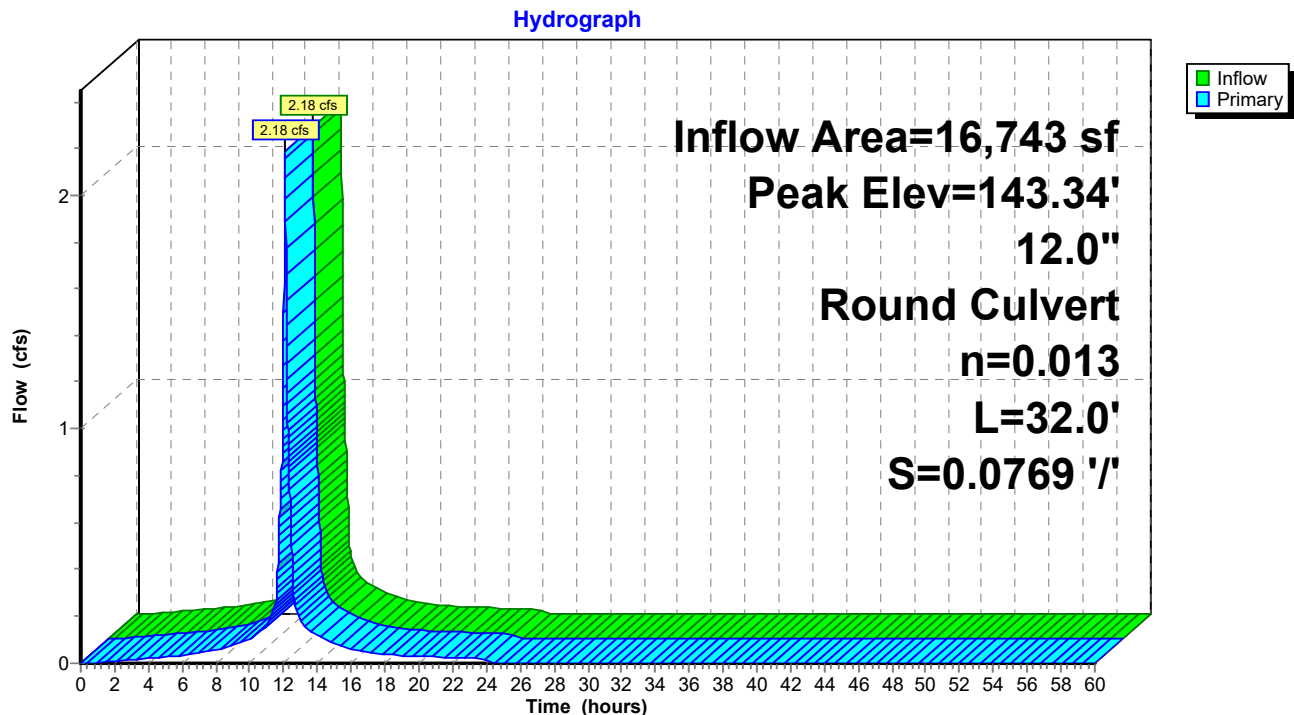
Hydrograph

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Summary for Pond 32P: CB-30

Inflow Area =   94,419 sf, 42.39% Impervious, Inflow Depth = 3.36"   for 25 year event
Inflow   =   7.07 cfs @   12.09 hrs, Volume=   26,474 cf
Outflow   =   7.07 cfs @   12.09 hrs, Volume=   26,474 cf, Atten= 0%, Lag= 0.0 min
Primary   =   7.07 cfs @   12.09 hrs, Volume=   26,474 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 140.78' @ 12.10 hrs
Flood Elev= 144.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	139.11'	**18.0" Round Stormdrain** L= 191.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 139.11' / 138.14' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.02 cfs @ 12.09 hrs HW=140.77' TW=139.48'   (Dynamic Tailwater)
└—**1=Stormdrain** (Outlet Controls 7.02 cfs @ 4.47 fps)

Pond 32P: CB-30

Hydrograph
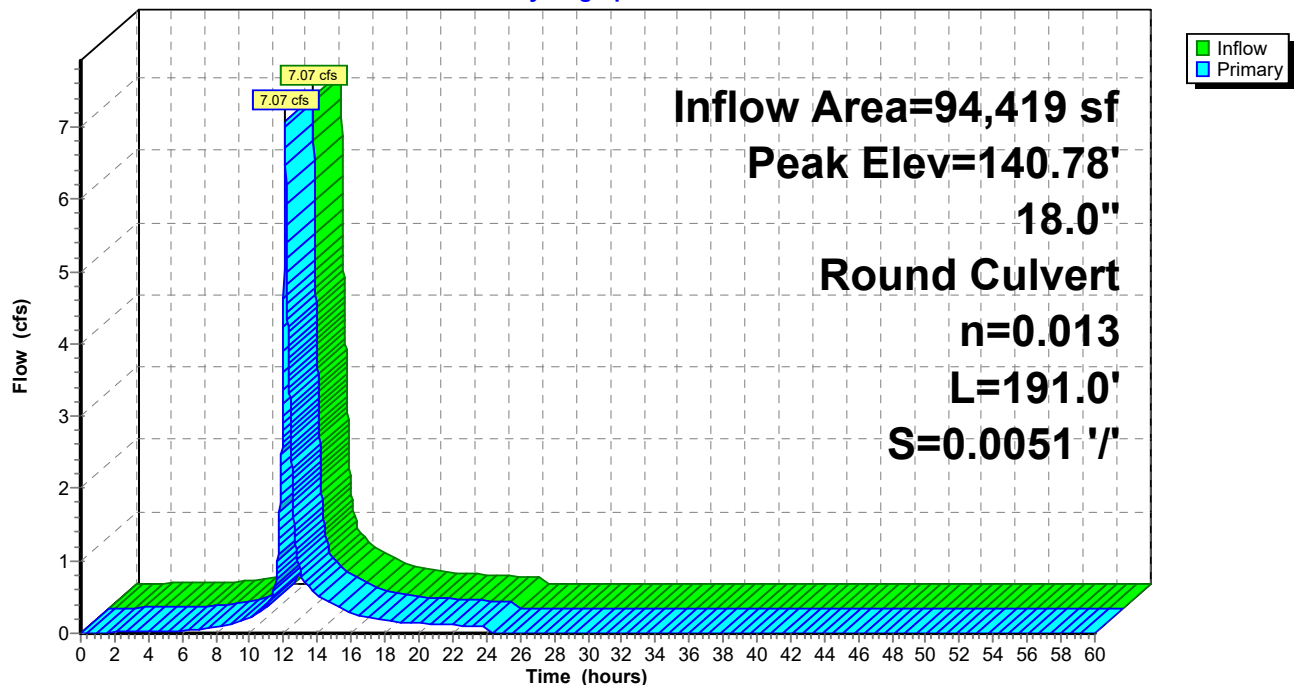
Inflow Area=94,419 sf
Peak Elev=140.78'
18.0"
Round Culvert
n=0.013
L=191.0'
S=0.0051 '/'

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Summary for Pond 33P: RD-2 Bldg 6

Inflow Area =		13,471 sf,100.00% Impervious,	Inflow Depth = 5.56"	for 25 year event
Inflow	=	1.76 cfs @ 12.08 hrs, Volume=	6,244 cf	
Outflow	=	1.76 cfs @ 12.08 hrs, Volume=	6,244 cf,	Atten= 0%, Lag= 0.0 min
Primary	=	1.76 cfs @ 12.08 hrs, Volume=	6,244 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 143.75' @ 12.09 hrs
Flood Elev= 148.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	143.00'	**12.0" Round Stormdrain**
			L= 10.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 143.00' / 142.72' S= 0.0280 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.75 cfs @ 12.08 hrs HW=143.75' TW=143.34' (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 1.75 cfs @ 3.84 fps)

Pond 33P: RD-2 Bldg 6

Hydrograph

Inflow Area=13,471 sf
Peak Elev=143.75'
12.0"
Round Culvert
n=0.013
L=10.0'
S=0.0280 '/'

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Summary for Pond 34P: DMH-16

Inflow Area =   13,471 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   1.76 cfs @ 12.08 hrs, Volume=   6,244 cf
Outflow   =   1.76 cfs @ 12.08 hrs, Volume=   6,244 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.76 cfs @ 12.08 hrs, Volume=   6,244 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 143.34' @ 12.08 hrs
Flood Elev= 147.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.62'	**12.0" Round Stormdrain** L= 126.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 142.62' / 133.00' S= 0.0763 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.75 cfs @ 12.08 hrs HW=143.34' TW=0.00'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.75 cfs @ 2.89 fps)

Pond 34P: DMH-16

Hydrograph
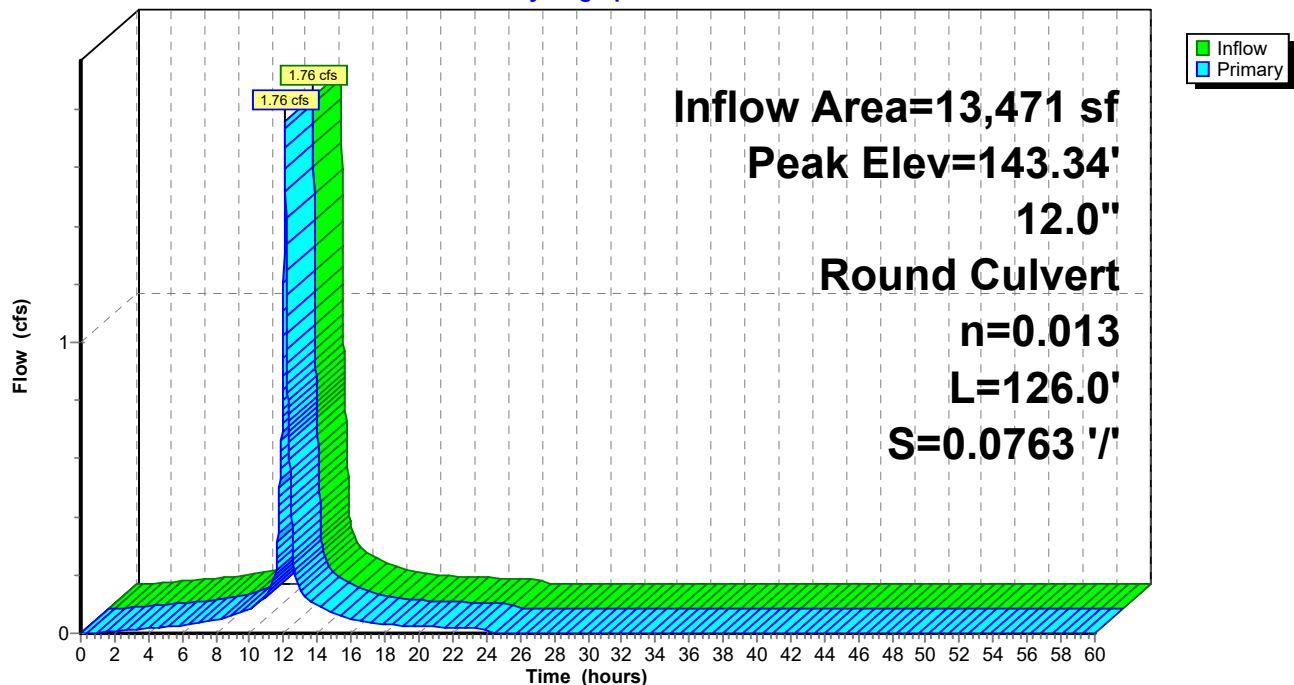
Inflow Area=13,471 sf
Peak Elev=143.34'
12.0"
Round Culvert
n=0.013
L=126.0'
S=0.0763 '/'

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Summary for Pond 35P: CB-12

Inflow Area =   57,408 sf, 50.64% Impervious, Inflow Depth =   3.66"   for 25 year event
Inflow   =   3.56 cfs @   12.12 hrs, Volume=   17,531 cf
Outflow   =   3.56 cfs @   12.12 hrs, Volume=   17,531 cf, Atten= 0%, Lag= 0.0 min
Primary   =   3.56 cfs @   12.12 hrs, Volume=   17,531 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 148.80' @ 12.12 hrs
Flood Elev= 151.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.65'	**15.0" Round Stormdrain** L= 126.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.65' / 146.36' S= 0.0102 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.58 cfs @ 12.12 hrs HW=148.80' TW=147.86'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 3.58 cfs @ 3.96 fps)

Pond 35P: CB-12

Hydrograph
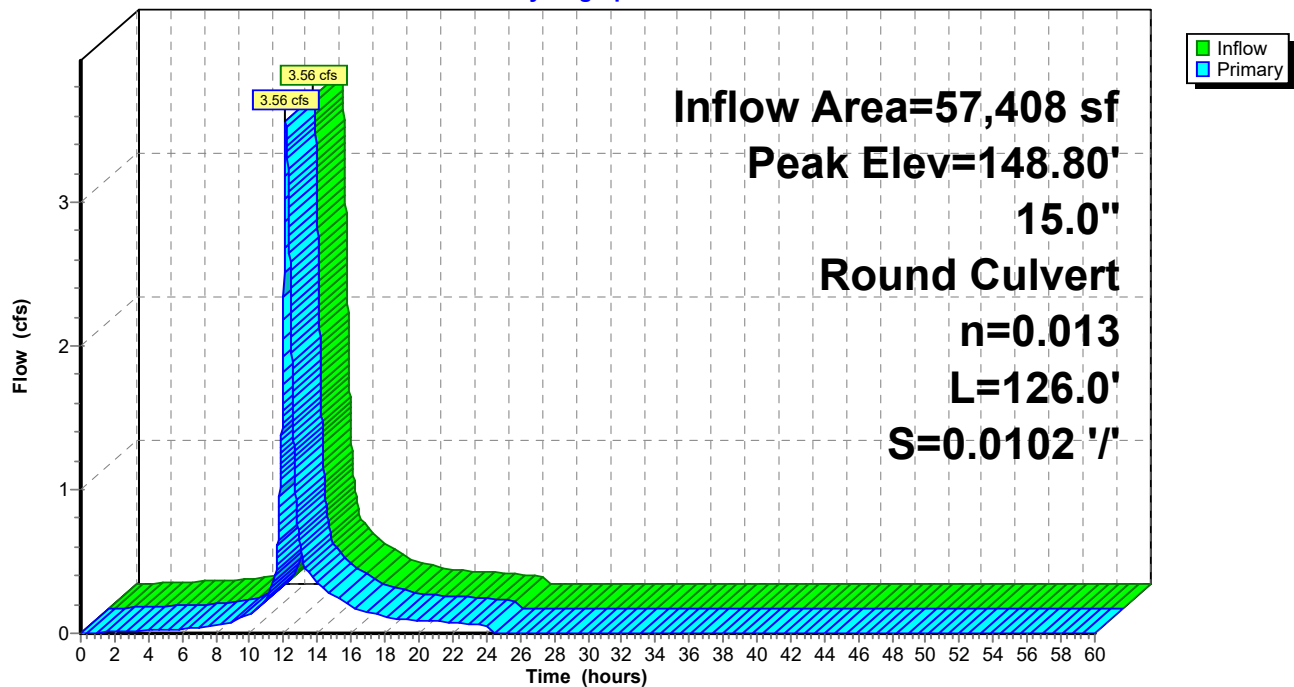
Inflow Area=57,408 sf
Peak Elev=148.80'
15.0"
Round Culvert
n=0.013
L=126.0'
S=0.0102 '/'

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Summary for Pond 36P: DMH-1

Inflow Area =   80,066 sf, 64.61% Impervious, Inflow Depth = 4.20"   for 25 year event
Inflow   =   6.44 cfs @ 12.09 hrs, Volume=   28,033 cf
Outflow   =   6.44 cfs @ 12.09 hrs, Volume=   28,033 cf, Atten= 0%, Lag= 0.0 min
Primary   =   6.44 cfs @ 12.09 hrs, Volume=   28,033 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.87' @ 12.11 hrs
Flood Elev= 152.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	146.26'	**18.0" Round Stormdrain** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.26' / 145.77' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.30 cfs @ 12.09 hrs HW=147.86' TW=147.27'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 6.30 cfs @ 4.16 fps)

Pond 36P: DMH-1

Hydrograph
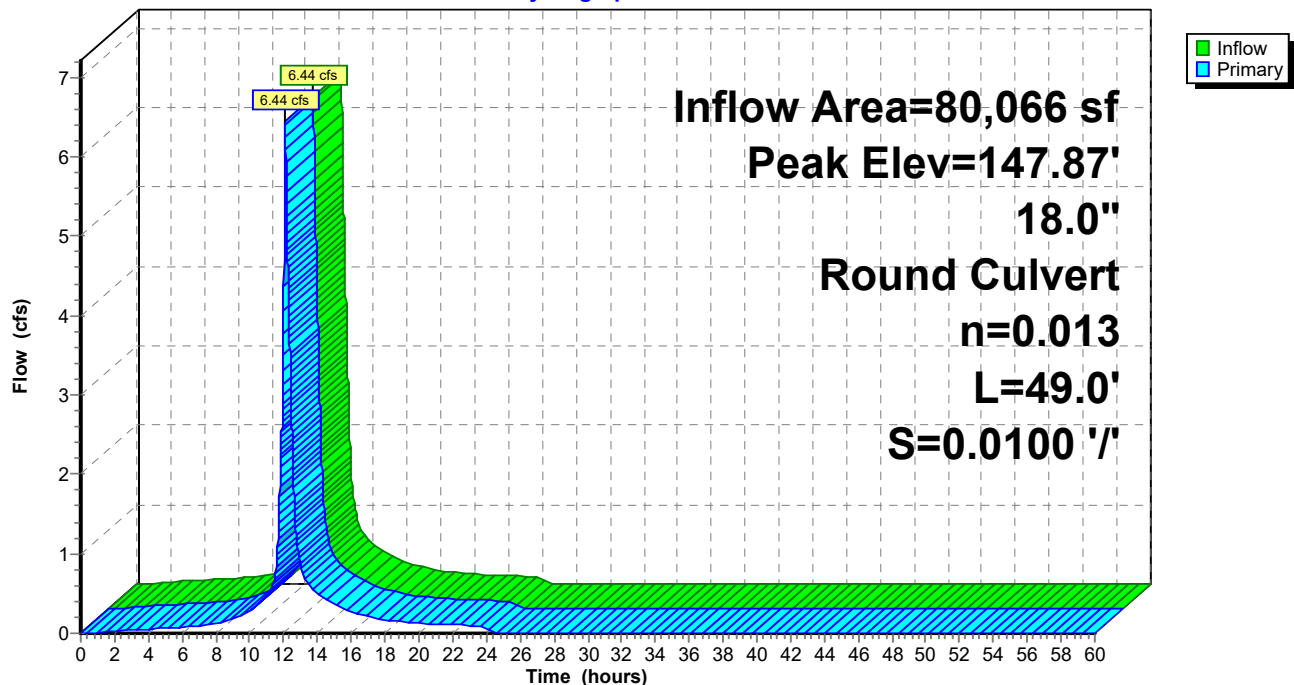
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Summary for Pond 37P: RD-1 Bldg 3

Inflow Area =   22,658 sf,100.00% Impervious, Inflow Depth =   5.56"   for 25 year event
Inflow   =   2.96 cfs @   12.08 hrs, Volume=   10,502 cf
Outflow   =   2.96 cfs @   12.08 hrs, Volume=   10,502 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.96 cfs @   12.08 hrs, Volume=   10,502 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 150.33' @ 12.08 hrs
Flood Elev= 155.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.22'	**12.0" Round Stormdrain** L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.22' / 146.36' S= 0.0403 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.95 cfs @ 12.08 hrs HW=150.33' TW=147.83'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 2.95 cfs @ 3.76 fps)

Pond 37P: RD-1 Bldg 3

Hydrograph
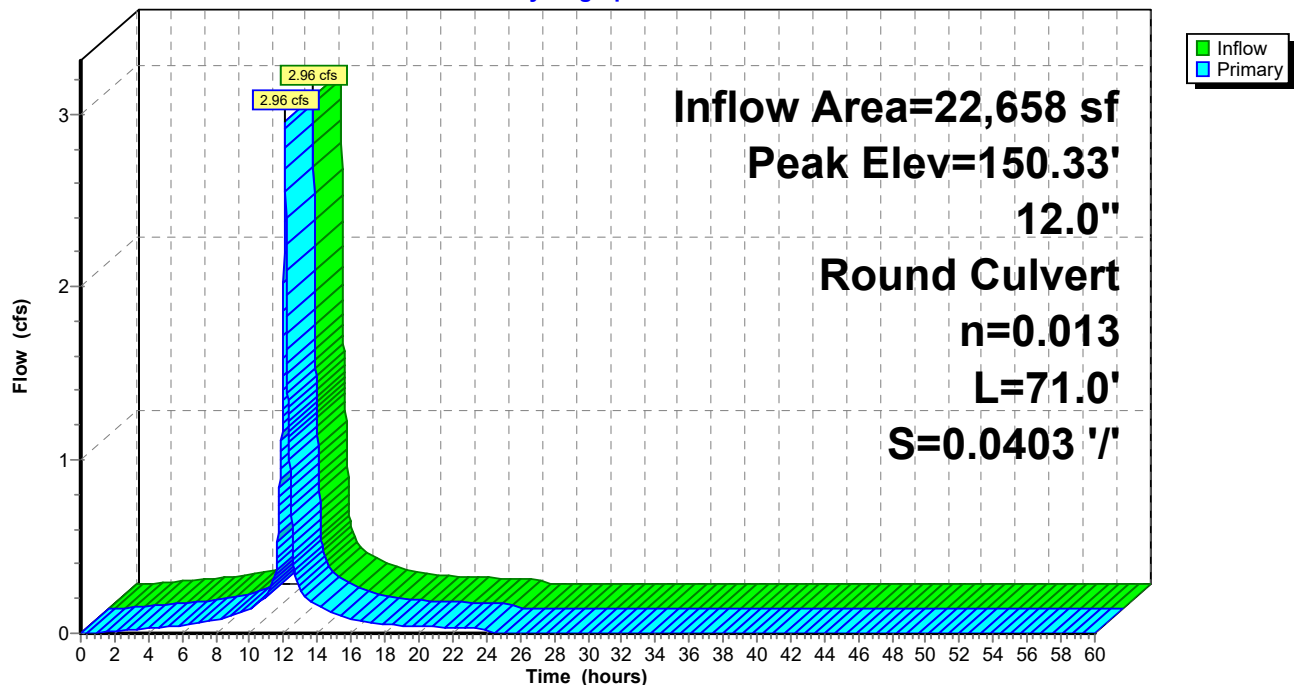
Inflow Area=22,658 sf
Peak Elev=150.33'
12.0"
Round Culvert
n=0.013
L=71.0'
S=0.0403 '/'

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Summary for Pond 38P: CB-13

Inflow Area =		22,703 sf,	29.63% Impervious,	Inflow Depth = 2.83"	for 25 year event
Inflow =	1.49 cfs @	12.15 hrs,	Volume=	5,355 cf	
Outflow =	1.49 cfs @	12.15 hrs,	Volume=	5,355 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.49 cfs @	12.15 hrs,	Volume=	5,355 cf	

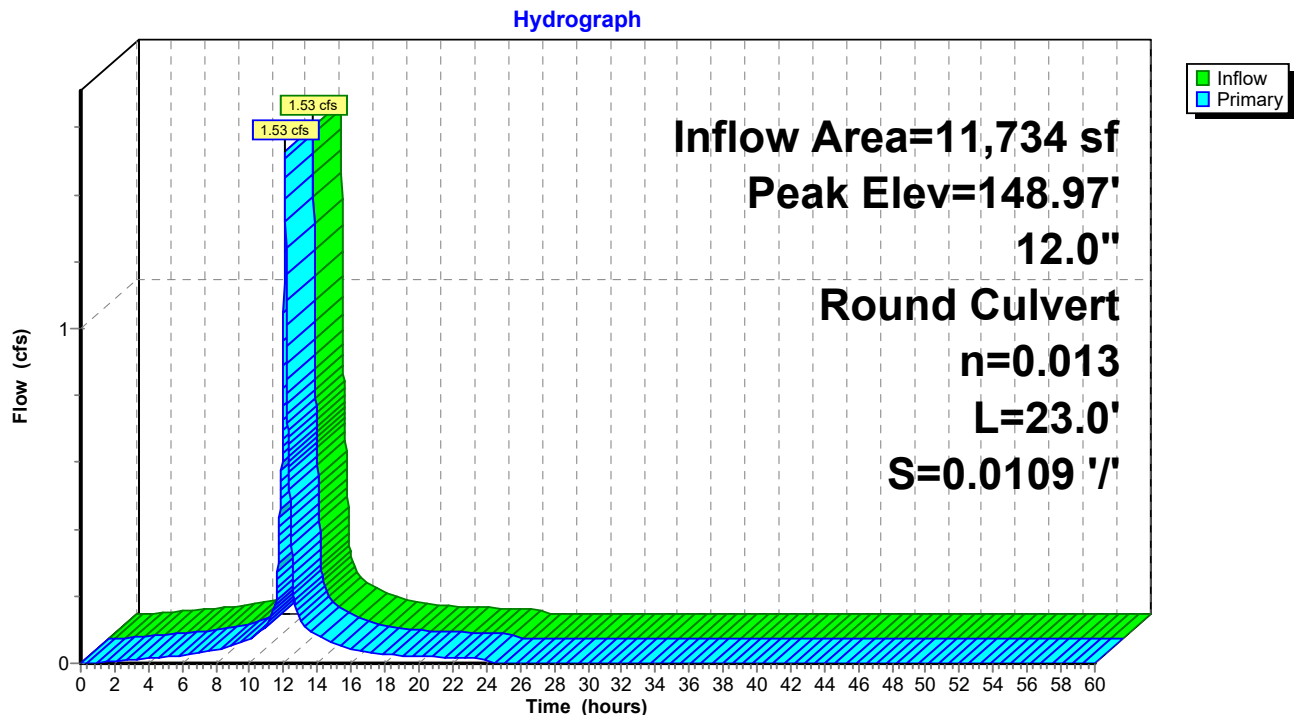Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.88' @ 12.12 hrs
Flood Elev= 151.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.90'	**12.0" Round Stormdrain** L= 29.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.90' / 145.22' S= 0.0234 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.62 cfs @ 12.15 hrs HW=146.85' TW=146.60' (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 1.62 cfs @ 2.71 fps)

Pond 38P: CB-13

Hydrograph
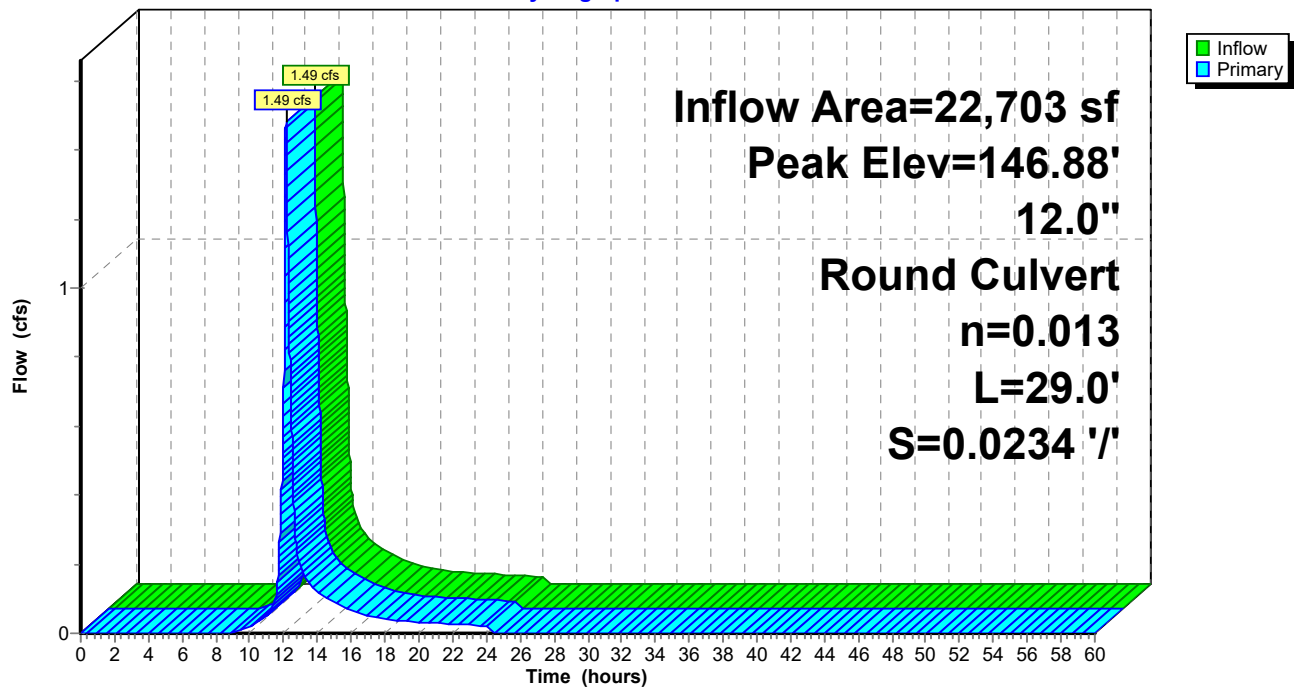
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Summary for Pond 40P: DMH-24

Inflow Area =   134,031 sf, 59.35% Impervious, Inflow Depth =   3.99"   for 25 year event
Inflow   =   10.71 cfs @   12.10 hrs, Volume=   44,525 cf
Outflow   =   10.71 cfs @   12.10 hrs, Volume=   44,525 cf, Atten= 0%, Lag= 0.0 min
Primary   =   10.71 cfs @   12.10 hrs, Volume=   44,525 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 142.27' @ 12.13 hrs
Flood Elev= 149.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	137.21'	**18.0" Round Stormdrain** L= 111.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 137.21' / 136.10' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.94 cfs @ 12.10 hrs HW=141.90' TW=140.17'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 9.94 cfs @ 5.62 fps)

Pond 40P: DMH-24

Hydrograph
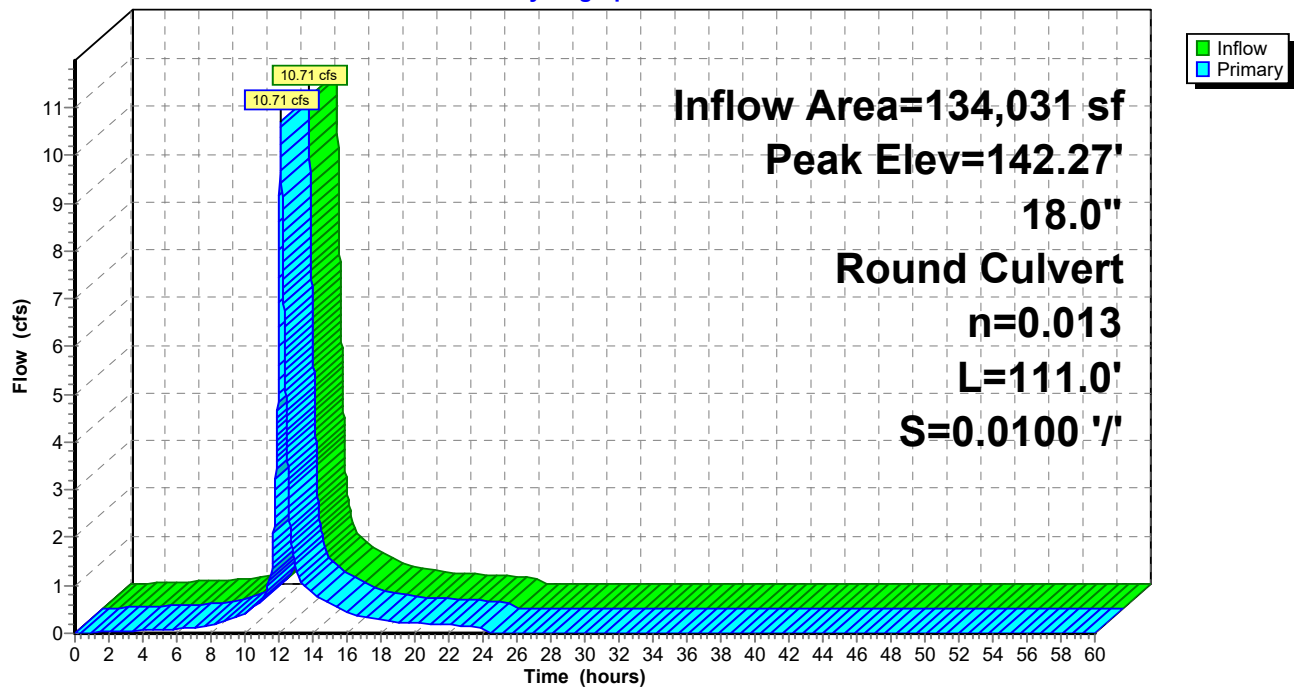
Inflow Area=134,031 sf
Peak Elev=142.27'
18.0"
Round Culvert
n=0.013
L=111.0'
S=0.0100 '/'

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Summary for Pond 41P: RD-2 Bldg 3

Inflow Area =   11,734 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   1.53 cfs @ 12.08 hrs, Volume=   5,439 cf
Outflow   =   1.53 cfs @ 12.08 hrs, Volume=   5,439 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.53 cfs @ 12.08 hrs, Volume=   5,439 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 148.97' @ 12.08 hrs
Flood Elev= 155.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	148.25'	**12.0" Round Stormdrain** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.25' / 148.00' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.53 cfs @ 12.08 hrs HW=148.97' TW=143.04'   (Dynamic Tailwater)
└─**1=Stormdrain** (Barrel Controls 1.53 cfs @ 3.56 fps)

Pond 41P: RD-2 Bldg 3

Hydrograph

Inflow Area=11,734 sf
Peak Elev=148.97'
12.0"
Round Culvert
n=0.013
L=23.0'
S=0.0109 '/'

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Summary for Pond 42P: CB-46

Inflow Area =   77,033 sf, 42.92% Impervious, Inflow Depth = 3.46"   for 25 year event
Inflow   =   5.12 cfs @ 12.09 hrs, Volume=   22,232 cf
Outflow   =   5.12 cfs @ 12.09 hrs, Volume=   22,232 cf, Atten= 0%, Lag= 0.0 min
Primary   =   5.12 cfs @ 12.09 hrs, Volume=   22,232 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.34' @ 12.10 hrs
Flood Elev= 149.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.03'	**18.0" Round Stormdrain** L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.03' / 144.62' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.10 cfs @ 12.09 hrs HW=146.34' TW=145.66'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 5.10 cfs @ 4.17 fps)

Pond 42P: CB-46

Hydrograph
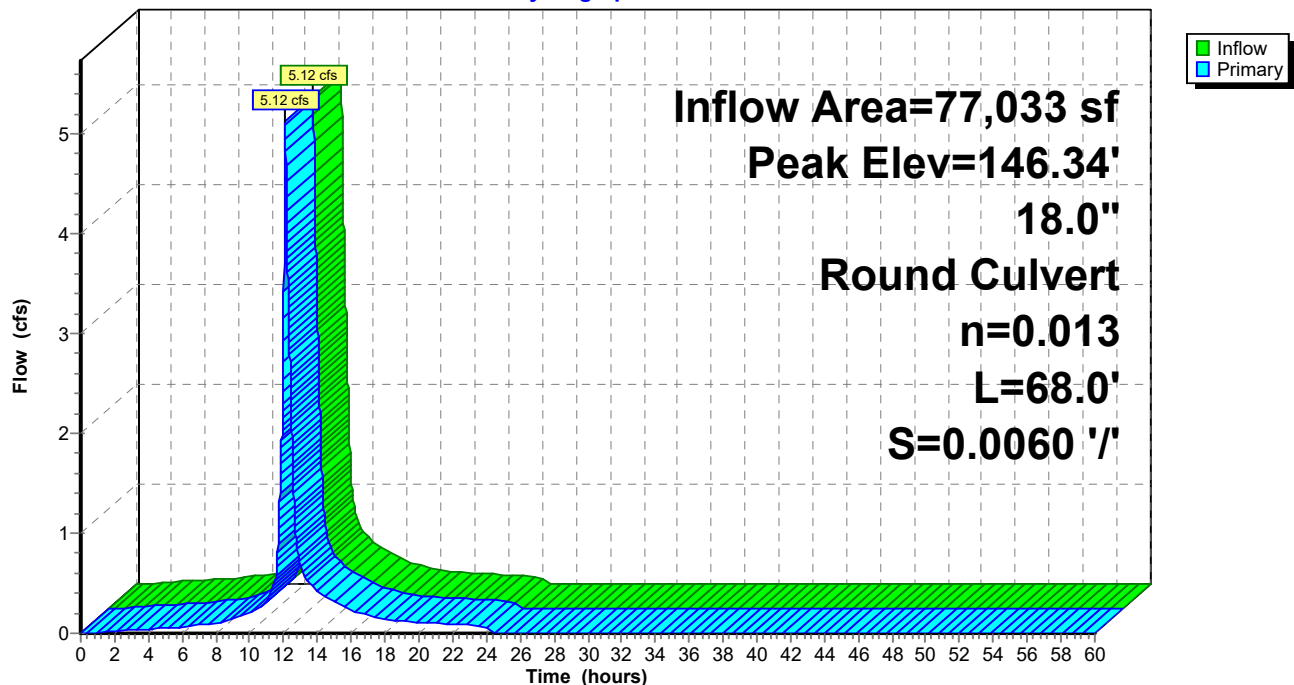
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Summary for Pond 43P: CB-5

Inflow Area =   105,250 sf, 46.32% Impervious, Inflow Depth = 3.64"   for 25 year event
Inflow   =   8.18 cfs @ 12.09 hrs, Volume=   31,906 cf
Outflow   =   8.18 cfs @ 12.09 hrs, Volume=   31,906 cf, Atten= 0%, Lag= 0.0 min
Primary   =   8.18 cfs @ 12.09 hrs, Volume=   31,906 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 145.66' @ 12.09 hrs
Flood Elev= 149.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.52'	**12.0" Round Stormdrain X 3.00** L= 119.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.52' / 143.81' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=8.18 cfs @ 12.09 hrs HW=145.66' TW=139.65'   (Dynamic Tailwater)
└─**1=Stormdrain** (Barrel Controls 8.18 cfs @ 3.82 fps)

Pond 43P: CB-5

Hydrograph
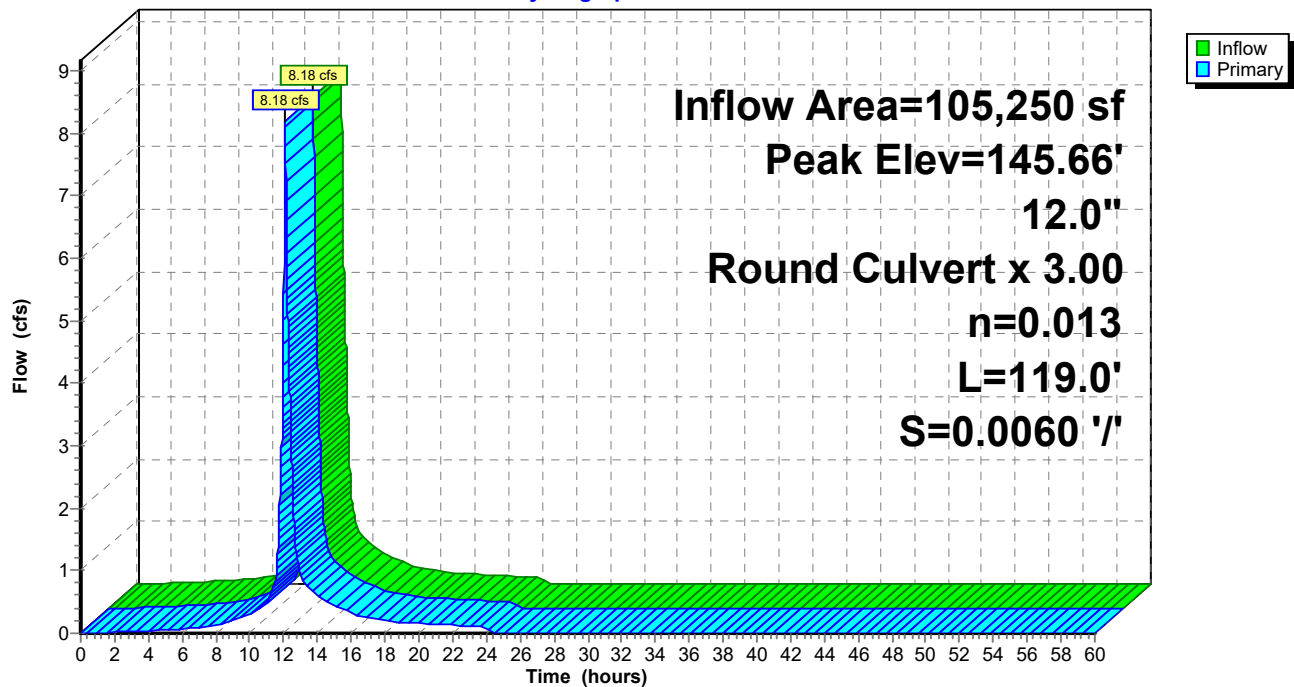
Inflow Area=105,250 sf
Peak Elev=145.66'
12.0"
Round Culvert x 3.00
n=0.013
L=119.0'
S=0.0060 '/'

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Summary for Pond 44P: DMH-2

Inflow Area =   114,503 sf, 61.30% Impervious, Inflow Depth = 4.07"   for 25 year event
Inflow   =   9.27 cfs @ 12.10 hrs, Volume=   38,827 cf
Outflow   =   9.27 cfs @ 12.10 hrs, Volume=   38,827 cf, Atten= 0%, Lag= 0.0 min
Primary   =   9.27 cfs @ 12.10 hrs, Volume=   38,827 cf

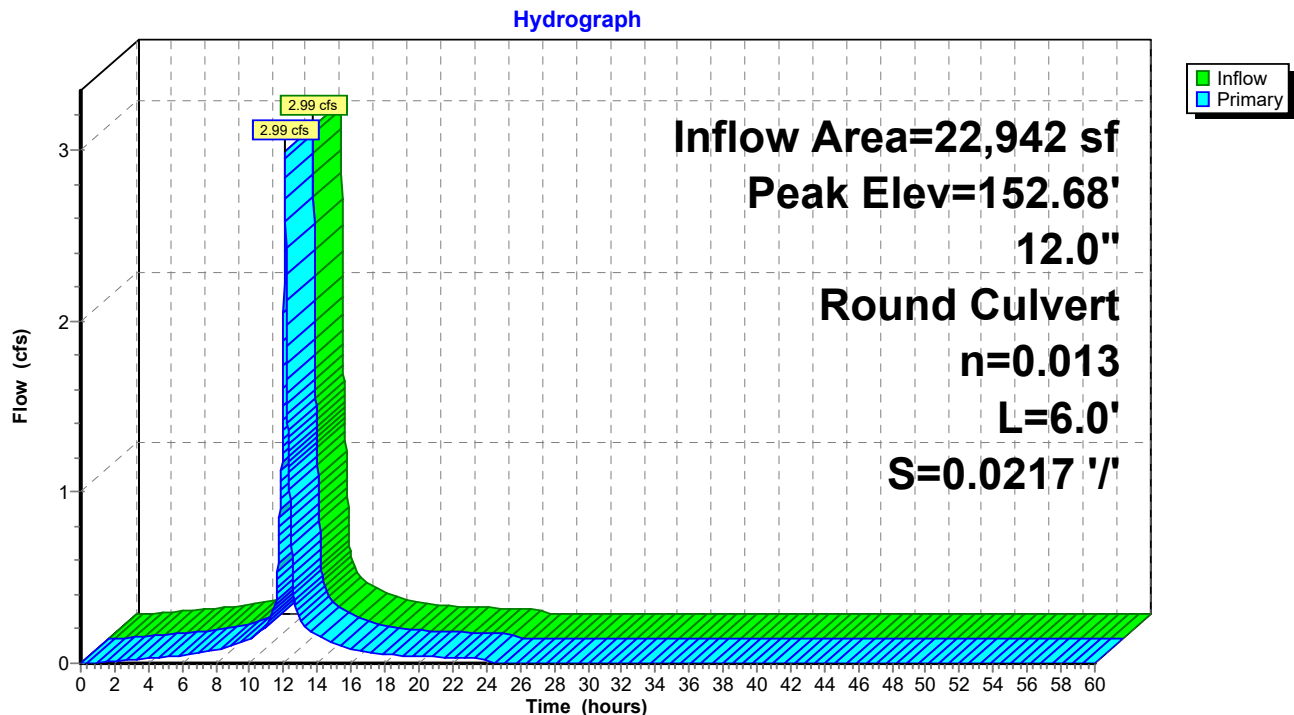Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 143.94' @ 12.13 hrs
Flood Elev= 155.27'

Device	Routing	Invert	Outlet Devices
#1	Primary	141.14'	**18.0" Round Stormdrain** L= 153.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.14' / 137.31' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.41 cfs @ 12.10 hrs HW=143.07' TW=141.67'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 8.41 cfs @ 4.81 fps)

Pond 44P: DMH-2

Hydrograph
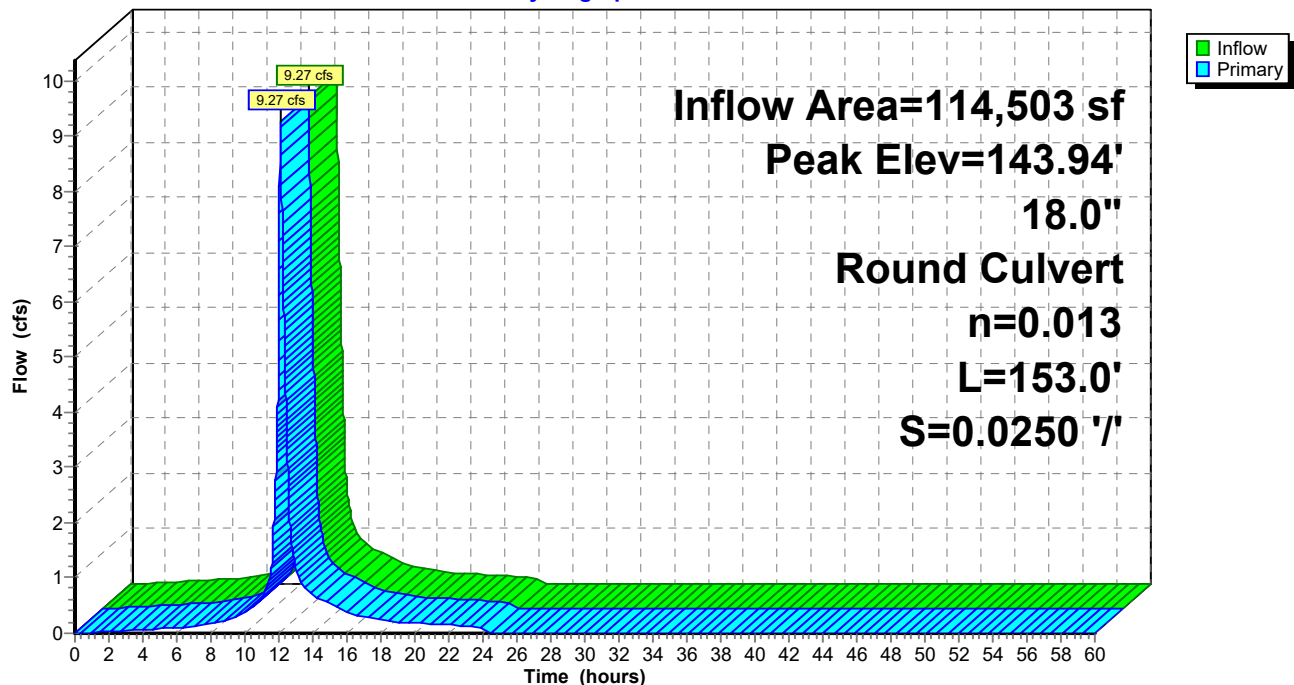
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Summary for Pond 45P: CB-29

Inflow Area =   66,476 sf, 54.44% Impervious, Inflow Depth = 3.79"   for 25 year event
Inflow   =   4.67 cfs @ 12.09 hrs, Volume=   21,003 cf
Outflow   =   4.67 cfs @ 12.09 hrs, Volume=   21,003 cf, Atten= 0%, Lag= 0.0 min
Primary   =   4.67 cfs @ 12.09 hrs, Volume=   21,003 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 149.87' @ 12.10 hrs
Flood Elev= 155.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	148.27'	**15.0" Round Culvert** L= 101.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.27' / 147.51' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.65 cfs @ 12.09 hrs HW=149.87' TW=149.07'   (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 4.65 cfs @ 3.84 fps)

Pond 45P: CB-29

Hydrograph
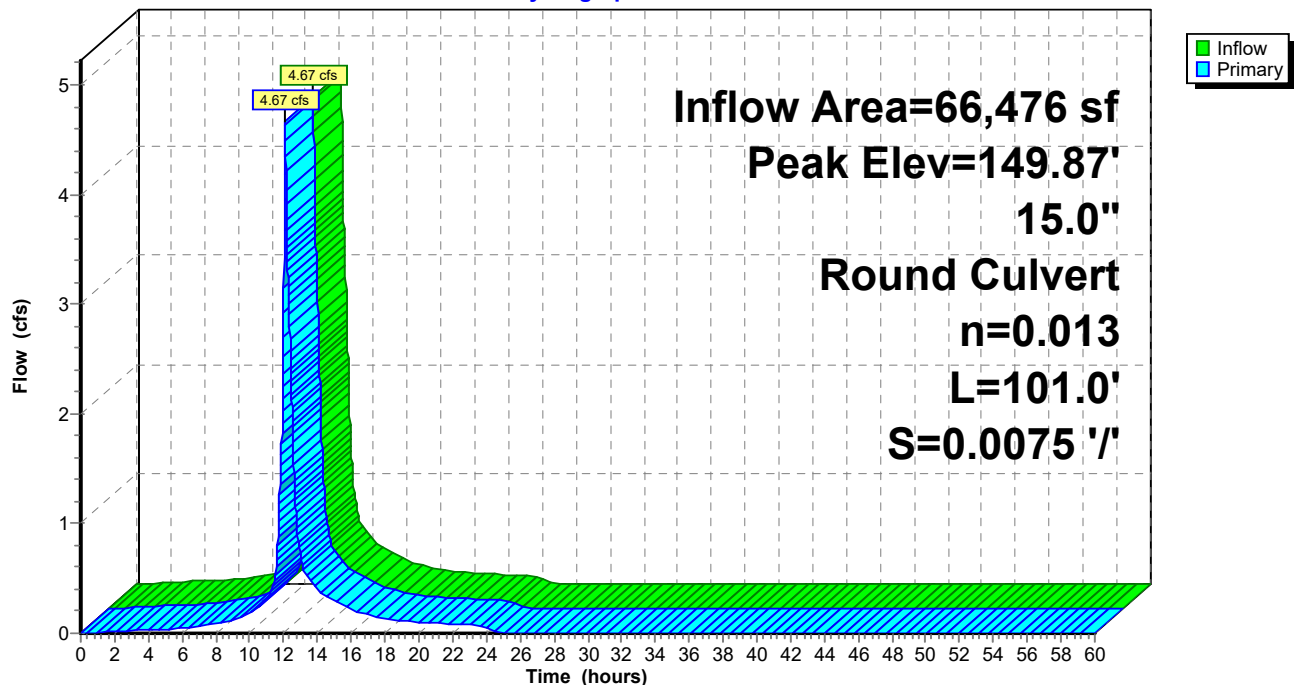
Inflow Area=66,476 sf
Peak Elev=149.87'
15.0"
Round Culvert
n=0.013
L=101.0'
S=0.0075 '/'

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Summary for Pond 46P: RD-1 Bldg 2

Inflow Area =		22,942 sf,100.00% Impervious, Inflow Depth = 5.56" for 25 year event	
Inflow =	2.99 cfs @ 12.08 hrs, Volume=	10,634 cf	
Outflow =	2.99 cfs @ 12.08 hrs, Volume=	10,634 cf, Atten= 0%, Lag= 0.0 min	
Primary =	2.99 cfs @ 12.08 hrs, Volume=	10,634 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 152.68' @ 12.08 hrs
Flood Elev= 158.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	151.50'	**12.0" Round Culvert** L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.50' / 151.37' S= 0.0217 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.99 cfs @ 12.08 hrs HW=152.68' TW=149.84'   (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.99 cfs @ 4.07 fps)

Pond 46P: RD-1 Bldg 2

Hydrograph

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Summary for Pond 47P: CB-20

Inflow Area =   42,697 sf, 31.03% Impervious, Inflow Depth = 2.86"   for 25 year event
Inflow   =   1.92 cfs @ 12.28 hrs, Volume=   10,185 cf
Outflow   =   1.92 cfs @ 12.28 hrs, Volume=   10,185 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.92 cfs @ 12.28 hrs, Volume=   10,185 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 150.30' @ 12.11 hrs
Flood Elev= 157.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.24'	**12.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.24' / 148.37' S= 0.0076 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.93 cfs @ 12.28 hrs HW=150.17' TW=149.42'   (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.93 cfs @ 3.32 fps)

Pond 47P: CB-20

Hydrograph
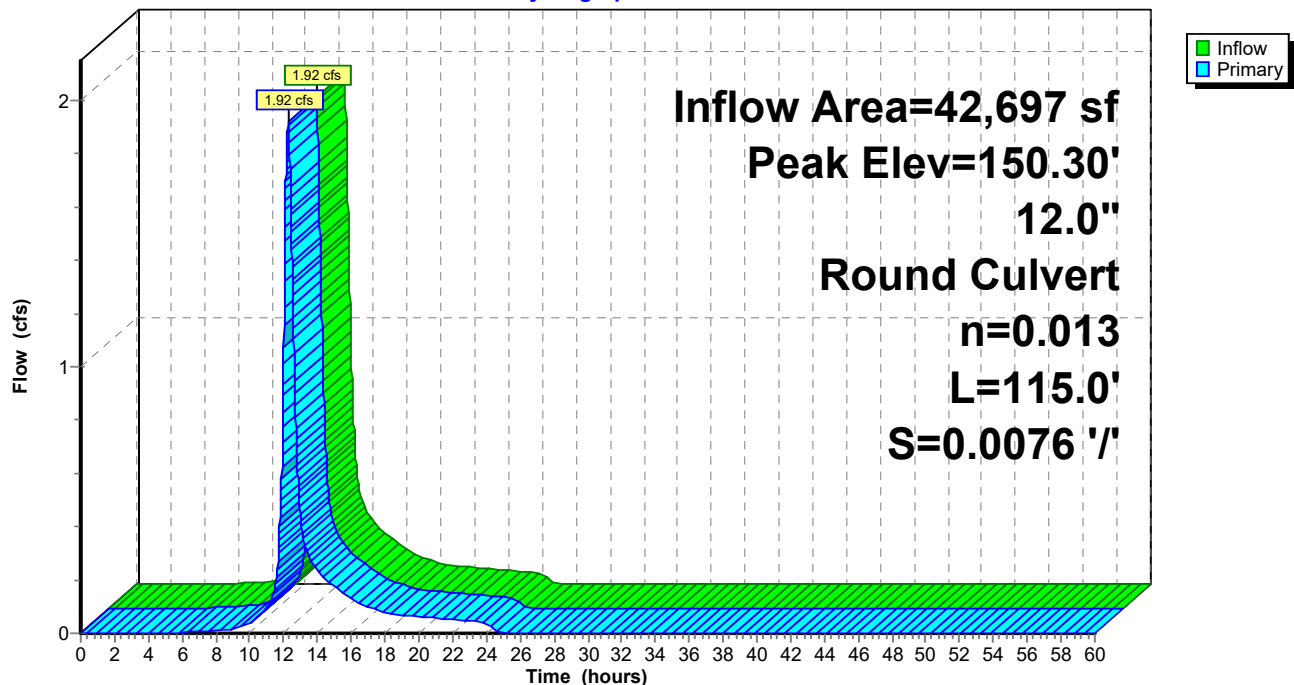
Inflow Area=42,697 sf
Peak Elev=150.30'
12.0"
Round Culvert
n=0.013
L=115.0'
S=0.0076 '/'

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Summary for Pond 48P: CB-3

Inflow Area =   11,153 sf,100.00% Impervious, Inflow Depth =   5.56"   for 25 year event
Inflow   =   1.45 cfs @   12.08 hrs, Volume=   5,169 cf
Outflow   =   1.45 cfs @   12.08 hrs, Volume=   5,169 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.45 cfs @   12.08 hrs, Volume=   5,169 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.52' @ 12.10 hrs
Flood Elev= 148.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.70'	**12.0" Round Culvert** L= 124.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.70' / 145.18' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.27 cfs @ 12.08 hrs HW=147.45' TW=147.23'   (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 1.27 cfs @ 1.62 fps)

Pond 48P: CB-3

Hydrograph
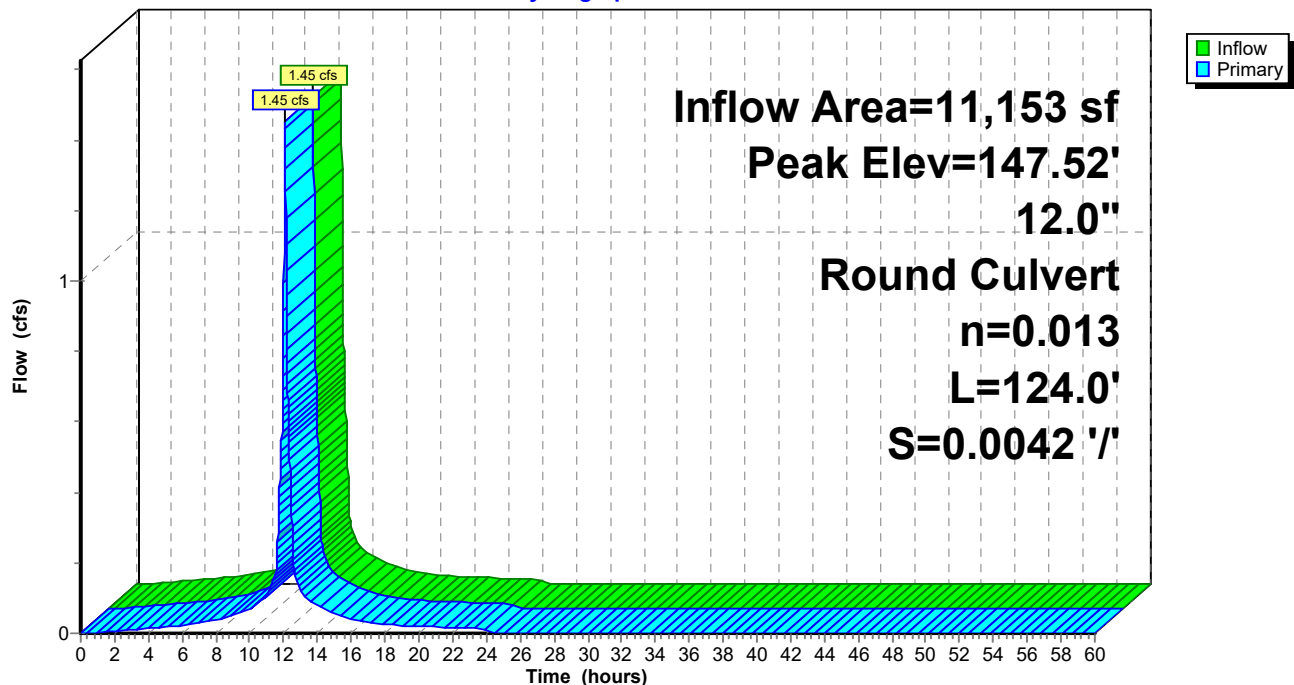
Inflow Area=11,153 sf
Peak Elev=147.52'
12.0"
Round Culvert
n=0.013
L=124.0'
S=0.0042 '/'

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Summary for Pond 49P: CB-2

Inflow Area =   21,322 sf, 100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   2.78 cfs @ 12.08 hrs, Volume=   9,883 cf
Outflow   =   2.78 cfs @ 12.08 hrs, Volume=   9,883 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.78 cfs @ 12.08 hrs, Volume=   9,883 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.25' @ 12.09 hrs
Flood Elev= 148.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.08'	**12.0" Round Stormdrain** L= 124.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.08' / 144.46' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.75 cfs @ 12.08 hrs HW=147.23' TW=146.20'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 2.75 cfs @ 3.51 fps)

Pond 49P: CB-2

Hydrograph
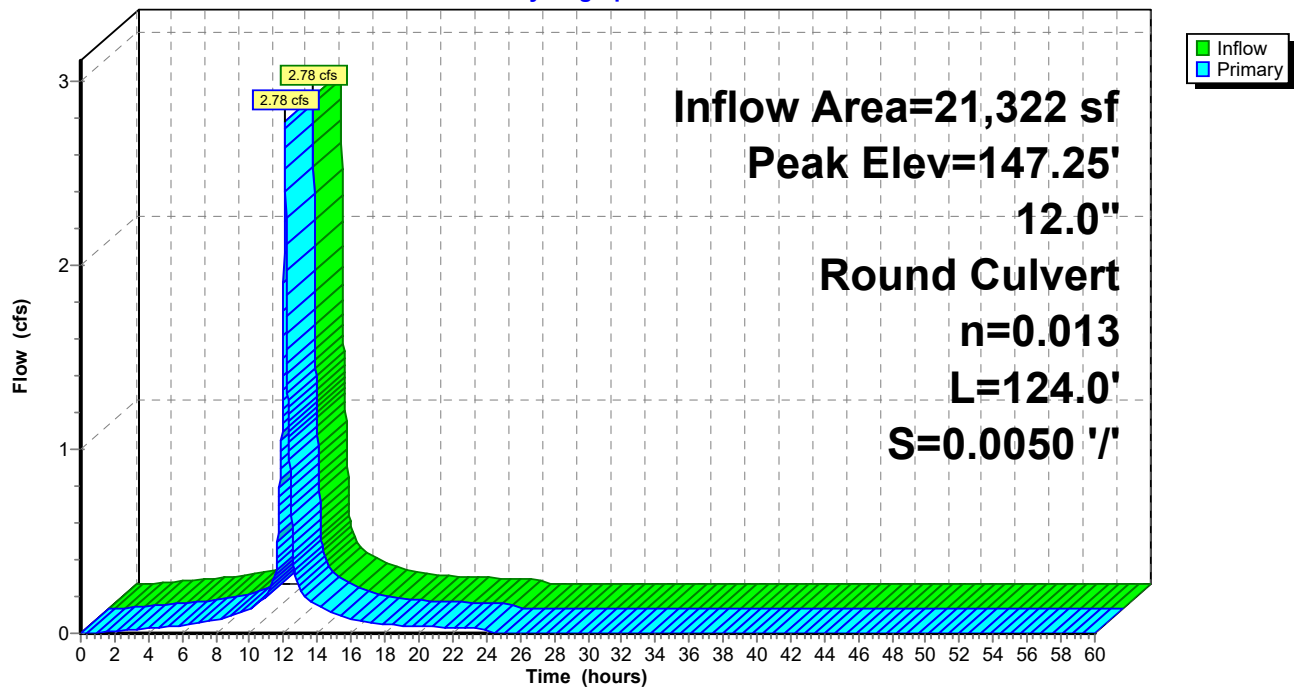
Inflow Area=21,322 sf
Peak Elev=147.25'
12.0"
Round Culvert
n=0.013
L=124.0'
S=0.0050 '/'

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Summary for Pond 50P: CB-1

Inflow Area =   27,759 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   3.62 cfs @ 12.08 hrs, Volume=   12,866 cf
Outflow   =   3.62 cfs @ 12.08 hrs, Volume=   12,866 cf, Atten= 0%, Lag= 0.0 min
Primary   =   3.62 cfs @ 12.08 hrs, Volume=   12,866 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.20' @ 12.08 hrs
Flood Elev= 148.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.36'	**12.0" Round Culvert** L= 64.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.36' / 144.04' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.62 cfs @ 12.08 hrs HW=146.20' TW=144.18'   (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 3.62 cfs @ 4.60 fps)

Pond 50P: CB-1

Hydrograph
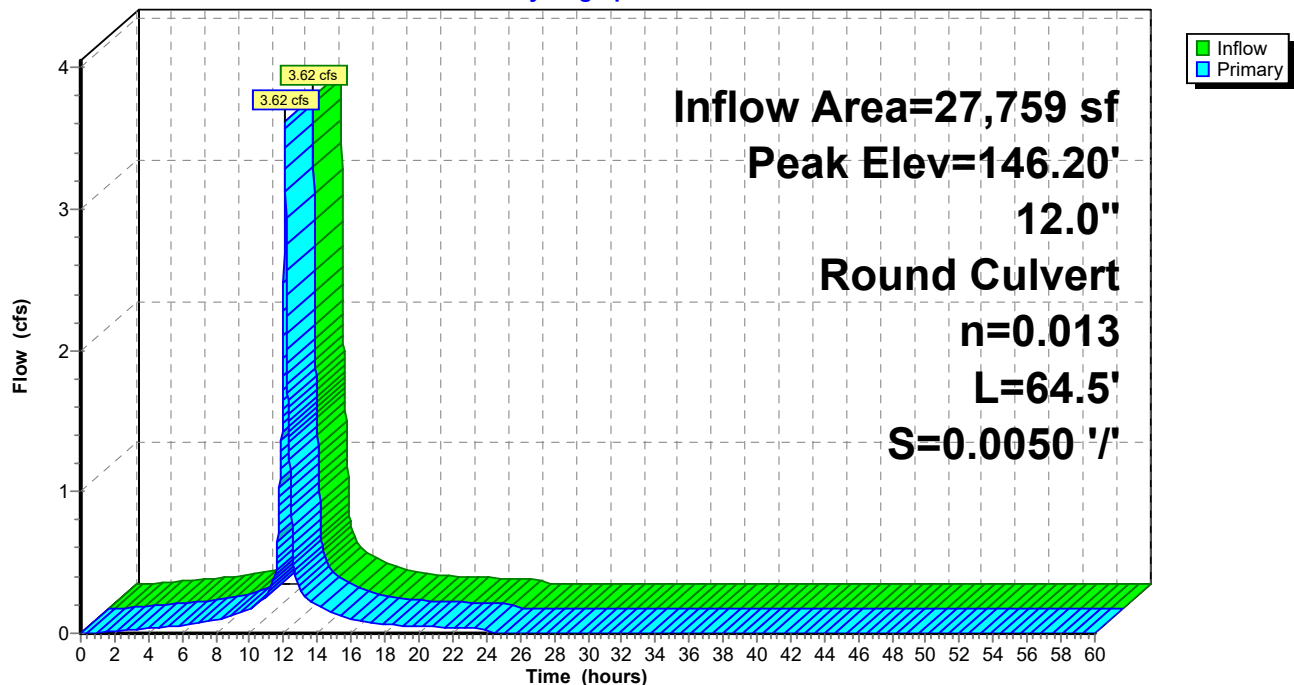
Inflow Area=27,759 sf
Peak Elev=146.20'
12.0"
Round Culvert
n=0.013
L=64.5'
S=0.0050 '/'

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Summary for Pond 51P: CB-21

Inflow Area =   66,476 sf, 54.44% Impervious, Inflow Depth = 3.79"   for 25 year event
Inflow   =   4.67 cfs @ 12.09 hrs, Volume=   21,003 cf
Outflow   =   4.67 cfs @ 12.09 hrs, Volume=   21,003 cf, Atten= 0%, Lag= 0.0 min
Primary   =   4.67 cfs @ 12.09 hrs, Volume=   21,003 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 149.07' @ 12.09 hrs
Flood Elev= 155.82'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.82'	**15.0" Round Culvert** L= 235.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.82' / 145.50' S= 0.0099 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.66 cfs @ 12.09 hrs HW=149.07' TW=145.45'   (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.66 cfs @ 3.80 fps)

Pond 51P: CB-21

Hydrograph
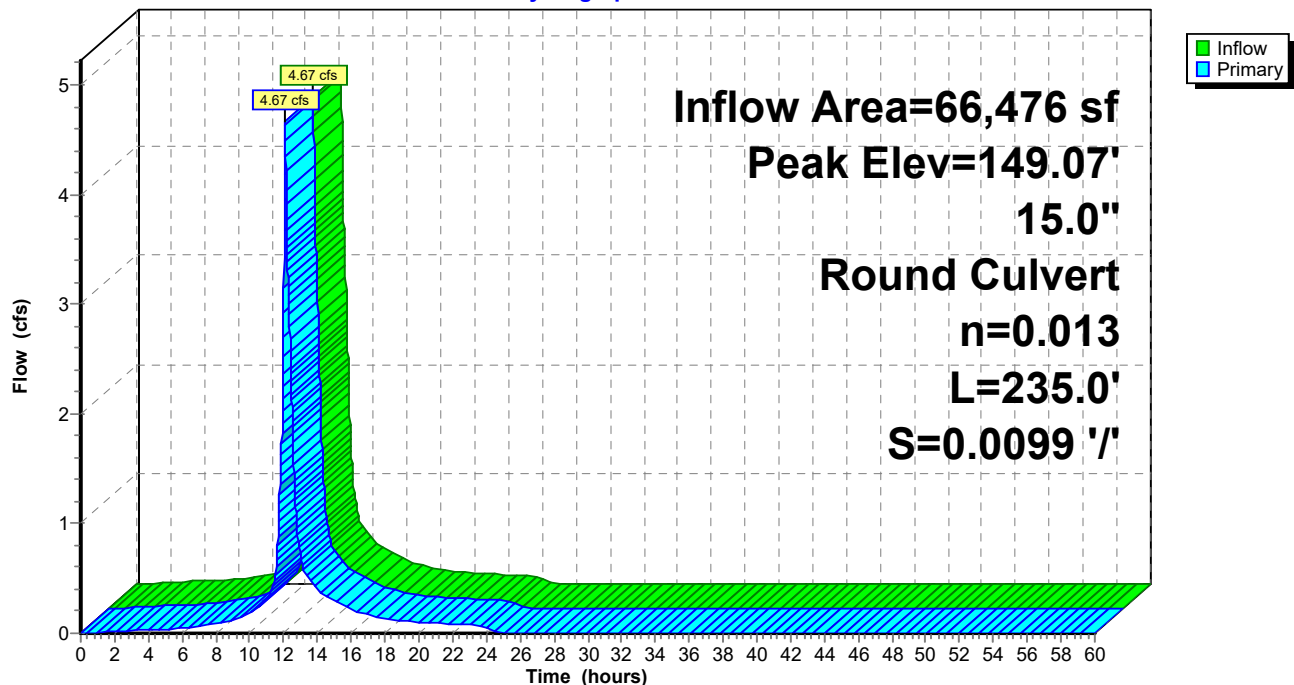
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Summary for Pond 52P: culvert

Inflow Area =   61,114 sf, 30.00% Impervious, Inflow Depth = 3.42"   for 25 year event
Inflow   =   4.52 cfs @   12.15 hrs, Volume=   17,418 cf
Outflow   =   3.69 cfs @   12.25 hrs, Volume=   17,418 cf, Atten= 18%, Lag= 5.9 min
Primary   =   3.69 cfs @   12.25 hrs, Volume=   17,418 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.75' @ 12.25 hrs   Surf.Area= 2,839 sf   Storage= 1,575 cf
Flood Elev= 148.00' Surf.Area= 6,000 sf   Storage= 7,108 cf

Plug-Flow detention time= 7.5 min calculated for 17,415 cf (100% of inflow)
Center-of-Mass det. time= 7.5 min (832.4 - 824.9)

Volume	Invert	Avail.Storage	Storage Description
#1	145.70'	7,108 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
145.70	100	0	0
146.00	950	158	158
148.00	6,000	6,950	7,108

Device	Routing	Invert	Outlet Devices
#1	Primary	145.70'	**18.0" Round Culvert** L= 107.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.70' / 145.15' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.69 cfs @ 12.25 hrs HW=146.75' TW=118.60'   (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 3.69 cfs @ 3.93 fps)

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Pond 52P: culvert

Hydrograph
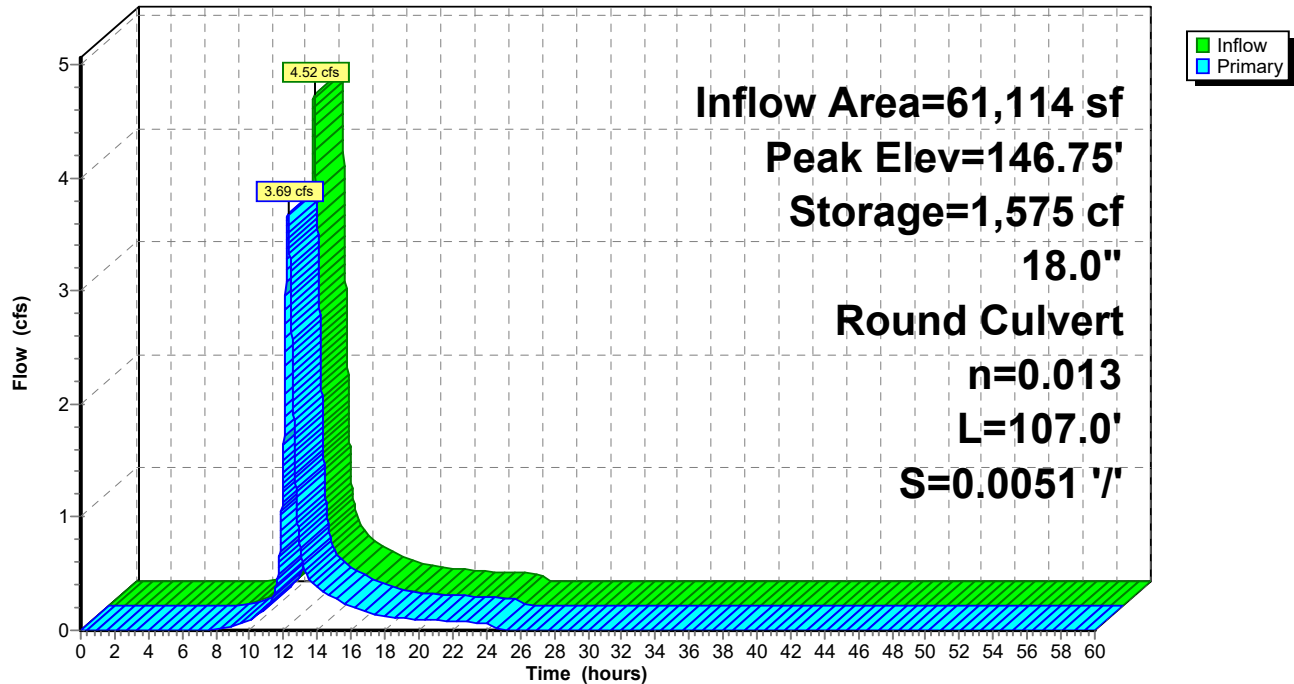
Inflow Area=61,114 sf
Peak Elev=146.75'
Storage=1,575 cf
18.0"
Round Culvert
n=0.013
L=107.0'
S=0.0051 '/'

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Summary for Pond 53P: DMH-21

Inflow Area =		16,121 sf, 100.00% Impervious,	Inflow Depth = 5.56"	for 25 year event	
Inflow	=	2.10 cfs @ 12.08 hrs,	Volume=	7,472 cf	
Outflow	=	2.10 cfs @ 12.08 hrs,	Volume=	7,472 cf,	Atten= 0%, Lag= 0.0 min
Primary	=	2.10 cfs @ 12.08 hrs,	Volume=	7,472 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 151.41' @ 12.08 hrs
Flood Elev= 155.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.60'	**12.0" Round Stormdrain** L= 71.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.60' / 147.75' S= 0.0401 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.10 cfs @ 12.08 hrs HW=151.41' TW=148.75'   (Dynamic Tailwater)
└**1=Stormdrain** (Inlet Controls 2.10 cfs @ 3.07 fps)

Pond 53P: DMH-21
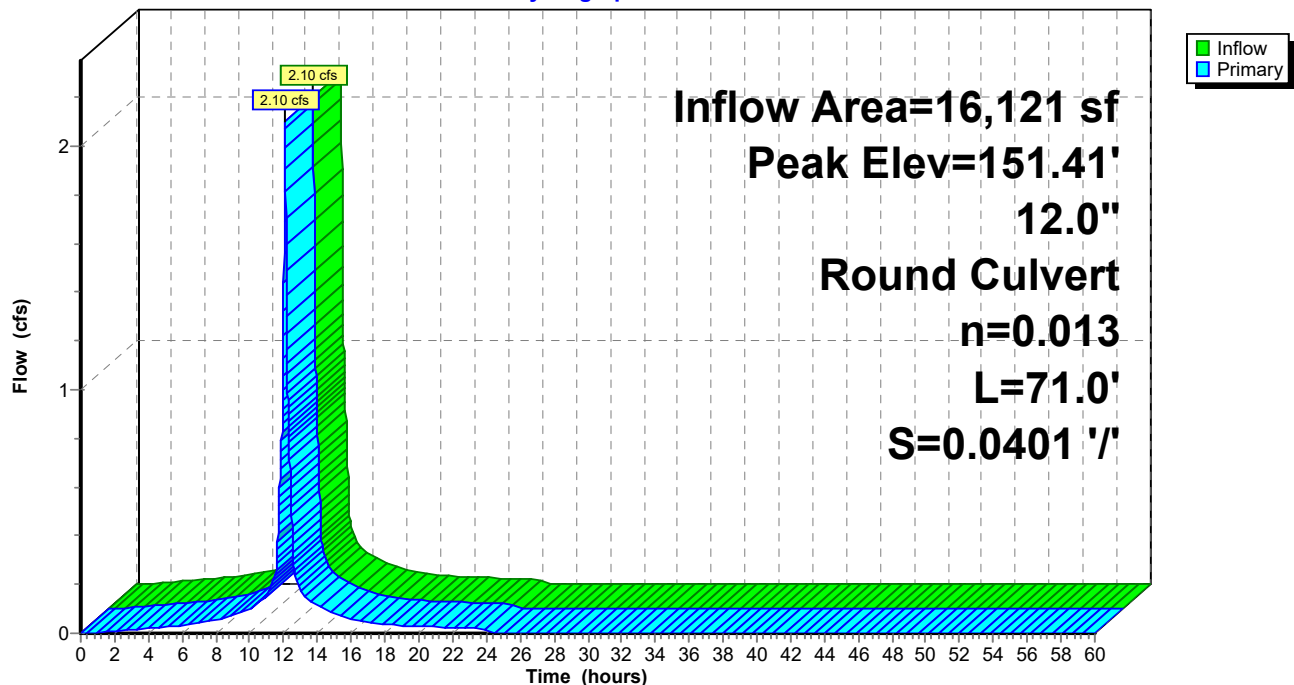
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Summary for Pond 54P: RD-2 Bldg 2

Inflow Area =   16,121 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   2.10 cfs @ 12.08 hrs, Volume=   7,472 cf
Outflow   =   2.10 cfs @ 12.08 hrs, Volume=   7,472 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.10 cfs @ 12.08 hrs, Volume=   7,472 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 151.77' @ 12.09 hrs
Flood Elev= 156.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.83'	**12.0" Round Stormdrain** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.83' / 150.70' S= 0.0108 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.09 cfs @ 12.08 hrs HW=151.76' TW=151.41'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 2.09 cfs @ 3.55 fps)

Pond 54P: RD-2 Bldg 2
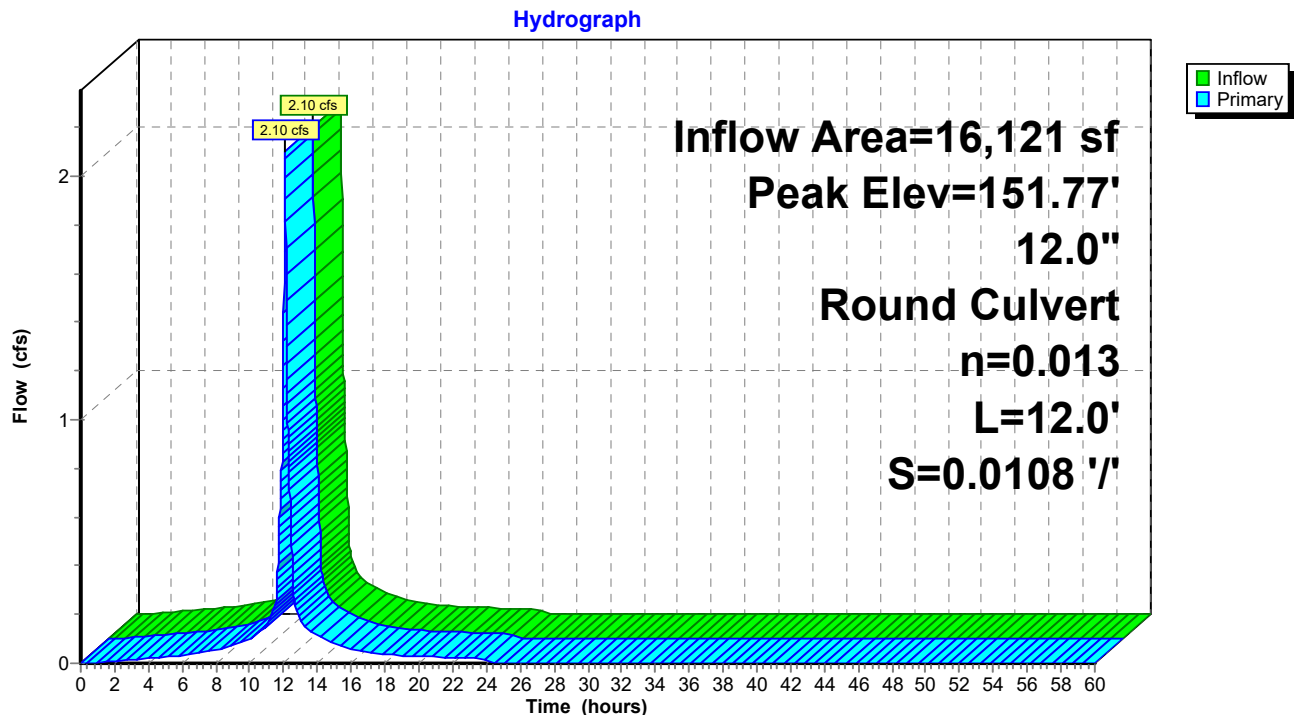
Hydrograph

Inflow Area=16,121 sf
Peak Elev=151.77'
12.0"
Round Culvert
n=0.013
L=12.0'
S=0.0108 '/'

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Summary for Pond 55P: DMH22

Inflow Area =   46,015 sf,   1.68% Impervious, Inflow Depth = 1.95"   for 25 year event
Inflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf
Outflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 140.54' @ 12.26 hrs
Flood Elev= 152.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	140.02'	**24.0" Round Stormdrain**
			L= 108.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 140.02' / 138.39' S= 0.0151 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.62 cfs @ 12.26 hrs HW=140.54' TW=139.41'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.62 cfs @ 2.47 fps)

Pond 55P: DMH22

Hydrograph
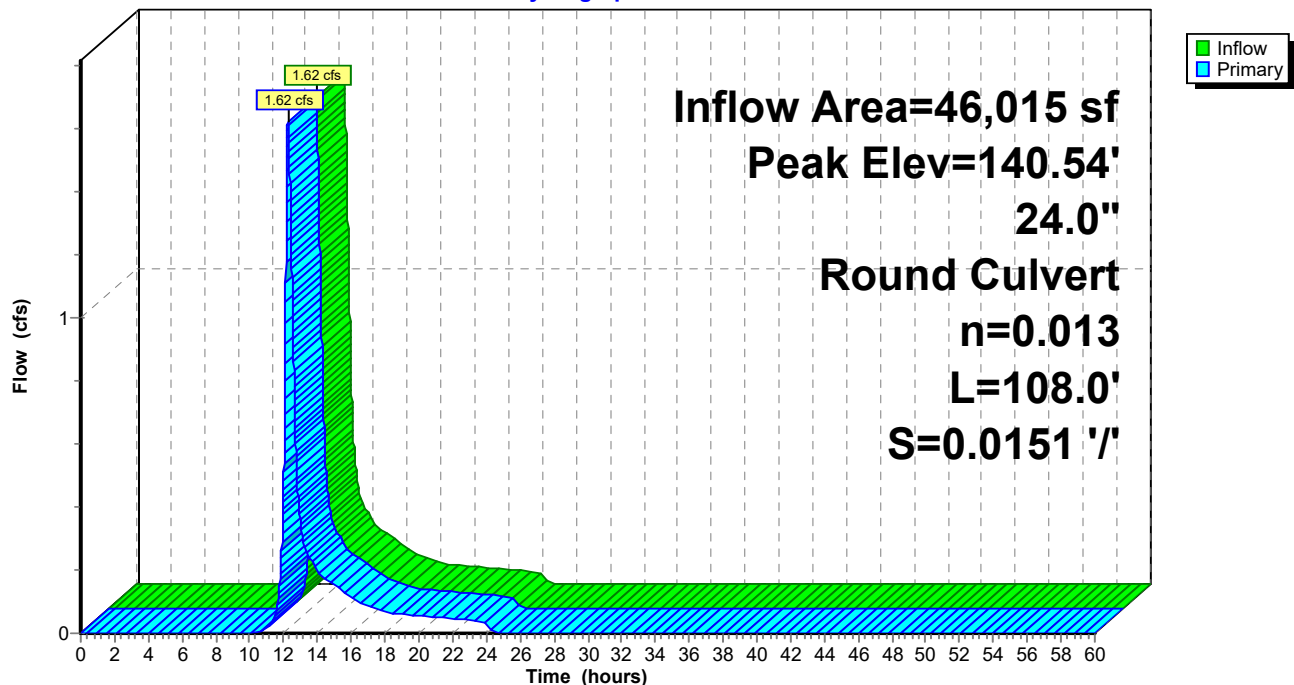
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Summary for Pond 56P: Existing 12" Culvert

Inflow Area =   368,711 sf, 38.59% Impervious, Inflow Depth > 3.08"   for 25 year event
Inflow   =   18.27 cfs @ 12.10 hrs, Volume=   94,489 cf
Outflow   =   18.22 cfs @ 12.11 hrs, Volume=   94,450 cf, Atten= 0%, Lag= 0.4 min
Primary   =   6.72 cfs @ 12.11 hrs, Volume=   86,378 cf
Secondary =   11.50 cfs @ 12.11 hrs, Volume=   8,071 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 118.66' @ 12.11 hrs   Surf.Area= 2,437 sf   Storage= 3,921 cf
Flood Elev= 119.00'   Surf.Area= 2,750 sf   Storage= 4,803 cf

Plug-Flow detention time= 4.2 min calculated for 94,450 cf (100% of inflow)
Center-of-Mass det. time= 3.2 min (1,127.2 - 1,124.0)

Volume	Invert	Avail.Storage	Storage Description
#1	115.00'	4,803 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
115.00	250	0	0
116.00	371	311	311
118.00	1,831	2,202	2,513
119.00	2,750	2,291	4,803

Device	Routing	Invert	Outlet Devices
#1	Primary	115.00'	**12.0" Round Culvert** L= 70.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 115.00' / 104.00' S= 0.1571 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	118.50'	**70.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Primary OutFlow Max=6.72 cfs @ 12.11 hrs HW=118.66' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 6.72 cfs @ 8.56 fps)

Secondary OutFlow Max=11.47 cfs @ 12.11 hrs HW=118.66' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 11.47 cfs @ 1.03 fps)

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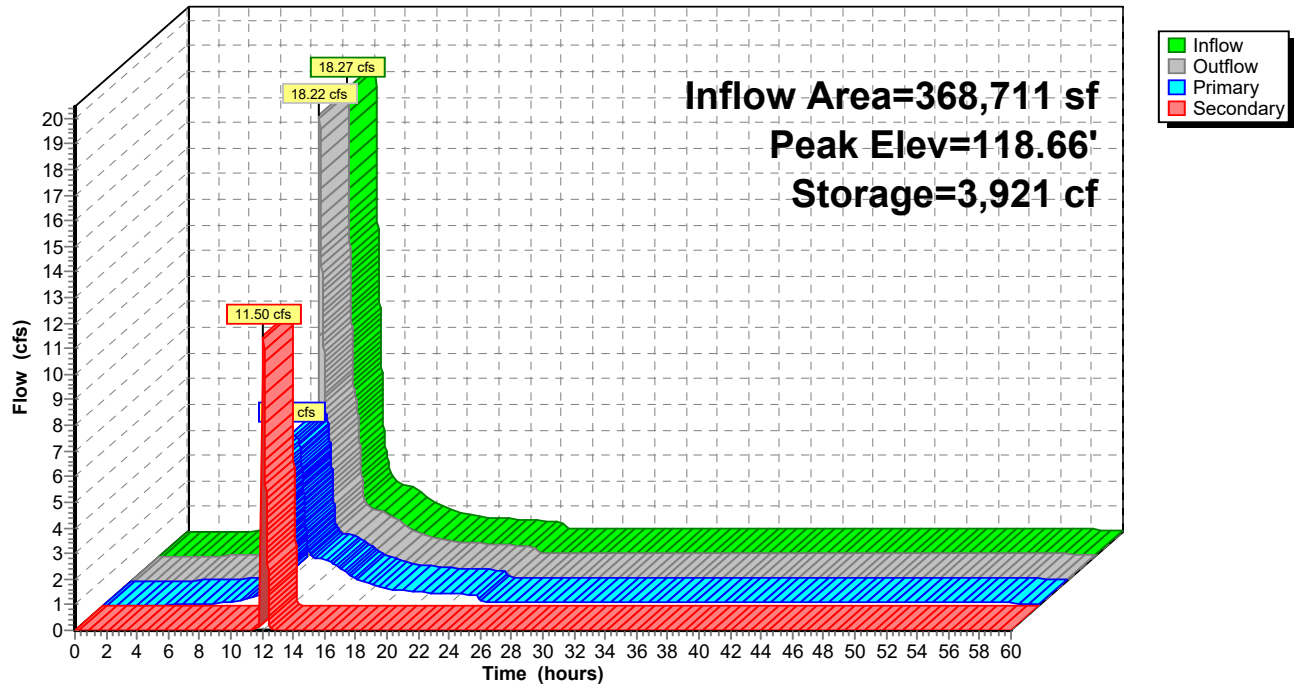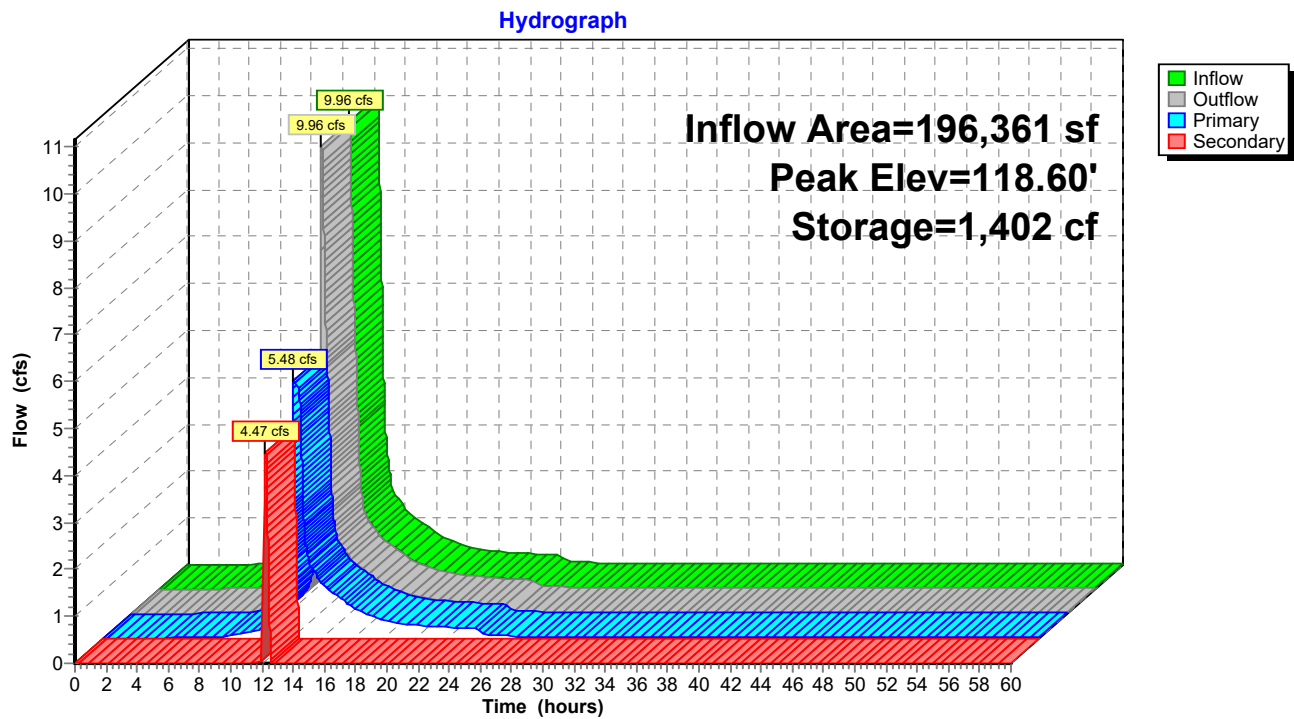HydroCAD® 10.00-24 s/n 01856 © 2018 HydroCAD Software Solutions LLC

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Pond 56P: Existing 12" Culvert

Hydrograph

Inflow Area=368,711 sf
Peak Elev=118.66'
Storage=3,921 cf

Legend: Inflow, Outflow, Primary, Secondary

18.27 cfs
18.22 cfs
11.50 cfs
cfs

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Summary for Pond 57P: Existing 12" Culvert

Inflow Area =   196,361 sf, 30.97% Impervious, Inflow Depth > 3.27"   for 25 year event
Inflow   =   9.96 cfs @ 12.23 hrs, Volume=   53,432 cf
Outflow   =   9.96 cfs @ 12.24 hrs, Volume=   53,423 cf, Atten= 0%, Lag= 0.2 min
Primary   =   5.48 cfs @ 12.24 hrs, Volume=   49,785 cf
Secondary =   4.47 cfs @ 12.24 hrs, Volume=   3,638 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 118.60' @ 12.24 hrs   Surf.Area= 999 sf   Storage= 1,402 cf
Flood Elev= 119.00'   Surf.Area= 1,142 sf   Storage= 1,826 cf

Plug-Flow detention time= 2.4 min calculated for 53,423 cf (100% of inflow)
Center-of-Mass det. time= 1.9 min (1,028.3 - 1,026.3)
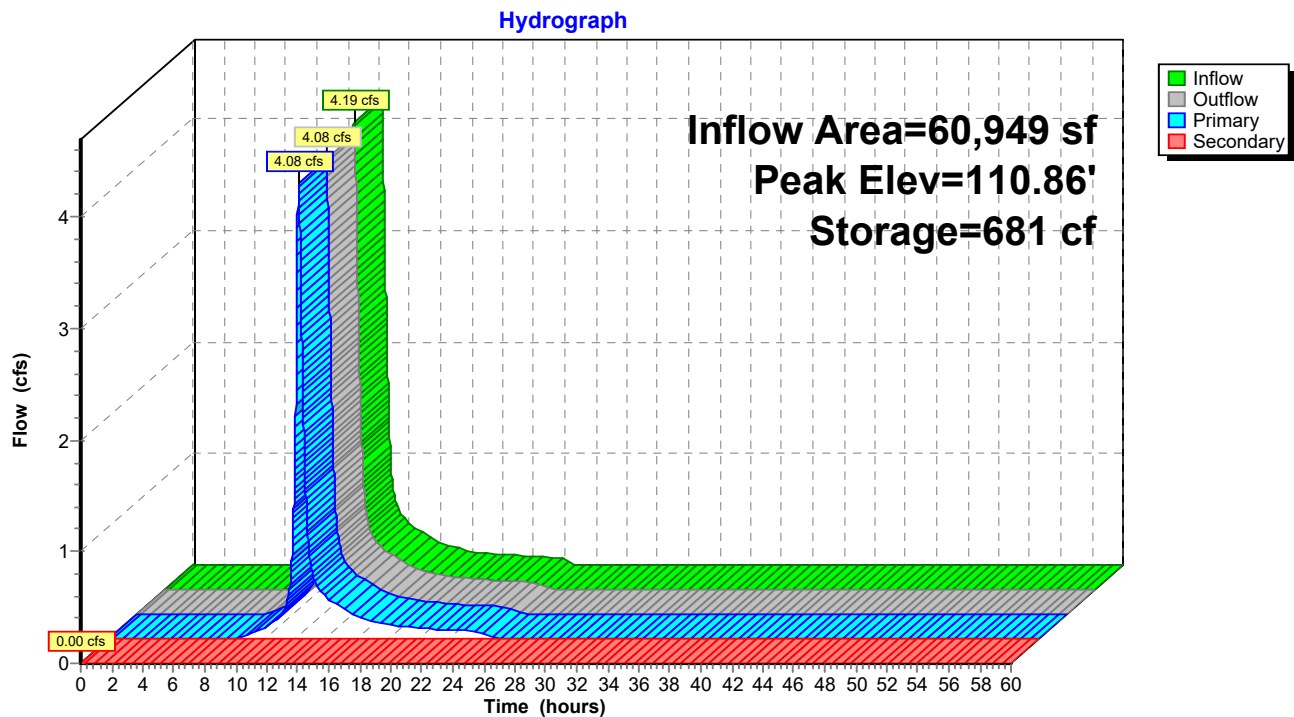
Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	1,826 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	85	0	0
118.00	780	865	865
119.00	1,142	961	1,826

Device	Routing	Invert	Outlet Devices
#1	Primary	116.00'	**12.0" Round Culvert** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 116.00' / 112.00' S= 0.0889 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	118.50'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.48 cfs @ 12.24 hrs HW=118.60' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 5.48 cfs @ 6.98 fps)

Secondary OutFlow Max=4.47 cfs @ 12.24 hrs HW=118.60' TW=0.00' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 4.47 cfs @ 0.86 fps)

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Pond 57P: Existing 12" Culvert

Hydrograph

Inflow Area=196,361 sf
Peak Elev=118.60'
Storage=1,402 cf

Legend: Inflow, Outflow, Primary, Secondary

9.96 cfs
9.96 cfs
5.48 cfs
4.47 cfs

Flow (cfs)

Time (hours)

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Summary for Pond 58P: Existing 24" Culvert

Inflow Area =   60,949 sf,   3.84% Impervious, Inflow Depth = 3.40"   for 25 year event
Inflow   =   4.19 cfs @ 12.21 hrs, Volume=   17,283 cf
Outflow   =   4.08 cfs @ 12.24 hrs, Volume=   17,283 cf, Atten= 3%, Lag= 2.0 min
Primary   =   4.08 cfs @ 12.24 hrs, Volume=   17,283 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 110.86' @ 12.24 hrs   Surf.Area= 1,075 sf   Storage= 681 cf
Flood Elev= 118.00'   Surf.Area= 10,789 sf   Storage= 36,873 cf

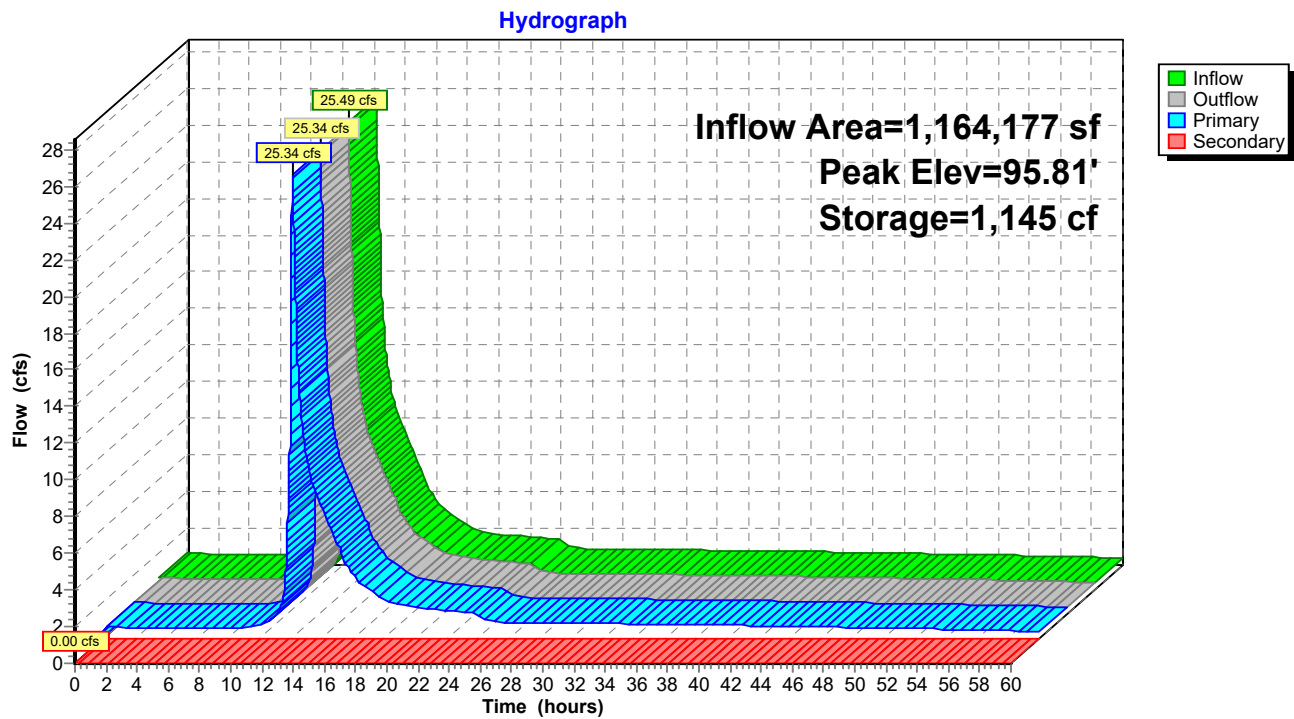Plug-Flow detention time= 6.3 min calculated for 17,283 cf (100% of inflow)
Center-of-Mass det. time= 6.2 min (835.4 - 829.2)

Volume	Invert	Avail.Storage	Storage Description
#1	110.00'	36,873 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.00	510	0	0
112.00	1,824	2,334	2,334
114.00	3,894	5,718	8,052
116.00	7,069	10,963	19,015
118.00	10,789	17,858	36,873

Device	Routing	Invert	Outlet Devices
#1	Primary	110.00'	**24.0" Round Culvert** L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 110.00' / 100.00' S= 0.1333 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Secondary	117.50'	**110.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=4.08 cfs @ 12.24 hrs HW=110.86' TW=0.00'   (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.08 cfs @ 3.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=110.00' TW=0.00'   (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Pond 58P: Existing 24" Culvert

Hydrograph

Inflow Area=60,949 sf
Peak Elev=110.86'
Storage=681 cf

Legend:
- Inflow
- Outflow
- Primary
- Secondary

4.19 cfs
4.08 cfs
4.08 cfs
0.00 cfs

Flow (cfs)

Time (hours)

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Summary for Pond 59P: Existing 48" Culvert

Inflow Area =   1,164,177 sf, 19.24% Impervious, Inflow Depth > 3.16"   for 25 year event
Inflow   =   25.49 cfs @ 12.15 hrs, Volume=   306,747 cf
Outflow   =   25.34 cfs @ 12.16 hrs, Volume=   306,723 cf, Atten= 1%, Lag= 0.9 min
Primary   =   25.34 cfs @ 12.16 hrs, Volume=   306,723 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 95.81' @ 12.16 hrs   Surf.Area= 1,220 sf   Storage= 1,145 cf
Flood Elev= 110.00'   Surf.Area= 16,594 sf   Storage= 74,583 cf

Plug-Flow detention time= 0.9 min calculated for 306,714 cf (100% of inflow)
Center-of-Mass det. time= 0.6 min (1,291.1 - 1,290.5)

Volume	Invert	Avail.Storage	Storage Description
#1	94.00'	74,583 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
94.00	45	0	0
96.00	1,342	1,387	1,387
98.00	2,988	4,330	5,717
100.00	5,187	8,175	13,892
102.00	7,746	12,933	26,825
104.00	11,709	19,455	46,280
106.00	16,594	28,303	74,583

Device	Routing	Invert	Outlet Devices
#1	Primary	94.00'	**48.0" Round Culvert** L= 78.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 94.00' / 90.00' S= 0.0513 '/' Cc= 0.900 n= 0.013 Cast iron, coated, Flow Area= 12.57 sf
#2	Secondary	109.40'	**100.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=25.34 cfs @ 12.16 hrs HW=95.81' TW=0.00'   (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 25.34 cfs @ 4.58 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=94.11' TW=0.00'   (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Pond 59P: Existing 48" Culvert

Hydrograph

Inflow Area=1,164,177 sf
Peak Elev=95.81'
Storage=1,145 cf

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Summary for Pond 60P: Detention Basin

Inflow Area =   86,062 sf, 64.22% Impervious, Inflow Depth = 4.14"   for 25 year event
Inflow   =   7.18 cfs @ 12.09 hrs, Volume=   29,667 cf
Outflow   =   0.47 cfs @ 14.37 hrs, Volume=   28,301 cf, Atten= 93%, Lag= 136.9 min
Primary   =   0.15 cfs @ 14.37 hrs, Volume=   25,392 cf
Secondary =   0.32 cfs @ 14.37 hrs, Volume=   2,909 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 145.06' @ 14.37 hrs   Surf.Area= 7,656 sf   Storage= 18,579 cf
Flood Elev= 146.00'   Surf.Area= 8,677 sf   Storage= 26,281 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,016.6 min (1,802.2 - 785.6)

Volume	Invert	Avail.Storage	Storage Description
#1	142.00'	26,281 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
142.00	4,582	0	0
144.00	6,511	11,093	11,093
146.00	8,677	15,188	26,281

Device	Routing	Invert	Outlet Devices
#1	Primary	140.00'	**6.0" Round Culvert** L= 49.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 140.00' / 139.75' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	140.00'	**1.6" Vert. Orifice** C= 0.600
#3	Device 2	142.00'	**2.400 in/hr Exfiltration over Surface area**
#4	Secondary	145.00'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.15 cfs @ 14.37 hrs HW=145.06' TW=115.73'   (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.15 cfs of 1.49 cfs potential flow)
  └─**2=Orifice** (Orifice Controls 0.15 cfs @ 10.76 fps)
    └─**3=Exfiltration** (Passes 0.15 cfs of 0.43 cfs potential flow)

Secondary OutFlow Max=0.32 cfs @ 14.37 hrs HW=145.06' TW=115.73'   (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 0.32 cfs @ 0.57 fps)
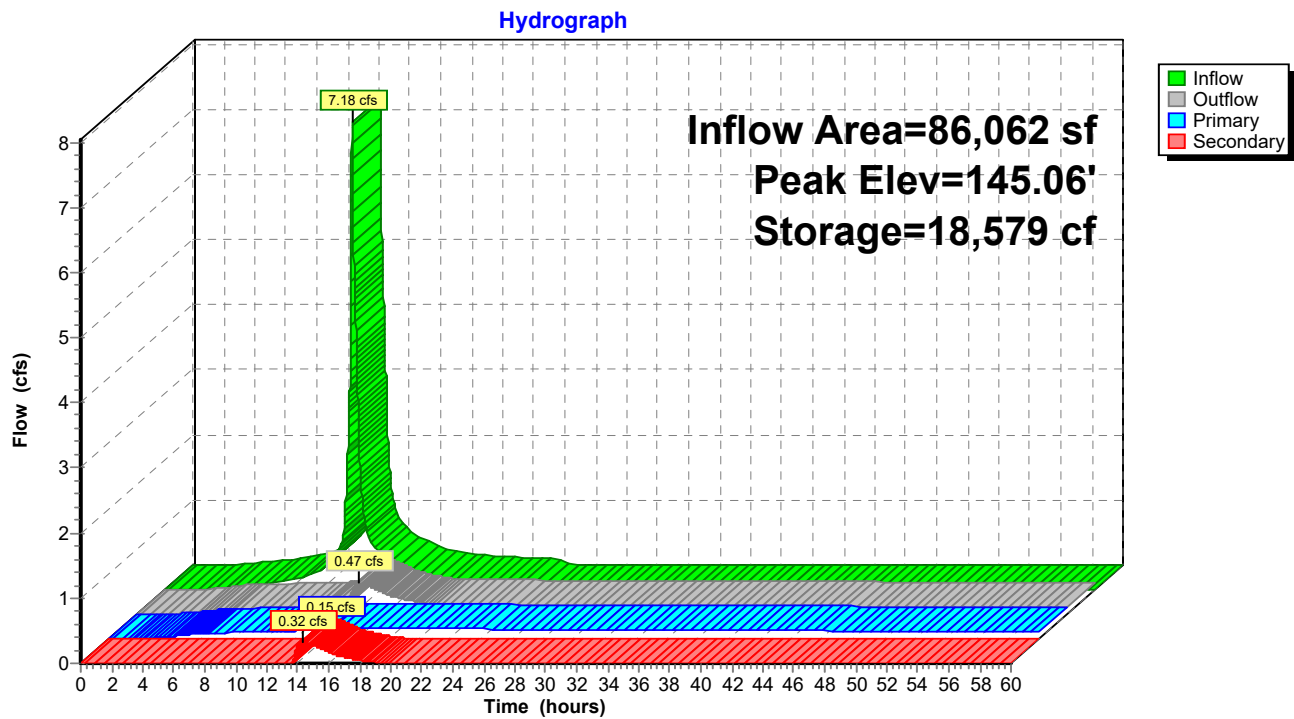
16405 POST-DEV PHASE2
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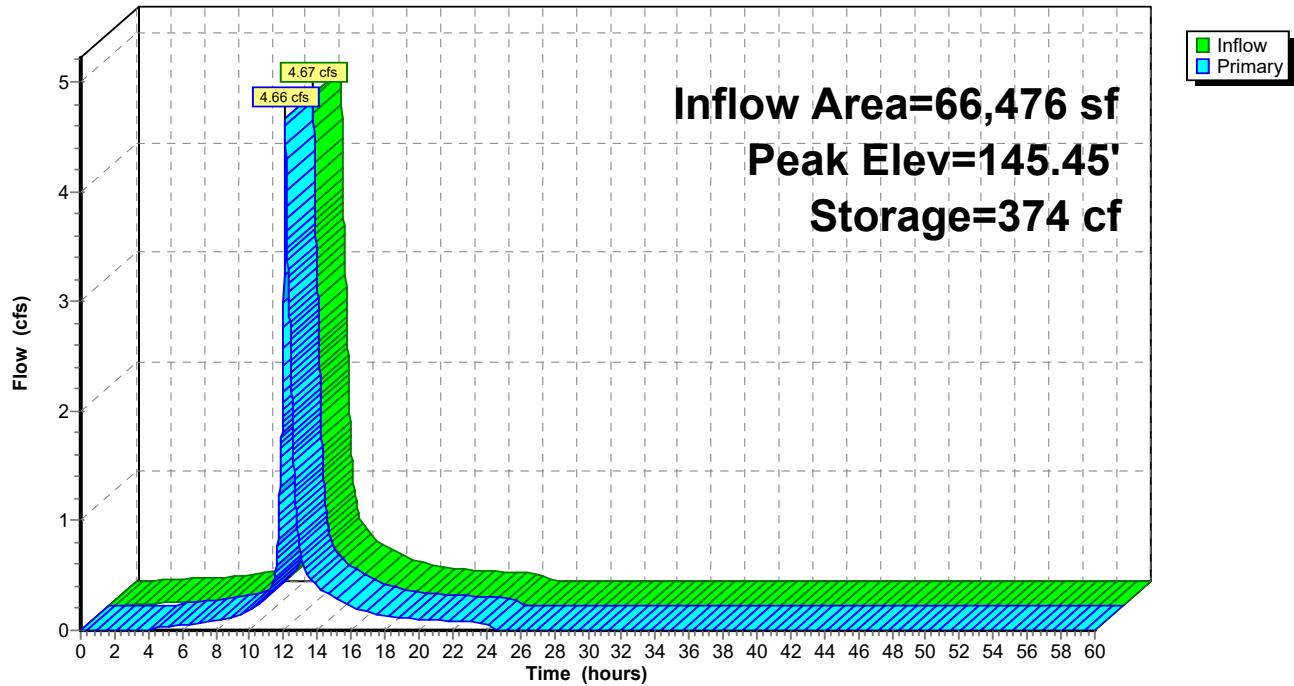HydroCAD® 10.00-24 s/n 01856 © 2018 HydroCAD Software Solutions LLC

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Pond 60P: Detention Basin

Hydrograph

Inflow Area=86,062 sf
Peak Elev=145.06'
Storage=18,579 cf

Legend:
- Inflow
- Outflow
- Primary
- Secondary

7.18 cfs

0.47 cfs

0.15 cfs

0.32 cfs

Flow (cfs)

Time (hours)

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Summary for Pond 61P: Forebay

Inflow Area =   66,476 sf, 54.44% Impervious, Inflow Depth = 3.79"   for 25 year event
Inflow   =   4.67 cfs @   12.09 hrs, Volume=   21,003 cf
Outflow   =   4.66 cfs @   12.10 hrs, Volume=   20,780 cf, Atten= 0%, Lag= 0.3 min
Primary   =   4.66 cfs @   12.10 hrs, Volume=   20,780 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 145.45' @ 12.10 hrs   Surf.Area= 378 sf   Storage= 374 cf

Plug-Flow detention time= 14.5 min calculated for 20,780 cf (99% of inflow)
Center-of-Mass det. time= 7.7 min (799.6 - 792.0)

Volume	Invert	Avail.Storage	Storage Description
#1	144.00'	610 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
144.00	150	0	0
145.00	295	223	223
146.00	480	388	610

Device	Routing	Invert	Outlet Devices
#1	Primary	145.00'	**6.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=4.66 cfs @ 12.10 hrs HW=145.45' TW=143.56' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 4.66 cfs @ 1.73 fps)

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Pond 61P: Forebay

Hydrograph

Inflow Area=66,476 sf
Peak Elev=145.45'
Storage=374 cf

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Summary for Pond 62P: CB-31

Inflow Area =   39,414 sf, 33.61% Impervious, Inflow Depth =   2.94"   for 25 year event
Inflow   =   1.84 cfs @   12.28 hrs, Volume=   9,672 cf
Outflow   =   1.84 cfs @   12.28 hrs, Volume=   9,672 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.84 cfs @   12.28 hrs, Volume=   9,672 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 151.69' @ 12.28 hrs
Flood Elev= 158.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.89'	**12.0" Round Stormrdrain** L= 82.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.89' / 150.28' S= 0.0074 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.84 cfs @ 12.28 hrs HW=151.69' TW=150.17'   (Dynamic Tailwater)
└─**1=Stormrdrain** (Barrel Controls 1.84 cfs @ 3.74 fps)

Pond 62P: CB-31

Hydrograph
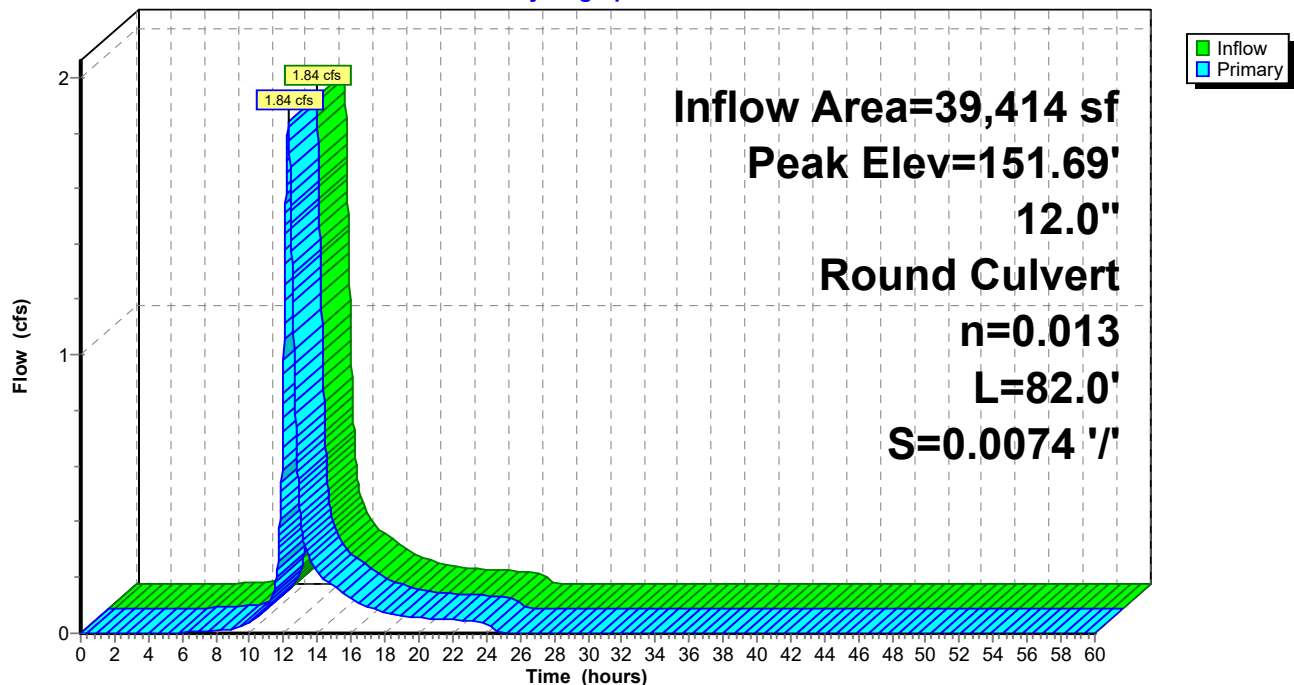
Inflow Area=39,414 sf
Peak Elev=151.69'
12.0"
Round Culvert
n=0.013
L=82.0'
S=0.0074 '/'

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Summary for Pond 63P: CB-22

Inflow Area =   33,565 sf, 25.72% Impervious, Inflow Depth = 2.65"   for 25 year event
Inflow   =   1.55 cfs @ 12.30 hrs, Volume=   7,405 cf
Outflow   =   1.56 cfs @ 12.30 hrs, Volume=   7,405 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.56 cfs @ 12.30 hrs, Volume=   7,405 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 151.90' @ 12.30 hrs
Flood Elev= 154.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.50'	**12.0" Round Stormdrain** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.50' / 150.05' S= 0.0070 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.55 cfs @ 12.30 hrs HW=151.90' TW=151.69' (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 1.55 cfs @ 1.97 fps)

Pond 63P: CB-22

Hydrograph
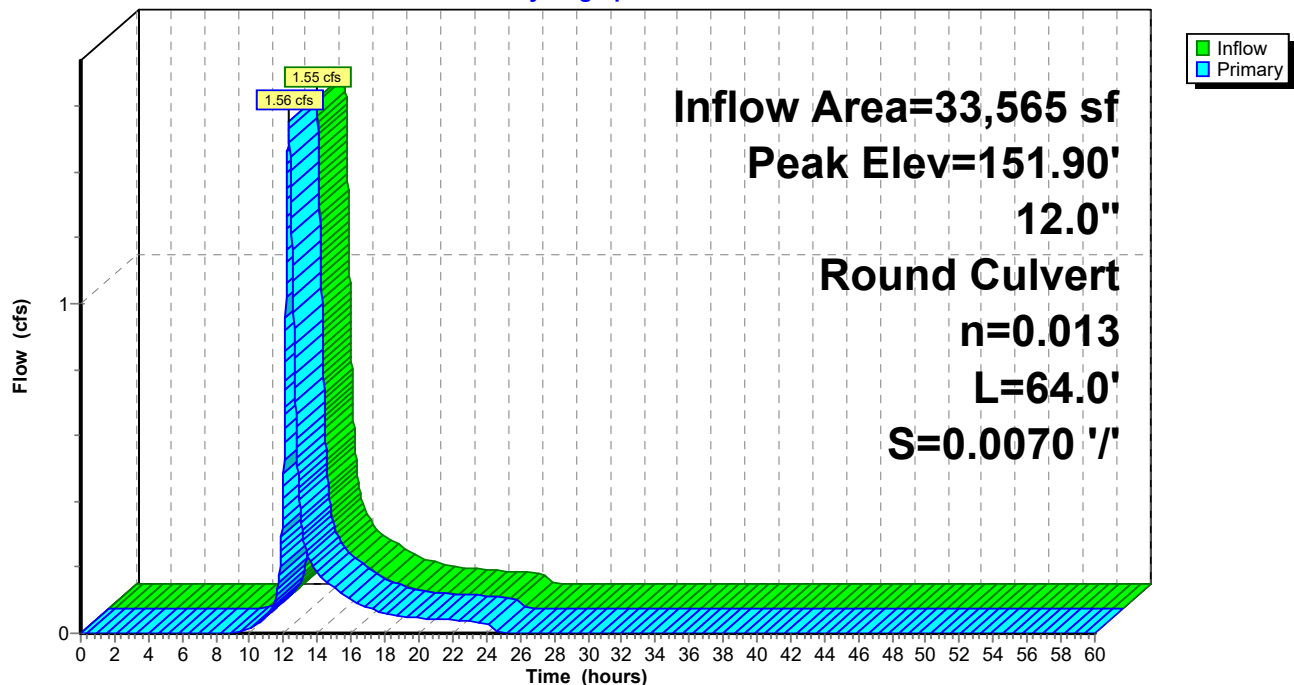
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Summary for Pond 64P: CB-42

Inflow Area =   22,331 sf, 84.42% Impervious, Inflow Depth = 4.87"   for 25 year event
Inflow   =   2.68 cfs @ 12.09 hrs, Volume=   9,068 cf
Outflow   =   2.68 cfs @ 12.09 hrs, Volume=   9,068 cf, Atten= 0%, Lag= 0.0 min
Primary   =   2.68 cfs @ 12.09 hrs, Volume=   9,068 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 155.68' @ 12.09 hrs
Flood Elev= 158.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	154.47'	**12.0" Round Culvert** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 154.47' / 154.00' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.67 cfs @ 12.09 hrs HW=155.67' TW=102.71' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.67 cfs @ 3.58 fps)

Pond 64P: CB-42

Hydrograph
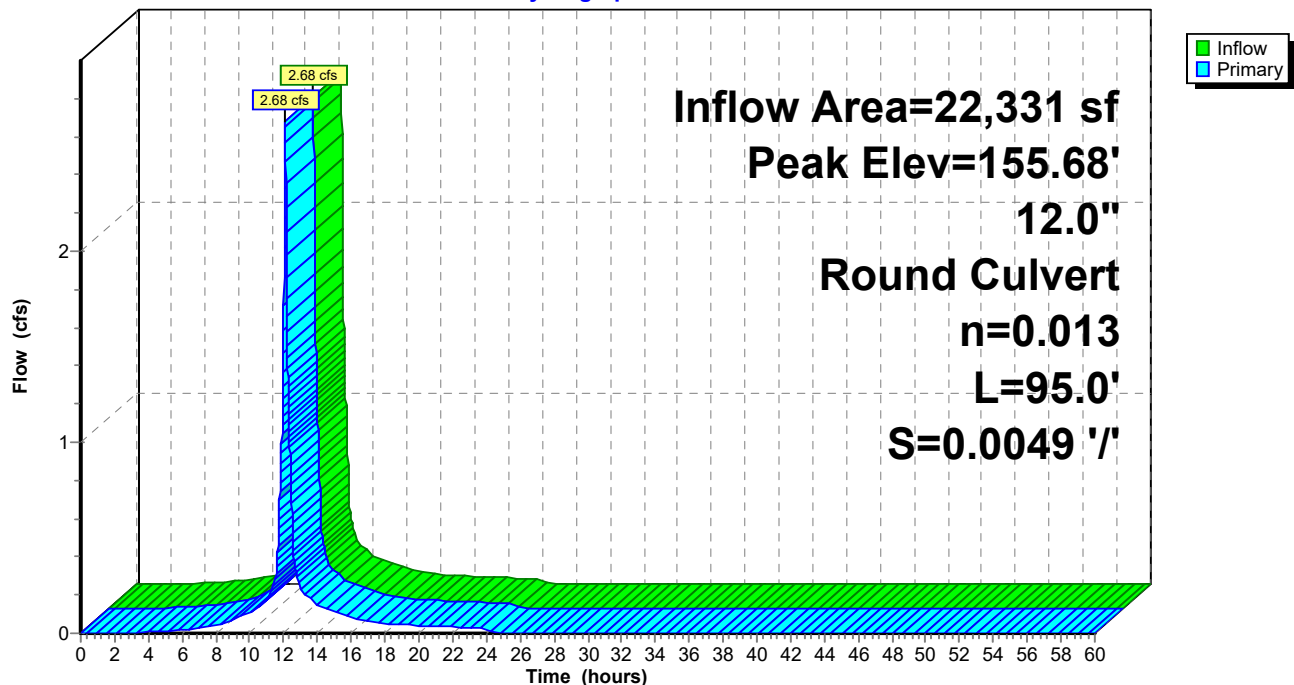
Inflow Area=22,331 sf
Peak Elev=155.68'
12.0"
Round Culvert
n=0.013
L=95.0'
S=0.0049 '/'

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Summary for Pond 66P: DMH-5

Inflow Area =   251,049 sf, 48.87% Impervious, Inflow Depth =   3.74"   for 25 year event
Inflow   =   19.94 cfs @   12.10 hrs, Volume=   78,271 cf
Outflow   =   19.94 cfs @   12.10 hrs, Volume=   78,271 cf, Atten= 0%, Lag= 0.0 min
Primary   =   19.94 cfs @   12.10 hrs, Volume=   78,271 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 135.09' @ 12.10 hrs
Flood Elev= 144.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.35'	**24.0" Round Stormdrain** L= 287.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.35' / 122.00' S= 0.0361 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=19.92 cfs @ 12.10 hrs HW=135.08' TW=117.64'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 19.92 cfs @ 6.34 fps)

Pond 66P: DMH-5

Hydrograph
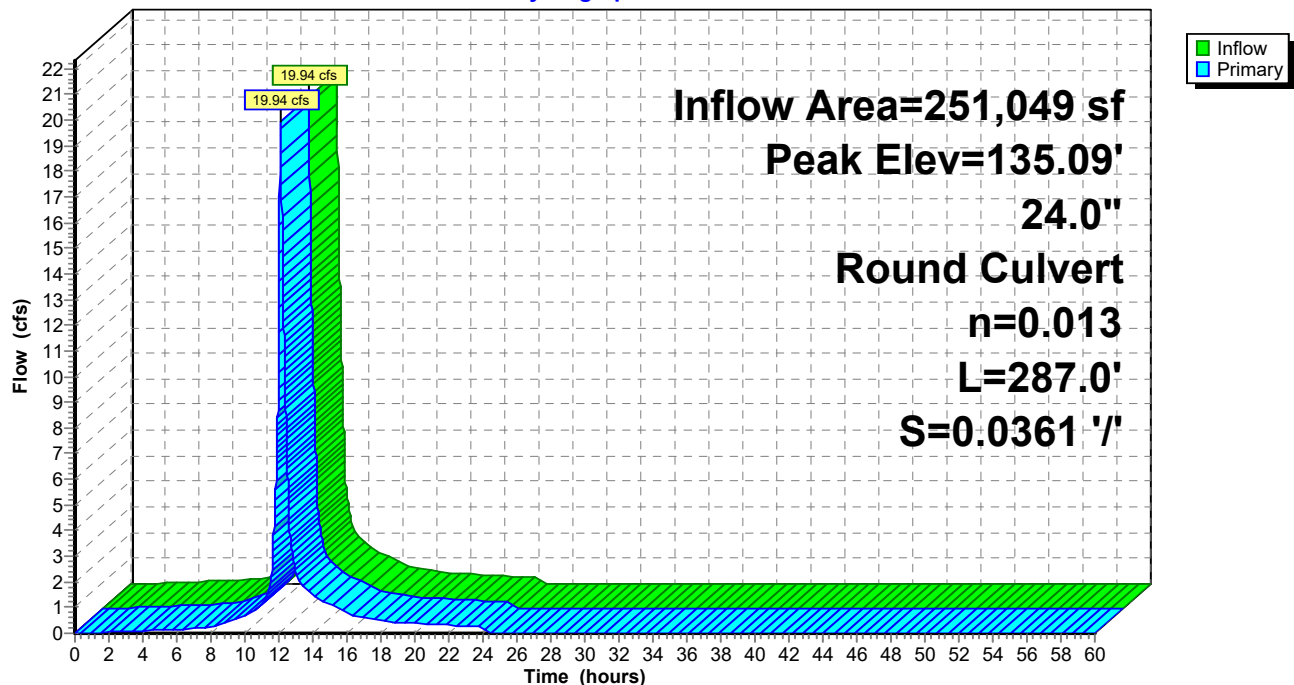
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Summary for Pond 67P: RD-1 Bldg 5

Inflow Area =		13,568 sf,100.00% Impervious,	Inflow Depth = 5.56"	for 25 year event	
Inflow =	1.77 cfs @ 12.08 hrs,	Volume=	6,289 cf		
Outflow =	1.77 cfs @ 12.08 hrs,	Volume=	6,289 cf,	Atten= 0%,	Lag= 0.0 min
Primary =	1.77 cfs @ 12.08 hrs,	Volume=	6,289 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 145.36' @ 12.09 hrs
Flood Elev= 148.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	143.00'	**8.0" Round Stormdrain** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 143.00' / 142.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.75 cfs @ 12.08 hrs HW=145.35' TW=144.26' (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.75 cfs @ 5.02 fps)

Pond 67P: RD-1 Bldg 5

Hydrograph
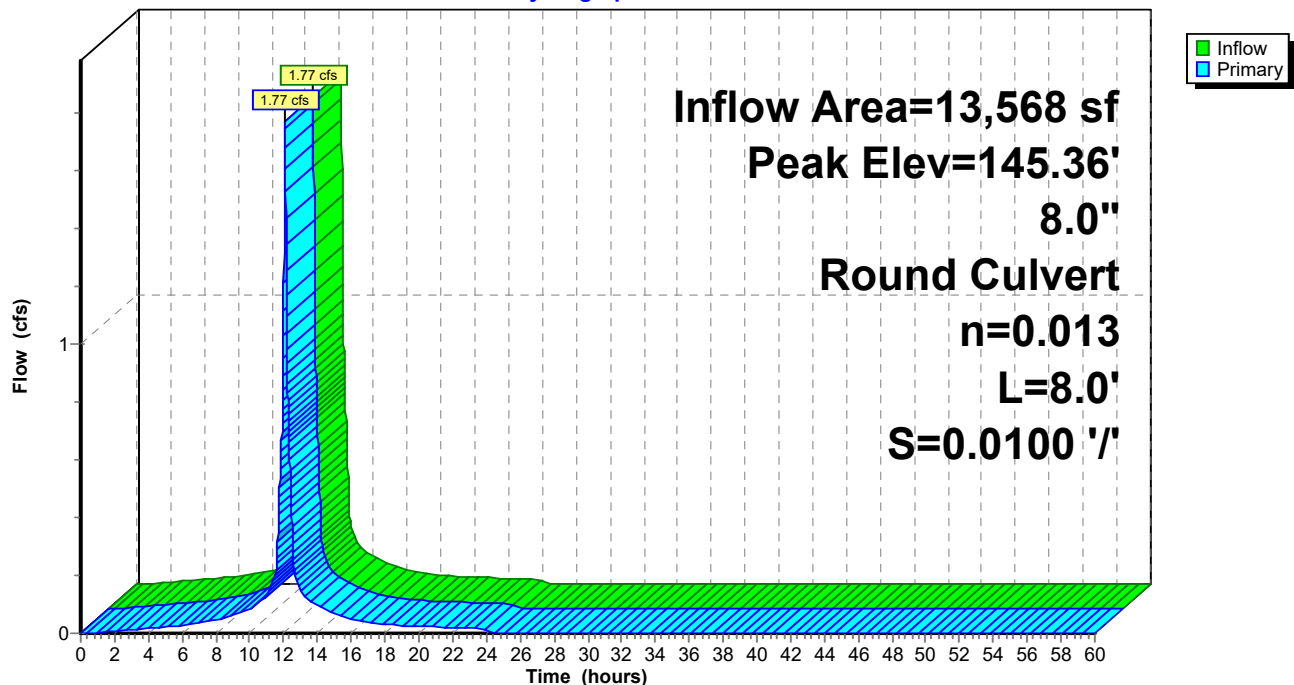
Inflow Area=13,568 sf
Peak Elev=145.36'
8.0"
Round Culvert
n=0.013
L=8.0'
S=0.0100 '/'

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Summary for Pond 80P: Wet Pond 1

Inflow Area =   341,876 sf, 39.01% Impervious, Inflow Depth = 3.55"   for 25 year event
Inflow   =   25.52 cfs @   12.11 hrs, Volume=   101,216 cf
Outflow   =   6.28 cfs @   12.63 hrs, Volume=   120,780 cf, Atten= 75%, Lag= 31.3 min
Primary   =   6.28 cfs @   12.63 hrs, Volume=   120,780 cf
Secondary =   0.00 cfs @   0.00 hrs, Volume=   0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 127.00' Surf.Area= 28,720 sf Storage= 65,583 cf
Peak Elev= 128.97' @ 12.63 hrs Surf.Area= 35,163 sf Storage= 101,960 cf (36,377 cf above start)
Flood Elev= 132.00' Surf.Area= 36,996 sf Storage= 124,308 cf (58,725 cf above start)

Plug-Flow detention time= 1,505.4 min calculated for 55,188 cf (55% of inflow)
Center-of-Mass det. time= 596.7 min (1,414.3 - 817.7)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	65,583 cf	**PPV (Prismatic)**Listed below (Recalc)
#2	127.00'	58,725 cf	**CPV (Prismatic)**Listed below (Recalc)
		124,308 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	4,806	0	0
122.00	7,253	12,059	12,059
124.00	9,926	17,179	29,238
126.00	12,826	22,752	51,990
127.00	14,360	13,593	65,583

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
127.00	14,360	0	0
127.80	18,729	13,236	13,236
128.00	19,073	3,780	17,016
130.00	22,636	41,709	58,725

Device	Routing	Invert	Outlet Devices
#1	Primary	124.20'	**36.0" Round Outlet** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.20' / 123.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf
#2	Device 1	124.50'	**3.0" Vert. Orifice** C= 0.600
#3	Device 2	124.50'	**6.0" Round 6" UD Trench** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.50' / 124.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#4	Device 1	128.50'	**1.0" x 9.0" Horiz. Grate at OCS-1 X 28.00** C= 0.600 Limited to weir flow at low heads
#5	Secondary	130.00'	**25.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

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Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64
2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=6.28 cfs @ 12.63 hrs HW=128.97' TW=102.58' (Dynamic Tailwater)
└─**1=Outlet** (Passes 6.28 cfs of 48.60 cfs potential flow)
　└─**2=Orifice** (Orifice Controls 0.49 cfs @ 10.04 fps)
　　└─**3=6" UD Trench** (Passes 0.49 cfs of 1.18 cfs potential flow)
　└─**4=Grate at OCS-1** (Orifice Controls 5.78 cfs @ 3.30 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.00' TW=102.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Pond 80P: Wet Pond 1

Hydrograph
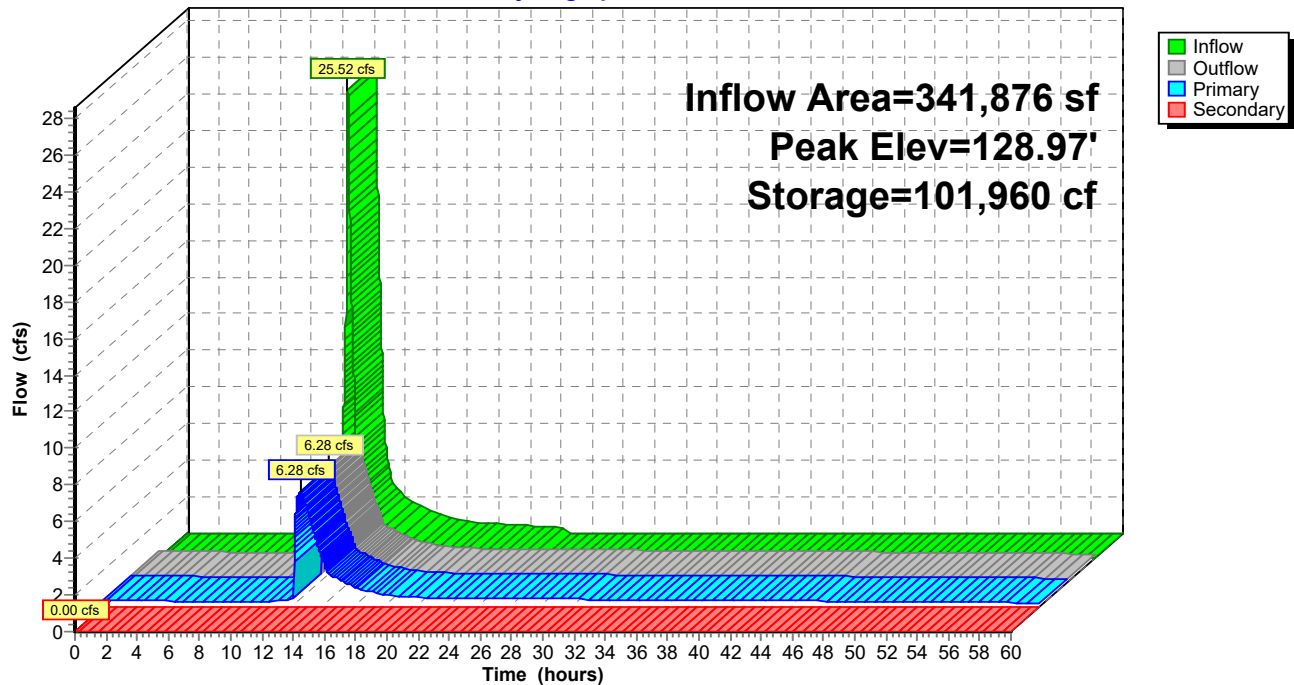
Inflow Area=341,876 sf
Peak Elev=128.97'
Storage=101,960 cf

Legend: Inflow, Outflow, Primary, Secondary

25.52 cfs
6.28 cfs
6.28 cfs
0.00 cfs

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Summary for Pond 82P: Forebay 1

Inflow Area =   255,806 sf, 46.55% Impervious, Inflow Depth = 3.78"   for 25 year event
Inflow   =   19.91 cfs @ 12.09 hrs, Volume=   80,493 cf
Outflow   =   19.80 cfs @ 12.10 hrs, Volume=   76,100 cf, Atten= 1%, Lag= 0.6 min
Primary   =   19.80 cfs @ 12.10 hrs, Volume=   76,100 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 129.45' @ 12.10 hrs   Surf.Area= 2,509 sf   Storage= 5,455 cf
Flood Elev= 132.00'   Surf.Area= 2,825 sf   Storage= 6,932 cf

Plug-Flow detention time= 55.9 min calculated for 76,100 cf (95% of inflow)
Center-of-Mass det. time= 24.9 min (815.6 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	126.00'	6,932 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
126.00	775	0	0
127.00	1,196	986	986
128.00	1,682	1,439	2,425
130.00	2,825	4,507	6,932

Device	Routing	Invert	Outlet Devices
#1	Primary	129.00'	**26.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=19.80 cfs @ 12.10 hrs HW=129.45' TW=127.92'   (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 19.80 cfs @ 1.71 fps)

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Pond 82P: Forebay 1

Hydrograph
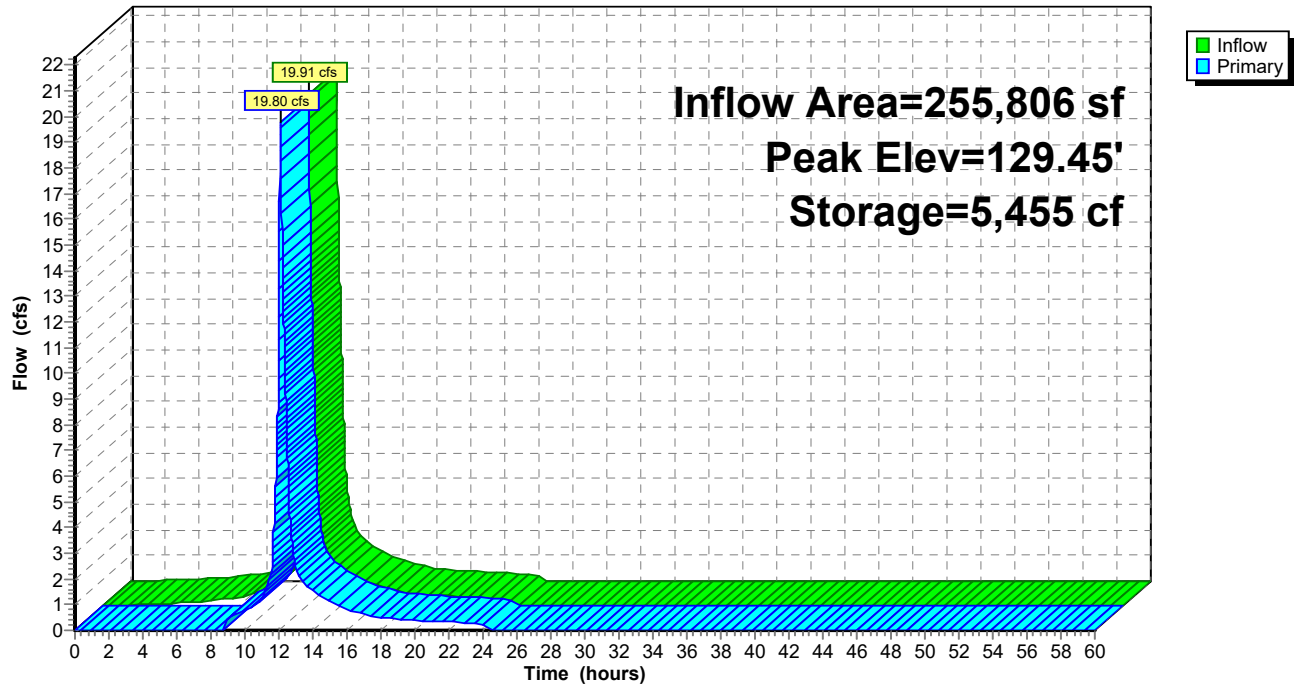
Inflow Area=255,806 sf
Peak Elev=129.45'
Storage=5,455 cf

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Summary for Pond 83P: RD-1 Bldg 9

Inflow Area =   8,835 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   1.15 cfs @ 12.08 hrs, Volume=   4,095 cf
Outflow   =   1.15 cfs @ 12.08 hrs, Volume=   4,095 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.15 cfs @ 12.08 hrs, Volume=   4,095 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.65' @ 12.10 hrs
Flood Elev= 149.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	146.00'	**12.0" Round Stormdrain** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.00' / 145.54' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.11 cfs @ 12.08 hrs HW=146.64' TW=146.33'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 1.11 cfs @ 2.99 fps)

Pond 83P: RD-1 Bldg 9
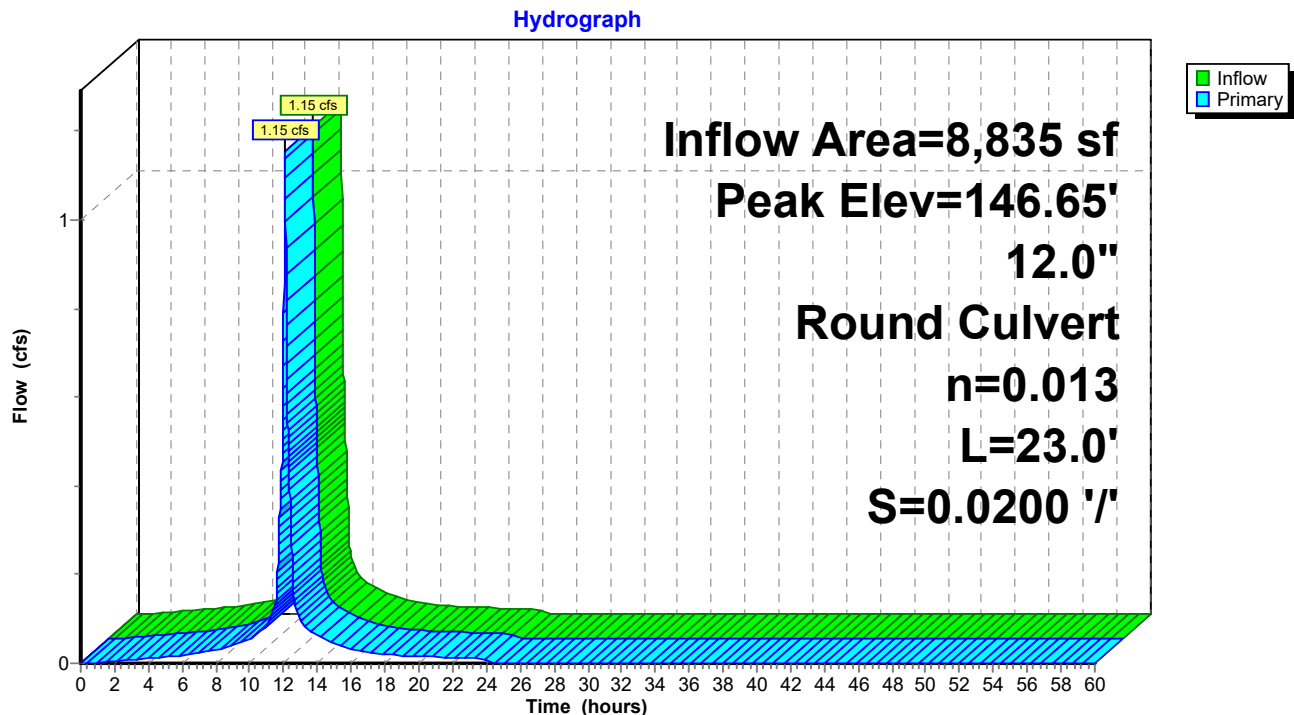
Hydrograph

Inflow Area=8,835 sf
Peak Elev=146.65'
12.0"
Round Culvert
n=0.013
L=23.0'
S=0.0200 '/'

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Summary for Pond 85P: CB-43

Inflow Area =   12,220 sf,100.00% Impervious, Inflow Depth =   5.56"   for 25 year event
Inflow   =   1.59 cfs @   12.08 hrs, Volume=   5,664 cf
Outflow   =   1.59 cfs @   12.08 hrs, Volume=   5,664 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.59 cfs @   12.08 hrs, Volume=   5,664 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.66' @ 12.10 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.60'	**12.0" Round Stormdrain** L= 95.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.60' / 145.13' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.53 cfs @ 12.08 hrs HW=146.64' TW=146.33'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 1.53 cfs @ 2.32 fps)

Pond 85P: CB-43

Hydrograph
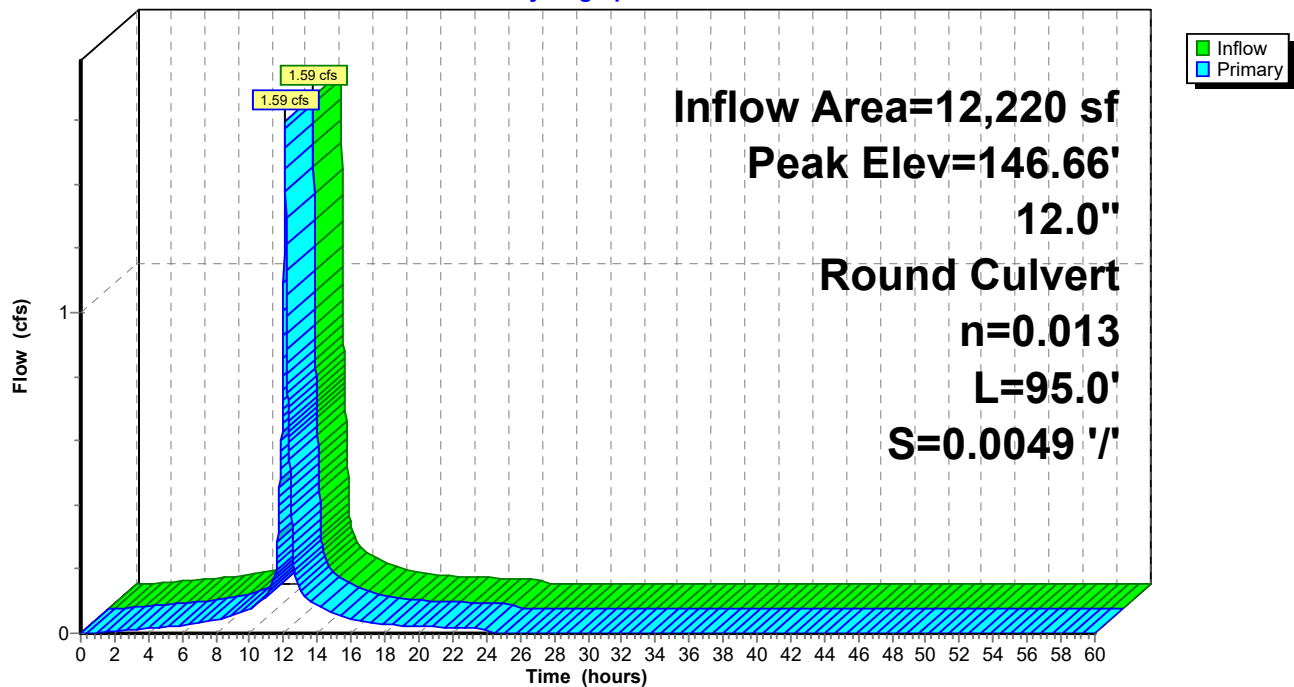
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Summary for Pond 86P: RD-2 Bldg 9

Inflow Area =   12,220 sf, 100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   1.59 cfs @ 12.08 hrs, Volume=   5,664 cf
Outflow   =   1.59 cfs @ 12.08 hrs, Volume=   5,664 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.59 cfs @ 12.08 hrs, Volume=   5,664 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 147.53' @ 12.09 hrs
Flood Elev= 152.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	146.00'	**8.0" Round Stormdrain** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.00' / 145.65' S= 0.0194 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.57 cfs @ 12.08 hrs HW=147.52' TW=146.64'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.57 cfs @ 4.50 fps)

Pond 86P: RD-2 Bldg 9
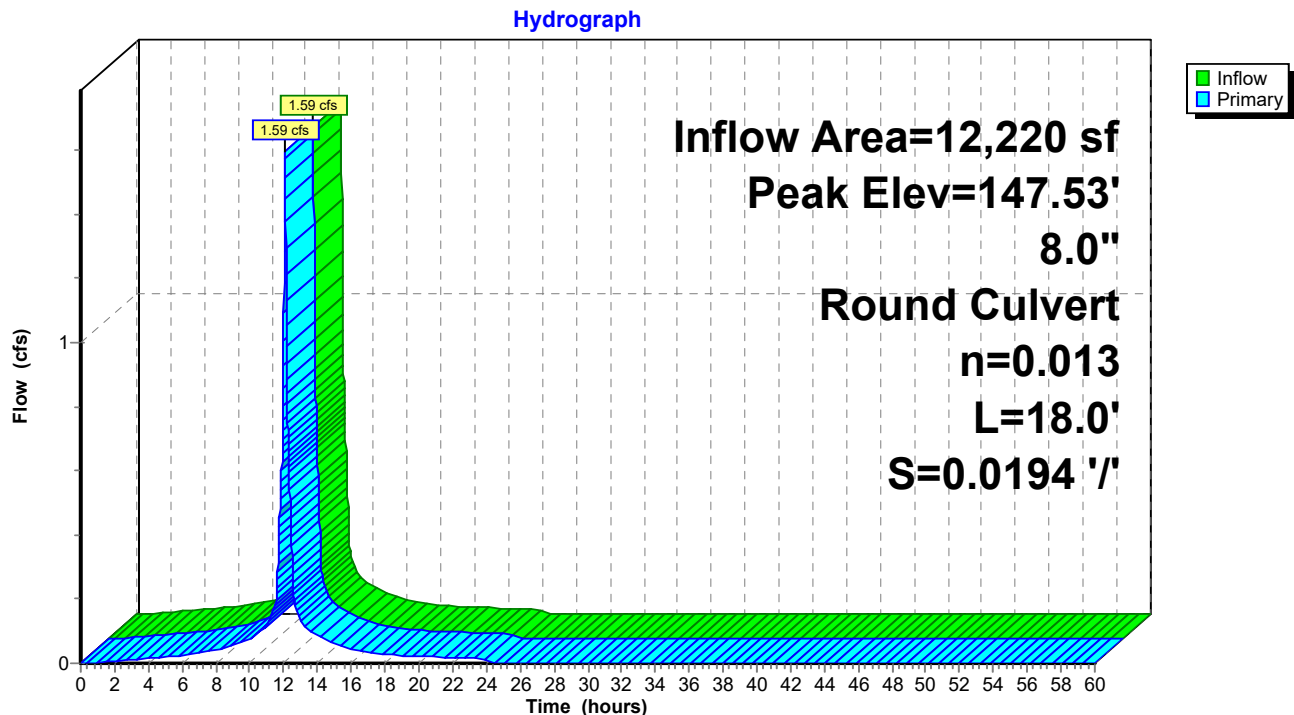
Hydrograph

Inflow Area=12,220 sf
Peak Elev=147.53'
8.0"
Round Culvert
n=0.013
L=18.0'
S=0.0194 '/'

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Summary for Pond 87P: DMH-8

Inflow Area =   46,015 sf,   1.68% Impervious, Inflow Depth = 1.95"   for 25 year event
Inflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf
Outflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 142.11' @ 12.26 hrs
Flood Elev= 151.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	141.59'	**24.0" Round Stormdrain** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.59' / 140.12' S= 0.0184 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.62 cfs @ 12.26 hrs HW=142.11' TW=140.54'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.62 cfs @ 2.47 fps)

Pond 87P: DMH-8

Hydrograph
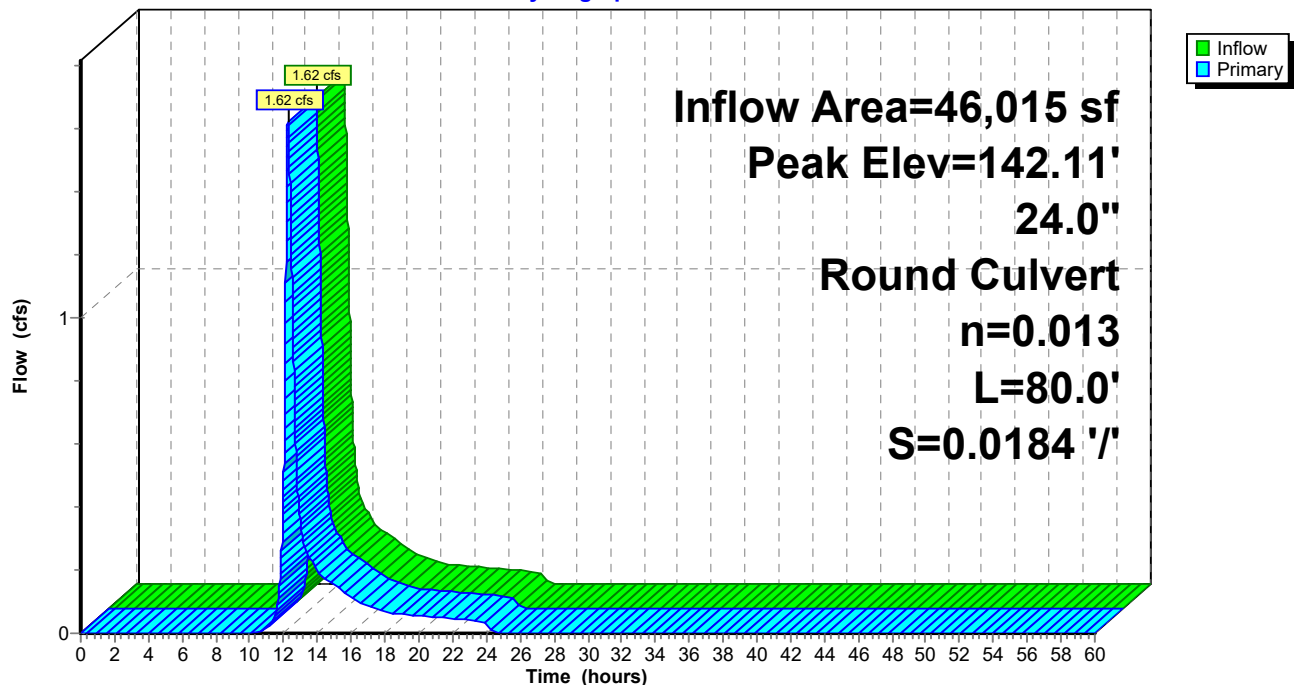
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Summary for Pond 88P: DMH-7

Inflow Area =   46,015 sf,   1.68% Impervious, Inflow Depth = 1.95"   for 25 year event
Inflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf
Outflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 146.42' @ 12.26 hrs
Flood Elev= 152.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	145.90'	**24.0" Round Stormdrain** L= 206.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 145.90' / 141.69' S= 0.0204 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.62 cfs @ 12.26 hrs HW=146.42' TW=142.11'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.62 cfs @ 2.47 fps)

Pond 88P: DMH-7

Hydrograph
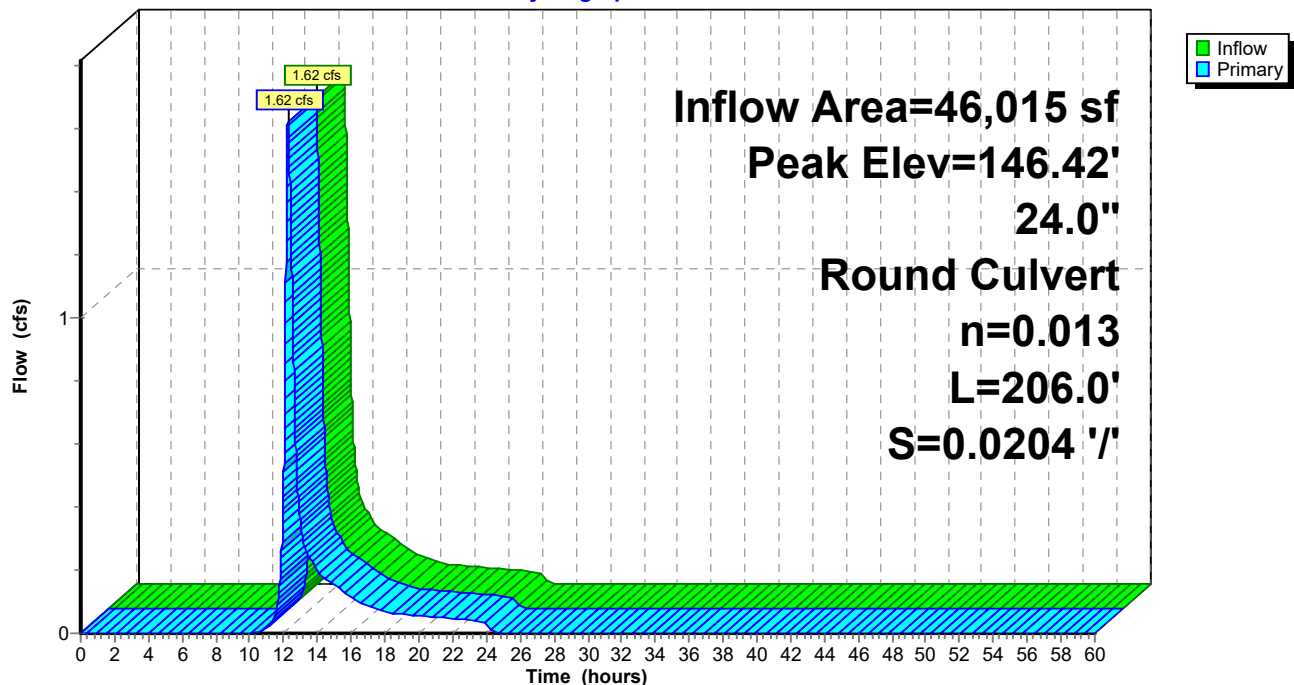
Inflow Area=46,015 sf
Peak Elev=146.42'
24.0"
Round Culvert
n=0.013
L=206.0'
S=0.0204 '/'

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Summary for Pond 89P: CB-4

Inflow Area =   46,015 sf,   1.68% Impervious, Inflow Depth =   1.95"   for 25 year event
Inflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf
Outflow   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.62 cfs @   12.26 hrs, Volume=   7,496 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 149.61' @ 12.26 hrs
Flood Elev= 153.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	148.92'	**12.0" Round Stormdrain** L= 82.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.92' / 145.90' S= 0.0368 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.62 cfs @ 12.26 hrs HW=149.61' TW=146.42'   (Dynamic Tailwater)
  └─**1=Stormdrain** (Inlet Controls 1.62 cfs @ 2.82 fps)

Pond 89P: CB-4

Hydrograph
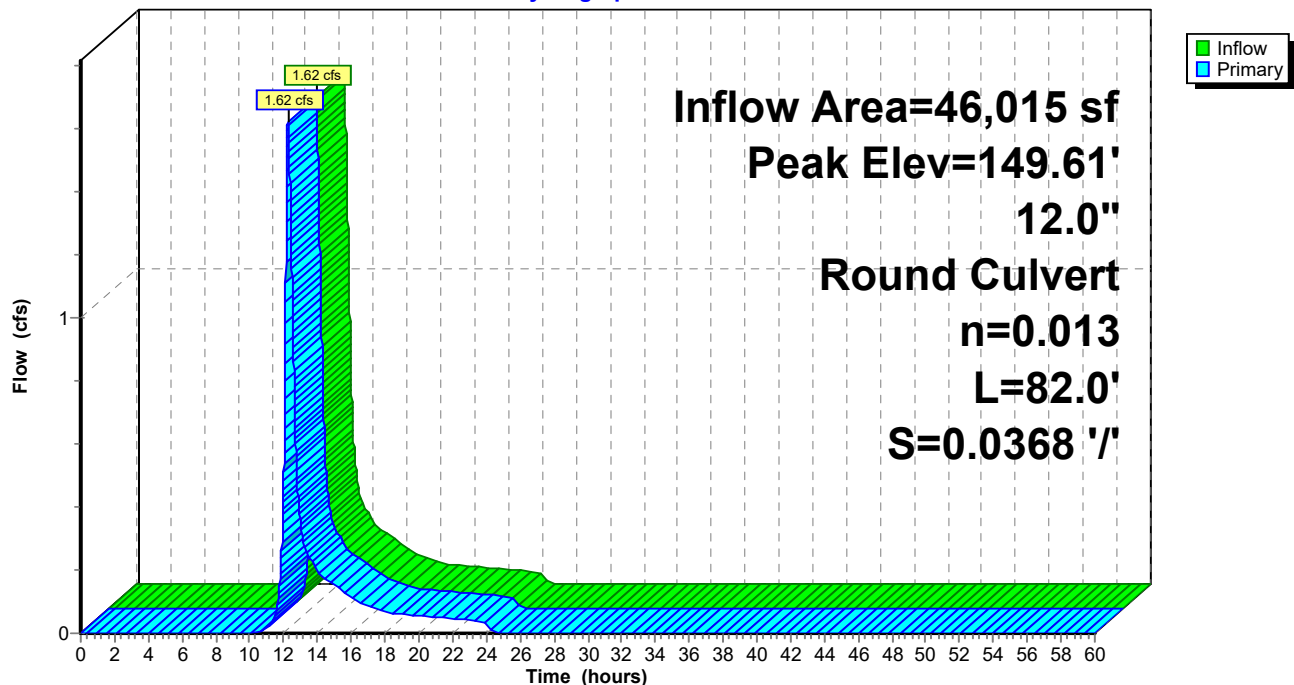
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Type III 24-hr 25 year Rainfall=5.80"
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Summary for Pond 90P:

Inflow Area =   14,440 sf,100.00% Impervious, Inflow Depth = 5.56"   for 25 year event
Inflow   =   1.88 cfs @   12.08 hrs, Volume=   6,693 cf
Outflow   =   1.88 cfs @   12.08 hrs, Volume=   6,693 cf, Atten= 0%, Lag= 0.0 min
Primary   =   1.88 cfs @   12.08 hrs, Volume=   6,693 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 158.26' @ 12.08 hrs
Flood Elev= 163.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	**12.0" Round Stormdrain**
			L= 176.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 157.50' / 153.45' S= 0.0230 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.88 cfs @ 12.08 hrs HW=158.25' TW=102.69'   (Dynamic Tailwater)
└─**1=Stormdrain** (Inlet Controls 1.88 cfs @ 2.96 fps)

Pond 90P:
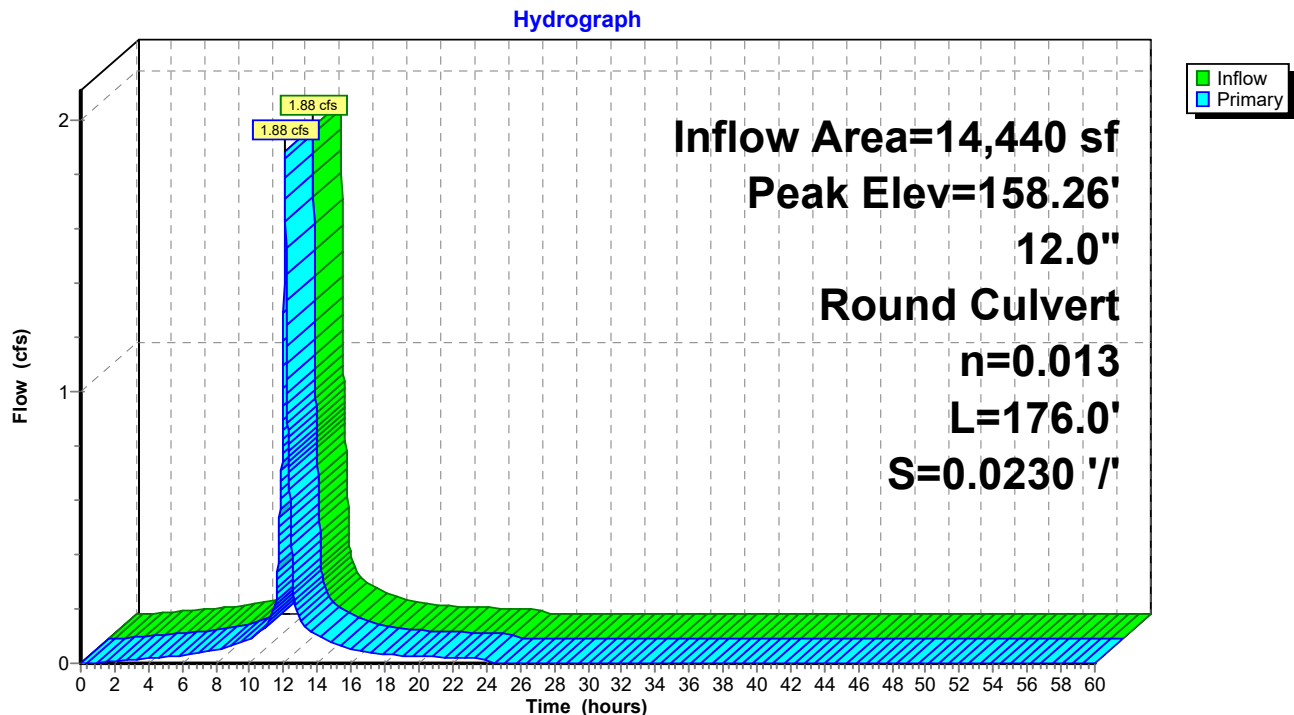
Hydrograph

Inflow Area=14,440 sf
Peak Elev=158.26'
12.0"
Round Culvert
n=0.013
L=176.0'
S=0.0230 '/'

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Summary for Pond 91P: CB-6

Inflow Area =   104,541 sf, 66.52% Impervious, Inflow Depth = 4.72"   for 25 year event
Inflow   =   10.88 cfs @ 12.09 hrs, Volume=   41,091 cf
Outflow   =   10.88 cfs @ 12.09 hrs, Volume=   41,091 cf, Atten= 0%, Lag= 0.0 min
Primary   =   10.88 cfs @ 12.09 hrs, Volume=   41,091 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 140.35' @ 12.09 hrs
Flood Elev= 145.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	137.56'	**12.0" Round Stormdrain X 3.00** L= 137.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 137.56' / 136.53' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=10.71 cfs @ 12.09 hrs HW=140.31' TW=138.45'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 10.71 cfs @ 4.54 fps)

Pond 91P: CB-6

Hydrograph
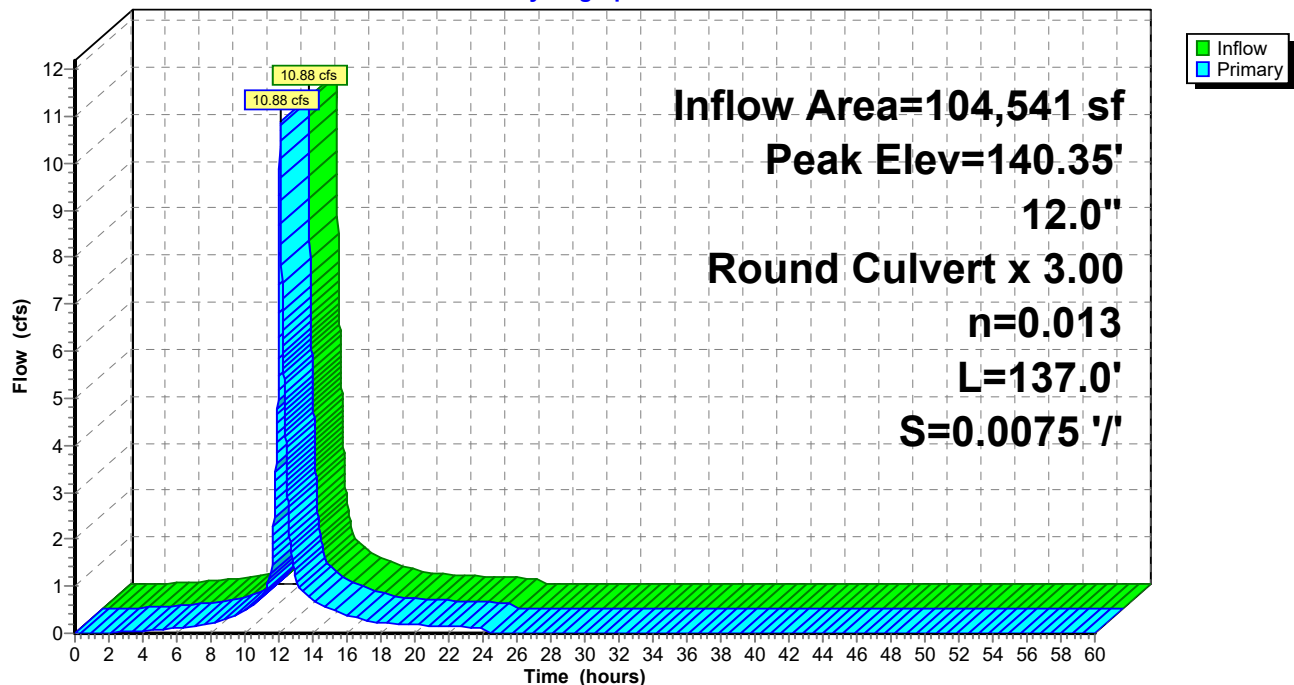
Inflow Area=104,541 sf
Peak Elev=140.35'
12.0"
Round Culvert x 3.00
n=0.013
L=137.0'
S=0.0075 '/'

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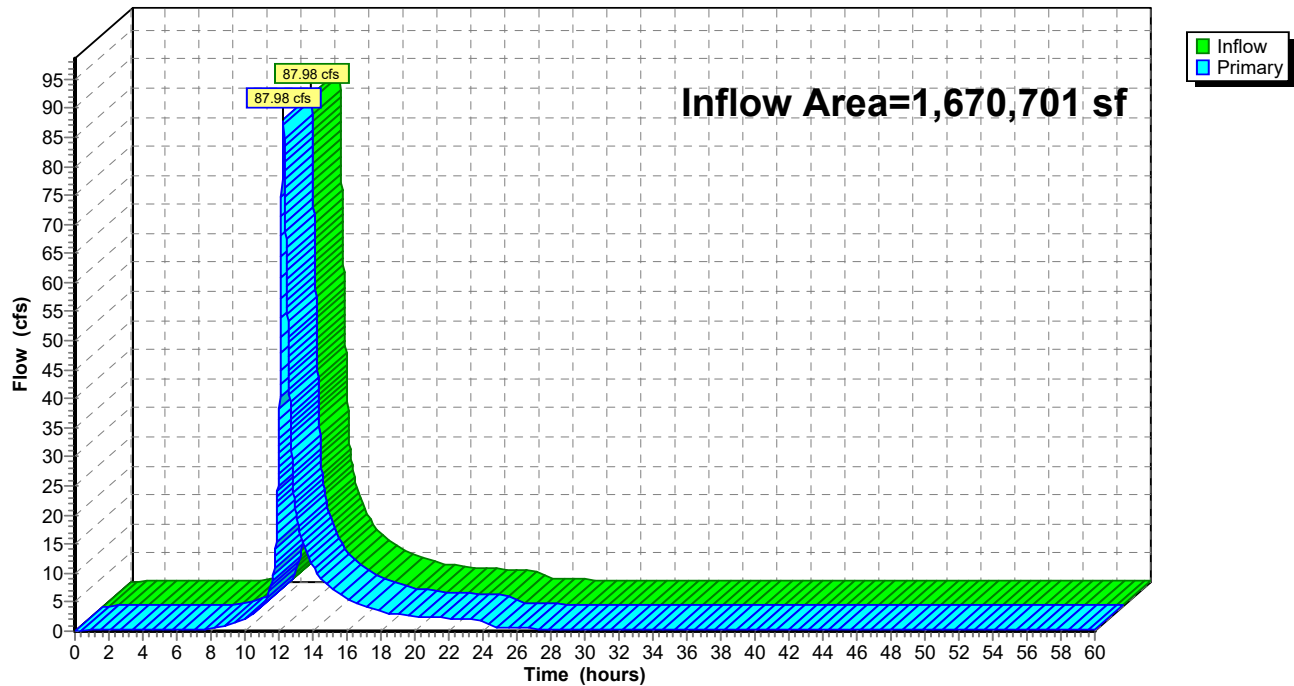*Type III 24-hr 25 year Rainfall=5.80"*
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Summary for Pond 92P: DMH-12

Inflow Area =   104,541 sf, 66.52% Impervious, Inflow Depth = 4.72"   for 25 year event
Inflow   =   10.88 cfs @ 12.09 hrs, Volume=   41,091 cf
Outflow   =   10.88 cfs @ 12.09 hrs, Volume=   41,091 cf, Atten= 0%, Lag= 0.0 min
Primary   =   10.88 cfs @ 12.09 hrs, Volume=   41,091 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 138.50' @ 12.10 hrs
Flood Elev= 143.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.43'	**24.0" Round Stormdrain** L= 67.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.43' / 135.93' S= 0.0074 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.26 cfs @ 12.09 hrs HW=138.45' TW=137.91'   (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 10.26 cfs @ 4.02 fps)

Pond 92P: DMH-12

Hydrograph
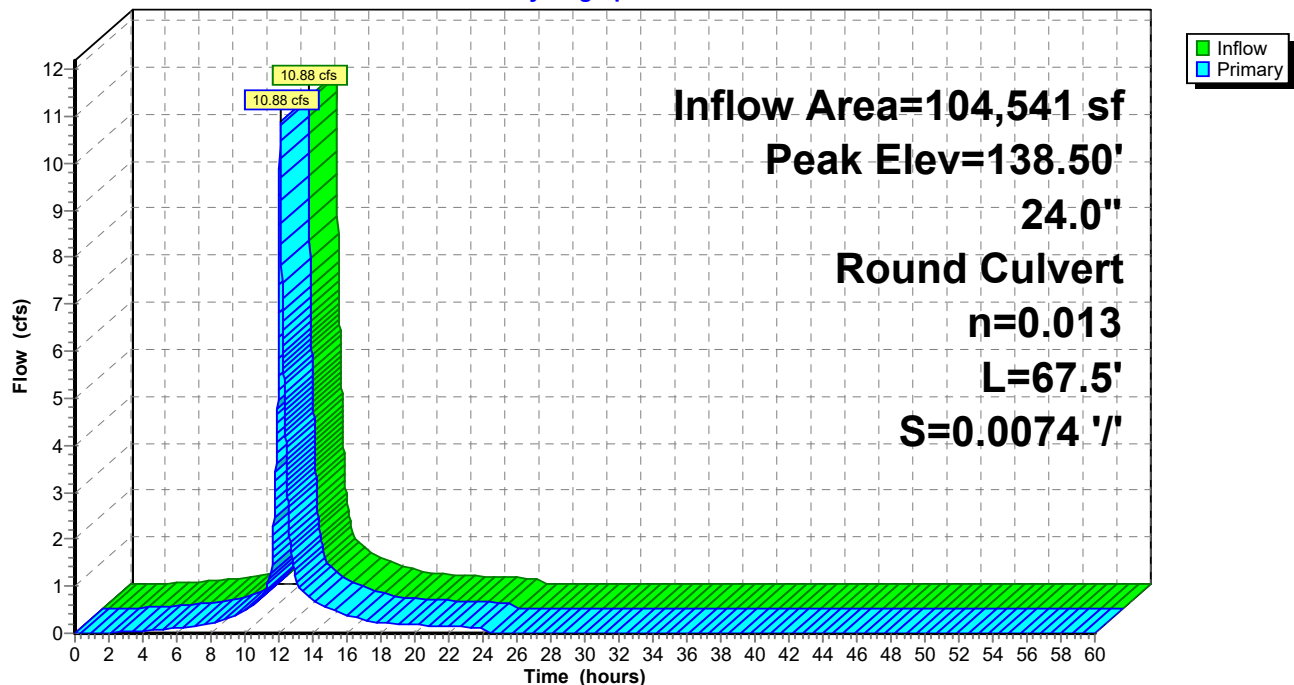
Inflow Area=104,541 sf
Peak Elev=138.50'
24.0"
Round Culvert
n=0.013
L=67.5'
S=0.0074 '/'

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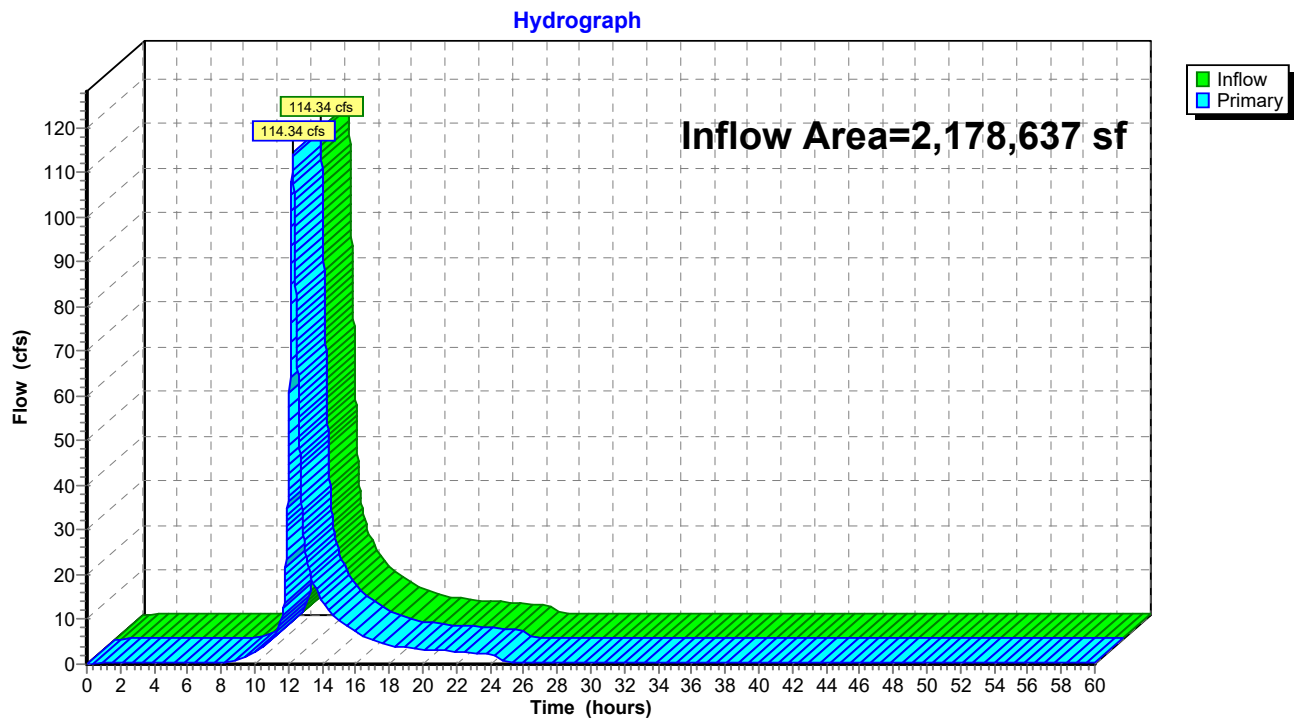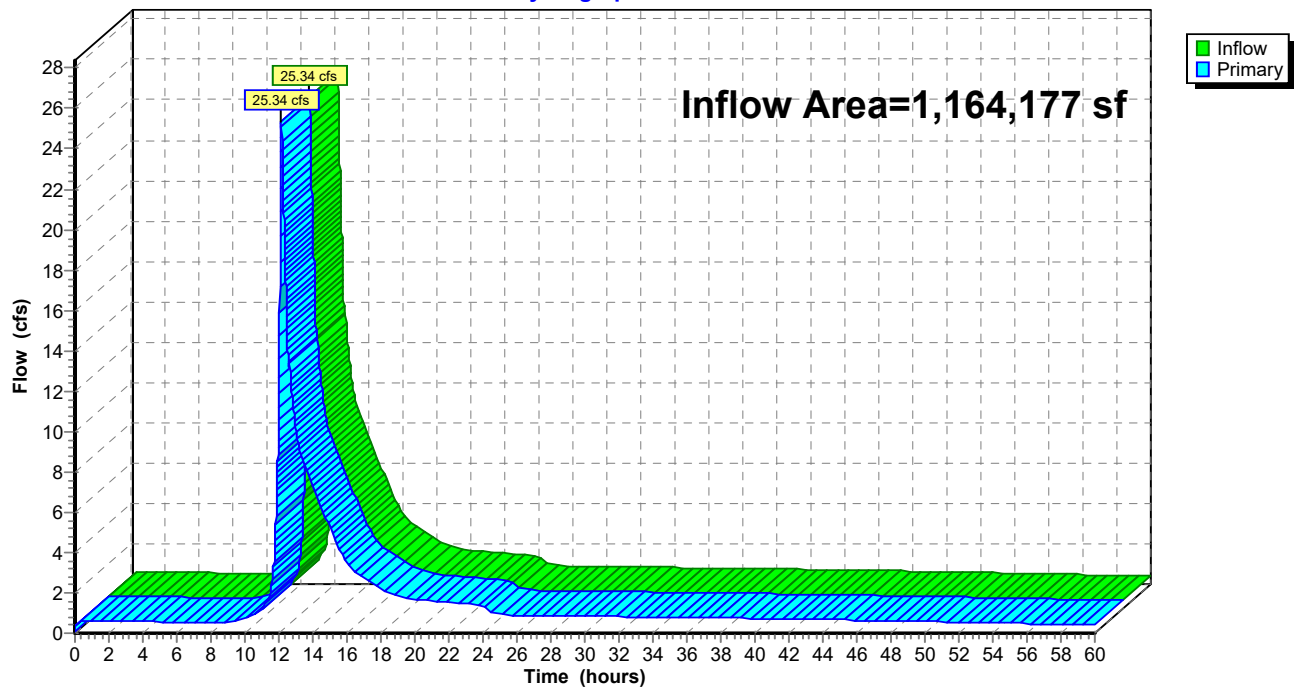Printed 7/18/2019
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Summary for Pond 93P: DMH-11

Inflow Area =		104,541 sf, 66.52% Impervious, Inflow Depth = 4.72" for 25 year event		
Inflow	=	10.88 cfs @ 12.09 hrs, Volume=	41,091 cf	
Outflow	=	10.88 cfs @ 12.09 hrs, Volume=	41,091 cf, Atten= 0%, Lag= 0.0 min
Primary	=	10.88 cfs @ 12.09 hrs, Volume=	41,091 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 137.94' @ 12.10 hrs
Flood Elev= 145.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.83'	**24.0" Round Stormdrain** L= 111.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.83' / 135.00' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.46 cfs @ 12.09 hrs HW=137.91' TW=137.28' (Dynamic Tailwater)
└─**1=Stormdrain** (Outlet Controls 10.46 cfs @ 3.98 fps)

Pond 93P: DMH-11

Hydrograph
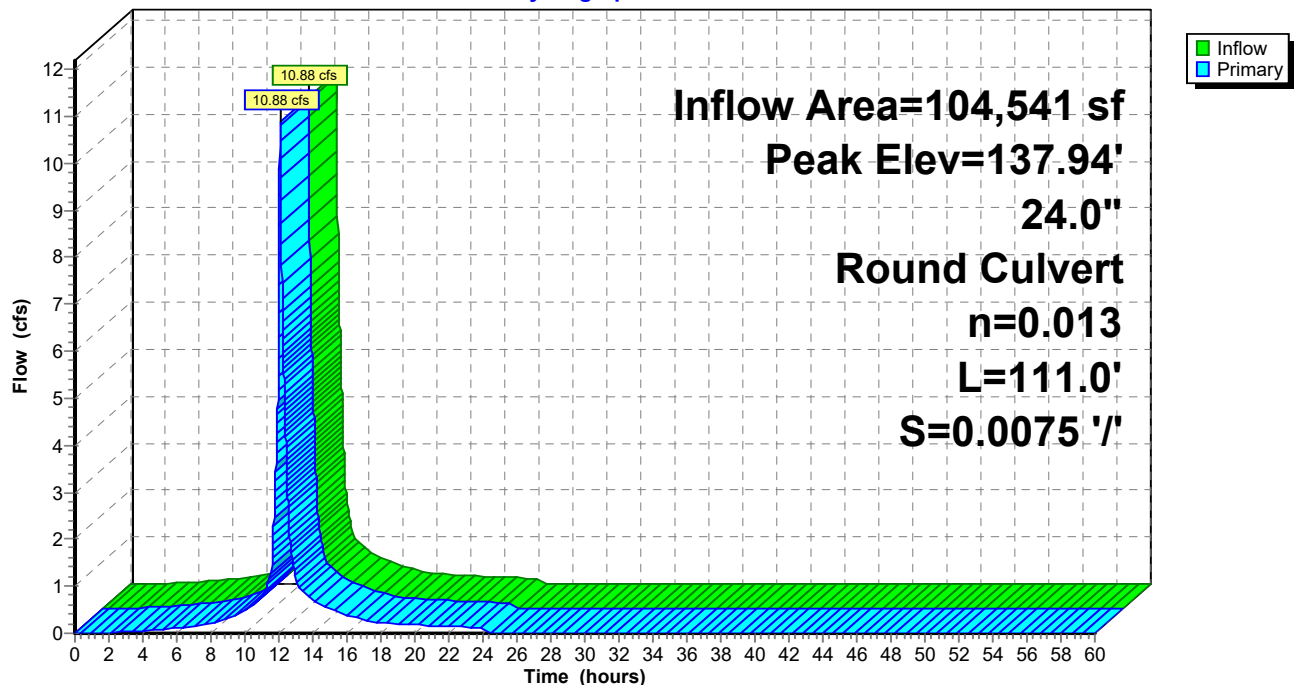
Inflow Area=104,541 sf
Peak Elev=137.94'
24.0"
Round Culvert
n=0.013
L=111.0'
S=0.0075 '/'

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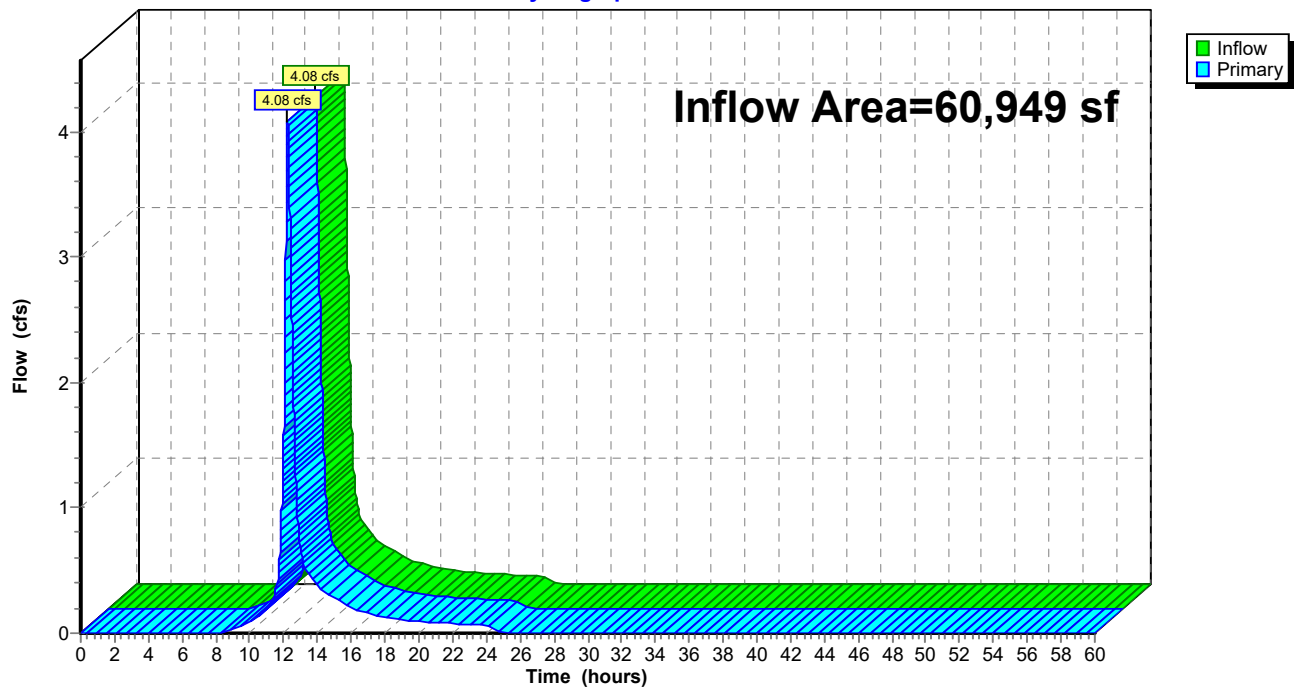*Type III 24-hr 25 year Rainfall=5.80"*
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Summary for Link SP1: Study Point 1

Inflow Area =   1,670,701 sf, 12.56% Impervious, Inflow Depth > 3.51"   for 25 year event
Inflow   =   87.98 cfs @   12.25 hrs, Volume=   488,832 cf
Primary   =   87.98 cfs @   12.25 hrs, Volume=   488,832 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP1: Study Point 1

Hydrograph

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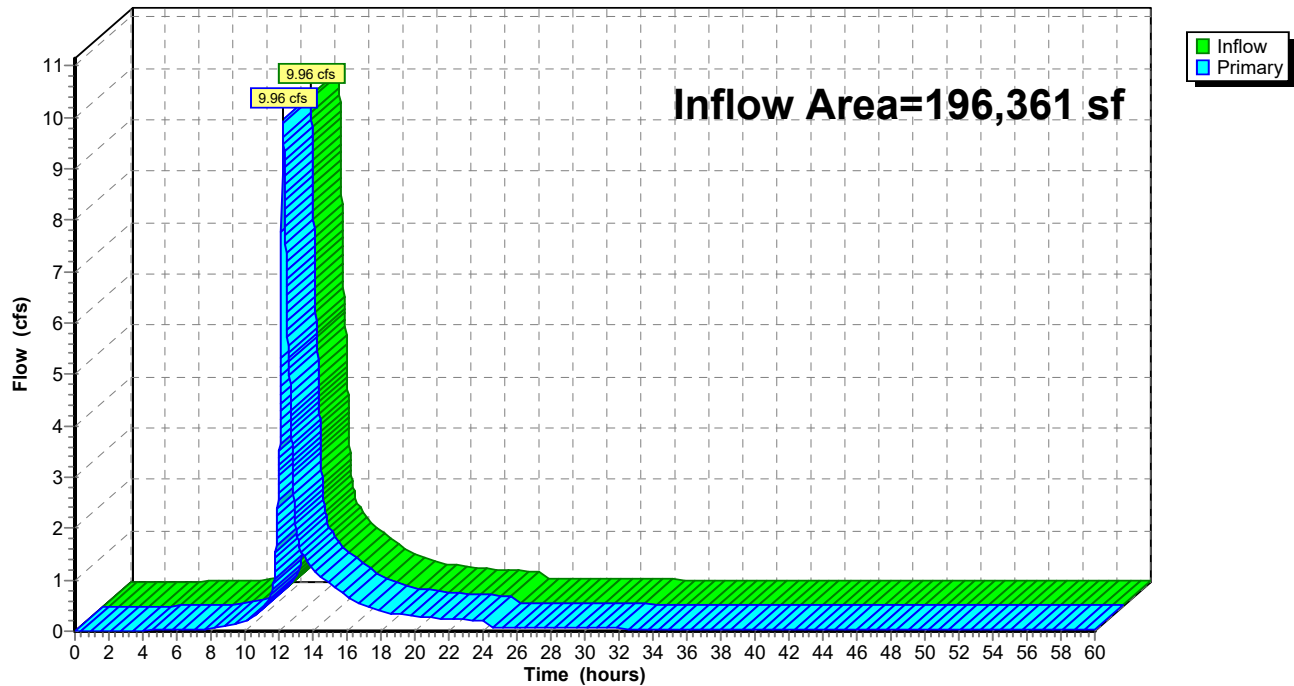*Type III 24-hr 25 year Rainfall=5.80"*
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Summary for Link SP2: Study Point 2

Inflow Area =   2,178,637 sf, 12.14% Impervious, Inflow Depth >   3.37"   for 25 year event
Inflow   =   114.34 cfs @   12.25 hrs, Volume=   611,334 cf
Primary   =   114.34 cfs @   12.25 hrs, Volume=   611,334 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP2: Study Point 2

Hydrograph

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Summary for Link SP3: Study Point 3

Inflow Area =   1,164,177 sf, 19.24% Impervious, Inflow Depth >   3.16"   for 25 year event
Inflow   =   25.34 cfs @   12.16 hrs, Volume=   306,723 cf
Primary   =   25.34 cfs @   12.16 hrs, Volume=   306,723 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP3: Study Point 3

Hydrograph

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Summary for Link SP4: Study Point 4

Inflow Area =   60,949 sf,   3.84% Impervious, Inflow Depth =   3.40"   for 25 year event
Inflow   =   4.08 cfs @   12.24 hrs, Volume=   17,283 cf
Primary   =   4.08 cfs @   12.24 hrs, Volume=   17,283 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP4: Study Point 4

Hydrograph

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Summary for Link SP5: SP5

Inflow Area =   196,361 sf, 30.97% Impervious, Inflow Depth > 3.26"   for 25 year event
Inflow   =   9.96 cfs @   12.24 hrs, Volume=   53,423 cf
Primary   =   9.96 cfs @   12.24 hrs, Volume=   53,423 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP5: SP5

Hydrograph

Inflow Area=196,361 sf

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Summary for Link SP6: Study Point 6

Inflow Area =   368,711 sf, 38.59% Impervious, Inflow Depth > 3.07"   for 25 year event
Inflow   =   18.22 cfs @   12.11 hrs, Volume=   94,450 cf
Primary   =   18.22 cfs @   12.11 hrs, Volume=   94,450 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Link SP6: Study Point 6

Hydrograph
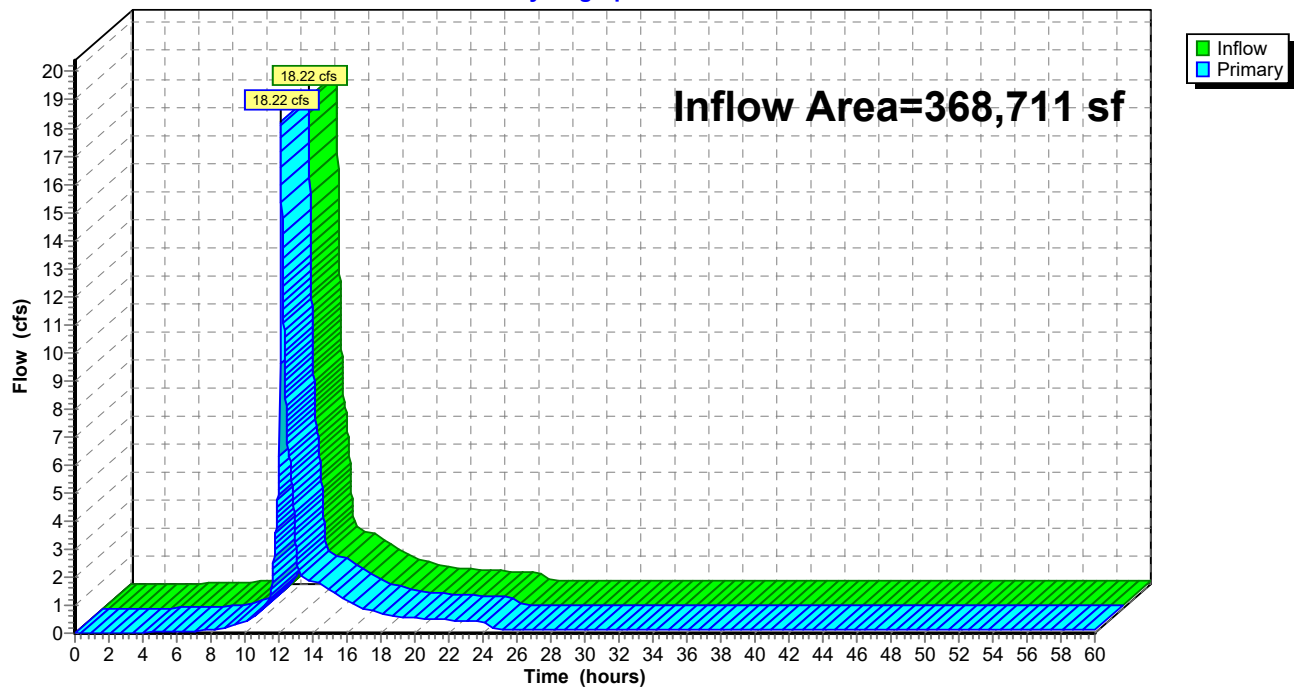
Attachment D

Inspection, Maintenance, and Housekeeping Plan

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN
Maine Correctional Center
Windham, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance, and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site by the Inspector during construction and by Maine Correctional Center after construction. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Inspector's responsibility to comply with the inspection and maintenance procedures outlined in this section and the erosion and sedimentation control plan for the project. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once per week as well as before and after a storm event, and prior to completing permanent stabilization measures. Needed repairs (as identified during an inspection) will be started no later than the end of the next workday and be completed within seven (7) calendar days. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. Correction action shall be performed in general conformance with the Maine Construction General Permit and Maine DEP Chapter 500 Stormwater standards. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed.

For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

   A.   Filter Berms:

   - Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
   - If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
   - Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
   - Filter berms shall be reshaped as needed.
   - Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

   B.   Stone Check Dams:

   - Inspect the center of the dam to make sure it is lower than the edges. Erosion caused by high flows around the edges of the dam must be corrected.
   - Sediment accumulation shall be removed prior to reaching half of the original design height.
   - Areas beneath stone check dams must be seeded and mulched upon removal.

   C.   Riprap Materials:

   - Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

   D.   Erosion Control Blankets:

   - Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
   - Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

   E.   Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

F.   Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

G.   Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5.   **Housekeeping:** The following general performance standards apply to the proposed project.

A.   Spill prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation. A Spill, Prevention, Control and Countermeasures Plan is created for the project and is to be kept onsite at all times.

B.   Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C.   Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control. If off-site tracking occurs, public roads should be

swept immediately and not less than once a week and prior to significant storm events.

D.   Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

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

Post-Construction

1.   **Inspection:** After construction, it is the responsibility of Maine Correctional Center or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in all applicable permits, shall conduct the inspections.

2.   **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction.

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

B.   Ditches, Swales and Other Open Channels:

- Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
- Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
- Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable.
- If the ditch has a riprap lining, replace riprap in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. <u>Winter Sanding:</u>

- Clear accumulations of winter sand along access road at least once a year, preferably in the spring.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

D. <u>Culverts:</u>

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

E. <u>Underdrained Soil Filter:</u>

- During the first year, the basins shall be inspected semi-annually and following major storm events.
- Debris and sediment buildup shall be removed from the forebays and basins as needed. Mowing of a grassed basin can occur semiannually to a height no less than 6 inches. Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter beds must be rototilled to reestablish the soil's filtration capacity.
- The soil filters should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filters should be inspected at least once every six months to ensure that it is draining within 48 hours following a one-inch storm or greater. Following storms that fill the system and overflow is observed, the soil filters should drain in no less than 36 to 60 hours. If the system drains too fast, an orifice may need to be added on the underdrain outlet or, if already present, may need to be modified.
- Soil Filter Replacement: The top several inches of the filters shall be replaced with fresh material when water ponds on the surface of the bed for more than 72 hours. Removed sediments should be disposed of in an acceptable manner.
- Sediment Removal: Sediment and plant debris should be removed from the pretreatment structures at least annually.
- Mowing: If mowing is desired, only handheld string trimmers or push-mowers are allowed on the filters (no tractor) and the grass beds should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization: Fertilization of the underdrained filter areas should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and Weeding: Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.
- Snow storage is prohibited on infiltration treatment structures. This shall be

noted where appropriate.

F.   Meadow/Wooded Buffer Areas:

- Remove dead wood and debris with minimal disturbance. Monitor for bypass and channelization; repair as it is occurring and remove sediment build-up to assure sheet flow conditions. Replant trees and bushes if needed. Perform monitoring on a semi-annual basis.

G.   Wet Pond:

- The pond outlet structure and outlet of the pond should be checked periodically to ensure that flow structures are not blocked by debris. All ditches or pipes connecting ponds in series should be checked for debris that may obstruct flow. Inspections should be conducted monthly during wet weather conditions from March to November.
- The wet pond and outlet should be inspected annually for erosion, destabilization of side slopes, embankment settling and other signs of structural failure. Any signs of erosion shall be immediately repaired to assure stability and proper function.
- The wet pond will be inspected on an annual basis to assure that significant sediment accumulation has not occurred in the pond outlet structure. Whenever the sump is 25% inundated with sediment, the accumulated sediment shall be removed and property disposed of.
- The underdrained gravel trench shall be inspected after every major storm in the first few months to ensure proper function. Thereafter, the gravel trench should be inspected at least once every six months. Inspection consists of verifying that the pond is slowly emptying thorough the gravel filter for short time (12-24 hours) after a storm and that potential clogging material such as accumulations of decaying leaves   are removed.
- The top several inches of the gravel in the underdrained trench must be replaced with fresh material when water ponds above the permanent pool for more than 72 hours. The removed sediments shall be disposed of in an acceptable manner.
- Wet ponds lose 0.5-1.0% of their volume annually due to sediment accumulation. Dredging is required when accumulated volume loss reaches 15%, or approximately every 15-20 years.

H.   Roof Drip Edge:

- During the first year, the drip edge shall be inspected semi-annually and following major storm events.
- Debris, sand and sediment buildup shall be removed as needed. Use vacuum truck as required to remove sand within rock. The drip edge should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filter should be inspected at least once every six months to ensure that it is draining within 48 hours following a one-inch storm or greater. Following storms that fill the system and overflow is observed, the soil filter should drain in no less than 36 to 60 hours.

- The rock layer shall be replaced with new rock free of sediment/ sand when water ponds on the surface of the bed for more than 72 hours. If water continues to pond, the top several inches of the filter shall be replaced with fresh material. Removed sediments should be disposed of in an acceptable manner.

3.   **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 2 of this Inspection, Maintenance, and Housekeeping Plan.

4.   **Maine DEP Recertification:** A certification of the following shall be submitted to the MDEP within three months of the expiration of each five-year interval from the date of issuance of MDEP permits.

   A.   Identification and repair of erosion problems. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
   B.   Inspection and repair of stormwater control system. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.
   C.   The Inspection, Maintenance, and Housekeeping Plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the MDEP, and the maintenance log is being maintained.

5.   **Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Authorized Non-stormwater discharges

1.   Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

A.   Discharges from firefighting activity;
B.   Fire hydrant flushings;
C.   Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
D.   Dust control runoff in accordance with permit conditions and Appendix (C)(3);
E.   Routine external building washdown, not including surface paint removal, that does not involve detergents;
F.   Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
G.   Uncontaminated air conditioning or compressor condensate;
H.   Uncontaminated groundwater or spring water;
I.   Foundation or footer drain-water where flows are not contaminated;
J.   Uncontaminated excavation dewatering (see requirements in Appendix C(5));
K.   Potable water sources including waterline flushings; and
L.   Landscape irrigation.

Unauthorized non-stormwater discharges:

1.   The Department's approval does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Appendix C (6) of Chapter 500. Specifically, the Department's approval does not authorize discharges of the following:

A.   Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
B.   Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
C.   Soaps, solvents, or detergents used in vehicle and equipment washing; and
D.   Toxic or hazardous substances from a spill or other release.

Attachments

Attachment 1 – Stormwater Inspection and Maintenance Log Form
16405

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

Maintenance and Central Plant Building
Maine Correctional Center
Windham, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for the Maintenance and Central Plant Building in Windham, Maine. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the municipality. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

`	INSPECTOR NAME	DATE PERFORMED	SUGGESTED INTERVAL
Vegetated Areas			
Inspect all slopes and embankments			Annually
Replant bare areas or areas with sparse growth			Annually
Paved Surfaces			
Clear accumulated winter sand			Annually
Remove sediment along edges and in pockets			Annually
Ditches & Swales			
Remove any obstructions and accumulated sediments and debris			Monthly
Repair any erosion of ditch lining			Annually
Mow vegetated ditches			Annually
Remove woody vegetation growing through riprap			Annually
Repair any slumping side slopes			Annually
Replace riprap where stones have dislodged			Annually
Catch Basins			
Remove accumulated sediments and debris in the sump and at grate			Annually
Culverts			
Remove accumulated sediments and debris at the inlet, outlet and within conduit			Annually
Repair any erosion at inlet and outlet			Annually

Underdrained Soil Filter			
Remove sediment & debris			Monthly
Remove weeds			Monthly (during growing season)
Erosion (side slopes, embankment)			Monthly
Inspection after major storm to verify proper function			Bi-Annually
Roof Drip Edge Filter			
Remove sediment & debris			Monthly
Remove weeds			Monthly (during growing season)
Erosion (side slopes, embankment)			Monthly
Inspection after major storm to verify proper function			Bi-Annually
Meadow/ Wooded Buffer			
Remove dead tree limbs and plants, and other accumulated debris in buffer area			Annually
Check for evidence of channelized flow through buffer area			Annually
Reestablish vegetation disturbed by construction and other site activities			

Wet Pond			
Remove accumulated sediments and debris at the pond outlet structure and outlet			Annually
Remove accumulated sediments and debris along underdrained gravel trench			Semi-Annually
Checked for erosion & destabilization (side slopes, embankment)			Monthly
Mowed as required			Semi-Annually