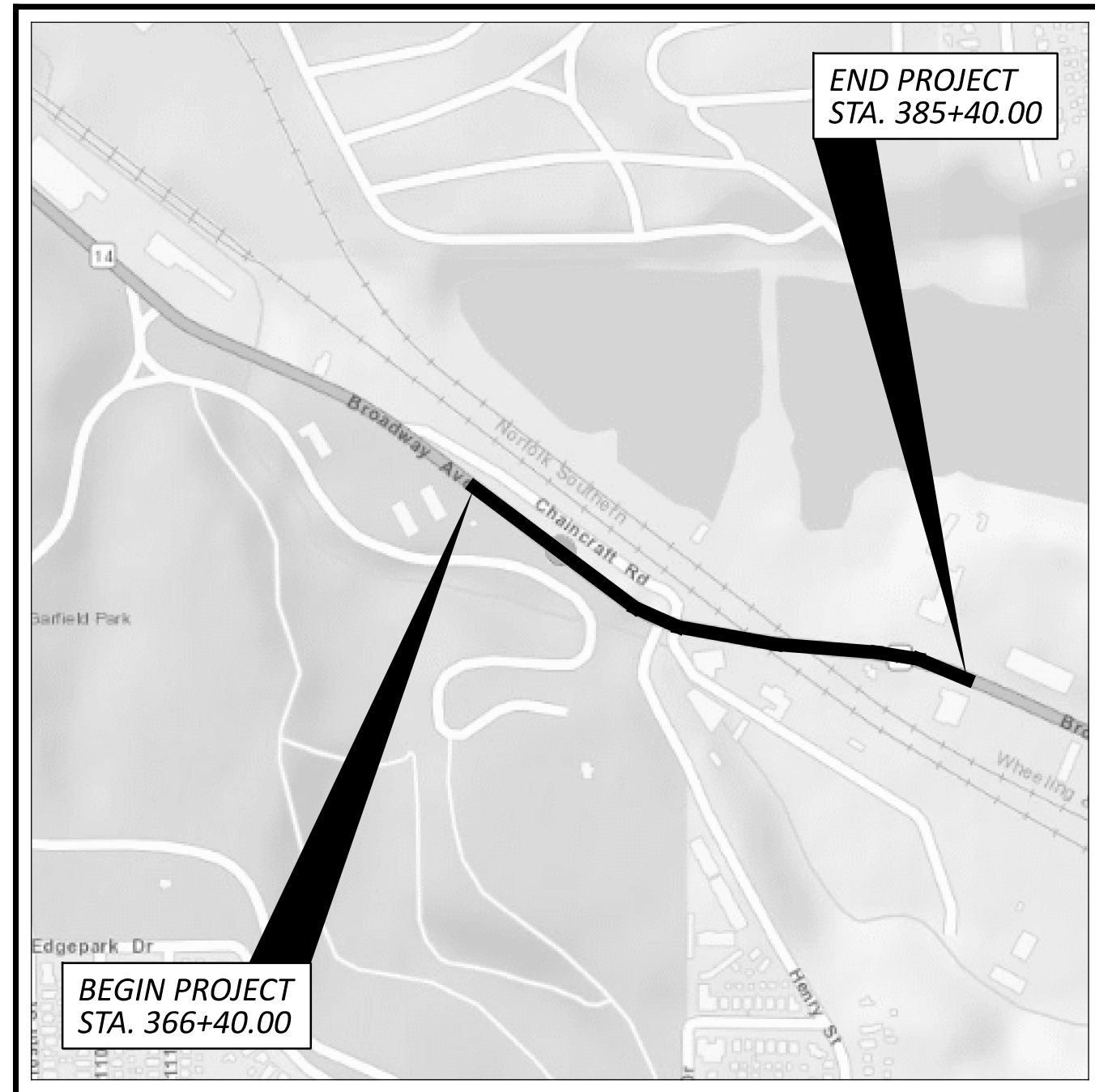


STATE OF OHIO DEPARTMENT OF TRANSPORTATION

CUY-14-6.93

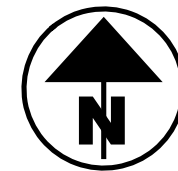
**RECONSTRUCTION OF THE EXISTING GRADE-SEPARATED
CROSSING WITH THE NORFOLK SOUTHERN RAILROAD
AND WHEELING AND LAKE ERIE RAILROAD**

**CITY OF GARFIELD HEIGHTS
CUYAHOGA COUNTY**



LOCATION MAP

LATITUDE: N 41°25'50" LONGITUDE: W 81°36'10"



PORTION TO BE IMPROVED	—————	=====
INTERSTATE HIGHWAY	—————	=====
FEDERAL ROUTES	—————	=====
STATE ROUTES	—————	=====
COUNTY & TOWNSHIP ROADS	—————	=====
OTHER ROADS	—————	=====

DESIGN DESIGNATION

ROUTE	ADT (2026)	ADTT (2026)	ADT (2046)	ADTT (2046)	D	DESIGN SPEED	LEGAL SPEED	DESIGN FUNC. CLASS	NHS ROUTE?
S.R. 14 (BROADWAY AVE.)	18500	1295	19000	1330	0.51	35	35	03 - PRINCIPAL ARTERIAL (URBAN)	Y
C.R. 240 (HENRY ST.)	7000	630	7500	675	0.54	25	25	07 - LOCAL (URBAN)	N
CHAINCRAFT RD.						25		07 - LOCAL (URBAN)	N

DESIGN EXCEPTIONS

NONE REQUIRED

ADA DESIGN WAIVERS

NONE REQUIRED

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
(Non members must be called directly)

PLAN PREPARED BY:



564 WHITE POND DRIVE AKRON, OHIO 44320-1100
(330) 836-9111

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CROSS SECTIONS - HENRY ST.	P.109 - P.117
CROSS SECTIONS - CHAINCRAFT RD.	P.118 - P.131
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FEDERAL PROJECT NUMBER

E190 (250)

RAILROAD INVOLVEMENT

NORFOLK SOUTHERN AND WHEELING AND LAKE ERIE

PROJECT DESCRIPTION

REPLACE THE WHITEHOUSE CROSSING BRIDGE (SR-14) OVER THE NORFOLK AND SOUTHERN RAILROAD ON A NEW ALIGNMENT. WORK INCLUDES NEW PAVEMENT, CURBS, WALKS, STORM DRAINAGE, 22'X7' AND 8'X4' CULVERTS, MSE WALLS, WATERLINE AND SANITARY RELOCATIONS, TRAFFIC SIGNAL, SIGNING AND PAVEMENT MARKINGS, AND LIGHTING.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 7.72 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 1.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 8.72 ACRES

2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT FOR THE SIDE ROADS AS DESCRIBED ON SHEET P.25 AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

John Picuri, P.E., S.I.
District 12 Deputy Director

Pamela Boratyn
Director, Department of Transportation

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS			
BP-2.2	1/15/21	CB-2-2B	7/19/24	WQ-1.2	1/15/16	TC-41.20	10/18/13	MT-95.31	7/19/19	AS-1-15	1/20/23	800	7/19/24	WATERWAY PERMIT
BP-3.1	1/19/24	CB-2-3	7/19/24			TC-41.30	4/21/23	MT-95.41	7/21/23	AS-2-15	1/20/23	809	7/19/24	08/15/2024
BP-3.2	1/18/19	CB-3	7/19/24	HL-10.11	7/21/23	TC-41.40	10/18/13	MT-95.50	7/21/17	BR-2-15	7/19/24	813	7/21/23	
BP-4.1	7/19/13	CB-3A	7/19/24	HL-10.12	7/21/23	TC-42.20	10/18/13	MT-96.11	7/21/23	EXJ-4-87	1/19/24	825	7/19/24	
BP-5.1	7/15/22			HL-10.13	1/20/23	TC-52.10	10/18/13	MT-96.20	7/21/23	GSD-1-19	7/19/24	832	7/19/24	
BP-7.1	7/19/24	DM-1.1	7/17/20	HL-20.11	7/21/23	TC-52.20	1/15/21	MT-97.10	4/19/19	PCB-91	7/17/20	836	1/19/24	
		DM-1.2	7/16/21	HL-20.14	4/17/20	TC-71.10	4/21/23	MT-97.11	1/20/17	VPF-1-24	7/19/24	840	7/19/24	
RM-1.1	1/20/23	DM-4.2	7/20/12	HL-30.11	7/21/23	TC-74.10	7/21/23	MT-101.60	4/21/23			867	4/15/22	
RM-4.2	4/17/20	DM-4.3	1/15/16	HL-30.21	4/17/20	TC-81.11	1/19/24	MT-101.70	7/19/24			895	4/18/14	
RM-4.5	1/17/25	DM-4.4	1/15/16	HL-30.22	1/15/21	TC-81.22	7/21/23	MT-101.75	7/21/23			909	7/19/24	
RM-4.6	7/19/24			HL-30.31	7/19/24	TC-83.10	1/17/20	MT-103.10	1/21/22			913	4/16/21	
		HW-2.1	7/15/22	HL-40.20	7/19/24	TC-83.20	7/19/24	MT-105.10	1/17/20			961	4/17/20	
MH-1	7/15/22	HW-2.2	7/20/18	HL-50.11	1/16/15	TC-85.10	1/19/24	MT-110.10	7/19/13			995	7/17/15	
MH-2	7/19/24			HL-50.21	7/15/22	TC-85.20	4/21/23							
MH-3	7/19/24			HL-60.11	7/21/17									
MH-5	7/19/24			HL-60.31	7/19/24									

<p>ENGINEER'S SEAL</p> <p>FOR SHEETS P.1 - P.208</p>	<p>ENGINEER'S SEAL</p> <p>FOR SHEETS P.209 - P.399</p>
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TITLE SHEET

CUY-14-6.93

MODEL: Sheet PAPER SIZE: 34x22 (in.) DATE: 2/14/2025 TIME: 12:00:47 PM USER: robert.jankovsky p:\aecom-na-pw-bentley.com\AECOM_DS20_NA_2019\Documents\69581903-CUY-14-6.93\104132400-Engineering\Roadway\Sheets\104132_GT001.dgn

DESIGN AGENCY	AECOM 564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com
DESIGNER	RJJ
REVIEWER	WFS
PROJECT ID	104132
SHEET	P.1
TOTAL	399

SANITARY (CONT.)

ITEM 611 - DRAINAGE STRUCTURE, MISC.: DOGHOUSE MANHOLE (CONT.)

NOTES CONT.:

8. DUE TO PROPOSED PIPE ORIENTATION AND ANGLES, THE PROPOSED INTERIOR INVERT SHALL SWEEP AND CURVE AT AN APPROXIMATE 120 DEGREE ANGLE. SEE PLAN VIEW. CONTRACTOR SHALL PREPARE AND SUBMIT A SHOP DRAWING SHOWING THE EXISTING DOWNSTREAM PIPE FILLING AND PLUGGING AND PIPE ORIENTATIONS FOR APPROVAL BY THE PROJECT ENGINEER. SUBMITTAL SHALL BE MADE 7 CALENDAR DAYS BEFORE MANHOLE CONSTRUCTION.

ITEM 611 - 48" CONDUIT, TYPE B, AS PER PLAN, 707.75
ITEM 611 - 48" CONDUIT, TYPE C, AS PER PLAN, 707.75

ALL REQUIREMENTS OF ODOT CMS 707.75 SHALL APPLY EXCEPT THAT THE MINIMUM PIPE STIFFNESS SHALL BE 36 PSI.

ITEM 202 - ABANDON MISC.: PLUG AND FILL 42" SANITARY CONDUIT

THIS ITEM CONSISTS OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING 42 INCH DIAMETER CONDUIT AND FILLING THE AREA SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

LOCATE THE BULKHEADS AT THE LIMITS OF THE AREA TO BE FILLED, AS INDICATED ON THE PLANS. THE BULKHEADS CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

PUMP THE FILL MATERIAL INTO PLACE OR BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH IS FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR IS THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED PER 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM ABANDON MISC.: PLUG AND FILL SANITARY CONDUIT.

EROSION CONTROL

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, SOIL ANALYSIS TEST	2 EACH
659, TOPSOIL	1,142 CU. YD.
659, SEEDING AND MULCHING, CLASS 1	10,284 SQ. YD.
659, REPAIR SEEDING AND MULCHING	515 SQ. YD.
659, INTER-SEEDING	515 SQ. YD.
659, COMMERCIAL FERTILIZER	1.39 TON
659, LIME	2.13 ACRES
659, WATER	56 M. GAL.
659, MOWING	3 M. SQ. FT.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

WATER QUALITY

POST CONSTRUCTION STORM WATER TREATMENT

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT

MANUFACTURED WATER QUALITY STRUCTURE

THIS PLAN UTILIZES MANUFACTURED WATER QUALITY STRUCTURES FOR WATER QUALITY TREATMENT. AREAS HAVE BEEN SHOWN IN THE PLANS FOR PLACEMENT OF AN OFF-LINE SYSTEM, PAYMENT FOR THESE DEVICES SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 895, MANUFACTURED WATER QUALITY STRUCTURE, TYPE 4.

ENVIRONMENTAL

ENDANGERED BAT HABITAT REMOVAL

THIS PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT, AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT (ESA). FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS: A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK 3 INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

ENVIRONMENTAL COMMITMENTS

ENSURE IMPACTS TO THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT AND THE STATE LISTED AND PROTECTED LITTLE BROWN BAT AND TRICOLORED BAT ARE AVOIDED AND MINIMIZED. DO NOT REMOVE TREES FROM APRIL 1 THROUGH SEPTEMBER 30. PERFORM ALL NECESSARY TREE REMOVAL FROM OCTOBER 1 THROUGH MARCH 31. DEMARCATÉ CLEARING LIMITS IN THE FIELD TO AVOID ANY UNAUTHORIZED TREE CLEARING. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

MAINTAIN SAFE PUBLIC ACCESS TO GARFIELD PARK RESERVATION AT ALL TIMES DURING CONSTRUCTION ACTIVITIES, WITH THE EXCEPTION OF THE AREA WITHIN THE PROPOSED CONSTRUCTION LIMITS, BETWEEN GARFIELD PARK BOULEVARD AND CHAINCRAFT ROAD.

INSTALL AND MAINTAIN TEMPORARY CONSTRUCTION FENCING ALONG THE KNOWN BOUNDARIES OF GARFIELD PARK RESERVATION WITHIN THE PROJECT CONSTRUCTION LIMITS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, INSTALL SIGNAGE APPROVED BY THE ENGINEER TO ALERT GARFIELD PARK RESERVATION USERS OF CONSTRUCTION ACTIVITIES AND ACCESS RESTRICTIONS OR CLOSURES, AND TO DIRECT USERS TO SECONDARY ACCESS POINTS.

THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION PERMIT FROM CLEVELAND METROPARKS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

RESERVATOIN SHALL BE RESTORED TO A CONDITION WHICH IS ACCEPTED BY THE CLEVELAND METROPARKS.

PROVIDE THE CONSTRUCTION SCHEDULE TO THE DEPARTMENT, CLEVELAND METROPARKS, AND CITY OF CLEVELAND DEPARTMENT OF PUBLIC WORKS 30 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

MAGNESIUM AND ALUMINUM DROSS

ENVIRONMENTAL STUDIES INDICATED THE PRESENCE OF MAGNESIUM AND ALUMINUM DROSS FROM THE FORMER GARFIELD METALS OPERATIONS. THIS MATERIAL IS LOCATED ON PARCELS 14 AND 17 OF THE PROJECT PLANS. THIS MATERIAL IS LOCATED UNDER THE CUY-14-6-93 BRIDGE AND IN A TRAILER ADJACENT TO THE BRIDGE. SEE RMR INVESTIGATION REPORTS IN THE REFERENCE FILES: CUY-104132-ENV-01-RMR, CUY-104132-ENV-02-ALUMINUM DROSS RMR REPORT, CUY-104132-ENV-03-PARCEL14 STOCKPILE AND CUY-104132-ENV-04-PARCEL 17 LEAD, ACM AND STOCKPILE

THE CONTRACTOR MUST DETERMINE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT FOR THOSE WHO CONDUCT WORK WITH THE MAGNESIUM AND ALUMINUM DROSS. SUBMIT THE SITE-SPECIFIC HEALTH AND SAFETY PLAN TO THE ENGINEER PRIOR TO WORK.

THE MAGNESIUM AND ALUMINUM DROSS MAY BE EITHER RECYCLED OR DISPOSED. IF THE CONTRACTOR RECYCLES THIS MATERIAL. IT MAY BE RECYCLED AT ARDLEIGH MINERALS, INC., SUITE 380, 24100 CHAGRIN BOULEVARD, BEACHWOOD, OHIO 44122 OR CERTIFIED RECYCLING FACILITY. THE CONTRACTOR WILL PROVIDE COMPLETED LOG FORMS, CERTIFICATE OF RECYCLING AND MANIFESTS FOR TRANSPORT AND ACCEPTANCE BY THE RECYCLING FACILITY TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL TESTING THAT THE RECYCLING FACILITY MAY REQUIRE FOR ACCEPTANCE. THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS NEEDED TO TRANSPORT AND RECYCLE THE MAGNESIUM AND ALUMINUM DROSS IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

IF THE CONTRACTOR DISPOSES OF THE MAGNESIUM AND ALUMINUM DROSS, IT IS TO BE DISPOSED OF AS A SOLID WASTE. MAGNESIUM AND ALUMINUM DROSS MUST BE TRANSPORTED BY DIRECT HAUL. NO MOVING OR STOCKPILING IS PERMITTED ON SITE. THE CONTRACTOR WILL DIRECT LOAD THE EXCAVATED SOLID WASTE INTO TRUCKS FOR TRANSPORT AND DISPOSAL AT A LICENSED LAND FILL. THE CONTRACTOR WILL PROVIDE COMPLETED LOG FORMS AND MANIFESTS FOR TRANSPORT AND DISPOSAL TO THE ENGINEER FOR SIGNATURE. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL TESTING THAT THE LANDFILL MAY REQUIRE FOR DISPOSAL. THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS NEEDED TO TRANSPORT AND DISPOSE OF THE MAGNESIUM AND ALUMINUM DROSS IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL TESTING REQUIRED FOR DISPOSAL.

THE CONTRACTOR SHALL FURNISH ALL THE LABOR, EQUIPMENT AND MATERIALS NECESSARY TO PROPERLY MANAGE, TEST FOR DISPOSAL OR RECYCLING, TRANSPORT AND DISPOSE OF OR RECYCLING OF MAGNESIUM AND ALUMINUM DROSS, INCLUDING ANY REQUIRED PERMITS OR FEES WITHIN THE IDENTIFIED LIMITS. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT PRICE BID. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY.

690E7002	WORK INVOLVING RECYCLED MATERIAL	400 TON
690E65010	WORK INVOLVING SOLID WASTE	400 TON
690E70000	- LUMP SUM - SITE SPECIFIC HEALTH AND SAFETY PLAN	

LANDSCAPING

ITEM 661 - DECIDUOUS TREE, 2" CALIPER

THIS ITEM INCLUDES ALL SPECIFICATIONS PER C&MS SECTION 661. LOCATION OF PLANTING IS TO BE DIRECTED BY THE CLEVELAND METROPARKS.

ITEM 661 - DECIDUOUS TREE, 2" CALIPER 10 EACH

DESIGN AGENCY



564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER

RJJ

REVIEWER

WFS 08/05/24

PROJECT ID

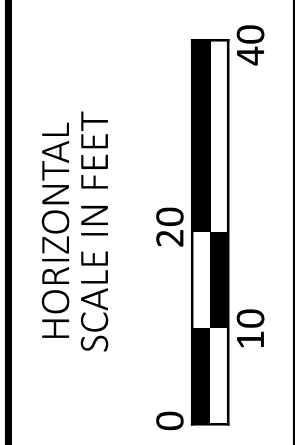
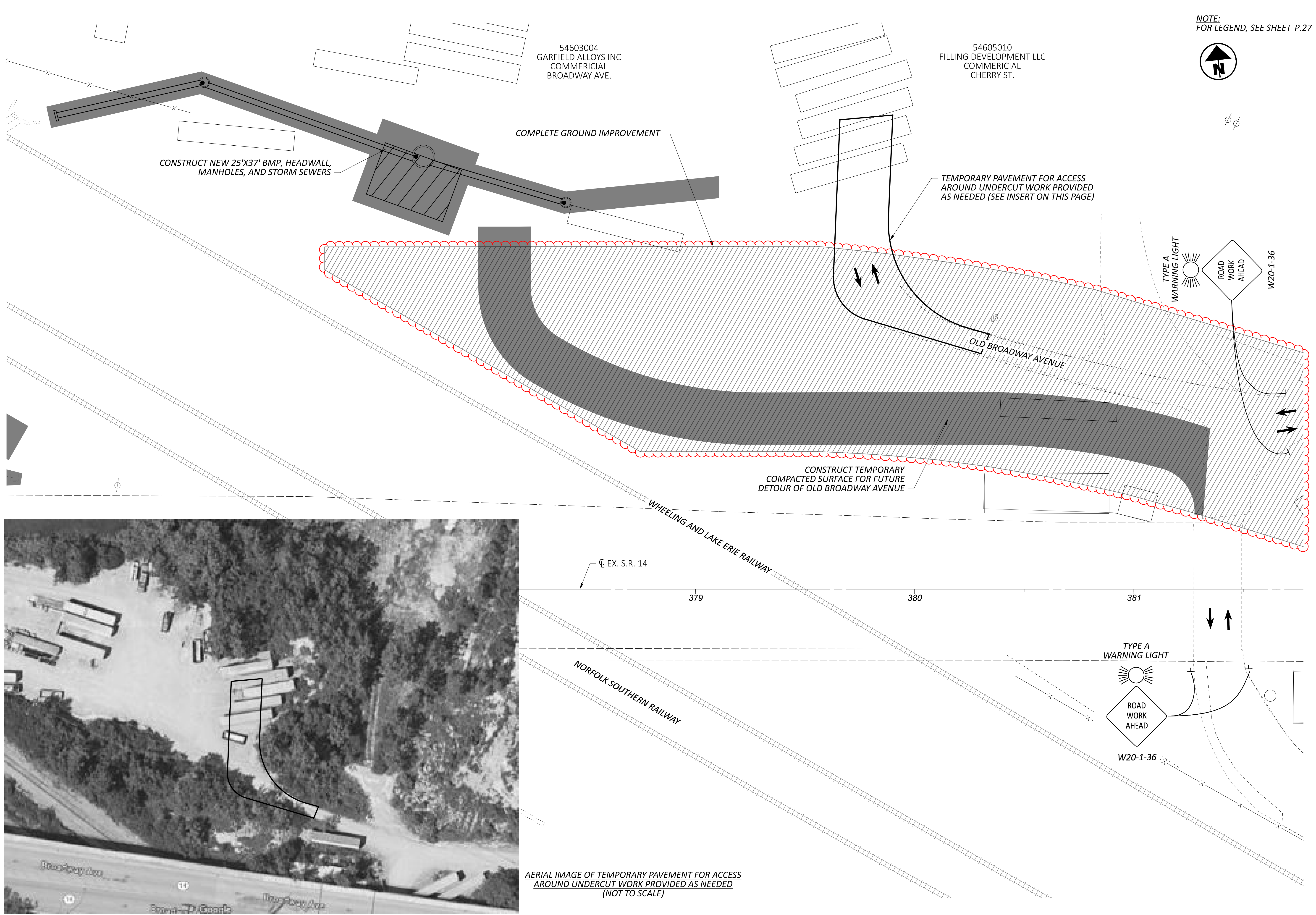
104132

SHEET TOTAL

P.14 | 399



AERIAL IMAGE OF TEMPORARY PAVEMENT FOR ACCESS
AROUND UNDERCUT WORK PROVIDED AS NEEDED
(NOT TO SCALE)



MAINTENANCE OF TRAFFIC - PHASE 1, STEP 1
OLD BROADWAY AVENUE

DESIGN AGENCY
AECOM
564 White Pond Drive
Akron, OH 44320
(330) 836-9111
www.aecom.com

DESIGNER
SAW

REVIEWER
WFS 08/05/24

PROJECT ID
104132

SHEET TOTAL
P.30 399

SHEET NUM.																		PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.			
P.11	P.12	P.14	P.61	P.62	P.63	P.64	P.66	P.67	P.68	P.69	P.70	P.71	P.72	P.73	P.75	P.215	P.327	01/BRO/10									
LS																		LS	201	11000	LS		ROADWAY				
				LS														LS	202	11000	LS		CLEARING AND GRUBBING				
				LS														LS	202	11200	LS		STRUCTURE REMOVED (EX. CONC. BLOCK WALL)				
																		5,992	202	23000	5,992	SY	PORTIONS OF STRUCTURE REMOVED (EX. WALL)				
																		6,418	202	30000	6,418	SF	PAVEMENT REMOVED				
				LS														LS	202	30204	LS		WALK REMOVED				
																							STEPS REMOVED				
																			2,068	202	32000	2,068	FT	CURB REMOVED			
					1,114	1,008													3,587	202	35100	3,587	FT	PIPE REMOVED, 24" AND UNDER			
							52												52	202	35200	52	FT	PIPE REMOVED, OVER 24"			
				376															376	202	38000	376	FT	GUARDRAIL REMOVED			
					2	4	3												9	202	58000	9	EACH	MANHOLE REMOVED			
					7	8													15	202	58100	15	EACH	CATCH BASIN REMOVED			
				6															6	202	60010	6	EACH	MONUMENT ASSEMBLY REMOVED			
				111															111	202	75000	111	FT	FENCE REMOVED			
				1															1	202	75250	1	EACH	GATE REMOVED			
								12											12	202	75610	12	EACH	VALVE BOX REMOVED	P.158		
							258												258	202	98700	258	FT	ABANDON MISC.: PLUG AND FILL 42" SANITARY CONDUIT	P.14		
																			2,106	446	2,552	203	10000	2,552	CY	EXCAVATION	
																			35,831	16,801	52,632	203	20000	52,632	CY	EMBANKMENT	
													582						582	203	98100	582	SY	ROADWAY, MISC.: #4 WASHED LANDSCAPE GRAVEL, 4" THICK	P.12		
								404	5,252	5,770	2,010								13,436	204	10000	13,436	SY	SUBGRADE COMPACTION	P.11		
										454									454	204	13000	454	CY	EXCAVATION OF SUBGRADE			
										454									454	204	30010	454	CY	GRANULAR MATERIAL, TYPE B			
7											1								8	204	45000	8	hour	PROOF ROLLING	P.11		
											1,360								1,360	204	50000	1,360	SY	GEOTEXTILE FABRIC			
			1																1	606	60002	1	EACH	IMPACT ATTENUATOR, TYPE 1 (UNIDIRECTIONAL)	P.12		
	LS														951	1,616			2,567	607	39901	2,567	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN	P.213		
																			LS	607	98200	LS		FENCE, MISC.: TEMPORARY FENCING	P.12		
										12,254	4,144								16,398	608	10000	16,398	SF	4" CONCRETE WALK			
			315																315	608	52000	315	SF	CURB RAMP			
			20																20	608	53020	20	SF	DETECTABLE WARNING			
			868																868	622	10160	868	FT	CONCRETE BARRIER, SINGLE SLOPE, TYPE D			
26																			26	623	38500	26	EACH	MONUMENT ASSEMBLY, TYPE C			
23																			23	623	40520	23	EACH	RIGHT-OF-WAY MONUMENT, TYPE B			
												582							582	SPECIAL	69012000	582	SY	FILTER FABRIC	P.12		
			400																400	SPECIAL	69065010	400	TON	WORK INVOLVING SOLID WASTE	P.14		
			LS																LS	SPECIAL	69070000	LS		ENVIRONMENTAL, SITE SPECIFIC HEALTH AND SAFETY PLAN	P.14		
			400																400	SPECIAL	69070020	400	TON	ENVIRONMENTAL, WORK INVOLVING RECYCLED MATERIAL	P.14		

GENERAL SUMMARY

DESIGN AGENCY
AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER
BNC

REVIEWER
WFS 08/05/24

PROJECT ID
104132

SHEET TOTAL
P.53 | 399

SHEET NUM.										PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.		
										P.62	P.327	01/BRO/10	EXT	TOTAL				
RETAINING WALLS (WALL 1 THROUGH WALL 7)																		
											LS	LS	203	98500	LS	ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS	P.324	
											LS	LS	503	11100	LS	COFFERDAMS AND EXCAVATION BRACING		
											216,815	216,815	509	10000	216,815	LB	EPOXY COATED STEEL REINFORCEMENT	
											182	182	511	34450	182	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)	
											1,126	1,126	511	51512	1,126	CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK	
											943	943	511	53012	943	CY	CLASS QC2 CONCRETE, MISC.: MOMENT SLAB	
											1,816	1,816	512	10050	1,816	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	
											4,795	4,795	512	10100	4,795	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
											806	806	512	10001	806	SY	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)	P.323
											2,085	2,085	516	13200	2,085	SF	½" PREFORMED EXPANSION JOINT FILLER	
											4,860	4,860	516	13600	4,860	SF	1" PREFORMED EXPANSION JOINT FILLER	
											37,571	37,571	840	20000	37,571	SF	MECHANICALLY STABILIZED EARTH WALL	
											2,790	2,790	840	21000	2,790	CY	WALL EXCAVATION	
											4,264	4,264	840	22000	4,264	SY	FOUNDATION PREPARATION	
											28,012	28,012	840	23000	28,012	CY	SELECT GRANULAR BACKFILL	
											3,194	3,194	840	25010	3,194	FT	6" DRAINAGE PIPE, PERFORATED	
											1,598	1,598	840	26000	1,598	FT	CONCRETE COPING	
											6,438	6,438	840	26050	6,438	SF	AESTHETIC SURFACE TREATMENT	P.323
											5	5	840	27000	5	DAY	ON-SITE ASSISTANCE	
											LS	LS	840	28000	LS		SGB INSPECTION AND COMPACTION TESTING	
											LS	LS	867	00100	LS		TEMPORARY WIRE FACED MECHANICALLY STABILIZED EARTH WALL	
																	BUILDING DEMOLITION	
											LS	LS	202	56000	LS		BUILDING DEMOLISHED, PARCEL 17, 1 STORY METAL BUILDING	

GENERAL SUMMARY

DESIGN AGENCY
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 WFS 08/05/24

PROJECT ID
 104132

SHEET TOTAL
 P.58 | 399

NOTE:
 *SEEDING AREA HAS BEEN CARRIED TO THE SEEDING AND MULCHING QUANTITIES, SEE SHEET P.14

STA.	ITEM 203 EXCAVATION	ITEM 203 EXCAVATION	ITEM 203 EMBANKMENT	ITEM 203 EMBANKMENT	SEEDING WIDTH FT	SEEDING AREA SQ YD
	SQ FT	CU YD	SQ FT	CU YD		
200+00.00	0	0	0	0	0	0
200+50.00	0	0	0	0	0	0
201+00.00	46	43	5	5	14	40
201+50.00	34	74	6	11	16	83
202+00.00	9	40	48	51	22	103
202+50.00	20	27	117	153	33	153
203+00.00	25	41	245	335	43	211
203+50.00	3	26	423	619	42	234
204+00.00	12	14	377	741	39	224
204+50.00	0	11	150	488	14	148
205+00.00	0	0	724	809	32	129
TOTALS CARRIED TO GENERAL SUMMARY		233		3207		1285

OLD BROADWAY AVENUE

STA.	ITEM 203 EXCAVATION	ITEM 203 EXCAVATION	ITEM 203 EMBANKMENT	ITEM 203 EMBANKMENT	SEEDING WIDTH FT	SEEDING AREA SQ YD
	SQ FT	CU YD	SQ FT	CU YD		
366+00.00	0	0	0	0	0	0
366+40.00	23	17	2	2	20	44
366+50.00	70	17	15	3	23	24
367+00.00	171	223	228	225	42	181
367+50.00	178	323	318	505	57	275
368+00.00	157	310	294	566	54	308
368+50.00	275	400	498	733	83	381
368+60.00	0	51	469	179	86	94
369+00.00	164	121	231	519	51	304
369+50.00	0	151	1732	1818	92	397
369+61.61	0	0	1809	761	95	121
370+00.00	0	0	1477	2337	80	373
370+50.00	13	12	1022	2314	82	450
371+00.00	0	12	810	1696	40	339
371+50.00	6	5	839	1527	67	297
372+00.00	2	7	1480	2147	77	400
372+28.24	3	3	2342	1999	98	275
372+50.00	0	1	2316	1877	87	224
372+52.27	0	0	2323	195	86	22
377+50.15	0	0	12	0	5	0
378+00.00	0	0	95	99	4	25
378+50.00	0	0	95	177	13	47
378+88.72	0	0	758	612	13	56
379+00.00	0	0	777	321	17	19
379+50.00	0	0	786	1447	20	103
380+00.00	0	0	791	1460	19	108
380+50.00	0	0	778	1452	19	106
381+00.00	0	0	810	1470	0	53
381+37.00	0	0	785	1093	13	27
381+50.00	0	0	787	378	15	20
382+00.00	0	0	1005	1660	0	42
382+50.00	0	0	795	1667	24	67
382+70.00	17	6	22	303	0	27
383+00.00	0	9	354	209	42	70
383+50.00	0	0	217	528	43	236
384+00.00	25	23	68	263	48	253
384+50.00	48	68	6	68	44	256
385+00.00	29	71	4	9	50	261
385+40.00	29	43	3	5	5	122
TOTALS CARRIED TO GENERAL SUMMARY		1873		32624		6407

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PROJECT ID

104132

SHEET TOTAL

P.73 | 399

NOTE:
 *ITEM 840 - SELECT GRANULAR BACKFILL AND ITEM 840 - WALL EXCAVATION HAVE BEEN CARRIED TO THE MSE WALL ESTIMATED QUANTITIES FOR WALL 01, WALL 03, AND WALL 05, SEE SHEET P.327

STA.	ITEM 840 WALL EXCAVATION	ITEM 840 WALL EXCAVATION	SELECT GRANULAR BACKFILL	SELECT GRANULAR BACKFILL	ITEM 840 FOUNDATION PREPERATION	ITEM 840 FOUNDATION PREPERATION
	SQ FT	CU YD	SQ FT	CU YD	FT	SQ YD
368+60.00	101	0	64	0	13	0
369+00.00	100	150	59	91	13	57
369+50.00	0	93	179	221	14	75
369+61.61	0	0	143	69	13	18
370+00.00	0	0	145	205	17	64
370+50.00	0	0	168	291	17	93
371+00.00	0	0	185	327	17	93
371+50.00	0	0	252	404	19	98
372+00.00	0	0	444	644	23	116
372+28.24	0	0	630	562	27	79
372+50.00	21	8	805	578	29	68
372+52.27	33	2	832	69	59	11
TOTALS CARRIED TO GENERAL SUMMARY		253		3461		772

WALL 01

STA.	ITEM 840 WALL EXCAVATION	ITEM 840 WALL EXCAVATION	SELECT GRANULAR BACKFILL	SELECT GRANULAR BACKFILL	ITEM 840 FOUNDATION PREPERATION	ITEM 840 FOUNDATION PREPERATION
	SQ FT	CU YD	SQ FT	CU YD	FT	SQ YD
377+50.15	114	0	778	0	27	0
378+00.00	213	302	1358	1971	43	194
378+50.00	0	197	1143	2316	41	232
378+88.72	0	0	1073	1589	41	175
379+00.00	0	0	1046	442	41	51
379+50.00	0	0	462	1395	31	198
380+00.00	0	0	283	689	20	142
380+50.00	0	0	144	395	16	101
381+00.00	0	0	56	185	13	81
381+37.00	0	0	17	50	13	54
TOTALS CARRIED TO GENERAL SUMMARY		499		9032		1228

WALL 03

STA.	ITEM 840 WALL EXCAVATION	ITEM 840 WALL EXCAVATION	SELECT GRANULAR BACKFILL	SELECT GRANULAR BACKFILL	ITEM 840 FOUNDATION PREPERATION	ITEM 840 FOUNDATION PREPERATION
	SQ FT	CU YD	SQ FT	CU YD	FT	SQ YD
369+61.61	0	0	0	0	0	0
370+00.00	0	0	107	76	14	31
370+50.00	0	0	380	451	21	99
371+00.00	76	70	680	981	28	137
371+50.00	1	71	638	1220	27	153
372+00.00	0	0	236	809	20	131
372+28.24	0	0	6	127	17	59
TOTALS CARRIED TO GENERAL SUMMARY		141		3664		610

WALL 05

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WFS 08/05/24

PROJECT ID

104132

SHEET

P.74

TOTAL

399

STA.	ITEM 840 WALL EXCAVATION	ITEM 840 WALL EXCAVATION	SELECT GRANULAR BACKFILL	SELECT GRANULAR BACKFILL	ITEM 840 FOUNDATION PREPERATION	ITEM 840 FOUNDATION PREPERATION
	SQ FT	CU YD	SQ FT	CU YD	FT	SQ YD
378+88.72	140	0	916	0	31	0
379+00.00	132	57	902	380	31	39
379+50.00	94	209	860	1632	31	171
380+00.00	111	190	722	1464	28	165
380+50.00	110	205	630	1252	27	153
381+00.00	128	220	590	1130	27	149
381+37.00	123	172	554	784	27	110
381+50.00	128	60	533	262	26	38
382+00.00	132	241	509	965	27	147
382+50.00	114	228	143	604	18	124
382+70.00	81	72	20	61	20	43
TOTALS CARRIED TO GENERAL SUMMARY		1654		8534		1139

WALL 06

STA.	ITEM 840 WALL EXCAVATION	ITEM 840 WALL EXCAVATION	SELECT GRANULAR BACKFILL	SELECT GRANULAR BACKFILL	ITEM 840 FOUNDATION PREPERATION	ITEM 840 FOUNDATION PREPERATION
	SQ FT	CU YD	SQ FT	CU YD	FT	SQ YD
17+40.00	246	0	101	0	15	0
17+50.00	178	78	109	39	15	16
18+00.00	0	165	307	386	21	100
18+50.00	0	0	654	890	29	140
19+00.00	0	0	689	1243	29	161
19+30.33	0	0	669	763	29	98
TOTALS CARRIED TO GENERAL SUMMARY		243		3321		515

WALL 07

STA.	ITEM 203 EXCAVATION	ITEM 203 EXCAVATION	ITEM 203 EMBANKMENT	ITEM 203 EMBANKMENT	SEEDING WIDTH	SEEDING AREA
	SQ FT	CU YD	SQ FT	CU YD	FT	SQ YD
15+00.00	10	0	3	0	7	0
15+50.00	4	13	6	8	8	42
16+00.00	7	10	4	10	6	39
16+50.00	11	16	11	21	26	89
17+00.00	22	30	5	15	17	119
17+40.00	27	36	12	13	33	111
17+50.00	138	31	420	80	53	48
18+00.00	0	128	2794	2976	110	453
18+50.00	0	0	2645	5036	105	597
19+00.00	0	0	2918	5151	110	597
19+30.33	0	0	3125	3394	95	345
TOTALS CARRIED TO GENERAL SUMMARY		264		16704		2440

HENRY STREET

STA.	ITEM 203 EXCAVATION	ITEM 203 EXCAVATION	ITEM 203 EMBANKMENT	ITEM 203 EMBANKMENT	SEEDING WIDTH	SEEDING AREA
	SQ FT	CU YD	SQ FT	CU YD	FT	SQ YD
109+00.00	2	2	0	0	0	0
109+50.00	1	3	0	0	0	0
110+00.00	2	3	0	0	0	0
110+50.00	11	12	3	3	3	8
111+00.00	16	25	3	6	4	18
111+50.00	14	28	3	6	5	24
112+00.00	12	24	6	9	0	14
112+50.00	6	16	3	8	0	0
113+00.00	0	5	17	18	3	9
113+50.00	1	1	6	21	2	15
114+00.00	1	2	4	10	2	10
114+50.00	20	20	3	7	5	18
115+00.00	12	30	3	6	4	25
115+50.00	0	11	0	3	0	11
TOTALS CARRIED TO GENERAL SUMMARY		182		97		152

CHAINCRAFT ROAD

NOTE:
 *ITEM 840 - SELECT GRANULAR BACKFILL AND ITEM 840 - WALL EXCAVATION HAVE BEEN CARRIED TO THE MSE WALL ESTIMATED QUANTITIES FOR WALL 06 AND WALL 07, SEE SHEET P.327

*SEEDING AREA HAS BEEN CARRIED TO THE SEEDING AND MULCHING QUANTITIES, SEE SHEET P.14

DESIGN AGENCY

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DESIGNER

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REVIEWER

WFS 08/05/24

PROJECT ID

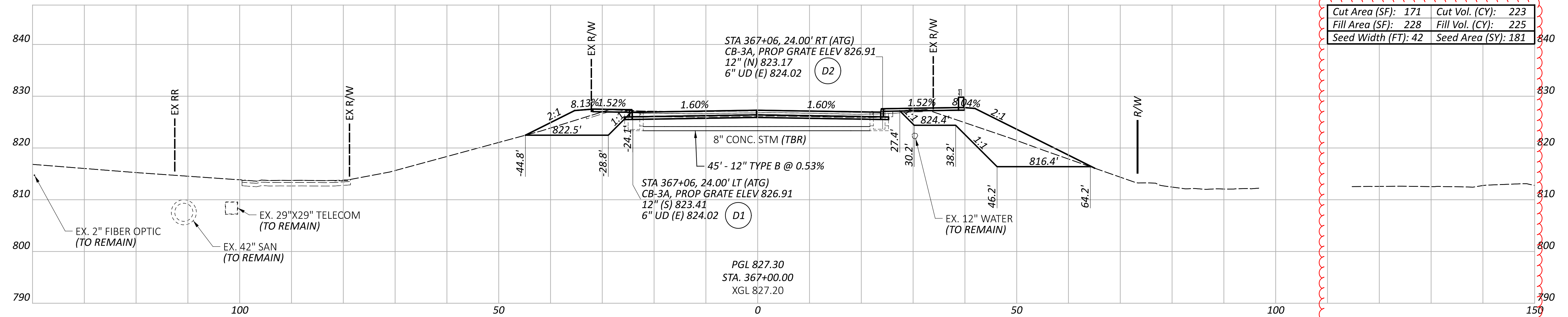
104132

SHEET

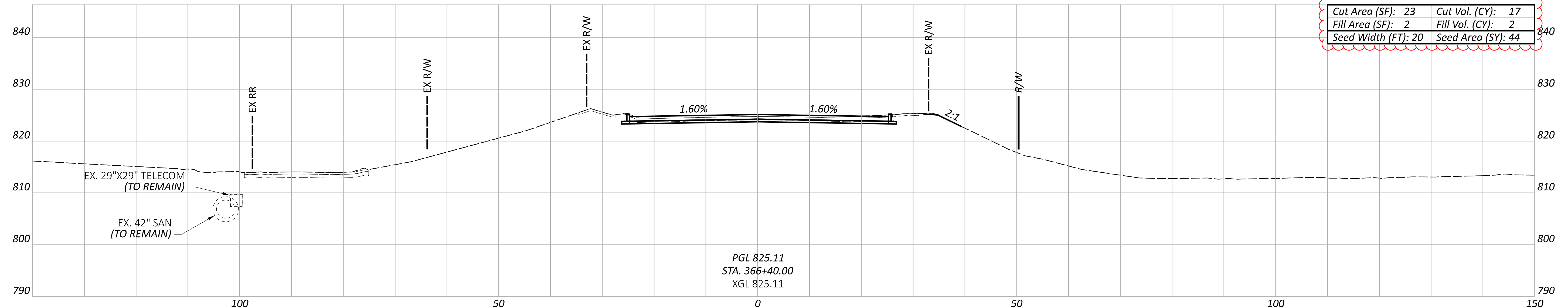
P.75

TOTAL

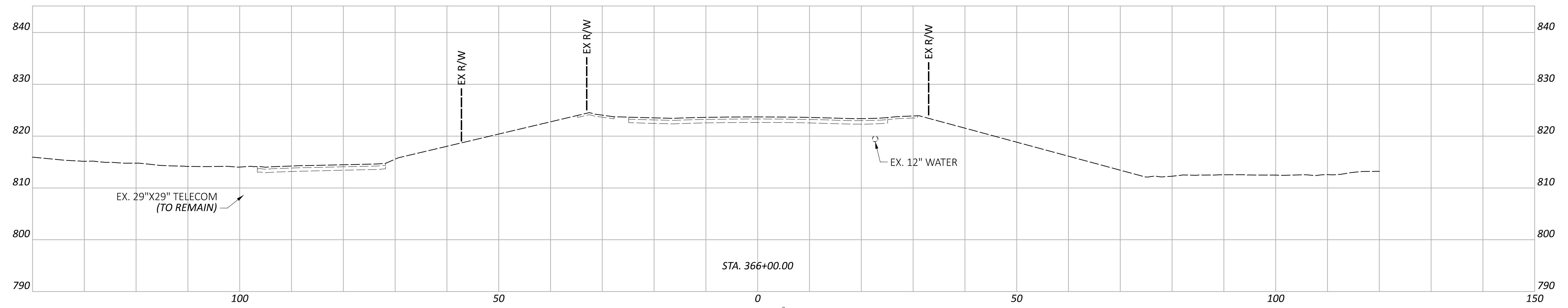
399



Cut Area (SF): 171	Cut Vol. (CY): 223
Fill Area (SF): 228	Fill Vol. (CY): 225
Seed Width (FT): 42	Seed Area (SY): 181



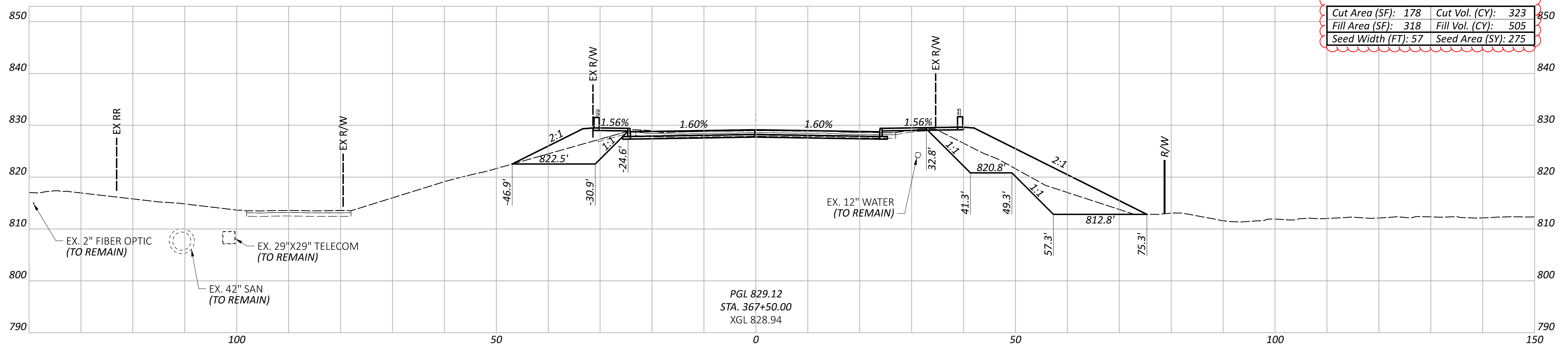
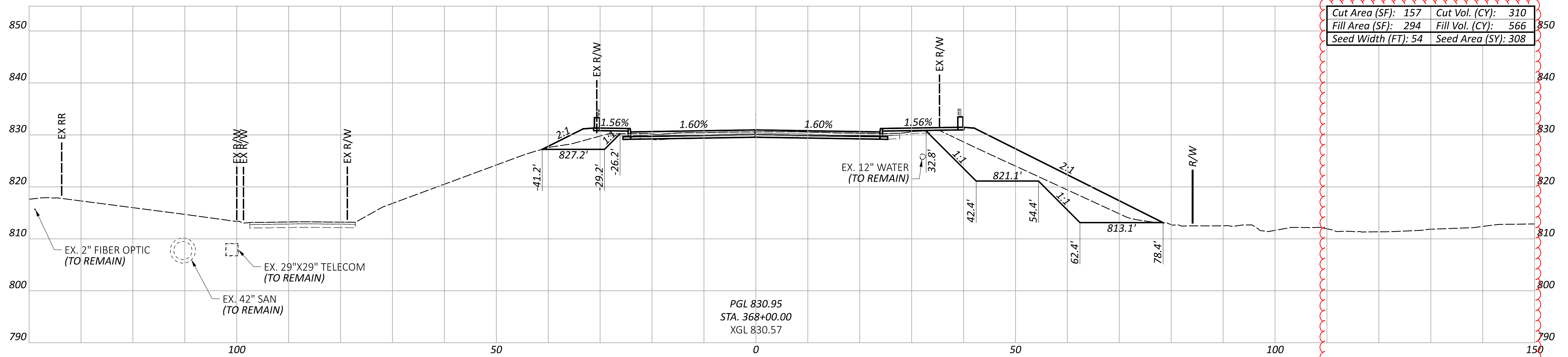
Cut Area (SF): 23	Cut Vol. (CY): 17
Fill Area (SF): 2	Fill Vol. (CY): 2
Seed Width (FT): 20	Seed Area (SY): 44



CROSS SECTIONS - S.R. 14
 STA. 366+00.00 TO STA. 367+00.00

DESIGN AGENCY	AECOM
DESIGNER	RJJ
REVIEWER	WFS
PROJECT ID	104132
SHEET	P.94
TOTAL	399

ALL CROSS-SECTIONS FOR ALL SHEETS ARE AT 1:1 (H:V) SCALE.



CROSS SECTIONS - S.R. 14
 STA. 367+50.00 TO STA. 368+00.00

DESIGN AGENCY

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DESIGNER

RJJ

REVIEWER

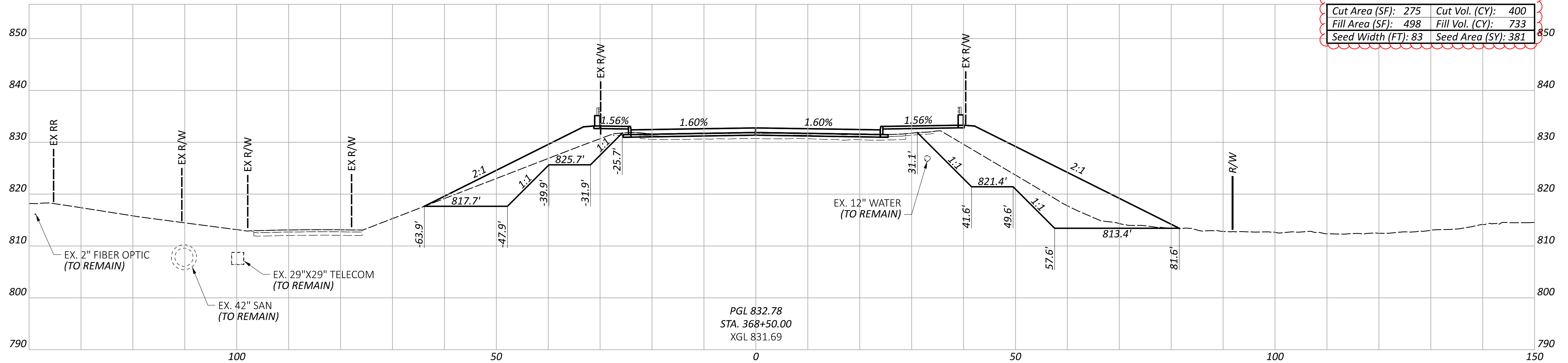
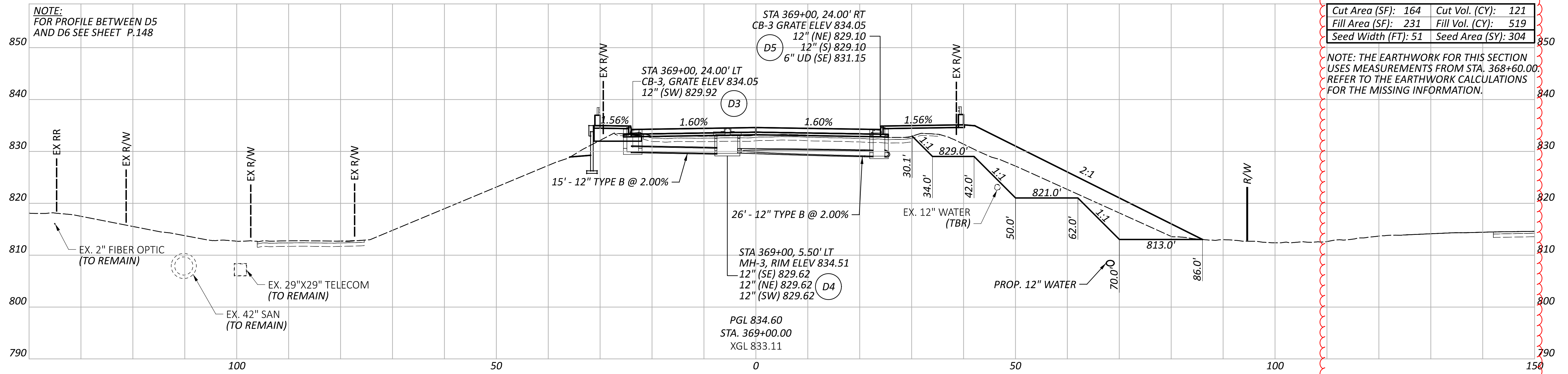
WFS 08/05/24

PROJECT ID

104132

SHEET TOTAL

P.95 399



CROSS SECTIONS - S.R. 14
STA. 368+50.00 TO STA. 369+00.00

DESIGN AGENCY

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DESIGNER

RJJ

REVIEWER

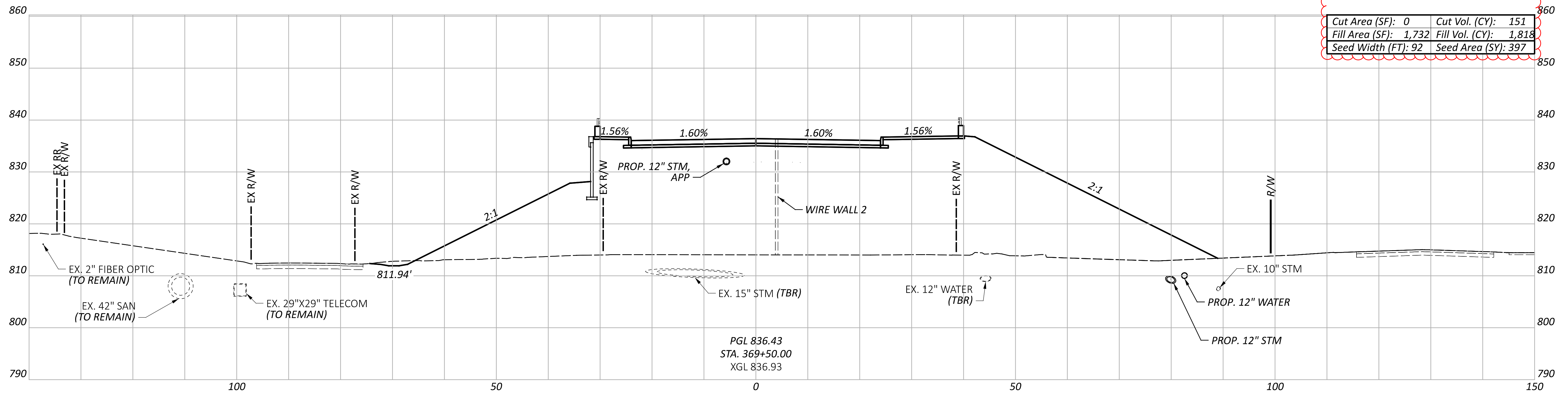
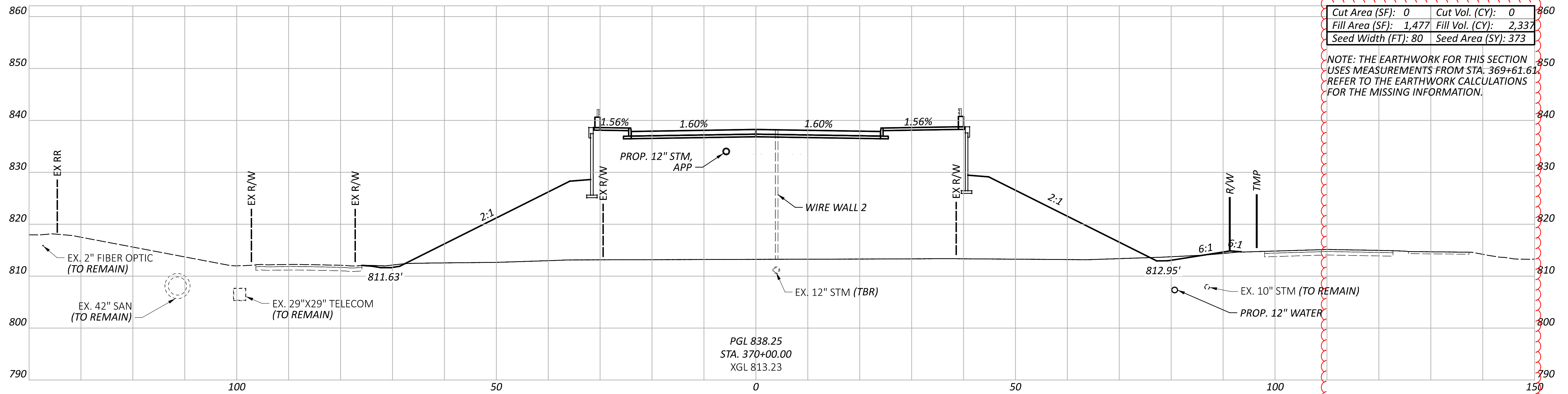
WFS 08/05/24

PROJECT ID

104132

SHEET TOTAL

P.96 399



CROSS SECTIONS - S.R. 14
 STA. 369+50.00 TO STA. 370+00.00

DESIGN AGENCY

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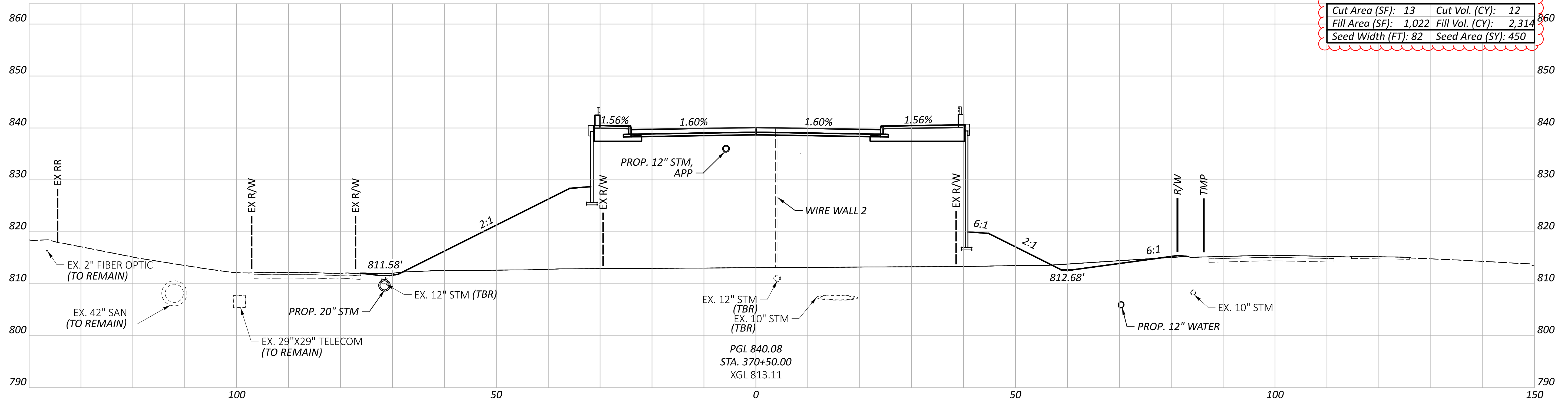
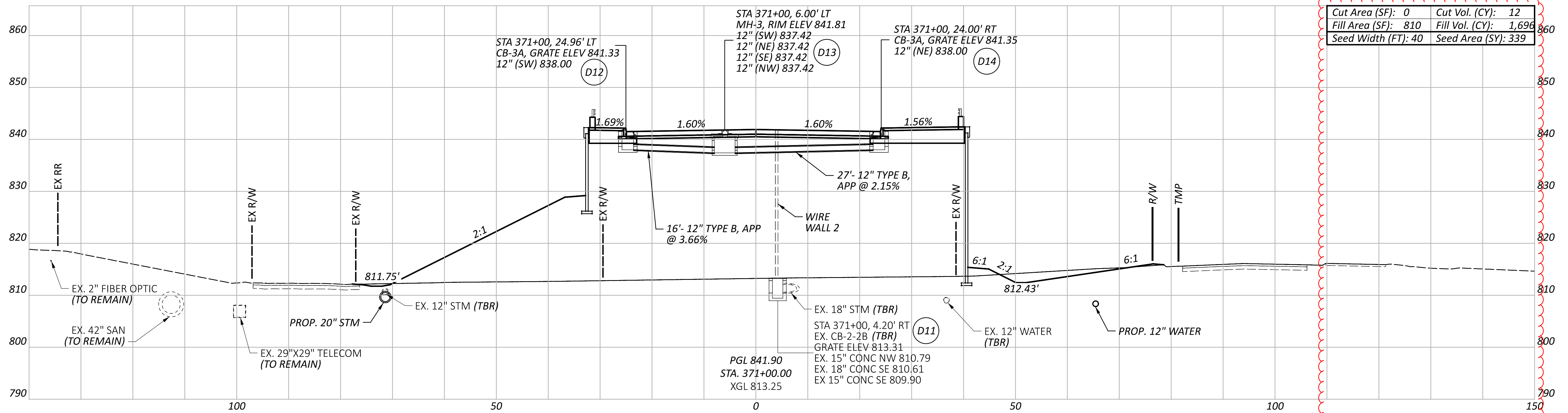
WFS 08/05/24

PROJECT ID

104132

SHEET TOTAL

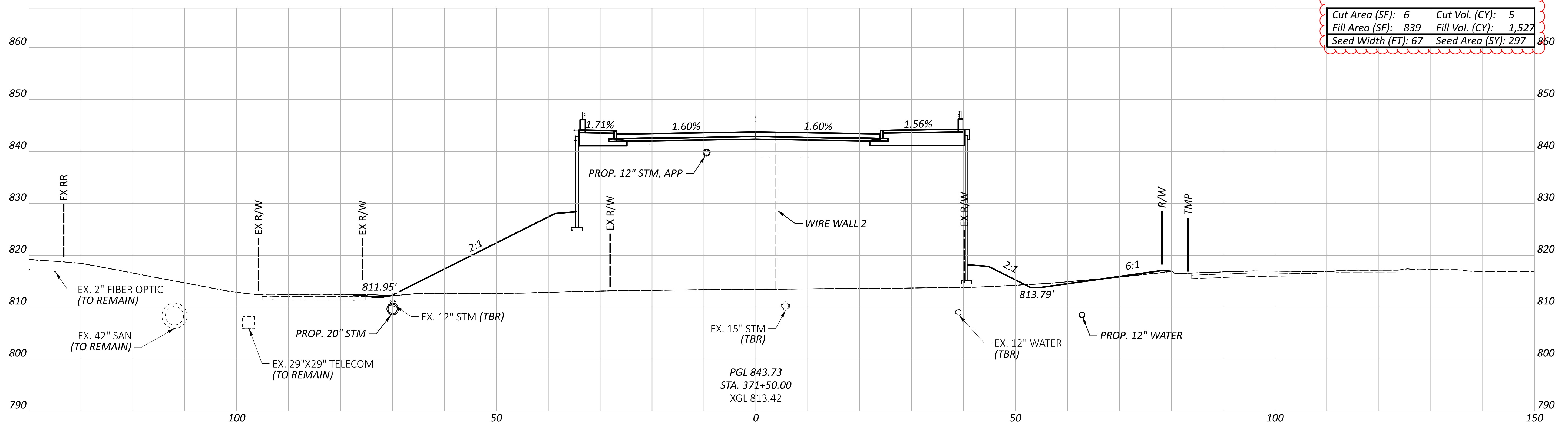
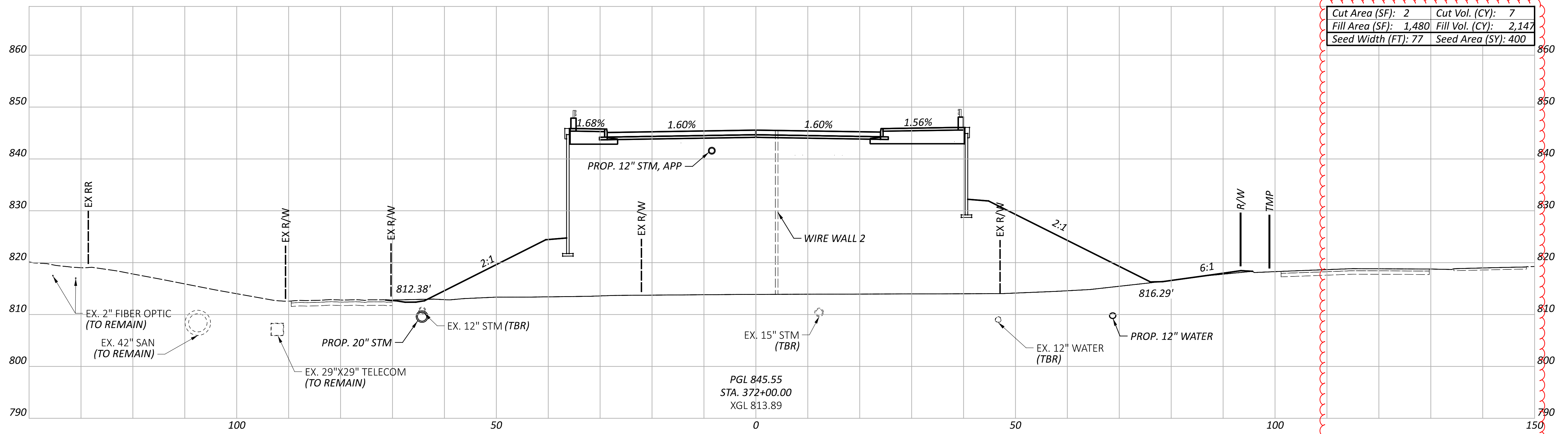
P.97 | 399



CROSS SECTIONS - S.R. 14
 STA. 370+50.00 TO STA. 371+00.00

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DESIGNER
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 REVIEWER
 WFS 08/05/24
 PROJECT ID
 104132
 SHEET TOTAL
 P.98 | 399



CROSS SECTIONS - S.R. 14
 STA. 371+50.00 TO STA. 372+00.00

DESIGN AGENCY

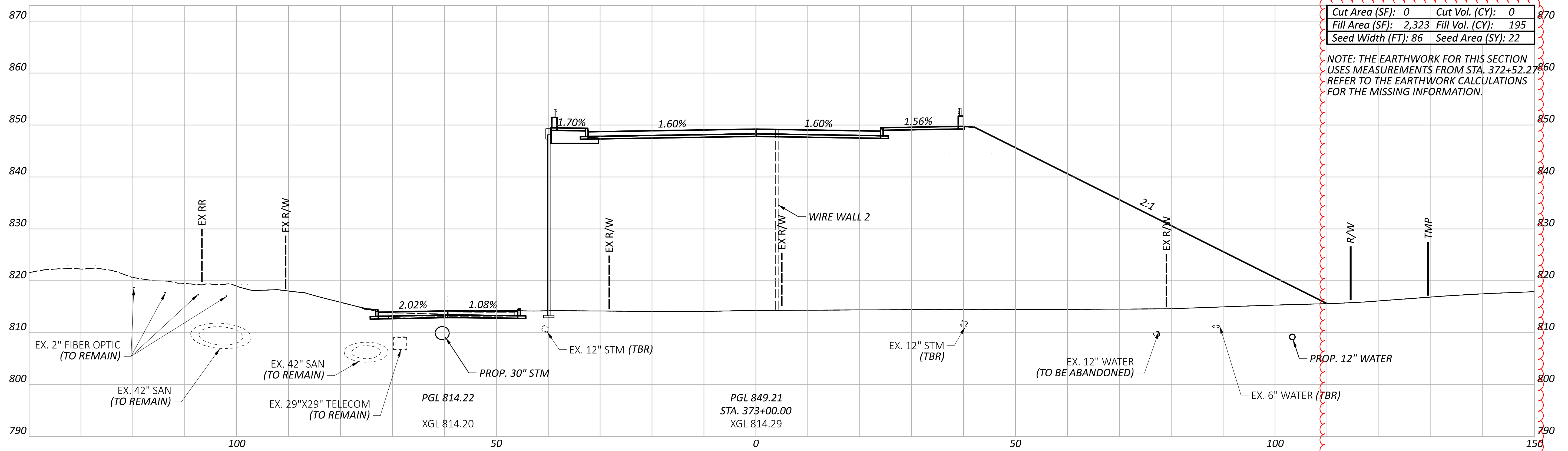
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DESIGNER
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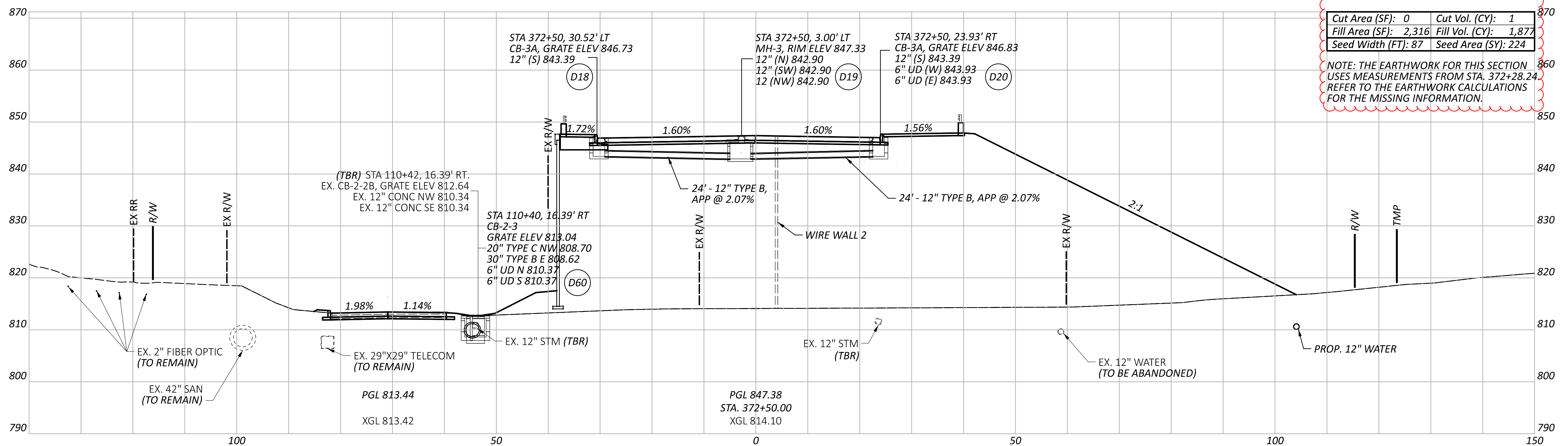
PROJECT ID
 104132

SHEET TOTAL
 P.99 | 399



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 2,323	Fill Vol. (CY): 195
Seed Width (FT): 86	Seed Area (SY): 22

NOTE: THE EARTHWORK FOR THIS SECTION USES MEASUREMENTS FROM STA. 372+52.27. REFER TO THE EARTHWORK CALCULATIONS FOR THE MISSING INFORMATION.



Cut Area (SF): 0	Cut Vol. (CY): 1
Fill Area (SF): 2,316	Fill Vol. (CY): 1,877
Seed Width (FT): 87	Seed Area (SY): 224

NOTE: THE EARTHWORK FOR THIS SECTION USES MEASUREMENTS FROM STA. 372+28.24. REFER TO THE EARTHWORK CALCULATIONS FOR THE MISSING INFORMATION.

CROSS SECTIONS - S.R. 14
 STA. 372+50.00 TO STA. 373+00.00

DESIGN AGENCY

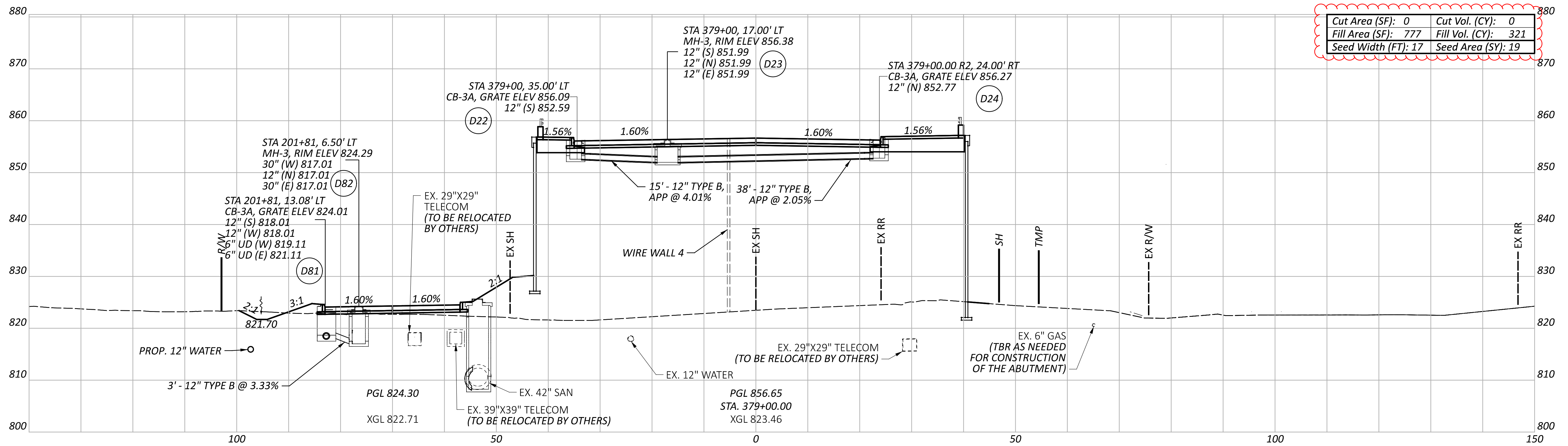
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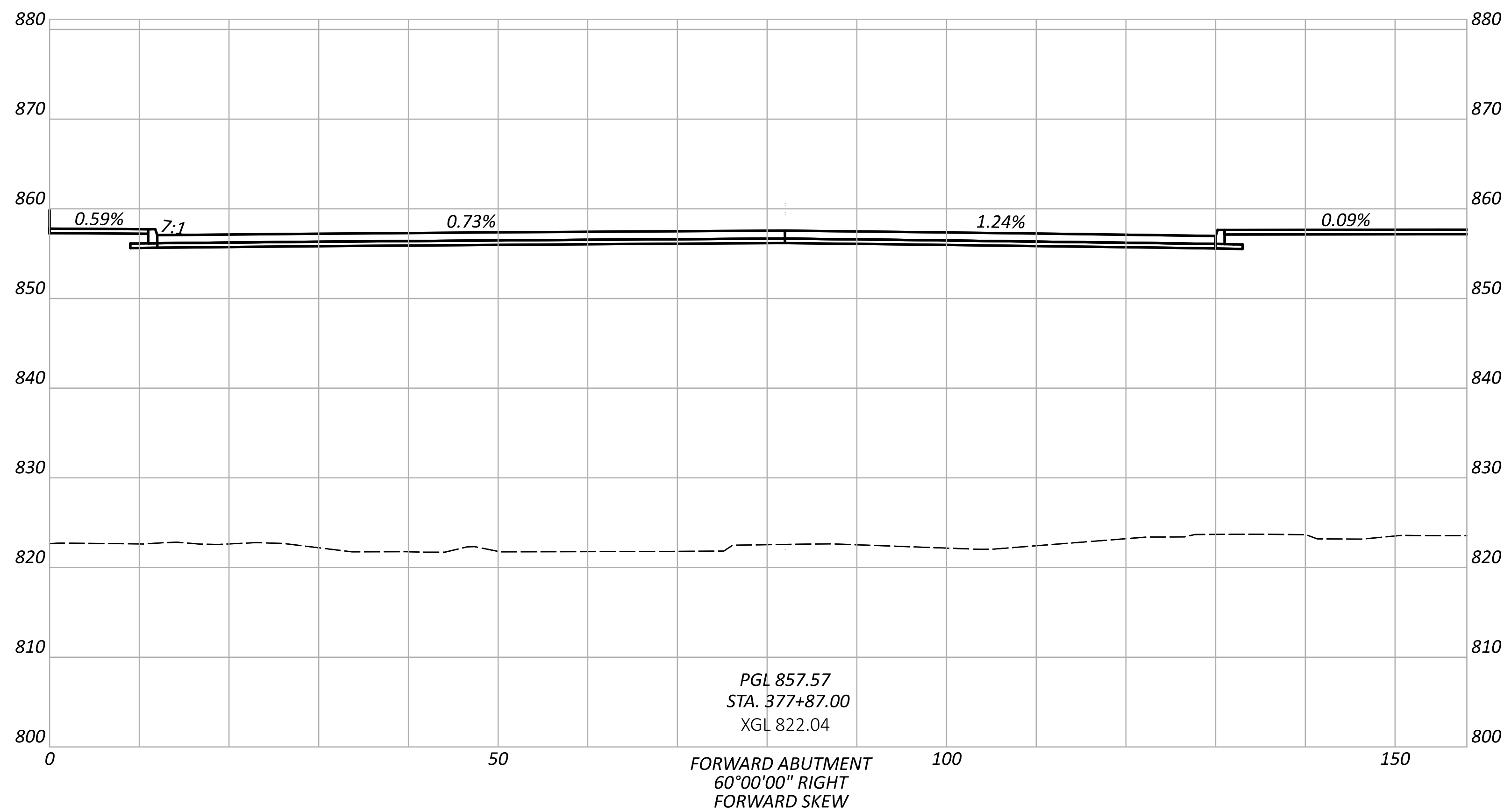
REVIEWER
 WFS 08/05/24

PROJECT ID
 104132

SHEET TOTAL
 P.100 399



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 777	Fill Vol. (CY): 321
Seed Width (FT): 17	Seed Area (SY): 19



CROSS SECTIONS - S.R. 14
 STA. 377+87.00 TO STA. 379+00.00

DESIGN AGENCY

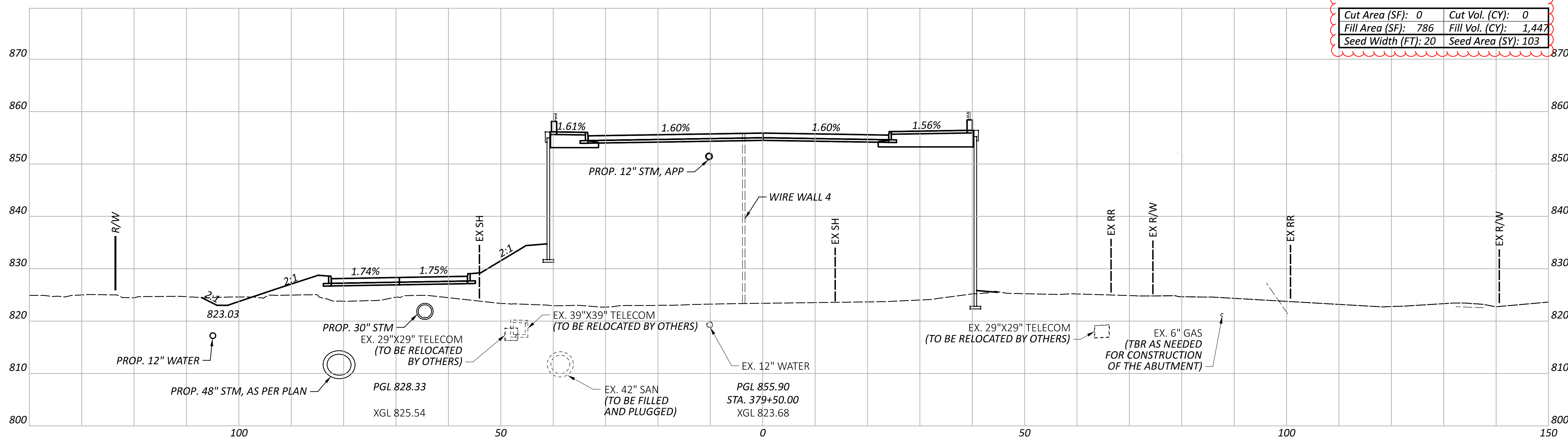
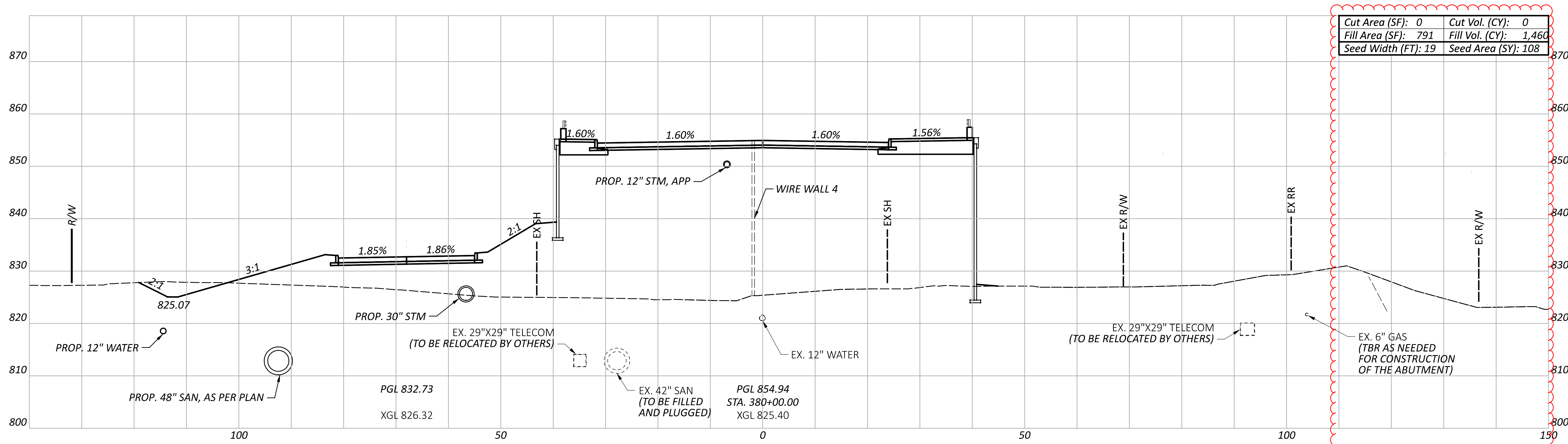
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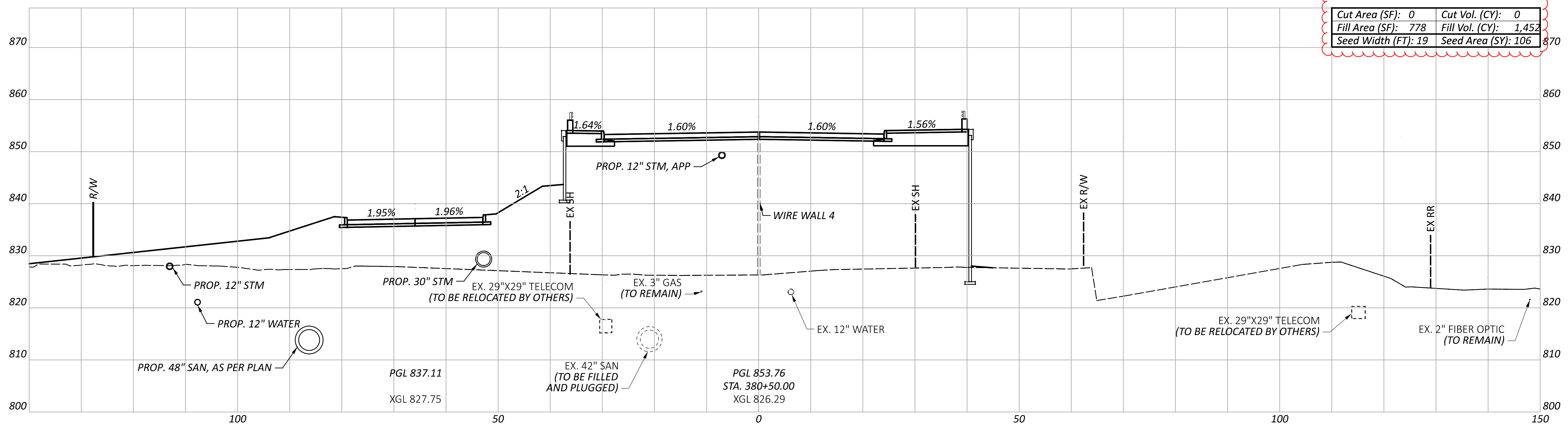
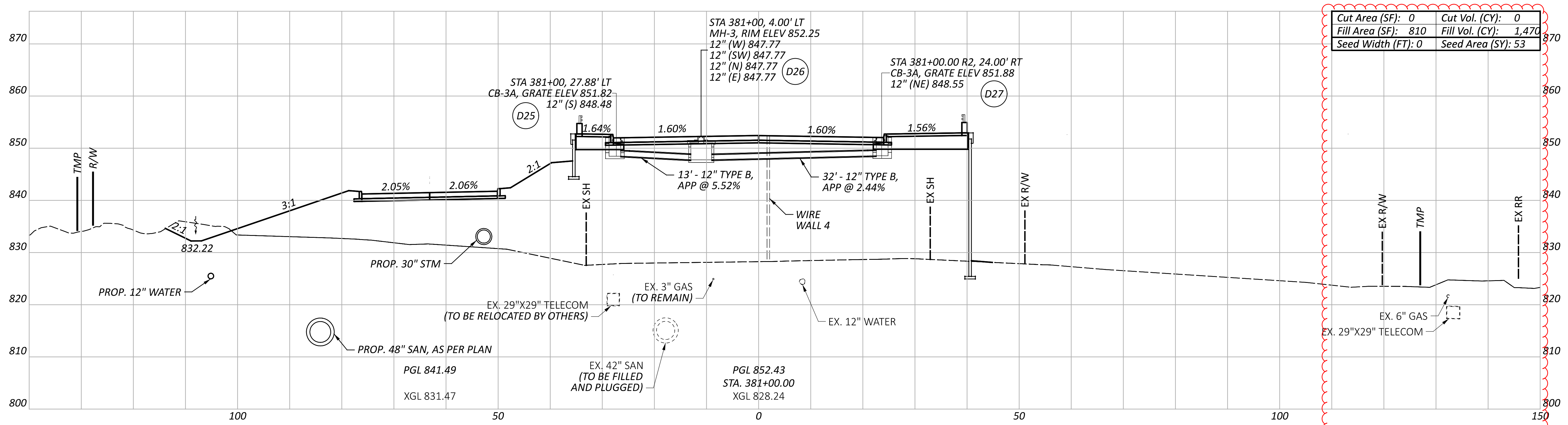
REVIEWER
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PROJECT ID
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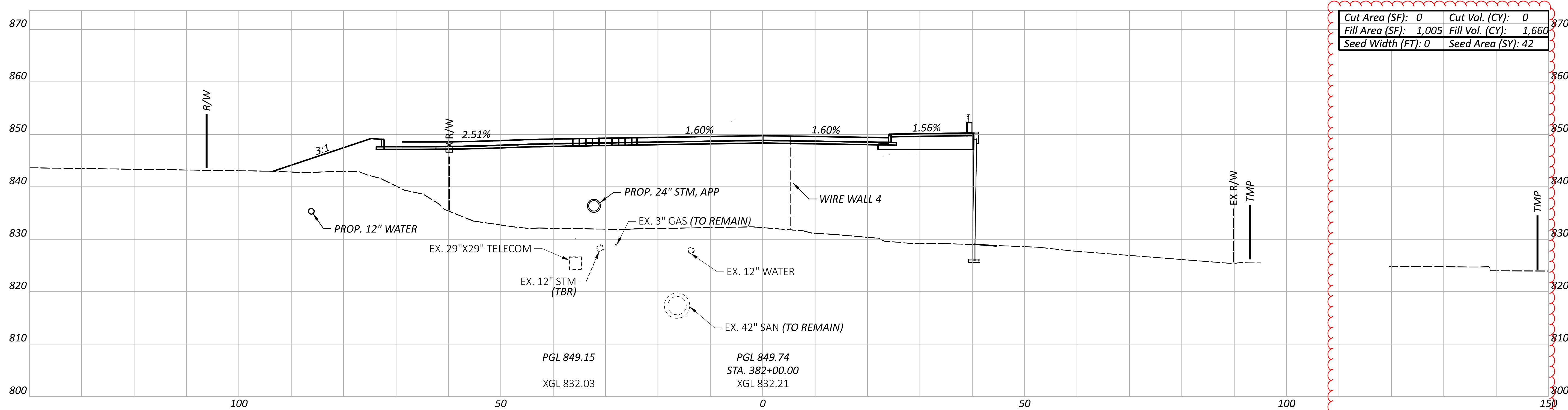
SHEET TOTAL
 P.102 399



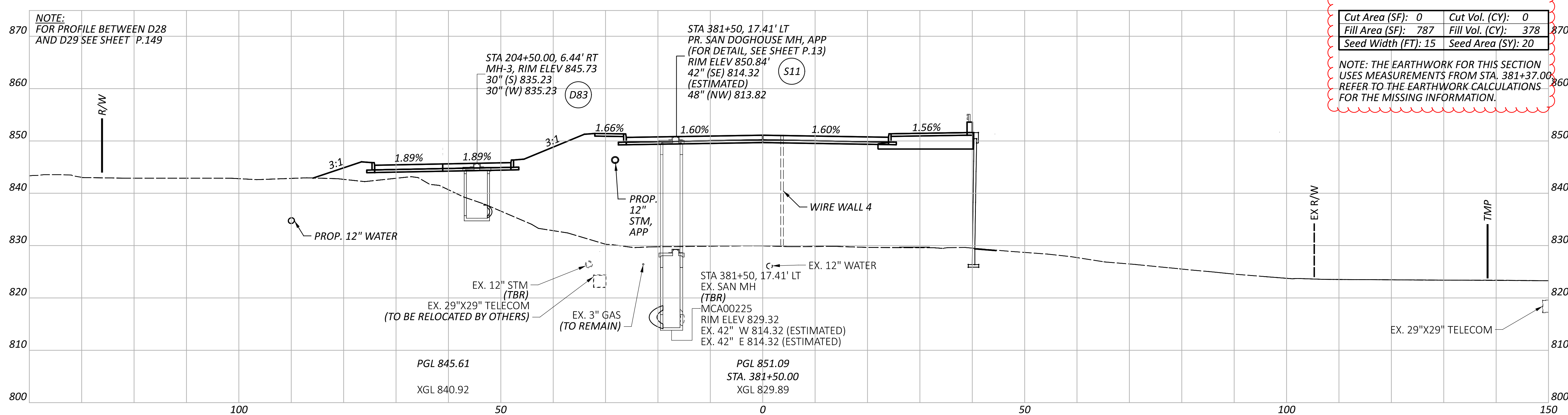
CROSS SECTIONS - S.R. 14
 STA. 379+50.00 TO STA. 380+00.00



CROSS SECTIONS - S.R. 14
 STA. 380+50.00 TO STA. 381+00.00



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 1,005	Fill Vol. (CY): 1,660
Seed Width (FT): 0	Seed Area (SY): 42



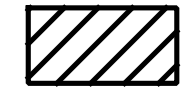
Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 787	Fill Vol. (CY): 378
Seed Width (FT): 15	Seed Area (SY): 20

NOTE: THE EARTHWORK FOR THIS SECTION USES MEASUREMENTS FROM STA. 381+37.00 REFER TO THE EARTHWORK CALCULATIONS FOR THE MISSING INFORMATION.

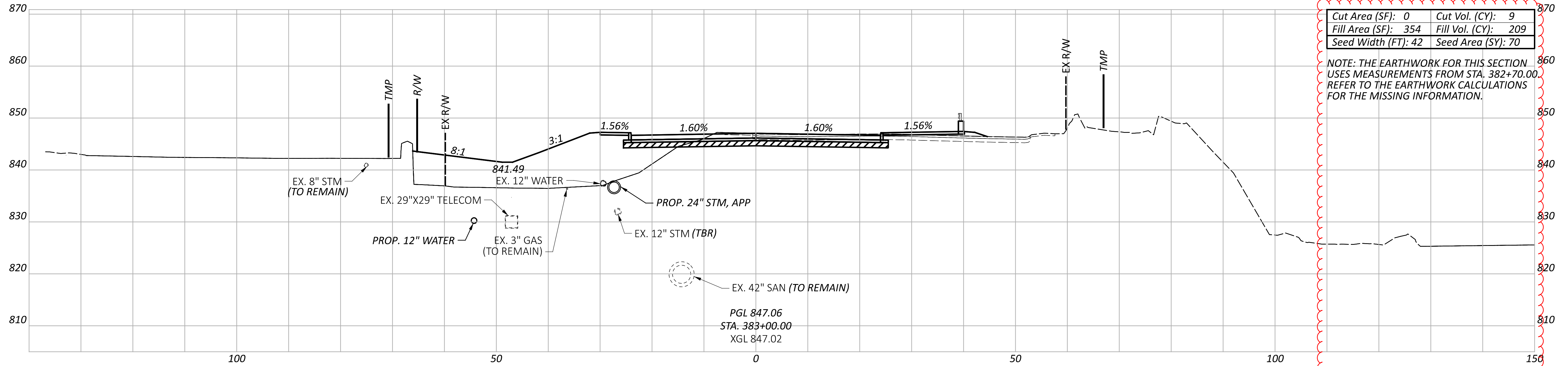
CROSS SECTIONS - S.R. 14
 STA. 381+50.00 TO STA. 382+00.00

DESIGN AGENCY	AECOM
DESIGNER	RJJ
REVIEWER	WFS 08/05/24
PROJECT ID	104132
SHEET	TOTAL
P.105	399

LEGEND:

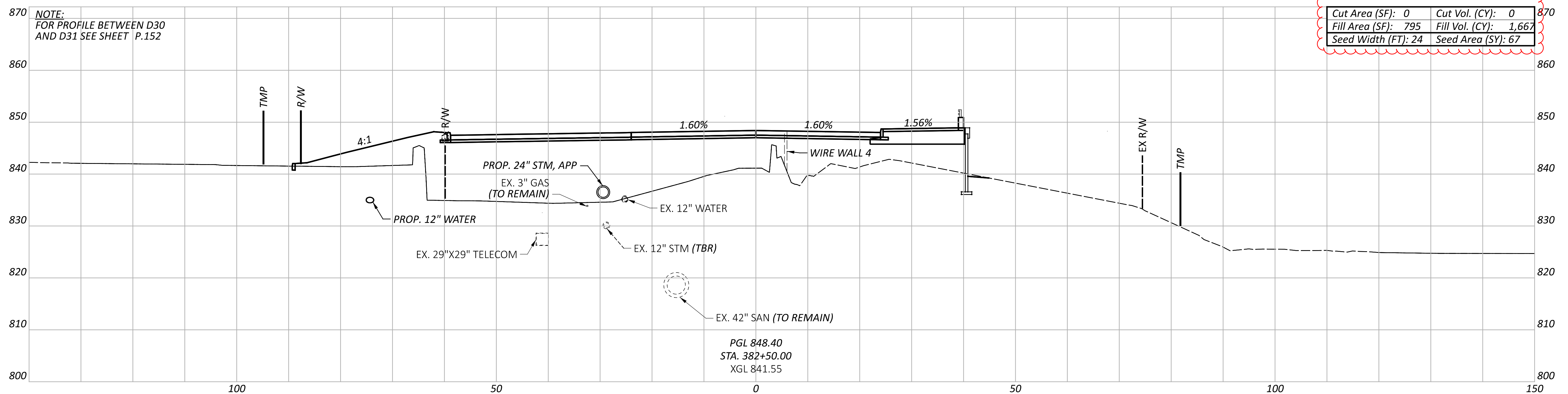


- UNSTABLE SUBGRADE
- ITEM 204 - EXCAVATION OF SUBGRADE [T=12"]
- ITEM 204 - GRANULAR MATERIAL, TYPE B [T=12"]
- ITEM 204 - PROOF ROLLING
- ITEM 204 - GEOTEXTILE FABRIC



Cut Area (SF): 0	Cut Vol. (CY): 9
Fill Area (SF): 354	Fill Vol. (CY): 209
Seed Width (FT): 42	Seed Area (SY): 70

NOTE: THE EARTHWORK FOR THIS SECTION USES MEASUREMENTS FROM STA. 382+70.00. REFER TO THE EARTHWORK CALCULATIONS FOR THE MISSING INFORMATION.



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 795	Fill Vol. (CY): 1,667
Seed Width (FT): 24	Seed Area (SY): 67

NOTE:
FOR PROFILE BETWEEN D30
AND D31 SEE SHEET P.152

CROSS SECTIONS - S.R. 14
STA. 382+50.00 TO STA. 383+00.00

CUY-14-6.93

MODEL: CLP_5014 - 382+50.00 [Sheet] PAPER SIZE: 34x22 (in.) DATE: 2/17/2025 TIME: 4:14:59 PM USER: robert.jankovsky
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DESIGN AGENCY

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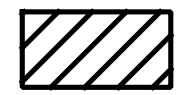
DESIGNER
RJJ

REVIEWER
WFS 08/05/24

PROJECT ID
104132

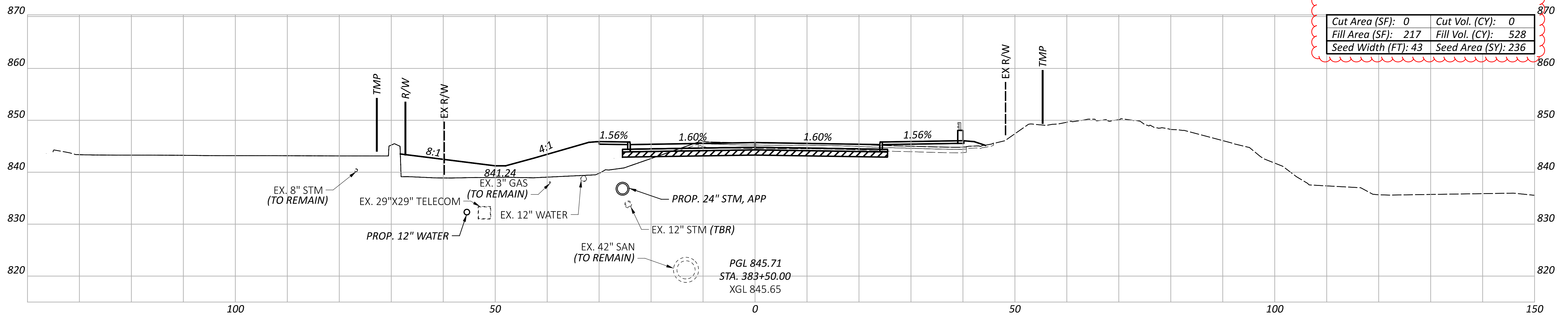
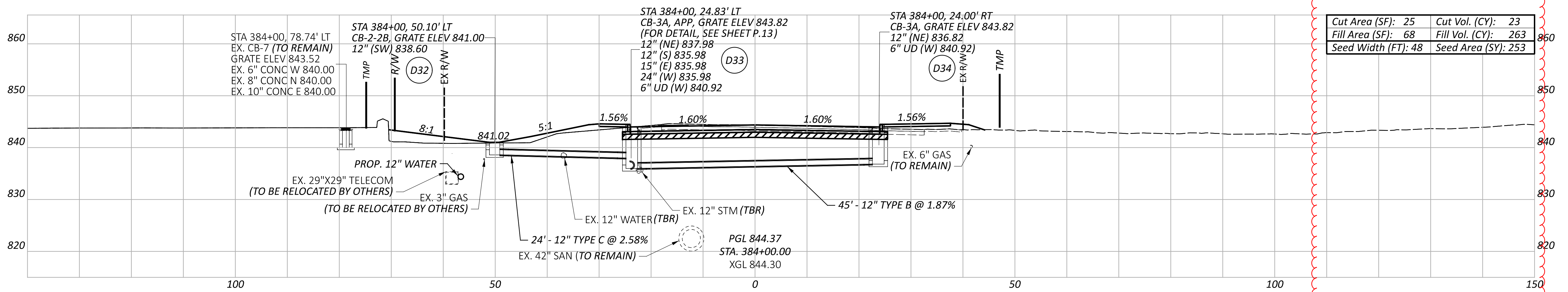
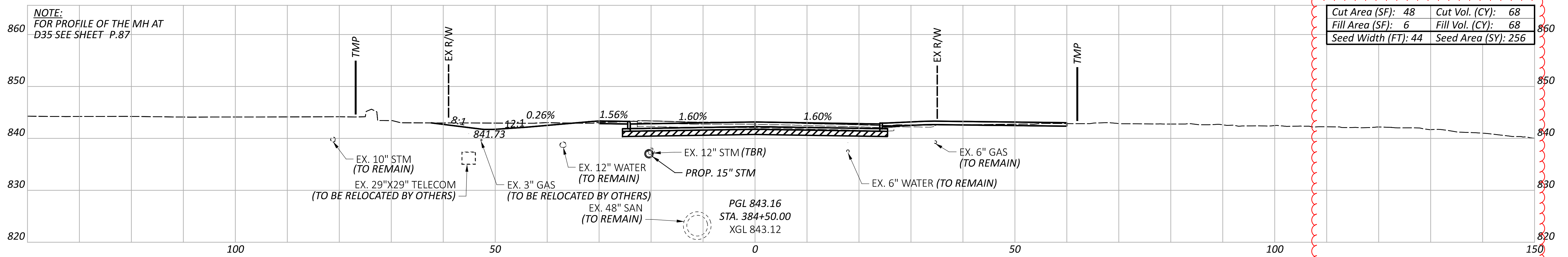
SHEET	TOTAL
P.106	399

LEGEND:



- UNSTABLE SUBGRADE
- ITEM 204 - EXCAVATION OF SUBGRADE [T=12"]
- ITEM 204 - GRANULAR MATERIAL, TYPE B [T=12"]
- ITEM 204 - PROOF ROLLING
- ITEM 204 - GEOTEXTILE FABRIC

NOTE:
FOR PROFILE OF THE MH AT
D35 SEE SHEET P.87



CROSS SECTIONS - S.R. 14
STA. 383+50.00 TO STA. 384+50.00

CUY-14-6.93

MODEL: CLP_5014 - 383+50.00 [Sheet] PAPER SIZE: 34x22 (in.) DATE: 2/17/2025 TIME: 4:15:01 PM USER: robert.jankovsky
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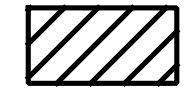
DESIGNER
RJ

REVIEWER
WFS 08/05/24

PROJECT ID
104132

SHEET TOTAL
P.107 399

LEGEND:



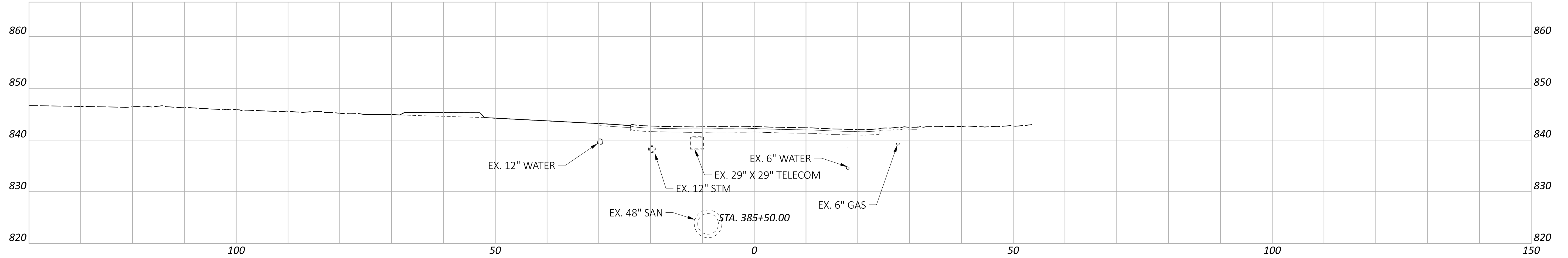
UNSTABLE SUBGRADE

ITEM 204 - EXCAVATION OF SUBGRADE [T=12"]

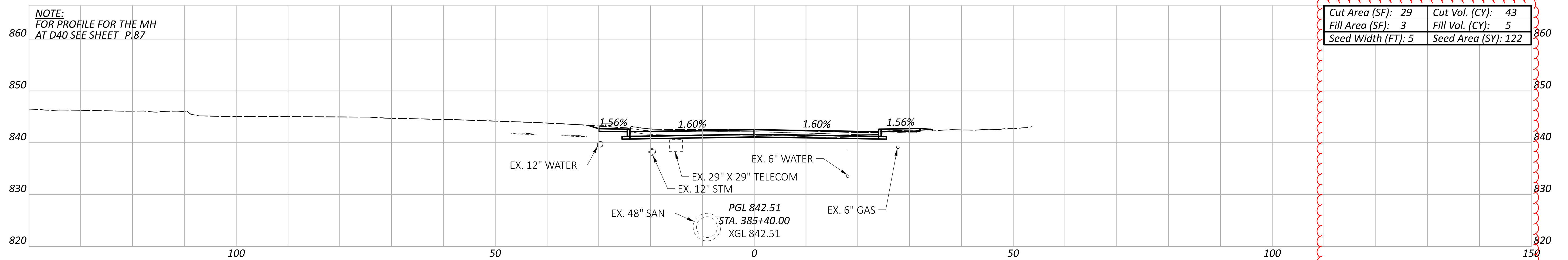
ITEM 204 - GRANULAR MATERIAL, TYPE B [T=12"]

ITEM 204 - PROOF ROLLING

ITEM 204 - GEOTEXTILE FABRIC

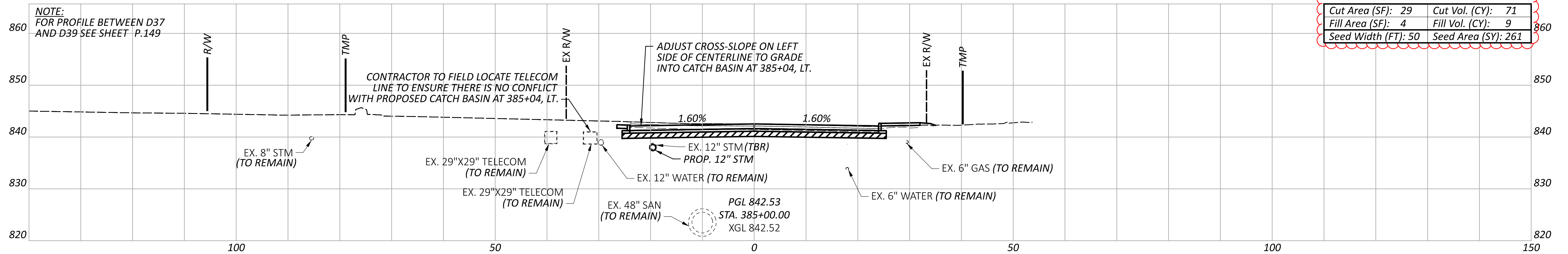


NOTE:
FOR PROFILE FOR THE MH
AT D40 SEE SHEET P.87



Cut Area (SF): 29	Cut Vol. (CY): 43
Fill Area (SF): 3	Fill Vol. (CY): 5
Seed Width (FT): 5	Seed Area (SY): 122

NOTE:
FOR PROFILE BETWEEN D37
AND D39 SEE SHEET P.149



Cut Area (SF): 29	Cut Vol. (CY): 71
Fill Area (SF): 4	Fill Vol. (CY): 9
Seed Width (FT): 50	Seed Area (SY): 261

CROSS SECTIONS - S.R. 14
STA. 385+00.00 TO STA. 385+50.00

CUY-14-6.93

MODEL: CLP_5014 - 385+00.00 [Sheet] PAPER SIZE: 34x22 (in.) DATE: 2/17/2025 TIME: 4:15:03 PM USER: robert.jankovsky
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DESIGNER

RJJ

REVIEWER

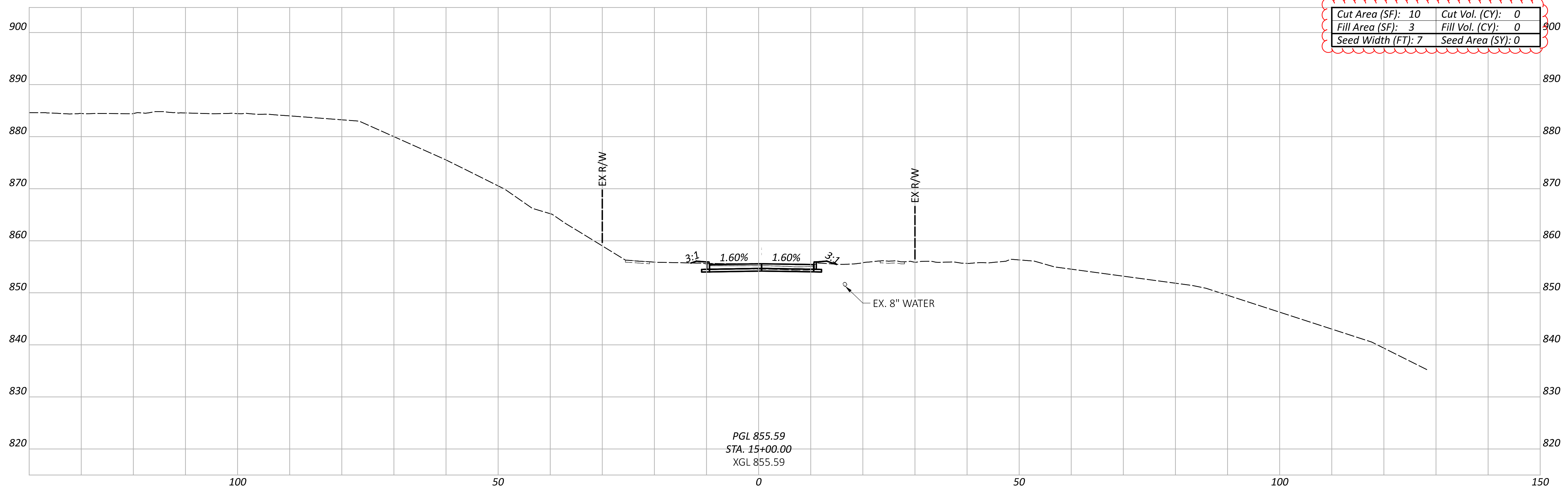
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PROJECT ID

104132

SHEET TOTAL

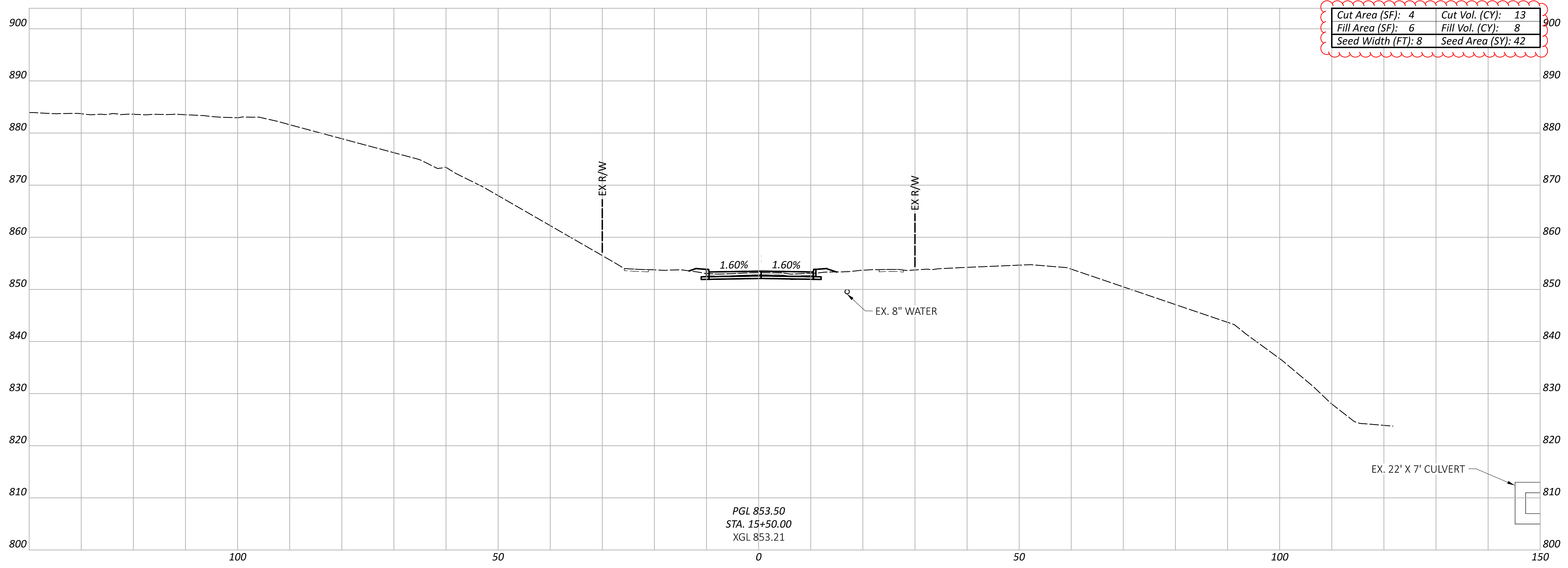
P.108 399



Cut Area (SF): 10	Cut Vol. (CY): 0
Fill Area (SF): 3	Fill Vol. (CY): 0
Seed Width (FT): 7	Seed Area (SY): 0

PGL 855.59
 STA. 15+00.00
 XGL 855.59

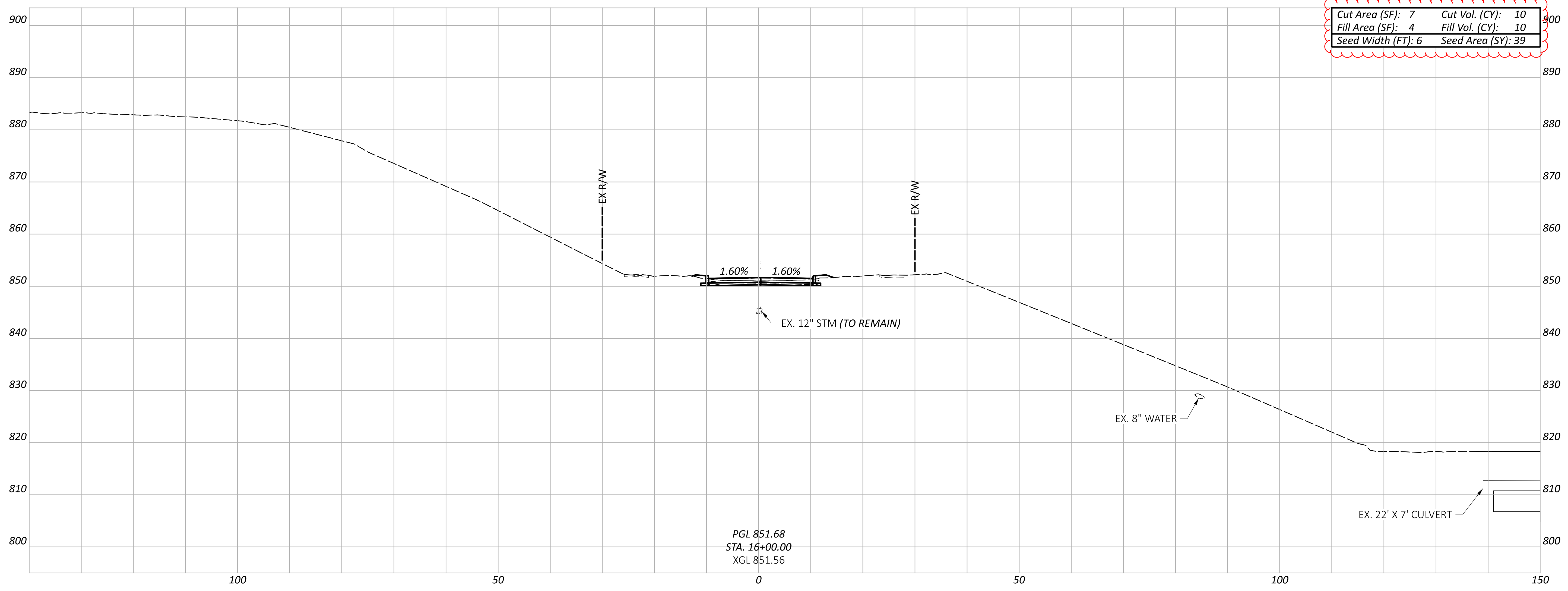
CROSS SECTIONS - HENRY STREET
 STA. 15+00.00



Cut Area (SF): 4	Cut Vol. (CY): 13
Fill Area (SF): 6	Fill Vol. (CY): 8
Seed Width (FT): 8	Seed Area (SY): 42

PGL 853.50
 STA. 15+50.00
 XGL 853.21

CROSS SECTIONS - HENRY STREET
 STA. 15+50.00



Cut Area (SF): 7	Cut Vol. (CY): 10
Fill Area (SF): 4	Fill Vol. (CY): 10
Seed Width (FT): 6	Seed Area (SY): 39

PGL 851.68
 STA. 16+00.00
 XGL 851.56

CROSS SECTIONS - HENRY STREET
 STA. 16+00.00

DESIGN AGENCY

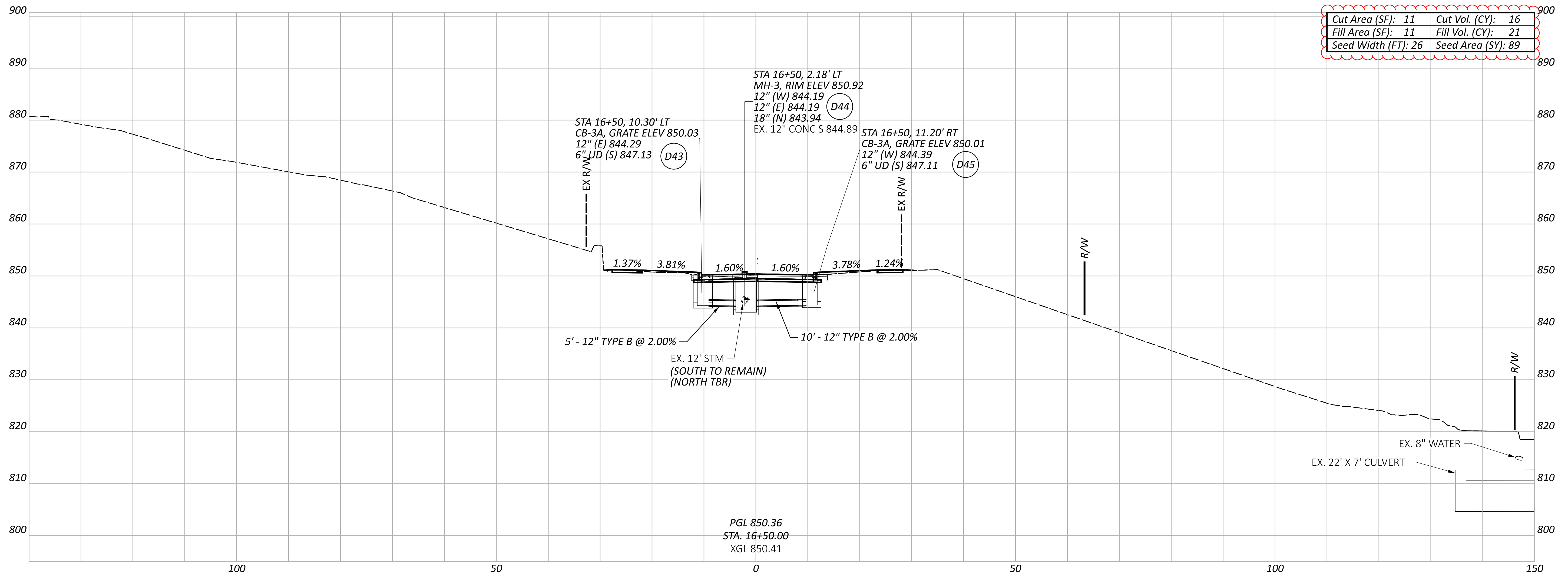
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PROJECT ID
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SHEET TOTAL
 P.113 | 399



CROSS SECTIONS - HENRY STREET
 STA. 16+50.00

DESIGN AGENCY

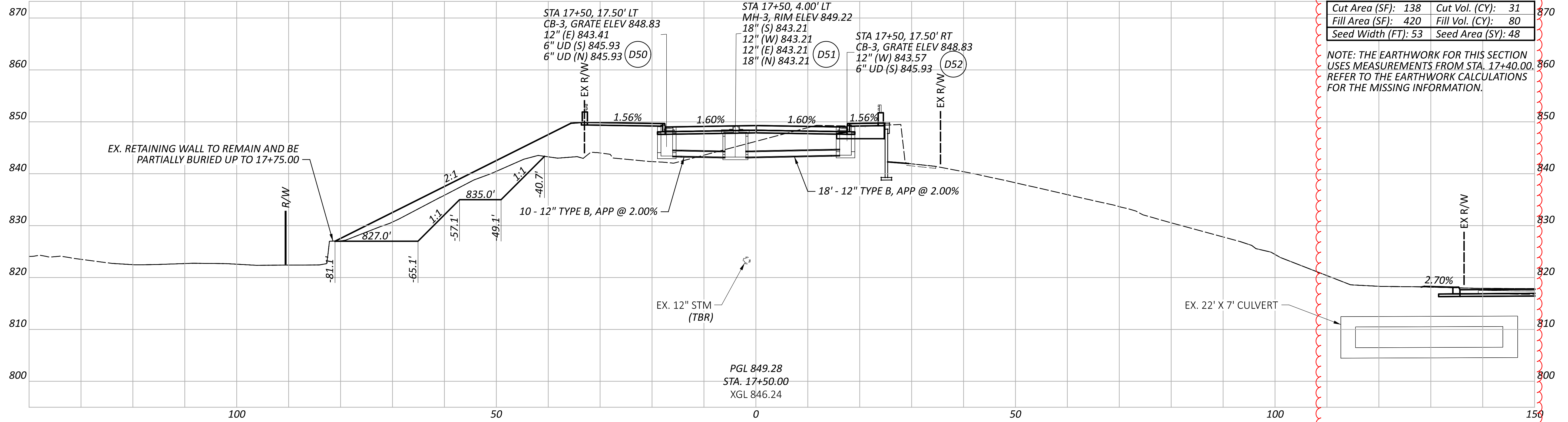
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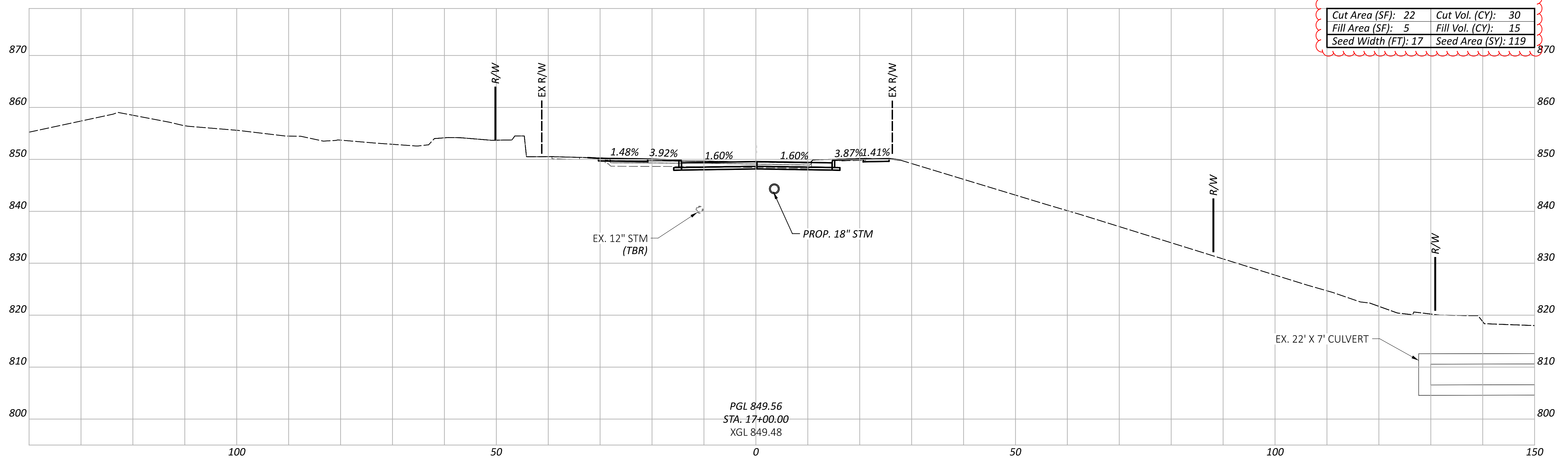
PROJECT ID
 104132

SHEET TOTAL
 P.114 | 399



Cut Area (SF): 138	Cut Vol. (CY): 31
Fill Area (SF): 420	Fill Vol. (CY): 80
Seed Width (FT): 53	Seed Area (SY): 48

NOTE: THE EARTHWORK FOR THIS SECTION USES MEASUREMENTS FROM STA. 17+40.00. REFER TO THE EARTHWORK CALCULATIONS FOR THE MISSING INFORMATION.



Cut Area (SF): 22	Cut Vol. (CY): 30
Fill Area (SF): 5	Fill Vol. (CY): 15
Seed Width (FT): 17	Seed Area (SY): 119

CROSS SECTIONS - HENRY STREET
 STA. 17+00.00 TO STA. 17+50.00

DESIGN AGENCY

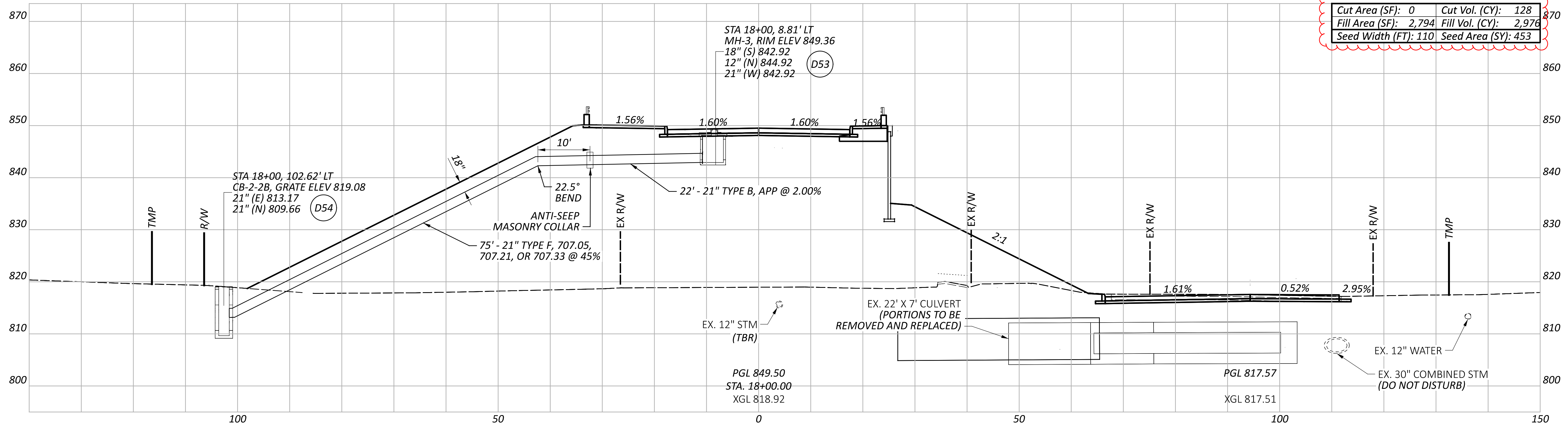
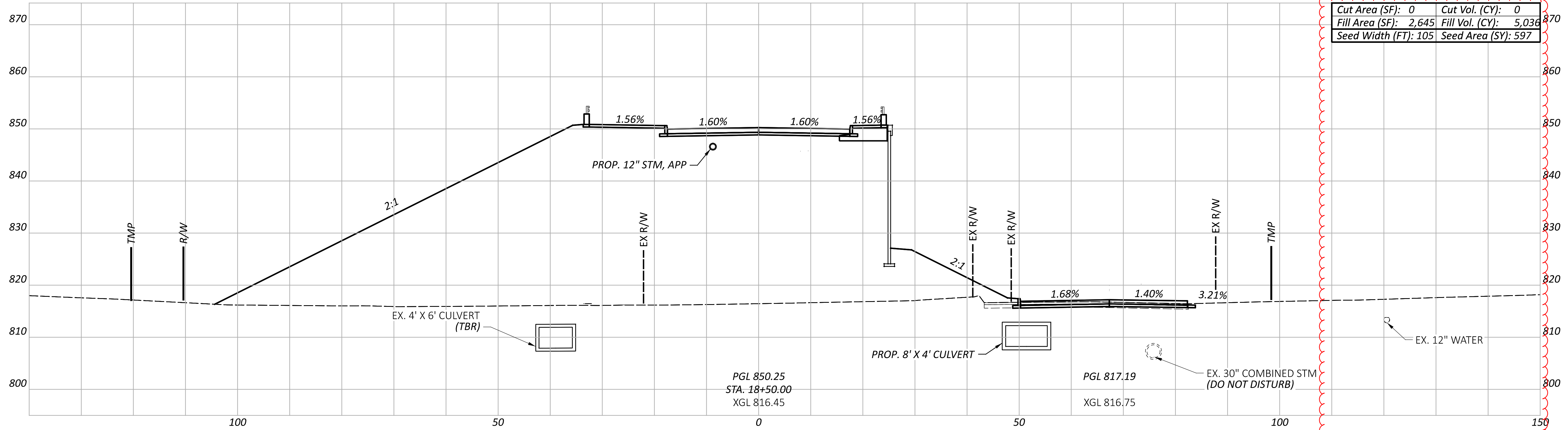
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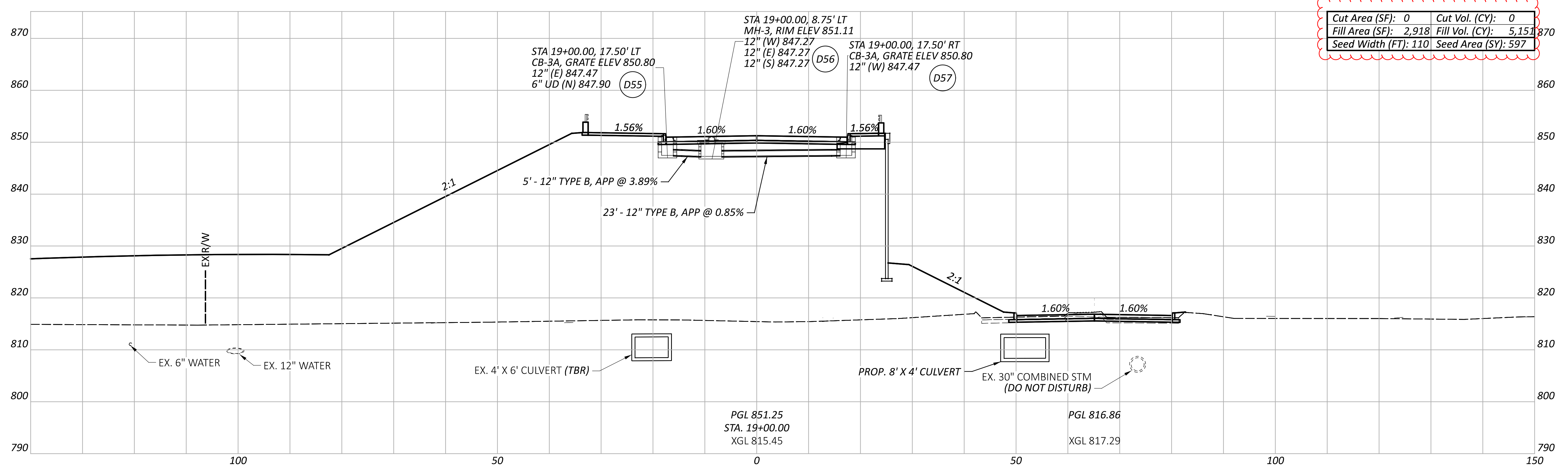
REVIEWER
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PROJECT ID
 104132

SHEET TOTAL
 P.115 | 399



CROSS SECTIONS - HENRY STREET
 STA. 18+00.00 TO STA. 18+50.00



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 2,918	Fill Vol. (CY): 5,151
Seed Width (FT): 110	Seed Area (SY): 597

CROSS SECTIONS - HENRY STREET
 STA. 19+00.00 TO STA. 19+50.00

DESIGN AGENCY

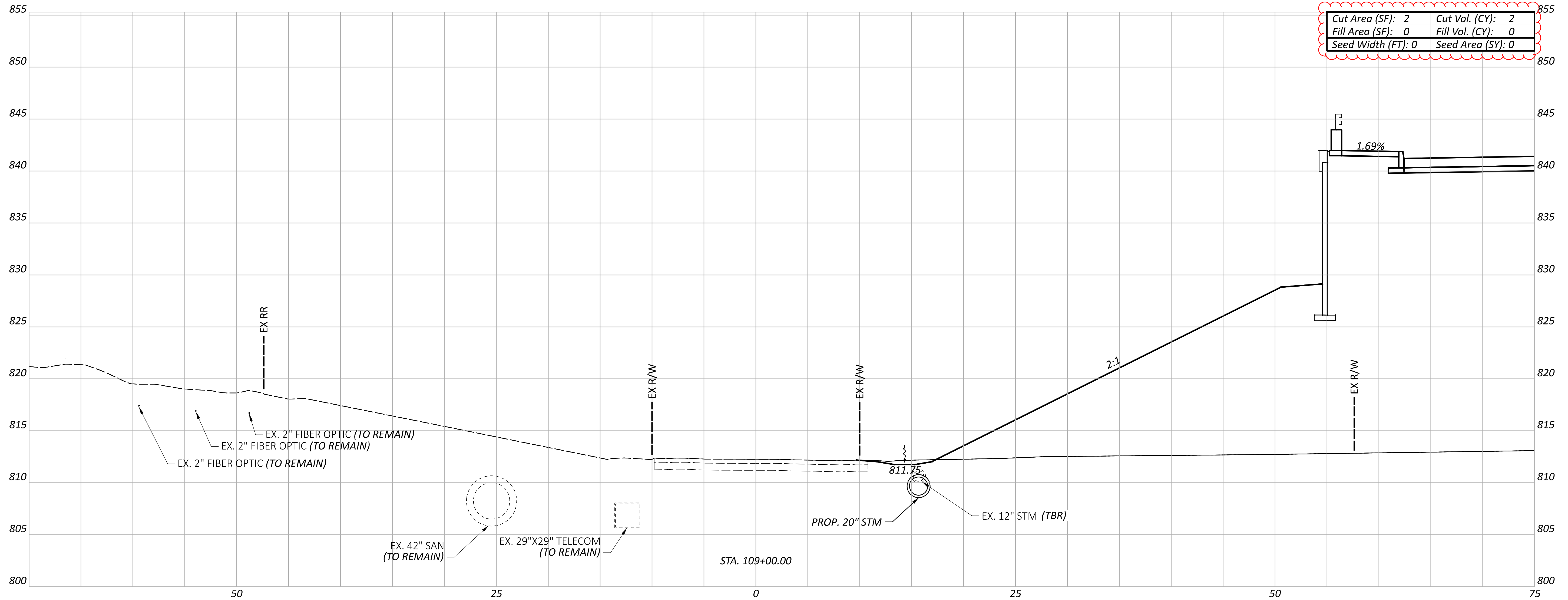
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DESIGNER
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PROJECT ID
 104132

SHEET	TOTAL
P.117	399



Cut Area (SF): 2	Cut Vol. (CY): 2
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 0	Seed Area (SY): 0

CROSS SECTIONS - CHAINCRAFT ROAD
STA. 109+00.00

DESIGN AGENCY

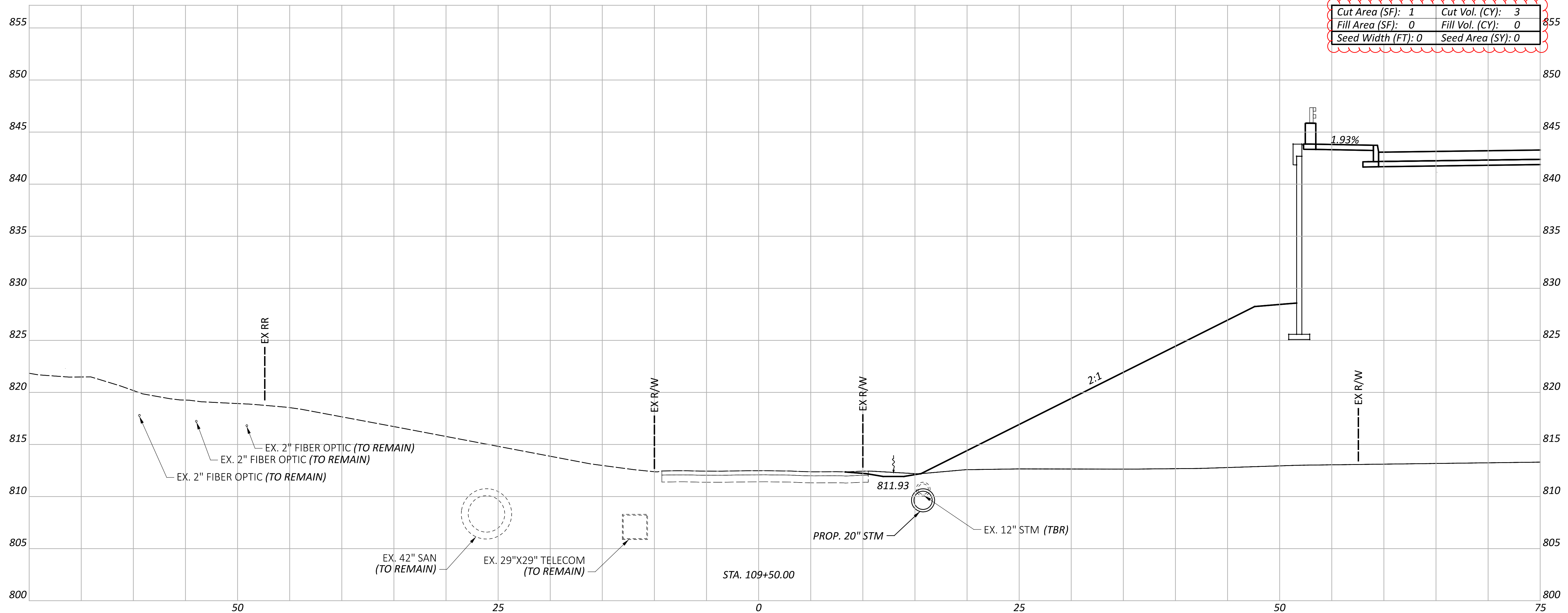
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PROJECT ID
104132

SHEET	TOTAL
P.118	399



CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 109+50.00

DESIGN AGENCY

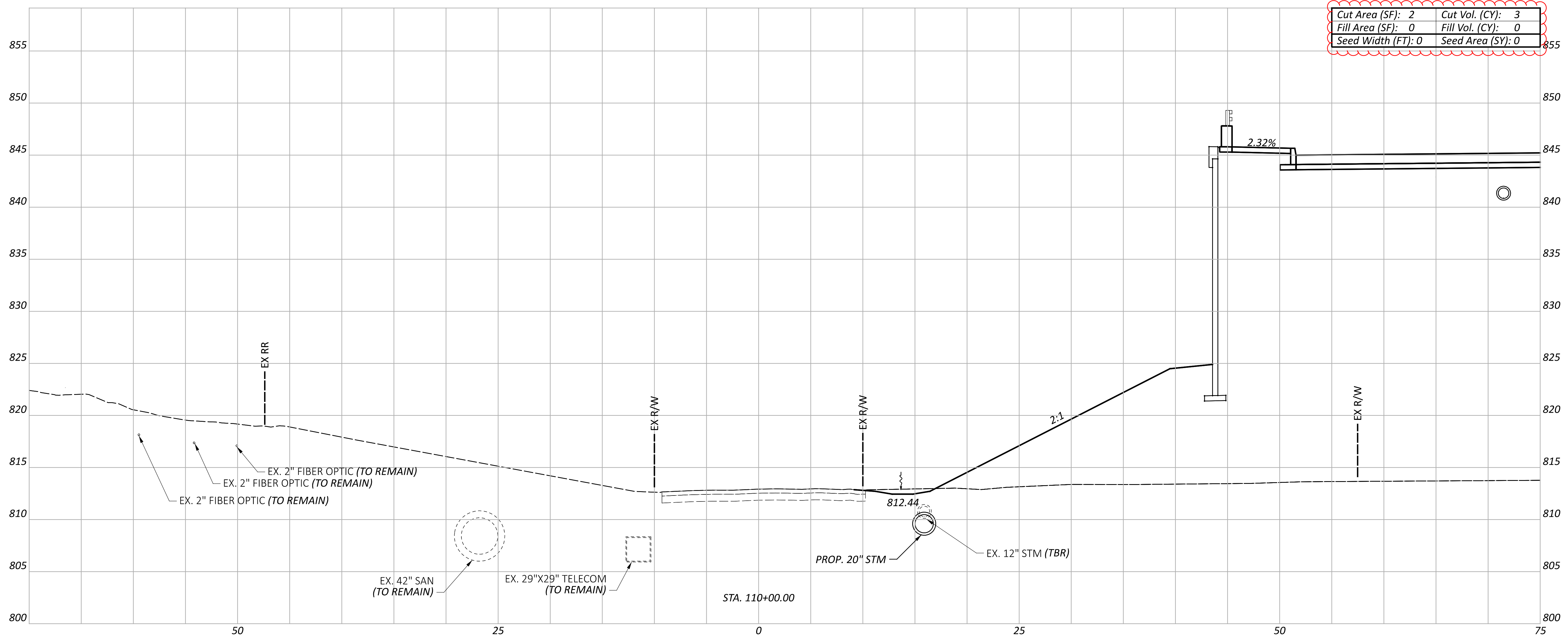
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DESIGNER
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REVIEWER
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PROJECT ID
 104132

SHEET TOTAL
 P.119 | 399



Cut Area (SF): 2	Cut Vol. (CY): 3
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 0	Seed Area (SY): 0

CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 110+00.00

DESIGN AGENCY

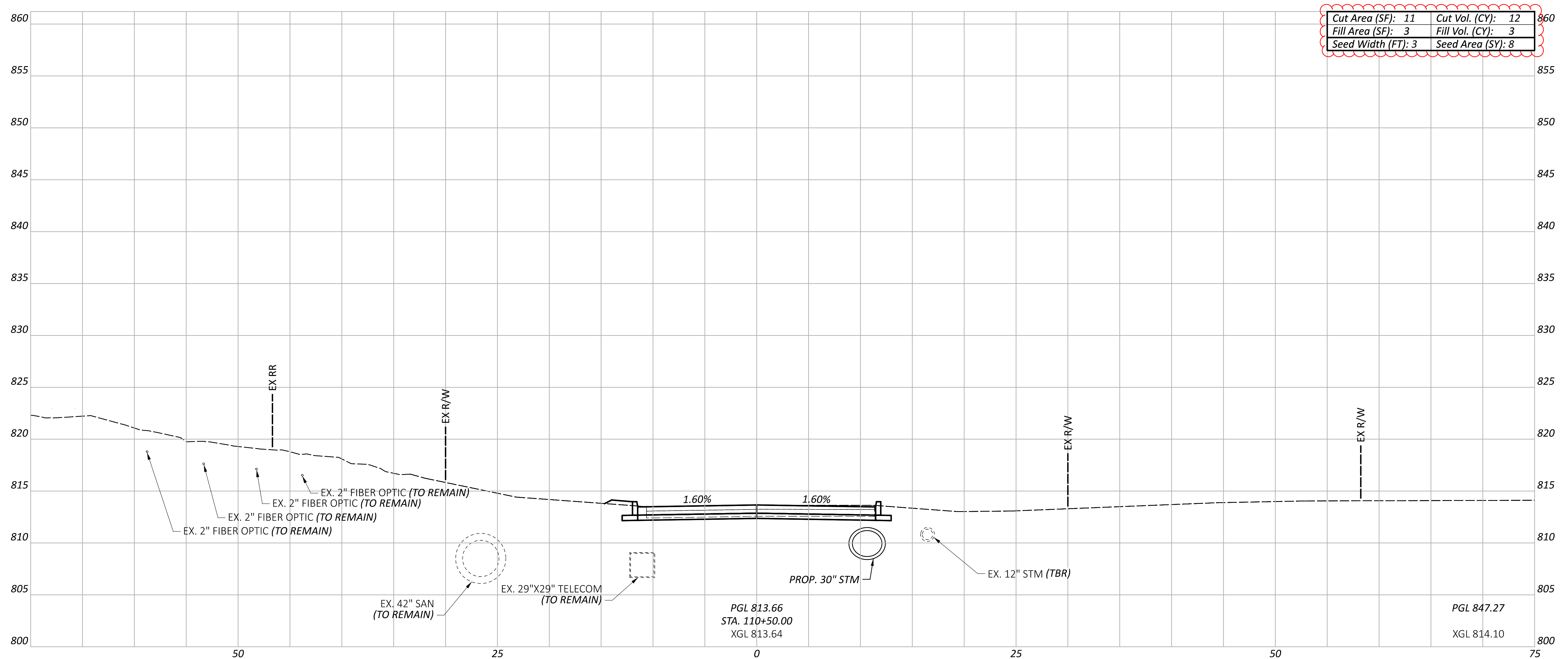
AECOM
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DESIGNER
 RJJ

REVIEWER
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PROJECT ID
 104132

SHEET TOTAL
 P.120 | 399



Cut Area (SF): 11	Cut Vol. (CY): 12
Fill Area (SF): 3	Fill Vol. (CY): 3
Seed Width (FT): 3	Seed Area (SY): 8

CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 110+50.00

DESIGN AGENCY

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104132

SHEET

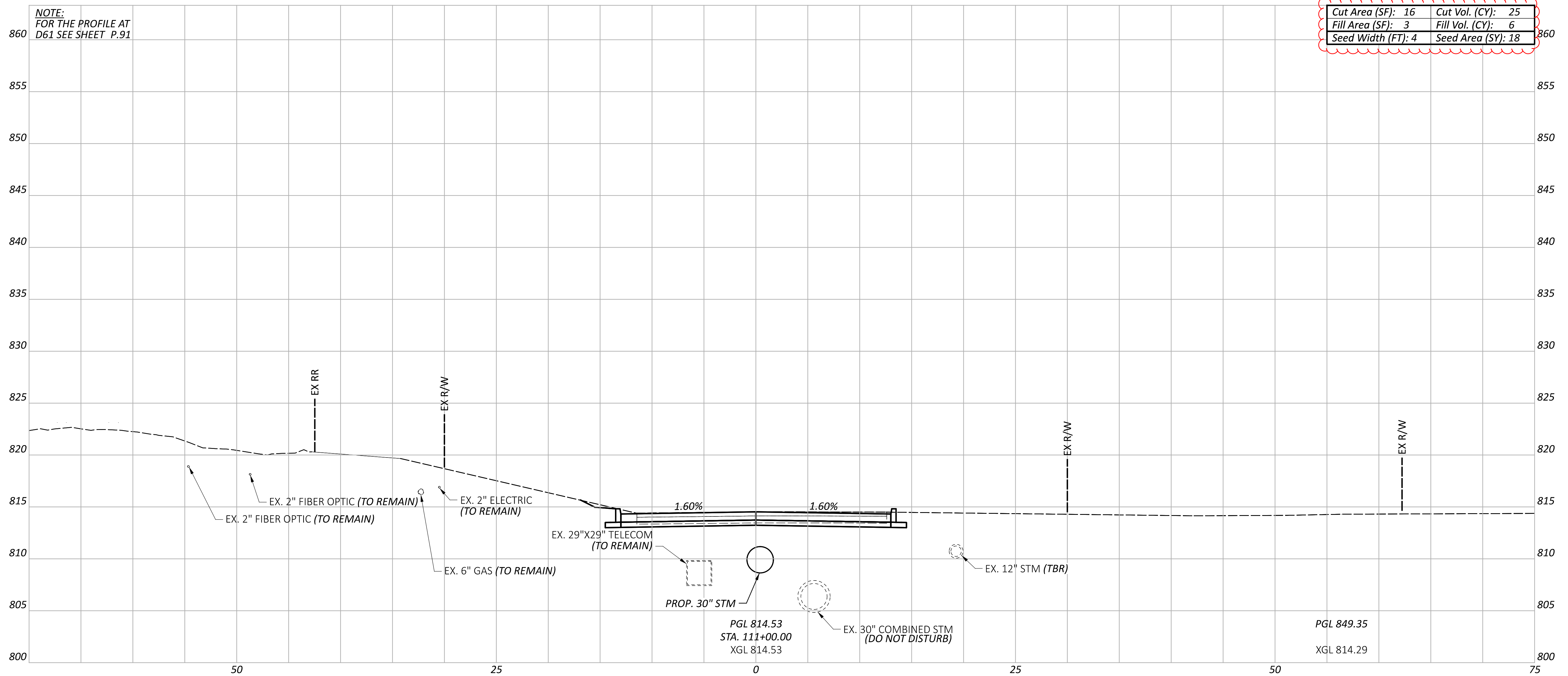
P.121

TOTAL

399

PGL 813.66
 STA. 110+50.00
 XGL 813.64

PGL 847.27
 XGL 814.10



CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 111+00.00

DESIGN AGENCY

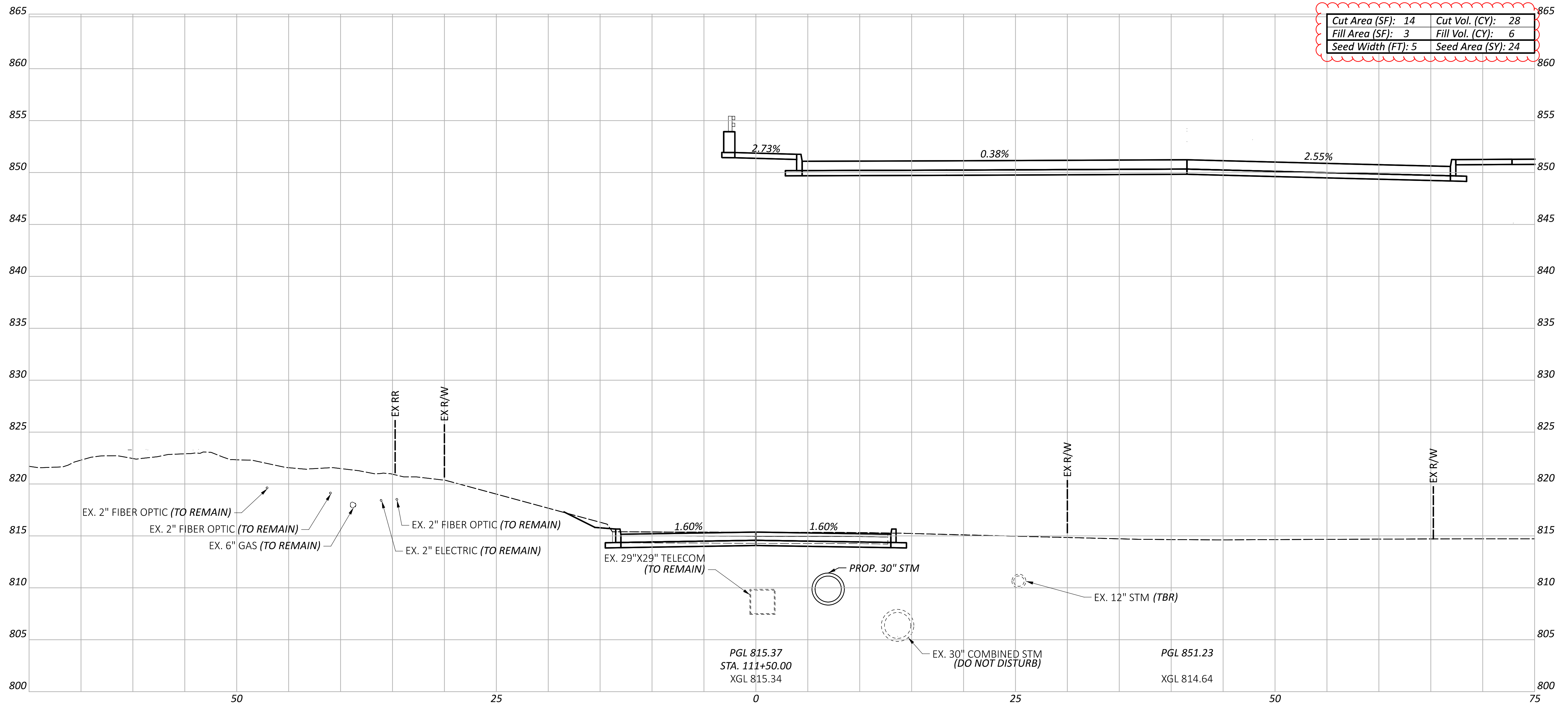
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DESIGNER
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PROJECT ID
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SHEET TOTAL
 P.122 | 399



CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 111+50.00

DESIGN AGENCY

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DESIGNER

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REVIEWER

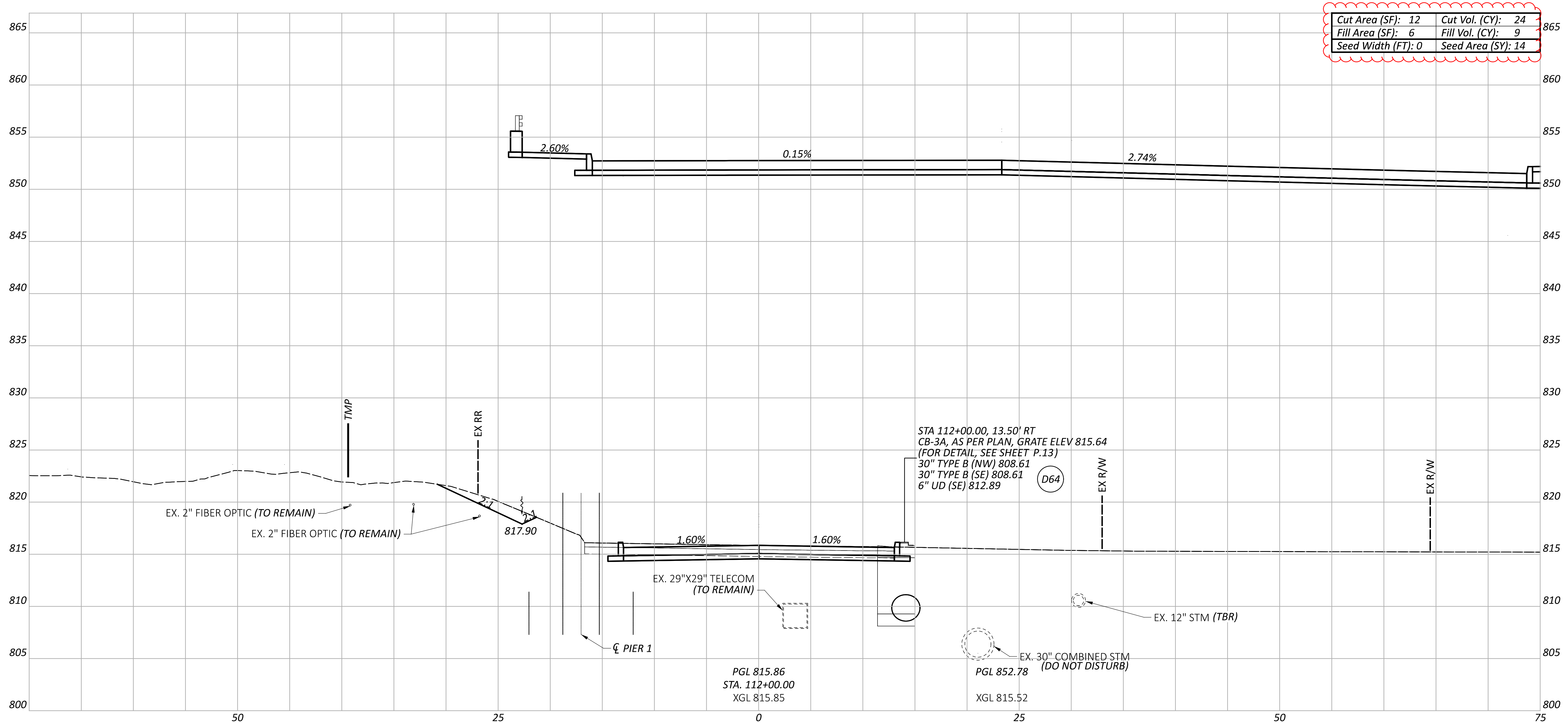
WFS 08/05/24

PROJECT ID

104132

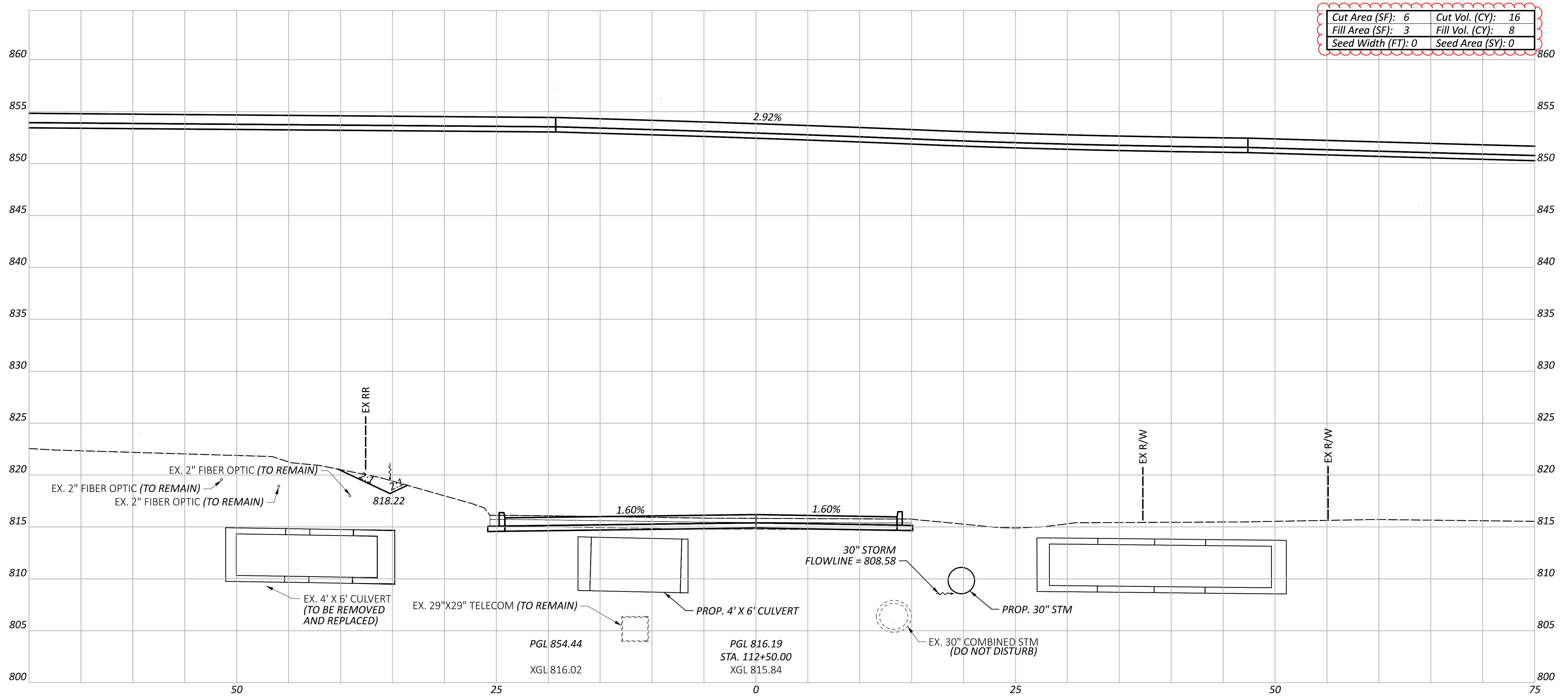
SHEET TOTAL

P.123 399



Cut Area (SF): 12	Cut Vol. (CY): 24
Fill Area (SF): 6	Fill Vol. (CY): 9
Seed Width (FT): 0	Seed Area (SY): 14

CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 112+00.00



CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 112+50.00

DESIGN AGENCY

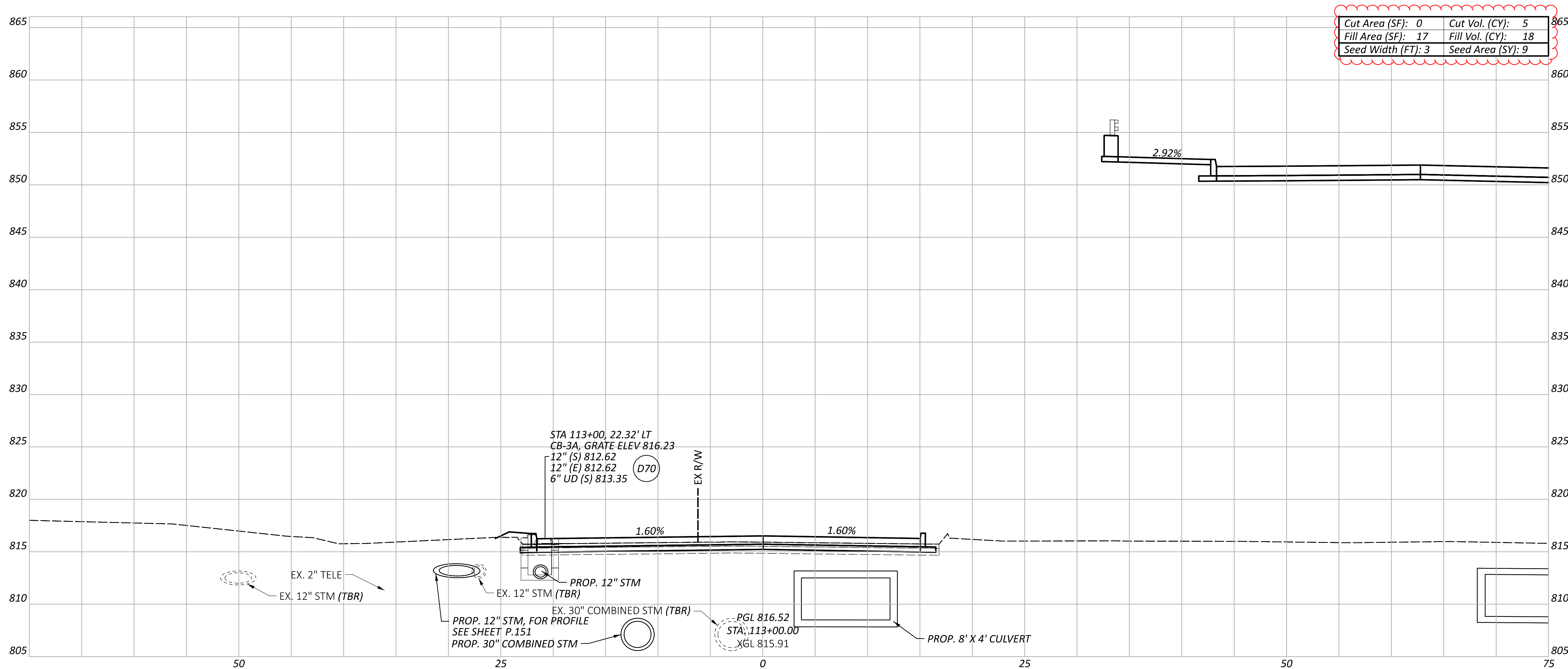
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DESIGNER
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SHEET TOTAL
 P.125 399



CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 113+00.00

DESIGN AGENCY

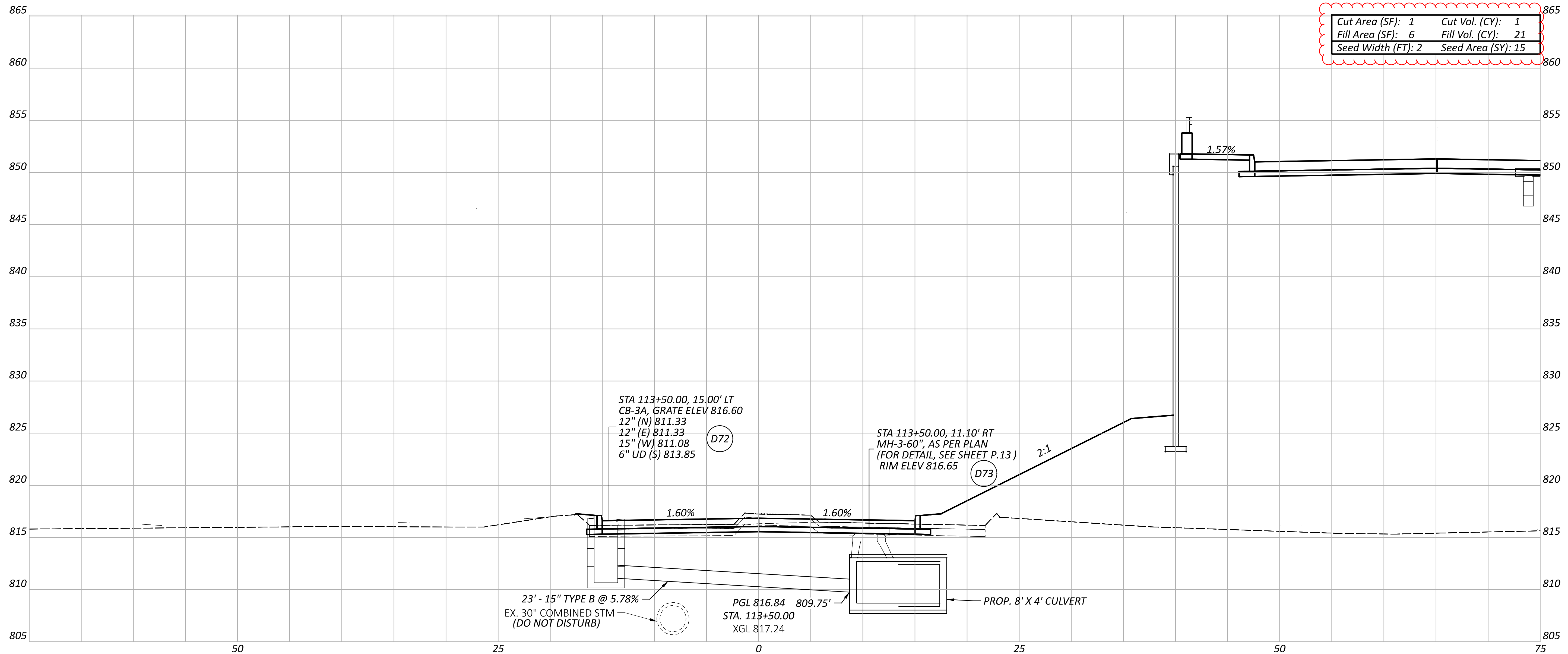
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PROJECT ID
 104132

SHEET	TOTAL
P.126	399



STA 113+50.00, 15.00' LT
 CB-3A, GRATE ELEV 816.60
 12" (N) 811.33
 12" (E) 811.33
 15" (W) 811.08
 6" UD (S) 813.85 (D72)

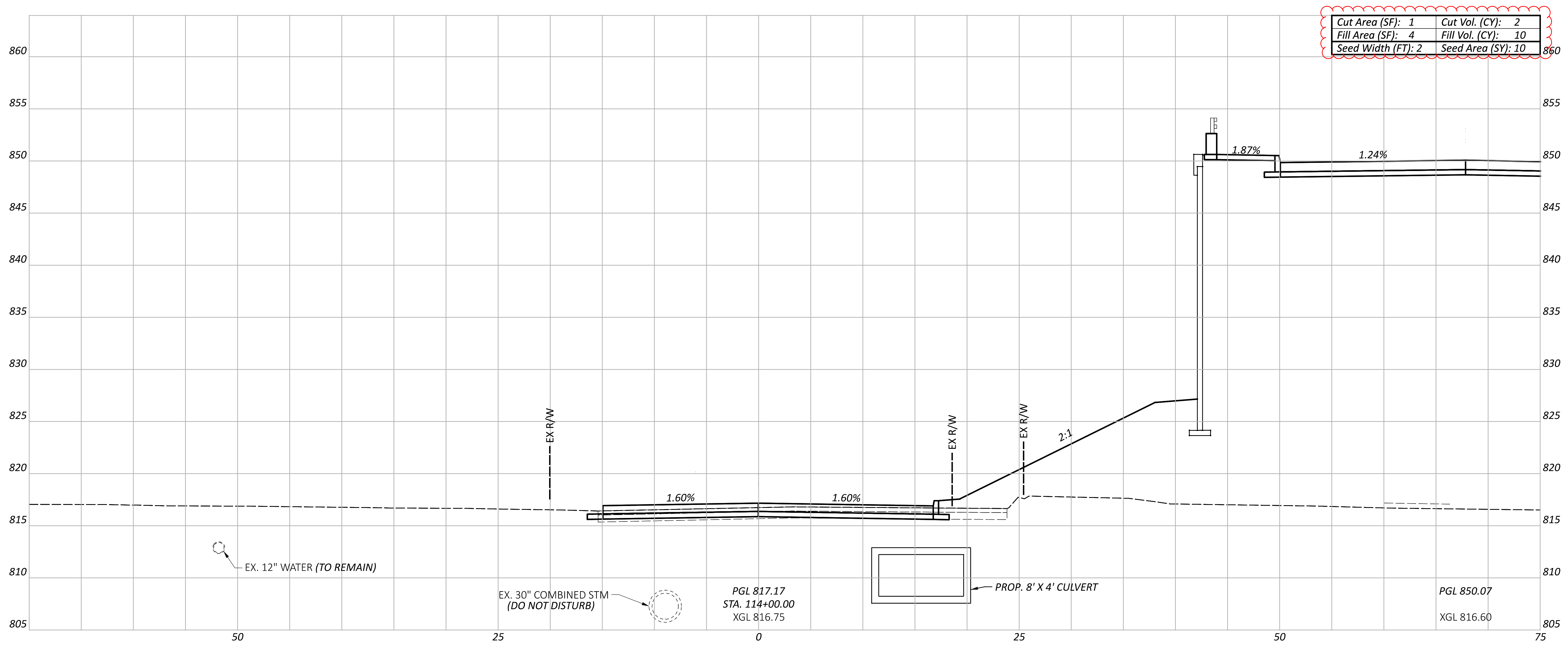
STA 113+50.00, 11.10' RT
 MH-3-60", AS PER PLAN
 (FOR DETAIL, SEE SHEET P.13)
 RIM ELEV 816.65 (D73)

23' - 15" TYPE B @ 5.78%
 EX. 30" COMBINED STM
 (DO NOT DISTURB)

PGL 816.84 809.75'
 STA. 113+50.00
 XGL 817.24

PROP. 8' X 4' CULVERT

CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 113+50.00



Cut Area (SF): 1	Cut Vol. (CY): 2
Fill Area (SF): 4	Fill Vol. (CY): 10
Seed Width (FT): 2	Seed Area (SY): 10

CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 114+00.00

DESIGN AGENCY

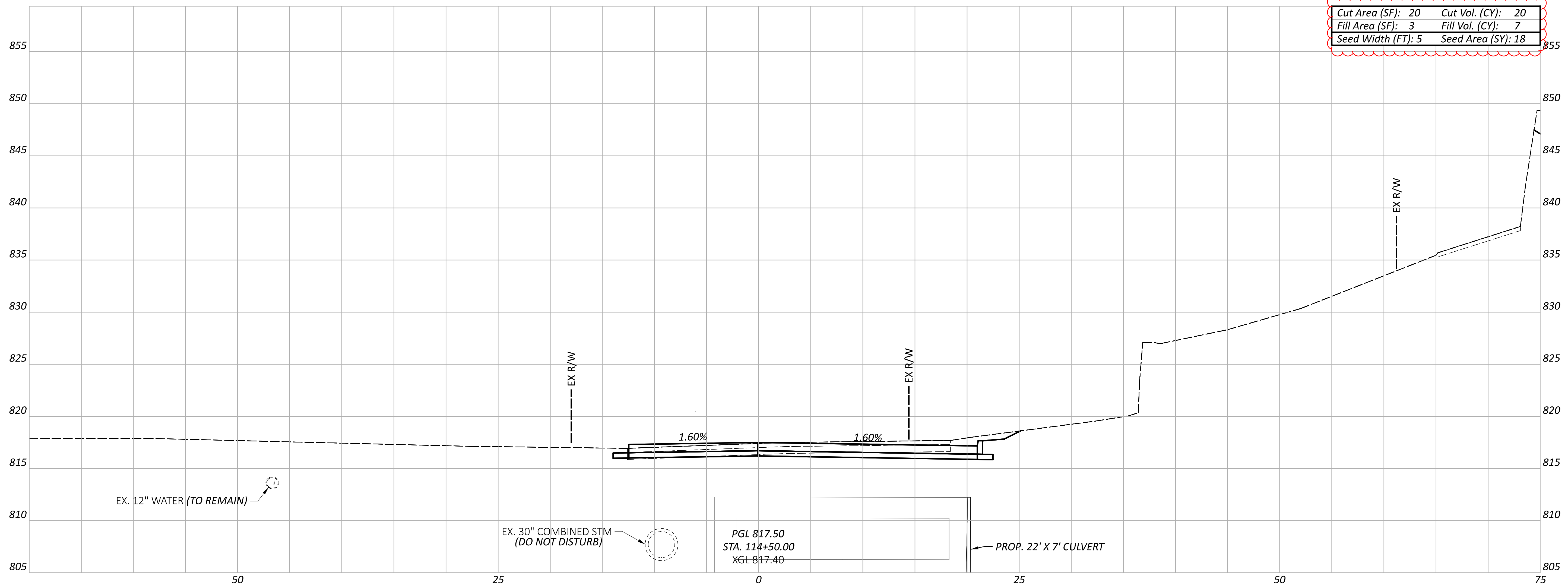
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DESIGNER
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REVIEWER
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PROJECT ID
 104132

SHEET TOTAL
 P.128 399



Cut Area (SF): 20	Cut Vol. (CY): 20
Fill Area (SF): 3	Fill Vol. (CY): 7
Seed Width (FT): 5	Seed Area (SY): 18

CROSS SECTIONS - CHAINCRAFT ROAD
STA. 114+50.00

DESIGN AGENCY

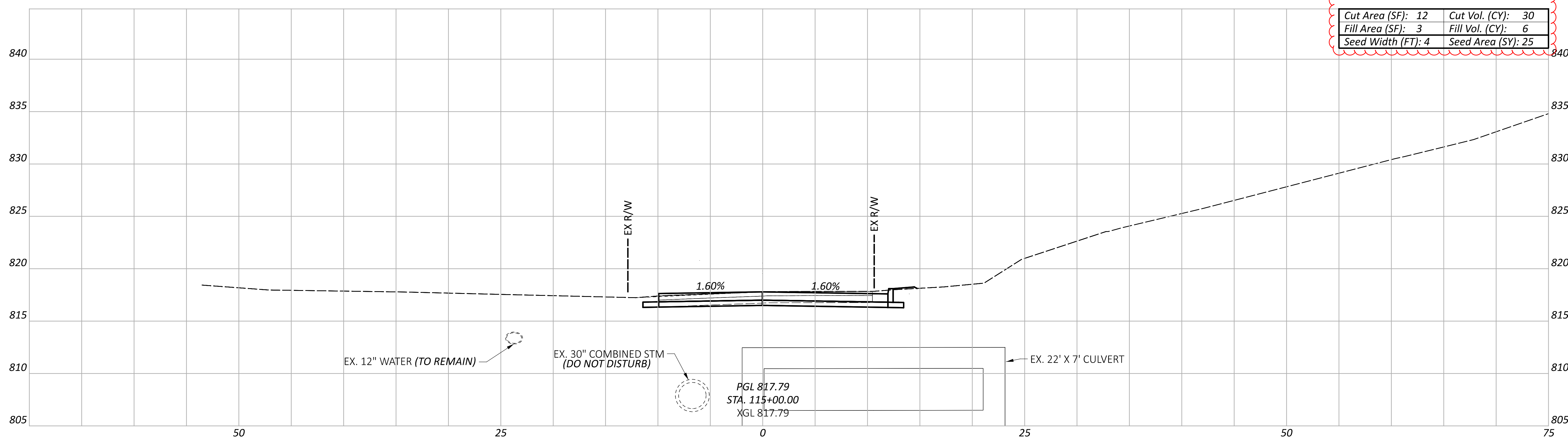
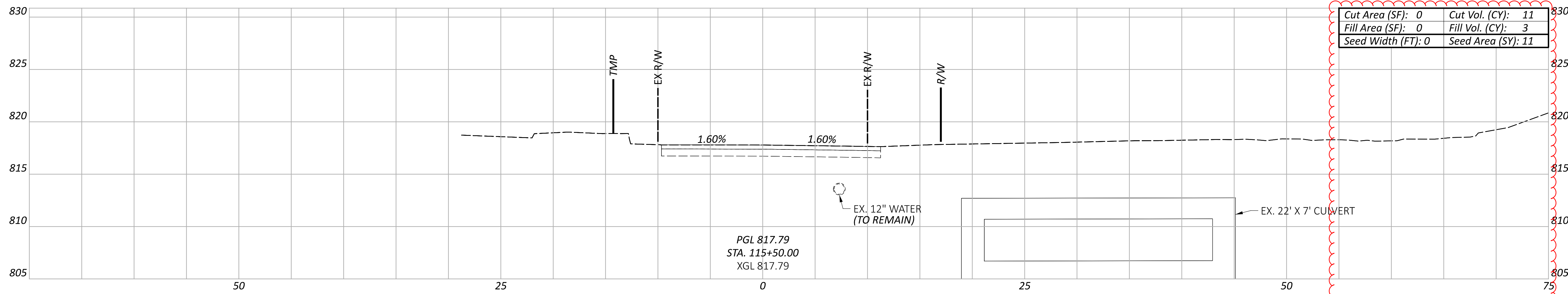
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DESIGNER
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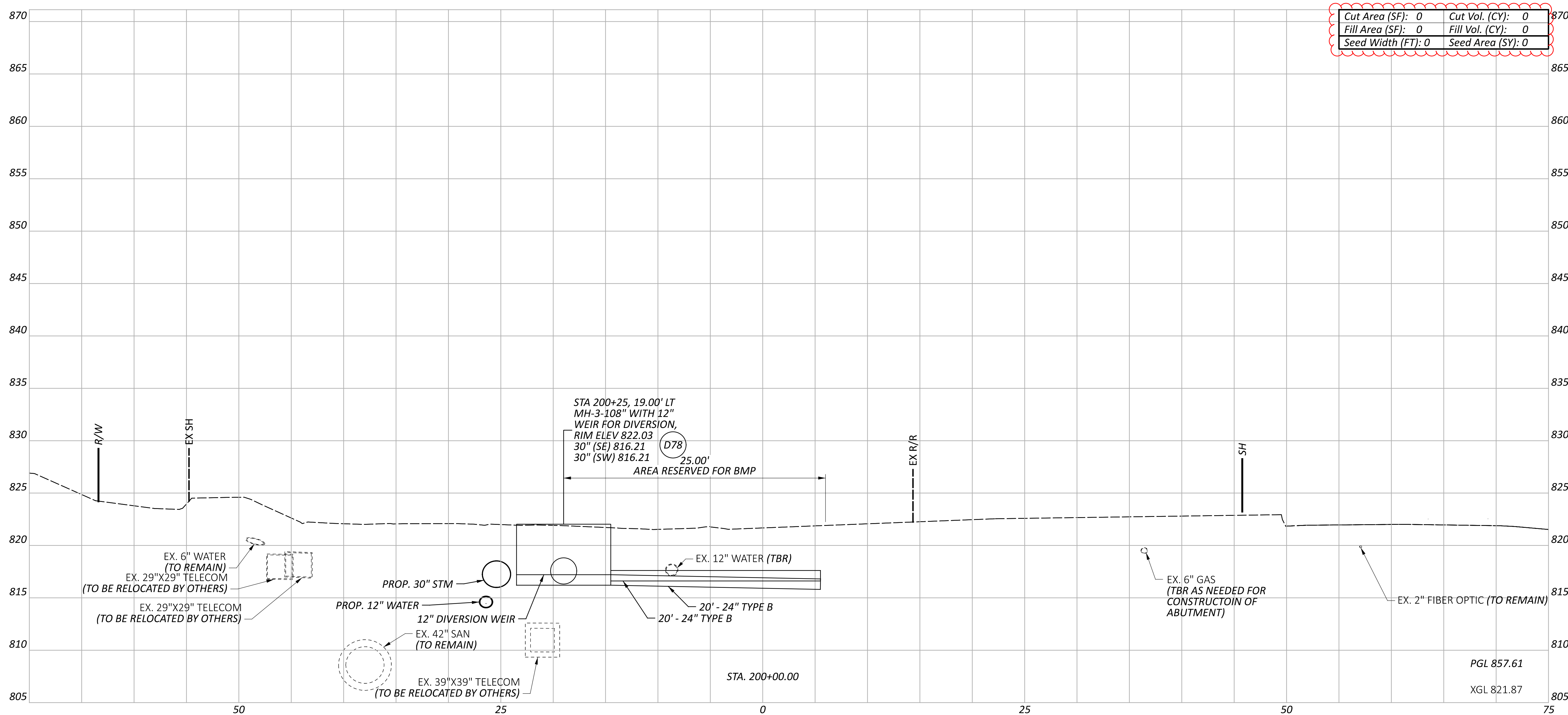
REVIEWER
WFS 08/05/24

PROJECT ID
104132

SHEET	TOTAL
P.129	399



CROSS SECTIONS - CHAINCRAFT ROAD
 STA. 115+00.00 TO STA. 115+50.00



CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 200+00.00

DESIGN AGENCY

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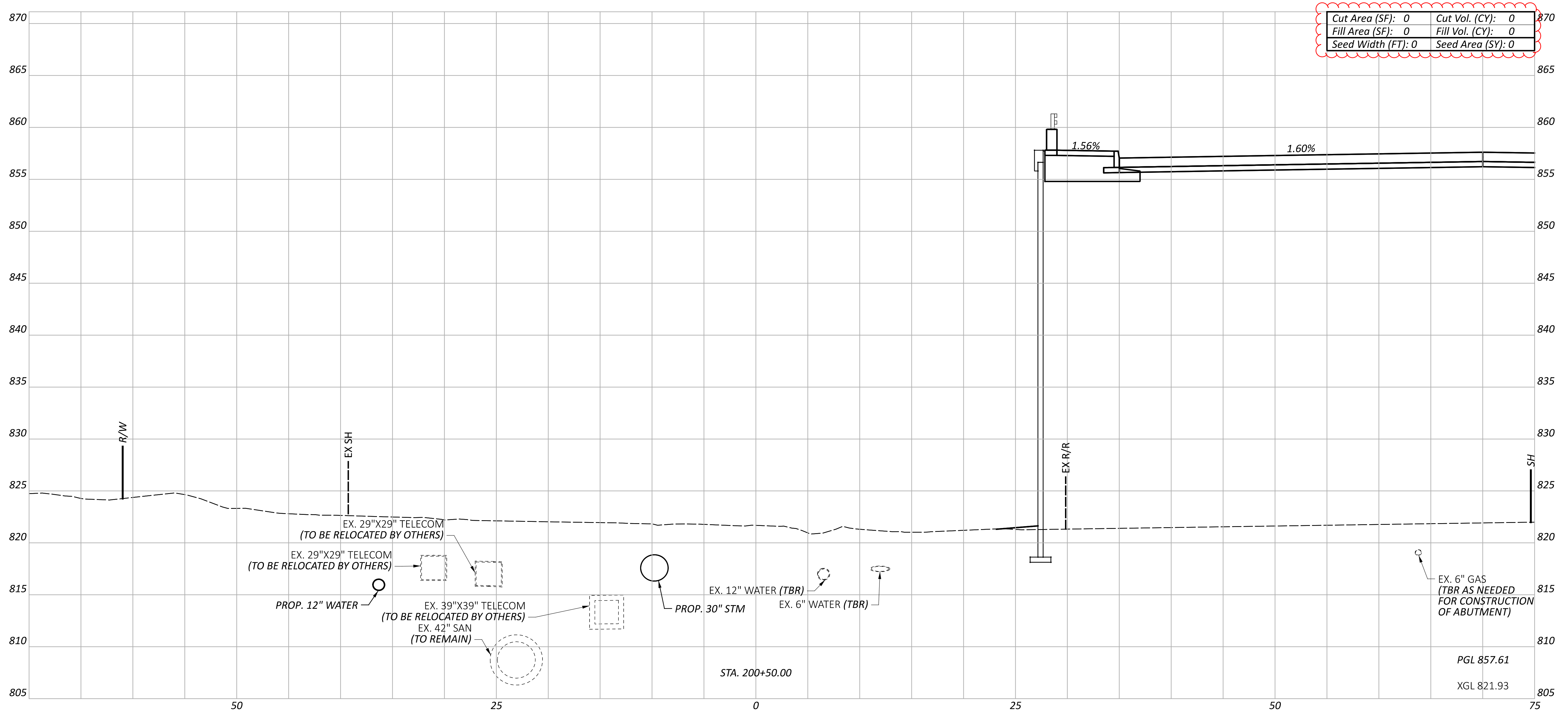
PROJECT ID
 104132

SHEET TOTAL
 P.132 | 399

PGL 857.61

XGL 821.87

STA. 200+00.00



Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 0	Seed Area (SY): 0

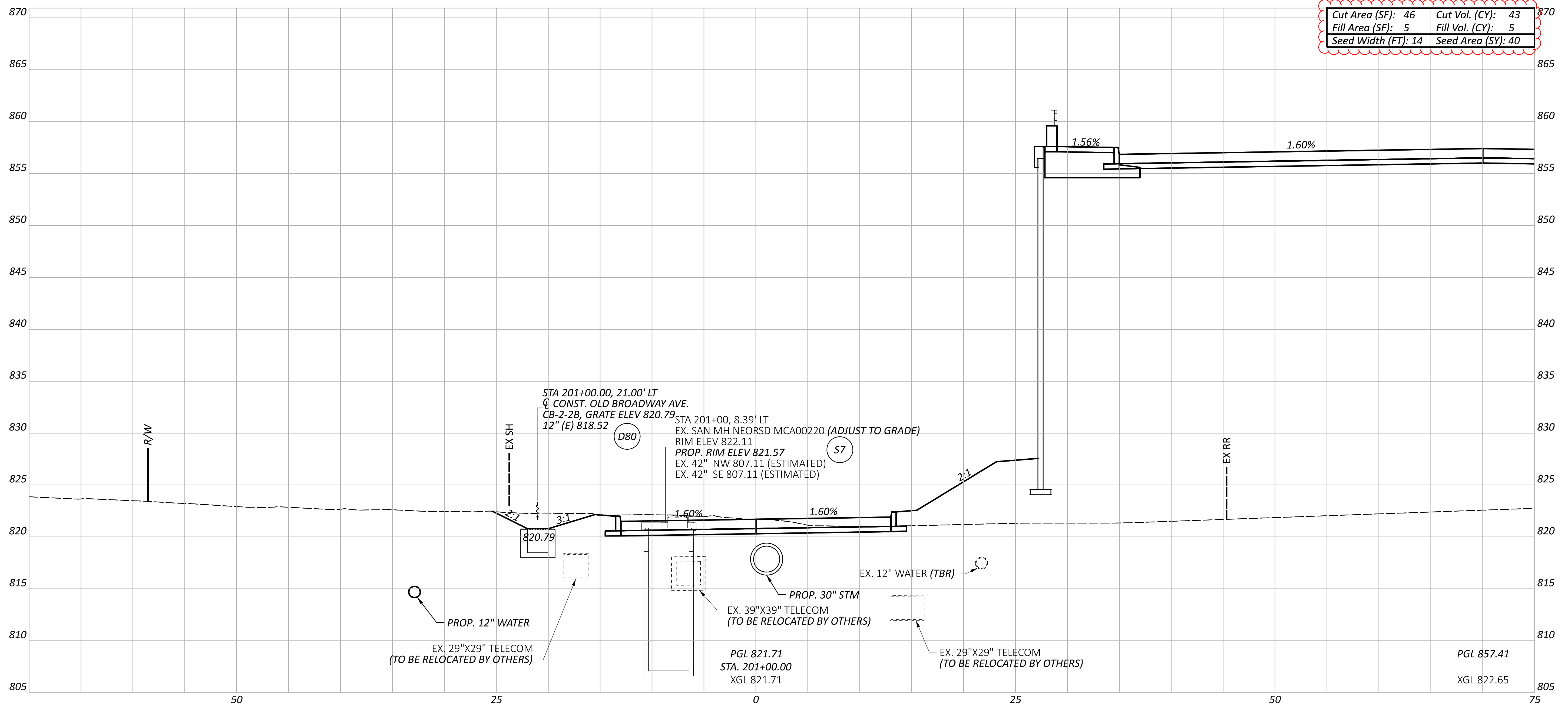
CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 200+50.00

DESIGN AGENCY	AECOM
DESIGNER	RJJ
REVIEWER	WFS
PROJECT ID	104132
SHEET	P.133
TOTAL	399

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PGL 857.61
 XGL 821.93

STA. 200+50.00



CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 201+00.00

DESIGN AGENCY

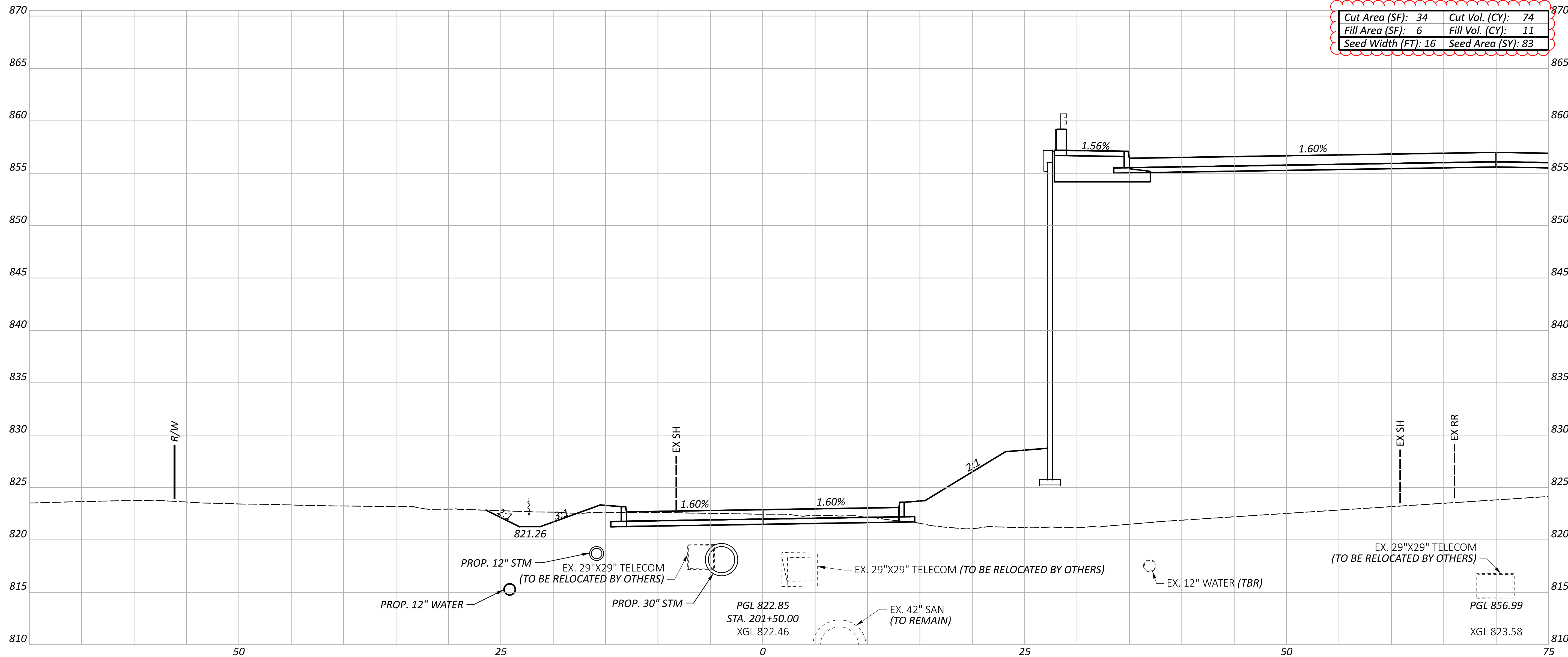
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DESIGNER
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REVIEWER
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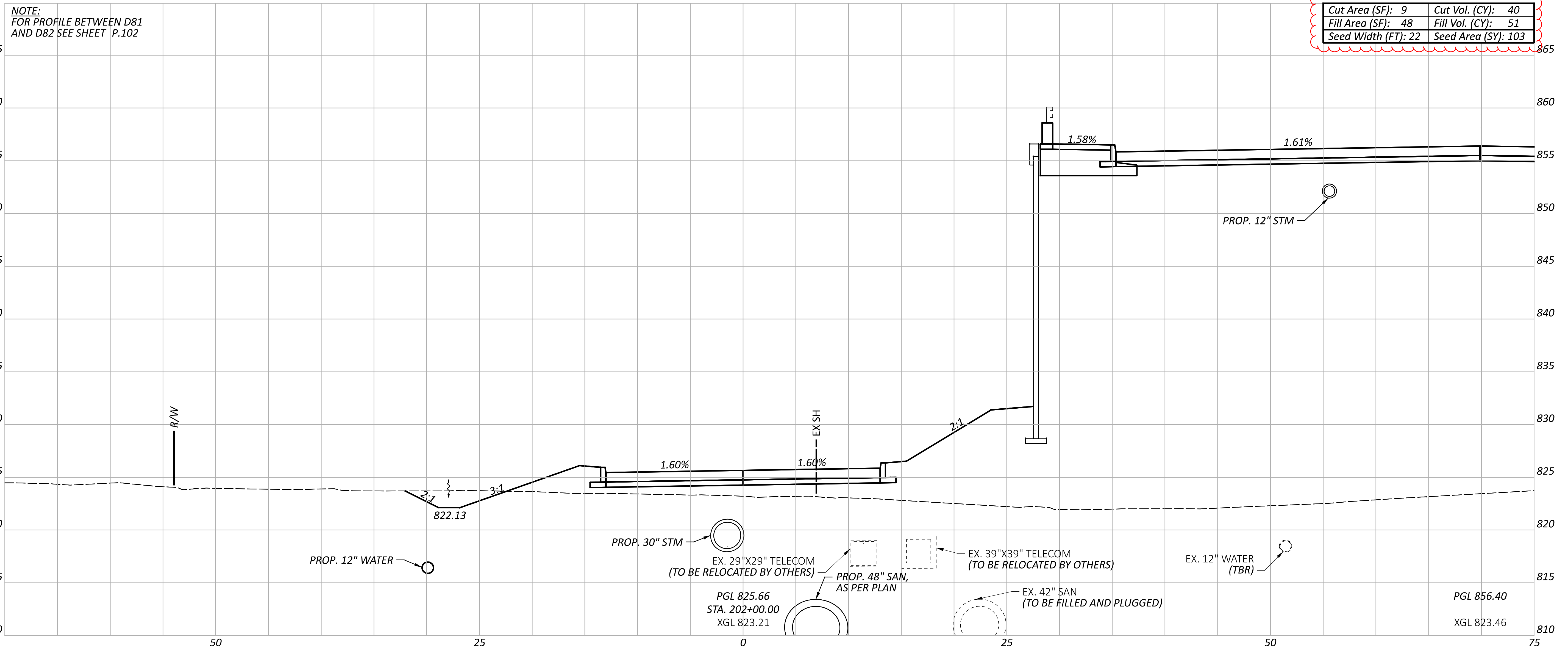
PROJECT ID
 104132

SHEET TOTAL
 P.134 399



Cut Area (SF): 34	Cut Vol. (CY): 74
Fill Area (SF): 6	Fill Vol. (CY): 11
Seed Width (FT): 16	Seed Area (SY): 83

CROSS SECTIONS - OLD BROADWAY AVENUE
STA. 201+50.00



CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 202+00.00

DESIGN AGENCY

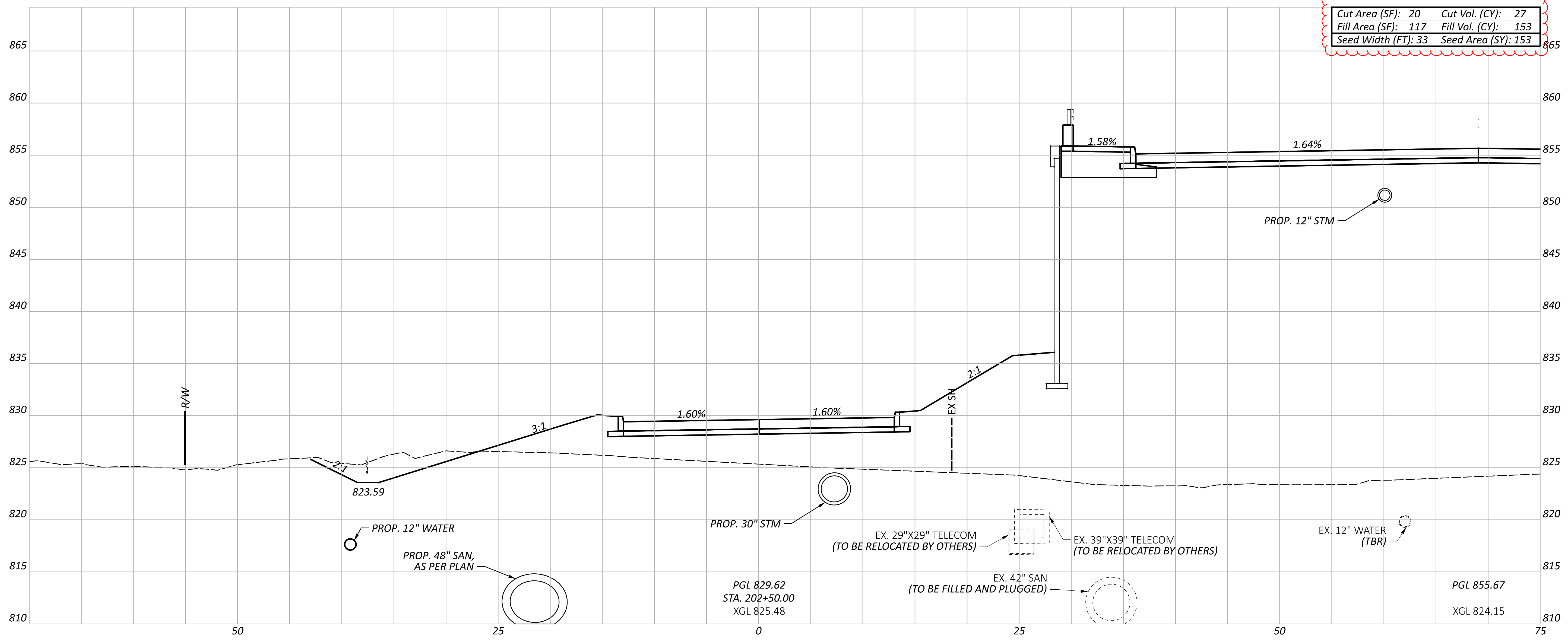
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PROJECT ID
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SHEET TOTAL
 P.136 399



CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 202+50.00

DESIGN AGENCY

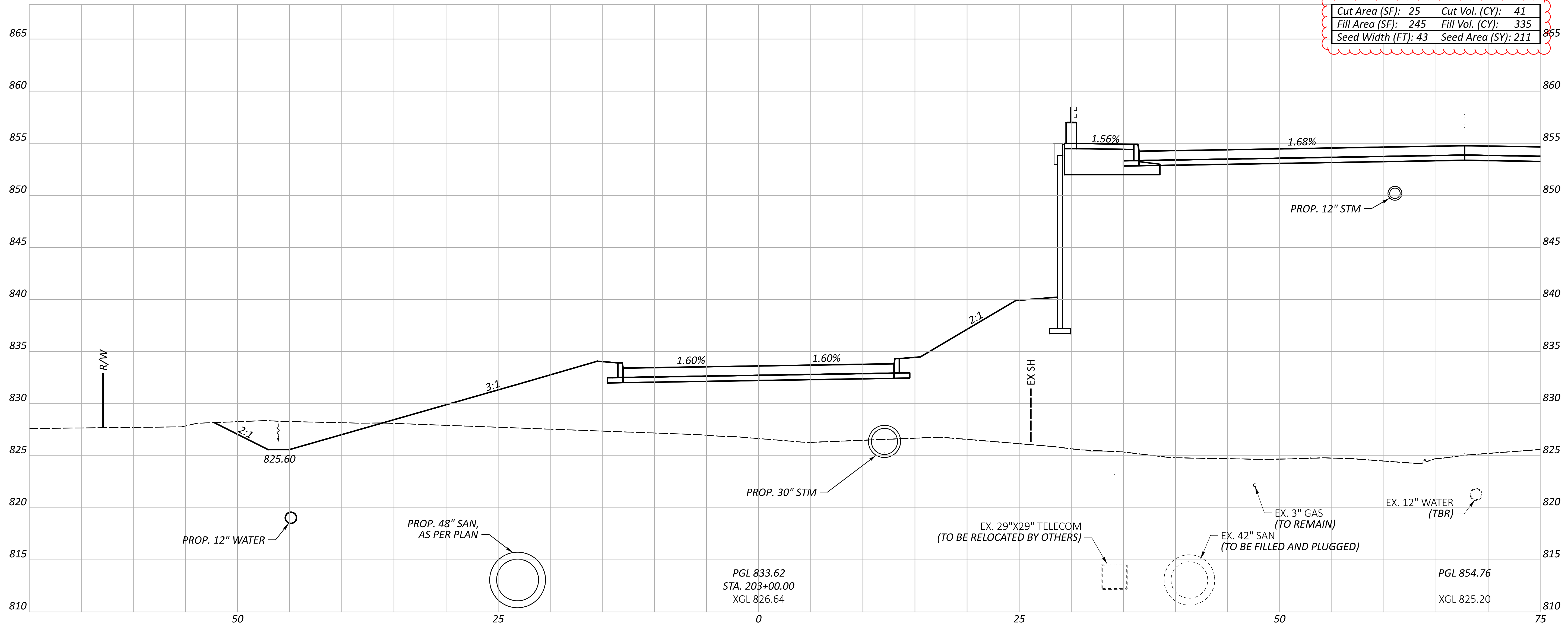
AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER
 RJJ

REVIEWER
 WFS 08/05/24

PROJECT ID
 104132

SHEET TOTAL
 P.137 | 399



Cut Area (SF): 25	Cut Vol. (CY): 41
Fill Area (SF): 245	Fill Vol. (CY): 335
Seed Width (FT): 43	Seed Area (SY): 211

PGL 833.62
 STA. 203+00.00
 XGL 826.64

PGL 854.76
 XGL 825.20

CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 203+00.00

DESIGN AGENCY

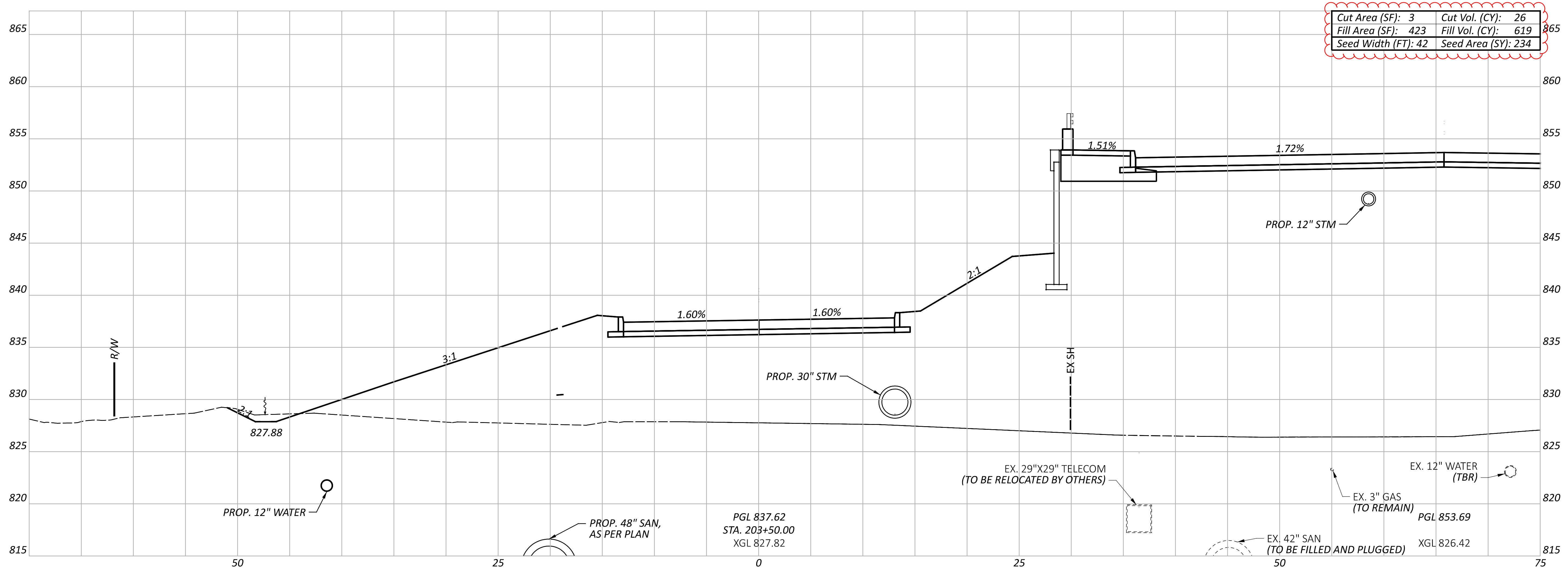
AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER
 RJJ

REVIEWER
 WFS 08/05/24

PROJECT ID
 104132

SHEET	TOTAL
P.138	399



Cut Area (SF): 3	Cut Vol. (CY): 26
Fill Area (SF): 423	Fill Vol. (CY): 619
Seed Width (FT): 42	Seed Area (SY): 234

CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 203+50.00

DESIGN AGENCY

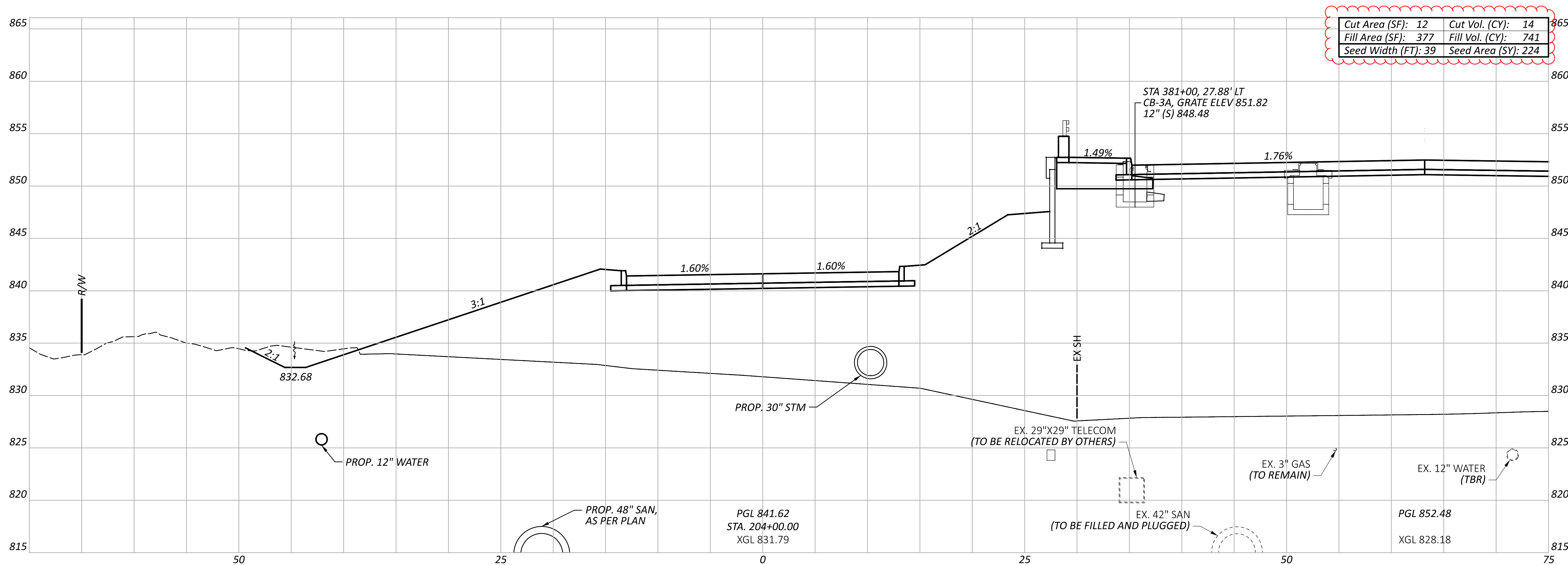
AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER
 RJJ

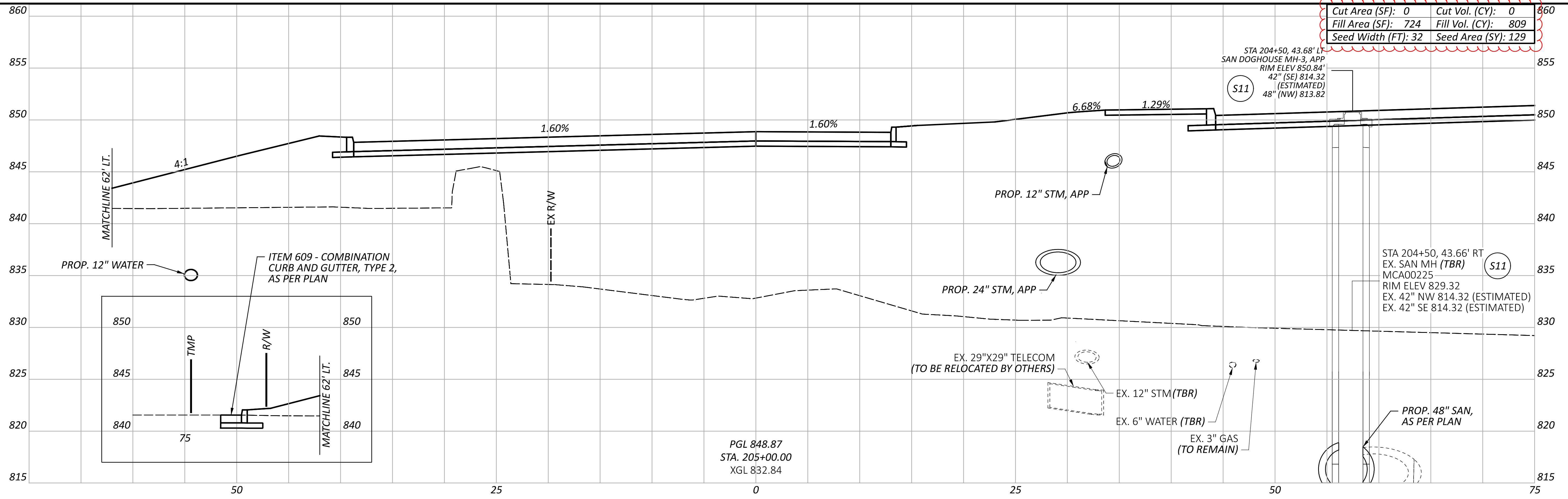
REVIEWER
 WFS 08/05/24

PROJECT ID
 104132

SHEET TOTAL
 P.139 | 399

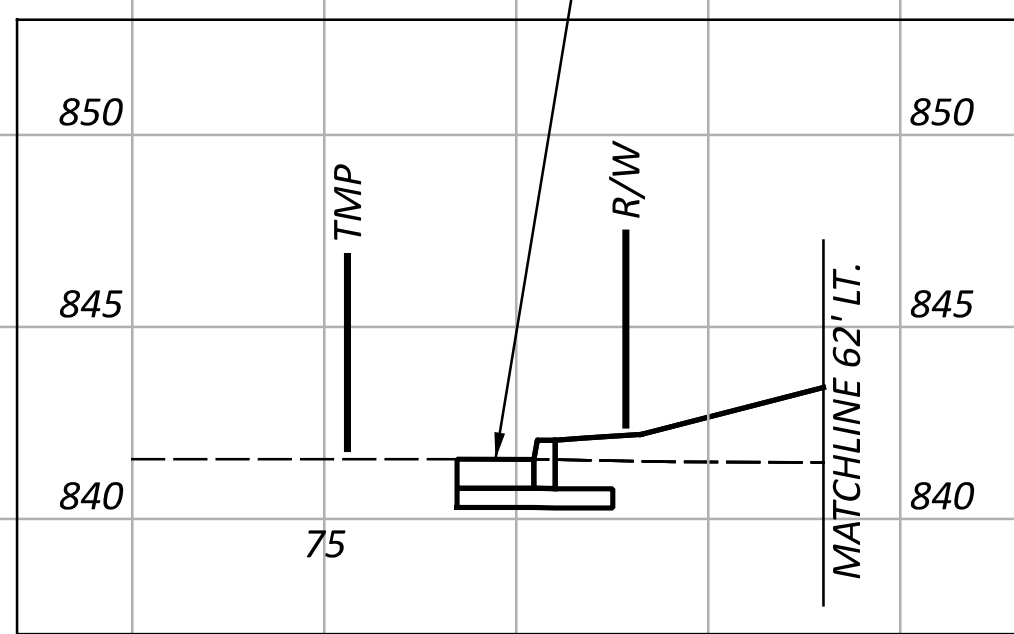


CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 204+00.00

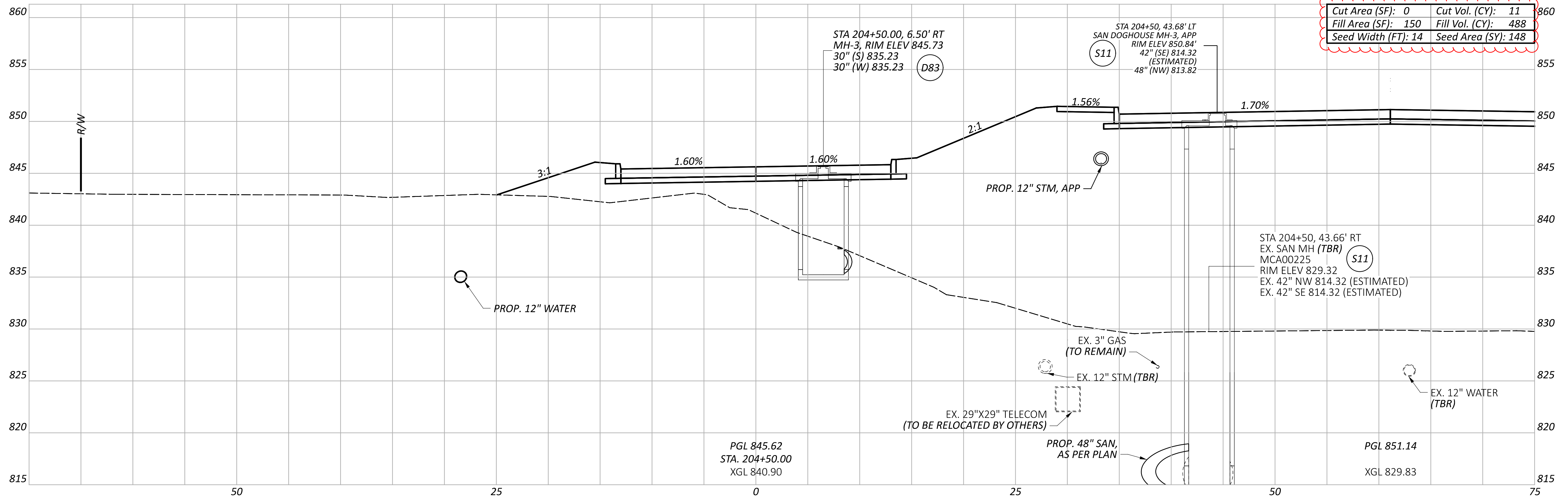


Cut Area (SF): 0	Cut Vol. (CY): 0
Fill Area (SF): 724	Fill Vol. (CY): 809
Seed Width (FT): 32	Seed Area (SY): 129

PGL 848.87
 STA. 205+00.00
 XGL 832.84



Cut Area (SF): 0	Cut Vol. (CY): 11
Fill Area (SF): 150	Fill Vol. (CY): 488
Seed Width (FT): 14	Seed Area (SY): 148



PGL 845.62
 STA. 204+50.00
 XGL 840.90

STA 204+50, 43.66' RT
 EX. SAN MH (TBR) S11
 MCA00225
 RIM ELEV 829.32
 EX. 42" NW 814.32 (ESTIMATED)
 EX. 42" SE 814.32 (ESTIMATED)

CROSS SECTIONS - OLD BROADWAY AVENUE
 STA. 204+50.00 TO STA. 205+00.00

DESIGN AGENCY

AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER
 RJJ

REVIEWER
 WFS 08/05/24

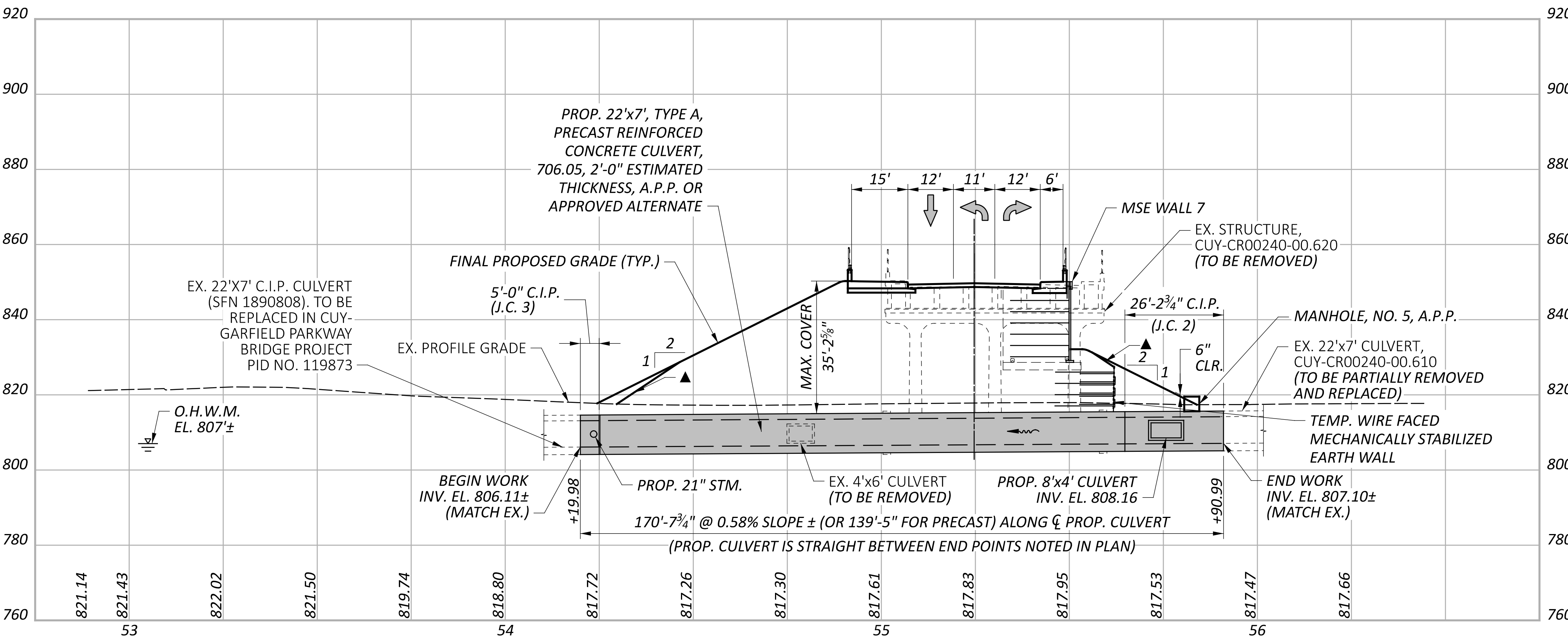
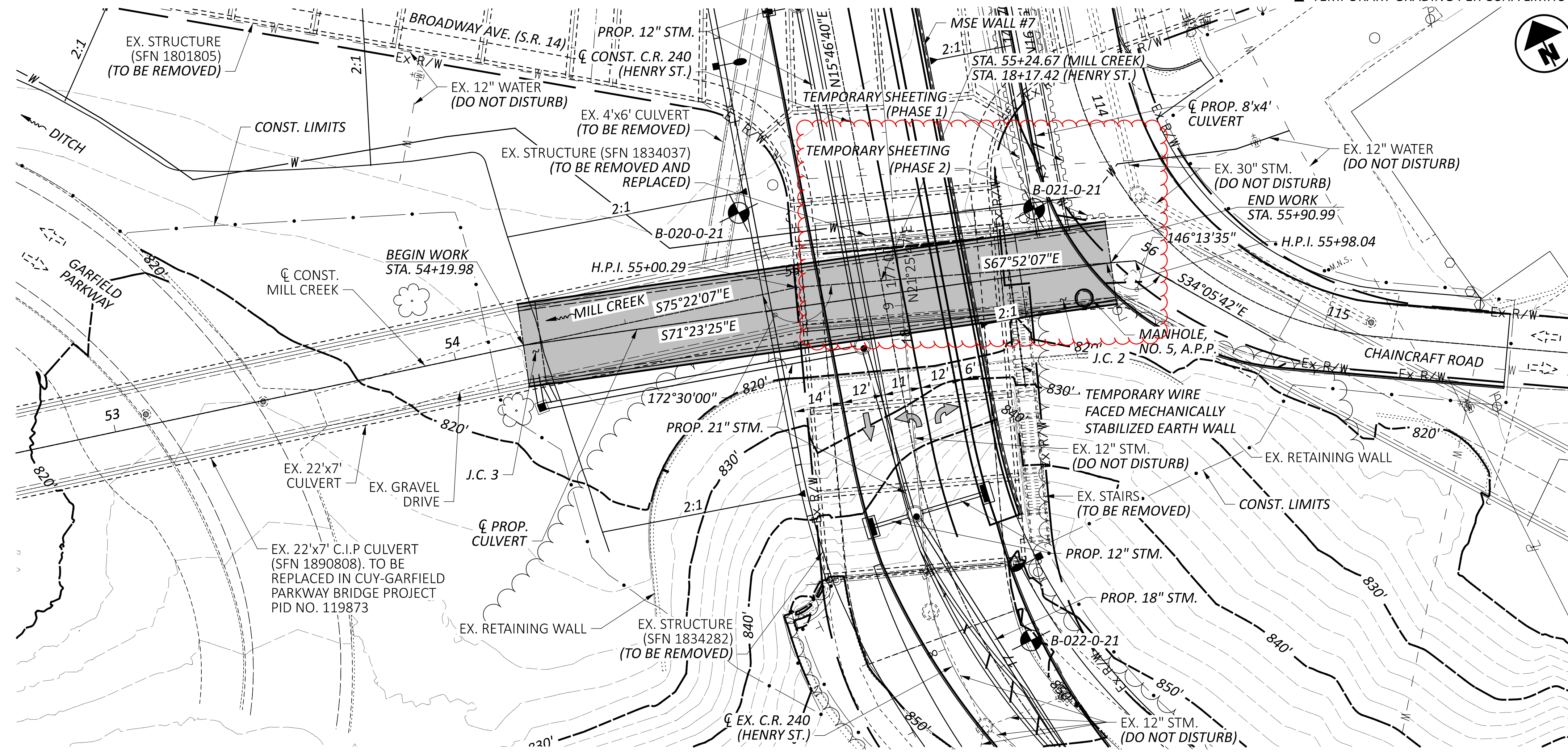
PROJECT ID
 104132

SHEET TOTAL
 P.141 399

ESTIMATED QUANTITIES						CALCULATED BY: RG CHECKED BY: ERM				2/6/2024 2/13/2024	
ITEM ODOT	EXT.	PARTICIPATION 01/BRO/10	TOTAL	UNIT	DESCRIPTION	CUY-00014-06.930				REF. SHEET	
						ABUTMENTS		PIERS	SUPER- STRUCTURE		GENERAL
						REAR	FORWARD				
202	11003	LS	LS		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN					LS	5 99
202	22900	293	293	SY	APPROACH SLAB REMOVED					293	
503	11101	LS	LS		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN					LS	5 99
503	21101	5,467	5,467	CY	UNCLASSIFIED EXCAVATION, AS PER PLAN	1,813	1,877	1,777			5 99
505	11100	LS	LS		PILE DRIVING EQUIPMENT MOBILIZATION					LS	
507	00700	4,220	4,220	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	2,500		1,720			
507	00750	5,275	5,275	FT	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	3,125		2,150			
507	93300	211	211	EACH	STEEL POINTS OR SHOES	125		86			
509	10000	1,063,710	1,063,710	LB	EPOXY COATED STEEL REINFORCEMENT	257,117	283,149	166,187	357,257		
511	34446	1,035	1,035	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK				1,035		
511	34450	111	111	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)				95	16	
511	41012	1,035	1,035	CY	CLASS QC1 CONCRETE WITH QC/QA, PIER ABOVE FOOTINGS			1,035			
511	44112	1,504	1,504	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT NOT INCLUDING FOOTING	756	748				
511	45602	568	568	CY	CLASS QC4 MASS CONCRETE, SUBSTRUCTURE WITH QC/QA	307	260				
511	46512	1,899	1,899	CY	CLASS QC1 CONCRETE WITH QC/QA, FOOTING	703	874	322			
511	51512	369	369	CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK				329	40	
512	10050	894	894	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)				894		
512	10100	4,519	4,519	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	1,128	1,127	1,273	991		
513	10280	1,518,413	1,518,413	LB	STRUCTURAL STEEL MEMBERS, LEVEL 4				1,518,413		
513	20000	15,350	15,350	EACH	WELDED STUD SHEAR CONNECTORS				15,350		
514	00060	10,796	10,796	SF	FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT				10,796		
514	00066	10,796	10,796	SF	FIELD PAINTING STRUCTURAL STEEL, FINISH COAT				10,796		
514	10000	7	7	EACH	FINAL INSPECTION REPAIR				7		
516	10010	374	374	FT	ARMORLESS PREFORMED JOINT SEAL					374	
516	11210	330	330	FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL				330		
516	13600	337	337	SF	1" PREFORMED EXPANSION JOINT FILLER					337	
516	13900	437	437	SF	2" PREFORMED EXPANSION JOINT FILLER	219	218				
516	44100	11	11	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 18" x 18" x 2.31" WITH 19" x 20" x 1.5" LOAD PLATE	11					
516	44300	9	9	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 18" x 18" x 5.94" WITH 19" x 20" x 1.5" LOAD PLATE		9				
516	44200	9	9	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 19" x 26" x 3.94" WITH 20" x 27" x 1.5" LOAD PLATE			9			
516	44200	9	9	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) 19" x 26" x 3.94" WITH 20" x 34" x 1.5" LOAD PLATE			9			
516	47000	LS	LS		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE					LS	
518	20000	2,099	2,099	SY	PREFABRICATED GEOCOMPOSITE DRAIN	1,073	1,026				
518	21200	69	69	CY	POROUS BACKFILL WITH GEOTEXTILE FABRIC	36	33				
518	40000	455	455	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	238	217				
518	40010	70	70	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	30	40				
523	20000	4	4	EACH	DYNAMIC LOAD TESTING	2		2			
526	30001	642	642	SY	REINFORCED CONCRETE APPROACH SLABS (T=17"), AS PER PLAN					642	80 99 THRU 88 99
526	90030	374	374	FT	TYPE C INSTALLATION					374	
607	39901	951	951	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN			812	139		5 99
SPECIAL	20365000	4	4	EACH	SETTLEMENT PLATFORM	1	2				6 99
SPECIAL	53014000	LS	LS		STRUCTURAL SURVEY AND MONITORING OF VIBRATION					LS	5 99

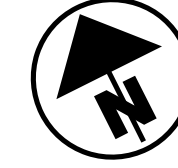
ESTIMATED QUANTITIES
 BRIDGE NO. CUY-00014-06.930
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN
 1801806
 DESIGN AGENCY
AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com
 DESIGNER: RG
 CHECKER: ERM
 REVIEWER:
 MRW 08/05/24
 PROJECT ID:
 104132
 SUBSET TOTAL
 7 99
 SHEET TOTAL
 P.215 399



LEGEND

- ⊕ BORING LOCATION
- ▲ TEMPORARY GRADING PER OSHA LIMITS



BENCHMARK DATA

BM1 STA.	368+64.50,	ELEV.	253.70,	OFFSET	35.95',	RT.
BM2 STA.	382+56.95,	ELEV.	259.43	OFFSET	5.75',	RT.

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET [P.3 | 399].

DESIGN TRAFFIC:

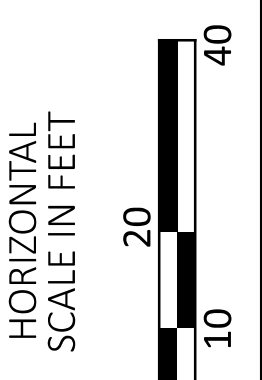
2026 ADT = 7,000	2026 ADTT = 630
2046 ADT = 7,500	2046 ADTT = 675

DIRECTIONAL DISTRIBUTION = 0.54

NOTES

1. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
2. HYDRAULIC DATA NOT DETERMINED BECAUSE PROJECT SIMPLY REPLACES A SECTION OF EXISTING BOX CULVERT WITH HYDRAULICALLY EQUIVALENT CULVERT.
3. THE CONTRACTOR IS ONLY PERMITTED TO REPLACE THE CULVERT AND MAINTAIN THE FLOW UTILIZING BYPASS PUMPING. THE MINIMUM FLOW RATE OR STANDARD TEMPORARY DISCHARGE TO BE MAINTAINED BY THE CONTRACTOR SHALL BE APPROXIMATELY 50 CFS.
4. THE CONTRACTORS THAT ARE CONSTRUCTING SFN 1834038 (PID 104132) AND SFN 1890808 (PID 119873) SHALL COORDINATE CULVERT BYPASSING AND INSTALLATION TIMING AS NECESSARY. REFER TO PID 119873 SHEET [42 | 43] FOR ADDITIONAL SEQUENCE OF CONSTRUCTION INFORMATION.
5. FOR TEMPORARY GRADING PER OSHA'S LIMITS, SEE PLACEMENT OF OF THE 22'x7', TYPE A, BOX CULVERT NOTE ON SHEET [3 | 14].

SITE PLAN 1 OF 2
 BRIDGE NO. CUY-CR00240-00.610
 HENRY STREET (C.R. 240) OVER MILL CREEK



EXISTING STRUCTURE

TYPE: CONTINUOUS REINFORCED CONCRETE BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
 SPANS: 4 SPANS AT 24'-0"±
 ROADWAY: 46'-0"± F/F SAFETY CURB (5'-0"± SIDEWALK)
 LOADING: HS20-44 AND ALTERNATE MILITARY
 SKEW: 0°0'0"±
 APPROACH SLABS: 20'-0"±
 ALIGNMENT: TANGENT
 CROWN: VARIES
 STRUCTURE FILE NUMBER: 1834282
 DATE BUILT: 1929 (1988 MAJOR RECONSTRUCTION)
 DISPOSITION: TO BE REMOVED

EXISTING STRUCTURE

TYPE: 22'x7' CAST-IN-PLACE, 4 SIDED REINFORCED CONCRETE CULVERT
 SPANS: 22'-0"± CLEAR SPAN
 ROADWAY: 46'-0"± TOE/TOE CURB (56'-0"± TOE/TOE PARAPET)
 LOADING: HS15
 SKEW: 0°0'0"±
 WEARING SURFACE: NONE
 APPROACH SLABS: NONE
 ALIGNMENT: TANGENT
 CROWN: NONE
 STRUCTURE FILE NUMBER: 1834037
 DATE BUILT: 1928
 DISPOSITION: TO BE PARTIALLY REMOVED AND REPLACED

PROPOSED STRUCTURE

TYPE: 22' x 7', TYPE A, PRECAST REINFORCED CONCRETE BOX CULVERT, 706.05, ESTIMATED 2'-0", AS PER PLAN
 SPANS: 22'-0"± CLEAR SPAN 22'-0"±
 ROADWAY: 35'-0"± TOE/TOE CURB (56'-0"± TOE/TOE PARAPET)
 LOADING: HL93 AND 60 PSF FUTURE WEARING SURFACE
 SKEW: 0°0'0"±
 WEARING SURFACE: NONE
 APPROACH SLABS: NONE
 ALIGNMENT: TANGENT
 CROWN: 0.58%
 STRUCTURE FILE NUMBER: 1834038
 COORDINATES: LATITUDE N 41°25'51.06"
 LONGITUDE W 81°36'02.99"

SFN 1834038

DESIGN AGENCY

AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER: HER CHECKER: JTH

REVIEWER

MRW 08/05/24

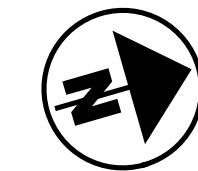
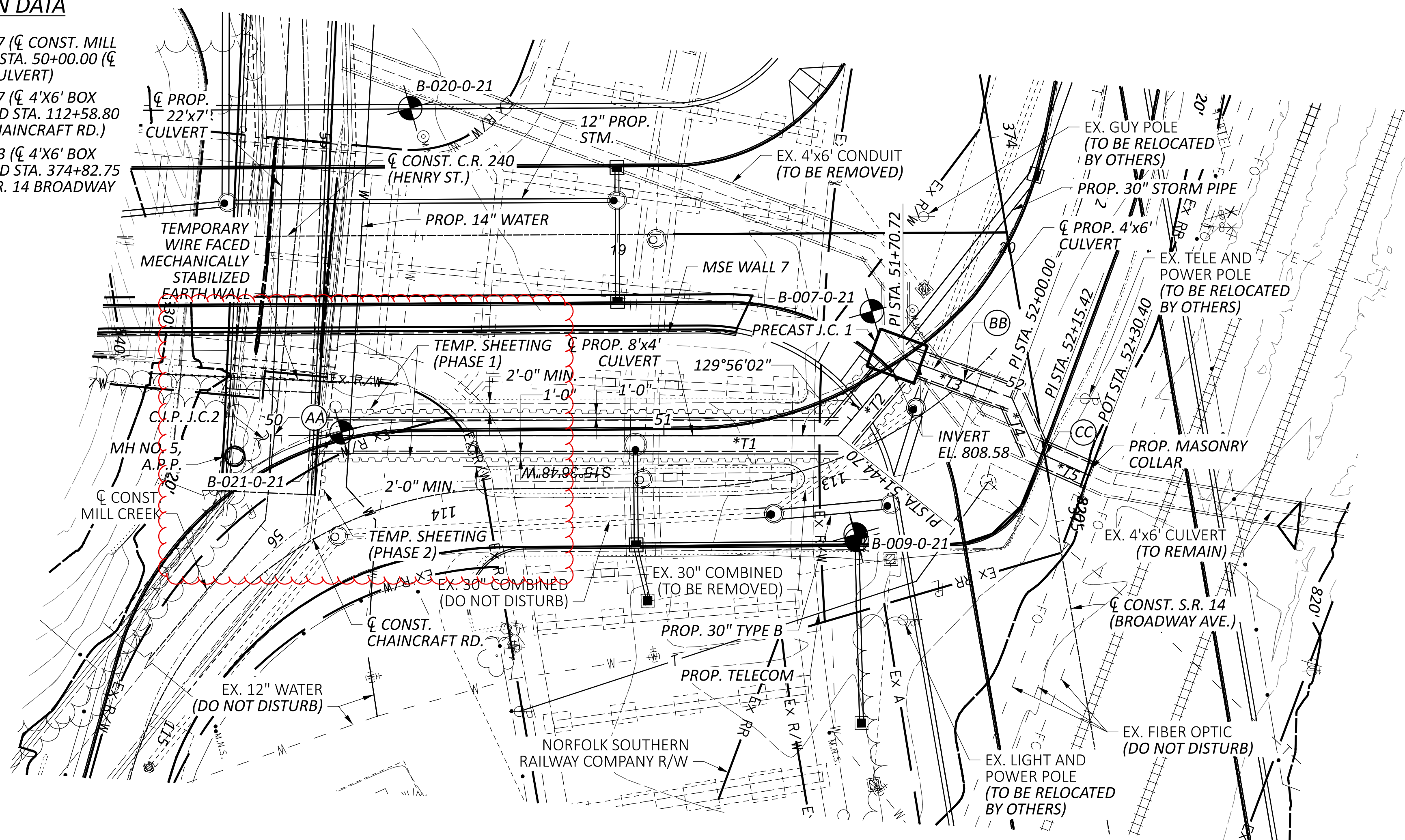
PROJECT ID: 104132

SUBSET TOTAL: 1 14

SHEET TOTAL: P.308 399

INTERSECTION DATA

- AA STA. 55+76.17 (C CONST. MILL CREEK) AND STA. 50+00.00 (C PROP. 8'x4' CULVERT)
- BB STA. 51+87.47 (C 4'x6' BOX CULVERT) AND STA. 112+58.80 (C CONST. CHAINCRAFT RD.)
- CC STA. 52+18.03 (C 4'x6' BOX CULVERT) AND STA. 374+82.75 (C CONST. S.R. 14 BROADWAY AVE.)



BENCHMARK DATA

BM1 STA.	368+64.50,	ELEV.	253.70,	OFFSET	35.95',	RT.
BM2 STA.	382+56.95,	ELEV.	259.43	OFFSET	5.75',	RT.

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET [P.3, 399].

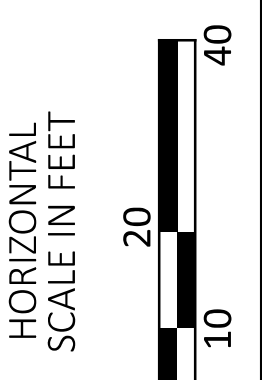
DESIGN TRAFFIC:
 2026 ADT = 7,000 2026 ADTT = 630
 2046 ADT = 7,500 2046 ADTT = 675
 DIRECTIONAL DISTRIBUTION = 0.54

NOTES

- EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

LEGEND

- BORING LOCATION
- * BEARING ALONG TANGENT
- T1 = N16°06'49"E
- T2 = N33°55'53"W
- T3 = N36°10'19"E
- T4 = N82°13'12"E
- T5 = N40°05'15"E
- ▲ INVERT ELEVATION = 808.58
- INVERT ELEVATION = 810.15



SITE PLAN 2 OF 2
 BRIDGE NO. CUY-CR00240-00.610
 HENRY STREET (C.R. 240) OVER MILL CREEK

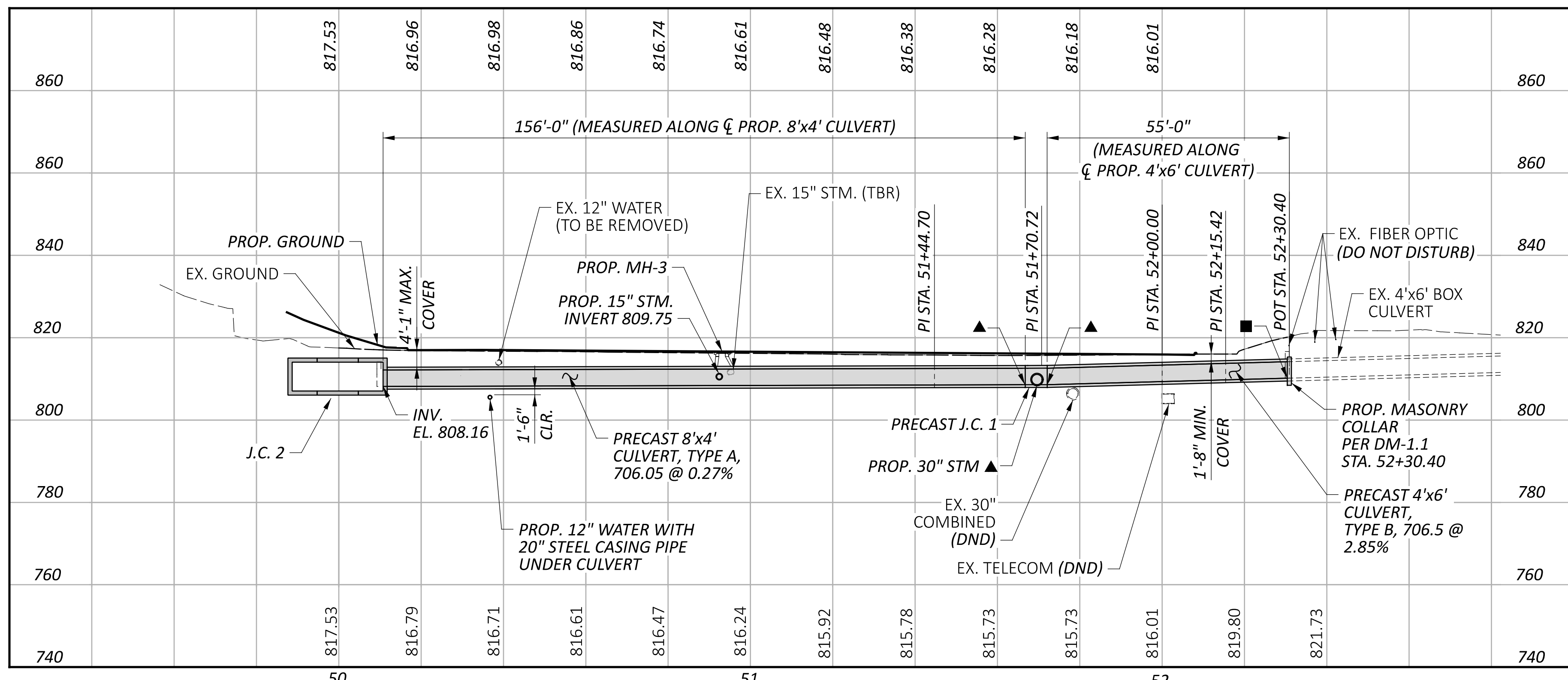
EXISTING STRUCTURE

TYPE: 4'x6' CONCRETE CULVERT
 SPANS: 6'-0" CLEAR SPAN
 ROADWAY: VARIES
 LOADING: UNKNOWN
 SKEW: VARIES
 WEARING SURFACE: NONE
 APPROACH SLABS: NONE
 ALIGNMENT: VARIES
 CROWN: NONE
 STRUCTURE FILE NUMBER: NONE
 DATE BUILT: UNKNOWN
 DISPOSITION: 4'x6' TO BE PARTIALLY REMOVED AND REPLACED

PROPOSED STRUCTURE

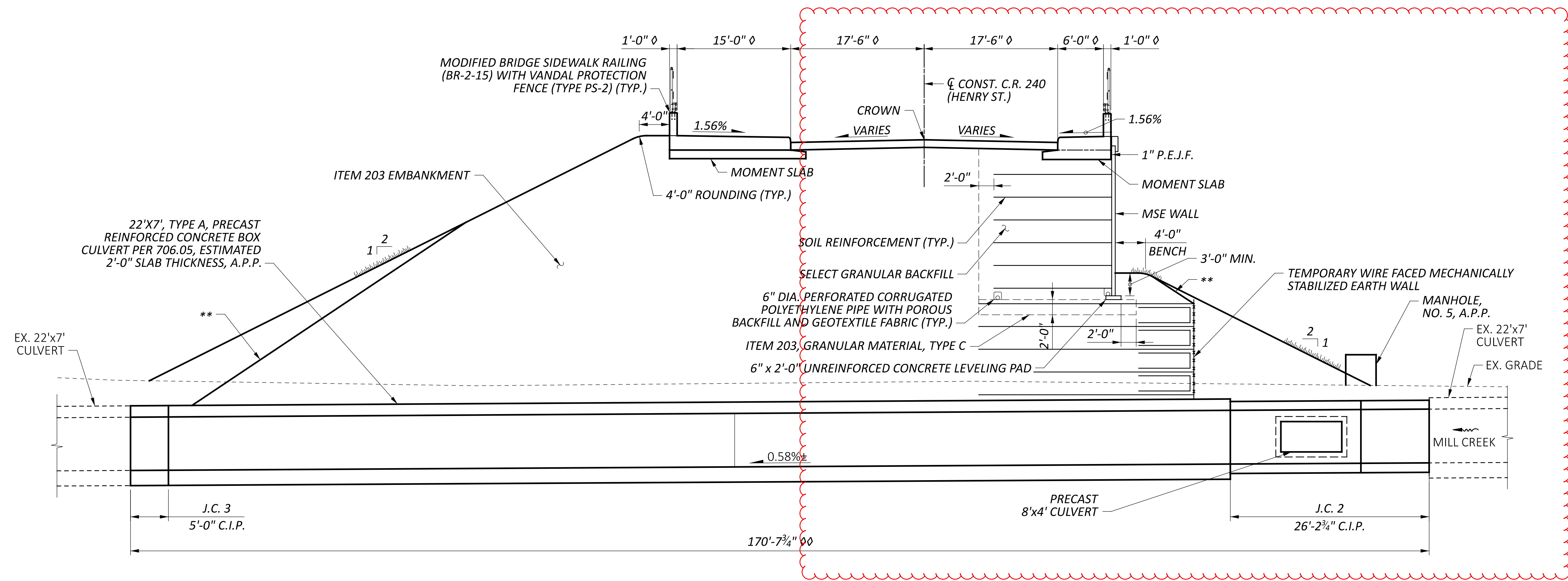
TYPE: 8'x4' PRECAST 4 SIDED BOX CULVERT, TYPE A, 706.05
 4'x6' PRECAST 4 SIDED BOX CULVERT, TYPE A, 706.05
 PRECAST JUNCTION CHAMBER 1, CAST IN PLACE JUNCTION CHAMBER 2 AND 3
 SPANS: 8'-0" CLEAR SPAN
 6'-0" CLEAR SPAN
 ROADWAY: NONE
 LOADING: HL93 AND 60 PSF FUTURE WEARING SURFACE
 SKEW: VARIES
 APPROACH SLABS: NONE
 ALIGNMENT: AS SHOWN
 CROWN: NONE
 COORDINATES: LATITUDE N 41°25'51.04"
 LONGITUDE W 81°36'02.34"

SFN	1834038
DESIGN AGENCY	AECOM
DESIGNER	HER
CHECKER	JTH
REVIEWER	MRW
PROJECT ID	104132
SUBSET	2
TOTAL	14
SHEET	P.309
TOTAL	399

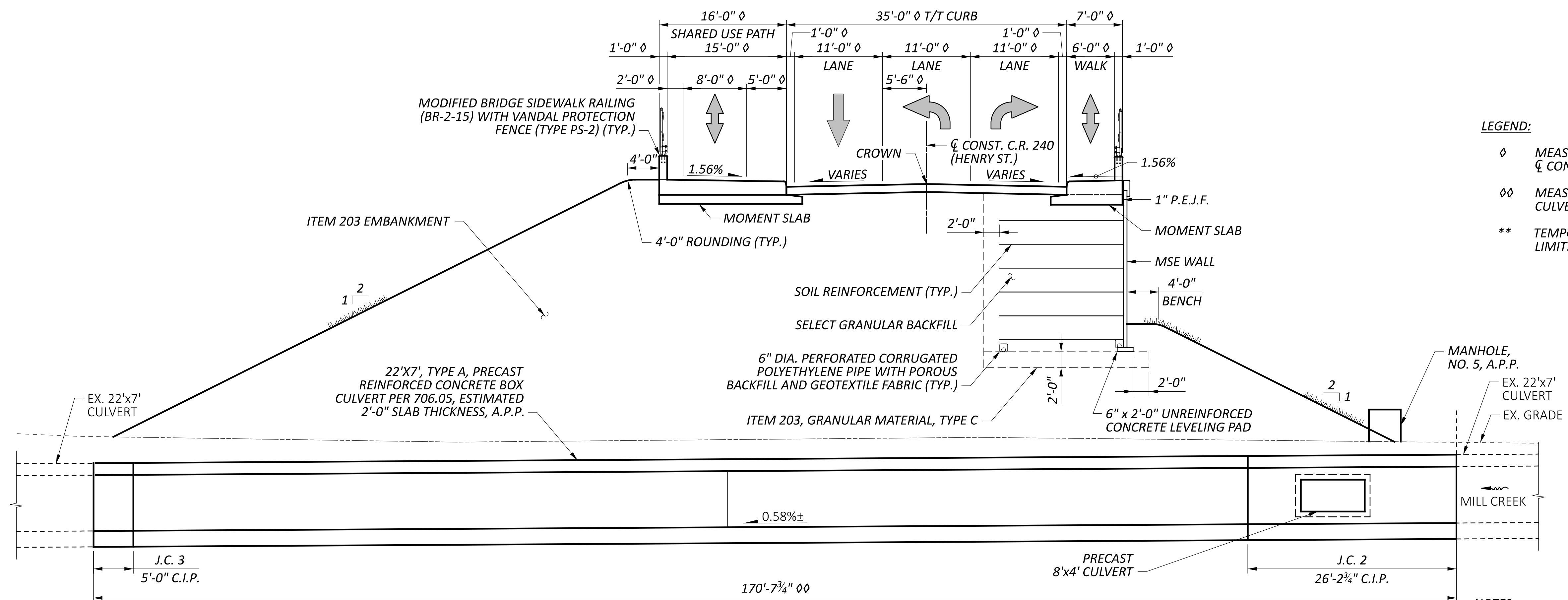


CUI-14-6.93

MODEL: CLIP_CULVERT SHEET PAPER SIZE: 34x42 (in.) DATE: 2/14/2025 TIME: 12:18:06 AM USER: hiba.elrassi
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PHASE 2 - CONSTRUCTION



FINAL CONDITION

LEGEND:

- ◊ MEASURED PERPENDICULAR TO \bar{C} CONST. C.R. 240 (HENRY ST.)
- ◊◊ MEASURED ALONG \bar{C} PROPOSED CULVERT
- ** TEMPORARY GRADING PER OSHA LIMITS (SEE NOTE 1)

NOTES:

1. FOR MORE DETAILS ABOUT THE TEMPORARY GRADING, SEE PLACEMENT OF THE 22'X7', TYPE A, 706.05, 2'-0" ESTIMATED THICKNESS, AS PER PLAN ON SHEET 3 | 14 |.

PHASE CONSTRUCTION DETAILS
BRIDGE NO. CUY-CR00240-00.610
HENRY STREET (C.R. 240) OVER MILL CREEK

SFN
1834038

DESIGN AGENCY

AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com

DESIGNER: HER
 CHECKER: JTH

REVIEWER

MRW 08/05/24

PROJECT ID

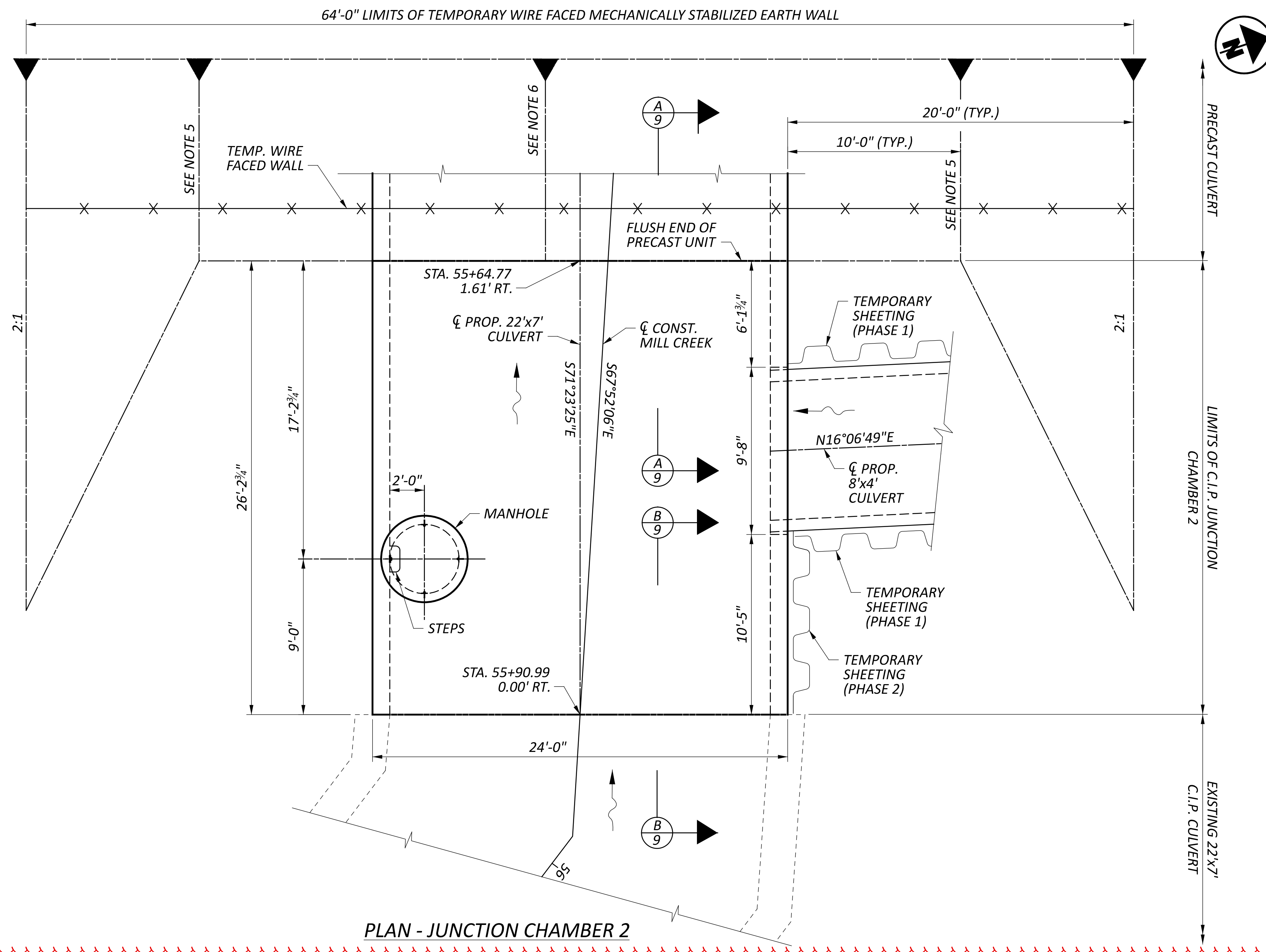
104132

SUBSET TOTAL

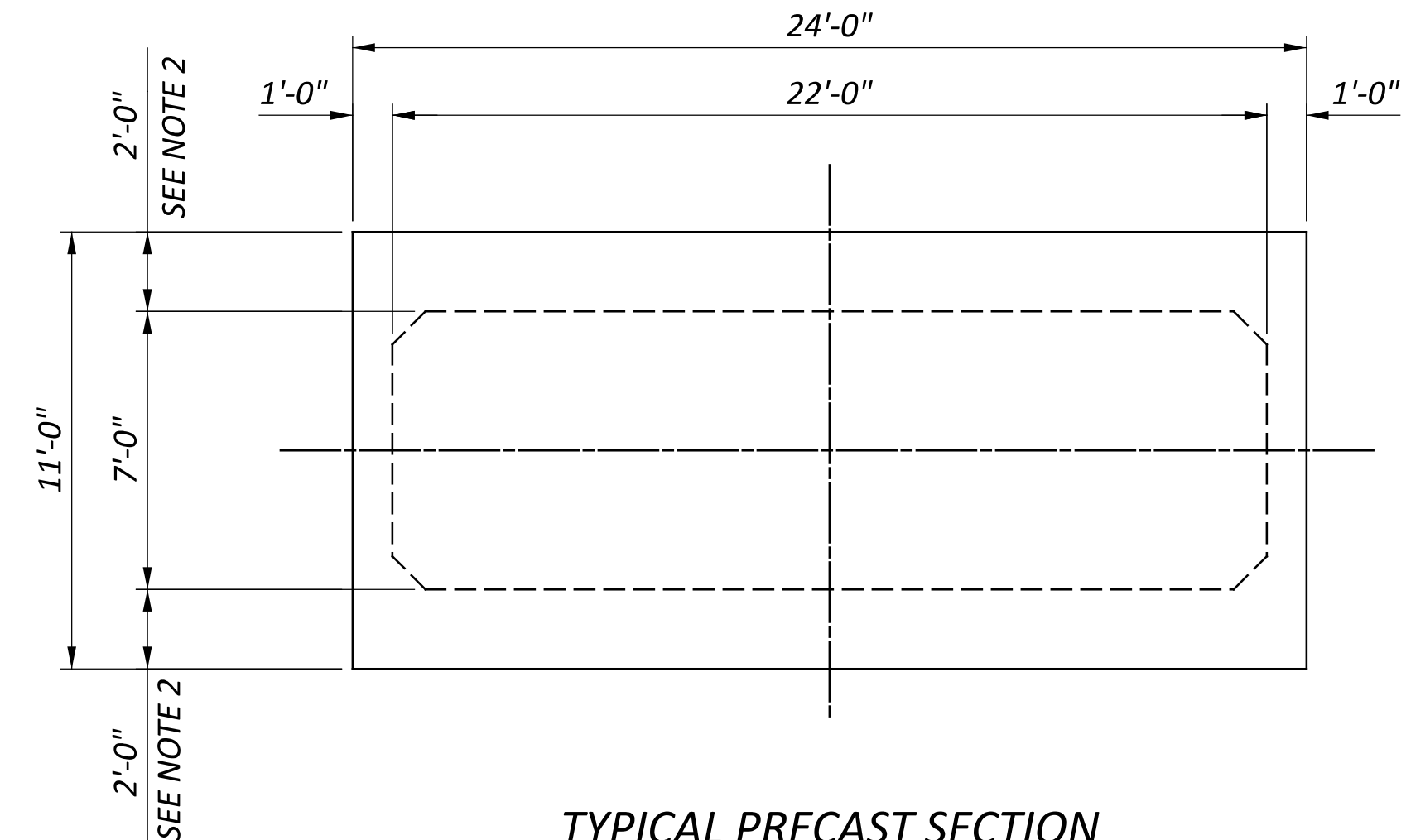
6 14

SHEET TOTAL

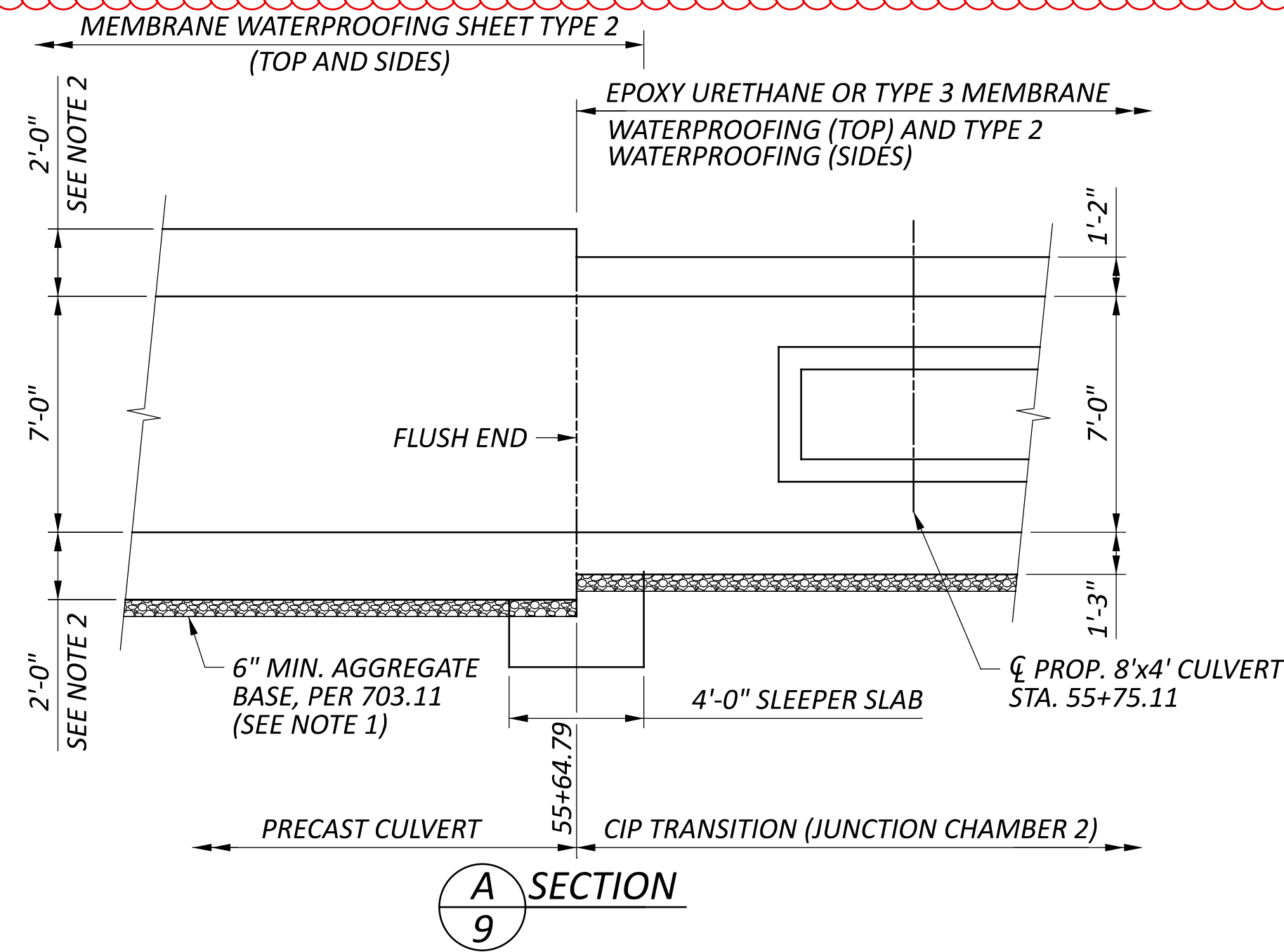
P.313 399



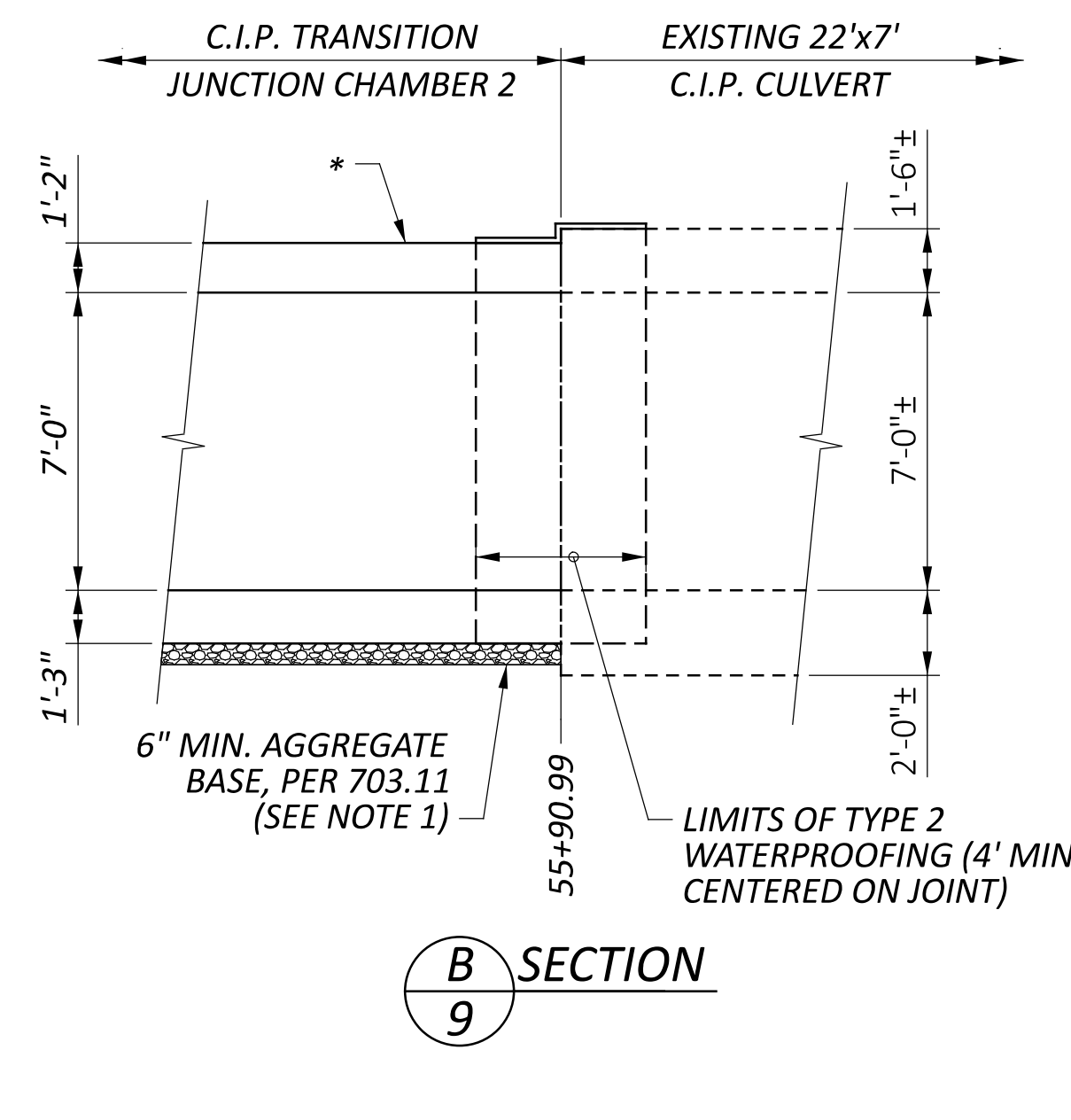
PLAN - JUNCTION CHAMBER 2



TYPICAL PRECAST SECTION
(SEE NOTE 2)



SECTION
A
9



SECTION
B
9

LEGEND:

* EXCEPT AT THE JOINTS AT EACH END, THE C.I.P. JUNCTION CHAMBER MAY BE SEALED WITH MEMBRANE WATERPROOFING PER 512.08 OR EPOXY URETHANE PER 512.03. NO SEPARATE PAYMENT WILL BE MADE FOR THE EPOXY URETHANE. PAYMENT SHALL BE INCLUDED WITH THE MEMBRANE WATERPROOFING.

NOTES:

1. LSM MAY BE USED FOR BEDDING PER 611.06. IF LSM IS USED IT SHALL BE EXTENDED 6" MIN. ABOVE CULVERT. SEE CULVERT GENERAL NOTES ON SHEET [3 , 14] FOR MORE DETAILS AND PAYMENT.
2. CULVERT DESIGN IS BY PRECAST CONCRETE PROVIDER IN ACCORDANCE WITH PROJECT REQUIREMENTS. HOLD CULVERT INTERIOR DIMENSIONS TO SATISFY HYDRAULIC REQUIREMENTS. THICKNESSES SHOWN ARE ESTIMATED.
3. MAINTAIN 3" CLEAR BETWEEN ADDITIONAL BARS UNLESS NOTED OTHERWISE.
4. FOR ADDITIONAL MANHOLE NOTES, REFER TO CULVERT GENERAL NOTES ON SHEET [3 , 14].
5. TEMPORARY GRADING PER OSHA LIMITS.

SFN	1834038
DESIGN AGENCY	AECOM
DESIGNER	CHECKER
HER	JTH
REVIEWER	
MRW	08/05/24
PROJECT ID	104132
SUBSET	TOTAL
9	14
SHEET	TOTAL
P.316	399

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS:

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

BR-2-15 DATED (REVISED) 01-21-22
 VPF-1-24 DATED (REVISED) 07-19-24

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

SS840 DATED 4-15-22
 SS867 DATED 4-15-22

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO THE 8TH EDITION OF THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2020 AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

OPERATIONAL IMPORTANCE:

A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING:

LIVE LOAD SURCHARGE: 250 PSF

DESIGN DATA:

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4.0 KSI (COPING AND LEVELING PAD)

CONCRETE REINFORCEMENT:
 EPOXY COATED STEEL REINFORCEMENT - MIN. YIELD STRENGTH 60 KSI

MSE WALL FOUNDATION BEARING RESISTANCE:

THE REINFORCED SOIL MASS, AS DESIGNED, PRODUCES A MAXIMUM SERVICE LIMIT STATE BEARING PRESSURE AND A MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE AS SUMMARIZED IN THE TABLE BELOW FOR EACH WALL. THE FACTORED BEARING RESISTANCES AS PROVIDED IN THE TABLE.

DESIGNER TBD	STATION LIMITS	MAXIMUM SERVICE LIMIT STATE BEARING PRESSURE (KSF)	MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE (KSF)	FACTORED BEARING RESISTANCE (KSF)
WALL 1	10+00 TO 13+82.89	DESIGNER TBD	7.9	9.9
WALL 2	DESIGNER TBD	DESIGNER TBD	DESIGNER TBD	DESIGNER TBD
WALL 3	10+00 TO 10+30	DESIGNER TBD	9.0	18.1
WALL 3	10+30 TO 10+60	DESIGNER TBD	8.4	17.4
WALL 3	10+60 TO 11+30	DESIGNER TBD	8.0	13.6
WALL 3	11+30 TO 11+60	DESIGNER TBD	6.3	11
WALL 3	11+60 TO 11.85	DESIGNER TBD	5.9	10.1
WALL 3	11+85 TO 12+10	DESIGNER TBD	6.4	7.7
WALL 3	12+10 TO 13+99	DESIGNER TBD	5.9	7.7
WALL 4	DESIGNER TBD	DESIGNER TBD	DESIGNER TBD	DESIGNER TBD
WALL 5	10+00 TO 12+76.09	DESIGNER TBD	7.5	7.5
WALL 6	10+00 TO 10+80	DESIGNER TBD	7.2	14.4
WALL 6	10+80 TO 11+20	DESIGNER TBD	6.3	9.9
WALL 6	11+20 TO 13+20	DESIGNER TBD	5.8	5.8
WALL 6	13+20 TO 13+69	DESIGNER TBD	5.6	5.6
WALL 7	10+00 TO 11+86.54	DESIGNER TBD	6.5	6.5

ITEM 607 - VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN:

THIS ITEM SHALL BE AS PER THE DETAILS IN THE PLAN, THE APPLICABLE PORTIONS OF STANDARD DRAWING VPF-1-24, AND THE MANUFACTURER'S RECOMMENDATIONS.

THE ANCHORS ON TOP OF THE PROPOSED CONCRETE BRIDGE RAILING SHALL BE CAST IN PLACE WITH A 6" OR 7" MINIMUM EMBEDMENT LENGTH, ASH SHOWN ON THE STANDARD DRAWING FOR THE SPECIFIED BASE PLATE TYPE.

AT LOCATIONS WHERE THE EXISTING FENCE SPANS ACROSS THE EXPANSION JOINT, DO NOT INSTALL LINE RAILS AND EXPANSION JOINT SLEEVES; HOWEVER, THE FABRIC SHALL REMAIN CONTINUOUS ACROSS THE EXPANSION JOINT.

THE COLOR OF THE FENCE FABRIC, RAILS, POSTS, PLATES, TIE WIRES, AND ADDITIONAL VISUAL HARDWARE AND CAULK SHALL BE BLACK.

PAYMENT FOR ALL OF THE ABOVE SHALL BE AT THE UNIT PRICE BID PER LINEAR FOOT FOR ITEM 607 - VANDAL PROTECTION FENCE 6' STRAIGHT, COATED FABRIC, AS PER PLAN WHICH SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.

ITEM 503 - UNCLASSIFIED EXCAVATION, AS PER PLAN:

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH CMS SECTION 503 AND SHALL INCLUDE THE EXCAVATION REQUIRED TO CONSTRUCT THE NEW ABUTMENTS, WING WALLS AND PIER FOOTINGS. EXCAVATION AND BACKFILLING REQUIRED FOR SUBSTRUCTURE REMOVAL AND STRUCTURE DRAINAGE SHALL BE INCLUDED WITH RESPECTIVE ITEMS 202 AND 518.

ITEM 840 - MECHANICALLY STABILIZED EARTH WALL:

CONSTRUCT MSE RETAINING WALLS IN ACCORDANCE WITH SS840 EXCEPT AS MODIFIED HEREIN.

SEE ITEM 840 - AESTHETIC SURFACE TREATMENT NOTED BELOW FOR SPECIAL AESTHETIC TREATMENT ON WALL 5.

ITEM 840 - AESTHETIC SURFACE TREATMENT:

THIS ITEM SHALL CONSIST OF PROVIDING AESTHETIC TREATMENT TO THE CONCRETE SURFACES OF MSE WALLS AS SHOWN IN THE PLANS. IT SHALL INCLUDE BUT NOT LIMITED TO FORM LINERS AND TEXTURED SURFACES.

WALL 5 SHALL HAVE AN ASHLAR BLOCK PATTERN. PROVIDE SURFACE TEXTURING AS NOTED IN THE FOLLOWING TABLE, OR EQUIVALENT PATTERN ONLY UPON APPROVAL OF THE ENGINEER. ACCEPTABLE PATTERNED FORMLINERS FOR WALL 5 ARE:

SUPPLIER	PATTERN
THE REINFORCED EARTH COMPANY	ASHLAR STONE
REDI-ROCK STRUCTURES OF OKI	KINGSTONE OR LEDGESTONE
SSL, LLC.	ASHLAR STONE
TENSAR INTERNATIONAL	(AN EQUIVALENT PATTERN UPON APPROVAL OF THE ENGINEER)

THE REMAINING WALLS SHALL HAVE A SMOOTH FINISH APPLIED TO THEM IN ACCORDANCE WITH SS840.

THE CONTRACTOR SHALL SUBMIT PRODUCT INFORMATION FOR THE PROPOSED PATTERN FORM LINER TO THE ENGINEER FOR APPROVAL. ALL PRODUCT INFORMATION AND SHOP DRAWINGS SHALL BE SUBMITTED PRIOR TO BEGINNING ANY WORK.

PAYMENT FOR ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO PRODUCE THE AESTHETIC TREATMENT AS SHOWN IN THE PLANS SHALL BE INCLUDED IN ITEM 840, AESTHETIC TREATMENT. PAYMENT FOR ALL MSE WALL PANELS SHALL BE INCLUDED IN ITEM 840, MECHANICALLY STABILIZED EARTH WALLS.

ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE):

THE COLOR OF THE FINISH COAT FOR ALL SURFACES OF WALL 5 SHALL BE FEDERAL COLOR NUMBER 36495 (LIGHT GRAY, SEMIGLOSS). THE COLOR OF THE FINISH COAT FOR ALL OTHER SURFACES SHALL BE FEDERAL COLOR NUMBER 13522 (BUFF, SEMIGLOSS).

THE SURFACE AREA PAY QUANTITY FOR THE PORTIONS OF THIS ITEM IS BASED ON A TWO-DIMENSIONAL FLAT SURFACE. INCLUDE COST OF ANY ADDITIONAL SEALING FOR SURFACES WITH AESTHETIC TREATMENT IN THE UNIT PRICE BID FOR THIS ITEM.

ITEM 512 - SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION):

APPLY A PERMANENT GRAFFITI COATING, AS SHOWN IN THE PLANS, QUALIFIED ACCORDING TO SUPPLEMENT 1083, THAT IS COMPATIBLE WITH THE CONCRETE SEALER OVER WHICH IT IS APPLIED. APPLY THE GRAFFITI COATING IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

PERMANENT GRAFFITI COATING IS ONLY TO BE APPLIED TO WALL 5.

ITEM 867 - TEMPORARY WIRE FACED MECHANICALLY STABILIZED EARTH WALL:

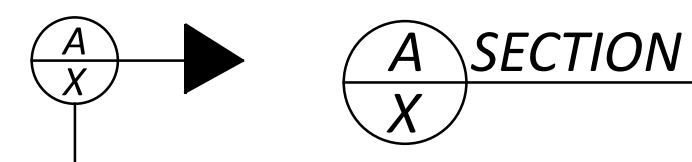
CONSTRUCT TEMPORARY WIRE RETAINING WALLS IN ACCORDANCE WITH SS867 EXCEPT AS MODIFIED HEREIN, SEE SHEETS [11 | 25], [12 | 25], [16 | 25] AND [17 | 25].

ABBREVIATIONS AND SYMBOLS

THE FOLLOWING STANDARD ABBREVIATIONS ARE USED THROUGHOUT THE PLANS:

- APPR. - APPROACH
- B OR BOT. - BOTTOM
- BRG. - BEARING
- BTWN - BETWEEN
- C/C - CENTER TO CENTER
- C.I.P. - CAST IN PLACE
- C.J. - CONSTRUCTION JOINT
- CL - CENTERLINE
- CLR. - CLEARANCE
- CONST. - CONSTRUCTION
- DIA. - DIAMETER
- DWG. - DRAWING
- EA. - EACH
- E.F. - EACH FACE
- EL. OR ELEV. - ELEVATION
- EQ. - EQUAL
- EST. - ESTIMATED
- EX. OR EXIST. - EXISTING
- EXP. - EXPANSION
- F.A. - FORWARD ABUTMENT
- F.F. - FAR FACE
- F/F - FACE TO FACE
- F.S. - FIELD SPLICE
- FIX. - FIXED
- FTG. - FOOTING
- FWD. - FORWARD
- GIR. - GIRDER
- GIR'S. - GIRDERS
- HORIZ. - HORIZONTAL
- HW - HIGH WATER MARK
- JT. - JOINT
- LF - LEFT FORWARD
- LT. - LEFT
- MAX. - MAXIMUM
- MID - MIDDLE
- MIN. - MINIMUM
- N.B. - NORTHBOUND
- N.F. - NEAR FACE
- NO. - NUMBER
- O.C.J. - OPTIONAL CONSTRUCTION JOINT
- O/O - OUT TO OUT
- ORD. - ORDINARY
- P.C.P.P. - PERFORATED CORRUGATED PLASTIC PIPE
- P.E.J.F. - PREFORMED EXPANSION JOINT FILLER
- P/G OR P.G. - PROFILE GRADE
- P1 - PIER 1
- P2 - PIER 2
- PL. - PLATE
- PR. OR PROP. - PROPOSED
- R.A. - REAR ABUTMENT
- R.C.P. - ROCK CHANNEL PROTECTION
- REF. - REFERENCE
- REIN. - REINFORCING OR REINFORCEMENT
- REQ. OR REQ'D. - REQUIRED
- RT. - RIGHT
- S.B. - SOUTHBOUND
- SER. - SERIES
- SHLD. - SHOULDER
- SPA. - SPACE(D) OR SPACING
- STA. - STATION
- STD. DWG. OR SCD - STANDARD CONSTRUCTION DRAWING
- T&B - TOP AND BOTTOM
- T/ - TOP
- THK. - THICK
- TYP. - TYPICAL
- U.N.O. - UNLESS NOTED OTHERWISE
- VAR. - VARIES
- VERT. - VERTICAL
- W/ - WITH

THE SYMBOLS BELOW DESIGNATE THE NAMES AND LOCATIONS OF THE SECTION DETAILS THROUGHOUT THE STRUCTURE PLANS. THE TOP LETTER DESIGNATES THE SECTION NAME. THE BOTTOM NUMBER(S) SHOWN WHICH STRUCTURE SHEET IS BEING CROSS REFERENCED.



DESIGNER	CHECKER
TLN	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
2	25
SHEET	TOTAL
P.323	399

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ITEM 203 - ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS

PART 1: DESCRIPTION AND OBJECTIVE

1.1. PERFORMANCE CRITERIA

A. THIS WORK INCLUDES THE DESIGN OF, FURNISHING THE MATERIALS FOR, AND CONSTRUCTION OF THE COLUMN-SUPPORTED EMBANKMENTS AND WALLS (CSEW), LOAD TRANSFER PLATFORMS (LTP), AND WORKING PLATFORMS (WP) IN THE INSTALLATION AREA NOTED ON THE PLANS TO MEET THE PERFORMANCE CRITERIA PROVIDED IN THIS SECTION. THE CSEW DESIGNER SHALL DEMONSTRATE BY CALCULATIONS THAT THE CSEW SYSTEMS SATISFY THE FOLLOWING REQUIREMENTS:

1. CSEW SHALL SATISFY THE FACTORED BEARING RESISTANCE AND SETTLEMENT REQUIREMENTS OF THE PLANNED EMBANKMENTS AND WALLS AT THE DESIGNATED BEARING LEVELS.
 - I. THE DESIGNATED BEARING LEVEL FOR MSE WALLS IS THE BOTTOM OF THE LEVELING PAD/BASE OF THE MSE SELECT GRANULAR BACKFILL (SGB).
 - II. THE DESIGNATED BEARING LEVEL FOR RIGID GRAVITY AND SEMIGRAVITY WALLS AND BRIDGE ABUTMENTS IS THE BOTTOM OF THE SPREAD FOOTING FOUNDATION.
 - III. THE DESIGNATED BEARING LEVEL FOR THE EMBANKMENTS IS EXISTING GRADE.

2. THE FACTORED BEARING RESISTANCE REQUIREMENTS OF THE CSEW FOR EACH ZONE AT THE DESIGNATED BEARING LEVELS ARE AS FOLLOWS:

- I. THE MINIMUM FACTORED BEARING RESISTANCE FOR WALL 3 IS 8.54 KSE. THE RESISTANCE FACTOR IS 0.65 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR MSE WALLS.
- II. THE MINIMUM FACTORED BEARING RESISTANCE FOR WALL 4 IS 9.23 KSE. THE RESISTANCE FACTOR IS 0.65 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR MSE WALLS.
- III. THE MINIMUM FACTORED BEARING RESISTANCE FOR WALL 6 IS 8.54 KSE. THE RESISTANCE FACTOR IS 0.65 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR MSE WALLS.
- IV. THE MINIMUM FACTORED BEARING RESISTANCE FOR THE FORWARD ABUTMENT OF BRIDGE CUY-00014-06.930 IS 7.45 KSE. THE RESISTANCE FACTOR IS 0.55 IN ACCORDANCE WITH AASHTO LRFD TABLE 11.5.7-1 FOR GRAVITY AND SEMIGRAVITY WALLS.
- V. THE MINIMUM FACTORED BEARING RESISTANCE FOR THE APPROACH EMBANKMENT BEYOND THE FORWARD EMBANKMENT AND BETWEEN MSE WALLS 3 AND 6 IS 5.67 KSE. THE RESISTANCE FACTOR IS 0.90.
- VI. THE MINIMUM NOMINAL (UNFACTORED) BEARING RESISTANCE FOR THE CSEW SYSTEM IN EACH ZONE SHALL BE EQUAL TO THE FACTORED BEARING RESISTANCE DIVIDED BY THE BEARING RESISTANCE FACTOR FOR THAT ZONE.

3. TOTAL SETTLEMENT OF THE CSEW SYSTEM IS TO BE LIMITED TO 2 INCHES OR LESS OCCURRING WITHIN 30-DAYS AFTER THE SUPPORTED WALL AND EMBANKMENT REACHES FULL DESIGN HEIGHT (LESS COPING).

VII. AN ADDITIONAL 0.5 INCHES OF SETTLEMENT AFTER THE 30-DAY WAITING PERIOD IS ACCEPTABLE.

VIII. THE CONTRACTOR SHALL TAKE SURVEY SHOTS AT 50 FEET INTERVALS ALONG THE CENTERLINE OF CONSTRUCTION OF EMBANKMENTS AND ALONG THE EXPOSED FACE OF RETAINING WALLS SUPPORTED BY CSEW. THESE SHOTS SHALL BE TAKEN AT THE END OF THE 30-DAY WAITING PERIOD AND AGAIN 1 WEEK PRIOR TO BEGINNING PLACEMENT OF AGGREGATE BASE. THE SURVEY SHOTS SHALL BE PROVIDED TO THE DEPARTMENT AND WILL BE CONSIDERED INCIDENTAL TO THE CSEW PAY ITEMS. THE SURVEY DATA WILL BE USED TO CALCULATE ANY ADDITIONAL EMBANKMENT OR AGGREGATE BASE NEEDED TO ACCOUNT FOR 1 INCHES OR LESS OF SETTLEMENT. PAYMENT FOR EMBANKMENT OR AGGREGATE BASE NEEDED FOR SETTLEMENTS EXCEEDING 1 INCHES AT THE TIME OF PAVEMENT CONSTRUCTION WILL NOT BE MADE. THE CONTRACTOR WILL BE REQUIRED TO CONTINUE MONITORING THE SETTLEMENT UNTIL PROJECT CLOSE-OUT TO VERIFY THE MAXIMUM PERMISSIBLE SETTLEMENT IS NOT EXCEEDED. PAYMENT FOR CORRECTIVE REPAIRS NEEDED RESULTING FROM SETTLEMENT EXCEEDING 1 INCHES AFTER THE 30-DAY WAITING PERIOD WILL ALSO NOT BE MADE.

IX. WICK DRAINS MAY BE UTILIZED TO ACCELERATE THE TIME RATE OF SETTLEMENT.

4. MEASURE CSEW DIFFERENTIAL SETTLEMENT FOR COLUMN-SUPPORTED WALLS IN THE LONGITUDINAL DIRECTION (ALONG THE WALL FACING) AND IN THE TRANSVERSE DIRECTION (PERPENDICULAR TO THE WALL FACING).

I. MAXIMUM DIFFERENTIAL SETTLEMENT IS 0.5% FOR CONVENTIONAL MSE FACING PANELS AND 1.0% FOR SLIP-JOINTED PANELS.

II. MAXIMUM DIFFERENTIAL SETTLEMENT IS 0.2% FOR RIGID GRAVITY AND SEMIGRAVITY WALLS AND BRIDGE ABUTMENTS.

III. MAXIMUM DIFFERENTIAL SETTLEMENT IN THE TRANSVERSE DIRECTION IS 1.0%.

5. AT A MINIMUM, THE CONTRACTOR SHALL PROVIDE TWO SURVEY POINTS FOR EVERY 50 FEET ALONG THE EMBANKMENT ALIGNMENT, WITH ONE SURVEY POINT LOCATED ABOVE A COLUMN AND ONE SURVEY POINT LOCATED AT THE CENTROID OF A UNIT CELL FORMED BY THE CENTERS OF ADJACENT COLUMNS. DIFFERENTIAL SETTLEMENT BETWEEN UNIT CELL CENTROIDS AND ADJACENT CSEW COLUMNS SHALL NOT EXCEED 1.0%.

6. GLOBAL AND LOCAL STABILITY OF CSEW SYSTEMS SUPPORTING EMBANKMENTS AND WALLS SHALL EXCEED 1.3 FOR BOTH SHORT-TERM AND LONG-TERM CONDITIONS.

7. GLOBAL AND LOCAL STABILITY OF CSEW SYSTEMS SUPPORTING BRIDGES SHALL EXCEED 1.5 FOR BOTH SHORT-TERM AND LONG-TERM CONDITIONS.

8. PROVIDE A LTP, AS NECESSARY, TO LIMIT PENETRATION (PUNCHING) OF CSEW COLUMNS AND DIFFERENTIAL SETTLEMENT OF MSE WALLS AND EMBANKMENTS BETWEEN CSEW COLUMNS. IF A LTP IS NOT REQUIRED, PROVIDE A 1-FOOT LAYER OF ODOT C&MS ITEM 703.16.C.3 (GRANULAR MATERIAL TYPE C) COMPACTED PER ITEM 203 TO SUPPORT MSE LEVELING PADS, SPREAD FOOTINGS, AND EMBANKMENT MATERIALS.

9. THE CSEW SYSTEM AND CONSTRUCTION PROCESSES SHALL NOT CAUSE ANY ADDITIONAL LOADING, DETRIMENTAL SETTLEMENT, OR DAMAGE TO ADJACENT FACILITIES, UTILITIES, OR EMBANKMENTS.

B. THE DESIGN CONCEPT OF THE CSEW INVOLVES CONSTRUCTING A PATTERN OF COLUMNS USING AN ACCEPTED GROUND IMPROVEMENT TECHNIQUE OF CSEW COLUMNS. DESIGN THE CSEW SYSTEM TO EFFICIENTLY DISTRIBUTE EMBANKMENT AND WALL LOADS PLUS SURCHARGE LIVE AND DEAD LOADS. THE TYPE, NUMBER OF COLUMNS, SPACING, DIAMETER AND DEPTH SHALL BE DETERMINED BY THE CSEW CONTRACTOR AND CSEW DESIGNER. CSEW COLUMNS SHALL NOT BE LOCATED AT PROPOSED STRUCTURE PILE LOCATIONS.

C. THE CSEW DESIGN CONCEPT INCLUDES THE DESIGN OF LTP, INCLUDING SELECT FILL AND GENERAL EMBANKMENT FILL MATERIALS, NUMBER OF GEOSYNTHETIC REINFORCEMENT LAYERS, TYPE OF GEOSYNTHETIC REINFORCEMENT, AND PROPERTIES OF THE GEOSYNTHETIC REINFORCEMENT.

D. PRIOR TO SUBMITTING THE BID, THE CONTRACTOR AND CSEW DESIGNER SHALL REVIEW THE AVAILABLE SUBSURFACE INFORMATION AND VISIT THE SITE TO ASSESS SITE GEOMETRY, CSEW INSTALLATION METHOD VIABILITY, EQUIPMENT ACCESS CONDITIONS, AND LOCATION OF EXISTING STRUCTURES AND ABOVE GROUND UTILITIES AND FACILITIES.

1.2. GEOTECHNICAL ENGINEER' DESIGN CRITERIA FOR CSEW

THE PURPOSE OF THE GROUND IMPROVEMENT IS TO PROVIDE SUPPORT FOR THE FORWARD BRIDGE ABUTMENT, MSE WALLS AND ADJACENT EMBANKMENT. THE CSEW COLUMNS WILL EXTEND THROUGH THE VARIABLE FILL AND SURFICIAL COHESIVE SOILS AND BEAR IN THE UNDERLYING DENSE TO VERY DENSE GLACIAL GRANULAR SOILS AT ELEVATION 806.0 FEET OR BELOW. SEE SHEET P.328 FOR THE PLAN LIMITS OF THE GROUND IMPROVEMENT AREA.

1.3. VERIFICATION PROGRAM

A VERIFICATION PROGRAM DESIGNED, ACCOMPLISHED, AND REPORTED BY THE CONTRACTOR IS REQUIRED TO MEASURE THE QUALITY OF THE INSTALLED CSEW COLUMNS.

AT MINIMUM, THE VERIFICATION PROGRAM SHALL INCLUDE THE FOLLOWING:

A. PROPOSED MEANS AND METHODS FOR VERIFICATION THAT THE DESIGN AND PERFORMANCE CRITERIA AS STATED IN THIS NOTE AND THE GROUND IMPROVEMENT DETAILS HAVE BEEN SATISFIED. THIS SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, MODULUS OR LOAD TESTS ON INDIVIDUAL CSEW COLUMNS AND GROUPS, SOIL BORINGS, AND OTHER METHODS AS REQUIRED BY THE CSEW COLUMN DESIGNER.

B. A QUALITY CONTROL PROGRAM TO VERIFY THAT THE CSEW COLUMNS ARE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE REQUIREMENTS AS OUTLINED IN THIS NOTE AND THE GROUND IMPROVEMENT DETAILS. THE QUALITY CONTROL PROGRAM SHALL INCLUDE TESTING AND OBSERVATIONS BY AN INDEPENDENT TESTING LABORATORY AS REQUIRED IN THE CONTRACT DOCUMENTS.

C. A CSEW DEMONSTRATION COLUMN AND LOAD TESTING PROGRAM TO DEMONSTRATE INSTALLATION TECHNIQUES AND COMPLIANCE WITH THE PERFORMANCE CRITERIA. THE LOAD TEST PROGRAM SHALL INCLUDE THE INSTALLATION OF TYPICAL UNIT CELLS OF THREE OR MORE COLUMNS OF THE SIZE, TYPE AND SPACING SPECIFIED BY THE CSEW DESIGNER IN EACH STABILIZED ZONE IDENTIFIED IN SECTION 1.1.A.2. THE CSEW DESIGNER SHALL PRESCRIBE A LOAD TEST PROCEDURE FOR MEASURING THE PERFORMANCE OF THE CSEW COLUMNS (E.G. ASTM D1143 FOR PILE COLUMNS), SUBJECT TO ACCEPTANCE BY THE ENGINEER. THE TEST PROGRAM SHALL INCLUDE AT A MINIMUM:

1. MEASURE VERTICAL SURFACE DEFLECTIONS BOTH OVER THE TEST COLUMN AND BETWEEN TEST COLUMNS BY A SUITABLE METHOD.

2. COLUMNS SHALL HAVE SUFFICIENT STRENGTH AND STIFFNESS TO MEET OR EXCEED THE NOMINAL BEARING RESISTANCE CRITERIA IN EACH STABILIZED ZONE IDENTIFIED IN SECTION 1.1.A.2 AND TO SATISFY SETTLEMENT CRITERIA IN SECTION 1.1.A.1 AT A DESIGN STRESS EQUAL TO THE NOMINAL BEARING RESISTANCE. IN THE EVENT THAT TEST COLUMNS FAIL TO COMPLY WITH THE DESIGN REQUIREMENTS, THE CONTRACTOR SHALL INSTALL ADDITIONAL TEST COLUMNS AND CONDUCT ADDITIONAL TESTS AT NO COST TO THE DEPARTMENT.

3. ANY PLANNED DEVIATIONS FROM THESE LOAD TEST PROCEDURES SHALL BE DESCRIBED IN THE CONTRACTOR'S DESIGN SUBMITTAL, APPROVED BY THE DESIGNER, AND ACCEPTED BY THE ENGINEER.

4. THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS FOR THE LOAD TEST REACTION ELEMENTS INCLUDING DIAMETER, TYPE, REINFORCEMENT, AND DEPTH AS WELL AS THE REACTION FRAME AND BEAMS FOR REVIEW BY THE ENGINEER. THE CONTRACTOR SHALL DESIGN THE REACTION PILES AND FRAME FOR A MINIMUM ONE AND HALF TIMES THE MAXIMUM TEST LOAD. ALL SHOP DRAWINGS AND SUPPORTING SHOP DRAWING CALCULATIONS SHALL BE SIGNED AND SEALED BY PROFESSIONAL ENGINEER.

D. CSEW COLUMN PRODUCTION SHALL ONLY START UPON COMPLETION OF TWO LOAD TESTS AND AFTER THE ENGINEER ACCEPTS THE CSEW DESIGNER'S FINAL TIP ELEVATION, INSTALLATION CRITERIA, AND SPACING OF COLUMNS.

1.4. CSEW COLUMN TYPES AND MATERIALS

CSEW COLUMN TYPES MAY INCLUDE, BUT ARE NOT LIMITED TO:

1. STEEL H PILES
2. STEEL PIPE PILES
3. CONTINUOUS FLIGHT AUGER (CFA) PILES (A.K.A. AUGERCAST PILES)
4. AGGREGATE COLUMNS (A.K.A. STONE COLUMNS OR AGGREGATE PIERS)
5. RIGID INCLUSIONS (RI)
6. CONTROLLED MODULUS COLUMNS (CMC)
7. SOIL MIXING COLUMNS

OR OTHER COLUMN-SUPPORTED METHODS WITH THE APPROVAL OF THE ENGINEER. METHODS SUCH AS VIBRO COMPACTION THAT DENSIFY THE SURROUNDING SOIL ARE NOT ACCEPTABLE DUE TO POTENTIAL RAILROAD IMPACTS.

PART 2 MINIMUM CONTRACTOR QUALIFICATIONS:

2.1. THE CONTRACTOR CONSTRUCTING THE CSEW SYSTEM SHALL HAVE A MINIMUM 5+ YEARS EXPERIENCE INSTALLING GEOSYNTHETIC REINFORCEMENT AND THE COLUMN TYPE SUBMITTED IN THE CONTRACTOR'S BID PROPOSAL.

2.2. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR THREE RECENT, SUCCESSFUL GROUND IMPROVEMENT PROJECTS COMPLETED WITH SIMILAR SITE CONDITIONS AND IMPROVEMENT CRITERIA. THE CONTRACTOR SHALL PROVIDE NAMES AND CONTACT INFORMATION OF INDIVIDUALS WHO CAN ATTEST TO THE ADEQUACY OF THE WORK PERFORMED. THIS INFORMATION SHALL BE SUBMITTED IN THE CONTRACTOR'S BID PROPOSAL.

2.3. THE CONTRACTOR SHALL ASSIGN A MANAGER WHO HAS BEEN RESPONSIBLE FOR THE CSEW WORK ON AT LEAST THREE (3) PROJECTS. THE PROJECT MANAGER SHALL HAVE BEEN IN FULL-TIME EMPLOYMENT OF THE CONTRACTOR FOR AT LEAST TWO OF THOSE PROJECTS (PROVIDE A LIST OF PROJECTS AND DATES IN BID PROPOSAL). A DESIGNER THAT IS A CONSULTANT ON THIS PROJECT CANNOT BE THE PROJECT MANAGER.

2.4. THE CSEW SYSTEM SHALL BE DESIGNED BY THE DESIGNER, A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OHIO WITH EXPERIENCE IN THE DESIGN OF AT LEAST THREE SUCCESSFULLY COMPLETED CSEW PROJECTS OVER THE PAST FIVE YEARS. THE DESIGNER MAY BE EITHER AN EMPLOYEE OF THE CONTRACTOR OR A SEPARATE CONSULTANT DESIGN ENGINEER MEETING THE STATED EXPERIENCE REQUIREMENTS.

2.5. THE CONTRACTOR SHALL ASSIGN A FULL-TIME PROJECT SUPERINTENDENT WITH AT LEAST THREE (3) YEARS EXPERIENCE IN CSEW CONSTRUCTION AND WHO HAS BEEN RESPONSIBLE FOR A MINIMUM OF THREE (3) CSEW PROJECTS (PROVIDE A LIST OF PROJECTS AND DATES IN BID PROPOSAL).

2.6. WRITTEN REQUESTS FOR SUBSTITUTION OF THESE KEY PERSONNEL SHALL BE SUBMITTED PRIOR TO PERSONNEL CHANGES. DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER THAT DEMONSTRATES THAT THE SUBSTITUTE MEETS THE REQUIREMENTS LISTED ABOVE.

REFERENCES

- A. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020 (AASHTO LRFD), AND AASHTO LRFD CONSTRUCTION SPECIFICATIONS, 4TH EDITION, 2017, WITH 2020 INTERIMS.
- B. FHWA NHI-16-027 AND 028, FHWA GEC 013 GROUND IMPROVEMENT METHODS: REFERENCE MANUAL VOLUMES I & II, APRIL 2017.
- C. FHWA-NHI-16-009, FHWA GEC 012: DESIGN AND CONSTRUCTION OF DRIVEN PILE FOUNDATIONS VOLUMES I & II, 2016.
- D. FHWA-RD-83-026 DESIGN AND CONSTRUCTION OF STONE COLUMNS, VOL. 1.
- E. FHWA NHI-06-089 SOILS AND FOUNDATIONS REFERENCE MANUAL VOLUMES I & II, 2006.
- F. FHWA GEC NO. 8 DESIGN AND CONSTRUCTION OF CONTINUOUS FLIGHT AUGER PILES, 2007.
- G. ASTM D4595 STANDARD TEST METHOD FOR TENSILE PROPERTIES OF GEOTEXTILES BY THE WIDE-WIDTH STRIP METHOD.
- H. ASTM D5262 STANDARD TEST METHOD FOR DETERMINING THE UNCONFINED TENSION CREEP AND CREEP RUPTURE BEHAVIOR OF PLANAR GEOSYNTHETICS USED FOR REINFORCEMENT PURPOSES.
- I. ASTM D6637 STANDARD TEST METHOD FOR DETERMINING TENSILE PROPERTIES OF GEOGRIDS BY THE SINGLE OR MULTI-RIB TENSILE METHOD.

PART 3 - EQUIPMENT

3.1. THE EQUIPMENT REQUIRED FOR COLUMN INSTALLATION WILL VARY DEPENDING ON THE COLUMN TYPE. EQUIPMENT FOR COLUMN INSTALLATION SHALL MEET FHWA CRITERIA FOR THE TYPE OF COLUMN SELECTED.

3.2. EQUIPMENT FOR FILL AND GEOSYNTHETIC REINFORCEMENT PLACEMENT SHALL NOT CAUSE EXCESSIVE LOADS OR SETTLEMENT TO THE SOFT GROUND BETWEEN COLUMNS.

CUY-14-6.93

MODEL: WD303A PAPER SIZE: 34x22 (in.) DATE: 2/14/2025 TIME: 11:38:19 AM USER: evan.mutch pw:\aecom-na-pw.bentley.com\AECOM_DS20_NA_2019\Documents\60581903-CUY-14-6.93\104132\400-Engineering\Structures\MSE Walls\Sheets\104132_WD303.dgn

GROUND IMPROVEMENT PLAN DETAIL
BRIDGE NO. CUY-00014-06.930
BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 02/10/25	
PROJECT ID	
104132	
SUBSET	TOTAL
3	25
SHEET	TOTAL
P.324	399

ITEM 203 - ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS CONT.

PART 4 - MATERIALS REQUIREMENTS:

- 4.1. FOR CMC, RI, VCC, AND SOIL MIXING COLUMNS, PROVIDE MATERIALS FOR CEMENTITIOUS GROUT OR CAST-IN-PLACE CONCRETE CONFORMING TO C&MS 499.02. THE GROUT OR CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH (F'C) OF 4,000 POUNDS PER SQUARE INCH (PSI). A MINIMUM OF 30 DAYS BEFORE PLACEMENT, SUBMIT TO THE ENGINEER FOR ACCEPTANCE THE MIX PROPORTIONS FOR EACH MIXTURE AND 28 DAY COMPRESSIVE STRENGTH RESULTS FROM AN AASHTO ACCREDITED LABORATORY. BATCH CONCRETE AND GROUT MATERIALS IN ACCORDANCE WITH C&MS 499.06. SAMPLES FOR COMPRESSIVE STRENGTH TESTING SHALL BE TAKEN BY A 3RD PARTY AASHTO ACCREDITED LABORATORY PRIOR TO PUMPING. ONE COMPRESSIVE STRENGTH SAMPLE SHALL BE OBTAINED PER 50 CY OF MATERIAL PLACED. PERFORM COMPRESSIVE STRENGTH TESTING OF CONCRETE IN ACCORDANCE WITH ASTM C39. PERFORM COMPRESSIVE STRENGTH TESTING OF GROUT IN ACCORDANCE WITH ASTM C109, EXCEPT USING THE MATERIAL PROPORTIONS BATCHED, OR BY USING 3"x 6" CYLINDERS TESTED IN ACCORDANCE WITH ASTM C39. THE DEPARTMENT MAY MAKE CYLINDERS TO VERIFY THE 3RD PARTY LABORATORY RESULTS. EARTHWORK WITHIN THE IMMEDIATE VICINITY OF THE COLUMNS MAY PROCEED A MINIMUM OF 7 DAYS AFTER CSEW COLUMN INSTALLATION, AFTER VERIFICATION THAT GROUT OR CONCRETE HAS REACHED 80% OF DESIGN COMPRESSIVE STRENGTH.
- 4.2. FOR LTP, WP, AND AGGREGATE COLUMNS, PROVIDE CCS CONFORMING TO C&MS 703. THE CCS FOR LTP AND WP IS HEREIN DEFINED AS "SELECT FILL."
- 4.3. FOR STEEL H PILES OR STEEL PIPE PILES, PROVIDE AND INSTALL PILES IN ACCORDANCE WITH C&MS 507.
- 4.4. FOR CFA PILES, PROVIDE AND INSTALL PILES IN ACCORDANCE WITH SS893, CONTINUOUS FLIGHT AUGER PILES.
- 4.5. FOR GEOSYNTHETIC REINFORCEMENT, PROVIDE GEOTEXTILE FABRIC CONFORMING TO 712.09, TYPE D; PROVIDE GEOGRID CONFORMING TO C&MS 712.15.

PART 5 - SUBMITTALS

- 5.1. FOLLOWING AWARD OF THE CONTRACT AND PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT HARD AND SOFT COPIES OF THE DOCUMENTS LISTED UNDER SUBMITTALS TO ODOT A MINIMUM OF 30-DAYS PRIOR TO ANY MOBILIZATION OF EQUIPMENT, THE ORDERING OF ANY MATERIALS, OR INSTALLATION OF THE CSEW. THE ENGINEER SHALL REVIEW THE SUBMITTED ITEMS FOR CONFORMANCE WITH THE PERFORMANCE SPECIFICATION. THE CONTRACTOR SHALL ALLOW A MINIMUM OF 30-DAYS FOR THE REVIEW OF THE INITIAL SUBMISSION AND SHALL ALSO ACCOUNT FOR THE SUBSEQUENT REVIEW AND ACCEPTANCE PROCESS WHICH WILL DEPEND ON THE ACCURACY AND QUALITY OF THE SUBMITTED DOCUMENTS.
- 5.2. SUBMITTALS
 - A. PROPOSED CSEW CONSTRUCTION SEQUENCE AND SCHEDULE.
 - B. ENGINEERED CONSTRUCTION DRAWINGS, WHICH SHALL:
 - 1. SHOW THE COLUMN TYPE, COLUMN LAYOUT, COLUMN SIZE, SPACING OF COLUMNS, THE COLUMN LOCATION, THE TOP AND BOTTOM ELEVATIONS OF EACH COLUMN, AND THE DEPTH OF COLUMNS AS PROPOSED TO ACHIEVE THE CRITERIA OUTLINED IN THIS SPECIFICATION AND THE CONTRACT PLANS.
 - 2. EACH COLUMN SHALL BE IDENTIFIED WITH A UNIQUE REFERENCE NUMBER.
 - 3. SHOW EXISTING UTILITY LOCATIONS AND ADDRESS ANY POTENTIAL CONFLICTS.
 - 4. SHOW LOCATIONS OF ALL SURVEY MARKERS.
 - 5. PROVIDE DETAILS OF THE SELECT FILL, GEOSYNTHETIC REINFORCEMENT, AND EMBANKMENT FILL DETAILS (MATERIAL TYPES, ELEVATIONS, GEOSYNTHETIC REINFORCEMENT, ETC.).
 - 6. BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OHIO.
 - 7. BE ON-SITE AT ALL TIMES DURING CONSTRUCTION. THIS INCLUDES THE ENGINEERED CONSTRUCTION DRAWINGS AND CONTRACT SPECIFICATIONS.
 - C. DESCRIPTION OF THE EQUIPMENT AND CONSTRUCTION PROCEDURES TO BE USED, INCLUDING A PLAN TO DISPOSE OF ANY WATER OR SPOILS IF APPLICABLE.
 - D. A DETAILED WRITTEN PROCEDURE OF PLANS TO PROTECT ADJACENT FACILITIES AND EMBANKMENTS FROM DAMAGE, INCLUDING DESIGN CALCULATIONS. ADJACENT EXISTING STRUCTURES AND PAVEMENT SHALL REMAIN IN SERVICE AT ALL TIMES, EXCEPT WHEN CLOSED PER MOT REQUIREMENTS.

- E. PROPOSED PLAN FOR QUALITY CONTROL THROUGHOUT THE INSTALLATION PROCEDURE. THIS PLAN SHALL ADDRESS ISSUES SUCH AS CONTROL AND MEASUREMENT OF COLUMN DIAMETER, LIFT THICKNESS, AND ANY OTHER PERTINENT INFORMATION.
- F. PROPOSED VERIFICATION PROGRAM, INCLUDING PROPOSED INDEPENDENT TESTING AGENCY TO BE USED. SEE SECTION 1.3 (VERIFICATION PROGRAM).
- G. PROPOSED MONITORING PLAN OF PRE-INSTALLATION PERFORMANCE AND POST-INSTALLATION PERFORMANCE OF EXISTING STRUCTURES, EMBANKMENTS AND CSEW SYSTEM
- H. CALCULATIONS FOR ANTICIPATED SETTLEMENTS, BEARING RESISTANCE, AND OTHER DESIGN CALCULATIONS RELATING TO PERFORMANCE OF THE CSEW COLUMN AND REQUIRED COMPOSITE SOIL PARAMETERS.
- I. ANY OTHER REQUIRED INFORMATION FOR THE CSEW SYSTEM.
- J. SUBMIT CALIBRATION RECORDS FOR LOAD CELLS, HYDRAULIC JACKS, PUMPS AND PRESSURE GAUGES AT LEAST 7 DAYS PRIOR TO PERFORMING THE LOAD TESTS.
 - 1. SUBMIT THE FOLLOWING TO THE ENGINEER AFTER THE LOAD TESTS ARE COMPLETED:
 - a. A REPORT DOCUMENTING THE OBSERVATIONS AND RESULTS OF ALL TESTS. THE REPORT WILL CERTIFY THAT THE REQUIRED BEARING RESISTANCE HAS BEEN ACHIEVED WITHIN THE SETTLEMENT TOLERANCES AS DETAILED IN SECTION 1.1 (PERFORMANCE CRITERIA).
 - b. AS-BUILT DRAWINGS INDICATING THE LOCATION, DIAMETER, TOP AND BOTTOM ELEVATIONS, AND IDENTIFICATION NUMBER FOR EACH CSEW COLUMN.
- K. LTP SUBMITTALS:
 - 1. GRADATION, ATTERBERG LIMITS, AND THE RESULTING ODOT/AASHTO CLASSIFICATION FOR ALL FILL MATERIALS USED.
 - 2. THE CONTRACTOR SHALL SUBMIT A CERTIFICATE STATING THAT THE GEOSYNTHETIC REINFORCEMENT MEETS THE DESIGN REQUIREMENTS FOR ULTIMATE STRENGTH, CREEP, DURABILITY, INSTALLATION DAMAGE, AND COEFFICIENT OF INTERACTION FOR SLIDING IN ACCORDANCE WITH THE DESIGN SUBMITTAL.
 - 5.3. DAILY REPORTS
 - DURING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT ONE COPY OF DAILY PROGRESS REPORTS IN WRITING TO ODOT DETAILING THE FOLLOWING AT A MINIMUM:
 - A. CSEW COLUMN IDENTIFIED BY LOCATION NUMBER
 - B. DATE CONSTRUCTED
 - C. ELEVATION OF TOP AND BOTTOM OF EACH COLUMN
 - D. AVERAGE LIFT THICKNESS
 - E. ESTIMATE OF GROUND HEAVE OR SUBSIDENCE
 - F. VIBRATOR POWER CONSUMPTION DURING PENETRATION AND COMPACTION OF EACH INCREMENT OF COLUMN CONSTRUCTED
 - G. JETTING PRESSURE (AIR OR WATER)
 - H. DESCRIPTION OF SOIL AND GROUNDWATER CONDITIONS
 - I. DETAILS OF OBSTRUCTIONS, DELAYS, AND ANY UNUSUAL GROUND CONDITIONS
 - J. QUANTITY OF GROUT PLACED IN EACH COLUMN
 - K. AMOUNT OF WATER USED PER COLUMN (IF APPLICABLE)
 - L. RESULTS OF QUALITY CONTROL TESTING.
 - 5.4. FINAL REPORTS
 - UPON COMPLETION OF THE CSEW, THE CONTRACTOR SHALL SUBMIT A REPORT TO ODOT DETAILING THE PERFORMANCE OF THE SITE DURING TREATMENT, AND THAT THE SITE MEETS THE CRITERIA ESTABLISHED FOR THE SITE AND PROJECT.
 - 5.5. ACCEPTANCE OF THE PROPOSED DESIGN AND CONSTRUCTION METHODOLOGIES SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR THE SAFETY OF THE METHOD OR EQUIPMENT USED OR THE RESPONSIBILITY OF CARRYING OUT THE WORK IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
 - 5.6. THE CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS TO THE ENGINEER NO-LATER-THAN 30-DAYS FOLLOWING COMPLETION OF CONSTRUCTION.

PART 6 SPOIL HANDLING REQUIREMENTS

MAINTAIN RECORDS (SUCH AS MANIFESTS, LANDFILL TICKETS, DAILY LOGS, ETC.) TO DOCUMENT THE SOURCE, MOVEMENT AND DESTINATION OF EACH TRUCKLOAD OF SOLID WASTE OR REGULATED MATERIAL. ALL TRANSPORT VEHICLES USED FOR THE MOVEMENT OF REGULATED MATERIALS SHALL MEET ALL APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS. ONE COPY OF EACH RECORD SHALL BE SUBMITTED TO THE ENGINEER.

PART 7 CSEW CONSTRUCTION AND QC/QA REQUIREMENTS

7.1. PRE-CONSTRUCTION MEETING:

A PRE-CONSTRUCTION MEETING SHALL BE HELD AT LEAST FIVE WORKING DAYS PRIOR TO MOBILIZING EQUIPMENT TO THE PROJECT SITE AND PRIOR TO THE CONTRACTOR BEGINNING ANY CSEW COLUMN INSTALLATION WORK AT THE SITE TO DISCUSS CONSTRUCTION PROCEDURES, PERSONNEL, QUALITY CONTROL, AND EQUIPMENT TO BE USED. THOSE ATTENDING SHALL INCLUDE THE ENGINEER, THE CONTRACTOR, THE DESIGNER, THE SUPERINTENDENT, ON-SITE SUPERVISORS, INDEPENDENT TESTING AGENCY REPRESENTATIVE, AND ALL FOREMEN IN CHARGE OF CSEW COLUMN INSTALLATION OPERATIONS, AS WELL AS ODOT AND THEIR KEY INSPECTION PERSONNEL. AT THE MEETING, THE COLUMN INSTALLATION MEANS/METHODS, OBSERVATION, ACCEPTANCE/REJECTION PROCEDURES, TESTING AND CSEW CONSTRUCTION PROCEDURES SHALL BE DISCUSSED AND FORMALIZED. IF THE CONTRACTOR'S KEY PERSONNEL CHANGE OR IF THE CONTRACTOR PROPOSES A SIGNIFICANT REVISION OF THE INSTALLATION PLAN, AN ADDITIONAL MEETING SHALL BE HELD BEFORE ANY ADDITIONAL WORK IS PERFORMED.

7.2. THE CONTRACTOR SHALL PROVIDE ENGINEERED DRAWINGS AND ALL REQUIRED SUBMITTALS IN ACCORDANCE WITH PART 5.

7.3. SITE PREPARATION

A. THE CONTRACTOR SHALL ENSURE A FIRM WP ON WHICH HEAVY EQUIPMENT CAN BE OPERATED SAFELY UNDER ITS OWN POWER. THE WP SHALL COMPLY WITH ITEM 203.

B. THE CONTRACTOR SHALL ACCURATELY LOCATE THE LIMITS OF COLUMN INSTALLATION AND EMBANKMENT EXTENTS IN ACCORDANCE WITH THE CONTRACT PLANS.

C. THE CONTRACTOR SHALL EXERCISE CAUTION TO AVOID SETTLEMENT OR DAMAGE TO EXISTING FACILITIES AND SETTLEMENT, UNDERMINING, OR INSTABILITY TO EXISTING EMBANKMENTS.

D. STABILITY OF ALL THE TEMPORARY SHEETING AND TEMPORARY SLOPES, IF USED TO FACILITATE INSTALLATION OF THE COLUMNS, IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS ACTIVITIES AT NO ADDITIONAL COST TO THE DEPARTMENT.

E. THE CONTRACTOR SHALL EXERCISE CAUTION AND ACCOUNT FOR THE TEMPORARY INSTABILITY THAT MAY BE CAUSED BY GROUND IMPROVEMENT UNTIL THE GROUND IMPROVEMENT FEATURES GAIN STRENGTH WITH TIME.

7.4. CSEW COLUMN CONSTRUCTION

A. INSTALL CSEW COLUMNS TO THE SPECIFIED INSTALLATION REQUIREMENTS DEVELOPED FROM THE INSTALLATION OF DEMONSTRATION COLUMNS AND THE RESULTS OF LOAD TESTS. PERFORM LOAD TESTS IN ACCORDANCE WITH SECTION 1.3 VERIFICATION PROGRAM.

B. IN AREAS NEAR ABUTMENTS WHERE PILES ARE REQUIRED, THE CONTRACTOR SHALL COORDINATE THE LOCATION OF THE CMC TO AVOID PLACING A CMC BELOW A PILE.

7.5. CSEW COLUMN TOLERANCE

A. THE CSEW DESIGNER SHALL SPECIFY IN THE CONTRACTOR'S SUBMITTAL THE ALLOWABLE TOLERANCES FOR:

- 1. COLUMN VERTICALITY
- 2. HORIZONTAL TOLERANCE FROM PLAN LOCATION
- 3. VERTICAL TOLERANCE FROM COLUMN TOP
- 4. ACCEPTABLE CONDITION OF COLUMN TOPS PRIOR TO INSTALLATION OF THE LTP
- 5. MINIMUM COLUMN DIMENSIONS
- 6. COLUMN OVERLAP REQUIREMENTS, IF APPLICABLE
- 7. MINIMUM STRENGTH REQUIREMENTS OF COLUMN MATERIALS
- 8. MATERIAL PROPERTIES, AS INCORPORATED INTO THE COLUMNS
- 9. OTHER ITEMS, AS REQUIRED PER ODOT C&MS

B. BEFORE BEGINNING INSTALLATION, THE CONTRACTOR SHALL ACCURATELY STAKE THE LOCATION OF THE CSEW COLUMNS USING A LICENSED SURVEYOR. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE METHOD FOR LOCATING COLUMNS TO ALLOW THE ENGINEER TO VERIFY THE AS-BUILT LOCATION OF THE COLUMNS DURING CONSTRUCTION. THE CONTRACTOR WILL NOT BE COMPENSATED FOR COLUMNS THAT ARE LOCATED OUTSIDE OF THE SPECIFIED TOLERANCES. IF THE ENGINEER DETERMINES THAT MISALIGNED COLUMNS WILL INTERFERE WITH CONSTRUCTION, A METHOD OF CORRECTION SHALL BE PREPARED BY THE CSEW DESIGNER AND SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND ACCEPTANCE.

C. CSEW COLUMNS INSTALLED BEYOND THE MAXIMUM ALLOWABLE TOLERANCES SHALL BE ABANDONED AND REPLACED WITH NEW COLUMNS, UNLESS THE DESIGNER APPROVES THE CONDITION OR PRESCRIBES OTHER REMEDIAL MEASURES TO BE COMPLETED BY CONTRACTOR AND CSEW DESIGNER. ALL MATERIAL AND LABOR REQUIRED TO REPLACE OR REMEDY REJECTED COLUMNS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE DEPARTMENT. REMEDIAL MEASURES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE.

7.6. AS-BUILT COLUMN INSTALLATION RECORDS

A. THE CONTRACTOR SHALL SUBMIT AS-BUILT FIELD MEASUREMENT DATA INDICATING SURVEYED AS-BUILT PLAN LOCATIONS OF EACH CSEW COLUMN, INCLUDING THE COLUMN CENTER (PER SITE SPECIFIC COORDINATES), THE COLUMN DIMENSION, THE COLUMN VERTICALITY, AND THE TOP AND BOTTOM ELEVATIONS OF EACH COLUMN, MEASURED TO THE ACCURACY REQUIRED BY THE PROJECT SPECIFICATIONS.

B. THE AS-BUILT DOCUMENTATION SHALL BE APPROVED BY THE DESIGNER AND SUBMITTED TO THE ENGINEER NO LATER THAN 90 DAYS AFTER THE COMPLETION OF EACH CSEW-STABILIZED ZONE.

C. A DISINCENTIVE OF \$500 PER DAY WILL BE ASSESSED FOR EACH DAY BEYOND 90 DAYS THAT THE COMPLETED AS-BUILT DRAWINGS ARE NOT SUBMITTED TO THE ENGINEER.

7.7. SELECT FILL PLACEMENT AND QC/QA REQUIREMENTS (LTP AND WP)

A. NO GEOSYNTHETIC REINFORCEMENT OR FILL MATERIALS SHALL BE PLACED PRIOR TO SATISFYING THE COLUMN PERFORMANCE CRITERIA, UNLESS THE FILL MATERIAL IS REQUIRED AS A WP FOR COLUMN INSTALLATION.

B. INSTRUMENTATION FOR MONITORING OF EXISTING STRUCTURES AND EMBANKMENTS SHALL BE INSTALLED PRIOR TO INSTALLATION OF CSEW COLUMNS, SELECT FILL, OR GEOSYNTHETIC REINFORCEMENT. INSTRUMENTATION FOR PERFORMANCE MEASUREMENTS SHALL BE INSTALLED AFTER THE PLACEMENT OF ANY SELECT FILL OR GEOSYNTHETIC REINFORCEMENT.

C. PRIOR TO CONSTRUCTION OF THE LTP, THE CONTRACTOR SHALL PREPARE THE FOUNDATION SOILS AT THE DESIGNATED BEARING LEVEL AND REMOVE ANY DELETERIOUS MATERIALS SUCH AS TREE ROOTS. THE FOUNDATION SOIL SHALL BE OBSERVED AND APPROVED BY THE ENGINEER PRIOR TO PLACEMENT OF SELECT FILL.

D. IF CEMENTITIOUS GROUND IMPROVEMENT METHODS ARE USED, PLACEMENT OF FILL MATERIAL SHALL NOT START UNTIL THE COLUMNS HAVE GAINED ADEQUATE STRENGTH TO SUPPORT THE FILL MATERIALS AND FILL INSTALLATION AND CONSTRUCTION EQUIPMENT.

E. FOR HEAVY COMPACTION EQUIPMENT, SELECT FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 10 IN. IN UNCOMPACTED THICKNESS. FOR ZONES WHERE COMPACTION IS ACCOMPLISHED WITH HAND-OPERATED COMPACTION EQUIPMENT, FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 6 IN. IN UNCOMPACTED THICKNESS.

F. SELECT FILL SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH ITEM 203. THIS MAY NOT BE ACHIEVABLE FOR THE FIRST LIFT OF FILL BECAUSE OF THE WEAK SOILS BETWEEN COLUMNS, HOWEVER, SUBSEQUENT LIFTS SHALL MEET THE MINIMUM REQUIREMENTS.

G. DURING PLACEMENT OF THE LTP AND WP, HAVE GRADATION TESTING COMPLETED BY AN INDEPENDENT TESTING AGENCY TO ENSURE THAT THE LTP AND WP MEETS THE SPECIFICATION AND IS CONSISTENT. COMPLETE GRADATION TESTING AT THE FREQUENCY DESCRIBED IN THE PROJECT SPECIFICATIONS OR AT A MINIMUM FREQUENCY OF ONE (1) TEST PER 1,500 CUBIC YARDS.

H. PRIOR TO PLACEMENT OF THE LTP, RE-COMPACT THE WP. PLACE, COMPACT, AND TEST THE WP TO THE SAME STANDARDS AS THE LTP.

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7.8. GEOSYNTHETIC REINFORCEMENT PLACEMENT AND QC/QA REQUIREMENTS

- A. PLACE GEOSYNTHETIC REINFORCEMENT AT THE LOCATIONS AND ELEVATION SHOWN ON THE CONTRACTOR'S ENGINEERED DRAWINGS. NO CHANGES TO THE GEOSYNTHETIC REINFORCEMENT LAYOUT, INCLUDING, BUT NOT LIMITED TO LENGTH, REINFORCEMENT TYPE, REINFORCEMENT STRENGTH, DIRECTION OF REINFORCEMENT, OR ELEVATION SHALL BE MADE WITHOUT THE EXPLICIT WRITTEN APPROVAL OF THE DESIGNER. THE CONTRACTOR SHALL SUBMIT THE CHANGES TO THE ENGINEER FOR ACCEPTANCE.
- B. CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOSYNTHETIC REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED FOR OPERATION OF VEHICLES OVER THE GEOSYNTHETIC REINFORCEMENT. TURNING OF VEHICLES ON THE FILL SHALL BE KEPT TO A MINIMUM TO PREVENT TRACKS OR TIRES FROM DISPLACING THE FILL AND GEOSYNTHETIC REINFORCEMENT.
- C. MINIMUM OVERLAP OF ADJACENT ROLLS OF GEOSYNTHETIC REINFORCEMENT SHALL BE AS INDICATED BY THE DESIGNER OF THE ENGINEERED DRAWINGS.
- D. EACH ROLL OF GEOSYNTHETIC REINFORCEMENT SHALL BE INSPECTED BY THE CONTRACTOR TO ENSURE THAT IT IS UNDAMAGED PRIOR TO COVERING WITH FILL MATERIAL.
- E. PREVENT EXCESSIVE MUD, WET CONCRETE, EPOXY, OR OTHER DELETERIOUS MATERIALS FROM COMING IN CONTACT WITH AND AFFIXING TO THE GEOGRID MATERIALS.
- F. GEOSYNTHETIC REINFORCEMENT SHALL BE STORED AT TEMPERATURES RECOMMENDED BY THE MANUFACTURER.
- G. GEOSYNTHETIC REINFORCEMENT SHALL NOT BE LEFT DIRECTLY EXPOSED TO SUNLIGHT FOR A PERIOD LONGER THAN RECOMMENDED BY THE MANUFACTURER OR ONE MONTH WHICHEVER IS SHORTER.
- H. ANY ROLL OR PORTION OF A ROLL OF GEOSYNTHETIC REINFORCEMENT DAMAGED BEFORE, DURING, OR AFTER INSTALLATION SHALL BE REPLACED BY THE CONTRACTOR.
- I. STOCKPILES OF FILL MATERIAL SHALL NOT BE PLACED ON THE GEOSYNTHETIC REINFORCEMENT.
- J. IF GEOTEXTILE SEAMS ARE SPECIFIED, THE SEAMS SHALL BE PLACED UP AND EVERY STITCH SHALL BE INSPECTED.
- K. THE CONTRACTOR SHALL REMOVE SLACK AND WRINKLES FROM THE GEOSYNTHETIC REINFORCEMENT PRIOR TO PLACING FILL.
- L. THE CONTRACTOR SHALL SUBMIT THE LOT NUMBERS AND ROLL NUMBERS ALONG WITH THEIR LOCATIONS WITHIN THE EMBANKMENT FOR ALL GEOSYNTHETIC REINFORCEMENT.

PART 8. POST-INSTALLATION PERFORMANCE MONITORING INSTRUMENTATION

- 8.1. POST-INSTALLATION PERFORMANCE MONITORING INSTRUMENTATION: TEN (10) SETS OF CSEW PERFORMANCE MONITORING INSTRUMENTATION SHALL BE INSTALLED. THIS INSTRUMENTATION WILL BE PLACED TO MONITOR THE PERFORMANCE OF THE CSEW SYSTEM AFTER IT HAS BEEN SUCCESSFULLY CONSTRUCTED AND IS SUBJECT TO CONSTRUCTION LOADING AND SUBSEQUENT SERVICE LOADING. THE INSTALLATION MAY BE PERFORMED BY THE PRIME CONTRACTOR, CSEW CONTRACTOR, AN INSTRUMENTATION SUBCONTRACTOR, OR CONSULTANT (OR IN WHOLE OR IN PART BY COMBINATIONS THEREOF). IMPORTANT NOTE: IN THE EVENT THAT THIS QA MONITORING WORK IS NOT TO BE COORDINATED OR PERFORMED BY THE CSEW CONTRACTOR, THE CSEW CONTRACTOR SHALL SPECIFICALLY COORDINATE THIS WORK AND SUBMIT A WORK PLAN TO THE ENGINEER PRIOR TO INITIATING THE CSEW WORK.
 - A. THE INSTRUMENT SHALL BE INSTALLED AS DESCRIBED IN THE FOLLOWING SUBSECTIONS, IN AREAS TO BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER SUCH THAT CONSTRUCTION INTERFERENCE AND THE POTENTIAL FOR DAMAGE IS MINIMIZED. THE INSTALLATIONS SHALL ALSO BE PLACED SUCH THAT DATA MAY CONTINUE TO BE ACQUIRED ONCE THE FACILITY HAS BEEN PLACED IN SERVICE. DETAILS OF THE EXACT INSTALLATION LOCATIONS WILL BE DETERMINED AT THE PRE-CONSTRUCTION MEETING.
 - B. MINIMUM INSTRUMENTATION PROVIDED BY THE CONTRACTOR IS TO CONSIST OF SETTLEMENT PLATES, TO BE INSTALLED ON TOP OF THE LTP.

- C. RECORD INSTRUMENTATION DATA FROM THE TIME OF INSTALLATION (END OF CSEW CONSTRUCTION) UNTIL 30-DAYS AFTER THE WALLS REACH THEIR FINAL PLAN ELEVATION (LESS COPING AND PAVEMENTS). READINGS SHALL BE TAKEN TWICE WEEKLY DURING WALL AND EMBANKMENT FILL PLACEMENT AND AT INTERVALS NOT TO EXCEED 15 CALENDAR DAYS AT OTHER TIMES. DATA FROM ALL SENSORS SHALL BE READ IN A UNIFORM MANNER, SUCH THAT ALL DATA IS TAKEN WITHIN A 2-DAY PERIOD AT THE PRESCRIBED INTERVALS TO AID IN THE EVALUATION OF THE DATA AND SUBSEQUENT PRESENTATION OF RESULTS.
- D. IF THE WALLS SUPPORTED OVER THE CSEW COLUMNS HAVE COMPLETED SETTLEMENT IN ACCORDANCE WITH THE PERFORMANCE CRITERIA (AS DEFINED IN 1.1.A.6) WITHIN 30-DAYS OF SUBSTANTIAL WALL COMPLETION, THE CONTRACTOR MAY TURN OVER FURTHER MONITORING OF THE DATA TO THE DEPARTMENT. IF THE WALLS HAVE NOT COMPLETED SETTLEMENT IN ACCORDANCE WITH THE PERFORMANCE CRITERIA, THE CONTRACTOR SHALL CONTINUE MONITORING EFFORTS (AT NO ADDITIONAL COST TO THE DEPARTMENT) AS DIRECTED BY THE ENGINEER.
- E. INSTRUMENTATION SHALL BE INSTALLED AFTER THE CONSTRUCTION OF THE CSEW COLUMNS AND PRIOR TO WALL CONSTRUCTION OR EMBANKMENT FILL PLACEMENT. A MINIMUM OF 2 SETS OF BASELINE READINGS SHALL BE TAKEN AND CONFIRMED PRIOR TO THE CONSTRUCTION OF WALLS OR EMBANKMENTS ABOVE THE INSTALLED CSEW CONSTRUCTION.
- F. INSTRUMENTATION SHALL BE ELECTRONIC AND SELF-RECORDING, WHERE PRACTICAL. READINGS FROM SENSORS SHALL BE TAKEN WITH AUTOMATED DATA COLLECTION SYSTEMS. ANY PARTICULAR INSTRUMENT TYPE SHALL BE OBTAINED FROM THE SAME MANUFACTURER TO MINIMIZE POTENTIAL INCOMPATIBILITIES AND ERRORS. DATA ACQUISITION DEVICES (DATA LOGGERS) SHALL BE OF A TYPE COMPATIBLE WITH EACH TYPE OF INSTRUMENTATION AND RECOMMENDED BY THE MANUFACTURER.
- G. INSTRUMENTATION SHALL BE PROVIDED WITH CALIBRATION CERTIFICATES FROM THE MANUFACTURER, AS APPROPRIATE.
- H. ALL INSTRUMENTATION AND ASSOCIATED MONITORING AND DATA COLLECTION DEVICES (PROBES, CABLES, DATA COLLECTORS, ETC.) BECOME THE PROPERTY OF THE DEPARTMENT AT THE END OF THE MONITORING PERIOD. ELECTRONIC FILES AND ALL DATA REPORTS SHALL BE PROVIDED TO THE DEPARTMENT AT THE END OF THE MONITORING PERIOD.
- I. THE DEPARTMENT RESERVES THE RIGHT TO PUBLISH THE INFORMATION FROM THE MONITORING INVESTIGATION IN INTERNAL AND EXTERNAL TECHNICAL PUBLICATIONS.
- J. THE ENGINEER MAY USE THE PERFORMANCE MONITORING INSTRUMENTATION AND ASSOCIATED DATA COLLECTION AND ANALYSIS AS A BASIS OF MEASUREMENT OF PERFORMANCE CRITERIA FOR THE DETERMINATION OF SUCCESSFUL INSTALLATION OF THE CSEW APPLICATION.
- K. INSTRUMENTS SHALL MEET ACCEPTED INDUSTRY STANDARDS AND HAVE AN ACCURACY OF +/- 0.5% WITH A MINIMUM PRECISION OF +/- 0.5% OF FULL SCALE (SPAN).
- L. INSTRUMENTS SHALL HAVE APPROPRIATE RUGGEDNESS TO SURVIVE INSTALLATION AND CONSTRUCTION PROCESSES SUCH THAT THEY READ WITH THE MINIMUM PRECISION AND ACCURACY OVER THE DURATION OF CONSTRUCTION AND A MINIMUM OF EIGHTEEN (18) MONTHS OF SERVICE FOLLOWING CONSTRUCTION.
- M. INSTRUMENTATION SHALL HAVE AN OPERATING TEMPERATURE RANGE AS APPROPRIATE FOR CONDITIONS ANTICIPATED WHERE INSTALLED (I.E. WITHIN OR ABOVE A CSEW COLUMN).
- N. CABLING TO EACH SENSOR (REQUIRING CABLING) SHALL BE INCLUDED SUCH THAT DATA MAY BE OBTAINED AT ALL PHASES OF CONSTRUCTION AND WHEN THE NEW CONSTRUCTION IS IN SERVICE. THE DISTANCE FROM THE DATA ACQUISITION SYSTEM TO ANY GIVEN SENSOR SHALL BE A MINIMUM HORIZONTAL DISTANCE FROM THE SENSOR TO THE OUTSIDE OF THE NEAREST RETAINING WALL OR ABUTMENT FACE, PLUS A MINIMUM CABLING AMOUNT TO PROVIDE FOR ANY NECESSARY VERTICAL TRAVEL TO THE GROUND SURFACE, PLUS 6 FT.
- O. THE INSTRUMENTATION INSTALLATIONS SHALL BE ADEQUATELY PROTECTED FROM CONSTRUCTION IMPACTS, DURING CONSTRUCTION, AS WELL AS WEATHER EFFECTS, AND VANDALISM. APPROPRIATE LOCKED CASINGS OR REMOVABLE CABLING AND PLASTIC CONNECTOR CAPS AND RELATED PROTECTIVE DEVICES SHALL BE PROVIDED TO ENSURE THE INTEGRITY OF THE INSTRUMENTATION OVER THE PROPOSED MONITORING DURATION.
- P. THE PLAN FOR INSTALLATION OF INSTRUMENTATION SHALL BE APPROVED BY THE DESIGNER AND SUBMITTED TO THE ENGINEER FOR ACCEPTANCE PRIOR TO PLACEMENT.

PART 9 ACCEPTANCE CRITERIA AND METHOD OF MEASUREMENT

THE CSEW IS CONSIDERED ACCEPTABLE WHEN THE EMBANKMENT CONSTRUCTION AND QC/QA REQUIREMENTS ARE COMPLETED IN ACCORDANCE WITH SECTION 7, COMPLIANCE WITH THE PERFORMANCE CRITERIA FROM PARAGRAPH 1.1 IS DEMONSTRATED, AND NO DAMAGE TO ADJACENT FACILITIES IS FOUND. COMPENSATION IS MADE FOR DAMAGE CAUSED, OR DAMAGE IS REPAIRED AT CONTRACTOR'S EXPENSE.

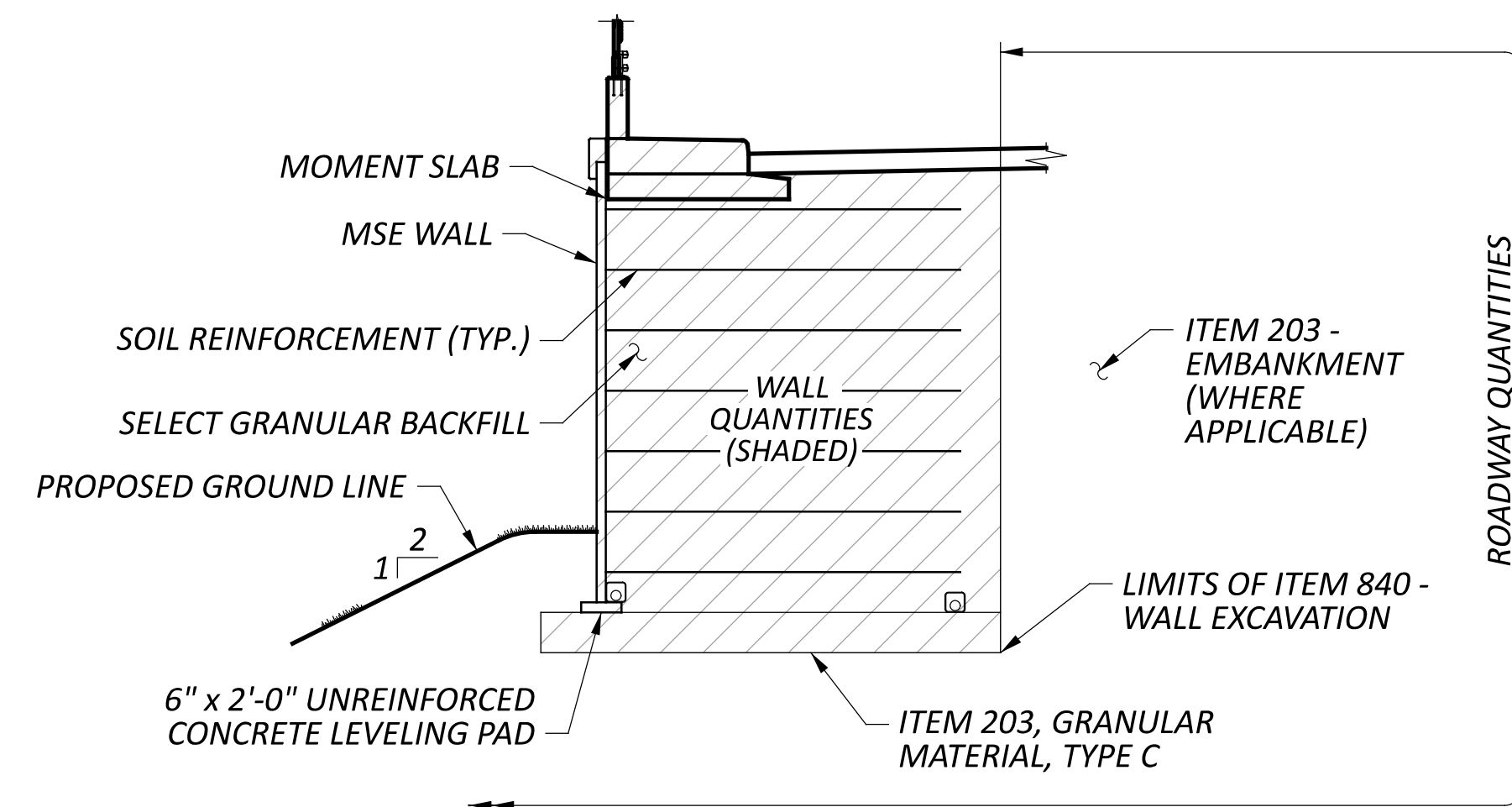
THE DEPARTMENT WILL MEASURE ITEM 203 - ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS BY LUMP SUM (LS), SATISFACTORILY COMPLETED IN-PLACE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND AS DIRECTED BY THE ENGINEER.

PART 10 BASIS OF PAYMENT

- 10.1. ALL COSTS IN CONNECTION WITH MOBILIZATION AND DEMOBILIZATION OF MATERIALS, EQUIPMENT, AND LABOR FOR THE CONSTRUCTION OF CSEW, LTP, AND WP AS REQUIRED IN THIS SPECIFICATION SHALL BE IN PAID FOR UNDER ITEM 203 - ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS.
- 10.2. ALL COSTS IN CONNECTION WITH DESIGN, EQUIPMENT, MATERIAL, AND LABOR FOR THE INSTALLATION OF CSEW, INCLUDING COLUMN MATERIALS AND CONSTRUCTION, QC MONITORING, INSTRUMENTATION, LTP AND WP MATERIALS, WICK DRAINS IF NECESSARY TO MEET SETTLEMENT REQUIREMENTS, AND GEOSYNTHETIC REINFORCEMENTS AS REQUIRED IN THIS SPECIFICATION SHALL BE INCIDENTAL TO ITEM - 203, ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS. SEPARATE PAYMENT WILL NOT BE MADE FOR SITE PREPARATION, DEWATERING, TEMPORARY WORKS TO FACILITATE CONSTRUCTION, ETC. INCLUDE ALL THE ANTICIPATED COSTS IN THE PRICE BID FOR ITEM 203 - ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS. THE GROUND IMPROVEMENT AREA HAS BEEN DEFINED IN THE PLANS FOR BIDDING PURPOSES. ADDITIONAL COLUMN SUPPORTS SHALL BE PROVIDED AS NECESSARY BEYOND THE DEFINED AREA TO SATISFY GLOBAL STABILITY AND SHALL BE INCIDENTAL TO THIS ITEM.
- 10.3. ALL COSTS ASSOCIATED WITH THE INSTALLATION OF DEMONSTRATION AND TEST COLUMNS, REACTION FRAMES, INSTRUMENTATION, PERFORMANCE, ANALYSIS, AND REPORTING OF TEST RESULTS TO THE ENGINEER SHALL BE INCLUDED IN THE PRICE BID FOR ITEM - 203, ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS.

SFN	
-	
DESIGN AGENCY	
	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 02/10/25	
PROJECT ID	
104132	
SUBSET	TOTAL
5	25
SHEET	TOTAL
P.326	399

ESTIMATED QUANTITIES						CALCULATED BY: RG		2/6/2023							
						CHECKED BY: ERM		2/13/2023							
ITEM ODOT	EXT.	PARTICIPATION 01/BRO/10	TOTAL	UNIT	DESCRIPTION	CUY-00014-06.930							REF. SHEET		
						WALL 1	WALL 2	WALL 3	WALL 4	WALL 5	WALL 6	WALL 7		GENERAL	
203	98500	LS	LS		ROADWAY, MISC.: COLUMN-SUPPORTED EMBANKMENTS AND WALLS									LS	
503	11100	LS	LS		COFFERDAMS AND EXCAVATION BRACING									LS	
509	10000	216,815	216,815	LB	EPOXY COATED STEEL REINFORCMENT	43827		42669		50406	58833	21080			
511	34450	182	182	CY	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)	43		45		31	42	21			
511	51512	1,126	1,126	CY	CLASS QC2 CONCRETE WITH QC/QA, SIDEWALK	174		173		289	400	90			
511	53012	943	943	CY	CLASS QC2 CONCRETE WITH QC/QA, MOMENT SLAB	159		159		232	321	72			
512	10050	1,816	1,816	SY	SEALING OF CONCRETE SURFACES (NON-EPOXY)	278		289		477	637	135			
512	10100	4,795	4,795	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	903		1191		806	1329	566			
512	10001	806	806	SY	SEALING OF CONCRETE SURFACES, AS PER PLAN (PERMANENT GRAFFITI PROTECTION)					806					2 25
516	13200	2,085	2,085	SF	½" PREFORMED EXPANSION JOINT FILLER	333		361		501	723	167			
516	13600	4,860	4,860	SF	1" PREFORMED EXPANSION JOINT FILLER	1153		1201		832	1112	562			
607	39901	1,616	1,616	FT	VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN	383		399		277	370	187			2 25
840	20000	37,571	37,571	SF	MECHANICALLY STABILIZED EARTH WALL	6637		9221		6438	10812	4463			
840	21000	2,790	2,790	CY	WALL EXCAVATION	253		499		141	1654	243			
840	22000	4,264	4,264	SY	FOUNDATION PREPARATION	772		1228		610	1139	515			
840	23000	28,012	28,012	CY	SELECT GRANULAR BACKFILL	3461		9032		3664	8534	3321			
840	25010	3,194	3,194	FT	6" DRAINAGE PIPE, PERFORATED	766		762		553	739	374			
840	26000	1,598	1,598	FT	CONCRETE COPING	383		381		277	370	187			
840	26050	6,438	6,438	SF	AESTHETIC SURFACE TREATMENT					6438					2 25
840	27000	5	5	DAY	ON-SITE ASSISTANCE								5		
840	28000	LS	LS		SGB INSPECTION AND COMPACTION TESTING								LS		
867	00100	LS	LS		TEMPORARY WIRE FACED MECHANICALLY STABILIZED EARTH WALL		LS		LS						

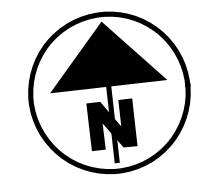
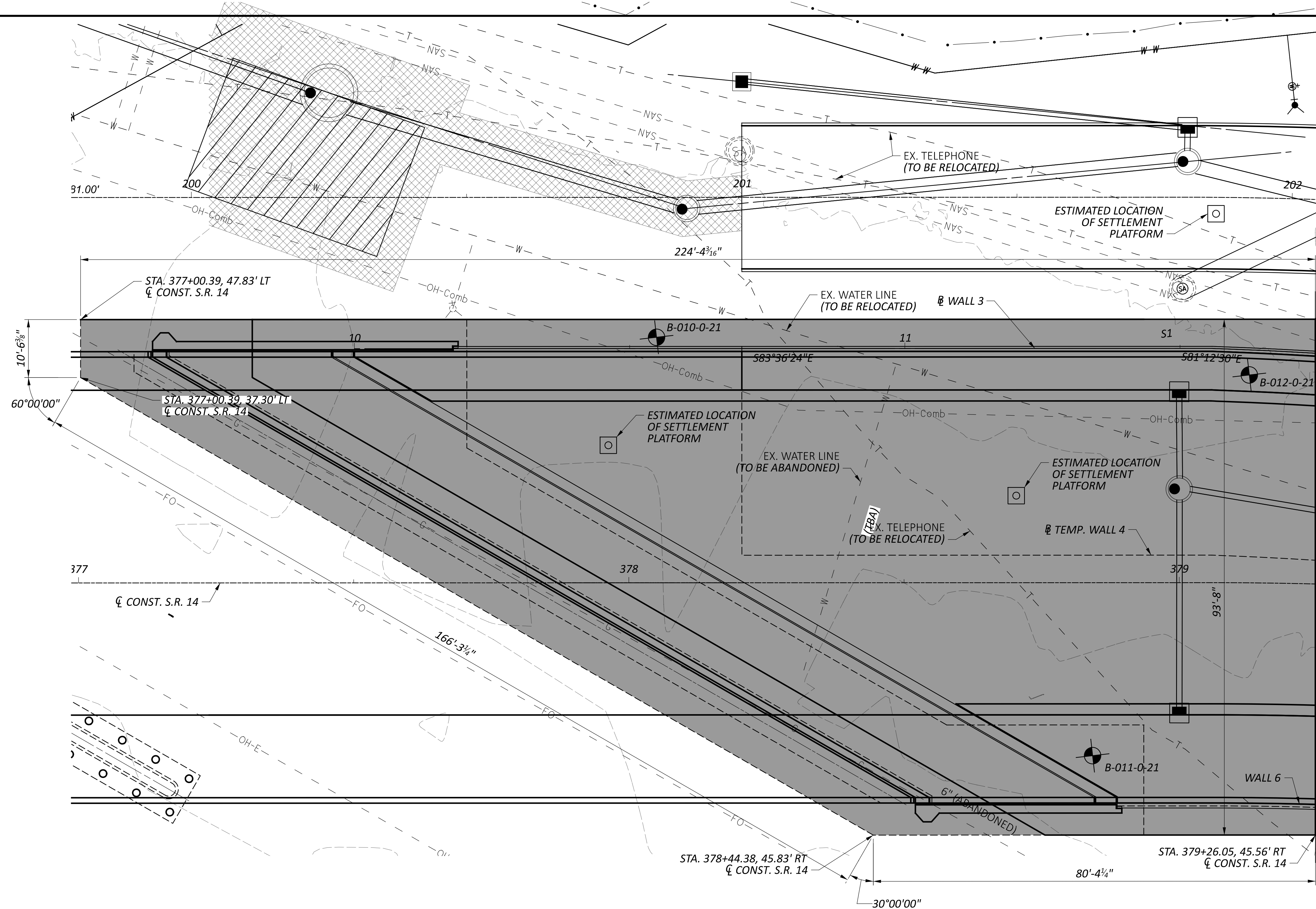


FOR INFORMATION ONLY

MSE WALL ESTIMATED QUANTITIES
 BRIDGE NO. CUY-00014-06.930
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

DESIGNER	CHECKER
TLN	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
6	25
SHEET	TOTAL
P.327	399

564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com



GROUND IMPROVEMENT PLAN

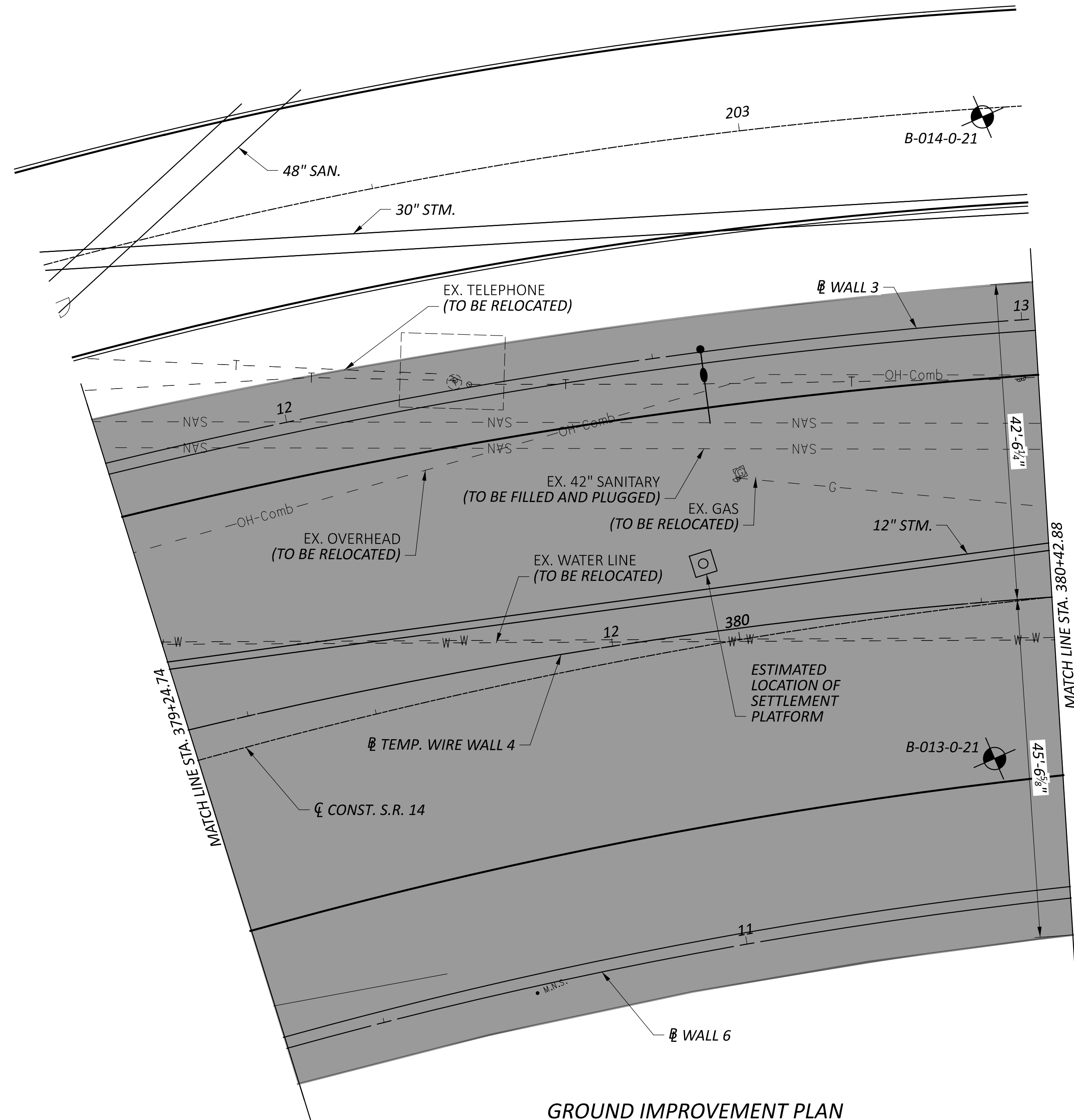
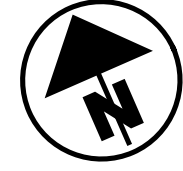
LEGEND:
 [Shaded Area] - ESTIMATED LIMITS OF GROUND IMPROVEMENT

NOTES:

1. PROVIDE ENGINEER STAMPED DESIGNS FOR GROUND IMPROVEMENTS TO SATISFY BEARING PRESSURES, INCLUDING GLOBAL STABILITY ANALYSES FOR EACH. INCREASE PERIMETER OF GROUND IMPROVEMENTS AS REQUIRED. THE AREAS DEFINED HEREIN ARE THE ANTICIPATED LIMITS. UPON AN ENGINEER'S ASSESSMENT, IF GRANULAR MATERIAL IS ENCOUNTERED IN THE FIELD, THE LIMITS OF THE IMPROVEMENT MAY BE ADJUSTED BY THE FIELD ENGINEER. PERFORM WORK PER ITEM 203 - ROADWAY, MISC.: COLUMN SUPPORTED EMBANKMENTS AND WALLS.
2. EXISTING WATERLINES ARE TO BE RELOCATED. PROPOSED WATERLINES, STORM AND EXISTING TELEPHONE LINES ARE TO BE SUPPORTED IN PLACE AS NEEDED.
3. ESTIMATED LOCATION OF SETTLEMENT PLATFORMS SHOWN FOR INFORMATION AND COORDINATION WITH UTILITIES ONLY. FOR STRUCTURE GENERAL NOTES SEE BRIDGE SHEET [P.214, 399].
4. EXERCISE CAUTION ABOVE AND NEAR UTILITIES WHICH ARE TO REMAIN IN SERVICE. PAY PARTICULAR ATTENTION TO THE BRICK SANITARY SEWER.

GROUND IMPROVEMENT PLAN 1 OF 3
BRIDGE NO. CUY-00014-06.930
BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	
DESIGN AGENCY	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
7	25
SHEET	
P.328	
TOTAL	
399	



GROUND IMPROVEMENT PLAN

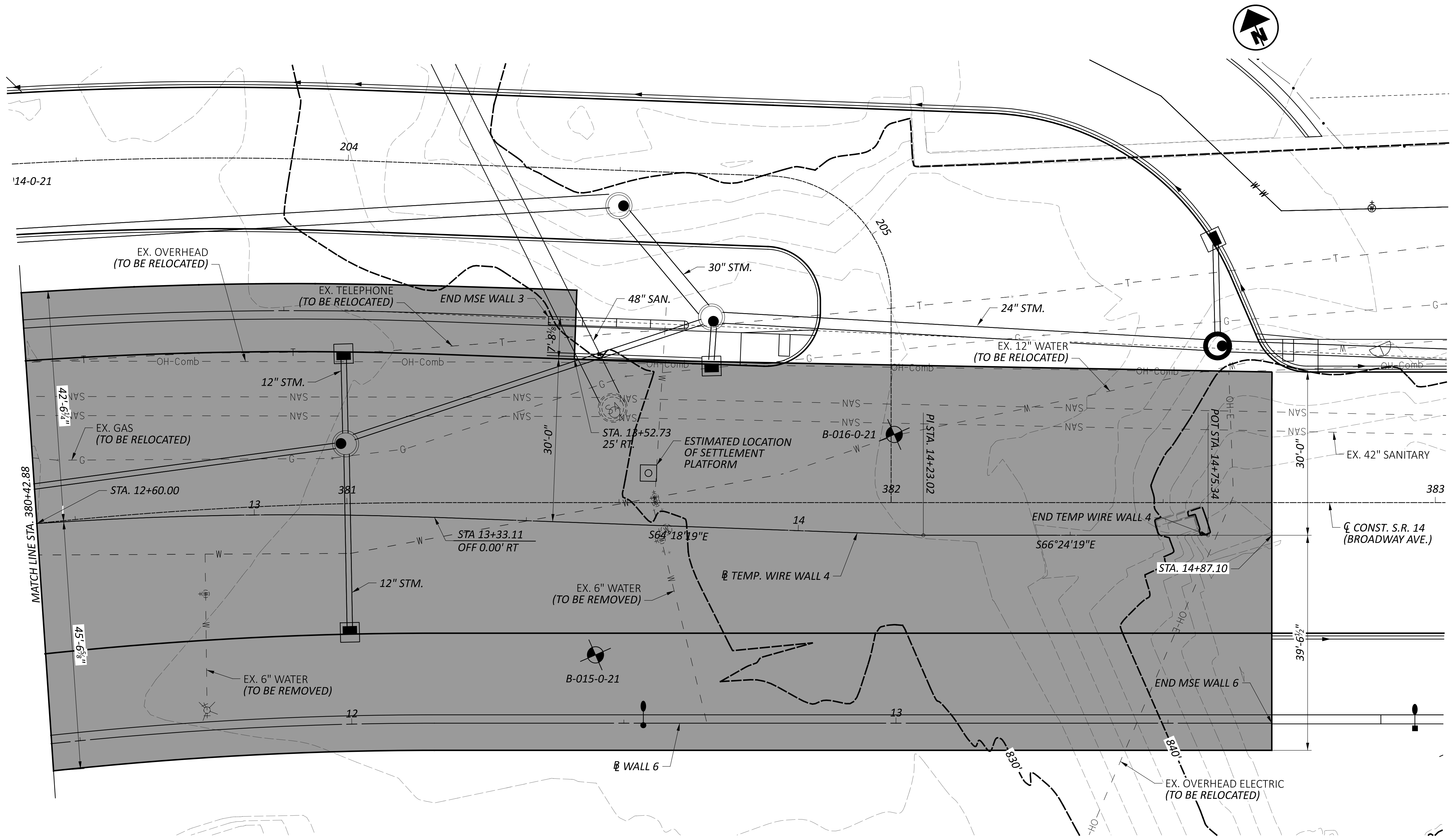
LEGEND:

■ - ESTIMATED LIMITS OF GROUND IMPROVEMENT

NOTES:

1. PROVIDE ENGINEER STAMPED DESIGNS FOR GROUND IMPROVEMENTS TO SATISFY BEARING PRESSURES, INCLUDING GLOBAL STABILITY ANALYSES FOR EACH. INCREASE PERIMETER OF GROUND IMPROVEMENTS AS REQUIRED. THE AREAS DEFINED HEREIN ARE THE ANTICIPATED LIMITS. UPON AN ENGINEER'S ASSESSMENT, IF GRANULAR MATERIAL IS ENCOUNTERED IN THE FIELD, THE LIMITS OF THE IMPROVEMENT MAY BE ADJUSTED BY THE FIELD ENGINEER. PERFORM WORK PER ITEM 203 - ROADWAY, MISC.: COLUMN SUPPORTED EMBANKMENTS AND WALLS.
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3. ESTIMATED LOCATION OF SETTLEMENT PLATFORMS SHOWN FOR INFORMATION AND COORDINATION WITH UTILITIES ONLY. FOR STRUCTURE GENERAL NOTES SEE BRIDGE SHEET [P.214, 399].
4. EXERCISE CAUTION ABOVE AND NEAR UTILITIES WHICH ARE TO REMAIN IN SERVICE. PAY PARTICULAR ATTENTION TO THE BRICK SANITARY SEWER.

SFN	
DESIGN AGENCY	
AECOM 564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 02/05/25	
PROJECT ID	
104132	
SUBSET	TOTAL
7A	25
SHEET	TOTAL
P.328A	399



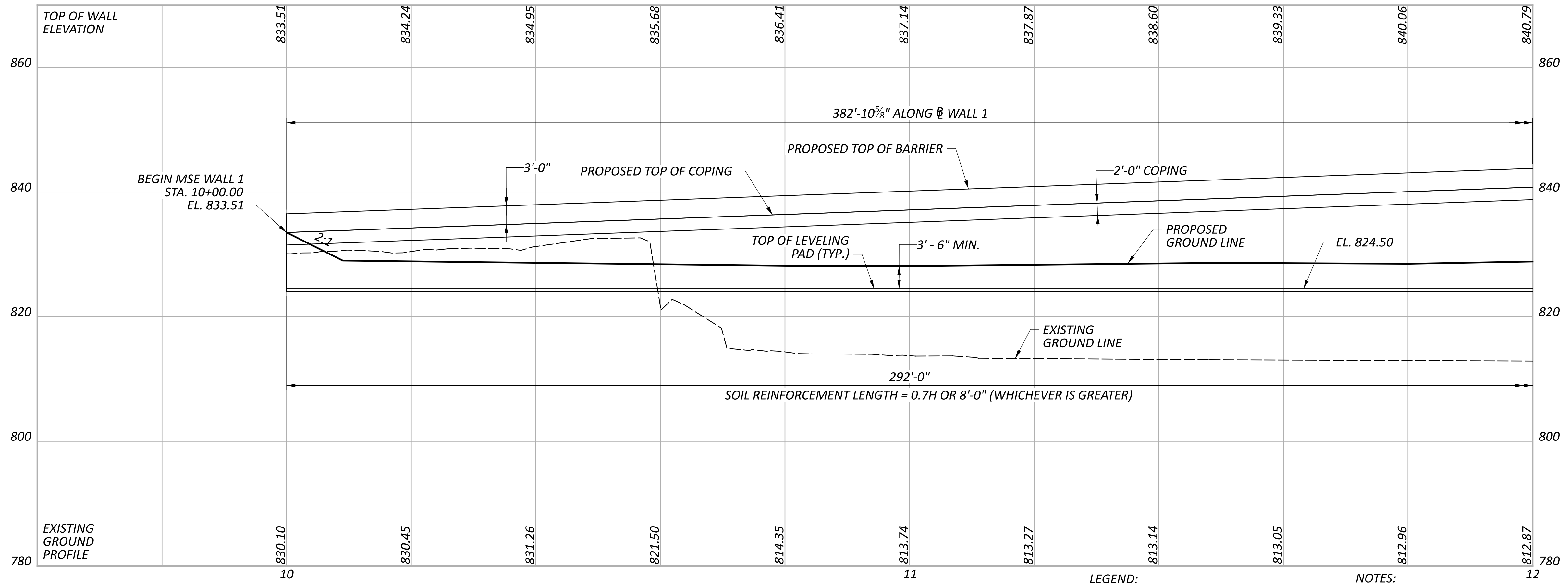
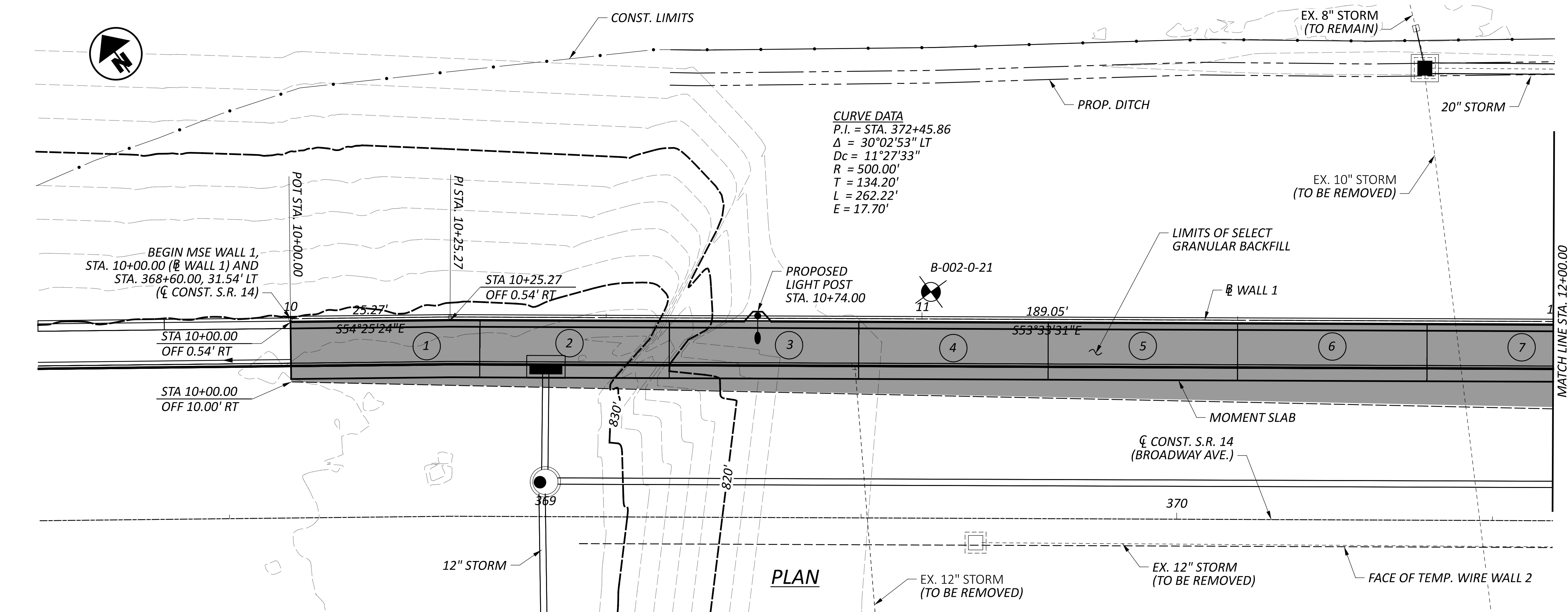
GROUND IMPROVEMENT PLAN

LEGEND:
 [Shaded Area] - ESTIMATED LIMITS OF GROUND IMPROVEMENT

NOTES:

1. PROVIDE ENGINEER STAMPED DESIGNS FOR GROUND IMPROVEMENTS TO SATISFY BEARING PRESSURES, INCLUDING GLOBAL STABILITY ANALYSES FOR EACH. INCREASE PERIMETER OF GROUND IMPROVEMENTS AS REQUIRED. THE AREAS DEFINED HEREIN ARE THE ANTICIPATED LIMITS. UPON AN ENGINEER'S ASSESSMENT, IF GRANULAR MATERIAL IS ENCOUNTERED IN THE FIELD, THE LIMITS OF THE IMPROVEMENT MAY BE ADJUSTED BY THE FIELD ENGINEER. PERFORM WORK PER ITEM 203 - ROADWAY, MISC.: COLUMN SUPPORTED EMBANKMENTS AND WALLS.
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3. ESTIMATED LOCATION OF SETTLEMENT PLATFORMS SHOWN FOR INFORMATION AND COORDINATION WITH UTILITIES ONLY. FOR STRUCTURE GENERAL NOTES SEE BRIDGE SHEET [P.214, 399].
4. EXERCISE CAUTION ABOVE AND NEAR UTILITIES WHICH ARE TO REMAIN IN SERVICE. PAY PARTICULAR ATTENTION TO THE BRICK SANITARY SEWER.

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 02/05/25	
PROJECT ID	
104132	
SUBSET	TOTAL
7B	25
SHEET	TOTAL
P.328B	399

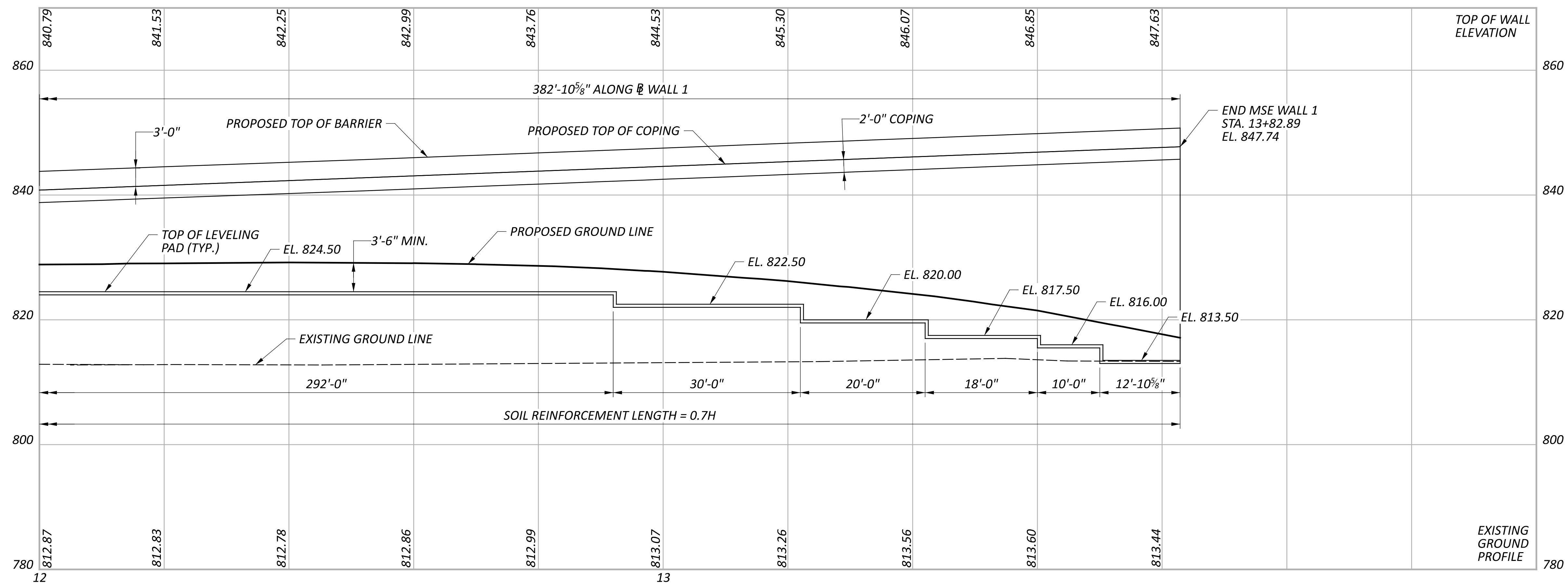
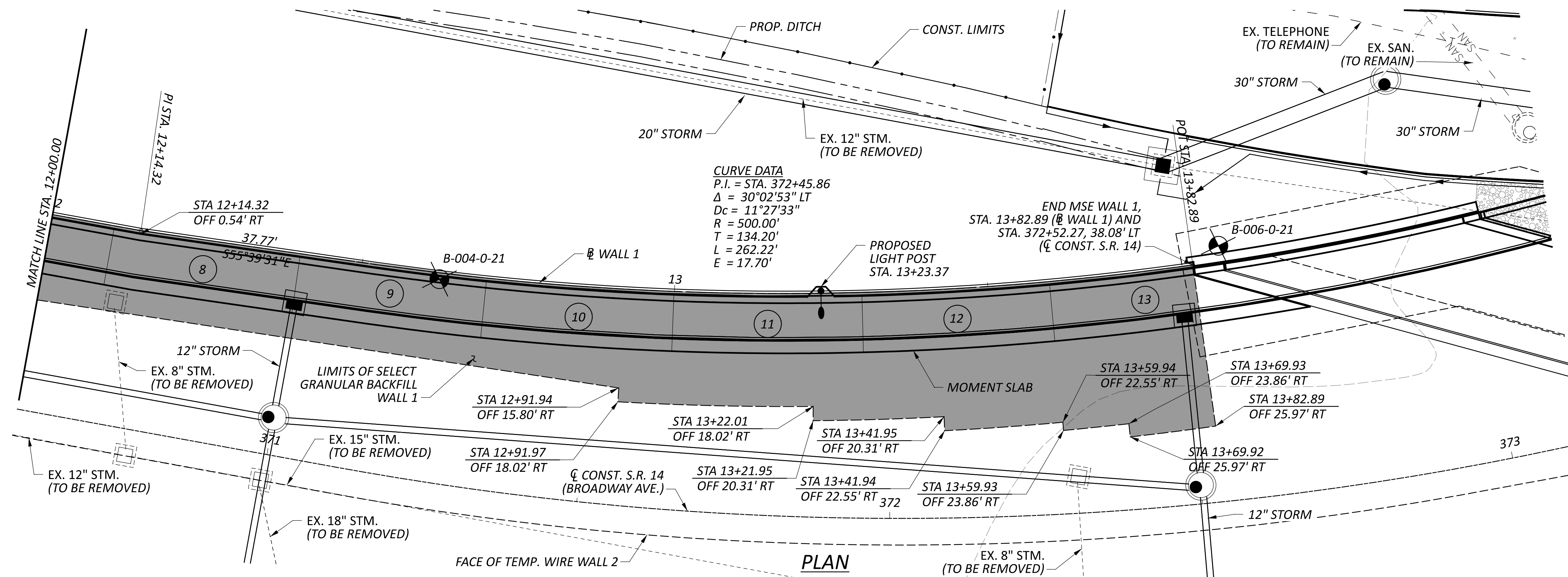


PROFILE

- LEGEND:**
- # - MOMENT SLAB PANEL NUMBER
 - ⊙ - PROJECT BORING LOCATION

- NOTES:**
1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET [10 | 25].
 2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET [25 | 25].

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	104132
SUBSET	TOTAL
8	25
SHEET	TOTAL
P.329	399



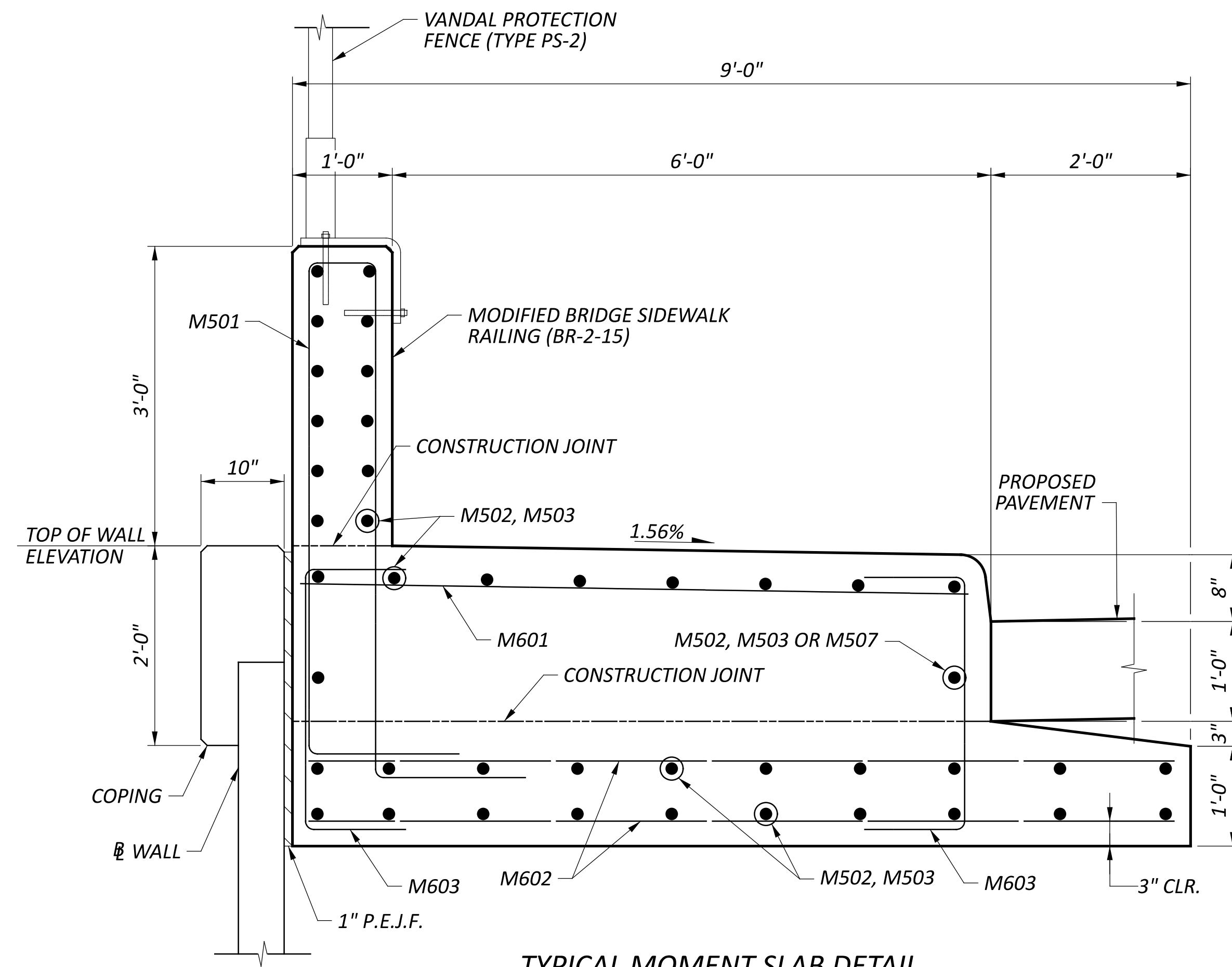
LEGEND:

- # - MOMENT SLAB PANEL NUMBER
- - PROJECT BORING LOCATION

NOTES:

1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET [10 | 25].
2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET [25 | 25].

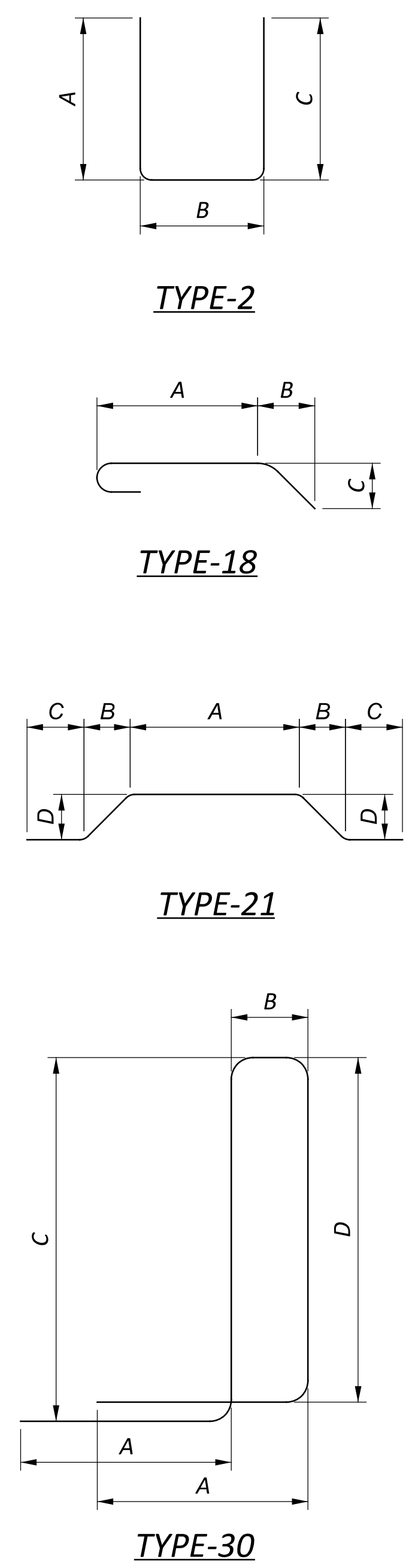
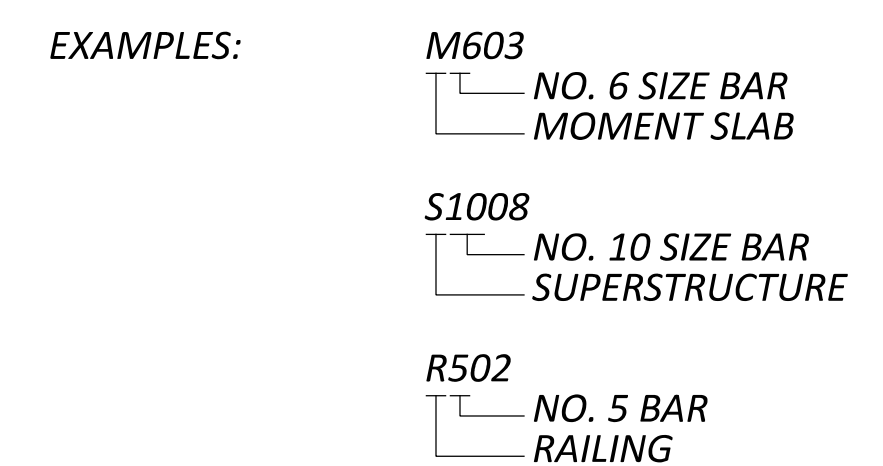
SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
9	25
SHEET	TOTAL
P.330	399



TYPICAL MOMENT SLAB DETAIL

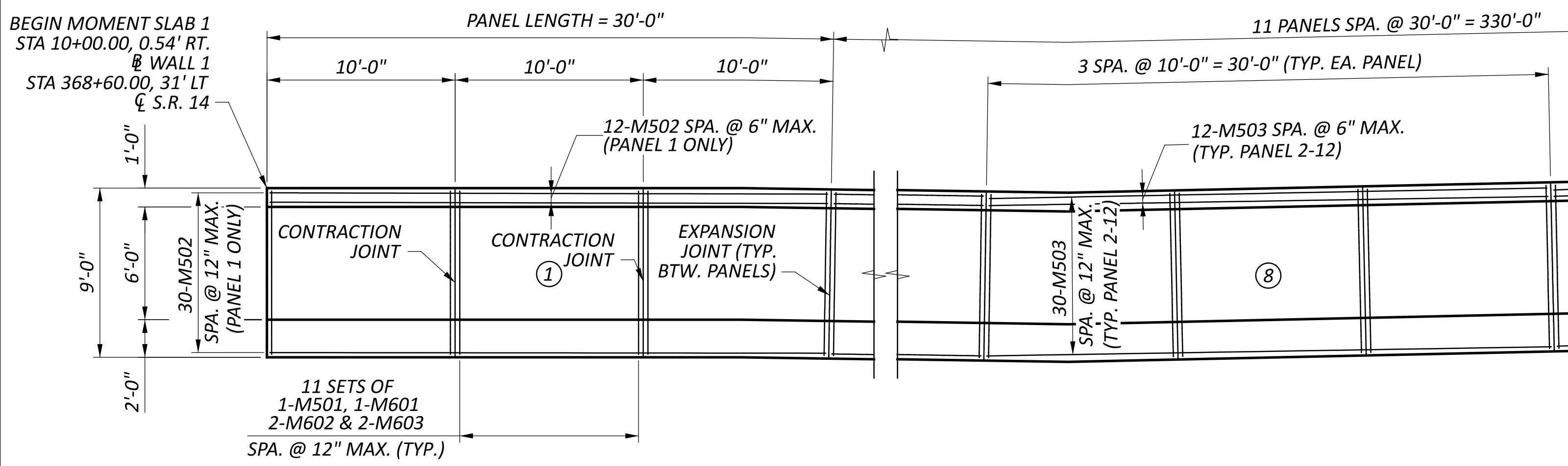
REINFORCING STEEL NOTES:

1. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED.
2. ALL REINFORCING IS TO BE EPOXY COATED.
3. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER.

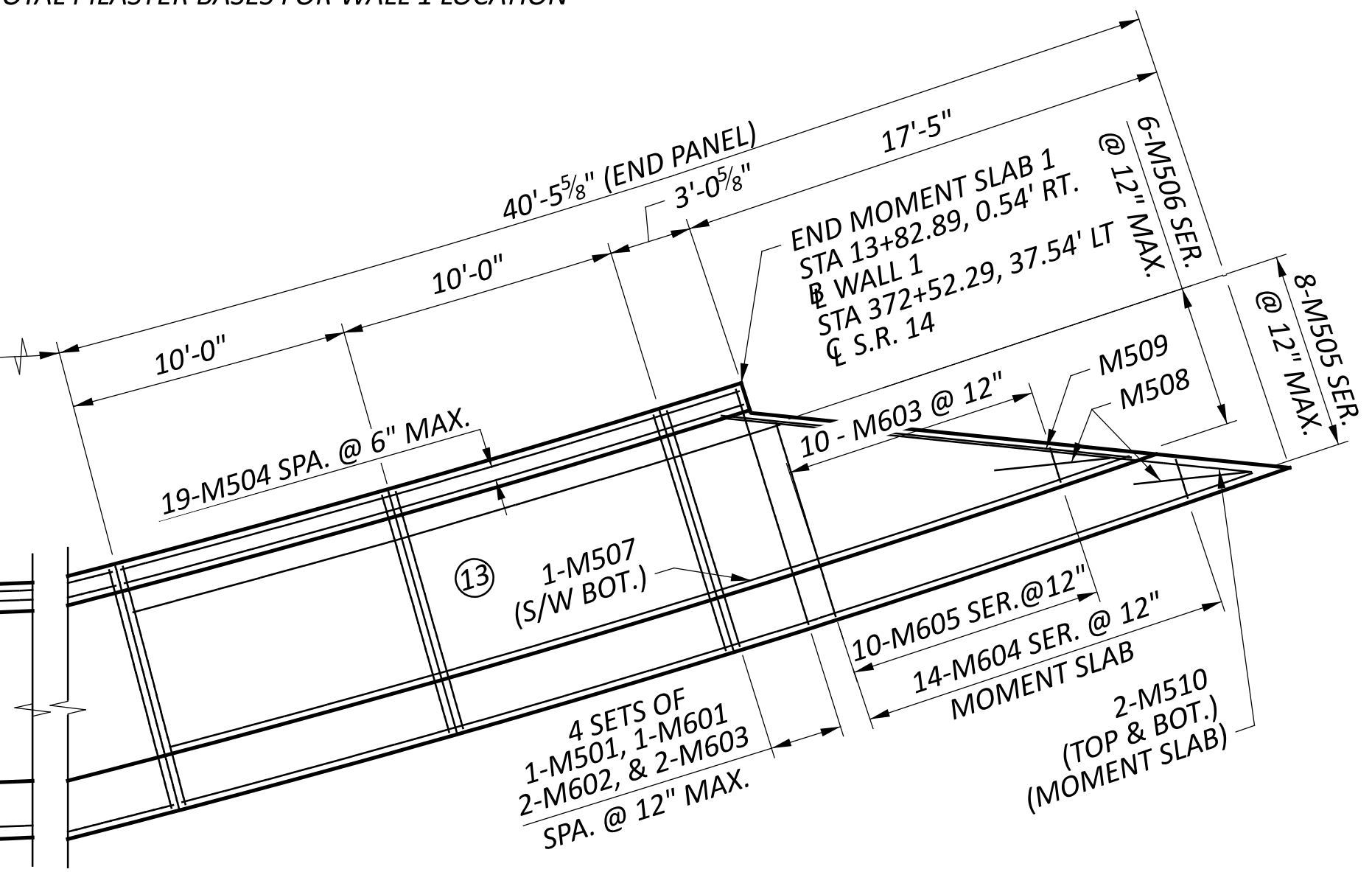


BAR MARK	MAT'RL TYPE	NUMBER TOTAL	LENGTH	WEIGHT (LBS.)	TYPE	DIMENSIONS						
						A	B	C	D	E	R	INC
MOMENT SLAB												
M501	ECSR	422	13'-3"	5,832	30	1'-6"	8"	5'-2"	4'-11"			
M502	ECSR	42	29'-5"	1,289	STR							
M503	ECSR	462	29'-7"	14,254	STR							
M504	ECSR	19	22'-7"	447	STR							
M505	ECSR	2 SER. OF 8	24'-3" TO 40'-0"	536	STR							2'-3"
M506	ECSR	1 SER. OF 6	24'-3" TO 35'-6"	187	STR							2'-3"
M507	ECSR	1	35'-6"	36	STR							
M508	ECSR	2	4'-0"	8	STR							
M509	ECSR	1	13'-10"	14	STR							
M510	ECSR	2	18'-8"	39	STR							
SUB-TOTAL				43,532								
WALL LIGHTING PILASTER BASE												
L501	ECSR	16	7'-2"	120	2	2'-7"	2'-3"	2'-7"				
L502	ECSR	12	7'-8"	96	21	1'-4"	1'-10"	6"	2'-0"			
L504	ECSR	8	2'-7"	22	STR							
L601	ECSR	8	4'-9"	57	18	1'-7"	1'-2"	2'-3"				
SUB-TOTAL *				295								

* - 2 TOTAL PILASTER BASES FOR WALL 1 LOCATION



MOMENT SLAB PLAN
TYP. ALL PANELS U.N.O.



NOTES

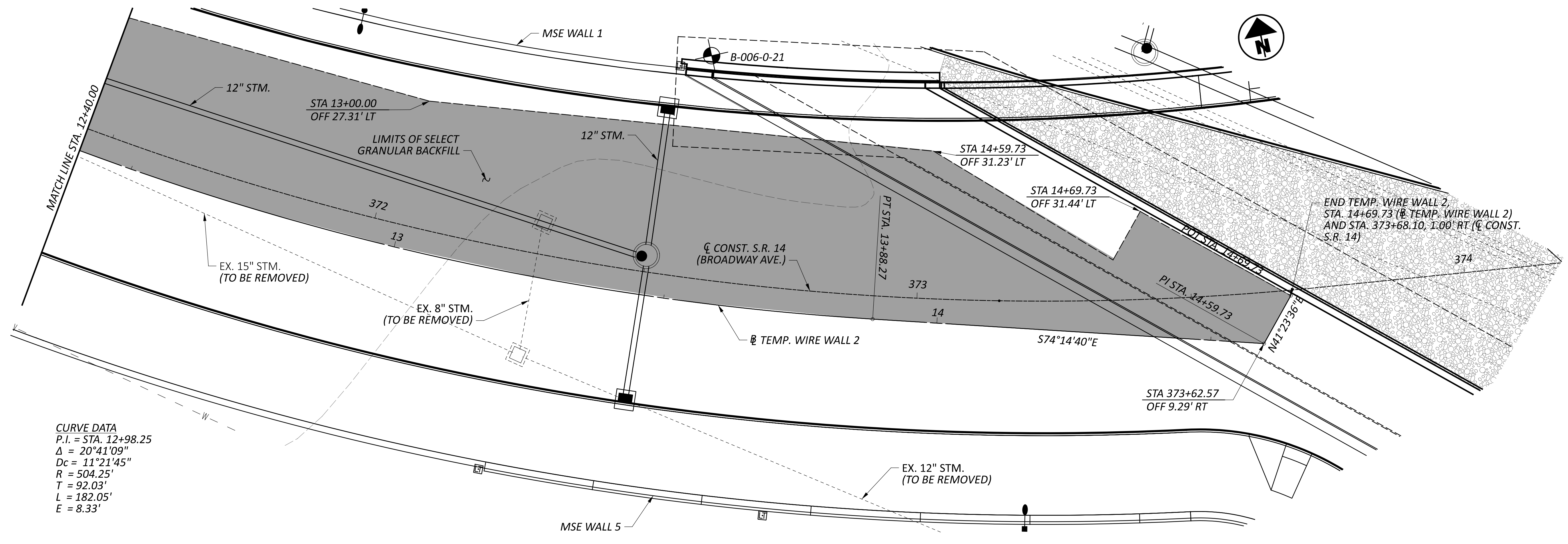
1. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET 25 | 25.
2. 3" MIN. CLEAR COVER IN BOTTOM OF FOOTING, 2" MIN. FOR ALLOTHER SURFACES UNLESS NOTED.
3. CONTROL JOINTS IN THE PARAPET SHALL BE PER ODOT STANDARD DRAWING BR-2-15 AND SPACED TO ALIGN WITH THE MOMENT SLAB CONTRACTION JOINTS.
4. EXPANSION JOINTS SHALL EXTEND THROUGH THE PARAPET AND BE IN ACCORDANCE WITH ODOT STANDARD DWG. BP-2.2.
5. CONTRACTION JOINTS SHALL BE PLACED IN THE MOMENT SLAB AT 3 EQUAL SPACES BETWEEN EXPANSION JOINTS IN ACCORDANCE WITH ODOT STANDARD DWG. BP-2.2.

LEGEND

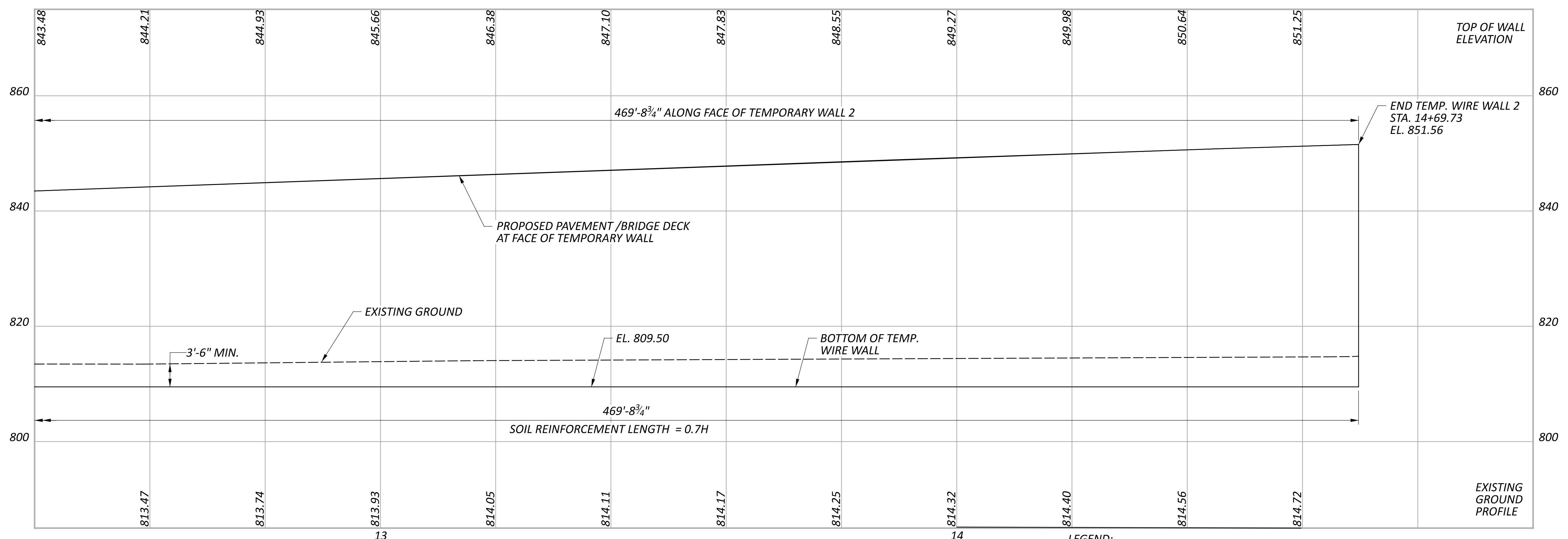
Ⓢ - MOMENT SLAB PANEL NUMBER

WALL 1 - MOMENT SLAB DETAILS
 BRIDGE NO. CUY-00014-06.930
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN
 DESIGN AGENCY
AECOM
 564 White Pond Drive
 Akron, OH 44320
 (330) 836-9111
 www.aecom.com
 DESIGNER: TLN
 CHECKER: ERM
 REVIEWER: MRW
 PROJECT ID: 104132
 SUBSET: 10 TOTAL: 25
 SHEET: P.331 TOTAL: 399



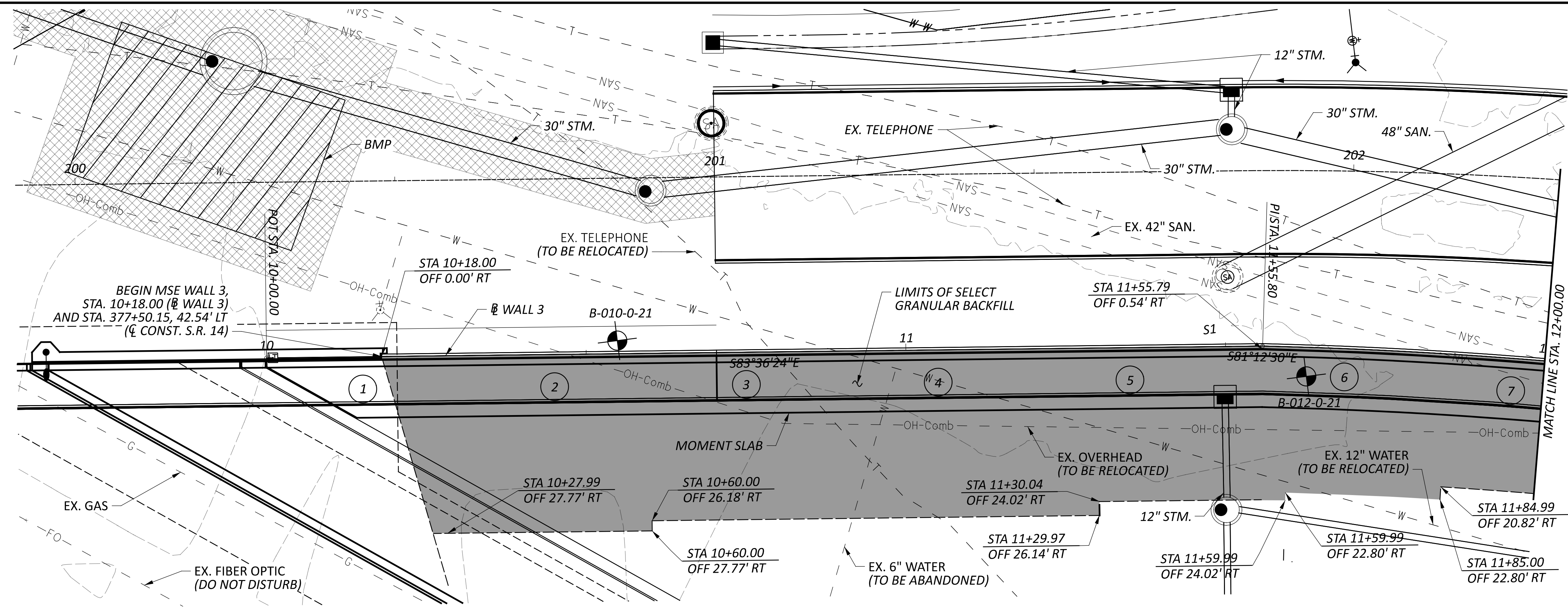
PLAN



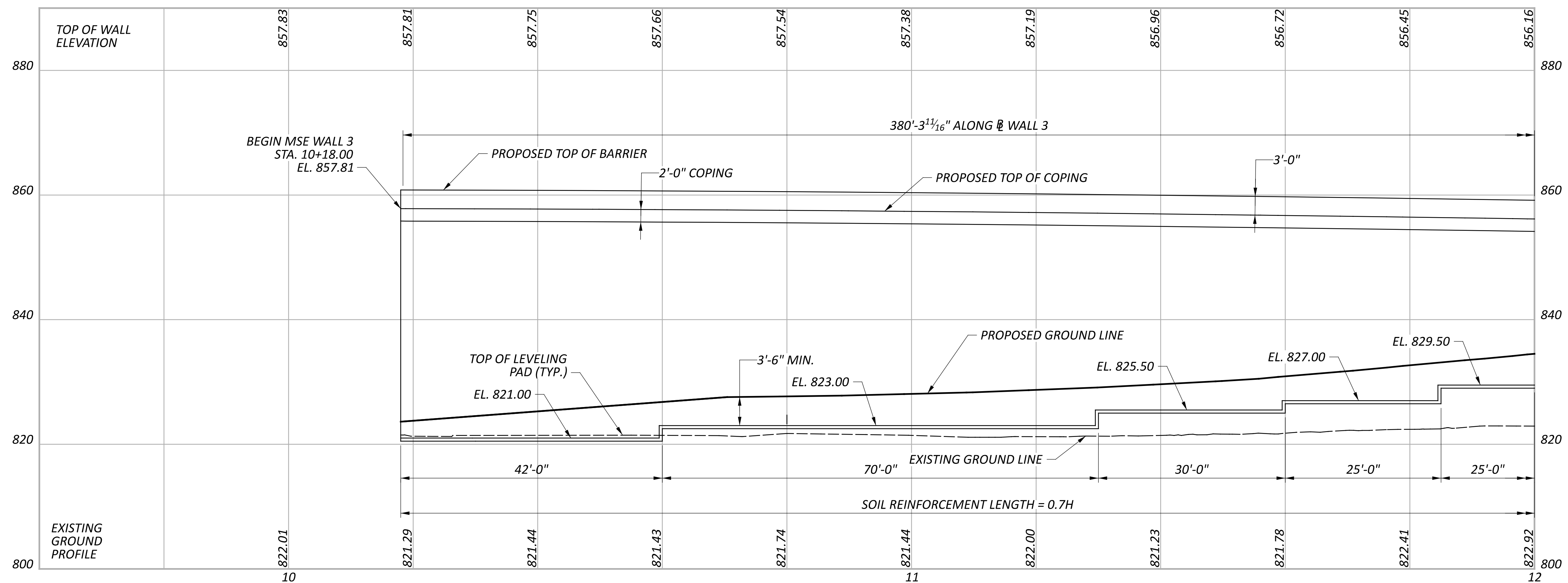
LEGEND: PROJECT BORING LOCATION

NOTES:
 1. FOR TEMPORARY WIRE WALL NOTES, SEE SHEET 2 | 25

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
12	25
SHEET	TOTAL
P.333	399



PLAN



PROFILE

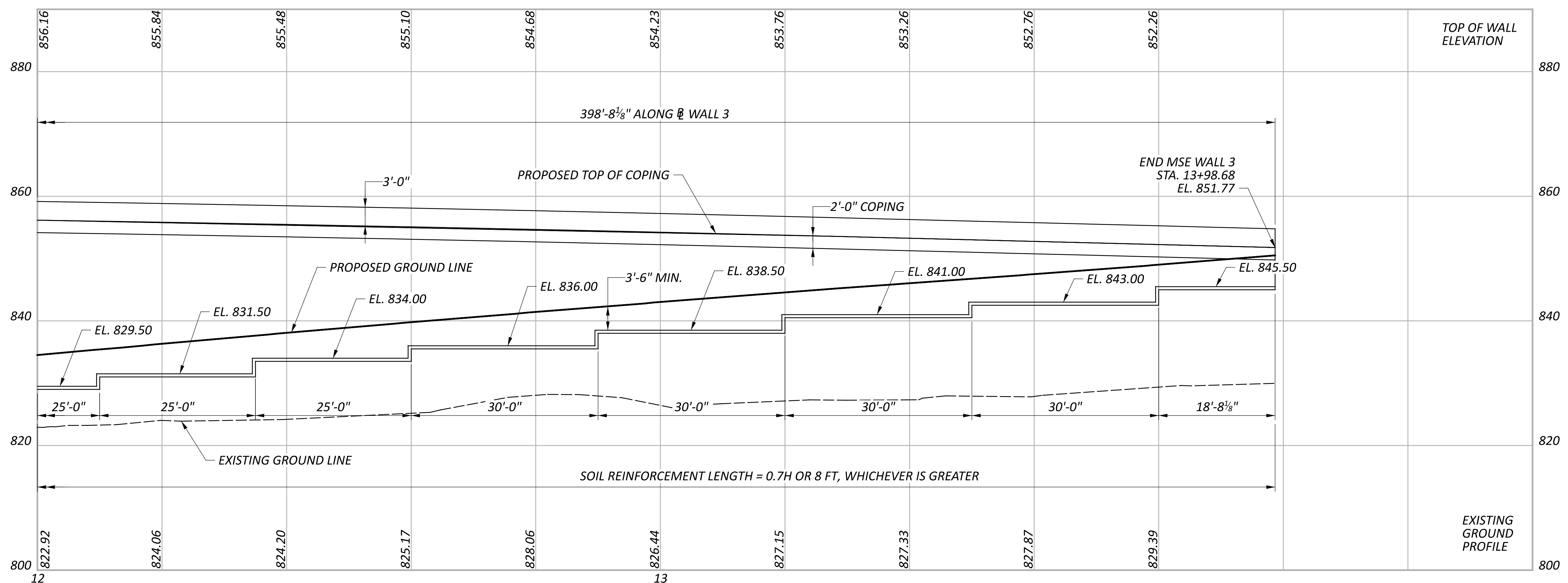
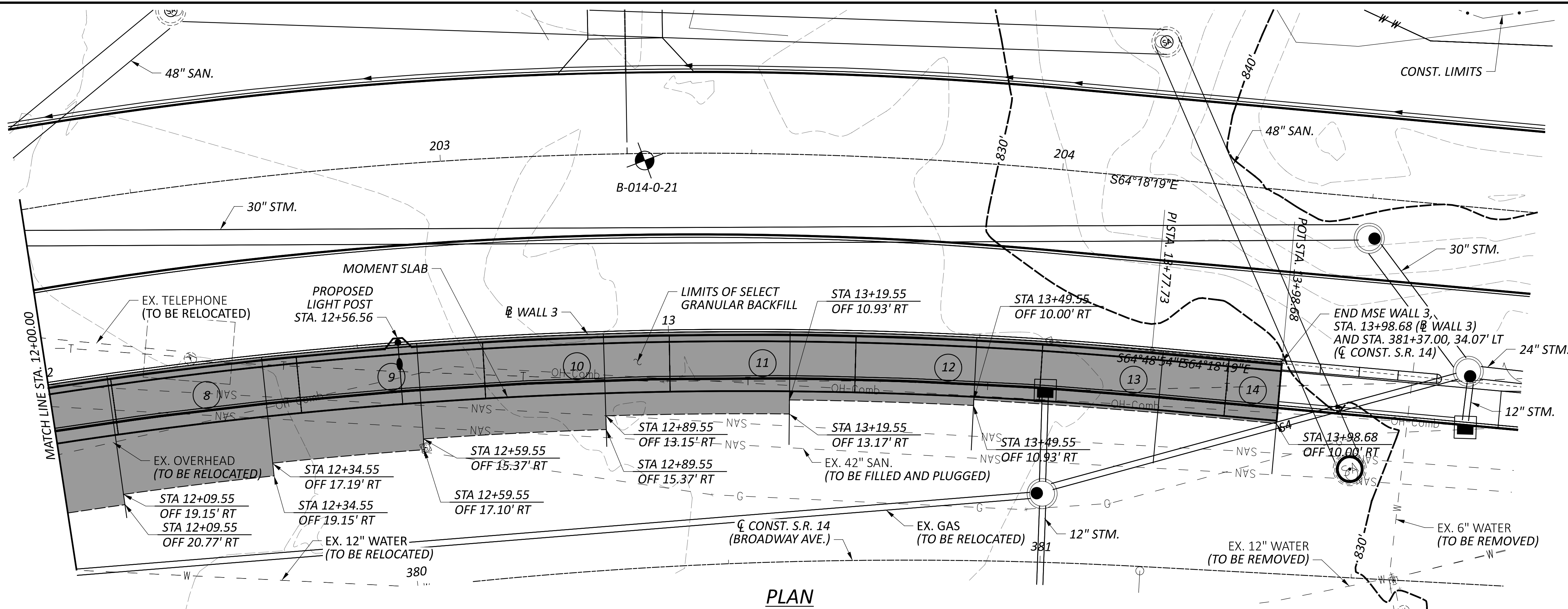
LEGEND:

- # - MOMENT SLAB PANEL NUMBER
- - PROJECT BORING LOCATION

NOTES:

1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET [10 | 25].
2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET [25 | 25].

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	104132
SUBSET	TOTAL
13	25
SHEET	TOTAL
P.334	399



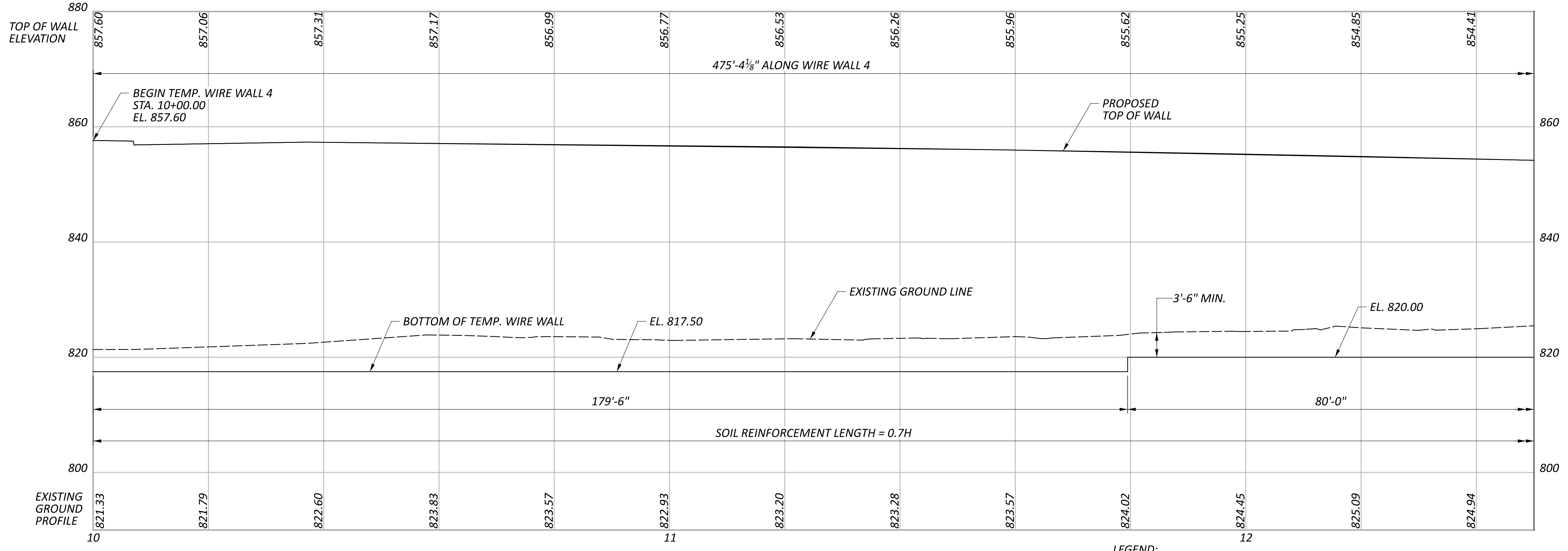
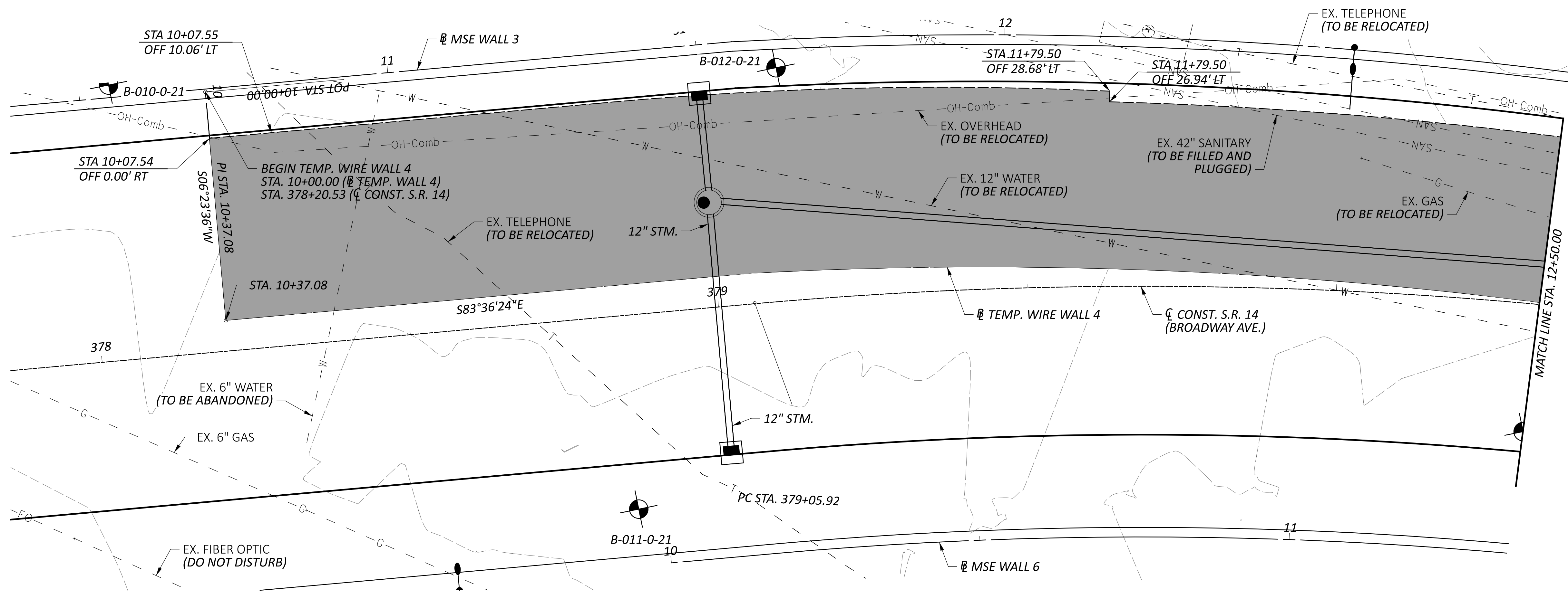
LEGEND:

- # - MOMENT SLAB PANEL NUMBER
- - PROJECT BORING LOCATION

NOTES:

1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET [10 | 25].
2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET [25 | 25].

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	104132
SUBSET	TOTAL
14	25
SHEET	TOTAL
P.335	399

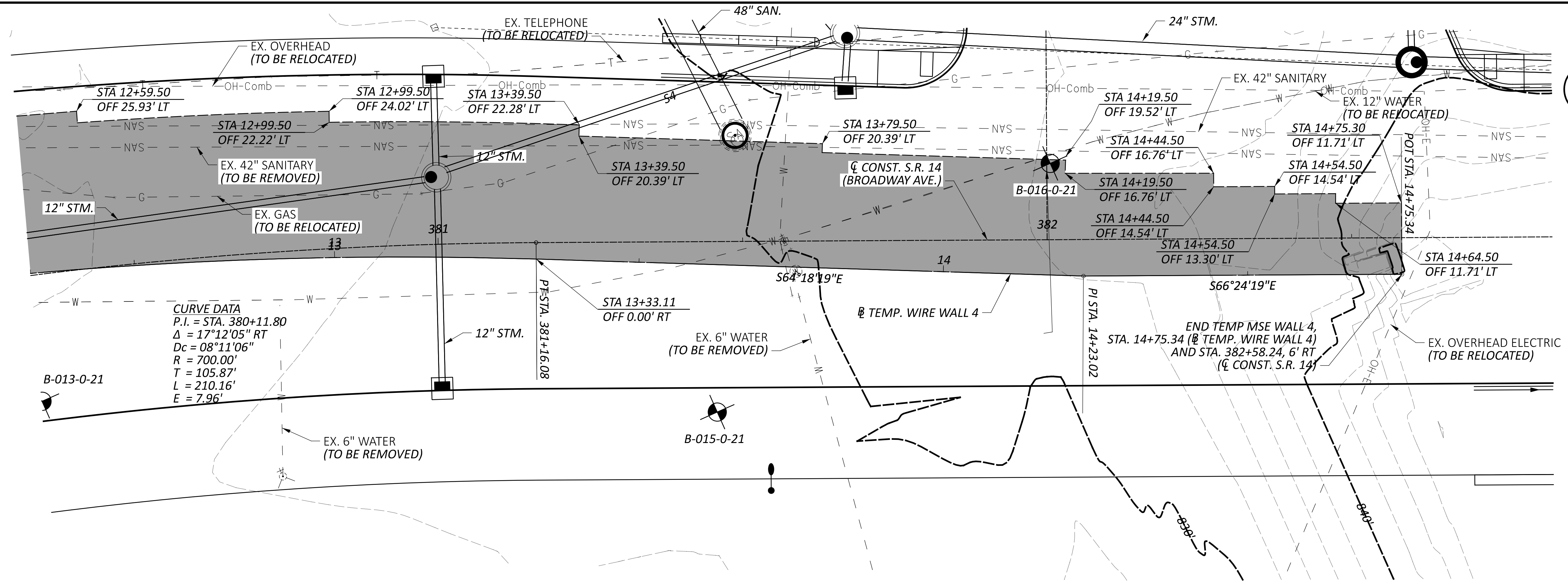


LEGEND:
 PROJECT BORING LOCATION

NOTES:
 1. FOR TEMPORARY WIRE WALL NOTES, SEE SHEET 2 | 25

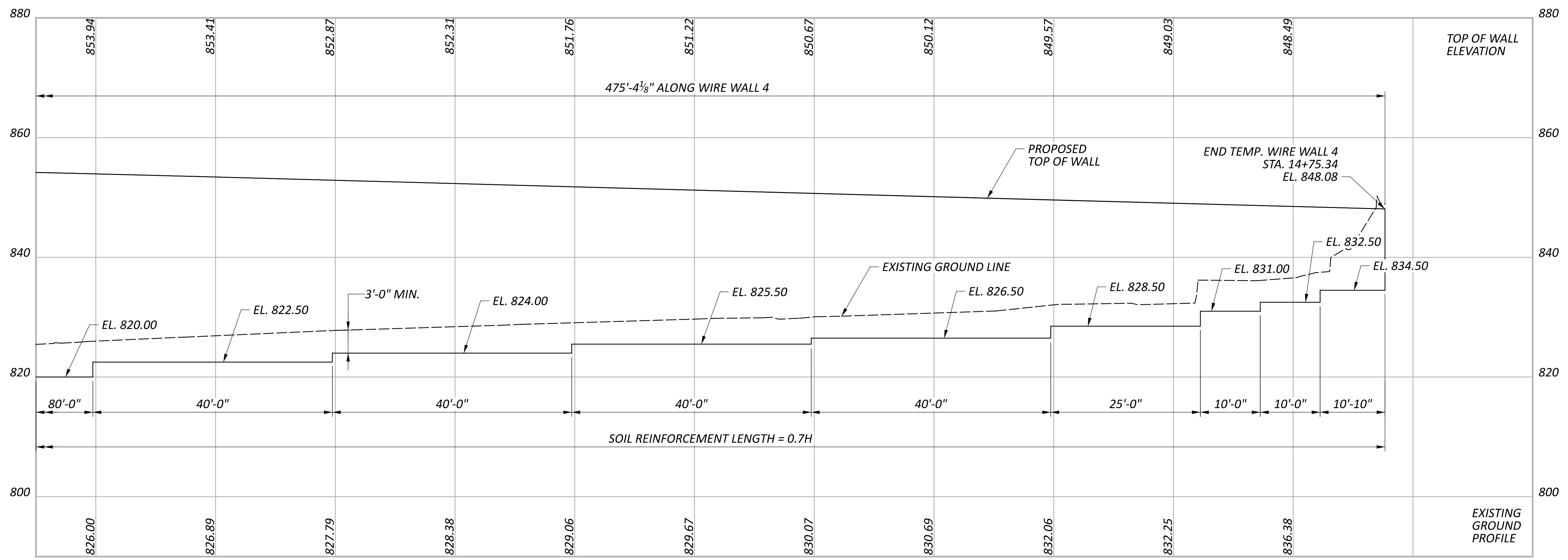
TEMPORARY WALL 4 - SITE PLAN 1 OF 2
 BRIDGE NO. CUY-00014-06.930
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
16	25
SHEET	TOTAL
P.337	399



CURVE DATA
 P.I. = STA. 380+11.80
 $\Delta = 17^\circ 12' 05''$ RT
 $\Delta c = 08^\circ 11' 06''$
 $R = 700.00'$
 $T = 105.87'$
 $L = 210.16'$
 $E = 7.96'$

PLAN



PROFILE

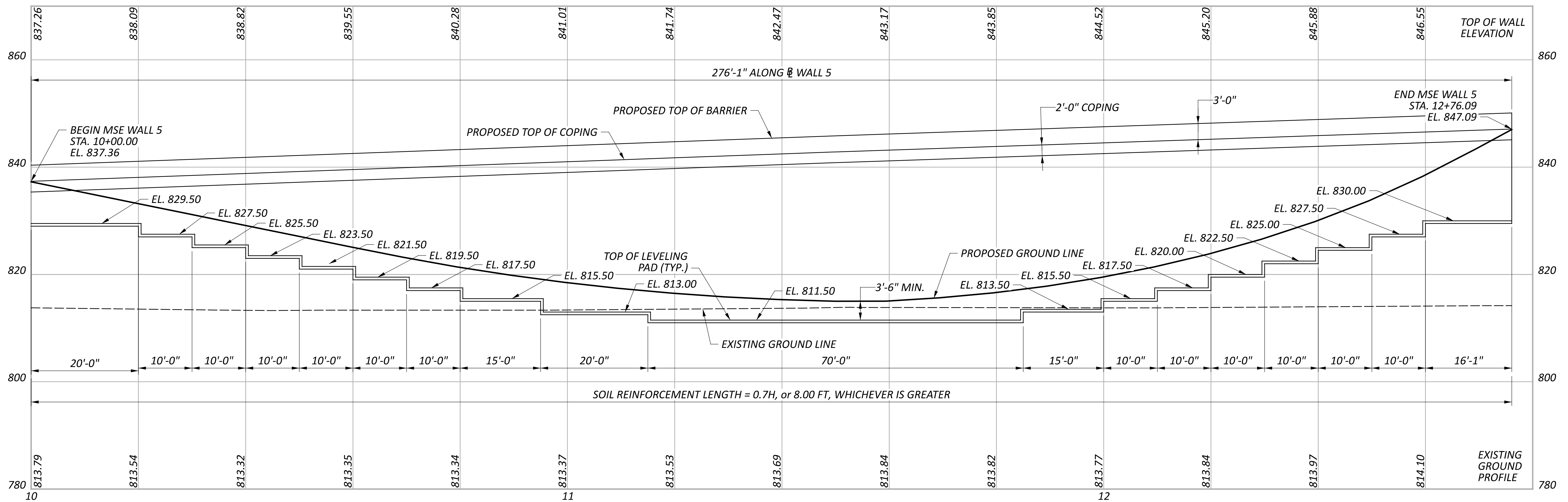
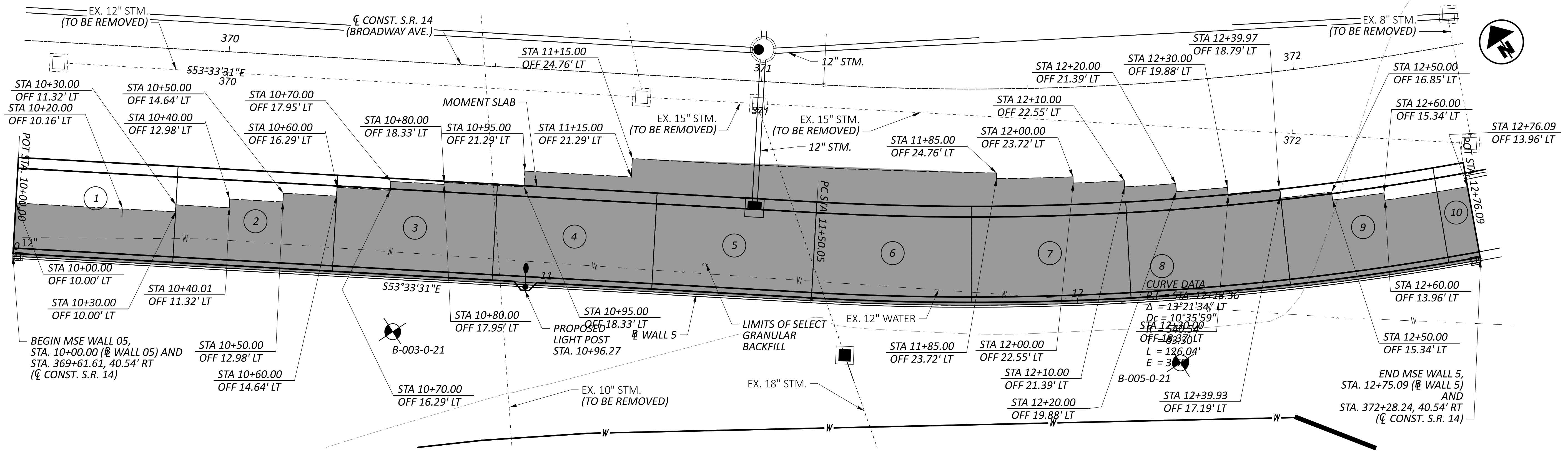
LEGEND:
 PROJECT BORING LOCATION

NOTES:
 1. FOR TEMPORARY WIRE WALL NOTES, SEE SHEET 2 | 25 .

TEMPORARY WALL 4 - SITE PLAN 2 OF 2
 BRIDGE NO. CUY-00014-06.930
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
17	25
SHEET	TOTAL
P.338	399

MODEL: BLP_WALL05 - Plan 2 PAPER SIZE: 34x22 (in.) DATE: 2/14/2025 TIME: 11:44:14 AM USER: evan.mutch
 pw:\aecom-na-pw.bentley.com\AECOM_D520_NA_2019\Documents\60581903-CUY-14-6.93\104132\400-Engineering\Structures\MSE Walls\Sheets\104132_WP501.dgn



LEGEND:

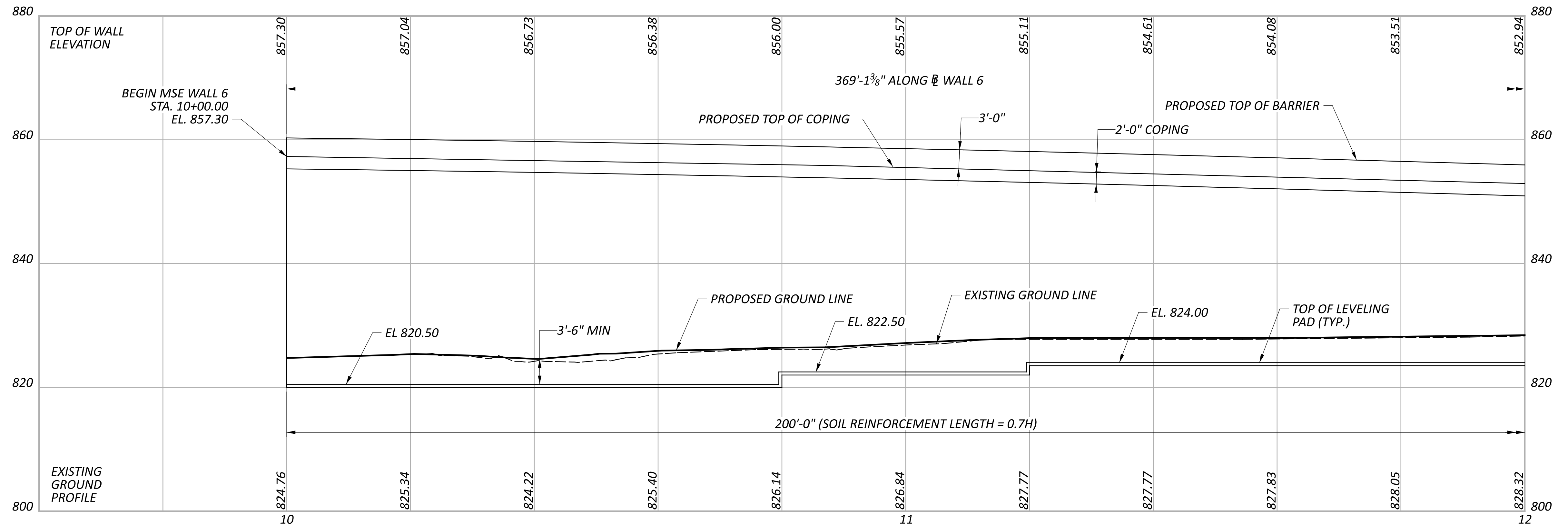
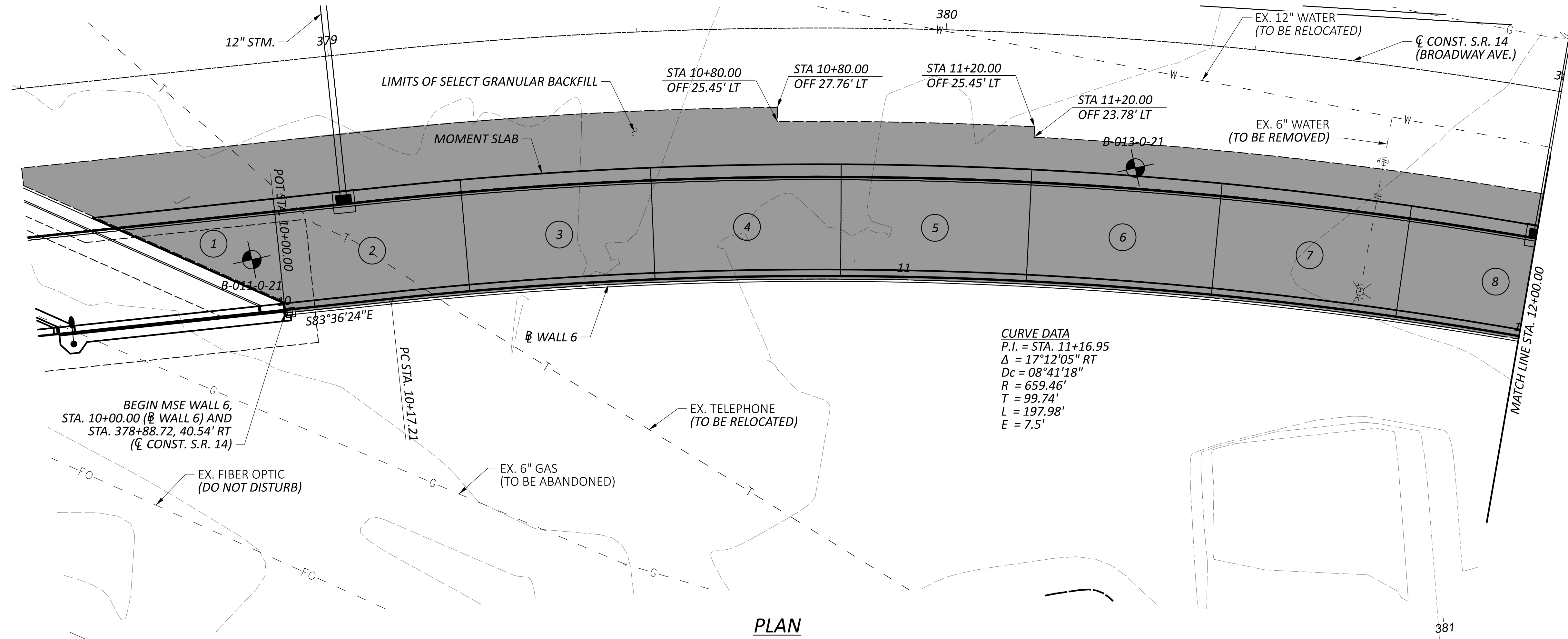
- # - MOMENT SLAB PANEL NUMBER
- - PROJECT BORING LOCATION

NOTES:

1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET 10 | 25.
2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET 25 | 25.

WALL 5 - SITE PLAN
BRIDGE NO. CUY-00014-06.930
BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	-
DESIGN AGENCY	-
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	104132
SUBSET	TOTAL
18	25
SHEET	TOTAL
P.339	399



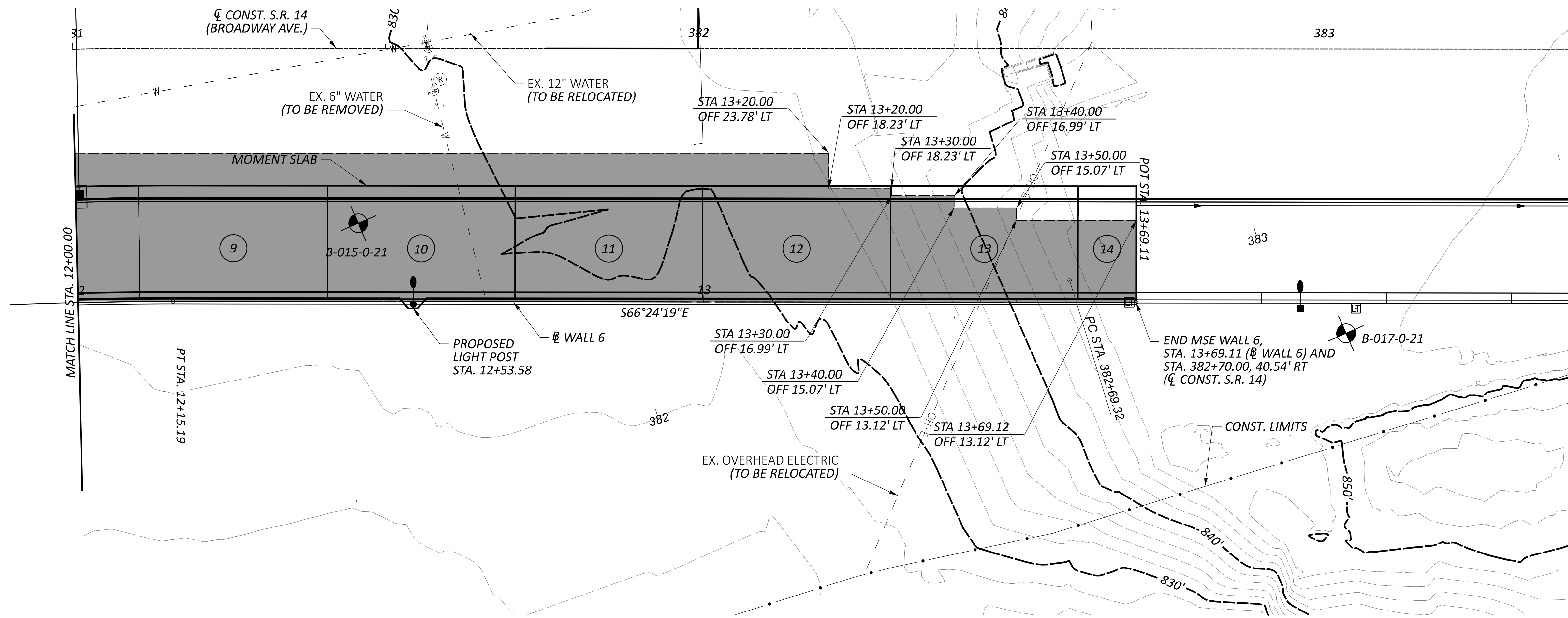
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- # - MOMENT SLAB PANEL NUMBER
- ⊙ - PROJECT BORING LOCATION

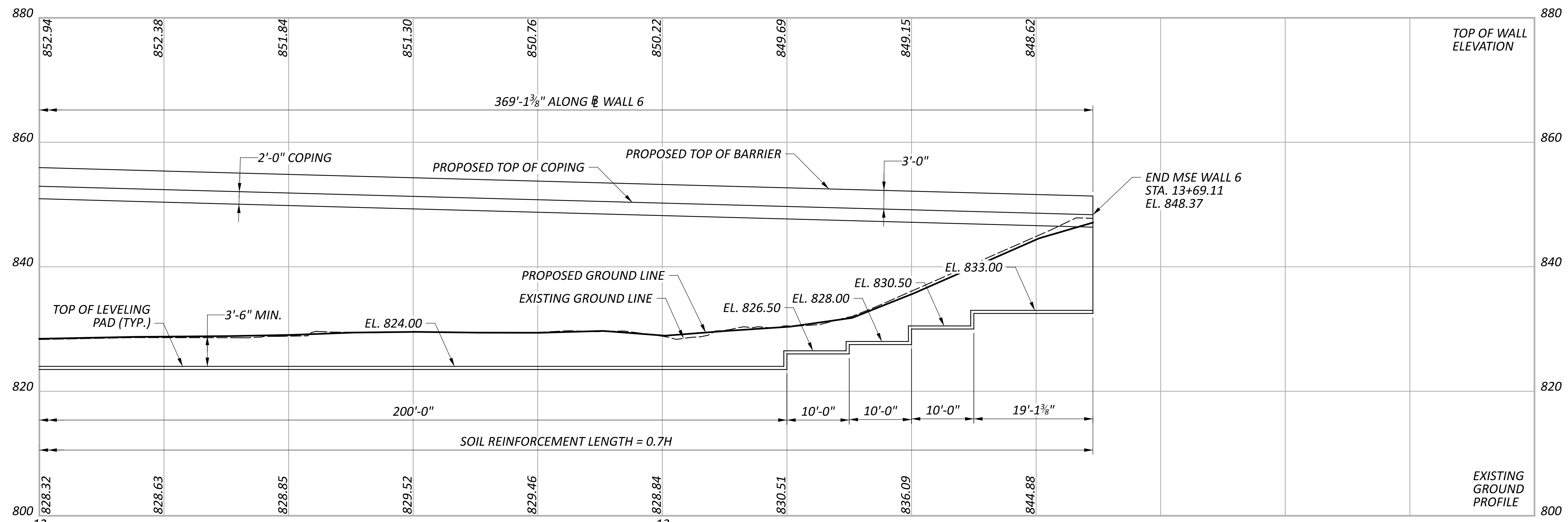
NOTES:

1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET [22 | 25].
2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET [25 | 25].

SFN	
DESIGN AGENCY	
AECOM 564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
20	25
SHEET	TOTAL
P.341	399



PLAN



PROFILE

LEGEND:

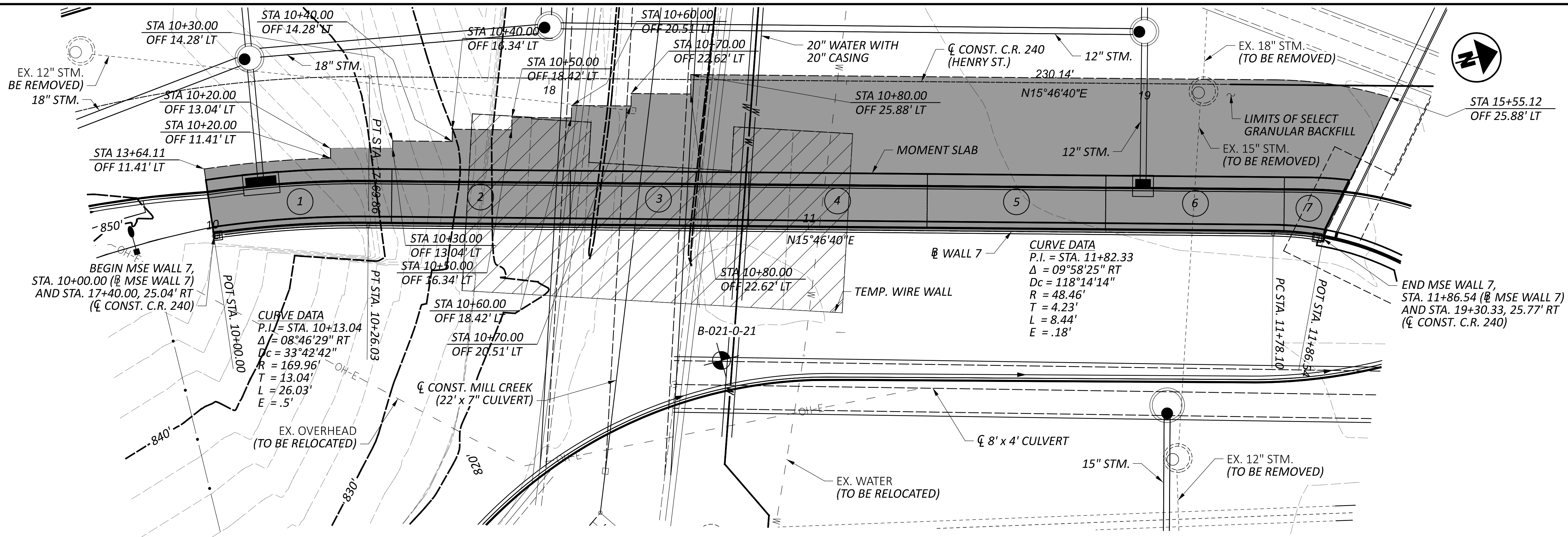
- # - MOMENT SLAB PANEL NUMBER
- - PROJECT BORING LOCATION

NOTES:

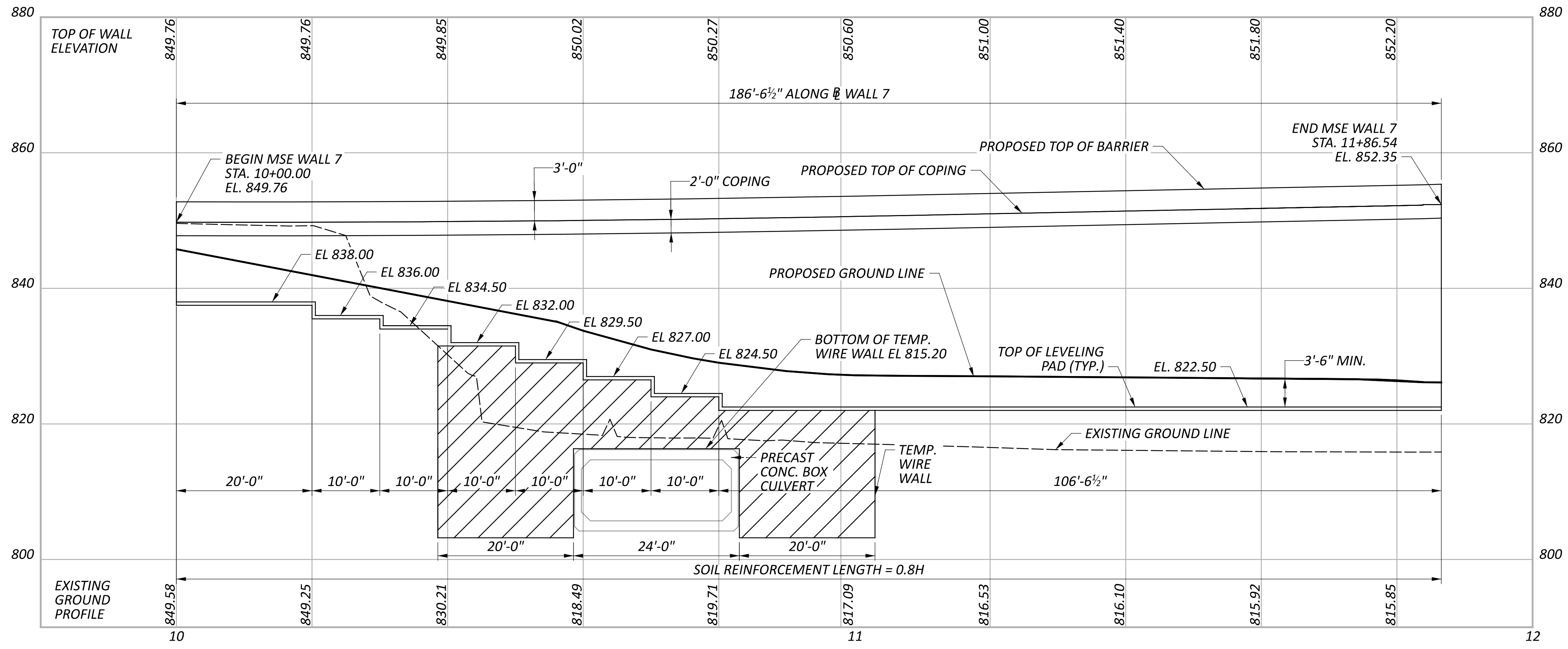
1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET [10 | 25].
2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET [25 | 25].

WALL 6 - SITE PLAN 2 OF 2
 BRIDGE NO. CUY-00014-06.930
 BROADWAY AVENUE (S.R. 14) OVER CHAINCRAFT ROAD, W&LE AND NS RAILWAYS

SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
21	25
SHEET	TOTAL
P.342	399



PLAN



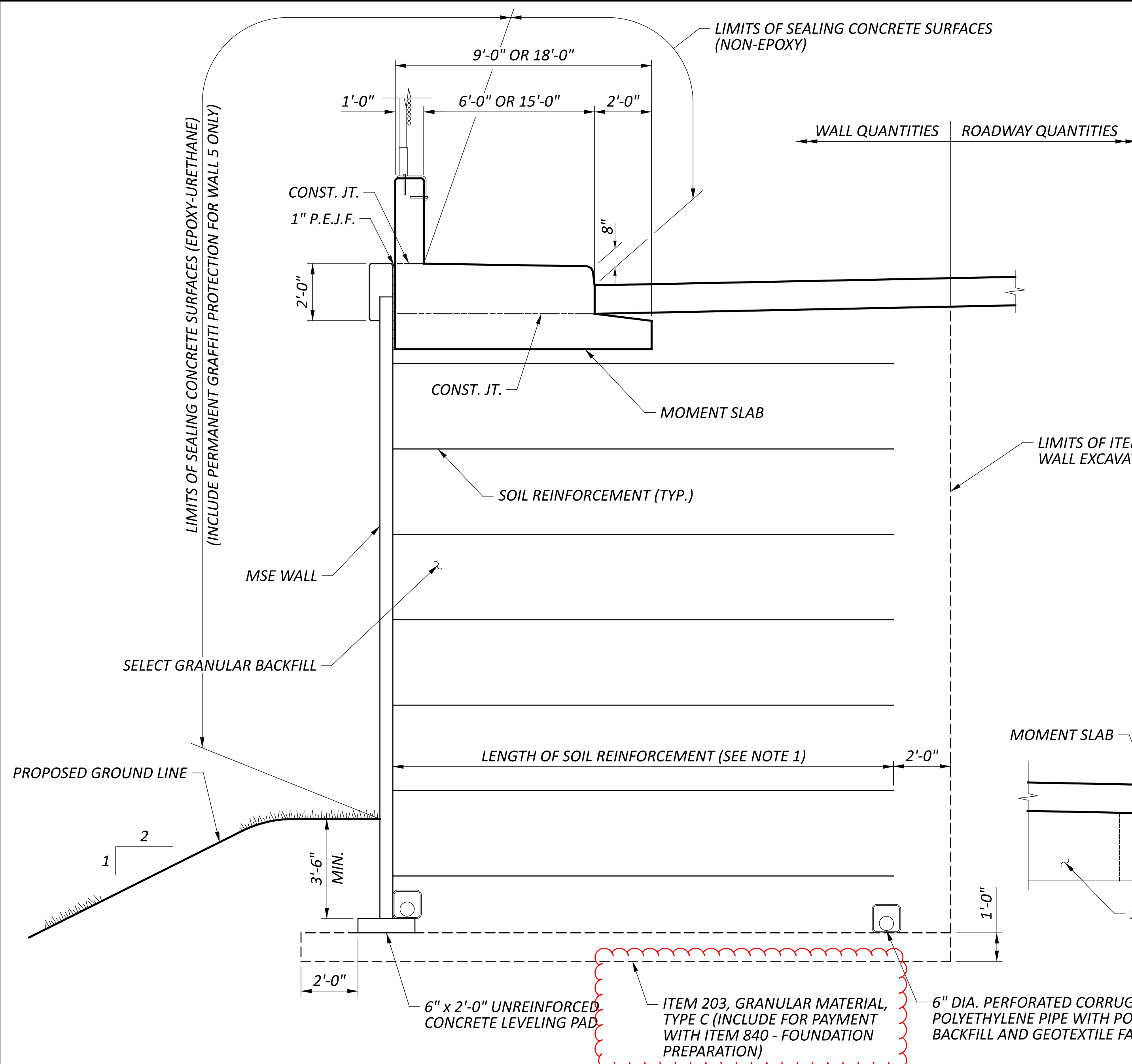
PROFILE

- LEGEND:**
- # - MOMENT SLAB PANEL NUMBER
 - - PROJECT BORING LOCATION
 - [Hatched Box] - TEMPORARY WIRE WALL SOIL REINFORCEMENT LENGTH EQUAL TO 0.6(H1+H2), WHERE H1 IS THE HEIGHT OF THE TEMPORARY WIRE WALL AND H2 IS THE HEIGHT OF WALL 7. SEE SFN 1834038 FOR ADDITIONAL INFORMATION. PAYMENT FOR THE TEMPORARY WIRE FACED WALL WILL BE INCLUDED FOR PAYMENT WITH SFN 1834038 ITEM 867 - TEMPORARY WIRE FACED MECHANICALLY STABILIZED EARTH WALL.

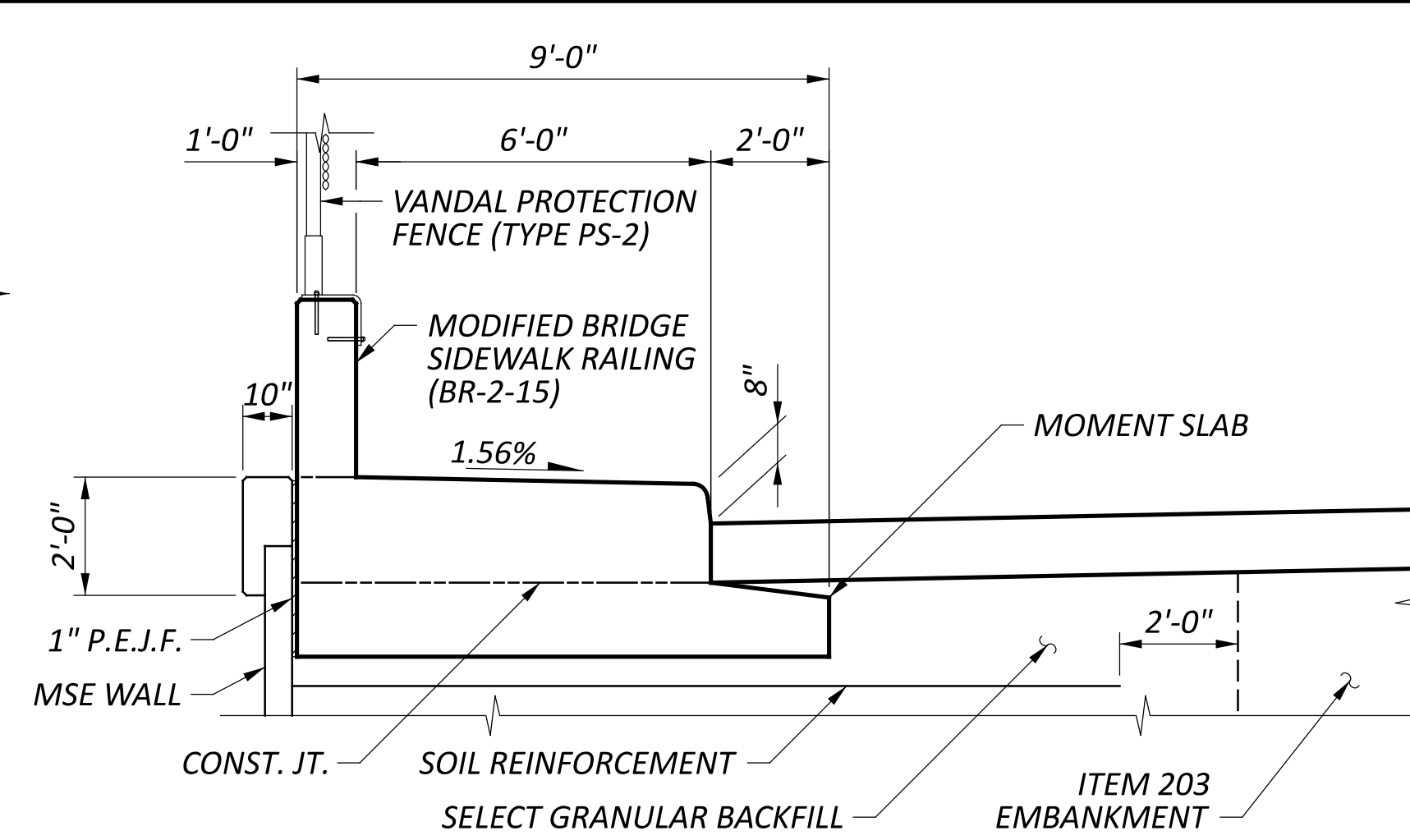
- NOTES:**
1. FOR MOMENT SLAB SECTION, DETAILS AND NOTES, SEE SHEET [10 | 25].
 2. FOR MSE WALL SECTION, DETAILS AND NOTES, SEE SHEET [25 | 25].

WALL 7 - SITE PLAN
BRIDGE NO. CUY-CR00240-00.610
HENRY STREET (C.R. 240) OVER MILL CREEK

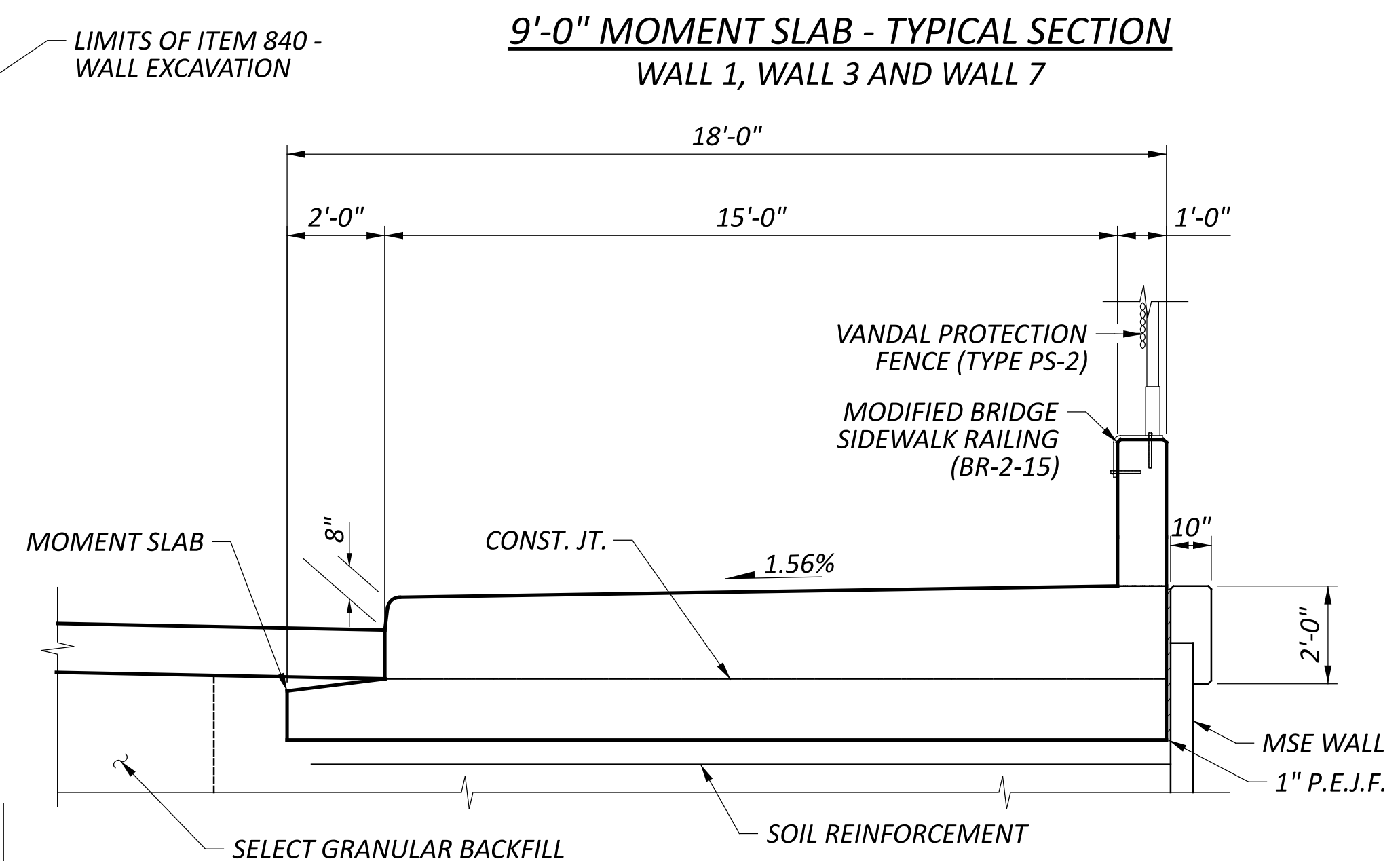
SFN	
DESIGN AGENCY	
AECOM	
564 White Pond Drive Akron, OH 44320 (330) 836-9111 www.aecom.com	
DESIGNER	CHECKER
HER	ERM
REVIEWER	
MRW 08/05/24	
PROJECT ID	
104132	
SUBSET	TOTAL
23	25
SHEET	
P.344	
TOTAL	
399	



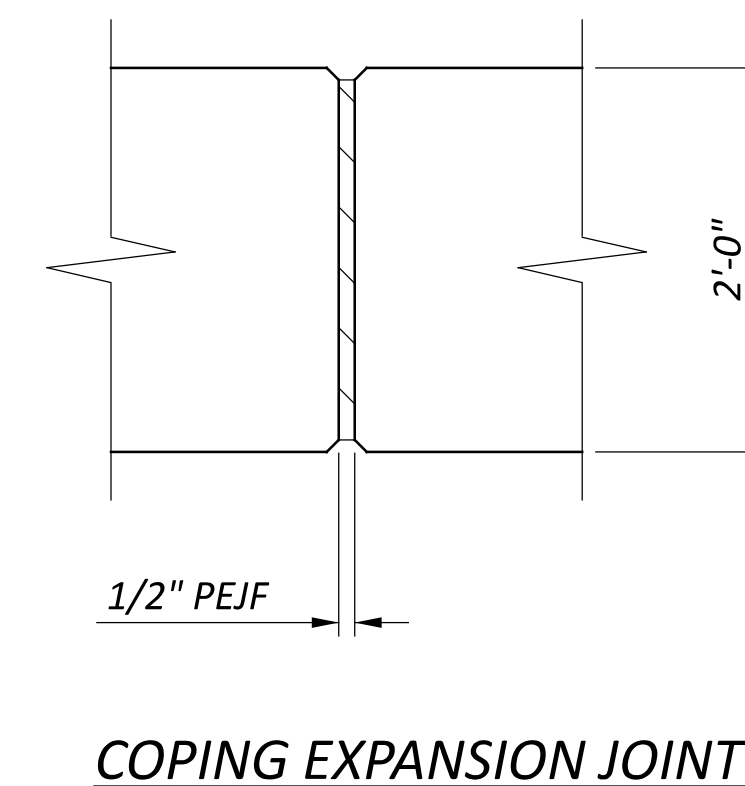
MSE WALL AND MOMENT SLAB - TYPICAL SECTION
 WALL 1, WALL 3, WALL 5, WALL 6 AND WALL 7



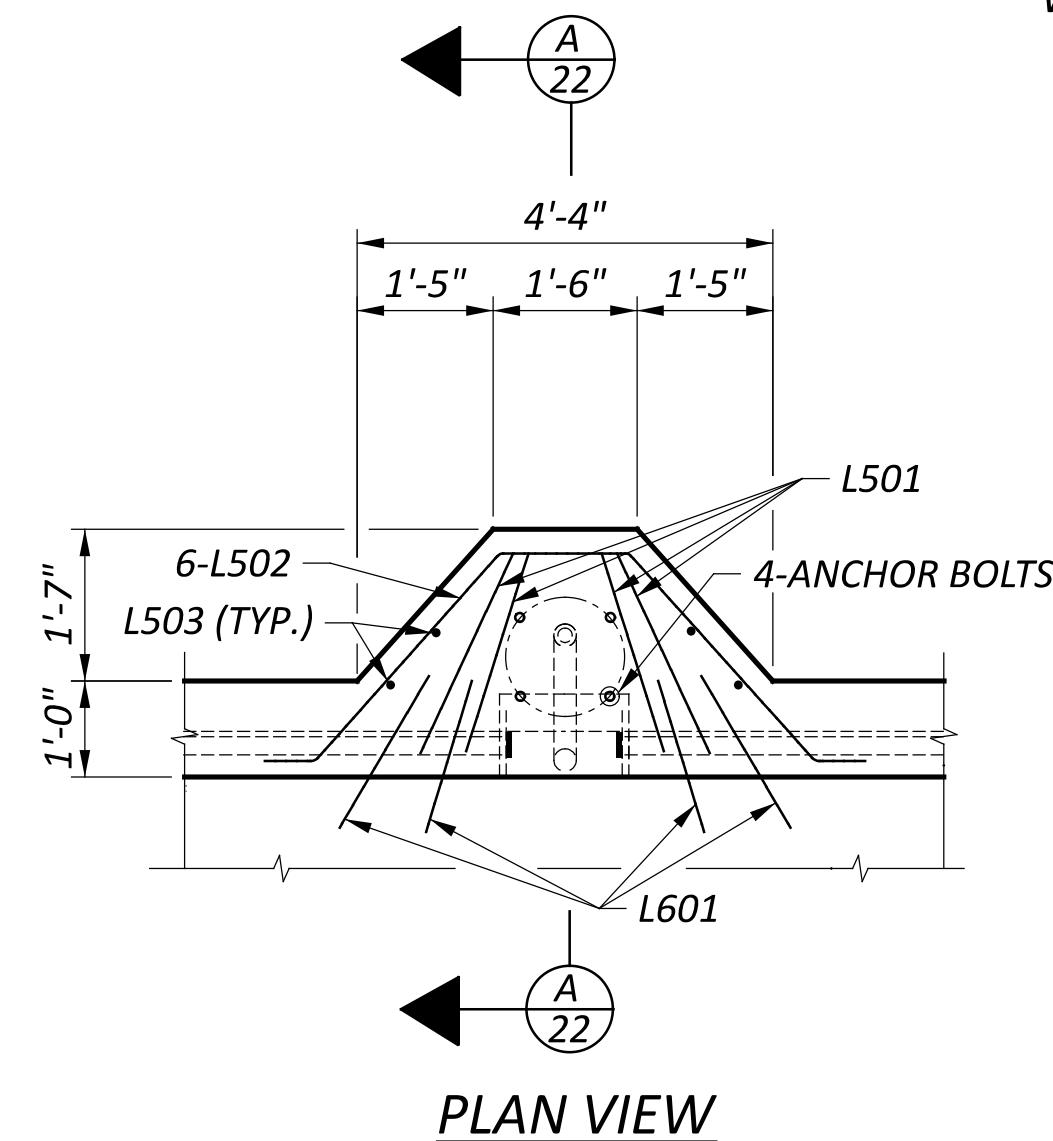
9'-0" MOMENT SLAB - TYPICAL SECTION
 WALL 1, WALL 3 AND WALL 7



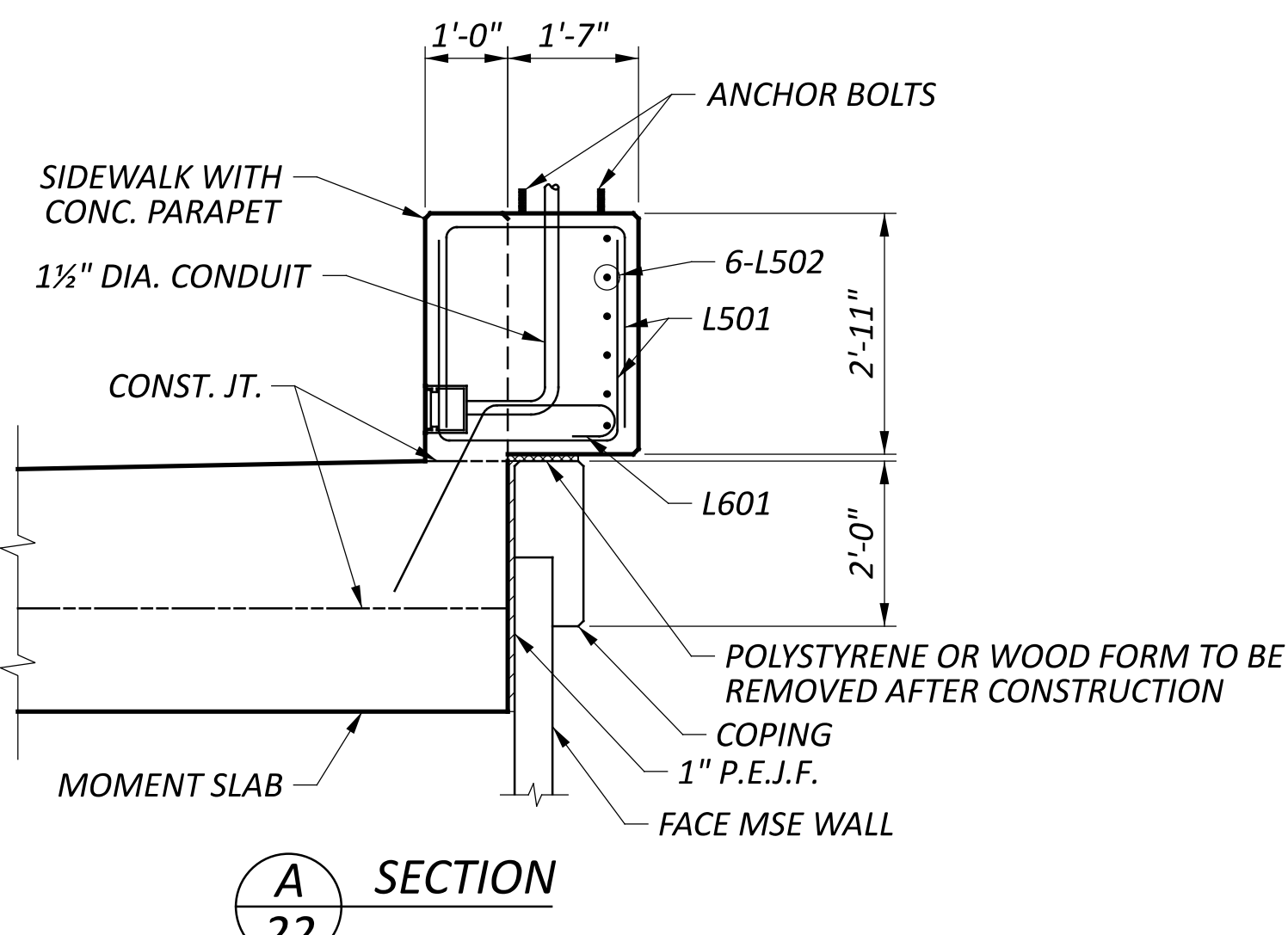
18'-0" MOMENT SLAB - TYPICAL SECTION
 WALL 5 AND WALL 6



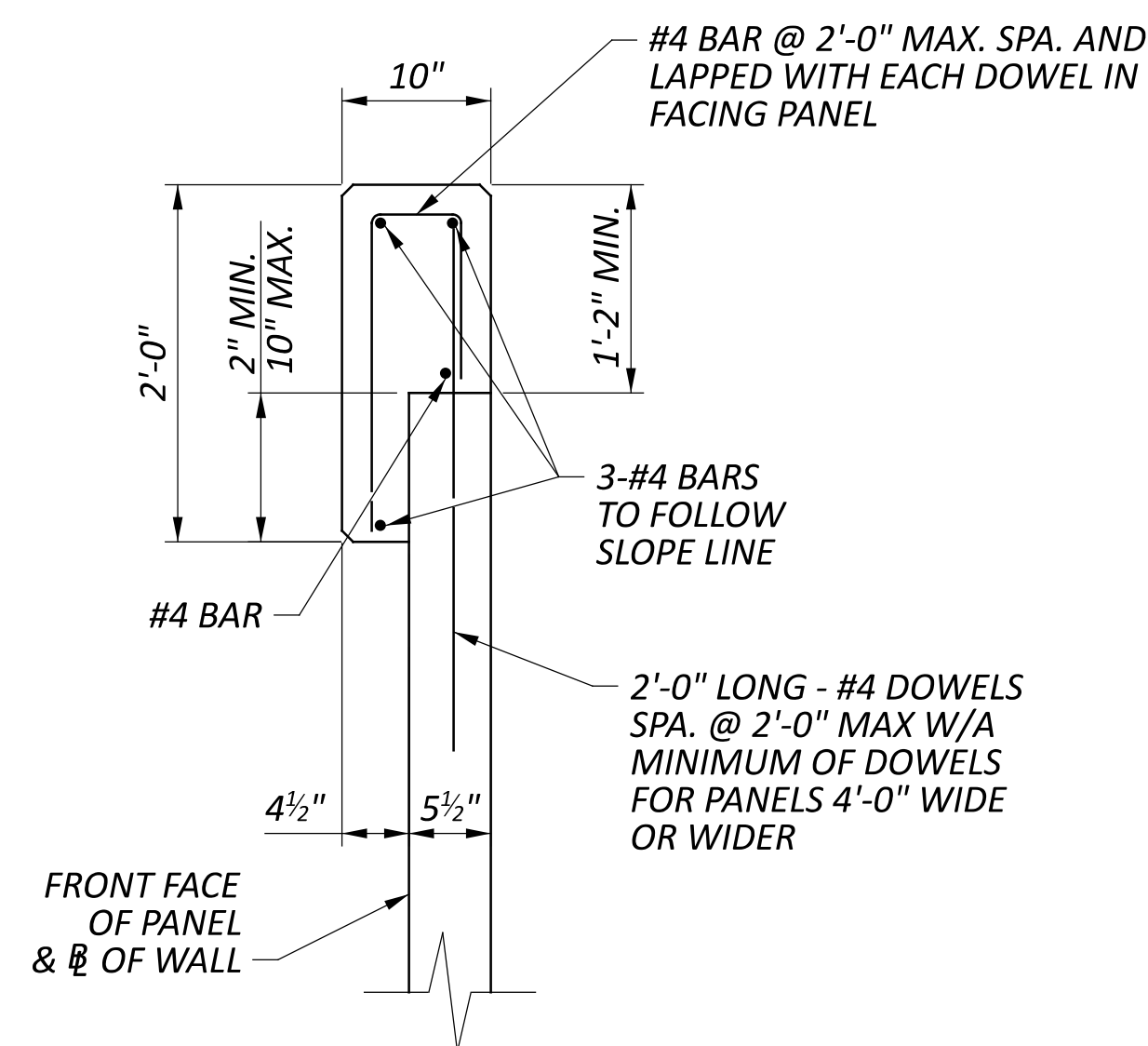
COPING EXPANSION JOINT



PLAN VIEW



SECTION A-22



MSE WALL COPING

NOTES:

1. PROVIDE SOIL REINFORCEMENT LENGTH AS SHOWN ON RESPECTIVE RETAINING WALL SITE PLAN SHEETS, BUT SHALL NOT BE LESS THAN 0.7H, WHERE H IS THE DESIGN HEIGHT OF THE WALL, OR 8'-0", WHICHEVER IS GREATER.
2. FLOW LINE OF 6" DIA. PERFORATED PLASTIC PIPE WILL VARY TO PROVIDE POSITIVE DRAINAGE AT OUTLET. MINIMUM SLOPE OF PIPE SHALL BE 1/8" PER FOOT.
3. THE THICKNESS OF MSE WALL PANELS IS ASSUMED AT 5 1/2".
4. COPING EXPANSION JOINTS SHALL BE SPACED NO MORE THAN 20 FEET APART AND ALIGNED WITH JOINTS BETWEEN FALING PANELS.
5. COMPACT EXPOSED BEARING SURFACE WITH VIBRATORY EQUIPMENT TO THE REQUIREMENTS OF CMS 204 AND SS 840.
6. THE RAILING AND/OR FENCE POST ANCHORS SHALL BE CAST-IN-PLACE WITH BARRIERS AND WILL BE INCLUDED FOR PAYMENT UNDER ITEM 607-VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC, AS PER PLAN.
7. ALL TOP OF WALL ELEVATIONS ARE GIVEN AT THE TOP OF COPING.
8. THE WALL BASELINE IS LOCATED AT THE FRONT FACE OF MSE WALL.
9. MINIMUM DISTANCE FROM THE PROPOSED GROUND SURFACE TO THE TOP OF THE LEVELING PAD IS DETERMINED BASED ON A FROST DEPTH OF 3.5 FT.
11. THE WALL PLANS PRESENT THE MINIMUM LOCATION WHERE STEPS IN THE LEVELING PAD CAN OCCUR. THE FINAL LOCATIONS WILL BE DETERMINED BY THE WALL MANUFACTURE IN THE SHOP DRAWING.
12. FOR ADDITIONAL LIGHTING POLE PILASTER DETAILS, SEE ODOT STD. DWG. HL-20.14.

DESIGN AGENCY	AECOM	
DESIGNER	CHECKER	REVIEWER
TLN	ERM	
PROJECT ID	104132	
SUBSET	TOTAL	
25	25	
SHEET	TOTAL	
P.346	399	