LETTING DATE
Dec. 15, 2026

Bridge Deck Overlay
BRF-034-6(109)--38-59

Lucas COUNTY

Index of Sheets

No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design 127
V.2 - V.15	Design 127
Road Sheets	Road Plan
A.3 - L.2	Road Plans
C.1 - C.3	Estimated Quantities - Road
C.5	Standard Plans - Road

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
LUCAS COUNTY
Bridge Deck Overlay

US 34 & US 65 over BNSF RR,
0.1 mi. E of W Jct. US 65

FRA No. 079097V

Refer to the Plan Sheets for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.13 of the Specifications.

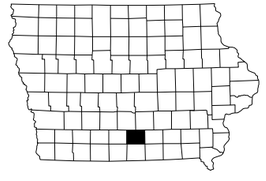
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Revisions

	TOTAL
	64
PROJECT IDENTIFICATION NUMBER	
22-59-034-020	
PROJECT NUMBER	
BRF-034-6(109)--38-59	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
5903402022	

Scan the QR code or click the link below to leave plan quality feedback and help us improve future projects.

Design QR Feedback Link



RR Crossing No.
FRA 079097V

Standard Road Plans
Standard Road Plans are listed on Sheet No. C.5

Design Data Rural

2024 AADT	3,650 V.P.D.
TRUCKS	20 %

Iowa DOT Bridges and Structures Consultant Coordinator Contact:
Zahrah Alghalibi

Index of Seals

Sheet No.	Name	Type
A.1	Bradley J. Fleming	Structural Design
A.3	Lucas D. Fatka	Roadway Design

Structural Design

LICENSED PROFESSIONAL ENGINEER
Bradley J. Fleming
25337
IOWA

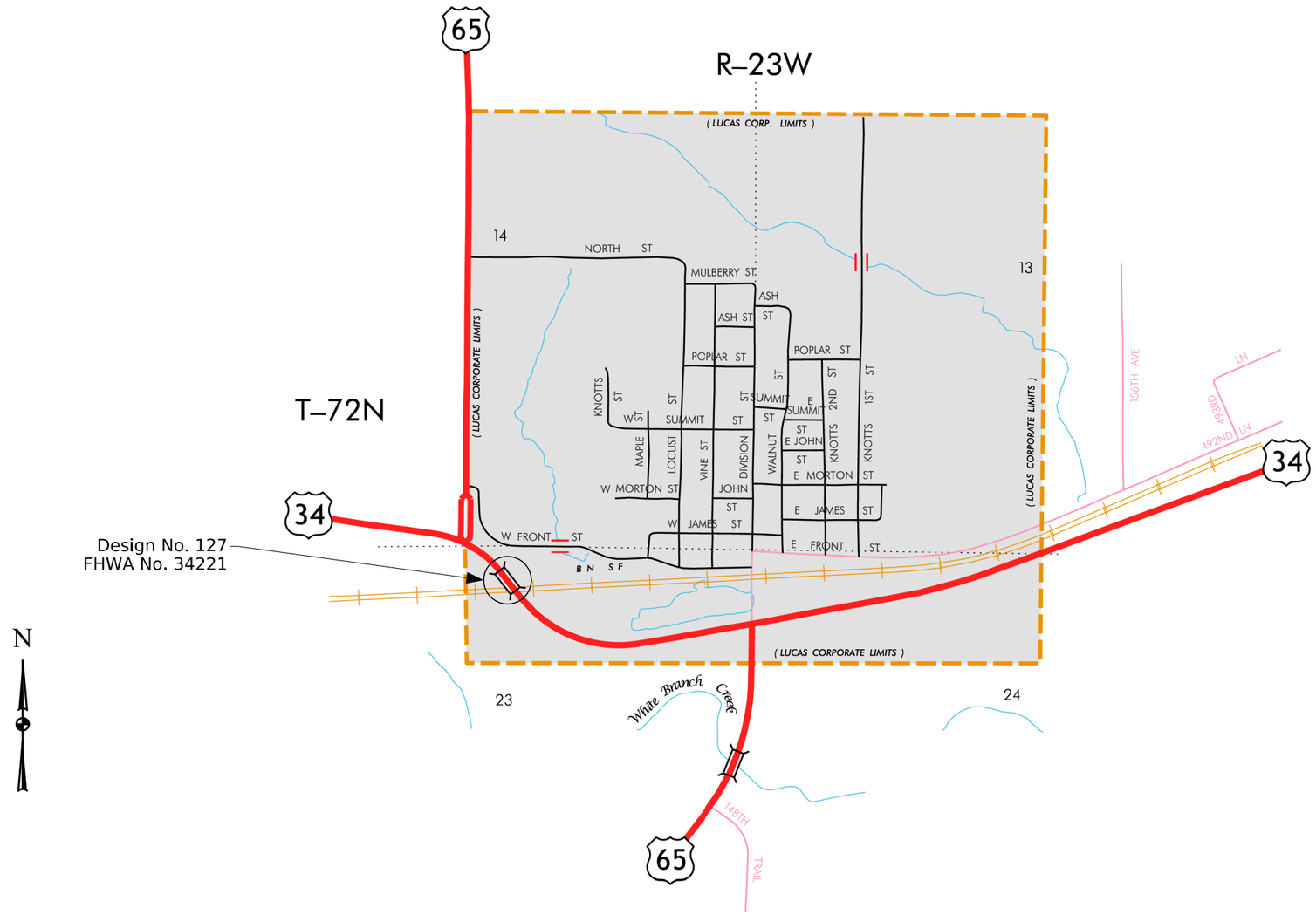
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — Date: 9/1/2026

Bradley J. Fleming
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: Sheets A.1-A.2, V.1-V.15

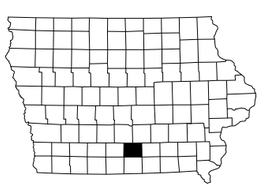


LEGEND

INTERSTATE ROUTE	35
FREEWAY OR EXPRESSWAY ROUTE	30
U.S. NUMBERED ROUTE	6
BUSINESS ROUTE	61
STATE NUMBERED ROUTE	44
UNSIGNED ROUTE	461
COUNTY NUMBERED ROUTE	R38
SECONDARY ROAD OR ADJOINING CITY STREET	
CITY STREET	
PARK, INSTITUTION, OR FEDERAL ROAD	
RAILROAD	
CORPORATION LINE	
SECTION LINE	
CUL-DE-SAC	
SECTION, TOWNSHIP & RANGE NUMBERS	9, T-81N, R-30W

City of Lucas Location Map

Not To Scale



FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER A.2

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ESTIMATED BRIDGE REPAIR QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1
2	2402-2720000	EXCAVATION, CLASS 20	CY	13.9
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	23
4	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	3303
5	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	192
6	2413-0698074	DECK REPAIR, CLASS A	SY	224.8
7	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	60.3
8	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING	LF	60.3
9	2413-1300000	PREFORMED, PRE-COMPRESSED, SELF-EXPANDING, SEALANT SYSTEM WITH SILICONE PRE-COATED SURFACE	LF	59.9
10	2426-6772016	CONCRETE REPAIR	SF	60
11	2499-0800000	PAVING NOTCH REPLACEMENT	LF	60
12	2506-4984000	FLOWABLE MORTAR	CY	4
13	2507-6799000	BANK SHAPING	LS	1
14	2508-0970000	CONTAINMENT	LS	1
15	2508-0990000	PAINT WASTE TRANSPORT AND DISPOSAL	LS	1
16	2508-0991000	PAINTING OF STRUCTURAL STEEL	LS	1
17	2510-6745640	REMOVAL OF EXISTING P.C. OVERLAY	SY	1124.2
18	2533-4980005	MOBILIZATION	LS	1
19	2595-0005105	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR BNSF RAILWAY CO.	LS	1
20	2599-9999010	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR AMTRAK RAILWAY COMPANY	LS	1
		Alternate AA Option 1		
21	2413-0698066	DECK OVERLAY (CLASS O PCC)	SY	1124.2
		Alternate AA Option 2		
22	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)	LS	1
23	2413-0698067	DECK OVERLAY (CLASS HPC-O PCC)	SY	1124.2
24	2413-1000005	FIBER REINFORCEMENT FOR CONCRETE REPAIR/OVERLAY	SY	1124.2

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2401-6750001	REMOVALS, AS PER PLAN Includes removal and off-site disposal of the portions of the deck, top of backwall, paving notch, abutment diaphragm, portions of the rail and curb, and sliding plate joint at the south abutment. Includes removal of the existing joint material at the north abutment. Removal of scheduled items shall be in accordance with Section 2401, of the Standard Specifications. Any damage to material not to be removed shall be the responsibility of the Contractor and repaired at no extra cost to the state.
2	2402-2720000	EXCAVATION, CLASS 20 - -
3	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS) Includes all resilient joint filler required. Includes drilling holes and setting dowels.
4	2404-7775005	REINFORCING STEEL, EPOXY COATED Includes mechanical splicers in the abutment backwall and diaphragm.
5	2404-7775009	REINFORCING STEEL, STAINLESS STEEL - -
6	2413-0698074	DECK REPAIR, CLASS A Estimated as 20% of the total deck area.
7	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE Includes all necessary hardware and accessories including the anchorage system, temporary erection material and the 3/8"" barrier plates with their anchorage system. Excludes installation of neoprene gland.
8	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING Includes installation of neoprene gland and water testing of joint.
9	2413-1300000	PREFORMED, PRE-COMPRESSED, SELF-EXPANDING, SEALANT SYSTEM WITH SILICONE PRE-COATED SURFACE The number of linear feet installed shall be paid for at the contract unit price per foot based on the plan quantities. The contract unit price bid shall be full compensation for furnishing and installing the joint sealant system including removal of existing joint material, surface preparation and water testing joint. All work and all material shall comply with the written recommendations of the joint sealant manufacturer.
10	2426-6772016	CONCRETE REPAIR - -
11	2499-0800000	PAVING NOTCH REPLACEMENT Includes 4.2 cu yd of structural concrete Class C, 960 lbs of epoxy-coated reinforcing steel, excavation, removing and disposing of the existing paving notch and concrete removed to form the shear keyways, drilling holes for dowel bars, and polymer grout material.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
12	2506-4984000	FLOWABLE MORTAR Includes all work to fill undermined areas of south abutment. Quantity is based on 4' length x 2' maximum height x 3' depth toward the approach. Includes 50% increase for estimating purposes. Measurement and payment will be based on the actual volume placed.
13	2507-6799000	BANK SHAPING Includes all work to restore and shape the slope at the south berm including grading, filling, and shaping eroded areas.
14	2508-0970000	CONTAINMENT - -
15	2508-0990000	PAINT WASTE TRANSPORT AND DISPOSAL - -
16	2508-0991000	PAINTING OF STRUCTURAL STEEL Includes painting 10' of the girder ends including bearings at the south abutment. See Design Sheet No. 15 for additional information.
17	2510-6745640	REMOVAL OF EXISTING P.C. OVERLAY - -
18	2533-4980005	MOBILIZATION - -
19	2595-0005105	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR BNSF RAILWAY CO. - -
20	2599-9999010	('LUMP SUM' ITEM) RAILROAD PROTECTIVE LIABILITY INSURANCE FOR AMTRAK RAILWAY COMPANY See Special Provisions for Work on Railroad Right-of-Way (Amtrak Railway). Flagging will be paid per Development Specifications for Work on Railroad Right-of-Way (BNSF Railway).
21	2413-0698066	DECK OVERLAY (CLASS O PCC) Includes cost of concrete sealer and cleaning and applying at the barrier rails and abutment seats.
22	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE) Includes all work and materials necessary for trial batch and test placement of fiber reinforced concrete. Refer to the Developmental Specification for Fiber Reinforcement for Structural Concrete for additional information.
23	2413-0698067	DECK OVERLAY (CLASS HPC-O PCC) Includes cost of concrete sealer and cleaning and applying at the barrier rails and abutment seats.
24	2413-1000005	FIBER REINFORCEMENT FOR CONCRETE REPAIR/OVERLAY See "Developmental Specifications for Fiber Reinforcement for Structural Concrete". Polypropylene fibers shall be included in the bridge deck overlay.

Note:
Roadway quantities shown elsewhere in these plans.

whks
engineers + planners + land surveyors

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans 82'-0" Interior Span

Estimated Quantities

STA. 807+91.96 (US 34) Turn-in Date: Oct. 6, 2026

Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 Design Sheet No. 1 of 15 FHWA No. 34221

General Notes:

This design is for repairs to the existing 210'-0" x 48'-0" Continuous Steel I-Beam bridge on U.S. 34 & U.S. 65 over BNSF in Lucas County.

Electronic copies of original design plans will be made available to the Contractor as part of the e-files supplied with the contract documents. Dimensions shown on these plans are based on design plans (Original Design No. 173 and Repair Design Nos. 390, 198 & 386).

See Design Sheet No. 3 for list of repair items.

Faint lines on plans indicate existing portions of the bridge.

All dimensions and details shown on these plans pertinent to new construction shall be verified in the field by the Contractor before starting construction.

These bridge plans label all reinforcing steel with english notation (5a1 is $\frac{5}{8}$ inch diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	3	4	5	6	7	8	9	10	11
Bar Designation	10	13	16	19	22	25	29	32	36

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

Utility Companies whose facilities are shown on the plans or known to be within the construction limits shall be notified by the Bridge Contractor of the starting date.

Construction shall be done in stages with at least one lane of traffic maintained at all times in accordance with "Traffic Control Plan" note.

The top and interior faces of the existing concrete railing and curb are to be cleaned and sealed in accordance with Article 2403.03, P, of the Standard Specifications. The new sections of railing and curb shall not be sealed. All costs associated with cleaning and sealing of the concrete rails and curb shall be included in the unit price bid item "Bridge Deck Overlay".

In addition to the requirements of Article 2413.03, G, of the Standard Specifications, both exposed abutment bridge seats and wash surfaces shall have an application of concrete sealer in accordance with Article 2403.03, P, 3, of the Standard Specifications.

Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Areas of the curb indicated on the Situation Plan or desginated by the Engineer are to be repaired using concrete repair notes and details included in these plans.

Ready mix trucks are not allowed on the prepared portion of the bridge deck.

The Bridge Contractor shall dress up the slopes around the wings which are disturbed during construction. This work shall be considered incidental and no extra payment will be made.

No preliminary deck survey is shown. The plan quantity for "Class A Bridge Deck Repair" is estimated as 20% of the total deck area. The actual quantity is determined by the Engineer after the P.C.C. overlay has been removed. Actual spalled and hollow areas as determined by the Engineer shall be repaired.

Present deck thickness is about $9\frac{1}{2}$ inches, including existing overlay. The Contractor shall exercise care in removing concrete in order to prevent unnecessary unbonding of reinforcing steel.

The bridge deck is covered with a $1\frac{3}{4}$ inch thick portland cement concrete overlay. The Contractor shall note the redefining of the classification line (boundary between repair and overlay) for this project due to the existing $1\frac{3}{4}$ inch overlay. The classification line will be defined as 2 inches below the top of existing overlay. This will necessitate the removal of the existing bridge deck overlay before placing the proposed new bridge deck overlay.

The bridge deck may have been epoxy-injected. The Contractor shall remove all exposed epoxy. Removal of epoxy is incidental to "Removal of Existing P.C.C. Overlay" and "Deck Repair, Class A" as appropriate.

All costs associated with the removal of the existing overlay shall be included in the bid item "Removal of Existing P.C.C. Overlay". Removal of existing overlay shall be computed in square yards from the measurement of areas removed. The Contractor will be paid the contract price per square yard for furnishing all equipment and labor necessary to remove the concrete to within $\frac{1}{4}$ inch above the classification line. All costs, including furnishing equipment and labor, associated with removal of the next $\frac{1}{4}$ inch of concrete (to the classification line) shall be included in the bid item "Deck Overlay".

Upon completion of the removal of concrete down to the classification line, the Engineer shall determine the areas of bridge deck to be repaired as "Deck Repair, Class A". Actual hollow areas, as determined by the Engineer, shall be repaired.

Surface preparation shall be according to Article 2413.03, B and C of the Standard Specifications. The Contractor shall ensure the vertical edge of the Stage 2 overlay is prepared for placement of the new concrete for Stage 3 by sandblasting or shot blasting, followed by an air blast. Ensure this cleaning removes all dirt, oil, and other foreign material. Ensure it removes all unsound concrete, laitance, or loose material from the surface and edges against which the surface mixture is to be placed. The cleaning should roughen the surface in order to provide satisfactory bond with the surfacing mixture.

The lump sum bid for "Removals, as Per Plan" shall include all costs associated with removing portions of the existing deck, abutment diaphragms, top of abutment backwall, paving notch, curbs, retrofit barrier rail, and sliding plate joint at the south abutment. It includes the compression seal at the north abutment. Removal of scheduled items shall be in accordance with Section 2401 of the Standard Specifications. Any damage to any steel or concrete not to be removed shall be the responsibility of the Contractor and repaired at no extra cost to the State.

The top of the south abutment backwall as shown shall be constructed using structural concrete Class C. Promptly after the concrete has been placed and vibrated as provided in Articles 2403.03, C, and 2403.03, D, of the Standard Specifications, it shall be hand finished to provide a smooth surface with the proper crown. The Contractor may elect to use formwork which is marked or trimmed to the correct elevation and crown to provide the limits for the hand finishing.

The lump sum bid for "Painting Structural Steel" shall include the cost of preparing existing structural steel for painting (including bearings) and field painting existing structural steel as noted in these plans. Cleaning and painting shall be in accordance with Section 2508, of the Standard Specifications. An epoxy paint system shall be used.

A scrape sample was taken from a beam and expansion plate on this bridge to get an indication of the existence of and level of total lead and total chromium. See Scrape Sample Results table for analysis results for total lead and chromium. These analyses show the existence of these two toxic constituents. Levels indicated by these tests could create conditions above regulatory limits for health and safety requirements. No other constituents were analyzed. The Bidder should not rely on the Iowa DOT's testing and analysis for any purpose other than as an indication of the existence of these two toxic constituents.

Containment and disposal of waste shall be in accordance with Section 2508, of the Standard Specifications. All costs associated with hauling and depositing of waste at the designated site/facility shall be the responsibility of the Contractor and included in the contract price bid for the "Containment" item.

Scrape Sample Results

Date Sampled	Sampled Item	Total Pb (ppm)	Total Cr (ppm)
7/26/1998	Expansion Device	1,500	<50
3/16/2022	Expansion Plate	112,000	735
8/12/2009	Abutment Bearing	<50	1,210
3/16/2022	Abutment Bearing	4,970	592
3/16/2022	Girder	6,550	248

Specifications:

Design: AASHTO Series of 2002.

Construction: Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Developmental Specifications for Fiber Reinforcement for Structural Concrete.

Developmental Specifications for Work on Railroad Right-of-Way (BNSF Railway).

Developmental Specifications for Electronic Ticketing.

Special Provisions for Work on Railroad Right-of-Way (AMTRAK Railway).

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO Standard Specifications for Highway Bridges, Series of 2002.

Concrete in accordance with Section 8, f'c = 4.0 ksi.

Reinforcing steel in accordance with Section 8, Grade 60.

Structural steel in accordance with Section 10. ASTM A709 Grade 36 (AASHTO M270 Grade 36).

Working Drawing and Calculation Submittals

Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)

Submittal requirements for working drawings and calculations shall be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation. The absence of a certification requirement for a submittal does not relieve the Contractor of the responsibility to attain certification.

Calculation submittals in this table which are associated with working drawing submittals shall be submitted on the same day. Review time for calculation submittals shall be of the same duration as and run concurrently with review time for associated working drawings. The calculation submittals listed in the table are not meant to be an exhaustive list and do not relieve the Contractor from providing additional calculation submittals if requested by the Engineer.

No.	Working Drawing Description	Working Drawing File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Steel Extrusion Joints and Curb Plates	(109)_Lucas_Design127_SteelExtrusions&CurbPlates.pdf	No
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)

Bank Shaping Notes:

The Contractor shall restore and shape the slope at the south abutment. Actual areas of bank shaping shall be determined by the engineer in the field. All costs for material, equipment, and labor required to repair the bank shall be included in the lump sum unit price for "Bank Shaping". No additional measurement or payment shall be made.

The Bridge Contractor shall dress up the slopes around the wings which are disturbed during construction. This work shall be considered incidental and no extra payment will be made.

Flowable Mortar Note:

Flowable mortar to be placed under the South Abutment to repair undermining and areas where piles have been recently exposed. The area to be filled is approximately 4'-0" long, has a maximum height of 2'-0", and a maximum depth of 3' toward approach. Estimated flowable mortar volume required is 4 CY which includes 50% increase for estimating purposes. Payment will be based on the actual volume placed as measured in the field.

Measurement and payment will be based on the actual volume placed at the contract price per cubic yard. Flowable mortar materials and placement shall be in accordance with Section 2506 of the Standard Specifications.

Design History at this Site

(Includes this Design)

Des. No.	Type of Work
173	Original Design
386	Retrofit Rail
390	Bridge Repairs
198	Bridge Deck Overlay
127	Bridge Deck Re-Overlay

Traffic Control Plan:

The roadway will be open to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans 82'-0" Interior Span

General Notes

STA. 807+91.96 (US 34) Turn-in Date: Oct. 6, 2026

Lucas County

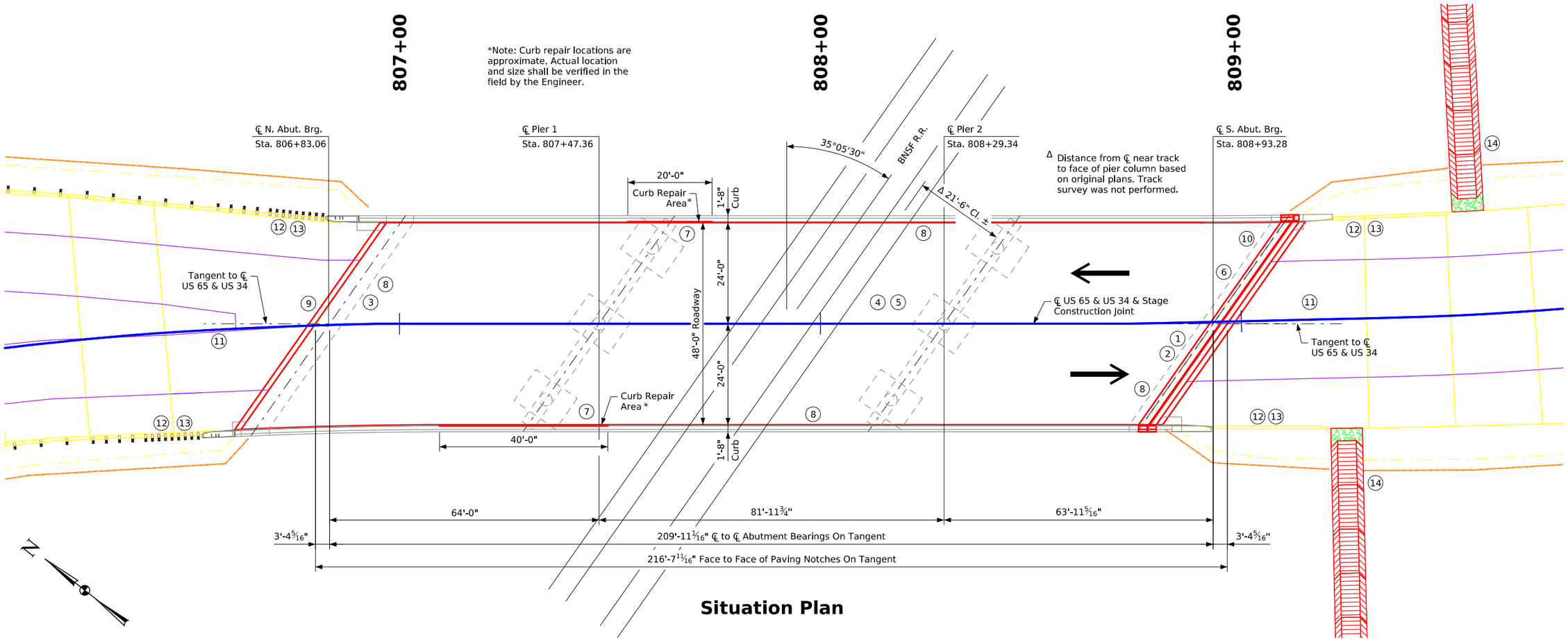
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 Design Sheet No. 2 of 15 FHWA No. 34221

whks engineers + planners + land surveyors

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.2

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Situation Plan

Repairs Shall Consist of:

1. Remove and replace the top of abutment backwall, sliding plate joint, and paving notch, portions of the deck and retrofit rails and curbs at only the south abutment.
2. Install steel extrusion joint with neoprene at the south abutment.
3. Remove existing joint material and install preformed, pre-compressed, self-expanding sealant system at the north abutment.
4. Remove the existing PCC overlay, scarify the deck, and perform Class A repairs as necessary.
5. Re-overlay the bridge with Class O or Fiber-Reinforced Class HPC-O concrete.
6. Blast clean and zone paint 10' of the steel girder ends at south abutment.
7. Perform concrete repairs to both curbs.
8. Clean abutment seats and barrier rails and place concrete sealer.
9. Remove and replace north abutment paving notch.
10. Repair south abutment undermining with flowable mortar and perform bank shaping to restore berm slope.
11. Remove and replace portions of north approach pavement and south approach pavement.
12. Remove and reinstall steel beam guardrail, and replace the existing guardrail end terminals.

13. Add paved shoulder (HMA or Conc.) next to guardrail.

14. Remove existing bridge end drains and install rock flumes at the south approach.

Railroad Notes:

The Bridge Contractor shall work in a manner which prevents any equipment and materials from interfering with train traffic or falling onto the railroad tracks. Entry or encroachment onto BNSF right-of-way will not be allowed.

Deck repairs are limited to Class A Repairs in Span 2 over the BNSF right-of-way. Material from deck repair activities shall not be allowed to fall onto the railroad tracks.

Note:
For repair items 11-14 refer to the roadway sheets included in this plan.

Location

U.S. 34 & U.S. 65 over BNSF
Crossing No. 884
In City of Lucas
T-72N R-23W
Section 23
Jackson Township
Lucas County
FHWA No. 34221
Bridge Maint. No. 5932.3S034
FRA No. 079097V
Latitude 41.027890°
Longitude -93.469105°

Traffic Estimate

2024 AADT	3,650 V.P.D.
TRUCKS	20 %

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

Situation Plan

STA. 807+91.96 (US 34)

Turn-in Date: Oct. 6, 2026

Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 | Design Sheet No. 3 of 15 | FHWA No. 34221

whks engineers + planners + land surveyors

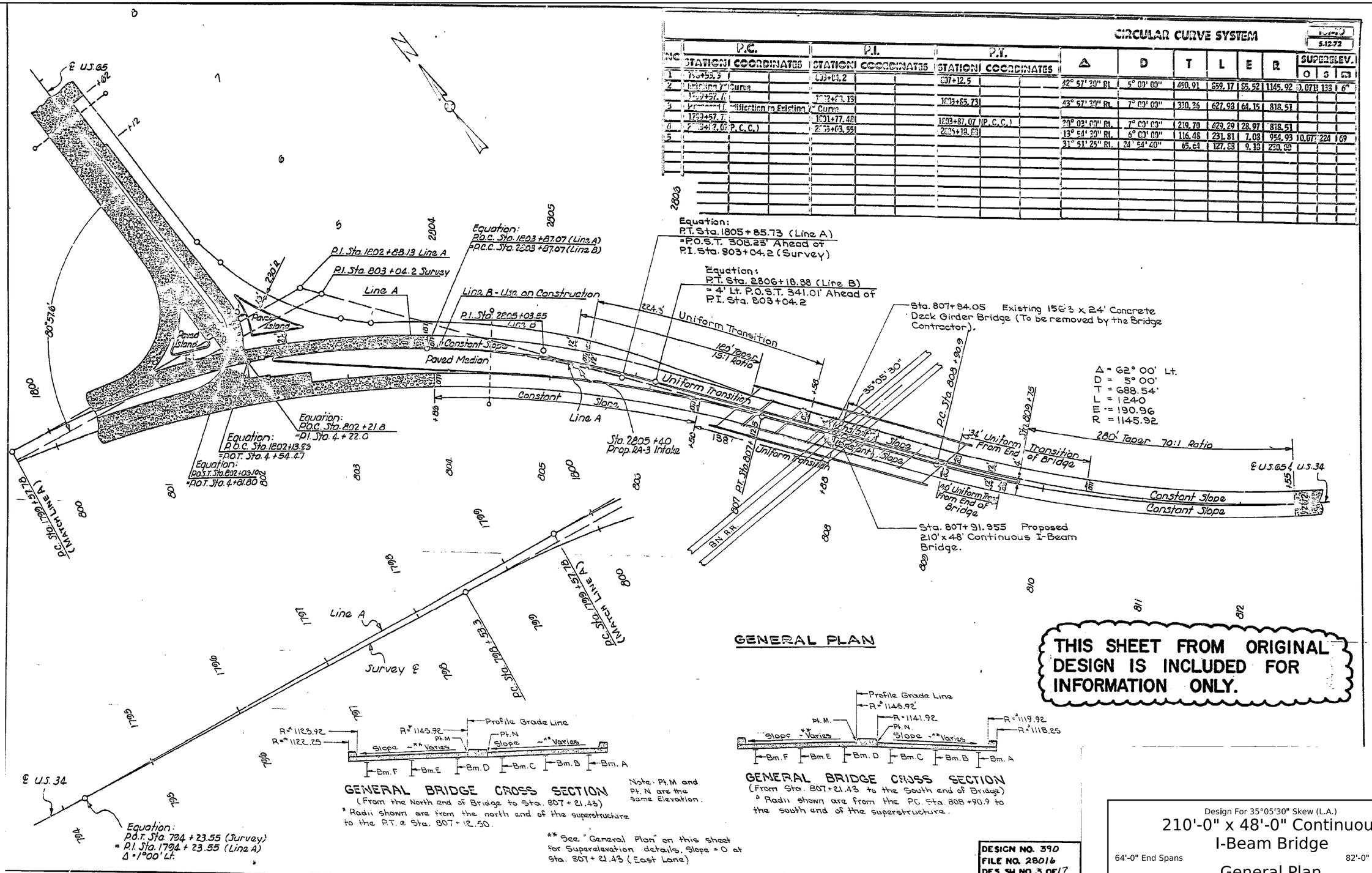
FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.3

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CIRCULAR CURVE SYSTEM

5-12-72

NO	P.C. STATION	P.C. COORDINATES	P.I. STATION	P.I. COORDINATES	P.T. STATION	P.T. COORDINATES	Δ	D	T	L	E	R	SUPERELEV. O	S	m
1	1786+55.3		1799+04.2		1807+12.5		42° 57' 30" Rt.	5° 00' 00"	450.91	859.17	85.52	1145.92	0.071	133	6"
2	Junction of Curve														
3	1799+57.1		1812+13.13		1818+65.73		43° 57' 30" Rt.	7° 00' 00"	330.36	627.98	64.15	818.51			
4	Proposed Junction to Existing "L" Curve														
5	1799+57.7		1801+77.48		1803+87.07 (P.C.C.)		20° 03' 00" Rt.	7° 00' 00"	219.70	429.29	28.97	818.51			
6	2803+87.07 (P.C.C.)		2805+03.55		2806+18.88		13° 54' 30" Rt.	6° 00' 00"	116.46	231.81	7.08	954.93	0.077	224	69
7							31° 51' 25" Rt.	24° 54' 40"	65.64	127.68	9.18	230.09			



GENERAL PLAN

GENERAL BRIDGE CROSS SECTION

(From the North end of Bridge to Sta. 807+21.43)

* Radii shown are from the north end of the superstructure to the P.T. @ Sta. 807+12.50.

Note: Pt.M and Pt.N are the same Elevation.

** See "General Plan" on this sheet for Superelevation details. Slope = 0 at Sta. 807+21.43 (East Lane)

GENERAL BRIDGE CROSS SECTION

(From Sta. 807+21.43 to the South end of Bridge)

* Radii shown are from the P.C. Sta. 808+90.9 to the south end of the superstructure.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN NO. 390
FILE NO. 28016
DES. SH. NO. 3 OF 17

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Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

General Plan

STA. 807+91.96 (US 34) — Turn-in Date: Oct. 6, 2026

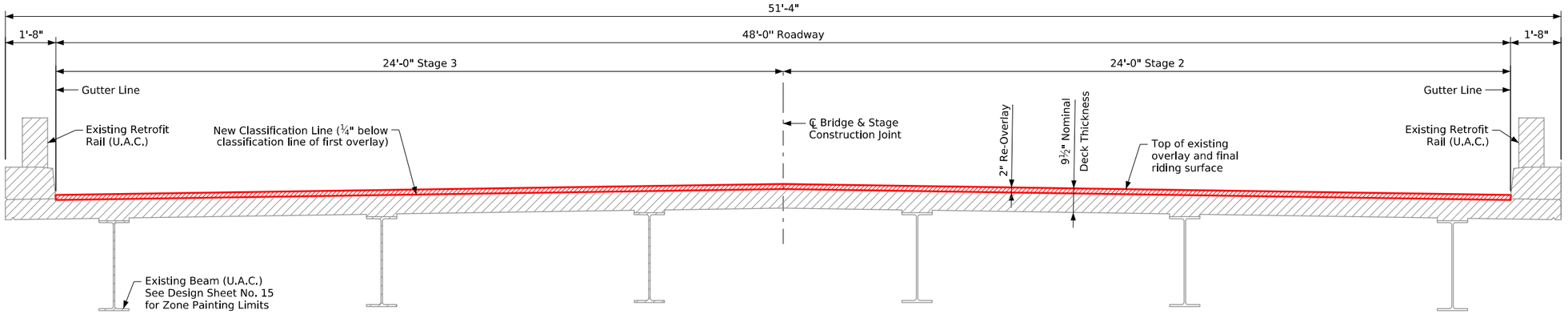
Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 — Design Sheet No. 4 of 15 — FHWA No. 34221

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.4

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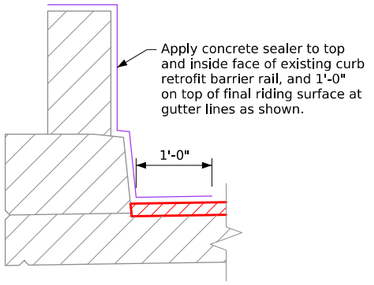


Typical Section

(Looking Upstation)

Note:
For construction staging, see Traffic Control Plan shown elsewhere in these plans.

Note:
Cross slope varies along the bridge. Cross slope shown is between Sta. 807+22.83± to south abutment. See Design sheet No. 4 for cross slope information.

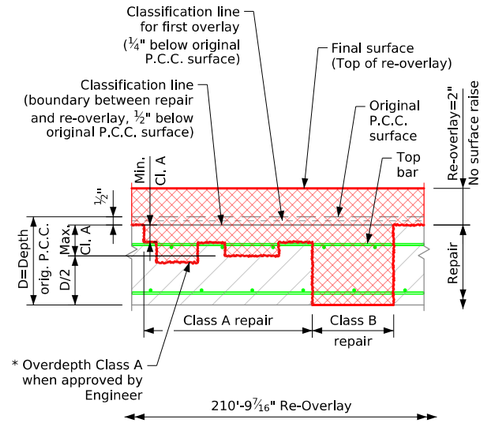


Detail of Concrete Sealer Area

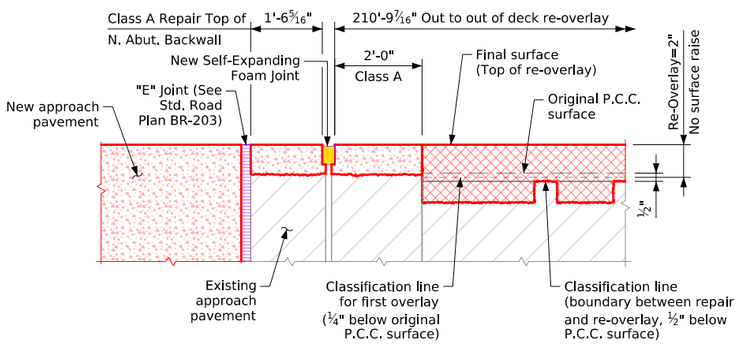
Note:
The top of N. abut. backwall and the 2'-0" Class "A" removal areas shown at the joint shall be removed to a minimum depth of 1 inch below the existing top mat of reinforcing. The existing bridge deck and top of backwall reinforcing bars shall be carefully exposed and incorporated into new construction work.

Class "A" repair area shall be placed monolithically with the re-overlay.

* Per IDOT Std. Spec. 2413.03.C.3.b, limited areas of Class A removal may exceed 50% of the floor thickness at the Engineer's direction. These limited areas of excess depth (overdepth) will be measured as Class A deck repair.

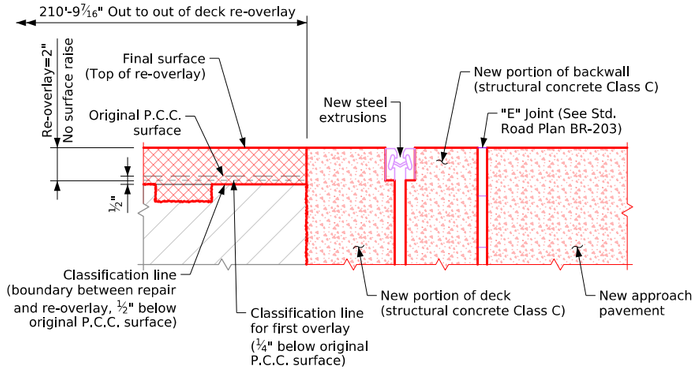


Repair and Re-Overlay Definition



Part Longitudinal Section Along Roadway

North Abutment



Part Longitudinal Section Along Roadway

South Abutment

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Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

Re-overlay Deck Repair Details

STA. 807+91.96 (US 34)

Turn-in Date: Oct. 6, 2026

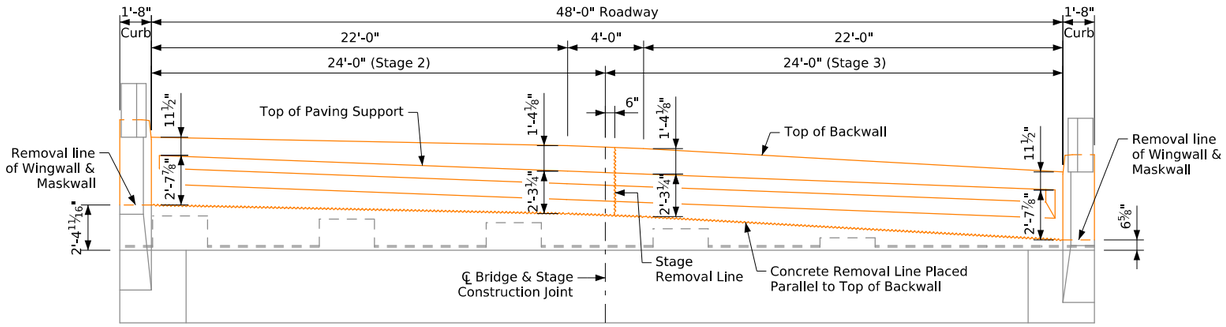
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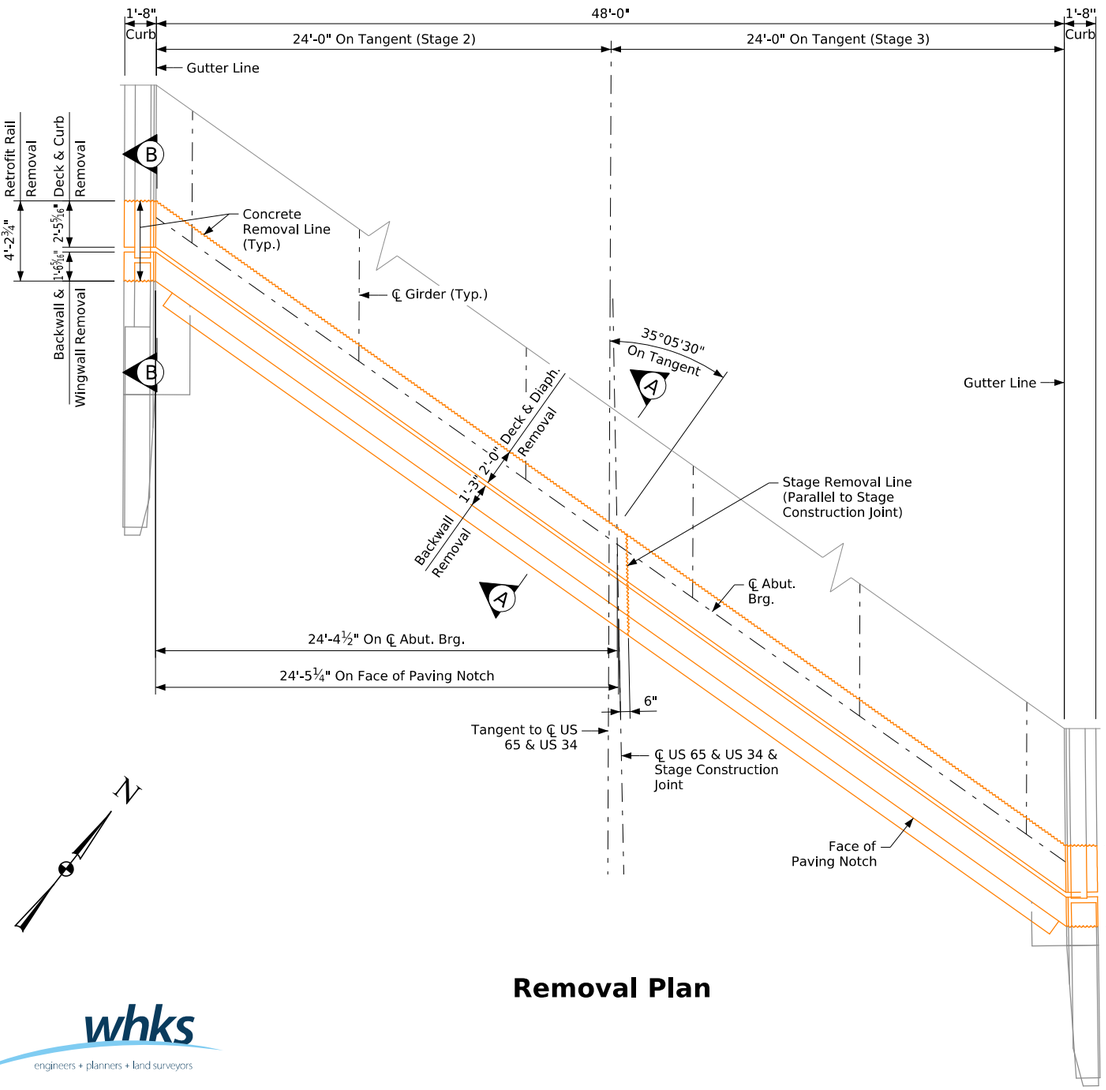
Design No. 127 — Design Sheet No. 5 of 15 — FHWA No. 34221

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.5	

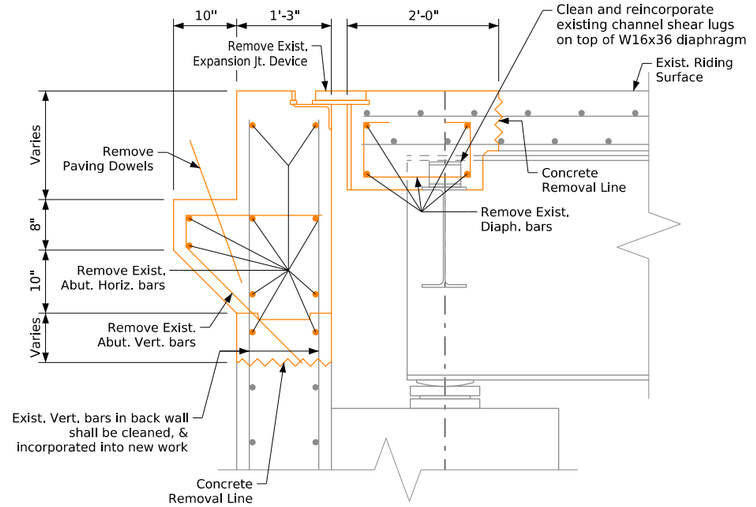
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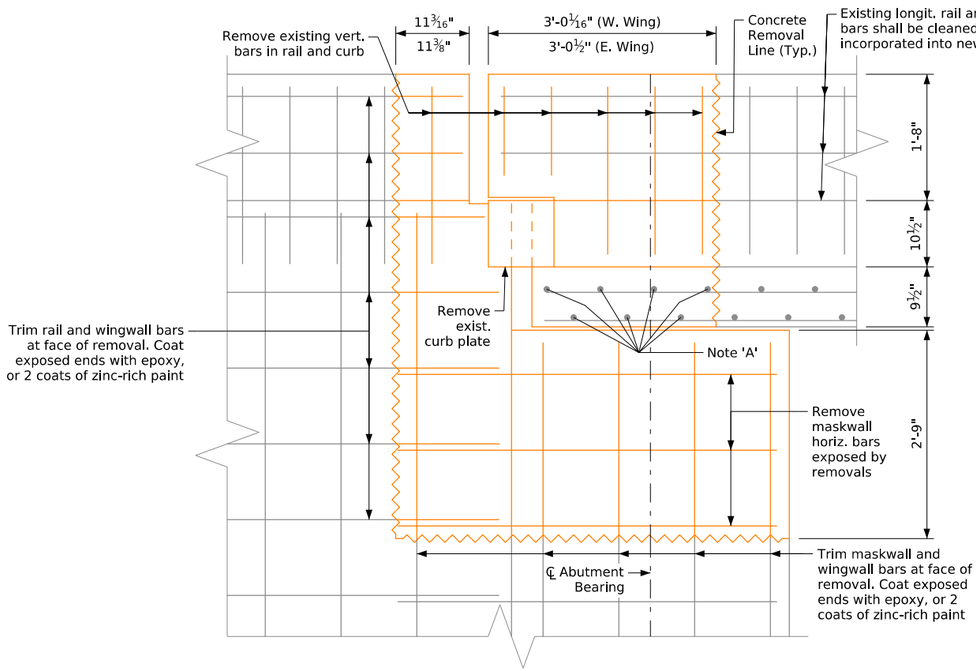
Abutment Rear Elevation



Removal Plan



Section A-A



Section B-B

Note 'A':
Short transverse bars at SE corner to be removed.

Transverse bars embedded in deck at SW corner to be cleaned and reincorporated.

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Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

South Abutment Removal Details

STA. 807+91.96 (US 34)

Turn-in Date: Oct. 6, 2026

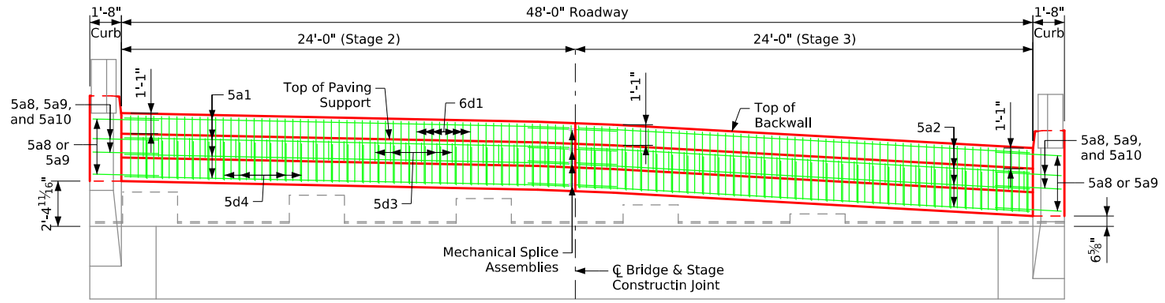
Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

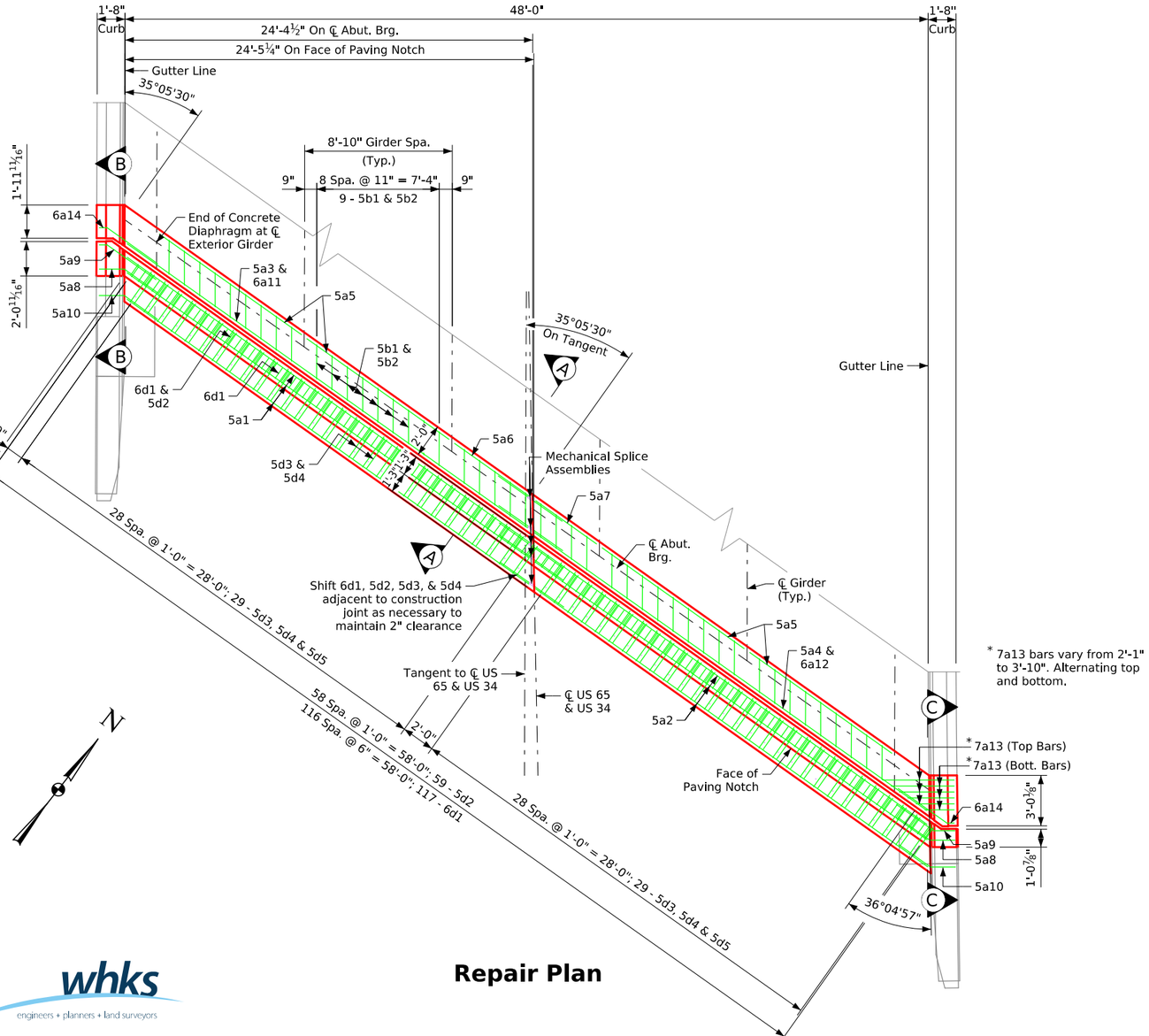
Design No. 127 — Design Sheet No. 6 of 15 — FHWA No. 34221

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.6	

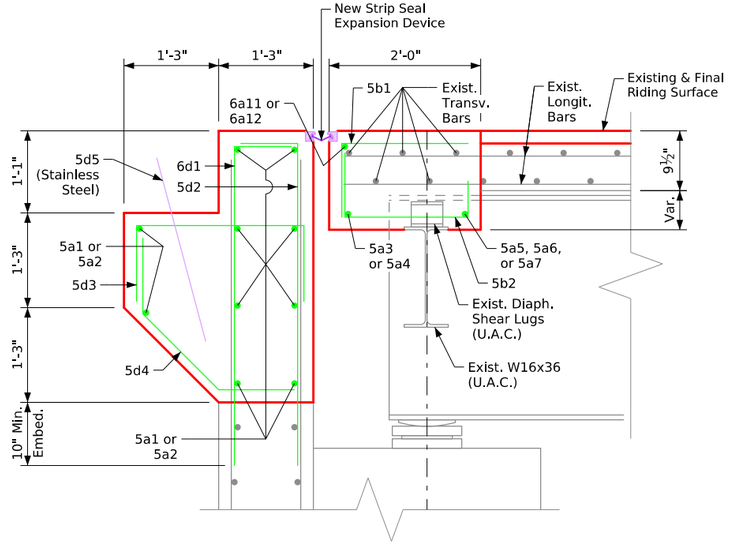
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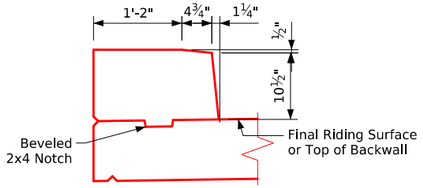
Abutment Rear Elevation



Repair Plan



Section A-A



Typical Curb Section

Rail not shown

Note:
* Dimension may be adjusted as necessary to achieve proper expansion joint opening.

See Design Sheet No. 12 for Expansion Device Details.

See Design Sheet No. 9 for Mechanical Splice Assembly Details and other Details and Quantities.

See Design Sheet No. 8 for section B-B & C-C.

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

South Abutment Repair Details

STA. 807+91.96 (US 34)

Turn-in Date: Oct. 6, 2026

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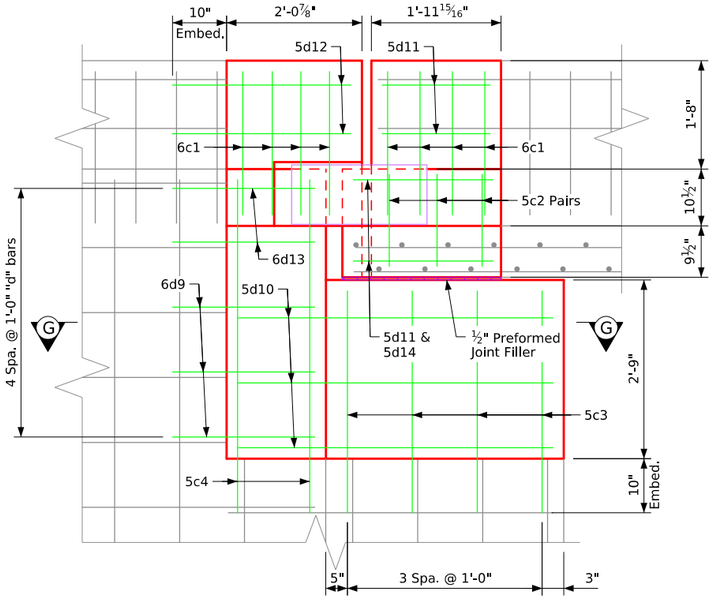
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Design No. 127 | Design Sheet No. 7 of 15 | FHWA No. 34221

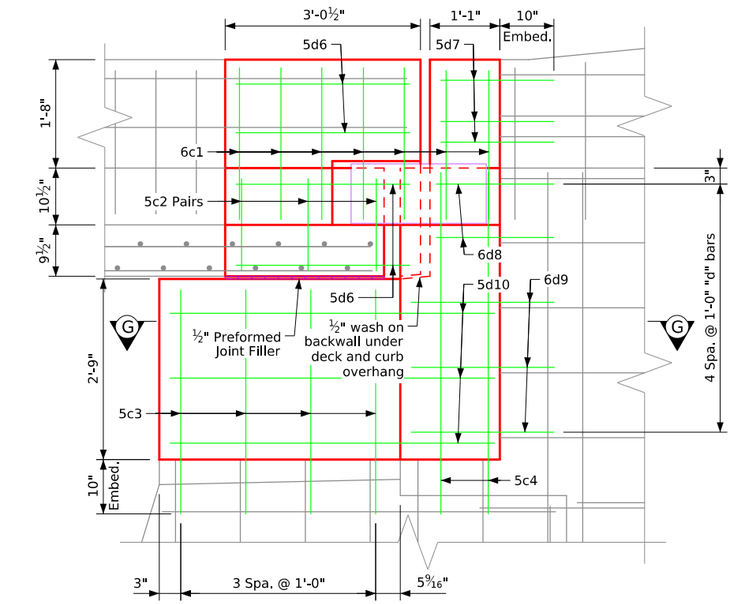
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FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.7

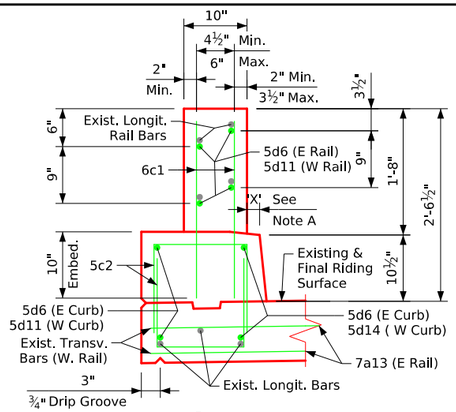
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Section B-B

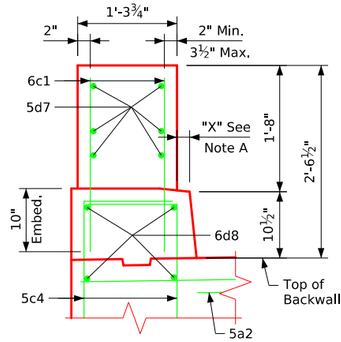


Section C-C

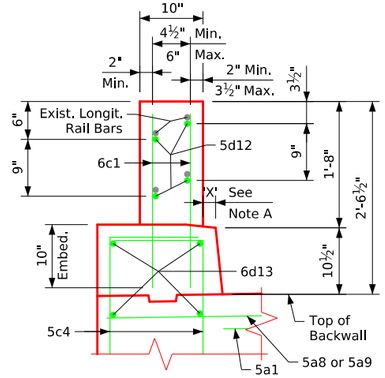


Section D-D

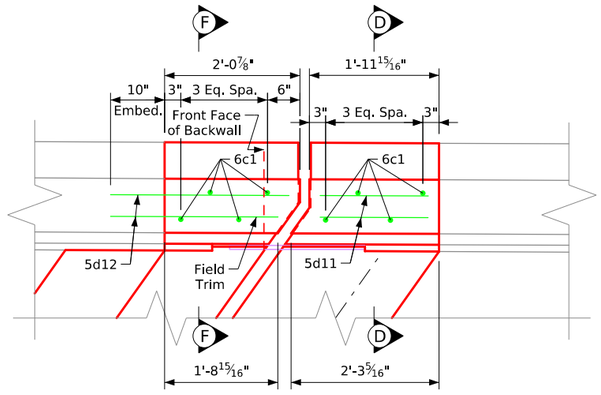
Note A: On both sides of the bridge, Dimension "X" shall match the existing dimension, measured from the front face of the existing retrofit rail to the top inside edge of the existing curb,



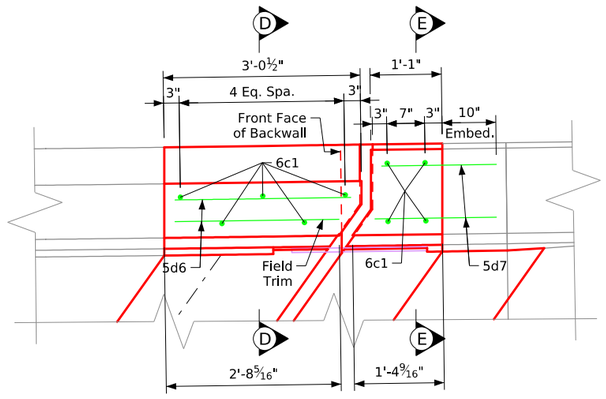
Section E-E



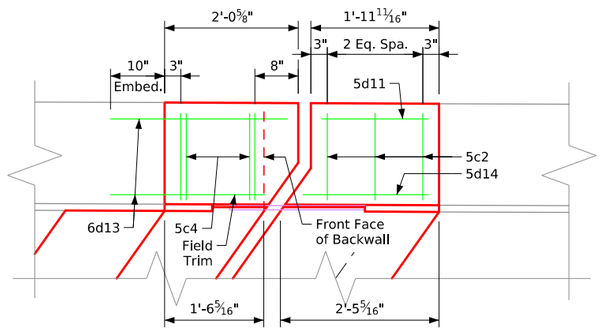
Section F-F



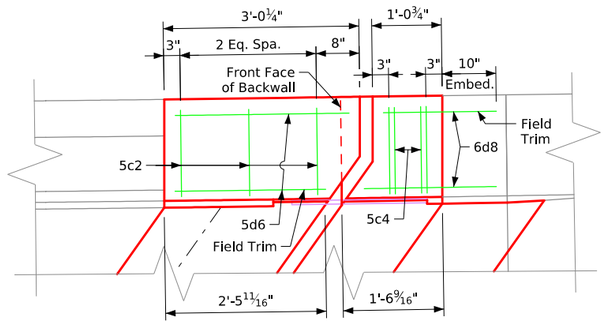
West Rail



East Rail



West Curb



East Curb

See Design Sheet No. 7 for locations of Section B-B & C-C.

See Design Sheet No. 9 for section G-G.

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Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

South Abutment Repair Details

STA. 807+91.96 (US 34)

Turn-in Date: Oct. 6, 2026

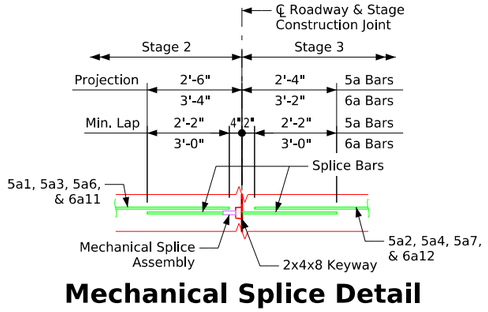
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Design No. 127 | Design Sheet No. 8 of 15 | FHWA No. 34221

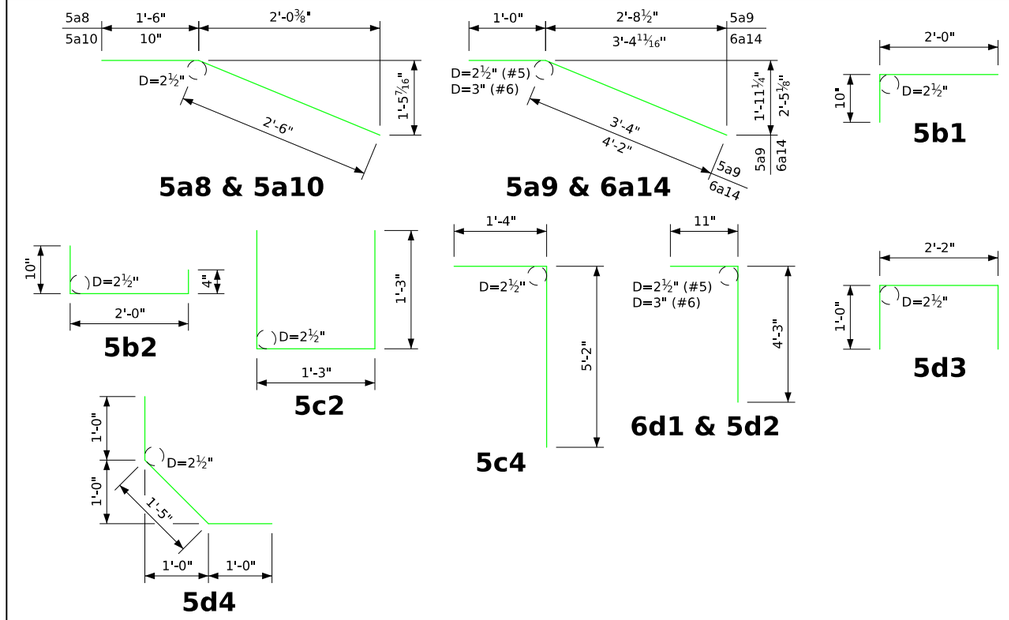
FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.8

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Mechanical Splice Detail

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Dowel Setting Note:

The 6d1, 5d2, and 5a10 bars in the backwall, and 5d7 and 5d12 bars in the rail, 6d8, 6d9, and 6d13 in the wing walls, and 5c3 & 5c4 in the maskwalls shall be set as dowels in drilled holes. Holes are to be 10" deep. The dowels shall be installed in accordance with the Manufacturer's recommendations. Either of the following systems may be used as a bonding agent for vertical dowels, but only system "A" may be used for horizontal dowels:

A. Polymer grout system shall be in accordance with Article 2301.03, E, of the Standard Specifications.

B. Hydraulic cement grout systems. Drilled holes are to be 2½ times the dowel diameter and are to be blown clean with compressed air immediately prior to placing grout. The hydraulic cement grout shall be one of those approved in Materials I.M. 491.13 and shall be used in accordance with the Manufacturer's recommendations.

The price bid for "Structural Concrete (Miscellaneous) shall include the costs of setting bars as dowels.

Mechanical Splice Assemblies:

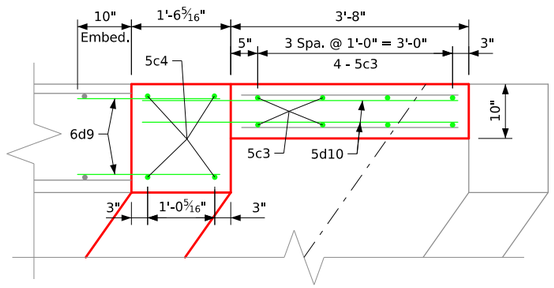
The 5a1, 5a2, 5a3, 5a4, 5a6, 5a7, 6a11 and 6a12 bars in the backwall, deck, and diaphragm shall be spliced at the locations shown using mechanical splice assemblies. Mechanical splice assemblies consist of mechanically spliced bar ends as required to facilitate the use of the mechanical splicer. The mechanical splice assembly shall meet the requirements of I.M. 451 Appendix E. Reinforcing splice bars shall be a minimum of ⅝" Ø for 5a1, 5a2, 5a3, 5a4, 5a6, and 5a7 bars and minimum ¾" ∅ for 6a11, and 6a12 bars.

All mechanical splice assemblies shall be epoxy coated.

The cost of all splice assemblies is to be included in the price bid for "Reinforcing Steel Epoxy Coated" and no separate payment will be made. The weight of mechanical splice assemblies is not included in the quantity shown for "Reinforcing Steel Epoxy Coated". A total of 12 epoxy coated splice assemblies will be required for 5a1, 5a2, 5a3, 5a4, 5a6, and 5a7bars and a total of 1 epoxy coated splice assemblies will be required for 6a11 & 6a12 bars.

Concrete Placement Quantites

Location	Quantity
Stage 2 Abutment Backwall	7.9
Stage 3 Abutment Backwall	7.6
Stage 2 Deck & Diaphragm	3.0
Stage 3 Deck & Diaphragm	2.9
Stage 2 Curbs	0.2
Stage 3 Curbs	0.2
Stage 2 Rails	0.2
Stage 3 Rails	0.2
Mask Walls, 2 @ 0.3 CY	0.6
Total (cu. yds.)	23.0



Section G-G

Epoxy Coated Reinforcing Steel Bar List – One Abutment

Bar	Location	Shape	No.	Length	Weight
5a1	Backwall, Horizontal (Stage 2)		10	29'-4"	306
5a2	Backwall, Horizontal (Stage 3)		10	28'-5"	296
5a3	Diaphragm, Transverse, Along Skew (Stage 2)		1	26'-10"	28
5a4	Diaphragm, Transverse, Along Skew (Stage 3)		1	26'-2"	27
5a5	Diaphragm, Between Beams		4	10'-3"	43
5a6	Diaphragm, Between Beams (Stage 2)		1	5'-2"	5
5a7	Diaphragm, Between Beams (Stage 3)		1	4'-6"	5
5a8	Backwall to Wing		8	4'-0"	33
5a9	Backwall to Wing		8	4'-4"	36
5a10	Approach Support, Dowels		4	3'-4"	14
6a11	Deck, Transverse, Along Skew (Stage 2)		1	29'-4"	44
6a12	Deck, Transverse, Along Skew (Stage 3)		1	28'-5"	43
7a13	Deck, Transverse		6	Varies	36
6a14	Deck, Transverse, at Curb		2	5'-2"	16
5b1	Diaphragm, Vertical		45	2'-10"	133
5b2	Diaphragm, Vertical		45	3'-2"	149
6c1	Rail, Vertical		17	2'-4"	60
5c2	Curb, Vertical		12	3'-9"	47
5c3	Mask Wall, Vertical, Dowel		16	3'-5"	57
5c4	Wing Wall, Vertical, Dowel		8	6'-6"	54
6d1	Backwall, Vertical, Dowel		117	5'-2"	908
5d2	Backwall, Vertical, Dowel		59	5'-2"	318
5d3	Backwall, Vertical		58	4'-2"	252
5d4	Backwall, Vertical		58	3'-5"	207
5d6	Rail & Curb, Horizontal, East		8	2'-9"	23
5d7	Rail, Horizontal, East, Dowel		6	1'-9"	11
6d8	Wing, Horizontal, East, Dowel		4	2'-0"	12
6d9	Wing, Horizontal, Dowel		12	2'-2"	39
5d10	Mask Wall, Horizontal		12	4'-10"	60
5d11	Rail & Curb, Horizontal, West		6	1'-8"	10
5d12	Rail, Horizontal, West, Dowel		4	2'-8"	11
6d13	Wing, Horizontal, West, Dowel		4	2'-8"	16
5d14	Curb, Horizontal, West		2	1'-11"	4
	Epoxy Coated Reinforcing Steel – Total Weight (lbs.)				3,303

Stainless Reinforcing Steel Bar List – One Abutment

Bar	Location	Shape	No.	Length	Weight
5d5	Paving Notch, Stainless Steel		58	3'-2"	192
	Stainless Reinforcing Steel – Total Weight (lbs.)				192

See Design Sheet No. 8 for location of Section G-G.

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

South Abutment Repair Details

STA. 807+91.96 (US 34) — Turn-in Date: Oct. 6, 2026

Lucas County

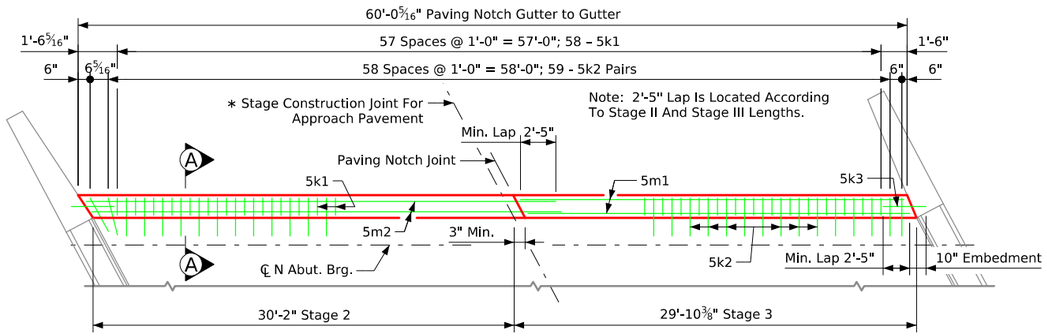
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Design No. 127 — Design Sheet No. 9 of 15 — FHWA No. 34221

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FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.9

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Part Plan View At North Abutment

Note: New Paving Notch Replacement should extend from bridge wingwall to bridge wingwall.

∗ Construction joint for notch repair to extend a minimum of 3 inches past construction joint for pavement. Provide 2'-5" minimum lap for reinforcement.

Note: 5k3 bars shall be set as dowels embedding 10 inches minimum into the existing bridge wingwalls and extending a minimum of 2'-5" into the new paving notch replacement.

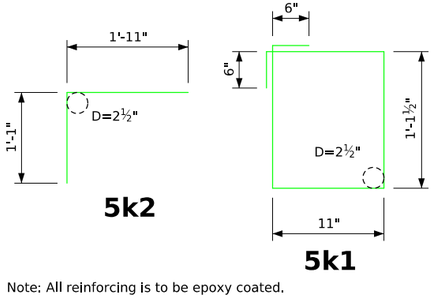
Paving Notch Replacement Notes:

The Paving Notch Replacement is to be Class "C" structural concrete.
Minimum clear distance from face of concrete to near reinforcing bar is to be 2", unless otherwise noted or shown.
The bid item "Paving Notch Replacement" linear feet, shall include all costs of labor and materials associated with excavation, removing, and disposing of the existing paving notch, granular backfill and compaction as needed, and installing the new paving notch. This work shall include, cutting of the existing #5 bars, removing the concrete for the shear keyways, drilling the holes for the deformed dowels, and constructing the new notch to the dimensions shown. The new notch is estimated at 0.07 cubic yards per foot of structural concrete and 16.0 pounds of epoxy coated reinforcing steel per foot. Removals shall be in accordance with Section 2401, of the Standard Specifications.

Dowel Setting Note:

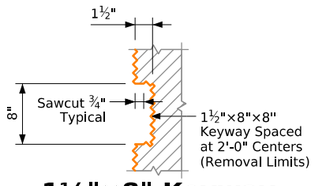
The deformed 5k2 & 5k3 bars shall be set as dowels in drilled holes. Holes are to be 10" deep. Polymer grout system shall be used to install the deformed dowel bars in accordance with Article 2301.03,E, of the Standard Specifications and the Grout Manufacturer's recommendations.

Bent Bar Details

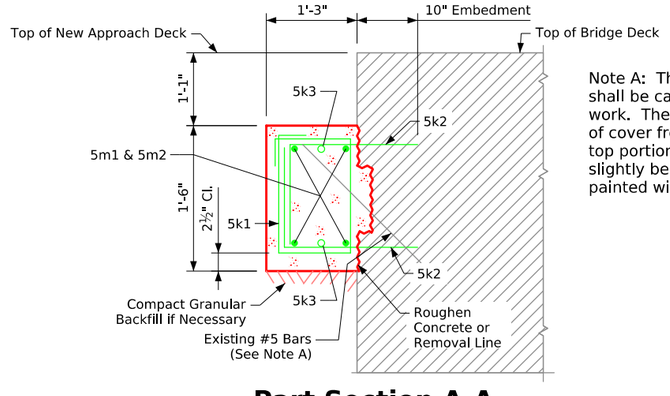


Note: All reinforcing is to be epoxy coated.

Note: All dimensions are out to out. D=Pin diameter



1½"×8" Keyway Detail



Part Section A-A

Note A: The bottom portion of the existing #5 bars shall be carefully exposed and incorporated into new work. The bar shall be cut off to provide 2 inches of cover from the top of the new paving notch. The top portion of the bar shall be cut off flush or slightly below the concrete surface and the ends painted with 2 coats of zinc rich paint.

Note: Dowels shall be placed to miss any existing reinforcing steel exposed during removals.

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

North Abutment Paving Notch Replacement

STA. 807+91.96 (US 34) — Turn-in Date: Oct. 6, 2026

Lucas County

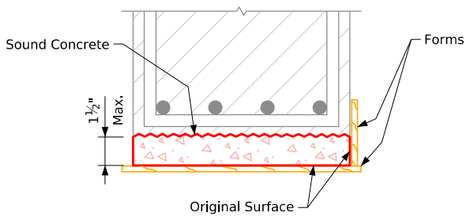
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 — Design Sheet No. 10 of 15 — FHWA No. 34221

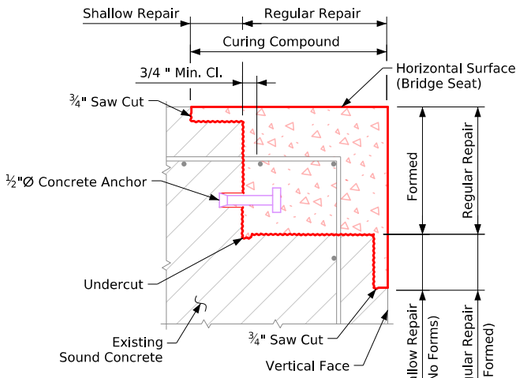
FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	Paving Notch Replacement	Standard Sheet 1068 (Modified)	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.10	

Revised 07-2019: Changed Bent Ends (Hook Leg) of 5k1 Bar to 6" (Was 4½"). Changed All References of "Slab" to "Deck". MiscellaneousBridges.dgn - 1068 - This Sheet Re-Issued 11-2023. Sheet Format Update.

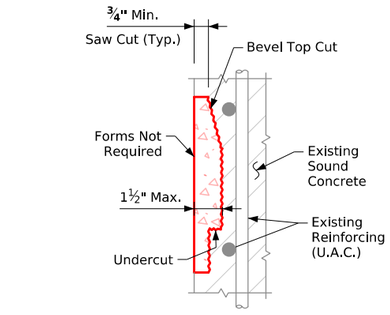
1:41:37 PM 9/1/2026 bbarker pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\BRG_59034109_WHKS_127_34221_Z12.dgn



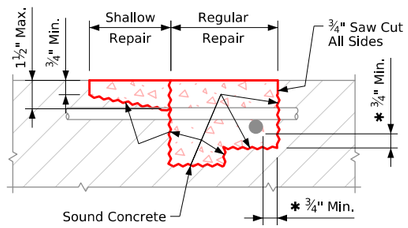
Shallow Repair Bottom Surface



Corner Repair



Shallow Repair Vertical Face

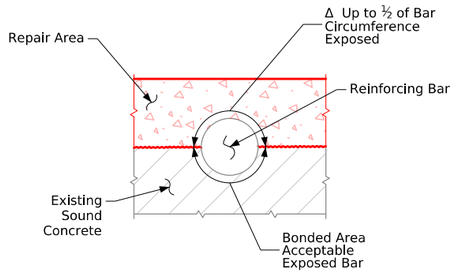


Repair Definition

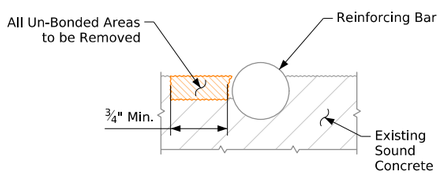
✱ Indicates Clearance for an Un-Bonded Rebar.

Anchor Detail

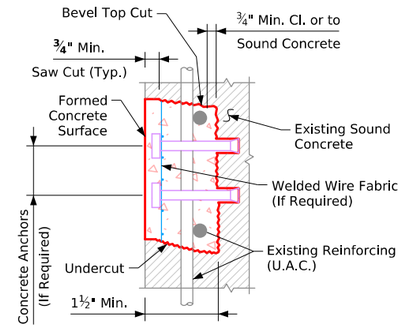
For Spacing and Use of Concrete Anchors and WWF See the Repair Notes.



Δ If more than ½ of the rebar is exposed it shall be treated as an un-bonded rebar.



Concrete Removal Adjacent to Reinforcing



Regular Repair Vertical Face

Repair Notes:

The spalled and hollow areas of this bridge as noted and shown in these plans shall be repaired as follows:

- All the costs of equipment and materials required to repair the spalled and hollow areas of this bridge shall be included in the price bid for "Concrete Repair".
- The price bid for "Concrete Repair" shall include the cost of all concrete anchors and welded wire fabric required by the plans.
- The Engineer shall determine and outline by visual and audible inspection the actual areas of the concrete repairs. The Contractor shall be paid for the actual amount of repairs made on a square foot basis based on the price bid per square foot.
- All existing reinforcing bars that are exposed by the concrete removal shall be cleaned and carefully incorporated into the new work, except badly deteriorated existing reinforcing which shall be replaced as directed by the Engineer.
- The concrete anchors required shall have a minimum pull out of 5,000 lbs based on 4,000 psi concrete. An anchor meeting the requirements of Iowa D.O.T. Materials I.M. 453.09 and the pull out load above is required. The anchors shall be galvanized and shall be installed according to recommendations of the Manufacturer. The cost of furnishing and installing the concrete anchors shall be included in the price bid for "Concrete Repair".
- The welded wire fabric shall be ASTM A185 and galvanized as per ASTM A-641. The WWF wires shall be spaced 3x3 or 4x4 and the wires shall have a nominal area of 0.014 to 0.029 square inch inclusive, example "WWF 3x3 - W1.4xW2.9".

Where reinforcement has been exposed and clearance around the periphery of the existing bar is provided, no supplemental reinforcing is required, except where existing reinforcement density and pattern are such that individual open spaces between bars are of 1.5 square feet or larger. For this condition ½"∅ concrete anchors and welded wire fabric shall be installed at the rate of one concrete anchor with WWF per each 1.5 square feet of area within each open space.

Repairing the structural concrete shall be in accordance with Section 2426 of the Standard Specifications.

Concrete Placement Quantities

Mark	Type	Units	Quantity
①	Shallow Repair	Sq. Ft.	0
②	Regular Repair	Sq. Ft.	60
		Total (Sq. Ft.)	60

Estimated Concrete Repair Quantities

Description	Units	Amount
Concrete Repair	Sq. Ft.	60

For estimated repair areas and locations see Design Sheet No. 3.

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans 82'-0" Interior Span

Concrete Repair Details

STA. 807+91.96 (US 34) Turn-in Date: Oct. 6, 2026

Lucas County

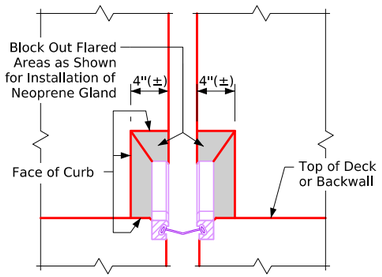
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 Design Sheet No. 11 of 15 FHWA No. 34221

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	Concrete Repairs	Standard Sheet 1045	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.11

1:41:37 PM 9/1/2026 bbarker pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\BRG_59034109_WHKS_127_34221_Z12.dgn

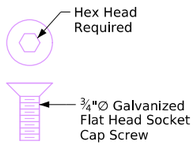
Revised 10-2014 - Deleted All References to Grout. Section 2426 Covers this Requirement and Doesn't Need to be Stated on the Plans.
RepairRetrofitBridges.dgn - 1045 - This Sheet Redrawn 09-27-1990.
RepairRetrofitBridges.dgn - 1045 - This Sheet Re-Issued 07-2023.



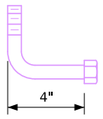
Blockout Detail

(Drawn for 0° Skew for Illustrative Purposes)

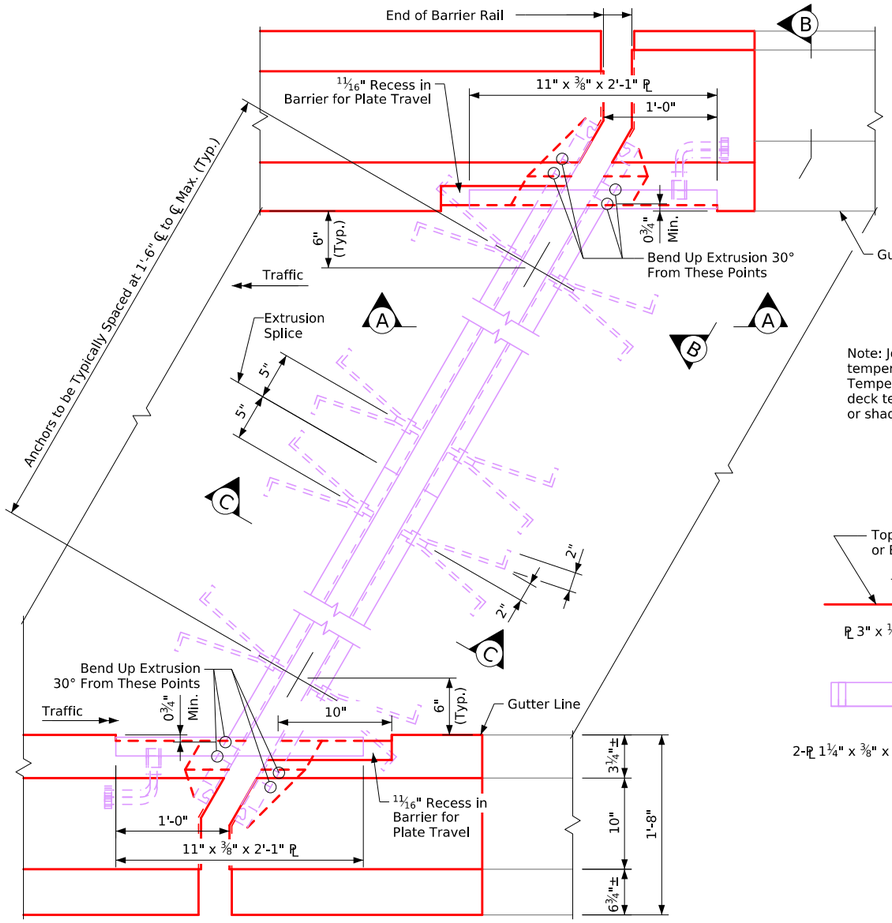
Contractor to note that the cap screw anchorage system for the ⅜" barrier plates are always to be placed on the oncoming traffic side.



Cap Screw Detail



Bent Bolt Detail

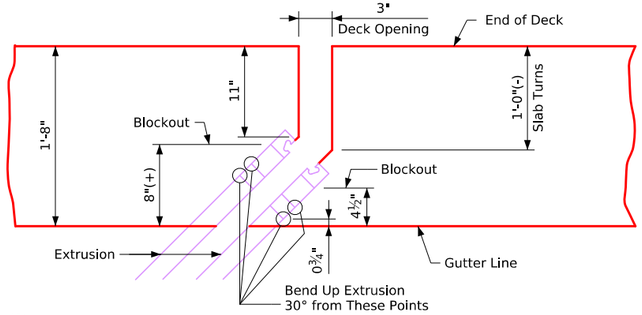


Part Plan View of Expansion Device

Note: It is intended that the 11/16" recessed area be formed so that when the ⅜" bent plate is installed the plate will be able to move freely in this recessed area.

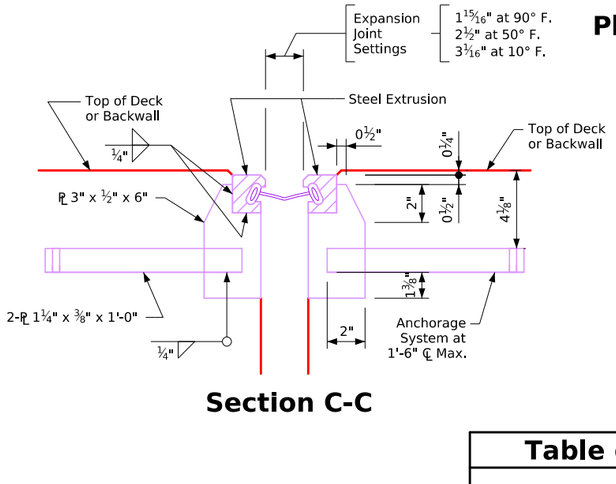
Barrier Plate Note:

The material used for the barrier plates is to be ASTM A36 steel. The bolts shall meet the requirements of ASTM A307. The plates, bolts, nuts and cap screws are to be galvanized in accordance with Article 4100.07 of the Standard Specifications.

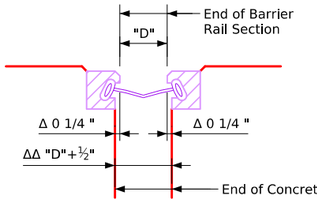


Plan View of Blockout

Note: Joint settings for other temperatures are proportional. Temperatures shown are concrete deck temperatures on the underside or shaded portion of the deck.



Section C-C



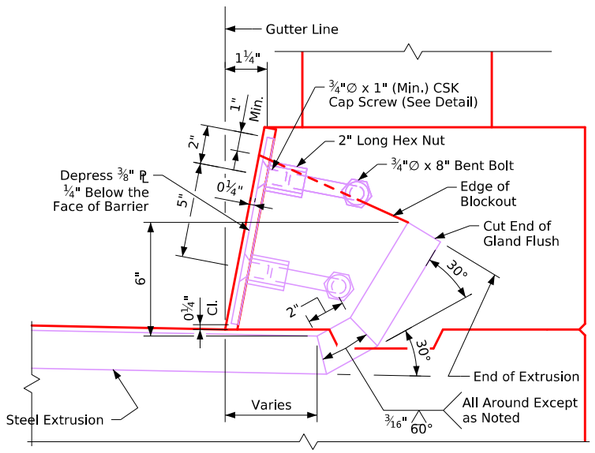
Expansion Opening Detail

Δ This dimension may vary slightly depending on manufacturer furnishing the joint.

ΔΔ Used for all out to out dimensions of deck. The dimensions may vary slightly depending manufacturer furnishing the joint.

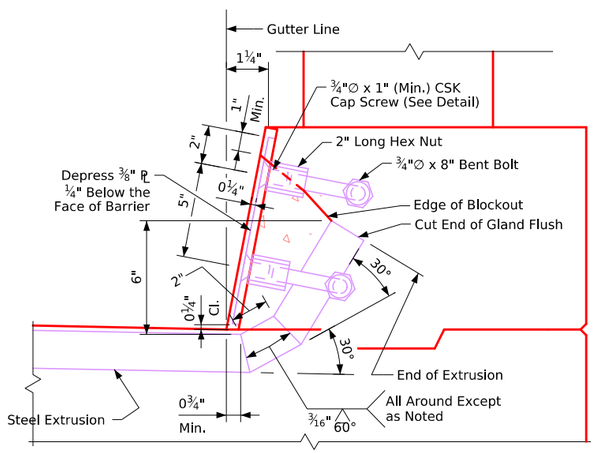
Table of Approved Expansion Devices

Manufacturer	Type of Steel Extrusion	Neoprene Gland	Minimum Opening for Gland Installation	Corresponding Maximum Deck Temperature
Watson–Bowman & Acme Corp.	A	SE-500	1½"	85℉
Approved Equal				



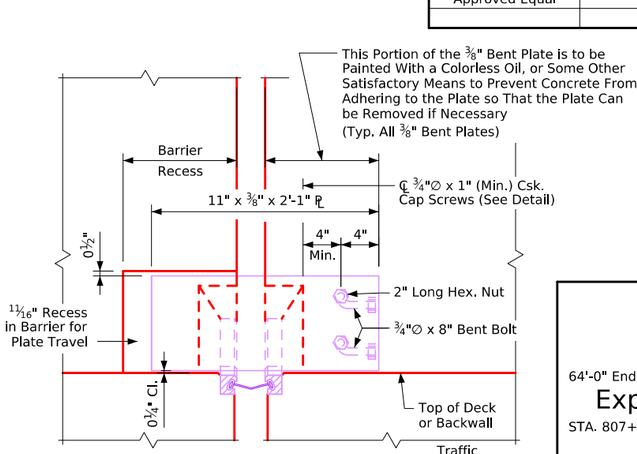
Section B-B

(Far Extrusion)



Section B-B

(Near Extrusion)



Section A-A

(Drawn for 0° Skew for Illustrative Purposes)

Note:
See Design Sheet No. 13 for expansion device notes containing the steel extrusion notes, neoprene gland notes, and watertight integrity testing and repair notes.

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans — 82'-0" Interior Span

Expansion Device Details - S. Abut.

STA. 807+91.96 (US 34) — Turn-in Date: Oct. 6, 2026

Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 — Design Sheet No. 12 of 15 — FHWA No. 34221

Revised 08-13: Added a Corresponding Maximum Deck Temperature Column to Expansion Device Table. Added a Splice Detail to the Plan Part Views.
Issued 03-02.
DeckRailBridges.dgn - 1026s-1 -This Sheet Re-Issued 05-2024. Sheet Format Update.

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	Expansion Device Details - Steel Extrusion w/Neoprene Gland (1 of 2)	Standard Sheet 1026s1	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.12	

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Steel Extrusion Notes:

The Contractor shall submit for approval shop drawings of the expansion devices showing layout, material to be used, and provisions for the holding device during placement of concrete.

The expansion device shall be galvanized after welding. All curb plates including their anchorages shall be galvanized.

The expansion device is to be parallel to grade.

Cap screws shall be countersunk $\frac{1}{16}$" below top of the plate. The minimum grade of structural steel for the expansion device shall be ASTM A36.

Blockout details may be altered from those shown provided the gland may be installed and removed if necessary and the curb area remains watertight.

Shop splices of the steel extrusion will be permitted. Prior to making shop splices steel extrusion pieces shall have a minimum length of 15 feet. The individual length of pieces shall be chosen so that a minimum number of splices is required. All pieces shall be joined with a prequalified partial penetration single groove weld detailed on the shop drawing. All surfaces not in contact with concrete are to be ground flush. No weld shall be permitted in the internal section of the extrusion where the neoprene gland is to be installed.

The number of feet of steel extrusion installed shall be paid for at the contract price per foot based on plan quantities. The price bid for "Steel Extrusion Joint w/Neoprene" shall include the cost of furnishing but not the cost of installing the neoprene gland. The contract price bid for "Steel Extrusion Joint w/Neoprene" shall be full compensation for furnishing and installing steel extrusions. This work will consist of furnishing all required materials, (including the $\frac{3}{8}$" plates at the curbs and their anchorage systems), and the installation and adjustment of the expansion joints in accordance with the details shown on the plans and as directed by the Engineer. The furnishing and installation of all necessary hardware and accessories as supplied by the Expansion Joint Manufacturer are to be included in this work, including the anchorage system and any temporary erection material. All work and materials for the installation of the expansion joints are to comply with the written recommendations of the Expansion Joint Manufacturer.

Neoprene Gland Notes:

The neoprene gland is to be placed as one continuous piece from end to end of the steel extrusion.

The neoprene gland shall conform to ASTM-2628 modified to exclude recover test and compression set.

The Contractor shall install the gland above the minimum temperature of 45° and the minimum joint opening and corresponding maximum deck temperature shown in these plans. The deck temperature shall be measured by recording the surface temperatures on the underside of the deck adjacent to the joints. If the deck temperature does not fall within the specified temperature range before the Contractor has completed all other required work, it will be necessary for the Contractor to return to the project site to complete installation and testing of the neoprene gland. If the Contractor is required to return to the project site after all other required work has been completed, the Contractor shall complete installation and testing of neoprene gland at no extra charge to the State.

The number of feet of neoprene gland installed shall be paid for at the contract price per foot based on plan quantities. The price for "Neoprene Gland Installation and Testing" shall be full compensation for installing and testing of the new neoprene gland. This work will consist of cleaning the extrusion, installation of the neoprene gland and water tight testing of the expansion joint system. All work and materials necessary for the installation of the neoprene gland shall comply with the recommendations of the Expansion Joint Manufacturer. The price bid for "Neoprene Gland Installation and Testing" shall include all watertight integrity testing, leak repairs as directed by the Engineer, and subsequent watertight testing until a leak free installation is achieved.

Watertight Integrity Testing And Repair Notes:

After installation of each neoprene gland, the Contractor shall perform watertight integrity tests at the deck level to detect any leakage. The tests are to check for leakage at the upturned ends of the expansion device and for leakage along the expansion device across the deck and any medians or sidewalks. The Contractor may conduct a single test of the entire device including upturned ends or may conduct separate tests of upturned ends and one or more tests of overlapping lengths between the upturned ends.

At each upturned end of the expansion device, the Contractor shall block out on the deck at least 3 feet of the expansion device leading to the upturned end and flood the area. A minimum water depth of 3" shall be maintained at the gutter line for at least 30 minutes. During the test, the Inspector shall observe for any overflow at the upturned end. At the conclusion of the test the Inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if the Inspector observes no overflow during the test and if no dripping water or water droplets are visible in the under deck areas near the upturned end.

The Contractor shall test the expansion device between upturned ends by blocking out and covering the device with ponded or flowing water to a depth of at least 1" at all points, for at least 30 minutes. Vertical curb surfaces may be tested with an unnozzled hose delivering approximately one gallon per minute directed to flow over the entire curb height for 30 minutes. At the conclusion of the test, the inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if no dripping water or water droplets are visible in the under deck areas along the full length of the expansion joint. Damp concrete that does not show dripping water or water droplets is not considered a sign of leakage.

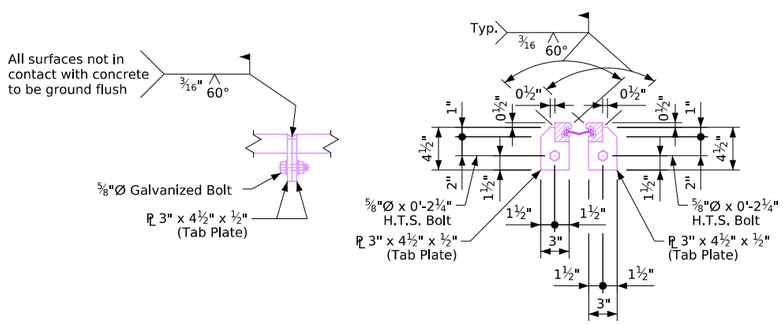
If the expansion device leaks at an upturned end or along its length, the Contractor shall locate the leak(s) and take repair measures to stop the leakage. The repair measures shall be as recommended by the Manufacturer and approved by the Engineer prior to beginning corrective work.

If measures to eliminate leakage are taken, the Contractor shall perform subsequent watertight integrity tests subject to the same conditions as the original test.

Field Construction Notes:

If the steel extrusion is spliced in the field, the splice location shall be detailed on the shop drawings. The connection details shall include tab plates and prepared ends to accommodate the necessary welding. See details in these plans.

Galvanized coating damage by field welding shall be repaired in accordance with Construction and Materials I.M. 410.



End View Section Thru Extrusion

Field Splice Detail

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans 82'-0" Interior Span

Expansion Device Details - S. Abut.

STA. 807+91.96 (US 34) Turn-in Date: Oct. 6, 2026

Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 Design Sheet No. 13 of 15 FHWA No. 34221

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	Expansion Device Details - Steel Extrusion Notes (2 of 2)	Standard Sheet 1026s2	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.13	

1:41:38 PM 9/1/2026 bbarker pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\BRG_59034109_WHKS_127_34221_Z12.dgn

Revised 08-13: Steel Extrusion Note was Added to Show a Weld Detail on the Shop Drawings for Splices.
An Additional Neoprene Gland Note About The Corresponding Maximum Deck Temperature was Added.
Issued 11-08.
DeckRailBridges.dgn - 1026s-2 -This Sheet Re-Issued 05-2024. Sheet Format Update.

Self-Expanding Sealant System Notes:

The self-expanding sealant system shall be in accordance with Article 4136.03, E of the Standard Specifications and Iowa DOT Materials I.M. 436.07. The self-expanding sealant system shall be from the Iowa DOT Materials Approved Product Listing Enterprise (MAPLE).

A technical representative of the manufacturer shall be provided at the jobsite during installation to review procedures.

The sealant system shall be installed per the manufacturer's recommendations, with the following possible exception: a field-applied silicone sealant edge bead, as noted and shown on this sheet, shall be applied whether or not the manufacturer requires this step. If the manufacturer does not include this step in their standard procedure, the silicone sealant used in this step shall be identical to the sealant provided by the manufacturer for use on the butt splice.

The sealant system shall extend full width, out-to-out, of the structure. To prevent open drainage on the abutments, upturned ends shall be created in the curbs using a notch and miter method. Follow the guidance provided by the manufacturer's recommendations and/or technical representative.

Sealant width must be sized so that it can be installed in the proper width opening for the appropriate temperature at the time of installation. Contact the manufacturer for information required by them to assure the appropriate size is ordered. The Contractor shall be responsible for coordinating the actual product dimensions with the technical representative.

The number of feet of self-expanding sealant system installed shall be paid for at the contract unit price per foot based on plan quantities. The price for "preformed, pre-compressed, self-expanding sealant system with silicone pre-coated surface" shall be full compensation for furnishing, installing, and testing of the new sealant system. This work shall consist of cleaning and preparation of the existing surface, installation of the sealant system, and watertight testing of the sealant system. All work and materials necessary for the installation of the sealant system shall comply with the recommendations of the sealant system manufacturer, except as noted and shown. The price bid for this item shall include all watertight integrity testing, leak repairs as directed by the engineer, and subsequent watertight testing until a leak-free installation is achieved.

Self-Expanding Sealant System Watertight Integrity Testing and Repair Notes:

After installation of the self-expanding foam sealant system/expansion device, the Contractor shall perform watertight integrity tests at the deck level to detect any leakage. The tests are to check for leakage at the upturned ends of the expansion device and for leakage along the expansion device across the deck and medians. The Contractor may conduct separate tests of upturned ends and one or more tests of overlapping lengths between the upturned ends.

At each upturned end of the expansion device, the Contractor shall block out on the deck at least 3 feet of the expansion device leading to the upturned end and flood the area a minimum water depth of 3 inches, maintained at the gutter line for at least 30 minutes. During the test, the Inspector shall observe for any overflow at the upturned end. At the conclusion of the test, the Inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if the Inspector observes no overflow during the test and if no dripping water or water droplets are visible in the underdeck areas near the upturned end.

The Contractor shall test the expansion device between upturned ends by blocking out and covering the device with ponded or flowing water to a depth of at least 1 inch at all points for at least 30 minutes. Vertical curb surfaces may be tested with an unnozzled hose delivering approximately one gallon per minute directed to flow over the entire curb height for 30 minutes. At the conclusion of the test, the Inspector will examine the underside of the joint for leakage. The expansion device is considered watertight if no dripping water or water droplets are visible in the underdeck areas along the full length of the expansion joint. Damp concrete that does not show dripping water or water droplets is not considered a sign of leakage.

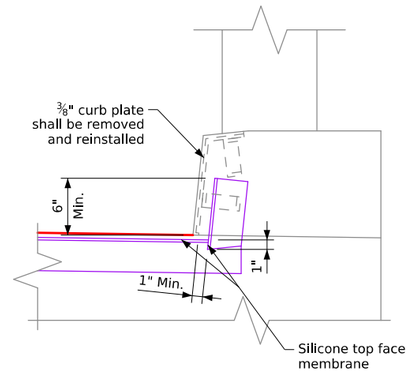
If the expansion device leaks at an upturned end or along its length, the Contractor shall locate the leak(s) and take repair measures to stop the leakage. The repair measures shall be as recommended by the manufacturer and approved by the engineer prior to beginning corrective work.

If measures to eliminate leakage are taken, the Contractor shall perform subsequent watertight tests subject to the same conditions as the original test.

Existing Expansion Device Surface Preparation Notes:

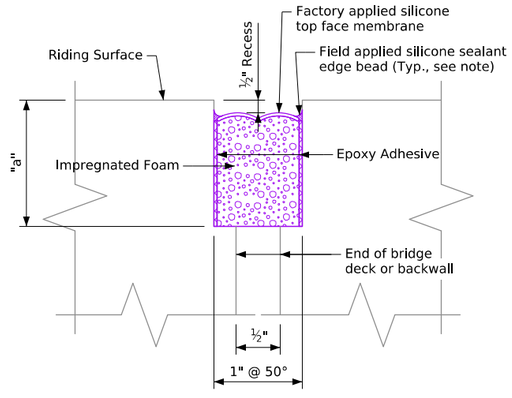
Surfaces of existing concrete as detailed in these plans are to be cleaned of existing dirt, oil, debris, and corrosion in preparation application of epoxy adhesive for new joint material. Because of the small quantity, all cost associated with cleaning as noted is to be included in the bid item "Preformed, Pre-compressed, Self-expanding Sealant System with Silicone Pre-coated Surface".

The bid item "Preformed, Pre-Compressed, Self-Expanding, Sealant System with Silicone Pre-Coated Surface" shall include all costs associated with furnishing and installing the expansion device as shown.



Section Thru Joint at Rail

Sealant Edge Bead Note:
Before the epoxy adhesive cures, force the tip of the sealant tube between the substrate and foam. Inject a 3/4-inch-deep silicone sealant edge bead between the foam, silicone top face membrane, and substrate. Using a caulk knife, tool the overflow silicone sealant into a cove bead between the silicone top face membrane and the substrate.



Section Thru North Abutment Joint

(Section Normal to Joint)

Note: The distance "a" from the top of deck to compression seal seat was based on original manufacturer recommendations. The distance "a" shall be field measured by the Contractor prior to installation of the new joint. The Contractor shall work with the manufacturer to provide an adequate sealant system that fills the space vacated by the removal of the existing joint.

Note: The joint opening was measured in July 2021. The temperatures shown are concrete deck temperatures on the underside or shaded portion of the deck.

The joint material shall accommodate ½" expansion and contraction in each direction (1" total).

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans | 82'-0" Interior Span

Expansion Device Details - N. Abut.

STA. 807+91.96 (US 34)

Turn-in Date: Oct. 6, 2026

Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 | Design Sheet No. 14 of 15 | FHWA No. 34221

whks engineers + planners + land surveyors

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.14

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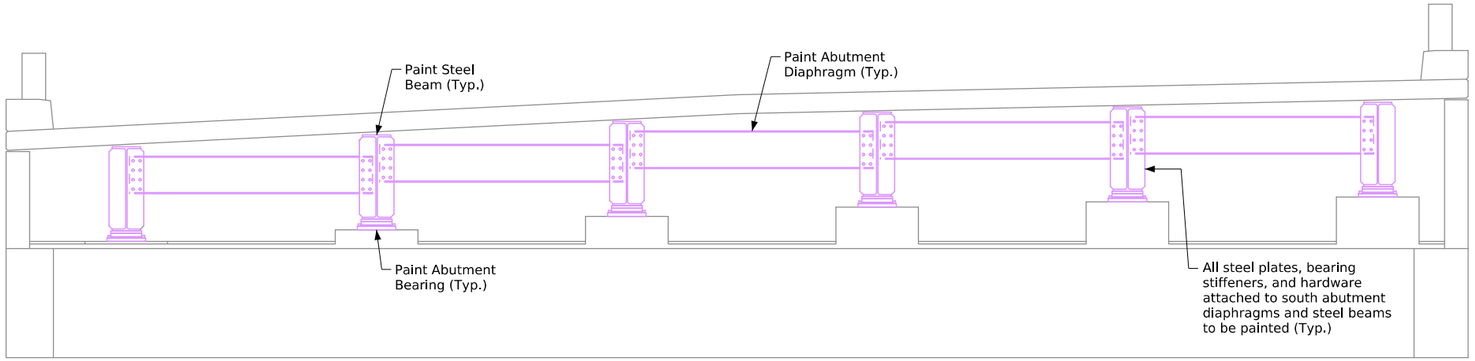
Steel Painting Notes:

All steel to be cleaned and painted shall be in accordance with Section 2508, of the Standard Specifications. The paint system shall be the epoxy system. This includes a zinc-rich epoxy, an aluminum epoxy mastic intermediate coat, and an aliphatic polyurethane topcoat.

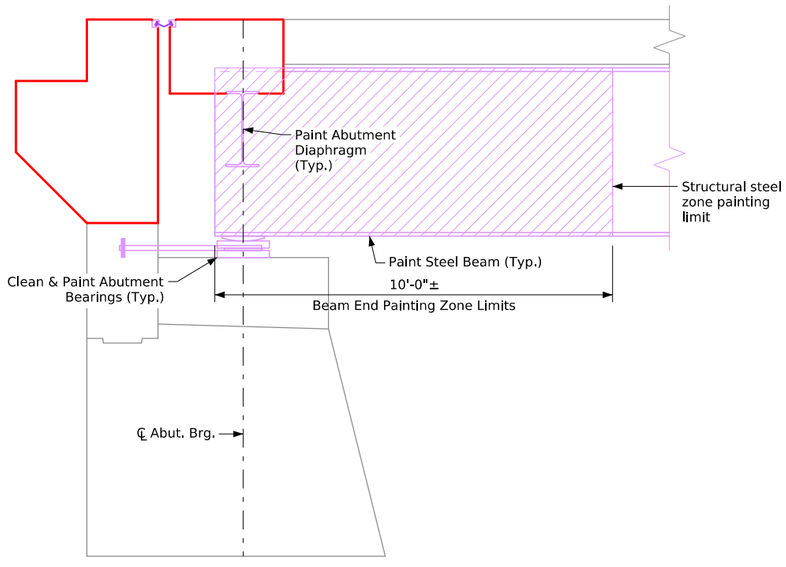
Structural steel that is to be painted includes the end 10'-0" of steel beams bearings, diaphragms, and plates and hardware attached to the diaphragms and steel beams at the south abutment only as detailed on this sheet.

Abrasives shall be steel shot and/or grit, aluminum oxide, or garnet abrasives. Do not use sand or coal slag.

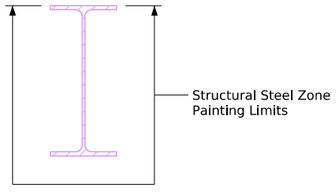
Take care to protect areas that are not to be painted from paint and overspray.



South Abutment Elevation View

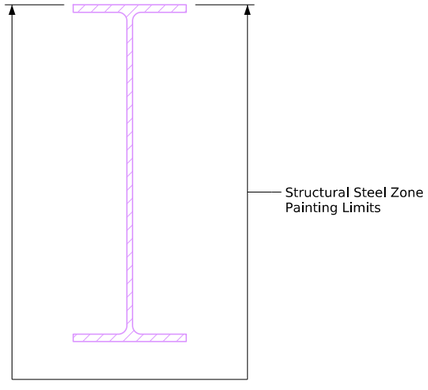


Section Thru South Abutment



South Abutment Diaphragm

W16x36



Steel Girders

W36x135

whks
engineers + planners + land surveyors

Design For 35°05'30" Skew (L.A.)

210'-0" x 48'-0" Continuous I-Beam Bridge

64'-0" End Spans | 82'-0" Interior Span

Structural Steel Painting Details

STA. 807+91.96 (US 34)

Turn-in Date: Oct. 6, 2026

Lucas County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 127 | Design Sheet No. 15 of 15 | FHWA No. 34221

FILE NO. 32410	ENGLISH	DESIGN TEAM BJF/RGV/WDB	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER V.15

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INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.3	Roadway Title Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 2	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1 - 3	Estimated Roadway Quantities and Estimate Reference Information
C.4	Project Description
C.5	Standards
C.6	Index of Tabulations
C.7 - 22	Tabulations
C.25	General Notes
D Sheets	**Mainline Plan and Profile Sheets**
D.1	Legend Sheet
D.2 - 3	Plan Sheets
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
J.2	Staging Notes
J.3	
J.4	
J.5	Traffic Control & Staging Legend & Symbol Info. Sheet
J.6 - 14	Traffic Control Plan Sheets
L Sheets	**Geometric, Staking and Jointing Sheets**
L.1	Jointing Layout - North Bridge Approach
L.2	Jointing Layout - South Bridge Approach

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
LUCAS D. FATKA
23466
IOWA

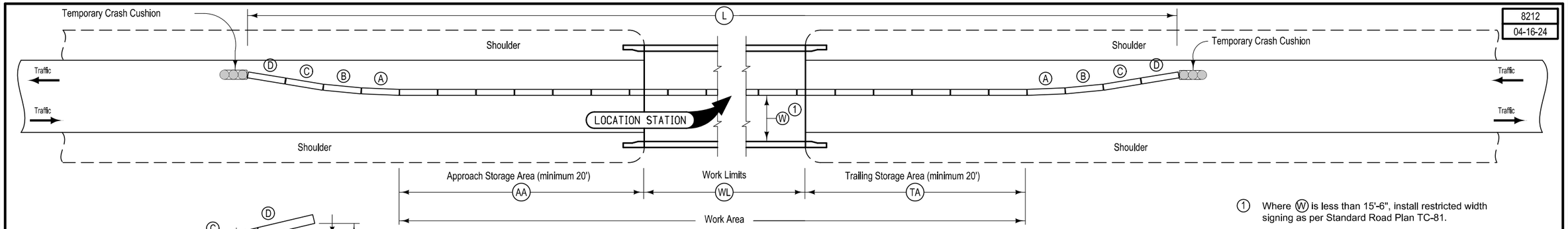
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

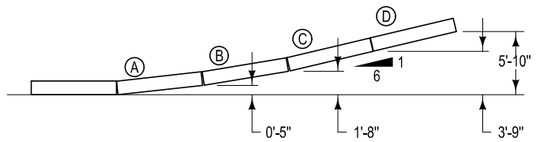
Signature — Date: 8/28/2026

Lucas David Fatka
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.3, B.1-2, C.1-25, D.1-3, J.1-14, L.1-2



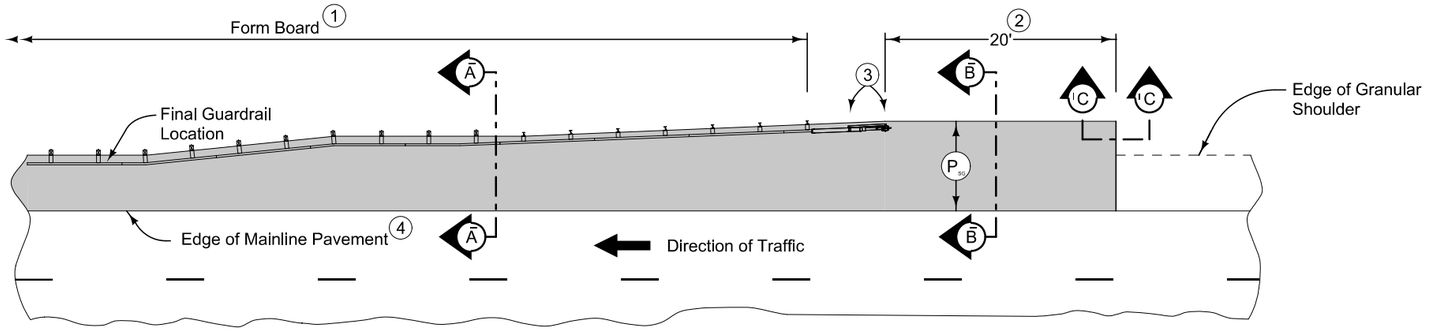


BARRIER OFFSETS FOR FLARE SECTIONS

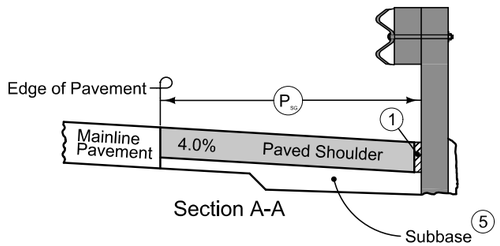
(1) Where (W) is less than 15'-6", install restricted width signing as per Standard Road Plan TC-81.

Station	Side	AA	WL	TA	L	Anchored	W (1)	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	
807+91.96	EB	265'	380'	30'	775'		16-0	Stage 2 - 62 units of 12.5' Temporary Barrier Rail
807+91.96	WB	60'	380'	235'	775'		18-4	Stage 3 - 62 units of 12.5' Temporary Barrier Rail

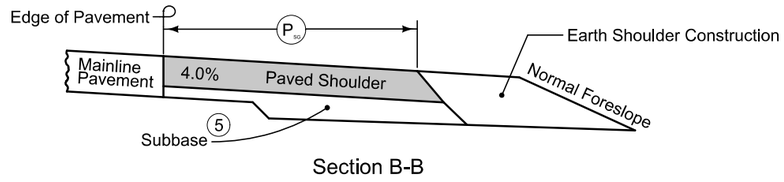
TEMPORARY CONCRETE BARRIER LAYOUT
for Two-Way Traffic



PLAN VIEW

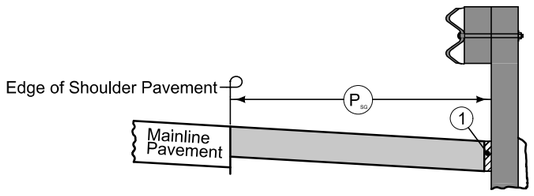


Section A-A

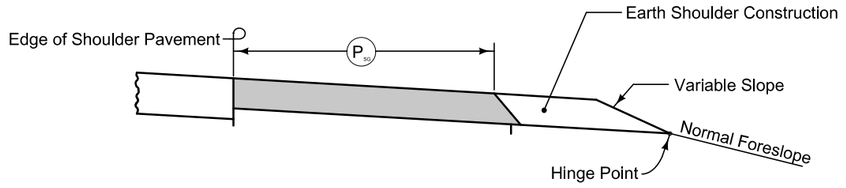


Section B-B

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.

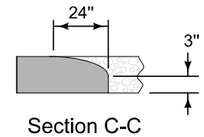
(1) PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

(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)

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2102-0425071	SPECIAL BACKFILL	CY	246	Refer to Typical 7156 on Sheet B.2 and Tab. 112_09.
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	40	Provide borrow material according to Section 2102 of the Standard Specifications. Material shall be provided by the Contractor. No cross sections will be provided.
3	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY	455.1	Refer to Typical 7156 on Sheet B.2 and Tab. 112_09. Dispose of excess material according to Article 1106.07 of the current specifications.
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	40	Strip 6 inches of topsoil within the limits of grading. Upon the reinstallation of guardrail spread the stockpiled topsoil to a 4 inch depth across the grading area. Seed the disturbed topsoil stockpile area as per Section 2601.05 of the Standard Specifications. Seeding of the stockpile areas shall be considered incidental to this bid item.
5	2122-5500090	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 9 IN.	SY	589	Refer to Typical 7156 on Sheet B.2 and Tab. 112_09.
6	2122-7450080	SHOULDER STRENGTHENING, OPTIONAL HOT MIX ASPHALT MIXTURE OR PORTLAND CEMENT CONCRETE, 8 IN.	SY	887.4	Refer to the J sheets and Tab. 112_09.
7	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	13.12	Refer to Typical 7156 on Sheet B.2 and Tab. 112_09.
8	2301-0690203	BRIDGE APPROACH, BR-203	SY	1,004	Refer to Tab. 112_06.
9	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK AND/OR APPROACHES	SY	2,012.3	Refer to Tab. 100_28.
10	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	2	Refer to Tab. 104_08A.
11	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	200	Refer to Tab. 110_07A and Tab. 108_08A.
12	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4	Refer to Tab. 108_08A.

Item no.	Item Code	Item	Unit	Quantities Estimated Roadway Items	Estimate Reference Notes
13	2505-6765006	REMOVE AND REINSTALL FORMED STEEL BEAM GUARDRAIL	LF	262.5	Refer to Tab. 108_08A. The intent of this work is to remove and reinstall only the steel beam guardrail for placement of pavement. Carefully remove and stockpile steel beam guardrail for reinstallation. The Contractor has the option to leave the posts in place, or to remove and reinstall the posts at no additional cost to the Contracting Authority. Replace steel beam rail and posts damaged by the Contractor's operations at no additional cost to the Contracting Authority. Posts, delineators, and object markers are to remain in place. Replace posts, delineators, and object markers damaged by the Contractors operations at no additional cost to the Contracting Authority. Ensure that all posts are firm and plum prior to reinstalling the guardrail. Restore the area disturbed by removal and reinstallation operations to an acceptable condition. Method of Measurement: Measurement will be in linear feet, measured along the front of the rail, of steel beam guardrail (includes W-beam and Three-beam guardrail) removed and reinstalled. Basis of Payment: Payment will be at the contract unit price per linear foot of steel beam guardrail removed and reinstalled. Payment includes all labor, equipment, and materials required to remove and reinstall the steel beam guardrail. Removal and Reinstallation of Barrier Transition Sections, Object Markers, and Bolted End Anchors are accounted for in, and incidental to, this item.
14	2510-6745850	REMOVAL OF PAVEMENT	SY	1,874.7	Refer to Tab. 110_01.
15	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1	This item is for the surveying required to reconstruct the existing roadway curve and superelevation.
16	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	3	Refer to Tab 108_29.
17	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	38.14	Refer to Tab. 108_22.
18	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	3	
19	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	71.1	
20	2527-9263231	REMOVABLE TAPE MARKINGS, WET RETROREFLECTIVE	STA	34.31	
21	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	37.98	
22	2528-2518000	SAFETY CLOSURE	EACH	1	Refer to Tab. 108_13A and the J Sheets for additional information.
23	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	1,550	Refer to Sheet B.2 and Tab. 108_33. Temporary barrier rail shall be nominal 12'-6 long concrete units.
24	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	1	Refer to Tab. 108_28. This setup of Temporary Traffic Signals is considered one group installation.
25	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to the J Sheets.
26	2528-8445113	FLAGGERS	EACH	0	See Proposal.
27	2548-0000100	MILLED SHOULDER RUMBLE STRIPS, HMA SURFACE	STA	10.73	Refer to Tab. 112_10.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
28	2548-0000110	ASPHALT EMULSION FOR FOG SEAL (SHOULDER RUMBLE STRIPS)	GAL	11.7	
29	2551-0000110	TEMP CRASH CUSHION	EACH	4	Refer to Tab. 108_30.
30	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	2,160	Refer to Tab. 100_19. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 20 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements. Use Perimeter and Slope Sediment Control Devices fabricated using wood excelsior.
31	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	2,160	Refer to Tab. 100_19. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 20 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements. Use Perimeter and Slope Sediment Control Devices fabricated using wood excelsior.

100_01D

8/15/22

PROJECT DESCRIPTION

This project is for the bridge deck overlay and bridge approach of the 210'-0" x 48' Steel Continuous I-Beam Bridge (FHWA NO.34221) over BNSF RR, 0.1 miles East of West Junction US 65.

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
BA-200	10-20-26	Steel Beam Guardrail Components
BA-201	10-18-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-26	Steel Beam Guardrail Bolted End Anchor
BA-205	10-17-23	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	10-20-26	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-401	04-20-21	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-21	Temporary Crash Cushions Sand Barrel
BR-203	10-20-26	Double Reinforced 12in Approach
BR-211	04-21-26	Bridge Approach (Abutting PCC or Composite Pavement)
DR-402	04-16-24	Rock Flume for Bridge End Drain
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-502	04-21-15	Seeding in Rural Areas
PM-110	10-15-24	Line Types
PM-111	04-21-20	Symbols and Legends
PM-115	10-20-26	Grooving for Line Types
PV-12	10-20-26	Milled Shoulder Rumble Strips
PV-101	10-20-26	Joints
PV-102	10-21-25	PCC Curb Details
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-18-23	Work Within 15 ft of Traveled Way
TC-213	04-18-23	Lane Closure with Flaggers
TC-217	10-20-26	Lane Closure with Signals and TBR

111_25
4/21/26

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112_10	MILLED RUMBLE STRIPS	C.22
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262_07	TABULATION OF UTILITIES	C.23
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108_26A	STAGING NOTES	J.2
108_25	511 TRAVEL RESTRICTIONS	J.3
111_01	COORDINATED OPERATIONS	J.4

EXISTING PAVEMENT

County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforcement Type	Remarks
Lucas	US-34	Both	127.65	132.37	2012	W	NHSX-034-6(78)--3H-59	HMA	1.5	HMA	2.0	HMA	3.0							
Lucas	US-34	Both	127.65	132.37	2012		NHSX-034-6(78)--3H-59	HMA	1.5	HMA	2.0									
Lucas	US-34	Both	127.65	132.37	1965		FN-223	PCC	9.0							PLANO	C.LST.	1		

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Line No.	Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
1.0	803+30.00	806+90.00	Left	Perimeter and Slope	20 inch	360.00	Northeast of Bridge
2.0	803+20.00	806+60.00	Right	Perimeter and Slope	20 inch	340.00	Northwest of Bridge
3.0	+.00						
4.0	808+80.00	814+00.00	Right	Perimeter and Slope	20 inch	520.00	Southwest of Bridge
5.0	809+10.00	814+10.00	Left	Perimeter and Slope	20 inch	500.00	Southeast of Bridge
6.0	+.00						
7.0	+.00			Perimeter and Slope	20 inch	1720.00	TOTAL
8.0	+.00						
9.0	+.00			Perimeter and Slope	20 inch	440.00	+25% INCLUDED FOR REPLACEMENTS
10.0	+.00						
11.0	+.00			Perimeter and Slope	20 inch	2160.00	TOTAL WITH REPLACEMENTS

100_28

8/15/22

LONGITUDINAL GROOVING

Total (SY)	Remarks
502.0	North Bridge Approach
428.7	South Bridge Approach
1081.6	Bridge Deck
930.7	TOTAL: Bridge Approach
1081.6	TOTAL: Bridge Deck

104_08A
8/15/22

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Bridge Station	Bridge Corner	Distance DI-1 or DI-2 (FT)	Bridge End Drain Type	Macadam Stone Base (TONS)	Engineering Fabric (SY)	Erosion Stone (TON)	Remarks
807+91.96	SW	33.0	DR-402	1.500	143.1	94.500	Right Side - South of Bridge - STA 809+24.95
807+91.96	SE	33.0	DR-402	1.500	102.9	66.150	Left Side - South of Bridge - STA 809+54.95
				3.000	246.0	160.650	TOTAL

110_07A
8/15/22

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
1	EB	803+75.00	804+25.00	Left	50.0
2	EB	803+60.00	804+10.00	Right	50.0
3	WB	809+25.00	809+75.00	Left	50.0
4	WB	809+85.00	810+35.00	Right	50.0
TOTAL					200.0

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	ET (LF)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
EB	Left					BA-205	1			50.00						Remove and Replace - NE Corner of Bridge
EB	Left	806+85.50	25.1	BA-201	1			277.600		47.70			B	1	100.0	Remove and Reinstall - NE Corner of Bridge
EB	Right					BA-205	1			50.00						Remove and Replace - NW Corner of Bridge
EB	Right	806+53.90	24.6	BA-201	1			231.600	8.50	47.70			B	1	62.5	Remove and Reinstall - NW Corner of Bridge
WB	Left					BA-205	1			50.00						Remove and Replace - SW Corner of Bridge
WB	Left	808+90.06	25.2	BA-201	1			40.100		47.70			B	1	37.5	Remove and Reinstall - SW Corner of Bridge
WB	Right					BA-205	1			50.00						Remove and Replace - SE Corner of Bridge
WB	Right	809+20.04	24.0	BA-201	1			65.100		47.70			B	1	62.5	Remove and Reinstall - SE Corner of Bridge
										200.00						Refer to Tab. 110_07A for Guardrail Removal Details
						BA-205	4									TOTAL: Replace 4 (EA) BA-205 End Terminals
					4									4	262.5	TOTAL: Remove and Reinstall 262.5 (LF) Guardrail

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17 | BCY6: Broken Centerline (Yellow) @ 0.25 | BLC6: Broken Line Contrast (White/Black) @ 0.50 | BLW4: Broken Lane Line (White) @ 0.17 | BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 | CHW8: Channelizing Line (White) @ 1.33 | CHW10: Channelizing Line (White) @ 1.67 | CHY8: Channelizing Line (Yellow) @ 1.33 | CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 | DCY4: Double Centerline (Yellow) @ 1.34 | DCY6: Double Centerline (Yellow) @ 2.00 | DDY4: Double Dotted Line (Yellow) @ 0.44 | DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 | DLW6: Dotted Line (White) @ 0.33 | DLY4: Dotted Line (Yellow) @ 0.22 | DLY6: Dotted Line (Yellow) @ 0.33 | ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 | ELY4: Edge Line Left (Yellow) @ 0.67 | ELY6: Edge Line Left (Yellow) @ 1.00 | LDW8: Lane Drop (White) @ 0.33 | LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 | NPY4: No Passing Zone Line (Yellow) @ 0.84 | NPY6: No Passing Zone Line (Yellow) @ 1.25 | RLW4: Ramp Edge Line Right (White) @ 0.67 | RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 | RLY6: Ramp Edge Line Left (Yellow) @ 1.00 | SLW2: Stop Line (White) @ 4.00 | SLW4: Solid Lane Line (White) @ 0.67 | SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 | SPW6: Sloped Curb 6" (White) @ 2.28 | SPY4: Sloped Curb 4" (Yellow) @ 2.16 | SPY6: Sloped Curb 6" (Yellow) @ 2.28 | STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 | YLW2: Yield Line (White) @ 1.15

Line No.	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	CHW8 (STA)	CHW8 Factored (STA)	CHY10 (STA)	CHY10 Factored (STA)	DCY6 (STA)	DCY6 Factored (STA)	ELW6 (STA)	ELW6 Factored (STA)	LDW8 (STA)	LDW8 Factored (STA)	SLW2 (STA)	SLW2 Factored (STA)	Remarks
																						STAGE 2 - US 34/65 Mainline
100.0	802+25.00	805+25.00		Removal of Paint								12.00	20.04									Remove Existing Painted Median
101.0	806+30.00	809+80.00		Removal of Paint												3.50	3.50					Remove Existing Edge Line
102.0																						
103.0	799+15.00	800+60.00	EB	Wet Retroreflective Removable Tape			x	No		1.45	1.93											Lane Shift Channelizing Taper
104.0	801+30.00	801+30.00	EB	Waterborne/Solvent Paint		x		No												0.12	0.48	Stop Bar
105.0	801+30.00	806+30.00	EB	Wet Retroreflective Removable Tape			x	No		5.00	6.65											Channelizing Taper
106.0	806+30.00	810+95.00	Both	Waterborne/Solvent Paint	x		x	No								9.30	9.30					Edge Lane Lines
107.0	810+95.00	813+35.00	Both	Wet Retroreflective Removable Tape	x		x	No		4.80	6.38											Channelizing Taper
108.0	813+35.00	813+35.00	WB	Waterborne/Solvent Paint		x		No												0.12	0.48	Stop Bar
109.0																						
200.0																						STAGE 2 - US 65 SB
201.0	801+80.00	801+80.00	SB	Removal of Paint		x														0.12	0.48	Remove Existing Stop Bar
202.0																						
203.0	801+75.00	801+75.00	SB	Waterborne/Solvent Paint		x		No												0.12	0.48	Stop Bar
204.0																						
300.0																						STAGE 3 - US 34/65 Mainline
301.0	801+30.00	805+95.00	EB	Removal of Removable Tape			x			4.65	6.18											Remove Stage 2 Channelizing Taper
302.0	809+80.00	810+95.00	Both	Removal of Paint	x		x									2.30	2.30					Remove Stage 2 Edge Lane Lines
303.0	810+95.00	813+35.00	Both	Removal of Removable Tape	x		x			4.80	6.38											Remove Stage 2 Channelizing Taper
304.0	813+35.00	813+35.00	WB	Removal of Paint		x														0.12	0.48	Remove Stage 2 Stop Bar
305.0																						
306.0	801+30.00	806+30.00	EB	Wet Retroreflective Removable Tape			x	No		5.00	6.65											Channelizing Taper
307.0	801+75.00	804+35.00	WB	Wet Retroreflective Removable Tape	x			No										2.60	0.86			Channelizing Taper - Dashed Line
308.0	802+20.00	806+30.00	WB	Wet Retroreflective Removable Tape			x	No		4.10	5.45											Channelizing Taper
309.0	806+30.00	811+25.00	Both	Waterborne/Solvent Paint	x		x	No								9.90	9.90					Edge Lane Lines
310.0	811+25.00	813+65.00	Both	Wet Retroreflective Removable Tape	x		x	No		4.80	6.38											Channelizing Taper
311.0	813+65.00	813+65.00	WB	Waterborne/Solvent Paint		x		No												0.12	0.48	Stop Bar
312.0																						
400.0																						END OF PROJECT - US 34/65 Mainline
401.0	799+15.00	800+60.00	EB	Removal of Removable Tape			x			1.45	1.93											Remove Stage 2 Lane Shift Channelizing Taper
402.0	801+30.00	801+30.00	EB	Removal of Paint		x														0.12	0.48	Remove Stage 2 Stop Bar
403.0																						
404.0	801+30.00	806+30.00	EB	Removal of Removable Tape			x			5.00	6.65											Remove Stage 3 Channelizing Taper
405.0	801+75.00	804+35.00	WB	Removal of Removable Tape	x													2.60	0.86			Remove Stage 3 Channelizing Taper - Dashed Line
406.0	802+20.00	806+30.00	WB	Removal of Removable Tape			x			4.10	5.45											Remove Stage 3 Channelizing Taper
407.0	806+30.00	811+25.00	Both	Removal of Paint	x		x									9.90	9.90					Remove Stage 3 Edge Lane Lines
408.0	811+25.00	813+65.00	Both	Wet Retroreflective Removable Tape	x		x			4.80	6.38											Remove Stage 3 Channelizing Taper
409.0	813+65.00	813+65.00	WB	Removal of Paint		x														0.12	0.48	Remove Stage 3 Stop Bar

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17
BCY6: Broken Centerline (Yellow) @ 0.25
BLC6: Broken Line Contrast (White/Black) @ 0.50
BLW4: Broken Lane Line (White) @ 0.17
BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00
CHW8: Channelizing Line (White) @ 1.33
CHW10: Channelizing Line (White) @ 1.67
CHY8: Channelizing Line (Yellow) @ 1.33
CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00
DCY4: Double Centerline (Yellow) @ 1.34
DCY6: Double Centerline (Yellow) @ 2.00
DDY4: Double Dotted Line (Yellow) @ 0.44
DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22
DLW6: Dotted Line (White) @ 0.33
DLY4: Dotted Line (Yellow) @ 0.22
DLY6: Dotted Line (Yellow) @ 0.33
ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 0.67
ELY6: Edge Line Left (Yellow) @ 1.00
LDW8: Lane Drop (White) @ 0.33
LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00
NPY4: No Passing Zone Line (Yellow) @ 0.84
NPY6: No Passing Zone Line (Yellow) @ 1.25
RLW4: Ramp Edge Line Right (White) @ 0.67
RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67
RLY6: Ramp Edge Line Left (Yellow) @ 1.00
SLW2: Stop Line (White) @ 4.00
SLW4: Solid Lane Line (White) @ 0.67
SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16
SPW6: Sloped Curb 6" (White) @ 2.28
SPY4: Sloped Curb 4" (Yellow) @ 2.16
SPY6: Sloped Curb 6" (Yellow) @ 2.28
STW6: Standard Curb 6" (White) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03
YLW2: Yield Line (White) @ 1.15

Line No.	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	CHW8 (STA)	CHW8 Factored (STA)	CHY10 (STA)	CHY10 Factored (STA)	DCY6 (STA)	DCY6 Factored (STA)	ELW6 (STA)	ELW6 Factored (STA)	LDW8 (STA)	LDW8 Factored (STA)	SLW2 (STA)	SLW2 Factored (STA)	Remarks
410.0																						
411.0	802+25.00	805+25.00		Waterborne/Solvent Paint				Yes	20.04			12.00	20.04									Reinstall Existing Painted Median
412.0	803+40.00	805+95.00	EB	Waterborne/Solvent Paint			x	Yes	2.55							2.55	2.55					Reinstall Existing Edge Line
413.0	805+95.00	806+80.00		Waterborne/Solvent Paint				Yes	6.71			3.00	5.01			1.70	1.70					Reinstall Existing Painted Median and Edge Lines
414.0	806+80.00	809+80.00	Both	Waterborne/Solvent Paint	x	x	x	No						3.00	6.00	6.00	6.00					Reinstall Existing Centerline and Edge Lines
415.0	809+80.00	813+90.00	Both	Waterborne/Solvent Paint	x		x	Yes	8.20							8.20	8.20					Reinstall Existing Edge Line
416.0																						
500.0																						END OF PROJECT - US 65 SB
501.0	801+75.00	801+75.00	SB	Removal of Paint		x														0.12	0.48	Remove Stage 3 Stop Bar
502.0																						
503.0	801+80.00	801+80.00	SB	Waterborne/Solvent Paint		x		Yes	0.48											0.12	0.48	Reinstall Existing Stop Bar
504.0																						
505.0																						
600.0												15.00	25.05	3.00	6.00	37.65	37.65			0.60	2.40	Sum: Waterborne/Solvent Paint
601.0										25.15	33.45							2.60	0.86			Sum: Wet Retroreflective Removable Tape
602.0												12.00	20.04			15.70	15.70			0.60	2.40	Sum: Removal of Paint
603.0										24.80	32.98							2.60	0.86			Sum: Removal of Removable Tape
604.0																						
605.0																						71.10 STA - TOTAL: Waterborne/Solvent Paint
606.0																						34.31 STA - TOTAL: Wet Retroref1. Rem. Tape
607.0																						38.14 STA - TOTAL: Removal of Paint
608.0																						33.84 STA - TOTAL: Rem. of Rem. Tape (Incidental)
609.0																						37.98 STA - TOTAL: Grooves Cut for Pvmt. Markings

108_29
4/15/25

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Roadway Identification	Station	Side	Pavement Symbol	Quantity (EA)	Groove Marking Needed?	Remarks
US Highway 34/65						
	800+80.00	Left	LTAW	1		Remove LTAW - Stage 2
	801+20.00	Left	CSLW	1	No	CSLW - Stage 2
	801+50.00	Left	LTAW	1		Remove LTAW - Stage 2
	800+80.00	Left	LTAW	1	No	Replace LTAW - End of Project
	801+20.00	Left	CSLW	1		Remove CSLW - End of Project
	801+50.00	Left	LTAW	1	No	Replace LTAW - End of Project
				3	No	TOTAL: Painted Symbols And Legends
				3		TOTAL: Symbols and Legends Removed

108_28
8/15/22

TEMPORARY TRAFFIC SIGNALS

Item No.	Station	Signal Type	Remarks
1	807+91.96	One Lane Traffic	Refer to the J Sheets and SRP TC-217

CRASH CUSHIONS

* Bid Item
1. Lane(s) to which the installation is adjacent.
2. Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500.

Station	Obstacle Width (FT)	Crash Cushion Type	Crash Cushion Quantity	Obstacle Description	Remarks
802+75.00	2.0	Temporary	1	Temporary Barrier Rail	Stage 2 - North End of TBR
810+50.00	2.0	Temporary	1	Temporary Barrier Rail	Stage 2 - South End of TBR
803+10.00	2.0	Temporary	1	Temporary Barrier Rail	Stage 3 - North End of TBR
810+85.00	2.0	Temporary	1	Temporary Barrier Rail	Stage 3 - South End of TBR
			4		TOTAL

TEMPORARY BARRIER RAIL

Possible Standard: BA-401 Possible Detail: 560-7

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

No.	Station From	Station To	Length (FT)	Barrier Rail Type	Anchored*	Modular Glare Screen System	Remarks
							STAGE 2
1	802+75.00	810+50.00	775.0	Concrete BA-401	No	No	62 Sections of 12.5' TBR in Accordance with TC-217
							STAGE 3
2	803+10.00	810+85.00	775.0	Concrete BA-401	No	No	62 Sections of 12.5' TBR in Accordance with TC-217
			1550.0				TOTAL

110_01
4/5/24

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
						STAGE 1
809+96.76	813+89.14	EB	HMA	345.8	400.0	Existing Shoulder - SW of Bridge
809+79.73	813+89.14	WB	HMA	337.9	415.0	Existing Shoulder - SE of Bridge
						STAGE 2
803+39.51	805+94.19	EB	HMA	158.1	260.0	Existing Shoulder - NW of Bridge
805+94.19	806+79.39	EB	HMA Overlay on PCC	200.2	105.0	Existing Bridge Approach - NW of Bridge
808+97.01	809+79.73	EB	HMA Overlay on PCC	268.2	95.0	Existing Bridge Approach - SW of Bridge
809+79.73	809+96.76	EB	HMA	29.3	30.0	Existing Shoulder - SW of Bridge
						STAGE 3
805+94.19	806+79.39	WB	HMA Overlay on PCC	336.8	125.0	Existing Bridge Approach - NE of Bridge
808+97.01	809+79.73	WB	HMA Overlay on PCC	198.4	110.0	Existing Bridge Approach - SE of Bridge
				1874.7	1540.0	TOTAL - Approach and Shoulder

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item
** Verify layout of bridge approach does not conflict with guardrail posts.

Line No.	Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Right Edge Offset (FT) **	Left Edge Offset (FT) **	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
1.0	807+91.96	N	35.1		12.0		24.8	25.4	202.1	127.1	207.8	BR-203	Fixed	BR-211	73.0	805+84.19	Right	2.1	516.200	573.8		Subdrain outlet on NW Side
2.0	807+91.96	S	35.1		12.0		25.3	24.2	171.7	112.8	182.5	BR-203	Fixed	BR-211	64.0	809+69.73	Left	1.8	453.300	503.9		Subdrain outlet on SE Side
3.0																						
4.0									373.8	239.9	390.3				137.0			3.9	969.500	1077.7		1004.0 SY - TOTAL: Bridge Approach

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) See Typ. 7156, 7157, or 7158.
(3) Bid Item.
(4) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(5) Bid Item. Typ. 7156, 7157, or 7158.
(6) Does not include shrink.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Start Width (FT)	P End Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	Paved Shoulder (3) (SY)	Paved Shoulder at Grdrail (5)(7)(SY)	Subbase (3) (8) (CY)	Earth Shoulder Const. Alt (3) (STA)	Remarks
US Highway 34/65					0.0	0.0							6" Special Backfill Subbase for All Shoulders
					0.0	0.0							
					0.0	0.0							PAVED SHOULDER AT GUARDRAIL
	WB	803+54.93	805+94.19	Right	8.2	2.0	239.26	68.6		164.6	27.40	2.39	Northeast Corner of Bridge
	EB	803+39.51	805+94.19	Right	12.6	9.0	254.68	87.1		282.7	47.10	2.55	Northwest Corner of Bridge
					0.0	0.0							
	EB	809+79.73	809+96.76	Right	15.3	15.3	17.03	6.5		29.3	4.90	0.17	Southwest Corner of Bridge
	WB	809+79.73	810+56.21	Right	12.8	13.5	76.48	25.0		112.4	18.70	0.76	Southeast Corner of Bridge
					0.0	0.0							
					0.0	0.0							SHOULDER STRENGTHENING
	EB	809+96.76	813+89.14	Right	10.0	10.0	392.38	126.3	442.6		73.80	3.92	Southwest Corner of Bridge
	WB	810+56.21	813+89.14	Right	12.8	11.3	332.93	141.6	444.8		74.10	3.33	Southeast Corner of Bridge
					0.0	0.0							
					0.0	0.0		455.1	887.4	589.0	246.00	13.12	TOTAL

RUMBLE STRIPS

* Calculated at 18" width for Shoulder.
** For use with penetrating Engineered Fog Seal. Calculated at 2" wider than rumble strips.

Road Identification	Station From	Station To	Surface Type	Rumble Strip Lane	Rumble Strip Type	Fog Seal Type	L (IN)	HMA Length (STA)	Fog Seal* Shoulder (GAL)	Effective Shoulder Width HMA (FT)	Remarks
											NOTE: Diluted Asphalt Emulsion Fog Seal applied at a rate of 0.13 gallon per square yard.
											PAVED SHOULDER AT GUARDRAIL
US 34/65	803+39.51	805+94.19	HMA	Right Shoulder	Milled Shoulder Rumble Strips	Asphalt Emulsion	12"	2.55	2.8	10.0	Northwest Corner of Bridge
US 34/65	809+79.73	809+96.76	HMA	Right Shoulder	Milled Shoulder Rumble Strips	Asphalt Emulsion	12"	0.17	0.2	10.0	Southwest Corner of Bridge
US 34/65	809+79.73	810+56.21	HMA	Right Shoulder	Milled Shoulder Rumble Strips	Asphalt Emulsion	12"	0.76	0.8	10.0	Southeast Corner of Bridge
											SHOULDER STRENGTHENING
US 34/65	809+96.76	813+89.14	HMA	Right Shoulder	Milled Shoulder Rumble Strips	Asphalt Emulsion	12"	3.92	4.3	10.0	Southwest Corner of Bridge
US 34/65	810+56.21	813+89.14	HMA	Right Shoulder	Milled Shoulder Rumble Strips	Asphalt Emulsion	12"	3.33	3.6	10.0	Southeast Corner of Bridge
								10.73	11.7		TOTAL

INCIDENTAL ITEMS

Special or unique items where method of measurement / basis of payment is not indicated in the specifications or other contract documents.

Line No.	Incidental Item	Unit	Quantity	Incidental to Item Code	Incidental to Item	Remarks
1.0	Seeding	ACRES	0.1	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	Item is for seeding of stockpile areas.

108_13A
3/27/25

SAFETY CLOSURES

Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
801+50.00	1		Item is for the closure of east Ellis Greenhouse access.

232_03A
9/28/22

EROSION CONTROL (RURAL SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

262_06
9/28/22

UTILITIES (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

262_07
10/15/24

TABULATION OF UTILITIES

Company name : ALLIANT ENERGY
Design contact: Alliant Energy Field Engineer
Phone: 800-255-4268
Email: locate_IPL@alliantenergy.com

Company name : IOWA COMMUNICATIONS NETWORK
Design contact: DAVE AUGSPURGER
Phone: 515-725-4604
Email: icnoutsideplantiowaonecall@iowa.gov

Company name : IOWA DEPARTMENT OF TRANSPORTAT
Design contact: Rick Toney
Phone: 641-446-6214
Email: rick.toney@iowadot.us

Company name : AUREON NETWORK SERVICES
Design contact: Jeff Klocko
Phone: 515-830-0445
Email: jeff.klocko@aureon.com

Company name : RATHBUN REGIONAL WATER
Design contact: Scott Jackson
Phone: 641-647-1037
Email: onecall@rrwa.net

Company name : WINDSTREAM COMMUNICATIONS
Design contact: LOCATE DESK
Phone: 800-289-1901
Email: LOCATE.DESK@WINDSTREAM.COM

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)

- ST Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST 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

E1

Company name : ALLIANT ENERGY
Design contact: Alliant Energy Field Engineer
Phone: 800-255-4268
Email: locate_IPL@alliantenergy.com

FO2(B)

Company name : IOWA COMMUNICATIONS NET.
Design contact: DAVE AUGSPURGER
Phone: 515-725-4604
Email: icnoutsideplantiowaonecall@iowa.gov

Company name : IOWA DEPARTMENT OF TRANSP.
Design contact: Rick Toney
Phone: 641-446-6214
Email: rick.toney@iowadot.us

FO(B)

Company name : AUREON NETWORK SERVICES
Design contact: Jeff Klocko
Phone: 515-830-0445
Email: jeff.klocko@aureon.com

Company name : RATHBUN REGIONAL WATER
Design contact: Scott Jackson
Phone: 641-647-1037
Email: onecall@rrwa.net

T1(B)

Company name : WINDSTREAM COMMUNICATION
Design contact: LOCATE DESK
Phone: 800-289-1901
Email: 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.		Transparency
Pink, Dark	(13)	Temporary Pavement Shading	50%
Yellow	(4)	Proposed Pavement Shading	50%
Orange	(6)	Proposed Granular Shading	50%
Orange	(70)	Proposed Shoulder Granular Shading	50%
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading	50%
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading	50%
Brown, Light	(236)	Grading Shading	50%
Orange, Light	(134)	Proposed Granular Entrance Shading	50%
Yellow	(220)	Proposed Paved Entrance Shading	50%
Tan	(8)	Proposed Sidewalk Shading	50%
Blue, Light	(230)	Proposed Sidewalk Landing Shading	50%
Pink	(11)	Proposed Sidewalk Ramp Shading	50%
Red	(3)	Proposed Structure Shading	50%
Red	(3)	Delineates Restricted Areas	0%

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
- Sediment Control Device
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

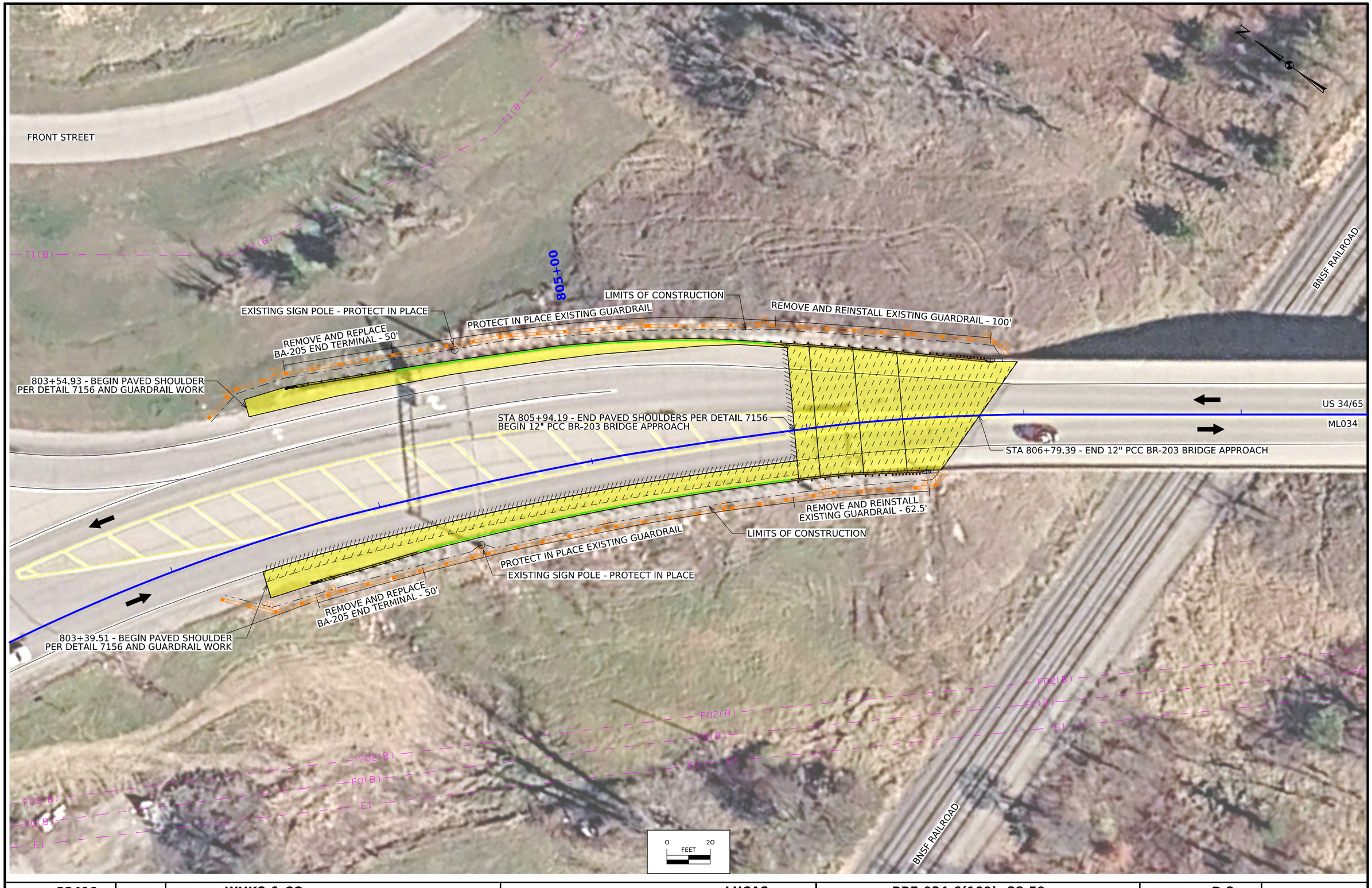
- Proposed Right-of-Way Symbol
- Proposed Right-of-Way Line
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary) Symbol
- Easement (Temporary) Line
- Easement
- C/A Access Control
- Property Line Symbol
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D and L)

FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER D.1

10:16:10 AM 5/4/2026 jfeldmann pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\WHKS\Roadway\CADD_Files\Sheet Files\SHT_59034109_D_LEGEND.dgn



FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER D.2

4:18:59 PM 4/22/2026 jfeldmann pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\WHKS\Roadway\CADD_Files\Sheet Files\SHT_59034109_D02.dgn

BNSF RAILROAD

N

STA 809+54.95 - ROCK FLUME PER DR-402

810+00

LIMITS OF CONSTRUCTION

STA 810+56.21 - END PAVED SHOULDER PER DETAIL 7156
BEGIN SHOULDER STRENGTHENING (REFER TO J SHEETS FOR DETAILS)

REMOVE AND REINSTALL
EXISTING GUARDRAIL - 62.5'

REMOVE AND REPLACE
BA-205 END TERMINAL - 50'

STA 809+23.00 - REMOVE EXISTING BRIDGE END DRAIN

STA 808+97.01 - BEGIN 12" PCC BRIDGE
APPROACH AND GUARDRAIL WORK

US 34/65

ML034

LIMITS OF CONSTRUCTION

STA 809+96.76 - END PAVED SHOULDER PER DETAIL 7156
BEGIN SHOULDER STRENGTHENING (REFER TO J SHEETS FOR DETAILS)

STA 808+93.00 - REMOVE EXISTING BRIDGE END DRAIN

REMOVE AND REINSTALL
EXISTING GUARDRAIL - 37.5'

REMOVE AND REPLACE
BA-205 END TERMINAL - 50'

STA 809+79.73 - END 12" PCC BR-203 BRIDGE APPROACH
BEGIN PAVED SHOULDERS PER DETAIL 7156

BNSF RAILROAD

FO2(B)
FO(B)
E1

STA 809+24.95 - ROCK FLUME PER DR-402
(FIELD VERIFY NO CONFLICT WITH BURIED FIBER)

0 20
FEET

FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER D.3

11:29:04 AM 5/4/2026 jfeldmann pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\WHKS\Roadway\CADD_Files\Sheet Files\SHT_59034109_D03.dgn

108_23A
8/15/22

TRAFFIC CONTROL PLAN

Traffic on US 34/65 at the Bridge over BNSF Railroad will be maintained per Standard Road Plans listed on Tab. 105-4 and as detailed on the J Sheets.

Lucas County Engineer:
Todde W. Folkerts
Phone - 641-774-4013 x6
Email - folkertst@lucasco.org

Iowa DOT District 5 Engineer:
Bob Younie
Phone - 641-472-4171
Email - Bob.Younie@iowadot.us

STAGING NOTES

210'-0" x 48' Steel Continuous I-Beam Bridge (FHWA NO.34221) over BNSF RR - 0.1 miles East of West Junction US 65

Stage 1A

Traffic Control:
 - Close the EB lane of US 34/65. Maintain traffic per Standard Road Plan TC-213.
Construction:
 - HMA shoulder strengthening.

Stage 1B

Traffic Control:
 - Close the WB lane of US 34/65. Maintain traffic per Standard Road Plan TC-213.
Construction:
 - HMA paved shoulder adjacent to guardrail.
 - HMA shoulder strengthening.

Stage 2

Traffic Control:
 - Close the EB lane of US 34/65. Maintain traffic per Standard Road Plan TC-217 and as outlined on the J Sheets.
Construction:
 - Bridge approach pavement.
 - HMA paved shoulder adjacent to guardrail.
 - Steel beam guardrail.
 - Bridge end drain.

Stage 3

Traffic Control:
 - Close the WB lane of US 34/65. Maintain traffic per Standard Road Plan TC-217 and as outlined on the J Sheets.
Construction:
 - Bridge approach pavement.
 - HMA paved shoulder adjacent to guardrail.
 - Steel beam guardrail.
 - Bridge end drain.

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
US 34/65	Both	Lucas	0.1 Miles East of Junction US 65	Bridge over BNSF Railroad	Barrier	34221	Horizontal	48'	16'		48'	Stage 2 - Temporary Barrier Rail
US 34/65	Both	Lucas	0.1 Miles East of Junction US 65	Bridge over BNSF Railroad	Barrier	34221	Horizontal	48'	18.4'		48'	Stage 3 - Temporary Barrier Rail

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	

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
- Permanent Barrier Rail
- Channelizing Device

- 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

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
Orange	(6)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Cyan	(7)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

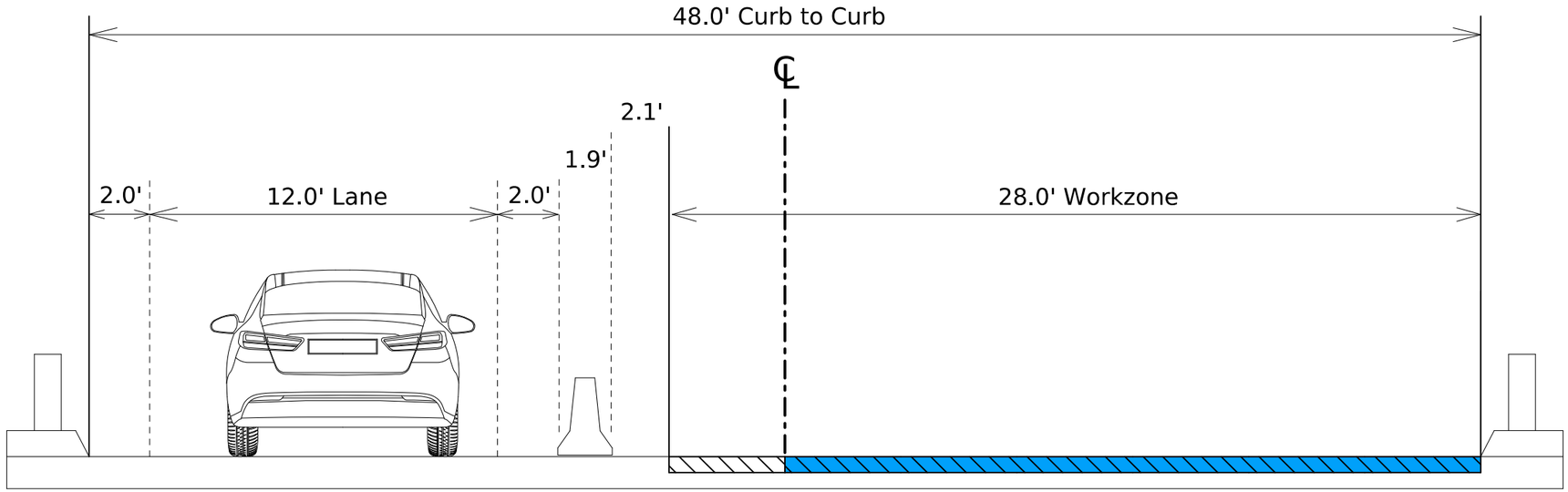
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

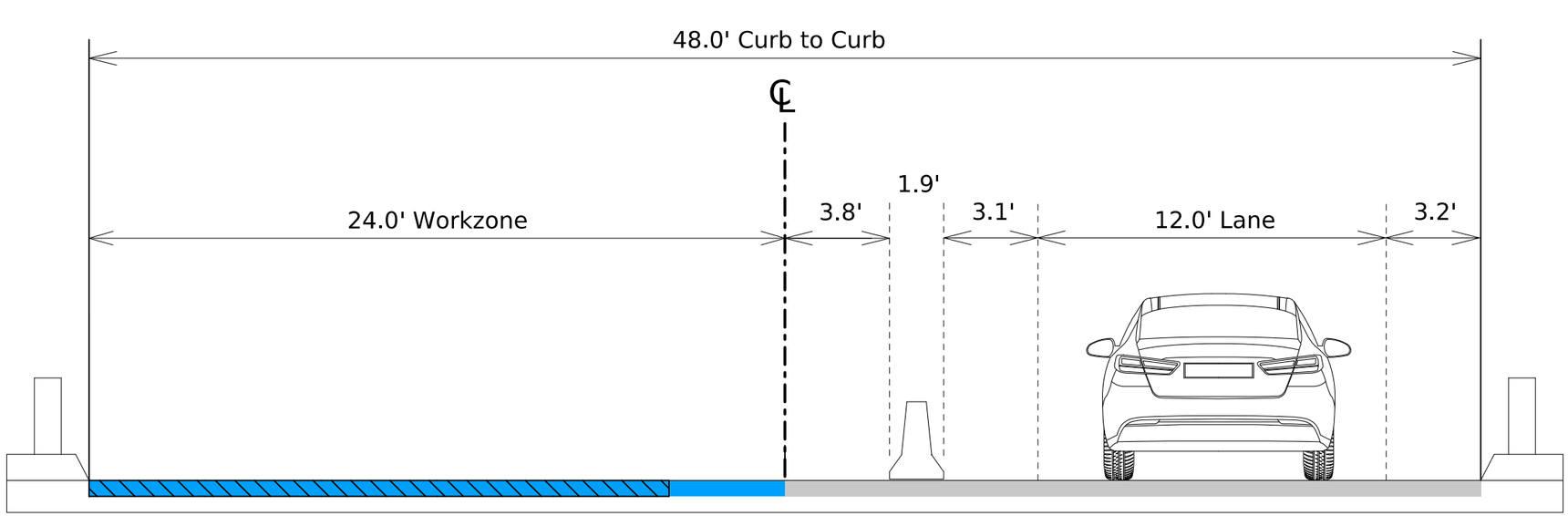
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

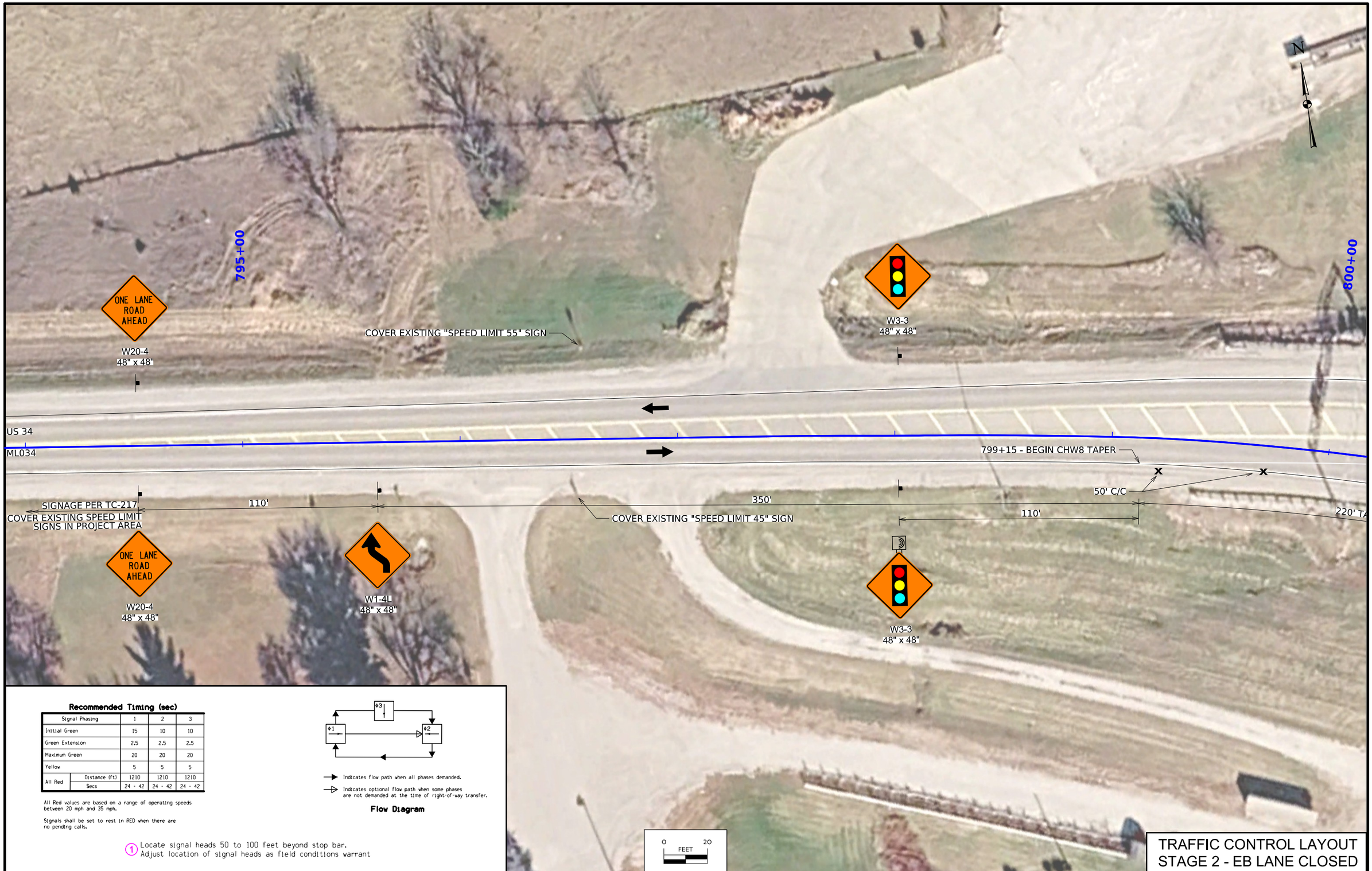


Stage 2 Construction - Eastbound Lane Closed
(Looking Ahead Station)



Stage 3 Construction - Westbound Lane Closed
(Looking Ahead Station)

Typical Staging Sections - (Not To Scale)



Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.

→ Indicates flow path when all phases demanded.

⇢ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

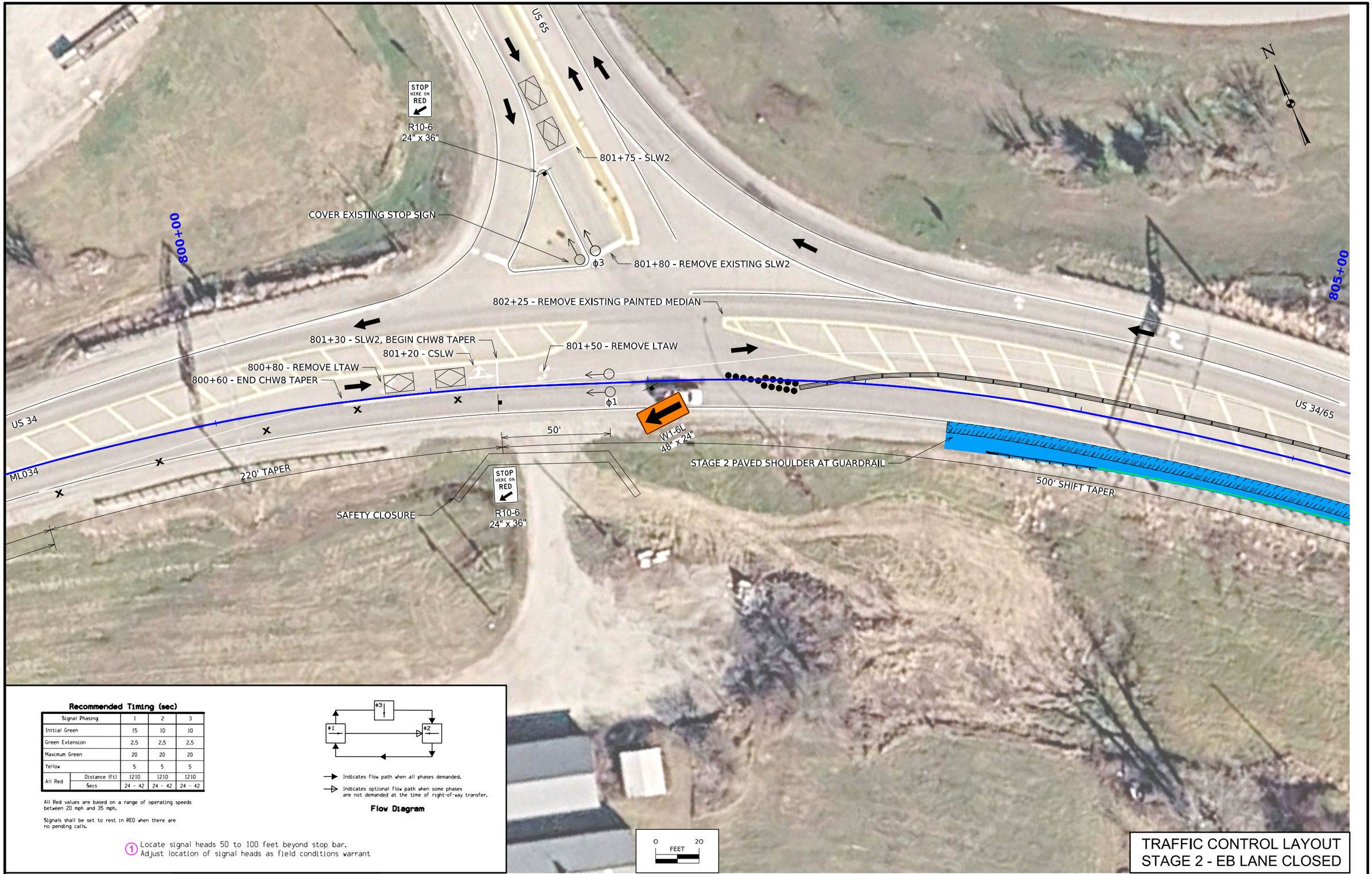
Flow Diagram

(1) Locate signal heads 50 to 100 feet beyond stop bar. Adjust location of signal heads as field conditions warrant

TRAFFIC CONTROL LAYOUT STAGE 2 - EB LANE CLOSED

FILE NO. **32410**	ENGLISH	DESIGN TEAM **WHKS & CO.**	**LUCAS** COUNTY	PROJECT NUMBER **BRF-034-6(109)--38-59**	SHEET NUMBER **J.7**

12:15:55 PM 4/23/2026 jfeldmann pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\WHKS\Roadway\CADD_Files\Sheet Files\SHT_59034109_J07.dgn



Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.

→ Indicates flow path when all phases demanded.

⇢ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

Flow Diagram

(1) Locate signal heads 50 to 100 feet beyond stop bar. Adjust location of signal heads as field conditions warrant

TRAFFIC CONTROL LAYOUT STAGE 2 - EB LANE CLOSED

FILE NO. **32410**	ENGLISH	DESIGN TEAM **WHKS & CO.**	**LUCAS** COUNTY	PROJECT NUMBER **BRF-034-6(109)--38-59**	SHEET NUMBER **J.8**

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805+00

810+00

806+30 - REMOVE EXISTING ELW6, PAINT STAGE 2 ELW6

806+30 - END CHW8 TAPER, BEGIN ELW6

805+25 - END REMOVAL OF MEDIAN

US 34/65

ML034

500' SHIFT TAPER

50' C/C

PREVIOUSLY CONSTRUCTED STAGE 1 PAVED SHOULDER AT GUARDRAIL

809+80 - END REMOVE EXISTING ELW6

COVER EXISTING "SPEED LIMIT 45" SIGN

STAGE 2 BA-203 BRIDGE APPROACH

STAGE 2 PAVED SHOULDER AT GUARDRAIL

BNSF RAILROAD

STAGE 2 BA-203 BRIDGE APPROACH

STAGE 2 PAVED SHOULDER AT GUARDRAIL

PREVIOUSLY CONSTRUCTED STAGE 1 SHOULDER STRENGTHENING

N

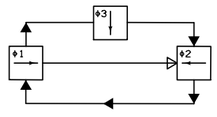
0 FEET 20

Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.



→ Indicates flow path when all phases demanded.

⇢ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

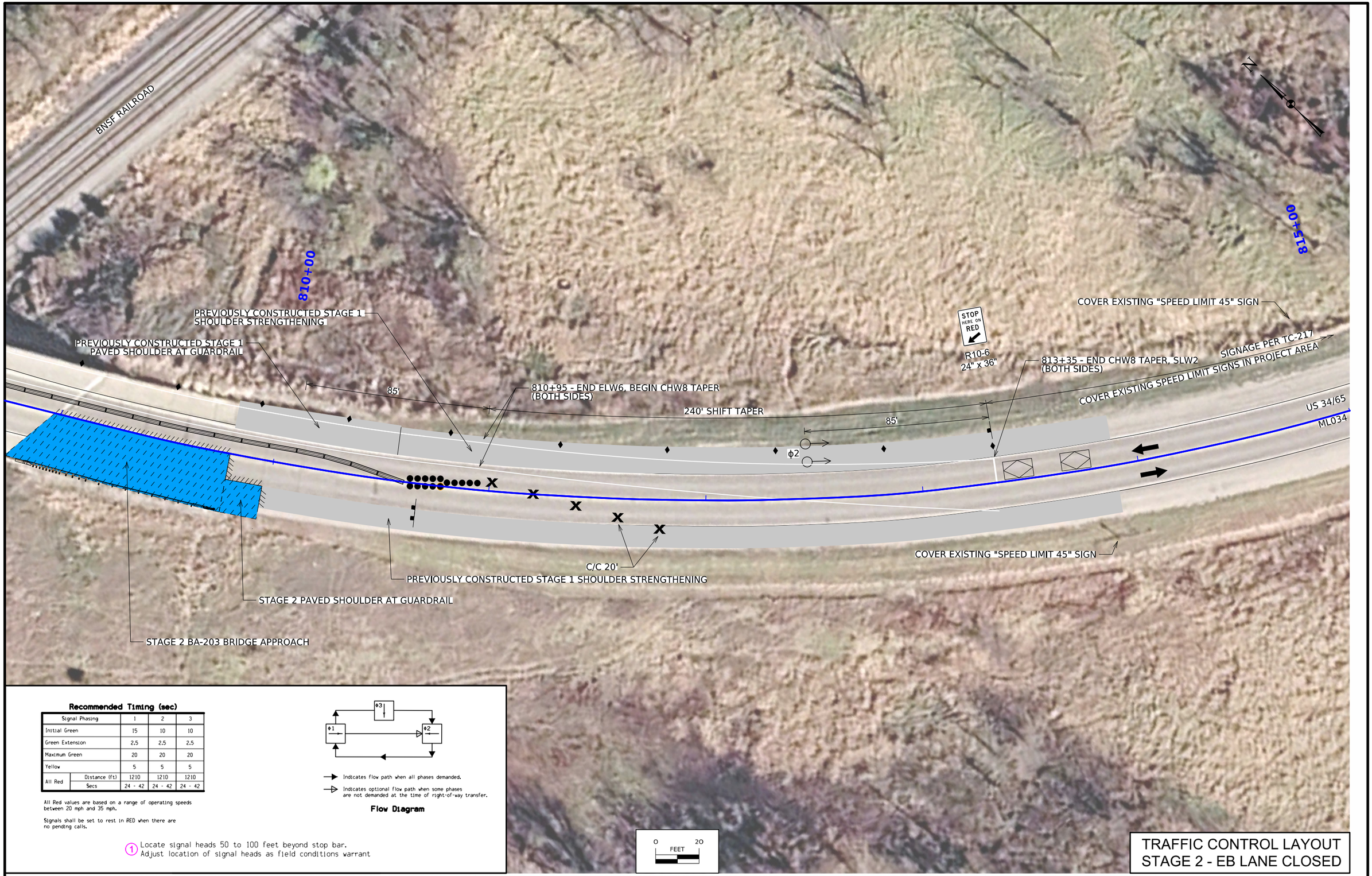
Flow Diagram

① Locate signal heads 50 to 100 feet beyond stop bar. Adjust location of signal heads as field conditions warrant

TRAFFIC CONTROL LAYOUT STAGE 2 - EB LANE CLOSED

FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER J.9

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Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.

→ Indicates flow path when all phases demanded.

⇢ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

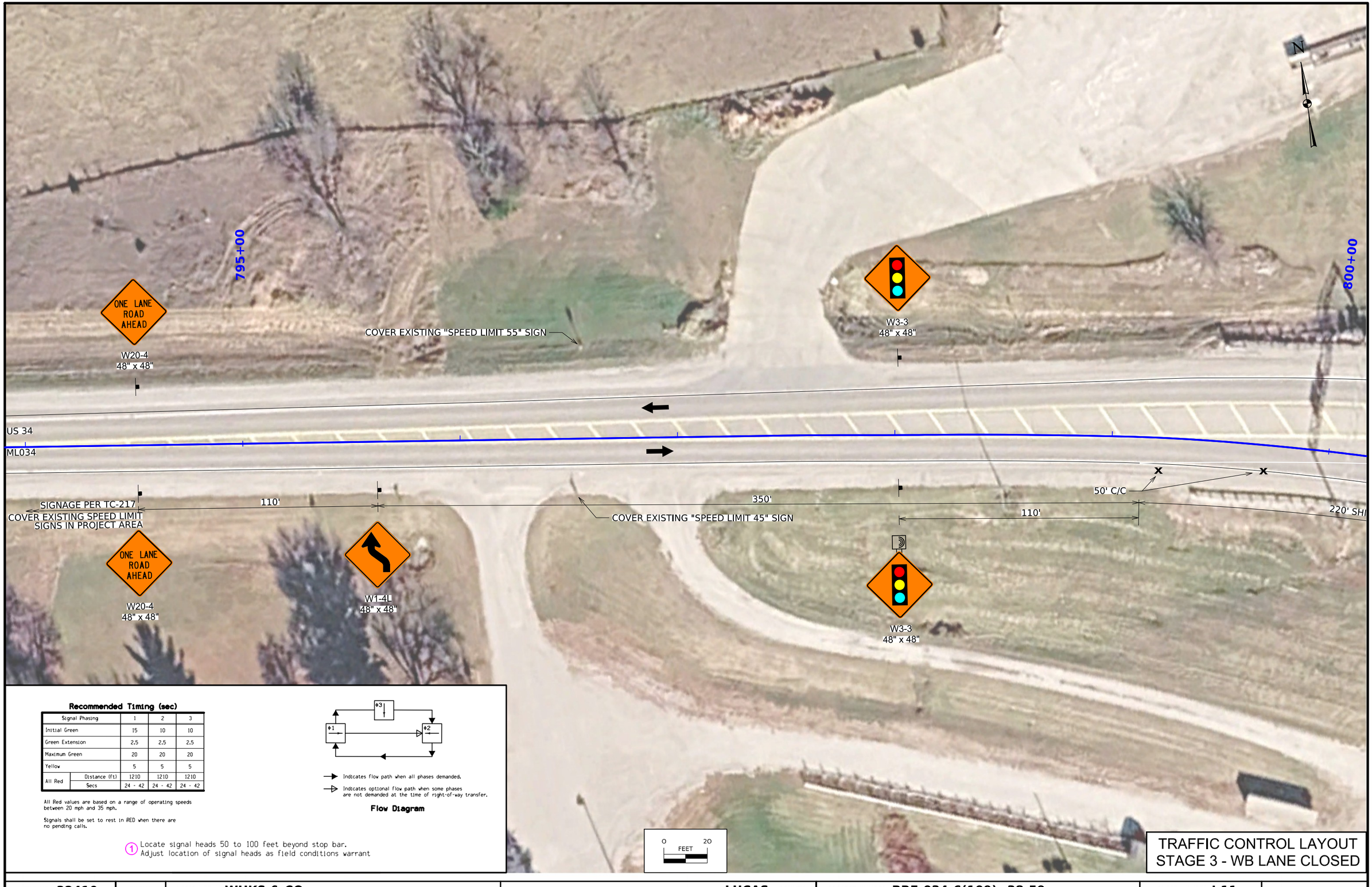
Flow Diagram

(1) Locate signal heads 50 to 100 feet beyond stop bar. Adjust location of signal heads as field conditions warrant

TRAFFIC CONTROL LAYOUT STAGE 2 - EB LANE CLOSED

FILE NO. **32410**	ENGLISH	DESIGN TEAM **WHKS & CO.**	**LUCAS** COUNTY	PROJECT NUMBER **BRF-034-6(109)--38-59**	SHEET NUMBER **J.10**

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Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.

→ Indicates flow path when all phases demanded.

⇢ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

Flow Diagram

(1) Locate signal heads 50 to 100 feet beyond stop bar.
Adjust location of signal heads as field conditions warrant

TRAFFIC CONTROL LAYOUT STAGE 3 - WB LANE CLOSED

FILE NO. **32410**	ENGLISH	DESIGN TEAM **WHKS & CO.**	**LUCAS** COUNTY	PROJECT NUMBER **BRF-034-6(109)--38-59**	SHEET NUMBER **J.11**

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US 65

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

COVER EXISTING STOP SIGN

800+00

ϕ3

802+20 - BEGIN CHW8 TAPER

801+75 - BEGIN LDW8 TAPER

STAGE 3 PAVED SHOULDER AT GUARDRAIL

805+00

N

US 34

ML034

ϕ1

50' C/C

50'

US 34/65

220' SHIFT TAPER

PREVIOUSLY CONSTRUCTED STAGE 2
PAVED SHOULDER AT GUARDRAIL

540' SHIFT TAPER

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

SAFETY CLOSURE

801+30 - BEGIN REMOVE STAGE 2 CHW8 TAPER, BEGIN STAGE 3 CHW8 TAPER

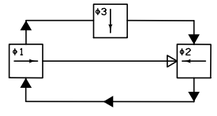
804+35 - END LDW8 TAPER

Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.



→ Indicates flow path when all phases demanded.

⇢ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

Flow Diagram

① Locate signal heads 50 to 100 feet beyond stop bar.
Adjust location of signal heads as field conditions warrant

0 20
FEET

TRAFFIC CONTROL LAYOUT
STAGE 3 - WB LANE CLOSED

FILE NO. **32410**	ENGLISH	DESIGN TEAM **WHKS & CO.**	**LUCAS** COUNTY	PROJECT NUMBER **BRF-034-6(109)--38-59**	SHEET NUMBER **J.12**

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805+00

810+00

STAGE 3 PAVED SHOULDER AT GUARDRAIL

STAGE 3 BA-203 BRIDGE APPROACH

805+95 END REMOVE STAGE 2 CHW8 TAPER

US 34/65

ML034

540' SHIFT TAPER

PREVIOUSLY CONSTRUCTED STAGE 2 PAVED SHOULDER AT GUARDRAIL

COVER EXISTING "SPEED LIMIT 45" SIGN

806+30 - END CHW8 TAPER, BEGIN ELW6 TAPER (BOTH SIDES)

PREVIOUSLY CONSTRUCTED STAGE 2 BA-203 BRIDGE APPROACH

BNSF RAILROAD

PREVIOUSLY CONSTRUCTED STAGE 1 PAVED SHOULDER AT GUARDRAIL

STAGE 3 BA-203 BRIDGE APPROACH

PREVIOUSLY CONSTRUCTED STAGE 2 BA-203 BRIDGE APPROACH

PREVIOUSLY CONSTRUCTED STAGE 2 PAVED SHOULDER AT GUARDRAIL

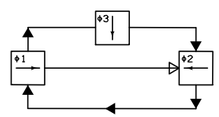
PREVIOUSLY CONSTRUCTED STAGE 2 SHOULDER STRENGTHENING

Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.



Indicates flow path when all phases demanded.

Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

Flow Diagram

(1) Locate signal heads 50 to 100 feet beyond stop bar. Adjust location of signal heads as field conditions warrant

0 20 FEET

TRAFFIC CONTROL LAYOUT STAGE 3 - WB LANE CLOSED

FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER J.13

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BNSF RAILROAD

810+00

815+00

STAGE 3 BR-203 BRIDGE APPROACH

809+80 - BEGIN REMOVE STAGE 2 ELW6 (BOTH SIDES)

PREVIOUSLY CONSTRUCTED STAGE 1 PAVED SHOULDER AT GUARDRAIL

810+95 - END REMOVE STAGE 2 ELW6, BEGIN REMOVE STAGE 2 CHW8 TAPER (BOTH SIDES)

PREVIOUSLY CONSTRUCTED STAGE 1 SHOULDER STRENGTHENING

813+35 - END REMOVE STAGE 2 CHW8 TAPER (BOTH SIDES), REMOVE STAGE 2 SLW2

813+65 - END CHW8, SLW2 (BOTH SIDES)

STOP HERE ON RED

R10-6 24" x 36"

COVER EXISTING "SPEED LIMIT 45" SIGN

US 34/65

ML034

ϕ2

811+25 - END ELW6, BEGIN CHW8 TAPER (BOTH SIDES)

85'

240' SHIFT TAPER

85'

COVER EXISTING "SPEED LIMIT 45" SIGN

SIGNAGE PER TC-217 COVER EXISTING SPEED LIMIT SIGNS IN PROJECT AREA

PREVIOUSLY CONSTRUCTED STAGE 1 SHOULDER STRENGTHENING

PREVIOUSLY CONSTRUCTED STAGE 2 PAVED SHOULDER AT GUARDRAIL

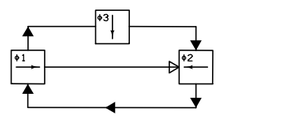
PREVIOUSLY CONSTRUCTED STAGE 2 BRIDGE APPROACH

Recommended Timing (sec)

Signal Phasing		1	2	3
Initial Green		15	10	10
Green Extension		2.5	2.5	2.5
Maximum Green		20	20	20
Yellow		5	5	5
All Red	Distance (ft)	1210	1210	1210
	Secs	24 - 42	24 - 42	24 - 42

All Red values are based on a range of operating speeds between 20 mph and 35 mph.

Signals shall be set to rest in RED when there are no pending calls.



→ Indicates flow path when all phases demanded.

⇢ Indicates optional flow path when some phases are not demanded at the time of right-of-way transfer.

Flow Diagram

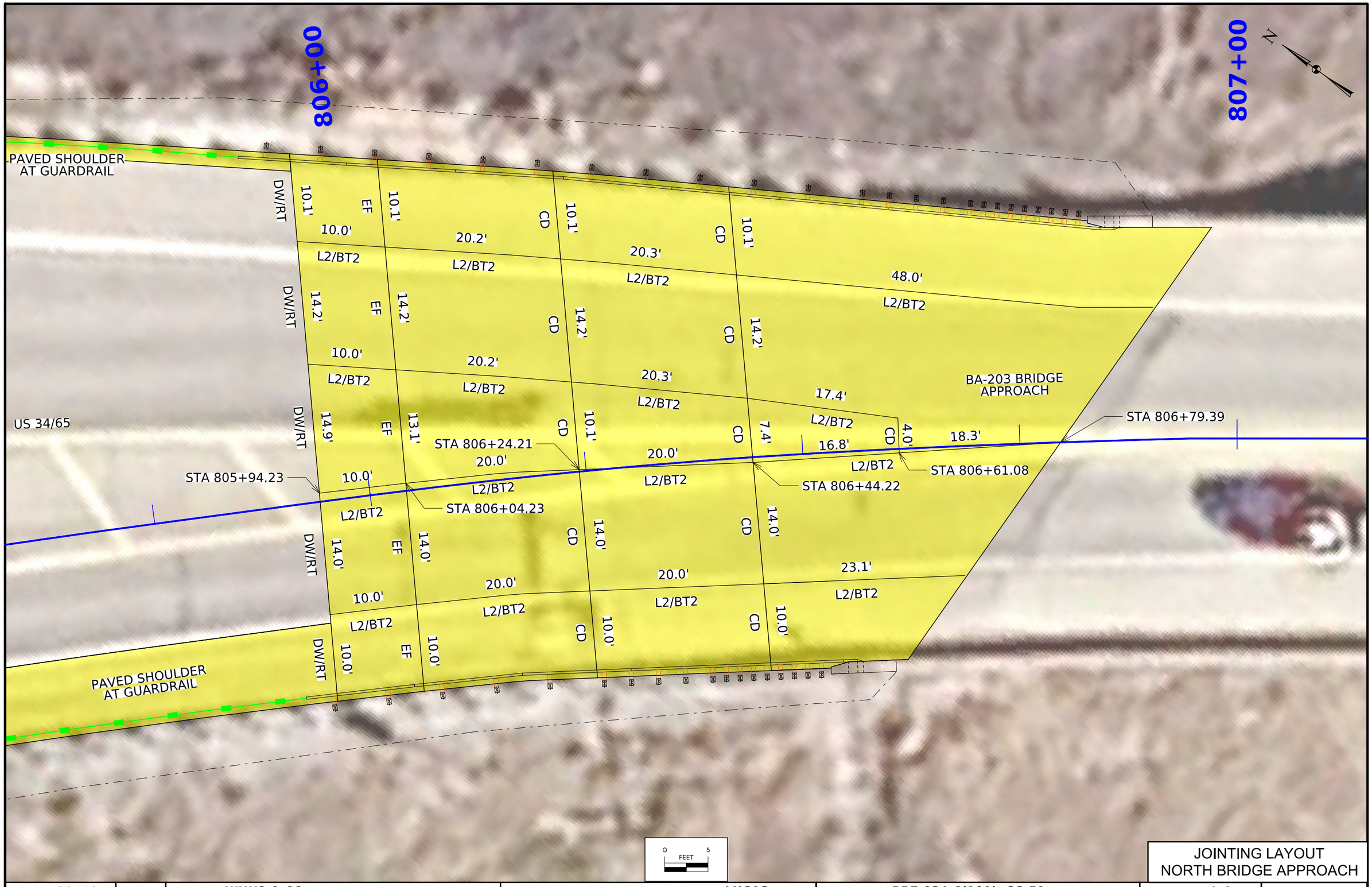
(1) Locate signal heads 50 to 100 feet beyond stop bar. Adjust location of signal heads as field conditions warrant

0 20 FEET

TRAFFIC CONTROL LAYOUT STAGE 3 - WB LANE CLOSED

FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER J.14

1:44:03 PM 4/2/2026 jfeldmann pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\WHKS\Roadway\CADD_Files\Sheet Files\SHT_59034109_J11.dgn



JOINTING LAYOUT
NORTH BRIDGE APPROACH

FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER L.1	

3:56:44 PM 4/22/2026 jfeldmann pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\WHKS\Roadway\CADD_Files\Sheet Files\SHT_59034109_L01.dgn

809+00

810+00

N

PAVED SHOULDER
AT GUARDRAIL

SHOULDER
STRENGHTENING

US 34/65

STA 808+97.01

STA 809+29.73

STA 809+49.73

STA 809+69.73

STA 809+79.73

BA-203 BRIDGE
APPROACH

CD	10.4'	CD	10.6'	EF	10.7'	DW/RT	10.8'				
22.4'		19.7'		19.7'		9.8'					
L2/BT2		L2/BT2		L2/BT2		L2/BT2					
CD	14.0'	CD	14.0'	EF	14.0'	DW/RT	14.0'				
32.7'		20.0'		20.0'		10.0'					
L2/BT2		L2/BT2		L2/BT2		L2/BT2					
CD	14.0'	CD	14.0'	EF	14.0'	DW/RT	14.0'				
43.1'		20.3'		20.3'		10.1'					
L2/BT2		L2/BT2		L2/BT2		L2/BT2					
CD	12.1'	CD	12.3'	EF	12.9'	DW/RT	13.3'				

0 5
FEET

JOINTING LAYOUT
SOUTH BRIDGE APPROACH

FILE NO. 32410	ENGLISH	DESIGN TEAM WHKS & CO.	LUCAS COUNTY	PROJECT NUMBER BRF-034-6(109)--38-59	SHEET NUMBER L.2	

4:04:09 PM 4/22/2026 jfeldmann pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5903402022\Bridge\(109)_Bridge Deck Overlay\WHKS\Roadway\CADD_Files\Sheet Files\SHT_59034109_L01.dgn