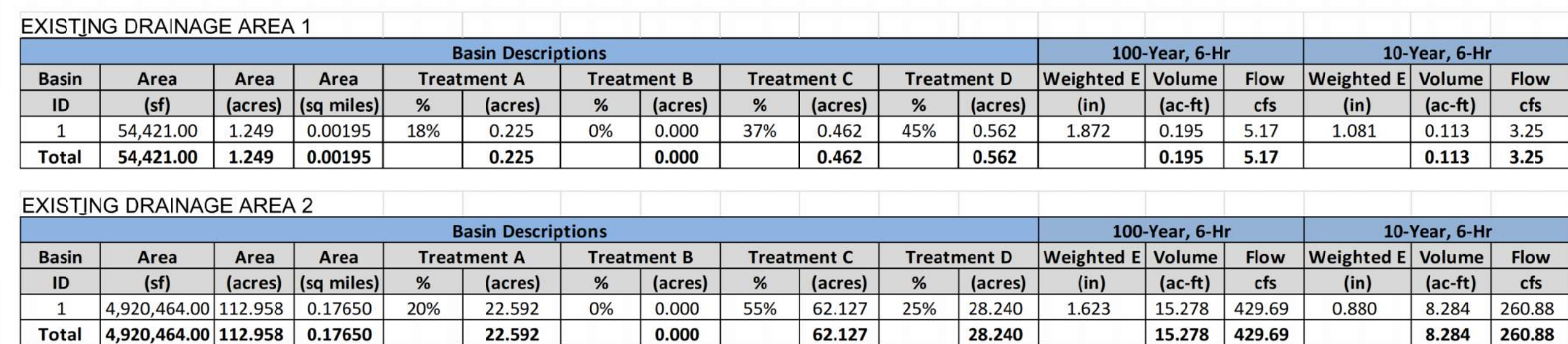
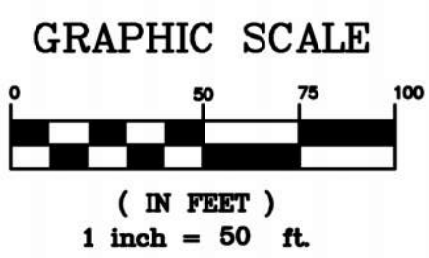
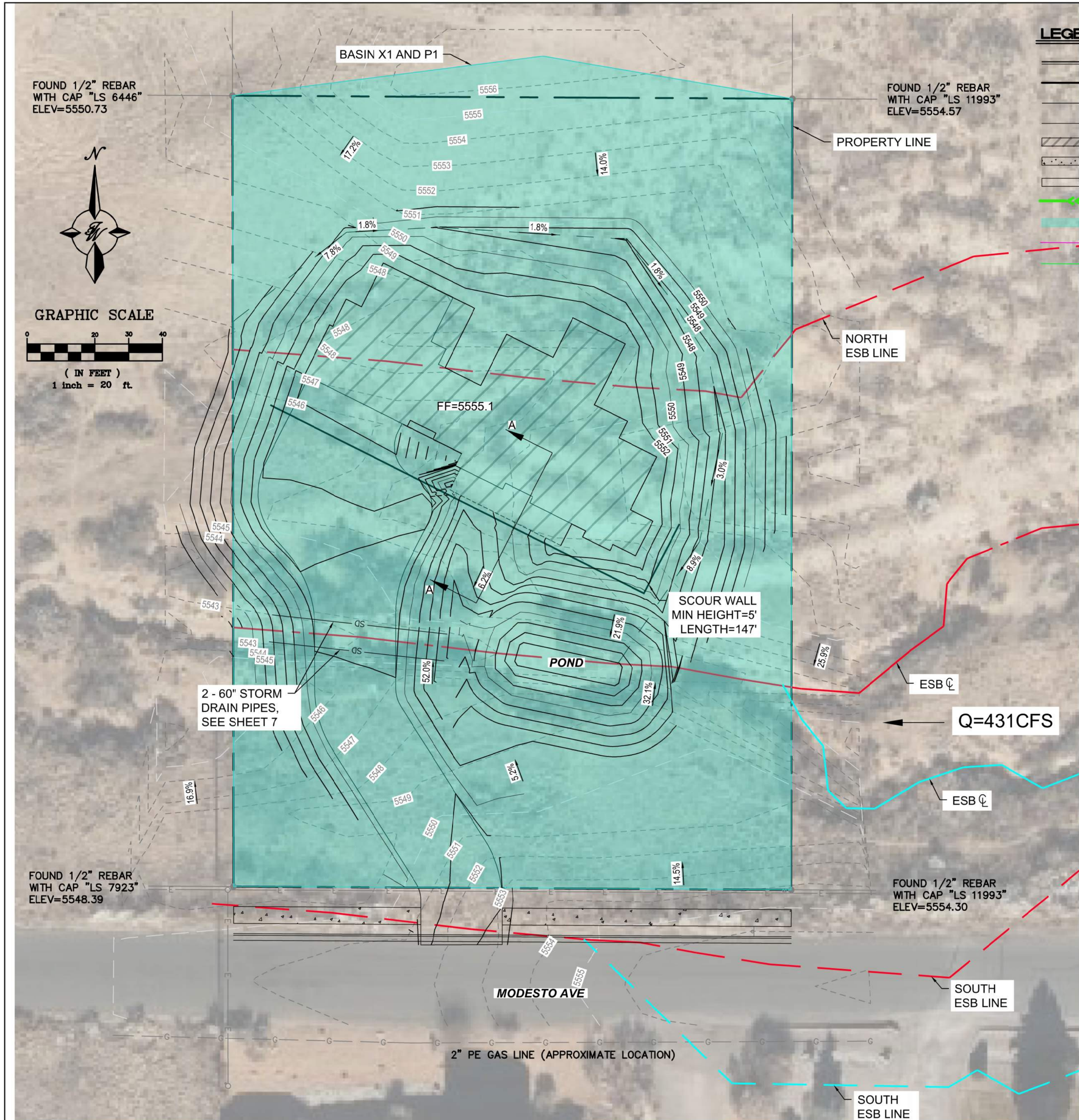




ENGINEER'S SEAL	9001 MODESTO AVENUE N.E. ALBUQUERQUE, NM	DRAWN BY BL
DRAFT		DATE 05-09-2025
	EXISTING DRAINAGE PLAN	2024002_GR&DR
	 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com	SHEET # 1
05/09/2025		JOB # 2024002
RONALD R. BOHANNAN P.E. #7868		



Existing Conditions										
Basin Descriptions										
Basin ID	Description	Condition	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment B %	Treatment C %	Treatment D %	Weighted E (in)
X1	Native Soils	Undeveloped	38,657	0.8874	0.00139	100%	0.887	0%	0.000	0.760
Total			38,657	0.89	0.00139		0.887	0.000	0.000	1.85

Proposed Conditions										
Basin Descriptions										
Basin ID	Description	Condition	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment B %	Treatment C %	Treatment D %	Weighted E (in)
P1	Paved / Graded	Developed	38,657	0.8874	0.00139	41%	0.364	0%	0.000	1.533
Total			38,657	0.89	0.00139		0.364	0.311	0.213	2.84

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume₃₆₀ = Weighted E * Total Area

Volume₁₄₄₀ = Volume₃₆₀ * A₀ * (P₁₄₄₀ - P₃₆₀) / 12 in/ft

Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad

Storm Water Quality Volume (SWQV) = Ad * (0.26in) / (12in/ft) = 837.6 cft = 0.01923 ac-ft = Retention Volume Required for Basin P1

RETENTION POND CALCULATIONS				
POND No.	AREA AT MIDPOINT (SF)	POND DEPTH (FT)	POND VOLUME (CF)	VOLUME REQUIRED (AC-FT)
1	468	2.0	936	0.0215
Total			936	0.0192

Excess Precipitation, E (in.)	
Zone 4	100-Year
Ea	0.76
Eb	0.95
Ec	1.2
Ed	3.34

Peak Discharge (cfs/acre)	
Zone 4	100-Year
Qa	2.09
Qb	2.73
Qc	3.41
Qd	4.78

DRAINAGE PLAN:

SITE AREA: 0.8874AC

EXISTING DRAINAGE CONDITION:

THE DRAINAGE ANALYSIS FOR THIS SITE IS IN ACCORDANCE WITH CHAPTER 6, ARTICLE 6-2, SECTION 6-2(A), ENTITLED "PROCEDURE FOR 40-ACRE OR SMALLER BASINS." THE DESIGN STORM USED FOR BOTH THE UNDEVELOPED AND DEVELOPED CONDITIONS IS THE 100-YEAR, 6-HOUR STORM EVENT FOR RUNOFF. THE SITE IS LOCATED IN ZONE 4. UNDER THE EXISTING CONDITIONS, THE PROPERTY IS DEVELOPED.

THE SITE IS LOCATED IN NORTH ALBUQUERQUE ACRES, JUST NORTHWEST OF ALAMEDA BLVD AND VENTURA ST. THE SITE DRAINS TO AN EXISTING CHANNEL FLOWING THROUGH THE MIDDLE OF THE LOT. THE CHANNEL FLOWS ONTO THE SITE FROM THE EAST. THEN THE FLOW CONTINUES WEST AND OFF THE SITE. THE LOT NORTH OF THE SITE FALLS WITHIN THE 100-YR FLOODPLAIN BASED ON THE FIRM MAP 35001C0133H, EFF. 8/16/2012. THE SITE CONTAINS SOILS THAT ARE CLASSIFIED AS HYDROLOGIC SOIL GROUPS A AND B.

DEVELOPED DRAINAGE CONDITION:

EXISTING UPSTREAM AND DOWNSTREAM INFRASTRUCTURE & DRAINAGE PATTERNS ARE INTENDED TO CONTINUE TO OPERATE IN THEIR CURRENT MANNER. FLOW GENERATED ACROSS THE PROPOSED 0.8874 ACRE LOT WILL BE DIRECTED INTO AN ON-SITE RETENTION POND. THIS POND WAS DESIGNED TO RETAIN THE 'FIRST FLUSH' RUN-OFF VOLUME PURSUANT TO THE CITY OF ALBUQUERQUE REQUIREMENTS.

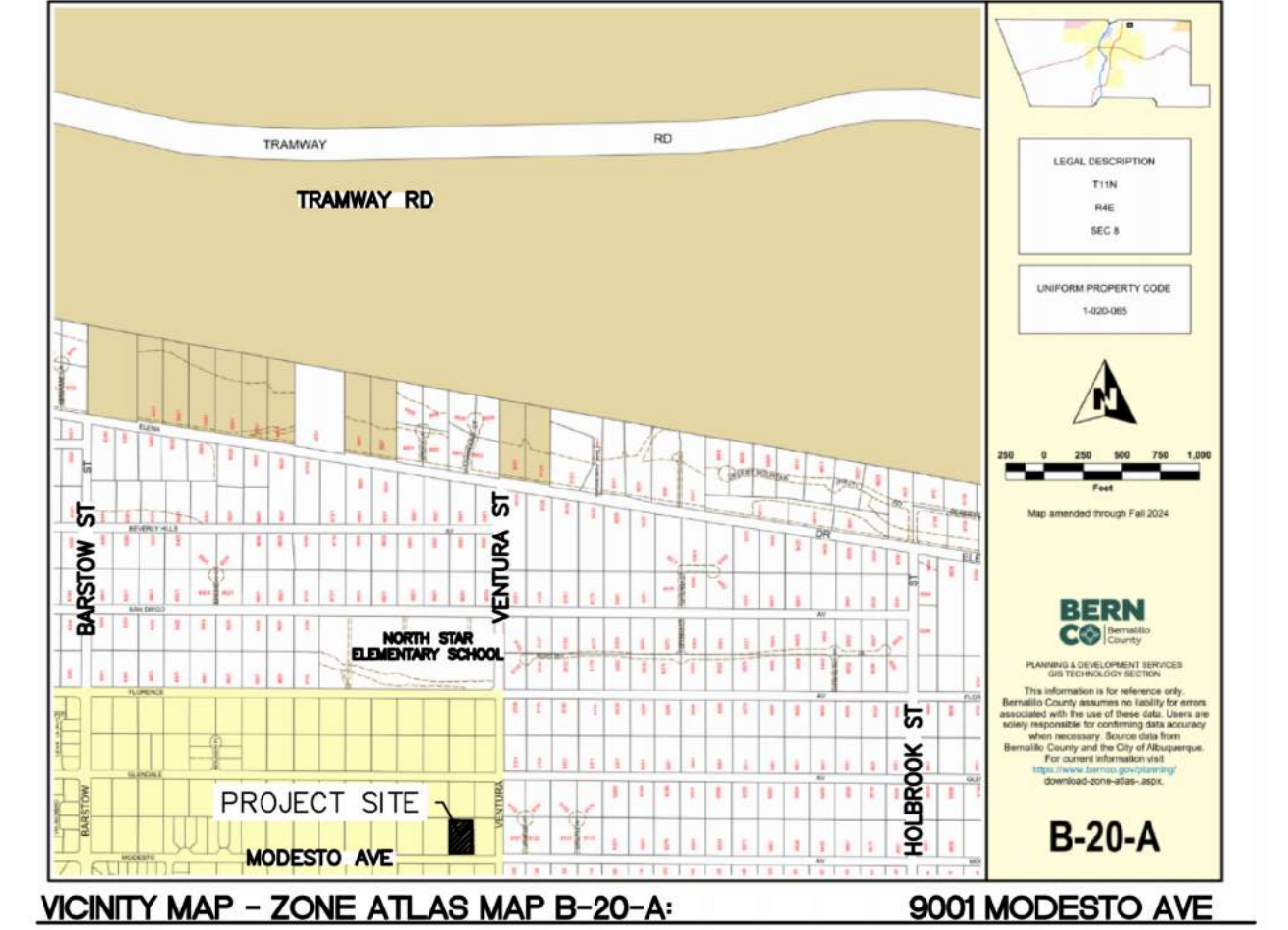
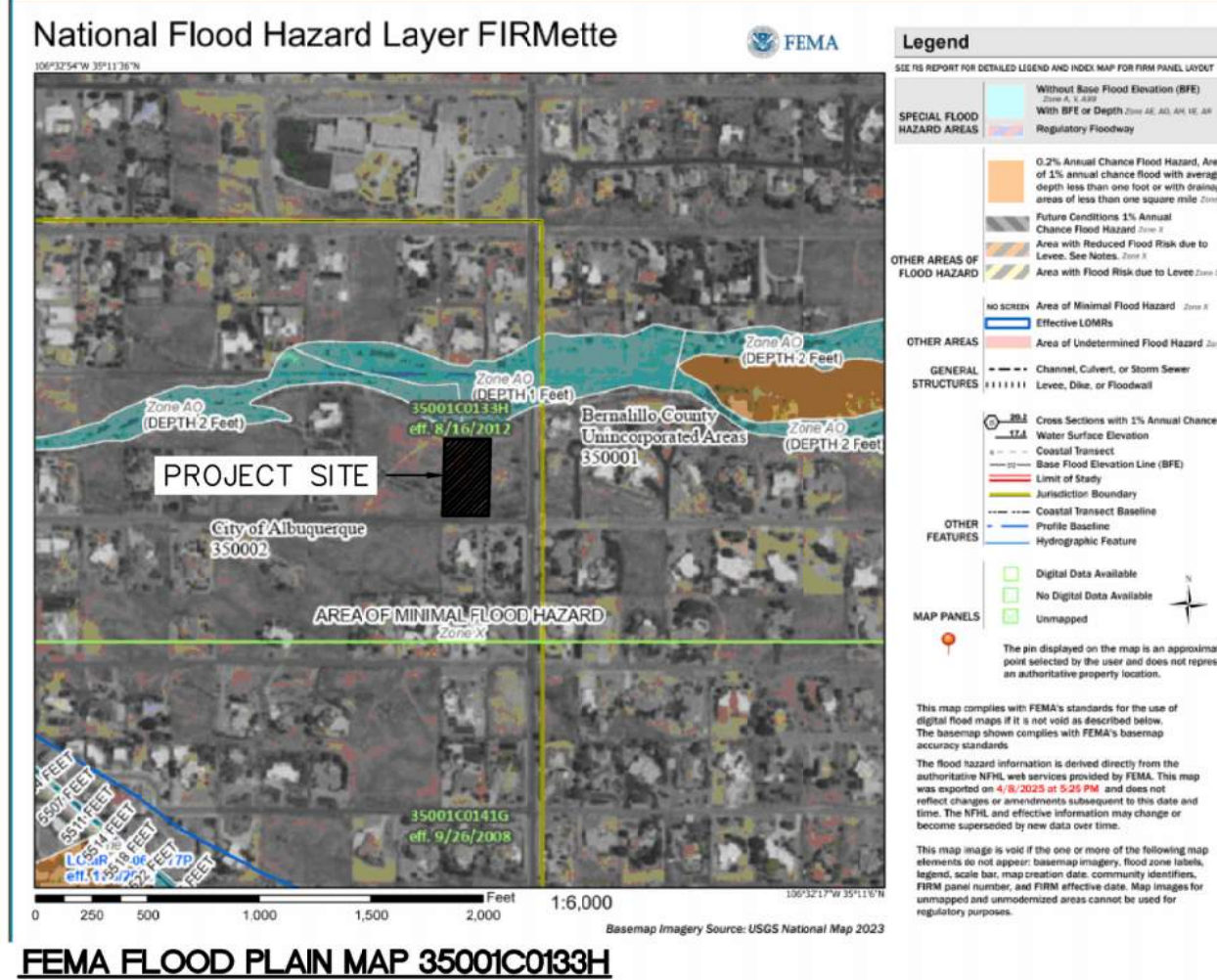
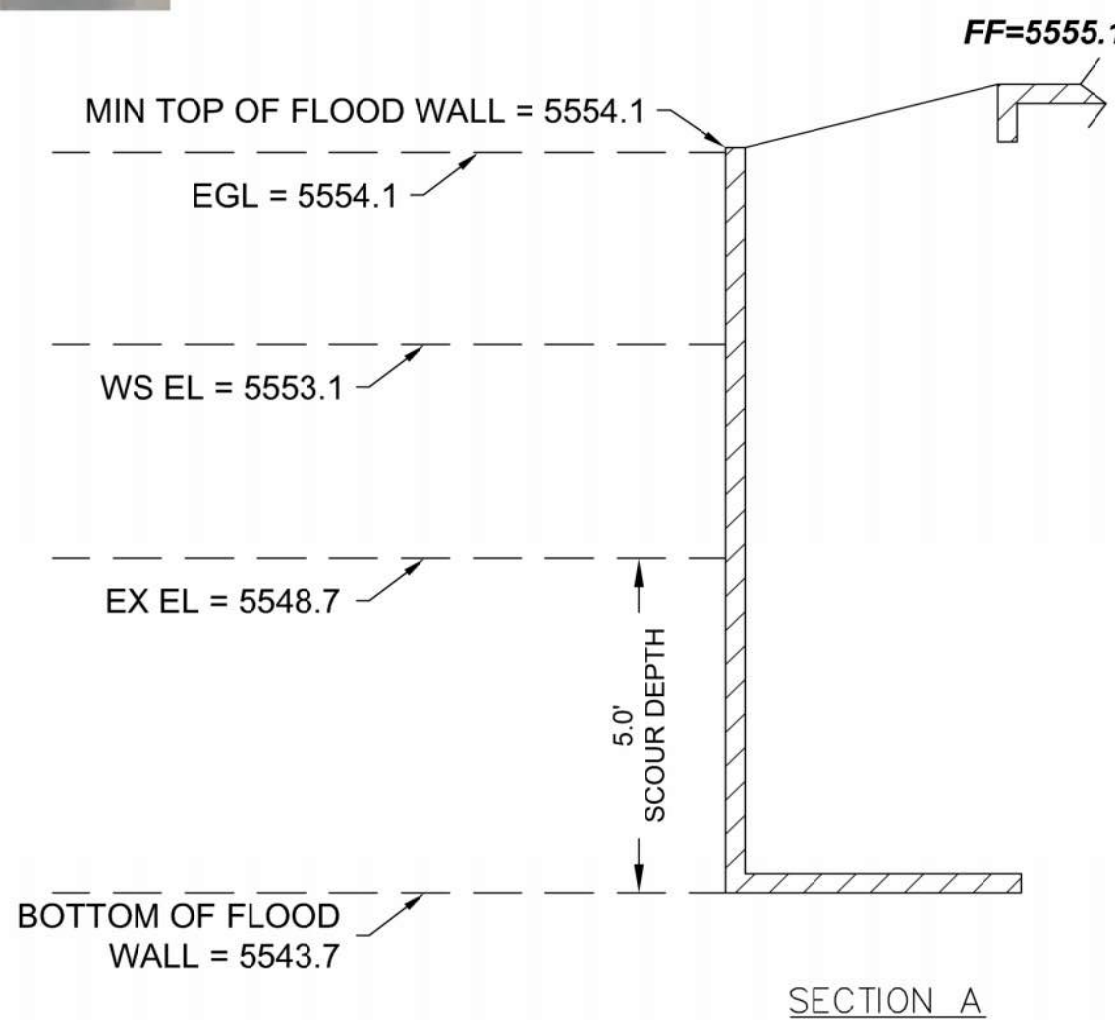
THE MAXIMUM EROSION DISTANCE (ESB) IS BASED ON OPTIMAL BEND SHAPE AND IS 81.95'. AN AVERAGE OF 5' SCOUR DEPTH WAS CALCULATED. THEREFORE, THE FLOOD WALL DEPTH WAS DESIGNED TO BE AT MINIMUM HEIGHT EQUAL TO EGL OR HIGHER. THE FINISHED FLOOR ELEVATION IS SET 12" ABOVE THE EGL ON THE HIGH SIDE OF THE LOT. THE LARGEST FROUDE NUMBER ON SITE WAS CALCULATED TO BE 1.37 WHICH INDICATES A FLOW IN THE TRANSITION ZONE BETWEEN SUBCRITICAL AND SUPERCRITICAL FLOW, AND IT'S ASSOCIATED WITH AN UNDULAR JUMP.

PRIOR TO COMMENCING CONSTRUCTION A SWPPP WILL BE PREPARED AND AN NOI WILL BE FILED WITH THE EPA. DURING CONSTRUCTION A TEMPORARY RETENTION POND WILL BE CONSTRUCTED TO MINIMIZE THE POTENTIAL OF SEDIMENT TRANSPORTATION FROM THE SITE. VARIOUS FACILITIES WILL ALSO BE PROVIDED DURING THE CONSTRUCTION PHASE IN ACCORDANCE WITH THE SWPPP AND MAINTAINED THROUGHOUT THE CONSTRUCTION PHASE.

WATER QUALITY VOLUME REQUIRED FOR THE POND = 837.6 CF

WATER QUALITY VOLUME PROVIDED FOR THE POND = 936 CF

POND PARAMETERS:
BOTTOM OF POND ELEV = 5542
TOP OF POND ELEV = 5545



LEGAL DESCRIPTION:

LOT NUMBER EIGHTEEN (18) IN BLOCK NUMBERED SEVENTEEN (17), TRACT 1, UNIT 3 OF NORTH ALBUQUERQUE ACRES, AS THE SAME IS SHOWN AND DESIGNATED ON SAID PLAT, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNILLO COUNTY, NEW MEXICO.

ADDRESS:

9001 MODESTO AVE, NE, ALBUQUERQUE, NM 87122

EROSION CONTROL PLAN AND POLLUTION PREVENTION NOTES:

- CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
- CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT OUT OF EXISTING RIGHT-OF-WAY.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STORM RUNOFF ON SITE.
- REPAIR OF DAMAGED FACILITIES AND CLEAN-UP OF SEDIMENT ACCUMULATION ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.
- THE DISTURBED AREAS MUST BE RE-VEGETATED.

NOTICE TO CONTRACTORS:

- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY OF ALBUQUERQUE COUNTY RIGHT-OF-WAY.
- ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
- TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

MAINTENANCE PLAN:

- POND SHOULD BE INSPECTED REGULARLY AND CLEANED OUT OF ANY DEBRIS OR SEDIMENT BUILT UP OVER TIME.

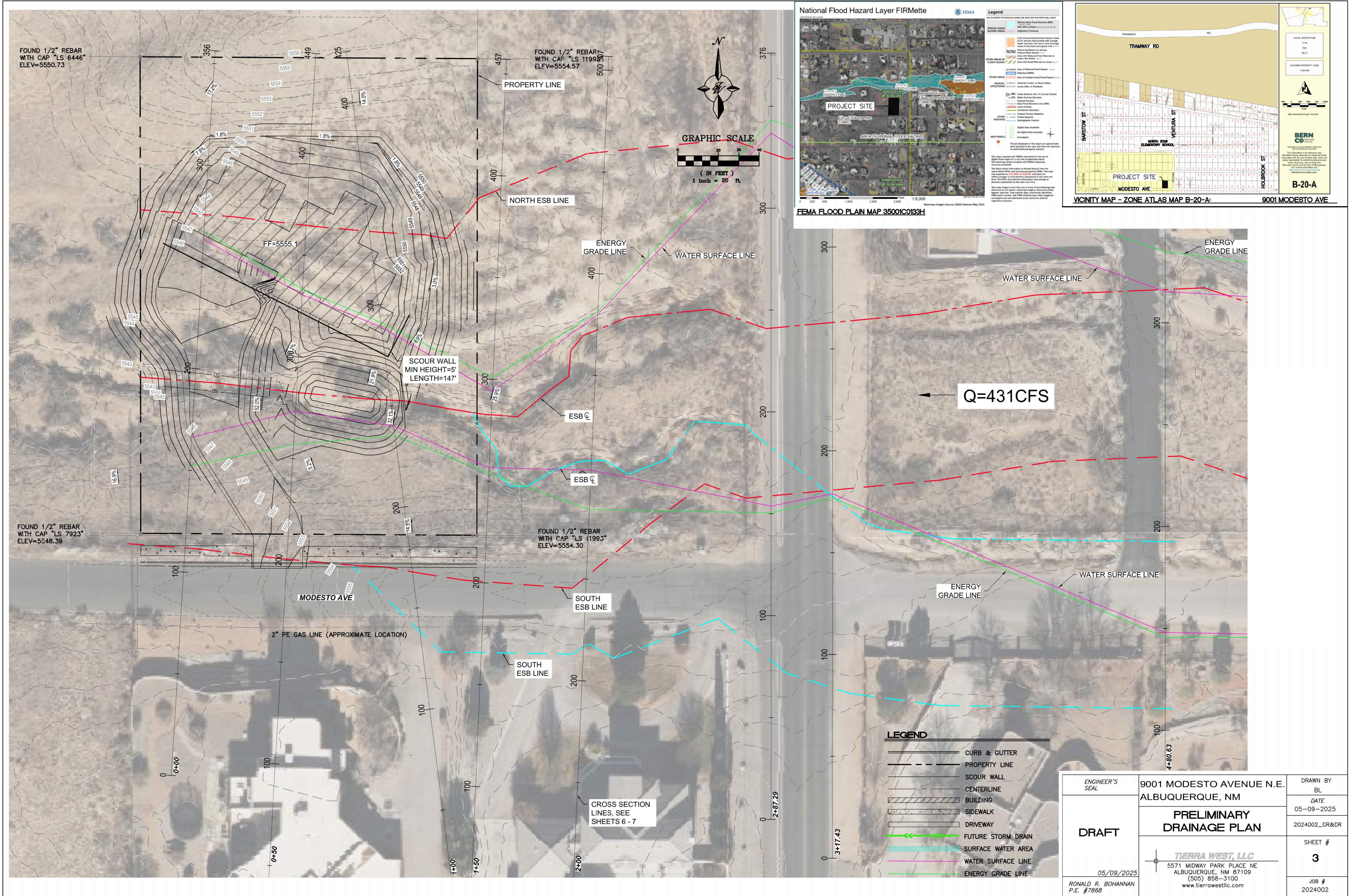
HEC-RAS Super Critical Flow Results										
River Station	Q Total (cfs)	Min Ch El (ft)	W.S. Elv (ft)	Crit. W.S. (ft)	E.G. Elv (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chnl
1050.04	431	5578.08	5579.99	5579.99	5580.39	0.032033	5.07	85.03	106.73	1
815.06	431	5571.57	5573.23	5573.23	5573.67	0.030146	5.33	80.86	89.94	0.99
630.07	431	5564.33	5566.66	5566.73	5567.14	0.041727	5.56	77.54	103.28	1.13
480.63	431	5563.48	5564.43	5564.43	5564.73	0.036302	4.4	97.97	167.38	1.01
317.43	431	5555.69	5556.69	5556.83	5557.18	0.060659	5.59	77.16	135.48	1.3
287.29	431	5555.49	5556.37	5556.37	5556.65	0.035892	4.23	101.87	183.08	1
200	431	5549.3	5551.96	5552.21	5552.99	0.047564	8.16	52.85	42.27	1.29
150	431	5546.92	5550.14	5550.23	5551.05	0.031426	7.67	56.23	36.53	1.09
100	431	5545.4	5549.11	5549.11	5549.78	0.028083	6.61	65.2	48.86	1.01
50	431	5544.25	5548.05	5548.05	5548.79	0.027124	6.91	62.34	42.32	1
0	431	5544	5546.34	5546.5	5547.03	0.047211	6.65	64.78	71.59	1.23

Scour Depth Calculations		
River Station	Y1 = (W.S. - Min Ch El)	Scour Depth (ft)
1050.04	1.91	2.23
815.06	1.66	1.93
630.07	2.33	3.01
480.63	0.95	1.12
317.43	1	1.47
287.29	0.88	1.03
200	2.66	3.89
150	3.22	4.03
100	3.71	4.37
50	3.8	4.45
0	2.34	3.27

Average Y_s 2.80
Maximum Y_s 4.45
Use 5.00

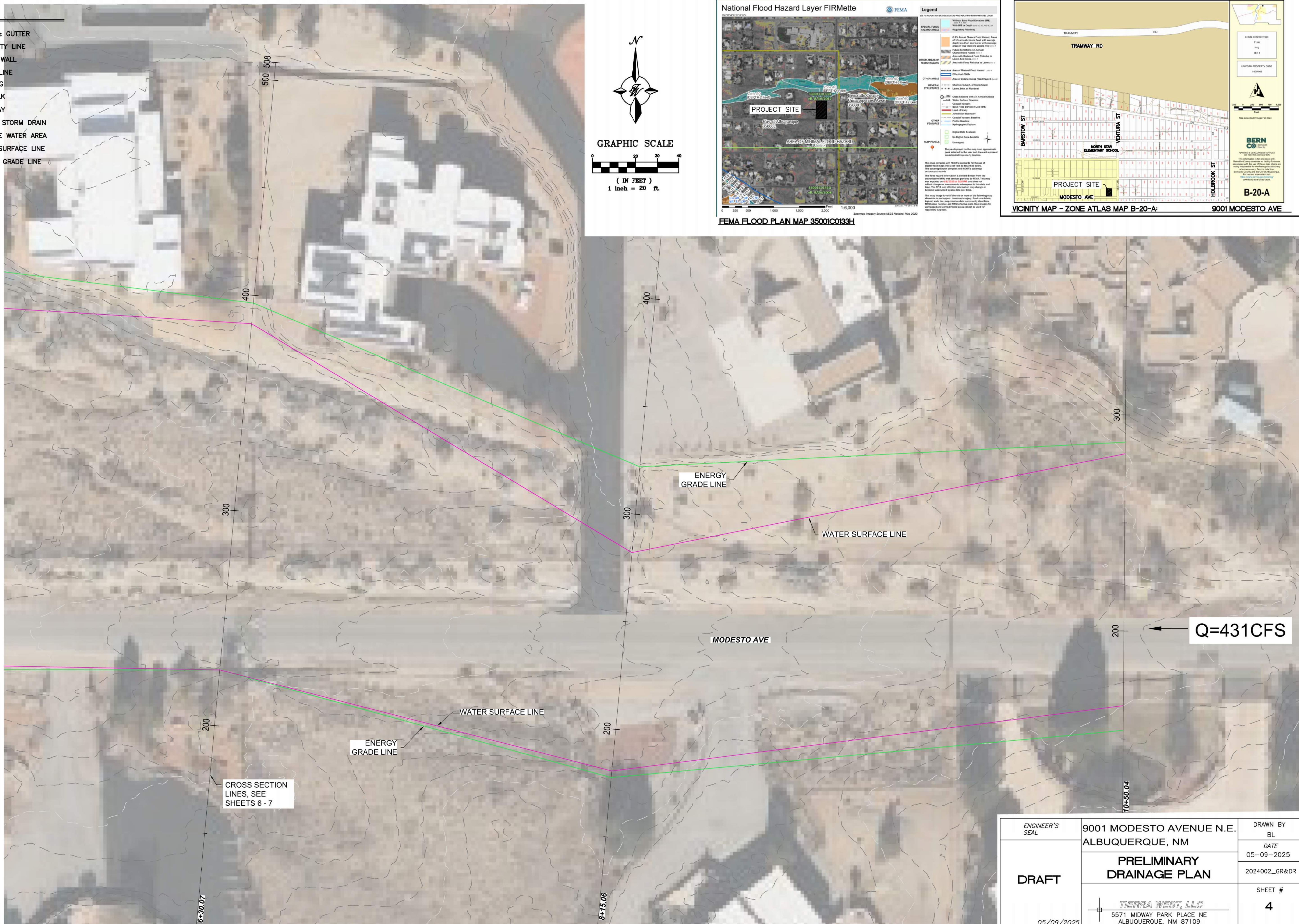
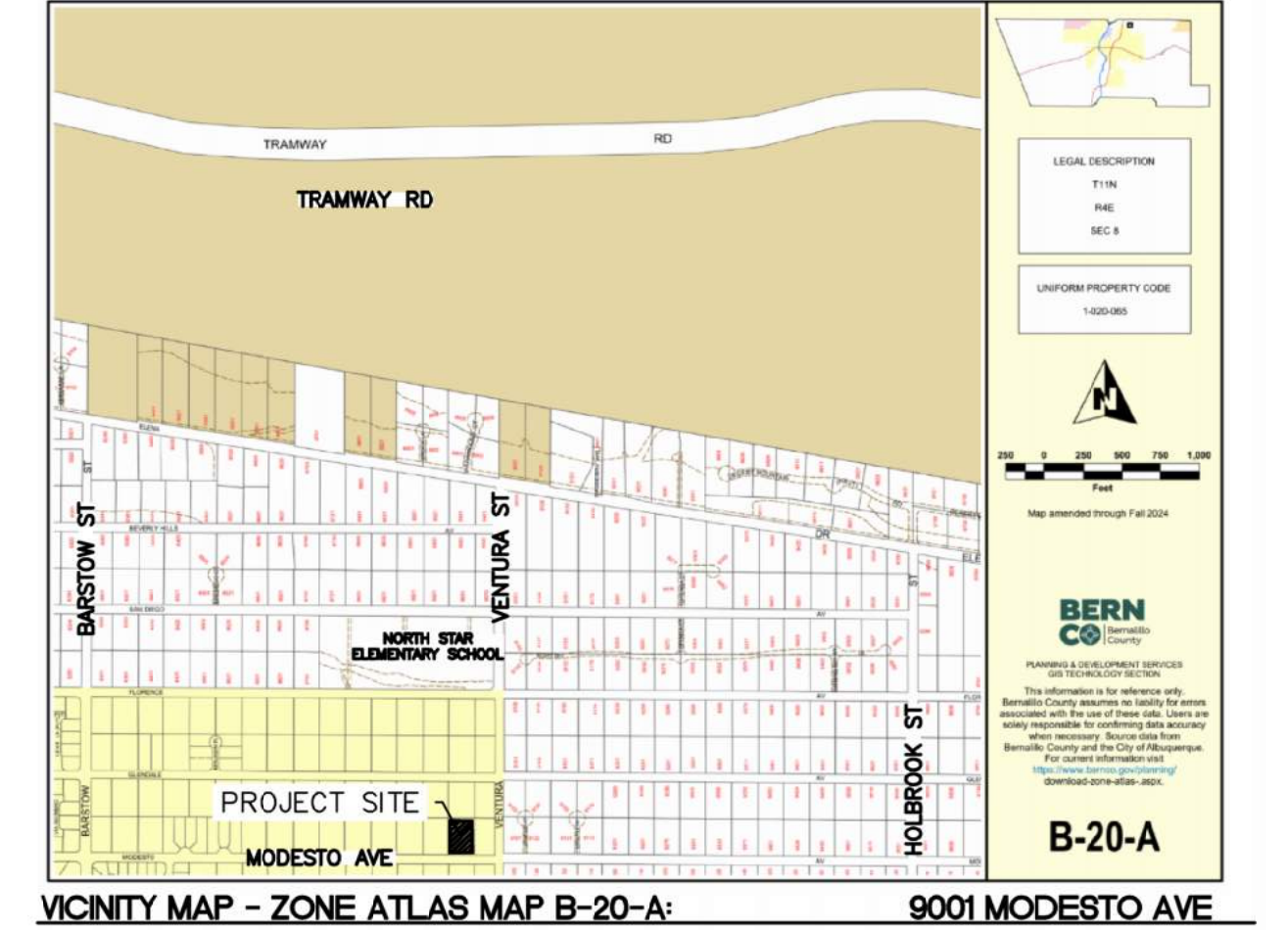
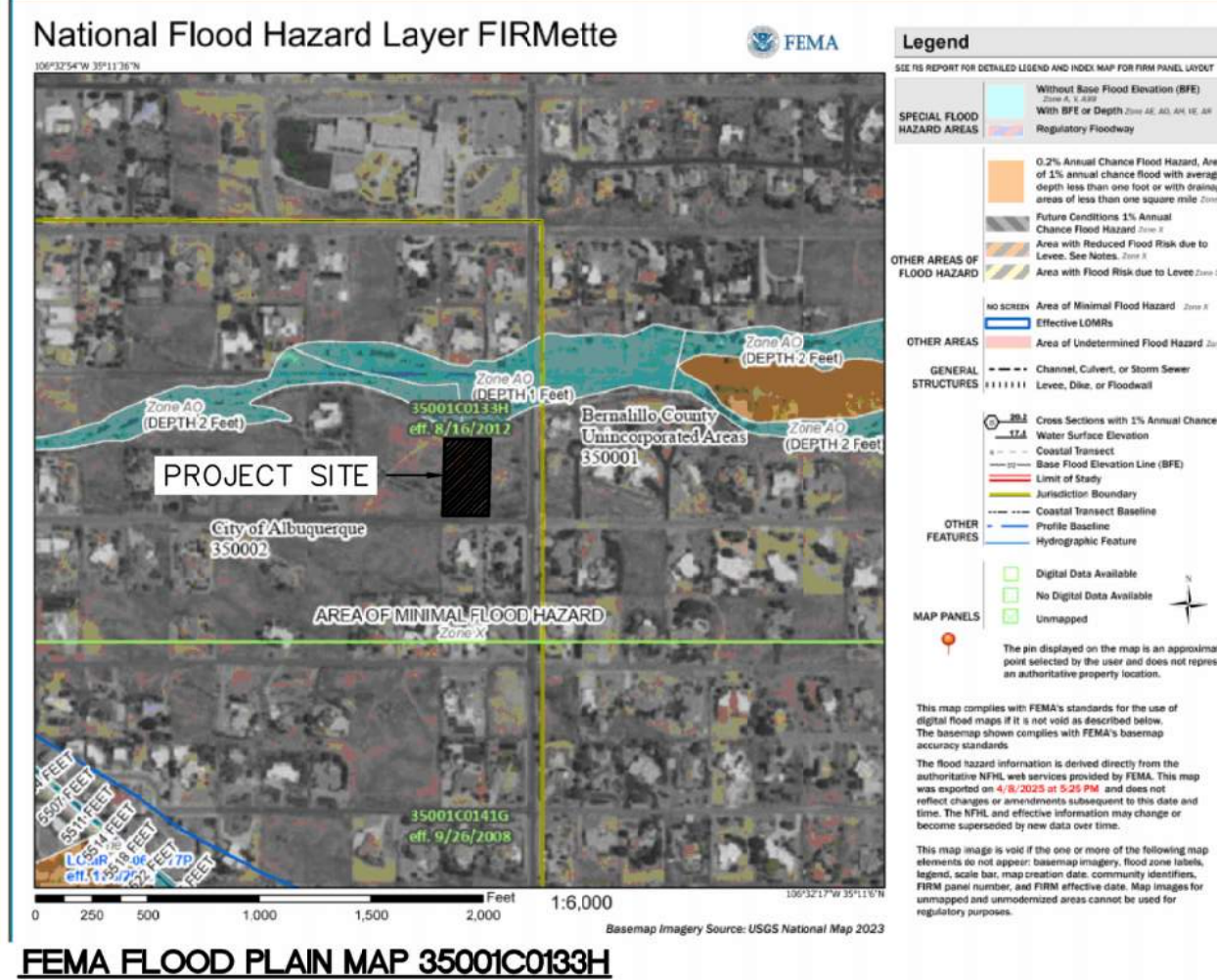
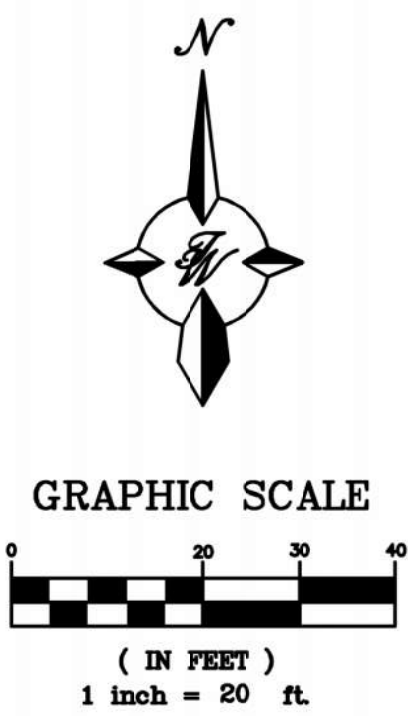
$$Y_s/Y_1 = 0.73 + 0.14\pi Fr^{1.2}$$

ENGINEER'S SEAL	9001 MODESTO AVENUE N.E. ALBUQUERQUE, NM	DRAWN BY BL
	PRELIMINARY DRAINAGE PLAN	DATE 05-09-2025
		2024002_GR&DR
	TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # 2 JOB # 2024002



LEGEND

- CURB & GUTTER
- PROPERTY LINE
- SCOUR WALL
- CENTERLINE
- BUILDING
- SIDEWALK
- DRIVEWAY
- FUTURE STORM DRAIN
- SURFACE WATER AREA
- WATER SURFACE LINE
- ENERGY GRADE LINE

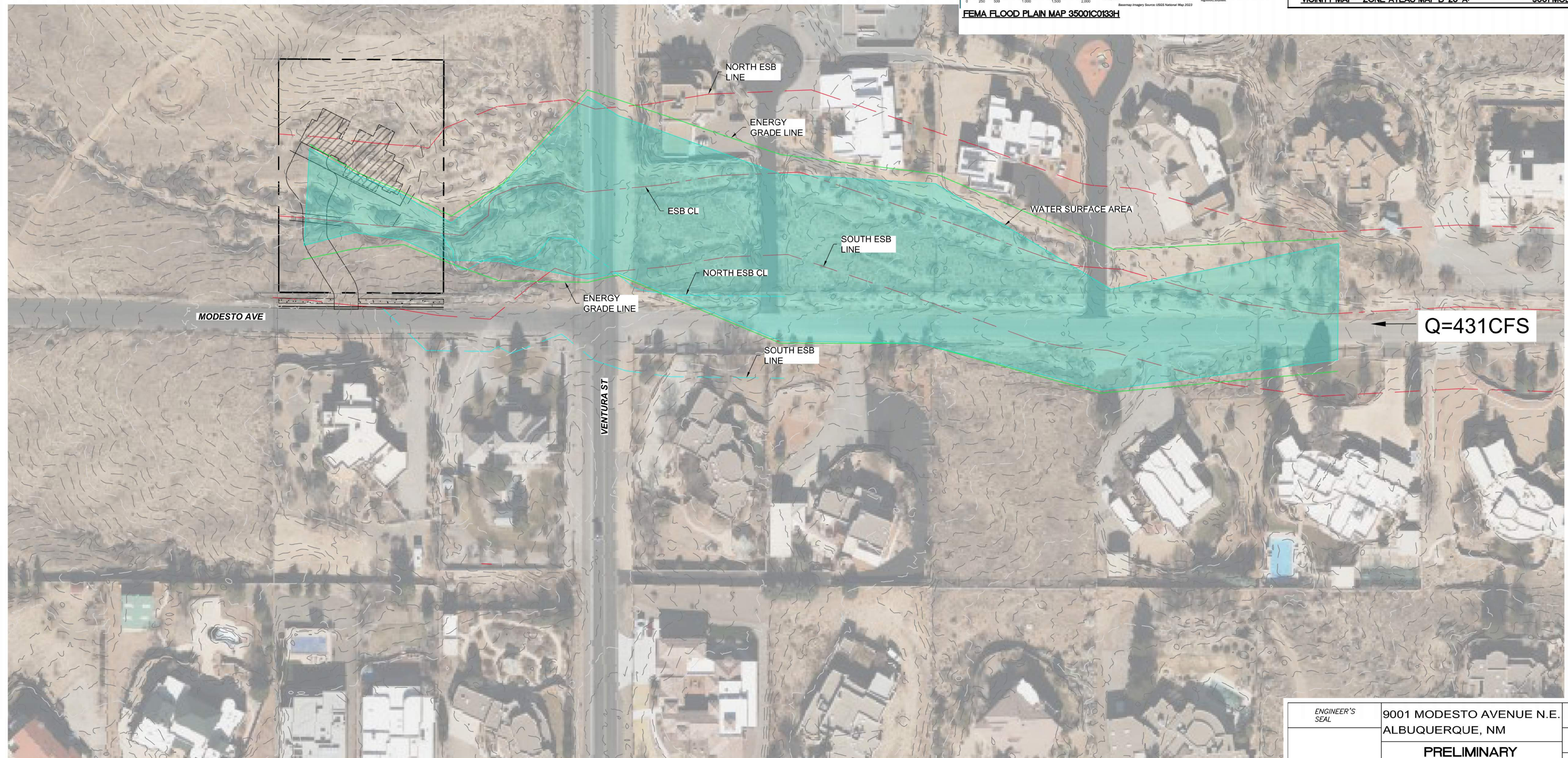
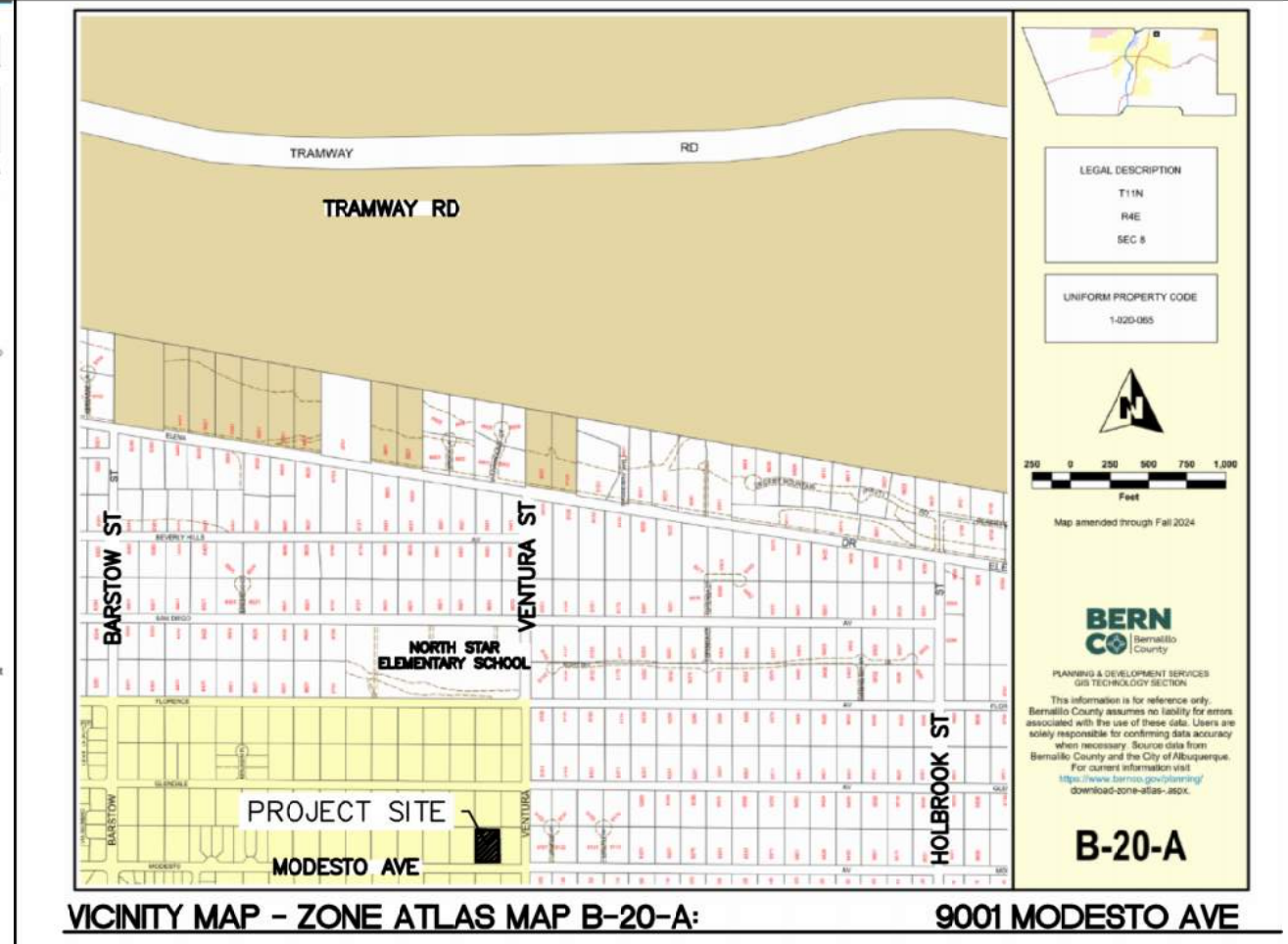
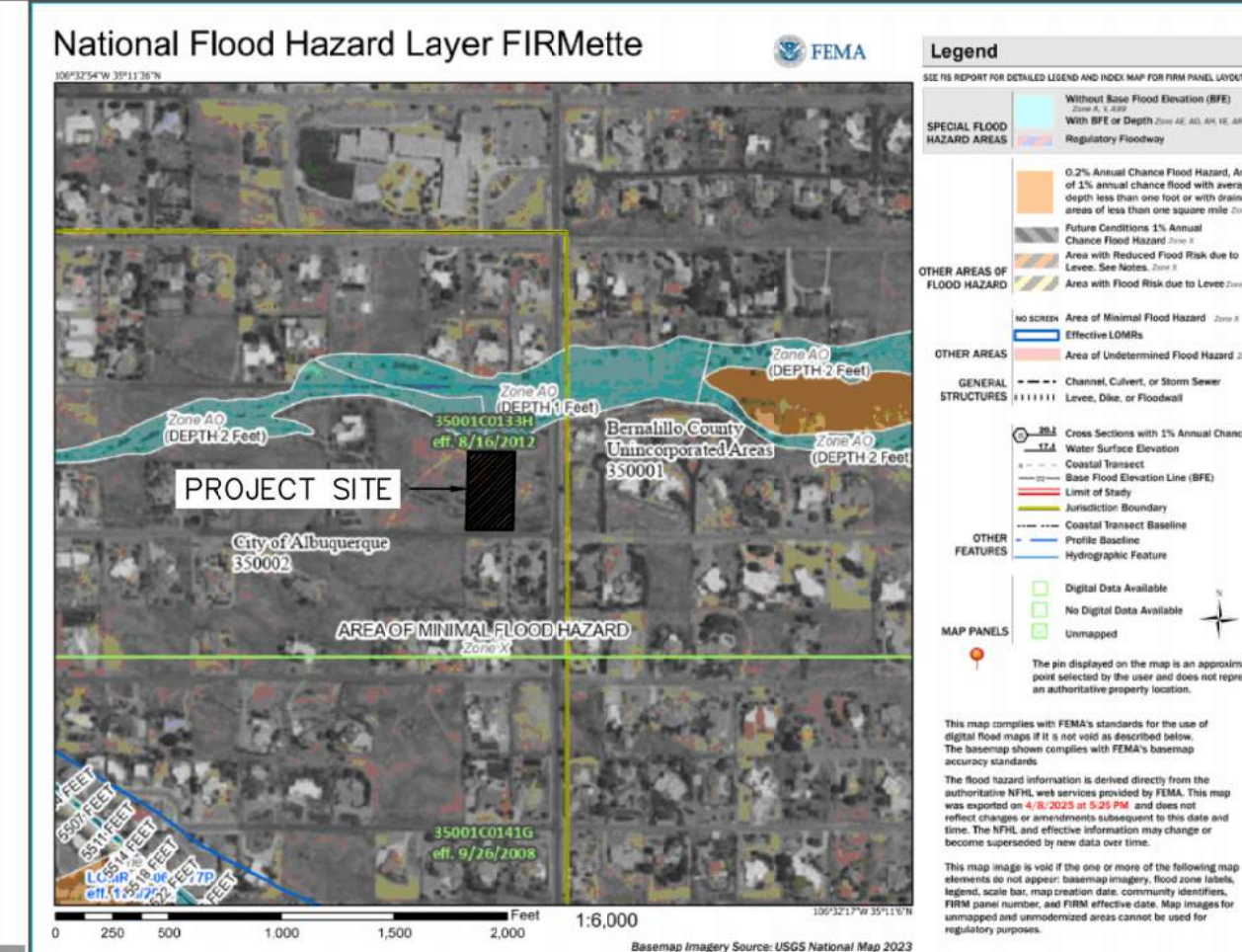


ENGINEER'S SEAL	9001 MODESTO AVENUE N.E. ALBUQUERQUE, NM	DRAWN BY BL
DRAFT	PRELIMINARY DRAINAGE PLAN	DATE 05-09-2025
	TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	2024002_GR&DR
	05/09/2025 RONALD R. BOHANNAN P.E. #7868	SHEET # 4
		JOB # 2024002

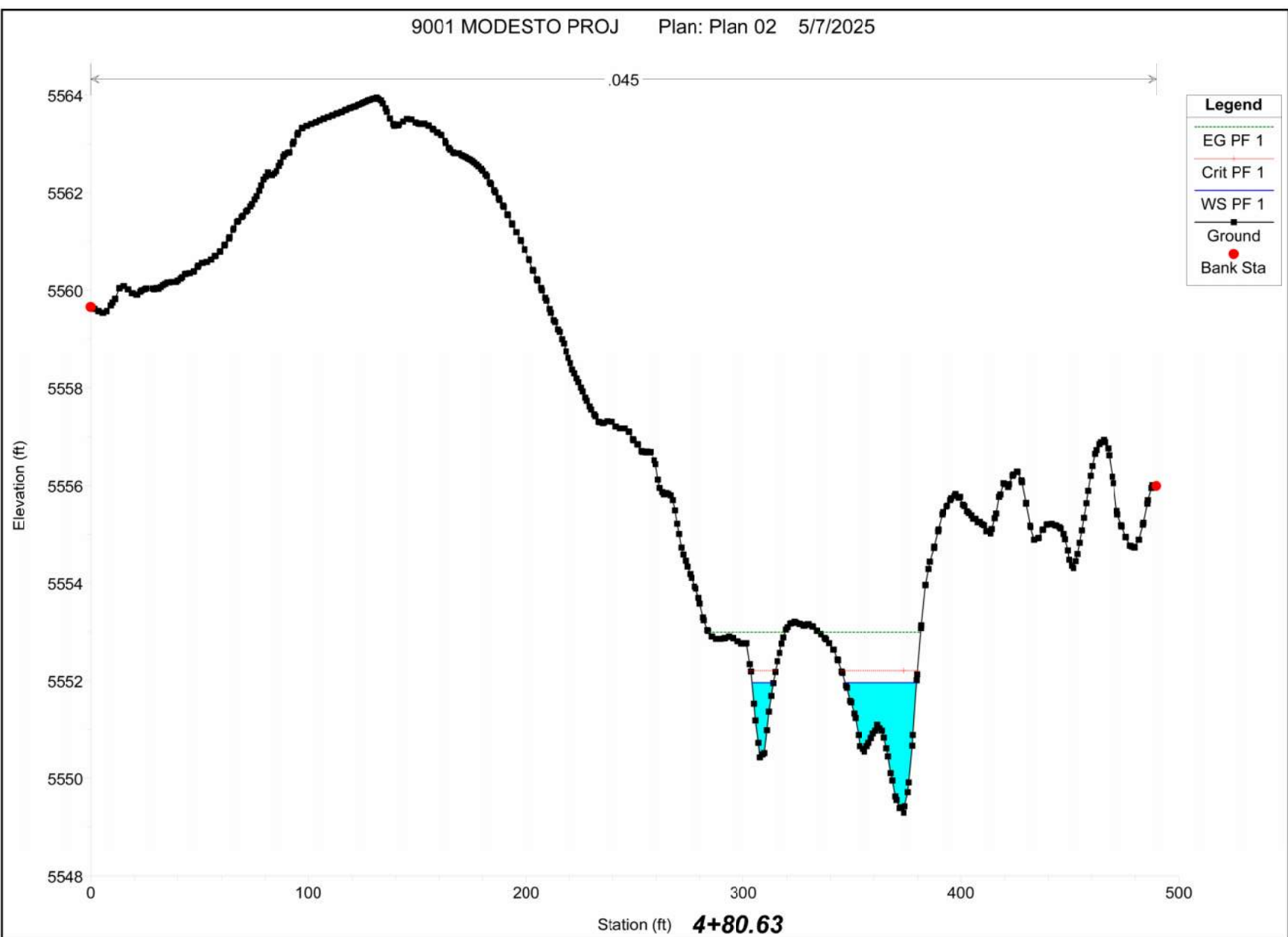
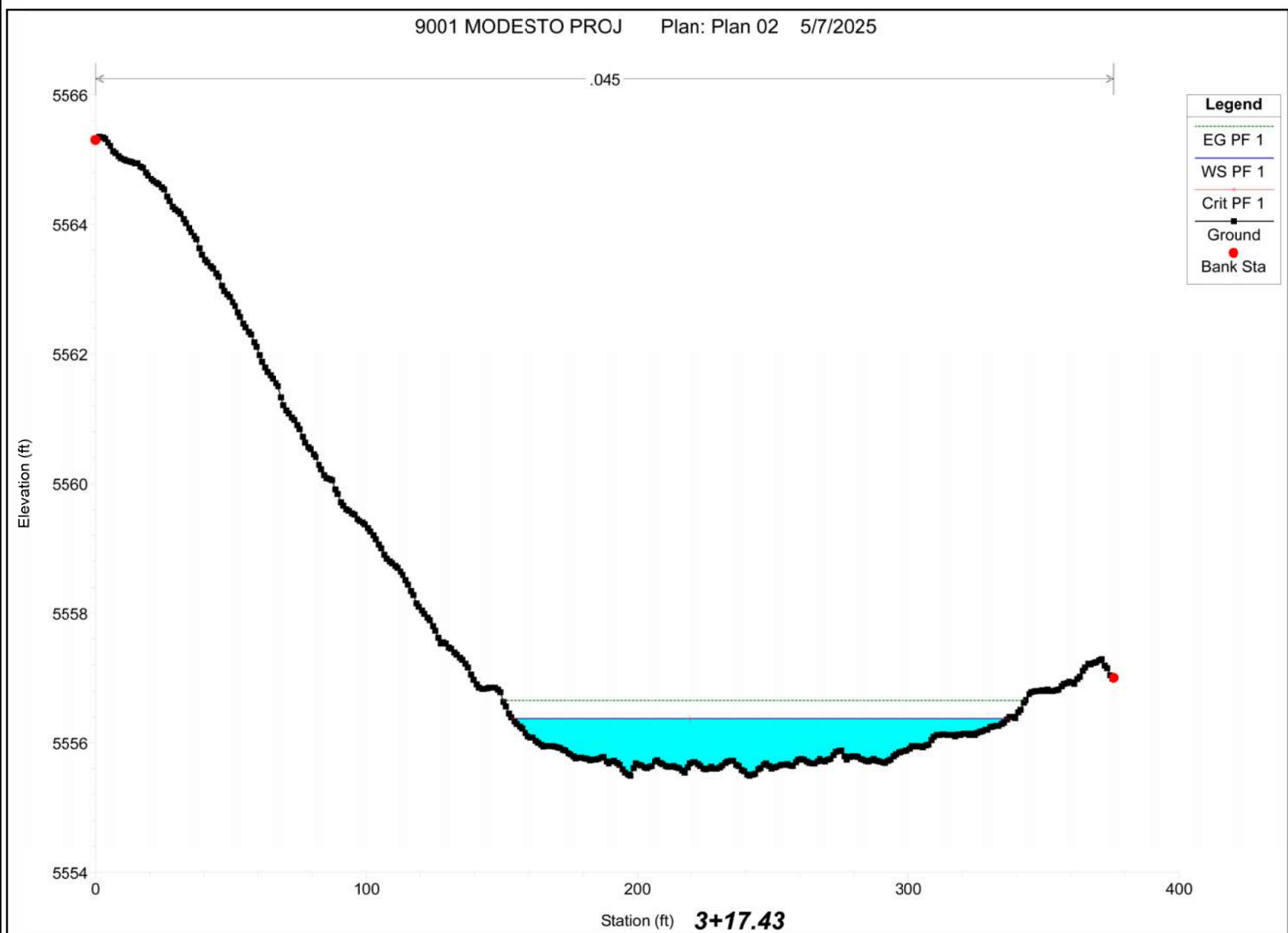
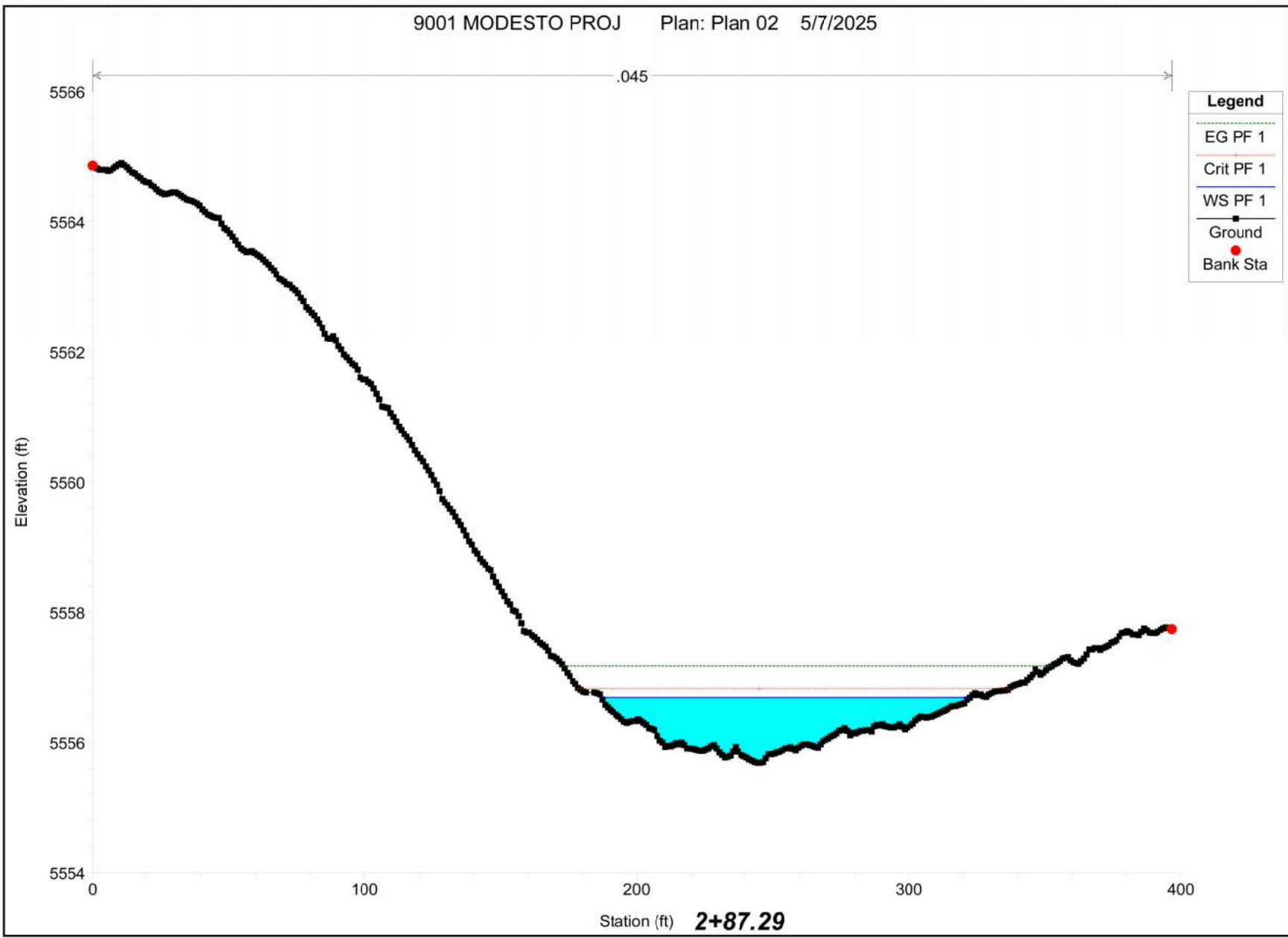
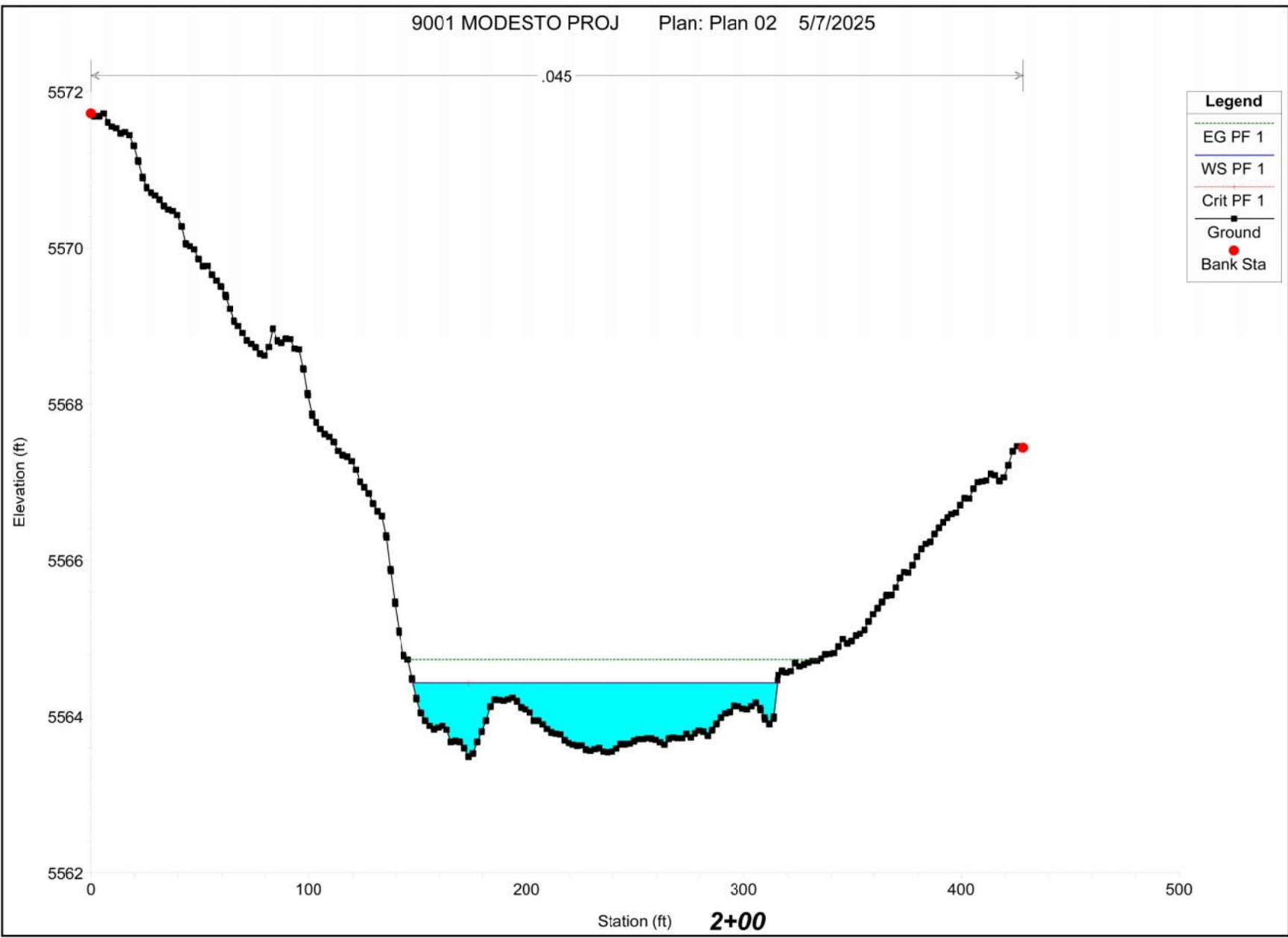
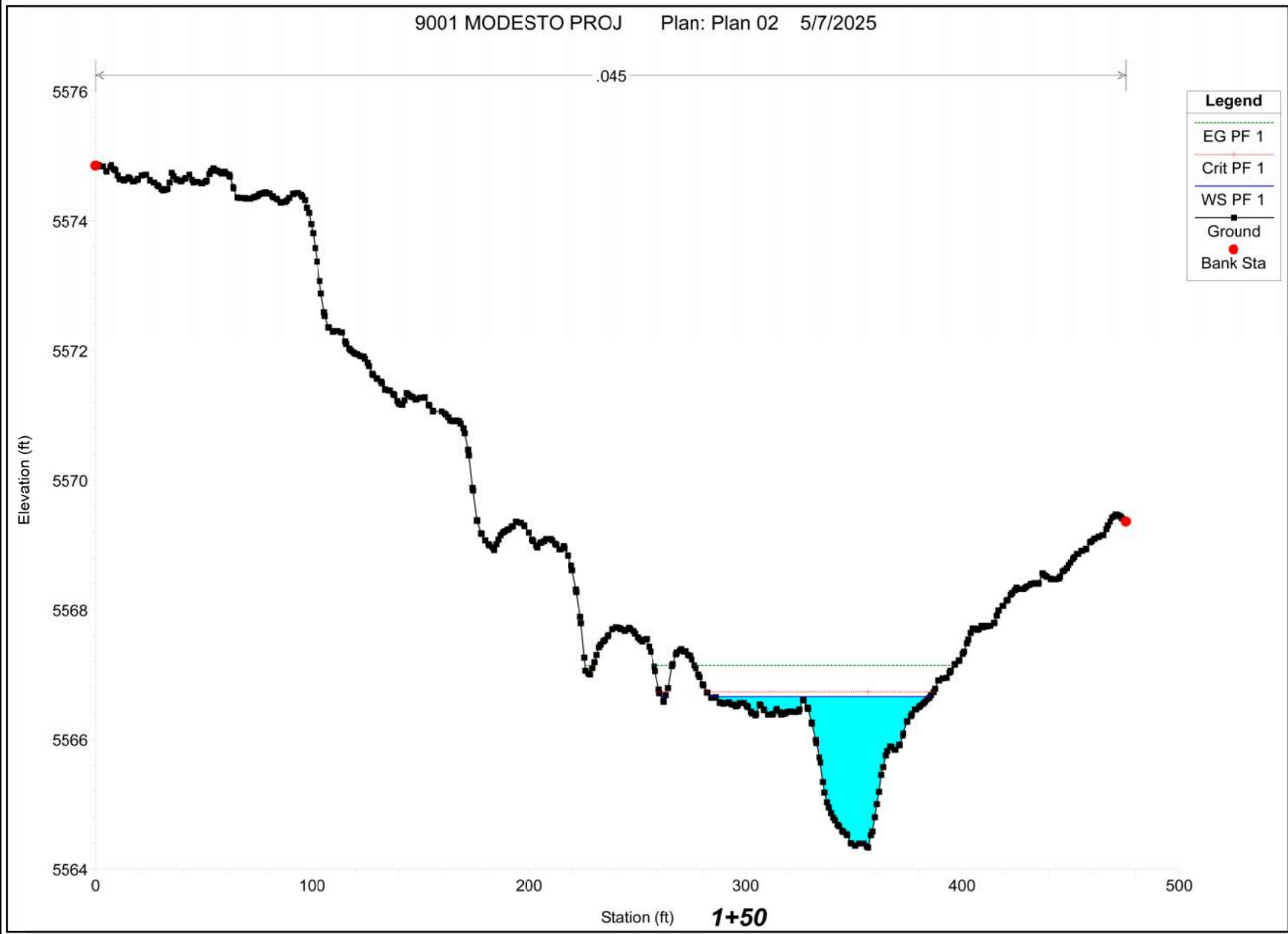
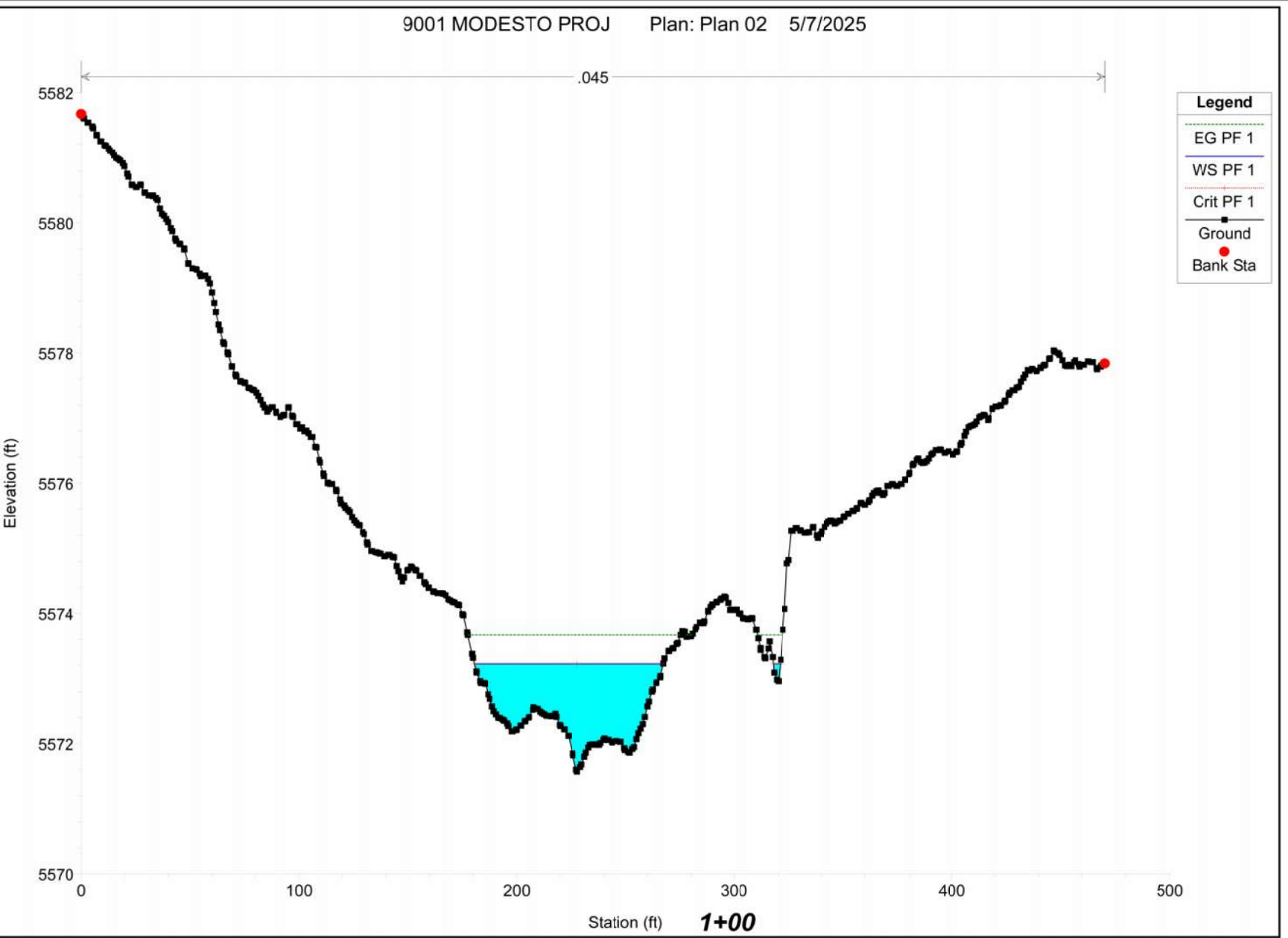
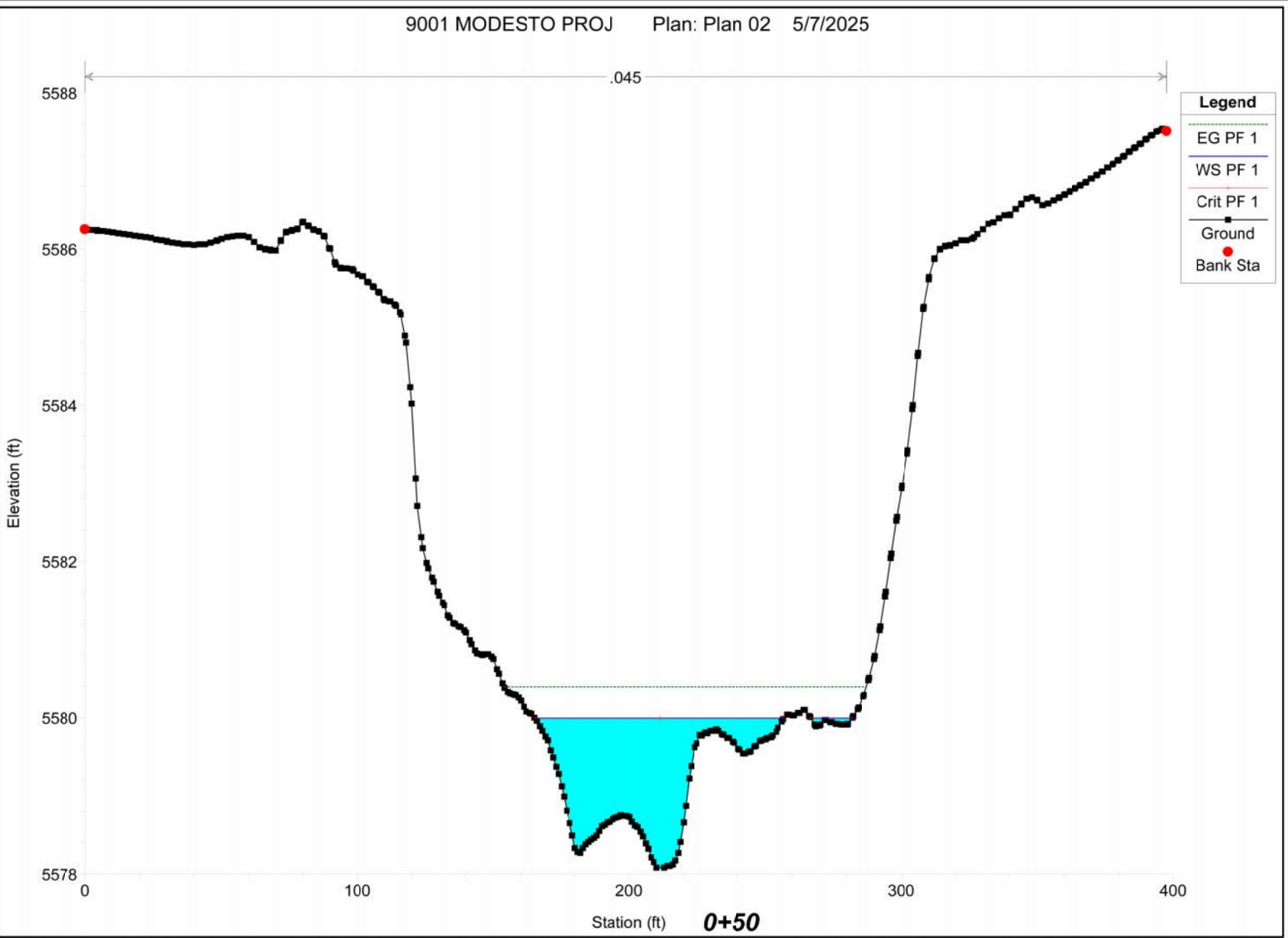
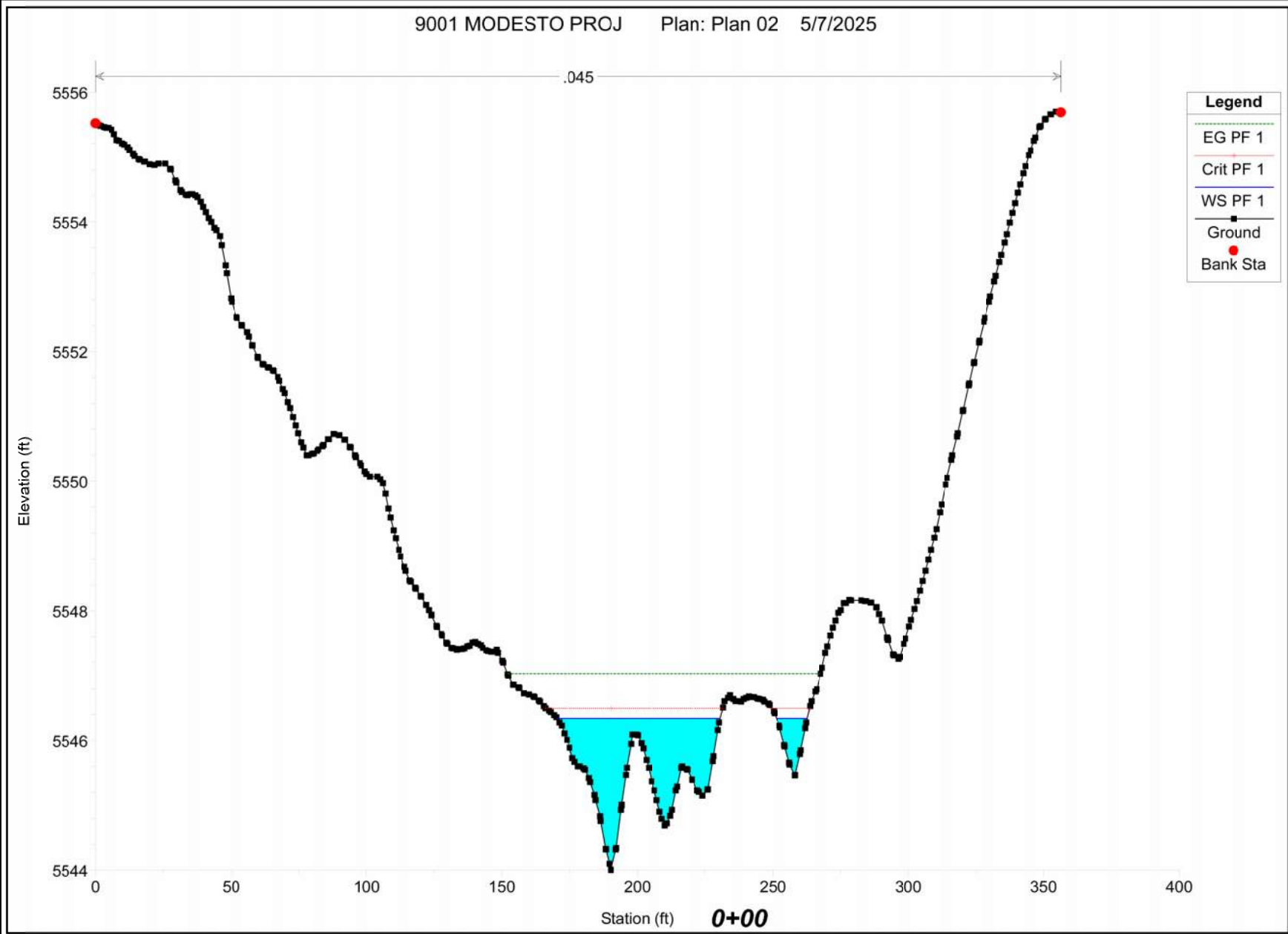
	CURB & GUTTER
	PROPERTY LINE
	SCOUR WALL
	CENTERLINE
	BUILDING
	SIDEWALK
	DRIVEWAY
	FUTURE STORM DRAIN
	SURFACE WATER AREA
	WATER SURFACE LINE
	ENERGY GRADE LINE

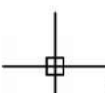


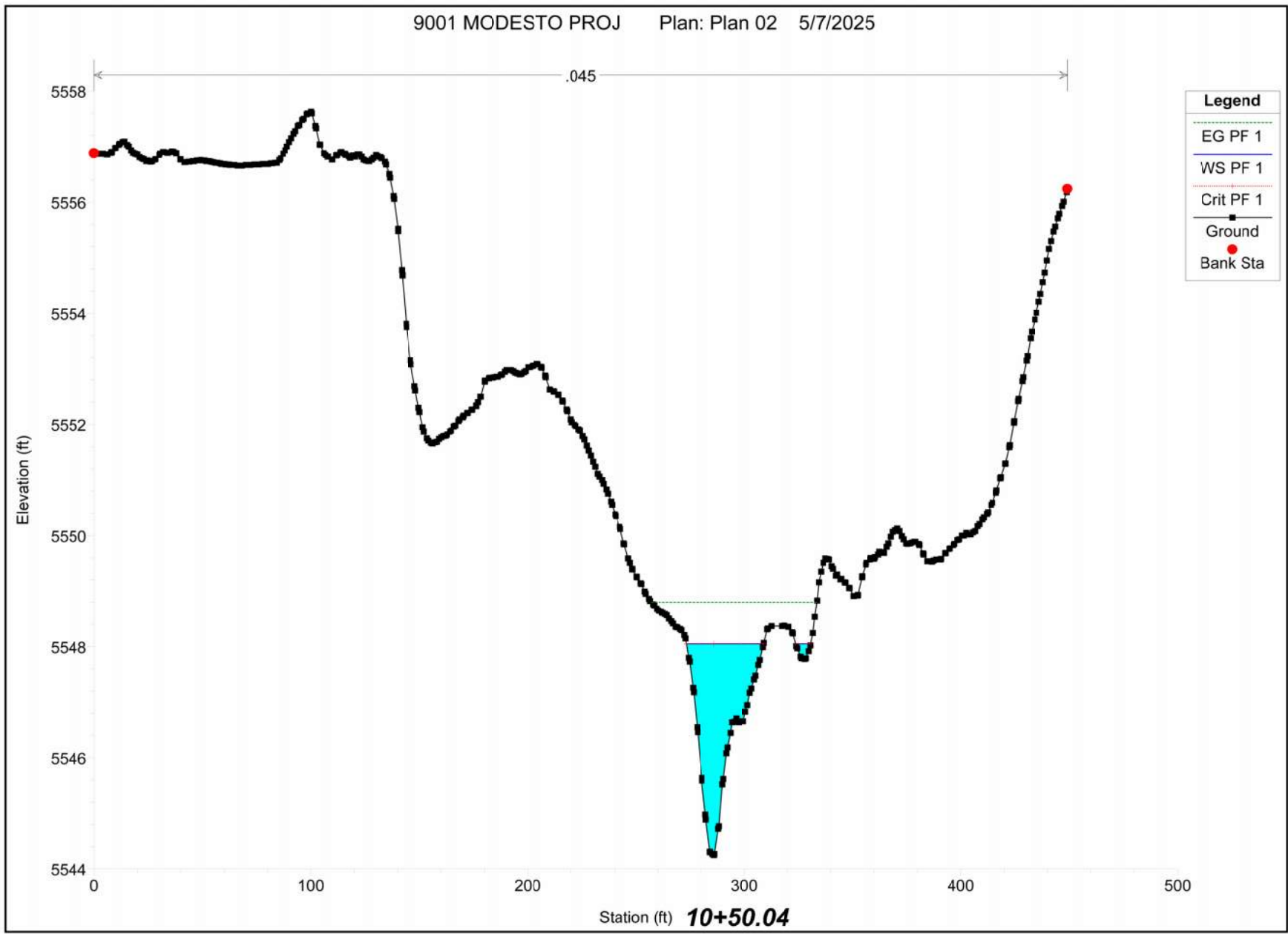
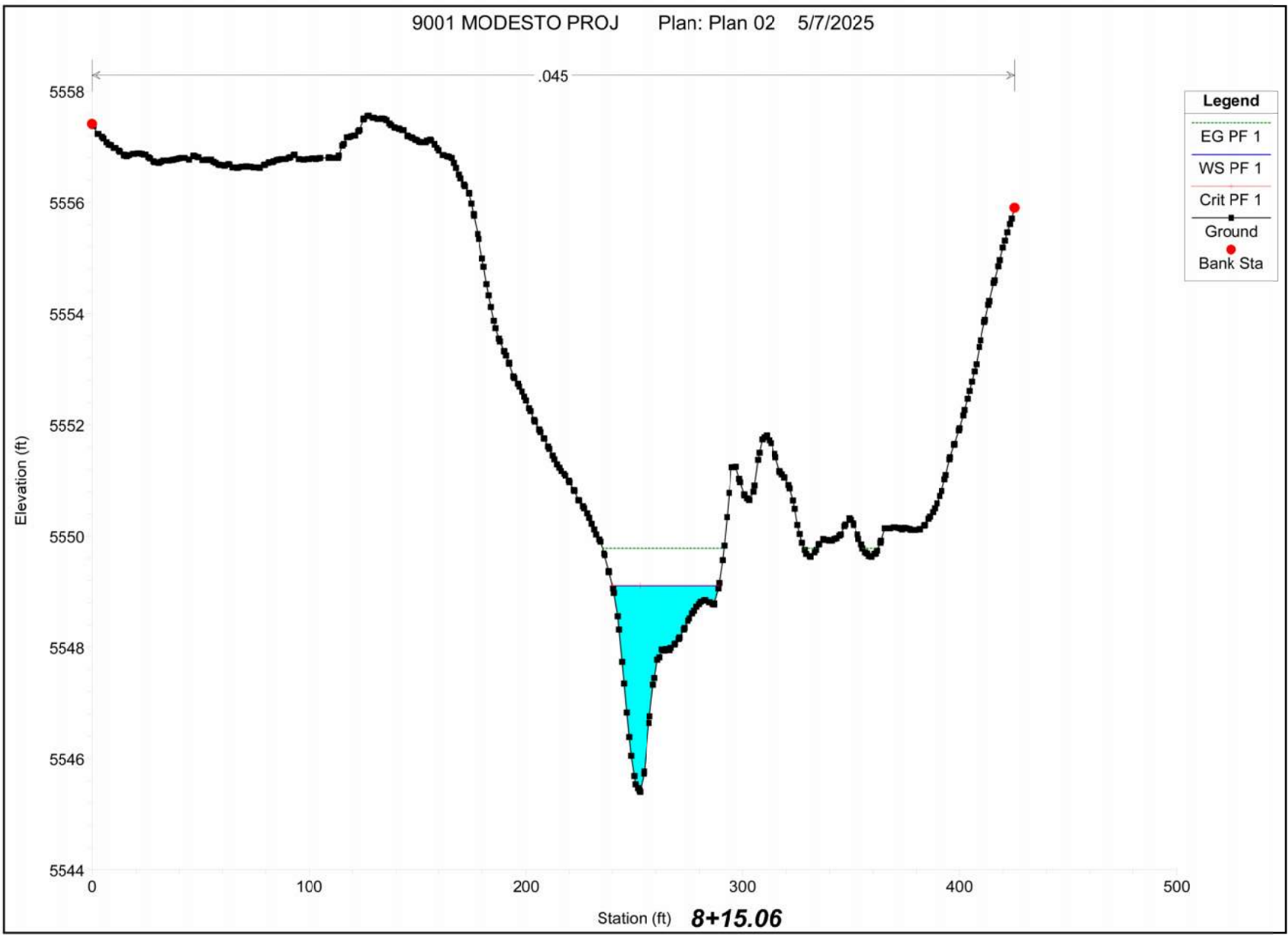
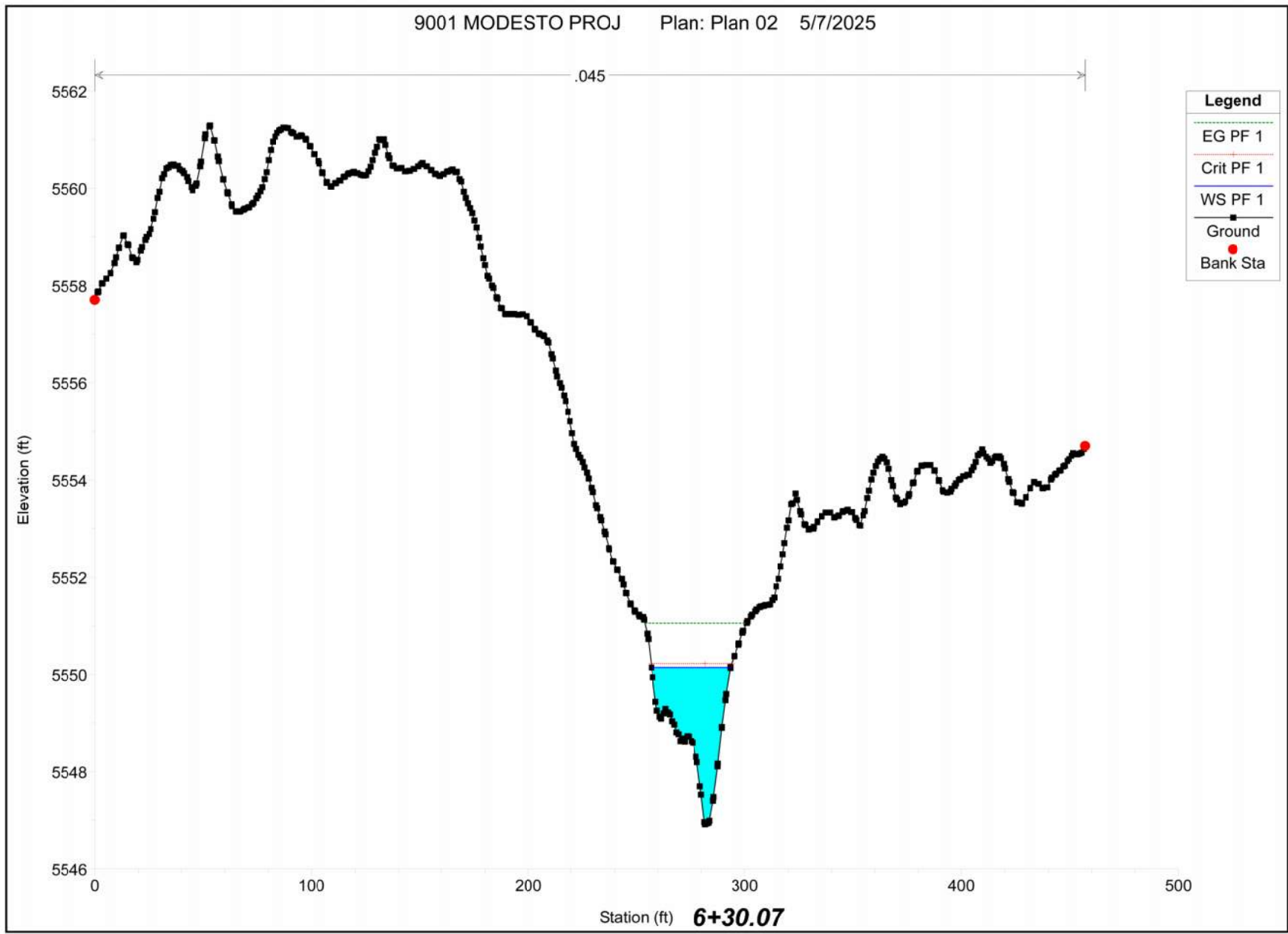
(IN FEET)
1 inch = 50 ft.



DRAFT	<i>ENGINEER'S SEAL</i>	9001 MODESTO AVENUE N.E. ALBUQUERQUE, NM	DRAWN BY BL
		PRELIMINARY DRAINAGE PLAN	DATE 05-09-2025
		 TERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	2024002_GR&DR
			SHEET # 5
<i>05/09/2025</i> RONALD R. BOHANNAN P.E. #7868		JOB # 2024002	



ENGINEER'S SEAL	9001 MODESTO AVENUE N.E. ALBUQUERQUE, NM	DRAWN BY BL
DRAFT	PRELIMINARY DRAINAGE CROSS SECTIONS	DATE 05-09-2025
		2024002_GR&DR
		SHEET # 6
05/09/2025 RONALD R. BOHANNAN P.E. #7868	 TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com	JOB # 2024002



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, May 5 2025

9001 Modesto Ave NE @ 10yr

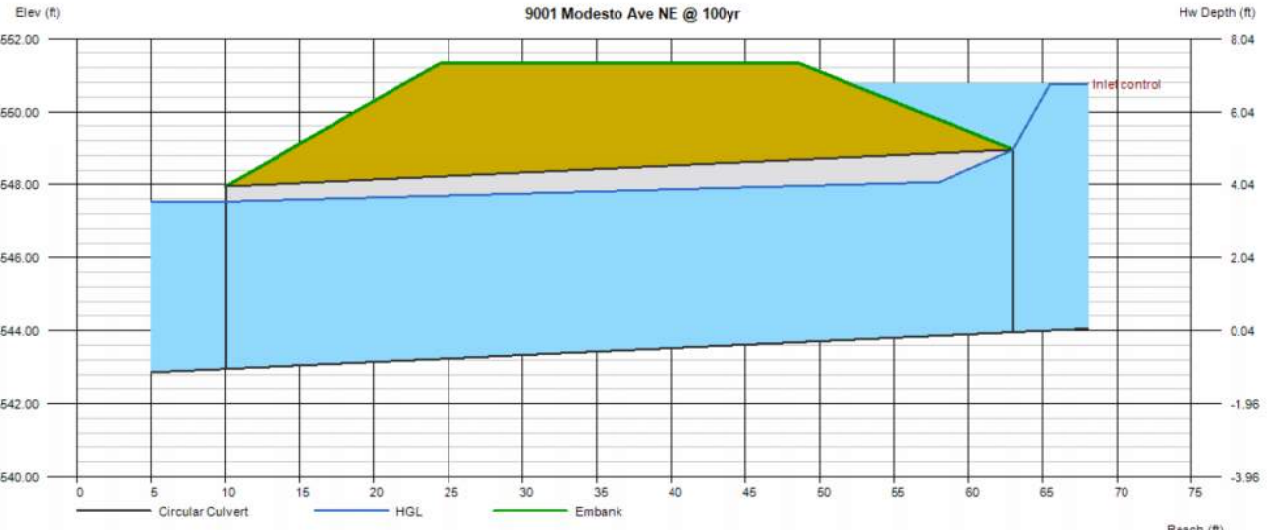
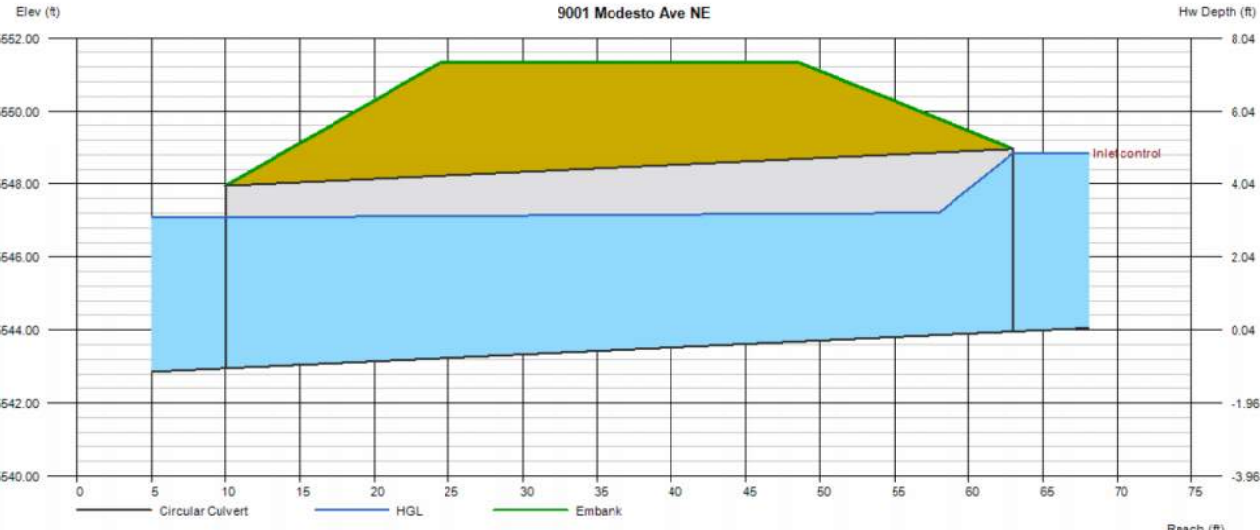
Invert Elev Dn (ft)	= 5542.95	Calculations	
Pipe Length (ft)	= 53.00	Qmin (cfs)	= 261.00
Slope (%)	= 1.91	Qmax (cfs)	= 261.00
Invert Elev Up (ft)	= 5543.96	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 60.0		
Shape	= Circular	Highlighted	
Span (in)	= 60.0	Qtotat (cfs)	= 261.00
No. Barrels	= 2	Qpipe (cfs)	= 261.00
n-Value	= 0.012	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Culvert	Veloc Dn (ft/s)	= 7.52
Culvert Entrance	= Smooth tapered inlet throat	Veloc Up (ft/s)	= 9.60
Coeff. K,M,c,Y,k	= 0.534, 0.555, 0.0196, 0.9, 0.2	HGL Dn (ft)	= 5547.08
		HGL Up (ft)	= 5547.23
		Hw Elev (ft)	= 5548.85
		Hw/D (ft)	= 0.98
		Flow Regime	= Inlet Control
Embankment			
Top Elevation (ft)	= 5551.34		
Top Width (ft)	= 24.00		
Crest Width (ft)	= 130.00		

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, May 5 2025

9001 Modesto Ave NE @ 100yr

Invert Elev Dn (ft)	= 5542.95	Calculations	
Pipe Length (ft)	= 53.00	Qmin (cfs)	= 430.00
Slope (%)	= 1.91	Qmax (cfs)	= 430.00
Invert Elev Up (ft)	= 5543.96	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 60.0		
Shape	= Circular	Highlighted	
Span (in)	= 60.0	Qtotat (cfs)	= 430.00
No. Barrels	= 2	Qpipe (cfs)	= 430.00
n-Value	= 0.012	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Culvert	Veloc Dn (ft/s)	= 11.41
Culvert Entrance	= Smooth tapered inlet throat	Veloc Up (ft/s)	= 12.30
Coeff. K,M,c,Y,k	= 0.534, 0.555, 0.0196, 0.9, 0.2	HGL Dn (ft)	= 5547.53
		HGL Up (ft)	= 5548.13
		Hw Elev (ft)	= 5550.76
		Hw/D (ft)	= 1.36
		Flow Regime	= Inlet Control
Embankment			
Top Elevation (ft)	= 5551.34		
Top Width (ft)	= 24.00		
Crest Width (ft)	= 130.00		



ENGINEER'S SEAL	9001 MODESTO AVENUE N.E. ALBUQUERQUE, NM	DRAWN BY BL
DRAFT	PRELIMINARY DRAINAGE CROSS SECTIONS	DATE 05-09-2025
		2024002_GR&DR
05/09/2025	TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com	SHEET # 7
RONALD R. BOHANNAN P.E. #7868		JOB # 2024002