STORMWATER MANAGEMENT FACILITIES REPORT

CALCULATIONS

THE JEWEL

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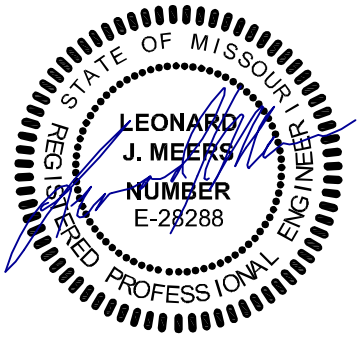

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12/10/2019

Stormwater Management Facility Calculations Report

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A. Executive Summary

The following report details the stormwater runoff for the developed conditions of the site. This site currently consists of a vacant lot located at 15 Castle Lane O'fallon, MO 63366. The developer desires to build an upscale apartment community and surface parking lot on the site. The site slopes from the north to the south to an existing creek along the south side of the property.

2 Year - 24 Hour Storm Event

Existing Condition (EX-POI)	37.34 cfs	(Allowable Discharge)
Proposed Discharge Rate (PR-POI)	35.28 cfs	(Free Outfall)

10 Year - 24 Hour Storm Event

Existing Condition (EX-POI)	66.14 cfs	(Allowable Discharge)
Proposed Discharge Rate (PR-POI)	54.90 cfs	(Free Outfall)

25 Year - 24 Hour Storm Event

Existing Condition (EX-POI)	74.71 cfs	(Allowable Discharge)
Proposed Discharge Rate (PR-POI)	63.04 cfs	(Free Outfall)

100 Year - 24 Hour Storm Event

Existing Condition (EX-POI)	100.53 cfs	(Allowable Discharge)
Proposed Discharge Rate (PR-POI)	84.13 cfs	(Free Outfall)

B. Introduction

1. Evaluation Of Existing Conditions

A. Existing Site Conditions

The existing site consists of a vacant lot.

B. Existing Site Classification

A site (i.e., total property area) is considered a redevelopment site if at least 20% of the existing site was impervious coverage as of January 15, 2000.

Existing Impervious Area Calculations:

Existing Impervious/Total Area * 100% = 0.05 acres/16.57 acres * 100% = 0.3%

Therefore this site is classified as a NOT REDEVELOPMENT.

C. Special Existing Conditions

There are no special conditions for this site.

2. Evaluation Of Proposed Conditions

A. Development Use

The improvements planned for the development consist of the construction of apartment buildings totaling 240 units with surrounding parking and amenities.

B. Total Disturbed Area

The total disturbed area for this project is 14.58 Acres.

C. Differential Runoff Calculations

15– Year, 20 – Minute Differential Calculations (Lot 1)

Current Existing Conditions

Roof: 0.00 Acres @ 4.20 cfs/Acre = 0.00 cfs
Pavement: 0.05 Acres @ 3.54 cfs/Acre = 0.18 cfs
Grass: 16.52 Acres @ 1.70 cfs/Acre = 28.08 cfs
Total Existing Runoff = 18.26 cfs

Proposed Conditions

Roof: 2.79 Acres @ 4.20 cfs/Acre = 11.72 cfs
Pavement: 5.21 Acres @ 3.54 cfs/Acre = 18.44 cfs
Pavers: 0.00 Acres @ 1.708/Acre = 0.00 cfs
Grass: 8.57 Acres @ 1.70 cfs/Acre = 14.57 cfs
Total Proposed Runoff = 44.73 cfs

Proposed Runoff – Existing Runoff = Difference
44.73 cfs –18.6 cfs = 16.47 cfs

D. Stormwater Management Facilities Proposed

The site is required to provide runoff reduction to the maximum extent practicable for the new impervious surfaces added to the site. To provide this reduction, there is a detention basin located at the south side of the site.

Area A – Detention Basin

C. Stormwater Management Calculations

1. Hydrology

A. Sizing Of Stormwater Facilities

The following calculations are used to determine the stormwater volumes required for stormwater management. The system consists of BMPs to accomplish the water quality treatment and runoff volume reduction for the site. The property owner shall maintain the stormwater detention facilities to see that these volumes and treatments are provided. No change in volumes will be allowed unless approved by the City of O'Fallon.

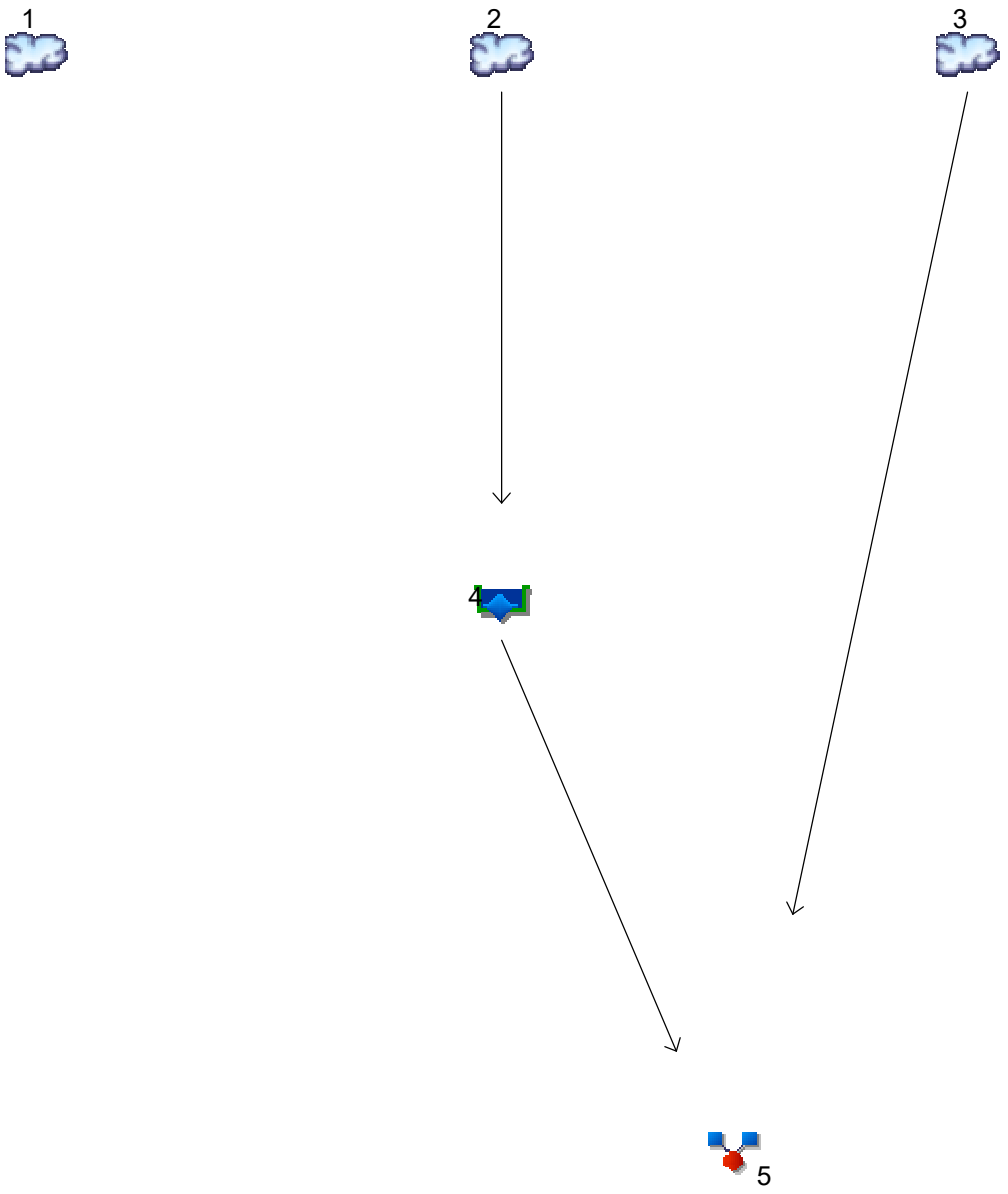
The curve numbers used for the analysis are:

		CN
SOILS GROUP "D"	Open Space (Good Condition)	80
	Paved/Building Areas	98

Existing Site: (Entire Disturbed Area)		
Paved/Building Area	0.05 Ac.	98
Open Space	16.52 Ac.	80
Calculated CN value		80
Proposed Site: (Entire Disturbed Area)		
Paved/Building Area	8.00 Ac.	98
Open Space	8.57 Ac.	80
Calculated CN value		89

D. 2-Year Detention Routing

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	Existing
2	SCS Runoff	PR to Basin
3	SCS Runoff	Bypass
4	Reservoir	Routing
5	Combine	PR-POI

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

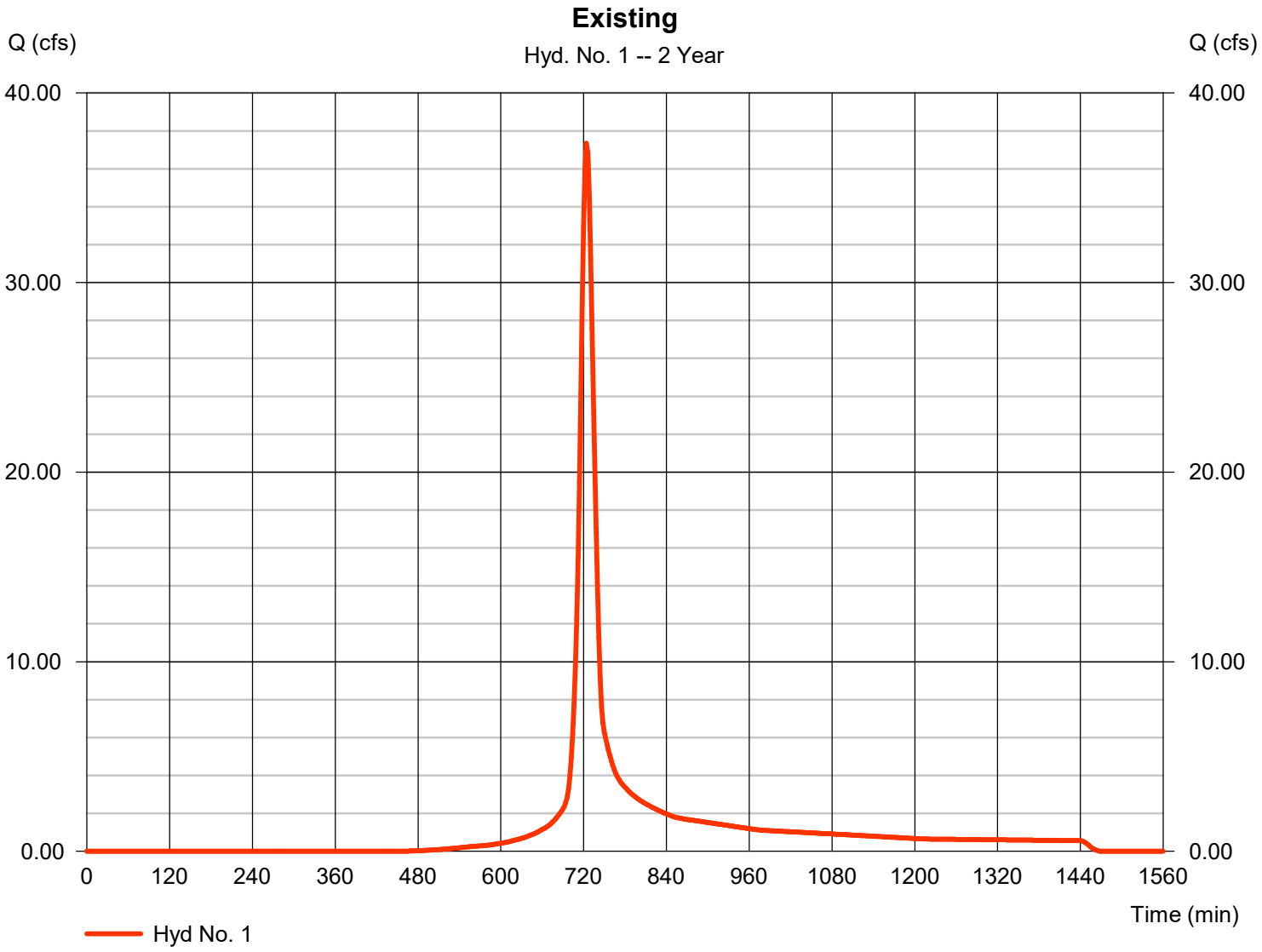
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	37.34	2	724	116,758	------	------	------	Existing
2	SCS Runoff	54.77	2	720	149,990	------	------	------	PR to Basin
3	SCS Runoff	6.933	2	720	17,978	------	------	------	Bypass
4	Reservoir	30.61	2	728	149,987	2	581.53	37,023	Routing
5	Combine	35.28	2	726	167,965	3, 4	------	------	PR-POI

Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	= SCS Runoff	Peak discharge	= 37.34 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 116,758 cuft
Drainage area	= 16.610 ac	Curve number	= 84
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 17.60 min
Total precip.	= 3.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hyd. No. 1

Existing

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.10		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 12.33**	**+**	**0.00**	**+**	**0.00**	**=**	**12.33**
Shallow Concentrated Flow							
Flow length (ft)	= 915.00		0.00		0.00		
Watercourse slope (%)	= 4.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=3.23		0.00		0.00		
Travel Time (min)	**= 4.73**	**+**	**0.00**	**+**	**0.00**	**=**	**4.73**
Channel Flow							
X sectional flow area (sqft)	= 27.00		0.00		0.00		
Wetted perimeter (ft)	= 19.00		0.00		0.00		
Channel slope (%)	= 3.00		0.00		0.00		
Manning's n-value	= 0.035		0.015		0.015		
Velocity (ft/s)	=9.33						
			0.00				
					0.00		
Flow length (ft)	({0})315.0		0.0		0.0		
Travel Time (min)	**= 0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**

Total Travel Time, Tc ..... 17.60 min

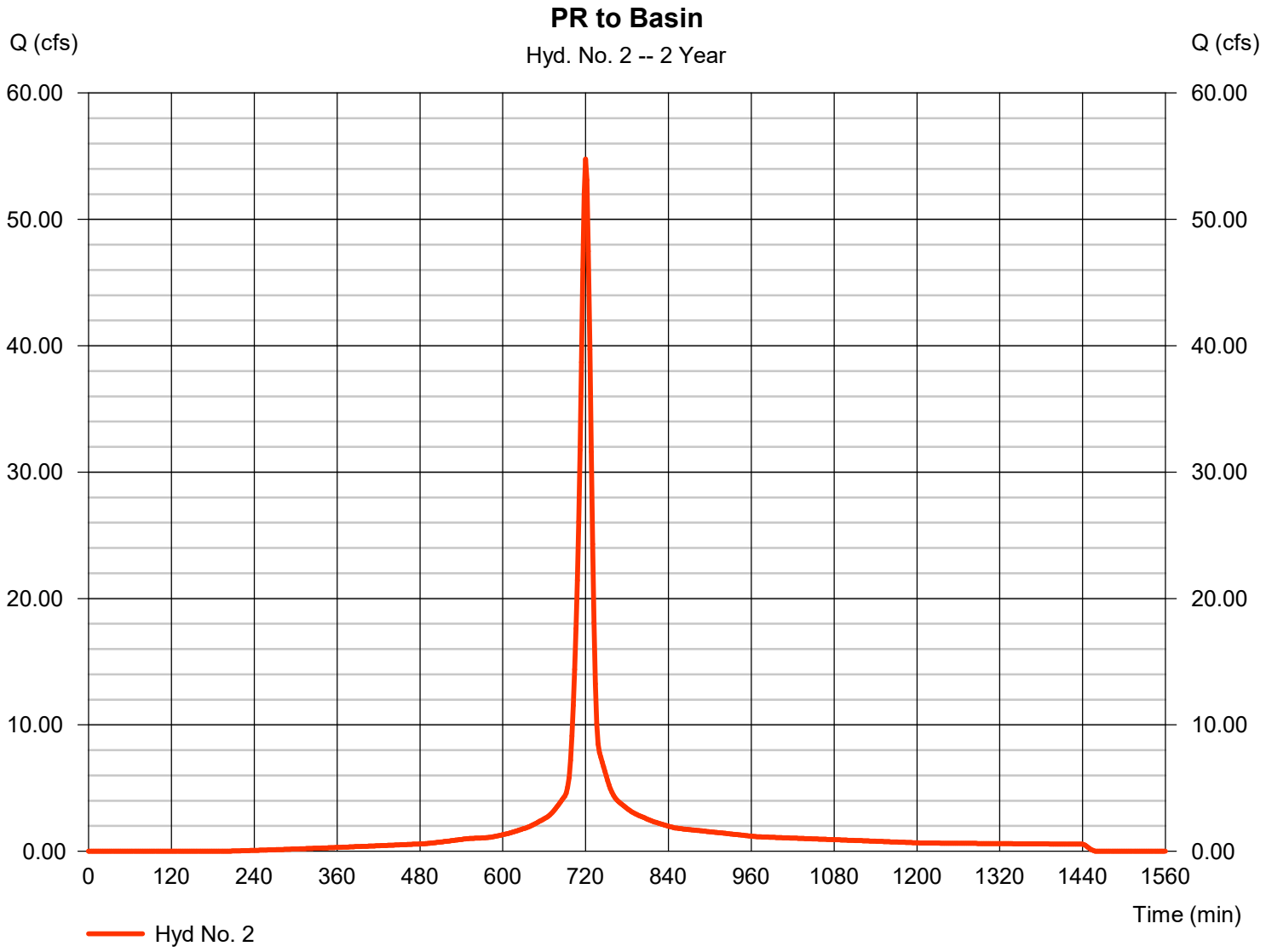
Hydrograph Report

Hyd. No. 2

PR to Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	54.77 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	149,990 cuft
Drainage area	=	14.130 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.90 min
Total precip.	=	3.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(10.420 x 98) + (3.710 x 84)] / 14.130



TR55 Tc Worksheet

Hyd. No. 2

PR to Basin

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 79.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.50		0.00		0.00		
Land slope (%)	= 2.50		0.00		0.00		
Travel Time (min)	**= 10.33**	**+**	**0.00**	**+**	**0.00**	**=**	**10.33**
Shallow Concentrated Flow							
Flow length (ft)	= 255.00		0.00		0.00		
Watercourse slope (%)	= 2.50		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=3.21		0.00		0.00		
Travel Time (min)	**= 1.32**	**+**	**0.00**	**+**	**0.00**	**=**	**1.32**
Channel Flow							
X sectional flow area (sqft)	= 4.91		0.00		0.00		
Wetted perimeter (ft)	= 7.85		0.00		0.00		
Channel slope (%)	= 2.50		0.00		0.00		
Manning's n-value	= 0.013		0.015		0.015		
Velocity (ft/s)	=13.23						
			0.00				
					0.00		
Flow length (ft)	({0})991.0		0.0		0.0		
Travel Time (min)	**= 1.25**	**+**	**0.00**	**+**	**0.00**	**=**	**1.25**

Total Travel Time, Tc ..... 12.90 min

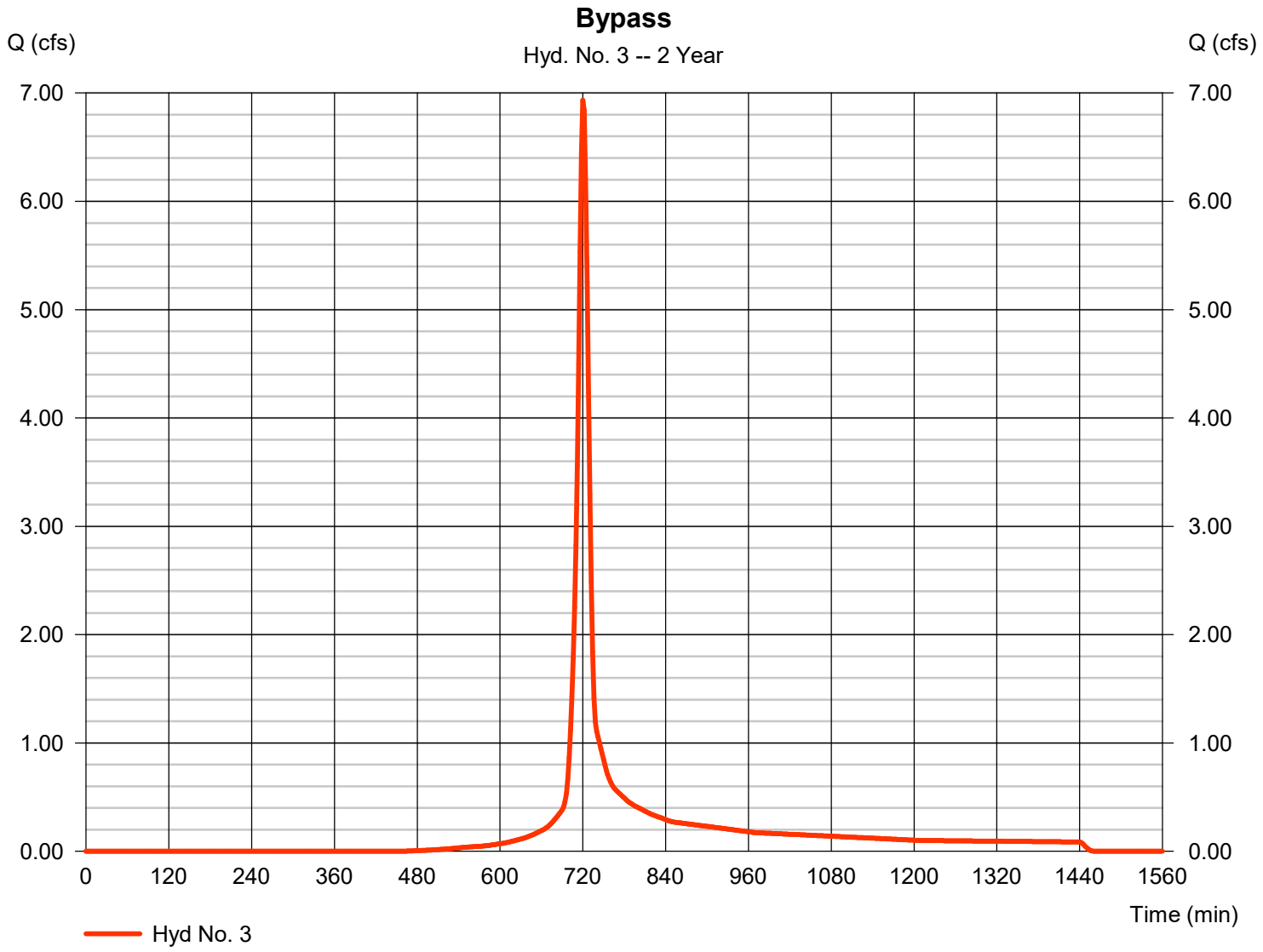
Hydrograph Report

Hyd. No. 3

Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.933 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	17,978 cuft
Drainage area	=	2.480 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.40 min
Total precip.	=	3.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.480 x 84)] / 2.480



TR55 Tc Worksheet

Hyd. No. 3

Bypass

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.50		0.00		0.00		
Land slope (%)	= 3.50		0.00		0.00		
Travel Time (min)	**= 10.91**	**+**	**0.00**	**+**	**0.00**	**=**	**10.91**
Shallow Concentrated Flow							
Flow length (ft)	= 328.00		0.00		0.00		
Watercourse slope (%)	= 5.50		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=3.78		0.00		0.00		
Travel Time (min)	**= 1.44**	**+**	**0.00**	**+**	**0.00**	**=**	**1.44**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 12.40 min

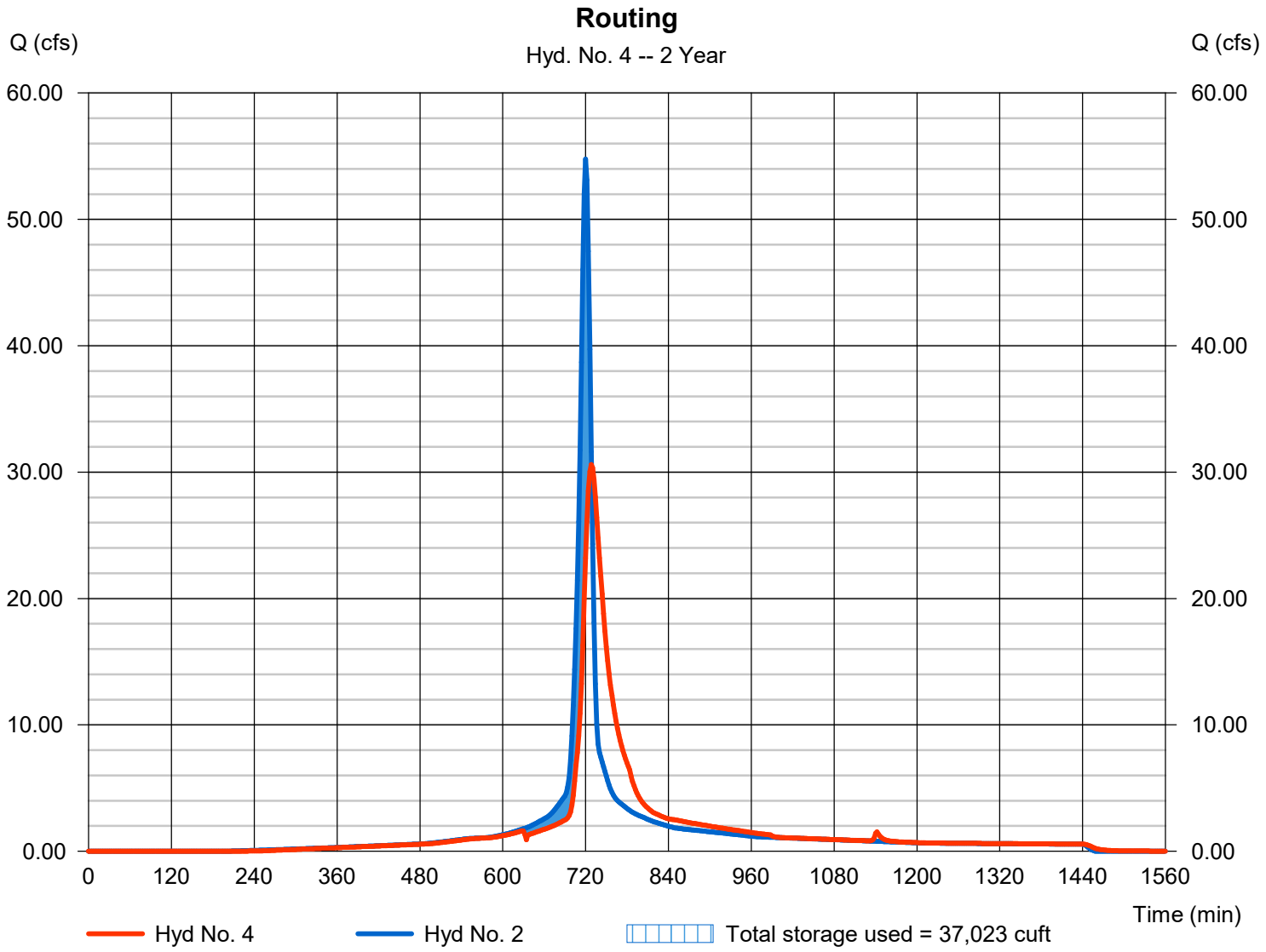
Hydrograph Report

Hyd. No. 4

Routing

Hydrograph type	=	Reservoir	Peak discharge	=	30.61 cfs
Storm frequency	=	2 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	149,987 cuft
Inflow hyd. No.	=	2 - PR to Basin	Max. Elevation	=	581.53 ft
Reservoir name	=	Basin	Max. Storage	=	37,023 cuft

Storage Indication method used.

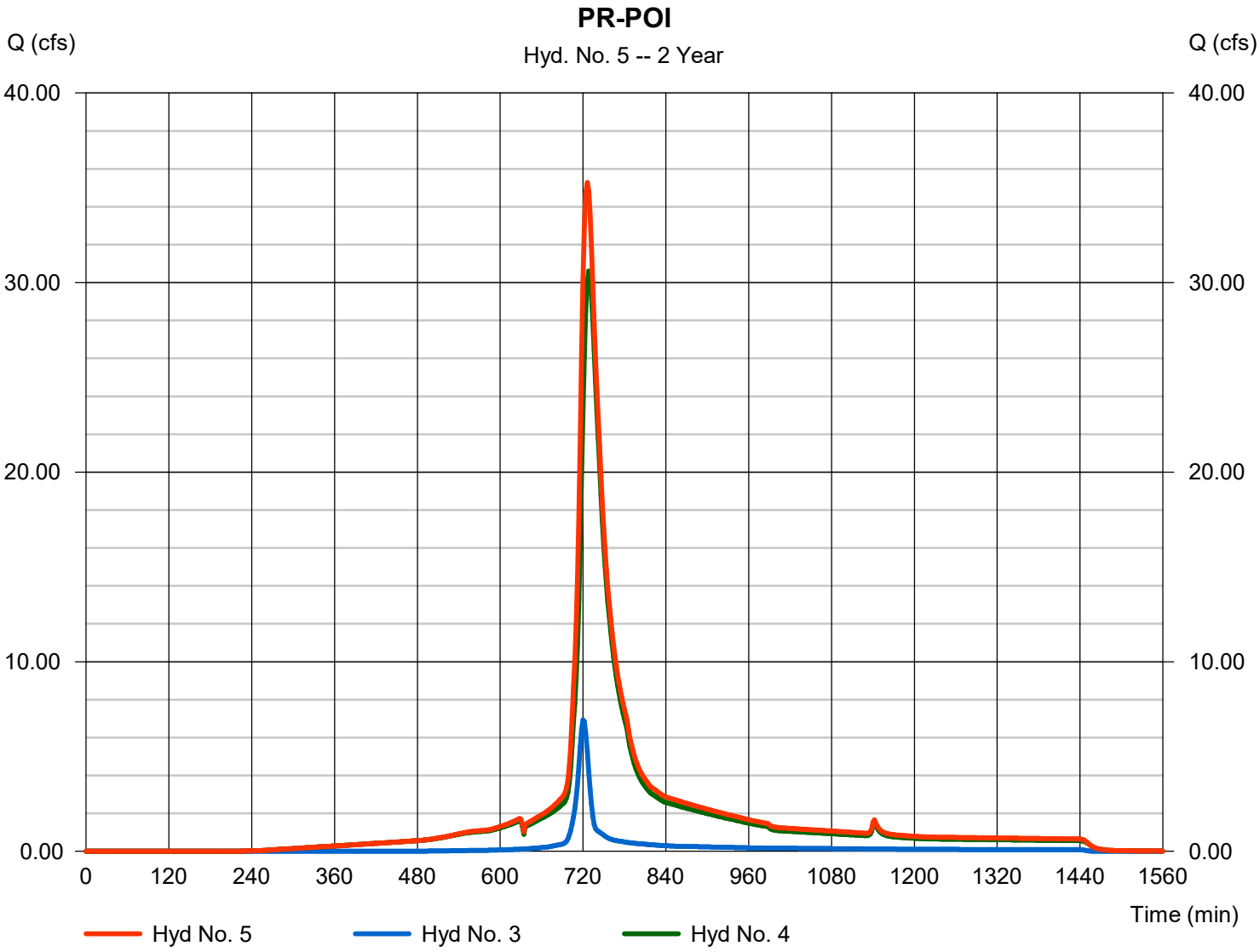


Hydrograph Report

Hyd. No. 5

PR-POI

Hydrograph type	= Combine	Peak discharge	= 35.28 cfs
Storm frequency	= 2 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 167,965 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.480 ac



E. 100-Year Detention Routing

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

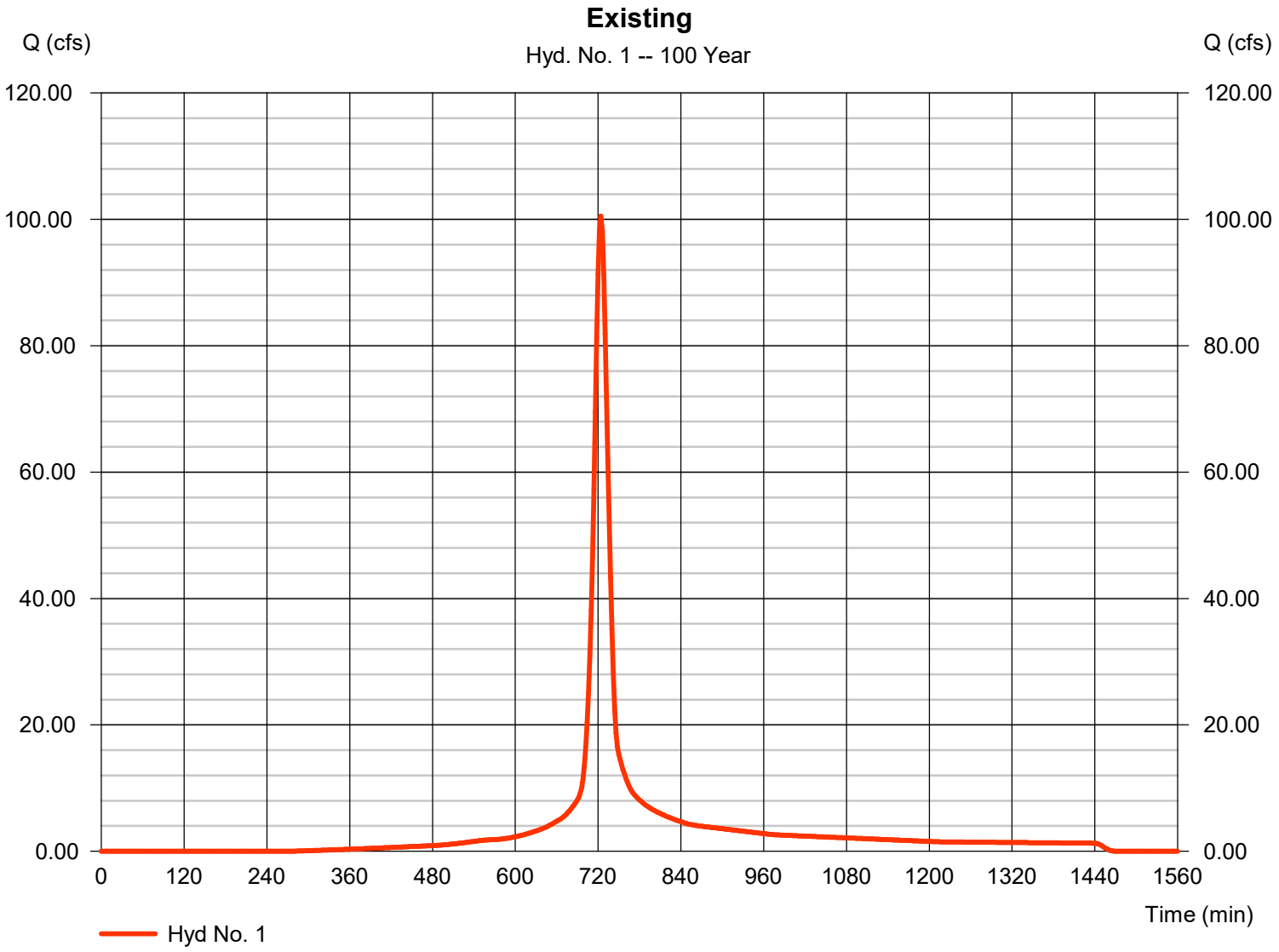
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	100.53	2	724	321,379	------	------	------	Existing
2	SCS Runoff	119.50	2	720	343,122	------	------	------	PR to Basin
3	SCS Runoff	18.52	2	720	49,484	------	------	------	Bypass
4	Reservoir	72.36	2	728	343,119	2	583.24	77,513	Routing
5	Combine	85.33	2	726	392,603	3, 4	------	------	PR-POI

Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	=	SCS Runoff	Peak discharge	=	100.53 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	321,379 cuft
Drainage area	=	16.610 ac	Curve number	=	84
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.60 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



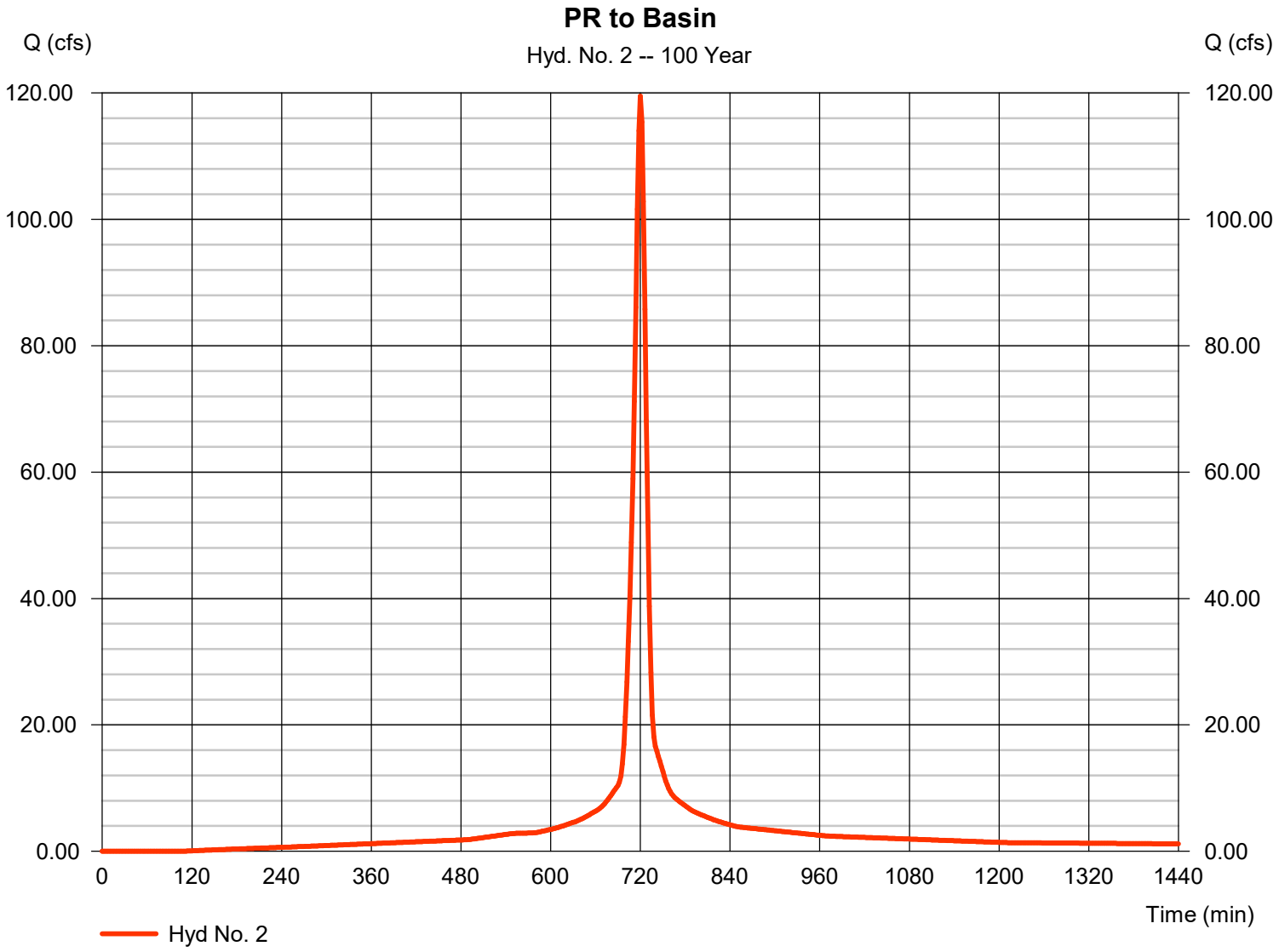
Hydrograph Report

Hyd. No. 2

PR to Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	119.50 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	343,122 cuft
Drainage area	=	14.130 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.90 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(10.420 x 98) + (3.710 x 84)] / 14.130



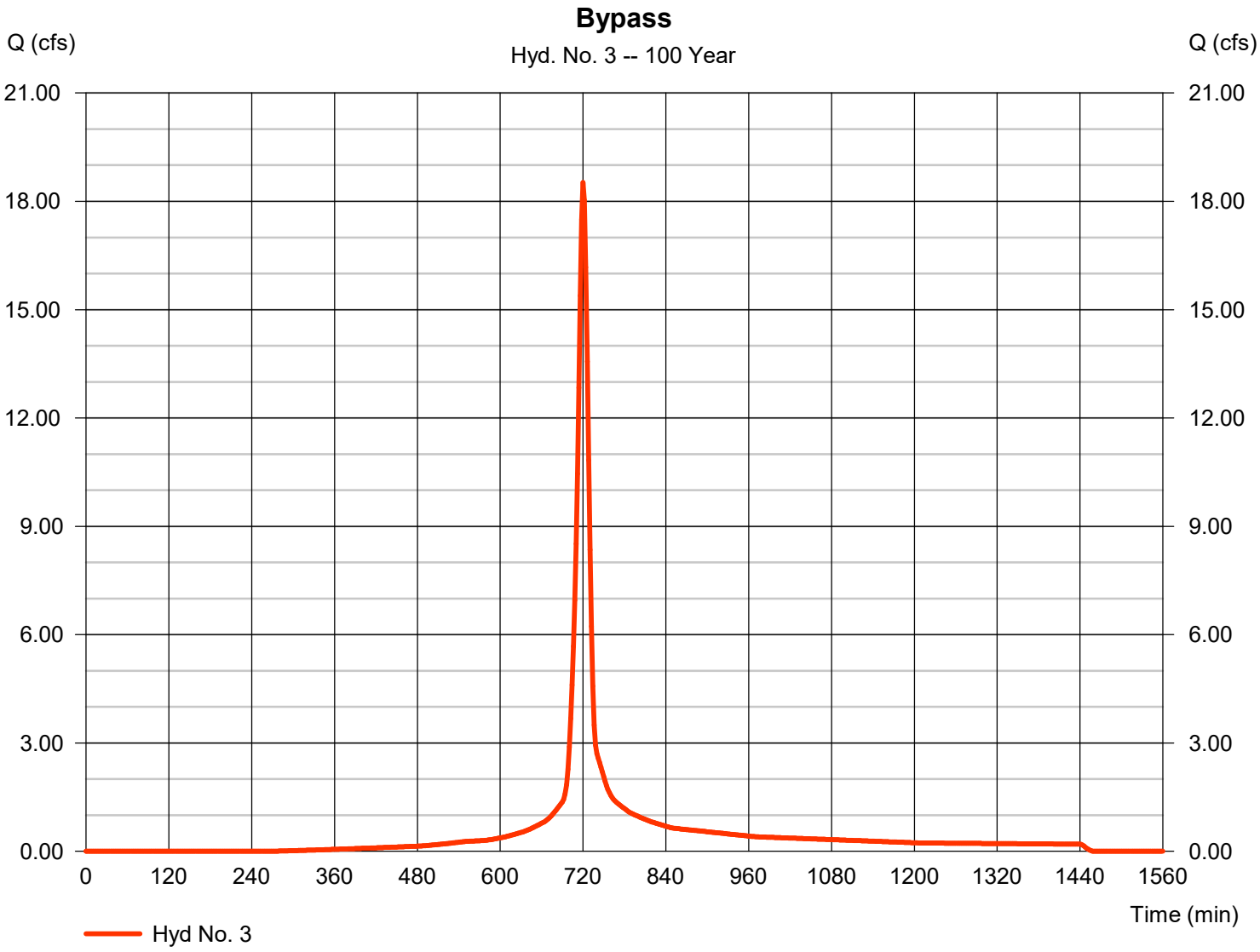
Hydrograph Report

Hyd. No. 3

Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	18.52 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	49,484 cuft
Drainage area	=	2.480 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.40 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.480 x 84)] / 2.480



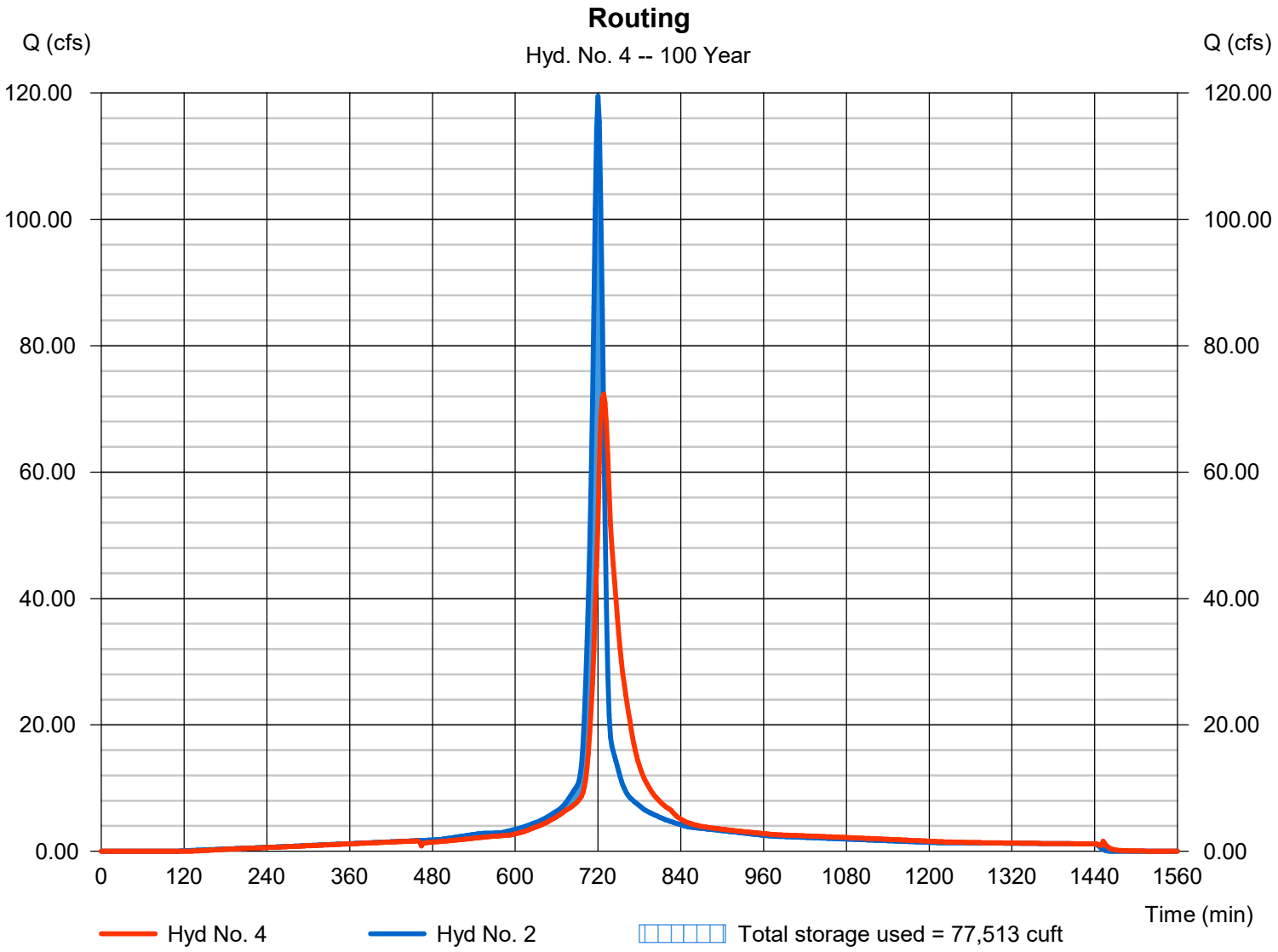
Hydrograph Report

Hyd. No. 4

Routing

Hydrograph type	=	Reservoir	Peak discharge	=	72.36 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	343,119 cuft
Inflow hyd. No.	=	2 - PR to Basin	Max. Elevation	=	583.24 ft
Reservoir name	=	Basin	Max. Storage	=	77,513 cuft

Storage Indication method used.

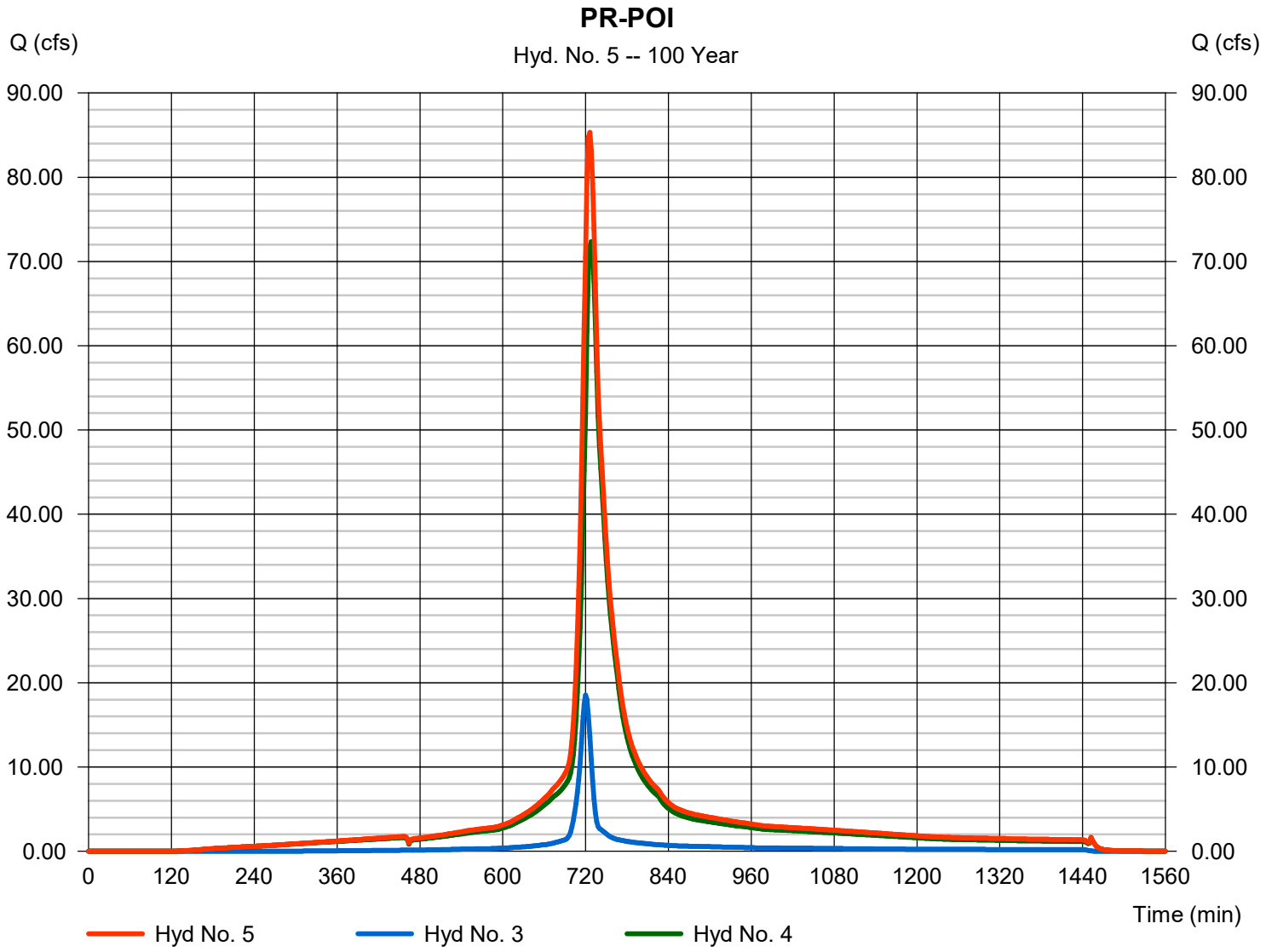


Hydrograph Report

Hyd. No. 5

PR-POI

Hydrograph type	= Combine	Peak discharge	= 85.33 cfs
Storm frequency	= 100 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 392,603 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.480 ac



F. 100-Year Low Flow Blocked Detention Routing

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020

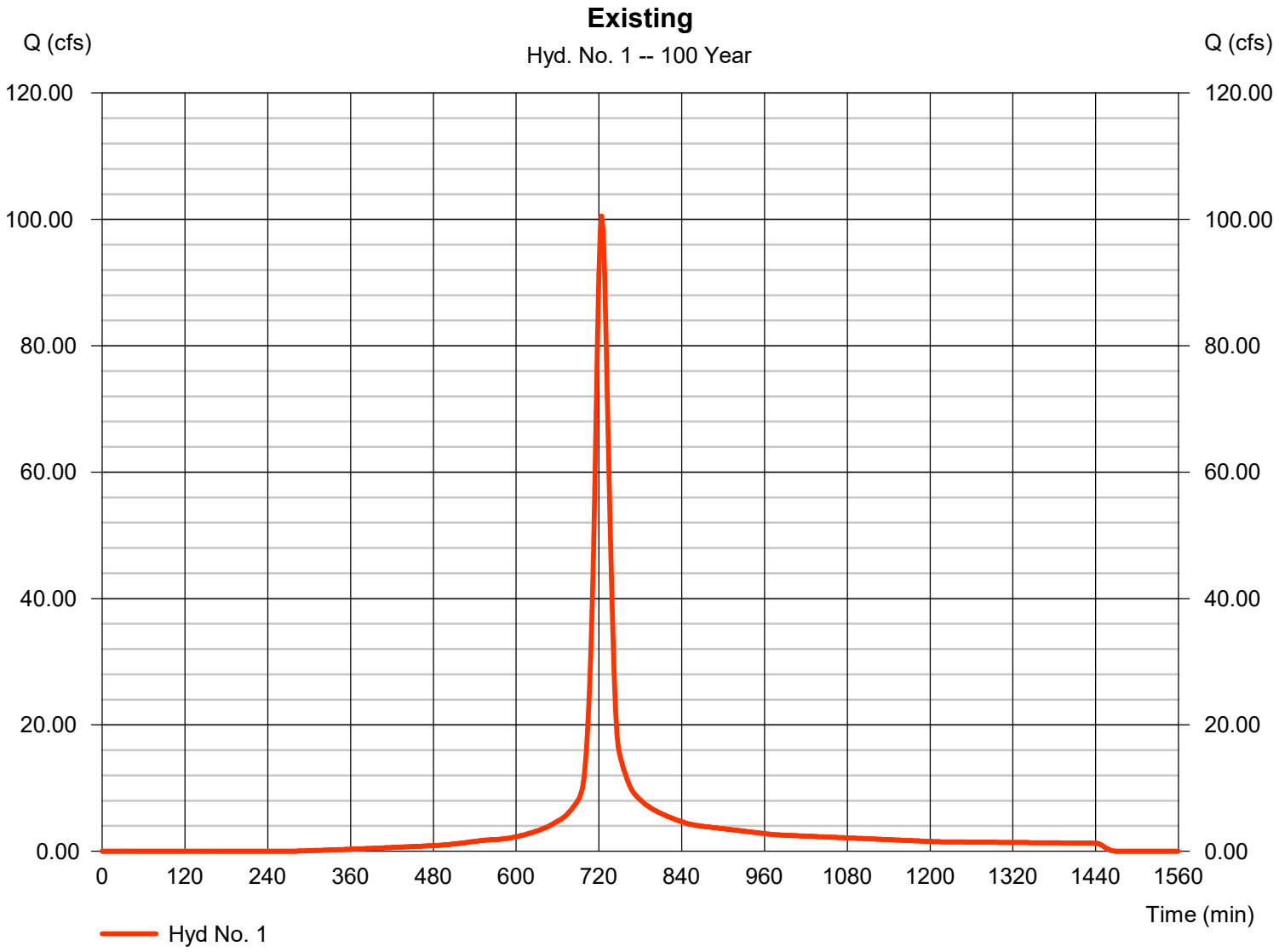
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	100.53	2	724	321,379	------	------	------	Existing
2	SCS Runoff	119.50	2	720	343,122	------	------	------	PR to Basin
3	SCS Runoff	18.52	2	720	49,484	------	------	------	Bypass
4	Reservoir	70.73	2	728	343,120	2	583.43	82,689	Routing
5	Combine	84.13	2	724	392,603	3, 4	------	------	PR-POI

Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	=	SCS Runoff	Peak discharge	=	100.53 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	321,379 cuft
Drainage area	=	16.610 ac	Curve number	=	84
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	17.60 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 1

Existing

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.10		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 12.33**	**+**	**0.00**	**+**	**0.00**	**=**	**12.33**
Shallow Concentrated Flow							
Flow length (ft)	= 915.00		0.00		0.00		
Watercourse slope (%)	= 4.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=3.23		0.00		0.00		
Travel Time (min)	**= 4.73**	**+**	**0.00**	**+**	**0.00**	**=**	**4.73**
Channel Flow							
X sectional flow area (sqft)	= 27.00		0.00		0.00		
Wetted perimeter (ft)	= 19.00		0.00		0.00		
Channel slope (%)	= 3.00		0.00		0.00		
Manning's n-value	= 0.035		0.015		0.015		
Velocity (ft/s)	=9.33						
			0.00				
					0.00		
Flow length (ft)	({0})315.0		0.0		0.0		
Travel Time (min)	**= 0.56**	**+**	**0.00**	**+**	**0.00**	**=**	**0.56**

Total Travel Time, Tc ..... 17.60 min

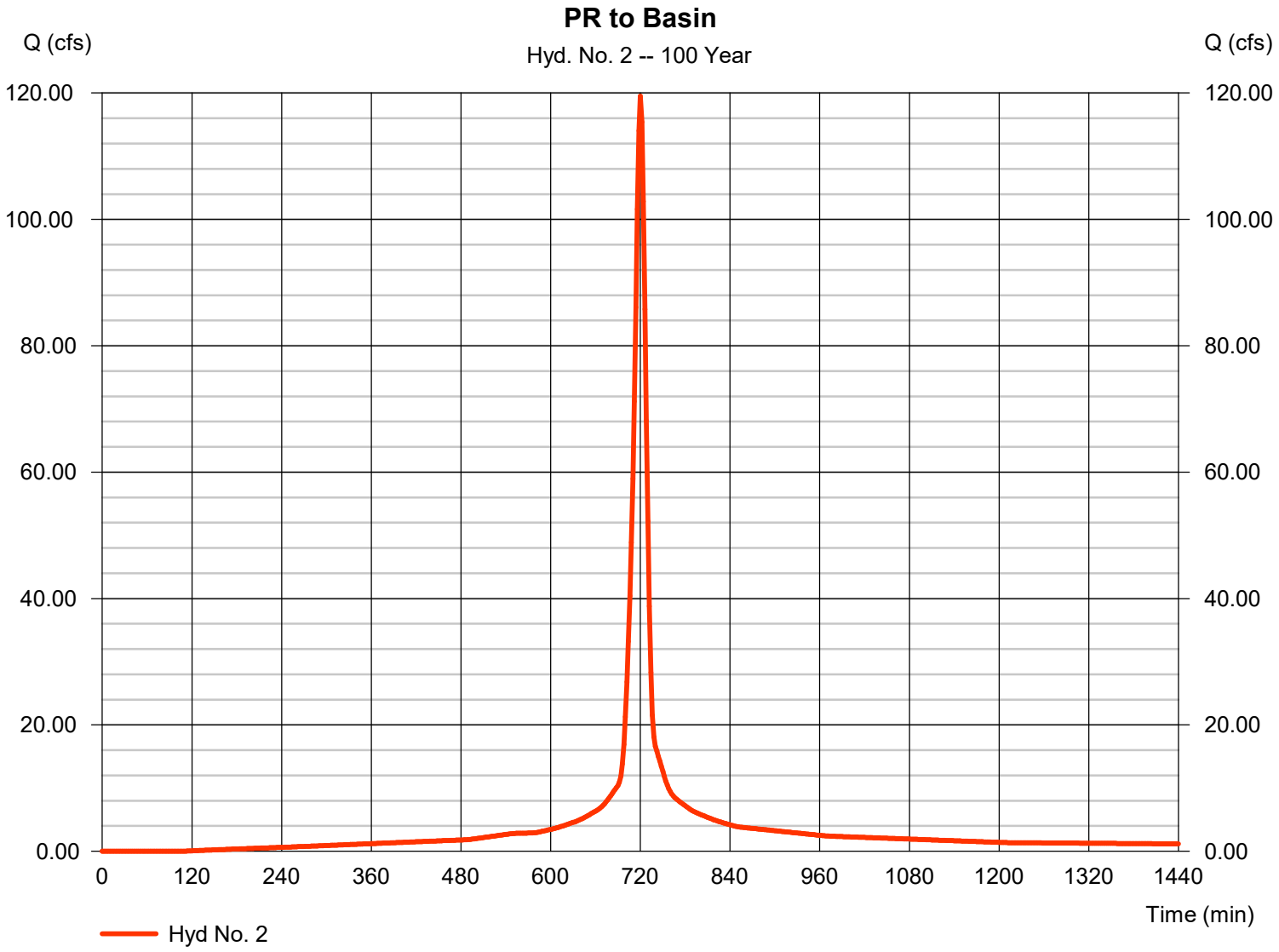
Hydrograph Report

Hyd. No. 2

PR to Basin

Hydrograph type	=	SCS Runoff	Peak discharge	=	119.50 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	343,122 cuft
Drainage area	=	14.130 ac	Curve number	=	94*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.90 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(10.420 x 98) + (3.710 x 84)] / 14.130



TR55 Tc Worksheet

Hyd. No. 2

PR to Basin

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 79.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.50		0.00		0.00		
Land slope (%)	= 2.50		0.00		0.00		
Travel Time (min)	**= 10.33**	**+**	**0.00**	**+**	**0.00**	**=**	**10.33**
Shallow Concentrated Flow							
Flow length (ft)	= 255.00		0.00		0.00		
Watercourse slope (%)	= 2.50		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=3.21		0.00		0.00		
Travel Time (min)	**= 1.32**	**+**	**0.00**	**+**	**0.00**	**=**	**1.32**
Channel Flow							
X sectional flow area (sqft)	= 4.91		0.00		0.00		
Wetted perimeter (ft)	= 7.85		0.00		0.00		
Channel slope (%)	= 2.50		0.00		0.00		
Manning's n-value	= 0.013		0.015		0.015		
Velocity (ft/s)	=13.23						
			0.00				
					0.00		
Flow length (ft)	({0})991.0		0.0		0.0		
Travel Time (min)	**= 1.25**	**+**	**0.00**	**+**	**0.00**	**=**	**1.25**

Total Travel Time, Tc ..... 12.90 min

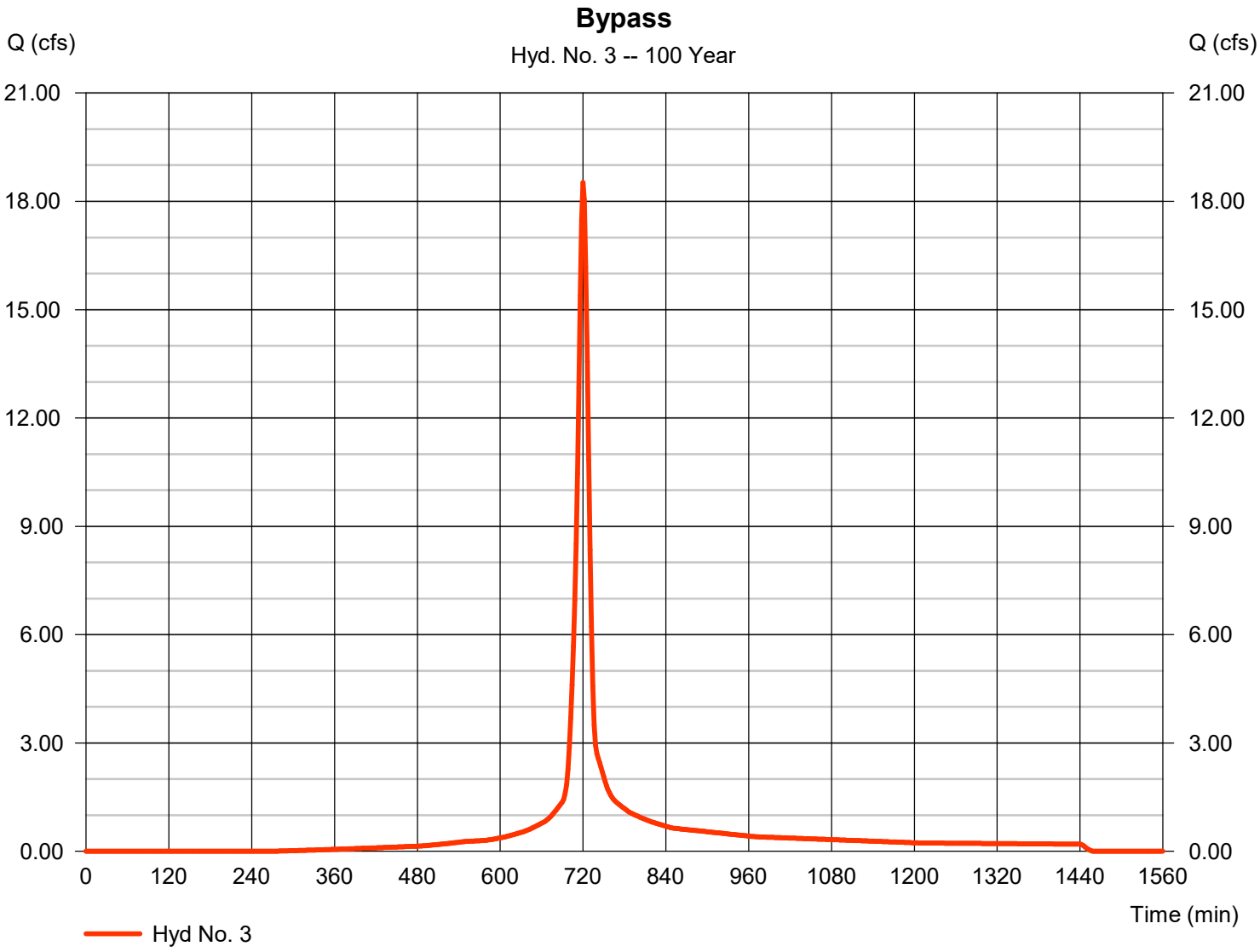
Hydrograph Report

Hyd. No. 3

Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	18.52 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	49,484 cuft
Drainage area	=	2.480 ac	Curve number	=	84*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.40 min
Total precip.	=	7.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.480 x 84)] / 2.480



TR55 Tc Worksheet

Hyd. No. 3

Bypass

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.50		0.00		0.00		
Land slope (%)	= 3.50		0.00		0.00		
Travel Time (min)	**= 10.91**	**+**	**0.00**	**+**	**0.00**	**=**	**10.91**
Shallow Concentrated Flow							
Flow length (ft)	= 328.00		0.00		0.00		
Watercourse slope (%)	= 5.50		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=3.78		0.00		0.00		
Travel Time (min)	**= 1.44**	**+**	**0.00**	**+**	**0.00**	**=**	**1.44**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

Total Travel Time, Tc ..... 12.40 min

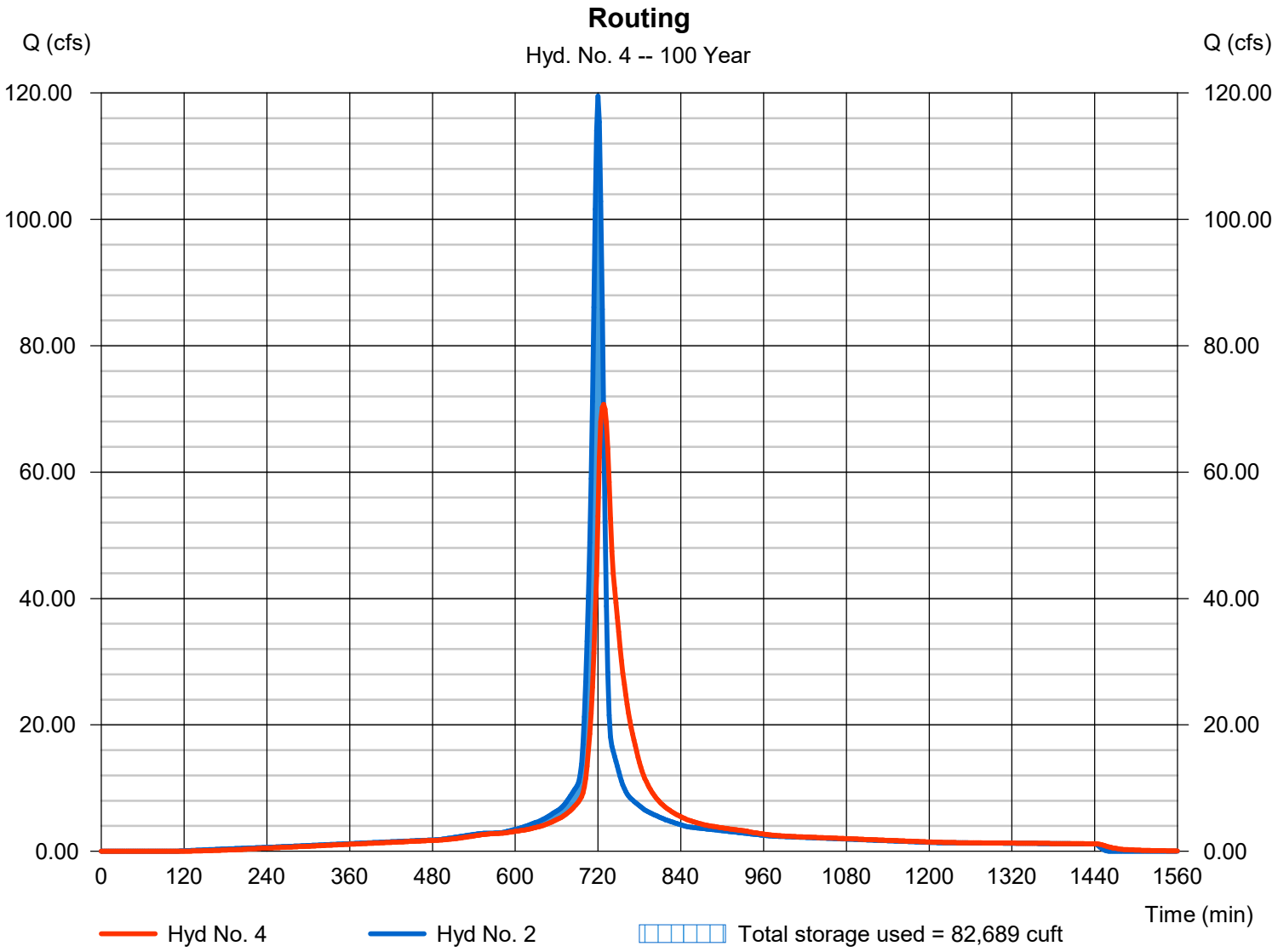
Hydrograph Report

Hyd. No. 4

Routing

Hydrograph type	=	Reservoir	Peak discharge	=	70.73 cfs
Storm frequency	=	100 yrs	Time to peak	=	728 min
Time interval	=	2 min	Hyd. volume	=	343,120 cuft
Inflow hyd. No.	=	2 - PR to Basin	Max. Elevation	=	583.43 ft
Reservoir name	=	Basin	Max. Storage	=	82,689 cuft

Storage Indication method used. Wet pond routing start elevation = 579.50 ft.

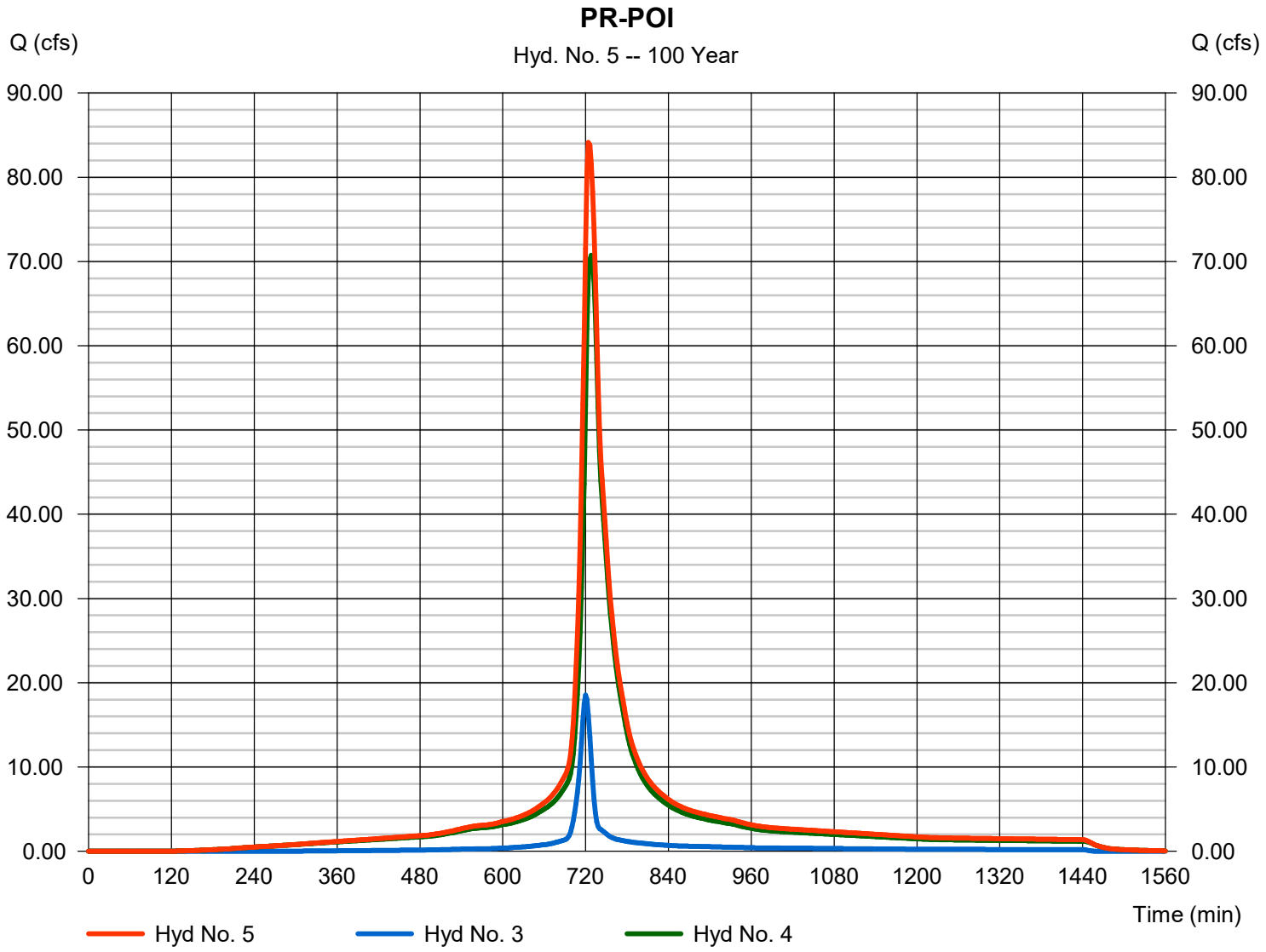


Hydrograph Report

Hyd. No. 5

PR-POI

Hydrograph type	= Combine	Peak discharge	= 84.13 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 392,603 cuft
Inflow hyds.	= 3, 4	Contrib. drain. area	= 2.480 ac



G. Appendix

A. Web Soil Survey

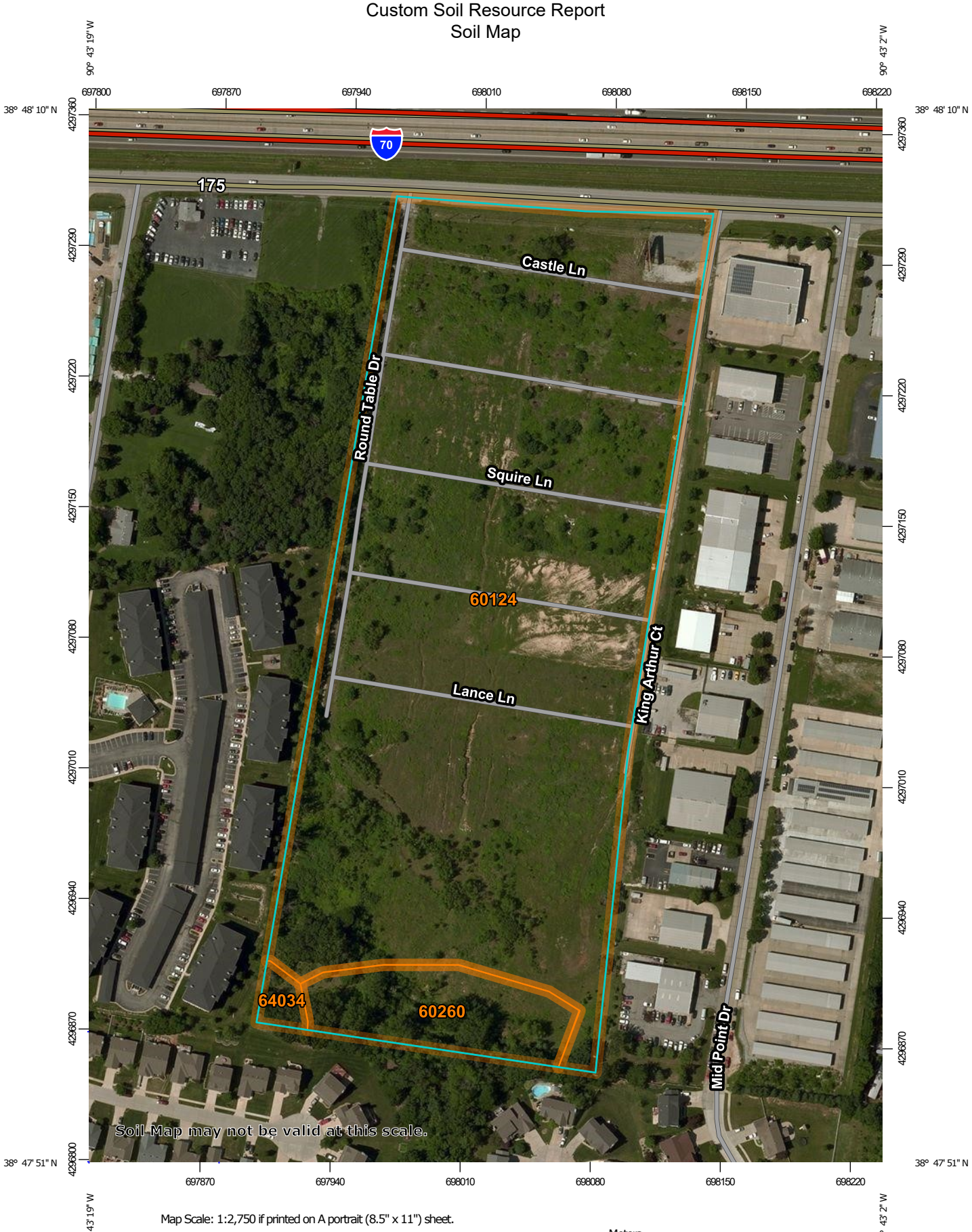
B. BMP Drainage Area Map

C. Existing Drainage Area Map

D. Proposed Drainage area Map

E. Details

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,750 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: St. Charles County, Missouri
Survey Area Data: Version 18, Sep 14, 2018

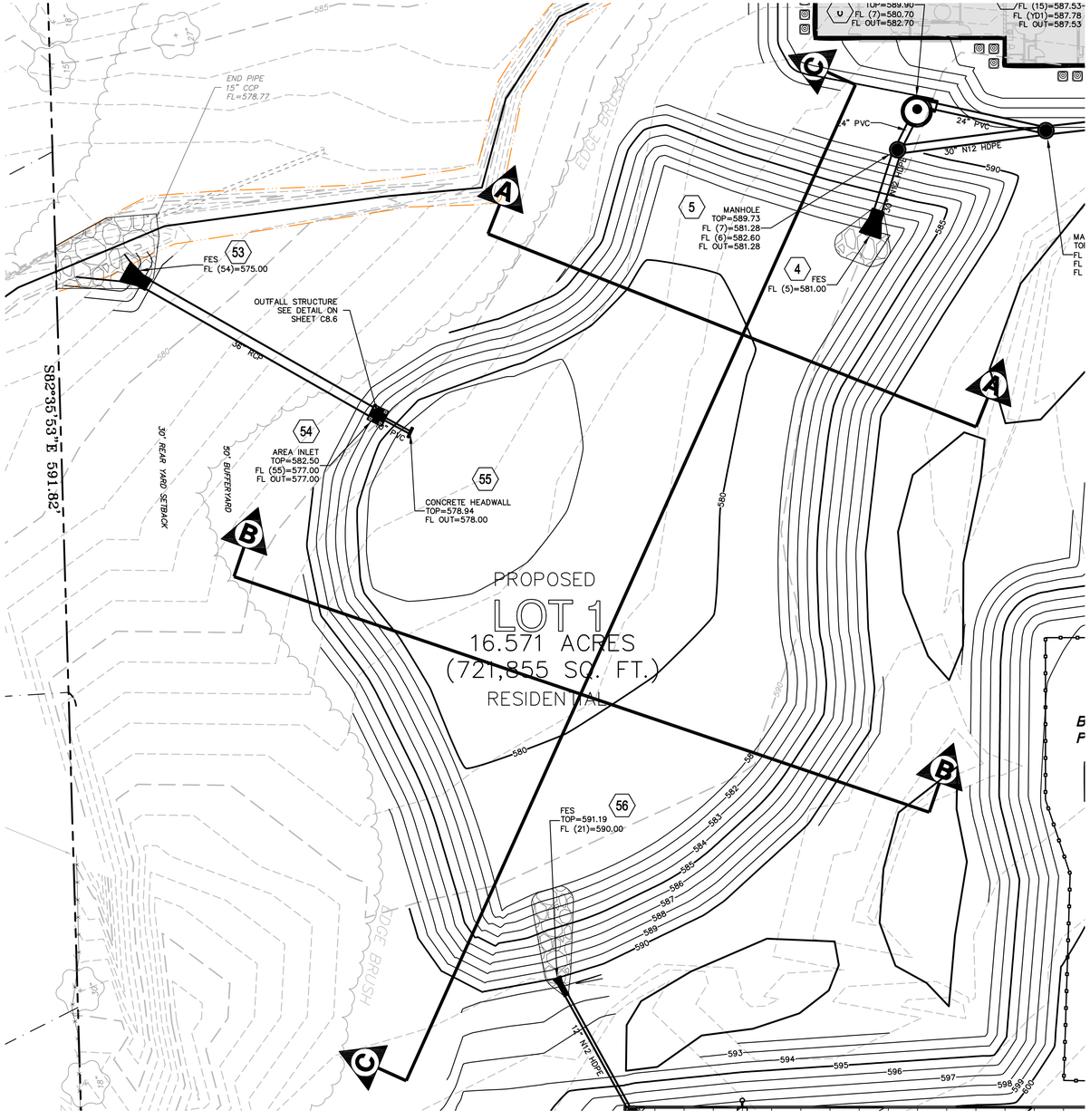
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2014—Jun 25, 2014

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.

Map Unit Legend

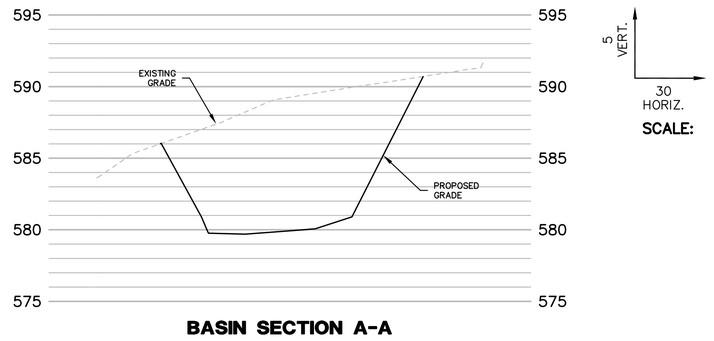
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60124	Harvester-Urban land complex, 2 to 9 percent slopes	18.1	91.9%
60260	Weller silt loam, 5 to 9 percent slopes	1.4	7.3%
64034	Weller silt loam, terraces, 0 to 2 percent slopes	0.2	0.9%
Totals for Area of Interest		**19.7**	**100.0%**



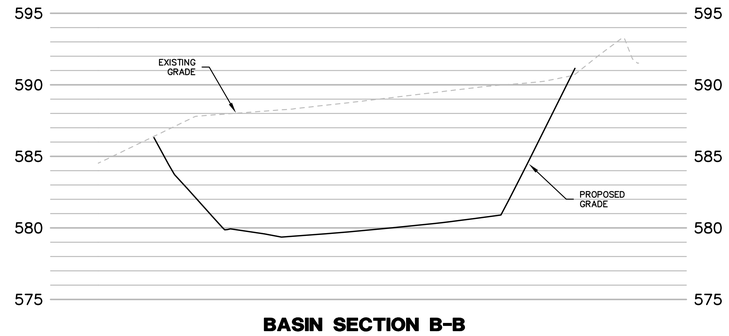
GRAPHIC SCALE

20 0 10 20 40 80

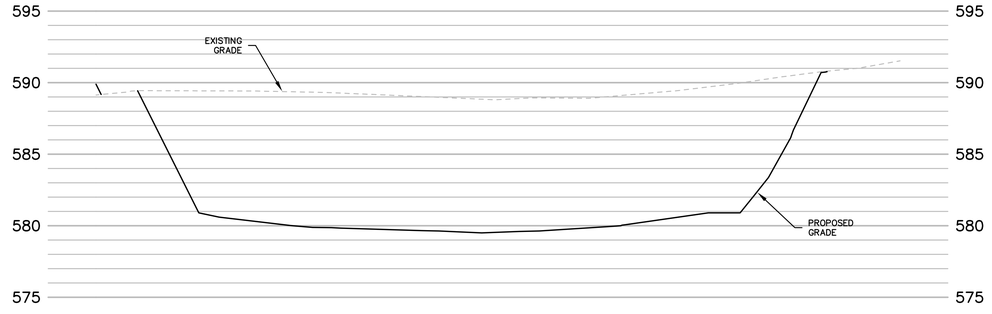
(IN FEET)
1 inch = 20 ft.



BASIN SECTION A-A



BASIN SECTION B-B



BASIN SECTION C-C

City of O'Fallon Standard Notes and Details – Nov. 2017

NO.	DESCRIPTION	DATE
1	REV 1	7-24-2019
2		
3		

PROJECT TITLE
THE JEWEL
15 CASTLE LANE
O'FALLON, MO 63366

GRIMES CONSULTING, INC.
Civil Engineering & Surveying Services
12300 OLD TESSON ROAD
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www.grimesconsulting.com
GRIMES CONSULTING, INC.
PROFESSIONAL ENGINEER CORPORATION, E-1470-D
PROFESSIONAL LAND SURVEYING CORPORATION, LS-343-D

STATE OF MISSOURI
LEONARD J. MEERS
NUMBER E-28288
REGISTERED PROFESSIONAL ENGINEER
8/5/19
LEONARD J. MEERS
PROFESSIONAL ENGINEER
E-28288

Developer / Owner Information
VITA Residential
CONTACT: Steve Sisson
3333 Aspen Grove Dr
Franklin, TN 37067
Email: steve@vitapmg.com

BASIN DETAIL

P+Z No. 19-001400
Approval Date: 6/6/2019
City No.

Page No.
C8.7

15 YEAR STORM

STRUCTURE NUMBER	GRASS AREA (ACRES)	P.I. FACTOR (GRASS)	GRAVEL AREA (ACRES)	P.I. FACTOR (PCP)	PAVT. AREA (ACRES)	P.I. FACTOR (PVMT)	DISCONNECTED ROOF AREA (ACRES)	P.I. FACTOR	TOTAL AREA (ACRES)	TOTAL Q (CFS)
3	0.00	1.70	0.00	3.15	0.00	3.54	0.00	3.54	0.00	0.00
11	0.10	1.70	0.00	3.15	0.54	3.54	0.07	3.54	0.71	2.33
14	0.17	1.70	0.00	3.15	0.16	3.54	0.15	3.54	0.48	1.39
15	0.01	1.70	0.00	3.15	0.15	3.54	0.00	3.54	0.16	0.55
16	0.00	1.70	0.00	3.15	0.01	3.54	0.00	3.54	0.01	0.04
18	0.07	1.70	0.00	3.15	0.10	3.54	0.11	3.54	0.28	0.86
19	0.05	1.70	0.00	3.15	0.13	3.54	0.07	3.54	0.25	0.79
20	0.04	1.70	0.00	3.15	0.24	3.54	0.06	3.54	0.34	1.13
21	0.00	1.70	0.00	3.15	0.25	3.54	0.05	3.54	0.30	1.06
22	0.13	1.70	0.00	3.15	0.37	3.54	0.04	3.54	0.54	1.67
23	0.09	1.70	0.00	3.15	0.09	3.54	0.08	3.54	0.26	0.75
24	0.12	1.70	0.00	3.15	0.10	3.54	0.09	3.54	0.31	0.88
25	0.00	1.70	0.00	3.15	0.13	3.54	0.00	3.54	0.13	0.46
26	0.14	1.70	0.00	3.15	0.14	3.54	0.09	3.54	0.37	1.05
27	0.15	1.70	0.00	3.15	0.16	3.54	0.13	3.54	0.44	1.28
28	0.08	1.70	0.00	3.15	0.10	3.54	0.07	3.54	0.25	0.74
29	0.02	1.70	0.00	3.15	0.17	3.54	0.02	3.54	0.21	0.71
30	0.08	1.70	0.00	3.15	0.08	3.54	0.07	3.54	0.23	0.67
31	0.15	1.70	0.00	3.15	0.14	3.54	0.12	3.54	0.41	1.18
32	0.08	1.70	0.00	3.15	0.06	3.54	0.07	3.54	0.21	0.60
33	0.00	1.70	0.00	3.15	0.12	3.54	0.00	3.54	0.12	0.42
34	0.11	1.70	0.00	3.15	0.10	3.54	0.07	3.54	0.28	0.79
35	0.18	1.70	0.00	3.15	0.18	3.54	0.17	3.54	0.53	1.55
36	0.10	1.70	0.00	3.15	0.09	3.54	0.08	3.54	0.27	0.77
37	0.12	1.70	0.00	3.15	0.21	3.54	0.06	3.54	0.39	1.16
38	0.11	1.70	0.00	3.15	0.11	3.54	0.06	3.54	0.28	0.79
39	0.09	1.70	0.00	3.15	0.14	3.54	0.06	3.54	0.29	0.86
40	0.05	1.70	0.00	3.15	0.05	3.54	0.03	3.54	0.13	0.37
41	0.09	1.70	0.00	3.15	0.23	3.54	0.00	3.54	0.32	0.97
42	0.03	1.70	0.00	3.15	0.18	3.54	0.05	3.54	0.26	0.87
43	0.10	1.70	0.00	3.15	0.10	3.54	0.10	3.54	0.30	0.88
44	0.16	1.70	0.00	3.15	0.25	3.54	0.12	3.54	0.53	1.58
45	0.10	1.70	0.00	3.15	0.09	3.54	0.08	3.54	0.27	0.77
46	0.04	1.70	0.00	3.15	0.06	3.54	0.05	3.54	0.15	0.46
47	0.67	1.70	0.00	3.15	0.04	3.54	0.05	3.54	0.76	1.46
48	0.07	1.70	0.00	3.15	0.10	3.54	0.10	3.54	0.27	0.83
49	0.05	1.70	0.00	3.15	0.03	3.54	0.05	3.54	0.13	0.37
51	0.07	1.70	0.00	3.15	0.09	3.54	0.10	3.54	0.26	0.79
52	0.06	1.70	0.00	3.15	0.03	3.54	0.04	3.54	0.13	0.35
54	1.77	1.70	0.00	3.15	0.00	3.54	0.02	3.54	1.79	3.08

100 YEAR STORM

STRUCTURE NUMBER	GRASS AREA (ACRES)	P.I. FACTOR (GRASS)	GRAVEL AREA (ACRES)	P.I. FACTOR (PCP)	PAVT. AREA (ACRES)	P.I. FACTOR (PVMT)	DISCONNECTED ROOF AREA (ACRES)	P.I. FACTOR	TOTAL AREA (ACRES)	TOTAL Q (CFS)
3	0.00	2.29	0.00	4.25	0.00	4.77	0.00	5.66	0.00	0.00
11	0.10	2.29	0.00	4.25	0.54	4.77	0.07	5.66	0.71	3.20
14	0.17	2.29	0.00	4.25	0.16	4.77	0.15	5.66	0.48	2.00
15	0.01	2.29	0.00	4.25	0.15	4.77	0.00	5.66	0.16	0.74
16	0.00	2.29	0.00	4.25	0.01	4.77	0.00	5.66	0.01	0.05
18	0.07	2.29	0.00	4.25	0.10	4.77	0.11	5.66	0.28	1.26
19	0.05	2.29	0.00	4.25	0.13	4.77	0.07	5.66	0.25	1.13
20	0.04	2.29	0.00	4.25	0.24	4.77	0.06	5.66	0.34	1.58
21	0.00	2.29	0.00	4.25	0.25	4.77	0.05	5.66	0.30	1.48
22	0.13	2.29	0.00	4.25	0.37	4.77	0.04	5.66	0.54	2.29
23	0.09	2.29	0.00	4.25	0.09	4.77	0.08	5.66	0.26	1.09
24	0.12	2.29	0.00	4.25	0.10	4.77	0.09	5.66	0.31	1.26
25	0.00	2.29	0.00	4.25	0.13	4.77	0.00	5.66	0.13	0.62
26	0.14	2.29	0.00	4.25	0.14	4.77	0.09	5.66	0.37	1.50
27	0.15	2.29	0.00	4.25	0.16	4.77	0.13	5.66	0.44	1.84
28	0.08	2.29	0.00	4.25	0.10	4.77	0.07	5.66	0.25	1.06
29	0.02	2.29	0.00	4.25	0.17	4.77	0.02	5.66	0.21	0.97
30	0.08	2.29	0.00	4.25	0.08	4.77	0.07	5.66	0.23	0.96
31	0.15	2.29	0.00	4.25	0.14	4.77	0.12	5.66	0.41	1.69
32	0.08	2.29	0.00	4.25	0.06	4.77	0.07	5.66	0.21	0.87
33	0.00	2.29	0.00	4.25	0.12	4.77	0.00	5.66	0.12	0.57
34	0.11	2.29	0.00	4.25	0.10	4.77	0.07	5.66	0.28	1.13
35	0.18	2.29	0.00	4.25	0.18	4.77	0.17	5.66	0.53	2.23
36	0.10	2.29	0.00	4.25	0.09	4.77	0.08	5.66	0.27	1.11
37	0.12	2.29	0.00	4.25	0.21	4.77	0.06	5.66	0.39	1.62
38	0.11	2.29	0.00	4.25	0.11	4.77	0.06	5.66	0.28	1.12
39	0.09	2.29	0.00	4.25	0.14	4.77	0.06	5.66	0.29	1.21
40	0.05	2.29	0.00	4.25	0.05	4.77	0.03	5.66	0.13	0.52
41	0.09	2.29	0.00	4.25	0.23	4.77	0.00	5.66	0.32	1.30
42	0.03	2.29	0.00	4.25	0.18	4.77	0.05	5.66	0.26	1.21
43	0.10	2.29	0.00	4.25	0.10	4.77	0.10	5.66	0.30	1.27
44	0.16	2.29	0.00	4.25	0.25	4.77	0.12	5.66	0.53	2.24
45	0.10	2.29	0.00	4.25	0.09	4.77	0.08	5.66	0.27	1.11
46	0.04	2.29	0.00	4.25	0.06	4.77	0.05	5.66	0.15	0.66
47	0.67	2.29	0.00	4.25	0.04	4.77	0.05	5.66	0.76	2.01
48	0.07	2.29	0.00	4.25	0.10	4.77	0.10	5.66	0.27	1.20
49	0.05	2.29	0.00	4.25	0.03	4.77	0.05	5.66	0.13	0.54
51	0.07	2.29	0.00	4.25	0.09	4.77	0.10	5.66	0.26	1.16
52	0.06	2.29	0.00	4.25	0.03	4.77	0.04	5.66	0.13	0.51

GRAPHIC SCALE

50 0 25 50 100 200

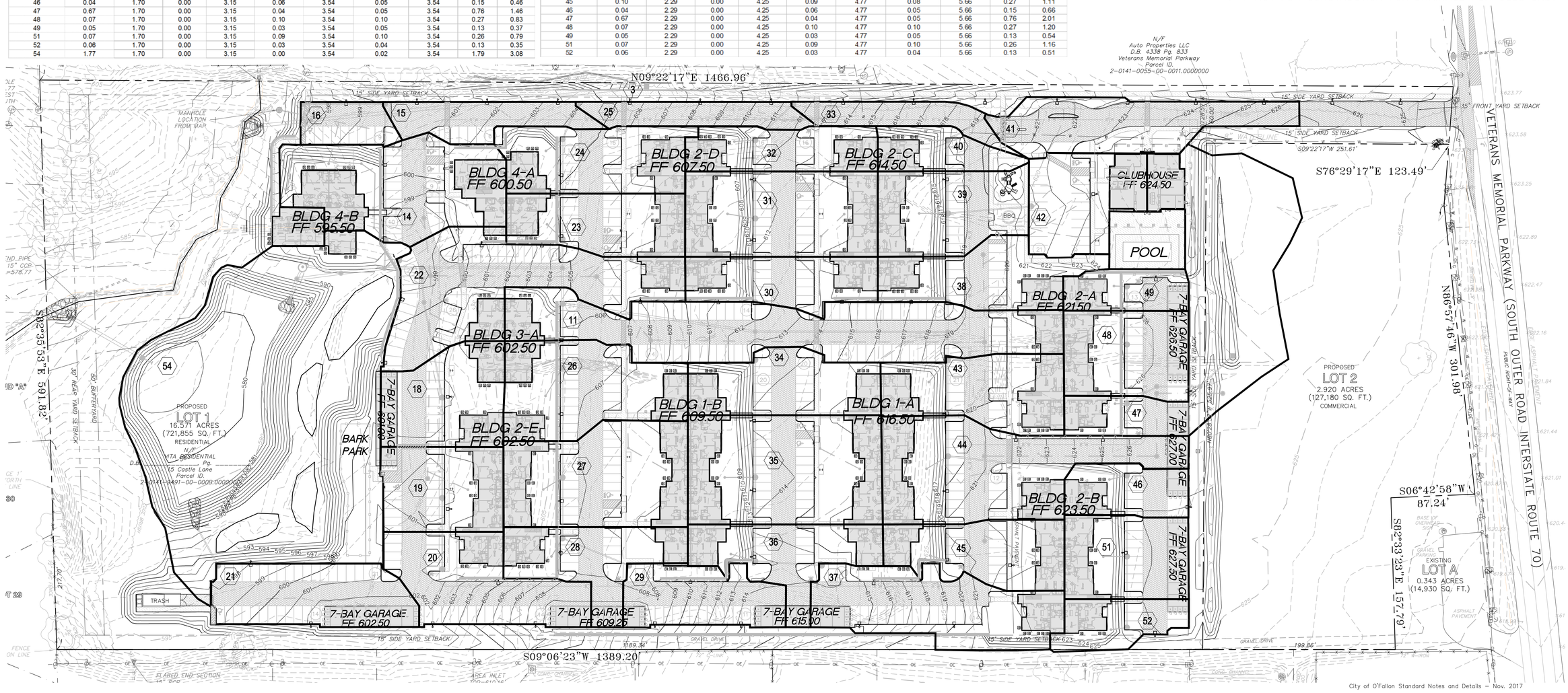
(IN FEET)
1 inch = 50 ft.

DIFFERENTIAL CALCS(LOT 1)

PROPOSED	ACRES	PI FACTOR	Q (CFS)	EXISTING	ACRES	PI FACTOR	Q (CFS)
Roof	2.79	4.20	11.72		0.00	4.20	0.00
Roof (disconnected)	0.00	3.54	0.00		0.00	3.54	0.00
Pavement	5.21	3.54	18.44		0.05	3.54	0.18
Pervious Pavement	0.00	1.70	0.00		0.00	1.70	0.00
Grass	8.57	1.70	14.57		16.52	1.70	28.08
Total Q (cfs)			44.73				28.26
total Area	16.57				16.57		
Impervious Area	8.00	CN=98			0.05	CN=98	
Pervious Area	8.57	CN=80			16.52	CN=80	
Differential Runoff		89		16.47		80	

Note: Runoff Reduction Is Not Accounted For In CN Calc

NOTE: NOT FOR CONSTRUCTION FOR DRAINAGE PURPOSES ONLY



City of O'Fallon Standard Notes and Details – Nov. 2017

NO.	DESCRIPTION	DATE
1	REV. 1	7-24-2019
2		
3		

PROJECT TITLE
THE JEWEL
15 CASTLE LANE
O'FALLON, MO 63366

GRIMES CONSULTING, INC.
Civil Engineering & Surveying Services
12300 OLD TESSON ROAD
SUITE 3050
SAINT LOUIS, MO 63128
PH. (314) 849-6100
FAX: (314) 849-6010
www.grimesconsulting.com
GRIMES CONSULTING, INC.
PROFESSIONAL ENGINEER CORPORATION, E-1470-D
PROFESSIONAL LAND SURVEYING CORPORATION, LS-343-D

STATE OF MISSOURI
LEONARD J. MEERS
NUMBER E-28288
REGISTERED PROFESSIONAL ENGINEER
8/5/19
LEONARD J. MEERS
PROFESSIONAL ENGINEER
E-28288

Developer / Owner Information
VITA Residential
CONTACT: Steve Sisson
3333 Aspen Grove Dr
Franklin, TN 37067
Email: steve@vitapmg.com

DRAINAGE AREA MAP

P+Z No. 19-001400
Approval Date: 6/6/2019
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Page No.
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NATURAL RESOURCE DATA

NATURAL RESOURCES	PRESENCE?	ADDITIONAL INFORMATION
WETLANDS	YES	WETLANDS FOUND ON SOUTH SIDE OF SITE
STREAM AND FLOODPLAIN	NO	NONE FOUND ONSITE
KARST	NO	NONE IDENTIFIED DURING SITE INVESTIGATION
PONDS	YES	PROPOSED LAKE FOR OVERALL DEVELOPMENT
HYDROLOGIC SOIL GROUP	GROUP D	PER NRCS WSS

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N/F
Savannah Ridge Apartment Homes, Inc.
D.B. 4833 Pg. 1354
1 Savannah Garden Drive
Parcel ID.
2-0141-0055-00-0013.0000000

N/F
Auto Properties LLC
D.B. 4338 Pg. 833
Veterans Memorial Parkway
Parcel ID.
2-0141-0055-00-0011.0000000

PROPOSED
LOT 1
16.571 ACRES
(721,855 SQ. FT.)
RESIDENTIAL

PROPOSED
LOT 2
2.920 ACRES
(127,180 SQ. FT.)
COMMERCIAL

EXISTING
LOT A
0.343 ACRES
(14,930 SQ. FT.)

N/F
VITA RESIDENTIAL
Pg.
15 Castle Lane
Parcel ID.
2-0141-9491-00-000B.0000000

LOT 144 · LOT 143 · LOT 142 · LOT 141 · LOT 30 · LOT 29 · LOT 28 · LOT 19

LOT 10A · LOT 10B · LOT 11 · LOT 12 · LOT 13 · LOT 14 · LOT 15A · LOT 19 · LOT 18 · PARCEL A

PLAT BOOK 32, PAGE 251
MIDPOINT INDUSTRIAL PARK
RESUBDIVISION OF LOT 10 OF

PLAT BOOK 32, PAGE 124 & 125
MIDPOINT INDUSTRIAL PARK

PLAT BOOK 32, PAGE 251
MIDPOINT INDUSTRIAL PARK
LOTS 15 & 16 OF

PLAT BOOK 32, PAGE 124 & 125
MIDPOINT INDUSTRIAL PARK

VETERANS MEMORIAL PARKWAY (SOUTH OUTER ROAD INTERSTATE HWY)
PUBLIC RIGHT-OF-WAY

15' SIDE YARD SETBACK · 30' REAR YARD SETBACK · 50' BUFFERYARD · 35' FRONT YARD SETBACK

50' STREAM BUILDING SETBACK
25' STREAM SETBACK EACH SIDE OF STREAM DO NOT DISTURB
LIMITS OF DISTURBANCE
PROPOSED POND
EXISTING WETLANDS
EDGE BRUSH
8" WATERLINE
GRAVEL DRIVE
ASPHALT PAVEMENT
ASPHALT DRIVE
FLARED END SECTION 36" RCP FL=594.16
MANHOLE TOP=602.02 FL=590.58
FLARED END SECTION 36" RCP FL=602.73
MANHOLE TOP=611.17 FL=602.07
MANHOLE TOP=601.77 L=594.47 WEST =586.57 SOUTH
MANHOLE LOCATION FROM MAP
END PIPE 15" CCP FL=578.77
FLARED END SECTION 15" RCP FL=594.85
AREA INLET TOP=610.16' SILL=609.20' FL=606.85 4" PVC PIPE
OUTFALL STRUCTURE TOP=618.90' FL=615.59' 4" PIPE FL=615.55' 12" PIPE
FENCE 1' NORTH OF LINE
FENCE ON LINE
BASE OF OVERHEAD SIGN
ON GROUND "A"

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(IN FEET)
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