

Client Name: FPL Page 1 of 156Project Name: PORT EVERGLADES MODERNIZATION Project No.: 174101Calculation Title: CONSTRUCTION STORM WATER MANAGEMENT PLANCalculation No./File No.: 52.5406.1101.02Verification Method: ☒ Check and Review ☐ Alternate Calculations

Objective THE OBJECTIVE IS TO DEVELOP A SITE STORM WATER MANAGEMENT SYSTEM FOR THE CONSTRUCTION PHASE OF THE FUTURE PLANT WHICH MEETS THE REQUIREMENTS OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

Unverified Assumptions Requiring Subsequent Verification

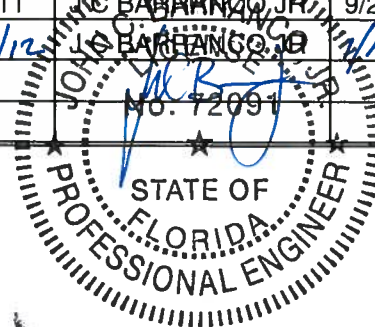
No.	Assumption	Verified By	Date
NA	NONE	NA	NA

Refer to Page NA of this calculation for additional assumptions.**This Section Used for Software-Generated Calculations**Program Name/Number: TRIMBLE TERRAMODEL; Version: 10.43; 8.00
HYDROCADStandard B&V Application Used? ☒ Yes ☐ No

If no, list approved deviation permit number below and attach approved deviation permit.

Review and Approval

Rev	Prepared By	Date	Verified By	Date	Approved By	Date
0	D L WILLIAMS	9/22/11	J C BARRANCO JR	9/23/11	J C BARRANCO JR	9/23/11
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Management Plan

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Date: 1/13/2012
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Date: *1/14/12*
Page 2 of 156

Table of Contents

	Pages
1.0 Purpose.....	3
2.0 References.....	3
3.0 Conclusions.....	3
4.0 Design Methodology.....	3
5.0 Assumptions.....	4
6.0 Definitions of Units and Constants.....	4
7.0 Analysis.....	5 - 16
Appendix.....	17 - 156
Appendix 1- Aerial Site Flood Map.....	18 - 19
Appendix 2- Rainfall Maps.....	20 - 23
Appendix 3- NRCS Soil Map.....	24 - 27
Appendix 4- Basin Map.....	28 - 30
Appendix 5- FDEP Tidal Information.....	31 - 32
Appendix 6- Terramodel Report.....	33 - 34
Appendix 7- HydroCAD Output.....	35 - 156



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Page 3 of 156

1.0 Purpose

The Florida Power & Light Company (FPL) is proposing to modernize the existing Port Everglades Plant Units 1 - 4 in Broward County, Florida, to a new more efficient facility. The project certification area covers 57.04 acres. The objective of these calculations is to verify that the post-development site storm water management system for the future site will be able to accommodate construction phase storm water runoff conditions and to meet the requirements of the South Florida Water Management District (SFWMD).

2.0 References

1. South Florida Water Management District, Environment Resource Permit Information Manual, Volume IV, September 2011
2. Florida Power & Light Drawing PPE1-COO12-ZZ for Aerial Topographic Survey With Contours, Sheet 1, Rev 1
3. Florida Power & Light Drawing PPE1-COO12-ZZ for Aerial Topographic Survey With Contours, Sheet 2, Rev 1
4. Florida Power & Light, "Site Drainage Plan," Port Everglades Plant and Terminal Figure II-12a
5. Florida Power & Light, "Site Drainage Plan," Port Everglades Plant and Terminal Figure II-12b
6. Florida Power & Light, "Site Drainage Plan," Port Everglades Plant and Terminal Figure II-12c
7. Florida Power & Light, "Site Drainage Plan," Port Everglades Plant and Terminal Figure II-12d
8. Black & Veatch Drawing 174101-DS-0001 for Site - Arrangements Overall Site Plot Plan, Rev 0
9. Trimble Terramodel version 10.43
10. HydroCAD, HydroCAD Software Solutions, LLC, version 8.00
11. Black & Veatch Calculation, 52.5406.1101.01, "Port Everglades Pre-Development Storm Water Analysis"
12. Black & Veatch Calculation, 52.5406.1101.03, "Port Everglades Post-Development Storm Water Management Plan"
13. Florida Department of Environmental Protection (FDEP) LABINS Database for Tidal Information

3.0 Conclusions

The construction phase storm water management system will include two dry detention ponds with outfall structures. Sub-basin SB-2B discharges via overland flow to the south canal. Basin 4 is a small vegetative area which discharges directly into the north canal via overland flow. Details are summarized below:

PORT EVERGLADES PLANT STORM WATER MANAGEMENT SYSTEM SUMMARY								
DETENTION AREA / SW BASIN	SW DISCHARGE POINT	POND AREA (ACRE)	POND DEPTH (FT)	TOTAL POND CAPACITY (AC-FT)	MAX DESIGN DISCHARGE RATE (CFS)	MAX ALLOWABLE DISCHARGE RATE (CFS)	TREATMENT VOLUME (AC-FT)	24HR TREATMENT DISCHARGE (AC-FT / Day)
POND 1	NORTH CANAL	3.19	5.90	16.331	87.82	98.21	2.924	1.304
BASIN 4	NORTH CANAL	-	-	-	2.88		-	-
POND 2	SOUTH CANAL	1.18	5.40	5.228	69.82	220.36	1.488	0.564
SB-2B	SOUTH CANAL	-	-	-	7.21		-	-
TOTAL	-	4.37	-	21.559	167.73	318.57	4.412	1.868
REQUIRED	-	-	-	-	-	-	4.359	-
ALLOWED	-	-	-	-	-	-	-	2.377

4.0 Design Methodology

The existing site conditions regarding storm water runoff and discharge were analyzed in a previous Black & Veatch calculation record (REF 11). This information was then used in determining the necessary Storm Water Management System (SWMS) for post-development plant operations (REF 12). The construction phase of the site modernization will use the same SWMS arrangement as the operational post-development phase. The ability for the operation phase SWMS to accommodate construction phase conditions is verified in these calculations. The construction phase drainage basins were mapped in Terramodel (REF 9) to determine new basin areas. These areas and the corresponding National Resources Conservation Service (NRCS) curve numbers were input into HydroCAD (REF 10) with which analyses were performed using the Santa Barbara Urban Hydrograph (SBUH) to design necessary dry detention ponds and outfall structures to facilitate storm water treatment volumes and meet discharge volume and rate criteria as required in the SFWMD Environmental Resource Permit (ERP) Information Manual Volume IV, Basis of Review (BOR) (REF 1).



5.0 Assumptions

NONE

6.0 Definitions of Units and Constants

$El_{MHHW} := 2.08\text{ft}$	Elevation of the local Mean High High Water level according to the Florida Department of Environmental Protection (FDEP) LABINS Database (REF 13)
$Area_{SWMS} := 57.04\text{acre}$	Area covered by Site Certification Boundary
$Area_{Pervious} := 14.74\text{acre}$	Area of impervious space onsite
$Area_{Impervious} := 26.55\text{acre}$	Area of pervious space onsite
$Area_{Water} := 13.65\text{acre}$	Area of water surface onsite
$Area_{Roof} := 2.10\text{acre}$	Onsite roof surface area used for water quality calculation.
$WQ_{Dry.Reduction.Factor} := 0.75$	Dry Detention Water Quality Treatment Volume Reduction
CN = NRCS Curve Number	



7.0 Analysis

General Drainage Design Criteria

Applicable Regulations:

The project is located in Port Everglades, FL and therefore the storm water management system (SWMS) is governed by the Florida Department of Environmental Protection (FDEP) regulations for Storm Water Discharge (Chapter 62-25, F.A.C.) and Environmental Resource Permitting (ERP) (Chapter 62-330, F.A.C.). According to these regulations, the rules of the local water management district are adopted by reference for FDEP ERP requirements. The South Florida Water Management District (SFWMD) oversees projects in Broward County. Therefore, the SWMS for this project has been designed to meet or exceed the criteria set forth in the SFWMD ERP Information Manual, Volume IV (REF 1).

Rainfall Depth, Duration, and Distribution:

The design rainfall depths for the project site have been obtained from the SFWMD (REF 1, Surface Water Management Design Aides). The rainfall depths are summarized in Table 1 below. The rainfall maps are provided in Appendix 1 of this calculation record. Storm events were modeled using HydroCAD analysis software (REF 10). The SFWMD 24-hour rainfall distribution has been used to develop the 24-hour storm event hydrograph. The SFWMD 72-hour rainfall distribution has been used to develop the 72-hour storm event hydrograph. The site is located within an urbanized area. Therefore, the Santa Barbara Unit Hydrograph (SBUH) has been used in the analysis to more accurately model the site conditions.

Table 1

Storm Event	Design Purpose	Depth (in)
24HR - 5 YR	Minimum Road Crown Elevation	7.4
72HR - 25 YR	Allowable Discharge / Minimum Perimeter Berm Elevation	14.3
72HR - 100YR	Minimum Finished Floors Elevation	17.5

Site Soil Conditions:

Site soil conditions were obtained from the National Resources Conservation Service (NRCS) web soil survey which is provided in Appendix 2. The power block area of the site and some surrounding areas are classified as an urban soil. The areas north, east, and south of the power block which border the canals and extend to Eisenhower Blvd. are composed of Udortents, marly-substratum-Urban land complex and have a hydrologic soil rating of A. Group A hydrologic soil groups are considered to have a high infiltration and low runoff potential when thoroughly wet. These soils are typically deep, well drained to excessively drained sands or gravelly sands.

Due to the limitations of distance between grade elevations and ground water levels and in order to provide a more conservative SWMS design the site soil water storage capacity is considered to be negligible. Also, to provide a more conservative design hydrologic soil groups will be modeled as class B soils.



Tailwater:

The site has historically discharged into the canal south of the power block. This canal discharges into the intracoastal waterway. There are two tide stations which were referenced for the tailwater elevations. Tide station 872-2951, located near the mouth of the north canal, and tide station 872-2956, located at a docking facility near the outflow of the south canal. The downstream tailwater boundary condition has been set at the MHHW elevation of 2.08ft (NGVD-29). This information was obtained from the FDEP LABINS database (REF 13) and is provided in Appendix 5.

Allowable Discharge Rate: (REF 1, BOR Sec 6)

The maximum allowable storm water discharge rate for the proposed site is set as the value obtained from a model analysis of the pre-development site discharge rate for a 72-hour / 25-year storm event. Post-development discharge rates will be at or below this maximum value.

Water Quality:

The proposed SWMS will provide water quality treatment for the project site according to the regulatory criteria set forth by the SFWMD. The criteria requires that water quality treatment be met for a storm water volume that is the greater of one inch over the project area of 2.5 inches times the percentage of imperviousness on site (excluding roof areas). Also, because the site is an industrial site a dry pretreatment volume of one half inch is required. (REF 1, BOR Sec 5)



Construction Phase Conditions

Project Description:

The proposed project will begin with the demolition of the existing plant and plant support facilities. A new power plant and support infrastructure will be built at the site. A SWMS will be constructed as part of the proposed infrastructure. The SWMS will provide onsite water quality (WQ) treatment and flood attenuation.

The proposed SWMS for the construction phase of the modernization process has been conceptualized as two basins which collect runoff in two unique dry detention areas with outfall structures which will provide WQ treatment. Also, a third basin has been proposed which will remain in its current condition and discharge via overland flow to the north canal. WQ treatment for the entire site will be provided for in the two dry detention areas. A land use summary for the proposed site is provided below in Table 2. Runoff will be treated and then discharged into either the north (intake canal) or south (discharge canal) canal at a rate less than the allowable (pre-development) discharge rate. A more detailed description of each of these basins, proposed land use assumptions, and the proposed WQ treatment method is presented below. A construction phase basin map has been provided in Appendix 4.

Table 2

Site Land Use Summary					
Basin	Land Classification				Total Area (acre)
	Pervious (acre)	Impervious (acre)	Building (acre)	Water (acre)	
Basin 1	12.19	16.00	1.55	6.56	36.30
Basin 2	2.17	10.24	0.55	7.09	20.05
Basin 4	0.38	-	-	-	0.38
ROAD/DOCK	-	0.31	-	-	0.31
Total	14.74	26.55	2.10	13.65	57.04



Basin Summary

Basin 1:

Basin 1 is composed of areas which discharge runoff to the north dry detention pond (SB-1POND). The basin contains 29.74 acres of onsite land which contributes to the SWMS, 6.56 acres of the north canal surface, and 2.00 acres of offsite areas which contribute runoff to the onsite SWMS. The areas onsite which contribute runoff to the SWMS are proposed to include the power block area and supporting equipment, fuel storage tank, fire response equipment and storage, auxiliary boiler, air compressors and receivers, dry storage buildings, a portion of the entrance road, plant roads, open space, existing fuel gas yard, existing administration building, and the north dry detention pond.

The basin varies in elevation from 3.10 to 18.5-ft NGVD29. Because of the critical importance of the power block area to plant operations the concrete pads and structure areas within the units have been set at 18.5-ft NGVD29 for modeling purposes and are based on existing site conditions.

The basin has been further divided according to slope of grade and common drainage points into eleven onsite sub-basins and three offsite sub-basins. These sub-basins are summarized in Table 3 and Table 4 below.

Table 3

SITE - STORM WATER MANAGEMENT BASIN 1 INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
BASIN 1	36.30	29.74	SB-1A: POWER BLOCK WEST
			SB-1B: POWER BLOCK EAST
			SB-1C: DRY DETENTION, OPEN SPACE, PLANT ROAD
			SB-1D: IMPERVIOUS OPEN SPACE
			SB-1E: BUILDING, ACCESS ROAD, IMPERVIOUS AREA
			SB-1G: BUILDING, IMPERVIOUS OPEN SPACE
			SB-1H: CONSTRUCTION TRAILER, IMPERVIOUS OPEN SPACE
			SB-1I: DRIVEWAY AREA SOUTHWEST OF POWERBLOCK
			SB-1J: ADMINISTRATION BUILDING AREA WEST OF POWERBLOCK
			SB-1K: EXISTING FUEL GAS YARD
			SB-1CANAL: NORTH CANAL
OFFSITE BASIN 1 CONTRIBUTING TO ONSITE RUNOFF INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
OFFSITE BASIN 1	2.00	2.00	OSB-1A: GAS GENERATORS
			OSB-1B: DRIVEWAY AREA NORTH OF SUB BASIN 1G
			OSB-1C: OCTAGONAL TANK FARM



Table 4

Construction Phase Basin 1 Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
SB-1A	3.77	98	18.5	16.3	-
SB-1B	4.48	98	18.5	16.3	-
SB-1C	11.15	75	12.0	9.0	0.51
SB-1D	1.48	98	14.0	10.9	0.65
SB-1E	0.97	98	15.0	11.5	1.17
SB-1G	1.38	92	16.5	13.9	1.00
SB-1H	1.77	98	14.8	14.2	0.20
SB-1I	0.30	98	16.2	13.4	1.75
SB-1J	0.75	98	14.1	12.3	0.68
SB-1K	0.50	98	16.0	15.4	0.37
SB-1CANAL	6.56	-	2.08	2.08	-
SB-1POND	3.19	100	9.0	3.1	-
TOTAL	36.30	-	-	-	-
Offsite					
Area	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
OSB-1A	1.12	98	17.5	17.4	-
OSB-1B	0.34	98	17.3	15.7	0.52
OSB-1C	0.54	98	14.7	13.5	-
TOTAL	2.00	-	-	-	-
COMBINED NET	38.30				

Storm water runoff from this basin primarily collects in a series of local inlets which convey runoff to the north dry detention pond, however the sub-basin immediately surrounding the dry detention area conveys water via overland flow to the detention pond.

The runoff from Basin 1 will collect in a dry detention pond (SB-1POND) located north of the the power block and east of the the north canal (SB-1CANAL). The dry detention pond will cover an area of 3.19 acres, have a depth of 5.90-ft with side slopes at a 4:1 grade. The proposed dry detention pond will provide 2.924 ac-ft of WQ treatment volume, have a maximum capacity of 16.331 ac-ft, and limit the discharge rate to a maximum of 87.82 cfs. The maximum daily WQ discharge volume is limited to 1.304 ac-ft.

The control structure for Basin 1 has been conceptualized as a 6-ft sharp crested rectangular weir set at 6.10-ft NGVD29, a sharp crested 100 degree "V-notch" weir set at 4.30-ft NGVD29, and three 3-in circular bleeder orifices set at 3.10-ft NGVD29. In concept the control structure will discharge runoff to three 36-in diameter culverts with an inlet invert set at 3.10-ft NGVD29 and an outlet invert set at 2.08-ft NGVD29.



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Prepared By: D L Williams
 Date: 1/13/2012
 Verified By: *YB*
 Date: *1/16/12*
 Page 10 of 156

Basin 2:

Basin 2 contains the areas which generally discharge runoff to the south dry detention pond (SB-2POND), sub-basin SB-2B discharges directly via overland flow to the south canal (SB-2CANAL). The basin contains 12.96 acres of onsite land which contribute runoff to the SWMS, 7.09 acres of the south canal surface, and 1.17 acres of offsite land which discharges runoff into the site. The areas onsite which contribute runoff to the SWMS are proposed to include aggregate open space, a portion of the entrance road, and the south dry detention pond. The basin varies in elevation from 3.10 to 17.0-ft NGVD29.

The basin has been further divided according to the slope of grade and common drainage points into four onsite sub-basins and one offsite sub-basin. These basins are summarized in Table 5 and Table 6 below.

Table 5

SITE - STORM WATER MANAGEMENT BASIN 2 INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
BASIN 2	20.05	12.96	SB-2A: CONSTRUCTION LAYDOWN, ENTRANCE ROAD, DRY DETENTION
			SB-2B: SOUTH CANAL POWER BLOCK BANK AND DRIVEWAY
			SB-2CANAL: SOUTH CANAL
OFFSITE BASIN 2 CONTRIBUTING TO ONSITE RUNOFF INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
OFFSITE BASIN 2	1.17	1.17	OSB-2A: EASTERN BORDER OF SITE CERTIFICATION BOUNDARY

Table 6

Construction Phase Basin 2 Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
SB-2A	10.81	89	12.7	8.5	0.59
SB-2B	0.97	69	17.0	10.0	10.65
SB-2CANAL	7.09	-	2.08	2.08	-
SB-2POND	1.18	100	8.5	3.1	-
TOTAL	20.05	-	-	-	-
Offsite					
Area	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
OSB-2A	1.17	81	10.7	9.3	0.43
TOTAL	1.17	-	-	-	-
COMBINED NET	21.22				



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Verified By: *[Signature]*
Date: *1/14/12*
Page 11 of 156

Storm water runoff from this basin, excluding SB-2B which discharges directly to the south canal, collects in the south dry detention pond (SB-2POND) via overland flow. The proposed dry detention pond will be located in the southeast area of the site and along the bank of the south canal (SB-2CANAL). The dry detention pond will cover 1.18 acres, have a depth of 5.40-ft with sides at a 4:1 slope. The dry detention pond will provide 1.488 ac-ft of WQ treatment volume, have a maximum capacity of 5.228 ac-ft, and limit the discharge rate to a maximum of 69.82 cfs. The maximum daily WQ discharge volume is 0.564 ac-ft.

The control structure for Basin 2 has been conceptualized as an 8-ft sharp crested rectangular weir set at an elevation of 6.00-ft NGVD29, a 120 degree sharp crested "V notch" weir set at 4.90-ft NGVD29, and one 3-in circular bleeder orifice set at 3.10-ft NGVD29. Conceptually the control structure will discharge runoff to two 36-in diameter culverts with an inlet invert set at 3.10-ft NGVD29 and an outlet invert set at 2.08-ft NGVD29.

(Area Intentionally Left Blank)



Basin 4:

Basin 4 is composed of the area north of Basin 1 along the bank of the north canal (SB-1CANAL). This basin will remain in its current condition of grass covered open space and vegetative growth. The basin slopes away from the proposed plant road and discharges runoff to the north canal via overland flow. Basin 4 does not contribute runoff to the proposed SWMS but is still considered in the comprehensive storm water analysis as having offsite discharge. WQ treatment for this basin is accommodated by the Basin 1 dry detention pond (SB-1POND).

This basin varies in elevation from 8.0 to 10.0 ft sloping northward to the north canal (SB-1CANAL) where the slope greatly increases towards the water surface. The storm water discharge rate to the canal has been determined to be 2.88 cfs. HydroCAD (REF 10) reports are available in Appendix 7. The basin is summarized in Table 9 and Table 10 below.

Table 9

SITE - STORM WATER MANAGEMENT BASIN 4 INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
BASIN 4	0.38	0.00	NORTH CANAL BANK

Table 10

Construction Phase Basin 4 Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
B-4	0.38	39	10	8	12.83
TOTAL	0.38	-	-	-	-

Non-Contributing Basins:

This basin is composed of two areas which are not located within the plant site, but however are contained within the site certification boundary. This basin is divided into two sub-basins ROAD (0.24 acres) and DOCK (0.07 acres). Sub-basin ROAD is a segment of Eisenhower Boulevard and sub-basin DOCK is a portion of the intracoastal dock facility located immediately adjacent to ROAD. These areas currently discharge runoff to offsite locations. No changes have been proposed for these areas. These areas have been considered in determining the required WQ treatment volume for the site. WQ treatment volumes are accommodated by the proposed onsite SWMS.

These areas are summarized in Table 11 and Table 12 below.



Table 11

SITE - NON-CONTRIBUTING BASINS INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
ROAD/DOCK	0.31	0.00	EISENHOWER BLVD SEGMENT, INTRACOASTAL DOCK FACILITY

Table 12

Construction Phase Non_Contributing Basin Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
ROAD	0.24	-	-	-	-
DOCK	0.07	-	-	-	-
TOTAL	0.31	-	-	-	-

Water Quality Calculations

Requirements:

The proposed SWMS will provide the required WQ treatment for the proposed project per the requirements of the SFWMD criteria. The WQ treatment criteria is based upon the greater of 1-in over the project area or 2.5-in over the percent impervious excluding the roof surface area. The project is an industrial site with a high percentage of impervious area (excluding water surfaces the site is approximately 64% impervious), thus the latter criterion governs. Since the proposed project is an industrial site a dry pretreatment volume of 0.5-in is required. (REF 1, BOR Sec 5).

The proposed SWMS utilizes only dry detention for WQ treatment. Since the proposed SWMS is dry detention SFWMD regulations allow for a 25% reduction in WQ treatment volume (REF 1, BOR Sec 5). Also, dry pretreatment volume requirements are provided within the overall WQ volume (REF 1, BOR Sec 5). The required WQ treatment volumes are provided for in the three proposed onsite dry detention ponds. Basin 4, ROAD, and DOCK WQ volume requirements will be met by the two dry detention ponds.



Calculation of WQ Volume:

Required WQ treatment volumes were determined based upon SFWMD criteria (REF 1, BOR Sec 5). WQ volumes were determined using the following method:

Determine the Greater of 1-in Over Project Site or 2.5-in Over Percent Impervious:

1-in Over Site:

$$\text{Volume}_{\text{WQ}.1\text{inch}} := 1\text{in} \cdot (\text{Area}_{\text{SWMS}})$$

$$\text{Volume}_{\text{WQ}.1\text{inch}} = 4.753 \cdot \text{acre} \cdot \text{ft}$$

2.5-in Over Percent Impervious:

$$\text{Volume}_{\text{WQ}.2.5\text{inch}} := 2.5\text{in} \cdot \left(\frac{\text{Area}_{\text{Impervious}}}{\text{Area}_{\text{Impervious}} + \text{Area}_{\text{Pervious}}} \right) \cdot (\text{Area}_{\text{SWMS}} - \text{Area}_{\text{Water}})$$

$$\text{Volume}_{\text{WQ}.2.5\text{inch}} = 5.813 \cdot \text{acre} \cdot \text{ft}$$

$$\text{Volume}_{\text{WQ}.2.5\text{inch}} > \text{Volume}_{\text{WQ}.1\text{inch}}$$

Thus the 2.5-in times the percent impervious governs.

Reduce Required WQ Volume by 25% for Dry Detention:

$$\text{Volume}_{\text{WQ}.Required} := \text{WQ}_{\text{Dry.Reduction.Factor}} \cdot \text{Volume}_{\text{WQ}.2.5\text{inch}}$$

$$\text{Volume}_{\text{WQ}.Required} = 4.359 \cdot \text{acre} \cdot \text{ft}$$

Thus, the required WQ treatment volume for the proposed site SWMS is 4.359 ac-ft.



Calculate Maximum WQ Treatment Volume Discharge Per 24 Hours:

The SFWMD also requires that no more than 0.5-in of the WQ treatment volume be discharged in a 24 hour period (REF 1, BOR Sec 7.2a). The method of calculation is shown below:

$$\text{Volume}_{24\text{HR.MaxDischarge}} := 0.5\text{in} \cdot \text{Area}_{\text{SWMS}}$$

$$\text{Volume}_{24\text{HR.MaxDischarge}} = 2.377 \cdot \text{acre} \cdot \text{ft}$$

Thus a maximum of 2.377 ac-ft of WQ treatment volume may be released in a 24 hour period of time.

Detention Pond Design:

Dry detention ponds with outfall structures are the proposed mechanisms by which WQ treatment and flood attenuation will be facilitated. The dry detention areas and outfall mechanisms have been designed according to the requirements of the SFWMD (REF 1, BOR Sec. 5, 6, & 7). The dry detention ponds will have bottom elevations set approximately 1.00-ft above the ground water level (GWL), taken as the local MHHW level of 2.08-ft NGVD29, as determined from tidal information (Appendix 5) acquired from the FDEP LABINS Database (REF 13).

The proposed dry detention ponds were designed using HydroCAD software (REF 10). The previously described site basins information was input into HydroCAD to develop the runoff volume and rate information needed to size the ponds. The ponds were input as prismatic in shape with bottom length and width dimensions. The ponds were set to a depth determined from local grade elevations and GWL elevation. SB-1POND was set to a depth of 5.90-ft and SB-2POND was set to 5.40-ft. The bottom elevations of the ponds were set to an elevation of 3.10-ft NGVD29. The sides of the ponds are sloped to 4:1 per SFWMD requirements (REF 1, BOR Sec. 7). The bottom dimensions of the ponds were altered through iterations until a size was reached which met volumetric and discharge requirements and the desire to conserve site land for future development.

Pond discharge structures were designed in a manner to provide WQ treatment volumes and discharge rates which meet or exceed the requirements of the SFWMD (REF 1, BOR).

A summary of the WQ treatment volumes, treatment methods, and 24 hour discharge amounts for the proposed SWMS and the SFWMD requirements is provided below in Table 13. More detailed information, including HydroCAD model reports are provided in Appendix 7.

Table 13

WATER QUALITY SUMMARY			
BASIN	TREATMENT METHOD	TREATMENT VOLUME (AC-FT)	24HR TREATMENT DISCHARGE (AC-FT / DAY)
BASIN 1	Dry Detention	2.924	1.304
BASIN 2	Dry Detention	1.488	0.564
TOTAL	-	4.412	1.868
REQUIRED	-	4.359	-
ALLOWED	-	-	2.377



Summary of Results

The previously described areas have been modeled in HydroCAD (REF 10) to determine the necessary SWMS mechanisms to accommodate the required WQ treatment volumes and provide discharge limitations as required by the SFWMD. The design discharge rates to the north canal, 90.70 cfs, and to the south canal, 77.03 cfs, are below the maximum allowable discharge rates for the north and south canals. The total combined peak discharge rate is 167.73 cfs which is well below the maximum allowable discharge rate of 318.57 cfs. A nodal diagram of the HydroCAD model is provided in Appendix 7. The results of the post-development model are summarized below in Table 14. Model input and output reports are provided for in Appendix 7.

Table 14

PORT EVERGLADES PLANT STORM WATER MANAGEMENT SYSTEM SUMMARY								
DETENTION AREA / SW BASIN	SW DISCHARGE POINT	POND AREA (ACRE)	POND DEPTH (FT)	TOTAL POND CAPACITY (AC-FT)	MAX DESIGN DISCHARGE RATE (CFS)	MAX ALLOWABLE DISCHARGE RATE (CFS)	TREATMENT VOLUME (AC-FT)	24HR TREATMENT DISCHARGE (AC-FT / Day)
POND 1	NORTH CANAL	3.19	5.90	16.331	87.82	98.21	2.924	1.304
BASIN 4	NORTH CANAL	-	-	-	2.88		-	-
POND 2	SOUTH CANAL	1.18	5.40	5.228	69.82	220.36	1.488	0.564
SB-2B	SOUTH CANAL	-	-	-	7.21		-	-
TOTAL	-	4.37	-	21.559	167.73	318.57	4.412	1.868
REQUIRED	-	-	-	-	-	-	4.359	-
ALLOWED	-	-	-	-	-	-	-	2.377



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *[Signature]*
Date: 8/16/12
Page 17 of 156

Appendix



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
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Date: 1/14/12
Page 18 of 156

Appendix 1

SITE AERIAL MAP WITH 100 YEAR FLOOD ZONES



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No:52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *[Signature]*
Date: *1/10/12*
Page 20 of 156

Appendix 2

RAINFALL MAPS

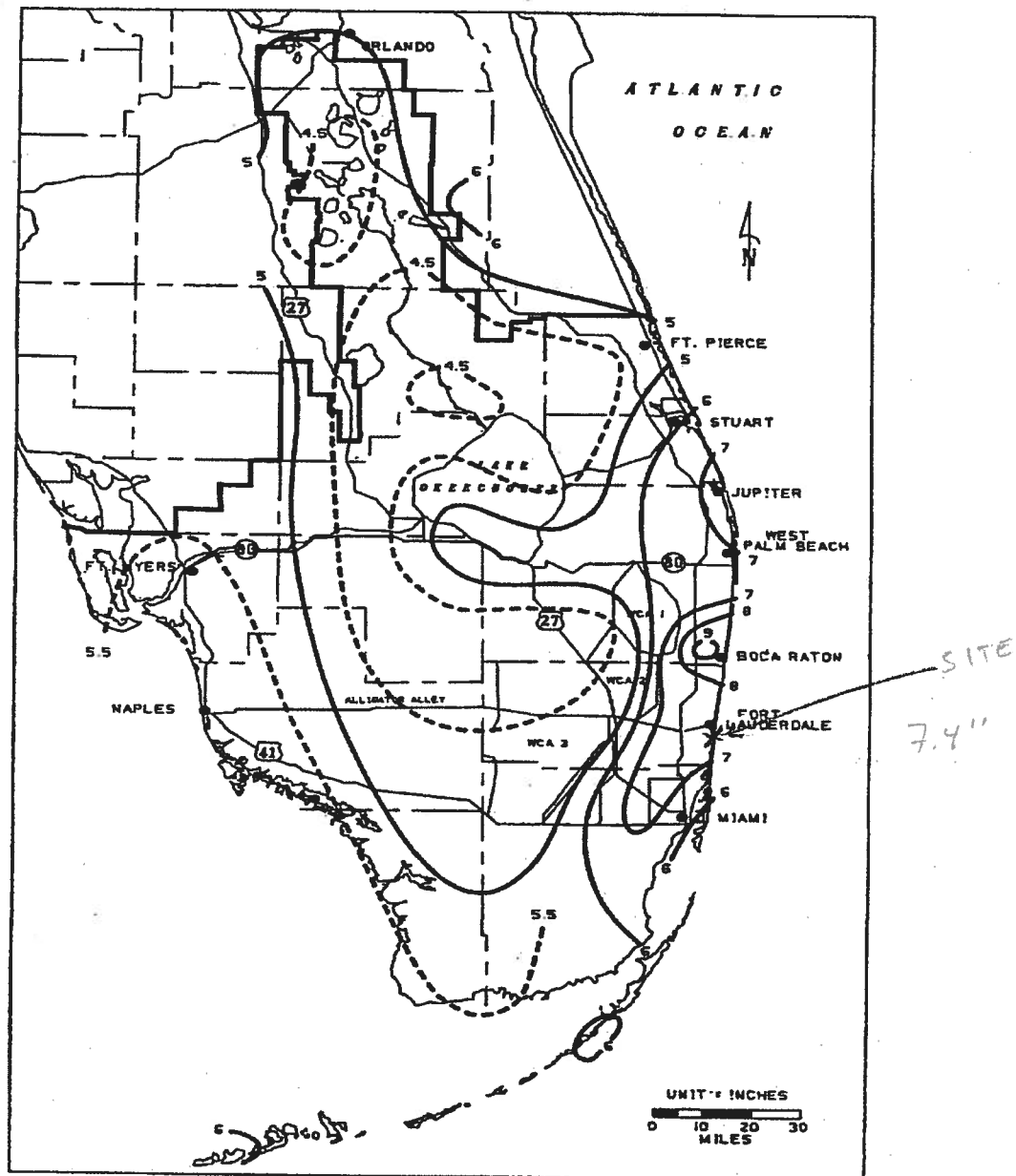


FIGURE C-3. 1-DAY RAINFALL: 5-YEAR RETURN PERIOD

Figure C-3

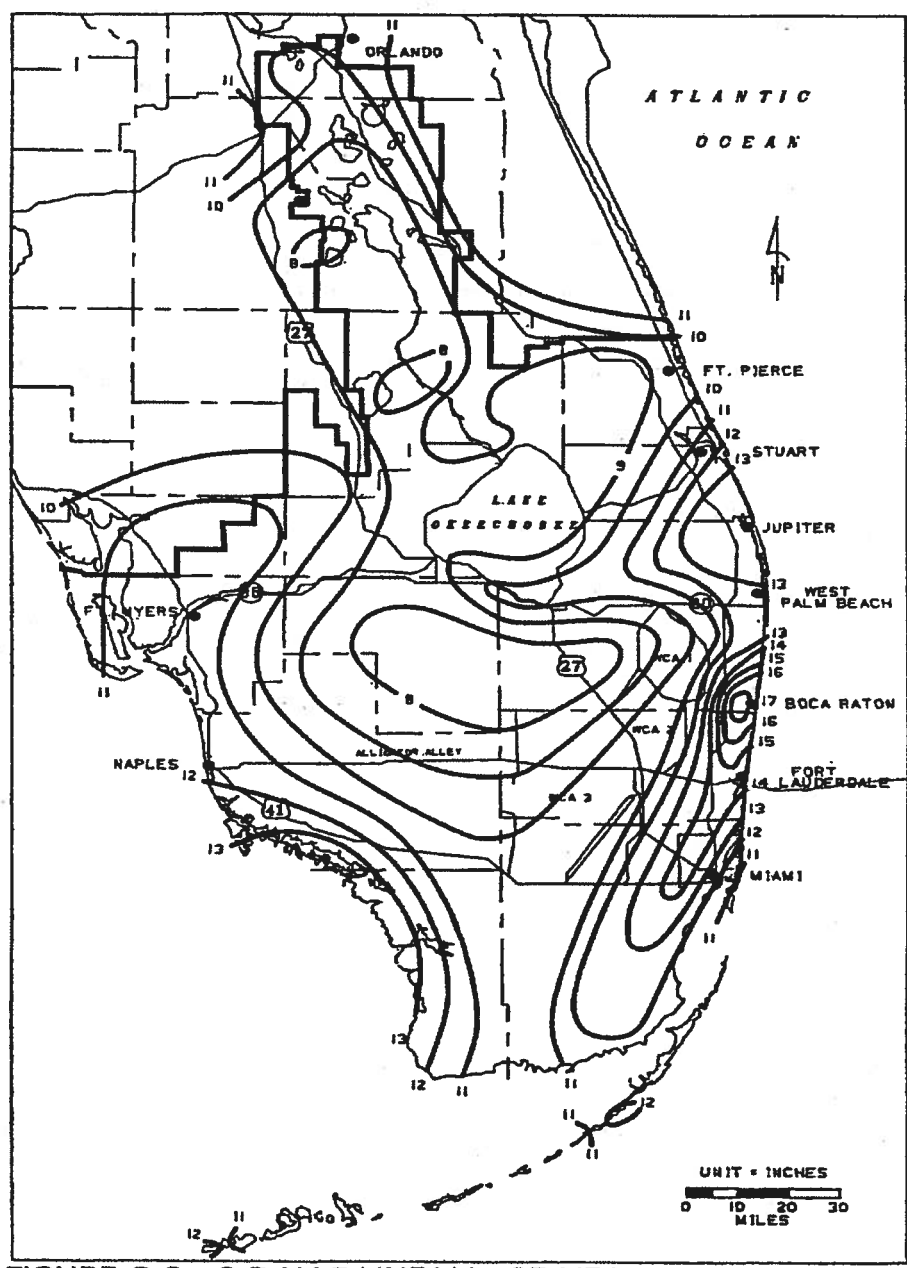


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

C-10

Figure C-8

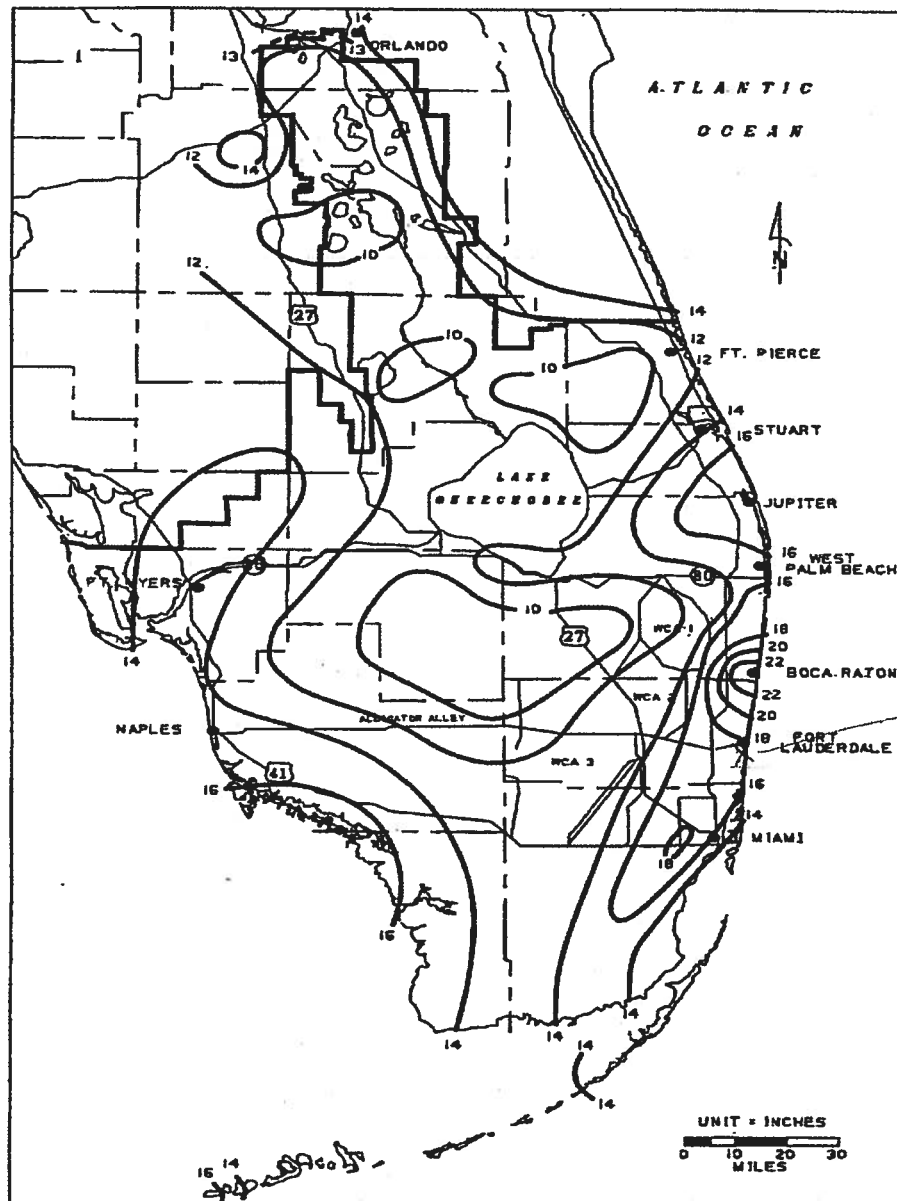


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

C-11

Figure C-9



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No:52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

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Date: 1/13/2012
Verified By: *P*
Date: *1/14/12*
Page 24 of 156

Appendix 3

NRCS SOIL MAP

Prepared by: D L Williams
Date: 1/13/2012
Verified by: *YB*
Date: *1/13/12*
Page 25 of 156



Owner: FPL
 Project: Port Everglades Modernization
 Project No: 174101
 File No: 52.5406.1101.02 Rev 2
 Title: Construction Phase Storm Water Management Plan

Prepared by: D L Williams

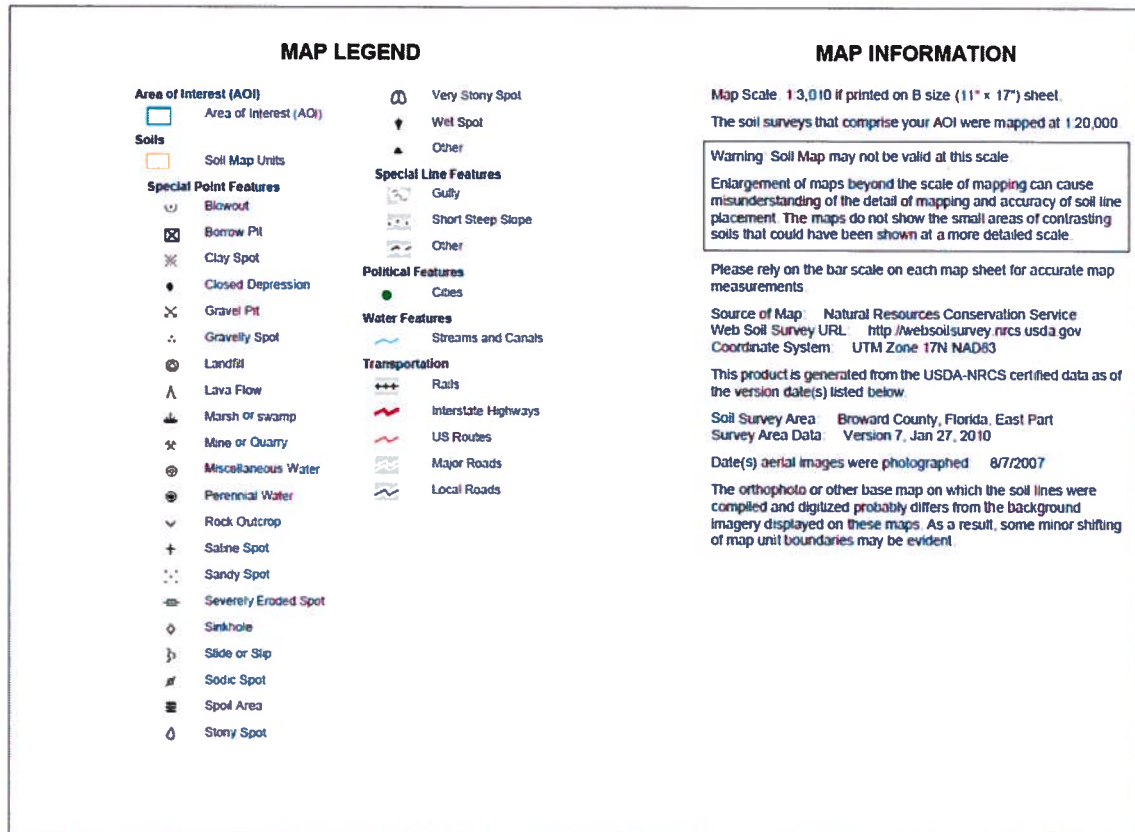
Date: 1/13/2012

Verified by: *KB*

Date: *1/14/12*

Page 26 of 156

Soil Map-Broward County, Florida, East Part
 (SITE SOIL MAP)



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101
File No: 52.5406.1101.02 Rev 2
Title: Construction Phase Storm Water Management Plan

Prepared by: D L Williams
Date: 1/13/2012
Verified by: *YB*
Date: *1/16/12*
Page 27 of 156

Soil Map-Broward County, Florida, East Part

SITE SOIL MAP

Map Unit Legend

Broward County, Florida, East Part (FL606)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
37	Udorthents, marly substratum-Urban land complex	27.7	51.0%
40	Urban land	19.1	35.1%
99	Water	7.5	13.9%
Totals for Area of Interest		54.4	100.0%



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *DL*
Date: *1/16/12*
Page 28 of 156

Appendix 4

CONSTRUCTION STORM WATER MANAGEMENT PLAN DRAWING

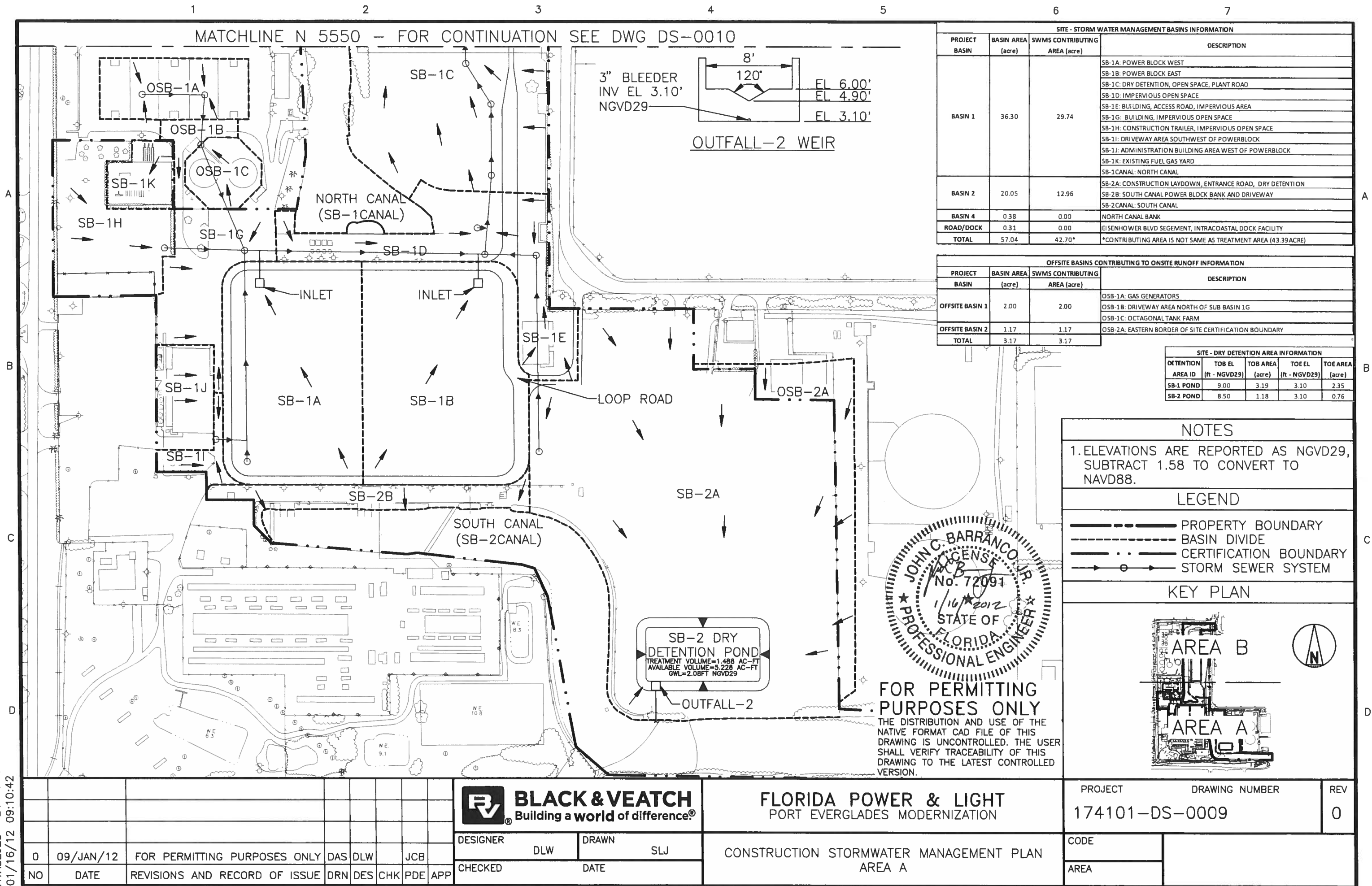


Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
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Date: *1/16/12*
Page 29 of 156

Reference Black & Veatch Drawing 174101-DS-0009 Rev 0

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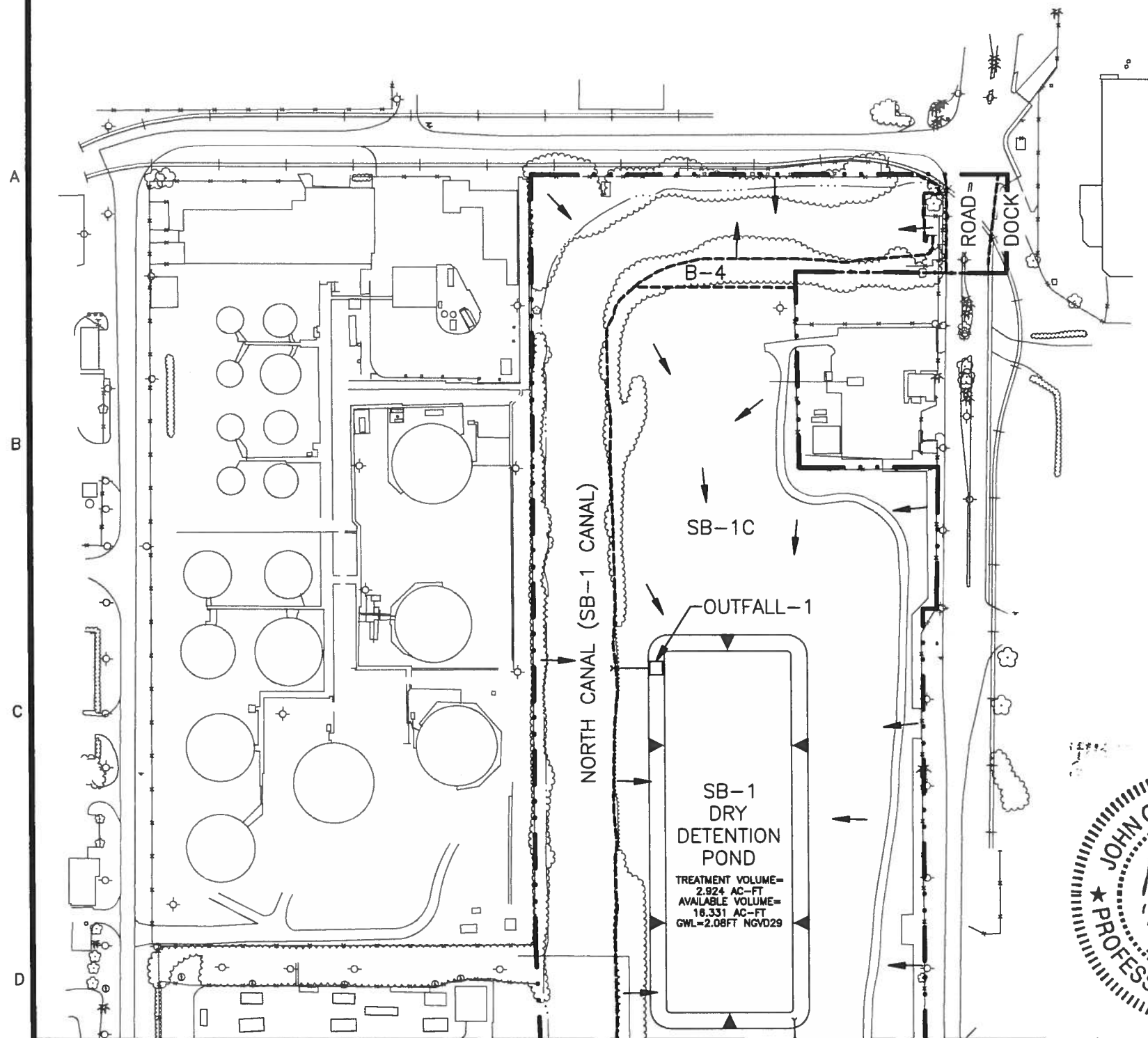


Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
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Date: *1/14/12*
Page 30 of 156

Reference Black & Veatch Drawing 174101-DS-0010 Rev 0

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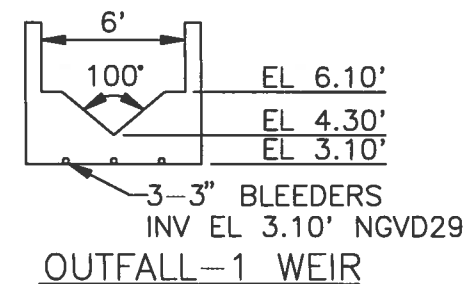


MATCHLINE N 5550 - FOR CONTINUATION SEE DWG DS-0009

SITE - STORM WATER MANAGEMENT BASINS INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
BASIN 1	36.30	29.74	SB-1A: POWER BLOCK WEST
			SB-1B: POWER BLOCK EAST
			SB-1C: DRY DETENTION, OPEN SPACE, PLANT ROAD
			SB-1D: IMPERVIOUS OPEN SPACE
			SB-1E: BUILDING, ACCESS ROAD, IMPERVIOUS AREA
			SB-1F: BUILDING, IMPERVIOUS OPEN SPACE
			SB-1H: CONSTRUCTION TRAILER, IMPERVIOUS OPEN SPACE
			SB-1I: DRIVEWAY AREA SOUTHWEST OF POWERBLOCK
			SB-1J: ADMINISTRATION BUILDING AREA WEST OF POWERBLOCK
			SB-1K: EXISTING FUEL GAS YARD
BASIN 2	20.05	12.96	SB-2A: CONSTRUCTION LAYDOWN, ENTRANCE ROAD, DRY DETENTION
			SB-2B: SOUTH CANAL POWER BLOCK BANK AND DRIVEWAY
BASIN 4	0.38	0.00	NORTH CANAL BANK
ROAD/DOCK	0.31	0.00	EISENHOWER BLVD SEGEMENT, INTRACOASTAL DOCK FACILITY
TOTAL	57.04	42.70*	*CONTRIBUTING AREA IS NOT SAME AS TREATMENT AREA (43.39 ACRE)

OFFSITE BASINS CONTRIBUTING TO ONSITE RUNOFF INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
OFFSITE BASIN 1	2.00	2.00	OSB-1A: GAS GENERATORS
			OSB-1B: DRIVEWAY AREA NORTH OF SUB BASIN 1G
			OSB-1C: OCTAGONAL TANK FARM
OFFSITE BASIN 2	1.17	1.17	OSB-2A: EASTERN BORDER OF SITE CERTIFICATION BOUNDARY
TOTAL	3.17	3.17	

SITE - DRY DETENTION AREA INFORMATION				
DETENTION AREA ID	TOB EL (ft - NGVD29)	TOB AREA (acre)	TOE EL (ft - NGVD29)	TOE AREA (acre)
SB-1 POND	9.00	3.19	3.10	2.35
SB-2 POND	8.50	1.18	3.10	0.76



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THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

NOTES

1. ELEVATIONS ARE REPORTED AS NGVD29, SUBTRACT 1.58 TO CONVERT TO NAVD88.

LEGEND

- PROPERTY BOUNDARY
- BASIN DIVIDE
- CERTIFICATION BOUNDARY
- STORM SEWER SYSTEM

KEY PLAN

AREA B

AREA A

									 BLACK & VEATCH Building a world of difference®	FLORIDA POWER & LIGHT PORT EVERGLADES MODERNIZATION	PROJECT 174101-DS-0010	DRAWING NUMBER 174101-DS-0010	REV 0
0	09/JAN/12	FOR PERMITTING PURPOSES ONLY	DAS	DLW		JCB		DESIGNER DLW	DRAWN SLJ	CONSTRUCTION STORMWATER MANAGEMENT PLAN AREA B	CODE		
NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP	CHECKED	DATE		AREA		



Owner: FPL
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Project No: 174101 Rev 2
File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *[Signature]*
Date: *1/14/12*
Page 31 of 156

Appendix 5

FDEP TIDAL INFORMATION

Owner: FPL
 Project: Port Everglades Modernization
 Project No: 174101
 File No: 52.5406.1101.02 Rev 2
 Title: Construction Phase Storm Water Management Plan

Prepared by: D L Williams
 Date: 1/13/2012
 Verified by: *YB*
 Date: *1/16/12*
 Page 32 of 156

BENCHMARK & DATUM ELEVATIONS
 TIDE STATION NUMBER: 872-2956
 DATE: 09-21-2007

STA. NAME	BENCH MARK ELEVATIONS			
	NGVD 29 FEET	NGVD 29 METERS	NAVD 88 FEET	NAVD 88 METERS
X 235 1965	+10.84	+3.303	+9.25	+2.820
Y 235 1965	+9.47	+2.886	+7.88	+2.403
2956 A 2007	+12.18	+3.711	+10.59	+3.228
2956 B 2007	+9.67	+2.947	+8.08	+2.464
NO 3 1973	+7.70	+2.348	+6.12	+1.865
NO 4 1973	+7.71	+2.349	+6.12	+1.866
NO 5 1973	+7.63	+2.327	+6.05	+1.844

DATE:09-21-2007
 TIDE STATION NUMBER: 872-2956
 TIDE STATION NAME: SOUTH PORT EVERGLADES FLORIDA
 TIDAL EPOCH: 1983-2001

ELEV OF TIDAL DATUMS BASED ON 1929 & 1988 DATUMS				
TIDAL DATUM	NGVD 29 FEET	NGVD 29 METERS	NAVD 88 FEET	NAVD 88 METERS
MHHW	+2.08	+0.634	+0.50	+0.151
MHW	+1.97	+0.600	+0.38	+0.117
MSL	+0.73	+0.224	-0.85	-0.259
MTL	+0.73	+0.222	-0.86	-0.261
MLW	-0.51	-0.156	-2.10	-0.639
MLLW	-0.70	-0.212	-2.28	-0.695
MR =	2.48 29/ft	0.756 29/m	2.48 88/ft	0.756 88/m



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101 Rev 2
File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *YB*
Date: *1/16/12*
Page 33 of 156

Appendix 6

TERRAMODEL BASIN AREA REPORT

Owner: FPL
 Project: Port Everglades Modernization
 Project No: 174101
 File No: 52.5406.1101.02 Rev 2
 Title: Construction Phase Storm Water Management Plan

Prepared by: D L Williams
 Date: 1/13/2012
 Verified by: *YB*
 Date: *1/14/12*
 Page 34 of 156

Trimble
 5475 Kellenburger Road
 Dayton, Ohio 45424-1099, USA
 1-937-233-8921
 Monday, January 9, 2012 12:49:31 PM

PROJECT: 174101 PORT EVERGLADES CONSTRUCTION PHASE BASINS

Perimeter / Area Measurements of Selected Lines

Object Name	Layer	Perimeter Length (ft)	Enclosed Area (Sq. Ft.)
OSB-1B	C-NEW BASIN AREA	1030.65	14841.39
SB-1D	C-NEW BASIN AREA	1656.44	64643.23
SB-2B	C-NEW BASIN AREA	1816.03	42239.32
OSB-1A	C-NEW BASIN AREA	971.51	48862.38
SB-1K	C-NEW BASIN AREA	648.79	21597.31
SB-2POND	C-NEW BASIN AREA	905.44	51476.50
SB-1CANAL	C-NEW BASIN AREA	5019.40	285806.11
B-4	C-NEW BASIN AREA	1343.16	16615.26
SB-1G	C-NEW BASIN AREA	1639.29	59907.29
SB-1H	C-NEW BASIN AREA	1167.17	77309.12
OSB-1C	C-NEW BASIN AREA	558.37	23454.47
OSB-2A	C-NEW BASIN AREA	2295.94	50876.38
SB-2A	C-NEW BASIN AREA	3213.39	471061.65
SB-1E	C-NEW BASIN AREA	1009.11	42036.42
SB-1POND	C-NEW BASIN AREA	1600.50	139171.43
ROAD	C-NEW BASIN AREA	426.22	10308.03
DOCK	C-NEW BASIN AREA	384.72	3053.19
SB-1C	C-NEW BASIN AREA	3894.91	485563.02
SB-1B	C-NEW BASIN AREA	1751.83	195005.39
SB-1A	C-NEW BASIN AREA	1624.96	164229.27
SB-2CANAL	C-NEW BASIN AREA	4910.88	308942.08
SB-1I	C-NEW BASIN AREA	790.28	12907.24
SB-1J	C-NEW BASIN AREA	753.88	32541.08

Total perimeter length = 39412.87 ft
 Total enclosed area = 2622447.56 Sq. Ft.



Owner: FPL
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File No: 52.5406.1101.02 Rev1
Title: Construction Phase Storm Water
Management Plan

Prepared By: D L Williams

Date: 1/13/2012

Verified By: *YB*

Date:

Page 35 of 156

*1/14/12
for P35-156*

Appendix 7

HYDROCAD NODAL DIAGRAM AND OUTPUT REPORTS

Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
9.180	61	>75% Grass cover, Good, HSG B (3S,7S,25S)
0.970	69	50-75% Grass cover, Fair, HSG B (23S)
2.340	88	Urban industrial, 72% imp, HSG B (3S,22S,26S)
29.390	98	Paved parking & roofs (1S,2S,3S,3S,4S,5S,7S,8S,11S,12S,13S,14S,22S,22S,31S,33S)
3.190	100	(3S)
1.180	100	DETENTION POND (22S)
46.250		

Time span=0.00-150.00 hrs, dt=0.01 hrs, 15001 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SB-1ARunoff Area=3.770 ac Runoff Depth=7.16"
Tc=5.0 min CN=0/98 Runoff=22.92 cfs 2.250 af**Subcatchment 2S: SB-1B**Runoff Area=4.480 ac Runoff Depth=7.16"
Flow Length=520' Tc=33.4 min CN=0/98 Runoff=14.35 cfs 2.673 af**Subcatchment 3S: SB-1C**Runoff Area=14.340 ac Runoff Depth=4.63"
Flow Length=256' Tc=4.8 min CN=61/99 Runoff=58.46 cfs 5.534 af**Subcatchment 4S: SB-1D**Runoff Area=1.480 ac Runoff Depth=7.16"
Flow Length=487' Tc=5.7 min CN=0/98 Runoff=8.80 cfs 0.883 af**Subcatchment 5S: SB-1E**Runoff Area=0.970 ac Runoff Depth=7.16"
Flow Length=297' Tc=3.6 min CN=0/98 Runoff=6.17 cfs 0.579 af**Subcatchment 7S: SB-1G**Runoff Area=1.380 ac Runoff Depth=6.77"
Flow Length=261' Tc=2.8 min CN=61/98 Runoff=8.54 cfs 0.778 af**Subcatchment 8S: SB-1H**Runoff Area=1.770 ac Runoff Depth=7.16"
Flow Length=307' Tc=6.6 min CN=0/98 Runoff=10.22 cfs 1.056 af**Subcatchment 11S: OSB-1A**Runoff Area=1.120 ac Runoff Depth=7.16"
Tc=5.0 min CN=0/98 Runoff=6.81 cfs 0.668 af**Subcatchment 12S: OSB-1B**Runoff Area=0.340 ac Runoff Depth=7.16"
Flow Length=310' Tc=4.7 min CN=0/98 Runoff=2.09 cfs 0.203 af**Subcatchment 13S: OSB-1C**Runoff Area=0.540 ac Runoff Depth=7.16"
Tc=5.0 min CN=0/98 Runoff=3.28 cfs 0.322 af**Subcatchment 14S: SB-1K**Runoff Area=0.500 ac Runoff Depth=7.16"
Flow Length=219' Slope=0.0069 '/' Tc=2.6 min CN=0/98 Runoff=3.28 cfs 0.298 af**Subcatchment 22S: SB-2A**Runoff Area=11.990 ac Runoff Depth=7.12"
Flow Length=706' Tc=9.5 min CN=62/98 Runoff=63.02 cfs 7.109 af**Subcatchment 23S: SB-2B**Runoff Area=0.970 ac Runoff Depth=3.84"
Flow Length=120' Slope=0.0583 '/' Tc=5.4 min CN=69/0 Runoff=3.56 cfs 0.311 af**Subcatchment 25S: B-4**Runoff Area=0.380 ac Runoff Depth=2.99"
Flow Length=16' Slope=0.1283 '/' Tc=1.7 min CN=61/0 Runoff=1.19 cfs 0.095 af**Subcatchment 26S: OSB-2A**Runoff Area=1.170 ac Runoff Depth=6.02"
Flow Length=329' Tc=14.1 min CN=62/98 Runoff=4.66 cfs 0.587 af

Subcatchment 31S: SB-1I	Runoff Area=0.300 ac	Runoff Depth=7.16"
Flow Length=139'	Slope=0.0058 '/'	Tc=1.9 min CN=0/98
	Runoff=2.01 cfs	0.179 af
Subcatchment 33S: SB-1J	Runoff Area=0.750 ac	Runoff Depth=7.16"
Flow Length=180'	Slope=0.5400 '/'	Tc=0.4 min CN=0/98
	Runoff=5.25 cfs	0.448 af
Reach 33R: Basin 1 Outfall	Avg. Depth=0.66'	Max Vel=7.30 fps
D=36.0" n=0.011 L=100.0'	S=0.0102 '/'	Capacity=238.83 cfs
	Outflow=24.98 cfs	9.873 af
Reach 35R: Basin 2 Outfall	Avg. Depth=1.08'	Max Vel=8.44 fps
D=36.0" n=0.011 L=130.0'	S=0.0078 '/'	Capacity=139.64 cfs
	Outflow=38.50 cfs	5.353 af
Pond 10P: BASIN 1 DRY DETENTION PON	Peak Elev=6.58'	Storage=9.034 af
Primary=24.98 cfs	9.873 af	Secondary=1.30 cfs
	5.818 af	Outflow=26.28 cfs
		15.691 af
Pond 24P: BASIN 2 DRY DETENTION POND	Peak Elev=7.01'	Storage=3.553 af
Primary=38.51 cfs	5.353 af	Secondary=0.46 cfs
	2.271 af	Outflow=38.97 cfs
		7.624 af
Pond 33P: BASIN 1 POND BLEEDER DISCHAR	Peak Elev=4.30'	Storage=2.924 af
	Inflow=0.00 cfs	0.000 af
	Outflow=0.74 cfs	2.830 af
Pond 34P: BASIN 2 POND BLEEDER DISCHAR	Peak Elev=4.90'	Storage=1.488 af
	Inflow=0.00 cfs	0.000 af
	Outflow=0.31 cfs	1.448 af
Link 15L: B-1 INLETS COMBINED	Inflow=90.38 cfs	10.338 af
	Primary=90.38 cfs	10.338 af
Link 16L: SB-1G OSB-1B COMBINED	Inflow=10.61 cfs	0.981 af
	Primary=10.61 cfs	0.981 af
Link 17L: SB-1H SB-1K COMBINED	Inflow=13.39 cfs	1.355 af
	Primary=13.39 cfs	1.355 af
Link 18L: OSB-1 INLETS COMBINED	Inflow=10.09 cfs	0.991 af
	Primary=10.09 cfs	0.991 af
Link 19L: B-1 OVERLAND TO POND	Inflow=58.46 cfs	5.534 af
	Primary=58.46 cfs	5.534 af
Link 20L: B-1 COMBINED TO POND	Inflow=148.71 cfs	15.872 af
	Primary=148.71 cfs	15.872 af
Link 29L: SB-2A OSB-2A COMBINED TO POND	Inflow=67.60 cfs	7.696 af
	Primary=67.60 cfs	7.696 af
Link 30L: DISCHARGE TO SOUTH CANAL	Inflow=39.99 cfs	5.664 af
	Primary=39.99 cfs	5.664 af
Link 32L: NORTH CANAL DISCHARGE	Inflow=25.12 cfs	9.968 af
	Primary=25.12 cfs	9.968 af

Total Runoff Area = 46.250 ac Runoff Volume = 23.974 af Average Runoff Depth = 6.22"
23.36% Pervious Area = 10.805 ac 76.64% Impervious Area = 35.445 ac

Subcatchment 1S: SB-1A

Runoff = 22.92 cfs @ 11.81 hrs, Volume= 2.250 af, Depth= 7.16"

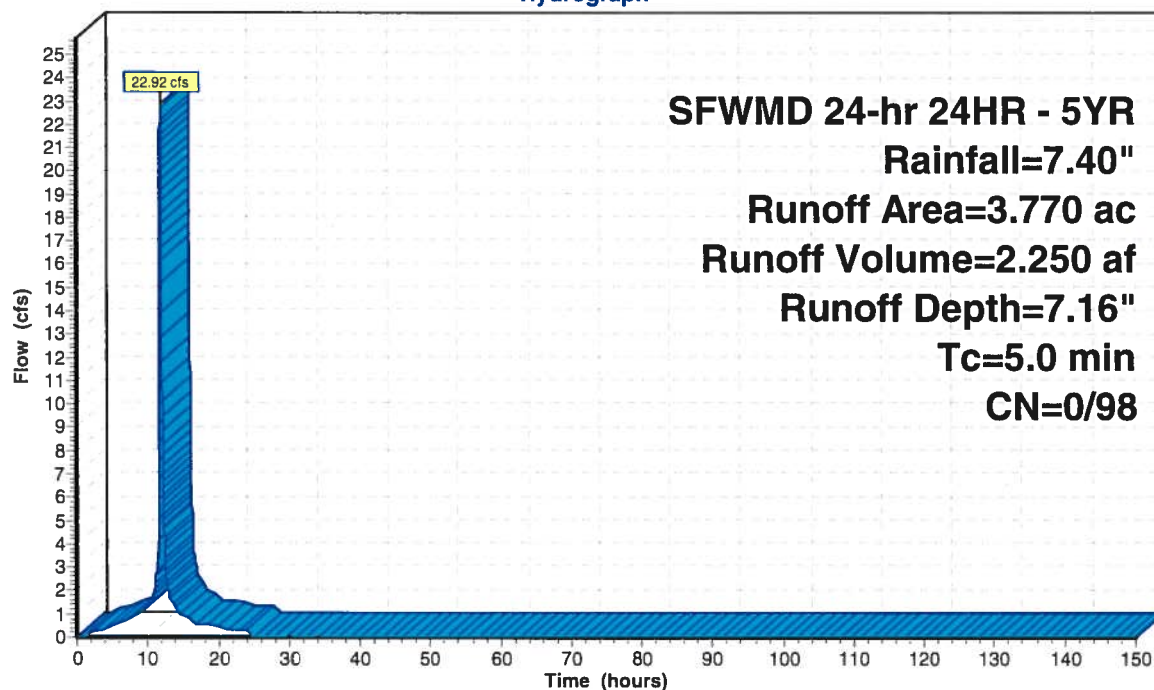
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
3.770	98	Paved parking & roofs
3.770	98	Impervious Area

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

Subcatchment 1S: SB-1A

Hydrograph



Subcatchment 2S: SB-1B

Runoff = 14.35 cfs @ 11.99 hrs, Volume= 2.673 af, Depth= 7.16"

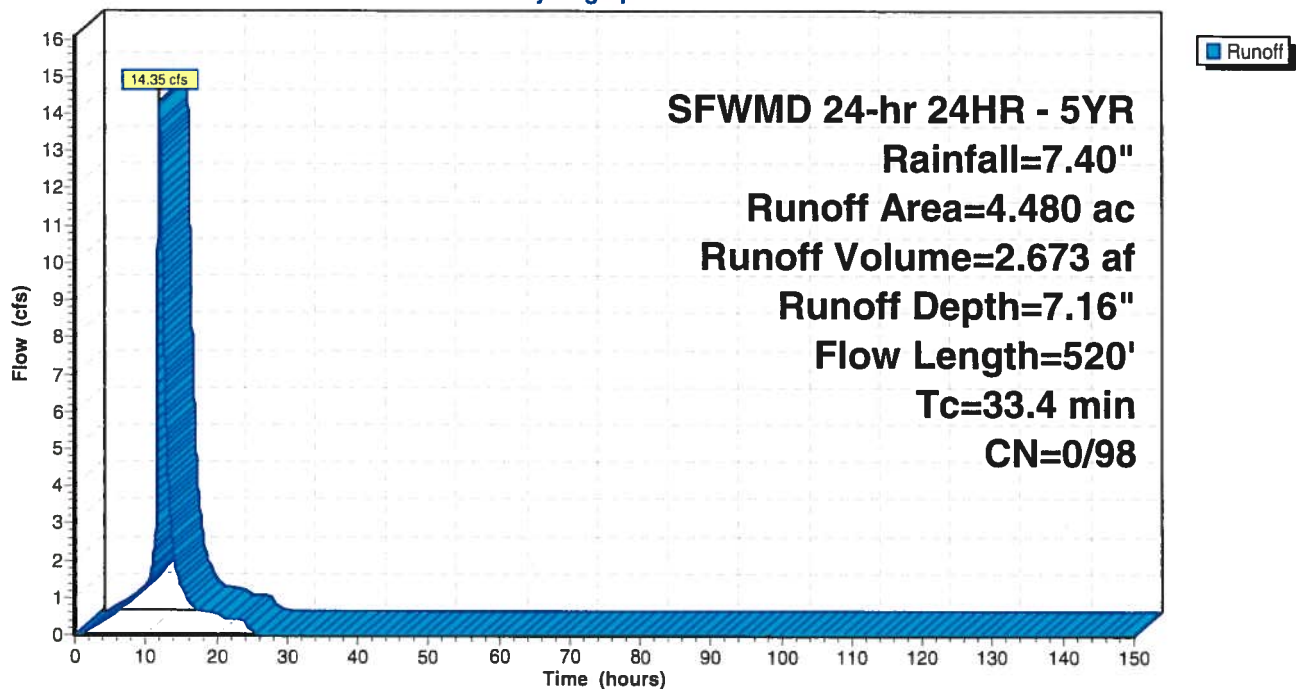
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
4.480	98	Paved parking & roofs
4.480	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	40	0.0200	1.56		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
29.5	260	0.0040	0.15		Sheet Flow, OVERLAND TO SCF Grass: Short n= 0.150 P2= 5.90"
3.5	220	0.0050	1.06		Shallow Concentrated Flow, SCF TO DETENTION POND Grassed Waterway Kv= 15.0 fps
33.4	520	Total			

Subcatchment 2S: SB-1B

Hydrograph



Subcatchment 3S: SB-1C

Runoff = 58.46 cfs @ 11.83 hrs, Volume= 5.534 af, Depth= 4.63"

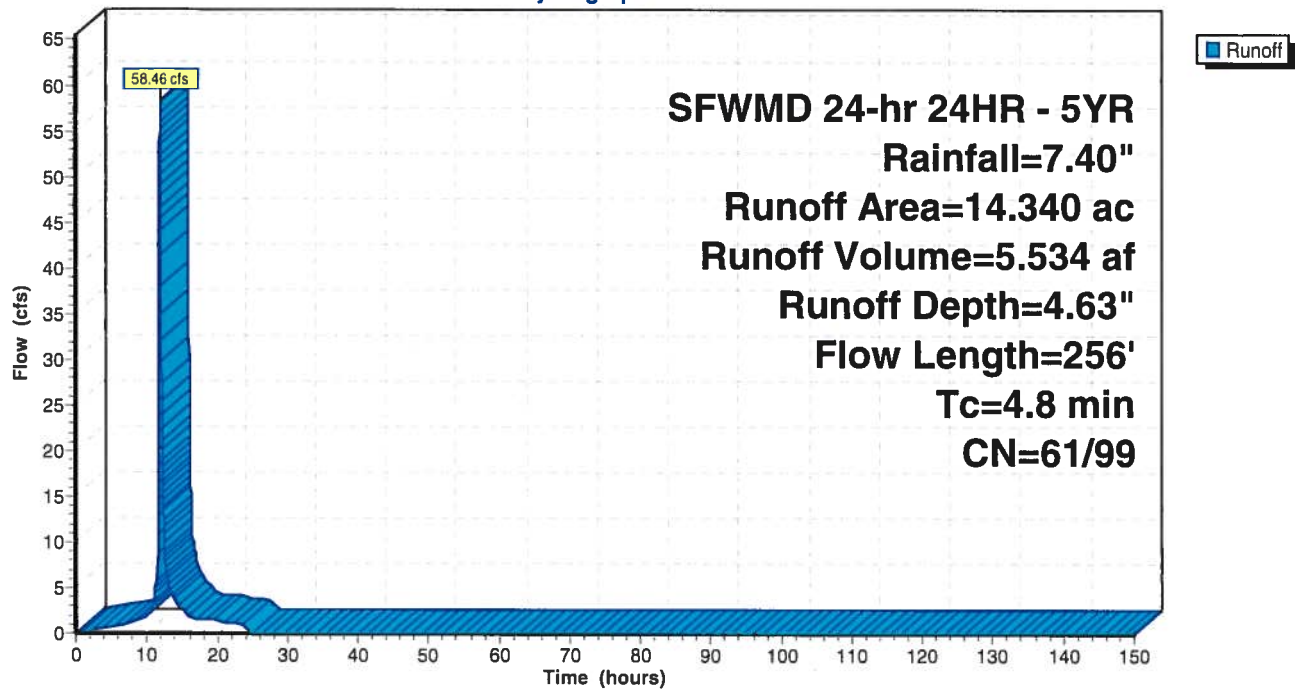
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.950	98	Paved parking & roofs
0.690	88	Urban industrial, 72% imp, HSG B
8.670	61	>75% Grass cover, Good, HSG B
3.190	100	
0.840	98	Paved parking & roofs
14.340	76	Weighted Average
8.863	61	Pervious Area
5.477	99	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	22	0.0090	1.00		Sheet Flow, OVERLAND FROM ROAD Smooth surfaces n= 0.011 P2= 5.90"
1.4	68	0.0029	0.80		Sheet Flow, OVERLAND 2 Smooth surfaces n= 0.011 P2= 5.90"
0.2	52	0.2900	4.78		Sheet Flow, OVERLAND 3 Smooth surfaces n= 0.011 P2= 5.90"
1.8	74	0.0020	0.70		Sheet Flow, OVERLAND 4 Smooth surfaces n= 0.011 P2= 5.90"
1.0	40	0.0025	0.68		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
4.8	256	Total			

Subcatchment 3S: SB-1C

Hydrograph



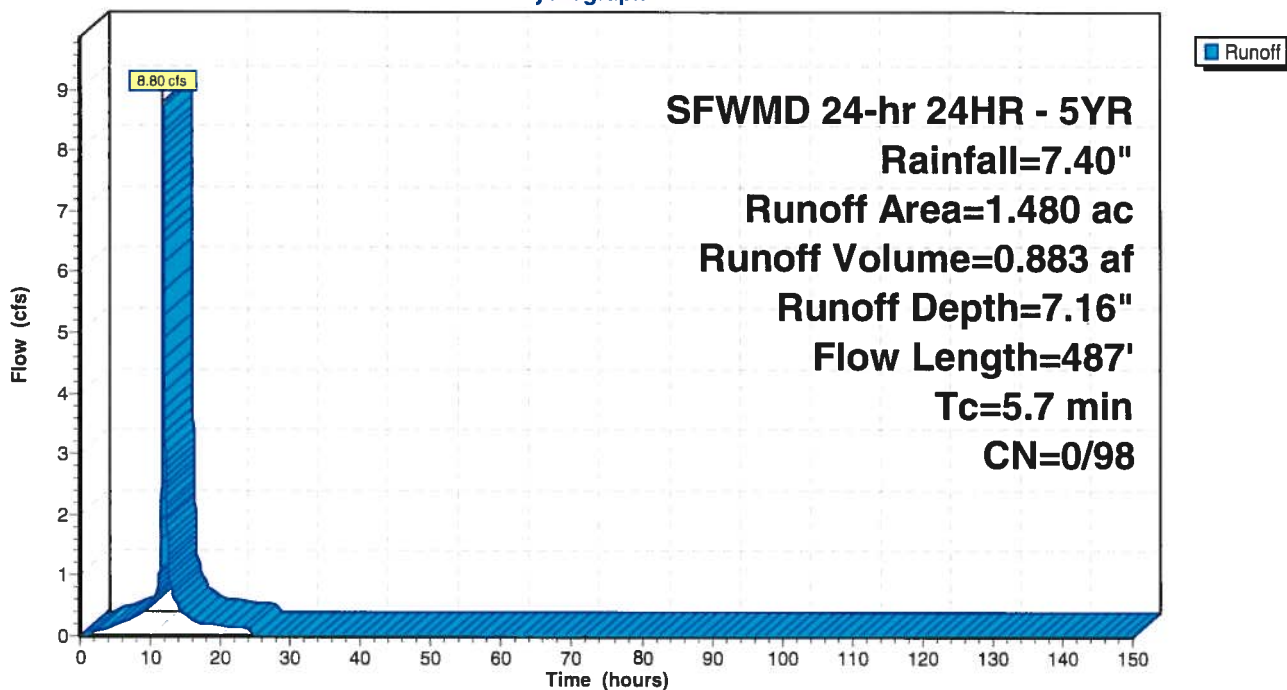
Subcatchment 4S: SB-1D

Runoff = 8.80 cfs @ 11.82 hrs, Volume= 0.883 af, Depth= 7.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.480	98	Paved parking & roofs
1.480	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	54	0.0056	0.99		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
2.9	246	0.0065	1.43		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
1.9	187	0.0064	1.62		Shallow Concentrated Flow, SCF TO INLET Paved Kv= 20.3 fps
5.7	487	Total			

Subcatchment 4S: SB-1D**Hydrograph**

Subcatchment 5S: SB-1E

Runoff = 6.17 cfs @ 11.79 hrs, Volume= 0.579 af, Depth= 7.16"

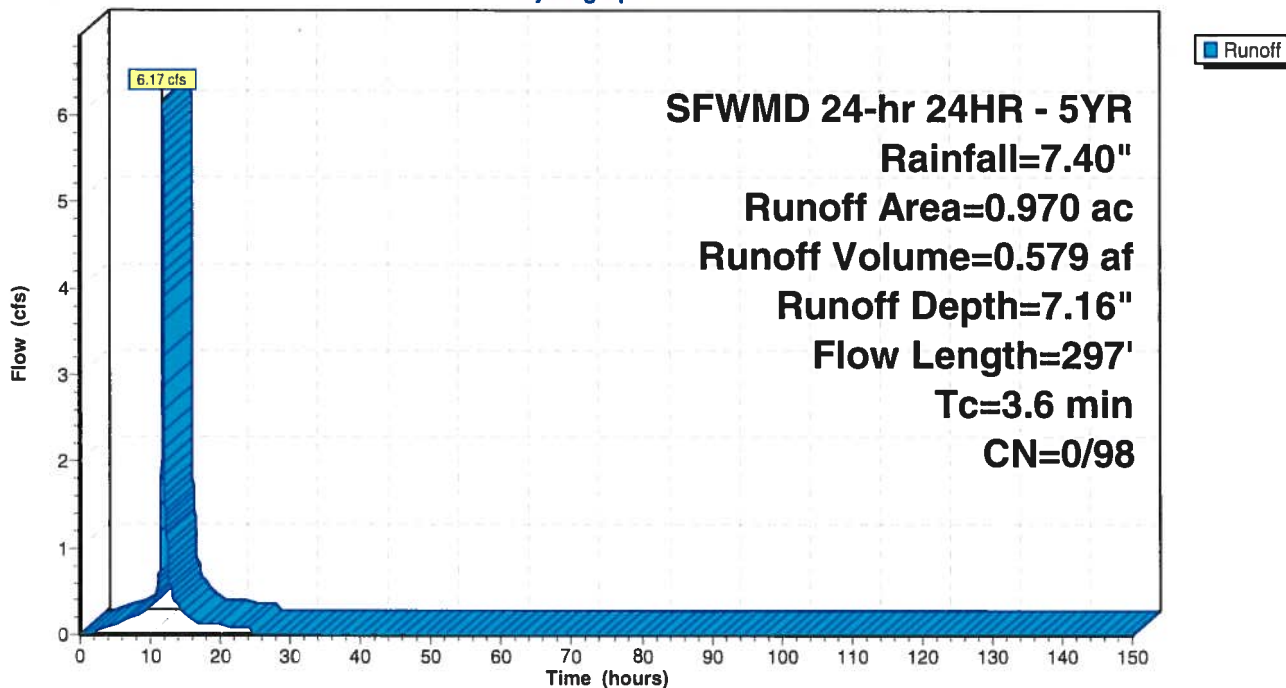
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.970	98	Paved parking & roofs
0.970	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	137	0.0182	1.92		Sheet Flow, OVERLAND 1
					Smooth surfaces n= 0.011 P2= 5.90"
1.1	72	0.0069	1.14		Sheet Flow, OVERLAND 2
					Smooth surfaces n= 0.011 P2= 5.90"
1.3	88	0.0057	1.10		Sheet Flow, OVERLAND TO INLET
					Smooth surfaces n= 0.011 P2= 5.90"
3.6	297	Total			

Subcatchment 5S: SB-1E

Hydrograph



Subcatchment 7S: SB-1G

Runoff = 8.54 cfs @ 11.78 hrs, Volume= 0.778 af, Depth= 6.77"

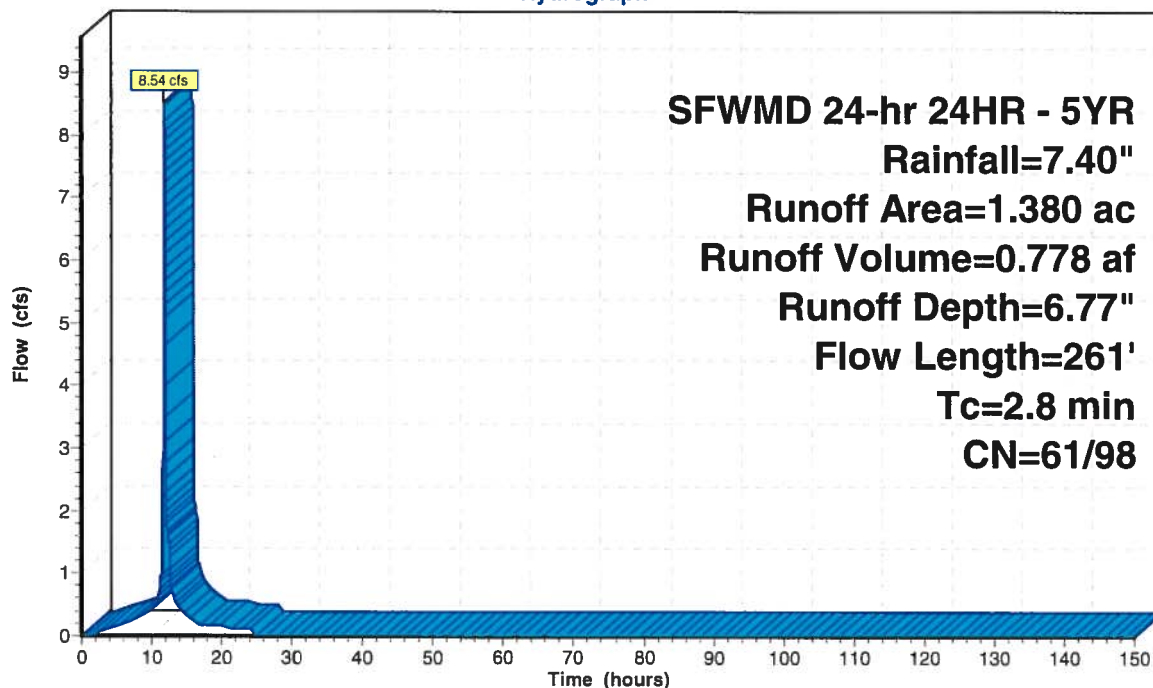
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.250	98	Paved parking & roofs
0.130	61	>75% Grass cover, Good, HSG B
1.380	95	Weighted Average
0.130	61	Pervious Area
1.250	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	232	0.0103	1.69		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
0.5	29	0.0069	0.95		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
2.8	261	Total			

Subcatchment 7S: SB-1G

Hydrograph



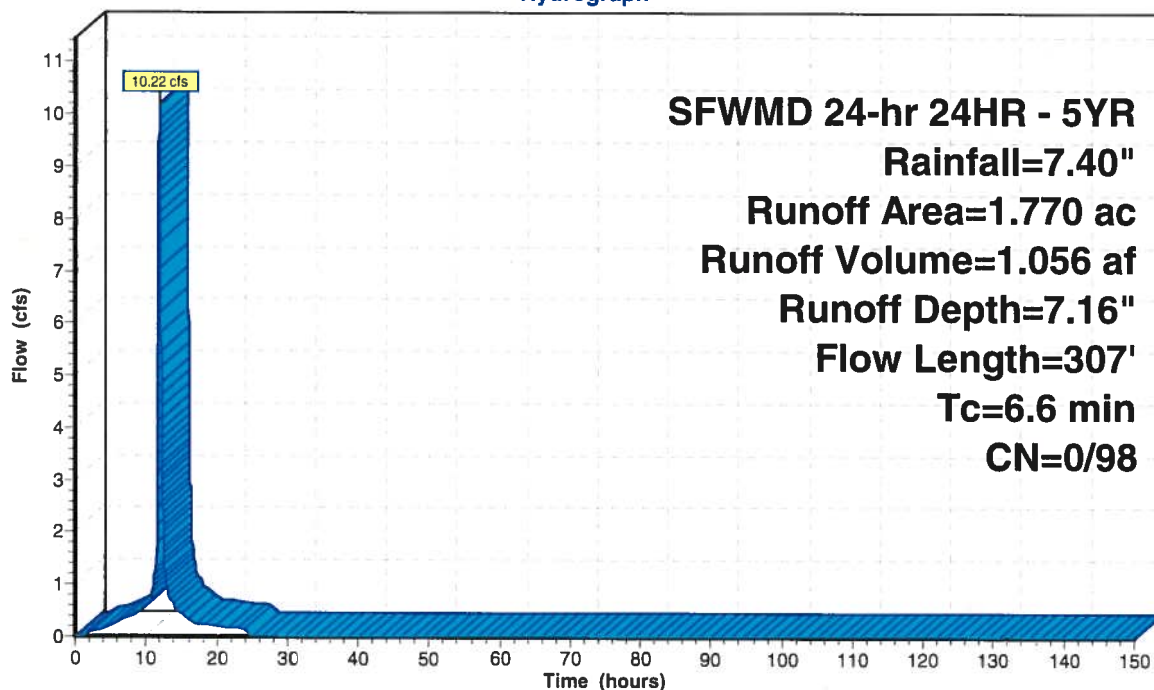
Subcatchment 8S: SB-1H

Runoff = 10.22 cfs @ 11.83 hrs, Volume= 1.056 af, Depth= 7.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.770	98	Paved parking & roofs
1.770	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	142	0.0014	0.69		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
3.1	158	0.0023	0.86		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
0.1	7	0.0054	1.18		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
6.6	307	Total			

Subcatchment 8S: SB-1H**Hydrograph**

Subcatchment 11S: OSB-1A

Runoff = 6.81 cfs @ 11.81 hrs, Volume= 0.668 af, Depth= 7.16"

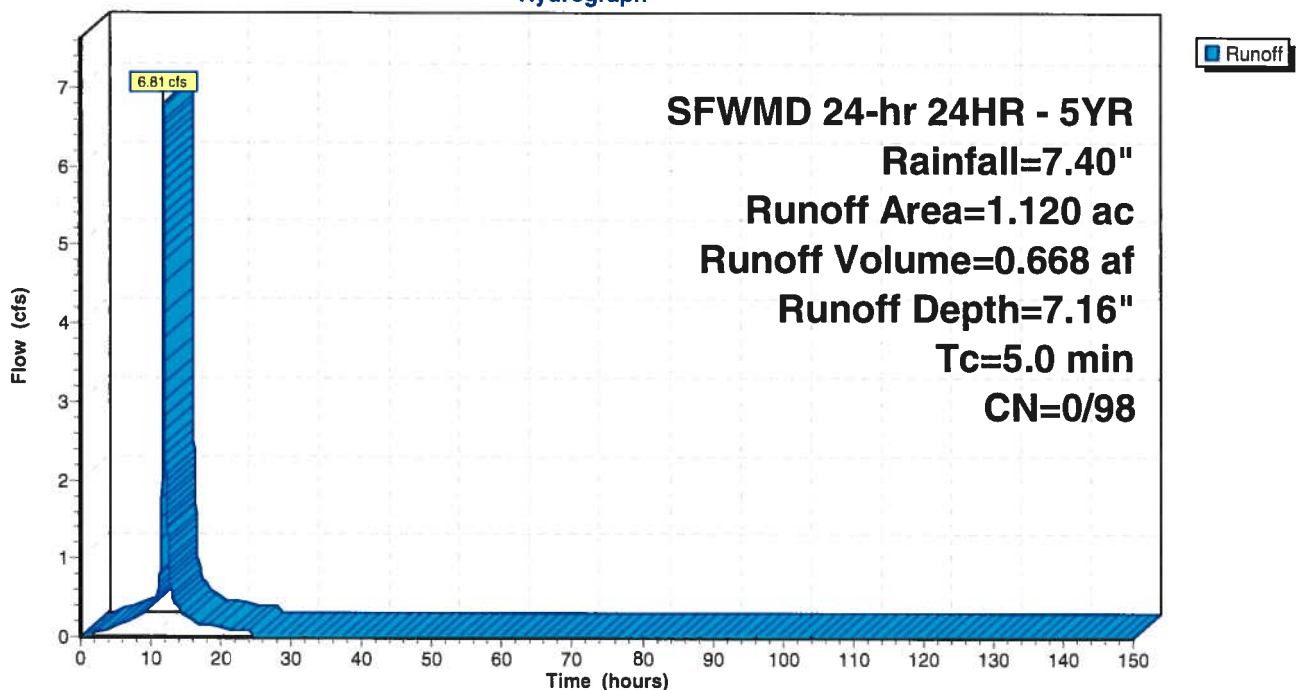
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.120	98	Paved parking & roofs
1.120	98	Impervious Area

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

Subcatchment 11S: OSB-1A

Hydrograph



Subcatchment 12S: OSB-1B

Runoff = 2.09 cfs @ 11.81 hrs, Volume= 0.203 af, Depth= 7.16"

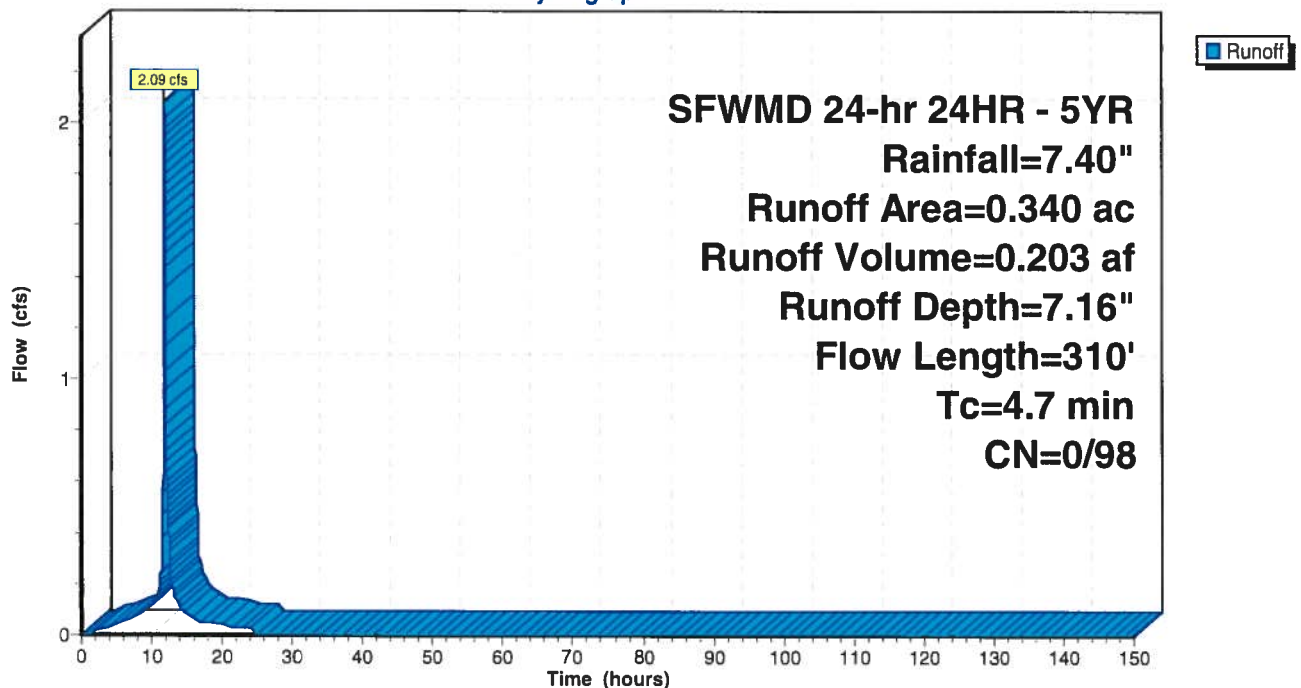
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.340	98	Paved parking & roofs
0.340	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	138	0.0051	1.15		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
2.6	161	0.0037	1.05		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
0.1	11	0.0271	3.34		Shallow Concentrated Flow, SCF TO SB-1G Paved Kv= 20.3 fps
4.7	310	Total			

Subcatchment 12S: OSB-1B

Hydrograph



Subcatchment 13S: OSB-1C

Runoff = 3.28 cfs @ 11.81 hrs, Volume= 0.322 af, Depth= 7.16"

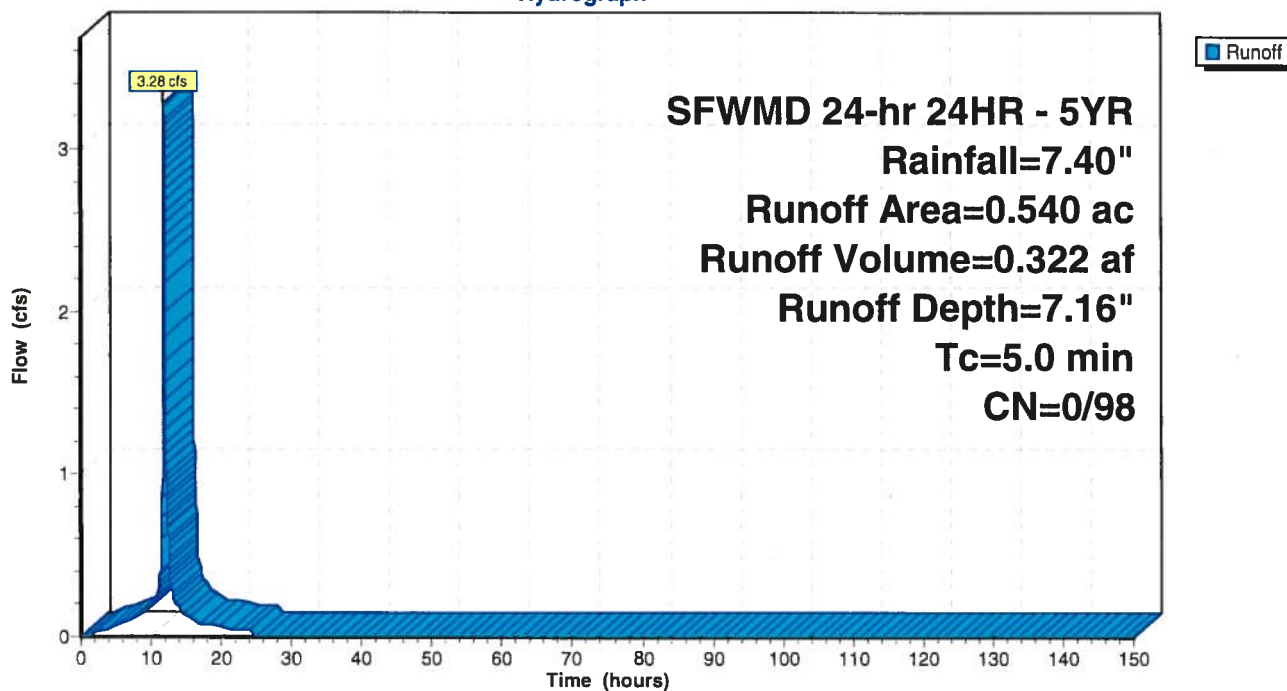
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.540	98	Paved parking & roofs
0.540	98	Impervious Area

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

Subcatchment 13S: OSB-1C

Hydrograph



Subcatchment 14S: SB-1K

Runoff = 3.28 cfs @ 11.78 hrs, Volume= 0.298 af, Depth= 7.16"

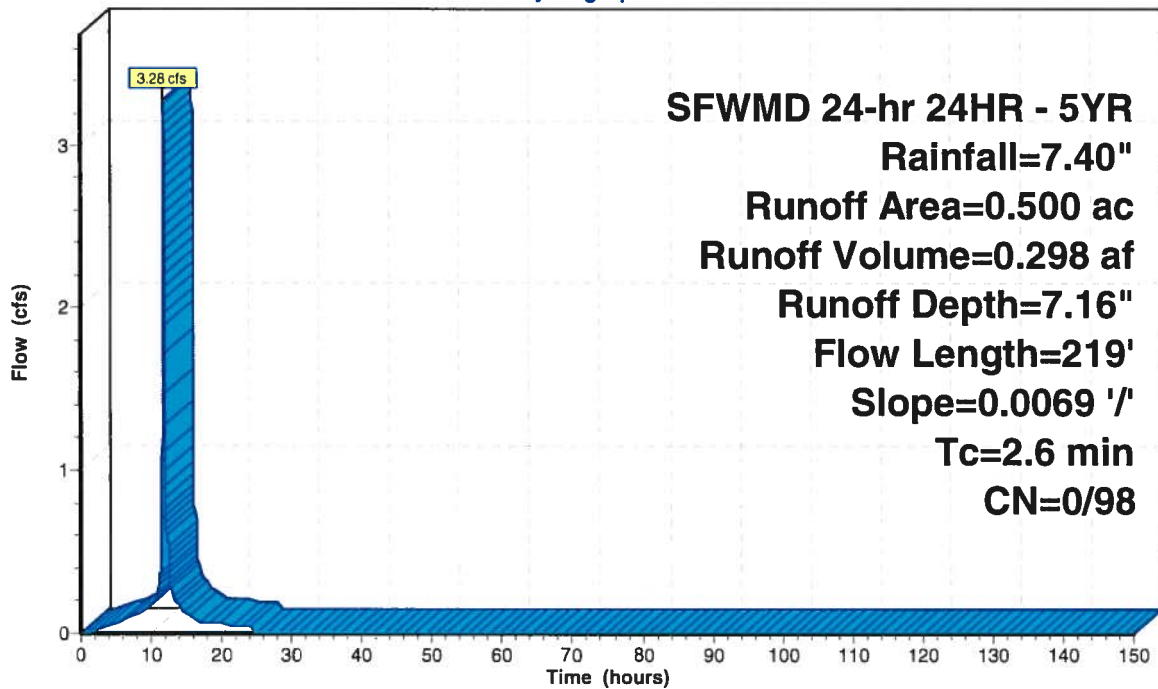
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.500	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	219	0.0069	1.43		Sheet Flow, OVERLAND TO SB-1H Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 14S: SB-1K

Hydrograph



Subcatchment 22S: SB-2A

NOTE LINE ITEM 3 IS SOUTH DRY DETENTION POND AREA.

Runoff = 63.02 cfs @ 11.86 hrs, Volume= 7.109 af, Depth= 7.12"

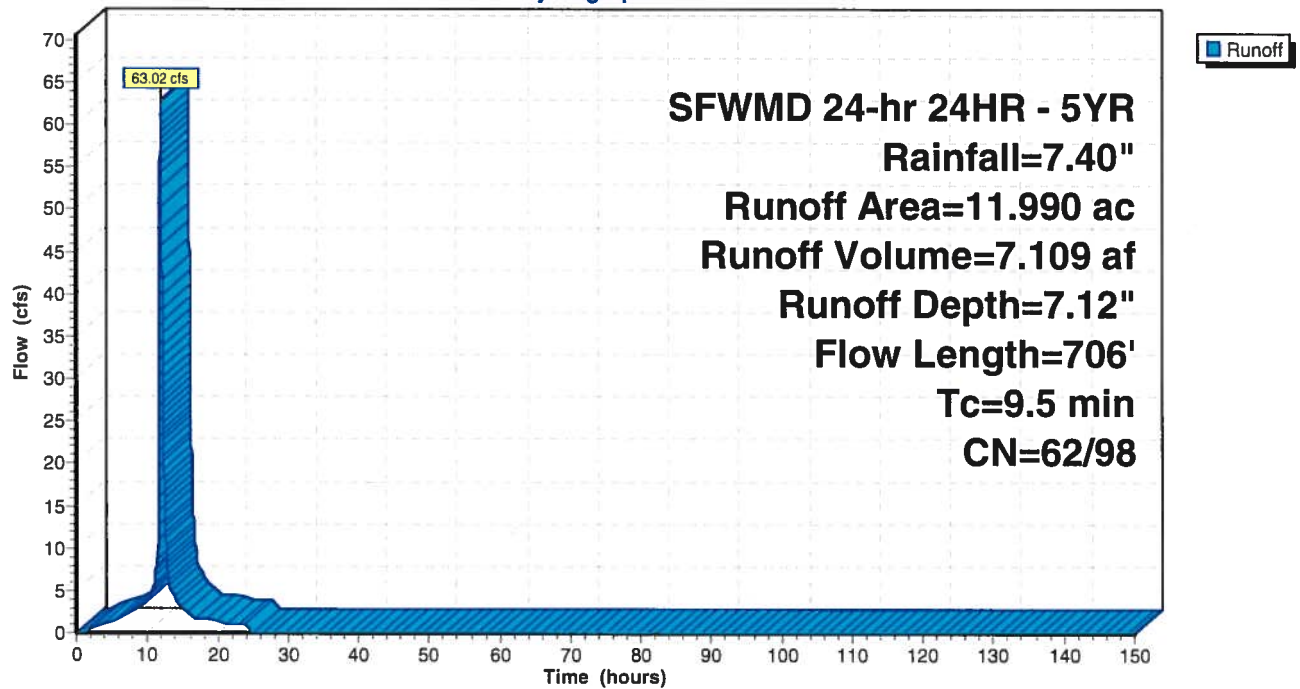
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
10.290	98	Paved parking & roofs
1.180	100	DETENTION POND
0.040	98	Paved parking & roofs
0.480	88	Urban industrial, 72% imp, HSG B
11.990	98	Weighted Average
0.134	62	Pervious Area
11.856	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	14	0.0141	1.10		Sheet Flow, OVERLAND FROM ROAD Smooth surfaces n= 0.011 P2= 5.90"
3.0	286	0.0077	1.57		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
6.3	406	0.0044	1.07		Shallow Concentrated Flow, SCF TO POND Unpaved Kv= 16.1 fps
9.5	706	Total			

Subcatchment 22S: SB-2A

Hydrograph



Subcatchment 23S: SB-2B

Runoff = 3.56 cfs @ 11.85 hrs, Volume= 0.311 af, Depth= 3.84"

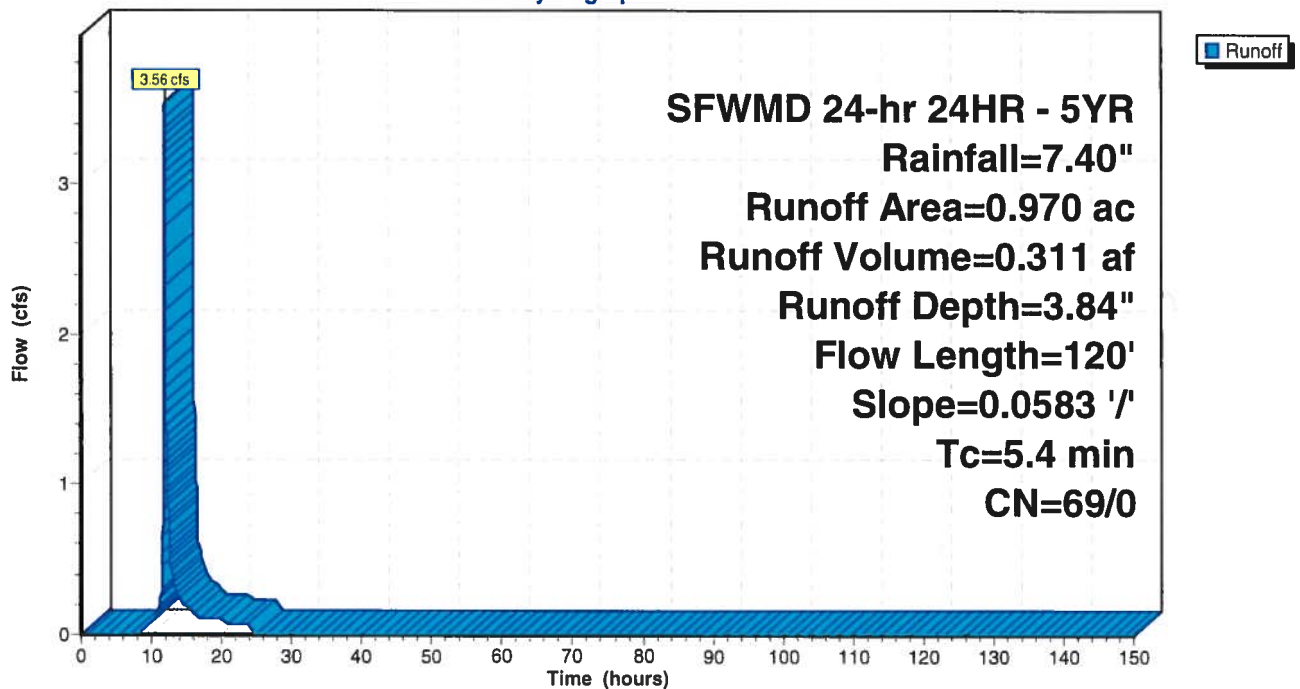
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.970	69	50-75% Grass cover, Fair, HSG B
0.970	69	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	120	0.0583	0.37		Sheet Flow, OVERLAND TO SOUTH CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 23S: SB-2B

Hydrograph



Subcatchment 25S: B-4

Runoff = 1.19 cfs @ 11.80 hrs, Volume= 0.095 af, Depth= 2.99"

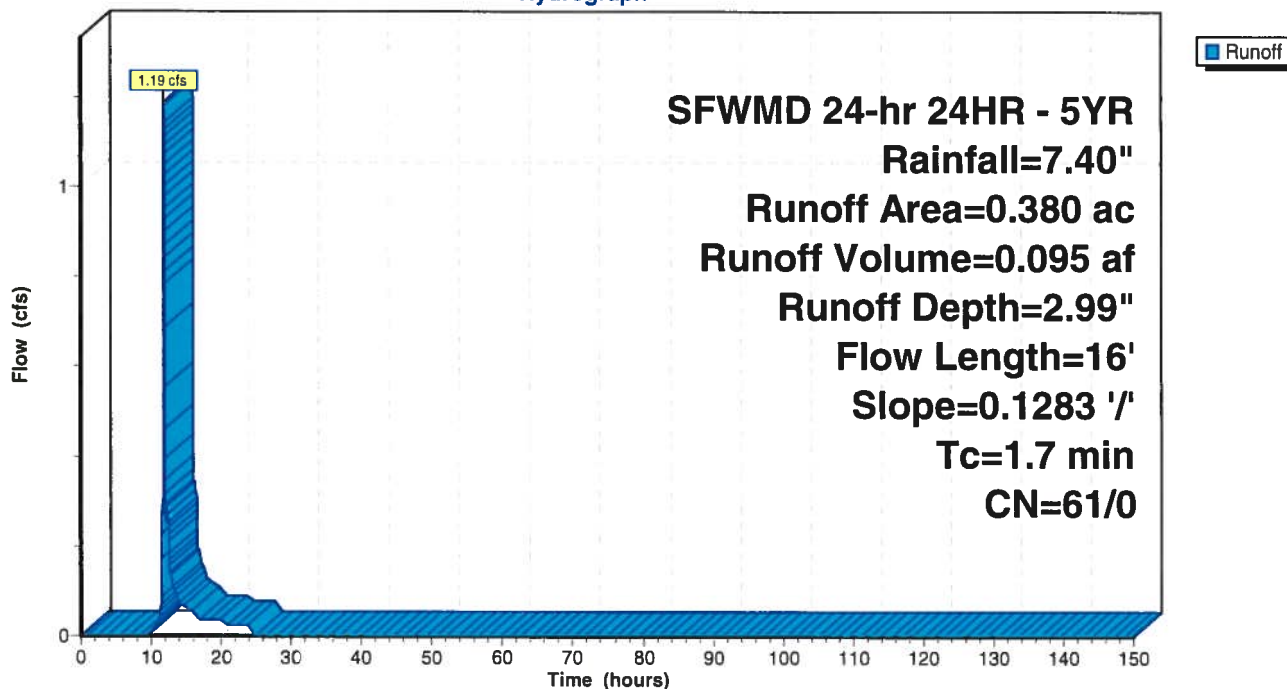
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.380	61	>75% Grass cover, Good, HSG B
0.380	61	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	16	0.1283	0.15		Sheet Flow, OVERLAND TO NORTH CANAL Woods: Light underbrush n= 0.400 P2= 5.90"

Subcatchment 25S: B-4

Hydrograph



Subcatchment 26S: OSB-2A

Runoff = 4.66 cfs @ 11.91 hrs, Volume= 0.587 af, Depth= 6.02"

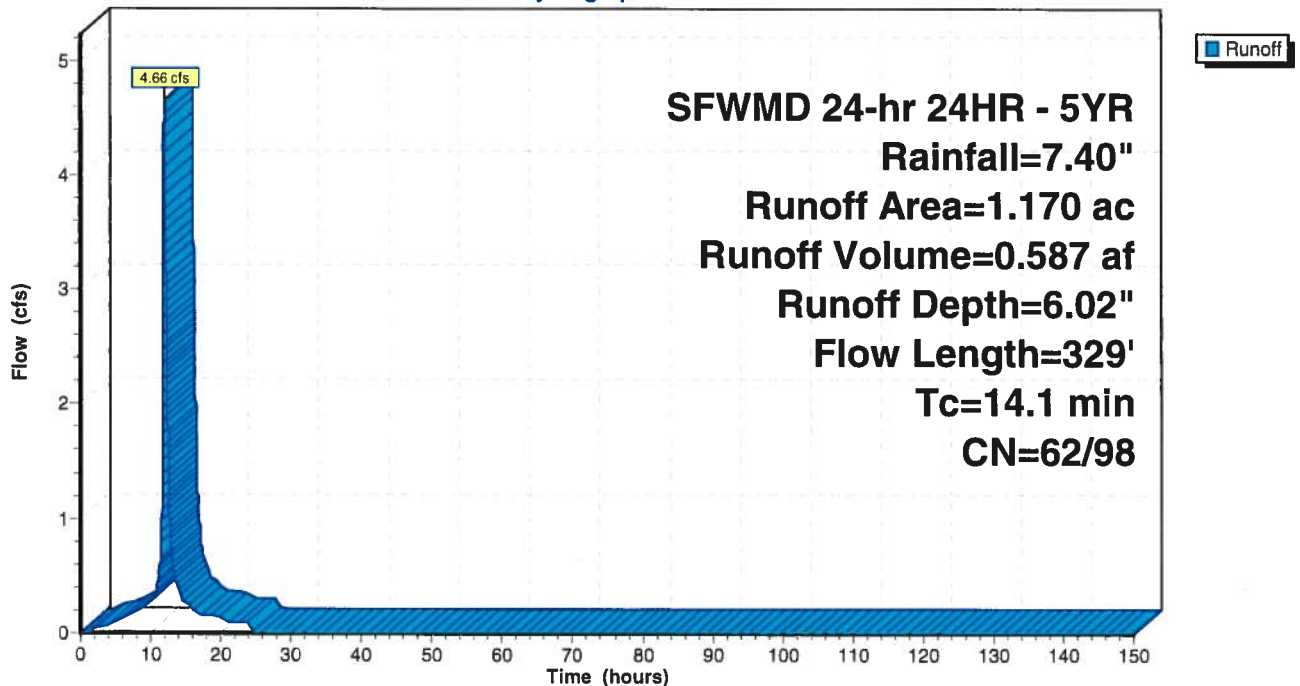
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.170	88	Urban industrial, 72% imp, HSG B
0.328	62	Pervious Area
0.842	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0040	0.36		Sheet Flow, OVERLAND TO SCF Fallow n= 0.050 P2= 5.90"
0.4	29	0.0069	1.25		Shallow Concentrated Flow, SCF TO SB-2A Grassed Waterway Kv= 15.0 fps
14.1	329	Total			

Subcatchment 26S: OSB-2A

Hydrograph



Subcatchment 31S: SB-1I

Runoff = 2.01 cfs @ 11.77 hrs, Volume= 0.179 af, Depth= 7.16"

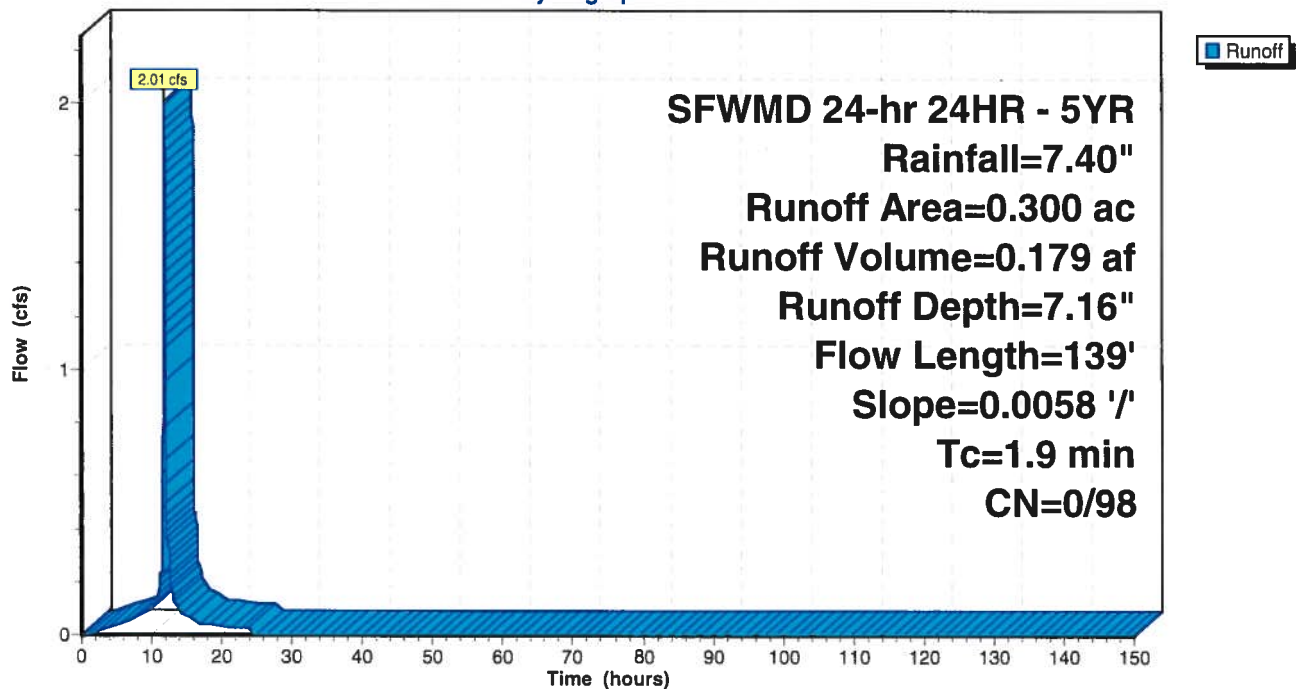
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.300	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	139	0.0058	1.22		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 31S: SB-1I

Hydrograph



Subcatchment 33S: SB-1J

Runoff = 5.25 cfs @ 11.76 hrs, Volume= 0.448 af, Depth= 7.16"

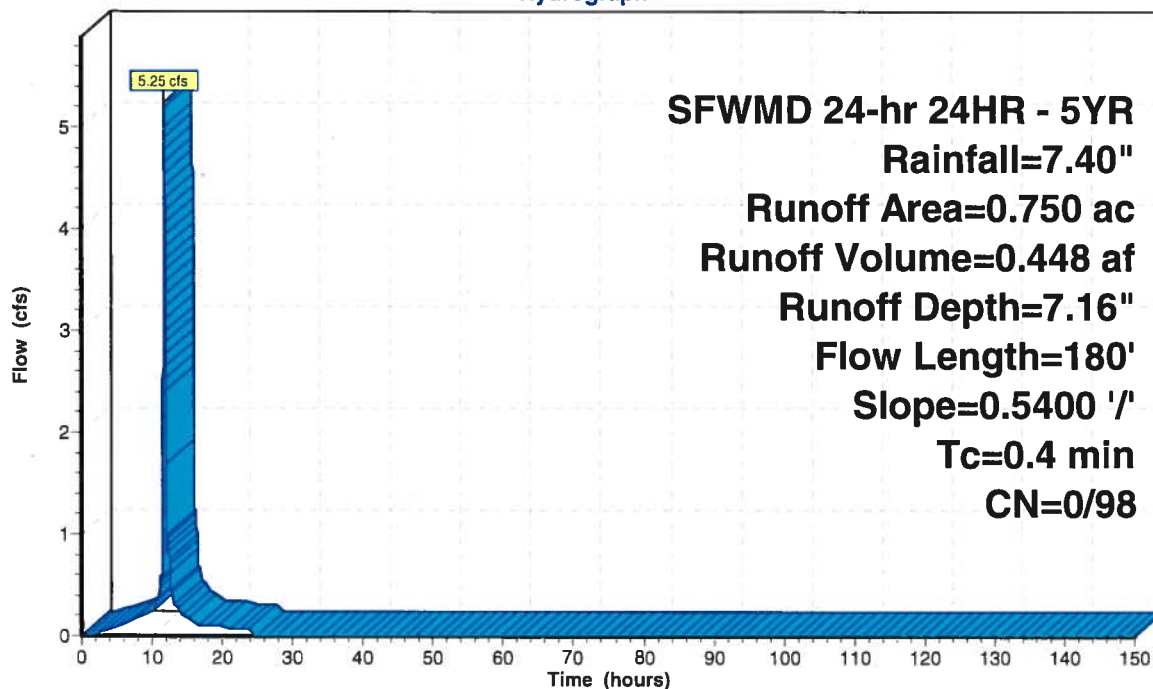
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.750	98	Paved parking & roofs
0.750	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	180	0.5400	7.85		Sheet Flow, Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 33S: SB-1J

Hydrograph



Reach 33R: Basin 1 Outfall

Inflow Area = 31.740 ac, Inflow Depth = 3.73" for 24HR - 5YR event
 Inflow = 24.98 cfs @ 12.56 hrs, Volume= 9.873 af
 Outflow = 24.98 cfs @ 12.57 hrs, Volume= 9.873 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Max. Velocity= 7.30 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 2.93 fps, Avg. Travel Time= 0.6 min

Peak Storage= 342 cf @ 12.57 hrs, Average Depth at Peak Storage= 0.66'

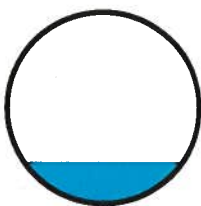
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.83 cfs

A factor of 3.00 has been applied to the storage and discharge capacity

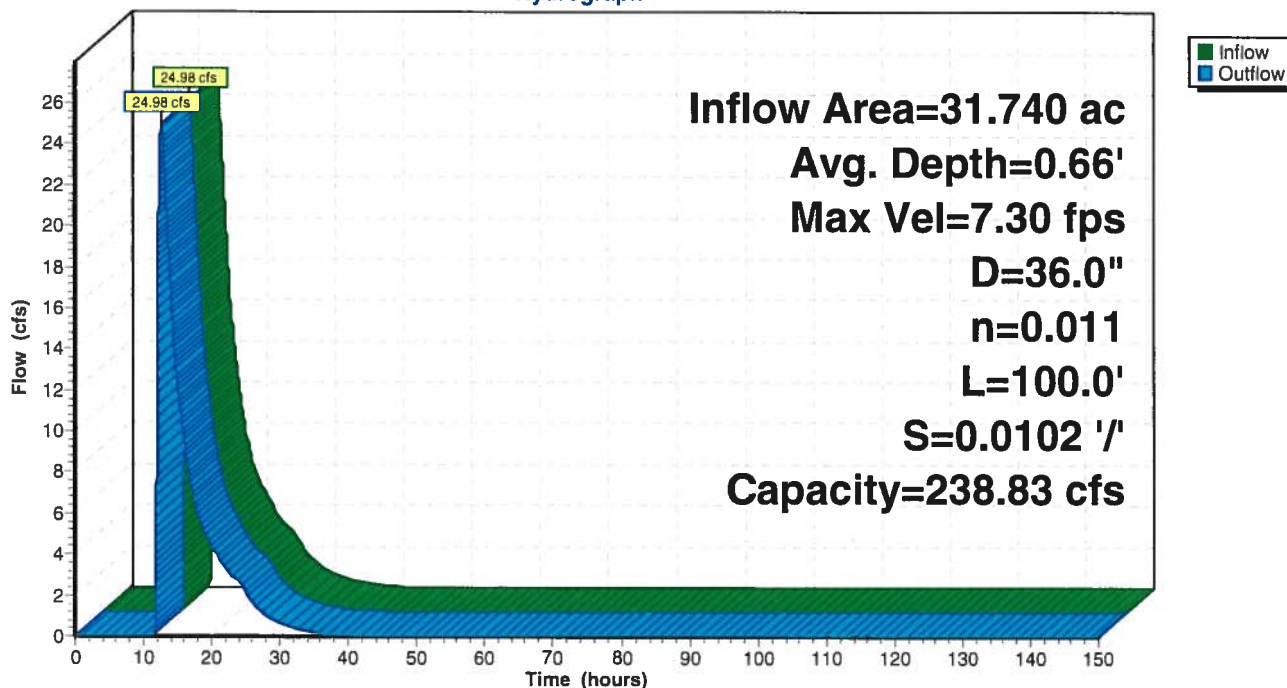
36.0" Diameter Pipe, n= 0.011 Concrete pipe, straight & clean

Length= 100.0' Slope= 0.0102 1'

Inlet Invert= 3.10', Outlet Invert= 2.08'

**Reach 33R: Basin 1 Outfall**

Hydrograph



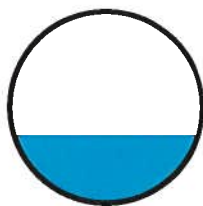
Reach 35R: Basin 2 Outfall

Inflow Area = 13.160 ac, Inflow Depth = 4.88" for 24HR - 5YR event
 Inflow = 38.51 cfs @ 12.10 hrs, Volume= 5.353 af
 Outflow = 38.50 cfs @ 12.11 hrs, Volume= 5.353 af, Atten= 0%, Lag= 0.4 min

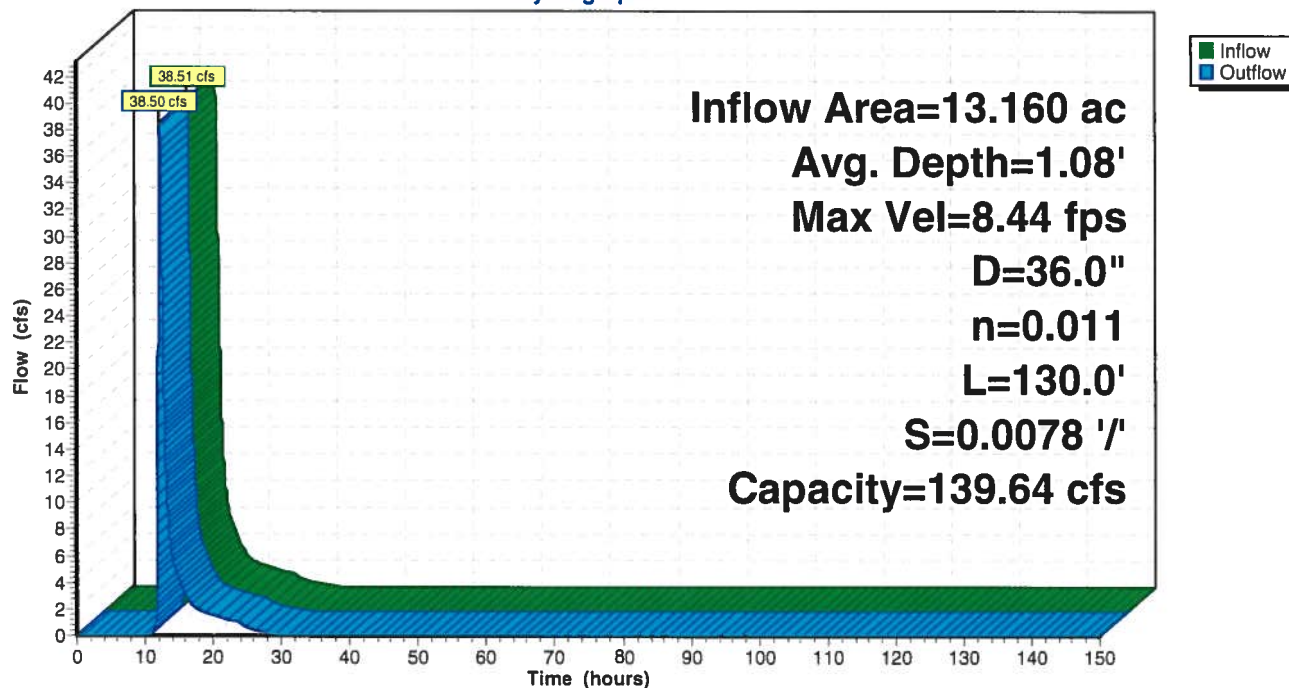
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Max. Velocity= 8.44 fps, Min. Travel Time= 0.3 min
 Avg. Velocity= 2.73 fps, Avg. Travel Time= 0.8 min

Peak Storage= 593 cf @ 12.10 hrs, Average Depth at Peak Storage= 1.08'
 Bank-Full Depth= 3.00', Capacity at Bank-Full= 139.64 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 36.0" Diameter Pipe, n= 0.011 Concrete pipe, straight & clean
 Length= 130.0' Slope= 0.0078 '/'
 Inlet Invert= 3.10', Outlet Invert= 2.08'

**Reach 35R: Basin 2 Outfall**

Hydrograph



Pond 10P: BASIN 1 DRY DETENTION POND

Inflow Area = 31.740 ac, Inflow Depth = 6.00" for 24HR - 5YR event
 Inflow = 148.71 cfs @ 11.82 hrs, Volume= 15.872 af
 Outflow = 26.28 cfs @ 12.56 hrs, Volume= 15.691 af, Atten= 82%, Lag= 44.7 min
 Primary = 24.98 cfs @ 12.56 hrs, Volume= 9.873 af
 Secondary = 1.30 cfs @ 12.56 hrs, Volume= 5.818 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Peak Elev= 6.58' @ 12.56 hrs Surf.Area= 2.840 ac Storage= 9.034 af

Plug-Flow detention time= 1,017.0 min calculated for 15.691 af (99% of inflow)
 Center-of-Mass det. time= 1,009.2 min (1,759.1 - 749.8)

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	16.331 af	190.00'W x 540.00'L x 5.90'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	6.10'	6.0' long x 2.90' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.0' Crest Height
#2	Primary	4.30'	100.0 deg x 1.80' rise Sharp-Crested Vee/Trap Weir C= 2.49
#3	Secondary	3.10'	3.0" Vert. Orifice/Grate X 3.00 C= 0.600

Primary OutFlow Max=24.98 cfs @ 12.56 hrs HW=6.58' TW=3.10' (Fixed TW Elev= 3.10')

↑1=Sharp-Crested Rectangular Weir (Weir Controls 6.58 cfs @ 2.31 fps)

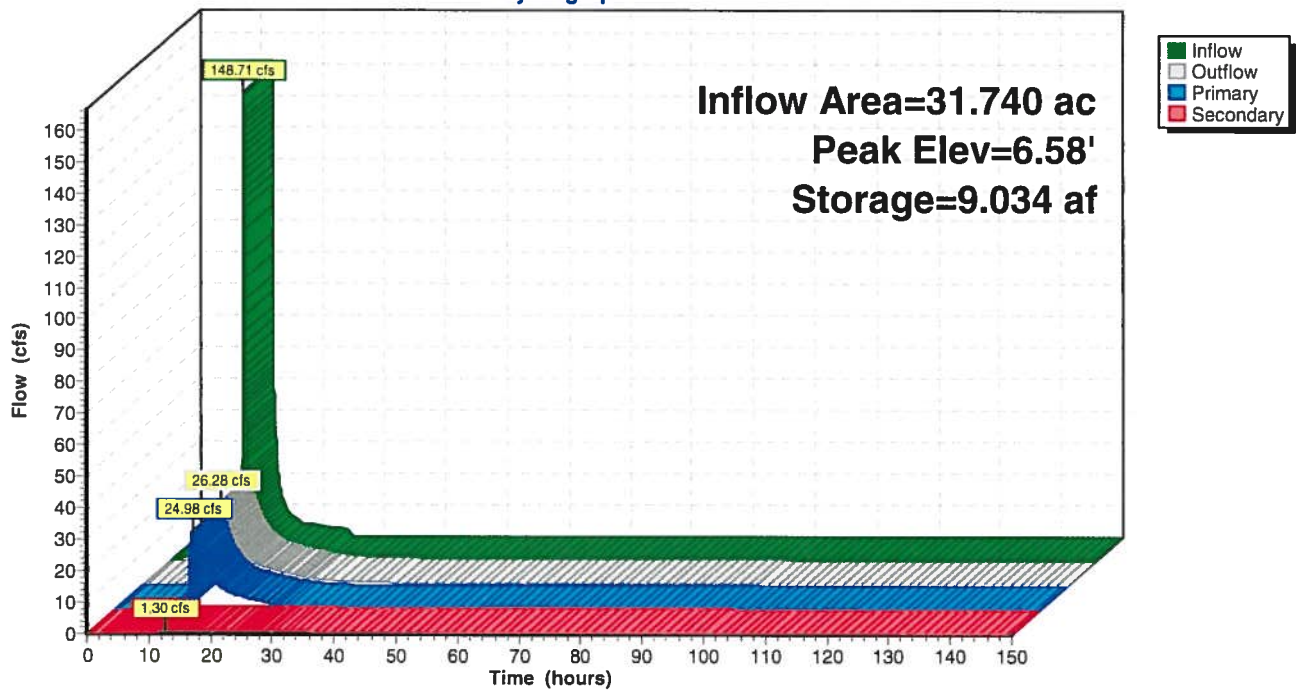
↑2=Sharp-Crested Vee/Trap Weir (Orifice Controls 18.40 cfs @ 4.76 fps)

Secondary OutFlow Max=1.30 cfs @ 12.56 hrs HW=6.58' TW=3.10' (Fixed TW Elev= 3.10')

↑3=Orifice/Grate (Orifice Controls 1.30 cfs @ 8.82 fps)

Pond 10P: BASIN 1 DRY DETENTION POND

Hydrograph



Pond 24P: BASIN 2 DRY DETENTION POND

Inflow Area = 13.160 ac, Inflow Depth = 7.02" for 24HR - 5YR event
 Inflow = 67.60 cfs @ 11.87 hrs, Volume= 7.696 af
 Outflow = 38.97 cfs @ 12.10 hrs, Volume= 7.624 af, Atten= 42%, Lag= 14.0 min
 Primary = 38.51 cfs @ 12.10 hrs, Volume= 5.353 af
 Secondary = 0.46 cfs @ 12.10 hrs, Volume= 2.271 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Peak Elev= 7.01' @ 12.10 hrs Surf.Area= 1.063 ac Storage= 3.553 af

Plug-Flow detention time= 849.0 min calculated for 7.624 af (99% of inflow)
 Center-of-Mass det. time= 842.9 min (1,580.3 - 737.4)

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	5.228 af	125.00'W x 265.00'L x 5.40'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	6.00'	8.0' long x 2.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.9' Crest Height
#2	Primary	4.90'	120.0 deg x 1.10' rise Sharp-Crested Vee/Trap Weir C= 2.48
#3	Secondary	3.10'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=38.50 cfs @ 12.10 hrs HW=7.01' TW=2.08' (Fixed TW Elev= 2.08')

└─1=Sharp-Crested Rectangular Weir (Weir Controls 27.10 cfs @ 3.43 fps)

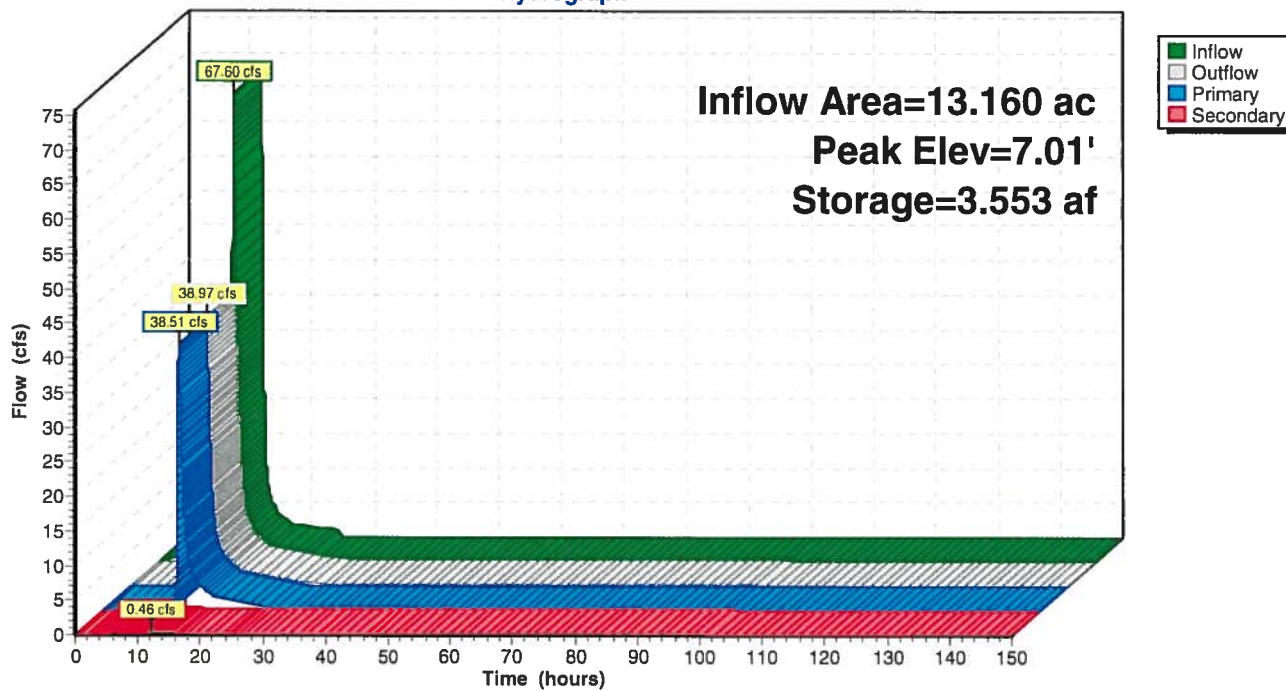
└─2=Sharp-Crested Vee/Trap Weir (Orifice Controls 11.40 cfs @ 5.44 fps)

Secondary OutFlow Max=0.46 cfs @ 12.10 hrs HW=7.01' TW=2.08' (Fixed TW Elev= 2.08')

└─3=Orifice/Grate (Orifice Controls 0.46 cfs @ 9.37 fps)

Pond 24P: BASIN 2 DRY DETENTION POND

Hydrograph



Pond 33P: BASIN 1 POND BLEEDER DISCHARGE VOLUME

NODE USED TO DETERMINE THE VOLUME OF DISCHARGE IN A 24 HOUR PERIOD THROUGH A BLEED DOWN ORIFICE.

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.74 cfs @ 0.00 hrs, Volume= 2.830 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.74 cfs @ 0.00 hrs, Volume= 2.830 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Starting Elev= 4.30' Surf.Area= 2.518 ac Storage= 2.924 af
 Peak Elev= 4.30' @ 0.00 hrs Surf.Area= 2.518 ac Storage= 2.924 af

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

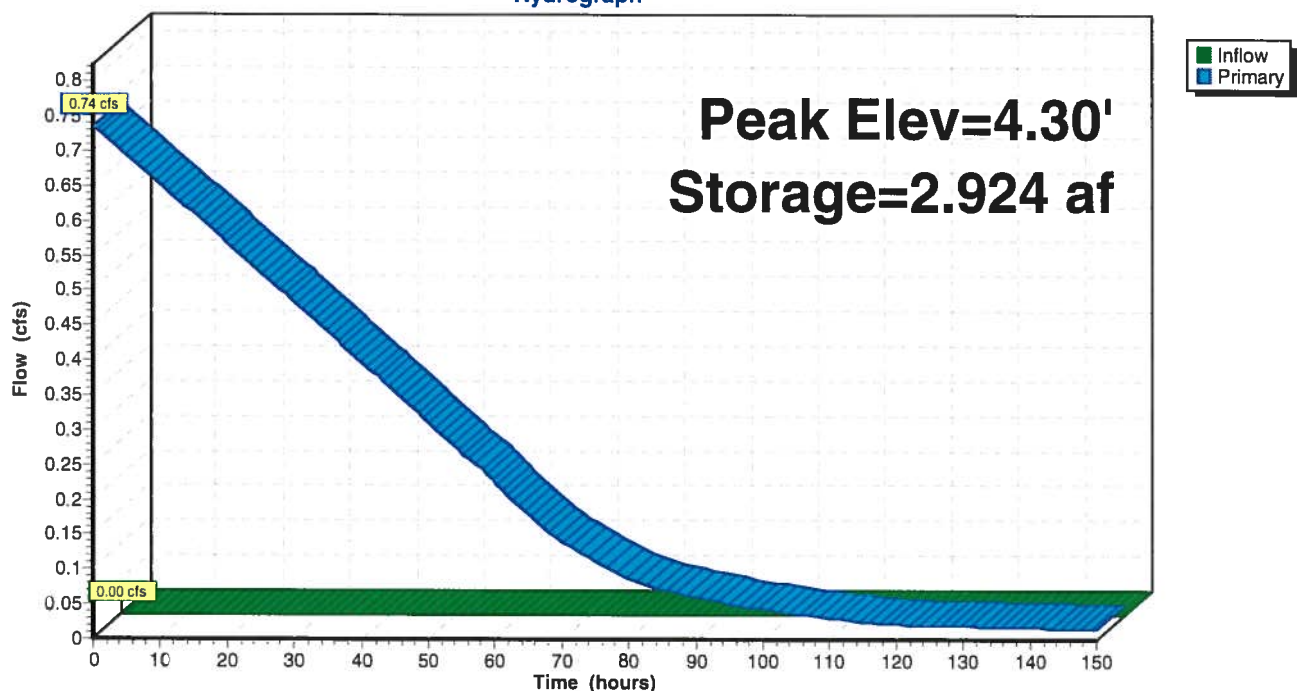
Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	16.331 af	190.00'W x 540.00'L x 5.90'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	3.10'	3.0" Vert. Orifice/Grate X 3.00 C= 0.600

Primary OutFlow Max=0.74 cfs @ 0.00 hrs HW=4.30' TW=2.08' (Fixed TW Elev= 2.08")
 ↳1=Orifice/Grate (Orifice Controls 0.74 cfs @ 4.99 fps)

Pond 33P: BASIN 1 POND BLEEDER DISCHARGE VOLUME

Hydrograph



Pond 34P: BASIN 2 POND BLEEDER DISCHARGE VOLUME

THIS NODE IS USED TO DETERMINE DISCHARGE VOLUMES IN A 24 HOUR PERIOD THROUGH A BLEEDER ORIFICE.

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.31 cfs @ 0.00 hrs, Volume= 1.448 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 0.00 hrs, Volume= 1.448 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Starting Elev= 4.90' Surf.Area= 0.894 ac Storage= 1.488 af

Peak Elev= 4.90' @ 0.00 hrs Surf.Area= 0.894 ac Storage= 1.488 af

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

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

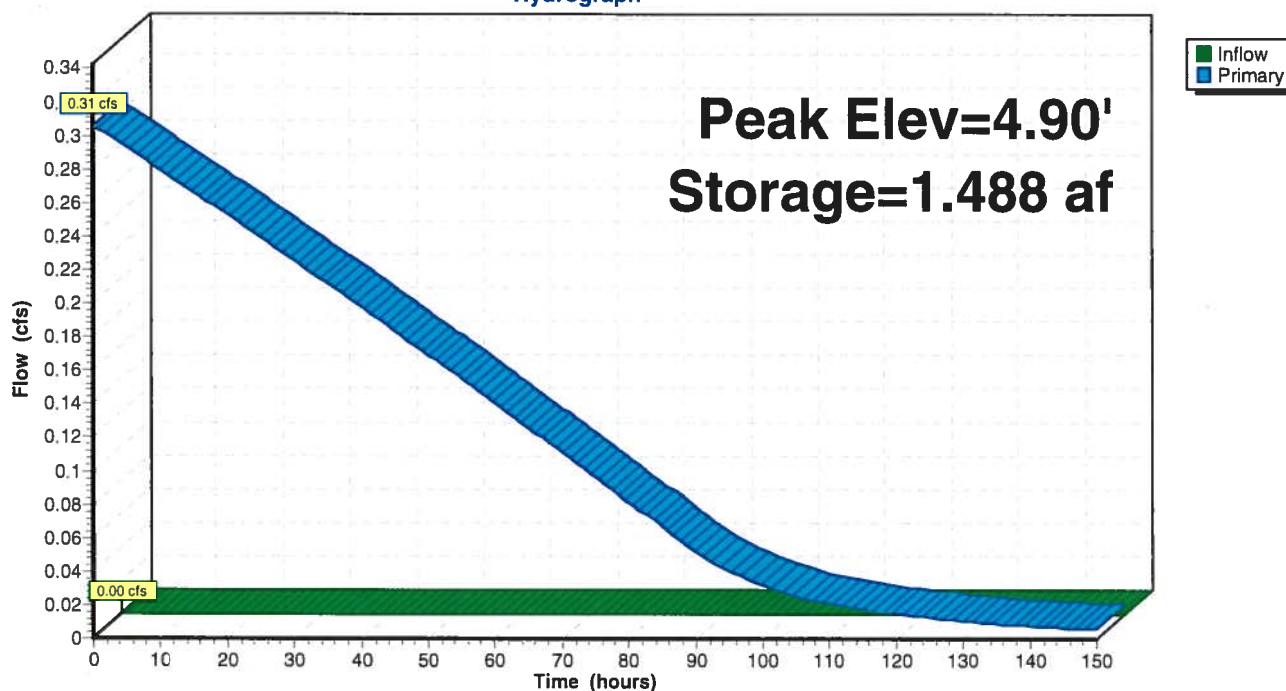
Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	5.228 af	125.00'W x 265.00'L x 5.40'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	3.10'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.31 cfs @ 0.00 hrs HW=4.90' TW=2.08' (Fixed TW Elev= 2.08')
 ↳1=Orifice/Grate (Orifice Controls 0.31 cfs @ 6.23 fps)

Pond 34P: BASIN 2 POND BLEEDER DISCHARGE VOLUME

Hydrograph



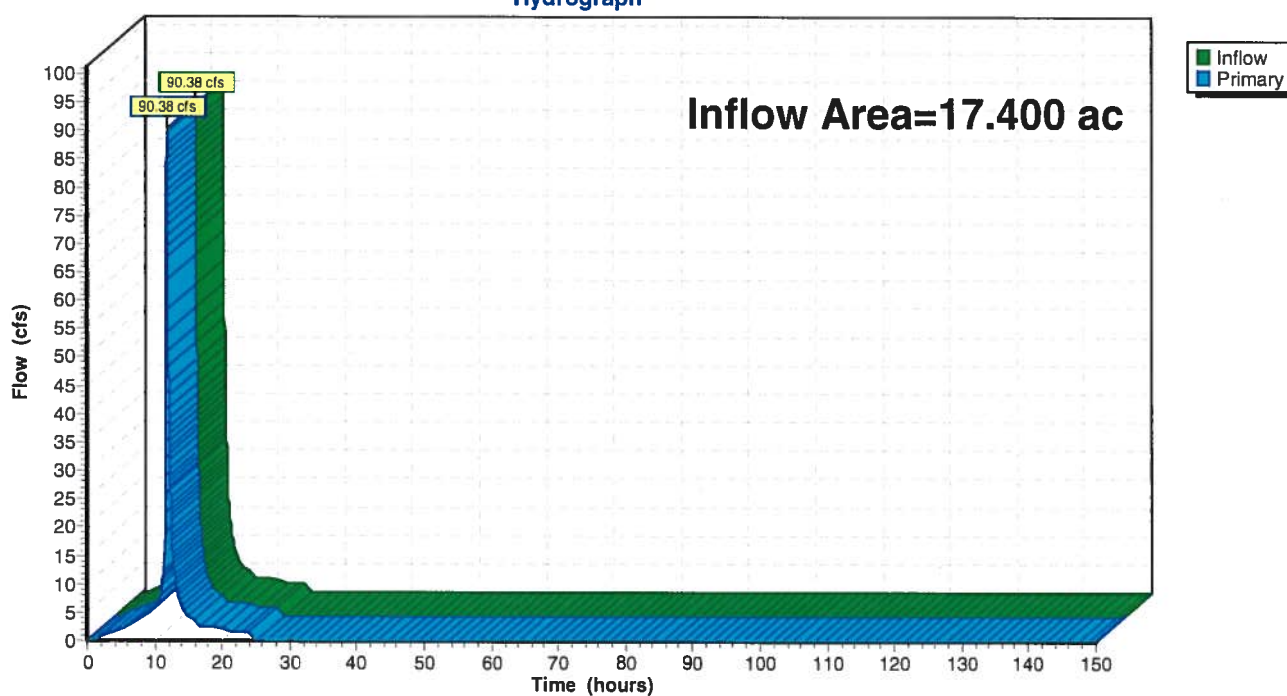
Link 15L: B-1 INLETS COMBINED

Inflow Area = 17.400 ac, Inflow Depth = 7.13" for 24HR - 5YR event
Inflow = 90.38 cfs @ 11.81 hrs, Volume= 10.338 af
Primary = 90.38 cfs @ 11.81 hrs, Volume= 10.338 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 15L: B-1 INLETS COMBINED

Hydrograph



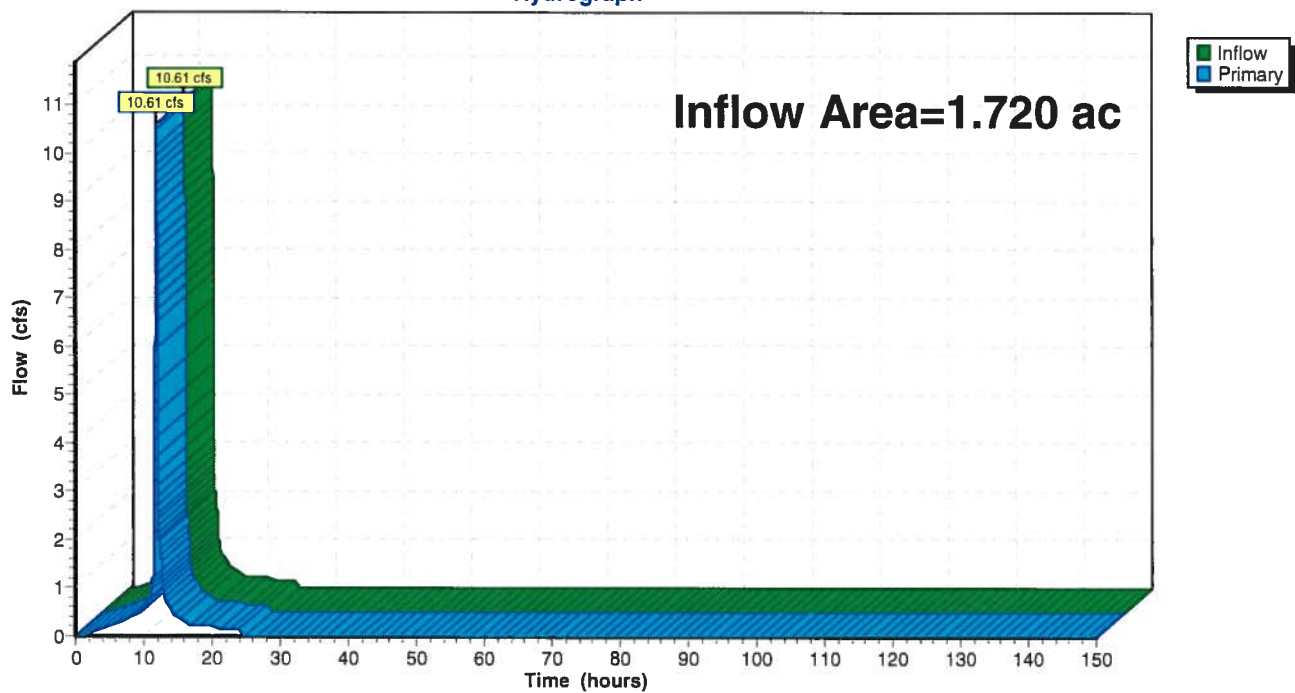
Link 16L: SB-1G OSB-1B COMBINED

Inflow Area = 1.720 ac, Inflow Depth = 6.85" for 24HR - 5YR event
Inflow = 10.61 cfs @ 11.79 hrs, Volume= 0.981 af
Primary = 10.61 cfs @ 11.79 hrs, Volume= 0.981 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 16L: SB-1G OSB-1B COMBINED

Hydrograph



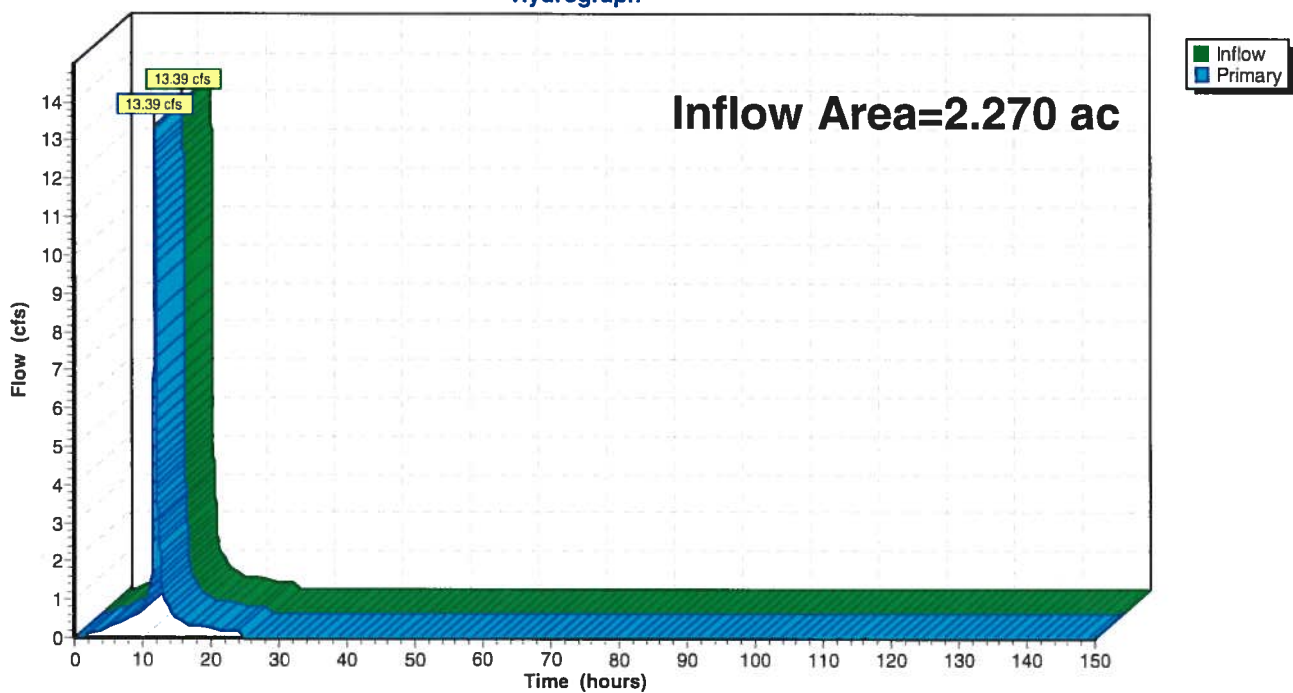
Link 17L: SB-1H SB-1K COMBINED

Inflow Area = 2.270 ac, Inflow Depth = 7.16" for 24HR - 5YR event
Inflow = 13.39 cfs @ 11.82 hrs, Volume= 1.355 af
Primary = 13.39 cfs @ 11.82 hrs, Volume= 1.355 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 17L: SB-1H SB-1K COMBINED

Hydrograph



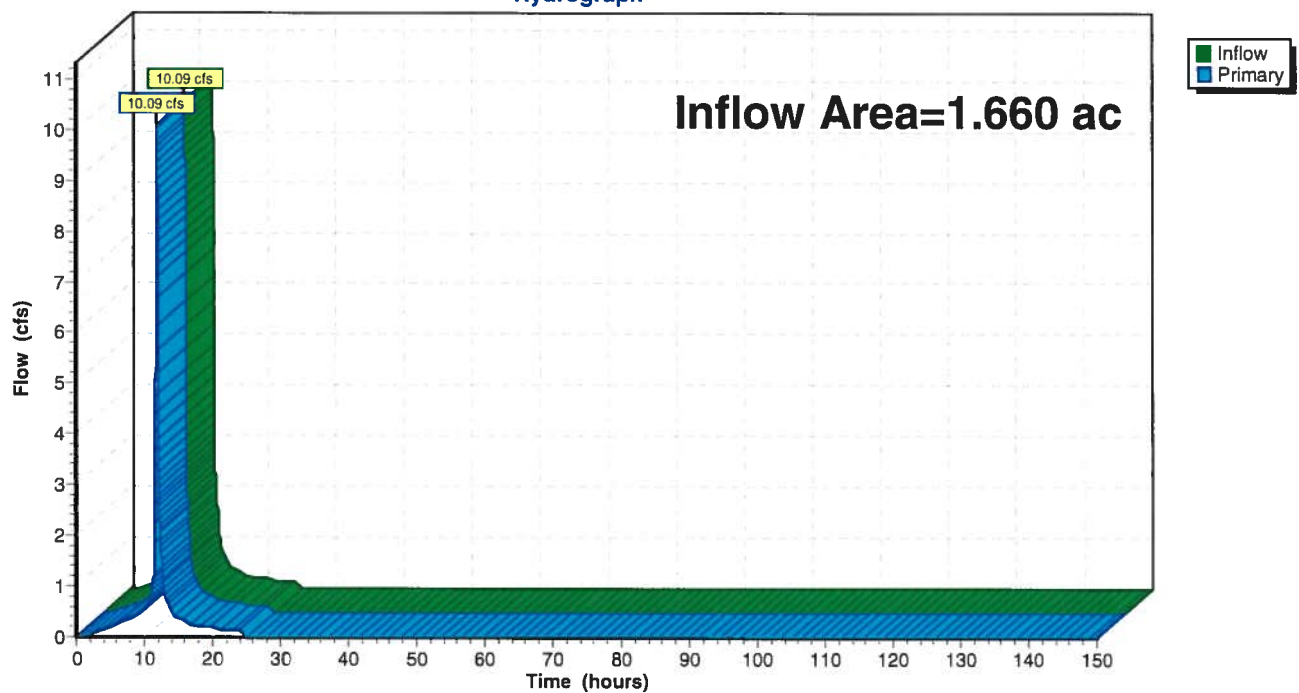
Link 18L: OSB-1 INLETS COMBINED

Inflow Area = 1.660 ac, Inflow Depth = 7.16" for 24HR - 5YR event
Inflow = 10.09 cfs @ 11.81 hrs, Volume= 0.991 af
Primary = 10.09 cfs @ 11.81 hrs, Volume= 0.991 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 18L: OSB-1 INLETS COMBINED

Hydrograph



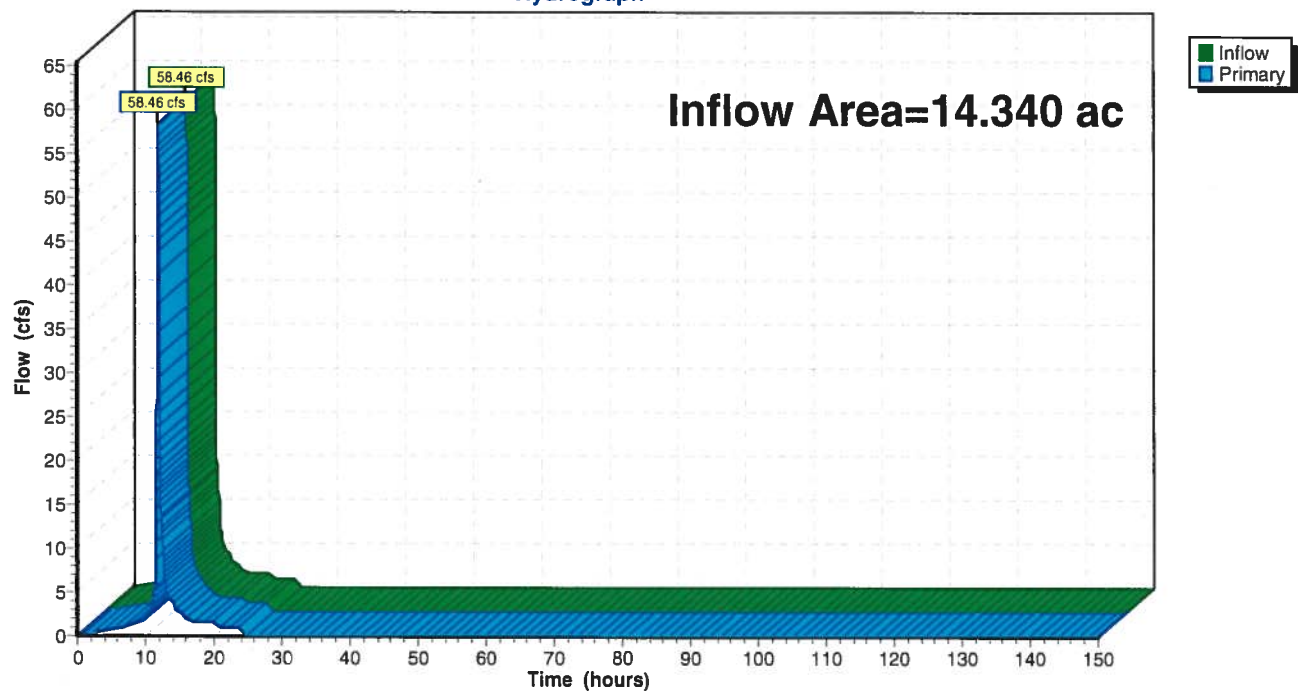
Link 19L: B-1 OVERLAND TO POND

Inflow Area = 14.340 ac, Inflow Depth = 4.63" for 24HR - 5YR event
Inflow = 58.46 cfs @ 11.83 hrs, Volume= 5.534 af
Primary = 58.46 cfs @ 11.83 hrs, Volume= 5.534 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 19L: B-1 OVERLAND TO POND

Hydrograph



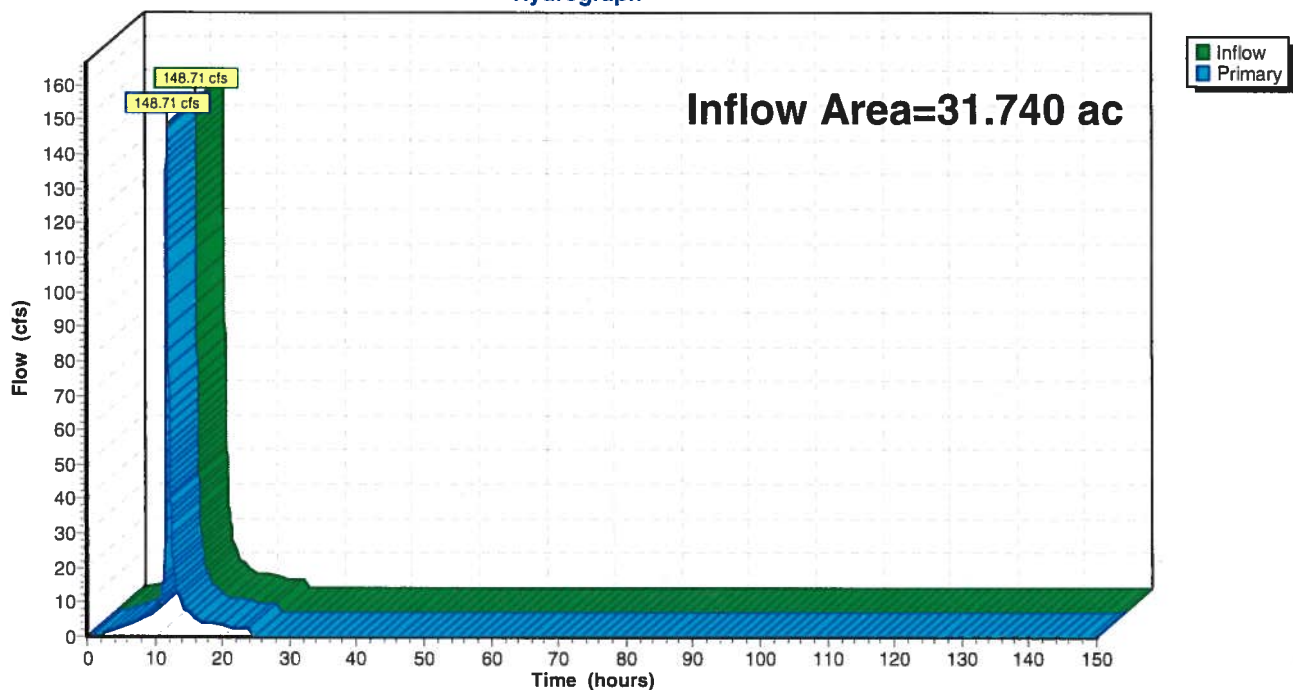
Link 20L: B-1 COMBINED TO POND

Inflow Area = 31.740 ac, Inflow Depth = 6.00" for 24HR - 5YR event
Inflow = 148.71 cfs @ 11.82 hrs, Volume= 15.872 af
Primary = 148.71 cfs @ 11.82 hrs, Volume= 15.872 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 20L: B-1 COMBINED TO POND

Hydrograph



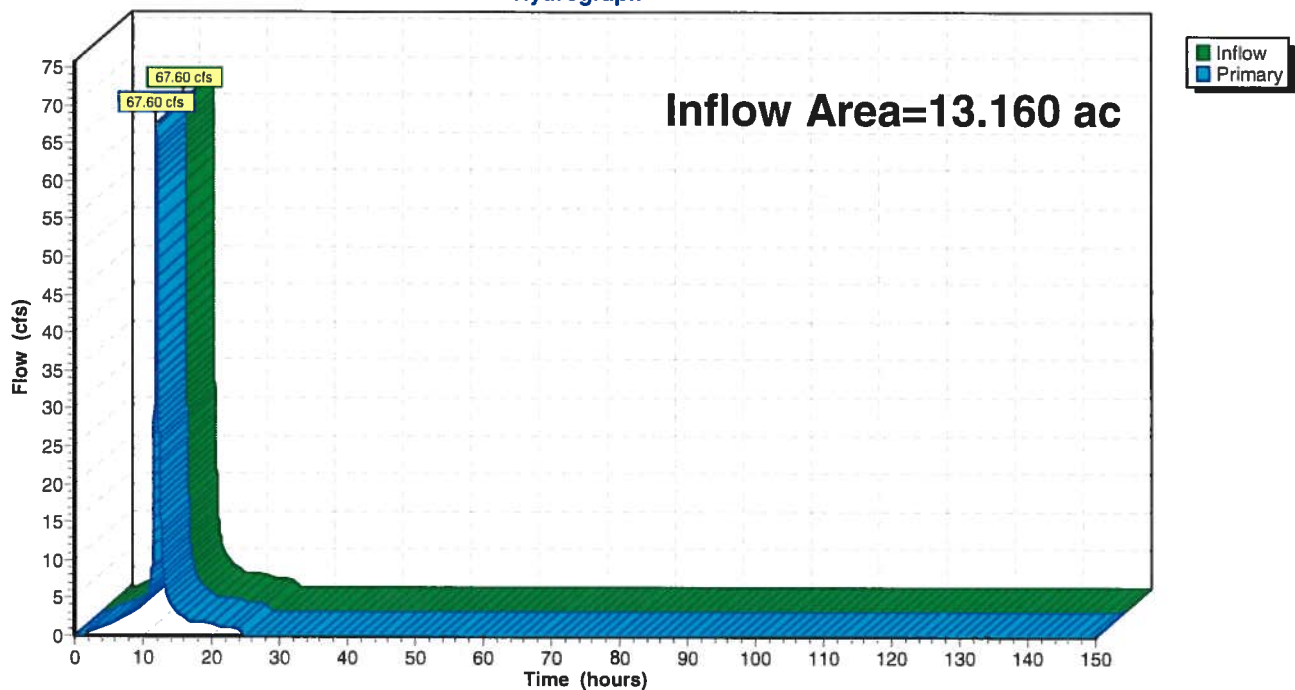
Link 29L: SB-2A OSB-2A COMBINED TO POND

Inflow Area = 13.160 ac, Inflow Depth = 7.02" for 24HR - 5YR event
Inflow = 67.60 cfs @ 11.87 hrs, Volume= 7.696 af
Primary = 67.60 cfs @ 11.87 hrs, Volume= 7.696 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 29L: SB-2A OSB-2A COMBINED TO POND

Hydrograph

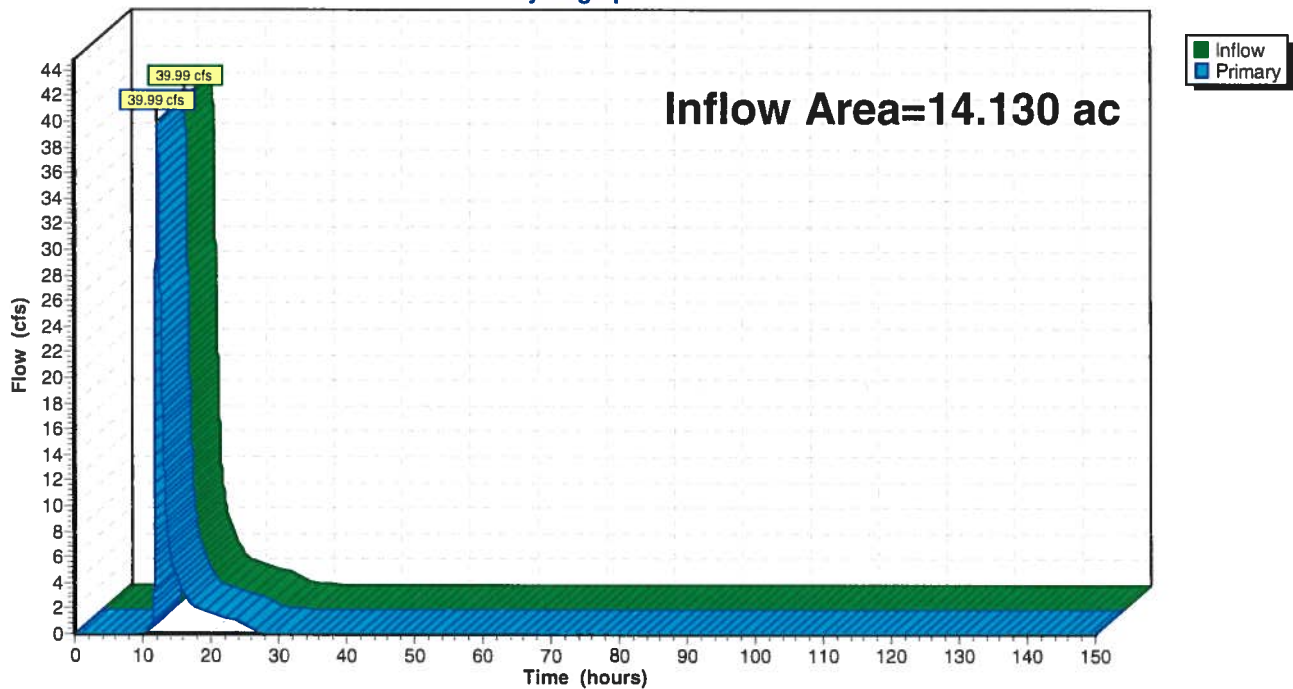


Link 30L: DISCHARGE TO SOUTH CANAL

Inflow Area = 14.130 ac, Inflow Depth = 4.81" for 24HR - 5YR event
Inflow = 39.99 cfs @ 12.09 hrs, Volume= 5.664 af
Primary = 39.99 cfs @ 12.09 hrs, Volume= 5.664 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Fixed water surface Elevation= 2.08'

Link 30L: DISCHARGE TO SOUTH CANAL**Hydrograph**

Link 32L: NORTH CANAL DISCHARGE

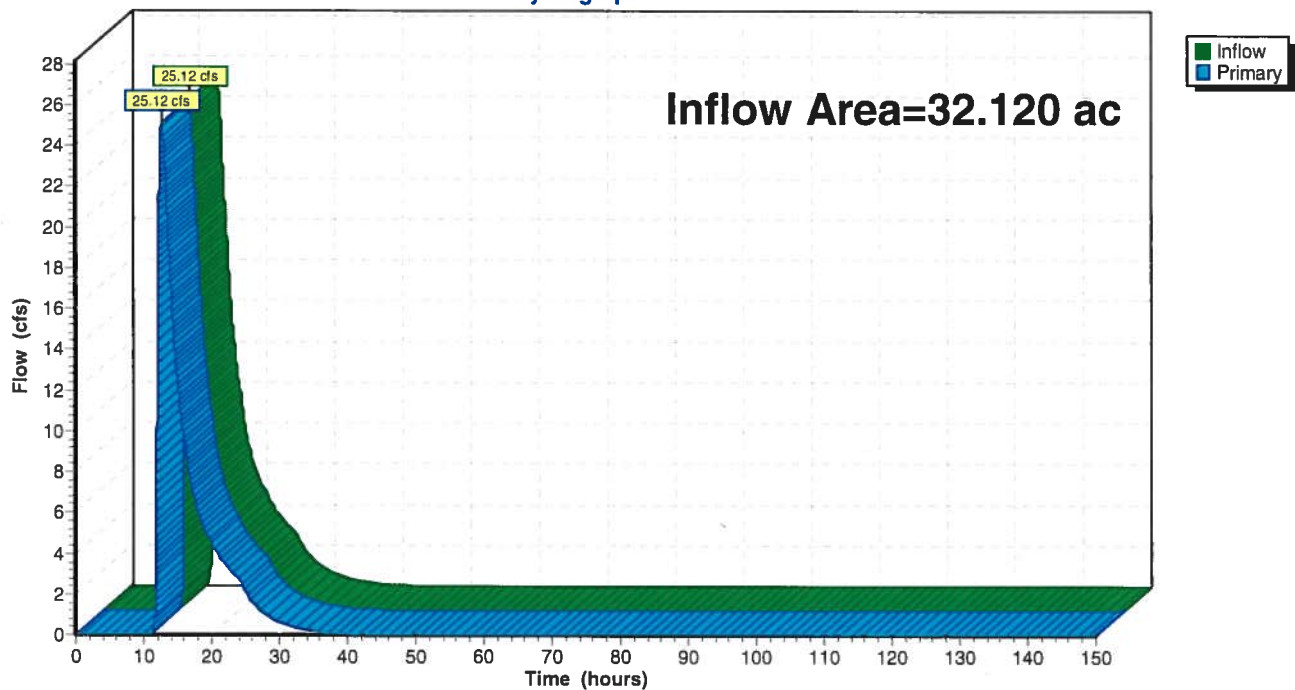
Inflow Area = 32.120 ac, Inflow Depth = 3.72" for 24HR - 5YR event
Inflow = 25.12 cfs @ 12.57 hrs, Volume= 9.968 af
Primary = 25.12 cfs @ 12.57 hrs, Volume= 9.968 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Fixed water surface Elevation= 2.08'

Link 32L: NORTH CANAL DISCHARGE

Hydrograph



Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
9.180	61	>75% Grass cover, Good, HSG B (3S,7S,25S)
0.970	69	50-75% Grass cover, Fair, HSG B (23S)
2.340	88	Urban industrial, 72% imp, HSG B (3S,22S,26S)
29.390	98	Paved parking & roofs (1S,2S,3S,3S,4S,5S,7S,8S,11S,12S,13S,14S,22S,22S,31S,33S)
3.190	100	(3S)
1.180	100	DETENTION POND (22S)
46.250		

Time span=0.00-150.00 hrs, dt=0.01 hrs, 15001 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SB-1ARunoff Area=3.770 ac Runoff Depth=14.06"
Tc=5.0 min CN=0/98 Runoff=32.65 cfs 4.418 af**Subcatchment 2S: SB-1B**Runoff Area=4.480 ac Runoff Depth=14.06"
Flow Length=520' Tc=33.4 min CN=0/98 Runoff=20.49 cfs 5.248 af**Subcatchment 3S: SB-1C**Runoff Area=14.340 ac Runoff Depth=10.82"
Flow Length=256' Tc=4.8 min CN=61/99 Runoff=108.72 cfs 12.924 af**Subcatchment 4S: SB-1D**Runoff Area=1.480 ac Runoff Depth=14.06"
Flow Length=487' Tc=5.7 min CN=0/98 Runoff=12.53 cfs 1.734 af**Subcatchment 5S: SB-1E**Runoff Area=0.970 ac Runoff Depth=14.06"
Flow Length=297' Tc=3.6 min CN=0/98 Runoff=8.79 cfs 1.137 af**Subcatchment 7S: SB-1G**Runoff Area=1.380 ac Runoff Depth=13.56"
Flow Length=261' Tc=2.8 min CN=61/98 Runoff=12.57 cfs 1.560 af**Subcatchment 8S: SB-1H**Runoff Area=1.770 ac Runoff Depth=14.06"
Flow Length=307' Tc=6.6 min CN=0/98 Runoff=14.56 cfs 2.074 af**Subcatchment 11S: OSB-1A**Runoff Area=1.120 ac Runoff Depth=14.06"
Tc=5.0 min CN=0/98 Runoff=9.70 cfs 1.312 af**Subcatchment 12S: OSB-1B**Runoff Area=0.340 ac Runoff Depth=14.06"
Flow Length=310' Tc=4.7 min CN=0/98 Runoff=2.97 cfs 0.398 af**Subcatchment 13S: OSB-1C**Runoff Area=0.540 ac Runoff Depth=14.06"
Tc=5.0 min CN=0/98 Runoff=4.68 cfs 0.633 af**Subcatchment 14S: SB-1K**Runoff Area=0.500 ac Runoff Depth=14.06"
Flow Length=219' Slope=0.0069 '/' Tc=2.6 min CN=0/98 Runoff=4.67 cfs 0.586 af**Subcatchment 22S: SB-2A**Runoff Area=11.990 ac Runoff Depth=14.00"
Flow Length=706' Tc=9.5 min CN=62/98 Runoff=90.11 cfs 13.989 af**Subcatchment 23S: SB-2B**Runoff Area=0.970 ac Runoff Depth=10.04"
Flow Length=120' Slope=0.0583 '/' Tc=5.4 min CN=69/0 Runoff=7.21 cfs 0.811 af**Subcatchment 25S: B-4**Runoff Area=0.380 ac Runoff Depth=8.73"
Flow Length=16' Slope=0.1283 '/' Tc=1.7 min CN=61/0 Runoff=2.88 cfs 0.277 af**Subcatchment 26S: OSB-2A**Runoff Area=1.170 ac Runoff Depth=12.61"
Flow Length=329' Tc=14.1 min CN=62/98 Runoff=7.35 cfs 1.230 af

Subcatchment 31S: SB-1I	Runoff Area=0.300 ac	Runoff Depth=14.07"
Flow Length=139'	Slope=0.0058 '/'	Tc=1.9 min CN=0/98
Runoff=2.86 cfs	0.352 af	
Subcatchment 33S: SB-1J	Runoff Area=0.750 ac	Runoff Depth=14.07"
Flow Length=180'	Slope=0.5400 '/'	Tc=0.4 min CN=0/98
Runoff=7.48 cfs	0.879 af	
Reach 33R: Basin 1 Outfall	Avg. Depth=1.25'	Max Vel=10.35 fps
D=36.0" n=0.011 L=100.0'	S=0.0102 '/'	Capacity=238.83 cfs
Inflow=86.25 cfs	24.195 af	Outflow=86.25 cfs
24.195 af		
Reach 35R: Basin 2 Outfall	Avg. Depth=1.49'	Max Vel=9.86 fps
D=36.0" n=0.011 L=130.0'	S=0.0078 '/'	Capacity=139.64 cfs
Inflow=69.33 cfs	11.678 af	Outflow=69.31 cfs
11.678 af		
Pond 10P: BASIN 1 DRY DETENTION PON	Peak Elev=8.13'	Storage=13.595 af
Inflow=237.85 cfs	33.255 af	Primary=86.25 cfs
24.195 af	Secondary=1.57 cfs	8.392 af
Outflow=87.82 cfs	32.586 af	
Pond 24P: BASIN 2 DRY DETENTION POND	Peak Elev=7.63'	Storage=4.221 af
Inflow=97.37 cfs	15.218 af	Primary=69.33 cfs
11.678 af	Secondary=0.50 cfs	3.222 af
Outflow=69.82 cfs	14.899 af	
Pond 33P: BASIN 1 POND BLEEDER DISCHAR	Peak Elev=4.30'	Storage=2.924 af
Inflow=0.00 cfs	0.000 af	Outflow=0.74 cfs
2.830 af		
Pond 34P: BASIN 2 POND BLEEDER DISCHAR	Peak Elev=4.90'	Storage=1.488 af
Inflow=0.00 cfs	0.000 af	Outflow=0.31 cfs
1.448 af		
Link 15L: B-1 INLETS COMBINED	Inflow=129.13 cfs	20.331 af
Primary=129.13 cfs	20.331 af	
Link 16L: SB-1G OSB-1B COMBINED	Inflow=15.51 cfs	1.958 af
Primary=15.51 cfs	1.958 af	
Link 17L: SB-1H SB-1K COMBINED	Inflow=19.07 cfs	2.660 af
Primary=19.07 cfs	2.660 af	
Link 18L: OSB-1 INLETS COMBINED	Inflow=14.38 cfs	1.945 af
Primary=14.38 cfs	1.945 af	
Link 19L: B-1 OVERLAND TO POND	Inflow=108.72 cfs	12.924 af
Primary=108.72 cfs	12.924 af	
Link 20L: B-1 COMBINED TO POND	Inflow=237.85 cfs	33.255 af
Primary=237.85 cfs	33.255 af	
Link 29L: SB-2A OSB-2A COMBINED TO POND	Inflow=97.37 cfs	15.218 af
Primary=97.37 cfs	15.218 af	
Link 30L: DISCHARGE TO SOUTH CANAL	Inflow=73.29 cfs	12.489 af
Primary=73.29 cfs	12.489 af	
Link 32L: NORTH CANAL DISCHARGE	Inflow=86.77 cfs	24.471 af
Primary=86.77 cfs	24.471 af	

Total Runoff Area = 46.250 ac Runoff Volume = 49.562 af Average Runoff Depth = 12.86"
23.36% Pervious Area = 10.805 ac 76.64% Impervious Area = 35.445 ac

Subcatchment 1S: SB-1A

Runoff = 32.65 cfs @ 59.81 hrs, Volume= 4.418 af, Depth=14.06"

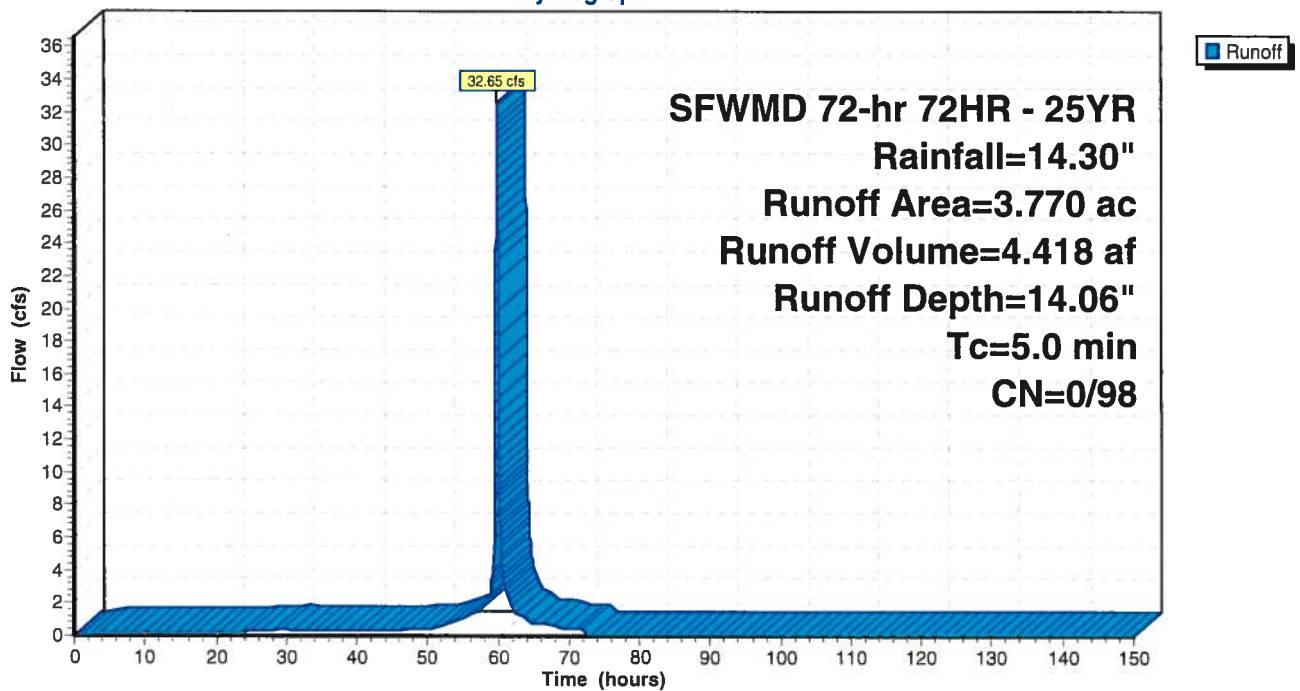
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
3.770	98	Paved parking & roofs
3.770	98	Impervious Area

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

Subcatchment 1S: SB-1A

Hydrograph



Subcatchment 2S: SB-1B

Runoff = 20.49 cfs @ 60.00 hrs, Volume= 5.248 af, Depth=14.06"

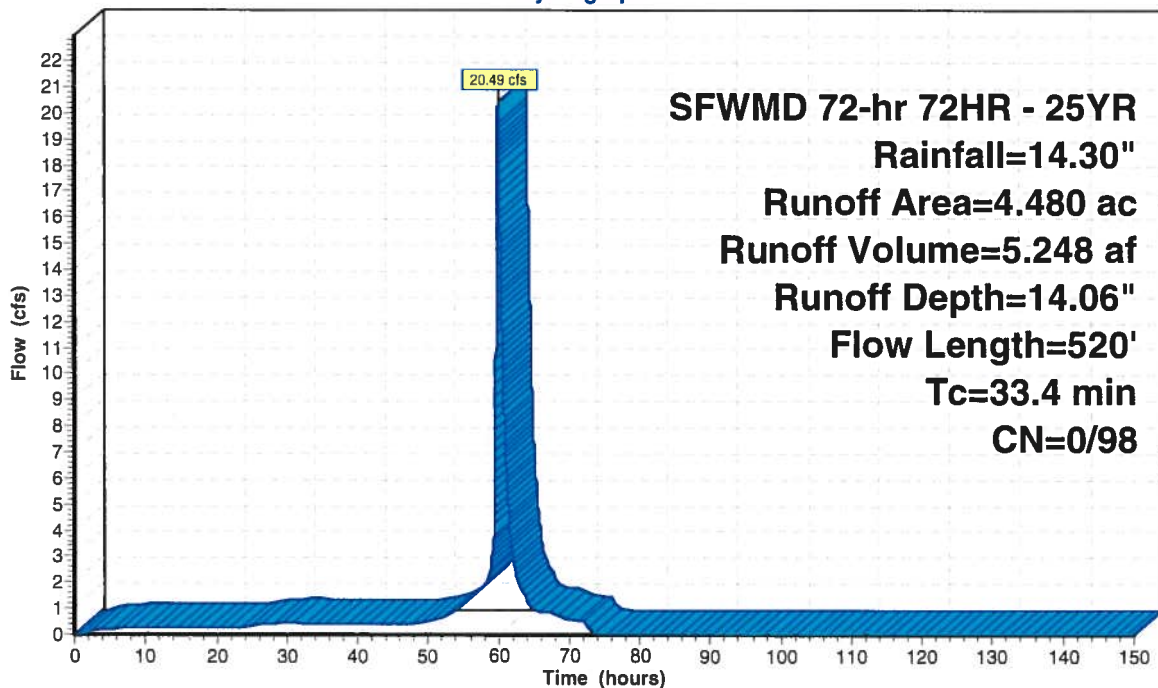
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
4.480	98	Paved parking & roofs
4.480	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	40	0.0200	1.56		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
29.5	260	0.0040	0.15		Sheet Flow, OVERLAND TO SCF Grass: Short n= 0.150 P2= 5.90"
3.5	220	0.0050	1.06		Shallow Concentrated Flow, SCF TO DETENTION POND Grassed Waterway Kv= 15.0 fps
33.4	520	Total			

Subcatchment 2S: SB-1B

Hydrograph



Subcatchment 3S: SB-1C

Runoff = 108.72 cfs @ 59.81 hrs, Volume= 12.924 af, Depth=10.82"

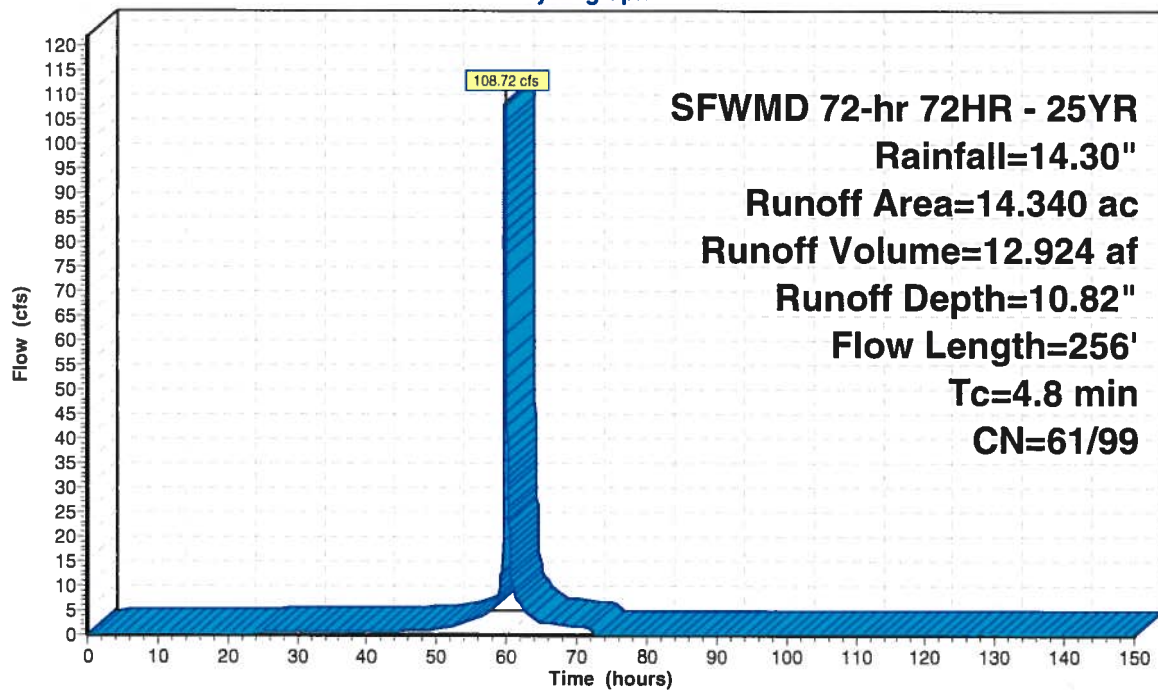
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.950	98	Paved parking & roofs
0.690	88	Urban industrial, 72% imp, HSG B
8.670	61	>75% Grass cover, Good, HSG B
3.190	100	
0.840	98	Paved parking & roofs
14.340	76	Weighted Average
8.863	61	Pervious Area
5.477	99	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	22	0.0090	1.00		Sheet Flow, OVERLAND FROM ROAD Smooth surfaces n= 0.011 P2= 5.90"
1.4	68	0.0029	0.80		Sheet Flow, OVERLAND 2 Smooth surfaces n= 0.011 P2= 5.90"
0.2	52	0.2900	4.78		Sheet Flow, OVERLAND 3 Smooth surfaces n= 0.011 P2= 5.90"
1.8	74	0.0020	0.70		Sheet Flow, OVERLAND 4 Smooth surfaces n= 0.011 P2= 5.90"
1.0	40	0.0025	0.68		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
4.8	256	Total			

Subcatchment 3S: SB-1C

Hydrograph



Subcatchment 4S: SB-1D

Runoff = 12.53 cfs @ 59.82 hrs, Volume= 1.734 af, Depth=14.06"

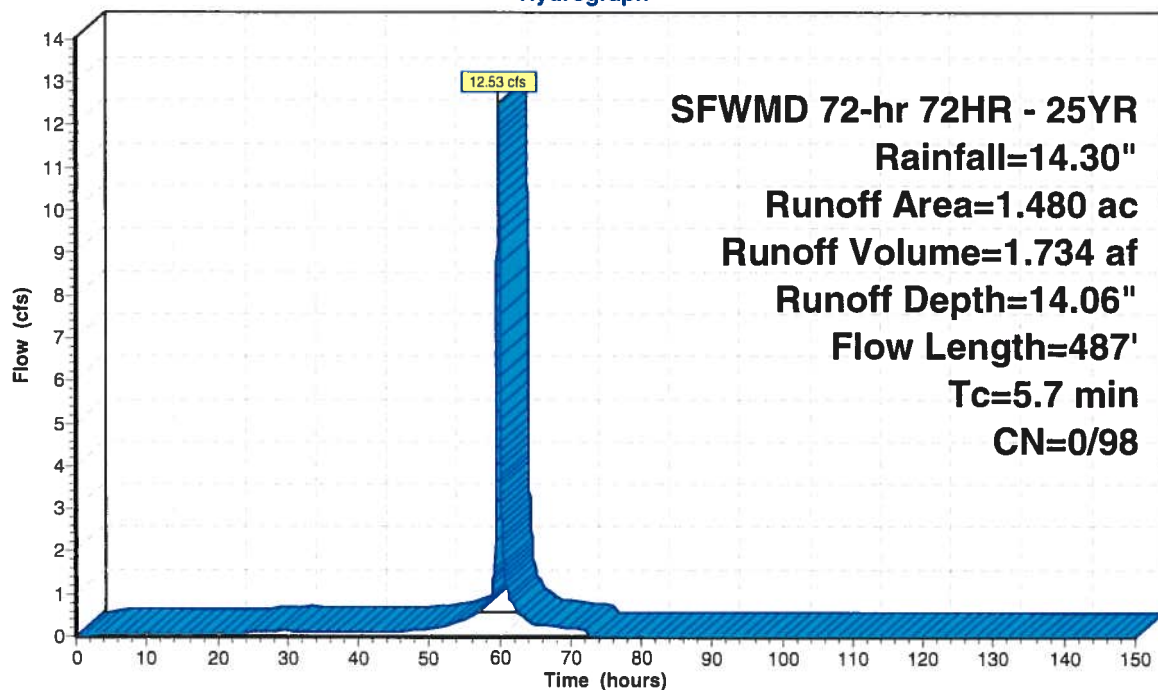
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.480	98	Paved parking & roofs
1.480	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	54	0.0056	0.99		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
2.9	246	0.0065	1.43		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
1.9	187	0.0064	1.62		Shallow Concentrated Flow, SCF TO INLET Paved Kv= 20.3 fps
5.7	487	Total			

Subcatchment 4S: SB-1D

Hydrograph



Subcatchment 5S: SB-1E

Runoff = 8.79 cfs @ 59.79 hrs, Volume= 1.137 af, Depth=14.06"

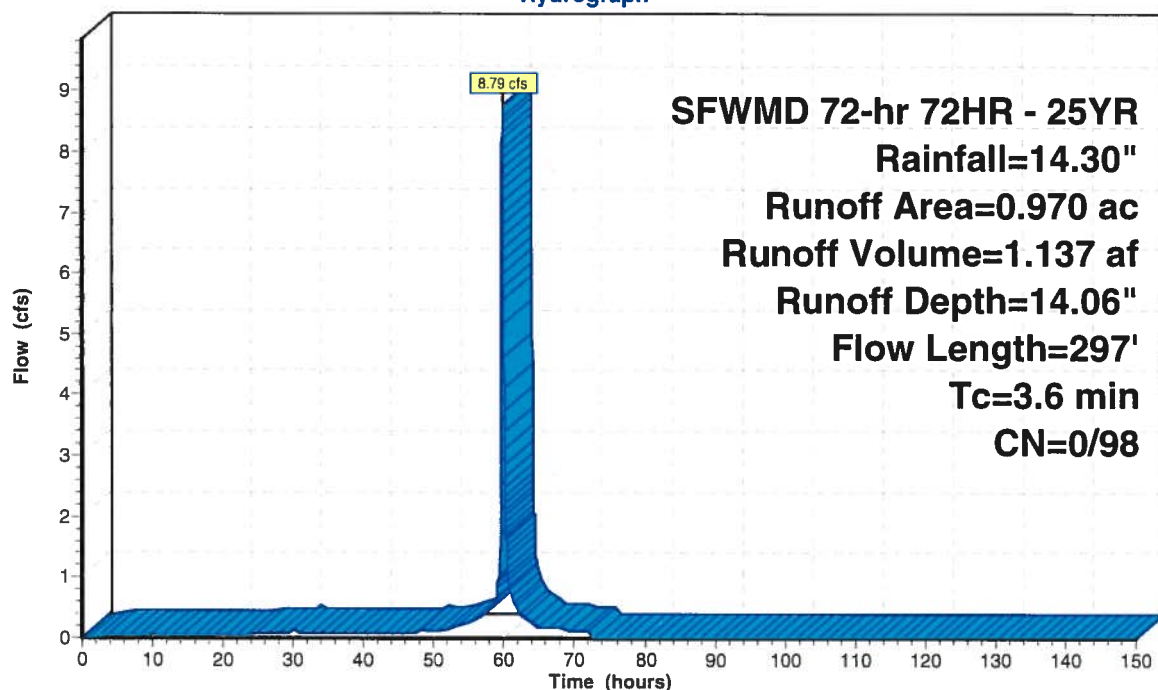
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.970	98	Paved parking & roofs
0.970	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	137	0.0182	1.92		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
1.1	72	0.0069	1.14		Sheet Flow, OVERLAND 2 Smooth surfaces n= 0.011 P2= 5.90"
1.3	88	0.0057	1.10		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
3.6	297	Total			

Subcatchment 5S: SB-1E

Hydrograph



Subcatchment 7S: SB-1G

Runoff = 12.57 cfs @ 59.78 hrs, Volume= 1.560 af, Depth=13.56"

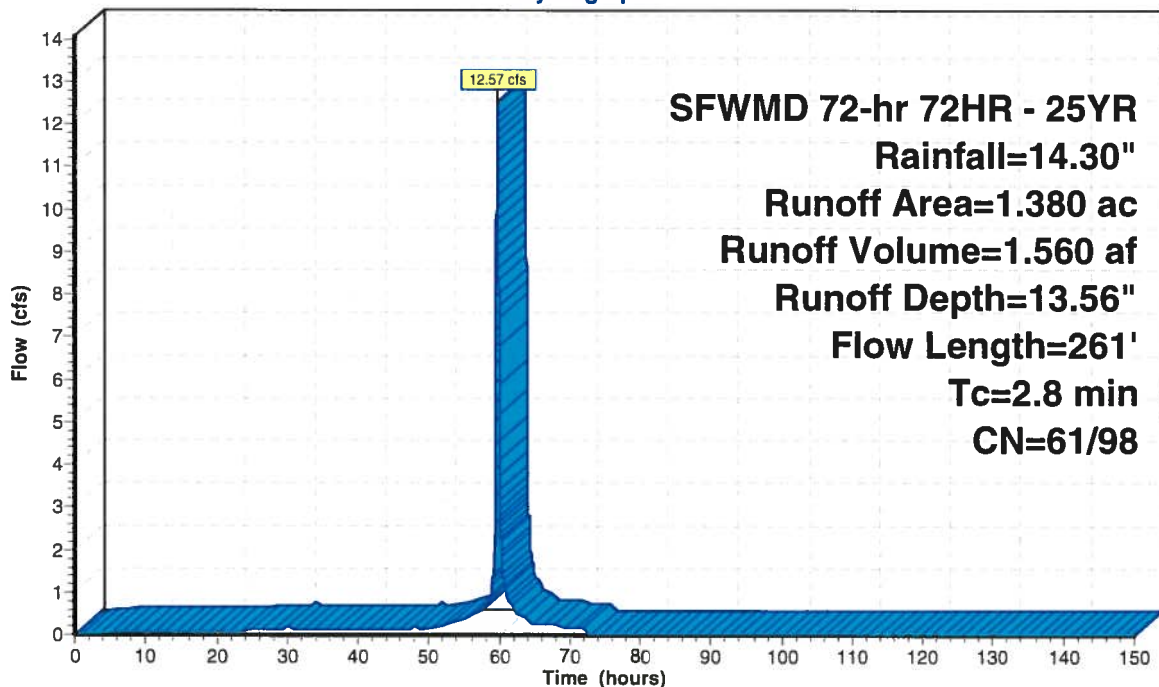
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.250	98	Paved parking & roofs
0.130	61	>75% Grass cover, Good, HSG B
1.380	95	Weighted Average
0.130	61	Pervious Area
1.250	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	232	0.0103	1.69		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
0.5	29	0.0069	0.95		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
2.8	261	Total			

Subcatchment 7S: SB-1G

Hydrograph



Subcatchment 8S: SB-1H

Runoff = 14.56 cfs @ 59.83 hrs, Volume= 2.074 af, Depth=14.06"

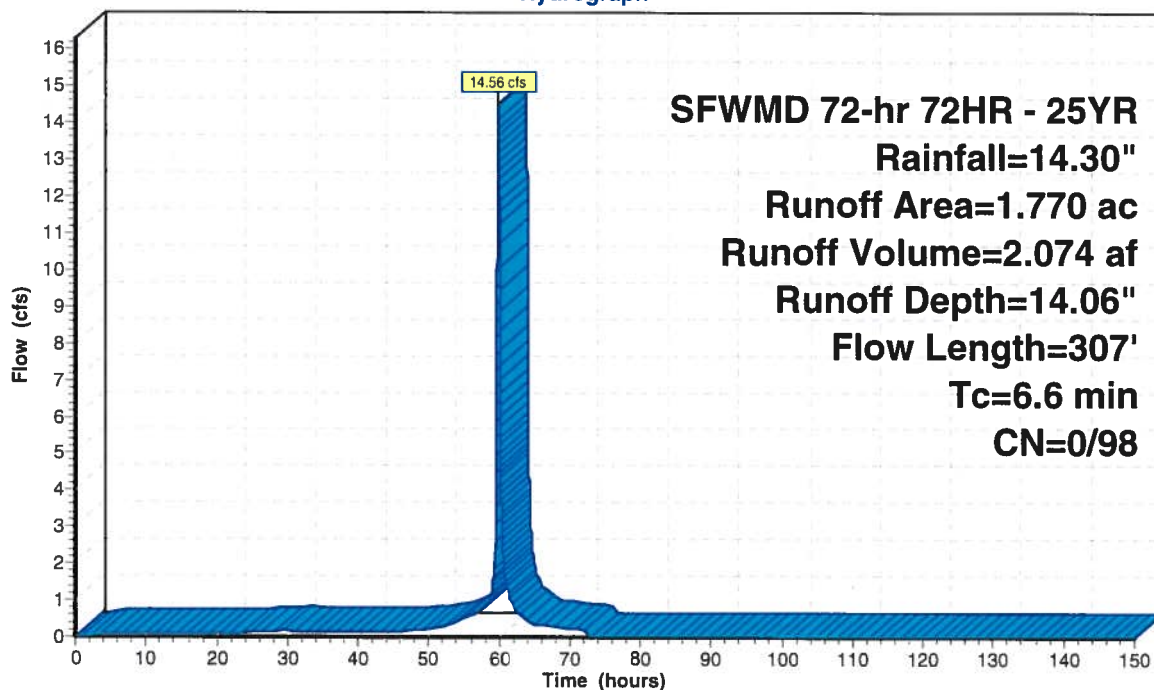
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.770	98	Paved parking & roofs
1.770	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	142	0.0014	0.69		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
3.1	158	0.0023	0.86		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
0.1	7	0.0054	1.18		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
6.6	307	Total			

Subcatchment 8S: SB-1H

Hydrograph



Runoff

Subcatchment 11S: OSB-1A

Runoff = 9.70 cfs @ 59.81 hrs, Volume= 1.312 af, Depth=14.06"

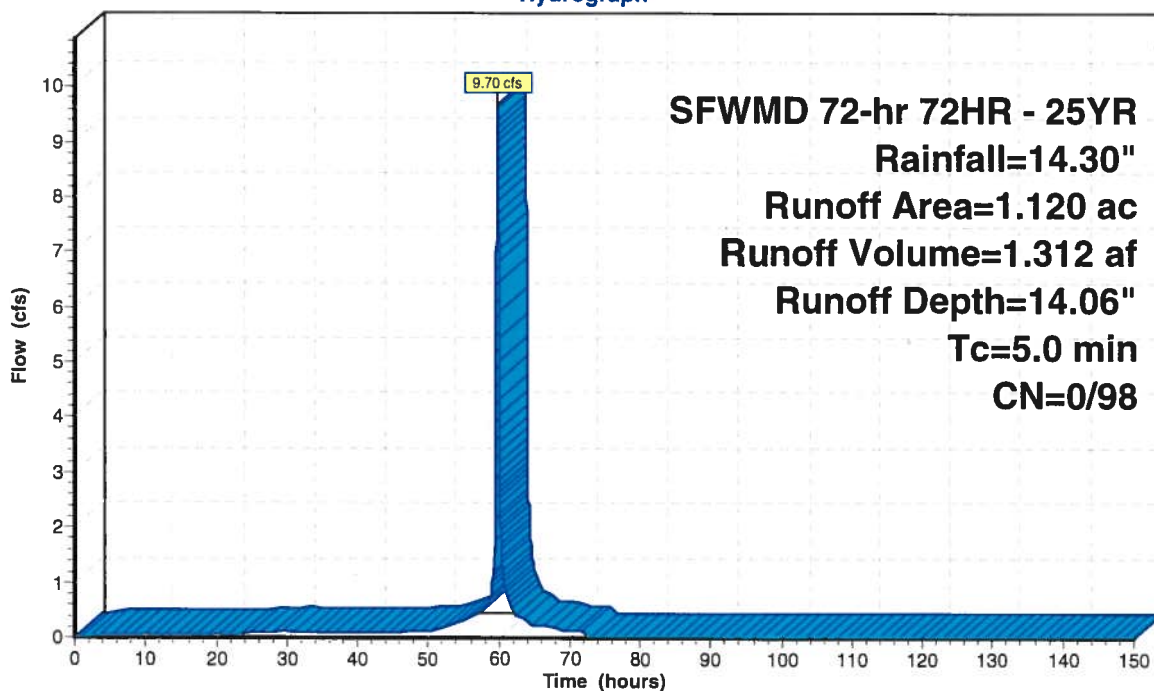
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.120	98	Paved parking & roofs
1.120	98	Impervious Area

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

Subcatchment 11S: OSB-1A

Hydrograph



Runoff

Subcatchment 12S: OSB-1B

Runoff = 2.97 cfs @ 59.81 hrs, Volume= 0.398 af, Depth=14.06"

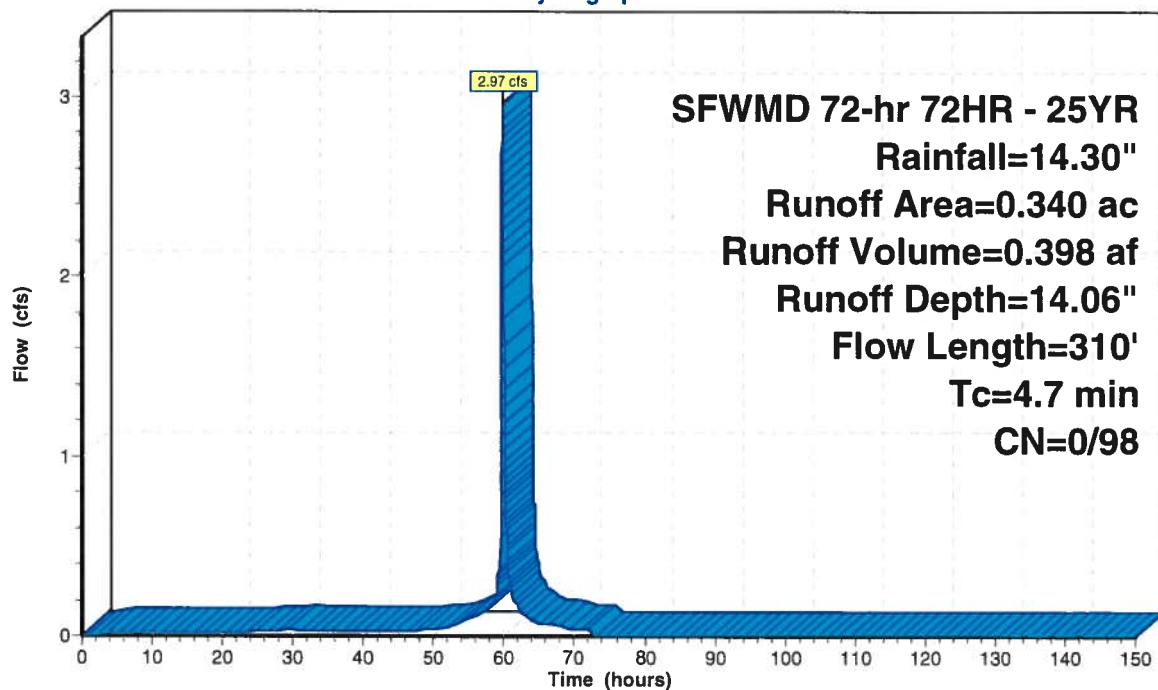
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.340	98	Paved parking & roofs
0.340	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	138	0.0051	1.15		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
2.6	161	0.0037	1.05		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
0.1	11	0.0271	3.34		Shallow Concentrated Flow, SCF TO SB-1G Paved Kv= 20.3 fps
4.7	310	Total			

Subcatchment 12S: OSB-1B

Hydrograph



Subcatchment 13S: OSB-1C

Runoff = 4.68 cfs @ 59.81 hrs, Volume= 0.633 af, Depth=14.06"

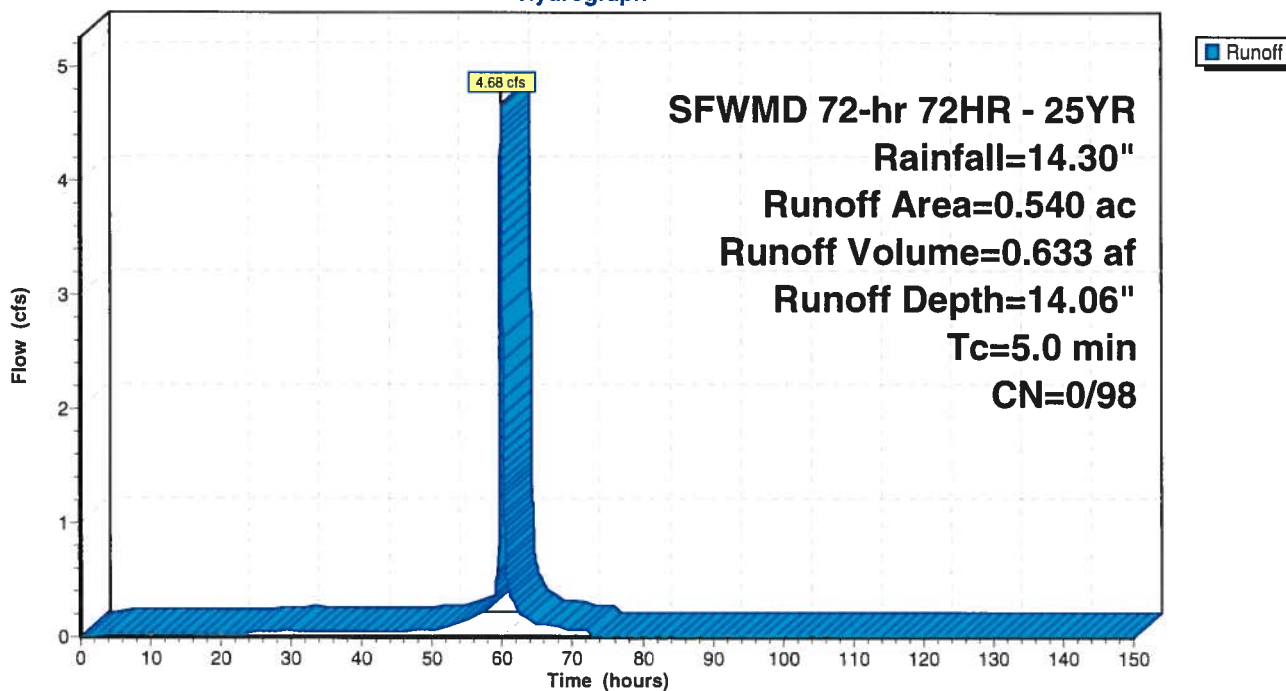
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.540	98	Paved parking & roofs
0.540	98	Impervious Area

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

Subcatchment 13S: OSB-1C

Hydrograph



Subcatchment 14S: SB-1K

Runoff = 4.67 cfs @ 59.78 hrs, Volume= 0.586 af, Depth=14.06"

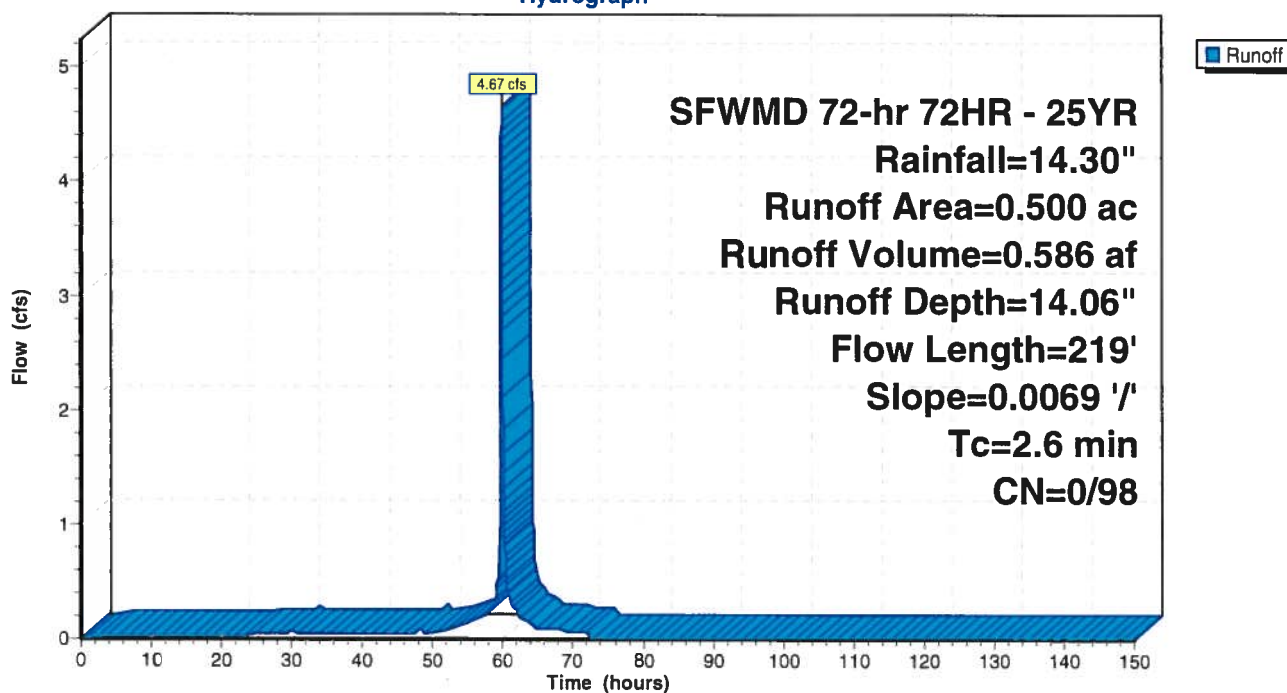
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.500	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	219	0.0069	1.43		Sheet Flow, OVERLAND TO SB-1H Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 14S: SB-1K

Hydrograph



Subcatchment 22S: SB-2A

NOTE LINE ITEM 3 IS SOUTH DRY DETENTION POND AREA.

Runoff = 90.11 cfs @ 59.86 hrs, Volume= 13.989 af, Depth=14.00"

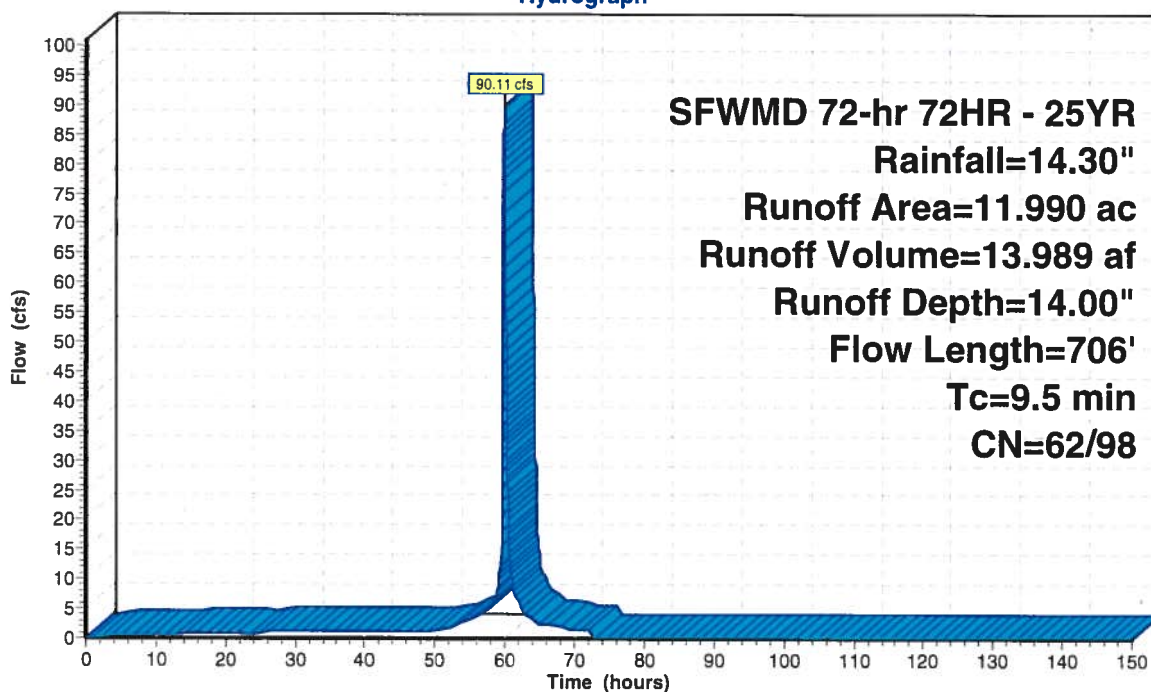
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
10.290	98	Paved parking & roofs
1.180	100	DETENTION POND
0.040	98	Paved parking & roofs
0.480	88	Urban industrial, 72% imp, HSG B
11.990	98	Weighted Average
0.134	62	Pervious Area
11.856	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	14	0.0141	1.10		Sheet Flow, OVERLAND FROM ROAD Smooth surfaces n= 0.011 P2= 5.90"
3.0	286	0.0077	1.57		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
6.3	406	0.0044	1.07		Shallow Concentrated Flow, SCF TO POND Unpaved Kv= 16.1 fps
9.5	706	Total			

Subcatchment 22S: SB-2A

Hydrograph



Subcatchment 23S: SB-2B

Runoff = 7.21 cfs @ 59.82 hrs, Volume= 0.811 af, Depth=10.04"

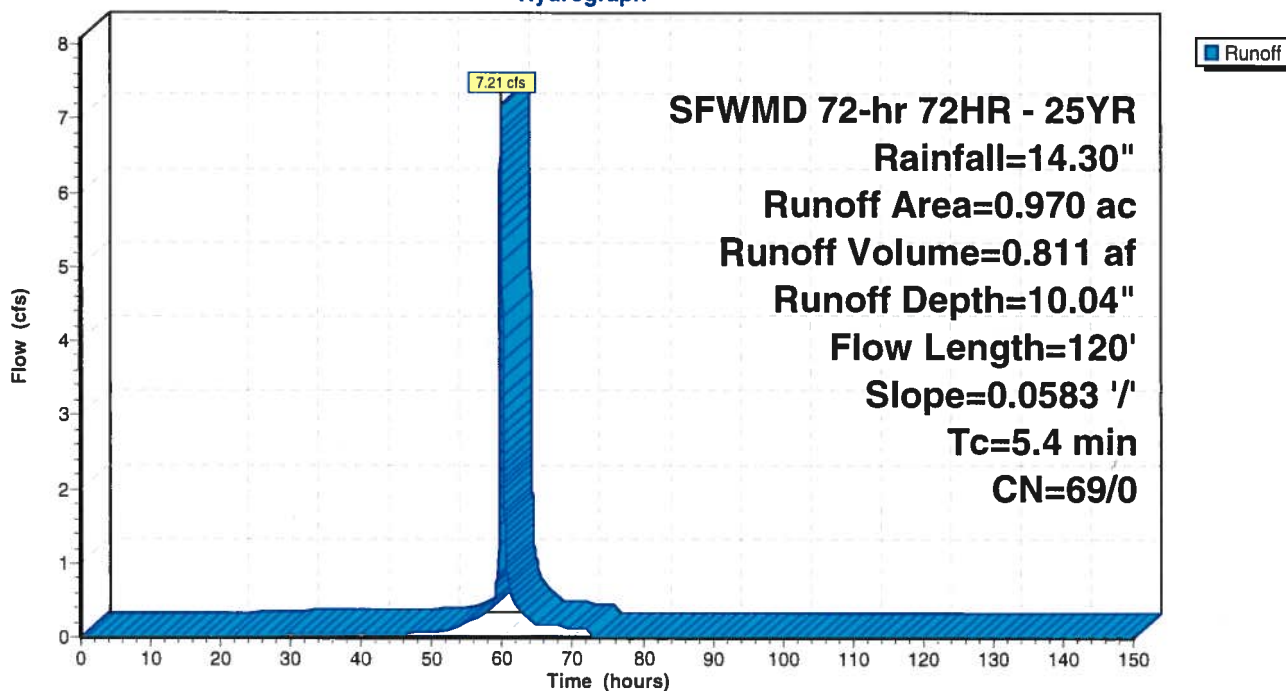
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.970	69	50-75% Grass cover, Fair, HSG B
0.970	69	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	120	0.0583	0.37		Sheet Flow, OVERLAND TO SOUTH CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 23S: SB-2B

Hydrograph



Subcatchment 25S: B-4

Runoff = 2.88 cfs @ 59.77 hrs, Volume= 0.277 af, Depth= 8.73"

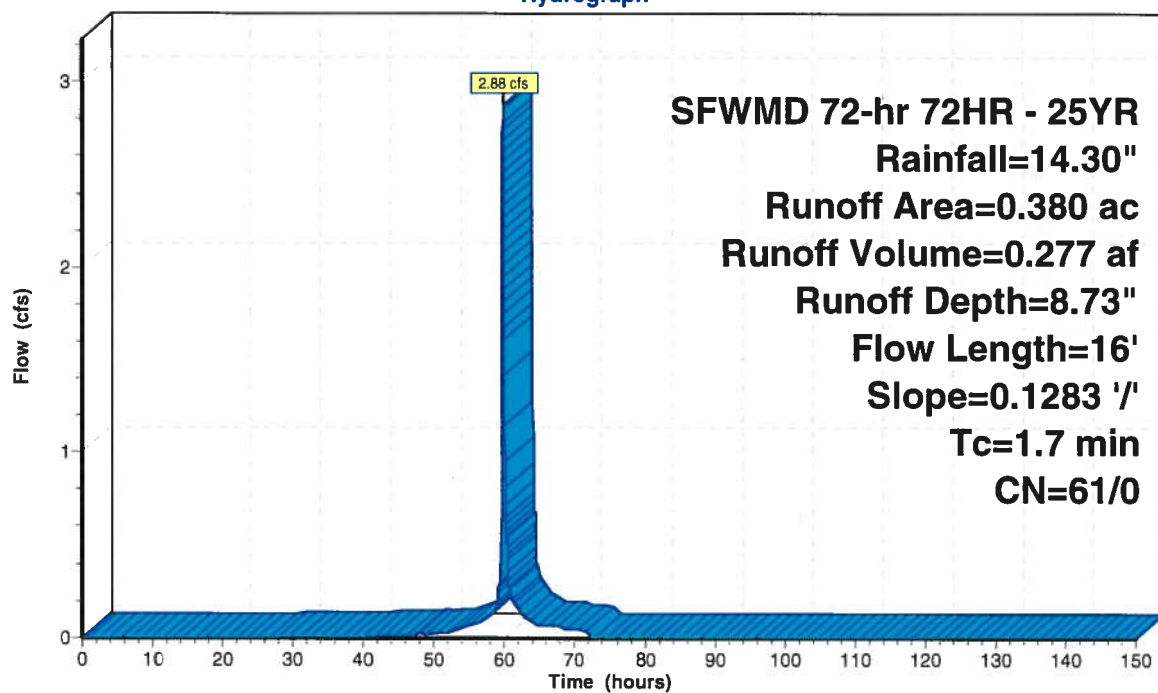
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.380	61	>75% Grass cover, Good, HSG B
0.380	61	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	16	0.1283	0.15		Sheet Flow, OVERLAND TO NORTH CANAL Woods: Light underbrush n= 0.400 P2= 5.90"

Subcatchment 25S: B-4

Hydrograph



Subcatchment 26S: OSB-2A

Runoff = 7.35 cfs @ 59.90 hrs, Volume= 1.230 af, Depth=12.61"

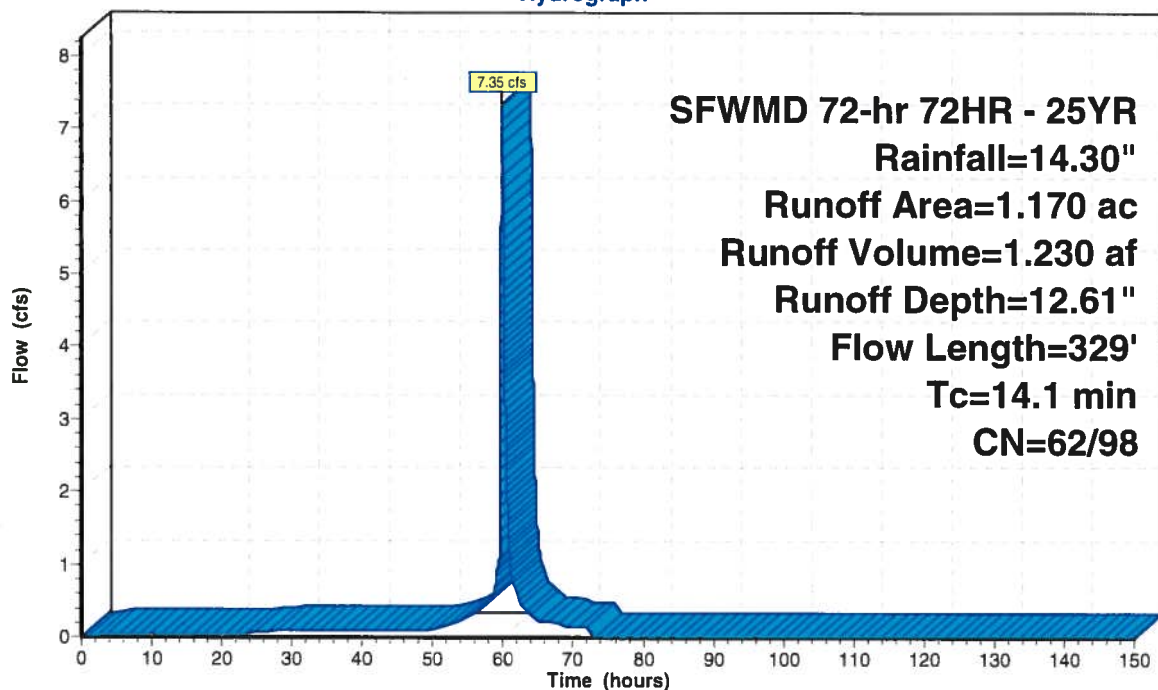
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.170	88	Urban industrial, 72% imp, HSG B
0.328	62	Pervious Area
0.842	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0040	0.36		Sheet Flow, OVERLAND TO SCF Fallow n= 0.050 P2= 5.90"
0.4	29	0.0069	1.25		Shallow Concentrated Flow, SCF TO SB-2A Grassed Waterway Kv= 15.0 fps
14.1	329	Total			

Subcatchment 26S: OSB-2A

Hydrograph



Subcatchment 31S: SB-1I

Runoff = 2.86 cfs @ 59.77 hrs, Volume= 0.352 af, Depth=14.07"

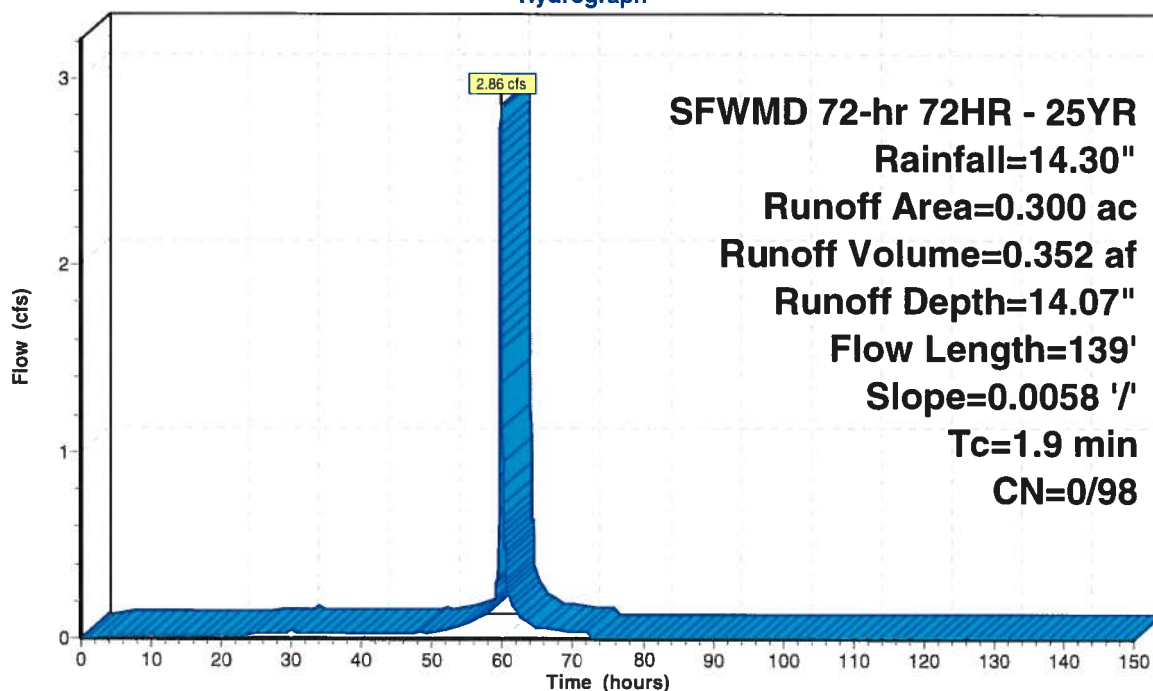
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.300	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	139	0.0058	1.22		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 31S: SB-1I

Hydrograph



Subcatchment 33S: SB-1J

Runoff = 7.48 cfs @ 59.76 hrs, Volume= 0.879 af, Depth=14.07"

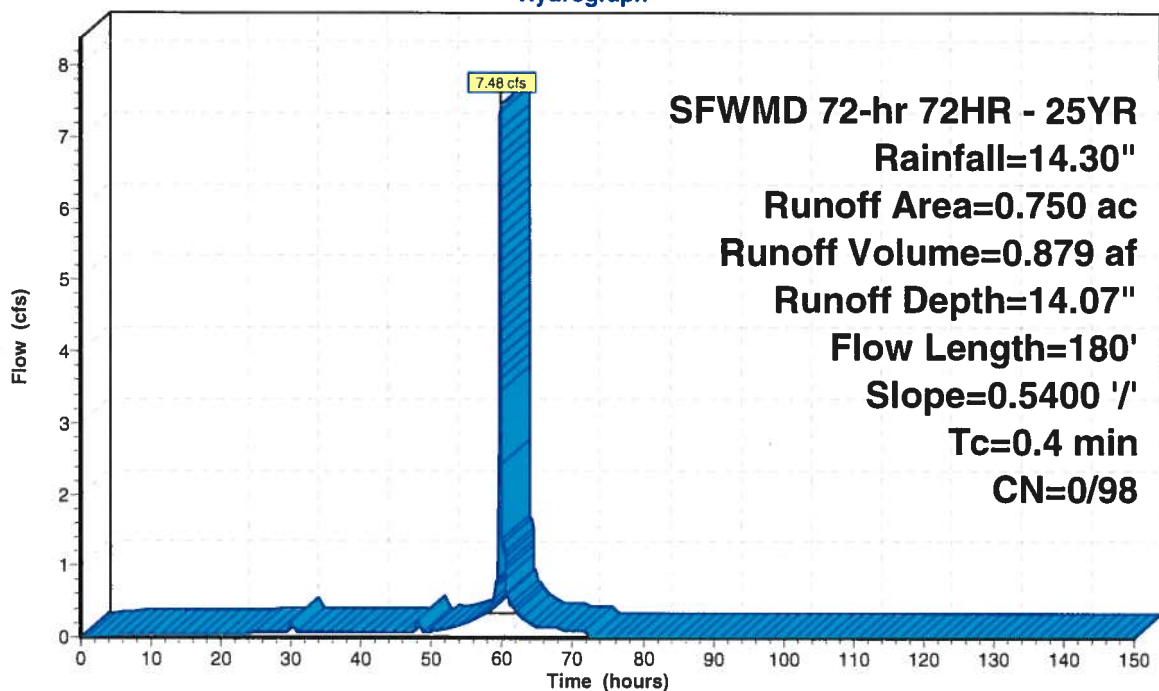
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.750	98	Paved parking & roofs
0.750	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	180	0.5400	7.85		Sheet Flow, Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 33S: SB-1J

Hydrograph



Reach 33R: Basin 1 Outfall

Inflow Area = 31.740 ac, Inflow Depth = 9.15" for 72HR - 25YR event
 Inflow = 86.25 cfs @ 60.11 hrs, Volume= 24.195 af
 Outflow = 86.25 cfs @ 60.12 hrs, Volume= 24.195 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Max. Velocity= 10.35 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.06 fps, Avg. Travel Time= 0.5 min

Peak Storage= 833 cf @ 60.11 hrs, Average Depth at Peak Storage= 1.25'

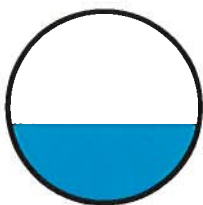
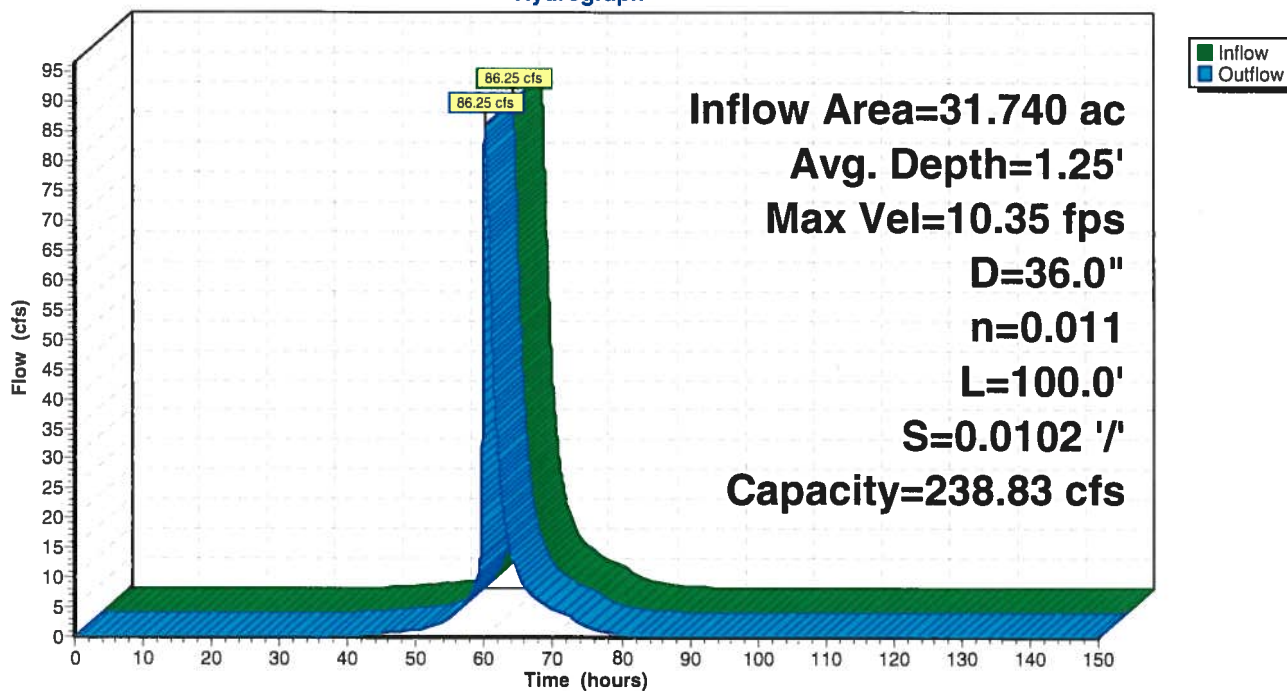
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.83 cfs

A factor of 3.00 has been applied to the storage and discharge capacity

36.0" Diameter Pipe, n= 0.011 Concrete pipe, straight & clean

Length= 100.0' Slope= 0.0102 '/'

Inlet Invert= 3.10', Outlet Invert= 2.08'

**Reach 33R: Basin 1 Outfall****Hydrograph**

Reach 35R: Basin 2 Outfall

Inflow Area = 13.160 ac, Inflow Depth = 10.65" for 72HR - 25YR event
 Inflow = 69.33 cfs @ 60.05 hrs, Volume= 11.678 af
 Outflow = 69.31 cfs @ 60.05 hrs, Volume= 11.678 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.86 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 2.89 fps, Avg. Travel Time= 0.7 min

Peak Storage= 914 cf @ 60.05 hrs, Average Depth at Peak Storage= 1.49'

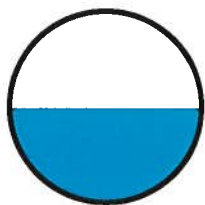
Bank-Full Depth= 3.00', Capacity at Bank-Full= 139.64 cfs

A factor of 2.00 has been applied to the storage and discharge capacity

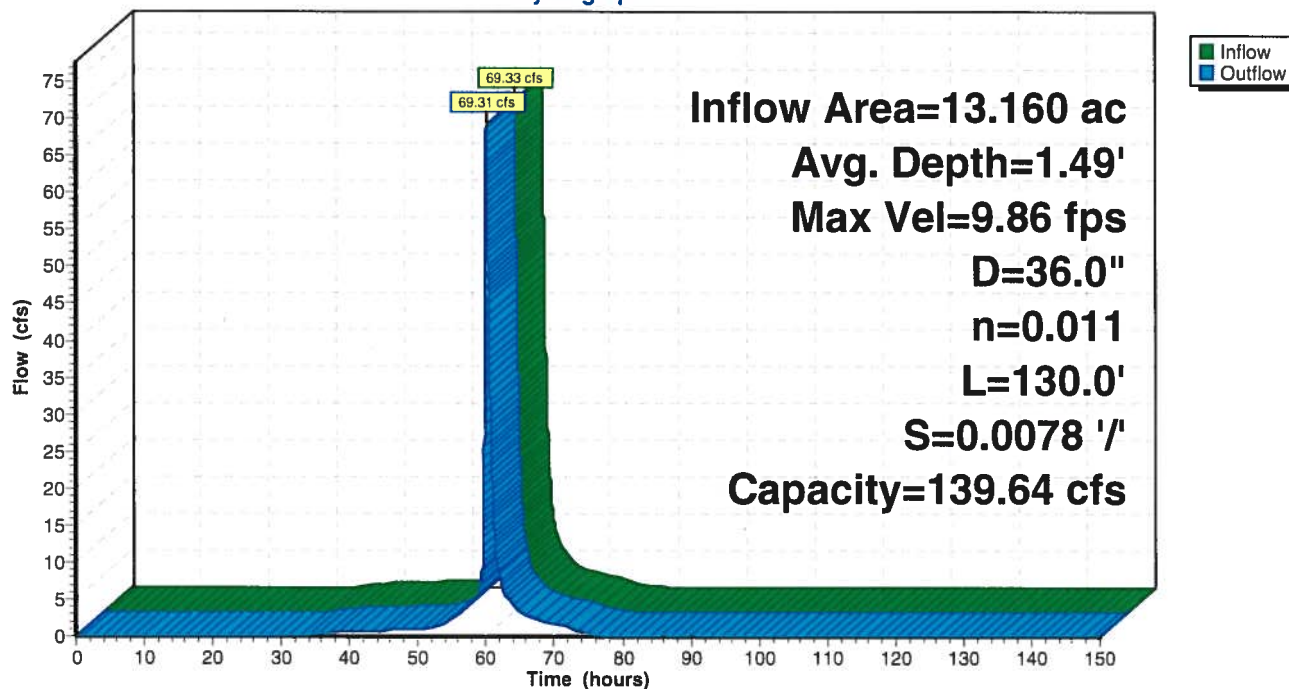
36.0" Diameter Pipe, n= 0.011 Concrete pipe, straight & clean

Length= 130.0' Slope= 0.0078 '/'

Inlet Invert= 3.10', Outlet Invert= 2.08'

**Reach 35R: Basin 2 Outfall**

Hydrograph



Pond 10P: BASIN 1 DRY DETENTION POND

Inflow Area = 31.740 ac, Inflow Depth = 12.57" for 72HR - 25YR event
 Inflow = 237.85 cfs @ 59.81 hrs, Volume= 33.255 af
 Outflow = 87.82 cfs @ 60.11 hrs, Volume= 32.586 af, Atten= 63%, Lag= 17.9 min
 Primary = 86.25 cfs @ 60.11 hrs, Volume= 24.195 af
 Secondary = 1.57 cfs @ 60.11 hrs, Volume= 8.392 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.13' @ 60.11 hrs Surf.Area= 3.066 ac Storage= 13.595 af

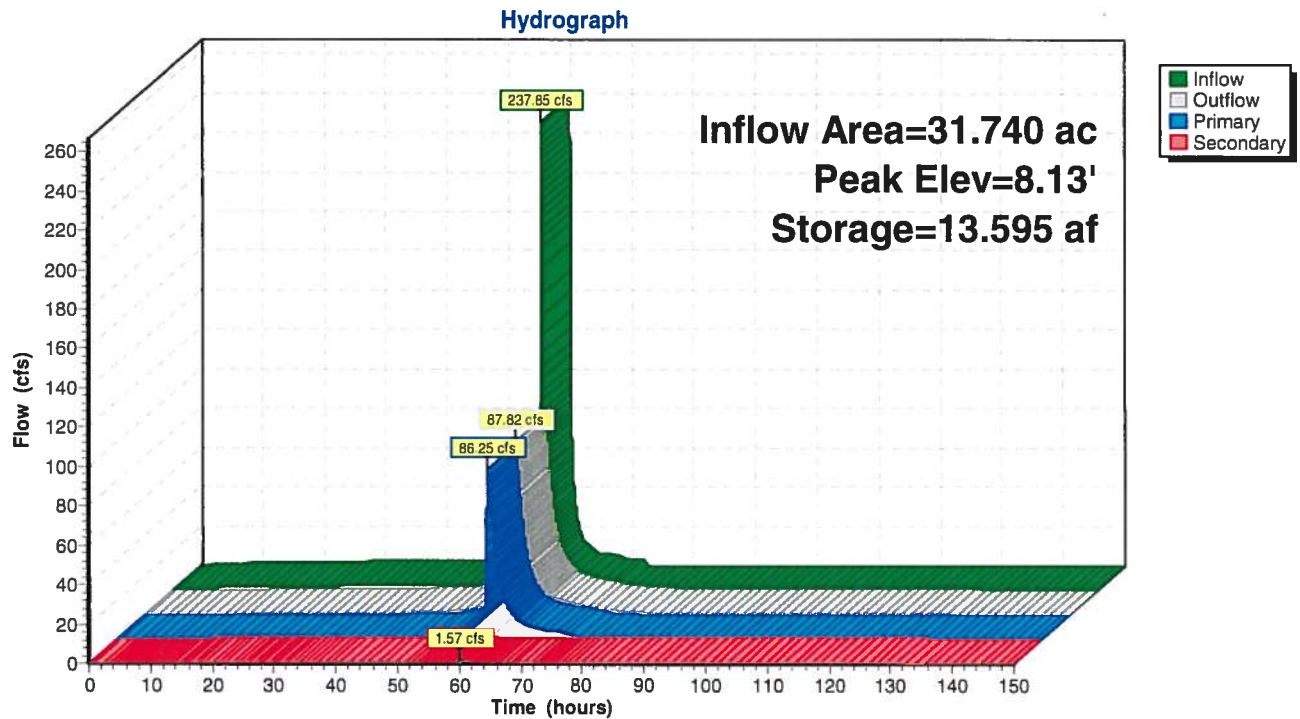
Plug-Flow detention time= 727.3 min calculated for 32.584 af (98% of inflow)
 Center-of-Mass det. time= 705.4 min (3,893.5 - 3,188.1)

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	16.331 af	190.00'W x 540.00'L x 5.90'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	6.10'	6.0' long x 2.90' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.0' Crest Height
#2	Primary	4.30'	100.0 deg x 1.80' rise Sharp-Crested Vee/Trap Weir C= 2.49
#3	Secondary	3.10'	3.0" Vert. Orifice/Grate X 3.00 C= 0.600

Primary OutFlow Max=86.25 cfs @ 60.11 hrs HW=8.13' TW=3.10' (Fixed TW Elev= 3.10')
 ↳1=Sharp-Crested Rectangular Weir (Weir Controls 57.13 cfs @ 5.04 fps)
 ↳2=Sharp-Crested Vee/Trap Weir (Orifice Controls 29.12 cfs @ 7.54 fps)

Secondary OutFlow Max=1.57 cfs @ 60.11 hrs HW=8.13' TW=3.10' (Fixed TW Elev= 3.10')
 ↳3=Orifice/Grate (Orifice Controls 1.57 cfs @ 10.66 fps)

Pond 10P: BASIN 1 DRY DETENTION POND

Pond 24P: BASIN 2 DRY DETENTION POND

Inflow Area = 13.160 ac, Inflow Depth = 13.88" for 72HR - 25YR event
 Inflow = 97.37 cfs @ 59.86 hrs, Volume= 15.218 af
 Outflow = 69.82 cfs @ 60.05 hrs, Volume= 14.899 af, Atten= 28%, Lag= 10.9 min
 Primary = 69.33 cfs @ 60.05 hrs, Volume= 11.678 af
 Secondary = 0.50 cfs @ 60.05 hrs, Volume= 3.222 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Peak Elev= 7.63' @ 60.05 hrs Surf.Area= 1.115 ac Storage= 4.221 af

Plug-Flow detention time= 644.1 min calculated for 14.898 af (98% of inflow)
 Center-of-Mass det. time= 619.9 min (3,741.2 - 3,121.3)

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	5.228 af	125.00'W x 265.00'L x 5.40'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	6.00'	8.0' long x 2.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.9' Crest Height
#2	Primary	4.90'	120.0 deg x 1.10' rise Sharp-Crested Vee/Trap Weir C= 2.48
#3	Secondary	3.10'	3.0" Vert. Orifice/Grate C= 0.600

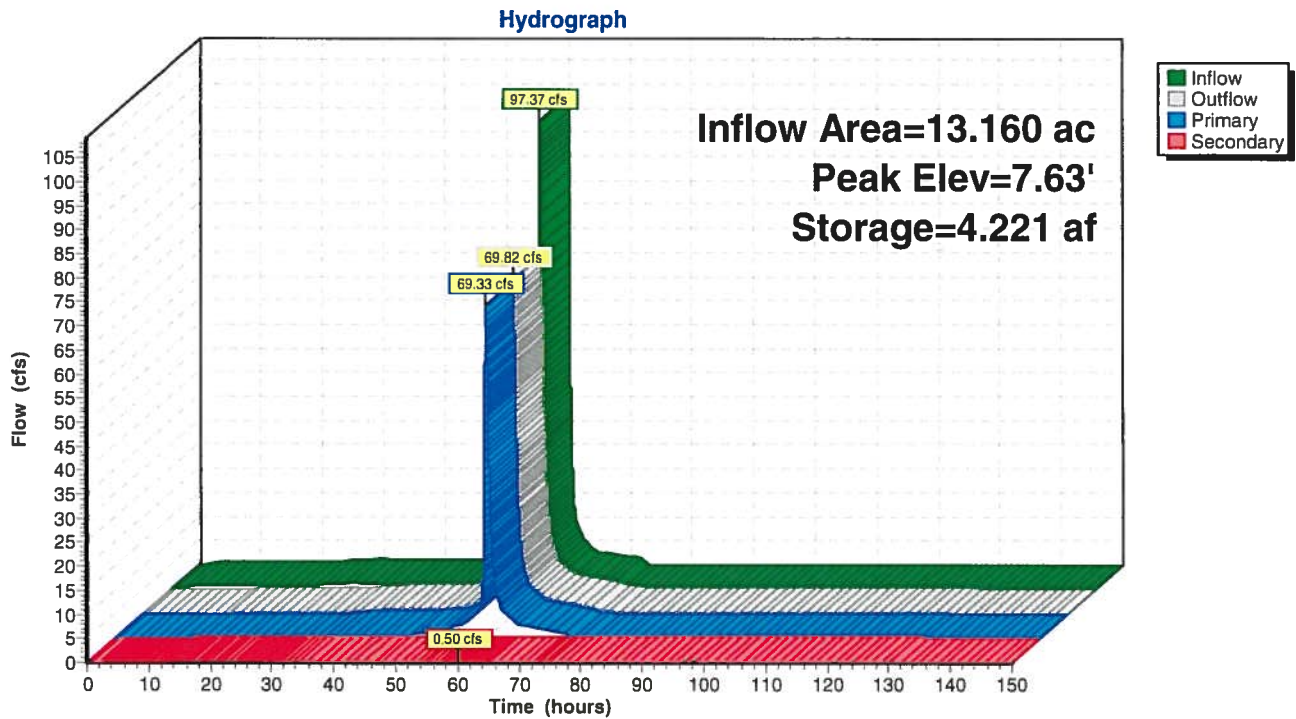
Primary OutFlow Max=69.31 cfs @ 60.05 hrs HW=7.63' TW=2.08' (Fixed TW Elev= 2.08')

└─1=Sharp-Crested Rectangular Weir (Weir Controls 55.58 cfs @ 4.46 fps)

└─2=Sharp-Crested Vee/Trap Weir (Orifice Controls 13.73 cfs @ 6.55 fps)

Secondary OutFlow Max=0.50 cfs @ 60.05 hrs HW=7.63' TW=2.08' (Fixed TW Elev= 2.08')

└─3=Orifice/Grate (Orifice Controls 0.50 cfs @ 10.10 fps)

Pond 24P: BASIN 2 DRY DETENTION POND

Pond 33P: BASIN 1 POND BLEEDER DISCHARGE VOLUME

NODE USED TO DETERMINE THE VOLUME OF DISCHARGE IN A 24 HOUR PERIOD THROUGH A BLEED DOWN ORIFICE.

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.74 cfs @ 0.00 hrs, Volume= 2.830 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.74 cfs @ 0.00 hrs, Volume= 2.830 af

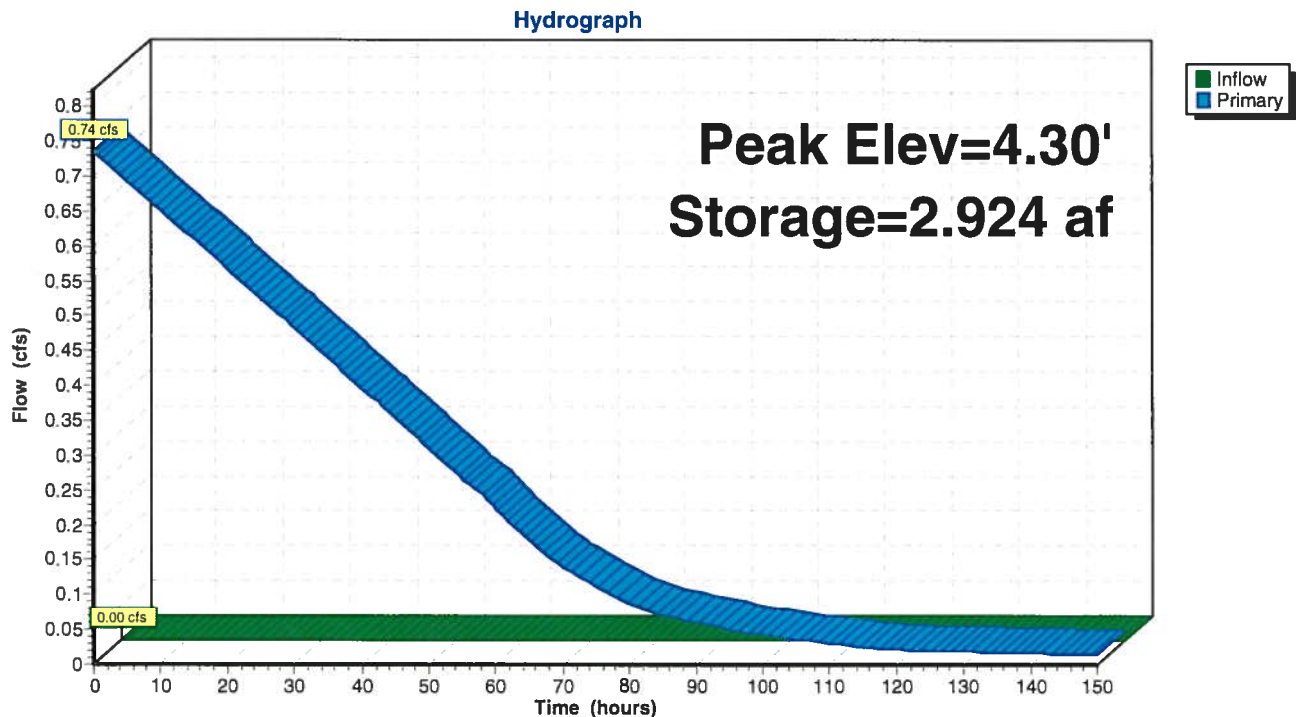
Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Starting Elev= 4.30' Surf.Area= 2.518 ac Storage= 2.924 af
 Peak Elev= 4.30' @ 0.00 hrs Surf.Area= 2.518 ac Storage= 2.924 af

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

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	16.331 af	190.00'W x 540.00'L x 5.90'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	3.10'	3.0" Vert. Orifice/Grate X 3.00 C= 0.600

Primary OutFlow Max=0.74 cfs @ 0.00 hrs HW=4.30' TW=2.08' (Fixed TW Elev= 2.08')
 1=Orifice/Grate (Orifice Controls 0.74 cfs @ 4.99 fps)

Pond 33P: BASIN 1 POND BLEEDER DISCHARGE VOLUME

Pond 34P: BASIN 2 POND BLEEDER DISCHARGE VOLUME

THIS NODE IS USED TO DETERMINE DISCHARGE VOLUMES IN A 24 HOUR PERIOD THROUGH A BLEEDER ORIFICE.

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.31 cfs @ 0.00 hrs, Volume= 1.448 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 0.00 hrs, Volume= 1.448 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Starting Elev= 4.90' Surf.Area= 0.894 ac Storage= 1.488 af

Peak Elev= 4.90' @ 0.00 hrs Surf.Area= 0.894 ac Storage= 1.488 af

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

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

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	5.228 af	125.00'W x 265.00'L x 5.40'H Prismatic Z=4.0

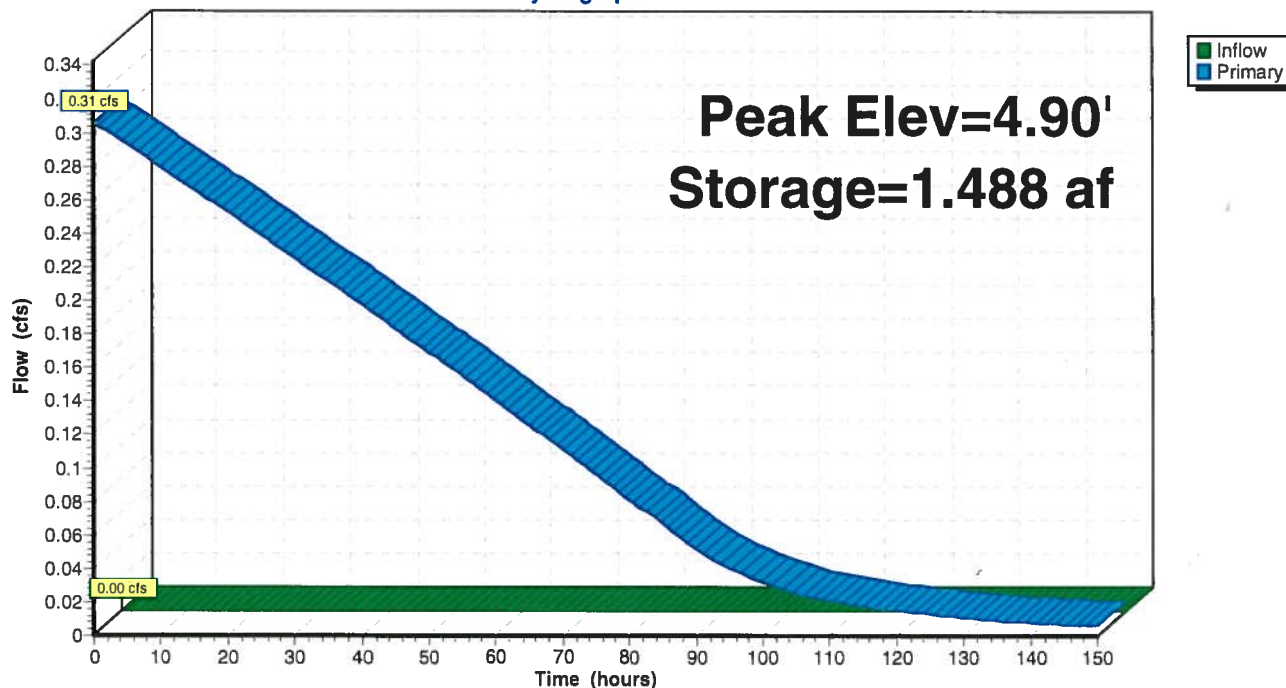
Device	Routing	Invert	Outlet Devices
#1	Primary	3.10'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.31 cfs @ 0.00 hrs HW=4.90' TW=2.08' (Fixed TW Elev= 2.08')

↑ **1=Orifice/Grate** (Orifice Controls 0.31 cfs @ 6.23 fps)

Pond 34P: BASIN 2 POND BLEEDER DISCHARGE VOLUME

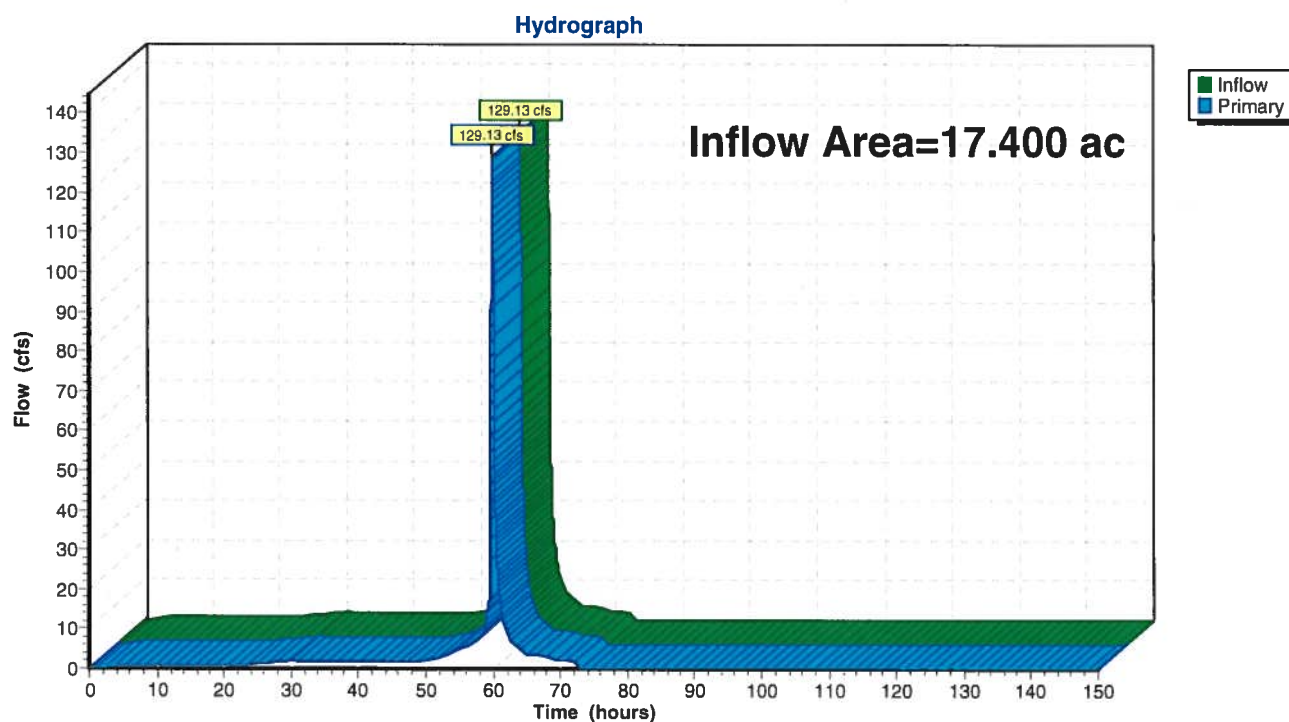
Hydrograph



Link 15L: B-1 INLETS COMBINED

Inflow Area = 17.400 ac, Inflow Depth = 14.02" for 72HR - 25YR event
Inflow = 129.13 cfs @ 59.81 hrs, Volume= 20.331 af
Primary = 129.13 cfs @ 59.81 hrs, Volume= 20.331 af, Atten= 0%, Lag= 0.0 min

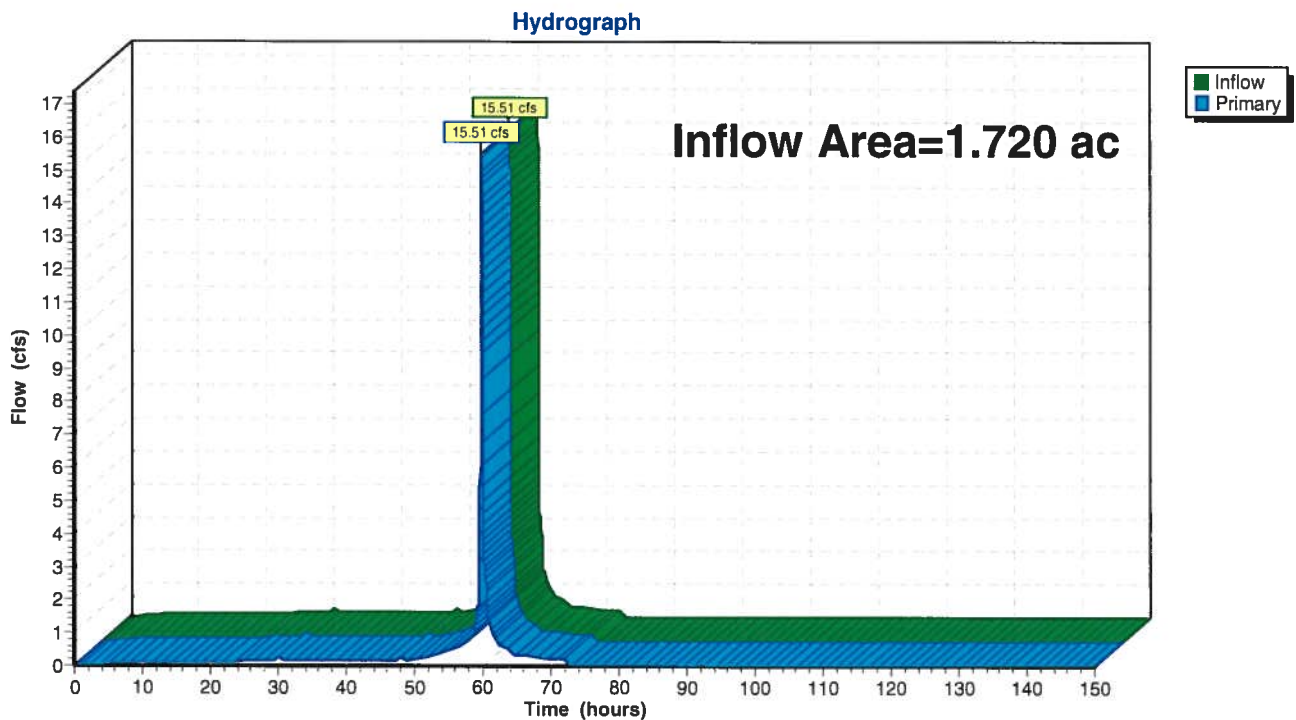
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 15L: B-1 INLETS COMBINED

Link 16L: SB-1G OSB-1B COMBINED

Inflow Area = 1.720 ac, Inflow Depth = 13.66" for 72HR - 25YR event
Inflow = 15.51 cfs @ 59.79 hrs, Volume= 1.958 af
Primary = 15.51 cfs @ 59.79 hrs, Volume= 1.958 af, Atten= 0%, Lag= 0.0 min

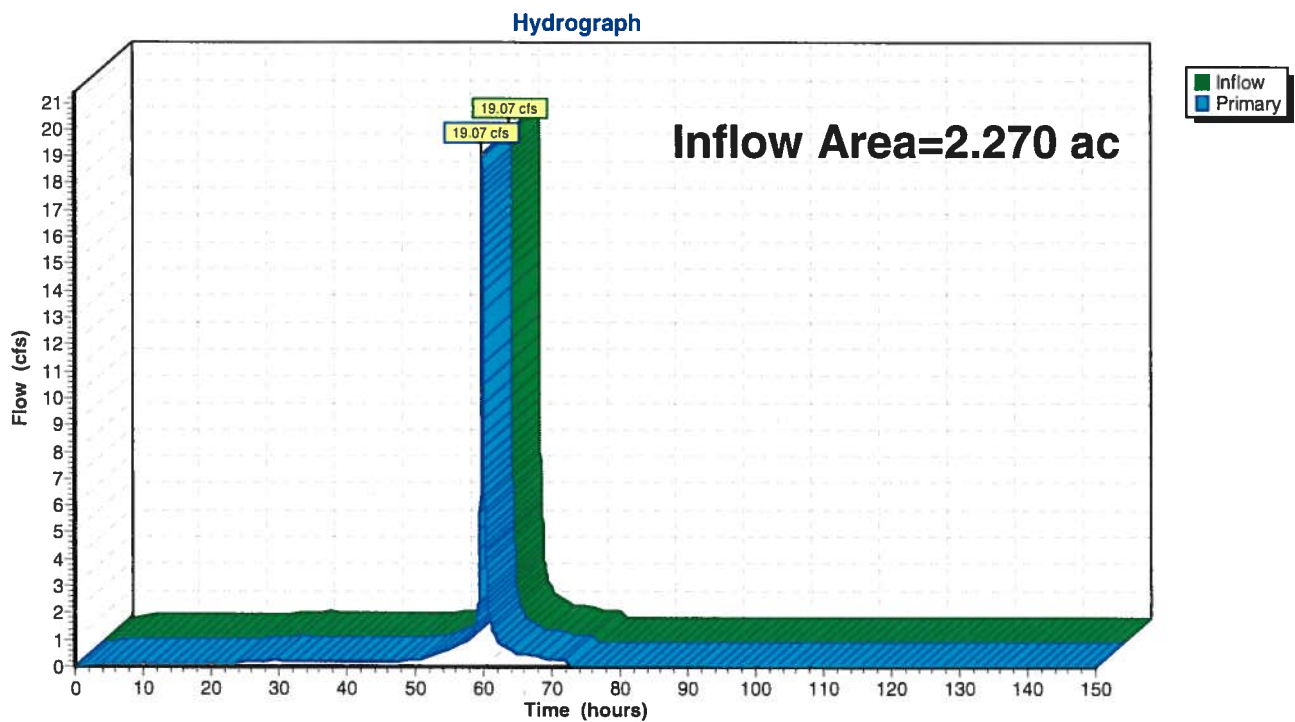
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 16L: SB-1G OSB-1B COMBINED

Link 17L: SB-1H SB-1K COMBINED

Inflow Area = 2.270 ac, Inflow Depth = 14.06" for 72HR - 25YR event
Inflow = 19.07 cfs @ 59.81 hrs, Volume= 2.660 af
Primary = 19.07 cfs @ 59.81 hrs, Volume= 2.660 af, Atten= 0%, Lag= 0.0 min

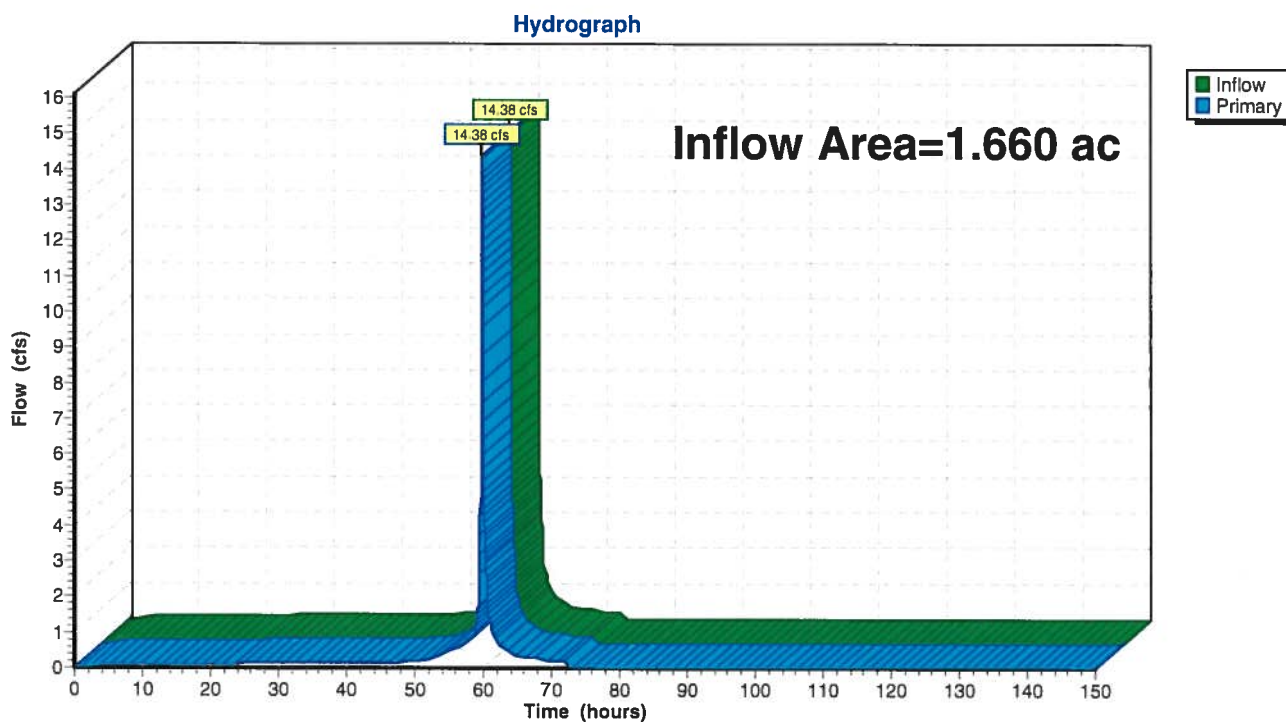
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 17L: SB-1H SB-1K COMBINED

Link 18L: OSB-1 INLETS COMBINED

Inflow Area = 1.660 ac, Inflow Depth = 14.06" for 72HR - 25YR event
Inflow = 14.38 cfs @ 59.81 hrs, Volume= 1.945 af
Primary = 14.38 cfs @ 59.81 hrs, Volume= 1.945 af, Atten= 0%, Lag= 0.0 min

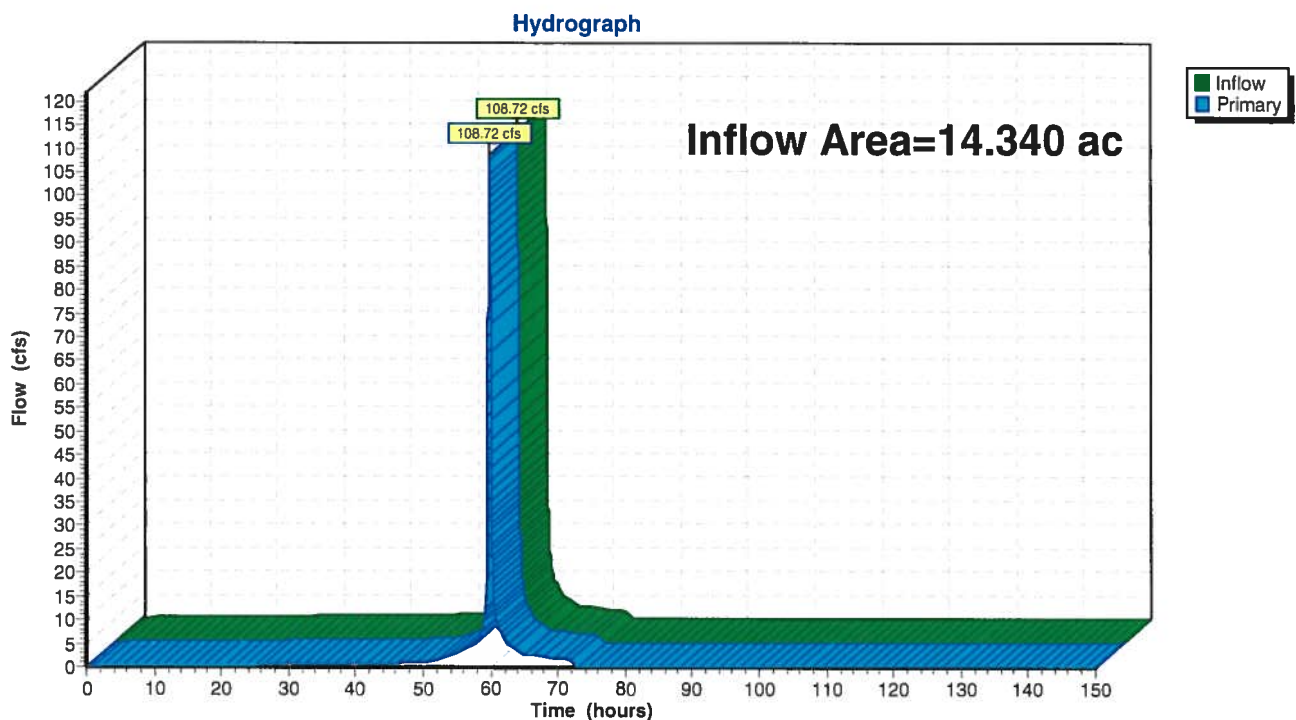
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 18L: OSB-1 INLETS COMBINED

Link 19L: B-1 OVERLAND TO POND

Inflow Area = 14.340 ac, Inflow Depth = 10.82" for 72HR - 25YR event
Inflow = 108.72 cfs @ 59.81 hrs, Volume= 12.924 af
Primary = 108.72 cfs @ 59.81 hrs, Volume= 12.924 af, Atten= 0%, Lag= 0.0 min

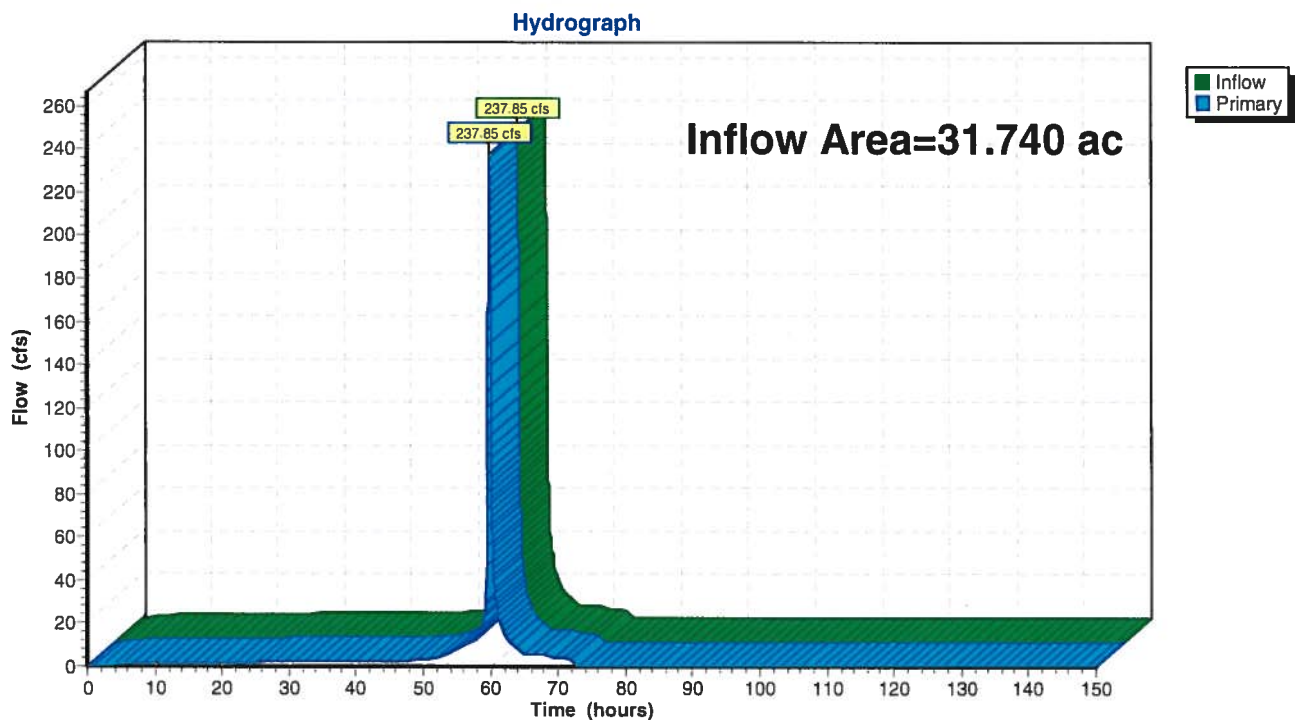
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 19L: B-1 OVERLAND TO POND

Link 20L: B-1 COMBINED TO POND

Inflow Area = 31.740 ac, Inflow Depth = 12.57" for 72HR - 25YR event
Inflow = 237.85 cfs @ 59.81 hrs, Volume= 33.255 af
Primary = 237.85 cfs @ 59.81 hrs, Volume= 33.255 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 20L: B-1 COMBINED TO POND

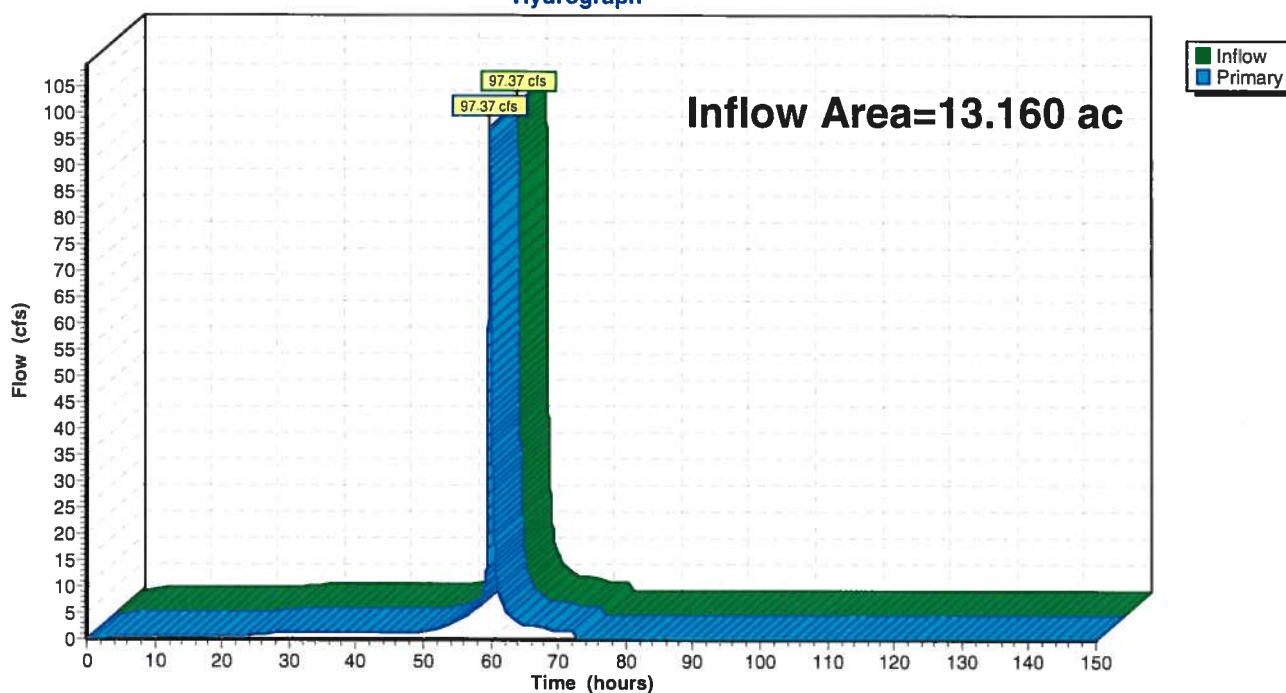
Link 29L: SB-2A OSB-2A COMBINED TO POND

Inflow Area = 13.160 ac, Inflow Depth = 13.88" for 72HR - 25YR event
Inflow = 97.37 cfs @ 59.86 hrs, Volume= 15.218 af
Primary = 97.37 cfs @ 59.86 hrs, Volume= 15.218 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 29L: SB-2A OSB-2A COMBINED TO POND

Hydrograph



Link 30L: DISCHARGE TO SOUTH CANAL

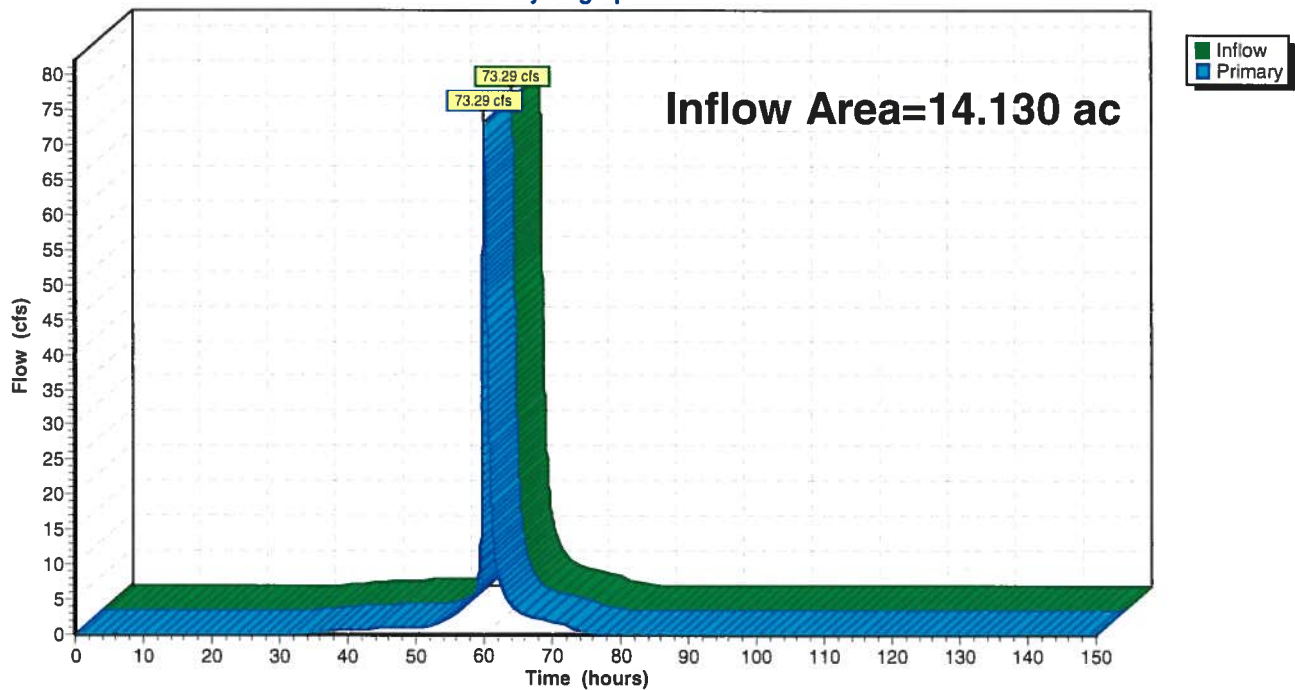
Inflow Area = 14.130 ac, Inflow Depth = 10.61" for 72HR - 25YR event
Inflow = 73.29 cfs @ 60.03 hrs, Volume= 12.489 af
Primary = 73.29 cfs @ 60.03 hrs, Volume= 12.489 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Fixed water surface Elevation= 2.08'

Link 30L: DISCHARGE TO SOUTH CANAL

Hydrograph



Link 32L: NORTH CANAL DISCHARGE

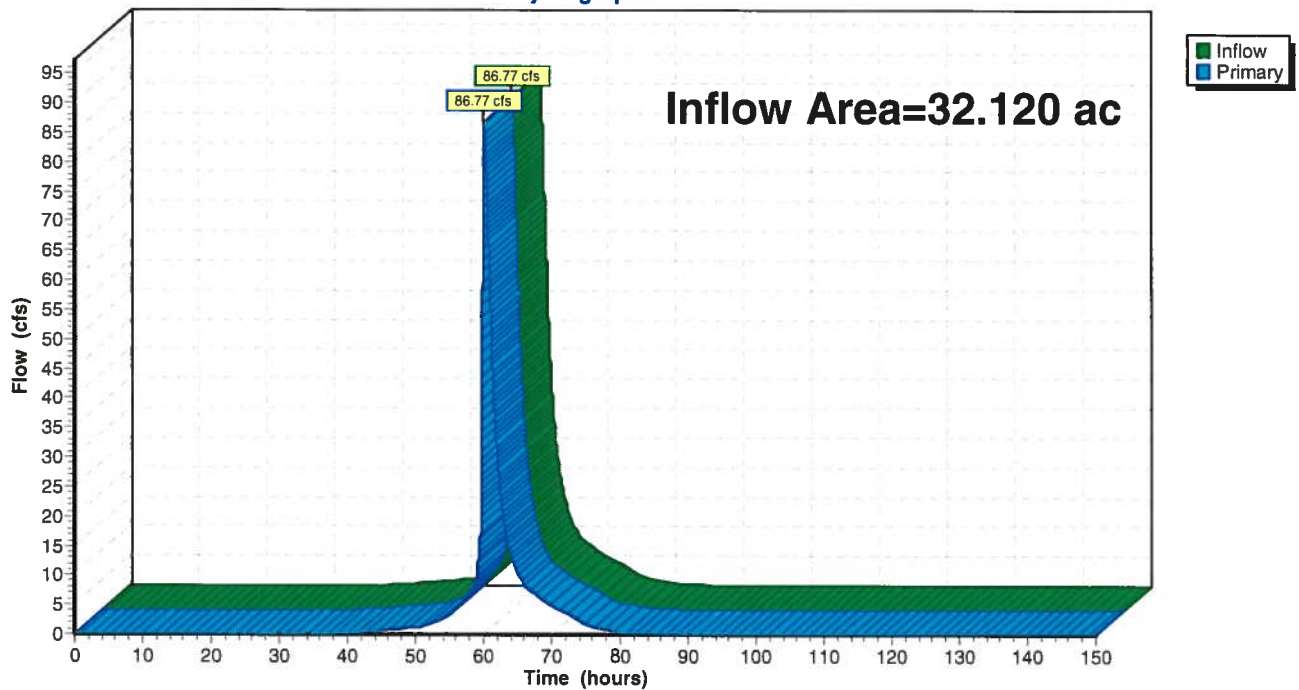
Inflow Area = 32.120 ac, Inflow Depth = 9.14" for 72HR - 25YR event
Inflow = 86.77 cfs @ 60.11 hrs, Volume= 24.471 af
Primary = 86.77 cfs @ 60.11 hrs, Volume= 24.471 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Fixed water surface Elevation= 2.08'

Link 32L: NORTH CANAL DISCHARGE

Hydrograph



Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
9.180	61	>75% Grass cover, Good, HSG B (3S,7S,25S)
0.970	69	50-75% Grass cover, Fair, HSG B (23S)
2.340	88	Urban industrial, 72% imp, HSG B (3S,22S,26S)
29.390	98	Paved parking & roofs (1S,2S,3S,3S,4S,5S,7S,8S,11S,12S,13S,14S,22S,22S,31S,33S)
3.190	100	(3S)
1.180	100	DETENTION POND (22S)
46.250		

Time span=0.00-150.00 hrs, dt=0.01 hrs, 15001 points

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: SB-1ARunoff Area=3.770 ac Runoff Depth=17.26"
Tc=5.0 min CN=0/98 Runoff=39.97 cfs 5.423 af**Subcatchment 2S: SB-1B**Runoff Area=4.480 ac Runoff Depth=17.26"
Flow Length=520' Tc=33.4 min CN=0/98 Runoff=25.08 cfs 6.443 af**Subcatchment 3S: SB-1C**Runoff Area=14.340 ac Runoff Depth=13.83"
Flow Length=256' Tc=4.8 min CN=61/99 Runoff=137.69 cfs 16.529 af**Subcatchment 4S: SB-1D**Runoff Area=1.480 ac Runoff Depth=17.26"
Flow Length=487' Tc=5.7 min CN=0/98 Runoff=15.34 cfs 2.129 af**Subcatchment 5S: SB-1E**Runoff Area=0.970 ac Runoff Depth=17.26"
Flow Length=297' Tc=3.6 min CN=0/98 Runoff=10.76 cfs 1.396 af**Subcatchment 7S: SB-1G**Runoff Area=1.380 ac Runoff Depth=16.73"
Flow Length=261' Tc=2.8 min CN=61/98 Runoff=15.45 cfs 1.925 af**Subcatchment 8S: SB-1H**Runoff Area=1.770 ac Runoff Depth=17.26"
Flow Length=307' Tc=6.6 min CN=0/98 Runoff=17.83 cfs 2.546 af**Subcatchment 11S: OSB-1A**Runoff Area=1.120 ac Runoff Depth=17.26"
Tc=5.0 min CN=0/98 Runoff=11.87 cfs 1.611 af**Subcatchment 12S: OSB-1B**Runoff Area=0.340 ac Runoff Depth=17.26"
Flow Length=310' Tc=4.7 min CN=0/98 Runoff=3.64 cfs 0.489 af**Subcatchment 13S: OSB-1C**Runoff Area=0.540 ac Runoff Depth=17.26"
Tc=5.0 min CN=0/98 Runoff=5.72 cfs 0.777 af**Subcatchment 14S: SB-1K**Runoff Area=0.500 ac Runoff Depth=17.27"
Flow Length=219' Slope=0.0069 '/' Tc=2.6 min CN=0/98 Runoff=5.72 cfs 0.719 af**Subcatchment 22S: SB-2A**Runoff Area=11.990 ac Runoff Depth=17.20"
Flow Length=706' Tc=9.5 min CN=62/98 Runoff=110.36 cfs 17.182 af**Subcatchment 23S: SB-2B**Runoff Area=0.970 ac Runoff Depth=13.07"
Flow Length=120' Slope=0.0583 '/' Tc=5.4 min CN=69/0 Runoff=9.16 cfs 1.056 af**Subcatchment 25S: B-4**Runoff Area=0.380 ac Runoff Depth=11.64"
Flow Length=16' Slope=0.1283 '/' Tc=1.7 min CN=61/0 Runoff=3.74 cfs 0.369 af**Subcatchment 26S: OSB-2A**Runoff Area=1.170 ac Runoff Depth=15.74"
Flow Length=329' Tc=14.1 min CN=62/98 Runoff=9.12 cfs 1.534 af

Subcatchment 31S: SB-1I

Runoff Area=0.300 ac Runoff Depth=17.27"

Flow Length=139' Slope=0.0058 '/' Tc=1.9 min CN=0/98 Runoff=3.51 cfs 0.432 af

Subcatchment 33S: SB-1J

Runoff Area=0.750 ac Runoff Depth=17.27"

Flow Length=180' Slope=0.5400 '/' Tc=0.4 min CN=0/98 Runoff=9.15 cfs 1.079 af

Reach 33R: Basin 1 Outfall

Avg. Depth=1.47' Max Vel=11.17 fps Inflow=115.55 cfs 32.010 af

D=36.0" n=0.011 L=100.0' S=0.0102 '/' Capacity=238.83 cfs Outflow=115.54 cfs 32.010 af

Reach 35R: Basin 2 Outfall

Avg. Depth=1.72' Max Vel=10.43 fps Inflow=87.47 cfs 15.066 af

D=36.0" n=0.011 L=130.0' S=0.0078 '/' Capacity=139.64 cfs Outflow=87.45 cfs 15.066 af

Pond 10P: BASIN 1 DRY DETENTION PON Peak Elev=8.71' Storage=15.395 af Inflow=295.82 cfs 41.497 af

Primary=115.55 cfs 32.010 af Secondary=1.66 cfs 8.805 af Outflow=117.21 cfs 40.815 af

Pond 24P: BASIN 2 DRY DETENTION PON Peak Elev=7.94' Storage=4.574 af Inflow=119.37 cfs 18.716 af

Primary=87.47 cfs 15.066 af Secondary=0.51 cfs 3.328 af Outflow=87.98 cfs 18.394 af

Pond 33P: BASIN 1 POND BLEEDER DISCHAR Peak Elev=4.30' Storage=2.924 af Inflow=0.00 cfs 0.000 af

Outflow=0.74 cfs 2.830 af

Pond 34P: BASIN 2 POND BLEEDER DISCHAR Peak Elev=4.90' Storage=1.488 af Inflow=0.00 cfs 0.000 af

Outflow=0.31 cfs 1.448 af

Link 15L: B-1 INLETS COMBINED

Inflow=158.12 cfs 24.968 af

Primary=158.12 cfs 24.968 af

Link 16L: SB-1G OSB-1B COMBINED

Inflow=19.06 cfs 2.414 af

Primary=19.06 cfs 2.414 af

Link 17L: SB-1H SB-1K COMBINED

Inflow=23.34 cfs 3.265 af

Primary=23.34 cfs 3.265 af

Link 18L: OSB-1 INLETS COMBINED

Inflow=17.60 cfs 2.388 af

Primary=17.60 cfs 2.388 af

Link 19L: B-1 OVERLAND TO POND

Inflow=137.69 cfs 16.529 af

Primary=137.69 cfs 16.529 af

Link 20L: B-1 COMBINED TO POND

Inflow=295.82 cfs 41.497 af

Primary=295.82 cfs 41.497 af

Link 29L: SB-2A OSB-2A COMBINED TO POND

Inflow=119.37 cfs 18.716 af

Primary=119.37 cfs 18.716 af

Link 30L: DISCHARGE TO SOUTH CANAL

Inflow=92.72 cfs 16.122 af

Primary=92.72 cfs 16.122 af

Link 32L: NORTH CANAL DISCHARGE

Inflow=116.24 cfs 32.378 af

Primary=116.24 cfs 32.378 af

Total Runoff Area = 46.250 ac Runoff Volume = 61.638 af Average Runoff Depth = 15.99"
23.36% Pervious Area = 10.805 ac 76.64% Impervious Area = 35.445 ac

Subcatchment 1S: SB-1A

Runoff = 39.97 cfs @ 59.81 hrs, Volume= 5.423 af, Depth=17.26"

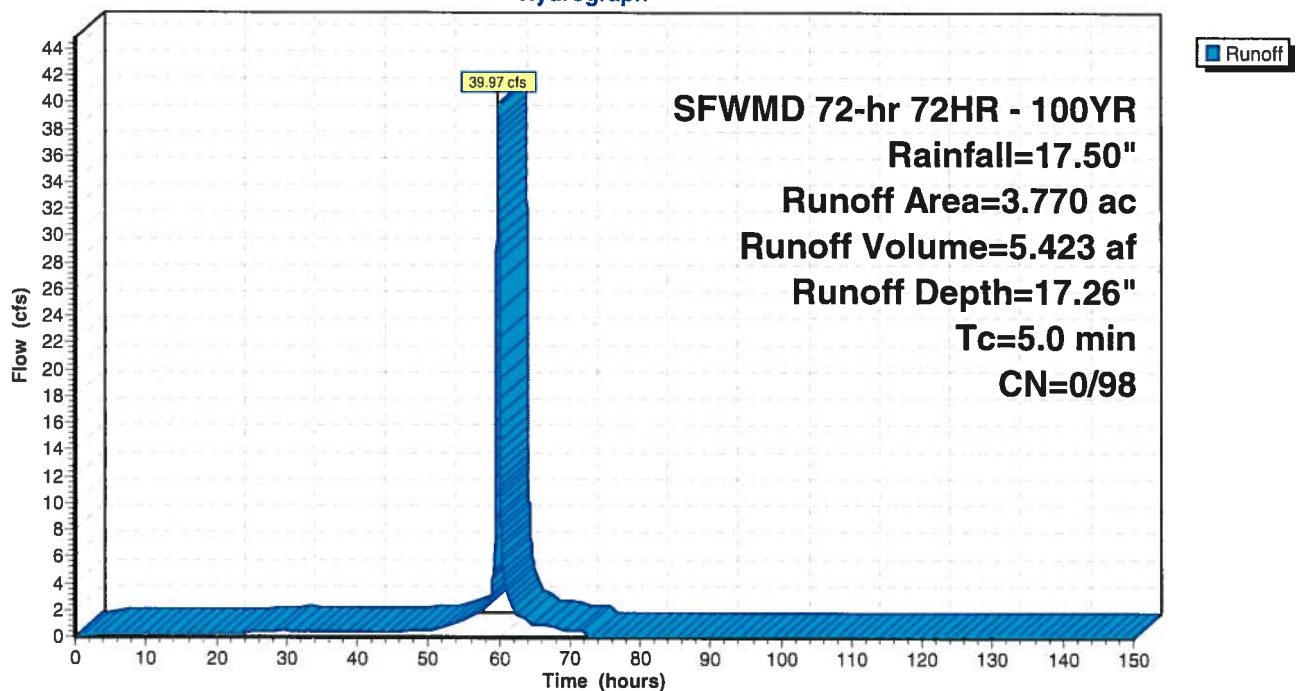
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
3.770	98	Paved parking & roofs
3.770	98	Impervious Area

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

Subcatchment 1S: SB-1A

Hydrograph



Subcatchment 2S: SB-1B

Runoff = 25.08 cfs @ 60.00 hrs, Volume= 6.443 af, Depth=17.26"

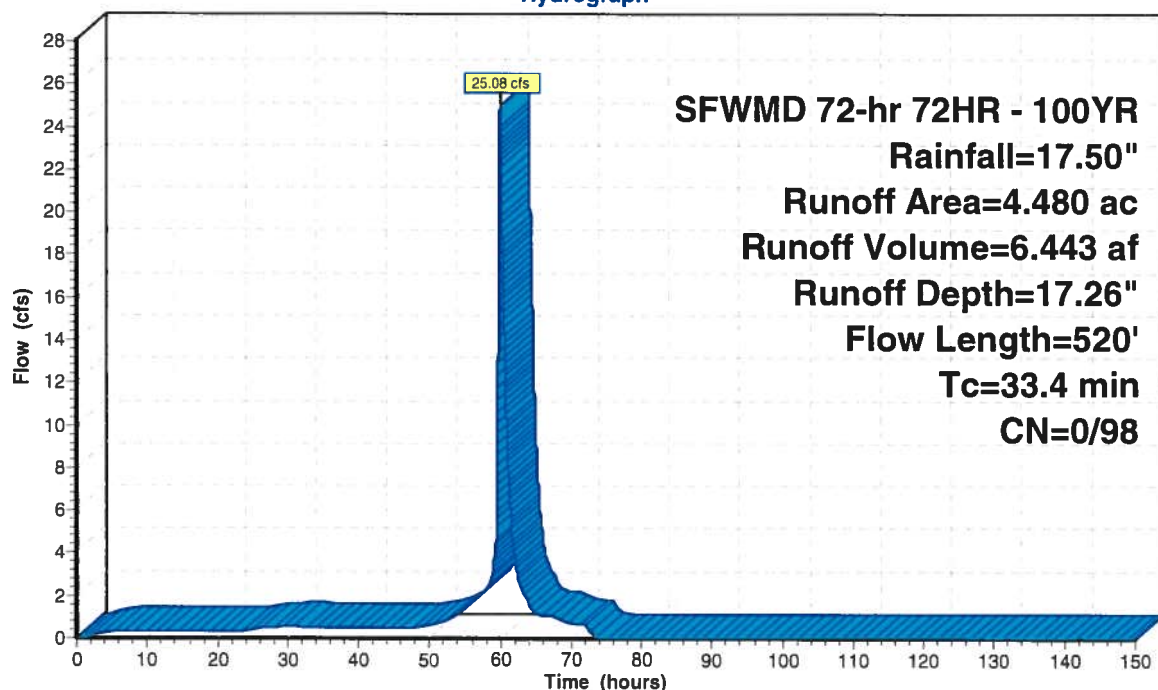
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
4.480	98	Paved parking & roofs
4.480	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	40	0.0200	1.56		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
29.5	260	0.0040	0.15		Sheet Flow, OVERLAND TO SCF Grass: Short n= 0.150 P2= 5.90"
3.5	220	0.0050	1.06		Shallow Concentrated Flow, SCF TO DETENTION POND Grassed Waterway Kv= 15.0 fps
33.4	520	Total			

Subcatchment 2S: SB-1B

Hydrograph



Subcatchment 3S: SB-1C

Runoff = 137.69 cfs @ 59.81 hrs, Volume= 16.529 af, Depth=13.83"

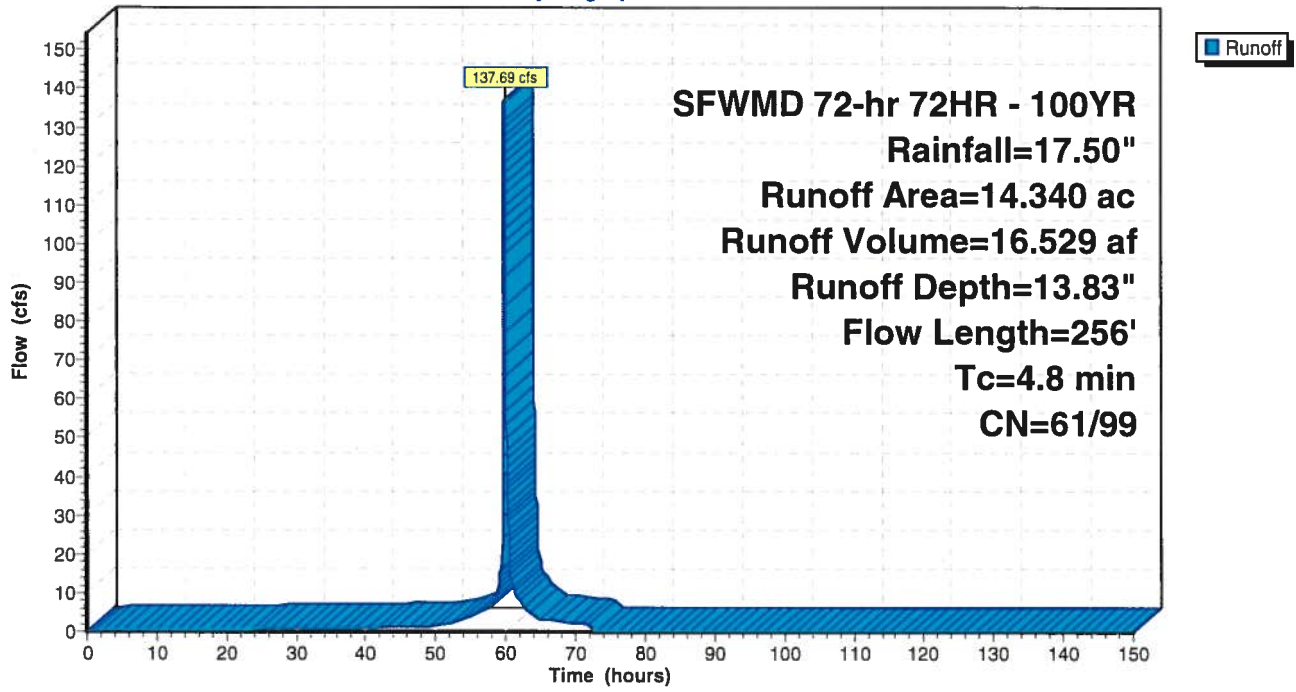
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.950	98	Paved parking & roofs
0.690	88	Urban industrial, 72% imp, HSG B
8.670	61	>75% Grass cover, Good, HSG B
3.190	100	
0.840	98	Paved parking & roofs
14.340	76	Weighted Average
8.863	61	Pervious Area
5.477	99	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	22	0.0090	1.00		Sheet Flow, OVERLAND FROM ROAD Smooth surfaces n= 0.011 P2= 5.90"
1.4	68	0.0029	0.80		Sheet Flow, OVERLAND 2 Smooth surfaces n= 0.011 P2= 5.90"
0.2	52	0.2900	4.78		Sheet Flow, OVERLAND 3 Smooth surfaces n= 0.011 P2= 5.90"
1.8	74	0.0020	0.70		Sheet Flow, OVERLAND 4 Smooth surfaces n= 0.011 P2= 5.90"
1.0	40	0.0025	0.68		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
4.8	256	Total			

Subcatchment 3S: SB-1C

Hydrograph



Subcatchment 4S: SB-1D

Runoff = 15.34 cfs @ 59.82 hrs, Volume= 2.129 af, Depth=17.26"

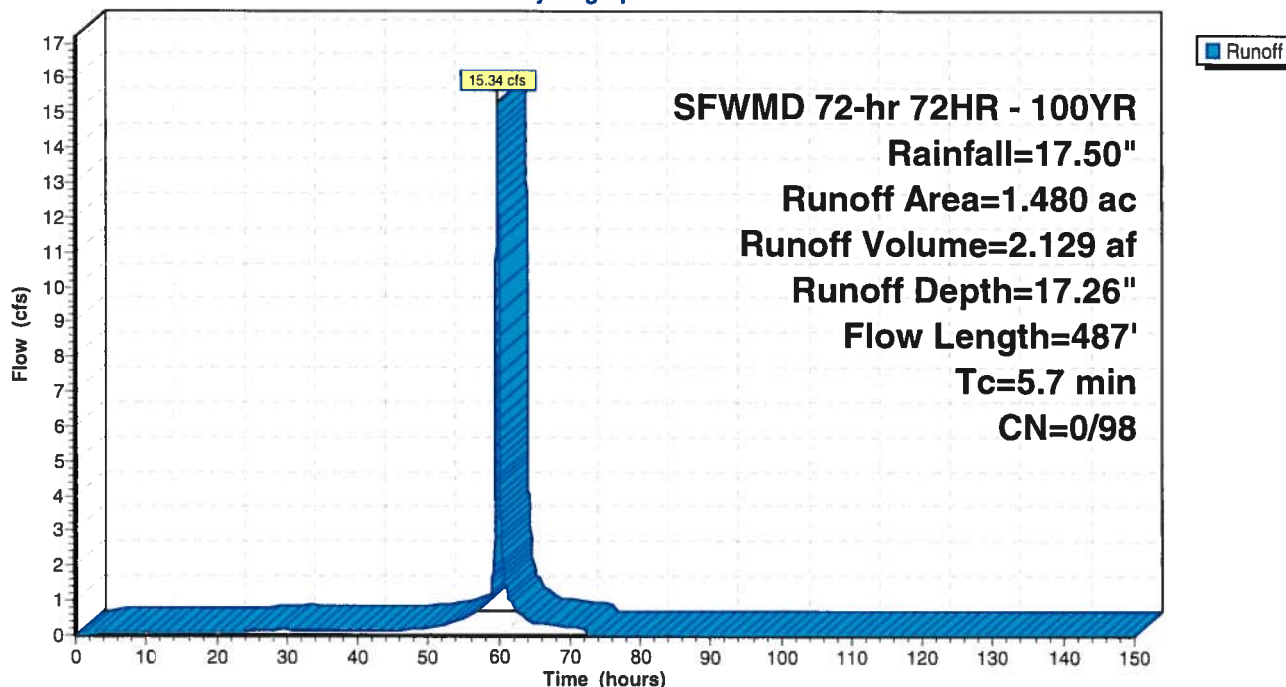
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.480	98	Paved parking & roofs
1.480	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	54	0.0056	0.99		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
2.9	246	0.0065	1.43		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
1.9	187	0.0064	1.62		Shallow Concentrated Flow, SCF TO INLET Paved Kv= 20.3 fps
5.7	487	Total			

Subcatchment 4S: SB-1D

Hydrograph



Subcatchment 5S: SB-1E

Runoff = 10.76 cfs @ 59.79 hrs, Volume= 1.396 af, Depth=17.26"

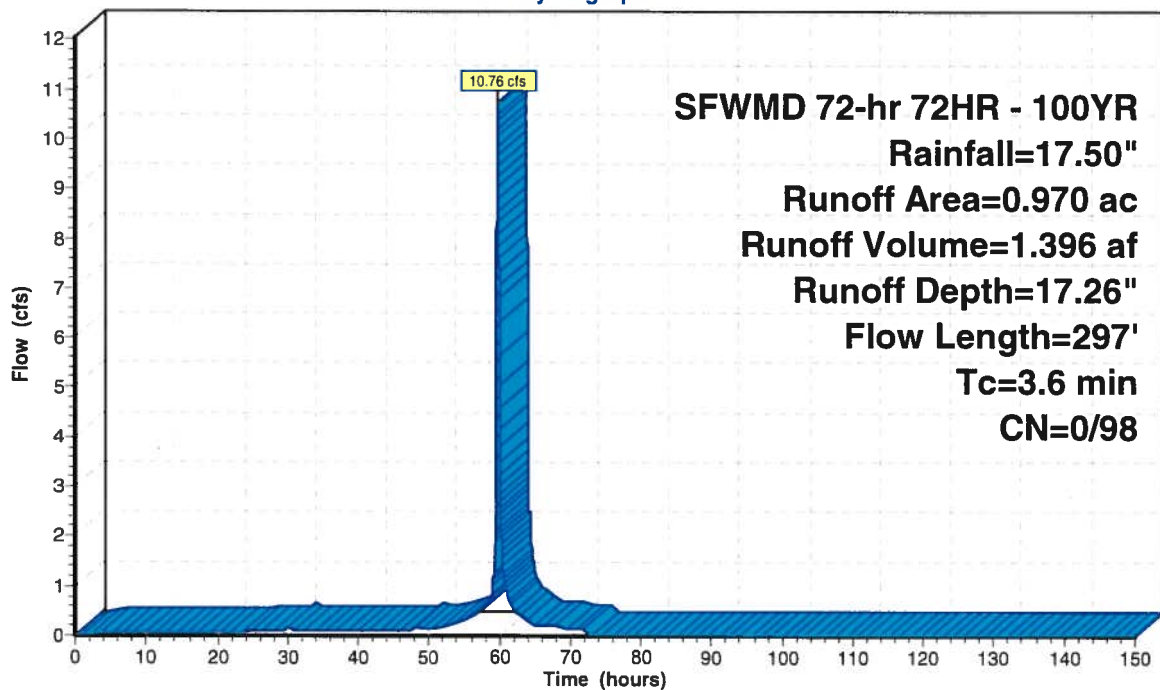
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.970	98	Paved parking & roofs
0.970	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	137	0.0182	1.92		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
1.1	72	0.0069	1.14		Sheet Flow, OVERLAND 2 Smooth surfaces n= 0.011 P2= 5.90"
1.3	88	0.0057	1.10		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
3.6	297	Total			

Subcatchment 5S: SB-1E

Hydrograph



Subcatchment 7S: SB-1G

Runoff = 15.45 cfs @ 59.78 hrs, Volume= 1.925 af, Depth=16.73"

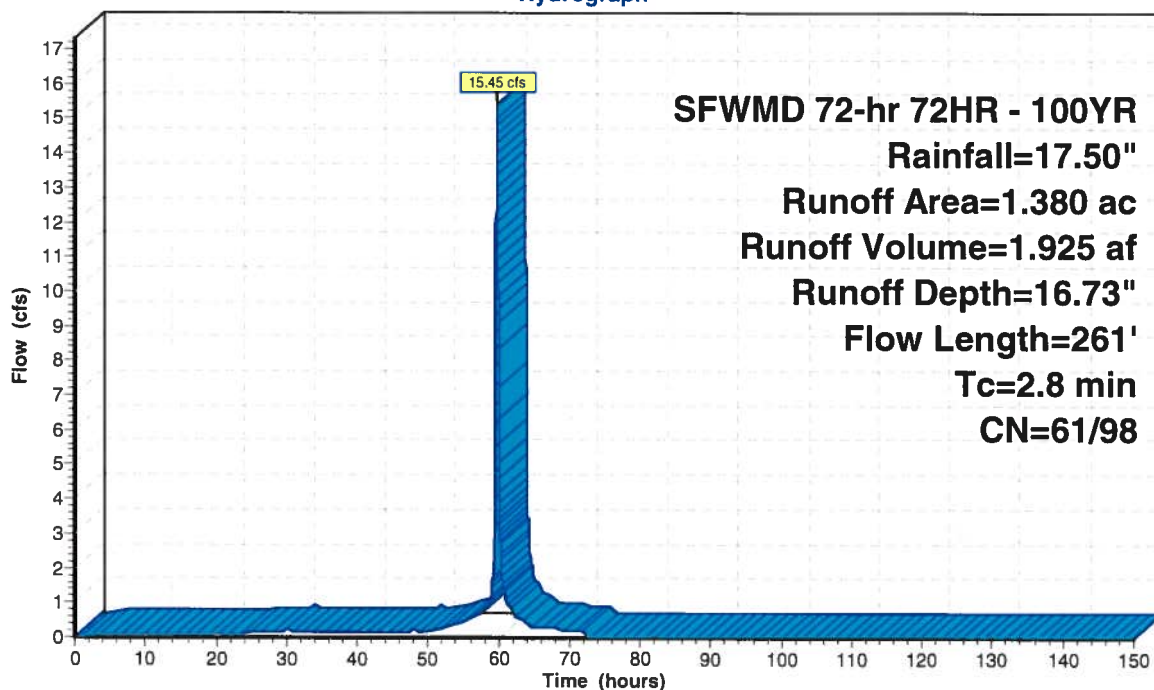
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.250	98	Paved parking & roofs
0.130	61	>75% Grass cover, Good, HSG B
1.380	95	Weighted Average
0.130	61	Pervious Area
1.250	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	232	0.0103	1.69		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
0.5	29	0.0069	0.95		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
2.8	261	Total			

Subcatchment 7S: SB-1G

Hydrograph



Subcatchment 8S: SB-1H

Runoff = 17.83 cfs @ 59.83 hrs, Volume= 2.546 af, Depth=17.26"

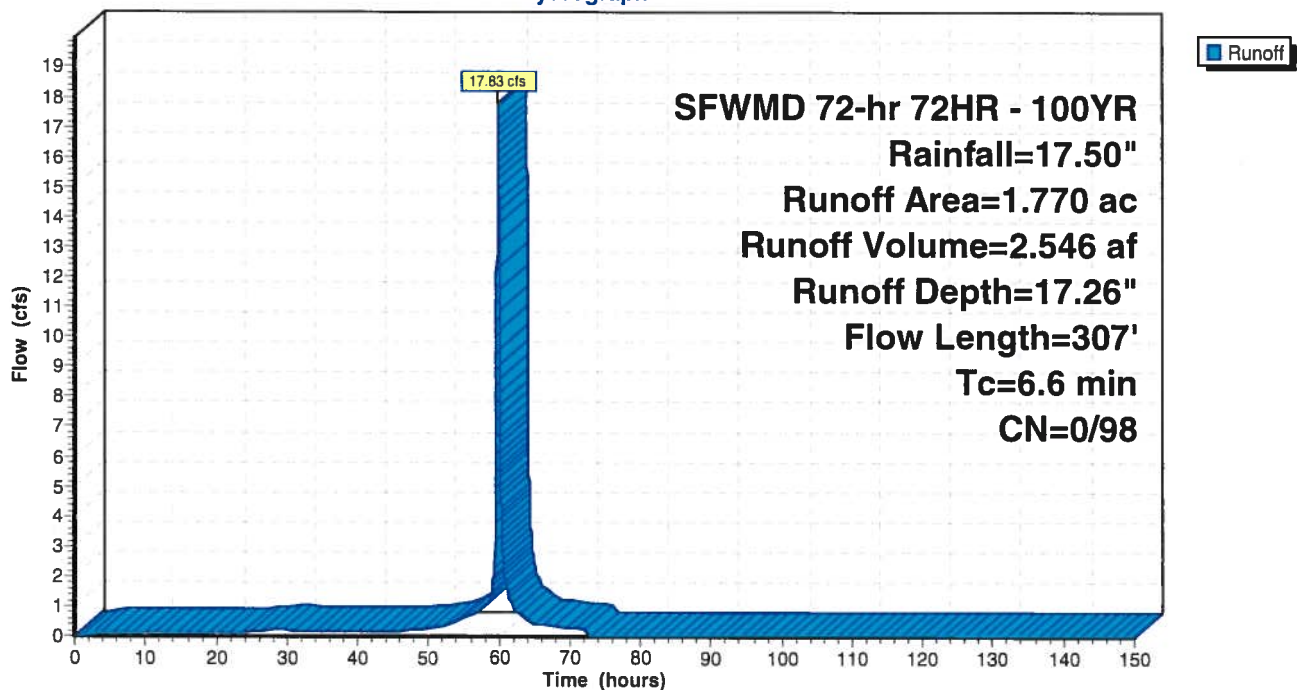
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.770	98	Paved parking & roofs
1.770	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	142	0.0014	0.69		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
3.1	158	0.0023	0.86		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
0.1	7	0.0054	1.18		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
6.6	307	Total			

Subcatchment 8S: SB-1H

Hydrograph



Subcatchment 11S: OSB-1A

Runoff = 11.87 cfs @ 59.81 hrs, Volume= 1.611 af, Depth=17.26"

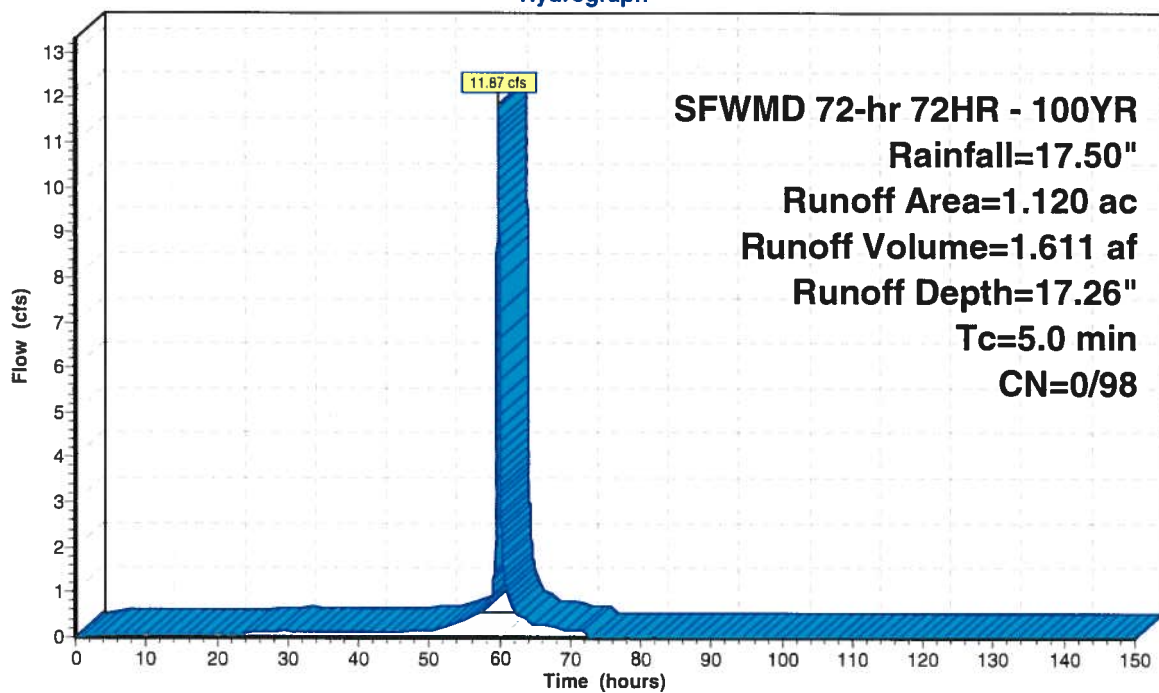
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.120	98	Paved parking & roofs
1.120	98	Impervious Area

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

Subcatchment 11S: OSB-1A

Hydrograph



Subcatchment 12S: OSB-1B

Runoff = 3.64 cfs @ 59.81 hrs, Volume= 0.489 af, Depth=17.26"

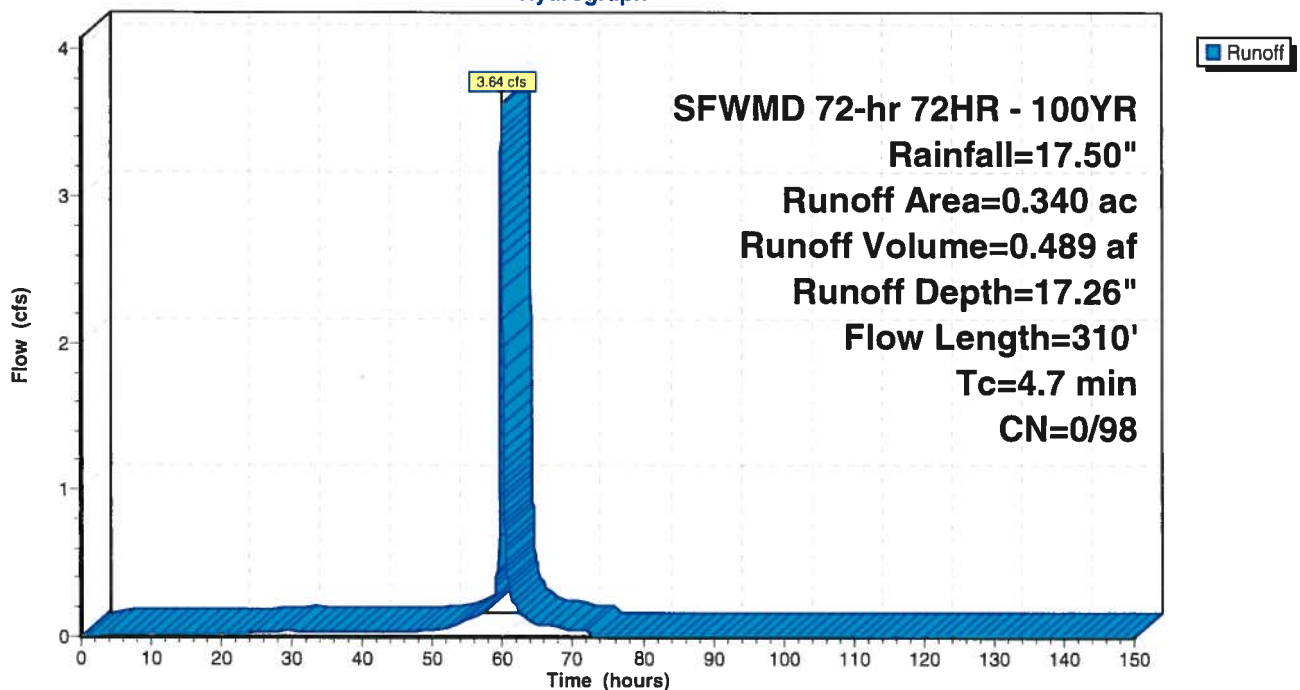
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.340	98	Paved parking & roofs
0.340	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	138	0.0051	1.15		Sheet Flow, OVERLAND 1 Smooth surfaces n= 0.011 P2= 5.90"
2.6	161	0.0037	1.05		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
0.1	11	0.0271	3.34		Shallow Concentrated Flow, SCF TO SB-1G Paved Kv= 20.3 fps
4.7	310	Total			

Subcatchment 12S: OSB-1B

Hydrograph



Subcatchment 13S: OSB-1C

Runoff = 5.72 cfs @ 59.81 hrs, Volume= 0.777 af, Depth=17.26"

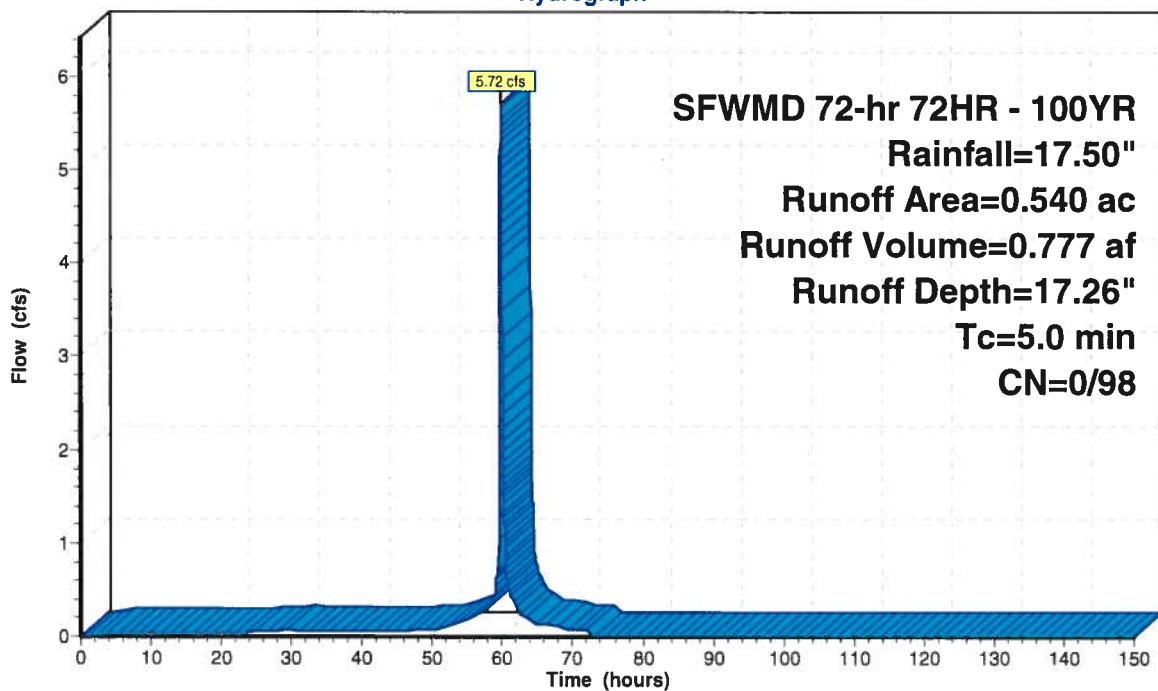
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.540	98	Paved parking & roofs
0.540	98	Impervious Area

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

Subcatchment 13S: OSB-1C

Hydrograph



Subcatchment 14S: SB-1K

Runoff = 5.72 cfs @ 59.78 hrs, Volume= 0.719 af, Depth=17.27"

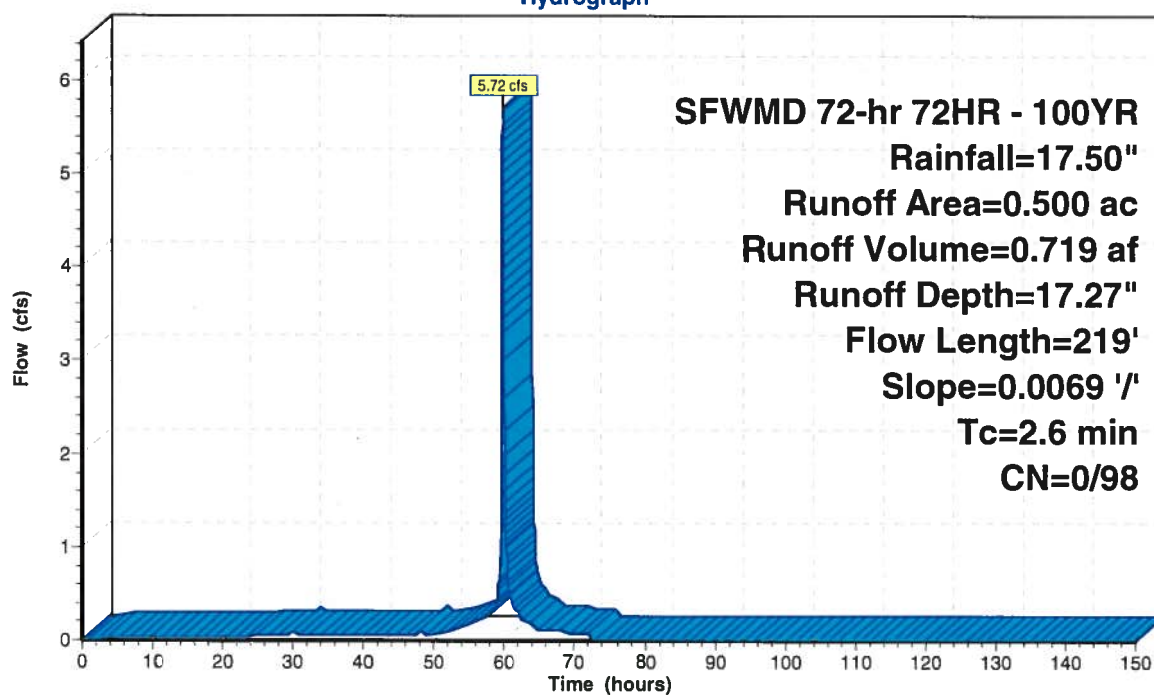
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.500	98	Paved parking & roofs
0.500	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	219	0.0069	1.43		Sheet Flow, OVERLAND TO SB-1H Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 14S: SB-1K

Hydrograph



Subcatchment 22S: SB-2A

NOTE LINE ITEM 3 IS SOUTH DRY DETENTION POND AREA.

Runoff = 110.36 cfs @ 59.86 hrs, Volume= 17.182 af, Depth=17.20"

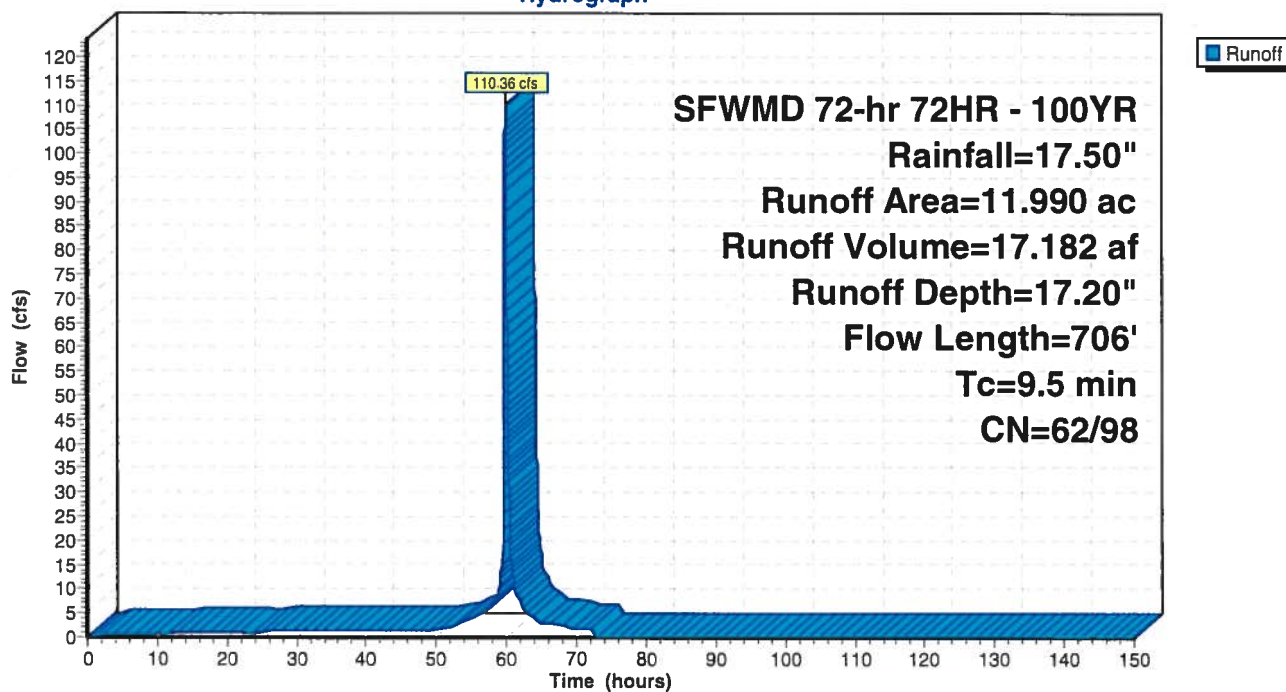
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
10.290	98	Paved parking & roofs
1.180	100	DETENTION POND
0.040	98	Paved parking & roofs
0.480	88	Urban industrial, 72% imp, HSG B
11.990	98	Weighted Average
0.134	62	Pervious Area
11.856	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	14	0.0141	1.10		Sheet Flow, OVERLAND FROM ROAD Smooth surfaces n= 0.011 P2= 5.90"
3.0	286	0.0077	1.57		Sheet Flow, OVERLAND TO SCF Smooth surfaces n= 0.011 P2= 5.90"
6.3	406	0.0044	1.07		Shallow Concentrated Flow, SCF TO POND Unpaved Kv= 16.1 fps
9.5	706	Total			

Subcatchment 22S: SB-2A

Hydrograph



Subcatchment 23S: SB-2B

Runoff = 9.16 cfs @ 59.82 hrs, Volume= 1.056 af, Depth=13.07"

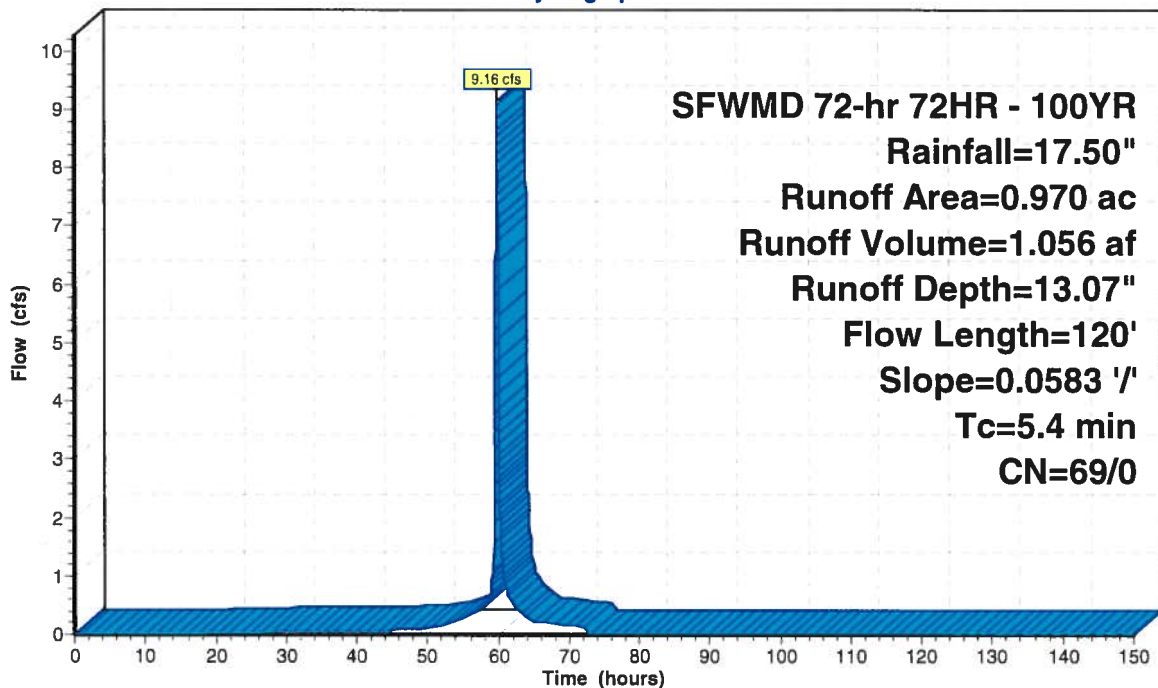
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.970	69	50-75% Grass cover, Fair, HSG B
0.970	69	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	120	0.0583	0.37		Sheet Flow, OVERLAND TO SOUTH CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 23S: SB-2B

Hydrograph



Subcatchment 25S: B-4

Runoff = 3.74 cfs @ 59.77 hrs, Volume= 0.369 af, Depth=11.64"

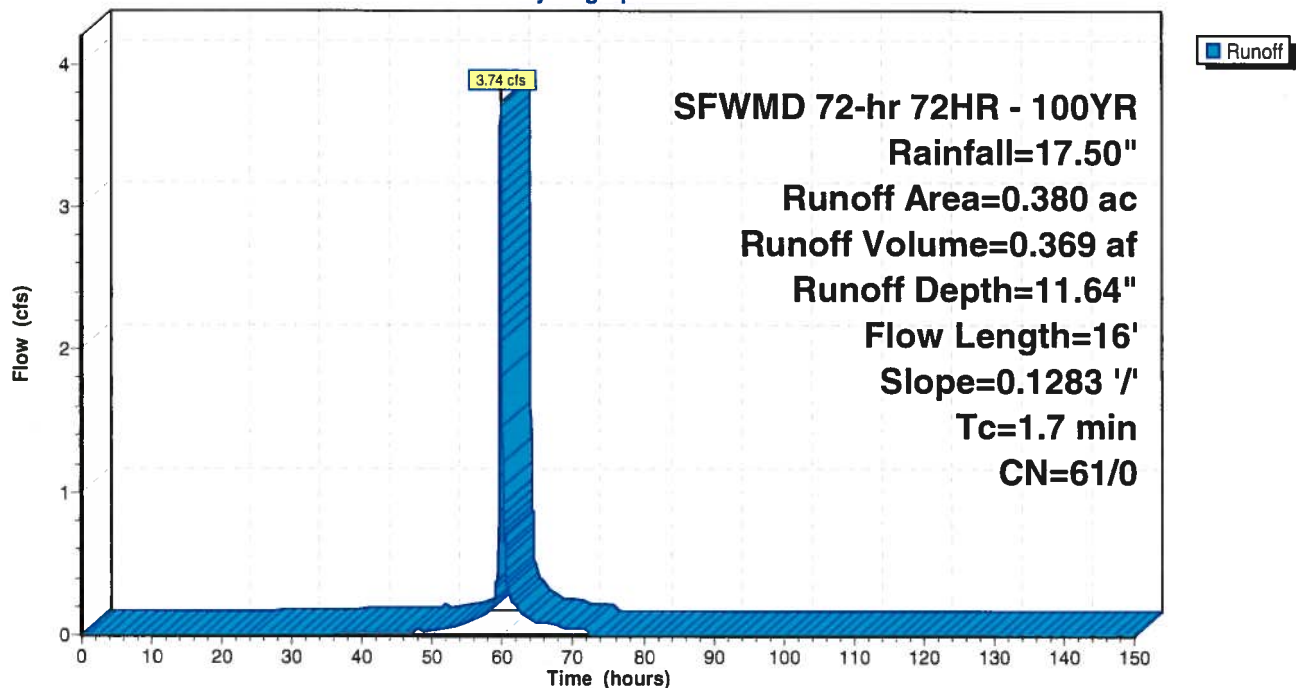
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.380	61	>75% Grass cover, Good, HSG B
0.380	61	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	16	0.1283	0.15		Sheet Flow, OVERLAND TO NORTH CANAL Woods: Light underbrush n= 0.400 P2= 5.90"

Subcatchment 25S: B-4

Hydrograph



Subcatchment 26S: OSB-2A

Runoff = 9.12 cfs @ 59.90 hrs, Volume= 1.534 af, Depth=15.74"

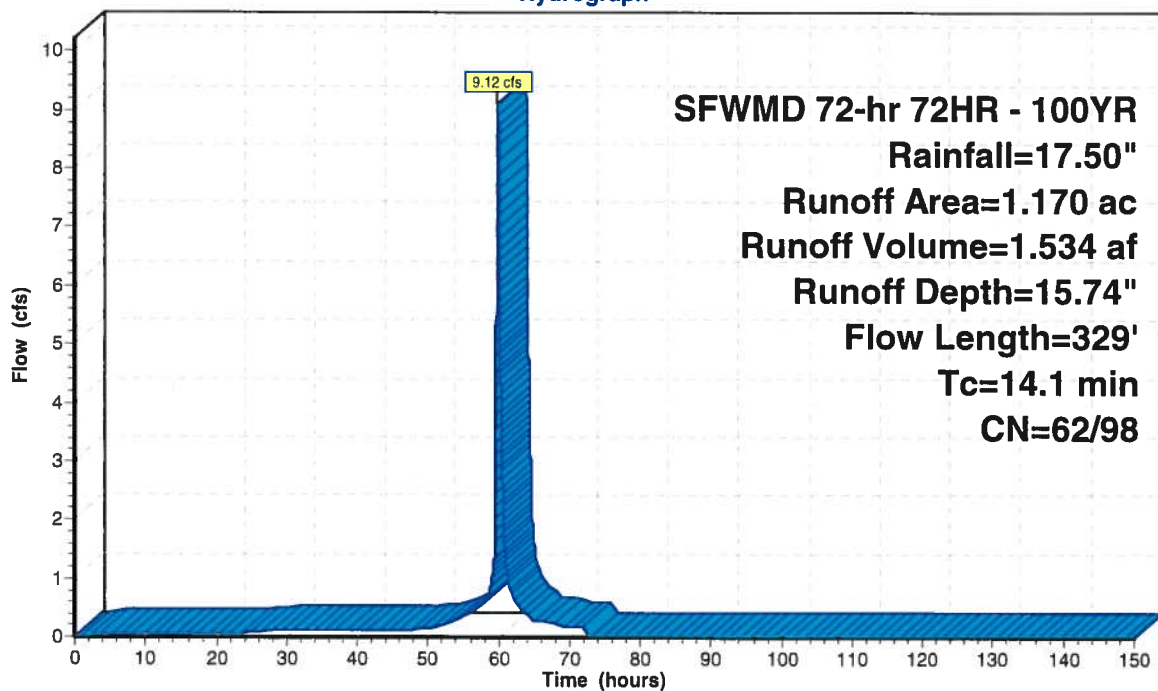
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.170	88	Urban industrial, 72% imp, HSG B
0.328	62	Pervious Area
0.842	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0040	0.36		Sheet Flow, OVERLAND TO SCF Fallow n= 0.050 P2= 5.90"
0.4	29	0.0069	1.25		Shallow Concentrated Flow, SCF TO SB-2A Grassed Waterway Kv= 15.0 fps
14.1	329	Total			

Subcatchment 26S: OSB-2A

Hydrograph



Subcatchment 31S: SB-1I

Runoff = 3.51 cfs @ 59.77 hrs, Volume= 0.432 af, Depth=17.27"

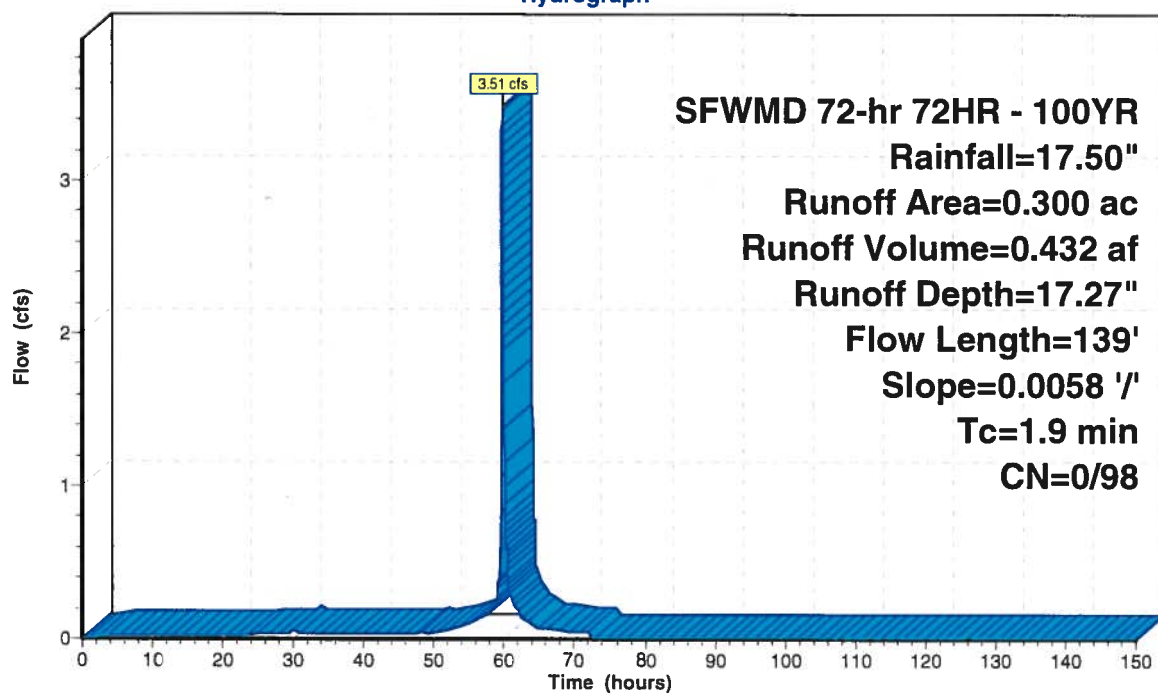
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.300	98	Paved parking & roofs
0.300	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	139	0.0058	1.22		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 31S: SB-1I

Hydrograph



Subcatchment 33S: SB-1J

Runoff = 9.15 cfs @ 59.76 hrs, Volume= 1.079 af, Depth=17.27"

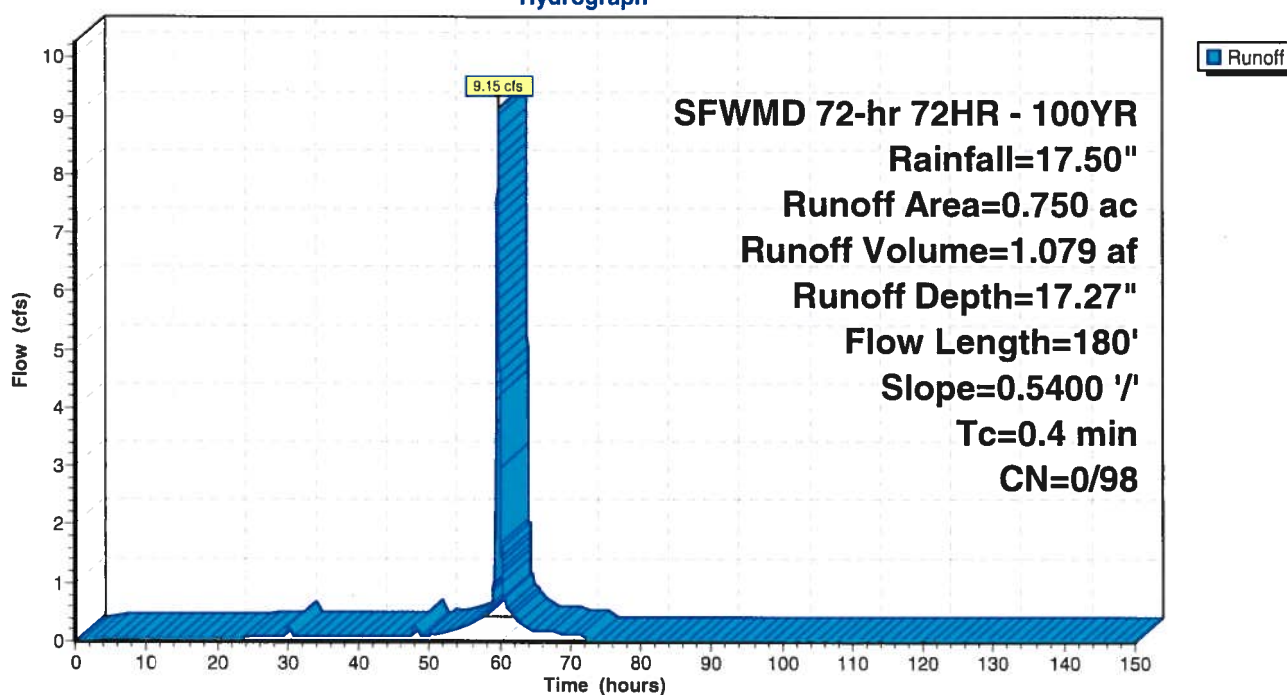
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.750	98	Paved parking & roofs
0.750	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	180	0.5400	7.85		Sheet Flow, Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 33S: SB-1J

Hydrograph



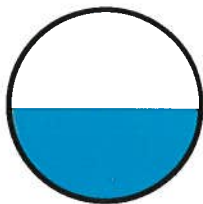
Reach 33R: Basin 1 Outfall

Inflow Area = 31.740 ac, Inflow Depth = 12.10" for 72HR - 100YR event
 Inflow = 115.55 cfs @ 60.09 hrs, Volume= 32.010 af
 Outflow = 115.54 cfs @ 60.10 hrs, Volume= 32.010 af, Atten= 0%, Lag= 0.3 min

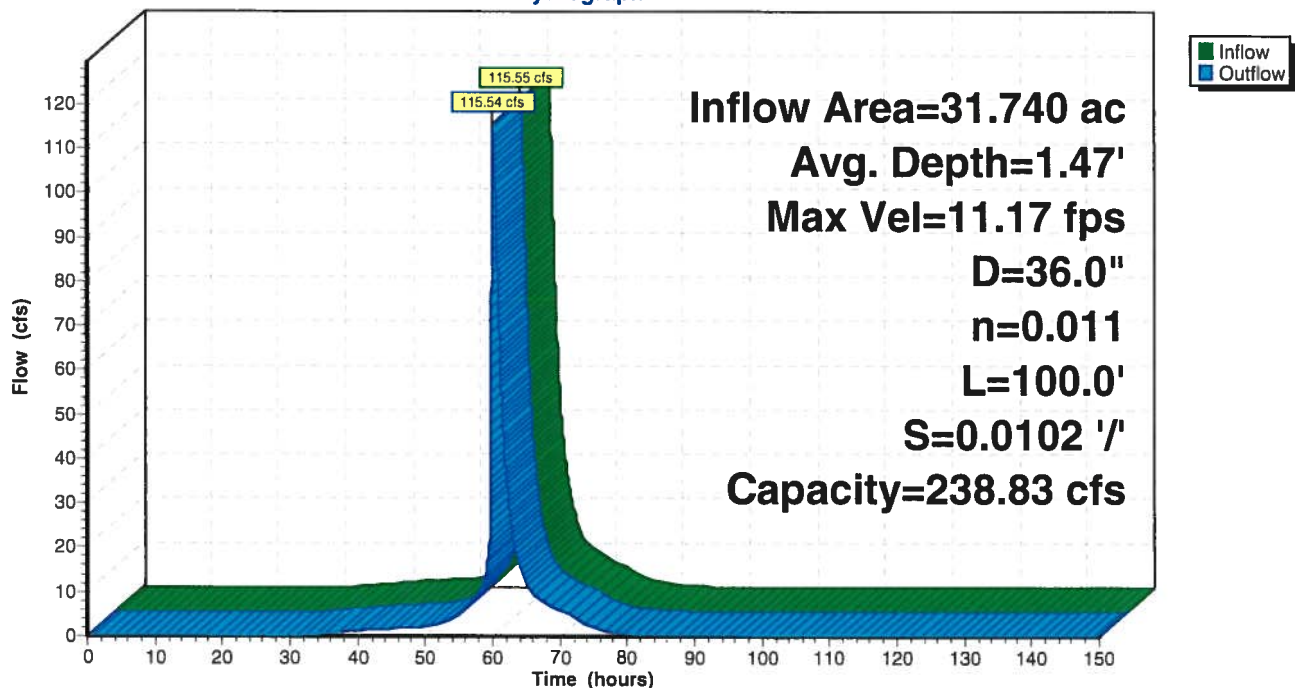
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Max. Velocity= 11.17 fps, Min. Travel Time= 0.1 min
 Avg. Velocity= 3.32 fps, Avg. Travel Time= 0.5 min

Peak Storage= 1,034 cf @ 60.10 hrs, Average Depth at Peak Storage= 1.47'
 Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.83 cfs

A factor of 3.00 has been applied to the storage and discharge capacity
 36.0" Diameter Pipe, n= 0.011 Concrete pipe, straight & clean
 Length= 100.0' Slope= 0.0102 '/'
 Inlet Invert= 3.10', Outlet Invert= 2.08'

**Reach 33R: Basin 1 Outfall**

Hydrograph



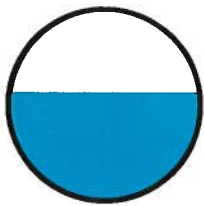
Reach 35R: Basin 2 Outfall

Inflow Area = 13.160 ac, Inflow Depth = 13.74" for 72HR - 100YR event
 Inflow = 87.47 cfs @ 60.04 hrs, Volume= 15.066 af
 Outflow = 87.45 cfs @ 60.05 hrs, Volume= 15.066 af, Atten= 0%, Lag= 0.4 min

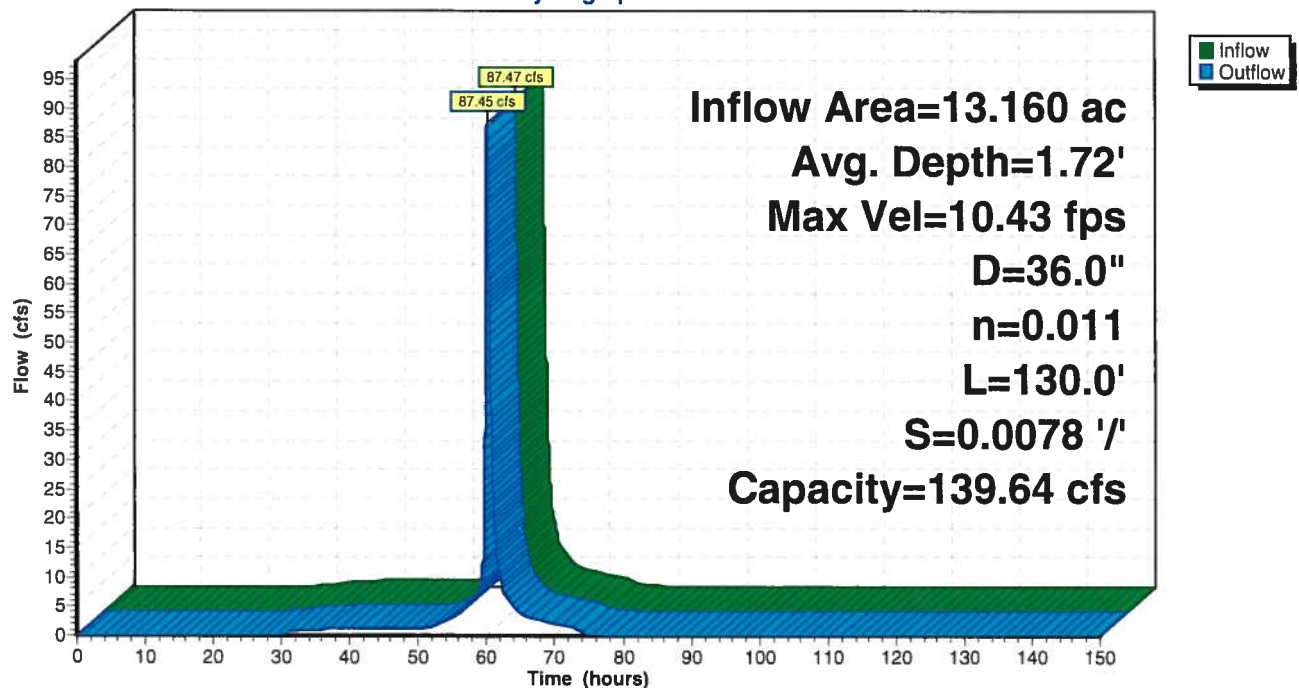
Routing by Stor-Ind+Trans method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Max. Velocity= 10.43 fps, Min. Travel Time= 0.2 min
 Avg. Velocity = 3.09 fps, Avg. Travel Time= 0.7 min

Peak Storage= 1,090 cf @ 60.04 hrs, Average Depth at Peak Storage= 1.72'
 Bank-Full Depth= 3.00', Capacity at Bank-Full= 139.64 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
 36.0" Diameter Pipe, n= 0.011 Concrete pipe, straight & clean
 Length= 130.0' Slope= 0.0078 '/'
 Inlet Invert= 3.10', Outlet Invert= 2.08'

**Reach 35R: Basin 2 Outfall**

Hydrograph



Pond 10P: BASIN 1 DRY DETENTION POND

Inflow Area = 31.740 ac, Inflow Depth = 15.69" for 72HR - 100YR event
 Inflow = 295.82 cfs @ 59.81 hrs, Volume= 41.497 af
 Outflow = 117.21 cfs @ 60.09 hrs, Volume= 40.815 af, Atten= 60%, Lag= 16.9 min
 Primary = 115.55 cfs @ 60.09 hrs, Volume= 32.010 af
 Secondary = 1.66 cfs @ 60.09 hrs, Volume= 8.805 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.71' @ 60.09 hrs Surf.Area= 3.153 ac Storage= 15.395 af

Plug-Flow detention time= 636.7 min calculated for 40.815 af (98% of inflow)
 Center-of-Mass det. time= 618.4 min (3,799.1 - 3,180.7)

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	16.331 af	190.00'W x 540.00'L x 5.90'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	6.10'	6.0' long x 2.90' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.0' Crest Height
#2	Primary	4.30'	100.0 deg x 1.80' rise Sharp-Crested Vee/Trap Weir C= 2.49
#3	Secondary	3.10'	3.0" Vert. Orifice/Grate X 3.00 C= 0.600

Primary OutFlow Max=115.54 cfs @ 60.09 hrs HW=8.71' TW=3.10' (Fixed TW Elev= 3.10')

1=Sharp-Crested Rectangular Weir (Weir Controls 83.33 cfs @ 5.84 fps)

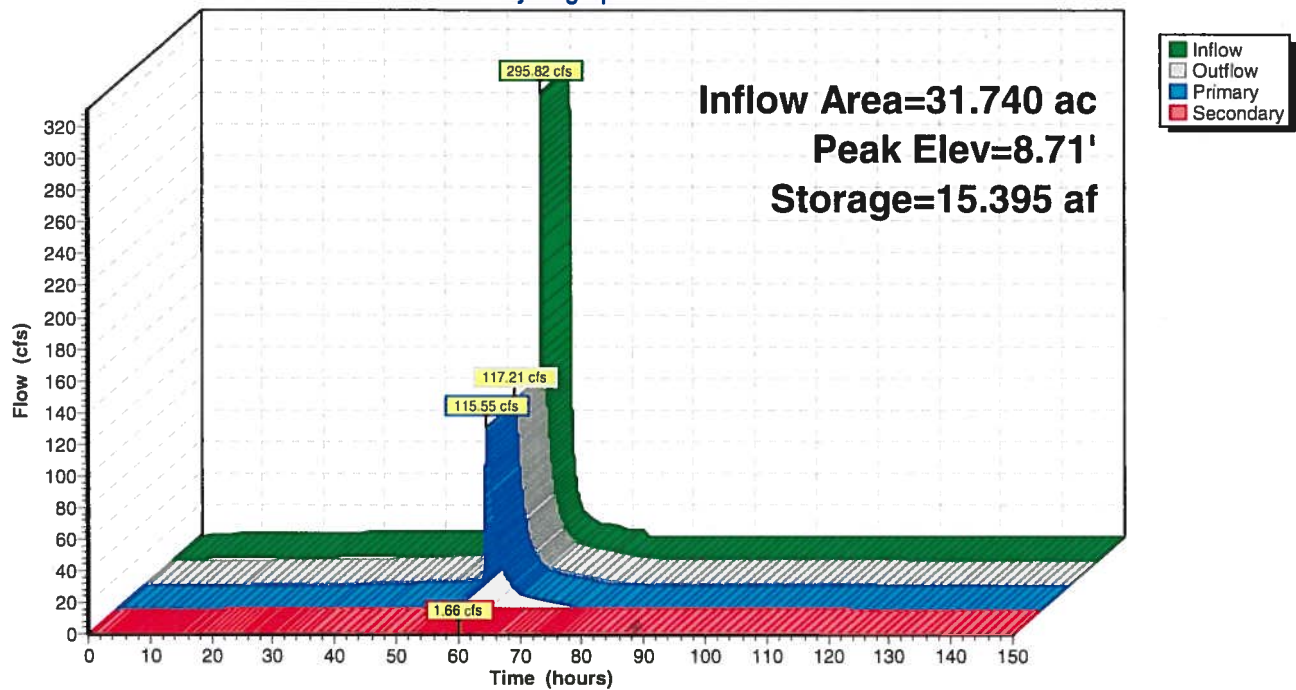
2=Sharp-Crested Vee/Trap Weir (Orifice Controls 32.20 cfs @ 8.34 fps)

Secondary OutFlow Max=1.66 cfs @ 60.09 hrs HW=8.71' TW=3.10' (Fixed TW Elev= 3.10')

3=Orifice/Grate (Orifice Controls 1.66 cfs @ 11.27 fps)

Pond 10P: BASIN 1 DRY DETENTION POND

Hydrograph



Pond 24P: BASIN 2 DRY DETENTION POND

Inflow Area = 13.160 ac, Inflow Depth = 17.07" for 72HR - 100YR event
 Inflow = 119.37 cfs @ 59.86 hrs, Volume= 18.716 af
 Outflow = 87.98 cfs @ 60.04 hrs, Volume= 18.394 af, Atten= 26%, Lag= 10.5 min
 Primary = 87.47 cfs @ 60.04 hrs, Volume= 15.066 af
 Secondary = 0.51 cfs @ 60.04 hrs, Volume= 3.328 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Peak Elev= 7.94' @ 60.04 hrs Surf.Area= 1.141 ac Storage= 4.574 af

Plug-Flow detention time= 556.4 min calculated for 18.394 af (98% of inflow)
 Center-of-Mass det. time= 536.0 min (3,649.9 - 3,113.9)

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	5.228 af	125.00'W x 265.00'L x 5.40'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	6.00'	8.0' long x 2.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.9' Crest Height
#2	Primary	4.90'	120.0 deg x 1.10' rise Sharp-Crested Vee/Trap Weir C= 2.48
#3	Secondary	3.10'	3.0" Vert. Orifice/Grate C= 0.600

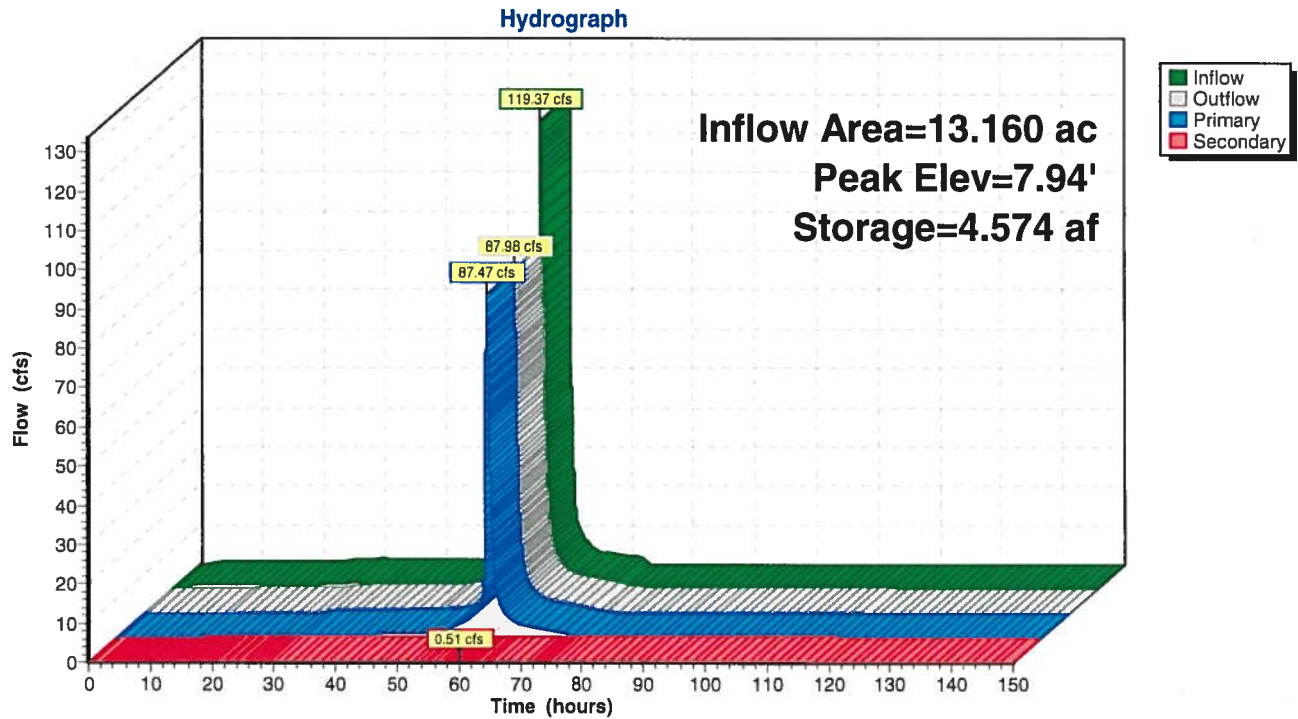
Primary OutFlow Max=87.46 cfs @ 60.04 hrs HW=7.94' TW=2.08' (Fixed TW Elev= 2.08')

1=Sharp-Crested Rectangular Weir (Weir Controls 72.69 cfs @ 4.93 fps)

2=Sharp-Crested Vee/Trap Weir (Orifice Controls 14.77 cfs @ 7.05 fps)

Secondary OutFlow Max=0.51 cfs @ 60.04 hrs HW=7.94' TW=2.08' (Fixed TW Elev= 2.08')

3=Orifice/Grate (Orifice Controls 0.51 cfs @ 10.45 fps)

Pond 24P: BASIN 2 DRY DETENTION POND

Pond 33P: BASIN 1 POND BLEEDER DISCHARGE VOLUME

NODE USED TO DETERMINE THE VOLUME OF DISCHARGE IN A 24 HOUR PERIOD THROUGH A BLEED DOWN ORIFICE.

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.74 cfs @ 0.00 hrs, Volume= 2.830 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.74 cfs @ 0.00 hrs, Volume= 2.830 af

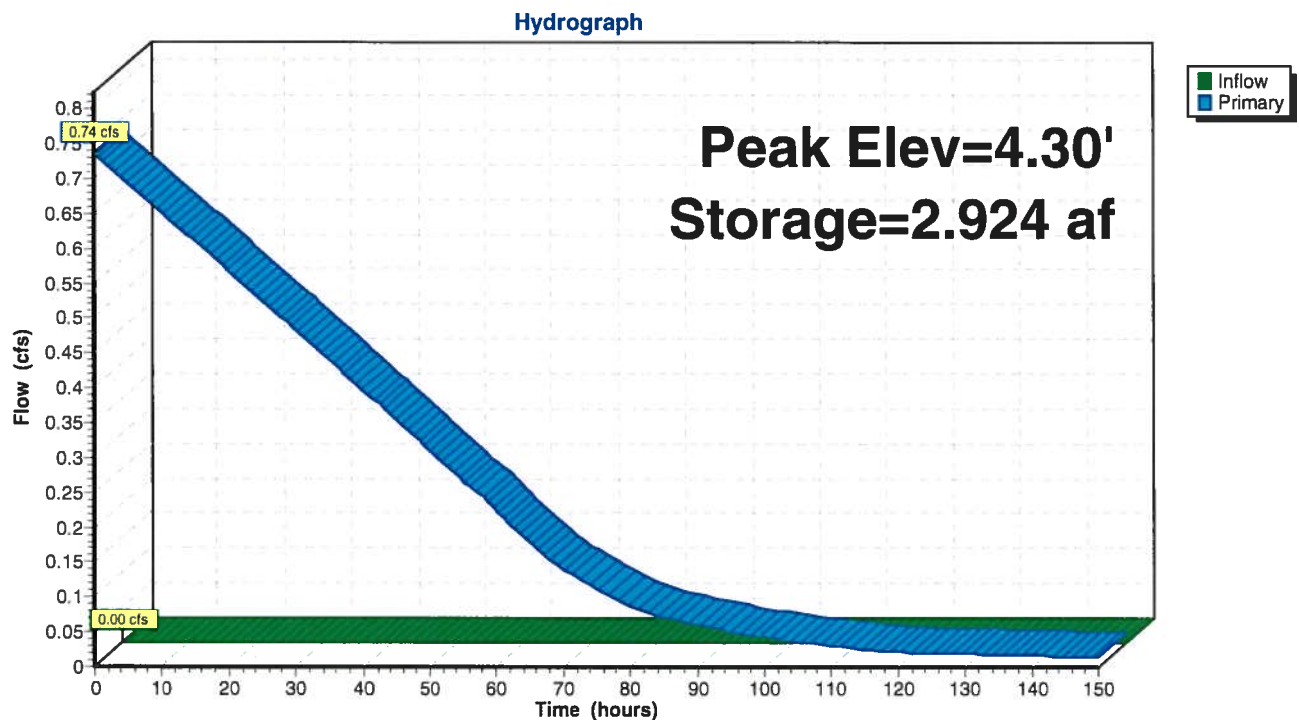
Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs
 Starting Elev= 4.30' Surf.Area= 2.518 ac Storage= 2.924 af
 Peak Elev= 4.30' @ 0.00 hrs Surf.Area= 2.518 ac Storage= 2.924 af

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

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	16.331 af	190.00'W x 540.00'L x 5.90'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	3.10'	3.0" Vert. Orifice/Grate X 3.00 C= 0.600

Primary OutFlow Max=0.74 cfs @ 0.00 hrs HW=4.30' TW=2.08' (Fixed TW Elev= 2.08')
 1=Orifice/Grate (Orifice Controls 0.74 cfs @ 4.99 fps)

Pond 33P: BASIN 1 POND BLEEDER DISCHARGE VOLUME

Pond 34P: BASIN 2 POND BLEEDER DISCHARGE VOLUME

THIS NODE IS USED TO DETERMINE DISCHARGE VOLUMES IN A 24 HOUR PERIOD THROUGH A BLEEDER ORIFICE.

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.31 cfs @ 0.00 hrs, Volume= 1.448 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 0.00 hrs, Volume= 1.448 af

Routing by Stor-Ind method, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Starting Elev= 4.90' Surf.Area= 0.894 ac Storage= 1.488 af

Peak Elev= 4.90' @ 0.00 hrs Surf.Area= 0.894 ac Storage= 1.488 af

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

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

Volume	Invert	Avail.Storage	Storage Description
#1	3.10'	5.228 af	125.00'W x 265.00'L x 5.40'H Prismatic Z=4.0

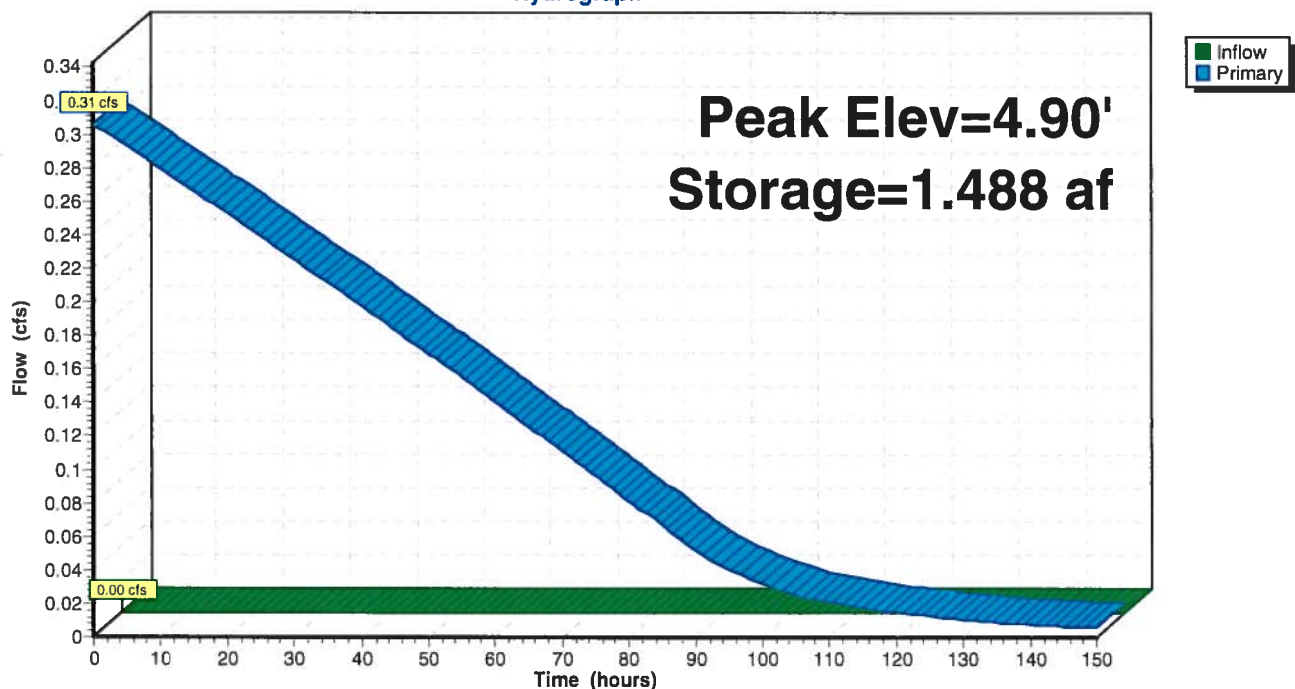
Device	Routing	Invert	Outlet Devices
#1	Primary	3.10'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.31 cfs @ 0.00 hrs HW=4.90' TW=2.08' (Fixed TW Elev= 2.08')

1=Orifice/Grate (Orifice Controls 0.31 cfs @ 6.23 fps)

Pond 34P: BASIN 2 POND BLEEDER DISCHARGE VOLUME

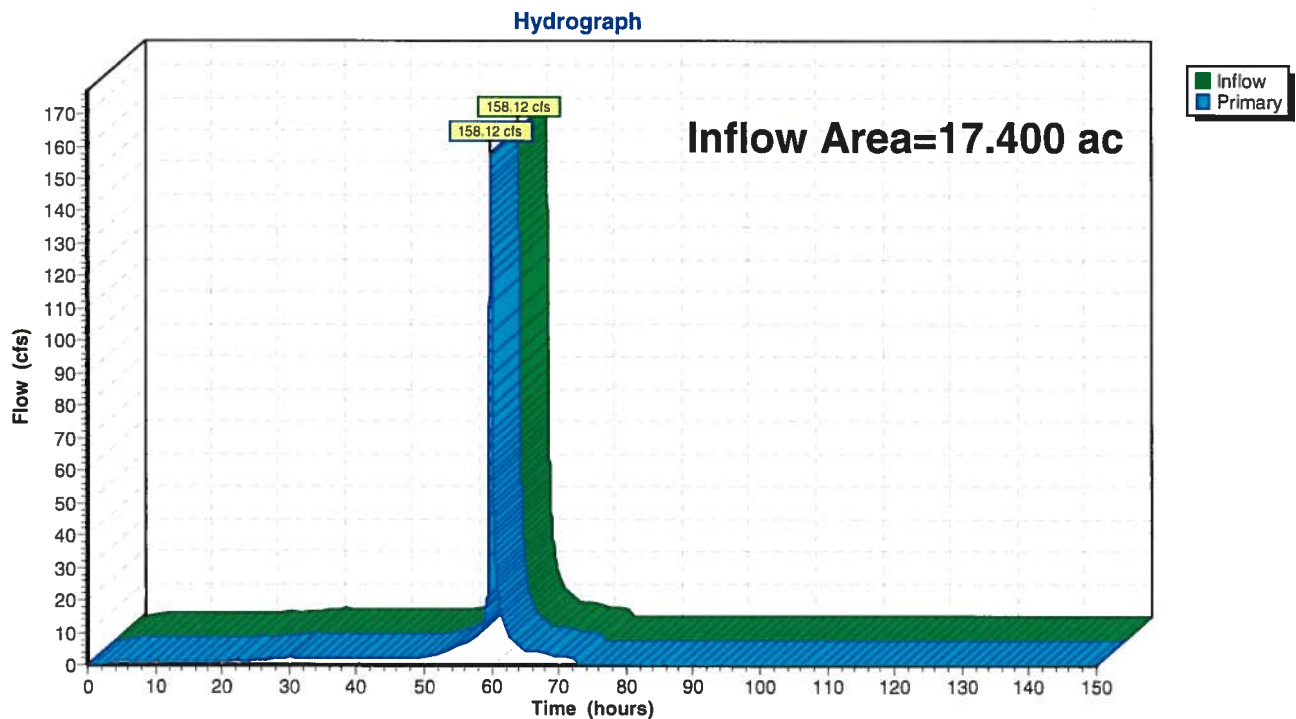
Hydrograph



Link 15L: B-1 INLETS COMBINED

Inflow Area = 17.400 ac, Inflow Depth = 17.22" for 72HR - 100YR event
Inflow = 158.12 cfs @ 59.81 hrs, Volume= 24.968 af
Primary = 158.12 cfs @ 59.81 hrs, Volume= 24.968 af, Atten= 0%, Lag= 0.0 min

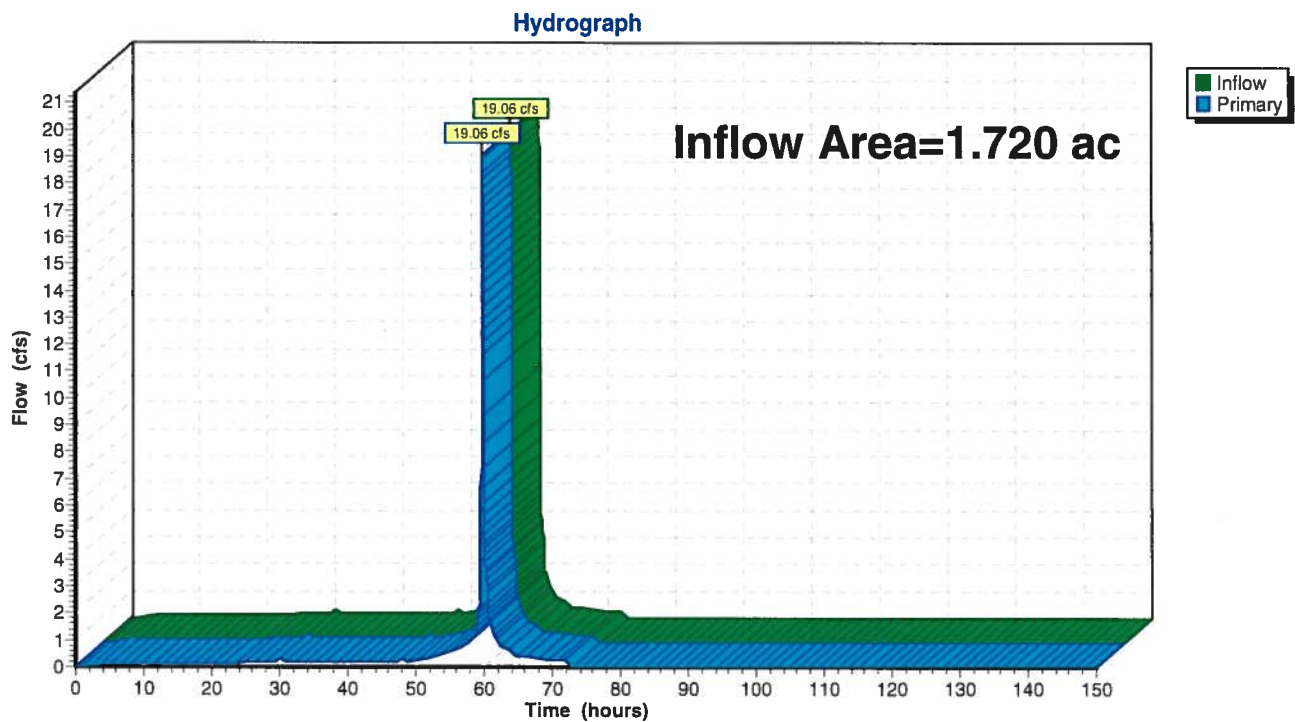
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 15L: B-1 INLETS COMBINED

Link 16L: SB-1G OSB-1B COMBINED

Inflow Area = 1.720 ac, Inflow Depth = 16.84" for 72HR - 100YR event
Inflow = 19.06 cfs @ 59.79 hrs, Volume= 2.414 af
Primary = 19.06 cfs @ 59.79 hrs, Volume= 2.414 af, Atten= 0%, Lag= 0.0 min

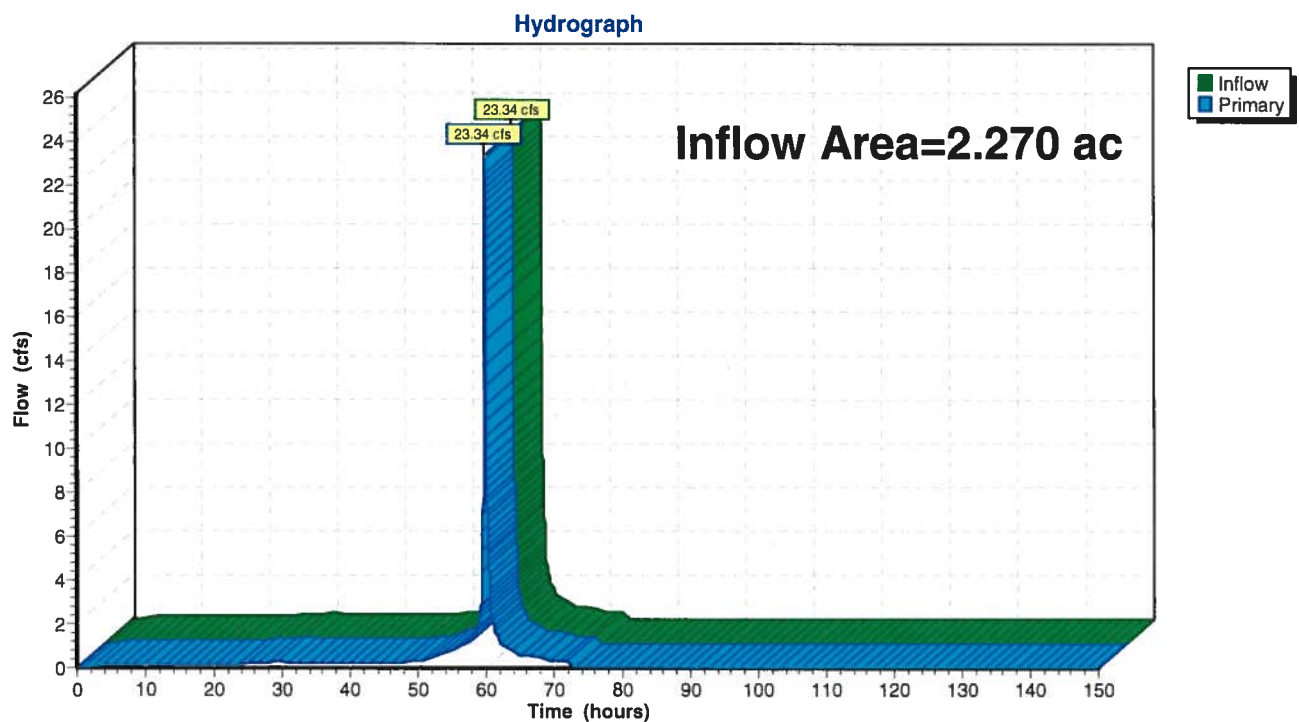
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 16L: SB-1G OSB-1B COMBINED

Link 17L: SB-1H SB-1K COMBINED

Inflow Area = 2.270 ac, Inflow Depth = 17.26" for 72HR - 100YR event
Inflow = 23.34 cfs @ 59.81 hrs, Volume= 3.265 af
Primary = 23.34 cfs @ 59.81 hrs, Volume= 3.265 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 17L: SB-1H SB-1K COMBINED

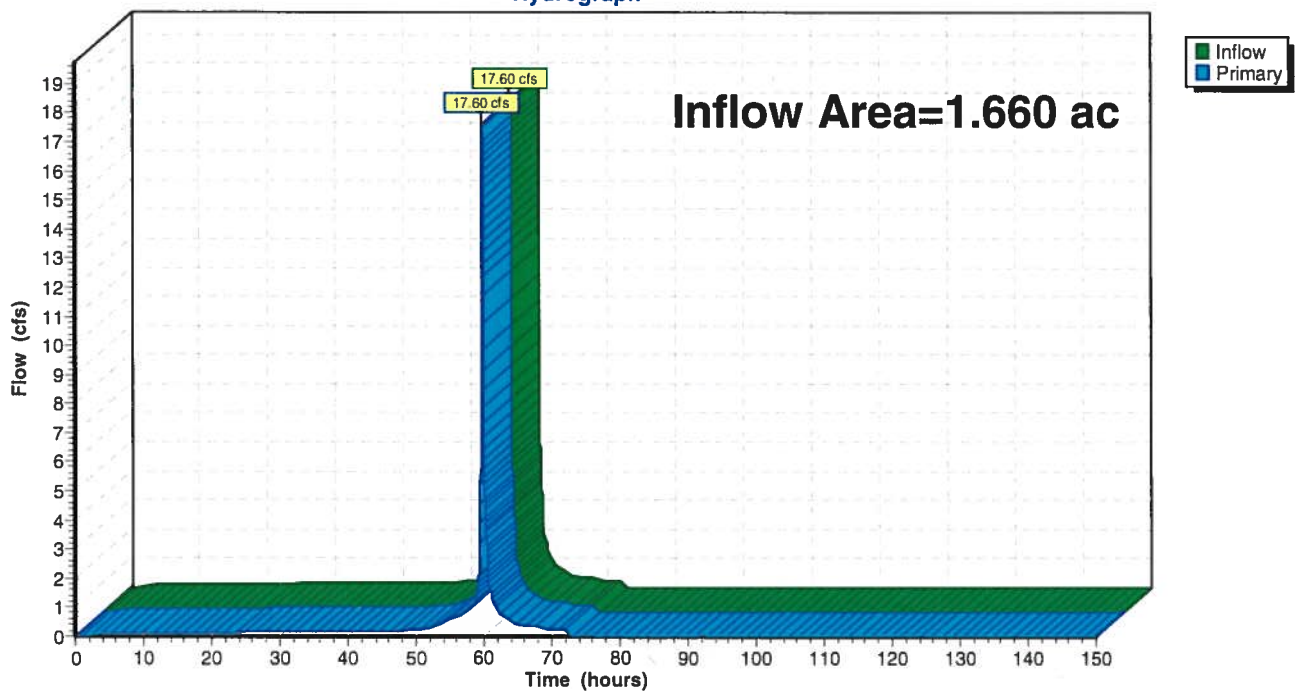
Link 18L: OSB-1 INLETS COMBINED

Inflow Area = 1.660 ac, Inflow Depth = 17.26" for 72HR - 100YR event
Inflow = 17.60 cfs @ 59.81 hrs, Volume= 2.388 af
Primary = 17.60 cfs @ 59.81 hrs, Volume= 2.388 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 18L: OSB-1 INLETS COMBINED

Hydrograph



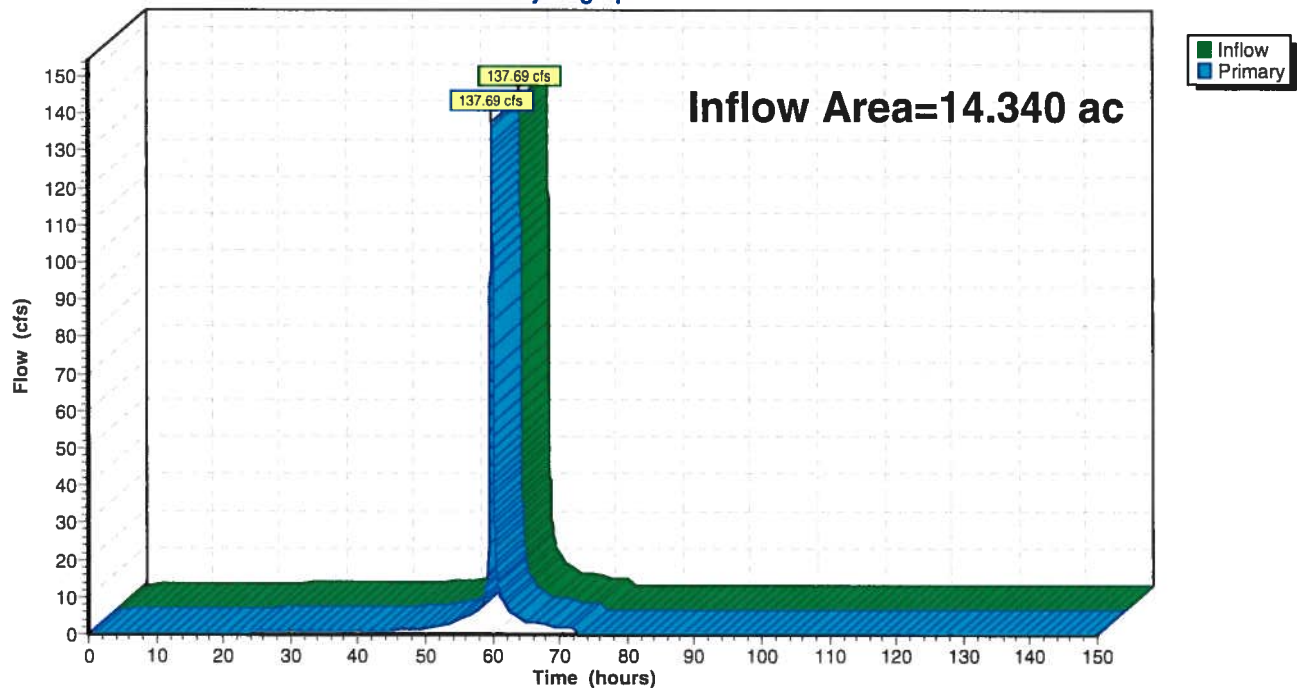
Link 19L: B-1 OVERLAND TO POND

Inflow Area = 14.340 ac, Inflow Depth = 13.83" for 72HR - 100YR event
Inflow = 137.69 cfs @ 59.81 hrs, Volume= 16.529 af
Primary = 137.69 cfs @ 59.81 hrs, Volume= 16.529 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 19L: B-1 OVERLAND TO POND

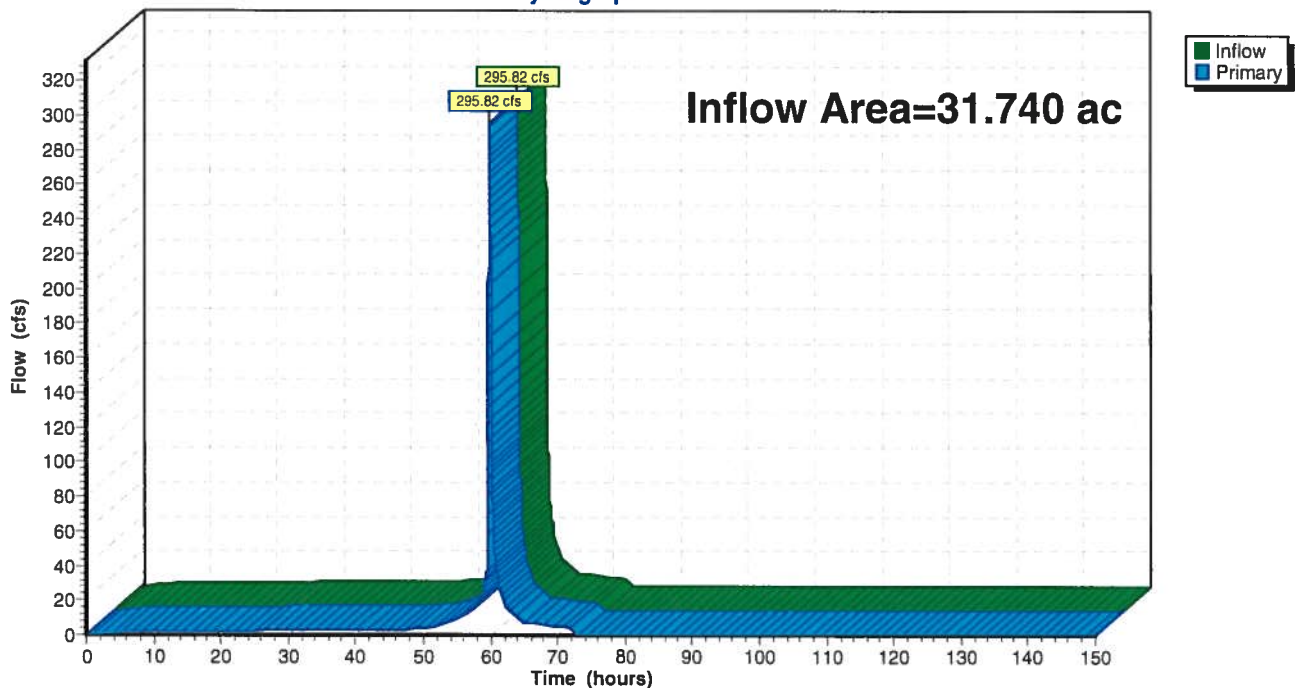
Hydrograph



Link 20L: B-1 COMBINED TO POND

Inflow Area = 31.740 ac, Inflow Depth = 15.69" for 72HR - 100YR event
Inflow = 295.82 cfs @ 59.81 hrs, Volume= 41.497 af
Primary = 295.82 cfs @ 59.81 hrs, Volume= 41.497 af, Atten= 0%, Lag= 0.0 min

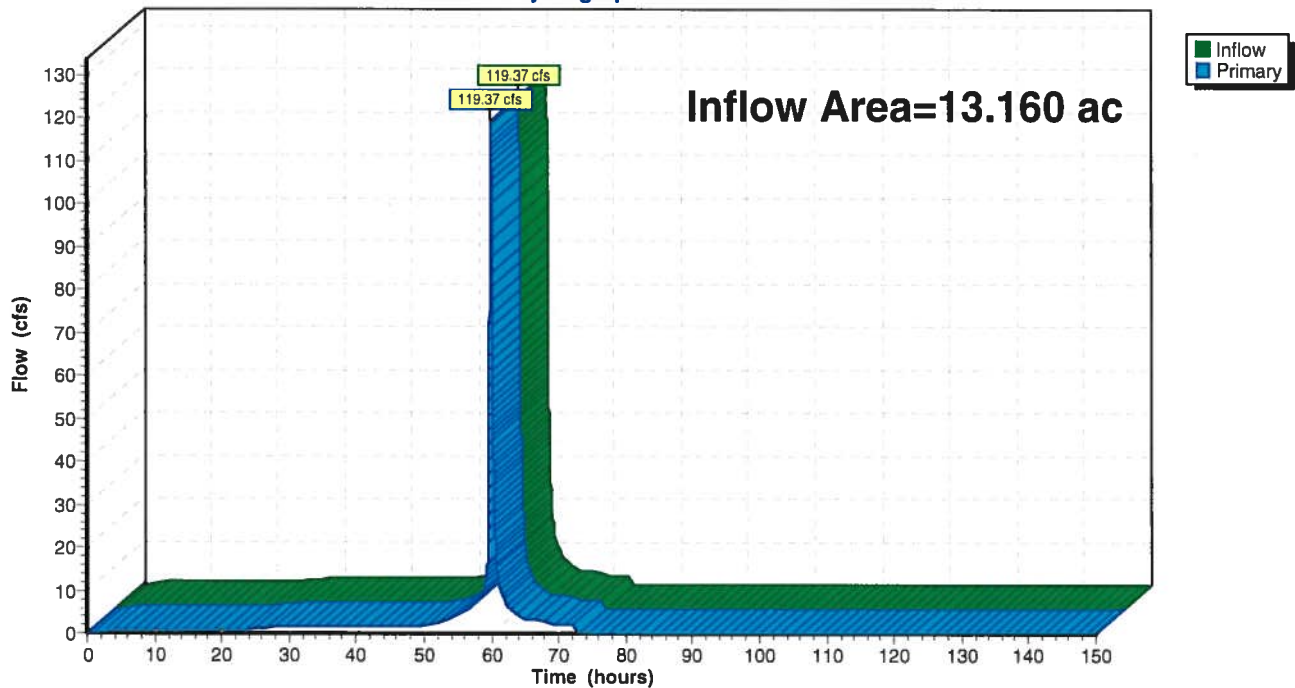
Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Link 20L: B-1 COMBINED TO POND**Hydrograph**

Link 29L: SB-2A OSB-2A COMBINED TO POND

Inflow Area = 13.160 ac, Inflow Depth = 17.07" for 72HR - 100YR event
Inflow = 119.37 cfs @ 59.86 hrs, Volume= 18.716 af
Primary = 119.37 cfs @ 59.86 hrs, Volume= 18.716 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

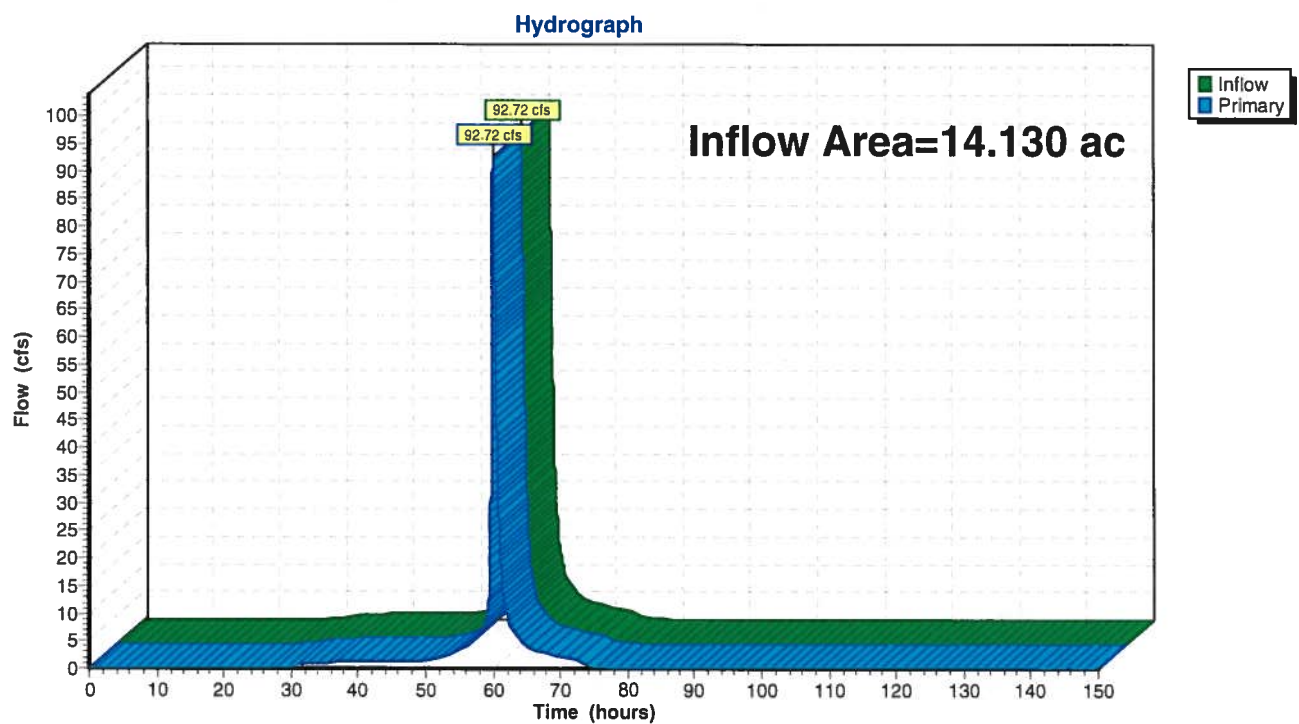
Link 29L: SB-2A OSB-2A COMBINED TO POND**Hydrograph**

Link 30L: DISCHARGE TO SOUTH CANAL

Inflow Area = 14.130 ac, Inflow Depth = 13.69" for 72HR - 100YR event
Inflow = 92.72 cfs @ 60.02 hrs, Volume= 16.122 af
Primary = 92.72 cfs @ 60.02 hrs, Volume= 16.122 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Fixed water surface Elevation= 2.08'

Link 30L: DISCHARGE TO SOUTH CANAL

Link 32L: NORTH CANAL DISCHARGE

Inflow Area = 32.120 ac, Inflow Depth = 12.10" for 72HR - 100YR event
Inflow = 116.24 cfs @ 60.10 hrs, Volume= 32.378 af
Primary = 116.24 cfs @ 60.10 hrs, Volume= 32.378 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-150.00 hrs, dt= 0.01 hrs

Fixed water surface Elevation= 2.08'

Link 32L: NORTH CANAL DISCHARGE

Hydrograph

