LETTING DATE
Dec. 15, 2026

Deck Joint Repair
MB-044-4(502)22--77-83

SHELBY COUNTY

Index of Sheets

No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design 227
V.1 - V.8	Design 227
Road Sheets	Road Plan
A.3 - U.4	Road Plans
C.1 - C.2	Estimated Quantities - Road
C.3	Standard Plans - Road
RC.1	Estimated Quantities - Roadside
RC.2	Standard Plans - Roadside

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
SHELBY COUNTY
Deck Joint Repair

IA 44 over West Nishnabotna River
1.3 Mi. E of Jct. U.S. 59

Refer to the Plan Sheets for list of applicable specifications.

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

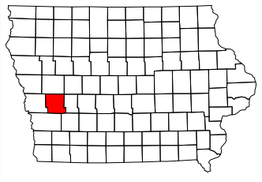
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Revisions

	TOTAL
	34
PROJECT IDENTIFICATION NUMBER	
26-83-044-010	
PROJECT NUMBER	
MB-044-4(502)22--77-83	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
8304401026	

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

Design QR Feedback Link



Standard Road Plans

Standard Road Plans are listed on Sheet C.3 & RC.2

Design Data Urban

2024 AADT	3,530 V.P.D.
TRUCKS	9 %

lowa DOT Bridges and Structures Consultant Coordinator Contact: Zahrah Alghalibi

Index of Seals

Sheet No.	Name	Type
A.1	Steven W. Arens	Structural Design
A.3	Cory D. Tap	Roadway Design

Structural Design

LICENSED PROFESSIONAL ENGINEER
Steven W. Arens
22493
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 09/24/2026 Date

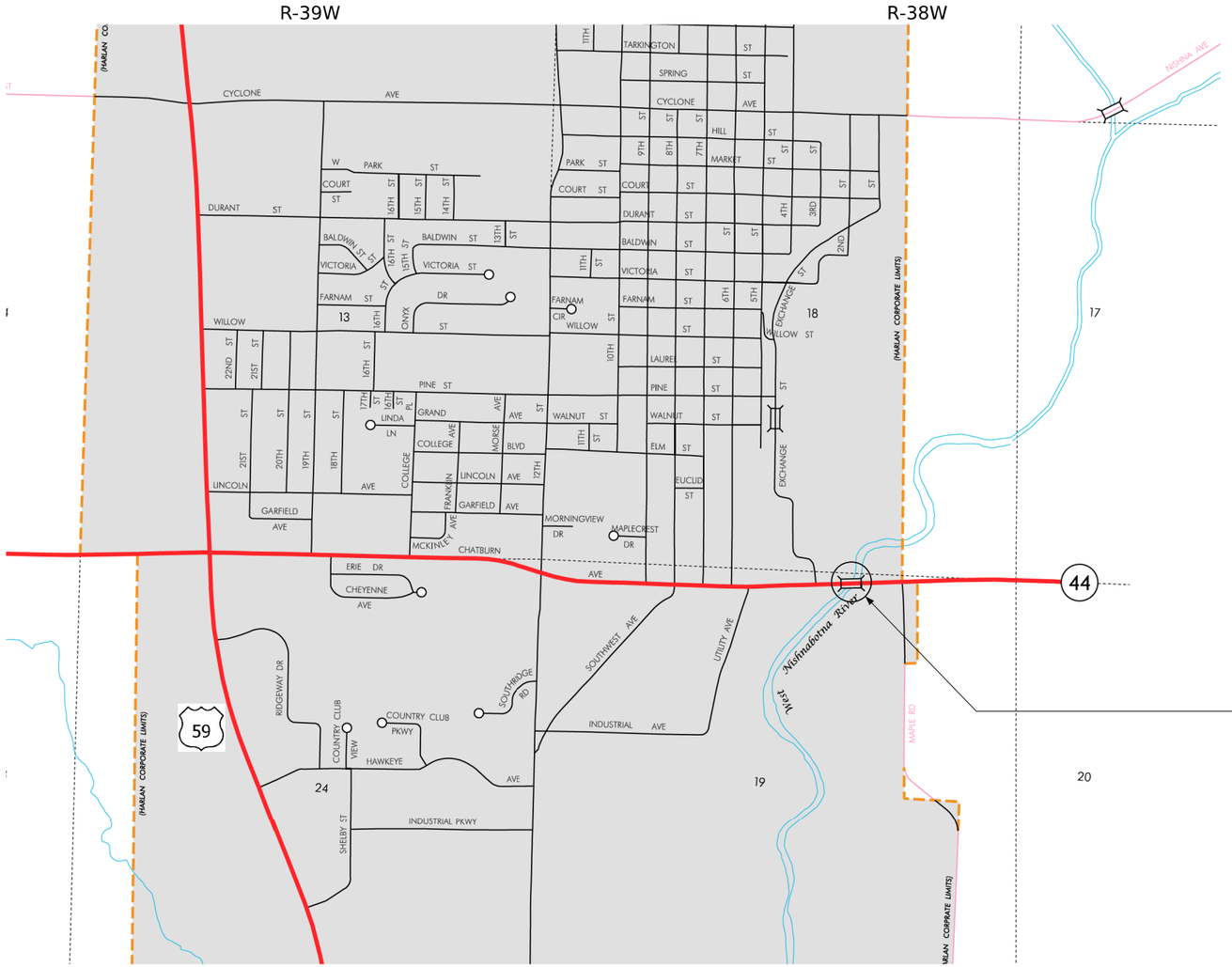
Steven W. Arens
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.1 - A.2, V.1 - V.8

FILE NO. 32849	ENGLISH	DESIGN TEAM JEO Consulting Group, Inc.	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER A.1

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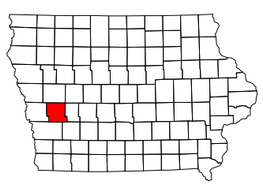


LEGEND

- 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

City of Harlan Location Map

Not to Scale



FILE NO. 32849	ENGLISH	DESIGN TEAM JEO Consulting Group, Inc.	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22–77-83	SHEET NUMBER A.2	

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Estimated Bridge Repair Quantities and Reference Notes - Design 227

Item No.	Item Code	Item	Unit	Quantities Estimated	Estimate Reference Notes
1	2401-6750001	REMOVALS, AS PER PLAN	LS	1	Includes all work for removal and off-site disposal of abutment backwalls, wingwalls, portions of the barrier rails, portions of the deck, concrete abutment diaphragms, and expansion joints at the near and far ends of the bridge. 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)	CY	32.0	Includes all resilient joint filler required. Includes cleaning existing concrete rail and abutment bridge seats, furnishing and placing concrete sealer.
3	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	2,269	Includes all mechanical splices required. Includes setting dowel bars in drilled holes.
4	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	127.0	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.
5	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING	LF	127.0	Includes installation of neoprene gland and water testing of joint.
6	2499-0800000	PAVING NOTCH REPLACEMENT	LF	124.5	Includes 8.7 cu yd of Structural Concrete Class C, 1,992 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, polymer grout material, and materials for mechanical splice assemblies. See plan details for additional information.
7	2533-4980005	MOBILIZATION	LS	1	----

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 Expansion Device	(502)_Shelby_Design227_SteelExtrusionDevice.pdf	No
2	Barrier Plate	(502)_Shelby_Design227_BarrierPlate.pdf	No
3	Temporary Shoring	(502)_Shelby_Design227_TemporaryShoring.pdf	No
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)

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 AASHTO LRFD Section 8, f'c = 4.0 ksi.

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

General Notes:

This design is for repairs to the existing 288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge on IA 44 over West Nishnabotna River in Shelby 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. See Design Sheet No. 2 for list of repair items.

All alignment, stationing, connecting dimensions, and elevations used in the new details in these plans were developed based on the existing bridge plans (Design No. 1875). The Bridge Contractor shall field verify these details before starting construction.

Faint lines on plans indicate existing structure.

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

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

These bridge plans label all reinforcing steel with english notation (5a1 is $\frac{5}{8}$ inch diameter bar). English reinforcing steel recieved 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

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

All new or existing epoxy reinforcing that is field trimmed shall be repaired with an approved repair/patch compound per Materials I.M. 451.03B, Appendix B.

Construction shall be done in stages with at least one lane 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.

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

The lump sum bid for "Removals, as Per Plan" shall include all costs associated with removing the existing expansion joints, including barrier plates; and portions of the deck, barrier rails, barrier plates, wingwalls and abutment backwalls. 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.

It is the intent of this design to reuse the existing pretensioned prestressed concrete beams in the new construction. The Bridge Contractor is to use extreme care when removing the deck concrete to avoid damage to the existing beams.

Concrete removal shall be initiated with a 3/4" saw cut wherever possible.

The Bridge Contractor is to provide a method of removal that will prevent feather edging at the bottom of the existing deck. Care shall be taken when exposing existing reinforcing so the bond to existing concrete is not broken at the concrete break lines.

The tops of the abutment backwalls 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.

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.

Two scrape samples were taken from areas of this bridge to get an indication of the existence of and level of total lead and total chromium. These two samples were taken at the abutment bearing (2021) and the expansion plate (2021). Analysis of total lead on the first sample (Abutment bearing) was 1,370 parts per million (ppm). Analysis of total lead on the second sample (Expansion plate) was 1,580 parts per million (ppm). Analysis of total chromium on the first sample was 52.3 ppm. Analysis of total chromium on the second sample was 29.9 ppm. 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.

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. All costs associated with cleaning and sealing of the abutment bridge seats and wash surfaces shall be included in the unit price bid item "Structural Concrete (Miscellaneous)".

The top and interior faces of the existing 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)".

Removal Notes:

Refer to Design Sheet No. 3 for details of the partial superstructure removal on the existing bridge. All partial removals shall be in accordance with Section 2401 of the Standard Specifications. All such removals shall be to neat saw cuts to provide clean straight surfaces at interfaces between new concrete and remaining concrete. The removal shall be done in a manner which will prevent any damage to the existing structure to remain. The Contractor shall assume full responsibility for any damage caused, and shall repair any damaged area to its original condition, as directed by the Engineer, at the Contractor's expense. Any existing reinforcing steel which is to be "saved" that is exposed during removal operations is to be carefully protected, cleaned and incorporated into new construction unless noted otherwise.

Foam backer rods are currently in place under the existing expansion joints to prevent bats from roosting in the structure before construction starts. These backer rods are to remain in place until removal activities begin. These backer rods shall be removed by the Contractor as part of the removal process.

Start all removals with $\frac{3}{4}$" saw cut.

Note:
Roadway Quantities are shown elsewhere in these plans.

Note:
The roadway will be open to thru traffic. Refer to the traffic control plan shown elsewhere in these plans.

Design History at this Site

(Includes this Design)

Des. No.	Type of Work
1875	Original Design
227	Deck Joint Repair

Design For Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans — 96'-6" Interior Span

General Notes and Quantities

STA. 673+11.00 (IA 44) — Turn-in Date: October 2026

Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 227 — Design Sheet No. 1 of 8 — FHWA No. 48001

669+00 670+00 671+00 672+00 673+00 674+00 675+00 676+00 677+00

IA 44

℄ IA 44

1'-7" Rail
22'-0"
44'-0" Roadway
22'-0"
1'-7" Rail

95'-9" - Span 1
96'-6" - Span 2
95'-9" - Span 3
3'-8 9/16"
288'-0" ℄ to ℄ Abutment Bearings
3'-8 9/16"
295'-5 7/8" Face to Face of Paving Notches

Sta. 671+67.00
℄ W. Abut. Brg.

Sta. 672+62.75
℄ Pier 1

Sta. 673+59.25
℄ Pier 2

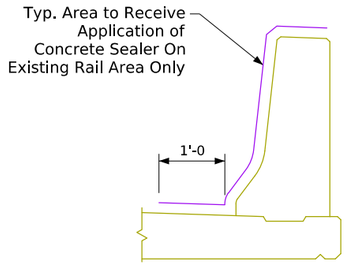
Sta. 674+55.00
℄ E. Abut. Brg.

West Nishnabotna River

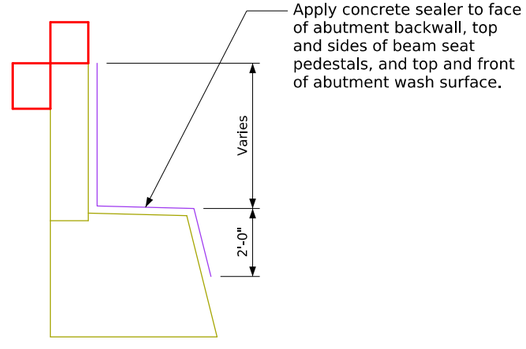
Repairs Shall Consist Of:

1. Replace sliding plate joint with strip seal joints at both abutments.
2. Replace 10" paving notch with retrofit paving notches at both abutments.
* 3. Remove and replace approach pavement on both ends of bridge.
* 4. Remove and replace guardrail on all corners of the bridge. Pave the shoulders in front of the guardrail.
5. Clean and seal both abutment backwalls, seats, and footing front faces.
6. Clean and seal top and inside faces of barrier rails.
* 7. Install bridge end drains (rock flumes) at each corner of the bridge.

* Refer to Roadway Plans for additional information.



Detail of Concrete Sealer Area



Abutment Concrete Sealer Detail

Traffic Estimate

IA 44

2024 AADT	3,530 V.P.D.
TRUCKS	9 %

Location

IA 44 Over West Nishnabotna River
In the City of Harlan
T-79N R-38W
Section 19
Center Township
Shelby County
FHWA No. 48001
Bridge Maint. No. 8322.3S044
Latitude 41.645484°
Longitude -95.313071°

N

Design For Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans — 96'-6" Interior Span

Situation Plan

STA. 673+11.00 (IA 44) — Turn-in Date: October 2026

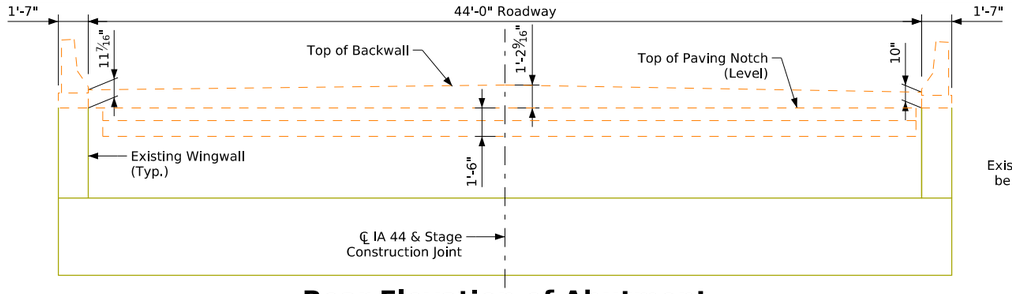
Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 227 — Design Sheet No. 2 of 8 — FHWA No. 48001

FILE NO. 32849	ENGLISH	DESIGN TEAM JEO Consulting Group, Inc.	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22–77-83	SHEET NUMBER V.2

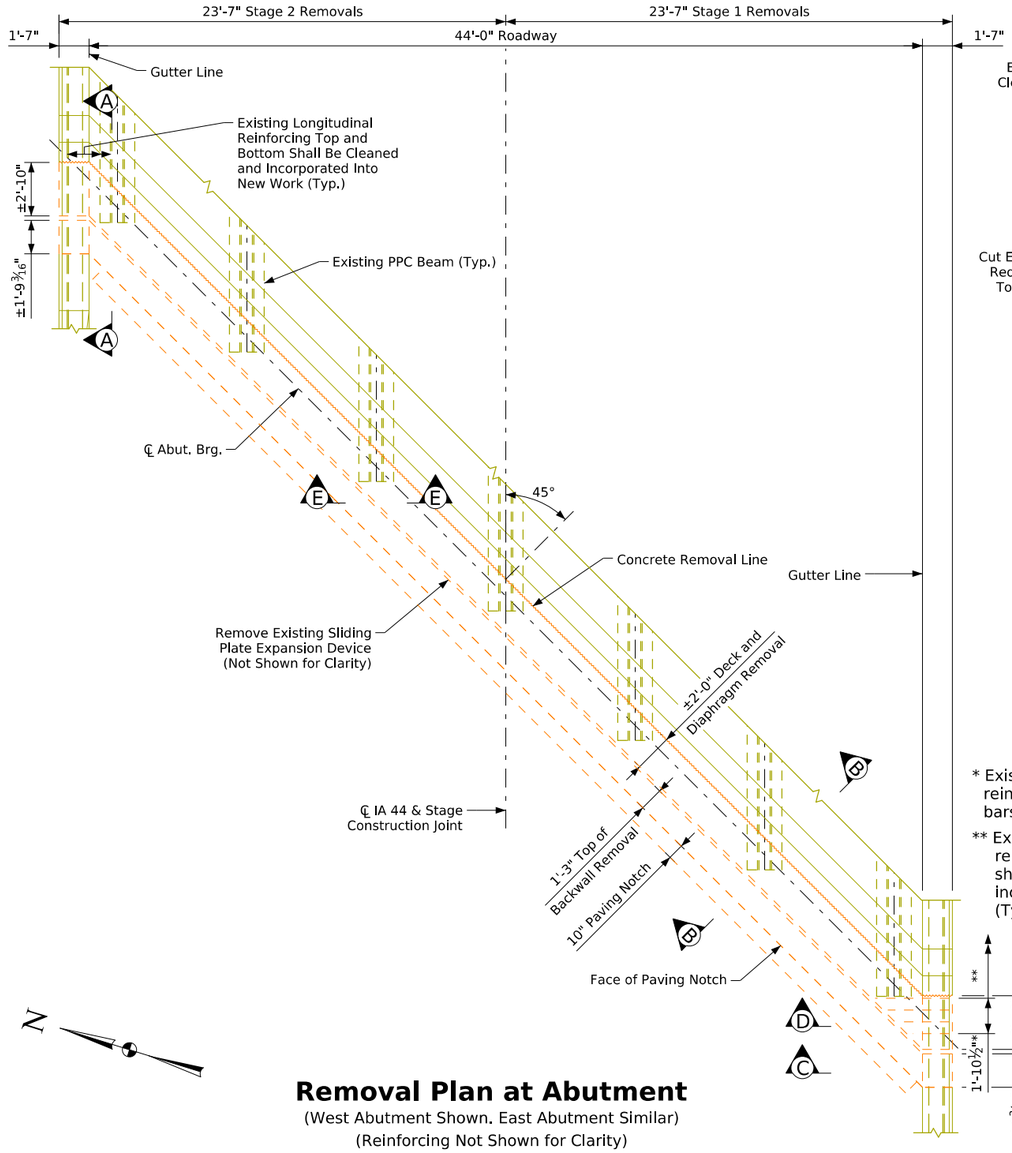
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Rear Elevation of Abutment

(West Abutment Shown. East Abutment Similar)

(Reinforcing Not Shown for Clarity)



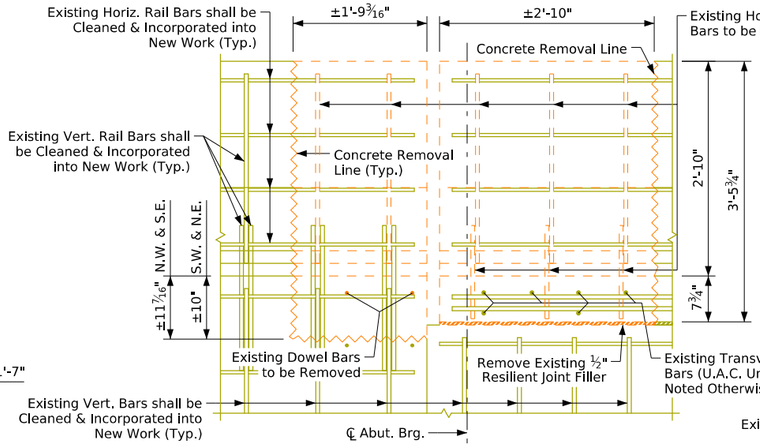
Removal Plan at Abutment

(West Abutment Shown. East Abutment Similar)

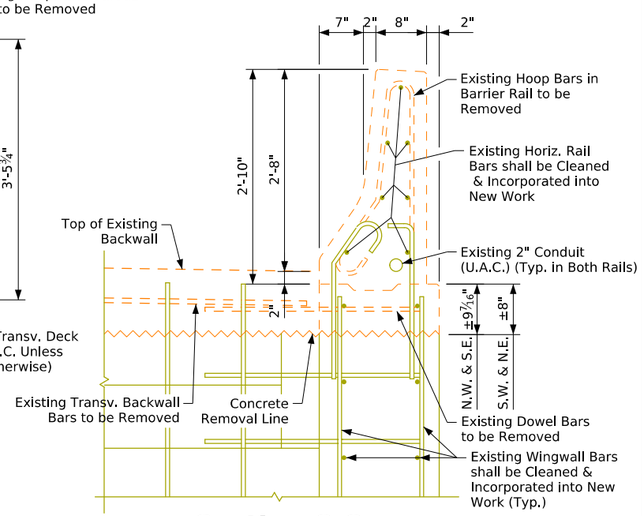
(Reinforcing Not Shown for Clarity)

* Existing transverse deck reinforcing top and bottom bars to be removed

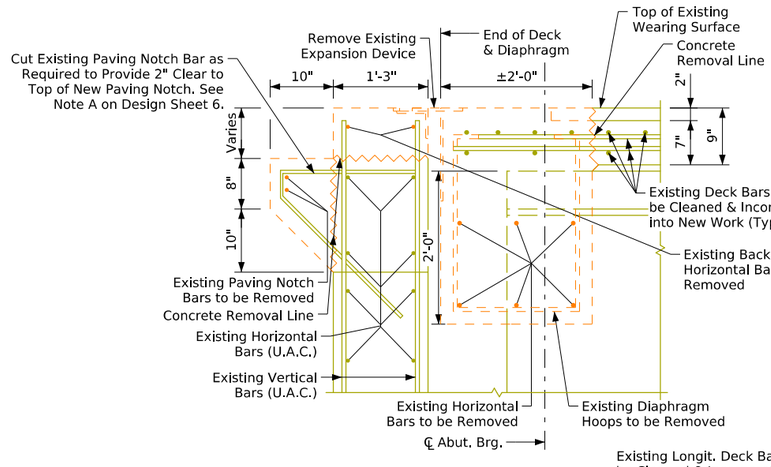
** Existing transverse deck reinforcing top and bottom shall be cleaned and incorporated into new work (Typ.)



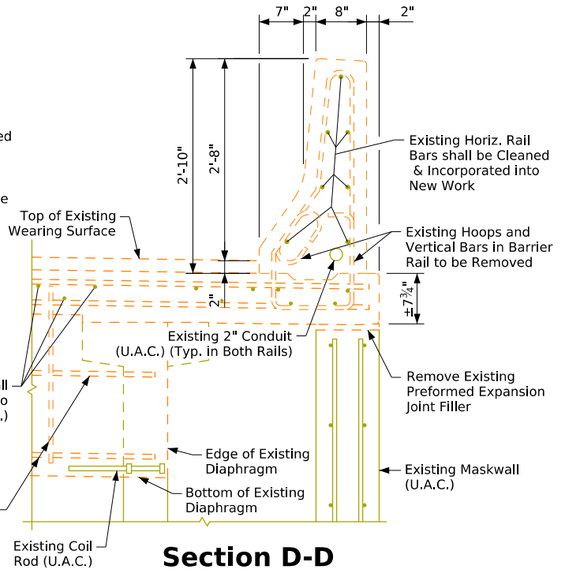
Section A-A



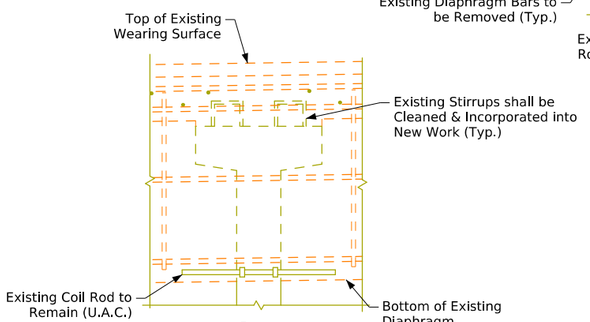
Section C-C



Section B-B



Section D-D



Section E-E

Note:
See Design Sheet No. 1 for removal notes.

Design For Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans — 96'-6" Interior Span

Abutment & Barrier Removal Details

STA. 673+11.00 (IA 44) — Turn-in Date: October 2026

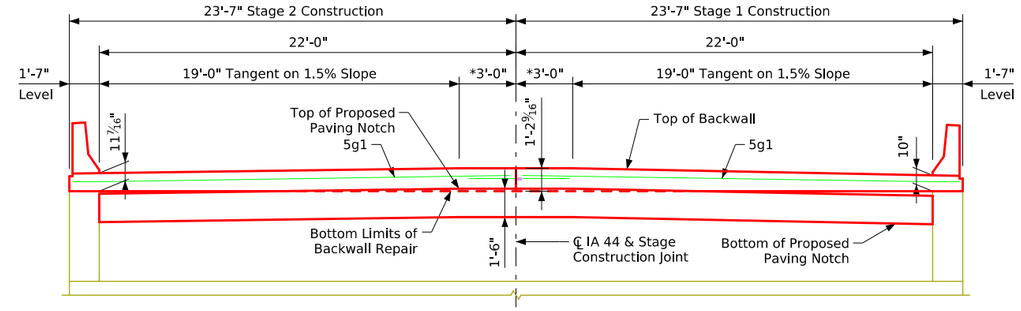
Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 227 — Design Sheet No. 3 of 8 — FHWA No. 48001

FILE NO. 32849	ENGLISH	DESIGN TEAM JEO Consulting Group, Inc.	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22–77-83	SHEET NUMBER V.3

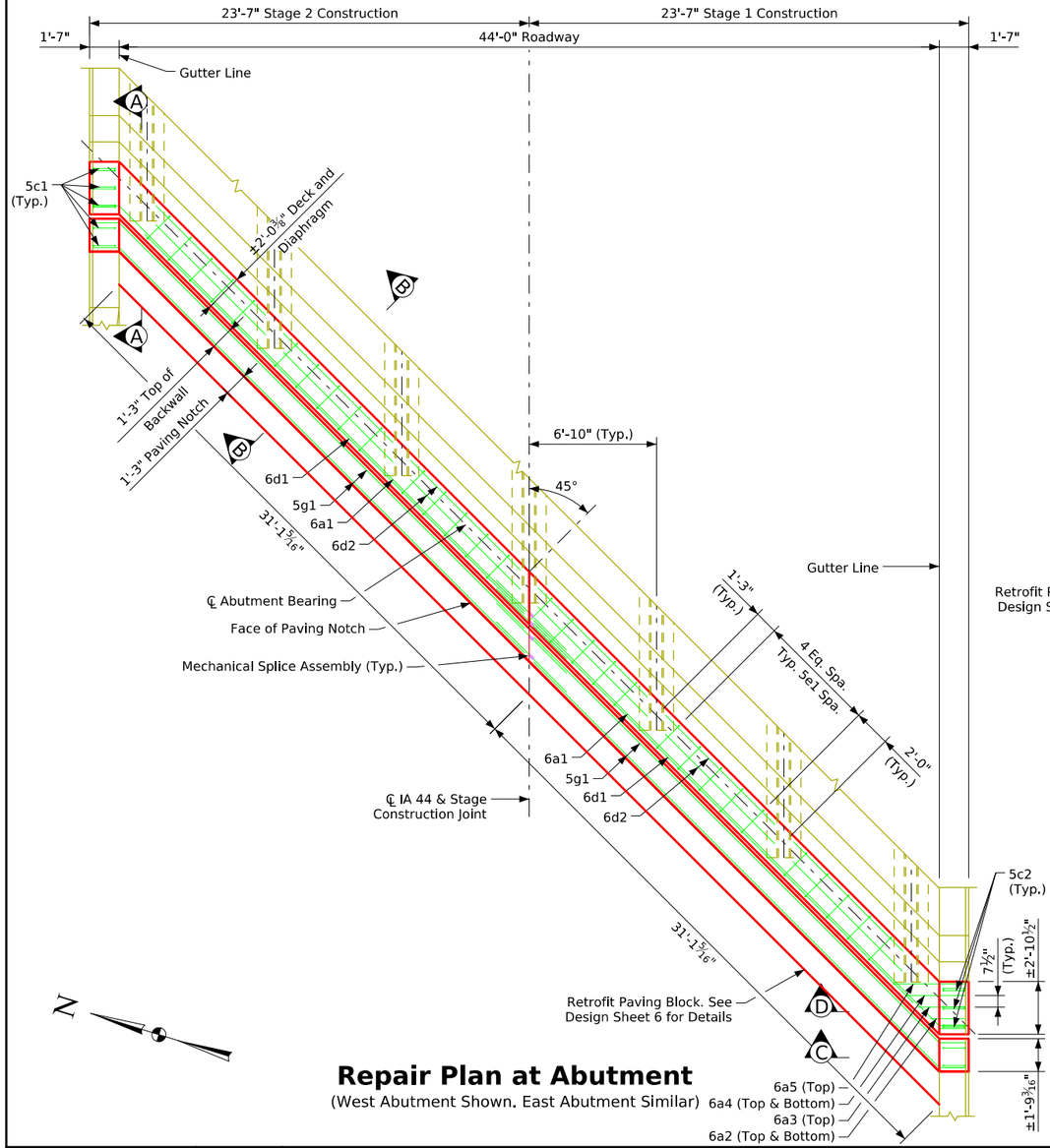
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* Locations of Parabolic Crown.

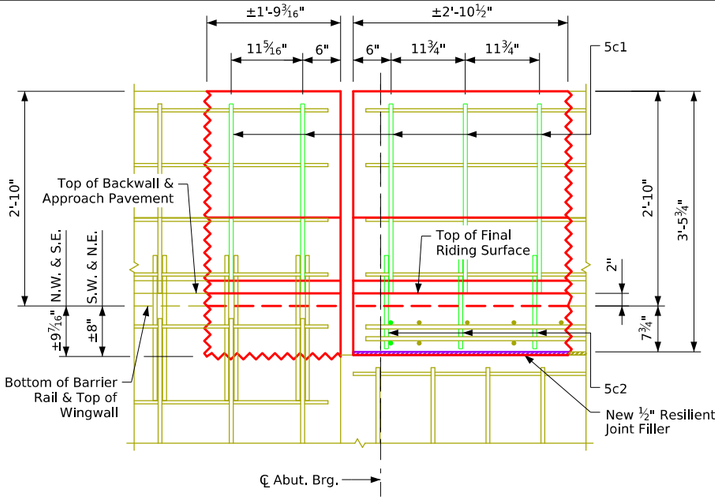
Rear Elevation of Abutment

(West Abutment Shown. East Abutment Similar)

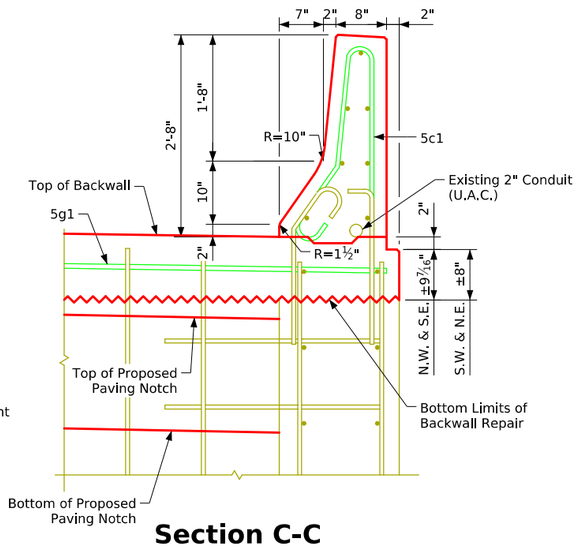


Repair Plan at Abutment

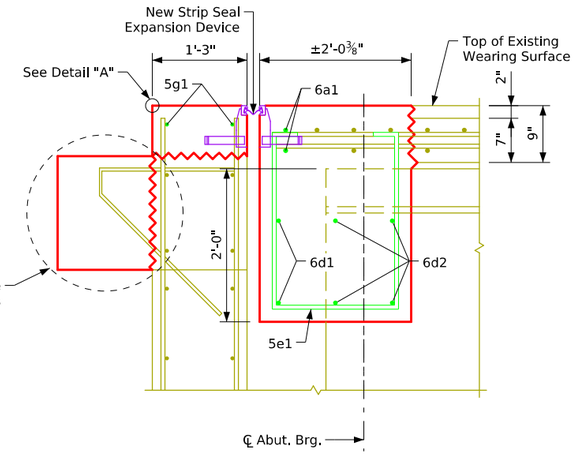
(West Abutment Shown. East Abutment Similar)



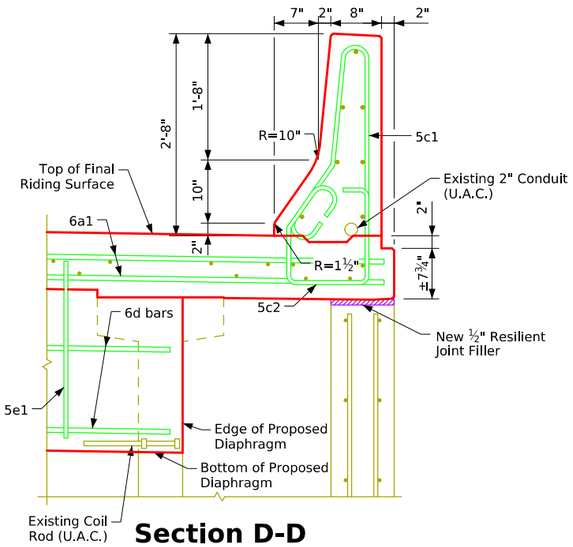
Section A-A



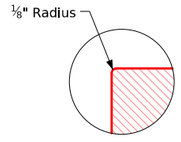
Section C-C



Section B-B



Section D-D



Detail A

Design For Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans — 96'-6" Interior Span

Abutment & Barrier Repair Details

STA. 673+11.00 (IA 44) — Turn-in Date: October 2026

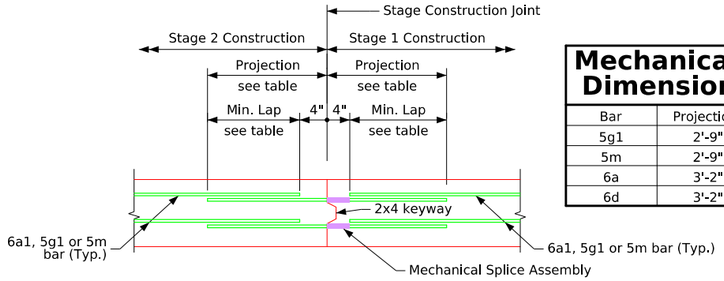
Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 227 — Design Sheet No. 4 of 8 — FHWA No. 48001

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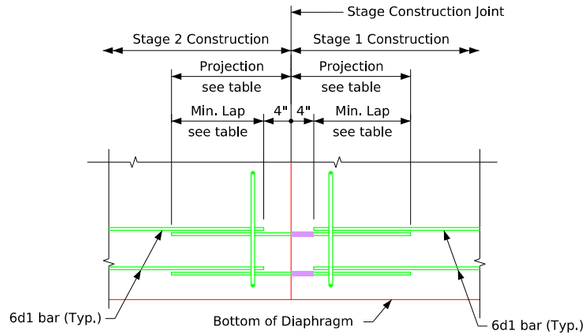
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Mechanical Splice Detail
Backwall, Deck, & Paving Notch

Mechanical Splice Dimension Table

Bar	Projection	Min. Lap
5g1	2'-9"	2'-5"
5m	2'-9"	2'-5"
6a	3'-2"	2'-10"
6d	3'-2"	2'-10"



Mechanical Splice Detail
Diaphragm

The 6a1, 6d1, 5g1, 5m1 and 5m2 bars in the abutment backwalls, deck, diaphragm and paving notch shall be spliced at the locations shown using mechanical splice assemblies. Mechanical splice assemblies consist of mechanical splicers and reinforcing splice bars as required to facilitate the use of the mechanical splicer. The mechanical splice assembly used shall meet the requirements of Materials I.M. 451 Appendix E. Reinforcing splice bars shall match the diameter of the bar being spliced.

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 20 epoxy coated splice assemblies will be required.

Abutment Notes:

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

If necessary to prevent damage to the end of the bridge deck and backwall from construction equipment, an appropriate method of protection approved by the Engineer shall be provided by the Bridge Contractor at no extra cost to the State.

The top of the abutment backwalls 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.

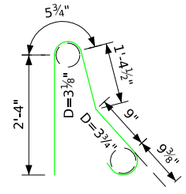
Epoxy Coated Reinforcing Steel - Both Abut.

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transverse, Bent		8	32'-2"	387
6a2	Deck Transverse, Top and Bottom		4	1'-11"	12
6a3	Deck Transverse, Top		2	2'-7"	8
6a4	Deck Transverse, Top and Bottom		4	3'-3"	20
6a5	Deck Transverse, Top		2	3'-11"	12
5c1	Rail Vertical		20	5'-9"	120
5c2	Rail, Deck Hoop		12	4'-7"	57
6d1	Diaphragm Longitudinal Bar		8	28'-10"	
6d2	Diaphragm Longitudinal Bar		48	8'-4"	601
5e1	Diaphragm Hoops		60	7'-0"	438
5g1	Backwall, Longitudinal Bent Bar		8	32'-2"	268
				Total (lbs.)	2,269

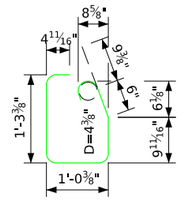
Concrete Placement Summary - Both Abut.

Location	Total
Abutment Backwall	6.1
Deck and Diaphram	24.1
Barrier Rails	1.8
Total (CY)	32.0

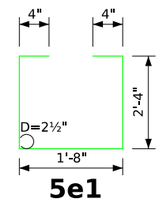
Bent Bar Details



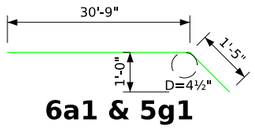
5c1



5c2



5e1



6a1 & 5g1

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

Design For Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans — 96'-6" Interior Span

Abutment & Barrier Repair Details

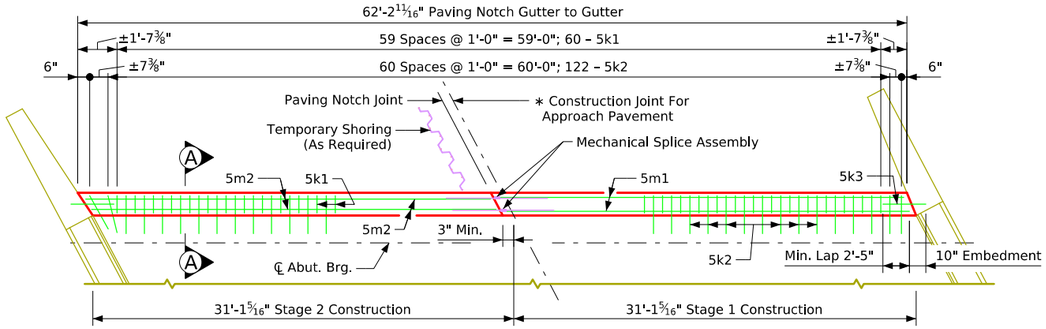
STA. 673+11.00 (IA 44)

Turn-in Date: October 2026

Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 227 — Design Sheet No. 5 of 8 — FHWA No. 48001



∗ Construction joint for notch repair to extend a minimum of 3 inches past construction joint for pavement. See Design Sheet No. 5 for Mechanical Splice Details.

Part Plan View At Abutment

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.

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

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, mechanical splice assemblies 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.

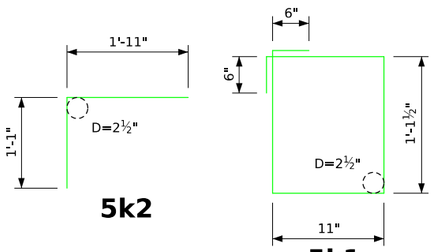
Removals shall be in accordance with Section 2401, of the Standard Specifications.

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.

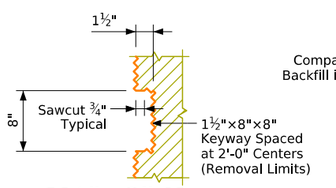
Note: The Contractor shall provide temporary shoring (sheet pile or other) to prevent the earth under the traffic lane, from sloughing in during construction. All cost of shoring, will be considered incidental to construction and no direct payment will be made. All material used for shoring shall remain the property of the Contractor. Shoring is to be removed only after backfilling has been completed. The Contractor shall submit shoring plans for review. In addition to the requirements noted above, Article 1107.07 of the Standard Specifications still applies.

Bent Bar Details

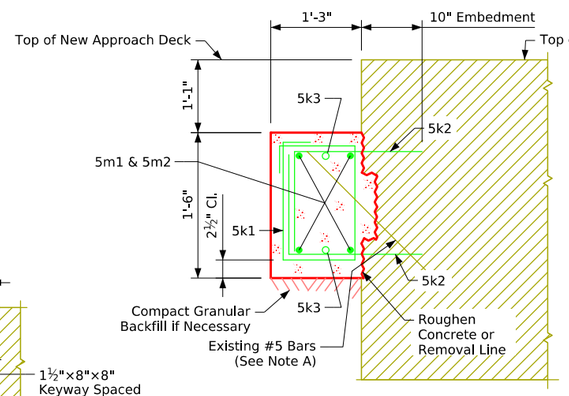


Note: All reinforcing is to be epoxy coated.

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



1½"×8" Keyway Detail



Part Section A-A

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

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.

Design For Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans — 96'-6" Interior Span

Paving Notch Replacement

STA. 673+11.00 (IA 44) — Turn-in Date: October 2026

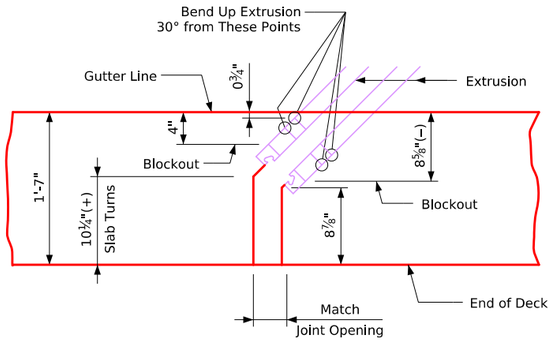
Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

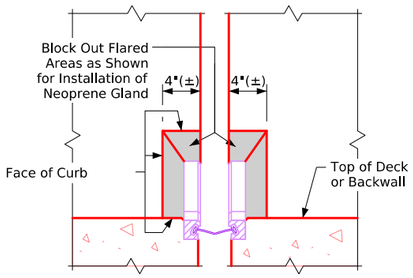
Design No. 227 — Design Sheet No. 6 of 8 — FHWA No. 48001

FILE NO. 32849	ENGLISH	DESIGN TEAM JEO Consulting Group, Inc.	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22–77-83	SHEET NUMBER V.6

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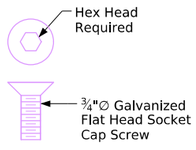
Detail A



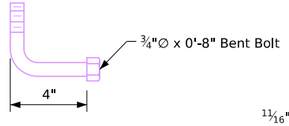
Blockout Detail

(Drawn for 0° Skew for Illustrative Purposes)

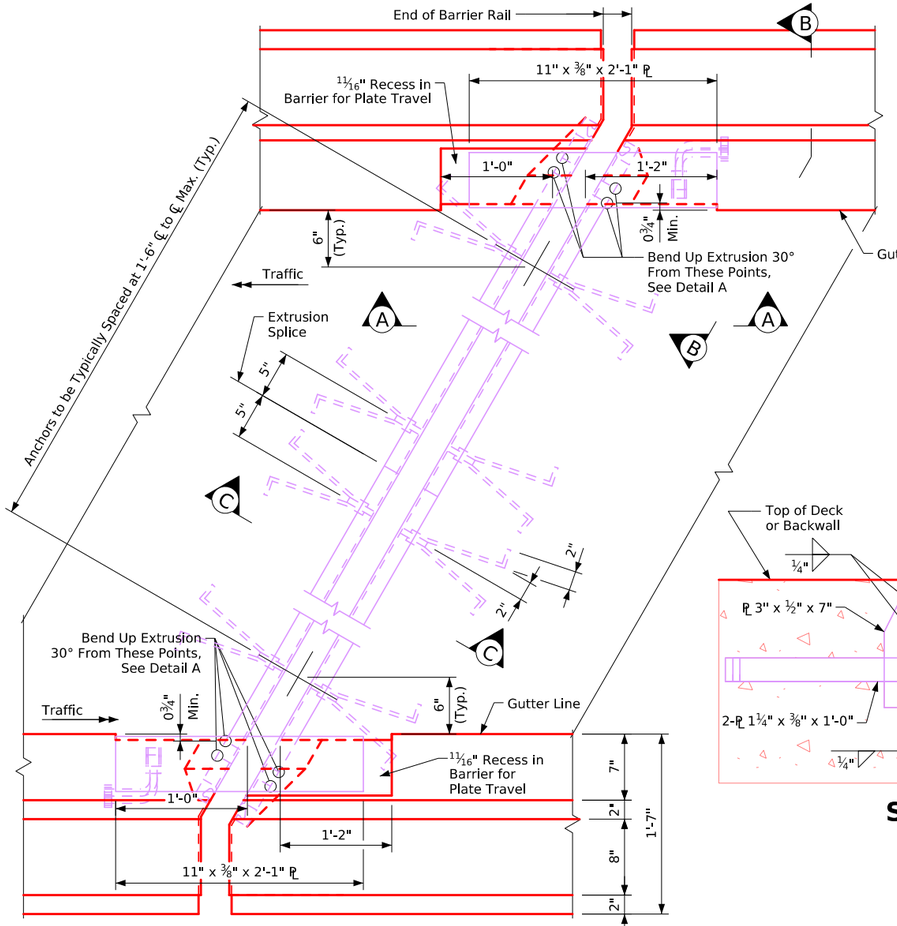
Contractor to note that the cap screw anchorage system for the ⅜" barrier plates are always to be placed on the oncoming traffic side.



Cap Screw Detail

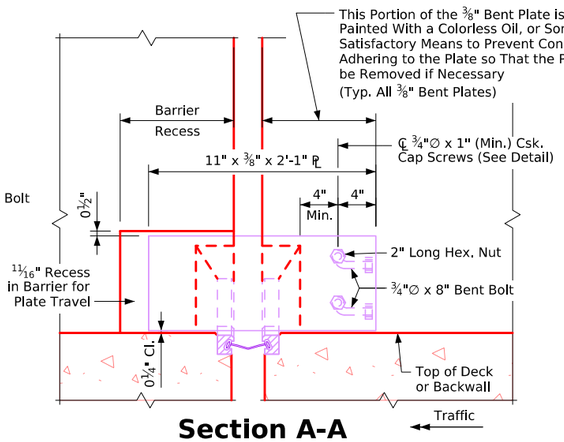


Bent Bolt Detail



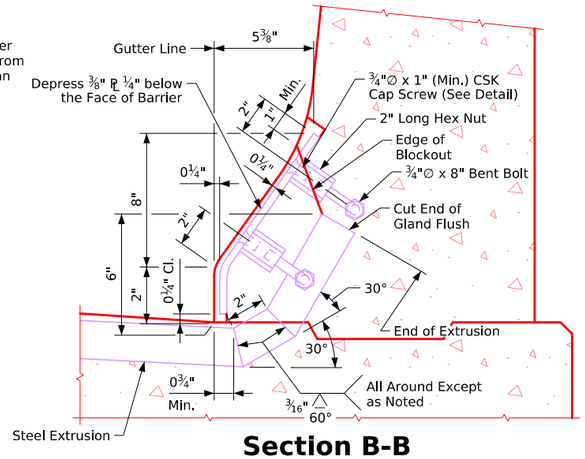
Part Plan View of Expansion Device
L.A. Skew

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.



Section A-A

(Drawn for 0° Skew for Illustrative Purposes)

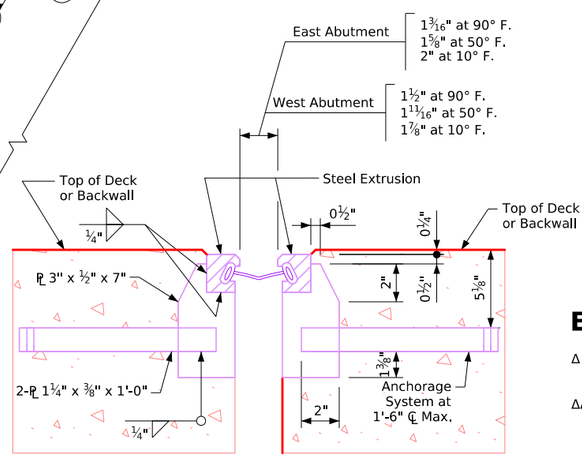


Section B-B

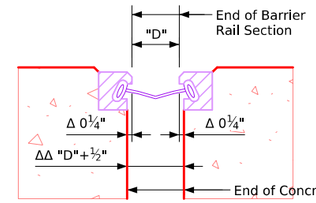
Barrier Plate Note:

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.

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-300	1½"	90°F (West) 60°F (East)
Approved Equivalent				

Note:
See Design Sheet No. 8 for expansion device notes containing the steel extrusion notes, neoprene gland notes, and watertight integrity testing and repair notes.

Design For Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans — 96'-6" Interior Span

Expansion Device Details

STA. 673+11.00 (IA 44) — Turn-in Date: October 2026

Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 227 — Design Sheet No. 7 of 8 — FHWA No. 48001

FILE NO. 32849	ENGLISH	DESIGN TEAM JEO Consulting Group, Inc.	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22–77-83	SHEET NUMBER V.7	

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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.

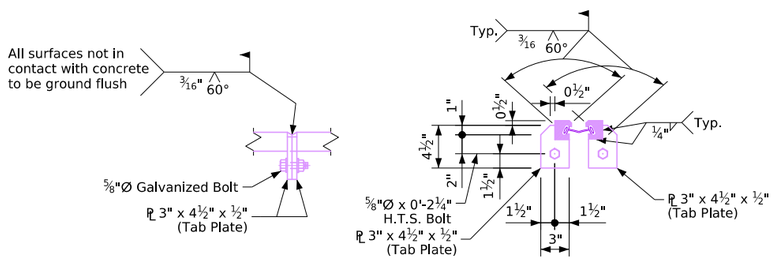
If the expansion device leaks at an upturned end or along its length, the Contractor shall locate the leak(s) and take repair measures to stop the leakage. The repair measures shall be as recommended by the Manufacturer and approved by the Engineer prior to beginning corrective work.

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 Repair To 45° Skew (L.A.)

288'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

95'-9" End Spans 96'-6" Interior Span

Expansion Device Notes

STA. 673+11.00 (IA 44) Turn-in Date: October 2026

Shelby County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 227 Design Sheet No. 8 of 8 FHWA No. 48001

FILE NO. 32849	ENGLISH	DESIGN TEAM JEO Consulting Group, Inc.	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER V.8	

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INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.3	Title Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 3	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1 - 2	Estimated Project Quantities and Reference Notes
C.3	Standard Road Plans
C.3	Index of Tabulations
C.3 - 7	Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA-44
J Sheets	**Traffic Control and Staging Sheets**
* J.1	Traffic Control Plan
* J.1	Staging Notes
* J.1	Coordinated Operations
* J.1	511 Travel Restrictions
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R Sheets	**Erosion Control Sheets**
RC.1 - 2	Est. Quantities, General Notes and Tabulations
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
U.1	Pinned to Unpinned TBR Layout
U.2 - 4	Modified BR-203

* Color Plan Sheets

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
Cory D. Tap 28046
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.

Cory Tap — 8-11-2026
Signature — Date

Cory D. Tap
Printed or Typed Name

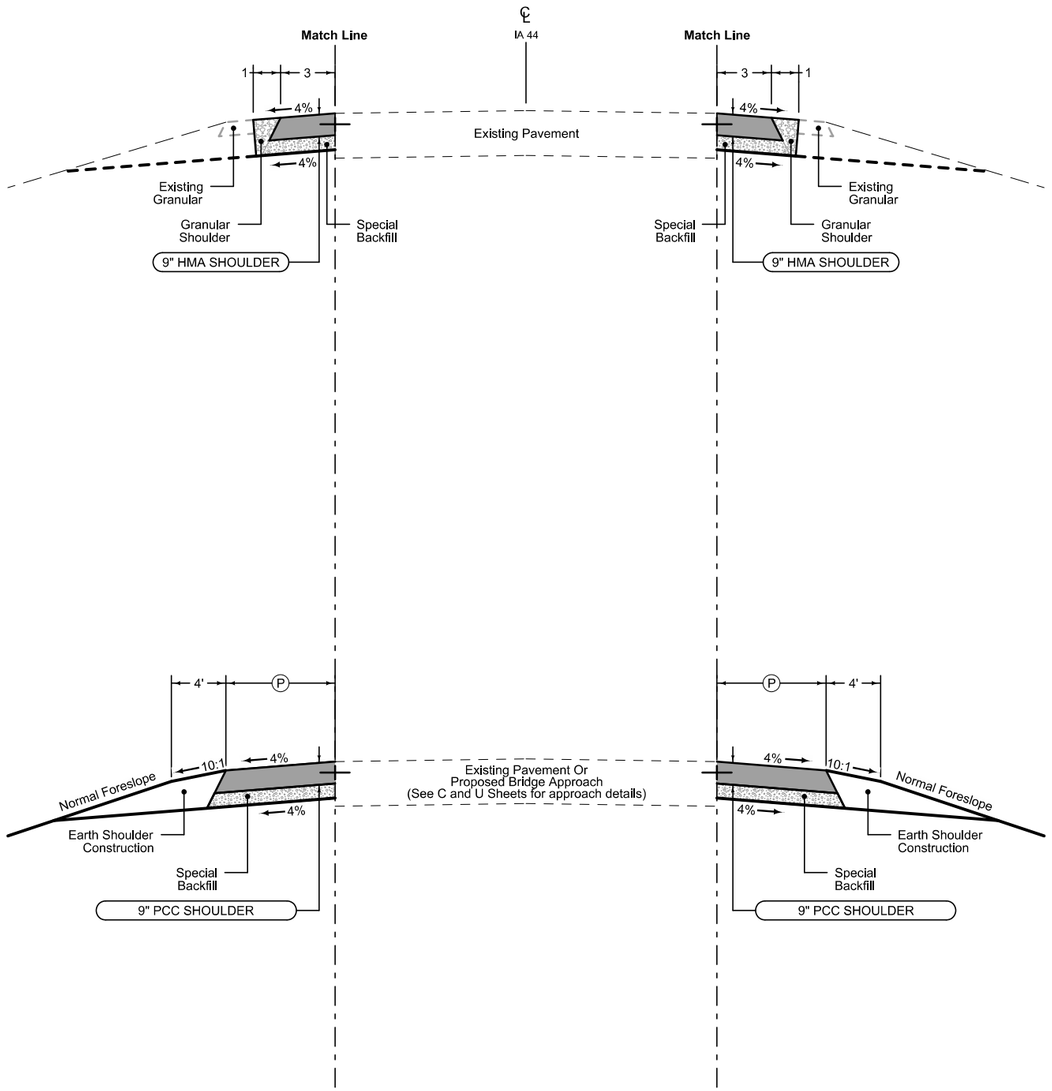
My license renewal date is December 31, 20 26

Pages or sheets covered by this seal: A.03, B.01-B.03, C.01-C.07, D.01-D.02, J.01-J.05, RC.01-RC.02, and U.01-U.04

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

	2_C_ Modified
STATION TO STATION	
666+81.45	670+43.83
676+29.70	679+24.34



Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

	2_C_ Modified
STATION TO STATION	
666+81.45	669+91.84
675+77.68	678+92.70

Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: B
Transverse joints: C at mainline spacing
HMA Shoulder Jointing:
Longitudinal joint: B

		2_P_Guard_ 04-21-20
STATION TO STATION		Ⓟ Feet
670+43.83	671+77.02	13.3-1.2
Bridge and Approaches		
674+96.51	676+29.70	1.2-13.3

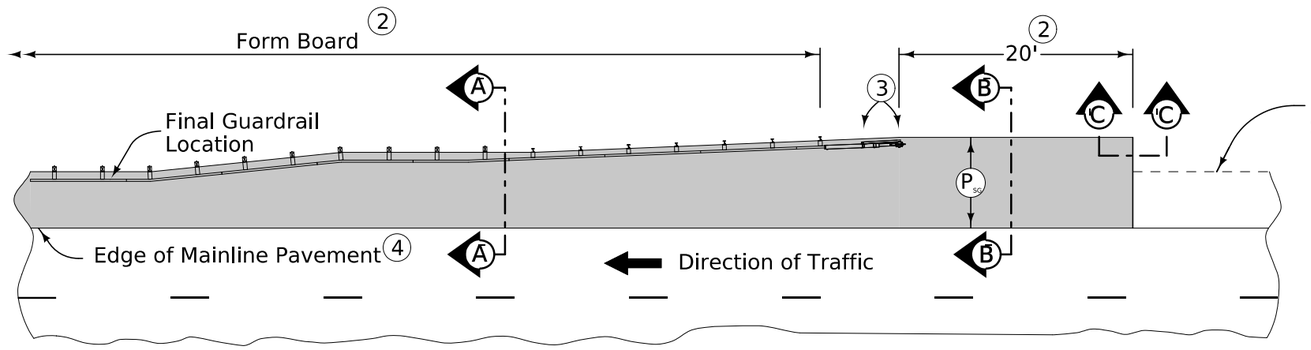
Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: B
Transverse joints: C at mainline spacing
HMA Shoulder Jointing:
Longitudinal joint: B

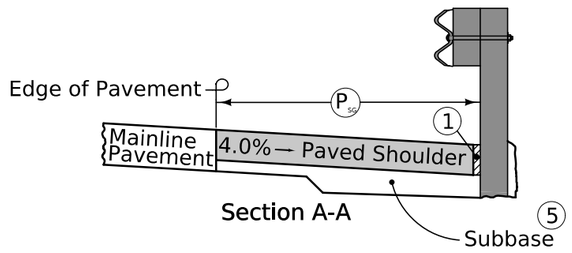
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STATION TO STATION		Ⓟ Feet
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Bridge and Approaches		
674+44.50	675+77.68	1.2-13.3

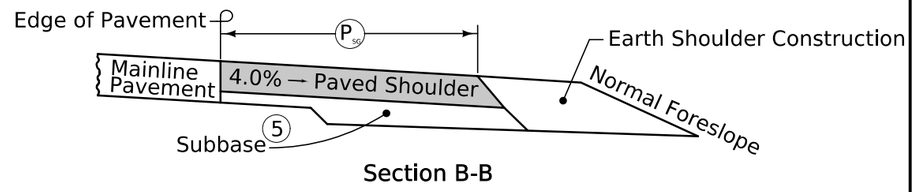
See Tab 100-24 for pavement quantities.
See Tab 112-9 for shoulder quantities.

IA 44

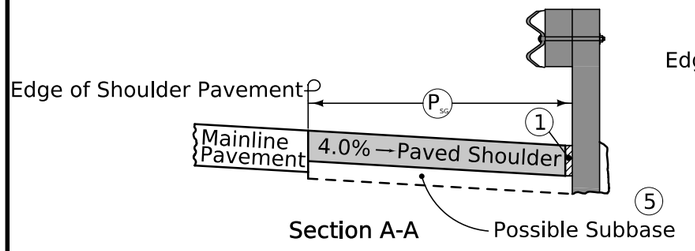


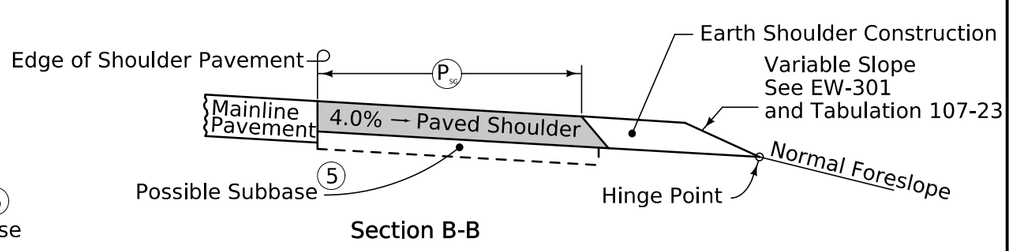
PLAN VIEW





NEW CONSTRUCTION





EXISTING SHOULDER

7156
MODIFIED

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.

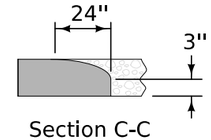
(1) PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

(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.
Depth dependant on pavement type.
6" for HMA or 7" for PCC.

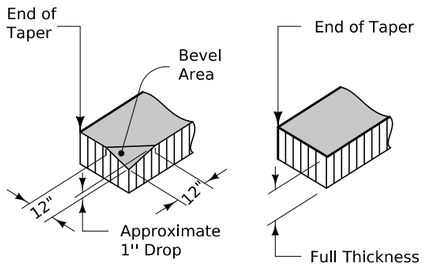


Section C-C

Roll down at granular shoulder or earth.

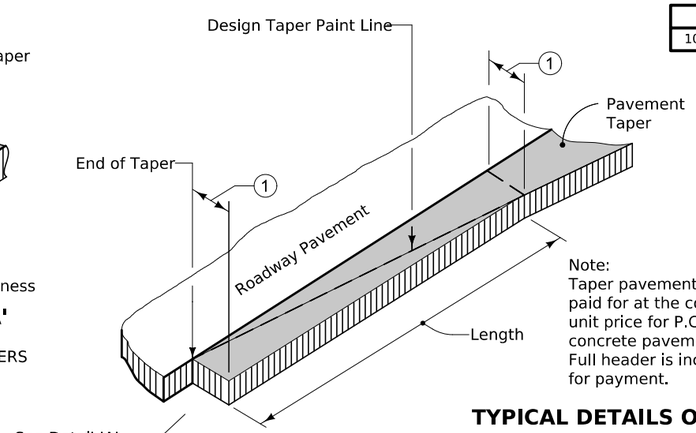
PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

7101
10-19-10



DETAIL 'A'
FOR
GRANULAR SHOULDERS

DETAIL 'A'
FOR
PAVED SHOULDERS

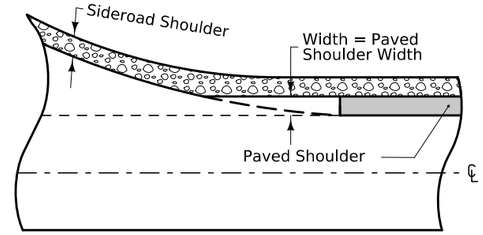


Note:
Taper pavement to be paid for at the contract unit price for P.C. concrete pavement. Full header is included for payment.

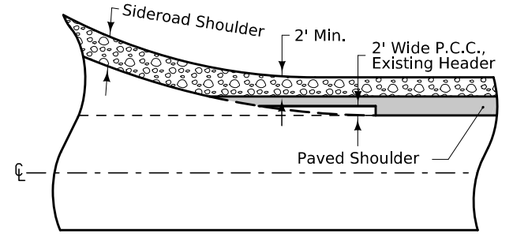
(1) Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).

TYPICAL DETAILS OF PCC PAVEMENT HEADER

7154B
10-19-21



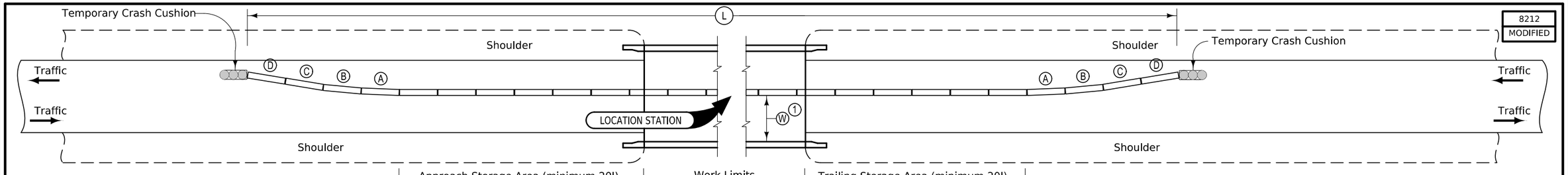
With Newly Constructed Returns

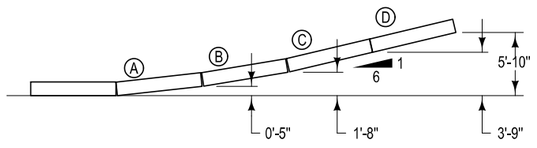


At UAC Returns

PAVED SHOULDER DETAIL AT RETURNS

8212
MODIFIED





BARRIER OFFSETS FOR FLARE SECTIONS

Station	Side	(AA) Feet	(WL) Feet	(TA) Feet	(L) Feet	(2) Anchored X	(W) (1) Ft-Inches	Remarks
673+11.00	WB	33.9	481.1	33.9	648.9	Varies	19.5'	Stage 2
673+11.00	EB	33.9	481.1	33.9	648.9	Varies	19.5'	Stage 3

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

(2) Refer to Sheet U.1 for anchorage design.

TEMPORARY CONCRETE BARRIER LAYOUT
for Two-Way Traffic

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.29	Refer to Tab. 110-17 in the C Sheets for details. Bid item is for clearing and grubbing areas at the base of the rock flumes and any small amount required for construction entrance construction.
2	2102-0425070	SPECIAL BACKFILL	TON	259.41	Refer to Tab. 112-9 in the C Sheets for details.
3	2102-2625000	EMBANKMENT-IN-PLACE	CY	250	Refer to Tab. 107-23 in the C Sheets for details. Provide borrow material according to Section 2102 of the Standard Specifications. Material shall be provided by the Contractor.
4	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY	335.2	Refer to Tab. 112-9 in the C Sheets for details. Dispose of excess material according to Article 1106.07 of the current specifications.
5	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	121.729	Refer to Tabulation 112-9 in the C Sheets for details. Bid item is for replacement of excavated granular shoulder material from work involving the placement of detour pavement.
6	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	5.3	Refer to Tab. 112-9 in the C Sheets for details. Requires a minimum of 4 inches of topsoil. Place according to Article 2105.03,B of the Standard Specifications.
7	2301-0685550	BRIDGE APPROACH PAVEMENT, AS PER PLAN	SY	945.2	Refer to Tab. 112-6 in the C Sheets and U Sheets for details.
8	2304-0100000	DETOUR PAVEMENT	SY	823.5	Refer to Tab. 112-9 in the C Sheets for details.
9	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	312	Refer to Tab. 110-7A in the C Sheets for details.
10	2505-4008300	STEEL BEAM GUARDRAIL	LF	100	Refer to Tab. 108-8A in the C Sheets for details.
11	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	4	
12	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4	
13	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4	
14	2510-6745850	REMOVAL OF PAVEMENT	SY	674.2	Refer to Tab. 110-1 and Tab. 102-5 in the C Sheets for details.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
15	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	4	Refer to Tab. 190-62 in the C Sheets for details. The Contractor shall remove each sign and the hardware used to secure the sign to posts or sign support structure. For signs mounted directly to posts, removal of the sign shall include removal of the posts. Posts may be either wood posts or steel breakaway sign posts. Holes remaining from the removal of wood posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. Unless otherwise noted, posts removed shall remain the property of DOT. The Contractor shall deliver the posts to a DOT storage area within 50 miles, as designated by the Engineer. The existing sign shall be removed and stored. The Contractor shall remove the sign and transport it to a DOT storage area within 50 miles, as designated by the Engineer. The Contractor shall transport the sign back to the job site when ready for reinstallation. The Contractor shall furnish all necessary hardware to install the signs. When the new installation is similar to the original installation, unless otherwise noted, the existing hardware may be used to reinstall the sign. Signs damaged by the Contractor's activities shall be replaced at the Contractor's expense. Replacement materials shall be new. The DOT will furnish all details necessary for fabrication of the replacement materials. METHOD OF MEASUREMENT: The Engineer will count each sign removed and reinstalled. BASIS OF PAYMENT: For each sign removed and reinstalled, the Contractor shall be paid the contract unit price.
16	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	72.49	Refer to Tab. 108-22 in the C Sheets for Details.
17	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	49.23	
18	2527-9263216	PAINTED PAVEMENT MARKINGS, MULTI-COMPONENT LIQUID	STA	28.7	
19	2527-9263231	REMOVABLE TAPE MARKINGS, WET RETROREFLECTIVE	STA	12.77	
20	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	18.82	
21	2528-2518000	SAFETY CLOSURE	EACH	2	Refer to Tab. 108-13A for details. Closures to remain in place for project duration. Traffic to entrances shall be maintained throughout project in a manner approved by the Engineer.
22	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	1,297.8	Refer to B Sheets, U Sheets, and Tab. 108-33 in the C Sheets for details. All temporary barrier rail shall be nominal 12'-6 long concrete units.
23	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	1	Refer to Tab. 108-28 in the C Sheets for details.
24	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan in the J Sheets for details.
25	2551-0000110	TEMP CRASH CUSHION	EACH	4	Refer to Tab. 108-30 in the C Sheets for details.

105-4
10-18-11

STANDARD ROAD PLANS

Number	Date	Title
BA-200	10-20-2026	STEEL BEAM GUARDRAIL COMPONENTS
BA-201	10-18-2022	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION (MASH TL-3)
BA-202	10-20-2026	STEEL BEAM GUARDRAIL BOLTED END ANCHOR
BA-205	10-17-2023	STEEL BEAM GUARDRAIL TANGENT END TERMINAL (MASH TL-3)
BA-250	10-20-2026	STEEL BEAM GUARDRAIL INSTALLATION AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION (MASH TL-3)
BA-401	04-20-2021	TEMPORARY BARRIER RAIL (PRECAST CONCRETE)
BA-500	04-20-2021	TEMPORARY CRASH CUSHIONS SAND BARREL
BR-203	10-20-2026	DOUBLE REINFORCED 12" APPROACH
BR-211	04-21-2026	BRIDGE APPROACH (ABUTTING PCC OR COMPOSITE PAVEMENT)
DR-301	04-19-2022	SUBDRAINS FOR FILL OR FOUNDATION DRAINAGE (STANDARD)
DR-306	10-17-2023	PRECAST CONCRETE HEADWALL FOR SUBDRAIN OUTLETS
EW-301	10-20-2026	GUARDRAIL GRADING
PM-110	10-15-2024	LINE TYPES
PM-115	10-20-2026	GROOVING FOR LINE TYPES
PV-101	10-20-2026	JOINTS
PV-121	10-21-2025	JOINTING PCC PAVEMENT WIDENING
TC-1	10-15-2019	WORK NOT AFFECTING TRAFFIC (TWO-LANE OR MULTI-LANE)
TC-202	04-18-2023	WORK WITHIN 15 FT IF TRAVELED WAY
TC-213	04-18-2023	LANE CLOSURE WITH FLAGGERS
TC-217	04-18-2025	LANE CLOSURE WITH SIGNALS AND TBR

111-25
10-18-11

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108-8A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.4
108-13A	SAFETY CLOSURES	C.5
108-22	PAVEMENT MARKING LINE TYPES	C.7
108-28	TEMPORARY TRAFFIC SIGNALS	C.5
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110-7A	REMOVAL OF STEEL BEAM GUARDRAIL	C.4
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190-62	EXISTING SIGNS TO BE REMOVED	C.3

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 IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
	83	IA-44	1	22.52	28.99	2024	M	HSIPX-000-T(354)--3L-00	GND												Milled Rumble Strips
	83	IA-44	1	22.52	28.99	2021	S	MP-044-4(709)23--76-83													HMA crack filling, fog sealing
	83	IA-44	1	22.52	28.99	2009	W	STP-44-2(42)--2C-82	HMA	1.5	HMA	1.5	HMA	3			CRESCENT	C.LST.			WIDEN 2' BOTH SIDES
	83	IA-44	1	22.52	28.99	2009		STP-44-2(42)--2C-83	HMA	1.5	HMA	1.5	CIP	3	MIL	3	CRESCENT	C.LST.			MILL & COLD-IN-PLACE
	83	IA-44	1	22.52	28.99	1989		F-44-2(29)--20-83	AAC	3	TBB	7.5					MENLO	C.LST.			

190-62
10-15-13

EXISTING SIGNS TO BE REMOVED

SIGN NUMBER OR DESCRIPTION	LOCATION STATION	DIRECTION OF TRAVEL	TYPE 'A' SIGN ASSEMBLY (RA) EACH	TYPE 'B' SIGN ASSEMBLY (RB) EACH	REMOVE & REINSTALL EXISTING SIGNS TYPE 'A' (RR) EACH	REMOVE & REINSTALL EXISTING SIGNS TYPE 'B' (RR) EACH	CONCRETE FOUNDATION (RF) EACH	SUPPORT STRUCTURE & FOUNDATION (RS) EACH	APPLICABLE SIGNING NOTES	REMARKS
No Parking on Bridge	671+27.00	EB			1					
West Nishnabotna River	671+25.00	EB			1					
No Parking on Bridge	674+99.00	WB			1					
West Nishnabotna River	675+03.00	WB			1					
	TOTAL=				4					

110-1
04-16-13

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area SY	Saw Cut* LF	Remarks
671+16.68	671+44.18	RT Shoulder	PCC	30.6	37.5	
670+63.29	671+63.29	West Approach	Composite	266.7	116.0	
671+56.78	671+77.78	LT Shoulder	PCC	23.3	31.0	
674+42.67	674+54.67	RT Shoulder	PCC	13.3	22.0	
674+58.71	675+45.71	East Approach	Composite	232.0	116.0	
674+77.28	675+02.78	LT Shoulder	PCC	28.3	35.5	
670+43.83	671+56.78	LT Shoulder	Detour	37.6	115.9	Temp shoulder detour pavement from Stage 1
675+02.78	676+29.70	LT Shoulder	Detour	42.3	129.9	Temp shoulder detour pavement from Stage 1
	TOTAL=			**674.2**	**603.9**	

110-7A
04-17-12

REMOVAL OF STEEL BEAM GUARDRAIL

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

Location					
No.	(1) Direction of Traffic	Station to Station		Side	Removal of Guardrail (2)
					LF
1	EB	670+49.35	671+27.35	RT	78.0
2	EB	674+42.18	675+20.18	RT	78.0
3	EB	671+01.22	671+79.22	LT	78.0
4	EB	674+94.31	675+72.31	LT	78.0
			TOTAL=		**312.0**

107-23
10-18-11

GRADING FOR GUARDRAIL INSTALLATIONS

(1) Lane(s) to which the installation is adjacent. Refer to EW-301

Location				Foreslope at Guardrail	Dimensions (Feet)									Earthwork		Remarks
No.	(1) Direction of Traffic	Station	Side		X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place	
														CY	CY	
1	EB	671+27.35	RT	3:1	65.6	5.0					113.3	6.8	46.0		75.0	
2	EB	674+42.18	RT	3:1	65.6	5.0					113.3	6.8	46.0		50.0	
3	EB	671+79.22	LT	3:1	65.6	5.0					113.3	6.8	46.0		50.0	
4	EB	674+94.31	LT	3:1	65.6	5.0					113.3	6.8	46.0		75.0	
			TOTAL=												**250.0**	

108-8A
10-16-18

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, 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.

Location					Layout Lengths BA-250, BA-260, LS-630, or LS-635				Long-Span System		Delineators and Object Markers (2)					Bid Items										Remarks
No.	(1) Direction of Traffic	Side O = Outside M = Median	Station	Offset	VT1	VF	VT2	ET	BA-211		SI-211	Delineator SI-172	Object Marker SI-173			Bolted End Anchor		Post Adapter	Steel Beam Guardrail	BA-250 or LS-630					BA-260 or LS-635		
												Type 1	Type 2	Type 3						Barrier Transition Section	End Terminal				Barrier Transition Section	End Terminal	
																					Tangent	Flared	Tangent	Flared		Tangent	
				FT	LF	LF	LF	LF	STATION	TYPE	TYPE	White	OM2-2	OM3-L	OM3-R	TYPE	EACH	BA-210	LF	BA-201	BA-205	BA-206	LS-625	LS-626	BA-221	BA-225	
												EACH	EACH	EACH	EACH	BA-202			BA-200	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
1	EB	RT	671+27.35	22.0	65.625			47.7			3				1	C	1		25.0	1	1						
2	EB	RT	674+42.18	22.0	65.625			47.7			3			1		C	1		25.0	1	1						
3	EB	LT	671+79.22	22.0	65.625			47.7			3			1		C	1		25.0	1	1						
4	EB	LT	674+94.31	22.0	65.625			47.7			3				1	C	1		25.0	1	1						
			TOTAL=														**4**		**100.0**	**4**	**4**						

110-17
04-18-17

CLEARING AND GRUBBING

Location		Work and Material Type	Trees, Stumps, and Logs and Down Timber Material Diameters												All Other Materials		Estimated Quantities			Remarks
Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description	Direction of Travel		3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Length	Width	Units	Area	Herbicide Application	
																FT	FT	Units	Acres	Each	
Sta. 670+50.00 to Sta. 671+30.00	Both	Trees - Clearing and Grubbing																	0.07		
Sta. 674+60.00 to Sta. 675+40.00	Both	Trees - Clearing and Grubbing																	0.07		
Sta. 670+80.00 to Sta. 671+60.00	Both	Trees - Clearing and Grubbing																	0.07		
Sta. 674+90.00 to Sta. 675+70.00	Both	Trees - Clearing and Grubbing																	0.07		
TOTAL=																			**0.29**		

108-33
10-15-19

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 to Station		Length	(Select One) Concrete	(Select One) Steel	Anchored*	Modular Glare Screen System	Remarks
			LF	BA-401	560-7	(Y/N)	(Y/N)	
1	669+78.03	676+26.93	648.9	X		Yes		Stage 2; See U Sheet for Details
2	669+78.03	676+26.93	648.9	X		Yes		Stage 3; See U Sheet for Details
		Total=	**1297.8**					

108-28
08-01-08

TEMPORARY TRAFFIC SIGNALS

No.	Location Station	Type: One Lane Traffic	Type: Haul Road	Type: Intersection	Remarks
1.1	668+03.03	X			EB Signal
1.2	678+01.93	X			WB Signal
	Total=	**1**			

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type: Road Qty.	Closure Type: Hazard Qty.	Remarks
669+40.00	1		Exchange Street at Return
679+20.00	1		Maple Road at Return
TOTAL=	**2**		

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.	Direction of Traffic (1)	Location Station	Side	Obstacle Width	Crash Cushion (Select One)* Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	Sand Barrel Details (2) V Length	W Length	X Length	Y Length	Z Length	Earthwork* Excavation Class 10	Embankment in Place	Spare Parts Kit (Select One)* Permanent	Permanent Severe Use	Obstacle Description	Remarks
				FT						FT	FT	FT	FT	FT	CY	CY	EACH	EACH		
1	EB	669+78.03	RT	2.00	1															Stage 2
2	EB	676+26.93	RT	2.00	1															Stage 2
3	EB	669+78.03	LT	2.00	1															Stage 3
4	EB	676+26.93	LT	2.00	1															Stage 3
		TOTAL=			**4**															

112-6
04-18-17

BRIDGE APPROACH SECTION

Refer to the Series.

* Not a bid item

Location: Bridge Station	End	Skew Ahead Degrees: LEFT	RIGHT	Approach Pavement: (T) Thickness	Pay Length	Non-Reinf. Pavement Area	Single-Reinf. Pavement Area	Double-Reinf. Pavement Area	Standard Road Plans BR Series: Approach	Fixed or Movable Abutment	Abutting Pavement	Subdrain: * Perforated Subdrain 4"	* Subdrain Outlet	Side	* Porous Backfill	* Class 'A' Crushed Stone Backfill	* Modified Subbase	* Polymer Grid	* Special Backfill	Remarks
				Inches	FT	SY	SY	SY				LF	STA		CY	CY	TON	SY	TON	
673+11.00	West	45	--	12.0	99.0	210.3	97.8	196.3	BR-203	Fixed	Composite	56.0	670+86.29	Right	1.6	0.2	481.500	562.2		Double reinforced includes proposed curbs to end drains
673+11.00	East	45	--	12.0	87.0	146.7	97.8	196.3	BR-203	Fixed	Composite	56.0	675+35.71	Right	1.6	0.2	437.800	492.9		
TOTALS=						357.0	195.6	392.6				112.0			3.2	0.4	919.300	1055.1		
BID TOTAL=							**945.2**													

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.

Calculations assume a HMA unit weight (lbs/cf) of 145, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Location					Quantities																			
Road Identification	(1) Direction Of Traffic	Station to Station		Side	P Width	P_{SG} Width	G Width	L Length	Class 13 (4) Excavation	Hot Mix Asphalt		Binder	Paved Shoulder	8/9" Paved Shoulder at Guardrail	Reinforced Paved Shoulder	Special Backfill				_____ Subbase	Granular Shoulder		Earth Shoulder Construction Alternates			Remarks
																HMA Alternate		PCC Alternate								
					FT	(2)	FT	FT	CY (3)	TON	TON/STA	TONS	SY (3)	SY (5)	SY (3)	TON (3)	TON/STA	TON (3)	TON/STA	CY (3)	TON (3)	TON/STA	STA (3)	HMA CY (6)	PCC CY (6)	
Stage 1																										
IA 44	EB	666+81.45	668+94.17	LT	3.0			212.7	29.7	34.700	16.313	2.082	70.9			22.336	10.500	26.058	12.250		18.613	8.750				
IA 44	EB	669+61.45	671+63.29	LT	3.0			201.8	28.2	32.925	16.313	1.976	67.3			21.193	10.500	24.725	12.250		17.661	8.750				
IA 44	EB	675+02.79	679+24.34	LT	3.0			421.6	58.7	68.765	16.313	4.126	140.5			44.263	10.500	51.640	12.250		36.886	8.750				
Stage 2																										
IA 44	EB	666+81.45	668+97.89	RT	3.0			216.4	30.2	35.307	16.313	2.118	72.1			22.726	10.500	26.514	12.250		18.939	8.750				
IA 44	EB	669+68.22	669+91.84	RT	3.0			23.6	3.4	3.853	16.313	0.231	7.9			2.480	10.500	2.893	12.250		2.067	8.750				
IA 44	EB	669+91.84	670+11.84	RT		13.3		20.0	12.3	14.409	72.047	0.865		29.4		9.275	46.375	10.821	54.104				0.2			
IA 44	EB	670+11.84	670+22.53	RT		13.25 to 13.15		10.7	6.5	7.673	71.775	0.460		15.7		4.939	46.200	5.762	53.900				0.1			
IA 44	EB	670+22.53	670+60.00	RT		13.15 to 11.67		37.5	21.5	25.285	67.479	1.517		51.7		16.275	43.435	18.988	50.674				0.4			
IA 44	EB	670+60.00	670+66.28	RT		11.7		6.3	3.4	3.985	63.456	0.239		8.1		2.565	40.845	2.993	47.653				0.1			
IA 44	EB	670+66.28	670+72.49	RT		1.7		6.2	0.5	0.564	9.081	0.034		1.2		0.363	5.845	0.423	6.819				0.1			
IA 44	EB	670+72.49	671+25.01	RT		1.2		52.5	2.9	3.427	6.525	0.206		7.0		2.206	4.200	2.573	4.900				0.5			
IA 44	EB	674+44.50	675+09.50	RT		1.7		65.0	5.0	5.902	9.081	0.354		12.1		3.799	5.845	4.432	6.819				0.7			
IA 44	EB	675+09.50	675+47.48	RT		1.67 to 3.15		38.0	4.2	4.977	13.104	0.299		10.2		3.204	8.435	3.738	9.841				0.4			
IA 44	EB	675+47.48	675+57.68	RT		13.15 to 13.25		10.2	6.2	7.321	71.775	0.439		15.0		4.712	46.200	5.498	53.900				0.1			
IA 44	EB	675+57.68	675+77.68	RT		13.3		20.0	12.3	14.409	72.047	0.865		29.4		9.275	46.375	10.821	54.104				0.2			
IA 44	EB	675+77.68	678+92.70	RT	3.0			315.0	43.9	51.388	16.313	3.083	105.0			33.077	10.500	38.590	12.250		27.564	8.750				
Stage 3																										
IA 44	EB	670+43.83	670+63.83	LT		13.3		20.0	10.6	14.409	72.047	0.865		29.4		9.275	46.375	10.821	54.104				0.2			
IA 44	EB	670+63.83	670+74.56	LT		13.25 to 13.15		10.7	5.7	7.701	71.775	0.462		15.7		4.957	46.200	5.783	53.900				0.1			
IA 44	EB	670+74.56	671+12.03	LT		3.15 to 1.67		37.5	4.2	4.910	13.104	0.295		10.0		3.161	8.435	3.687	9.841				0.4			
IA 44	EB	671+12.03	671+77.02	LT		1.7		65.0	5.0	5.901	9.081	0.354		12.1		3.799	5.845	4.432	6.819				0.6			
IA 44	EB	674+96.51	675+55.24	LT		1.2		58.7	3.3	3.832	6.525	0.230		7.8		2.467	4.200	2.878	4.900				0.6			
IA 44	EB	675+55.24	675+61.51	LT		11.7		6.3	2.9	3.979	63.456	0.239		8.1		2.561	40.845	2.988	47.653				0.1			
IA 44	EB	675+61.51	675+98.99	LT		11.67 to 13.15		37.5	18.4	25.291	67.479	1.517		51.7		16.279	43.435	18.993	50.674				0.4			
IA 44	EB	675+98.99	676+09.70	LT		13.15 to 13.25		10.7	5.7	7.687	71.775	0.461		15.7		4.948	46.200	5.773	53.900				0.1			
IA 44	EB	676+09.70	676+29.70	LT		13.3		20.0	10.6	14.409	72.047	0.865		29.4		9.275	46.375	10.821	54.104				0.2			
TOTAL=									**335.2**				**463.7**	**359.8**		**259.410**		**302.645**			**121.729**		**5.3**			

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

ELW4: Edge Line Right (White) @ 0.67 BCY4: Broken Centerline (Yellow) @ 0.17 ELW6: Edge Line Right (White) @ 1.00 BCY6: Broken Centerline (Yellow) @ 0.25 SLW2: Stop Line (White) @ 4.00
CHW8: Channelizing Line (White) @ 1.33 NPY6: No Passing Zone Line (Yellow) @ 1.25

Location								Length by Line Type (Unfactored)														Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			ELW4	BCY4*	ELW6	BCY6	SLW2	CHW8	NPY6								
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
			EB																			
IA 44	664+63.03	667+03.03	EB	PAVEMENT MARKINGS REMOVED		X			2.40													End of Stage 1
IA 44	667+03.03	679+01.93	EB	PAVEMENT MARKINGS REMOVED	X	X		11.99	11.99													End of Stage 1
IA 44	667+03.03	678+85.75	EB	PAVEMENT MARKINGS REMOVED			X	11.83														End of Stage 1
IA 44	679+01.93	687+41.93	EB	PAVEMENT MARKINGS REMOVED		X			8.40													End of Stage 1
			EB																			
IA 44	664+63.03	667+03.03	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED		X								2.40								Stage 2
IA 44	667+03.03	-	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X							0.12										Stage 2
IA 44	-	679+01.93	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X					0.12										Stage 2
IA 44	667+03.03	679+01.93	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	X					11.99												Stage 2
IA 44	667+03.03	669+43.03	EB	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS			X						2.40									Stage 2
IA 44	669+43.03	676+61.93	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED		X				7.19												Stage 2
IA 44	676+61.93	679+01.93	EB	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS			X						2.40									Stage 2
IA 44	679+01.93	687+41.93	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED		X								8.40								Stage 2
IA 44	667+03.03	679+01.93	EB	PAVEMENT MARKINGS REMOVED	X					11.99												Stage 3
IA 44	667+03.03	669+43.03	EB	INCIDENTAL REMOVAL OF TAPE			X						2.40									Stage 3
IA 44	669+43.03	676+61.93	EB	PAVEMENT MARKINGS REMOVED		X				7.19												Stage 3
IA 44	676+61.93	679+01.93	EB	INCIDENTAL REMOVAL OF TAPE			X						2.40									Stage 3
IA 44	679+01.93	687+41.93	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED			X			8.40												Stage 3
IA 44	667+03.03	669+43.03	EB	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	X								2.40									Stage 3
IA 44	669+43.03	676+61.93	EB	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED		X				7.19												Stage 3
IA 44	676+61.93	679+01.93	EB	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	X								2.40									Stage 3
IA 44	664+63.03	667+03.03	EB	PAVEMENT MARKINGS REMOVED		X								2.40								Stage 4
IA 44	667+03.03	678+85.75	EB	PAVEMENT MARKINGS REMOVED			X			11.83												Stage 4
IA 44	667+03.03	669+43.03	EB	INCIDENTAL REMOVAL OF TAPE	X								2.40									Stage 4
IA 44	669+43.03	676+61.93	EB	PAVEMENT MARKINGS REMOVED		X				7.19												Stage 4
IA 44	676+61.93	679+01.93	EB	INCIDENTAL REMOVAL OF TAPE	X								2.40									Stage 4
IA 44	667+03.03	-	EB	PAVEMENT MARKINGS REMOVED	X							0.12										Stage 4
IA 44	-	679+01.93	EB	PAVEMENT MARKINGS REMOVED			X					0.12										Stage 4
IA 44	679+01.93	687+41.93	EB	PAVEMENT MARKINGS REMOVED		X								8.40								Stage 4
IA 44	664+63.03	667+03.03	EB	GROOVES CUT FOR PAVEMENT MARKINGS		X					2.40											Final
IA 44	667+03.03	670+85.29	EB	GROOVES CUT FOR PAVEMENT MARKINGS		X	X			3.82	3.82											Final
IA 44	667+03.03	668+88.00	EB	GROOVES CUT FOR PAVEMENT MARKINGS	X					1.85												Final
IA 44	669+69.00	670+85.29	EB	GROOVES CUT FOR PAVEMENT MARKINGS	X					1.16												Final
IA 44	675+24.62	679+01.93	EB	GROOVES CUT FOR PAVEMENT MARKINGS	X	X				3.77	3.77											Final
IA 44	675+24.62	678+85.75	EB	GROOVES CUT FOR PAVEMENT MARKINGS			X			3.61												Final
IA 44	679+01.93	687+41.93	EB	GROOVES CUT FOR PAVEMENT MARKINGS		X					8.40											Final
IA 44	664+63.03	667+03.03	EB	PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID		X					2.40											Final
IA 44	667+03.03	679+01.93	EB	PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID		X					11.99											Final
IA 44	667+03.03	668+88.00	EB	PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID	X					1.85												Final
IA 44	669+69.00	679+01.93	EB	PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID	X					9.33												Final
IA 44	667+03.03	678+85.75	EB	PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID			X			11.83												Final
IA 44	679+01.93	687+41.93	EB	PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID		X					8.40											Final
				Factored Total: PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED				-	-	34.77	-	0.96	-	13.50	-	-	-	-	-	-	-	-	
				Factored Total: PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID				-	-	23.01	5.70	-	-	-	-	-	-	-	-	-	-	
				Factored Total: INCIDENTAL REMOVAL OF TAPE				-	-	-	-	-	12.77	-	-	-	-	-	-	-	-	
				Factored Total: WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS				-	-	-	-	-	12.77	-	-	-	-	-	-	-	-	
				Factored Total: PAVEMENT MARKINGS REMOVED				15.96	3.87	38.19	-	0.96	-	13.50	-	-	-	-	-	-	-	
				Factored Total: GROOVES CUT FOR PAVEMENT MARKINGS				-	-	14.22	4.60	-	-	-	-	-	-	-	-	-	-	
				Bid Quantity: 2527-9263209 - PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED							49.23											
				Bid Quantity: 2527-9263216 - PAINTED PAVEMENT MARKING, MULTI-COMPONENT LIQUID							28.70											
				Bid Quantity: 2527-9263231 - WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS							12.77											
				Bid Quantity: 2527-9263181 - PAVEMENT MARKINGS REMOVED							72.49											
				Bid Quantity: 2527-9270112 - GROOVES CUT FOR PAVEMENT MARKINGS							18.82											

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

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

Remark Abbreviations
QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

Not Marked	Farmers Mutual Telephone
Not Marked	Mediacom Cable
Not Marked	Windstream Communications
Not Marked	Marne & Elk Telephone
— FO —	Harland Municipal Utilities QLB
— G —	Harland Municipal Utilities QLB

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
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

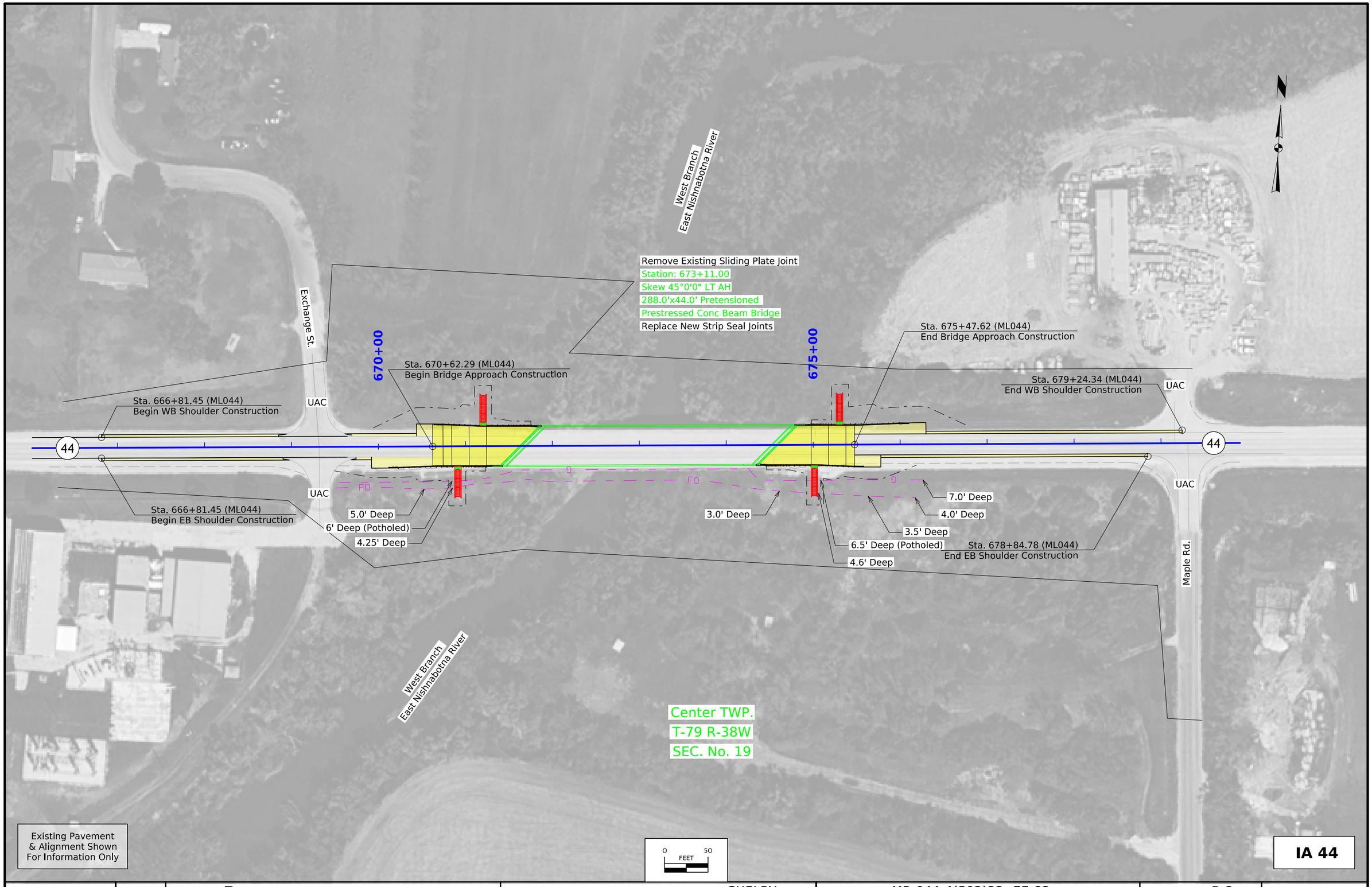
- Proposed Right-of-Way Symbol
- Proposed Right-of-Way Line
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary) Symbol
- Easement (Temporary) Line
- Easement
- C/A Access Control
- Property Line Symbol
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO.	ENGLISH	DESIGN TEAM Tap	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER D.1

8:08:44 AM 9/29/2026 emcdona pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\8304401026\Design\MB-044-4(502)22--77-83\CADD_Files\LGN_83044502Z06.dgn



FILE NO.	ENGLISH	DESIGN TEAM Tap	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER D.2

10:43:59 AM 9/29/2026 ctap pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\8304401026\Design\MB-044-4(502)22--77-83\CADD_Files\Sheets\D02_83044502Z06.dgn

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108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			None provided.									

108-23A
08-01-08

TRAFFIC CONTROL PLAN

IA 44 Traffic shall be maintained at all times as stated in the Staging Notes, following J Sheets, and provided Standard Road Plans.
Refer to the Standard Specifications for additional requirements and information.

111-01
04-17-12

COORDINATED OPERATIONS

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

Project	Type of Work
None provided.	

108-26A
08-01-08

STAGING NOTES

Stage 1:
    Traffic:
        Both directions of traffic will be maintained in the EB lane during construction of temporary pavement using flaggers followed by a shoulder closure for cure/set time.

    Construction:
        Temporary pavement on WB lane shoulder at both ends of the project.
        Directly prior to start of Stage 2 work, set up temporary traffic control devices on IA 44 as shown in following J Sheets.

Stage 2:
    Traffic:
        Both directions of traffic will be maintained in the WB lane of bridge using traffic signals and TBR.
        Exchange St. and Maple Rd. to be closed to traffic during construction.

    Construction:
        Install EB bridge end drains (rock flumes) on both sides of the bridge.
        Remove EB existing paving notch and install retrofit paving notch.
         Remove existing EB sliding plate joint and replace with new strip seal joints.
         Remove and replace EB approach pavement on both ends of bridge.
        Remove and replace EB guardrail on both sides of the bridge.
        Pave the EB shoulders in front of the guardrail.
        Temporary pavement on EB lane shoulder at both ends of project.

Stage 3
    Traffic:
        Both directions of traffic will be maintained in the EB lane of bridge using traffic signals and TBR.
         Exchange St. and Maple Rd. to be closed to traffic during construction.

    Construction:
        Install WB bridge end drains (rock flumes) on both sides of the bridge.
         Remove WB existing paving notch and install retrofit paving notch.
         Remove existing WB sliding plate joint and replace with new strip seal joints.
        Remove and replace WB approach pavement on both ends of bridge.
        Remove and replace WB guardrail on both sides of the bridge.
        Pave the WB shoulders in front of the guardrail. (Remove temporary pavement within the limits of guardrail paving)

Stage 4
    Traffic:
        Remove all temporary traffic control devices on IA 44.
        IA 44 will be fully open in both directions.
        Exchange St. and Maple Rd. to be opened to traffic.

    Construction:
        Complete final markings, seeding, erosion control removals, and site clean up if not already done so and at a time as approved by the Engineer.

LEGEND

- Single White Delineator
- Channelizing Device
- Drum
- Traffic Signal
- Traffic Sign
- Type III Barricade
- Direction of Traffic
- Safety Closure
- Vehicle Detection Area
- Temporary Crash Cushion

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

ROAD CLOSED

R11-2
48" x 30"

Exchange St.

West Branch
East Nishnabotna River

670+00

675+00

680+00

240'-0"

Refer to TC-217 for Signing Details

100'-0"

100'-0"

100'-0"

100'-0"

220'-0"

44

Maple Rd.

ROAD CLOSED

R11-2
48" x 30"

Center TWP.
T-79 R-38W
SEC. No. 19

Existing Pavement & Alignment Shown For Information Only

Refer to TC-217 for signal timing and other details

0 50 FEET

Stage 2

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
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading

FILE NO.	ENGLISH	DESIGN TEAM Tap	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER J.2

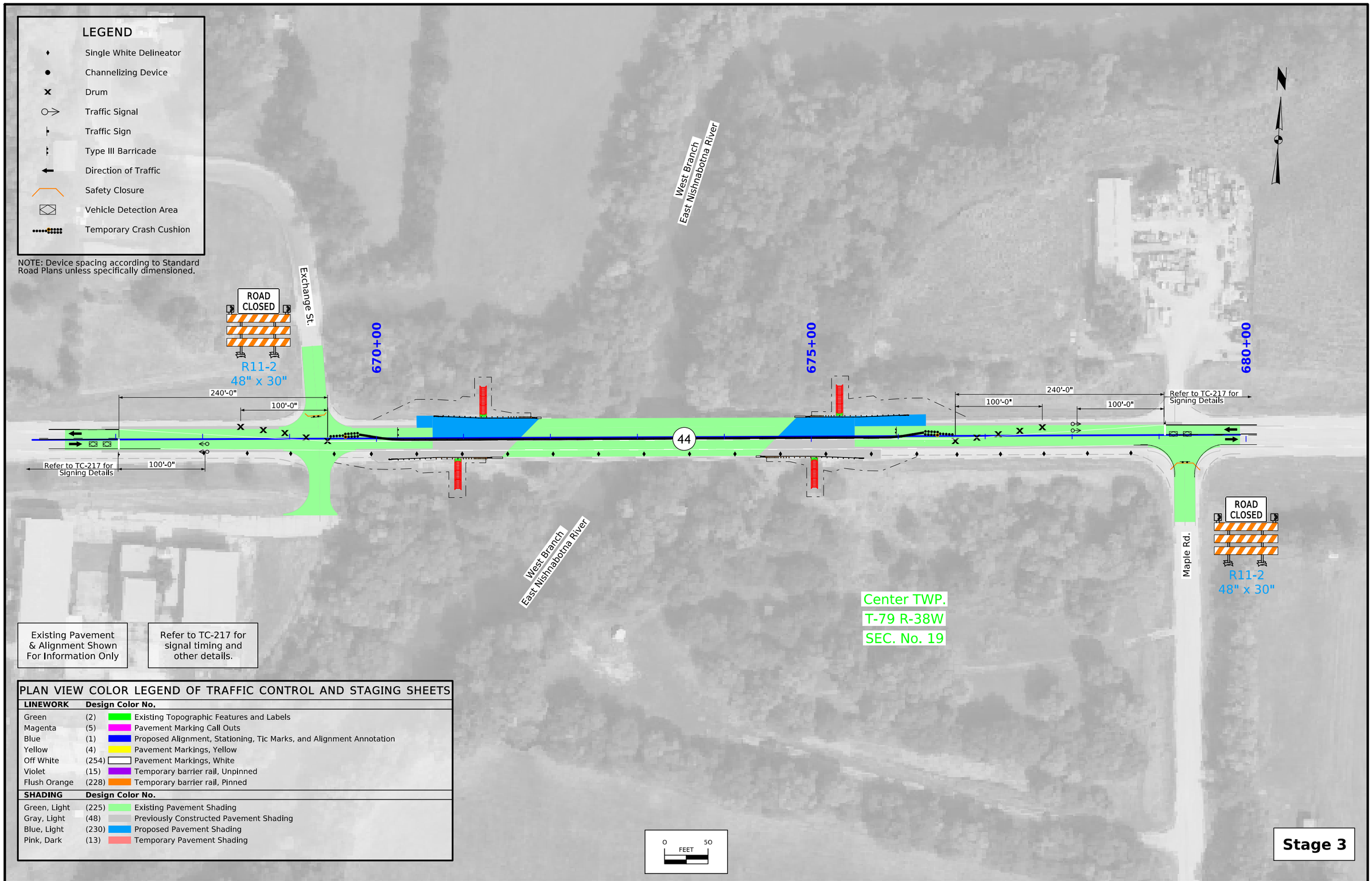
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LEGEND

- Single White Delineator
- Channelizing Device
- Drum
- Traffic Signal
- Traffic Sign
- Type III Barricade
- Direction of Traffic
- Safety Closure
- Vehicle Detection Area
- Temporary Crash Cushion

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



Existing Pavement & Alignment Shown For Information Only

Refer to TC-217 for signal timing and other details.

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
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading

Stage 3

FILE NO.	ENGLISH	DESIGN TEAM Tap	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER J.3

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LEGEND

- Single White Delineator
- Channelizing Device
- Drum
- Traffic Signal
- Traffic Sign
- Type III Barricade
- Direction of Traffic
- Safety Closure
- Vehicle Detection Area
- Temporary Crash Cushion

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

Exchange St.

West Branch East Nishnabotna River

670+00

675+00

680+00

ELW6

ELW6

44

BCY6

ELW6

ELW6

BCY6

West Branch East Nishnabotna River

Maple Rd.

Center TWP.
T-79 R-38W
SEC. No. 19

Existing Pavement & Alignment Shown For Information Only

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
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading

0 50 FEET

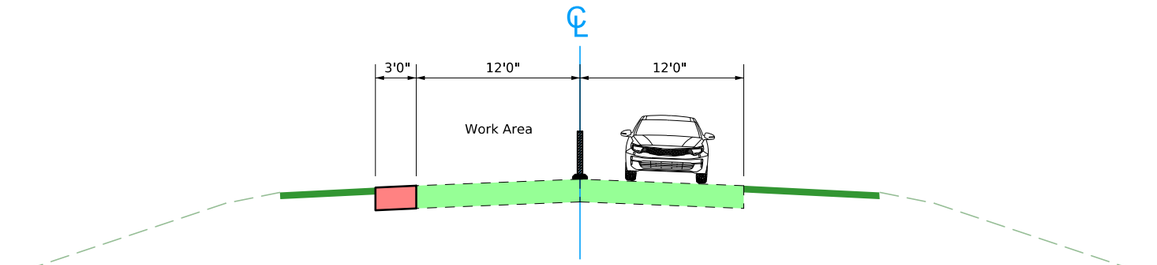
Stage 4

FILE NO.	ENGLISH	DESIGN TEAM Tap	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER J.4

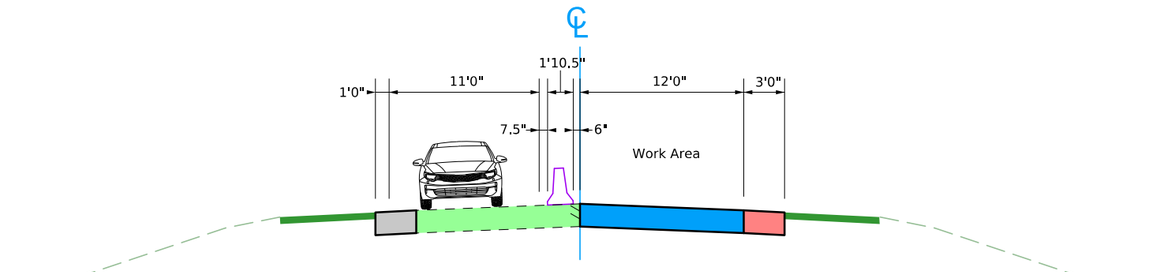
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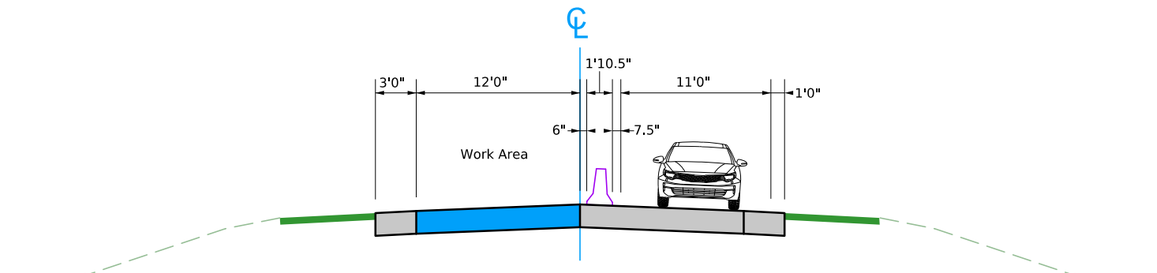
Stage 1



Stage 2



Stage 3



PLAN VIEW COLOR LEGEND OF STAGING SHEETS		
SHADING	**Design Color No.**	
Green, Light	(225)	Existing Pavement Shading
Green, Dark	(233)	Existing Granular Shoulder Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading

IA 44

FILE NO.	ENGLISH	DESIGN TEAM Tap	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER J.5	

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ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadside :

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadside	
1	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	4	Refer to Sheet RC.2 and D Sheets for details.
2	2602-0000020	SILT FENCE	LF	1,268.75	Refer to Tab. 100-17. The tabulation includes estimated locations for placement of "Silt Fence" to address erosion to be encountered during construction along center of foreslopes in work area. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes tab quantity for the project and 25% additional quantity for field adjustments and replacements.
3	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	1,268.75	This item is included for silt fence removal required for removal to allow for replacement (replacement to be paid separately) or for areas that have achieved 70% permanent growth. Remove silt fence and posts after mulching or vegetation is established and approved by the engineer.
4	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	126.88	This item is included for clean-out and repair of the silt fence and silt fence for ditch checks during the project. Bid at 10% of silt fence quantity.
5	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	200	Bid item is for allowing 100' equipment access for underside of bridge on both bridge ends at 2 locations approved by the Engineer.
6	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	1,380	Refer to Tab. 100-19. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 12 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.
7	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	1,380	Removal of sediment control devices shall be completed when 70% vegetation growth is achieved or as otherwise specified by the Engineer.

105-4
10-18-11

STANDARD ROAD PLANS

Number	Date	Title
DR-402	04-16-24	Rock Flume for Bridge End Drain
EC-201	04-20-21	Silt Fence
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-303	10-19-21	Stabilized Construction Entrance
EC-502	04-21-15	Seeding in Rural Areas

104-8A
04-19-22

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

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

Location			Bid Items	Scour Protection (DR-401)			Rock Flume (DR-402)			Remarks
Bridge Station	Bridge Corner	Distance DI-1 or DI-2	Bridge End Drain	Special Ditch Control, Wood Excelsior Mat	Turf Reinforced Mat (TRM), Type 2	Transition Mat	Macadam Stone Base	Engineering Fabric	Erosion Stone	
				EC-101	EC-104	EC-105				
		FT	TYPE	SQ	SQ	SF	TONS	SY	TONS	
673+11.00	NW	65.0	DR-402				1.463	53.4	31.950	
673+11.00	NE	50.0	DR-402				1.463	53.4	31.950	
673+11.00	SW	50.0	DR-402				1.463	53.4	31.950	
673+11.00	SE	65.0	DR-402				1.463	53.4	31.950	
TOTAL=			**4**				**5.850**	**213.7**	**127.800**	

100-19
10-19-21

PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES

Possible Standards: EC-204

Location			Perimeter and Slope			Ditch Check		Remarks
			Length of Installation			Length of Installation		
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	12 inch Dia	20 inch Dia	
			LF	LF	LF	LF	LF	
669+50.00	671+30.00	RT		180				SW area
674+45.00	676+25.00	RT		180				SE area
669+90.00	671+80.00	LT		190				NW area
674+90.00	676+80.00	LT		190				NE area
671+00.00	672+00.00	BOTH		180				West shoreline
674+10.00	675+10.00	BOTH		180				East shoreline
	TOTAL=			**1100**				

100-17
04-20-10

TABULATION OF SILT FENCES

Refer to EC-201

Location			Length	Remarks
Begin Station	End Station	Side	LF	
669+50.00	670+80.00	RT	130.0	SW Corner
670+60.00	671+20.00	RT	60.0	SW Corner
671+00.00	671+40.00	RT	40.0	SW Corner
674+25.00	674+90.00	RT	65.0	SE Corner
674+70.00	675+30.00	RT	60.0	SE Corner
675+10.00	676+40.00	RT	130.0	SE Corner
669+70.00	671+10.00	LT	140.0	NW Corner
670+90.00	671+50.00	LT	60.0	NW Corner
671+30.00	671+90.00	LT	60.0	NW Corner
674+70.00	675+20.00	LT	50.0	NE Corner
675+00.00	675+60.00	LT	60.0	NE Corner
675+40.00	677+00.00	LT	160.0	NE Corner
	TOTAL=		**1015.0**	

232-3A
10-19-21

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.

232-3C
10-19-21

EROSION CONTROL (NATIVE GRASS 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 and mulch on the disturbed area lying 8 feet or more beyond the shoulder as follows:

SEED MIX:

Big bluestem (Andropogon geradii)	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)

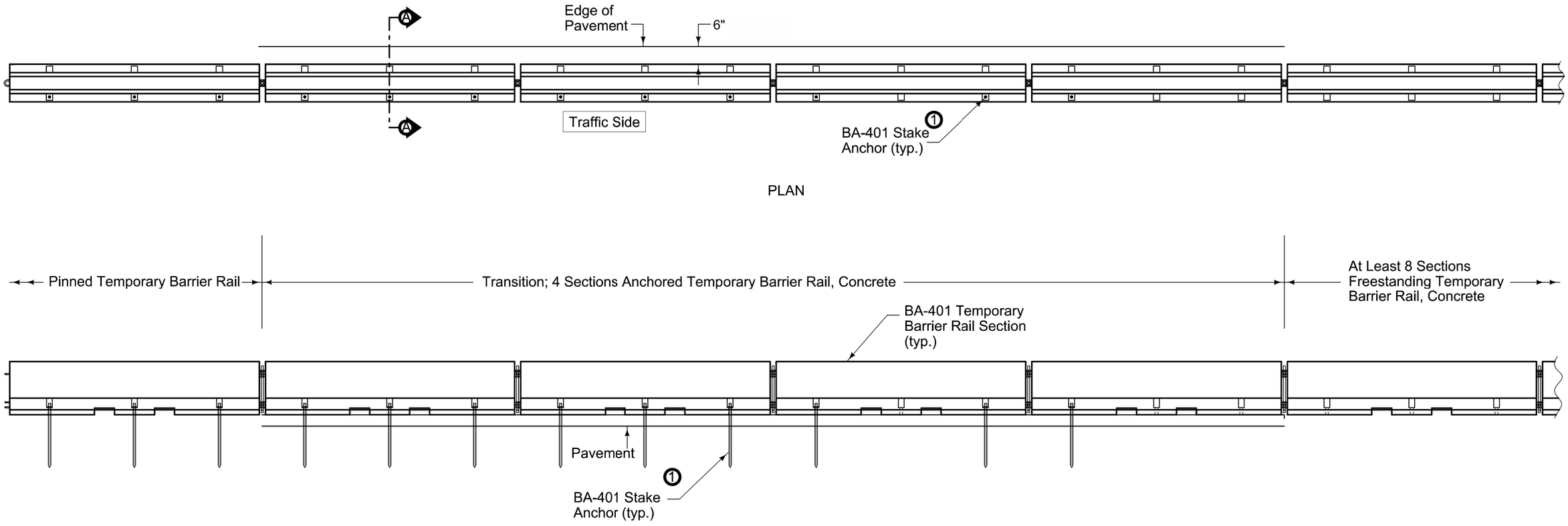
Furnish Big bluestem, Indiangrass, Canada wildrye and Little bluestem that is debearded or equal to facilitate the application of seed.

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.

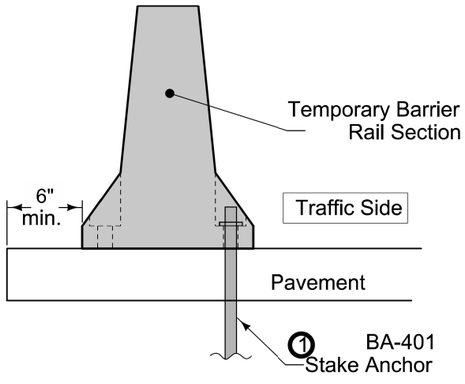
Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

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



PLAN

ELEVATION



SECTION A-A

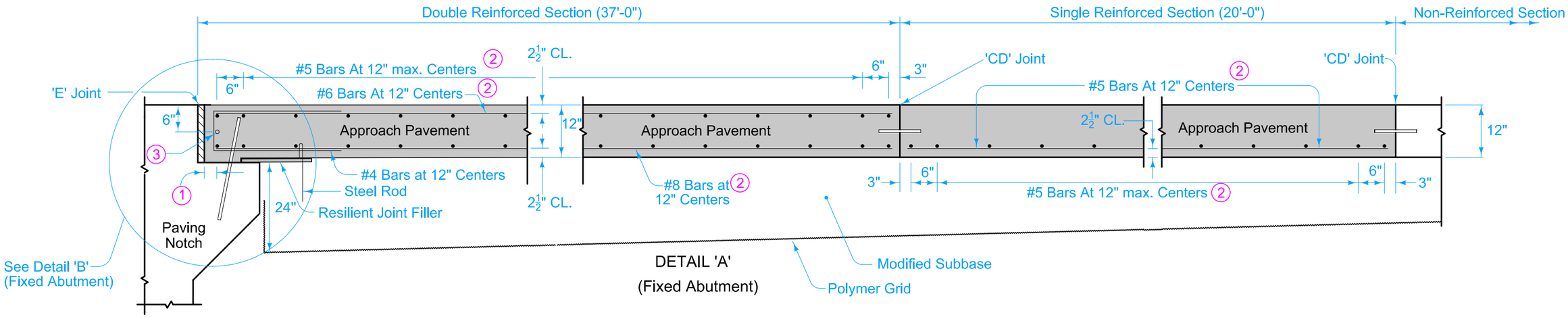
Install temporary barrier rail on a flat, level surface. Where anchored TBR sections are not located on existing pavement, construct a 2 inch minimum thickness HMA pad.

① Each transition requires nine (9) BA-401 stake anchors as shown. Use of the strap anchorage is not allowed in transition. When transition is placed on Composite or PCC Pavement pre-drill holes for stakes with 1⅝ inch core bit.

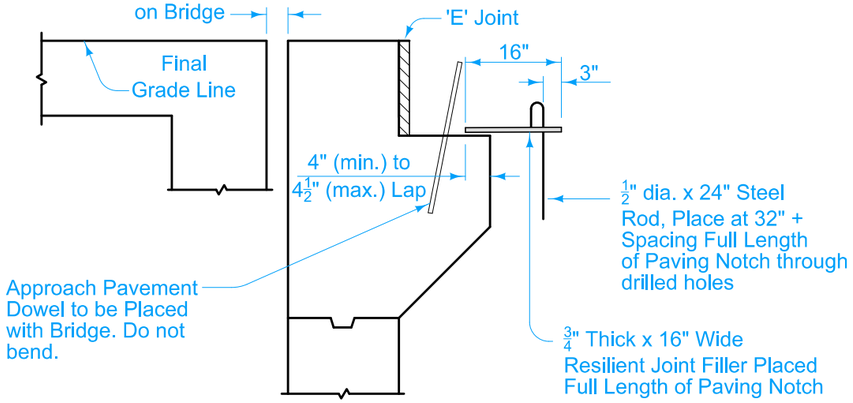
Transition from Pinned TBR to Unpinned TBR

FILE NO.	ENGLISH	DESIGN TEAM Tap	SHELBY COUNTY	PROJECT NUMBER MB-044-4(502)22--77-83	SHEET NUMBER U.1

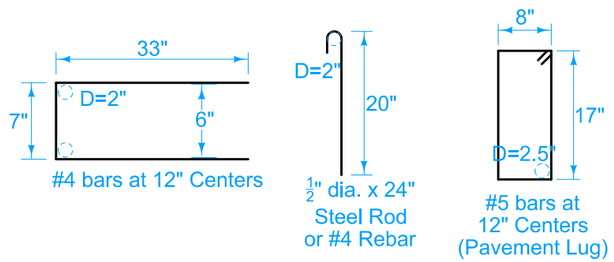
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DETAIL 'A'
(Fixed Abutment)



DETAIL 'B' (Fixed Abutment)



BENT BAR SHAPES

For joint details, refer to PV-101.

For curb details, see Detail 'G'.

All transverse bars are #5.

Possible Contract Item:
Bridge Approach, BR-203
Longitudinal Grooving in Concrete, Bridge Deck and/or Approaches

Possible Tabulation:
112-6

(1) 2" min. to 2 1/2" max. clear to bent bar.

(2) Minimum lap length: #5 Bars - 18"
#6 Bars - 27"
#8 Bars - 48"

(3) If bridge is skewed, place additional #5 bar parallel to skewed face.

MODIFIED 6-16-26

STANDARD ROAD PLAN **BR-203**

SHEET 1 of 3

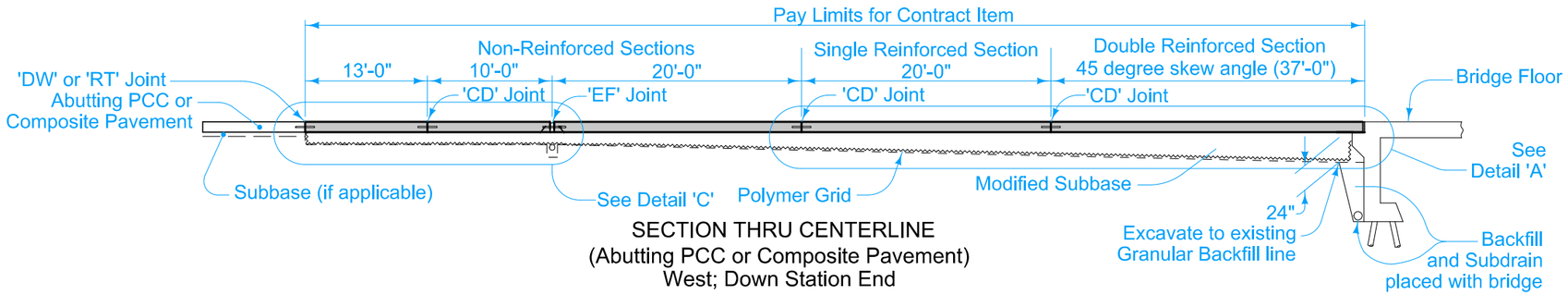
MODIFICATIONS: Modified for multiple non-reinforced lengths.

APPROVED BY DESIGN METHODS ENGINEER

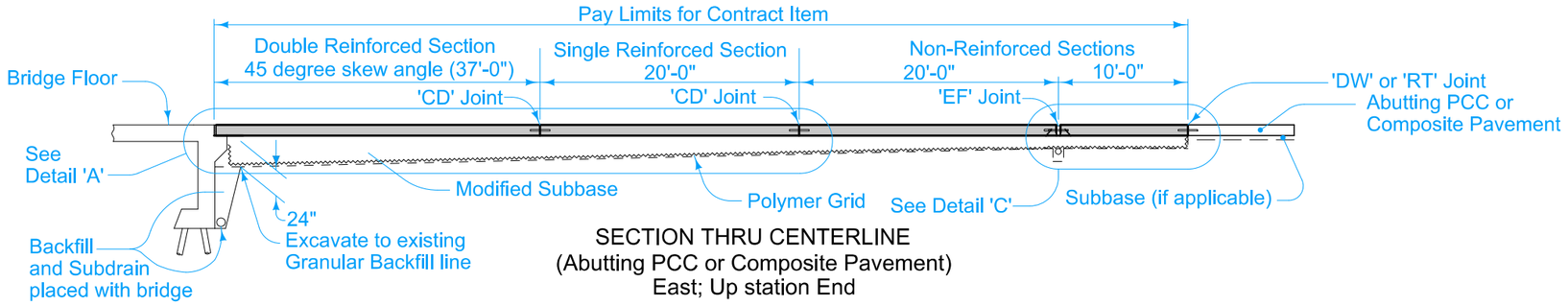
DOUBLE REINFORCED 12" APPROACH

FILE NO.	ENGLISH	DESIGN TEAM **Tap**	**SHELBY** COUNTY	PROJECT NUMBER **MB-044-4(502)22--77-83**	SHEET NUMBER **U.2**

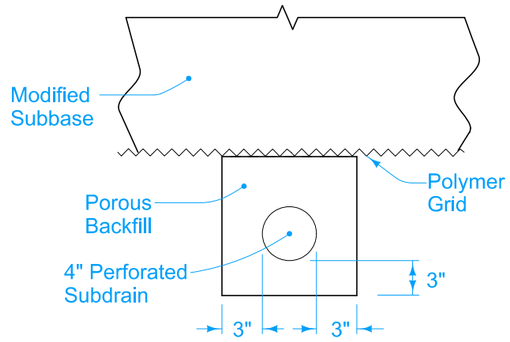
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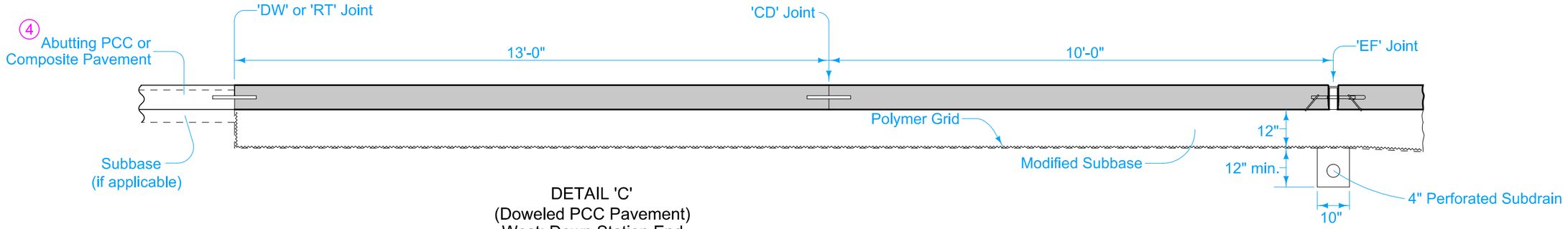
SECTION THRU CENTERLINE
(Abutting PCC or Composite Pavement)
West; Down Station End



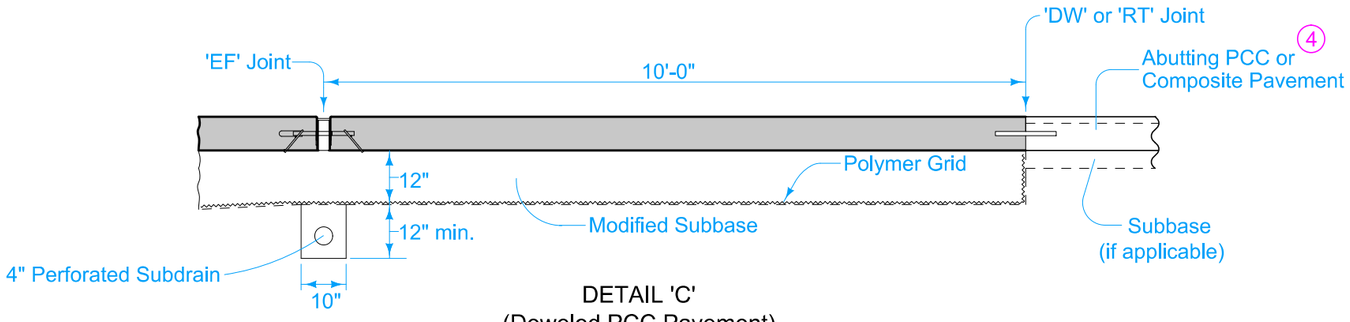
SECTION THRU CENTERLINE
(Abutting PCC or Composite Pavement)
East; Up station End



4" SUBDRAIN LOCATION



DETAIL 'C'
(Doweled PCC Pavement)
West; Down Station End



DETAIL 'C'
(Doweled PCC Pavement)
East; Up Station End

(4) If abutting pavement (PCC or HMA) is not in place, refer to BR-213.

MODIFIED

STANDARD ROAD PLAN

6-16-26

BR-203

SHEET 2 of 3

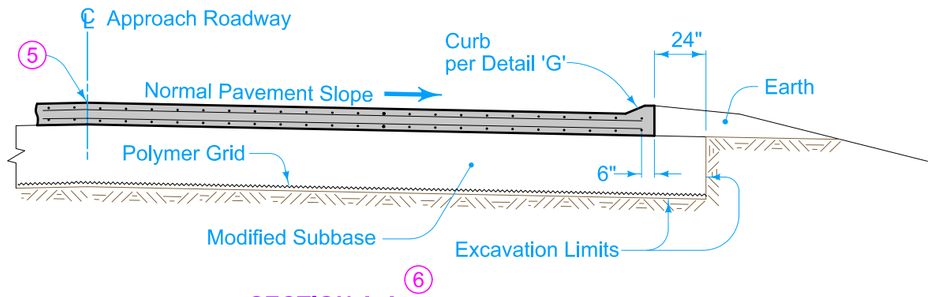
MODIFICATIONS: Modified for multiple non-reinforced lengths.

APPROVED BY DESIGN METHODS ENGINEER

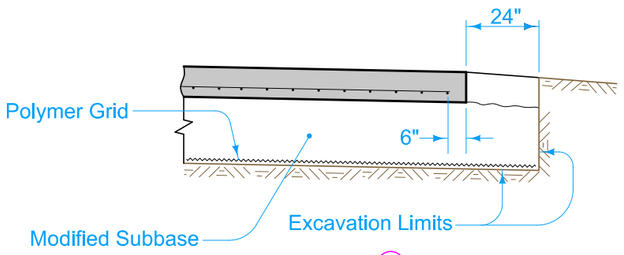
DOUBLE REINFORCED 12" APPROACH

FILE NO.	ENGLISH	DESIGN TEAM **Tap**	**SHELBY** COUNTY	PROJECT NUMBER **MB-044-4(502)22--77-83**	SHEET NUMBER **U.3**

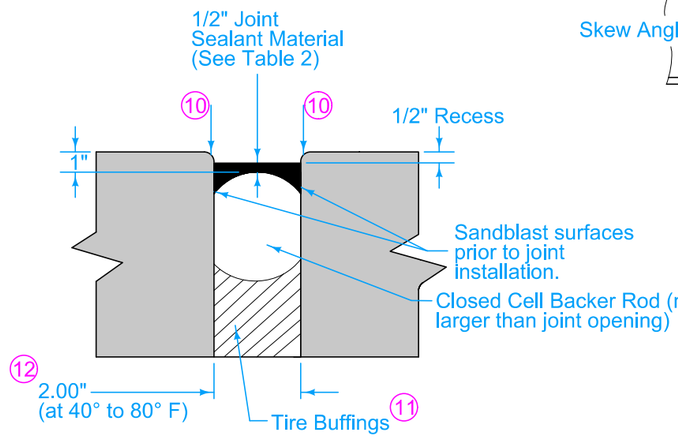
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SECTION A-A

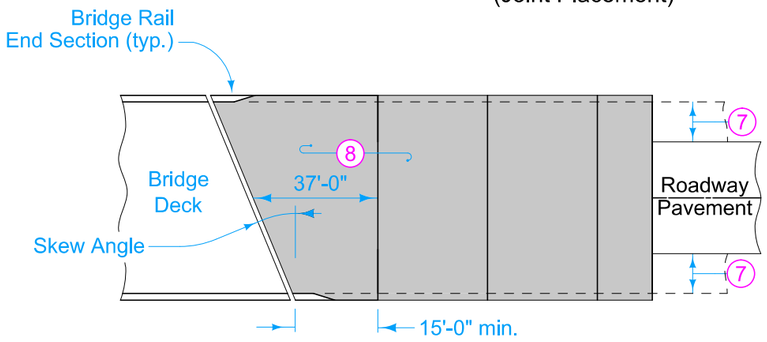


SECTION B-B

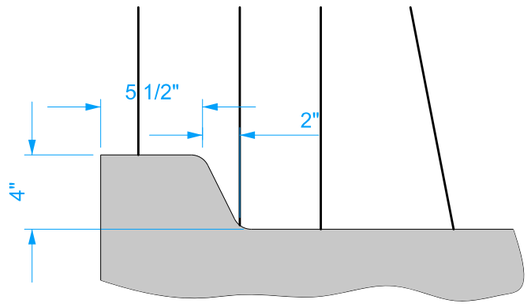


'BE'JOINT
DETAIL

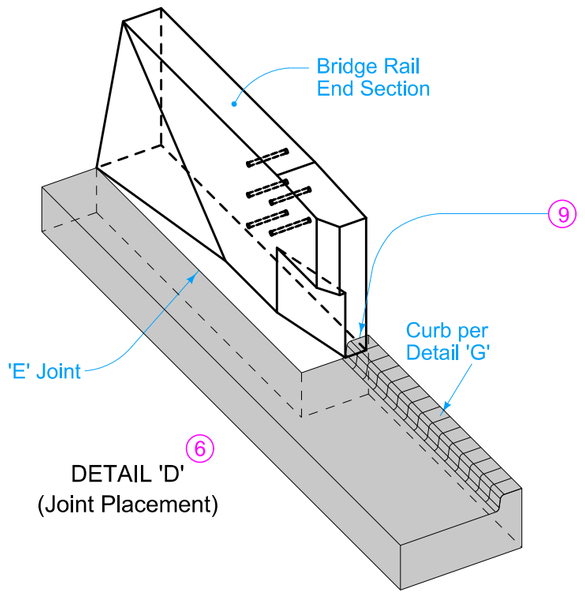
Table 2
Approved List of Sealant
Dow - Dowsil 902 RCS
Sika - Sikasil 728 RCS
Watson Bowman Acme - Wabo SiliconeSeal
Pecora - 322FC



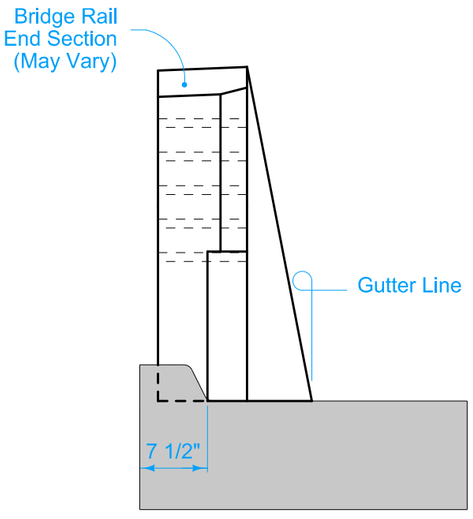
APPROACH PAVEMENT
LAYOUT AT A SKEW



DETAIL 'G'



DETAIL 'D'
(Joint Placement)



DETAIL 'E'

(5) Longitudinal Joint (PV-101):
Single pour - Saw cut joint per Detail B.
Two pours - Use 'BT-2' Joint.

(6) Refer to BR-211, BR-212, or BR-231.

(7) Design shoulder width.

(8) Reinforced bridge approach section.

(9) Joint at end of Bridge Rail End Section: Place joint filler the full depth of the bridge approach pavement. In areas with curb, place full depth of pavement plus curb and shape material to fit the shape of the curb per Section B-B of PV-101. Seal joint per Detail F of PV-101.

- Fixed Abutment Bridges: Type 'E' Joint.

- Moveable Abutment Bridges: Flexible Foam Expansion Joint Filler complying with Section 4136 of the Standard Specifications. Set width of gap to 2 inches. Joint length as required to completely fill from back side of curb to front face of bridge wing.

(10) Edge with ¼ inch tool for length of joint indicated if formed edging not required when cut with diamond blade saw.

(11) Compact tire buffings by spading with a square-nose shovel. Tire buffings shall not be larger than ½ inch.

(12) Setting Width Notes:

- Width is perpendicular to abutment.

- Temperature of concrete deck on the underside or shaded portion of the deck shall be between 40 to 80 degrees Farenheit when placing approach slab concrete.

-This 'BE' joint and the setting temperatures may be used for all concrete beam or slab bridges up to 575' in length and for all steel girder bridges up to 400' in length.

MODIFIED

STANDARD ROAD PLAN

6-16-26

BR-203

SHEET 3 of 3

MODIFICATIONS: Modified for multiple non-reinforced lengths.

APPROVED BY DESIGN METHODS ENGINEER

DOUBLE REINFORCED 12" APPROACH