

POTTAWATTAMIE COUNTY

BRIDGE REPLACEMENT  
BRF-006-1(135)--38-78

LETTING DATE  
December 19, 2028



PLANS OF PROPOSED IMPROVEMENT ON THE  
PRIMARY ROAD SYSTEM  
**POTTAWATTAMIE COUNTY**  
BRIDGE REPLACEMENT

US 6  
Over Silver Creek  
1.0 mi E of Co Rd L66  
SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



H Sheets ---->

REVISIONS

TOTAL	--
PROJECT IDENTIFICATION NUMBER	24-78-006-030
PROJECT NUMBER	BRF-006-1(135)--38-78
R.O.W. PROJECT NUMBER	

**Index of Sheets**

No.	Description
<b>A Sheets</b>	<b>Title Sheets</b>
*A.1	Title Sheet
*A.2	Location Map Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - B.3	Typical Section and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
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*D.2	US 6 Plan and Profile
<b>E Sheets</b>	<b>Sideroad Plan and Profile Sheets</b>
*E.1	350th st Plan and Profile
<b>G Sheets</b>	<b>Survey Sheets</b>
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*G.2	Control Point Vicinity Map
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<b>W Sheets</b>	<b>Mainline Cross Sections</b>
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X.1 - X.6	Sideroad Cross Sections
	* Color Plan Sheets

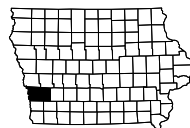
DESIGN DATA RURAL			
2029	AADT	3,000	V.P.D.
2049	AADT	3,660	V.P.D.
20	- DHV	--	V.P.H.
	TRUCKS	15	%
	Total		
	Design ESALs	--	

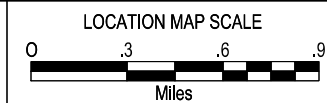
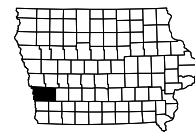
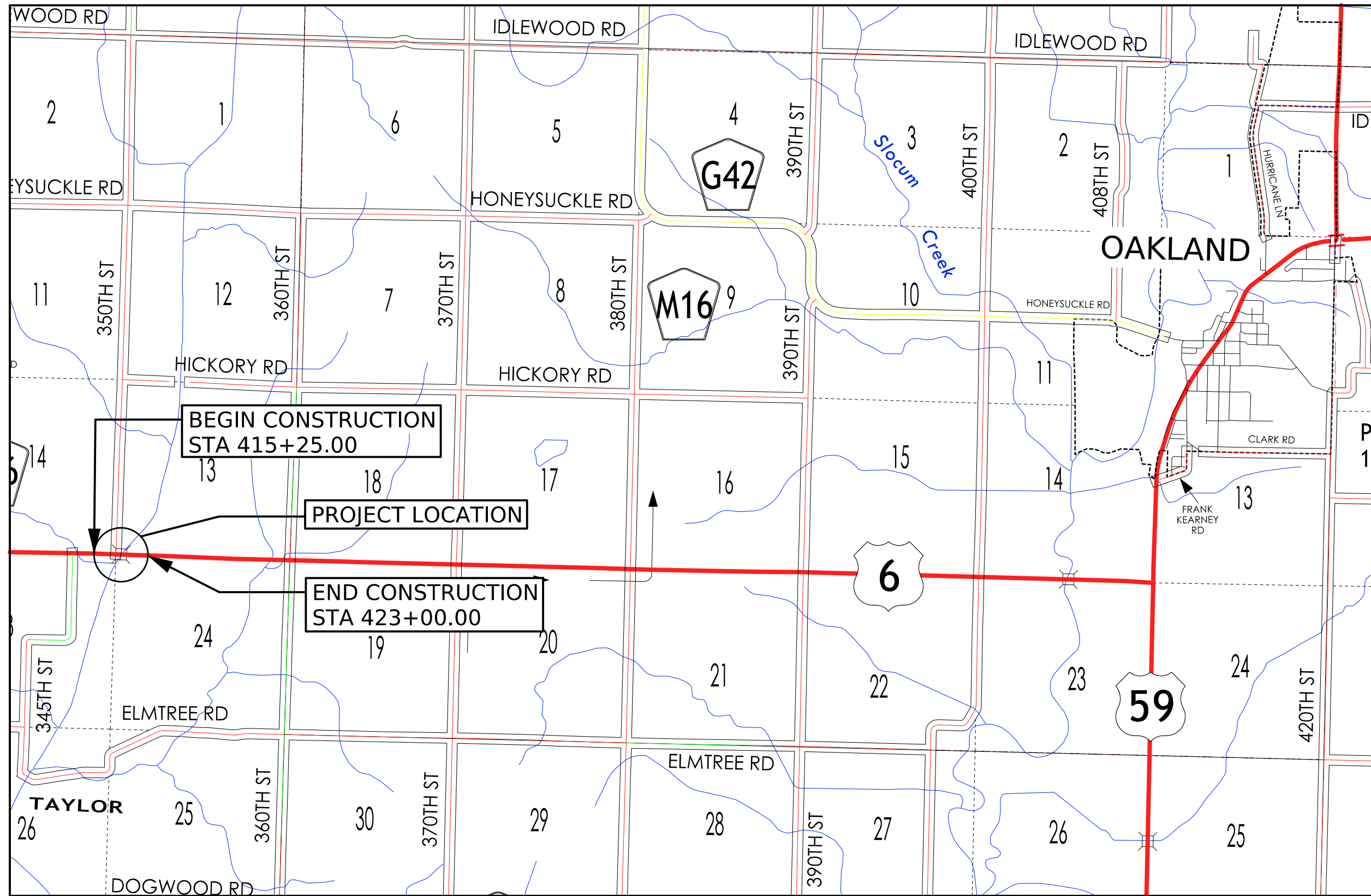
INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X

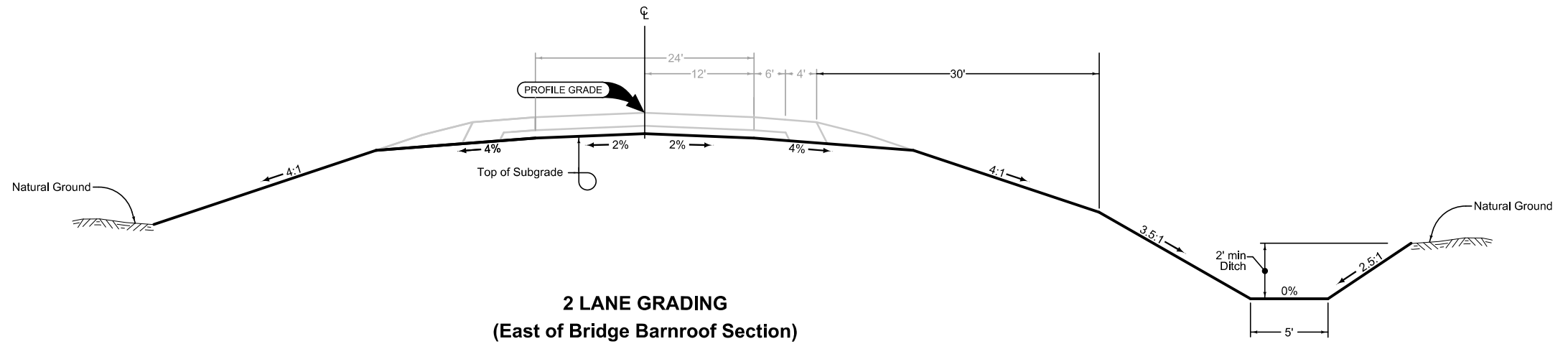
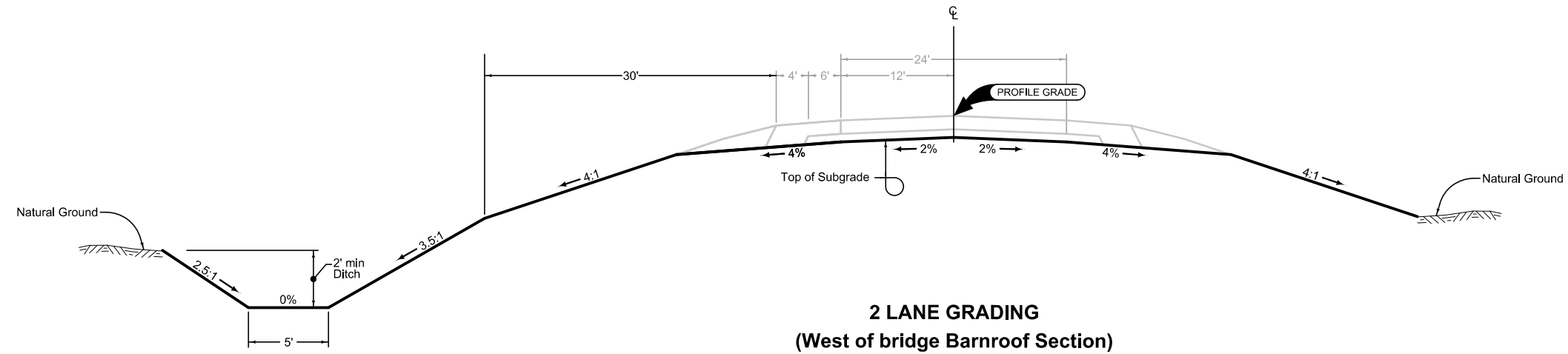
PRELIMINARY PLANS

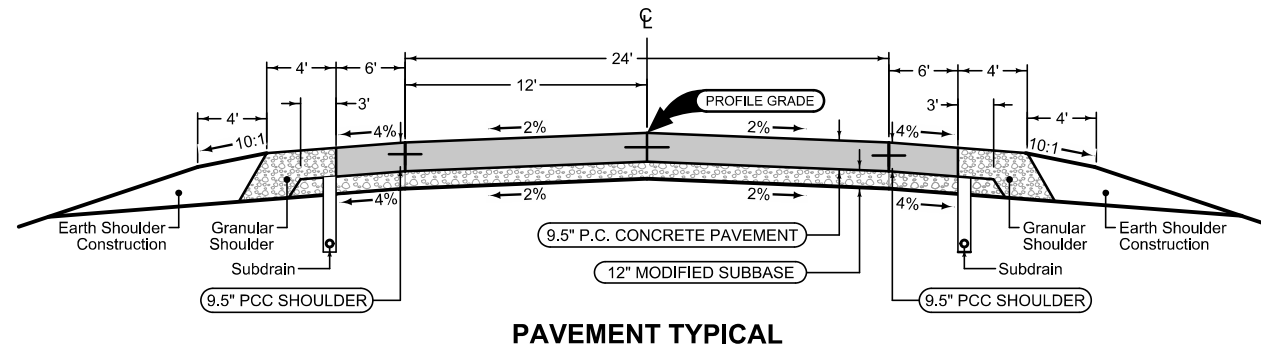
Subject to change by final design.

D5 PLAN - Date: January 26, 2026

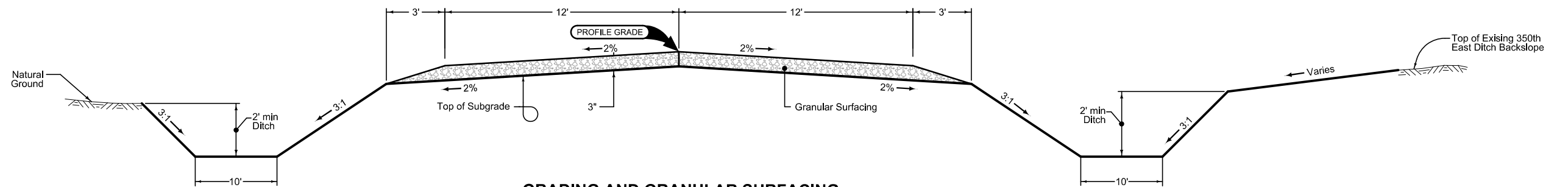








**PAVEMENT TYPICAL**

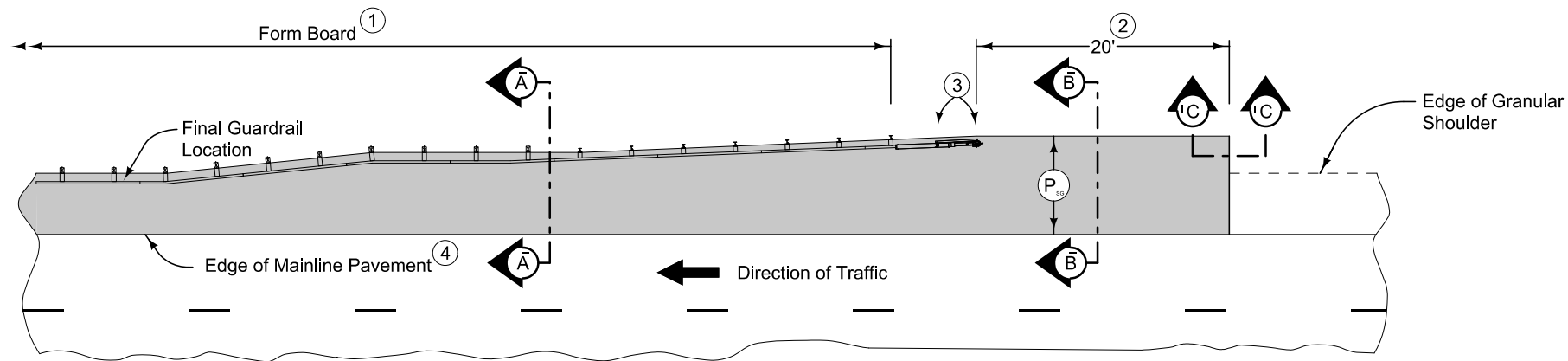


**GRADING AND GRANULAR SURFACING  
(Proposed 350th Section)**

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

G\_2\_GradeGran  
MODIFIED



PLAN VIEW

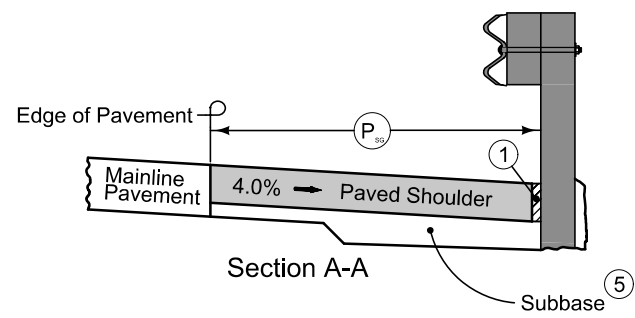
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

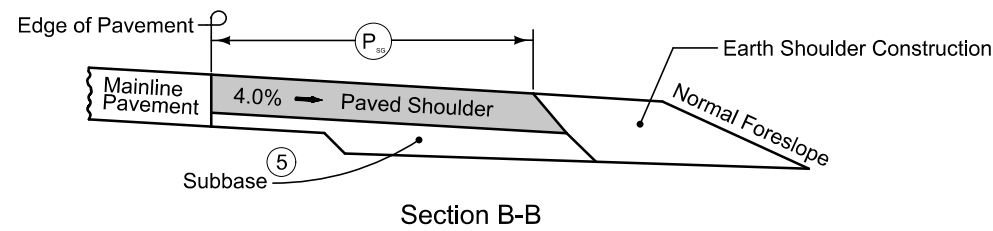
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

- ① PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ④ 'BT' joint (per PV-101) for PCC shoulder. 'B' joint (per PV-101) for HMA shoulder.
- ⑤ Refer to other details in the plan.

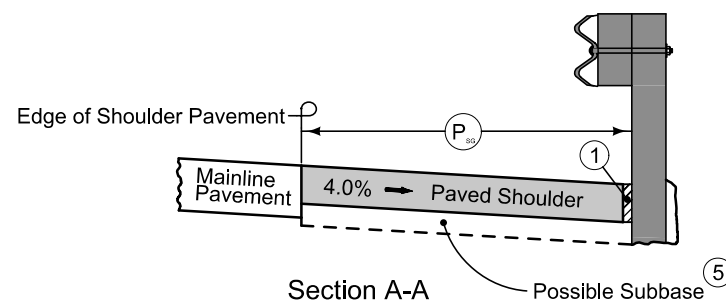


Section A-A

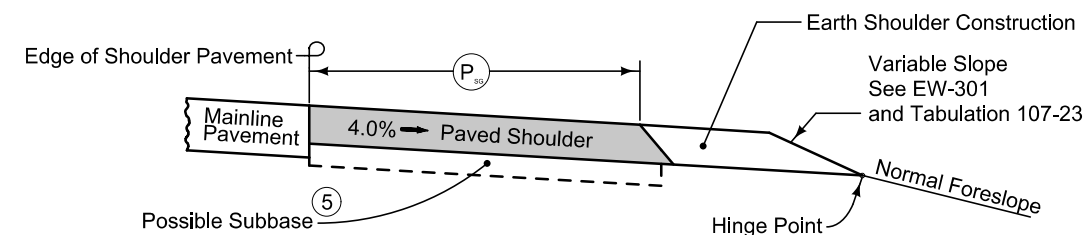


Section B-B

NEW CONSTRUCTION

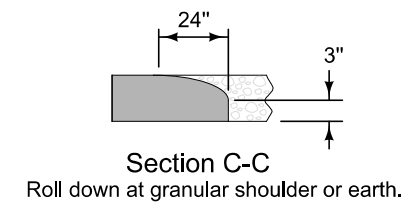


Section A-A



Section B-B

EXISTING SHOULDER



PAVED SHOULDER AT GUARDRAIL  
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

### SURVEY SYMBOLS

	Interstate Highway Symbol		Septic Tank
	U.S. Highway Symbol		Cistern
	Iowa Highway Symbol		L.P. Gas Tank (No Footing)
	County Road Highway Symbol		Underground Storage Tank
	Evergreen Tree		Latrine
	Deciduous Tree		Satellite TV Dish
	Fruit Tree		Water Hook Up
	Shrub (Bushes)		Radio Tower
	Timber		Tower Anchor
	Hedge		Guardrail (Beam or Cable)
	Stump		Guard Post (one or two)
	Swamp		Guard Post (over two)
	Rock Outcrop		Filler Pipe
	Broken Concrete		Gas Valve
	Revetment (Rip Rap)		Water Valve
	Cemetery		Speed Limit Sign
	Grave		Mile Marker Post
	Cave		Sign
	Sink Hole		Traffic Signal Control Box
	Board Fence		Rail Road Signal Control Box
	Chain Link or Security Fence		Telephone Switch Box
	Wire Fence		Electric Box
	Terrace		
	Earth Dam or Dike (Existing)		
	Tile Outlet		
	Edge of Water		
	Existing Drainage		
	Right of Way Rail or Lot Corner		
	Concrete Monument		
	Well		
	Windmill		
	Beehive Intake		
	Existing Intake		
	Existing Utility Access (Manhole)		
	Fire Hydrant		
	Water Hydrant (Rural)		

### UTILITY LEGEND

### PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.	
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING		Design Color No.	
Lavender	(9)		Temporary Pavement Shading
Yellow	(4)		Proposed Pavement Shading
Orange	(6)		Proposed Granular Shading
Orange	(70)		Proposed Shoulder Granular Shading
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)		Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)		Grading Shading
Orange, Light	(134)		Proposed Granular Entrance Shading
Yellow	(220)		Proposed Paved Entrance Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading
Green, Light	(225)		Existing Pavement Shading
Red	(3)		Proposed Structure Shading
Red	(3)		Delineates Restricted Areas

### PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

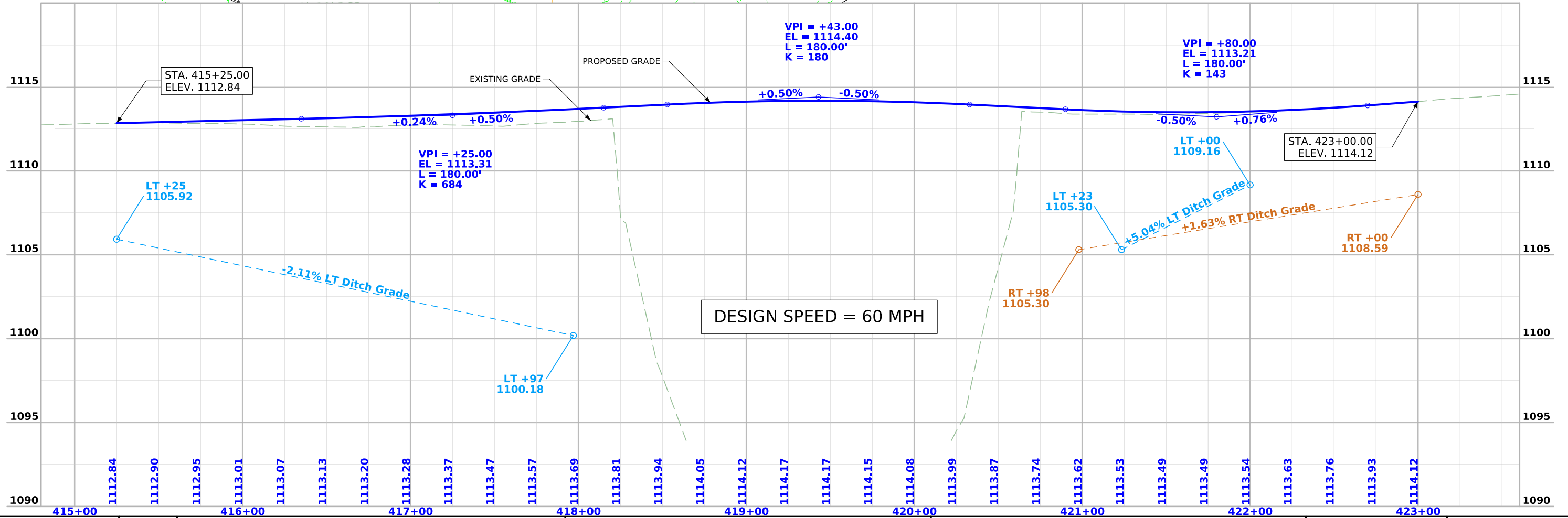
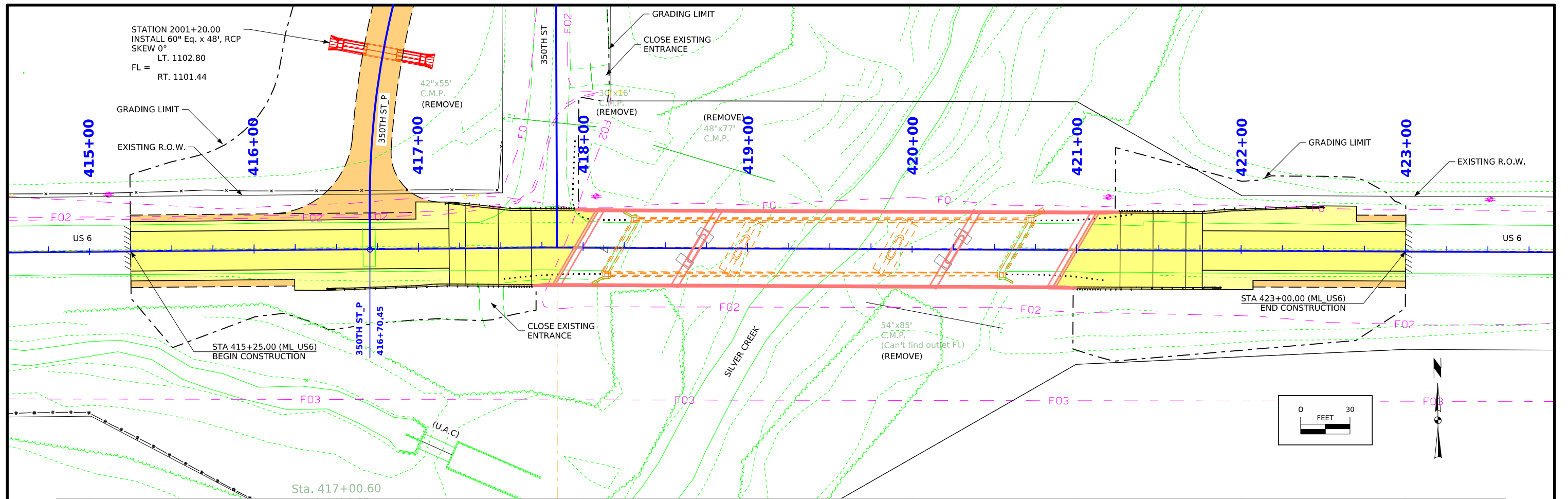
LINEWORK		Design Color No.	
Green	(10)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

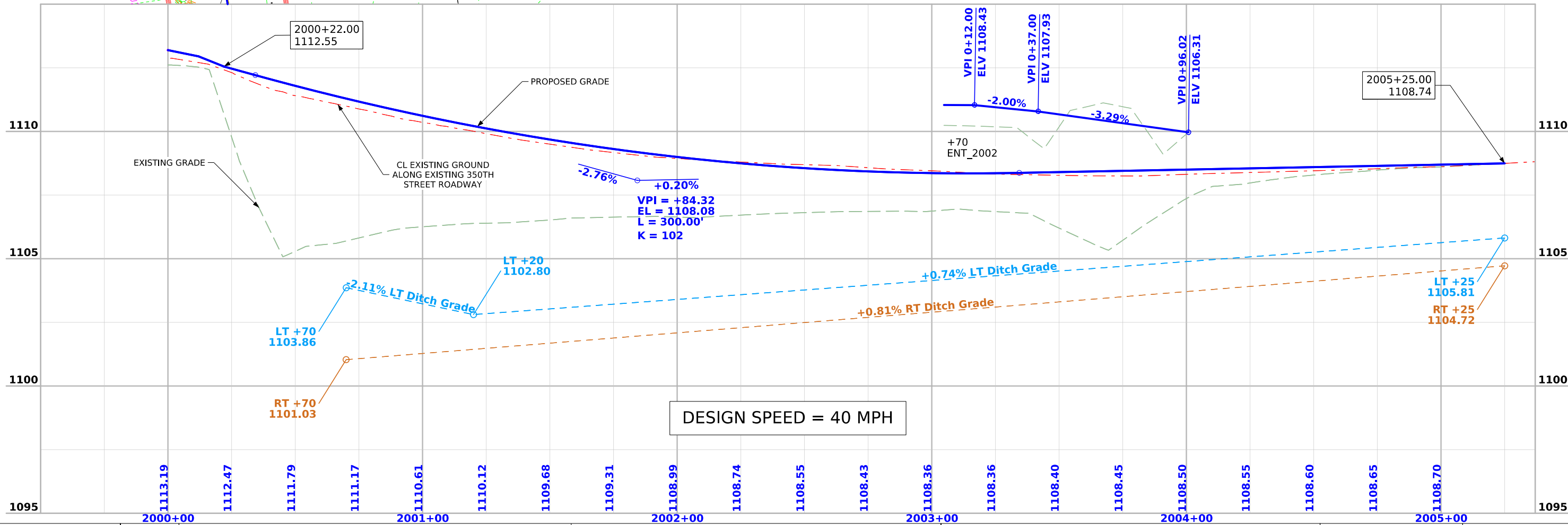
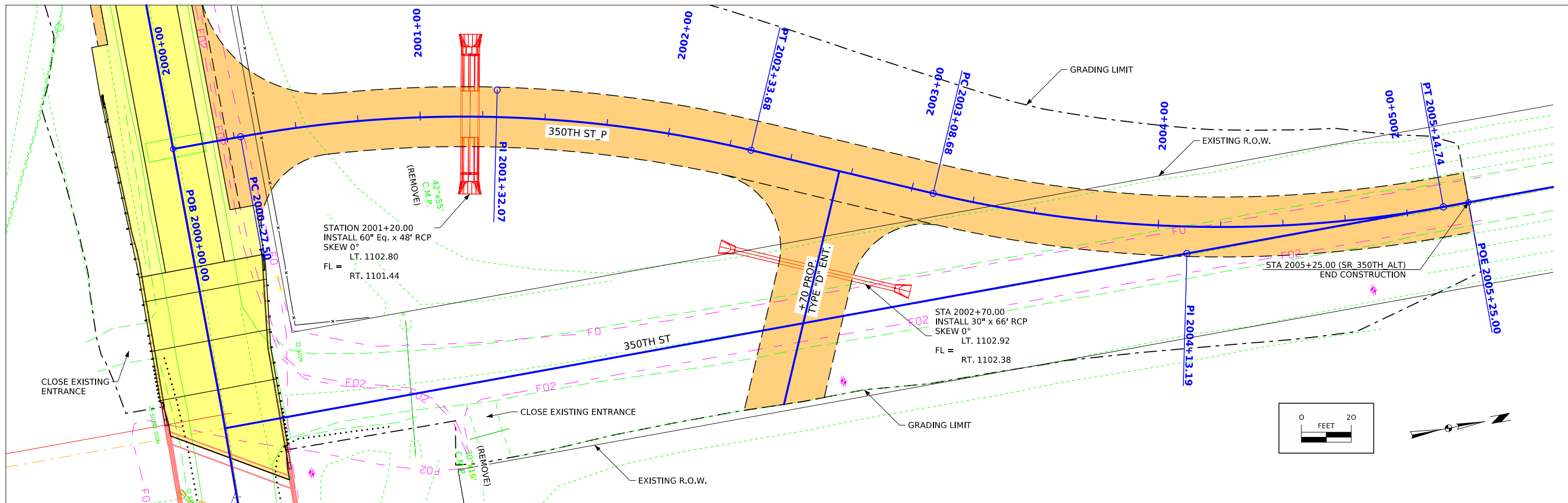
Reference Point	
	Station
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Trench Drain
	High Tension Cable Guardrail
	Sheet Pile
	Pavement Removal
	Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND	
	Proposed Right-of-Way
	Existing Right of Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Easement (Temporary)
	Easement
	Access Control
	Property Line

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E)





## Survey Information

### SURVEY INDEX

**County: Pottawattamie**  
**PIN: 24-78-006-030**  
**Project Number: BRF-006-1(135)--38-78**  
**Location: Silver Creek 1.0 mile East of Co Rd L66**  
**Type of Work: Bridge - Unspecified**  
**Project Directory: 7800603024**  
**SAP: 559.1**

### Survey Personnel

Wes Shimp – PLS  
Nathan Theis-Barnett – Survey Party Chief  
Katerina Wyatt – Survey Party Chief  
Alexis Avila – Assistant Survey Party Chief

### Date(s) of Survey

Begin Date 01/02/2025  
End Date 03/07/2025

### General Information

This survey is for a conceptual roadway and bridge design for replacement of the US 6 bridge over Silver Creek located 1.0 mi E of County Road L66. This project is a Full Field DTM survey.

### Utility Information

For logging data and other utility details see Utility Survey and Ownership Report in the Utility folder of the PrelimSurvey project directory.

### Project Control

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on four new primary project control points. Three five-minute observations were taken with a minimum two-hour time span between and used in a weighted average to obtain final coordinate values. For additional details of the control survey, contact the Preliminary Survey department.

**PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)**  
**COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 06**  
**(U.S. SURVEY FOOT)**  
**VERTICAL DATUM: NAVD88**  
**GEOID MODEL: 2018u3**

### Alignment Information

The horizontal alignment for U.S. Hwy 6 this survey is a retrace of As-built Plans No. F-310C. Survey stationing was equated to the plan PI at Sta. 389+53.8 and carried ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 389+53.8 As-built Plans Project No. F-310C  
Survey PI Sta. 389+53.80

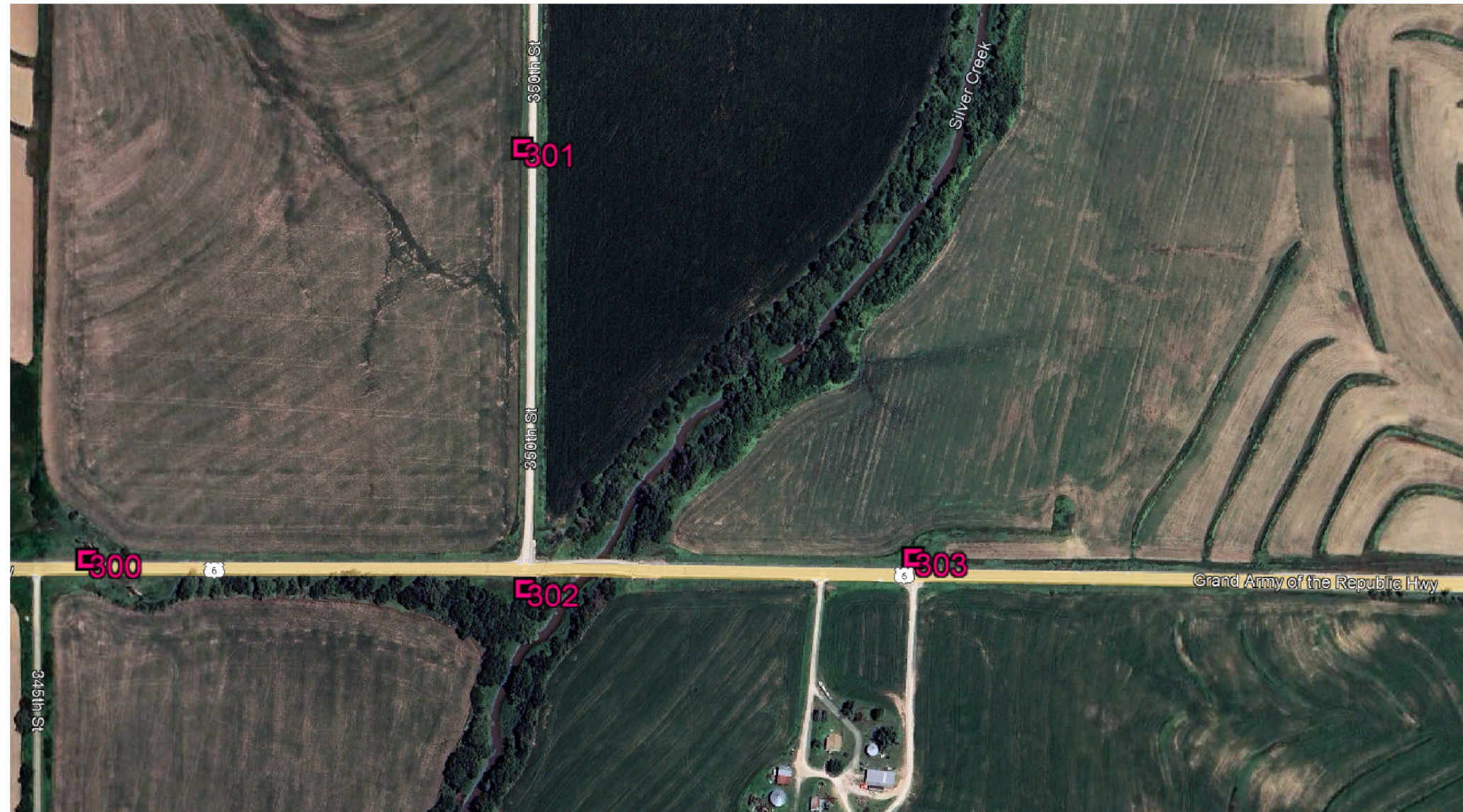
PI Sta. 404+68.3 As-built Plans Project No. F-310C  
Survey PI Sta. 404+68.26

PI Sta. 417+78.3 As-built Plans Project No. F-310C  
Survey PI Sta. 417+78.31

PI Sta. 452+58.7 As-built Plans Project No. F-310C  
Survey PI Sta. 452+54.15

## CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points. Primary control is for use with RTK base stations and for RTN validation. Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 06 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u3

Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

**HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING**  
 HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)  
 Ia. Regional Coordinate System Zone 06 (U.S. Survey Foot)  
 VERT. DATUM: NAVD88  
 Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Code - Description
300	6978800.39	16558101.23	1121.13	FENO SET 1217 FEET W OF BRIDGE ON NORTH SIDE OF US6
301	6979893.27	16559257.69	1114.23	FENO SET 1121 FEET N OF US6 AND 350TH ST INTERSECTION ON WEST SIDE OF 350TH ST
302	6978724.90	16559267.90	1108.73	FENO SET 65 FEET SW OF BRIDGE ON SOUTH SIDE OF US6
303	6978809.57	16560301.65	1119.17	FENO SET 743 FEET EAST OF BRIDGE ON NORTH SIDE OF US6

CONTROL LINE DATA - ML_US6											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
SURMLA006	N89°17'58"E	1514.46 '	6978751.86	16556449.72		389+53.80 R1					
SURMLA006	N89°58'00"E	1310.05 '	6978770.38	16557964.06		404+68.26 R1					
SURMLA006	S89°15'02"E	3475.84 '	6978771.14	16559274.12		417+78.31 R1					
SURMLA006			6978725.68	16562749.66		452+54.15 R1					

CONTROL LINE DATA - SR_350TH_ALT											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
START	N00°14'32"E	27.50 '	6978771.08	16559166.25		2000+00.00 R1					
HPI	N23°52'06"E	179.58 '	6978903.15	16559166.81	2000+27.50 R1	2001+32.07 R1	2002+33.68 R1	23°37'35"	500.00 '	206.18 '	104.58 '
HPI	N00°15'20"E	114.77 '	6979162.94	16559281.76	2003+08.68 R1	2004+13.19 R1	2005+14.74 R1	23°36'47"	-500.00 '	206.06 '	104.51 '
END			6979277.71	16559282.28		2005+25.00 R1					

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

Pottawattamie STPN-006-1(136)--2J-78

Silver Creek 1.0 mi E of Co Rd L66

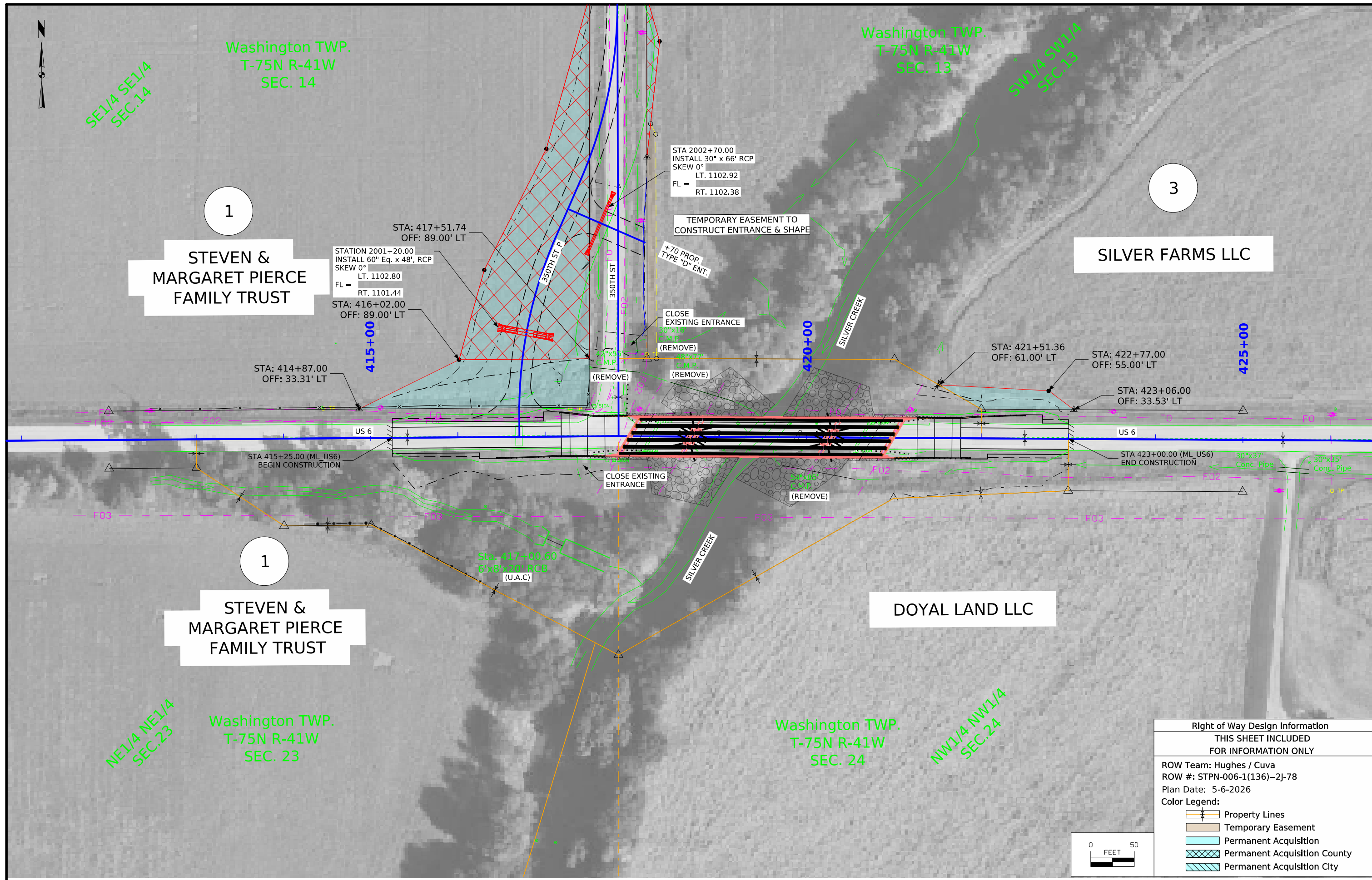
[7800603024](#)

Project Code 24-78-006-030

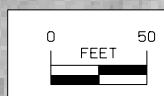
Route US 6

Parcel No	Owner Name	State		County		City			Temp Ease		Mitigation	Other	Relocation Needed	A/C Only	Total Acq
		Fee	Ease	Fee	Ease	Fee	Ease	Excess							
1	Steven & Margaret Pierce Family Trust		0.26 AC		0.69 AC										
3	Silvers Farms LLC		0.06 AC		0.03 AC				0.06 AC						

2 Parcels



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: Hughes / Cuva	
ROW #: STPN-006-1(136)--2J-78	
Plan Date: 5-6-2026	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition
	Permanent Acquisition County
	Permanent Acquisition City





1

STEVEN & MARGARET PIERCE FAMILY TRUST

Washington TWP.  
T-75N R-41W  
SEC. 23

NE1/4 NE1/4  
SEC.23

SE1/4 SE1/4  
SEC.14

1

STEVEN & MARGARET PIERCE FAMILY TRUST

Washington TWP.  
T-75N R-41W  
SEC. 14

NW1/4 NW1/4  
SEC.24

DOYAL LAND LLC

3

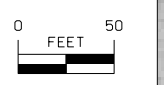
SILVER FARMS LLC

**Right of Way Design Information**  
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Hughes / Cuva  
ROW #: STPN-006-1(136)--2J-78  
Plan Date: 5-6-2026

Color Legend:

- Property Lines
- Temporary Easement
- Permanent Acquisition
- Permanent Acquisition County
- Permanent Acquisition City



### 511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			NO TRAVEL RESTRICTION EXPECTED				None					

108\_23A  
8/15/22

#### TRAFFIC CONTROL PLAN

Construction activity in this area will disrupt traffic on US 6 between Co. Rd. L55 and US 59. US 6 will remain closed for the duration of the project, with traffic maintained via a designated detour route. Road Closures shall be in accordance with Standard Road Plan TC-252. Close 350th St. to thru traffic for the duration of the project. Coordinate closure of 350th St. with Pottawattamie County Engineer. Information regarding the detour route is provided on Sheet J.2.

Traffic control on this project shall be in accordance with the Standard Road Plans. For additional complementary information, refer to Part 6 of the Manual on Uniform Traffic Control Devices and the current Standard Specifications.

Contractor shall install and maintain all road closures and detour signs. Coordinate closures with Engineer.

There are no existing pedestrian facilities within this project area.

108\_26A  
8/15/22

#### STAGING NOTES

Contractor shall be responsible to maintain detour route.

Contractor shall maintain access to properties at all times.

Stage 1  
Close US 6 and 350th St. to traffic. Coordinate road closures with Engineer.  
Remove existing bridge and roadway pavement.

Stage 2  
Complete construction of pretensioned prestressed concrete beam bridge and roadway reconstruction.  
Coordinate the opening of US 6 and 350th St. with Engineer.

108\_13A  
3/27/25

#### SAFETY CLOSURES

Refer to Section 2528 of the Standard Specifications

Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
413+75.00	1		US 6
415+25.00		1	US 6
423+00.00		1	US 6
424+50.00	1		US 6
2005+25.00		1	350TH ST
2006+75.00	1		350TH ST



Project Location

LEGEND  
 ——— DETOUR ROUTE



Control Point 302: 6978724.90 N, 16559267.90 E, FENO set 65 feet SW of bridge on south side of US 6, Elev. 1108.73.

### Hydraulic Data

RIDB: Silver\_Cottawattamie  
 Drainage Area = 90.8 Sq. Mi.  
 Stream Slope (HGL) = 5.33 ft./Mi.  
 Avg. Low Water Stage = 1074.33

Operational Low Beam = 1107.05

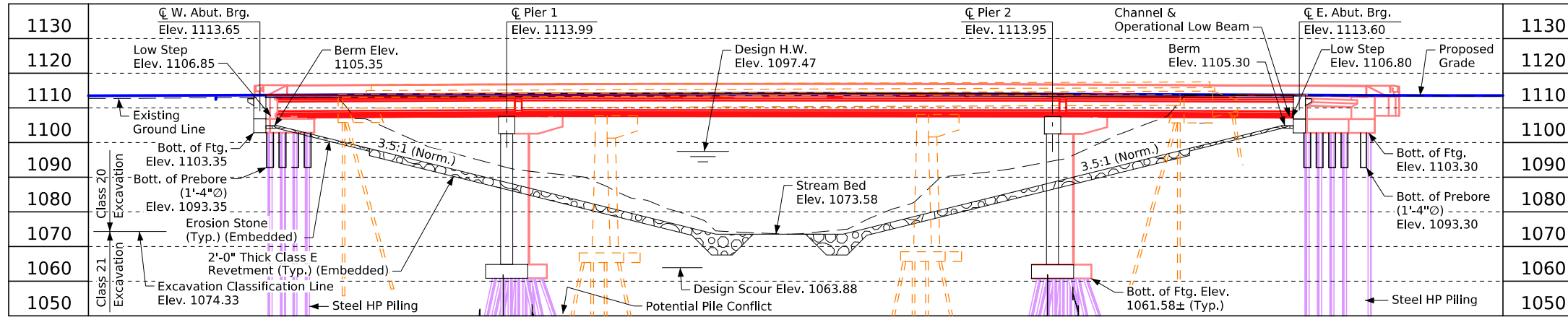
Q<sub>50</sub> = 11,130 cfs  
 Stage = 1097.47  
 Operational Freeboard = 9.58 ft.  
 Avg. Bridge Velocity = 5.27 fps

Q<sub>100</sub> = 13,420 cfs  
 Stage = 1099.66  
 Operational Freeboard = 7.39 ft.  
 Backwater = 0.17 ft.  
 Avg. Bridge Velocity = 5.49 fps

Q<sub>200</sub> = 15,300 cfs  
 Stage = 1101.29  
 Calculated Design Scour = 1063.88

Q<sub>500</sub> = 18,030 cfs  
 Stage = 1103.53  
 Channel Freeboard = 3.52 ft.  
 Avg. Bridge Velocity = 5.88 fps  
 Calculated Check Scour = 1063.88

Extreme HW Stage = Unknown  
 Date = Unknown



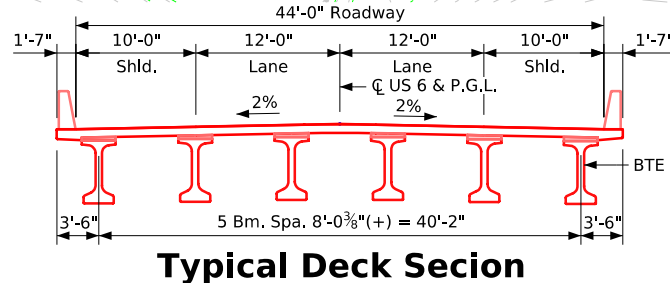
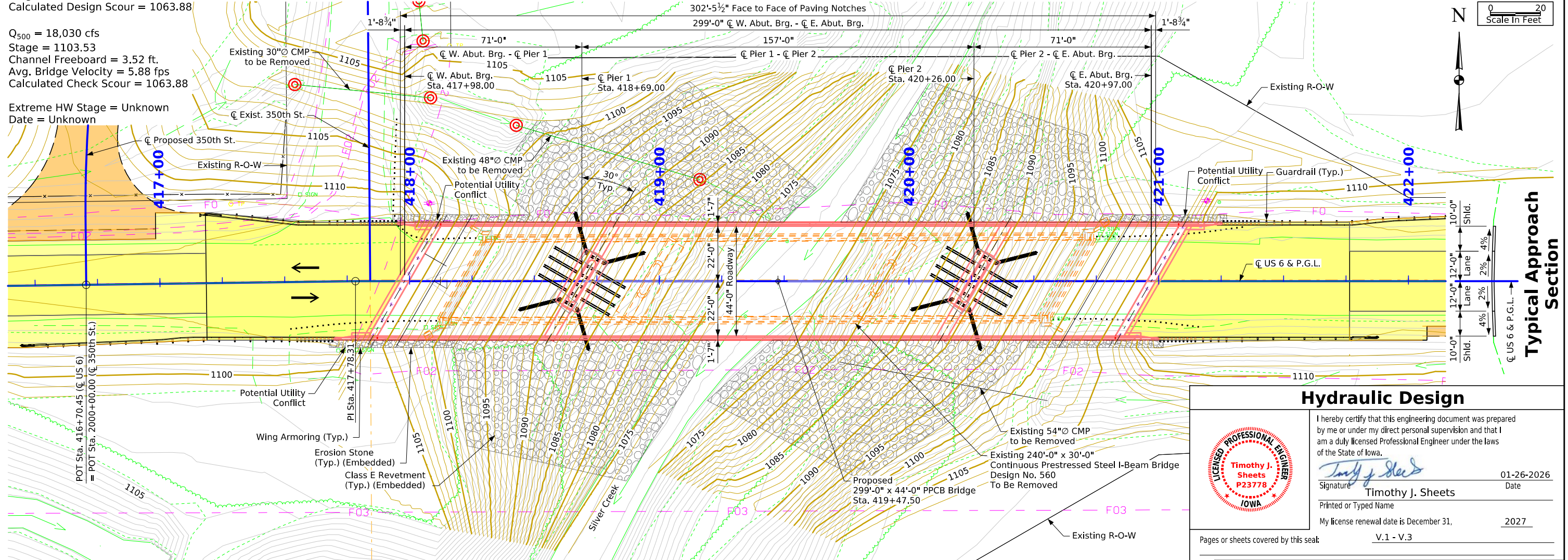
VPI Sta. = 419+43.00	VPI Elev. = 1114.40	VC = 180'
VPI Sta. = 421+80.00	VPI Elev. = 1113.21	VC = 180'
VPI Sta. = 417+25.00	VPI Elev. = 1113.31	VC = 180'

### Proposed Profile Grade US 6

- Design Notes:
- TSS TL-4 bridge railing proposed.
  - Pier Type - T Pier with 3'-0" assumed stem width.

### BRG TSL Longitudinal Section Along Centerline Approach Roadway

Note:  
 Top of bridge deck at centerline roadway is 0.03' below the profile grade to account for parabolic crown.



### Traffic Estimate

2029 AADT	3000 V.P.D.
2049 AADT	3660 V.P.D.
20xx DHV	xxx V.P.H.
TRUCKS	15 %
Total Design ESALs	???

Note:  
 This design is for the replacement of the existing 240' x 30' Continuous Prestressed Steel I-Beam Bridge, Pottawattamie Design No. 560, FHWA No. 43270, Maint. No. 7821.75006.

### Situation Plan

#### Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

#### General Utility Symbols:

- FO - Fiber Optic Line
- FO2 - Fiber Optic Line
- FO3 - Fiber Optic Line

### Location

US 6 over Silver Creek  
 T-75N R-41W  
 Section 13 & 24  
 Washington Township  
 Pottawattamie County  
 FHWA No. 43271  
 Bridge Maint. No. 7821.75006  
 Latitude 41.289374°  
 Longitude -95.517045°

### Hydraulic Design



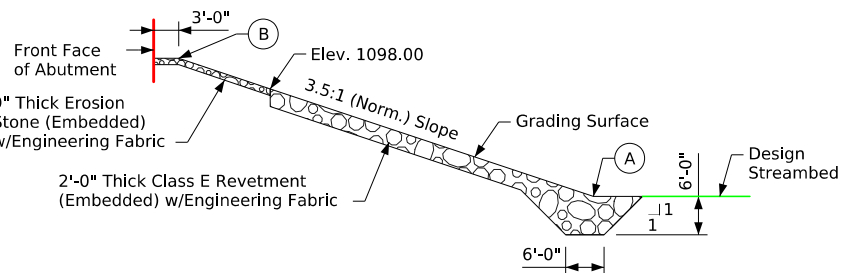
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: *Timothy J. Sheets*  
 Printed or Typed Name: Timothy J. Sheets  
 Date: 01-26-2026  
 My license renewal date is December 31, 2027

Pages or sheets covered by this seal: V.1 - V.3

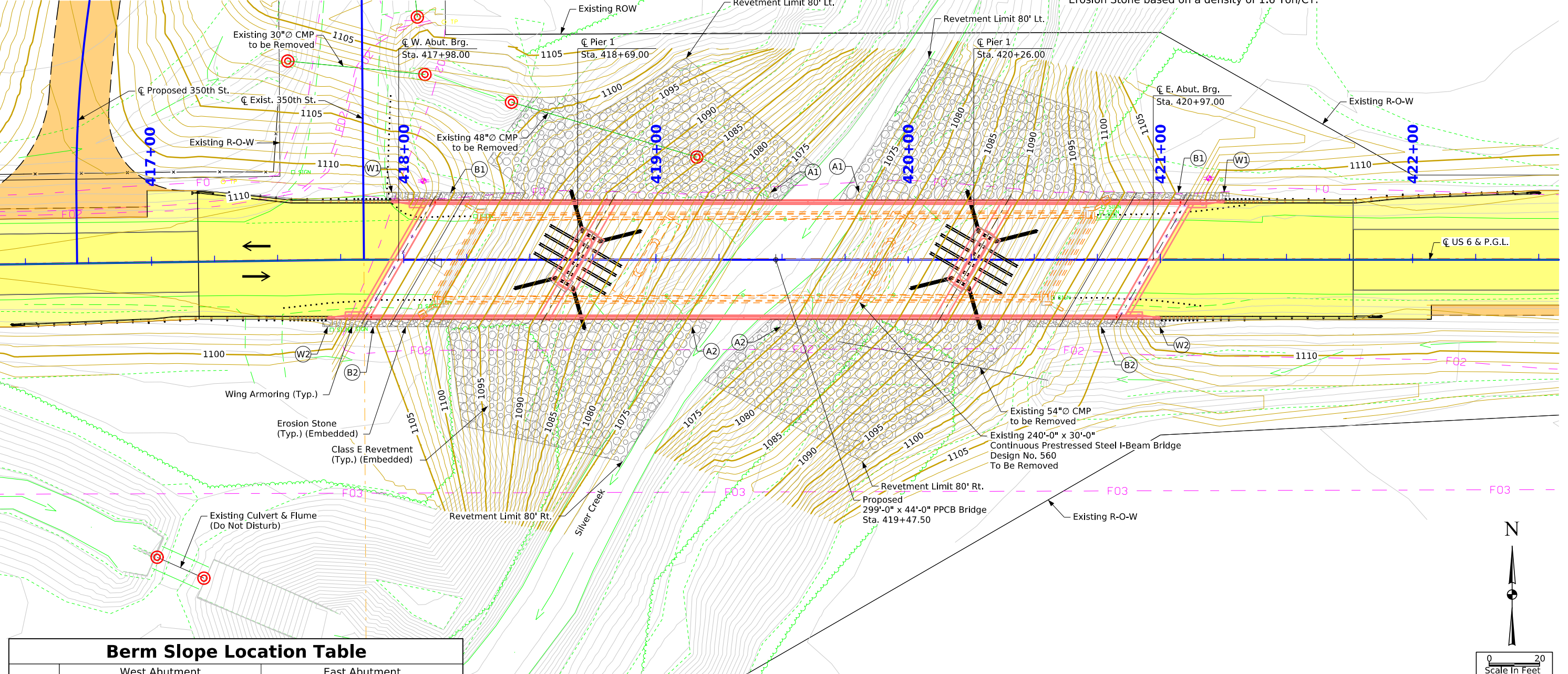
Design For 30 Degree Skew LA  
**299'-0" x 44'-0" Prestressed Concrete Beam Bridge**  
 71'-0" End Spans 157'-0" Interior Span  
 STA. 419+47.50 (Centerline US 6)  
 Turn-In Date: Mar 2026  
**Pottawattamie County**  
 IOWA DEPARTMENT OF TRANSPORTATION  
 Design No. xxx Design Sheet No. 1 of 2 FHWA No. 43271

Control Point 302: 6978724.90 N, 16559267.90 E, FENO set 65 feet SW of bridge on south side of US 6, Elev. 1108.73.



**Section Thru Embedded Revetment Key-In**  
(Upstream and Downstream Limits of Revetment)

**Section Thru Embedded Revetment Berm**



Estimated Berm Armoring Quantities				
Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - West Berm	1690	80	2085	1175
Berm Lining - East Berm	1615	80	1995	1125
Totals	3305	160	4080	2300

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans.

Revetment based on a density of 1.5 Ton/CY.  
Erosion Stone based on a density of 1.6 Ton/CY.

**Berm Slope Location Table**

Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	419+46.94	26.58' Lt.	1073.58	419+78.96	26.58' Lt.	1073.58
A2	419+16.25	26.58' Rt.	1073.58	419+48.26	26.58' Rt.	1073.58
B1	418+18.54	26.58' Lt.	1105.35	421+07.15	26.58' Lt.	1105.30
B2	417+87.85	26.58' Rt.	1105.35	420+76.46	26.58' Rt.	1105.30
W1	417+95.20	26.58' Lt.	1113.07	421+25.20	26.58' Lt.	1112.94
W2	417+69.80	26.58' Rt.	1112.96	420+99.80	26.58' Rt.	1113.02

Berm slope elevations reflect the grading surface.  
All points are 3'-0" from the edge of deck.  
Offsets are from  $\zeta$  US 6.

**Site Plan**

Design For 30 Degree Skew LA  
**299'-0" x 44'-0" Prestressed  
 Prestressed Concrete Beam Bridge**  
 71'-0" End Spans 157'-0" Interior Span  
**Situation Plan - Site**  
 STA. 419+47.50 ( $\zeta$  US 6) Turn-In Date: Mar 2026  
**Pottawattamie County**  
 IOWA DEPARTMENT OF TRANSPORTATION  
 Design No. xxx Design Sheet No. 2 of 2 FHWA No. 43271

PRELIMINARY BRIDGE TSL DEVELOPMENT REPORT

January 26, 2026

US 6 over Silver Creek  
Project No. BRF-006-1(135)--38-78  
PIN: 24-78-006-030  
File No. 32865  
Pottawattamie County - Design No. xxx  
299'-0 x 44'-0 Pretensioned Prestressed Concrete Beam (PPCB) Bridge  
Location: 1.0 mi. E of Co. Rd. L66  
Station 419+47.50 (CL US 6)  
Maintenance No. 7821.75006  
FHWA No. 43271  
Work Description: Bridge Replacement - PPCB  
Prepared for: Iowa DOT  
Prepared by: Foth IE

TSL DEVELOPMENT DETAILS

1. BDM 3.2.2.4 - Freeboard
  - a.  $Q_{50}$  design elevation is 1097.47 on the downstream edge of the proposed bridge.
  - b. Channel low beam at Sta. 421+06.86 and is 1107.05.  
Freeboard for the proposed bridge is 9.58', which is greater than the DNR requirement of 3'. Calculation is below:  
 Low Step Elevation at E. Abut. = 1106.80  
 Bearing Device Height = 0.25'  
 Low Beam Elevation = 1107.05  
 Freeboard = 1107.05 - 1097.47 = 9.58'
2. BDM 3.2.2.7 - Scour
  - a. Design scour does not extend below the proposed bottom of the pier footings.
  - b. Design scour includes long-term degradation and contraction scour.
  - c. The bridge was reviewed for stability against the streambed degrading up to 6', which produces 3:1 berm slopes. This is based on the possibility of a downstream weir structure failing and allowing the knick point to travel upstream.
3. BDM 3.6.1.6 - Superstructures - PPCB
  - a. A 299' x 44' PPCB Bridge with an 8.5" deck thickness is proposed.
  - b. Estimated 2" haunches at both abutments.
  - c. BTE beams are proposed.
4. BDM 3.6.2.1 - Width - Highway
  - a. The width of the bridge was set by adding together the proposed lane widths and effective shoulder widths.
5. BDM 3.6.2.2 - Sidewalk, Shared Use Path, and Bicycle Lane
  - a. No pedestrian or bicycle facilities are included in the proposed bridge.
6. BDM 3.6.6 - Deck Drainage
  - a. The proposed bridge is located on a crest vertical profile. Deck drain locations to be determined during Final Design.
7. BDM 3.6.8 - Barrier Rails
  - a. TL-4 barrier rails conform with the BDM requirements for a mainline non-interstate bridge.
  - b. Barrier rails for this project will be the TSS TL-4 rails.
8. BDM 3.7.1 - Substructures - Skew
  - a. The bridge abutments and piers will be placed at a 30 degree skew to match the channel flow direction.
9. BDM 3.7.2 - Abutments
  - a. Integral abutments will be used with 10'-0" prebored HP piling.
10. BDM 3.7.3.5 - Slope Protection
  - a. Embedded Class E revetment is proposed to an elevation equal to the Design  $Q_{50}$  water surface elevation.
  - b. Embedded erosion stone is proposed above the Class E revetment to the face of the abutment.
11. BDM 3.7.4 - Piers and Pier Footings
  - a. T Piers with pile footings are proposed for the piers.
  - b. Assumed pier stem width for hydraulic model is 3'-0".
12. BDM 3.7.6 - Foundation Conflicts
  - a. The bridge abutments and piers will be placed behind the existing abutments and piers.
  - b. There are potential conflicts with the existing and proposed pier piles due to pile batter.

Design For 30 Degree Skew LA

**299'-0" x 44'-0" Pretensioned  
Prestressed Concrete Beam Bridge**

71'-0" End Spans 157'-0" Interior Span

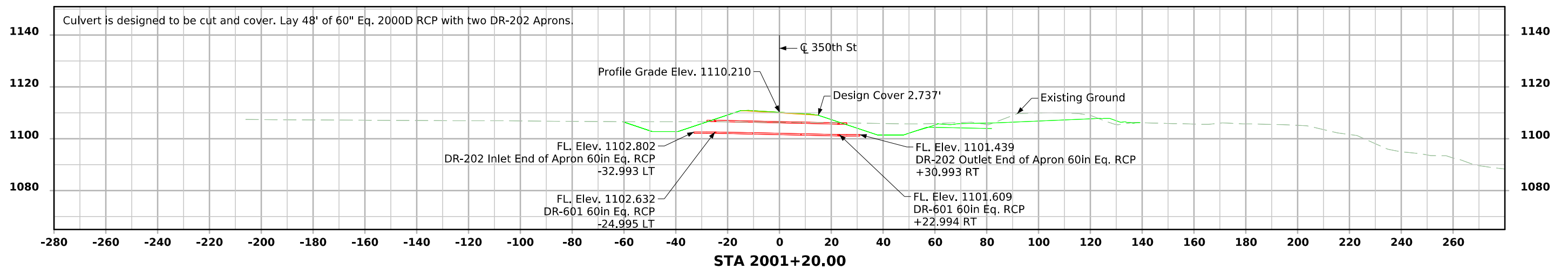
**TSL Development Report**

STA. 419+47.50 (CL US 6) Turn-in Date: Mar 2026

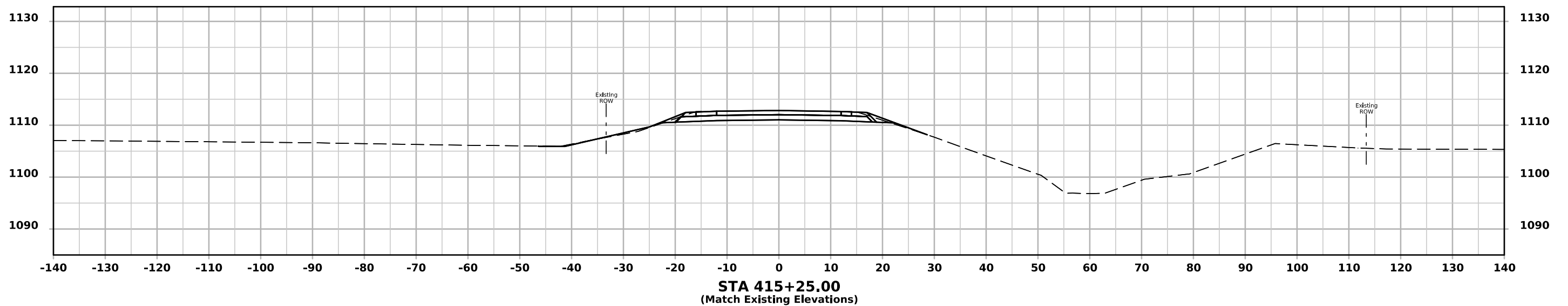
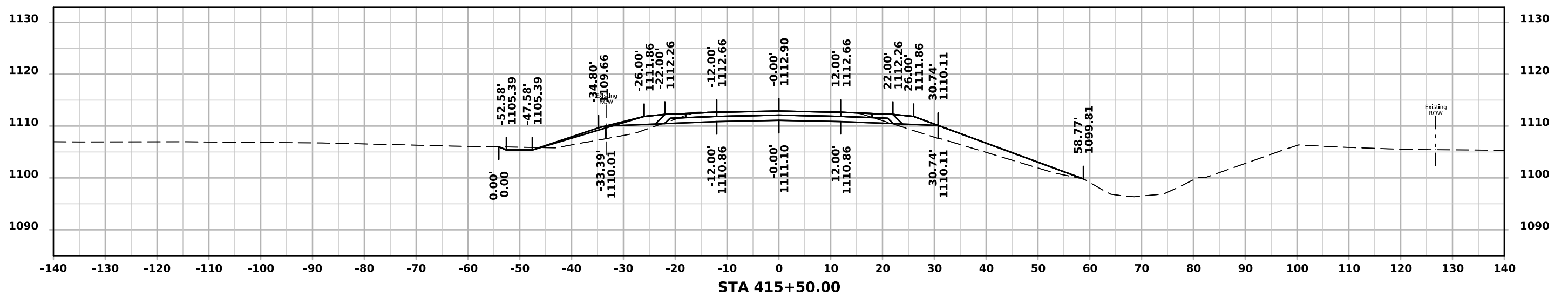
**Pottawattamie County**  
IOWA DEPARTMENT OF TRANSPORTATION

Design No. xxx FHWA No. 43271

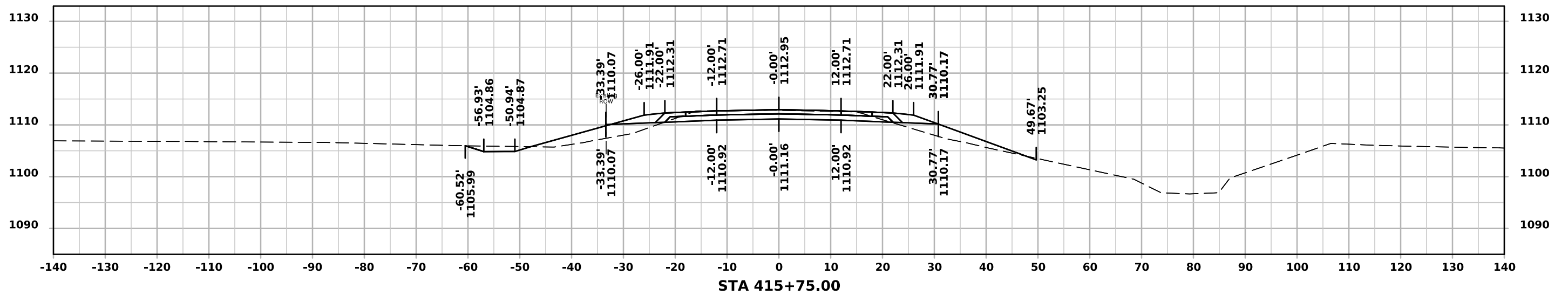
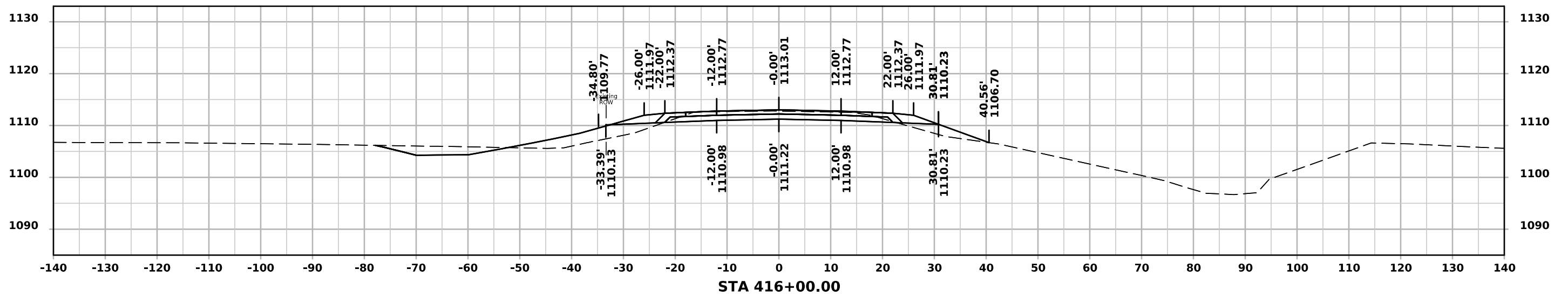
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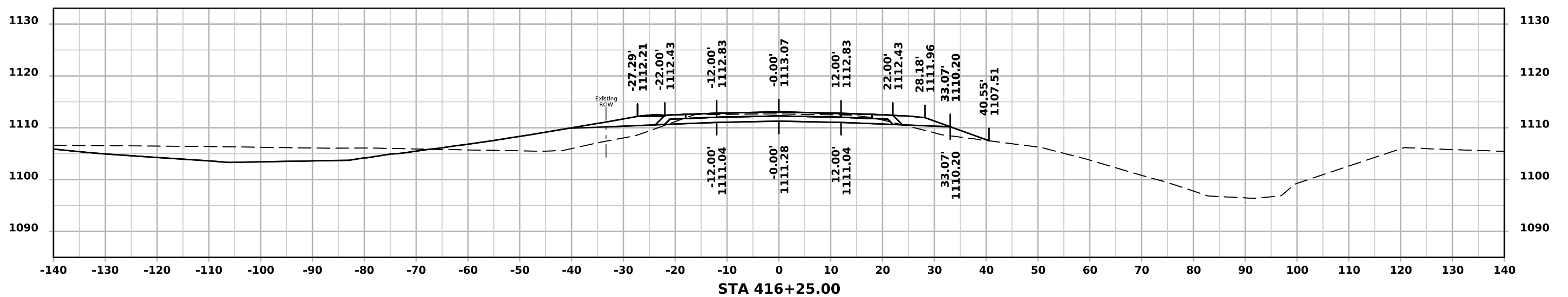
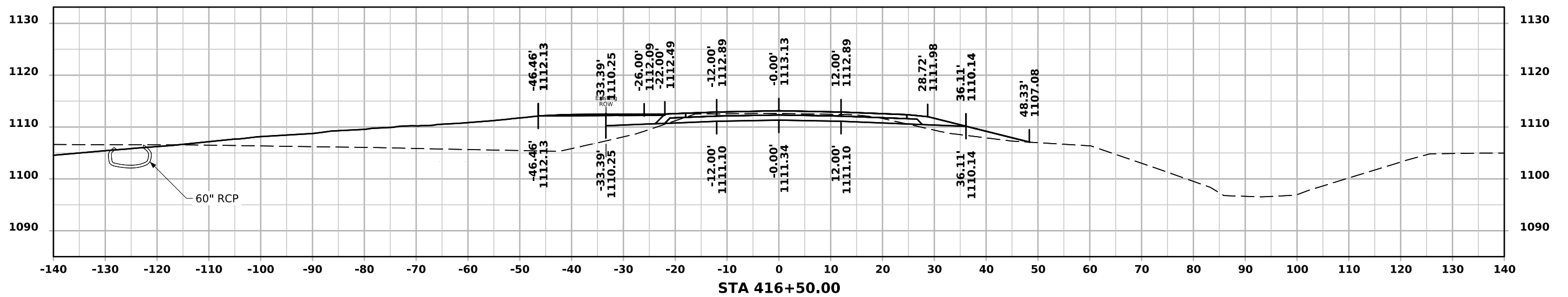
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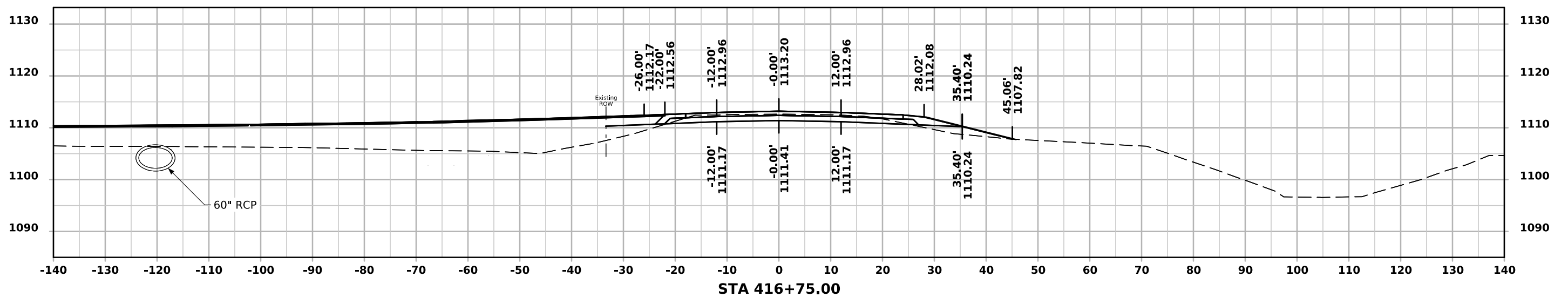
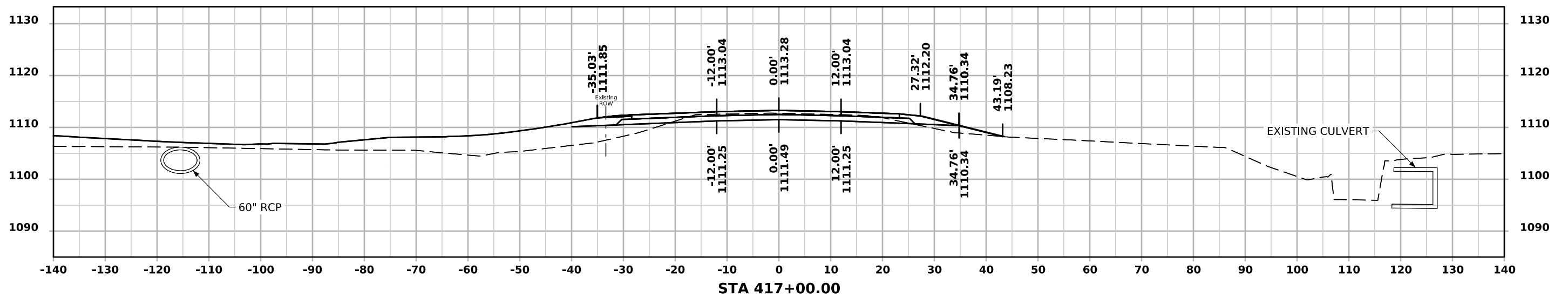
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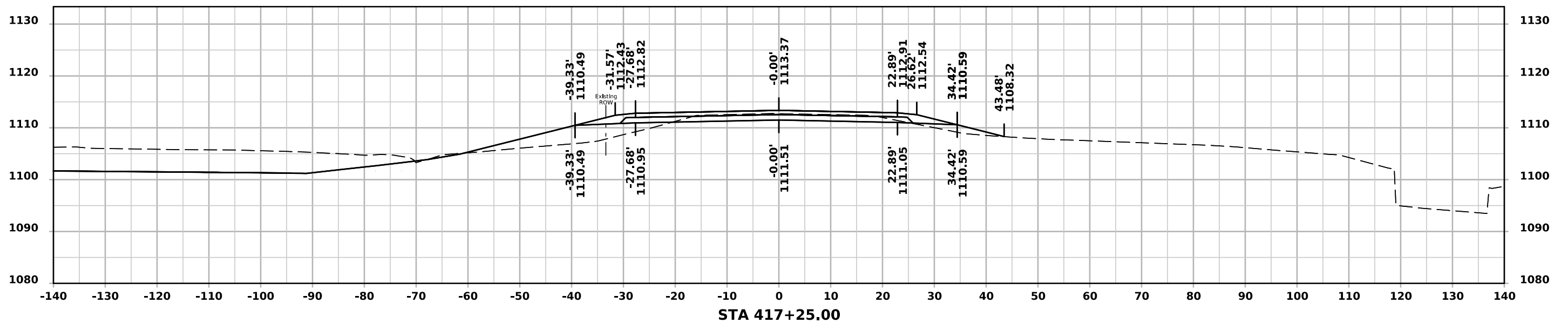
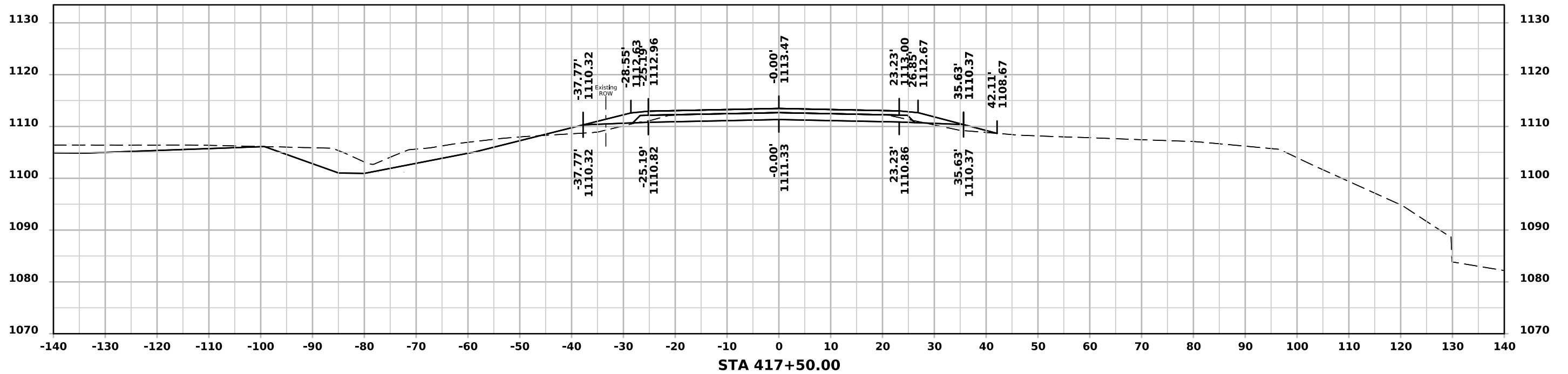
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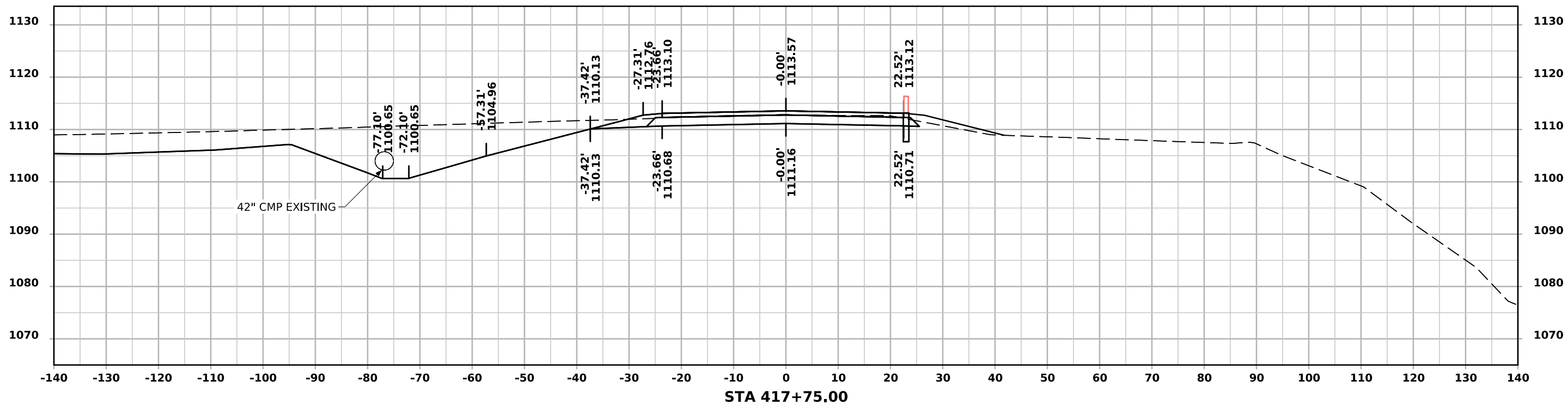
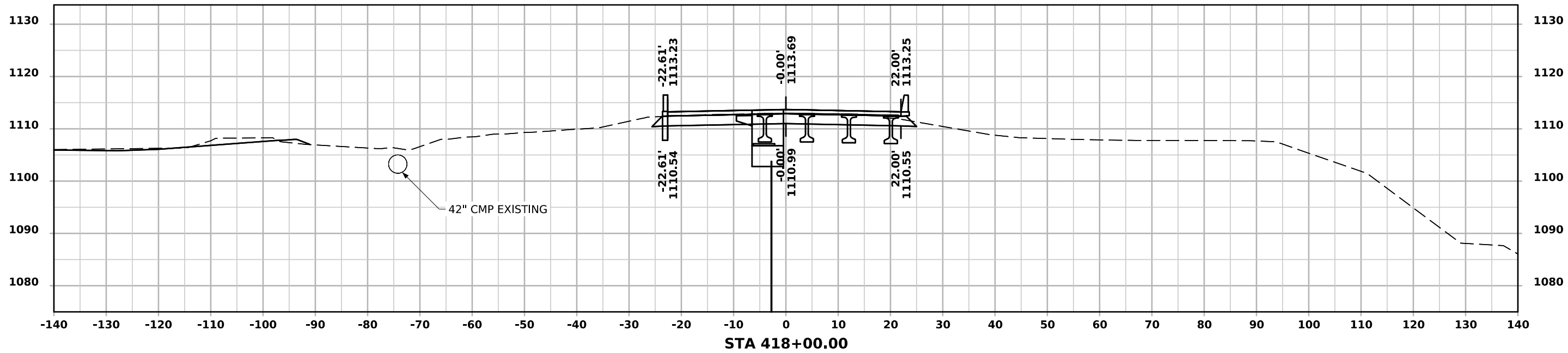
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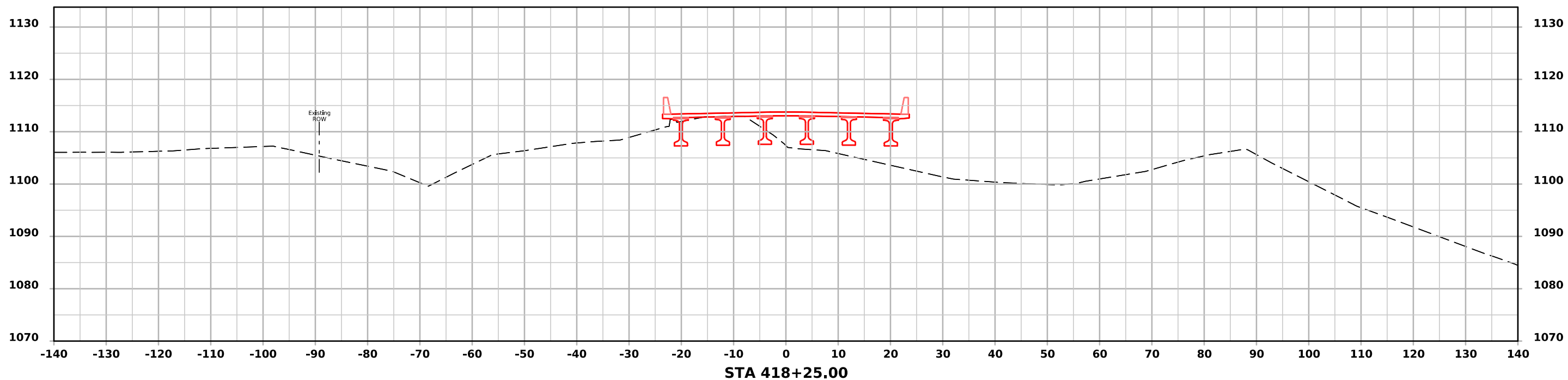
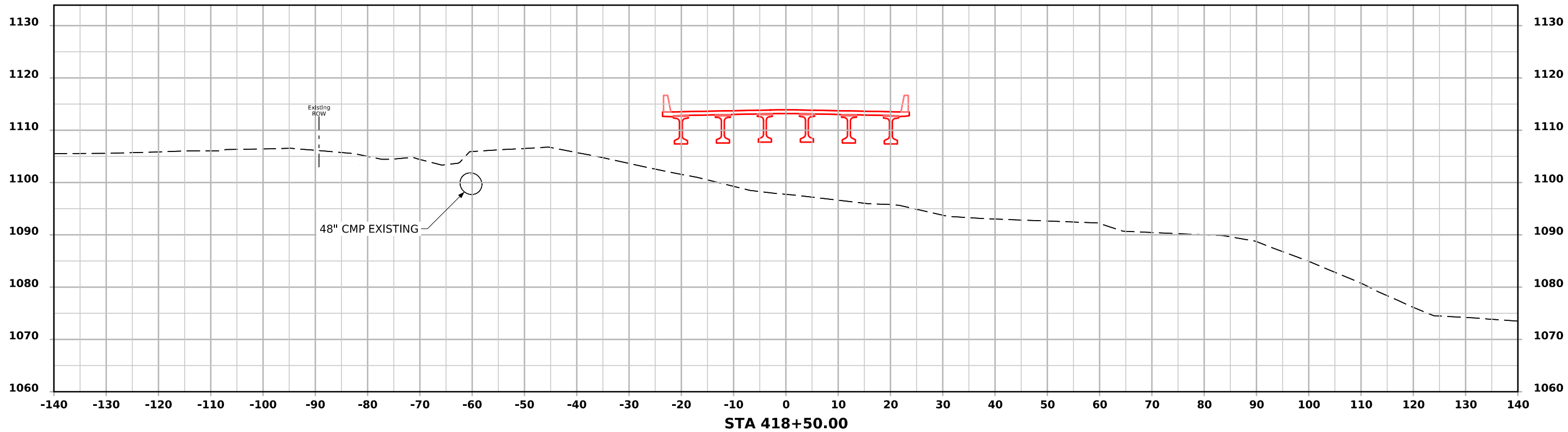
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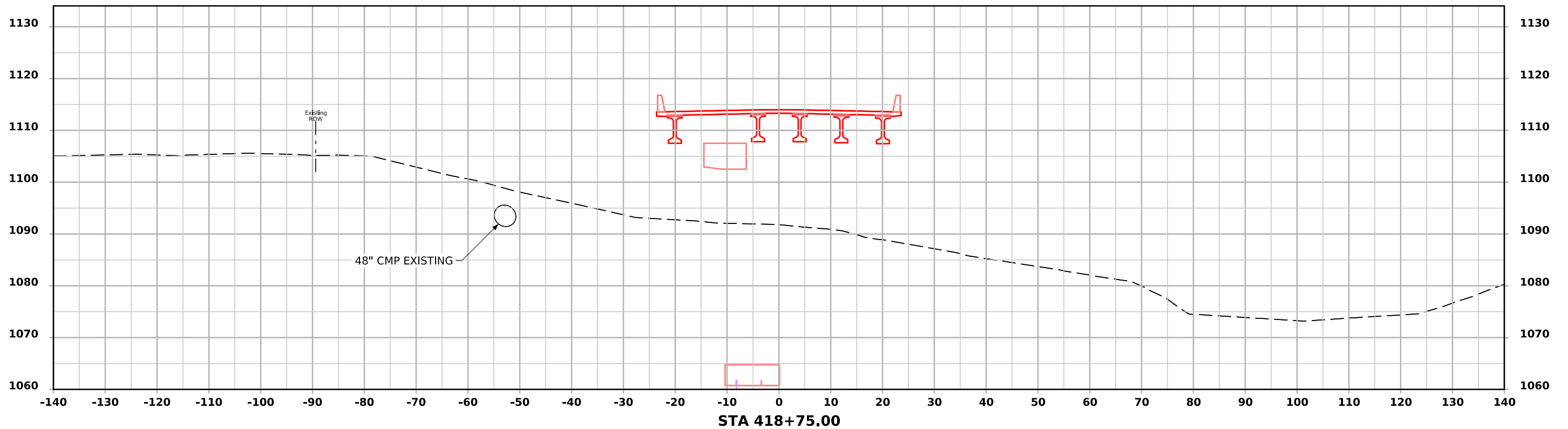
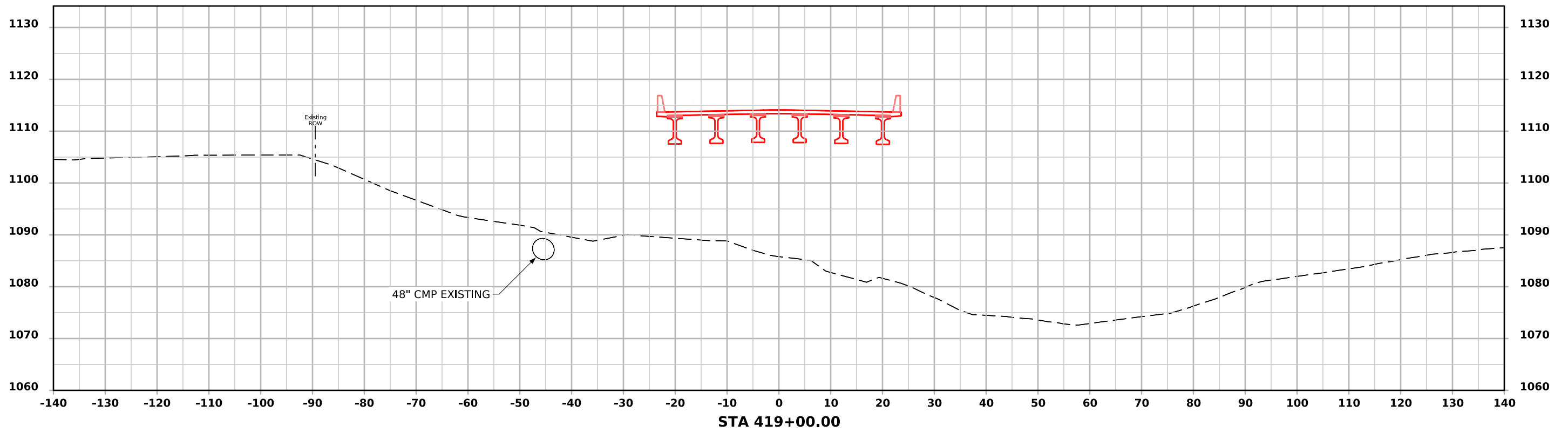
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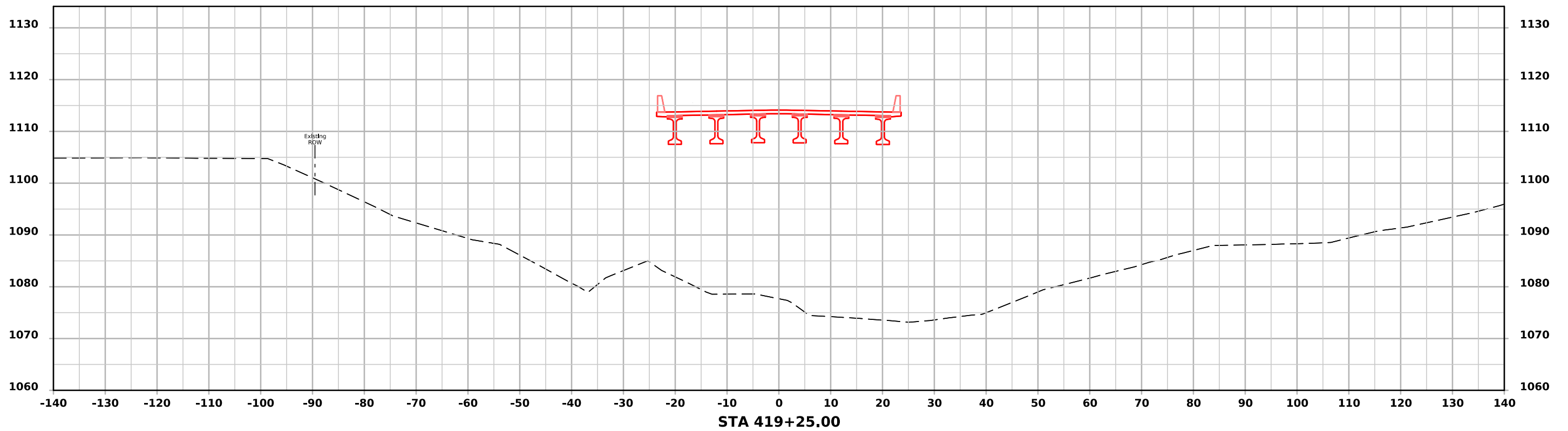
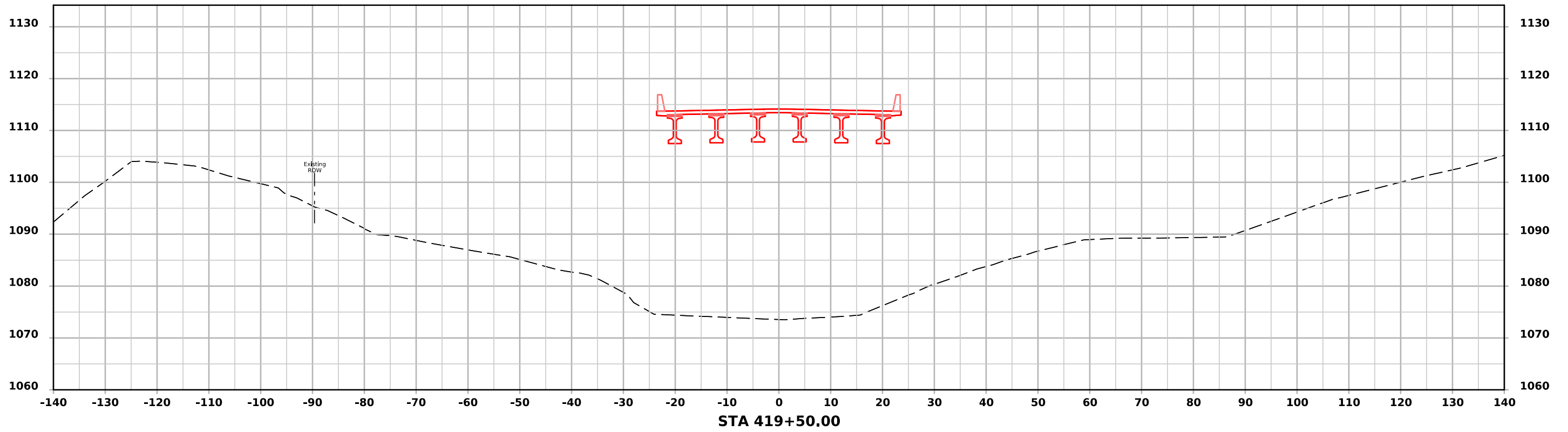
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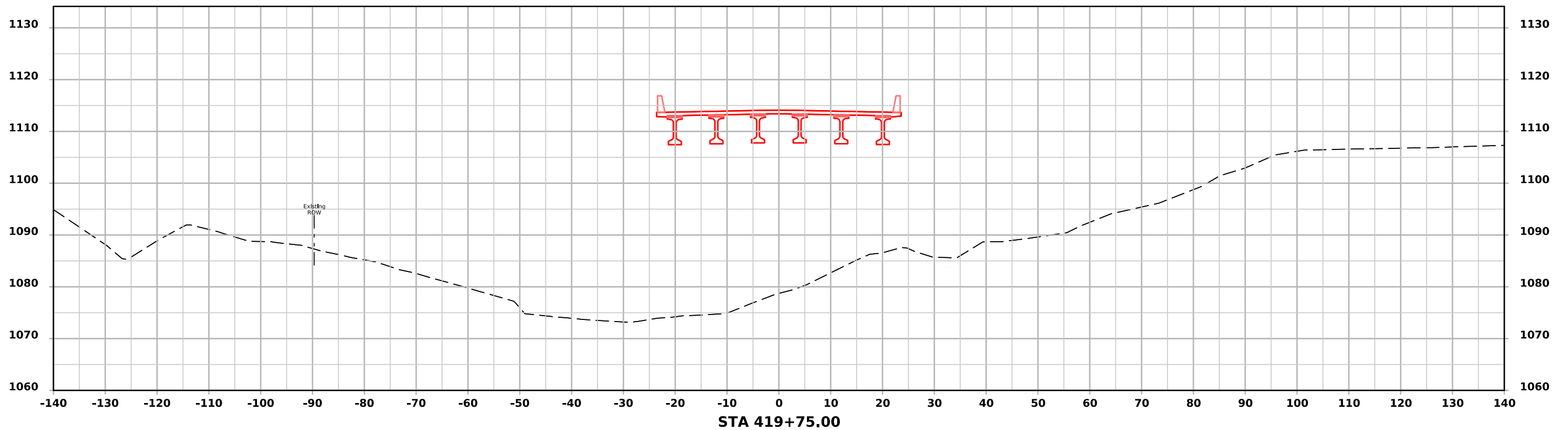
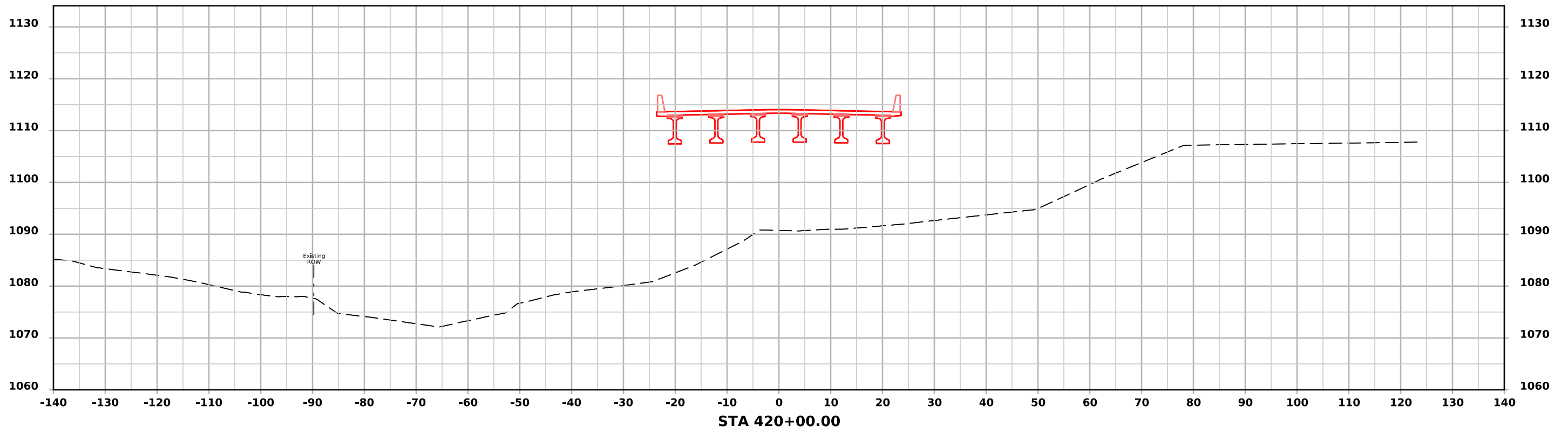
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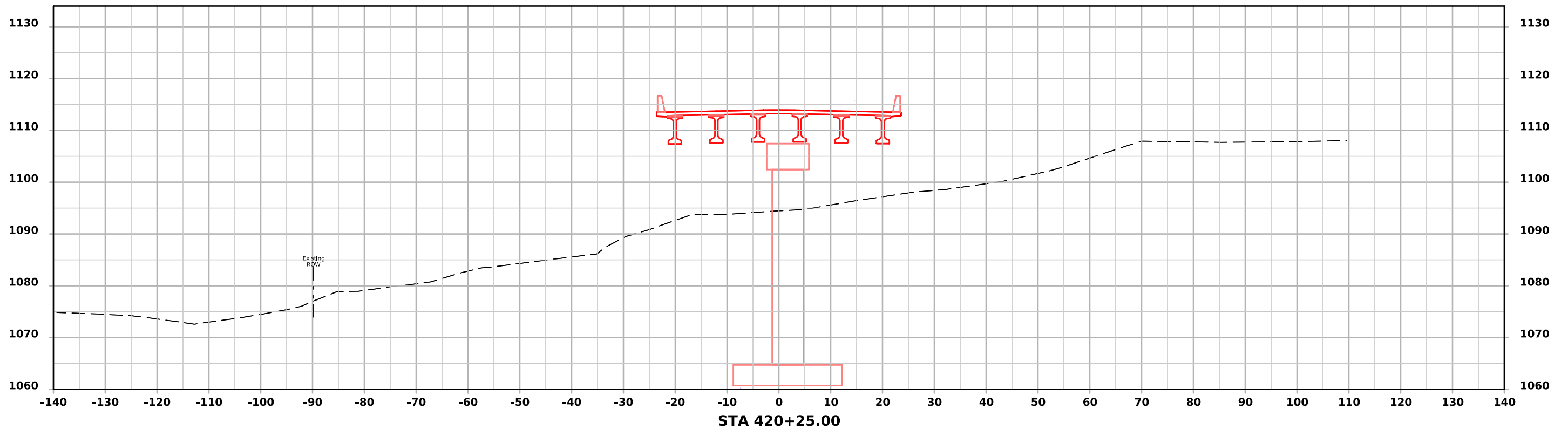
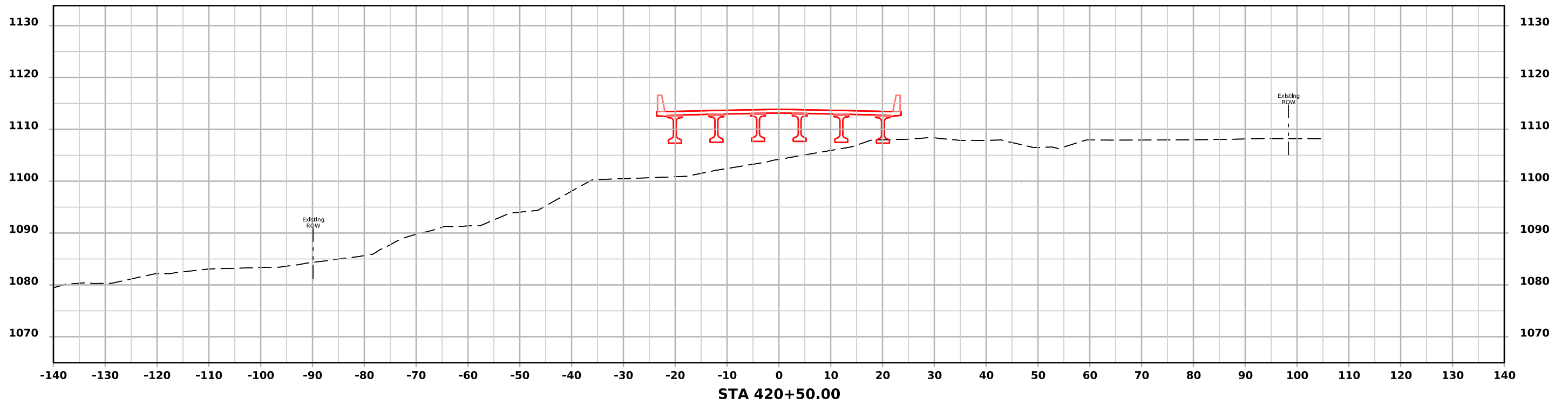
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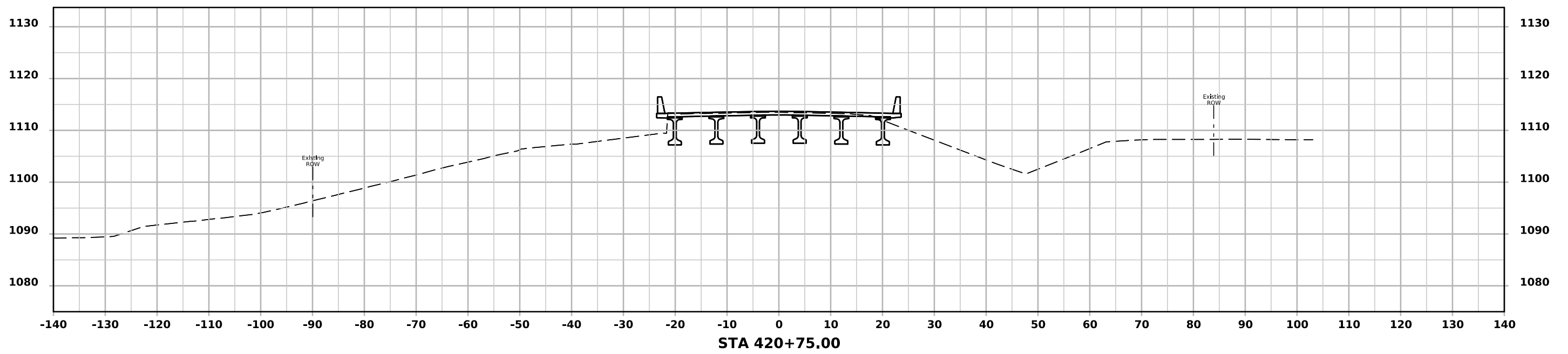
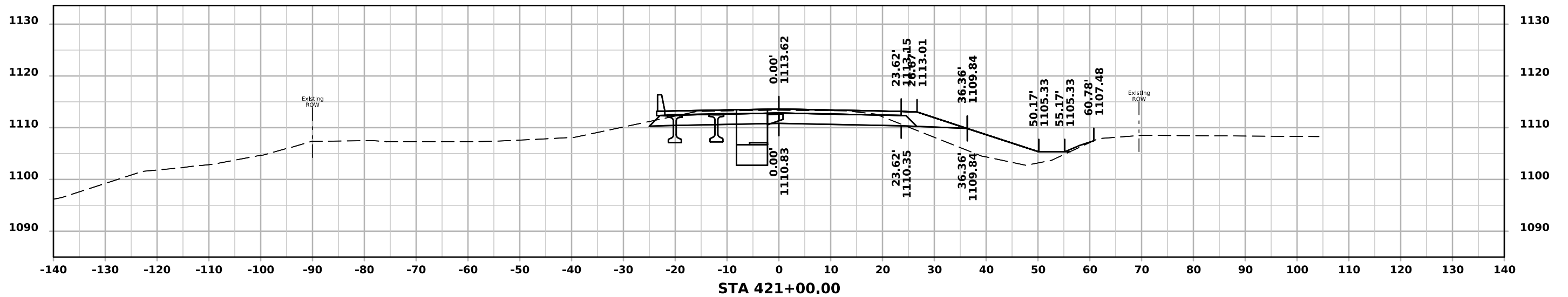
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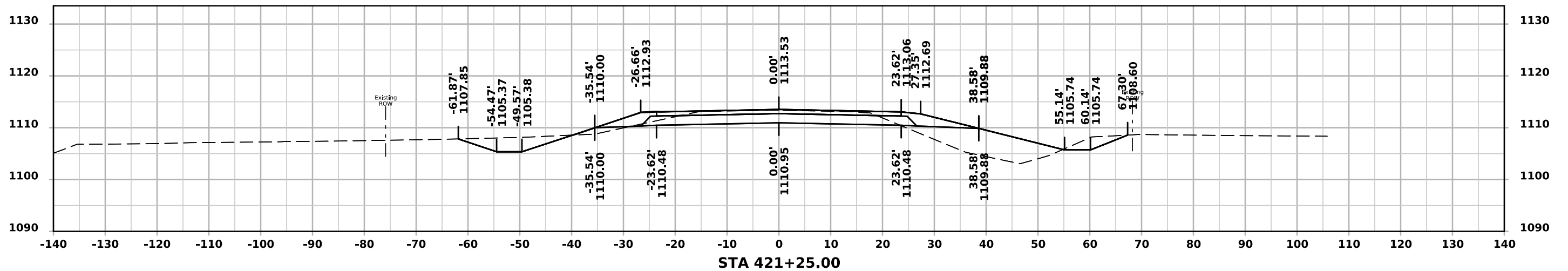
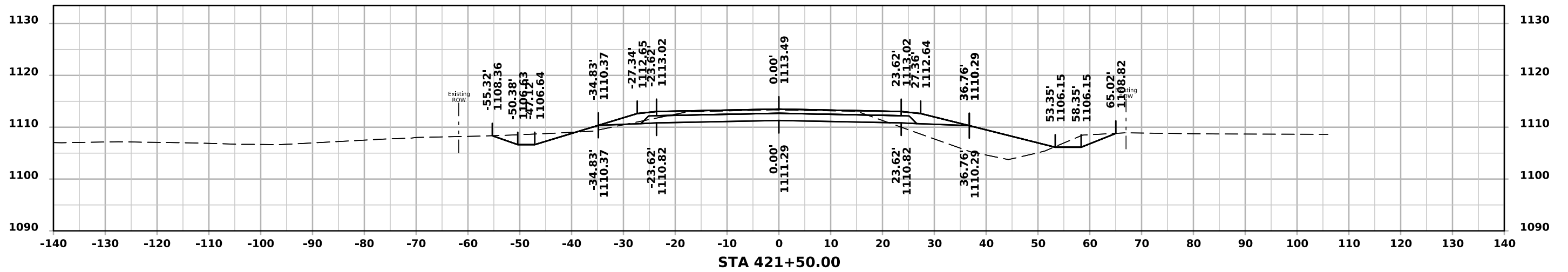
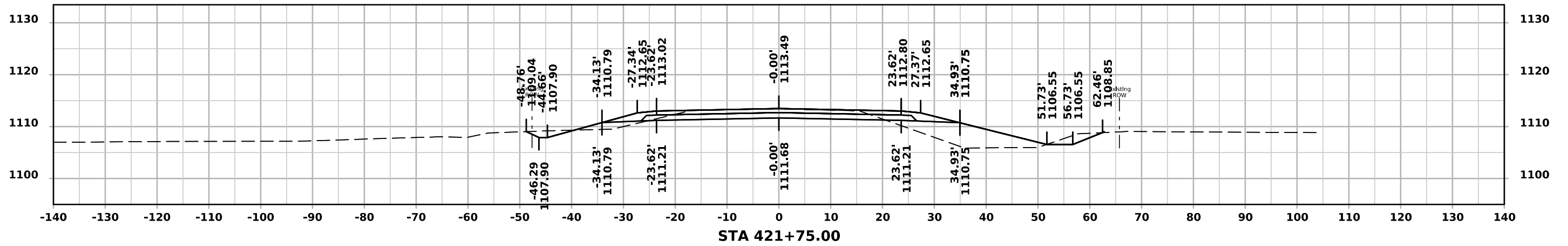
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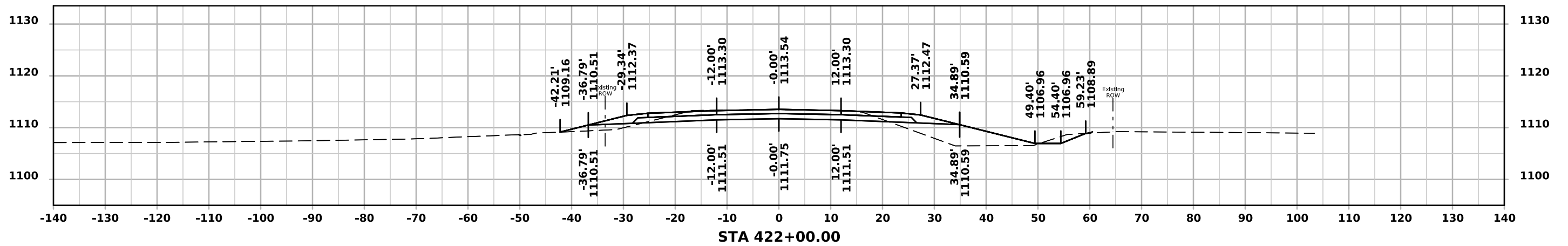
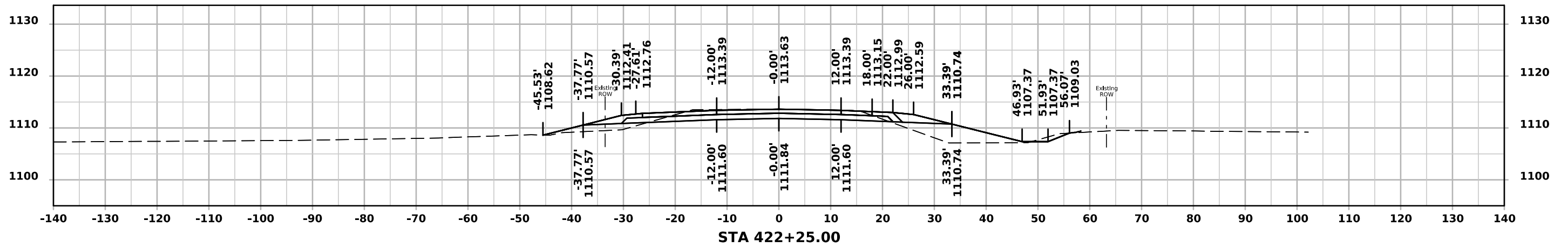
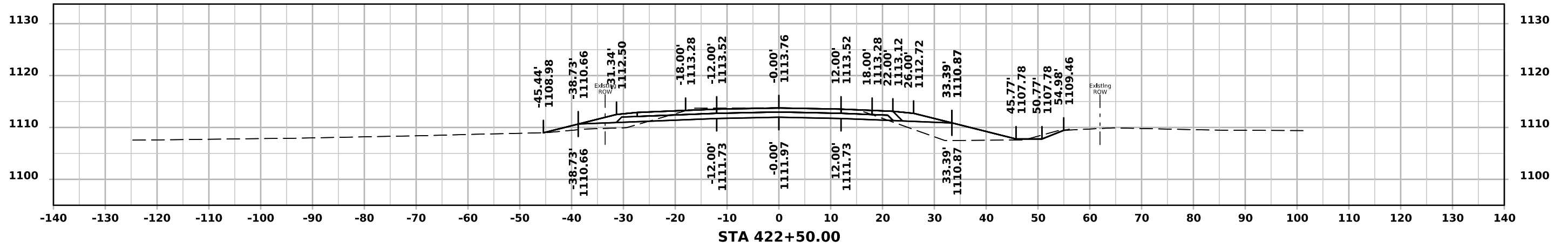
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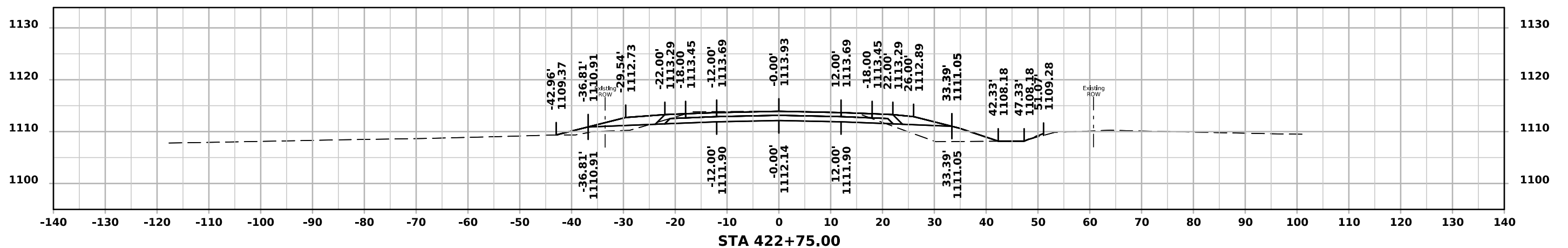
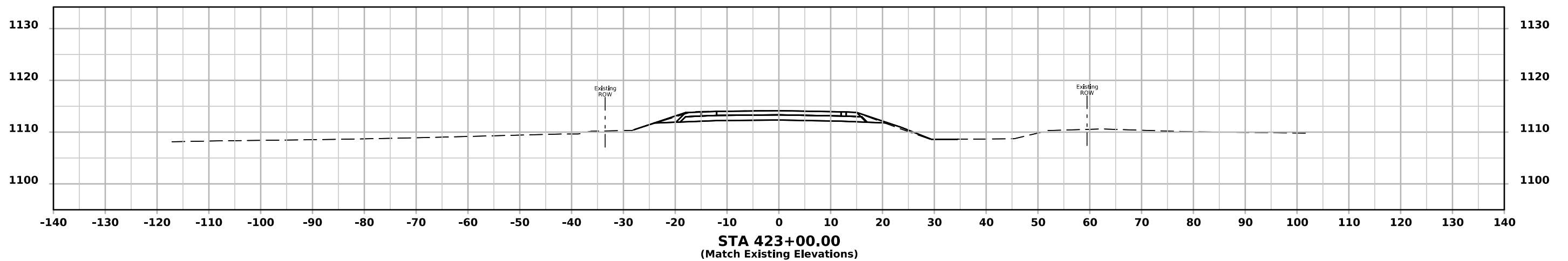


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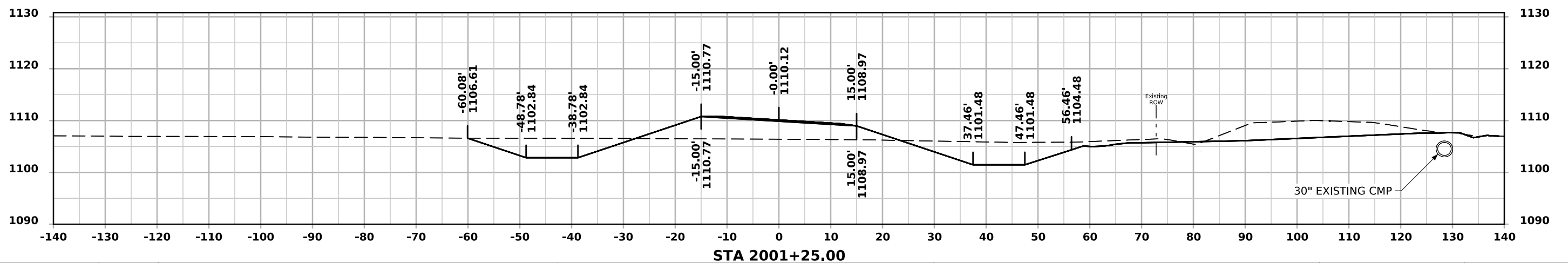
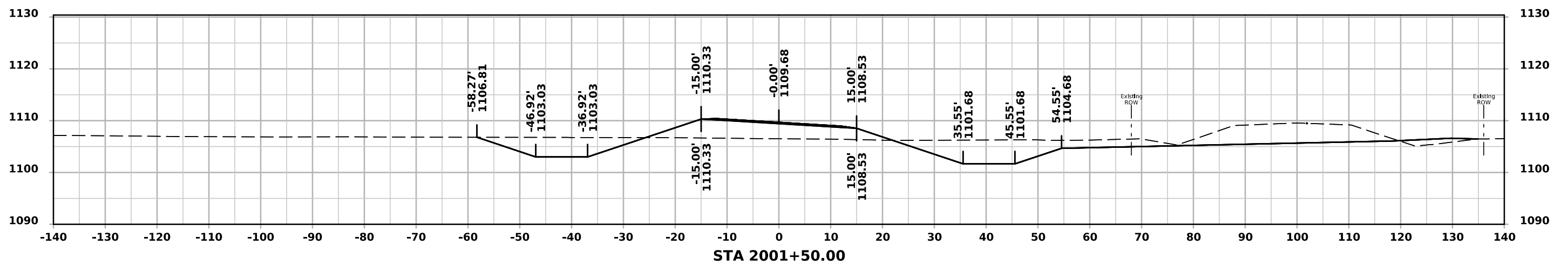
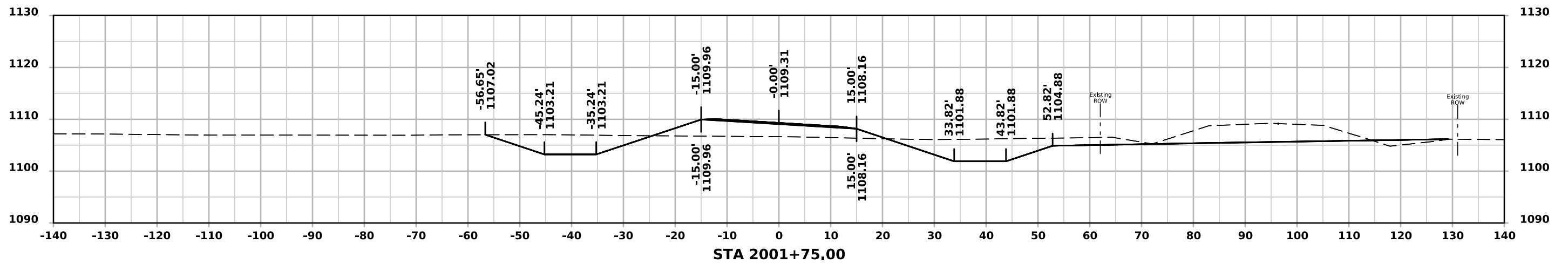


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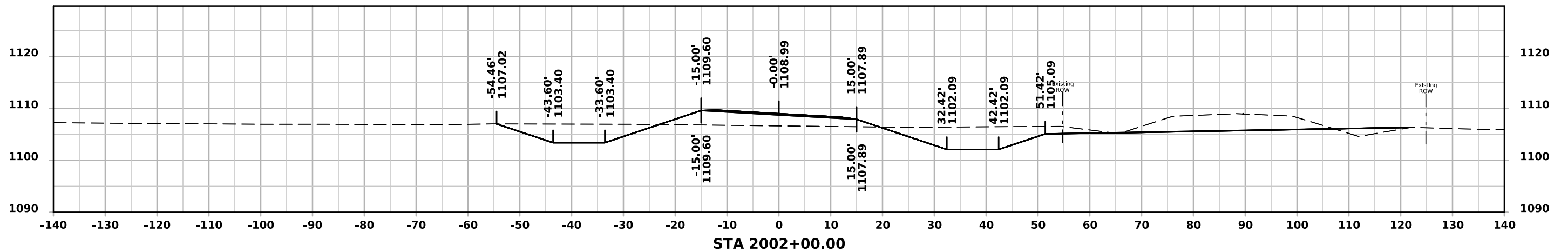
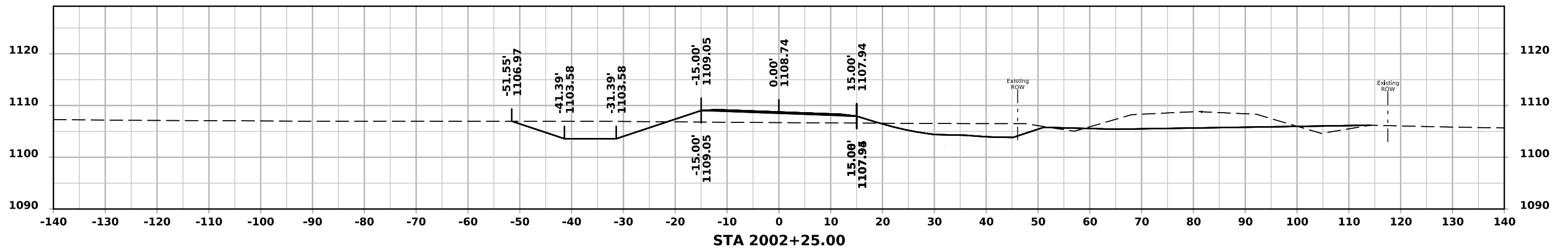
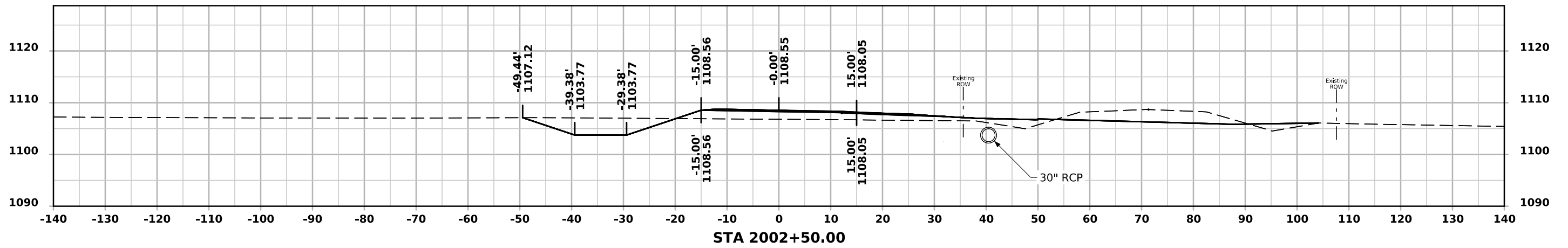




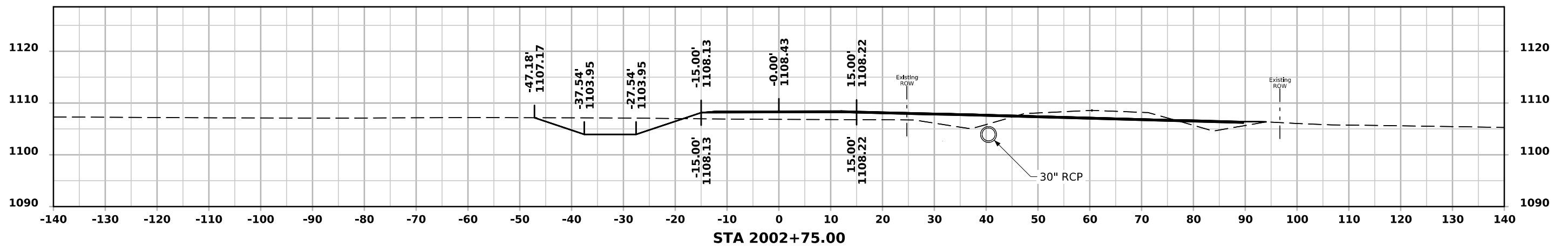
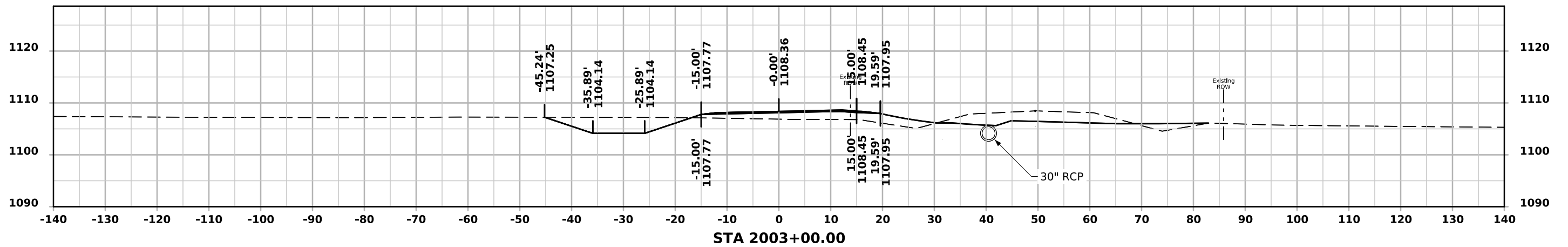
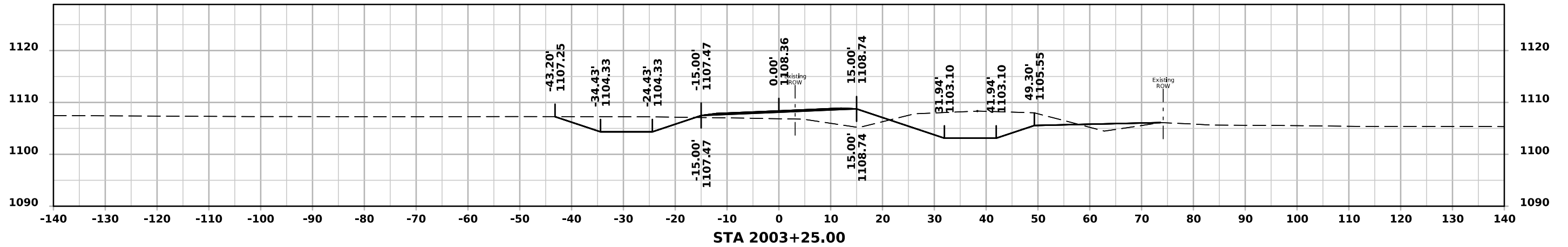
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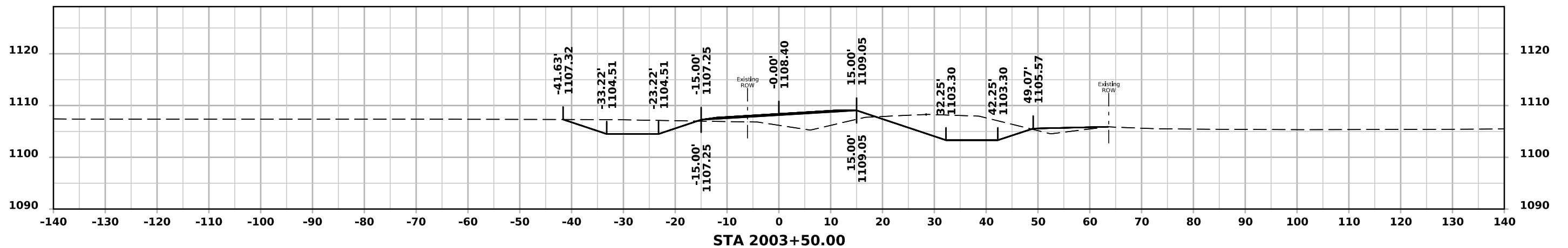
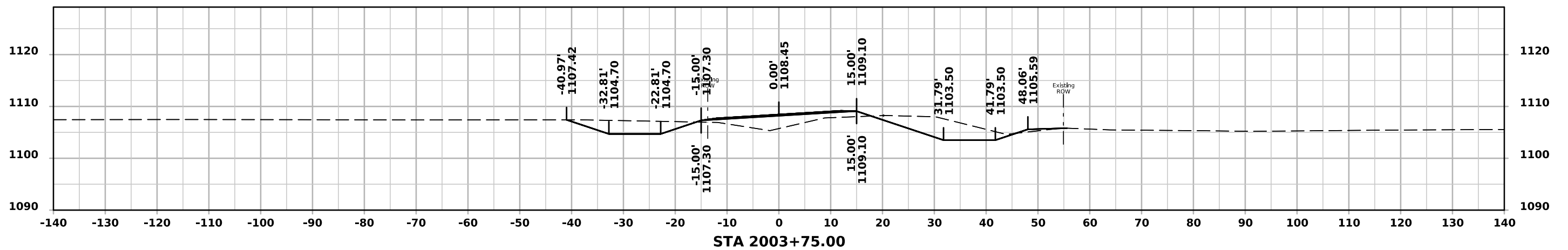
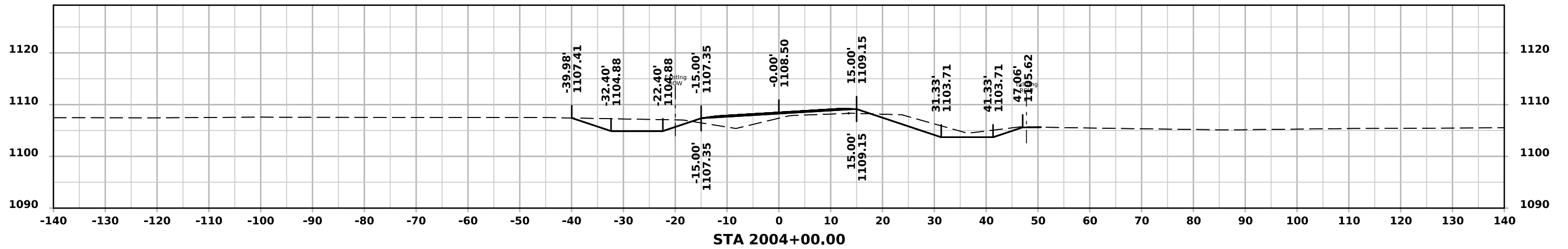
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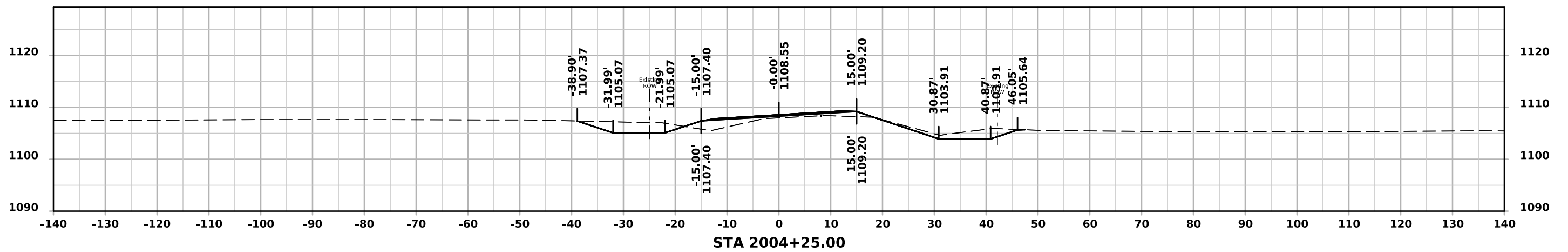
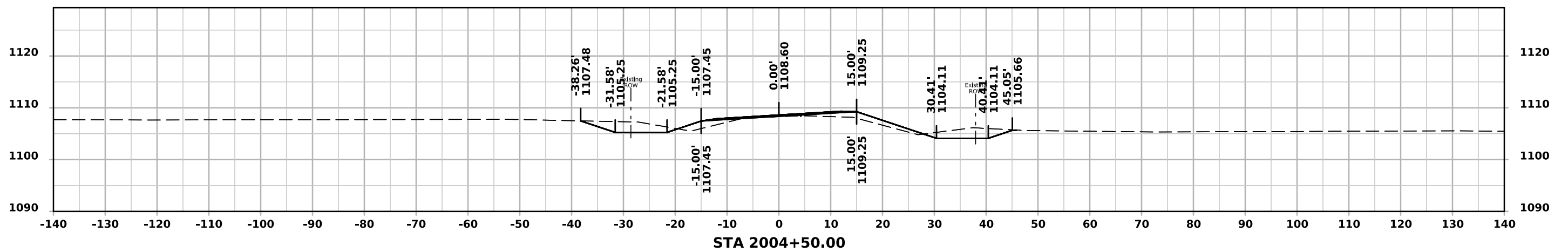
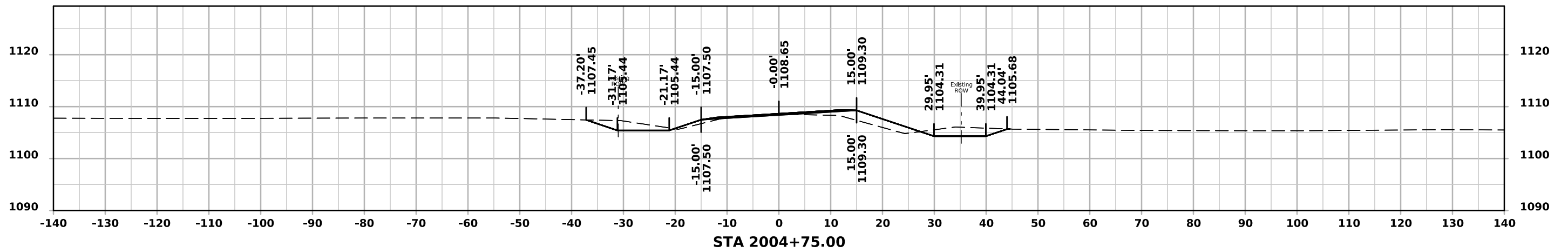
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# SR - 350TH ST



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