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PLANS OF PROPOSED IMPROVEMENT ON THE  
PRIMARY ROAD SYSTEM  
BLACK HAWK COUNTY  
Bridge Rehabilitation  
NB US 63 over Cedar River  
0.2 Mi. N of US 218

Refer to the Plan Sheets for list of applicable specifications.

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

Revisions

	TOTAL
	25
PROJECT IDENTIFICATION NUMBER	
18-07-063-010	
CONTRACT ID NUMBER	
07-0636-100	
PROJECT NUMBER	
BRFN-063-6(100)--39-07	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
0706301018	



Standard Road Plans

Standard Road Plans are listed on Sheet Number C.2

Design Data Urban		
2022 AADT	3450	V.P.D.
Trucks	6	%

Index Of Seals		
Sheet No.	Name	Type
A.1	Jeremy D. Kotta	Structural Design
A.3	Tanner J. Clevenger	Roadway Design

Structural Design

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

Signature Date 9/12/2023

Printed or Typed Name Jeremy D. Kotta

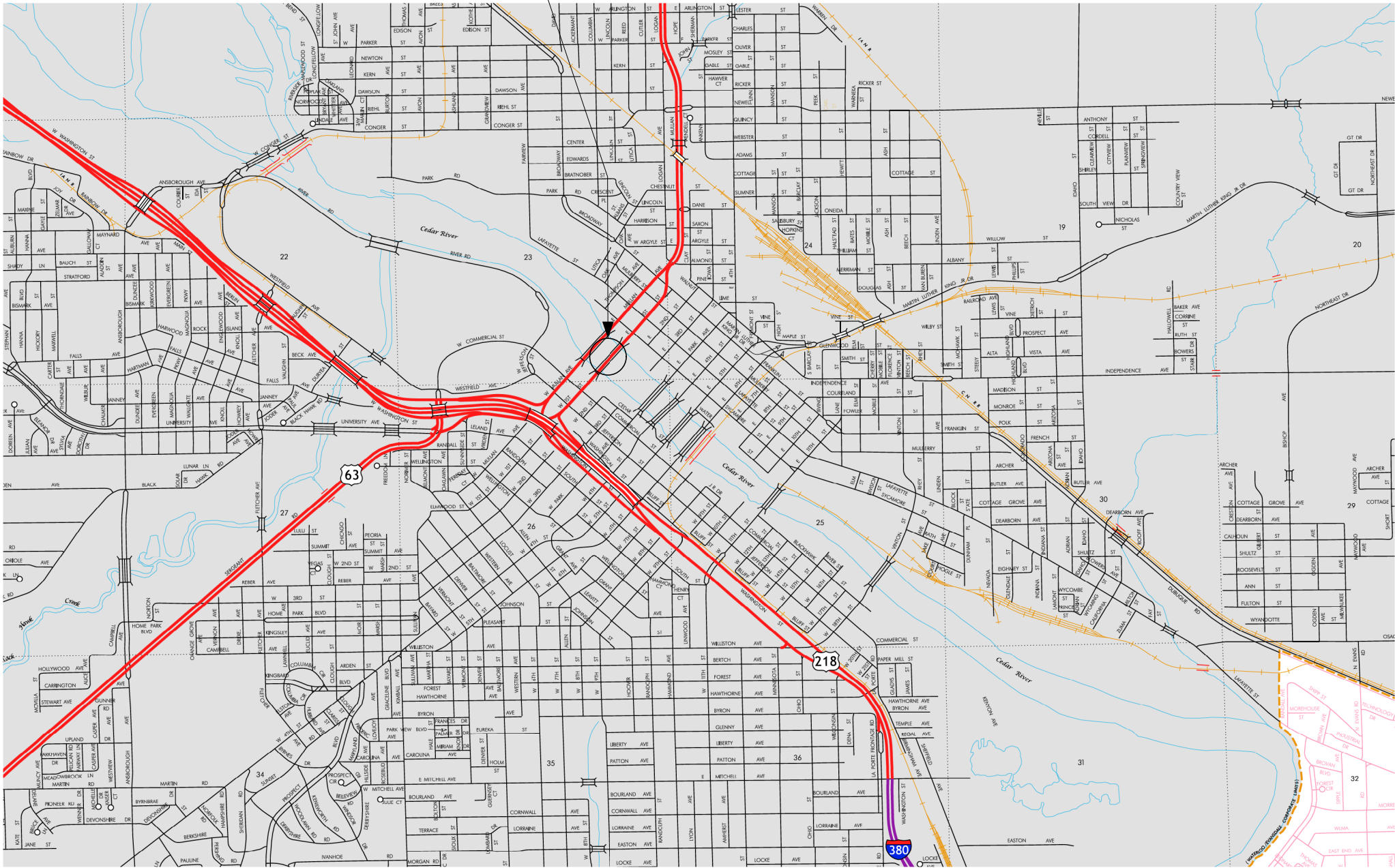
My license renewal date is December 31, 2023

Pages or sheets covered by this seal: A.1-A.2, V.1-V.13

Design No. 124  
FHWA No. 014730

R-13W R-12W

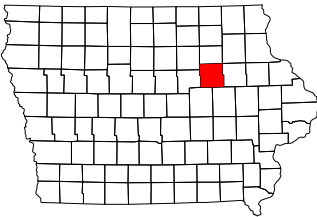
T-89N



LEGEND	
INTERSTATE ROUTE	
FREEWAY OR EXPRESSWAY ROUTE	
U.S. NUMBERED ROUTE	
BUSINESS ROUTE	
STATE NUMBERED ROUTE	
UNSIGNED ROUTE	
COUNTY NUMBERED ROUTE	
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

Part of City of Waterloo Location Map

Not To Scale



ESTIMATED BRIDGE QUANTITIES					
ITEM NO.	ITEM CODE	ITEM	UNIT	DIVISION 1 (IDOT)	AS-BUILT QTY.
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1	
2	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	201.9	
3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	19440.00	
4	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	19	
5	2414-6425410	CONCRETE BARRIER, REINFORCED, SEPARATION	LF	668.3	
6	2414-6444100	STEEL PIPE PEDESTRIAN HAND RAILING	LF	658.9	
7	2414-6445100	STRUCTURAL STEEL PEDESTRIAN HAND RAILING	LF	661.9	
8	2499-2300026	DRAIN EXTENSIONS	EACH	38	
9	2533-4980005	MOBILIZATION	LS	1	

ESTIMATE REFERENCE INFORMATION		
ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6750001	REMOVALS, AS PER PLAN Includes all work for removal and off-site disposal of the pedestrian rail and the raised bridge median. 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	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS) Includes all resilient joint filler required.  Includes cleaning existing concrete rail, furnishing and placing concrete sealer.  Includes all costs associated with sidewalk steel expansion plates at abutments.  Includes 665 L.F. of 2" dia. conduit and 6 L.F. of 1" dia. conduit.
3	2404-7775005	REINFORCING STEEL, EPOXY COATED --
4	2404-7775009	REINFORCING STEEL, STAINLESS STEEL --
5	2414-6425410	CONCRETE BARRIER, REINFORCED, SEPARATION Includes all costs associated with expansion plates at abutments.
6	2414-6444100	STEEL PIPE PEDESTRIAN HAND RAILING --
7	2414-6445100	STRUCTURAL STEEL PEDESTRIAN HAND RAILING --
8	2499-2300026	DRAIN EXTENSIONS See Notes on Sheet 13.
9	2533-4980005	MOBILIZATION --

Roadway quantities shown elsewhere in these plans.



Design For Repairs to 0 Degree Skew

660'-0 x 40' Continuous Welded Plate Girder Bridge

80'-0" End Spans5 - 100'-0" Interior Span

Estimated Bridge Quantities

STA. 215+25.00 (US 63 (NB))Turn-In Date: October 2023

Black Hawk County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124Design Sheet No. 1 of 13FHWA No. 014730

GENERAL NOTES:

This design is for repairs to the existing 660'-0" x 40'-0" continuous welded plate girder bridge on US 63 NB over Cedar River in Black Hawk County.

Electronic copies of original design plans are 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. 164, Repair Design No. 1989).

See Design Sheet 3 for list of repair items.

The City and 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 construction starting date.

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

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

The lump sum bid for "Removals, as Per Plan" shall include all costs associated with removing the existing east sidewalk, separation and hand rails, pedestrian rail, and sidewalk expansion plates. 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.

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

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 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

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

Construction Stages 1 & 2 as detailed on these plans may be reversed at the Contractor's option subject to the engineer's approval.

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.

The top and interior faces of the existing west concrete railing are to be cleaned and sealed in accordance with Article 2403.03, P, of the Standard Specifications. If new sections of rail are constructed, the new sections shall not be sealed. All costs associated with cleaning and sealing of the concrete rails shall be included in the unit price bid item “Structural Concrete (Miscellaneous)“.



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.

Design Stresses:

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

Reinforcing steel in accordance with Section 8, Grade 60.  
Concrete in accordance with Section 8, f'c = 4.0 ksi.  
Structural steel in accordance with Section 10 ASTM A709 Grade 36, Grade 50, and Grade 50W (AASHTO M270 Grade 36, Grade 50, and Grade 50W).

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	Structural Steel Pedestrian Hand Railing	(100)_Black Hawk_124_Structural Steel Pedestrian Hand Railing	No
2	Steel Pipe Pedestrian Hand Railing	(100)_Black Hawk_124_Steel Pipe Pedestrian Hand Railing	No
3	Steel Drain Extensions	(100)_Black Hawk_124_Steel Pipe Pedestrian Hand Railing	No
4			

No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
5			
6			
7			

Design history at this site (Includes this design)	
Des. No.	Type of work
164	Original Design
1989	Bridge Overlay
124	Retrofit Curb & Rail

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

Design For Repairs to 0 Degree Skew

660'-0 x 40' Continuous Welded Plate Girder Bridge

80'-0" End Spans5 - 100'-0" Interior Span

General Notes

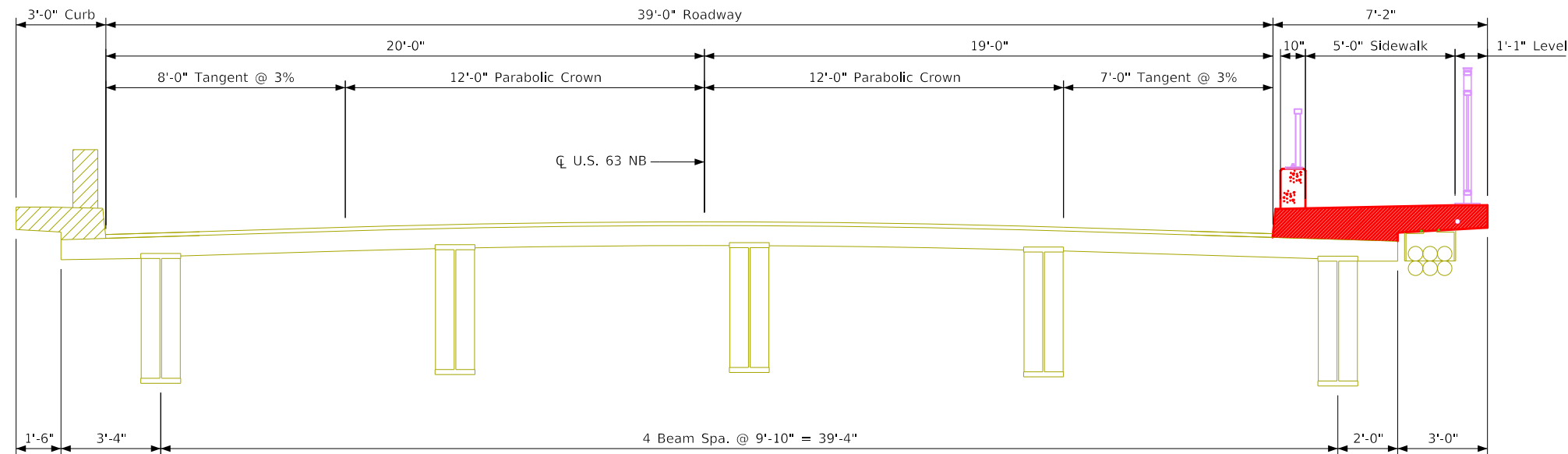
STA. 215+25.00 (US 63 (NB))Turn-in Date: October 2023

Black Hawk County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124Design Sheet No. 2 of 13FHWA No. 014730

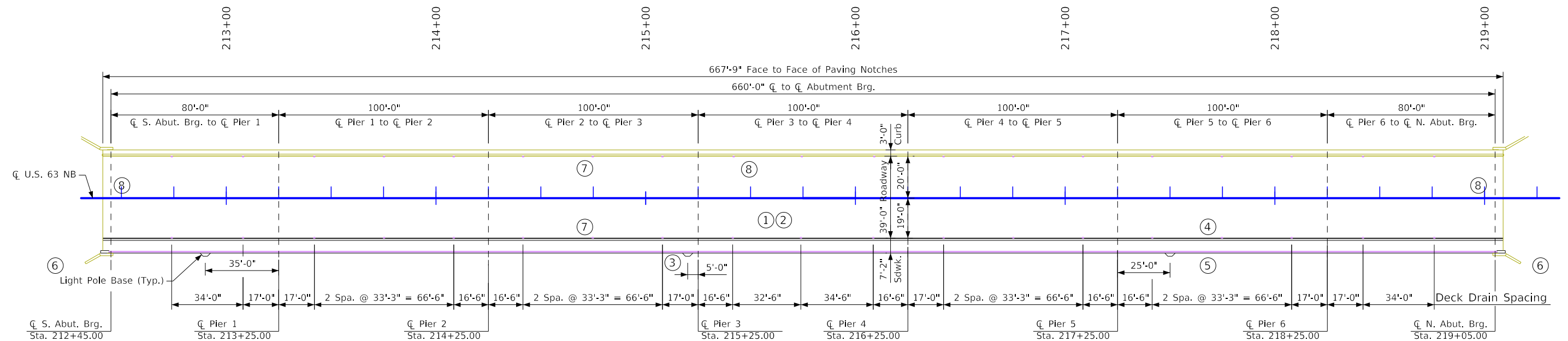




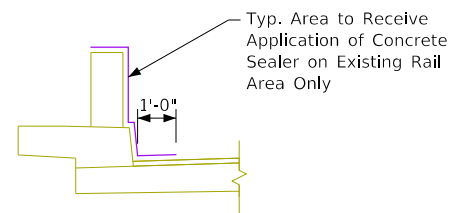
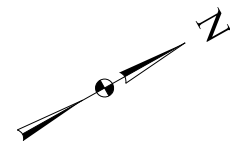
Typical Section  
(Looking Upstation)

### Repairs Shall Consist Of:

- ① Remove existing curb, sidewalk, lightpoles and bases, separation rail, and pedestrian railing.
- ② Reconstruct curb with an additional 1'-0 of width on the bridge deck.
- ③ Reconstruct light pole bases and reinstall light poles.
- ④ Install separation rail and sidewalk.
- ⑤ Install pedestrian handrailing.
- ⑥ Construct new sidewalk approaches.
- ⑦ Extend drains.
- ⑧ Apply concrete sealer to abutments and west barrier rail.



Situation Plan



Detail of Concrete  
Sealer Area

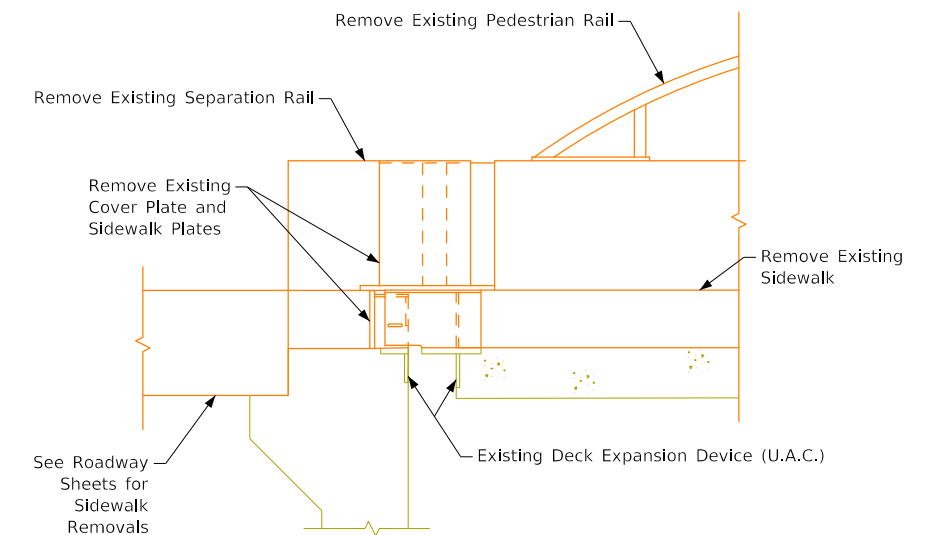
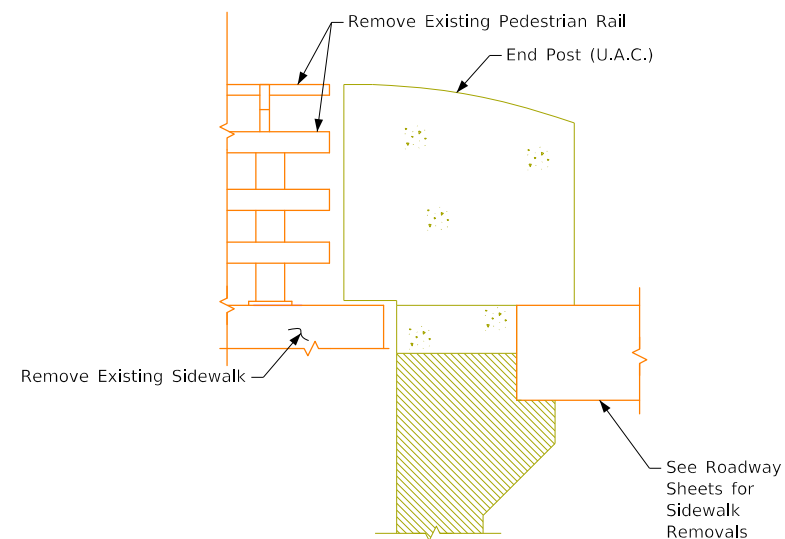
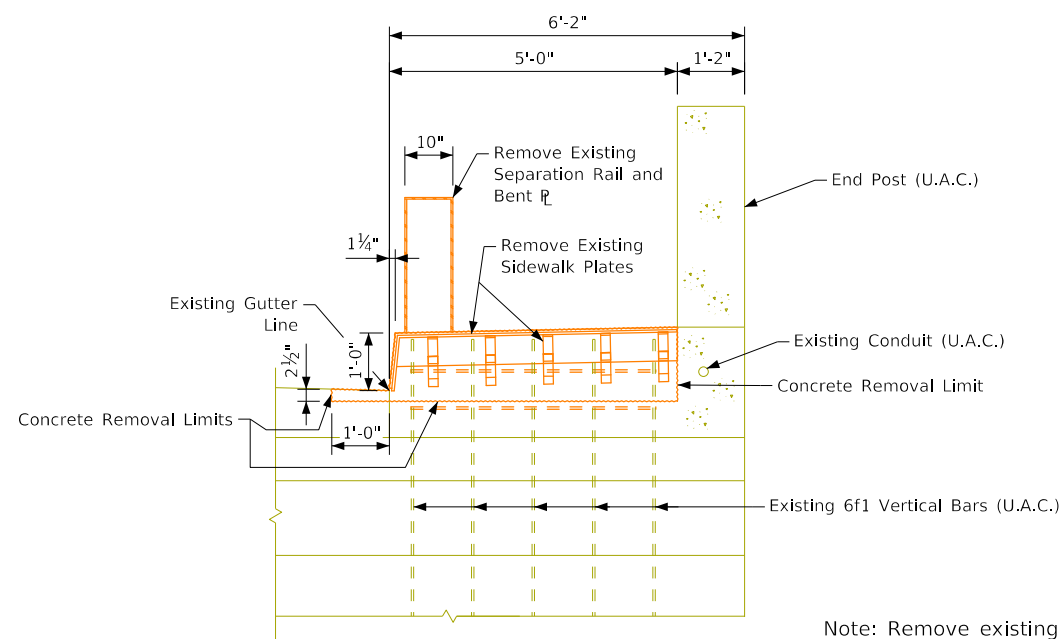
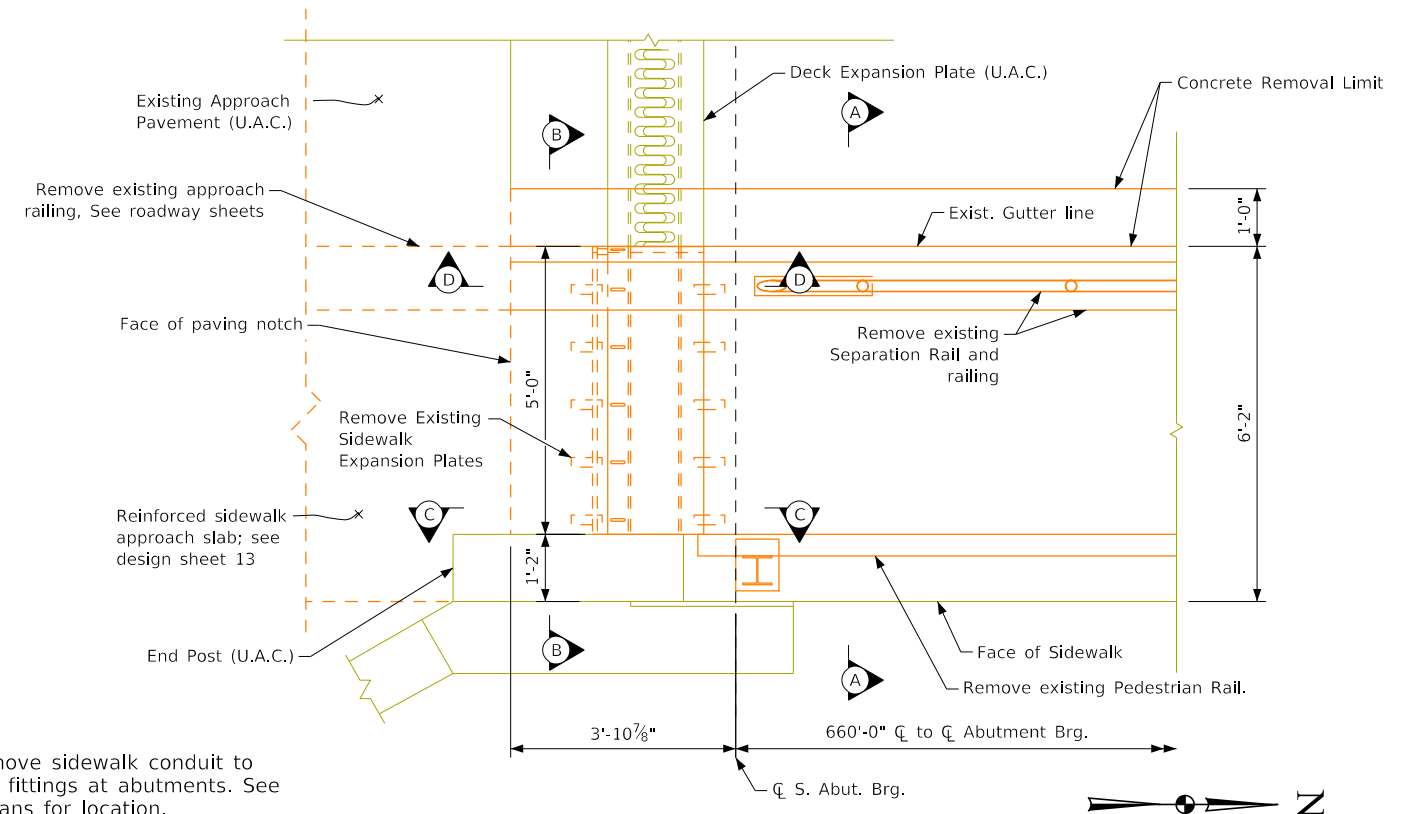
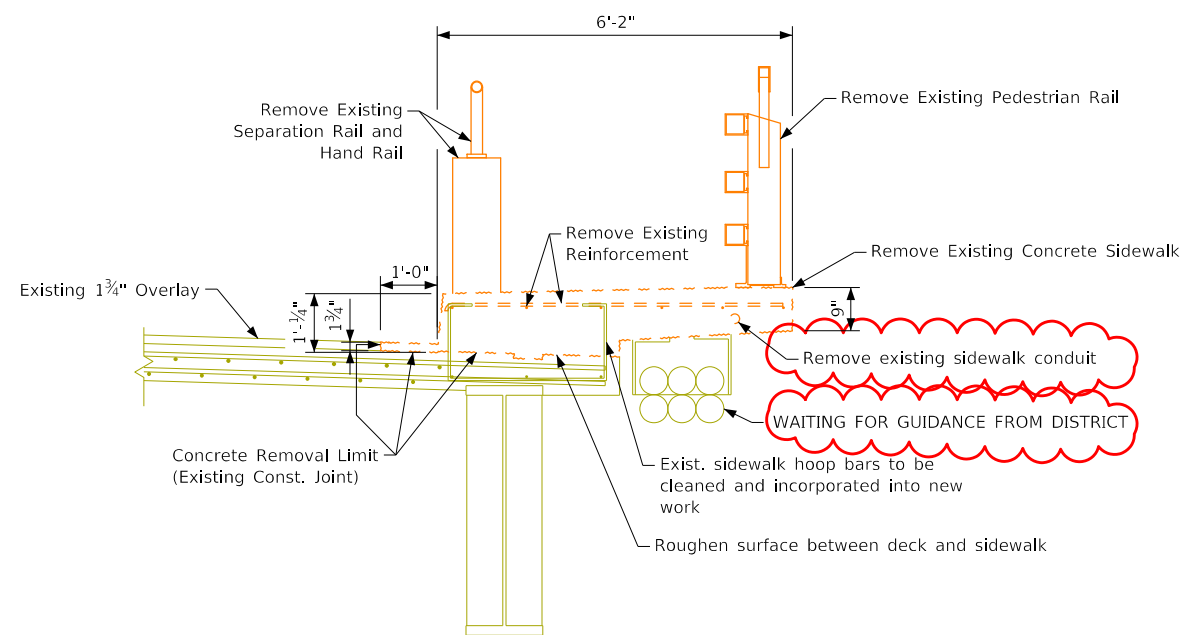
#### Design Data Urban

2022 AADT	3450	V.P.D.
Trucks	6	%

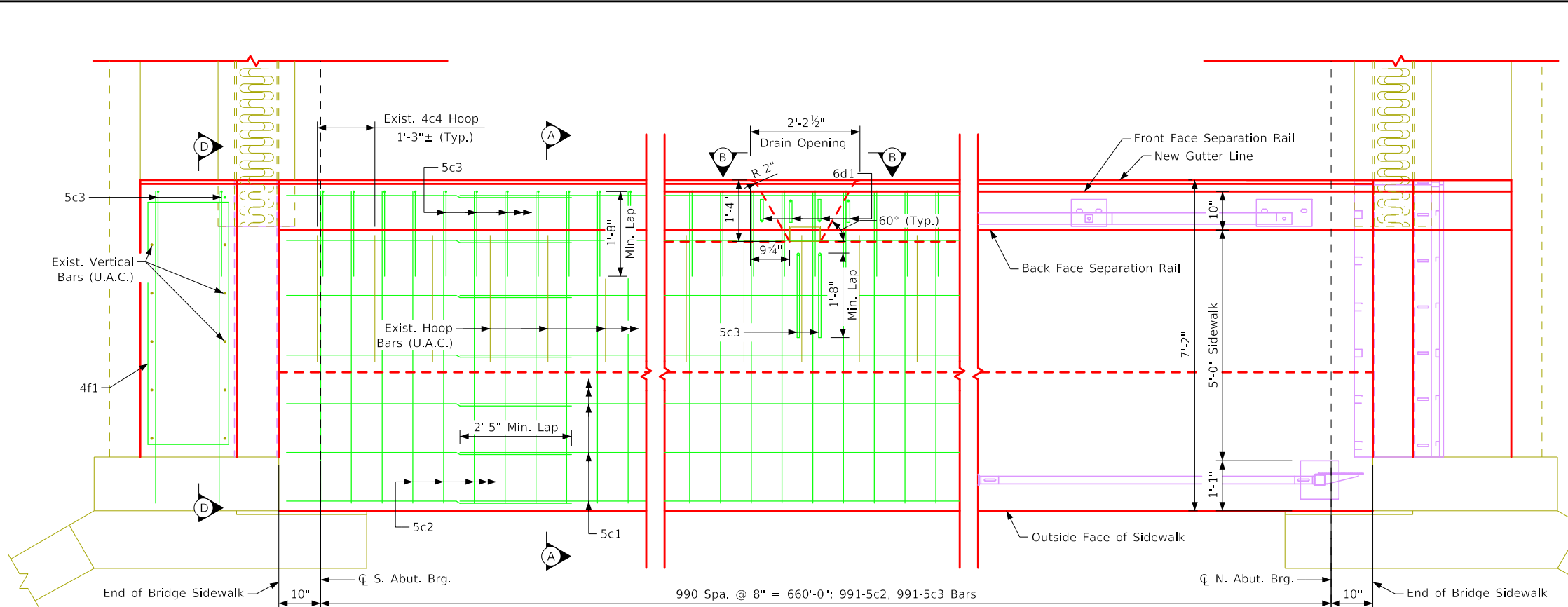
#### LOCATION

U.S. 63 NB over Cedar River  
T-89N R-13W  
Section 25  
Waterloo & East Waterloo Township  
Black Hawk County  
FHWA No. 014730  
Bridge Maint. No. 0763.1R063  
Latitude: 42.498994  
Longitude: -92.342722

Design For Repairs to 0 Degree Skew  
**660'-0 x 40' Continuous Welded  
Plate Girder Bridge**  
80'-0" End Spans 5 - 100'-0" Interior Span  
**Situation Plan**  
STA. 215+25.00 (US 63 (NB)) Turn-in Date: October 2023  
**Black Hawk County**  
IOWA DEPARTMENT OF TRANSPORTATION  
Design No. 124 Design Sheet No. 3 of 13 FHWA No. 014730



Design For Repairs to 0 Degree Skew  
660'-0" x 40' Continuous Welded  
Plate Girder Bridge  
80'-0" End Spans 5 - 100'-0" Interior Span  
Sidewalk Removal Details  
STA. 215+25.00 (US 63 (NB)) Turn-in Date: October 2023  
Black Hawk County  
IOWA DEPARTMENT OF TRANSPORTATION  
Design No. 124 Design Sheet No. 4 of 13 FHWA No. 014730



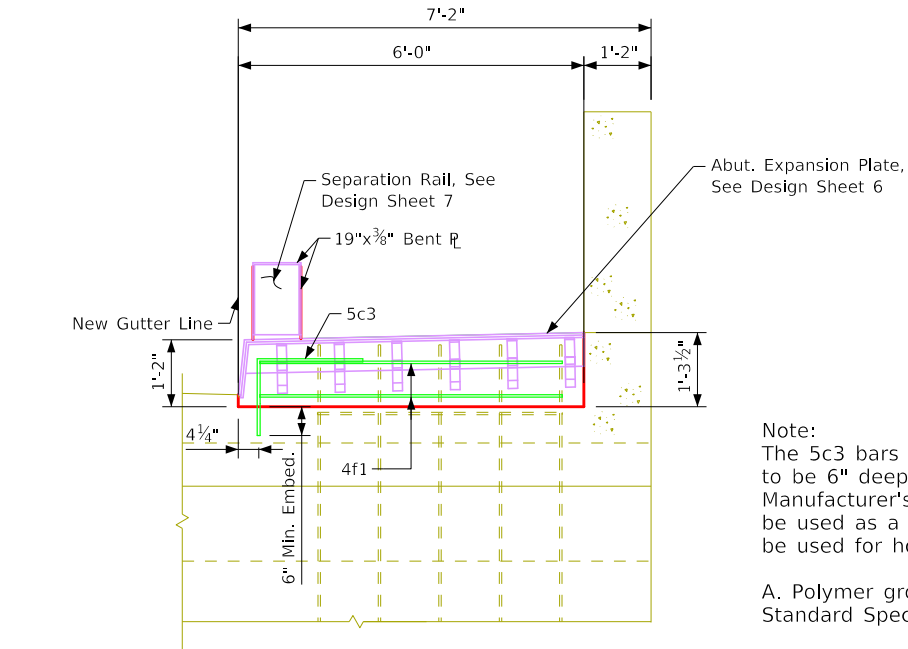
Epoxy Reinforcing Steel					
BAR	Location	Shape	No.	Length	Weight
5c1	Sidewalk, Longit.		84	57'-4"	5023
5c2	Sidewalk, Transverse		991	6'-9"	6977
5c3	Sidewalk, Transverse, Dowel		1035	3'-2"	3418
Total (lbs.)					15,686

Concrete Placement	
Section	Total
Sidewalk	168.5
Abutment	1.1
Total (Cu. Yds.)	169.6

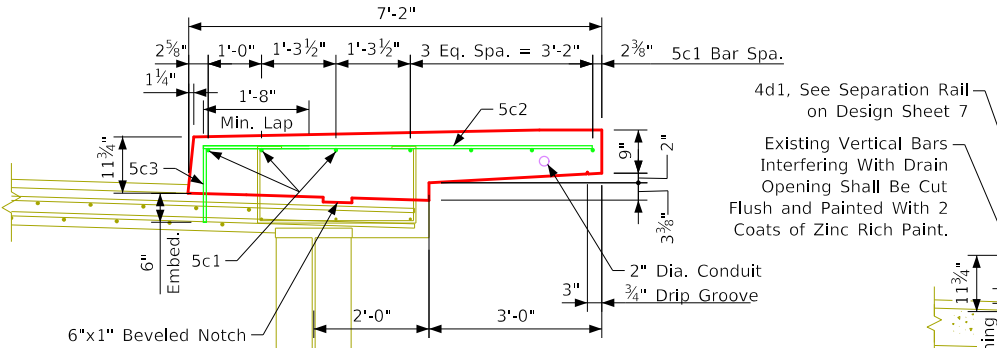
### Bent Bar Details

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

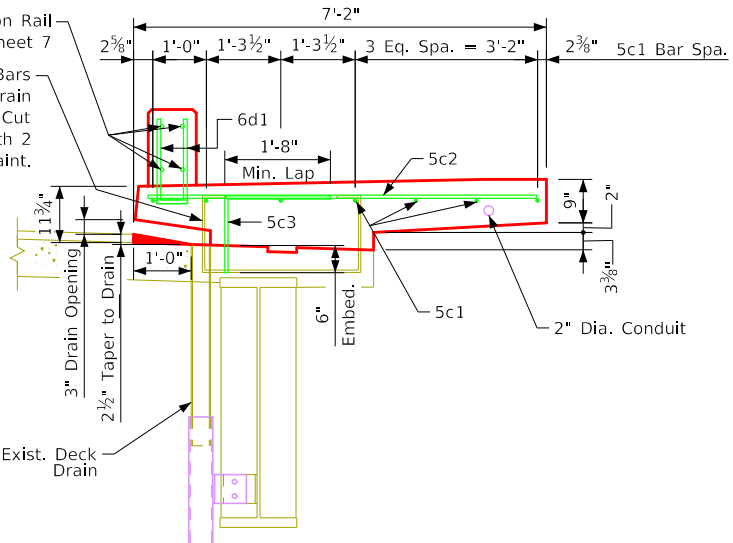
Sidewalk Plan



Section D-D  
Sidewalk Details at Abutment  
(Wingwall not shown for clarity)

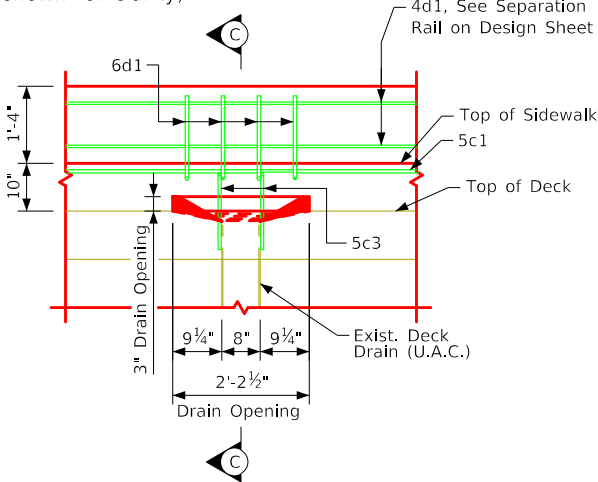


Section A-A  
Standard Sidewalk Details  
(Railings not shown for clarity)



Section C-C  
Sidewalk at Drain Opening

Note: See Situation Plan on Design Sheet 2 for deck drain locations.



Section B-B  
Drain Opening Elevation

Note:  
The 5c3 bars shall be set as dowels in drilled holes. Holes are to be 6" 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 in accordance with Article 2301.03, E, of the Standard Specifications.

B. Hydraulic cement grout systems. Drilled holes are to be 2 1/2 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.

Design For Repairs to 0 Degree Skew

## 660'-0 x 40' Continuous Welded Plate Girder Bridge

80'-0" End Spans      5 - 100'-0" Interior Span

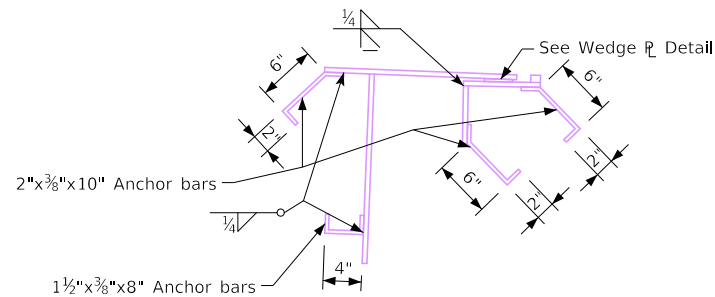
### Sidewalk Details

STA. 215+25.00 (US 63 (NB))      Turn-In Date: October 2023

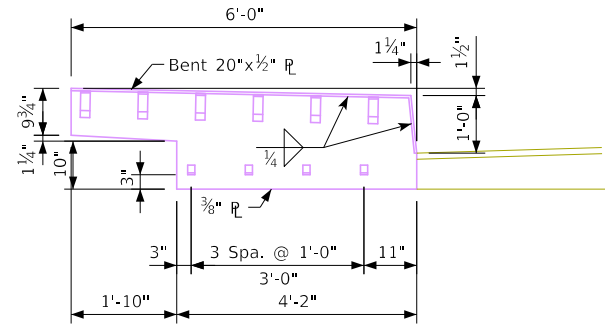
### Black Hawk County

IOWA DEPARTMENT OF TRANSPORTATION

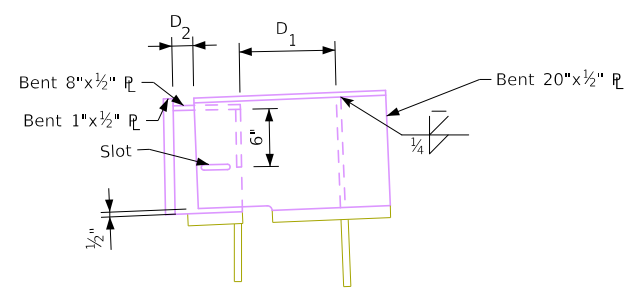
Design No. 124      Design Sheet No. 5 of 13      FHWA No. 014730



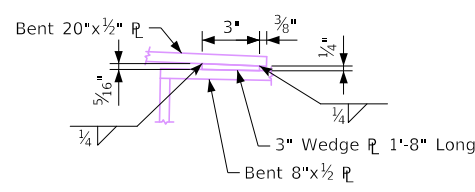
Section E-E



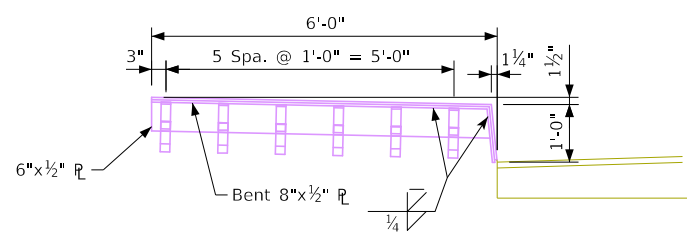
Section B-B



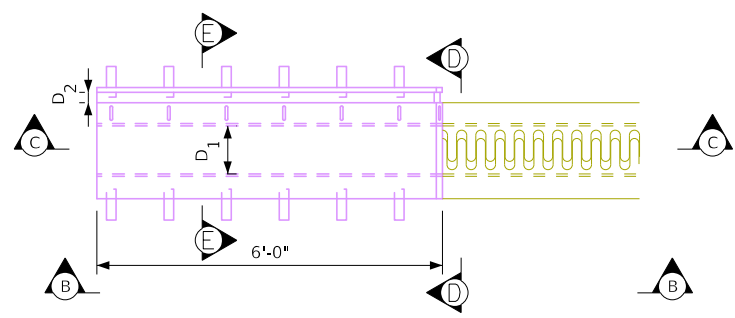
Section D-D



Wedge RL Detail



Section C-C



Expansion Plate Part Plan

Expansion Plate Setting		
Temp. at time of setting	D <sub>1</sub>	D <sub>2</sub>
10°	11 3/16"	3 7/8"
50°	10"	2 1 1/16"
90°	8 1 3/16"	1 1/2"

Note:  
Setting for other temperatures are proportional to those shown for a 40° temperature change.

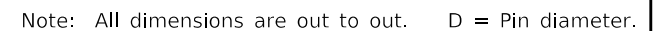


Design For Repairs to 0 Degree Skew  
**660'-0 x 40' Continuous Welded Plate Girder Bridge**  
 80'-0" End Spans      5 - 100'-0" Interior Span  
**Expansion Plate Details**  
 STA. 215+25.00 (US 63 (NB))      Turn-In Date: October 2023  
**Black Hawk County**  
 IOWA DEPARTMENT OF TRANSPORTATION  
 Design No. 124      Design Sheet No. 6 of 13      FHWA No. 014730





Bent Bar Details
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Note:  
See Design Sheet 8 for "Separation Railing Notes,"  
"Testing Notes for Separation Railing," "Barrier Rail Notes,"  
and "Dowel Setting Notes".

FILE NO. 31940	ENGLISH	DESIGN TEAM JDK\JJS\BRH	Black Hawk COUNTY	PROJECT NUMBER BRFN-063-6(100)--39-07	SHEET NUMBER V.7
2:19:15 PM 9/12/2023 bhackman pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0706301018\Bridge\100 Bridge Rehabilitation\BRG 07063100 WHKS 0124 014730 Z05.dgn					

All tube steel shall comply with ASTM A 500, Grade C. All other structural steel materials shall comply with ASTM A 572, Grade 50 minimum. Threaded anchor rods shall be ASTM F1154 Grade 105 minimum.

The railing components shall be hot-dip galvanized in accordance with ASTM A 123. All railing assembly hardware shall be galvanized in accordance with the standard specifications.

Set all railing posts vertical in the transverse direction and normal to grade along the concrete barrier.

Anchor rods shall be drilled and embedded a minimum of 12 inches into the finished concrete and secured with an epoxy grout anchorage system. Anchor installation, including hole size, drilling and hole cleanout procedures shall be in accordance with the epoxy grout manufacturer's recommendations. Epoxy adhesive shall have a minimum bond strength of 1,560 psi.

Edges of the post base plates shall receive an application of caulking sealer to provide a watertight interface with the concrete surface. Caulk for base plates shall be light grey nonsag latex caulk marketed for outdoor use. No testing or certification is required. Do not contaminate adjacent concrete surfaces with caulk.

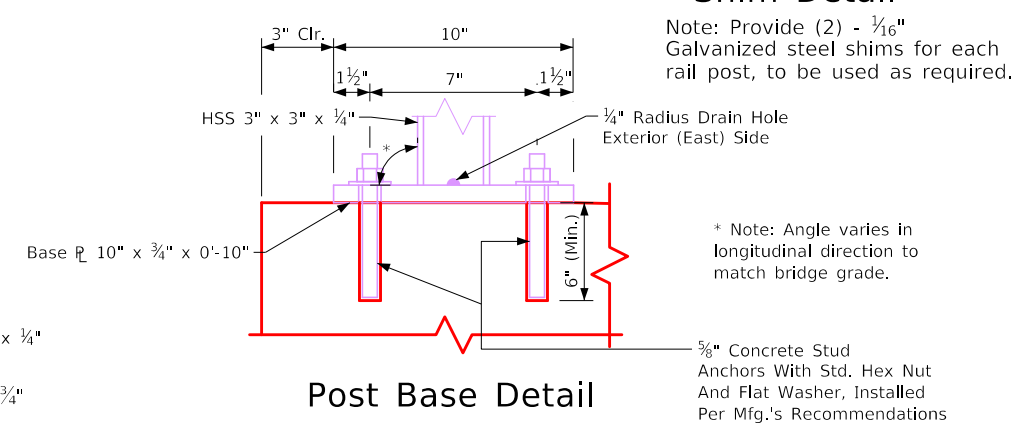
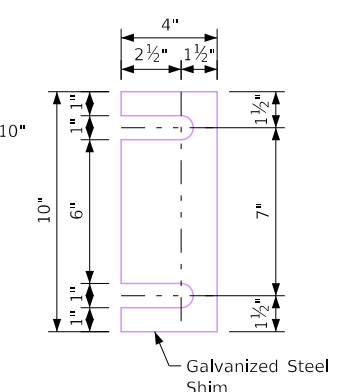
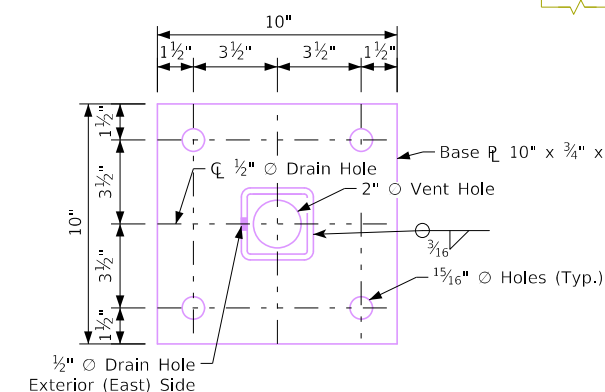
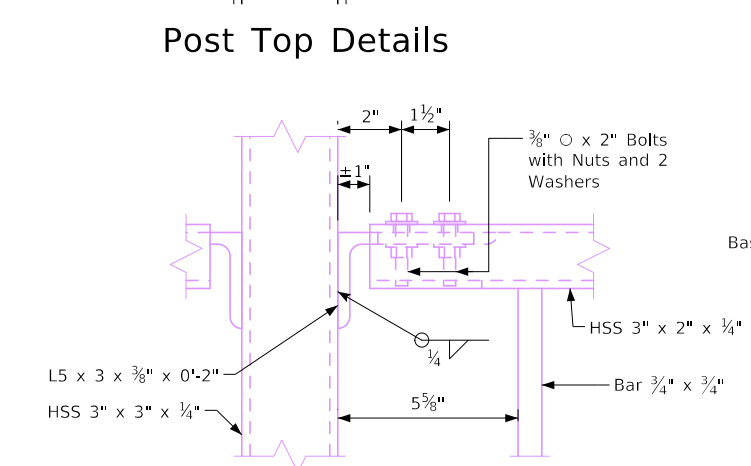
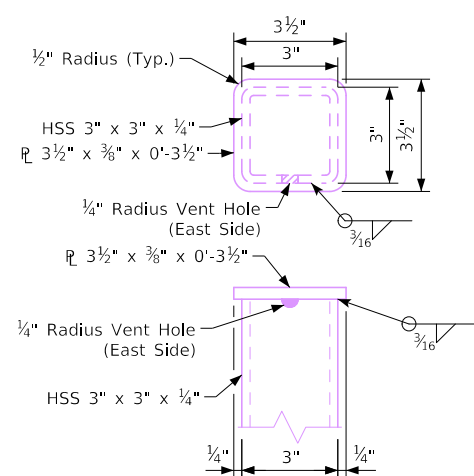
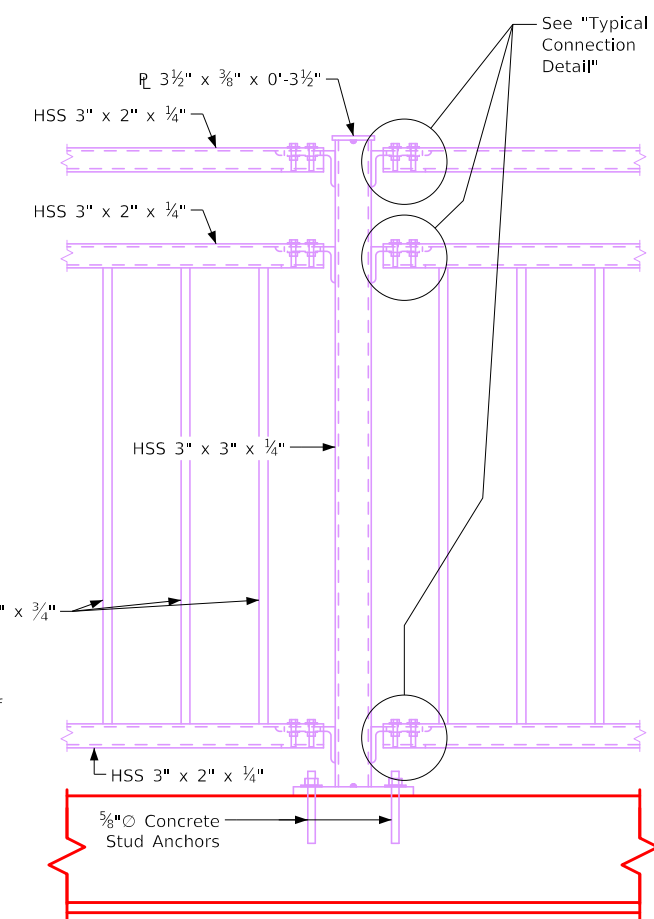
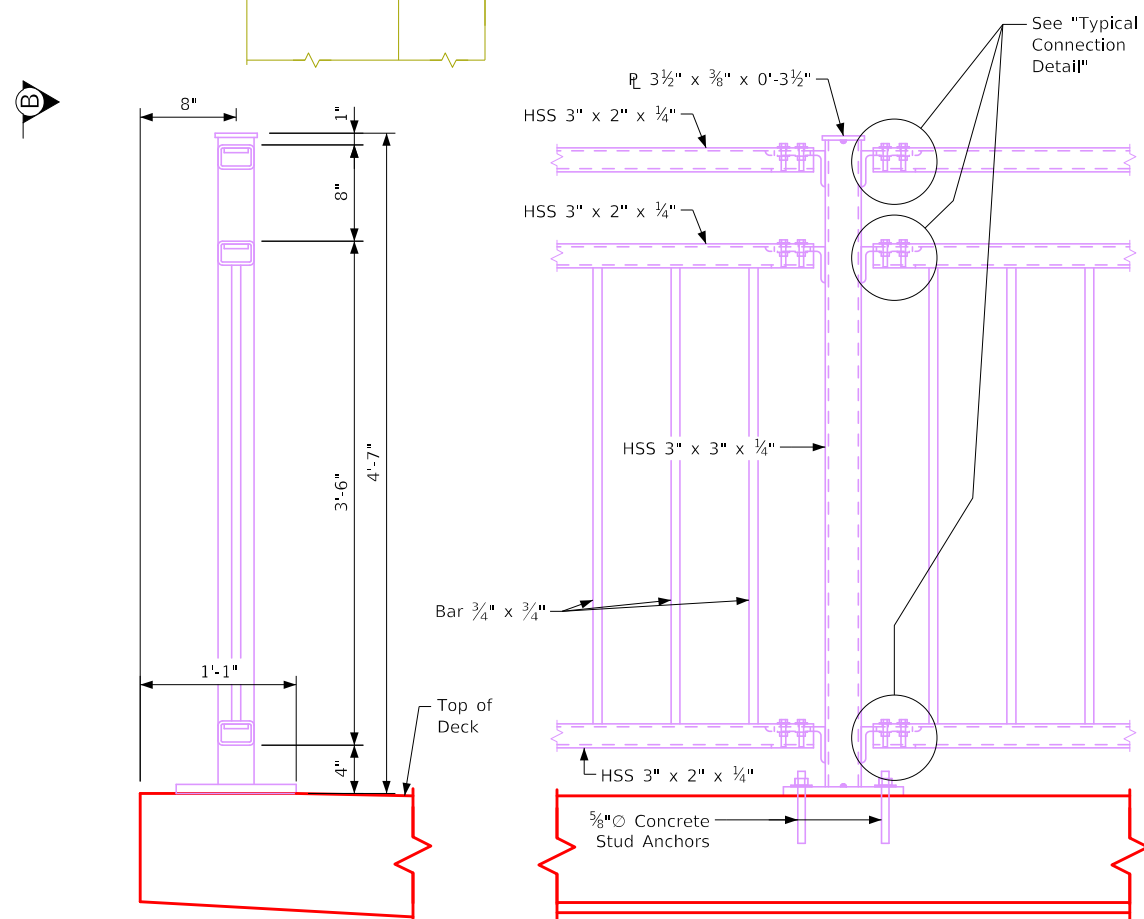
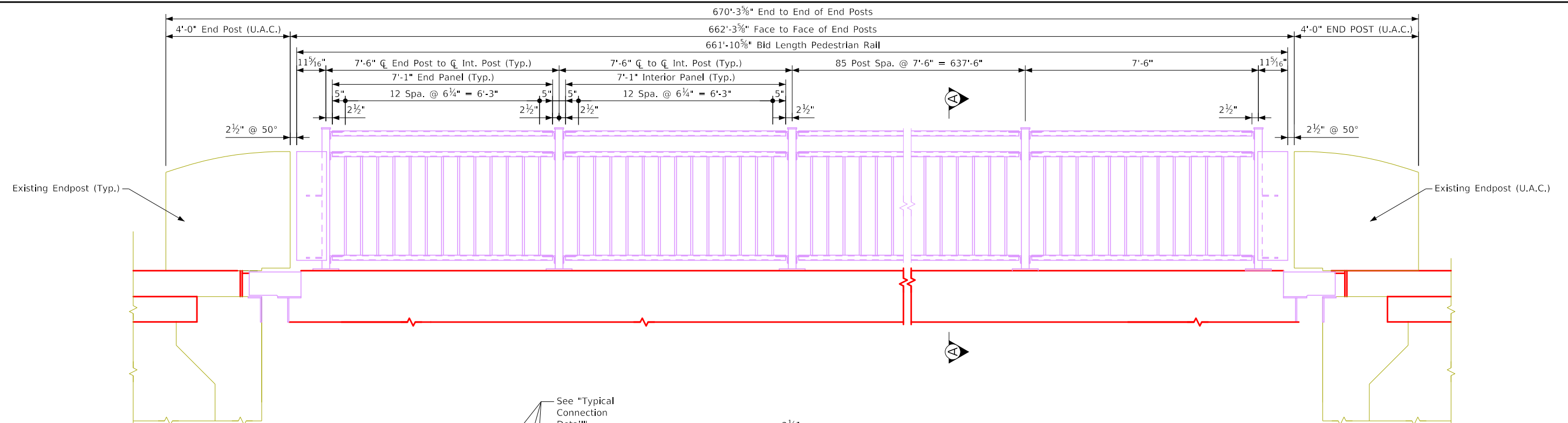
Include all costs associated with the railing and anchorages, in the price bid for "Steel Pipe Pedestrian Hand Railing".

The 4c1 bars in the separation rail shall be set as dowels in drilled holes. Holes are to be 6" deep. The dowels shall be installed in accordance with the Manufacturer's recommendations. One of the following systems shall be used as a bonding agent for the dowels:

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.

Cross sectional area of the standard section of the barrier rail  
= 1.11 square feet.





Note: See Design Sheet 10 for  
"Pedestrian Railing Notes"  
& "Pedestrian Railing  
Mockup Notes"

Design For Repairs to 0 Degree Skew

# 660'-0 x 40' Continuous Welded Plate Girder Bridge

80'-0" End Spans                      5 - 100'-0" Interior Spans

## Pedestrian Rail Details

STA. 215+25.00 (US 63 (NB))                      Turn-in Date: October 2023

# Black Hawk County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124                      Design Sheet No. 9 of 13                      FHWA No. 014730

Structural steel material for plates, bars and angles shall be in compliance with ASTM A709, Grade 50. The tube steel shall be in compliance with ASTM A500, Grade B. Anchor bolts shall be fully threaded and comply with ASTM F-1554 Grade 55. Hex nuts shall comply with ASTM A563-DH. Washers shall comply with ASTM F-436. Anchor bolts, nuts, and washers are to be galvanized in accordance with ASTM A153, Class C. All other bolts shall meet the requirements of ASTM A-307.

All railing members shall be flat and straight after fabrication and galvanizing to within 1/8-inch in 10 feet. Straighten by mechanical means without damage to the railing.

Include all costs associated with the railing and anchorages in the price bid for "Structural Steel Pedestrian Hand Railing".

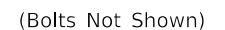
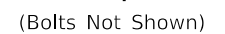
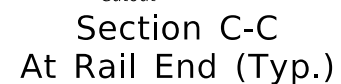
Contractor shall verify dimensions of the concrete prior to commencing final layout and installation of railing. Notify the Engineer of any discrepancies in concrete dimensions prior to railing installation.

The anchor bolts shall be set in drilled holes. The holes are to be a minimum of 6" deep. The epoxy grout system to be used as the bonding agent shall be in accordance with Article 2301.03, E, of the Standard Specifications and current Supplemental Specifications. The materials to be used shall also be in accordance with the adhesive Manufacturer's requirements and be capable of obtaining an ultimate load per bolt of 12 kips in tension. Submit evidence of the proposed epoxy adhesive anchorage system's ability to develop this load to the Engineer for approval prior to use. Anchor bolt installation, including hole size, drilling, and clean-out shall be in accordance with the Manufacturer's instructions.

Construct a mockup railing panel for review by the Engineer. For the purposes of the mockup, one "Typical Railing Panel" and two posts shall be fabricated according to the requirements in these plans. Actual railing production may not proceed until final approval of the mockup. If the mockup is rejected, construct another mockup at the direction of the Engineer. Use materials and methods to create the mockup(s) that are identical to those proposed for the actual railings for the project. The approved mockup shall remain at the project site for comparison to actual railings as they are delivered. Protect the mockup railing from damage during storage period. If approved for use, install the mockup as part of the final railing.

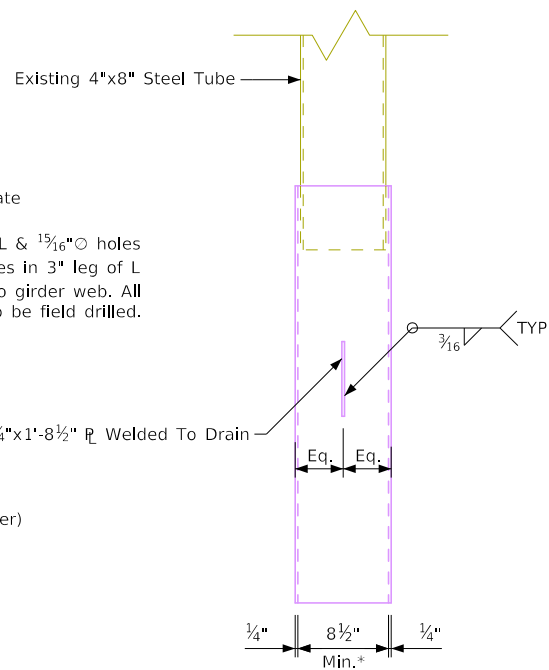
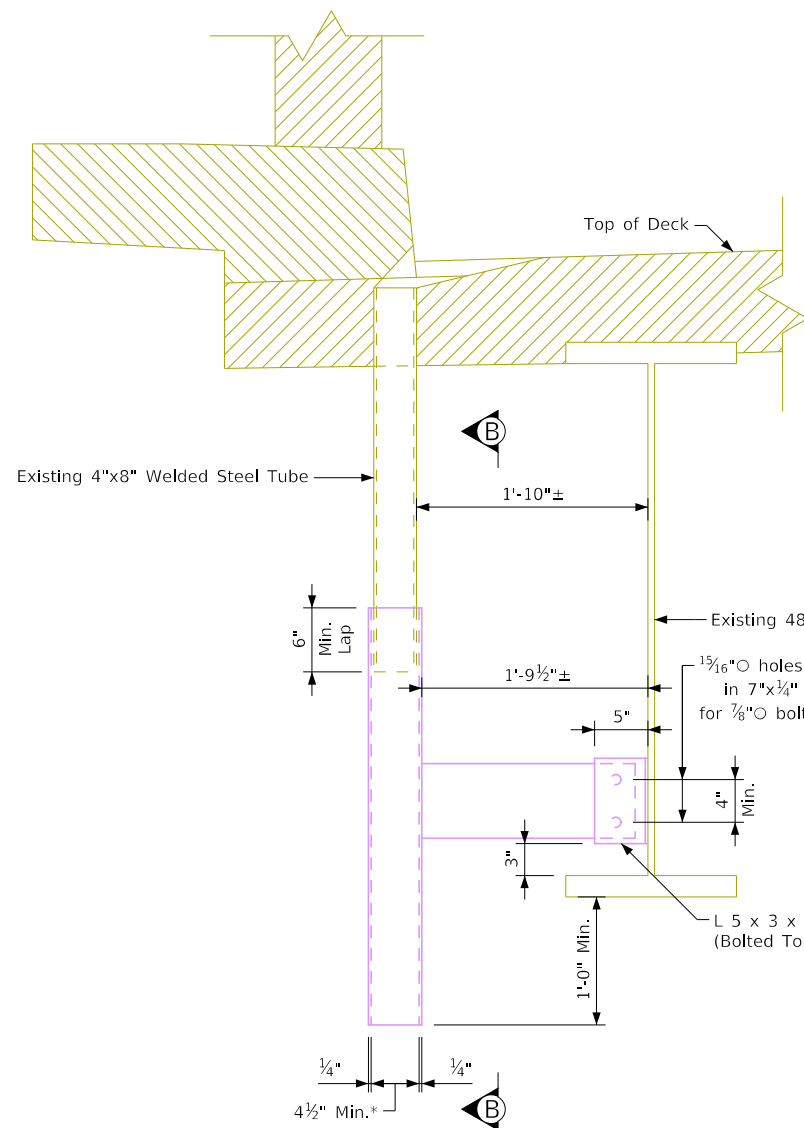


**whks**  
engineers + planners + land surveyors



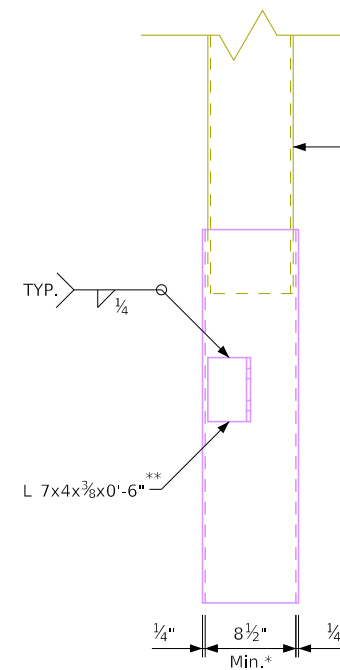
Design For Repairs to 0 Degree Skew  
**660'-0" x 40' Continuous Welded  
Plate Girder Bridge**  
80'-0" End Spans 5 - 100'-0" Interior Spans  
**Pedestrian Rail Details**  
STA. 215+25.00 (US 63 (NB)) Turn-in Date: October 2023  
**Black Hawk County**  
IOWA DEPARTMENT OF TRANSPORTATION  
Design No. 124 Design Sheet No. 10 of 13 FHWA No. 014730



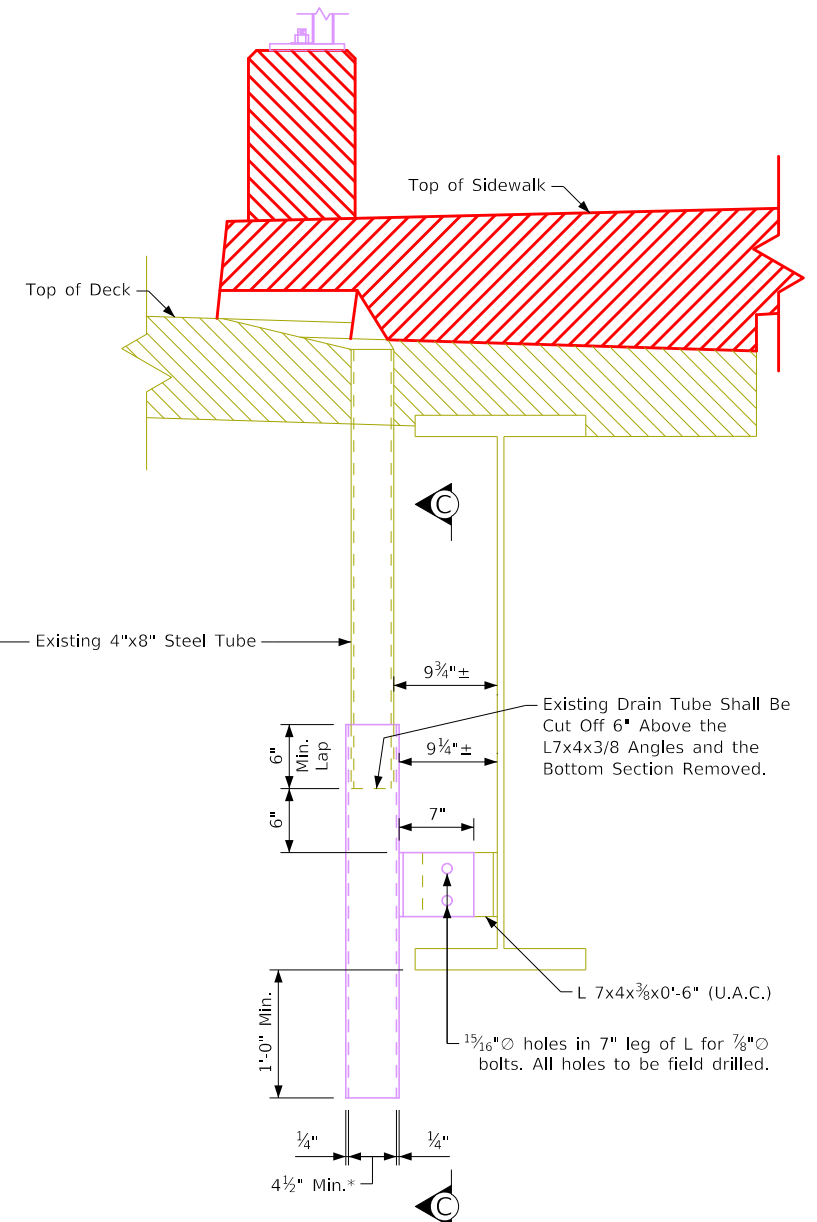


West Drain Extension Details

\*Tube shall have a minimum thickness of 1/4" and a minimum opening large enough to sleeve over the existing 4"x8" steel tube.



East Drain Extension Details



## Deck Drain Extension Notes:

All dimensions to fabricate structural steel shall be verified in the field by the Contractor prior to fabrication of the steel.

Bottom of existing drains which are damaged or corroded shall be removed. Length of removal to be adjusted as necessary with approval of the Engineer.

HSS shall meet the requirements of ASTM A1085 or ASTM A500 Grade B. Bolts shall meet the requirements of ASTM A307. Nuts and washers shall be according to Article 4153.06, B, of the Standard Specifications.

Drain extensions shall be galvanized after fabrication in accordance with ASTM A123.

Weight of each west drain extension = 89 lbs. and weight of each east drain extension = 74 lbs. Assumed 9"x5"x1/4" tube steel and includes plates/angles and bolts.

Measurement for drain extensions will be by count for each drain extension. 38 deck drain extensions required (19 each side of the bridge). See situation plan for locations. Payment for drain extensions will be the contract unit price for the total number of drain extensions installed. Payment shall be full compensation for removals and all materials and labor required to install the drain extensions.

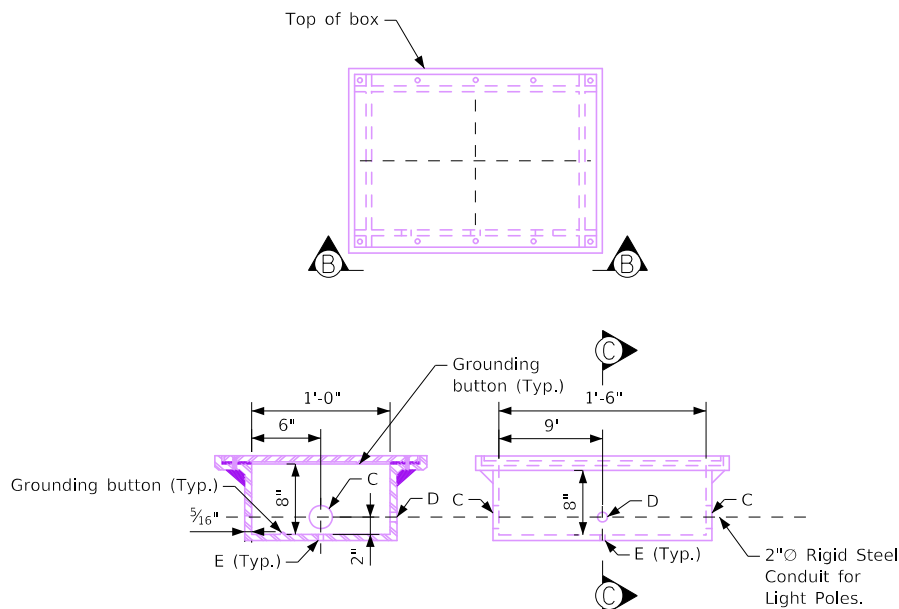
Includes all costs of installing new bolted drain extensions as detailed in these plans. Measurement will be each and basis of payment will include partial removal of existing drains, field drilled holes, fabrication and installation of new drain extensions, and all labor and incidental materials.

\*\* Placement of angle shall be determined during field measurement to ensure alignment with existing angle.

Design For 0 Degree Skew  
**660'-0 x 40' Continuous Welded Plate Girder Bridge**  
80'-0" End Spans 5 - 100'-0" Interior Span  
**Drain Extension**  
STA. 215+25.00 (US 63 (NB)) Turn-In Date: October 2023  
**Black Hawk County**  
IOWA DEPARTMENT OF TRANSPORTATION  
Design No. 124 Design Sheet No. 11 of 13 FHWA No. 014730

Note: See Situation Plan on Design Sheet 3 for light pole base locations.

WAITING ON DISTRICT FOR DIRECTION ON LIGHTPOLES



Section C-C

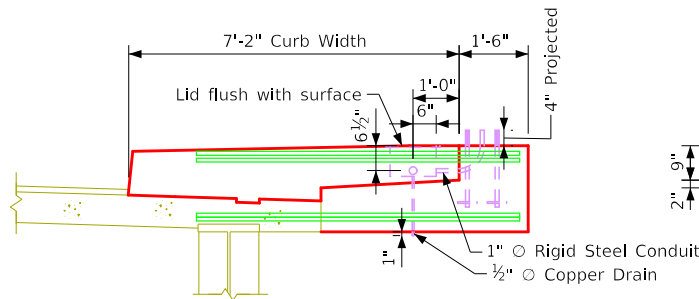
Section B-B

### Li-104 Junction Box

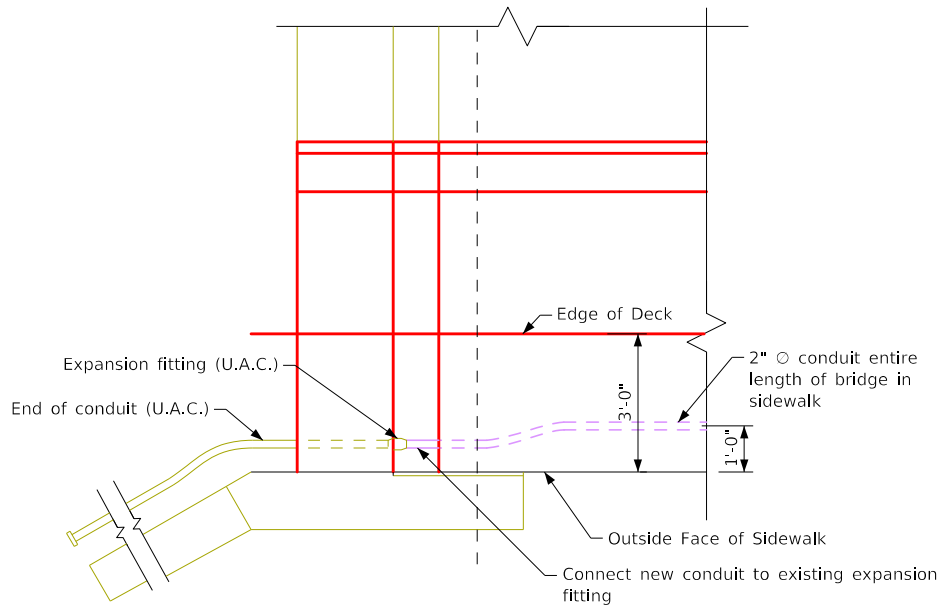
Watertight, Cast Iron - Flush Mount

Bossed For	Hole	For Conduit Size
5 Threads	C	2" Rigid Steel
None	D	1" Rigid Steel
None	E	1/2" Copper Pipe

Note:  
The grounding buttons are to be blind drilled and tapped for 3/8" x 0'-0 3/4" bolts.



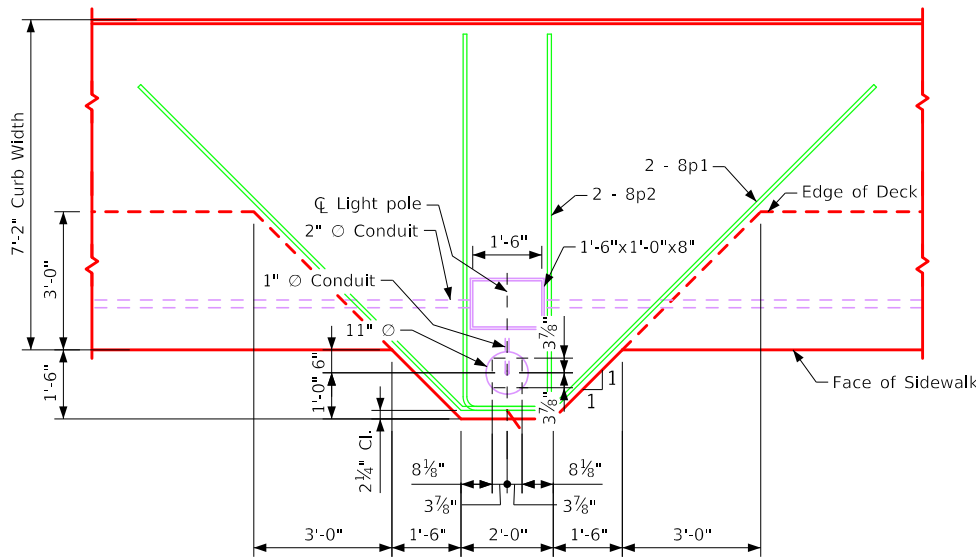
Section A-A



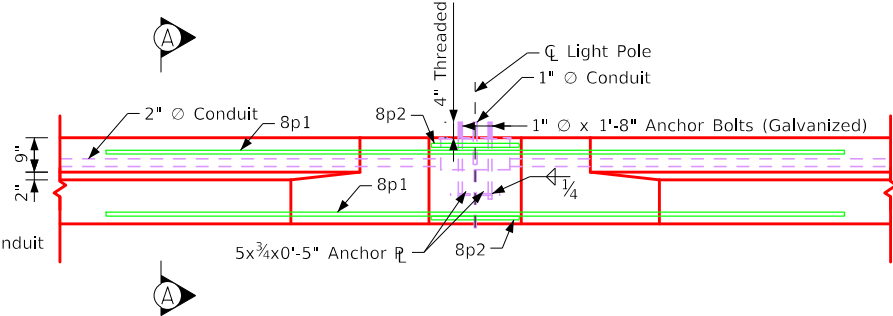
### Part Plan Near Abutment

(S.E. corner shown, N.E. corner similar)

(Expansion Plate and End Post not shown for clarity)



Plan of Pole Base



Elevation

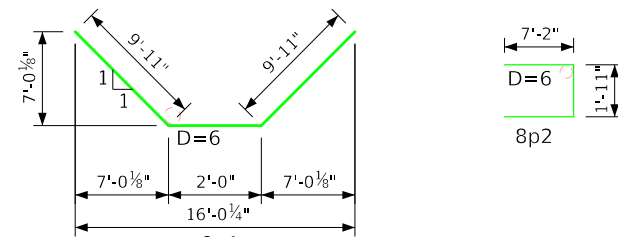
### Lighting Notes:

See LI-104 Standard Road Plan for additional information on junction boxes.  
Construction shall conform to the current Iowa D.O.T. Standard and Supplemental Specifications and Special Provisions.  
Conduit installation shall be in accordance with Article 2523.03, N, of the Standard Specifications.  
All "C" entrance holes in junction boxes shall be drilled and tapped for the specified conduit size. All other holes shall have a concrete - tight slip fit. Conduit ends shall not protrude into junction box more than 1/4". Drain pipe end shall be flush with inside surface of box. Grounding buttons shall be located approximately 3" from the inside surface of the box wall, and not closer than 3" to the edge of any hole in the box floor. Holes for drain pipe shall be placed in the low corner of the box, with a minimum clearance of 1" between the edge of the hole and the inside surface of the box wall. Typical details are shown on this sheet.  
The rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the bid item "Structural Concrete (Miscellaneous)".  
All costs associated with removing and reinstalling the light poles shall be included in the cost for "Structural Concrete (Miscellaneous)".  
All anchor bolt material shall comply with the requirements of Iowa D.O.T. Materials I.M. 453.08 and Standard Specifications 4185.02,B,2.  
Welding of anchor bolts shall not be allowed. The contractor shall obtain a template from the manufacturer / fabricator for proper placement of the anchor bolts.  
All reinforcing steel is to be epoxy coated and grade 60.  
Stainless-Steel reinforcement shall not be allowed to be in contact with the uncoated reinforcement, bare metal forming hardware, or to galvanized attachments or galvanized conduit.  
Cost of anchor bolts included in price bid for structural concrete.

### Epoxy Reinforcing Steel-One Base

Bar	Location	Shape	No.	Length	Weight
8p1	Sidewalk Anchor	U	2	21'-10"	117
8p2	Pole Anchor	U	2	15'-10"	85
Total Weight (lbs.)					202

### Bent Bar Details



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

### Lighting Quantities

Item	Amount
Structural Concrete (Miscellaneous)	2.8 Cu. Yds.
Reinforcing Steel - Epoxy Coated	606 Lbs.
2" Dia. Rigid Steel Conduit*	671 L.F.

\* Includes 665 L.F. of 2" dia. conduit and 6 L.F. of 1" dia. conduit.

### 660'-0 x 40' Continuous Welded Plate Girder Bridge

80'-0" End Spans 5 - 100'-0" Interior Spans








### Lighting Details

STA. 215+25.00 (US 63 (NB)) Turn-In Date: October 2023

### Black Hawk County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124 Design Sheet No. 12 of 13 FHWA No. 014730

Epoxy Bars	Reinforcing Bar List - One Sidewalk Slab					
	Bar	Location	Shape	No.	Length	Weight
	4e1	Sidewalk Slab Hoops		6	17'-6"	70
	4e2	Sidewalk Slab Hoops At Sidewalk Lip		7	4'-1"	19
	4e3	Sidewalk Slab Hoops		1	15'-6"	10
	4e4	Sidewalk Slab Hoops At Paving Notch		6	4'-4"	17
	4m1	Sidewalk Slab Transv. Top & Bottom		15	5'-8"	57
S.S. Bars	4m2	Sidewalk Slab Transv. Top & Bottom		6	4'-5"	18
	Epoxy Coated Reinforcing Steel Total (lbs.)					191
	Reinforcing Bar List - One Sidewalk Slab					
	Bar	Location	Shape	No.	Length	Weight
	5j1	Sidewalk Slab Dowel Bar		6	3'-0"	19
	Stainless Reinforcing Steel Total (lbs.)					19

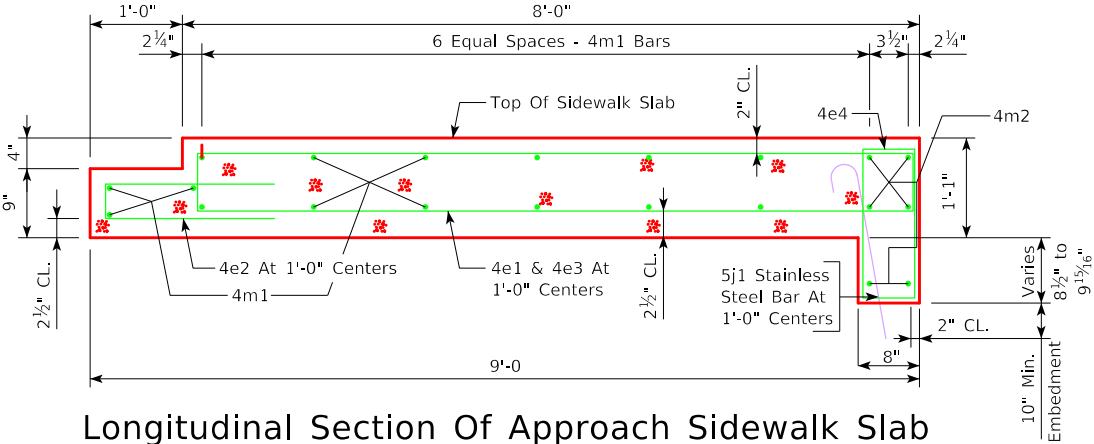
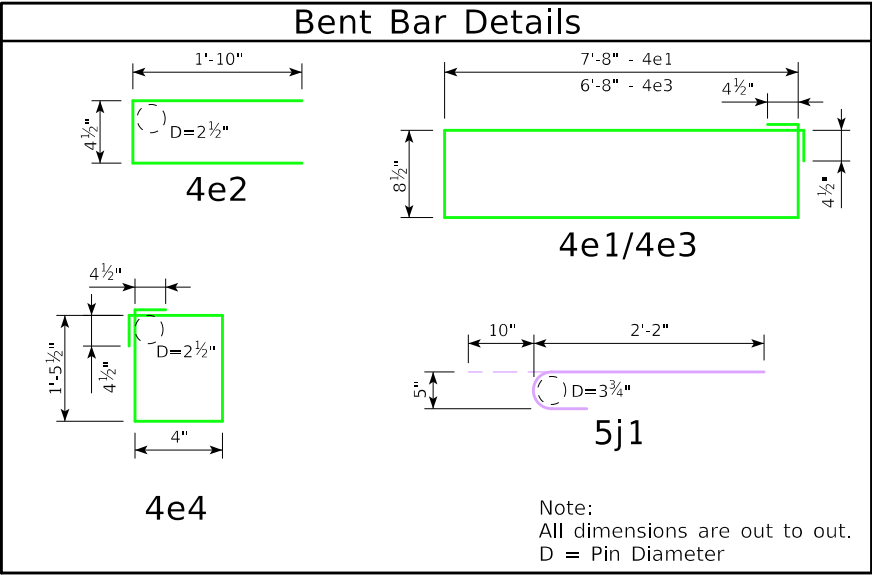
Sidewalk slab dowels shall be deformed bar Grade 60, Type 316 LN in accordance with ASTM A955/A955M-01.

Dowel Setting Note:

The 5j1 bars 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. One of the following systems shall be used as a bonding agent for the 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.



Longitudinal Section Of Approach Sidewalk Slab

Concrete Placement Quantity		
Item	Unit	Quantity
Structural Concrete (Miscellaneous)	Cu. Yd.	2.0

Note: Cost of "E" joint material and polyethylene sheeting is considered incidental to the cost of structural concrete.

Design For Repairs to 0 Degree Skew

660'-0 x 40' Continuous Welded Plate Girder Bridge

80'-0" End Spans5 - 100'-0" Interior Span

Reinf. Approach Sidewalk Slab

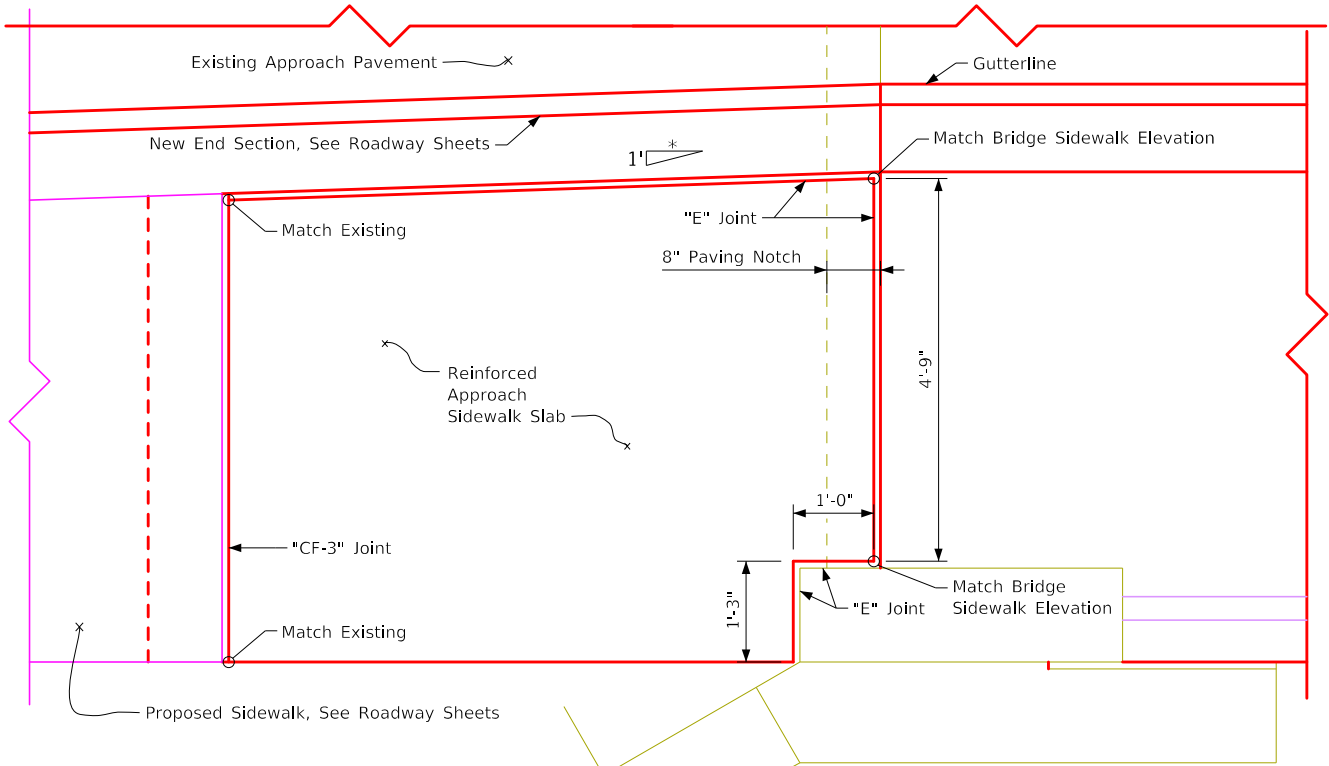
STA. 215+25.00 (US 63 (NB))Turn-In Date: October 2023

Black Hawk County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124Design Sheet No. 13 of 13FHWA No. 014730


Part Longitudinal Section THrough Approach Sidewalk Slab  
(Expansion Joint not Shown for Clarity)



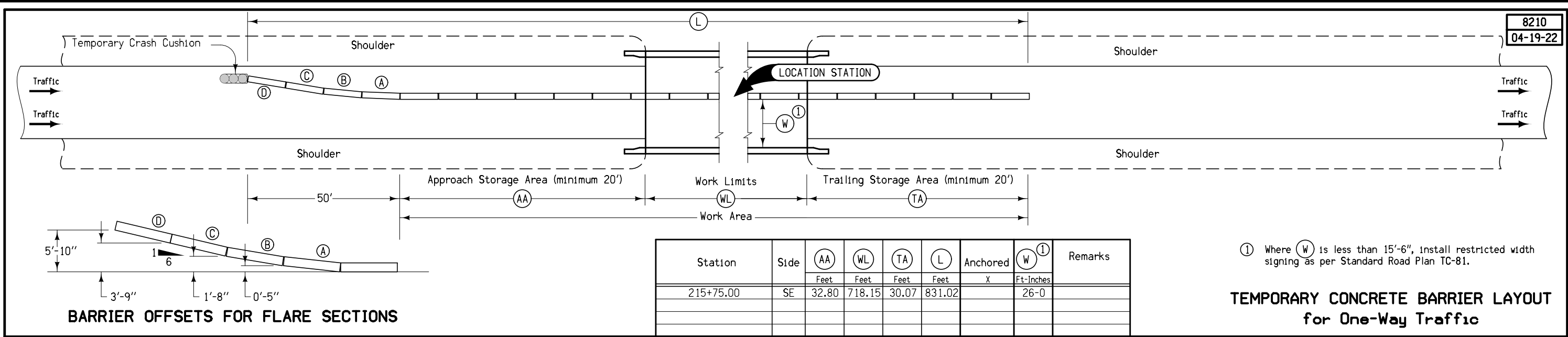
\* Approach barrier rail taper (Roadway sheets):  
S. Approach taper = 30'  
N. Approach taper = 20'

Part Plan View Of Approach Sidewalk Slab  
(South approach shown, North approach similar.)

INDEX OF SHEETS	
No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1	Typical Cross Sections and Details
<b>C Sheets</b>	<b>Quantities and General Information</b>
C.1	Estimated Project Quantities and Reference Notes
C.2	Project Description
C.2	Standard Road Plans
C.2	Index of Tabulations
C.2 - 4	Tabulations (beg. with tab. of incidentals if needed)
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	US 63
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
J.1	Staging Notes
<b>U Sheets</b>	<b>500 Series, Mod.Stds. and Detail Sheets</b>
* U.1 - 2	500 Series, Modified Standards and Detail Sheets
	* Color Plan Sheets

ROADWAY DESIGN	
	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.
	<div><div>Tanner J. Clevenger</div><div>Signature</div></div> <div><div>09/12/2023</div><div>Date</div></div>
	<div>Tanner J. Clevenger</div> <div>Printed or Typed Name</div>
	<div>My license renewal date is December 31, 2024</div>
	<div>Pages or sheets covered by this seal: A.3, B.1, C.1-C.4, D.1, J.1, U.1-U.2</div>





ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2435-0600010	MANHOLE ADJUSTMENT, MINOR	EACH	2	Refer to Tab. 104-10 on Sheet C.2 and Sheet D.1 for details.
2	2511-6745900	REMOVAL OF SIDEWALK	SY	27.7	A. Refer to Tab. 110-5 on Sheet C.3. B. Includes 22.6 lin. ft. of full depth saw cut. See traffic control plan for pedestrian staging or closings
3	2511-7526006	SIDEWALK, P.C. CONCRETE, 6 IN.	SY	20.1	Refer to Tab. 113-1A on Sheet C.3. See traffic control plan for pedestrian staging or closings
4	2513-0001081	CONCRETE BARRIER, TAPERED END, BA-108	EACH	1	Refer to Modified Standard Road Plan BA-108 on Sheet U.1.
5	2526-8285000	CONSTRUCTION SURVEY	LS	1	Refer to J Sheets for traffic control layout.  Staking in the S Sheets is incidental to Construction Survey. This staking will be defined as verifying slopes of the form work by using a level, or other means, at the quadrants identified in the S Sheets. This serves as an additional check to verify slopes are within tolerances prior to placing concrete. Survey information provided in project plans is for reference only and should not be used for purposes related to construction survey. Project plans and associated electronic files are not geo-referenced to a standard coordinate system and should not be used to establish construction survey baselines.
6	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1.06	Refer to Tab. 108-22 on Sheet C.4.
7	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	2.45	
8	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	4	Refer to Tab. 108-29 on Sheet C.4.
9	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	0.85	Refer to Tab. 108-22 on Sheet C.4.
10	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	4	Refer to Tab. 108-29 on Sheet C.4.
11	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	812.5	Refer to Tab. 108-33 on Sheet C.2. All temporary barrier rail shall be nominal 12'-6 long concrete units.
12	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan on Sheet J.1.
13	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	13.9	Refer to Tabs. 102-6C and 102-5 on Sheet C.2. Item is for pavement underneath Concrete Barrier, Tapered End, BA-108 on South end of bridge and for curb and gutter patch on North end of bridge.
14	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	2	
15	2529-8174010	SUBBASE (PATCHES)	SY	13.9	
16	2551-0000110	TEMP CRASH CUSHION	EACH	1	Winterize sand filled or water filled crash cushions according to the manufacturer's recommendations if they are to remain in place during winter months.

PROJECT DESCRIPTION			100-1D 10-18-05
This project is for barrier replacement and sidewalk widening along US 63 over the Cedar River. It will involve removal of existing barrier rail and sidewalk along with construction of new barrier rail and sidewalk.			

STANDARD ROAD PLANS			105-4 10-18-11
The following Standard Road Plans apply to construction work on this project.			
Number	Date	Title	
BA-401	04-20-21	Temporary Barrier Rail (Precast Concrete)	
BA-500	04-20-21	Temporary Crash Cushions Sand Barrel	
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices	
EC-502	04-21-15	Seeding in Rural Areas	
PM-110	04-21-20	Line Types	
PM-111	04-21-20	Symbols and Legends	
PR-103	10-17-23	Full Depth PCC Patch With Dowels	
PR-140	04-21-15	Subbase Patches	
PV-101	04-19-22	Joints	
SI-881	04-16-19	Special Signs for Workzones	
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)	
TC-402	04-18-23	Work Within 15 ft of Traveled Way	
TC-418	04-18-23	Lane Closure on Divided Highway	
TC-601	10-15-19	Pedestrian Detour	

INDEX OF TABULATIONS			111-25 10-18-11
Tabulation	Tabulation Title	Sheet No.	
C Sheets			
100-0A	ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)	C.1	
100-1D	PROJECT DESCRIPTION	C.2	
100-4A	ESTIMATE REFERENCE INFORMATION	C.1	
102-5	EXISTING PAVEMENT	C.2	
102-6C	FULL-DEPTH PATCHES	C.2	
104-10	ADJUSTMENT OF FIXTURES	C.2	
105-4	STANDARD ROAD PLANS	C.2	
108-18B	CONCRETE BARRIER AT SIDE LOCATIONS	C.3	
108-22	PAVEMENT MARKING LINE TYPES	C.4	
108-30	CRASH CUSHIONS	C.3	
108-33	TEMPORARY BARRIER RAIL	C.2	
110-5	SIDEWALK REMOVAL	C.3	
111-25	INDEX OF TABULATIONS	C.2	
113-1A	SIDEWALKS	C.3	
J Sheets			
108-23A	TRAFFIC CONTROL PLAN	J.1	
111-01	COORDINATED OPERATIONS	J.1	
108-26A	STAGING NOTES	J.1	

102-5 04-18-17																					
EXISTING PAVEMENT																					
No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth	Type	Depth	Type	Depth	Type	Depth	Source	Type	Durability Class	Type	
1	Blackhawk	US 63	NB																		Pavement depth is estimated at 12 inches.

FULL-DEPTH PATCHES																				102-6C 04-18-17
Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105, and PR-140.																				
Location				Dimension			PCC Patches				HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
Count	Station	Reference Location Sign	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C	Ramp with Dowels										
							PR-103	PR-102	PR-104	PR-105										
							SY	SY	SY	SY										
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	PR-101 or PR-140 No.	No.	No.	No.	No.	
1	212+26.09		R	30.0	2.5	12.0	8.3						8.3			1				
2	219+18.85		R	20.0	2.5	12.0	5.6						5.6			1				
2							13.9						13.9							TOTALS

TEMPORARY BARRIER RAIL								108-33 10-15-19
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 to Station		Length	(Select One)		Anchored*	Modular Glare Screen System	Remarks
				Concrete	Steel			
			LF	BA-401	560-7	(Y/N)	(Y/N)	
1	211+27.14	219+58.92	812.5	X		No		65 TBR Sections
			812.5					TOTAL

ADJUSTMENT OF FIXTURES				104-10 08-01-08
No.	Location Station	Type of Fixture	Adjustment	
1	212+27.17	Manhole Lid	Minor; match new sidewalk grade	
2	219+25.78	Manhole Lid	Minor; match new sidewalk grade	
2			TOTAL	

108-30  
04-16-13

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

No.	① Direction of Traffic	Location Station	Side	Obstacle Width  FT	Crash Cushion (Select One)*					Sand Barrel Details ②					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V	W	X	Y	Z	Excavation Class 10	Embankment in Place	Permanent	Permanent Severe Use		
										Length	Length	Length	Length	Length						
1	NB	211+26.90	RT	1.88	1														Temporary Barrier Rail	
					1														TOTAL	

108-188  
10-16-12

CONCRETE BARRIER AT SIDE LOCATIONS

Refer to BA-102, BA-103, BA-104, BA-105, BA-106, BA-107, and BA-150.

① Lane(s) to which the installation is adjacent.

② Refer to the Shoulders tabulation (112-9) for quantities.

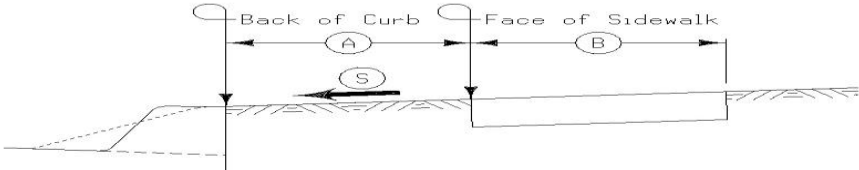
\* Bid Item

Location					L2 Offset  FT	Side Barrier				Remarks	Expansion Joints									
No.	① Direction of Traffic	Station to Station	Side	Barrier Type (BA-102, BA-103, or BA-104)		L Length of Barrier  LF	BA-105 Transition Section*	BA-107 End Section*	Reinforced Paved ② Shoulder (Required?)  Yes/No		Station	Side	Remarks							
1	NB	212+11.09	212+41.09	RT		BA-108	20.0			No										
1																			TOTAL	

113-1A  
04-16-19

SIDEWALKS

See MI-220 and S Sheets



Road Identification	Station to Station		Side	A	B	S	4" PCC Sidewalk	6" PCC Sidewalk	8" PCC Sidewalk	10" PCC Sidewalk	Detectable Warnings	Remarks
				FT	FT	%	SY	SY	SY	SY	SF	
US 63 NB	212+11.09	212+33.09	RT	0.00	5.00			13.1				South End
US 63 NB	219+16.85	219+29.24	RT	0.00	5.00			7.0				North End
								20.1				TOTAL

232-3C  
04-16-19

EROSION CONTROL  
(NATIVE GRASS SEEDING)

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

SEED MIX:  
Big bluestem (Andropogon gerardii) 6 lbs. PLS/Acre (7.0 kg/ha)  
Indiangrass (Sorghastrum nutans) 6 lbs. PLS/Acre (7.0 kg/ha)  
Little bluestem (Schizachyrium scoparium) 6 lbs. PLS/Acre (7.0 kg/ha)  
Partridge Pea (Chamaecrista fasciculata) 4 lbs. PLS/Acre (4.5 kg/ha)  
Sideoats grama (Bouteloua curtipendula) 4 lbs. PLS/Acre (4.5 kg/ha)  
Canada wildrye (Elymus canadensis) 2 lbs. PLS/Acre (2.2 kg/ha)  
Switchgrass (Panicum virgatum) 1 lbs. PLS/Acre (1.1 kg/ha)  
Oats (Avena sativa) 32 lbs./Acre (36.0 kg/ha)

Furnish Big bluestem, Indiangrass, Canada wildrye and Little bluestem that is debarbed or equal to facilitate the application of seed.

Furnish seed certified as Source Identified Class (Yellow Tag) Source G0-Iowa. Oats are excluded from this requirement.

Place seed according to the requirements of Article 4169.02 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 and mulch are incidental to mobilization and will not be paid for separately.

232-3A  
04-16-19

EROSION CONTROL  
(RURAL SEEDING)

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.

262-6  
10-18-05

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.

110-5  
10-20-15

SIDEWALK REMOVAL

\* Not a bid item

Begin Station	End Station	Area	Saw Cut*	Remarks
		SY	LF	
212+11.09	212+41.09	16.8	11.2	South End
219+08.85	219+29.24	10.9	11.4	North End
		27.7		TOTAL



## PAVEMENT MARKING LINE TYPES

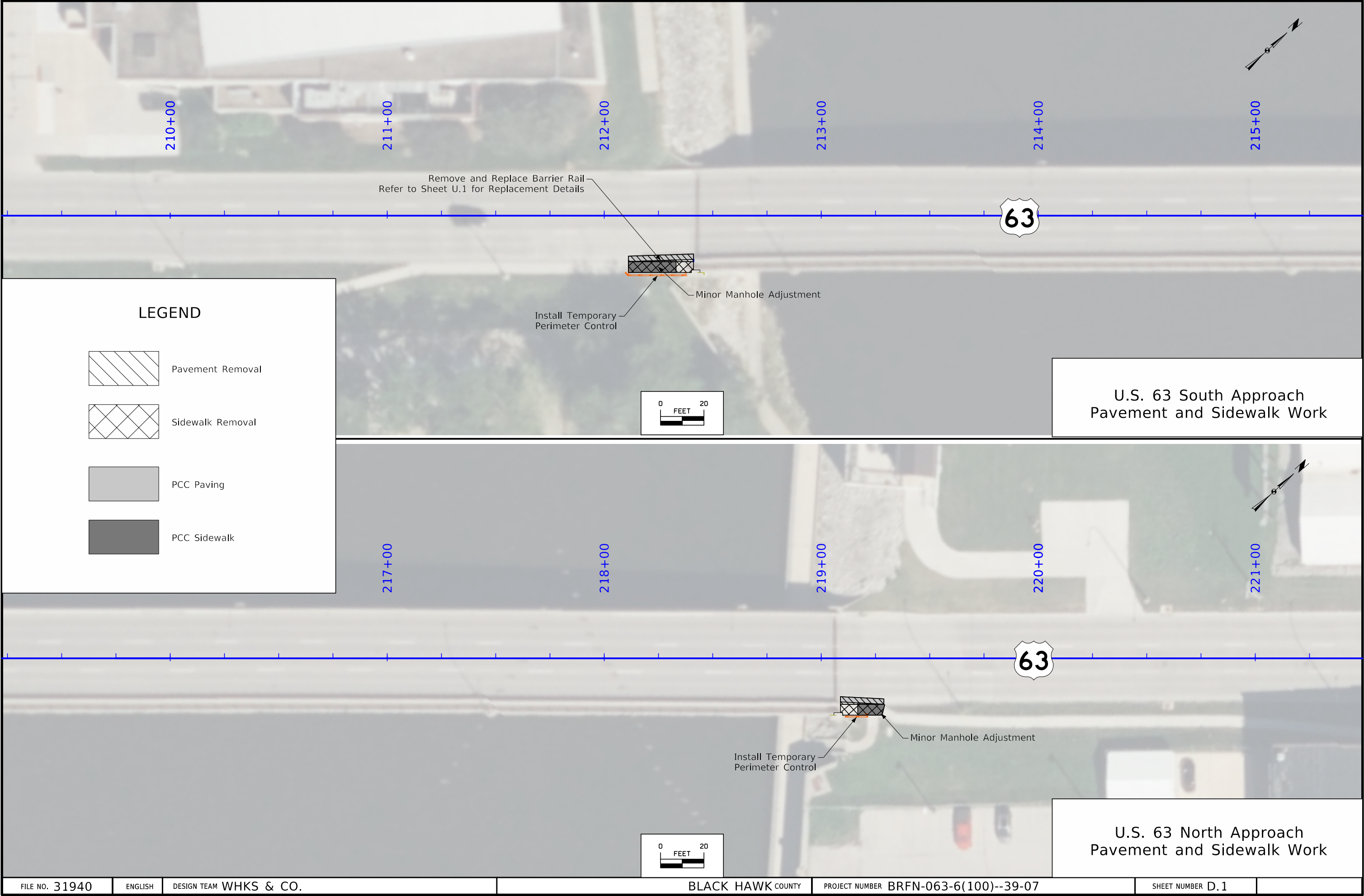
Location	Length by Line Type (Unfactored)
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[illegible]

## PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

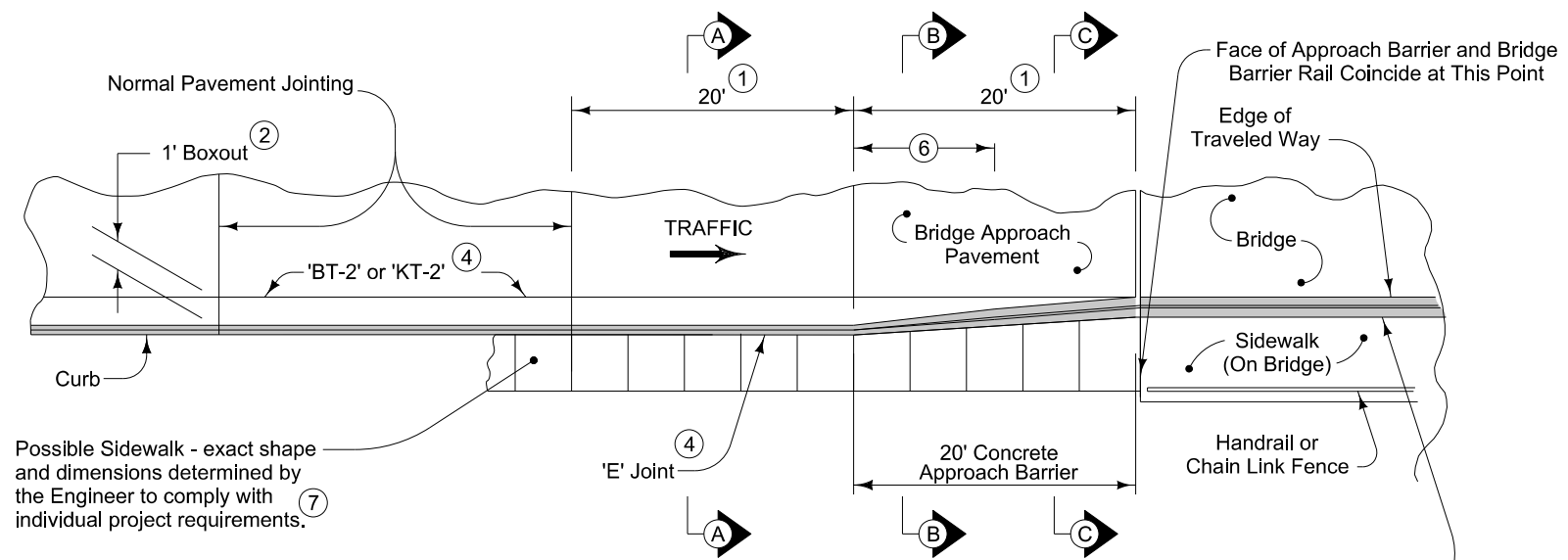
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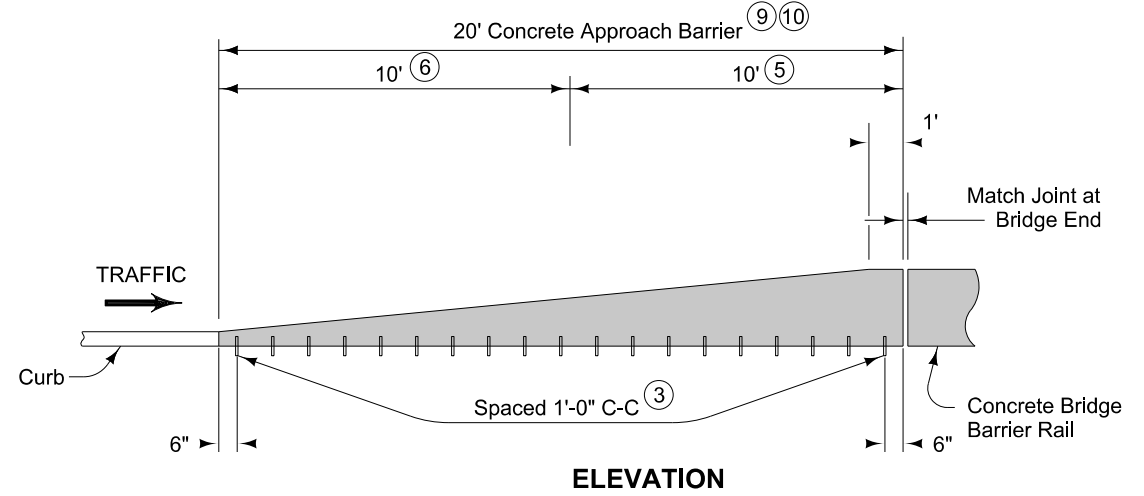
<div>108-23A 08-01-08</div> <div>TRAFFIC CONTROL PLAN</div> <div>Two lanes of traffic shall be maintained at all times on US 63 NB utilizing Standard Road Plans listed in Tab. 105-4 on Sheet C.2 and Modified Standard Road Plan TC-421 on Sheet U.2.</div>			<div>108-26A 08-01-08</div> <div>STAGING NOTES</div> <div>STAGE 1: Traffic Control: Shift traffic to the two inside lanes of the bridge utilizing Standard Road Plans listed in Tab. 105-4 on Sheet C.2 and Modified Standard Road Plan TC-421 on Sheet U.2.</div> <div>Construction: Remove and replace concrete barrier, tapered end section on South end of bridge. Also remove and replace sidewalk on both ends of the bridge and roadway pavement necessary for widening the sidewalk. Refer to Sheet D.1 for more details.</div> <div>STAGE 2 Traffic Control: Shift traffic to the two outside lanes of the bridge utilizing Standard Road Plans listed in Tab. 105-4 on Sheet C.2.</div> <div>Construction: Construct bridge drain extensions.</div> <div>Stages 1 and 2 may be done in reverse order but not consecutively.</div>														
<div>111-01 04-17-12</div> <div>COORDINATED OPERATIONS</div> <div>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.</div> <table><thead><tr><th>Project</th><th>Type of Work</th></tr></thead><tbody><tr><td>None.</td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table>			Project	Type of Work	None.												
Project	Type of Work																
None.																	

FILE NO. 31940	ENGLISH	DESIGN TEAM WHKS & CO.	BLACK HAWK COUNTY	PROJECT NUMBER BRFN-063-6(100)--39-07	SHEET NUMBER J.1
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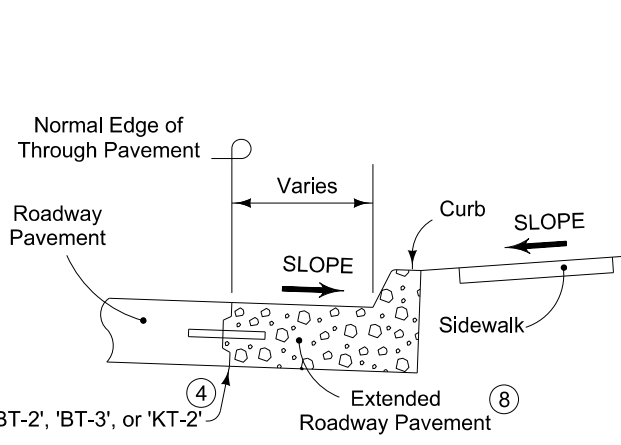
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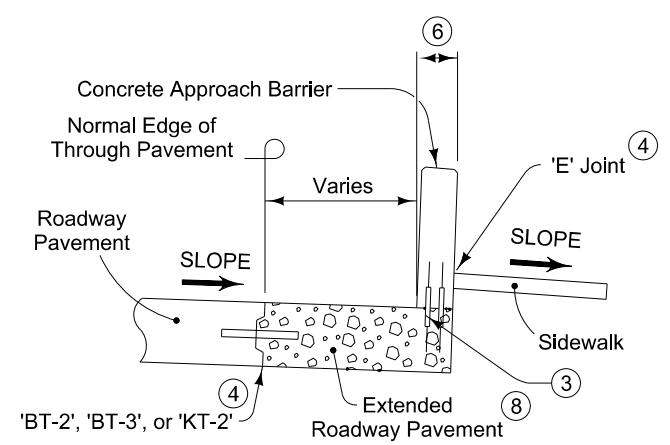
PLAN



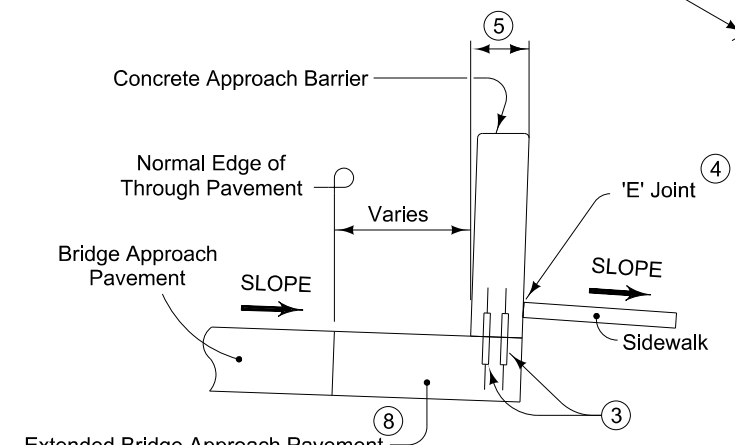
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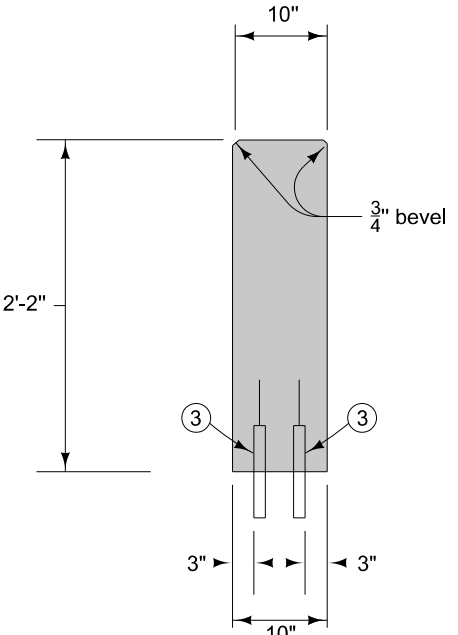
SECTION A-A



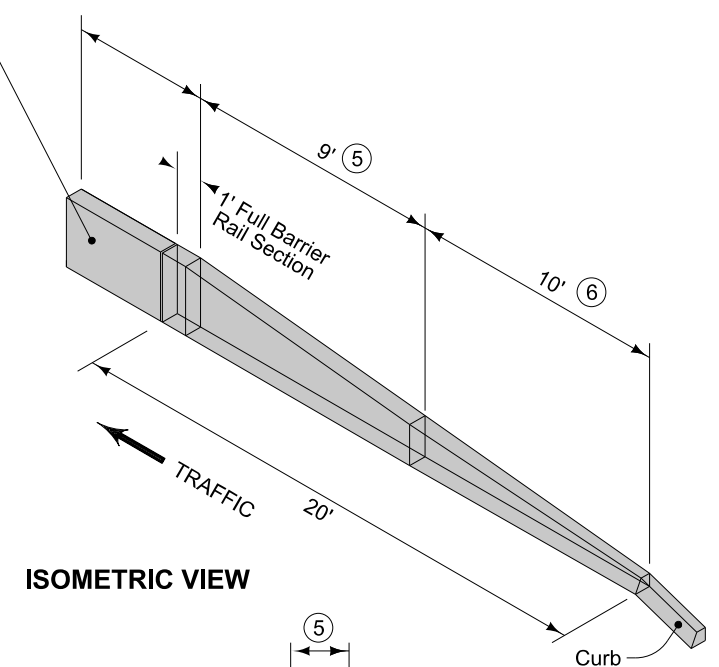
SECTION B-B



SECTION C-C



FULL BARRIER RAIL SECTION



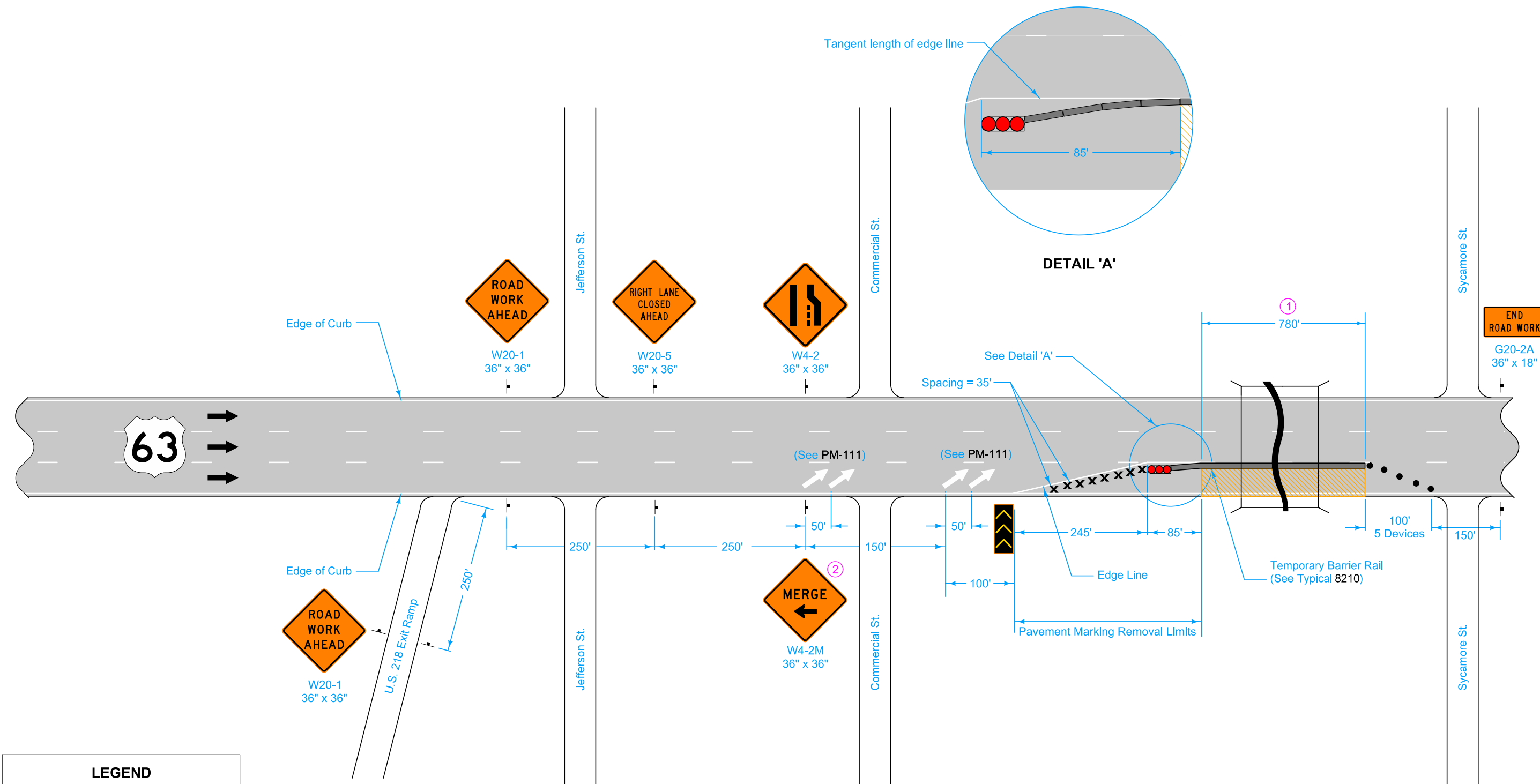
ISOMETRIC VIEW

- Install a 'C' joint in concrete approach barrier to match the location of each joint in both roadway and bridge approach pavement.
- ① Typical joint spacing and location. Follow specific project requirements as directed by the Engineer.
  - ② Match boxout width to existing curb and gutter joint. Use 2 foot wide boxout where curb and gutter are not constructed.
  - ③ #8 x 8 inch deformed bars or 1 inch diameter smooth.
  - ④ For joint detail, see PV-101.
  - ⑤ Bottom width of barrier is maintained at 10 inches.
  - ⑥ Bottom width of barrier transitions from 8 to 10 inches.
  - ⑦ Required sidewalk will be measured and paid for separately.
  - ⑧ Additional concrete quantity required for extended roadway pavement will be included in roadway paving quantity.
  - ⑨ Place no delineator or object marker in front of, or on, the barrier.
  - ⑩ Approximately 3 cubic yards of concrete are required to construct barrier as shown. Amount may vary depending on individual site requirements.

Possible Contract Item:  
Concrete Barrier, Tapered End, BA-108

Possible Tabulation:  
108-18B

<b>MODIFIED</b>		REVISION	
		3	
<b>STANDARD ROAD PLAN</b>		<b>BA-108</b>	
		SHEET 1 of 1	
REVISIONS:	Eliminated taper away from traveled way. Angled barrier into new bridge end rail. Changed shape of barrier rail. Shortened length to 20'.		
<b>CONCRETE BARRIER TAPERED END SECTION</b>			



LEGEND

- Traffic Sign
- Drum
- 42" Channelizer
- Speed Feedback Sign
- Arrow Board
- Temporary Crash Cushion
- Work Area
- Direction of Traffic

- ① Refer to sheet B.1 for barrier layout and work area details.
- ② Refer to SI-881 for sign details.

<b>MODIFIED</b>	REVISION	
	19	
<b>STANDARD ROAD PLAN</b>	<b>TC-421</b>	
MODIFICATIONS: Site-specific revisions.		
<b>LANE CLOSURE WITH TBR</b>		