Shephard Wesnitzer, Inc.

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Flagstaff, AZ 86001

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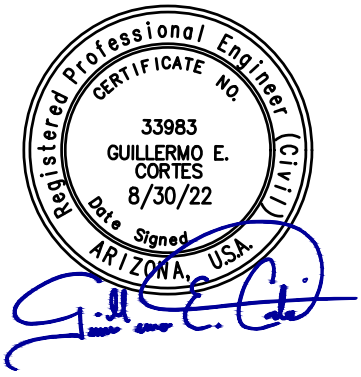
Engineering an environment of excellence.

DRAINAGE IMPACT ANALYSIS
FOR
NORTHERN ARIZONA HEALTHCARE CAMPUS

Section 5 T 20 N R 07 E and Sections 31 & 32, T 21 N, R 07 E, G&SRM
City of Flagstaff,
Coconino County, Arizona

Prepared for:
Northern Arizona Healthcare Corp.
120 N. Beaver St.
Flagstaff, AZ 86001

Prepared by
Shephard-Wesnitzer, Inc.
Consulting Engineers
110 West Dale Avenue
Flagstaff, Arizona 86001



Job # 18214

Prepared On: July 13, 2022

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Appendix C FEMA FIRM Map
Appendix D NRCS Web Soil Survey
Appendix E Pre- and Post-Development Drainage Exhibits
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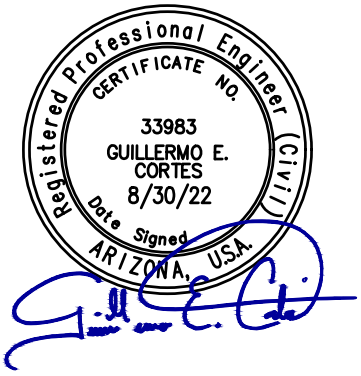


INTRODUCTION

The proposed Northern Arizona Healthcare Campus is located within Section 5, Township 20 North, Range 7 East, and Sections 31 and 32, Township 21 North, Range 7 East, of the Gila and Salt River Meridian, City of Flagstaff, Coconino County, AZ. The project site is bounded on the north by a vacant private property and the Mountain Dell Subdivision, on the east by AZ State Route 89A, and on the south by Fort Tuthill Regional County Park. Refer to the Vicinity Map in Appendix A.

Currently, the property is primarily undeveloped, with a few scattered homes, with moderate ponderosa pine coverage over the site. Soils for the site are primarily in Hydrologic Group D with a small area of Hydrologic Group B. An unnamed tributary to Sinclair Wash runs through the site and drains to the north toward the Mountain Dell Subdivision and Sinclair Wash. The proposed development lies within Zone X of FEMA FIRM Maps #04005C6812G, #04005C6814G, #04005C6816G, and #04005C6818G. No 100-year FEMA floodplains will be directly impacted by the proposed development. See Appendix C for the FEMA FIRM Map for the site.

The proposed project will consist of a new hospital, multi-story medical office buildings, administration building, future hotels, commercial/residential, and research and development buildings, and associated parking lots for each building. The total gross acreage of the project site is approximately 179.6 acres. Refer to the Land Use Plan in Appendix B.

OBJECTIVES AND PROCEDURES

This report supports the rezoning application for the Northern Arizona Healthcare Campus project. The project narrative can be referenced for additional information on proposed land uses and zoning information. The Land Use Plan has been included in Appendix B of this report.

The objective of this report is to determine the impact the Northern Arizona Healthcare Campus development will have on the runoff characteristics of the site and to determine preliminary retention volumes required to mitigate the 100-year storm runoff to pre-development levels. Mitigation measures will be provided per the City of Flagstaff Stormwater Management Design Manual (COFSMDM).

The SCS Unit Hydrograph method and Type II rainfall distribution were used to determine the pre- and post-development 100-year, 24-hour runoff volumes. Pre-development Runoff Curve Numbers were determined based on existing site conditions per ADWR, *Oak Creek Flood Warning System Hydrology Report*. Post-development Runoff Curve Numbers were determined based on USDA TR-55, *Urban Hydrology for Small Watersheds*, proposed land uses, and proposed

roadway improvements. PondPack Version 8i was utilized to estimate retention basin sizes based on pre- vs. post-development 100-year, 24-hour hydrograph volumes. Soil information was obtained from the National Resources Conservation Service (NRCS) Web Soil Survey. See Appendix D for the Web Soil Survey for the site.

STORMWATER STORAGE EVALUATION

Pre-Development Conditions

As seen in the Pre-Development Drainage Exhibit in Appendix E, under existing conditions, the project site has four outfall locations as follows. The boundaries between the existing areas draining to these outfalls are also shown.

Outfall #1 is near the northeast corner of the site and discharges into the right-of-way for SR 89A. At this location, there is no culvert under AZ SR 89A, and the flows will ultimately overtop the highway and continue to the northeast between AZ SR 89A and Interstate 17.

Outfall #2 also discharges into the SR 89A right-of-way. At this location, there is a small concrete box culvert under SR 89A that conveys runoff toward a concrete box culvert under I-17.

Outfall #3 is the final discharge location into the SR 89A right-of-way. At this location, there is a large concrete box culvert under both SR 89A and I-17, which is paired with a portion of the Flagstaff Urban Trail System (FUTS). The discharge through this culvert ultimately flows into two existing stock tanks (Interstate Tank and an unnamed tank) that were improved as part of the Sheep Crossing FUTS improvements. These tanks play an important role in controlling peak discharge rates into the downstream Ponderosa Trails Subdivision.

Outfall #4 is via the unnamed tributary to Sinclair Wash near the northwest corner of the site. This tributary flows into Sinclair Wash to the southwest of the Mountain Dell Subdivision, between FIS Cross Sections AB and AC. From this confluence point, Sinclair Wash flows to the northeast through Mountain Dell and the new Mountain Dell Channel, along the northwest side of SR 89A, and toward Interstate 40.

For the purposes of determining preliminary required retention volumes for the proposed planning areas shown on the Land Use Plan, the on-site drainage basin boundaries for pre-development conditions were drawn based on the planning area boundaries.

Post-Development Conditions

As shown in the Post-Development Drainage Exhibit in Appendix E preliminary alignments and cross sections have been determined for the primary roadways within the project site. The SCS Curve Numbers for the on-site drainage basins were updated to reflect these roadways, as well as the proposed widening of SR 89A. Because detailed land planning has not been performed within the proposed planning areas, the flow paths for calculating time of concentration were not updated from pre- to post-development conditions. However, for post-development conditions a time of concentration of 20 minutes was assumed for developed watersheds.

Results

Tables 1 and 2 provide a summary of the pre- and post-development hydrologic analyses. Detailed calculations are provided in Appendix F.

TABLE 1: SCS CURVE NUMBER, TC, AND Q_{100}

BASIN ID	AREA (AC)	WEIGHTED CN		Tc (MIN)		Q_{100} (CFS)	
		PRE	POST	PRE	POST	PRE	POST
1a	14.0	76.8	79.2	50	50	18.7	20.5
1b	23.1	75.2	76.9	45	45	31	33.2
2a	18.7	75.0	95.0	63	20	19.5	73.4
2b	64.6	75.0	90.0	72	20	61.1	229.2
2c	3.7	75.0	95.0	57	6	4.16	19.9
2d	26.0	76.1	95.0	99	20	20.36	102.1
3	29.9	75.0	95.0	85	20	25.3	117.4

TABLE 2: HYDROGRAPH VOLUME AND PRELIMINARY RETENTION VOLUME

BASIN ID	HYDROGRAPH VOLUME (AC-FT)		RETENTION VOLUME (AC-FT)
	PRE	POST	
1a	2.59	2.82	0.23
1b	4.02	4.29	0.26
2a	3.22	6.19	2.98
2b	11.08	18.52	7.44
2c	0.64	1.23	0.59
2d	4.62	8.61	3.99
3	5.11	9.90	4.79

As shown in Table 2, the difference between the pre- and post-development hydrograph volumes was used as the preliminary estimation of the required retention volume for each planning area shown in the Land Use Plan. These volumes may be updated as more detailed design is performed for the project. Also, the locations of the retention basins will be determined as the project design progresses. Retention basins may be provided within individual planning areas, or more regional retention basins may be utilized to provide the necessary volume for multiple planning areas.

SUMMARY AND CONCLUSIONS

This report provides a preliminary analysis of the impact the Northern Arizona Healthcare Campus development will have on the runoff characteristics of the site, as well as preliminary retention volumes required to mitigate the 100-year storm runoff to pre-development levels.

The retention basin volumes provided herein are preliminary and will be refined through the design phases of the project. Ultimately, the drainage infrastructure for the Northern Arizona Healthcare Campus project will be designed per the City of Flagstaff Stormwater Management Design Manual (SMDM) and the City of Flagstaff Low Impact Development Manual (LIDM).

REFERENCES

Publications

City of Flagstaff Stormwater Management Design Manual, March 2009

City of Flagstaff Low Impact Development Manual, January 2009

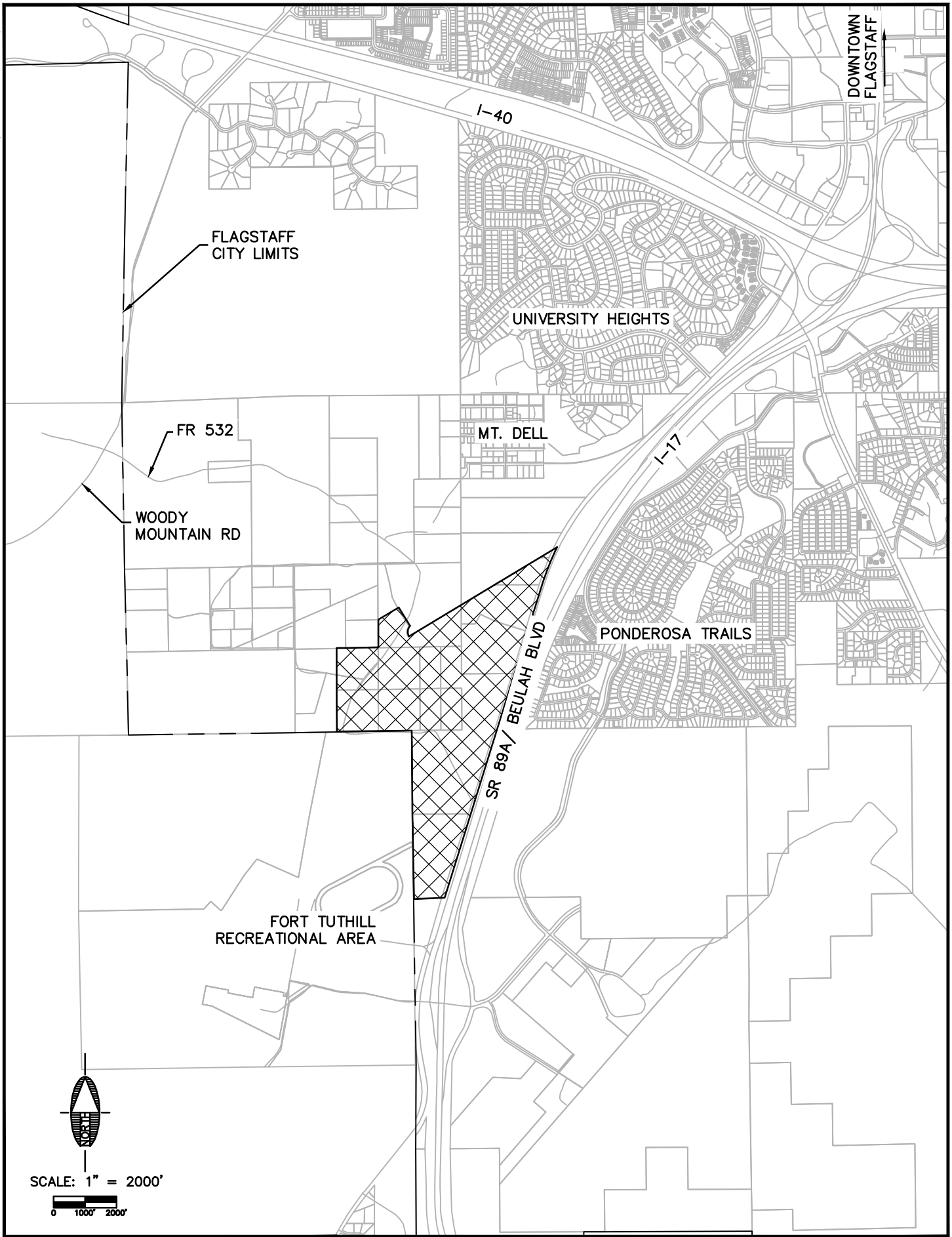
NRCS Web Soil Survey

Software

PondPack, Bentley Systems, Inc., Version *8i*

Appendix A

Vicinity Map



PLOTTED: Apr 15, 2021-8:35pm

FILE: P:\2018\18214\DRAWINGS\DRAINAGE\18214 - VICINITY MAP.DWG BDIXON

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JOB NO.	18214
DATE	APR 21
SCALE	AS SHOWN
DRAWN	TNO
DESIGN	TNO
CHECKED	GEC

NORTHERN ARIZONA HEALTHCARE — FLAGSTAFF ARIZONA

VICINITY MAP

SHEET 1 OF 1

Appendix B

Land Use Plan

FR 532

SINCLAIR WASH

100' POWER CORRIDOR

80' POWER CORRIDOR

FUTS, See Multi Modal System Plan for associated detail

2a
15.6 AC.

INTERSTATE 17

HEALTHCARE BLVD

60.1 AC.

2b

1a
10.0 AC.

GETAWAY TRAIL

WELLNESS LOOP*

1b
21.2 AC.

LOW DENSITY RESIDENTIAL NEIGHBORHOOD

BEULAH BLVD/SR 89A

PONDEROSA TRAILS (SINGLE FAMILY RESIDENTIAL NEIGHBORHOOD)

Regional Activity Center

2c
2.7 AC.

PURPLE SAGE TRAIL

FORT TUTHILL (REGIONAL COUNTY PARK)

2d
24.2 AC.

Existing Easement Access, to remain until access needs change

INFANTRY RD

3
27.2 AC.

LAND USE AREA LEGEND

- 1a OPEN SPACE FOR FUTS
- 1b WELLNESS AREA
- 2a MIXED USE - HOTEL / COMMERCIAL / RESIDENTIAL
- 2b MEDICAL CENTER
- 2c HOTEL
- 2d CLINICAL PARTNERSHIPS AND RETAIL
- 3 RESEARCH AND INNOVATION

* See Report for Intent detail, Allowed Uses, and Building Form and Property Development Standards for each Land Use Area.

** Buildings and Parking shown are for illustrative purposes only. They match the intensity/density detailed in the Land Use Program table. There is no expectation that the Land Use Areas will develop with buildings and parking as shown.

* NOTE: STREET NAMES WITH ASTERISKS (*) ARE PLACEHOLDERS FOR DISCUSSION FOR NOW

NORTH

0 200 400 800

SCALE

NAH HEALTH VILLAGE | CONCEPT PLAN - LAND USE

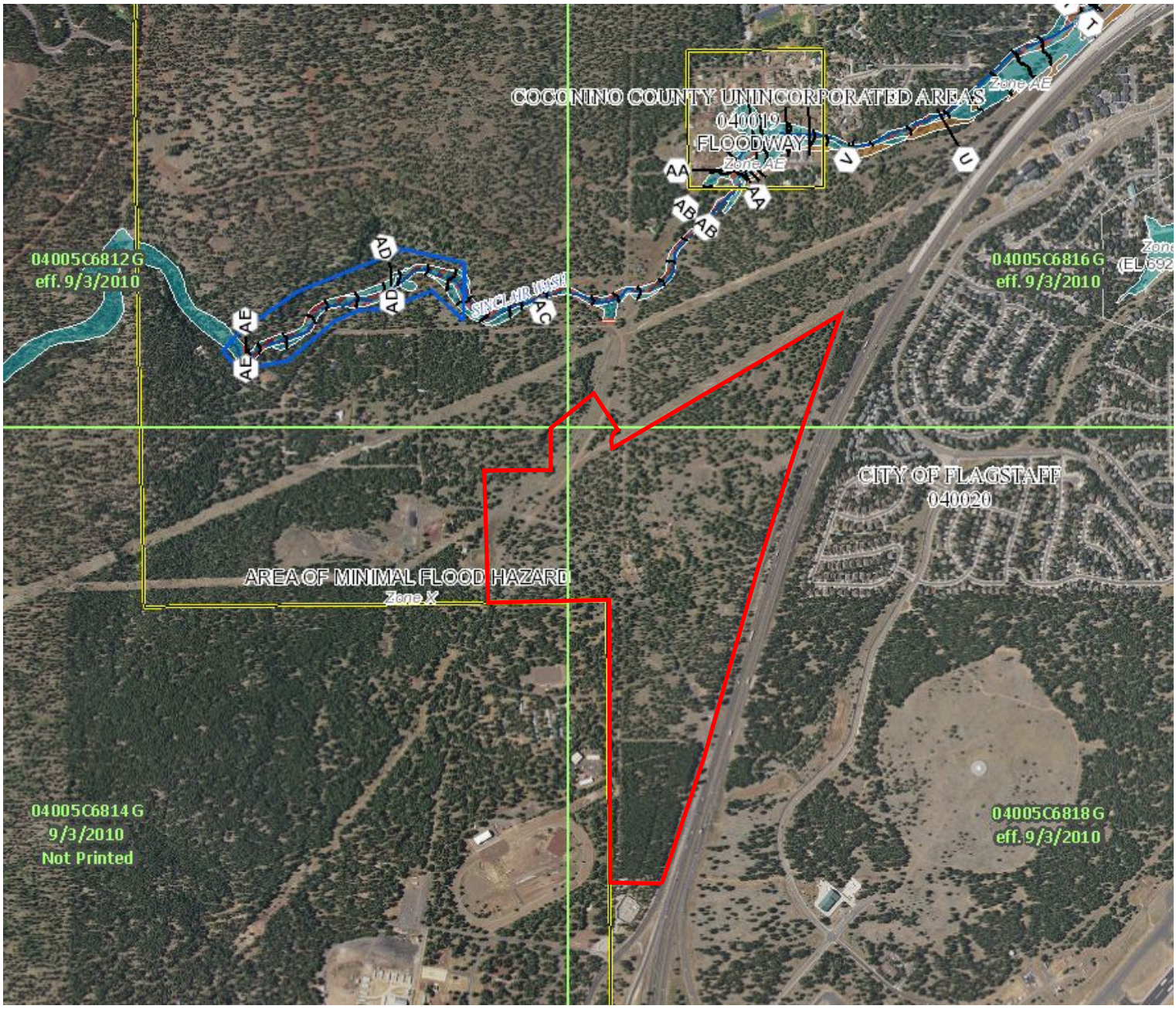
05/04/2022

Northern Arizona Healthcare

NORRIS DESIGN
Planning | Landscape Architecture | Branding

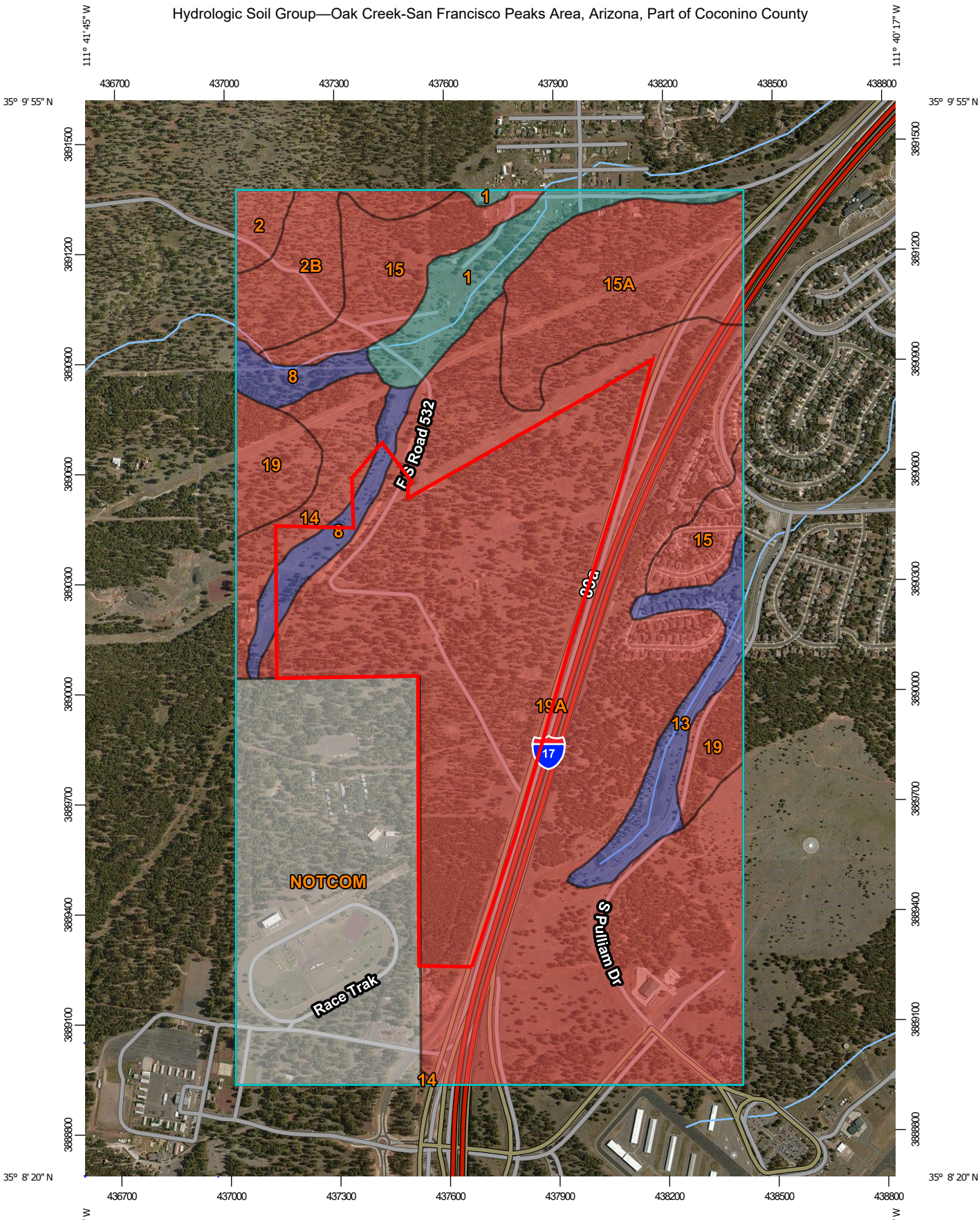
Appendix C

FEMA FIRM Map


COCONINO COUNTY UNINCORPORATED AREAS
040019
FLOODWAY
Zone AE
Zone AE
04005C6812 G
eff. 9/3/2010
04005C6816 G
eff. 9/3/2010
CITY OF FLAGSTAFF
040020
AREA OF MINIMAL FLOOD HAZARD
Zone X
04005C6814 G
9/3/2010
Not Printed
04005C6818 G
eff. 9/3/2010

Appendix D

NRCS Web Soil Survey


111° 41' 45" W
111° 40' 17" W
35° 9' 55" N
35° 8' 20" N
436700
437000
437300
437600
437900
438200
438500
438800
3891500
3891200
3890900
3890600
3890300
3890000
3889700
3889400
3889100
3888800
1
2
2B
15
1
15A
8
19
14
8
15
19A
13
19
NOTCM
14
Forest Road 532
S Pulliam Dr
Race Trak
17
Map Scale: 1:14,300 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0
200
400
800
1200
Feet
0
500
1000
2000
3000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

Soil Survey Area: Oak Creek-San Francisco Peaks Area, Arizona, Part of Coconino County
Survey Area Data: Version 10, Jun 3, 2020

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

Date(s) aerial images were photographed: Jun 2, 2015—Jun 25, 2015

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1	Jacques clay loam, 0 to 2 percent slopes	C	29.0	3.5%
2	Brolliar stony clay loam, 0 to 2 percent slopes	D	6.7	0.8%
2B	Brolliar stony clay loam, 8 to 30 percent slopes	D	26.6	3.2%
8	Paymaster family fine sandy loam, 0 to 3 percent slopes	B	23.0	2.7%
13	Lynx loam, 0 to 2 percent slopes	B	23.8	2.8%
14	Daze fine sandy loam, 0 to 8 percent slopes	D	26.2	3.1%
15	Tortugas cobbly loam, 2 to 15 percent slopes	D	43.3	5.1%
15A	Tortugas-Daze complex, 0 to 15 percent slopes	D	59.0	7.0%
19	Telephone gravelly sandy loam, 0 to 15 percent slopes	D	27.3	3.3%
19A	Telephone-Daze complex, 0 to 8 percent slopes	D	437.0	52.0%
NOTCOM	No Digital Data Available		139.1	16.5%
Totals for Area of Interest			**841.0**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

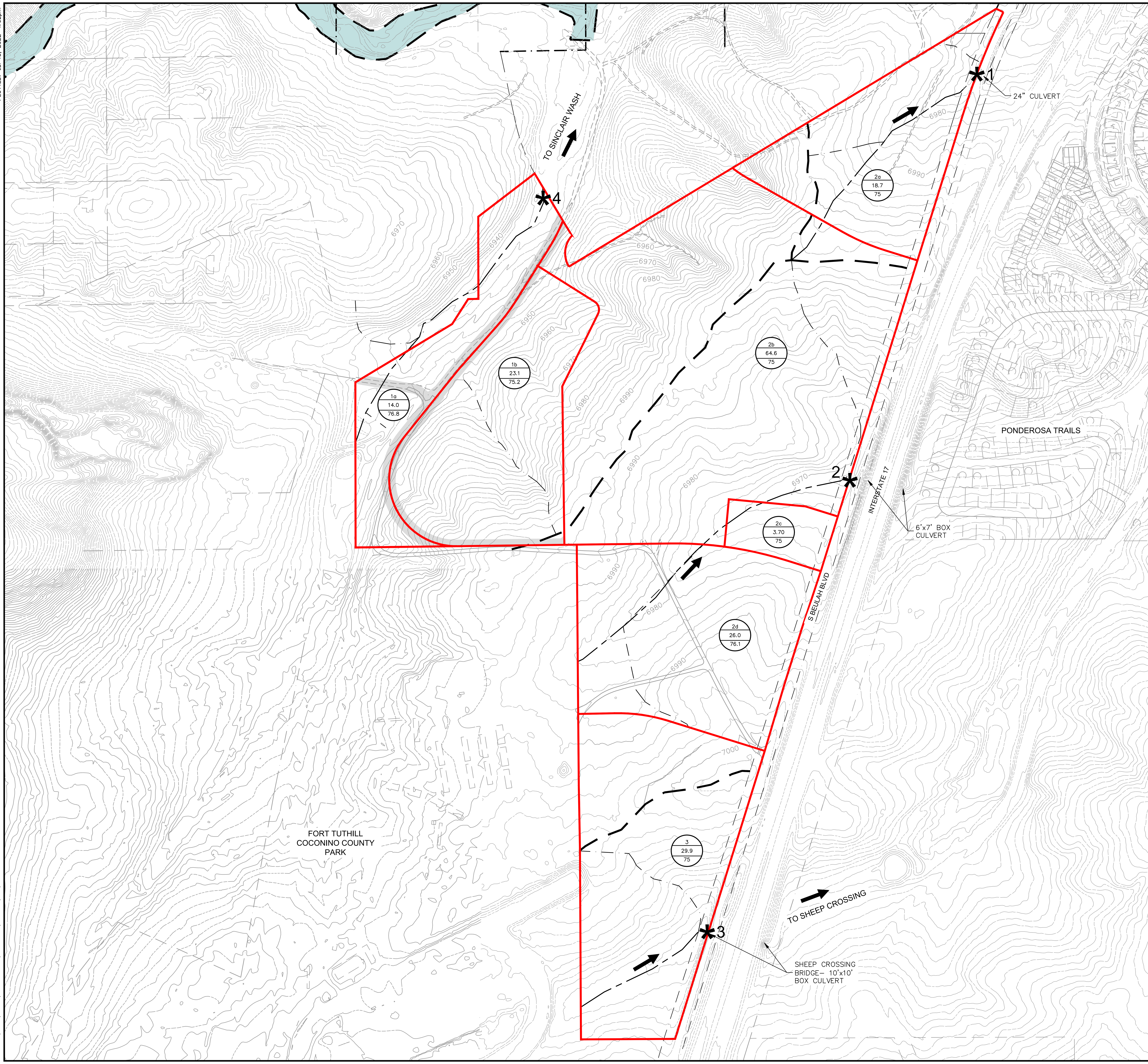
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix E

Pre- and Post-Development Drainage Exhibits



LEGEND

DRAINAGE BASIN IDENTIFIER:
3a = BASIN ID
1.9 = APPROXIMATE BASIN AREA (ACRES)
77 = SCS CURVE NUMBER

LAND USE PLAN BASIN BOUNDARY

EXISTING FLOWLINE

EXISTING OUTFALL BASIN BOUNDARY

*1 EXISTING DRAINAGE OUTFALL

PRE-DEVELOPMENT RUNOFF SUMMARY					
BASIN ID	AREA (ACRES)	TC (MIN)	WEIGHTED CN	Q100 (CFS)	V100 (AC-FT)
1a	14.0	50	76.8	18.7	2.585
1b	23.1	45	75.2	31.0	4.022
2a	18.7	63	75.0	19.5	3.216
2b	64.6	72	75.0	61.1	11.083
2c	3.7	57	75.0	4.2	0.637
2d	26.0	99	76.1	20.4	4.618
3	29.9	85	75.0	25.3	5.113

FLAGSTAFF
ARIZONA

NORTHERN ARIZONA HEALTHCARE

PRE-DEVELOPMENT DRAINAGE EXHIBIT

JOB NO: 18214
DATE: JUL 22
SCALE: AS SHOWN
DRAWN: BTD
DESIGN: BTD
CHECKED: GEC

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Shephard Wesnitzer, Inc.

NO.	DESCRIPTION	DATE	BY
REVISIONS			

Call at least two full working days before you begin excavation.
ARIZONA811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

Registered Professional Engineer
CERTIFICATE NO. 33983
GUILLERMO E. CORTES
7/13/22
ARIZONA, USA
(CIVIL)
Date Signed

DRAWING NO.
DM01

SHT NO. 1 OF 2

PLOTTED: Jul 13, 2022-4:02pm
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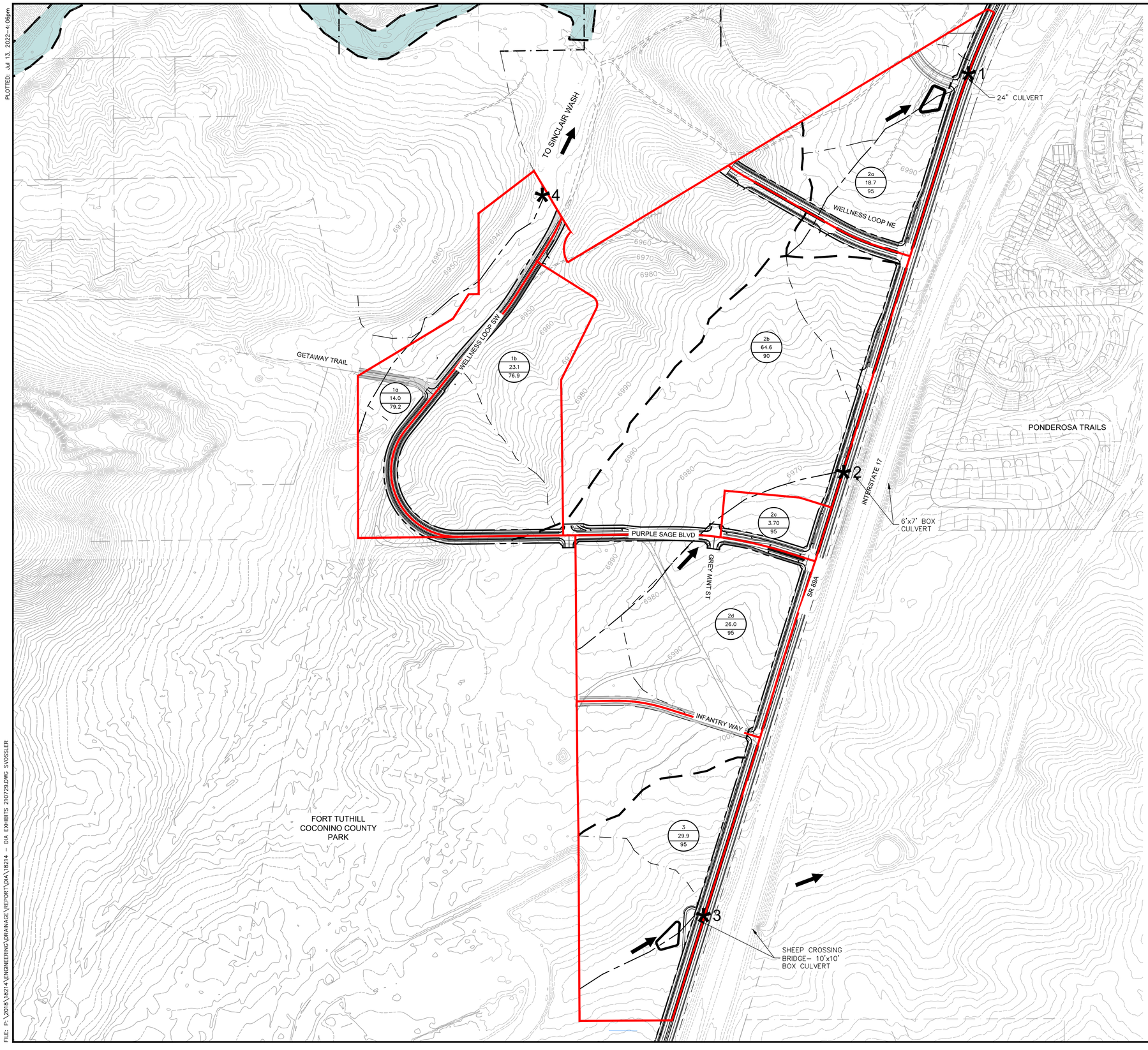

LEGEND

- 3a / 1.9 / 81 — DRAINAGE BASIN IDENTIFIER: 3a = BASIN ID; 1.9 = APPROXIMATE BASIN AREA (ACRES); 81 = SCS CURVE NUMBER
- LAND USE PLAN BASIN BOUNDARY
- Tc FLOW LINE
- EXISTING MAJOR FLOWLINE
- EXISTING OUTFALL BASIN BOUNDARY
- *1 — EXISTING DRAINAGE OUTFALL

POST-DEVELOPMENT RUNOFF SUMMARY

BASIN ID	AREA (ACRES)	TC (MIN)	WEIGHTED CN	Q100 (CFS)	V100 (AC-FT)
1a	14.0	50	79.2	20.5	2.818
1b	23.1	45	76.9	33.2	4.286
2a	18.7	20	95.0	73.4	6.191
2b	64.6	20	90.0	229.2	18.524
2c	3.7	6	95.0	19.9	1.227
2d	26.0	20	95.0	102.1	8.608
3	29.9	20	95.0	117.4	9.900

SCALE 1" : 250'
0 125 250

Registered Professional Engineer
CERTIFICATE NO.
33083
GUILLERMO E. CORTES
7/13/22
State of ARIZONA USA

FLAGSTAFF ARIZONA

NORTHERN ARIZONA HEALTHCARE

POST-DEVELOPMENT DRAINAGE EXHIBIT

JOB NO: 18214
DATE: JUL 22
SCALE: AS SHOWN
DRAWN: BTD
DESIGN: BTD
CHECKED: GEC

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SVI
Shephard Wesnitzer, Inc.

REVISIONS

NO.	DESCRIPTION	DATE	BY

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Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

DRAWING NO.
DM02

SHT NO. 2 OF 2

FILE: P:\2018\18214\ENGINEERING\DRAINAGE\REPORT\DIA\18214 - DIA EXHIBITS 210729.DWG SVOSSLER

Appendix F

PondPack Output

Project Summary	
Title	NAH HEALTH VILLAGE
Engineer	BD / SJV
Company	SWI
Date	7/13/2022

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User Notifications

Message Id	7
Scenario	Post-Development 100-YEAR
Element Type	Catchment
Element Id	44
Label	BASIN 2c
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 3.3 % is greater than 1.5 %. Computed peak flow= 20.58 ft³/s Interp. peak flow= 19.91 ft³/s. Output increment for this catchment may be too large.
Source	Warning

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
BASIN 1a	Post-Development 100-YEAR	100	2.818	12.400	20.54
BASIN 1a	Pre-Development 100 -YEAR	100	2.585	12.400	18.69
BASIN 1b	Post-Development 100-YEAR	100	4.286	12.350	33.24
BASIN 1b	Pre-Development 100 -YEAR	100	4.022	12.350	31.00
BASIN 2a	Post-Development 100-YEAR	100	6.191	12.100	73.42
BASIN 2a	Pre-Development 100 -YEAR	100	3.216	12.600	19.50
BASIN 2b	Post-Development 100-YEAR	100	18.524	12.100	229.24
BASIN 2b	Pre-Development 100 -YEAR	100	11.083	12.650	61.07
BASIN 2c	Post-Development 100-YEAR	100	1.227	11.950	19.91
BASIN 2c	Pre-Development 100 -YEAR	100	0.637	12.450	4.16
BASIN 3	Post-Development 100-YEAR	100	9.900	12.100	117.40
BASIN 3	Pre-Development 100 -YEAR	100	5.113	12.800	25.25
BASIN 2d	Post-Development 100-YEAR	100	8.608	12.100	102.08
BASIN 2d	Pre-Development 100 -YEAR	100	4.618	12.950	20.36

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
OUT 1a	Post-Development 100-YEAR	100	2.818	12.400	20.54
OUT 1a	Pre-Development 100 -YEAR	100	2.585	12.400	18.69
OUT 1b	Post-Development 100-YEAR	100	4.286	12.350	33.24
OUT 1b	Pre-Development 100 -YEAR	100	4.022	12.350	31.00
OUT 2a	Post-Development 100-YEAR	100	6.191	12.100	73.42
OUT 2a	Pre-Development 100 -YEAR	100	3.216	12.600	19.50
OUT 2b	Post-Development 100-YEAR	100	18.524	12.100	229.24

Subsection: Master Network Summary

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
OUT 2b	Pre-Development 100-YEAR	100	11.083	12.650	61.07
OUT 2c	Post-Development 100-YEAR	100	1.227	11.950	19.91
OUT 2c	Pre-Development 100-YEAR	100	0.637	12.450	4.16
OUT 3	Post-Development 100-YEAR	100	9.900	12.100	117.40
OUT 3	Pre-Development 100-YEAR	100	5.113	12.800	25.25
OUT 2d	Post-Development 100-YEAR	100	8.608	12.100	102.08
OUT 2d	Pre-Development 100-YEAR	100	4.618	12.950	20.36

Subsection: Time-Depth Curve
Label: Flagstaff-COF
Scenario: Post-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time-Depth Curve: TypeII 24hr (4.6 in)	
Label	TypeII 24hr (4.6 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.4
6.000	0.4	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.4
7.000	0.5	0.5	0.5	0.5	0.5
7.500	0.5	0.5	0.5	0.5	0.5
8.000	0.5	0.6	0.6	0.6	0.6
8.500	0.6	0.6	0.6	0.6	0.7
9.000	0.7	0.7	0.7	0.7	0.7
9.500	0.7	0.8	0.8	0.8	0.8
10.000	0.8	0.8	0.9	0.9	0.9
10.500	0.9	1.0	1.0	1.0	1.0
11.000	1.1	1.1	1.1	1.2	1.2
11.500	1.3	1.4	1.6	2.0	2.6
12.000	3.0	3.1	3.2	3.3	3.3
12.500	3.4	3.4	3.4	3.5	3.5
13.000	3.5	3.5	3.6	3.6	3.6
13.500	3.6	3.7	3.7	3.7	3.7
14.000	3.7	3.8	3.8	3.8	3.8
14.500	3.8	3.8	3.8	3.9	3.9
15.000	3.9	3.9	3.9	3.9	3.9
15.500	4.0	4.0	4.0	4.0	4.0
16.000	4.0	4.0	4.0	4.0	4.1
16.500	4.1	4.1	4.1	4.1	4.1

Subsection: Time-Depth Curve
Label: Flagstaff-COF
Scenario: Post-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	4.1	4.1	4.1	4.1	4.1
17.500	4.2	4.2	4.2	4.2	4.2
18.000	4.2	4.2	4.2	4.2	4.2
18.500	4.2	4.2	4.3	4.3	4.3
19.000	4.3	4.3	4.3	4.3	4.3
19.500	4.3	4.3	4.3	4.3	4.3
20.000	4.3	4.3	4.4	4.4	4.4
20.500	4.4	4.4	4.4	4.4	4.4
21.000	4.4	4.4	4.4	4.4	4.4
21.500	4.4	4.4	4.4	4.4	4.4
22.000	4.5	4.5	4.5	4.5	4.5
22.500	4.5	4.5	4.5	4.5	4.5
23.000	4.5	4.5	4.5	4.5	4.5
23.500	4.5	4.5	4.5	4.5	4.6
24.000	4.6	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Flagstaff-COF
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time-Depth Curve: TypeII 24hr (4.6 in)	
Label	TypeII 24hr (4.6 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.4
6.000	0.4	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.4
7.000	0.5	0.5	0.5	0.5	0.5
7.500	0.5	0.5	0.5	0.5	0.5
8.000	0.5	0.6	0.6	0.6	0.6
8.500	0.6	0.6	0.6	0.6	0.7
9.000	0.7	0.7	0.7	0.7	0.7
9.500	0.7	0.8	0.8	0.8	0.8
10.000	0.8	0.8	0.9	0.9	0.9
10.500	0.9	1.0	1.0	1.0	1.0
11.000	1.1	1.1	1.1	1.2	1.2
11.500	1.3	1.4	1.6	2.0	2.6
12.000	3.0	3.1	3.2	3.3	3.3
12.500	3.4	3.4	3.4	3.5	3.5
13.000	3.5	3.5	3.6	3.6	3.6
13.500	3.6	3.7	3.7	3.7	3.7
14.000	3.7	3.8	3.8	3.8	3.8
14.500	3.8	3.8	3.8	3.9	3.9
15.000	3.9	3.9	3.9	3.9	3.9
15.500	4.0	4.0	4.0	4.0	4.0
16.000	4.0	4.0	4.0	4.0	4.1
16.500	4.1	4.1	4.1	4.1	4.1

Subsection: Time-Depth Curve
Label: Flagstaff-COF
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	4.1	4.1	4.1	4.1	4.1
17.500	4.2	4.2	4.2	4.2	4.2
18.000	4.2	4.2	4.2	4.2	4.2
18.500	4.2	4.2	4.3	4.3	4.3
19.000	4.3	4.3	4.3	4.3	4.3
19.500	4.3	4.3	4.3	4.3	4.3
20.000	4.3	4.3	4.4	4.4	4.4
20.500	4.4	4.4	4.4	4.4	4.4
21.000	4.4	4.4	4.4	4.4	4.4
21.500	4.4	4.4	4.4	4.4	4.4
22.000	4.5	4.5	4.5	4.5	4.5
22.500	4.5	4.5	4.5	4.5	4.5
23.000	4.5	4.5	4.5	4.5	4.5
23.500	4.5	4.5	4.5	4.5	4.6
24.000	4.6	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time of Concentration Calculations
Label: BASIN 1a
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.400
Slope	0.010 ft/ft
2 Year 24 Hour Depth	1.9 in
Average Velocity	0.05 ft/s
Segment Time of Concentration	0.613 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	1,000.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.172 hours

Segment #3: TR-55 Channel Flow	
Flow Area	40.0 ft²
Hydraulic Length	600.00 ft
Manning's n	0.040
Slope	0.010 ft/ft
Wetted Perimeter	42.00 ft
Average Velocity	3.61 ft/s
Segment Time of Concentration	0.046 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.831 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: BASIN 1b
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.400
Slope	0.060 ft/ft
2 Year 24 Hour Depth	1.9 in
Average Velocity	0.12 ft/s
Segment Time of Concentration	0.721 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	400.00 ft
Is Paved?	False
Slope	0.060 ft/ft
Average Velocity	3.95 ft/s
Segment Time of Concentration	0.028 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.749 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: BASIN 2a
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.400
Slope	0.030 ft/ft
2 Year 24 Hour Depth	1.9 in
Average Velocity	0.09 ft/s
Segment Time of Concentration	0.951 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	1,000.00 ft
Is Paved?	False
Slope	0.030 ft/ft
Average Velocity	2.79 ft/s
Segment Time of Concentration	0.099 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	1.050 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: BASIN 2b
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.400
Slope	0.020 ft/ft
2 Year 24 Hour Depth	1.9 in
Average Velocity	0.07 ft/s
Segment Time of Concentration	1.119 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	699.00 ft
Is Paved?	False
Slope	0.020 ft/ft
Average Velocity	2.28 ft/s
Segment Time of Concentration	0.085 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	1.204 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: BASIN 2c
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.400
Slope	0.030 ft/ft
2 Year 24 Hour Depth	1.9 in
Average Velocity	0.09 ft/s
Segment Time of Concentration	0.951 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.951 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: BASIN 2d
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.400
Slope	0.010 ft/ft
2 Year 24 Hour Depth	1.9 in
Average Velocity	0.06 ft/s
Segment Time of Concentration	1.476 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	1,000.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.172 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	1.648 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: BASIN 3
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.400
Slope	0.013 ft/ft
2 Year 24 Hour Depth	1.9 in
Average Velocity	0.06 ft/s
Segment Time of Concentration	1.329 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	590.00 ft
Is Paved?	False
Slope	0.015 ft/ft
Average Velocity	1.98 ft/s
Segment Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	1.412 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)
Definition of Terms

At	Total area (acres): At = Ai+Ap
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate (time^-1)
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of 0.1333Tc, rtm, and th (Smallest dt is then adjusted to match up with Tp)
UDdt	User specified override computational main time increment (only used if UDdt is => .1333Tc)
D(t)	Point on distribution curve (fraction of P) for time step t
K	2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks	Hydrograph shape factor = Unit Conversions * K: = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K Default Ks = 645.333 * 0.75 = 484
Lag	Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: Si = (1000/CNi) - 10
Sp	S for pervious area: Sp = (1000/CNp) - 10
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp	Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr	Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method
Computational Notes
Precipitation

Column (1)	Time for time step t
Column (2)	D(t) = Point on distribution curve for time step t
Column (3)	Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4)	Pa(t) = D(t) x P: Col.(2) x P

Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	Rap(t) = Accumulated pervious runoff for time step t
	If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
	If (Pa(t) is > 0.2Sp) then use:
	
	Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6)	Rip(t) = Incremental pervious runoff for time step t Rip(t) = Rap(t) - Rap(t-1) Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.

Incremental Weighted Runoff

Column (9)	R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t) R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS Unit Hydrograph Method

Column (10)	Q(t) is computed with the SCS unit hydrograph method using R(t) and Qu(t).

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.831 hours
Area (User Defined)	14.000 acres

Computational Time Increment	0.111 hours
Time to Peak (Computed)	12.410 hours
Flow (Peak, Computed)	20.60 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.400 hours
Flow (Peak Interpolated Output)	20.54 ft³/s

Drainage Area	
SCS CN (Composite)	79.200
Area (User Defined)	14.000 acres
Maximum Retention (Pervious)	2.6 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.4 in
Runoff Volume (Pervious)	2.851 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.818 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.831 hours
Computational Time Increment	0.111 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	19.09 ft³/s

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.554 hours
Unit receding limb, Tr	2.216 hours
Total unit time, Tb	2.770 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1a Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.831 hours
Area (User Defined)	14.000 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.000	0.00	0.00	0.00	0.00	0.00
8.250	0.01	0.01	0.01	0.01	0.02
8.500	0.02	0.02	0.03	0.03	0.04
8.750	0.05	0.05	0.06	0.07	0.07
9.000	0.08	0.09	0.10	0.11	0.12
9.250	0.13	0.14	0.15	0.16	0.17
9.500	0.18	0.19	0.20	0.21	0.22
9.750	0.23	0.24	0.25	0.26	0.27
10.000	0.28	0.30	0.31	0.33	0.34
10.250	0.36	0.38	0.40	0.42	0.44
10.500	0.46	0.48	0.51	0.53	0.56
10.750	0.59	0.62	0.66	0.69	0.73
11.000	0.77	0.81	0.86	0.91	0.96
11.250	1.02	1.08	1.15	1.22	1.30
11.500	1.40	1.52	1.67	1.87	2.19
11.750	2.55	3.29	4.03	5.40	6.84
12.000	8.70	10.77	12.89	15.06	17.06
12.250	18.49	19.89	20.21	20.54	20.14
12.500	19.57	18.67	17.54	16.33	15.00
12.750	13.70	12.55	11.40	10.51	9.63
13.000	8.89	8.21	7.60	7.06	6.55
13.250	6.13	5.71	5.38	5.05	4.77
13.500	4.51	4.28	4.07	3.88	3.71
13.750	3.54	3.40	3.26	3.14	3.03
14.000	2.92	2.82	2.73	2.65	2.56
14.250	2.49	2.41	2.35	2.28	2.22
14.500	2.16	2.11	2.07	2.03	1.99
14.750	1.96	1.93	1.90	1.87	1.85
15.000	1.82	1.80	1.78	1.76	1.74
15.250	1.72	1.70	1.68	1.66	1.64
15.500	1.62	1.60	1.59	1.57	1.55
15.750	1.53	1.51	1.50	1.48	1.46
16.000	1.44	1.42	1.41	1.39	1.37

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1a Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.250	1.35	1.34	1.32	1.31	1.29
16.500	1.28	1.27	1.25	1.24	1.23
16.750	1.22	1.21	1.20	1.19	1.19
17.000	1.18	1.17	1.16	1.15	1.15
17.250	1.14	1.13	1.13	1.12	1.11
17.500	1.11	1.10	1.09	1.09	1.08
17.750	1.07	1.07	1.06	1.05	1.05
18.000	1.04	1.03	1.03	1.02	1.02
18.250	1.01	1.00	1.00	0.99	0.98
18.500	0.98	0.97	0.96	0.96	0.95
18.750	0.95	0.94	0.93	0.93	0.92
19.000	0.91	0.91	0.90	0.89	0.89
19.250	0.88	0.87	0.87	0.86	0.86
19.500	0.85	0.84	0.84	0.83	0.82
19.750	0.82	0.81	0.80	0.80	0.79
20.000	0.78	0.78	0.77	0.76	0.76
20.250	0.75	0.75	0.74	0.74	0.73
20.500	0.73	0.72	0.72	0.71	0.71
20.750	0.71	0.70	0.70	0.70	0.70
21.000	0.69	0.69	0.69	0.69	0.69
21.250	0.69	0.68	0.68	0.68	0.68
21.500	0.68	0.68	0.68	0.67	0.67
21.750	0.67	0.67	0.67	0.67	0.67
22.000	0.67	0.66	0.66	0.66	0.66
22.250	0.66	0.66	0.66	0.65	0.65
22.500	0.65	0.65	0.65	0.65	0.65
22.750	0.65	0.65	0.64	0.64	0.64
23.000	0.64	0.64	0.64	0.64	0.63
23.250	0.63	0.63	0.63	0.63	0.63
23.500	0.63	0.63	0.62	0.62	0.62
23.750	0.62	0.62	0.62	0.62	0.62
24.000	0.61	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.831 hours
Area (User Defined)	14.000 acres

Computational Time Increment	0.111 hours
Time to Peak (Computed)	12.413 hours
Flow (Peak, Computed)	18.77 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.400 hours
Flow (Peak Interpolated Output)	18.69 ft³/s

Drainage Area	
SCS CN (Composite)	76.800
Area (User Defined)	14.000 acres
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.2 in
Runoff Volume (Pervious)	2.617 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.585 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.831 hours
Computational Time Increment	0.111 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	19.08 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 1a
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.554 hours
Unit receding limb, Tr	2.217 hours
Total unit time, Tb	2.771 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1a Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.831 hours
Area (User Defined)	14.000 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.750	0.00	0.00	0.00	0.00	0.01
9.000	0.01	0.01	0.02	0.02	0.03
9.250	0.03	0.04	0.05	0.05	0.06
9.500	0.07	0.07	0.08	0.09	0.10
9.750	0.11	0.12	0.13	0.14	0.15
10.000	0.16	0.17	0.18	0.19	0.21
10.250	0.22	0.24	0.25	0.27	0.29
10.500	0.30	0.32	0.35	0.37	0.39
10.750	0.41	0.44	0.47	0.50	0.53
11.000	0.57	0.60	0.64	0.68	0.73
11.250	0.78	0.83	0.89	0.95	1.02
11.500	1.10	1.21	1.34	1.51	1.80
11.750	2.09	2.77	3.45	4.65	5.97
12.000	7.65	9.56	11.50	13.51	15.40
12.250	16.71	18.03	18.39	18.69	18.40
12.500	17.90	17.13	16.10	15.03	13.82
12.750	12.63	11.59	10.56	9.73	8.94
13.000	8.26	7.64	7.08	6.58	6.11
13.250	5.73	5.34	5.04	4.73	4.48
13.500	4.24	4.02	3.83	3.65	3.50
13.750	3.34	3.21	3.08	2.97	2.86
14.000	2.77	2.67	2.59	2.51	2.43
14.250	2.36	2.29	2.23	2.17	2.11
14.500	2.06	2.01	1.97	1.93	1.89
14.750	1.86	1.84	1.81	1.78	1.76
15.000	1.74	1.72	1.70	1.68	1.66
15.250	1.64	1.62	1.60	1.58	1.56
15.500	1.55	1.53	1.51	1.49	1.48
15.750	1.46	1.44	1.43	1.41	1.39
16.000	1.38	1.36	1.34	1.33	1.31
16.250	1.29	1.28	1.26	1.25	1.24
16.500	1.22	1.21	1.20	1.19	1.18
16.750	1.17	1.16	1.15	1.14	1.13

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1a Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.000	1.13	1.12	1.11	1.10	1.10
17.250	1.09	1.08	1.08	1.07	1.06
17.500	1.06	1.05	1.05	1.04	1.03
17.750	1.03	1.02	1.02	1.01	1.00
18.000	1.00	0.99	0.98	0.98	0.97
18.250	0.97	0.96	0.95	0.95	0.94
18.500	0.94	0.93	0.92	0.92	0.91
18.750	0.91	0.90	0.89	0.89	0.88
19.000	0.88	0.87	0.86	0.86	0.85
19.250	0.84	0.84	0.83	0.83	0.82
19.500	0.81	0.81	0.80	0.80	0.79
19.750	0.78	0.78	0.77	0.76	0.76
20.000	0.75	0.75	0.74	0.73	0.73
20.250	0.72	0.72	0.71	0.71	0.70
20.500	0.70	0.69	0.69	0.68	0.68
20.750	0.68	0.68	0.67	0.67	0.67
21.000	0.67	0.67	0.66	0.66	0.66
21.250	0.66	0.66	0.66	0.65	0.65
21.500	0.65	0.65	0.65	0.65	0.65
21.750	0.64	0.64	0.64	0.64	0.64
22.000	0.64	0.64	0.64	0.64	0.63
22.250	0.63	0.63	0.63	0.63	0.63
22.500	0.63	0.63	0.62	0.62	0.62
22.750	0.62	0.62	0.62	0.62	0.62
23.000	0.62	0.61	0.61	0.61	0.61
23.250	0.61	0.61	0.61	0.61	0.60
23.500	0.60	0.60	0.60	0.60	0.60
23.750	0.60	0.60	0.59	0.59	0.59
24.000	0.59	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.749 hours
Area (User Defined)	23.100 acres

Computational Time Increment	0.100 hours
Time to Peak (Computed)	12.383 hours
Flow (Peak, Computed)	33.31 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.350 hours
Flow (Peak Interpolated Output)	33.24 ft³/s

Drainage Area	
SCS CN (Composite)	76.900
Area (User Defined)	23.100 acres
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.3 in
Runoff Volume (Pervious)	4.334 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.286 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.749 hours
Computational Time Increment	0.100 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	34.94 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 1b
Scenario: Post-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.499 hours
Unit receding limb, Tr	1.997 hours
Total unit time, Tb	2.497 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1b Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.749 hours
Area (User Defined)	23.100 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.650	0.00	0.00	0.00	0.00	0.01
8.900	0.01	0.02	0.02	0.03	0.04
9.150	0.05	0.06	0.07	0.08	0.09
9.400	0.10	0.12	0.13	0.15	0.16
9.650	0.17	0.19	0.20	0.22	0.24
9.900	0.25	0.27	0.29	0.31	0.33
10.150	0.35	0.38	0.40	0.43	0.45
10.400	0.48	0.52	0.55	0.58	0.62
10.650	0.66	0.70	0.74	0.79	0.84
10.900	0.89	0.95	1.01	1.07	1.14
11.150	1.22	1.30	1.39	1.48	1.59
11.400	1.70	1.83	1.97	2.16	2.39
11.650	2.73	3.19	3.94	4.98	6.65
11.900	8.73	11.68	14.94	18.86	22.72
12.150	26.44	29.63	31.70	33.13	33.24
12.400	32.87	31.54	29.93	27.74	25.50
12.650	23.15	20.95	19.02	17.24	15.77
12.900	14.41	13.24	12.16	11.24	10.38
13.150	9.66	8.99	8.41	7.89	7.43
13.400	7.01	6.65	6.32	6.02	5.75
13.650	5.51	5.28	5.08	4.89	4.72
13.900	4.56	4.41	4.27	4.13	4.00
14.150	3.88	3.77	3.66	3.56	3.47
14.400	3.39	3.32	3.25	3.19	3.14
14.650	3.09	3.04	3.00	2.96	2.92
14.900	2.88	2.85	2.81	2.78	2.75
15.150	2.72	2.69	2.66	2.63	2.60
15.400	2.57	2.54	2.52	2.49	2.46
15.650	2.43	2.40	2.38	2.35	2.32
15.900	2.29	2.27	2.24	2.21	2.18
16.150	2.16	2.13	2.10	2.08	2.05
16.400	2.03	2.01	1.99	1.97	1.95
16.650	1.94	1.92	1.91	1.89	1.88

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1b Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.900	1.87	1.85	1.84	1.83	1.82
17.150	1.81	1.80	1.79	1.78	1.77
17.400	1.76	1.74	1.73	1.72	1.71
17.650	1.70	1.69	1.68	1.67	1.66
17.900	1.65	1.64	1.63	1.62	1.61
18.150	1.60	1.59	1.58	1.57	1.56
18.400	1.55	1.54	1.53	1.52	1.51
18.650	1.50	1.49	1.48	1.47	1.46
18.900	1.45	1.44	1.43	1.42	1.41
19.150	1.40	1.39	1.38	1.37	1.36
19.400	1.35	1.34	1.33	1.32	1.31
19.650	1.30	1.29	1.28	1.27	1.26
19.900	1.25	1.24	1.23	1.22	1.21
20.150	1.20	1.19	1.18	1.17	1.16
20.400	1.15	1.15	1.14	1.13	1.13
20.650	1.12	1.12	1.11	1.11	1.11
20.900	1.10	1.10	1.10	1.09	1.09
21.150	1.09	1.09	1.08	1.08	1.08
21.400	1.08	1.08	1.07	1.07	1.07
21.650	1.07	1.07	1.06	1.06	1.06
21.900	1.06	1.06	1.05	1.05	1.05
22.150	1.05	1.05	1.04	1.04	1.04
22.400	1.04	1.04	1.03	1.03	1.03
22.650	1.03	1.03	1.02	1.02	1.02
22.900	1.02	1.02	1.01	1.01	1.01
23.150	1.01	1.01	1.00	1.00	1.00
23.400	1.00	1.00	0.99	0.99	0.99
23.650	0.99	0.99	0.98	0.98	0.98
23.900	0.98	0.98	0.97	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.749 hours
Area (User Defined)	23.100 acres

Computational Time Increment	0.100 hours
Time to Peak (Computed)	12.382 hours
Flow (Peak, Computed)	31.12 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.350 hours
Flow (Peak Interpolated Output)	31.00 ft³/s

Drainage Area	
SCS CN (Composite)	75.200
Area (User Defined)	23.100 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	4.068 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.022 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.749 hours
Computational Time Increment	0.100 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	34.95 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 1b
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.499 hours
Unit receding limb, Tr	1.997 hours
Total unit time, Tb	2.496 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1b Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.749 hours
Area (User Defined)	23.100 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.050	0.00	0.00	0.00	0.00	0.01
9.300	0.01	0.01	0.02	0.03	0.03
9.550	0.04	0.05	0.06	0.07	0.09
9.800	0.10	0.11	0.13	0.14	0.16
10.050	0.17	0.19	0.21	0.23	0.25
10.300	0.27	0.30	0.32	0.35	0.38
10.550	0.41	0.44	0.47	0.51	0.55
10.800	0.59	0.63	0.68	0.73	0.78
11.050	0.84	0.90	0.97	1.04	1.12
11.300	1.20	1.29	1.40	1.51	1.64
11.550	1.80	2.01	2.32	2.75	3.41
11.800	4.38	5.90	7.83	10.55	13.60
12.050	17.26	20.88	24.41	27.41	29.44
12.300	30.81	31.00	30.69	29.52	28.04
12.550	26.04	23.97	21.79	19.74	17.94
12.800	16.29	14.90	13.63	12.54	11.53
13.050	10.66	9.86	9.18	8.55	8.01
13.300	7.51	7.09	6.69	6.35	6.04
13.550	5.76	5.50	5.27	5.06	4.87
13.800	4.69	4.53	4.37	4.23	4.10
14.050	3.97	3.85	3.73	3.62	3.52
14.300	3.42	3.34	3.26	3.19	3.13
14.550	3.07	3.02	2.97	2.93	2.89
14.800	2.85	2.81	2.78	2.74	2.71
15.050	2.68	2.65	2.62	2.59	2.56
15.300	2.54	2.51	2.48	2.45	2.43
15.550	2.40	2.37	2.35	2.32	2.29
15.800	2.27	2.24	2.21	2.19	2.16
16.050	2.13	2.11	2.08	2.06	2.03
16.300	2.01	1.98	1.96	1.94	1.92
16.550	1.90	1.89	1.87	1.85	1.84
16.800	1.83	1.81	1.80	1.79	1.78
17.050	1.77	1.76	1.75	1.74	1.73

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 1b Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.300	1.72	1.71	1.70	1.69	1.68
17.550	1.67	1.66	1.65	1.64	1.63
17.800	1.62	1.61	1.60	1.59	1.58
18.050	1.57	1.56	1.55	1.54	1.53
18.300	1.52	1.51	1.50	1.49	1.49
18.550	1.48	1.47	1.46	1.45	1.44
18.800	1.43	1.42	1.41	1.40	1.39
19.050	1.38	1.37	1.36	1.35	1.34
19.300	1.33	1.32	1.31	1.30	1.29
19.550	1.28	1.27	1.26	1.25	1.24
19.800	1.23	1.22	1.21	1.20	1.19
20.050	1.18	1.17	1.16	1.15	1.14
20.300	1.13	1.13	1.12	1.11	1.10
20.550	1.10	1.09	1.09	1.08	1.08
20.800	1.08	1.07	1.07	1.07	1.06
21.050	1.06	1.06	1.06	1.05	1.05
21.300	1.05	1.05	1.04	1.04	1.04
21.550	1.04	1.04	1.03	1.03	1.03
21.800	1.03	1.03	1.02	1.02	1.02
22.050	1.02	1.02	1.02	1.01	1.01
22.300	1.01	1.01	1.01	1.00	1.00
22.550	1.00	1.00	1.00	1.00	0.99
22.800	0.99	0.99	0.99	0.99	0.98
23.050	0.98	0.98	0.98	0.98	0.97
23.300	0.97	0.97	0.97	0.97	0.96
23.550	0.96	0.96	0.96	0.96	0.96
23.800	0.95	0.95	0.95	0.95	0.94

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	18.700 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	12.056 hours
Flow (Peak, Computed)	73.91 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	73.42 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	18.700 acres
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	6.208 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	6.191 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	64.21 ft³/s

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.220 hours
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2a Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	18.700 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.200	0.00	0.00	0.01	0.01	0.02
2.450	0.03	0.04	0.05	0.06	0.07
2.700	0.08	0.09	0.10	0.11	0.12
2.950	0.13	0.14	0.15	0.16	0.17
3.200	0.18	0.19	0.20	0.21	0.22
3.450	0.23	0.24	0.25	0.26	0.27
3.700	0.28	0.29	0.30	0.31	0.32
3.950	0.33	0.34	0.35	0.36	0.37
4.200	0.38	0.39	0.40	0.41	0.42
4.450	0.43	0.44	0.45	0.46	0.48
4.700	0.49	0.50	0.51	0.52	0.53
4.950	0.54	0.56	0.57	0.58	0.59
5.200	0.60	0.61	0.63	0.64	0.65
5.450	0.66	0.67	0.68	0.70	0.71
5.700	0.72	0.73	0.74	0.76	0.77
5.950	0.78	0.79	0.80	0.81	0.83
6.200	0.84	0.85	0.86	0.87	0.89
6.450	0.90	0.91	0.92	0.93	0.95
6.700	0.96	0.97	0.98	0.99	1.01
6.950	1.02	1.03	1.04	1.06	1.07
7.200	1.08	1.09	1.10	1.11	1.13
7.450	1.14	1.15	1.16	1.17	1.19
7.700	1.20	1.21	1.22	1.23	1.25
7.950	1.26	1.27	1.28	1.30	1.31
8.200	1.33	1.36	1.38	1.41	1.44
8.450	1.48	1.51	1.55	1.59	1.62
8.700	1.66	1.70	1.74	1.78	1.82
8.950	1.86	1.90	1.94	1.98	2.01
9.200	2.04	2.07	2.09	2.11	2.12
9.450	2.13	2.14	2.15	2.17	2.19
9.700	2.21	2.24	2.28	2.33	2.38
9.950	2.44	2.50	2.56	2.62	2.69
10.200	2.77	2.84	2.92	3.01	3.10

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2a Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.450	3.19	3.29	3.38	3.48	3.59
10.700	3.71	3.83	3.97	4.11	4.26
10.950	4.42	4.57	4.73	4.91	5.11
11.200	5.34	5.61	5.91	6.23	6.57
11.450	6.93	7.33	7.93	8.99	10.90
11.700	13.96	18.59	24.89	33.30	43.97
11.950	56.04	66.91	73.28	73.42	66.38
12.200	55.83	45.01	35.69	28.57	23.44
12.450	19.63	16.73	14.46	12.63	11.14
12.700	9.95	9.01	8.27	7.68	7.20
12.950	6.80	6.47	6.18	5.93	5.71
13.200	5.50	5.32	5.16	5.01	4.87
13.450	4.74	4.61	4.49	4.37	4.25
13.700	4.14	4.04	3.94	3.85	3.75
13.950	3.67	3.58	3.49	3.41	3.34
14.200	3.27	3.21	3.16	3.11	3.07
14.450	3.04	3.00	2.97	2.94	2.90
14.700	2.87	2.84	2.81	2.78	2.75
14.950	2.72	2.70	2.67	2.64	2.61
15.200	2.58	2.55	2.52	2.49	2.46
15.450	2.43	2.40	2.37	2.34	2.31
15.700	2.28	2.25	2.22	2.19	2.16
15.950	2.13	2.11	2.08	2.05	2.02
16.200	2.00	1.98	1.96	1.94	1.93
16.450	1.92	1.90	1.89	1.88	1.87
16.700	1.86	1.85	1.84	1.83	1.82
16.950	1.80	1.79	1.78	1.77	1.76
17.200	1.75	1.74	1.73	1.72	1.71
17.450	1.70	1.69	1.68	1.67	1.66
17.700	1.65	1.64	1.63	1.61	1.60
17.950	1.59	1.58	1.57	1.56	1.55
18.200	1.54	1.53	1.52	1.51	1.50
18.450	1.49	1.48	1.47	1.46	1.45
18.700	1.44	1.42	1.41	1.40	1.39
18.950	1.38	1.37	1.36	1.35	1.34
19.200	1.33	1.32	1.31	1.30	1.29
19.450	1.28	1.27	1.26	1.24	1.23
19.700	1.22	1.21	1.20	1.19	1.18
19.950	1.17	1.16	1.15	1.14	1.13
20.200	1.12	1.12	1.11	1.11	1.10
20.450	1.10	1.10	1.09	1.09	1.09
20.700	1.09	1.08	1.08	1.08	1.08
20.950	1.07	1.07	1.07	1.07	1.07

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2a Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.200	1.06	1.06	1.06	1.06	1.06
21.450	1.05	1.05	1.05	1.05	1.05
21.700	1.04	1.04	1.04	1.04	1.03
21.950	1.03	1.03	1.03	1.03	1.02
22.200	1.02	1.02	1.02	1.02	1.01
22.450	1.01	1.01	1.01	1.01	1.00
22.700	1.00	1.00	1.00	1.00	0.99
22.950	0.99	0.99	0.99	0.98	0.98
23.200	0.98	0.98	0.98	0.97	0.97
23.450	0.97	0.97	0.97	0.96	0.96
23.700	0.96	0.96	0.95	0.95	0.95
23.950	0.95	0.94	(N/A)	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.050 hours
Area (User Defined)	18.700 acres

Computational Time Increment	0.140 hours
Time to Peak (Computed)	12.606 hours
Flow (Peak, Computed)	19.50 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.600 hours
Flow (Peak Interpolated Output)	19.50 ft³/s

Drainage Area	
SCS CN (Composite)	75.000
Area (User Defined)	18.700 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	3.269 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.216 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.050 hours
Computational Time Increment	0.140 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.17 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 2a
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.700 hours
Unit receding limb, Tr	2.801 hours
Total unit time, Tb	3.502 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2a Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.050 hours
Area (User Defined)	18.700 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.200	0.00	0.00	0.00	0.00	0.01
9.450	0.01	0.01	0.01	0.02	0.02
9.700	0.03	0.03	0.04	0.05	0.06
9.950	0.06	0.07	0.08	0.10	0.11
10.200	0.12	0.13	0.15	0.16	0.18
10.450	0.19	0.21	0.23	0.25	0.27
10.700	0.30	0.32	0.35	0.37	0.40
10.950	0.43	0.47	0.50	0.54	0.58
11.200	0.62	0.68	0.73	0.78	0.85
11.450	0.91	0.99	1.09	1.20	1.37
11.700	1.62	1.86	2.40	3.07	3.74
11.950	4.95	6.23	7.55	9.33	11.11
12.200	12.85	14.50	16.14	17.41	18.28
12.450	19.14	19.44	19.47	19.50	18.99
12.700	18.42	17.81	16.86	15.90	14.94
12.950	13.95	12.97	12.09	11.32	10.54
13.200	9.90	9.31	8.72	8.24	7.77
13.450	7.31	6.94	6.56	6.21	5.92
13.700	5.63	5.36	5.13	4.89	4.69
13.950	4.50	4.31	4.15	4.00	3.84
14.200	3.72	3.59	3.47	3.36	3.26
14.450	3.16	3.07	2.99	2.91	2.84
14.700	2.77	2.71	2.65	2.59	2.54
14.950	2.49	2.45	2.40	2.36	2.32
15.200	2.28	2.24	2.20	2.17	2.14
15.450	2.11	2.09	2.06	2.04	2.01
15.700	1.99	1.96	1.94	1.92	1.90
15.950	1.87	1.85	1.83	1.81	1.78
16.200	1.76	1.74	1.72	1.70	1.68
16.450	1.66	1.64	1.62	1.61	1.59
16.700	1.57	1.56	1.54	1.53	1.52
16.950	1.51	1.49	1.48	1.47	1.46
17.200	1.45	1.44	1.43	1.42	1.41

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2a Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.450	1.41	1.40	1.39	1.38	1.37
17.700	1.36	1.35	1.35	1.34	1.33
17.950	1.32	1.31	1.31	1.30	1.29
18.200	1.28	1.27	1.27	1.26	1.25
18.450	1.24	1.23	1.23	1.22	1.21
18.700	1.20	1.20	1.19	1.18	1.17
18.950	1.16	1.16	1.15	1.14	1.13
19.200	1.13	1.12	1.11	1.10	1.09
19.450	1.09	1.08	1.07	1.06	1.05
19.700	1.05	1.04	1.03	1.02	1.01
19.950	1.01	1.00	0.99	0.98	0.97
20.200	0.97	0.96	0.95	0.94	0.94
20.450	0.93	0.92	0.92	0.91	0.91
20.700	0.90	0.90	0.89	0.89	0.88
20.950	0.88	0.88	0.87	0.87	0.87
21.200	0.86	0.86	0.86	0.86	0.85
21.450	0.85	0.85	0.85	0.85	0.84
21.700	0.84	0.84	0.84	0.84	0.84
21.950	0.83	0.83	0.83	0.83	0.83
22.200	0.83	0.82	0.82	0.82	0.82
22.450	0.82	0.82	0.81	0.81	0.81
22.700	0.81	0.81	0.81	0.81	0.80
22.950	0.80	0.80	0.80	0.80	0.80
23.200	0.79	0.79	0.79	0.79	0.79
23.450	0.79	0.79	0.78	0.78	0.78
23.700	0.78	0.78	0.78	0.77	0.77
23.950	0.77	0.77	(N/A)	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.333 hours
Area (User Defined)	64.600 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	12.088 hours
Flow (Peak, Computed)	232.66 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	229.24 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	64.600 acres
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.5 in
Runoff Volume (Pervious)	18.590 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	18.524 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.333 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	219.61 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 2b
Scenario: Post-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.222 hours
Unit receding limb, Tr	0.889 hours
Total unit time, Tb	1.111 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2b Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.333 hours
Area (User Defined)	64.600 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.100	0.00	0.00	0.01	0.01	0.02
4.350	0.04	0.06	0.08	0.10	0.12
4.600	0.15	0.17	0.20	0.22	0.25
4.850	0.28	0.30	0.33	0.36	0.39
5.100	0.42	0.45	0.47	0.50	0.53
5.350	0.56	0.59	0.62	0.65	0.68
5.600	0.72	0.75	0.78	0.81	0.84
5.850	0.87	0.91	0.94	0.97	1.00
6.100	1.04	1.07	1.10	1.14	1.17
6.350	1.21	1.24	1.27	1.31	1.34
6.600	1.38	1.41	1.45	1.49	1.52
6.850	1.56	1.59	1.63	1.66	1.70
7.100	1.74	1.77	1.81	1.85	1.88
7.350	1.92	1.96	2.00	2.03	2.07
7.600	2.11	2.15	2.19	2.22	2.26
7.850	2.30	2.34	2.38	2.42	2.46
8.100	2.50	2.55	2.60	2.66	2.73
8.350	2.81	2.89	2.98	3.07	3.16
8.600	3.25	3.35	3.45	3.55	3.65
8.850	3.76	3.86	3.97	4.08	4.19
9.100	4.30	4.40	4.49	4.57	4.65
9.350	4.71	4.77	4.82	4.87	4.92
9.600	4.97	5.04	5.12	5.22	5.34
9.850	5.47	5.62	5.78	5.95	6.12
10.100	6.30	6.49	6.70	6.92	7.16
10.350	7.40	7.65	7.92	8.19	8.47
10.600	8.76	9.07	9.41	9.77	10.16
10.850	10.58	11.01	11.46	11.93	12.43
11.100	12.95	13.54	14.21	14.98	15.85
11.350	16.82	17.85	18.93	20.12	21.79
11.600	24.60	30.18	39.33	53.28	72.50
11.850	98.19	131.38	169.79	206.32	227.80
12.100	229.24	209.83	177.95	144.20	114.54

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2b Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.350	91.95	75.85	64.03	54.73	47.37
12.600	41.41	36.60	32.72	29.66	27.25
12.850	25.35	23.78	22.45	21.33	20.37
13.100	19.55	18.82	18.16	17.57	17.03
13.350	16.54	16.08	15.64	15.22	14.82
13.600	14.43	14.06	13.70	13.36	13.03
13.850	12.72	12.42	12.13	11.84	11.57
14.100	11.30	11.05	10.83	10.63	10.45
14.350	10.31	10.17	10.05	9.94	9.83
14.600	9.73	9.63	9.53	9.43	9.33
14.850	9.23	9.14	9.04	8.94	8.84
15.100	8.75	8.65	8.55	8.46	8.36
15.350	8.26	8.17	8.07	7.97	7.87
15.600	7.78	7.68	7.58	7.49	7.39
15.850	7.29	7.19	7.10	7.00	6.90
16.100	6.81	6.72	6.64	6.57	6.51
16.350	6.46	6.41	6.37	6.33	6.29
16.600	6.26	6.22	6.18	6.15	6.11
16.850	6.08	6.04	6.01	5.97	5.94
17.100	5.90	5.87	5.83	5.80	5.76
17.350	5.73	5.69	5.66	5.62	5.59
17.600	5.56	5.52	5.49	5.45	5.42
17.850	5.38	5.35	5.31	5.28	5.24
18.100	5.21	5.17	5.14	5.10	5.07
18.350	5.03	5.00	4.96	4.93	4.89
18.600	4.86	4.82	4.79	4.75	4.72
18.850	4.68	4.65	4.61	4.58	4.54
19.100	4.51	4.47	4.44	4.40	4.37
19.350	4.33	4.30	4.26	4.23	4.19
19.600	4.16	4.12	4.09	4.05	4.01
19.850	3.98	3.94	3.91	3.87	3.84
20.100	3.81	3.78	3.75	3.73	3.71
20.350	3.69	3.68	3.67	3.66	3.65
20.600	3.64	3.64	3.63	3.62	3.61
20.850	3.61	3.60	3.59	3.59	3.58
21.100	3.57	3.57	3.56	3.55	3.54
21.350	3.54	3.53	3.52	3.52	3.51
21.600	3.50	3.50	3.49	3.48	3.47
21.850	3.47	3.46	3.45	3.45	3.44
22.100	3.43	3.43	3.42	3.41	3.41
22.350	3.40	3.39	3.38	3.38	3.37
22.600	3.36	3.36	3.35	3.34	3.34
22.850	3.33	3.32	3.32	3.31	3.30

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2b Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.100	3.29	3.29	3.28	3.27	3.27
23.350	3.26	3.25	3.25	3.24	3.23
23.600	3.22	3.22	3.21	3.20	3.20
23.850	3.19	3.18	3.18	3.17	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.204 hours
Area (User Defined)	64.600 acres

Computational Time Increment	0.160 hours
Time to Peak (Computed)	12.678 hours
Flow (Peak, Computed)	61.39 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.650 hours
Flow (Peak Interpolated Output)	61.07 ft³/s

Drainage Area	
SCS CN (Composite)	75.000
Area (User Defined)	64.600 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	11.292 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	11.083 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.204 hours
Computational Time Increment	0.160 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	60.81 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 2b
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.802 hours
Unit receding limb, Tr	3.210 hours
Total unit time, Tb	4.012 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2b Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.204 hours
Area (User Defined)	64.600 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.100	0.00	0.00	0.00	0.00	0.01
9.350	0.01	0.02	0.02	0.03	0.04
9.600	0.05	0.06	0.08	0.09	0.11
9.850	0.13	0.16	0.18	0.21	0.24
10.100	0.27	0.31	0.34	0.38	0.43
10.350	0.47	0.52	0.57	0.63	0.69
10.600	0.75	0.82	0.89	0.95	1.04
10.850	1.12	1.21	1.31	1.42	1.52
11.100	1.64	1.77	1.90	2.05	2.21
11.350	2.38	2.56	2.79	3.03	3.27
11.600	3.72	4.21	4.69	5.82	7.24
11.850	8.66	10.88	13.96	17.03	20.55
12.100	25.24	29.93	34.63	39.51	44.39
12.350	49.28	52.53	55.50	58.48	59.91
12.600	60.49	61.07	60.86	59.63	58.40
12.850	56.89	54.44	51.98	49.52	46.75
13.100	43.98	41.21	38.88	36.65	34.41
13.350	32.51	30.83	29.14	27.60	26.27
13.600	24.93	23.65	22.57	21.50	20.43
13.850	19.58	18.74	17.90	17.18	16.49
14.100	15.81	15.20	14.65	14.10	13.59
14.350	13.14	12.70	12.27	11.91	11.55
14.600	11.19	10.89	10.60	10.30	10.05
14.850	9.82	9.58	9.37	9.18	8.99
15.100	8.81	8.65	8.50	8.34	8.20
15.350	8.07	7.93	7.80	7.68	7.55
15.600	7.43	7.31	7.19	7.08	6.98
15.850	6.88	6.79	6.70	6.62	6.53
16.100	6.45	6.37	6.29	6.22	6.14
16.350	6.07	5.99	5.92	5.85	5.79
16.600	5.72	5.66	5.60	5.55	5.49
16.850	5.44	5.39	5.34	5.29	5.25
17.100	5.21	5.17	5.13	5.09	5.05

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2b Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.350	5.02	4.98	4.95	4.91	4.88
17.600	4.85	4.82	4.79	4.76	4.73
17.850	4.70	4.67	4.64	4.61	4.58
18.100	4.56	4.53	4.50	4.47	4.44
18.350	4.42	4.39	4.36	4.33	4.31
18.600	4.28	4.25	4.23	4.20	4.17
18.850	4.14	4.12	4.09	4.06	4.04
19.100	4.01	3.98	3.95	3.93	3.90
19.350	3.87	3.84	3.82	3.79	3.76
19.600	3.74	3.71	3.68	3.65	3.63
19.850	3.60	3.57	3.54	3.52	3.49
20.100	3.46	3.43	3.41	3.38	3.35
20.350	3.33	3.30	3.28	3.25	3.23
20.600	3.21	3.19	3.17	3.15	3.13
20.850	3.11	3.10	3.08	3.07	3.05
21.100	3.04	3.03	3.02	3.01	3.00
21.350	2.99	2.98	2.97	2.96	2.95
21.600	2.95	2.94	2.93	2.92	2.92
21.850	2.91	2.90	2.90	2.89	2.89
22.100	2.88	2.87	2.87	2.86	2.86
22.350	2.85	2.84	2.84	2.83	2.83
22.600	2.82	2.82	2.81	2.81	2.80
22.850	2.80	2.79	2.78	2.78	2.77
23.100	2.77	2.76	2.76	2.75	2.75
23.350	2.74	2.74	2.73	2.73	2.72
23.600	2.72	2.71	2.71	2.70	2.69
23.850	2.69	2.68	2.67	2.66	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	3.700 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.920 hours
Flow (Peak, Computed)	20.58 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	19.91 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	3.700 acres
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	1.228 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.227 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	41.92 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 2c
Scenario: Post-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2c Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	3.700 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.150	0.00	0.00	0.00	0.01	0.01
2.400	0.01	0.01	0.01	0.02	0.02
2.650	0.02	0.02	0.02	0.03	0.03
2.900	0.03	0.03	0.03	0.04	0.04
3.150	0.04	0.04	0.04	0.05	0.05
3.400	0.05	0.05	0.05	0.06	0.06
3.650	0.06	0.06	0.06	0.07	0.07
3.900	0.07	0.07	0.07	0.08	0.08
4.150	0.08	0.08	0.08	0.09	0.09
4.400	0.09	0.09	0.10	0.10	0.10
4.650	0.10	0.10	0.11	0.11	0.11
4.900	0.11	0.12	0.12	0.12	0.12
5.150	0.13	0.13	0.13	0.13	0.13
5.400	0.14	0.14	0.14	0.14	0.15
5.650	0.15	0.15	0.15	0.16	0.16
5.900	0.16	0.16	0.17	0.17	0.17
6.150	0.17	0.17	0.18	0.18	0.18
6.400	0.18	0.19	0.19	0.19	0.19
6.650	0.20	0.20	0.20	0.20	0.21
6.900	0.21	0.21	0.21	0.21	0.22
7.150	0.22	0.22	0.22	0.23	0.23
7.400	0.23	0.23	0.24	0.24	0.24
7.650	0.24	0.25	0.25	0.25	0.25
7.900	0.26	0.26	0.26	0.26	0.27
8.150	0.27	0.28	0.29	0.30	0.30
8.400	0.31	0.32	0.33	0.33	0.34
8.650	0.35	0.36	0.36	0.37	0.38
8.900	0.39	0.40	0.41	0.41	0.42
9.150	0.42	0.42	0.42	0.43	0.43
9.400	0.43	0.43	0.43	0.44	0.44
9.650	0.45	0.46	0.47	0.49	0.50
9.900	0.51	0.53	0.54	0.55	0.57
10.150	0.59	0.61	0.62	0.64	0.66

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2c Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.400	0.68	0.70	0.72	0.74	0.77
10.650	0.79	0.83	0.86	0.89	0.92
10.900	0.96	0.99	1.02	1.06	1.12
11.150	1.18	1.26	1.33	1.41	1.48
11.400	1.57	1.64	1.73	2.27	3.20
11.650	4.55	6.50	8.46	10.97	14.57
11.900	19.72	19.91	17.23	12.87	6.46
12.150	4.01	3.13	2.77	2.51	2.33
12.400	2.12	1.95	1.74	1.61	1.47
12.650	1.40	1.35	1.31	1.26	1.22
12.900	1.17	1.13	1.09	1.05	1.01
13.150	0.99	0.96	0.94	0.92	0.89
13.400	0.87	0.85	0.82	0.80	0.78
13.650	0.76	0.75	0.73	0.71	0.70
13.900	0.68	0.66	0.65	0.63	0.62
14.150	0.61	0.60	0.60	0.59	0.59
14.400	0.58	0.58	0.57	0.57	0.56
14.650	0.55	0.55	0.54	0.53	0.53
14.900	0.52	0.52	0.51	0.51	0.50
15.150	0.49	0.49	0.48	0.48	0.47
15.400	0.46	0.46	0.45	0.45	0.44
15.650	0.44	0.43	0.42	0.42	0.41
15.900	0.41	0.40	0.39	0.39	0.39
16.150	0.38	0.38	0.38	0.38	0.37
16.400	0.37	0.37	0.37	0.37	0.36
16.650	0.36	0.36	0.36	0.36	0.35
16.900	0.35	0.35	0.35	0.35	0.34
17.150	0.34	0.34	0.34	0.33	0.33
17.400	0.33	0.33	0.33	0.32	0.32
17.650	0.32	0.32	0.32	0.31	0.31
17.900	0.31	0.31	0.31	0.30	0.30
18.150	0.30	0.30	0.30	0.29	0.29
18.400	0.29	0.29	0.28	0.28	0.28
18.650	0.28	0.28	0.27	0.27	0.27
18.900	0.27	0.27	0.26	0.26	0.26
19.150	0.26	0.26	0.25	0.25	0.25
19.400	0.25	0.24	0.24	0.24	0.24
19.650	0.24	0.23	0.23	0.23	0.23
19.900	0.23	0.22	0.22	0.22	0.22
20.150	0.22	0.22	0.22	0.22	0.22
20.400	0.22	0.22	0.22	0.21	0.21
20.650	0.21	0.21	0.21	0.21	0.21
20.900	0.21	0.21	0.21	0.21	0.21

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2c Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.150	0.21	0.21	0.21	0.21	0.21
21.400	0.21	0.21	0.21	0.21	0.21
21.650	0.21	0.21	0.20	0.20	0.20
21.900	0.20	0.20	0.20	0.20	0.20
22.150	0.20	0.20	0.20	0.20	0.20
22.400	0.20	0.20	0.20	0.20	0.20
22.650	0.20	0.20	0.20	0.20	0.20
22.900	0.20	0.19	0.19	0.19	0.19
23.150	0.19	0.19	0.19	0.19	0.19
23.400	0.19	0.19	0.19	0.19	0.19
23.650	0.19	0.19	0.19	0.19	0.19
23.900	0.19	0.19	0.19	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.951 hours
Area (User Defined)	3.700 acres

Computational Time Increment	0.127 hours
Time to Peak (Computed)	12.427 hours
Flow (Peak, Computed)	4.16 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.450 hours
Flow (Peak Interpolated Output)	4.16 ft³/s

Drainage Area	
SCS CN (Composite)	75.000
Area (User Defined)	3.700 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	0.647 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.637 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.951 hours
Computational Time Increment	0.127 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	4.41 ft³/s

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.634 hours
Unit receding limb, Tr	2.536 hours
Total unit time, Tb	3.170 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2c Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.951 hours
Area (User Defined)	3.700 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.01	0.01	0.01	0.01
9.850	0.01	0.01	0.02	0.02	0.02
10.100	0.02	0.02	0.03	0.03	0.03
10.350	0.04	0.04	0.04	0.05	0.05
10.600	0.05	0.06	0.06	0.07	0.07
10.850	0.08	0.09	0.09	0.10	0.11
11.100	0.12	0.13	0.14	0.15	0.16
11.350	0.17	0.18	0.20	0.21	0.23
11.600	0.26	0.30	0.35	0.42	0.51
11.850	0.68	0.86	1.12	1.44	1.76
12.100	2.18	2.59	2.98	3.35	3.71
12.350	3.89	4.07	4.16	4.14	4.13
12.600	3.99	3.84	3.66	3.43	3.20
12.850	2.98	2.75	2.54	2.36	2.18
13.100	2.04	1.90	1.78	1.67	1.56
13.350	1.47	1.38	1.30	1.23	1.17
13.600	1.11	1.05	1.00	0.96	0.92
13.850	0.88	0.84	0.81	0.78	0.75
14.100	0.72	0.70	0.68	0.66	0.63
14.350	0.62	0.60	0.58	0.57	0.55
14.600	0.54	0.53	0.52	0.50	0.49
14.850	0.48	0.48	0.47	0.46	0.45
15.100	0.44	0.44	0.43	0.43	0.42
15.350	0.42	0.41	0.41	0.40	0.40
15.600	0.39	0.39	0.38	0.38	0.38
15.850	0.37	0.37	0.36	0.36	0.35
16.100	0.35	0.35	0.34	0.34	0.33
16.350	0.33	0.33	0.32	0.32	0.32
16.600	0.31	0.31	0.31	0.30	0.30
16.850	0.30	0.30	0.29	0.29	0.29
17.100	0.29	0.29	0.28	0.28	0.28
17.350	0.28	0.28	0.27	0.27	0.27

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2c Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.600	0.27	0.27	0.27	0.27	0.26
17.850	0.26	0.26	0.26	0.26	0.26
18.100	0.25	0.25	0.25	0.25	0.25
18.350	0.25	0.24	0.24	0.24	0.24
18.600	0.24	0.24	0.24	0.23	0.23
18.850	0.23	0.23	0.23	0.23	0.22
19.100	0.22	0.22	0.22	0.22	0.22
19.350	0.22	0.21	0.21	0.21	0.21
19.600	0.21	0.21	0.20	0.20	0.20
19.850	0.20	0.20	0.20	0.20	0.19
20.100	0.19	0.19	0.19	0.19	0.19
20.350	0.18	0.18	0.18	0.18	0.18
20.600	0.18	0.18	0.18	0.18	0.17
20.850	0.17	0.17	0.17	0.17	0.17
21.100	0.17	0.17	0.17	0.17	0.17
21.350	0.17	0.17	0.17	0.17	0.17
21.600	0.17	0.17	0.17	0.17	0.17
21.850	0.16	0.16	0.16	0.16	0.16
22.100	0.16	0.16	0.16	0.16	0.16
22.350	0.16	0.16	0.16	0.16	0.16
22.600	0.16	0.16	0.16	0.16	0.16
22.850	0.16	0.16	0.16	0.16	0.16
23.100	0.16	0.16	0.16	0.16	0.16
23.350	0.16	0.16	0.16	0.15	0.15
23.600	0.15	0.15	0.15	0.15	0.15
23.850	0.15	0.15	0.15	0.15	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	26.000 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	12.056 hours
Flow (Peak, Computed)	102.76 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	102.08 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	26.000 acres
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	8.632 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	8.608 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	89.27 ft³/s

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.220 hours
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2d Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	26.000 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.150	0.00	0.00	0.00	0.01	0.02
2.400	0.03	0.04	0.05	0.06	0.08
2.650	0.09	0.11	0.12	0.13	0.15
2.900	0.16	0.18	0.19	0.21	0.22
3.150	0.24	0.25	0.26	0.28	0.29
3.400	0.31	0.32	0.33	0.35	0.36
3.650	0.38	0.39	0.40	0.42	0.43
3.900	0.44	0.46	0.47	0.48	0.50
4.150	0.51	0.53	0.54	0.55	0.57
4.400	0.58	0.60	0.62	0.63	0.65
4.650	0.66	0.68	0.69	0.71	0.72
4.900	0.74	0.76	0.77	0.79	0.80
5.150	0.82	0.84	0.85	0.87	0.89
5.400	0.90	0.92	0.93	0.95	0.97
5.650	0.98	1.00	1.02	1.03	1.05
5.900	1.07	1.08	1.10	1.12	1.13
6.150	1.15	1.17	1.18	1.20	1.22
6.400	1.23	1.25	1.27	1.28	1.30
6.650	1.32	1.33	1.35	1.37	1.38
6.900	1.40	1.42	1.43	1.45	1.47
7.150	1.48	1.50	1.52	1.53	1.55
7.400	1.57	1.58	1.60	1.62	1.63
7.650	1.65	1.67	1.68	1.70	1.72
7.900	1.73	1.75	1.77	1.78	1.80
8.150	1.83	1.85	1.88	1.92	1.96
8.400	2.01	2.06	2.10	2.15	2.21
8.650	2.26	2.31	2.37	2.42	2.47
8.900	2.53	2.58	2.64	2.69	2.75
9.150	2.80	2.84	2.88	2.90	2.93
9.400	2.95	2.97	2.98	3.00	3.01
9.650	3.04	3.07	3.12	3.18	3.24
9.900	3.31	3.39	3.47	3.56	3.65
10.150	3.74	3.85	3.95	4.07	4.19

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2d Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.400	4.31	4.44	4.57	4.71	4.84
10.650	4.99	5.15	5.33	5.52	5.72
10.900	5.92	6.14	6.36	6.58	6.83
11.150	7.11	7.43	7.80	8.21	8.66
11.400	9.14	9.64	10.20	11.02	12.49
11.650	15.16	19.42	25.85	34.61	46.30
11.900	61.13	77.92	93.02	101.89	102.08
12.150	92.30	77.62	62.58	49.63	39.72
12.400	32.59	27.29	23.25	20.10	17.55
12.650	15.49	13.84	12.53	11.50	10.68
12.900	10.01	9.46	8.99	8.59	8.24
13.150	7.93	7.65	7.40	7.18	6.97
13.400	6.77	6.59	6.41	6.24	6.07
13.650	5.91	5.76	5.62	5.48	5.35
13.900	5.22	5.10	4.98	4.86	4.74
14.150	4.64	4.54	4.46	4.39	4.33
14.400	4.27	4.22	4.17	4.13	4.08
14.650	4.04	4.00	3.96	3.91	3.87
14.900	3.83	3.79	3.75	3.71	3.67
15.150	3.63	3.58	3.54	3.50	3.46
15.400	3.42	3.38	3.34	3.30	3.26
15.650	3.21	3.17	3.13	3.09	3.05
15.900	3.01	2.97	2.93	2.89	2.85
16.150	2.81	2.78	2.75	2.72	2.70
16.400	2.68	2.66	2.65	2.63	2.61
16.650	2.60	2.58	2.57	2.55	2.54
16.900	2.52	2.51	2.49	2.48	2.46
17.150	2.45	2.44	2.42	2.41	2.39
17.400	2.38	2.36	2.35	2.33	2.32
17.650	2.30	2.29	2.27	2.26	2.24
17.900	2.23	2.22	2.20	2.19	2.17
18.150	2.16	2.14	2.13	2.11	2.10
18.400	2.08	2.07	2.05	2.04	2.02
18.650	2.01	2.00	1.98	1.97	1.95
18.900	1.94	1.92	1.91	1.89	1.88
19.150	1.86	1.85	1.83	1.82	1.80
19.400	1.79	1.77	1.76	1.75	1.73
19.650	1.72	1.70	1.69	1.67	1.66
19.900	1.64	1.63	1.61	1.60	1.58
20.150	1.57	1.56	1.55	1.54	1.54
20.400	1.53	1.53	1.52	1.52	1.52
20.650	1.51	1.51	1.51	1.50	1.50
20.900	1.50	1.49	1.49	1.49	1.49

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2d Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.150	1.48	1.48	1.48	1.47	1.47
21.400	1.47	1.47	1.46	1.46	1.46
21.650	1.45	1.45	1.45	1.44	1.44
21.900	1.44	1.44	1.43	1.43	1.43
22.150	1.42	1.42	1.42	1.42	1.41
22.400	1.41	1.41	1.40	1.40	1.40
22.650	1.40	1.39	1.39	1.39	1.38
22.900	1.38	1.38	1.37	1.37	1.37
23.150	1.37	1.36	1.36	1.36	1.35
23.400	1.35	1.35	1.35	1.34	1.34
23.650	1.34	1.33	1.33	1.33	1.32
23.900	1.32	1.32	1.31	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.648 hours
Area (User Defined)	26.000 acres

Computational Time Increment	0.220 hours
Time to Peak (Computed)	12.965 hours
Flow (Peak, Computed)	20.42 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.950 hours
Flow (Peak Interpolated Output)	20.36 ft³/s

Drainage Area	
SCS CN (Composite)	76.100
Area (User Defined)	26.000 acres
Maximum Retention (Pervious)	3.1 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.2 in
Runoff Volume (Pervious)	4.736 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.618 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.648 hours
Computational Time Increment	0.220 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.87 ft³/s

Subsection: Unit Hydrograph Summary
Label: BASIN 2d
Scenario: Pre-Development 100-YEAR

Return Event: 100 years
Storm Event: TypeII 24hr (4.6 in)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	1.099 hours
Unit receding limb, Tr	4.395 hours
Total unit time, Tb	5.494 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2d Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.648 hours
Area (User Defined)	26.000 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.950	0.00	0.00	0.00	0.00	0.00
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.02	0.02	0.03	0.03	0.04
9.700	0.04	0.05	0.06	0.07	0.07
9.950	0.08	0.09	0.11	0.12	0.13
10.200	0.14	0.16	0.17	0.19	0.20
10.450	0.22	0.24	0.26	0.28	0.30
10.700	0.33	0.35	0.38	0.41	0.44
10.950	0.47	0.50	0.54	0.58	0.62
11.200	0.66	0.71	0.76	0.82	0.87
11.450	0.94	1.03	1.13	1.22	1.33
11.700	1.63	1.93	2.23	2.53	3.09
11.950	3.79	4.48	5.18	5.99	7.12
12.200	8.25	9.38	10.51	11.73	12.97
12.450	14.20	15.44	16.46	17.25	18.04
12.700	18.84	19.57	19.77	19.97	20.17
12.950	20.36	20.24	19.98	19.73	19.47
13.200	19.11	18.53	17.95	17.37	16.79
13.450	16.11	15.43	14.75	14.07	13.46
13.700	12.90	12.35	11.79	11.26	10.84
13.950	10.42	10.01	9.59	9.24	8.90
14.200	8.57	8.24	7.93	7.66	7.39
14.450	7.13	6.86	6.64	6.43	6.22
14.700	6.01	5.82	5.65	5.48	5.32
14.950	5.15	5.02	4.89	4.75	4.62
15.200	4.51	4.41	4.30	4.20	4.10
15.450	4.02	3.94	3.85	3.77	3.70
15.700	3.63	3.56	3.49	3.43	3.37
15.950	3.31	3.26	3.20	3.15	3.10
16.200	3.05	3.00	2.95	2.91	2.87
16.450	2.82	2.78	2.74	2.70	2.66
16.700	2.63	2.59	2.55	2.52	2.48
16.950	2.45	2.42	2.39	2.36	2.33

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 2d Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.200	2.30	2.28	2.25	2.23	2.21
17.450	2.19	2.17	2.15	2.13	2.11
17.700	2.10	2.08	2.07	2.05	2.04
17.950	2.02	2.01	1.99	1.98	1.97
18.200	1.95	1.94	1.93	1.91	1.90
18.450	1.89	1.88	1.86	1.85	1.84
18.700	1.83	1.81	1.80	1.79	1.78
18.950	1.77	1.76	1.74	1.73	1.72
19.200	1.71	1.70	1.69	1.67	1.66
19.450	1.65	1.64	1.63	1.62	1.61
19.700	1.59	1.58	1.57	1.56	1.55
19.950	1.54	1.53	1.51	1.50	1.49
20.200	1.48	1.47	1.46	1.45	1.44
20.450	1.43	1.42	1.40	1.39	1.38
20.700	1.37	1.37	1.36	1.35	1.34
20.950	1.33	1.32	1.31	1.31	1.30
21.200	1.29	1.29	1.28	1.27	1.27
21.450	1.26	1.26	1.25	1.25	1.24
21.700	1.24	1.24	1.23	1.23	1.22
21.950	1.22	1.22	1.21	1.21	1.21
22.200	1.20	1.20	1.20	1.19	1.19
22.450	1.19	1.19	1.18	1.18	1.18
22.700	1.17	1.17	1.17	1.17	1.16
22.950	1.16	1.16	1.16	1.15	1.15
23.200	1.15	1.15	1.15	1.14	1.14
23.450	1.14	1.14	1.13	1.13	1.13
23.700	1.13	1.12	1.12	1.12	1.12
23.950	1.12	1.11	(N/A)	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	29.900 acres

Computational Time Increment	0.044 hours
Time to Peak (Computed)	12.056 hours
Flow (Peak, Computed)	118.18 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	117.40 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	29.900 acres
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	9.927 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	9.900 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.330 hours
Computational Time Increment	0.044 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	102.66 ft³/s

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.220 hours
Unit receding limb, Tr	0.880 hours
Total unit time, Tb	1.100 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 3 Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	0.330 hours
Area (User Defined)	29.900 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.150	0.00	0.00	0.00	0.01	0.02
2.400	0.03	0.04	0.06	0.07	0.09
2.650	0.10	0.12	0.14	0.15	0.17
2.900	0.19	0.20	0.22	0.24	0.25
3.150	0.27	0.29	0.30	0.32	0.34
3.400	0.35	0.37	0.38	0.40	0.42
3.650	0.43	0.45	0.46	0.48	0.50
3.900	0.51	0.53	0.54	0.56	0.57
4.150	0.59	0.60	0.62	0.64	0.65
4.400	0.67	0.69	0.71	0.73	0.74
4.650	0.76	0.78	0.80	0.81	0.83
4.900	0.85	0.87	0.89	0.91	0.93
5.150	0.94	0.96	0.98	1.00	1.02
5.400	1.04	1.06	1.07	1.09	1.11
5.650	1.13	1.15	1.17	1.19	1.21
5.900	1.23	1.25	1.26	1.28	1.30
6.150	1.32	1.34	1.36	1.38	1.40
6.400	1.42	1.44	1.46	1.48	1.49
6.650	1.51	1.53	1.55	1.57	1.59
6.900	1.61	1.63	1.65	1.67	1.69
7.150	1.71	1.73	1.74	1.76	1.78
7.400	1.80	1.82	1.84	1.86	1.88
7.650	1.90	1.92	1.94	1.95	1.97
7.900	1.99	2.01	2.03	2.05	2.07
8.150	2.10	2.13	2.17	2.21	2.26
8.400	2.31	2.36	2.42	2.48	2.54
8.650	2.60	2.66	2.72	2.78	2.84
8.900	2.91	2.97	3.04	3.10	3.16
9.150	3.22	3.27	3.31	3.34	3.37
9.400	3.39	3.41	3.43	3.45	3.47
9.650	3.49	3.53	3.59	3.65	3.73
9.900	3.81	3.90	4.00	4.09	4.20
10.150	4.31	4.42	4.55	4.68	4.81

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 3 Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.400	4.96	5.11	5.26	5.41	5.57
10.650	5.74	5.93	6.13	6.34	6.57
10.900	6.81	7.06	7.31	7.57	7.85
11.150	8.17	8.54	8.97	9.44	9.96
11.400	10.51	11.08	11.73	12.67	14.37
11.650	17.44	22.33	29.72	39.80	53.24
11.900	70.30	89.61	106.98	117.17	117.40
12.150	106.14	89.26	71.97	57.07	45.68
12.400	37.48	31.39	26.74	23.12	20.19
12.650	17.82	15.92	14.41	13.22	12.28
12.900	11.52	10.88	10.34	9.88	9.48
13.150	9.12	8.80	8.51	8.25	8.01
13.400	7.79	7.57	7.37	7.17	6.98
13.650	6.80	6.62	6.46	6.30	6.15
13.900	6.00	5.86	5.72	5.59	5.46
14.150	5.34	5.23	5.13	5.05	4.98
14.400	4.91	4.85	4.80	4.74	4.69
14.650	4.64	4.60	4.55	4.50	4.45
14.900	4.40	4.36	4.31	4.26	4.22
15.150	4.17	4.12	4.07	4.03	3.98
15.400	3.93	3.89	3.84	3.79	3.74
15.650	3.70	3.65	3.60	3.55	3.51
15.900	3.46	3.41	3.37	3.32	3.27
16.150	3.23	3.19	3.16	3.13	3.11
16.400	3.08	3.06	3.04	3.02	3.01
16.650	2.99	2.97	2.95	2.94	2.92
16.900	2.90	2.89	2.87	2.85	2.83
17.150	2.82	2.80	2.78	2.77	2.75
17.400	2.73	2.72	2.70	2.68	2.67
17.650	2.65	2.63	2.62	2.60	2.58
17.900	2.56	2.55	2.53	2.51	2.50
18.150	2.48	2.46	2.45	2.43	2.41
18.400	2.40	2.38	2.36	2.35	2.33
18.650	2.31	2.29	2.28	2.26	2.24
18.900	2.23	2.21	2.19	2.18	2.16
19.150	2.14	2.13	2.11	2.09	2.07
19.400	2.06	2.04	2.02	2.01	1.99
19.650	1.97	1.96	1.94	1.92	1.90
19.900	1.89	1.87	1.85	1.84	1.82
20.150	1.81	1.79	1.78	1.77	1.77
20.400	1.76	1.76	1.75	1.75	1.74
20.650	1.74	1.74	1.73	1.73	1.73
20.900	1.72	1.72	1.72	1.71	1.71

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 3 Storm Event: TypeII 24hr (4.6 in)
Scenario: Post-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.150	1.71	1.70	1.70	1.70	1.69
21.400	1.69	1.69	1.68	1.68	1.68
21.650	1.67	1.67	1.66	1.66	1.66
21.900	1.65	1.65	1.65	1.64	1.64
22.150	1.64	1.63	1.63	1.63	1.62
22.400	1.62	1.62	1.61	1.61	1.61
22.650	1.60	1.60	1.60	1.59	1.59
22.900	1.59	1.58	1.58	1.58	1.57
23.150	1.57	1.57	1.56	1.56	1.56
23.400	1.55	1.55	1.55	1.54	1.54
23.650	1.54	1.53	1.53	1.53	1.52
23.900	1.52	1.52	1.51	(N/A)	(N/A)

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.412 hours
Area (User Defined)	29.900 acres

Computational Time Increment	0.188 hours
Time to Peak (Computed)	12.801 hours
Flow (Peak, Computed)	25.26 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.800 hours
Flow (Peak Interpolated Output)	25.25 ft³/s

Drainage Area	
SCS CN (Composite)	75.000
Area (User Defined)	29.900 acres
Maximum Retention (Pervious)	3.3 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	5.226 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5.113 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.412 hours
Computational Time Increment	0.188 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	24.00 ft³/s

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.941 hours
Unit receding limb, Tr	3.765 hours
Total unit time, Tb	4.706 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 3 Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

Storm Event	TypeII 24hr (4.6 in)
Return Event	100 years
Duration	24.000 hours
Depth	4.6 in
Time of Concentration (Composite)	1.412 hours
Area (User Defined)	29.900 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.200	0.00	0.00	0.00	0.00	0.00
9.450	0.01	0.01	0.01	0.02	0.02
9.700	0.03	0.03	0.04	0.05	0.05
9.950	0.06	0.07	0.08	0.10	0.11
10.200	0.12	0.14	0.16	0.17	0.19
10.450	0.21	0.23	0.26	0.28	0.31
10.700	0.34	0.37	0.40	0.43	0.47
10.950	0.51	0.55	0.59	0.64	0.69
11.200	0.75	0.80	0.86	0.93	1.01
11.450	1.08	1.18	1.32	1.45	1.59
11.700	1.89	2.31	2.74	3.16	4.05
11.950	5.04	6.04	7.06	8.66	10.27
12.200	11.87	13.52	15.30	17.09	18.87
12.450	20.33	21.49	22.66	23.82	24.34
12.700	24.64	24.95	25.25	24.90	24.54
12.950	24.18	23.72	22.90	22.08	21.26
13.200	20.36	19.38	18.40	17.42	16.56
13.450	15.75	14.95	14.14	13.52	12.92
13.700	12.31	11.73	11.25	10.78	10.30
13.950	9.86	9.47	9.08	8.69	8.36
14.200	8.05	7.75	7.44	7.19	6.94
14.450	6.69	6.45	6.25	6.05	5.86
14.700	5.67	5.52	5.36	5.21	5.07
14.950	4.95	4.82	4.70	4.59	4.49
15.200	4.39	4.29	4.21	4.13	4.05
15.450	3.97	3.90	3.83	3.77	3.70
15.700	3.65	3.59	3.53	3.48	3.42
15.950	3.37	3.32	3.27	3.22	3.17
16.200	3.12	3.07	3.02	2.98	2.93
16.450	2.89	2.85	2.81	2.78	2.74
16.700	2.71	2.68	2.65	2.62	2.60
16.950	2.57	2.55	2.52	2.50	2.48
17.200	2.46	2.43	2.41	2.40	2.38

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BASIN 3 Storm Event: TypeII 24hr (4.6 in)
Scenario: Pre-Development 100-YEAR

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.450	2.36	2.34	2.32	2.31	2.29
17.700	2.28	2.26	2.25	2.23	2.22
17.950	2.20	2.19	2.17	2.16	2.15
18.200	2.13	2.12	2.10	2.09	2.08
18.450	2.06	2.05	2.04	2.03	2.01
18.700	2.00	1.99	1.97	1.96	1.95
18.950	1.94	1.92	1.91	1.90	1.88
19.200	1.87	1.86	1.85	1.83	1.82
19.450	1.81	1.80	1.78	1.77	1.76
19.700	1.75	1.73	1.72	1.71	1.69
19.950	1.68	1.67	1.66	1.64	1.63
20.200	1.62	1.61	1.59	1.58	1.57
20.450	1.56	1.55	1.54	1.52	1.51
20.700	1.50	1.49	1.48	1.48	1.47
20.950	1.46	1.45	1.44	1.44	1.43
21.200	1.42	1.42	1.41	1.41	1.40
21.450	1.40	1.39	1.39	1.38	1.38
21.700	1.37	1.37	1.37	1.36	1.36
21.950	1.36	1.35	1.35	1.35	1.34
22.200	1.34	1.34	1.33	1.33	1.33
22.450	1.32	1.32	1.32	1.32	1.31
22.700	1.31	1.31	1.31	1.30	1.30
22.950	1.30	1.30	1.29	1.29	1.29
23.200	1.29	1.28	1.28	1.28	1.28
23.450	1.27	1.27	1.27	1.27	1.26
23.700	1.26	1.26	1.26	1.25	1.25
23.950	1.25	1.24	(N/A)	(N/A)	(N/A)

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