BRIDGE REPLACEMENT
BRF-175-4(019)--38-81

LETTING DATE
Nov 21, 2028

SAC COUNTY

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* W.2 - W.20	IA 175 Cross Sections
X Sheets	Sideroad Cross Sections
* X.1 - X.2	High Street Cross Sections

* Color Plan Sheets

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
SAC COUNTY

BRIDGE REPLACEMENT - PPCB

IA 175 BRIDGE OVER HIGH STREET
Approx. 1.9 mi E of Co Rd M64 in Lake View
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	75
PROJECT IDENTIFICATION NUMBER	
24-81-175-010	
PROJECT NUMBER	
BRF-175-4(019)--38-81	
R.O.W. PROJECT NUMBER	

IA 175 DESIGN DATA RURAL			
2029	AADT	2600	V.P.D.
2049	AADT	2900	V.P.D.
20 –	DHV	--	V.P.H.
TRUCKS		23	%
Total Design ESALs		--	

Preliminary Earthwork

Cut	17,810	CY
Fill	100	CY
Balance	17,710	CY

INDEX OF SEALS

SHEET NO.	NAME	TYPE

For Project Location Map
Refer to Sheet No. A.2

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

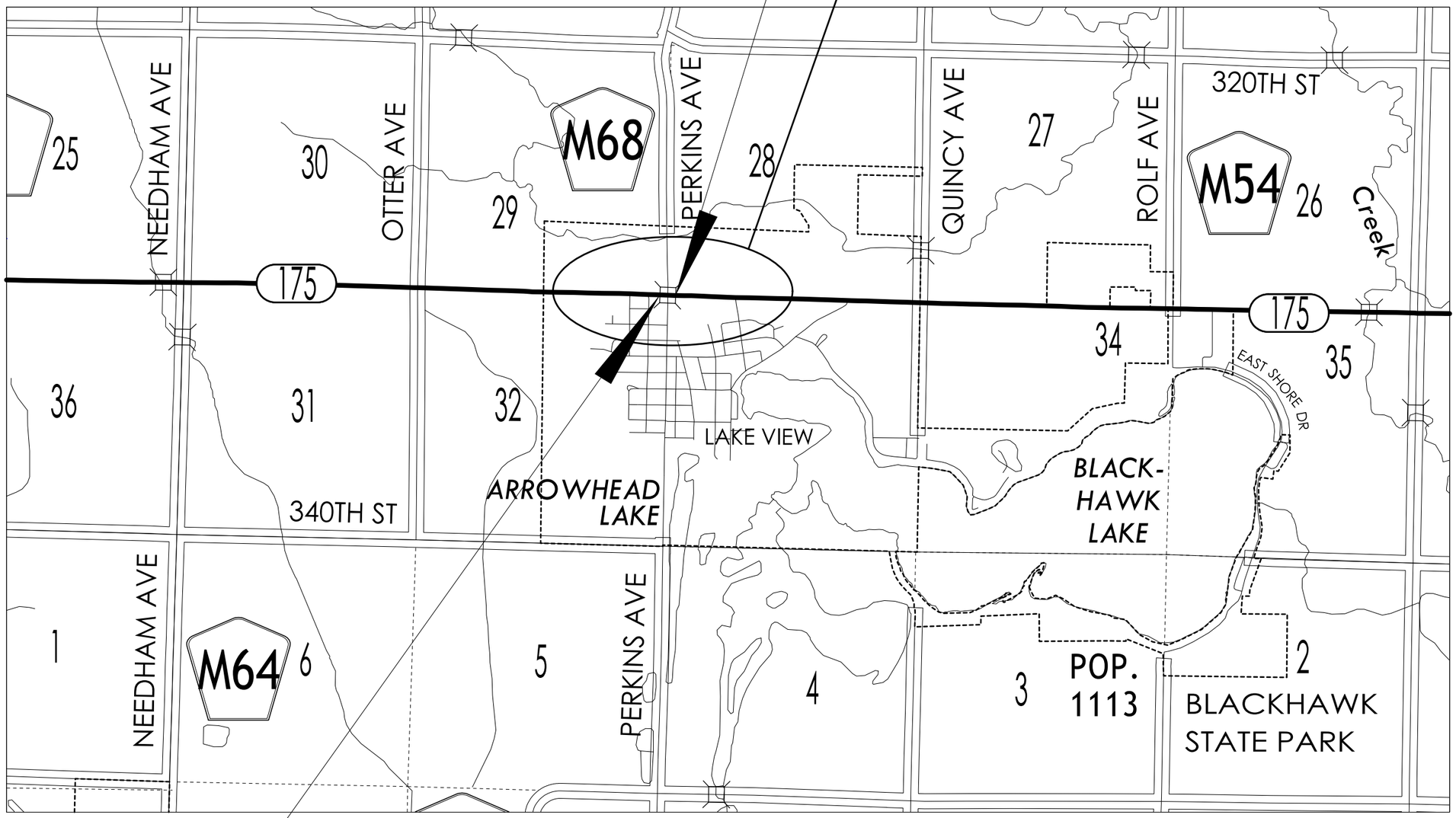
PRELIMINARY PLANS

Subject to change by final design.

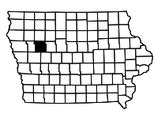
D02 - Date: 10/31/2025

MLIA175 STA. 282+00.00
END CONSTRUCTION

PROJECT LOCATION



MLIA175 STA. 262+70.00
BEGIN CONSTRUCTION



LOCATION MAP SCALE
0 0.5 1
Mile

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **A.2**

FIELD EXAM CHECKLIST

1. General
   a. Schedule

2. Roadway
   a. IA 175 Geometry
   b. Typical Sections / Pavement Recommendation
   c. IA 175 Shoulder Strengthining (Need Survey)
   d. Curb Return Impact
   e. High Street Imporvements
   f. Driveway Removal (SE corner of IA 175 and Madison St.)

3. Bridge
   a. Existing Structure Removal
   b. Wall construction Limits

4. Drainage
   a. Existing Drainage Patterns
   b. Storm Sewer
   c. Subdrains
   e. Existing High Street Storm Sewer Alignments

5. Geotech
   a. Boring Program
   b. Schedule

7. Construction Staging
   a. Stage 1
   b. Stage 2
   c. High Street Detour Route
   d. Temporary Shoring

8. Utility Coordination
   a. Mid-American
   b. Overhead Transmission
   c. Fiber Lines

9. ROW
   a. Anticipated Impacts
   b. Driveways

10. Cost Estimate
    a. Assumptions

11. Other Items
    a. NEPA Reevaluation
    b. Public Information Meeting (PIM)

IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE:	District 3	**DATE:**	May 9, 2025
ATTENTION:	Shane Tymkowicz, P.E.	**PROJECT:**	Sac County BRF-175-4(019)--38-81
FROM:	Kyle Berg, P.E.		PIN: 24-81-175-010
CONSULTANT:	HNTB Corporation		
SUBJECT:	Project Concept Statement; (Final, D0)		

This project involves the replacement of the IA 175 bridge (Maint. No. 8174.1S175) over High Street and is located in Lake View, 1.9 miles east of county road M64.

A concept review was held on March 31, 2025. Those present included Luka Arroyo, John Bartholomew, Mohamad Dokmak, Chelsea Duncan, Jim Ellis, Jeremy Harris, Tom Lovan, Dylan Pryor, Christine Schwienebart, Marc Solberg and Shane Tymkowicz from the Iowa DOT. Those present included David Green, Bruce Weng, John Puls, Jordan Zany and Kyle Berg from HNTB Corporation.

The two alternatives considered were:

1. Replace with a single span 95'-0" x 44'-0" PPCB bridge using BTB beams. The estimated cost of this replacement is $7,552,600.

2. Replace with a Contech Conspan Precast Arch or similar structure. The estimated cost for this replacement is $5,939,200. (Costs for Alternative 2 were not updated after the initial draft concept review).

Additional right of way/right of entry is not anticipated to be required for either alternative. Retaining walls adjacent to IA 175 will be required for both alternatives to avoid impacts to right of way. Traffic will be maintained by staged construction.

The preferred alternative is Alternative 1, constructing the proposed bridge and roadway improvements on the existing IA 175 alignment. Staged bridge construction will be utilized. The estimated cost for this replacement is $7,552,600.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved during the Concept Review Meeting on March 31, 2025. Comments received during the review period have been resolved.

This project is recommended for construction in FY 2028.

cc: K. Nicholson
M. Nop
M. A. Swenson
W. Sorenson
C. Poole
D. Sprengeler
M. Dell
B. Bradley
M. Van Dyke
D. Blue
B. Worrel
J. Felix
J. Pottorff
M. Sadler
M. Carlson
C. Schwienebart
C. Brakke
J. Ellis
D. Stokes
E. Wright
J. Laaser-Web
N. Cuva
R. Harris
B. Smith
D. Heeren
S. Cook
R. Meyer
T. Huju
M. Thayer
J. Becker
S. Sturtz
J. S. Nelson
S. Majors
B. Hofer
K. Brink
S. Anderson
J. Bartholomew
N. Pohlen
D. Ta
G. Cagle
B. Hucker
A. Buss
D. Pryor
J. Klemme
C. Duncan
D. Newell

FINAL PROJECT CONCEPT STATEMENT

IA 175 over High Street

Sac County
BRF-175-4(019)--38-81
PIN: 24-81-175-010
Maint. No. 8174.1S175
FHWA No. 046630

Highway Division
District 3

Kyle Berg, P.E.
kberg@hntb.com

May 9, 2025

I. STUDY AREA

A. Project Description

This project involves the replacement of the IA 175 bridge (Maint. No. 8174.1S175) over High Street and is located in Lake View, 1.9 miles east of county road M64.

The two alternatives considered were:

1. Replace with a single span 95'-0" x 44'-0" PPCB bridge using BTB beams. This alternative minimizes staging complexity and provides additional clearance for clear zone along High Street. The alternative allows the existing concrete arch to remain during overhead construction and does not require phased demolition. The estimated cost for this replacement is $7,552,600.

2. Replace with a Contech Conspan Precast Arch or similar structure. This alternative would allow one traffic lane to stay open during construction. This option would require complex construction staging with the removal of the existing concrete arch while maintaining traffic. The estimated cost for this replacement is $5,393,200.

At the draft concept review meeting held on March 31, 2025, Alternative 1 was chosen to progress and update. Costs and concept updates to Alternative 2 were not updated from the initial draft concept submitted for review on March 14, 2025.

B. Need for Project

This structure is a single 40'-0" x 48'-0" reinforced concrete arch bridge constructed in 1934. The reinforced concrete walls are spalled and have cracking with some leaching.

The concrete wings walls have exposed rebar, spalling, and cracking. The parapets have spalls with exposed reinforcing, cracking and leaching.

Profile (left)

Profile (right)


Roadway through (left)


Roadway through (right)

C. Present Facility

The existing structure is a single 40’-0” x 48’-0” reinforced concrete arch bridge constructed in 1934. A wing stabilization using counterfort walls was accomplished in 1990. The existing IA 175 roadway is 24' wide, 3' paved shoulders on each side, and 2:1 foreslopes beyond the guardrail. It was resurfaced with 3" HMA in 1985.

D. Traffic Estimates

The 2029 construction year and 2049 design year average daily traffic estimates are 2,600 ADT with 23% trucks and 2,900 ADT with 23% trucks, respectively.

E. Sufficiency Ratings

IA 175 is classified as Minor Arterial. The Bridge Condition Index is 65.5 and the Bridge Condition Rating is Fair.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2020, through December 31, 2024, there were 3 property damage only crashes on IA 175 between the junctions located east and west.

PCR value for this segment is listed as 0.28 crash/mile/year for all crashes.

II. PROJECT CONCEPT

A. Design Criteria

The proposed IA 175 profile shall be designed at 40 mph to match the posted speed at the project location. There are no future plans to raise the speed for this facility in the future. The vertical clearance requirement of the bridge structure over High Street is 15’-0”.

The existing typical cross section adjacent to the existing reinforced concrete arch bridge consist of two 12’ lanes, providing 24’ roadway, 3’ shoulders and 2:1 foreslopes, totaling 30’ of pavement.

B. Feasible Alternatives

Alternative #1

The existing 40’-0” x 48’-0” reinforced concrete arch bridge will be replaced with a single span 95’-0” x 44’-0” PPCB bridge using BTB beams. MSE walls will be installed in front of the abutments and along the roadway to tie the into the existing ground surface due to the steepness of the adjacent roadway slopes while limiting ROW impacts to adjacent property owners.

The proposed roadway section adjacent to the bridge will consist of two 12' lanes with 10' shoulders on both sides to match the proposed bridge width. The bridge approaches will be 70' in length and 44' in width. After the approach pavement, the full width 10’ shoulders will extend 300’ from the bridge abutments on all four corners to allow for future maintenance of the bridge. The shoulders on the east side of the bridge will transition back to a 3' width to match the existing roadway section. The shoulder widening section shall be 10" PCC over 6" Special Backfill. Concrete Barrier Rail and MSE walls will be required for the wider shoulders adjacent to the bridge.

The bridge will be constructed on the existing horizontal alignment and existing vertical profile. In order to stage the bridge construction, temporary shoring is proposed along the existing profile. The existing reinforced concrete arch bridge may remain in place during construction until all overhead construction is complete due to depth of the existing fill and use of shallow BTB beams. The MSE walls will be constructed parallel to IA 175 on all four corners of the bridge with wraparound U-Shape abutment walls along High Street.

A meeting with the Iowa DOT on March 31, 2025, resulted in the revisions outlined in this paragraph. Full width 10’ shoulders were requested 300’ from the bridge abutments on all four corners to allow future maintenance of the bridge. As a result of these shoulder extensions, the MSE walls were extended and the existing storm intakes, pipes, and outlets closest to the east abutment needed to be replaced. The bottom of wall profile

was updated to maintain drainage inside DOT ROW. The guardrail for wall protection was replaced with concrete barrier rail, and the guardrail on the east side was replaced to meet current standards. Additionally, a bid item for wall aesthetics, representing 10% of the MSE wall cost, has been added. The cost estimate reflects these updates.

Bridge Items	
New bridge	785,800
Removal of existing bridge	38,400
Mobilization – 10%	82,400
M & C – 20%	181,300
Bridge Costs	**$1,087,900**
Roadway Items	
Special Backfill	14,300
Excavation, Class 10, Waste	167,600
Excavation, Class 10, Roadway and Borrow	500
Reinforced Paved Shoulder for Concrete Barrier	346,100
PCC, 10 in	22,800
Bridge Approach Pavement, BR-203	109,000
Storm Sewer Grate Intakes	21,200
CMP, 18"	3,800
Reinforced Concrete Pipe (RCP) Extension, 15"	2,400
Aprons, Metal, 18" Dia.	700
Concrete Barrier, BA-102	197,200
Removal of Steel Beam Guardrail	23,700
Steel Beam Guardrail	37,900
Steel Beam Guardrail Barrier Transition Section, BA-201	5,500
Steel Beam Guardrail Barrier Transition Section, BA-221	1,700
Steel Beam Guardrail End Anchor, Bolted	1,000
Steel Beam Guardrail Tangent End Terminal, BA-205	5,700
Steel Beam Guardrail Tangent End Terminal, BA-225	2,000
Removal of Pavement	18,100
Removal of Pipe	1,100
Removal of Intakes	1,800
Temporary Barrier Rail, Concrete	12,500
Temporary Traffic Signals	23,600
Traffic Control	110,000
Temporary Crash Cushion	4,400
Permanent Crash Cushion	26,600
Deliver and Stockpile Salvaged Material	4,500
Longitudinal Grooving, Bridge Deck	7,800
Mechanically Stabilized Earth Retaining Wall	1,380,800
Granular Backfill, MSE Wall	677,000
Wall Aesthetics	104,600

Macadam Stone Slope Protection	22,400
Erosion Control	10,000
Temporary Shoring	1,180,000
Mobilization - 5%	426,000
Contingency - 30%	1,490,400
Roadway Costs	**$6,464,700**
Project Total	**$7,552,600**

Alternative #2

The existing 40'-0" x 48'-0" reinforced concrete arch bridge will be replaced with a ConSpan bridge. MSE walls will be installed to tie the into the existing ground surface due to the steepness of the adjacent roadway slopes while limiting ROW impacts to adjacent property owners.

The roadway will be constructed on the existing horizontal alignment and existing vertical profile. The proposed roadway section over the top of the ConSpan bridge will consist of two 12' lanes with 10' shoulders on both sides. The shoulders will transition back to 3' in width to match the existing roadway section. The pavement section for both lanes and shoulders shall be 10" PCC over 6" Special Backfill. Guardrail and MSE walls will be required for the wider shoulders.. In order to stage the structure construction, temporary shoring is proposed along the existing profile. Additionally, in order to stage structure construction, the existing concrete arch will be required to be removed in phases. MSE walls will be constructed parallel to IA 175 in all four corners of the proposed ConSpan bridge.

The revisions described in Alternative 1 were not applied to the Alternative 2 cost estimate. As a result, the cost estimate from the original draft concept for Alternative 2 remains unchanged.

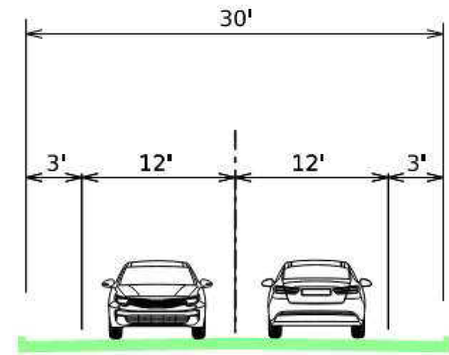
Bridge Items	
New bridge	1,178,000
Removal of existing bridge	38,400
Mobilization – 10%	121,600
M & C – 20%	267,600
Bridge Costs	**$1,605,600**
Roadway Items	
Special Backfill	9,000
Excavation, Class 10, Waste	118,600
Excavation, Class 10, Roadway and Borrow	1,900
Modified Subbase	18,800

PCC, 10 in	181,300
Removal of Steel Beam Guardrail	12,500
Steel Beam Guardrail	31,000
Steel Beam Guardrail Barrier Transition Section, BA-201	12,200
Steel Beam Guardrail End Anchor, Bolted	1,400
Steel Beam Guardrail Tangent End Terminal, BA-205	3,300
Removal of Pavement	15,700
Temporary Barrier Rail, Concrete	12,800
Temporary Traffic Signals	12,100
Traffic Control	110,000
Temporary Crash Cushion	4,900
Deliver and Stockpile Salvaged Material	4,500
Mechanically Stabilized Earth Retaining Wall	753,900
Granular Backfill, MSE Wall	691,700
Temporary Shoring	800,000
Erosion Control	10,000
Mobilization - 5%	140,000
Contingency - 30%	842,000
Roadway Costs	**$3,787,600**
Project Total	**$5,393,200**

C. Staging Analysis

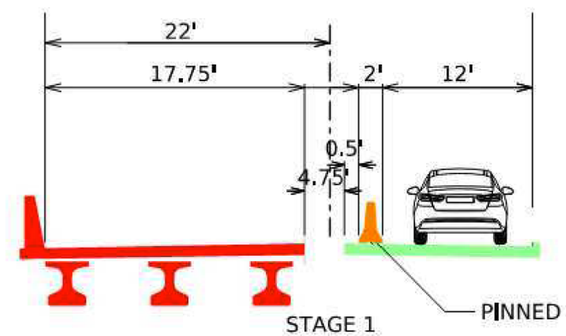
For both alternatives, traffic shall be maintained by staged construction as shown in the staged typical sections. Temporary shoring and signals will be required to accommodate the proposed staging. Temporary shoring will be required to support a maximum height of 25 ft of roadway embankment during both stages of construction for both alternatives. An estimated 13,600 square feet (exposed face) of temporary shoring will be needed for the project staging.

High Street will be closed for the duration of construction. No detour route will be signed.



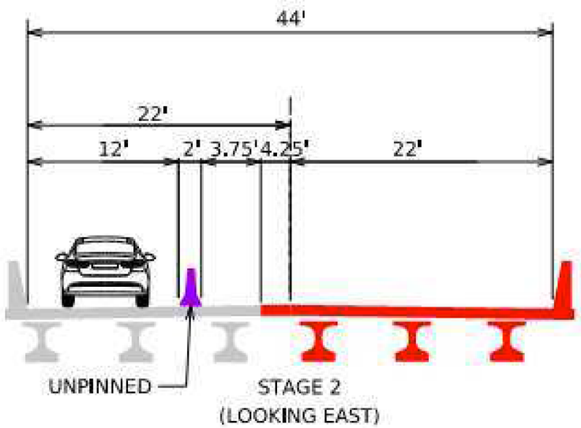
EXISTING
(LOOKING EAST)

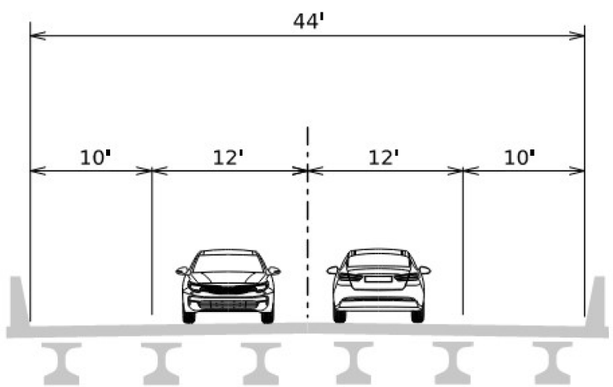
Stage 1: The first stage requires the removal of the northern 15'-6" of the bridge. One 12 ft. lane of traffic will be maintained on the remaining portion of the existing bridge as a 14'-6" section, of the new bridge, is constructed. Construction of a 17'-9" northern portion of the bridge will occur in this stage.



STAGE 1
(LOOKING EAST)

Stage 2: The second stage shifts traffic onto the newly constructed bridge section. The remaining 14'-6" of the existing bridge will be removed. Construction for the remaining southern 26'-3" of the new bridge will occur in this stage.





FINAL
(LOOKING EAST)

D. Recommendations

It is recommended that the present structure be replaced, as described in Alternative No. 1.

E. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Bridges and Structures Bureau will coordinate the plan preparation with assistance from the Design Bureau.

F. ADA Accommodations

There are no bike paths or sidewalks adjacent to IA 175.

The existing sidewalk adjacent to High Street will be replaced after bridge construction. ADA compliance will be required. Macadam Stone will be installed behind the sidewalk under the new bridge.

G. Special Considerations

This will not be a traffic critical project.

Existing utilities are water and storm sewer west of High Street under the bridge, fiber optic and electric line east of High Street under the bridge. There are also electric and fiber optic lines along the north side of IA 175 and a telephone line along the south side of IA 175. These utilities may be impacted during construction.

Right of Way does not appear to be required for this project.

The Location and Environment Bureau has reviewed this project.

H. Program Status

Site date has been developed by the Design Bureau. This project is listed in the 2025-2029 Iowa Transportation Improvement Program at $3,900,000 for replacement in FY 2029. A preliminary schedule of events has been developed with a November 2028 letting.

Utilities

Corn Belt Telephone Company
Larry Neppl
(712)664-2221
cornbelt@netins.net

Black Hills Energy Council Bluff
Chris Dewey
(712)580-6028
chris.dewey@blackhillscorp.com

CenturyLink
Sadie Hull
(918)547-0147
sadie.hull@lumen.com

Schaller Telephone Company
Jim Kestel
(712)275-4211
locates@schallertel.net

Lake View Municipal Utilities
Jack DeBough
(712)657-2650
lvcity@iowatelecom.net

Windstream Communications
(800)289-1901
LOCATE.DESK@WINDSTREAM.COM

Bridge Bureau Attachment for Concept Statement

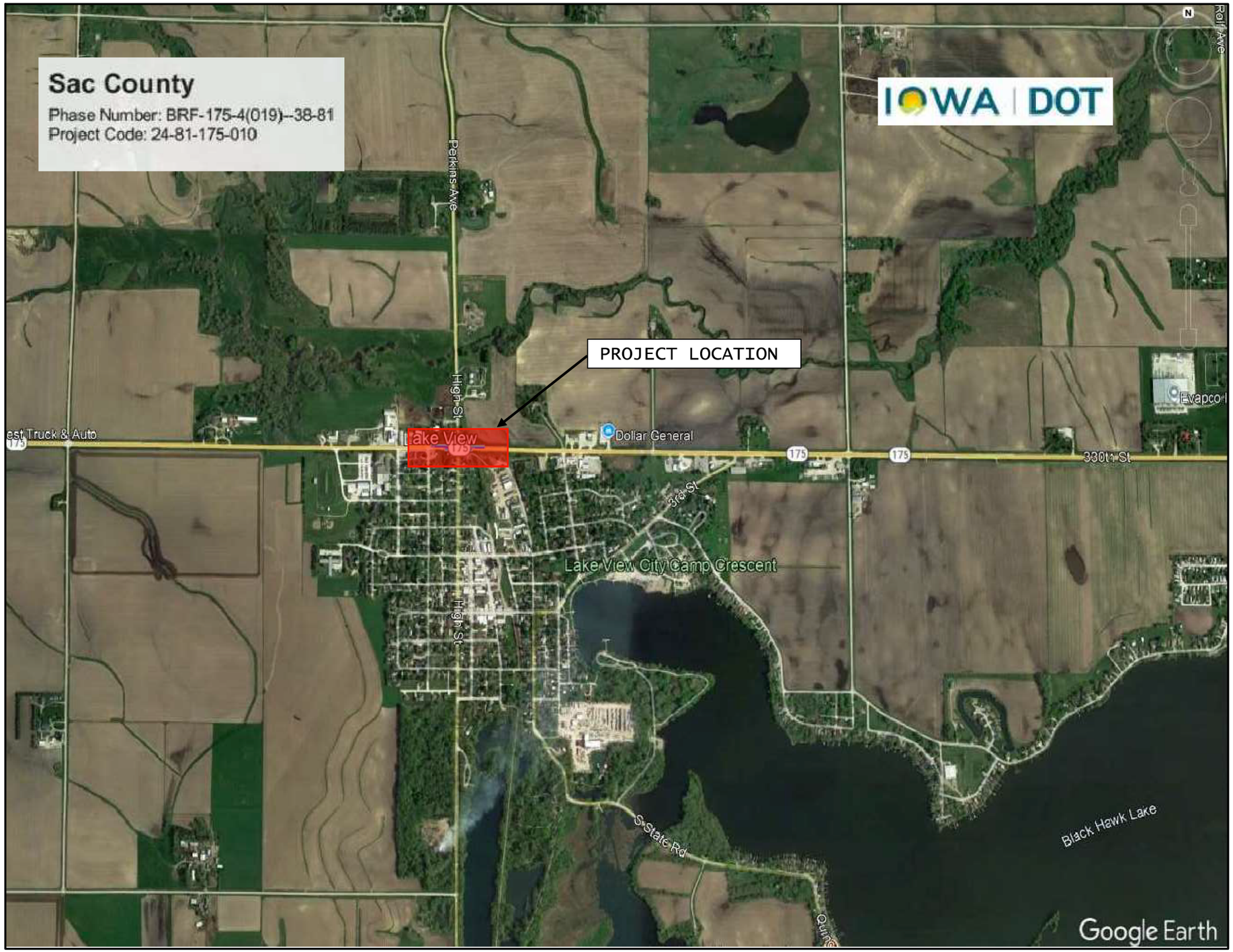
Date: March 14, 2025
By: HNTB
Location: High St 1.9 mi E of Co Rd M64

County: Sac County
Phase No.: BRF-175-4(019)--38-81
Project Code: 24-81-175-010

1. Regulatory/Coordination
   a. Iowa DNR Flood Plain permit = No
   b. Iowa DNR Sovereign Lands permit = No
   c. Local Record of Coordination = No
   d. Flood Insurance Study = No
   e. Drainage District = No
   f. Corps of Engineers Section 408 = No
   g. State Water Trail or Paddling Route = No
   h. Historic Structure = No
   i. Federally owned land in vicinity = No
   j. USGS or Iowa Flood Center (IFC) gage or sensor impacted? No
   k. Obstruction Evaluation/Airport Airspace Analysis per FAA website = No
2. Hydrologic/Hydraulic Analysis/RIDB Dataset
   a. Design discharge methodology = N/A
   b. Hydraulic analysis done = N/A
   c. Riverine Infrastructure Database (RIDB) = N/A
3. Structure/Roadway Layout Considerations
   a. Utilize existing horizontal alignment and vertical profile.
4. Special construction issues
   a. Three below struts tying the culvert walls together are below the roadway pavement. Two must be maintained during construction.
   b. Possible conflicts with existing utilities along High Street and along the north side of Highway 175.
   c. Existing property lines limits space for construction.
5. Special survey = No
6. Aesthetic enhancements = No
7. Other
   a. Construction will be staged.

Special Survey:

None



FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **A.11**

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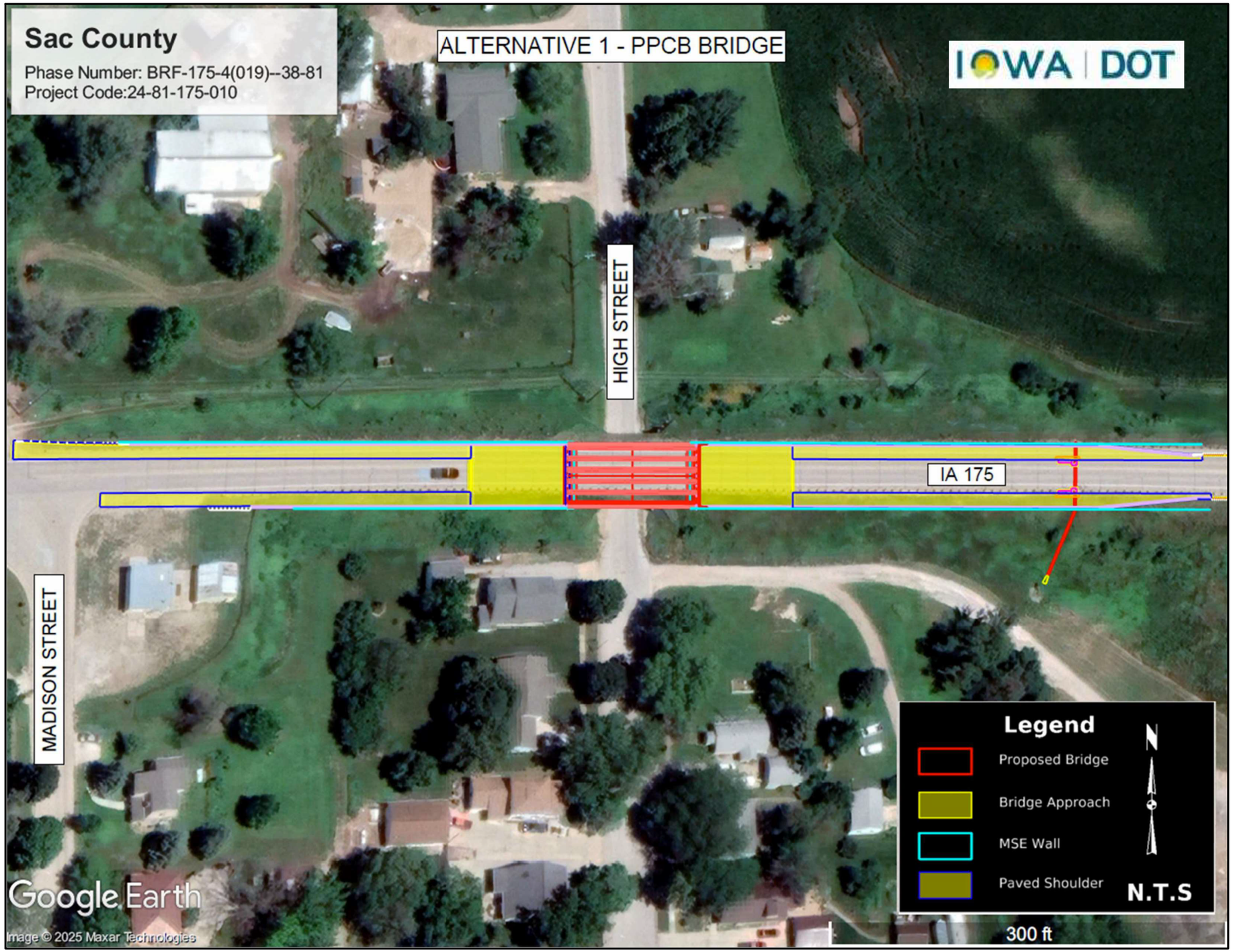

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **A.12**

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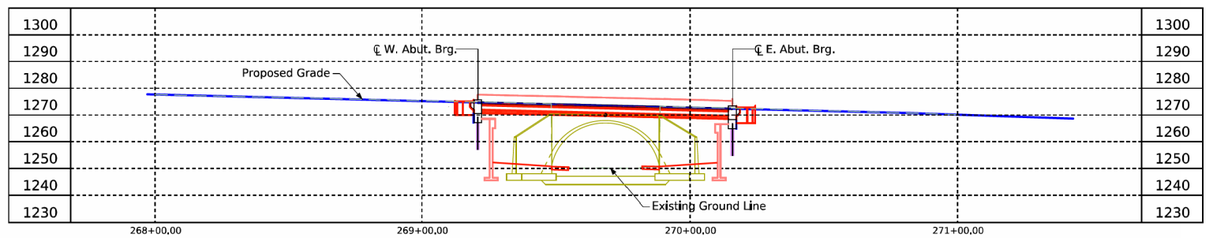
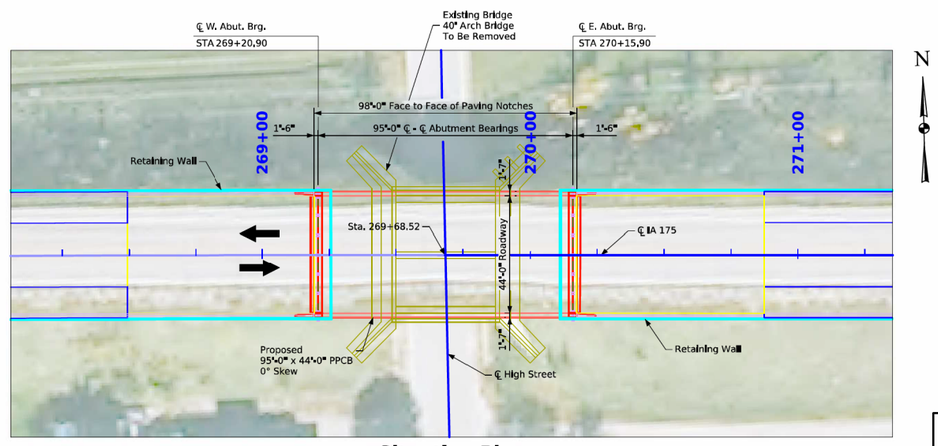


Longitudinal Section Along ℄ IA 175



Situation Plan

0 20
Scale In Feet

Design For 0° Skew
95'-0" x 44'-0" Pretensioned
Prestressed Conc. Beam Bridge
95'-0" Span

Situation Plan
STA. 269+68.40 (IA 175)
Turn-In Date: mmm yyyy

Sac County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. XXXX Design Sheet No. 1 of 1 FHWA No. XXXXXX

FILE NO. XXXXX	ENGLISH	DESIGN TEAM HNTB	Sac COUNTY	PROJECT NUMBER BRF-175-4(019)--38-81	SHEET NUMBER V.1

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FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **A.13**

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Roadway	IA 175			
PIN Number	24-81-175-010		**Submittal Date**	06/25/25
Project Number	BRF-175-4(019)--38-81			**Approval Date**
District	District 3	**Assistant District Engineer**	Shane Tymkowicz	
County	SAC		**or**	
Route	IA 175	**Office Director**		
Location	IA 175 bridge over High Street in Lake View, 1.9 miles east of county road M64.			
Work Type	Bridge replacement			
Segment Manager				
Designer	HNTB			

Design Manual Section 1C-1
Last Updated: 04-29-19

Urban Two-Lane Roadways (Urban Arterials)

Design Element		Preferred	Acceptable Criteria	Project Values
Design speed (mph)		The anticipated posted speed limit	30	40
Maximum superelevation rate (Refer to Section 2A-2)		4%	6%	N/A
Design lane width (ft)		12	11	12
Full depth paved width (ft)		Design lane width + curb and gutter unit or 14 feet for roadways with shoulders	Match design lane width	44'
Right turn lane (ft)		12	10	N/A
Left turn lane (ft)	With raised or painted median	12 ft + median	10 ft + median	N/A
	With depressed median	12	10	N/A
Two-way left turn lane		14	11	N/A
Parking lane width (ft)		10	7	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)	Shoulders	4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
	Curb and gutter units	Match pavement cross-slope	6% maximum	Match pavement
	Parking lanes	1% greater than pavement cross-slope	6% maximum	N/A
Curb type (See Section 3C-2)	Design speed ≤ 45 mph	6-inch standard	any shape	6 inch standard
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	10:1 for 4' then 3:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3:1
	Curbed roadways	2%	not steeper than 3:1	3:1
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Traverse Slopes	w/ drainage structures	8:1	6:1	N/A
	w/o drainage structures	10:1	6:1	N/A
Ditches (See Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	V-Ditches
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths (curbed or uncurbed) or design lane width + 3 ft each side (curbed) which ever is greater	design lane widths + effective shoulder widths or curb-to-curb width in curb and gutter section**	44
	Bridge length > 200 ft	design lane widths + effective shoulder widths (curbed or uncurbed) or design lane width + 3 ft each side (curbed) which ever is greater	design lane widths + 4 ft offset each side for roadways with shoulders or curb-to-curb width in curb and gutter section**	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	15
	Over railroad	23.3	23.3	N/A
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	HL-93
Level of Service		C	D	N/A

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Design year ADT = 2,900

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	3 (See Note 1)
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*Requires safety edge-Refer to Section 3C-6

Curbs should be located beyond the outer edge of the effective shoulder width in rural areas

Refer to Section 3C-2 for curb offsets in urban areas

Notes:

1. West shoulder width matches the bridge approach shoulder of 10' and terminates at the Madison Street intersection.
   East shoulder maintains a 10' width for 300' past the bridge, then tapers down to 3' to match the existing shoulder.

Roadway Design Speed (mph) = 40

Design Manual Section 1C-1
Last Updated: 04-29-19

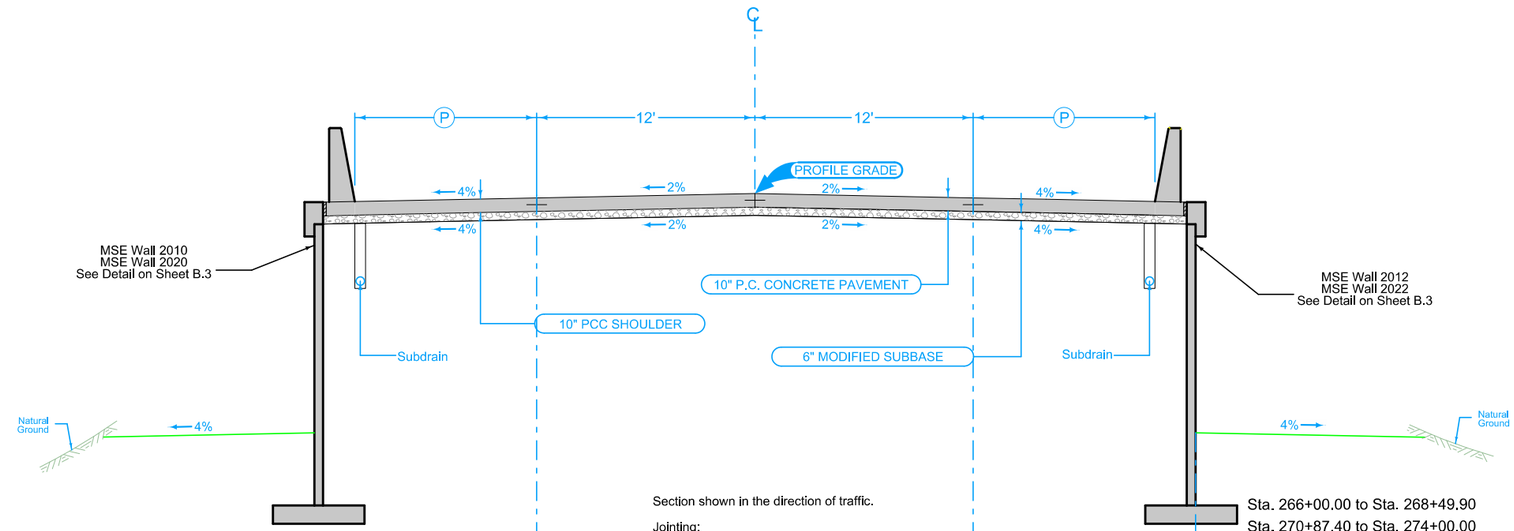
Design Criteria for Low Speed Roadways

Design Element			Preferred Criteria					Acceptable Criteria					Project Values
			Design Speed, mph					Design Speed, mph					
			25	30	35	40	45	25	30	35	40	45	
Stopping sight distance (ft) (Refer to Section 6D-1)			155	200	250	305	360	155	200	250	305	360	305
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	Method 2 superelevation and side friction distribution	e = 4% max	See Table 10 in Section 2A-3					--					N/A
	Method 5 superelevation and side friction distribution	e_{max} = 6%	144	231	340	485	643	144	231	340	485	643	485
		e_{max} = 8%	--	--	--	--	--	134	214	314	444	587	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)			75	90	105	120	135	75	90	105	120	135	120
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		12	19	29	44	61	12	19	29	44	61	44
	sag vertical curves	roadways without fixed-source lighting	26	37	49	64	79	26	37	49	64	79	64
		roadways with fixed-source lighting	26	37	49	64	79	14	20	27	35	44	64
Minimum gradient (%)	(Refer to Section 2B-1)		0.5					0.3% with a curb, 0.0% without a curb					0.5
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	5					--	9	8	8	7	N/A
		Rural roadways						--	--	--	6	6	5
Clear zone			See "Preferred Clear Zone" table in Section 8A-2					See "Acceptable Clear Zone" table in Section 8A-2					12' for 6:1

Full Depth Reinforced PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or BT-2
Transverse joints: Match Mainline

STATION TO STATION		(P) Feet
265+16.64	273+17.43	10
273+17.43	273+85.03	10-3
273+85.03	274+00.00	3

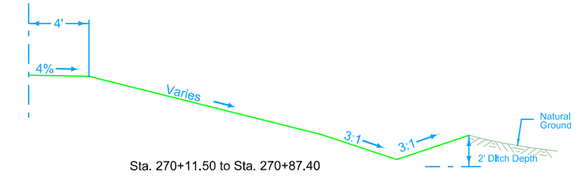


Section shown in the direction of traffic.

Jointing:
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2

BEGIN STATION	END STATION
266+72.00	268+49.40
270+87.40	274+00.00

Sta. 266+00.00 to Sta. 268+49.90
Sta. 270+87.40 to Sta. 274+00.00



Sta. 270+11.50 to Sta. 270+87.40

Full Depth Reinforced PCC Shoulder

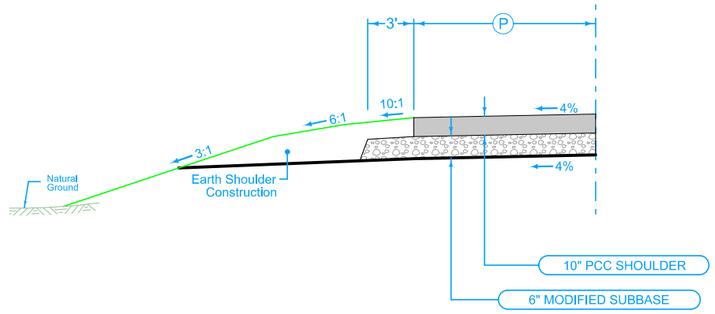
Shoulder Jointing:
Longitudinal joint: BT-2
Transverse joints: Match Mainline

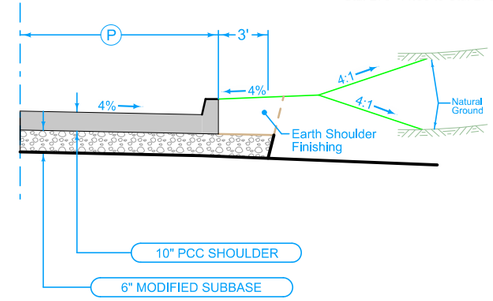
STATION TO STATION		(P) Feet
265+72.00	273+17.23	10
273+17.23	273+84.93	10-3
273+84.93	274+00.00	3

Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: BT-2
Transverse joints: Match Mainline

STATION TO STATION		(P) Feet
265+72.00	265+93.01	11.6





Full Depth PCC Curbed Shoulder

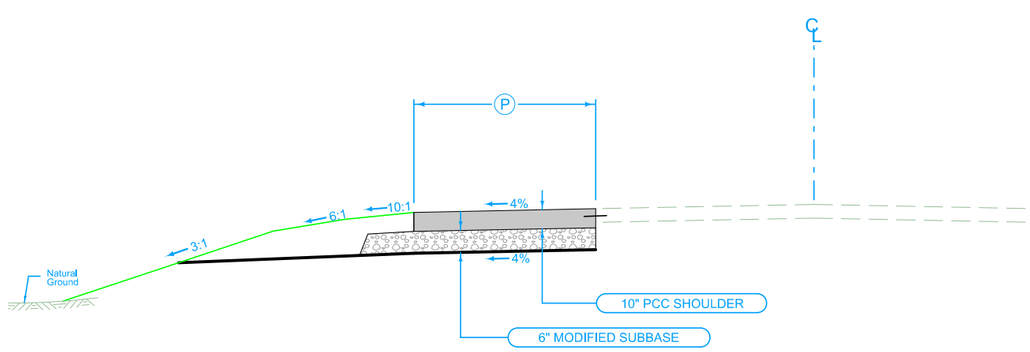
Shoulder Jointing:
Longitudinal joint: BT-2
Transverse joints: Match Mainline

STATION TO STATION		(P) Feet
265+05.30	265+17.58	12.8
265+17.58	266+52.83	12.8 - 11.5
266+52.83	266+93.00	11.5

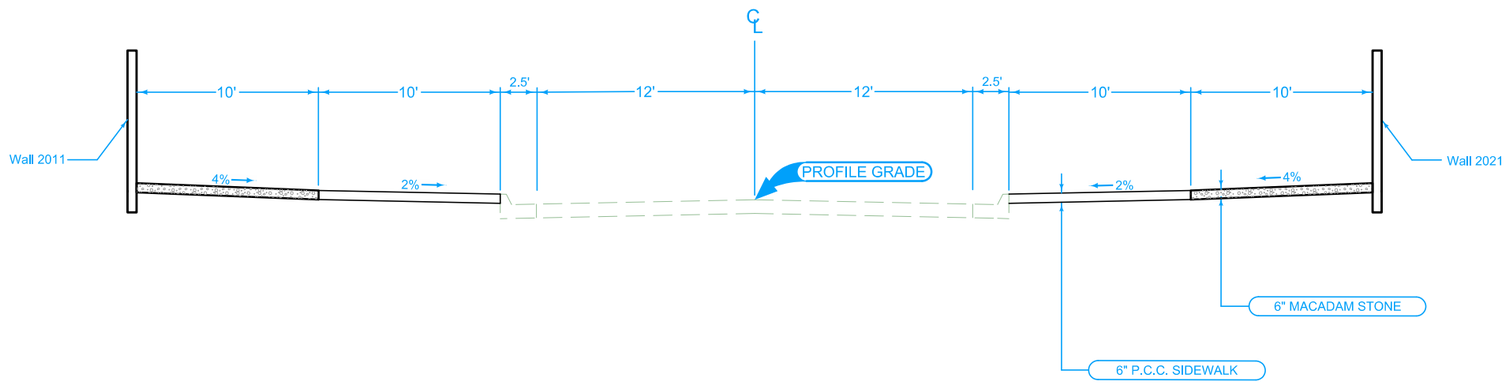
Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: BT-3
Transverse joints: Match Mainline

STATION TO STATION		(P) Feet
262+70.00	264+97.21	11.6
264+97.21	265+17.19	13.7
265+17.19	265+56.41	13.7 - 11.6
265+56.41	265+72.00	11.6



IA 175

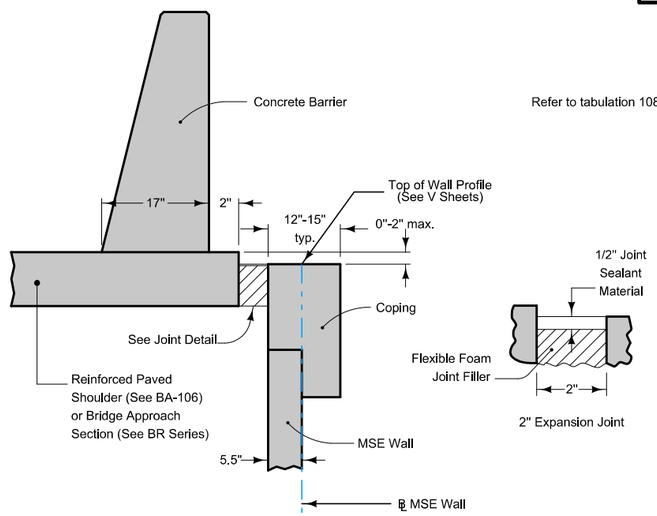


ROAD IDENTIFICATION	STATION TO STATION	
High Street	2269+43.35	2269+93.70

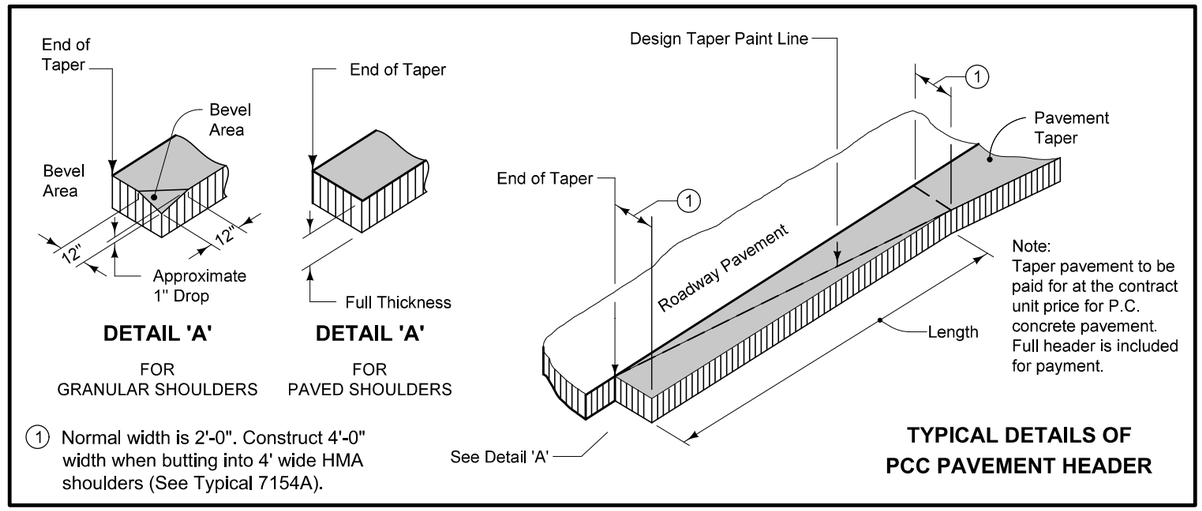
HIGH STREET

7101
10-19-10

8208
Modified



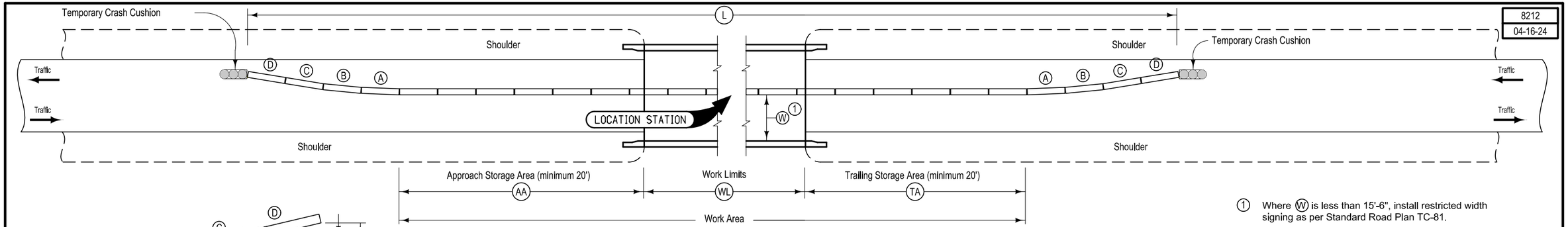
CONCRETE BARRIER WITH MSE WALL



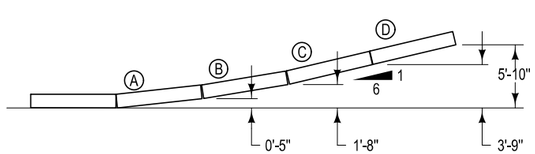
1 Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).

TYPICAL DETAILS OF PCC PAVEMENT HEADER

8212
04-16-24



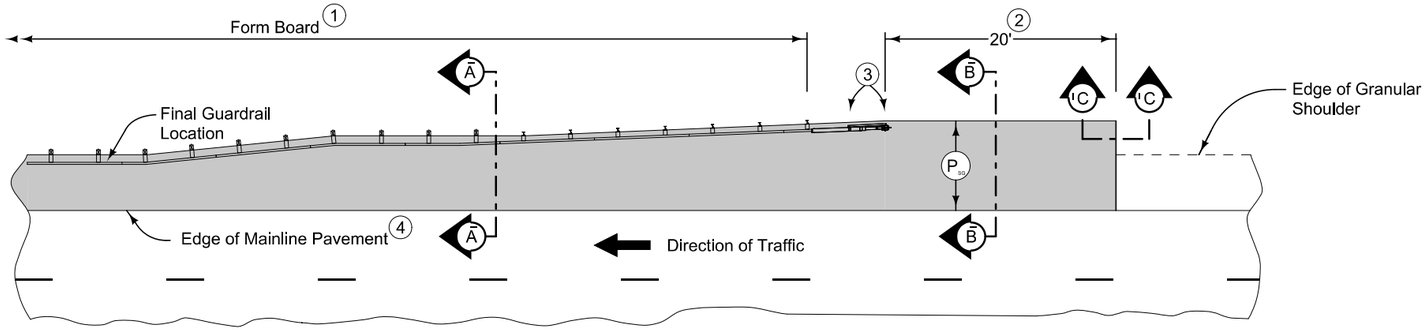
1 Where W is less than 15'-6", install restricted width signing as per Standard Road Plan TC-81.



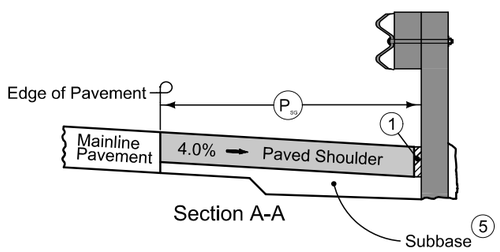
BARRIER OFFSETS FOR FLARE SECTIONS

TEMPORARY CONCRETE BARRIER LAYOUT
for Two-Way Traffic

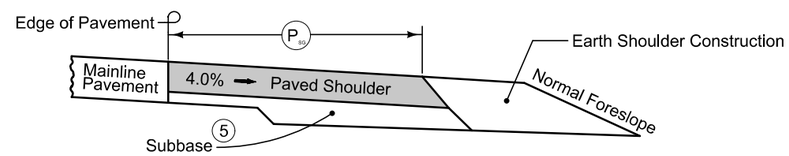
Station	Side	AA	WL	TA	L	Anchored	W 1	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
269+68.40	Both	38.7	828	80.2	1,013	X	12'-2"	Stage 1 - 81 Units
269+68.40	Both	25.9	828	67.7	1,000		12'-2"	Stage 2 - 80 Units



PLAN VIEW

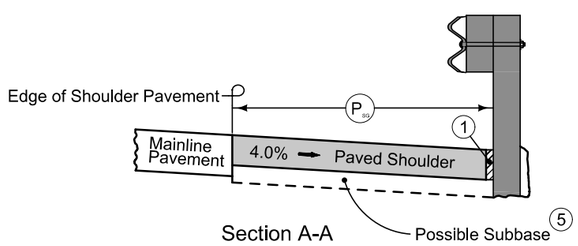


Section A-A

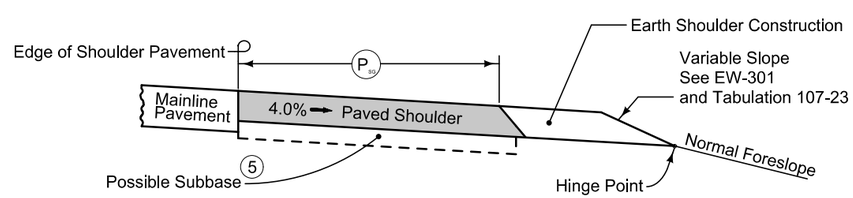


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

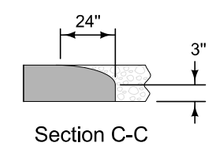
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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 C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

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
- WH Water Hydrant (Rural)
- Septic Tank
- Cistern
- L.P. Gas Tank (No Footing)
- Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

- FO -	Corn Belt Telephone Larry Neppl (712) 664-2221 cornbelt@netins.net
- T1 -	CenturyLink Sadie Hull (918) 547-0147 sadie.hull@lumen.com
- E1 - - W -	Lake View Municipal Utilities Jack DeBough (712) 657-2650 lvcity@iowatelecom.net
- G -	Black Hills Energy Council Bluffs Chris Dewey (712) 580-6028 chris.dewey@blackhillscorp.com
- FO2 -	Schaller Telephone Company Jim Kestel (712) 275-4211 locates@schallertel.net
- FO3 - - T2 -	Windstream Communications (800) 289-1901 LOCATE.DESK@WINDSTREAM.COM

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

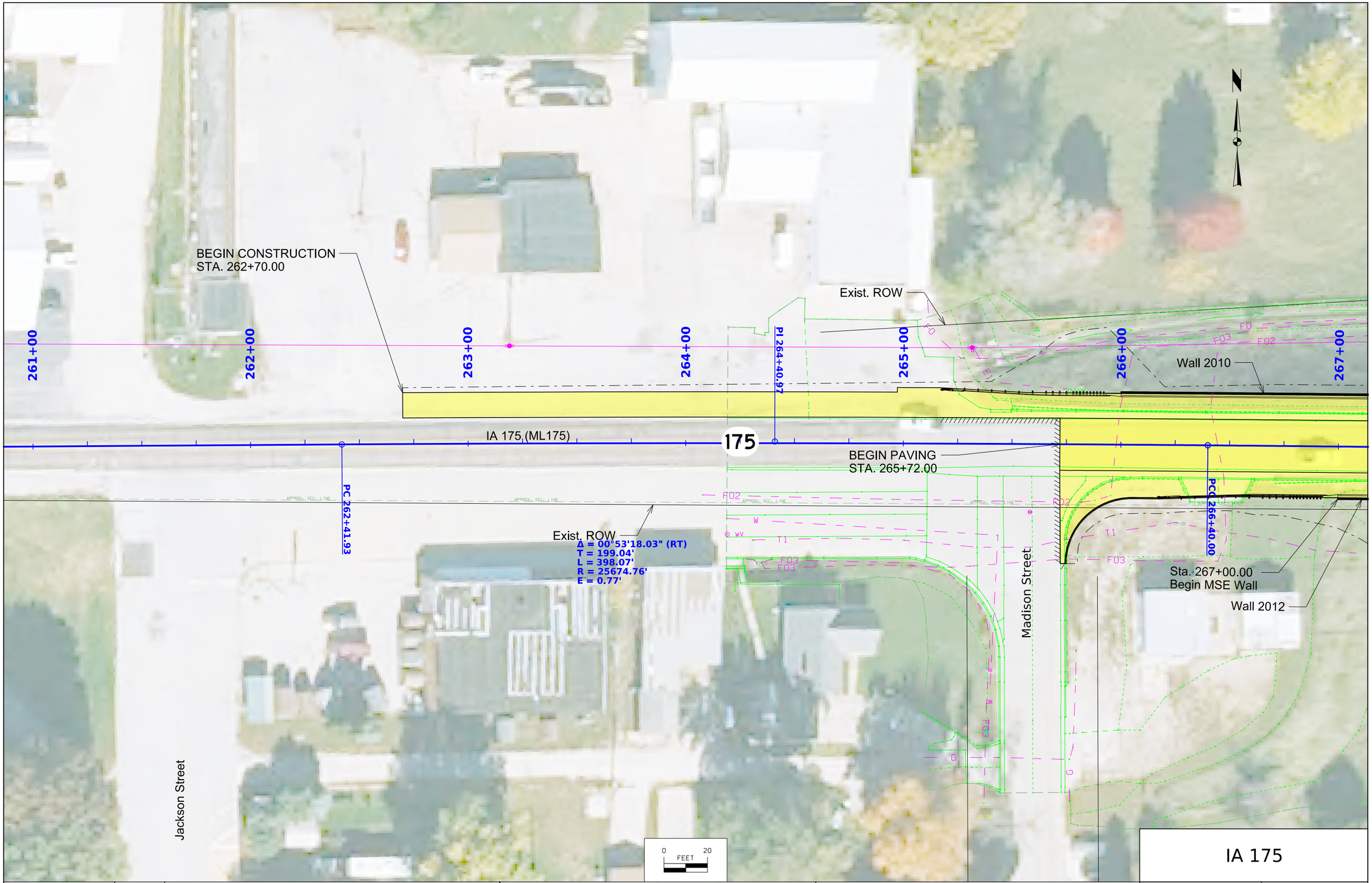
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

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
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D & E)



IA 175

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **D.2**

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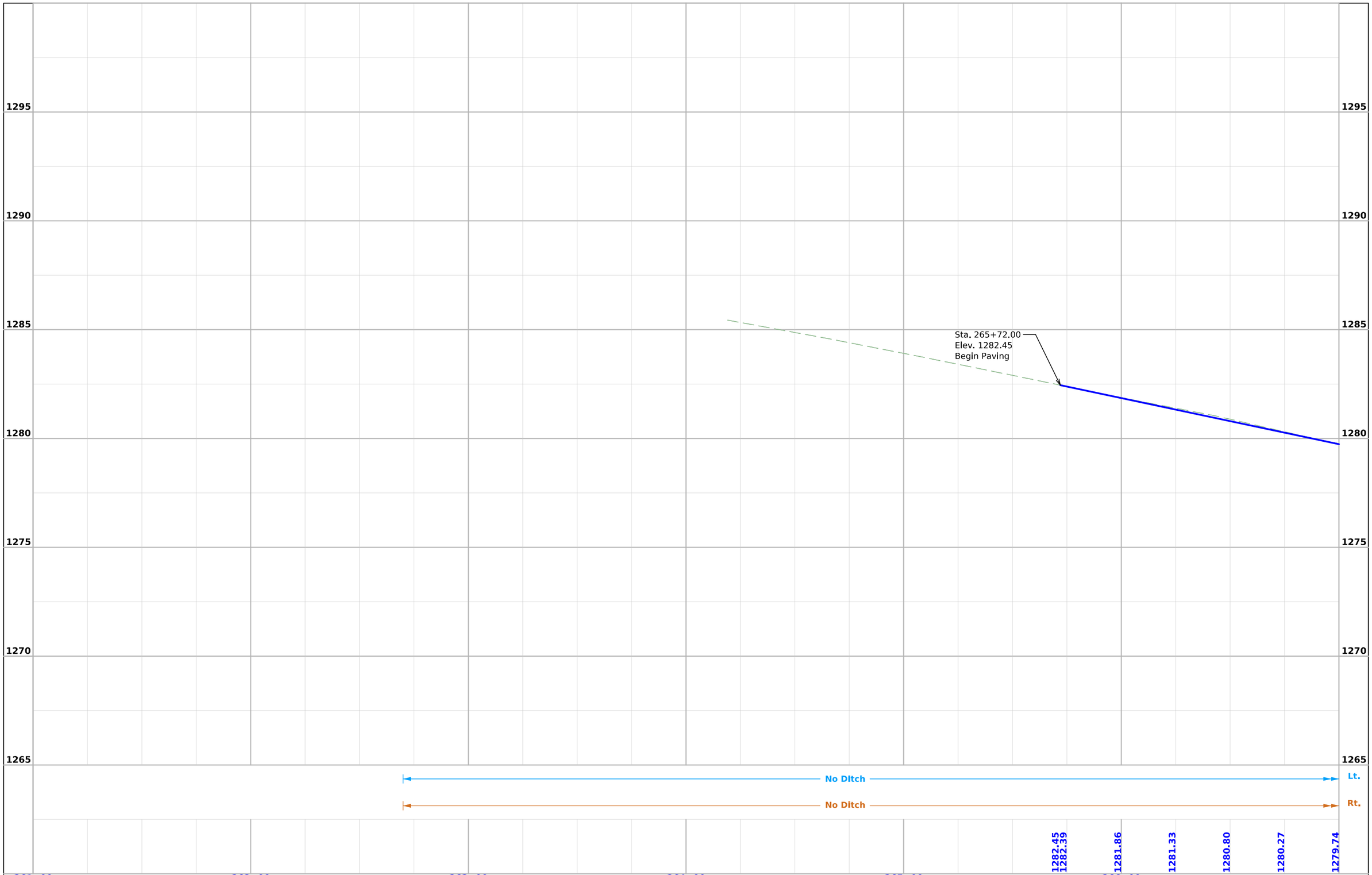

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Sta. 269+68.5
39.7'x48.0'
Conc. Arch Bridge
D.A.=Side Street

High Street

POT Sta. 269+68.52 (ML175) =
POT Sta. 2269+68.53 (SRHIGH)

Exist. ROW

Wall 2011

Wall 2010

Wall 2020

267+00

268+00

PI 268+04.20

269+00

270+00

271+00

272+00

273+00

IA 175 (ML175)

IA 175 (ML175)

175

Wall 2012

Wall 2021

Wall 2022

Exist. ROW

Δ = 00°30'01.12" (RT)
T = 164.20'
L = 328.40'
R = 37608.21'
E = 0.36'

PT 269+68.40

High Street

0 FEET 20

IA 175

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **D.4**

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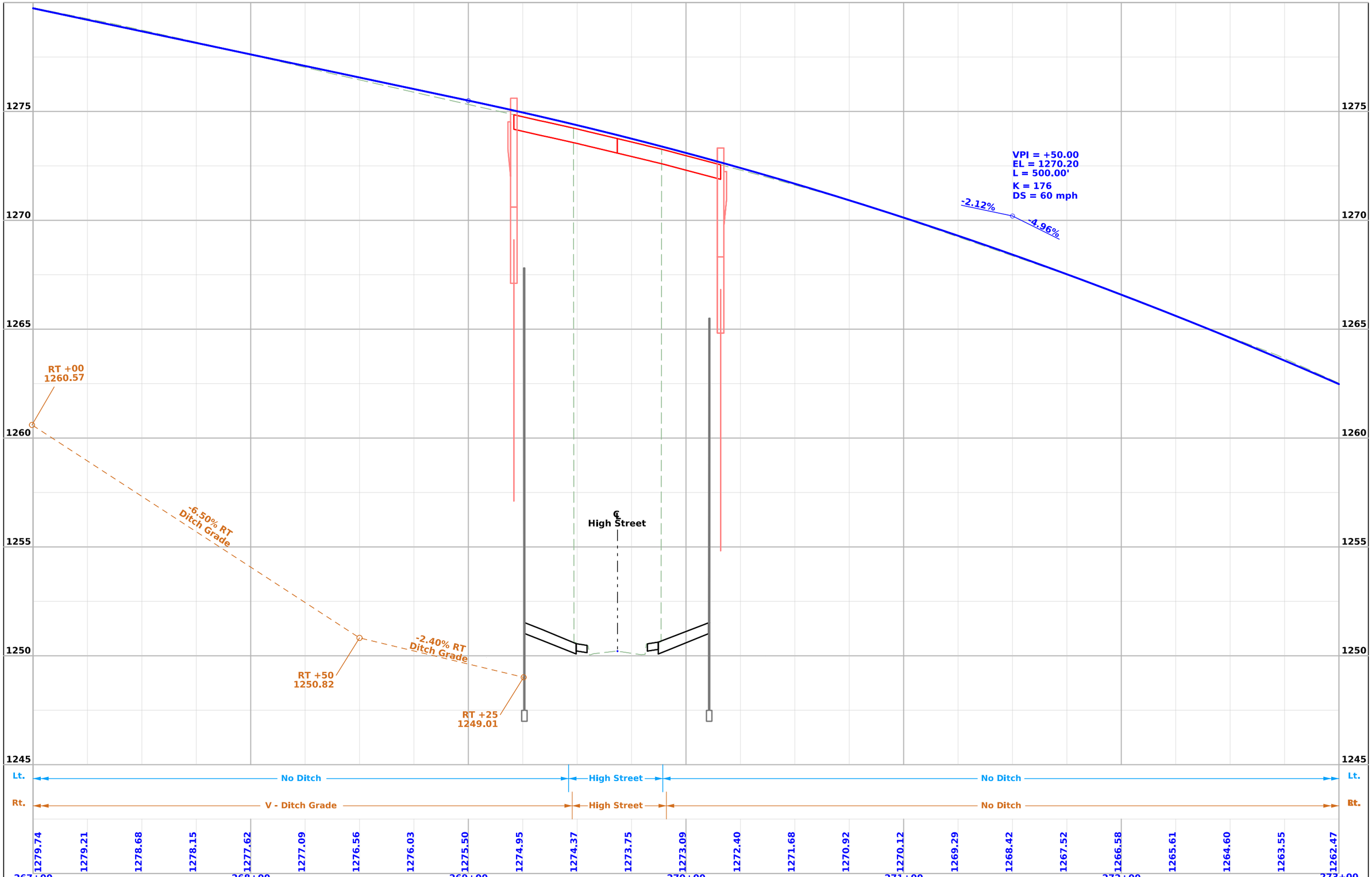

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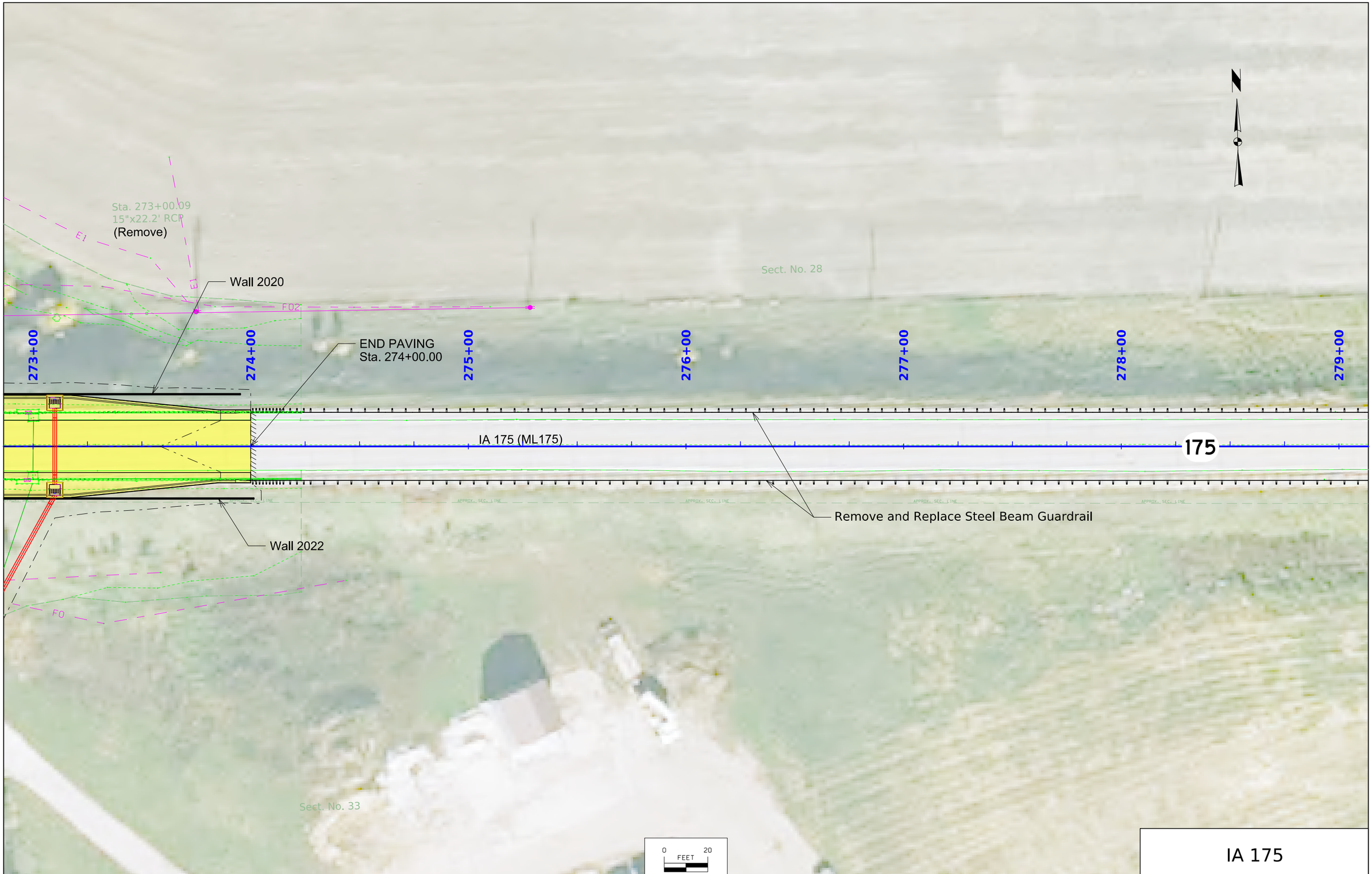

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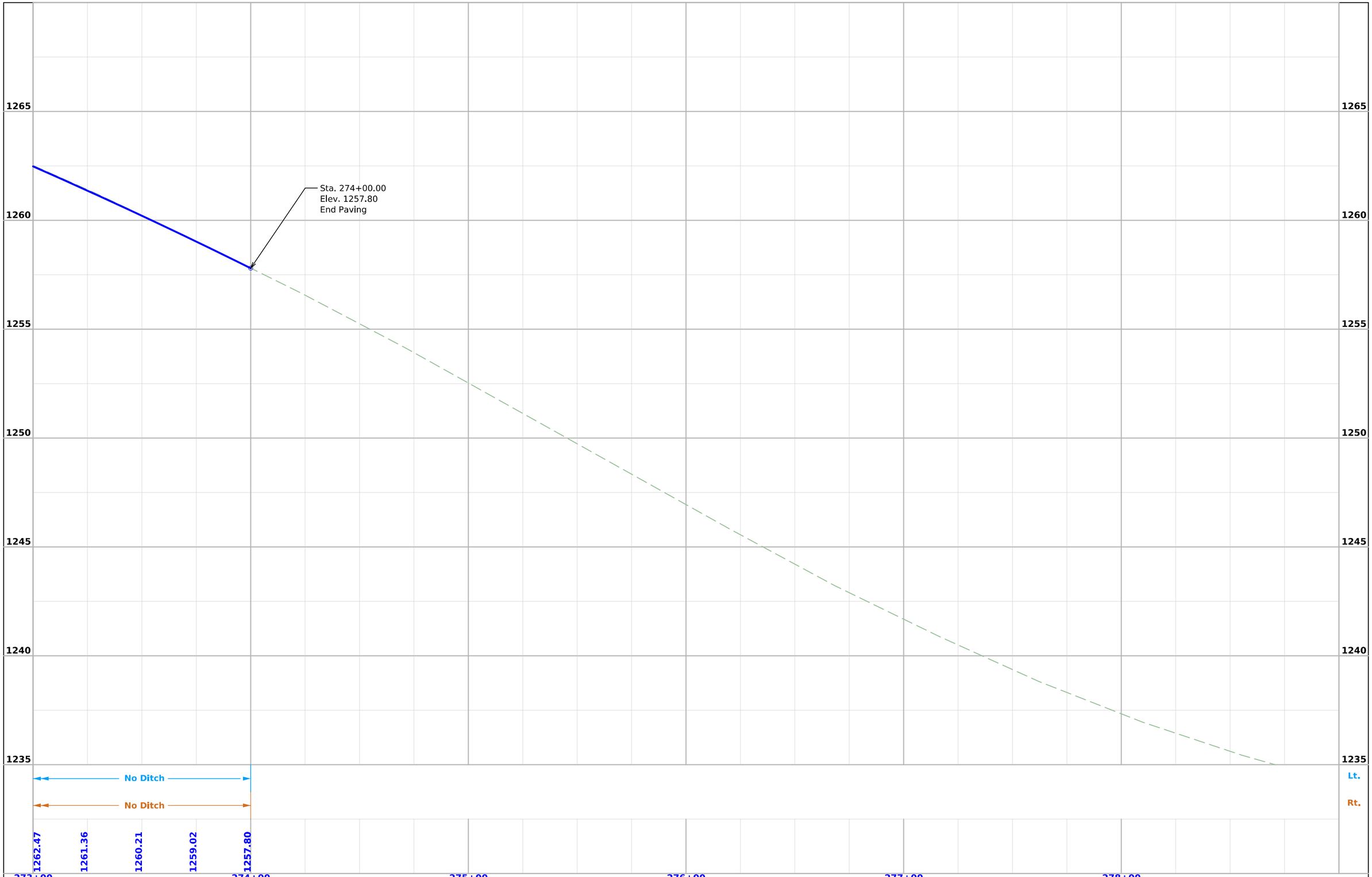

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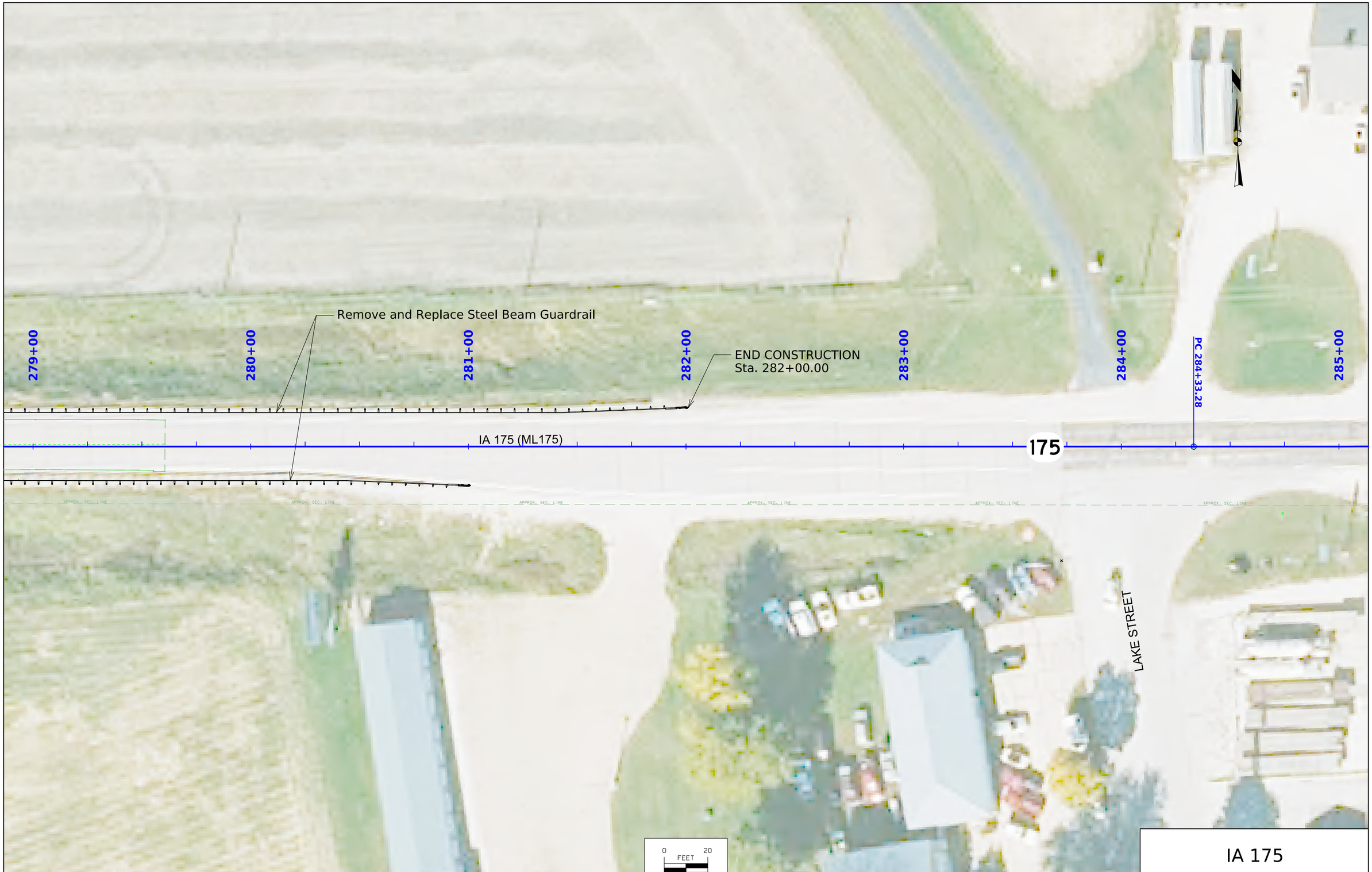

IA 175

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **D.8**

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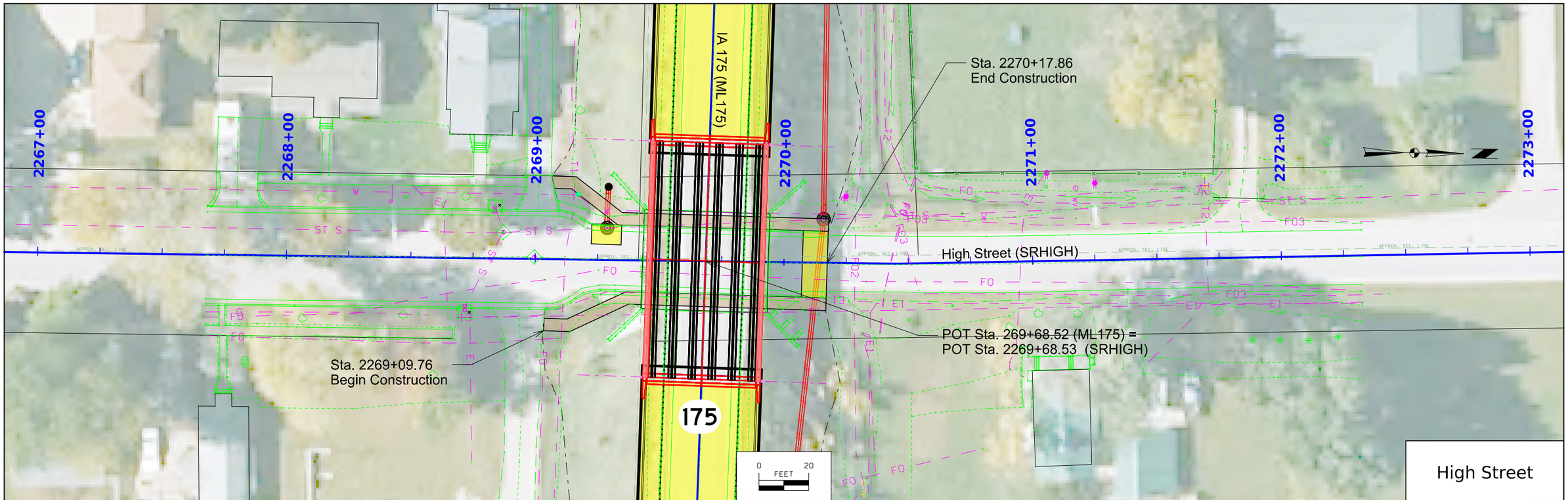

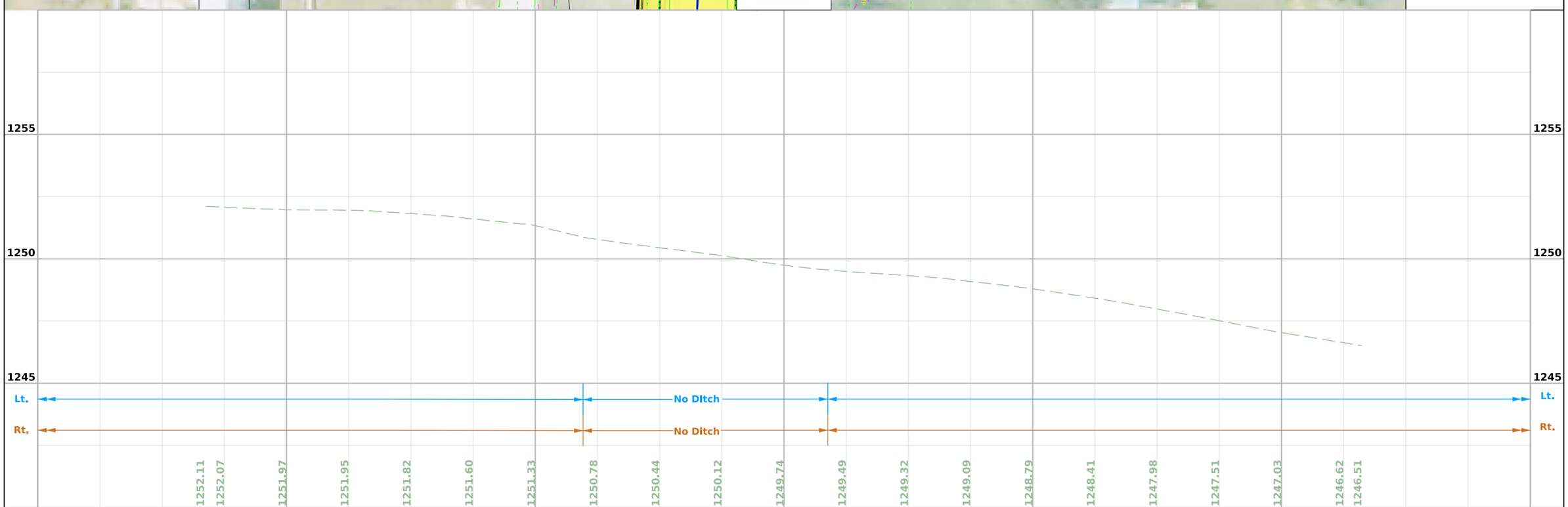

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SURVEY INDEX

County: Sac
PIN: 24-81-175-010
Project Number: BRF-175-4(019)—38-81
Location: IA 175 at the High Street intersection 1.9mi E of Co. Rd M64
Type of Work: Bridge Replacement
Project Directory: 8117501024

Survey Personnel

Daniel Duncan – Survey Party Chief

Date(s) of Survey

Begin Date	10/23/2024
End Date	1/30/2025

General Information

This survey is for IA Hwy 175 Bridge Replacement. 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

Coordinates were determined for primary project control points by conducting concurrent six-hour static observations. Post processing is constrained to nearby Iowa Real Time Network reference stations. 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 04 (U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment for Iowa Hwy. 175 this survey is a retrace of As-built Plans No. RRP-71-6(19)—48-81. Survey stationing was equated to the plan PI at Sta. 268+04.20 and carried back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 254+36.95 As-built Plans Project No. RRP-71-6(19)—48-81.
Survey PI Sta. 254+37.14

PI Sta. 264+40.83 As-built Plans Project No. RRP-71-6(19)—48-81.
Survey PI Sta. 264+40.97

PCC Sta. 266+40.00 As-built Plans Project No. RRP-71-6(19)—48-81.
Survey PCC Sta. 266+40.00

PI Sta. 268+04.20 As-built Plans Project No. RRP-71-6(19)—48-81.
Survey PI Sta. 268+04.20

PI Sta. 284+33.02 As-built Plans Project No. RRP-71-6(19)—48-81.
Survey PI Sta. 284+33.27

The horizontal alignment for Sac Co. Rte. M-68 (High St.) this survey is a retrace of As-built Plans No. RRP-71-6(19)—48-81. Survey stationing was equated to the plan PI at Sta. 2270+45.62 and carried back and ahead without equation throughout the survey.

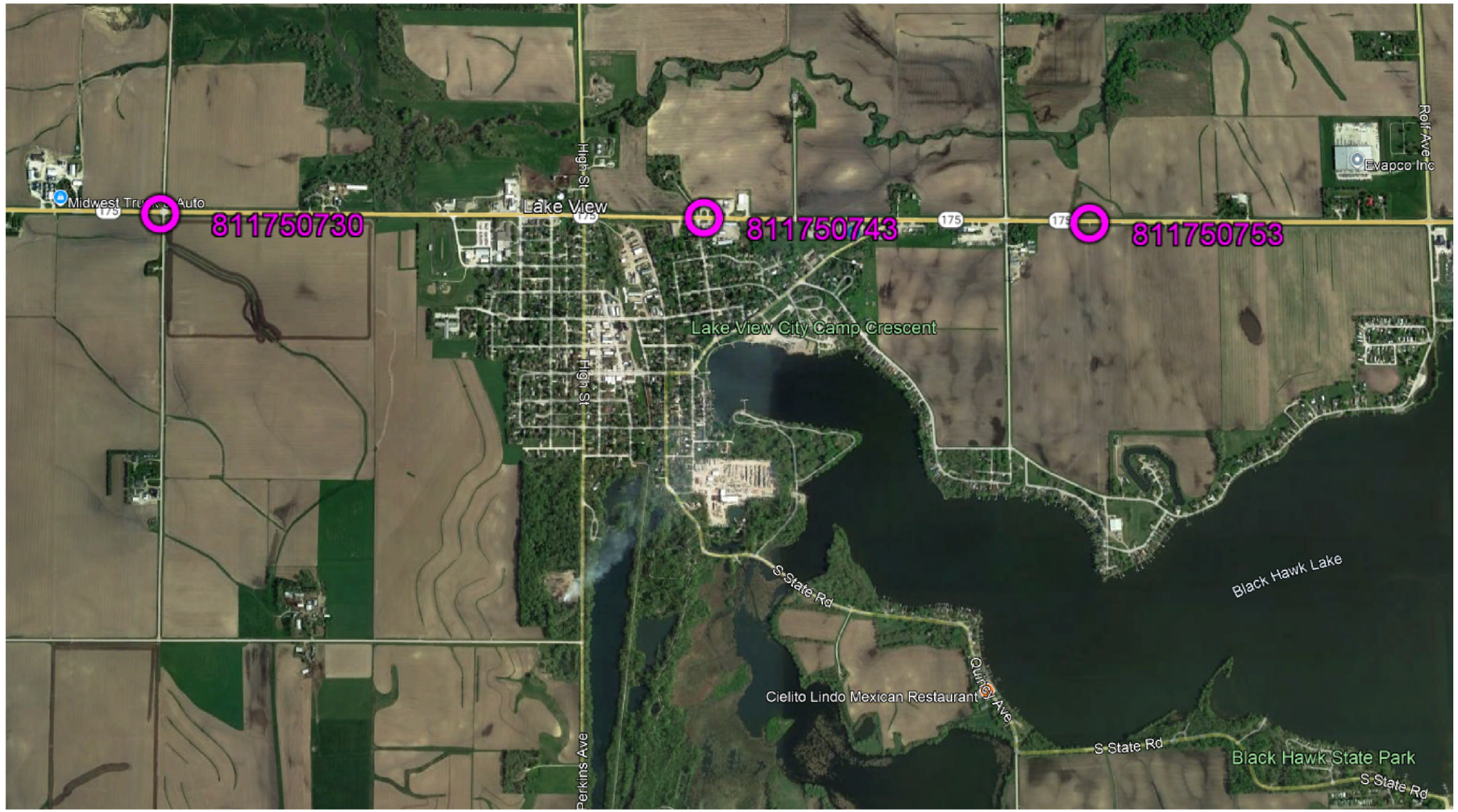
Survey stationing relates to as built plan stationing as follows:

PI Sta. 2270+45.62 As-built Plans Project No. RRP-71-6(19)—48-81.
Survey PI Sta. 2270+45.62

POT Sta. 2269+68.53 As-built Plans Project No. RRP-71-6(19)—48-81 = POT Sta. 269+68.53 (Main line) As-built Plans Project No. RRP-71-6(19)—48-81
Survey POT Sta. 2269+68.53 Co. Rte. M-68 (High St.) = Survey POT Sta. 269+68.52 Iowa Hwy. 175

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 04 (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 04 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Code-Description
811750730	8519172.31	14435419.70	1320.11	CP FND DOT ROW RAIL SET DIMP IN BALL
811750743	8519104.69	14442241.05	1227.92	CP FND 4X4 CM 4IN ABOVE GRADE SET DIMP IN REBAR
811750753	8519010.60	14447096.61	1227.62	CP SET FENO MON 3 INCHES DEEP

ALIGNMENT COORDINATES

Line No.	Name	Location	Point on Tangent Station	Point on Tangent Y Northing	Point on Tangent X Easting	Begin Spiral Station	Begin Spiral Y Northing	Begin Spiral X Easting	Begin Curve Station	Begin Curve Y Northing	Begin Curve X Easting	Simple Curve PI or Master PI Station	Simple Curve PI or Master PI Y Northing	Simple Curve PI or Master PI X Easting	End Curve Station	End Curve Y Northing	End Curve X Easting	End Spiral Station	End Spiral Y Northing	End Spiral X Easting
1.0	ML175	Point ML175_1	225+62.82	8519217.82	14436331.15															
2.0	ML175	Curve ML175_1							252+83.81	8519178.78	14439051.86	253+60.48	8519177.68	14439128.52	254+37.14	8529177.77	14439205.18			
3.0	ML175	Curve ML175_2							262+41.93	8519178.75	14440009.97	264+40.97	8519178.99	14440209.01	266+40.00	8519176.15	14440408.03			
4.0	ML175	Curve ML175_3							266+40.00	8519176.15	14440408.03	268+04.20	8519173.80	14440572.22	269+68.40	8519170.02	14440736.37			
5.0	ML175	Curve ML175_4							284+33.28	8519136.30	14442200.86	286+45.10	8519131.43	14442412.63	288+56.93	8519128.49	14442624.44			
6.0	ML175	Point ML175_2	310+83.30	8519097.60	14444850.60															
7.0	SRHIGH	Point SRHIGH_1	2264+68.53	8518670.02	14440736.02															
8.0	SRHIGH	Point SRHIGH_2	2270+45.62	8519247.11	14440736.57															
9.0	SRHIGH	Point SRHIGH_3	2275+45.62	8519746.88	14440721.59															
10.0	W2010	Curve RW_2010_1							201066+00.00	8519200.89	14440368.34	201066+20.02	8519200.64	14440388.36	201066+40.04	8519200.35	14440408.38			
10.0	W2010	Point RW_2010_1	201066+00.00	8519200.89	14440368.34															
11.0	W2010	Curve RW_2010_2							201066+40.04	8519200.35	14440408.38	201067+83.06	8519198.31	14440551.38	201069+26.08	8519195.18	14440694.37			
12.0	W2010	Point RW_2010_2	201069+26.08	8519195.18	14440694.37															
13.0	W2011	Point RW_2011_1	201169+45.24	8519146.77	14440693.32															
14.0	W2011	Point RW_2011_2	201169+93.66	8519195.18	14440694.37															
15.0	W2012	Point RW_2012_1	201267+00.00	8519151.04	14440467.64															
16.0	W2012	Curve RW_2012_1							201267+00.00	8519151.04	14440467.64	201268+12.86	8519149.24	14440580.48	201269+25.72	8519146.77	14440693.32			
17.0	W2012	Point RW_2012_2	201269+25.72	8519146.77	14440693.32															
18.0	W2020	Point RW_2020_1	202070+11.00	8519193.24	14440779.56															
19.0	W2020	Point RW_2020_2	202073+95.17	8519184.40	14441163.62															
20.0	W2021	Point RW_2021_1	202169+43.39	8519144.84	14440778.45															
21.0	W2021	Point RW_2021_2	202169+91.81	8519193.24	14440779.56															
22.0	W2022	Point RW_2022_1	202270+11.00	8519144.84	14440778.45															
23.0	W2022	Point RW_2022_2	202274+01.41	8519135.85	14441168.76															

SPIRAL OR CIRCULAR CURVE DATA

Line No.	Name	Location	SCS	S	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	C	T	L	R	E	Remarks
1.0	Curve ML175_1											0.582	76.667	153.332	9851.009	0.298	
2.0	Curve ML175_2											0.223	199.041	398.074	25674.757	0.772	
3.0	Curve ML175_3											0.152	164.2	328.398	37608.214	0.358	
4.0	Curve ML175_4											0.124	211.826	423.649	46312.537	0.484	
5.0	Curve W2010_1											0.223	20.021	40.041	25698.97	0.008	
6.0	Curve W2010_2											0.152	143.019	286.037	37632.423	0.272	
7.0	Curve W2012_1											0.152	112.859	225.718	37584.006	0.169	

108_23A
8/15/22

TRAFFIC CONTROL PLAN

Traffic Control for this project shall be in accordance with Iowa DOT Standard Road Plans and the following J sheets. For additional information, refer to part 6 of the Manual on Uniform Traffic Control Devices, Iowa DOT Standard Road Plan TC series and the current Standard Specifications.

IA 175: Maintain traffic on IA 175 in accordance with J sheets. Single lane closures shall be utilized for construction on each side of the bridge. Temporary signals will be installed to allow traffic to use the opposing lane throughout construction.

There are no lane closure restrictions for IA 175 construction. All lane closures shall be submitted and approved a minimum of 14 days prior to the traffic control change.

Sideroads: Madison Street and High Street will have closures during both stages of construction. Access to Jackson Street shall be maintained at all times. The contractor shall coordinate closures with Sac County a minimum of 14 days in advance of closure. Sac County will install, furnish, maintain, and remove detour signing for High Street and Madison Street or any road closures necessary during construction.

Refer to Tab 108-26A for Staging Notes.

Use portable dynamic message signs (PDMS) in conjunction with traffic control and detour signage. Contractor shall provide PDMS and messages. Locations and messages shall be coordinated with the Traffic Management Center and Engineer. PDMS shall be used for 14 days prior to the lane closures on IA 175.

PDMS shall be used for 14 days prior to closing High Street.

511 TRAVEL RESTRICTIONS

Line No.	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

STAGING NOTES

Stage 1:

Traffic:

IA 175: Maintain traffic on IA 175 in accordance with J Sheets. Maintain two-way traffic in the eastbound lane using temporary traffic signals and temporary barrier rail in accordance with Standard Road Plan TC-217.

Sideroads: Close High Street during bridge construction in accordance with Standard Road Plan TC-252. Maintain access to local driveways. Close Madison Street at IA 175. Access to IA 175 from Jackson Street shall be maintained.

Construction: Remove the northern half of the existing arch structure. Install temporary shoring to construct the northern half of bridge, bridge approach, and pavement lane. Construct paved shoulder at guardrail and install guardrail to protect Wall 2010. Construct Walls 2010, 2020, and northern half of Walls 2011 and 2021. Remove and replace guardrail on the north side.

Stage 2:

Traffic:

IA 175: Maintain traffic on IA 175 in accordance with J Sheets. Maintain two-way traffic in the newly constructed westbound lane using temporary traffic signals and temporary barrier rail in accordance with Standard Road Plan TC-217.

Sideroads: Close High Street during bridge construction in accordance with Standard Road Plan TC-252. Maintain access to local driveways. Close Madison Street at IA 175. Access to IA 175 from Jackson Street shall be maintained.

Construction: Remove the southern half of the existing arch structure. Install temporary shoring to construct the southern half of bridge, bridge approach, and pavement lane. Construct paved shoulder at guardrail and install guardrail to protect Wall 2012. Construct Walls 2012, 2022, and southern half of Walls 2011 and 2021. Remove and replace guardrail on the south side.

Final:

Traffic: Open IA 175 and High Street to all traffic.

Set up pavement marking operations utilizing Standard Road Plan TC-233.

Construction: Complete final pavement marking.

111_01
10/14/22

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

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

Pavement Removal	Proposed Granular Shoulder
Proposed Granular Subbase	Temporary Shoulder
Proposed Special Backfill	Existing Shoulder Strengthening
Temporary Barrier Rail, Unpinned	Temporary Barrier Rail, Pinned
	Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

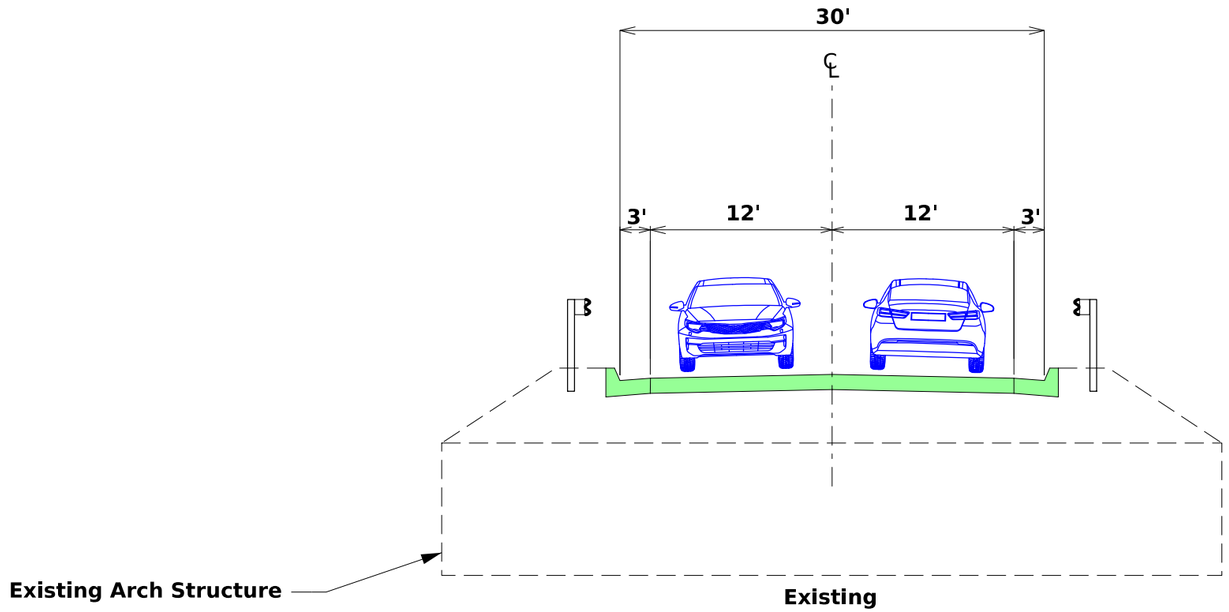
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

Channelizing Device	Crash Cushion (Temp or Perm)
Drum	Traffic Signal
Temporary Lane Separator	Flagger
Tubular Marker	Temporary Floodlighting
Channelizer Marker	Traffic Sign
Concrete Barrier Marker	Type III Barricade
Delineator	Type A Warning Light
Temporary Barrier Rail	Direction of Traffic
Pavement Removal	Safety Closure
Sand Barrel Layout	Lane Identification

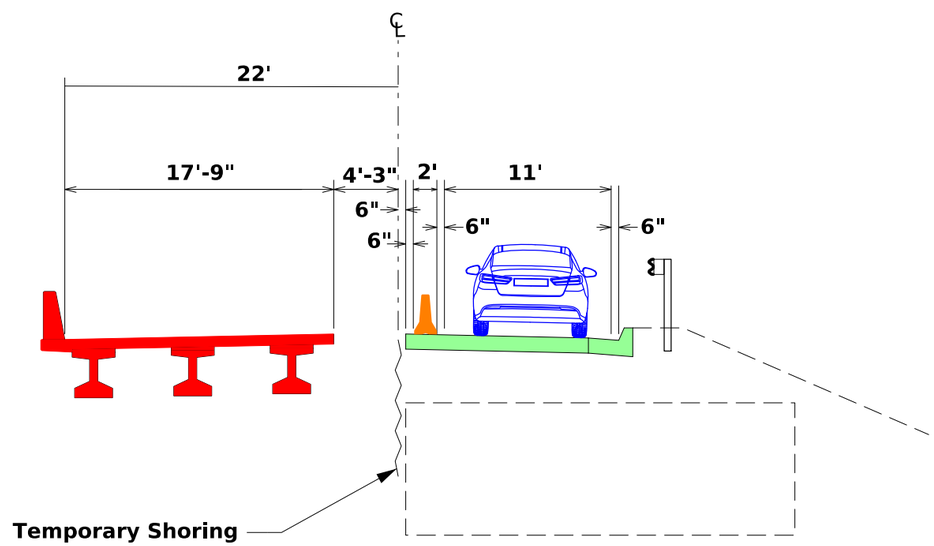
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

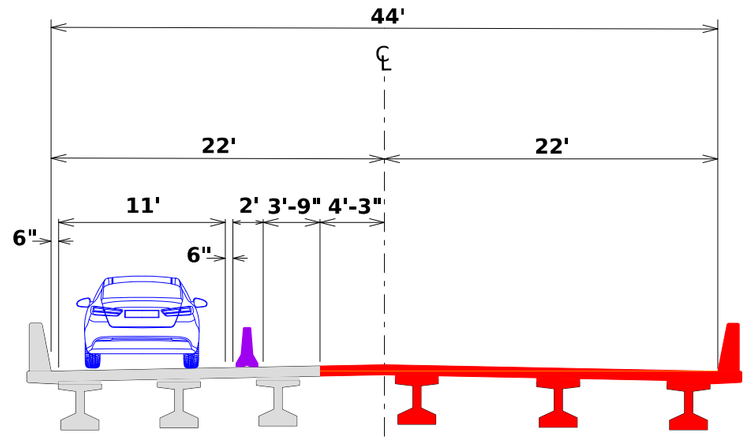
(COVERS SHEET SERIES J)



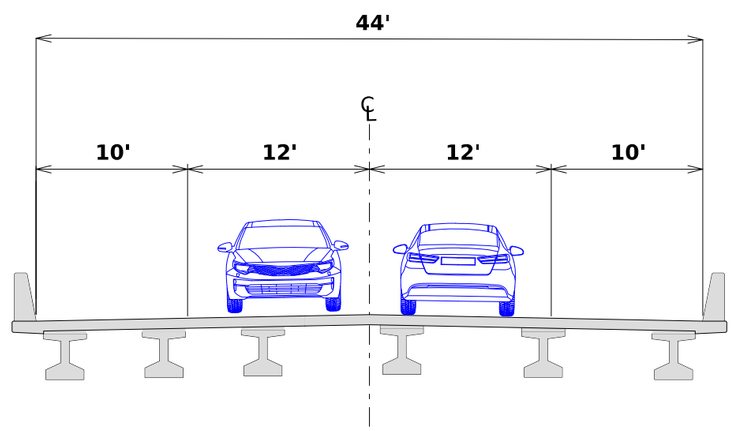
Existing
IA 175 (Looking East)
Sta. 265+34.12 to Sta. 274+23.19



Stage 1
IA 175 (Looking East)
Sta. 265+23 to Sta. 273+95



Stage 2
IA 175 (Looking East)
Sta. 265+23 to Sta. 273+95



Final
IA 175 (Looking East)

Stage 1

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **J.8**

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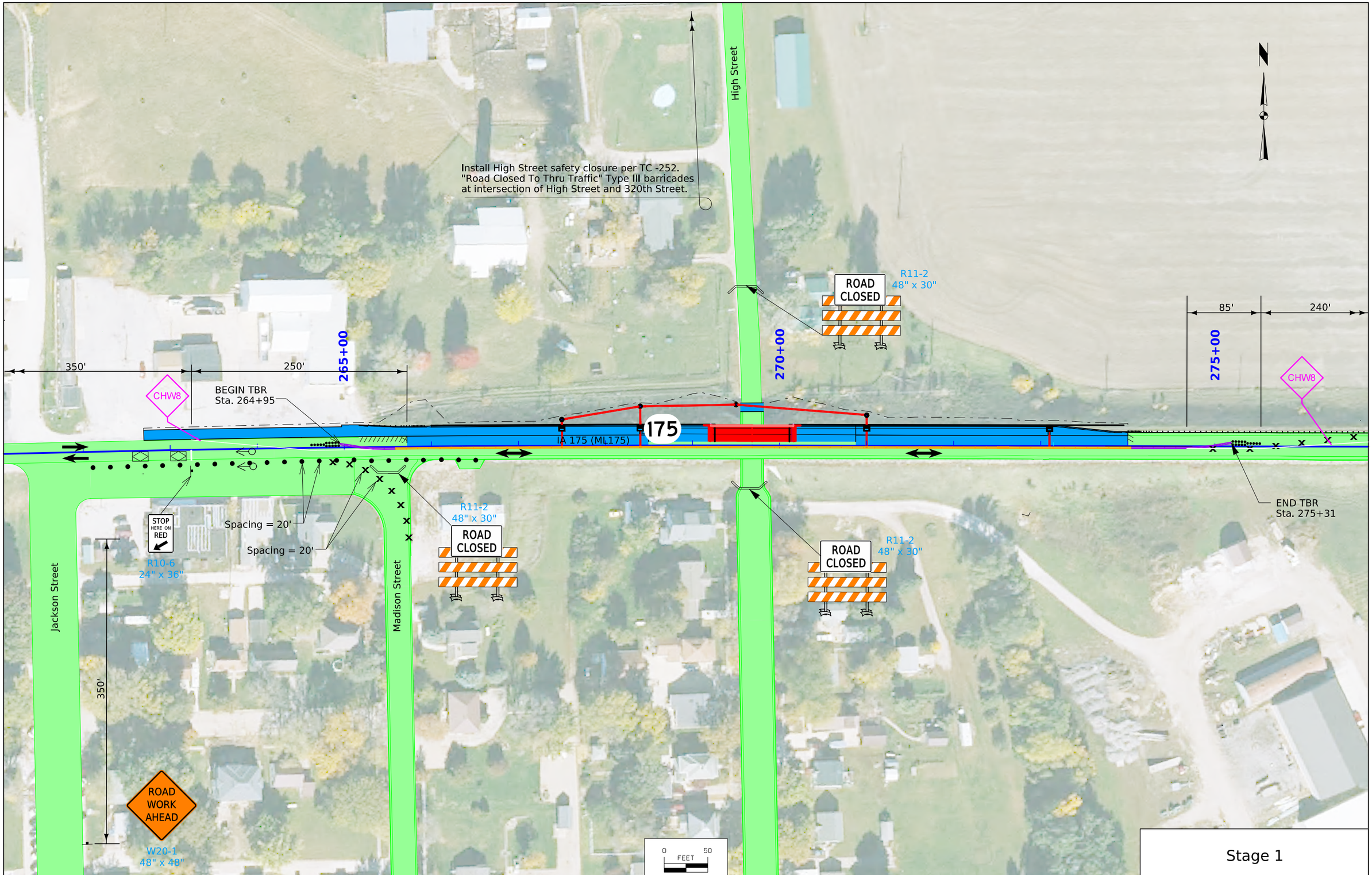

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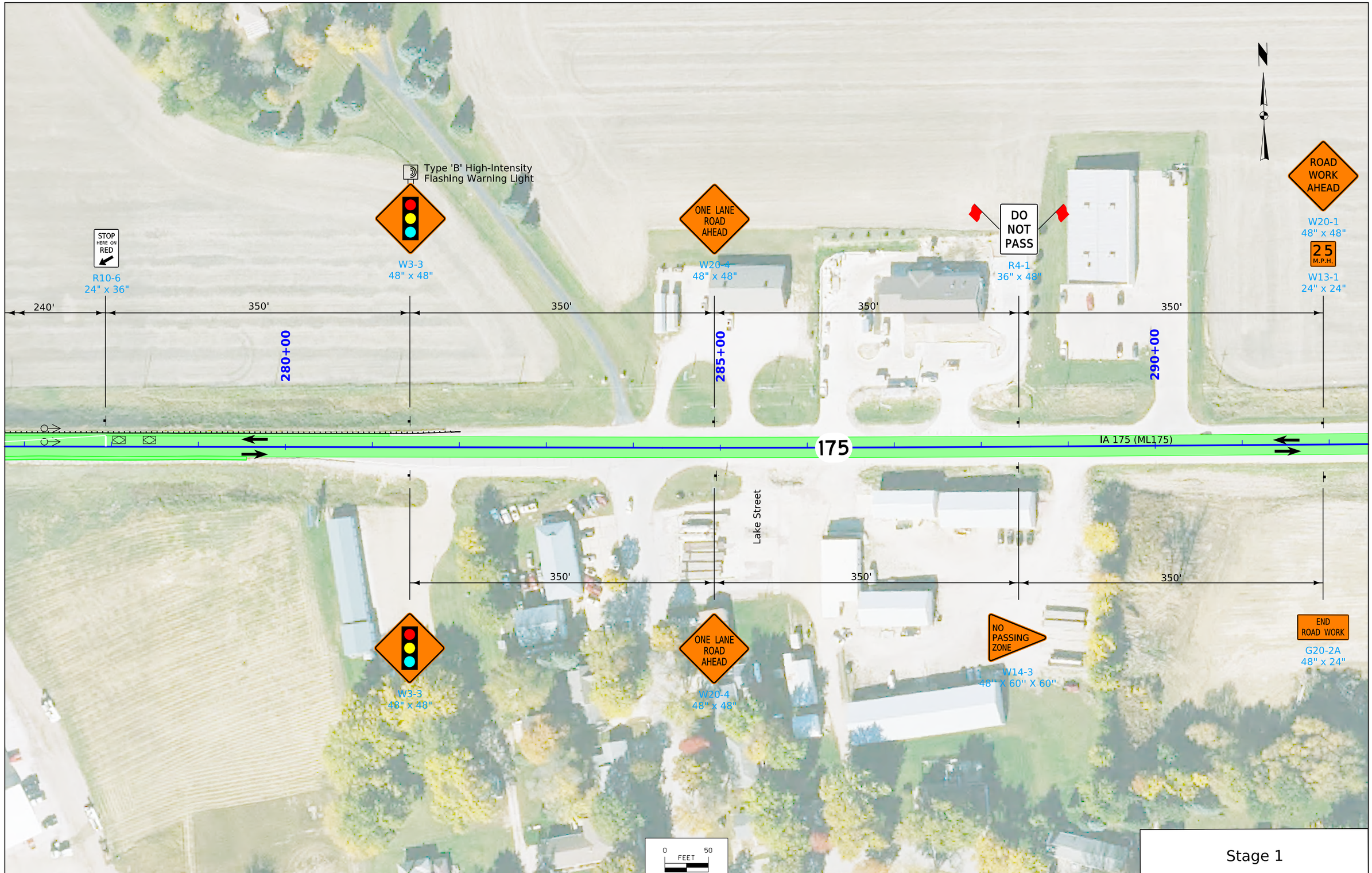

Stage 1

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **J.10**

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END ROAD WORK
G20-2A
48" x 24"

NO PASSING ZONE
W14-3
48" X 60" X 60"

ONE LANE ROAD AHEAD
W20-4
48" x 48"

W3-3
48" x 48"

350' 350' 350'

250+00

255+00

260+00

IA 175 (ML175)

175

350' 350' 350' 350'

ROAD WORK AHEAD
W20-1
48" x 48"

25 M.P.H.
W13-1
24" x 24"

DO NOT PASS
R4-1
36" x 48"

ONE LANE ROAD AHEAD
W20-4
48" x 48"

W3-3
48" x 48"

0 50
FEET

Stage 2

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **J.11**

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Install High Street safety closure per TC -252.
"Road Closed To Thru Traffic" Type III barricades
at intersection of High Street and 320th Street.

High Street

ROAD CLOSED
R11-2
48" x 30"

85'
240'

270+00
275+00
280+00

190'
85'

CHW8
BEGIN TBR
Sta.264+96

IA 175 (ML175)

175

350'

STOP HERE ON RED
R10-6
24" x 36"

Spacing = 20'
Spacing = 20'

Jackson Street

Madison Street

R11-2
48" x 30"
ROAD CLOSED

ROAD CLOSED
R11-2
48" x 30"

END TBR
Sta. 275+19

350'

ROAD WORK AHEAD
W20-1
48" x 48"

0 50
FEET

Stage 2

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT / HNTB	SAC COUNTY	PROJECT NUMBER BRF-175-4(019)--38-81	SHEET NUMBER J.12

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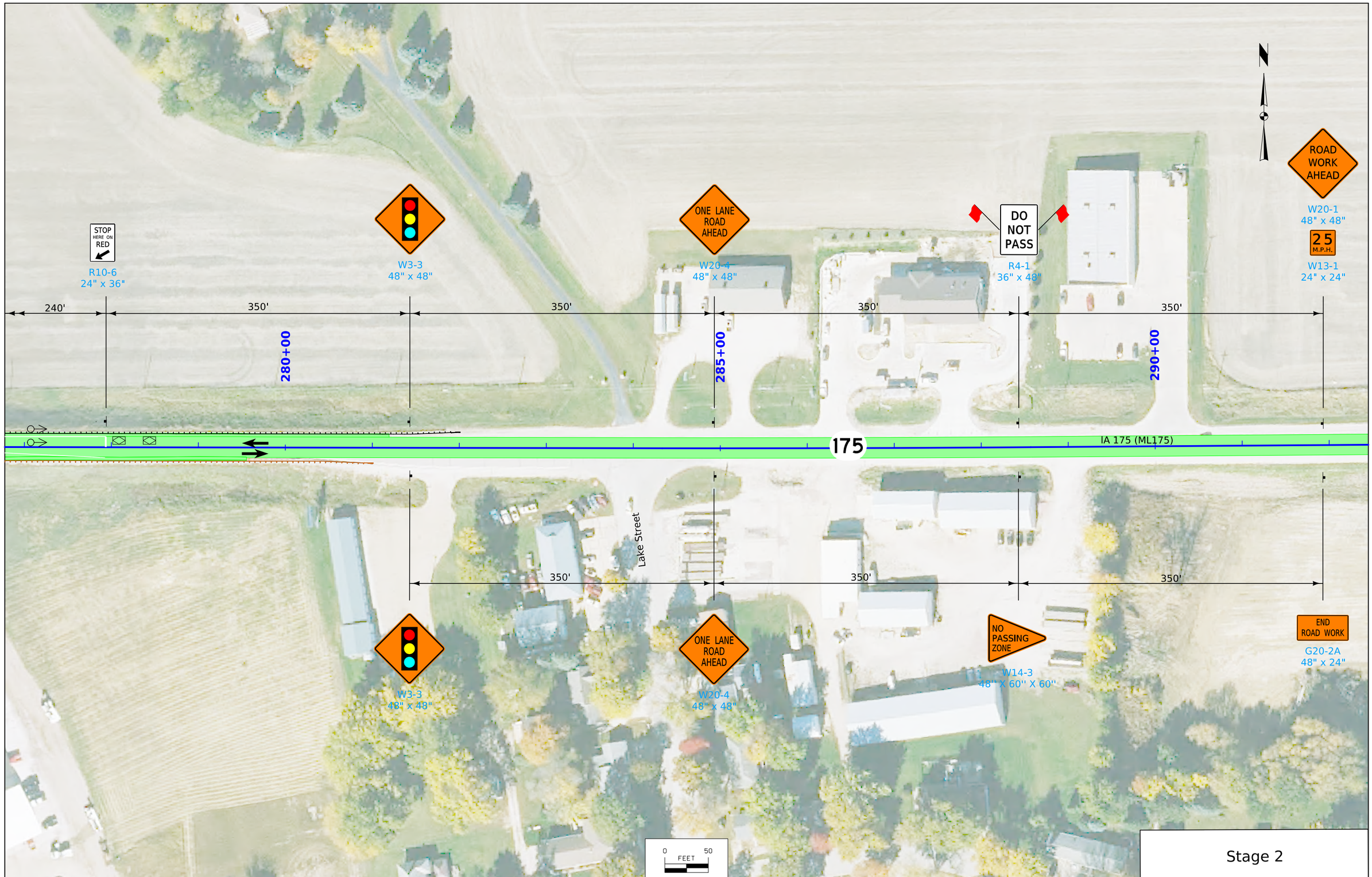

Stage 2

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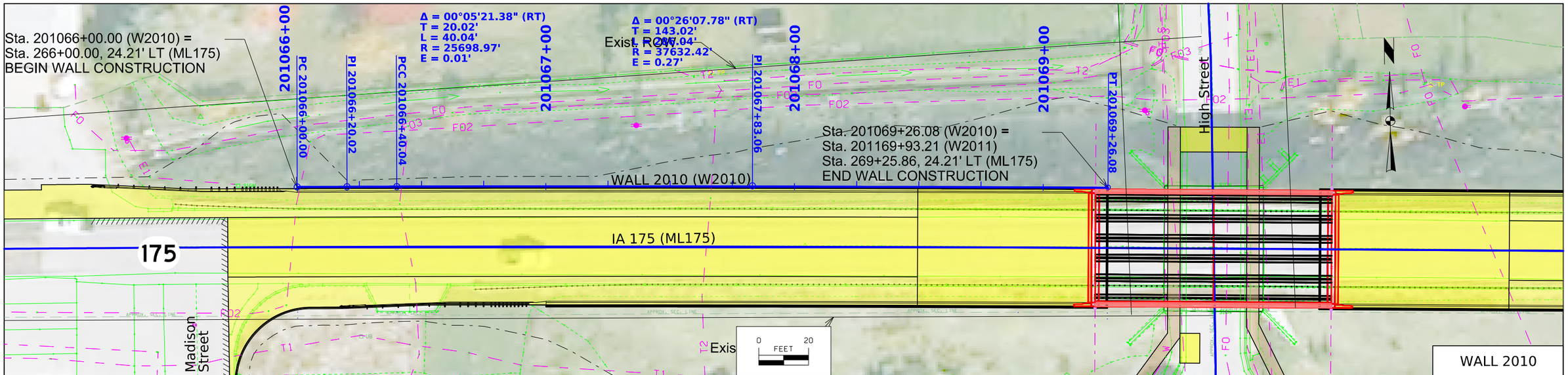
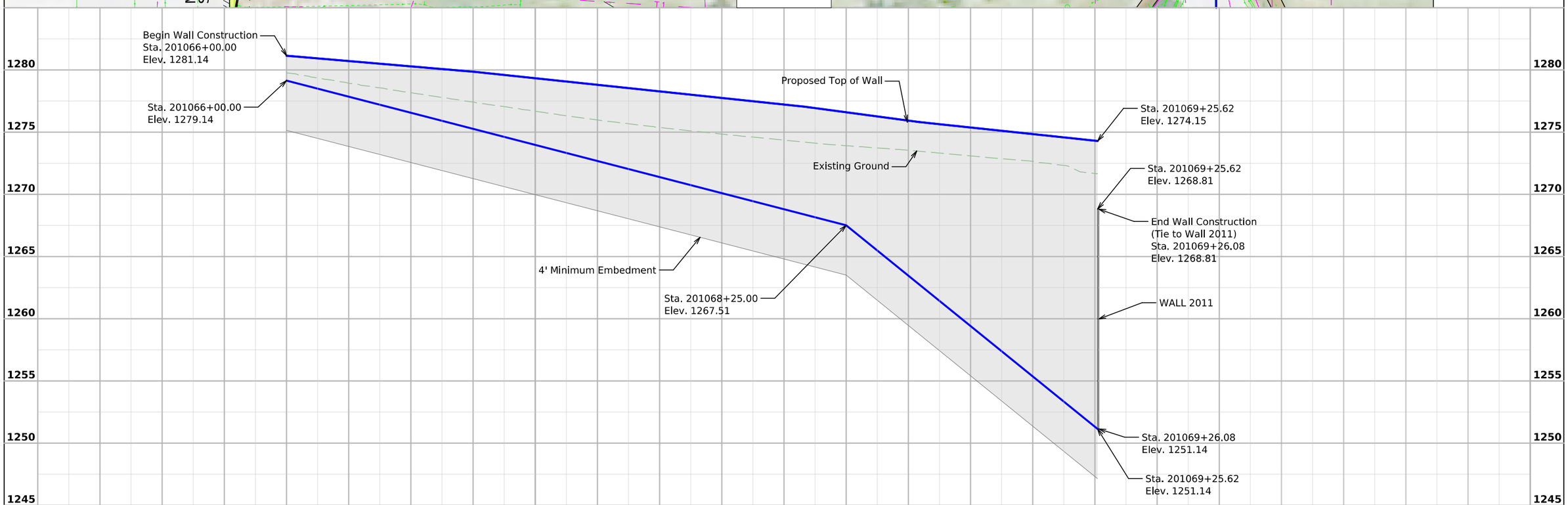
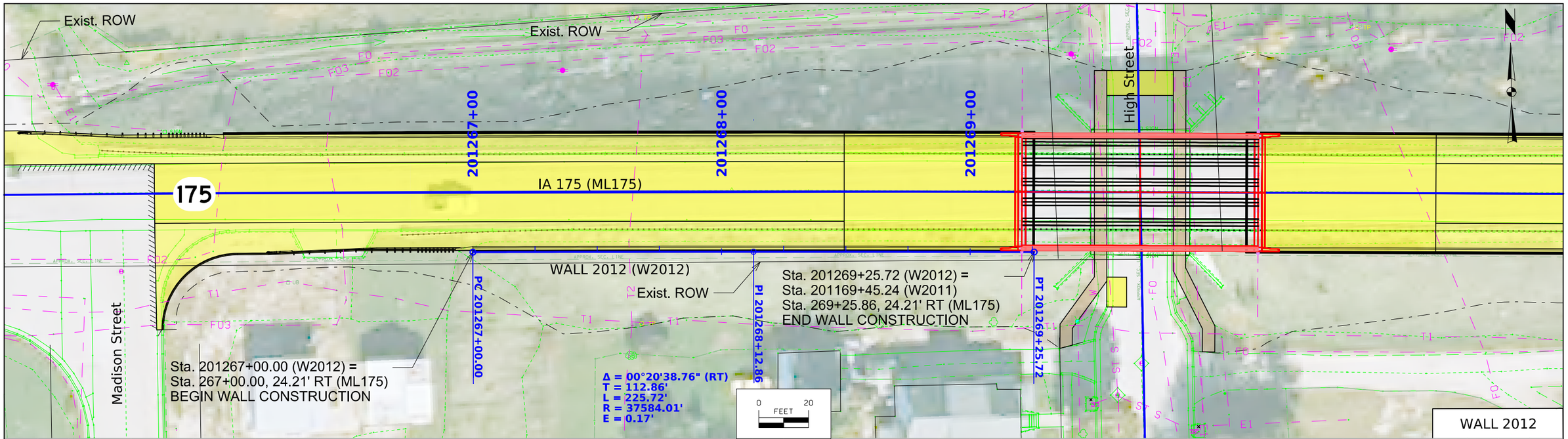
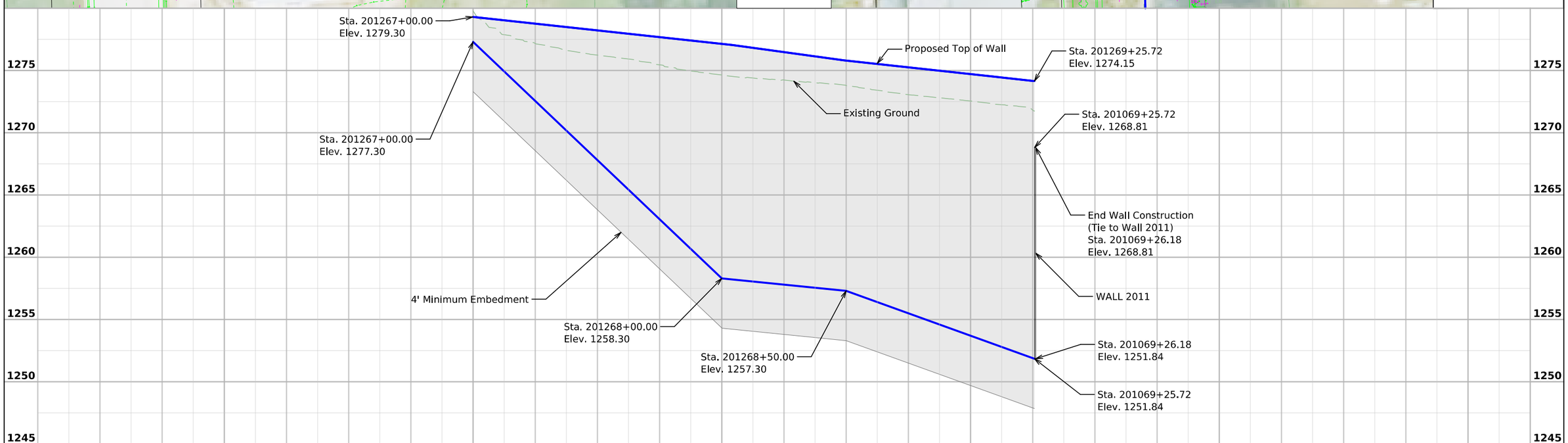




Proposed Top of Wall Elevations	1281.14	1280.71	1280.28	1279.85	1279.33	1278.80	1278.27	1277.74	1277.21	1276.59	1275.93	1275.37	1274.85	1274.31
Proposed Ground Elevations at Face of Wall	1279.14	1277.85	1276.56	1275.26	1273.97	1272.68	1271.39	1270.10	1268.80	1267.51	1263.46	1259.41	1255.36	1251.32

MSE WALL 2010	
Area	**4,207 sf**
Granular Backfill, MSE Wall	**2,200 tons**

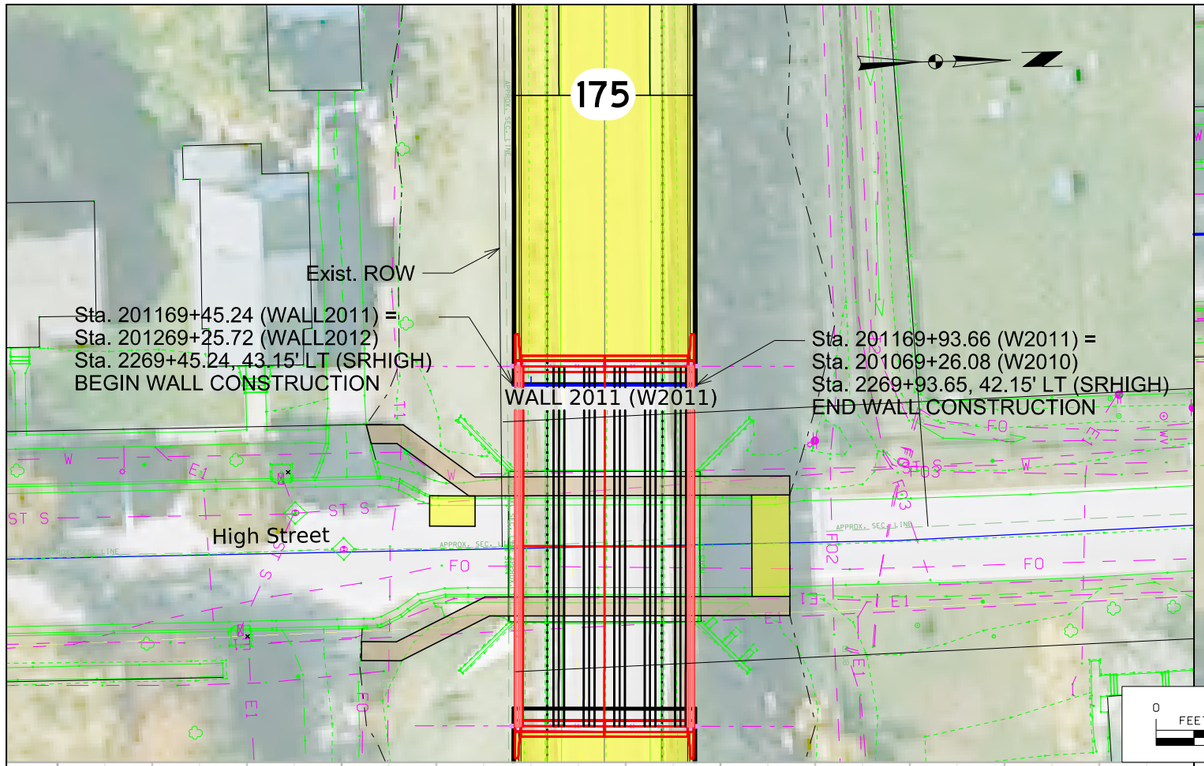


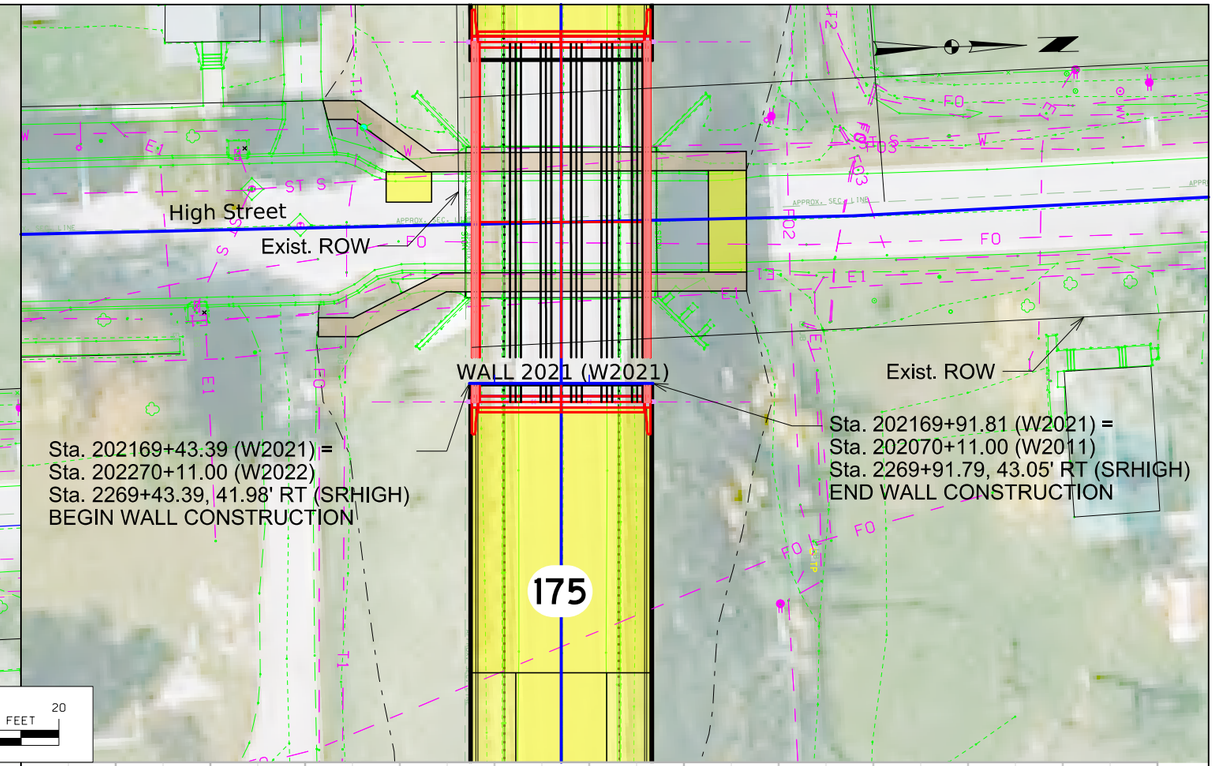


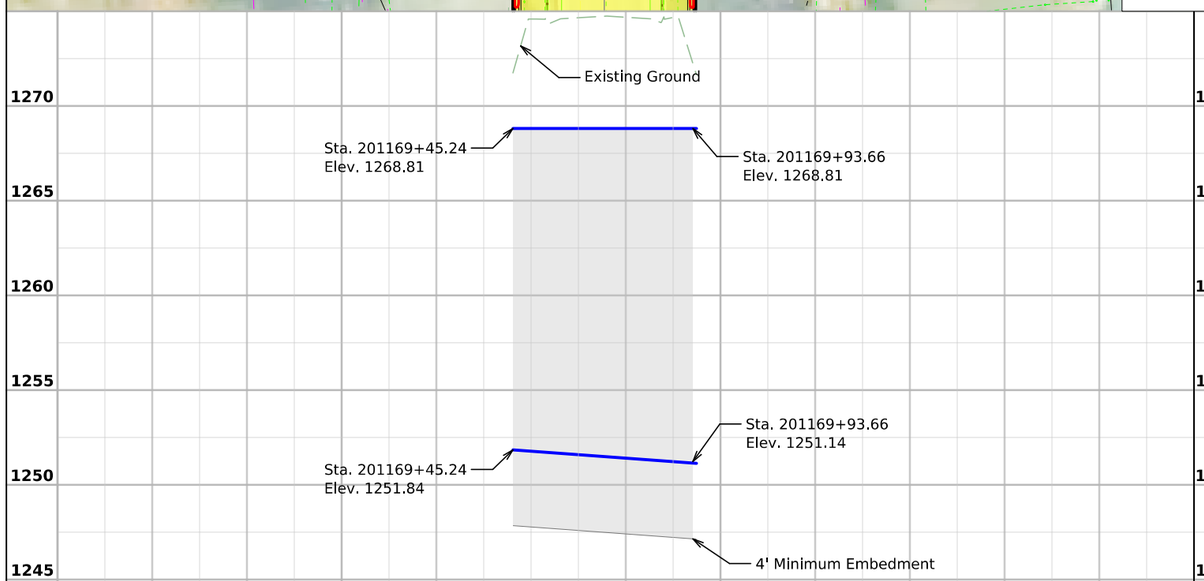
Proposed Top of Wall Elevations	1279.30	1278.76	1278.21	1277.67	1277.13	1276.47	1275.80	1275.25	1274.71	1274.15
Proposed Ground Elevations at Face of Wall	1277.30	1272.55	1267.80	1263.05	1258.30	1257.80	1257.30	1255.50	1253.69	1251.84
	201267+00				201268+00				201269+00	

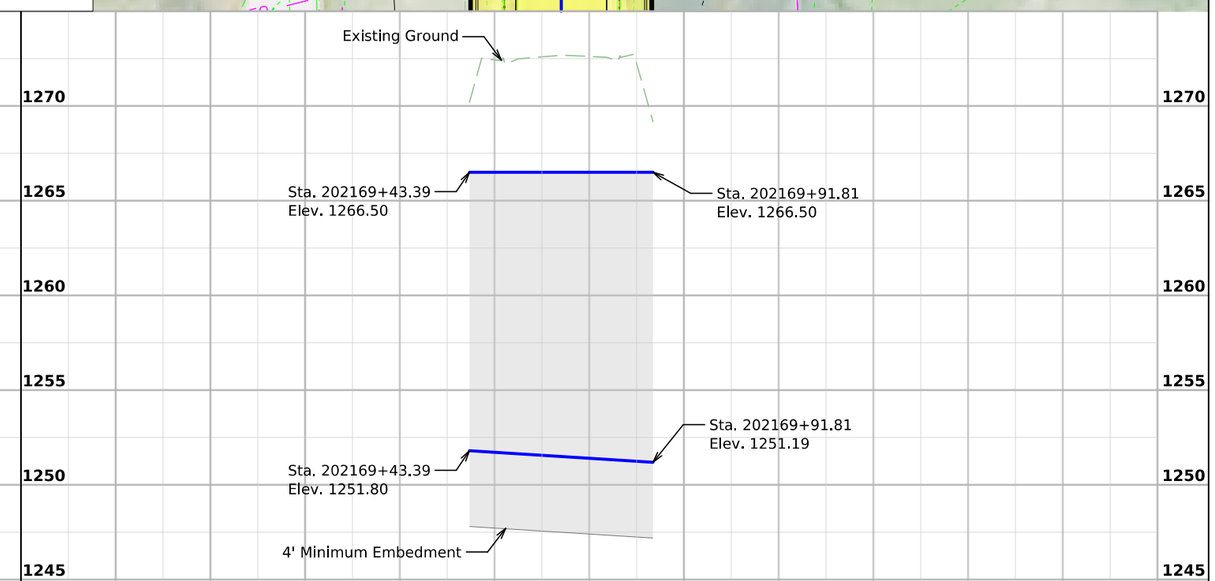
MSE WALL 2012	
Area	**4,422 sf**
Granular Backfill, MSE Wall	**5,100 tons**

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **V.2**







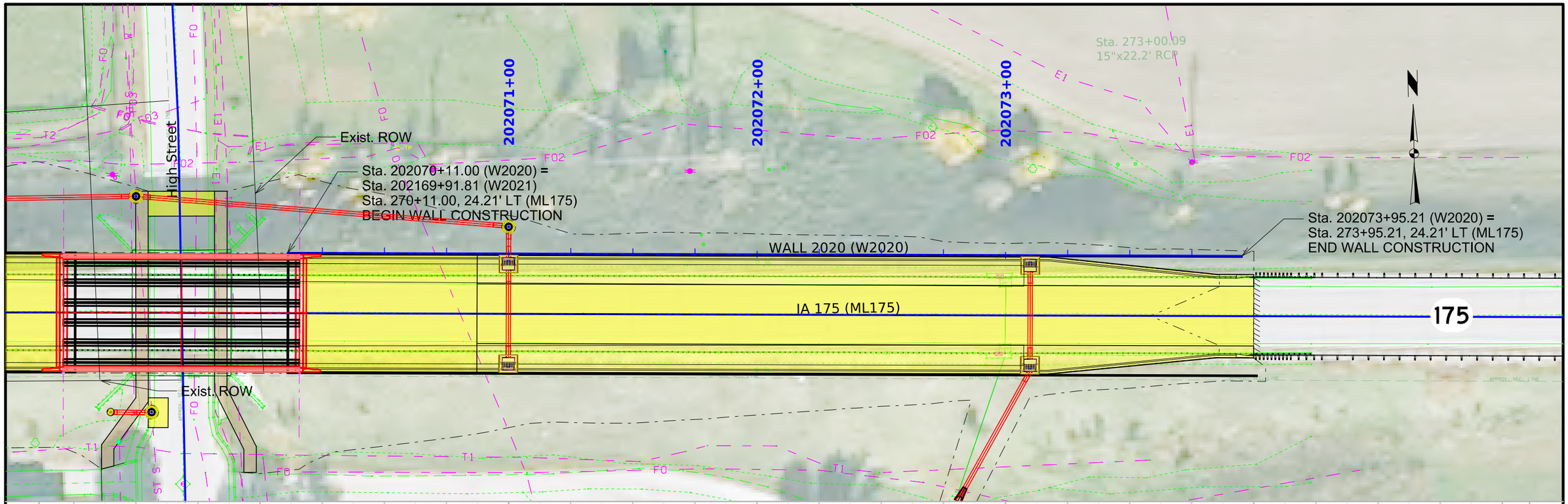


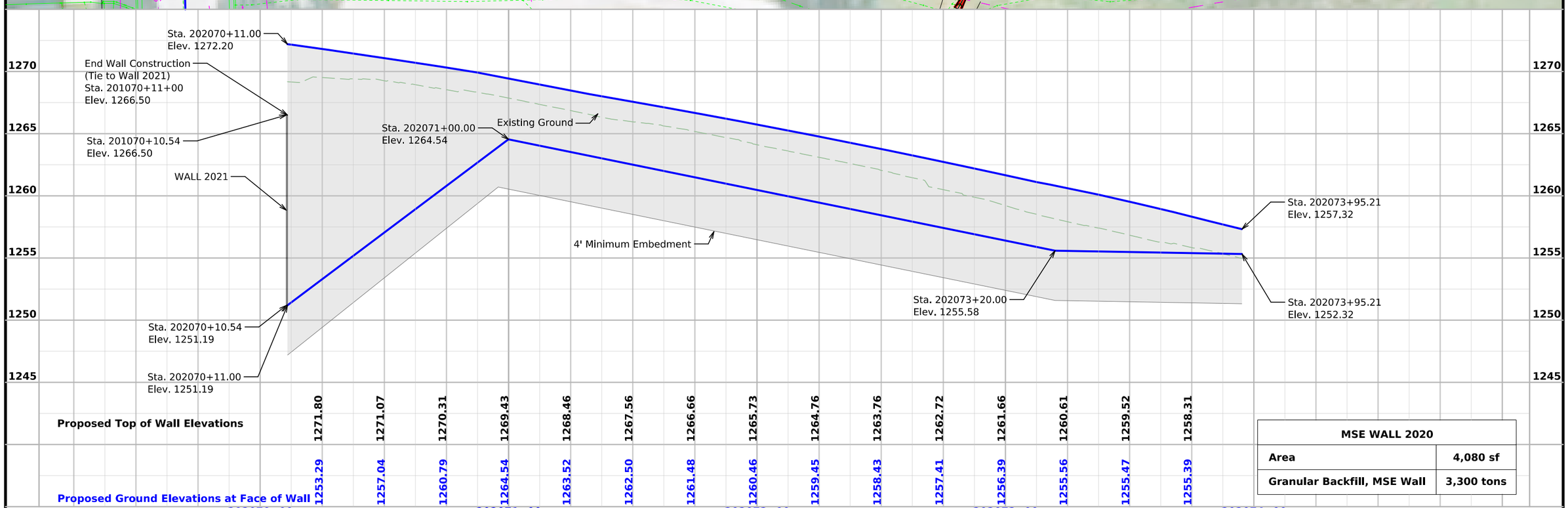
Proposed Top of Wall Elevations	**1268.81**	**1268.81**	**1268.81**
Proposed Ground Elevations at Face of Wall	**1251.77**	**1251.41**	**1251.14**

MSE WALL 2011	
Area	**1,013 sf**
Granular Backfill, MSE Wall	**520 tons**

Proposed Top of Wall Elevations	**1266.50**	**1266.50**	**1266.50**
Proposed Ground Elevations at Face of Wall	**1251.72**	**1251.41**	**1251.19**

MSE WALL 2021	
Area	**920 sf**
Granular Backfill, MSE Wall	**470 tons**





MSE WALL 2020	
Area	4,080 sf
Granular Backfill, MSE Wall	3,300 tons

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT / HNTB	SAC COUNTY	PROJECT NUMBER BRF-175-4(019)--38-81	SHEET NUMBER V.4

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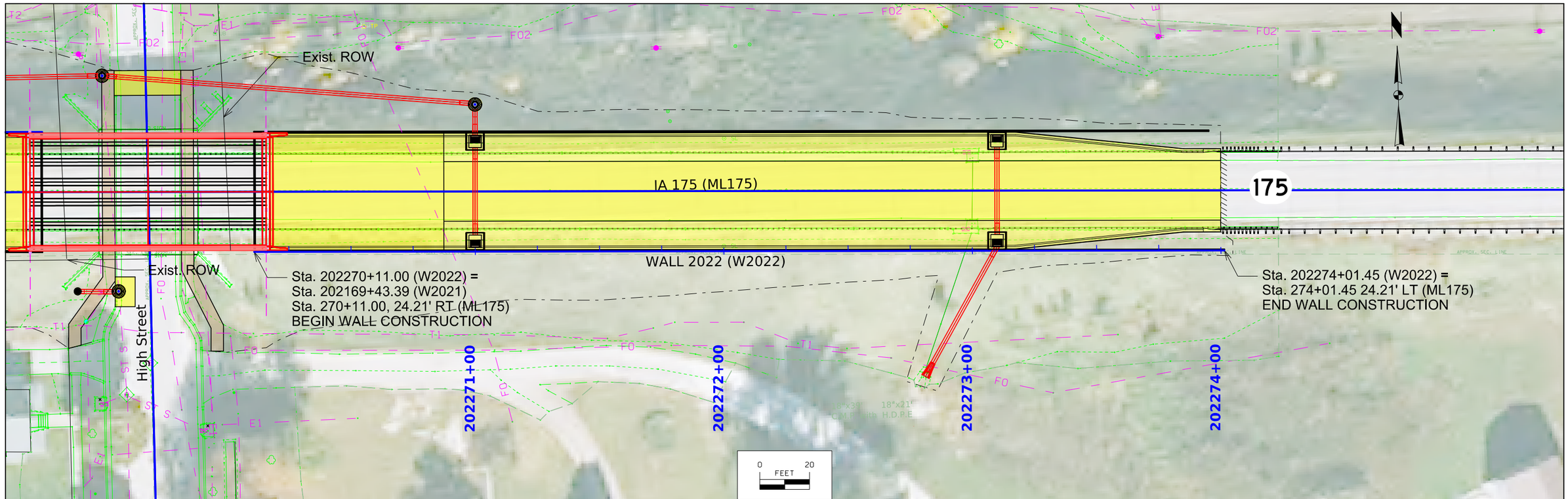
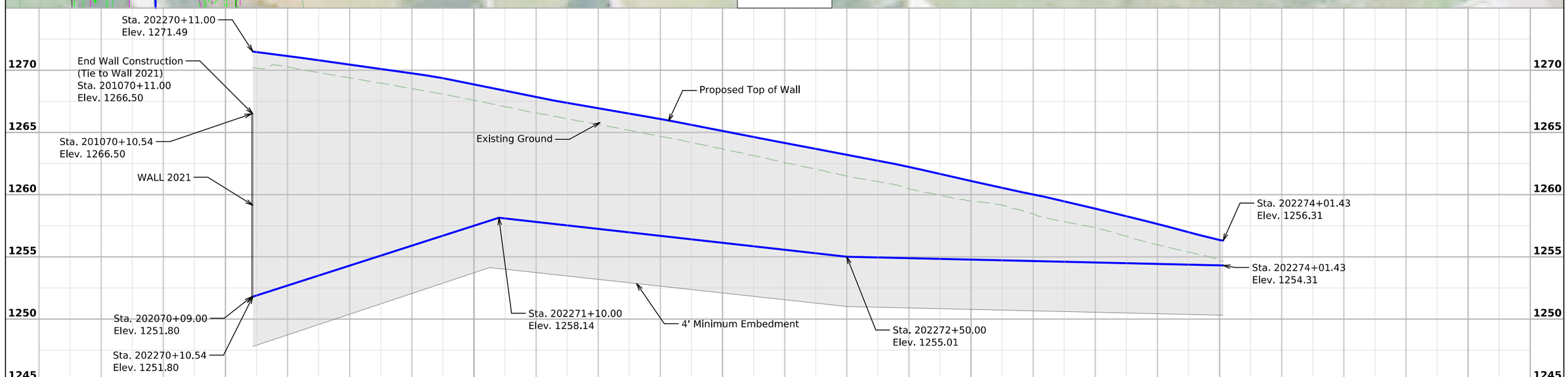




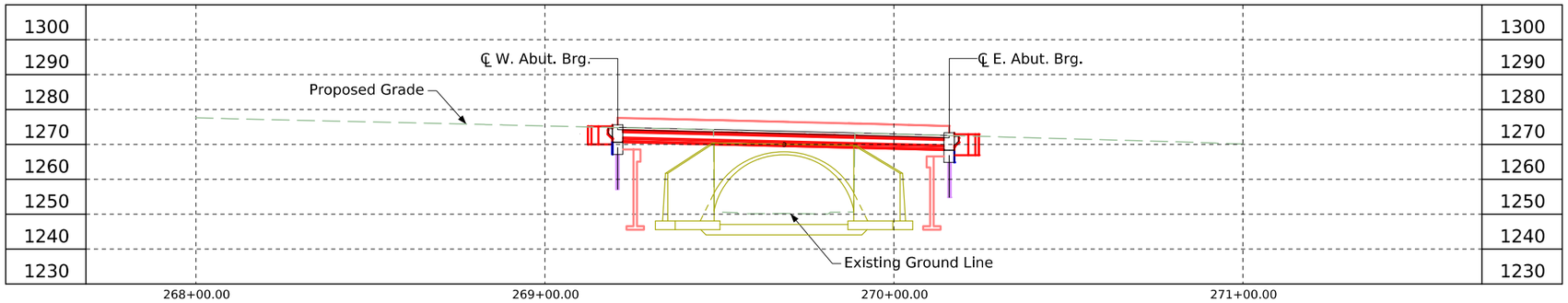
Proposed Top of Wall Elevations	1271.13	1270.45	1269.75	1268.86	1267.85	1266.94	1266.07	1265.12	1264.15	1263.20	1262.22	1261.09	1260.01	1258.87	1257.64	1256.35
Proposed Ground Elevations at Face of Wall	1252.69	1254.30	1255.90	1257.50	1257.80	1257.24	1256.68	1256.13	1255.57	1255.01	1254.89	1254.78	1254.66	1254.55	1254.43	1254.31

202270+00 202271+00 202272+00 202273+00 202274+00

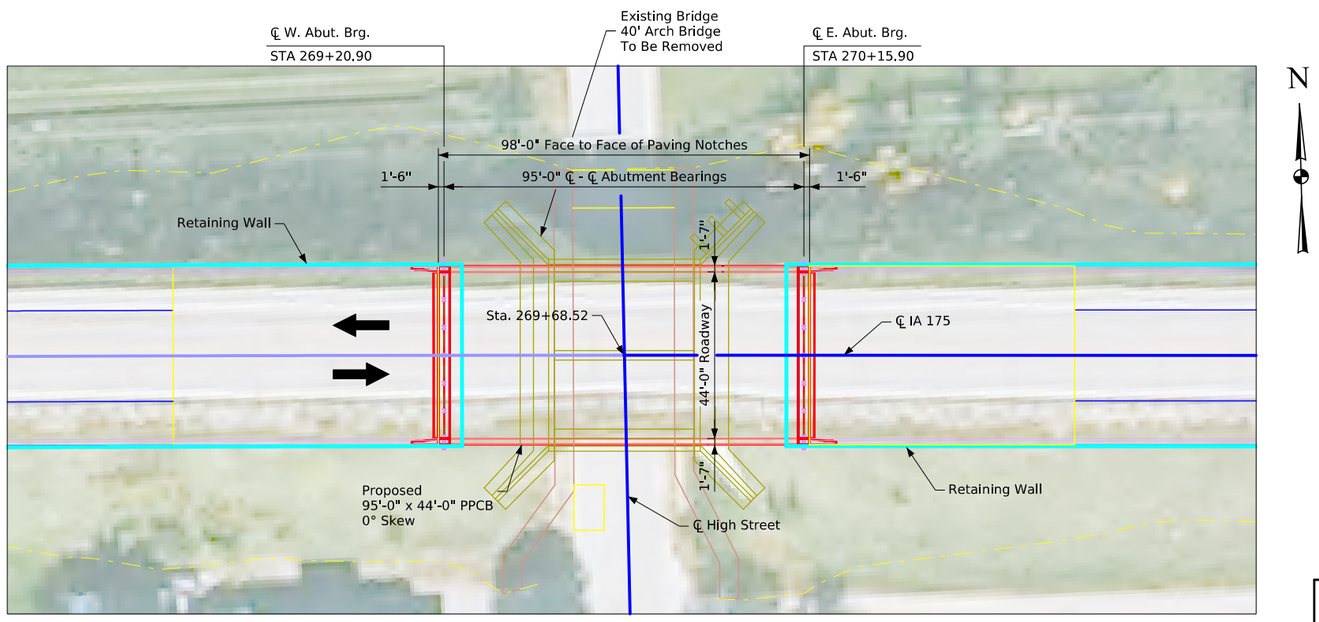
MSE WALL 2022	
Area	**5,146 sf**
Granular Backfill, MSE Wall	**3,200 tons**

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **V.5**

3:20:44 PM 10/31/2025 hplumb pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8117501024\Design\CADD_Files\Sheet_Files\SHT_V_81175019Z04.dgn



Longitudinal Section Along ℄ IA 175



Situation Plan

Design For 0° Skew

95'-0" x 44'-0" Pretensioned Prestressed Conc. Beam Bridge

95'-0" Span

Situation Plan

STA. 269+68.40 (IA 175)

Turn-in Date: mmm yyyy

Sac County

IOWA DEPARTMENT OF TRANSPORTATION

0 20
Scale In Feet

Design No. XXXX | Design Sheet No. 1 of 1 | FHWA No. XXXXXX

FILE NO. XXXXX	ENGLISH	DESIGN TEAM HNTB	Sac COUNTY	PROJECT NUMBER BRF-175-4(019)--38-81	SHEET NUMBER V.6

1:21:22 PM 10/29/2025 mmaresko pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8117501024\Bridge\(019)_Bridge-Unspecified\SHT_81175019_HNTB_DSN_FHWANO_Z04.dgn

CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature
Aggregate	
(64)	Choke Stone
(42)	Engineering Fabric
(8)	Flooded Backfill
(92)	Macadam Stone
(20)	Modified
(12)	Plowing Shaping
(14)	Porous Backfill
(8)	Revetment Class A
(6)	Revetment Class B
(62)	Revetment Class C
(188)	Revetment Class D
(28)	Revetment Class E
(12)	Shoulder Special Backfill
(12)	Special Backfill
(20)	Subbase
(20)	Subbase Lower
(20)	Subbase Upper
(118)	Subgrade Treatment
Asphalt	
(207)	HMA Base Course
(207)	HMA Interim Course
(207)	HMA Surface Course
Concrete	
(0)	Barrier Concrete
(0)	Barrier Concrete Footing
(0)	Curb Gutter
(48)	Flowable Mortar
(0)	Median Concrete
(0)	PCC Pavement
(0)	Sidewalk
Shoulder	
(209)	Shoulder HMA
(0)	Shoulder PCC
(6)	Shoulder Granular
Existing	
(0)	Existing Pavement

Design Color No.	Feature
Structural	
(112)	Noise Wall
(112)	Noise Wall Footing
(112)	Retaining Wall Back
(112)	Retaining Wall Back Excavate
(112)	Retaining Wall Face
(112)	Retaining Wall Front Excavate
(112)	Retaining Wall Front Footing
(112)	Retaining Wall MSE Gutter
(112)	Retaining Wall Reinforced Earth
Grading	
(8)	Behind Curb Cut
(6)	Granular
(13)	Granular Back Fill
(48)	Rock Undercut
(8)	Shoulder Earth Fill
(2)	Side Slopes
(226)	Side Slopes Dressing
Substrata	
(128)	Boulder Substrata
(48)	Broken Weathered Substrata
(3)	Core Out Substrata
(203)	Existing Pavement Substrata
(6)	Loam Substrata
(80)	Rock Substrata
(4)	Select Sand Substrata
(3)	Shale Substrata
(10)	Topsoil Substrata
Unsuitable / Waste	
(3)	Unsuitable Type A
(13)	Unsuitable Type B
(11)	Unsuitable Type C
(3)	Waste

NOTES:

Text

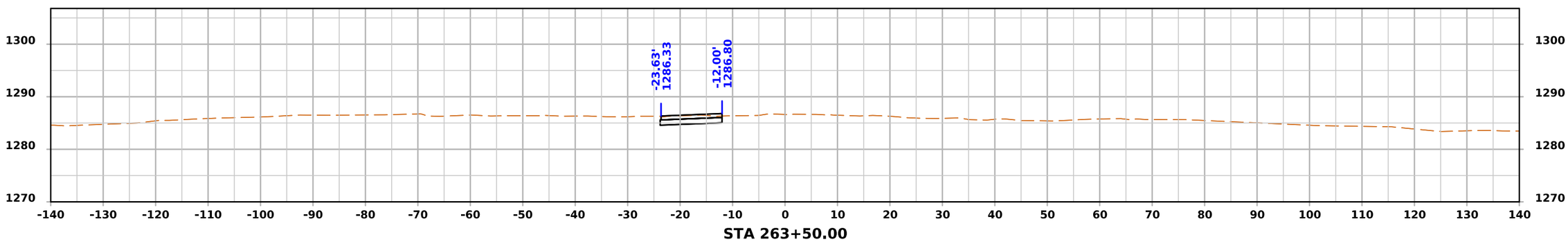
NOTES:

Text

CROSS SECTIONS
LEGEND AND INFORMATION SHEET

(COVERS SHEET SERIES W & X)

IA 175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-12.00'
1286.80
1300
1290
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1270
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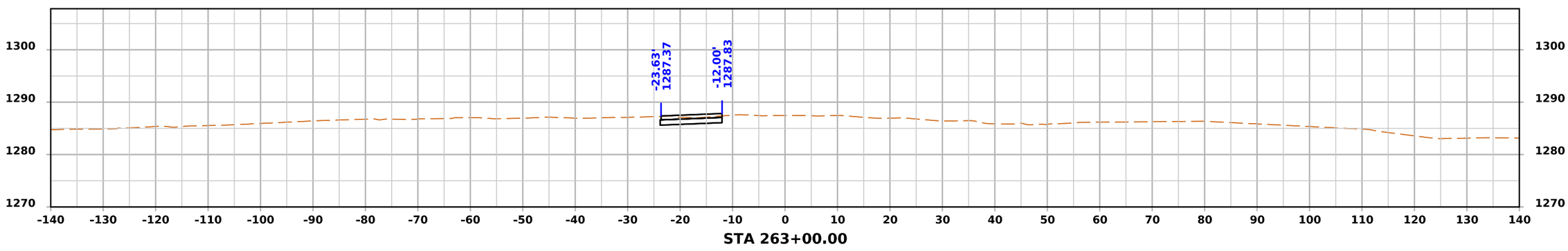
STA 263+50.00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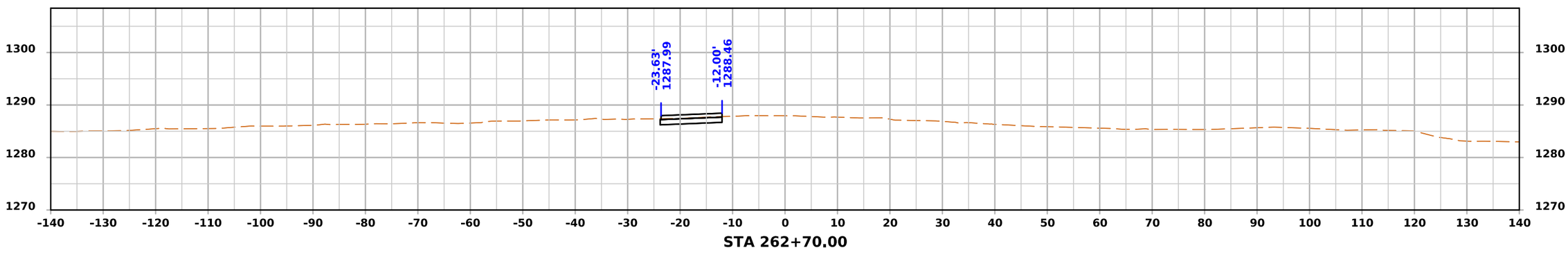
1287.37
-12.00'
1287.83
1300
1290
1280
1270
-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
STA 263+00.00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-12.00'
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1290
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STA 262+70.00

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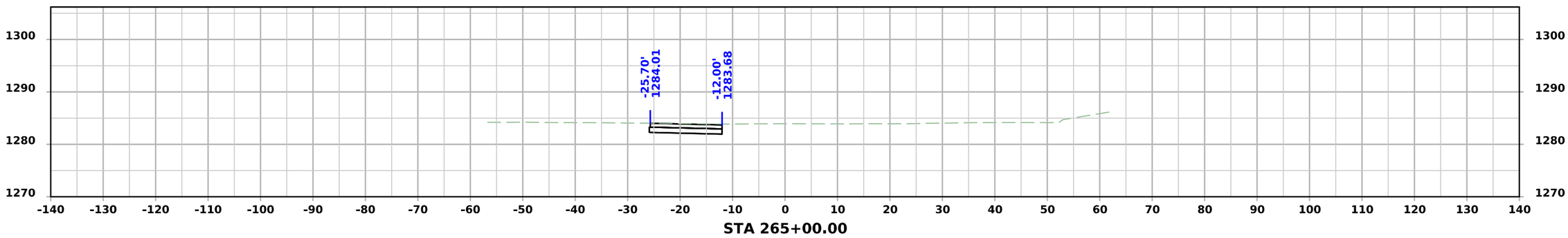

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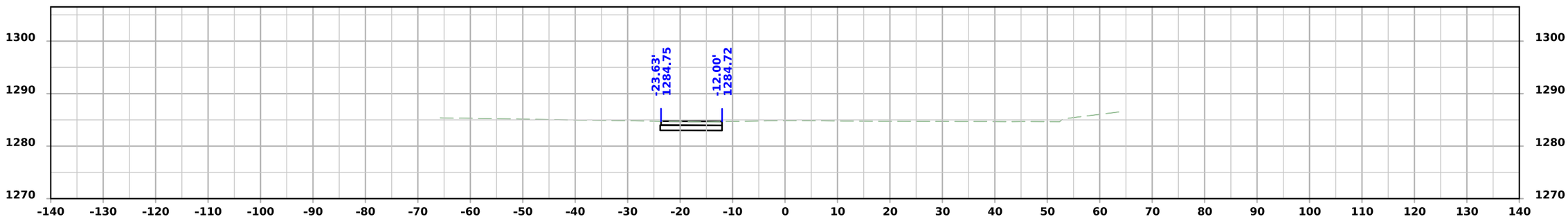

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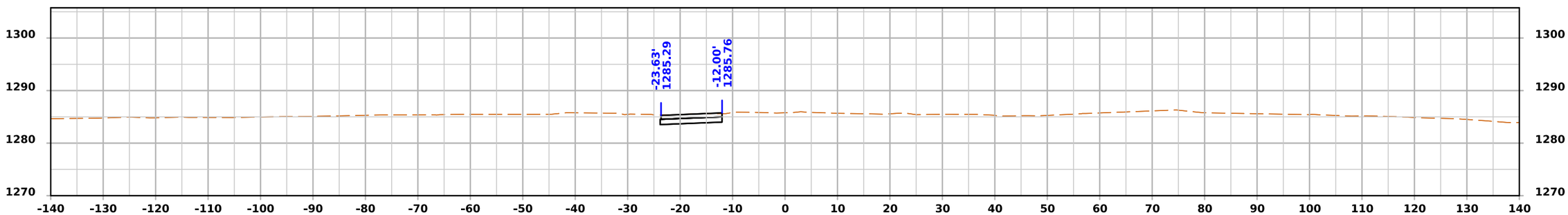

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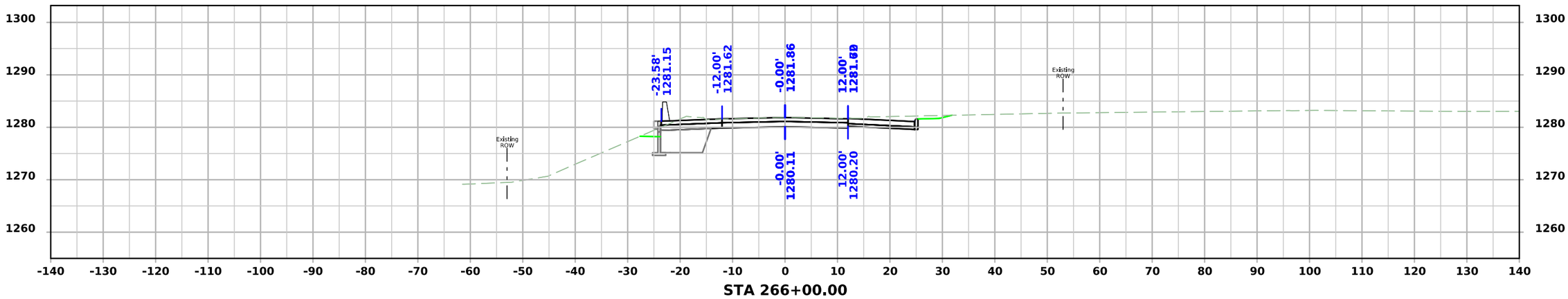

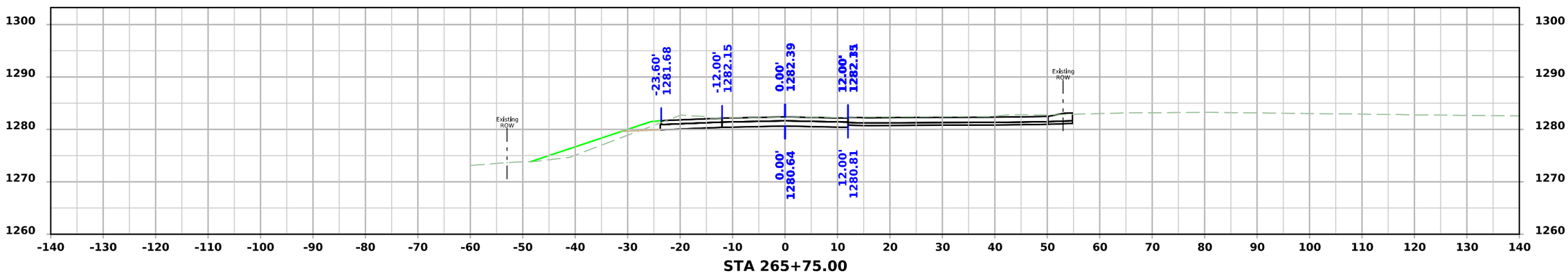

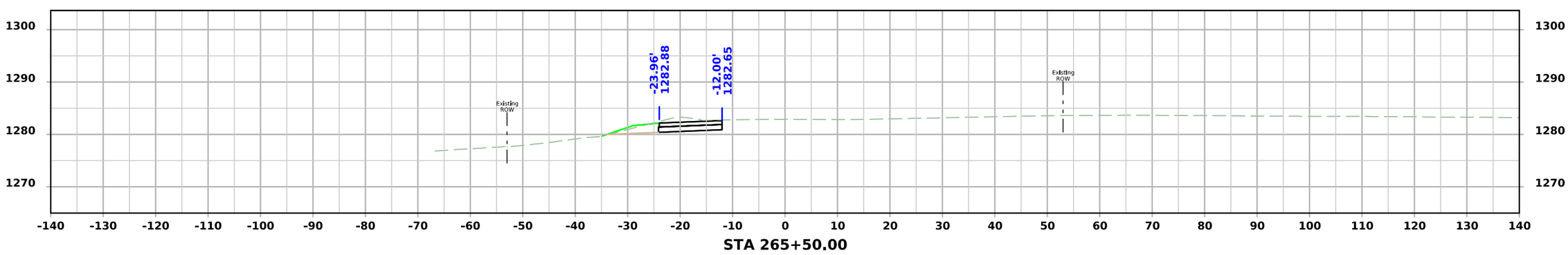

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.4**

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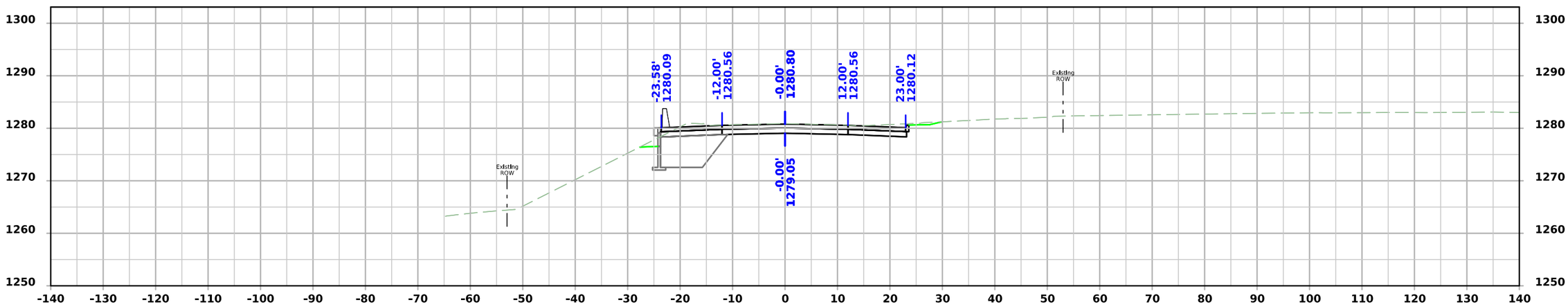

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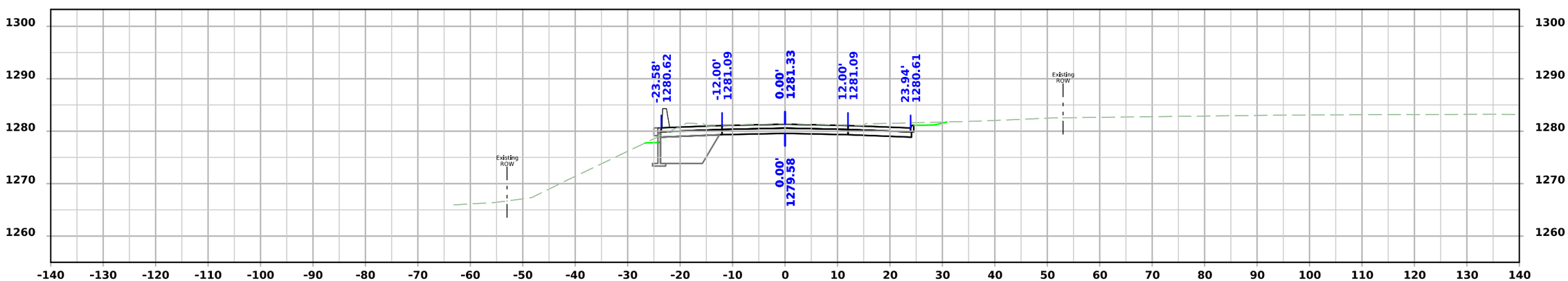

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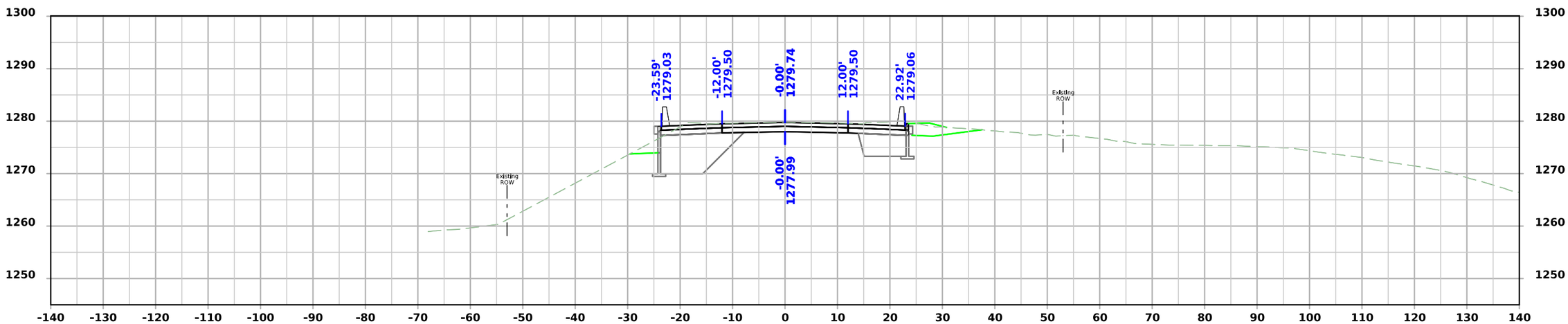

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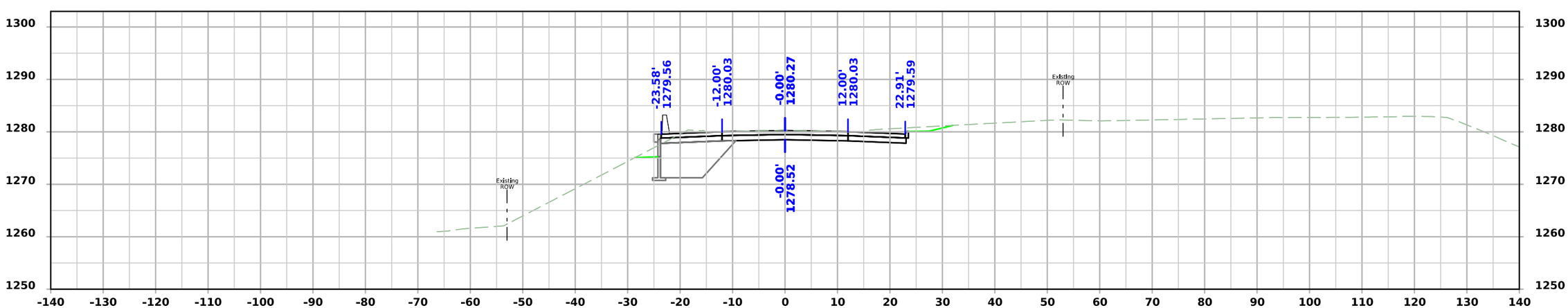

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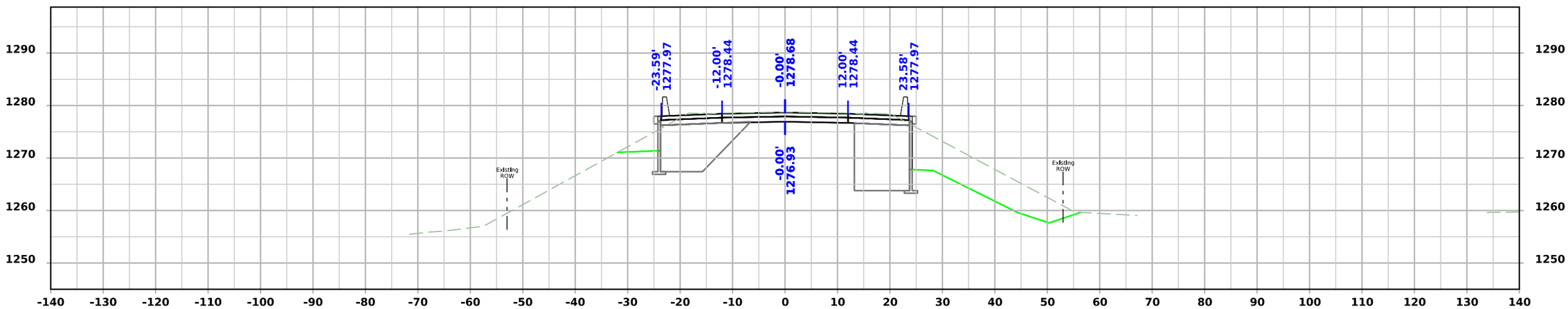

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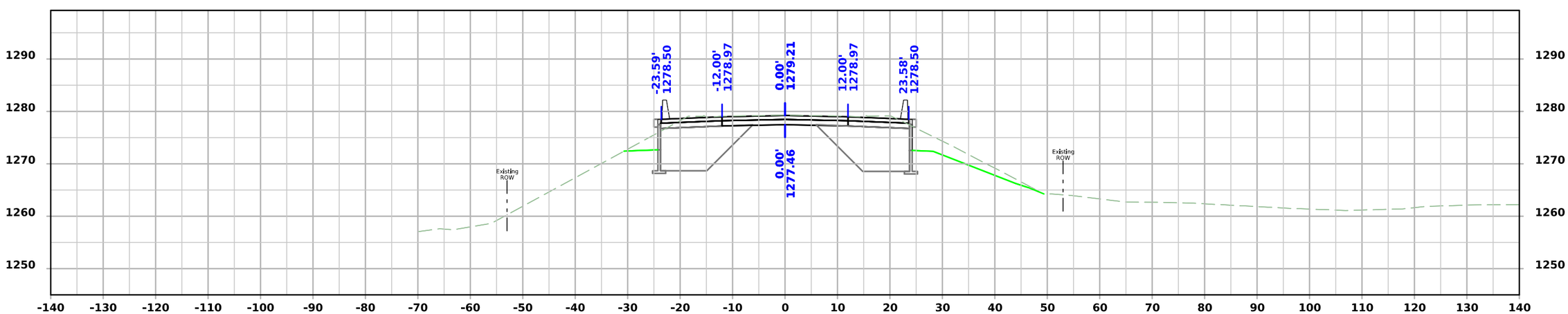

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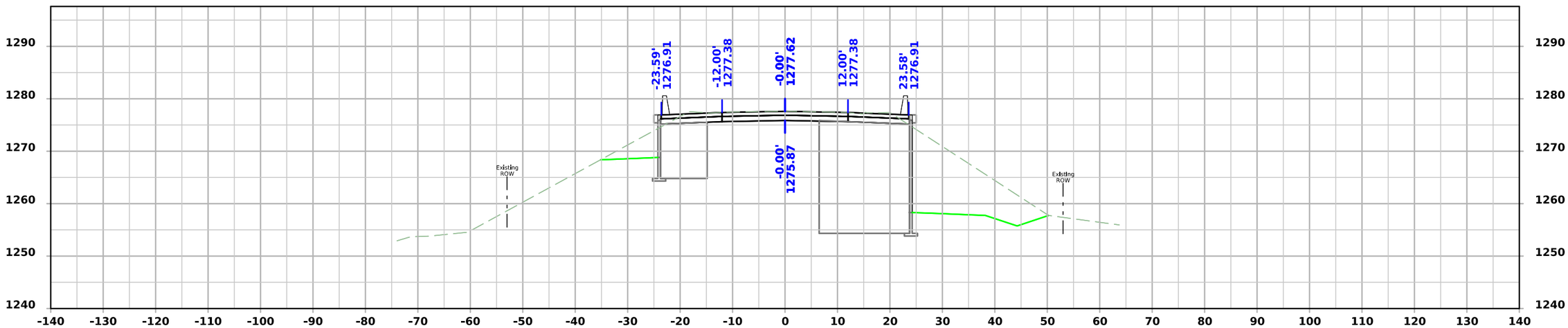

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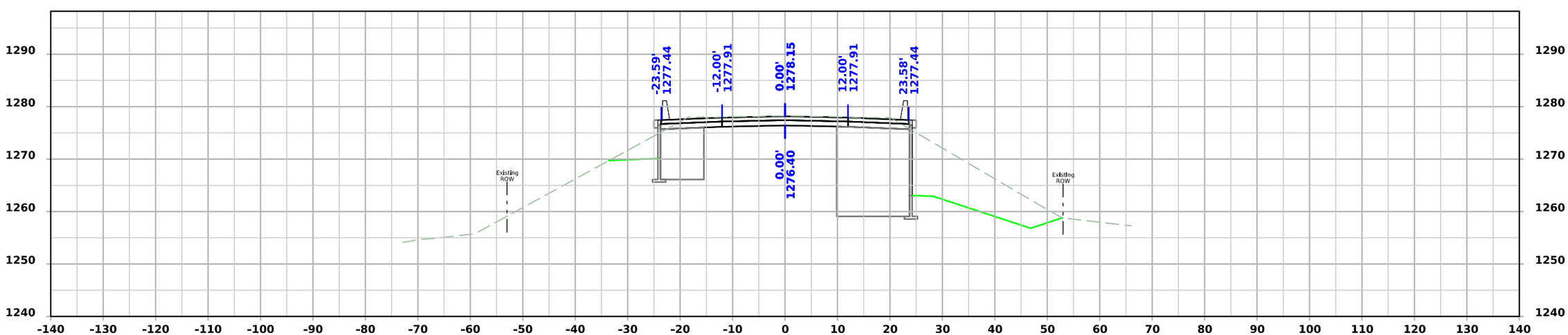

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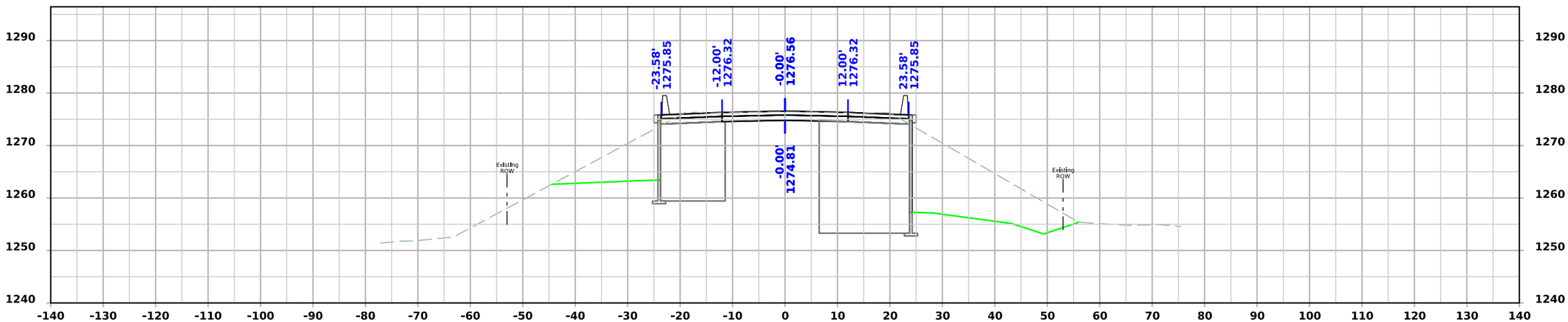
FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.8**

IA 175



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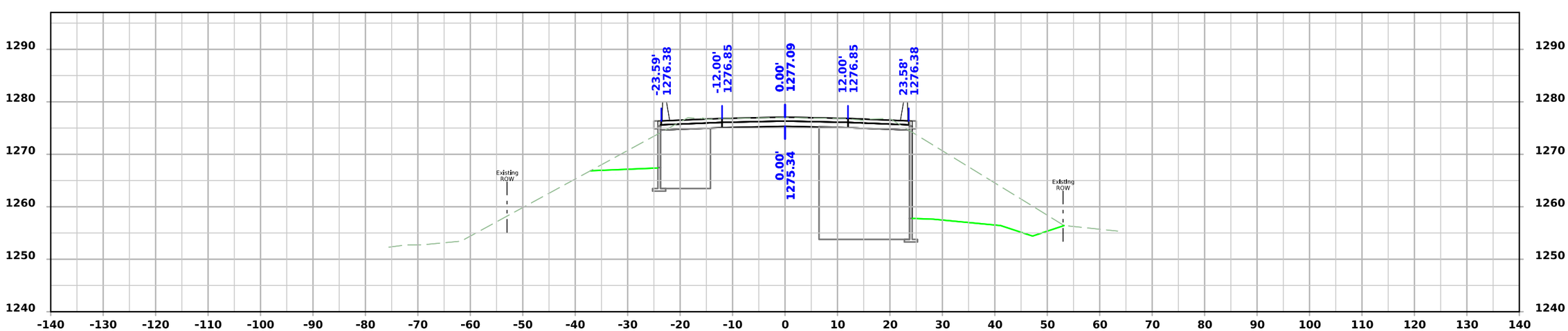

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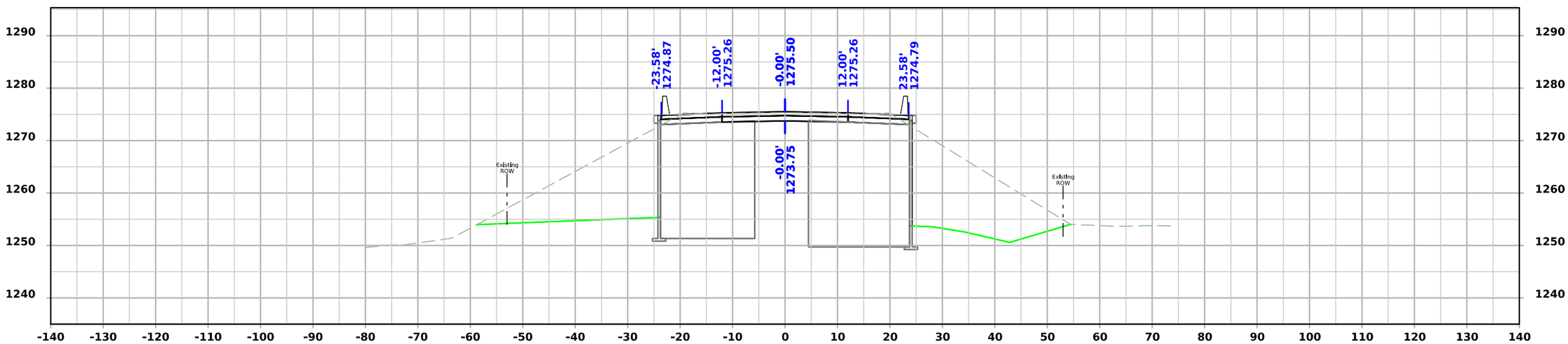

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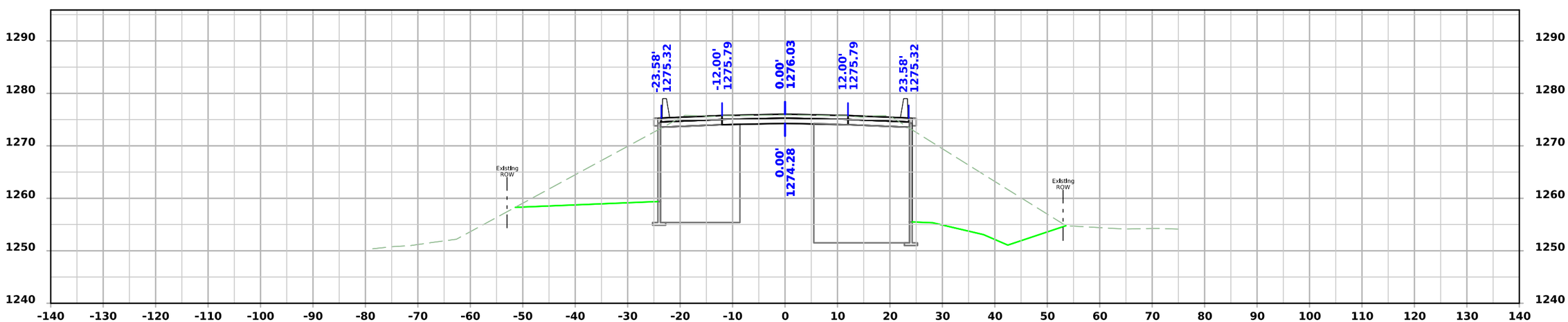

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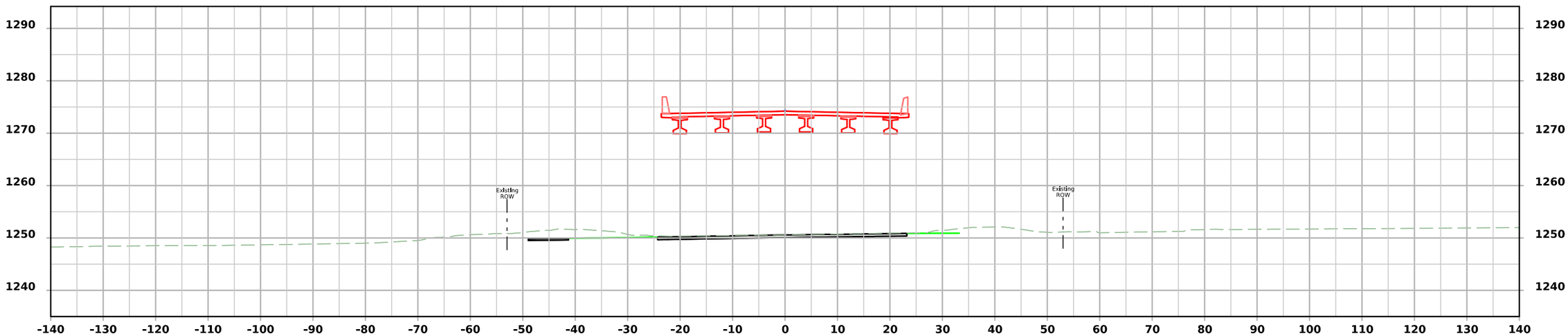

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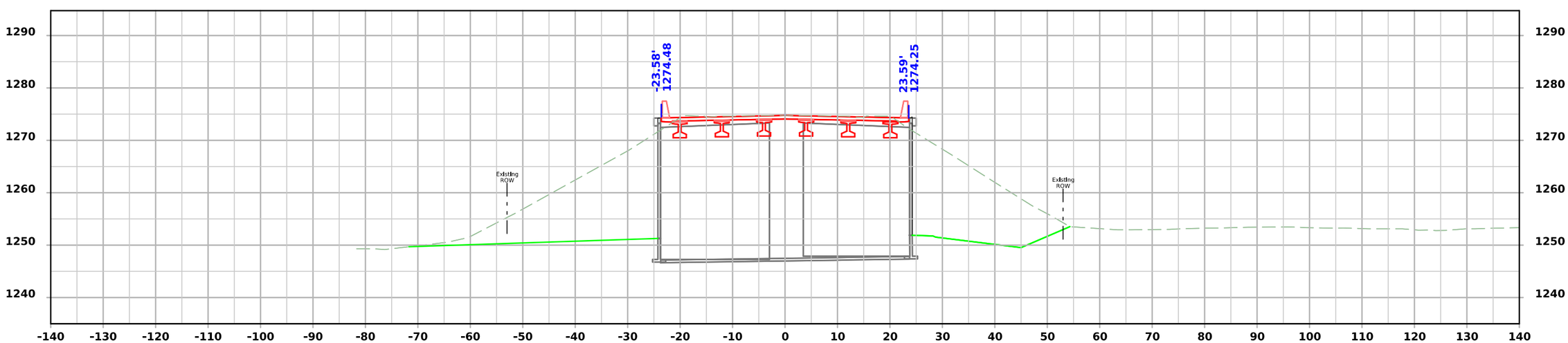

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FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.11**

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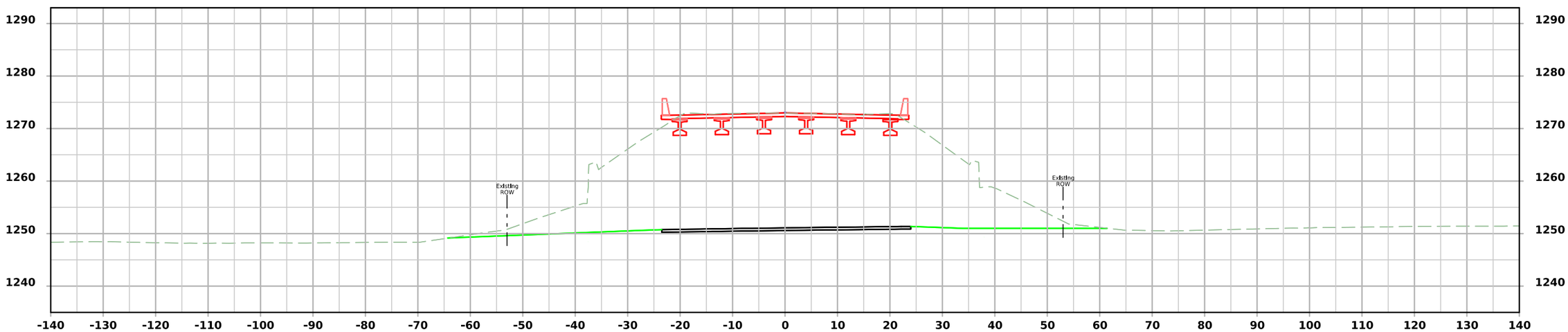

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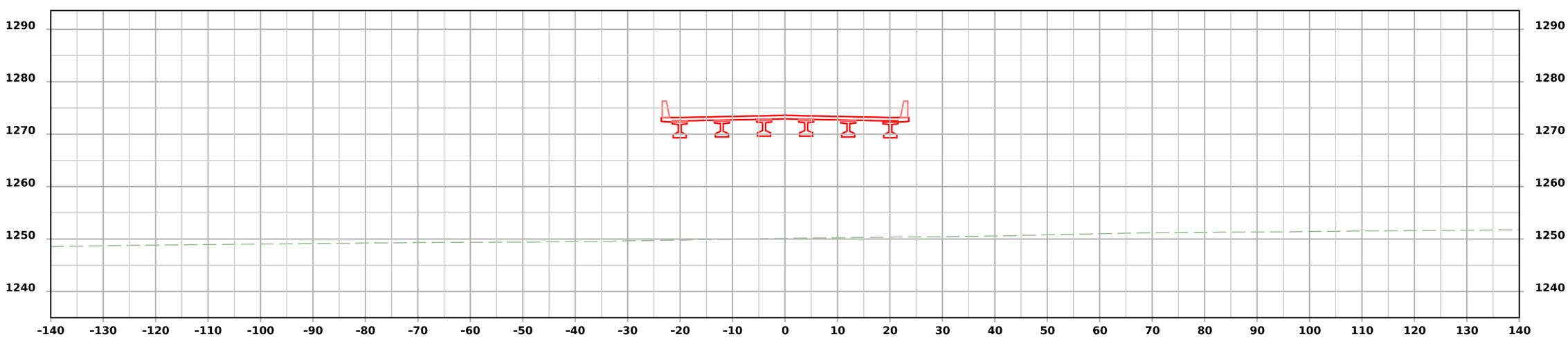

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FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.12**

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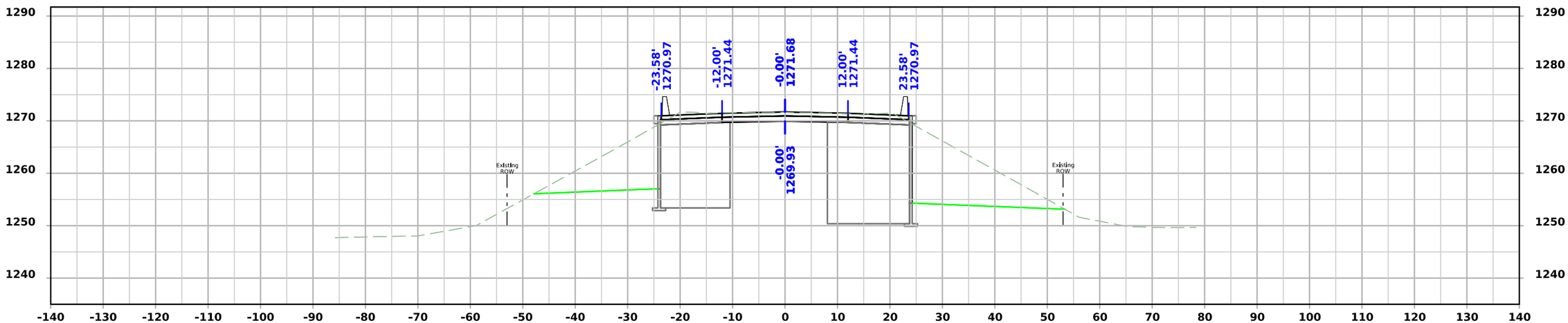
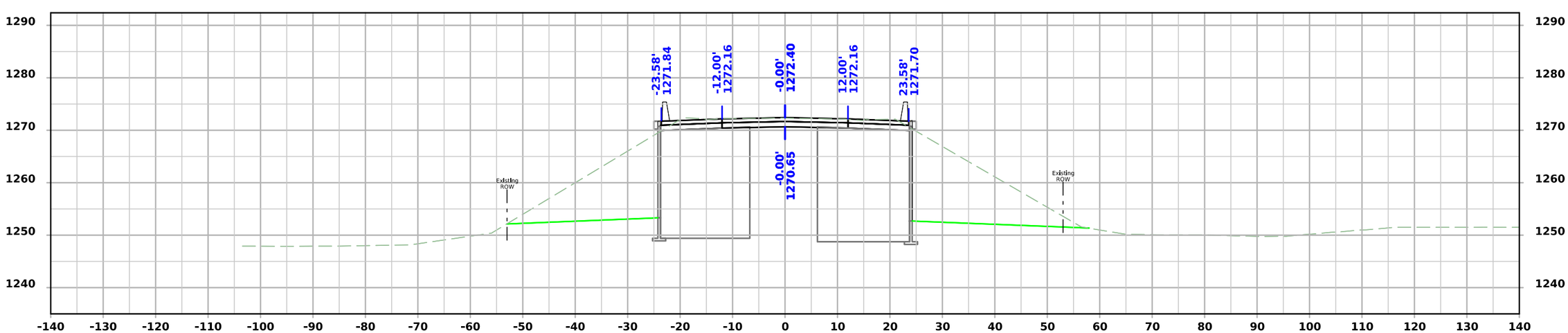
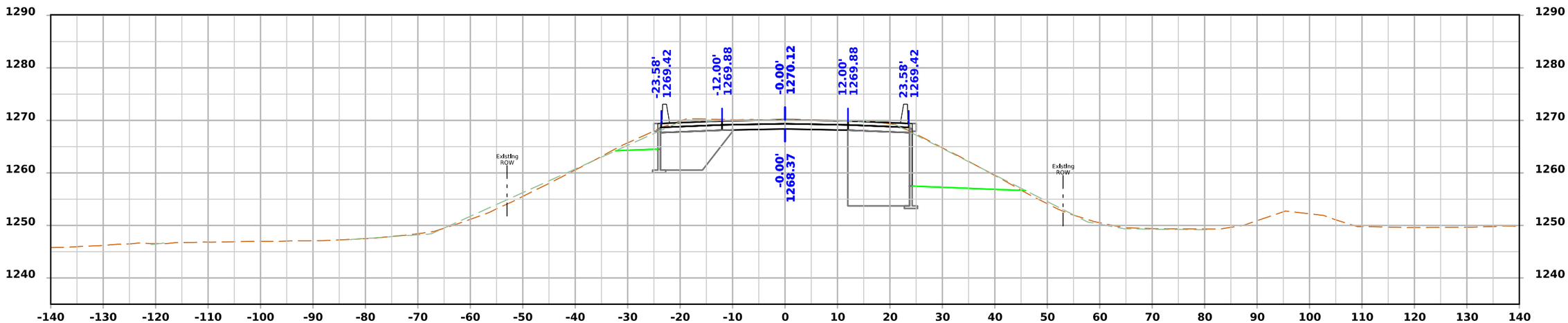


STA 270+50.00

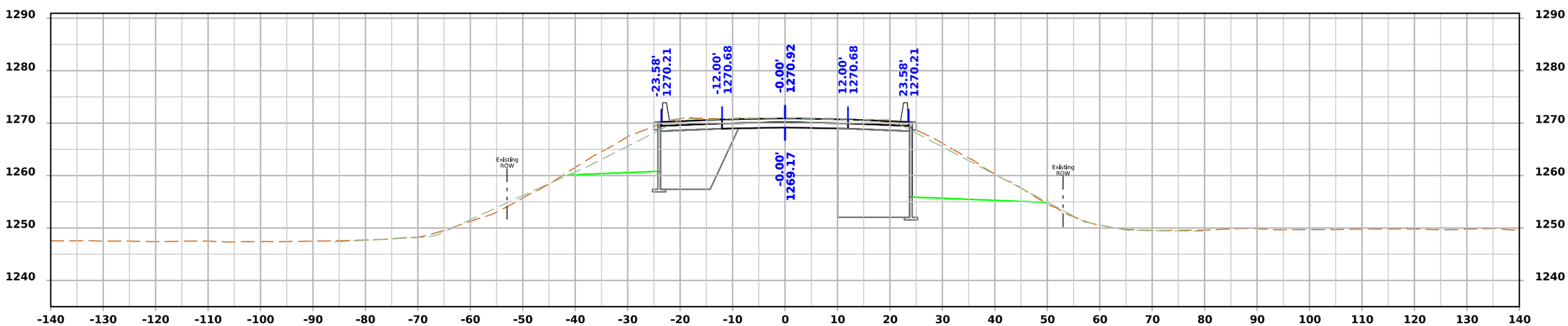


STA 270+25.00

IA 175



STA 271+00.00



STA 270+75.00

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.14**

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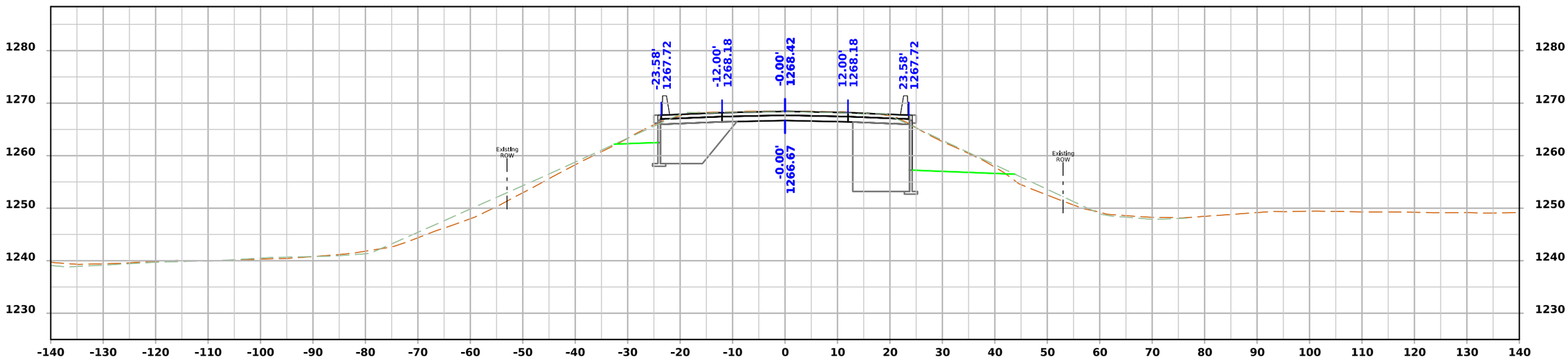
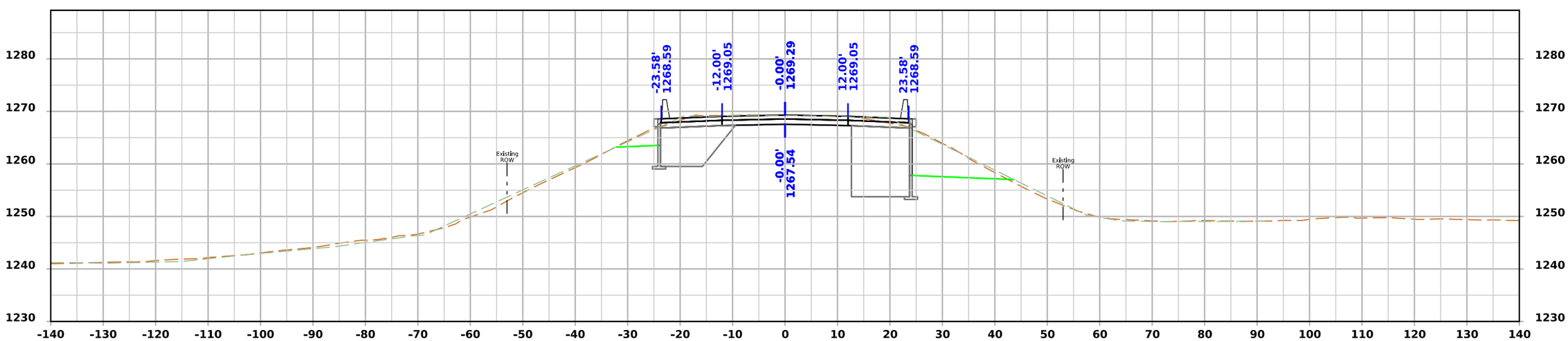
IA 175



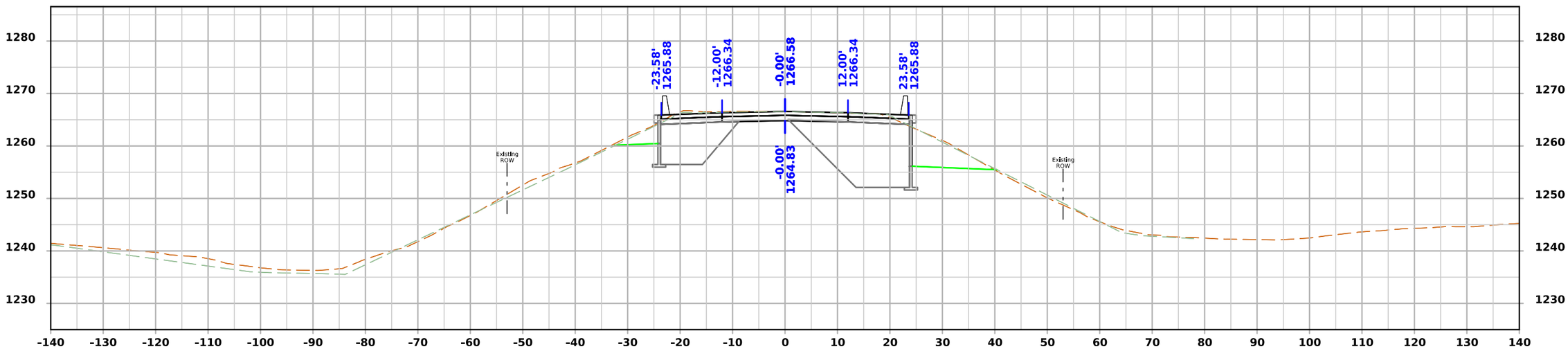
STA 271+50.00



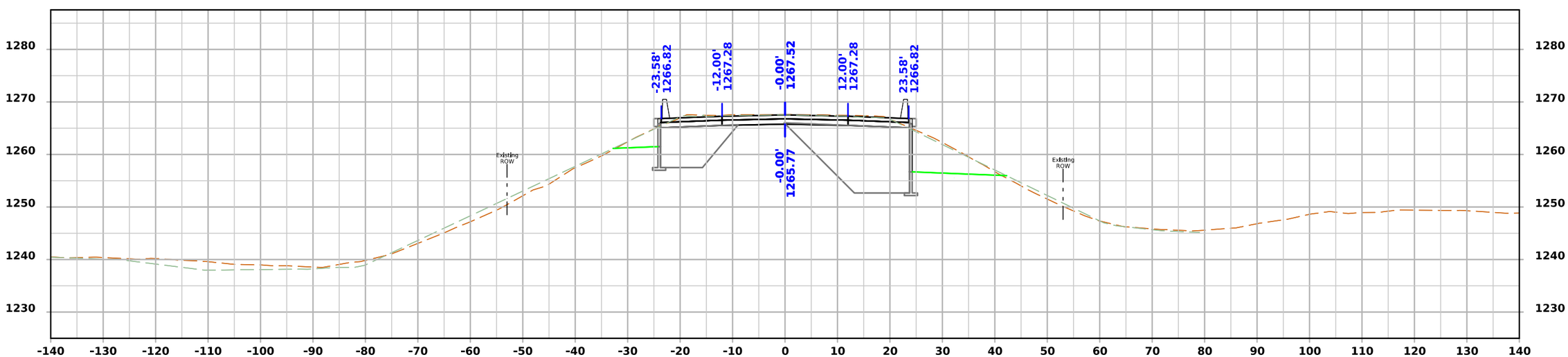
STA 271+25.00

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.15**

IA 175

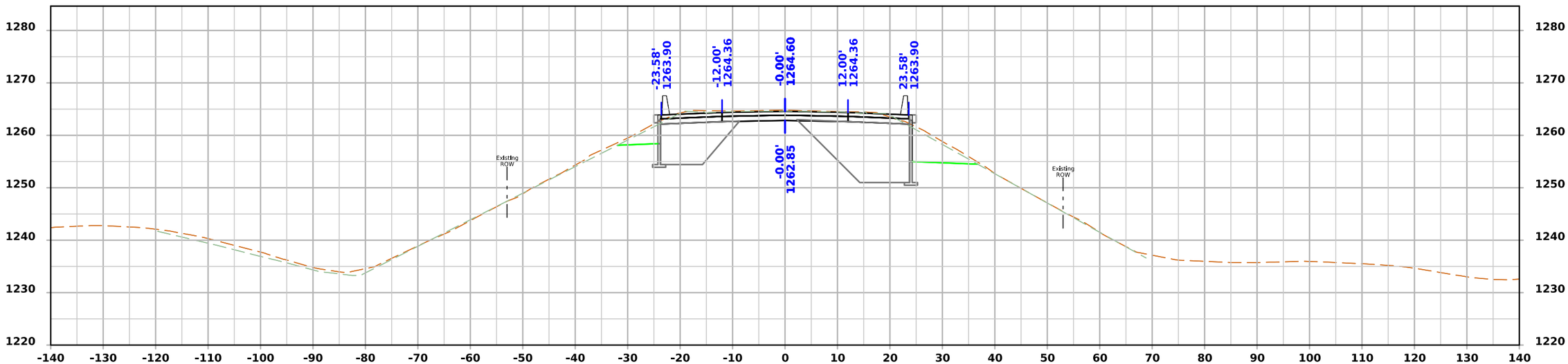


STA 272+00.00

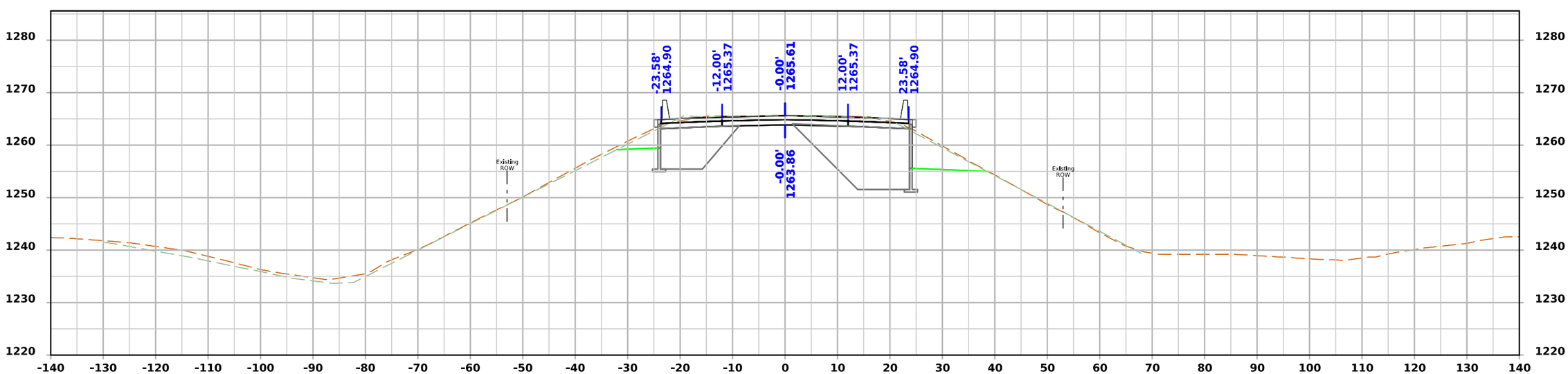


STA 271+75.00

IA 175



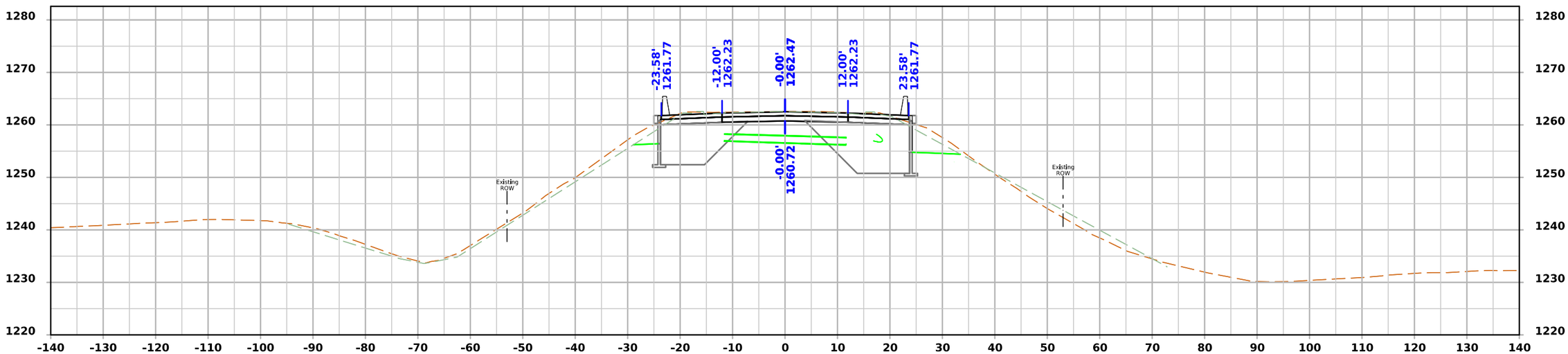
STA 272+50.00



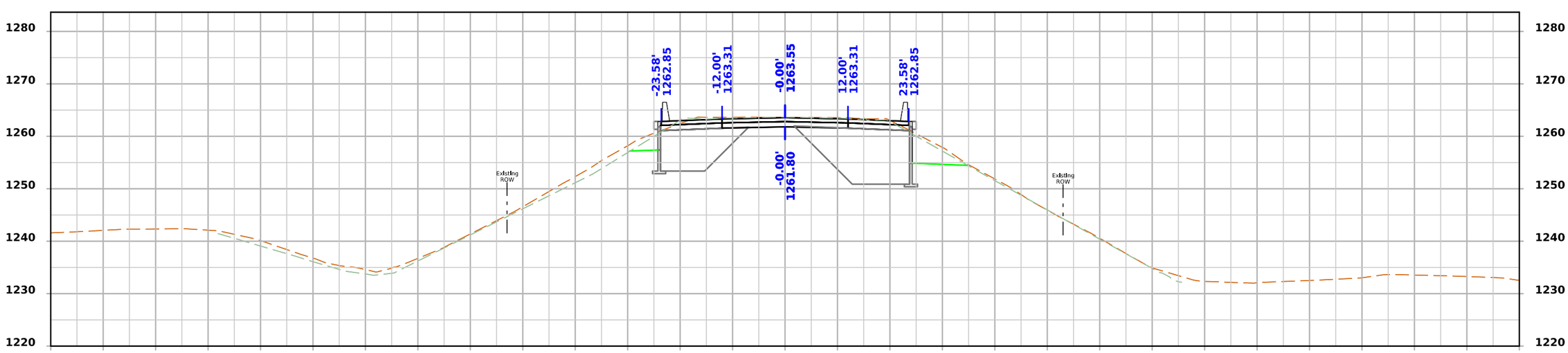
STA 272+25.00

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.17**

IA 175



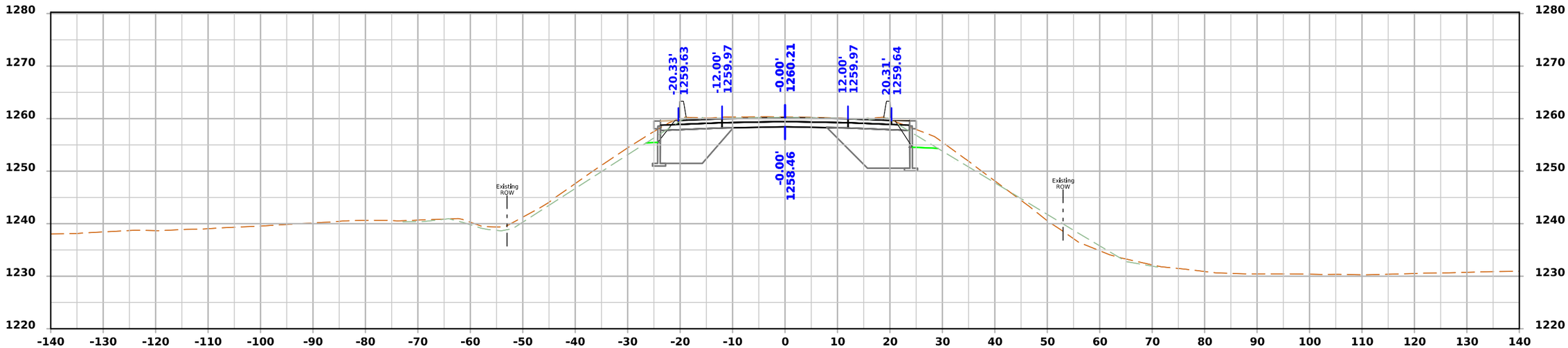
STA 273+00.00



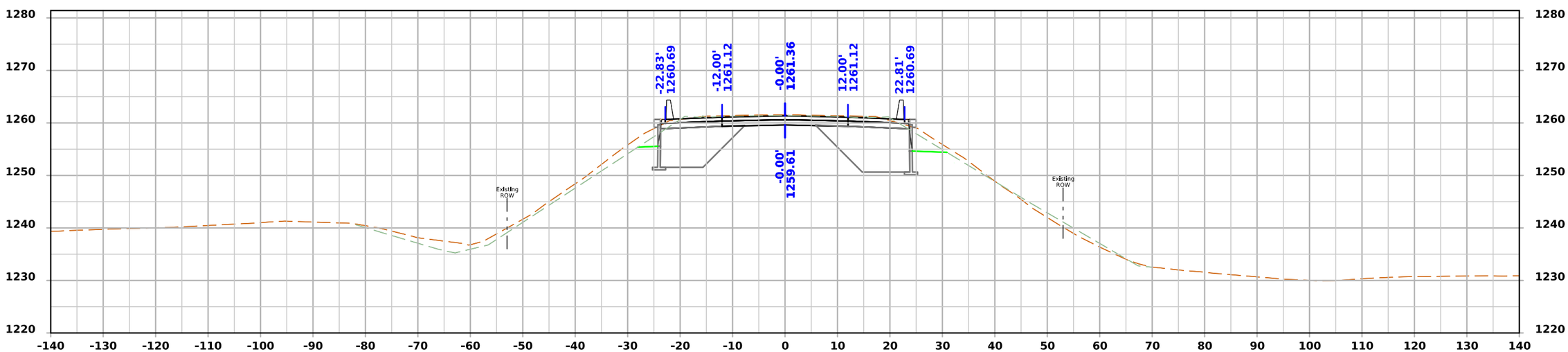
STA 272+75.00

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.18**

IA 175



STA 273+50.00



STA 273+25.00

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.19**

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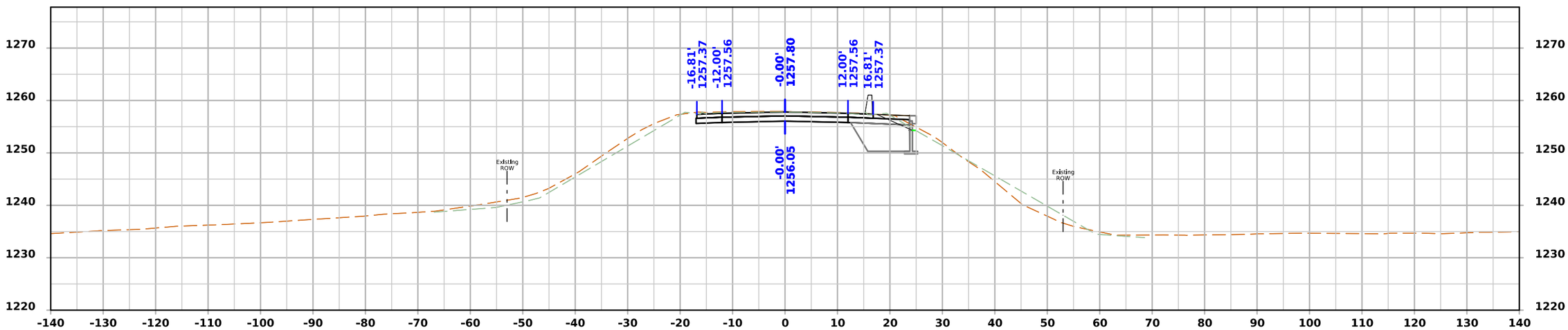
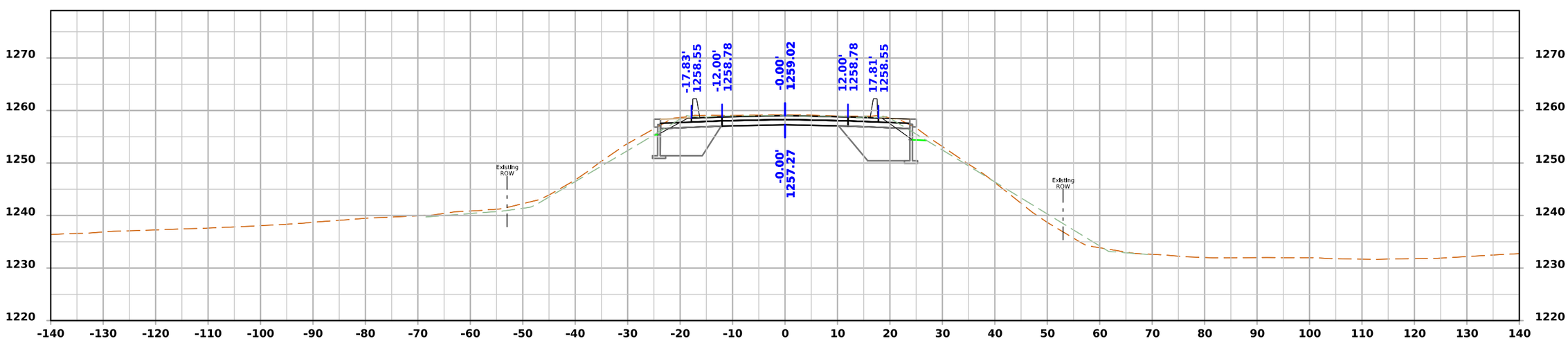
IA 175



STA 274+00.00



STA 273+75.00

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **W.20**

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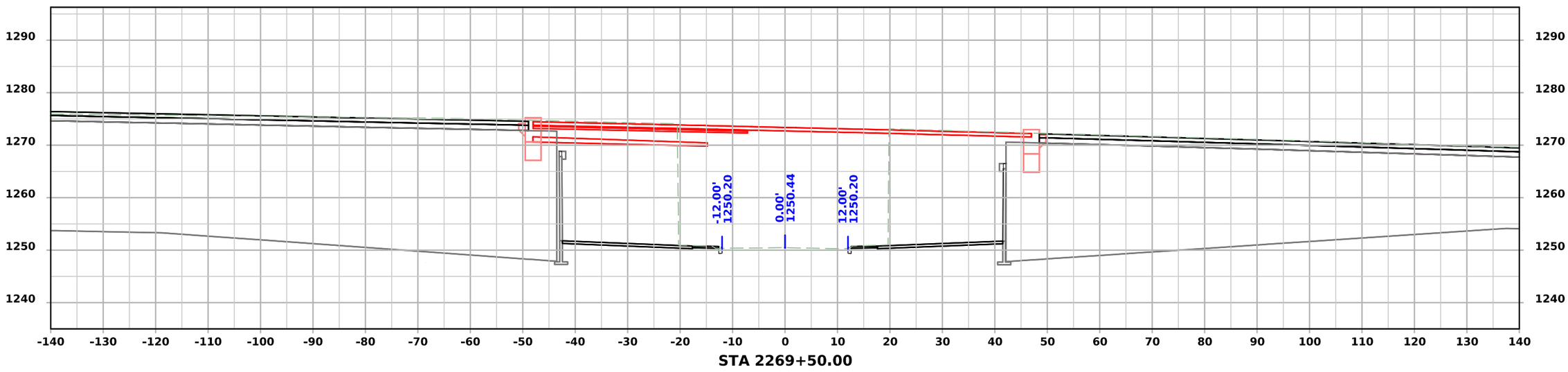
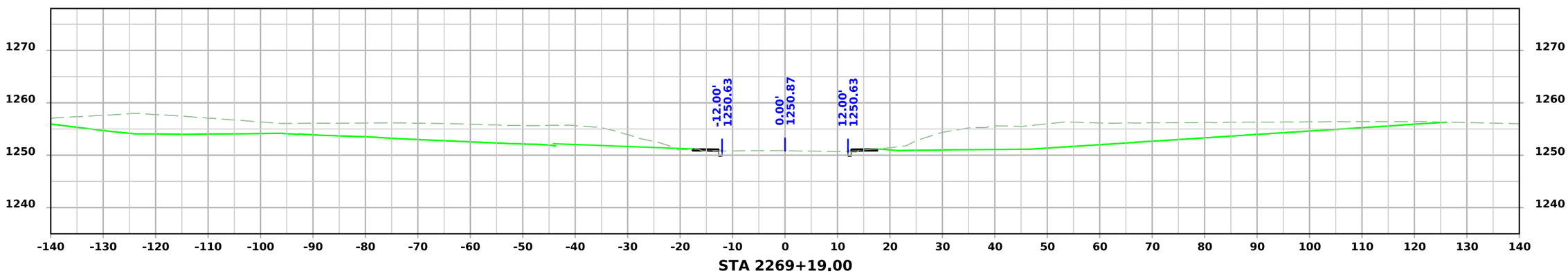
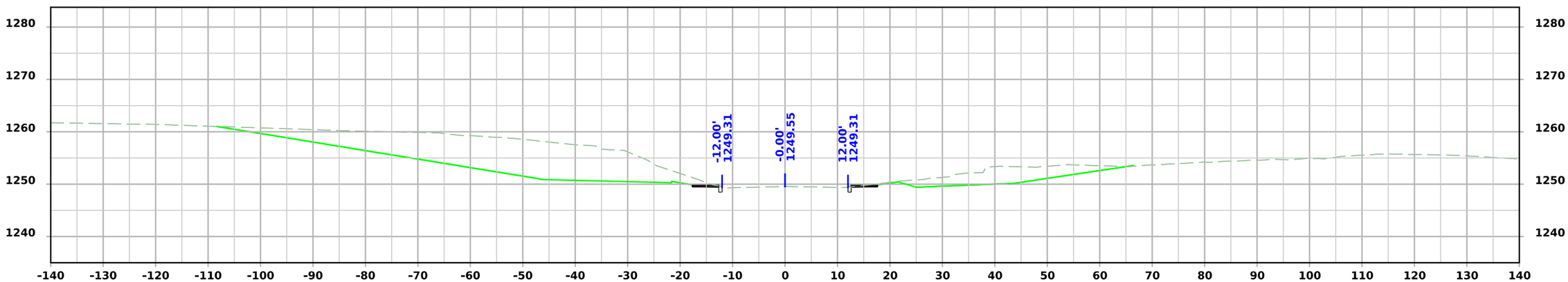
High Street

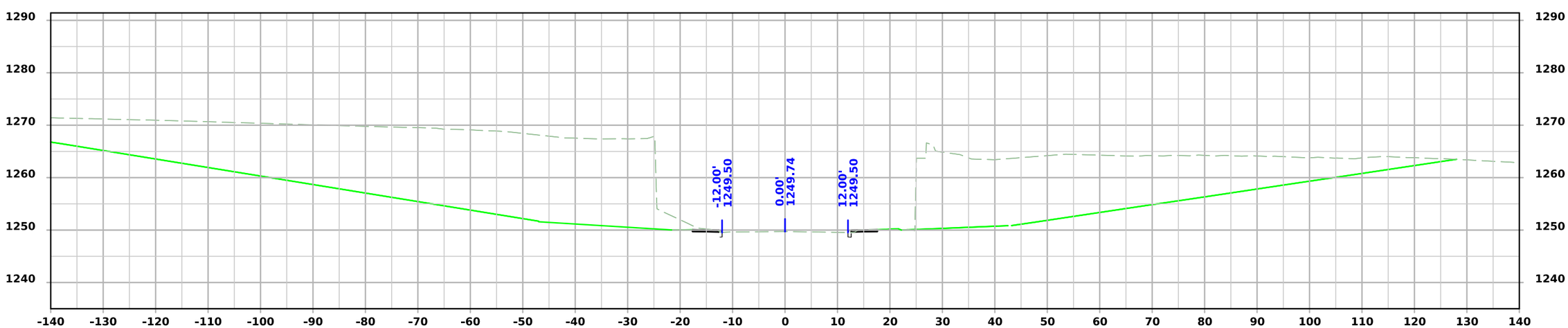

1290
1280
1270
1260
1250
1240
-12.00'
1250.20
0.00'
1250.44
12.00'
1250.20
-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
STA 2269+50.00


1270
1260
1250
1240
-12.00'
1250.63
0.00'
1250.87
12.00'
1250.63
-140 -130 -120 -110 -100 -90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
STA 2269+19.00

High Street



STA 2270+17.86



STA 2270+00.00

FILE NO.	ENGLISH	DESIGN TEAM **Iowa DOT / HNTB**	**SAC** COUNTY	PROJECT NUMBER **BRF-175-4(019)--38-81**	SHEET NUMBER **X.2**