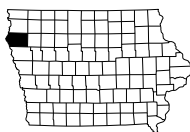


**PLYMOUTH CO.**  
**BRIDGE REPLACEMENT - PPCB**  
**BRFN-012-2(32)--39-75**  
 LETTING DATE  
 01/20/2021



| INDEX OF SHEETS |   |
|-----------------|---|
| No.             | DESCRIPTION   |
| <b>A Sheets</b> | <b>Title Sheets</b>                                   |
| * A.1           | Title Sheet   |
| A.2             | Location Map Sheet                                    |
| <b>B Sheets</b> | <b>Typical Cross Sections and Details</b>             |
| B.1 - 3         | Typical Cross Sections and Details                    |
| <b>C Sheets</b> | <b>Quantities and General Information</b>             |
| C.1             | Tabulations   |
| <b>D Sheets</b> | <b>Mainline Plan and Profile Sheets</b>               |
| * D.1           | Plan & Profile Legend & Symbol Information Sheet      |
| * D.2           | Iowa Highway 12                                       |
| <b>F Sheets</b> | <b>Detour or Temporary Pavement Sheets</b>            |
| * F.1 - 2       | Detour Plan Sheets                                    |
| <b>G Sheets</b> | <b>Survey Sheets</b>                                  |
| G.1 - 3         | Reference Ties and Bench Marks                        |
| G.4             | Horizontal Control Tab. & Super for all Alignments    |
| <b>J Sheets</b> | <b>Traffic Control and Staging Sheets</b>             |
| * J.1           | Traffic Control Plan                                  |
| * J.1           | Staging Notes Stage                                   |
| * J.2           | Traffic Control & Staging Legend & Symbol Info. Sheet |
| * J.3           | Iowa Highway 12 Detour                                |
| <b>V Sheets</b> | <b>Bridge and Culvert Situation Plans</b>             |
| V.1 - 2         | Bridge Situation Plan                                 |
| <b>W Sheets</b> | <b>Mainline Cross Sections</b>                        |
| W.1             | Cross Sections Legend & Symbol Information Sheet      |
| W.2 - 15        | Mainline Cross Sections                               |
|                 | * Color Plan Sheets                                   |



## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM PLYMOUTH COUNTY BRIDGE REPLACEMENT - PPCB

IA 12 BRIDGE OVER INDIAN CREEK  
4.0 MILES NORTH OF COUNTY ROAD C16

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



| MILEAGE SUMMARY |   |          |       |
|-----------------|---|----------|-------|
| Div.            | Location  | Lin. Ft. | Miles |
|                 | IA Highway 12<br>Sta. 282+50.00 to Sta. 288+70.00 | 620.00   | 0.12  |
|                 | Deduct Bridge at Sta. 285+35.00                   | 217.30   | 0.04  |
|                 | Total Length of Roadway                           | 402.70   | 0.08  |
|                 | Total Length of Bridge                            | 217.30   | 0.04  |
|                 | Total Length of Project                           | 620.00   | 0.12  |

For Project Location Map  
Refer to Sheet No. A.2

| EARTHWORK SUMMARY |        |    |
|-------------------|--------|----|
| Cut               | 840.1  | CY |
| Fill +30%         | 6154.8 | CY |
| Borrow            | 5314.7 | CY |

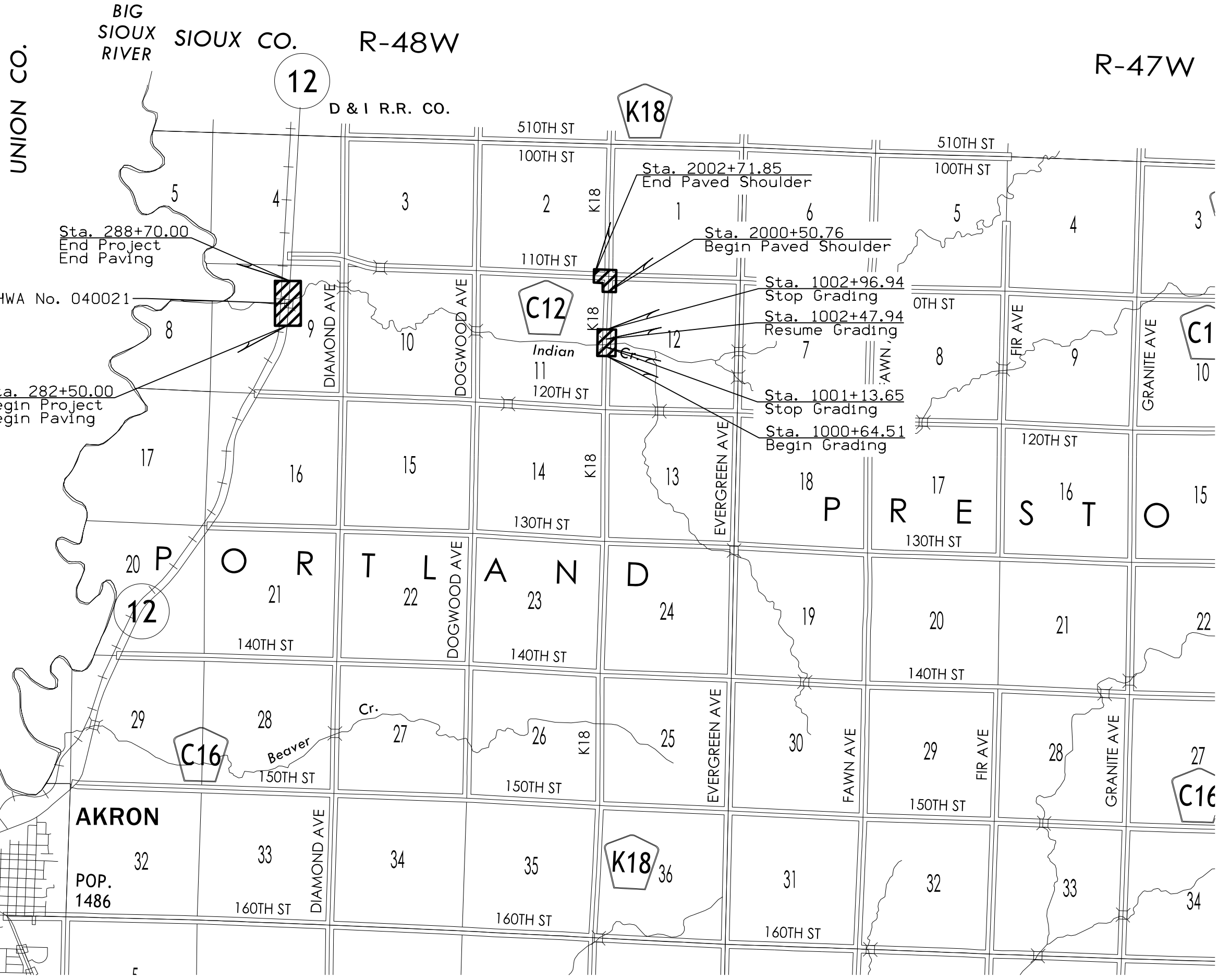
| IA 12              |       | 101-4  |  |
|--------------------|-------|--------|--|
| DESIGN DATA RURAL  |       |        |  |
| 2021 AADT          | 1,200 | V.P.D. |  |
| 2041 AADT          | 1,200 | V.P.D. |  |
| 20 DHV             | --    | V.P.H. |  |
| TRUCKS             | 20    | %      |  |
| Total Design ESALs | --    |        |  |

| INDEX OF SEALS |                    |                         |
|----------------|--------------------|-------------------------|
| SHEET NO.      | NAME               | TYPE                    |
| A.1            | Scott E. Port      | Primary Signature Block |
| Q.1            | Matthew D. Cushman | Geotechnical Design     |
| V.1            | Timothy J. Sheets  | Hydraulic Design        |
|                |                    |                         |
|                |                    |                         |

| ROADWAY DESIGN                              |   |
|---|---|
|   | I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. |
|   | <b>D5 PLAN - Date: 11/06/18</b>   |
| Signature                                   | Date  |
| Printed or Typed Name                       |   |
| My license renewal date is December 31, 20  |   |
| Pages or sheets covered by this seal: _____ |   |

| REVISIONS |
|-----------|
|           |
|           |
|           |
|           |
|           |

| TOTAL                         |
|-------------------------------|
| 34                            |
| PROJECT IDENTIFICATION NUMBER |
| 16-75-012-010                 |
| PROJECT NUMBER                |
| BRFN-012-2(32)--39-75         |
| R.O.W. PROJECT NUMBER         |
| STPN-012-2(33)--2J-75         |
|                               |
|                               |



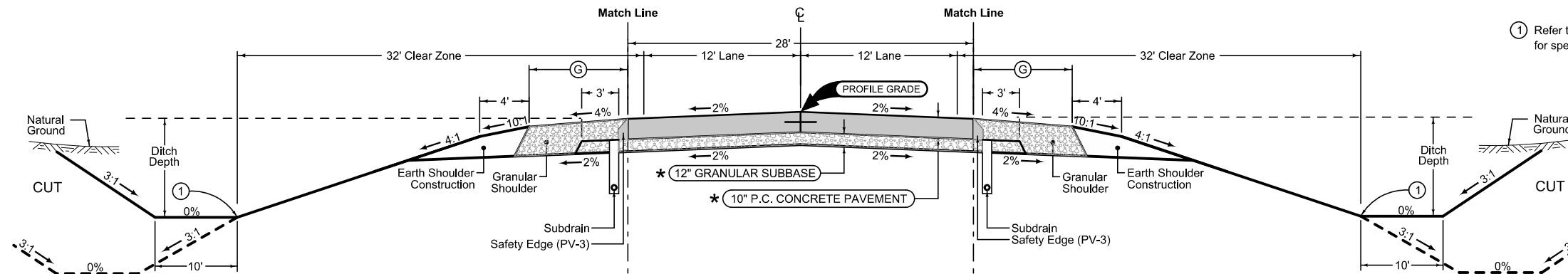
A

T-93N



NOT TO SCALE





① Refer to project plan and cross sections for specific location of foreslope change.

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.

**Granular Shoulder with Safety Edge**

| 2_G_ 10-21-14      |           |           |
|--------------------|-----------|-----------|
| STATION TO STATION |           | ⓐ<br>Feet |
| 282+50.00          | 282+90.18 | 6         |
| 287+54.72          | 288+70.00 | 6         |

Mainline Jointing:  
 Transverse joints: CD at 20' spacing  
 Longitudinal joint: L-2

| 2P_ 10-19-10       |           |
|--------------------|-----------|
| STATION TO STATION |           |
| 282+50.00          | 284+26.35 |
| 286+43.65          | 288+70.00 |

\* NOTE: Iowa DOT to Design Pavement and Granular Subbase Thickness

**Granular Shoulder with Safety Edge**

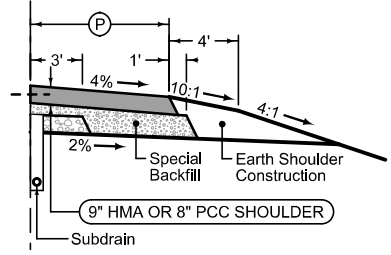
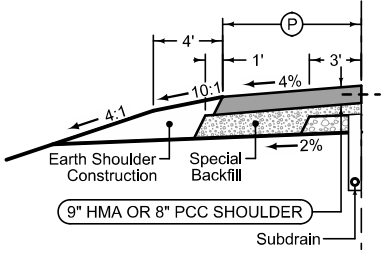
| 2_G_ 10-21-14      |           |           |
|--------------------|-----------|-----------|
| STATION TO STATION |           | ⓐ<br>Feet |
| 282+50.00          | 283+15.28 | 6         |
| 287+77.82          | 288+70.00 | 6         |

**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_ 10-17-17 |           |           |
|---------------------|-----------|-----------|
| STATION TO STATION  |           | ⓑ<br>Feet |
| 282+90.18           | 283+99.80 | *Var.     |
| 286+70.20           | 287+54.72 | *Var.     |

\* Refer to Detail 7156 for paved shoulder width at guardrail.



**Paved Shoulder at Guardrail**

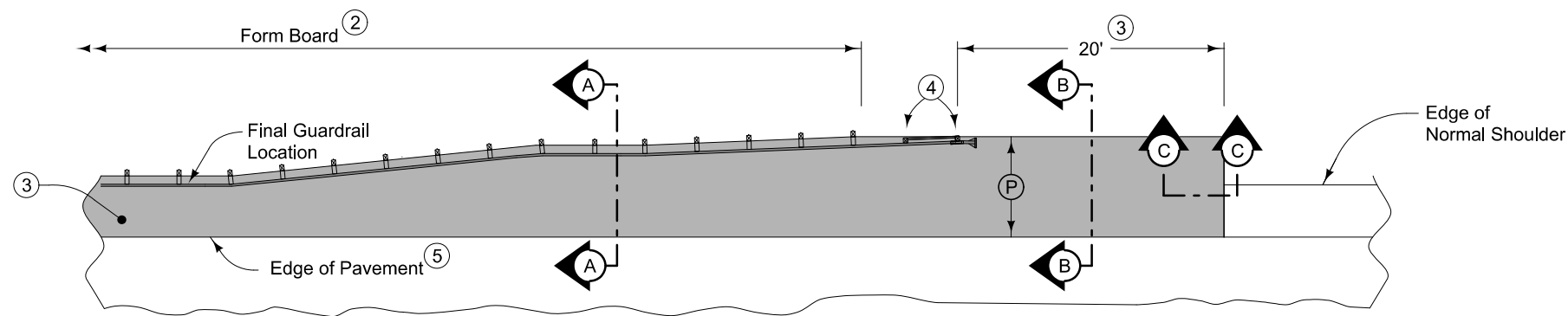
PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at mainline spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

| 2_P_Guard_ 10-17-17 |           |           |
|---------------------|-----------|-----------|
| STATION TO STATION  |           | ⓑ<br>Feet |
| 283+15.28           | 283+99.80 | *Var.     |
| 286+70.20           | 287+77.82 | *Var.     |

\* Refer to Detail 7156 for paved shoulder width at guardrail.

Refer to Tab. 100-24 for Pavement Quantities  
 Refer to Tab. 112-9 for Shoulder Quantities

**TYPICAL CROSS SECTION  
 IOWA HIGHWAY 12**



PLAN VIEW

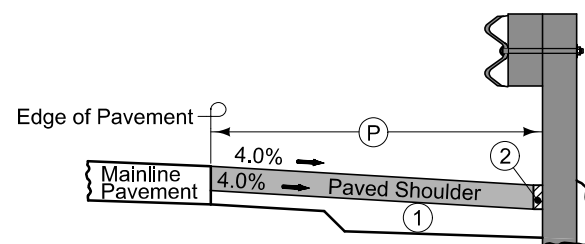
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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.

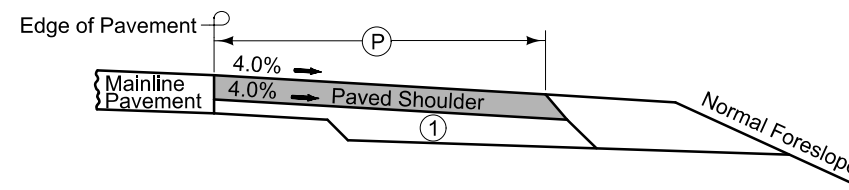
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

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.

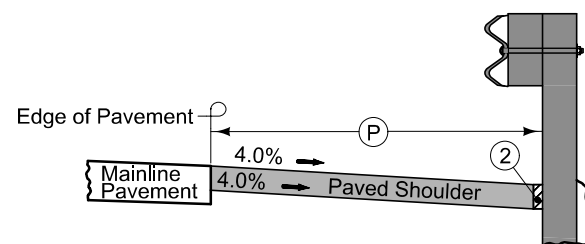


Section A-A

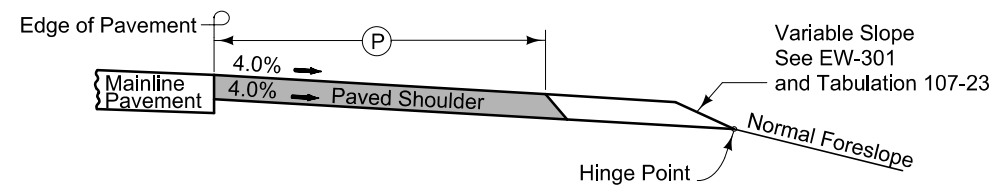


Section B-B

NEW CONSTRUCTION

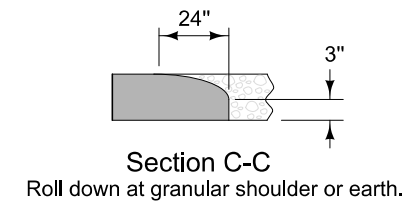


Section A-A



Section B-B

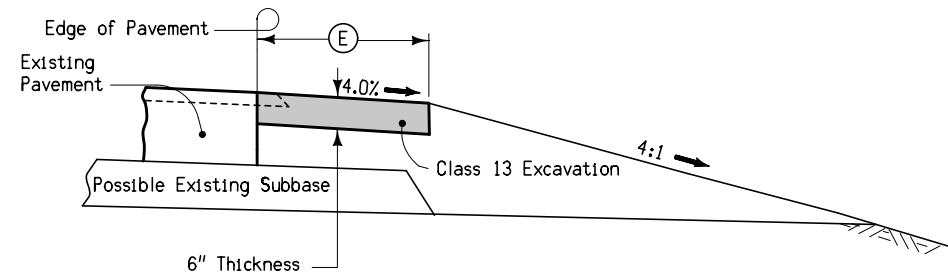
EXISTING SHOULDER



Section C-C  
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

7152  
MODIFIED



① Refer to Sheet F.2 for Details.

**TYPICAL SECTION  
RETROFIT HOT MIX ASPHALT PAVED SHOULDER**

| Location                         |    | Side | ①<br>Feet |
|----------------------------------|----|------|-----------|
| Road Identification              |    |      |           |
| C12/K18 INTERSECTION (SW CORNER) | RT |      | 4         |
|                                  |    |      |           |
|                                  |    |      |           |

**FULL-DEPTH PATCHES**

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

| Count | Location |                         |            | Dimension |       |                 | PCC Patches |                |           |                  | HMA Patches | Composite HMA | Subbase Patches | Subbase Patch w/ 'EF' Joint | Patch Subdrain | 'CD' Joints | 'CT' Joints | 'EF' Joints | Anchor Lugs Removal | Remarks |  |
|-------|----------|-------------------------|------------|-----------|-------|-----------------|-------------|----------------|-----------|------------------|-------------|---------------|-----------------|-----------------------------|----------------|-------------|-------------|-------------|---------------------|---------|--|
|       | Station  | Reference Location Sign | Lane       | Length    | Width | Patch Thickness | With Dowels | Without Dowels | C R C     | Ramp with Dowels |             |               |                 |                             |                |             |             |             |                     |         |  |
|       |          |                         | L, R, or B | FT        | FT    | IN              | PR-103 SY   | PR-102 SY      | PR-104 SY | PR-105 SY        |             |               |                 |                             |                |             |             |             |                     |         |  |
|       |          |                         |            |           |       |                 |             |                |           |                  |             |               |                 |                             |                |             |             |             |                     |         |  |
|       |          |                         |            |           |       |                 |             |                |           |                  |             |               |                 |                             |                |             |             |             |                     |         | *To be determined by District 3 staff* |
|       |          |                         |            |           |       |                 |             |                |           |                  |             |               |                 |                             |                |             |             |             |                     |         | *To be determined by District 3 staff* |
|       |          |                         |            |           |       |                 |             |                |           |                  |             |               |                 |                             |                |             |             |             |                     |         | *To be determined by District 3 staff* |

**PAVEMENT MARKING LINE TYPES**

See PM-110

\*BCY4 - Place on the same side of the roadway to match existing markings near the project.

\*\*\*MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

\*\*NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.

BCY4: Broken Centerline (Yellow) @ 0.25  
ELY4: Edge Line Left (Yellow) @ 1.00

DCY4: Double Centerline (Yellow) @ 2.00

NPY4: No Passing Zone Line (Yellow) @ 1.25

BLW4: Broken Lane Line (White) @ 0.25

ELW4: Edge Line Right (White) @ 1.00

| Road ID  | Station to Station | Dir. of Travel | Marking Type                                     | Side |   |   | Length by Line Type (Unfactored) |      |        |      |      |      |     |     |     |     |     |     | Remarks |     |     |     |  |  |
|----------|--------------------|----------------|--|------|---|---|----------------------------------|------|--------|------|------|------|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|--|--|
|          |                    |                |  | L    | C | R | BCY4*                            | DCY4 | NPY4** | BLW4 | ELW4 | ELY4 |     |     |     |     |     |     |         |     |     |     |  |  |
|          |                    |                |  |      |   |   | STA                              | STA  | STA    | STA  | STA  | STA  | STA | STA | STA | STA | STA | STA |         | STA | STA | STA |  |  |
| 150th St |                    |                | *Information to be provided by District 3 Staff* |      |   |   |                                  |      |        |      |      |      |     |     |     |     |     |     |         |     |     |     |  |  |
| K18      |                    |                | *Information to be provided by District 3 Staff* |      |   |   |                                  |      |        |      |      |      |     |     |     |     |     |     |         |     |     |     |  |  |
| 110th St |                    |                | *Information to be provided by District 3 Staff* |      |   |   |                                  |      |        |      |      |      |     |     |     |     |     |     |         |     |     |     |  |  |

### SURVEY SYMBOLS

|  |                                   |  |   |
|--|-----------------------------------|--|---|
|  | Interstate Highway Symbol         |  | Septic Tank                                   |
|  | U.S. Highway Symbol               |  | Cistern                                       |
|  | Iowa Highway Symbol               |  | L.P. Gas Tank (No Footing)                    |
|  | County Road Highway Symbol        |  | Underground Storage Tank                      |
|  | Evergreen Tree                    |  | Latrine                                       |
|  | Deciduous Tree                    |  | Luminaire                                     |
|  | Fruit Tree                        |  | Traffic Signal                                |
|  | Shrub (Bushes)                    |  | Traffic Signal with Luminaire                 |
|  | Timber                            |  | Telephone Pedestal                            |
|  | Hedge                             |  | Television Pedestal                           |
|  | Stump                             |  | Telephone Pole                                |
|  | Swamp                             |  | Telephone Pole (Second Company)               |
|  | Rock Outcrop                      |  | Telephone Pole (Third Company)                |
|  | Broken Concrete                   |  | Telephone Pole (Fourth Company)               |
|  | Revetment (Rip Rap)               |  | Telephone Pole (Fifth Company)                |
|  | Cemetery                          |  | Power Pole                                    |
|  | Grave                             |  | Power Pole (Second Company)                   |
|  | Cave                              |  | Power Pole (Third Company)                    |
|  | Sink Hole                         |  | Power Pole (Fourth Company)                   |
|  | Board Fence                       |  | Power Pole (Fifth Company)                    |
|  | Chain Link or Security Fence      |  | Electrical Highline Tower (Metal or Concrete) |
|  | Wire Fence                        |  | Telephone Riser Pole                          |
|  | Terrace                           |  | Power Riser Pole                              |
|  | Earth Dam or Dike (Existing)      |  | Telegraph Pole                                |
|  | Earth Dam or Dike (Proposed)      |  | Satellite TV Dish                             |
|  | Tile Outlet                       |  | Water Hook Up                                 |
|  | Edge of Water                     |  | Radio Tower                                   |
|  | Existing Drainage                 |  | Tower Anchor                                  |
|  | Proposed Drainage                 |  | Guardrail (Beam or Cable)                     |
|  | Right of Way Rail or Lot Corner   |  | Guard Post (one or two)                       |
|  | Concrete Monument                 |  | Guard Post (over two)                         |
|  | Well                              |  | Filler Pipe                                   |
|  | Windmill                          |  | Gas Valve                                     |
|  | Beehive Intake                    |  | Water Valve                                   |
|  | Existing Intake                   |  | Speed Limit Sign                              |
|  | Proposed Intake                   |  | Mile Marker Post                              |
|  | Existing Utility Access (Manhole) |  | Sign  |
|  | Proposed Utility Access (Manhole) |  | Traffic Signal Control Box                    |
|  | Fire Hydrant                      |  | Rail Road Signal Control Box                  |
|  | Water Hydrant (Rural)             |  | Telephone Switch Box                          |
|  |                                   |  | Electric Box                                  |

### UTILITY LEGEND

|  |    |   |
|--|----|---|
|  | F0 | PREMIER COMMUNICATIONS - FIBER<br>Contact Name : Tim Dykshorn<br>Contact Phone: 7127223451<br>Contact Email: timd@mypremieronline.com     |
|  | T1 | PREMIER COMMUNICATIONS - TELEPHONE<br>Contact Name : Tim Dykshorn<br>Contact Phone: 7127223451<br>Contact Email: timd@mypremieronline.com |

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

| LINEWORK     |       | Design Color No. |  |
|--------------|-------|------------------|--|
| Green        | (2)   |                  | Existing Topographic Features and Labels                               |
| Blue         | (1)   |                  | Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation    |
| Magenta      | (5)   |                  | Existing Utilities   |
| SHADING      |       | Design Color No. |  |
| 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

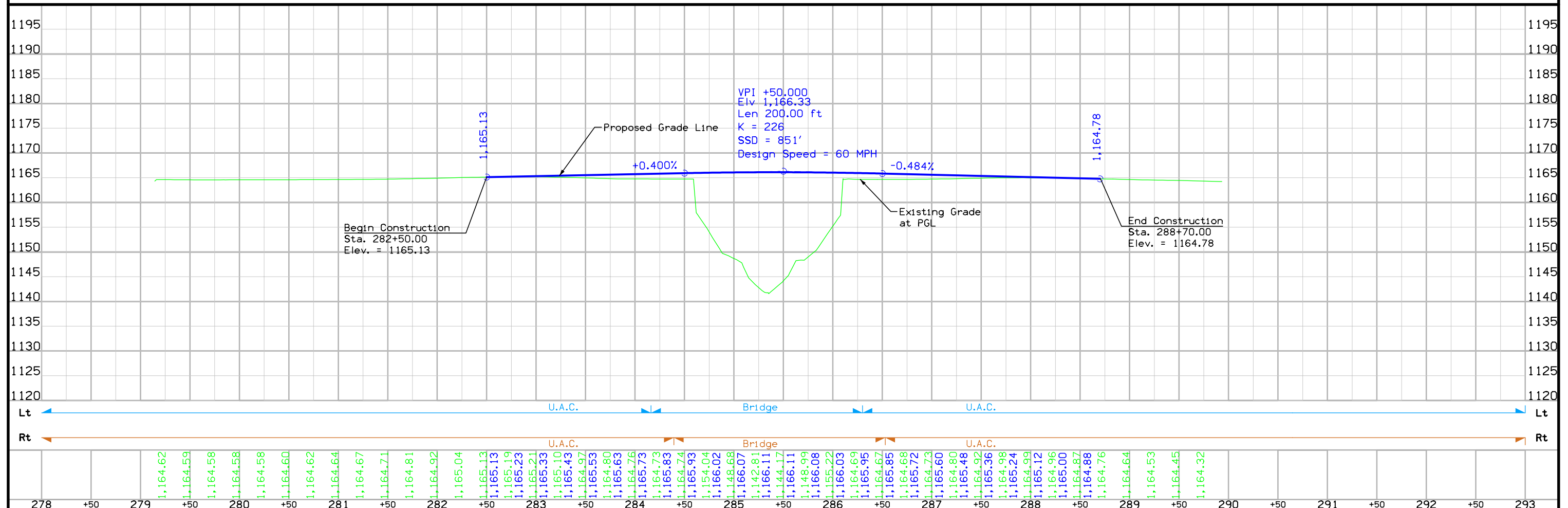
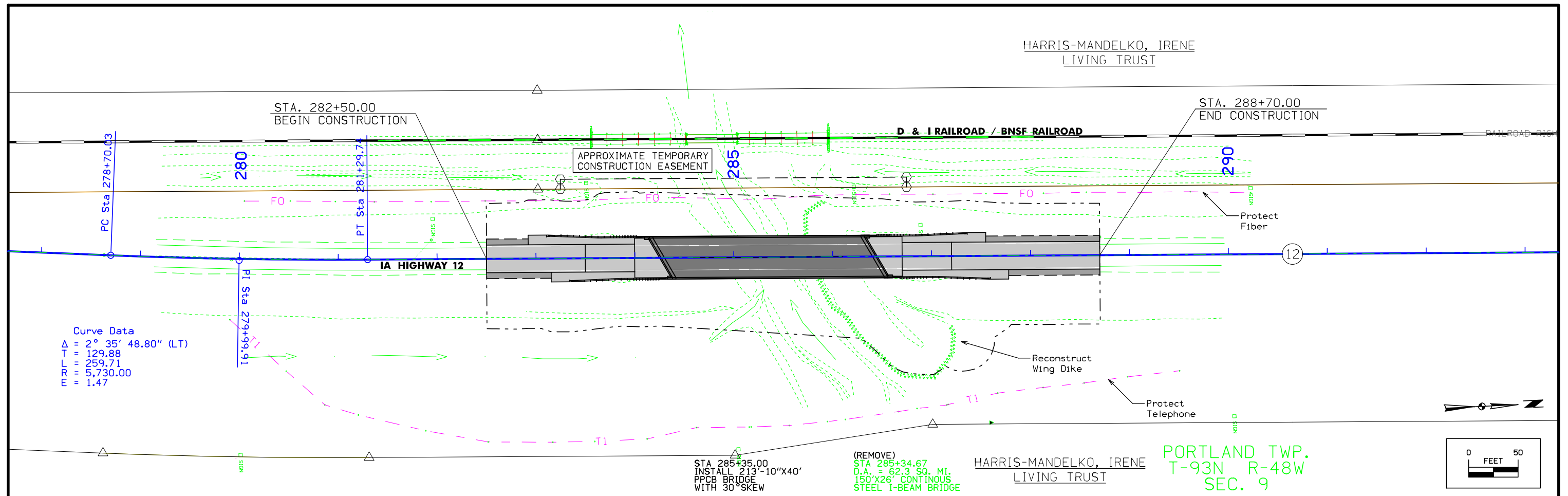
| LINEWORK    |       | Design Color No. |                                 |
|-------------|-------|------------------|---------------------------------|
| Green       | (2)   |                  | Existing Ground Line Profile    |
| Blue        | (1)   |                  | Proposed Profile and Annotation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

| Reference Point |                              |
|-----------------|------------------------------|
|                 | Station                      |
|                 | Survey Line                  |
|                 | Section Corner               |
|                 | Ground Line Intercept        |
|                 | Saw Cut                      |
|                 | Guardrail                    |
|                 | Trench Drain                 |
|                 | High Tension 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)



|          |         |             |                                     |                 |                |                       |              |     |
|----------|---------|-------------|-------------------------------------|-----------------|----------------|-----------------------|--------------|-----|
| FILE NO. | ENGLISH | DESIGN TEAM | SCHRODER\JEO CONSULTING GROUP, INC. | PLYMOUTH COUNTY | PROJECT NUMBER | BRFN-012-2(32)--39-75 | SHEET NUMBER | D.2 |
|----------|---------|-------------|-------------------------------------|-----------------|----------------|-----------------------|--------------|-----|



STA. 1000+64.51  
BEGIN GRADING

STA. 1001+13.65  
STOP GRADING

Protect Bridge and  
Barrier Rail

Protect  
Fiber

Protect  
Electric

POT Sta 1000+00.00

1000

4' Shoulder

1001

Refer to BA-500

1002

Refer to BA-500

1003

FB  
PB

POT Sta 1003+95.99

1003

22' Roadway

COUNTY HIGHWAY K18

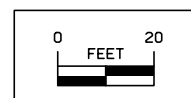
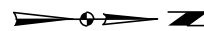
4' Shoulder

Refer to BA-500

Refer to BA-500

STA. 1002+96.94  
END GRADING

STA. 1002+47.94  
RESUME GRADING



STA. 2000+50.76  
BEGIN PAVED SHOULDER

POT Sta 2000+00.00

COUNTY HIGHWAY K18

SIGN

20.0'

R100'

2001

R30'

2002

R130'

Match Existing Pavement

Match Existing Pavement

2003

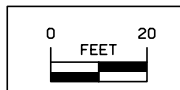
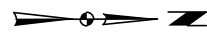
20.0'

4.0'

COUNTY HIGHWAY C12

STA. 2002+71.85  
END PAVED SHOULDER

PI Sta 2001+58.06



## Survey Information

Plymouth County  
BRFN-012-2(32)--39-75  
Bridge Replacement Indian Creek 4 mi N of Co. Rd C16  
PIN 16-75-012-010  
SAP-0924

### General Information

Measurement units for this survey are US survey feet. This survey is for Preliminary/Engineering for the proposed bridge replacement over Indian Creek 4.0 miles north of County Road C16. This project is a Partial DTM survey.

### Vertical Control

Vertical datum for this survey is relative to NAVD88, Geoid 12a.

Vertical positions were established by static observations and post processed using concurrent observations from the laRTN LeMars and Sioux City reference stations. Static observations were also collected on NGS Monument NM0809 and Plymouth County control points 024, 025 and A4581 with results shown below. Additional benchmarks were established with a digital level loop relative to CP1000.

NM0809 (NGS First Order Class II) has a published Elev. Of 1154.29  
Survey Elev. = 1154.40

This survey observed three Plymouth County Control Monuments with published NAVD88 heights to compare to local ground control:

Plymouth County Control #024 has a published Elev. of 1279.30  
Survey Elev. = 1279.35

Plymouth County Control #025 has a published Elev. of 1183.11  
Survey Elev. = 1183.20

Plymouth County Control #A4581 has a published Elev. of 1179.69  
Survey Elev. = 1173.78

### Horizontal Control

The project coordinate system is the Iowa Regional Coordinate System, Zone 4. Horizontal datum is NAD83 (2011) for Epoch 2010.00. The projection parameters for Zone 4 of the laRCS is defined below:

Lambert Conformal Conic Projection North American Datum of 1983  
Origin Lat: 42°32'00"N  
Origin Central Meridian: 094°50'00"W  
Central Meridian Scale: 1.000045  
False Northing: 8,600,000  
False Easting: 14,500,000

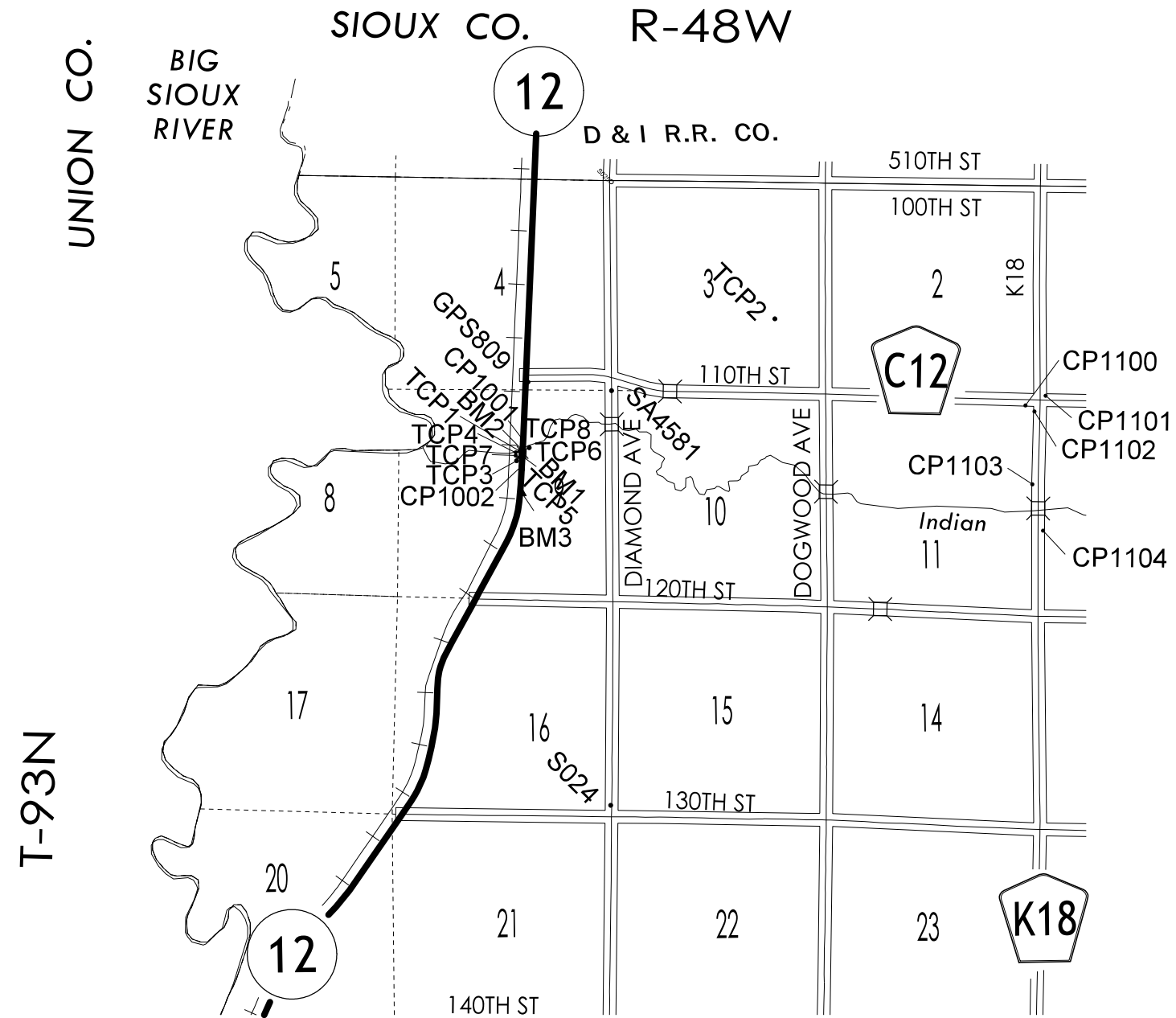
Horizontal positions for site control were established by static observations and post processed using concurrent observations from the laRTN LeMars and Sioux City reference stations

### Alignment Information

Alignment was retraced by District 3 office.

### 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 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 4

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 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 4

| Point Name | Northing    | Easting      | Elevation | Feature Definition | Description   |
|------------|-------------|--------------|-----------|--------------------|---|
| CP1000     | 8736633.914 | 14048777.302 | 1157.392  | CP                 | SET 1/2IN REBAR W/ RED CAP, 50FT +/- N OF CL 110TH ST, 40FT +/- W OF CL HWY 12, 25FT +/- N OF RIGHT-LEFT SIGN |
| CP1001     | 8735019.747 | 14048725.890 | 1163.456  | CP                 | SET 1/2IN REBAR W/ RED CAP, W SIDE HWY 12, 250FT +/- N OF N END OF BRIDGE OVER INDIAN CREEK                   |
| CP1002     | 8734344.407 | 14048695.720 | 1163.489  | CP                 |   |
| BM1        | 8734599.608 | 14048711.940 | 1167.419  | BM                 | FND IDOT BRASS PLUG IN SW ABUTMENT BRIDGE ON HWY 12 OVER INDIAN CREEK   |
| BM2        | 8734758.171 | 14048714.720 | 1165.269  | BM                 | SET CUT X ON NW ABUTMENT BRIDGE ON HWY 12 OVER INDIAN CREEK   |
| BM3        | 8733682.013 | 14048717.380 | 1164.071  | BM                 |   |
| S024       | 8726005.320 | 14050899.658 | 1279.350  | CP                 | PLYMOUTH COUNTY CONTROL MONUMENT  |
| GPS809     | 8736419.288 | 14048862.242 | 1154.405  | CP                 | PLYMOUTH COUNTY CONTROL MONUMENT  |
| SA4581     | 8736206.962 | 14050920.748 | 1173.780  | CP                 | PLYMOUTH COUNTY CONTROL MONUMENT  |
| S025       | 8741346.702 | 14050916.681 | 1183.197  | CP                 | PLYMOUTH COUNTY CONTROL MONUMENT  |
| CP1100     | 8735966.414 | 14061224.840 | 1259.876  | CP                 | NAIL ON E SIDE ASPHALT BUMP-OUT FOR DRIVEWAY, S SIDE C12, W OF K18  |
| CP1101     | 8736000.400 | 14061508.490 | 1250.990  | CP                 | NAIL ON EDGE OF ROAD NEAR MID-RADIUS OF NE QUAD OF C12 AND K18  |
| CP1102     | 8735821.746 | 14061459.270 | 1248.418  | CP                 | 1/2IN REBAR WITH OPC 3FT W OF W EDGE K18 +/- 150FT S OF C12   |
| CP1103     | 8733678.699 | 14061413.010 | 1198.401  | CP                 | 5/8IN REBAR 3FT W OF W EDGE K18 +/-300 FT N OF BRIDGE (1/2 MILE S OF C12)                                     |
| CP1104     | 8733068.528 | 14061439.050 | 1198.592  | CP                 | 5/8IN REBAR 3FT E OF E EDGE K18 +/-300 FT S OF BRIDGE (1/2 MILE S OF C12)                                     |

**ALIGNMENT COORDINATES**

| Name        | Location   | Point on Tangent |              |              | Begin Spiral |              |             | Begin Curve |              |             | Simple Curve PI or Master PI of SCS |              |             | End Curve  |              |             | End Spiral |              |             |
|-------------|------------|------------------|--------------|--------------|--------------|--------------|-------------|-------------|--------------|-------------|-------------------------------------|--------------|-------------|------------|--------------|-------------|------------|--------------|-------------|
|             |            | Station          | Coordinates  |              | Station      | Coordinates  |             | Station     | Coordinates  |             | Station                             | Coordinates  |             | Station    | Coordinates  |             | Station    | Coordinates  |             |
|             |            |                  | Y (Northing) | X (Easting)  |              | Y (Northing) | X (Easting) |             | Y (Northing) | X (Easting) |                                     | Y (Northing) | X (Easting) |            | Y (Northing) | X (Easting) |            | Y (Northing) | X (Easting) |
| POINT ML012 | IA HWY 12  | 276+89.42        | 8733840.16   | 14048679.31  |              |              |             |             |              |             |                                     |              |             |            |              |             |            |              |             |
| CURVE ML012 | IA HWY 12  |                  |              |              |              |              | 278+70.03   | 8734020.07  | 14048695.26  | 279+99.91   | 8734149.44                          | 14048706.73  | 281+29.74   | 8734279.19 | 14048712.32  |             |            |              |             |
| POINT ML012 | IA HWY 12  | 357+44.20        | 8741886.58   | 4049.040.317 |              |              |             |             |              |             |                                     |              |             |            |              |             |            |              |             |
| POINT DET11 | CO HWY K18 | 1000+00.00       | 8733133.74   | 14061425.33  |              |              |             |             |              |             |                                     |              |             |            |              |             |            |              |             |
| POINT DET12 | CO HWY K18 | 1003+95.99       | 8733529.73   | 14061426.68  |              |              |             |             |              |             |                                     |              |             |            |              |             |            |              |             |
| POINT DET21 | CO HWY C12 | 2000+00.00       | 8735816.03   | 14061473.51  |              |              |             |             |              |             |                                     |              |             |            |              |             |            |              |             |
| POINT DET23 | CO HWY C12 | 2001+58.06       | 8735974.07   | 14061475.86  |              |              |             |             |              |             |                                     |              |             |            |              |             |            |              |             |
| POINT DET24 | CO HWY C12 | 2003+53.82       | 8735978.27   | 14061280.14  |              |              |             |             |              |             |                                     |              |             |            |              |             |            |              |             |

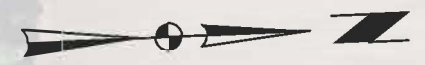
**SPIRAL OR CIRCULAR CURVE DATA**

| Name    | Location  | ΔSCS | Horizontal Alignment Data |    |    |    |    |    |            |      |    |   |   |                   | Remarks |         |          |       |  |
|---------|-----------|------|---------------------------|----|----|----|----|----|------------|------|----|---|---|-------------------|---------|---------|----------|-------|--|
|         |           |      | Spiral Data               |    |    |    |    |    | Curve Data |      |    |   |   |                   |         |         |          |       |  |
|         |           |      | θS                        | Ls | Ts | Es | Xc | Yc | L.T.       | S.T. | ΔC | T | L | R                 |         | E       |          |       |  |
| ML012_3 | IA HWY 12 |      |                           |    |    |    |    |    |            |      |    |   |   | 2° 35' 48.8" (LT) | 129.876 | 259.708 | 5730.000 | 1.472 |  |

|            |   |       |      |        |      |      |               |        |           |         |      |      |            |       |       |             |          |            |  |  |
|------------|---|-------|------|--------|------|------|---------------|--------|-----------|---------|------|------|------------|-------|-------|-------------|----------|------------|--|--|
| Plymouth   | ROW: STPN-012-2(33)--2J-75                                |       |      |        |      | PIN  | 16-75-012-010 |        |           |         |      |      |            |       |       |             |          |            |  |  |
|            | Indian Creek 4.0 mi N of Co Rd C16                        |       |      |        |      |      |               |        |           |         |      |      |            |       |       |             |          |            |  |  |
|            |   |       |      |        |      |      |               |        |           |         |      |      |            |       |       |             |          |            |  |  |
|            |   | STATE |      | COUNTY |      | CITY |               |        | TEMP EASE | BORROW  |      |      |            |       |       |             |          |            |  |  |
| PARCEL NO. | OWNER NAME  | FEE   | EASE | FEE    | EASE | FEE  | EASE          | EXCESS |           |         | FEE  | T.E. | MITIGATION | OTHER | HOUSE | BUILDING(S) | A/C ONLY | TOTAL ACQ. |  |  |
| 1R         | DIVISION OF RAILROADS FOR THE STATE OF SOUTH DAKOTA - Fee |       |      |        |      |      |               |        |           |         |      |      |            |       |       |             |          |            |  |  |
|            |   |       |      |        |      |      |               |        |           |         |      |      |            |       |       |             |          |            |  |  |
|            |   |       |      |        |      |      |               |        |           |         |      |      |            |       |       |             |          |            |  |  |
| 1 Parcel   | "TOTALS   | 0 AC  | 0 AC | 0 AC   | 0 AC | 0 AC | 0 AC          | 0 AC   | 0 AC      | 0.08 AC | 0 AC | 0 AC | 0 AC       |       |       |             |          |            |  |  |
|            |   | 0 SF  | 0 SF | 0 SF   | 0 SF | 0 SF | 0 SF          | 0 SF   | 0 SF      | 0 SF    | 0 SF | 0 SF | 0 SF       |       |       |             |          |            |  |  |

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.





HARRIS-MANDELKO, IRENE  
LIVING TRUST

283+25  
CL 80'

TEMPORARY EASEMENT  
TO SHAPE

(IR)  
D & I  
RAILROAD

286+75  
CL 80'

STA. 282+50.00  
BEGIN CONSTRUCTION

STA. 288+70.00  
END CONSTRUCTION

280

285

290

FD

FD

FD

Protect  
Fiber

IA HIGHWAY 12

Reconstruct  
Wing Dike

Protect  
Telephone

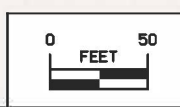
STA 285+35.00  
INSTALL 213'-10"X40'  
PPCB BRIDGE  
WITH 30° SKEW

(REMOVE)  
STA 285+34.67  
D.A. = 62.3 SQ. MI.  
150'X26' CONTINUOUS  
STEEL I-BEAM BRIDGE

PORTLAND TWP.  
T-93N R-48W  
SEC. 9

HARRIS-MANDELKO, IRENE  
LIVING TRUST

|   |
|---|
| <b>Right of Way Design Information</b>          |
| <b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b> |
| ROW Team: CUVA /CARMAN                          |
| ROW #: STPN-012-2(33)--2J-75                    |
| Plan Date: 02/04/2019                           |
| Color Legend:                                   |
| Property Lines                                  |
| Temporary Easement                              |
| Permanent Acquisition                           |



**TRAFFIC CONTROL PLAN**

Traffic control on this project shall be in accordance with the standard road plans shown in Tabulation 105-4 and the specific layouts shown in the plans. For additional complementary information, refer to Part 6 of the Manual of Uniform Traffic Control Devices (MUTCD) and the current standard specifications and supplemental specifications.

The Contractor shall coordinate traffic control with projects listed in Tabulation 111-01 and other projects in the area.

The Contractor shall notify the Resident Construction Engineer and Plymouth County two (2) weeks prior to temporary road closures and changes in traffic patterns during construction.

The Contractor shall be responsible for furnishing, installing, maintaining, and removing the signage for the temporary detours.

The Contractor shall remove existing signs and posts within the project limits, as required for construction. The Contractor shall provide Iowa DOT and Plymouth County two (2) weeks advance notice prior to removal of existing signs.

The Contractor shall maintain clean pavement in and out of the work area at all times.

All signs to be in place longer than three days must be post mounted.

The Contractor will be responsible for securing a safe storage area for equipment and materials to be used on the project.

**STAGING NOTES**

General Notes:

1. Access to properties shall be maintained at all times.
2. The Contractor shall coordinate traffic control with project listed in Tabulation 111-01 and other projects in the area.

Stage 1 - Traffic

- Utilize Iowa DOT Standard Road Plan TC-211 and TC-212 for patching along the detour route, C12 and K18 intersection shoulder improvements, and for temporary crash cushion construction at the Indian Creek bridge on County Road K18.

Stage 1 - Construction

- Install temporary traffic control as required for construction.
- Install patches as outlined in the C-sheets, install paved shoulder at the C12/K18 intersection, and install temporary crash cushion as required for the Indian Creek bridge on County Road K18.

Stage 2 - Traffic Control

- Utilize Iowa DOT Standard Road Plan TC-233 for pavement marking operations along the detour route.

Stage 2 - Construction

- Install pavement markings along County Roads C16, K18, and C12 as outlined in the C-sheets.

Stage 3 - Traffic Control

- Close Iowa Highway 12 to traffic utilizing Iowa DOT Standard Road Plan TC-252, Situation 1 (Rural).
- Maintain access to properties at all times.

Stage 3 - Construction

- Install temporary traffic control and erosion control.
- Remove existing bridge and install new bridge.
- Grade and pave approaches and adjacent pavement. Install pavement markings.
- Install final erosion control.

Stage 4 - Traffic Control

- Open traffic to Iowa Highway 12.
- Utilize Iowa DOT Standard Road Plan TC-211 for the removal of temporary crash cushions at Indian Creek bridge on County Road K18.

Stage 4 - Construction

- Remove remaining traffic control and temporary crash cushions on County Road K18 at Indian Creek Bridge.

**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 |
|---------|--------------|
|         |              |
|         |              |
|         |              |
|         |              |
|         |              |
|         |              |
|         |              |
|         |              |
|         |              |
|         |              |










**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 |
|---|-----------|----------|------------------------------------|-----------------|-------------|--|---------------------|----------------------|--------------------------|------------------------------------|--------------------------------|---------|
| IA 12   | NB/SB     | Plymouth | 4.0 Miles North of County Road C16 | Indian Creek    | Bridge      | 40021  | CLOSED              |                      |                          |                                    |                                | Note 1  |
| Notes:  |           |          |                                    |                 |             |  |                     |                      |                          |                                    |                                |         |
| 1. Iowa Highway 12 is closed during bridge reconstruction. Detour route is in affect. |           |          |                                    |                 |             |  |                     |                      |                          |                                    |                                |         |

**CROSS SECTION VIEW COLOR LEGEND  
OF TRAFFIC CONTROL AND STAGING SHEETS**

| SHADING      | Design Color No. |   |
|--------------|------------------|---|
| Green, Light | (225)            | Existing Pavement Shading                       |
| Gray, Light  | (48)             | Previously Constructed Pavement Shading         |
| Gray, Med    | (80)             | Previously Constructed Granular Surface Shading |
| Blue, Light  | (230)            | Proposed Pavement Shading                       |
| Lavender     | (9)              | Temporary Pavement Shading                      |
| Brown, Med   | (237)            | Future Proposed Pavement Shading                |

**CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND  
OF TRAFFIC CONTROL AND STAGING SHEETS**





















|   |                           |   |                                 |
|---|---------------------------|---|---------------------------------|
|  | Pavement Removal          |  | Proposed Granular Shoulder      |
|  | Proposed Granular Subbase |  | Temporary Shoulder              |
|  | Proposed Special Backfill |  | Existing Shoulder Strengthening |
|  | Temporary Barrier Rail    |  | Permanent Barrier Rail          |
|   |                           |  | Channelizing Device             |

**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         |
| Gray, Med                | (80)             | Proposed Granular Surface Shading               |
| Gray, Med                | (80)             | Previously Constructed Granular Surface Shading |
| Blue, Light              | (230)            | Proposed Pavement Shading                       |
| Lavender                 | (9)              | Temporary Pavement Shading                      |
| Brown, Light             | (236)            | Proposed Grading Limits Shading                 |
| Pink, Dark               | (13)             | Proposed MSE or CIP Wall Shading                |
| Red                      | (3)              | Proposed Bridge Shading and Sign Trusses        |
| Black w/Gray, Light Fill | (0,48)           | Previously Constructed Structure                |

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

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

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

**TRAFFIC CONTROL  
AND  
STAGING  
LEGEND AND SYMBOL  
INFORMATION SHEET**

(COVERS SHEET SERIES J)

### DETOUR NOTES

As a part of the IA Highway 12 bridge replacement over Indian Creek, IA Highway 12 will be closed during construction and a detour as shown on J.3 will be used.





Refer to Traffic Control Plan and Staging Notes on Sheet J.1 for additional information.

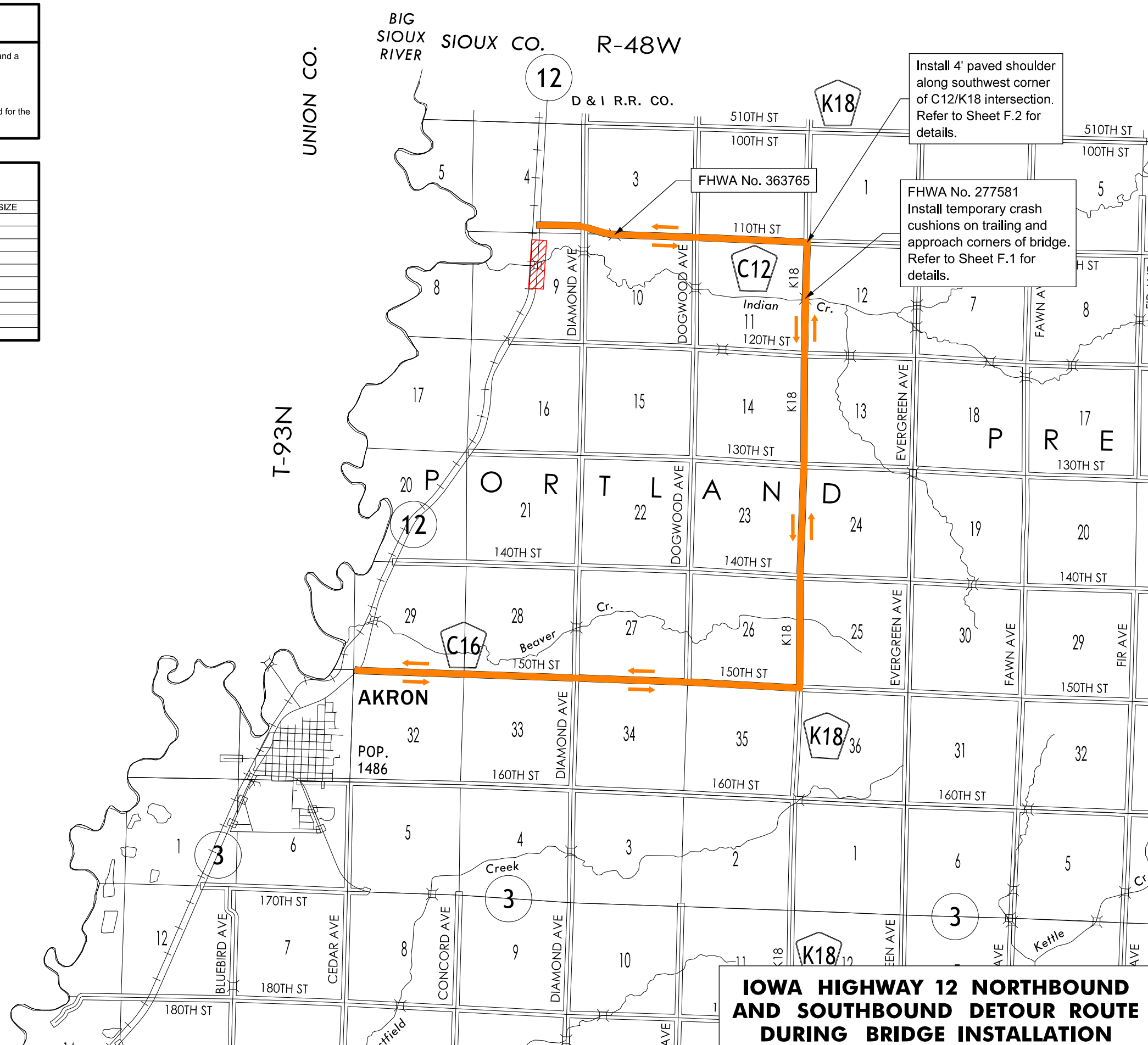
The bid item for Traffic Control will be considered full compensation for installing, covering and uncovering signs required for the detour. It is the Contractor's responsibility to set up, cover, uncover, and maintain all signs along the detour routes.

### DETOUR SIGN TABULATION

| No.                                   | SIGN DESCRIPTION AND TYPE | QUANTITY | SIZE |
|---------------------------------------|---------------------------|----------|------|
| TAB. TO BE FILLED DURING FINAL DESIGN |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |
|                                       |                           |          |      |

**LEGEND**

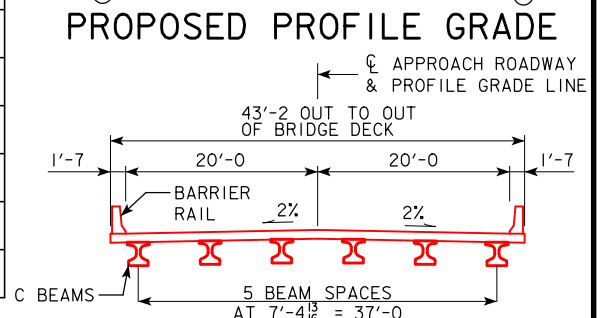
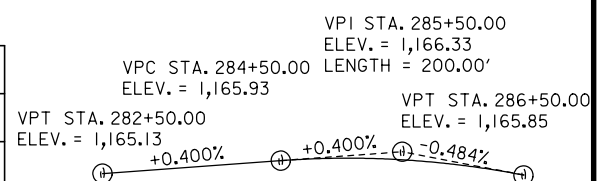
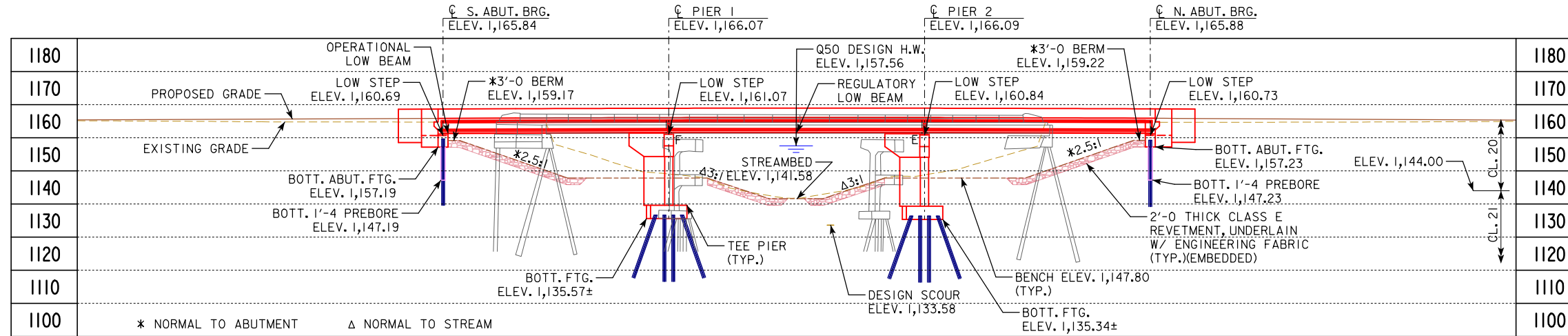
-  Project Location
-  Detour Route
-  Traffic Sign
-  Traffic Sign Identification



Install 4' paved shoulder along southwest corner of C12/K18 intersection. Refer to Sheet F.2 for details.

FHWA No. 277581  
Install temporary crash cushions on trailing and approach corners of bridge. Refer to Sheet F.1 for details.

### IOWA HIGHWAY 12 NORTHBOUND AND SOUTHBOUND DETOUR ROUTE DURING BRIDGE INSTALLATION



**LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY**  
(NOTE: CL ELEVATIONS SHOWN ARE AT PROFILE GRADE LINE)

NOTE: TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.03' BELOW THE PROFILE GRADE TO ACCOUNT FOR DECK CROSS SLOPE AND PARABOLIC CROWN.

- NOTES:
- PROPOSED BRIDGE IS A H40-06 STANDARD
  - BARRIER RAIL TO BE TL-4. DESIGNED DURING FINAL DESIGN.
  - EXISTING PIERS ARE TO BE COMPLETELY REMOVED.
  - IDOT DISTRICT 3 WISHES TO KEEP EXISTING BRIDGE NUMBER SIGNS.

**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.

*Timothy J. Sheets* 10/09/2018  
Signature Date

Printed or Typed Name: **Timothy J. Sheets**

My license renewal date is December 31, 2019

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

**HYDRAULIC DATA**

DRAINAGE AREA = 62.3 SQ. MI.  
STREAM SLOPE = 3.17 FT./MI.  
AVG. LOW WATER STAGE = 1,144.00

Q<sub>50</sub> = 11,200 CFS  
STAGE = 1,157.56  
REGULATORY LOW BEAM = 1,161.28  
AVG. BRIDGE VELOCITY = 6.22 FPS

Q<sub>100</sub> = 13,400 CFS  
STAGE = 1,157.86  
OPERATIONAL LOW BEAM = 1,160.94  
BACKWATER = 0.98 FT.  
AVG. BRIDGE VELOCITY = 7.21 FPS

Q<sub>200</sub> = 15,700 CFS  
STAGE = 1,158.30  
CALCULATED DESIGN SCOUR = 1,133.58

Q<sub>500</sub> = 18,400 CFS  
STAGE = 1,161.83  
AVG. BRIDGE VELOCITY = 7.05 FPS  
CALCULATED CHECK SCOUR = 1,137.90

ROADWAY OVERTOP 1,164.78  
STA. 288+70.00

EXTREME HW STAGE = UNKNOWN  
DATE = UNKNOWN

**LOCATION**

IA HWY 12  
OVER INDIAN CREEK  
T-93N R-48W  
SECTION 09  
PORTLAND TOWNSHIP  
PLYMOUTH COUNTY  
FHWA NO. 040021  
BRIDGE MAINT. NO. 7538.95012  
LATITUDE 42.890556°  
LONGITUDE -96.517222°

**TRAFFIC ESTIMATE**

|                    |       |        |
|--------------------|-------|--------|
| 2021 AADT          | 1,200 | V.P.D. |
| 2041 AADT          | 1,200 | V.P.D. |
| 2021 DHV           |       | V.P.H. |
| TRUCKS             | 20    | %      |
| TOTAL DESIGN ESALS |       |        |

**UTILITIES LEGEND**

- FO — FIBER OPTIC — PREMIER COMMUNICATIONS
- T1 — TELEPHONE — PREMIER COMMUNICATIONS

DESIGN FOR 30° SKEW (R.A.)

**213'-10 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE**

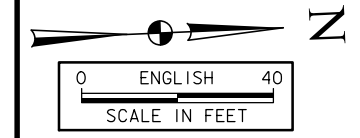
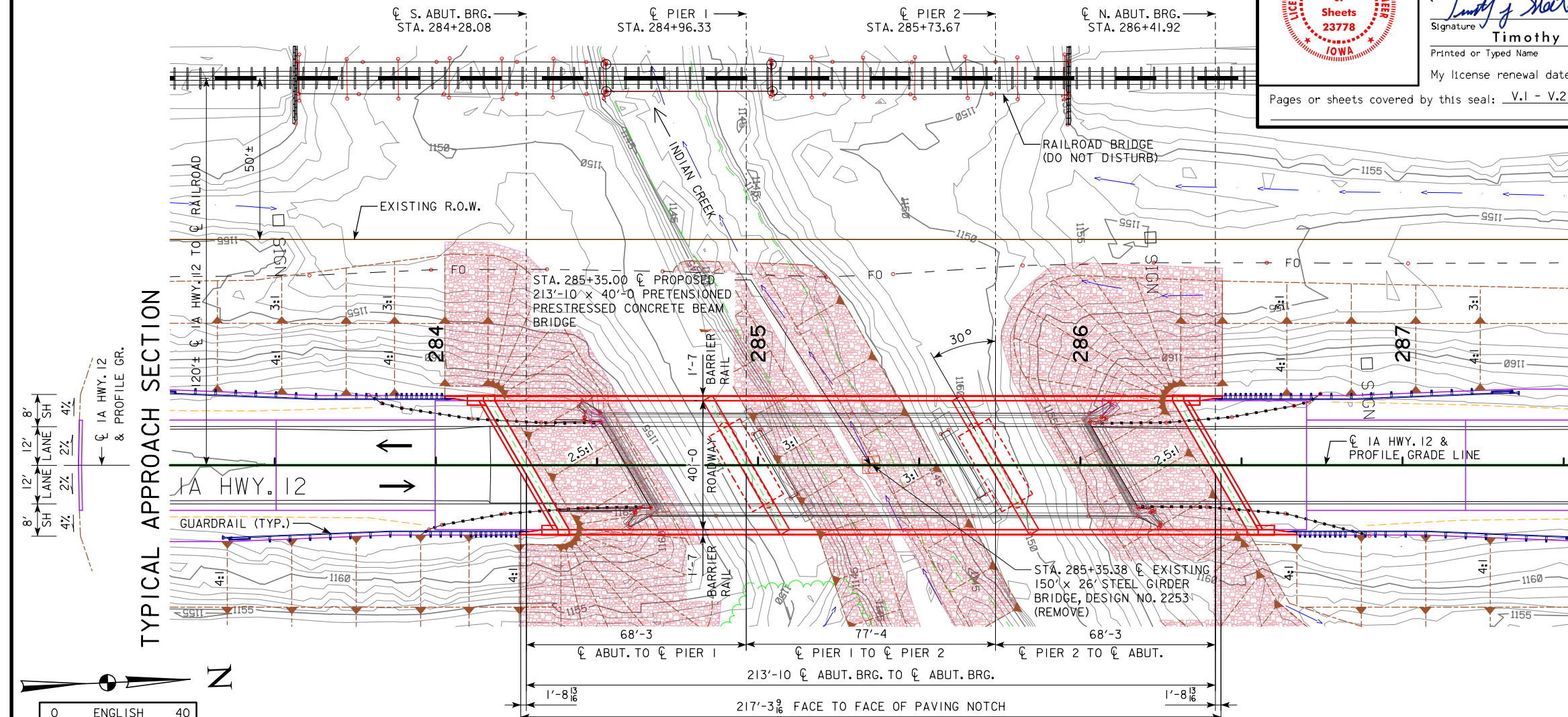
68'-3 END SPANS 77'-4 INTERIOR SPAN

**SITUATION PLAN**

STA. 285+35.00 OCTOBER 2018

**PLYMOUTH COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. 1 OF 2 FILE NO. 31633 DESIGN NO. 221



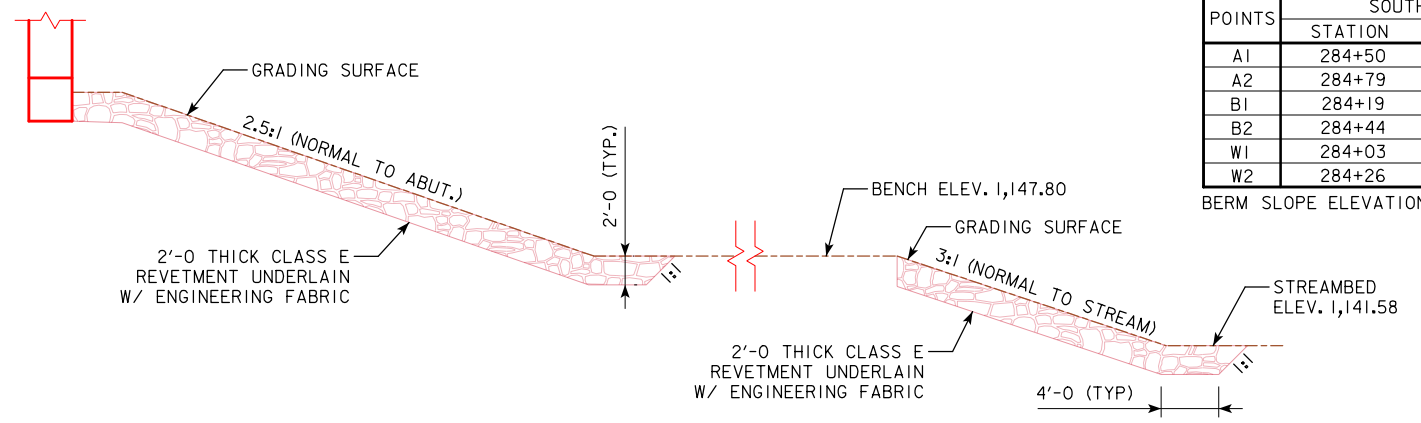
### BERM SLOPE LOCATION TABLE

| POINTS | SOUTH ABUTMENT |        |          | NORTH ABUTMENT |        |          |
|--------|----------------|--------|----------|----------------|--------|----------|
|        | STATION        | OFFSET | ELEV.    | STATION        | OFFSET | ELEV.    |
| A1     | 284+50         | 24.58' | 1,147.80 | 285+84         | 24.58' | 1,147.80 |
| A2     | 284+79         | 24.58' | 1,147.80 | 286+13         | 24.58' | 1,147.80 |
| B1     | 284+19         | 24.58' | 1,159.17 | 286+26         | 24.58' | 1,159.22 |
| B2     | 284+44         | 24.58' | 1,159.17 | 286+51         | 24.58' | 1,159.22 |
| W1     | 284+03         | 24.58' | 1,165.14 | 286+44         | 24.58' | 1,165.32 |
| W2     | 284+26         | 24.58' | 1,165.27 | 286+67         | 24.58' | 1,165.21 |

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

### ESTIMATED BERM ARMORING QUANTITIES

| LOCATION            | REVTMENT CL. E (TON) | REVT. REM. & REPL. (CY) | ENGINEERING FABRIC (SY) | CLASS 10 EX. (CY) |
|---------------------|----------------------|-------------------------|-------------------------|-------------------|
| BERM LINING - SOUTH | 950                  | 110                     | 1,140                   | 655               |
| BERM LINING - NORTH | 725                  | 480                     | 1,570                   | 905               |
| TOTALS              | 1,675                | 590                     | 2,710                   | 1,560             |



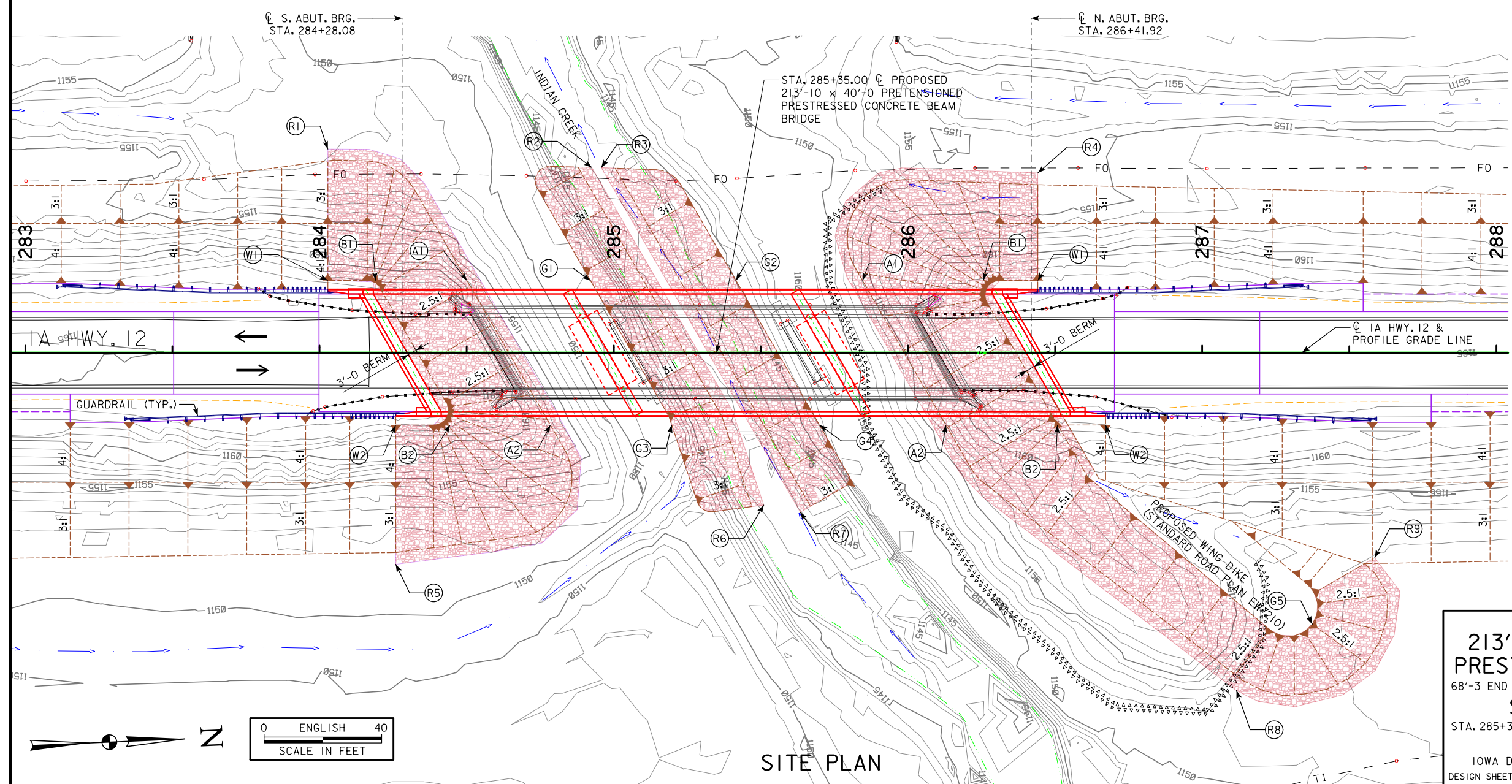
SECTION THRU EMBEDDED REVETMENT BERM

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE AND INCLUDES ONLY THE EXCAVATION REQUIRED TO EMBED THE REVETMENT.

CLASS E REVETMENT BASED ON DENSITY OF 1.6 TON/CY.

REVTMENT, REMOVE & REPLACED BASED ON A UNIFORM THICKNESS OF 2'-0, AND A DENSITY OF 1.6 TON/CY.

THE TOTAL REVETMENT NEEDED FOR EACH BERM IS AS FOLLOWS:  
 SOUTH BERM: 1,125 TONS  
 NORTH BERM: 1,490 TONS

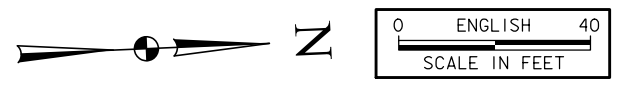


**REVTMENT LAYOUT:**

- (R1) STA. 284+03, 69' LT.
- (R2) STA. 284+92, 63' LT.
- (R3) STA. 284+96, 63' LT.
- (R4) STA. 286+44, 61' LT.
- (R5) STA. 284+26, 72' RT.
- (R6) STA. 285+51, 52' RT.
- (R7) STA. 285+64, 54' RT.
- (R8) STA. 287+12, 115' RT.
- (R9) STA. 287+59, 70' RT.

**GRADING CONTROL:**

- (G1) STA. 284+92, 24.58' LT., EDGE BENCH, ELEV. 1,147.80
- (G2) STA. 285+41, 24.58' LT., EDGE BENCH, ELEV. 1,147.80
- (G3) STA. 285+20, 24.58' RT., EDGE BENCH, ELEV. 1,147.80
- (G4) STA. 285+70, 24.58' RT., EDGE BENCH, ELEV. 1,147.80
- (G5) STA. 287+37, 92' RT., END DIKE, ELEV. 1,147.80



SITE PLAN

DESIGN FOR 30° SKEW (R.A.)  
**213'-10 x 40'-0 PRETENSIONED  
 PRESTRESSED CONC. BEAM BRIDGE**  
 68'-3 END SPANS                      77'-4 INTERIOR SPAN  
**SITUATION PLAN - SITE**  
 STA. 285+35.00                      OCTOBER 2018  
**PLYMOUTH COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 2 OF 2    FILE NO. 31633    DESIGN NO. 221

**LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)**

- - - - - - Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- - - - - Additional Topsoil Removal
- Subgrade Treatment
- - - - - Granular Shoulder
- Pavement
- - - - - Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

**LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)**

- Topsoil (Class 10)
- Slope Dressing Only
- Class 10 Materials
- Select Loams And Clay-Loams
- Select Sand
- Unsuitable Type A Disposal
- Unsuitable Type B Disposal
- Unsuitable Type C Disposal
- Shale
- Waste
- Broken and Weathered Rock
- Solid Rock
- Boulders

Note: All layer lines and descriptions identify layers above the line.

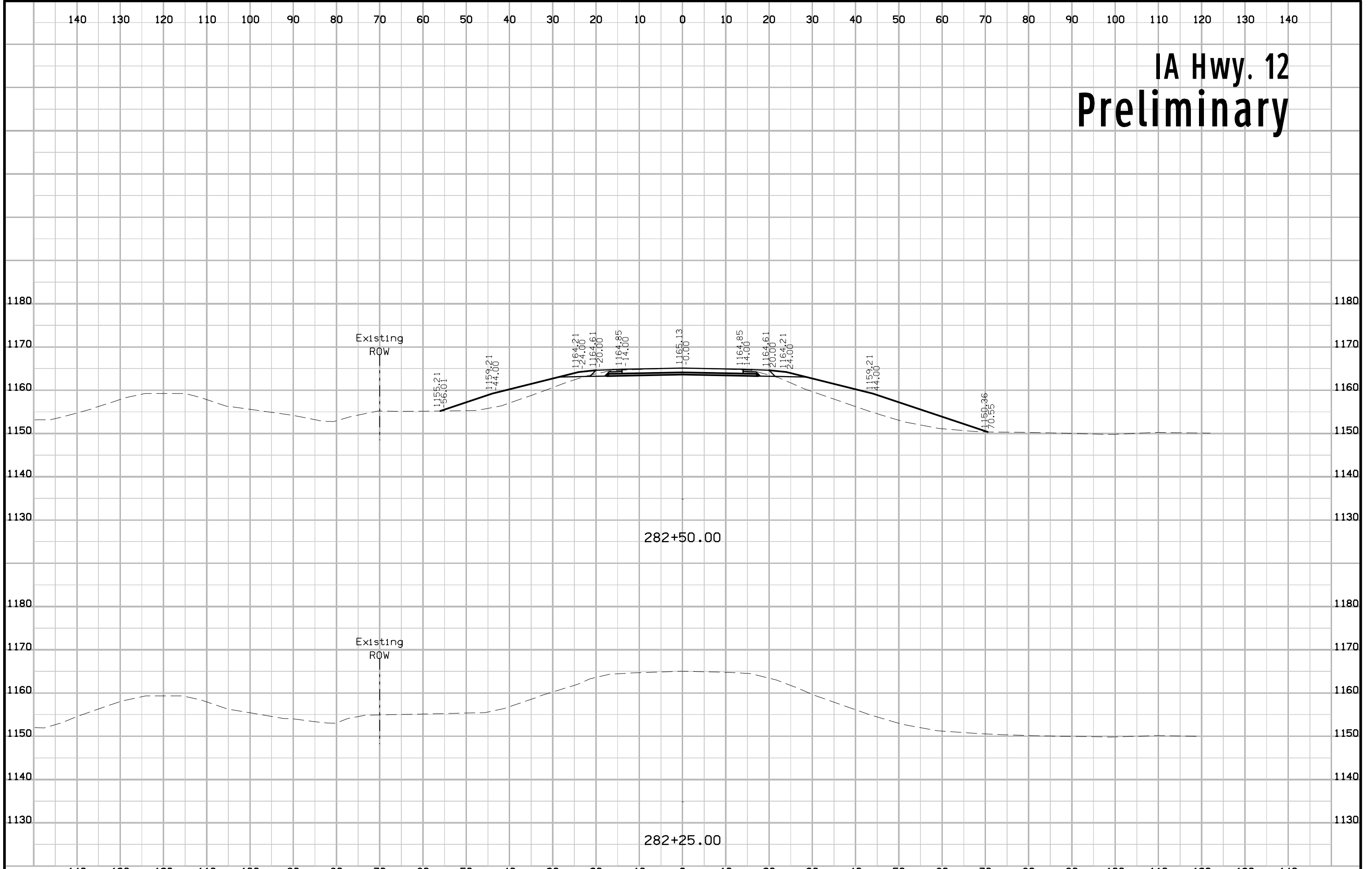
Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

**SYMBOL LEGEND OF CROSS SECTION SHEETS**

- Existing ROW  
|  
Existing Right-of-Way Limit
- Proposed ROW  
|  
Proposed Right-of-Way Limit
- Temporary ROW  
|  
Temporary Right-of-Way Limit

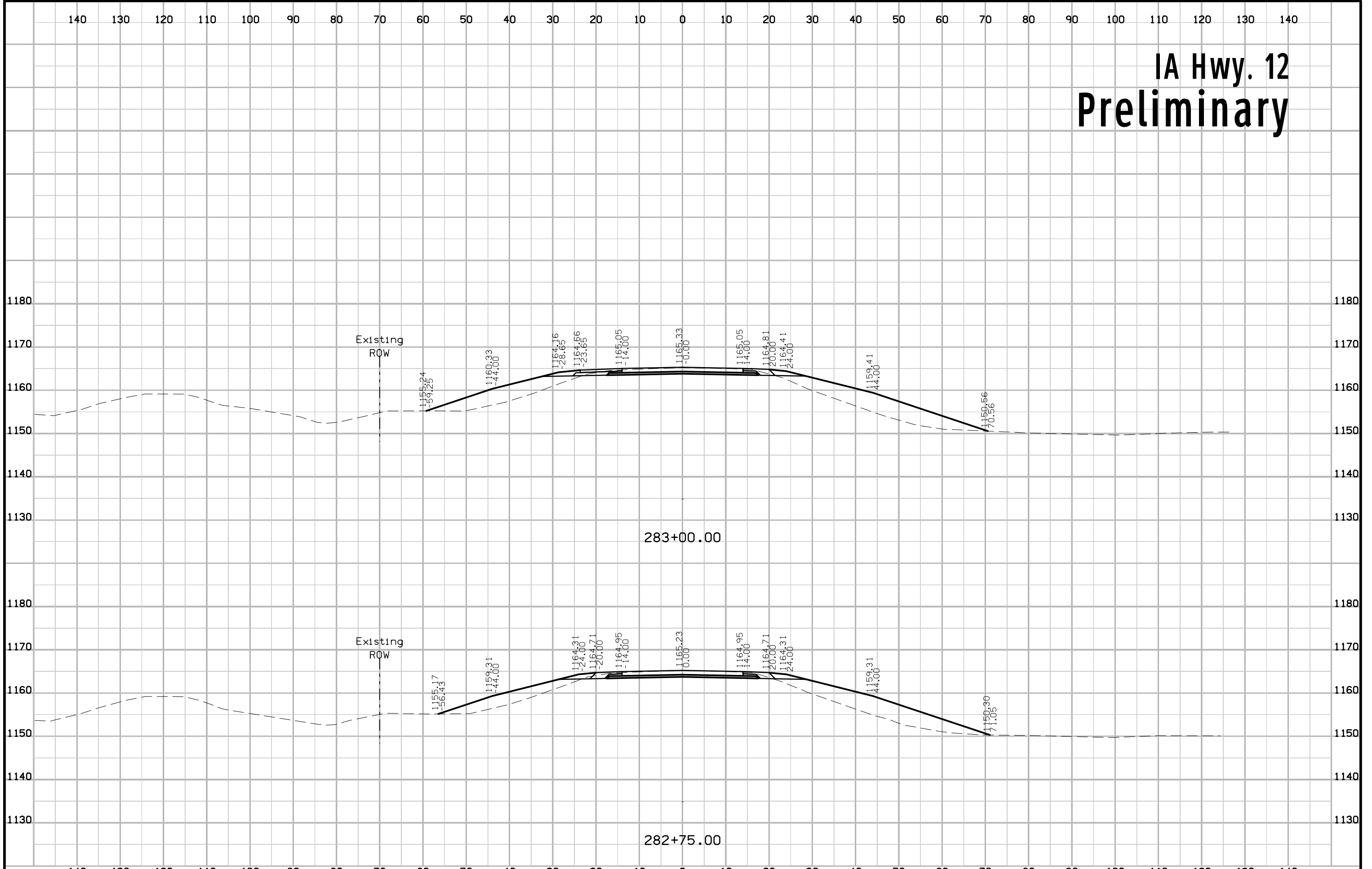
**CROSS SECTION  
LEGEND AND SYMBOL  
INFORMATION SHEET  
(COVERS SHEET SERIES W, X, Y, & Z)**

# IA Hwy. 12 Preliminary

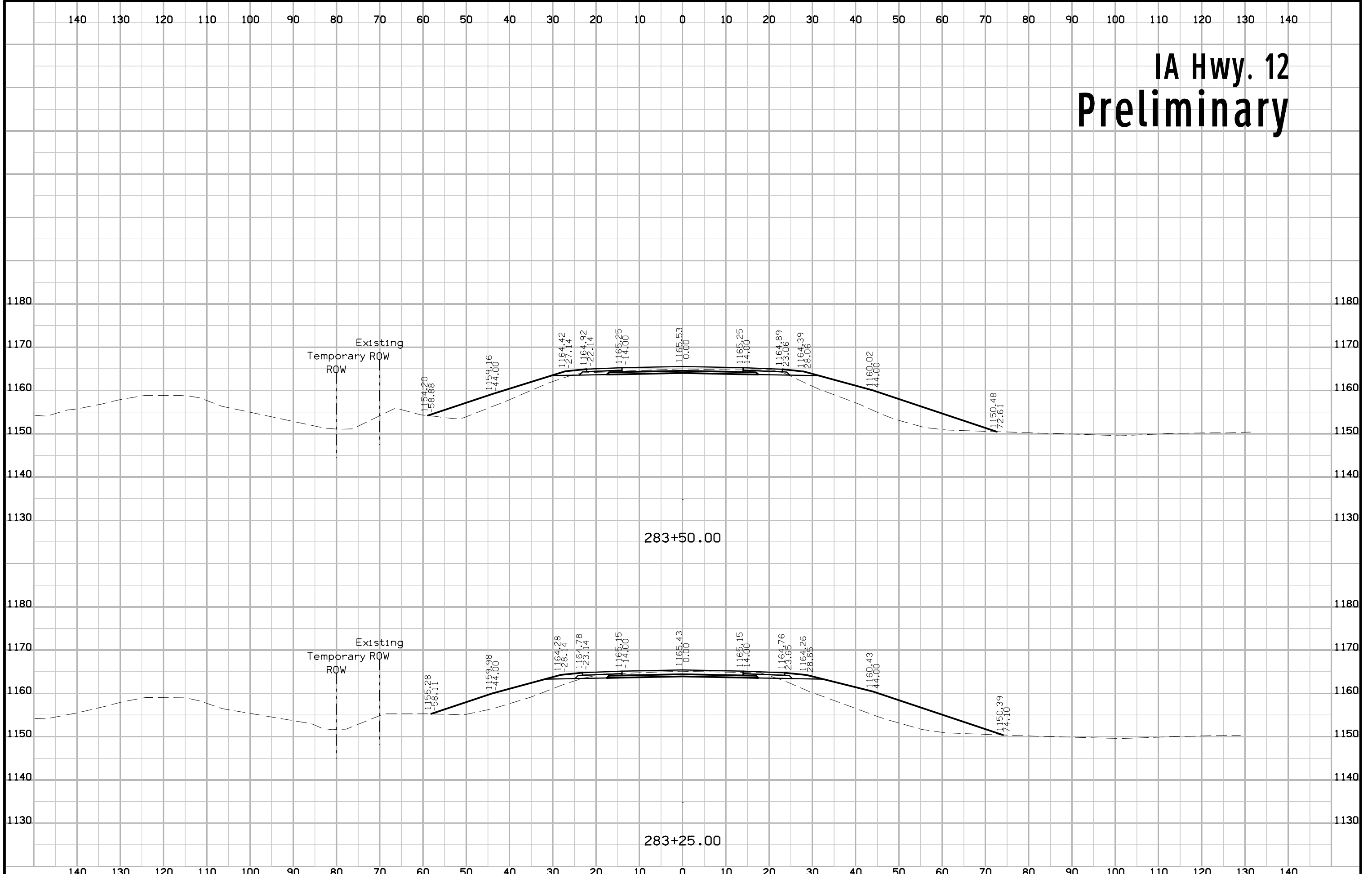




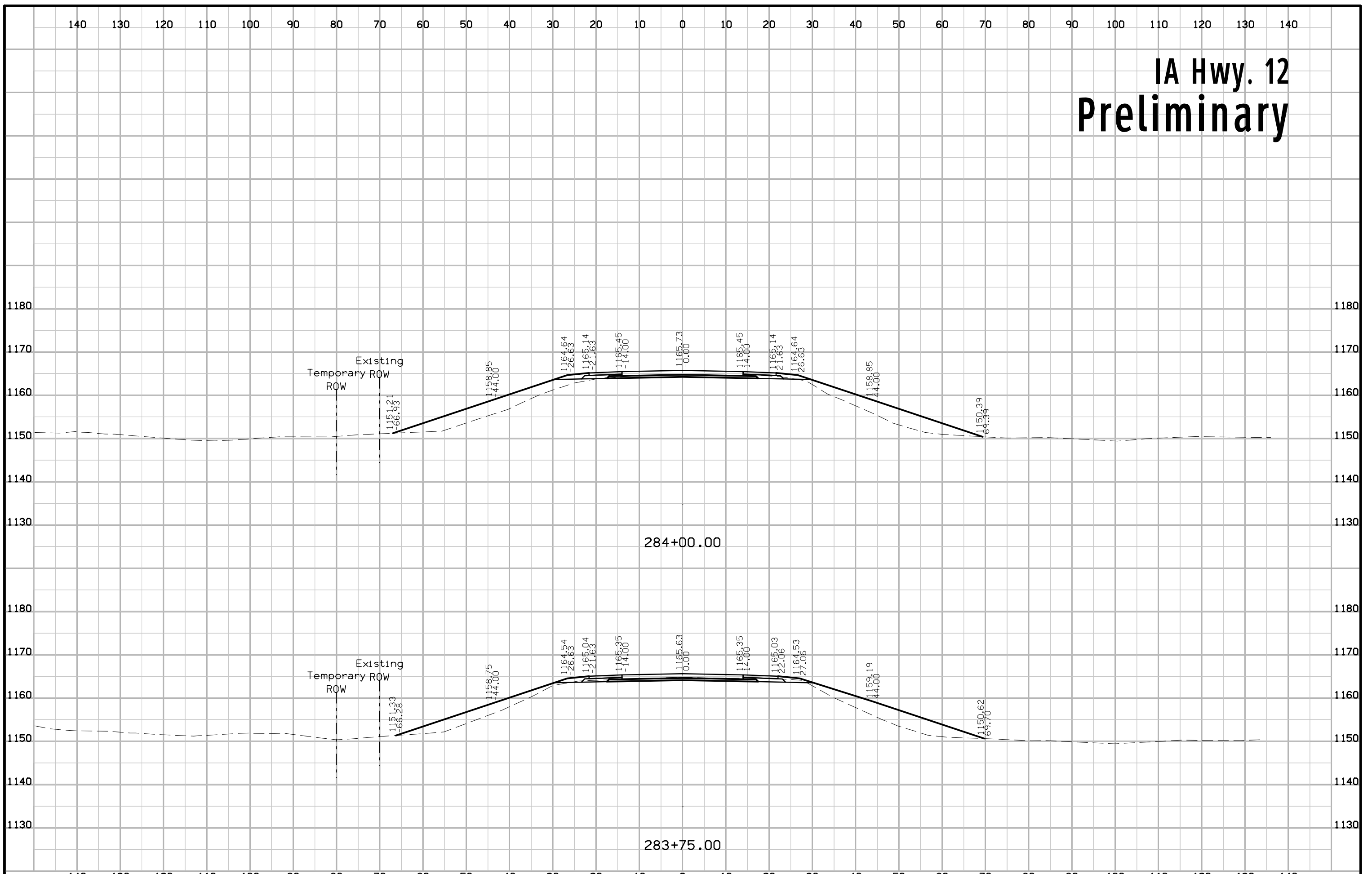
# IA Hwy. 12 Preliminary



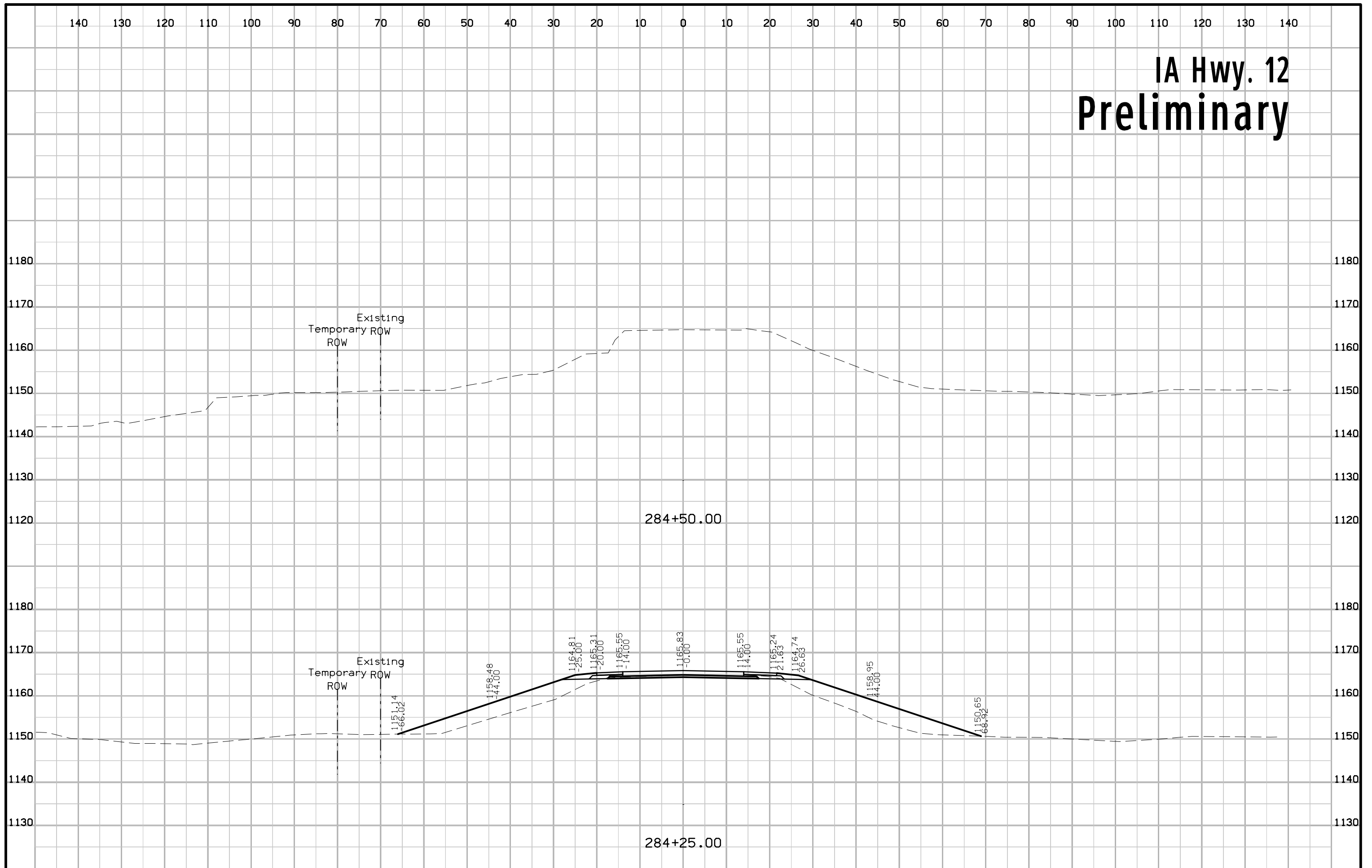
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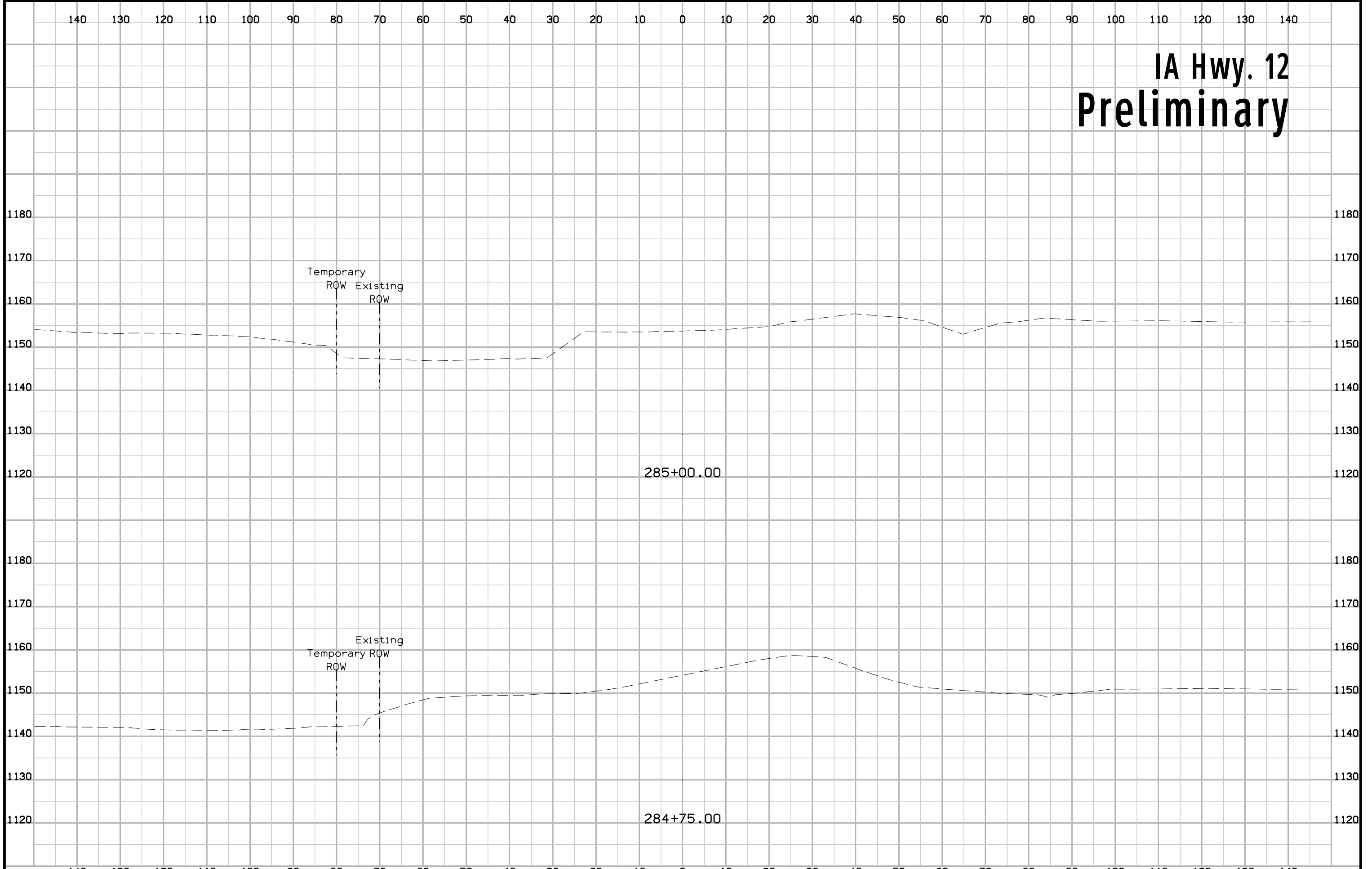
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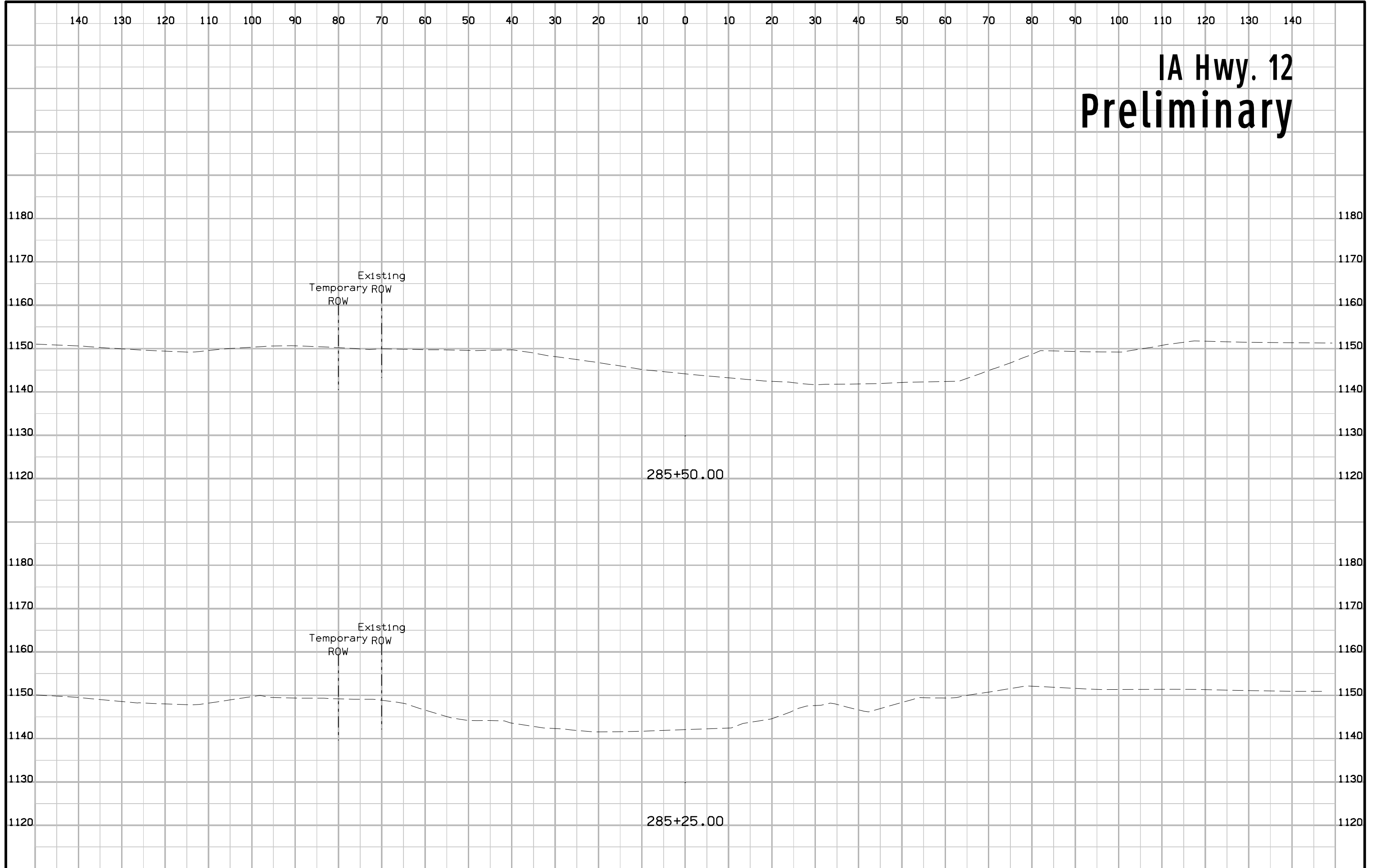
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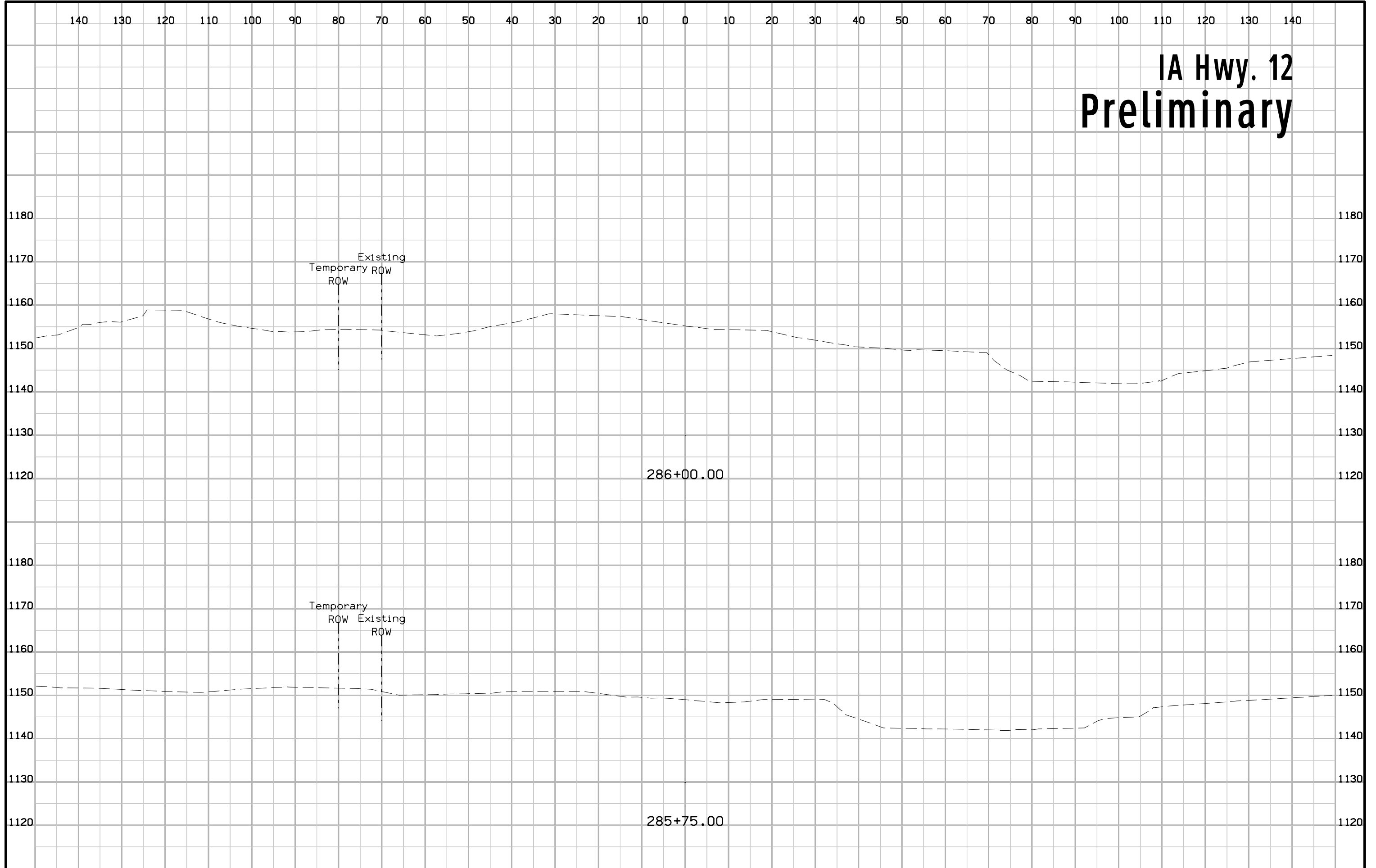
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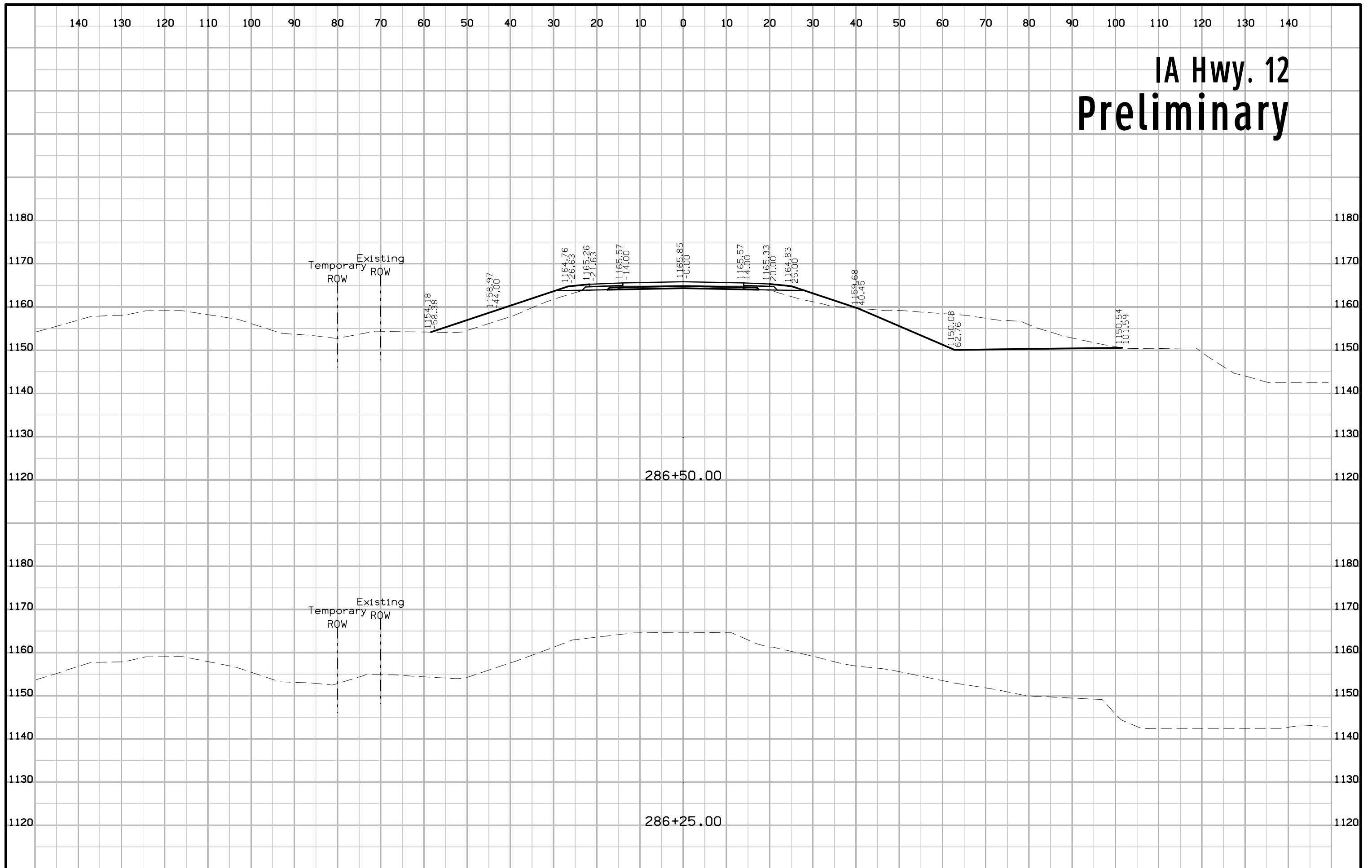
# IA Hwy. 12 Preliminary



# IA Hwy. 12 Preliminary



# IA Hwy. 12 Preliminary

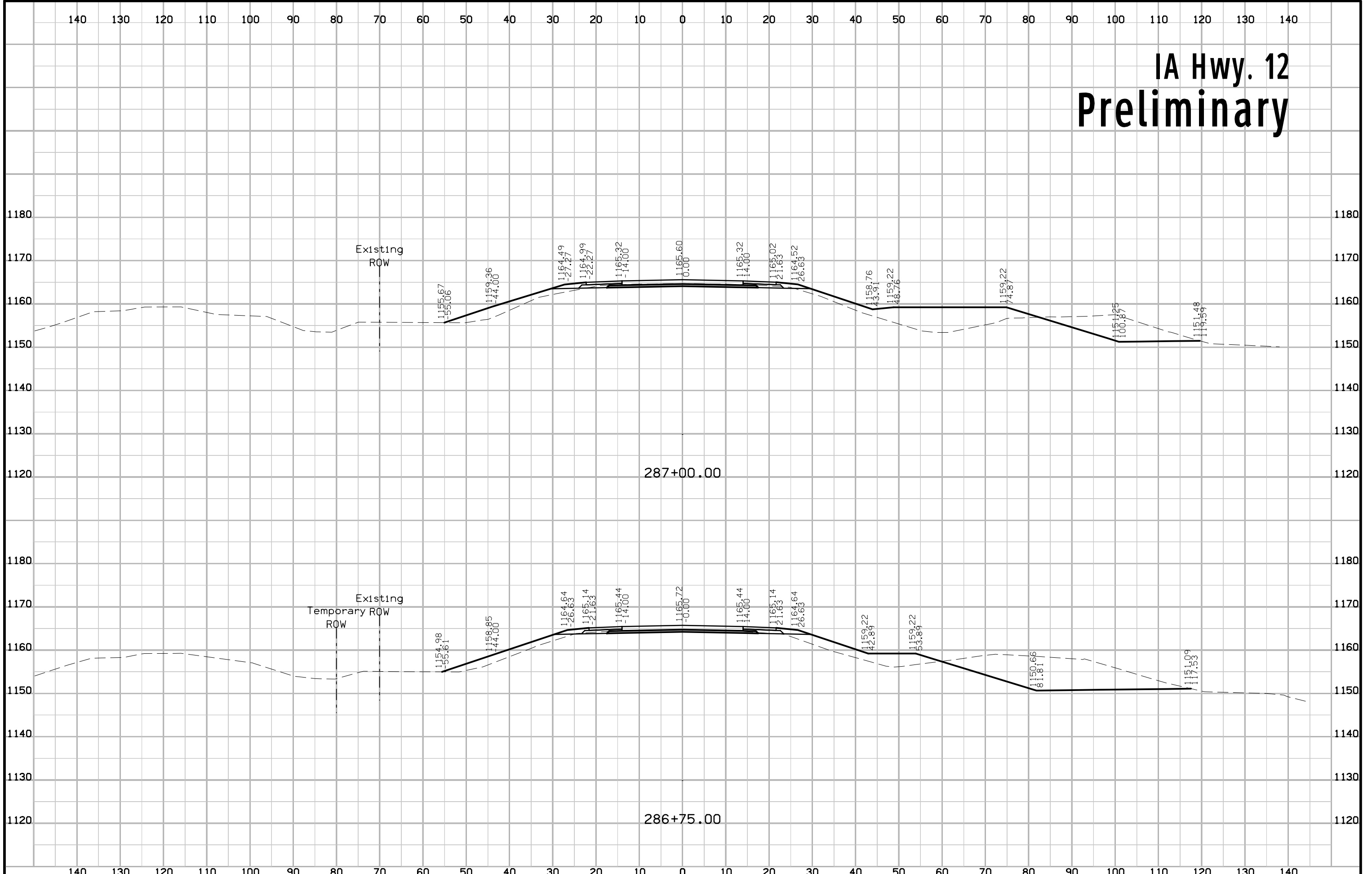


286+50.00

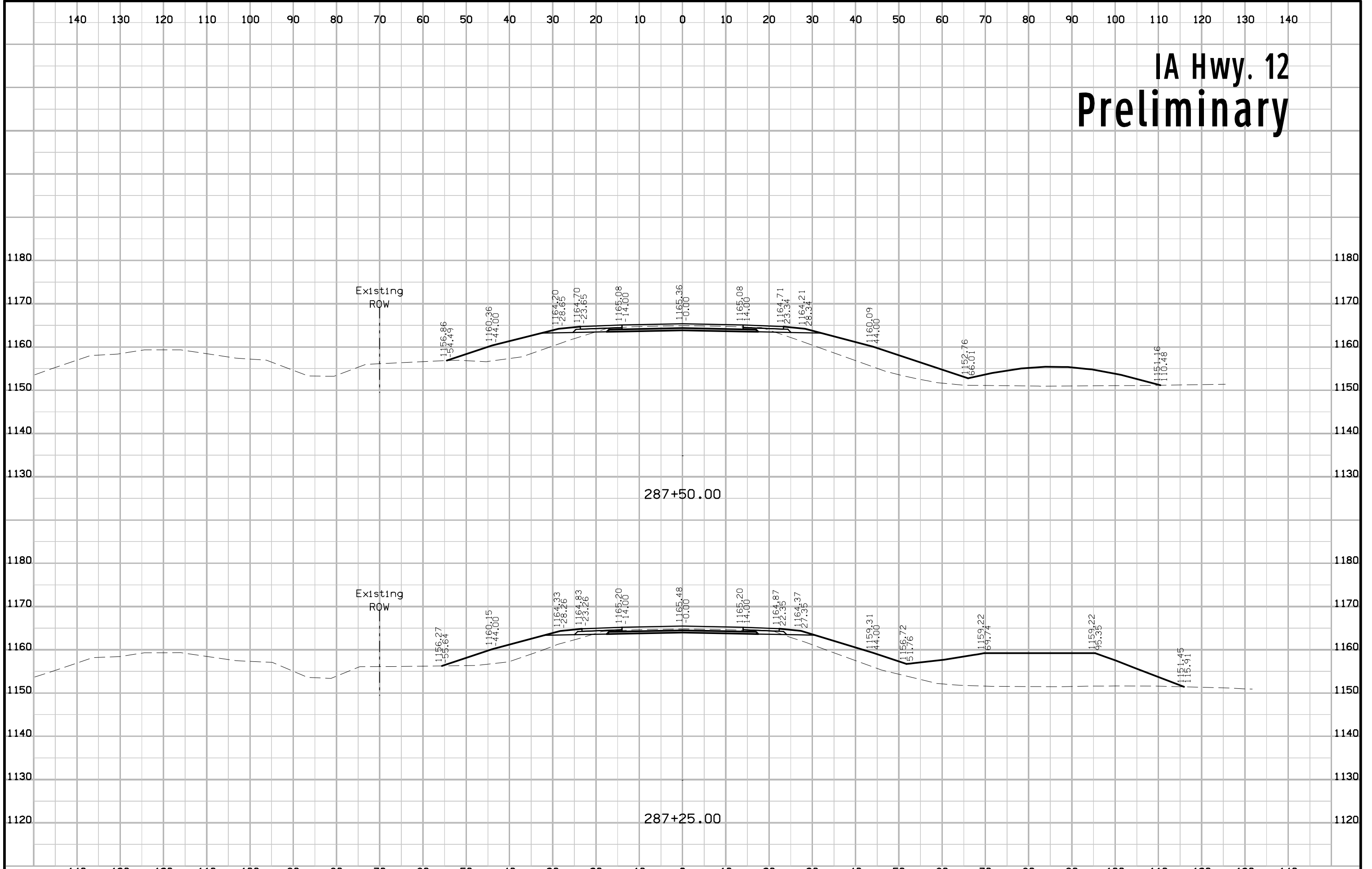
286+25.00



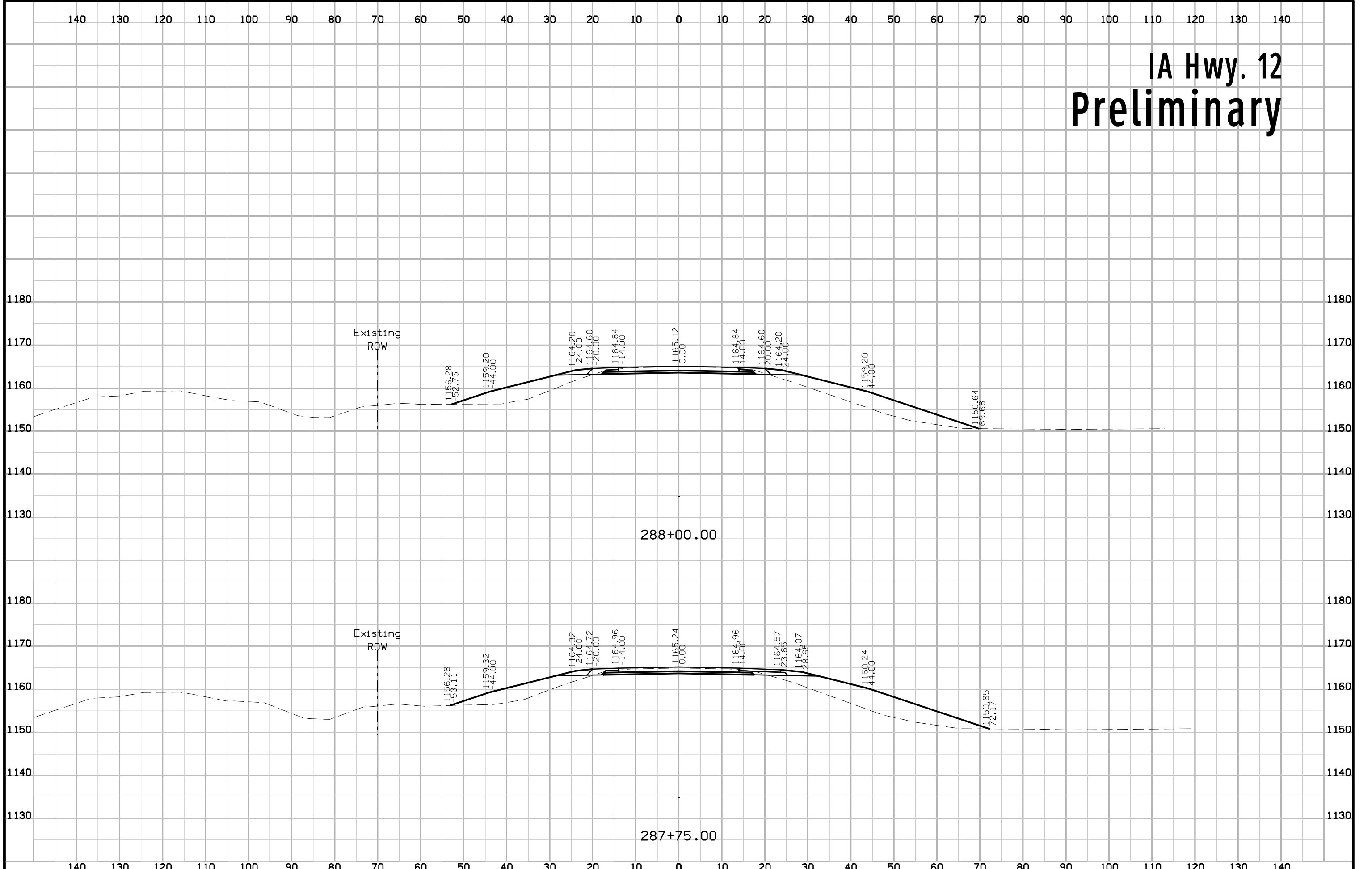
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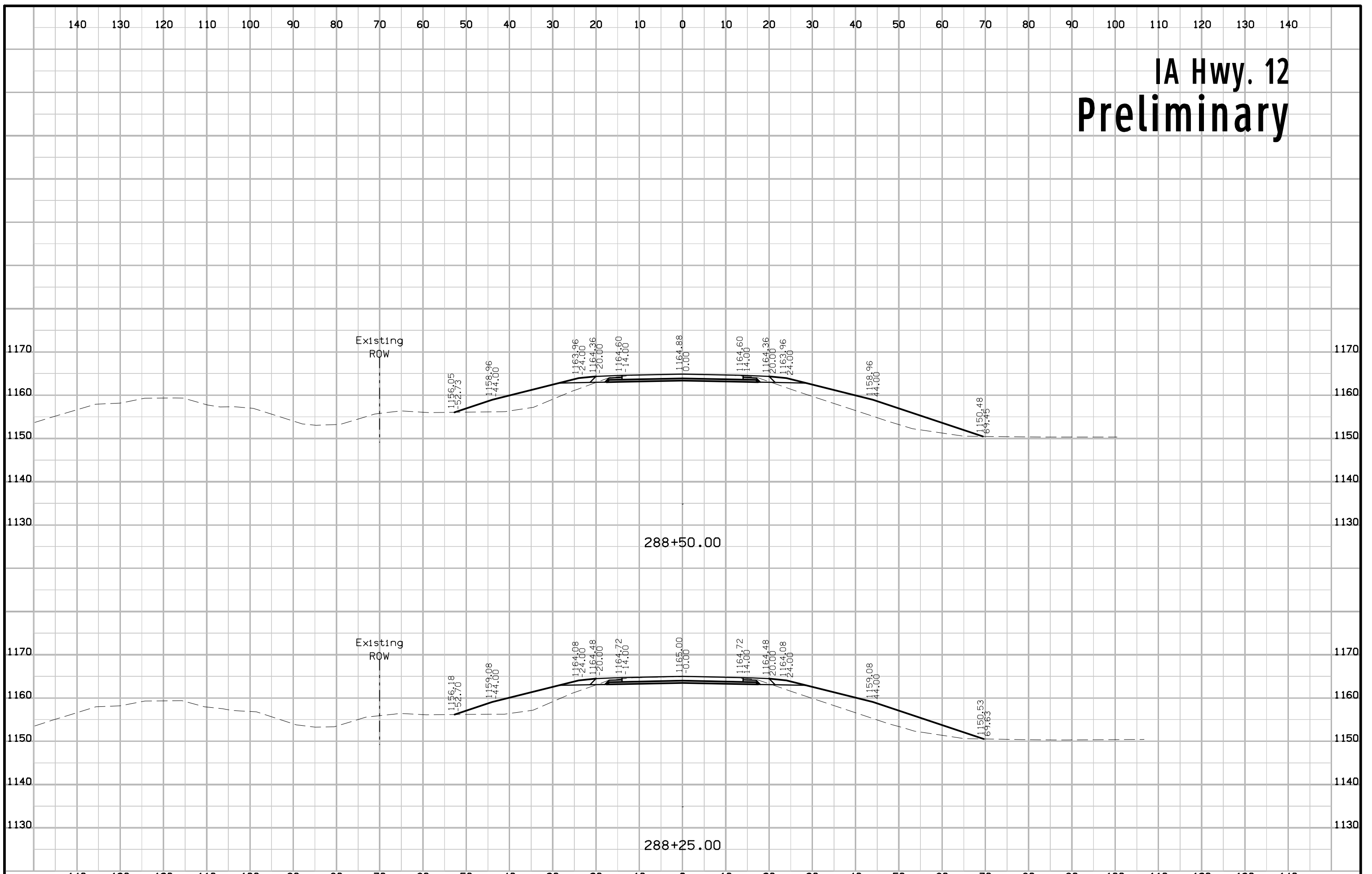
# IA Hwy. 12 Preliminary



# IA Hwy. 12 Preliminary



# IA Hwy. 12 Preliminary



# IA Hwy. 12 Preliminary

