

PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
CLINTON COUNTY
Bridge Replacement
Branch Prairie Creek 1.9 Mi N of US 61

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	20-23-136-050
PROJECT NUMBER	BRF-136-1(101)--38-23
R.O.W. PROJECT NUMBER	

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
* A.1	Title Sheet
* A.2	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 2	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA 136
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
V Sheets	Bridge and Culvert Situation Plans
* V.1	Bridge and Culvert Situation Plan
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 5	Mainline Cross Sections
	* Color Plan Sheets

DESIGN DATA RURAL			
2025	AADT	800	V.P.D.
2045	AADT	900	V.P.D.
20 --	DHV	100	V.P.H.
	TRUCKS	11	%
	Total Design ESALs	--	

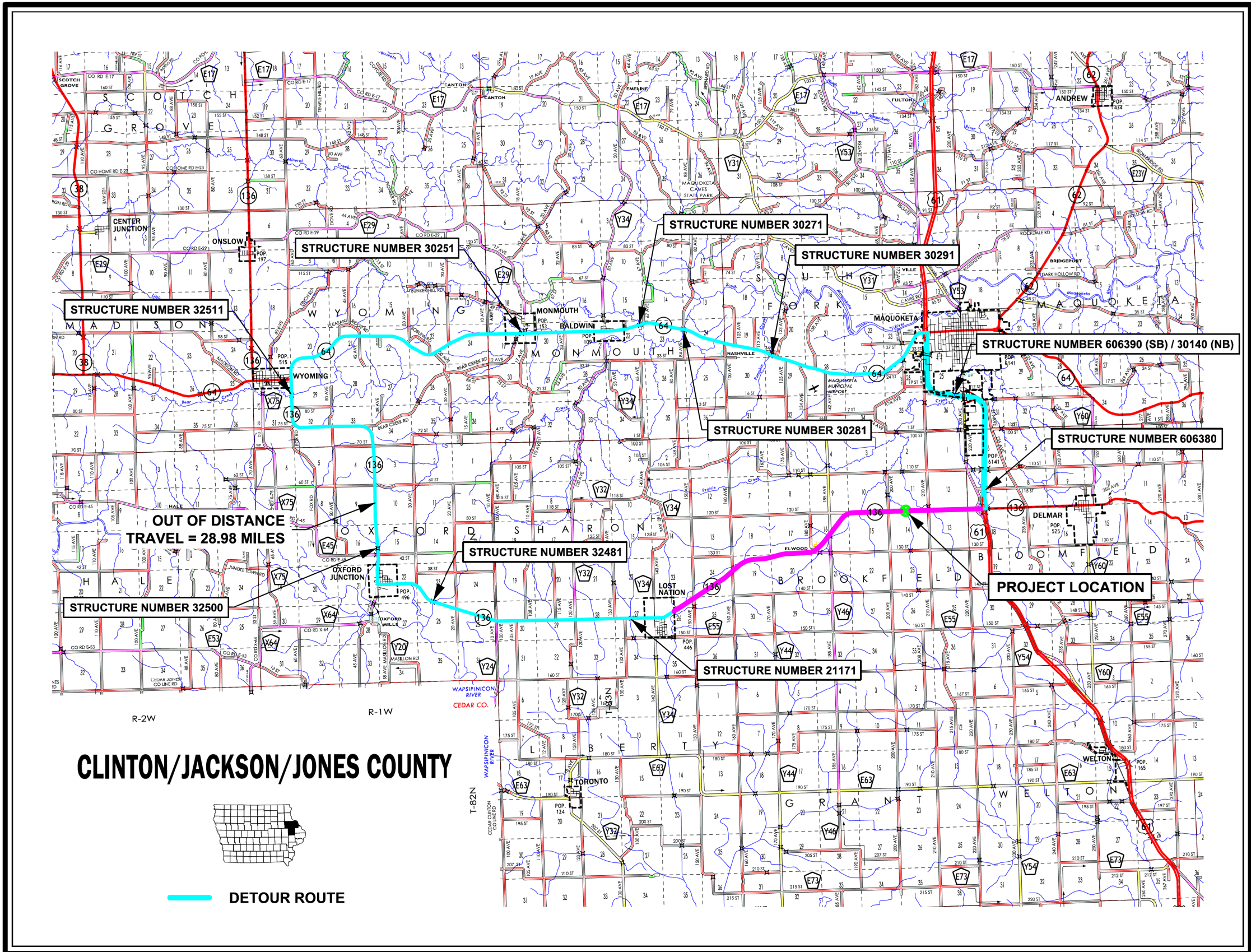
INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Michael J. Janecek	Primary Signature Block
V.1	Phillip M. Harpole	Hydraulic Design

D2 PLAN – June 18, 2024
D5 PLAN – Sept 16, 2022

PRELIMINARY PLANS

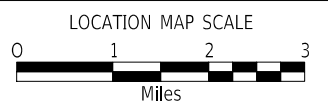
Subject to change by final design.

D3 PLAN – May 20, 2022



CLINTON/JACKSON/JONES COUNTY

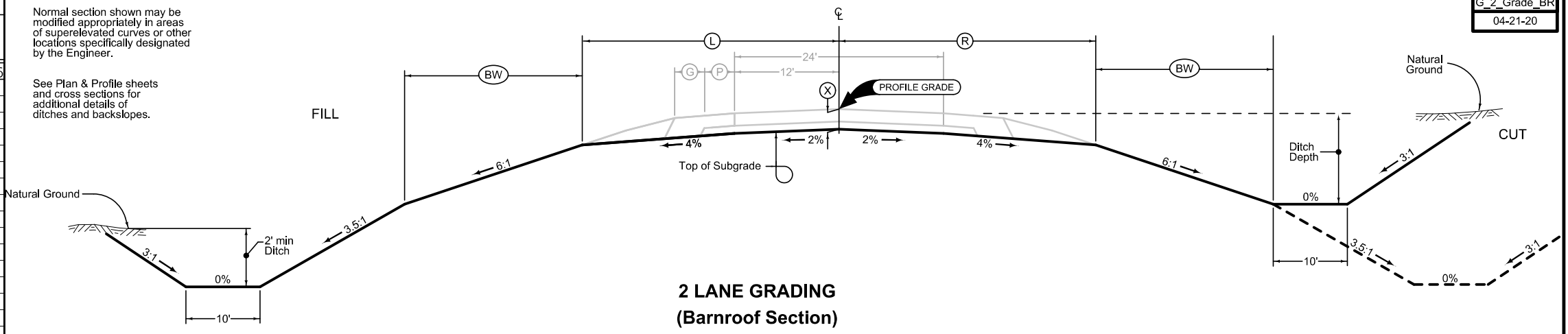
— DETOUR ROUTE



LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	Ⓛ Feet	Ⓡ Feet	ⓧ Inches	ⒷⓌ Feet
IA 136	797+59.70 799+42.46	33.94	33.94	16	2.06

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

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.



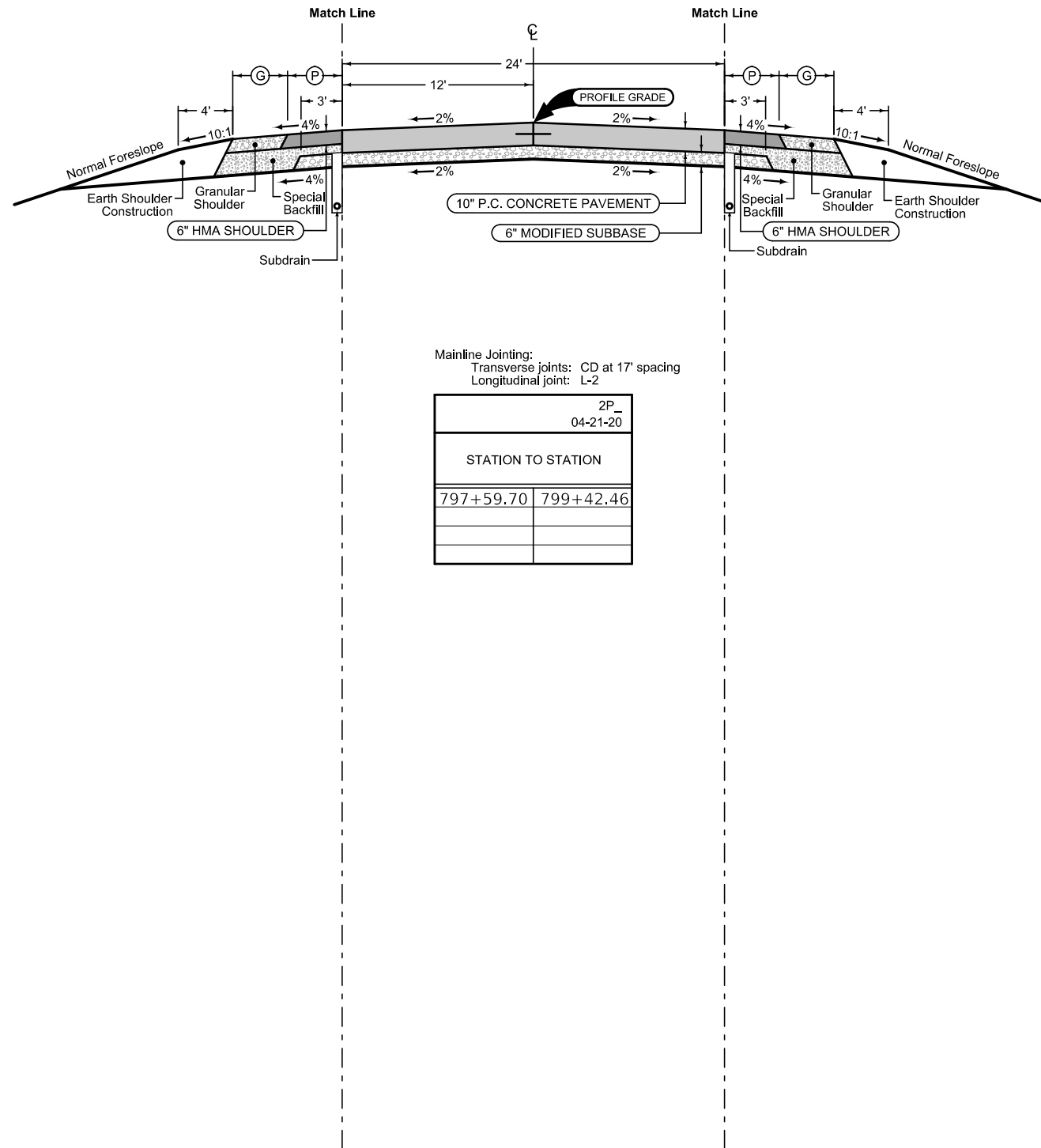
G_2_Grade_BR
04-21-20

**2 LANE GRADING
(Barnroof Section)**

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

		2_C_04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
797+59.70	799+42.46	4	4



Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

		2P_04-21-20	
STATION TO STATION			
797+59.70	799+42.46		

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

		2_C_04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
797+59.70	799+42.46	4	4

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- 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)
- Septic Tank
- Cistern
- L.P. Gas Tank (No Footing)
- Underground Storage Tank
- Latrine
- Satellite TV Dish
- Water Hook Up
- Radio Tower
- Tower Anchor
- Guardrail (Beam or Cable)
- Guard Post (one or two)
- Guard Post (over two)
- Filler Pipe
- Gas Valve
- Water Valve
- Speed Limit Sign
- Mile Marker Post
- Sign
- Traffic Signal Control Box
- Rail Road Signal Control Box
- Telephone Switch Box
- Electric Box

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	(70)		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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

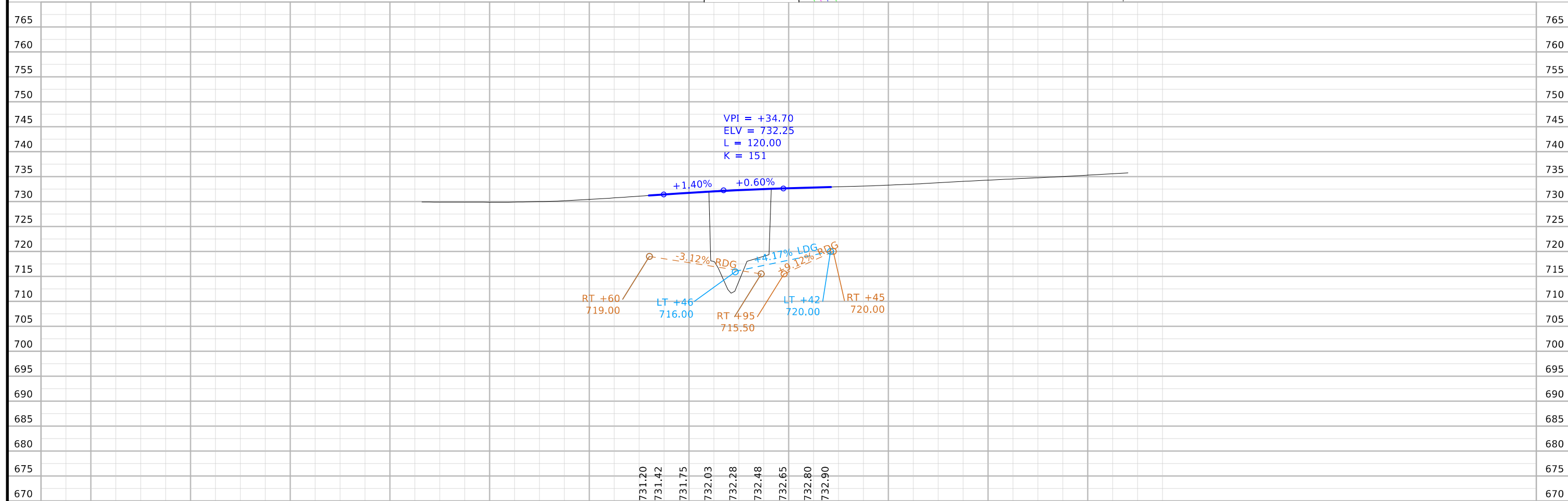
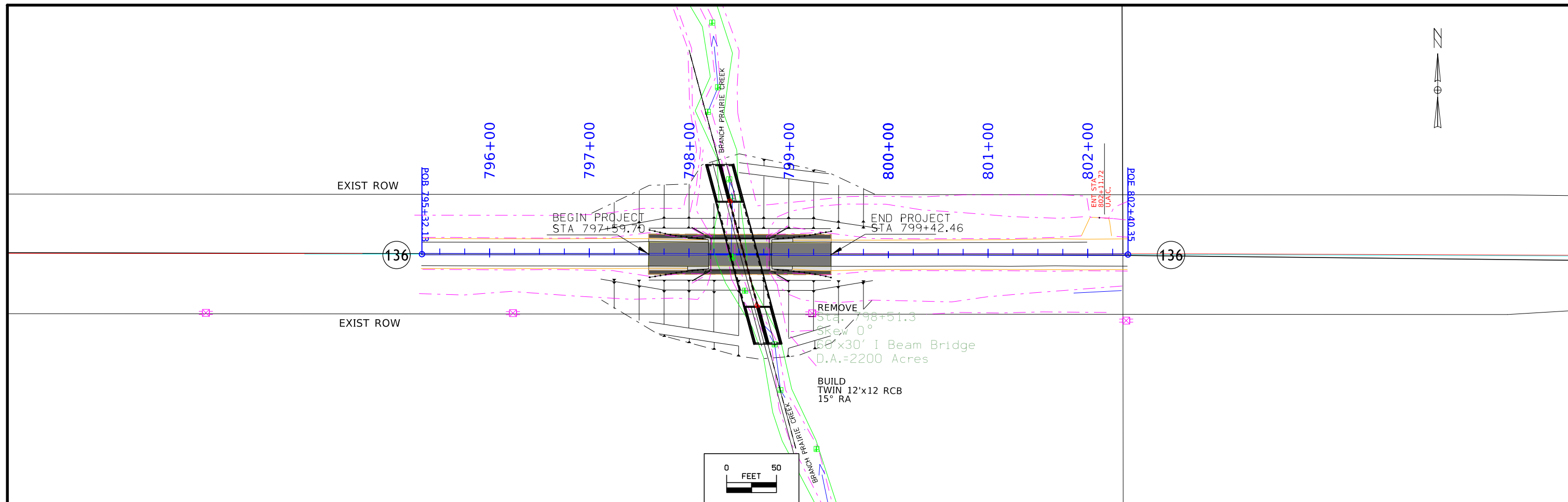
LINEWORK		Design Color No.	
Green	(2)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

- 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)



Survey Information

Clinton County
BRF-136-1(101)—38-23
IA 136 Bridge over
Branch Prairie Creek 1.9mi N of US 61
PIN 20-23-136-050
Sap-766.4

observations with appropriate occupation times. Additional control points were placed throughout the project using a Total Station setup relative to Point 1 and Point 2.

Utility Information

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 *Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

Remark abbreviations

QLA – Quality Level A Highest guideline quality level
QLD – Quality Level D Lowest guideline quality level

A One-call utility locate request (Ticket# 552104698) was made July 2, 2021. The following Companies were listed:

(ASE) ALLIANT ENERGY
Contact Name : Alliant Energy Field Engineer
Contact Phone: 8002554268
Contact Email: locate_IPL@alliantenergy.com

(LN1) LOST NATION-ELWOOD TELEPHONE
Contact Name : Jody Holtz
Contact Phone: 5636782470
Contact Email: jody@lencomm.com

Party Personnel

Eddie Charles – Survey Party Chief

Date(s) of Survey

Begin Date 08/23/2021
End Date 10/22/2021

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction and reconstruction of IA 136 over Branch Prairie Creek 1.9mi N. of US 61. Project datum and control information is provided by Shive-Hattery, Inc. This project is a Preliminary DTM Field Survey. This survey request was for the IA 136 corridor, Bridge over Branch Prairie Creek and Branch Prairie Creek.

Vertical Control

IARTN
Vertical datum for this survey is NAVD88 (Computed using Geoid12B). Additional benchmarks were placed throughout the project using a Total Station setup relative to Point 1 and Point 2. Vertical control was verified between control points with check shots by Total Station through multiple setup from various occupation points with a vertical error of less than 0.05 feet.

This survey found (2) local control benchmark monuments (benchmark disc and benchmark 'cut X' on bridge abutment in NW corner bridge of State Highway 136). No vertical information was available at the time field work was completed.

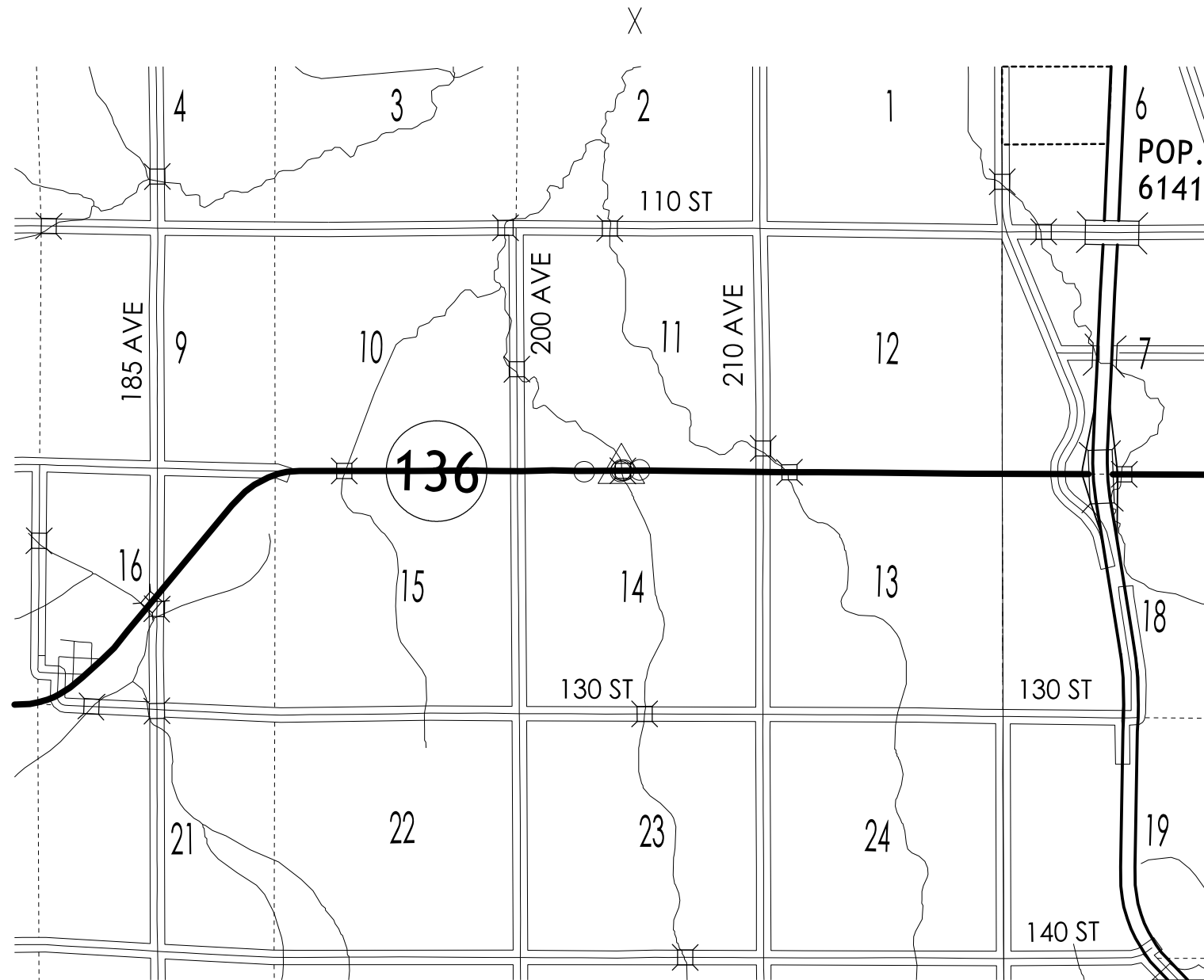
Horizontal Control

(Project Coordinates from Redundant IaRTN Observations)

The project coordinate system is modified Iowa Regional Coordinate System Zone 11 (U.S. Survey Feet This survey control is relative to the IaRTN reference stations.

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) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 11

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) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 11
Project Control Marks are Bench Marks

POINT NAME	Y	X	Z	FEATURE DEFINITION - DESCRIPTION
1	8239086.430	21456230.280	734.590	CP
2	8239046.100	21455016.650	741.340	CP
3	8239051.940	21455811.180	731.520	CP
4	8239079.890	21455894.060	732.330	CP
5	8239065.447	21456244.840	735.700	PK NAIL PT
101	8239086.432	21456230.280	734.588	CP
102	8239046.097	21455016.630	741.400	CP
493	8239081.755	21455830.94	734.101	CUT X
6190	8239082.7820'	21455829.4300'	734.763'	BRASS

NOTE:

The first two digits in the control point name refer to the county number.
The next 3 digits refer to the highway number.
The next 3 digits refer to the highway milepost.
The last digit refers to the distance from the referenced milepost to the nearest tenth of a mile.

108-26A
08-01-08

STAGING NOTES

Stage 1:
With IA 136 traffic using detour, remove and replace bridge over the stream with a culvert.

Stage 2:
Reopen IA 136 to normal traffic pattern.

108-23A
08-01-08

TRAFFIC CONTROL PLAN

1) While bridge and approaches are being removed and replaced with RCB culvert, IA 136 traffic shall be maintained via an off-site detour. Detours are furnished, maintained and removed by the Contractor. Refer to TC-252 for road closure and advanced signage details.

2) Contractor will furnish, install, maintain, and remove detour signs. All existing signs that conflict with detour shall be covered. These functions shall be included in the Traffic Control Bid Item.

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			No Travel Restrictions Expected									

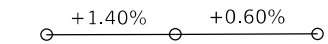
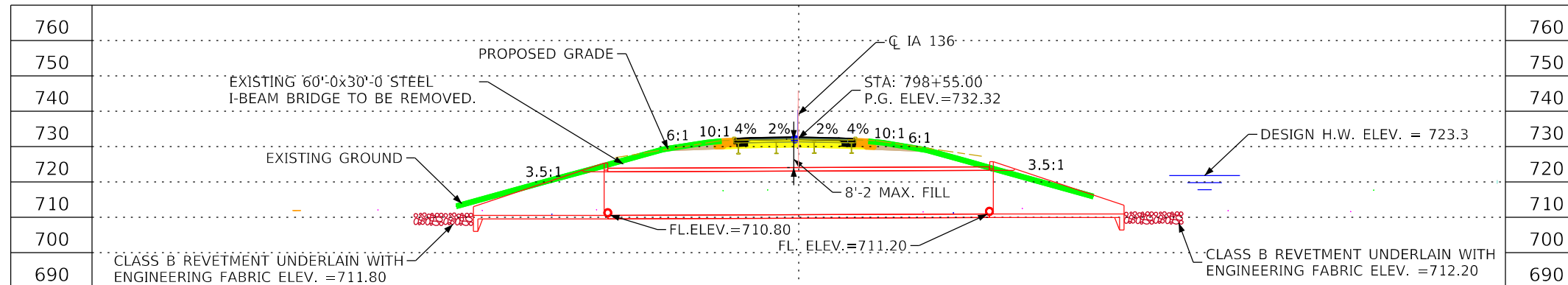
111-01
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work

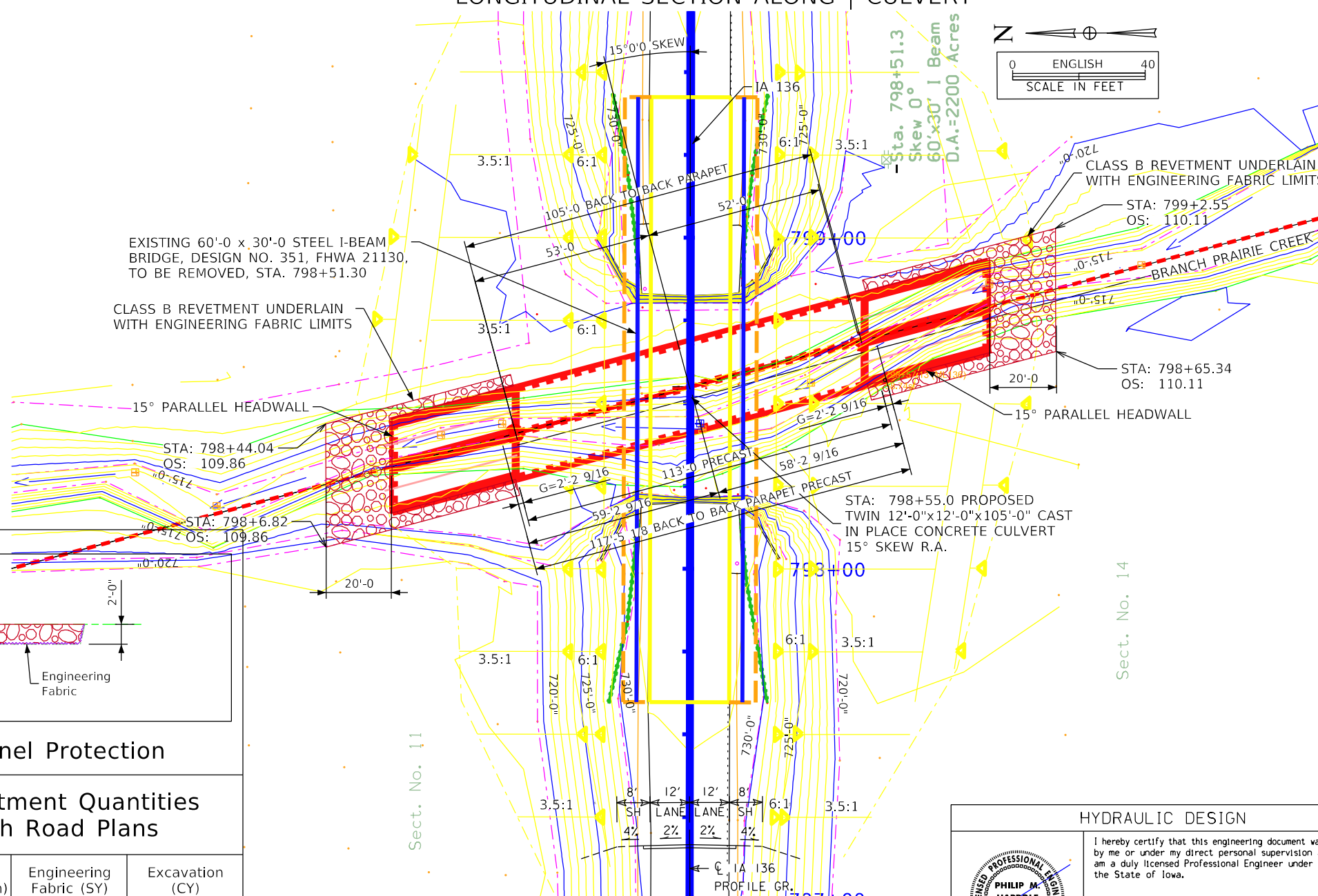
Control Point: 6190, Y=8239082.7820', X=21455829.4300', Z=734.763', BRASS



VPI STA = 798+34.70 LVC = 120
VPI ELEV = 732.25

PROPOSED PROFILE GRADE IA 136

LONGITUDINAL SECTION ALONG | CULVERT



NOTES:

- GENERAL NOTES:**
- THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 60'-0"x30'-0" STEEL BEAM BRIDGE DESIGN NO. 351, CLINTON, FHWA NO. 21130, MAINT. NO. 2331.9S136.
- DESIGNER NOTES:**
- BURIED AND OVERHEAD UTILITIES TO BE RELOCATED TEMPORARILY OR PERMANENTLY AS REQUIRED FOR CONSTRUCTION.
- PLAN NOTES:**
- DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
 - FLOW LINE OF CULVERT HAS BEEN SET 1 FOOT BELOW STREAMBED.

HYDRAULIC DATA

DRAINAGE AREA = 3.46 SQ. MI.
Q₅₀ = 2,140 CFS
HW ELEV. = 723.3
STREAM SLOPE = 25.3 FT./MI.

Q₁₀₀ = 2,250 CFS
HW ELEV. = 723.8

Q₅₀₀ = 3,670 CFS
HW ELEV. = 728.0

UTILITIES LEGEND:

⊗ ELECTRICAL HIGHLINE TOWER

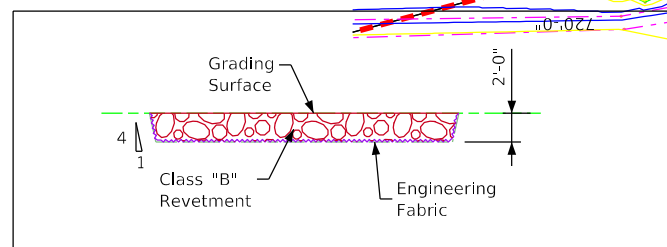
UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

LOCATION

IA 136
OVER BRANCH PRAIRIE CREEK
T-83N R-2E
SECTION 11 & 14
BROOKFIELD TOWNSHIP
CLINTON COUNTY
FHWA No. ??
BRIDGE MAINT. NO. 2331.9S136
LATITUDE 42.003792°
LONGITUDE -90.695731°

TRAFFIC ESTIMATE

2025 AADT	800 V.P.D.
2045 AADT	900 V.P.D.
2045 DHV	100 V.P.H.
TRUCKS	11 %
TOTAL	
DESIGN ESALS	-



Typical Channel Protection

Estimated Revetment Quantities Included With Road Plans

Location	Revetment Class "B" (Ton)	Engineering Fabric (SY)	Excavation (CY)
Inlet	107	159	49
Outlet	107	159	49
Totals	214	318	98

Excavation quantity calculated from grading surface. Quantities shown for information only. See Road Sheets.

FILE NO. 4214220	ENGLISH	DESIGN TEAM SHIVE-HATTERY, INC.
SYSTEMTIME	SYSTEMDATE	USERNAME DGN5PEC

TYPICAL APPROACH SECTION

SITUATION PLAN

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: PHILIP M. HARPOLE Date: XX-XX-XXXX

Printed or Typed Name: PHILIP M. HARPOLE
My license renewal date is December 31, 20XX

Pages or sheets covered by this seal: X

TWIN 12'-0 X 12'-0 X 105'-0 CAST IN PLACE CONCRETE CULVERT

Design For 15° Skew RA
SITUATION PLAN
STA. 798+55.0 (IA 136) MAY 2022
CLINTON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
Design No. ### Design Sheet No. 001 of ### FHWA No. ###

CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature	Design Color No.	Feature
Aggregate			
(64)	Choke Stone	(8)	Behind Curb Cut
(42)	Engineering Fabric	(6)	Granular
(8)	Flooded Backfill	(13)	Granular Back Fill
(92)	Macadam Stone	(48)	Rock Undercut
(20)	Modified	(8)	Shoulder Earth Fill
(12)	Plowing Shaping	(2)	Side Slopes
(14)	Porous Backfill	(226)	Side Slopes Dressing
(8)	Revetment Class A	Substrata	
(6)	Revetment Class B	(128)	Boulder Substrata
(62)	Revetment Class C	(209)	Boulder Removed Substrata
(188)	Revetment Class D	(48)	Broken Weathered Substrata
(28)	Revetment Class E	(210)	Broken Weathered Removed Substrata
(12)	Shoulder Special Backfill	(3)	Core Out Substrata
(12)	Special Backfill	(195)	Core Out Remove and Replace Substrata
(20)	Subbase	(115)	Core Out Remove Only Substrata
(20)	Subbase Lower	(203)	Existing Pavement Substrata
(20)	Subbase Upper	(200)	Existing Pavement Remove and Replace Substrata
(118)	Subgrade Treatment	(184)	Existing Pavement Remove Only Substrata
Asphalt			
(207)	HMA Base Course	(6)	Loam Substrata
(207)	HMA Interim Course	(211)	Loam Removed Substrata
(207)	HMA Surface Course	(80)	Rock Substrata
Concrete			
(0)	Barrier Concrete	(212)	Rock Removed Substrata
(0)	Barrier Concrete Footing	(4)	Select Sand Substrata
(0)	Curb Gutter	(214)	Select Sand Removed Substrata
(48)	Flowable Mortar	(3)	Shale Substrata
(0)	Median Concrete	(215)	Shale Removed Substrata
(0)	PCC Pavement	(10)	Topsoil Substrata
(0)	Sidewalk	(4)	Topsoil Remove and Replace Substrata
		(2)	Topsoil Remove Only Substrata
Shoulder			
(209)	Shoulder HMA	Unsuitable / Waste	
(0)	Shoulder PCC	(3)	Unsuitable Type A
(6)	Shoulder Granular	(216)	Unsuitable Type A Removed
Existing			
(0)	Existing Pavement	(13)	Unsuitable Type B
Structural			
(0)	Bridge	(217)	Unsuitable Type B Removed
(21)	Guardrail	(11)	Unsuitable Type C
(112)	Noise Wall	(218)	Unsuitable Type C Removed
(112)	Noise Wall Footing	(3)	Waste
(112)	Retaining Wall Back	(219)	Waste Removed
(112)	Retaining Wall Back Excavate	Trigger Switches	
(112)	Retaining Wall Face	(27)	Do Not Construct
(112)	Retaining Wall Front Excavate		
(112)	Retaining Wall Front Footing		
(112)	Retaining Wall MSE Gutter		
(112)	Retaining Wall Reinforced Earth		

NOTES:

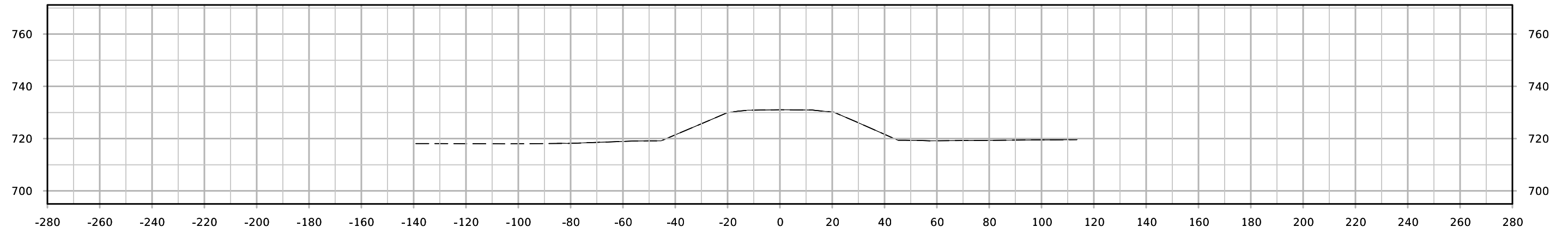
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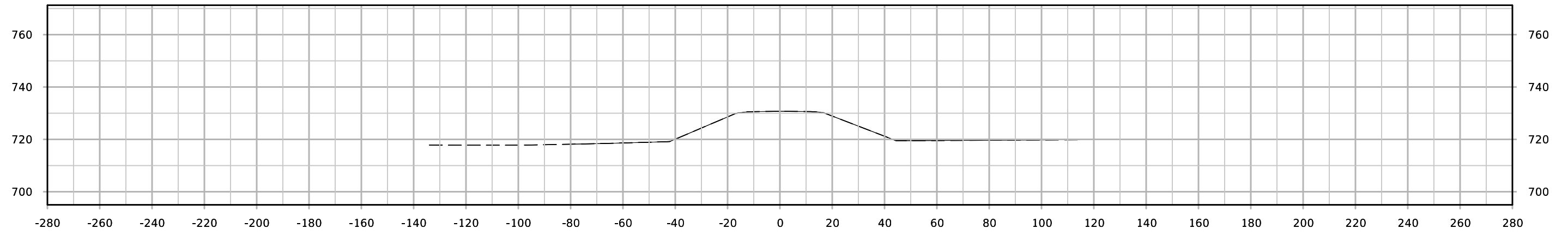
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CROSS SECTIONS LEGEND AND INFORMATION SHEET

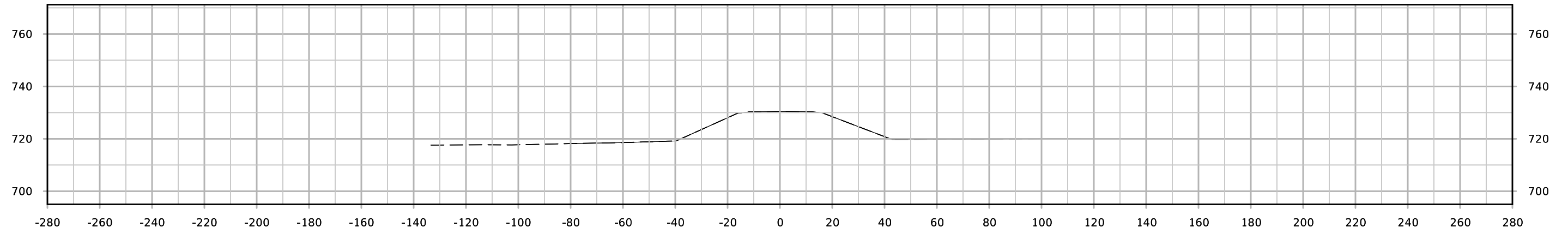
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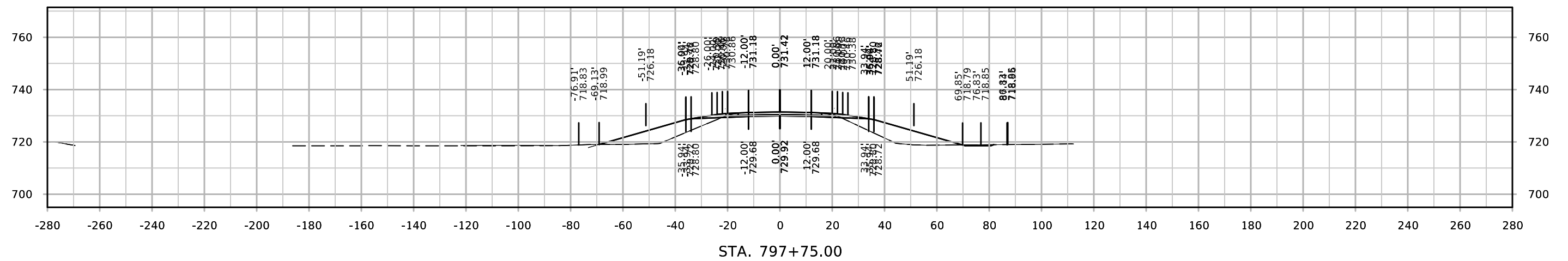
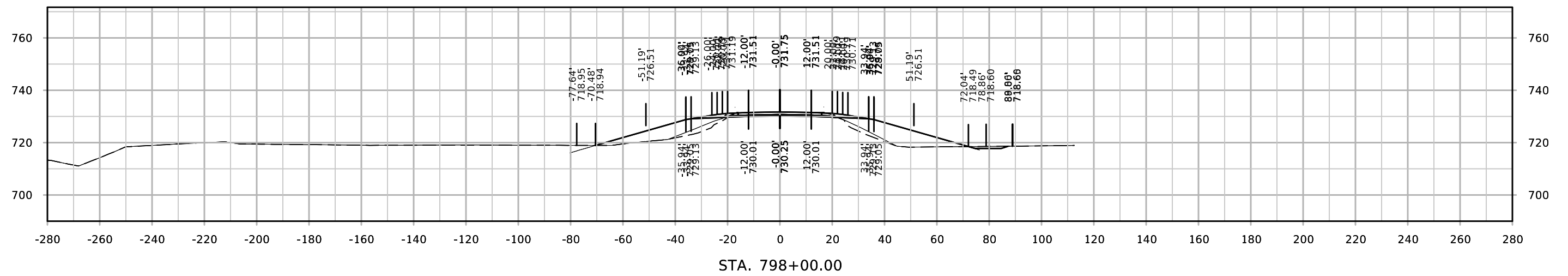
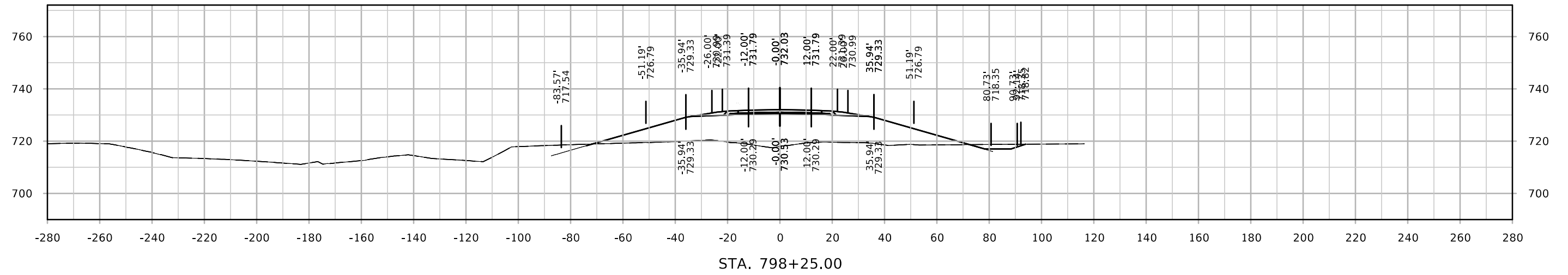
STA. 797+50.00

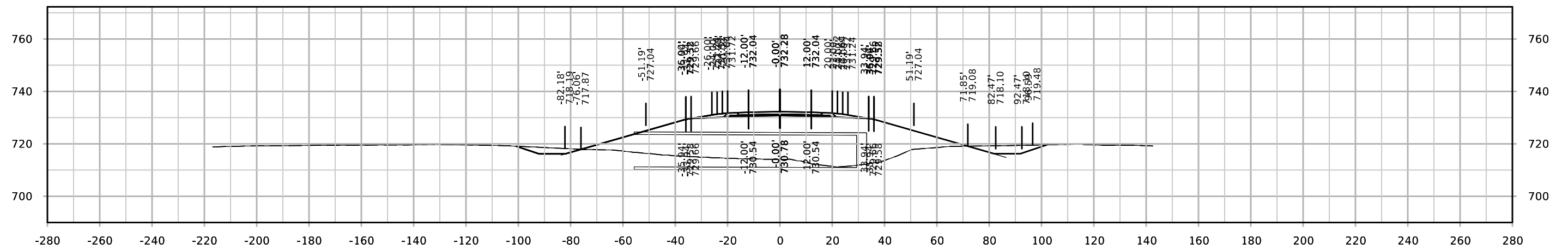
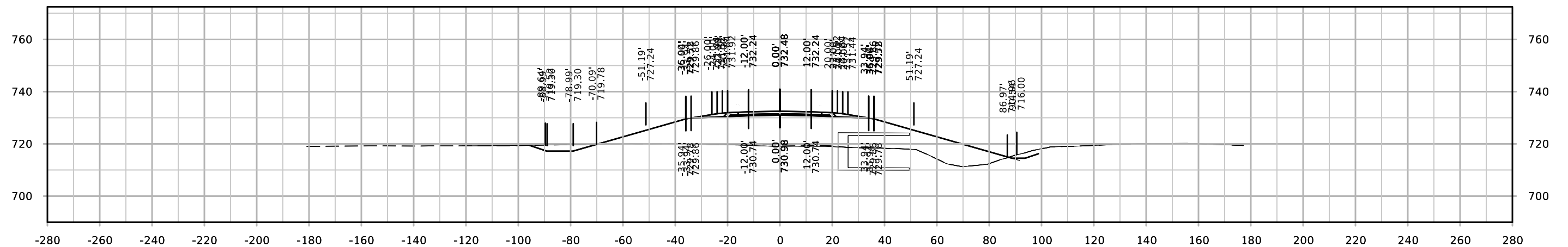
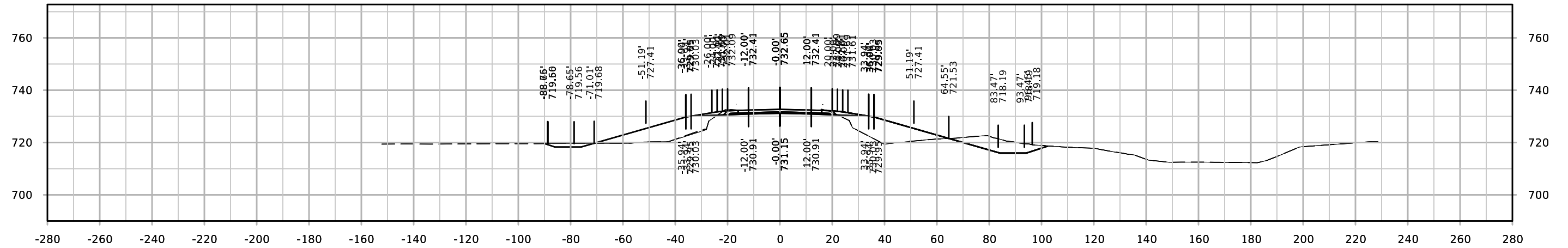


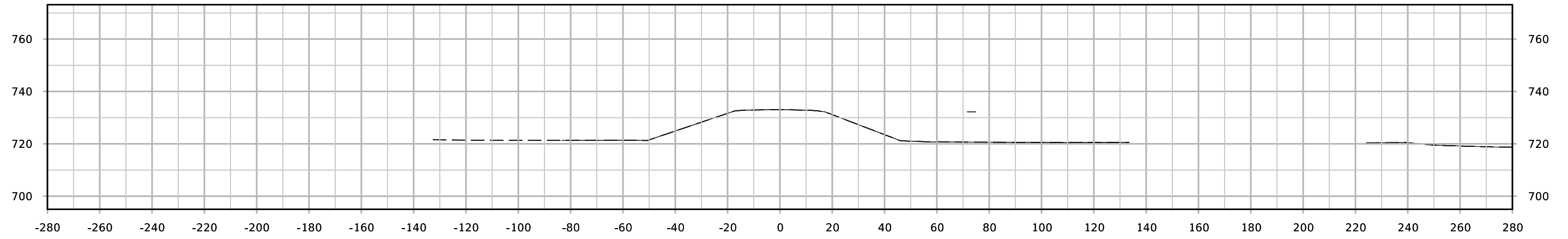
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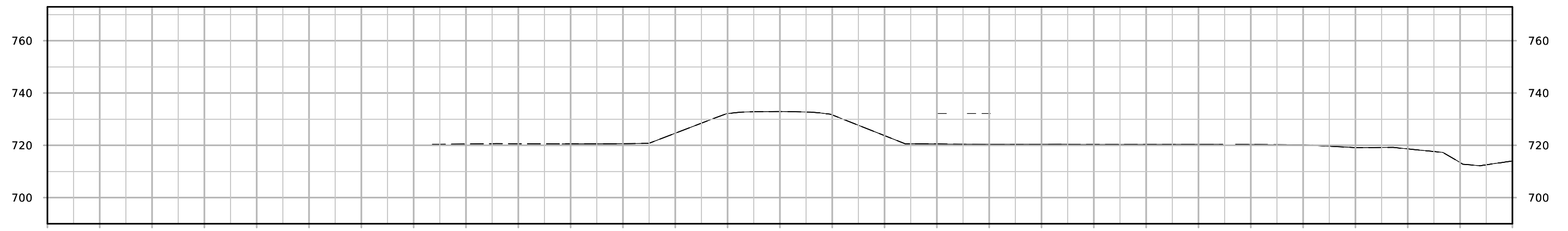
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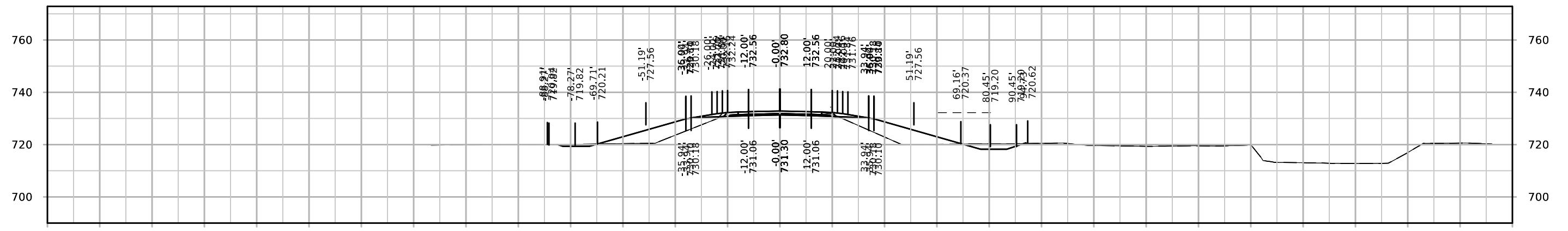




STA. 799+75.00



STA. 799+50.00



STA. 799+25.00

ML - US169

