

LETTING DATE  
12-21-2021

BRIDGE-UNSPECIFIED  
BRFN-169-8(61)--39-55

KOSSUTH CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM  
**KOSSUTH COUNTY**  
BRIDGE-UNSPECIFIED

Black Cat Creek 4.2 mi N of US 18

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

18

PROJECT IDENTIFICATION NUMBER

17-55-169-010

PROJECT NUMBER

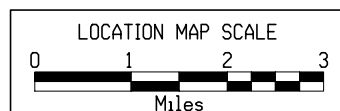
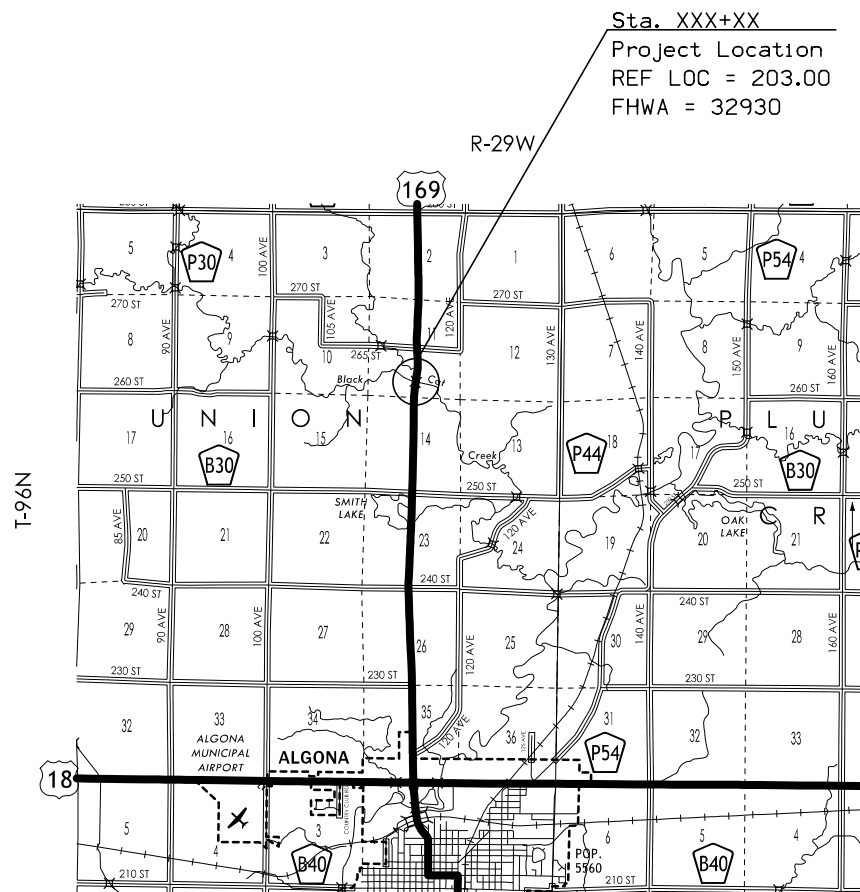
BRFN-169-8(61)--39-55

R.O.W. PROJECT NUMBER

NHSN-169-8(62)--2R-55

INDEX OF SHEETS

| No.             | DESCRIPTION  |
|-----------------|--|
| <b>A Sheets</b> | <b>Title Sheets</b>                                |
| A.1             | Title Sheet  |
| A.1             | Location Map Sheet                                 |
| <b>B Sheets</b> | <b>Typical Cross Sections and Details</b>          |
| B.1 - 4         | 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           | U.S. 169   |
| <b>G Sheets</b> | <b>Survey Sheets</b>                               |
| G.1             | Reference Ties and Bench Marks                     |
| G.2             | Control Point Vicinity Map                         |
| G.3             | Horizontal Control Tab. & Super for all Alignments |
| <b>J Sheets</b> | <b>Traffic Control and Staging Sheets</b>          |
| J.1             | Traffic Control Plan                               |
| J.2             | Detour Plan  |
| <b>V Sheets</b> | <b>Bridge and Culvert Situation Plans</b>          |
| * V.1           | Bridge and Culvert Situation Plans                 |
| <b>W Sheets</b> | <b>Mainline Cross Sections</b>                     |
| W.1 - 5         | U.S. 169   |
|                 | * Color Plan Sheets                                |



D5 PLAN - Date: 04/20/2020  
P9 PLAN - Date: 08/20/2020  
D4 PLAN - Date: 08/24/2021

**PRELIMINARY PLANS**

Subject to change by final design.

D3 PLAN - Date: 2/5/2019

DESIGN DATA RURAL

|      |              |      |        |
|------|--------------|------|--------|
| 2022 | AADT         | 2700 | V.P.D. |
| 2042 | AADT         | 2800 | V.P.D. |
| 20-- | DHV          | --   | V.P.H. |
|      | TRUCKS       | 14   | %      |
|      | Total        |      |        |
|      | Design ESALs | --   |        |

INDEX OF SEALS

| SHEET NO. | NAME | TYPE                    |
|-----------|------|-------------------------|
| A.1       | X    | Primary Signature Block |
|           |      |                         |
| X         | X    | X                       |
|           |      |                         |
|           |      |                         |
|           |      |                         |

**HMA Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

| 3R_Shldr_Paved_04-19-11 |           |             |             |
|-------------------------|-----------|-------------|-------------|
| STATION TO STATION      |           | (P)<br>Feet | (G)<br>Feet |
| 235+39.59               | 235+81.95 | 4           | 6           |
| 240+67.62               | 241+30.00 | 4           | 6           |

**HMA Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

| 3R_Shldr_Paved_04-19-11 |           |             |             |
|-------------------------|-----------|-------------|-------------|
| STATION TO STATION      |           | (P)<br>Feet | (G)<br>Feet |
| 240+17.36               | 241+30.00 | 4           | 6           |

① Match Existing

**Paved Shoulder at Guardrail**

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

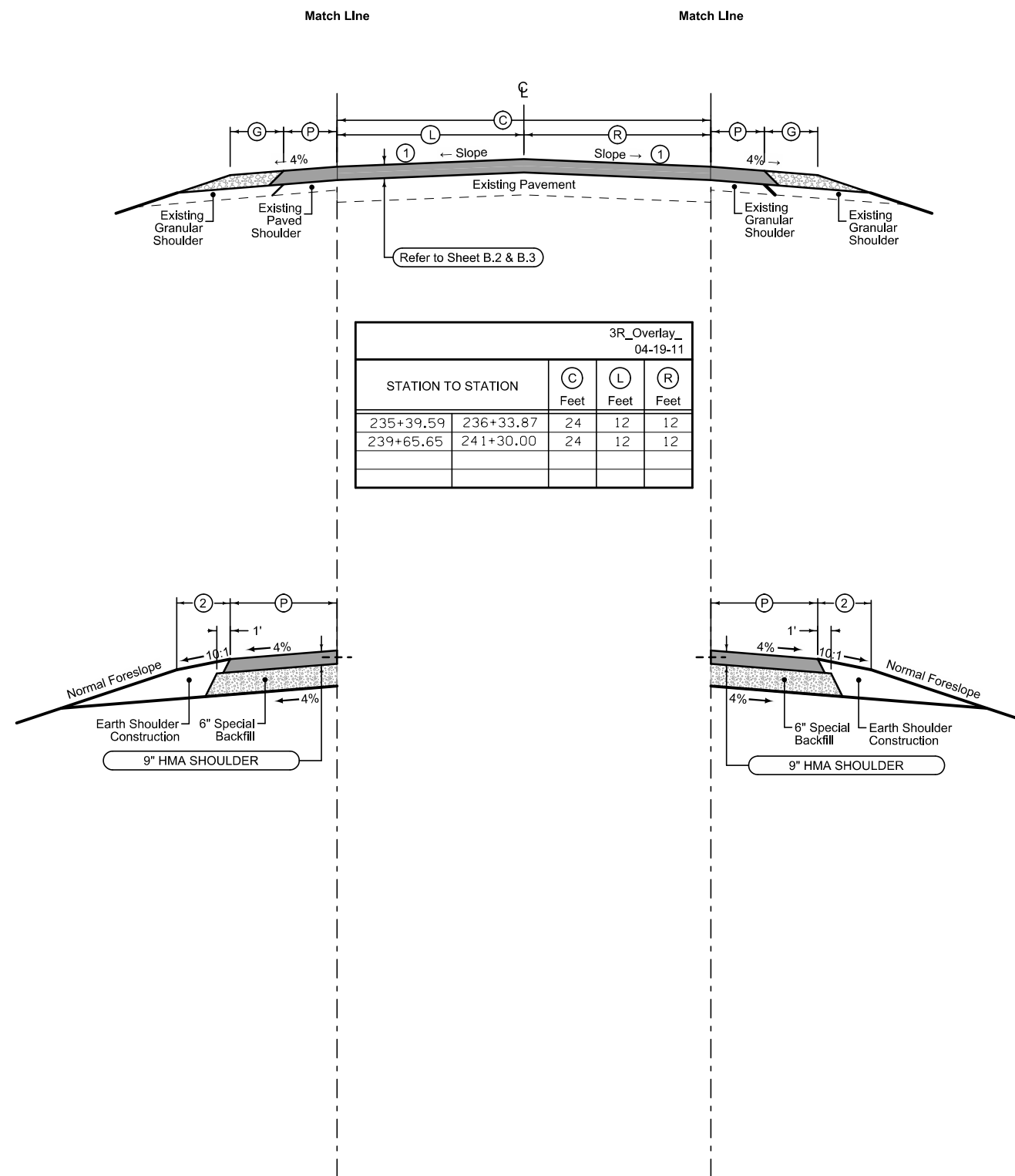
| 2_P_Guard_04-21-20 |           |             |  |
|--------------------|-----------|-------------|--|
| STATION TO STATION |           | (P)<br>Feet |  |
| 235+81.95          | 236+33.87 | 11.8-10.8   |  |
| 239+65.65          | 240+67.62 | 10.3-9.2    |  |

**Paved Shoulder at Guardrail**

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

| 2_P_Guard_04-21-20 |           |             |
|--------------------|-----------|-------------|
| STATION TO STATION |           | (P)<br>Feet |
| 235+31.67          | 236+33.87 | 9.2-10.5    |
| 239+65.65          | 240+17.36 | 10.5-11.3   |

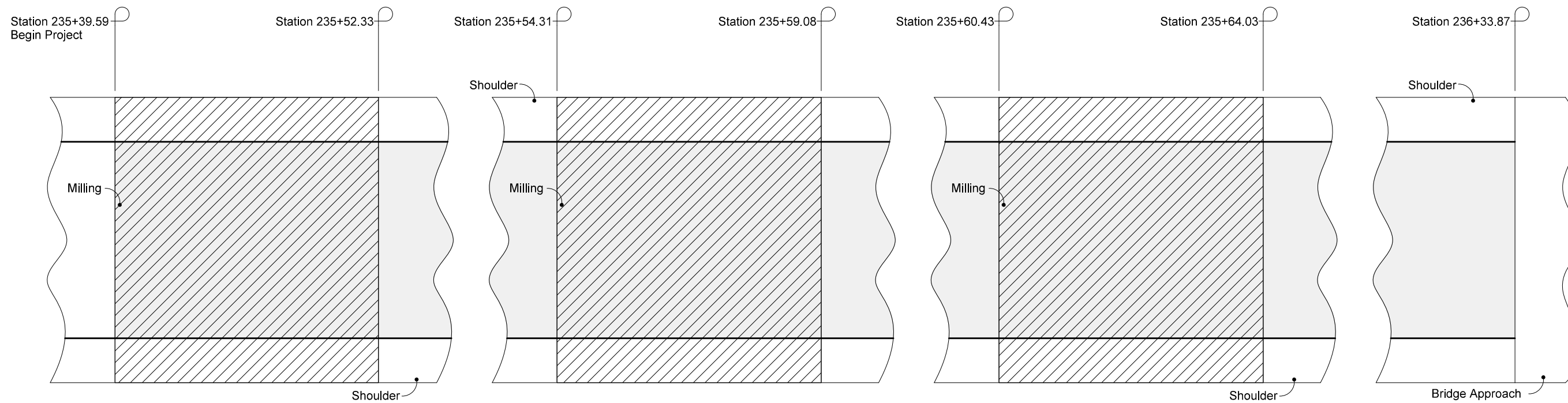
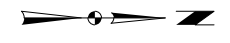
② Refer to Standard Road Plan EW-301 for additional information.



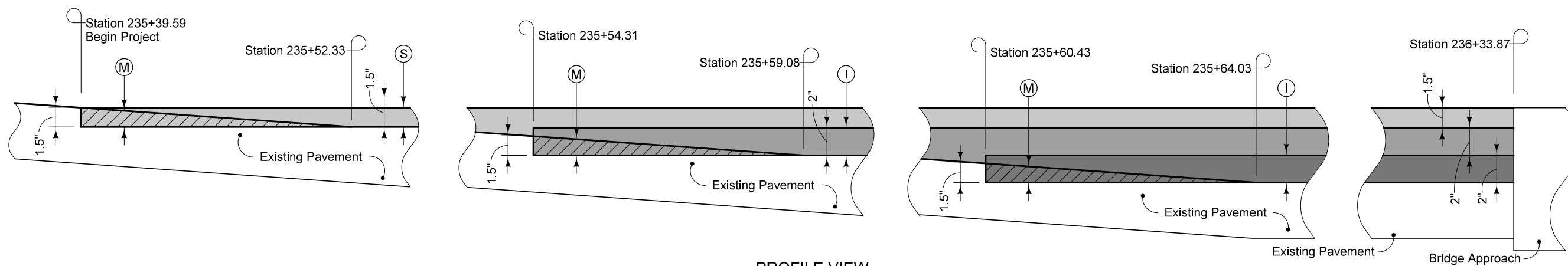
| 3R_Overlay_04-19-11 |           |             |             |             |
|---------------------|-----------|-------------|-------------|-------------|
| STATION TO STATION  |           | (C)<br>Feet | (L)<br>Feet | (R)<br>Feet |
| 235+39.59           | 236+33.87 | 24          | 12          | 12          |
| 239+65.65           | 241+30.00 | 24          | 12          | 12          |

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

**U.S. 169 RESURFACING**



PLAN VIEW

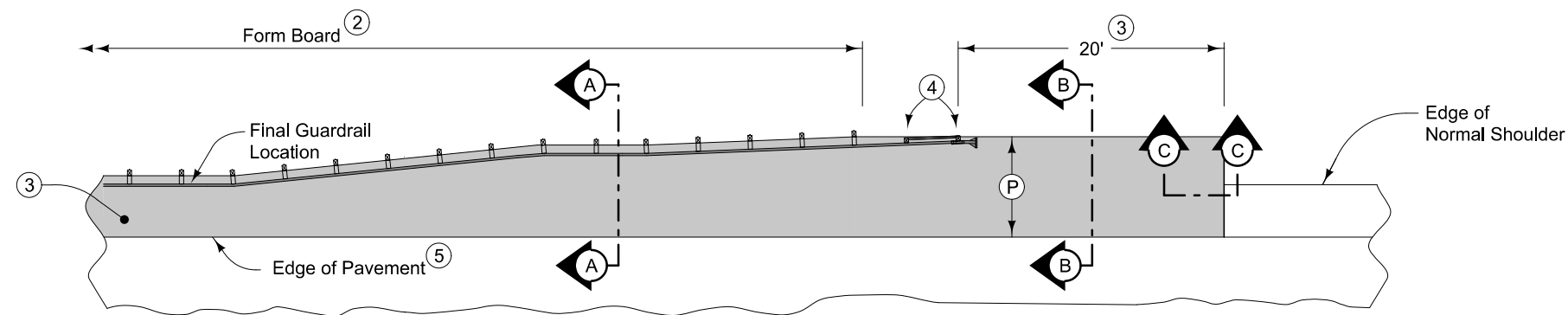


PROFILE VIEW

- Ⓢ Surface Course
- Ⓜ Intermediate Course
- Ⓜ Milling

**U.S. 169  
MILLING & RESURFACING  
(SOUTH END)**





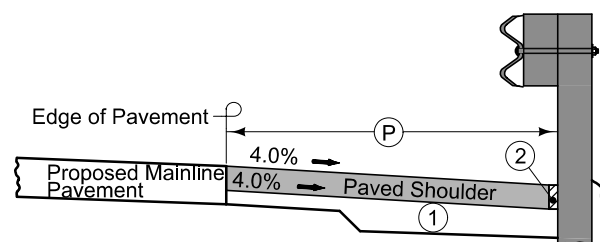
PLAN VIEW

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

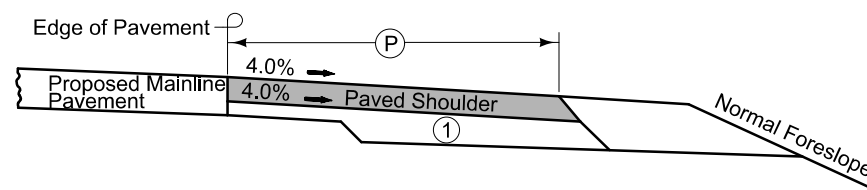
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal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



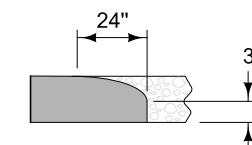
Section A-A



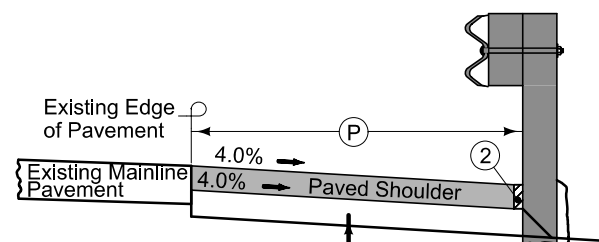
Section B-B

PAVED SHOULDER NEXT TO PROPOSED PAVEMENT

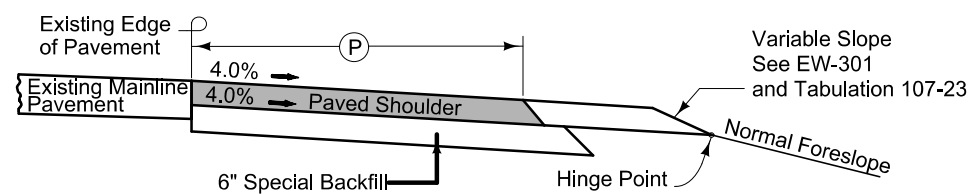
- ① For subgrade treatment, refer to other details in the plan.
- ② PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to 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 C-C  
Roll down at granular shoulder or earth.



Section A-A



Section B-B

PAVED SHOULDER NEXT TO EXISTING PAVEMENT

PAVED SHOULDER AT GUARDRAIL

**SURVEY SYMBOLS**

**UTILITY LEGEND**

Alliant Energy  
 Heather Dee  
 200 1st. St. SE  
 Cedar Rapids, IA 52401  
 REROW@alliantenergy.com  
 (319) 786-8196

Centurylink  
 Steve Parker  
 2103 E. University Ave.  
 Des Moines, IA 50317  
 Steven.Parker4@centurylink.com  
 (515) 265-0968

Titonka-Burt Communications  
 Jim Mayland  
 247 Main St. N  
 Titonka, IA 50480  
 jim.mayland@tbctel.com  
 (515) 928-2120

Windstream Communications (ILEC)  
 Terry Burke  
 641 West Street South  
 Grinnell, IA 50112  
 Terry.r.burke@windstream.com  
 (641) 787-2259

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

| LINEWORK         | Design Color No. | Description  |
|------------------|------------------|--|
| 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. | Description      |  |
| Yellow           | (4)              | Highlight for Critical Notes or Features                               |
| Red              | (3)              | Delineates Restricted Areas  |
| Lavender         | (9)              | Temporary Pavement Shading   |
| Gray, Light      | (48)             | Proposed Pavement Shading  |
| Gray, Med        | (80)             | Proposed Granular Shading  |
| Gray, Dark       | (112)            | Proposed Grade and Pave Shading "In conjunction with a paving project" |
| Brown, Light     | (236)            | Grading Shading  |
| Tan              | (8)              | Proposed Sidewalk Shading  |
| Blue, Light      | (230)            | Proposed Sidewalk Landing Shading                                      |
| Pink             | (11)             | Proposed Sidewalk Ramp Shading   |

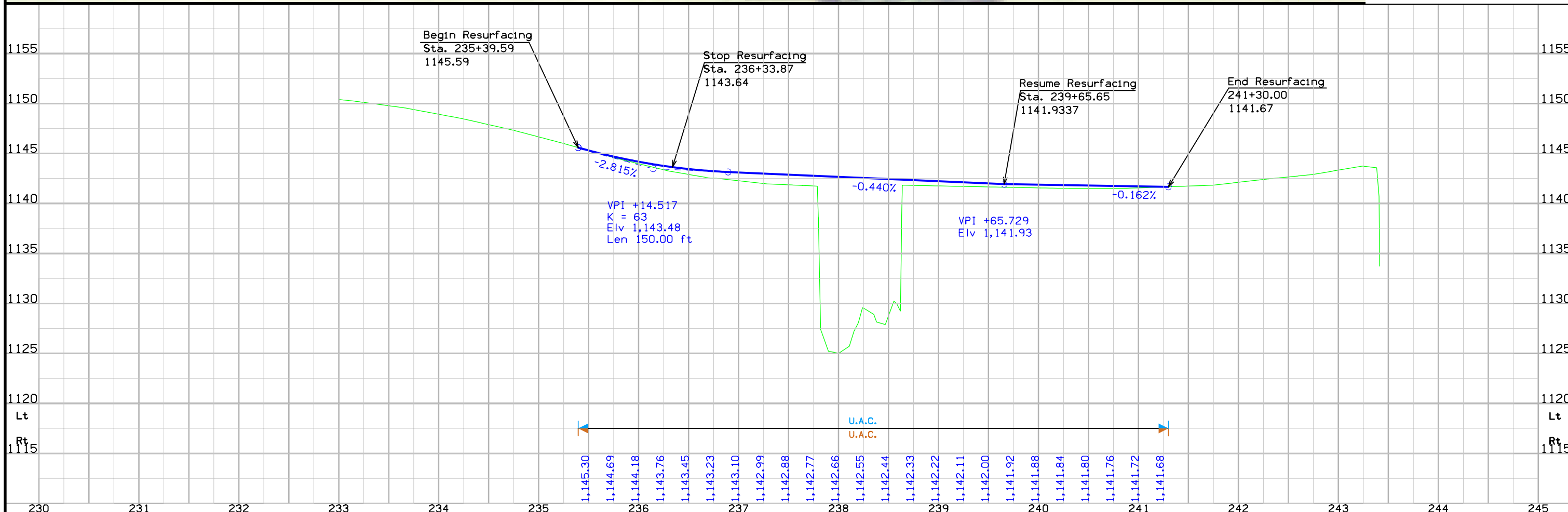
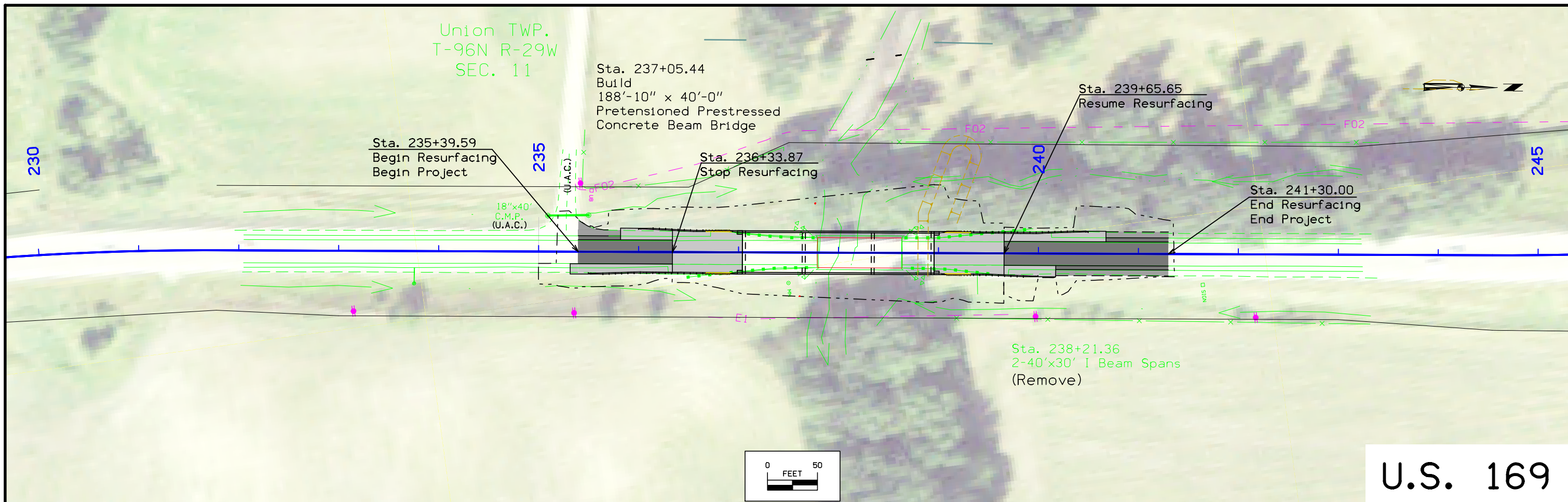
**PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS**

| LINEWORK    | Design Color No. | Description                     |
|-------------|------------------|---------------------------------|
| Green       | (2)              | Existing Ground Line Profile    |
| Blue        | (1)              | Proposed Profile and Annotation |
| Magenta     | (5)              | Existing Utilities              |
| Blue, Light | (230)            | Proposed Ditch Grades, Left     |
| Black       | (0)              | Proposed Ditch Grades, Median   |
| Rust        | (14)             | Proposed Ditch Grades, Right    |

| Symbol | Description                 |
|--------|-----------------------------|
|        | 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    |

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

**PLAN AND PROFILE  
 LEGEND AND SYMBOL  
 INFORMATION SHEET**  
 (COVERS SHEET SERIES D, E, F, & K)



## Survey Information

**Kossuth County**  
**BRFN-169-8(61)--39-55**  
**Black Cat Creek 4.2 mi N of US 18**  
**PIN 17-55-169-010**  
**Sap-7861**

### Party Personnel

Jeffrey Duncan- Party Chief

### Date(s) of Survey

Begin Date            07/15/2019  
End Date              07/31/2019

### General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge replacement along US Highway 169. Project datum and control information is provided by Design Survey Office. This project is a Full DTM with Photo control.

### Vertical Control

The vertical datum is NAVD88. Vertical Control was established on 3 monuments designated as points K1, CP1, and 566. These monuments are expected to hold vertical reasonably well. Datum was transferred from Iowa RTN reference stations to the projects monuments by using concurrent 6-hour static measurements and post processing connecting vectors. Geoid 12 B was used in processing.

This survey observed 1 NGS Control Monument with published NAVD88 heights to compare to local ground control:

NGS 1st. order class 2 designated K1 has a published Elev. of 1152.30  
Survey Elev. = 1152.287

This survey observed 1 Kossuth County Control Monument with published NAVD88 heights to compare to local ground control:

Kossuth County mark designated 566 has a published Elev. Of 1177.93  
Survey Elev. = 1177.895

### Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 1 (U.S. Survey Feet). This survey control is relative to IARTN reference stations. IARTN Reference Station coordinate are relative to the National Reference Station network datum NAD83 (2011) for Epoch 2010.00. Coordinates were determined by using concurrent 6-hour static measurements and post processing connecting vectors. Additional control points were placed throughout the project using a GNSS Base-Rover setups.

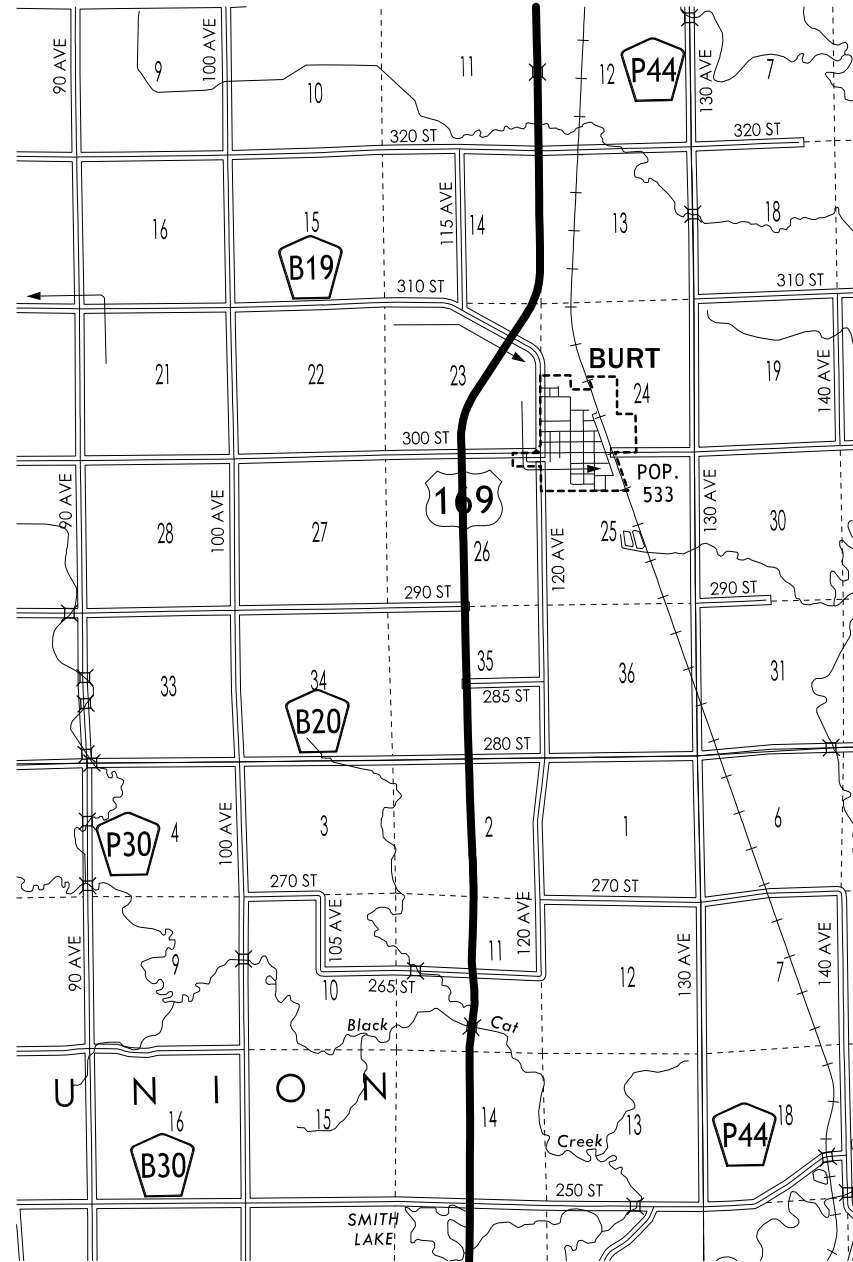
### Alignment Information

The horizontal alignment for this survey is provided by District 2 ROW.



## CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points  
 Primary control is for use with RTK base stations and for RTN validation.  
 Future surveys will use primary project control to establish temporary  
 control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 1

Coordinate listing from next sheet will be used with 1aRTN for monument  
 recovery. No other reference ties are given.

# HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 1

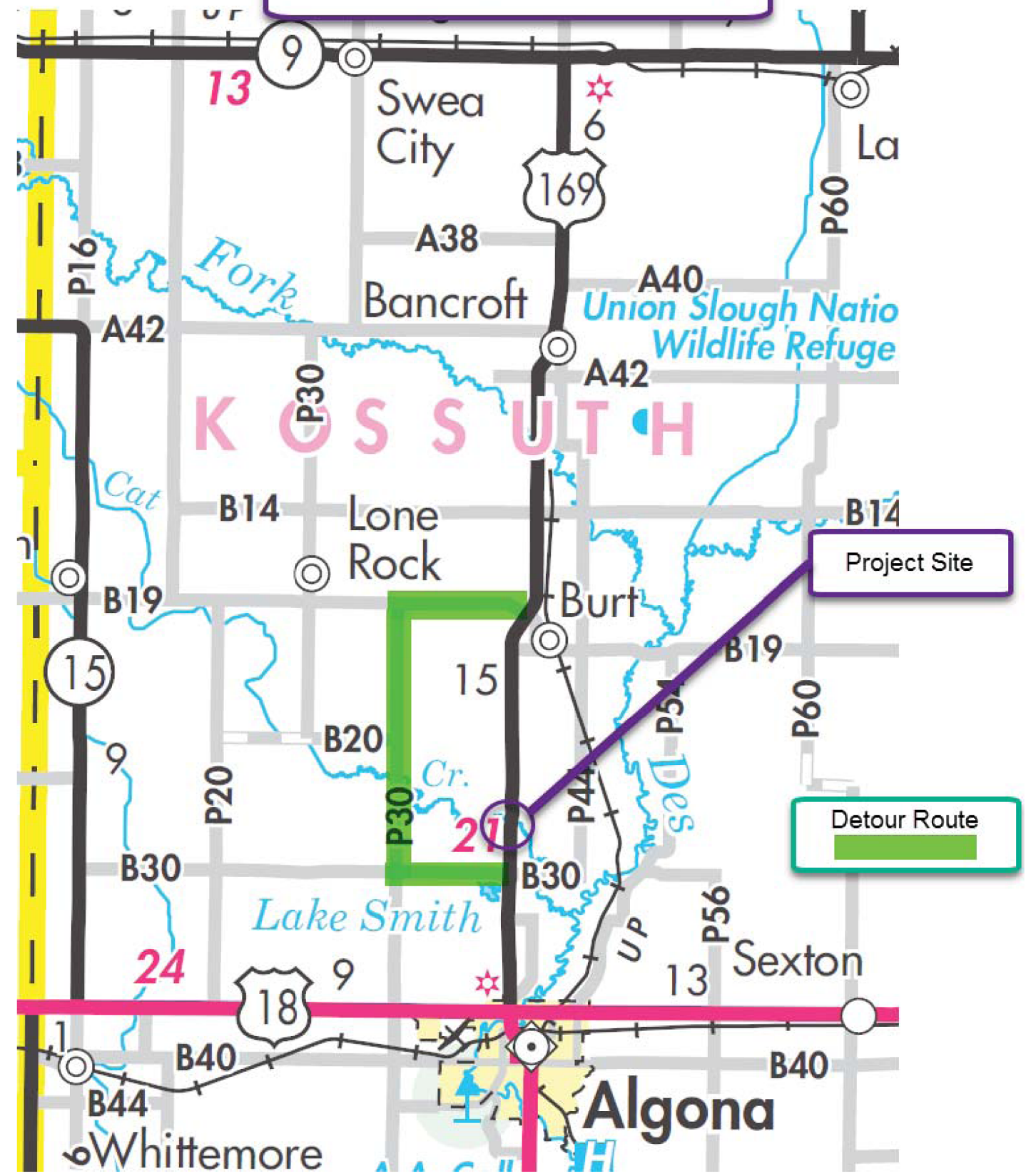
| Point Name | North Coordinate | East Coordinate | Elevation | Feature Code-Description  |
|------------|------------------|-----------------|-----------|---|
| K1         | 9611326.819      | 11774180.98     | 1152.29   | CP NGS MON 0.25 MILE EAST ON 320TH STREET 55 FEET NORTH OF 320 STREET 45.7 FEET WEST OF WEST RAILROAD RAIL 19 FEET NORTH OF FENCE CORNER POST 1.5 FEET SOUTH OF CARSONITE WITNESS POST                                  |
| CP1        | 9582706.499      | 11770471.61     | 1163.87   | CP CM SOUTHWEST QUADRANT AT THE INTERSECTION OF 265TH STREET AND US HIGHWAY 169 57 FEET WEST SOUTHWEST OF STOP SIGN 47 FEET SOUTH CENTERLINE 265TH ST 32 FEET NORTHEAST ROW RAIL 30 FEET EAST CENTERLINE FIELD ENTRANCE |
| 566        | 9590306.029      | 11777724.89     | 1177.9    | CP COUNTY GPS MON 200 FEET WEST OF THE INTERSECTION OF 280TH STREET AND 130TH AVE 33 FEET NORTH CENTERLINE 280TH AVE 13 FEET WEST POWER POLE  |

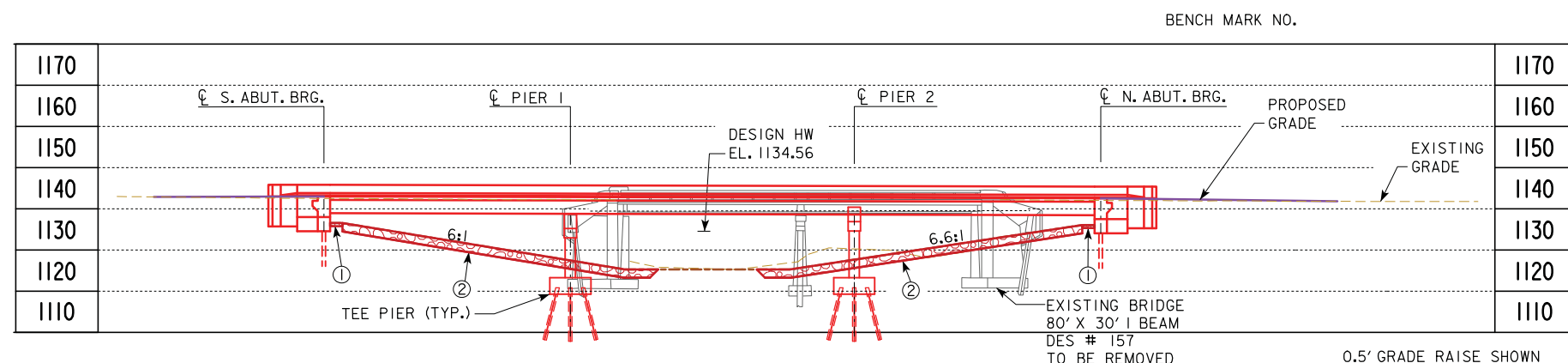
|   |
|---|
| 108-23A<br>08-01-08                                   |
| <b>TRAFFIC CONTROL PLAN</b>                           |
| Traffic shall be maintained using an off-site detour. |

| 111-01<br>04-17-12  |              |              |                     |  |  |  |
|---|--------------|--------------|---------------------|--|--|--|
| <b>COORDINATED OPERATIONS</b>   |              |              |                     |  |  |  |
| 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.                               |              |              |                     |  |  |  |
| <table border="1" style="width: 100%;"> <tr> <th style="width: 50%;">Project</th> <th style="width: 50%;">Type of Work</th> </tr> <tr> <td>None at the moment.</td> <td></td> </tr> <tr> <td> </td> <td> </td> </tr> </table> | Project      | Type of Work | None at the moment. |  |  |  |
| Project   | Type of Work |              |                     |  |  |  |
| None at the moment.   |              |              |                     |  |  |  |
|   |              |              |                     |  |  |  |

| 108-25<br>10-21-14             |           |        |                                 |                 |             |  |                        |                         |                             |  |                                      |         |
|--------------------------------|-----------|--------|---------------------------------|-----------------|-------------|--|------------------------|-------------------------|-----------------------------|--|--------------------------------------|---------|
| <b>511 TRAVEL RESTRICTIONS</b> |           |        |                                 |                 |             |  |                        |                         |                             |  |                                      |         |
| Route                          | Direction | County | Location Description            | Feature Crossed | Object Type | Maint. Bridge No.,<br>Structure ID,<br>or FHWA No. | Type of<br>Restriction | Existing<br>Measurement | Construction<br>Measurement | Construction<br>Measurement<br>as Signed | Projected<br>As Built<br>Measurement | Remarks |
|                                |           |        | No travel restriction expected. |                 |             |  |                        |                         |                             |  |                                      |         |
|                                |           |        |                                 |                 |             |  |                        |                         |                             |  |                                      |         |

Detour Route  
 Kossuth County  
 BRFN-169-8(61)--39-55  
 Black Cat Creek 4.2 Miles North of US 18





LONGITUDINAL SECTION ALONG  $\varnothing$  APPROACH ROADWAY

- ① BERM PROTECTION  
EROSION STONE (0-9 THICK. MIN.)  
UNDERLAIN W/ ENGR. FABRIC
- ② BERM PROTECTION  
CLASS E REVET. (2' THICK. MIN.)  
UNDERLAIN W/ ENGR. FABRIC

**HYDRAULIC DATA**

DRAINAGE AREA = 108 SQ. MI.  
 STREAM SLOPE = 4.2 FT./MI.  
 AVG. LOW WATER STAGE = ????.?

$Q_{50}$  = 3,957 CFS  
 STAGE = 1134.56  
 REGULATORY LOW BEAM = ????.?  
 BACKWATER = FT.  
 AVG. BRIDGE VELOCITY = 4.3 FPS

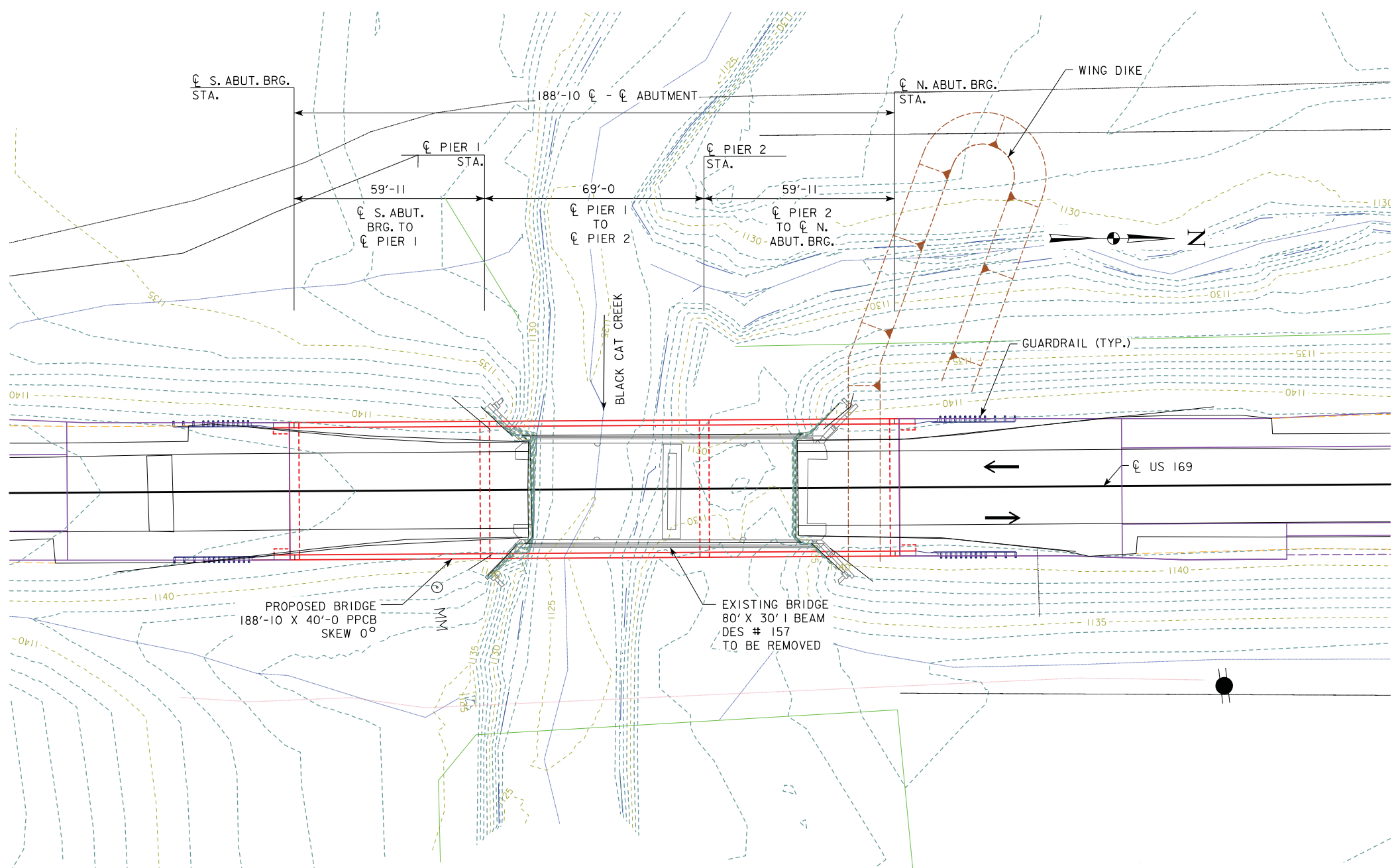
$Q_{100}$  = 4,762 CFS  
 STAGE = 1134.91  
 OPERATIONAL LOW BEAM = ????.?  
 BACKWATER = 0.58 FT.  
 AVG. BRIDGE VELOCITY = 4.9 FPS

$Q_{200}$  = 5,200 CFS  
 STAGE = 1135.17  
 CALCULATED DESIGN SCOUR = ????.?

$Q_{500}$  = 6,015 CFS  
 STAGE = 1135.53  
 AVG. BRIDGE VELOCITY = 5.8 FPS  
 CALCULATED CHECK SCOUR = ????.?

ROADWAY OVERTOP 1141.4  
 STA. ???+??

EXTREME HW STAGE = UNKNOWN  
 DATE = UNKNOWN



SITUATION PLAN

**LOCATION**

US 169 OVER BLACK CAT CREEK  
 T-96N R-29W  
 SECTION 11  
 UNION TOWNSHIP  
 KOSSUTH COUNTY  
 BRIDGE MAINT. NO. 5503.0S169  
 LATITUDE  $^{\circ}$   
 LONGITUDE  $^{\circ}$

**TRAFFIC ESTIMATE**

|                    |       |        |
|--------------------|-------|--------|
| 2017 AADT          | 2,790 | V.P.D. |
| 202_ AADT          | -     | V.P.D. |
| 202_ DHV           | -     | V.P.H. |
| TRUCKS             | -     | %      |
| TOTAL DESIGN ESALs | -     |        |



D2  
 DESIGN FOR 0° SKEW

**188'-10 X 40'-0 PRETENSIONED  
 PRESTRESSED CONCRETE BEAM BRIDGE**

**SITUATION PLAN**

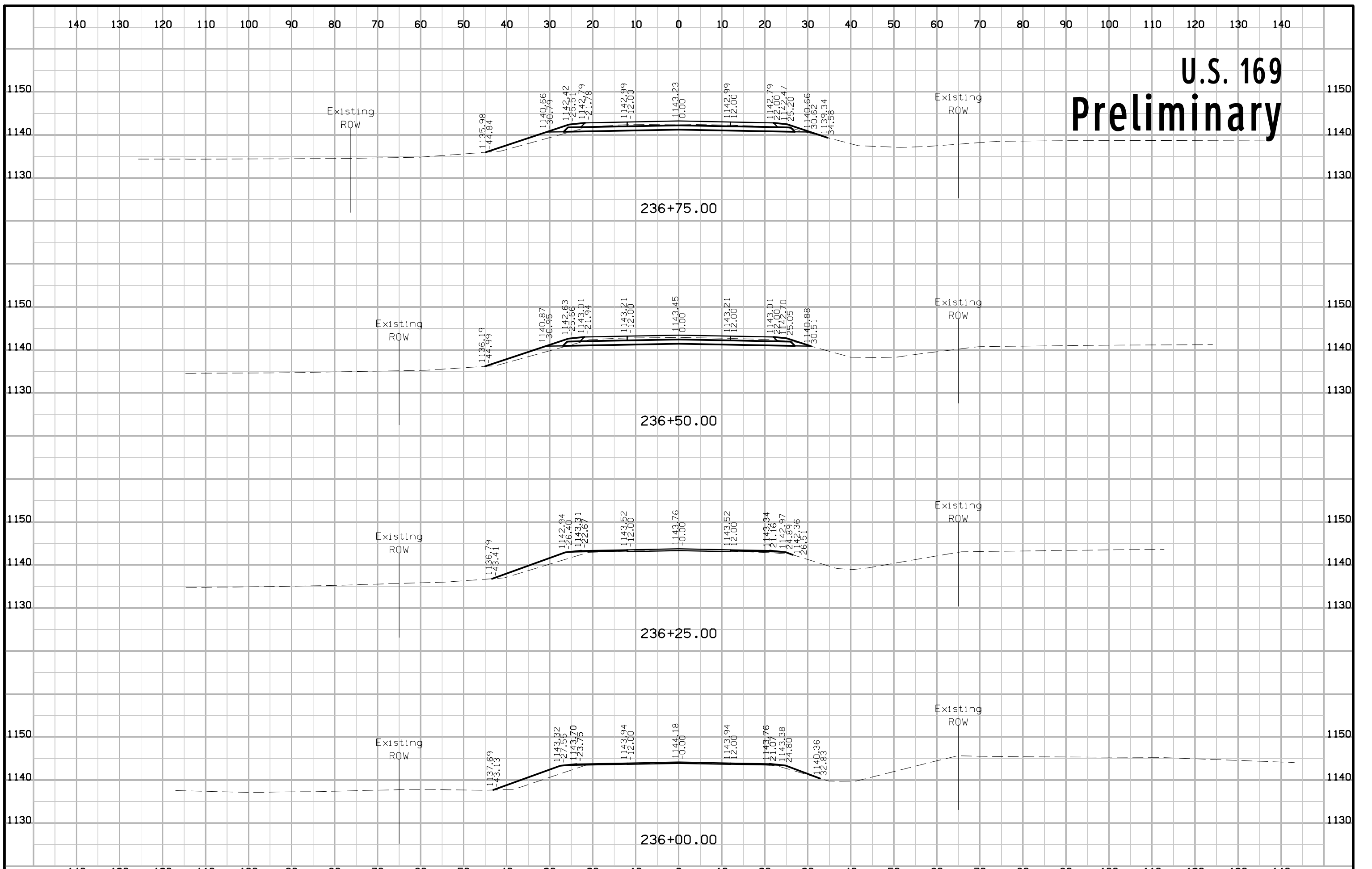
STATION \_\_\_\_\_ OCTOBER 2019

**KOSSUTH COUNTY**

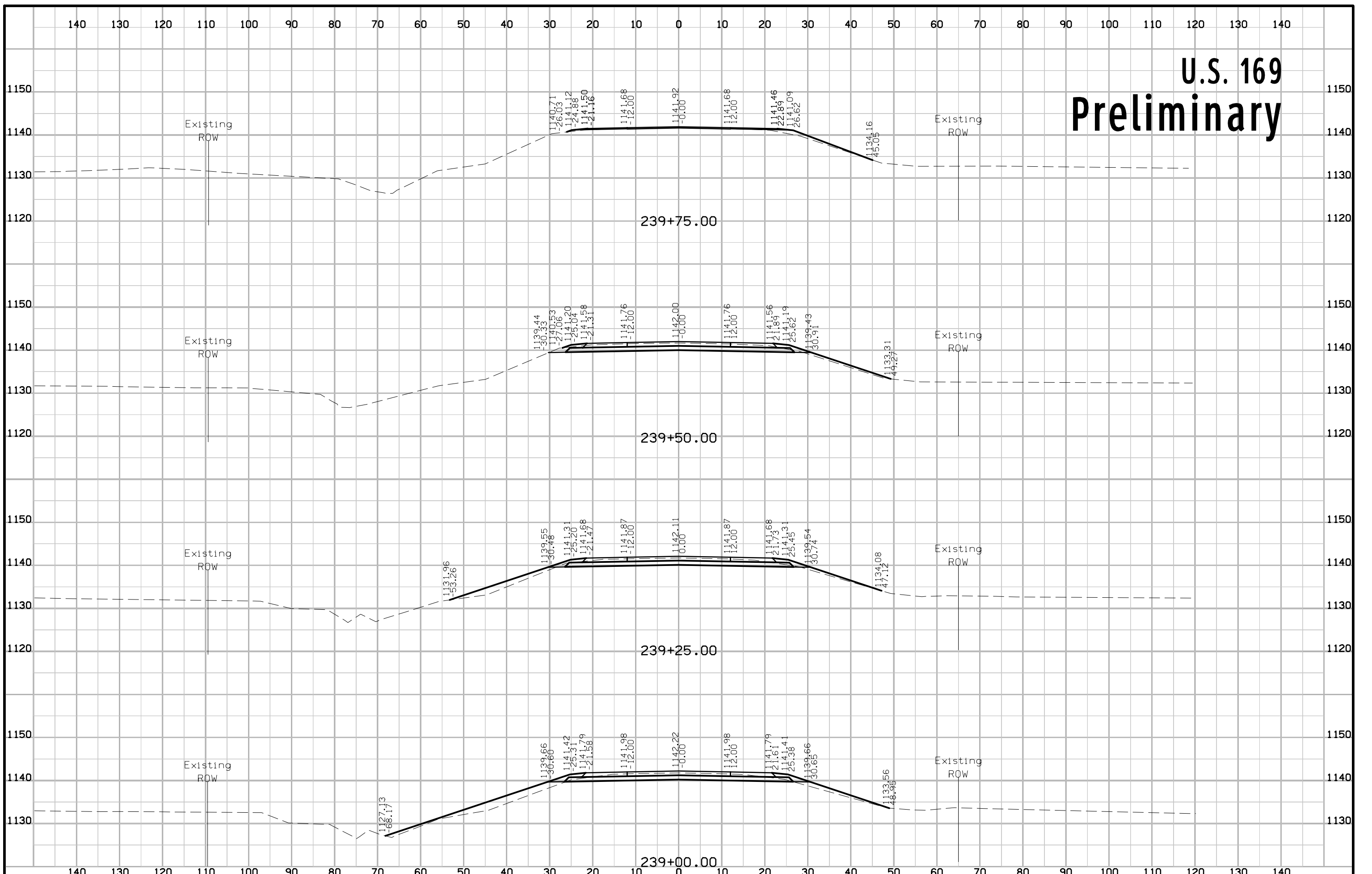
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 1 OF 1 FILE NO. ? DESIGN NO. ?



# U.S. 169 Preliminary

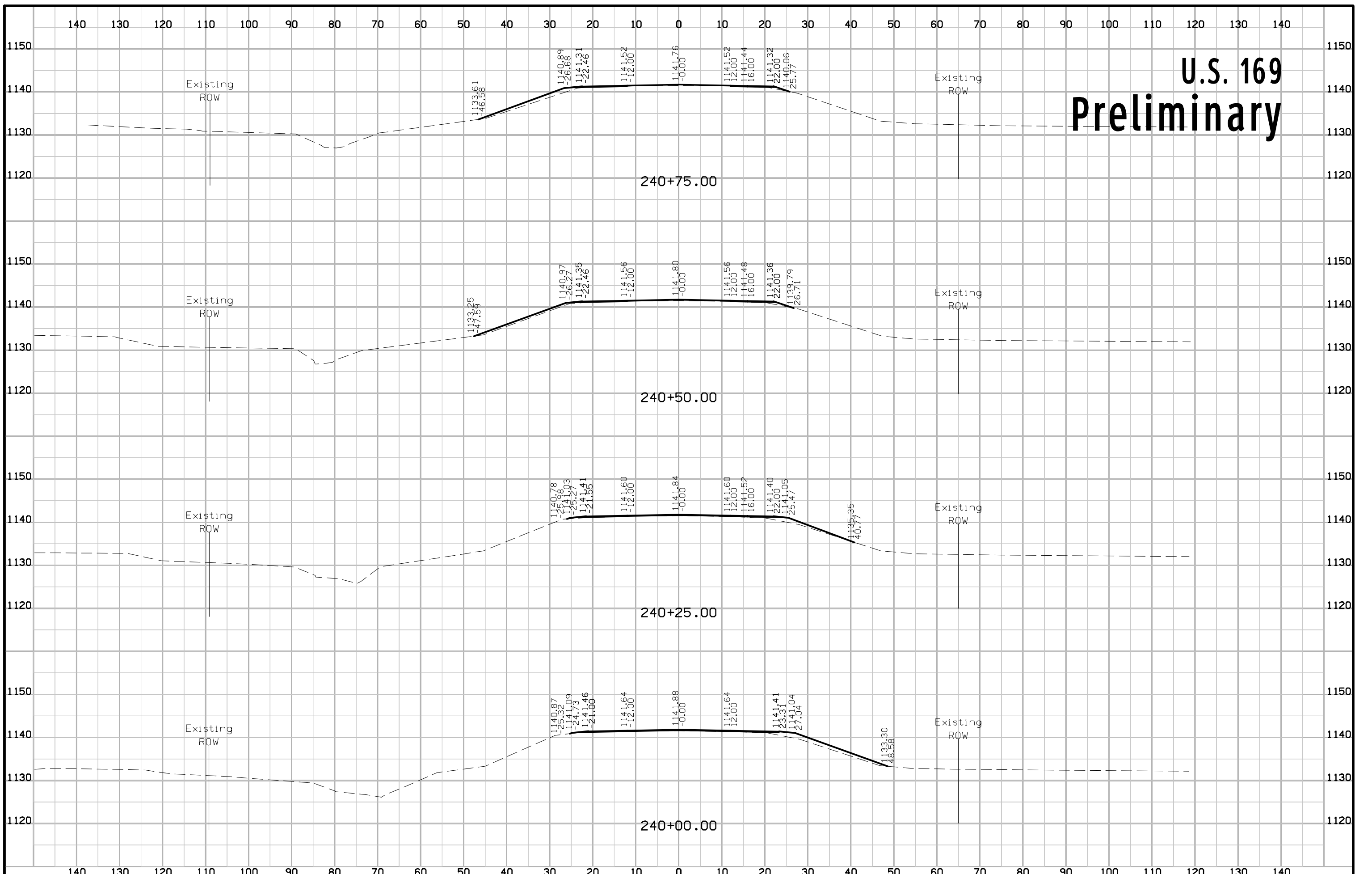


# U.S. 169 Preliminary





# U.S. 169 Preliminary



# U.S. 169 Preliminary

