

MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT STPB 81018(6)

BRIDGE REPLACEMENT

OLD HWY 10 BRIDGES - E OF HYSHAM

TREASURE COUNTY

LENGTH N/A MILES

PROJECT DESIGN DATA

PRESENT 2025 A.D.T. = 290

LETTING 2026 A.D.T. = 290

DESIGN 2046 A.D.T. = 350

D.H.V. = 50

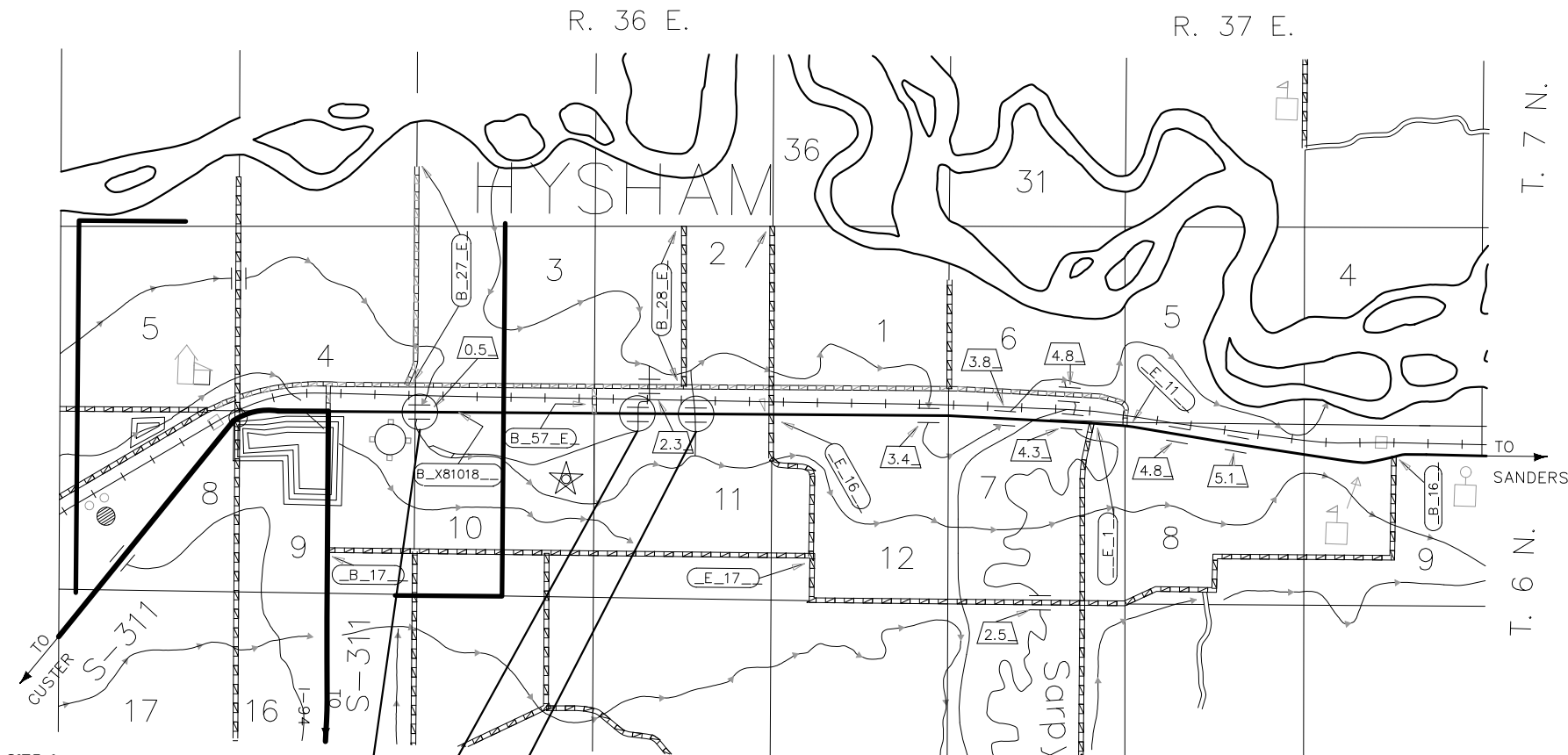
TRUCKS = 17.1%

V. = 60 MPH

18 KIP ESAL'S = 24 DAILY

ANNUAL GROWTH RATE = 1.0%

SURFACING SOURCES -  
CONTRACTOR FURNISHED



SITE 1  
RP 0.497 YELLOWSTONE IRR. DISTRICT CANAL  
26'x 26.7' BR. IN PL. REMOVE  
NB1 # L52086000+05001  
MDT STRUCTURE ID # 04639  
NEW DBL 12'X8'X60' RCB  
NB1# 000000202504639  
MDT STRUCTURE ID # 04639

SITE 2  
RP 1.709  
21'x 27' BR. IN PL. REMOVE  
NB1 # L52086001+07201  
MDT STRUCTURE ID # 04640  
NEW 18'X8'X72' RCB  
NB1# 000000202504640  
MDT STRUCTURE ID # 04640

SITE 3  
RP 2.007  
20'x 26.9' BR. IN PL. REMOVE  
NB1 # L52086002+00191  
MDT STRUCTURE ID # 04641  
NEW 12'X6'X72' RCB  
NB1 # 000000202504641  
MDT STRUCTURE ID # 04641

MONTANA  
DEPARTMENT OF TRANSPORTATION

APPROVED BY:

HIGHWAYS  
ENGINEER

Signed by:

David Holien

4FA8874BB4E5415...

DATE

6/4/2026

20186PE

DAVID  
HOLIEN  
20186PE  
LICENSED  
PROFESSIONAL ENGINEER

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SITE 1

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SHEET NO.

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13-15

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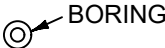
BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)  
EMULSIFIED ASPHALT - TACK (ALL OTHER SURFACES) = 0.05 GAL. PER SQ.YARD (UNDILUTED)  
EMULSIFIED ASPHALT - FOG SEAL (RUMBLE STRIPS) = 0.10 GAL. PER SQ.YARD (UNDILUTED)  
EMULSIFIED ASPHALT SEAL = 0.42 GAL. PER SQ.YARD  
COVER = 25 LBS. PER SQ.YARD  
COMP. AGG. WEIGHT = 3,750 LBS PER CUBIC FOOT  
COMP. WEIGHT OF PL. MIX BIT. SURF. = 4,167 LBS/CY  
BITUMINOUS MATERIAL = 8.5 LBS PER GALLON

SOILS INFORMATION

SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION. THE LOCATION OF GEOTECHNICAL BORINGS IS SHOWN ON THE PLAN VIEW WITH THE FOLLOWING SYMBOL:

BORING NUMBER



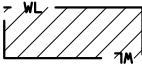
(GEOTECHNICAL BORING)

UTILITIES

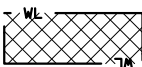
CALL THE UTILITIES UNDERGROUND LOCATION CENTER (811) OR OTHER NOTIFICATION SYSTEM FOR THE MARKING AND LOCATION OF ALL LINES AND SERVICES BEFORE EXCAVATING. ALL CLEARANCES OR DEPTHS PROVIDED FOR UTILITIES ARE FROM EXISTING GROUND LINE.

WETLANDS

WETLANDS EXIST ADJACENT TO THE ROADWAY AND MAY EXIST BEYOND THE PROJECT LIMITS. WETLAND AREAS AND PERMANENT WETLAND IMPACT AREAS WITHIN THE PROJECT LIMITS HAVE BEEN DELINEATED AND ARE SHOWN ON THE PLANS. ANY ACTION IMPACTING WETLAND AREAS OUTSIDE OF THE PERMANENT IMPACT AREAS SHOWN IS THE RESPONSIBILITY OF THE CONTRACTOR.



DELINEATED WETLAND AREAS



PERMANENT WETLAND IMPACTED AREAS

SITE 1 CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
100+00.00	BP	753,776.5870	2,544,874.1530	BEGIN ALIGNMENT
103+50.00	PI	753,782.9754	2,545,199.0902	BEGIN PROJECT
106+75.00	PI	753,790.3043	2,545,574.0186	END PROJECT
110+00.00	EP	753,796.1217	2,545,873.9659	END ALIGNMENT

ALIGNMENT NAME: HA\_DSNCLO01

PROFILE NAME: 9717000\_RD\_PP\_SITE1

SITE 2 CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
200+00.00	BP	753,897.2551	2,551,415.9903	BEGIN ALIGNMENT
203+25.00	PI	753,903.3455	2,551,715.9284	BEGIN PROJECT
206+50.00	PI	753,910.5737	2,552,090.8586	END PROJECT
210+00.00	EP	753,916.4734	2,552,415.8080	END ALIGNMENT

ALIGNMENT NAME: HA\_DSNCLO02

PROFILE NAME: 9717000\_RD\_PP\_SITE2

SITE 3 CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
300+00.00	BP	753,927.4363	2,553,010.7223	BEGIN ALIGNMENT
303+00.00	PI	753,932.2197	2,553,285.6806	BEGIN PROJECT
306+25.00	PI	753,938.9556	2,553,660.6197	END PROJECT
310+00.00	EP	753,945.8163	2,554,010.5580	END ALIGNMENT

ALIGNMENT NAME: HA\_DSNCLO03

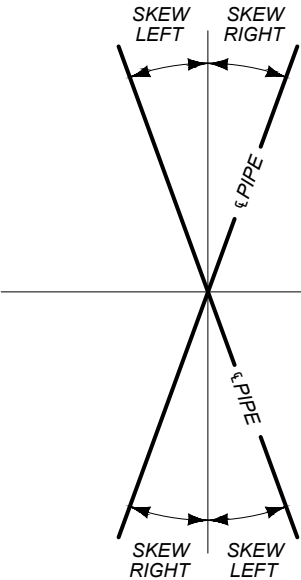
PROFILE NAME: 9717000\_RD\_PP\_SITE3

WETLAND DELINEATION TABLE

WETLAND DESIGNATION	STATION		WETLAND AREA				REMARKS
			DELINEATED AREA (sq. ft.)	DELINEATED AREA (acres)	PERMANENT IMPACTED AREA (sq. ft.)	PERMANENT IMPACTED AREA (acres)	
	FROM	TO					
	SITE 1						
WL1a	104+81	104+95	210.021	0.005	145.316	0.003	YELLOWSTONE DRAINAGE CANAL, LT.
WL1b	105+02	105+11	107.784	0.002	0.000	0.000	YELLOWSTONE DRAINAGE CANAL, LT.
# WL1c	105+13	105+48	887.660	0.020	211.921	0.005	YELLOWSTONE DRAINAGE CANAL, RT.
# WL1d	104+82	105+10	1,161.047	0.027	297.511	0.007	YELLOWSTONE DRAINAGE CANAL, RT.
	SITE 2						
WL2a	204+73	205+23	1,304.715	0.030	430.128	0.010	UNNAMED DRAINAGE CANAL, LT.
WL2b	204+40	205+00	2,007.862	0.046	377.819	0.009	UNNAMED DRAINAGE CANAL, RT.
	SITE 3						
WL3a	304+36	304+79	946.829	0.022	239.167	0.005	UNNAMED DRAINAGE CANAL, LT.
WL3b	303+76	304+81	1,289.114	0.030	483.086	0.011	UNNAMED DRAINAGE CANAL, RT.
	TOTAL		7,915.03	0.18	2,184.95	0.05	

# AREA OF EXISTING WETLAND EXTENDS BEYOND PLAN LIMITS

SKEW DIAGRAM



SHEET NO.

2

TABLE OF CONTENTS  
AND NOTES

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

UPN  
9717000

DESIGNED BY  
B. HENDERSON

REVIEWED BY  
J. BROTZLER

CHECKED BY  
J. SOLIDAY

MONTANA  
Department of Transportation

PLANS

4/13/2026 5:20 AM

NOTES

APPROACHES (FOR INFORMATION ONLY)													
STATION	TYPE	linear feet				EXISTING SURFACING	feet		PROPOSED SURFACE	tons	cu. yards	gallons	REMARKS
		WIDTH	RADIUS #		LENGTH		PMS THK.	CAC THK.		COMMERCIAL PLANT MIX GRADE 5-3/4" PG 58H-34	CRUSHED AGG. COURSE	EMULS. ASPHALT TACK	
			LEFT	RIGHT									
SITE 1													
104+67	FARM FIELD	10	25	25	3.0	GRAVEL	0.3	0.5	3' PMS AND 3' GRAVEL	1	3	1	RT.
104+72	FARM FIELD	10	25	25	3.0	GRAVEL	0.3	0.5	3' PMS AND 3' GRAVEL	2	2	1	LT.
105+43	FARM FIELD	10	25	25	3.0	GRAVEL	0.3	0.5	3' PMS AND 3' GRAVEL	1	2	1	RT.
SITE 3													
304+96	FARM FIELD	10	25	25	3.0	GRAVEL	0.3	0.5	3' PMS AND 3' GRAVEL	1	4	1	RT.
SUBTOTAL	FARM FIELD									5	11	4	
TOTAL										5	11	4	

# ALL RADII MEASURED TO EDGE OF SHOULDER

SHEET NO.

3

NOTES

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY

TREASURE COUNTY

PROJECT ID

STPB 81018(6)

UPN

9717000

DESIGNED BY

B. HENDERSON

05/2024

REVIEWED BY

J. BROTZLER

05/2024

CHECKED BY

J. SOLIDAY

12/2025

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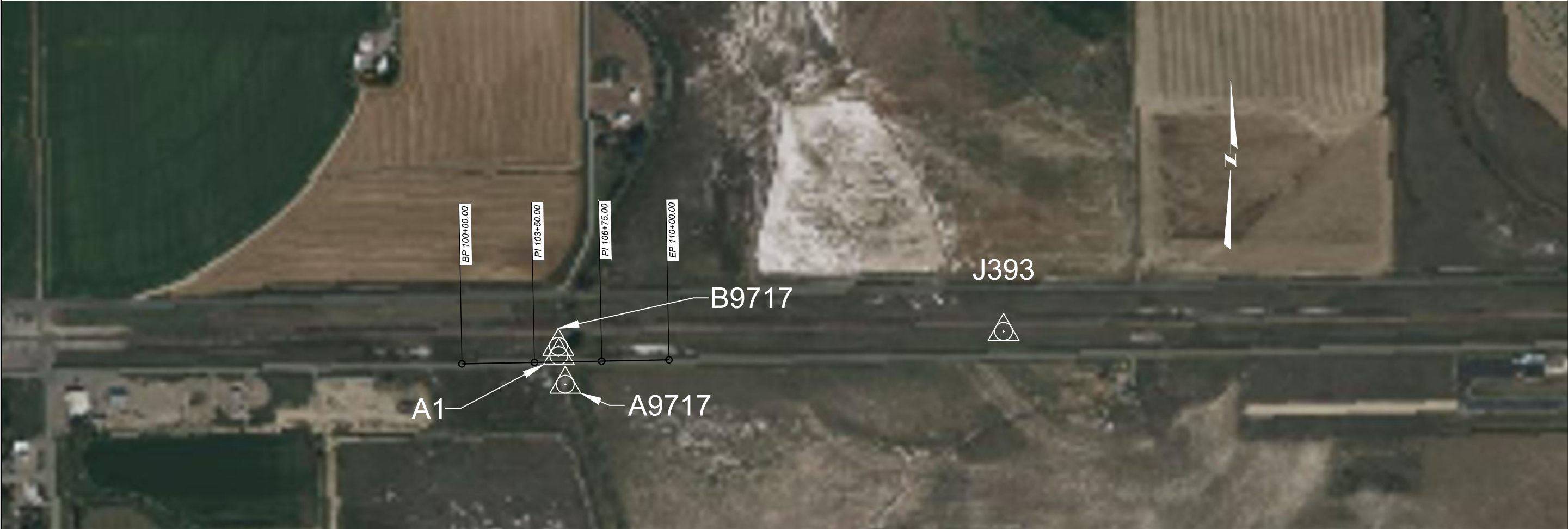
PLANS

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CONTROL DIAGRAM

SCALE: N/A



CONTROL ABSTRACT					
POINT NAME/NUMBER		N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
SITE 1	A1	753,815.708	2,545,341.893	2,634.91	
	A9717	753,677.849	2,545,373.246	2,635.14	SET MDT 2" CONTROL CAP ON 5/8" X 30" REBAR STAMPED "A9717" FLUSH WITH THE GROUND. THE MONUMENT IS AT MP 0.8. 100' S OF EOP 3'W OF TOB 6' E OF CL OF 2 TRACK ROAD AND ON THE W SIDE OF BRIDGE.
	B9717	753,861.126	2,545,339.308	2,634.81	SET MDT 2" CONTROL CAP ON 5/8" X 30" REBAR STAMPED "B9717" FLUSH WITH THE GROUND. THE MONUMENT IS AT MP 0.5. 3'E OF WP OF TOB AND FIBER SIGN 60'N OF EOP ON W SIDE OF BRIDGE.
	J393	753,933.239	2,547,489.895	2,627.64	

NOTE:  
THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83-1992  
NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF  
INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET.  
DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING  
REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID  
DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE / CSF = GROUND  
DISTANCE). THE CSF FOR THIS PROJECT IS 0.99934756

BEARING SOURCE  
GRID -- MONTANA COORDINATE SYSTEM NAD83-1992  
GEOID MODELED USING GEOID03

LEVEL DATUM SOURCE  
ELEVATIONS ARE GNSS DERIVED ELEVATIONS

SHEET NO.

4

SITE 1  
CONTROL DIAGRAM  
& ABSTRACT

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY

TREASURE COUNTY

PROJECT ID

STPB 81018(6)

UPN

9717000



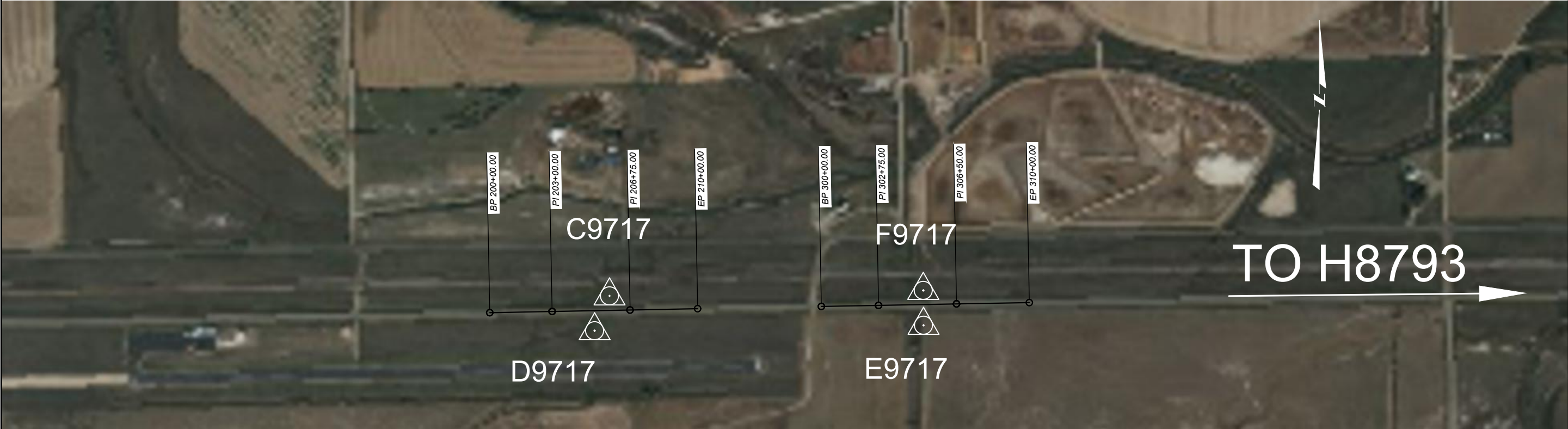
PLANS

3/24/2026 9:25 AM



CONTROL DIAGRAM

SCALE: N/A



CONTROL ABSTRACT					
	POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
SITE 2	C9717	753,977.854	2,551,991.914	2,622.69	SET MDT 2" CONTROL CAP ON 5/8" X 30" REBAR STAMPED "C9717" FLUSH WITH THE GROUND. THE MONUMENT IS AT MP 1.8. 3' S OF WP NE OF BRIDGE 58' N OF EOP.
	D9717	753,810.491	2,551,920.280	2,622.65	SET MDT 2" CONTROL CAP ON 5/8" X 30" REBAR STAMPED "D9717" FLUSH WITH THE GROUND. THE MONUMENT IS AT MP 1.8. 8' S OF EOP AND SE CORNER OF BRIDGE 3'E OF WP AND TOB.
SITE 3	E9717	753,836.738	2,553,501.924	2,622.08	SET MDT 2" CONTROL CAP ON 5/8" X 30" REBAR STAMPED "E9717" FLUSH WITH THE GROUND. THE MONUMENT IS AT MP 2.01. 78' S OF EOP AND SE CORNER OF BRIDGE 2' E OF WP AND TOB.
	F9717	754,004.507	2,553,500.569	2,620.68	SET MDT 2" CONTROL CAP ON 5/8" X 30" REBAR STAMPED "F9717" FLUSH WITH THE GROUND. THE MONUMENT IS AT MP 2.01. 3' S OF WP 15' N OF FIBER SIGN 51'N OF EOP AND NE CORNER OF BRIDGE.
	H8793	753,992.090	2,565,422.107	2,611.03	

NOTE:  
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NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF  
INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET.  
DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING  
REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID  
DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE / CSF = GROUND  
DISTANCE). THE CSF FOR THIS PROJECT IS 0.99934756

BEARING SOURCE  
GRID -- MONTANA COORDINATE SYSTEM NAD83-1992  
GEOID MODELED USING GEOID03

LEVEL DATUM SOURCE  
ELEVATIONS ARE GNSS DERIVED ELEVATIONS

SHEET NO.

5

SITE 2 & SITE 3  
CONTROL DIAGRAM  
& ABSTRACT

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY

TREASURE COUNTY

PROJECT ID

STPB 81018(6)

9717000

DESIGNED BY  
B. HENDERSON

05/2024

REVIEWED BY

05/2024

CHECKED BY

12/2025

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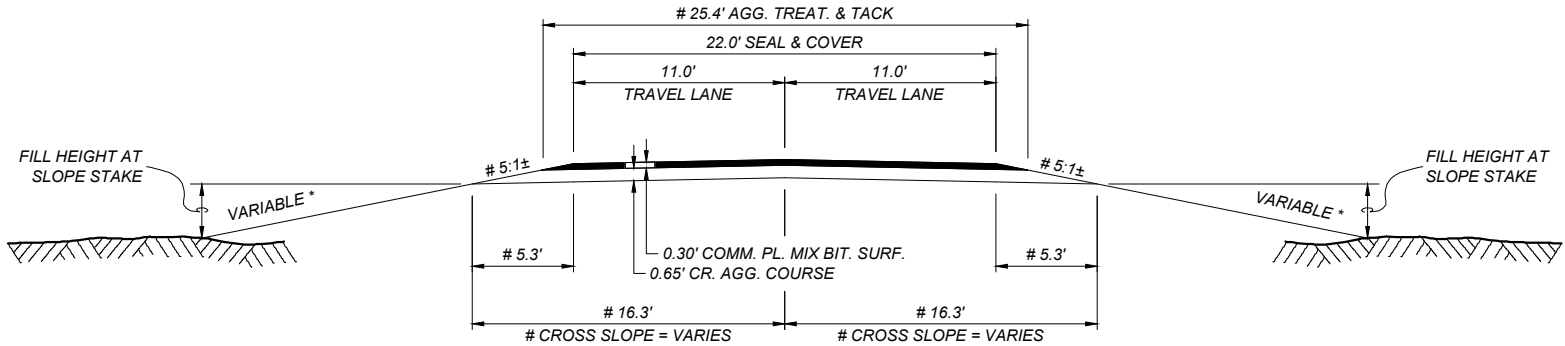


PLANS

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TYPICAL SECTION NO. 1

MAINLINE



SITE 1		
103+50.00	TO	106+75.00
SITE 2		
203+25.00	TO	206+50.00
SITE 3		
303+00.00	TO	306+25.00

QUANTITIES							
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		AGG. TREATMENT
	COVER	COMM. PLANT MIX	CR. AGG. COURSE		EMULSIFIED ASPHALT SEAL	EMULSIFIED ASPHALT TACK*	
AREA square feet		7.11	18.85	square yards PER STATION	244	564	282
cubic yards PER STATION		26.3	69.8	tons PER STATION	0.44		
tons PER STATION		54.8		gals. PER STATION		28	
square yards PER STATION	244						

\*\* BASED ON 2 APPLICATIONS

# SEE CROSS SECTIONS FOR DEVIATIONS  
IN WIDTHS OR SLOPES

\*SEE CROSS SECTIONS FOR DEVIATIONS

*FILL SLOPES		*BACK SLOPES	
0' - 10'	4:1	0' - 5'	5:1
10' - 20'	3:1	5' - 10'	4:1
20' - 30'	3:1	10' - 15'	3:1
OVER 30'	2:1	OVER 15'	2:1

SHEET NO.

6

TYPICAL

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM  
COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

UPN  
9717000

DESIGNED BY	05/2024
B. HENDERSON	
REVIEWED BY	05/2024
J. BROTZLER	
CHECKED BY	12/2025
J. SOLIDAY	

	PLANS	11/29/2025 8:45 AM

AWARD COPY

SUMMARY

SHEET NO.

7

SUMMARY

SURFACING													
STATION		linear feet				FOR	AGGREGATE			BITUMINOUS MATERIAL		REMARKS	
		GROSS	NET	+	-		sq. yards	tons	cu. yards	tons	gals.		sq. yards
							COVER TYPE 1	COMMERCIAL PLANT MIX GRADE S-3/4" PG 58H-34	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT CHFRS-2P	EMULSIFIED ASPHALT TACK		AGG. TREAT.
FROM	TO												
SITE 1													
103+50.00	106+75.00	325.00	325.00				793	178	227	1.4	91	917	TYP. NO. 1
SITE 2													
203+25.00	206+50.00	325.00	325.00				793	178	227	1.4	91	917	TYP. NO. 1
SITE 3													
303+00.00	306+25.00	325.00	325.00				793	178	227	1.4	91	917	TYP. NO. 1
						ADDITIONAL SURFACING		5	11		4		
TOTAL		975.00	975.00	~	~		2,379	539	692	4.2	277	2,751	

REMOVE STRUCTURE		
STATION	lump sum	REMARKS
	REMOVE STRUCTURE	
105+06.7	1	26'X26.7' TIMBER BRIDGE
204+86.6	1	21'X27' TIMBER BRIDGE
304+68.5	1	20'X26.9' TIMBER BRIDGE
TOTAL	3	

ADDITIONAL SURFACING (INCLUDED IN SURFACING FRAME)													
STATION		linear feet				FOR	AGGREGATE			BITUMINOUS MATERIAL		sq. yards	REMARKS
		GROSS	NET	+	-		sq. yards	tons	cu. yards	tons	gals.		
							COVER TYPE 1	COMMERCIAL PLANT MIX GRADE S-3/4" PG 58H-34	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT CHFRS-2P	EMULSIFIED ASPHALT TACK	AGG. TREAT.	
FROM	TO												
SITE 1													
						3 - FARM FIELD APPROACHES		4	7		3		
SITE 3													
						1 - FARM FIELD APPROACH		1	4		1		
SUBTOTAL		~	~	~	~		~	5	11	~	4	~	

PAVEMENT MARKINGS *		
ITEM	UNIT	TOTAL
FINAL SWEEP AND BROOM	course mile	0.2

\*DUE TO SMALL QUANTITY MDT MAINTENANCE FORCES WILL REPLACE STRIPING. THE PROJECT MANAGER (EPM) SHALL BE RESPONSIBLE FOR NOTIFYING MDT MAINTENANCE FORCES AT THE APPROPRIATE TIME TO REQUEST STRIPING.

GRADING					
STATION		cu. yards			REMARKS
		UNCL. EXC.	EXCESS EXC.	EMB. +	
FROM	TO				
SITE 1					
		261		2	
SITE 2					
		301		5	
SITE 3					
		256		2	
				84	TOPSOIL REPLACEMENT
TOTAL		818	# 725	# 93	

# FOR INFORMATION ONLY

TOPSOIL & SEEDING						
STATION		cu. yards	acres			REMARKS
		TOPSOIL SALVAGING & PLACING	SEED	FERTILIZER	CONDITION SEEDBED *	
FROM	TO		NO. 1	NO.3	NO. 1	
SITE 1						
		33	0.1	0.3	0.1	0.4
SITE 2						
		28	0.1	0.3	0.1	0.4
SITE 3						
		23	0.1	0.3	0.1	0.4
TOTAL		84	0.3	0.9	0.3	* 1.2

\* FOR INFORMATION ONLY

TEMPORARY SHORING			
STATION		lump sum	REMARKS
		TEMP. SHORING	
FROM	TO		
203+25	306+25	1	LT & RT
TOTAL		1	

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY

TREASURE COUNTY

PROJECT ID

STPB 81018(6)

UPN

9717000

DESIGNED BY  
B. HENDERSON

05/2024

REVIEWED BY

05/2024

CHECKED BY

12/2025

J. SOLIDAY

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PLANS

4/2/2026 1:19 PM



SUMMARY

SHEET NO.

8

SUMMARY

CULVERTS																			
STATION	linear feet				CLASS OR THK.	END SECTIONS		linear feet	cu. yards						sq. yards	linear feet	SKEW ANGLE	CULVERT IN PL in x ft	REMARKS
	RCB			RCP				REMOVE PIPE CULVERT	FOUND-ATION MATERIAL	GRANULAR BEDDING MATERIAL	SPECIAL BACKFILL	INFILL MATERIAL	CULVERT EXC. **	CONCRETE - CLASS GENERAL	GEOTEXT. STAB.	HEIGHT OF COVER			
	DBL 12'X8'	18'X8'	12'X6'	24"		LEFT	RIGHT												
104+36				58	CL 3	FETS	FETS	49								2.9	1° RT	24" X 49' RCP	REMOVE EXISTING 24" RCP
105+08	60					WING WALL	WING WALL		163	65	607	75.6	819	0.0	433	1.7	0°	REMOVE EXISTING 26' X 26.7' TIMBER BRIDGE	1.5' EMBEDMENT/INFILL, IRRIGATION CUTOFF WALL LT. & RT.
204+88		72				SLOPED END	SLOPED END		0	61	275	69.3	782	16.2	0	1.9	0°	REMOVE EXISTING 21' X 27' TIMBER BRIDGE	1.5' EMBEDMENT/INFILL, DRAIN, CONCRETE EDGE PROTECTION AND CUT OFF WALLS LT. & RT., PIPE RUNNERS
304+66			72			SLOPED END	SLOPED END		91	45	198	29.3	508	12.3	309	1.6	6° LT	REMOVE EXISTING 20' X 27' TIMBER BRIDGE	1.0' EMBEDMENT/INFILL, DRAIN, CONCRETE EDGE PROTECTION AND CUT OFF WALLS LT. & RT., PIPE RUNNERS
305+06				74	CL 3	FETS	FETS	74								3.2	4° LT	24" X 74' RCP	REMOVE EXISTING 24" RCP
TOTAL	60	72	72	132	~	~	~	123	254	171	1,080	174.2	** 2109	28.5	742	~	~	~	

\*\* FOR INFORMATION ONLY

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OLD HWY 10 BRIDGES - E OF HYSHAM

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05/2024

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J. BROTZLER

05/2024

CHECKED BY

J. SOLIDAY

12/2025

9717000RDSUM100.DWG



PLANS

4/2/2026 1:19 PM



## HYDRAULIC DATA SUMMARY \*

[illegible]

**NOTES:**

\* H.W. ELEVATIONS SHOWN ARE BASED UPON PEAK FLOW ANALYSIS UNLESS NOTED IN REMARKS COLUMN.

ADDITIONAL GUIDANCE ON THE HYDRAULIC DATA SUMMARY SHEET CAN BE FOUND IN SECTION 11.8.2 OF THE HYDRAULICS MANUAL.

① STRUCTURE SIZE OR TYPE AND RELATED HYDRAULIC DATA MAY NOT REFLECT CHANGES MADE DUE TO R/W OR OTHER CONSIDERATIONS (I.E. STOCKPASS ADDED, STRUCTURE SIZE OR TYPE CHANGED, ROAD GRADE CHANGED DURING CONSTRUCTION, ETC.)

② BRIDGE TOP LENGTH AND NUMBER OF SPANS OR BASE BID CULVERT SIZE AND SHAPE.

③ OVERTOPPING IS DEFINED AS FLOW OVER THE ROAD, FLOW THROUGH A SIGNIFICANT RELIEF STRUCTURE OR FLOW OVER THE BASIN DIVIDE WHICHEVER IS LOWER.

④ FOR THOSE CROSSINGS NOTED BY Qp(max) IN THE REMARKS COLUMN, OVERTOPPING DOES NOT OCCUR THROUGH THE Qp(max) EVENT. Qp(max) IS THE 200 YEAR EVENT FOR CULVERTS AND THE 500 YEAR EVENT FOR BRIDGES.

⑤ HEAD WATER ELEVATIONS MAY VARY SLIGHTLY DEPENDING UPON THE PIPE OPTION SELECTED.

⑥ NOTE ANY CULVERTS THAT WERE SIZED USING THE HEADWATER EXCEPTION PROCEDURE PER SECTION 11.3.1.3.2 OF THE HYDRAULICS MANUAL. (FORMERLY CALLED PM10.)

EXCEEDANCE PROBABILITY	
25 YEAR	4% CHANCE
50 YEAR	2% CHANCE
100 YEAR	1% CHANCE
200 YEAR	0.5% CHANCE
500 YEAR	0.2% CHANCE



Department of Trans:

# HYDRAULICS

4/24/2026 6:59 AM

**PROJECT NAME**  
**OLD HWY 10 BRIDGES - E OF HYSHAM**

COUNTY

TREASURE COUNTY

PROJECT ID

119

**PB 81018(6)**  
**9717000**

**9717000**

***SHEET NO.***

## HYDRAULIC DATA SUMMARY

**SLOPED END  
RCB DETAIL  
NO SCALE**

PROJECT NAME  
**OLD HWY 10 BRIDGES - E OF HYSHAM**

TREASURE COUNTY

**STPB 81018(6)**

9717000

DESIGNED BY

J. HEIDNER	09/2025
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REVIEWED BY	DATE

C. KNU/H 09/2025

9717000HYDET001.DWG



**MONTANA**  
Department of Transportation

## HYDRAULICS

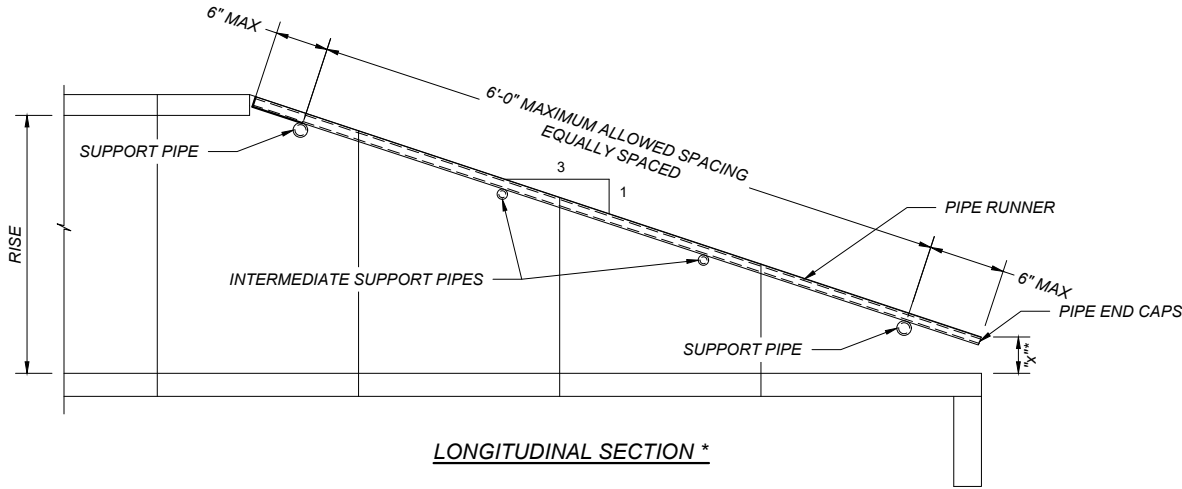
4/24/2026 6:59 AM



NOTES:  
INCLUDE REINFORCING, CUTOFF WALL, AND CONCRETE EDGE PROTECTION IN THE UNIT PRICE BID PER CUBIC YARD OF CLASS GENERAL CONCRETE.  
INCLUDE ANCHOR BOLTS IN THE UNIT PRICE BID PER LINEAR FOOT OF CULVERT.  
PROVIDE BOX CULVERTS MEETING ASTM C1577.  
QUANTITIES ARE BASED ON THE DIMENSIONS IN THE TABLE.

NOTES:

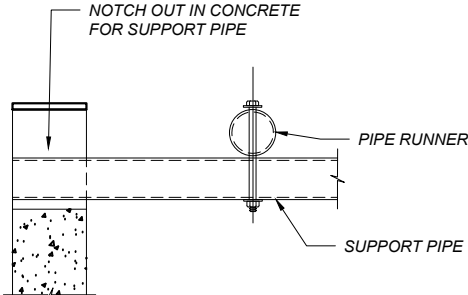
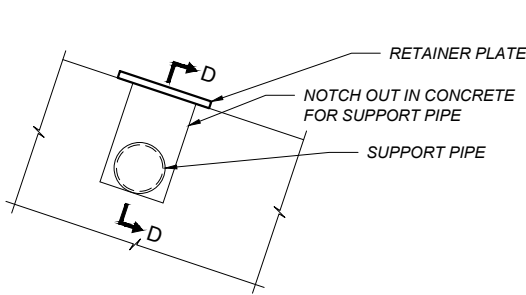
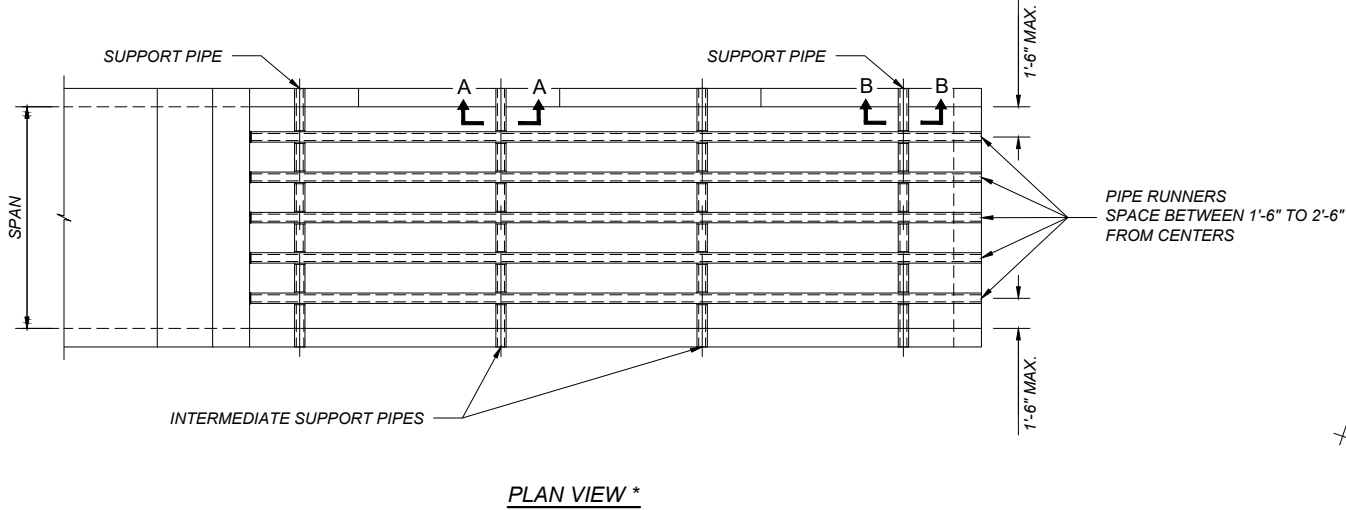
- ① EXCAVATE A SUFFICIENT AMOUNT TO PROVIDE A SAFE WORKING ENVIRONMENT AND TO ALLOW ACHIEVEMENT OF ALL CULVERT INSTALLATION AND COMPACTION REQUIREMENTS. SLOPE, BENCH OR PROVIDE SHORING FOR ALL EXCAVATIONS IN ACCORDANCE WITH THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.
- ② FOR ESTIMATING QUANTITIES ONLY. ACTUAL DIMENSION TO BE DETERMINED BY PRECAST MANUFACTURER.
- ③ 3'-0" MIN. OR 1'-0" BELOW BOTTOM OF FOUNDATION MATERIAL IF SPECIFIED.
- ④ COMPACT AND PLACE SIDE FILL PER SECTION 603 AND 203 OF THE STANDARD SPECIFICATIONS.
- ⑤ SEE SECTION 701 OF THE STANDARD SPECIFICATIONS FOR GRANULAR BEDDING REQUIREMENTS. THE CONTRACTOR HAS THE OPTION OF USING A SAND CUSHION ABOVE THE GRANULAR BEDDING TO FACILITATE JOINING OF THE BOX CULVERT SECTIONS.
- ⑥ SEE PIPE RUNNER DETAIL AND SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS FOR THE SLOPED END SECTIONS.



NOTES:

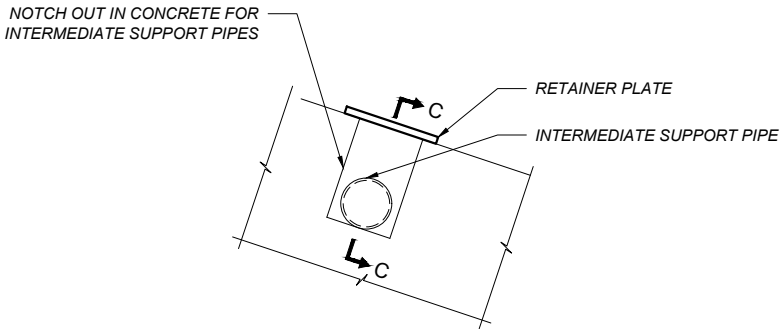
1. ANCHOR PIPE RUNNER ASSEMBLY IN A MANNER THAT ALLOWS REMOVAL FOR CLEANING. PIPE RUNNER ASSEMBLY TO BE CONSTRUCTED TO PREVENT LATERAL MOVEMENT.
2. FINAL DESIGN OF SUPPORT PIPE, INTERMEDIATE SUPPORT PIPES, NOTCH OUTS IN CONCRETE, BOLTS, WASHERS, RETAINER PLATES AND RETAINER PLATE HARDWARE TO BE PROVIDED BY CONTRACTOR. ALL DESIGN PLANS AND CALCULATIONS MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF MONTANA.
3. CONTRACTOR MAY PROVIDE AN ALTERNATIVE DESIGN FOR CONSIDERATION. CONTRACTOR PROVIDED ALTERNATIVE DESIGN MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF MONTANA.
4. ALL STEEL ASSOCIATED WITH PIPE RUNNERS SHALL BE GALVANIZED, INCLUDING PIPES, BOLTS, AND HARDWARE.
5. PIPE RUNNER ASSEMBLY SHALL PASS THE MASH TEST LEVEL 3 VEHICLE WITHOUT DEFLECTION EXCEEDING 4 INCHES.
6. ENSURE ALL MATERIALS ARE DOMESTIC STEEL AND IN COMPLIANCE WITH THE "BUY AMERICA" PROVISIONS OF 23 CFR 635.410(b). FURNISH THE APPROPRIATE MANUFACTURE'S MILL TESTS AND CERTIFICATIONS DOCUMENTING THE MANUFACTURING PROCESS, INCLUDING COATINGS, WERE PERFORMED IN THE UNITED STATES. SEE SECTION 106 OF THE STANDARD SPECIFICATION FOR ADDITIONAL DETAILS AND REQUIREMENTS.

\* SEE SLOPED END RCB DETAIL

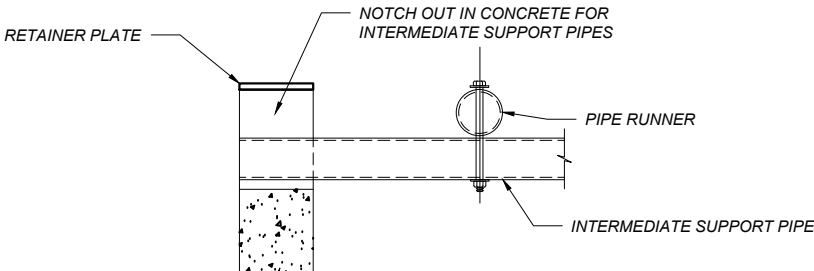


VIEW B-B


SECTION D-D



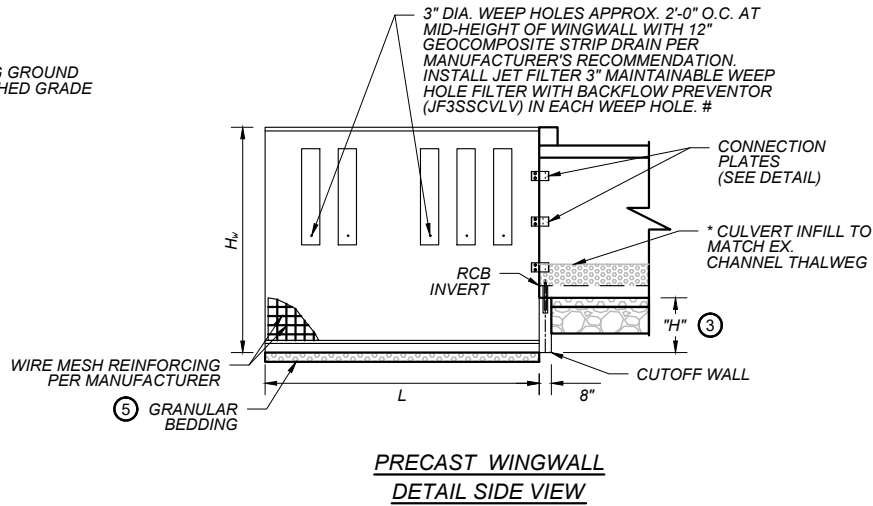
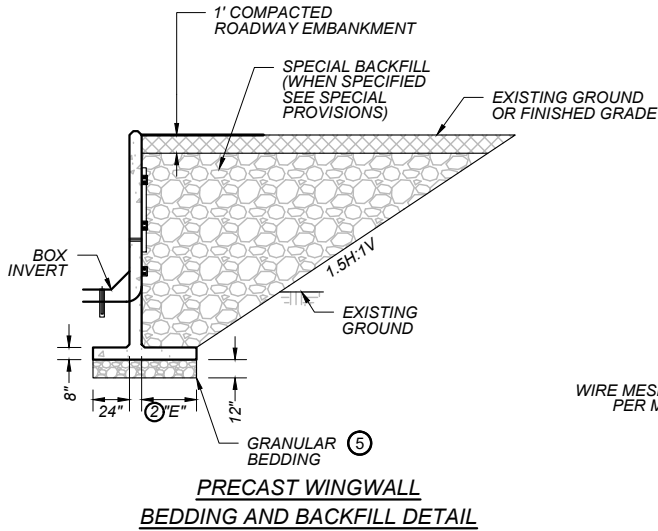
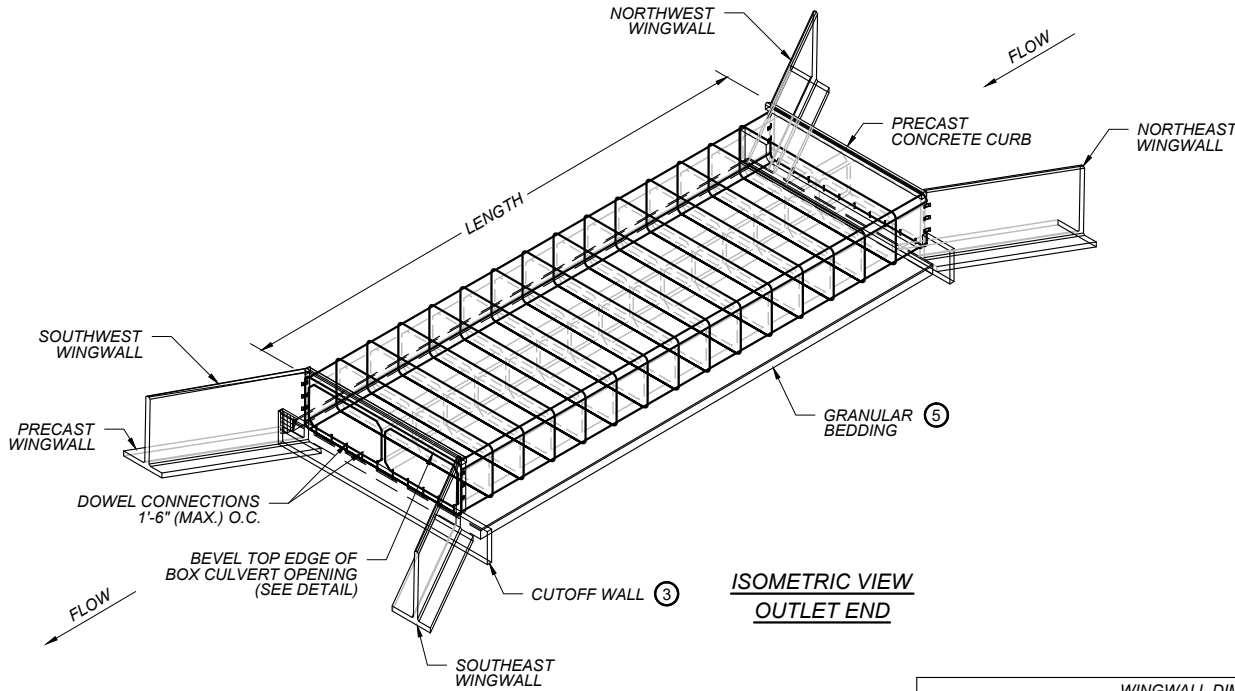
VIEW A-A



SECTION C-C

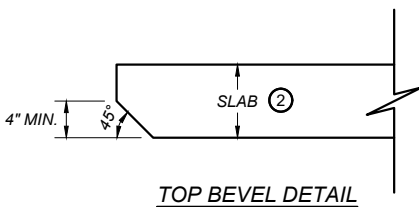
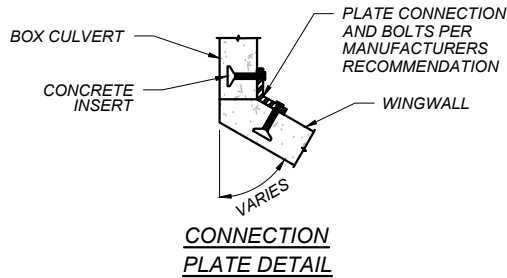
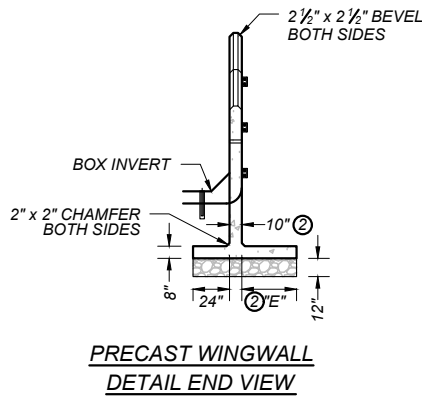
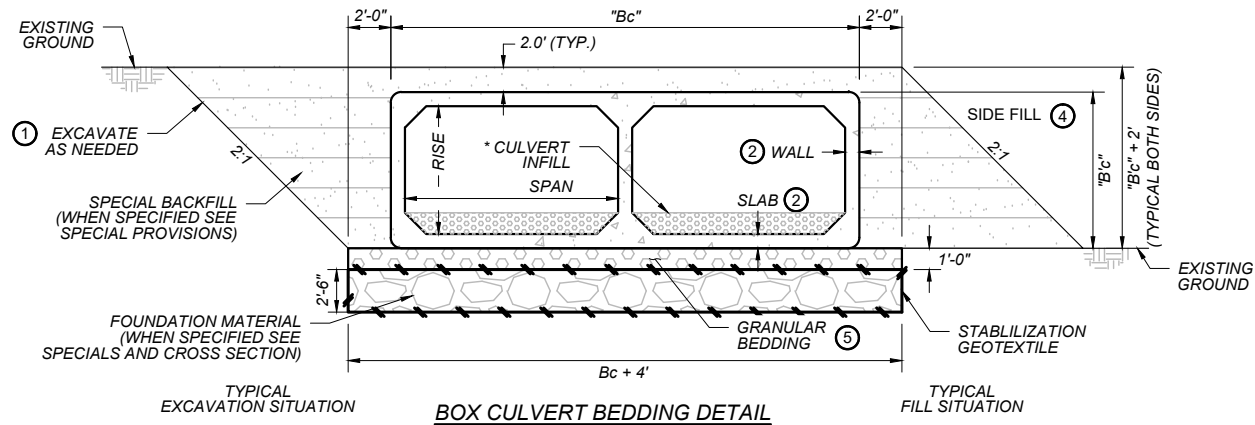
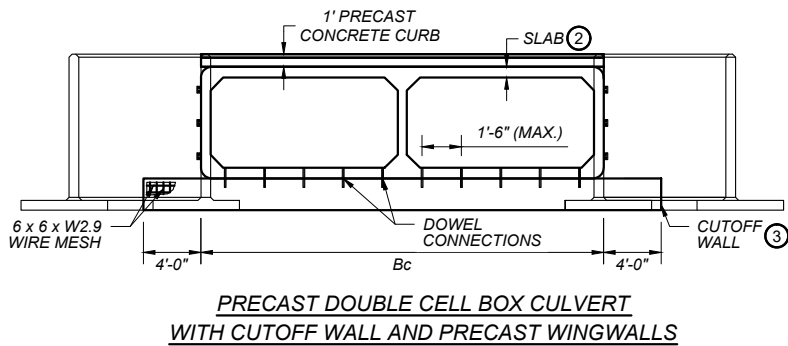
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	REVIEWED BY J. BROTZLER 03/2026		PROJECT ID STPB 81018(6)	
	CHECKED BY J. SOLIDAY 12/2025		UPN 9717000	
			9717000RDET001.DWG	





WINGWALL DIMENSIONS				
STATION	H <sub>w</sub> (FT)	L (FT)	WINGWALL ANGLE (°)	WINGWALL LOCATION
105+08 (SITE 1)	15.0	12	75	NORTHWEST
	15.0	7	60	NORTHEAST
	15.0	14	70	SOUTHWEST
	15.0	8	60	SOUTHEAST

* CULVERT INFILL QUANTITIES			
STATION	INFILL DEPTH (FT)	INFILL VOLUME (CY)	INFILL MATERIAL
105+08 (SITE 1)	1.5	75.6	SALVAGED STREAMBED MATERIAL. SEE SPECIAL PROVISION.



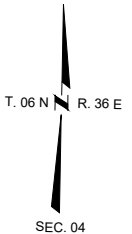
NOTES:

- EXCAVATE A SUFFICIENT AMOUNT TO PROVIDE A SAFE WORKING ENVIRONMENT AND TO ALLOW ACHIEVEMENT OF ALL CULVERT INSTALLATION AND COMPACTION REQUIREMENTS. SLOPE, BENCH OR PROVIDE SHORING FOR ALL EXCAVATIONS IN ACCORDANCE WITH THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.
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DIMENSIONS										
STATION	SPAN (ft.)	RISE (ft.)	LENGTH (ft.)	WALL (in.)	SLAB (in.)	"E" (in.)	"Bc" (ft.)	"B'c" (ft.)	"H" (ft.)	COVER (ft.)
105+08 (SITE 1)	12	8	60	8	9	54	26	9.5	4.5	1.7

NOTE: QUANTITIES ARE BASED ON THE DIMENSIONS IN THE TABLE. PROVIDE BOX CULVERTS MEETING ASTM C1577. INCLUDE PRECAST WINGWALLS, PRECAST CONCRETE CURBS, CUTOFF WALLS, SPECIAL BACKFILL BEHIND PRECAST WINGWALLS, GEOCOMPOSITE STRIP DRAINS, AND GRANULAR BEDDING BENEATH THE PRECAST WINGWALLS IN THE UNIT PRICE BID PER LINEAR FOOT OF RCB.

# PROVIDE A GEOCOMPOSITE STRIP DRAIN CONSTRUCTED OF A HDPE DRAINAGE CORE WITH A MINIMUM COMPRESSIVE STRENGTH OF 9000 PSF PER ASTM D 1621 AND A MINIMUM FLOW CAPACITY OF 20 GPM PER ASTM D 4716. THE STRIP DRAIN MUST BE WRAPPED IN A SUBSURFACE DRAINAGE GEOTEXTILE FILTER MEETING THE REQUIREMENTS OF HIGH SURVIVABILITY, CLASS B OF SECTION 716.



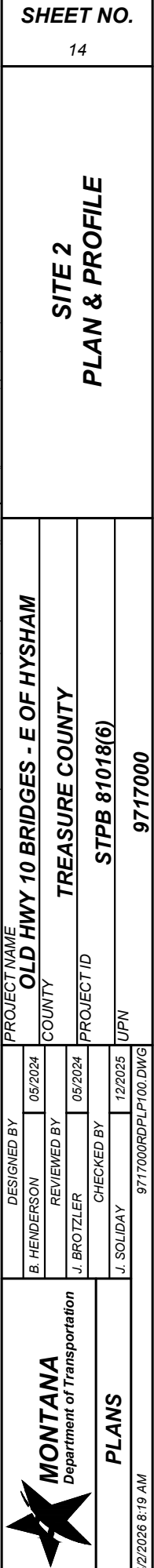
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# SITE 1 PLAN & PROFILE

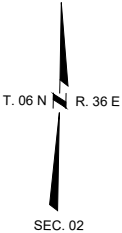
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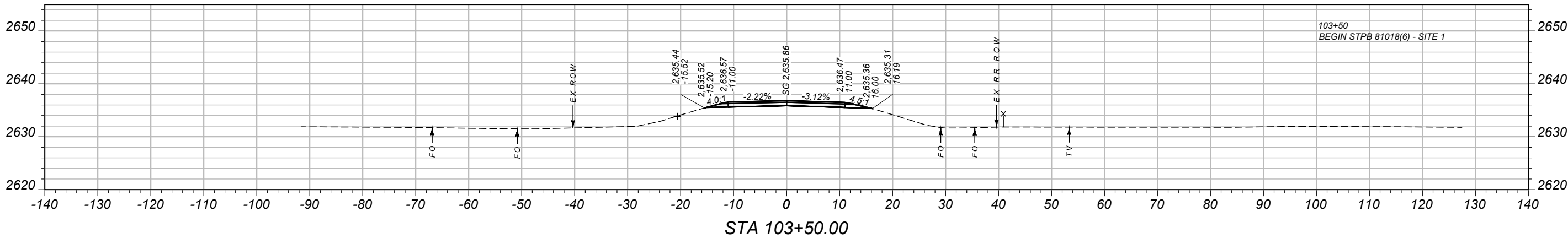
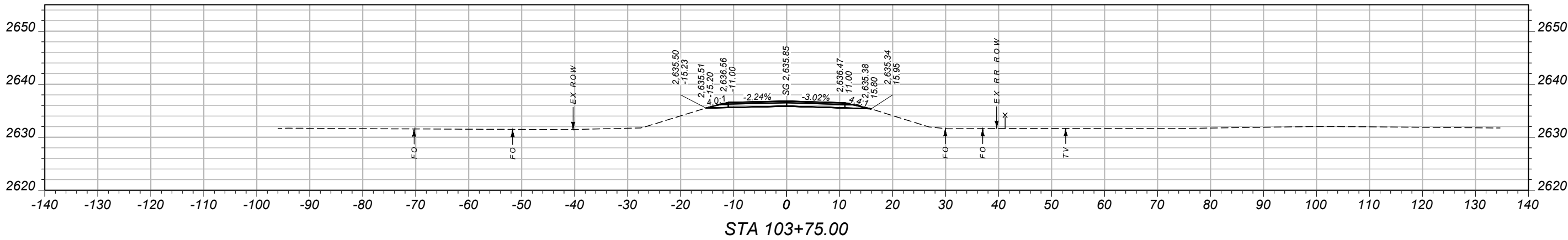
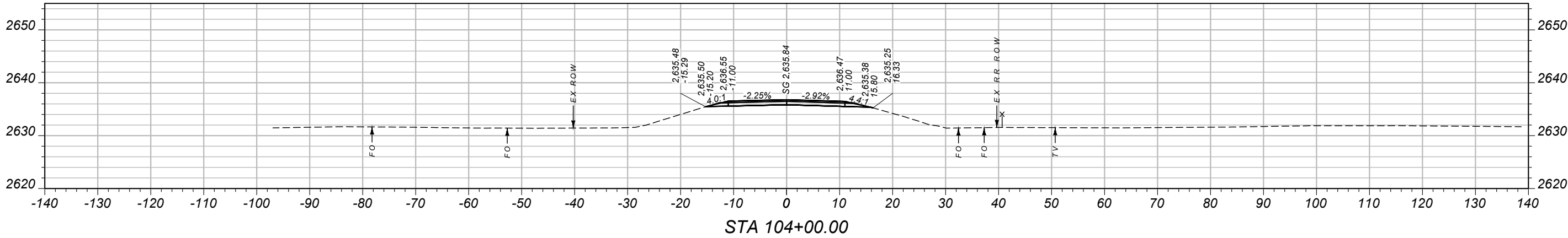


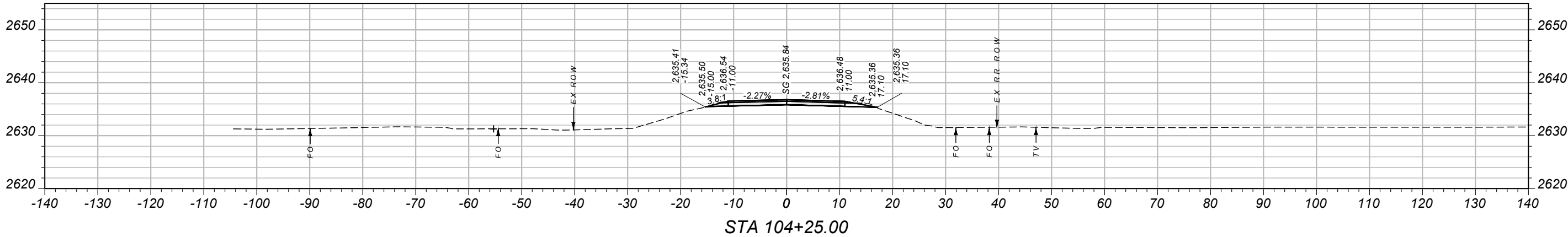
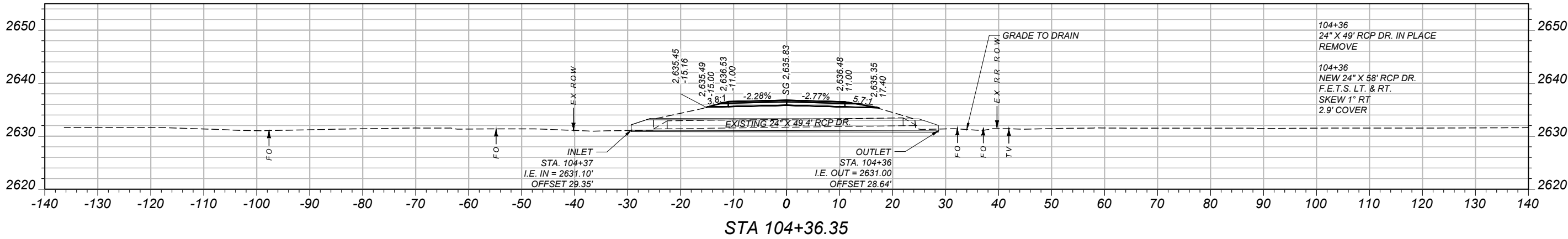
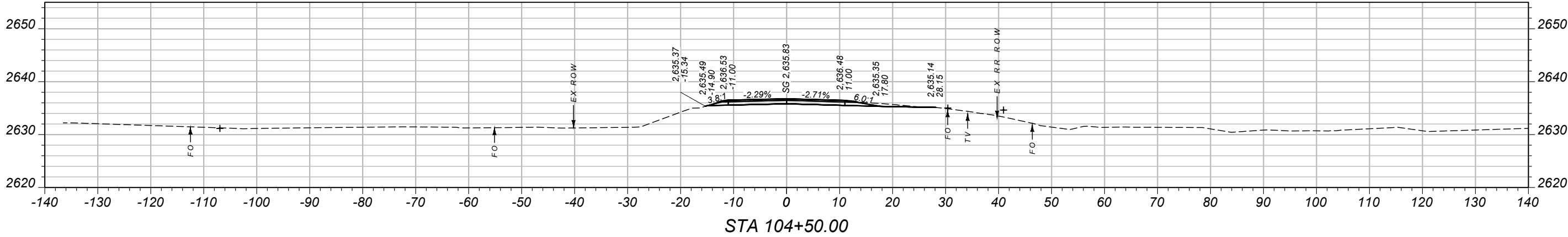
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# SITE 3 PLAN & PROFILE

**9717000**

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SITE 1  
CROSS SECTIONS

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID

STPB 81018(6)

UPN  
9717000

DESIGNED BY  
B. HENDERSON

05/2024

REVIEWED BY  
J. BROTZLER

05/2024

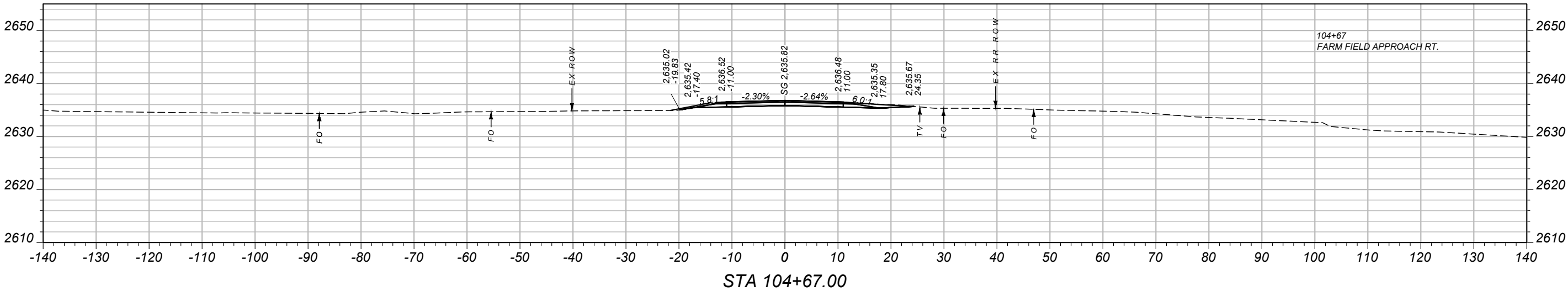
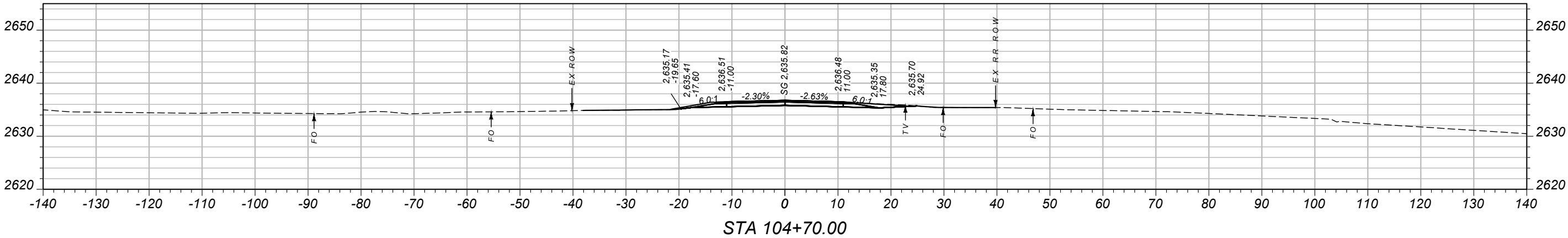
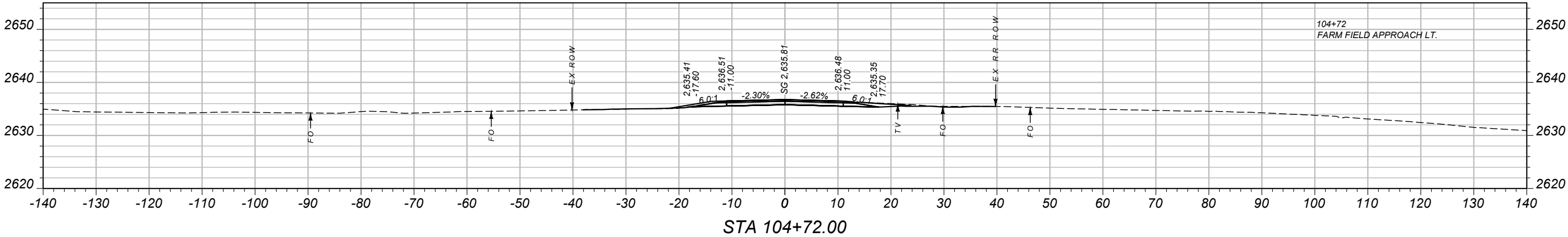
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J. SOLIDAY

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4/13/2026 5:14 AM



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PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID

STPB 81018(6)

UPN

9717000

DESIGNED BY

B. HENDERSON 05/2024

REVIEWED BY

J. BROTZLER 05/2024

CHECKED BY

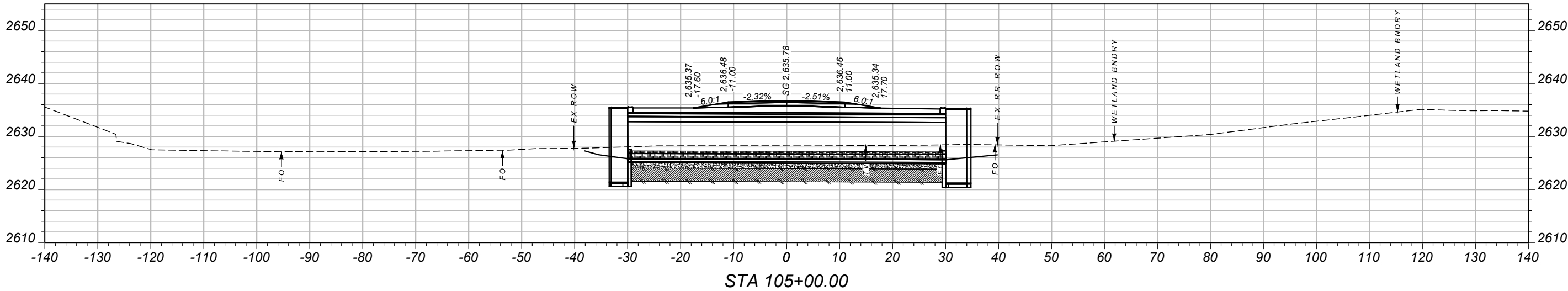
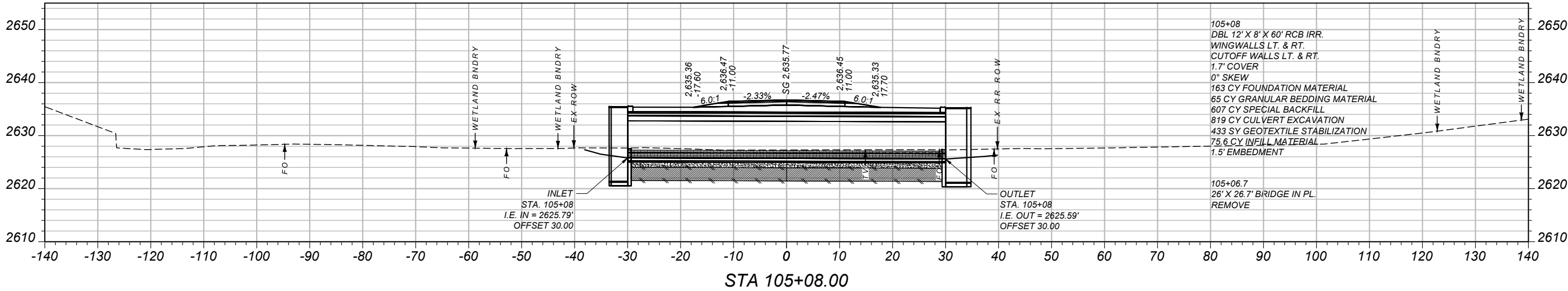
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PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

UPN  
9717000

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B. HENDERSON

REVIEWED BY  
J. BROTZLER

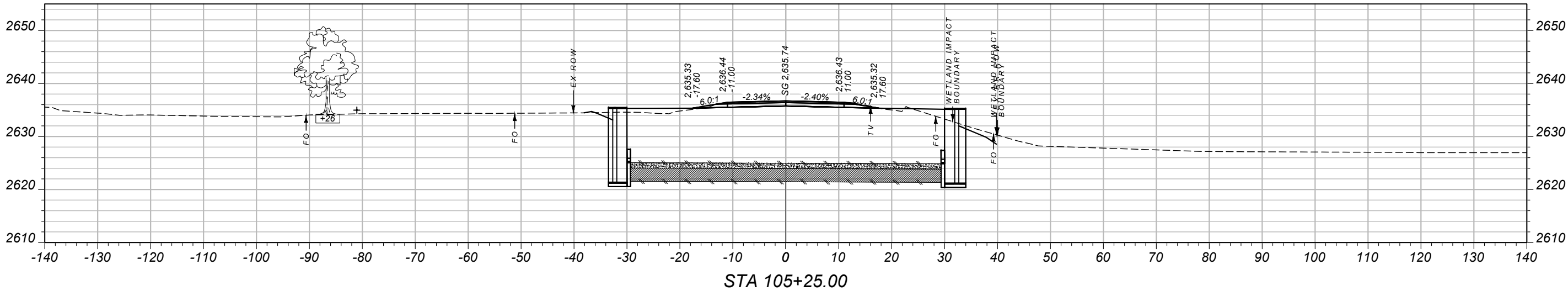
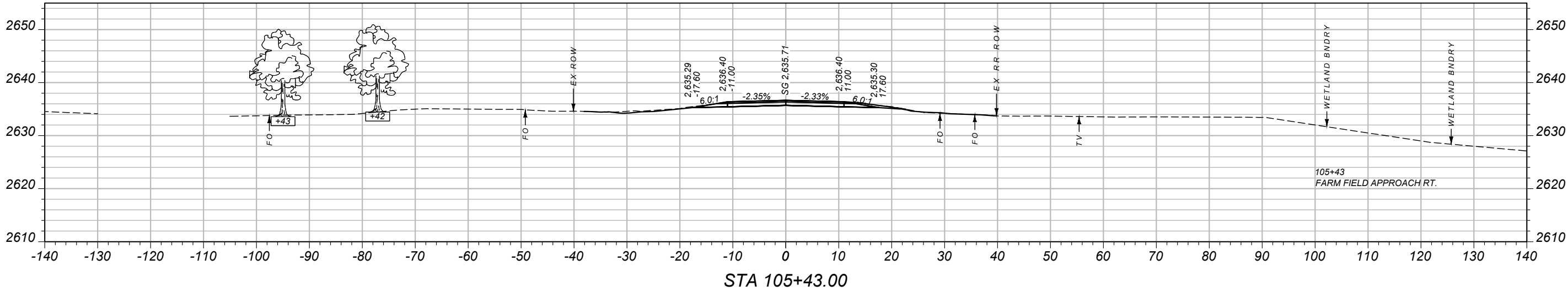
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# CROSS SECTIONS

**TREASURE COUNTY**

**STPB 81018(6)**

**9717000**

B. HENDERSON

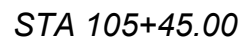
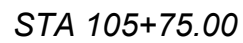
J. BROTZLER

J. SOLIDAY



**MONTANA**  
Department of Transportation

## SILENT - CROSS SECTIONS



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PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

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DESIGNED BY  
B. HENDERSON

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J. BROTZLER

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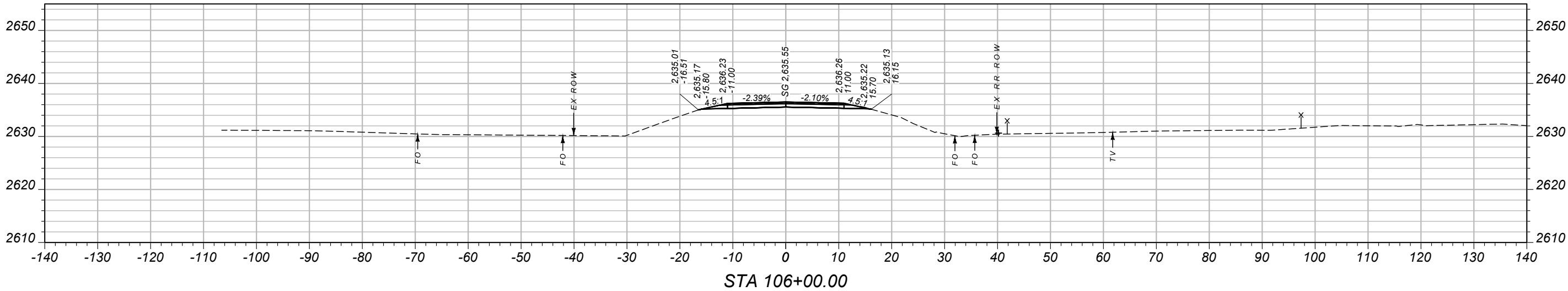
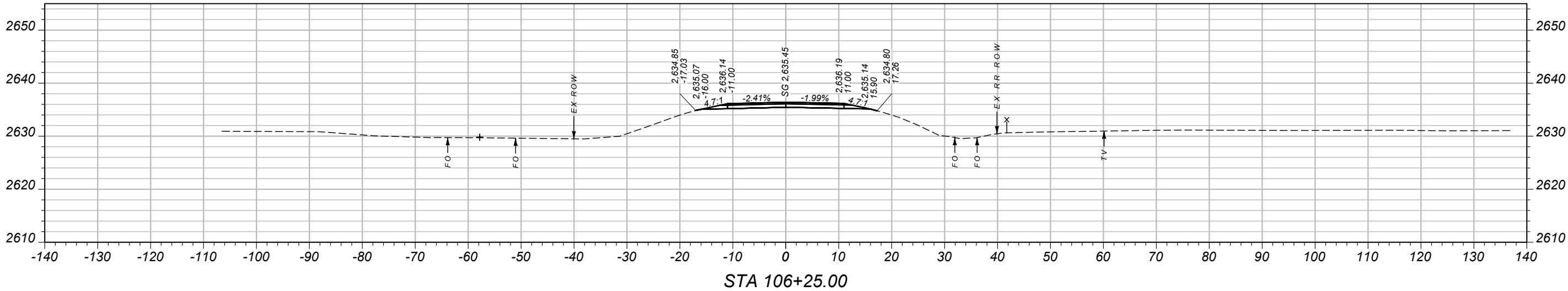
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SITE 1  
CROSS SECTIONS

PROJECT NAME  
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TREASURE COUNTY

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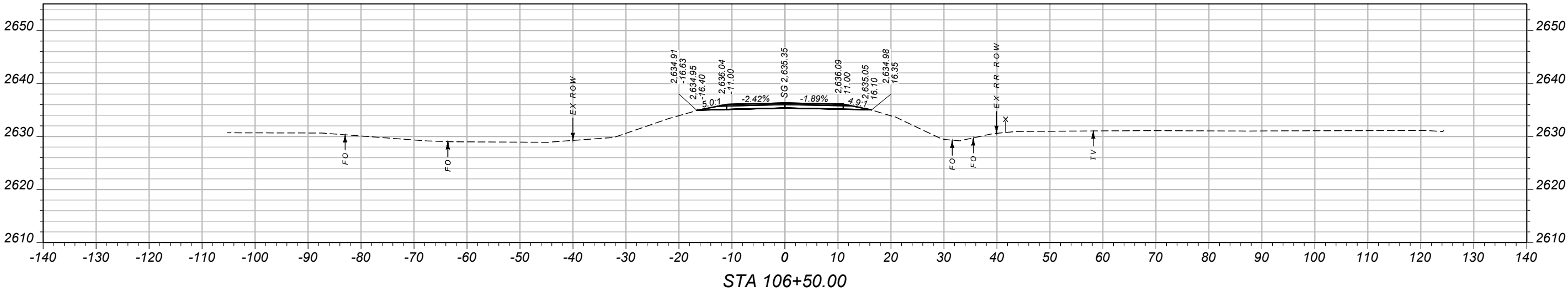
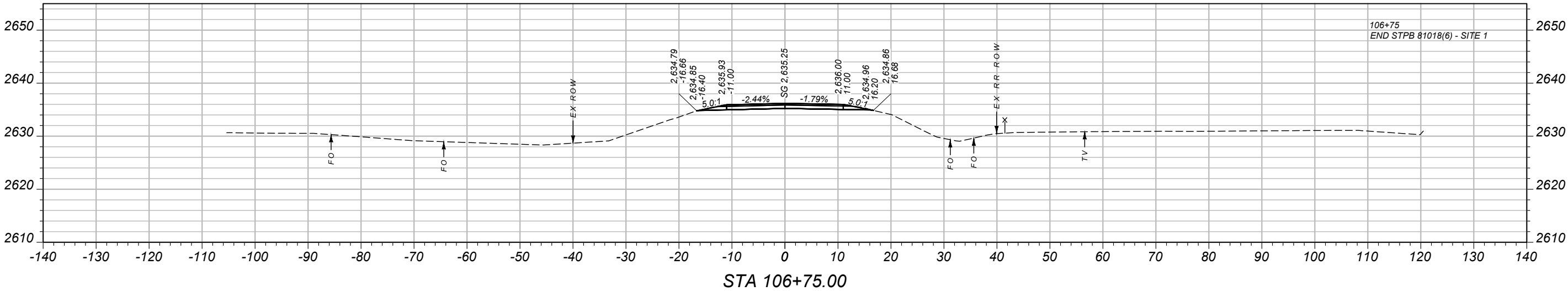
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SITE001 - CROSS SECTIONS

4/13/2026 5:14 AM



SITE 2  
CROSS SECTIONS

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

UPN  
9717000

DESIGNED BY  
B. HENDERSON

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J. BROTZLER

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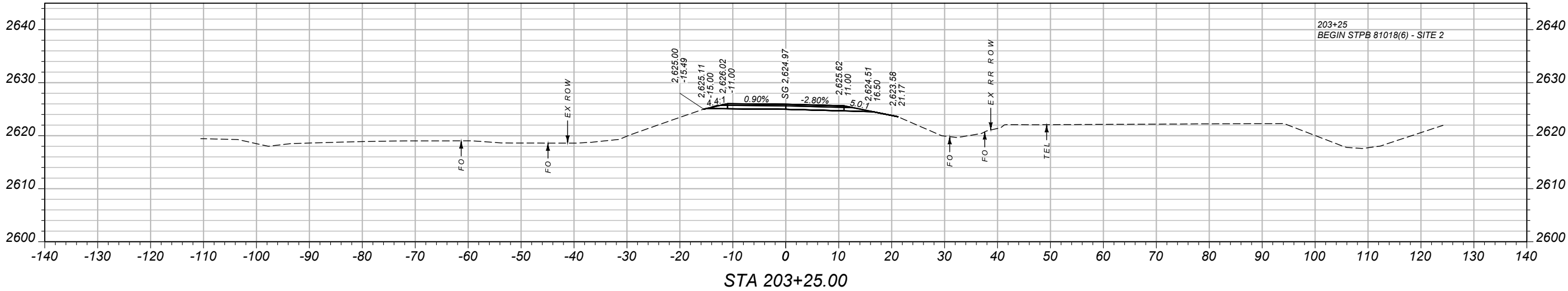
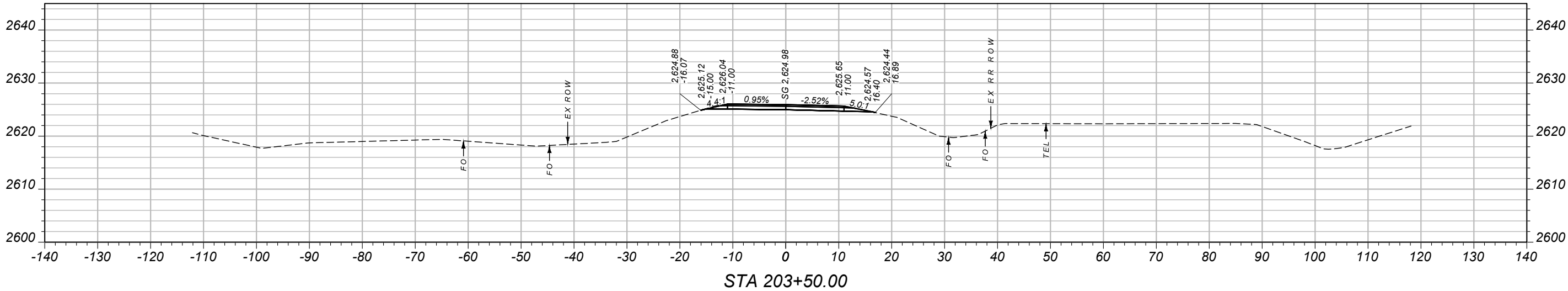
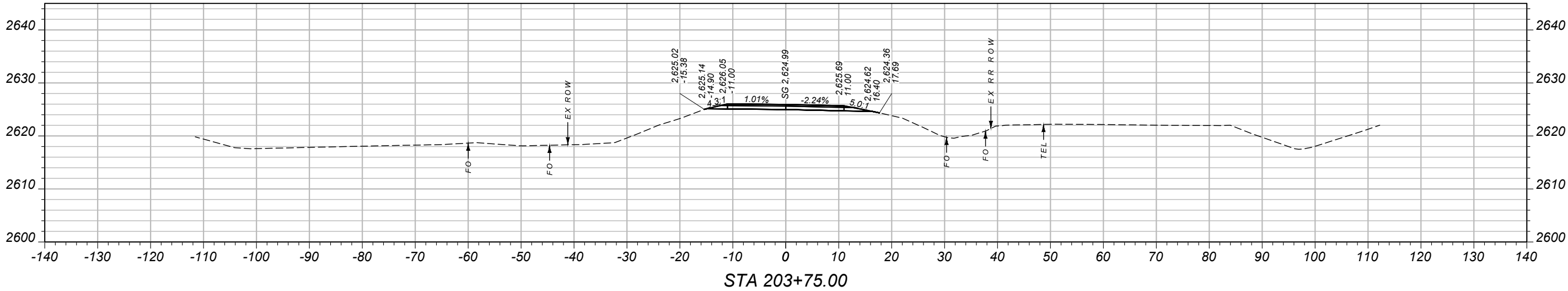
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4/13/2026 5:15 AM



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PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

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DESIGNED BY  
B. HENDERSON

05/2024

REVIEWED BY  
J. BROTZLER

05/2024

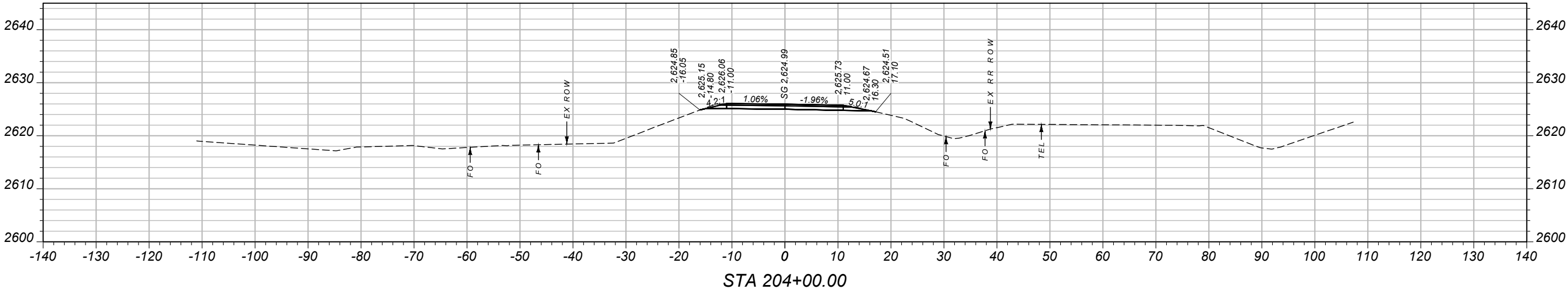
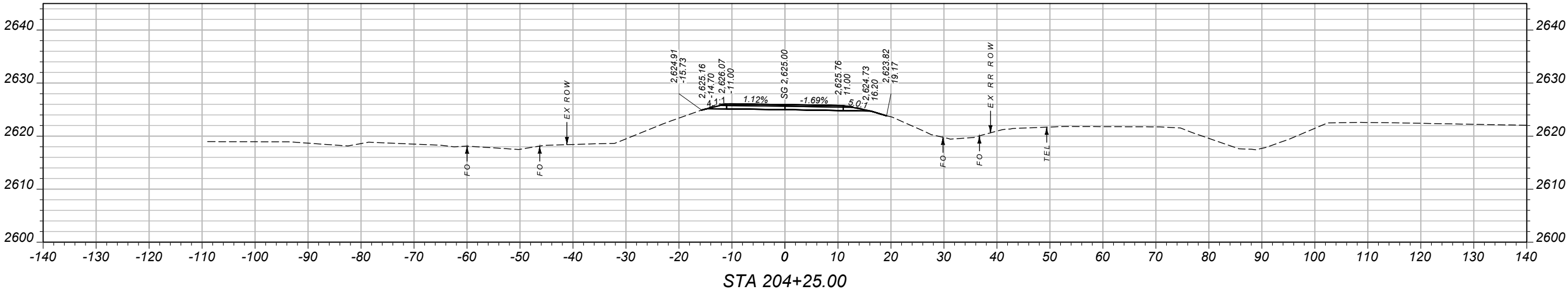
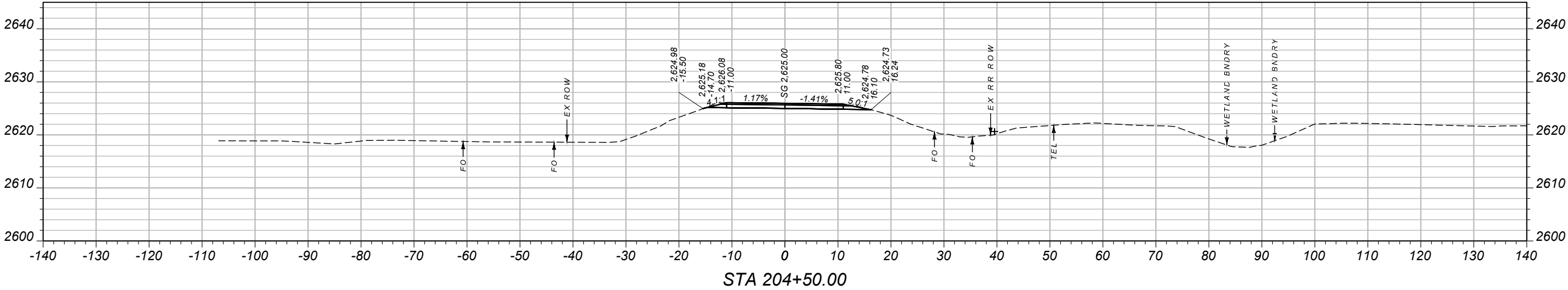
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SITE002 - CROSS SECTIONS

4/13/2026 5:15 AM





PROJECT NAME  
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REVIEWED BY

J. BROTZLER

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CHECKED BY

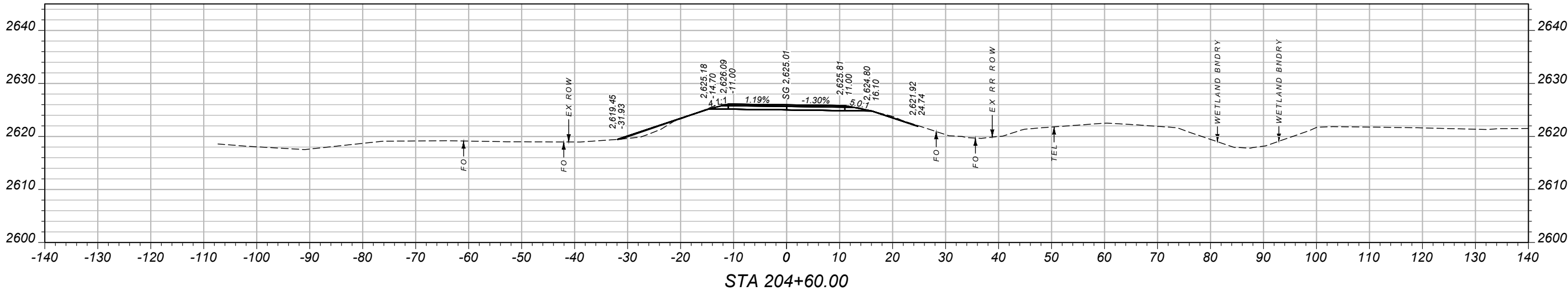
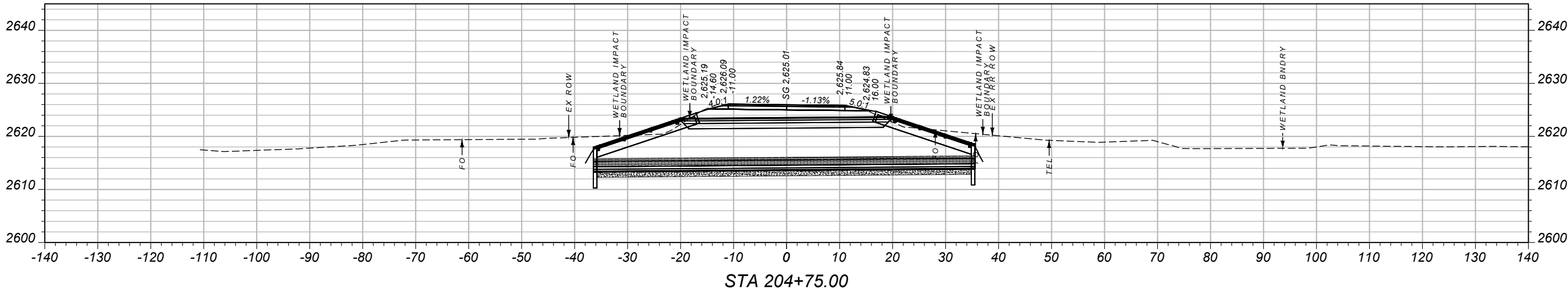
J. SOLIDAY

 MONTANA  
Department of Transportation

SITE002 - CROSS SECTIONS

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12/2025  
9717000RDXSF102.DWG



## SITE 2

### CROSS SECTIONS

TREASURE COUNTY

**STPB 81018(6)**

9717000

B. HENDERSON 05/2024

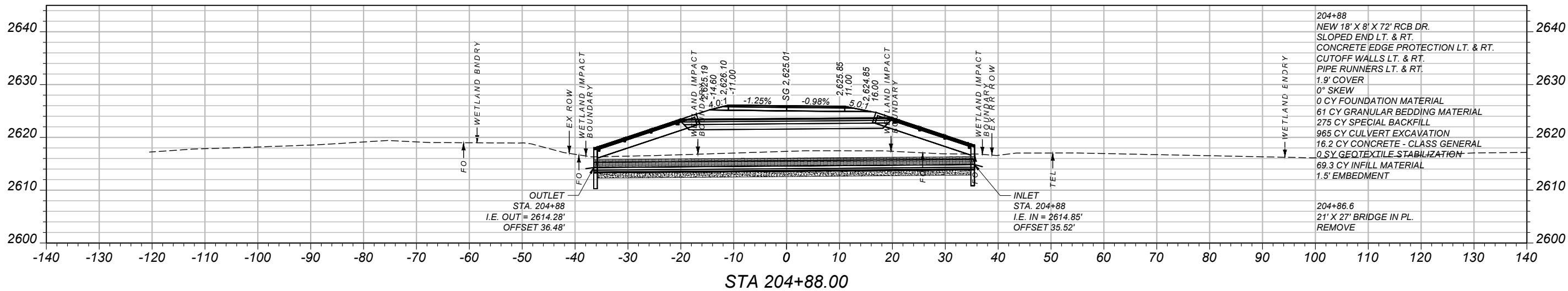
J. BROTZLER	05/2024
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12/2025	12/2025
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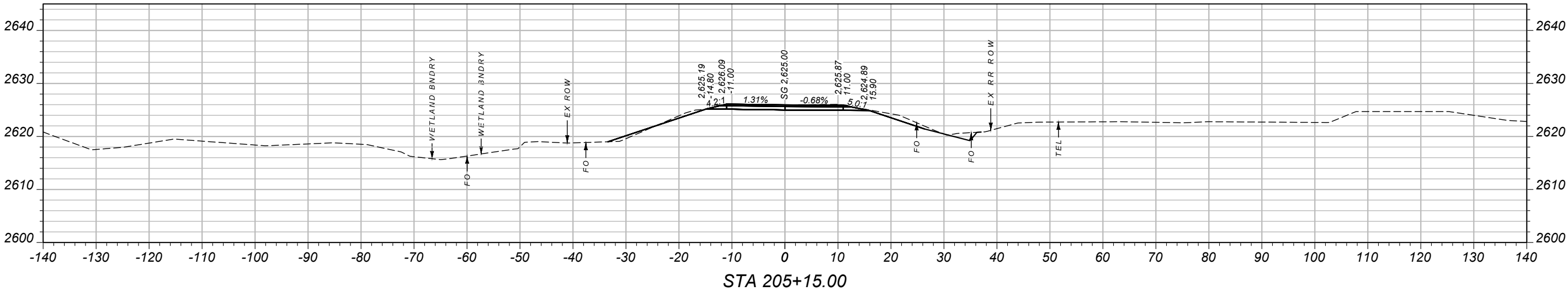
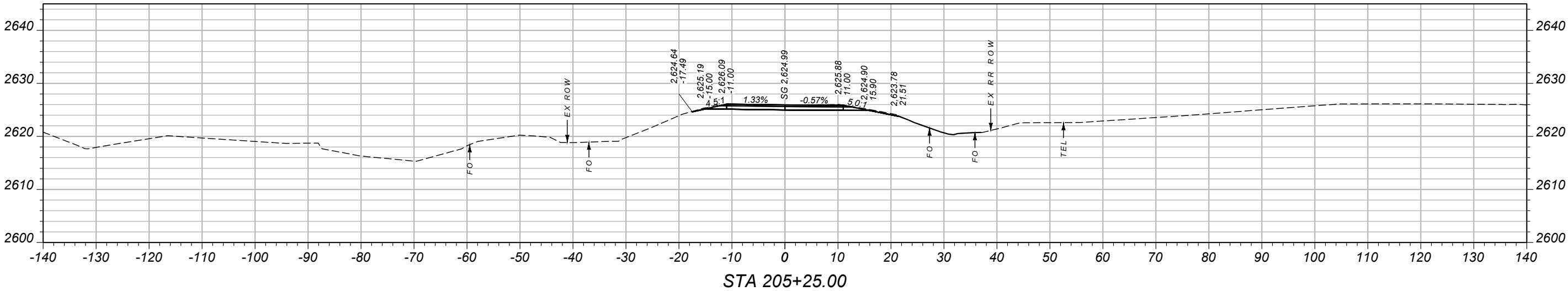
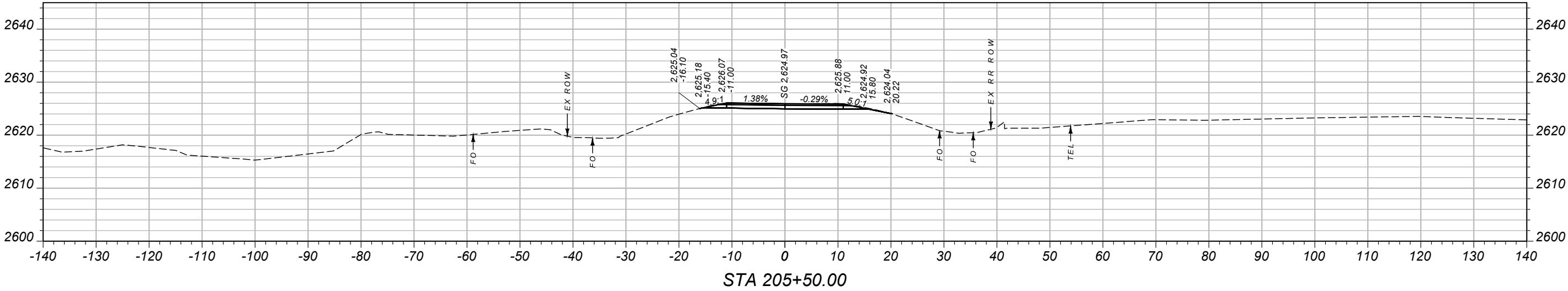
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## SITE002 - CROSS SECTIONS

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SITE 2  
CROSS SECTIONS



PROJECT NAME		OLD HWY 10 BRIDGES - E OF HYSHAM	
COUNTY		TREASURE COUNTY	
PROJECT ID		STPB 81018(6)	
UPN		9717000	
DESIGNED BY	05/2024	REVIEWED BY	05/2024
B. HENDERSON		J. BROTZLER	
CHECKED BY	12/2025	SITE002 - CROSS SECTIONS	
J. SOLIDAY			
4/13/2026 5:15 AM		9717000RDXSF102.DWG	

SITE 2  
CROSS SECTIONS

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

UPN  
9717000

DESIGNED BY  
B. HENDERSON

05/2024

REVIEWED BY  
J. BROTZLER

05/2024

CHECKED BY  
J. SOLIDAY

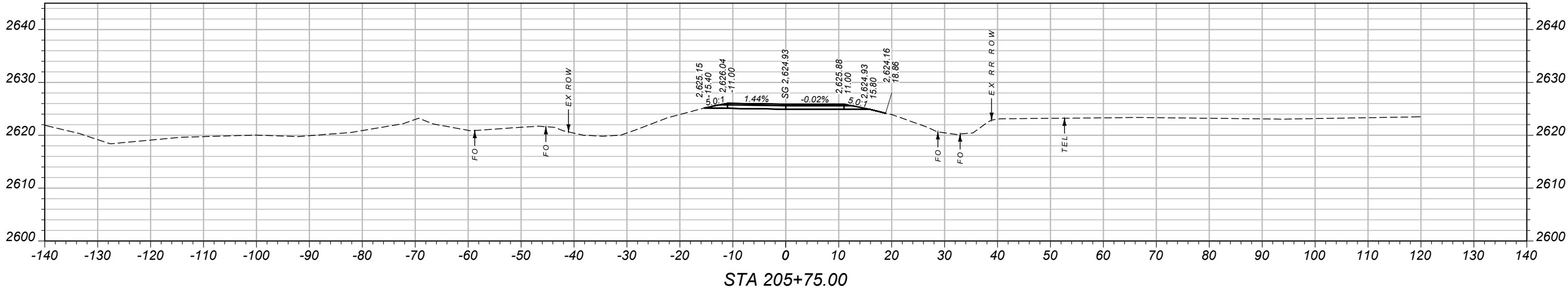
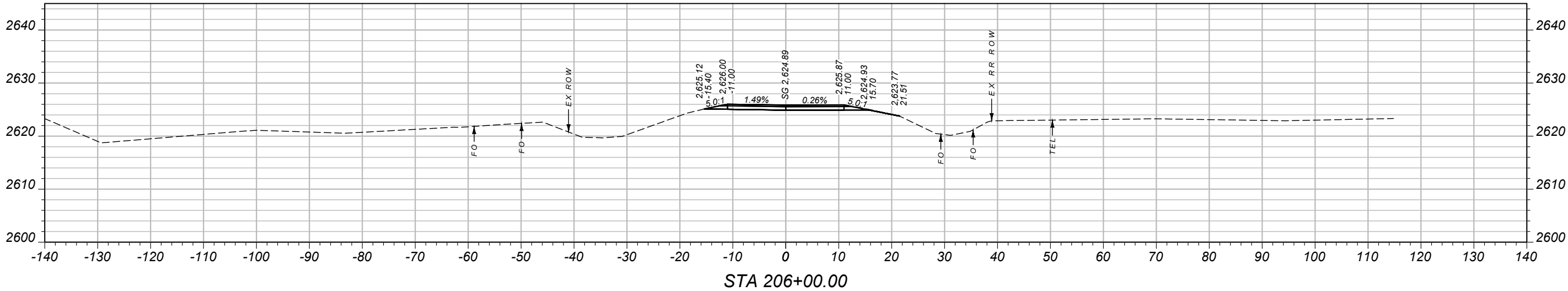
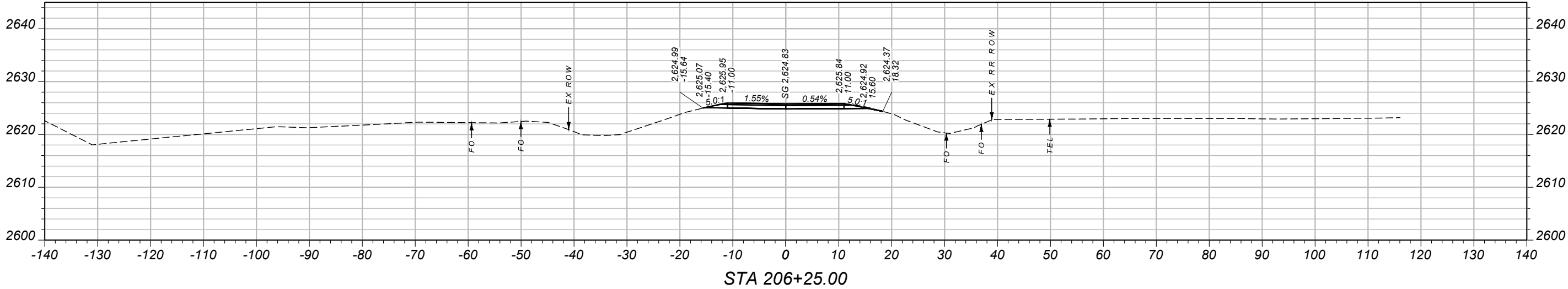
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SHEET NO.

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SITE 2  
CROSS SECTIONS

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

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DESIGNED BY  
B. HENDERSON

05/2024

REVIEWED BY  
J. BROTZLER

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J. SOLIDAY

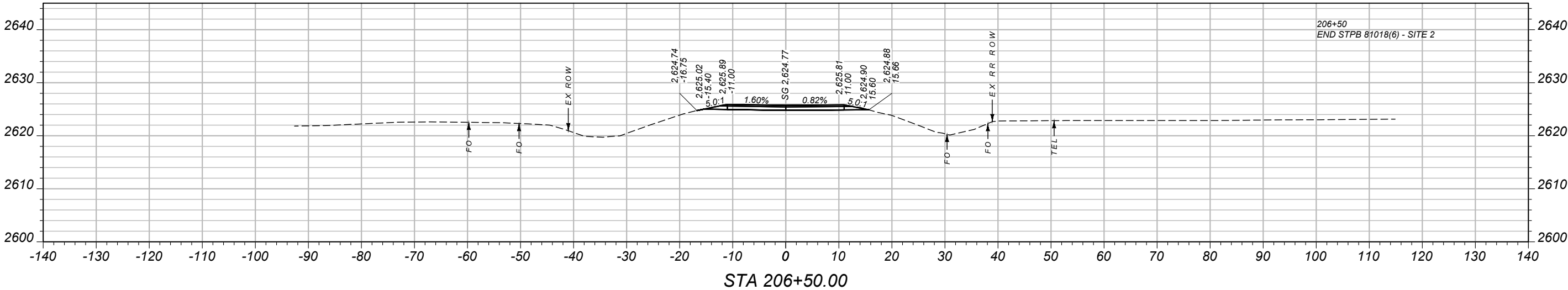
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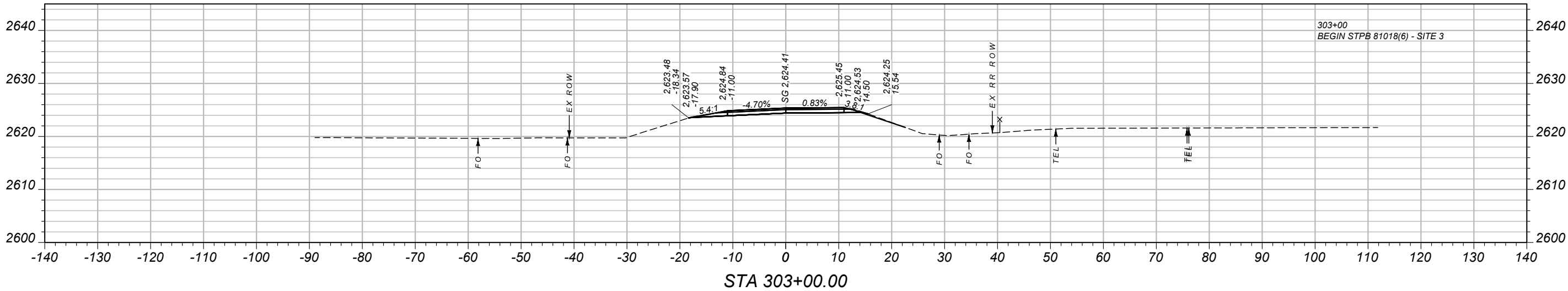
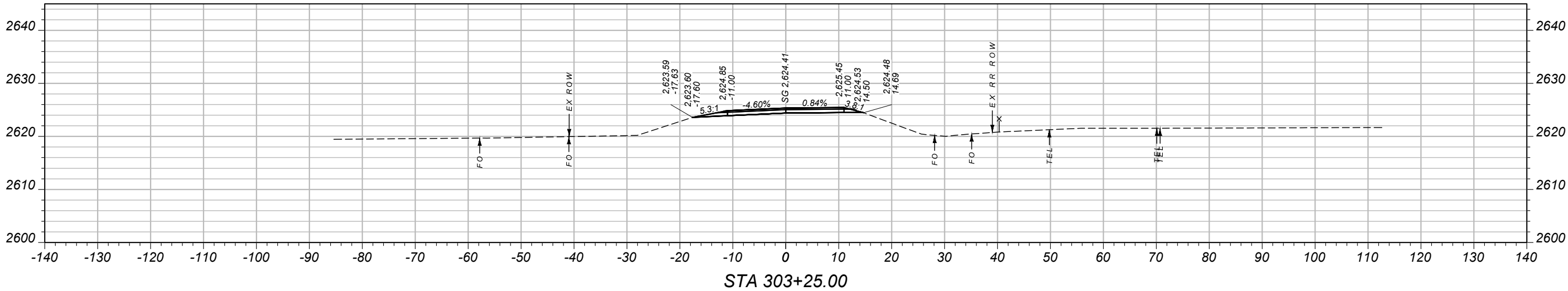
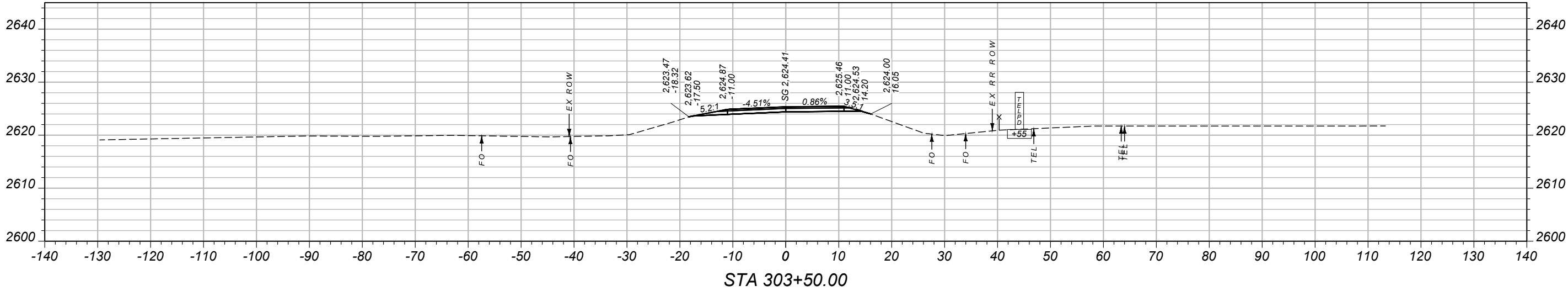
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SITE 3  
CROSS SECTIONS



<div><div><b>MONTANA</b> Department of Transportation</div></div>		DESIGNED BY		PROJECT NAME	
		B. HENDERSON		OLD HWY 10 BRIDGES - E OF HYSHAM	
		REVIEWED BY		COUNTY	
		J. BROTZLER		TREASURE COUNTY	
SITE003 - CROSS SECTIONS		CHECKED BY		PROJECT ID	
		J. SOLIDAY		STPB 81018(6)	
		12/2025		UPN	
		9717000RDXSF103.DWG		9717000	
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SITE 3  
CROSS SECTIONS

PROJECT NAME  
OLD HWY 10 BRIDGES - E OF HYSHAM

COUNTY  
TREASURE COUNTY

PROJECT ID  
STPB 81018(6)

UPN  
9717000

DESIGNED BY  
B. HENDERSON

05/2024

REVIEWED BY  
J. BROTZLER

05/2024

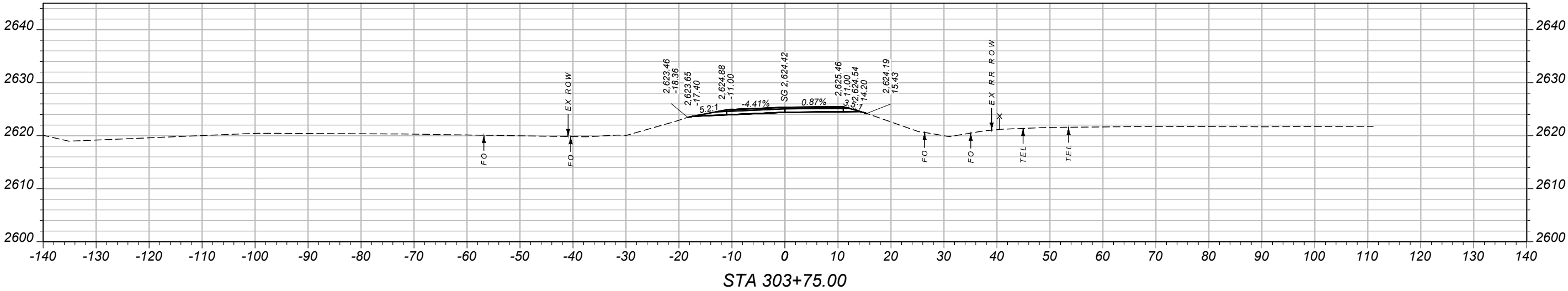
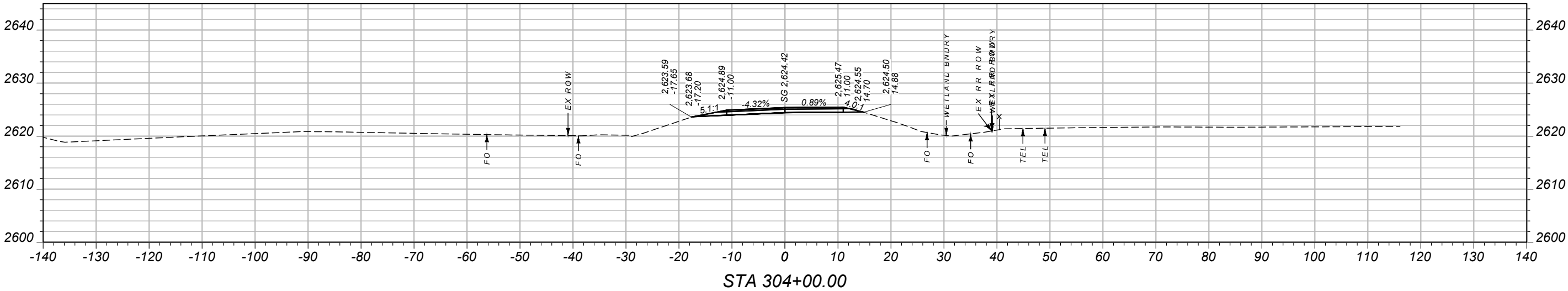
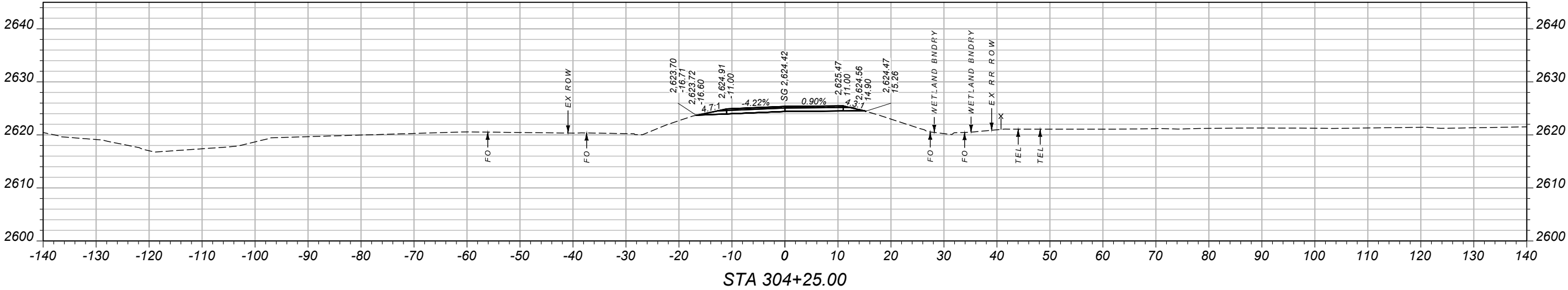
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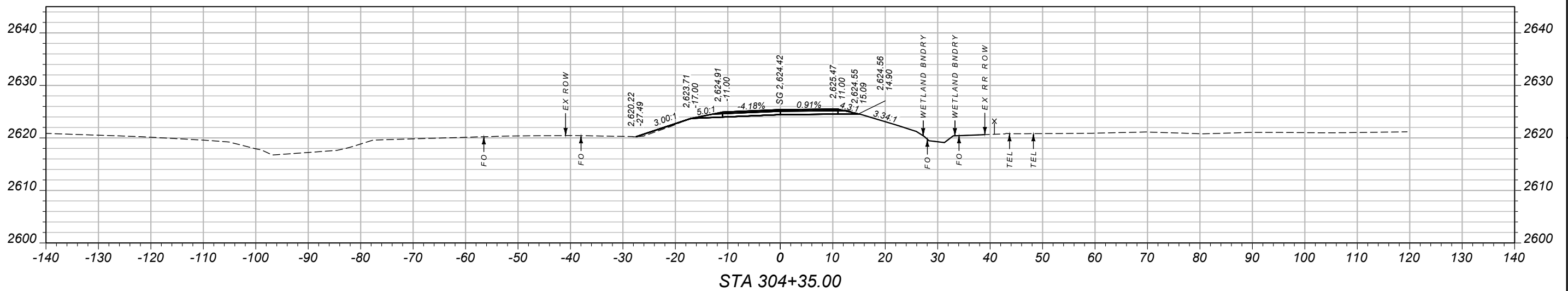
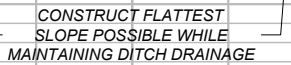
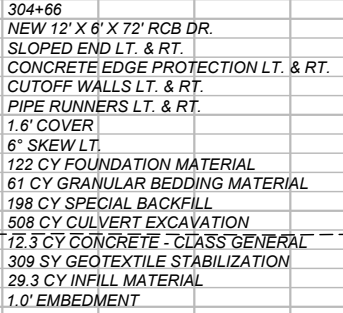
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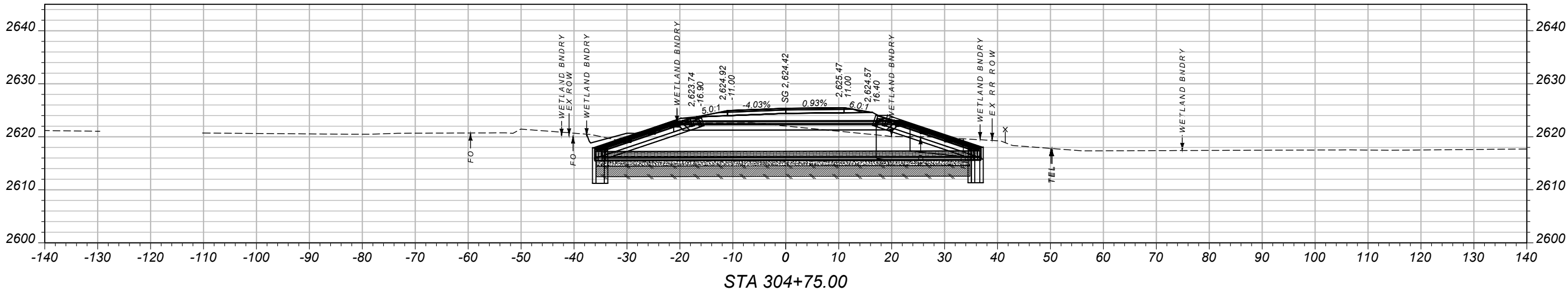
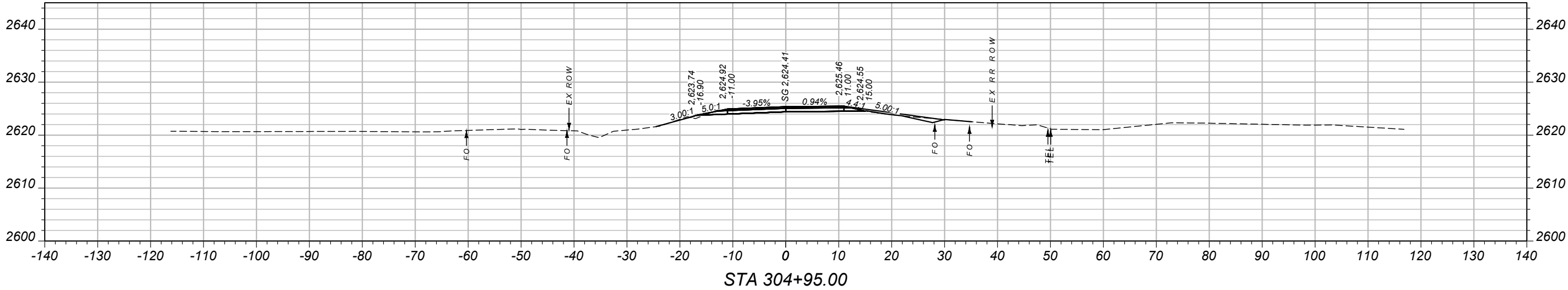
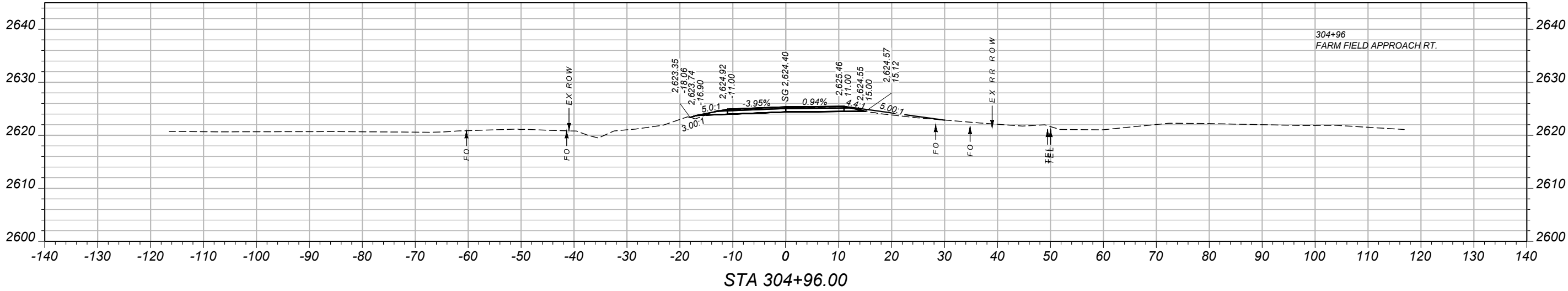
 MONTANA  
Department of Transportation

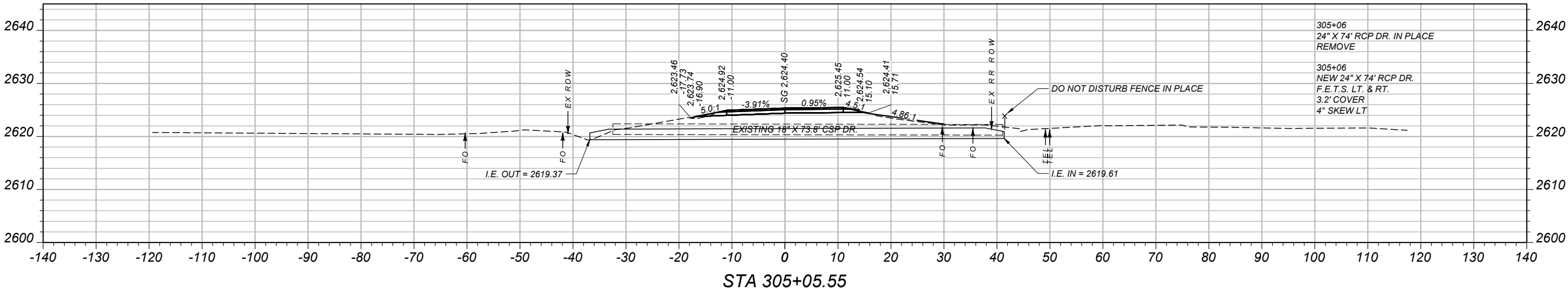
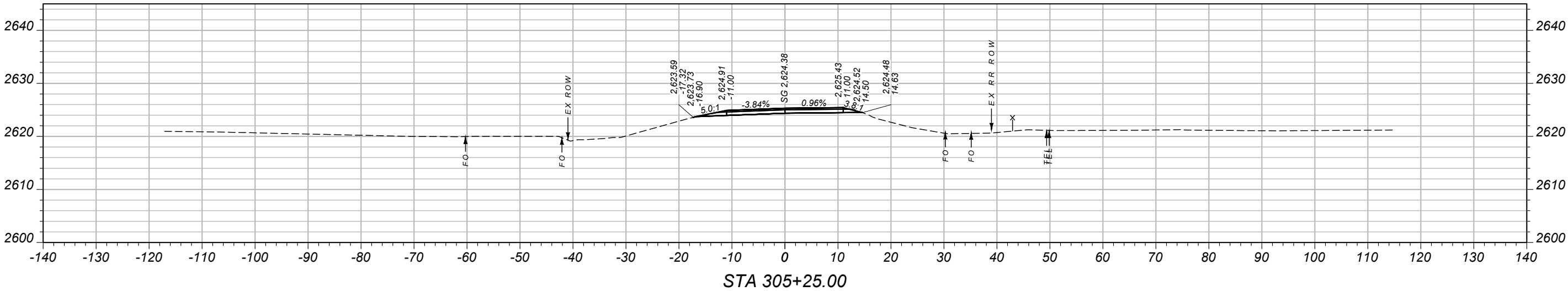
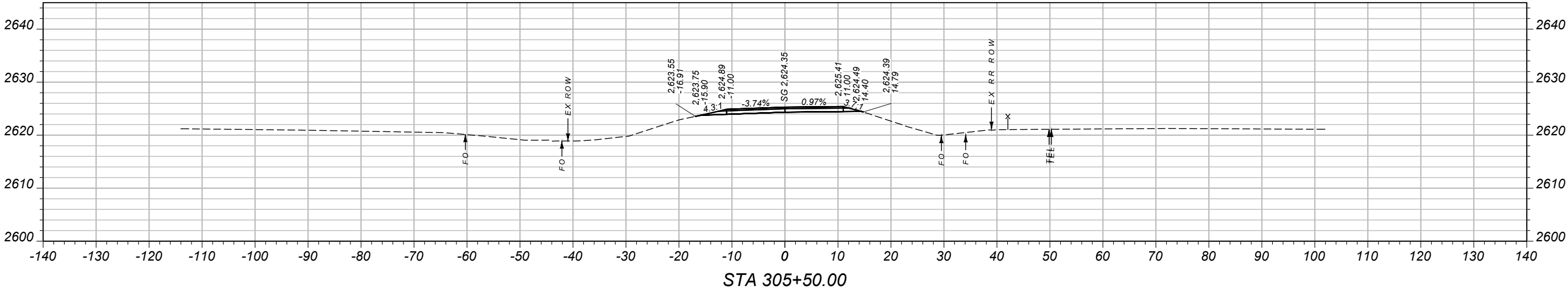
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SITE 3  
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