

LETTING DATE
 11/17/2026
 Bridge Replacement
 BRF-034-6(104)--38-68

Monroe COUNTY



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
Monroe COUNTY
 Bridge Replacement
 U.S. 34 bridge over Coal Creek,
 2.0 miles west of IA 5.
 Location
 SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.
 Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS

TOTAL

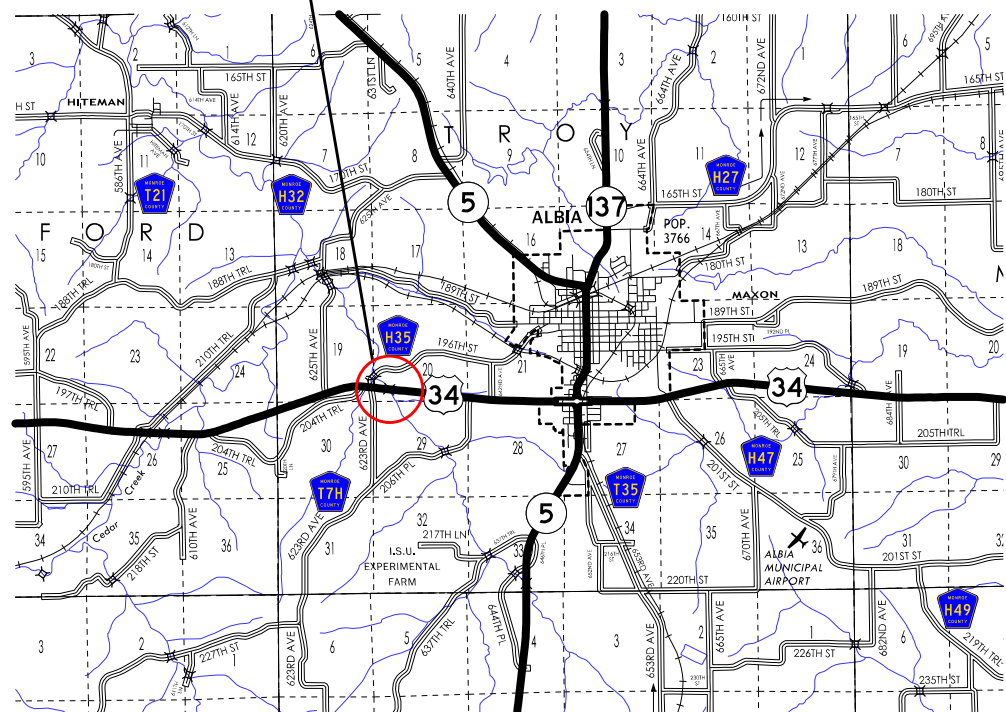
PROJECT IDENTIFICATION NUMBER
21-68-034-030
PROJECT NUMBER
BRF-034-6(104)--38-68
R.O.W. PROJECT NUMBER

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
* A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 4	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	"U.S. 34"
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
V Sheets	Bridge and Culvert Situation Plans
* V.1	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
* W.1 - 16	Mainline Cross Sections

* Color Plan Sheets

PROJECT LOCATION



DESIGN DATA RURAL

20 26	AADT	2,200	V.P.D.
20 46	AADT	2,200	V.P.D.
20 46	DHV	230	V.P.H.
	TRUCKS	25	%
	Total		
	Design ESALs	--	

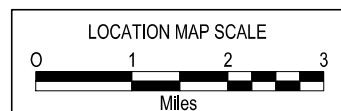
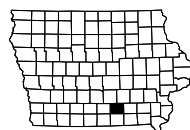
INDEX OF SEALS

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 - 2/27/24



Paved Shoulder at Guardrail

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

STATION TO STATION		(P) Feet	(FS)
720+04.78	720+25.73	13.5	
720+25.73	720+67.06	Vari.	
724+24.93	724+65.93	Vari.	
724+65.93	724+86.84	13.5	
720+04.78	720+25.00		3
720+25.00	720+50.00		3-2
720+50.00	721+00.06		2
721+00.06	721+25.06		2-3
723+41.53	723+66.53		3-2
723+66.53	724+40.93		2
724+40.93	724+65.93		2-3
724+65.93	724+86.84		3

Paved Shoulder

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

STATION TO STATION		(P) Feet
718+32.06	720+04.78	10
724+86.84	726+59.93	10

Paved Shoulder at Guardrail

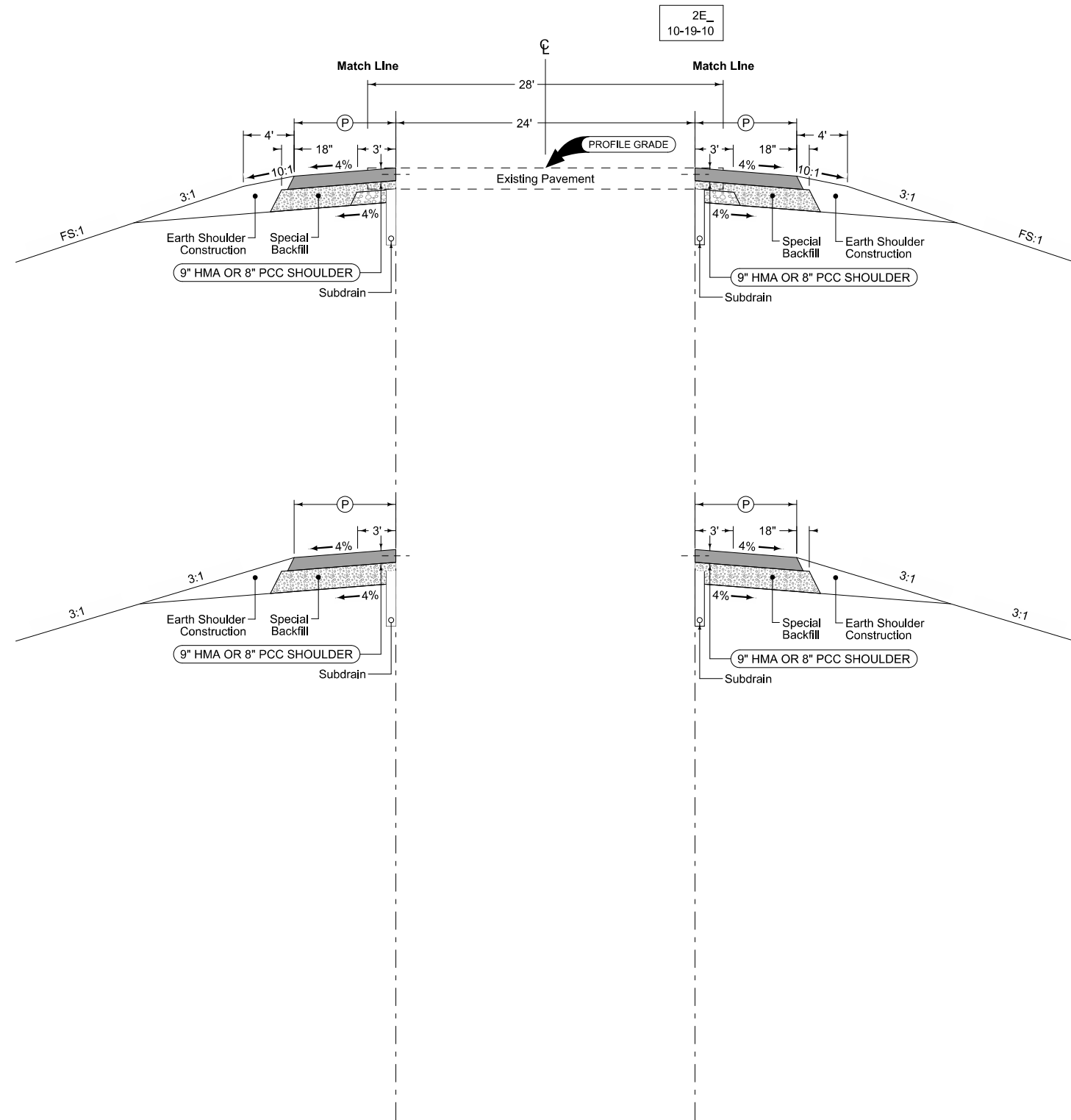
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

STATION TO STATION		(P) Feet	(FS)
720+06.28	720+27.17	13.5	
720+27.17	720+67.06	Vari.	
724+24.93	724+66.29	Vari.	
724+66.29	724+87.24	13.5	
720+06.28	720+26.00		3
720+26.00	720+51.00		3-2
720+51.00	721+25.47		2
721+25.47	721+50.47		2-3
723+66.94	723+91.94		3-2
723+91.94	724+41.00		2
724+41.00	724+66.00		2-3
724+66.00	724+87.24		3

Paved Shoulder

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

STATION TO STATION		(P) Feet
718+32.06	720+06.28	10
724+87.24	726+59.93	10



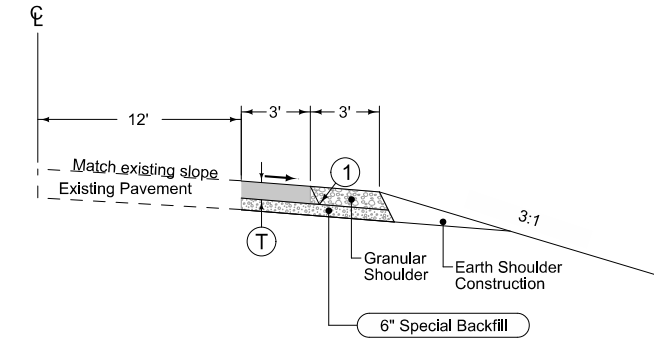
See Tab 100-24 or 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

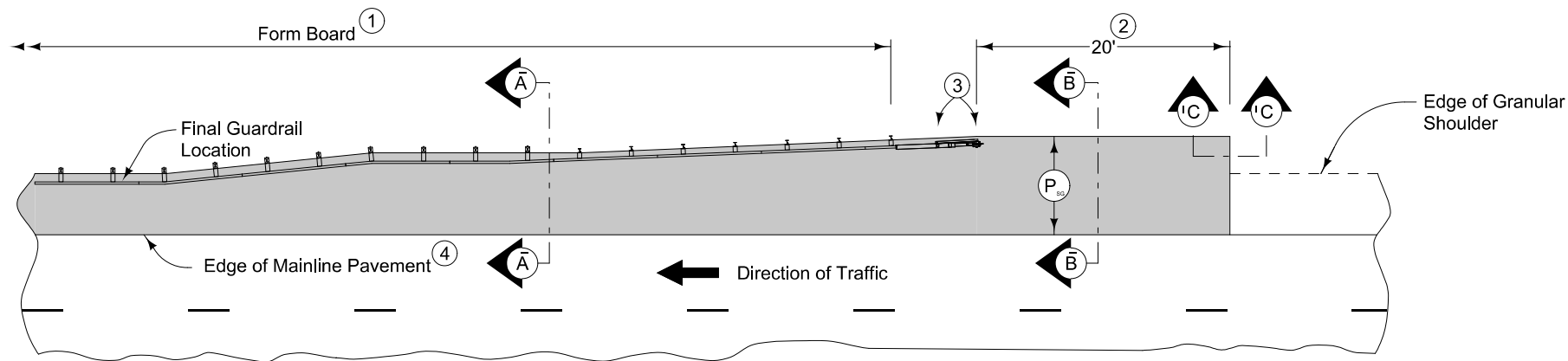
US 34

LOCATION			DIMENSIONS				6" Special Backfill	Earth Shoulder Construction
ROAD IDENTIFICATION	STATION TO STATION	SIDE	HMA		PCC			
			(T) Inches	(SGW) Feet	(T) Inches	(SGW) Feet	Tons/Station	Station
US 34	719+08.00 to 721+53.58	RT	9		8			
US 34	723+36.78 to 725+84.00	RT	9		8			

Quantity calculations based on vertical pavement edges.
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

① Possible HMA 1:1 slope





PLAN VIEW

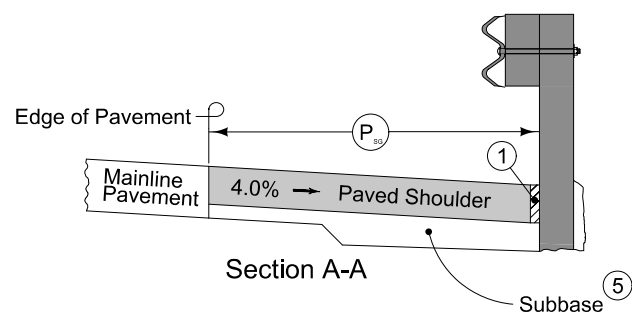
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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.

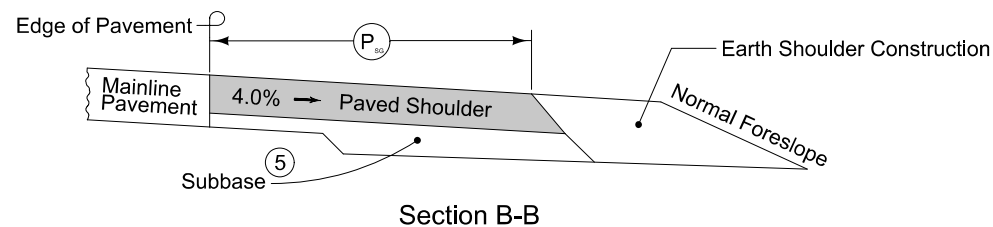
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

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 'KT' joint (per PV-101) for PCC shoulder. 'B' joint (per PV-101) for HMA shoulder.
- ⑤ Refer to other details in the plan.

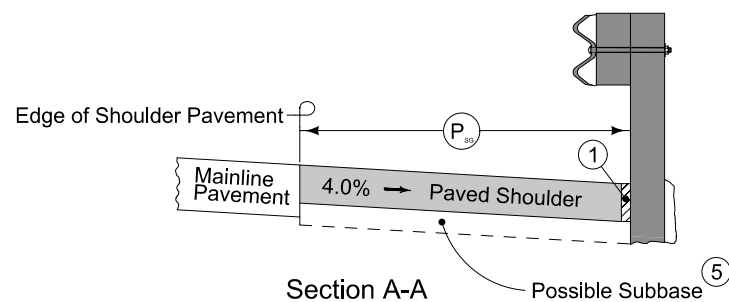


Section A-A

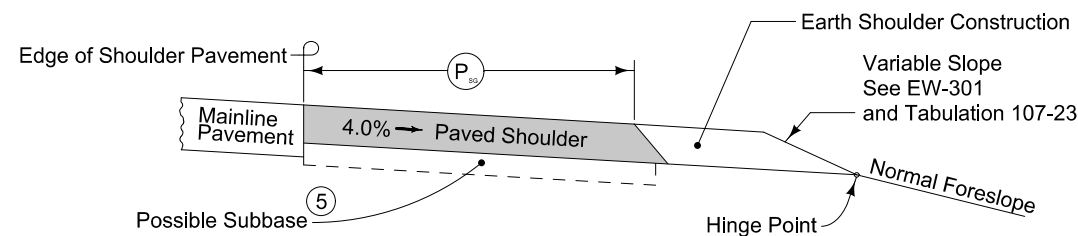


Section B-B

NEW CONSTRUCTION

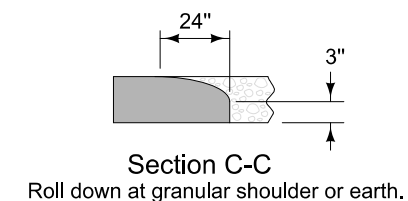


Section A-A

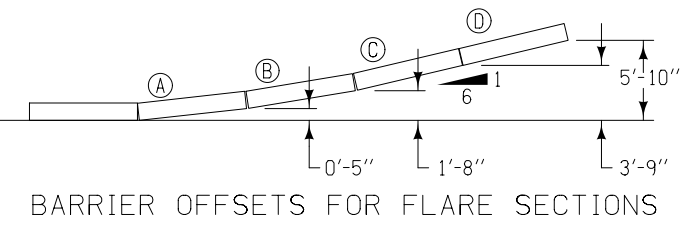
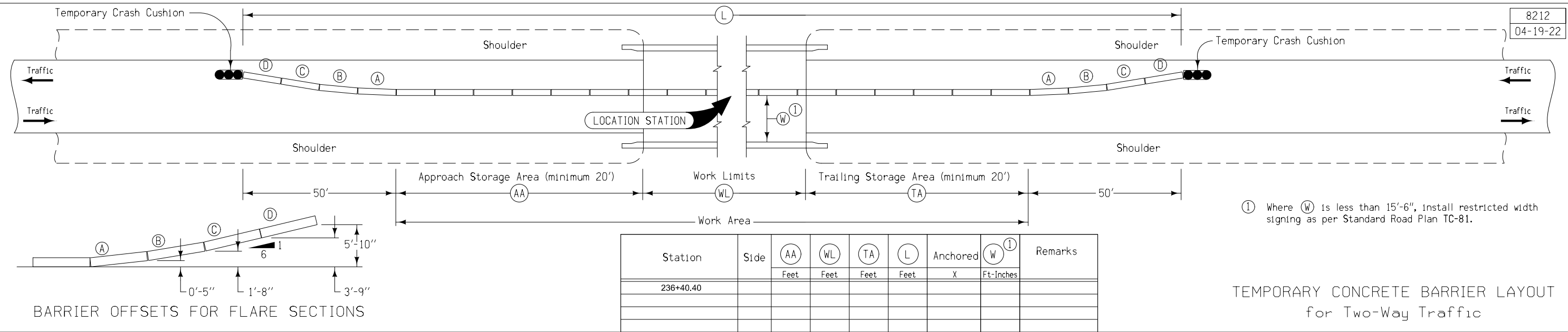


Section B-B

EXISTING SHOULDER



Section C-C
PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)



Station	Side	AA	WL	TA	L	Anchored X	W ^①	Remarks
		Feet	Feet	Feet	Feet		Ft-Inches	
236+40.40								

TEMPORARY CONCRETE BARRIER LAYOUT
for Two-Way Traffic

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) | | |

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 | | Survey Line |
| | Station | | Section Corner |
| | Ground Line Intercept | | Saw Cut |
| | Guardrail | | Trench Drain |
| | HighTension 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, F, & K)

STA 720+67.07
BEGIN Approach Pavement

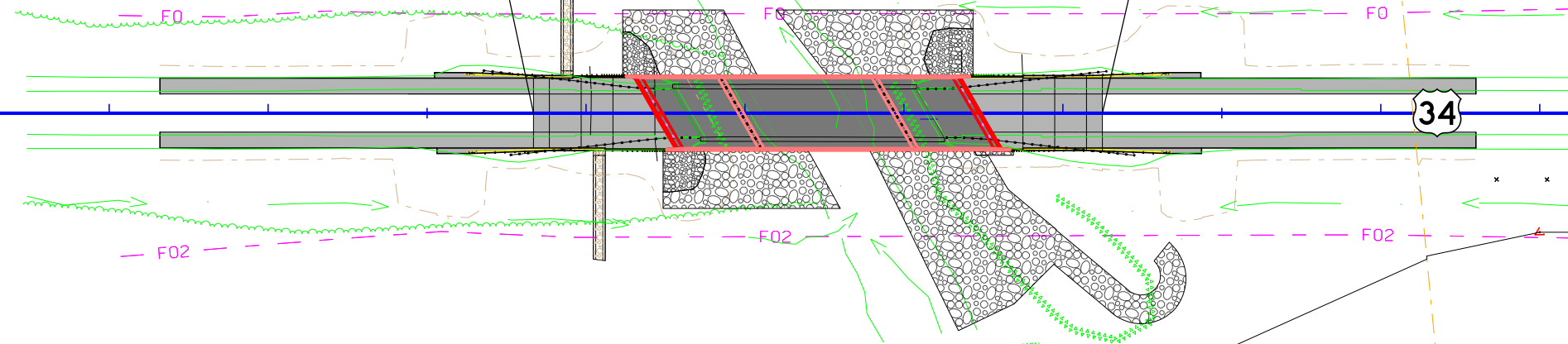
Troy TWP.
T-72N R-17W
SEC. 20

STA 724+24.93
END Approach Pavement

720+00

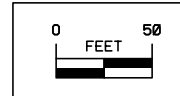
725+00

730+00

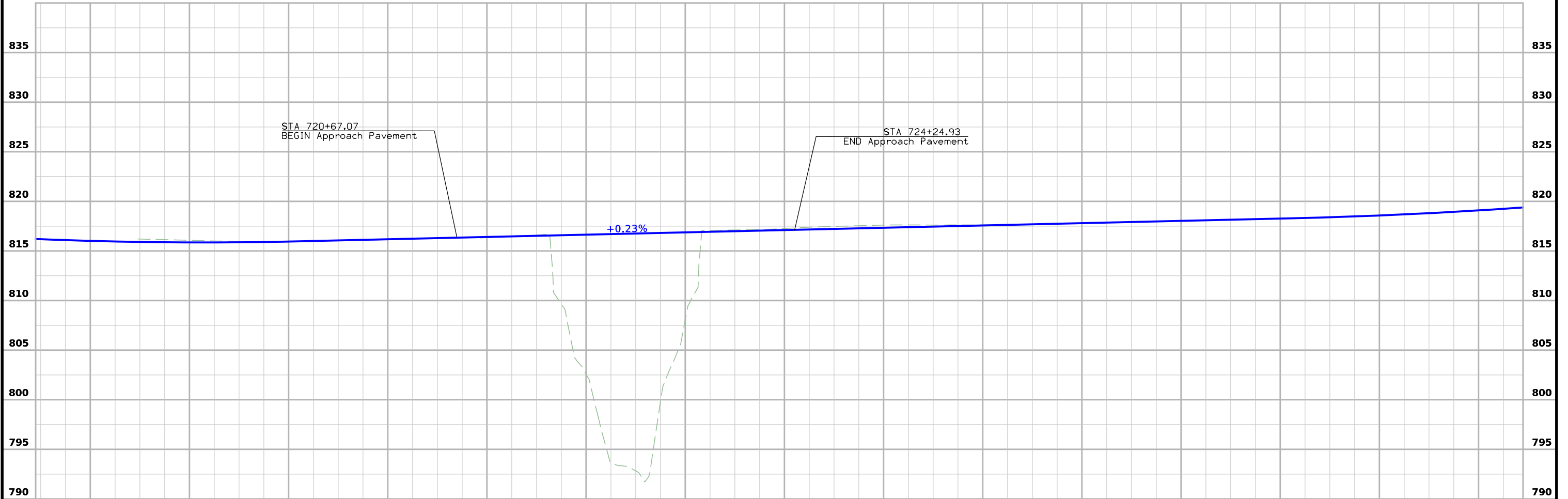


Sta. 722+40
Build 185'0" x 44'0"
PPCB Bridge

Sta. 722+40
Skew 30° RT AH
150'x30'
Continuous I-Beam Bridge
DA= 13.5 sq miles (Plan)
(Remove)



U.S. 34



Survey Information

SURVEY INDEX

Monroe County

PIN: 21-68-034-030

Project Number: BRF-034-6(104)--38-68

Location: Coal Creek 2.0 mi W of IA 5

Type of Work: Bridge Replacement

Project Directory: 6803403021

Survey Personnel

Myron Fox – Survey Party Chief

Samuel Schilb – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 10/10/2022

End Date 10/20/2022

General Information

Project datum and control information is provided by the Design Survey Office. Measurement units for this survey are US survey feet. This project involves the replacement of the U.S. 34 bridge (Maint. No. 6865.8S034) over Coal Creek, 2.0 miles west of IA 5. This survey request was for the US Hwy 34 corridor only. 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 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 12

(U.S. SURVEY FOOT)

VERTICAL DATUM: NAVD88

GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment for U.S. Hwy 34 this survey is a retrace of As-built Plans No. FN-FGN-1027. Survey stationing was equated to the plan Bridge Centerline at Sta. 722+40 and ran back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 701+50 (Plan)

Survey PI Sta. 701+41.32

PI Sta. 779+50 (Plan)

Survey PI Sta. 779+39.24

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 12 (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 12 (U.S. Survey Foot)

VERT. DATUM: NAVD88

Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Code Description
6031	6248064.74	22747844.83	927.71	CP GPS MONROE COUNTY 6031 ALUM DISK IN CONC MON AS DESCRIBED IN GOOD CONDITION
6032	6237253.13	22745572.19	930.71	CP GPS MONROE COUNTY 6032 ALUM DISK IN CONC MON AS DESCRIBED IN GOOD CONDITION
6033	6227237.81	22744704.70	976.80	CP GPS MONROE COUNTY 6033 ALUM DISK IN CONC MON AS DESCRIBED IN GOOD CONDITION
301	6238019.27	22748425.66	824.10	CP SET 5/8" X 42" REBAR SET 4" BELOW SURFACE FROM THE INTERSECTION OF HWY 34 AND 196TH ST PROCEED E ALONG HWY 34 75' POINT IS 70' S OF THE CL OF HWY 34
302	6237933.58	22750488.25	818.28	CP SET 5/8" X 42" REBAR SET 4" BELOW SURFACE FROM THE INTERSECTION OF HWY 34 AND 196TH ST PROCEED E ALONG HWY 34 2132' POINT IS 50' N OF THE CL OF HWY 34 NEXT TO FIELD ENT

Control Point 301: 6238019.27N, 22748425.66E, CP set 5/8"x42" rebar set 4" below surface from the intersection of Hwy. 34 and 196th St., proceed E along Hwy. 34 75', point is 70' S of the CL of Hwy. 34, Elev. 824.10.

Hydraulic Data

RIDB: CoalC_Monr_2.14
 Drainage Area = 13.3 Sq. Mi.
 Stream Slope (HGL) = 9.29 Ft./Mi.
 Avg. Low Water Stage = 793.5

Q₅₀ = 8170 cfs
 Stage = 807.53
 Channel Low Beam = 812.21
 Avg. Bridge Velocity = 4.41 fps

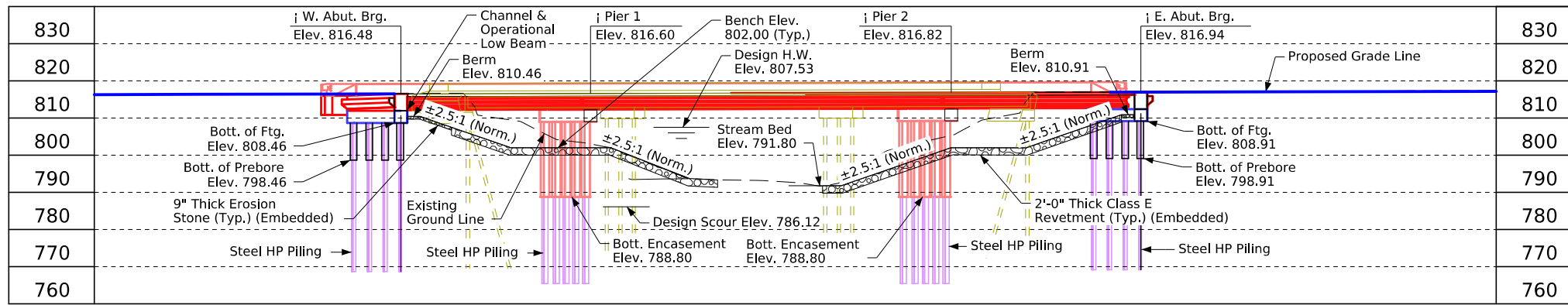
Q₁₀₀ = 9960 cfs
 Stage = 808.26
 Backwater = 1.36 Ft.
 Avg. Bridge Velocity = 5.01 fps

Q₂₀₀ = 11,800 cfs
 Stage = 808.96
 Calculated Design Scour = 786.12

Q₅₀₀ = 14,200 cfs
 Stage = 809.82
 Avg. Bridge Velocity = 6.21 fps
 Calculated Check Scour = 785.39

Roadway Overtop 815.86
 Sta. 718+15

Extreme HW Stage = NA
 Date = NA



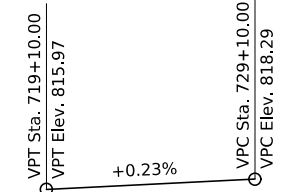
BRG TSL Longitudinal Section Along Approach Roadway

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

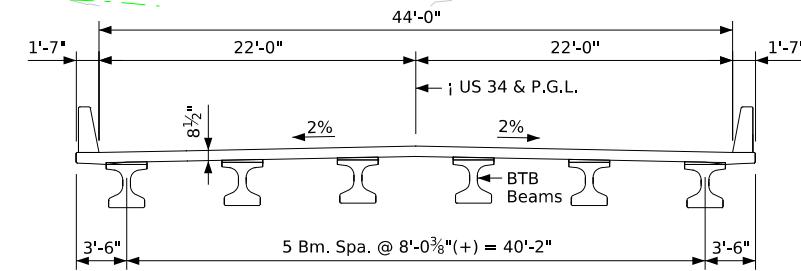
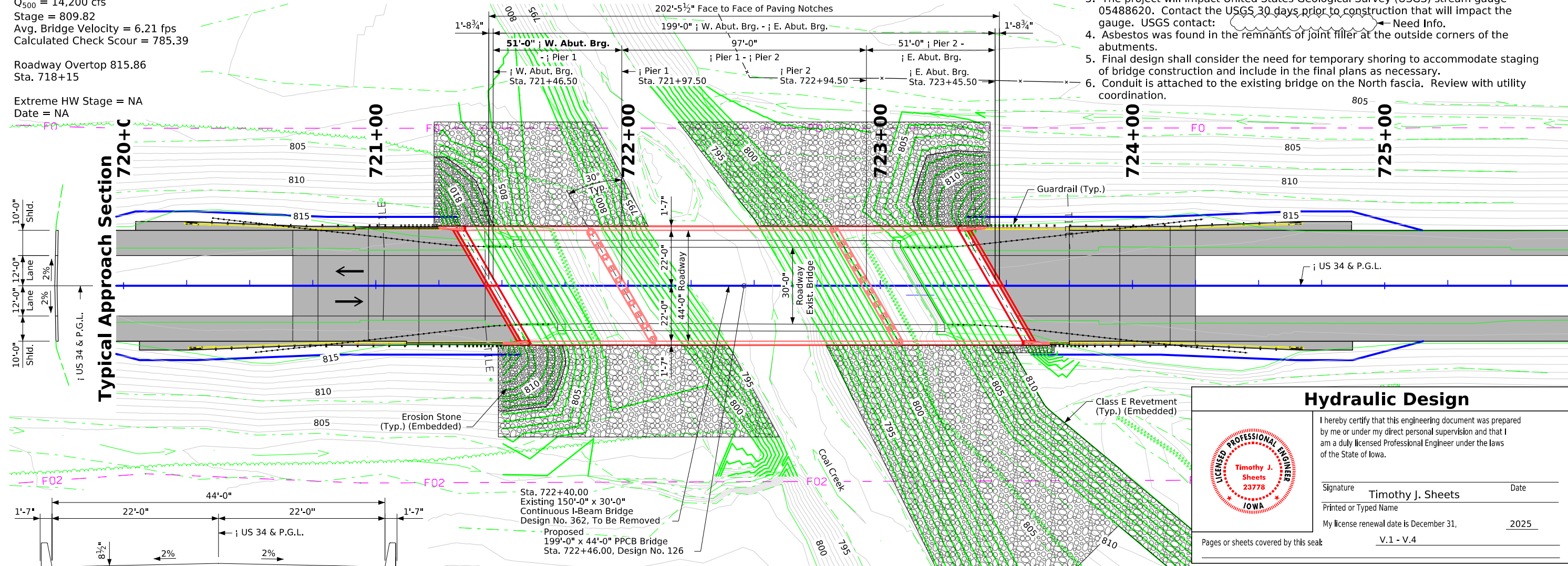
Design Notes:

- TSS TL-4 bridge railing proposed.
- Pier type - individually encased pile bent piers.
- The project will impact United States Geological Survey (USGS) stream gauge 05488620. Contact the USGS 30 days prior to construction that will impact the gauge. USGS contact: [Redacted] - Need Info.
- Asbestos was found in the remnants of joint filler at the outside corners of the abutments.
- Final design shall consider the need for temporary shoring to accommodate staging of bridge construction and include in the final plans as necessary.
- Conduit is attached to the existing bridge on the North fascia. Review with utility coordination.

Proposed Profile Grade US 34



0 20
 Scale In Feet



Typical Deck Section

Traffic Estimate

2026 AADT	2200 V.P.D.
2046 AADT	2200 V.P.D.
20?? DHV	?? V.P.H.
TRUCKS	25 %
Total Design ESALs	???

Situation Plan

Note:
 This design is for the replacement of the existing 150' x 30' continuous I-Beam bridge, Monroe Design No. 362, FHWA No. 37400, Maint. No. 6865.85034.

Location

US 34 over Coal Creek
 T-72N R-17W
 Section 20
 Troy Township
 Monroe County
 FHWA No. 3 7401
 Bridge Maint. No. 6 865.85034
 Latitude 41.017464°
 Longitude -92.846820°

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 Date: _____
 Printed or Typed Name: _____
 My license renewal date is December 31, 2025

Pages or sheets covered by this seal: V.1 - V.4

Design For 30 Degree RA
199'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge
 51'-0" End Spans 97'-0" Interior Span
Situation Plan
 STA. 722+46.00 (; US 34) Turn-In Date: Jan 2024
Monroe County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 126 Design Sheet No. 1 of 4 FHWA No. 37401

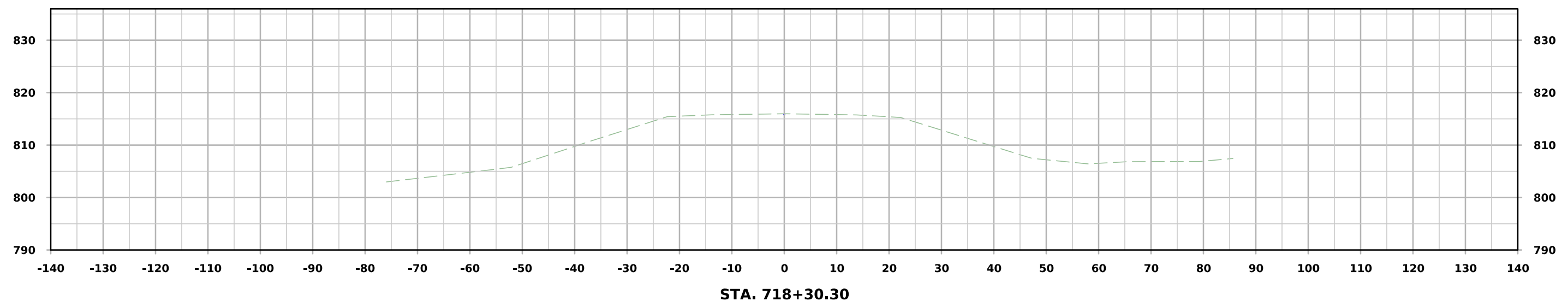
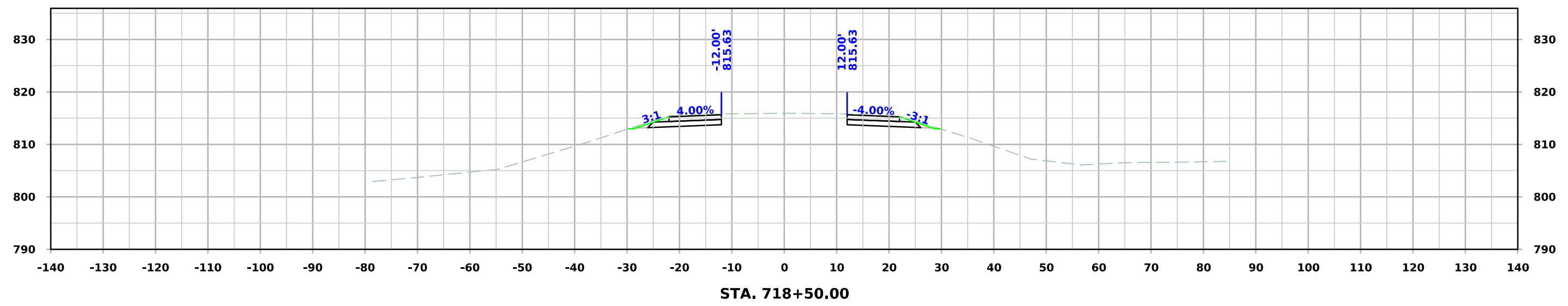
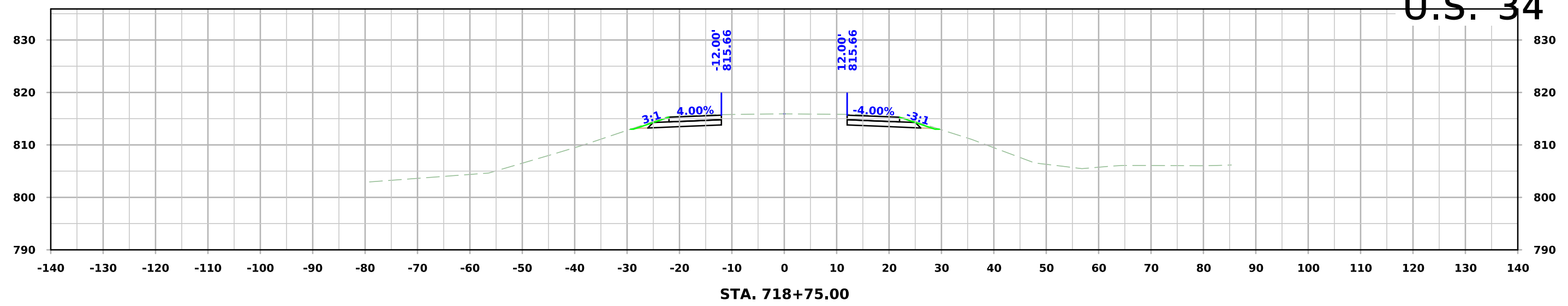
General Utility Symbols:

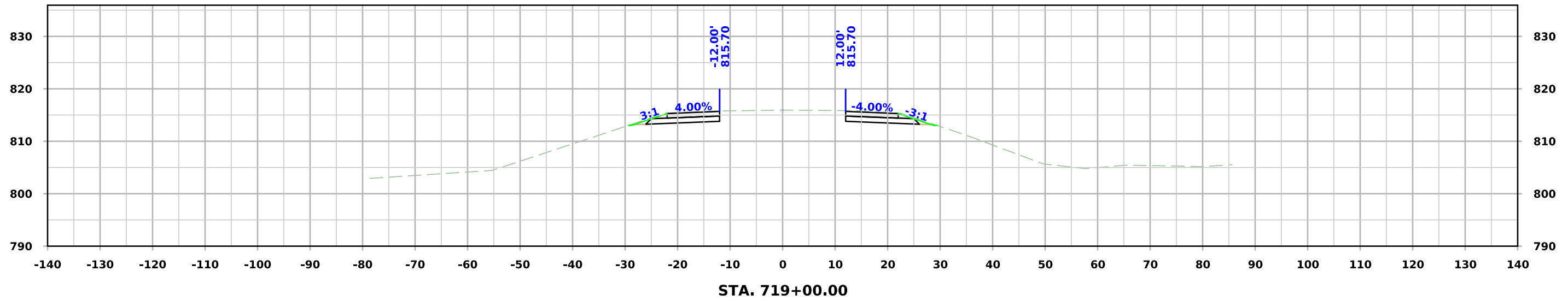
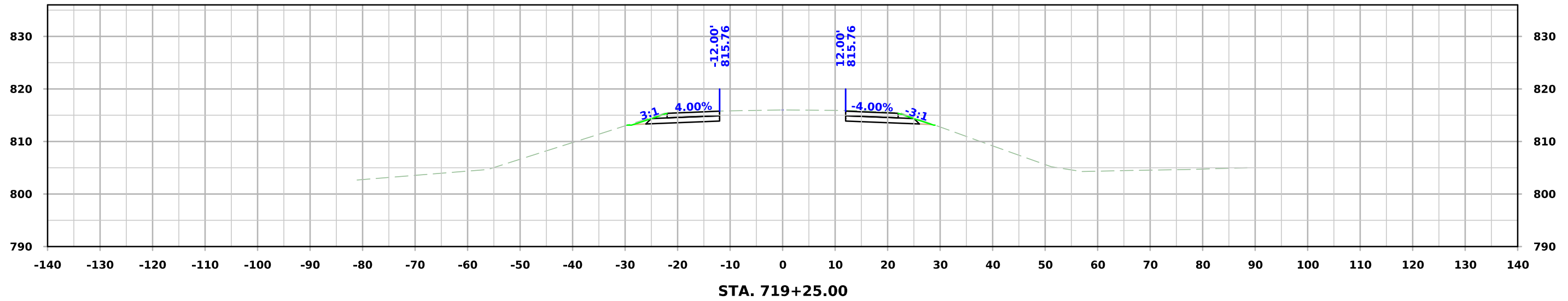
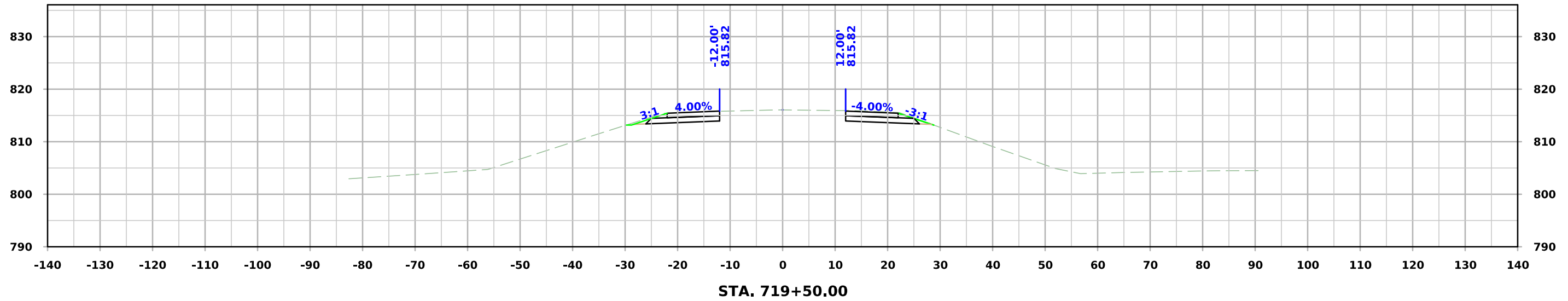
FO - Iowa Communications Network
 FO2 - Windstream Communications

Utilities Note:

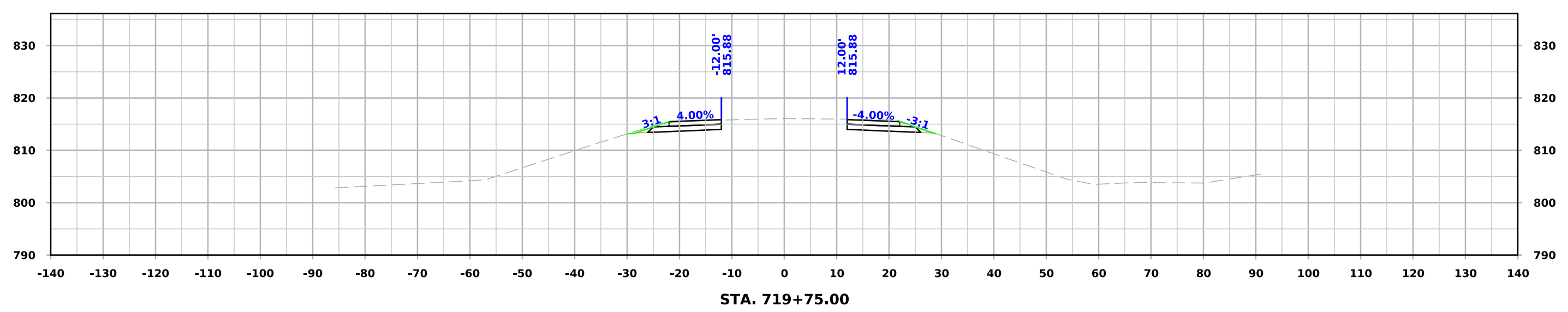
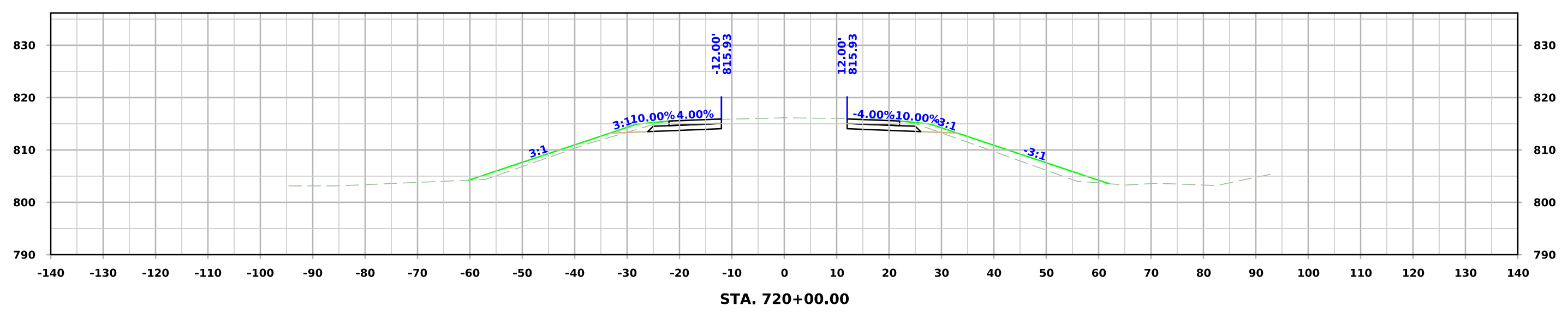
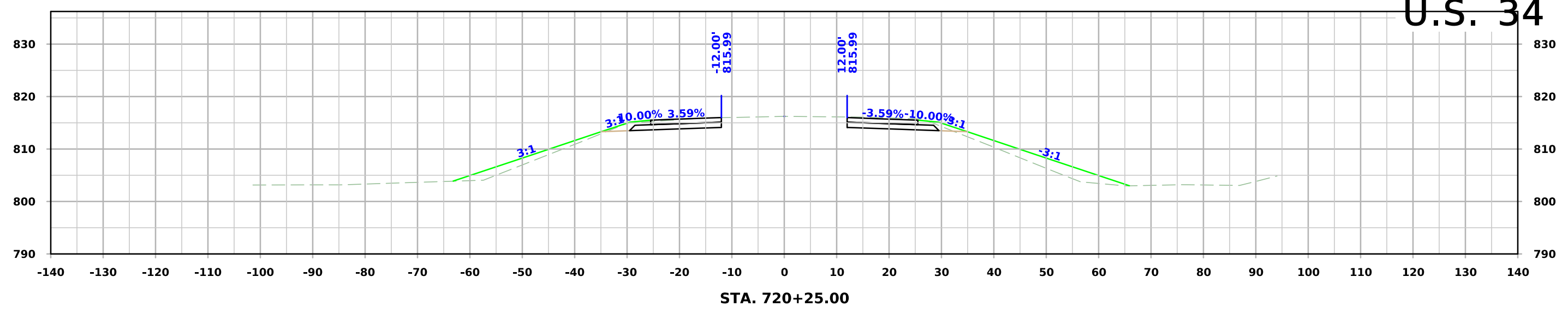
Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

U.S. 34

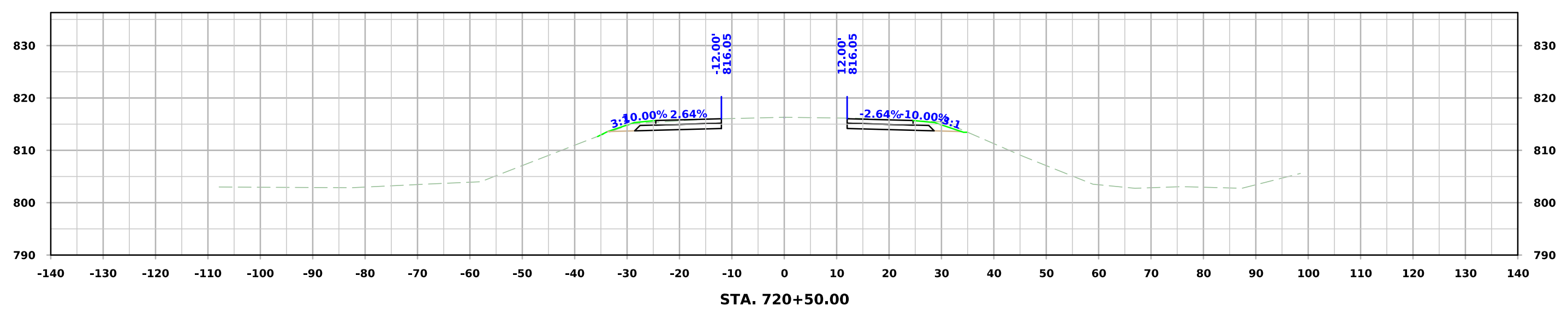
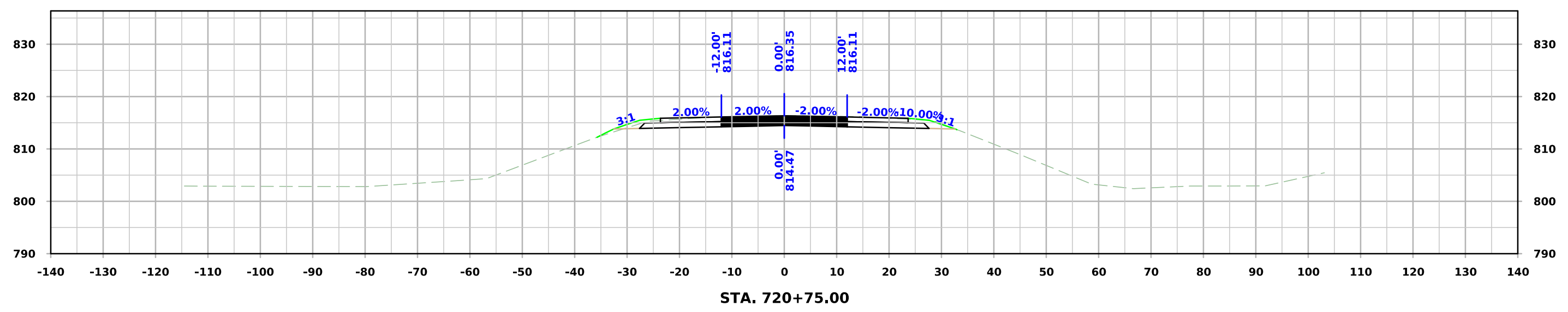
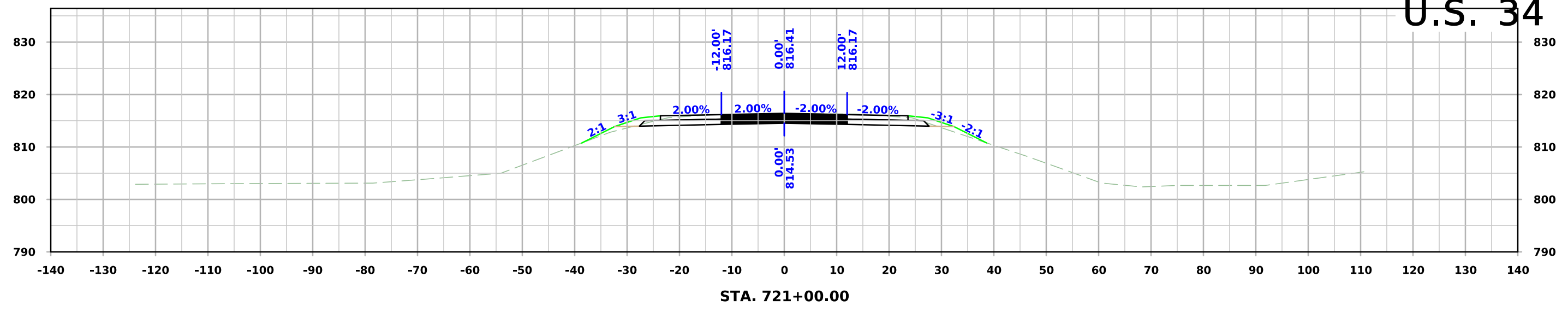




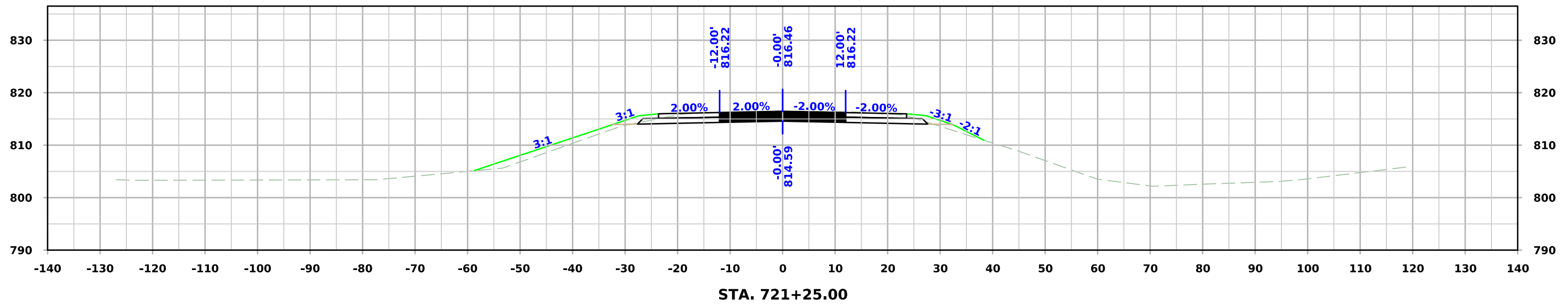
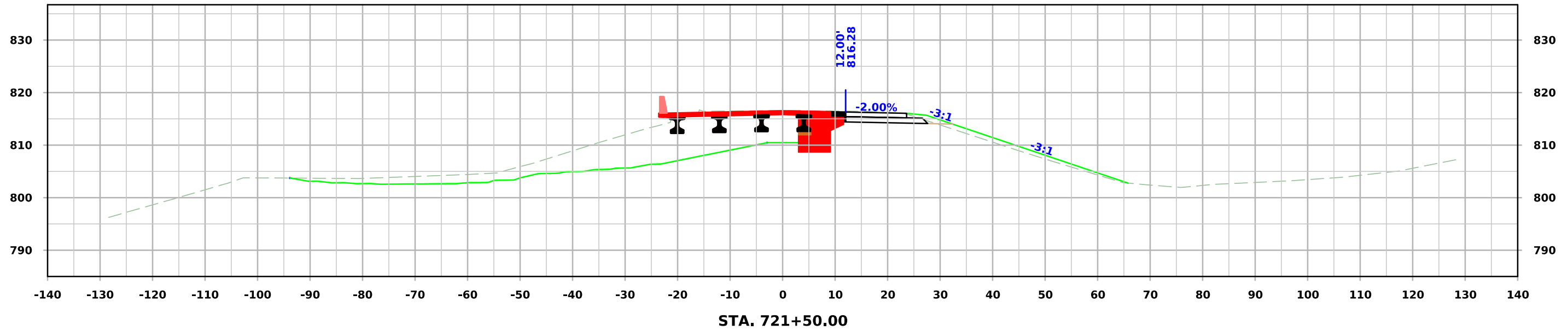
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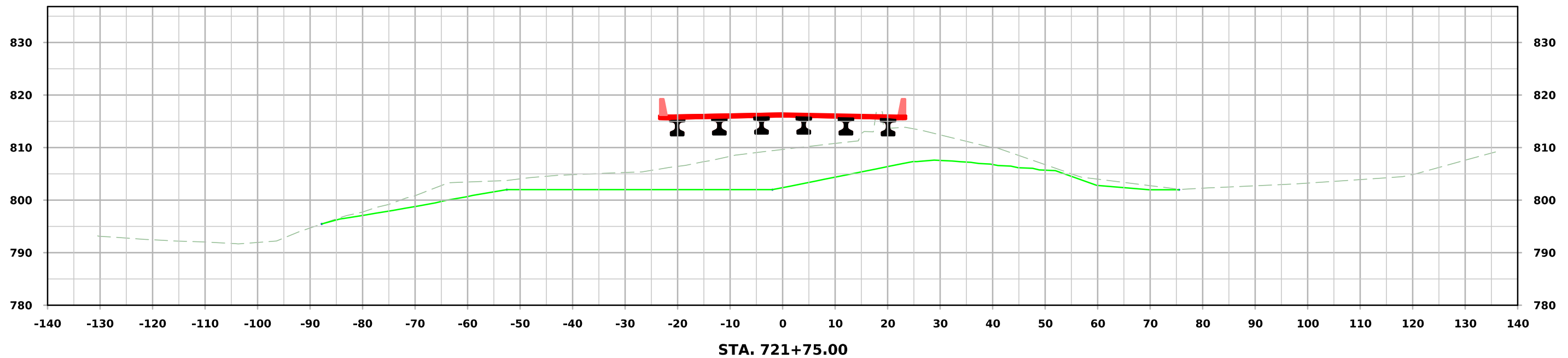
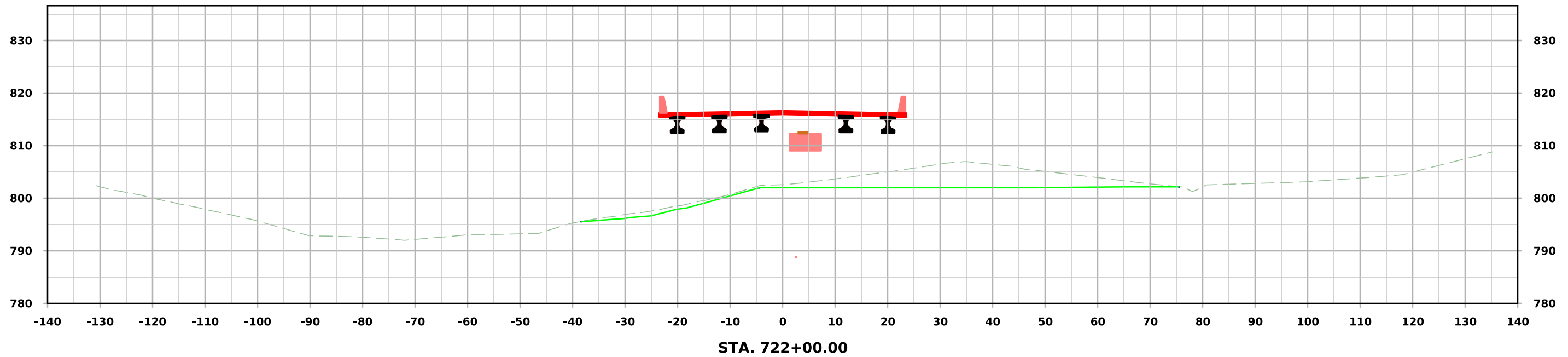
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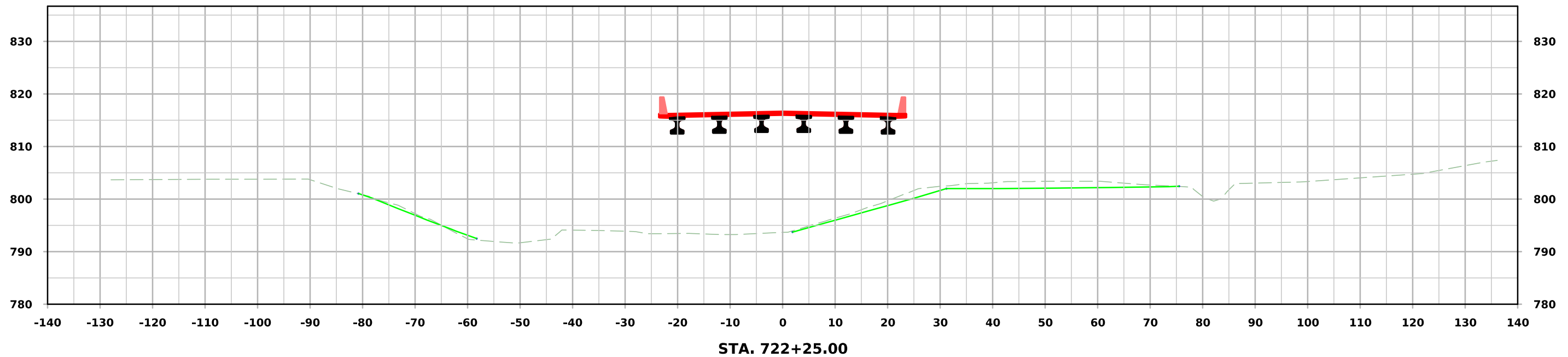
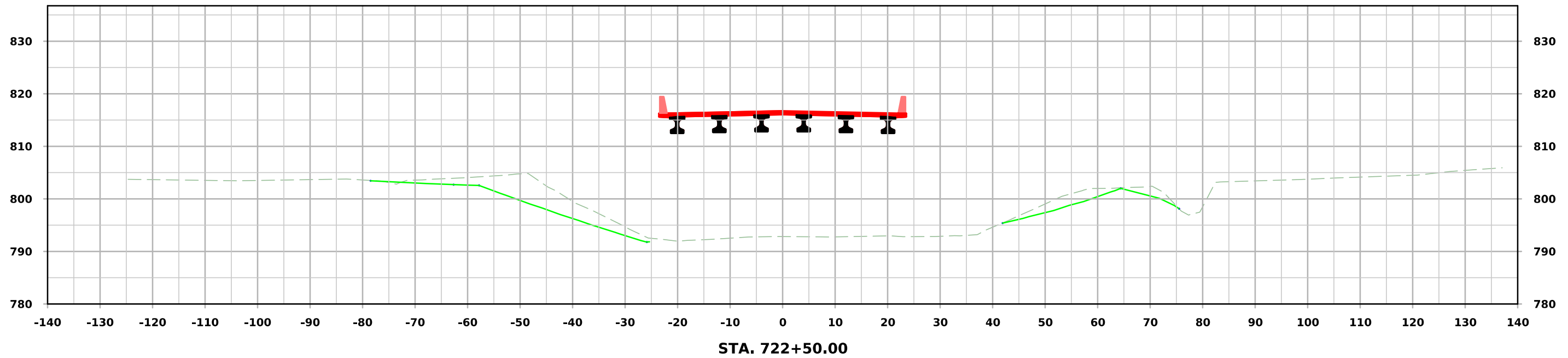
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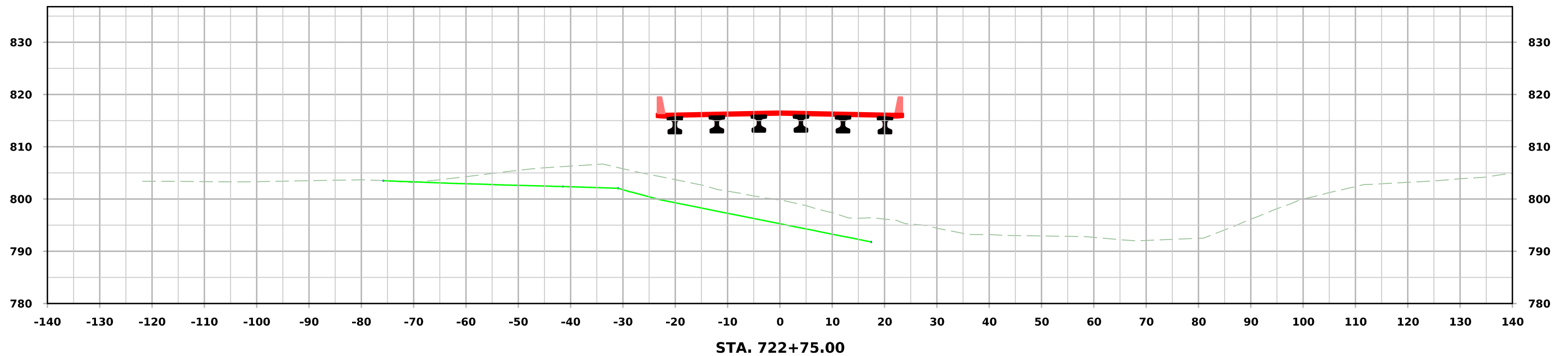
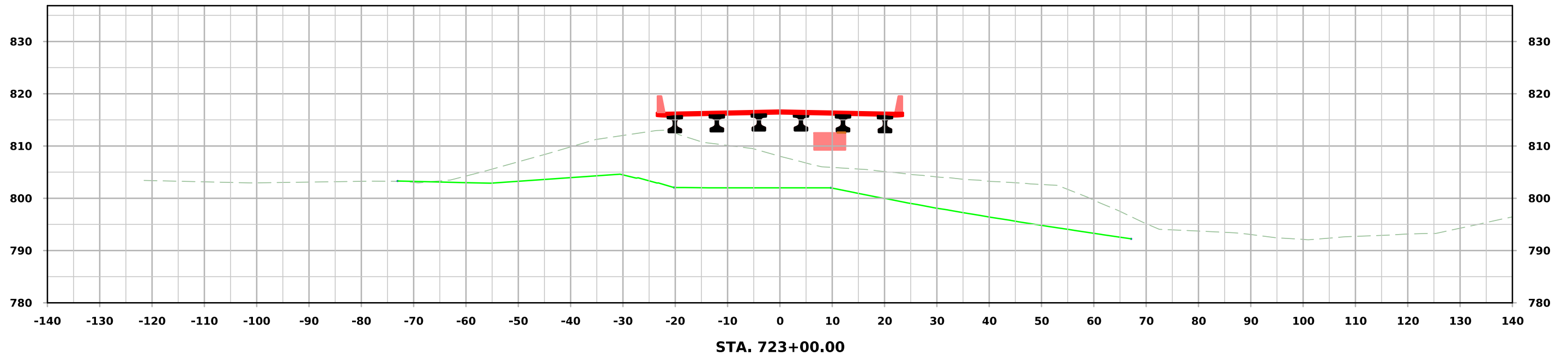
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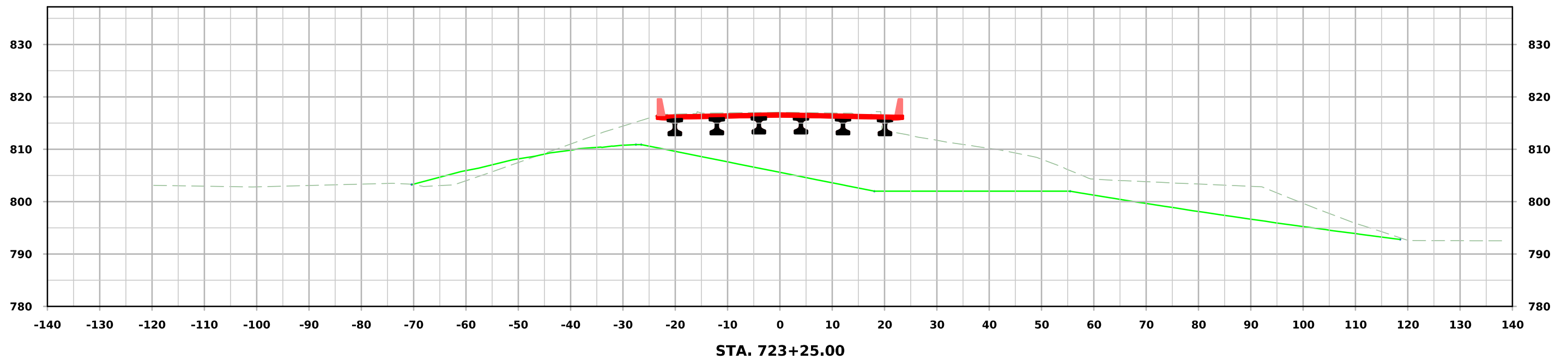
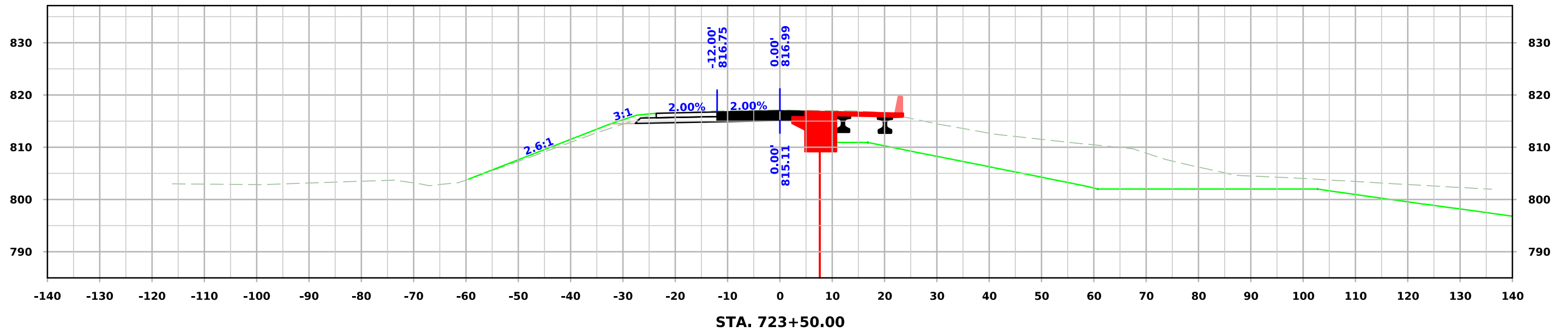


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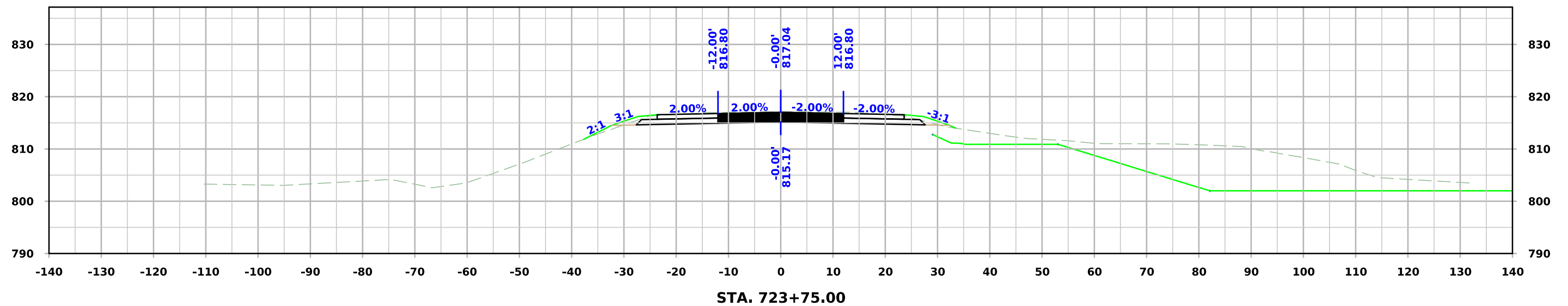
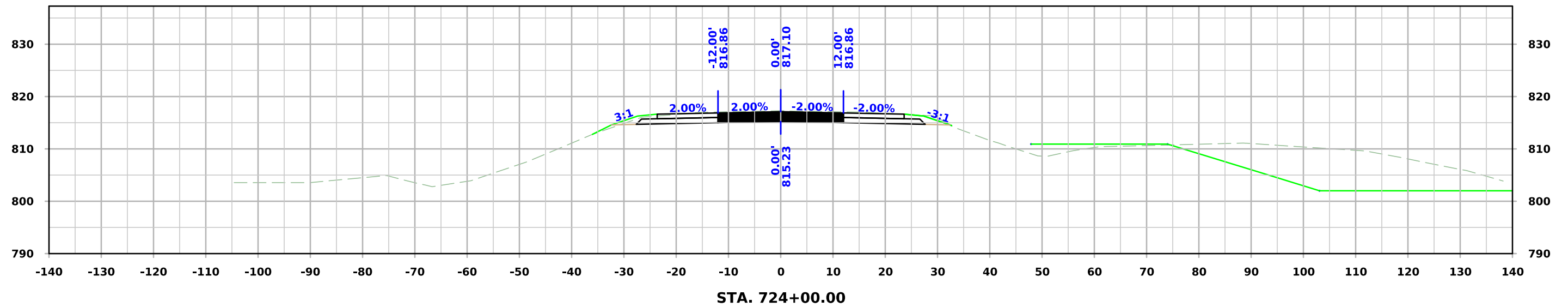


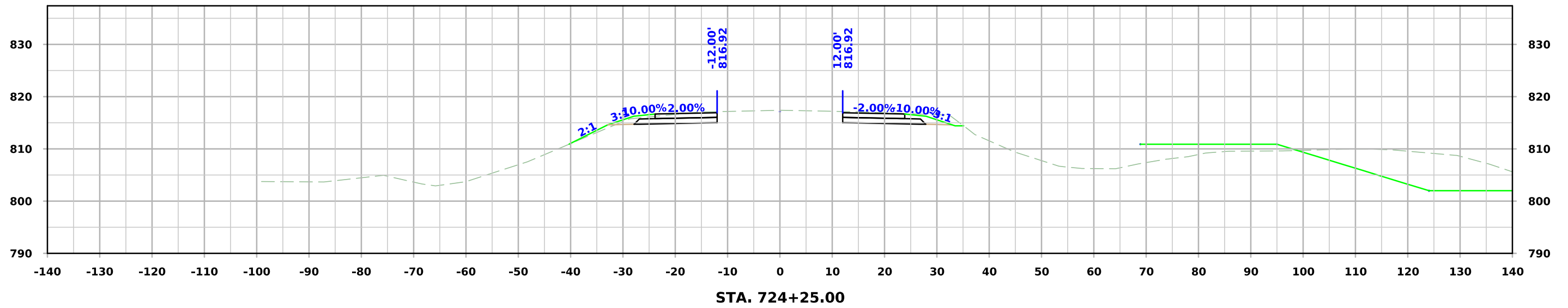
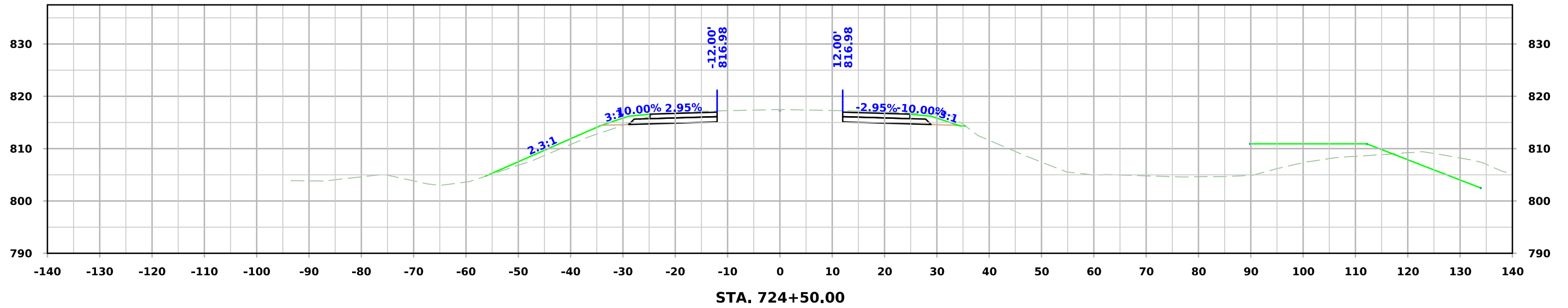
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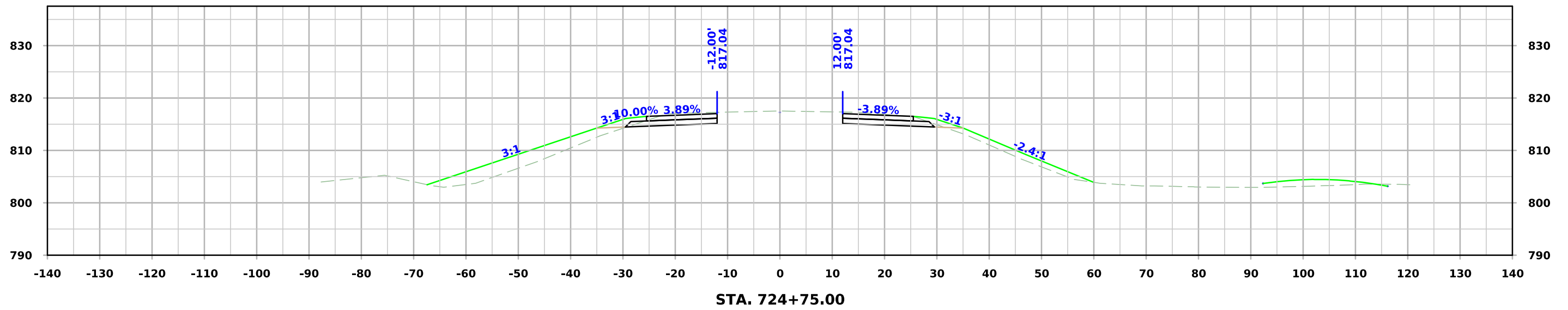
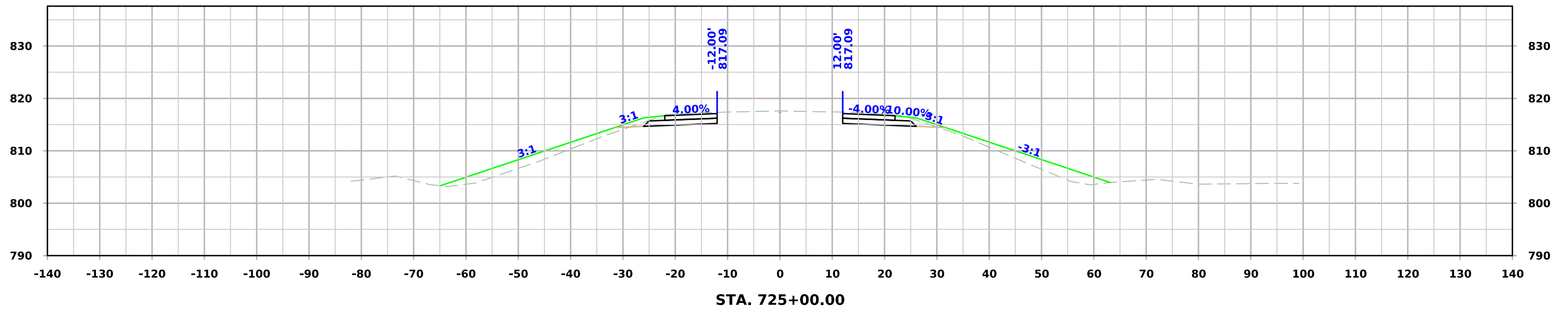




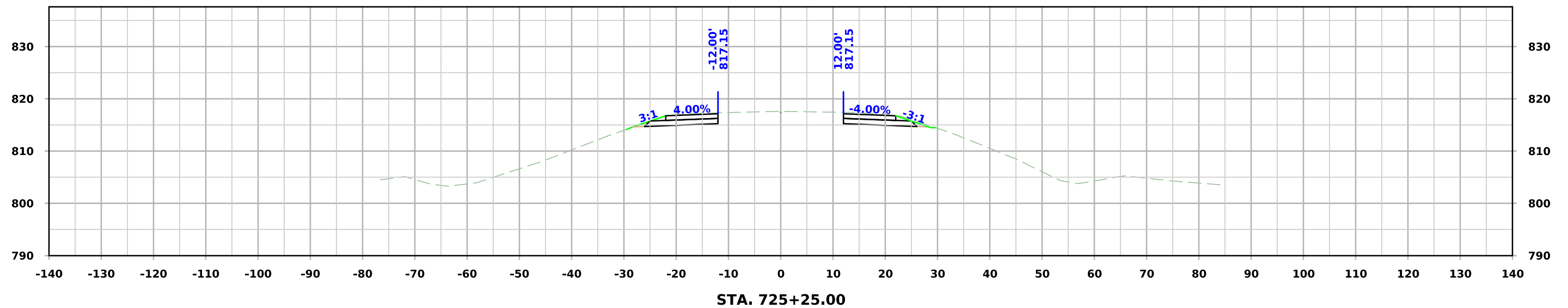
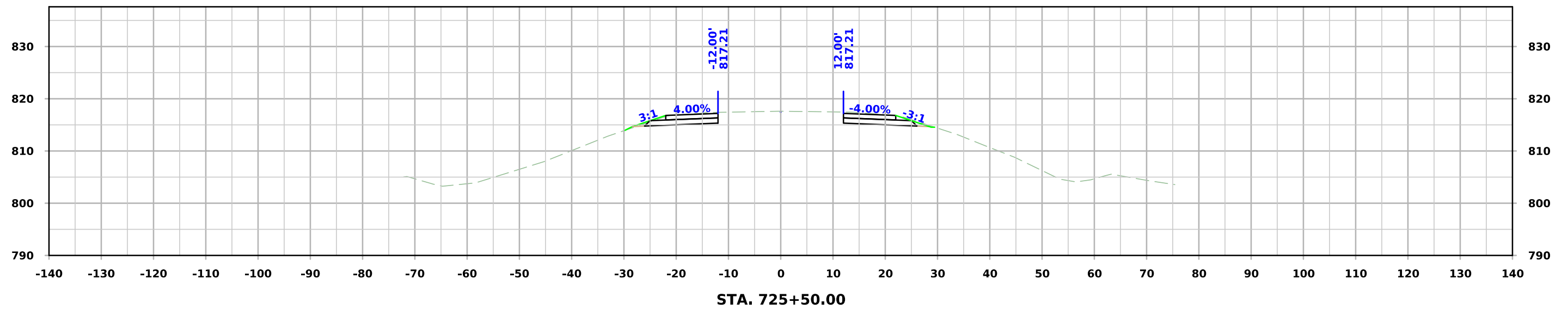
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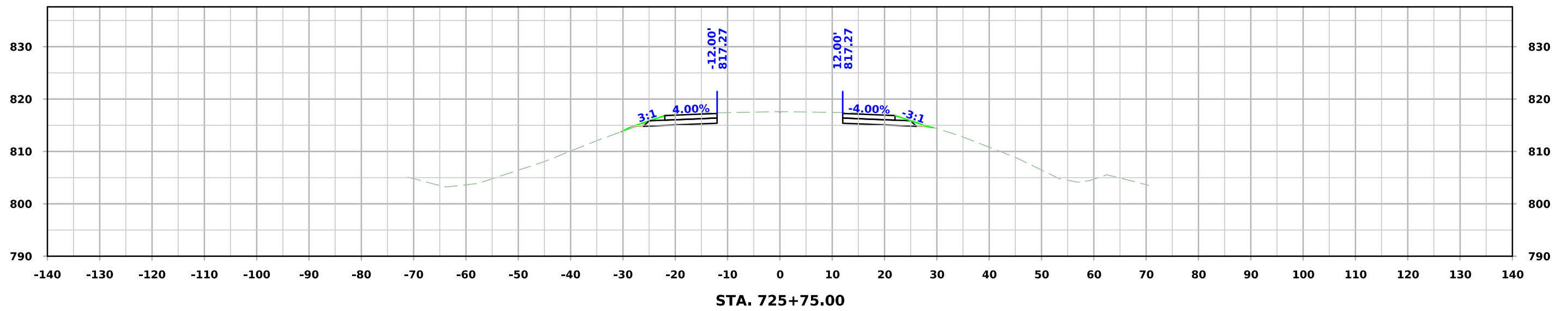
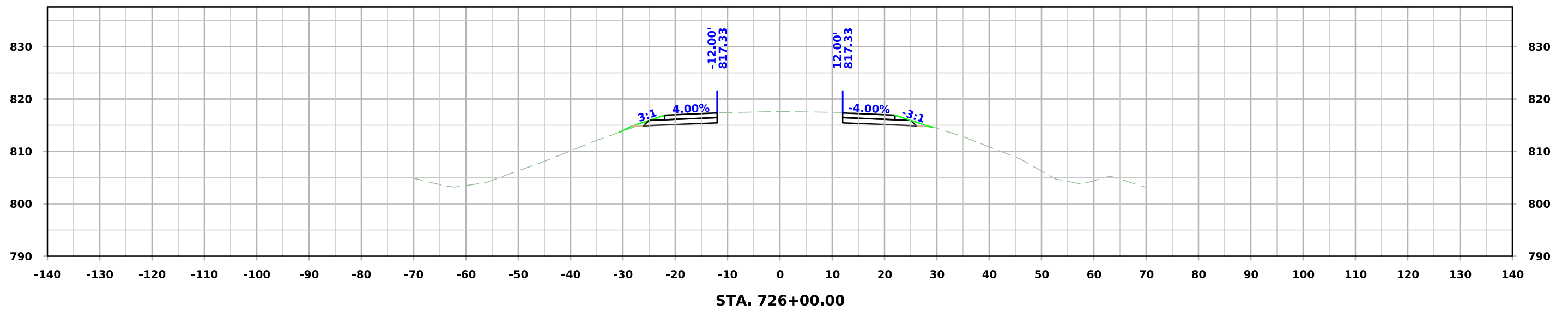




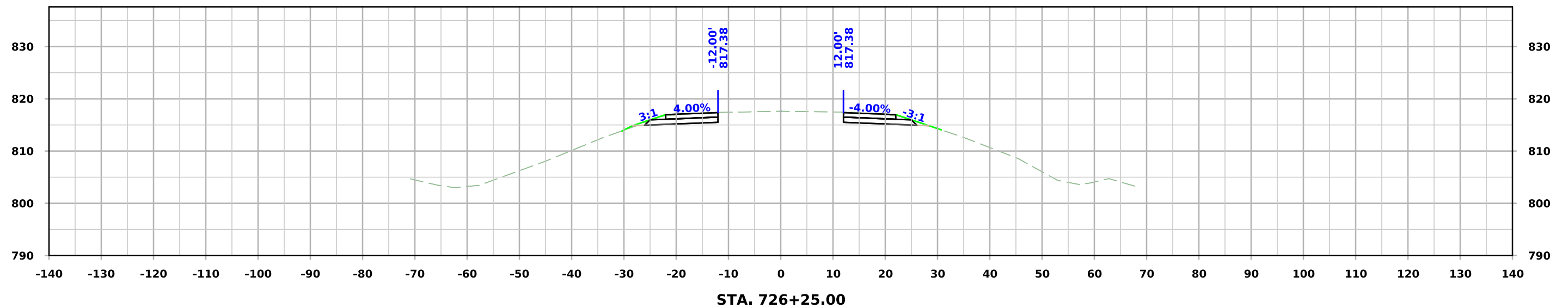
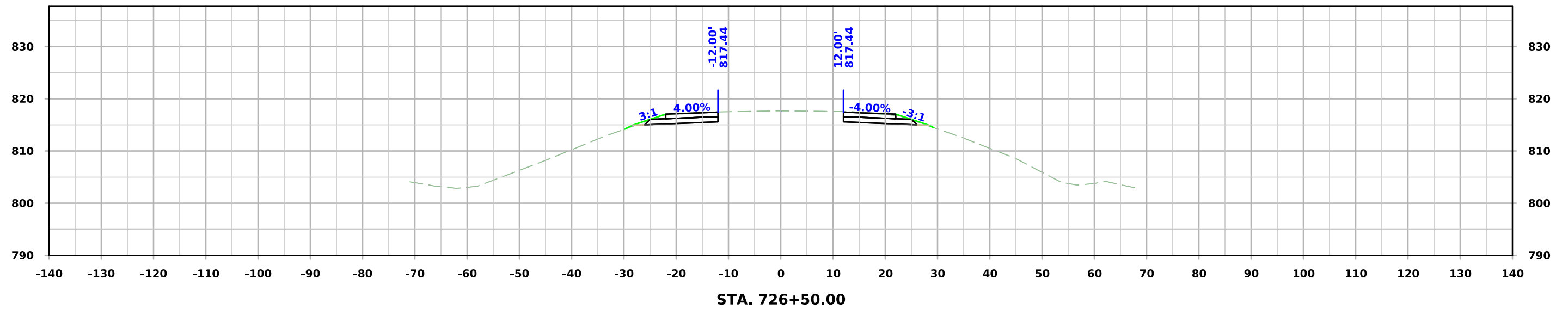


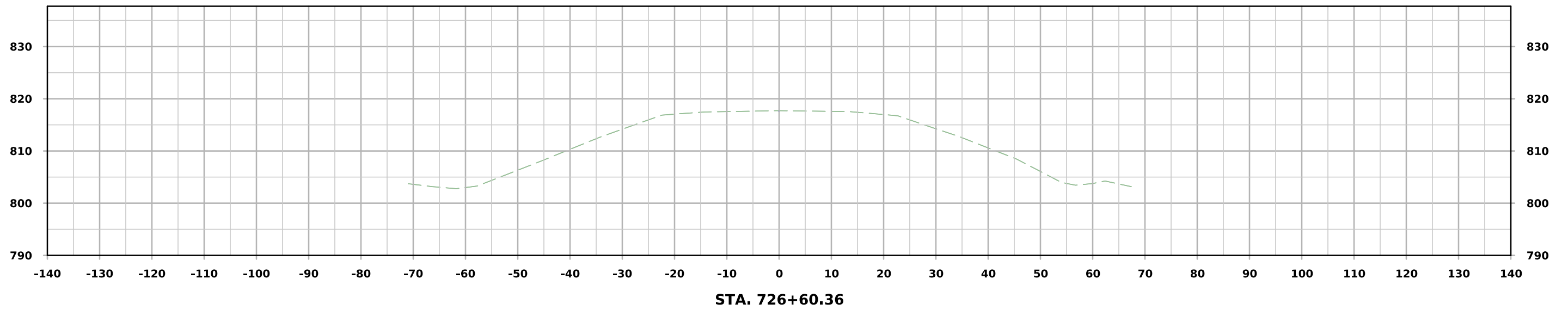
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STA. 726+60.36