

GRUNDY COUNTY

Bridge-Unspecified  
BRFN-014-6(44)--39-38

LETTING DATE  
11-19-2024



PLANS OF PROPOSED IMPROVEMENT ON THE  
**PRIMARY ROAD SYSTEM**  
**GRUNDY COUNTY**  
Bridge-Unspecified  
Wolf Creek 0.8 mi N fo Co Rd D67

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL

15

PROJECT IDENTIFICATION NUMBER

20-38-014-010

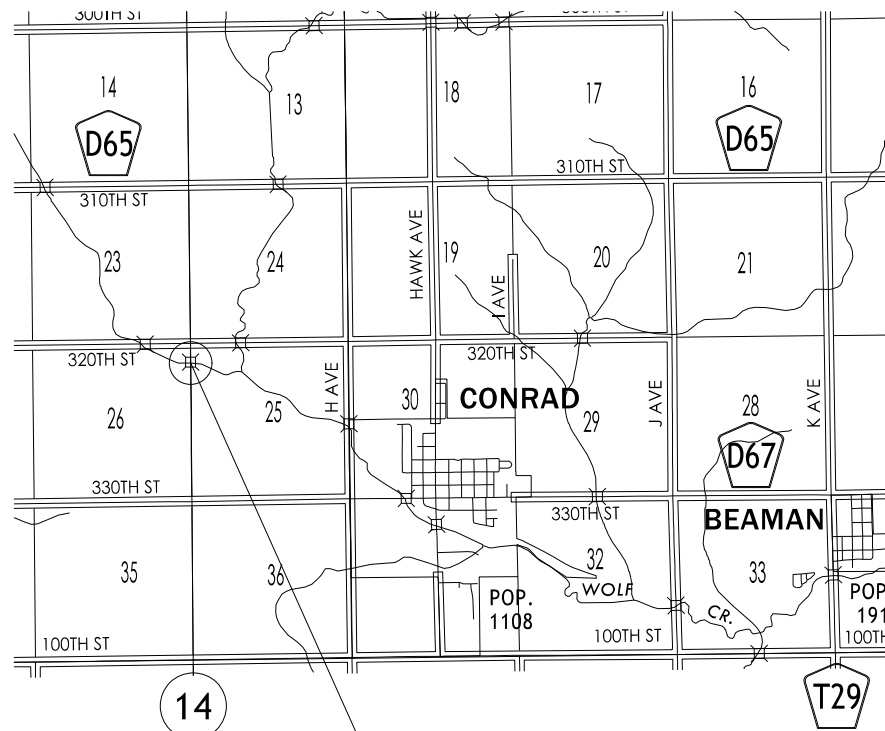
PROJECT NUMBER

BRFN-014-6(44)--39-38

R.O.W. PROJECT NUMBER

NHSN-014-6(45)--2R-38

No.	DESCRIPTION
<b>INDEX OF SHEETS</b>	
<b>A Sheets</b>	<b>Title Sheets</b>
* A.1	Title Sheet/Location Map
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 3	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA 14 Plan & Profile
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
* J.2	Detour Map
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
V.1 - 3	Bridge and Culvert Situation Plans
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1 - 4	Mainline Cross Sections
	* Color Plan Sheets



Project Location  
MP 115.44  
Maintenance No. 3815.45014  
FHWA No. 25830

D4 PLAN - Date: 7-23-2024

PRELIMINARY PLANS

Subject to change by final design.

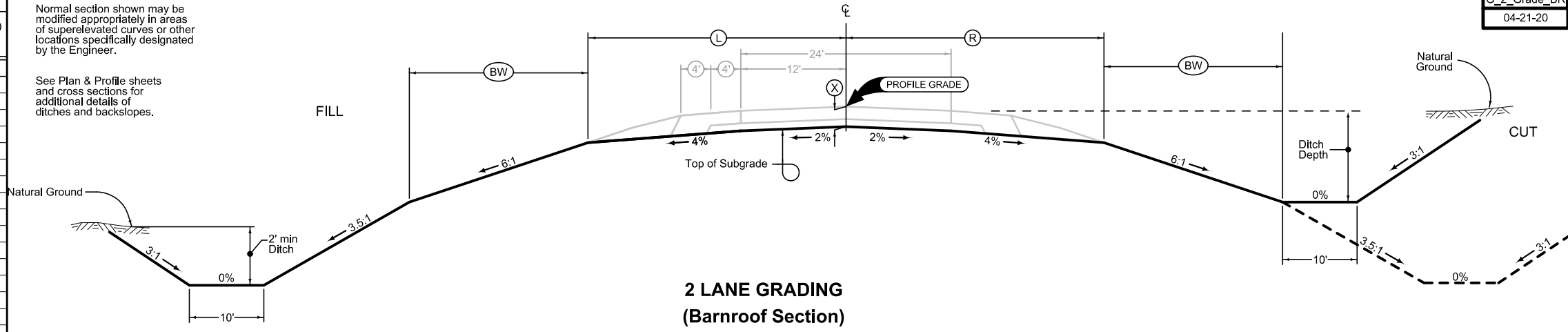
D5 PLAN - Date: 3-17-2023

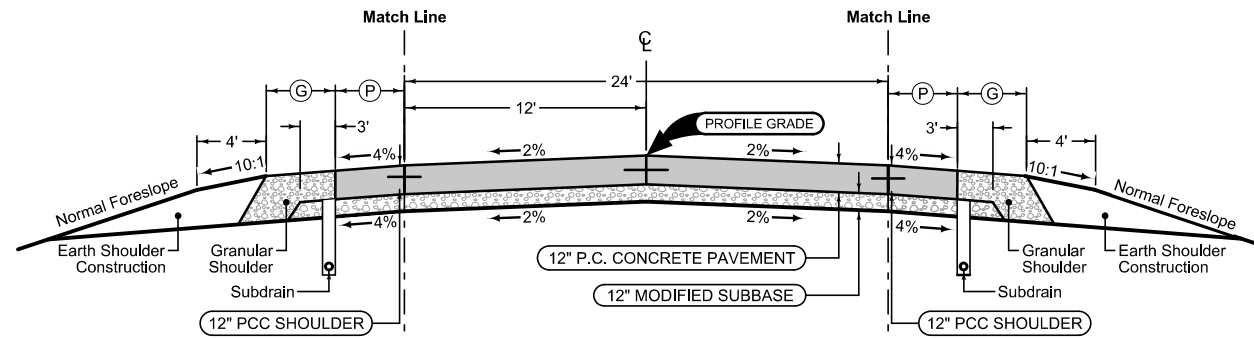
INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Allison Smyth	Primary Signature Block

LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	(L) Feet	(R) Feet	(X) Inches	(BW) Feet
IA 14	96+87.66    97+85.80	36	36	24	7.04
IA 14	100+29.84    101+19.99	36	36	24	7.04

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.





Mainline Jointing:  
 Transverse joints: CD at 17' spacing  
 Longitudinal joint: L-2

2P_04-21-20	
STATION TO STATION	
96+87.66	97+86.01
100+27.32	101+19.99

**Full Depth PCC Combination Shoulder**

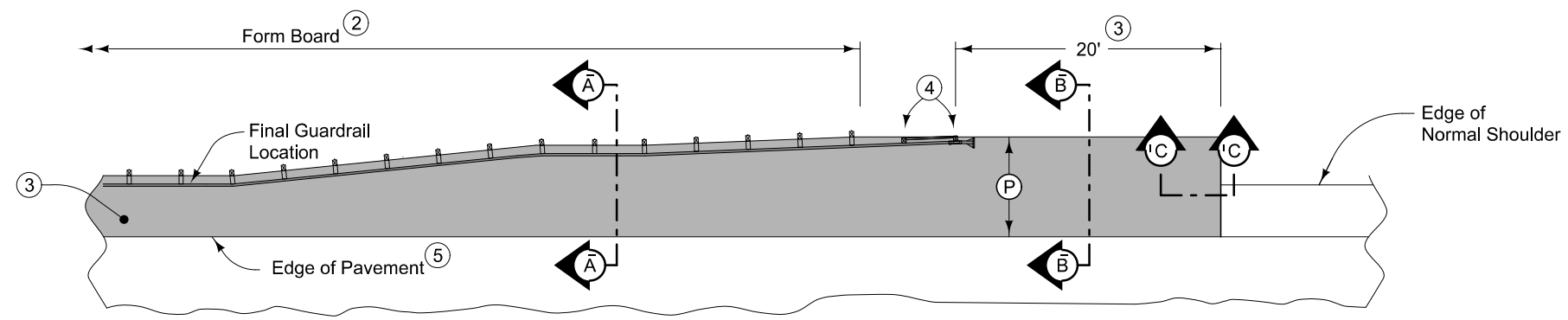
Shoulder Jointing:  
 Longitudinal joint: L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_C_FullPCC_04-21-20			
STATION TO STATION		(P) Feet	(G) Feet
96+87.66	97+47.71	4	4
100+90.45	101+99.19	4	4

**Full Depth PCC Combination Shoulder**

Shoulder Jointing:  
 Longitudinal joint: L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_C_FullPCC_04-21-20			
STATION TO STATION		(P) Feet	(G) Feet
96+87.66	97+23.20	4	4
100+65.27	101+19.99	4	4



PLAN VIEW

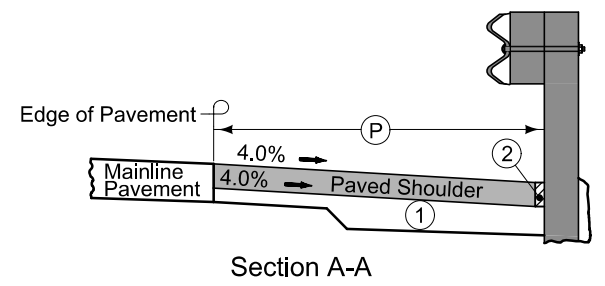
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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

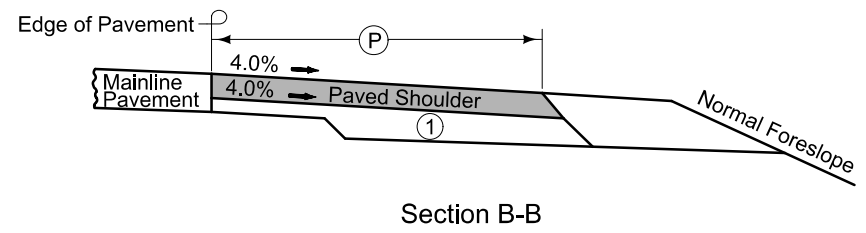
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

- ① For subgrade treatment, refer to other details in the plan.
- ② PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder. 'B' joint for HMA shoulder.

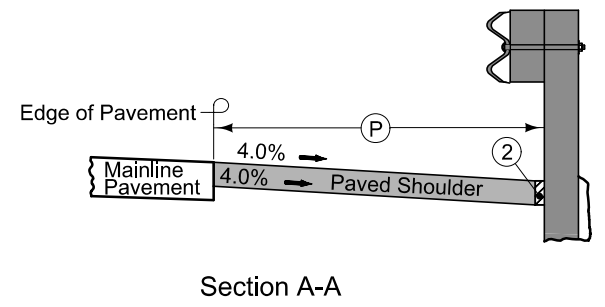


Section A-A

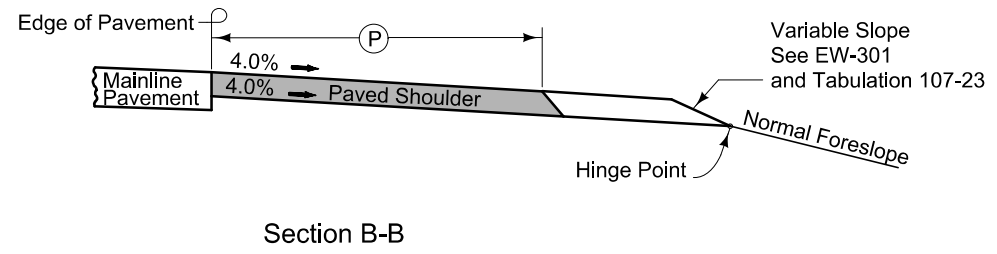


Section B-B

NEW CONSTRUCTION

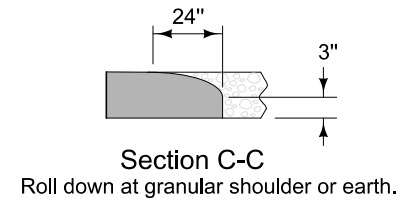


Section A-A



Section B-B

EXISTING SHOULDER



Section C-C

Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

### 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
- Water Hydrant (Rural)
- Septic Tank
- Cistern
- L.P. Gas Tank (No Footing)
- Underground Storage Tank
- Latrine
- Satellite TV Dish
- Water Hook Up
- Radio Tower
- Tower Anchor
- Guardrail (Beam or Cable)
- Guard Post (one or two)
- Guard Post (over two)
- Filler Pipe
- Gas Valve
- Water Valve
- Speed Limit Sign
- Mile Marker Post
- Sign
- Traffic Signal Control Box
- Rail Road Signal Control Box
- Telephone Switch Box
- Electric Box

### UTILITY LEGEND

- FO Jay Duncan  
Plant Manager  
Heart of Iowa Communications Cooperative  
502 Main Street  
Union, IA 50258-0130  
(641) 486-2211  
jduncan@heartofiowa.coop
- Mary Montgomery  
Real Estate and Right of Way Representative II  
Alliant Energy  
PO Box 351  
Cedar Rapids, IA 52406-9874  
(319) 786-4768  
MaryMontgomery@alliantenergy.com
- W Michael Madren  
CADD Technician  
Iowa Regional Utilities Association  
3801 Iowa Speedway Drive  
Newton, IA 50208  
(641) 792-7011  
mmadren@irua.net
- E David Gross  
Permitting Specialist  
ITC Midwest LLC  
100 E. Grand Avenue - Suite 230  
Des Moines, IA 50309  
(515) 639-3325 Cell: (507) 320-2422

### PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.	
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING		Design Color No.	
Lavender	(9)		Temporary Pavement Shading
Yellow	(4)		Proposed Pavement Shading
Orange	(6)		Proposed Granular Shading
Orange	(70)		Proposed Shoulder Granular Shading
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)		Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)		Grading Shading
Orange, Light	(134)		Proposed Granular Entrance Shading
Yellow	(220)		Proposed Paved Entrance Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading
Green, Light	(225)		Existing Pavement Shading
Red	(3)		Proposed Structure Shading
Red	(3)		Delineates Restricted Areas

### PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.	
Green	(10)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

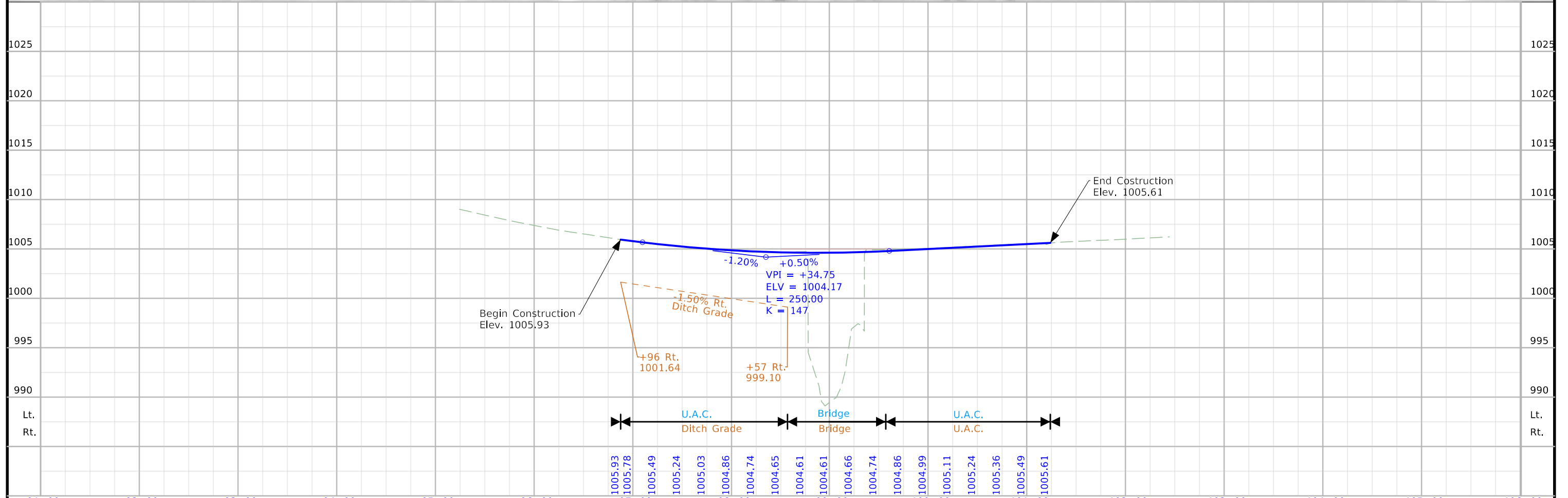
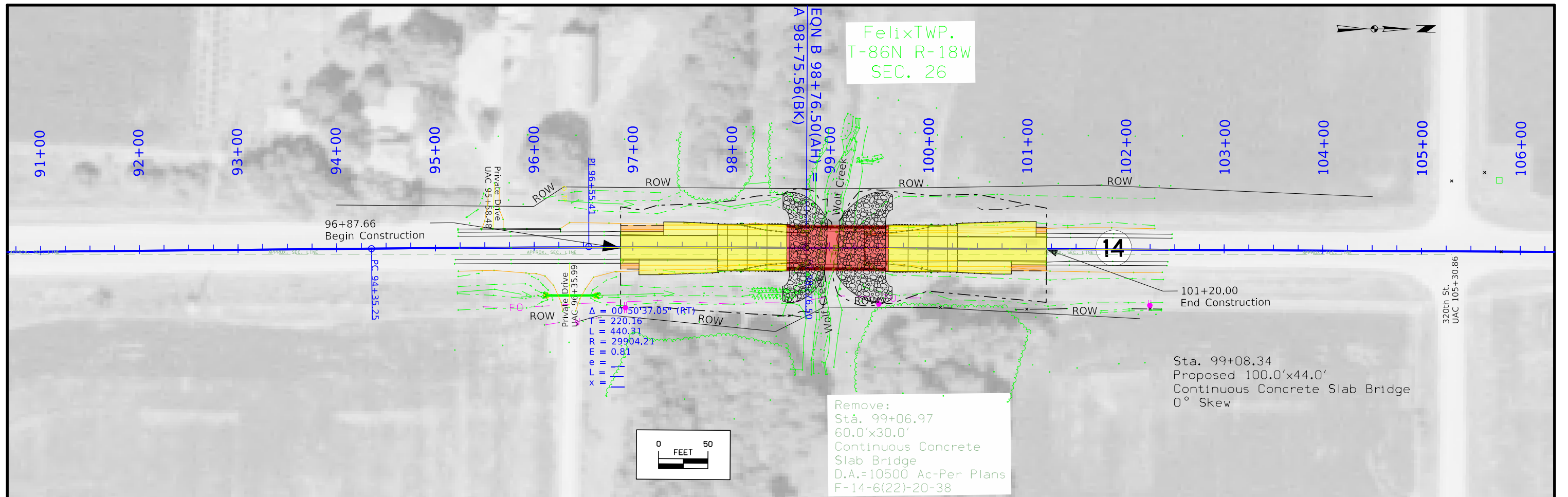
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

### RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Access Control
- Property Line

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.



1

J. PATRICK NEUROTH &  
PATRICIA A. MEANS NEUROTH

95+00

TEMPORARY EASEMENT  
TO SHAPE

STA 98+00  
C 70'

STA 99+08±P  
C 70'

STA 99+92  
C 70'

100+00

2

BUSCH FARM  
PROPERTIES LLC

TEMPORARY EASEMENT  
TO SHAPE

105+00

14

STA 98+45  
C 85'

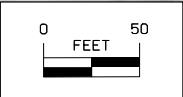
STA 99+86  
C 60'

TEMPORARY EASEMENT  
TO SHAPE

3

JOANN R. KLEIN (LE)  
MARY L. CHADWICK  
KEVIN P. KLEIN

Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team:	ATINKEN / JLARSON
ROW #:	NHSN-014-6(45)-2R-38
Plan Date:	4/25/2023
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





108-23A  
08-01-08

### TRAFFIC CONTROL PLAN

Iowa 14 will be closed to traffic during construction. See detour map on sheet J.2. The detour will be placed and maintained by the contractor.

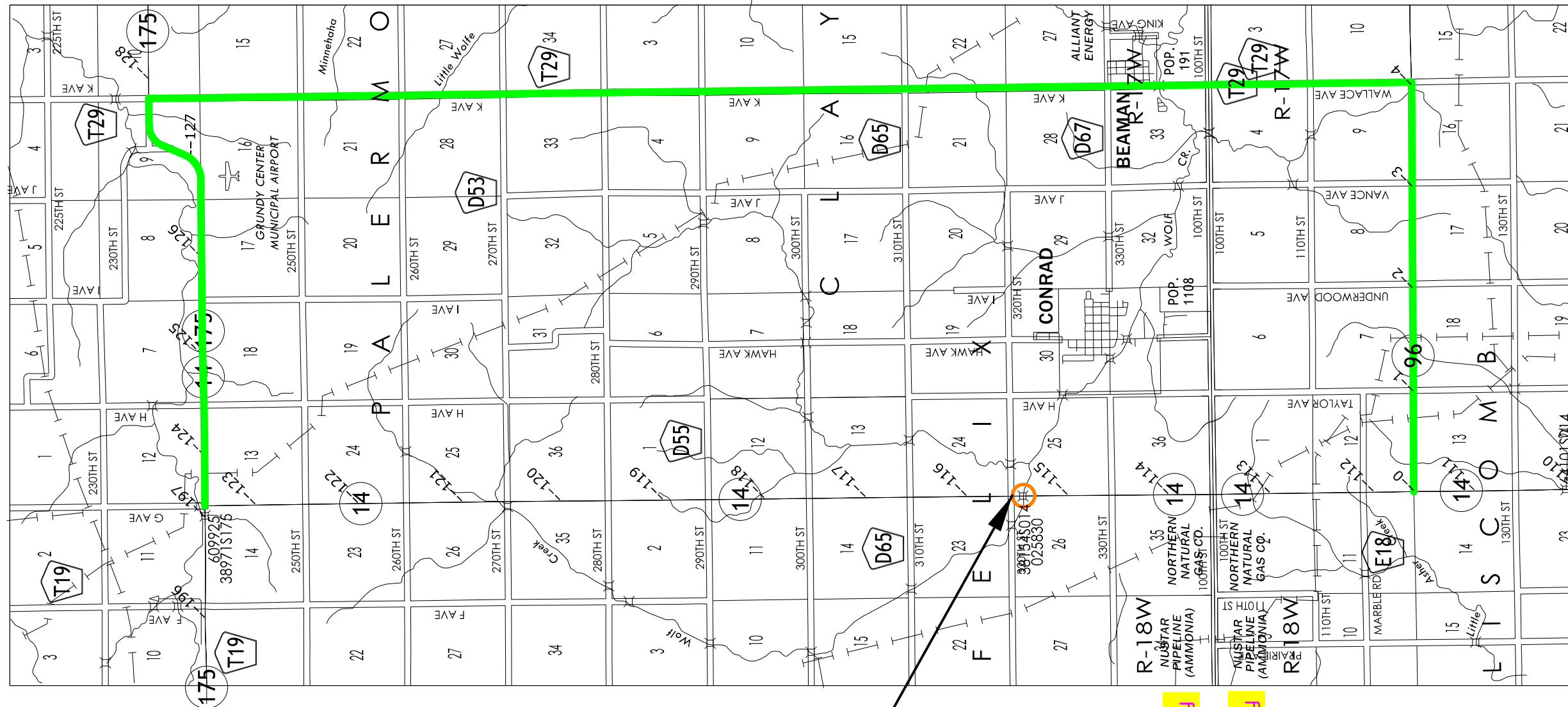
108-25  
10-21-14

### 511 TRAVEL RESTRICTIONS

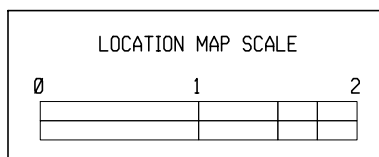
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			No restrictions expected.									



- County Border
- Detour Route
- Construction Area



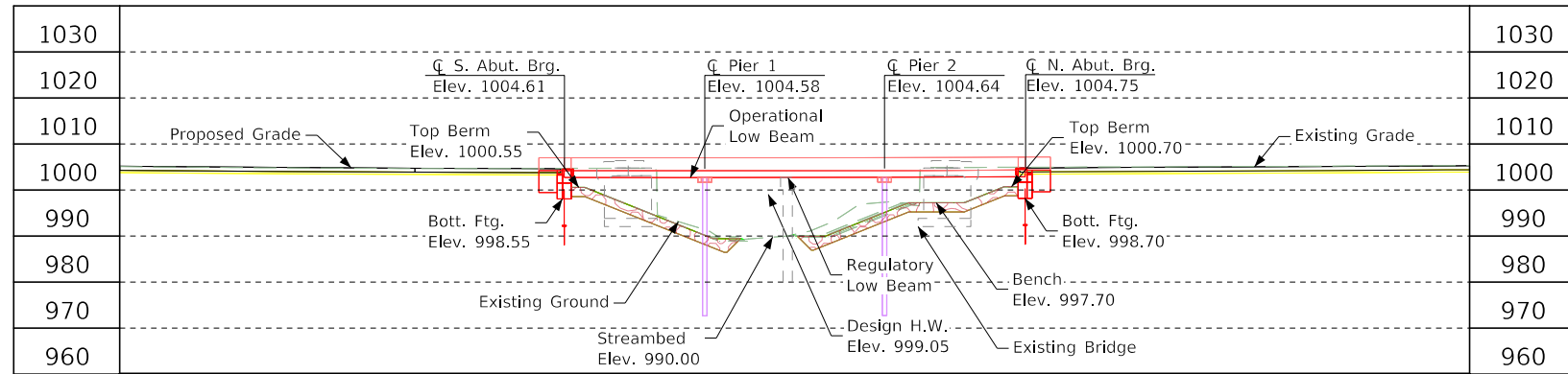
Project Location  
 MP 115.44  
 FHWA No. 25830  
 Maintenance No. 3815.4S014



Grundy County

Marshall County

**IOWA DOT**  
 Grundy County  
 Project Location Map  
 Proposed Detour Map  
 for BRFN-014-6(66)--39-38



LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY

Curve Data

PI Sta. 96+55.41  
 $\Delta = 00^{\circ}50'37.05''$  (RT)  
 T = 220.16  
 L = 440.31  
 R = 29904.21  
 E = 0.81  
 PC Sta. 94+35.25  
 PT Sta. 98+76.50

$-1.20\%$   $+0.50\%$   
 VPI Sta. = 98+34.75  
 VPI Elev. = 1004.17  
 VC = 250'

Proposed Profile  
 Grade IA 14

Plan Notes:

1. Top of bridge deck crown 0.03' below profile grade.
2. Class E Revetment stone is embedded.

General Notes:

1. This design is for the replacement of the existing 62'-0 x 30'-0 Continuous Concrete Slab bridge, Design No. 356. FHWA 25830, Maint. No. 3815.4S014.

Design Notes:

1. Standard J44-14 Continuous Concrete Slab Bridge
2. TL-4 Bridge Railing
3. Final Designer may consider full encasement of pile bents to reduce the design unbraced length.
4. There is a horizontal curve on a portion of the proposed bridge. The difference between the curve and chord at the back of the bridge at near abutment is 0.005'. Bridge to be built on chord.
5. There is a vertical sag located on the bridge that cannot be moved due to constraints from new road pavement constructed at the north and south of bridge location. Verify that bridge deck will have sufficient drainage.

Hydraulic Data

RIDB: WolfC\_Black\_61.9  
 Drainage Area = 16.1 Sq. Mi.  
 Stream Slope = 7.92 Ft./Mi.  
 Avg. Low Water Stage = 991.07

$Q_{25} = 3,536$  CFS  
 Stage = 998.53

$Q_{50} = 4,300$  CFS  
 Stage = 999.05  
 Regulatory Low Beam = 1002.73  
 Avg. Bridge Velocity = 7.98 FPS

$Q_{100} = 5,061$  CFS  
 Stage = 999.47  
 Operational Low Beam = 1002.73  
 Backwater = 0.78 Ft.  
 Avg. Bridge Velocity = 8.66 FPS

$Q_{200} = 6,523$  CFS  
 Stage = 1000.72  
 Calculated Design Scour = 980.46

$Q$  Overtop = 7,076.6 cfs  
 Avg. Bridge Velocity = 8.40 fps  
 Calculated Check Scour = 979.73

$Q_{500} = 7,077$  cfs

Roadway Overtop 1004.37  
 Sta. 98+86.25

Utilities Legend

--F0-- Fiber Optic Line

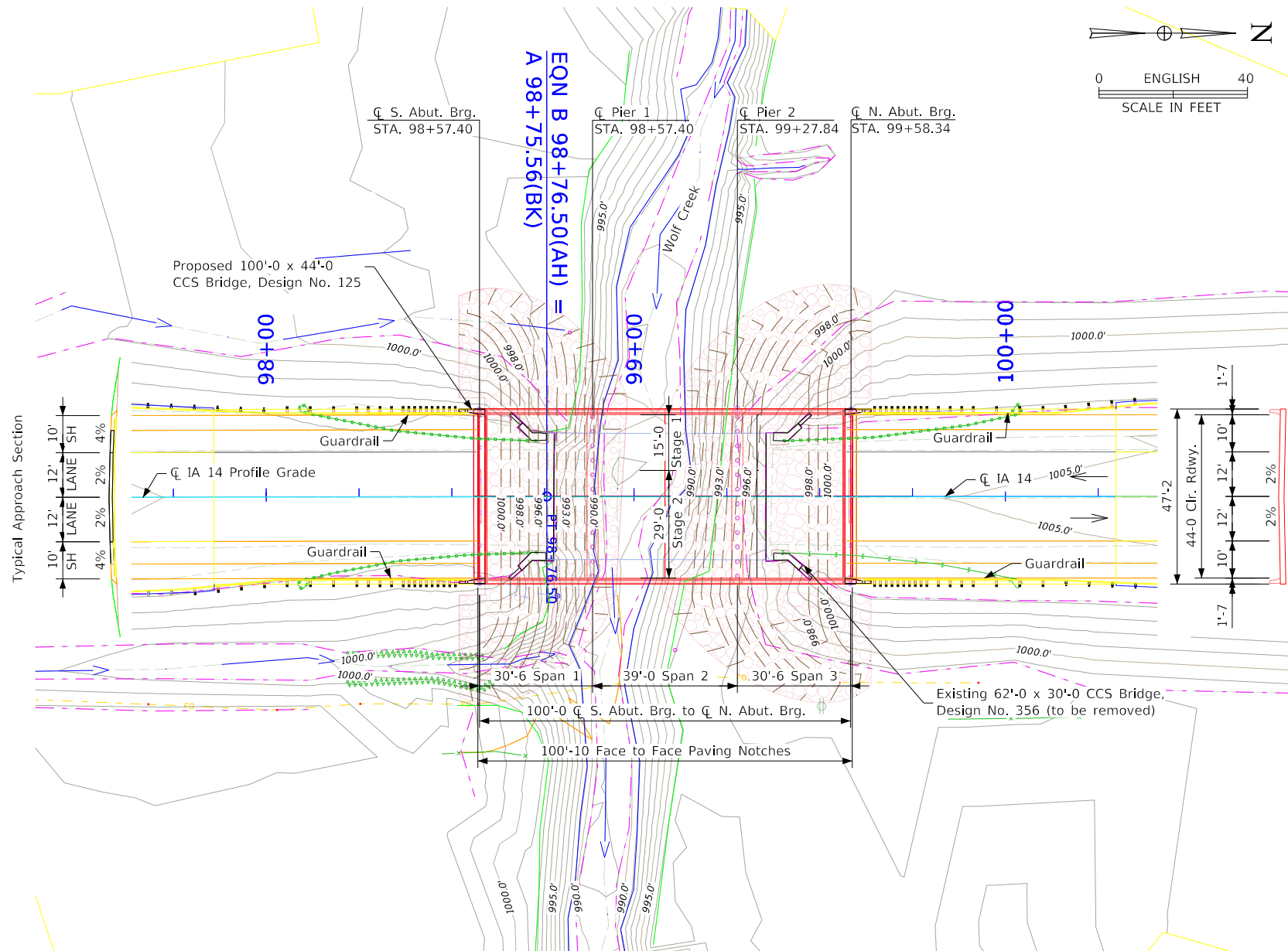
Utilities shown on this sheet are for information only, see road design sheets for final utility information.

Location

IA 14 Over Wolf Creek  
 T-86N R-18W  
 Sections 25 & 26  
 Felix Township  
 Grundy County  
 FHWA No. 25831  
 Bridge Maint. No. 3815.4S014  
 Latitude 42.237075°  
 Longitude -92.904589°

Traffic Estimate

2019 AADT	2,710	V.P.D.
2039 AADT	3,762	V.P.D.
2036 DHV	????	V.P.H.
Trucks	19.19	%
Total		
Design ESALs	1,961,125	



SITUATION PLAN

**Hydraulic Design**

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

Signature: Linda Su Date: 02-15-2023  
 Printed or Typed Name: Linda Su  
 My license renewal date is December 31, 2023

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

Design For 0° Skew

**100'-0 x 44'-0 CONTINUOUS CONCRETE SLAB BRIDGE**

30'-6 End Spans 39'-0 Interior Span

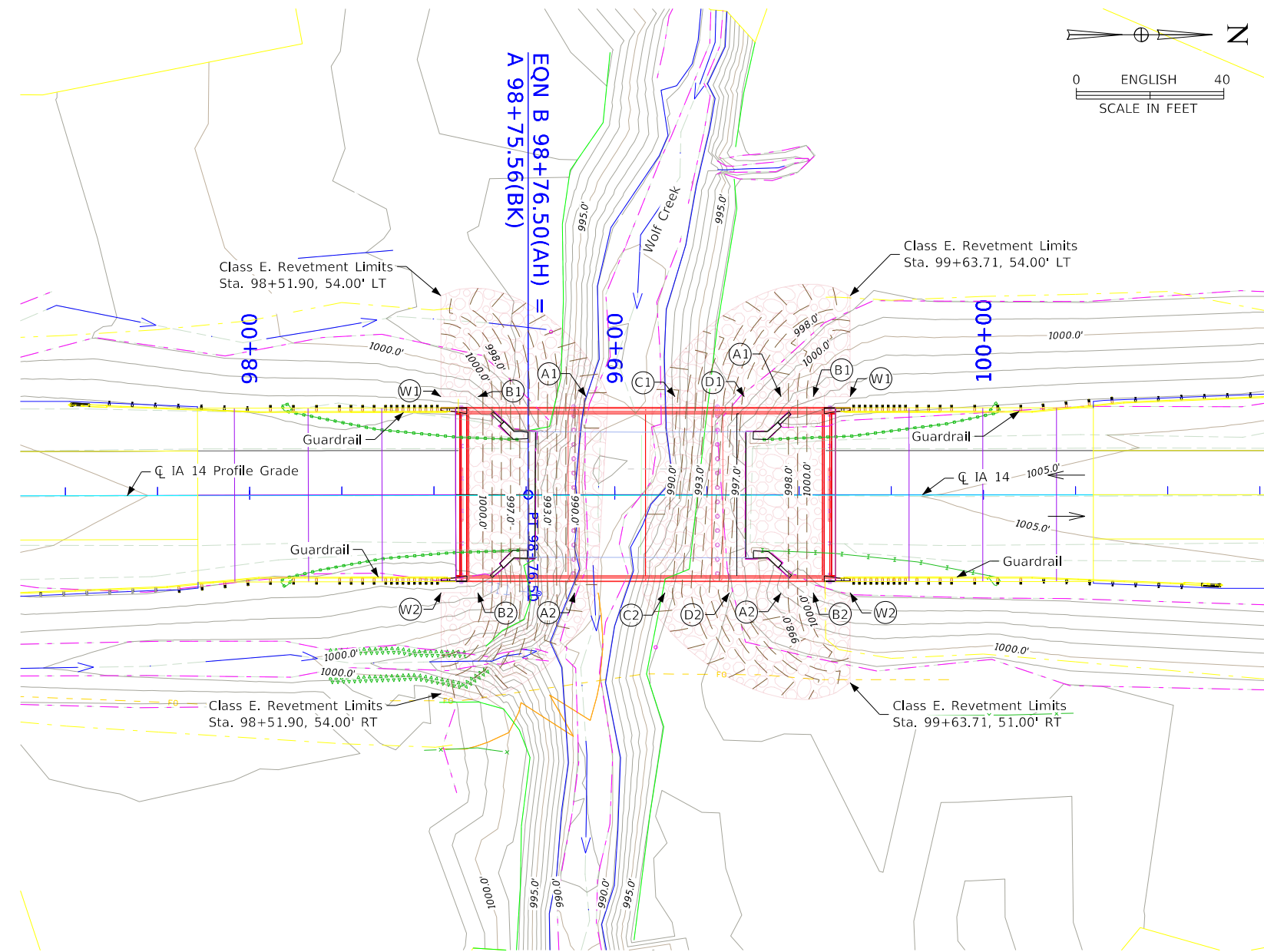
**SITUATION PLAN**

STA. 99+08.34 (IA 14) January 2023

Grundy County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 1 of 3 FHWA No. 25831



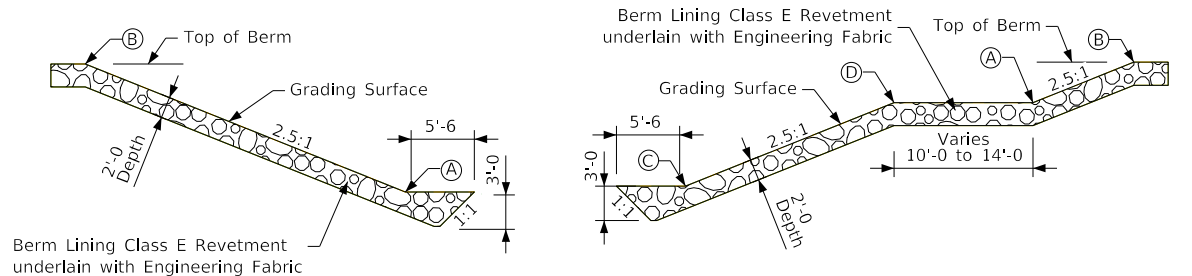
SITE PLAN

Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	98+92.19	26.58' LT	988.80	99+45.09	26.58' LT	997.20
A2	98+89.10	26.58' RT	990.05	99+45.09	26.58' RT	997.20
B1	98+61.90	26.58' LT	1000.55	99+53.84	26.58' LT	1000.70
B2	98+61.90	26.58' RT	1000.55	99+53.84	26.58' RT	1000.70
C1	-	-	-	99+16.34	26.58' LT	989.70
C2	-	-	-	99+13.59	26.58' RT	990.20
D1	-	-	-	99+35.09	26.58' LT	997.70
D2	-	-	-	99+31.09	26.58' RT	997.70
W1	98+51.90	26.58' LT	1004.06	99+63.84	26.58' LT	1004.22
W2	98+51.90	26.58' RT	1004.06	99+63.84	26.58' RT	1004.22

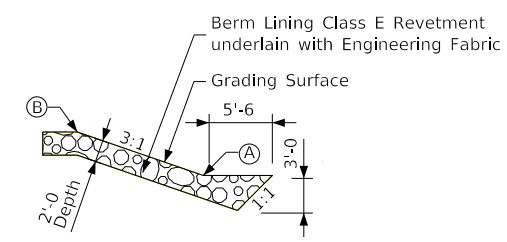
Berm slope elevations reflect the grading surface.

Location	Revetment CL. E (Ton)	Engineering Fabric (SY)	Cl. 10 Channel Excavation (CY)
Berm Lining - N. Abut.	430.7	477.4	287.2
Berm Lining - S. Abut.	338.1	390.8	225.4
Totals	768.9	868.2	512.6

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans.

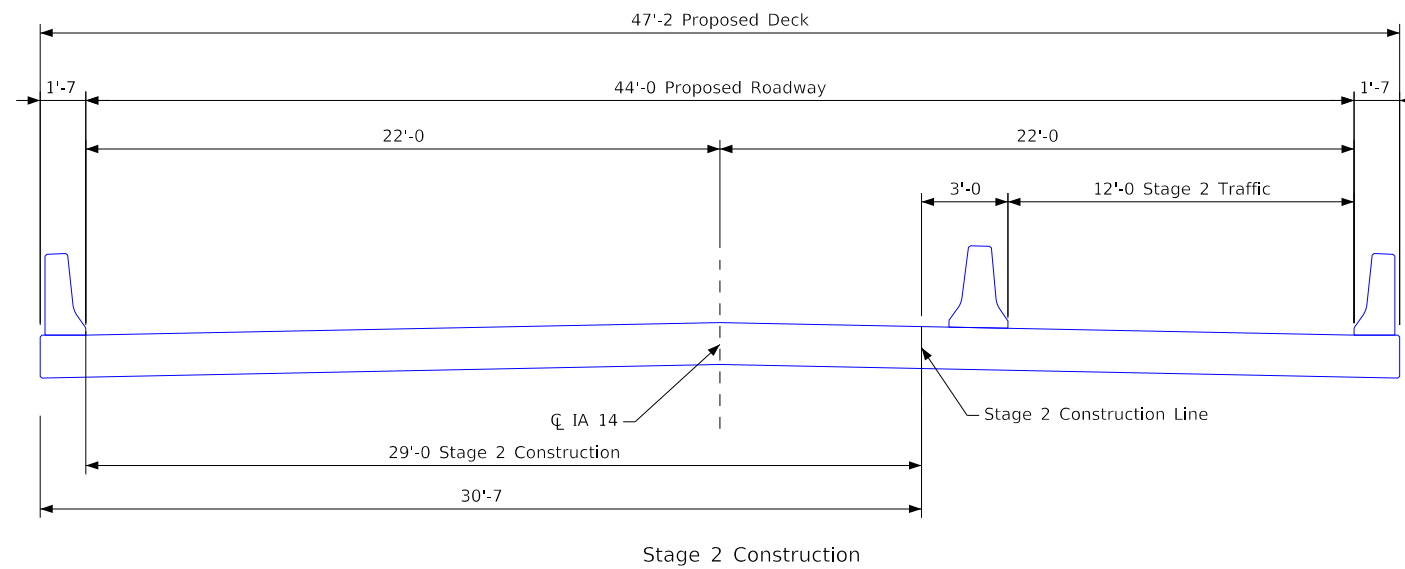
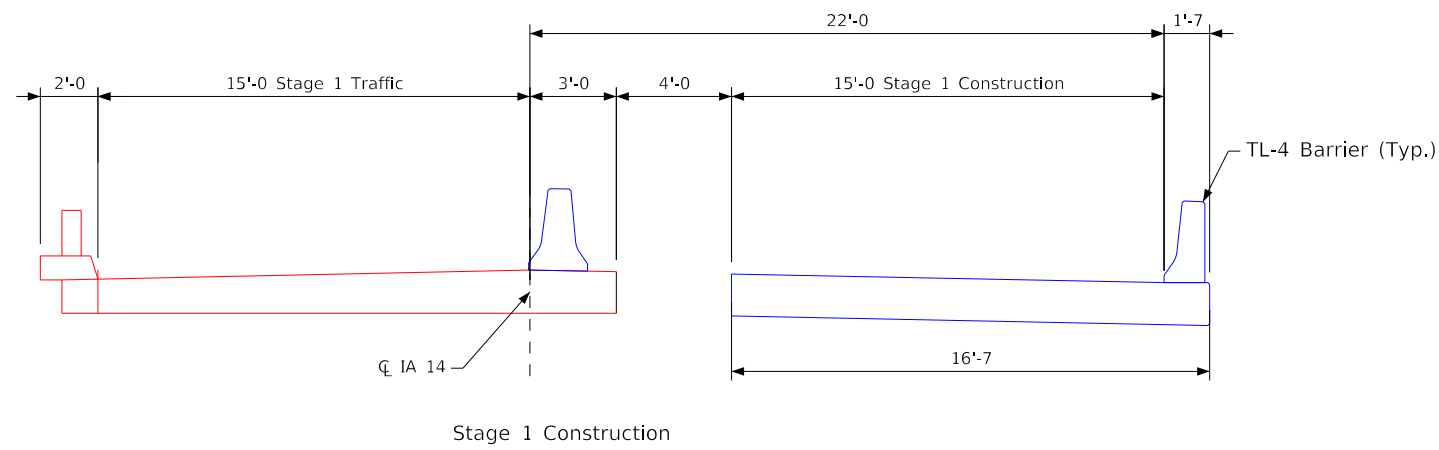
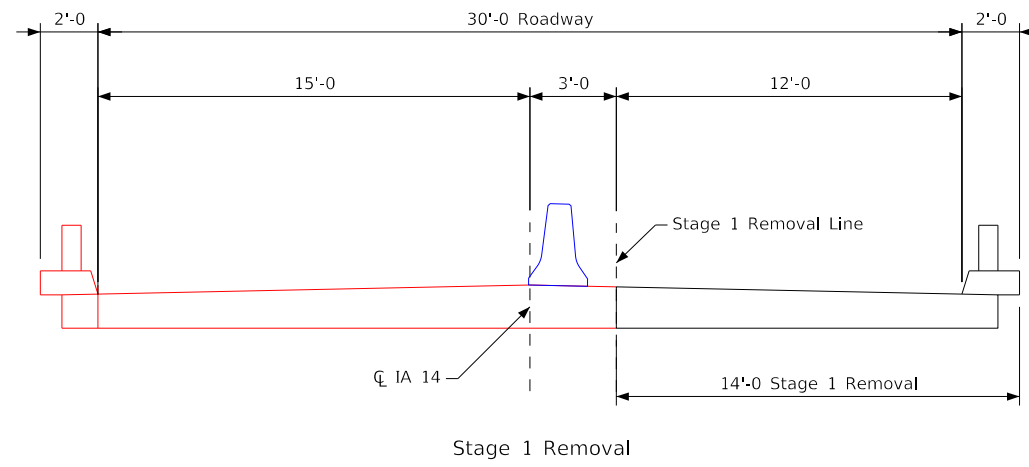


Section Thru Embedded Revetment Berm



Section Thru Embedded Revetment Normal to Bridge Wing

Design For 0° Skew  
**100'-0 x 44'-0 CONTINUOUS CONCRETE SLAB BRIDGE**  
 30'-6 End Spans 39'-0 Interior Span  
**SITE PLAN**  
 STA. 99+08.34 (IA 14) January 2023  
**Grundy County**  
 IOWA DEPARTMENT OF TRANSPORTATION  
 Design No. 0125 Design Sheet No. 2 of 3 FHWA No. 25831



Design For 0° Skew  
**100'-0" x 44'-0" CONTINUOUS CONCRETE SLAB BRIDGE**  
 30'-6" End Spans 39'-0" Interior Span  
**STAGING PLAN**  
 STA. 99+08.34 (IA 14) January 2023  
 Grundy County  
 IOWA DEPARTMENT OF TRANSPORTATION  
 Design No. 0125 Design Sheet No. 3 of 3 FHWA No. 25831

