

Client Name: FPL Page 1 of 126Project Name: PORT EVERGLADES MODERNIZATION Project No.: 174101Calculation Title: PRE-DEVELOPMENT STORM WATER ANALYSISCalculation No./File No.: 52.5406.1101.01Verification Method: ☒ Check and Review ☐ Alternate Calculations

Objective THE OBJECTIVE IS TO DETERMINE EXISTING SITE MAXIMUM STORM WATER RUNOFF DISCHARGE RATES IN ORDER TO DETERMINE THE MAXIMUM ALLOWABLE POST-DEVELOPMENT STORM WATER DISCHARGE RATES TO MEET THE REQUIREMENTS OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Unverified Assumptions Requiring Subsequent Verification

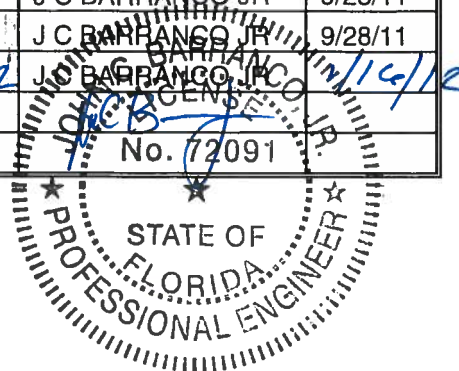
No.	Assumption	Verified By	Date
NA	NONE	NA	NA

Refer to Page NA of this calculation for additional assumptions.**This Section Used for Software-Generated Calculations**Program Name/Number: TRIMBLE TERRAMODEL; HYDROCAD Version: 10.43; 8.00Standard 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
1	D L WILLIAMS	9/28/11	J C BARRANCO JR	9/28/11	J C BARRANCO JR	9/28/11
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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 determine pre-development site storm water conditions at the Port Everglades Plant to include drainage basins and discharge rates.

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

3.0 Conclusions

The existing conditions of the site have been analyzed including site topography, existing storm water systems, site layout, and storm water runoff discharge methods:

ALLOWABLE DISCHARGE RATES			
LOCATION	STORM EVENT	RAINFALL DEPTH (in)	DISCHARGE (cfs)
SOUTH CANAL	72-HR / 25-YR	14.3	220.36
NORTH CANAL	72-HR / 25-YR	14.3	98.21
TOTAL	72-HR / 25-YR	14.3	318.57

4.0 Design Methodology

The existing site conditions were determined from an aerial survey of the site (REF 2 & 3), current aerial photography, and a site walkdown. Pre-development drainage basins were mapped in Terramodel (REF 9) to determine basin areas. These areas and the corresponding National Resources Conservation Service (NRCS) curve numbers were input into HydroCAD (REF 10) to determine the existing site maximum storm water discharge rate for a 72hr-25yr storm event (REF 1, Surface Water Management Design Aides).

5.0 Assumptions

NONE



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6.0 Definitions of Units and Constants

Area_{SWMS} := 57.04acre

Area covered by Site Certification Boundary

Area_{Water} := 13.65acre

Area of water surface onsite

CN = NRCS Curve Number



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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.



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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.

Pre-Development Site Conditions

Site Description:

The site certification boundary encloses an area of 57.04 acres in Port Everglades, FL. Historically the site has been the location of Florida Power & Light Company's (FPL) Port Everglades Plant. The site is bordered by canals which connect to the intracoastal waterway to the north and south, Eisenhower Boulevard to the east, and SE 14th Avenue to the west.

The existing site currently has a storm water management system (SWMS) that consists of inlets which collect runoff from the power block and immediately surrounding areas, the north tank farm, and offsite locations (REF 4, 5, 6, & 7). There are two neutralization basins (0.25 acres), and one blowdown recovery basin (0.10 acres) which do not contribute to runoff. The remaining portions of the site discharge via overland flow to the north (intake canal) and south canals (discharge canal), Eisenhower Boulevard., and SE 14th Avenue

The total onsite area which contributes runoff to the site storm water system discharge is approximately 39.79 acres. Basins 3 (2.27 acres) and 4 (0.67 acres) contribute runoff to offsite discharge, however these basins do not contribute runoff to the site storm water system. The areas which do not contribute to onsite runoff include the north and south canals (13.65 acres), neutralization and blowdown recovery basins (0.35 acres), a portion of a switchyard along the south canal (1.17 acres), and a portion of the certification boundary which includes Eisenhower Boulevard and the adjacent docking facility (0.31 acres) which discharges to an offsite SWMS. (Appendix 3)

There are approximately 3.17 acres of offsite areas which discharge runoff into the site and thus contribute to the total site storm water discharge. These areas include 1.17 acres along the eastern border of the site which contributes to the south canal discharge, and 2.00 acres to the north of the power block area which contributes runoff to the onsite and SE 14th Avenue SWMS.

The existing site has been divided into four basins according to common discharge methods and areas which do not contribute to the site runoff.



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Basin Descriptions

Basin 1:

Basin 1 is composed of the areas which collectively discharge to the south canal. The discharge methods include direct canal discharge via overland flow and discharge via the SWMS. The basin is composed of 27.14 acres of onsite areas which contribute to site runoff, 7.09 acres of the south canal, and 3.17 acres of offsite areas which contribute to runoff.

This basin has been further divided into ten onsite sub-basins and five offsite sub-basins. Of the ten onsite sub-basins nine contribute to onsite runoff (SB-1A through SB-1I) while the tenth (SB-1CANAL) is the south canal. Sub-basins were divided according to existing grade elevations and common discharge methods.

Both onsite and offsite sub-basins for basin 1 are summarized in Table 2 below. This table lists the the basin identifier, area in acres, maximum and minimum sub-basin elevations and the average grade slope for the sub-basin.

Table 2

Pre-Development Basin 1 Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
SB-1A	1.64	88	9.5	7.0	1.04
SB-1B	10.33	89	14.0	0.7	1.57
SB-1C	1.02	88	12.5	8.0	9.29
SB-1D	1.08	98	16.5	13.3	0.86
SB-1E	1.33	96	14.3	12.5	1.23
SB-1F	7.98	98	18.7	16.1	-
SB-1G	1.17	94	15.7	13.4	1.17
SB-1H	0.53	98	18.9	14.5	2.79
SB-1I	2.06	93	14.1	12.5	0.44
SB-1CANAL	7.09	-	2.08	2.08	-
TOTAL	34.23	-	-	-	-
Offsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
OSB-1A	0.17	88	10.0	9.0	2.54
OSB-1B	1.00	88	10.7	9.3	0.43
OSB-1C	0.34	98	17.3	16.1	5.57
OSB-1D	0.54	98	14.7	13.5	-
OSB-1E	1.12	98	17.5	17.4	-
TOTAL	3.17	-	-	-	-
COMBINED NET	37.40				



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Three sub-basins discharge directly to the south canal via overland flow. These areas are SB-1A, SB-1B, and SB-1C. SB-1A is composed of 1.64 acres of grass covered open space and a building, and is located at the southeast corner of the site. SB-1B is 10.33 acres of partially impervious open space, parking area, buildings, and an aggregate access road, and is located adjacent to Eisenhower Blvd. and to the offsite tank farm. SB-1C is 1.02 acres composed of grass and concrete canal bank, and is located south of the power block.

The remaining six onsite sub-basins (SB-1D through SB-1I) collect runoff in local inlets which comprise a portion of the existing SWMS. The SWMS collects runoff from these areas and routes the water to a settling basin located offsite prior to discharge into the south canal (REF 5 & 6). SB-1D is 1.08 acres located along the southern border of the power block and contains a curbed asphalt road. SB-1E is 1.33 acres that contains asphalt driveway and is located at the southwest corner of the site adjacent to the power block. SB-1F is the power block equipment area located in the center of the site and covers 7.98 acres. Area SB-1G covers 1.17 acres at the northwest corner of the power block and contains buildings, asphalt driveway, and 0.13 acres of grassed open space. SB-1H is 0.53 acres located at the northeast corner of the power block and contains impervious open space and buildings. Area SB-1I covers 2.06 acres located south of the onsite tank farm and contains impervious open space and 1.11 acres of semi-pervious grassed open space. SB-1I is also the location of the blowdown recovery basin which does not contribute runoff and has been excluded from the sub-basin area.

The five offsite areas which contribute to the onsite runoff are sub-basins OSB-1A through OSB-1E. Sub-basin OSB-1A is 0.17 acres located east of SB-1A and consists of an aggregate access road and a portion of the offsite tank farm berm; this area discharges via overland flow into SB-1A. OSB-1B covers 1.00 acres of aggregate access road, a building, and a portion of the offsite tank farm berm; this basin discharges directly to SB-1B. OSB-1C is located near the northwest corner of the site, covers 0.34 acres of asphalt open space, and directly discharges into SB-1G. OSB-1D covers 0.54 acres of a curbed tank area northwest of the site and contributes runoff to the onsite SWMS via a local inlet. OSB-1E is the gas generator area located northwest of the site boundary, it covers 1.12 acres of impervious space, and discharges to the onsite SWMS via two local inlets. (REF 5)

Basin 2:

Basin 2 is composed of the areas which discharge to the north canal. The discharge methods include direct canal discharge via overland flow and discharge via the tank farm SWMS. The basin is composed of 12.65 acres of onsite area which contribute to site runoff and 6.56 acres of canal surface which are excluded from runoff analysis (REF 4).

This basin has been further divided into 4 onsite sub-basins. Basins SB-2A, SB-2B, and SB-2C contribute to onsite runoff. SB-2CANAL is the north canal and immediately adjacent banks which do not contribute to the onsite runoff.

Sub-basins for basin 2 are summarized in Table 3 below. This table lists the the basin identifier, area in acres, maximum and minimum sub-basin elevations and the average grade slope for the sub-basin.



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Table 3

Pre-Development Basin 2 Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
SB-2A	9.06	88	7.4	4.6	0.59
SB-2B	2.79	69	14.0	6.0	4.70
SB-2C	0.79	98	14.3	13.7	0.72
SB-2CANAL	6.56	-	2.08	2.08	-
TOTAL	19.21	-	-	-	-

The three sub-basins which contribute to site runoff all discharge to the north canal. SB-2A contains 9.06 acres which includes the the north tank farm from the midpoint of the berm inward. This area collects runoff in a local storm water inlet system before discharging to the canal. SB-2B includes 2.79 acres of land which comprises the site area which directly borders the north canal and is composed of primarily grassed open space and vegetative growth with a portion of the outer berm of the north tank farm; this area discharges via overland flow into the adjacent canal. SB-2C is 0.79 acres of impervious open space immediately north of the power block. This area also discharges to the north canal via overland flow.

Basin 3:

Basin 3 is made up of the areas which discharge to the SE 14th Avenue SWMS. The discharge method is via overland flow. The basin has been divided into 2.27 acres of onsite area. SB-3A includes 1.77 acres and SB-3B covers 0.50 acres. The basin generally slopes to the west.

Sub-basin SB-3A is composed of grassed open space with an aggregate access path which reaches from the offsite parking area to SB-1G. This sub-basin received runoff from SB-3B and discharges offsite to SE 14th Avenue. The sub-basin is located on the western border of the site and north of an offsite parking area. SB-3B is the existing fuel gas yard which is an impervious area and discharges runoff to SB-3A.

Sub-basins for basin 3 are summarized in Table 4 below. This table lists the the basin identifier, area in acres, maximum and minimum sub-basin elevations and the average grade slope for the sub-basin.

Table 4

Pre-Development Basin 3 Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
SB-3A	1.77	61	15.1	10.0	2.09
SB-3B	0.50	98	16.0	15.2	0.51
TOTAL	2.27	-	-	-	-



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Basin 4:

Basin 4 is an area on the eastern border of the site which parallels Eisenhower Boulevard from SB-1H northward along the tank farm. This basin discharges via overland flow to Eisenhower Boulevard. The basin is composed of compacted grassed open space and an outer portion of the tank farm berm.

Basin 4 is summarized in Table 5 below. This table lists the the basin identifier, area in acres, maximum and minimum sub-basin elevations and the average grade slope for the sub-basin.

Table 5

Pre-Development Basin 4 Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
B-4	0.67	88	12.7	11.0	2.11
TOTAL	0.67	-	-	-	-

Non-Contributing Basin Areas:

Contained within the site certification boudary are five areas which do not contribute to the existing site storm water runoff. As a result these areas are not considered in the storm water analysis. Two of these areas, POND-1 and POND-2, are containment basins located within the plant area and located in the vicinity of SB-1I. The other two areas, ROAD and DOCK, are areas which are not located within the plant and will not be altered by the proposed project.

The containment basin areas contain approximately 0.35 acres. POND-1 covers 0.25 acres of neutralization basins located between sub-basins SB-1I and SB-2B. POND-2 is the 0.10 acre blowdown recovery basin located in the southern portion of SB-1I. The area of POND-2 has been subtracted from the total footprint area of SB-1I for analysis purposes.

The areas located outside of the plant cover approximately 0.31 acres. Sub-basin ROAD is a segment of Eisenhower Boulevard adjacent to the north canal and covers approximately 0.24 acres. The runoff from this area is managed by an offsite SWMS. Sub-basin DOCK covers approximately 0.07 acres of a docking facility immediately adjacent to ROAD. Runoff from this area is managed by an offsite SWMS. Neither of these areas will be altered in the proposed project. These areas are not considered in the onsite storm water analysis.

The non-contributing basin areas are summarized in Table 6 below. This table lists the the basin identifier, area in acres, maximum and minimum sub-basin elevations and the average grade slope for the sub-basin.

Table 6

Pre-Development Non-Contributing Basin Areas					
Onsite					
Basin	Area (ac)	CN	ELEV. MAX (ft. NGVD29)	ELEV. MIN (ft NGVD29)	AVG Slope (%)
POND-1	0.25	-	-	-	-
POND-2	0.10	-	-	-	-
ROAD	0.24	-	-	-	-
DOCK	0.07	-	-	-	-
TOTAL	0.66	-	-	-	-



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Summary of Results

The areas described in the preceding sections have been modeled in HydroCAD (REF 10) to determine the allowable discharge rates for the proposed project. The design criteria previously stated in this report have been used to develop this model. Presented in Appendix 5 is a nodal diagram of the model as input into HydroCAD. The allowable discharge has been calculated using the rainfall totals from a 72-hour / 25-year storm event.

The existing site has four distinct runoff discharge locations which were included in the model. Based on the current site conditions and a 72-hour / 25-year storm event the site allowable discharges are 220.36 cfs to the south canal, 98.21 cfs to the north canal, 13.20 cfs to SE 14th Avenue, and 6.26 cfs to Eisenhower Boulevard. The total combined site allowable discharge is 338.03 cfs. However, the post-development site discharge rate shall be limited to that of the north and south canals and thus shall be limited to a maximum discharge rate of 318.57 cfs. This will ensure that future discharges to the north and south canals will not exceed the pre-development discharge rate. A summary of allowable discharges is presented in Table 7 below.

There is no open surface storage available at the existing site. Runoff either discharges directly offsite via overland flow or collects in local SWMS inlets before discharging offsite.

HydroCAD Model input and output reports are provided in Appendix 5.

Table 7

ALLOWABLE DISCHARGE RATES			
LOCATION	STORM EVENT	RAINFALL DEPTH (in)	DISCHARGE (cfs)
SOUTH CANAL	72-HR / 25-YR	14.3	220.36
NORTH CANAL	72-HR / 25-YR	14.3	98.21
TOTAL	72-HR / 25-YR	14.3	318.57



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APPENDIX



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Appendix 1

Rainfall Maps

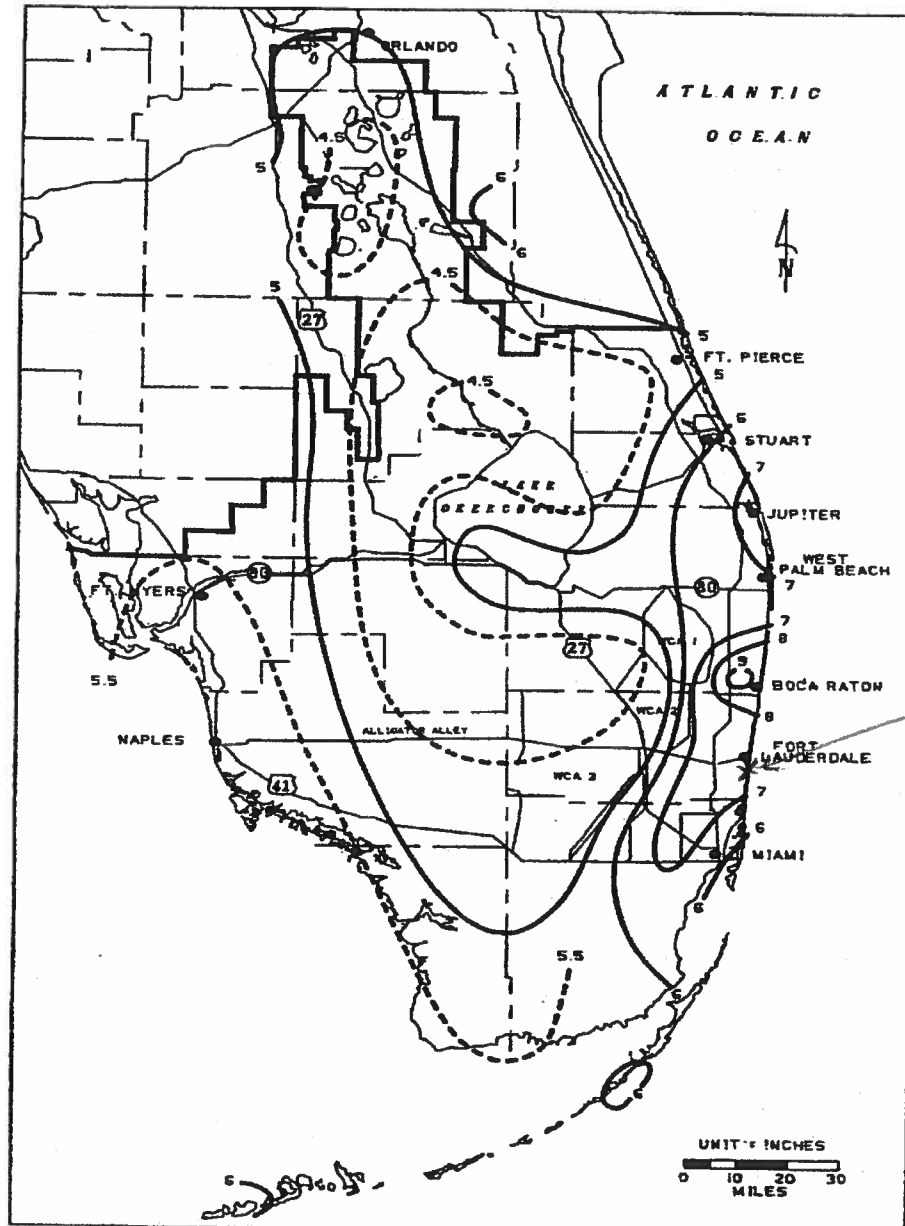


FIGURE C-3. 1-DAY RAINFALL: 5-YEAR RETURN PERIOD

Figure C-3

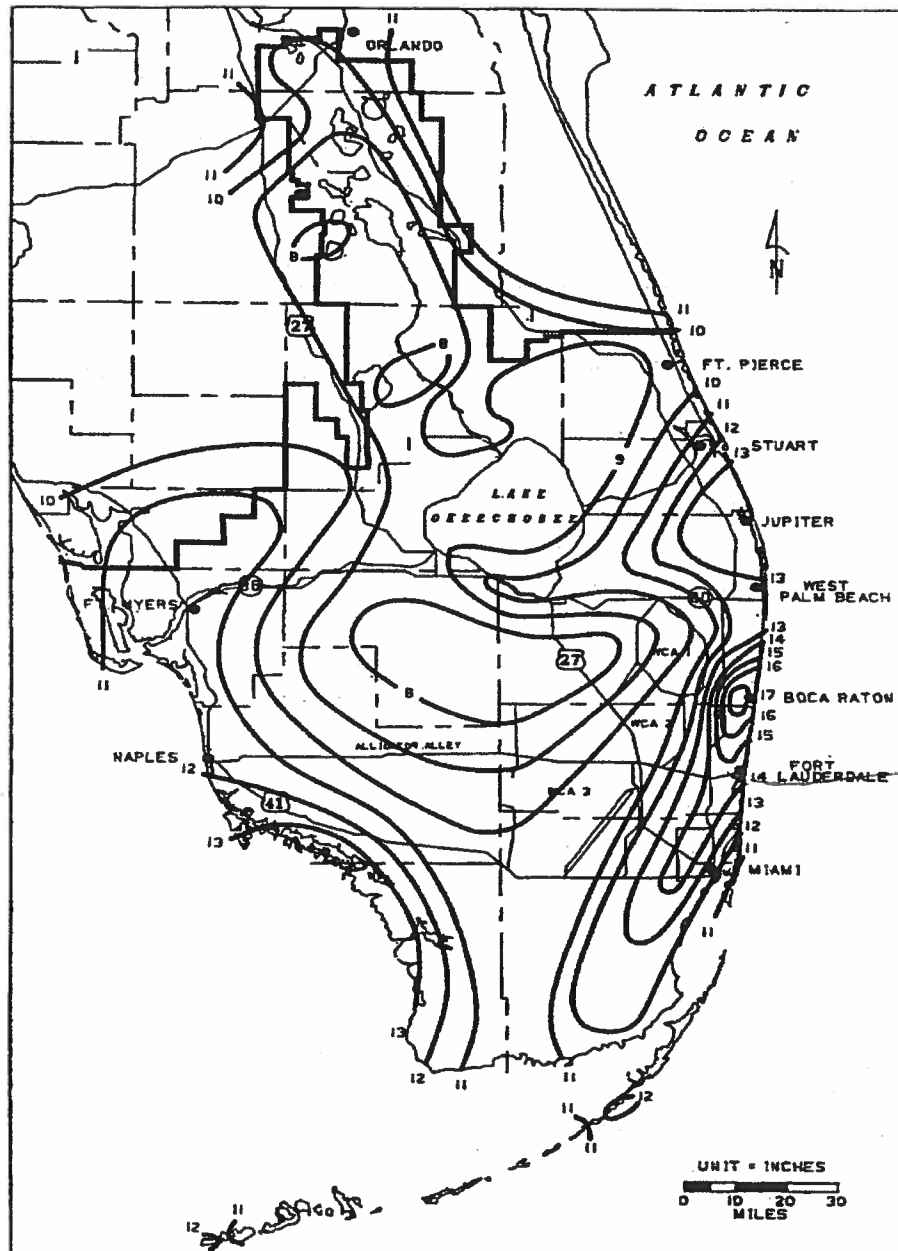


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

C-10

Figure C-8

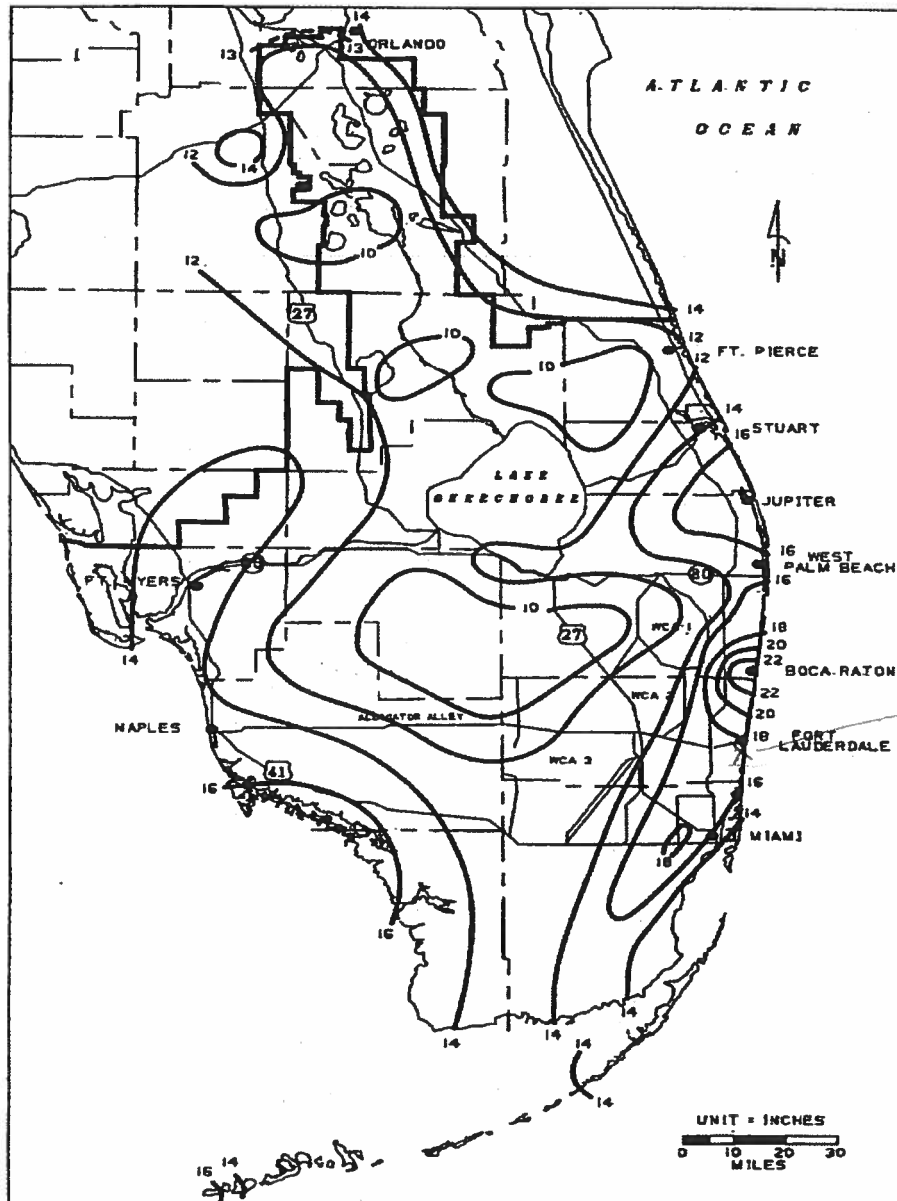


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

C-11

Figure C-9



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Appendix 2

NRCS SOIL Maps

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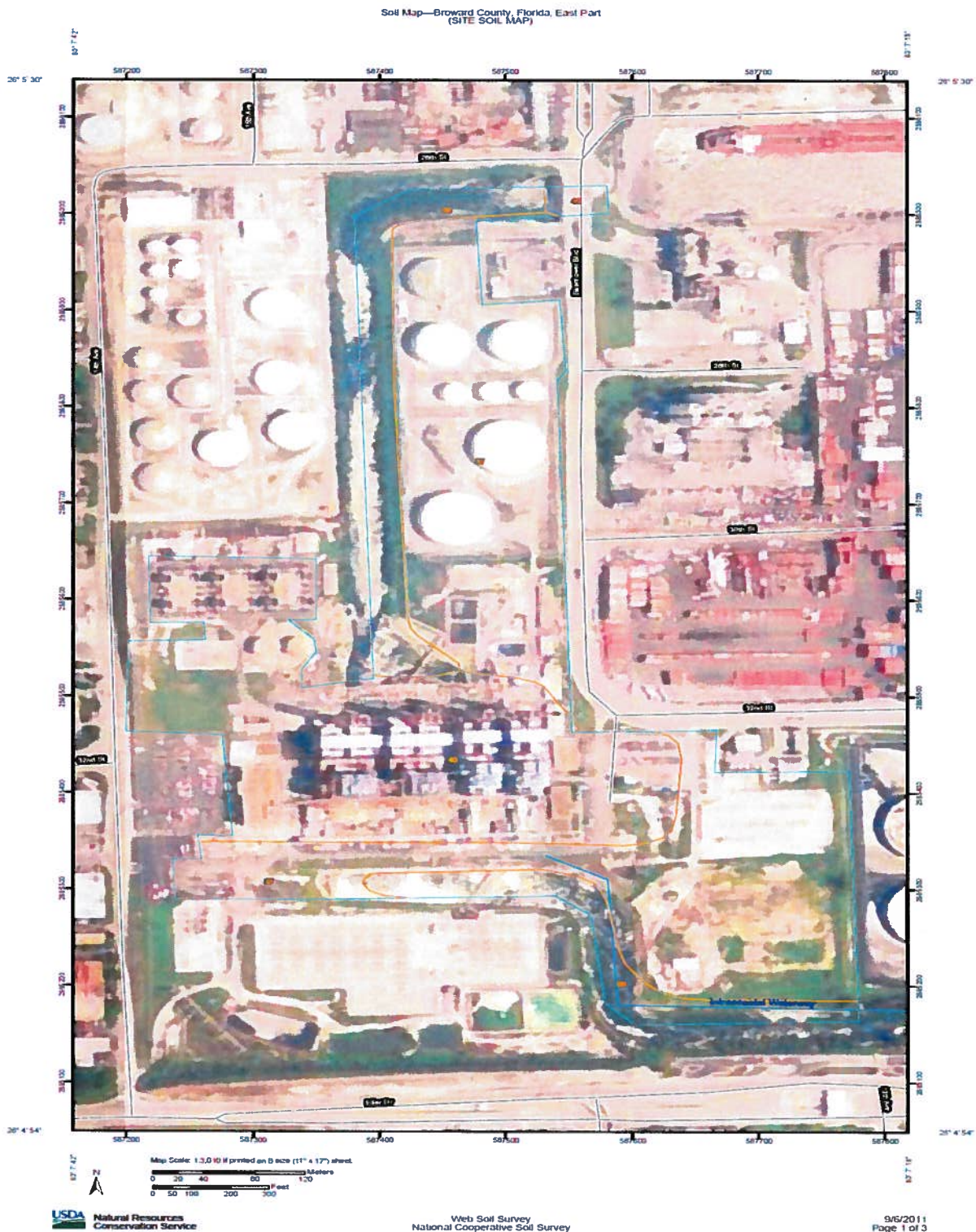
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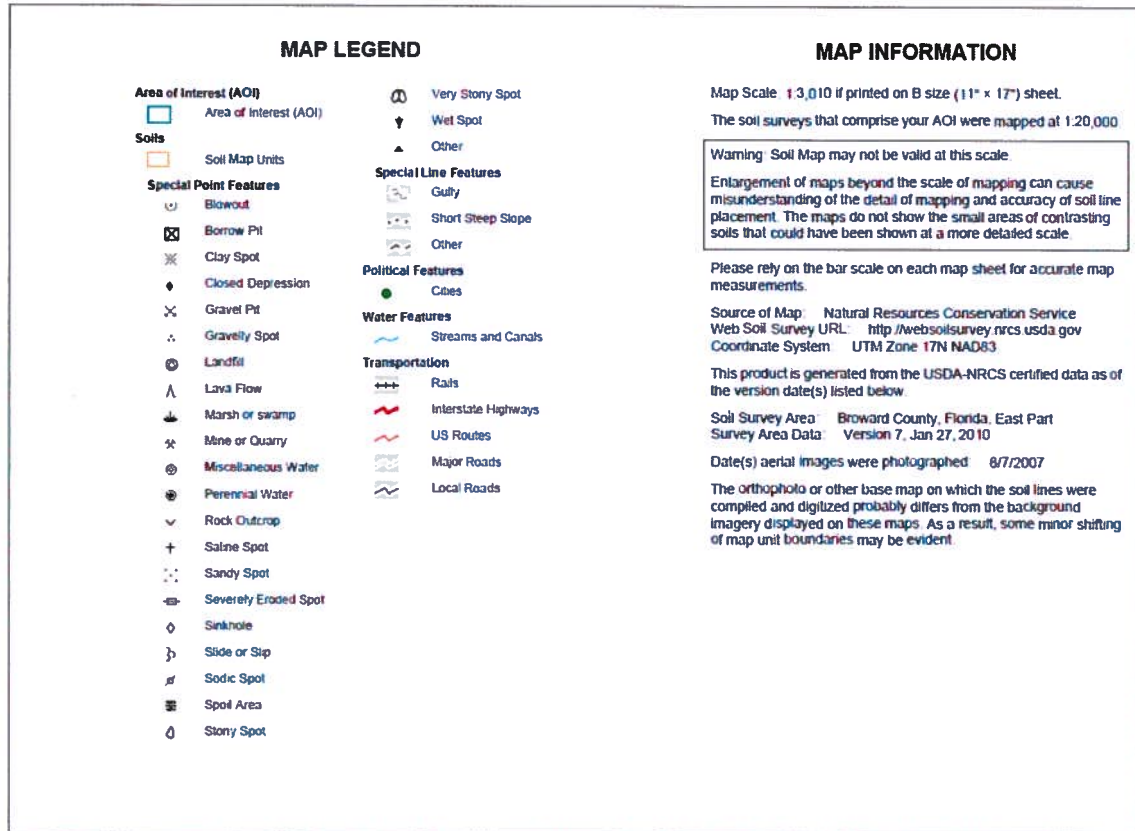
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Soil Map-Broward County, Florida, East Part
(SITE SOIL MAP)



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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
File No: 52.5406.1101.01 Rev2
Title: Pre-Development Storm Water
Analysis

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *[Signature]*
Date: *1/16/12*
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Appendix 3

PRE-DEVELOPMENT STORM WATER BASIN DRAWINGS



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101
File No: 52.5406.1101.01 Rev2
Title: Pre-Development Storm Water
Analysis

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *[Signature]*
Date: 8/16/12
Page 22 of 126

Reference Black & Veatch Drawing 174101-DS-0007 Rev 0

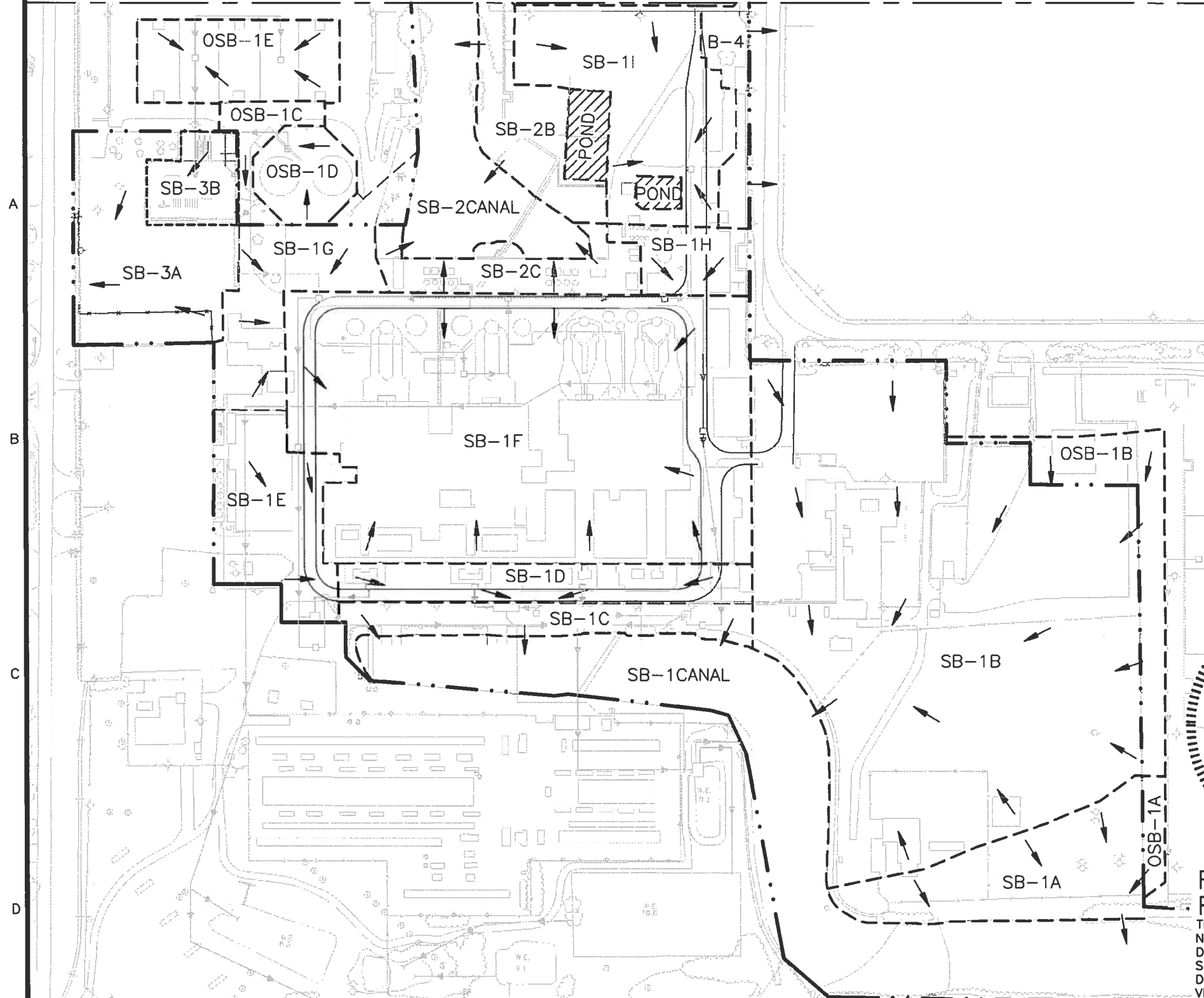
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ACAD 18.0s (LMS Tech)

B1 1=1

1 2 3 4 5 6 7

MATCHLINE N 5550 - FOR CONTINUATION SEE DWG DS-0008



SITE - STORM WATER MANAGEMENT BASINS INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
BASIN 1	34.23	27.14	SB-1A: OPEN SPACE, BUILDING
			SB-1B: OPEN SPACE, ACCESS ROAD, PARKING AREA, BUILDING
			SB-1C: GRASSED AND CONCRETE OPEN SPACE, SOUTH CANAL BANK
			SB-1D: IMPERVIOUS OPEN SPACE
			SB-1E: ADMINISTRATION BUILDING AND DRIVEWAY AREA WEST OF POWER BLOCK
			SB-1F: POWER BLOCK
			SB-1G: BUILDING, IMPERVIOUS DRIVEWAY, GRASSED OPEN SPACE
			SB-1H: BUILDINGS, IMPERVIOUS AREAS
			SB-1I: OPEN SPACE, DRIVEWAY AREA
			SB-1CANAL: SOUTH CANAL
BASIN 2	19.21	12.65	SB-2A: ON SITE TANK FARM
BASIN 3	2.27	0.00	SB-3A: GRASSED OPEN SPACE
			SB-3B: EXISTING FUEL GAS YARD
BASIN 4	0.67	0.00	COMPACTED GRASSED AREA, PORTION OF TANK FARM BERM
NON-CONTRIBUTING*	0.66	0.00	ON SITE SETTLING BASINS, EISENHOWER BLVD. DOCK FACILITY
TOTAL	57.04	39.79	*AREAS WITHIN CERTIFICATION BOUNDARY BUT DO NOT CONTRIBUTE TO RUNOFF DRAINAGE

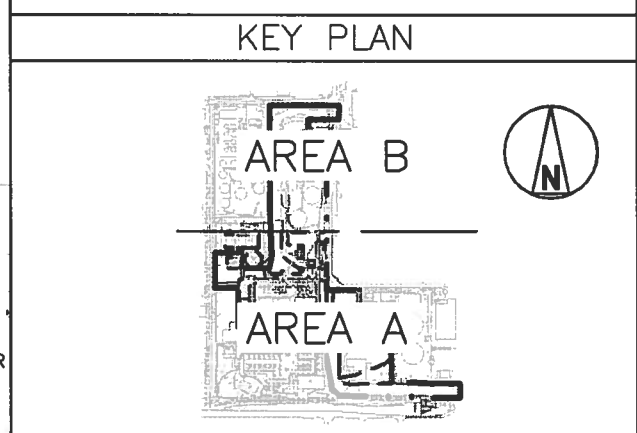
OFFSITE BASINS CONTRIBUTING TO ONSITE RUNOFF INFORMATION			
PROJECT BASIN	BASIN AREA (acre)	SWMS CONTRIBUTING AREA (acre)	DESCRIPTION
OFFSITE BASIN 1	3.17	3.17	OSB-1A: AGGREGATE ACCESS ROAD, TANK FARM BERM
			OSB-1B: BUILDING, AGGREGATE ACCESS ROAD, TANK FARM BERM
			OSB-1C: DRIVEWAY AREA NORTH OF SUB BASIN 1G
			OSB-1D: COTTONWOOD TANK FARM
			OSB-1E: GAS GENERATORS
TOTAL	3.17	3.17	



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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



FLORIDA POWER & LIGHT
PORT EVERGLADES MODERNIZATION

PROJECT 174101-DS-0007
DRAWING NUMBER
REV 0

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
0	09/JAN/12	FOR PERMITTING PURPOSES ONLY	DAS	DLW		JCB	

DESIGNER	DLW	DRAWN	SLJ
CHECKED		DATE	

PRE-DEVELOPMENT STORMWATER MANAGEMENT PLAN
AREA A

CODE	
AREA	



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101
File No: 52.5406.1101.01 Rev2
Title: Pre-Development Storm Water
Analysis

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *Y. Williams*
Date: *1/12/12*
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Reference Black & Veatch Drawing 174101-DS-0008 Rev 0



A



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VERSION.

PROJECT	DRAWING NUMBER	REV
174101-DS-0008		0
CODE		
AREA		

MATCHLINE N 5550 - FOR CONTINUATION SEE DWG DS-0007



FLORIDA POWER & LIGHT
PORT EVERGLADES MODERNIZATION

PRE-DEVELOPMENT STORMWATER MANAGEMENT PLAN
AREA B

0	09/JAN/12	FOR PERMITTING PURPOSES ONLY	DAS	DLW		JCB		
NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP	



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101
File No: 52.5406.1101.01 Rev2
Title: Pre-Development Storm Water
Analysis

Prepared By: D L Williams
Date: 1/13/2012
Verified By: *YJ*
Date: *1/16/12*
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Appendix 4

TRIMBLE TERRAMODEL AREA OUTPUT REPORT

Owner: FPL
 Project: Port Everglades Modernization
 Project No: 174101
 File No: 52.5406.1101.01 Rev 2
 Title: Post-Development Storm Water Analysis

Prepared by: D L Williams
 Date: 1/13/2012
 Verified by: *YB*
 Date: *1/16/12*
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Trimble
 5475 Kellenburger Road
 Dayton, Ohio 45424-1099, USA
 1-937-233-8921
 Monday, January 9, 2012 9:25:35 AM

PROJECT: 174101 PORT EVERGLADES PRE-DEVELOPMENT BASINS

 Perimeter / Area Measurements of Selected Lines

Object Name	Layer	Perimeter Length (ft)	Enclosed Area (Sq. Ft.)
POND	C-NEW BASIN AREA	258.08	4206.83
SB-1I	C-NEW BASIN AREA	1482.85	89810.16
SB-1D	C-NEW BASIN AREA	1545.83	47031.61
OSB-1C	C-NEW BASIN AREA	1030.65	14840.39
OSB-1E	C-NEW BASIN AREA	971.51	48862.38
OSB-1D	C-NEW BASIN AREA	558.37	23454.47
OSB-1B	C-NEW BASIN AREA	1903.02	43354.74
SB-2CANAL	C-NEW BASIN AREA	5019.40	285806.41
ROAD	C-NEW BASIN AREA	426.22	10308.03
DOCK	C-NEW BASIN AREA	384.72	3053.19
SB-2B	C-NEW BASIN AREA	4650.68	121648.61
SB-1B	C-NEW BASIN AREA	2886.90	449968.64
SB-1H	C-NEW BASIN AREA	719.17	23037.22
SB-1G	C-NEW BASIN AREA	1196.10	51093.42
SB-3A	C-NEW BASIN AREA	1167.17	77309.12
SB-3B	C-NEW BASIN AREA	648.79	21597.76
SB-2C	C-NEW BASIN AREA	1310.11	34598.45
SB-1F	C-NEW BASIN AREA	2615.48	347754.31
POND	C-NEW BASIN AREA	446.47	10813.25
SB-2A	C-NEW BASIN AREA	2907.91	394530.87
B-4	C-NEW BASIN AREA	2665.26	29273.14
SB-1A	C-NEW BASIN AREA	1384.48	71320.52
OSB-1A	C-NEW BASIN AREA	474.53	7531.34
SB-1CANAL	C-NEW BASIN AREA	4910.89	308942.08
SB-1C	C-NEW BASIN AREA	1555.46	44424.32
SB-1E	C-NEW BASIN AREA	887.91	58242.06

Total perimeter length = 44007.96 ft
 Total enclosed area = 2622813.32 Sq. Ft.



Owner: FPL
Project: Port Everglades Modernization
Project No: 174101
File No: 52.5406.1101.01 Rev2
Title: Pre-Development Storm Water
Analysis

Prepared By: D L Williams

Date: 1/13/2012

Verified By:

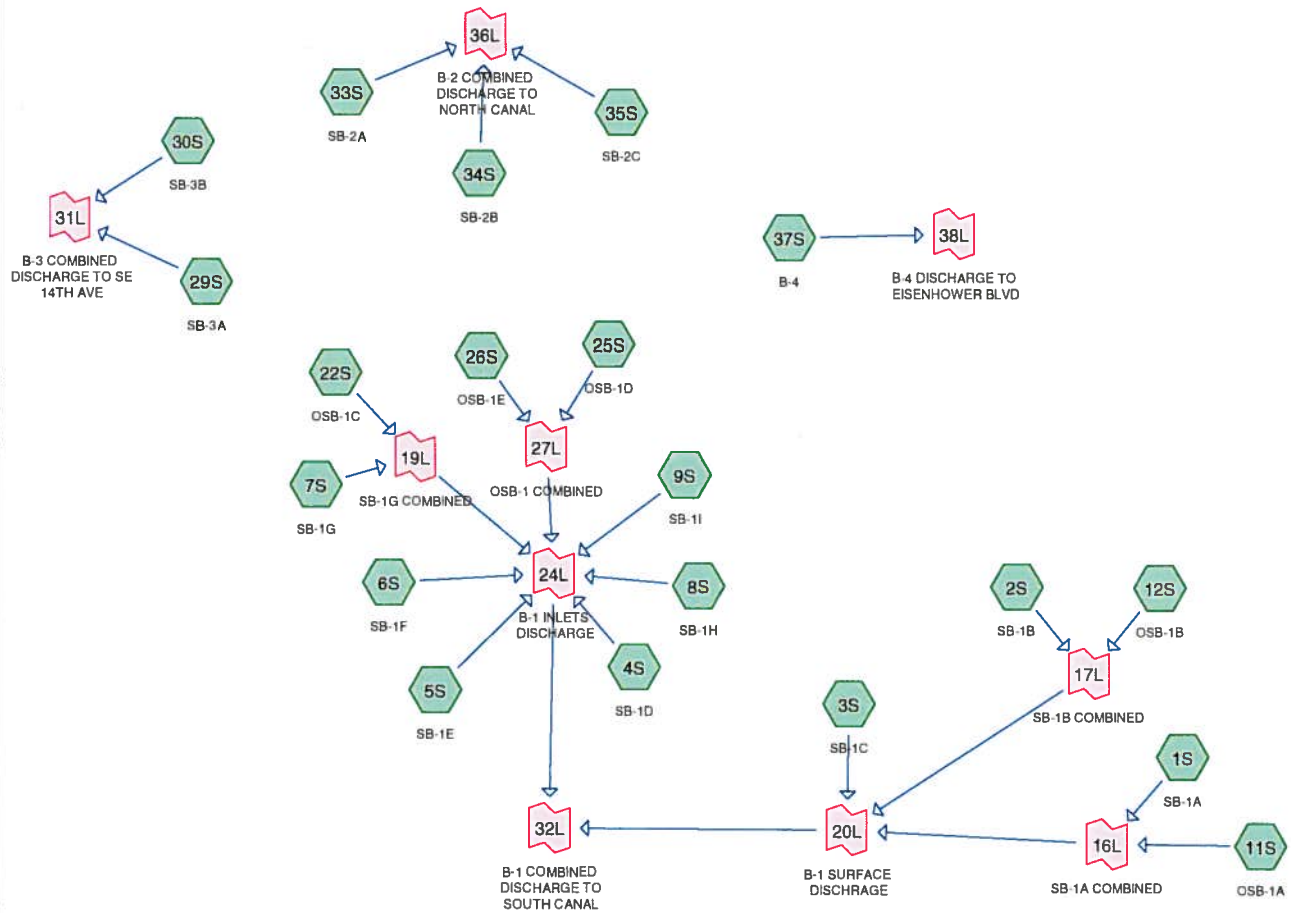
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*1/16/12
for P&S 26 to 126*

Appendix 5

HYDROCAD NODAL DIAGRAM AND OUTPUT REPORTS



Drainage Diagram for 52.5406-1101.01 Rev 2

Appendix 5

Prepared by Black & Veatch

HydroCAD® 8.00 s/n 005108 © 2006 HydroCAD Software Solutions LLC

Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
1.900	61	>75% Grass cover, Good, HSG B (7S,29S)
2.790	69	50-75% Grass cover, Fair, HSG B (34S)
23.600	88	Urban industrial, 72% imp, HSG B (1S,2S,3S,9S,11S,12S,33S,37S)
16.530	98	Paved parking & roofs (2S,5S,6S,7S,8S,9S,22S,25S,26S,30S,35S)
1.080	98	Paved roads w/curbs & sewers (4S)
45.900		

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points

Runoff by SBUH method, Split Pervious/Imperv.

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

Subcatchment 1S: SB-1A

Runoff Area=1.640 ac Runoff Depth=6.02"

Flow Length=239' Slope=0.0104 '/ Tc=18.8 min CN=62/98 Runoff=5.86 cfs 0.823 af

Subcatchment 2S: SB-1B

Runoff Area=10.330 ac Runoff Depth=6.18"

Flow Length=844' Tc=13.6 min CN=62/98 Runoff=42.67 cfs 5.318 af

Subcatchment 3S: SB-1C

Runoff Area=1.020 ac Runoff Depth=6.02"

Flow Length=48' Slope=0.0929 '/ Tc=1.9 min CN=62/98 Runoff=5.83 cfs 0.512 af

Subcatchment 4S: SB-1D

Runoff Area=1.080 ac Runoff Depth=7.16"

Flow Length=379' Tc=9.7 min CN=0/98 Runoff=5.68 cfs 0.644 af

Subcatchment 5S: SB-1E

Runoff Area=1.340 ac Runoff Depth=7.16"

Flow Length=250' Slope=0.0072 '/ Tc=2.8 min CN=0/98 Runoff=8.74 cfs 0.800 af

Subcatchment 6S: SB-1F

Runoff Area=7.980 ac Runoff Depth=7.16"

Tc=5.0 min CN=0/98 Runoff=48.52 cfs 4.762 af

Subcatchment 7S: SB-1G

Runoff Area=1.170 ac Runoff Depth=6.70"

Flow Length=197' Tc=2.9 min CN=61/98 Runoff=7.14 cfs 0.653 af

Subcatchment 8S: SB-1H

Runoff Area=0.530 ac Runoff Depth=7.16"

Flow Length=158' Tc=1.5 min CN=0/98 Runoff=3.59 cfs 0.316 af

Subcatchment 9S: SB-1I

Runoff Area=2.060 ac Runoff Depth=6.55"

Flow Length=367' Tc=25.8 min CN=62/98 Runoff=6.90 cfs 1.124 af

Subcatchment 11S: OSB-1A

Runoff Area=0.170 ac Runoff Depth=6.02"

Flow Length=39' Slope=0.0254 '/ Tc=0.4 min CN=62/98 Runoff=1.02 cfs 0.085 af

Subcatchment 12S: OSB-1B

Runoff Area=1.000 ac Runoff Depth=6.02"

Flow Length=329' Tc=4.5 min CN=62/98 Runoff=5.27 cfs 0.502 af

Subcatchment 22S: OSB-1C

Runoff Area=0.340 ac Runoff Depth=7.16"

Flow Length=310' Tc=4.8 min CN=0/98 Runoff=2.08 cfs 0.203 af

Subcatchment 25S: OSB-1D

Runoff Area=0.540 ac Runoff Depth=7.16"

Tc=5.0 min CN=0/98 Runoff=3.28 cfs 0.322 af

Subcatchment 26S: OSB-1E

Runoff Area=1.120 ac Runoff Depth=7.16"

Tc=5.0 min CN=0/98 Runoff=6.81 cfs 0.668 af

Subcatchment 29S: SB-3A

Runoff Area=1.770 ac Runoff Depth=2.99"

Flow Length=244' Slope=0.0209 '/ Tc=14.5 min CN=61/0 Runoff=3.83 cfs 0.442 af

Subcatchment 30S: SB-3B

Runoff Area=0.500 ac Runoff Depth=7.16"
Flow Length=218' Slope=0.0069 '/' Tc=2.5 min CN=0/98 Runoff=3.29 cfs 0.298 af

Subcatchment 33S: SB-2A

Runoff Area=9.060 ac Runoff Depth=6.02"
Flow Length=474' Tc=5.8 min CN=62/98 Runoff=45.77 cfs 4.548 af

Subcatchment 34S: SB-2B

Runoff Area=2.790 ac Runoff Depth=3.84"
Flow Length=170' Slope=0.0470 '/' Tc=7.8 min CN=69/0 Runoff=9.50 cfs 0.894 af

Subcatchment 35S: SB-2C

Runoff Area=0.790 ac Runoff Depth=7.16"
Flow Length=83' Slope=0.0072 '/' Tc=1.2 min CN=0/98 Runoff=5.41 cfs 0.471 af

Subcatchment 37S: B-4

Runoff Area=0.670 ac Runoff Depth=6.02"
Flow Length=81' Slope=0.0211 '/' Tc=0.7 min CN=62/98 Runoff=3.97 cfs 0.336 af

Link 16L: SB-1A COMBINED

Inflow=6.51 cfs 0.908 af
Primary=6.51 cfs 0.908 af

Link 17L: SB-1B COMBINED

Inflow=47.48 cfs 5.820 af
Primary=47.48 cfs 5.820 af

Link 19L: SB-1G COMBINED

Inflow=9.21 cfs 0.856 af
Primary=9.21 cfs 0.856 af

Link 20L: B-1 SURFACE DISCHARGE

Inflow=58.78 cfs 7.240 af
Primary=58.78 cfs 7.240 af

Link 24L: B-1 INLETS DISCHARGE

Inflow=91.15 cfs 9.493 af
Primary=91.15 cfs 9.493 af

Link 27L: OSB-1 COMBINED

Inflow=10.09 cfs 0.991 af
Primary=10.09 cfs 0.991 af

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Inflow=6.47 cfs 0.740 af
Primary=6.47 cfs 0.740 af

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

Inflow=148.33 cfs 16.733 af
Primary=148.33 cfs 16.733 af

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Inflow=59.82 cfs 5.913 af
Primary=59.82 cfs 5.913 af

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD

Inflow=3.97 cfs 0.336 af
Primary=3.97 cfs 0.336 af

Total Runoff Area = 45.900 ac Runoff Volume = 23.722 af Average Runoff Depth = 6.20"
24.61% Pervious Area = 11.298 ac 75.39% Impervious Area = 34.602 ac

Subcatchment 1S: SB-1A

Runoff = 5.86 cfs @ 11.94 hrs, Volume= 0.823 af, Depth= 6.02"

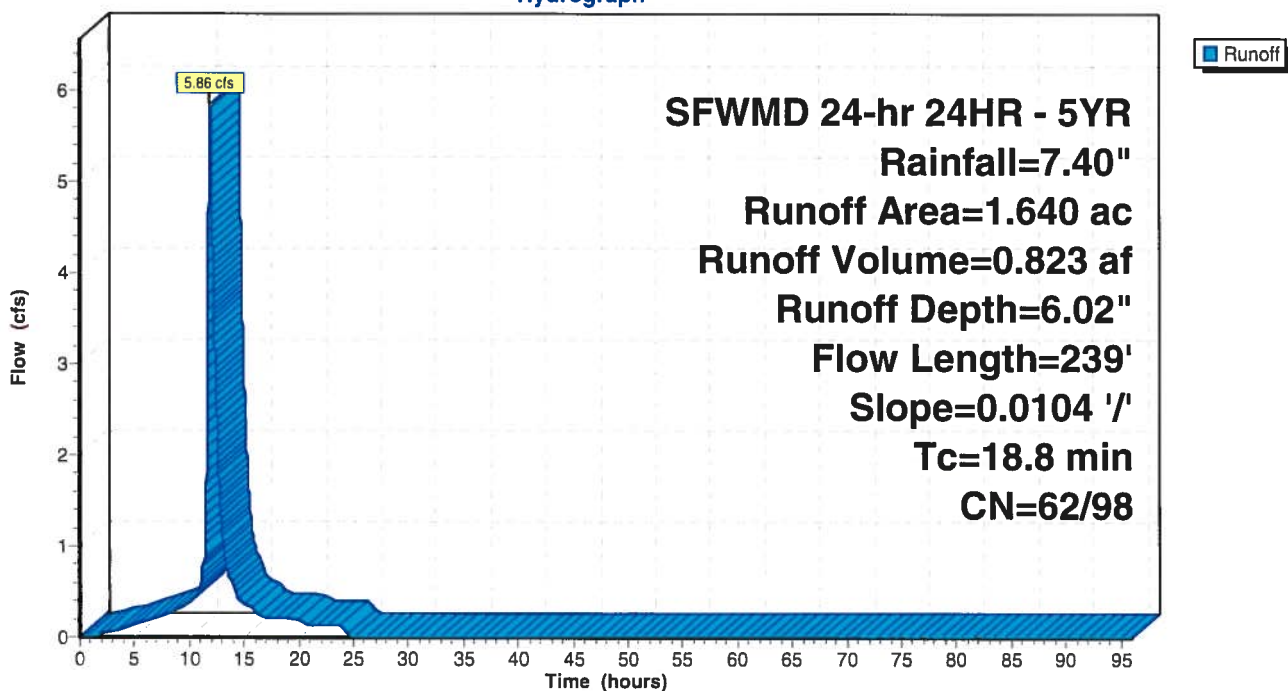
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.640	88	Urban industrial, 72% imp, HSG B
0.459	62	Pervious Area
1.181	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.8	239	0.0104	0.21		Sheet Flow, OVERLAND TO CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 1S: SB-1A

Hydrograph



Subcatchment 2S: SB-1B

Runoff = 42.67 cfs @ 11.91 hrs, Volume= 5.318 af, Depth= 6.18"

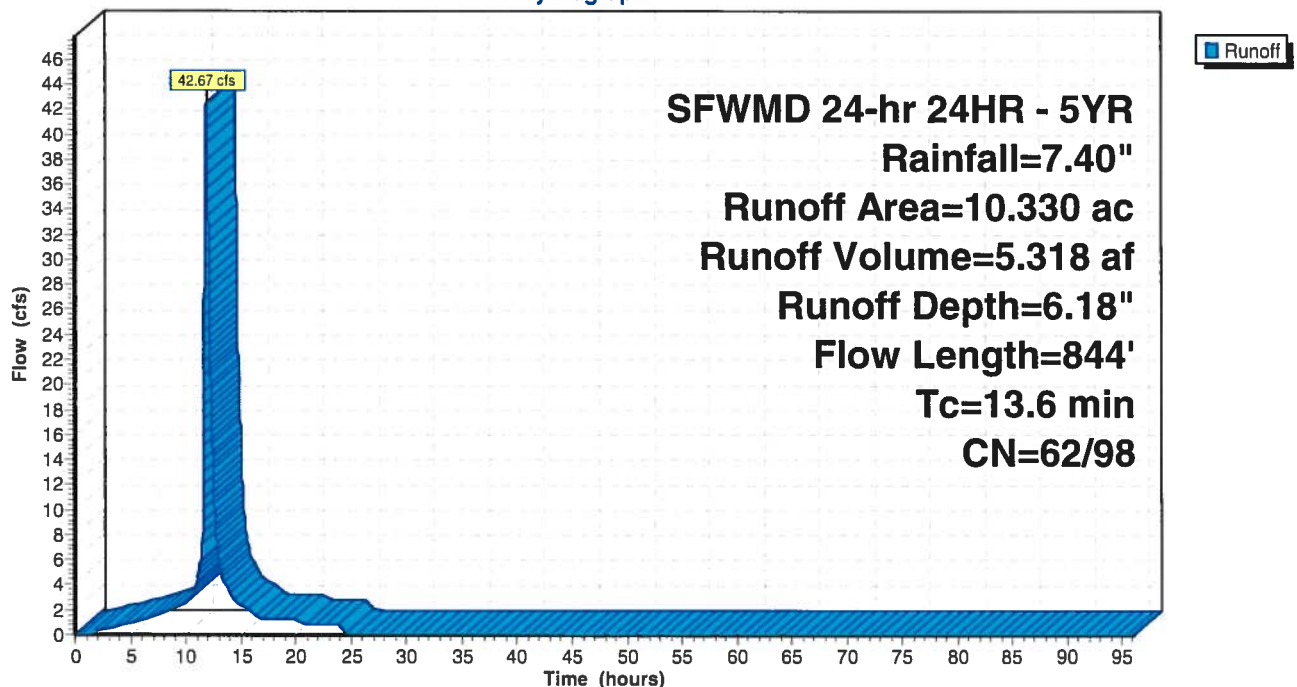
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.400	98	Paved parking & roofs
8.930	88	Urban industrial, 72% imp, HSG B
10.330	89	Weighted Average
2.500	62	Pervious Area
7.830	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	300	0.0110	1.83		Sheet Flow, OVERLAND PARKING AREA Smooth surfaces n= 0.011 P2= 5.90"
0.5	34	0.0029	1.09		Shallow Concentrated Flow, SCF PARKING AREA Paved Kv= 20.3 fps
6.6	363	0.0083	0.91		Shallow Concentrated Flow, SCF ALONG ROAD Nearly Bare & Untilled Kv= 10.0 fps
3.8	147	0.0041	0.64		Shallow Concentrated Flow, SCF TO CANAL Nearly Bare & Untilled Kv= 10.0 fps
13.6	844	Total			

Subcatchment 2S: SB-1B

Hydrograph



Subcatchment 3S: SB-1C

Runoff = 5.83 cfs @ 11.78 hrs, Volume= 0.512 af, Depth= 6.02"

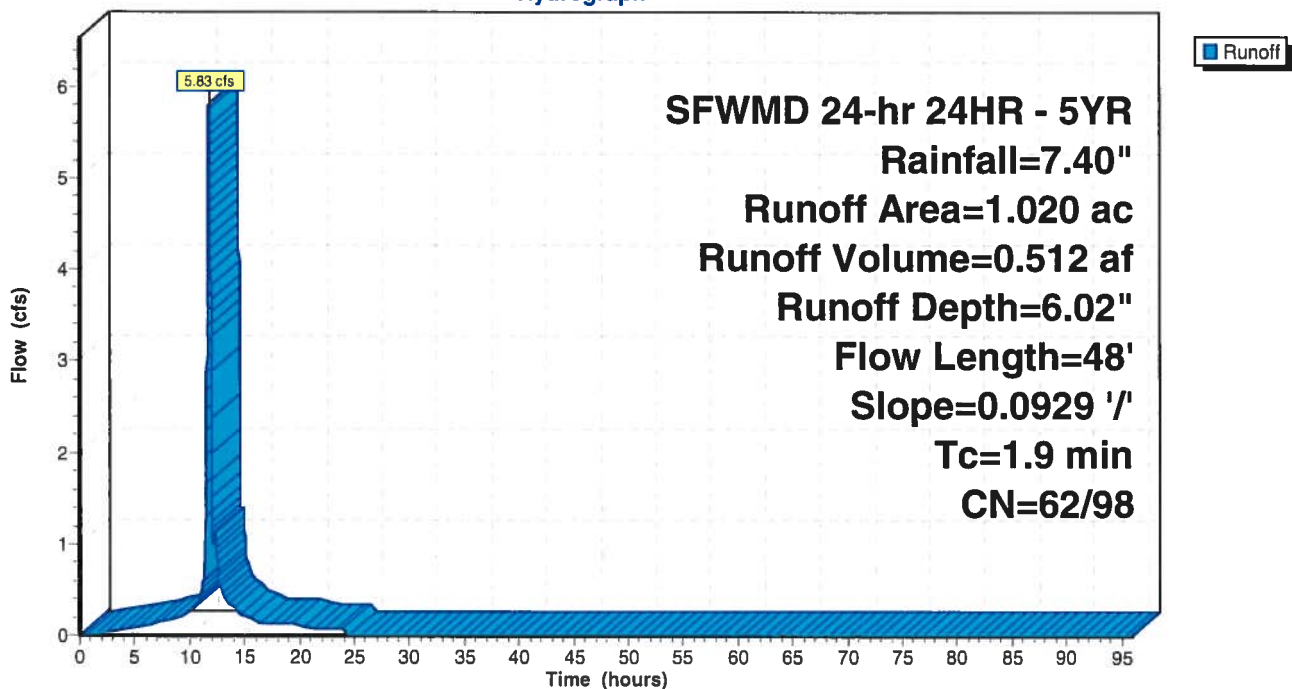
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.020	88	Urban industrial, 72% imp, HSG B
0.286	62	Pervious Area
0.734	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	48	0.0929	0.41		Sheet Flow, OVERLAND TO CANAL Range n= 0.130 P2= 5.90"

Subcatchment 3S: SB-1C

Hydrograph



Subcatchment 4S: SB-1D

Runoff = 5.68 cfs @ 11.86 hrs, Volume= 0.644 af, Depth= 7.16"

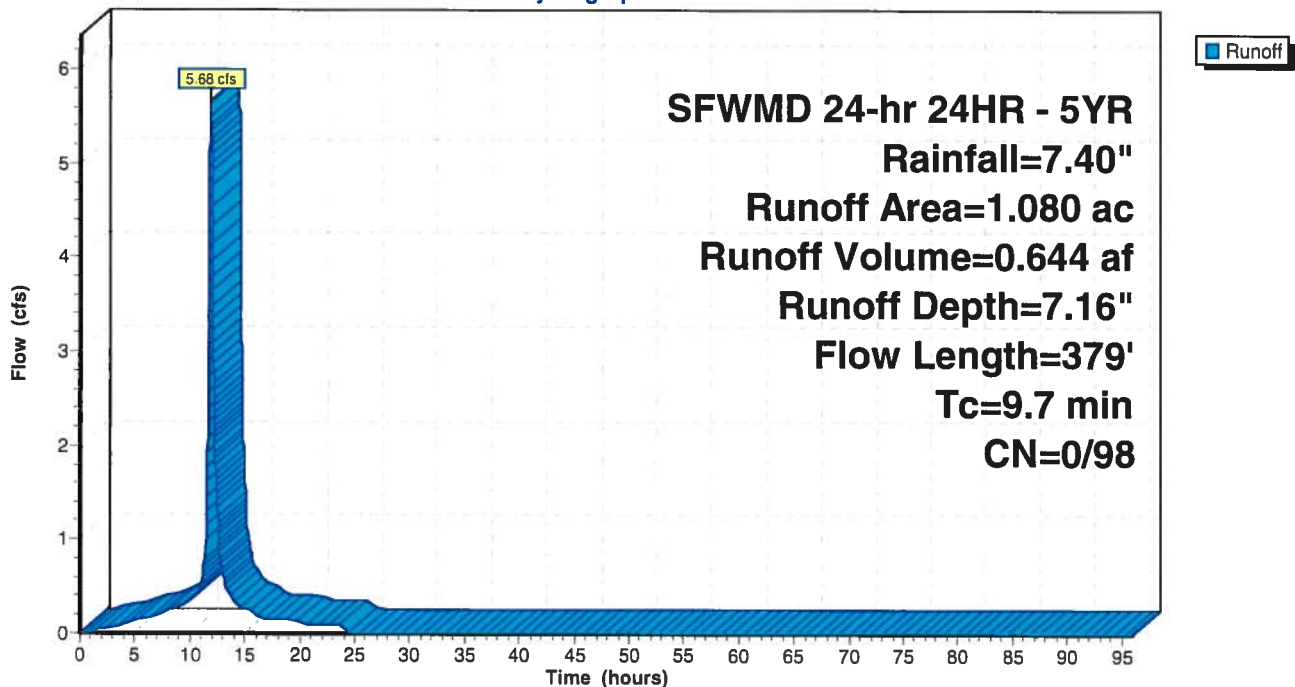
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.080	98	Paved roads w/curbs & sewers
1.080	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0567	2.50		Sheet Flow, OVERLAND FROM POWERBLOCK Smooth surfaces n= 0.011 P2= 5.90"
6.7	248	0.0008	0.62		Sheet Flow, OVERLAND ON ROAD Smooth surfaces n= 0.011 P2= 5.90"
2.6	78	0.0006	0.50		Shallow Concentrated Flow, SCF ON ROAD Paved Kv= 20.3 fps
9.7	379	Total			

Subcatchment 4S: SB-1D

Hydrograph



Subcatchment 5S: SB-1E

Runoff = 8.74 cfs @ 11.78 hrs, Volume= 0.800 af, Depth= 7.16"

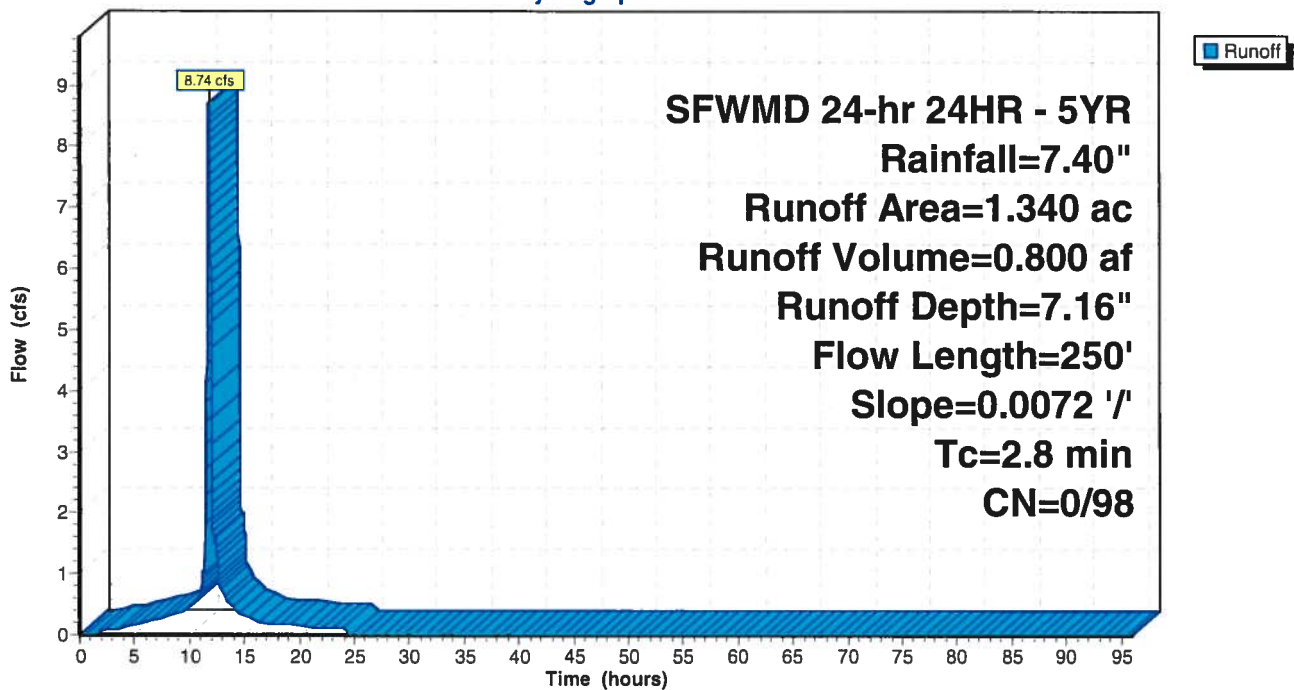
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.340	98	Paved parking & roofs
1.340	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	250	0.0072	1.49		Sheet Flow, OVERLAND DRIVEWAY Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 5S: SB-1E

Hydrograph



Subcatchment 6S: SB-1F

POWERBLOCK DRAINS TO INLETS AND REACHES WITH TC = 5 MIN.

Runoff = 48.52 cfs @ 11.81 hrs, Volume= 4.762 af, Depth= 7.16"

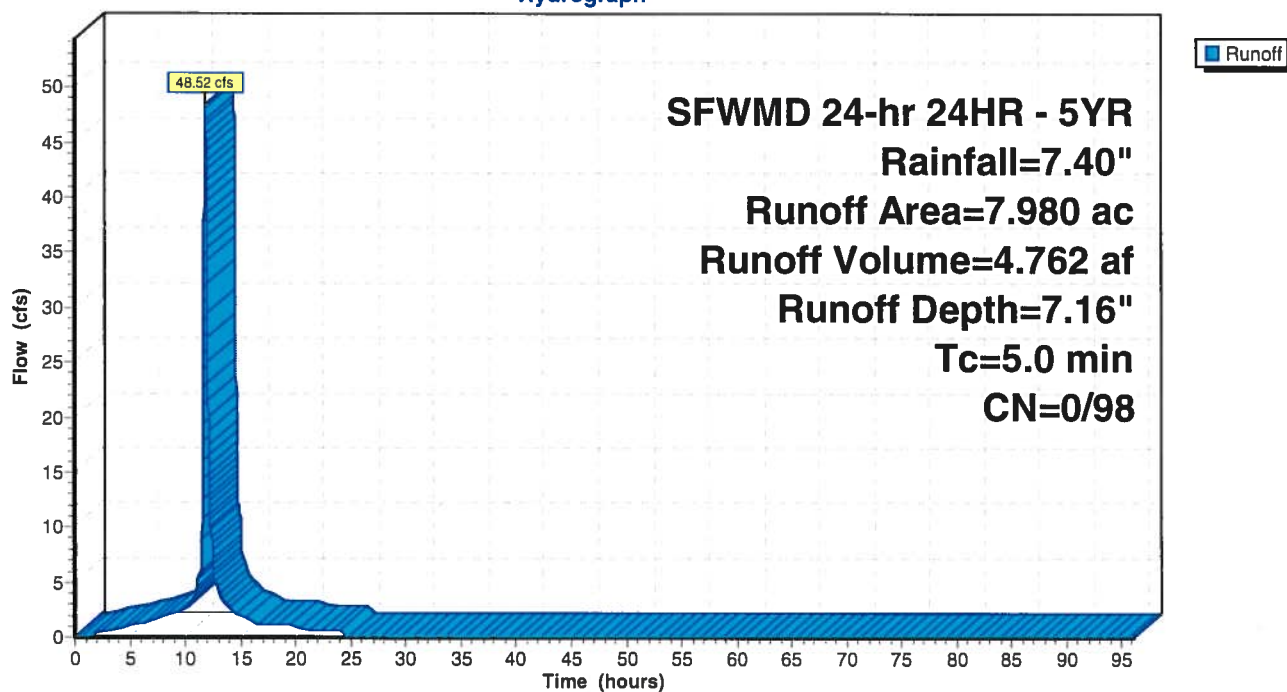
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
7.980	98	Paved parking & roofs
7.980	98	Impervious Area

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

Subcatchment 6S: SB-1F

Hydrograph



Subcatchment 7S: SB-1G

Runoff = 7.14 cfs @ 11.79 hrs, Volume= 0.653 af, Depth= 6.70"

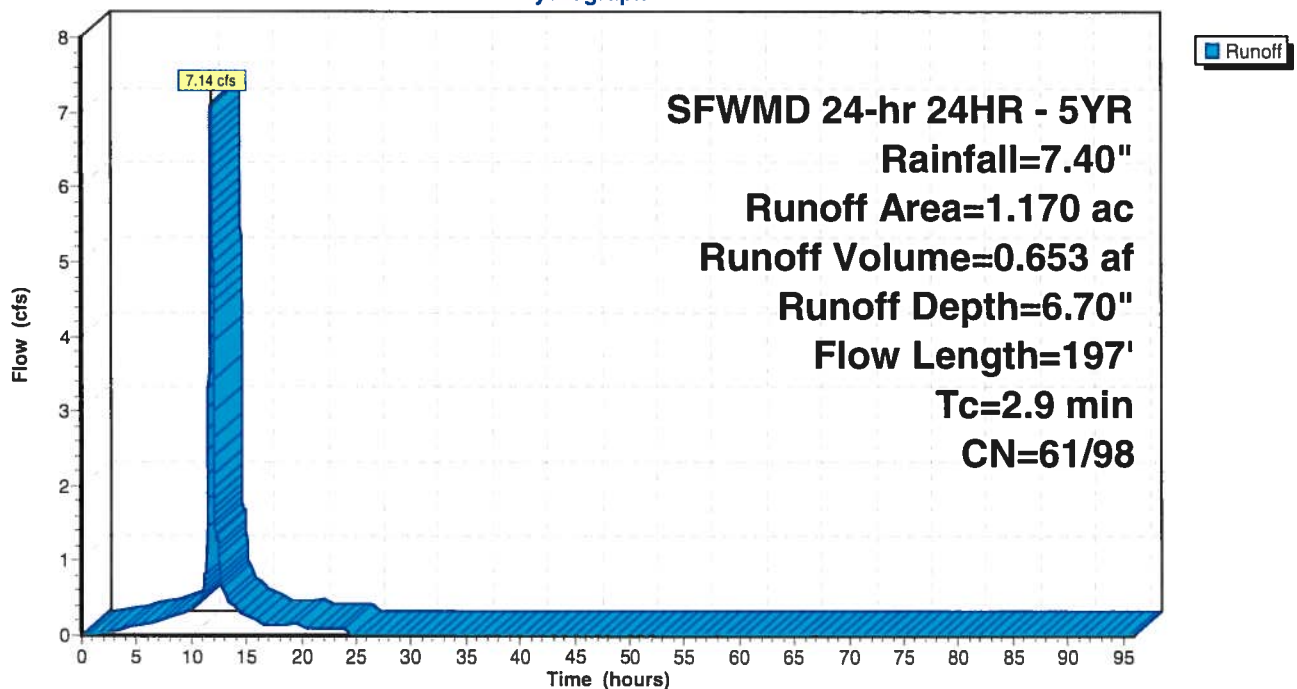
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.130	61	>75% Grass cover, Good, HSG B
1.040	98	Paved parking & roofs
1.170	94	Weighted Average
0.130	61	Pervious Area
1.040	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	146	0.0068	1.31		Sheet Flow, OVERLAND BEGIN AT OSB-1C Smooth surfaces n= 0.011 P2= 5.90"
1.0	51	0.0039	0.85		Sheet Flow, OVERLAND TO SB-1F Smooth surfaces n= 0.011 P2= 5.90"
2.9	197	Total			

Subcatchment 7S: SB-1G

Hydrograph



Subcatchment 8S: SB-1H

Runoff = 3.59 cfs @ 11.77 hrs, Volume= 0.316 af, Depth= 7.16"

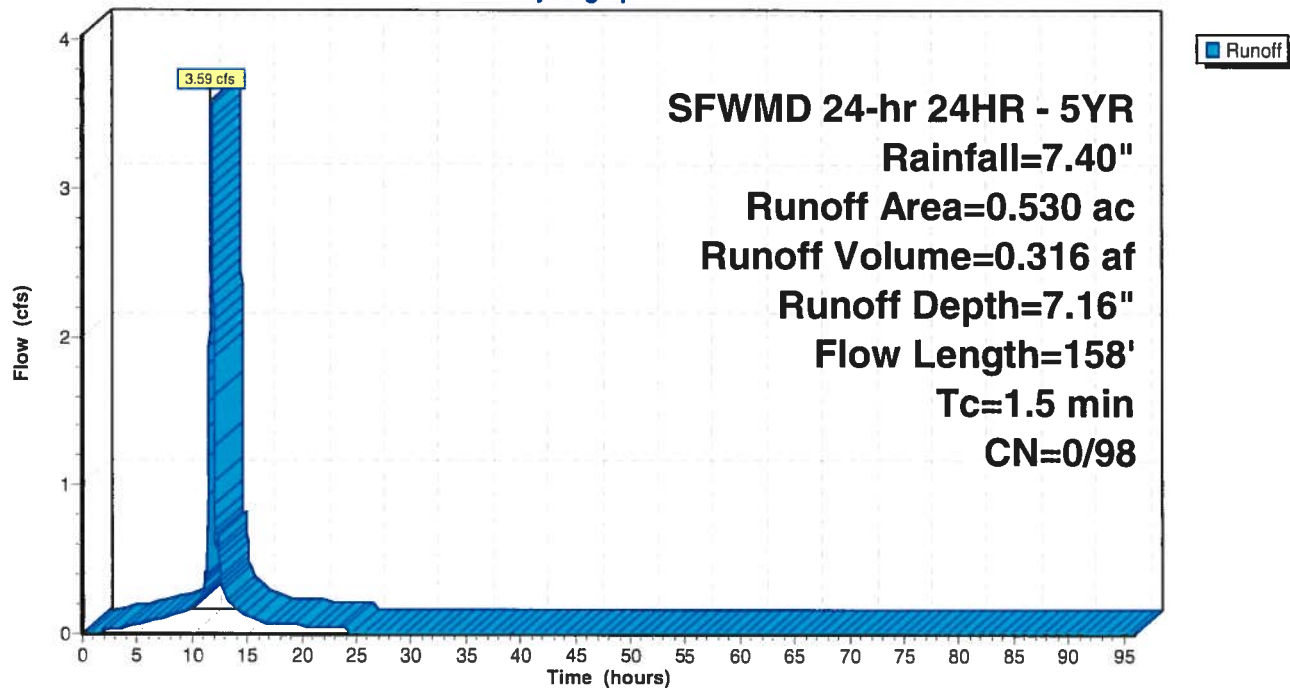
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.530	98	Paved parking & roofs
0.530	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	112	0.0357	2.41		Sheet Flow, OVERLAND FROM BLDGS Smooth surfaces n= 0.011 P2= 5.90"
0.7	46	0.0087	1.15		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
1.5	158	Total			

Subcatchment 8S: SB-1H

Hydrograph



Subcatchment 9S: SB-11

Runoff = 6.90 cfs @ 11.97 hrs, Volume= 1.124 af, Depth= 6.55"

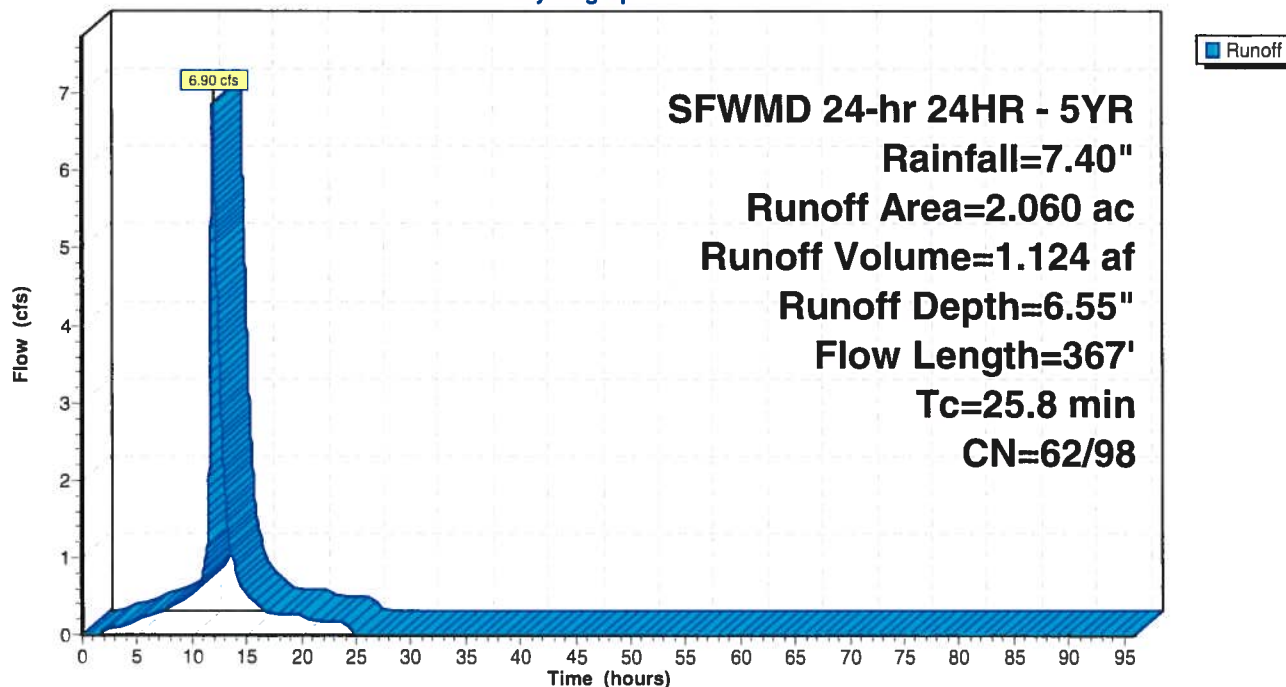
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.110	88	Urban industrial, 72% imp, HSG B
0.950	98	Paved parking & roofs
2.060	93	Weighted Average
0.311	62	Pervious Area
1.749	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	214	0.0051	0.16		Sheet Flow, OVERLAND GRASS AREA Grass: Short n= 0.150 P2= 5.90"
1.6	86	0.0035	0.90		Sheet Flow, OVERLAND TO ROAD Smooth surfaces n= 0.011 P2= 5.90"
1.3	67	0.0030	0.88		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
25.8	367	Total			

Subcatchment 9S: SB-11

Hydrograph



Subcatchment 11S: OSB-1A

Runoff = 1.02 cfs @ 11.76 hrs, Volume= 0.085 af, Depth= 6.02"

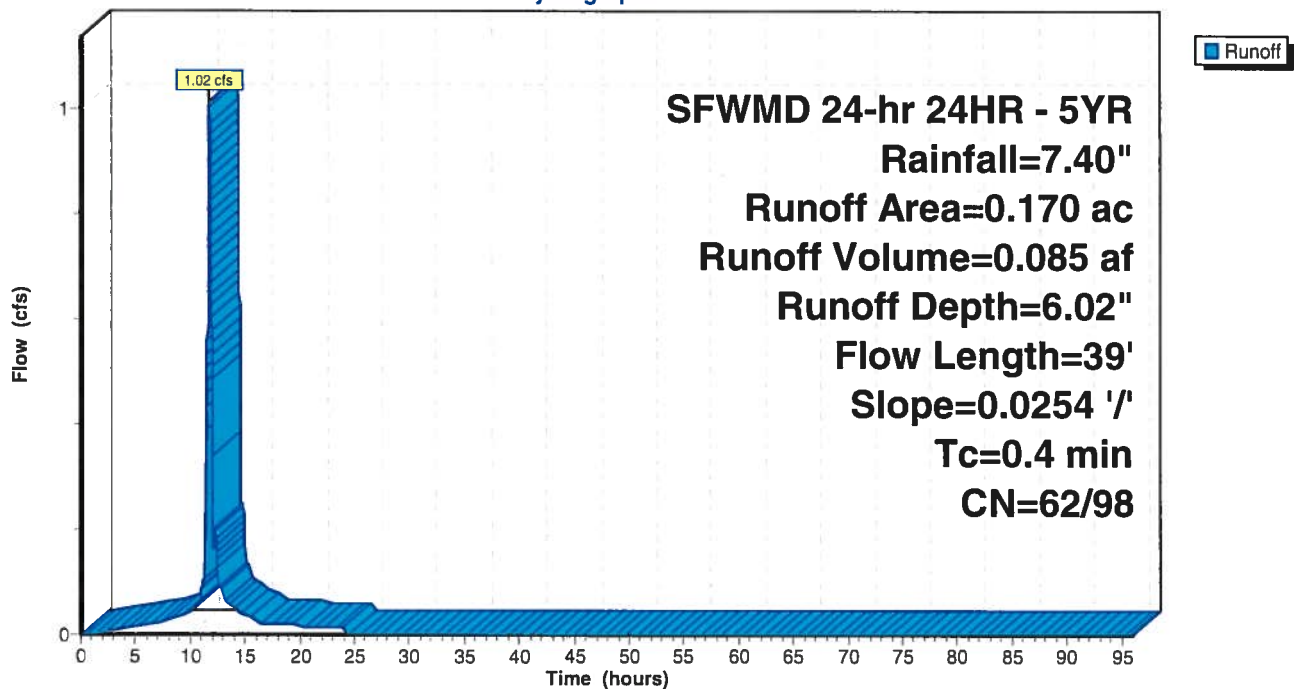
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.170	88	Urban industrial, 72% imp, HSG B
0.048	62	Pervious Area
0.122	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	39	0.0254	1.70		Sheet Flow, OVERLAND TO SB-1A Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 11S: OSB-1A

Hydrograph



Subcatchment 12S: OSB-1B

Runoff = 5.27 cfs @ 11.81 hrs, Volume= 0.502 af, Depth= 6.02"

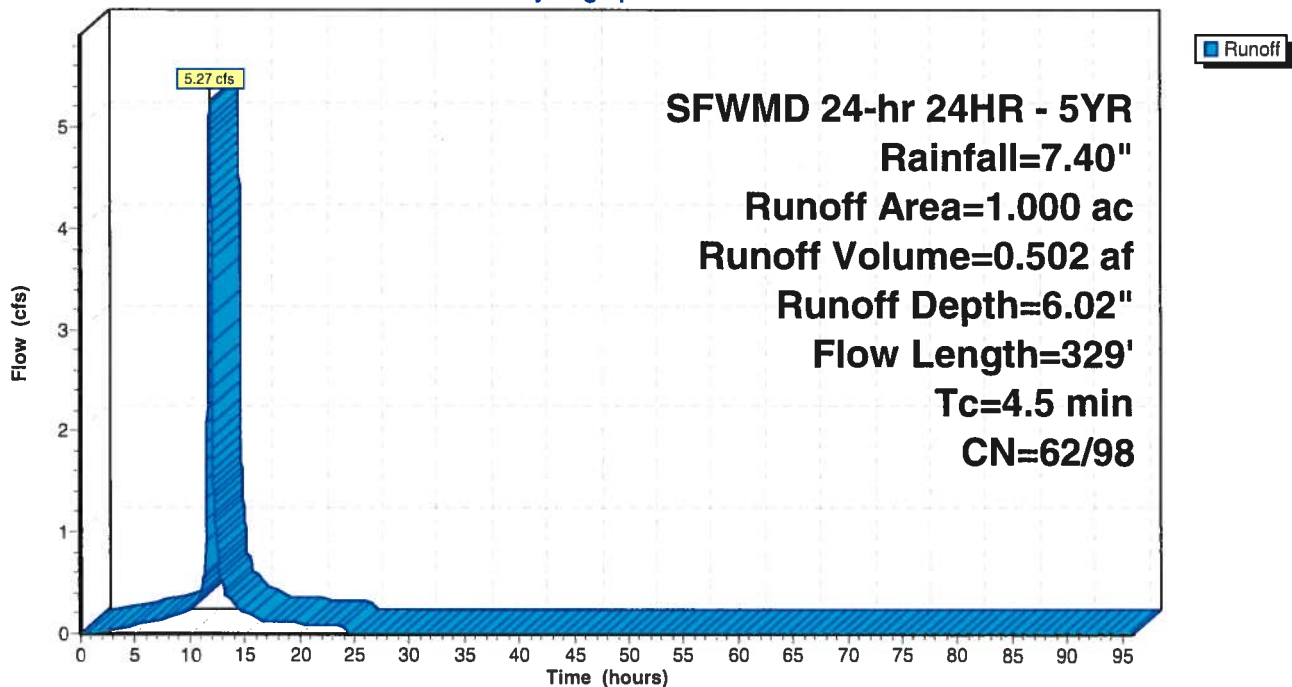
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.000	88	Urban industrial, 72% imp, HSG B
0.280	62	Pervious Area
0.720	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	300	0.0040	1.22		Sheet Flow, OVERLAND ALONG PROP LINE Smooth surfaces n= 0.011 P2= 5.90"
0.4	29	0.0069	1.34		Shallow Concentrated Flow, SCF TO SB-1B Unpaved Kv= 16.1 fps
4.5	329	Total			

Subcatchment 12S: OSB-1B

Hydrograph



Subcatchment 22S: OSB-1C

Runoff = 2.08 cfs @ 11.81 hrs, Volume= 0.203 af, Depth= 7.16"

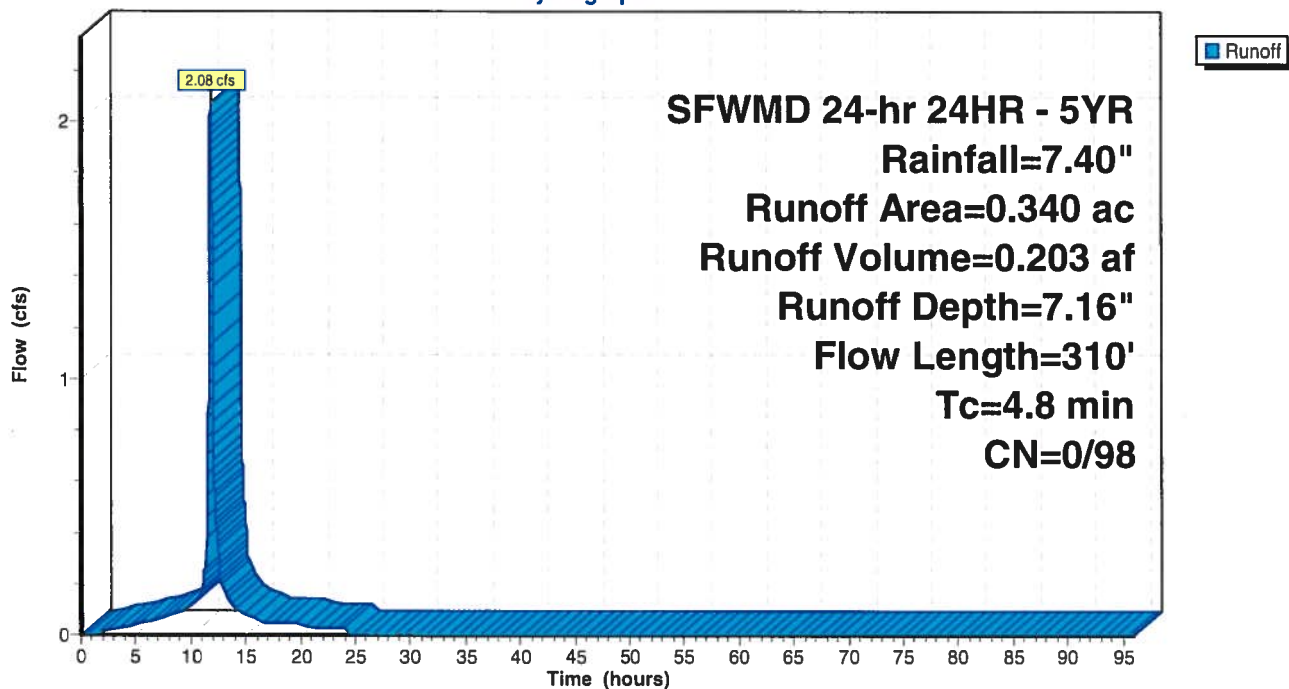
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

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 BEGIN Smooth surfaces n= 0.011 P2= 5.90"
2.6	161	0.0037	1.05		Sheet Flow, OVERLAND DRIVEWAY Smooth surfaces n= 0.011 P2= 5.90"
0.2	11	0.0271	1.15		Shallow Concentrated Flow, SCF TO SB-1G Short Grass Pasture Kv= 7.0 fps
4.8	310	Total			

Subcatchment 22S: OSB-1C

Hydrograph



Subcatchment 25S: OSB-1D

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

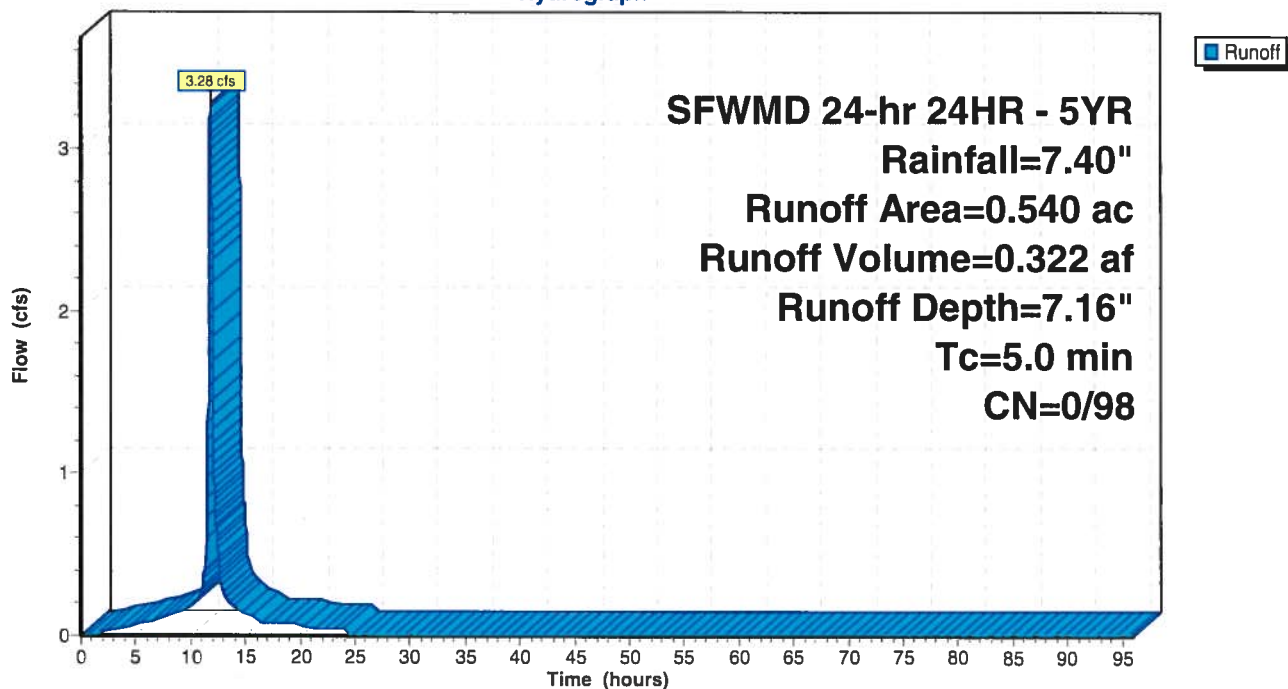
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

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, CURBED AREA

Subcatchment 25S: OSB-1D

Hydrograph



Subcatchment 26S: OSB-1E

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

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 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

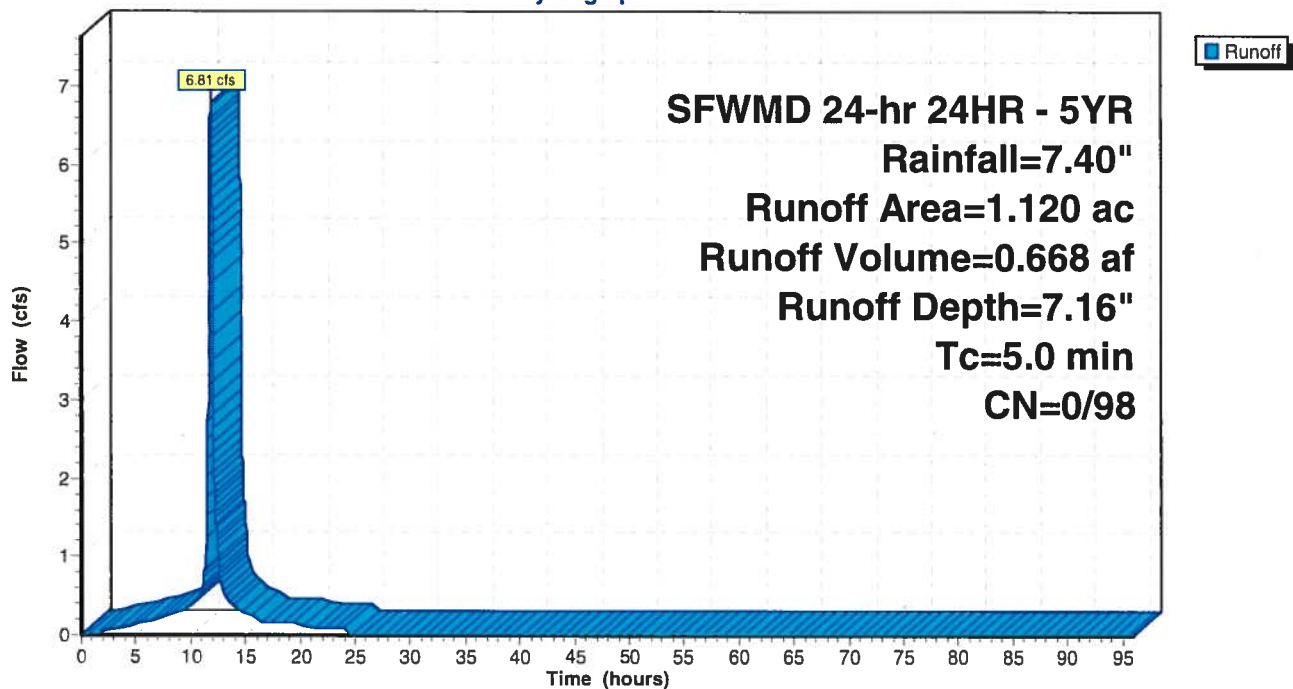
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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5.0

Direct Entry, GENERATOR INLETS

Subcatchment 26S: OSB-1E

Hydrograph



Subcatchment 29S: SB-3A

Runoff = 3.83 cfs @ 11.96 hrs, Volume= 0.442 af, Depth= 2.99"

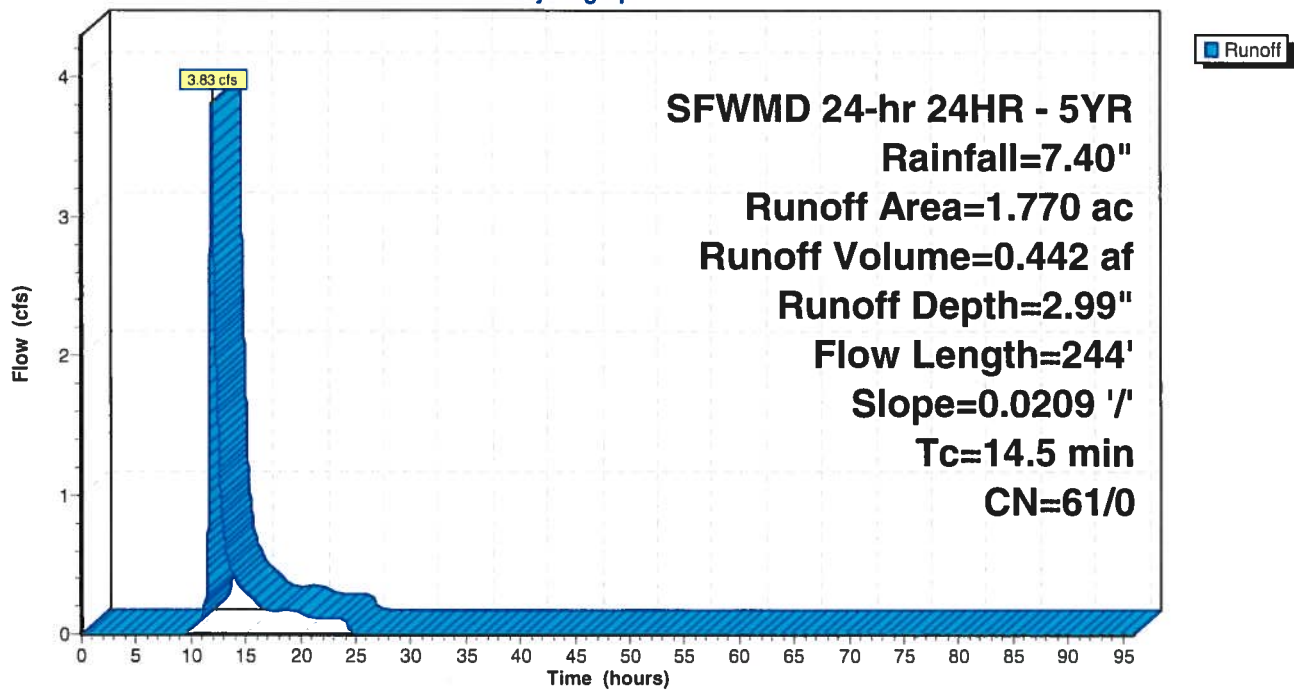
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
1.770	61	>75% Grass cover, Good, HSG B
1.770	61	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	244	0.0209	0.28		Sheet Flow, OVERLAND TO OFFSITE Grass: Short n= 0.150 P2= 5.90"

Subcatchment 29S: SB-3A

Hydrograph



Subcatchment 30S: SB-3B

Runoff = 3.29 cfs @ 11.78 hrs, Volume= 0.298 af, Depth= 7.16"

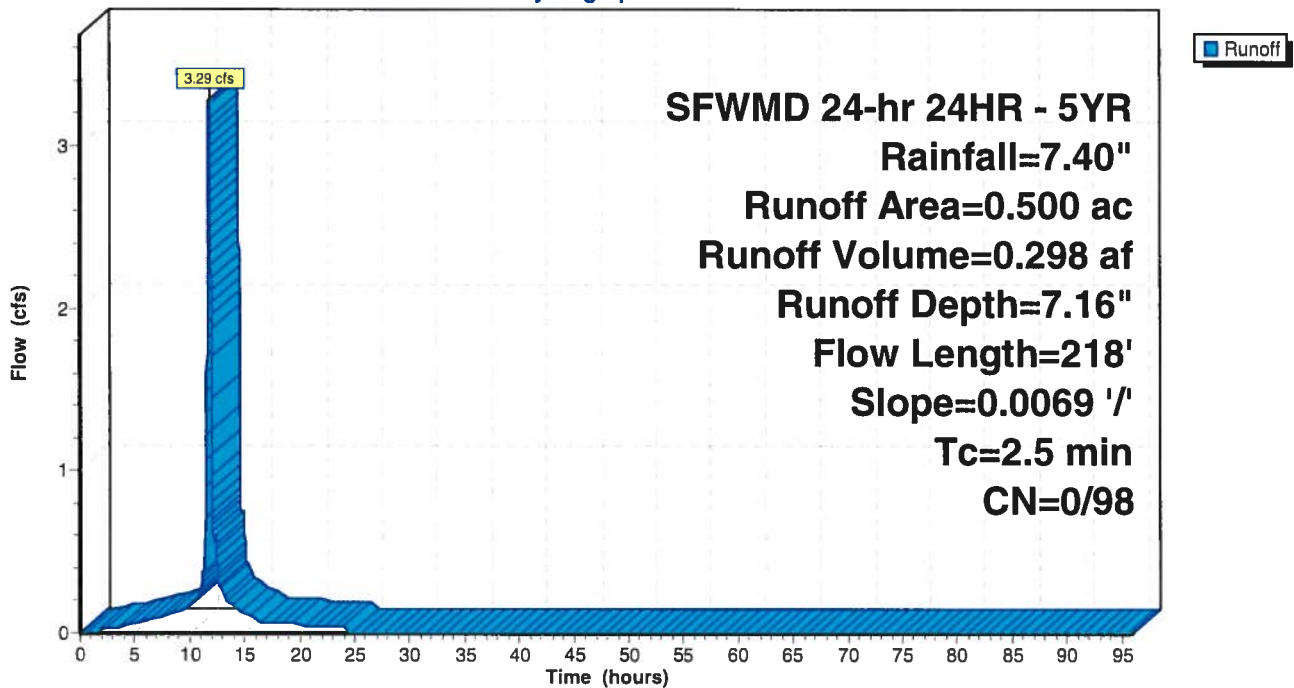
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

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
2.5	218	0.0069	1.43		Sheet Flow, OVERLAND TO SB-3A Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 30S: SB-3B

Hydrograph



Subcatchment 33S: SB-2A

Runoff = 45.77 cfs @ 11.83 hrs, Volume= 4.548 af, Depth= 6.02"

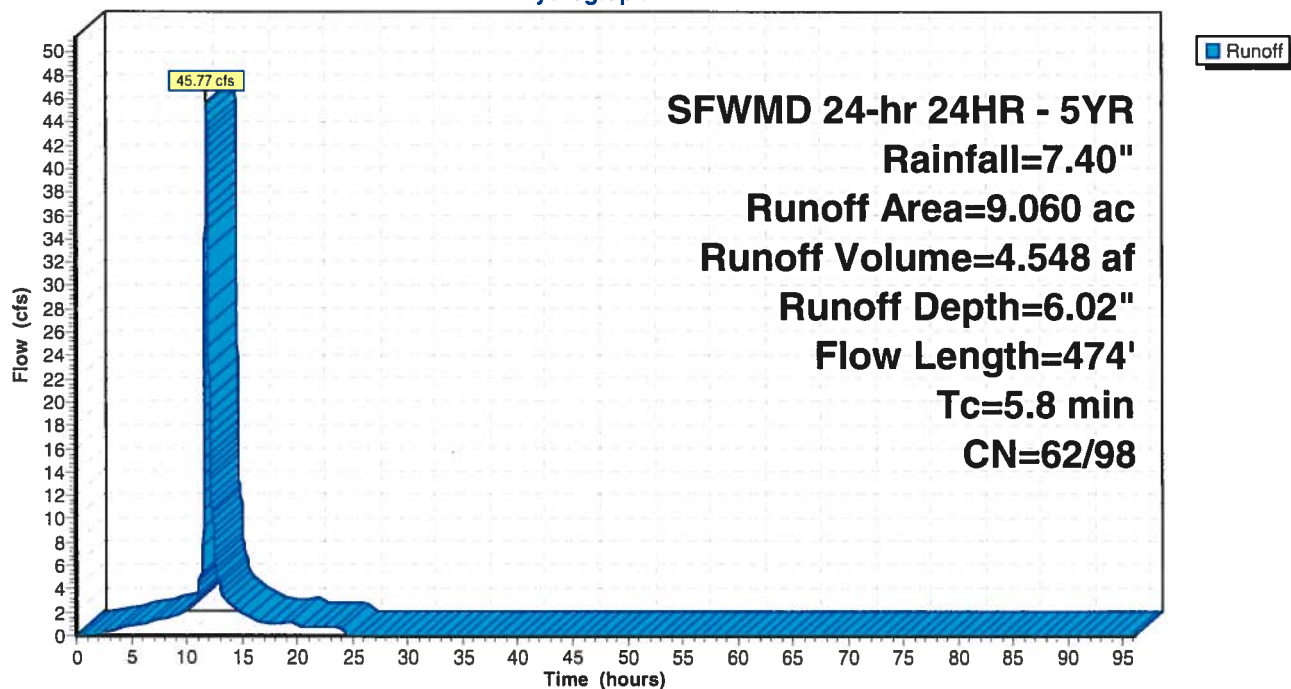
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
9.060	88	Urban industrial, 72% imp, HSG B
2.537	62	Pervious Area
6.523	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	300	0.0047	1.30		Sheet Flow, OVERLAND Smooth surfaces n= 0.011 P2= 5.90"
2.0	174	0.0080	1.44		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
5.8	474	Total			

Subcatchment 33S: SB-2A

Hydrograph



Subcatchment 34S: SB-2B

Runoff = 9.50 cfs @ 11.88 hrs, Volume= 0.894 af, Depth= 3.84"

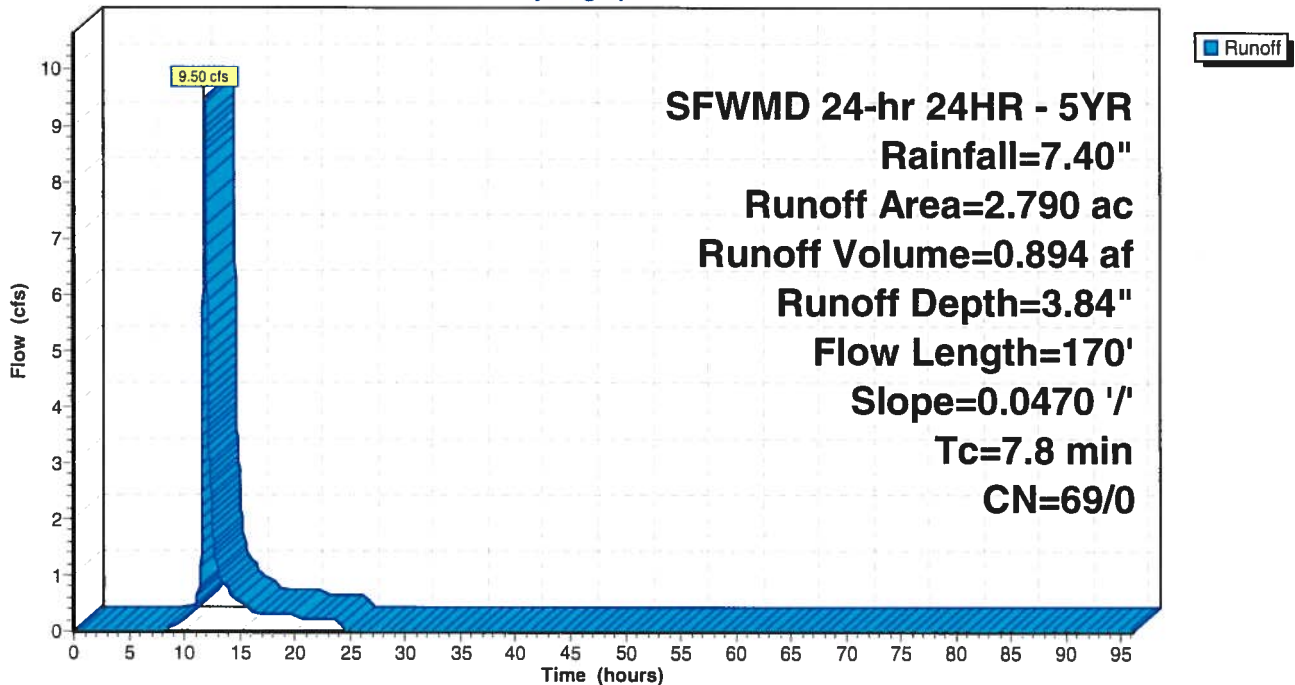
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
2.790	69	50-75% Grass cover, Fair, HSG B
2.790	69	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	170	0.0470	0.36		Sheet Flow, OVERLAND FLOW TO CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 34S: SB-2B

Hydrograph



Subcatchment 35S: SB-2C

Runoff = 5.41 cfs @ 11.76 hrs, Volume= 0.471 af, Depth= 7.16"

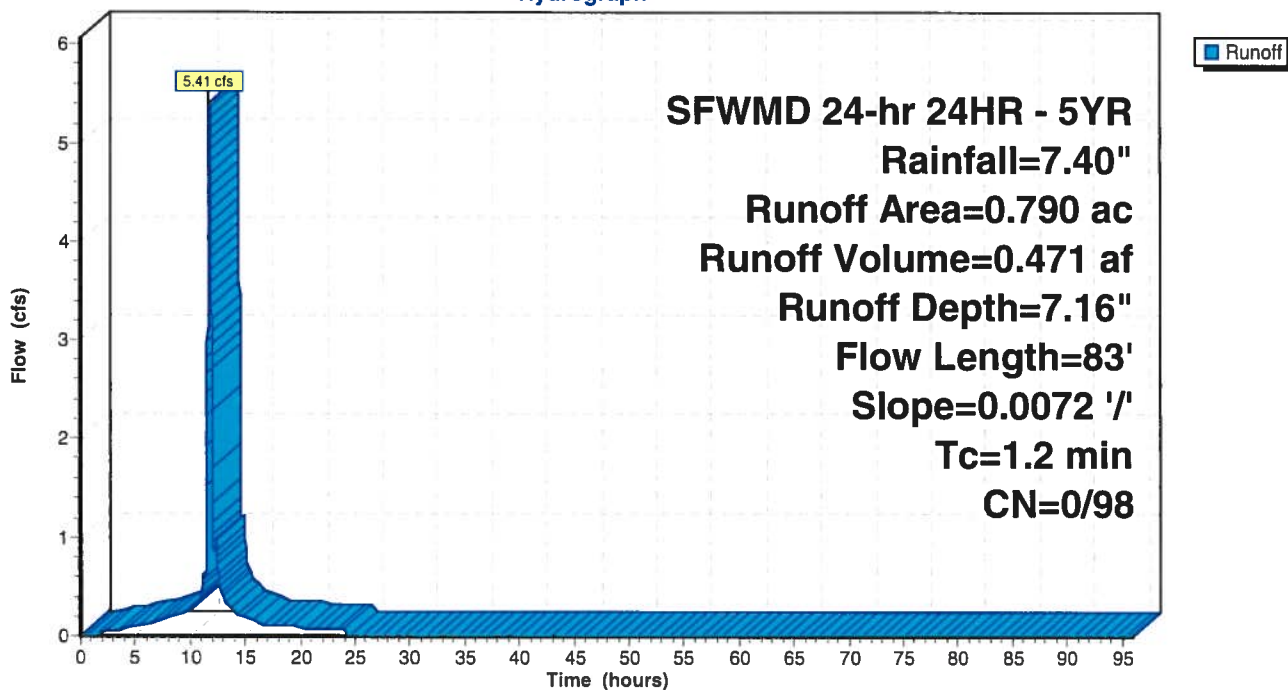
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.790	98	Paved parking & roofs
0.790	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	83	0.0072	1.20		Sheet Flow, OVERLAND TO CANAL Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 35S: SB-2C

Hydrograph



Subcatchment 37S: B-4

Runoff = 3.97 cfs @ 11.76 hrs, Volume= 0.336 af, Depth= 6.02"

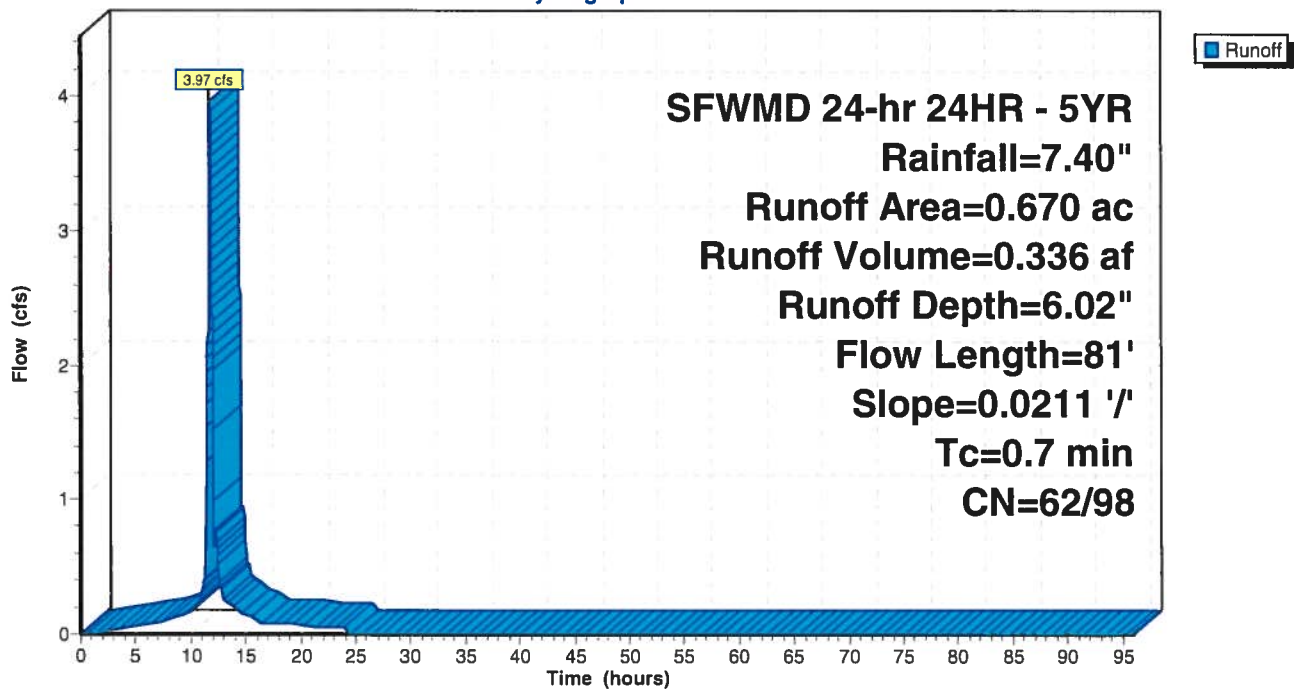
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 24-hr 24HR - 5YR Rainfall=7.40"

Area (ac)	CN	Description
0.670	88	Urban industrial, 72% imp, HSG B
0.188	62	Pervious Area
0.482	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	81	0.0211	1.83		Sheet Flow, OVERLAND TO OFFSITE Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 37S: B-4

Hydrograph



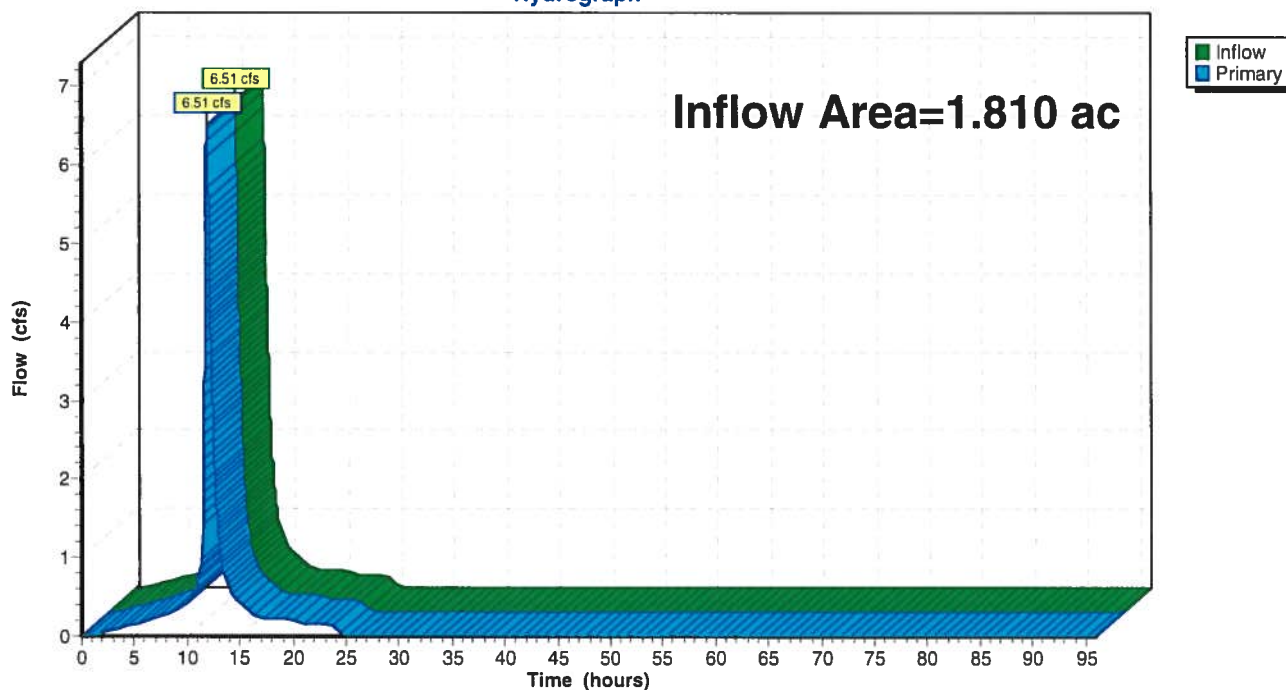
Link 16L: SB-1A COMBINED

Inflow Area = 1.810 ac, Inflow Depth = 6.02" for 24HR - 5YR event
Inflow = 6.51 cfs @ 11.91 hrs, Volume= 0.908 af
Primary = 6.51 cfs @ 11.91 hrs, Volume= 0.908 af, Atten= 0%, Lag= 0.0 min

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

Link 16L: SB-1A COMBINED

Hydrograph



Link 17L: SB-1B COMBINED

Inflow Area = 11.330 ac, Inflow Depth = 6.16" for 24HR - 5YR event

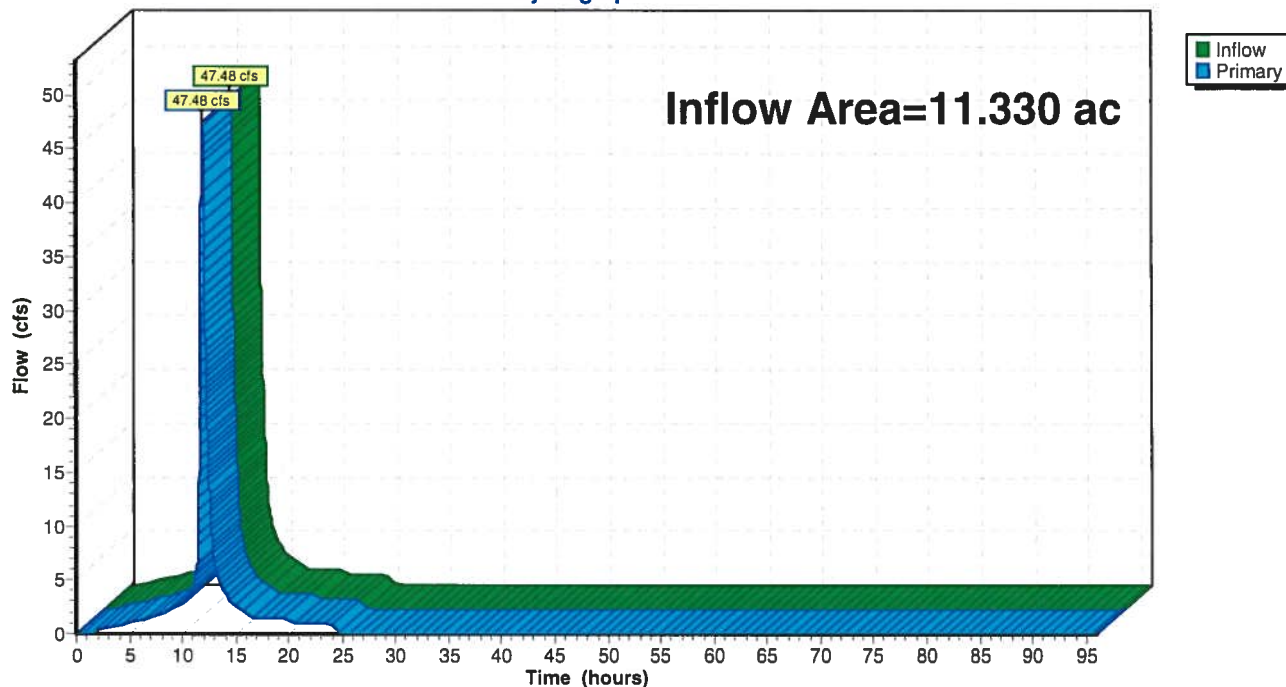
Inflow = 47.48 cfs @ 11.89 hrs, Volume= 5.820 af

Primary = 47.48 cfs @ 11.89 hrs, Volume= 5.820 af, Atten= 0%, Lag= 0.0 min

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

Link 17L: SB-1B COMBINED

Hydrograph



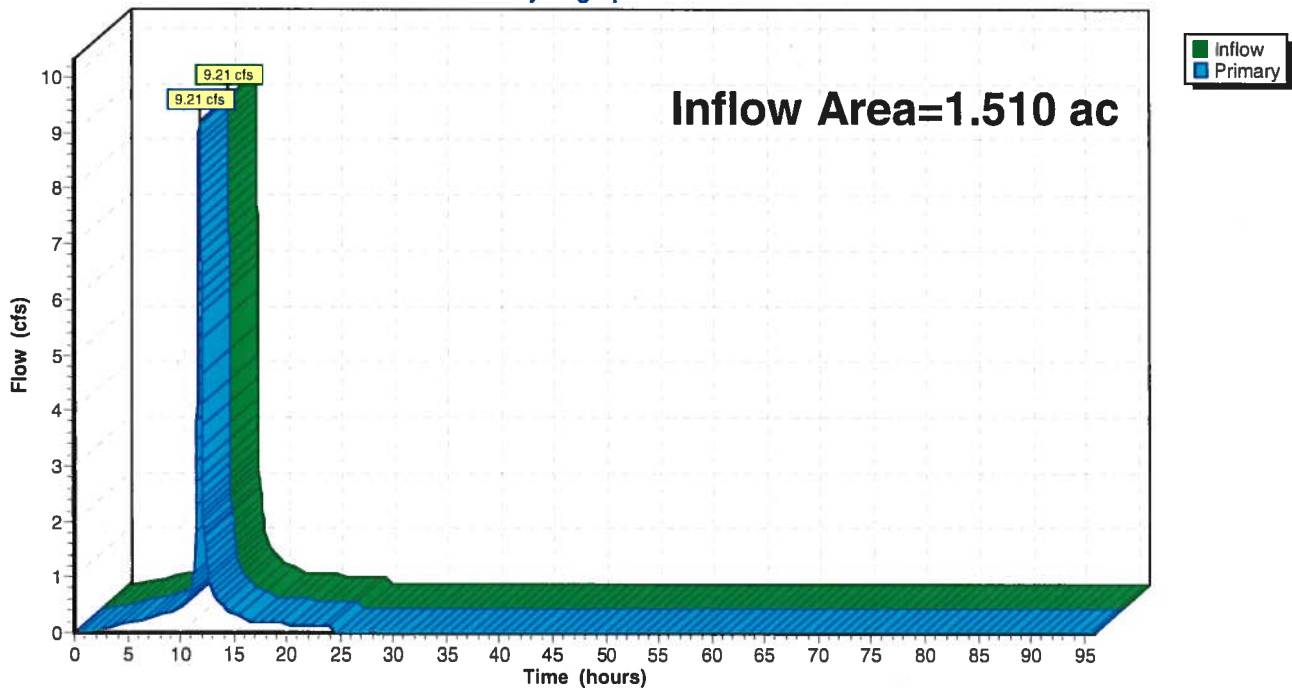
Link 19L: SB-1G COMBINED

Inflow Area = 1.510 ac, Inflow Depth = 6.80" for 24HR - 5YR event
Inflow = 9.21 cfs @ 11.79 hrs, Volume= 0.856 af
Primary = 9.21 cfs @ 11.79 hrs, Volume= 0.856 af, Atten= 0%, Lag= 0.0 min

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

Link 19L: SB-1G COMBINED

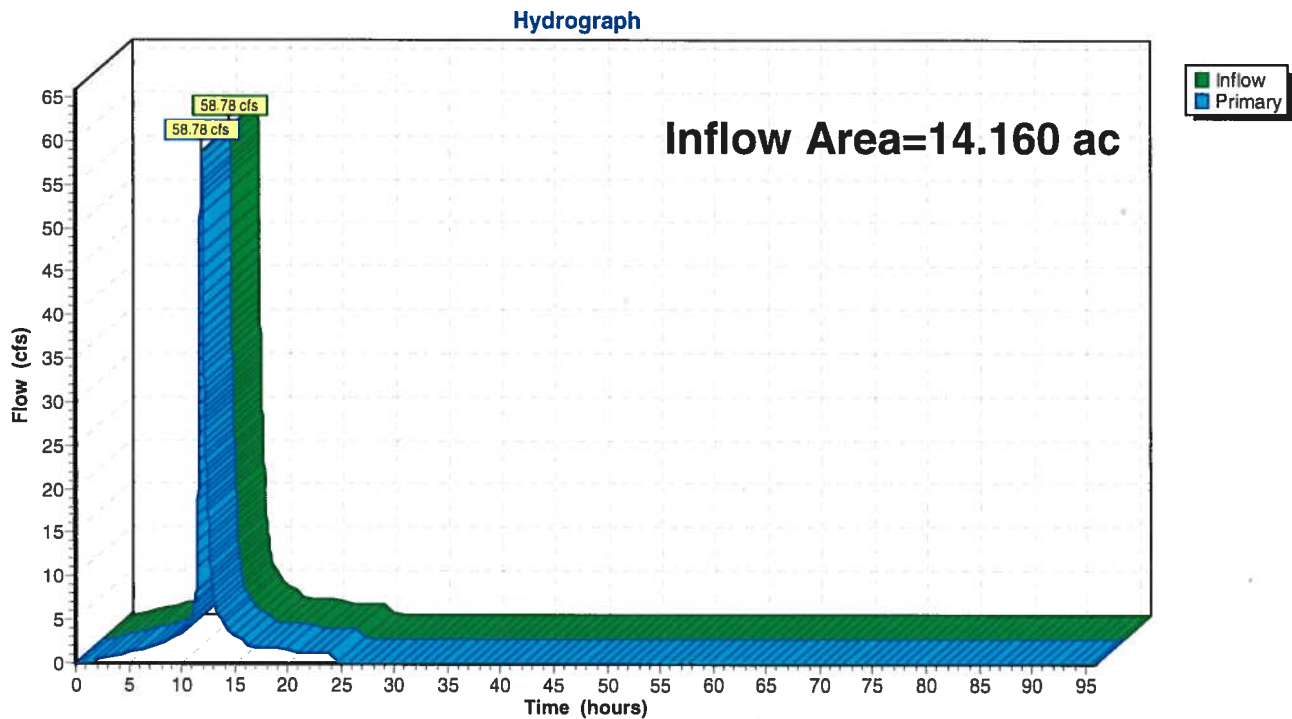
Hydrograph



Link 20L: B-1 SURFACE DISCHARGE

Inflow Area = 14.160 ac, Inflow Depth = 6.14" for 24HR - 5YR event
Inflow = 58.78 cfs @ 11.88 hrs, Volume= 7.240 af
Primary = 58.78 cfs @ 11.88 hrs, Volume= 7.240 af, Atten= 0%, Lag= 0.0 min

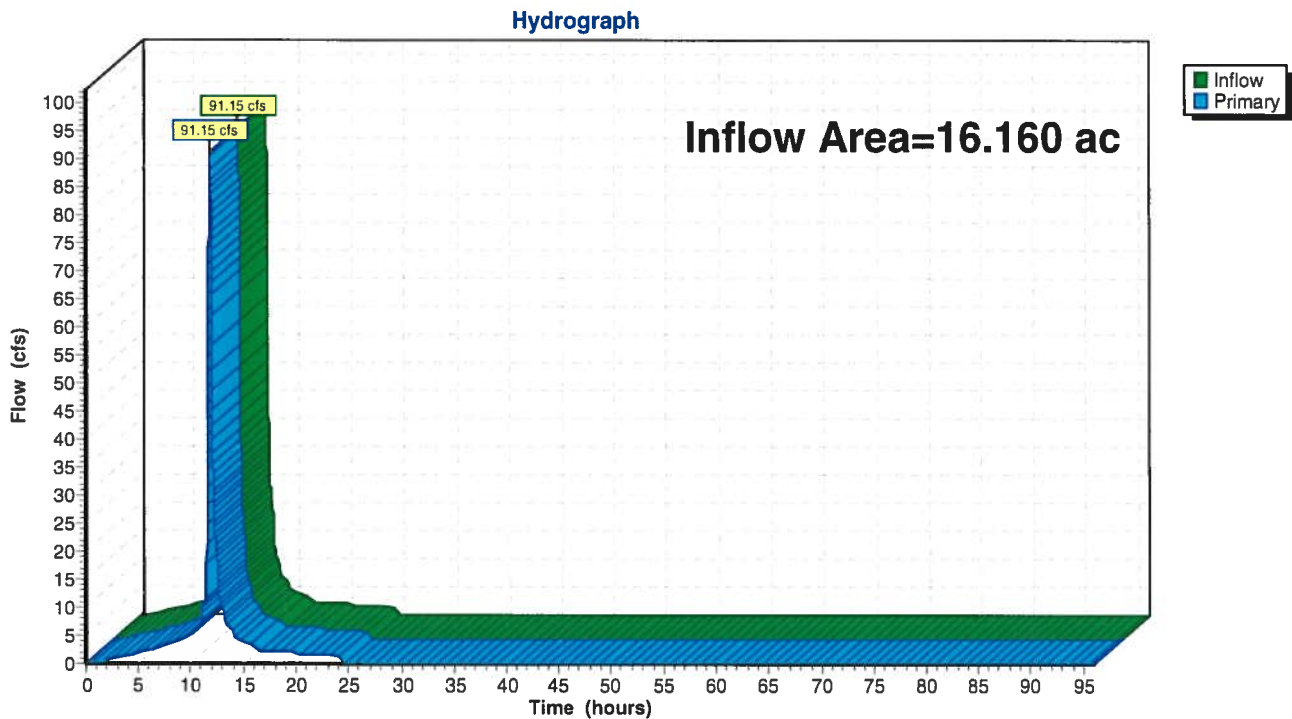
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 20L: B-1 SURFACE DISCHARGE

Link 24L: B-1 INLETS DISCHARGE

Inflow Area = 16.160 ac, Inflow Depth = 7.05" for 24HR - 5YR event
Inflow = 91.15 cfs @ 11.81 hrs, Volume= 9.493 af
Primary = 91.15 cfs @ 11.81 hrs, Volume= 9.493 af, Atten= 0%, Lag= 0.0 min

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

Link 24L: B-1 INLETS DISCHARGE

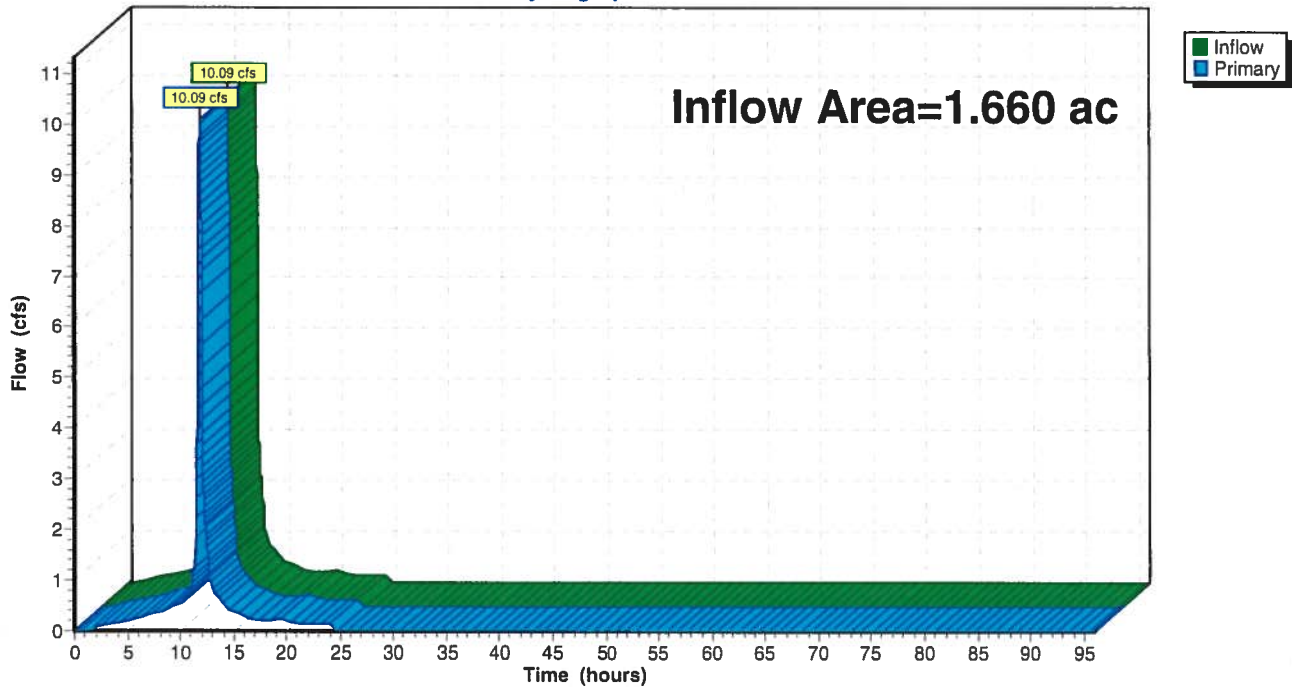
Link 27L: OSB-1 COMBINED

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= 0.00-96.00 hrs, dt= 0.01 hrs

Link 27L: OSB-1 COMBINED

Hydrograph



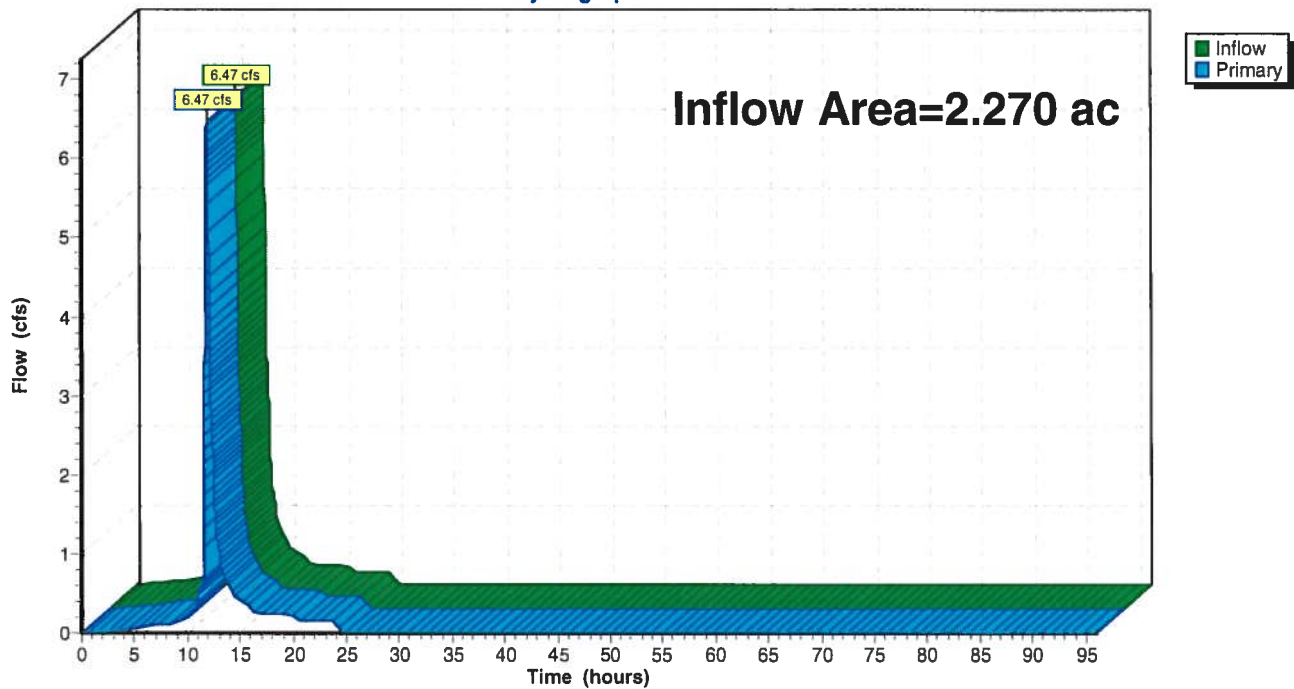
Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Inflow Area = 2.270 ac, Inflow Depth = 3.91" for 24HR - 5YR event
Inflow = 6.47 cfs @ 11.85 hrs, Volume= 0.740 af
Primary = 6.47 cfs @ 11.85 hrs, Volume= 0.740 af, Atten= 0%, Lag= 0.0 min

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

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Hydrograph



Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

Inflow Area = 30.320 ac, Inflow Depth = 6.62" for 24HR - 5YR event

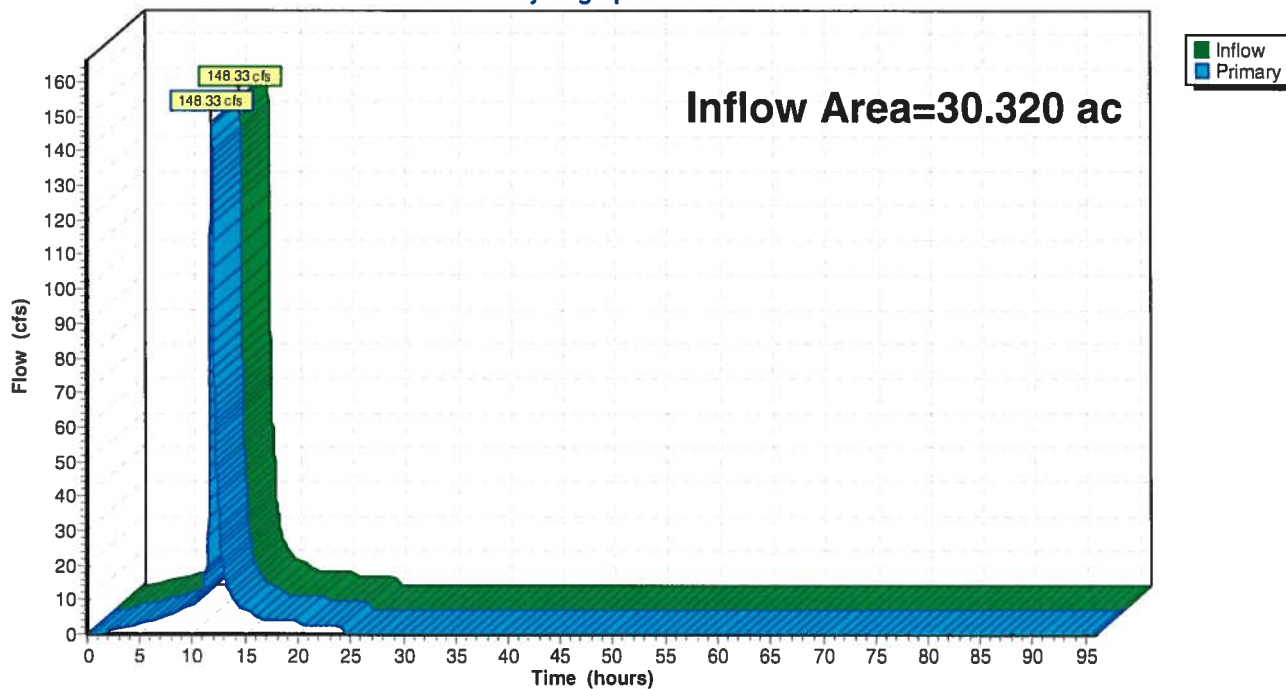
Inflow = 148.33 cfs @ 11.83 hrs, Volume= 16.733 af

Primary = 148.33 cfs @ 11.83 hrs, Volume= 16.733 af, Atten= 0%, Lag= 0.0 min

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

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

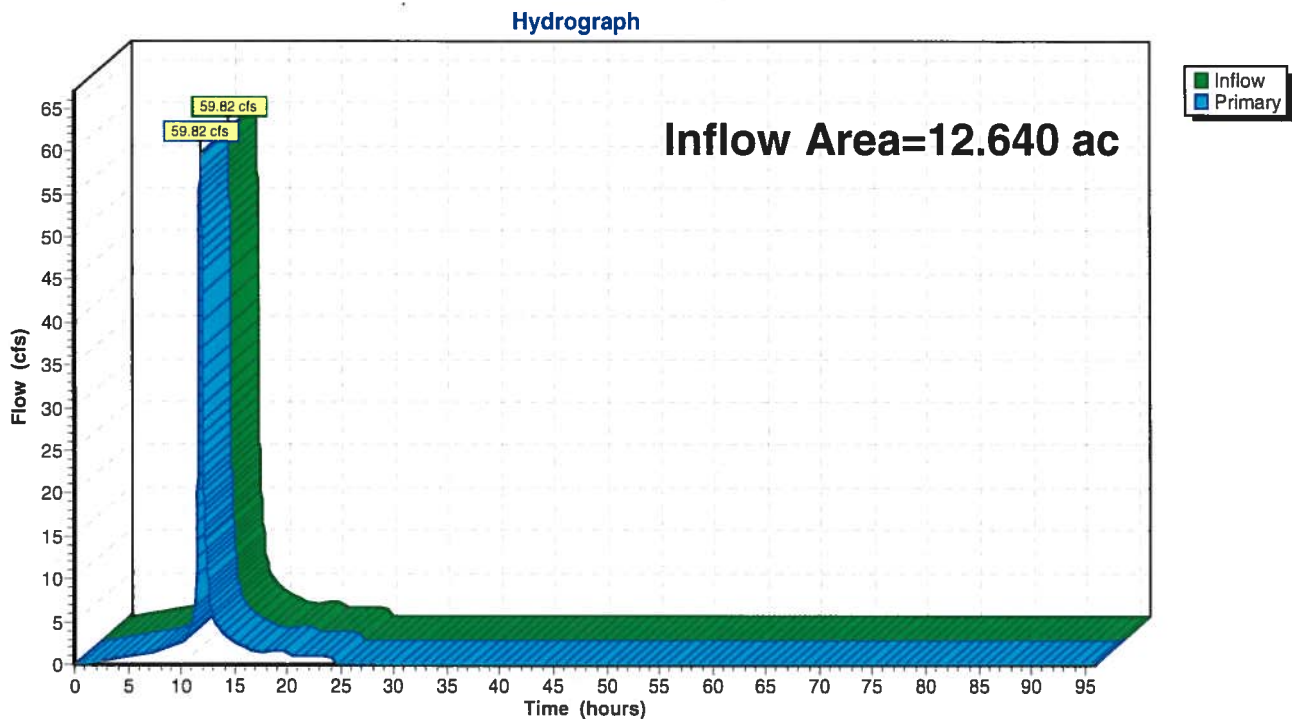
Hydrograph



Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Inflow Area = 12.640 ac, Inflow Depth = 5.61" for 24HR - 5YR event
Inflow = 59.82 cfs @ 11.83 hrs, Volume= 5.913 af
Primary = 59.82 cfs @ 11.83 hrs, Volume= 5.913 af, Atten= 0%, Lag= 0.0 min

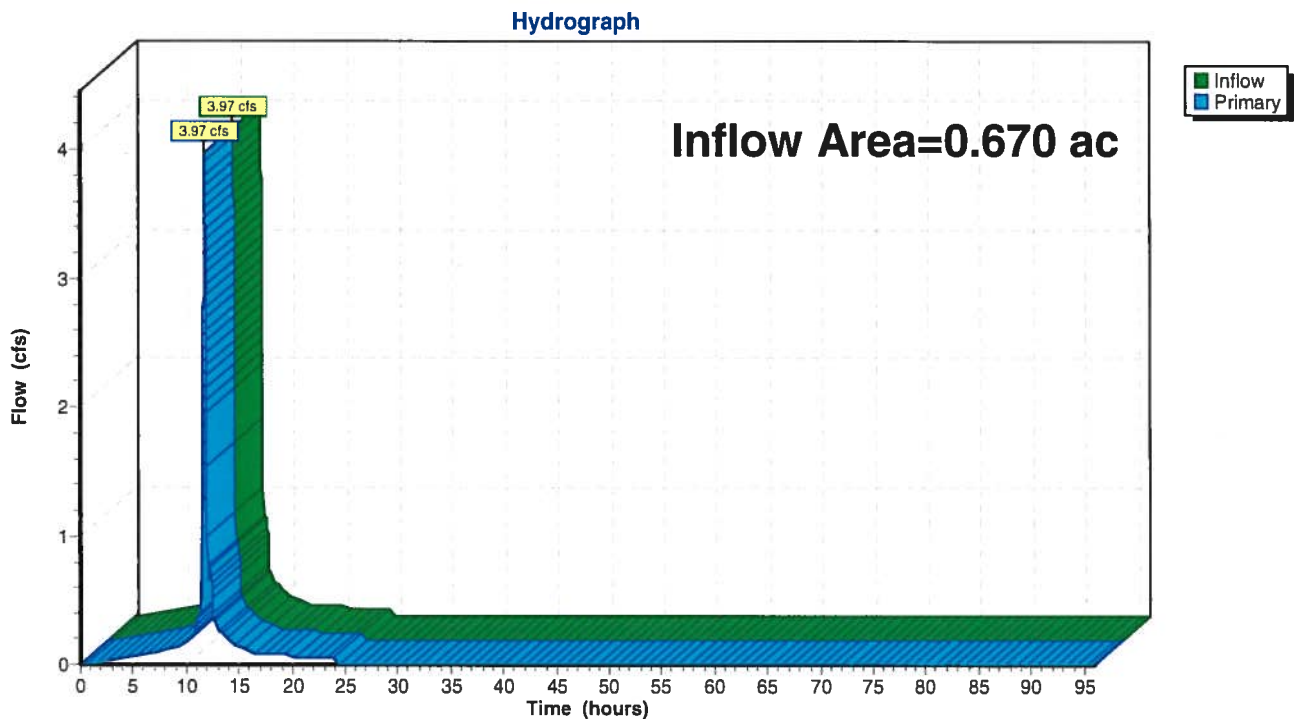
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD

Inflow Area = 0.670 ac, Inflow Depth = 6.02" for 24HR - 5YR event
Inflow = 3.97 cfs @ 11.76 hrs, Volume= 0.336 af
Primary = 3.97 cfs @ 11.76 hrs, Volume= 0.336 af, Atten= 0%, Lag= 0.0 min

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

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD

Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
1.900	61	>75% Grass cover, Good, HSG B (7S,29S)
2.790	69	50-75% Grass cover, Fair, HSG B (34S)
23.600	88	Urban industrial, 72% imp, HSG B (1S,2S,3S,9S,11S,12S,33S,37S)
16.530	98	Paved parking & roofs (2S,5S,6S,7S,8S,9S,22S,25S,26S,30S,35S)
1.080	98	Paved roads w/curbs & sewers (4S)
45.900		

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points

Runoff by SBUH method, Split Pervious/Imperv.

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

Subcatchment 1S: SB-1A

Runoff Area=1.640 ac Runoff Depth=12.61"

Flow Length=239' Slope=0.0104 '/ Tc=18.8 min CN=62/98 Runoff=9.24 cfs 1.724 af

Subcatchment 2S: SB-1B

Runoff Area=10.330 ac Runoff Depth=12.81"

Flow Length=844' Tc=13.6 min CN=62/98 Runoff=66.26 cfs 11.027 af

Subcatchment 3S: SB-1C

Runoff Area=1.020 ac Runoff Depth=12.62"

Flow Length=48' Slope=0.0929 '/ Tc=1.9 min CN=62/98 Runoff=9.19 cfs 1.073 af

Subcatchment 4S: SB-1D

Runoff Area=1.080 ac Runoff Depth=14.06"

Flow Length=379' Tc=9.7 min CN=0/98 Runoff=8.09 cfs 1.265 af

Subcatchment 5S: SB-1E

Runoff Area=1.340 ac Runoff Depth=14.06"

Flow Length=250' Slope=0.0072 '/ Tc=2.8 min CN=0/98 Runoff=12.45 cfs 1.571 af

Subcatchment 6S: SB-1F

Runoff Area=7.980 ac Runoff Depth=14.06"

Tc=5.0 min CN=0/98 Runoff=69.12 cfs 9.351 af

Subcatchment 7S: SB-1G

Runoff Area=1.170 ac Runoff Depth=13.47"

Flow Length=197' Tc=2.9 min CN=61/98 Runoff=10.58 cfs 1.314 af

Subcatchment 8S: SB-1H

Runoff Area=0.530 ac Runoff Depth=14.07"

Flow Length=158' Tc=1.5 min CN=0/98 Runoff=5.12 cfs 0.621 af

Subcatchment 9S: SB-1I

Runoff Area=2.060 ac Runoff Depth=13.28"

Flow Length=367' Tc=25.8 min CN=62/98 Runoff=10.37 cfs 2.280 af

Subcatchment 11S: OSB-1A

Runoff Area=0.170 ac Runoff Depth=12.62"

Flow Length=39' Slope=0.0254 '/ Tc=0.4 min CN=62/98 Runoff=1.60 cfs 0.179 af

Subcatchment 12S: OSB-1B

Runoff Area=1.000 ac Runoff Depth=12.62"

Flow Length=329' Tc=4.5 min CN=62/98 Runoff=8.31 cfs 1.051 af

Subcatchment 22S: OSB-1C

Runoff Area=0.340 ac Runoff Depth=14.06"

Flow Length=310' Tc=4.8 min CN=0/98 Runoff=2.96 cfs 0.398 af

Subcatchment 25S: OSB-1D

Runoff Area=0.540 ac Runoff Depth=14.06"

Tc=5.0 min CN=0/98 Runoff=4.68 cfs 0.633 af

Subcatchment 26S: OSB-1E

Runoff Area=1.120 ac Runoff Depth=14.06"

Tc=5.0 min CN=0/98 Runoff=9.70 cfs 1.312 af

Subcatchment 29S: SB-3A

Runoff Area=1.770 ac Runoff Depth=8.73"

Flow Length=244' Slope=0.0209 '/ Tc=14.5 min CN=61/0 Runoff=9.23 cfs 1.288 af

Subcatchment 30S: SB-3B Runoff Area=0.500 ac Runoff Depth=14.06"
Flow Length=218' Slope=0.0069 '/' Tc=2.5 min CN=0/98 Runoff=4.69 cfs 0.586 af

Subcatchment 33S: SB-2A Runoff Area=9.060 ac Runoff Depth=12.62"
Flow Length=474' Tc=5.8 min CN=62/98 Runoff=72.19 cfs 9.525 af

Subcatchment 34S: SB-2B Runoff Area=2.790 ac Runoff Depth=10.04"
Flow Length=170' Slope=0.0470 '/' Tc=7.8 min CN=69/0 Runoff=19.23 cfs 2.334 af

Subcatchment 35S: SB-2C Runoff Area=0.790 ac Runoff Depth=14.07"
Flow Length=83' Slope=0.0072 '/' Tc=1.2 min CN=0/98 Runoff=7.71 cfs 0.926 af

Subcatchment 37S: B-4 Runoff Area=0.670 ac Runoff Depth=12.62"
Flow Length=81' Slope=0.0211 '/' Tc=0.7 min CN=62/98 Runoff=6.26 cfs 0.705 af

Link 16L: SB-1A COMBINED Inflow=10.27 cfs 1.903 af
Primary=10.27 cfs 1.903 af

Link 17L: SB-1B COMBINED Inflow=73.84 cfs 12.079 af
Primary=73.84 cfs 12.079 af

Link 19L: SB-1G COMBINED Inflow=13.52 cfs 1.712 af
Primary=13.52 cfs 1.712 af

Link 20L: B-1 SURFACE DISCHARGE Inflow=91.67 cfs 15.054 af
Primary=91.67 cfs 15.054 af

Link 24L: B-1 INLETS DISCHARGE Inflow=130.74 cfs 18.745 af
Primary=130.74 cfs 18.745 af

Link 27L: OSB-1 COMBINED Inflow=14.38 cfs 1.945 af
Primary=14.38 cfs 1.945 af

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE Inflow=13.20 cfs 1.874 af
Primary=13.20 cfs 1.874 af

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL Inflow=220.36 cfs 33.799 af
Primary=220.36 cfs 33.799 af

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL Inflow=98.21 cfs 12.785 af
Primary=98.21 cfs 12.785 af

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD Inflow=6.26 cfs 0.705 af
Primary=6.26 cfs 0.705 af

Total Runoff Area = 45.900 ac Runoff Volume = 49.163 af Average Runoff Depth = 12.85"
24.61% Pervious Area = 11.298 ac 75.39% Impervious Area = 34.602 ac

Subcatchment 1S: SB-1A

Runoff = 9.24 cfs @ 59.94 hrs, Volume= 1.724 af, Depth=12.61"

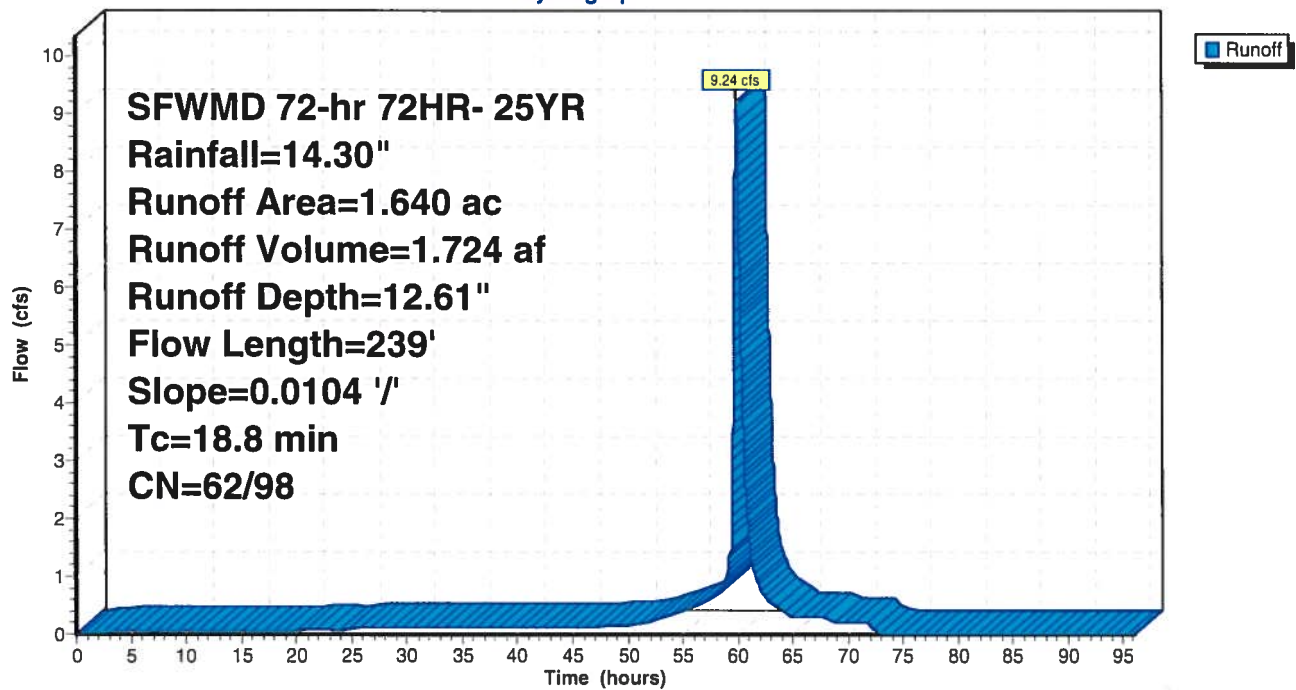
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.640	88	Urban industrial, 72% imp, HSG B
0.459	62	Pervious Area
1.181	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.8	239	0.0104	0.21		Sheet Flow, OVERLAND TO CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 1S: SB-1A

Hydrograph



Subcatchment 2S: SB-1B

Runoff = 66.26 cfs @ 59.90 hrs, Volume= 11.027 af, Depth=12.81"

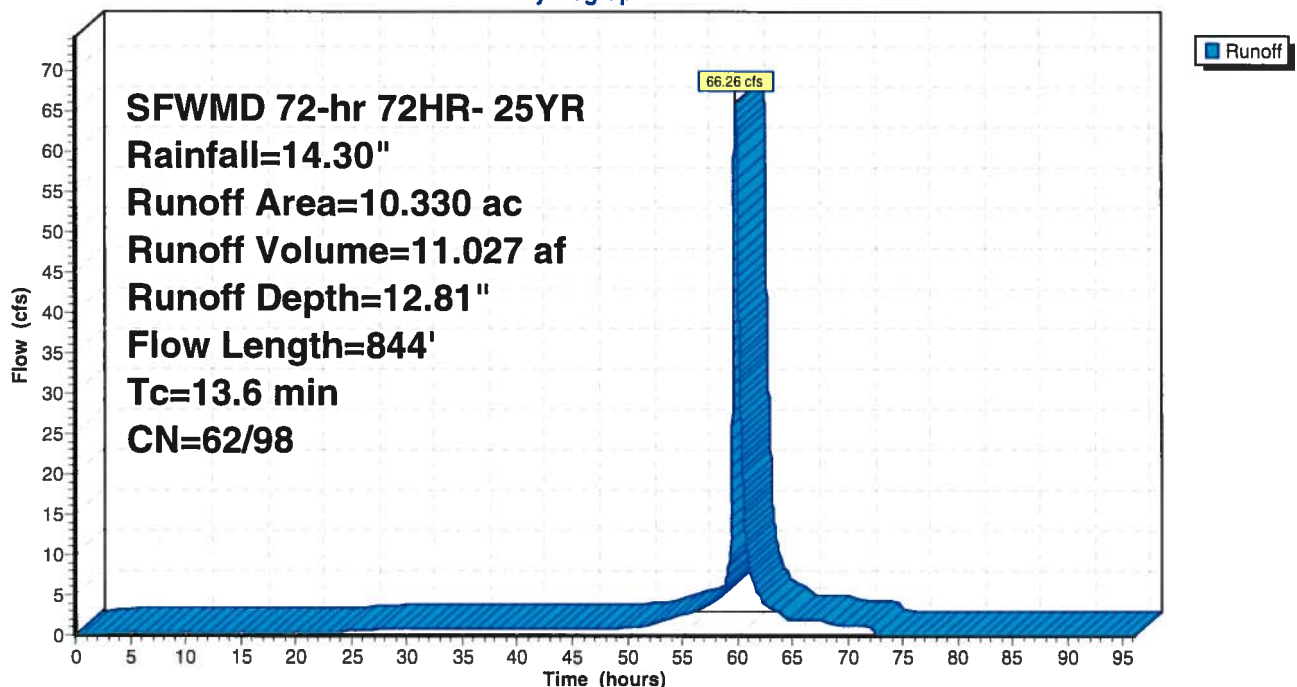
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.400	98	Paved parking & roofs
8.930	88	Urban industrial, 72% imp, HSG B
10.330	89	Weighted Average
2.500	62	Pervious Area
7.830	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	300	0.0110	1.83		Sheet Flow, OVERLAND PARKING AREA Smooth surfaces n= 0.011 P2= 5.90"
0.5	34	0.0029	1.09		Shallow Concentrated Flow, SCF PARKING AREA Paved Kv= 20.3 fps
6.6	363	0.0083	0.91		Shallow Concentrated Flow, SCF ALONG ROAD Nearly Bare & Untilled Kv= 10.0 fps
3.8	147	0.0041	0.64		Shallow Concentrated Flow, SCF TO CANAL Nearly Bare & Untilled Kv= 10.0 fps
13.6	844	Total			

Subcatchment 2S: SB-1B

Hydrograph



Subcatchment 3S: SB-1C

Runoff = 9.19 cfs @ 59.77 hrs, Volume= 1.073 af, Depth=12.62"

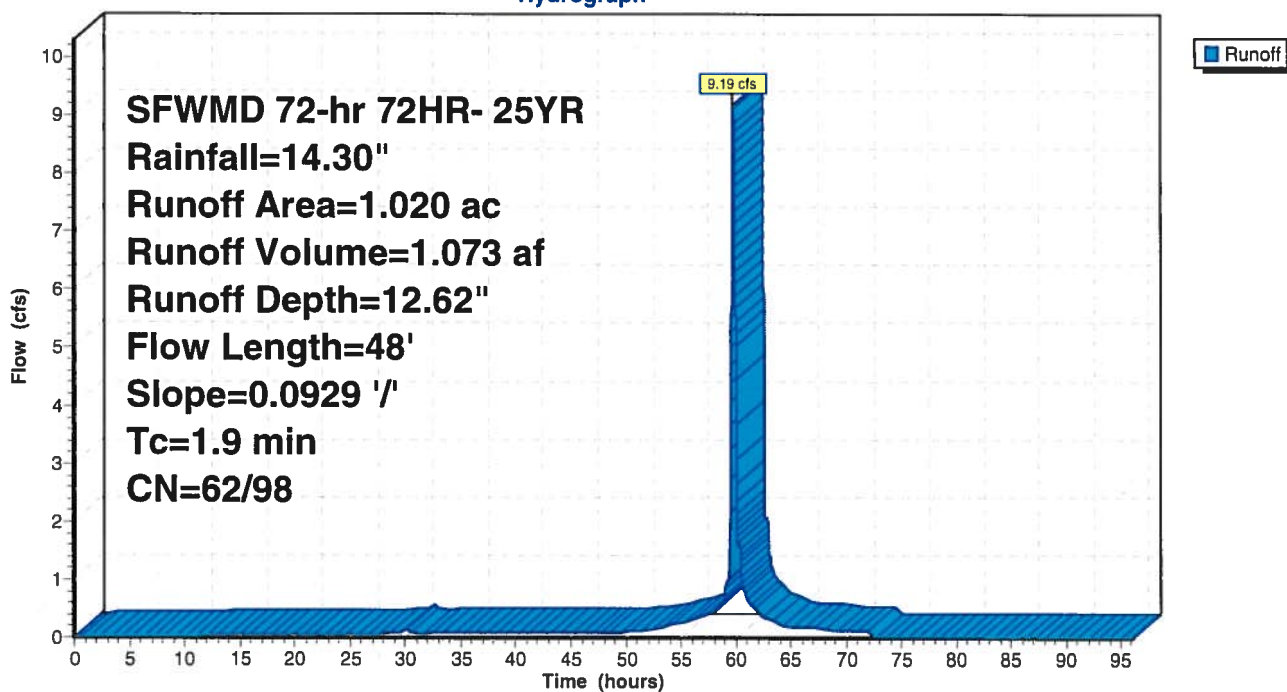
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.020	88	Urban industrial, 72% imp, HSG B
0.286	62	Pervious Area
0.734	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	48	0.0929	0.41		Sheet Flow, OVERLAND TO CANAL
Range n= 0.130 P2= 5.90"					

Subcatchment 3S: SB-1C

Hydrograph



Subcatchment 4S: SB-1D

Runoff = 8.09 cfs @ 59.86 hrs, Volume= 1.265 af, Depth=14.06"

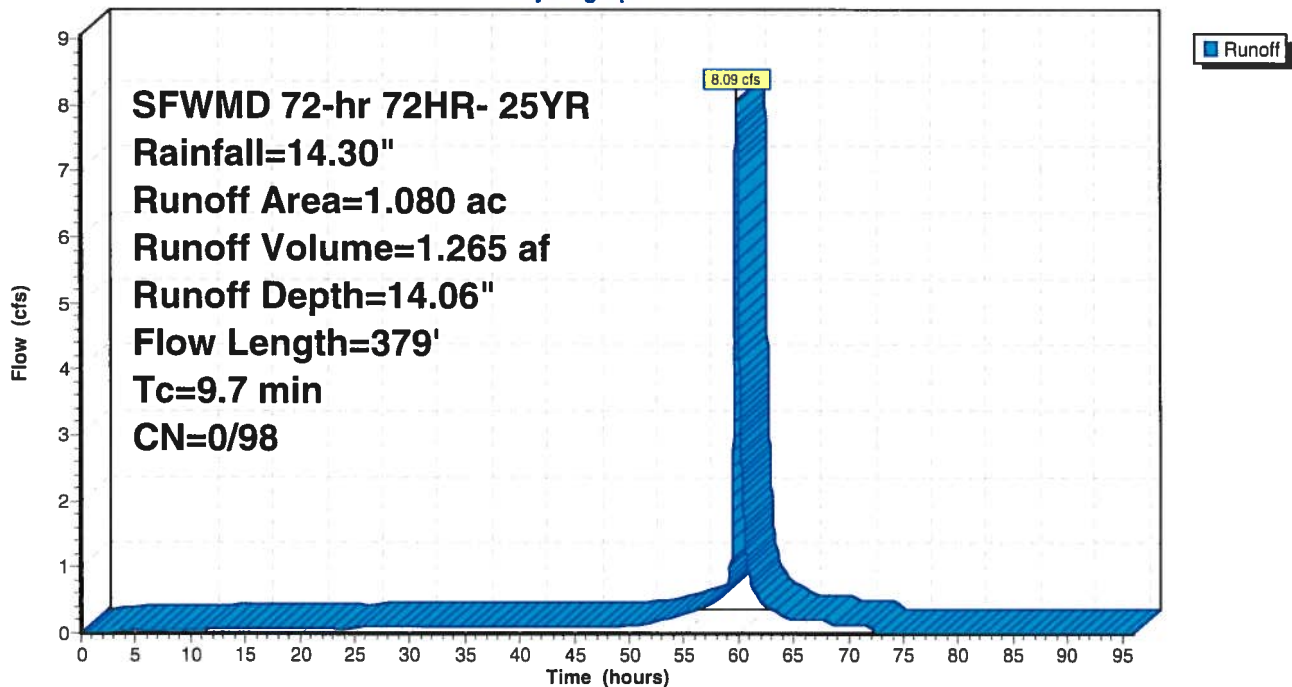
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.080	98	Paved roads w/curbs & sewers
1.080	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0567	2.50		Sheet Flow, OVERLAND FROM POWERBLOCK Smooth surfaces n= 0.011 P2= 5.90"
6.7	248	0.0008	0.62		Sheet Flow, OVERLAND ON ROAD Smooth surfaces n= 0.011 P2= 5.90"
2.6	78	0.0006	0.50		Shallow Concentrated Flow, SCF ON ROAD Paved Kv= 20.3 fps
9.7	379	Total			

Subcatchment 4S: SB-1D

Hydrograph



Subcatchment 5S: SB-1E

Runoff = 12.45 cfs @ 59.78 hrs, Volume= 1.571 af, Depth=14.06"

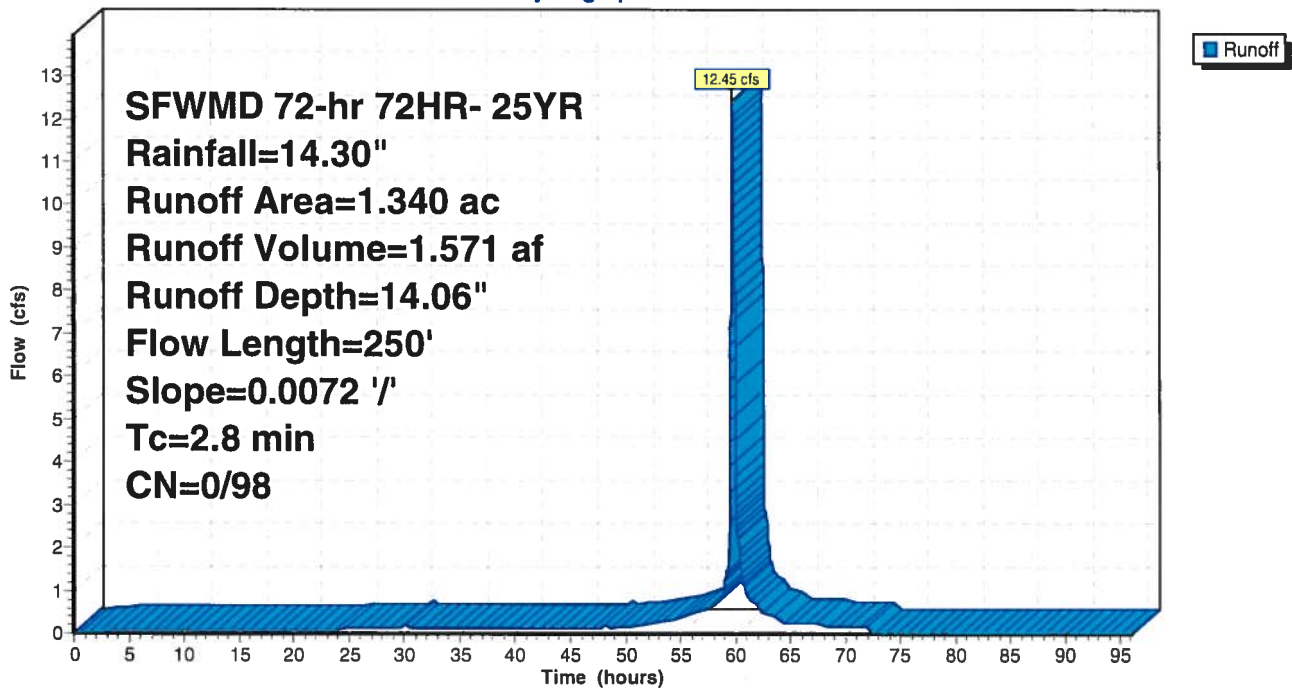
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.340	98	Paved parking & roofs
1.340	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	250	0.0072	1.49		Sheet Flow, OVERLAND DRIVEWAY Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 5S: SB-1E

Hydrograph



Subcatchment 6S: SB-1F

POWERBLOCK DRAINS TO INLETS AND REACHES WITH TC = 5 MIN.

Runoff = 69.12 cfs @ 59.81 hrs, Volume= 9.351 af, Depth=14.06"

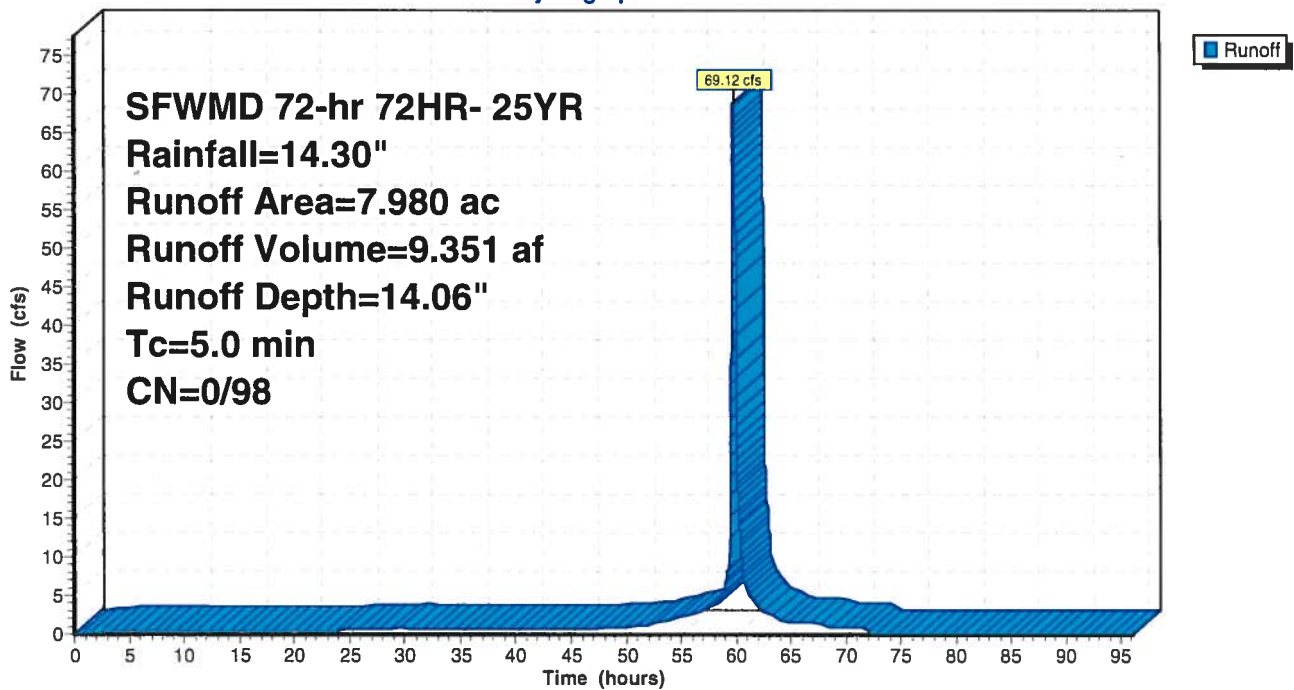
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
7.980	98	Paved parking & roofs
7.980	98	Impervious Area

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

Subcatchment 6S: SB-1F

Hydrograph



Subcatchment 7S: SB-1G

Runoff = 10.58 cfs @ 59.78 hrs, Volume= 1.314 af, Depth=13.47"

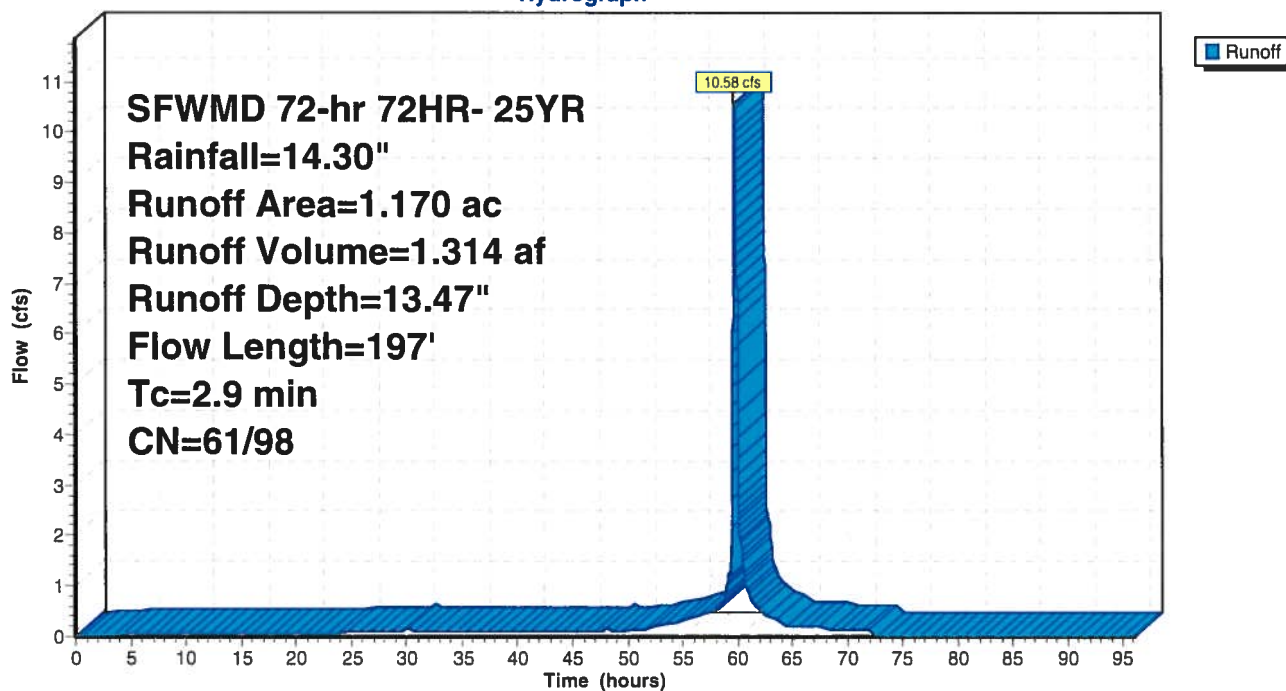
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.130	61	>75% Grass cover, Good, HSG B
1.040	98	Paved parking & roofs
1.170	94	Weighted Average
0.130	61	Pervious Area
1.040	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	146	0.0068	1.31		Sheet Flow, OVERLAND BEGIN AT OSB-1C Smooth surfaces n= 0.011 P2= 5.90"
1.0	51	0.0039	0.85		Sheet Flow, OVERLAND TO SB-1F Smooth surfaces n= 0.011 P2= 5.90"
2.9	197	Total			

Subcatchment 7S: SB-1G

Hydrograph



Subcatchment 8S: SB-1H

Runoff = 5.12 cfs @ 59.77 hrs, Volume= 0.621 af, Depth=14.07"

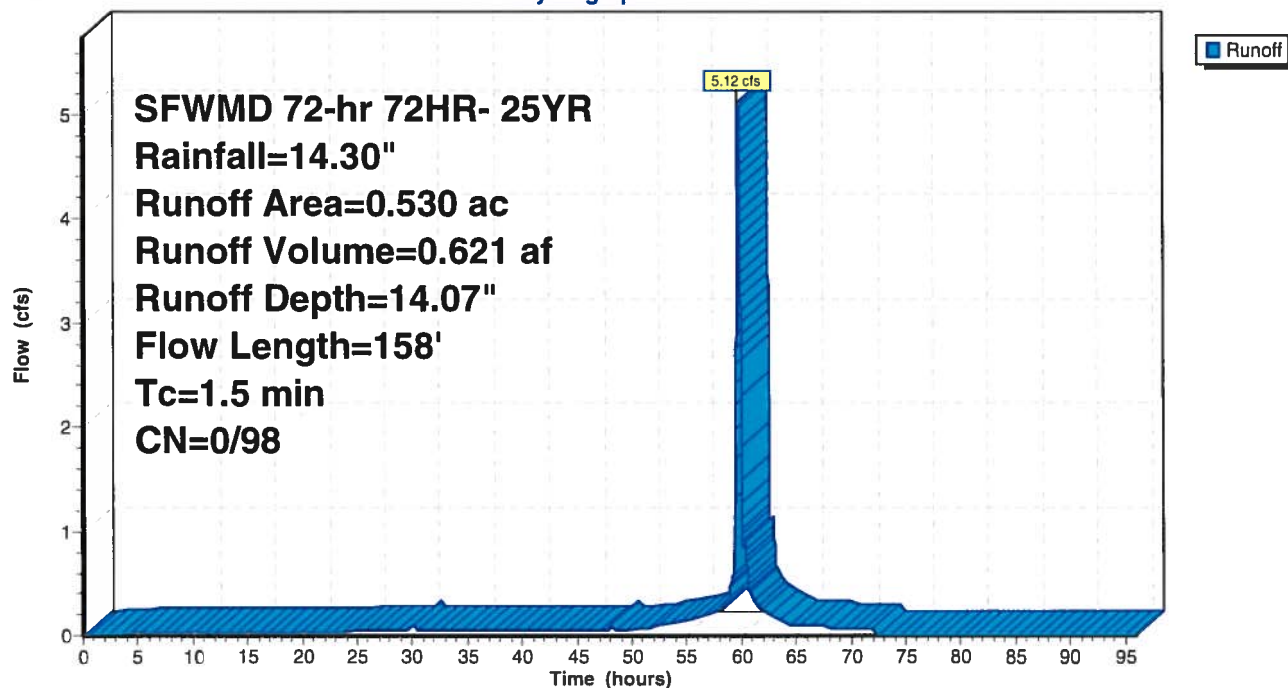
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.530	98	Paved parking & roofs
0.530	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	112	0.0357	2.41		Sheet Flow, OVERLAND FROM BLDGS Smooth surfaces n= 0.011 P2= 5.90"
0.7	46	0.0087	1.15		Sheet Flow, OVERLAND TO INLET Smooth surfaces n= 0.011 P2= 5.90"
1.5	158	Total			

Subcatchment 8S: SB-1H

Hydrograph



Subcatchment 9S: SB-11

Runoff = 10.37 cfs @ 59.97 hrs, Volume= 2.280 af, Depth=13.28"

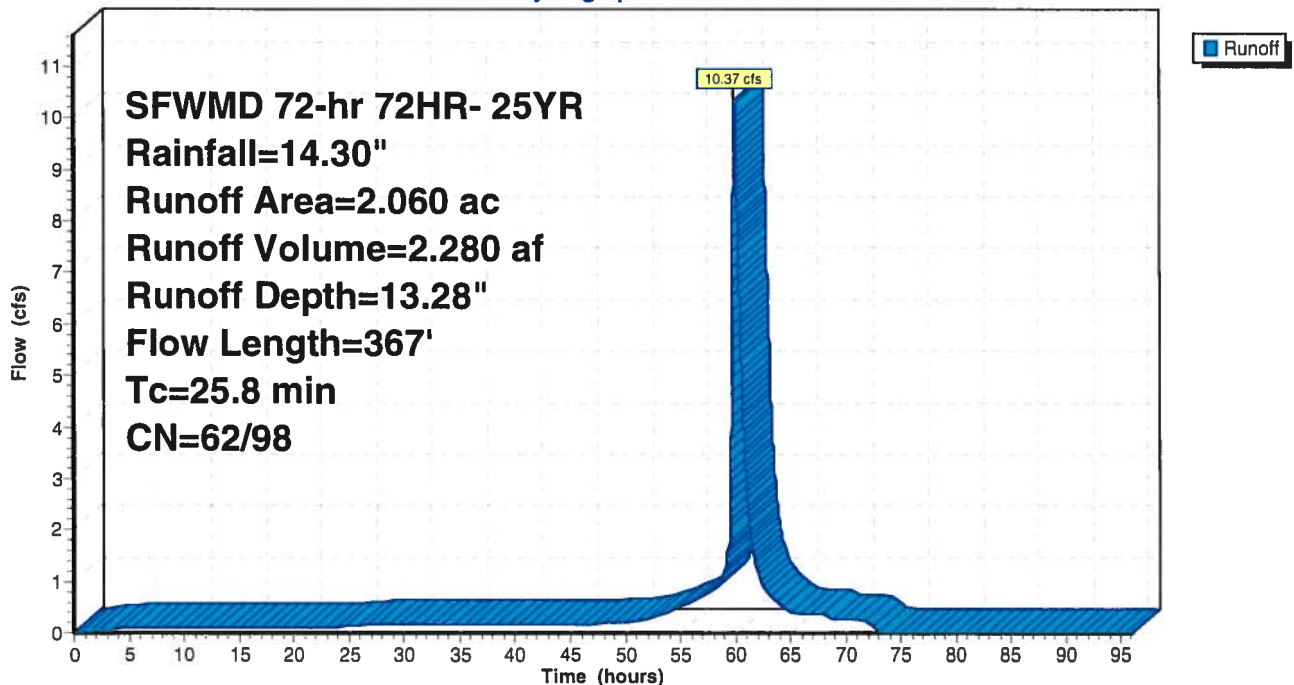
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.110	88	Urban industrial, 72% imp, HSG B
0.950	98	Paved parking & roofs
2.060	93	Weighted Average
0.311	62	Pervious Area
1.749	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	214	0.0051	0.16		Sheet Flow, OVERLAND GRASS AREA Grass: Short n= 0.150 P2= 5.90"
1.6	86	0.0035	0.90		Sheet Flow, OVERLAND TO ROAD Smooth surfaces n= 0.011 P2= 5.90"
1.3	67	0.0030	0.88		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
25.8	367	Total			

Subcatchment 9S: SB-11

Hydrograph



Subcatchment 11S: OSB-1A

Runoff = 1.60 cfs @ 59.76 hrs, Volume= 0.179 af, Depth=12.62"

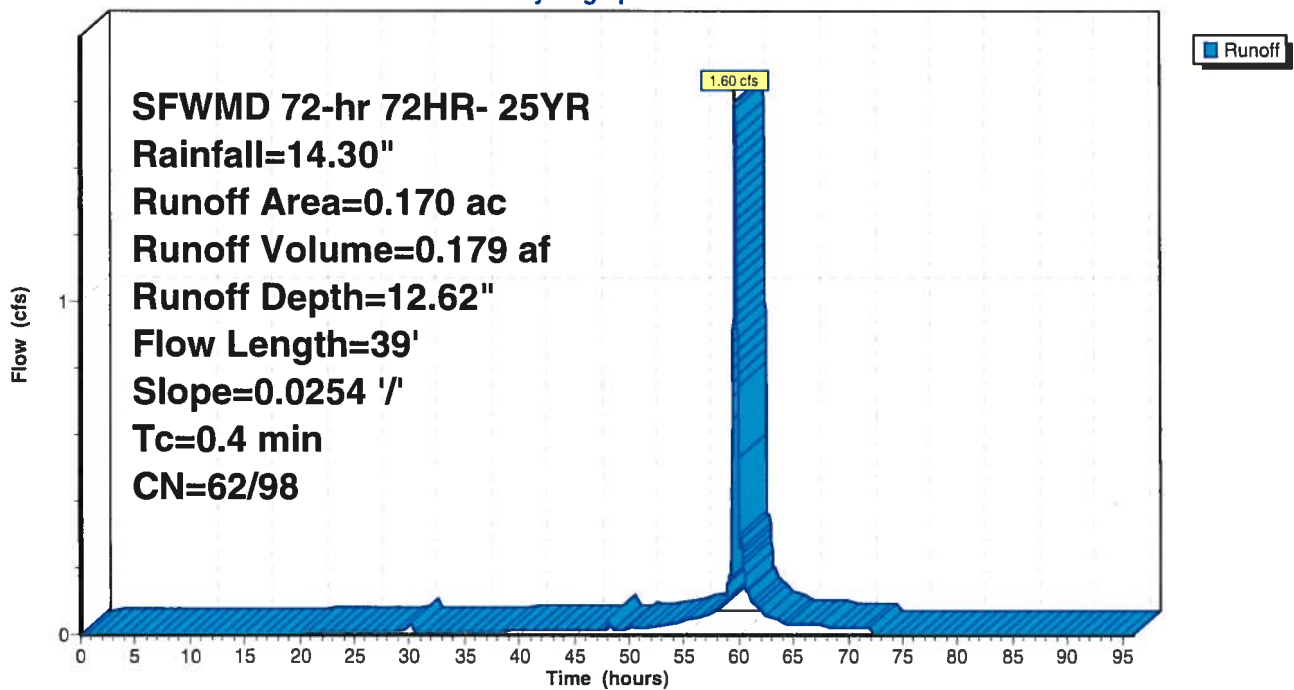
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.170	88	Urban industrial, 72% imp, HSG B
0.048	62	Pervious Area
0.122	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	39	0.0254	1.70		Sheet Flow, OVERLAND TO SB-1A Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 11S: OSB-1A

Hydrograph



Subcatchment 12S: OSB-1B

Runoff = 8.31 cfs @ 59.81 hrs, Volume= 1.051 af, Depth=12.62"

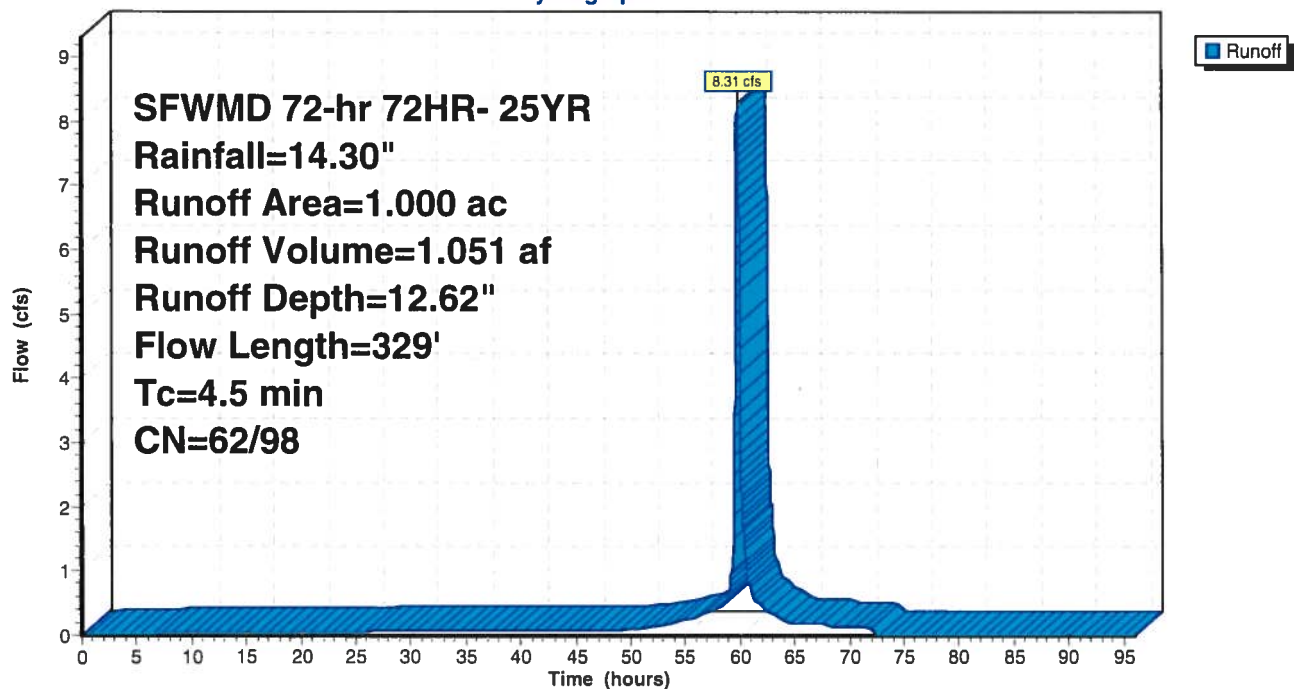
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.000	88	Urban industrial, 72% imp, HSG B
0.280	62	Pervious Area
0.720	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	300	0.0040	1.22		Sheet Flow, OVERLAND ALONG PROP LINE
					Smooth surfaces n= 0.011 P2= 5.90"
0.4	29	0.0069	1.34		Shallow Concentrated Flow, SCF TO SB-1B
					Unpaved Kv= 16.1 fps
4.5	329	Total			

Subcatchment 12S: OSB-1B

Hydrograph



Subcatchment 22S: OSB-1C

Runoff = 2.96 cfs @ 59.81 hrs, Volume= 0.398 af, Depth=14.06"

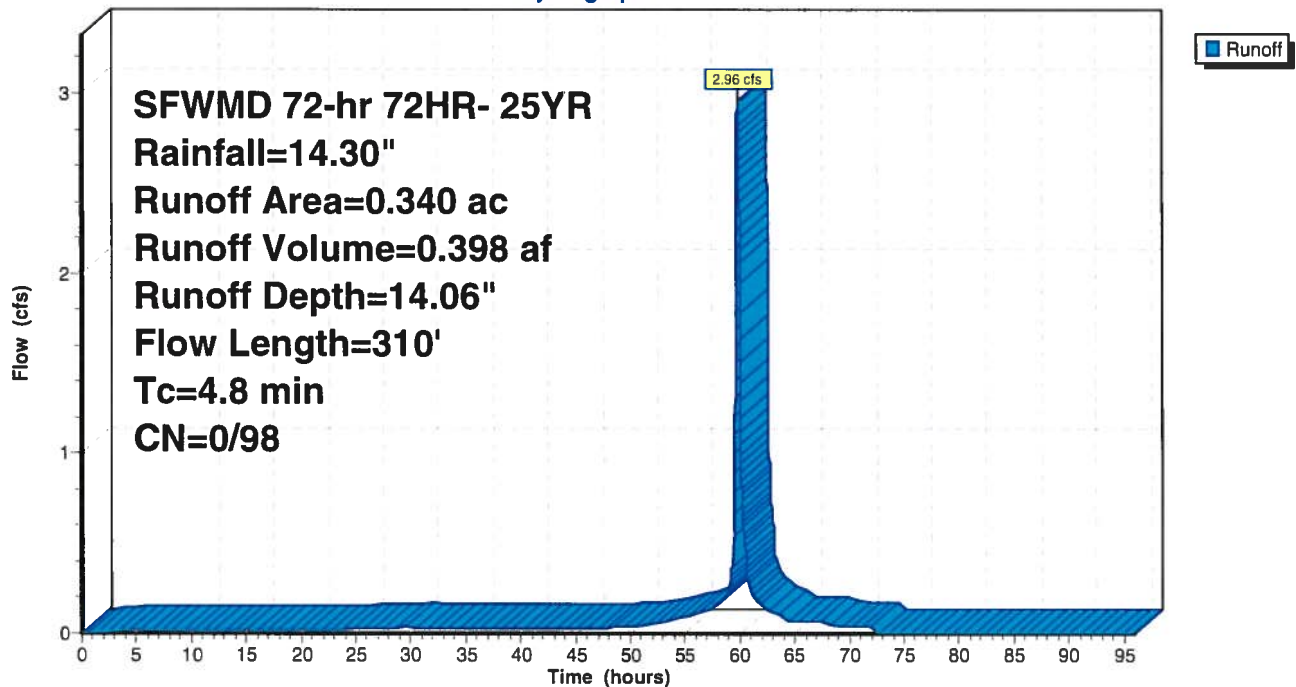
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

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 BEGIN Smooth surfaces n= 0.011 P2= 5.90"
2.6	161	0.0037	1.05		Sheet Flow, OVERLAND DRIVEWAY Smooth surfaces n= 0.011 P2= 5.90"
0.2	11	0.0271	1.15		Shallow Concentrated Flow, SCF TO SB-1G Short Grass Pasture Kv= 7.0 fps
4.8	310	Total			

Subcatchment 22S: OSB-1C

Hydrograph



Subcatchment 25S: OSB-1D

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

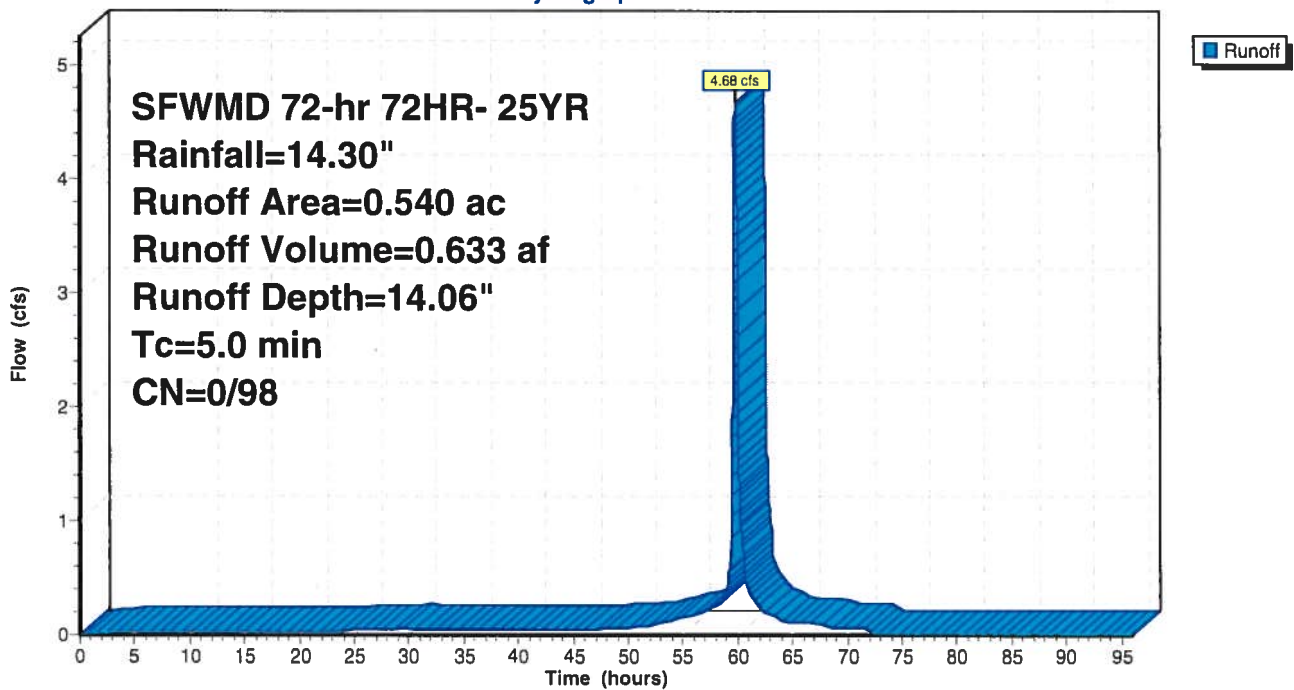
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

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, CURBED AREA

Subcatchment 25S: OSB-1D

Hydrograph



Subcatchment 26S: OSB-1E

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

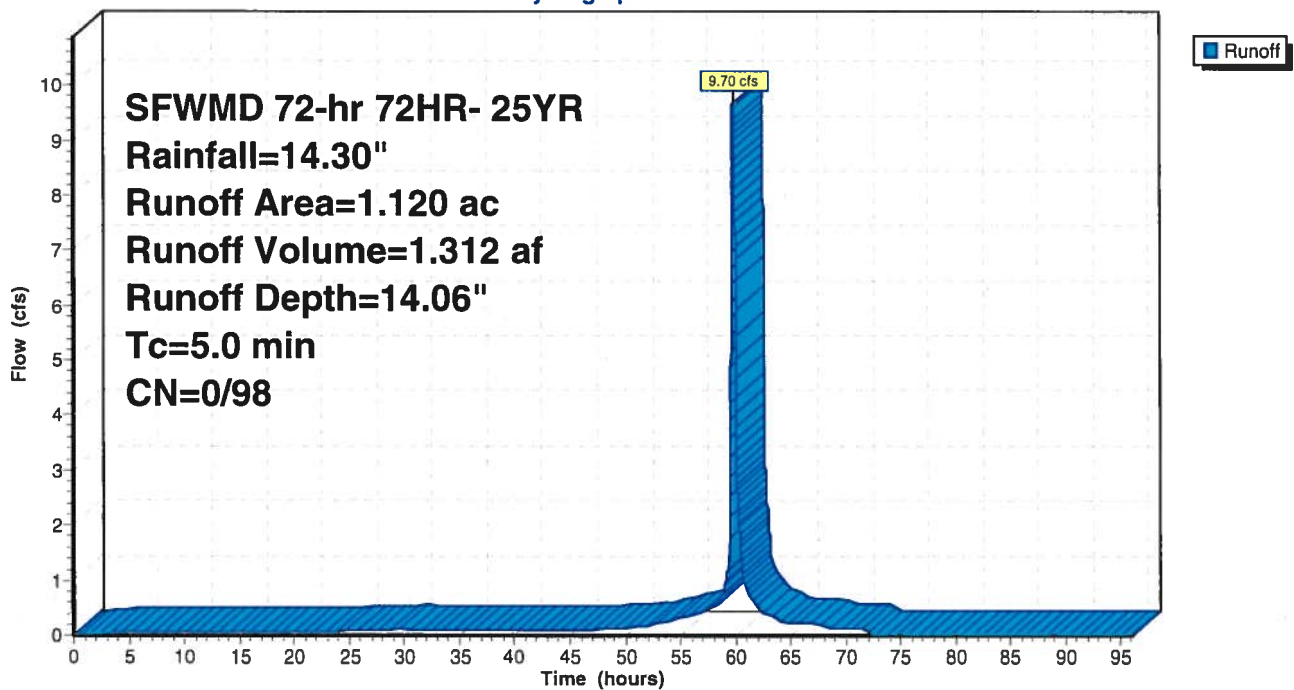
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

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, GENERATOR INLETS

Subcatchment 26S: OSB-1E

Hydrograph



Subcatchment 29S: SB-3A

Runoff = 9.23 cfs @ 59.92 hrs, Volume= 1.288 af, Depth= 8.73"

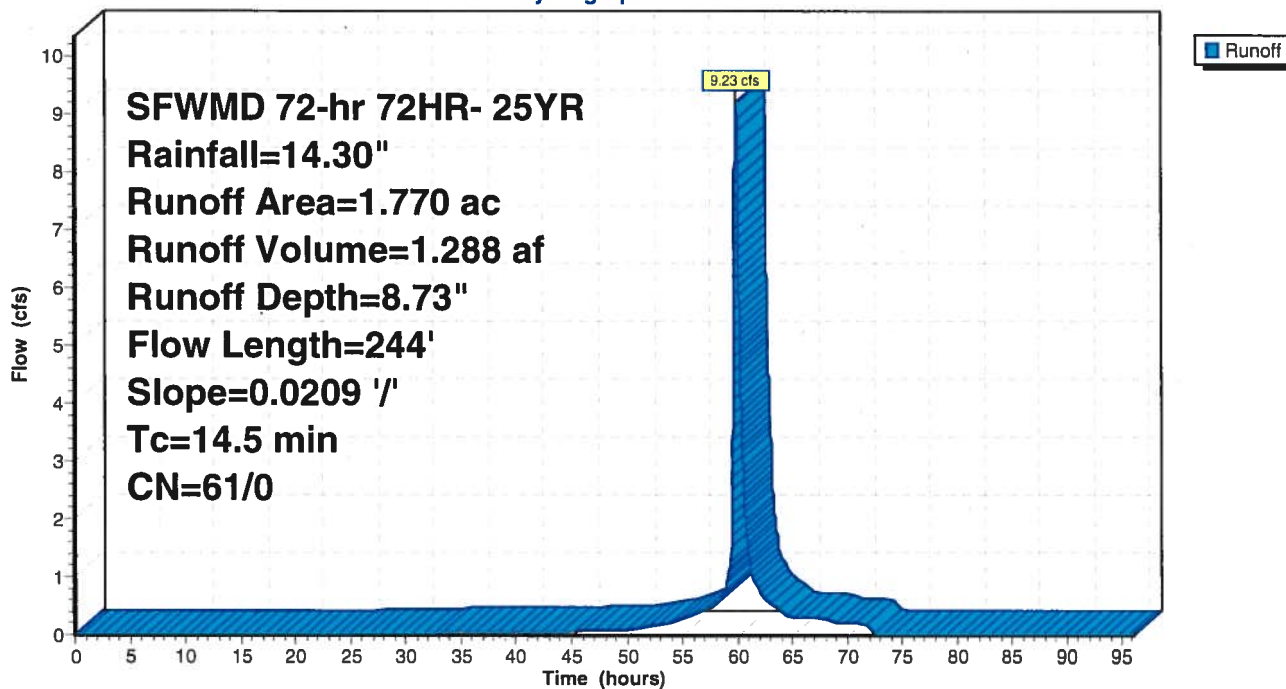
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
1.770	61	>75% Grass cover, Good, HSG B
1.770	61	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	244	0.0209	0.28		Sheet Flow, OVERLAND TO OFFSITE Grass: Short n= 0.150 P2= 5.90"

Subcatchment 29S: SB-3A

Hydrograph



Subcatchment 30S: SB-3B

Runoff = 4.69 cfs @ 59.78 hrs, Volume= 0.586 af, Depth=14.06"

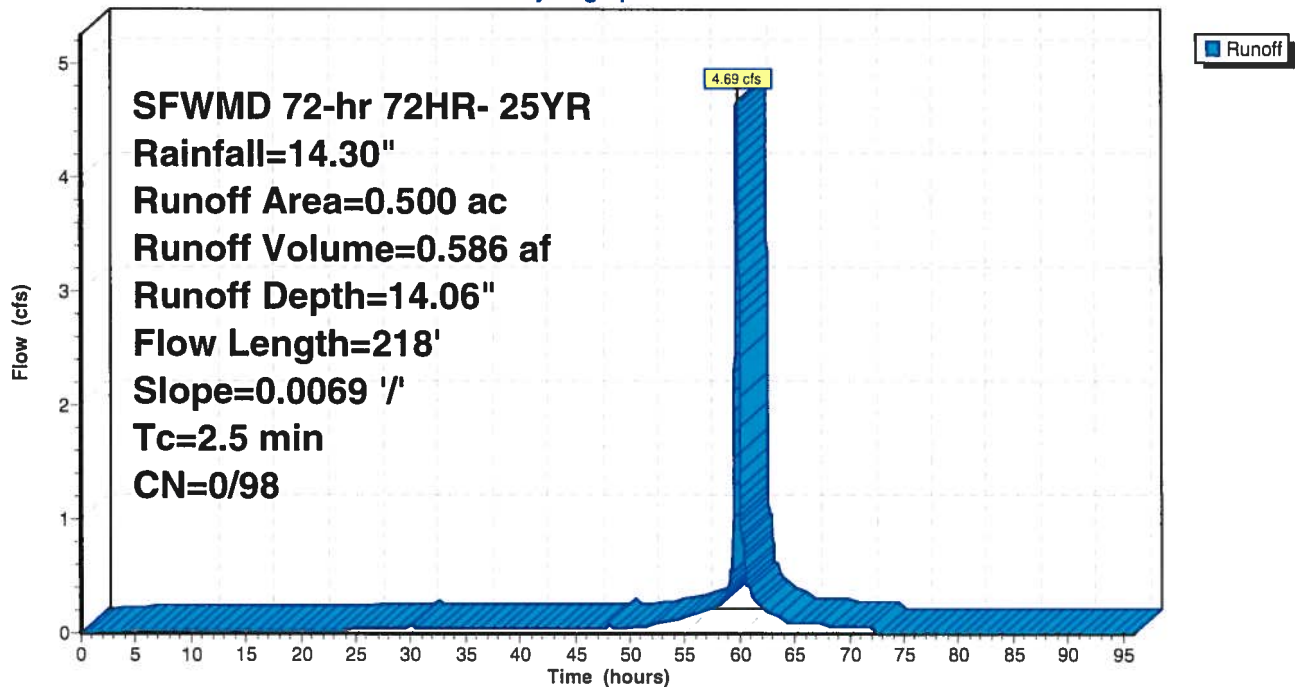
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

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
2.5	218	0.0069	1.43		Sheet Flow, OVERLAND TO SB-3A Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 30S: SB-3B

Hydrograph



Subcatchment 33S: SB-2A

Runoff = 72.19 cfs @ 59.82 hrs, Volume= 9.525 af, Depth=12.62"

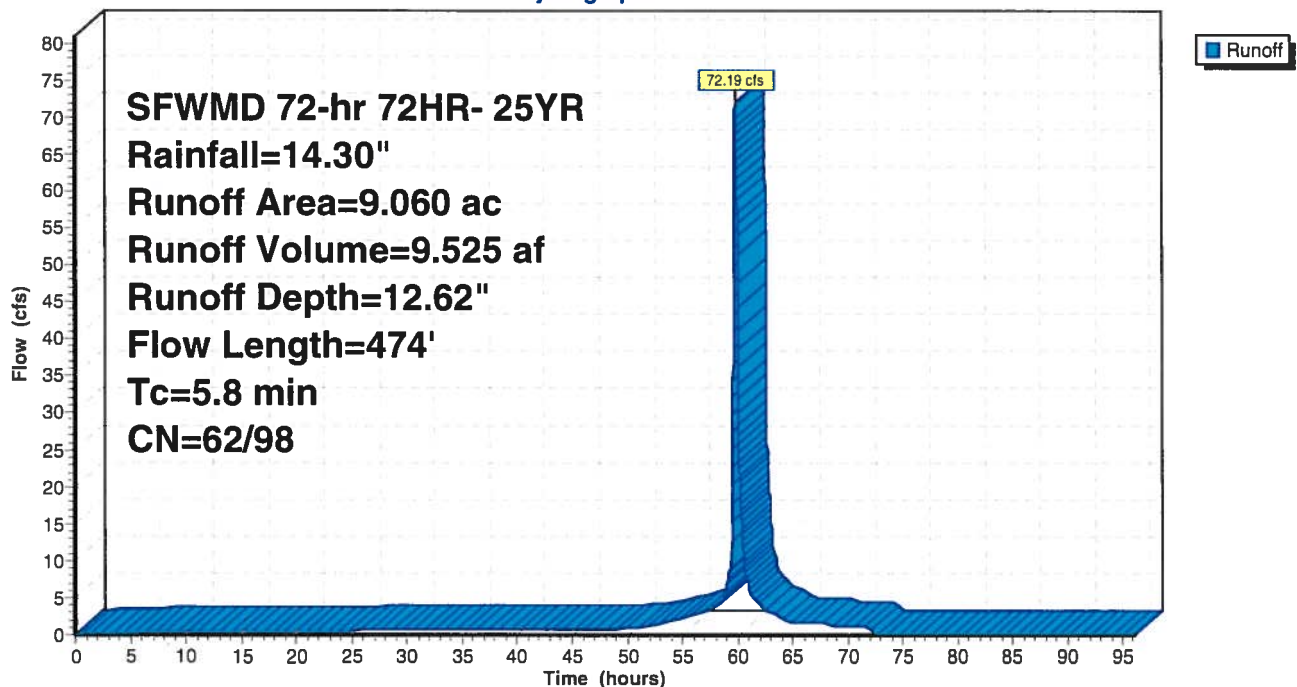
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
9.060	88	Urban industrial, 72% imp, HSG B
2.537	62	Pervious Area
6.523	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	300	0.0047	1.30		Sheet Flow, OVERLAND
					Smooth surfaces n= 0.011 P2= 5.90"
2.0	174	0.0080	1.44		Shallow Concentrated Flow, SCF TO INLET
					Unpaved Kv= 16.1 fps
5.8	474	Total			

Subcatchment 33S: SB-2A

Hydrograph



Subcatchment 34S: SB-2B

Runoff = 19.23 cfs @ 59.85 hrs, Volume= 2.334 af, Depth=10.04"

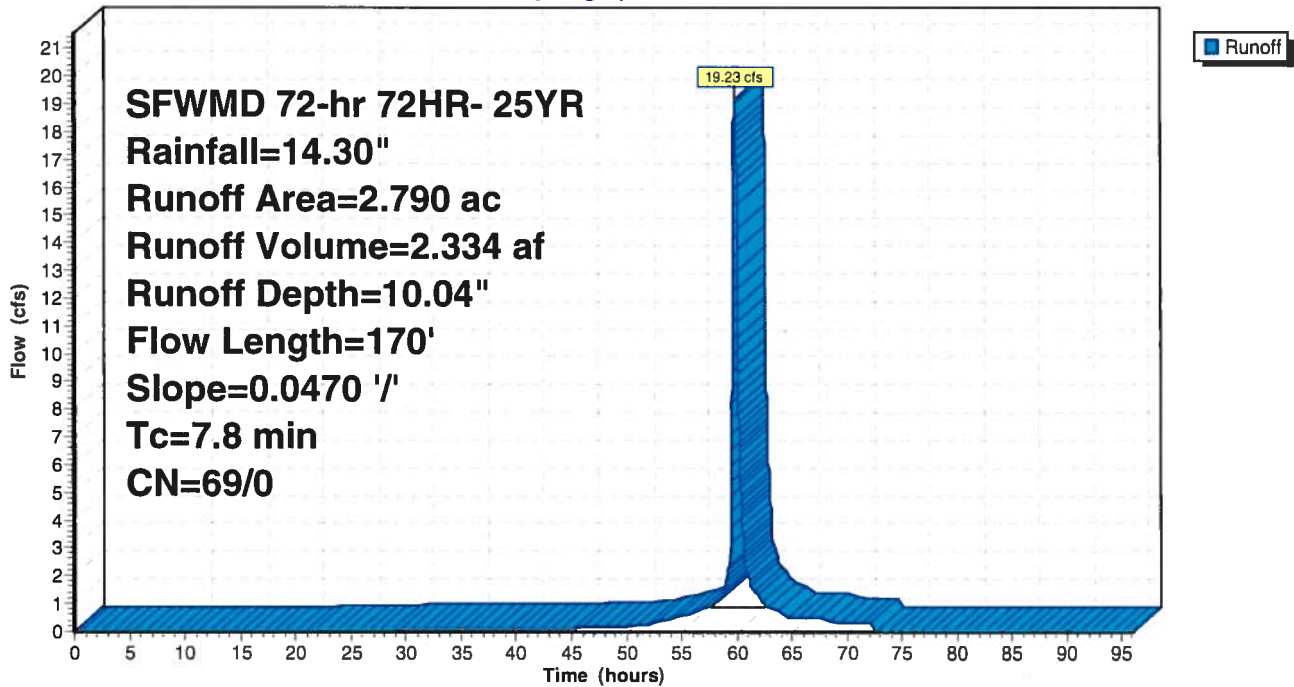
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
2.790	69	50-75% Grass cover, Fair, HSG B
2.790	69	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	170	0.0470	0.36		Sheet Flow, OVERLAND FLOW TO CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 34S: SB-2B

Hydrograph



Subcatchment 35S: SB-2C

Runoff = 7.71 cfs @ 59.76 hrs, Volume= 0.926 af, Depth=14.07"

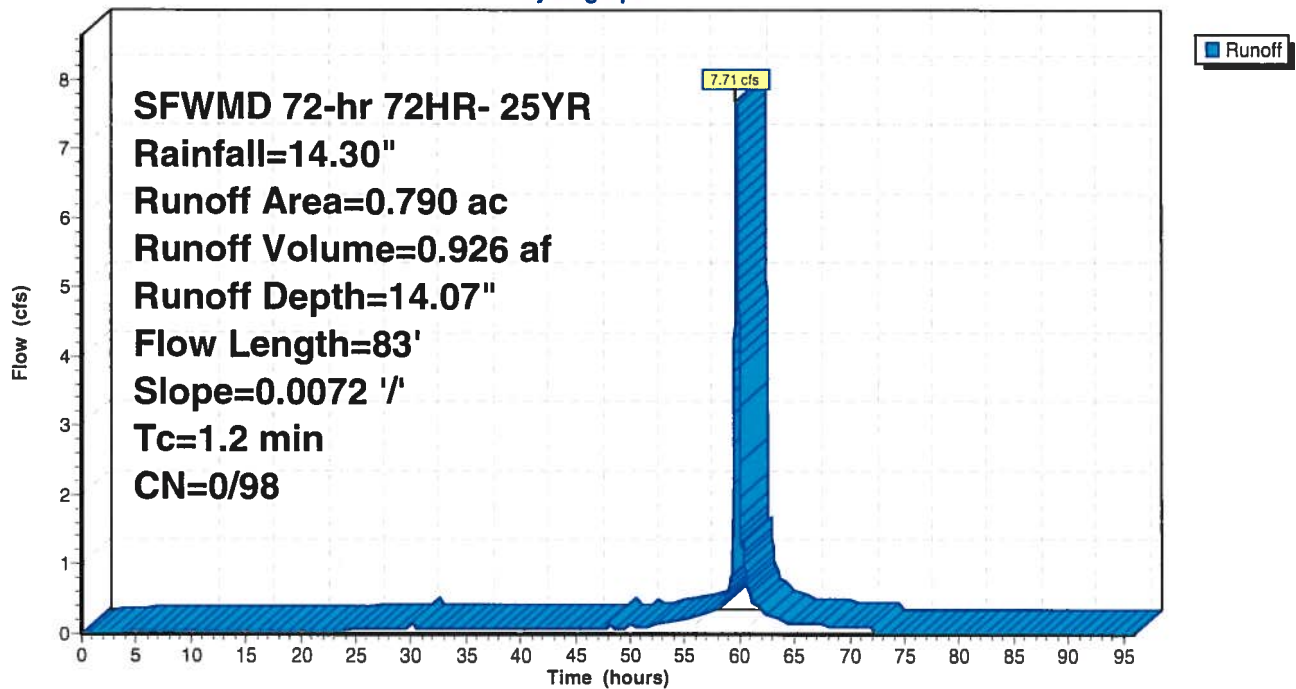
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.790	98	Paved parking & roofs
0.790	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	83	0.0072	1.20		Sheet Flow, OVERLAND TO CANAL Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 35S: SB-2C

Hydrograph



Subcatchment 37S: B-4

Runoff = 6.26 cfs @ 59.76 hrs, Volume= 0.705 af, Depth=12.62"

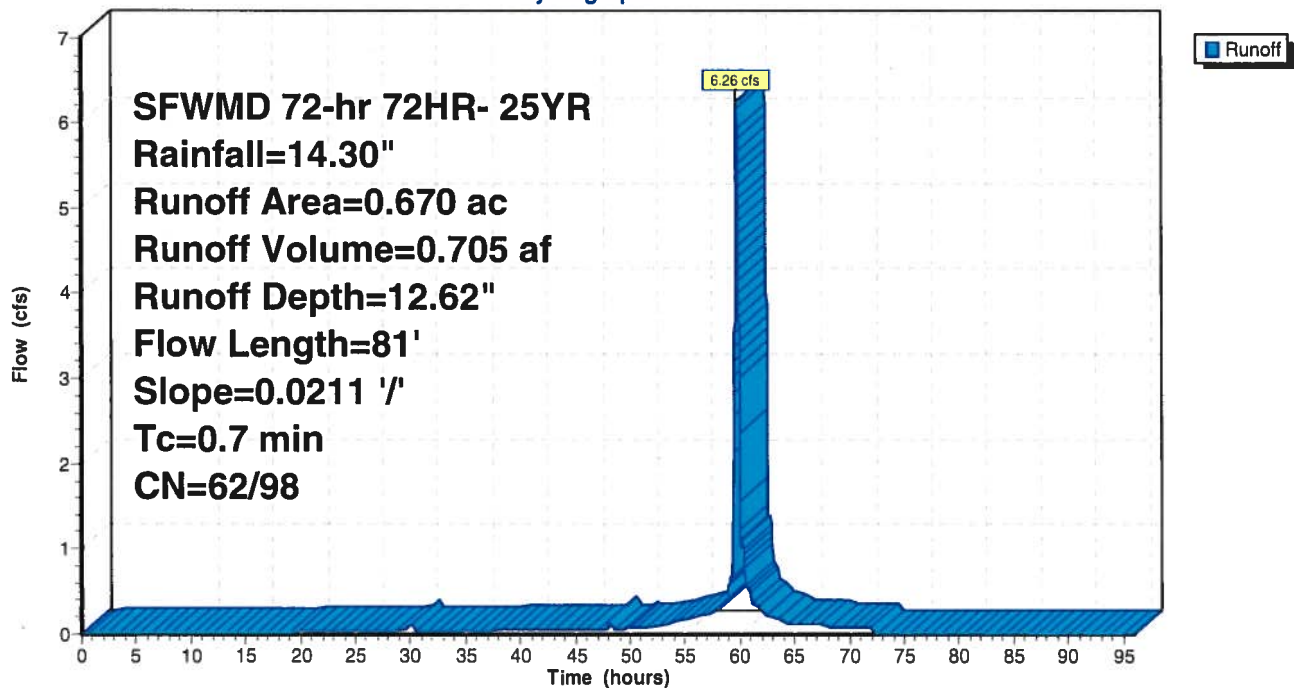
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR- 25YR Rainfall=14.30"

Area (ac)	CN	Description
0.670	88	Urban industrial, 72% imp, HSG B
0.188	62	Pervious Area
0.482	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	81	0.0211	1.83		Sheet Flow, OVERLAND TO OFFSITE Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 37S: B-4

Hydrograph



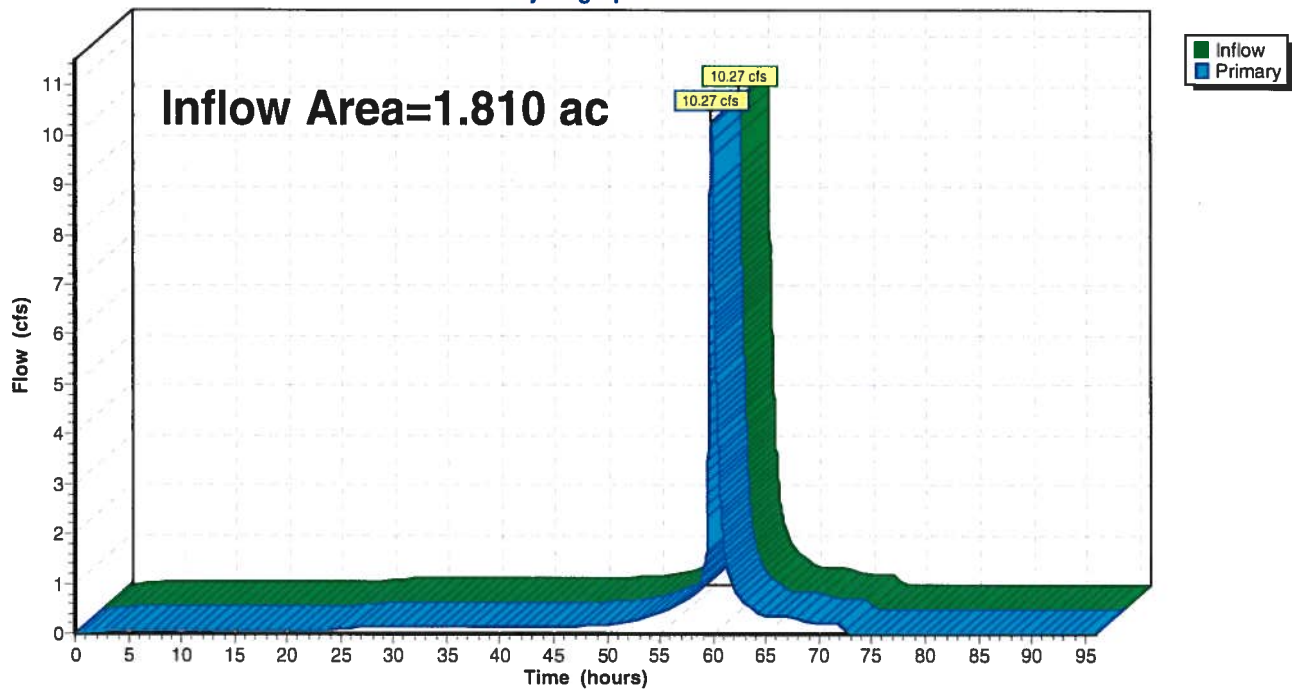
Link 16L: SB-1A COMBINED

Inflow Area = 1.810 ac, Inflow Depth = 12.61" for 72HR- 25YR event
Inflow = 10.27 cfs @ 59.90 hrs, Volume= 1.903 af
Primary = 10.27 cfs @ 59.90 hrs, Volume= 1.903 af, Atten= 0%, Lag= 0.0 min

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

Link 16L: SB-1A COMBINED

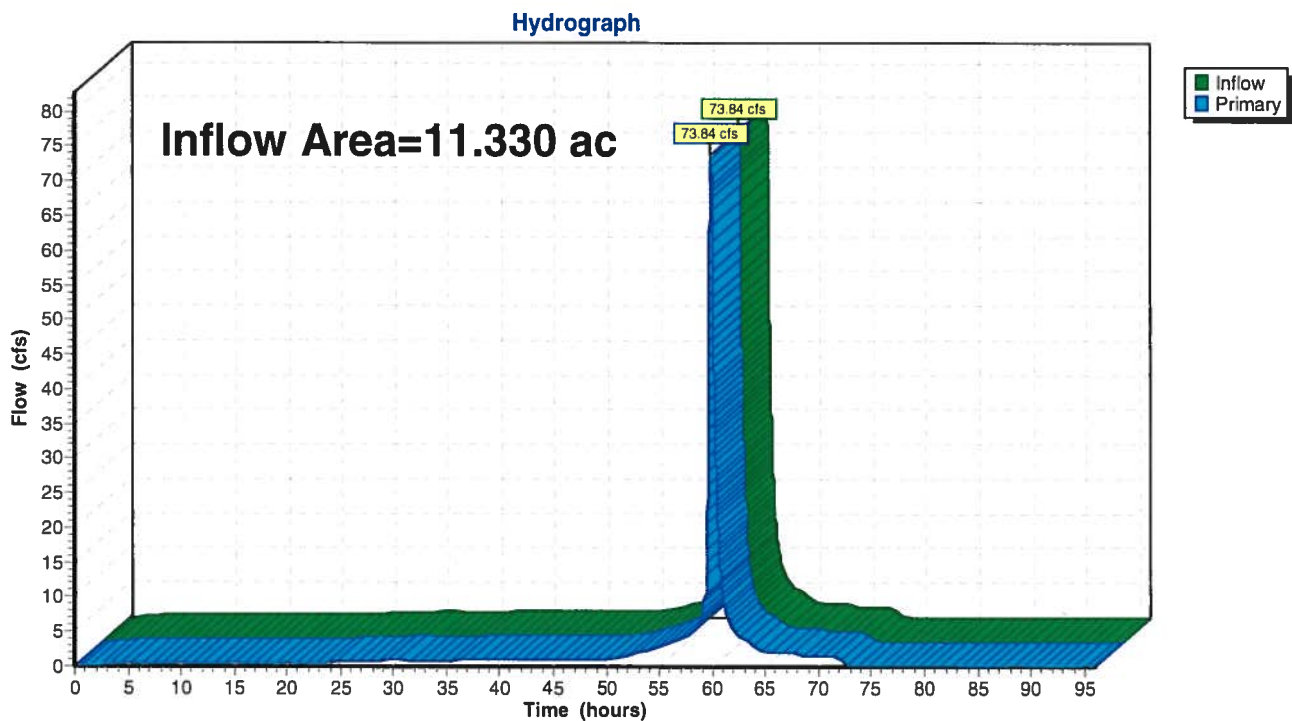
Hydrograph



Link 17L: SB-1B COMBINED

Inflow Area = 11.330 ac, Inflow Depth = 12.79" for 72HR- 25YR event
Inflow = 73.84 cfs @ 59.89 hrs, Volume= 12.079 af
Primary = 73.84 cfs @ 59.89 hrs, Volume= 12.079 af, Atten= 0%, Lag= 0.0 min

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

Link 17L: SB-1B COMBINED

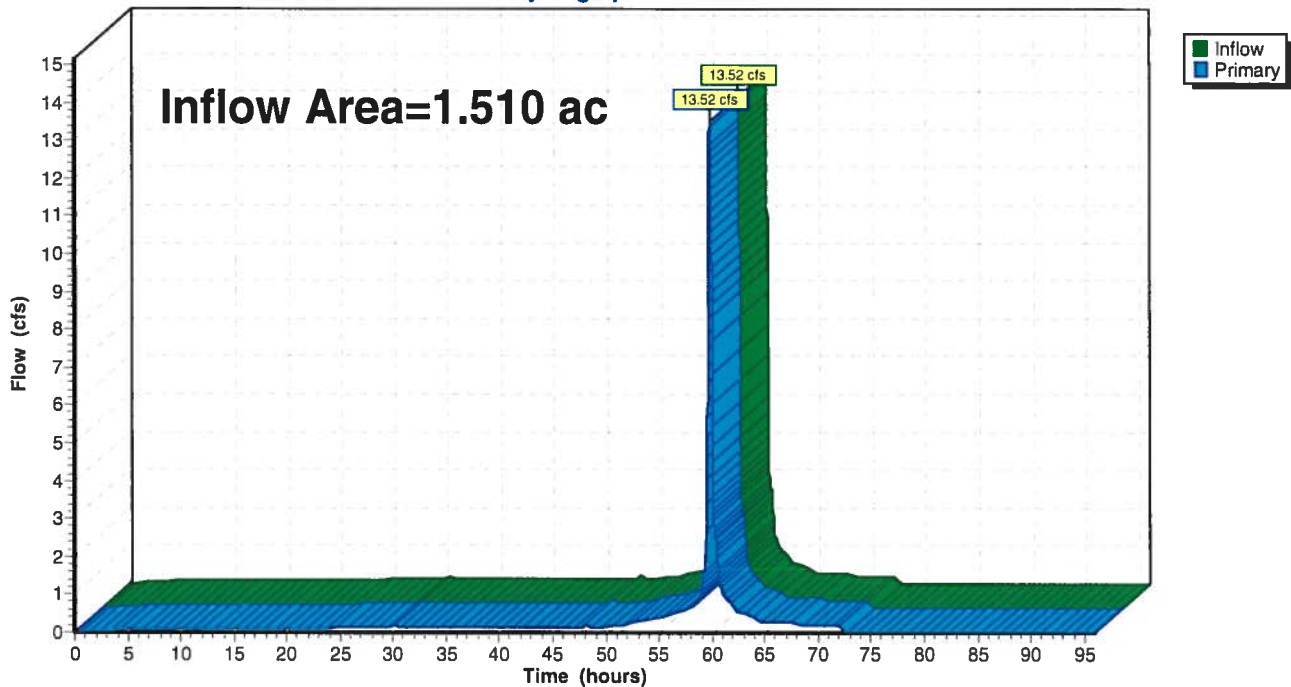
Link 19L: SB-1G COMBINED

Inflow Area = 1.510 ac, Inflow Depth = 13.60" for 72HR- 25YR event
Inflow = 13.52 cfs @ 59.79 hrs, Volume= 1.712 af
Primary = 13.52 cfs @ 59.79 hrs, Volume= 1.712 af, Atten= 0%, Lag= 0.0 min

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

Link 19L: SB-1G COMBINED

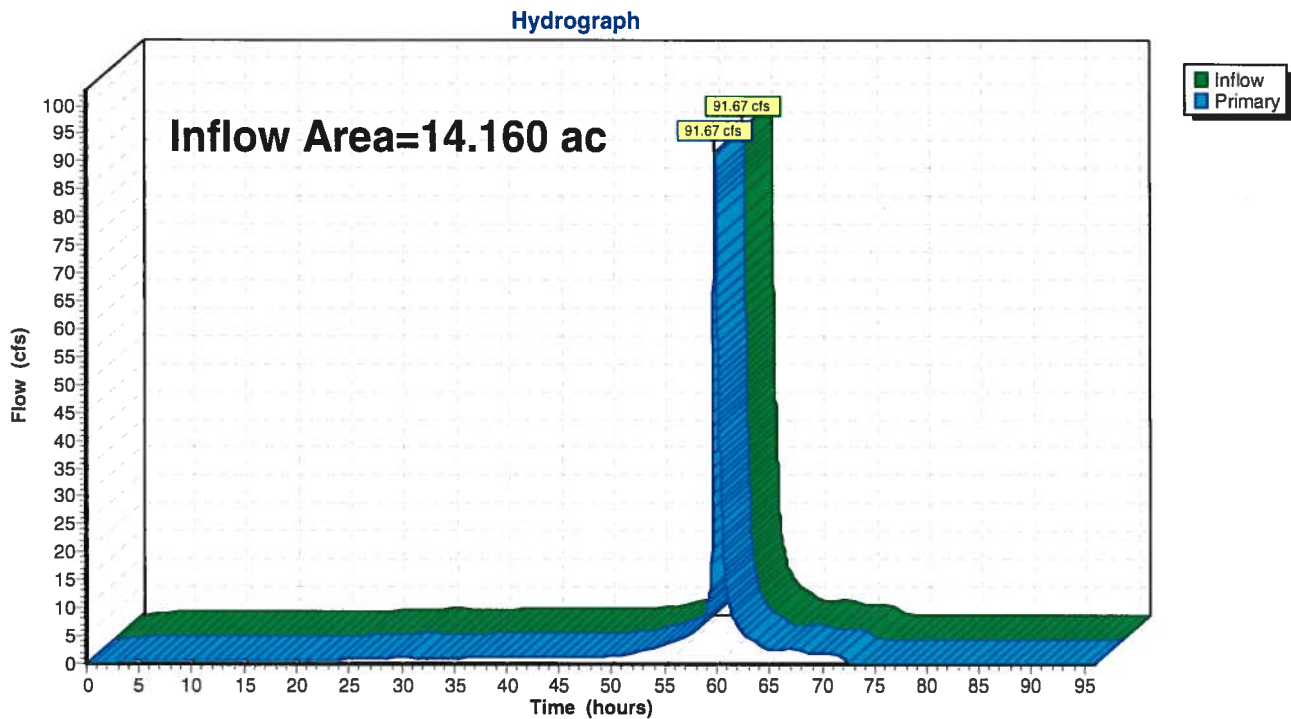
Hydrograph



Link 20L: B-1 SURFACE DISCHARGE

Inflow Area = 14.160 ac, Inflow Depth = 12.76" for 72HR- 25YR event
Inflow = 91.67 cfs @ 59.87 hrs, Volume= 15.054 af
Primary = 91.67 cfs @ 59.87 hrs, Volume= 15.054 af, Atten= 0%, Lag= 0.0 min

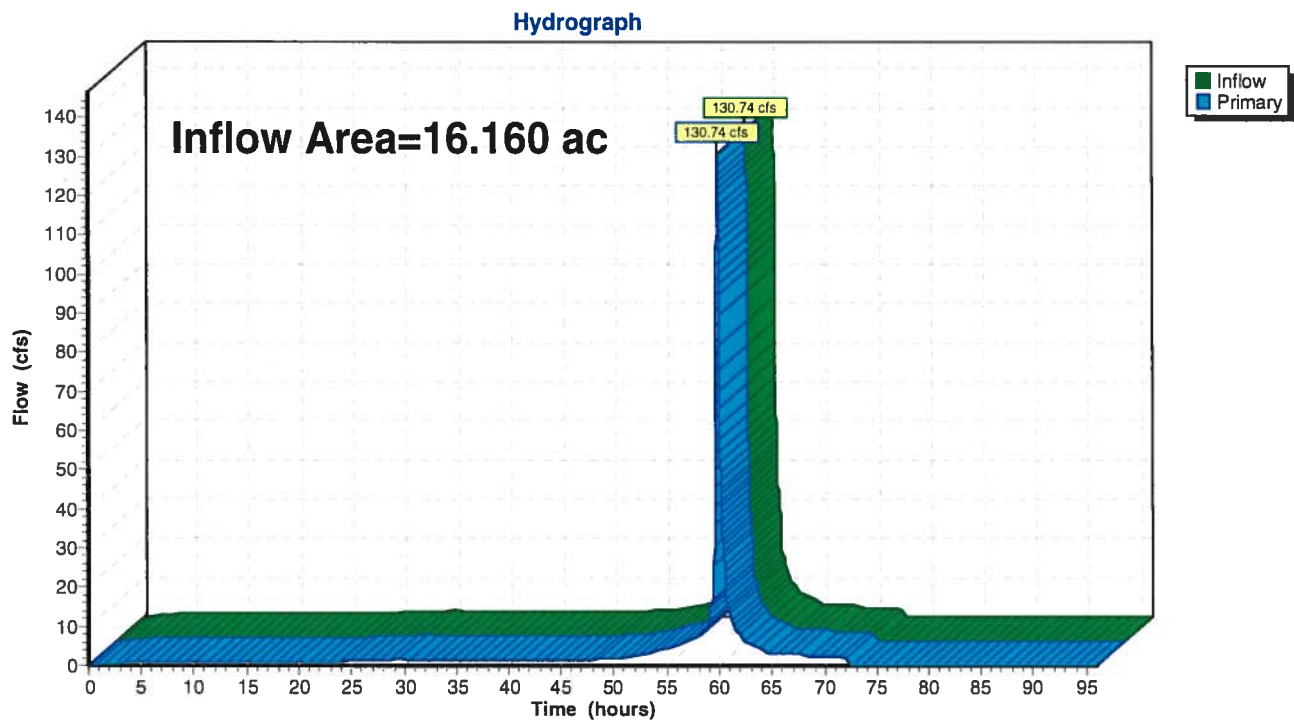
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 20L: B-1 SURFACE DISCHARGE

Link 24L: B-1 INLETS DISCHARGE

Inflow Area = 16.160 ac, Inflow Depth = 13.92" for 72HR- 25YR event
Inflow = 130.74 cfs @ 59.81 hrs, Volume= 18.745 af
Primary = 130.74 cfs @ 59.81 hrs, Volume= 18.745 af, Atten= 0%, Lag= 0.0 min

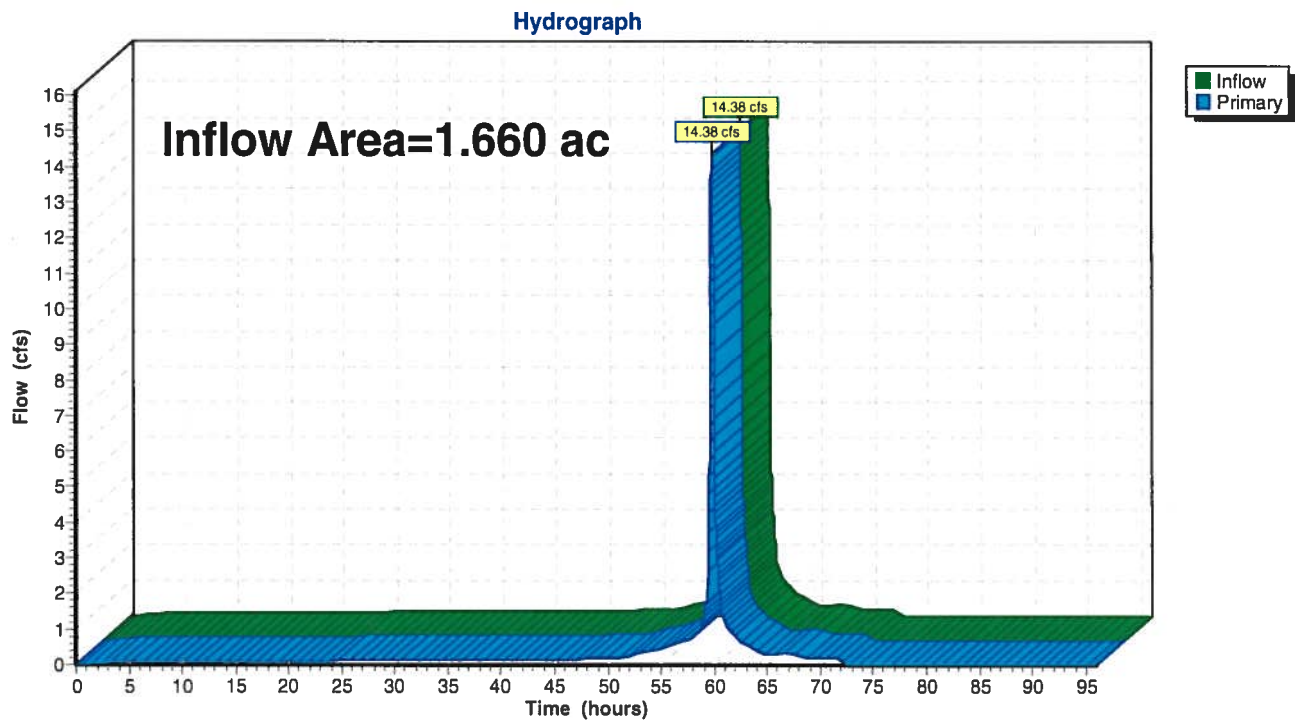
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 24L: B-1 INLETS DISCHARGE

Link 27L: OSB-1 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

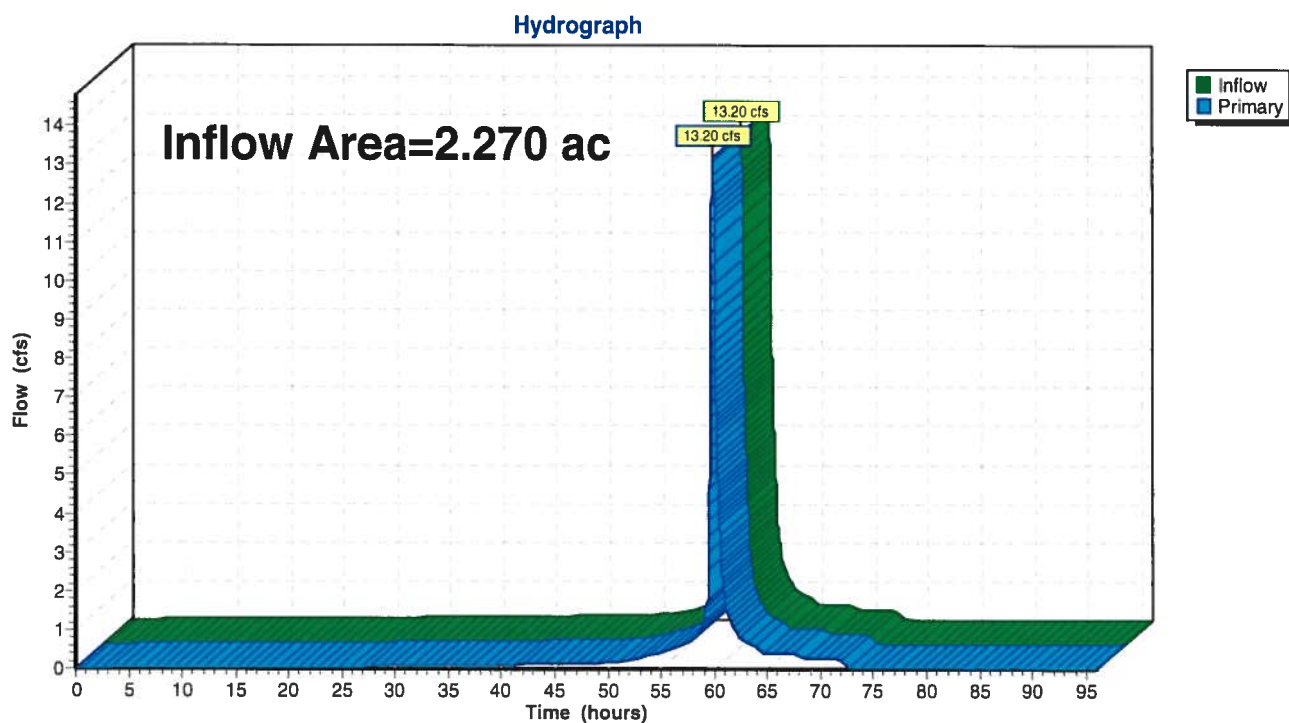
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 27L: OSB-1 COMBINED

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Inflow Area = 2.270 ac, Inflow Depth = 9.91" for 72HR- 25YR event
Inflow = 13.20 cfs @ 59.85 hrs, Volume= 1.874 af
Primary = 13.20 cfs @ 59.85 hrs, Volume= 1.874 af, Atten= 0%, Lag= 0.0 min

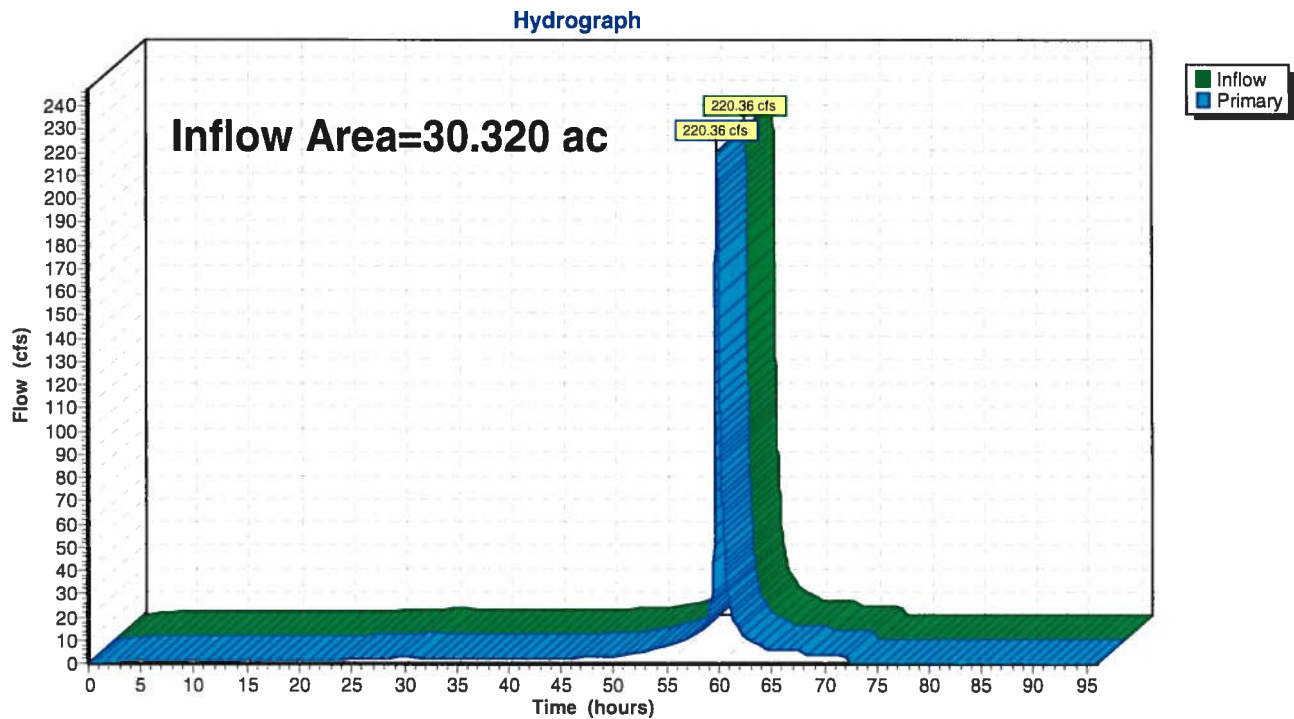
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

Inflow Area = 30.320 ac, Inflow Depth = 13.38" for 72HR- 25YR event
Inflow = 220.36 cfs @ 59.83 hrs, Volume= 33.799 af
Primary = 220.36 cfs @ 59.83 hrs, Volume= 33.799 af, Atten= 0%, Lag= 0.0 min

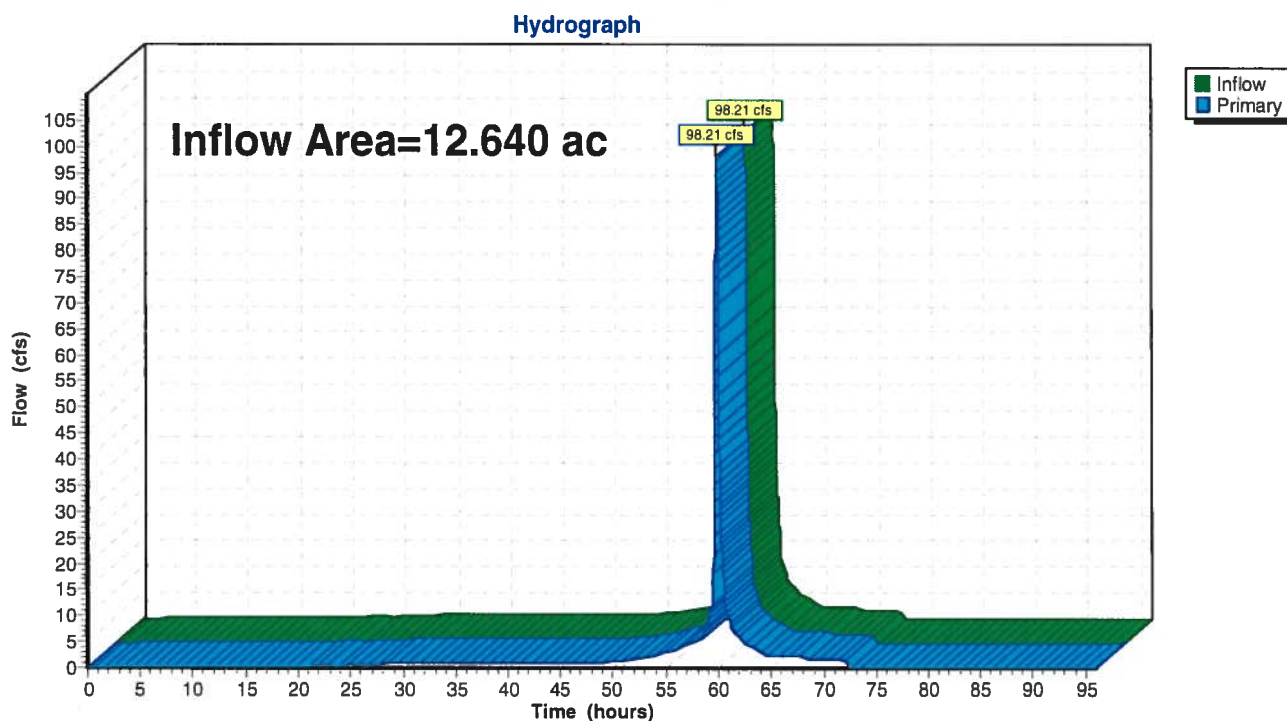
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Inflow Area = 12.640 ac, Inflow Depth = 12.14" for 72HR- 25YR event
Inflow = 98.21 cfs @ 59.82 hrs, Volume= 12.785 af
Primary = 98.21 cfs @ 59.82 hrs, Volume= 12.785 af, Atten= 0%, Lag= 0.0 min

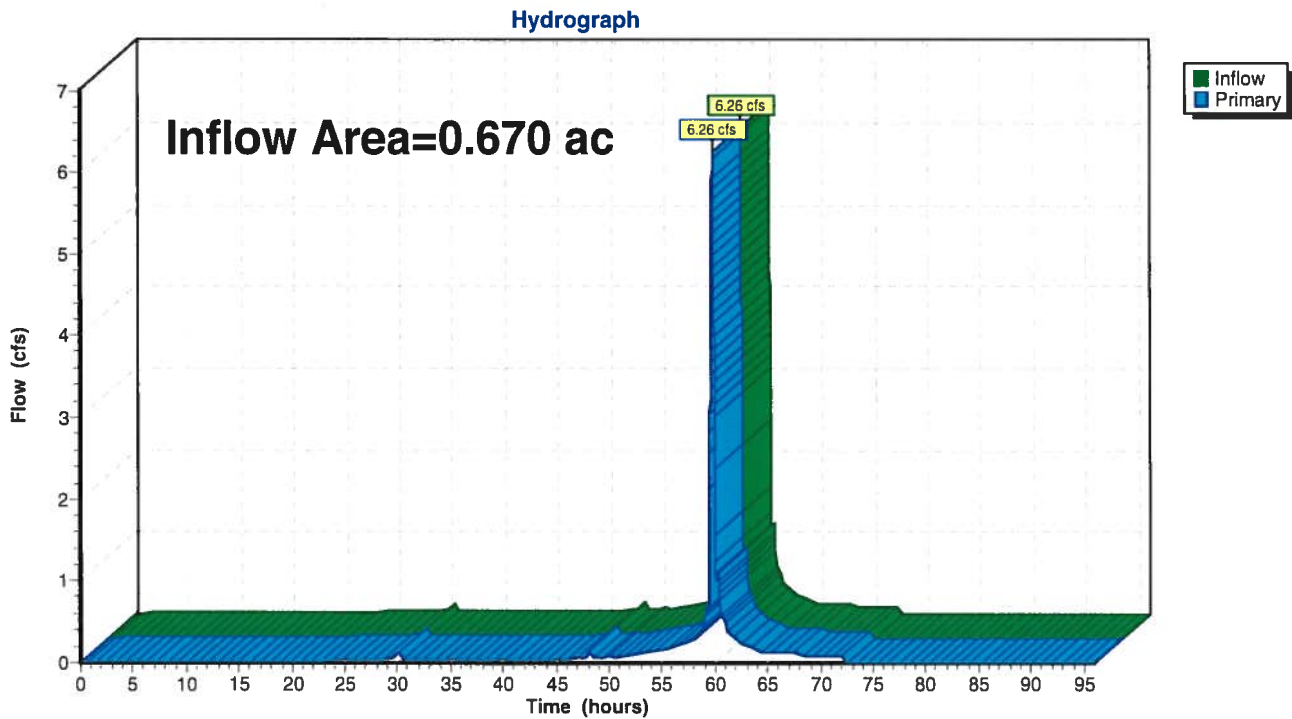
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD

Inflow Area = 0.670 ac, Inflow Depth = 12.62" for 72HR- 25YR event
Inflow = 6.26 cfs @ 59.76 hrs, Volume= 0.705 af
Primary = 6.26 cfs @ 59.76 hrs, Volume= 0.705 af, Atten= 0%, Lag= 0.0 min

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

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD

Area Listing (all nodes)

<u>Area (acres)</u>	<u>CN</u>	<u>Description (subcats)</u>
1.900	61	>75% Grass cover, Good, HSG B (7S,29S)
2.790	69	50-75% Grass cover, Fair, HSG B (34S)
23.600	88	Urban industrial, 72% imp, HSG B (1S,2S,3S,9S,11S,12S,33S,37S)
16.530	98	Paved parking & roofs (2S,5S,6S,7S,8S,9S,22S,25S,26S,30S,35S)
1.080	98	Paved roads w/curbs & sewers (4S)
45.900		

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points

Runoff by SBUH method, Split Pervious/Imperv.

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

Subcatchment 1S: SB-1A

Runoff Area=1.640 ac Runoff Depth=15.74"

Flow Length=239' Slope=0.0104 '/ Tc=18.8 min CN=62/98 Runoff=11.46 cfs 2.151 af

Subcatchment 2S: SB-1B

Runoff Area=10.330 ac Runoff Depth=15.94"

Flow Length=844' Tc=13.6 min CN=62/98 Runoff=82.06 cfs 13.723 af

Subcatchment 3S: SB-1C

Runoff Area=1.020 ac Runoff Depth=15.74"

Flow Length=48' Slope=0.0929 '/ Tc=1.9 min CN=62/98 Runoff=11.41 cfs 1.338 af

Subcatchment 4S: SB-1D

Runoff Area=1.080 ac Runoff Depth=17.26"

Flow Length=379' Tc=9.7 min CN=0/98 Runoff=9.90 cfs 1.553 af

Subcatchment 5S: SB-1E

Runoff Area=1.340 ac Runoff Depth=17.27"

Flow Length=250' Slope=0.0072 '/ Tc=2.8 min CN=0/98 Runoff=15.24 cfs 1.928 af

Subcatchment 6S: SB-1F

Runoff Area=7.980 ac Runoff Depth=17.26"

Tc=5.0 min CN=0/98 Runoff=84.60 cfs 11.479 af

Subcatchment 7S: SB-1G

Runoff Area=1.170 ac Runoff Depth=16.64"

Flow Length=197' Tc=2.9 min CN=61/98 Runoff=13.02 cfs 1.622 af

Subcatchment 8S: SB-1H

Runoff Area=0.530 ac Runoff Depth=17.27"

Flow Length=158' Tc=1.5 min CN=0/98 Runoff=6.27 cfs 0.763 af

Subcatchment 9S: SB-1I

Runoff Area=2.060 ac Runoff Depth=16.44"

Flow Length=367' Tc=25.8 min CN=62/98 Runoff=12.78 cfs 2.822 af

Subcatchment 11S: OSB-1A

Runoff Area=0.170 ac Runoff Depth=15.74"

Flow Length=39' Slope=0.0254 '/ Tc=0.4 min CN=62/98 Runoff=1.99 cfs 0.223 af

Subcatchment 12S: OSB-1B

Runoff Area=1.000 ac Runoff Depth=15.74"

Flow Length=329' Tc=4.5 min CN=62/98 Runoff=10.31 cfs 1.312 af

Subcatchment 22S: OSB-1C

Runoff Area=0.340 ac Runoff Depth=17.26"

Flow Length=310' Tc=4.8 min CN=0/98 Runoff=3.63 cfs 0.489 af

Subcatchment 25S: OSB-1D

Runoff Area=0.540 ac Runoff Depth=17.26"

Tc=5.0 min CN=0/98 Runoff=5.72 cfs 0.777 af

Subcatchment 26S: OSB-1E

Runoff Area=1.120 ac Runoff Depth=17.26"

Tc=5.0 min CN=0/98 Runoff=11.87 cfs 1.611 af

Subcatchment 29S: SB-3A

Runoff Area=1.770 ac Runoff Depth=11.64"

Flow Length=244' Slope=0.0209 '/ Tc=14.5 min CN=61/0 Runoff=11.98 cfs 1.716 af

Subcatchment 30S: SB-3B

Runoff Area=0.500 ac Runoff Depth=17.27"
Flow Length=218' Slope=0.0069 '/ Tc=2.5 min CN=0/98 Runoff=5.74 cfs 0.719 af

Subcatchment 33S: SB-2A

Runoff Area=9.060 ac Runoff Depth=15.74"
Flow Length=474' Tc=5.8 min CN=62/98 Runoff=89.59 cfs 11.883 af

Subcatchment 34S: SB-2B

Runoff Area=2.790 ac Runoff Depth=13.07"
Flow Length=170' Slope=0.0470 '/ Tc=7.8 min CN=69/0 Runoff=24.43 cfs 3.038 af

Subcatchment 35S: SB-2C

Runoff Area=0.790 ac Runoff Depth=17.27"
Flow Length=83' Slope=0.0072 '/ Tc=1.2 min CN=0/98 Runoff=9.43 cfs 1.137 af

Subcatchment 37S: B-4

Runoff Area=0.670 ac Runoff Depth=15.74"
Flow Length=81' Slope=0.0211 '/ Tc=0.7 min CN=62/98 Runoff=7.77 cfs 0.879 af

Link 16L: SB-1A COMBINED

Inflow=12.75 cfs 2.374 af
Primary=12.75 cfs 2.374 af

Link 17L: SB-1B COMBINED

Inflow=91.47 cfs 15.035 af
Primary=91.47 cfs 15.035 af

Link 19L: SB-1G COMBINED

Inflow=16.62 cfs 2.111 af
Primary=16.62 cfs 2.111 af

Link 20L: B-1 SURFACE DISCHARGE

Inflow=113.60 cfs 18.747 af
Primary=113.60 cfs 18.747 af

Link 24L: B-1 INLETS DISCHARGE

Inflow=160.18 cfs 23.044 af
Primary=160.18 cfs 23.044 af

Link 27L: OSB-1 COMBINED

Inflow=17.60 cfs 2.388 af
Primary=17.60 cfs 2.388 af

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Inflow=16.85 cfs 2.436 af
Primary=16.85 cfs 2.436 af

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

Inflow=271.29 cfs 41.791 af
Primary=271.29 cfs 41.791 af

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Inflow=122.36 cfs 16.057 af
Primary=122.36 cfs 16.057 af

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD

Inflow=7.77 cfs 0.879 af
Primary=7.77 cfs 0.879 af

Total Runoff Area = 45.900 ac Runoff Volume = 61.163 af Average Runoff Depth = 15.99"
24.61% Pervious Area = 11.298 ac 75.39% Impervious Area = 34.602 ac

Subcatchment 1S: SB-1A

Runoff = 11.46 cfs @ 59.93 hrs, Volume= 2.151 af, Depth=15.74"

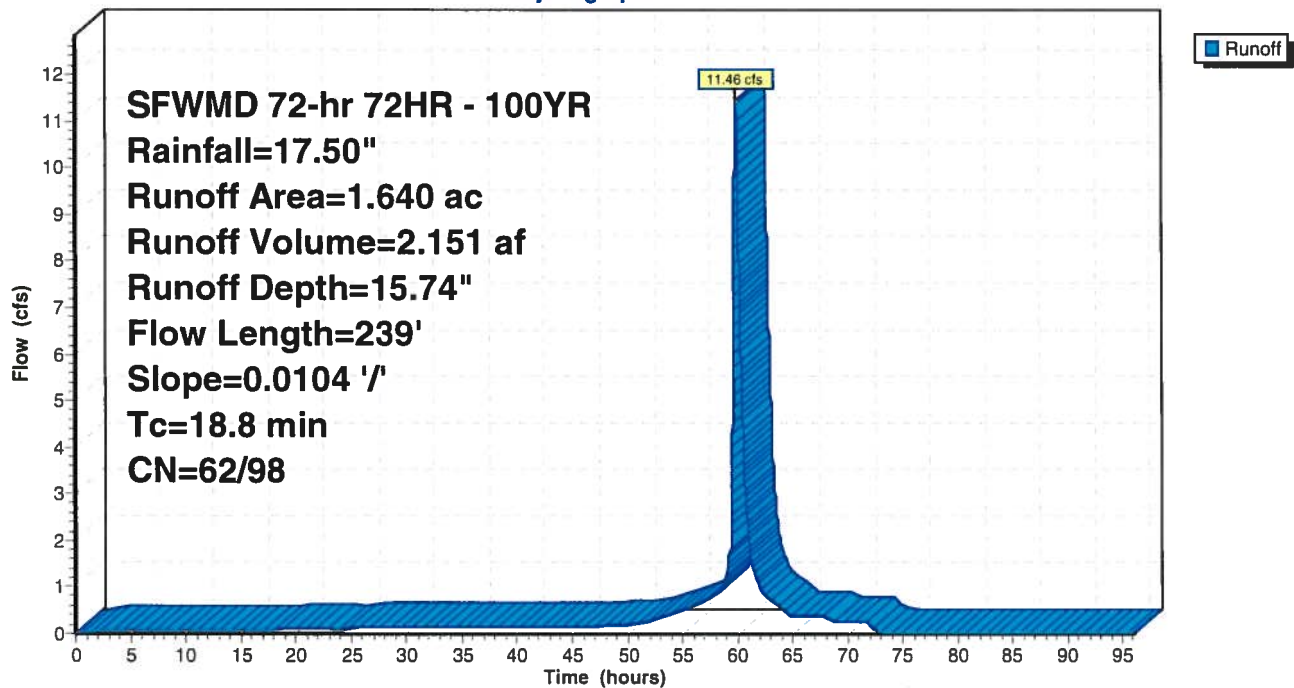
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.640	88	Urban industrial, 72% imp, HSG B
0.459	62	Pervious Area
1.181	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.8	239	0.0104	0.21		Sheet Flow, OVERLAND TO CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 1S: SB-1A

Hydrograph



Subcatchment 2S: SB-1B

Runoff = 82.06 cfs @ 59.90 hrs, Volume= 13.723 af, Depth=15.94"

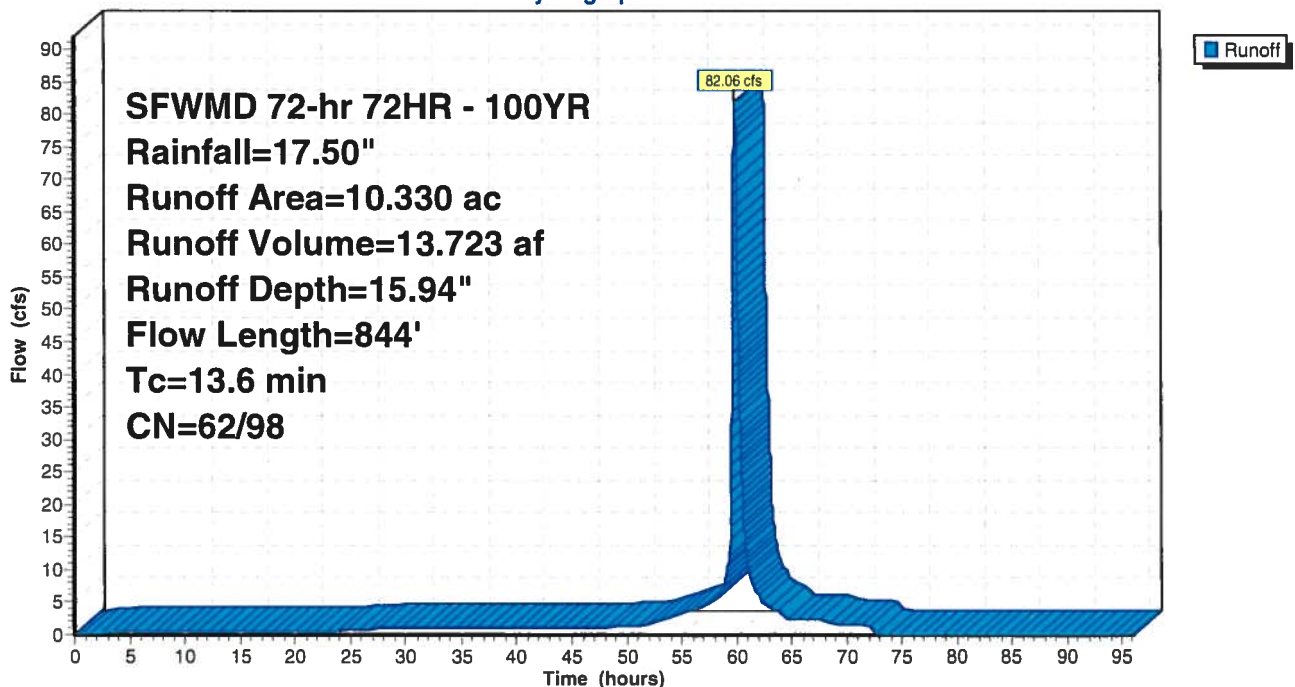
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.400	98	Paved parking & roofs
8.930	88	Urban industrial, 72% imp, HSG B
10.330	89	Weighted Average
2.500	62	Pervious Area
7.830	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	300	0.0110	1.83		Sheet Flow, OVERLAND PARKING AREA Smooth surfaces n= 0.011 P2= 5.90"
0.5	34	0.0029	1.09		Shallow Concentrated Flow, SCF PARKING AREA Paved Kv= 20.3 fps
6.6	363	0.0083	0.91		Shallow Concentrated Flow, SCF ALONG ROAD Nearly Bare & Untilled Kv= 10.0 fps
3.8	147	0.0041	0.64		Shallow Concentrated Flow, SCF TO CANAL Nearly Bare & Untilled Kv= 10.0 fps
13.6	844	Total			

Subcatchment 2S: SB-1B

Hydrograph



Subcatchment 3S: SB-1C

Runoff = 11.41 cfs @ 59.77 hrs, Volume= 1.338 af, Depth=15.74"

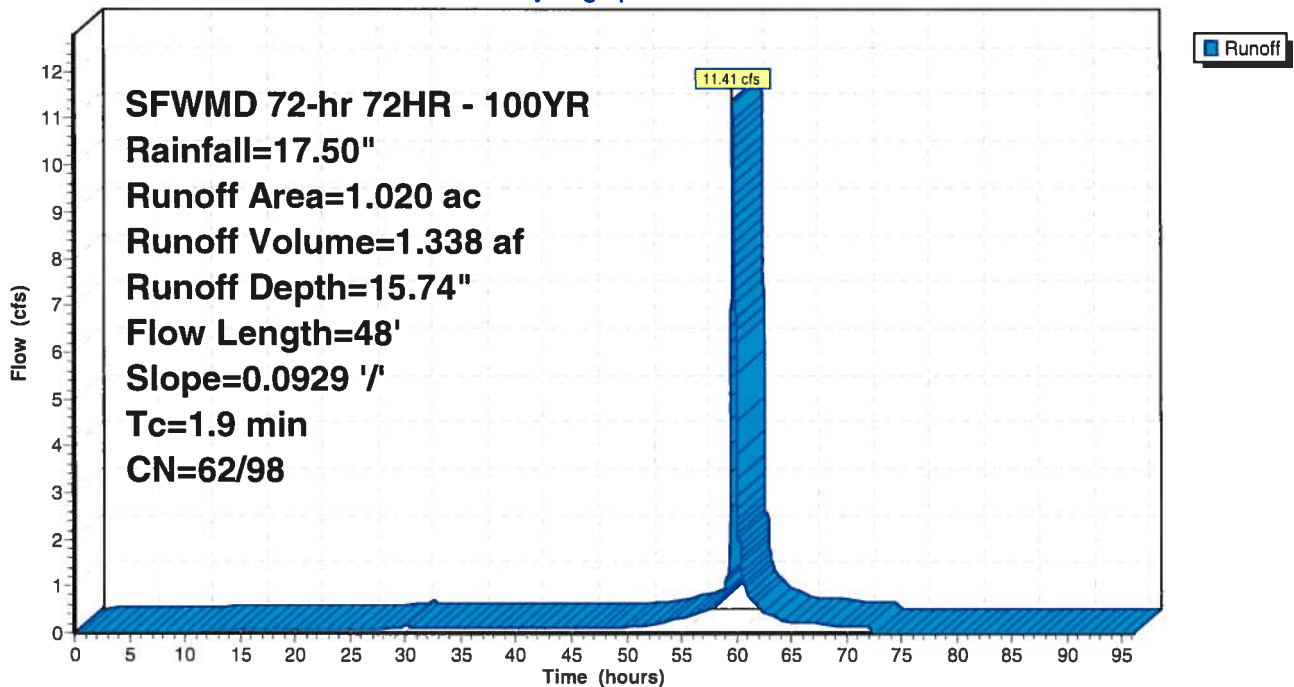
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.020	88	Urban industrial, 72% imp, HSG B
0.286	62	Pervious Area
0.734	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	48	0.0929	0.41		Sheet Flow, OVERLAND TO CANAL Range n= 0.130 P2= 5.90"

Subcatchment 3S: SB-1C

Hydrograph



Subcatchment 4S: SB-1D

Runoff = 9.90 cfs @ 59.86 hrs, Volume= 1.553 af, Depth=17.26"

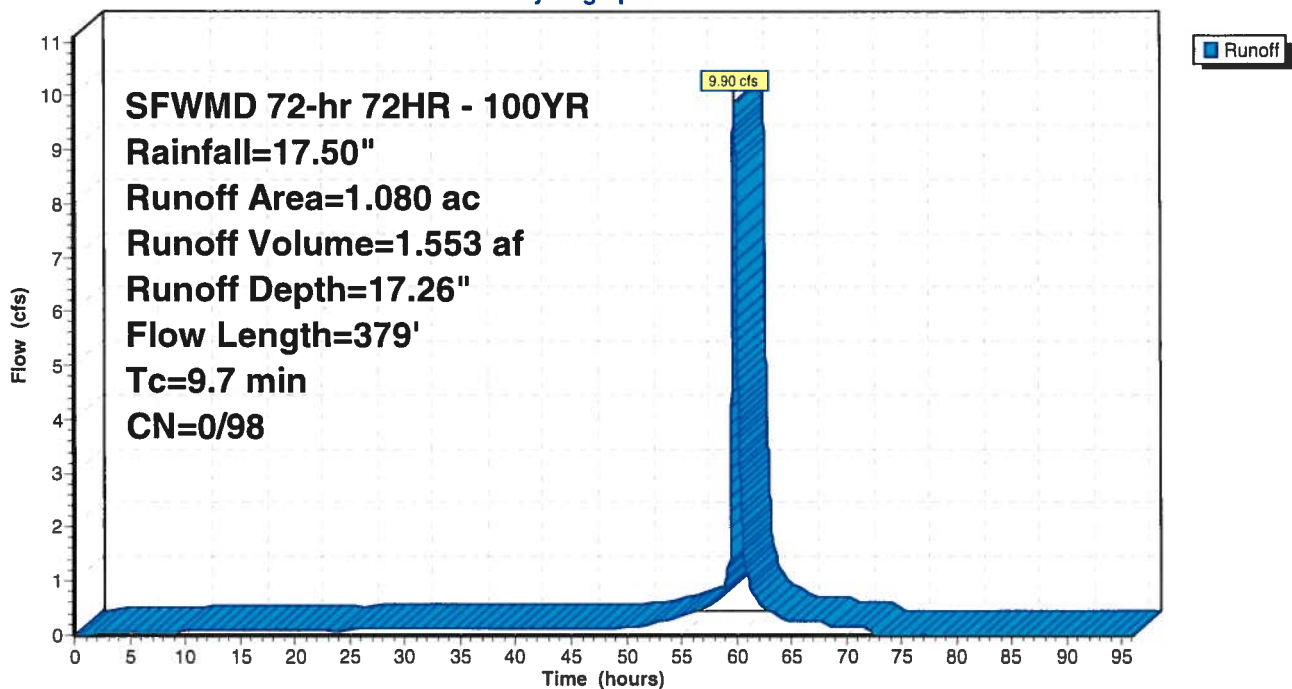
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.080	98	Paved roads w/curbs & sewers
1.080	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0567	2.50		Sheet Flow, OVERLAND FROM POWERBLOCK Smooth surfaces n= 0.011 P2= 5.90"
6.7	248	0.0008	0.62		Sheet Flow, OVERLAND ON ROAD Smooth surfaces n= 0.011 P2= 5.90"
2.6	78	0.0006	0.50		Shallow Concentrated Flow, SCF ON ROAD Paved Kv= 20.3 fps
9.7	379	Total			

Subcatchment 4S: SB-1D

Hydrograph



Subcatchment 5S: SB-1E

Runoff = 15.24 cfs @ 59.78 hrs, Volume= 1.928 af, Depth=17.27"

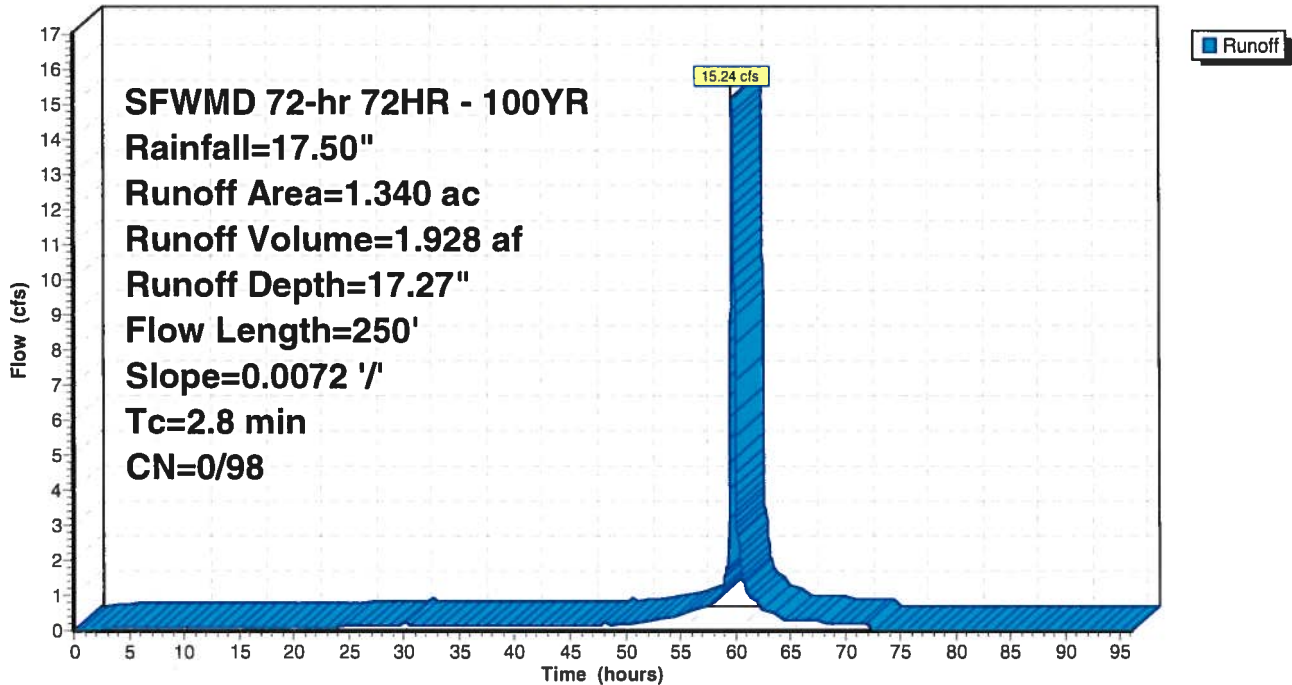
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.340	98	Paved parking & roofs
1.340	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	250	0.0072	1.49		Sheet Flow, OVERLAND DRIVEWAY Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 5S: SB-1E

Hydrograph



Subcatchment 6S: SB-1F

POWERBLOCK DRAINS TO INLETS AND REACHES WITH TC = 5 MIN.

Runoff = 84.60 cfs @ 59.81 hrs, Volume= 11.479 af, Depth=17.26"

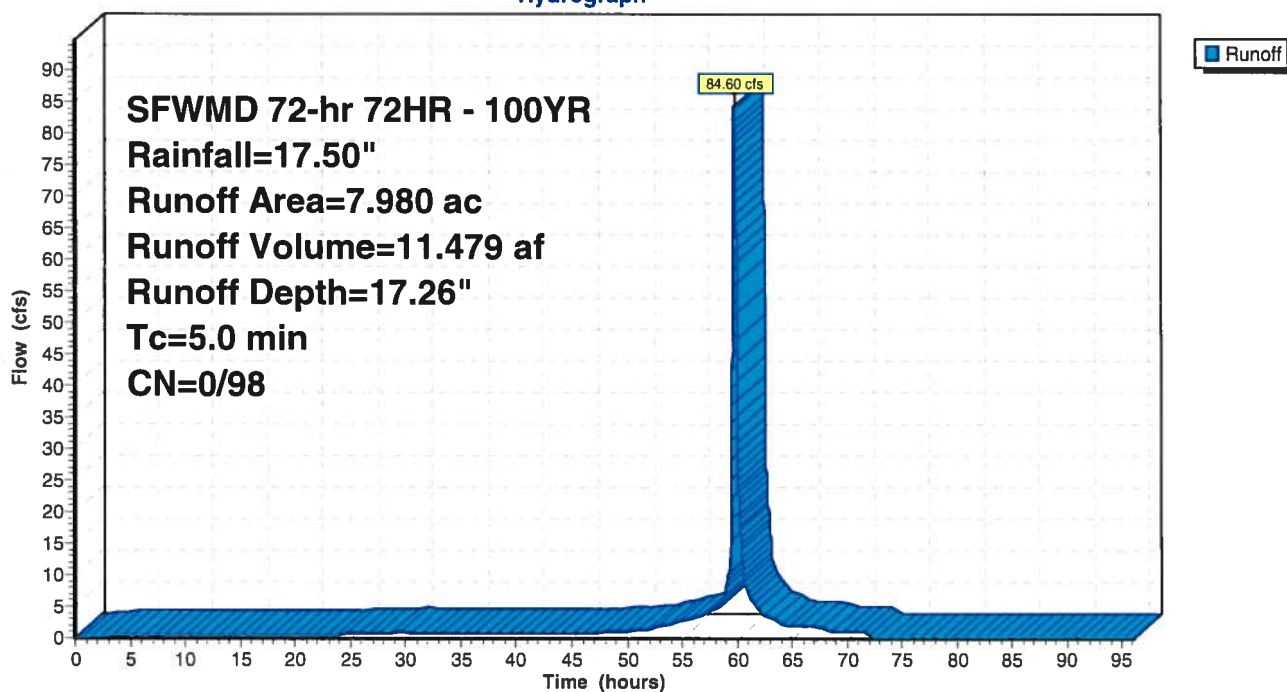
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
7.980	98	Paved parking & roofs
7.980	98	Impervious Area

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

Subcatchment 6S: SB-1F

Hydrograph



Subcatchment 7S: SB-1G

Runoff = 13.02 cfs @ 59.78 hrs, Volume= 1.622 af, Depth=16.64"

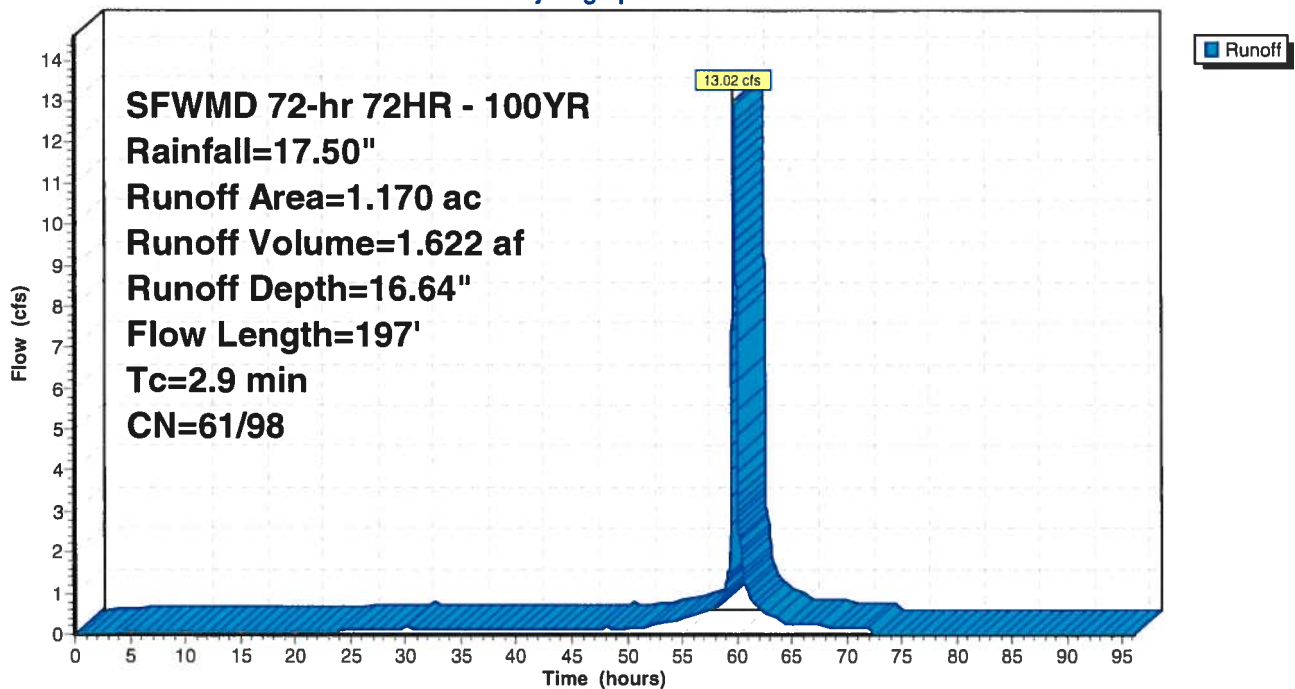
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.130	61	>75% Grass cover, Good, HSG B
1.040	98	Paved parking & roofs
1.170	94	Weighted Average
0.130	61	Pervious Area
1.040	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	146	0.0068	1.31		Sheet Flow, OVERLAND BEGIN AT OSB-1C Smooth surfaces n= 0.011 P2= 5.90"
1.0	51	0.0039	0.85		Sheet Flow, OVERLAND TO SB-1F Smooth surfaces n= 0.011 P2= 5.90"
2.9	197	Total			

Subcatchment 7S: SB-1G

Hydrograph



Subcatchment 8S: SB-1H

Runoff = 6.27 cfs @ 59.77 hrs, Volume= 0.763 af, Depth=17.27"

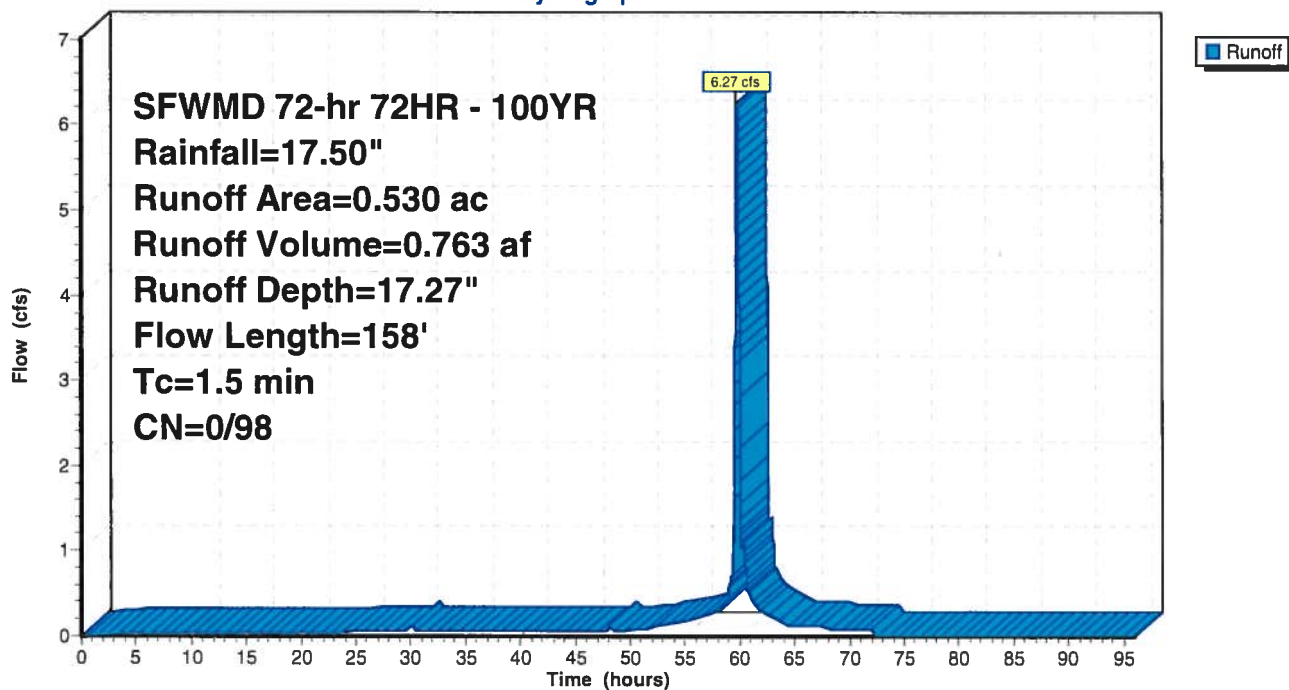
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.530	98	Paved parking & roofs
0.530	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	112	0.0357	2.41		Sheet Flow, OVERLAND FROM BLDGS
					Smooth surfaces n= 0.011 P2= 5.90"
0.7	46	0.0087	1.15		Sheet Flow, OVERLAND TO INLET
					Smooth surfaces n= 0.011 P2= 5.90"
1.5	158	Total			

Subcatchment 8S: SB-1H

Hydrograph



Subcatchment 9S: SB-11

Runoff = 12.78 cfs @ 59.97 hrs, Volume= 2.822 af, Depth=16.44"

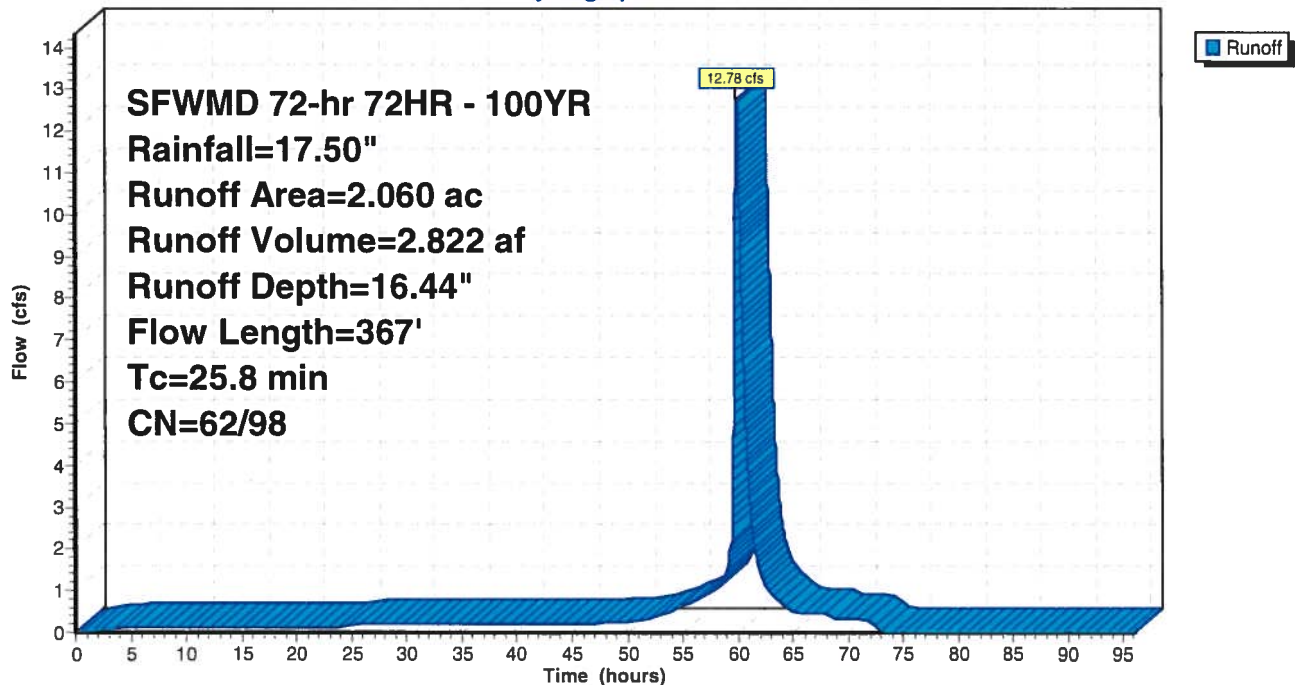
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.110	88	Urban industrial, 72% imp, HSG B
0.950	98	Paved parking & roofs
2.060	93	Weighted Average
0.311	62	Pervious Area
1.749	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	214	0.0051	0.16		Sheet Flow, OVERLAND GRASS AREA Grass: Short n= 0.150 P2= 5.90"
1.6	86	0.0035	0.90		Sheet Flow, OVERLAND TO ROAD Smooth surfaces n= 0.011 P2= 5.90"
1.3	67	0.0030	0.88		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
25.8	367	Total			

Subcatchment 9S: SB-11

Hydrograph



Subcatchment 11S: OSB-1A

Runoff = 1.99 cfs @ 59.76 hrs, Volume= 0.223 af, Depth=15.74"

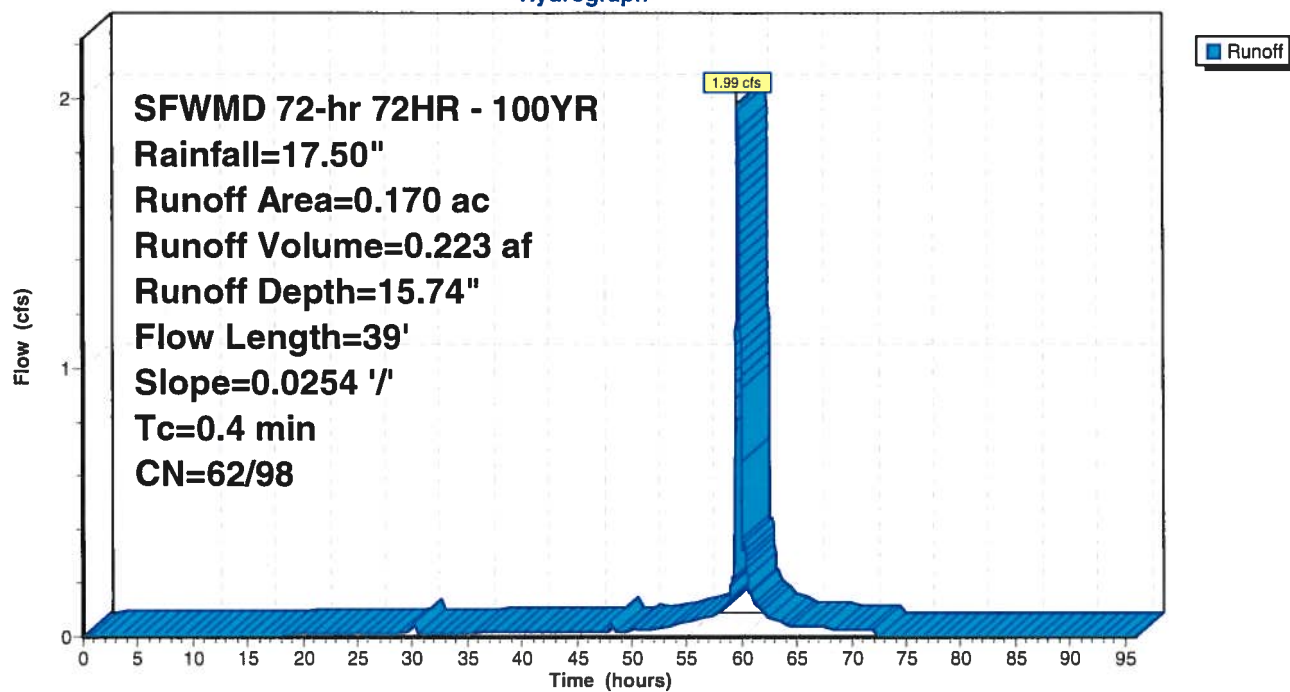
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.170	88	Urban industrial, 72% imp, HSG B
0.048	62	Pervious Area
0.122	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	39	0.0254	1.70		Sheet Flow, OVERLAND TO SB-1A Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 11S: OSB-1A

Hydrograph



Subcatchment 12S: OSB-1B

Runoff = 10.31 cfs @ 59.81 hrs, Volume= 1.312 af, Depth=15.74"

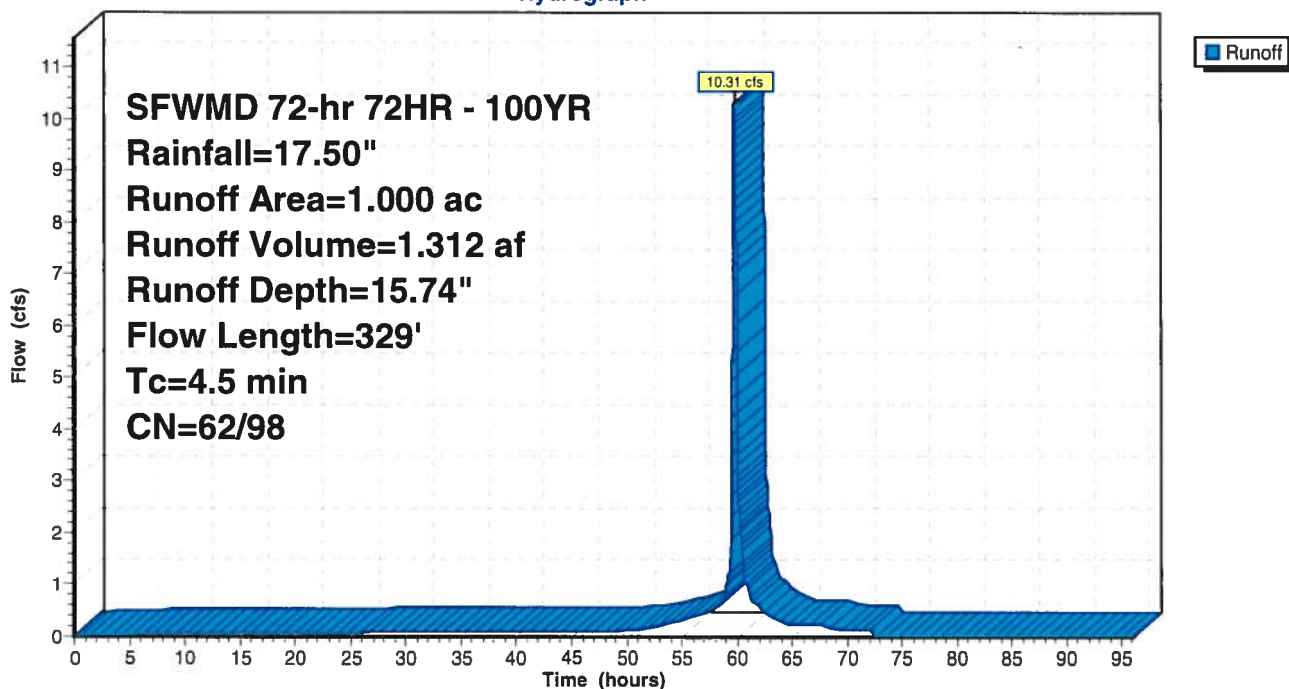
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.000	88	Urban industrial, 72% imp, HSG B
0.280	62	Pervious Area
0.720	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	300	0.0040	1.22		Sheet Flow, OVERLAND ALONG PROP LINE Smooth surfaces n= 0.011 P2= 5.90"
0.4	29	0.0069	1.34		Shallow Concentrated Flow, SCF TO SB-1B Unpaved Kv= 16.1 fps
4.5	329	Total			

Subcatchment 12S: OSB-1B

Hydrograph



Subcatchment 22S: OSB-1C

Runoff = 3.63 cfs @ 59.81 hrs, Volume= 0.489 af, Depth=17.26"

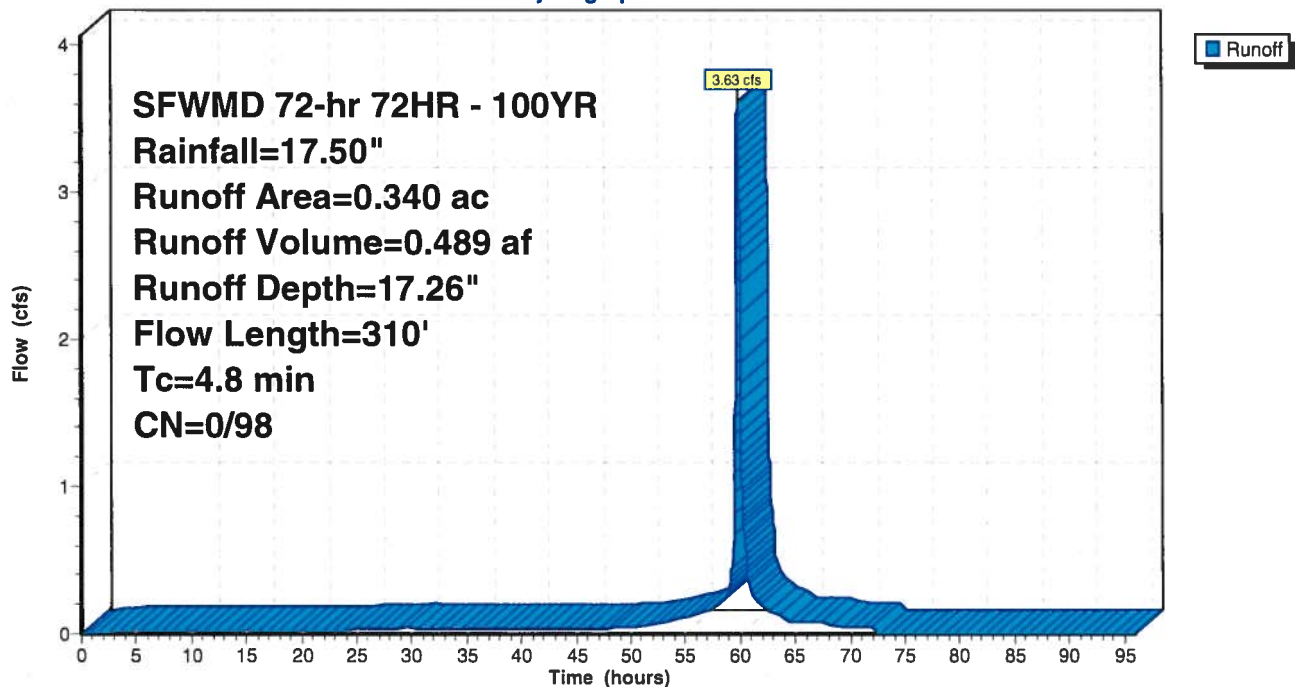
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

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 BEGIN Smooth surfaces n= 0.011 P2= 5.90"
2.6	161	0.0037	1.05		Sheet Flow, OVERLAND DRIVEWAY Smooth surfaces n= 0.011 P2= 5.90"
0.2	11	0.0271	1.15		Shallow Concentrated Flow, SCF TO SB-1G Short Grass Pasture Kv= 7.0 fps
4.8	310	Total			

Subcatchment 22S: OSB-1C

Hydrograph



Subcatchment 25S: OSB-1D

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

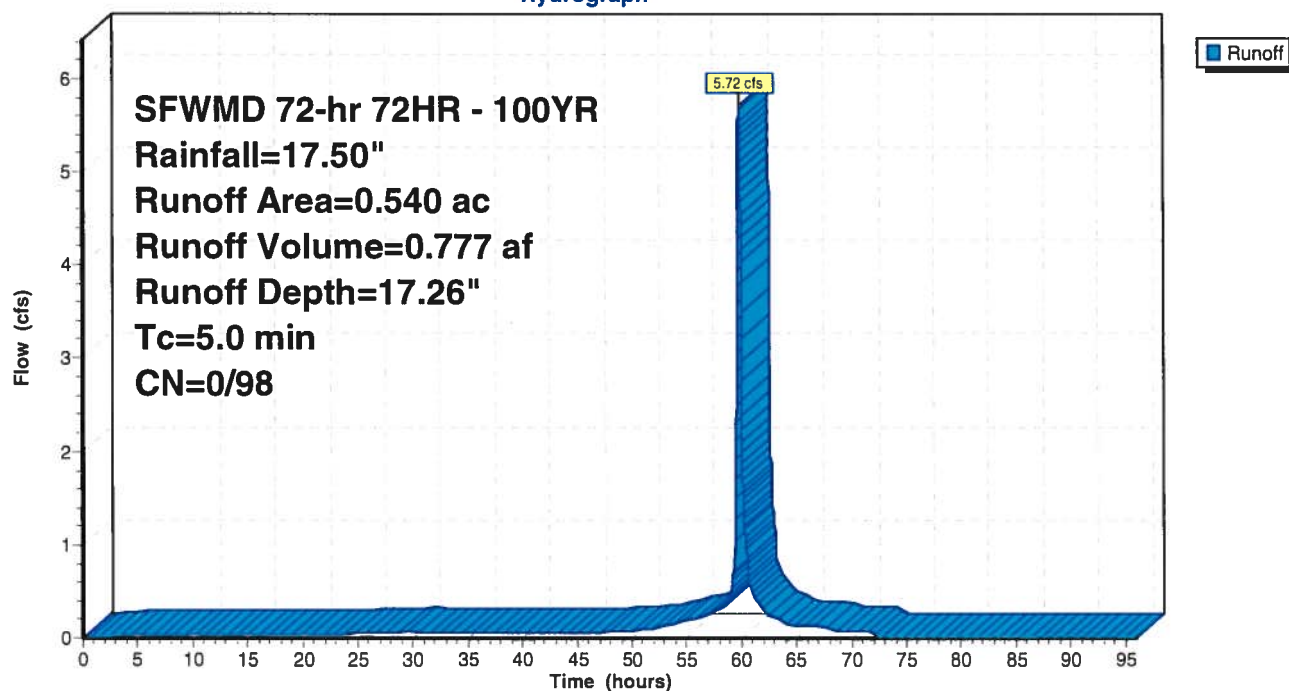
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

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, CURBED AREA

Subcatchment 25S: OSB-1D

Hydrograph



Subcatchment 26S: OSB-1E

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

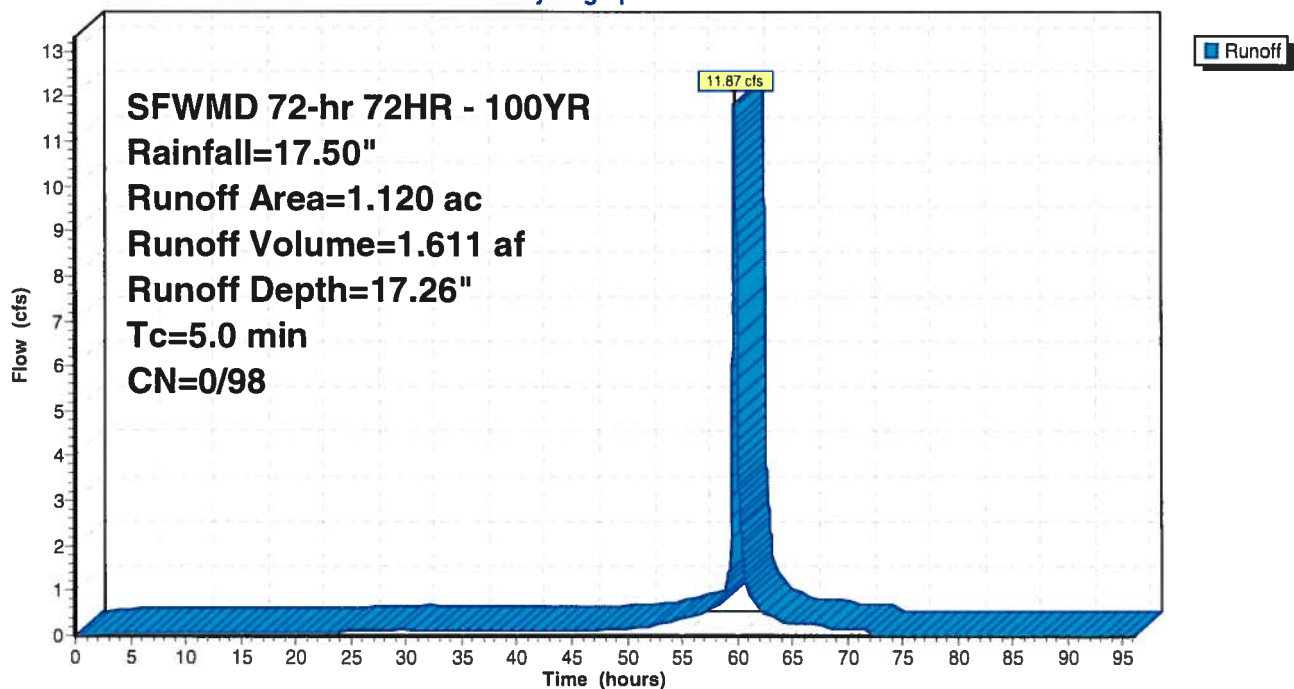
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

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, GENERATOR INLETS

Subcatchment 26S: OSB-1E

Hydrograph



Subcatchment 29S: SB-3A

Runoff = 11.98 cfs @ 59.91 hrs, Volume= 1.716 af, Depth=11.64"

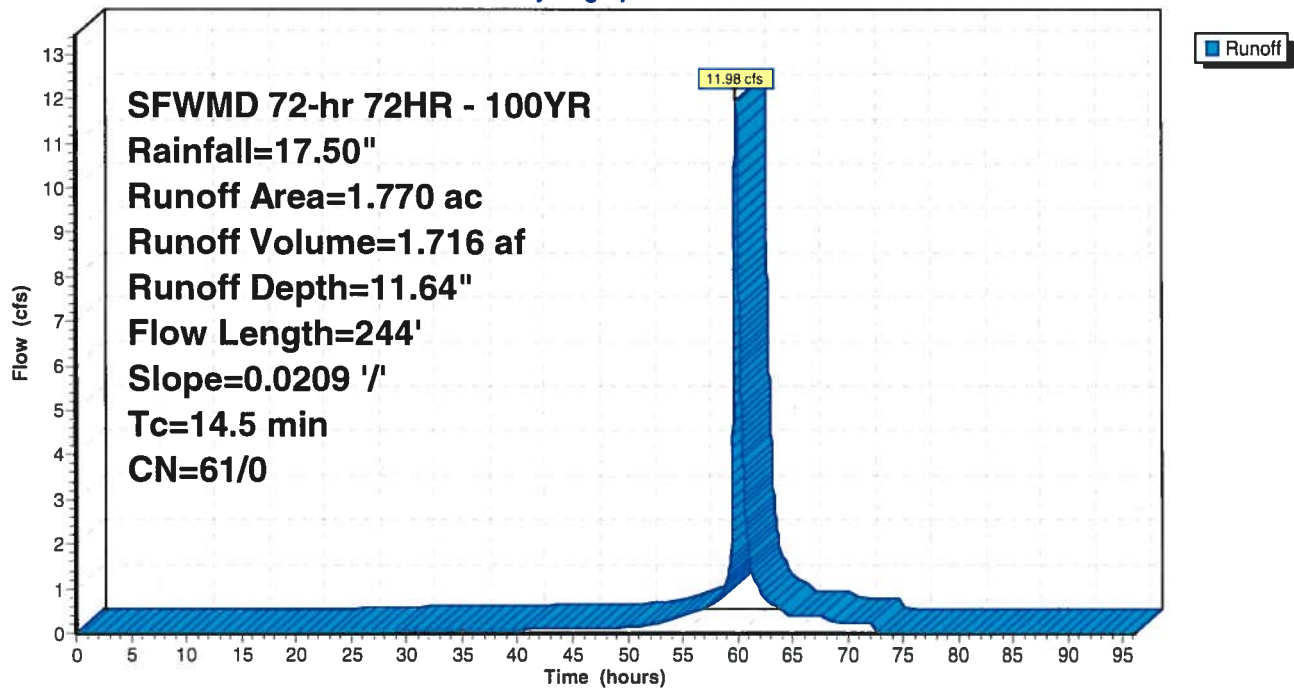
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
1.770	61	>75% Grass cover, Good, HSG B
1.770	61	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.5	244	0.0209	0.28		Sheet Flow, OVERLAND TO OFFSITE Grass: Short n= 0.150 P2= 5.90"

Subcatchment 29S: SB-3A

Hydrograph



Subcatchment 30S: SB-3B

Runoff = 5.74 cfs @ 59.78 hrs, Volume= 0.719 af, Depth=17.27"

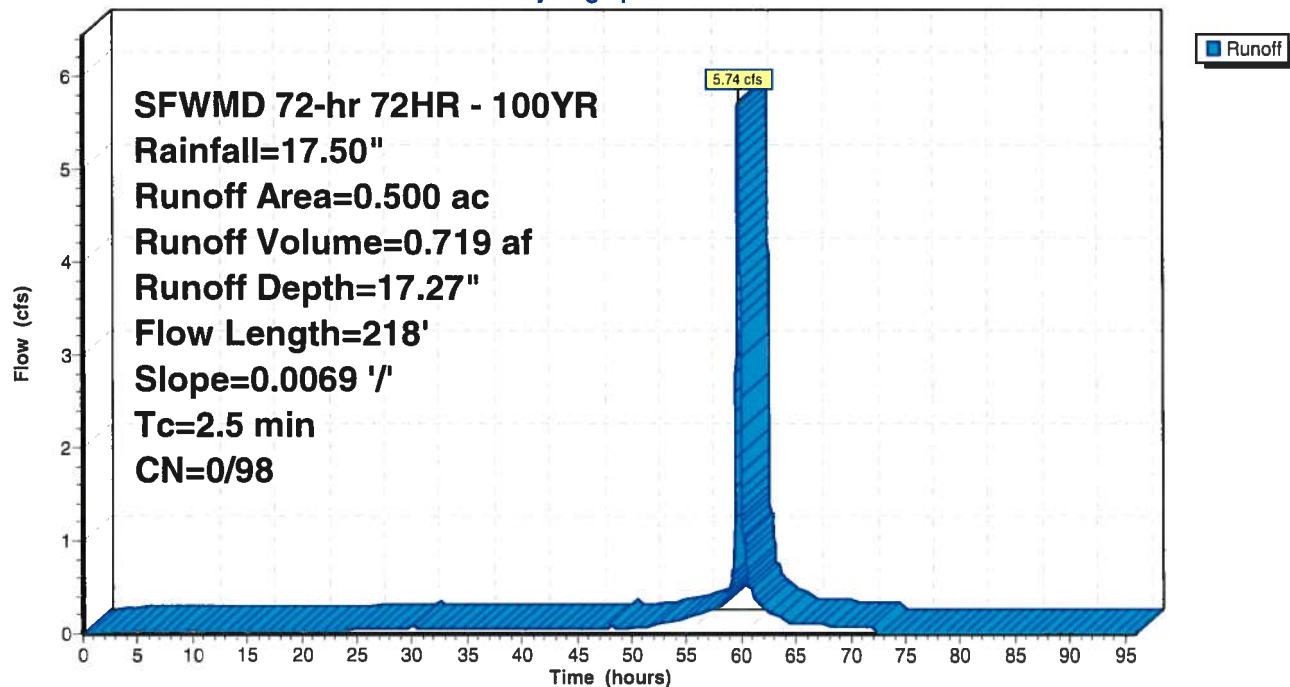
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

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
2.5	218	0.0069	1.43		Sheet Flow, OVERLAND TO SB-3A Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 30S: SB-3B

Hydrograph



Subcatchment 33S: SB-2A

Runoff = 89.59 cfs @ 59.82 hrs, Volume= 11.883 af, Depth=15.74"

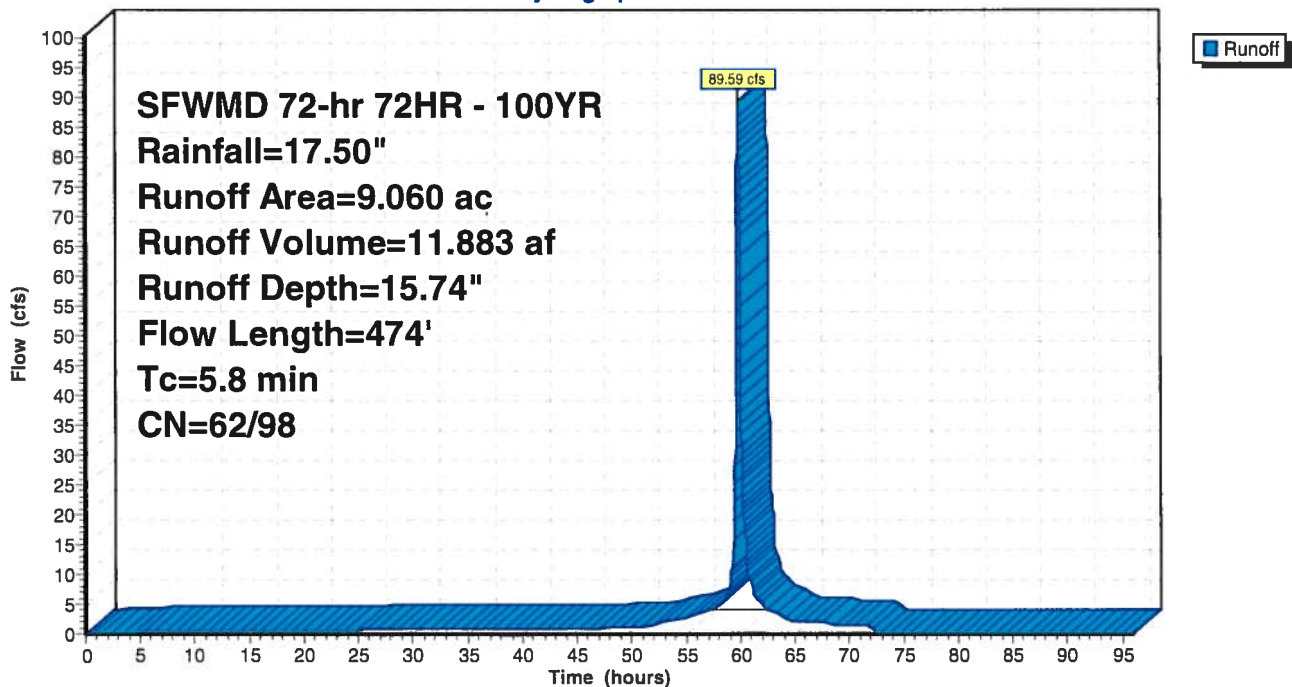
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
9.060	88	Urban industrial, 72% imp, HSG B
2.537	62	Pervious Area
6.523	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	300	0.0047	1.30		Sheet Flow, OVERLAND Smooth surfaces n= 0.011 P2= 5.90"
2.0	174	0.0080	1.44		Shallow Concentrated Flow, SCF TO INLET Unpaved Kv= 16.1 fps
5.8	474	Total			

Subcatchment 33S: SB-2A

Hydrograph



Subcatchment 34S: SB-2B

Runoff = 24.43 cfs @ 59.85 hrs, Volume= 3.038 af, Depth=13.07"

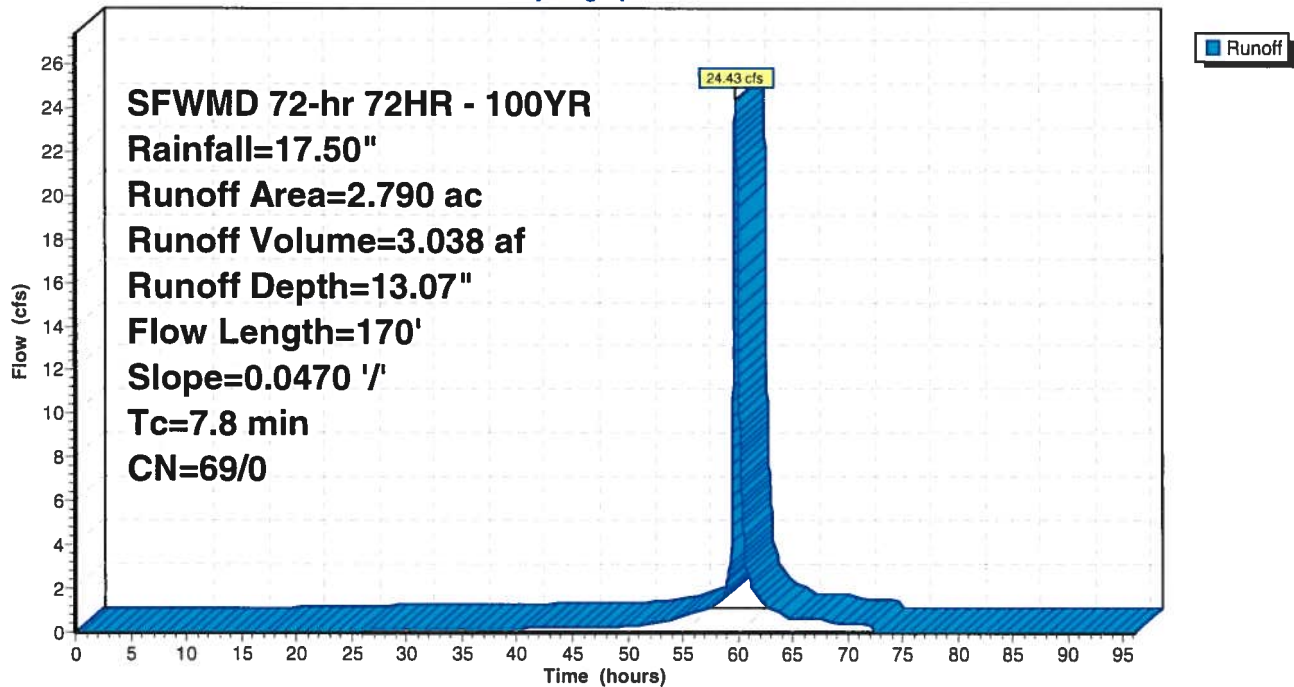
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
2.790	69	50-75% Grass cover, Fair, HSG B
2.790	69	Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	170	0.0470	0.36		Sheet Flow, OVERLAND FLOW TO CANAL Grass: Short n= 0.150 P2= 5.90"

Subcatchment 34S: SB-2B

Hydrograph



Subcatchment 35S: SB-2C

Runoff = 9.43 cfs @ 59.76 hrs, Volume= 1.137 af, Depth=17.27"

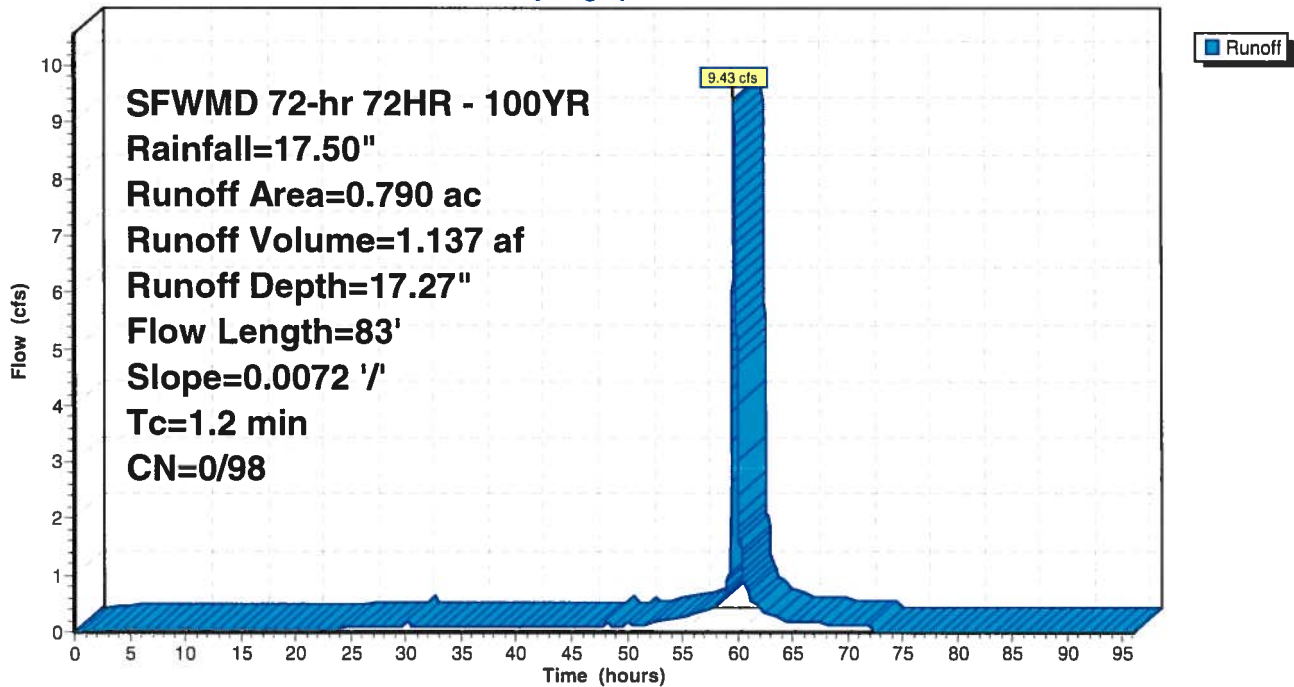
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.790	98	Paved parking & roofs
0.790	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	83	0.0072	1.20		Sheet Flow, OVERLAND TO CANAL Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 35S: SB-2C

Hydrograph



Subcatchment 37S: B-4

Runoff = 7.77 cfs @ 59.76 hrs, Volume= 0.879 af, Depth=15.74"

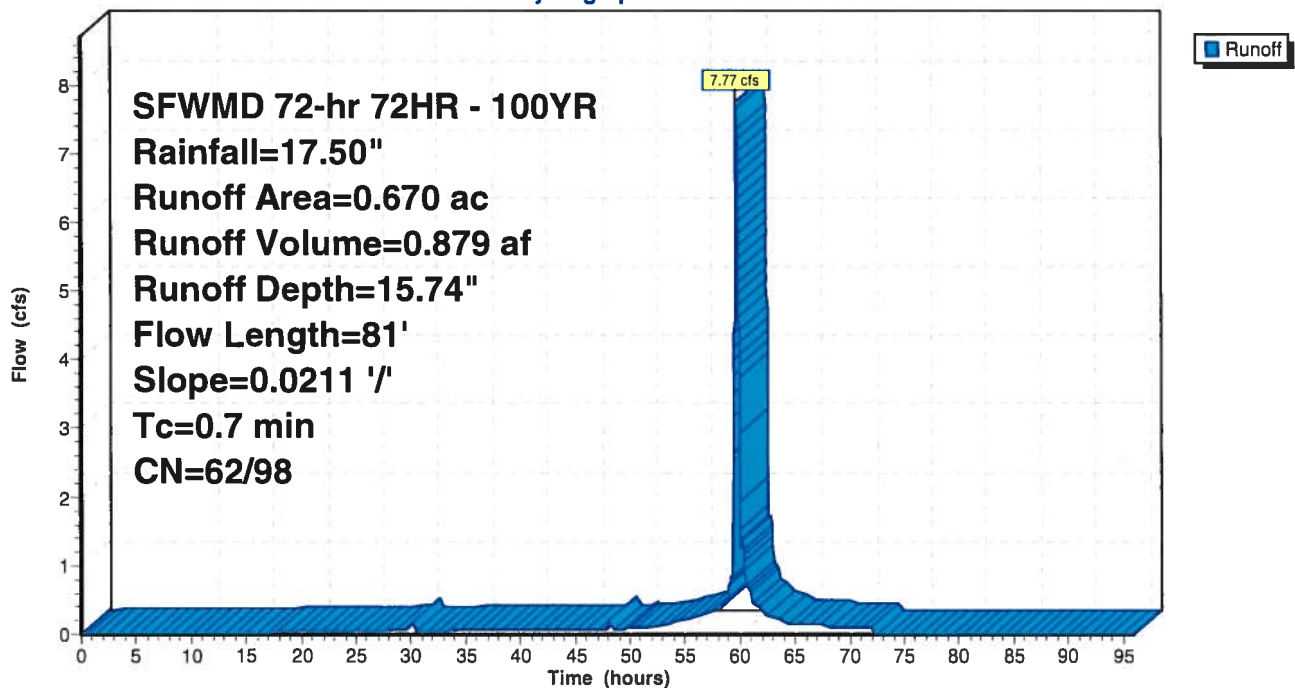
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
SFWMD 72-hr 72HR - 100YR Rainfall=17.50"

Area (ac)	CN	Description
0.670	88	Urban industrial, 72% imp, HSG B
0.188	62	Pervious Area
0.482	98	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	81	0.0211	1.83		Sheet Flow, OVERLAND TO OFFSITE Smooth surfaces n= 0.011 P2= 5.90"

Subcatchment 37S: B-4

Hydrograph



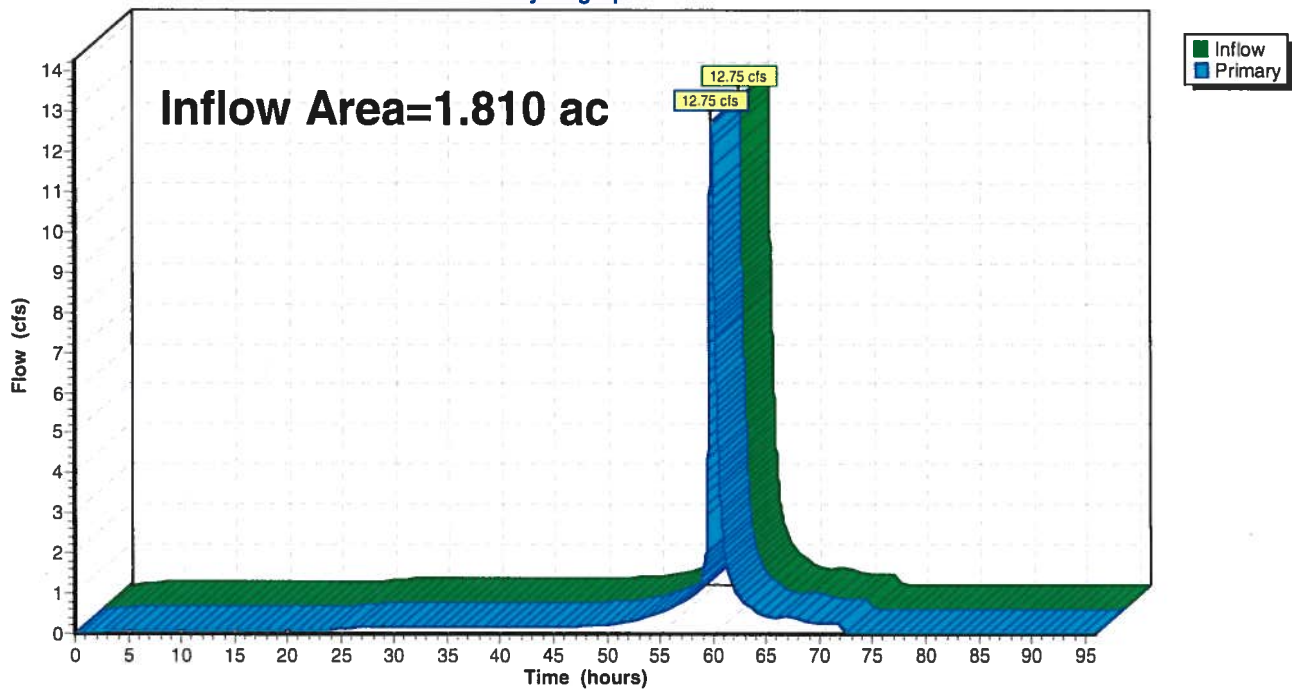
Link 16L: SB-1A COMBINED

Inflow Area = 1.810 ac, Inflow Depth = 15.74" for 72HR - 100YR event
Inflow = 12.75 cfs @ 59.90 hrs, Volume= 2.374 af
Primary = 12.75 cfs @ 59.90 hrs, Volume= 2.374 af, Atten= 0%, Lag= 0.0 min

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

Link 16L: SB-1A COMBINED

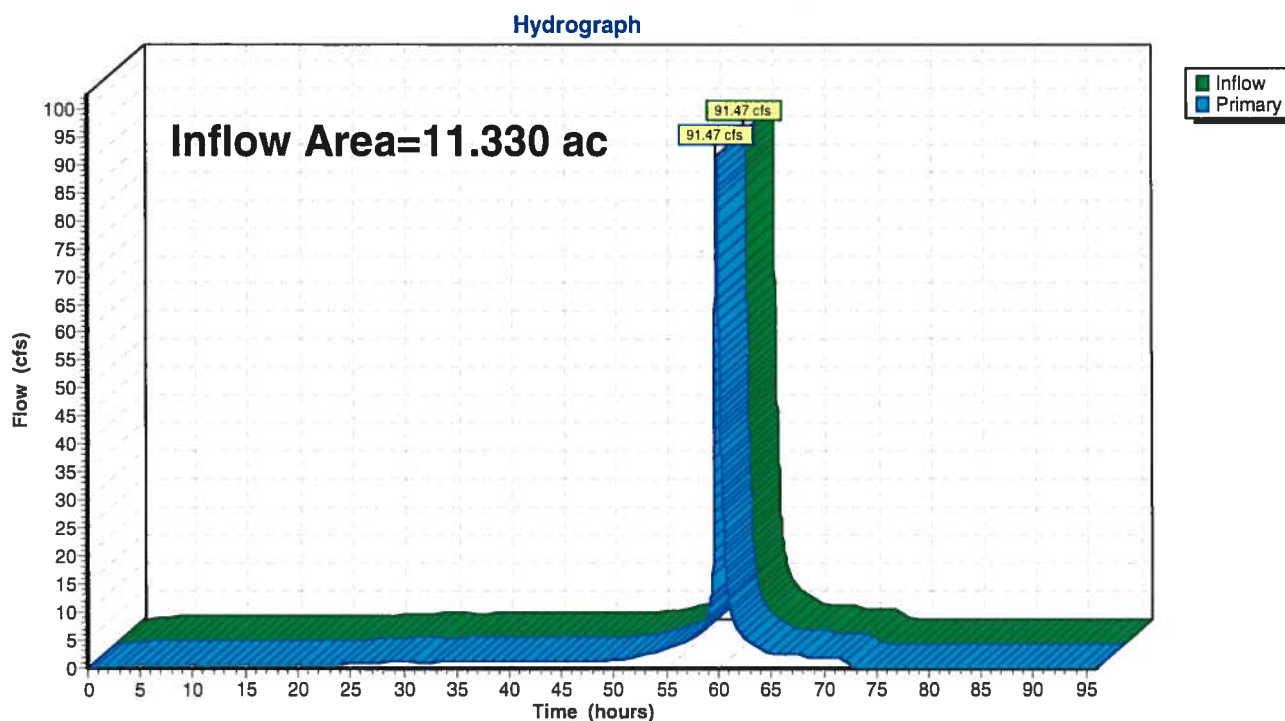
Hydrograph



Link 17L: SB-1B COMBINED

Inflow Area = 11.330 ac, Inflow Depth = 15.92" for 72HR - 100YR event
Inflow = 91.47 cfs @ 59.89 hrs, Volume= 15.035 af
Primary = 91.47 cfs @ 59.89 hrs, Volume= 15.035 af, Atten= 0%, Lag= 0.0 min

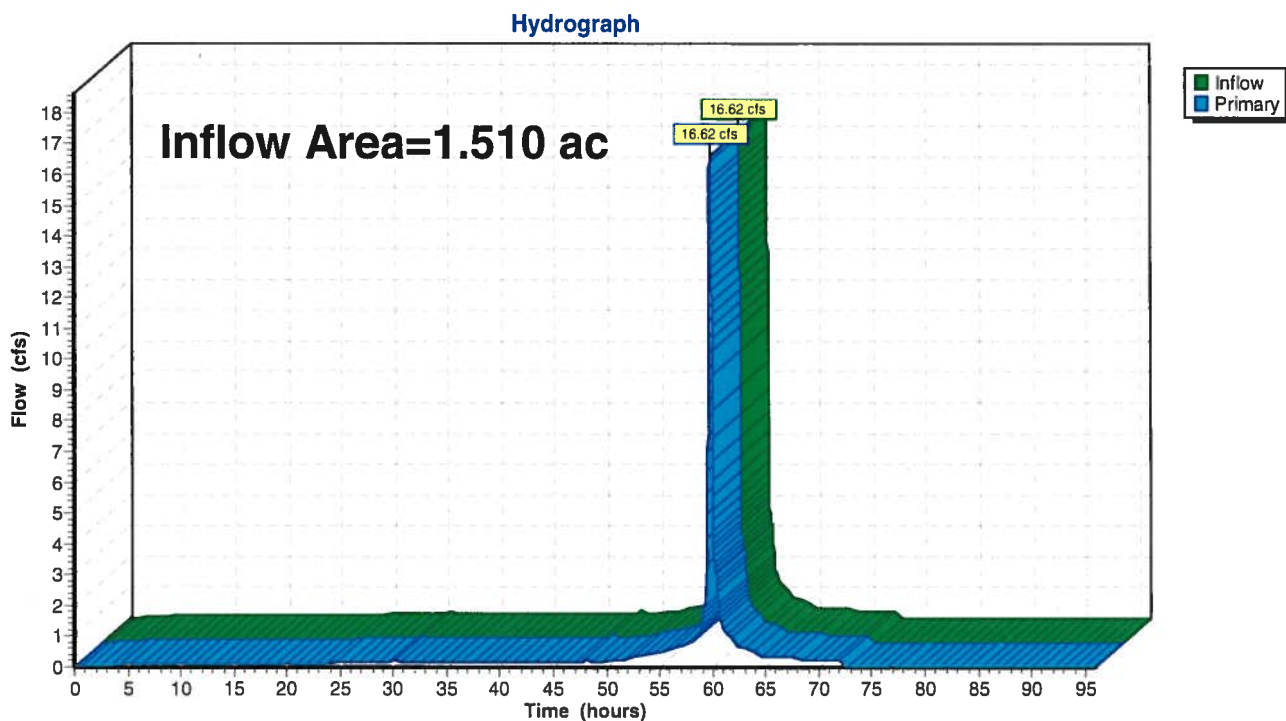
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 17L: SB-1B COMBINED

Link 19L: SB-1G COMBINED

Inflow Area = 1.510 ac, Inflow Depth = 16.78" for 72HR - 100YR event
Inflow = 16.62 cfs @ 59.79 hrs, Volume= 2.111 af
Primary = 16.62 cfs @ 59.79 hrs, Volume= 2.111 af, Atten= 0%, Lag= 0.0 min

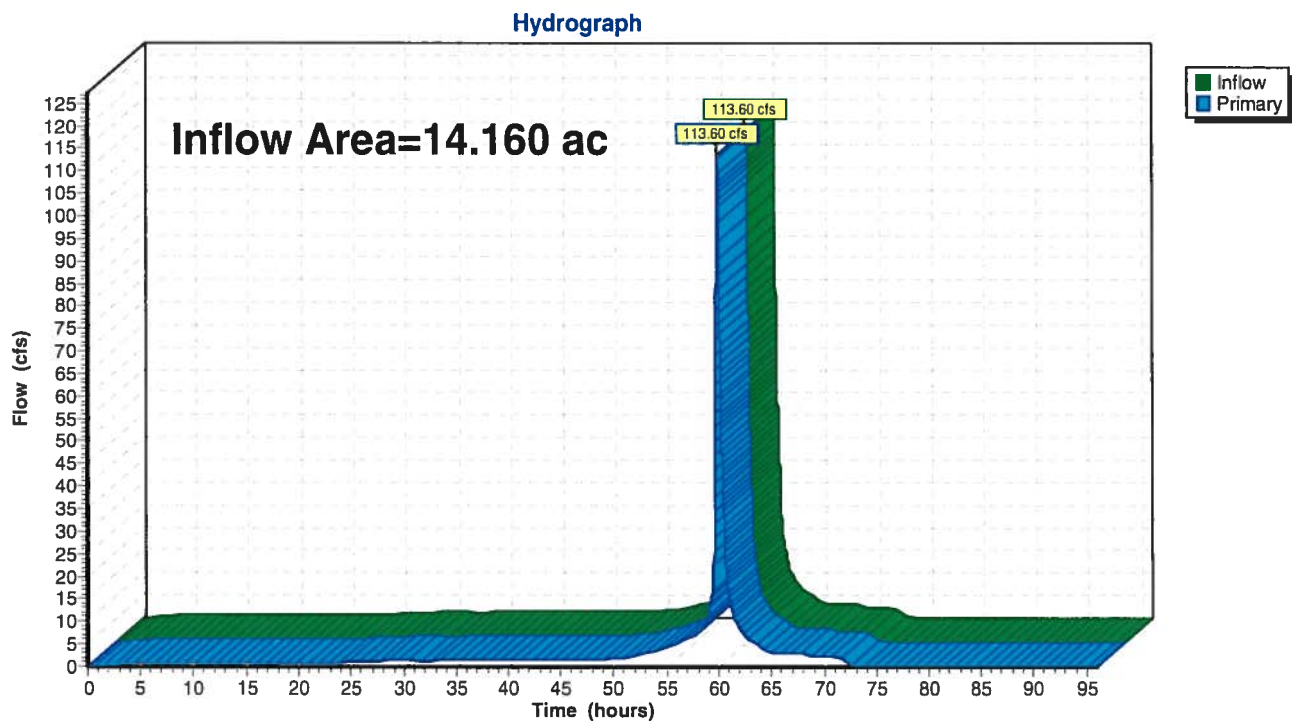
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 19L: SB-1G COMBINED

Link 20L: B-1 SURFACE DISCHARGE

Inflow Area = 14.160 ac, Inflow Depth = 15.89" for 72HR - 100YR event
Inflow = 113.60 cfs @ 59.87 hrs, Volume= 18.747 af
Primary = 113.60 cfs @ 59.87 hrs, Volume= 18.747 af, Atten= 0%, Lag= 0.0 min

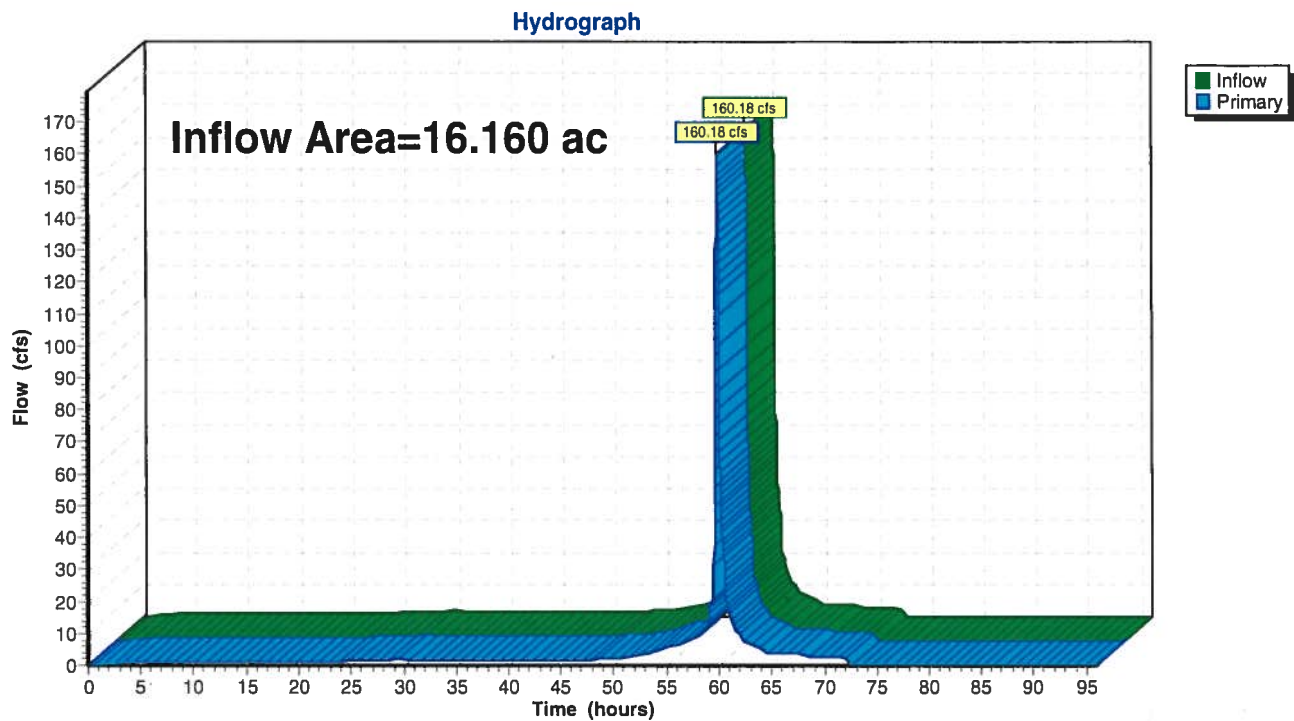
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 20L: B-1 SURFACE DISCHARGE

Link 24L: B-1 INLETS DISCHARGE

Inflow Area = 16.160 ac, Inflow Depth = 17.11" for 72HR - 100YR event
Inflow = 160.18 cfs @ 59.81 hrs, Volume= 23.044 af
Primary = 160.18 cfs @ 59.81 hrs, Volume= 23.044 af, Atten= 0%, Lag= 0.0 min

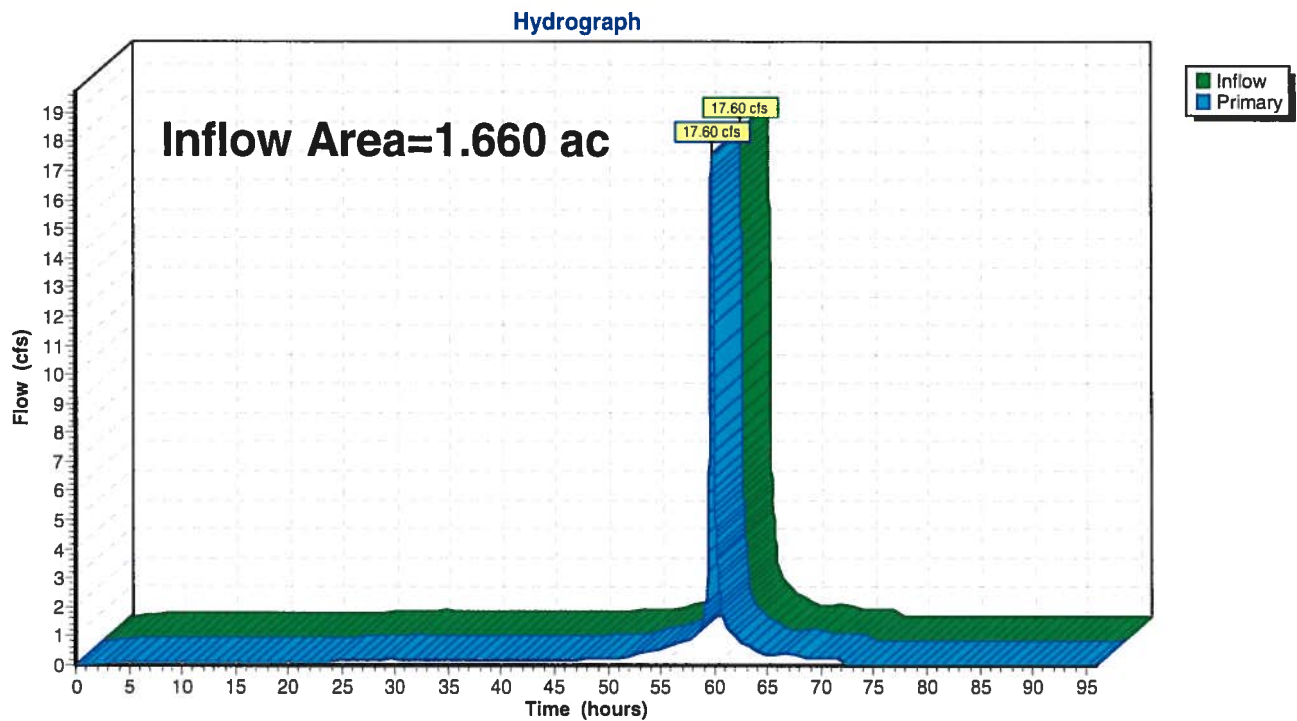
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 24L: B-1 INLETS DISCHARGE

Link 27L: OSB-1 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

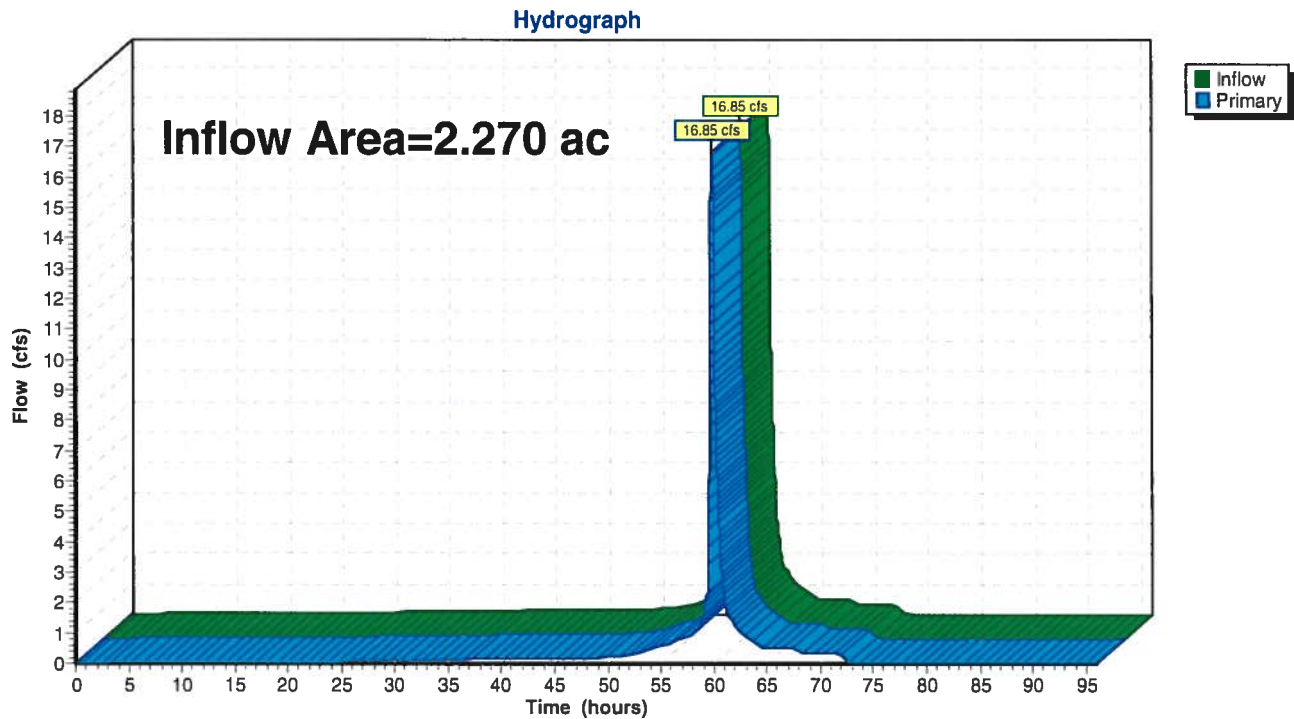
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 27L: OSB-1 COMBINED

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Inflow Area = 2.270 ac, Inflow Depth = 12.88" for 72HR - 100YR event
Inflow = 16.85 cfs @ 59.85 hrs, Volume= 2.436 af
Primary = 16.85 cfs @ 59.85 hrs, Volume= 2.436 af, Atten= 0%, Lag= 0.0 min

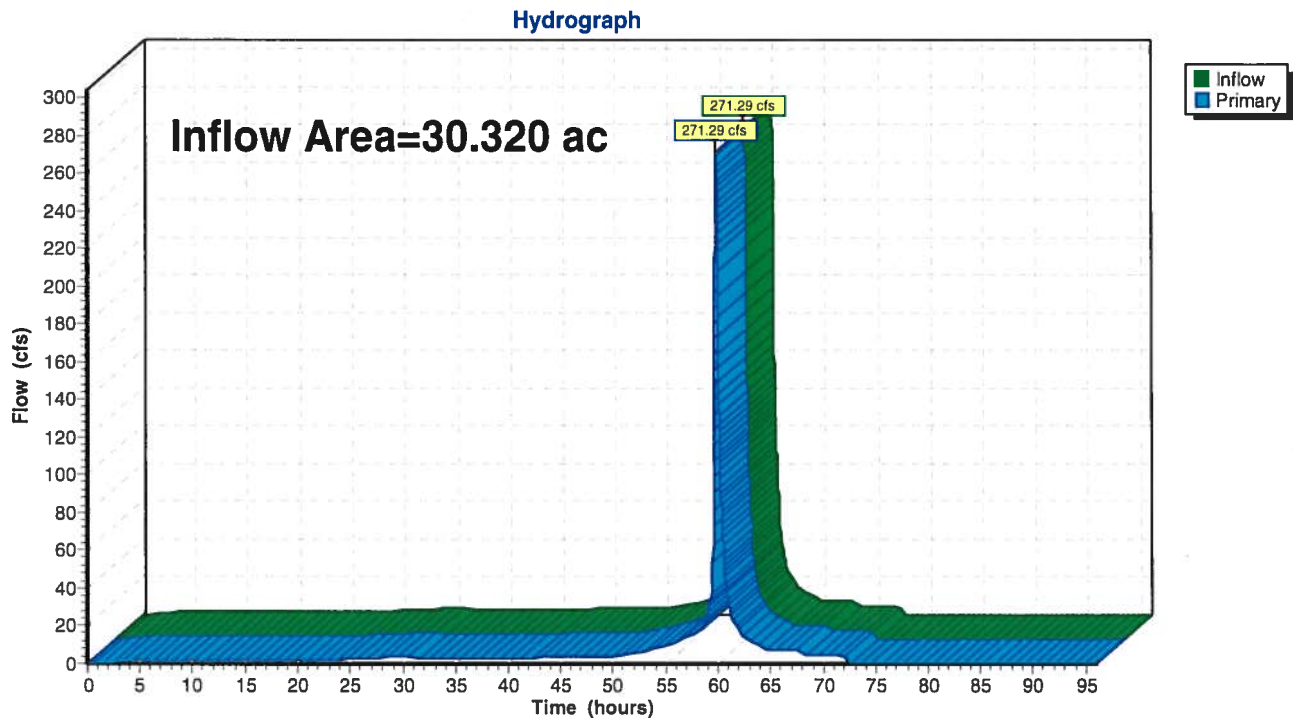
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 31L: B-3 COMBINED DISCHARGE TO SE 14TH AVE

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

Inflow Area = 30.320 ac, Inflow Depth = 16.54" for 72HR - 100YR event
Inflow = 271.29 cfs @ 59.83 hrs, Volume= 41.791 af
Primary = 271.29 cfs @ 59.83 hrs, Volume= 41.791 af, Atten= 0%, Lag= 0.0 min

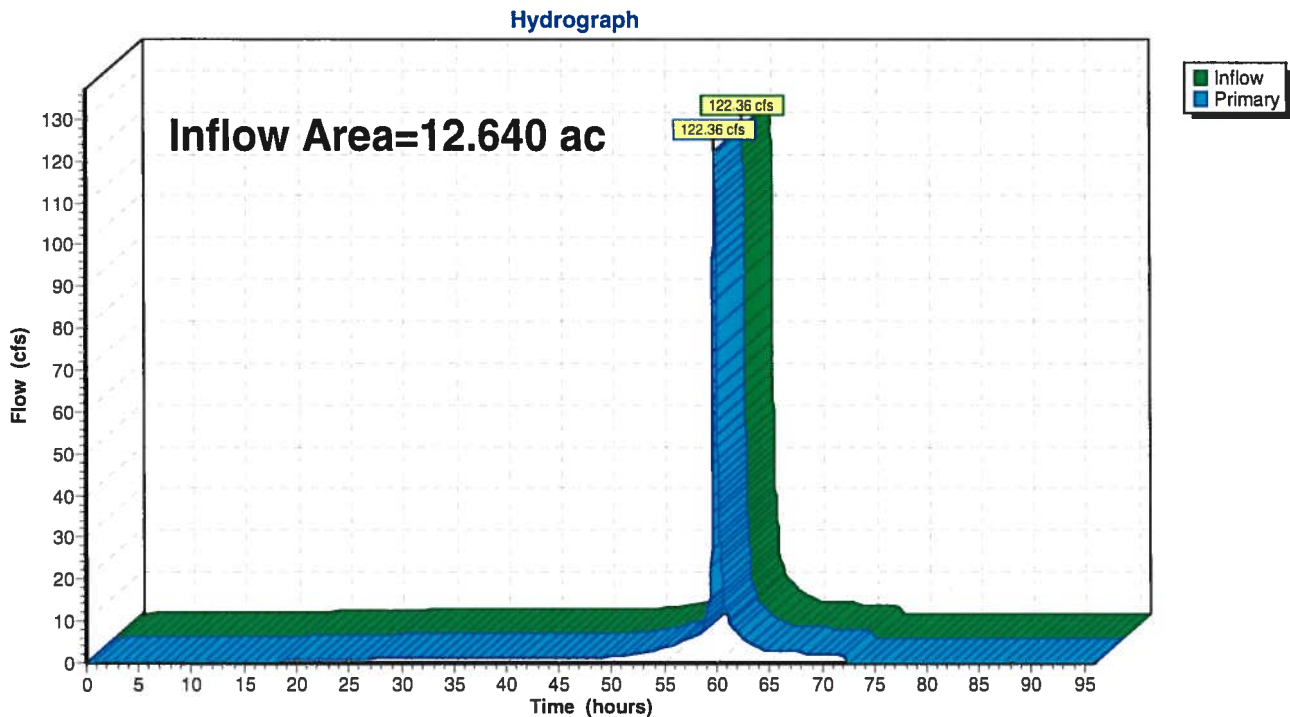
Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link 32L: B-1 COMBINED DISCHARGE TO SOUTH CANAL

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Inflow Area = 12.640 ac, Inflow Depth = 15.24" for 72HR - 100YR event
Inflow = 122.36 cfs @ 59.82 hrs, Volume= 16.057 af
Primary = 122.36 cfs @ 59.82 hrs, Volume= 16.057 af, Atten= 0%, Lag= 0.0 min

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

Link 36L: B-2 COMBINED DISCHARGE TO NORTH CANAL

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD

Inflow Area = 0.670 ac, Inflow Depth = 15.74" for 72HR - 100YR event
Inflow = 7.77 cfs @ 59.76 hrs, Volume= 0.879 af
Primary = 7.77 cfs @ 59.76 hrs, Volume= 0.879 af, Atten= 0%, Lag= 0.0 min

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

Link 38L: B-4 DISCHARGE TO EISENHOWER BLVD