

Drainage Report

FOR

Lot 35 Pinnacle Peak Heights Unit 5

10040 East Foothills Drive Scottsdale, AZ 85255

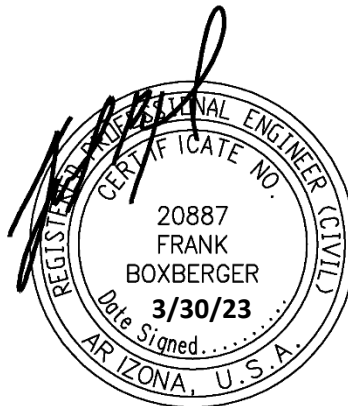
Parcel Number: 217-07-202

Plan Check Number: 3200-22



8707 E. Vista Bonita Drive #145

Scottsdale, AZ 85255



Revision Date: 3/30/2023

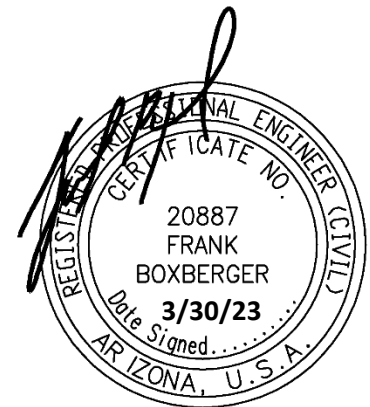
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Exhibits:

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Exhibit	"6"-	Catch Basin Calculations
Exhibit	"7"-	Stormwater Studio
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1.0 Introduction and General Information

1.1 Introduction

This report has been prepared in support of a proposed residential structure to be located at 10040 East Foothills Drive in Scottsdale Arizona, also known as Parcel APN# 217-07-202. The location of the site is shown on the See Vicinity Map Exhibit: 1 and Parcel Map Exhibit: 2. The project includes the construction of a primary residence. The structure has been oriented and placed on the natural raised landform to reduce the effects of the site footprint on the adjacent drainage ways. Details of the construction area are shown on the Grading and Drainage Plans attached.

This property is located southeast of the intersection of Pinnacle Peak Road and Church Road. The general slope of the land in the area is approximately 2% to 5%, and drains from the north to the south, as shown on the Grading Plan.

As indicated on the Aerial Map and Parcel Map the site is bordered on its north, east and west by developed lots, and on its south by Foothills Drive. The proposed structures as designed and presented have no negative impacts on the adjoining lands, parcels or Rights of Way.

1.2 Description of Property

Currently, the site is vacant and has never been developed previously, as shown on Aerial Map, Exhibit: 3. The purpose of the report is to confirm the designed finished floor elevation will be free from inundation in the 100-year return interval storm.

1.3 Flood Zone Information

As shown, the site is located on Flood Insurance Rate Map Number 04013C1330L, dated effective on October 16, 2013, and indicates the site lies within zone "AO". FEMA defines this zone as "Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements and floodplain management standards apply." The flood depth for this area is 2 feet.

2.0 Methodology and Criteria

2.1 Compliance with Regulations and Adopted Plans

The Policies Manual and Drainage Design Manuals from the City of Scottsdale and Maricopa County Volume I have been used as design guidelines and requirements. This project is located within the City of Scottsdale and as designed meets the requirements for the approved zoning.

2.2 Hydrologic Analysis

The hydrologic methodologies used in this study are in accordance with approved procedures outlined.

The existing on site drainage consists of three washes entering this site. We have used the FLO-2D 100YR24HR Regulatory Study to estimate peak flows. Peak Flows include $Q_{AA} = 150$ cfs, $Q_{BB} = 1232$ cfs, and $Q_{CC} = 4$ cfs, which have been used to determine inundation limits for the site. See FLO-2D Exhibit.

The wash that transports 1232 cfs has an existing drainage easement per book 234 of Maps, page 45 M.C.R. See Grading Plan.

2.3 Drainage Management Plan

All offsite flows will be managed across this site along with onsite drainage.

The 150 cfs wash enters at the northwestern end of the property (flowing south). This wash will remain within its historical and predevelopment state and will not be altered within this project. The wash will exit this property through the existing 36" and 42" pipes under Foothills Drive.

The 1232 cfs wash enters at the northern end of the property (flowing south) and will flow to the west side of the proposed structures. This wash will run to the west of the proposed structures through a proposed channel. This wash will be released downstream at its historical location and will exit this property through the existing 36" and 42" pipes under Foothills Drive.

The 4 cfs wash enters this property from the north, historically flowing south. This flow will be captured by two 36" diameter catch basins (See Grading Plan Construction Note 6), will be transported through an 18" HDPE culvert (See Grading Plan Construction Note 5), and released downstream at its historical outfall location. See Grading Plan and Stormwater Studio Calculations.

The supercritical flows within the proposed channel are high and above 8 feet per second, which may create additional erosion effects. The proposed erosion control drop structures (See grading plan, construction note 19) will prevent upstream and downstream erosion, and allow the channel to be stable and maintain the design slope without creating upstream or downstream adverse erosion. These proposed drop structures will be constructed every 30 feet plus/minus, where the velocities may be higher than 8 feet per second.

3.0 Hydraulics

3.1 Catch Basin Calculations

As shown within the Catch Basin Calculations exhibit, we have calculated that the proposed 36" catch basin will capture 13.4 cfs with a 50% clogging factor. There are two main catch basins at the upstream end of the system that will be capturing stormwater, which shall be able to capture up to 26.8 cfs. The incoming flow to these catch basins is 4 cfs, therefore these catch basins will be adequate for this design. See Catch Basin Calculations and Grading Plan. These proposed catch basins are in a sump condition.

3.2 Stormwater Studio Hydraulics

We have used the Stormwater Studio program to verify that the proposed 18" HDPE will adequately transport the incoming 4 cfs. As shown within this exhibit, this system will be designed to transport all flow downstream. See Stormwater Studio Exhibit.

3.3 HEC-RAS Analysis

We have conducted a HEC-RAS Pre vs. Post study to verify that the downstream High Water Surface Elevation (HWSE) will remain relatively constant. The native soil in this area is highly compacted decomposed granite, with compacted earth and a high percentage of jagged natural rocks with 4" to 8" diameter. Therefore, the N value to be used for these calculations shall be 0.032.

As shown within these exhibits, the new channel will not adversely impact upstream, downstream, or adjacent properties in the post development conditions vs predevelopment conditions. See HEC-RAS Pre vs. Post Exhibit and Summary Table. HEC-RAS over the existing road subtracts the Q of 185 cfs being transported under foothills drive.

3.4 Culvert Studio Analysis

We have used the Culvert Studio program to model both the existing 36" and 42" CMP culverts under the existing road of Foothills Drive in the City of Scottsdale Right-Of-Way. These two existing CMP culverts will not transport the entirety of the combined exit flow of 1382 cfs (1282 cfs + 150 cfs). We have calculated that these two existing culverts will at most transport 185 cfs. The rest of the 100-year peak stormwater event will overtop Foothills Drive. The HWSE of River Station 998 is 2074.03', which is almost 12' lower than the proposed finished floor of 2086.00'. The finished floor will not be impacted by these conditions and has over 12' of freeboard above the roadway wet crossing of Foothills Drive.

3.5 Finished Floor Calculations

As shown within the HEC-RAS Post Development Exhibit, the HWSE of this project is 2082.88' (at River Station 1009). The finished floor is set to be at 2086.00', therefore we will comply with the code minimum of 12" of freeboard above this HWSE. See Grading Plan.

Additionally, since this property falls within an AO flood zone with a 2' flow depth, this finished floor must be 3' above the Highest Adjacent Grade (HAG). The HAG of this project is 2083.0'. The finished floor is at an elevation of 2086.00', therefore we are compliant with this requirement. All mechanical equipment has also been set at an elevation of 2086.00'.

The garage which is 1,250 square feet and has a face of garage at elevation 2085.50' shall be wet floodproofed in conformance with FEMA requirements, and will have 7 FEMA Smart Vents (Model 1540-570) installed per required 1 vent per 200 square feet minimum. See Grading Plan. These smart vents have an effective flow opening of 123 square inches (14.5"w × 8.5"h) each.

Scour and Lateral Erosion Control Setback

LATERAL MIGRATION (EROSION) SETBACK

Per ADWR SSA 5-96, Guideline 1; the Erosion Setback (ESB) for straight reaches is:

$$ESB = 1.0 (Q_{100})^{0.5}$$

Max cfs = 1232 cfs

Estimated at Peak flow; $Q_{100} = 1232$ cfs; **ESB = 35.1 ft. (Use 36')**

This ESB will be used for the 1232 cfs wash to determine areas of erosion and to adequately set top of footings for walls within this ESB.

CHANNEL DEGRADATION (SCOUR DEPTH)

Per ADWR SSA 5-96, Guideline 2; the Scour Depth (Ds) for straight reaches is:

$$Ds = 0.157(Q_{100}^{0.4}) + 0.02(Q_{100}^{0.6})$$

Max cfs = 1232 cfs

$Q_{100} = 1232$ cfs; **Ds= 4.13' (Use 5')**

All walls within the erosion setback will have their top of footings set 5' below the flowline. See Grading Plan.

4.0 Conclusions

As detailed in this study, the proposed structures will not adversely affect either upstream or downstream areas of the location. All offsite runoffs will enter and exit the site in the same manner and location as in pre-development, thereby preserving the natural historic outflow patterns. The channels as discussed within the report have more than adequate capacity to effectively transport stormwater downstream for the 100 year event.

5.0 References

1. City of Scottsdale Design Standards & Policies Manual, 2018
2. Drainage Design Manual for Maricopa County, 2018
3. Uniform Standard Details for Public Works Construction, Maricopa Association of Governments, 2018
4. Google Earth Imaging
5. FEMA: Federal Emergency Management Agency, Floodplain Mapping
6. Maricopa County FLO-2D Pinnacle Peak South 100YR24HR Study



APPENDIX

EXHIBIT 1: VICINITY MAP

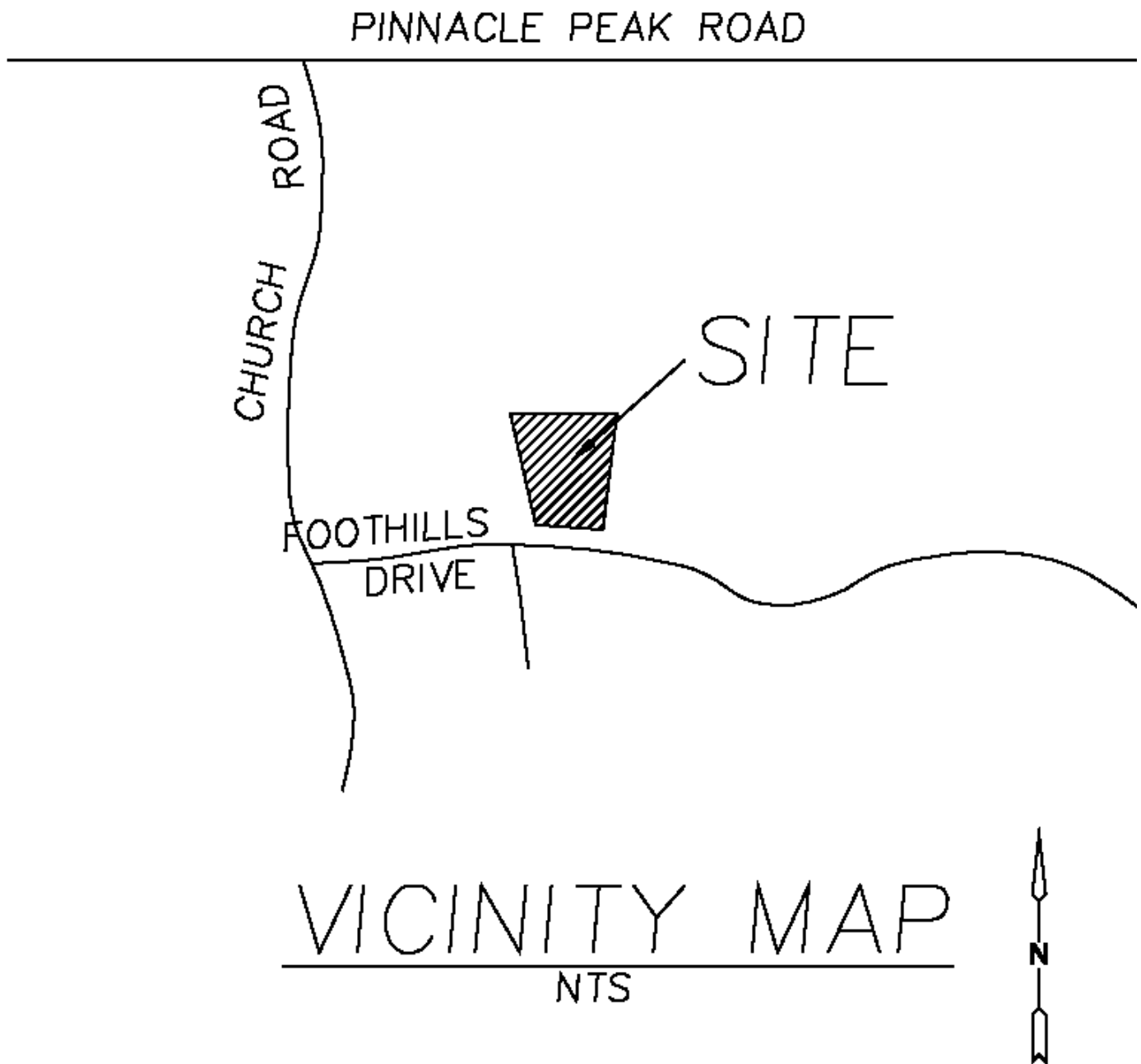


EXHIBIT 2: PARCEL MAP

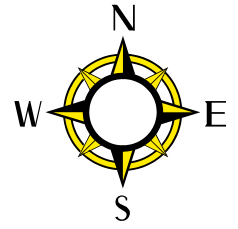


EXHIBIT 3: Aerial Map

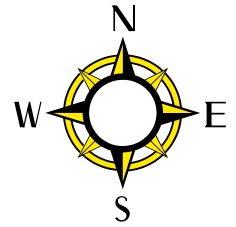


Exhibit 4: Precipitation Frequency



NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.6904°, Longitude: -111.8638°
Elevation: 2081.04 ft**
* source: ESRI Maps
** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.221 (0.184-0.272)	0.289 (0.241-0.355)	0.389 (0.321-0.476)	0.465 (0.382-0.567)	0.565 (0.458-0.687)	0.641 (0.513-0.774)	0.717 (0.564-0.865)	0.793 (0.615-0.956)	0.895 (0.677-1.08)	0.973 (0.721-1.18)
10-min	0.336 (0.280-0.413)	0.440 (0.367-0.540)	0.592 (0.489-0.725)	0.707 (0.581-0.863)	0.860 (0.696-1.05)	0.975 (0.780-1.18)	1.09 (0.859-1.32)	1.21 (0.936-1.46)	1.36 (1.03-1.64)	1.48 (1.10-1.79)
15-min	0.417 (0.347-0.512)	0.545 (0.456-0.670)	0.734 (0.607-0.899)	0.876 (0.720-1.07)	1.07 (0.863-1.30)	1.21 (0.967-1.46)	1.35 (1.07-1.63)	1.50 (1.16-1.80)	1.69 (1.28-2.04)	1.84 (1.36-2.22)
30-min	0.561 (0.467-0.690)	0.734 (0.613-0.902)	0.988 (0.817-1.21)	1.18 (0.970-1.44)	1.44 (1.16-1.75)	1.63 (1.30-1.97)	1.82 (1.43-2.20)	2.02 (1.56-2.43)	2.27 (1.72-2.74)	2.47 (1.83-3.00)
60-min	0.695 (0.578-0.854)	0.908 (0.759-1.12)	1.22 (1.01-1.50)	1.46 (1.20-1.78)	1.78 (1.44-2.16)	2.02 (1.61-2.44)	2.26 (1.77-2.72)	2.50 (1.93-3.01)	2.81 (2.13-3.40)	3.06 (2.27-3.71)
2-hr	0.804 (0.677-0.967)	1.04 (0.877-1.26)	1.38 (1.16-1.66)	1.64 (1.36-1.97)	1.99 (1.64-2.38)	2.26 (1.83-2.69)	2.53 (2.02-3.01)	2.80 (2.20-3.32)	3.16 (2.43-3.75)	3.44 (2.59-4.11)
3-hr	0.868 (0.729-1.06)	1.11 (0.938-1.36)	1.45 (1.22-1.77)	1.72 (1.43-2.09)	2.09 (1.71-2.53)	2.38 (1.93-2.87)	2.69 (2.13-3.24)	3.01 (2.35-3.61)	3.44 (2.61-4.12)	3.79 (2.81-4.55)
6-hr	1.04 (0.896-1.23)	1.32 (1.13-1.56)	1.67 (1.43-1.98)	1.96 (1.66-2.30)	2.35 (1.97-2.75)	2.65 (2.19-3.09)	2.97 (2.41-3.45)	3.29 (2.62-3.83)	3.71 (2.89-4.32)	4.04 (3.08-4.72)
12-hr	1.23 (1.06-1.44)	1.55 (1.34-1.81)	1.95 (1.68-2.27)	2.26 (1.94-2.63)	2.69 (2.28-3.13)	3.02 (2.53-3.50)	3.36 (2.77-3.89)	3.70 (3.02-4.28)	4.15 (3.30-4.82)	4.49 (3.51-5.25)
24-hr	1.47 (1.29-1.69)	1.87 (1.65-2.16)	2.43 (2.13-2.80)	2.88 (2.52-3.32)	3.52 (3.04-4.04)	4.03 (3.44-4.62)	4.56 (3.86-5.26)	5.12 (4.28-5.92)	5.92 (4.84-6.88)	6.55 (5.27-7.68)
2-day	1.65 (1.44-1.90)	2.11 (1.85-2.43)	2.79 (2.43-3.20)	3.34 (2.90-3.81)	4.10 (3.53-4.69)	4.72 (4.02-5.41)	5.38 (4.54-6.18)	6.07 (5.06-7.02)	7.05 (5.77-8.21)	7.84 (6.31-9.20)
3-day	1.78 (1.56-2.04)	2.28 (2.00-2.61)	3.03 (2.66-3.46)	3.65 (3.18-4.15)	4.52 (3.91-5.15)	5.23 (4.48-5.97)	6.00 (5.08-6.87)	6.81 (5.70-7.85)	7.97 (6.55-9.25)	8.93 (7.22-10.4)
4-day	1.90 (1.68-2.18)	2.45 (2.16-2.80)	3.28 (2.88-3.73)	3.96 (3.46-4.49)	4.94 (4.28-5.61)	5.74 (4.94-6.53)	6.62 (5.63-7.55)	7.55 (6.34-8.67)	8.90 (7.33-10.3)	10.0 (8.12-11.7)
7-day	2.19 (1.91-2.51)	2.81 (2.46-3.22)	3.77 (3.29-4.32)	4.56 (3.96-5.22)	5.71 (4.91-6.52)	6.65 (5.67-7.62)	7.68 (6.47-8.82)	8.79 (7.32-10.2)	10.4 (8.49-12.1)	11.7 (9.41-13.8)
10-day	2.39 (2.10-2.74)	3.08 (2.70-3.52)	4.11 (3.60-4.69)	4.96 (4.32-5.66)	6.18 (5.34-7.04)	7.18 (6.15-8.19)	8.26 (6.99-9.46)	9.42 (7.88-10.9)	11.1 (9.10-12.9)	12.5 (10.1-14.6)
20-day	3.02 (2.66-3.44)	3.90 (3.43-4.43)	5.18 (4.55-5.89)	6.18 (5.40-7.02)	7.56 (6.56-8.59)	8.64 (7.44-9.84)	9.77 (8.35-11.2)	10.9 (9.27-12.6)	12.6 (10.5-14.6)	13.9 (11.4-16.2)
30-day	3.57 (3.13-4.07)	4.61 (4.05-5.25)	6.13 (5.38-6.96)	7.30 (6.39-8.28)	8.91 (7.74-10.1)	10.2 (8.78-11.6)	11.5 (9.84-13.1)	12.8 (10.9-14.7)	14.7 (12.3-16.9)	16.2 (13.4-18.8)
45-day	4.24 (3.74-4.82)	5.48 (4.84-6.23)	7.29 (6.41-8.27)	8.67 (7.60-9.84)	10.5 (9.17-12.0)	12.0 (10.4-13.7)	13.5 (11.6-15.4)	15.1 (12.8-17.3)	17.2 (14.4-20.0)	18.9 (15.7-22.1)
60-day	4.75 (4.20-5.39)	6.17 (5.45-6.99)	8.19 (7.21-9.27)	9.68 (8.50-11.0)	11.7 (10.2-13.3)	13.2 (11.4-15.0)	14.8 (12.7-16.9)	16.4 (14.0-18.8)	18.5 (15.6-21.5)	20.2 (16.9-23.6)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

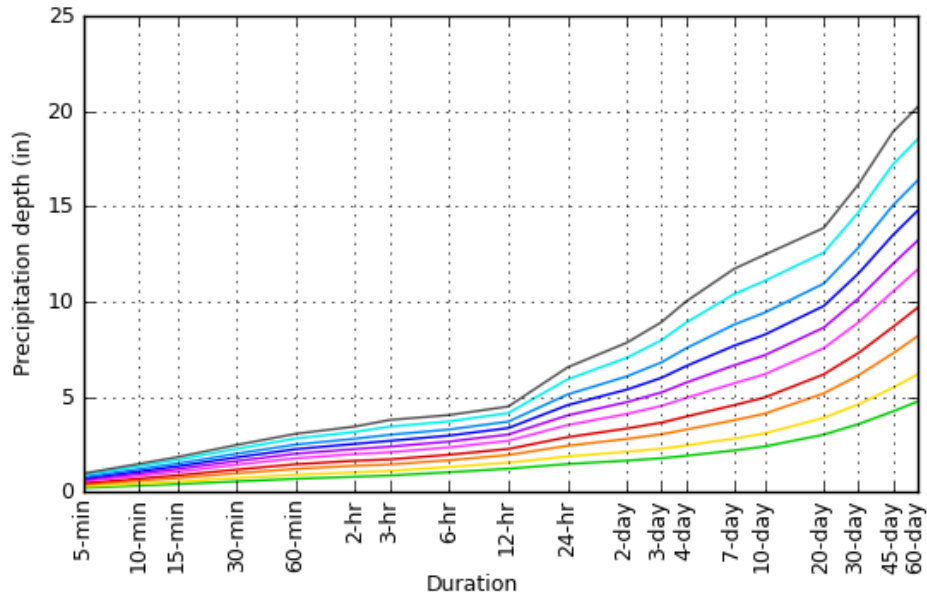
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

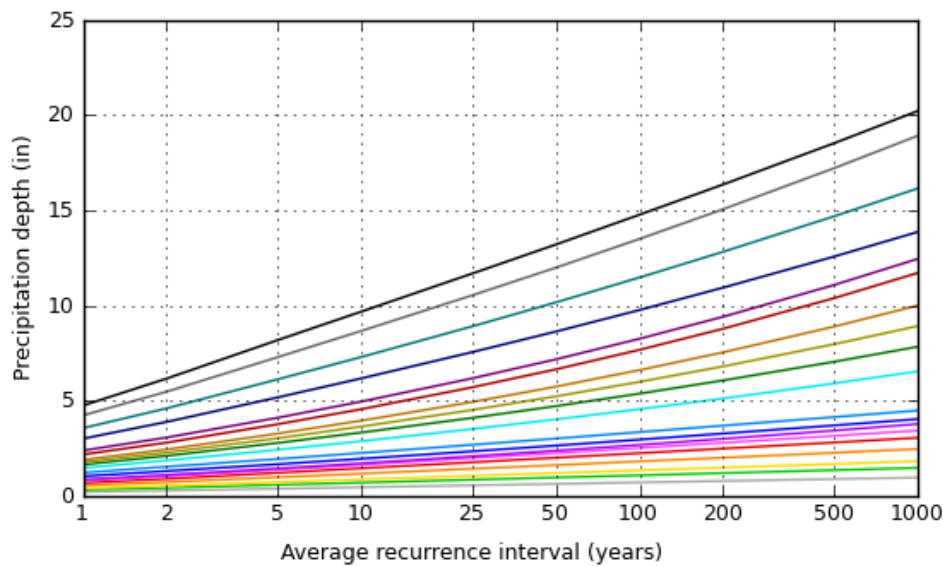
PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 33.6904°, Longitude: -111.8638°



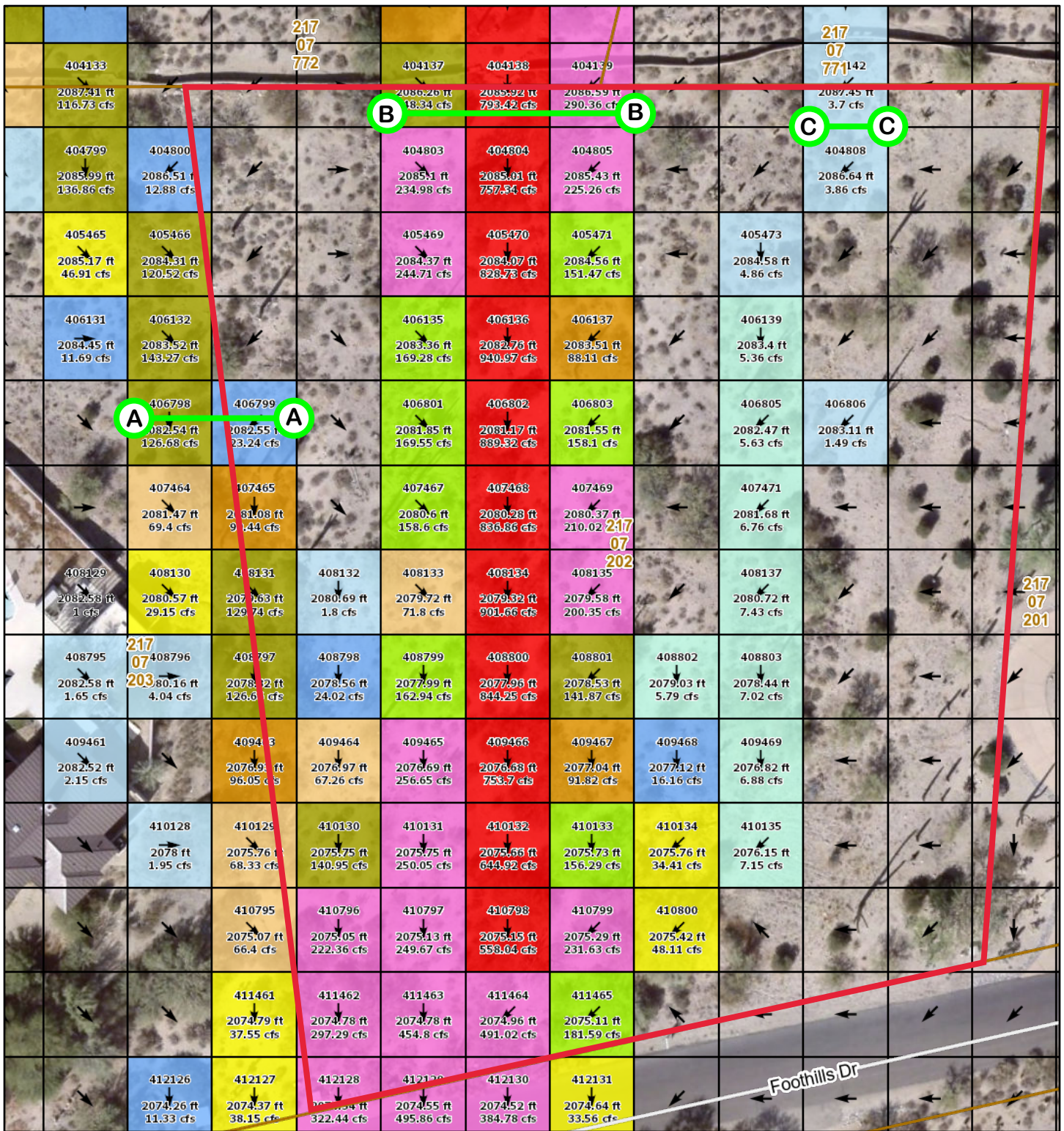
Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



Duration	
5-min	2-day
10-min	3-day
15-min	4-day
30-min	7-day
60-min	10-day
2-hr	20-day
3-hr	30-day
6-hr	45-day
12-hr	60-day
24-hr	

Exhibit 5: FLO-2D 100YR24HR Regulatory Study

122_PinnaclePeakSouth - 100YR24HR



Lot 35
Pinnacle Peak
Heights 5

Qaa = 150 cfs
Qbb = 1232 cfs
Qcc = 4 cfs

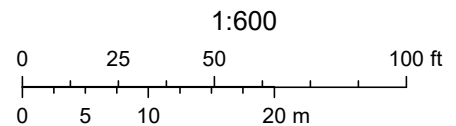


Exhibit 6: Catch Basin Calculations For Stormwater System

Capacity of Grate Catch Basin operating as in sump conditions

Catch Basin Size = 7.07 square feet (for a single 36" diameter catch basin)

$$Q_i = C_o A_f \sqrt{2gd} \quad (\text{Equation 3.22 – Drainage Design Manual for Maricopa County, Hydraulics})$$

Q_i = Grate Catch Basin Flow Interception Capacity

C_o = Coefficient = 0.67

A_g = Clear opening Area of Grate = Area of Catch Basin (Calculated from field measurements)

A_f = Effective Clear Opening Area of Grate (with Clogging Factor)

$A_f = 50\% \times A_g$ (Table 6.8 - FCDMC Drainage Policies and Standards Manual)

$$A_f = 0.5 \times 7.07$$

d = Depth of Flow at Inlet = Sump

Sump = Overflow Elevation - Grate Elevation

$$\text{Sump} = 2084 \text{ ft} - 2083.5 \text{ ft}$$

$$d = 0.5 \text{ ft}$$

$$Q_i = C_o A_f \sqrt{2gd}$$

$$Q_i = (0.67) (3.535) \sqrt{2 \times 32.2 \times 0.5}$$

$$Q_i = 13.44$$

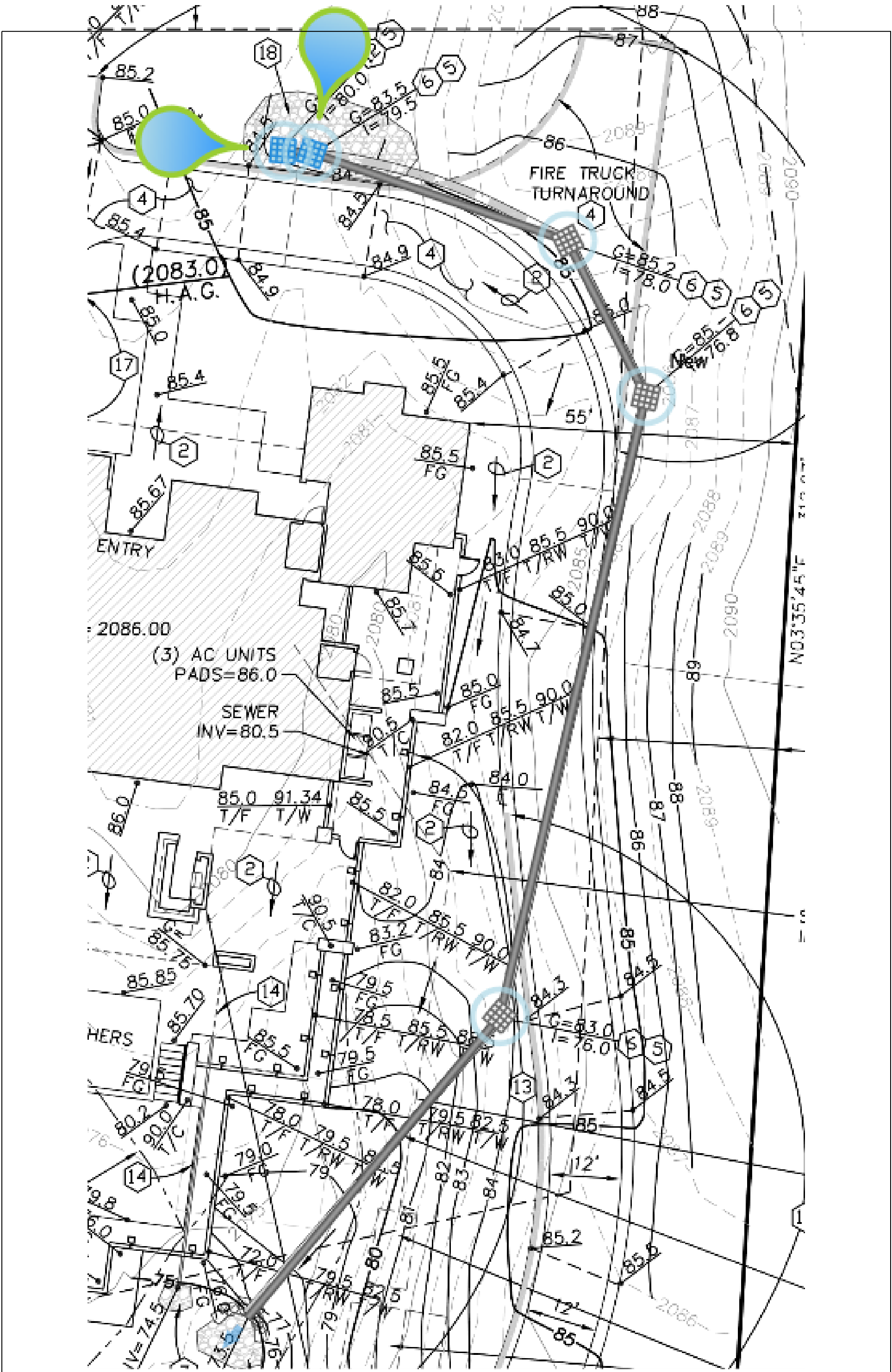
$$\mathbf{Q_i = 13.4 \text{ cfs}}$$

There are two catch basins within this area.

The catch basins capacity w/50% clogging factor = 26.8 cfs > 11.2 cfs OK

Exhibit 7: Stormwater Studio

Stormwater Studio 2022 v 3.0.0.29

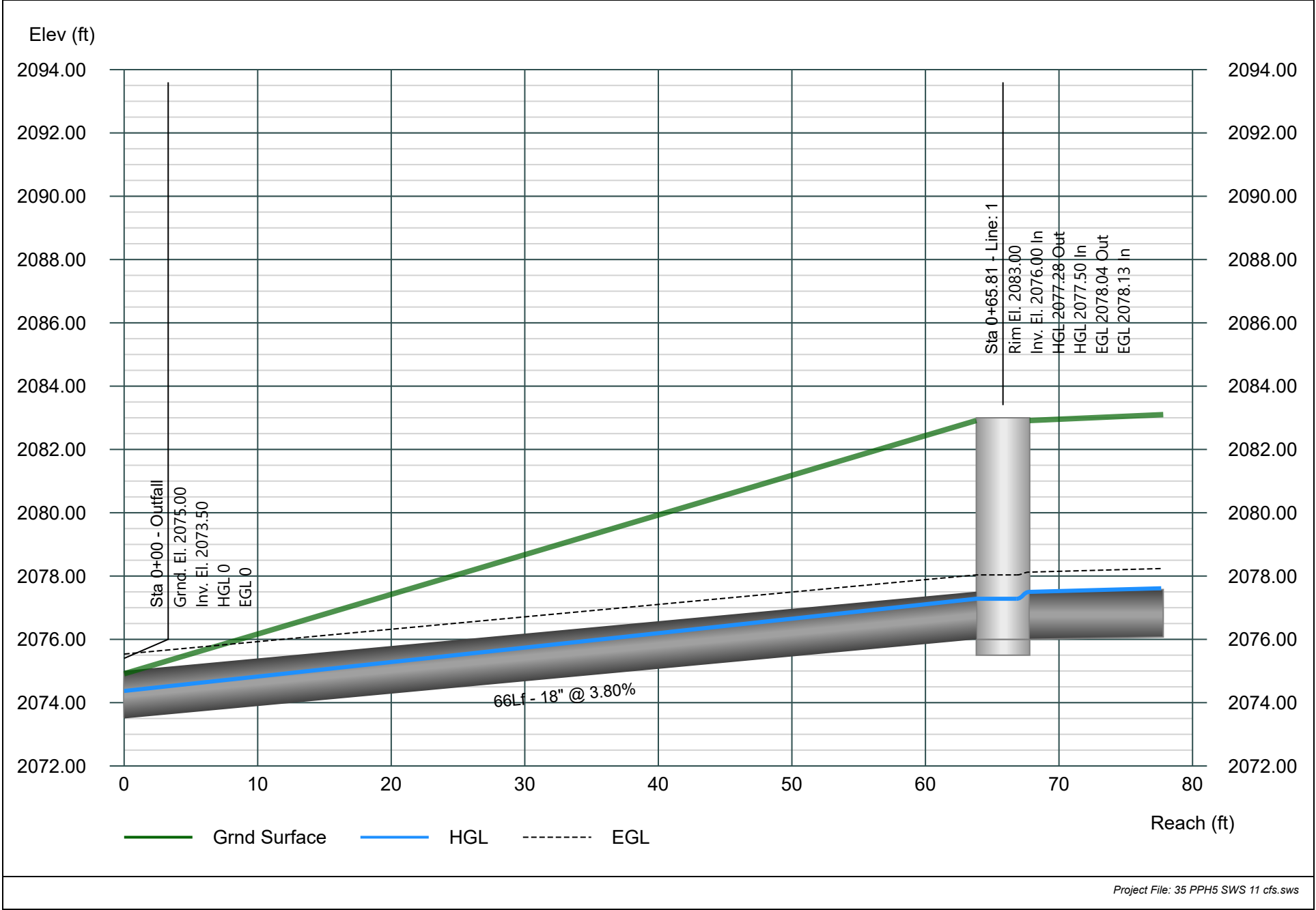


Line 1

Stormwater Studio 2022 v 3.0.0.29

Project Name: Enter Project Name...

01-18-2023

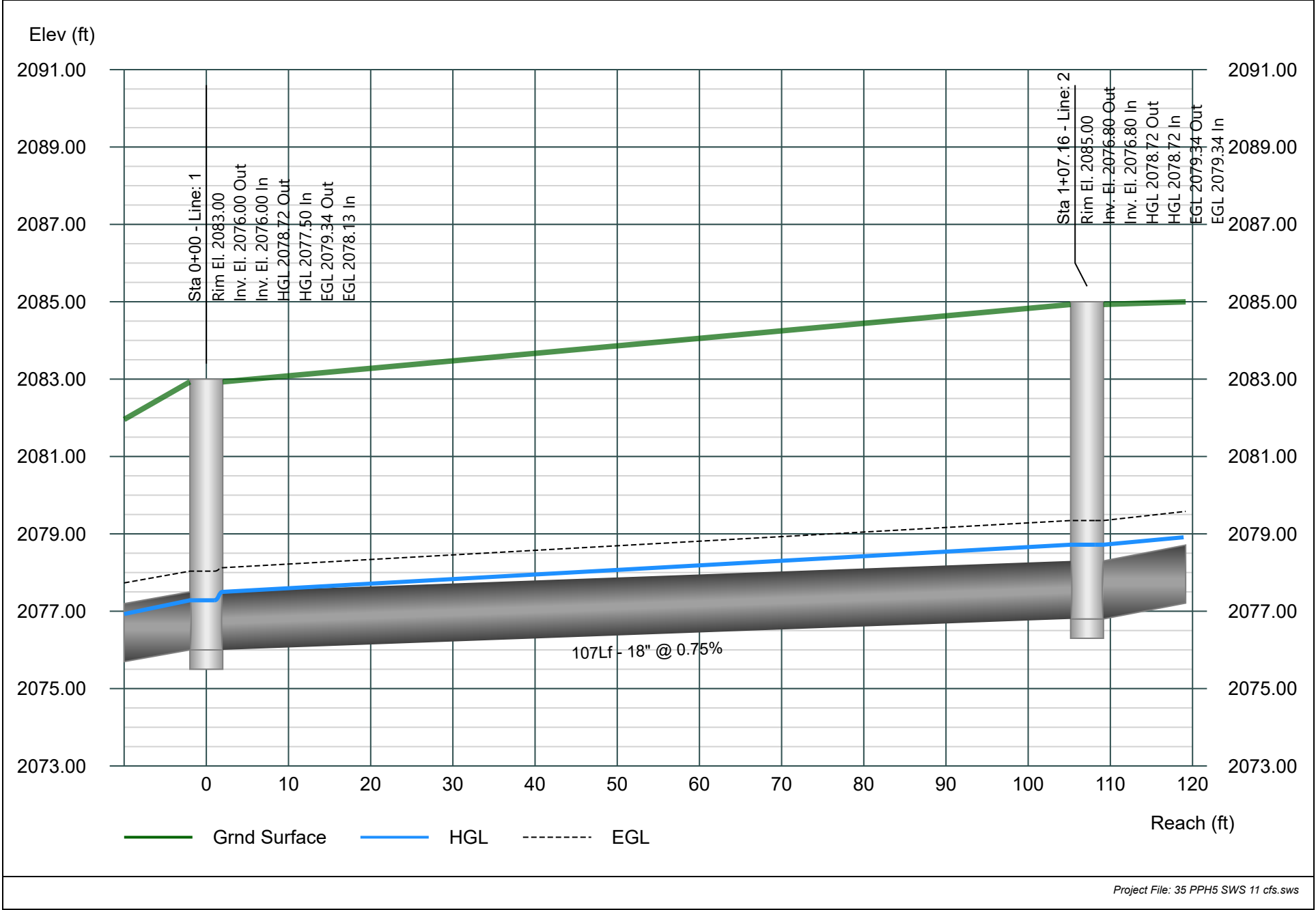


Line 2

Stormwater Studio 2022 v 3.0.0.29

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01-18-2023

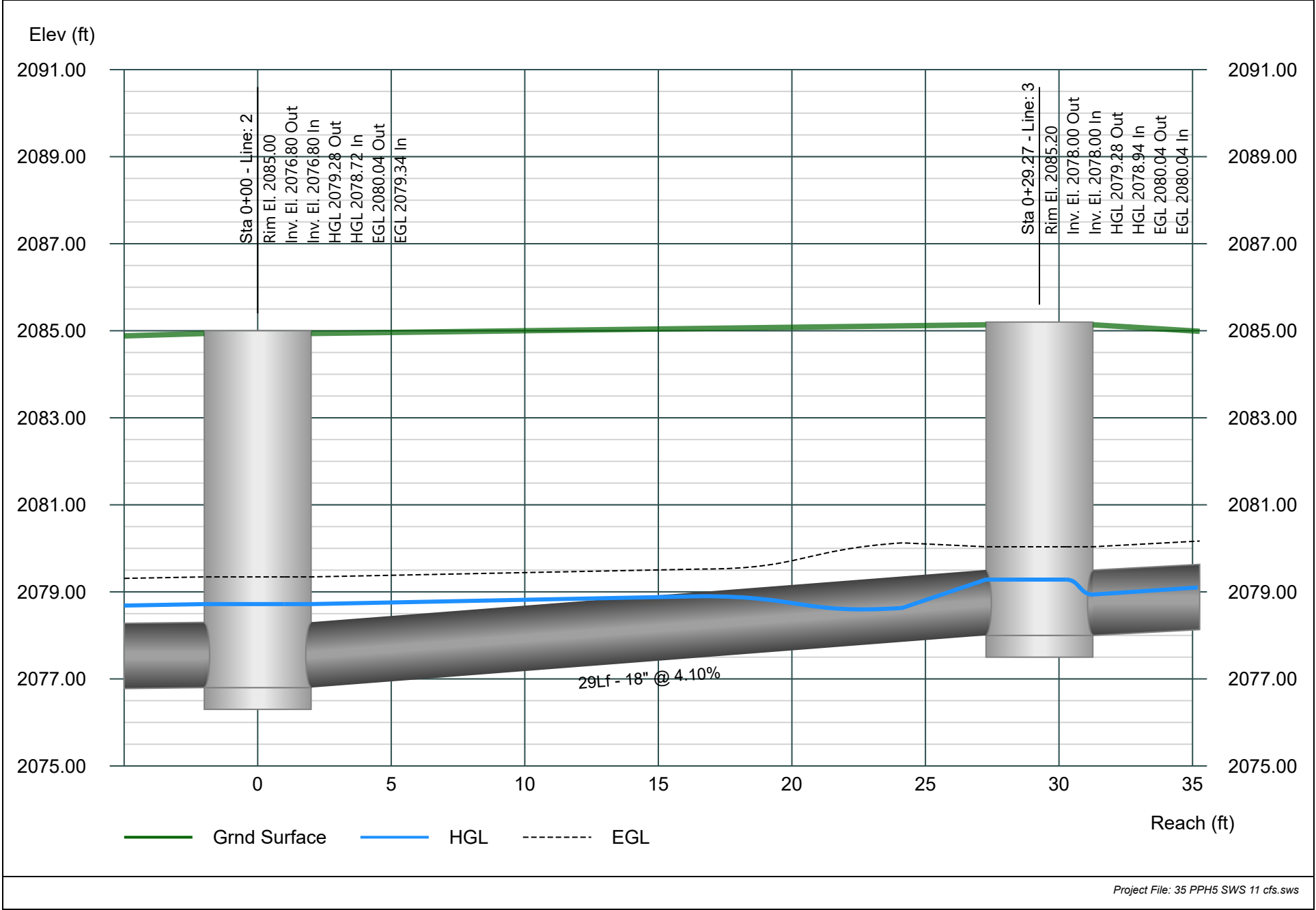


Line 3

Stormwater Studio 2022 v 3.0.0.29

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01-18-2023

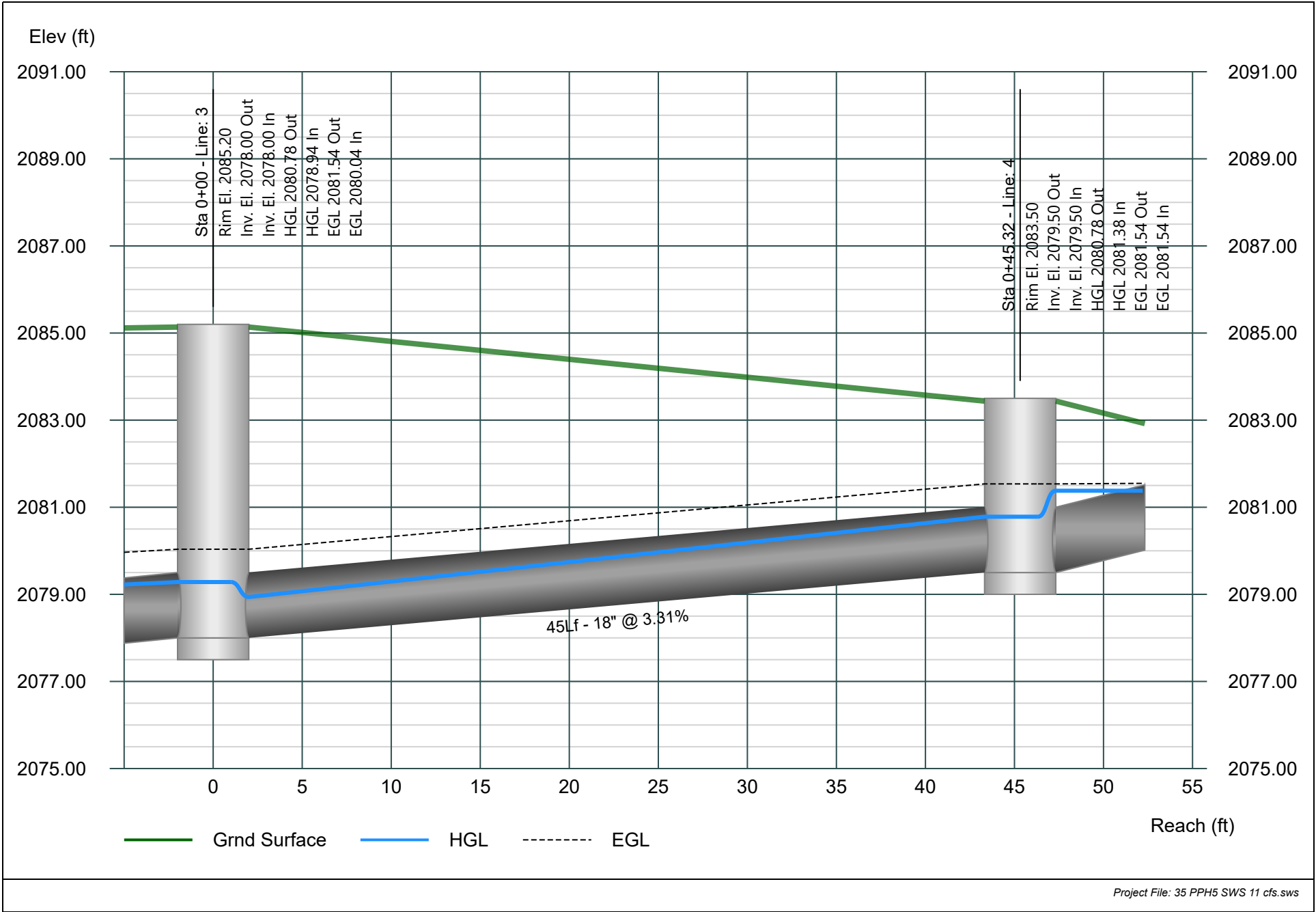


Line 4

Stormwater Studio 2022 v 3.0.0.29

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01-18-2023

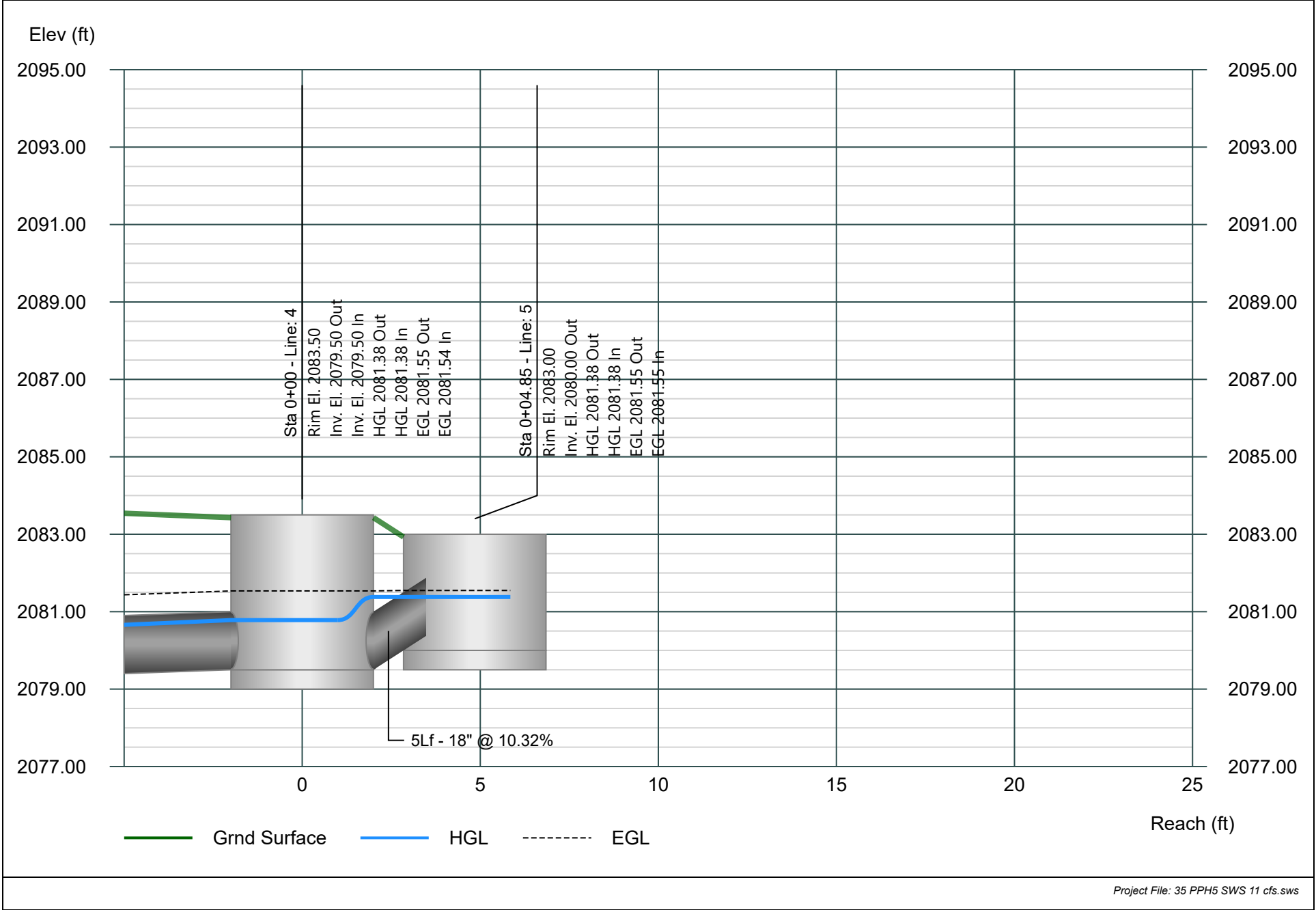


Line 5

Stormwater Studio 2022 v 3.0.0.29

Project Name: Enter Project Name...

01-18-2023



Storm Sewer Tabulation

Project Name: Enter Project Name..

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

Line ID	Length (ft)	Drng Area		Rational (C)	C x A		Tc		Intensity (in/hr)	Total Q (cfs)	Capacity (cfs)	Velocity (ft/s)	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
		(ac)	(ac)		(min)	(min)	(in)	(%)					(ft)	(ft)	(ft)	(ft)	(ft)	(ft)			
Line 1	65.81	0.000	0.000	0.00	0.00	0.00	0.0	0.39	6.37	11.20	20.47	8.76	18	3.80	2076.00	2073.50	2077.28	2074.37	2083.00	2075.00	1
Line 2	107.16	0.000	0.000	0.00	0.00	0.00	0.0	0.11	6.37	11.20	9.07	6.34	18	0.75	2076.80	2076.00	2078.72	2077.50	2085.00	2083.00	2
Line 3	29.27	0.000	0.000	0.00	0.00	0.00	0.0	0.07	6.37	11.20	21.26	6.65	18	4.10	2078.00	2076.80	2079.28	2078.72	2085.20	2085.00	3
Line 4	45.32	0.000	0.000	0.00	0.00	0.00	0.0	0.01	6.37	11.20	19.10	8.29	18	3.31	2079.50	2078.00	2080.78	2078.94	2083.50	2085.20	4
Line 5	4.85	0.000	0.000	0.00	0.00	0.00	0.0	0.00	6.37	5.60	33.73	3.23	18	10.32	2080.00	2079.50	2081.38	2081.38	2083.00	2083.50	5

Notes: IDF File = SampleIDF.idf, Return Period = 2-yrs.

Project File: 35 PPH5 SWS 11 cfs.sws

Energy Grade Line Calculations

Project Name: Enter Project Name..

Stormwater Studio 2022 v 3.0.0.29

01-18-2023

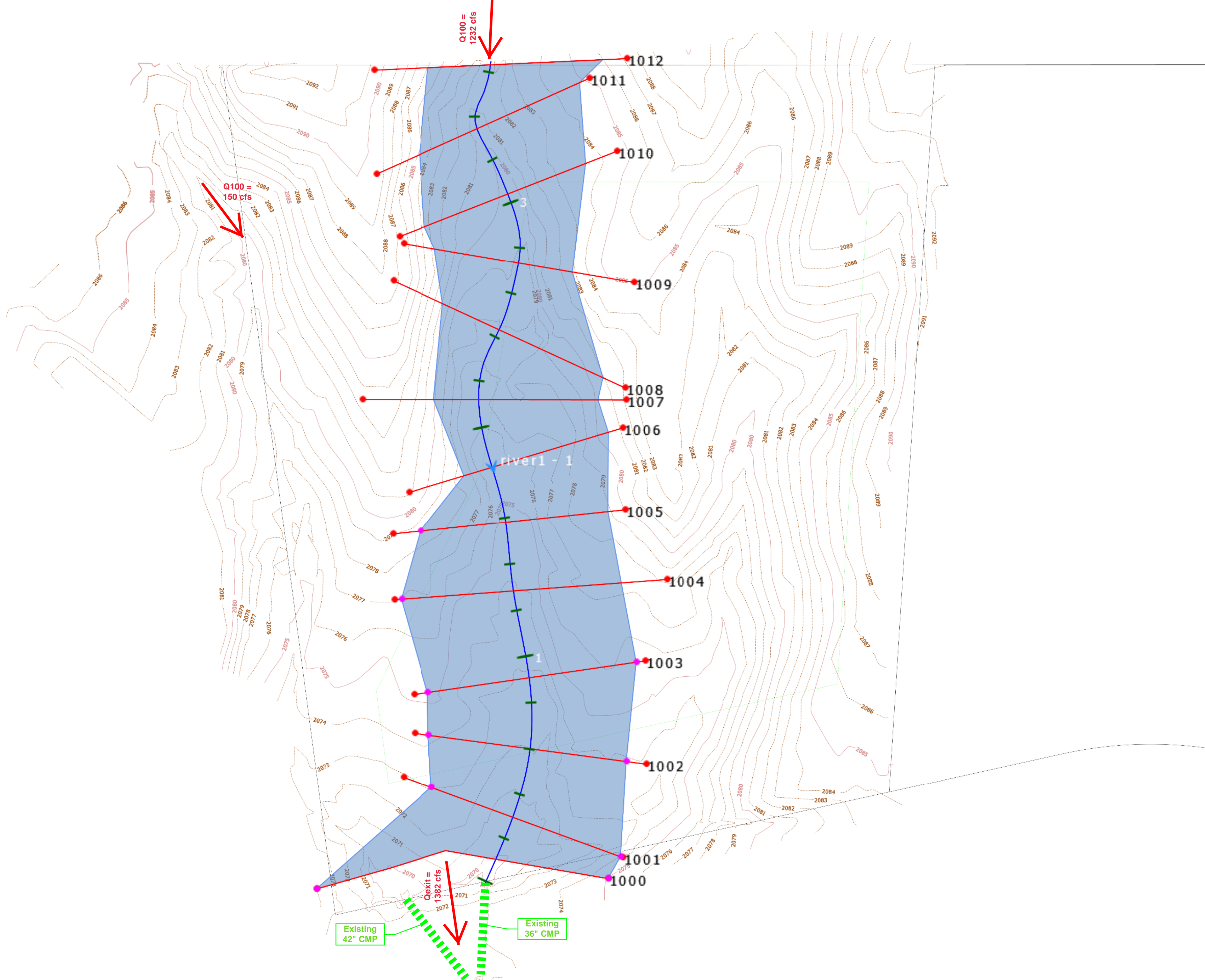
Line No	Line Size (in)	Q (cfs)	Downstream							Length (ft)	Upstream							Pipe		Junction		
			Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)	EGL Elev (ft)		Invert Elev (ft)	Depth (ft)	Area (sqft)	HGL Elev (ft)	Vel (ft/s)	Vel Head (ft)	EGL Elev (ft)	n Value	Enrgy Loss (ft)	HGLa Elev (ft)	EGLa Elev (ft)	Enrgy Loss (ft)
1	18	11.20	2073.50	0.87±	1.06	2074.37	10.55	1.73	2075.54	65.81	2076.00	1.28²	1.61	2077.28	6.96	0.75	2078.04	0.013	2.500	2077.28	2078.04	0.00
2	18	11.20	2076.00	1.50³	1.77	2077.50	6.34	0.62	2078.13	107.16	2076.80	1.50	1.77	2078.72	6.34	0.62	2079.34	0.013	1.219	2078.72	2079.34	0.00
3	18	11.20	2076.80	1.50	1.61	2078.72	6.34	0.62	2079.34	29.27	2078.00	1.28²	1.61	2079.28	6.96	0.75	2080.04	0.013	0.692	2079.28	2080.04	0.00
4	18	11.20	2078.00	0.94±	1.16	2078.94	9.63	1.44	2080.04	45.32	2079.50	1.28²	1.61	2080.78	6.96	0.75	2081.54	0.013	1.500	2080.78	2081.54	0.00
5	18	5.60	2079.50	1.50	1.77	2081.38	3.17	0.16	2081.54	4.85	2080.00	1.38	1.70	2081.38	3.29	0.17	2081.55	0.013	0.012	2081.38	2081.55	0.00

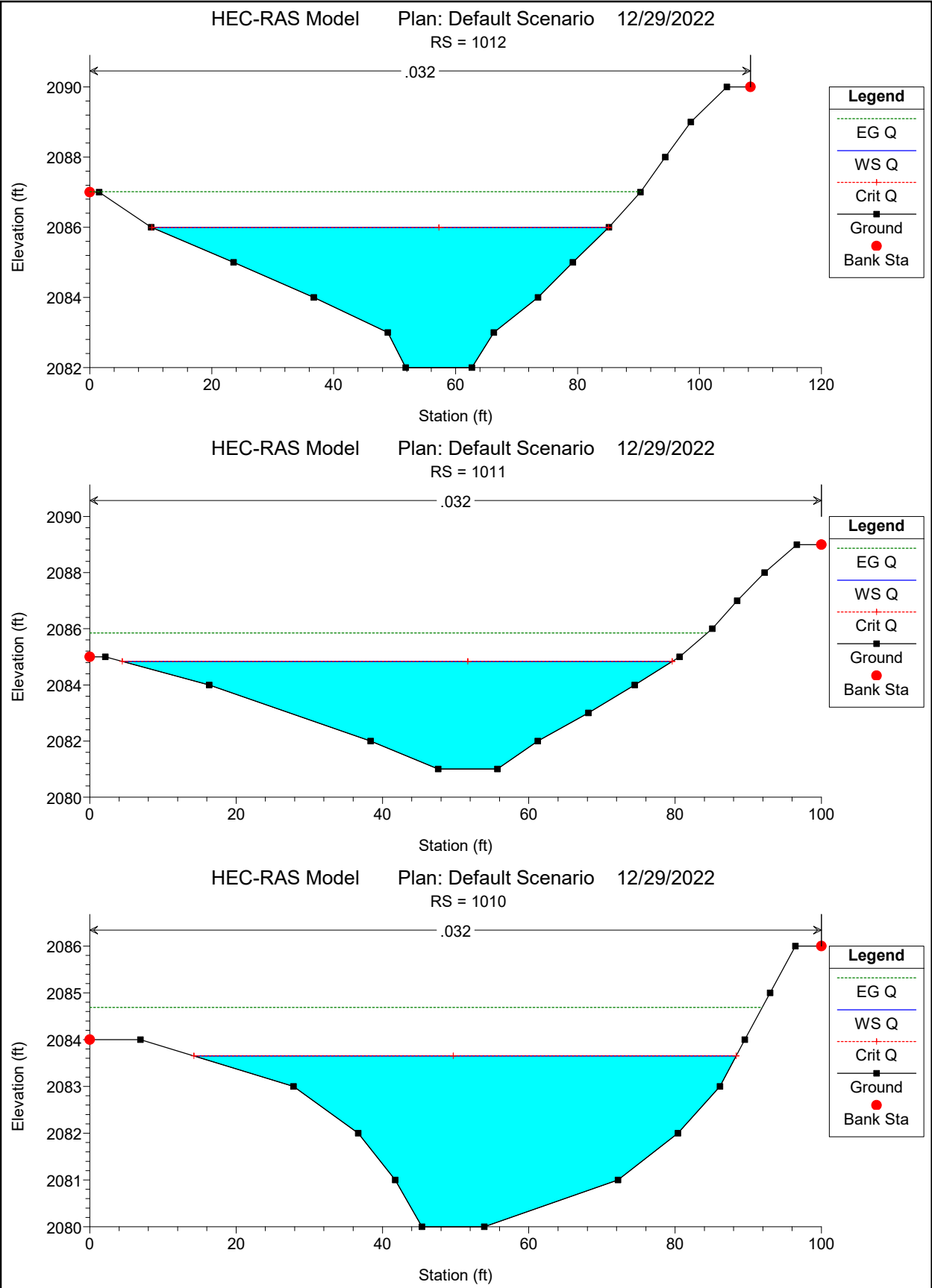
Notes: Return Period = 2-yrs. ² Critical depth. ³ Normal depth. ± Supercritical.

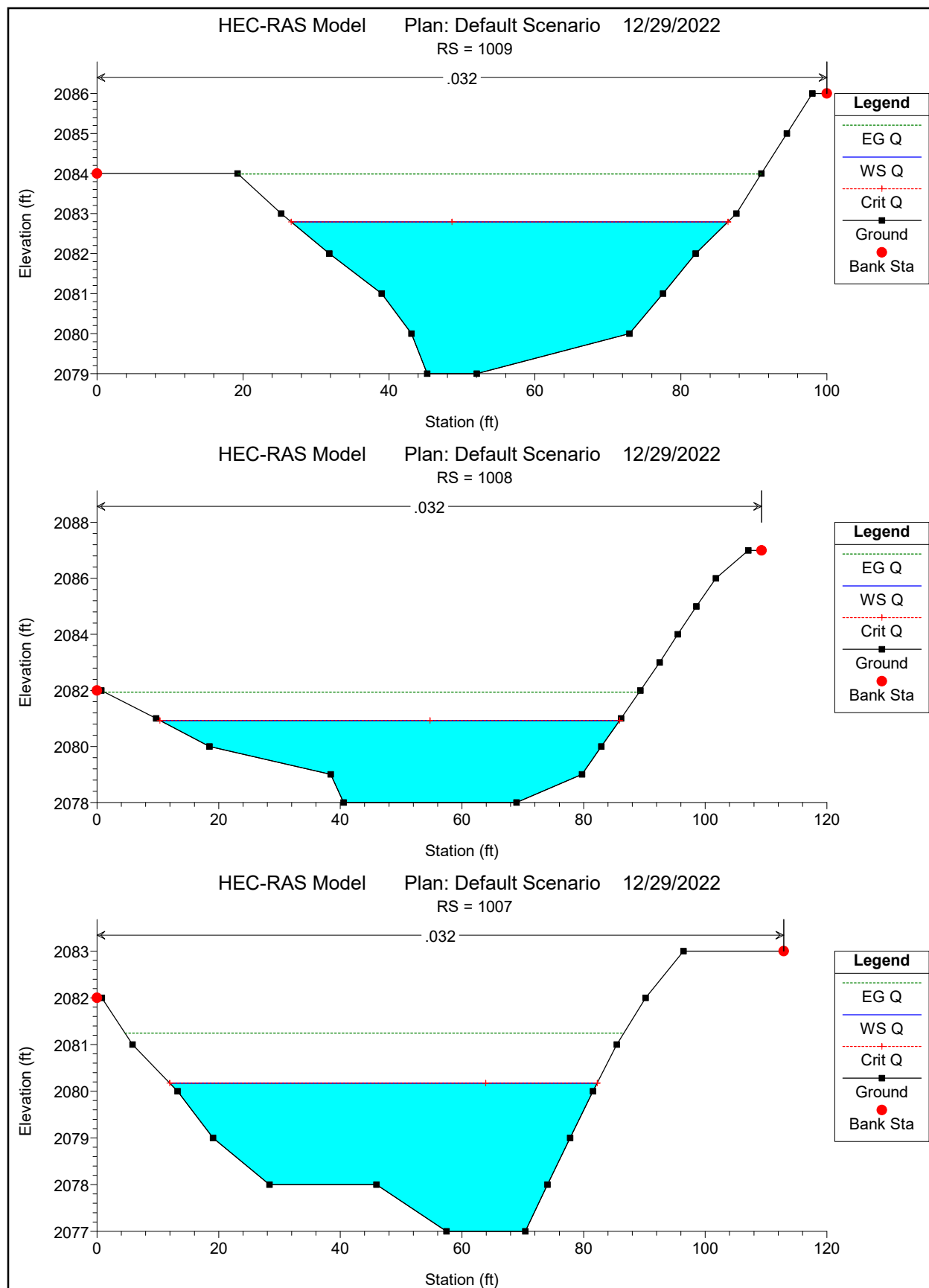
Project File: 35 PPH5 SWS 11 cfs.sws

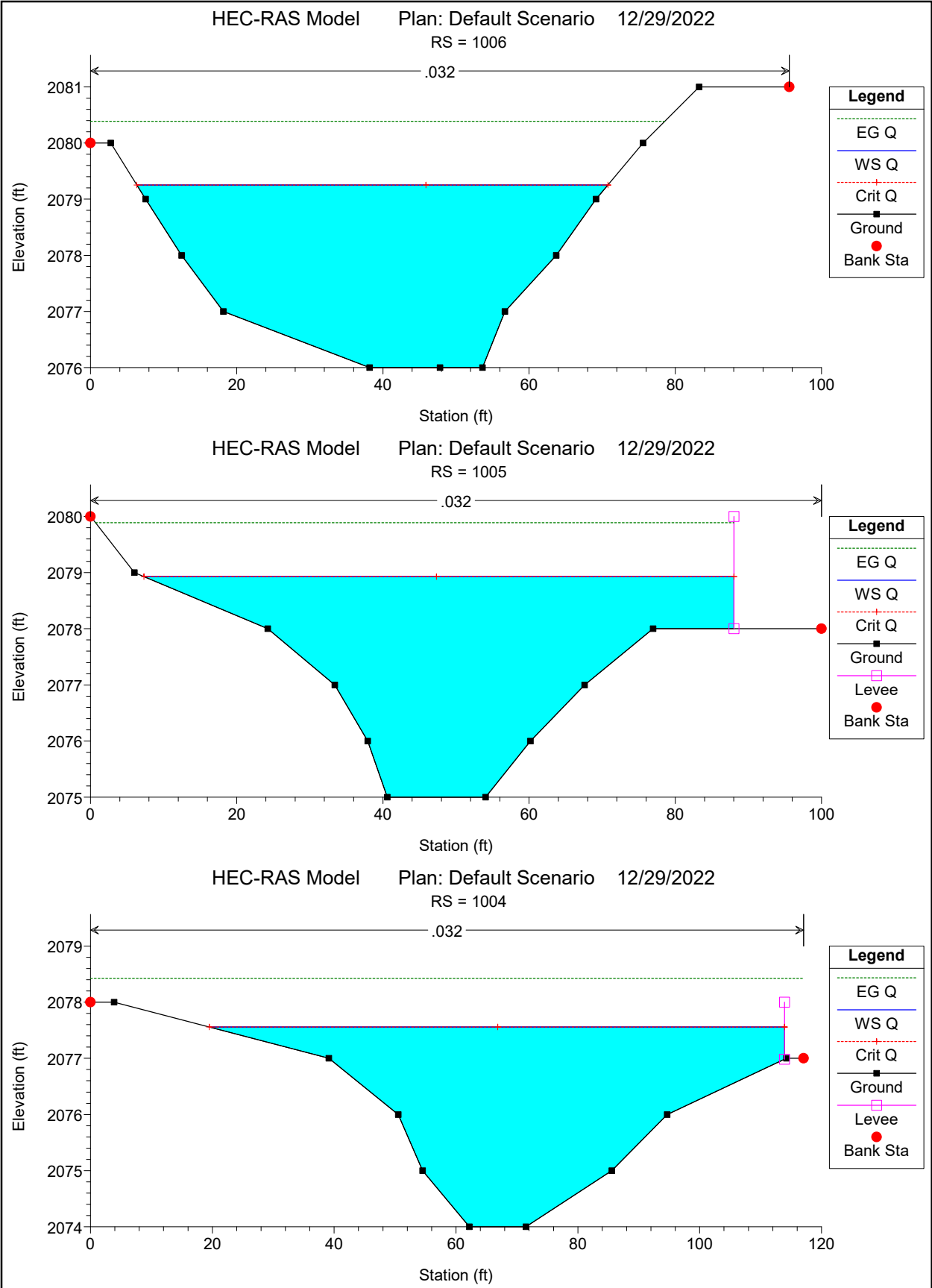
**Exhibit 8: HEC-RAS Analysis
Predevelopment
Vs.
Post Development**

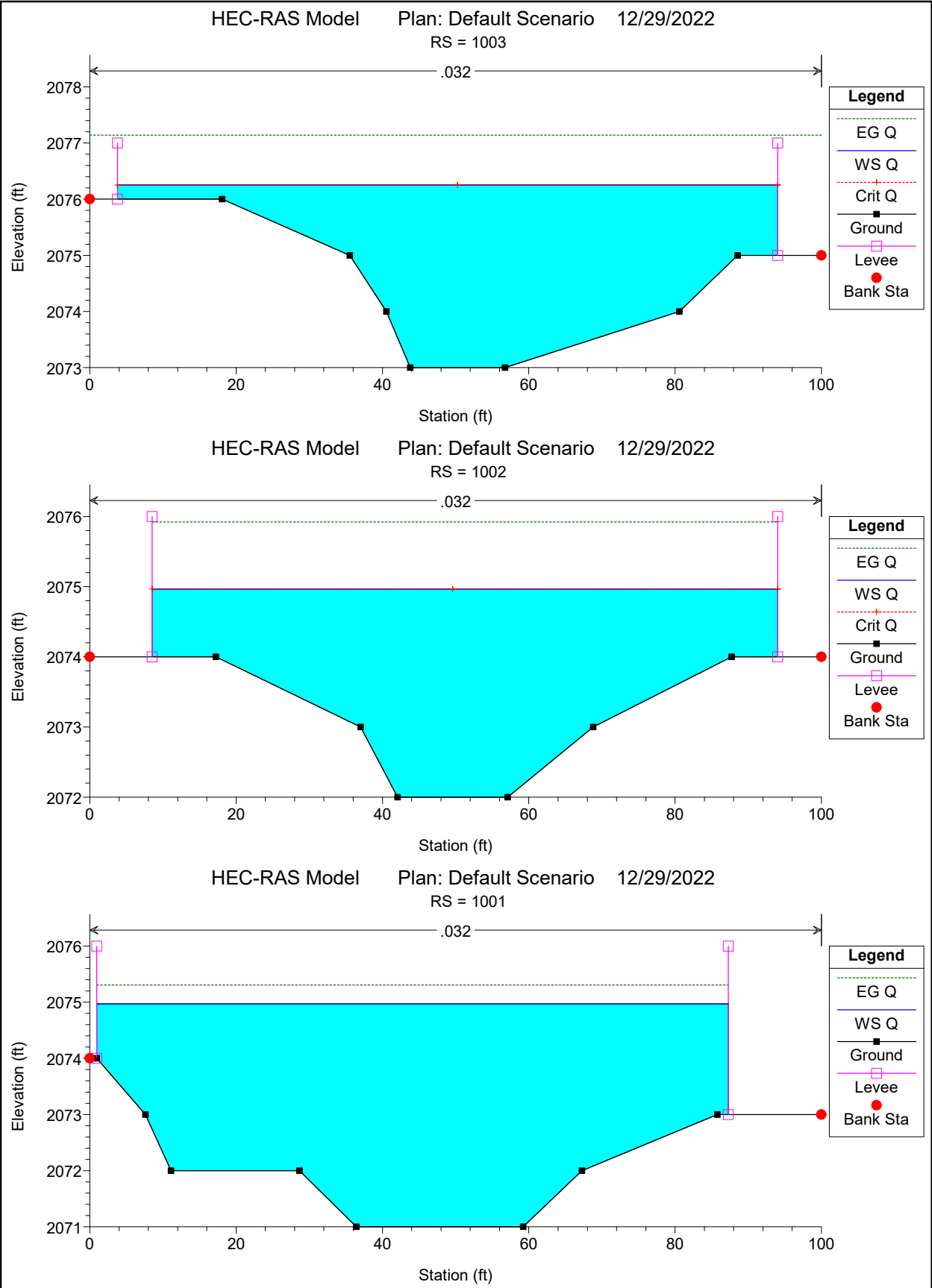
Predevelopment



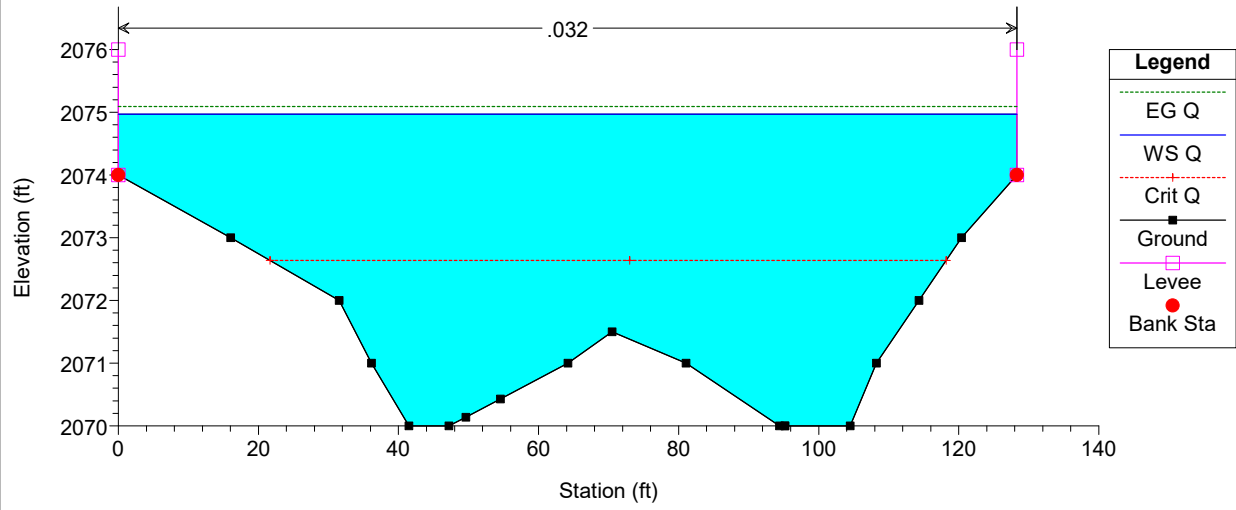








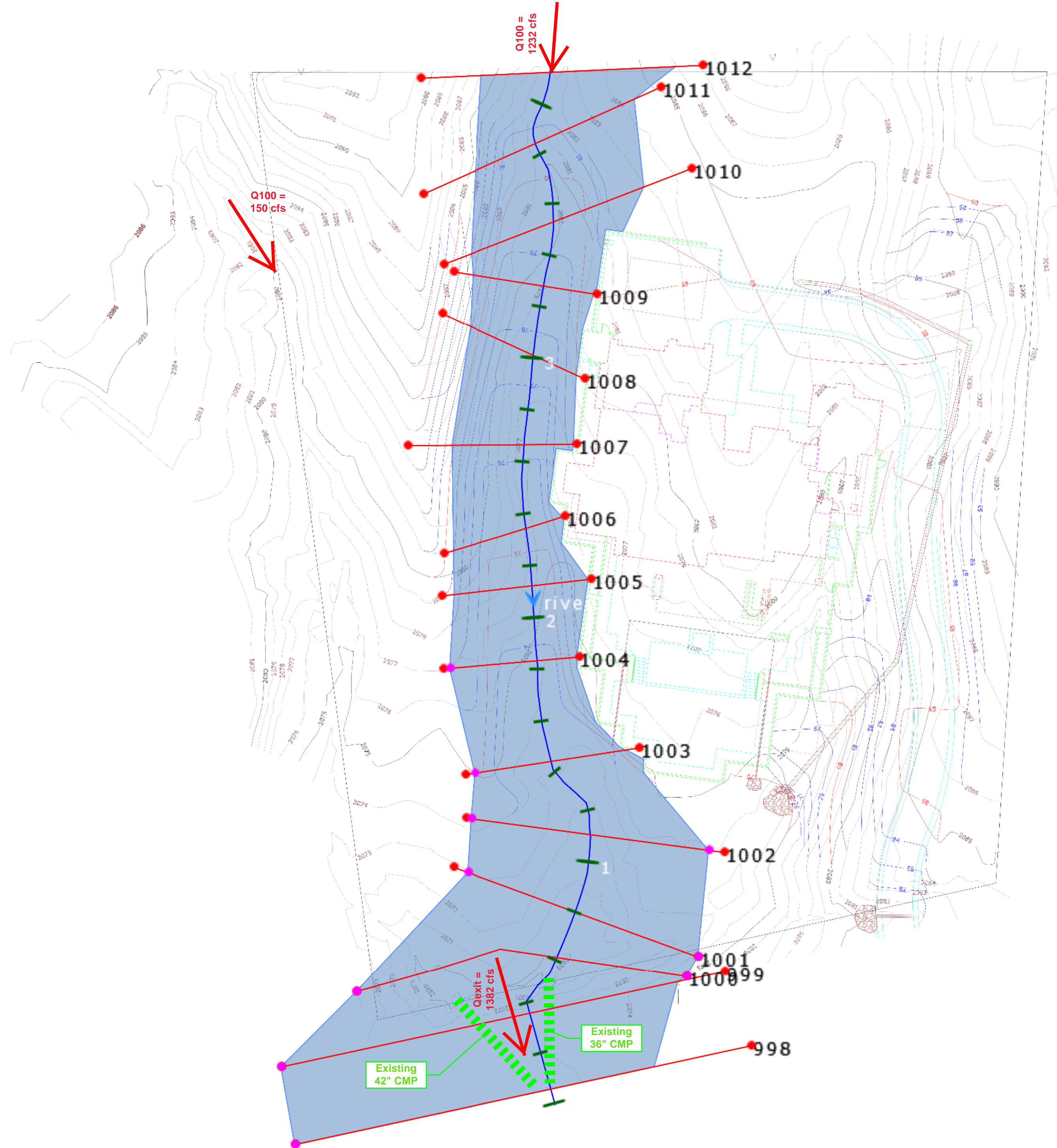
HEC-RAS Model Plan: Default Scenario 12/29/2022
RS = 1000

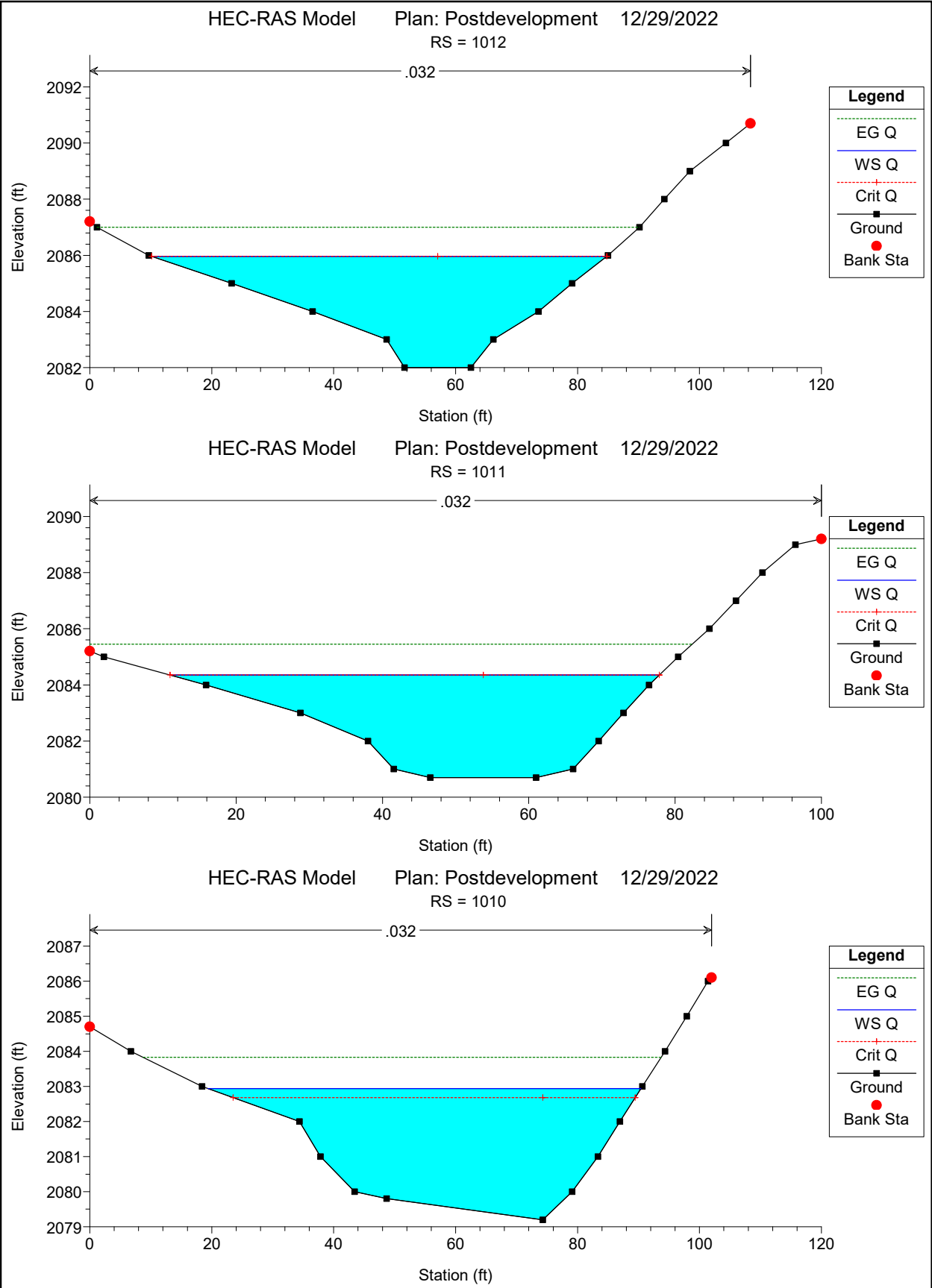


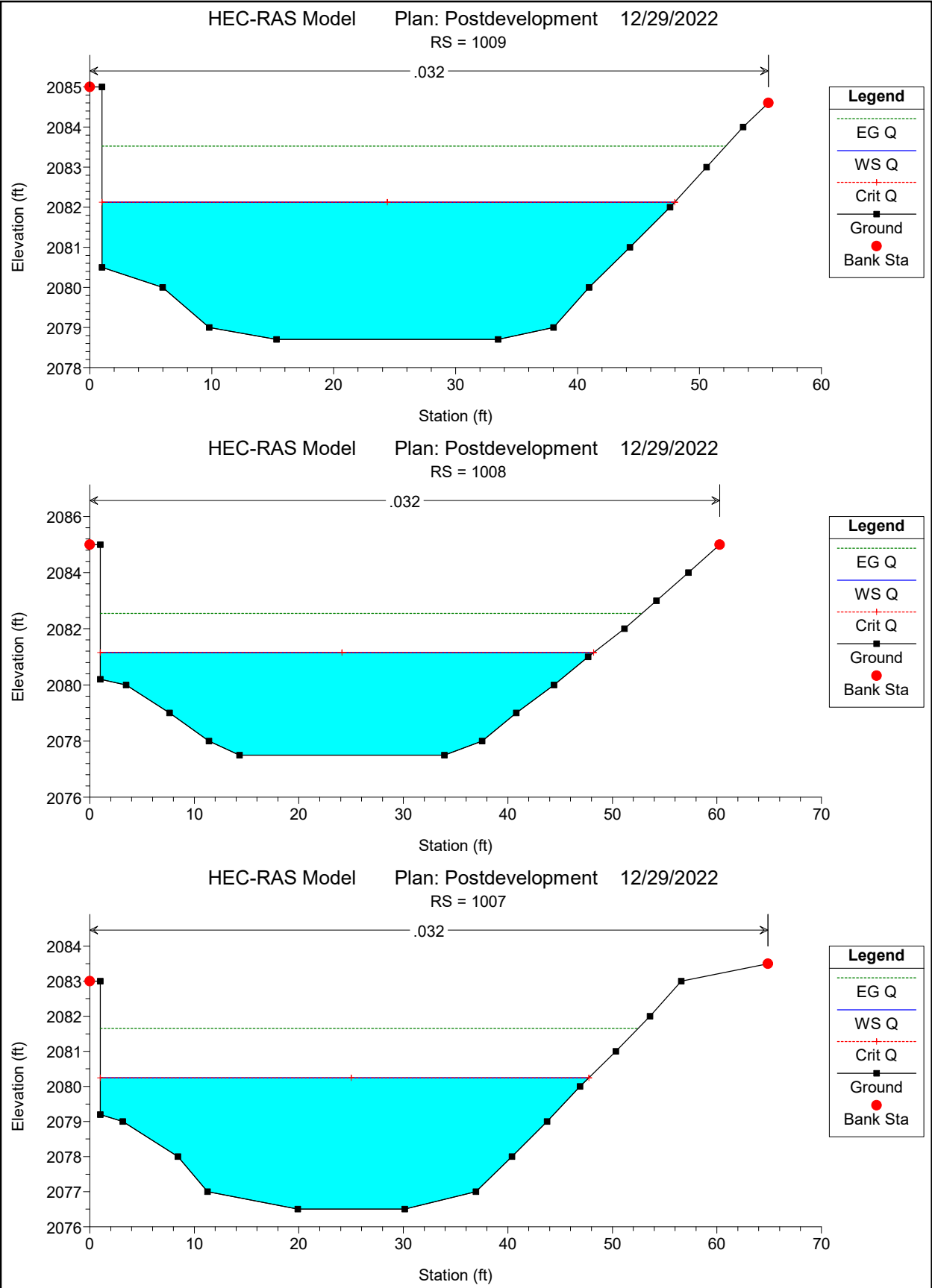
HEC-RAS Plan: Default Scenario River: river1 Reach: 1 Profile: Q

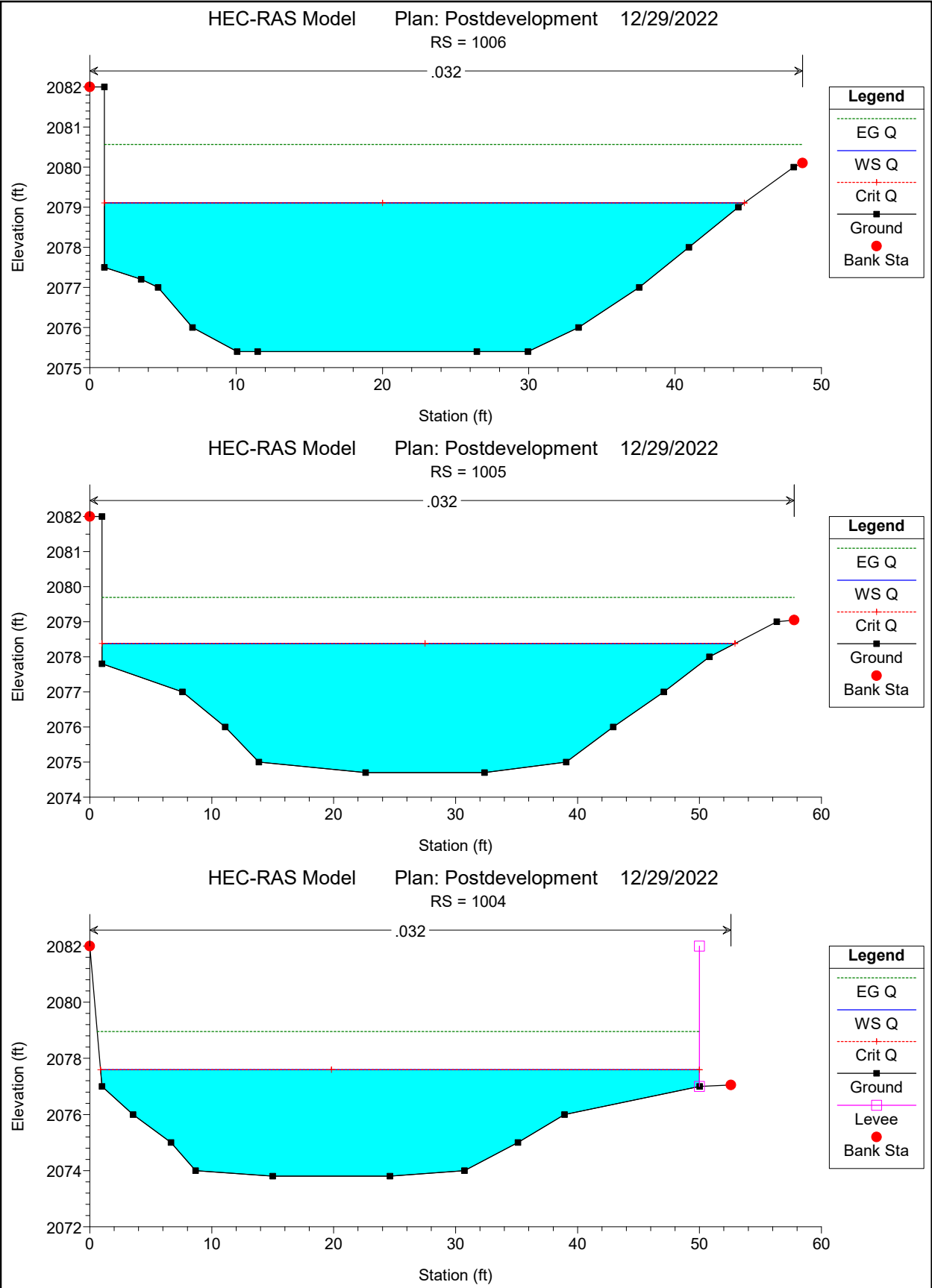
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	1012	Q	1232.00	2082.00	2085.99	2085.99	2087.01	0.011964	8.10	152.14	74.91	1.00
1	1011	Q	1232.00	2081.00	2084.84	2084.84	2085.85	0.011885	8.08	152.50	75.17	1.00
1	1010	Q	1232.00	2080.00	2083.65	2083.65	2084.69	0.012172	8.18	150.64	74.11	1.01
1	1009	Q	1232.00	2079.00	2082.79	2082.79	2083.99	0.011606	8.76	140.59	59.86	1.01
1	1008	Q	1232.00	2078.00	2080.93	2080.93	2081.94	0.011944	8.07	152.73	75.57	1.00
1	1007	Q	1232.00	2077.00	2080.18	2080.18	2081.25	0.011940	8.30	148.40	70.30	1.01
1	1006	Q	1232.00	2076.00	2079.25	2079.25	2080.39	0.011694	8.54	144.25	64.46	1.01
1	1005	Q	1232.00	2075.00	2078.93	2078.93	2079.89	0.012168	7.87	156.57	80.73	1.00
1	1004	Q	1232.00	2074.00	2077.56	2077.56	2078.43	0.012567	7.49	164.52	94.43	1.00
1	1003	Q	1232.00	2073.00	2076.25	2076.25	2077.14	0.012370	7.56	163.02	90.23	0.99
1	1002	Q	1232.00	2072.00	2074.97	2074.97	2075.92	0.013094	7.84	157.10	85.49	1.02
1	1001	Q	1232.00	2071.00	2074.97		2075.31	0.002376	4.66	264.51	86.31	0.47
1	1000	Q	1382.00	2070.00	2074.97	2072.79	2075.12	0.000888	3.12	443.13	128.31	0.30

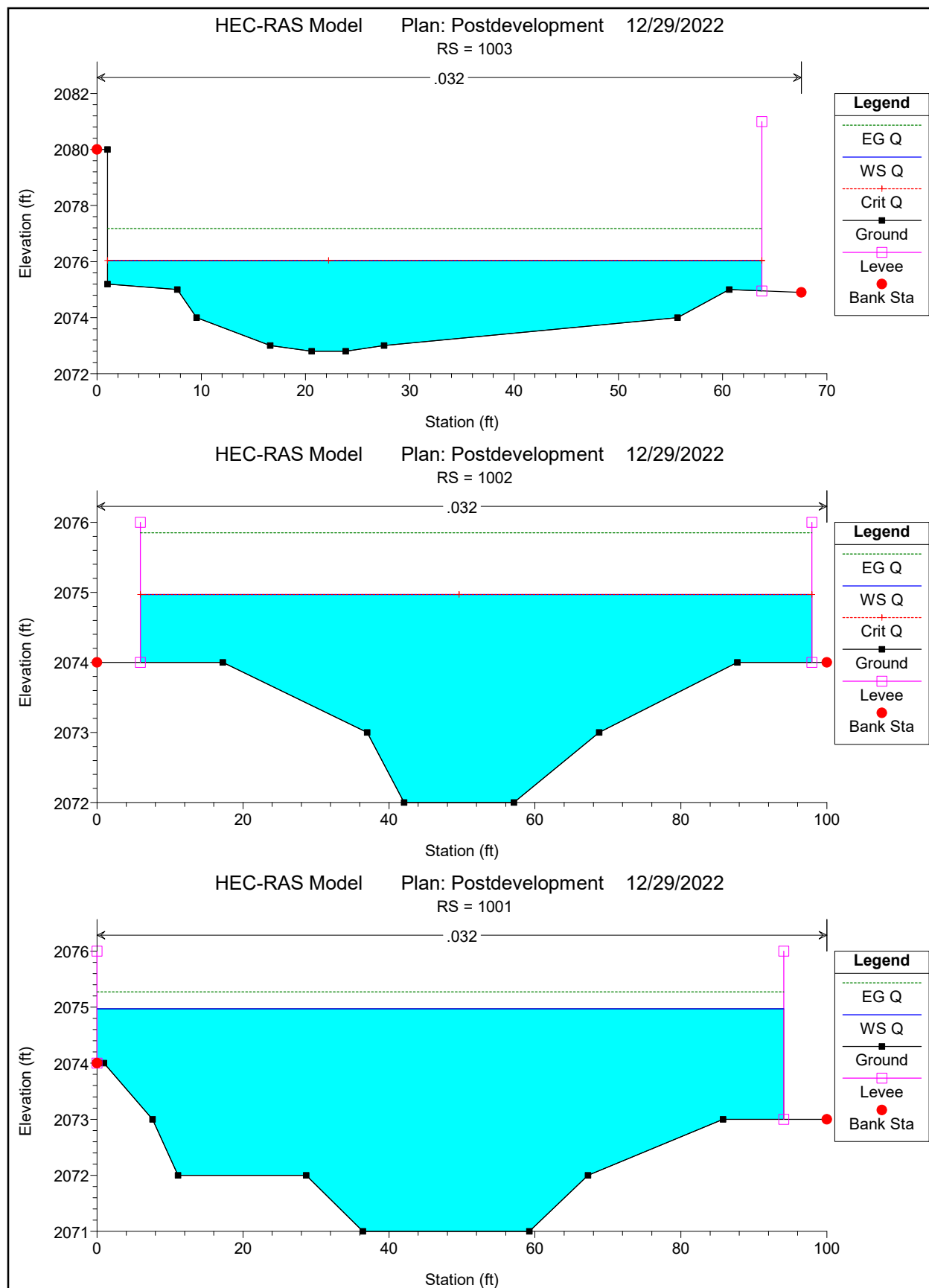
Post Development

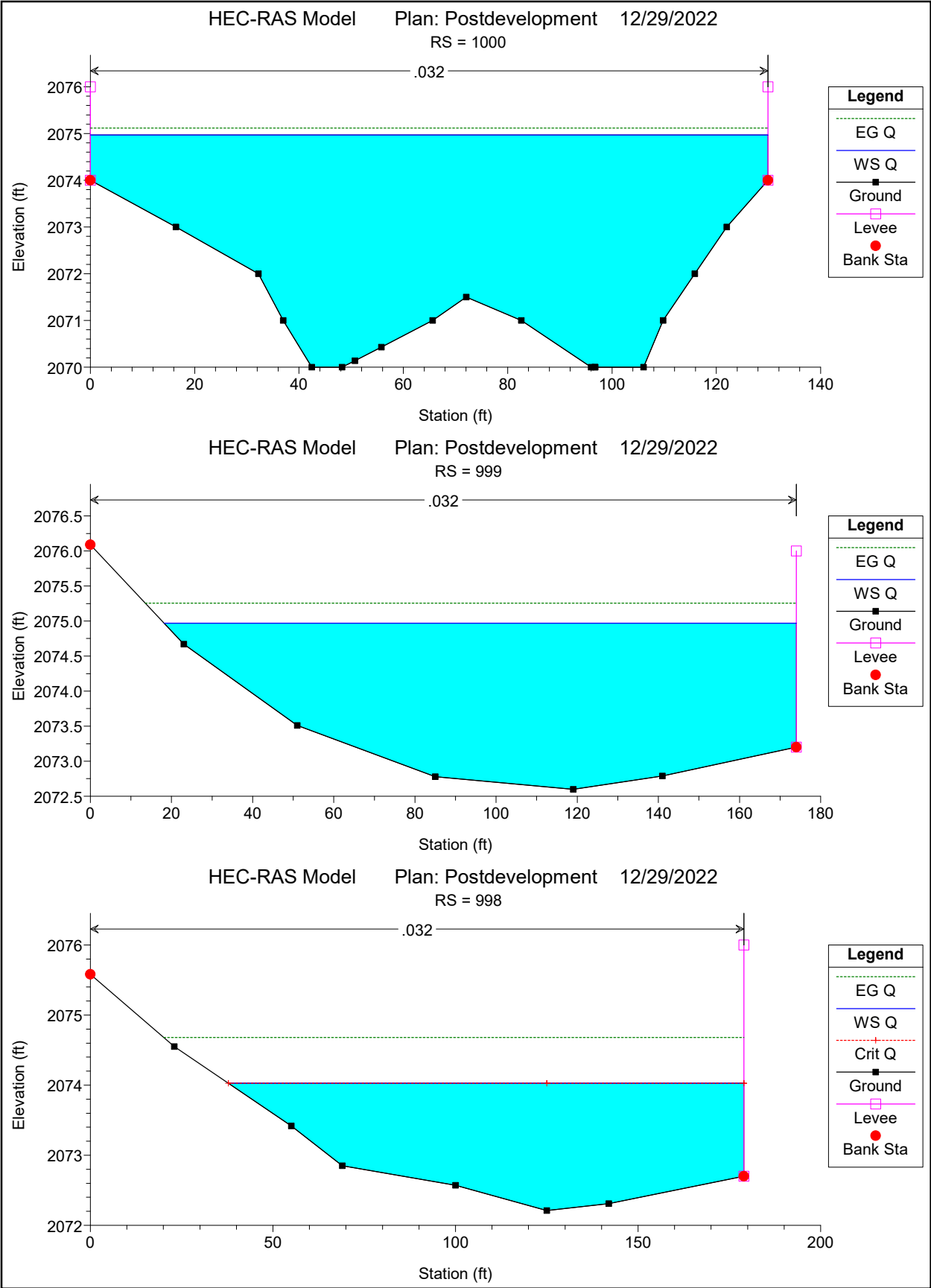












HEC-RAS Plan: Post River: river1 Reach: 1 Profile: Q

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	1012	Q	1232.00	2082.00	2085.97	2085.97	2087.00	0.012233	8.16	150.90	74.64	1.01
1	1011	Q	1232.00	2080.70	2084.35	2084.35	2085.45	0.011668	8.40	146.60	66.87	1.00
1	1010	Q	1232.00	2079.20	2082.94	2082.68	2083.83	0.008889	7.56	162.86	70.99	0.88
1	1009	Q	1232.00	2078.70	2082.13	2082.13	2083.53	0.011468	9.49	129.83	46.97	1.01
1	1008	Q	1232.00	2077.50	2081.15	2081.15	2082.55	0.011328	9.48	129.98	47.20	1.01
1	1007	Q	1232.00	2076.50	2080.24	2080.24	2081.65	0.011367	9.52	129.45	46.74	1.01
1	1006	Q	1232.00	2075.40	2079.11	2079.11	2080.57	0.011290	9.70	127.04	43.72	1.00
1	1005	Q	1232.00	2074.70	2078.38	2078.38	2079.69	0.011457	9.19	134.01	51.91	1.01
1	1004	Q	1232.00	2073.80	2077.60	2077.60	2078.96	0.011416	9.34	131.91	49.11	1.00
1	1003	Q	1232.00	2072.80	2076.04	2076.04	2077.18	0.011796	8.56	143.97	62.76	1.00
1	1002	Q	1232.00	2072.00	2074.97	2074.97	2075.85	0.012550	7.52	163.74	92.00	0.99
1	1001	Q	1232.00	2071.00	2074.97		2075.27	0.002226	4.42	278.86	94.08	0.45
1	1000	Q	1382.00	2070.00	2074.97		2075.12	0.000869	3.08	448.11	129.88	0.29
1	999	Q	1382.00	2072.60	2074.97		2075.35	0.005253	4.94	280.00	155.84	0.65
1	998	Q	1382.00	2072.21	2074.17	2074.17	2074.87	0.013133	6.68	206.74	145.33	0.99

Exhibit 9: HEC-RAS Summary Table

REACH	Station	Q100	PRE DEVELOPMENT		POST DEVELOPMENT		HWSE Difference
			HWSE	Velocity	HWSE	Velocity	
1	1012	1232	2085.99	8.10	2085.97	8.16	-0.02
1	1011	1232	2084.84	8.08	2084.35	8.40	-0.49
1	1010	1232	2083.65	8.18	2082.94	7.56	-0.71
1	1009	1232	2082.79	8.76	2082.13	9.49	-0.66
1	1008	1232	2080.93	8.07	2081.15	9.48	+0.22
1	1007	1232	2080.18	8.30	2080.25	9.51	+0.07
1	1006	1232	2079.25	8.54	2079.10	9.71	-0.15
1	1005	1232	2078.93	7.87	2078.38	9.19	-0.55
1	1004	1232	2077.56	7.49	2077.60	9.34	+0.04
1	1003	1232	2076.25	7.56	2076.04	8.56	-0.21
1	1002	1232	2074.97	7.84	2074.97	7.52	0
1	1001	1232	2074.97	4.66	2074.97	4.42	0
1	1000	1382	2074.97	2.78	2074.97	3.08	0

Exhibit 10: Culvert Studio For Southerly CMP Culverts

Culvert Report

Project filename: 36 cmp under road.cst

Culvert Studio v 2.0.0.27

12-01-2022

36" CMP Under Road

Culvert 1

CULVERT

Shape = Circular
Inlet Edge = Projecting
Material = Concrete
Manning's n = 0.012
Rise = 36 in
Span = 36 in
Invert Elev. Down = 2066.50 ft
Length = 48.0 ft
Slope = 0.058 ft/ft
Invert Elev. Up = 2069.30 ft
No. Barrels = 1
Plan Skew Angle = 0 degrees

EMBANKMENT

Top Width = 40.00 ft
Top Elevation = 2073.00 ft
Crest Length = 80.00 ft

DISCHARGE

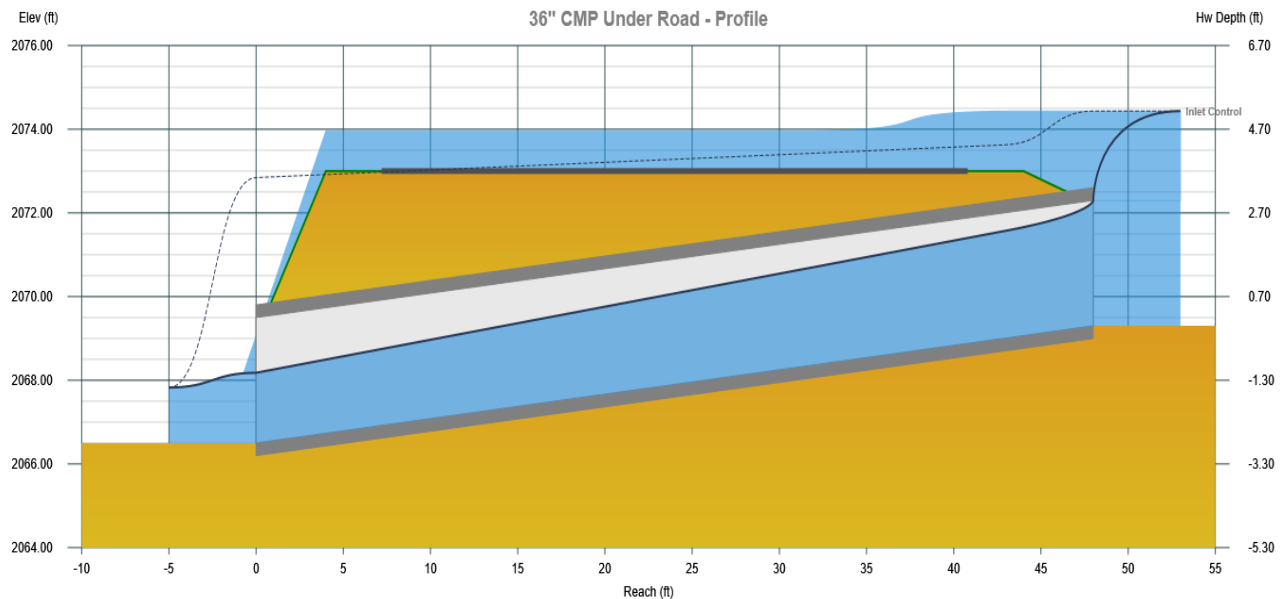
Method = Qmin to Qmax
Q Min = 500.00 cfs
Q Max = 500.00 cfs
Q Increment = 1.00 cfs

TAILWATER

Tailwater Elevation = Normal Depth

CALCULATION SAMPLE

Discharge			Velocity		Depth		HGL @ Hw/D = 1.71		
Total	Culvert	Over Top	Down	Up	Down	Up	Down	Up	Hw
(cfs)	(cfs)	(cfs)	(ft/s)	(ft/s)	(in)	(in)	(ft)	(ft)	(ft)
500.00	70.47	429.53	17.32	10.61	20.1	32.0	2068.18	2071.97	2074.43



Culvert Report

Project filename: 42 cmp under road.cst

Culvert Studio v 2.0.0.27

12-01-2022

42" CMP Under Road

Culvert 1

CULVERT

Shape	= Circular
Inlet Edge	= Projecting
Material	= Concrete
Manning's n	= 0.012
Rise	= 42 in
Span	= 42 in
Invert Elev. Down	= 2063.10 ft
Length	= 50.0 ft
Slope	= 0.103 ft/ft
Invert Elev. Up	= 2068.24 ft
No. Barrels	= 1
Plan Skew Angle	= 0 degrees

EMBANKMENT

Top Width = 40.00 ft
Top Elevation = 2073.00 ft
Crest Length = 80.00 ft

DISCHARGE

Method = Qmin to Qmax
Q Min = 800.00 cfs
Q Max = 800.00 cfs
Q Increment = 1.00 cfs

TAILWATER

Tailwater Elevation = Normal Depth

CALCULATION SAMPLE

Discharge			Velocity		Depth		HGL @ Hw/D = 1.92		
Total	Culvert	Over Top	Down	Up	Down	Up	Down	Up	Hw
(cfs)	(cfs)	(cfs)	(ft/s)	(ft/s)	(in)	(in)	(ft)	(ft)	(ft)
800.00	114.59	685.41	22.28	12.39	22.1	38.5	2064.95	2071.45	2074.97

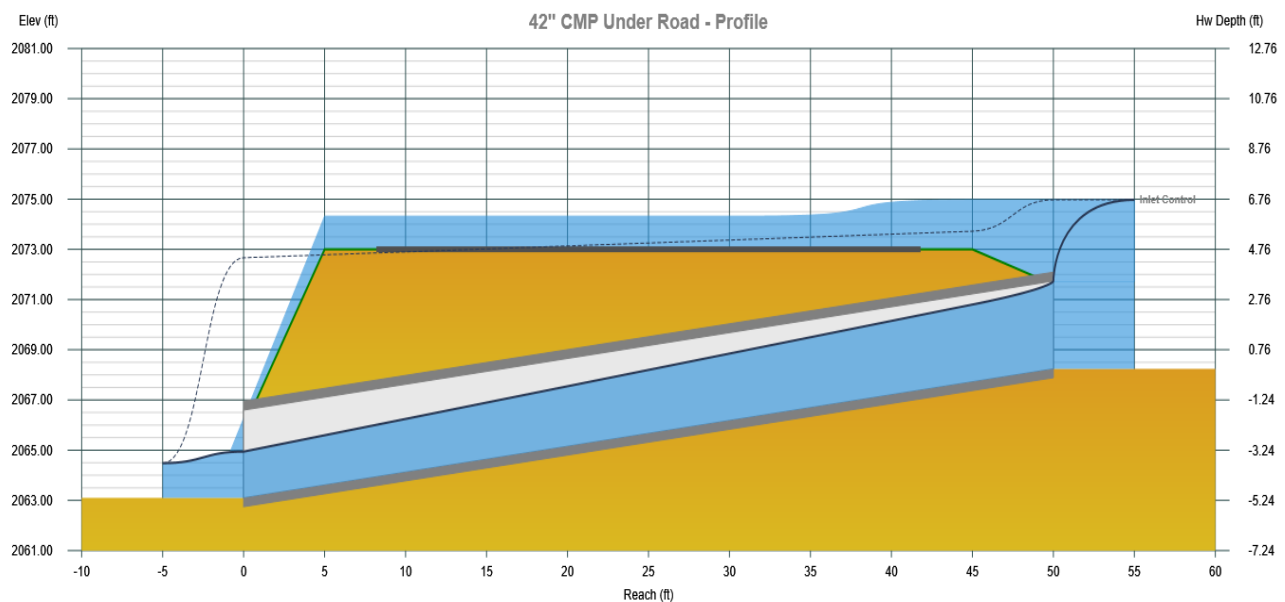


Exhibit 11: Grading Plan

LEGEND

	PROPOSED ELEVATION
	EXISTING ELEVATION
	FINISHED FLOOR ELEVATION
	LOWEST FINISHED FLOOR ELEVATION
	FLOW DIRECTION
	EXISTING CONTOUR
	PROPOSED CONTOUR
	EDGE OF PAVEMENT
	BACK OF CURB
	RIGHT OF WAY
	PUBLIC UTILITY EASEMENT
	GENERAL PURPOSE EASEMENT
	TOP OF SITE WALL
	TOP OF RETAINING WALL
	TOP OF FOOTING
	TOP OF WROUGHT IRON FENCE
	TOP OF SITE WALL
	TOP OF COLUMN
	HIGH WATER ELEVATION
	FINISHED GRADE
	FLOWLINE
	INVERT
	CENTERLINE
	PROPERTY LINE
	NAOS BOUNDARY
	SUGGESTED BUILDING ENVELOPE
	REVISED BUILDING ENVELOPE
	SANITARY SEWER LINE
	WATER LINE
	ASBUILT
	BUILDING SETBACK LINE
	DRAINAGE EASEMENT
	COMMON DRIVEWAY EASEMENT
	WATERLINE EASEMENT
	PUBLIC UTILITY EASEMENT
	HIGHEST ADJACENT GRADE
	LOWEST ADJACENT GRADE
	EROSION SETBACK LINE
	12"x12" CATCH BASIN W/ 4" PVC

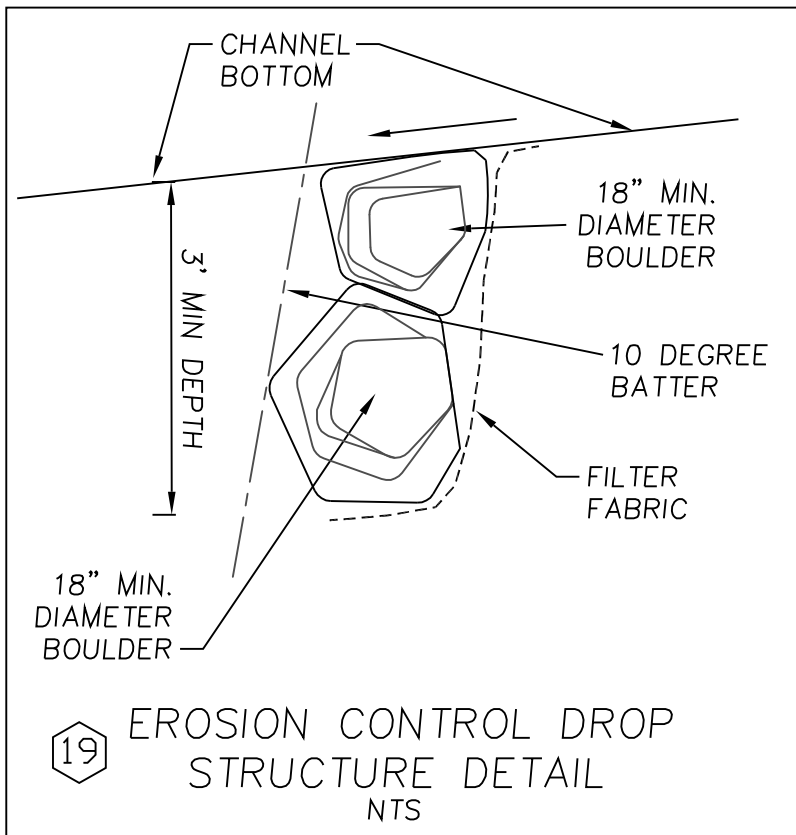
FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL NUMBER (PANEL DATE)	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	1330	L	7/20/21	AO	d=2'; v=6 fps
	10/16/13				

ENGINEER'S CERTIFICATION: THE LOWEST FLOOR ELEVATION(S) AND/OR FLOOD PROOFING ELEVATION(S) ON THIS PLAN, ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A ONE-HUNDRED YEAR STORM, AND ARE IN ACCORDANCE WITH CITY OF SCOTTSDALE REVISED CODE, CHAPTER 37 – FLOODPLAIN AND STORMWATER REGULATIONS.

CITY OF SCOTTSDALE FIRE DEPARTMENT

ACCESS GRADES FROM 0 TO 12% FOR ONE SINGLE FAMILY RESIDENCE		Drive		Drive		Turn-a-round		Hose		Sprinkler Requirements	
Length	Width	Drive	Surface	Turn-a-round	Required	Lay	Shall meet BBSFR 8.1.1.3	Length	Width	Drive	Surface
Less than 200 feet	12	AW	No	Less than 200 feet	Yes						



ESLO NOTES:

43. Pools require separate approval and permit.

44. Pools shall not be emptied or backwashed into washes, streets, NAOS, scenic corridors, on to an adjacent lot, or tract of land. (ZO Sec. 6.1100.B.1.; and DS&PM 2–2.501.D.4.c.)

45. All mechanical equipment (air conditioner, pool equip. etc.) shall be screened a minimum of 1 foot above the highest portion of the equipment from all sides and shall be compatible with the adjacent building. Show location of equipment on site plan.

46. A guesthouse shall never be offered for rent. (ZO Sec. 5.012.A.6.c. and Sec. 5.102.A.6.c.)

47. A guesthouse shall not exceed a gross footprint size greater than 50% of the foot print size of the principal building. (ZO Sec. 5.012.A.6.b. and Sec. 5.102.A.6.b.)

48. Exterior materials and paint colors shall not exceed a value and/or chroma of 6 as indicated in the Munsel Book of Color on file in the City of Scottsdale's Planning & Development Department. The City may require color samples to verify compliance. (ZO Sec. 6.1070.G.1.h.)

49. Materials used for exterior surfaces of all structures shall blend in color, hue, and tone with the surrounding natural desert setting to avoid high contrast. (ZO Sec. 6.1070.G.1.c.)

50. Surface materials of walls, retaining walls or fences shall be similar to and compatible with those of the adjacent main buildings. (ZO Sec. 6.1070.G.1.d.)

51. Plant materials not indigenous to the ESL area shall be limited to enclosed yard areas and non-indigenous plants that have the potential of exceeding twenty (20) feet in height are prohibited. Turf shall be limited to enclosed areas not visible from a lower elevation. (ZO Sec. 6.1070.G.1.i–j.)

52. Reflective building materials are prohibited. (DS&PM 2–2.501.A.2.)

53. Reflective building and roofing materials (other than windows and solar panels) including materials with high gloss finishes and bright, untarnished copper, aluminum, galvanized steel or other metallic surfaces, shall be textured or have a matte or non-reflective surface treatment to reduce the reflections of sunlight onto other property. (ZO Sec. 6.1070.G.1.b.)

54. Mirrored surfaces or any treatments that change ordinary glass into a mirrored surface are prohibited. (ZO Sec. 6.1070.G.1.a.)

55. The owner shall incorporate development design and construction techniques that blend in scale, form and visual character to minimize exposed scars to the satisfaction of the Planning & Development Department. (ZO Sec. 6.1070.G.1.e.)

56. Any proposed modifications to natural watercourses and all walls and fences crossing natural watercourses shall be designed in accordance with the standards and policies specified in chapter 37 (drainage and floodplain ordinance) of the Scottsdale Revised Code. (ZO Sec. 6.1070.G.1.l.)

57. Land designated as NAOS shall be permanently maintained as open space. The property owner shall maintain all designated NAOS. (ZO Sec. 6.1060.A.3–4 and Sec. 6.1100.B.1.)

58. All exterior lighting below 3 feet in height shall be fully shielded. All exterior lighting above 3 feet in height shall consist of horizontal full–cutoff fixtures and directed downward, except lights utilized for security purposes. (ZO Sec. 6.1070.G.1.f)

59. Exterior lighting should be low scale and directed downward, recessed or shielded so that the light source is not visible from residential developments in the area or from a public viewpoint. Exterior fixtures shall not generally exceed a height of 6 feet measured from the nearest adjacent grade to the top of the fixture (lower heights may be required by the Inspection or Code Enforcement staff). (ZO Sec. 6.1070.G.1.f)

60. Where on–site walls are placed adjacent to NAOS areas at least 50 percent of the wall surface shall be a view fence. (DS&PM 2–2.501.B.2.b.)

61. Temporary/Security Fencing that is required or is optionally provided shall be in accordance with the Zoning Ordinance and the Design Standards and Policies Manual. (ZO Sec. 7.700 and Sec. 6.1071.A.6, and DS&PM 1–1.407)

62. In accordance with the Zoning Ordinance, a registered surveyor shall stake and rope the most restrictive area defined by the construction envelope and NAOS easement as shown on the site plan. (ZO Sec. 6.1070.A.5)

63. No point color or surface treatment shall be used which has a Light Reflective Value (LRV) greater than 35%(ZO Sec. 6.1070.G.1.g.&k)

64. A registered surveyor shall stake and rope or fence the NAOS easement in accordance with the site plan and the easement legal description.

65. No point colors shall be used which have a Light Reflective Value (LRV) greater than 40%.

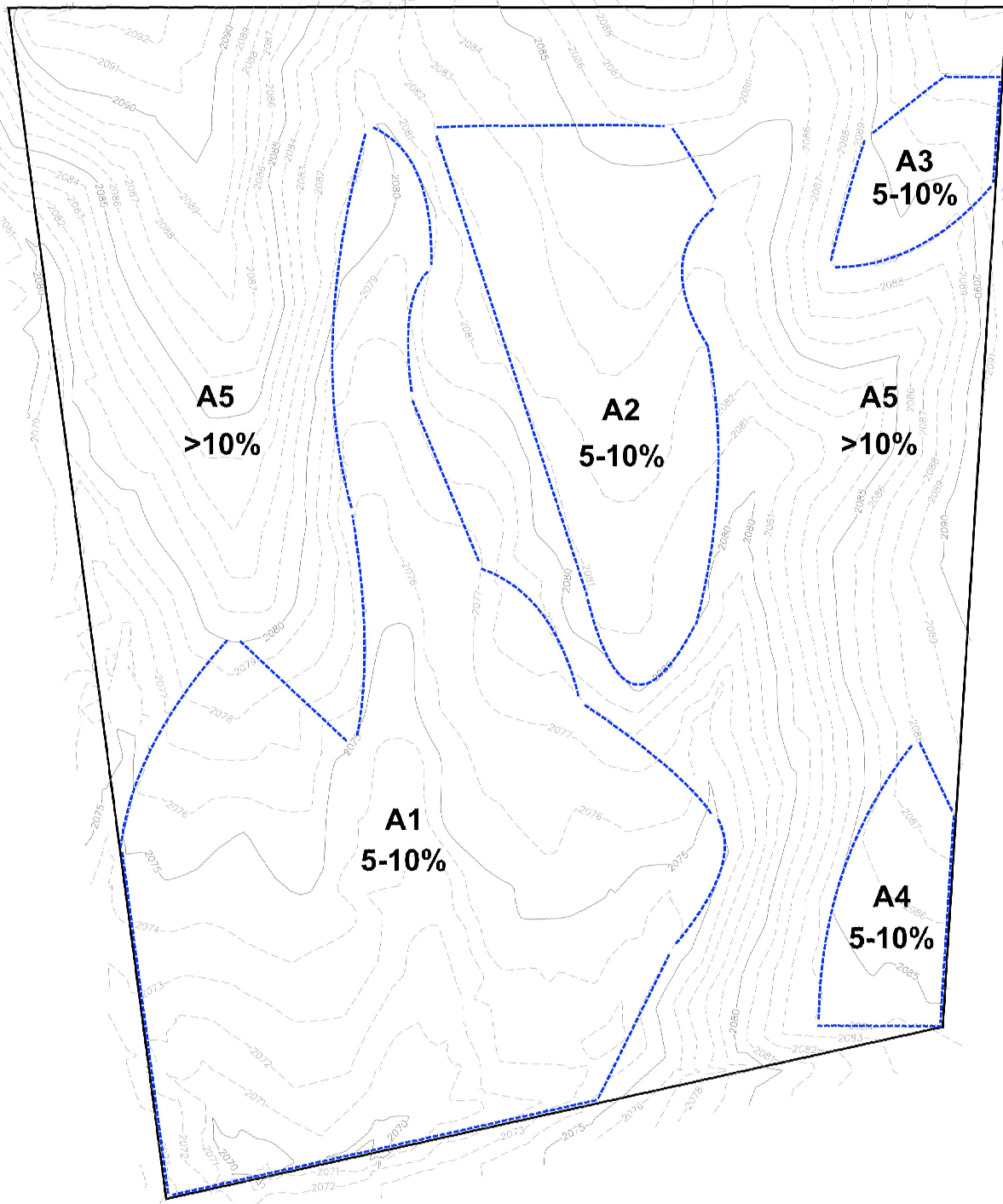
Slope Category	Name	Area (SF)
5-10%	A1	26,372
	A2	5,164
	A3	1,704
	A4	2,304
> 10%	A5	56,372

Upper Desert			
Slope Category	%	Area (SF)	Total NAOS (SF)
0-2%	25%	0	0
2-5%	25%	0	0
5-10%	35%	35,544	12,440
10-15%	45%	56,372	25,367
15-25%	45%	0	0
> 25%	45%	0	0
		91,916	37,808

GENERAL NOTES

- A registered surveyor shall stake the N.A.O.S. easement and the owner/contractor shall rope or fence the easement in accordance with the site plan and the easement legal description. The construction envelope and NAOS area staked must be the most restrictive in accordance with the Zoning Ordinance.
- 5 percent minimum slope away from the building for a minimum of 10 feet unless otherwise noted.
- All drainage protective devices such as swales, interceptor ditches, pipes, protective berms, concrete channels or other measures designed to protect buildings or property from storm runoff must be completed prior to any structure being built.
- All private water & sewer service lines to have a minimum of 1' horizontal separation per 2012 IRC. Private water line to be a minimum of 1" diameter; private sewer line to be a minimum of 4" diameter, unless otherwise noted.
- Any drainage structures: i.e. catch basins, culverts, channels or any other drainage related features will be maintained by the home owner.
- All driveways shall conform to the Fire Department Guidelines of Emergency Vehicle Access.
- Any wall adjacent to an area of pedestrian activity is to conform with Civil Standards. A block wall or wrought iron fence is required where drop–offs exceed 30 inches.
- All mechanical equipment concrete pads are to have a finished grade of 0.33' lower than the adjacent finished floor of the proposed structure in all flood zones other than Ao; for Ao flood zones the mechanical pad elevation will be equal to the adjacent finished floor elevation, (UNLESS OTHERWISE NOTED).
- Contractor to verify slope of sewer inverts and elevations to verify use of gravity systems.
- Contractor to verify the location of all utilities prior to construction.
- Contractor to install sewer clean–outs on sewer service line every 100 feet per 2012 IRC.
- The contractor/owner shall not construct the walls shown on this plan until an approval and proper permits have been issued by the City of Scottsdale pertaining to this work. Approval from the Home Owners Association (if applicable) should be obtained prior to construction.
- Maximum driveway slope not to exceed 18% and 12% average along entire length of driveway.
- All exposed concrete to be integrally colored Pima Beige (or equivalent).
- Temporary/Security Fencing that is required or is optionally provided shall be in accordance with the Zoning Ordinance and the Design Standards and Policies Manual.
- Any slope shown on this grading plan that is greater than 5% must be stabilized by the contractor/owner with native rock (4" diameter minimum), vegetation or other approved soil stabilization method (i.e. filter fabric, soil cement, Geo Fabric, etc.). Surface erosion on slopes greater than 5% is normal and measures to minimize it is the responsibility of the contractor/owner.
- Any cut slope on this site with a slope greater than 4:1, a Geotechnical Engineer must certify the soil stability, or construct a stable slope using Soils Cement, Rip Rap, 6 inch thick 3000 p.s.i. natural colored shotcrete with welded fabric or any other approved equivalent method over the cut slope to provide stability.
- The Lowest Finish Floor Elevation for this site has been established according to the FEMA Base Flood Elevation requirements as well as any applicable City of Scottsdale requirements.

Slope Category Analysis



LEGAL DESCRIPTION

Lot 35 of Pinnacle Peak Heights Unit Five as recorded in Book 234 of Maps, Page 45 of the Maricopa County Records, Maricopa County, Arizona.

SITE INFORMATION

Lot Area:	91,916 square feet
APN:	217–07–202
Desert Land Form:	Upper Desert
N.A.O.S. Required:	37,808 square feet
N.A.O.S. Provided:	41,473 square feet
Slope Category:	5–10%, 10–15%
Zoning:	R1–190ESL (HD)
C.O.S. Q.S. :	43–52

OWNER

NAOS CALCULATIONS	
TOTAL NAOS DEDICATED:	41,473 sf
TOTAL REVEG:	7,330 sf
REVEG CREDIT: (7,330x0.5) =	3,665 sf
TOTAL NAOS CREDIT:	37,808 sf

ARCHITECT/DESIGNER

NAOS DISTURBED:	7,330 SF (19.4%)
NAOS UNDISTURBED:	34,143 SF (90.3%)

CLIENT

FIELD SURVEY BENCHMARK

Maricopa County Highway Department Brass Cap flush at the westerly intersection of Church Road and Pinnacle Peak Road. Elevation= 2180.619 (City of Scottsdale NAD88 Datum)

I hereby certify that all elevations represented on this plan are based on NAVD 1988 and meet the FEMA Benchmark Maintenance (BMM) Criteria.

Field survey conducted by SCG on August 15, 2022, contact information: Summit Cvl Group; Frank Boxberger; frank@scgcz.com

CIVIL ENGINEER'S GENERAL NOTES

- IF A DISCREPANCY IS FOUND BETWEEN THE ENGINEER'S PLAN OR SURVEYOR'S STAKING AND THE ARCHITECTURAL PLAN, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY. FAILURE TO NOTIFY ENGINEER SHALL NEGATE ENGINEER'S LIABILITY.
- THIS SITE PLAN IS NOT A BOUNDARY SURVEY.
- BEARINGS AND DISTANCES ARE RECORD PER PLAT UNLESS OTHERWISE NOTED.
- ALL EXISTING UTILITIES TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CALL BLUE STAKE AT 263–1100.
- ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, CONCRETE CHANNELS OR ANY OTHER MEASURES DESIGNED TO PROTECT BUILDINGS OR OTHER PROPERTIES FROM STORM RUNOFF MUST BE COMPLETED PRIOR TO ANY STRUCTURES BEING BUILT.
- HYDROLOGIC ANALYSIS OF THIS SITE INCLUDES SURFACE RUNOFF ONLY.
- ANY PROPOSED PIPES ON THIS SITE PLAN SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
- ALL WALLS SHOWN ON THIS PLAN MUST BE SUBMITTED AND APPROVED BY THE REVIEWING MUNICIPALITY, HOA AND ARCHITECTURAL REVIEW COMMITTEE (IF APPLICABLE) PRIOR TO CONSTRUCTION.
- CLIENT/OWNER/BUILDER TO SECURE PROPER PLAN REVIEW AND PERMITS OF ALL FEDERAL, STATE, COUNTY, LOCAL AND HOA REVIEW AGENCIES PRIOR TO THE INSTALLATION OF CULVERTS, SITE GRADING OR CONSTRUCTION OF THIS PLAN IN ANY FORM.
- CONTRACTOR TO INSTALL BACKFLOW DEVICE PER P3008.1 IF FINISHED FLOOR IS LESS THAN 2' ABOVE UPSTREAM SEWER MANHOLE RIM. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION OF THE PRIVATE SEWER LINE.
- DRIVEWAY TO BE CONSTRUCTED OF ALL WEATHER MATERIAL TO WITHSTAND 83,000 LBS GWV (GROSS VEHICLE WEIGHT).
- DRIVEWAY SLOPE NOT TO EXCEED 18% MAX AND THE AVERAGE GRADE FOR THE LENGTH OF THE DRIVEWAY SHALL BE 12%.
- THE PAD ELEVATIONS OF ALL A/C AND/OR ELCTRO–MECHANICAL UNITS WILL BE SET REASONABLY HIGHER THAT THE ADJACENT GRADES TO PROVIDE FLOOD PROTECTION UNDER THE 100 YEAR STORM EVENT.

HD NOTES:

24. Pools require separate approval and permit.

25. Pools shall not be emptied or backwashed into washes, streets, NAOS, scenic corridors, on to adjacent lots, or tracts of land.

26. All mechanical equipment (air conditioner, pool equipment etc.) shall be screened on all sides by a wall that has a height that is a minimum of 1 foot above the highest portion of the equipment. The wall material and finish shall be compatible with the adjacent building.

27. A guesthouse shall never be offered for rent. Guest homes on lots under 35,000 square feet may not provide cooking facilities.

28. A guesthouse shall not exceed a gross footprint greater than 50% of the foot print of the principal building.

29. A registered surveyor shall stake and rope or fence the NAOS easement in accordance with the site plan and the easement legal description.

30. Temporary/Security fencing that is required or is optionally provided shall be in accordance with the Zoning Ordinance and the Design Standards and Policies Manual.



REVISIONS 8/13/22 PS
COS COMMENTS

8/13/22 PS
COS COMMENTS

8/13/22 PS
COS COMMENTS

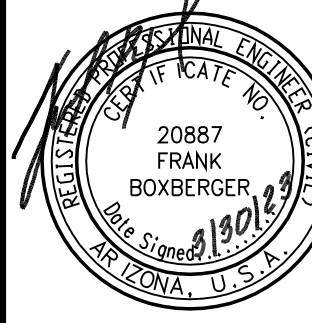
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GRADING PLAN

LOT 35 PINNACLE PEAK HEIGHT UNIT V

10040 EAST FOOTHILLS DRIVE

SCOTTSDALE, ARIZONA

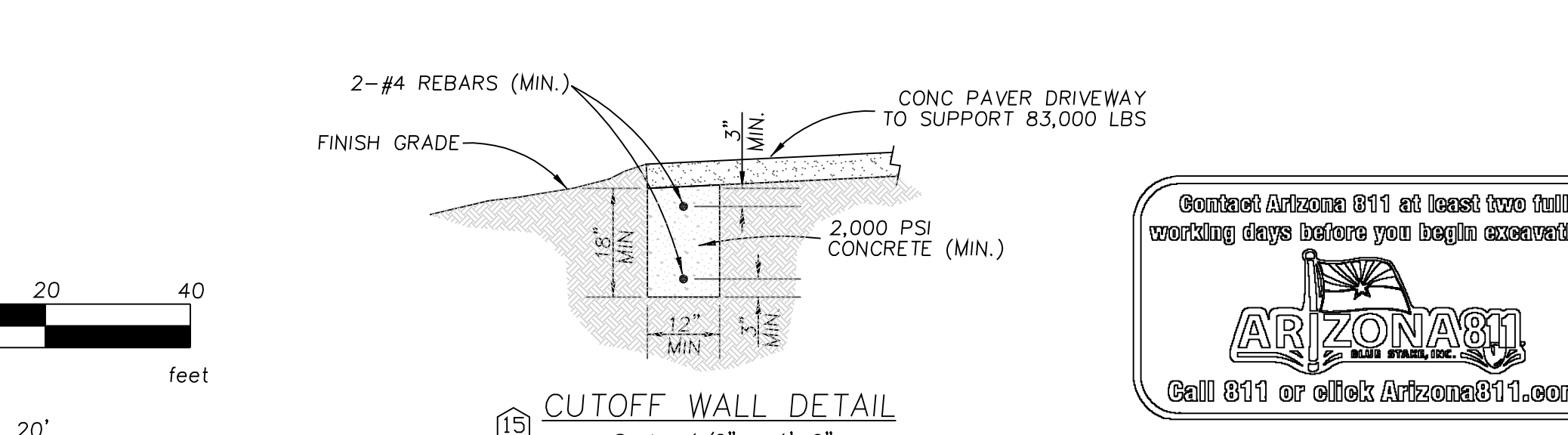


SHEET 3
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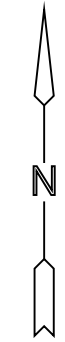
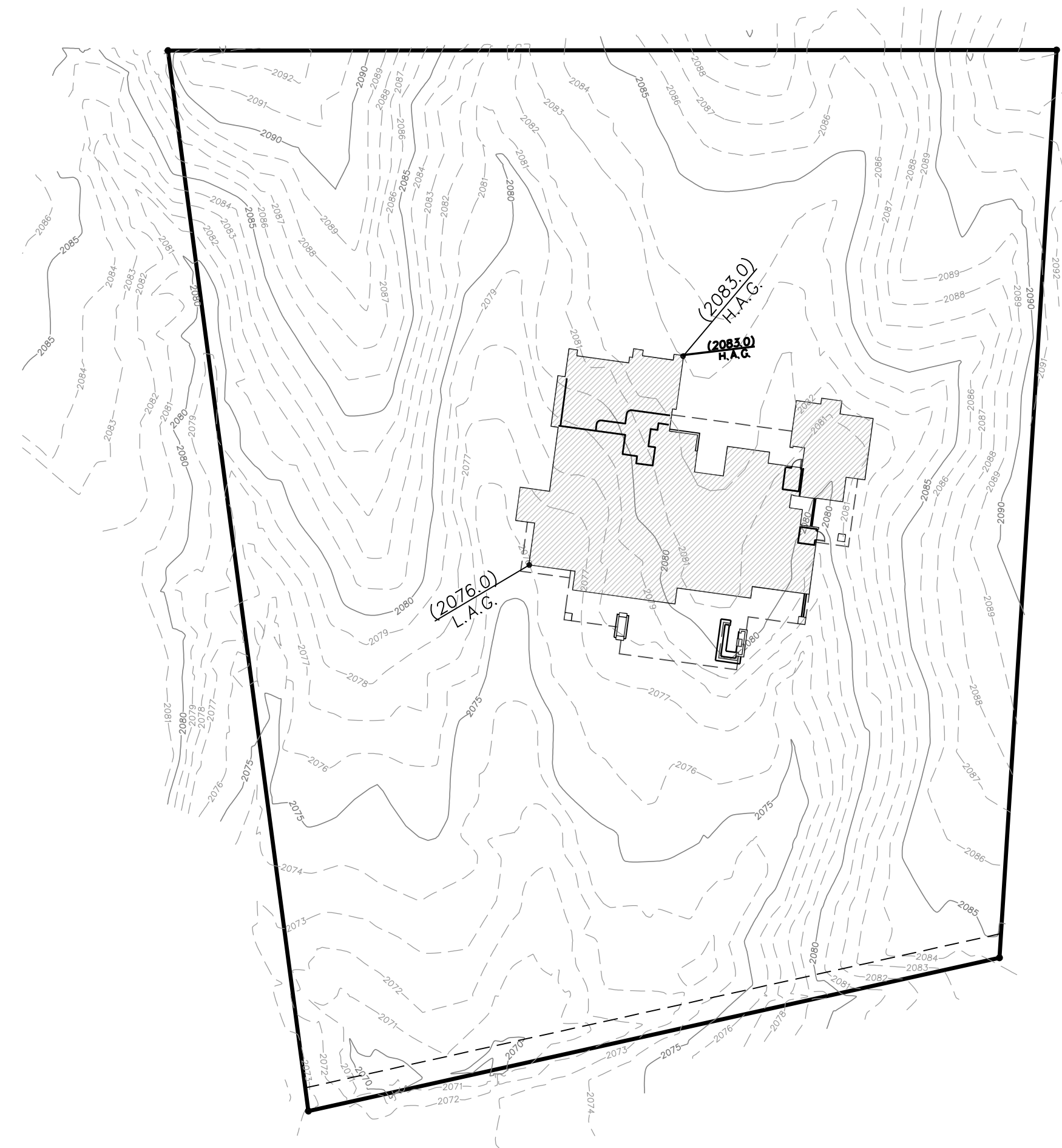
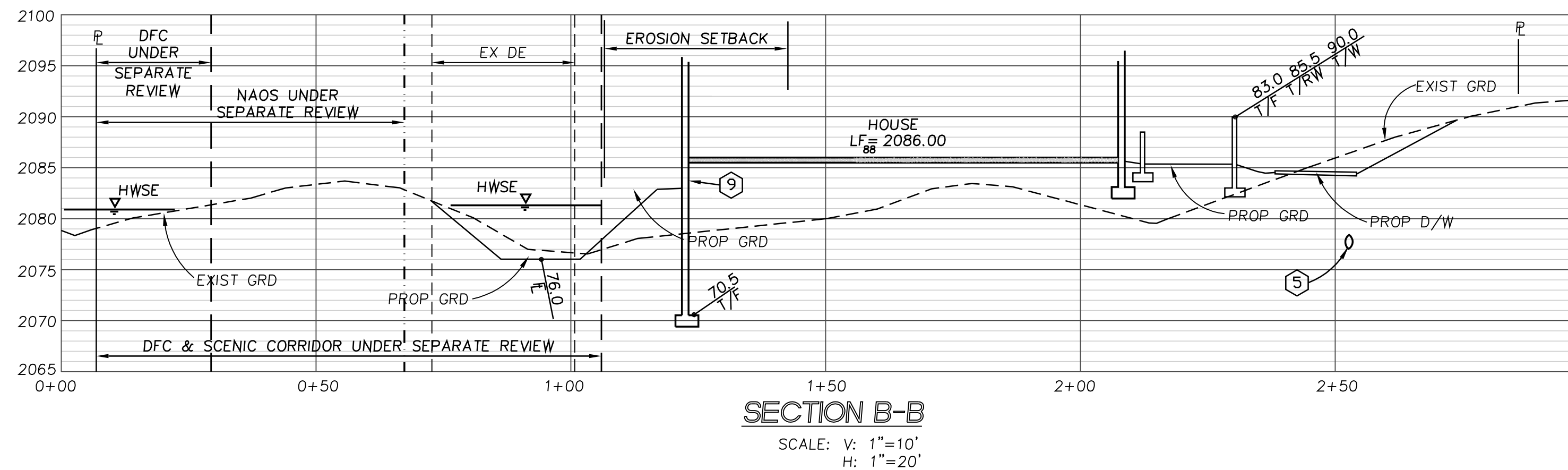
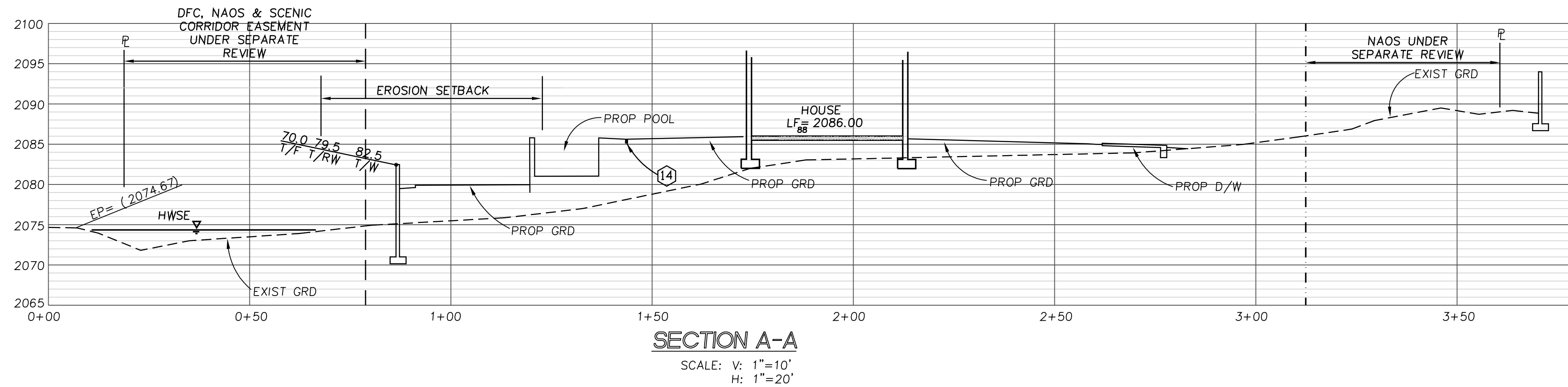
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8707 EAST VISTA BONITA DRIVE STE 145
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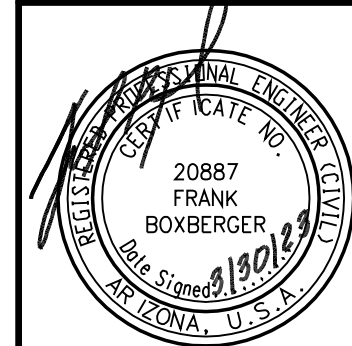
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COS COMMENTS

8/12/22 PS

COS COMMENTS

GRADING PLAN
LOT 35 PINNACLE PEAK HEIGHT UNIT V
10040 EAST FOOTHILLS DRIVE
SCOTTSDALE, ARIZONA



SHEET
3 OF 3

DATE
FEB 2022

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