

IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District 5

DATE: October 17, 2019

ATTENTION: Jim Armstrong

PROJECT: Wayne County
BRF-065-1(32)--38-93
PIN: 18-93-065-010

FROM: Jenifer Bates

OFFICE: Shive-Hattery

SUBJECT: Project Concept Statement; (Final Approval D0)

This project involves the replacement of the US 65 bridge (Maint. No 9307.0S065) over Caleb Cr

A concept review was held on September 9, 2019. Those present included Mark Van Dyke from the District 5 Office; Steven Schroder from the Project Management Bureau; Steve Seivert from the Preliminary Bridge Bureau; Brandon Walls and Brandy Beavers from the Location and Environment Bureau; and Jenifer Bates, Michael Janechek, and Joe Appel from Shive-Hattery.

Four alternatives considered were:

1. Replace with a 188'-10" x 44' three span PPC type B beam bridge using an off-site detour with a limited working days incentive with an estimated cost of \$2,207,900.
2. Replace with a 188'-10" x 44' three span PPC type B beam bridge using staged construction with an estimated cost of \$2,278,600.
3. Replace with a 194' x 44' three span PPC type BTB beam bridge using staged construction with an estimated cost of \$2,319,700.
4. Replace with a 188'-10" x 44' three span PPC type B beam bridge using an on-site runaround with an estimated cost of \$3,088,800.

Alternative 3 is the preferred alternative due to the lower construction costs when factoring in the anticipated costs associated with the detour, less change required to the vertical profile, and as per Section 3.6.1.6 of the LRFD Bridge Design Manual, the bulb tee beam series are preferred.

One lane of traffic in each direction will be maintained via staged construction utilizing temporary traffic signals.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Monday, October 14, 2019. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2023. The Bridges and Structures Bureau will coordinate plan preparation with assistance from the Design Bureau and Shive-Hattery.

Cc:	C. Purcell	M. J. Kennerly	K. D. Nicholson	S. J. Megivern
	J. S. Nelson	B. Walls	M. Nop	M. A. Swenson
	R. A. Younie	D. R. Tebben	K. Brink	D. L. Newell
	J. W. Laaser-Webb	W. A. Sorenson	D. E. Sprengeler	E. C. Wright
	M. E. Ross	A. A. Welch	N. M. Miller	C. C. Poole
	M. J. Sankey	B. E. Azeltine	B. D. Hofer	T. D. Crouch
	S. J. Gent	S. Anderson	P. C. Keen	J. Selmer
	K. K. Patel	S. Godbold	D. R. Claman	J. Hauber
	A. Abu-Hawash	M. E. Khoda	K. Olson	S. Neubauer
	M. Van Dyke	J. R. Webb	B. Beavers	A. J. Klein
	J. R. Phillips	J. Garton	J. Woodcock	B. M. Clancy
	M. Claeys	H. Torres-Cacho	J. Bartholomew	D. Upton



FINAL PROJECT CONCEPT STATEMENT

US 65 Bridge over Caleb Creek 2.0 mi S of Co Rd J46
Wayne County
Proj. BRF-065-1(32)--38-93
PIN: 18-93-065-010
Maint. No.9307.0S065
FHWA No. 51900

Jenifer J. Bates, P.E.
515-223-8104

October 17, 2019

I. STUDY AREA

A. Project Description

This project involves the replacement of the US 65 bridge (Maint. No 9307.0S065) over Caleb Creek.

Four alternatives considered were:

1. Replace with a 188'-10" x 44' three span PPC type B beam bridge using an off-site detour with a limited working days incentive.
2. Replace with a 188'-10" x 44' three span PPC type B beam bridge using staged construction.
3. Replace with a 194' x 44' three span PPC type BTB beam bridge using staged construction.
4. Replace with a 188'-10" x 44' three span PPC type B beam bridge using an on-site turnaround.

Alternative 3 is the preferred alternative due to the lower construction costs when factoring in the anticipated costs associated with the detour, less change required to the vertical profile, and as per Section 3.6.1.6 of the LRFD Bridge Design Manual, the bulb tee beam series are preferred.

One lane of traffic in each direction will be maintained via staged construction utilizing temporary traffic signals.

The preliminary project cost is \$2,319,700.

B. Need for Project

This bridge is a 123' x 26' steel beam bridge built in 1947 carrying US 65 over Caleb Creek. The bridge deck was overlaid in 1972 and re-overlaid in 1998 and is near the end of its useful life and needs replaced. The top and bottom of the deck has numerous hollow areas and leaching transverse cracks. The deck joints are leaking and both abutments backwalls need replaced. The bridge was designed for live loads below current standards. Due to the extent of these deficiencies to the deck, superstructure and substructure, the bridge should be replaced instead of repaired.





C. Present Facility

The existing structure is a 120' x 26' continuous I beam bridge constructed in 1946.

US 65 in the project area is 32' wide HMA with 5' wide granular shoulders and 3:1 foreslopes, constructed in 1946. HMA resurfacing with paved shoulders was accomplished in 2012.

D. Traffic Estimates

The 2022 construction year and 2042 design year average daily traffic estimates are 1,100 ADT with 21% trucks and 1,100 ADT with 22% trucks, respectively.

E. Sufficiency Ratings

US 65 is classified as an Area Development route and is a maintenance service level C roadway. The federal bridge sufficiency rating is 63.6.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2014 through December 31, 2018, there were zero crashes in the project vicinity.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 - Replace with a bridge using detour with limited working days incentive

The existing 120' x 26', continuous I beam bridge will be replaced with a 188'-10" x 44' three span PPC type B beam bridge.

The typical cross section adjacent to the bridge will consist of a 24' roadway with 10' effective shoulders (6' paved and 4' granular) and 6:1/3.5:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and

the shoulders will be paved 20' beyond the ends of the guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on four ends of the bridge.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

It appears that right of way may be required for this project.

Traffic will be maintained by an off-site detour with a limited working days incentive.

Bridge Items	<u>Estimated Costs</u>
New Bridge	\$970,600
Limited Work Days Incentive (12%)	\$116,500
Bridge Removal	\$27,600
Revetment	\$33,700
Engineering Fabric	\$2,400
Erosion Stone	\$900
Mobilization - 10%	\$115,200
Contingency - 20%	<u>\$230,400</u>
Bridge Costs	\$1,497,300

Roadway Items	
Bridge Approaches	\$95,400
Removal of Pavement	\$9,100
Embankment in place, contractor furnished	\$117,500
Excavation Class 10	\$12,000
Guardrail (Includes Removal)	\$51,000
Paved Shoulders for Guardrail	\$34,800
Class 10 for Guardrail Blisters	\$23,600
Bridge End Drains	\$14,000
Granular Shoulders for detour route	\$7,000
PCC Patches for detour route	\$10,000
Pavement Markings for detour route	\$8,000
Clearing and Grubbing	\$25,000
Erosion Control	\$50,000
Right of Way	\$50,000
Traffic Control - 5%	\$25,400
Mobilization - 5%	\$25,400
M & C - 30%	<u>\$152,400</u>
Roadway costs	\$710,600

Project Total **\$2,207,900**

Alternative #2 - Replace with a bridge using staged construction

The existing 120' x 26' continuous I beam bridge will be replaced with a 188'-10" x 44' three span PPC type B beam bridge. Due to the existing bridge configuration, a 16' 2" traffic lane will be provided in stage 1, however in stage 2, a 12' wide traffic lane will be maintained. As noted in chapter 9B-9 of the Design Manual, since a 14' 6" lane width is not provided, special signing must be placed in advanced of the work zone area.

The typical cross section adjacent to the bridge will consist of a 24' roadway with 10' effective shoulders (6' paved and 4' granular) and 6:1/3.5:1 foreslopes.

An 8 in. grade raise is required for the bottom of the proposed beams to clear the top of existing piers during stage construction. This bridge will be constructed on the existing horizontal alignment. The 8 in. grade raise can be accomplished completely within the limits of the bridge approach pavement so no additional pavement beyond the approaches will be required. See attached drawing.

New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and the shoulders will be paved 20' beyond the ends of the guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on four ends of the bridge.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way appears to be required for this project.

One lane of traffic in each direction will be maintained via staged construction utilizing temporary traffic signals.

Bridge Items	<u>Estimated Costs</u>
New Bridge	\$970,600
Staging	\$97,100
Bridge Removal	\$27,600
Revetment	\$33,700
Engineering Fabric	\$2,400
Erosion Stone	\$900
Mobilization - 10%	\$113,200
Contingency - 20%	<u>\$226,400</u>
Bridge Costs	\$ 1,471,900
Roadway Items	
Bridge Approaches	\$95,400
Removal of Pavement	\$9,100
Embankment in place, contractor furnished	\$150,000
Excavation Class 10	\$12,000
Guardrail (Includes Removal)	\$51,000
Paved Shoulders for Guardrail	\$34,800
Class 10 for Guardrail Blisters	\$23,600
Bridge End Drains	\$14,000
Temporary Barrier Rail	\$23,000
Temporary Traffic Signal	\$30,000
Temporary Crash Cushions	\$6,000
Clearing and Grubbing	\$25,000
Erosion Control	\$50,000
Right of Way	\$50,000
Traffic Control - 5%	\$29,100
Mobilization - 5%	\$29,100
M & C - 30%	<u>\$174,600</u>
Roadway costs	\$ 806,700
Project Total	\$2,278,600

Alternative #3 - Replace with a bridge using staged construction

The existing 120' x 26' continuous I beam bridge will be replaced with a 194' x 44' three span PPC type BTB beam bridge. Due to the existing bridge configuration, a 16' 2" traffic lane will be provided in stage 1, however in stage 2, an 11' wide traffic lane will be maintained. As noted in chapter 9B-9 of the Design Manual, since a 14' 6" lane width is not provided, special signing must be placed in advanced of the work zone area.

The typical cross section adjacent to the bridge will consist of a 24' roadway with 10' effective shoulders (6' paved and 4' granular) and 6:1/3.5:1 foreslopes.

A 4 in. grade raise is required for the bottom of the proposed beams to clear the top of existing piers during stage construction. This bridge will be constructed on the existing horizontal alignment. The 4 in. grade raise can be accomplished completely within the limits of the bridge approach pavement so no additional pavement beyond the approaches will be required.

New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and the shoulders will be paved 20' beyond the ends of the guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on four ends of the bridge.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way appears to be required for this project.

One lane of traffic in each direction will be maintained via staged construction utilizing temporary traffic signals.

Bridge Items	<u>Estimated Costs</u>
New Bridge	\$1,052,100
Staging	\$105,200
Bridge Removal	\$27,600
Revetment	\$33,700
Engineering Fabric	\$2,400
Erosion Stone	\$900
Mobilization - 10%	\$122,200
Contingency - 20%	<u>\$244,400</u>
Bridge Costs	\$1,588,500

Roadway Items	
Bridge Approaches	\$95,400
Removal of Pavement	\$9,100
Embankment in place, contractor furnished	\$132,500
Excavation Class 10	\$12,000
Guardrail (Includes Removal)	\$51,000
Paved Shoulders for Guardrail	\$34,800
Class 10 for Guardrail Blisters	\$23,600
Bridge End Drains	\$14,000
Temporary Barrier Rail	\$23,000
Temporary Traffic Signal	\$30,000
Temporary Crash Cushions	\$6,000
Clearing and Grubbing	\$25,000
Erosion Control	\$50,000
Right of Way	\$50,000

Traffic Control - 5%	\$28,100
Mobilization - 5%	\$28,100
M & C - 30%	<u>\$168,600</u>
Roadway costs	\$ 731,200
 Project Total	 \$2,319,700

Alternative #4 - Replace with a bridge using an on-site runaround

The existing 120' x 26' continuous I beam bridge will be replaced with a 188'-10" x 44' three span PPC type B beam bridge.

The typical cross section adjacent to the bridge will consist of a 24' roadway with 10' effective shoulders (6' paved and 4' granular) and 6:1/3.5:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and the shoulders will be paved 20' beyond the ends of the guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on four ends of the bridge.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way appears to be required for this project.

Traffic will be maintained by constructing a two-lane runaround west of the current bridge (32' clear between existing bridge and detour pavement). The runaround will consist of 11 ft. wide lanes with 3 ft. paved shoulders and 3:1 foreslopes. The pavement thickness for the runaround will be 7.5" PCC on 6" of special backfill. The two-lane runaround will be approximately 1200' long.

A 40' x 28' single span temporary runaround structure will be used to accommodate drainage. The low beam of the temporary structure will be set at or above the 10-year flood elevation. Field fence will need to be removed and relocated to accommodate the runaround. This field fence will then be removed and relocated to its existing location once the runaround has been removed.

Bridge Items	<u>Estimated Costs</u>
New Bridge	\$ 970,600
Temporary Runaround Bridge	\$102,000
Bridge Removal	\$27,600
Revetment	\$33,700
Engineering Fabric	\$2,400
Erosion Stone	\$900
Mobilization - 10%	\$113,700
Contingency - 20%	<u>\$227,400</u>
Bridge Costs	\$1,478,300

Roadway Items	
Bridge Approaches, Mainline	\$95,400
Bridge Approaches, Runaround	\$23,200
Removal of Pavement	\$33,500
Embankment in place, contractor furnished	\$375,000

Excavation, Class 10	\$18,600
Excavation, Class 10 Waste	\$103,000
Guardrail (Includes Removal)	\$51,000
Granular Shoulder	\$3,400
Paved Shoulders for Guardrail	\$58,800
Class 10 for Guardrail Blisters	\$23,600
Bridge End Drains	\$14,000
Detour Pavement	\$148,200
Special Backfill	\$57,800
Clearing and Grubbing	\$25,000
Erosion Control	\$50,000
Right of Way	\$50,000
Traffic Control - 5%	\$60,000
Mobilization - 5%	\$60,000
M & C - 30%	<u>\$360,000</u>
Roadway costs	\$1,610,500
Project Total	\$3,088,800

Other Alternatives Considered

Other alternatives discussed included an ABC slide bridge, but it was determined that it would be more expensive and was dismissed.

B. Detour Analysis

US 65 will be closed and an offsite detour will be utilized. It is anticipated the detour will be in place for approximately 110 days. The detour would follow County Road J54 east until it turns north and becomes County Road S22, then north on County Road S22 until the junction with County Road J46, then west on County Road J46 until the junction with US Highway 65. Out of distance travel is 12.5 miles. The total distance user cost is anticipated to be \$362,000. The cost for county road maintenance will be \$22,600 as calculated by the Gas Tax Method. Detour signing costs will be \$10,000.

C. Recommendations

It is recommended that the present structure be replaced, as described in Alternative No. 3.

D. Construction Sequence

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

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to US 65; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The ABC Rating Score of 33 is less than the first stage filter threshold of 50, therefore this bridge will not be considered for ABC construction.

No bike path or sidewalk will be required as part of this project.

Right of Way appears to be required for this project.

Once the Location and Environment Bureau has completed their review, comments will be incorporated into the final concept statement.

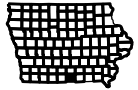
F. Program Status

Site data has been developed by Shive-Hattery. This project is listed in the 2020-2024 Iowa Transportation Improvement Program, with \$1,150,000 programmed for replacement in FY 2023. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

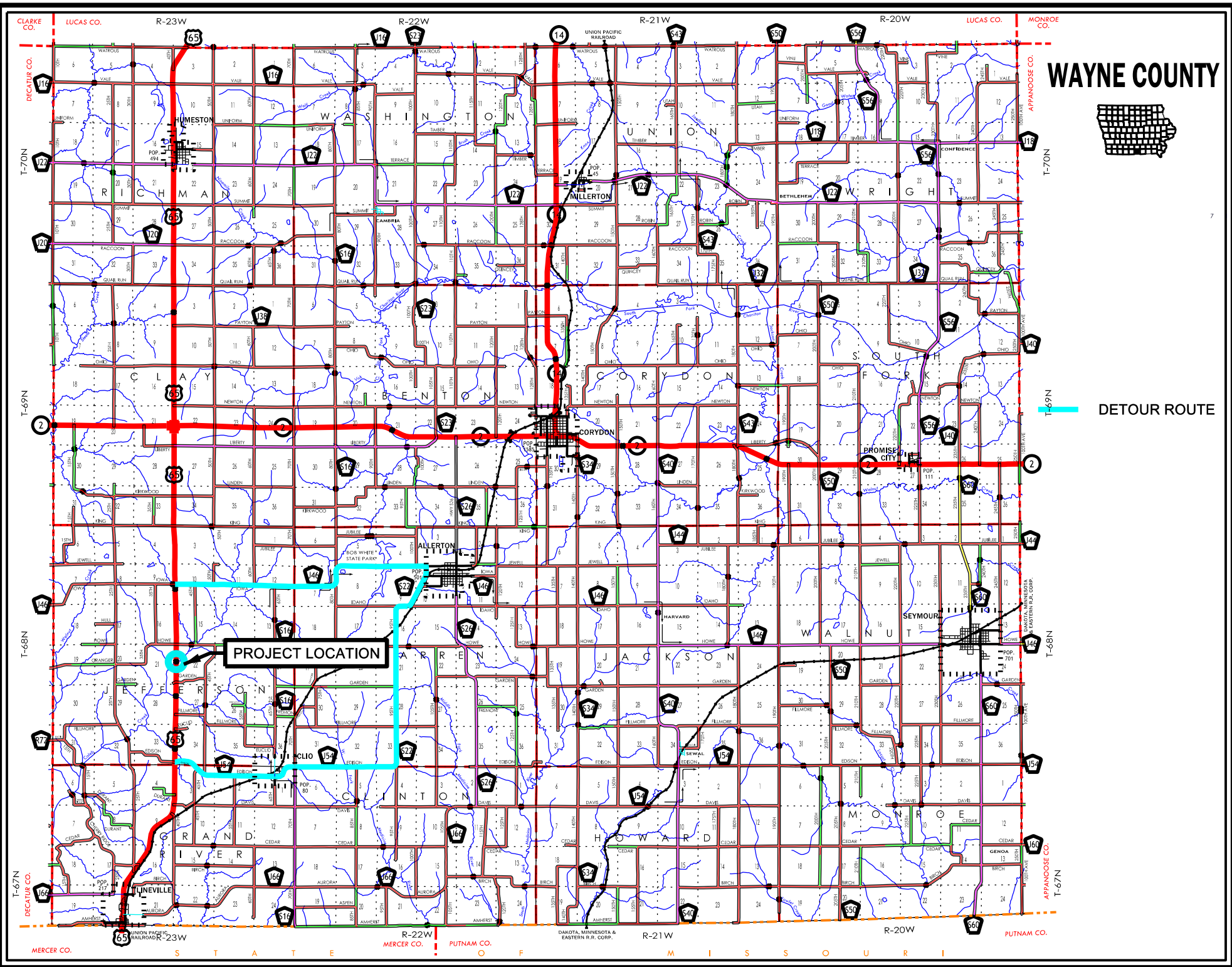
Following page has a map of the county showing the location of the project area and the anticipated detour route.

Attachment A – Utilities

WAYNE COUNTY



DETOUR ROUTE



PROJECT LOCATION

MERCER CO. S T A T E MERCER CO. PUTNAM CO. DAKOTA, MINNESOTA & EASTERN R.R. CORP. R-22W R-21W R-20W PUTNAM CO. T-67N

ATTACHMENT A

Jenifer J. Bates

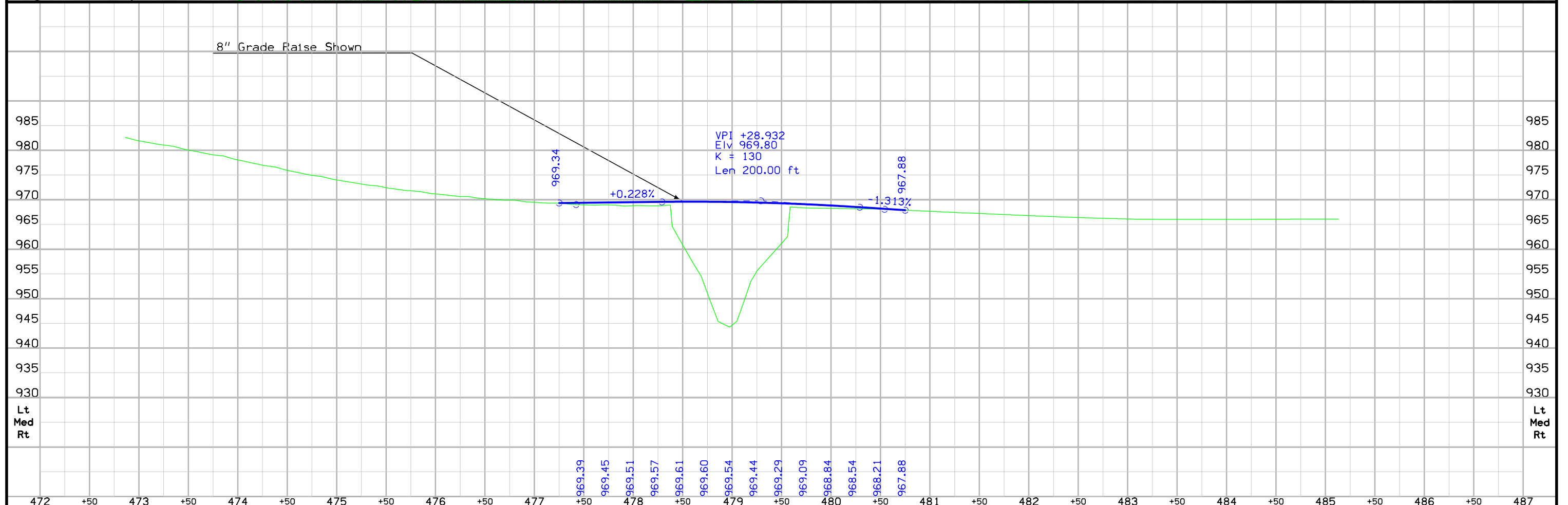
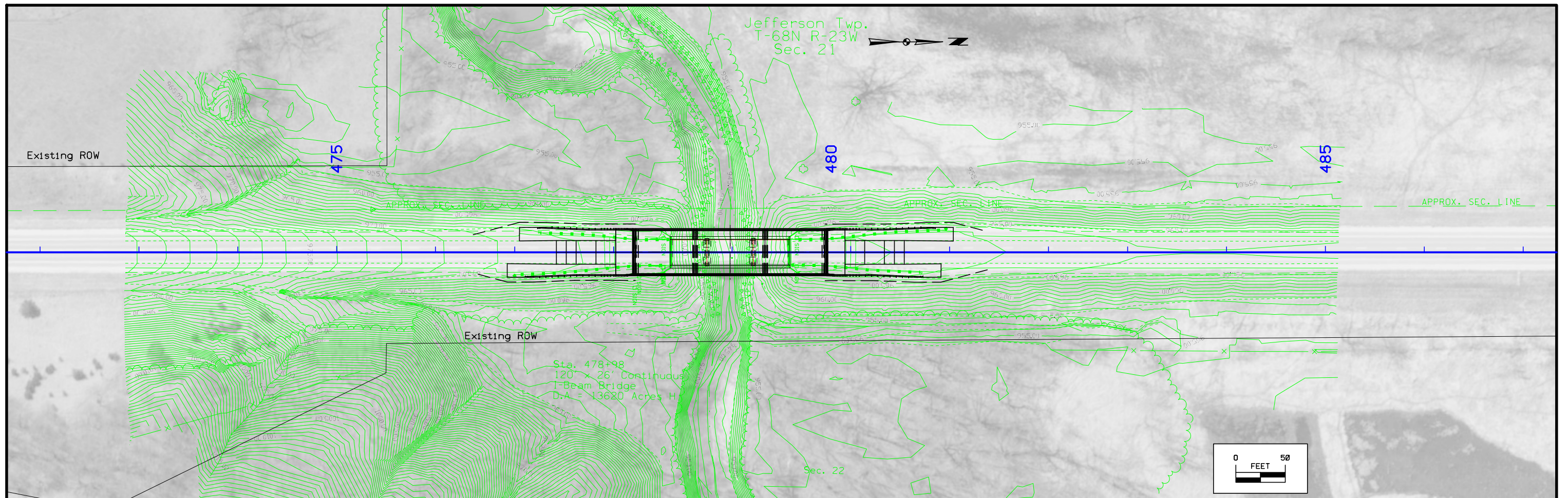
From: ia@occinc.com
Sent: Monday, June 24, 2019 7:05 AM
To: Rummelhart, Michael
Subject: Design Information Results for Ticket # 551904643

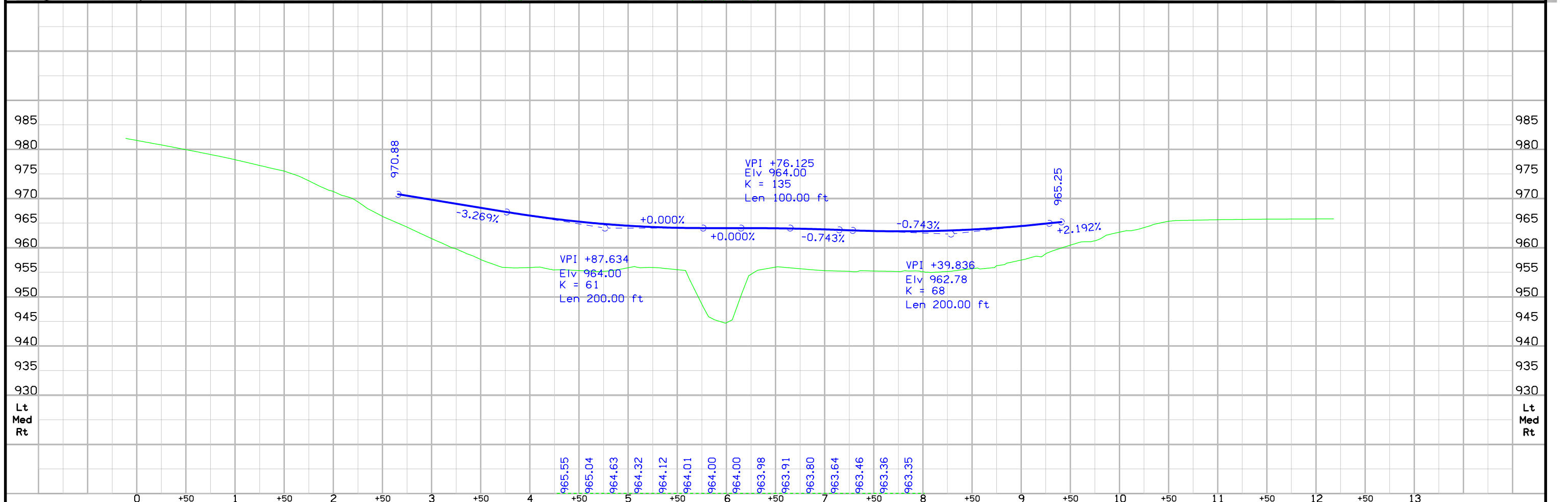
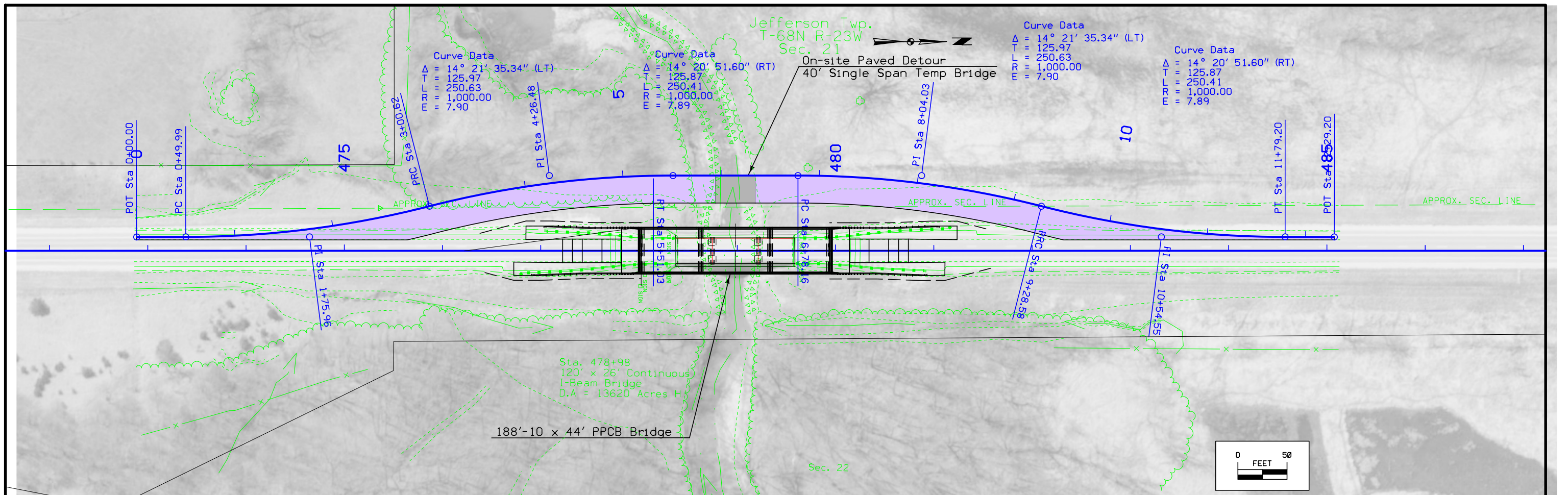
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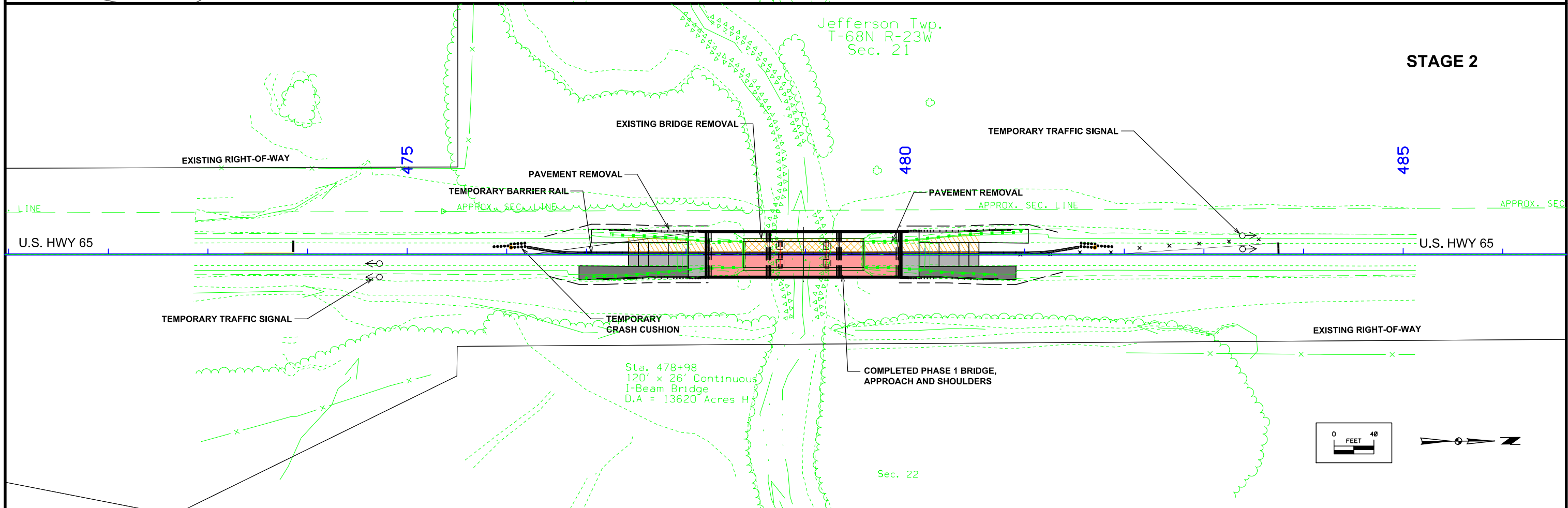
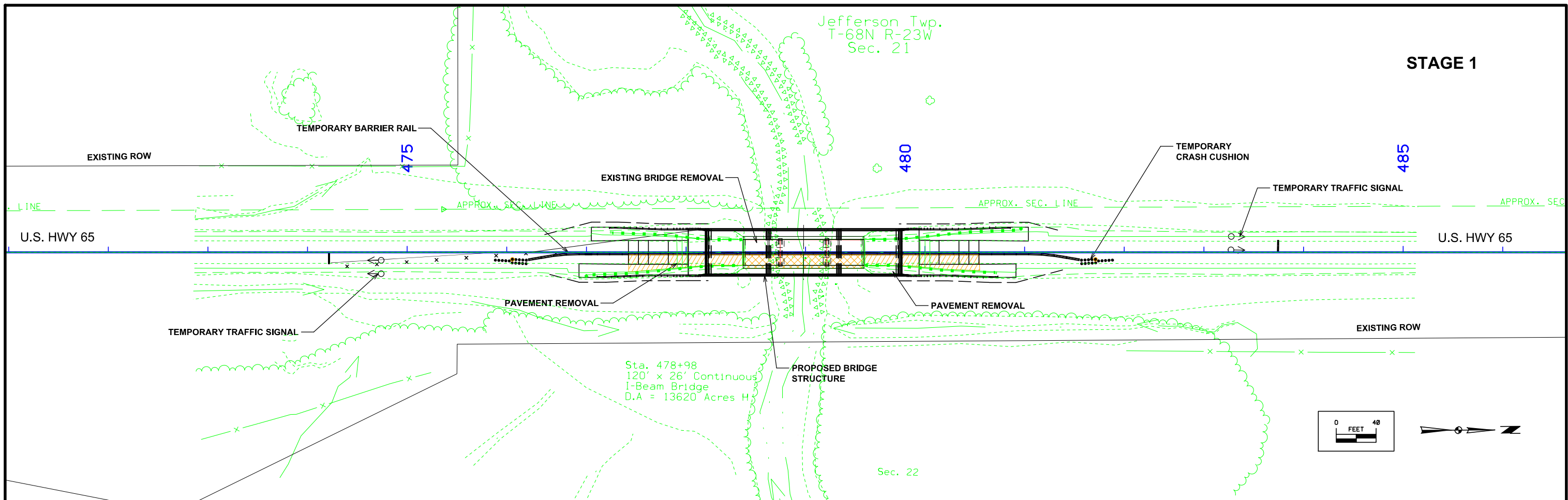
Contact Name : Don Lange
Contact Phone : 6413422173
Contact Email : jkbill@cecnet.net
Locate Requested: N

(VGR) GRAND RIVER MUTUAL TELEPHONE C

Contact Name : Michael Jordison
Contact Phone : 6414464212
Contact Email : grmjordi@grm.net
Locate Requested: N

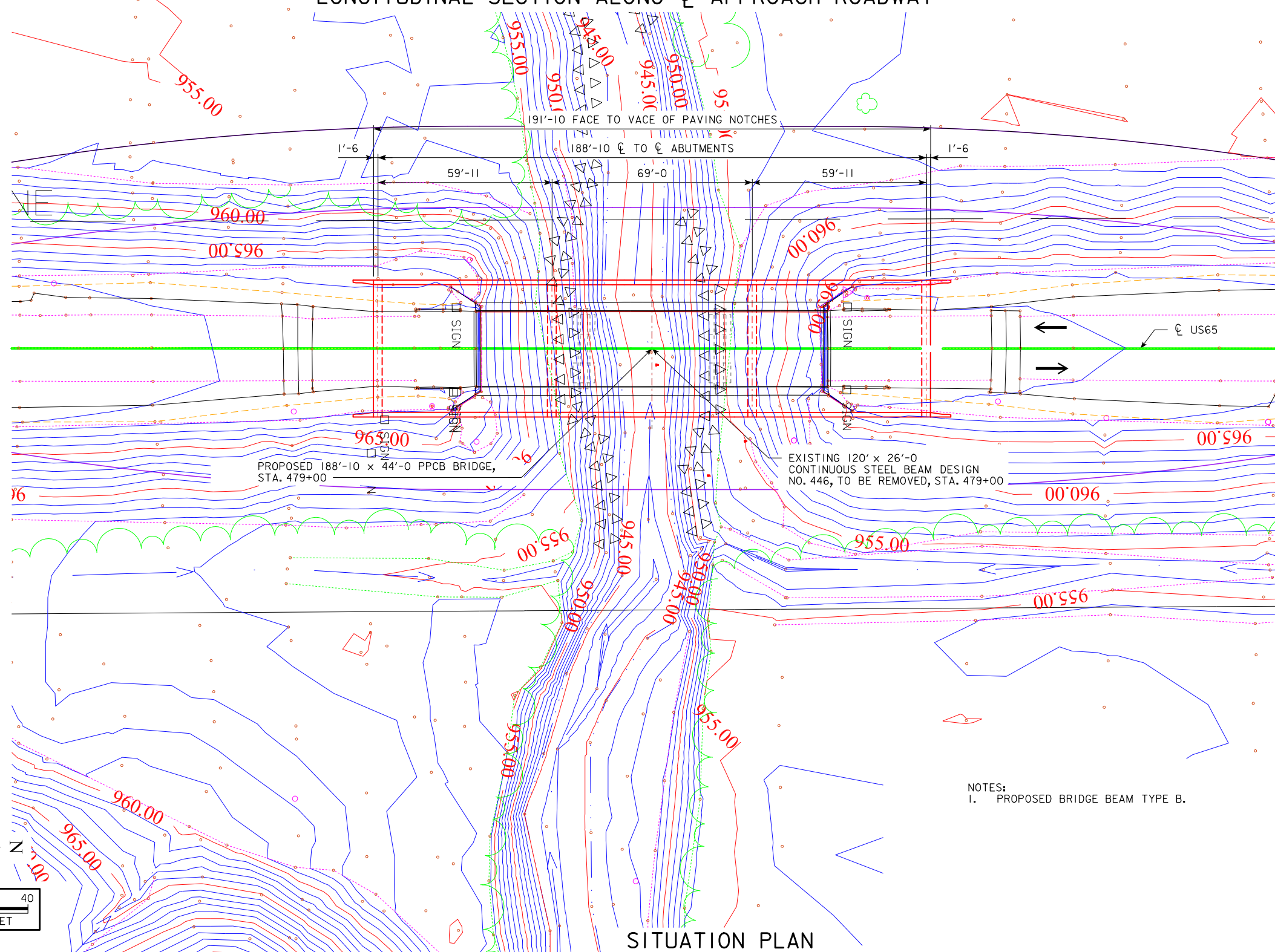






990		990
980		980
970		970
960		960
950		950
940		940

LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY



HYDRAULIC DATA

DRAINAGE AREA = 19.9 SQ. MI.
 STREAM SLOPE = 13.3 FT./MI.
 AVG. LOW WATER STAGE = 945.4

$Q_{50} = 8660$ CFS
 STAGE = 959.6 FT.
 BACKWATER = 1.1 FT.
 AVG. BRIDGE VELOCITY = 10.9 FPS

$Q_{100} = 10600$ CFS
 STAGE = 960.4 FT.
 BACKWATER = 1.5 FT.
 AVG. BRIDGE VELOCITY = 12.5 FPS

$Q_{500} = 12710$ CFS
 STAGE = 961.4 FT.
 CALCULATED CHECK SCOUR =

$Q_{1000} = 15250$ CFS
 STAGE = 962.3 FT.
 CALCULATED CHECK SCOUR =
 ROADWAY OVERTOP = 966.1

LOCATION TRAFFIC ESTIMATE

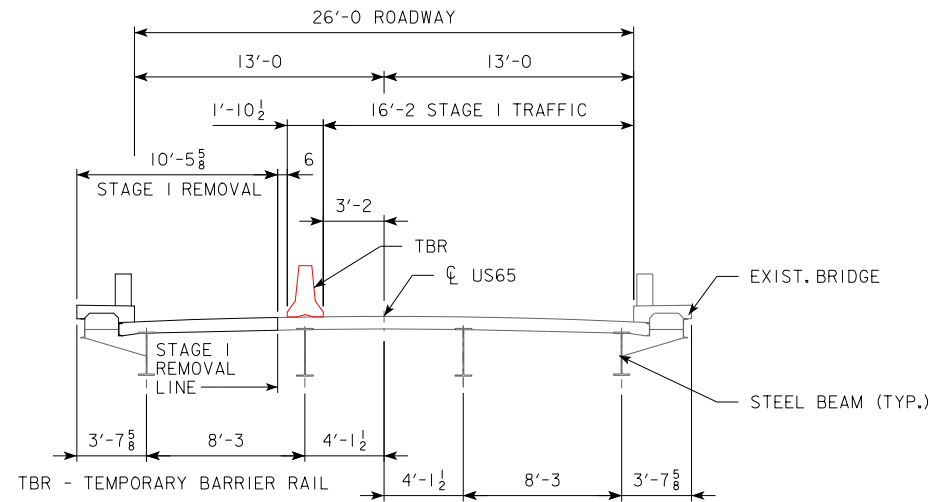
US65 OVER N. CALEB CREEK	2022	AADT	1100	V.P.D.
T-68N R-23W	2042	AADT	1100	V.P.D.
SECTION 22	2042	DHV	120	V.P.H.
JEFFERSON TOWNSHIP		TRUCKS	22	%
WAYNE COUNTY				
FHWA NO. 51900				
BRIDGE MAINT. NO. 9307.0s065				
LATITUDE 40.67574616				
LONGITUDE -93.49817899				

NOTES:
 1. PROPOSED BRIDGE BEAM TYPE B.

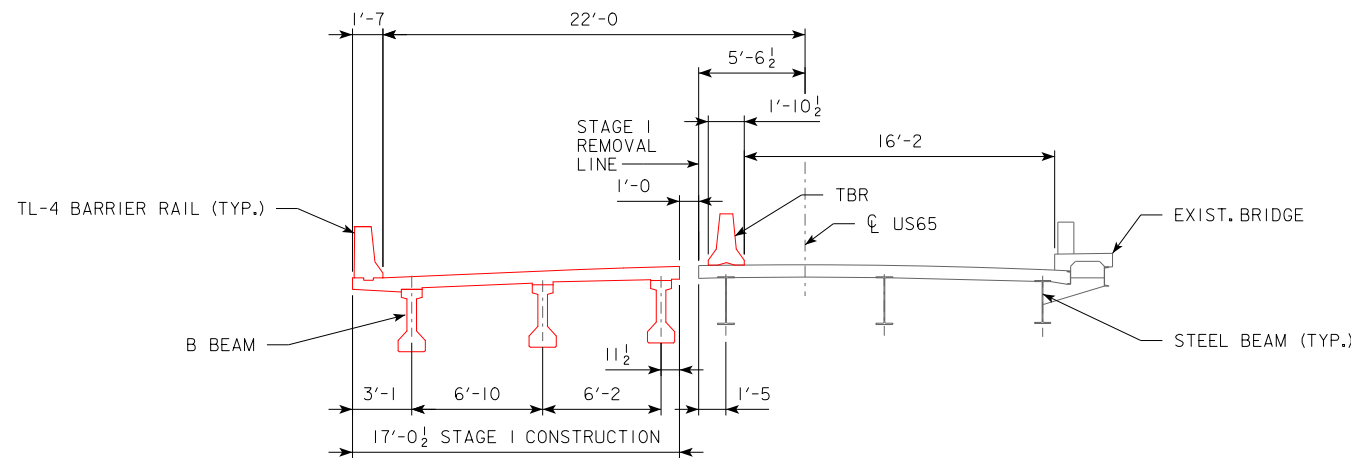
DESIGN FOR 0° SKEW
**188'-10 X 44'-0 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE**
 59'-11 END SPANS, 69'-0 INTERIOR SPAN
SITUATION PLAN
 STATION 479+00.00 (US65) OCTOBER, 2019
WAYNE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF ? FILE NO. ???? DESIGN NO. ???

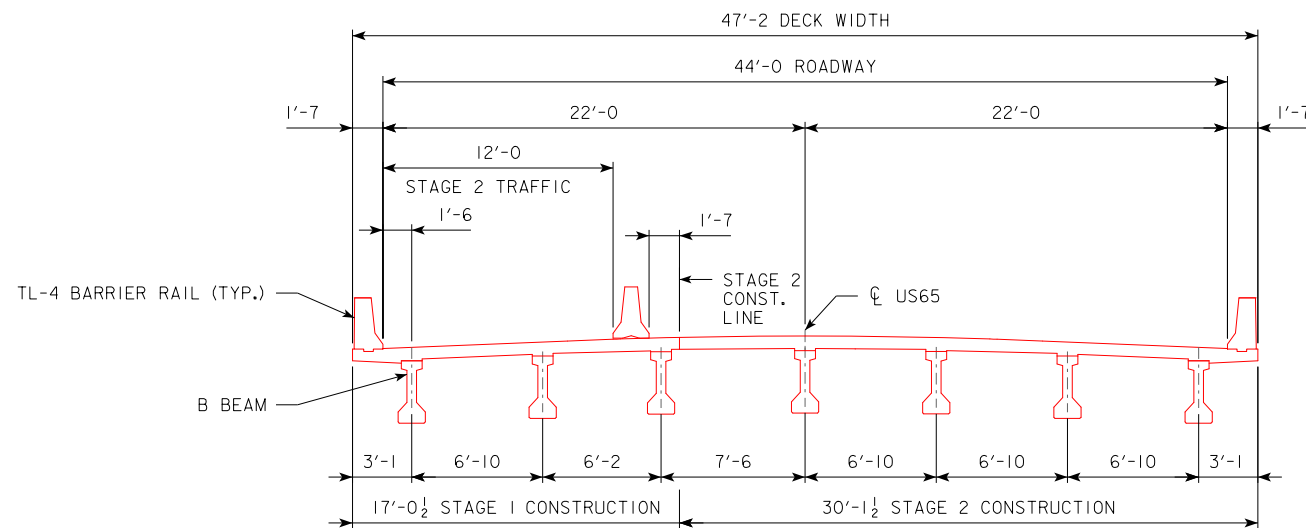
SITUATION PLAN



STAGE I REMOVAL



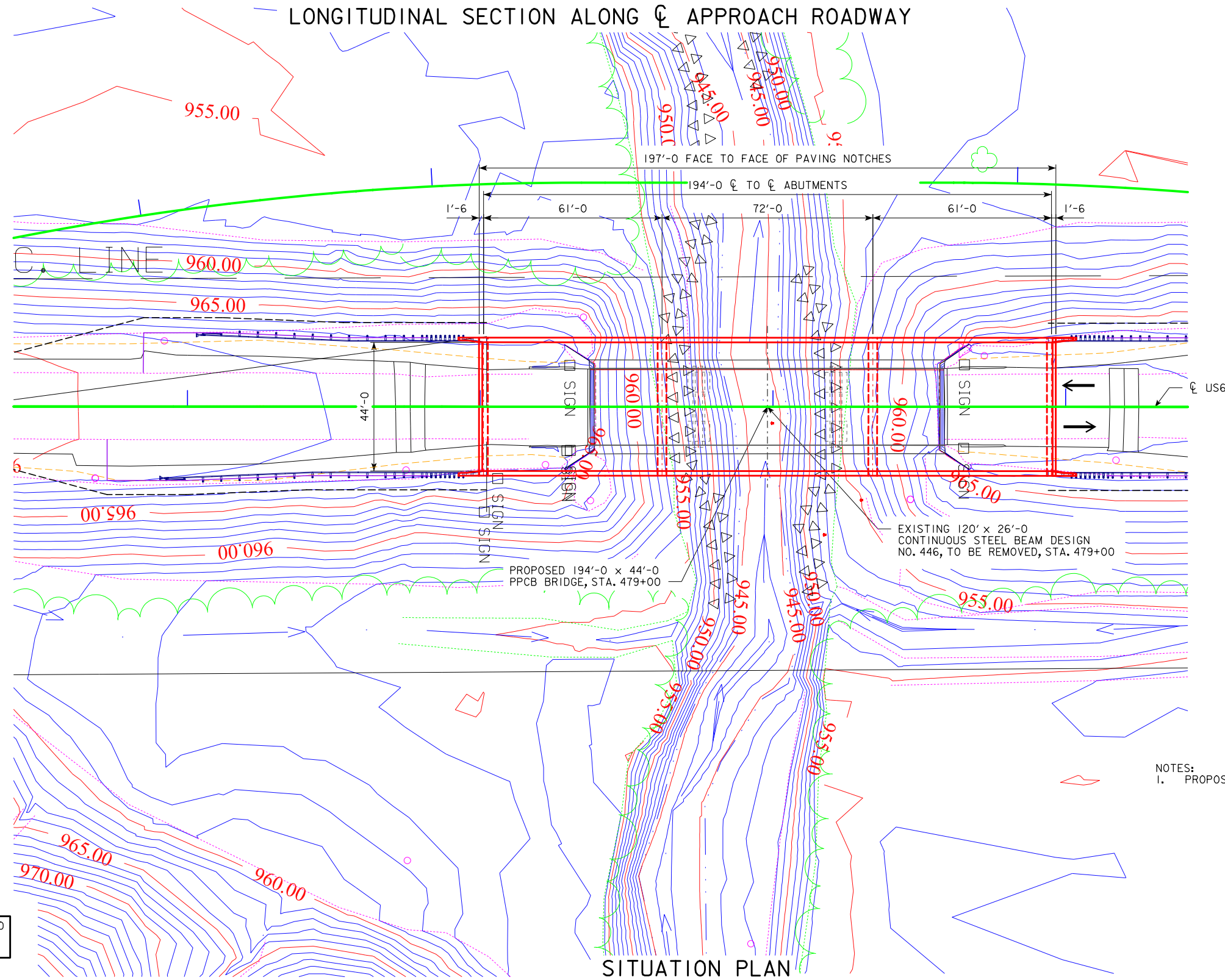
STAGE I CONSTRUCTION



STAGE 2 CONSTRUCTION

DESIGN FOR 0° SKEW
 188'-10 X 44'-0 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE
 59'-11 END SPANS, 69'-0 INTERIOR SPAN
 STAGE PLAN
 STATION 479+00.00 (US65) OCTOBER, 2019
 WAYNE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 2 FILE NO. ??? DESIGN NO. ???

990		990
980		980
970		970
960		960
950		950
940		940



HYDRAULIC DATA

DRAINAGE AREA = 19.9 SQ. MI.
 STREAM SLOPE = 13.3 FT./MI.
 AVG. LOW WATER STAGE = 945.4

Q_{50} = 8660 CFS
 STAGE = 959.5 FT.
 BACKWATER = 1.0 FT.
 AVG. BRIDGE VELOCITY = 7.1 FPS

Q_{100} = 10600 CFS
 STAGE = 960.4 FT.
 BACKWATER = 1.5 FT.
 AVG. BRIDGE VELOCITY = 8.1 FPS

Q_{500} = 12710 CFS
 STAGE = 961.2 FT.
 CALCULATED CHECK SCOUR =

Q_{1000} = 15250 CFS
 STAGE = 962.2 FT.
 CALCULATED CHECK SCOUR =
 ROADWAY OVERTOP = 966.1

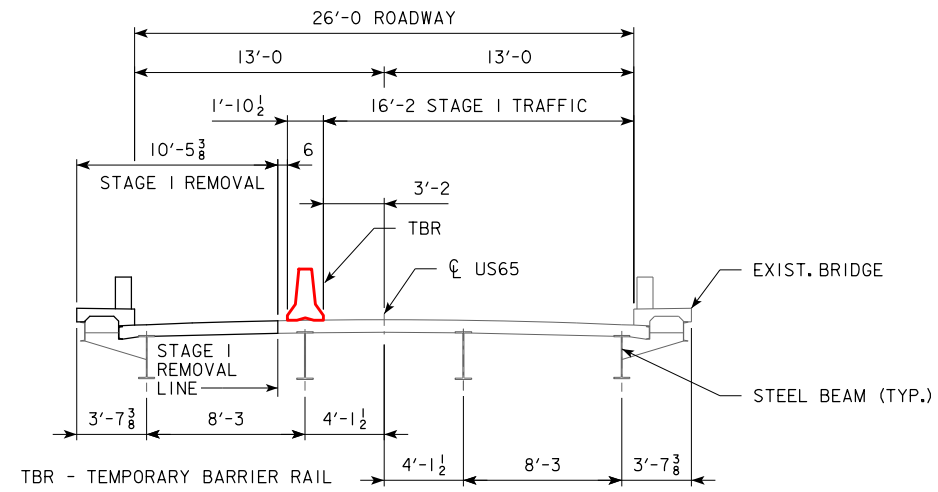
LOCATION TRAFFIC ESTIMATE

US65 OVER N. CALEB CREEK	2022 AADT	1100	V.P.D.
T-68N R-23W	2042 AADT	1100	V.P.D.
SECTION 22	2042 DHV	120	V.P.H.
JEFFERSON TOWNSHIP	TRUCKS	22	%
WAYNE COUNTY			
FHWA NO. 51900			
BRIDGE MAINT. NO. 9307.0s065			
LATITUDE 40.67574616			
LONGITUDE -93.49817899			

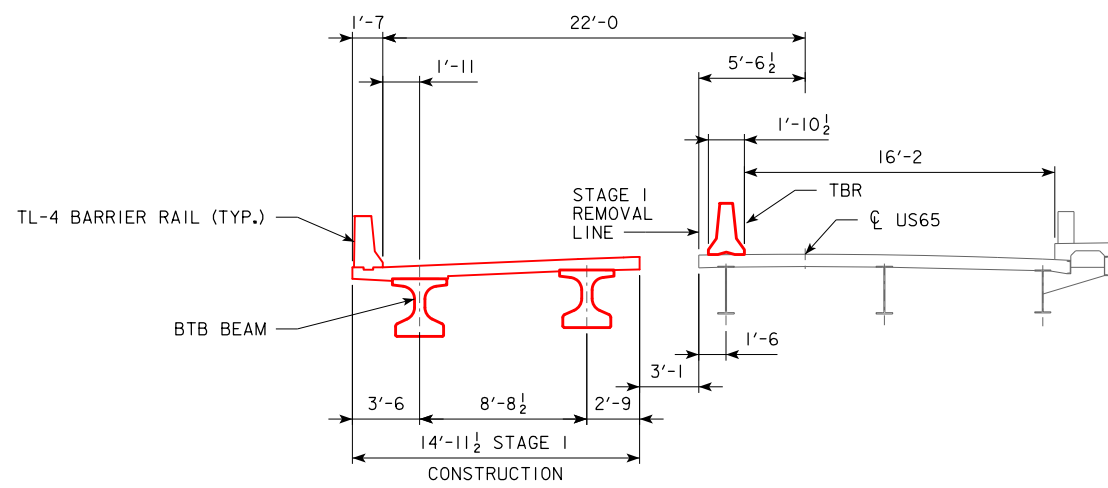
NOTES:
 1. PROPOSED BRIDGE BEAM TYPE BTB.

DESIGN FOR 0° SKEW
**194'-0" X 44'-0" PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE**
 61'-0" END SPANS, 72'-0" INTERIOR SPAN
SITUATION PLAN
 STATION 479+00.00 (US65) OCTOBER, 2019
WAYNE COUNTY

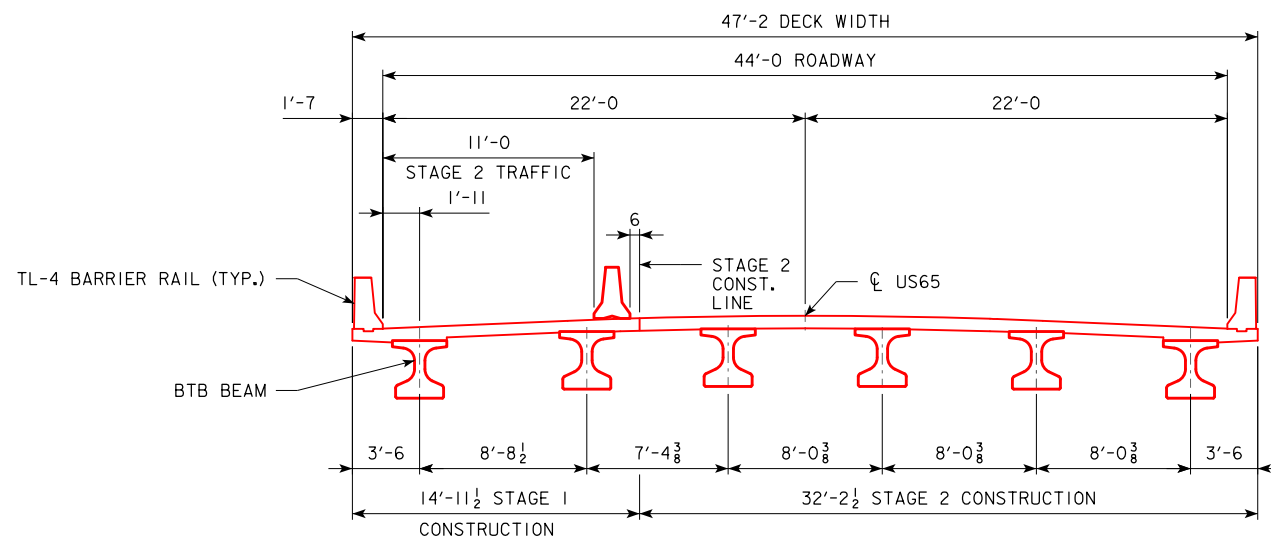
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 2 FILE NO. ???? DESIGN NO. ???



STAGE I REMOVAL



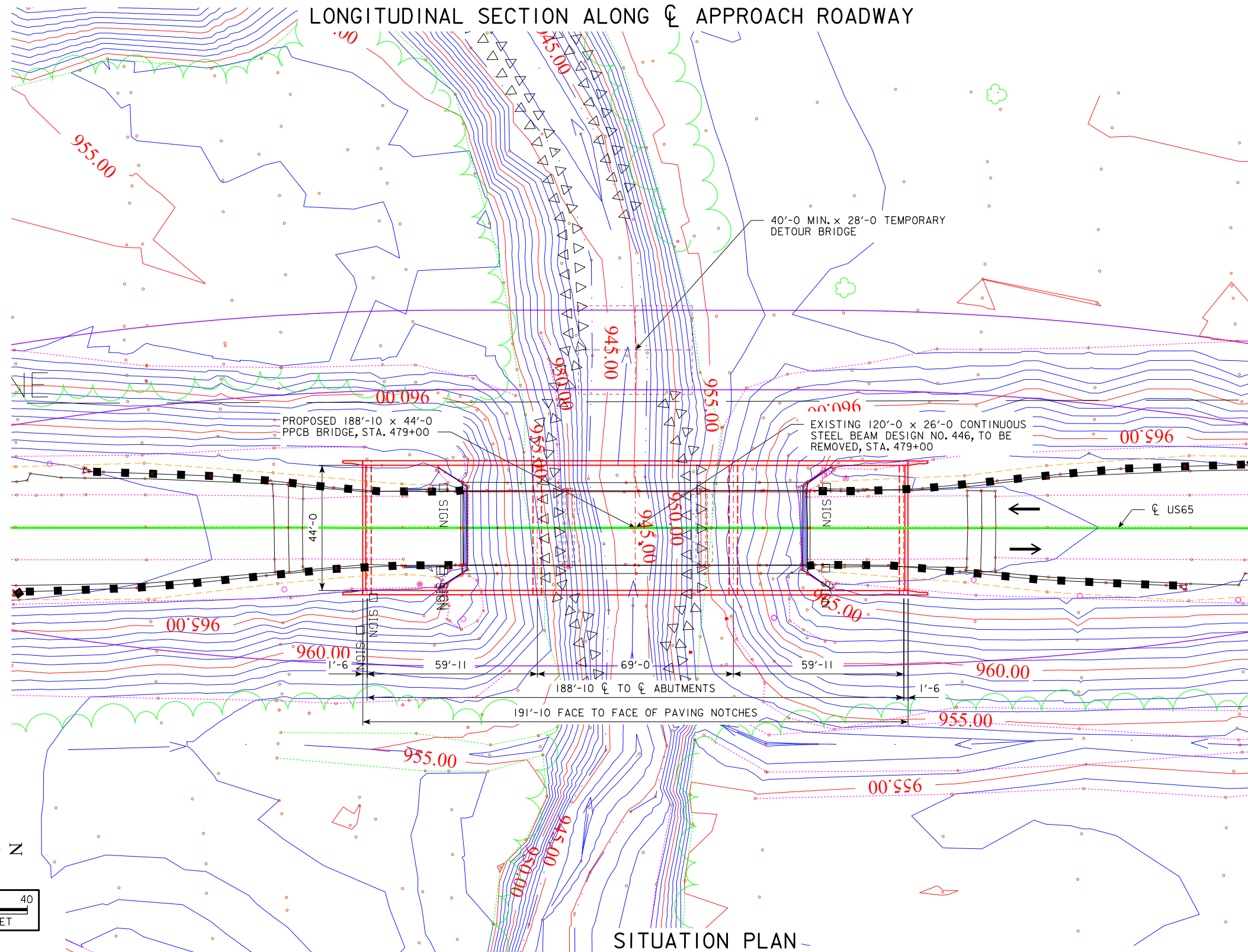
STAGE I CONSTRUCTION



STAGE 2 CONSTRUCTION

DESIGN FOR 0° SKEW
**194'-0 X 44'-0 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE**
 61'-0 END SPANS, 72'-0 INTERIOR SPAN
STAGE PLAN
 STATION 479+00.00 (US65) OCTOBER, 2019
WAYNE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF ? FILE NO. ???? DESIGN NO. ???

990		990
980		980
970		970
960		960
950		950
940		940



HYDRAULIC DATA

DRAINAGE AREA = 19.9 SQ. MI.
 STREAM SLOPE = 13.3 FT./MI.
 AVG. LOW WATER STAGE = 954.4

⁵⁰
 Q = 8660 CFS
 STAGE = 961.5 FT.
 BACKWATER = 2.9 FT.
 AVG. BRIDGE VELOCITY = 10.9 FPS

¹⁰⁰
 Q = 10600 CFS
 STAGE = 963.0 FT.
 BACKWATER = 4.0 FT.
 AVG. BRIDGE VELOCITY = 12.5 FPS

²⁰⁰
 Q = 12710 CFS
 STAGE = 964.5 FT.
 CALCULATED CHECK SCOUR =

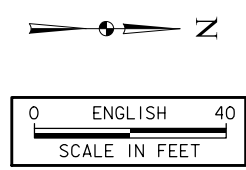
⁵⁰⁰
 Q = 15250 CFS
 STAGE = 966.0 FT.
 CALCULATED CHECK SCOUR =
 ROADWAY OVERTOP = 966.1

LOCATION

US65 DETOUR OVER N. CALEB CREEK
 T-68N R-23W
 SECTION 22
 JEFFERSON TOWNSHIP
 WAYNE COUNTY
 LATITUDE 40.67574616
 LONGITUDE -93.49817899

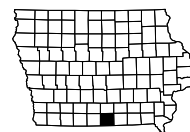
TRAFFIC ESTIMATE

2022 AADT	1100	V.P.D.
2042 AADT	1100	V.P.D.
2042 DHV	120	V.P.H.
TRUCKS	22	%



DESIGN FOR 0° SKEW
**40'-0 MIN. X 28'-0 TEMPORARY
 ON-SITE DETOUR BRIDGE**
 40'-0 MIN. SINGLE SPAN
SITUATION PLAN
 WAYNE COUNTY
 OCTOBER, 2019

STATION _____
 DESIGN SHEET NO. 1 OF ? FILE NO. ???? DESIGN NO. ???



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 - 3	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Project Description
C.1	Estimated Project Quantities
C.1	Estimate Reference Information
C.1	Standard Road Plans
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US 65
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
G.4	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
* J.2 - 3	Staging and Traffic Control Sheets Stage 1 - 3
V Sheets	Bridge and Culvert Situation Plans
* V.1 - 3	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 8	Mainline Cross Sections
	* Color Plan Sheets



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

WAYNE COUNTY

PPCB BRIDGE REPLACEMENT

US 65 Over Caleb Creek, 2.0 Miles S. of Co. Rd. J46

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



For Project Location Map
Refer to Sheet No. A.02

DESIGN DATA RURAL			
2022	AADT	1,100	V.P.D.
2042	AADT	1,100	V.P.D.
2042	DHV	120	V.P.H.
	TRUCKS	22	%
	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

D5 PLAN – November 20, 2020

D4 PLAN – August 23, 2022

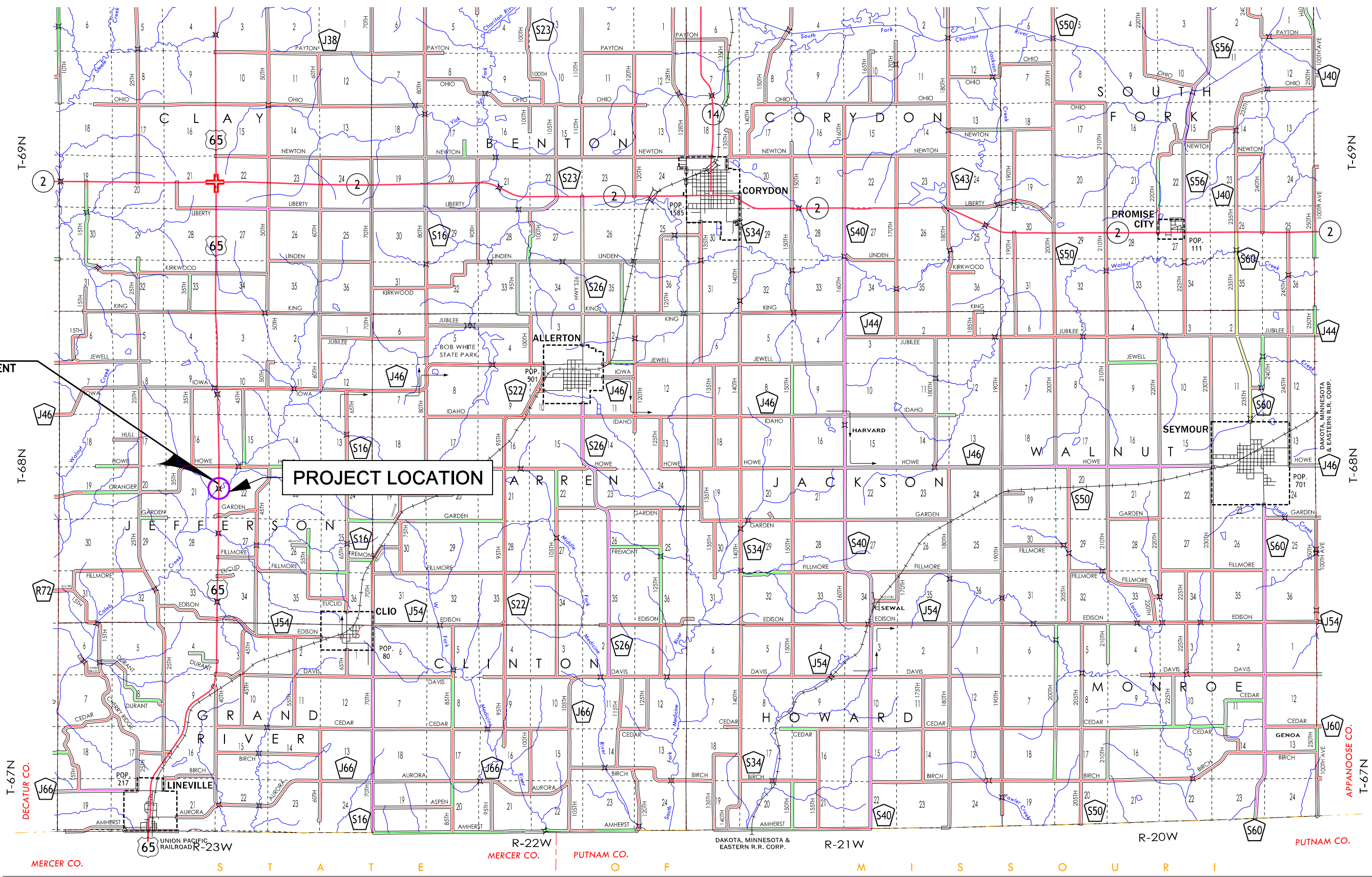
PRELIMINARY PLANS

Subject to change by final design.

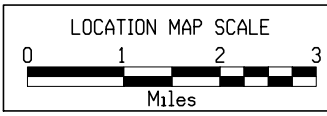
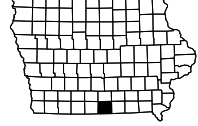
D3 PLAN – July 17, 2020

REVISIONS	TOTAL
	26
PROJECT IDENTIFICATION NUMBER	
18-93-065-010	
PROJECT NUMBER	
BRF-065-1(32)--38-93	
R.O.W. PROJECT NUMBER	
NHSN-065-1(33)--2R-93	

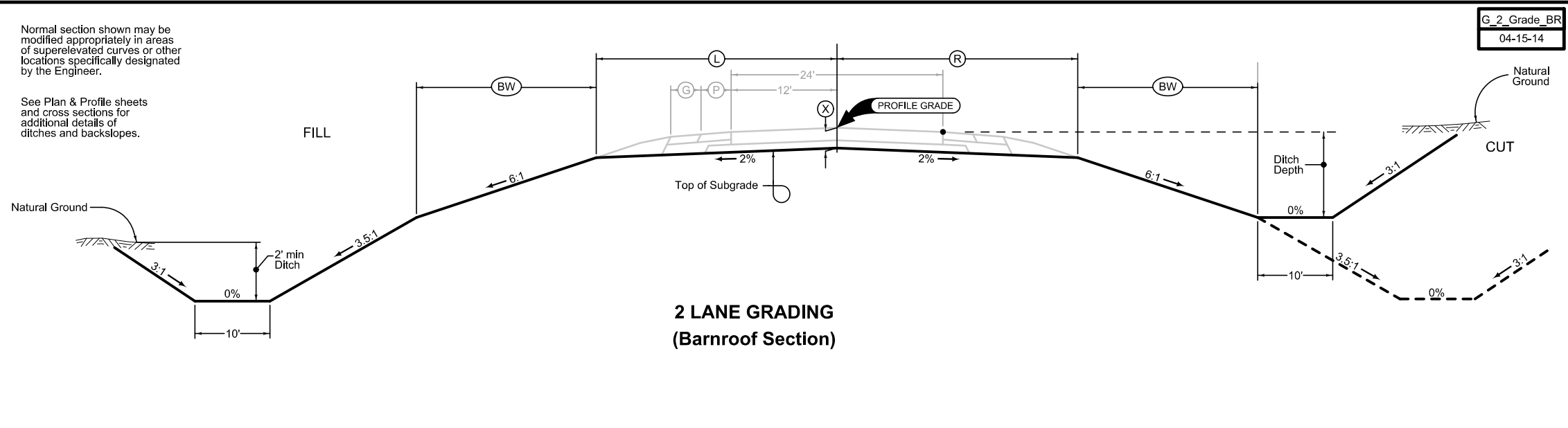
PROJECT LOCATION
US 65 BRIDGE REPLACEMENT
 STA.: 479+00.00
 FHWA NO.: 51901
 MAINT. NO.: 9307.OS065
 MP: 7.0



PROJECT LOCATION



LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	L	R	X	BW
		Feet	Feet	Inches	Feet
US 65	476+84.18 - 481+15.80			15.5	4.84

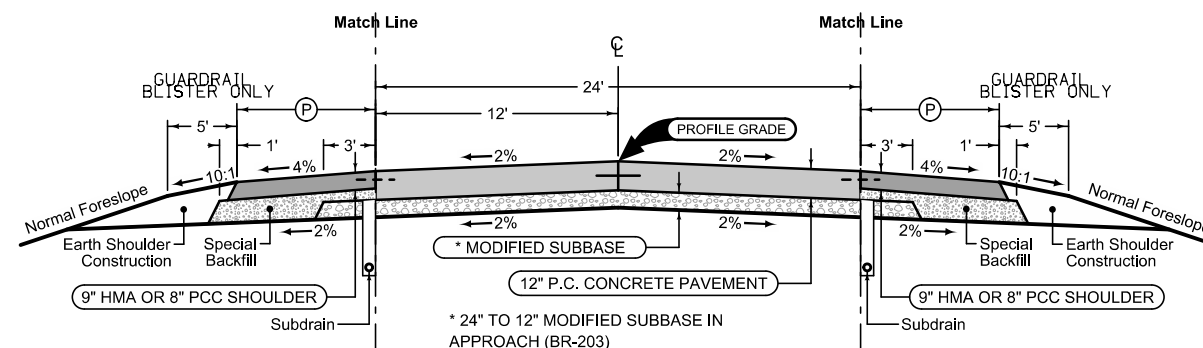


G_2_Grade_BR
04-15-14

Paved Shoulder at Guardrail

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

2_P_Guard_10-17-17		
STATION TO STATION	(P)	Feet
478+01.50		VARIABLE
479+98.50	481+15.80	VARIABLE



Mainline Jointing:
 Transverse joints: CD at 20' spacing
 Longitudinal joint: L-2

2P_10-19-10		
STATION TO STATION	(P)	Feet
477+21.50	477+21.50	
477+21.50	478+01.50	
479+98.50	480+78.50	
480+78.50	481+15.82	

Paved Shoulder at Guardrail

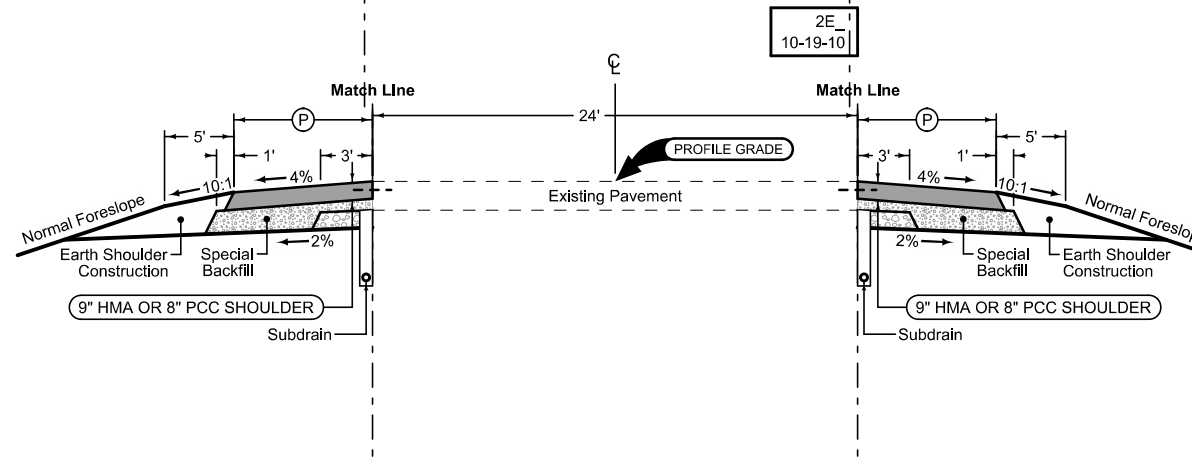
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

2_P_Guard_10-17-17		
STATION TO STATION	(P)	Feet
476+84.18	478+01.50	VARIABLE
479+98.50	481+15.82	VARIABLE

Paved Shoulder at Guardrail

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

2_P_Guard_10-17-17		
STATION TO STATION	(P)	Feet
481+15.80	481+28.17	VARIABLE



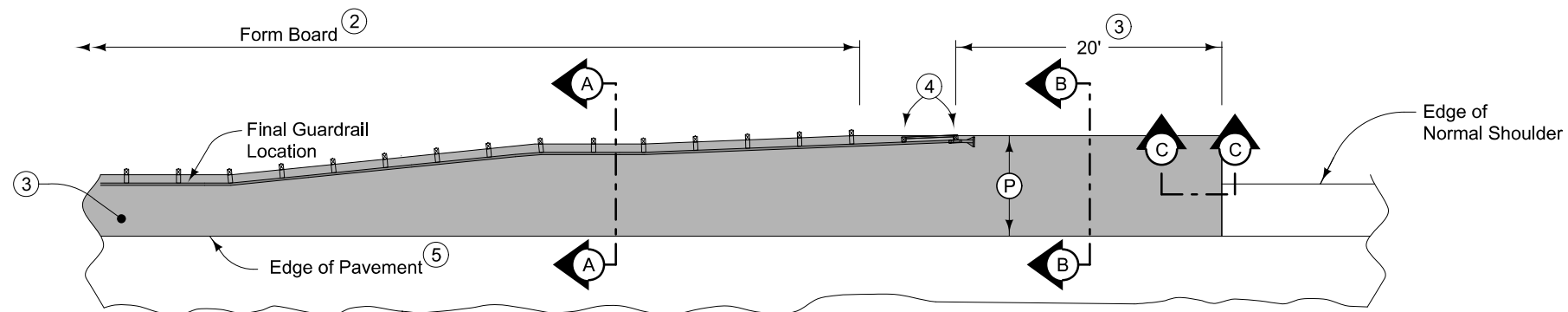
Paved Shoulder at Guardrail

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

2_P_Guard_10-17-17		
STATION TO STATION	(P)	Feet
476+71.83	476+84.18	VARIABLE

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

US 65



PLAN VIEW

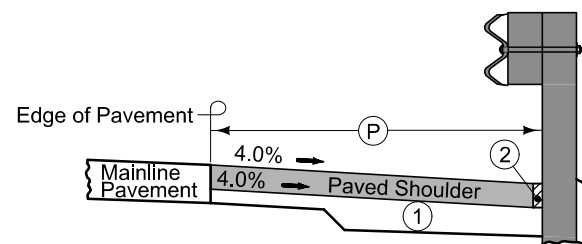
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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

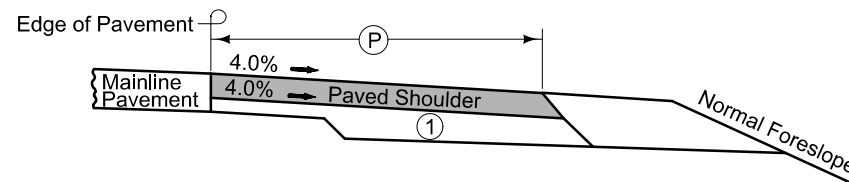
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

- ① For subgrade treatment, refer to other details in the plan.
- ② 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. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.

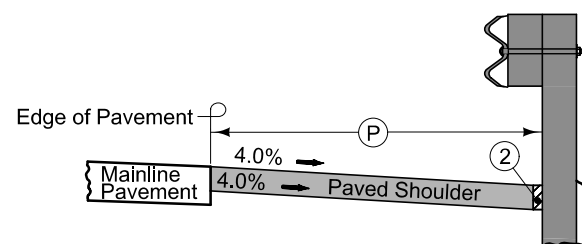


Section A-A

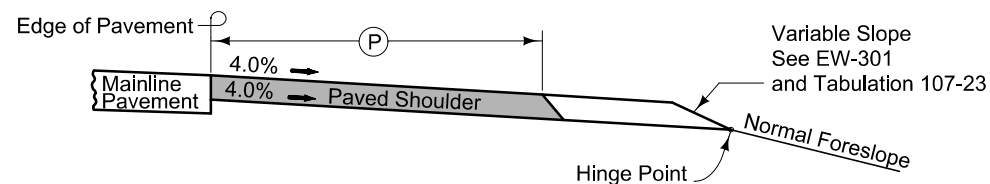


Section B-B

NEW CONSTRUCTION

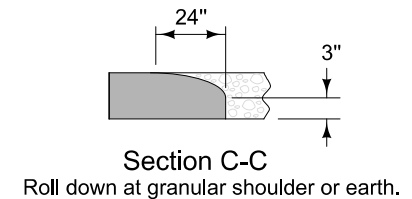


Section A-A



Section B-B

EXISTING SHOULDER



Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

100-1D
10-18-05

PROJECT DESCRIPTION

This project involves the replacement of the US 65 bridge over Caleb Creek, 2.0 miles S. of Co. Rd J46

100-0A
10-28-97

ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)

Item No.	Item Code	Item	Unit	Total	As Built Qty.

105-4
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	10-18-16	Steel Beam Guardrail Components
BA-201	04-18-17	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-205	04-19-16	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	10-18-16	Steel Beam Guardrail Installation at Concrete Barrier on Bridge End Post (MASH TL-3)
BR-203	10-17-17	Double Reinforced 12" Approach
DR-303	10-17-17	Subdrains (Longitudinal)
DR-305	04-17-18	Subdrain Outlets (standard Subdrain, Pressure Release and Special)
DR-402	04-17-18	Rock Flume for Bridge End Drain
EC-201	10-16-18	Silt Fence
EC-202	10-21-14	Floating Silt Curtain
EC-204	04-18-17	Perimeter and Slope Sediment Control Devices
EC-301	10-18-16	Rock Erosion Control (REC)
EW-101	10-17-17	Embankment and Rebuilding Embankments
EW-102	10-20-15	Allowable Placement of Unsuitable Soil in Embankments
EW-201	04-19-16	Bridge Berm Grading without Recoverable Slope (Barnroof Section)
EW-301	10-20-15	Guardrail Grading
PM-110	10-16-18	Line Types
PM-420	04-19-11	Two-Lane Roadway with no Turn Lanes (One-Way Stop Condition)
PV-101	10-16-18	Joints
SI-173	04-19-16	Object Markers
SI-211	10-18-16	Object Markers and Delineator Placement with Guardrail
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-81	10-15-19	Restricted Width Signing (Less than 14.5 Feet)
TC-202	04-21-15	Work Within 15 ft of Traveled Way
TC-217	10-18-16	Lane Closures with Signals and TBR
TC-252	04-19-16	Routes Closed to Traffic

SURVEY SYMBOLS

- WC Wild Card (Misc. Field Shot)
- △ PI Tangent Point
- ▲ SCR Section Corner
- + REF Reference Tie Point
- CON Concrete or A/C Slab
- RIIP Rip-Rap
- BL Topo Breakline
- SBR Size of Bridge
- GR Ground Shot
- GDL Guard Rail Steel
- LIN Miscellaneous Line
- EP Edge of Paved Roads (ML or SR)
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- CP Control Point
- BNK Stream Bank
- DU Centerline Draw or Stream (Up)
- TLNL Tree Line Left
- BLS Bridge Low Steel
- TOP Top of Bridge Pier
- FW Wire Fence
- C Centerline BL of Road (ML or SR)
- SNP Unpaved Shoulder
- CU Back of Curb
- GU Gutter In Front of Curb
- D Centerline Draw or Stream (Down)
- SIGN SI Sign
- MM Mile Marker Post
- TLNR Tree Line Right
- TDC Tree Deciduous
- EHW Extreme High Water
- SP Stream Profile
- TW Top of Water
- EW Edge of Water
- PLG Location of General Photo

UTILITY LEGEND

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

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.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp 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

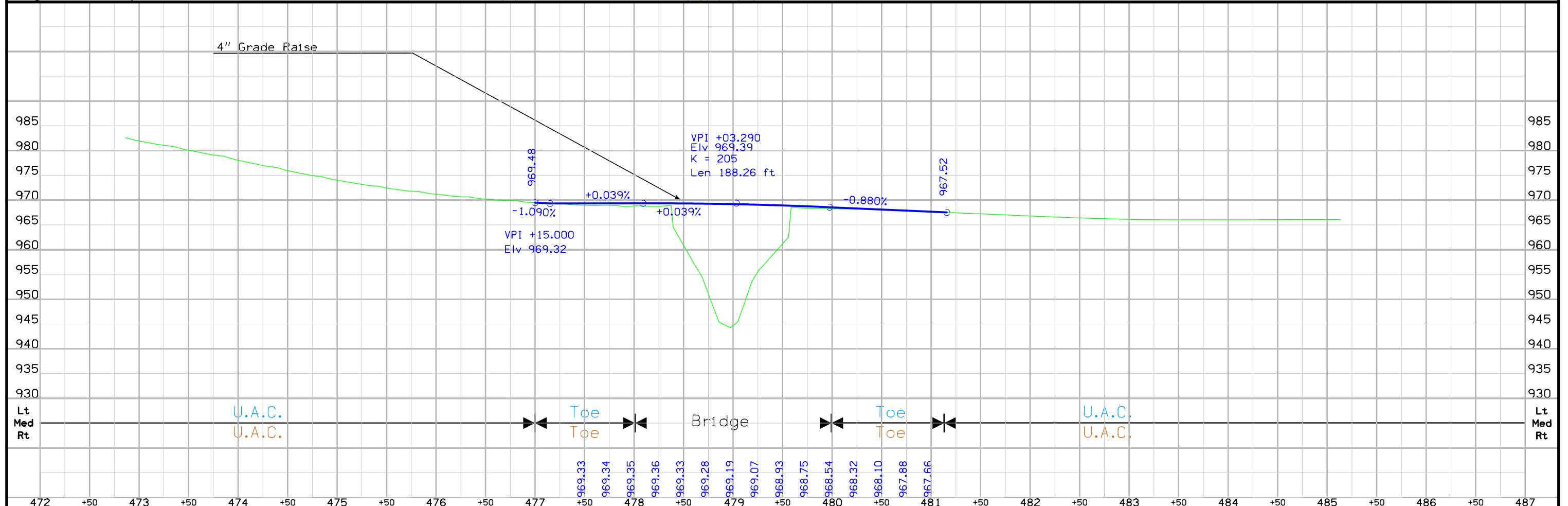
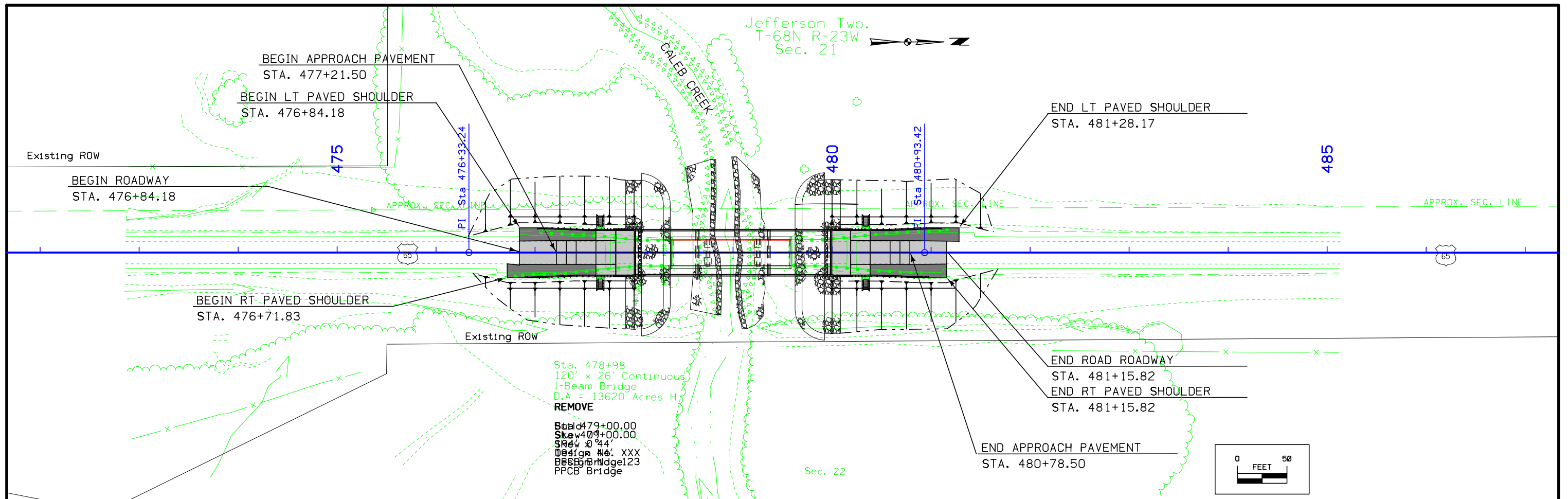
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

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
- Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)



Survey Information

Wayne County
BRF-065-1(32)--38-93
Caleb Creek 2.0 mi S of Co Rd J46
18-93-065-010
Sap-760.1

Date(s) of Survey

Begin Date 02/26/2019
End Date 07/18/2019

General Information

Measurement units for this survey are US survey feet. This survey is for unspecified bridge work @ Caleb Creek, 2.0 mi S of Co Rd J46. Project datum and control information is provided by Design Survey Office. This project is a full field.

Vertical Control

Vertical Control was established on this project by 6 hour GPS static sessions. Vertical datum for this survey is relative to NAVD88. Geoid 12 B was used in processing. GRS80 Ellipsoidal Height was computed at project Pts. CP 1 and CP 2. Vertical control was checked with IARTN checks.

This survey observed AB Plan bench marks to compare to local ground control:

BM 479+61 AB Plans Project # 770 (4) Elevation 980.92
= BM # 500 Survey Elev. = 968.90

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 12 (U.S. Survey Feet). This survey control is relative to IARTN reference stations. IARTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011). Coordinates were determined by conducting six hour static observations. Additional control points were placed throughout the project using a GNSS Base-Rover setups. A minimum of five observations were collected with 1 hour or greater time span between each observation.

Point Name	Northing	Easting	Elevation	Description
CP 1	6111045.419	22569792.5	997.191	FENO MONUMENT
CP 2	6115305.232	22569935.09	1056.095	FENO MONUMENT

Alignment Information

US Hwy 65

The horizontal alignment for this survey is created from As-built Plans Project # 770 (4). Survey stationing was equated to the Plan SE Cor. Sec. 21-68-23 @ Sta. 449+23.8 and run ahead without equation throughout the survey.

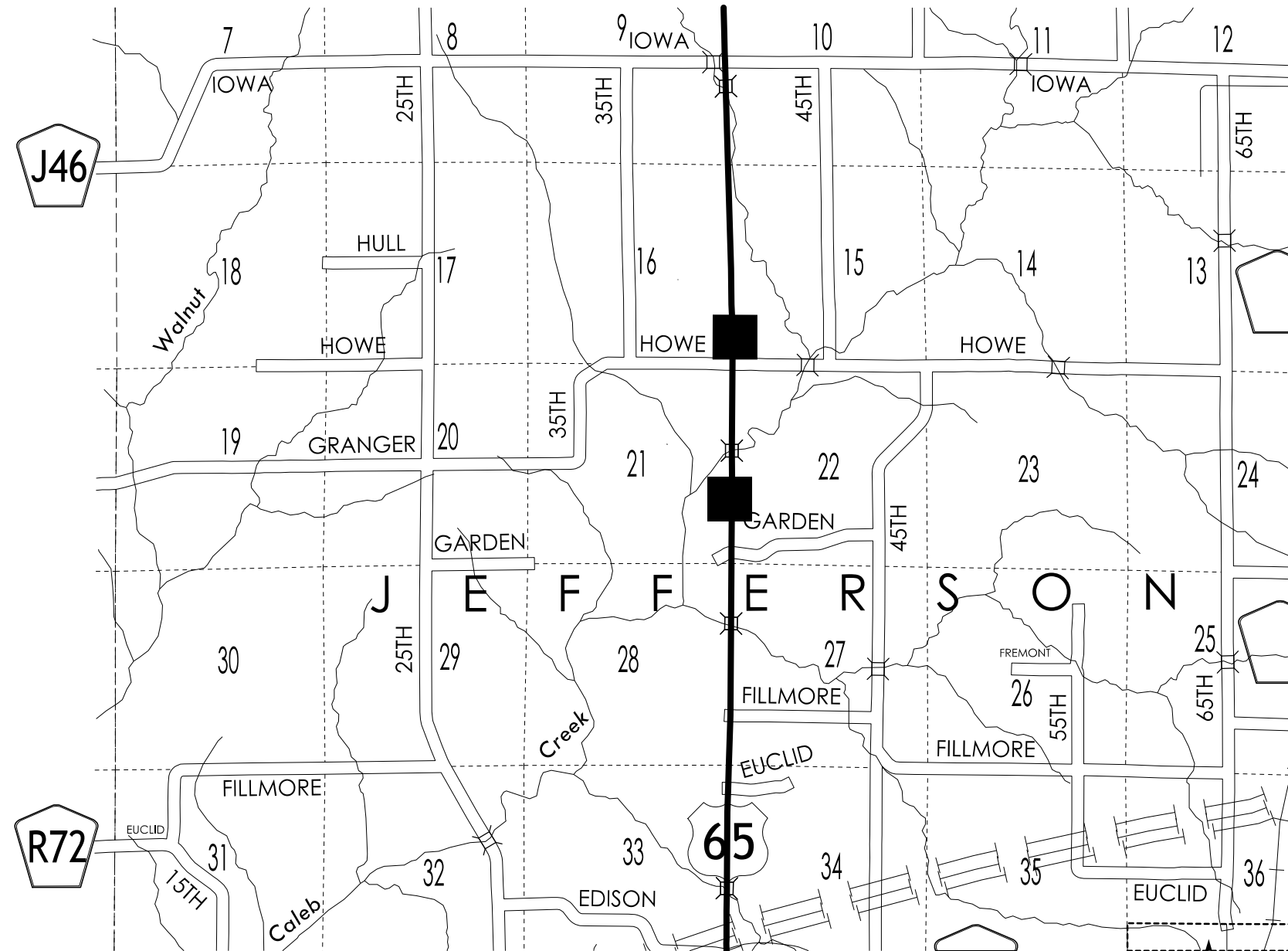
Survey stationing relates to as built plan stationing as follows:

SE Cor. Sec. 21-68-23 Sta. 449+23.8 As-built Plans Project No. 770 (4)
= PI Sta. 449+23.8 this survey

PI Sta. 511+47.9 As-built Plans Project No. 770 (4)
= PI Sta. 511+42.12 this survey

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

1a. Regional Coordinate System Zone 12

Coordinate listing from next sheet will be used with 1aRTN 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

Ia. Regional Coordinate System Zone 12

Name	Feature	Northing	Easting	Elevation	Description
CP 1	FENO	6111045.42	22569792.50	997.191	Feno 1 is .67 miles south of intersection of Howe Ave & US Hwy 65_104 ft. northwest of address sign 2574 US Hwy 65_ 63 ft. west of US Hwy 65_109 ft. north of a field entrance_24 ft. east of a fence_.6 ft. below ground.
CP 2	FENO	6115305.23	22569935.09	1056.095	Feno 2 is .14 miles north of intersection Howe Ave & US Hwy 65_60 ft. east of US Hwy 65_18 ft. west of a fence_99 ft. north of a power pole_.6 ft. below ground.

108-23A
08-01-08

TRAFFIC CONTROL PLAN

- 1) While bridge and approaches are being removed and replaced, traffic shall be maintained on US 65 at all times by staged construction with temporary signals allowing one lane of traffic.
- 2) Signage and devices shall be furnished, installed, maintained, and removed by Contractor.

108-26A
08-01-08

STAGING NOTES

- Stage 1:
Remove and replace west portion of roadway, approaches and bridge with traffic shifted to NB lane using temporary signals.
- Stage 2:
Remove and replace east half of roadway, approaches and bridge with traffic shifted to SB lane using temporary signals.
- Stage 3:
Remove temporary paving on west half of roadway and complete approach and roadway with US 65 traffic shifted to NB lane using temporary signals.

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
US 65	Both	Wayne	Bridge over Caleb Creek	River	Bridge		Width		11			

111-01
04-17-12

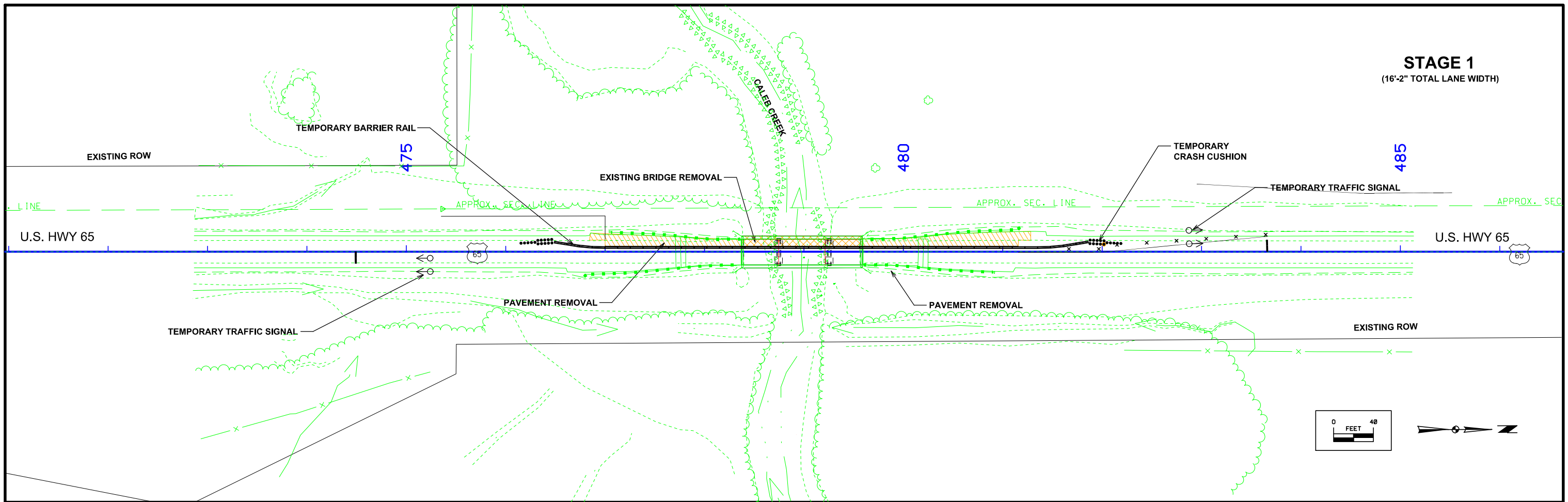
COORDINATED OPERATIONS

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
None Provided	

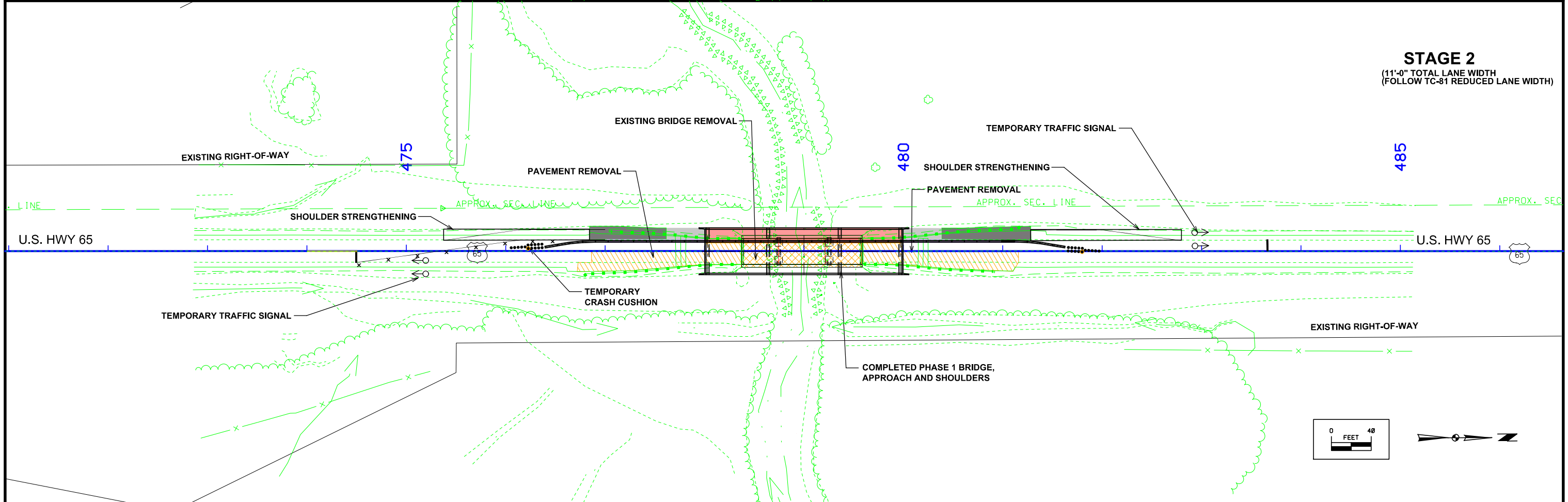
STAGE 1

(16'-2" TOTAL LANE WIDTH)

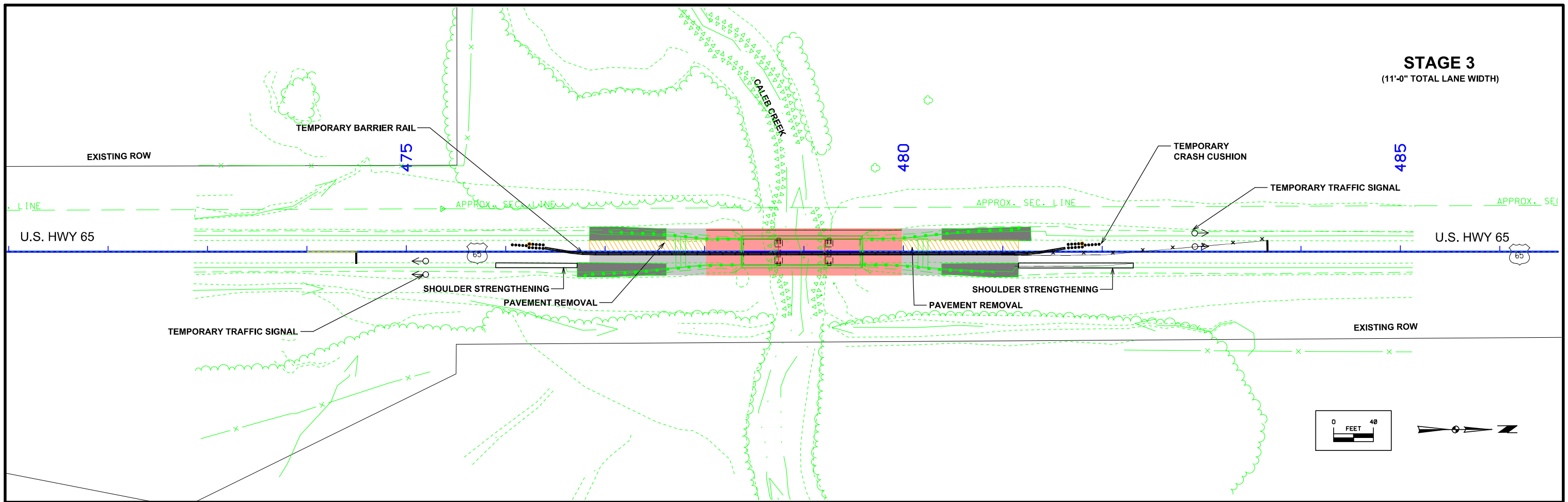


STAGE 2

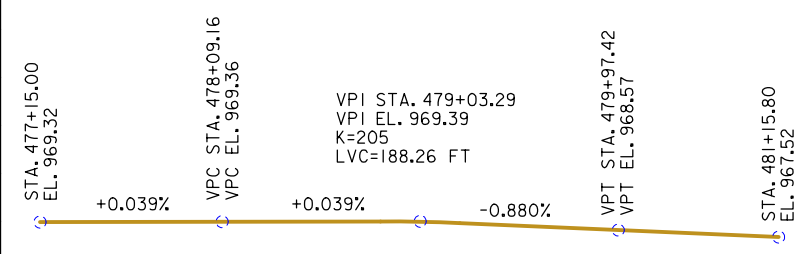
(11'-0" TOTAL LANE WIDTH
(FOLLOW TC-81 REDUCED LANE WIDTH))



STAGE 3
(11'-0" TOTAL LANE WIDTH)



980	EXISTING GRADE	CL. S. ABUT. CR BRG. ELEV. 969.33	CL. PIER 1 ELEV. 969.28	CL. PIER 2 ELEV. 968.98	CL. N. ABUT. CR BRG. ELEV. 968.54	980
970		TOP OF BERM ELEV.=963.37 PROPOSED GRADE		DESIGN H.W. ELEV.=957.8	TOP OF BERM ELEV.= 962.58	970
960	TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE			BENCH ELEV. 954.50		960
950		BOTT. FTG. ELEV. 961.37		OPERATIONAL LOW BEAM PREBORE HOLES, 1'-4" DIA. BOTTOM EL. 950.58	BOTT. FTG. ELEV. 960.58	950
940	CLASS E REVETMENT (2' THICK MIN.) UNDERLAIN WITH ENG. FABRIC			REGULATORY LOW BEAM PRELIMINARY SCOUR ELEV. = 937.50		940
930	PREBORE HOLES, 1'-4" DIA., BOTTOM EL. 951.37					930



LONGITUDINAL SECTION ALONG CL. APPROACH ROADWAY

PROPOSED PROFILE GRADE US 65

UTILITIES LEGEND:

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

HYDRAULIC DATA

DRAINAGE AREA = 19.9 SQ. MI.
 STREAM SLOPE = 13.3 FT./MI.
 AVG. LOW WATER STAGE = 945.4

Q₅₀ = 8660 CFS
 STAGE = 957.8 FT.
 REGULATORY LOW BEAM = 964.98
 BACKWATER = 1.5 FT.
 AVG. BRIDGE VELOCITY = 7.7 FPS

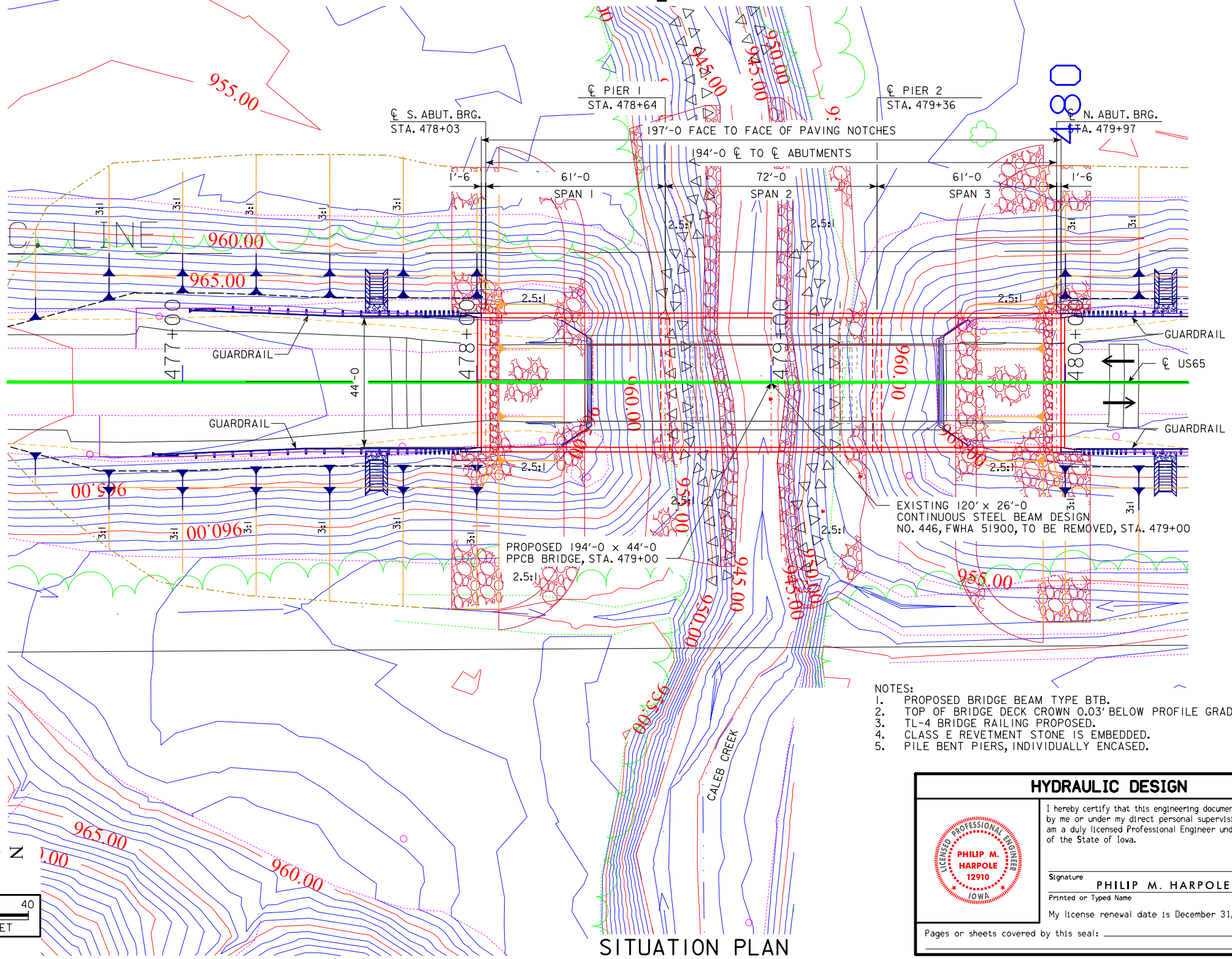
Q₁₀₀ = 10600 CFS
 STAGE = 958.5 FT.
 OPERATIONAL LOW BEAM = 964.33
 BACKWATER = 1.8 FT.
 AVG. BRIDGE VELOCITY = 9.7 FPS

Q₁₀₀ = 12710 CFS
 STAGE = 959.1 FT.
 CALCULATED DESIGN SCOUR = 937.5

Q₁₀₀ = 15250 CFS
 STAGE = 959.8 FT.
 CALCULATED CHECK SCOUR = 936.9
 ROADWAY OVERTOP = 966.1

TYPICAL BRIDGE SECTION

TYPICAL APPROACH SECTION



- NOTES:
1. PROPOSED BRIDGE BEAM TYPE BTB.
 2. TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE.
 3. TL-4 BRIDGE RAILING PROPOSED.
 4. CLASS E REVETMENT STONE IS EMBEDDED.
 5. PILE BENT PIERS, INDIVIDUALLY ENCASED.

LOCATION TRAFFIC ESTIMATE

US65 OVER N. CALEB CREEK	2022 AADT	1100	V.P.D.
T-68N R-23W	2042 AADT	1100	V.P.D.
SECTION 21			
JEFFERSON TOWNSHIP	2042 DHV	120	V.P.H.
WAYNE COUNTY	TRUCKS	22	%

FHWA NO. 51901
 BRIDGE MAINT. NO. 9307.0s065
 LATITUDE 40.675746
 LONGITUDE -93.498178

PRELIMINARY

DESIGN FOR 0° SKEW
**194'-0 X 44'-0 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE**
 61'-0 END SPANS, 72'-0 INTERIOR SPAN
SITUATION PLAN
 STATION 479+00.00 (US65) JULY, 2020
WAYNE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 3 FILE NO. 31702 DESIGN NO. 123

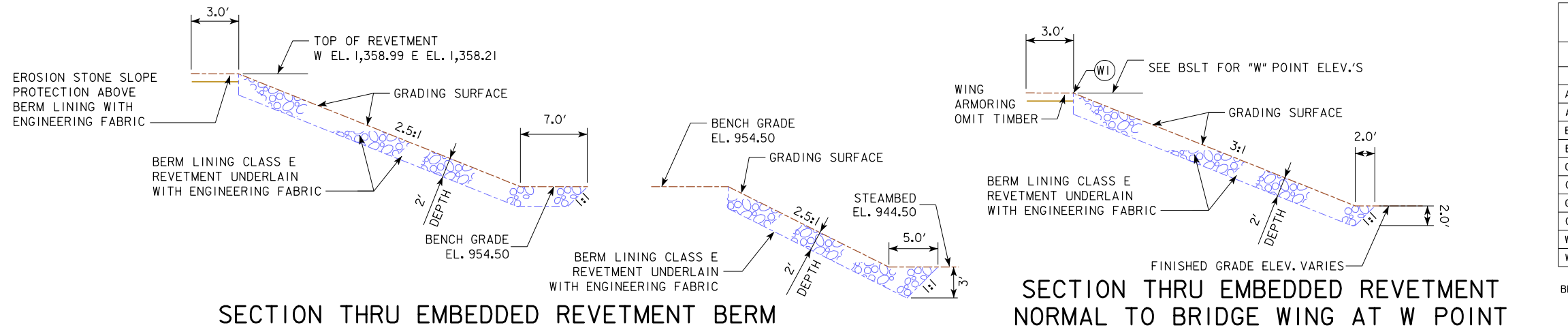
HYDRAULIC DESIGN

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 _____
 Printed or Typed Name
 My license renewal date is December 31, 2020

Pages or sheets covered by this seal: _____



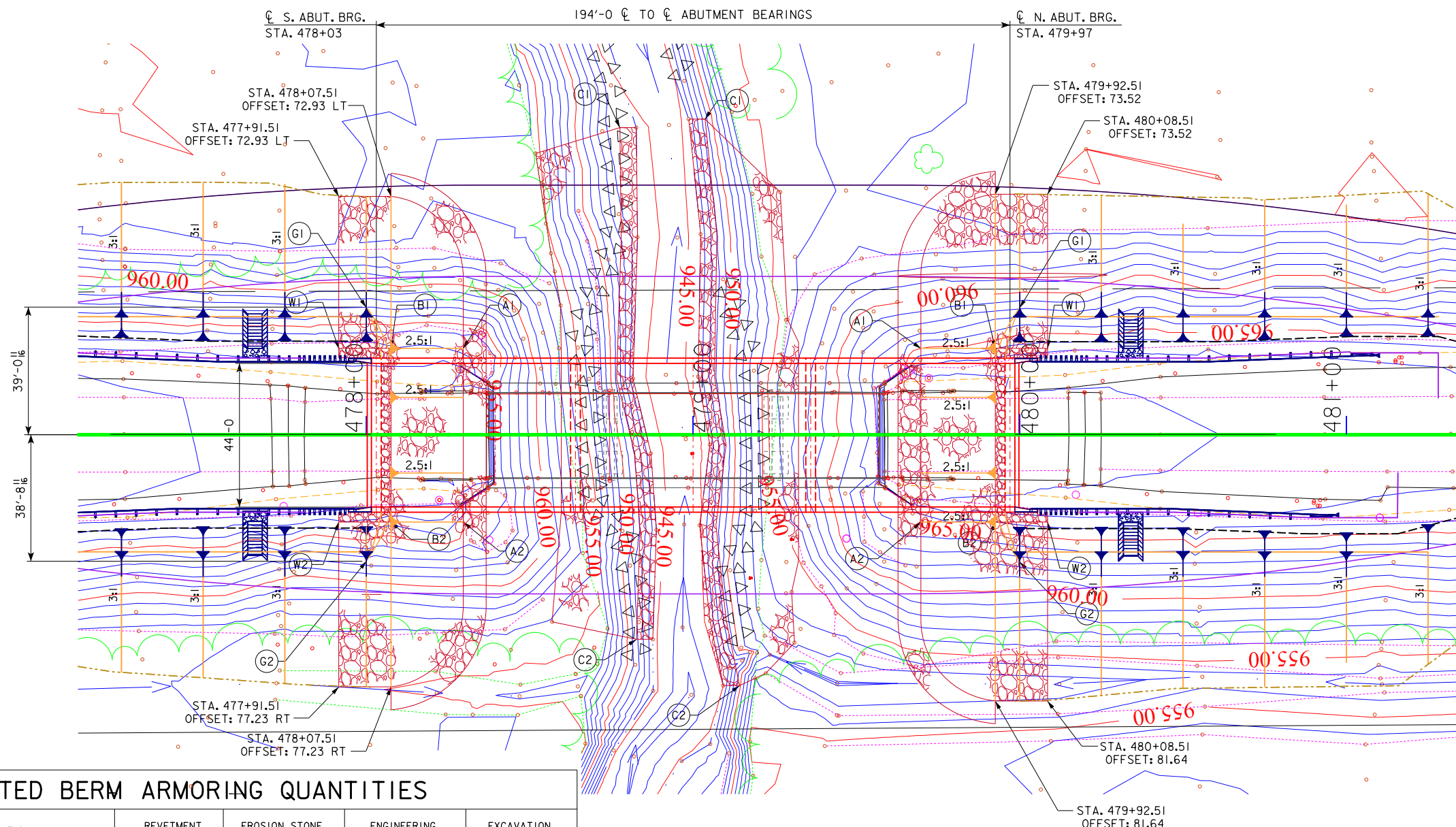


SECTION THRU EMBEDDED REVETMENT BERM

SECTION THRU EMBEDDED REVETMENT NORMAL TO BRIDGE WING AT W POINT

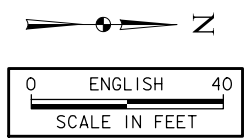
BERM SLOPE LOCATION TABLE						
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	478+29.67	26.58 LT	954.50	479+69.73	26.58 RT	954.50
A2	478+29.67	26.58 RT	954.50	479+69.73	26.58 RT	954.50
B1	478+07.51	26.58 RT	963.37	479+92.51	26.58 RT	962.58
B2	478+07.51	26.58 LT	963.37	479+92.51	26.58 LT	962.58
C1	478+77.61	93.99 LT	944.50	479+03.66	73.50 LT	944.50
C2	478+82.68	62.69 RT	944.50	479+09.23	76.76 RT	944.50
G1	478+00.00	39.06 LT	963.37	480+00.00	38.80 LT	962.58
G2	478+00.00	38.72 RT	963.37	480+00.00	39.02 RT	962.58
W1	477+91.51	26.58 LT	968.37	480+08.51	26.58 LT	967.47
W2	477+91.51	26.58 RT	968.37	480+08.51	26.58 RT	967.47

BERM SLOPE TABLE ELEVATIONS REFLECT GRADING SURFACE



ESTIMATED BERM ARMORING QUANTITIES				
LOCATION	REVTMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	1231.3	10.7	1273.1	1825.1
BERM LINING - NORTH ABUTMENT	1315.4	10.7	1357.5	1965.7
TOTALS	2546.7	21.4	2630.6	3790.8

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

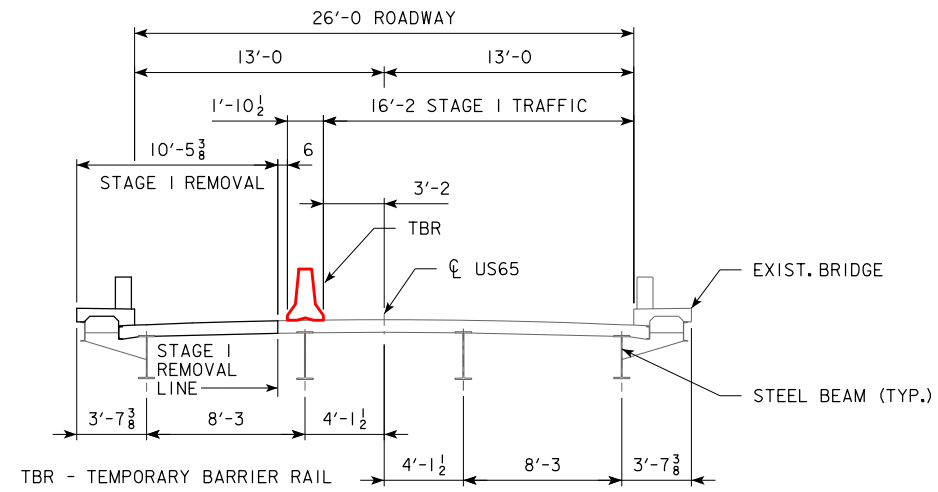


SITE PLAN

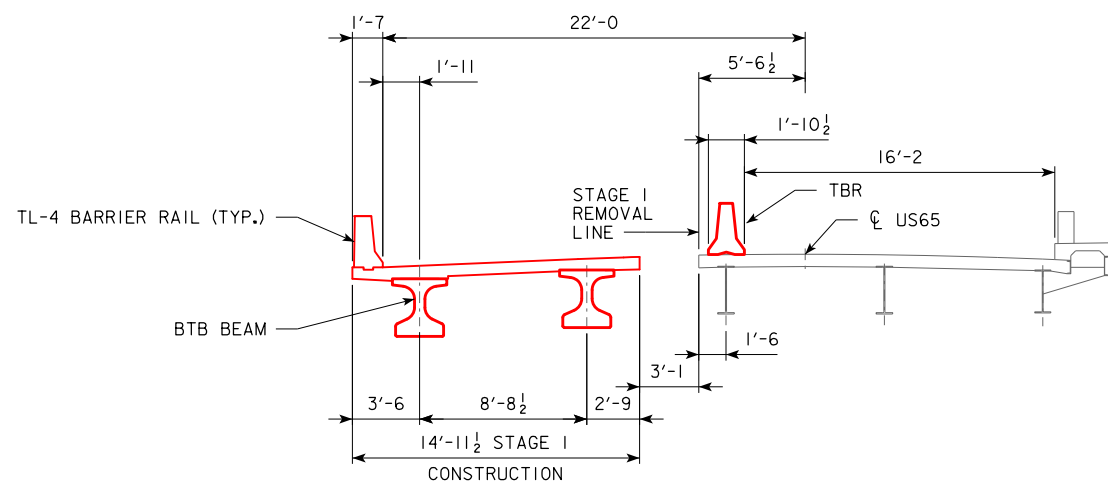
PRELIMINARY

DESIGN FOR 0° SKEW
**194'-0 X 44'-0 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE**
 61'-0 END SPANS, 72'-0 INTERIOR SPAN
SITUATION PLAN - SITE
 STATION 479+00.00 (US65) JULY, 2020
WAYNE COUNTY

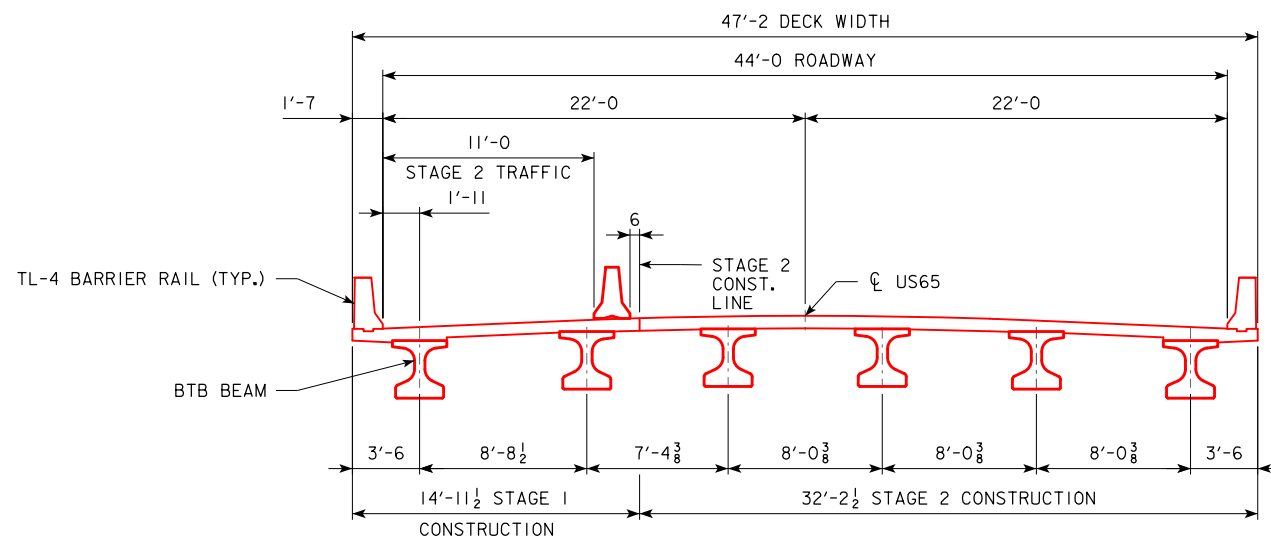
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 3 FILE NO. 31702 DESIGN NO. 123



STAGE I REMOVAL



STAGE I CONSTRUCTION



STAGE 2 CONSTRUCTION

PRELIMINARY

DESIGN FOR 0° SKEW
**194'-0 X 44'-0 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGE**
 61'-0 END SPANS, 72'-0 INTERIOR SPAN
STAGE PLAN
 STATION 479+00.00 (US65) JULY, 2020
WAYNE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 3 OF 3 FILE NO. 31702 DESIGN NO. 123

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- - - - - - Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- - - - - Additional Topsoil Removal
- Subgrade Treatment
- - - - - Granular Shoulder
- Pavement
- - - - - Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- Topsoil (Class 10)
- Slope Dressing Only
- Class 10 Materials
- Select Loams And Clay-Loams
- Select Sand
- Unsuitable Type A Disposal
- Unsuitable Type B Disposal
- Unsuitable Type C Disposal
- Shale
- Waste
- Broken and Weathered Rock
- Solid Rock
- Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

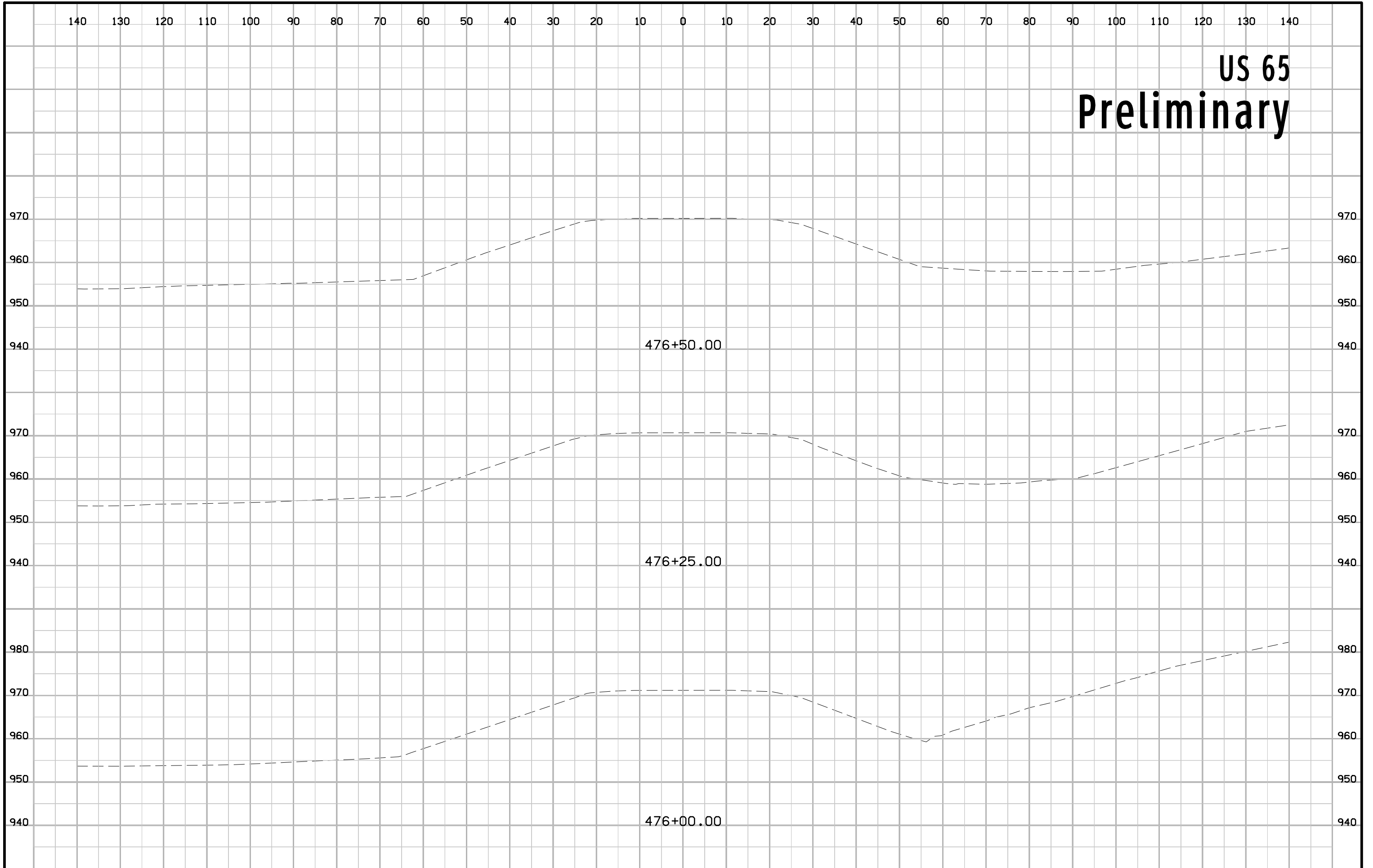
SYMBOL LEGEND OF CROSS SECTION SHEETS

- Existing
ROW
|
Existing Right-of-Way Limit
- Proposed
ROW
|
Proposed Right-of-Way Limit
- Temporary
ROW
|
Temporary Right-of-Way Limit

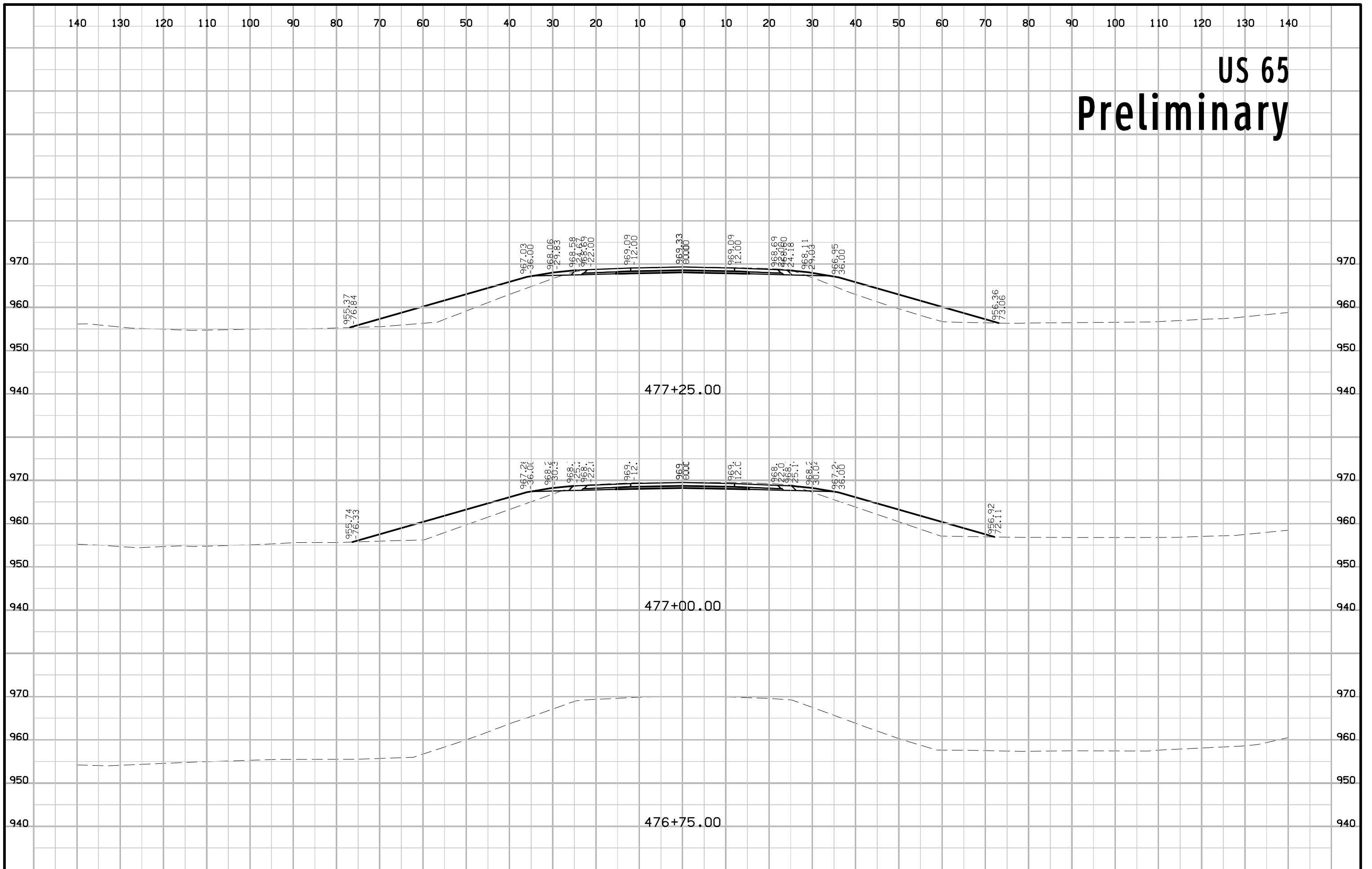
**CROSS SECTION
LEGEND AND SYMBOL
INFORMATION SHEET**

(COVERS SHEET SERIES W, X, Y, & Z)

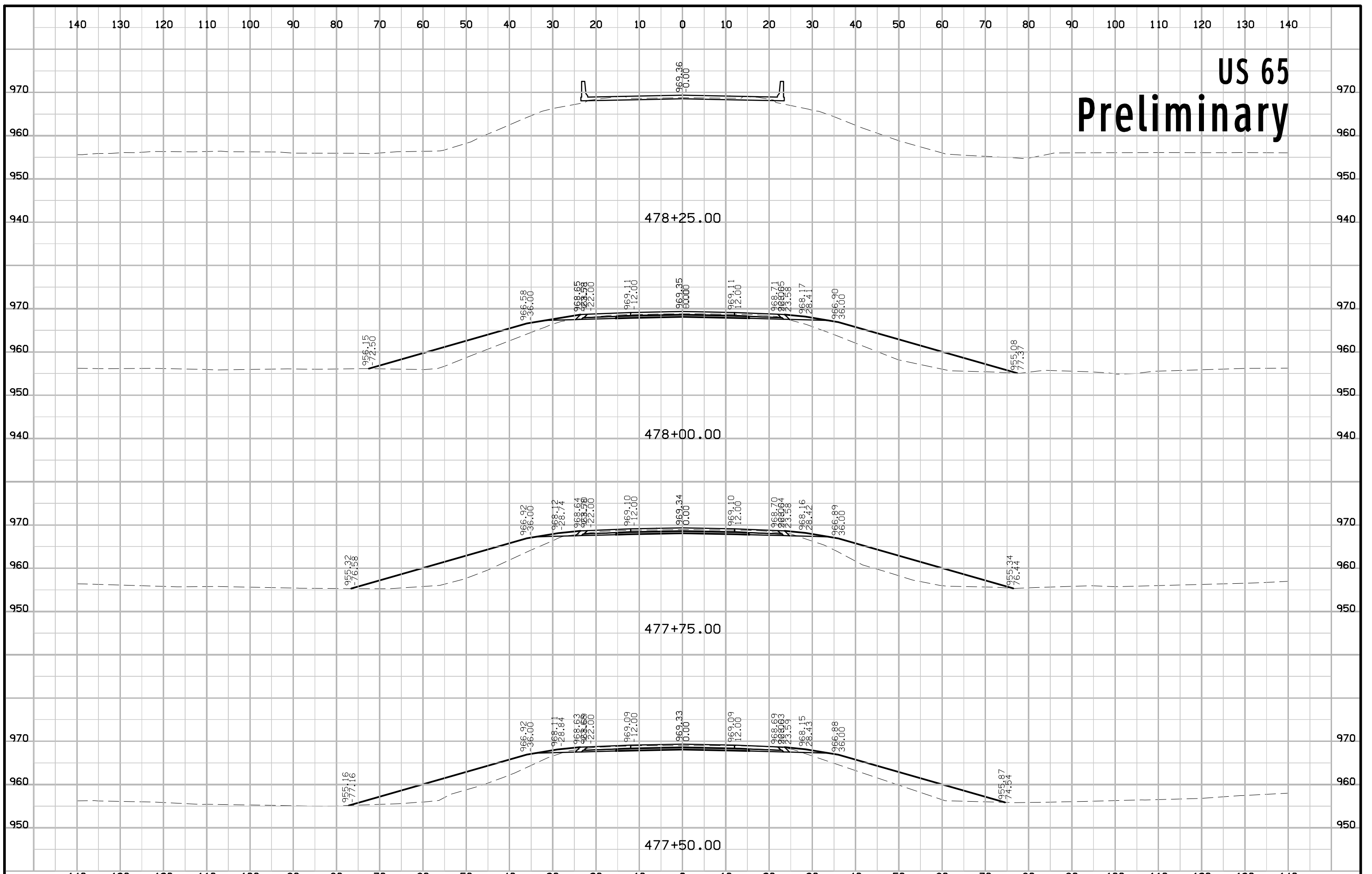
US 65 Preliminary



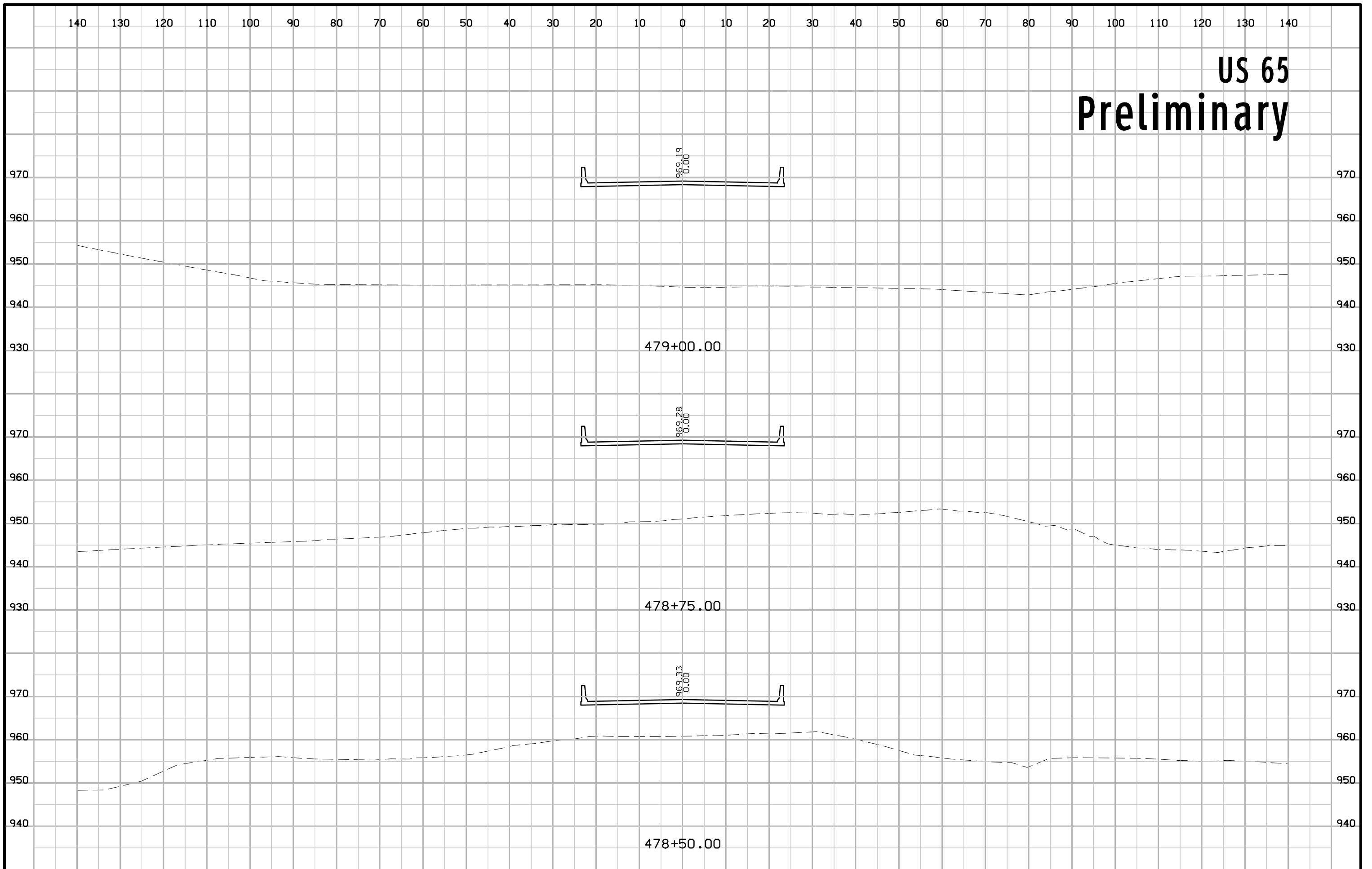
US 65 Preliminary



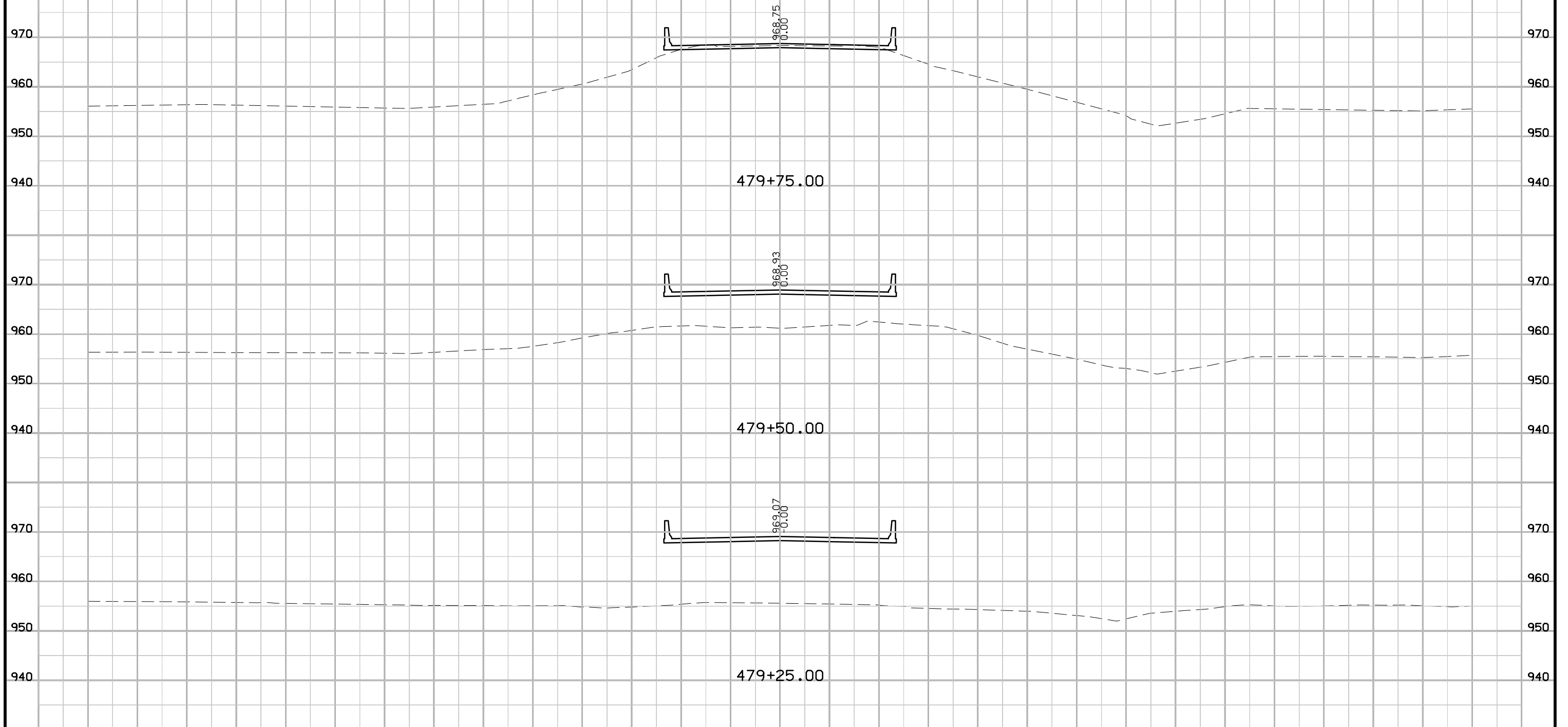
US 65 Preliminary



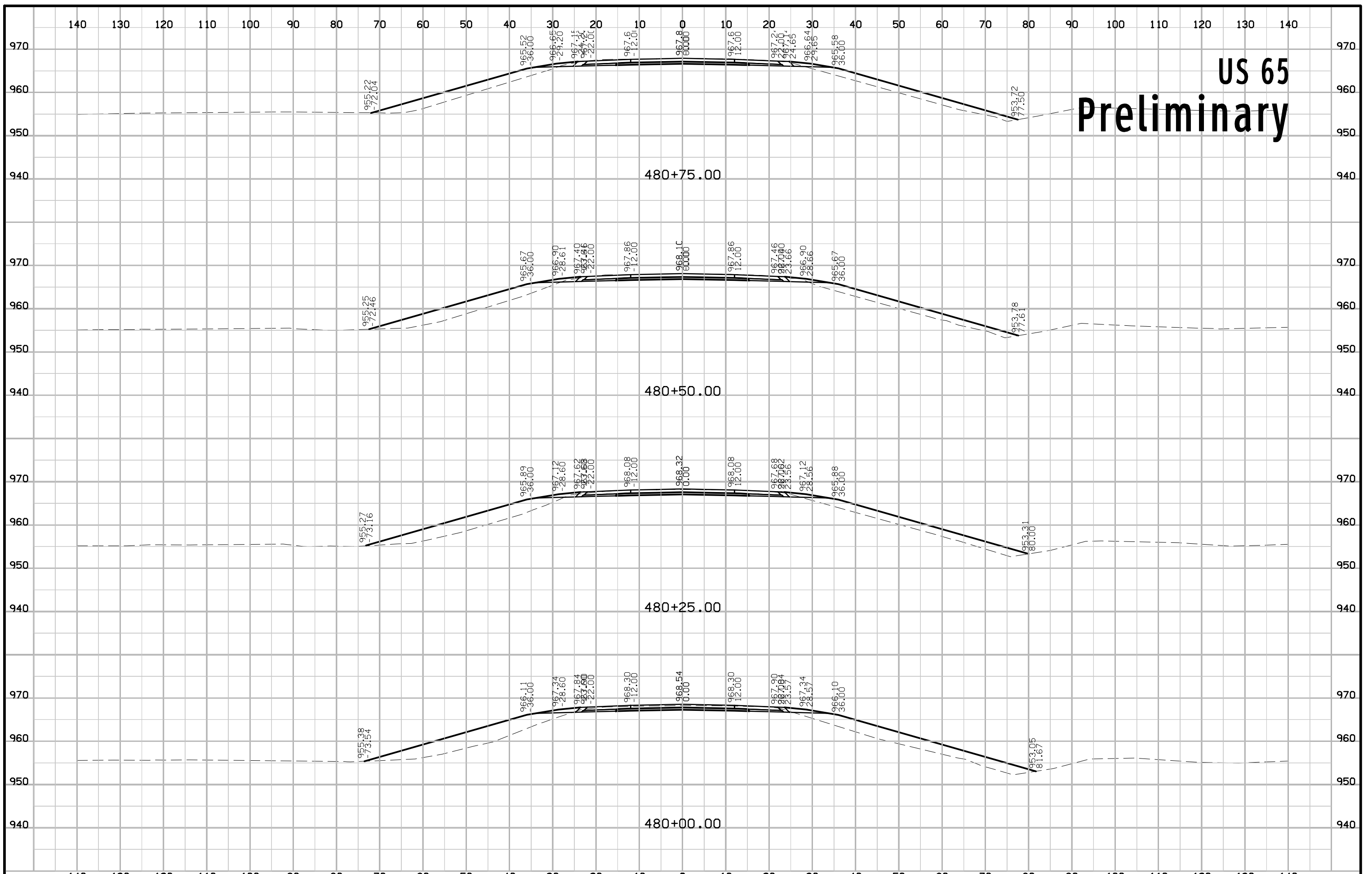
US 65 Preliminary



US 65 Preliminary



US 65 Preliminary



US 65 Preliminary

