Bridge-Unspecified
BRF-006-2(046)--38-15
LETTING DATE Jan 19 2028

CASS COUNTY

| INDEX OF SHEETS | |
|---|---|
| No. | DESCRIPTION |
| **A Sheets** | **Title Sheets** |
| A.1 | Title Sheet |
| A.2 | Location Map Sheet |
| **B Sheets** | **Typical Cross Sections and Details** |
| B.1 - 3 | Typical Cross Sections and Details |
| **D Sheets** | **Mainline Plan and Profile Sheets** |
| * D.1 | Plan & Profile Legend & Symbol Information Sheet |
| * D.2 | US Highway 6 |
| **G Sheets** | **Survey Sheets** |
| G.1 - 4 | Reference Ties and Bench Marks |
| **J Sheets** | **Traffic Control and Staging Sheets** |
| * J.1 | Traffic Control Plan |
| * J.2 | Detour Route |
| **V Sheets** | **Bridge and Culvert Situation Plans** |
| * V.1 - 2 | US Highway 6 Bridge Situation Plans |
| **W Sheets** | **Mainline Cross Sections** |
| * W.1 | Cross Sections Legend & Symbol Information Sheet |
| * W.2 - 16 | US Highway 6 Cross Sections |
| | * Color Plan Sheets |

<-- H Sheets

IOWA DOT

REVISIONS

| TOTAL 31 |
|---|
| PROJECT IDENTIFICATION NUMBER |
| 22-15-006-010 |
| PROJECT NUMBER |
| BRF-006-2(046)--38-15 |
| R.O.W. PROJECT NUMBER |
| STPN-006-2(47)--2J-15 |

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM

# CASS COUNTY

## Bridge-Unspecified

Spring Creek 1.4 mi E of IA 48

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.



| INDEX OF SEALS | | | |
|---|---|---|---|
| SHEET NO. | NAME | TYPE | BID QUANTITY SHEETS |
| A.1 | Kelly C. Bell | Primary Signature Block | X |
| | | | |
| X | X | X | X |
| | | | |
| | | | |
| | | | |
| | | | |

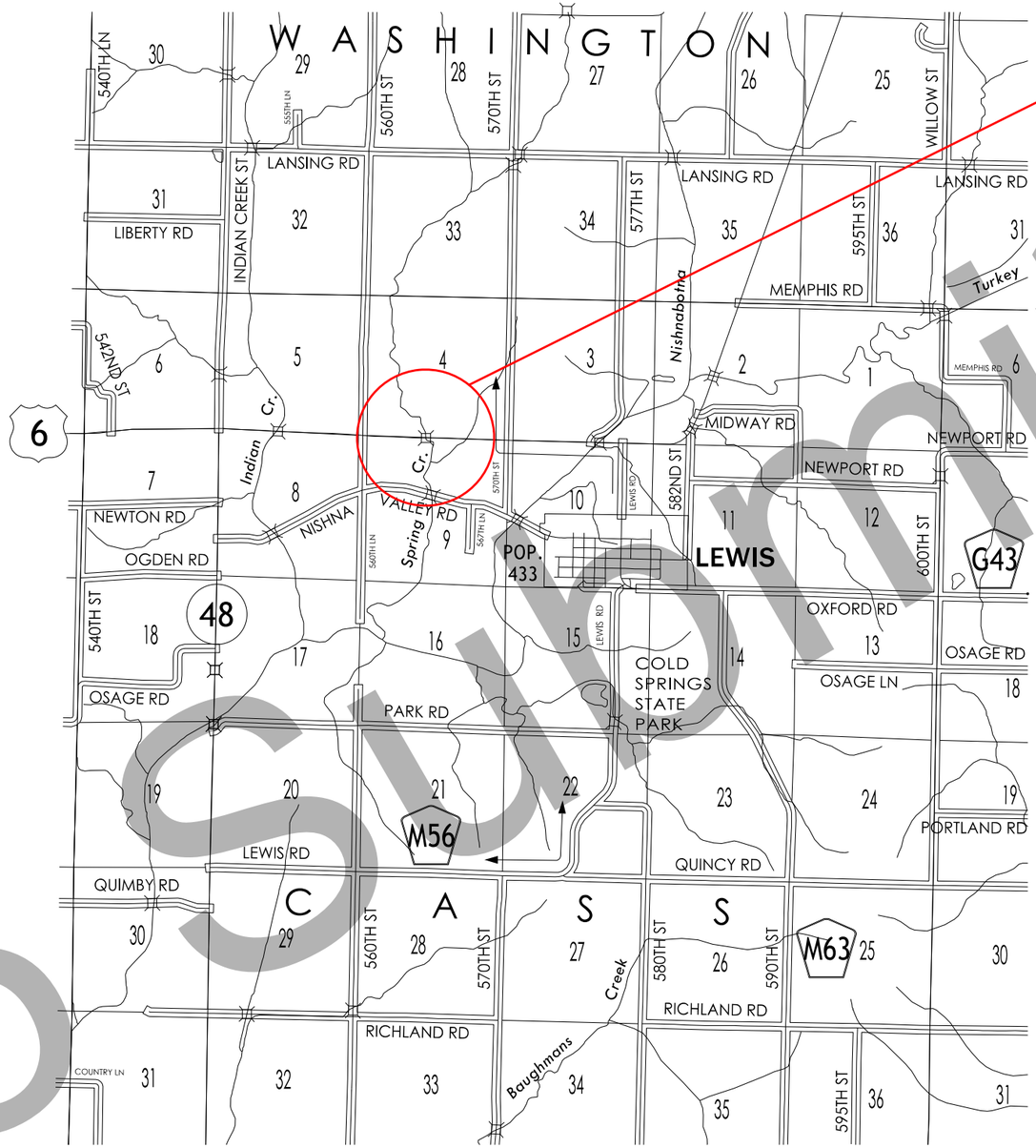
**PRELIMINARY PLANS**

Subject to change by final design.

**D5 Revision - Date: 03-18-2026**

| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER A.1 | REVISED |
|---|---|---|---|---|---|---|

10:12:34 AM 3/18/2026 npalmer pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\1500601022\Design\CADD_Files\Sheet_Files\A01_15006046Z07.dgn

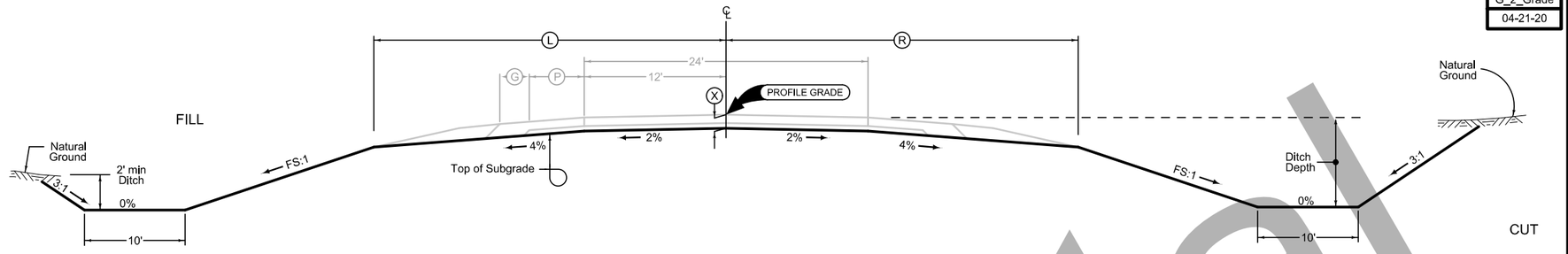





| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER A.2 |
|---|---|---|---|---|---|

2:18:41 PM 4/22/2025 nboudre pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\1500601022\Design\CADD_Files\Sheet_Files\A01_15006046Z07.dgn

| LOCATION | | | DIMENSIONS | | | |
|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (L) Feet | (R) Feet | (X) Inches | FS |
| US 6 | 834+73.00 | 834+93.00 | | 27.1-30.0 | 24.0 | 3 |
| | 834+93.00 | 835+25.00 | | 30.0 | 24.0 | 3 |
| | 835+25.00 | 835+33.65 | 26.8-28.2 | 30.0 | 24.0 | 3 |
| | 835+33.65 | 835+45.00 | 28.2-30.0 | 30.0-33.1 | 24.0 | 3 |
| | 835+45.00 | 835+51.51 | 30.0 | 33.1-34.8 | 24.0 | 3 |
| | 835+51.51 | 835+69.38 | 30.0-31.6 | 34.8-34.6 | 24.0 | 3 |
| | 835+69.38 | 835+71.51 | 31.6-32.3 | 34.6-34.5 | 24.0 | 3 |
| | 835+71.51 | 835+82.80 | 32.3-36.3 | 34.5-33.9 | 24.0 | 3 |
| | 835+82.80 | 836+02.80 | 36.3-37.5 | 33.9-32.9 | 24.0 | 3 |
| | 836+02.80 | 836+19.24 | 37.5-33.7 | 32.9-32.3 | 24.0 | 3 |
| | 836+19.24 | 836+49.28 | 33.7-31.1 | 32.3-32.0 | 24.0 | 3 |
| Bridge and Approaches | | | | | | |
| US 6 | 839+96.72 | 840+26.76 | 32.7-32.9 | 31.7-32.9 | 24.0 | 3 |
| | 840+26.76 | 840+43.20 | 32.9-33.6 | 32.9-33.6 | 24.0 | 3 |
| | 840+43.20 | 840+63.20 | 33.6-34.4 | 33.6 | 24.0 | 3 |
| | 840+63.20 | 840+74.49 | 34.4-34.8 | 33.6-30.8 | 24.0 | 3 |
| | 840+74.49 | 840+85.00 | 34.8 | 30.8-28.2 | 24.0 | 3 |
| | 840+85.00 | 840+94.49 | 34.8 | | 24.0 | 3 |
| | 840+94.49 | 841+19.49 | 34.8-28.5 | | 24.0 | 3 |
| | 841+19.49 | 841+20.00 | 28.5-28.4 | | 24.0 | 3 |

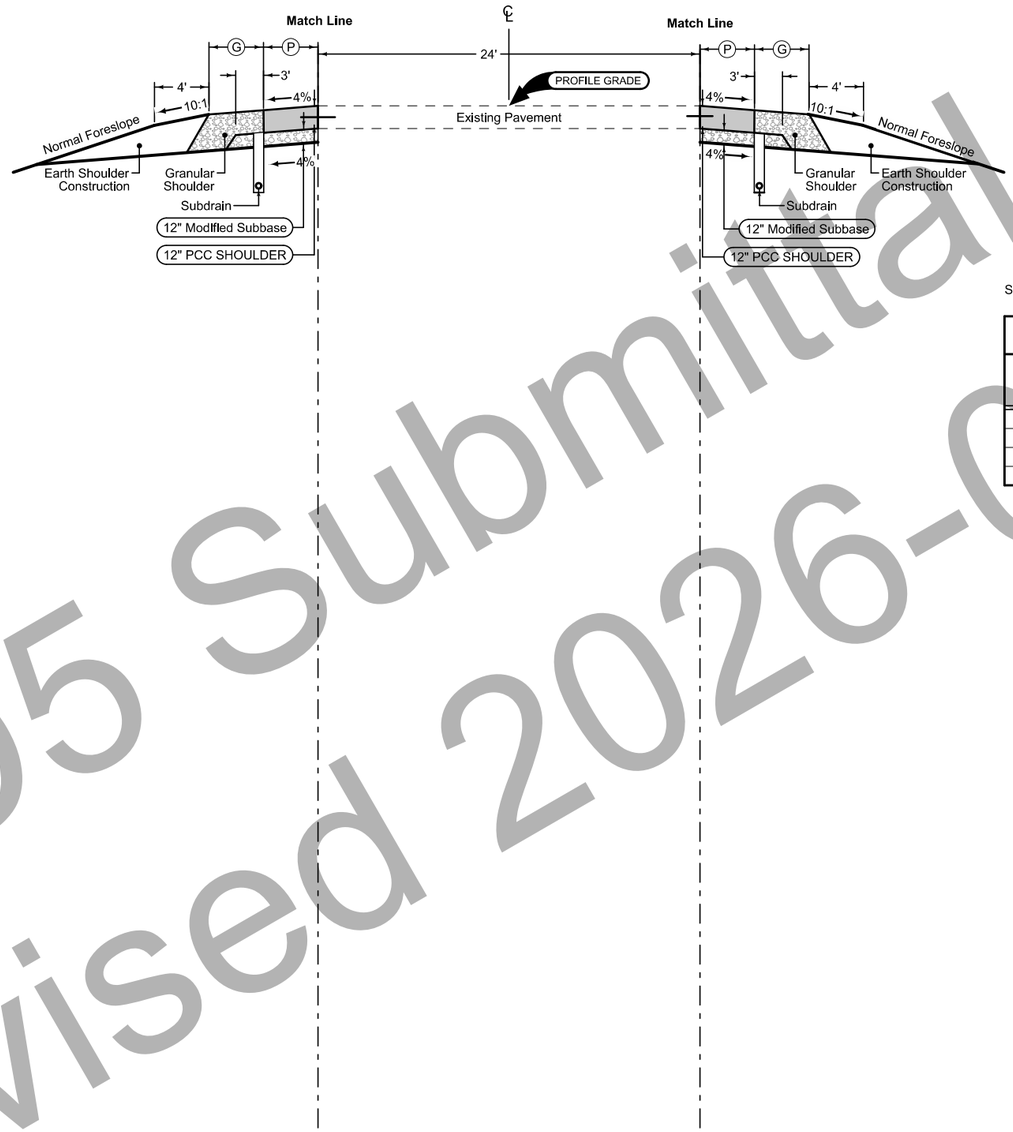



Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

## 2 LANE GRADING

G_2_Grade
04-21-20




## Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

| | | 2_C_ 04-21-20 | |
|---|---|---|---|
| STATION TO STATION | | (P) Feet | (G) Feet |
| 835+25.00 | 835+69.61 | 4 | 4 |
| 835+69.61 | 835+82.80 | 4 | 4-7.5 |
| | | | |
| 840+94.49 | 841+20.00 | 4 | 8.8-2 |

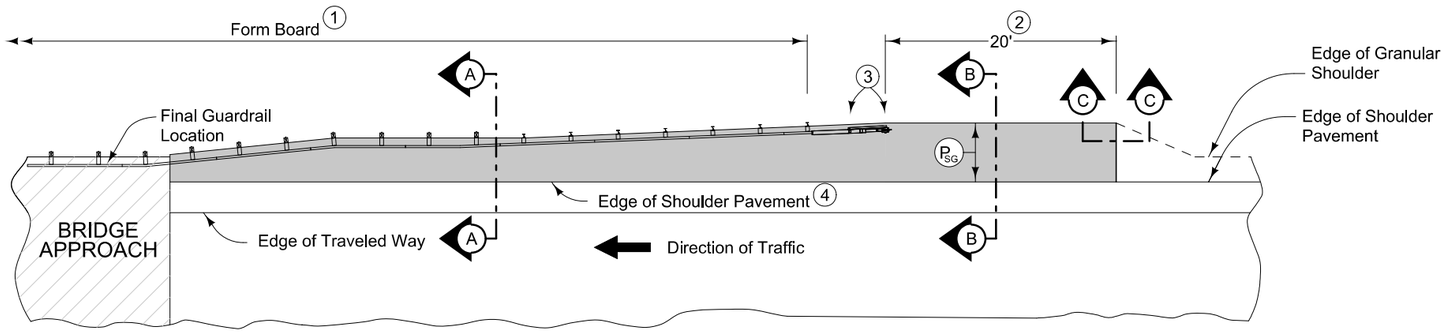
## Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

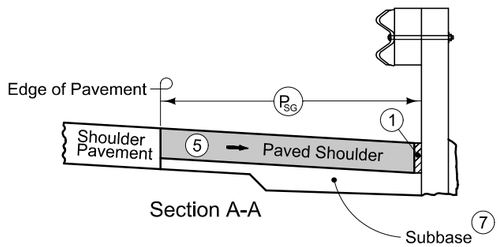
| | | 2_C_ 04-21-20 | |
|---|---|---|---|
| STATION TO STATION | | (P) Feet | (G) Feet |
| 834+73.00 | 835+33.65 | 4 | 4 |
| 835+33.65 | 835+51.51 | 4 | 4-8.8 |
| | | | |
| 840+63.20 | 840+85.00 | 4 | 7.5-2 |

See Tab 112-9 for shoulder quantities.

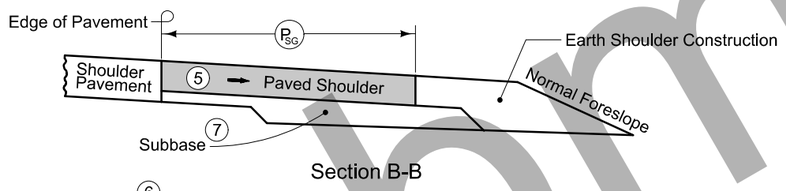
**US Highway 6**




PLAN VIEW

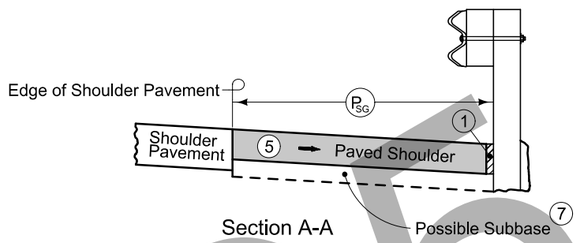



Section A-A

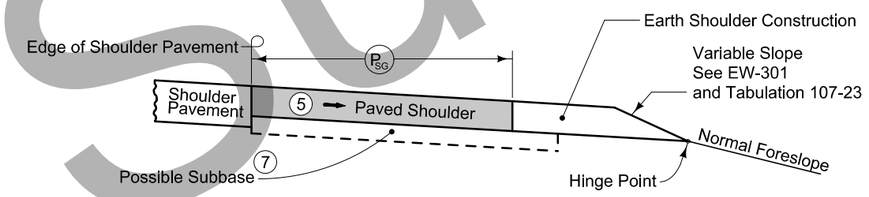



Section B-B

NEW CONSTRUCTION 6




Section A-A




Section B-B

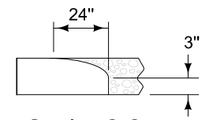
EXISTING SHOULDER

8" PCC Paved Shoulder at guardrail 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.

Refer to Tabulation 112-9 for shoulder quantities.

1. When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
2. Continue paved shoulder 20 feet beyond the center of the first post.
3. Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
4. 'BT' joint (per PV-101) for PCC shoulder.
5. Match shoulder slope.
6. The Contractor has the option to pave the paved shoulder at guardrail and the partial width paved shoulder as one operation.
7. Refer to other details in the plan.




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

PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)

## SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- ST Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

## UTILITY LEGEND

### SURVEYED UTILITY OWNER SYMBOLS

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

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

PPA, MidAmerican Electric

## PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

| LINEWORK | Design Color No. | | |
|---|---|---|---|
| Green | (2) | Existing Topographic Features and Labels | |
| Blue | (1) | Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation | |
| Magenta | (5) | Existing Utilities | |
| **SHADING** | **Design Color No.** | | **Transparency** |
| Pink, Dark | (13) | Temporary Pavement Shading | 50% |
| Yellow | (4) | Proposed Pavement Shading | 50% |
| Orange | (6) | Proposed Granular Shading | 50% |
| Orange | (70) | Proposed Shoulder Granular Shading | 50% |
| Yellow | (68) | Proposed Shoulder Paved Full Depth Shading | 50% |
| Yellow | (132) | Proposed Shoulder Paved Partial Depth Shading | 50% |
| Brown, Light | (236) | Grading Shading | 50% |
| Orange, Light | (134) | Proposed Granular Entrance Shading | 50% |
| Yellow | (220) | Proposed Paved Entrance Shading | 50% |
| Tan | (8) | Proposed Sidewalk Shading | 50% |
| Blue, Light | (230) | Proposed Sidewalk Landing Shading | 50% |
| Pink | (11) | Proposed Sidewalk Ramp Shading | 50% |
| Red | (3) | Proposed Structure Shading | 50% |
| Red | (3) | Delineates Restricted Areas | 0% |

## PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

## RIGHT-OF-WAY LEGEND

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



# PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER D.1 |
|---|---|---|---|---|---|

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Remove
Sta. 838+33.8
180'x30'
Continuous I-Beam Bridge
D.A.=10 Sq Mi H-R

Sta. 838+23.50
Build 194'-0" x 40'-0"
Pretensioned Prestressed Concrete Beam Bridge

**Washington TWP.**
**T-75N R-37W**
**SEC. 04**

**Washington TWP.**
**T-75N R-37W**
**SEC. 09**

STA 836+00.00
BEGIN CONSTRUCTION

STA 834+73.00
BEGIN SHOULDER CONSTRUCTION

STA 841+20.00
END SHOULDER CONSTRUCTION

STA 840+45.00
END CONSTRUCTION

UAC
18"
C.M.P.

Spring Creek

Spring Creek

835+00

840+00

845+00

6

6

0 FEET 50

**US Highway 6**

TIE IN
STA 836+00.00
EL 1146.86

TIE IN
STA 840+45.00
EL 1147.35

-1.59%

+1.20%

**VPI = +75.00**
**EL = 1144.09**
**L = 340.00'**
**K = 122**

-2.90% RDG

-2.00% RDG

RT +00
1132.37

RT +22
1128.84

RT +49
1128.29

1146.86 1146.48 1146.15 1145.88 1145.65 1145.47 1145.35 1145.27 1145.25 1145.28 1145.36 1145.49 1145.67 1145.90 1146.19 1146.49 1146.79 1147.09 1147.35

1165 1160 1155 1150 1145 1140 1135 1130 1125 1120

831+00 832+00 833+00 834+00 835+00 836+00 837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00 845+00



| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER D.2 | REVISED |
|---|---|---|---|---|---|---|

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# SURVEY INDEX

**Cass County**
**BRF-006-2(46)--38-15**
**Spring Creek 1.4 mi E of IA 48**
**PIN: 22-15-006-010**
**Type of Work: Bridge Unspecified**
**Project Directory: 1500601022**

## Survey Personnel

Paul Harry – Survey Party Chief
Bob Fredrickson – Assistant Survey Party Chief

## Date(s) of Survey

| | |
|---|---|
| Begin Date | 08/24/2023 |
| End Date | 11/08/2023 |

## General Information

This survey is for US Hwy 6 Bridge over Spring Creek. This project is a Full Field DTM survey.

## Utility Information

For logging data and other utility details see Utility Survey and Ownership Report in the Utility folder of the PrelimSurvey project directory.

## Project Control

Coordinates were determined for primary project control points by conducting concurrent six-hour static observations. Post processing is constrained to nearby Iowa Real Time Network reference stations. For additional details of the control survey, contact the Preliminary Survey department.

**PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)**
**COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 07 (U.S. SURVEY FOOT)**
**VERTICAL DATUM: NAVD88**
**GEOID MODEL: 2018u2**

## Alignment Information

The horizontal alignment for U.S. Hwy 6 was provided by the District 4 ROW 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) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 07 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u2

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

## 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) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 07 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u2

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



| FILE NO. | ENGLISH | DESIGN TEAM **Flattery\Bell\Boudreaux\Schneider** | **CASS** COUNTY | PROJECT NUMBER **BRF-006-2(046)--38-15** | SHEET NUMBER **G.3** |
|---|---|---|---|---|---|

7:52:03 AM 10/1/2024 kbell pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\1500601022\Design\CADD_Files\Sheet_Files\G01_15006046Z07.dgn

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
Ia. Regional Coordinate System Zone 07 (U.S. Survey Foot)

VERT. DATUM: NAVD88
Geoid Model: 2018u2

| Point Name | Northing | Easting | Elevation | Code-Description |
|---|---|---|---|---|
| 150060438 | 7189318.66 | 17366793.20 | 1225.08 | CP SET FENO MONUMENT IN THE SOUTHWEST QUADRANT OF THE INTERSECTION OF US HWY 6 AND 560TH ST |
| 150060448 | 7189312.01 | 17372202.75 | 1199.07 | CP SET FENO MONUMENT IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF US HWY 6 AND 570TH ST |
| C99 | 7159240.93 | 17360801.76 | 1102.55 | CP FND NGS 2ND ORDER CLASS 0 VERTICAL MARK AS DESCRIBED |
| LEWIS | 7197048.17 | 17372399.80 | 1272.67 | CP FND NGS 2ND ORDER HORIZONTAL MARK AS DESCRIBED |

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

| FILE NO. | ENGLISH | DESIGN TEAM | IOWA DOT * OFFICE OF ROW | COUNTY | PROJECT NUMBER | SHEET NUMBER | |
|---|---|---|---|---|---|---|---|

Washington TWP.
T-75N R-37W
SEC. 04

Remove
Sta. 838+33.8
180'x30'
Continuous I-Beam Bridge
D.A.=10 Sq Mi H-R

Sta. 838+23.50
Build 194'-0" x 40'-0"
Pretensioned Prestressed Concrete Beam Bridge

830+00 831+00 832+00 833+00 834+00 835+00 836+00 837+00 838+00 839+00 840+00 841+00 842+00 843+00 844+00 845+00

STA 836+00.00
BEGIN CONSTRUCTION

Existing ROW

UAC
18"
C.M.P.

Spring Creek

STA 841+20.00
END SHOULDER CONSTRUCTION

6

6

STA 834+73.00
BEGIN SHOULDER CONSTRUCTION

Existing ROW

STA 840+45.00
END CONSTRUCTION

Spring Creek

Washington TWP.
T-75N R-37W
SEC. 09

841+63.42
℄ 103.54' RT

834+70.00
℄ 74.17' RT±EX R/W

835+02.00
℄ 100.00' RT

1

Daniel J. Olsen & Jessica K. Olsen

0 50
FEET

Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: Fredrickson / Hinrichsen
ROW #: STPN-006-2(047)--2J-15
Plan Date: 8/1/2025
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition
- Permanent Acquisition County
- Permanent Acquisition City

| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schnelder | Cass COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER H.1 | |
|---|---|---|---|---|---|---|

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108-23A
08-01-08

## TRAFFIC CONTROL PLAN

US 6 will be closed to thru traffic during construction.
US 6 traffic shall be maintained via offsite detour. See Sheet J.2 for detour.

108-25
10-21-14

## 511 TRAVEL RESTRICTIONS

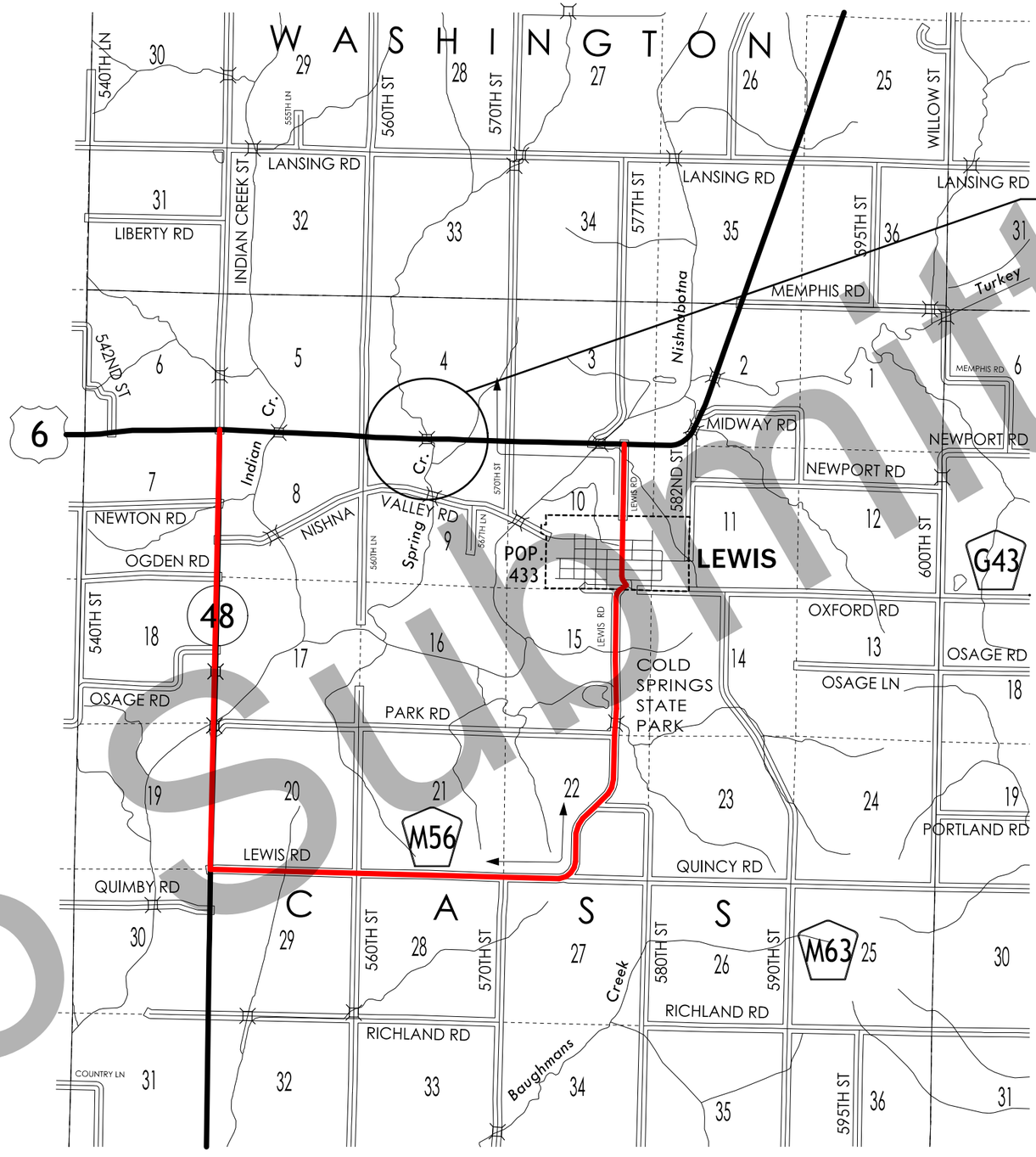
| Route | Direction | County | Location Description | Feature Crossed | Object Type | Maint. Bridge No., Structure ID, or FHWA No. | Type of Restriction | Existing Measurement | Construction Measurement | Construction Measurement as Signed | Projected As Built Measurement | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No Travel Restrictions expected at this time | | | | | | | | | |

111-01
04-17-12

## COORDINATED OPERATIONS

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

| Project | Type of Work |
|---|---|
| None provided | |






| FILE NO. | ENGLISH | DESIGN TEAM **Flattery\Bell\Boudreaux\Schneider** | **CASS** COUNTY | PROJECT NUMBER **BRF-006-2(046)--38-15** | SHEET NUMBER **J.2** |
|---|---|---|---|---|---|

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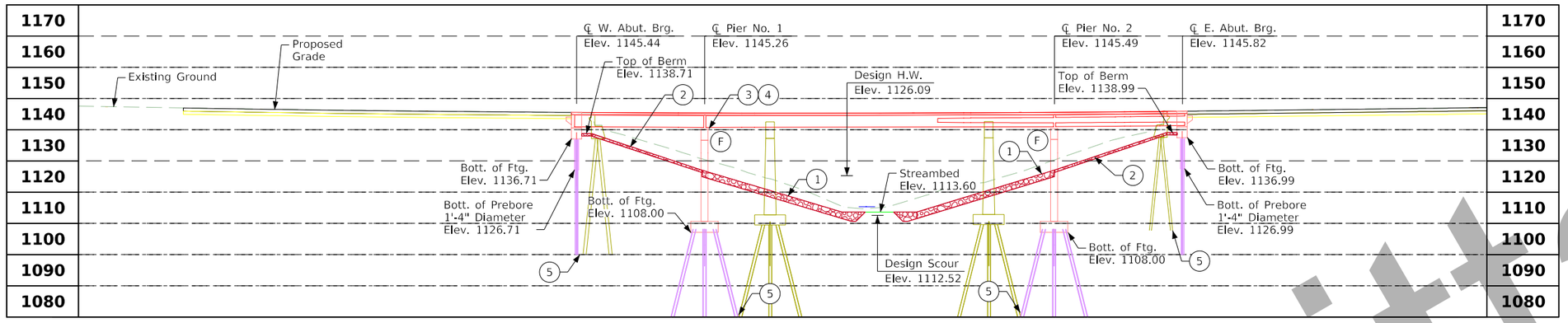
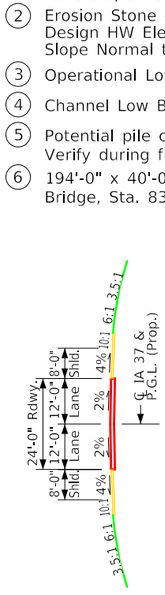
Control Point: 150060438; N=7189318.66, E=17366793.20, Elev. 1225.08, CP set FENO monument in the Southwest quadrant of the intersection of US HWY 6 and 560th ST.

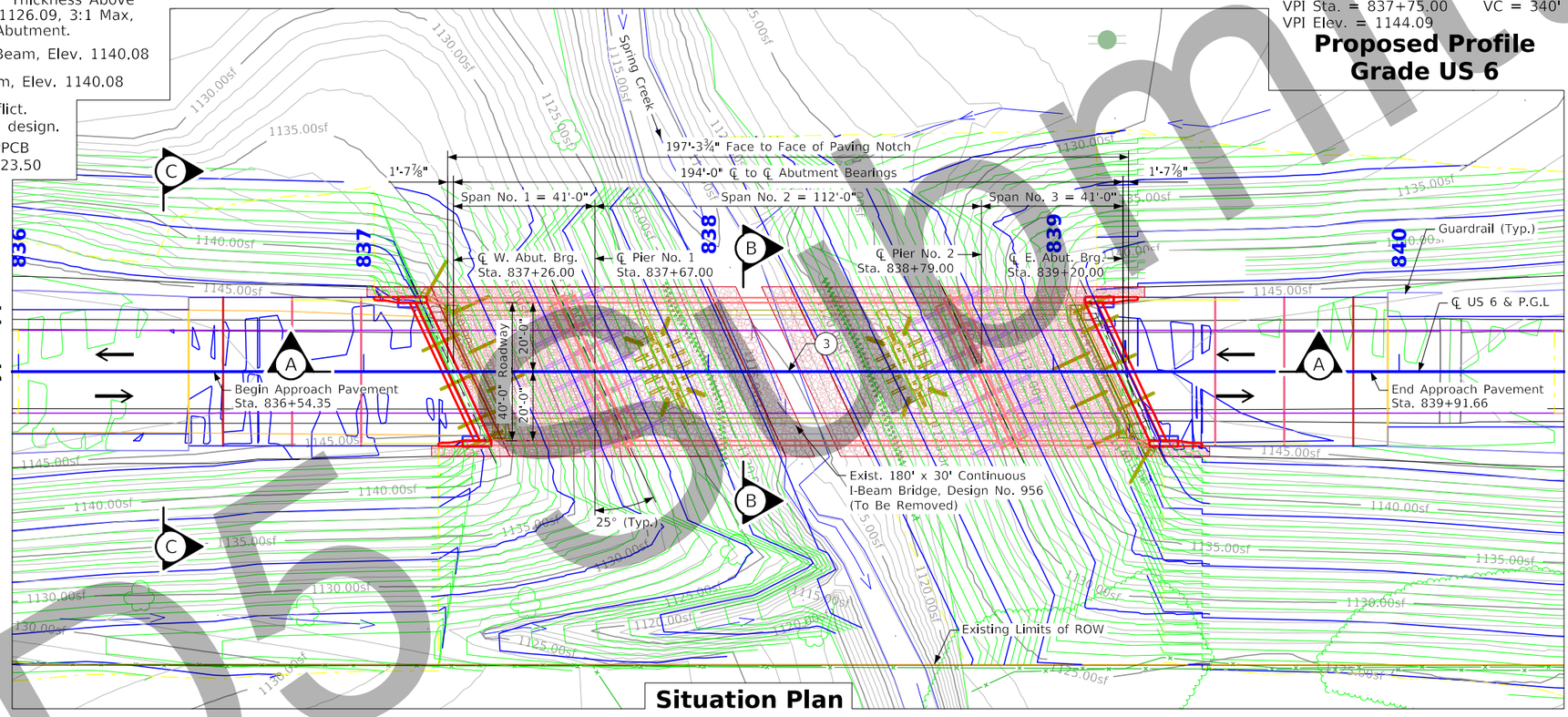



## Section A-A (Longitudinal Section Along ℄ Prop. US 6)

1. Class E Revetment - 2' Thickness, 3:1 Max, Slope Normal to Abutment.
2. Erosion Stone - 9" Thickness Above Design HW Elev. 1126.09, 3:1 Max, Slope Normal to Abutment.
3. Operational Low Beam, Elev. 1140.08
4. Channel Low Beam, Elev. 1140.08
5. Potential pile conflict. Verify during final design.
6. 194'-0" x 40'-0" PPCB Bridge, Sta. 838+23.50




## Section C-C (Typ. Appr. Sect.)




## Situation Plan

-1.59%
1.20%
VPI Sta. = 837+75.00
VPI Elev. = 1144.09
VC = 340'

## Proposed Profile Grade US 6

## Hydraulic Data

RIDB: Not Applicable
Drainage Area = 9.38 Sq. Mi.
Stream Slope (HGL) = 15.62 ft./Mi.
Avg. Low Water Stage = 1119.47

$Q_{25}$ = 2,785 cfs
Stage = 1127.02

$Q_{50}$ = 3,422 cfs
Stage = 1126.09
Channel Low Beam = 1140.08 ft.
Avg. Bridge Velocity = 5.62 fps

$Q_{100}$ = 4,104 cfs
Stage = 1126.81
Operational Low Beam = 1140.08
Backwater = (+)1.55 ft.
Avg. Bridge Velocity = 6.02 fps

$Q_{200}$ = 4,815 cfs
Stage = 1127.48
Calculated Design Scour = 1112.52

$Q_{500}$ = 5,653 cfs
Stage = 1128.18
Channel Freeboard = 11.9 ft.
Avg. Bridge Velocity = 6.76 fps
Calculated Check Scour = 1111.93

Site is located within Cass County
F.I.S. = May 16, 2017
F.I.S. Datum = NAD83 GRS 1980 Spheriod
F.I.S. Base Flood = Not Applicable

Scour depths based on preliminary data and shall be verified once geotechincal report is available.

General Notes:
This design is for the replacement of the existing 180' x 30' Continuous I-Beam Bridge, Cass Design No. 956. FHWA No. 17390. Maint. No. 1544.2S006

Design Notes:
1. TL-4 single slope bridge railing proposed.
2. Standard integral abutments.
3. Pier Type - T Pier (Assumed Width = 2'-10")
4. Beam Type - BTC.
5. Class E Revetment Stone.
6. Existing substructure and piles to be removed to 1' below proposed grade.
7. Final design to take into account proposed pier piling may be in conflict with existing piling.

Plan Notes:
1. Top of bridge deck at centerline roadway is 0.03" below the profile grade to account for parabolic crown.
2. Class E Revetment Stone is embedded.

### US 6 Traffic Est.

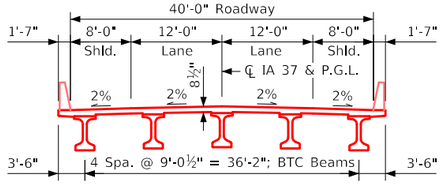
| | | | |
|---|---|---|---|
| 2024 | AADT | 1,760 | V.P.D. |
| 2044 | AADT | -- | V.P.D. |
| 2044 | DHV | -- | V.P.H. |
| Trucks | | 14 | % |
| Total | | | |
| Design ESALs | | --- | |

### Utilities Legend

PPA, MidAmerican Electric
Utilities shown on this sheet are for information only, see Road Design sheets for final utility information.

### Location

US 6 over Spring Creek
T-75N R-37W
Sections 4 & 9
Washington Township
Cass County
Bridge Maint. No. 1544.2S006
FHWA No. 17391
Latitude 41.317466°
Longitude -95.110067°




## Section B-B (Typ. Bridge Sect.)

N

0 40
Scale In Feet

Preliminary

Design For 25° Skew (R.A.)

# 194'-0" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

41'-0" End Spans — 112'-0" Interior Span

## Situation Plan

STA. 838+23.50 (US 6) — Turn-in Date: November 2024

## Cass County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0128 — Design Sheet No. 1 of 2 — FHWA No. 17391

HRGreen

| FILE NO. | ENGLISH | DESIGN TEAM **HR Green, Inc.** | **Cass** COUNTY | PROJECT NUMBER **BRF-006-2(046)--38-15** | SHEET NUMBER **V.1** |
|---|---|---|---|---|---|

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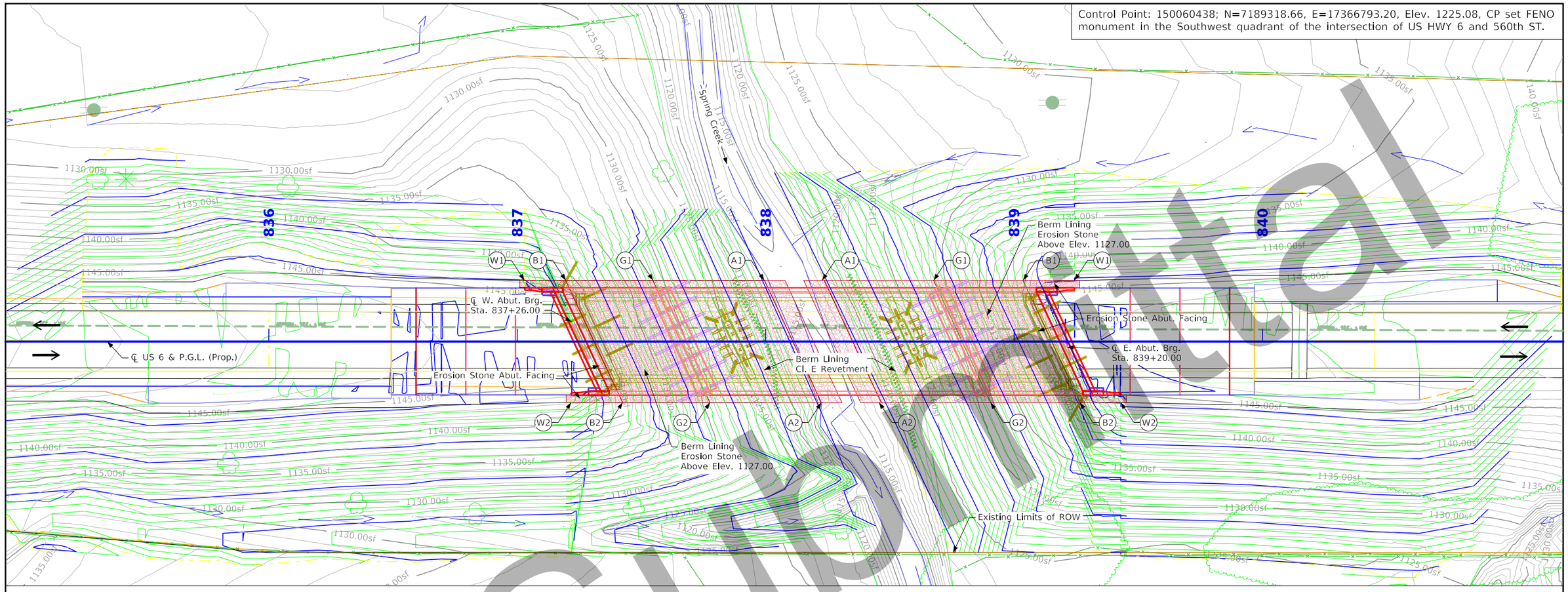



## Berm Slope Location Table

| Points | West Abutment | | | East Abutment | | |
|---|---|---|---|---|---|---|
| | Station | Offset | Elev. | Station | Offset | Elev. |
| A1 | 837+99.50 | 24.58' Lt. | 1113.60 | 838+23.57 | 24.58' Lt. | 1113.60 |
| A2 | 838+22.43 | 24.58' Rt. | 1113.60 | 838+46.50 | 24.58' Rt. | 1113.60 |
| B1 | 837+19.50 | 24.58' Lt. | 1138.68 | 839+03.57 | 24.58' Lt. | 1139.04 |
| B2 | 837+42.43 | 24.58' Rt. | 1138.68 | 839+26.50 | 24.58' Rt. | 1139.04 |
| W1 | 837+03.02 | 24.58' Lt. | 1145.07 | 839+24.33 | 24.58' Lt. | 1145.35 |
| W2 | 837+21.67 | 24.58' Rt. | 1144.94 | 839+42.98 | 24.58' Rt. | 1145.55 |

Berm Slope Elevations Reflect The Grading Surface

Notes:
GCL - Grading Control Line

West Berm/Bank Grading Control:

(G1) 837+54.63, 24.58' Lt., Revetment, GCL, Elev. 1127.00

(G2) 837+77.56, 24.58' Rt., Revetment, GCL, Elev. 1127.00

East Berm/Bank Grading Control:

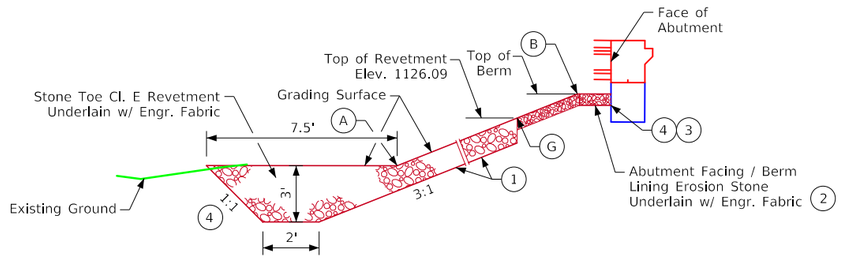
(G1) 838+67.60, 24.58' Lt., Revetment, GCL, Elev. 1127.00

(G2) 838+90.53, 24.58' Rt., Revetment, GCL, Elev. 1127.00

## Site Plan

N

0 40
Scale In Feet




## Section Through Embedded Berm/Bank Lining and Stone Toe at Banks

## Estimated Berm Armoring Quantities

| Revetment Type - Location | Revetment Cl. E (Ton) | Erosion Stone (Ton) | Engineering Fabric (SY) | Excavation Class 10, Channel (CY) |
|---|---|---|---|---|
| Berm Lining, Stone Toe - West | 330.1 | 92.8 | 558.4 | 264.3 |
| | | | | |
| Berm Lining, Stone Toe - East | 325.0 | 94.7 | 558.4 | 262.3 |
| | | | | |
| Totals | 655.1 | 187.5 | 1,116.8 | 526.6 |

Excavation quantity calculated from grading surface.
Revetment and Erosion Stone estimated at 1.6 Ton/CY

HRGreen

(1) Slope normal to ℄ Abut. / Grading Control Line.

(2) Extend facing out to lateral limits of wing armoring.

(3) Carry engineering fabric up to face of abutment.

(4) Slope normal to bank grading control line (GCL).

## Hydraulic Design

LICENSED PROFESSIONAL ENGINEER
Kate Barnes
26428
IOWA

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

Signature — Date: 1-30-25
Kate Barnes
Printed or Typed Name

My license renewal date is December 31, 2025

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

Preliminary

Design For 25° Skew (R.A.)

# 194'-0" x 40'-0" Pretensioned Prestressed Concrete Beam Bridge

41'-0" End Spans — 112'-0" Interior Span

## Situation Plan - Site

STA. 838+23.50 (US 6) — Turn-in Date: November 2024

Cass County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0128 — Design Sheet No. 2 of 2 — FHWA No. 17391



| FILE NO. | ENGLISH | DESIGN TEAM **HR Green, Inc.** | **Cass** COUNTY | PROJECT NUMBER **BRF-006-2(046)--38-15** | SHEET NUMBER **V.2** |
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# CROSS SECTION VIEW COLOR LEGEND

| Design Color No. | Feature |
|---|---|
| **Aggregate** | |
| (64) | Choke Stone |
| (42) | Engineering Fabric |
| (8) | Flooded Backfill |
| (92) | Macadam Stone |
| (20) | Modified |
| (12) | Plowing Shaping |
| (14) | Porous Backfill |
| (8) | Revetment Class A |
| (6) | Revetment Class B |
| (62) | Revetment Class C |
| (188) | Revetment Class D |
| (28) | Revetment Class E |
| (12) | Shoulder Special Backfill |
| (12) | Special Backfill |
| (20) | Subbase |
| (20) | Subbase Lower |
| (20) | Subbase Upper |
| (118) | Subgrade Treatment |
| **Asphalt** | |
| (207) | HMA Base Course |
| (207) | HMA Interim Course |
| (207) | HMA Surface Course |
| **Bridge** | |
| (0) | Bridge |
| **Concrete** | |
| (0) | Barrier Concrete |
| (0) | Barrier Concrete Footing |
| (0) | Curb Gutter |
| (48) | Flowable Mortar |
| (0) | Median Concrete |
| (0) | PCC Pavement |
| (0) | Sidewalk |
| **Existing** | |
| (0) | Existing Pavement |
| **Shoulder** | |
| (209) | Shoulder HMA |
| (0) | Shoulder PCC |
| (6) | Shoulder Granular |
| **Structural** | |
| (112) | Noise Wall |
| (112) | Noise Wall Footing |
| (112) | Retaining Wall Back |
| (112) | Retaining Wall Back Excavate |
| (112) | Retaining Wall Face |
| (112) | Retaining Wall Front Excavate |
| (112) | Retaining Wall Front Footing |
| (112) | Retaining Wall MSE Gutter |
| (112) | Retaining Wall Reinforced Earth |

| Design Color No. | Feature |
|---|---|
| **Grading** | |
| (8) | Behind Curb Cut |
| (6) | Granular |
| (13) | Granular Back Fill |
| (48) | Rock Undercut |
| (8) | Shoulder Earth Fill |
| (2) | Side Slopes |
| (226) | Side Slopes Dressing |
| **Substrata** | |
| (128) | Boulder |
| (209) | Boulder Removed |
| (48) | Broken Weathered |
| (210) | Broken Weathered Removed |
| (3) | Core Out |
| (115) | Core Out Remove Only |
| (195) | Core Out Remove and Replace |
| (203) | Existing Pavement |
| (184) | Existing Pavement Remove Only |
| (200) | Existing Pavement Remove and Replace |
| (6) | Loam |
| (211) | Loam Removed |
| (80) | Rock |
| (212) | Rock Removed |
| (4) | Select Sand |
| (214) | Select Sand Removed |
| (3) | Shale |
| (215) | Shale Removed |
| (10) | Topsoil |
| (2) | Topsoil Remove Only |
| (4) | Topsoil Remove and Replace |
| **Unsuitable / Waste** | |
| (3) | Unsuitable Type A |
| (216) | Unsuitable Type A Removed |
| (13) | Unsuitable Type B |
| (217) | Unsuitable Type B Removed |
| (11) | Unsuitable Type C |
| (218) | Unsuitable Type C Removed |
| (3) | Waste |
| (219) | Waste Removed |

NOTES:

Text

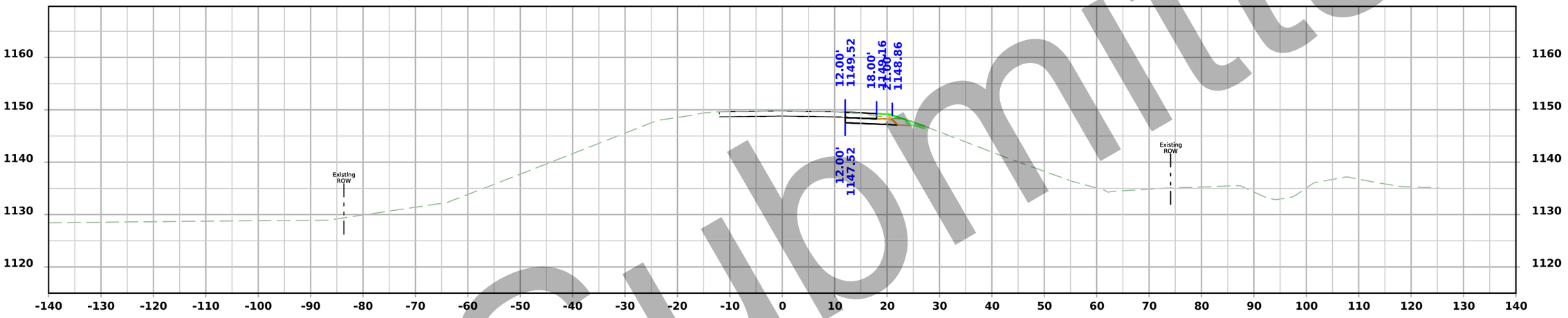
NOTES:

Text

# CROSS SECTIONS
# LEGEND AND INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

US 6

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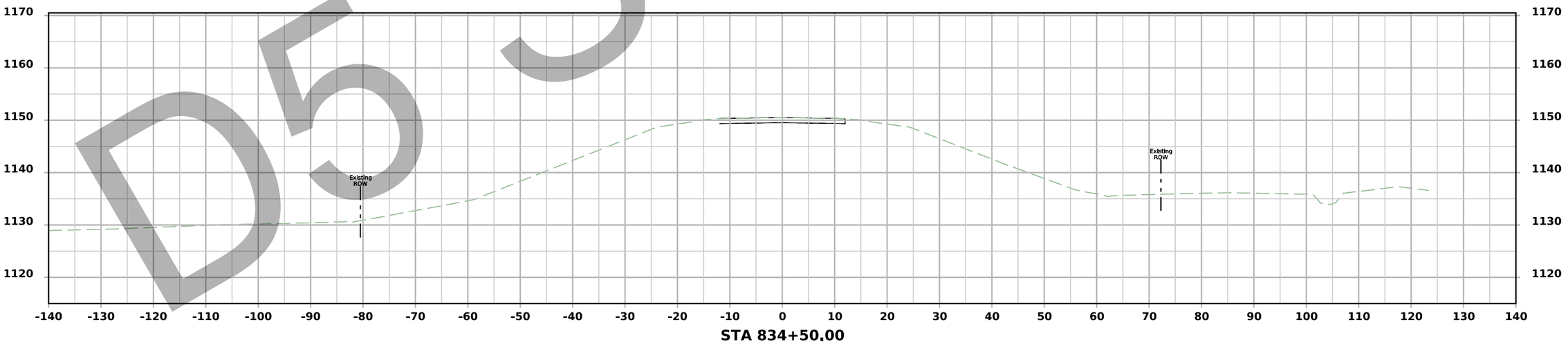


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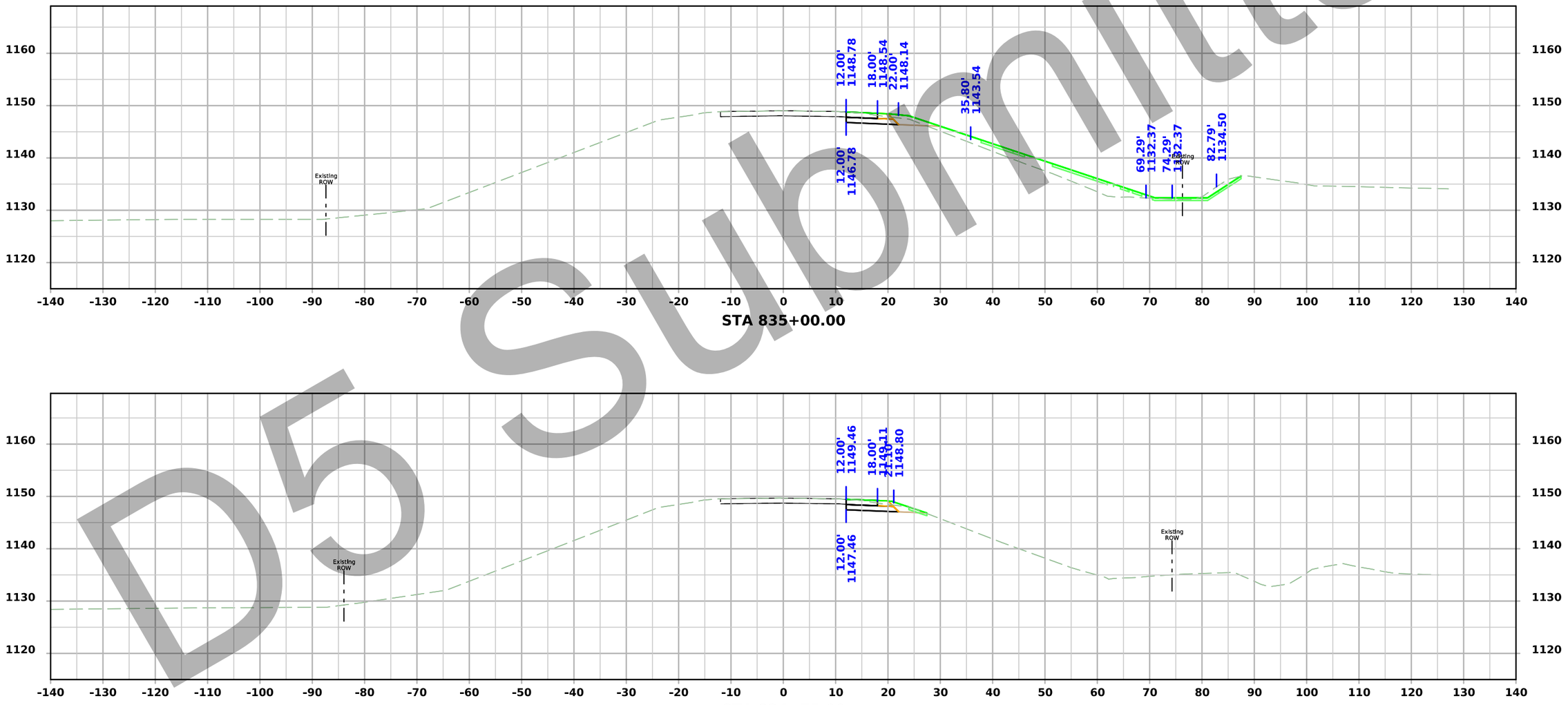




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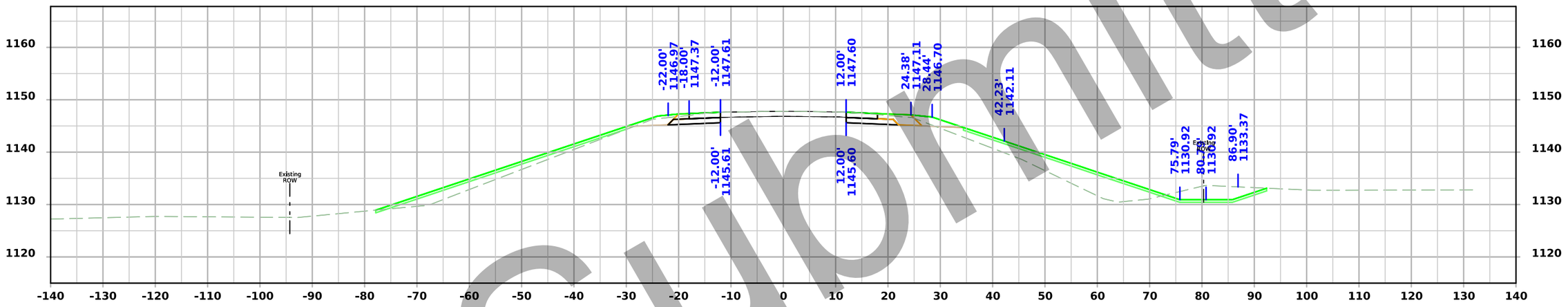


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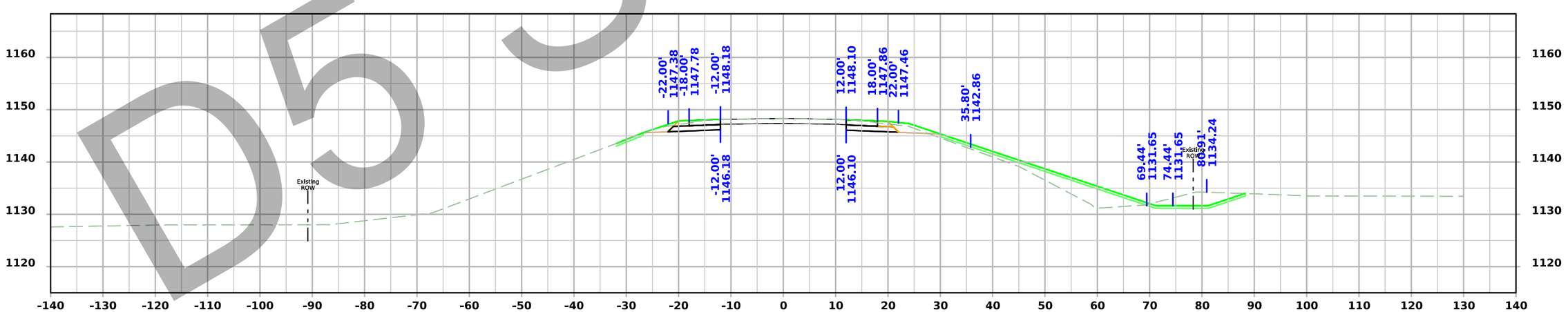


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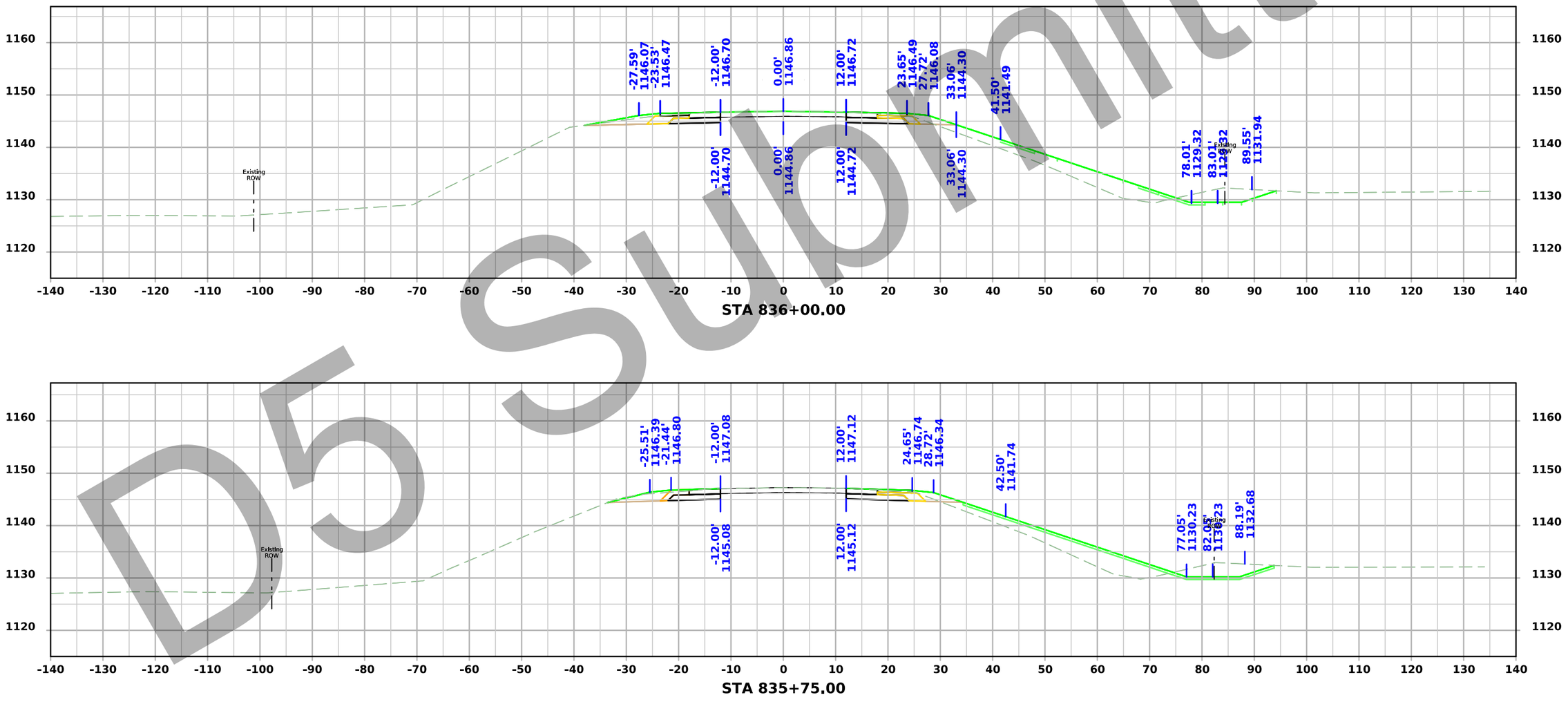


**STA 836+00.00**




**STA 835+75.00**



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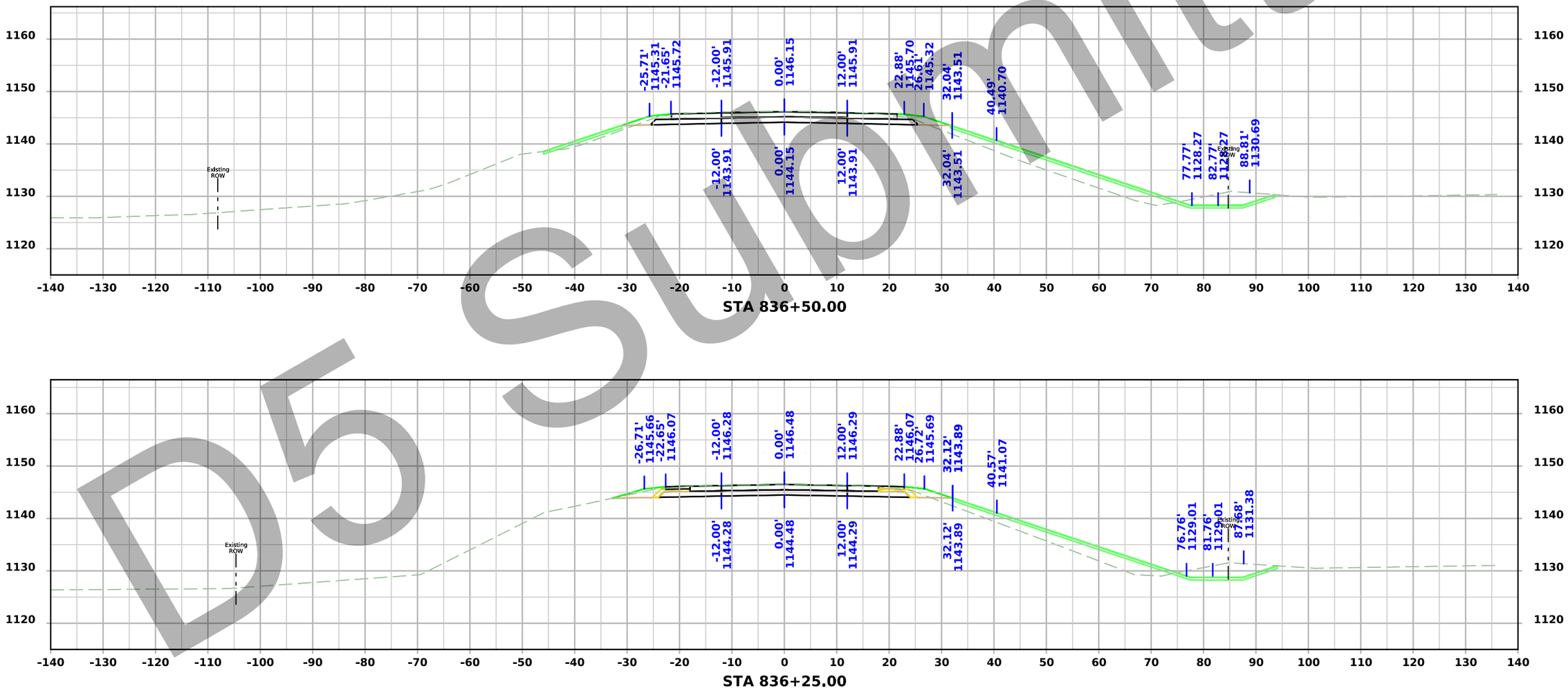
US 6

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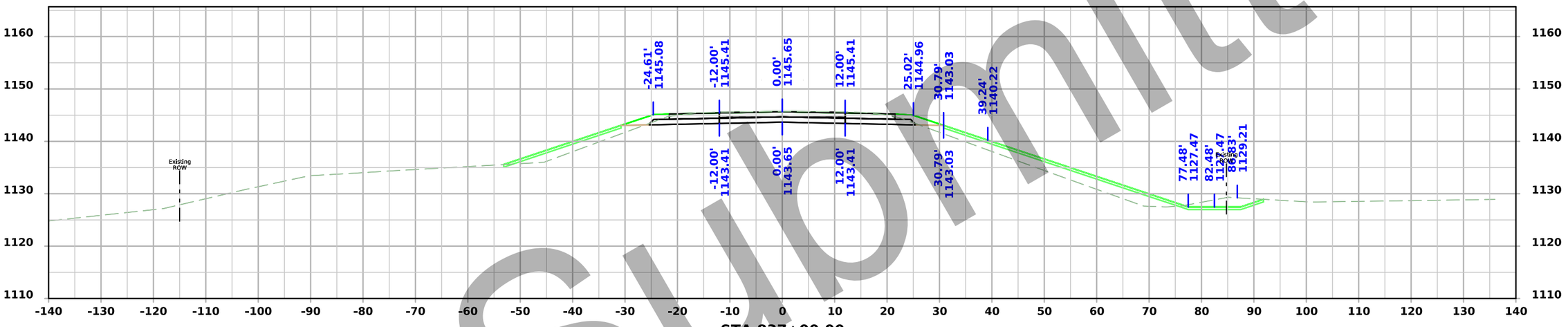


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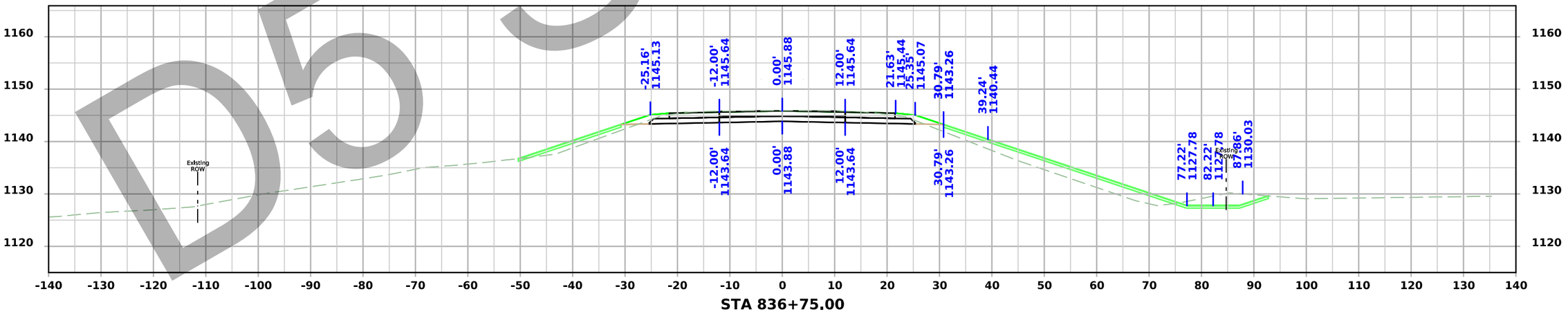


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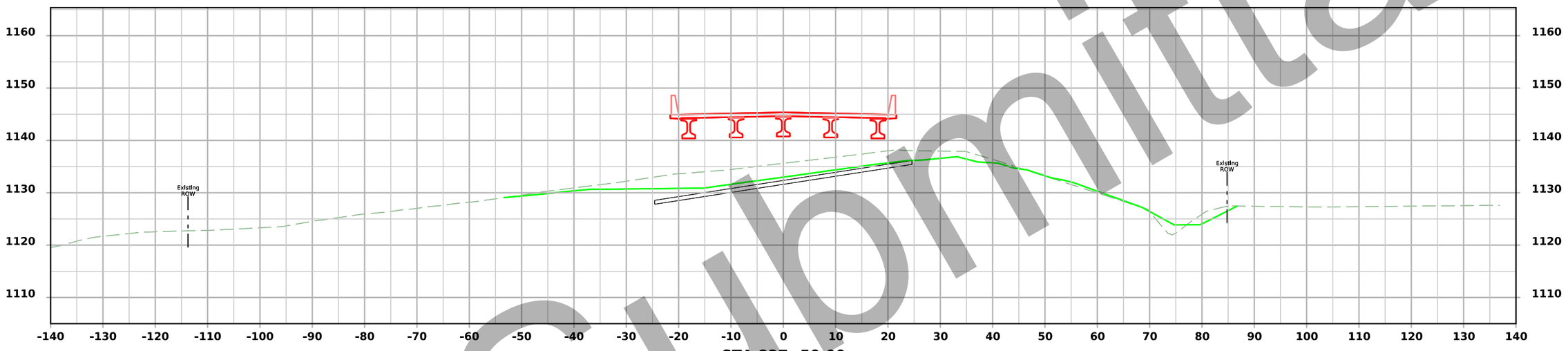


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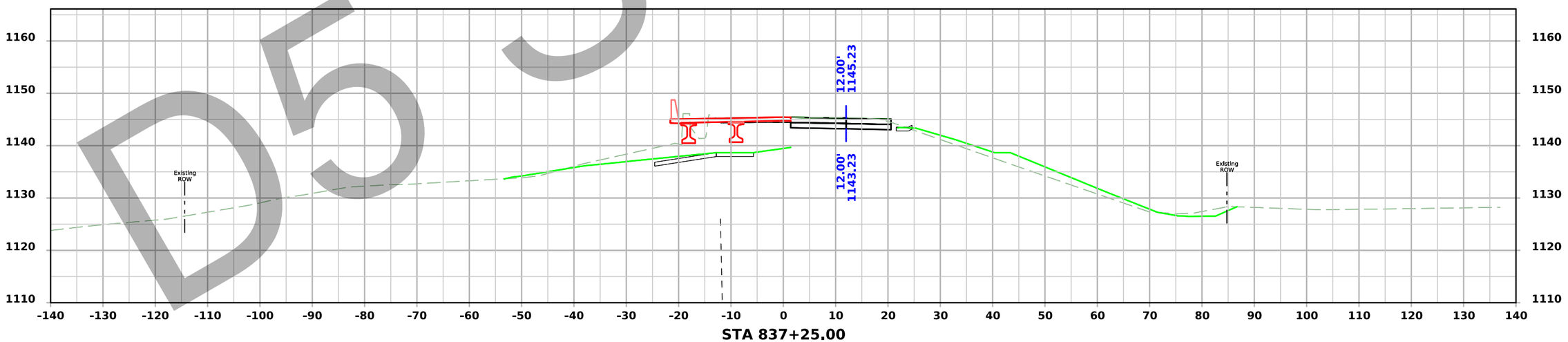


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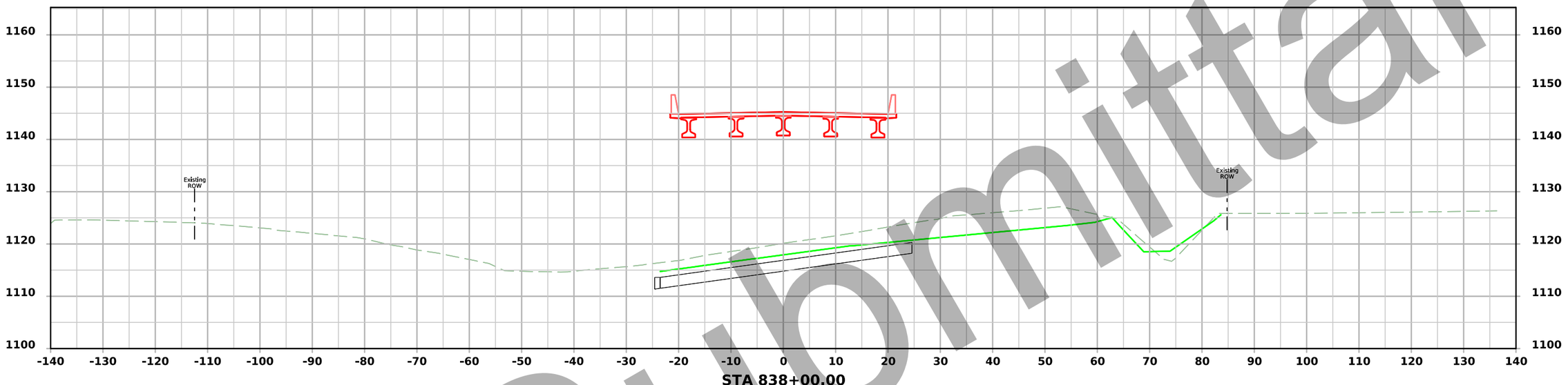


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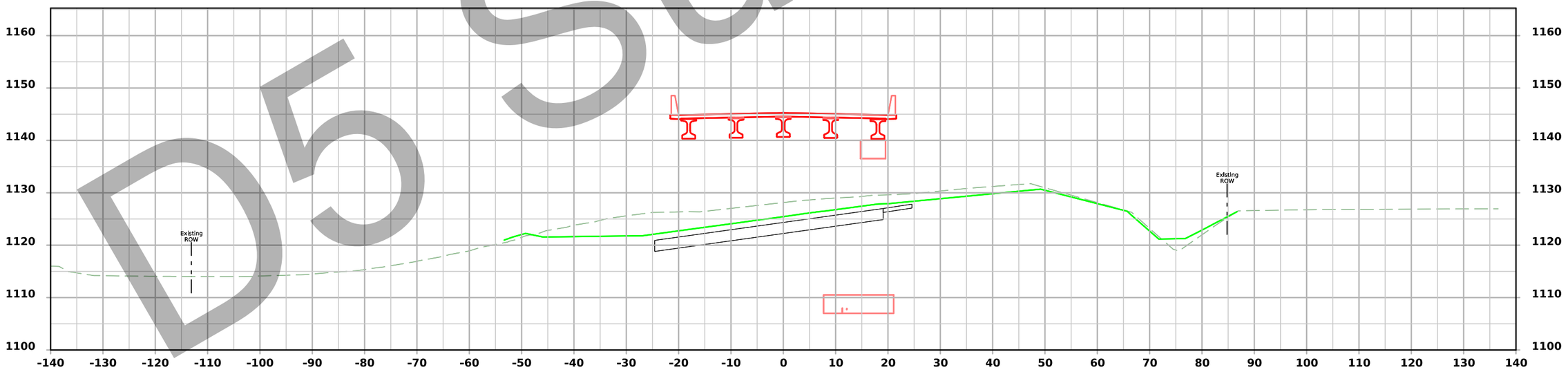


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| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER W.9 |
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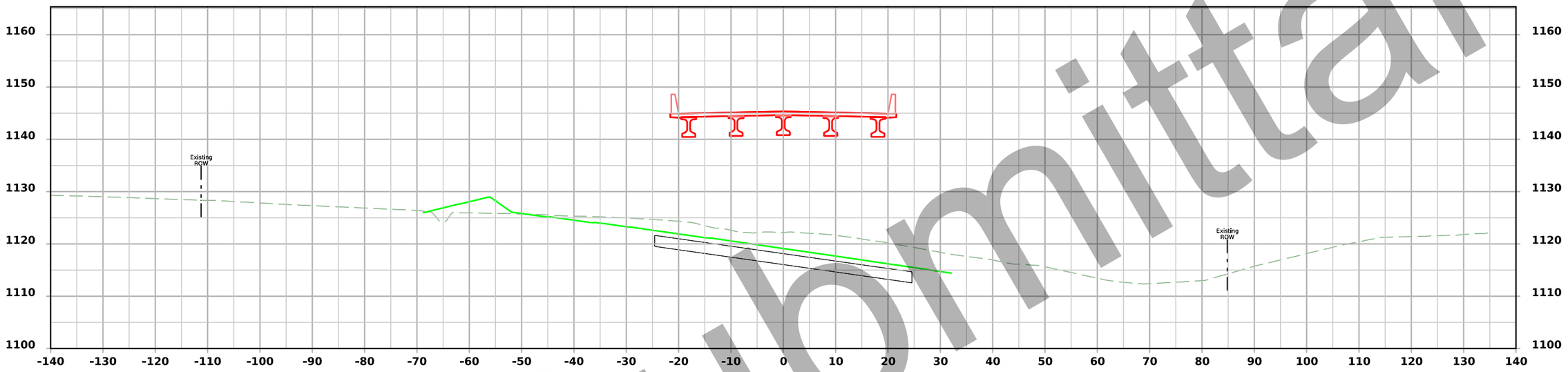
# US 6




STA 838+50.00


STA 838+25.00



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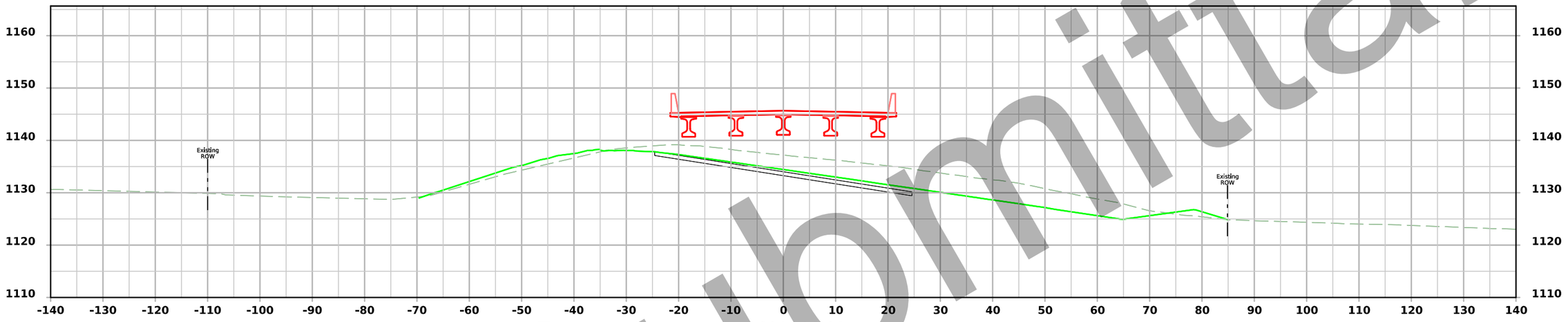
US 6

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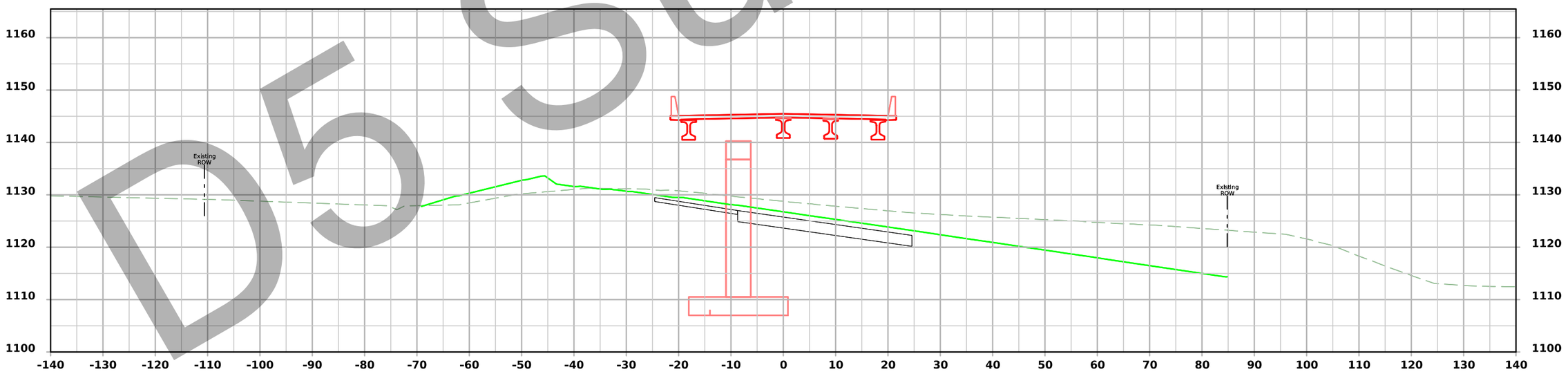


STA 838+75.00



| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER W.11 |
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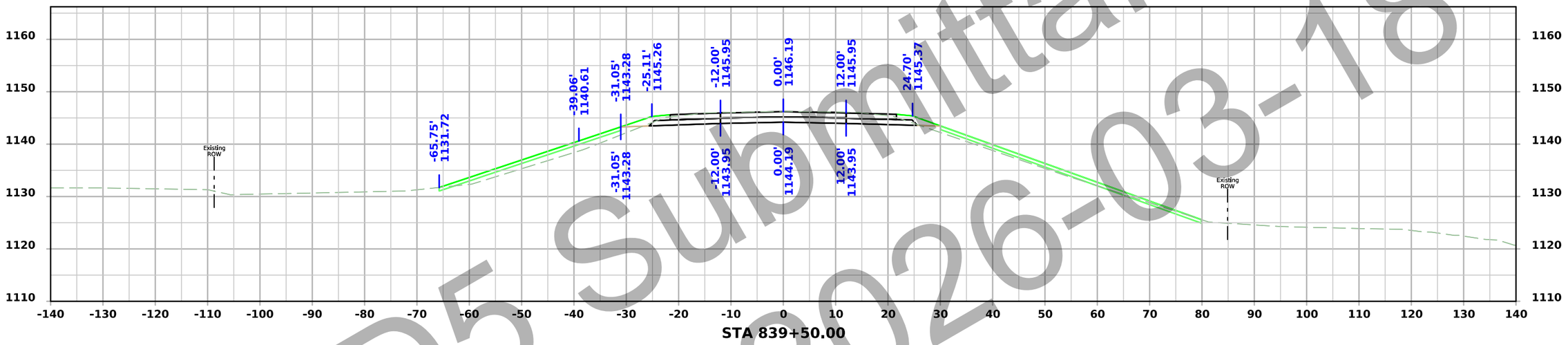
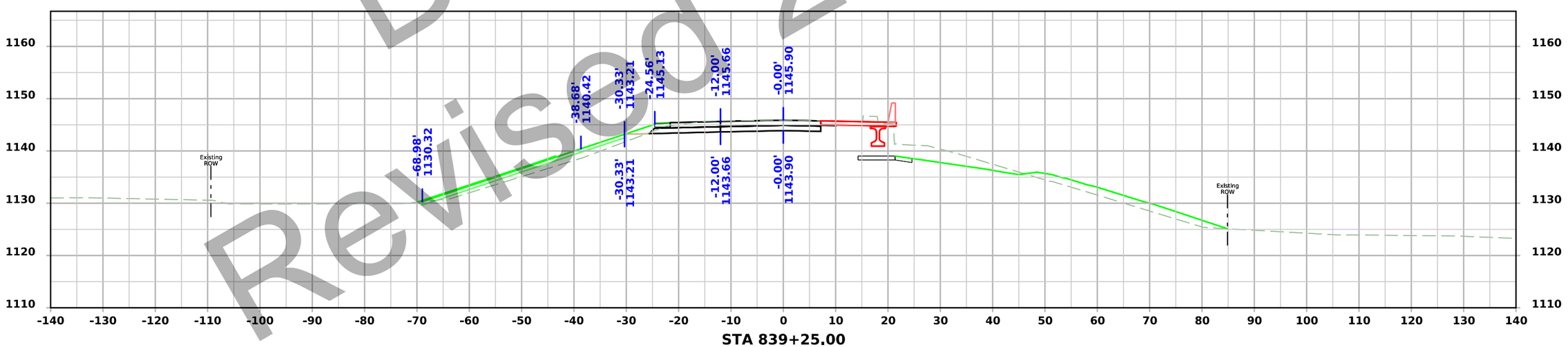
US 6




STA 839+50.00

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| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER W.12 | REVISED |
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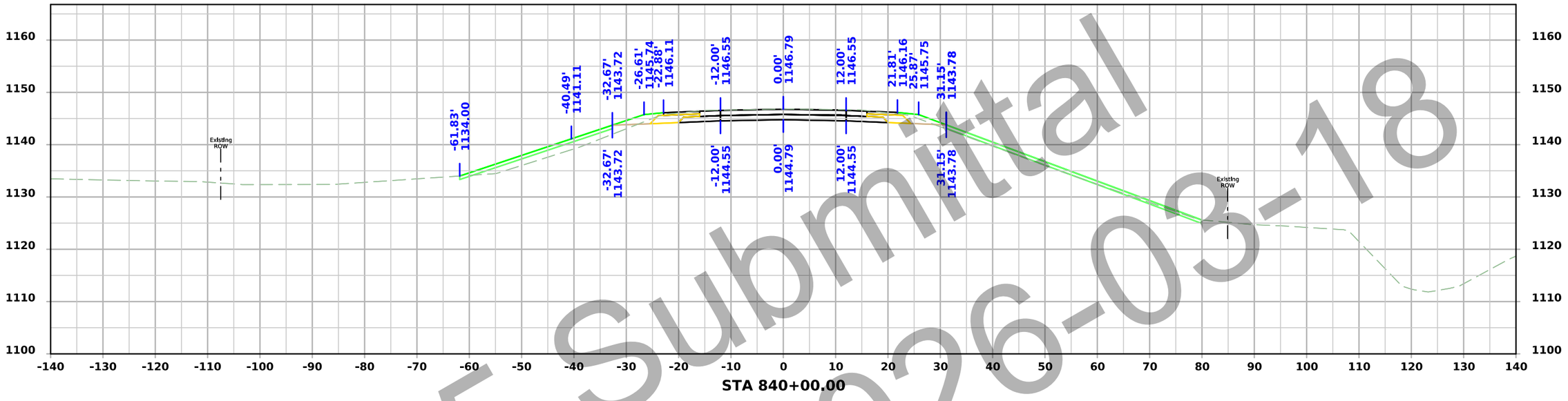


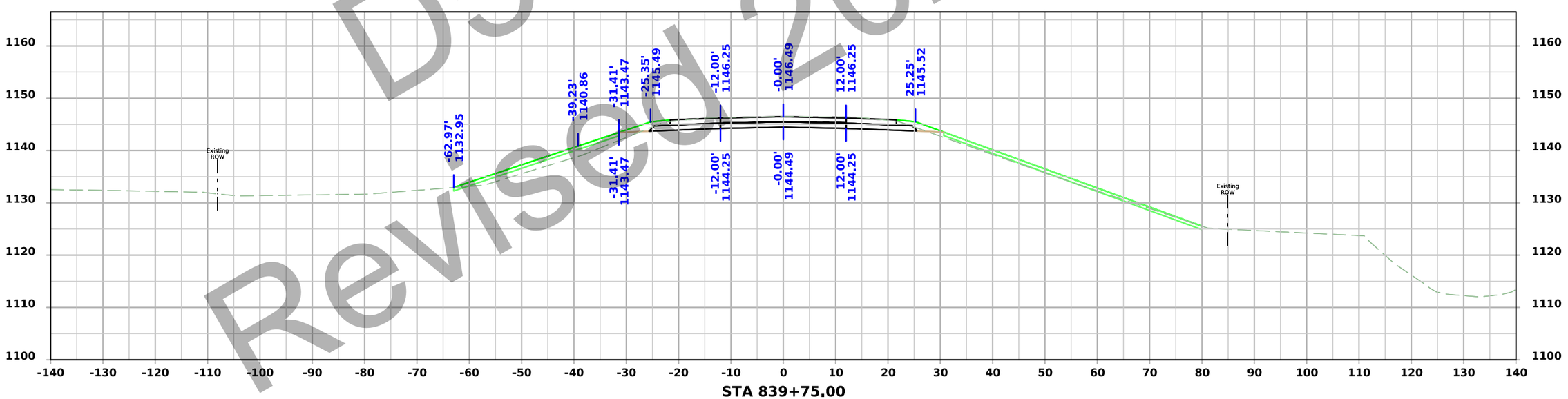




| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER W.13 | REVISED |
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10:02:04 AM 3/18/2026 npalmer pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\1500601022\Design\CADD_Files\Sheet_Files\W01_15006046Z07

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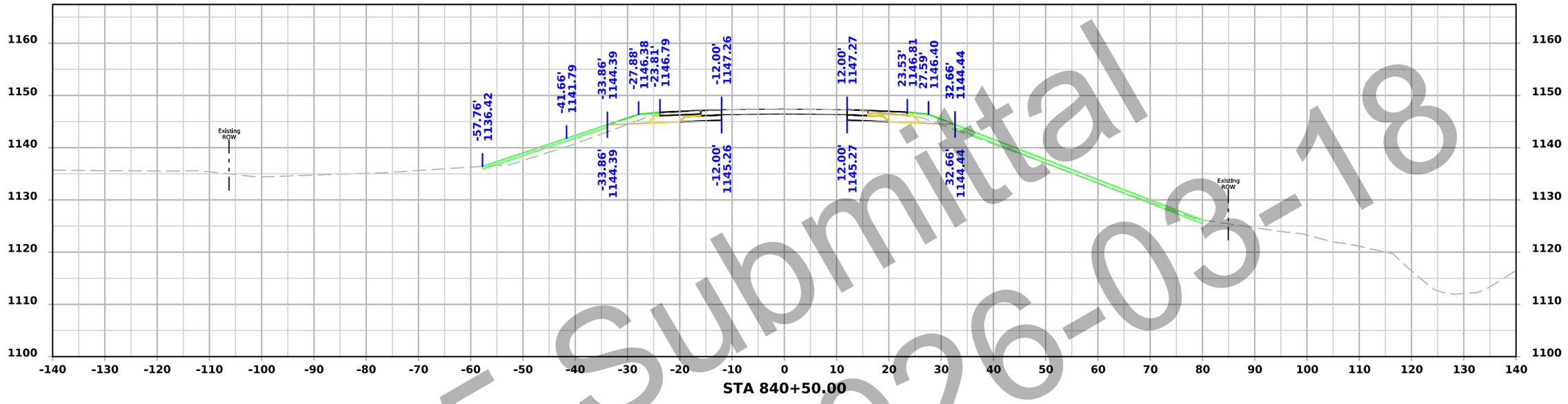


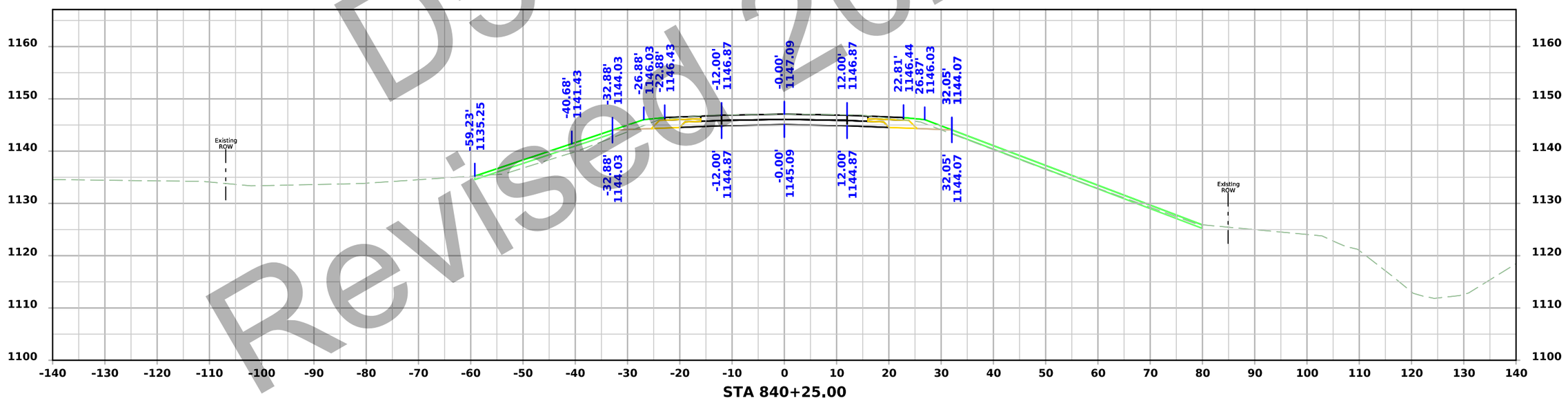




| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER W.14 | REVISED |
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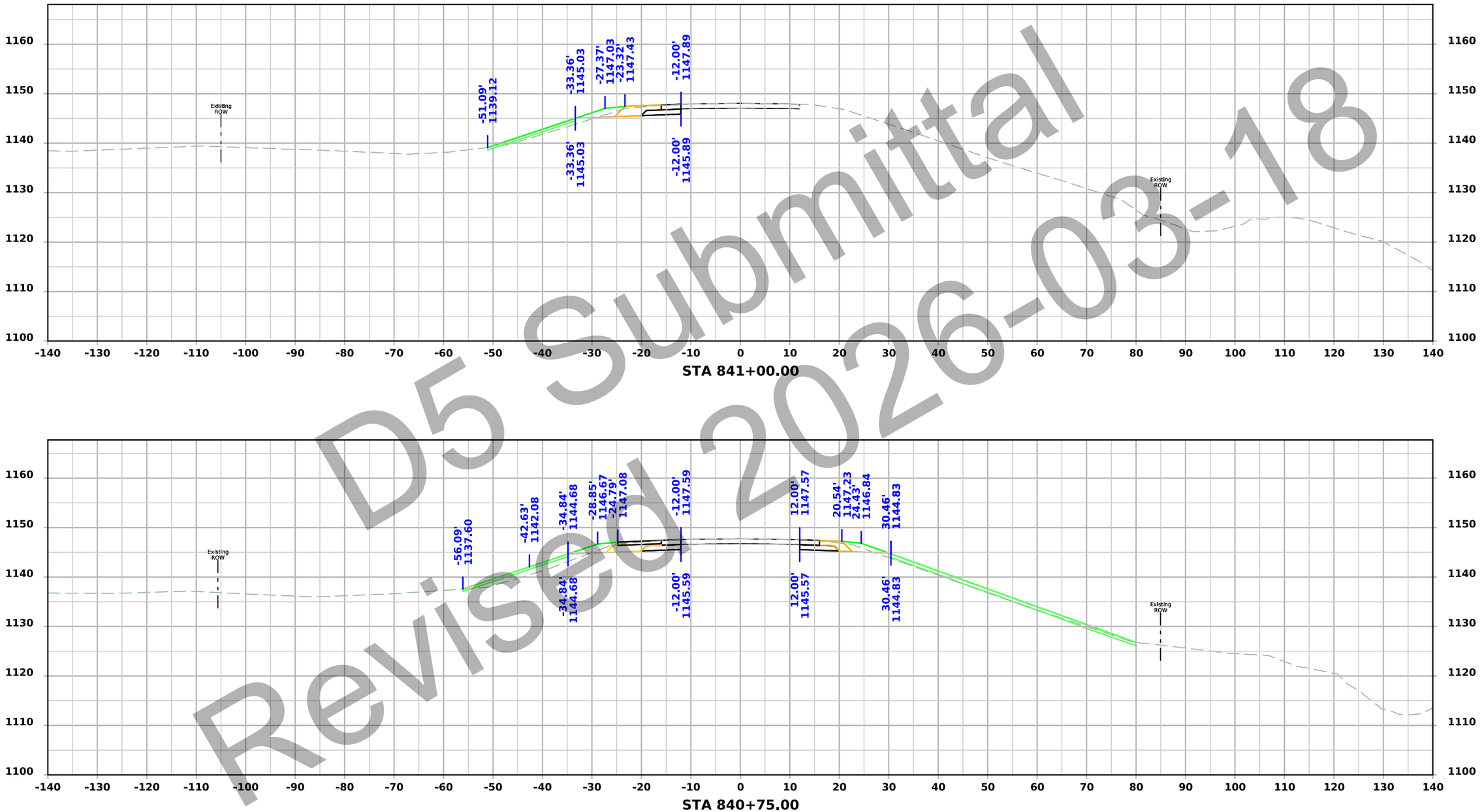




| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER W.15 | REVISED |
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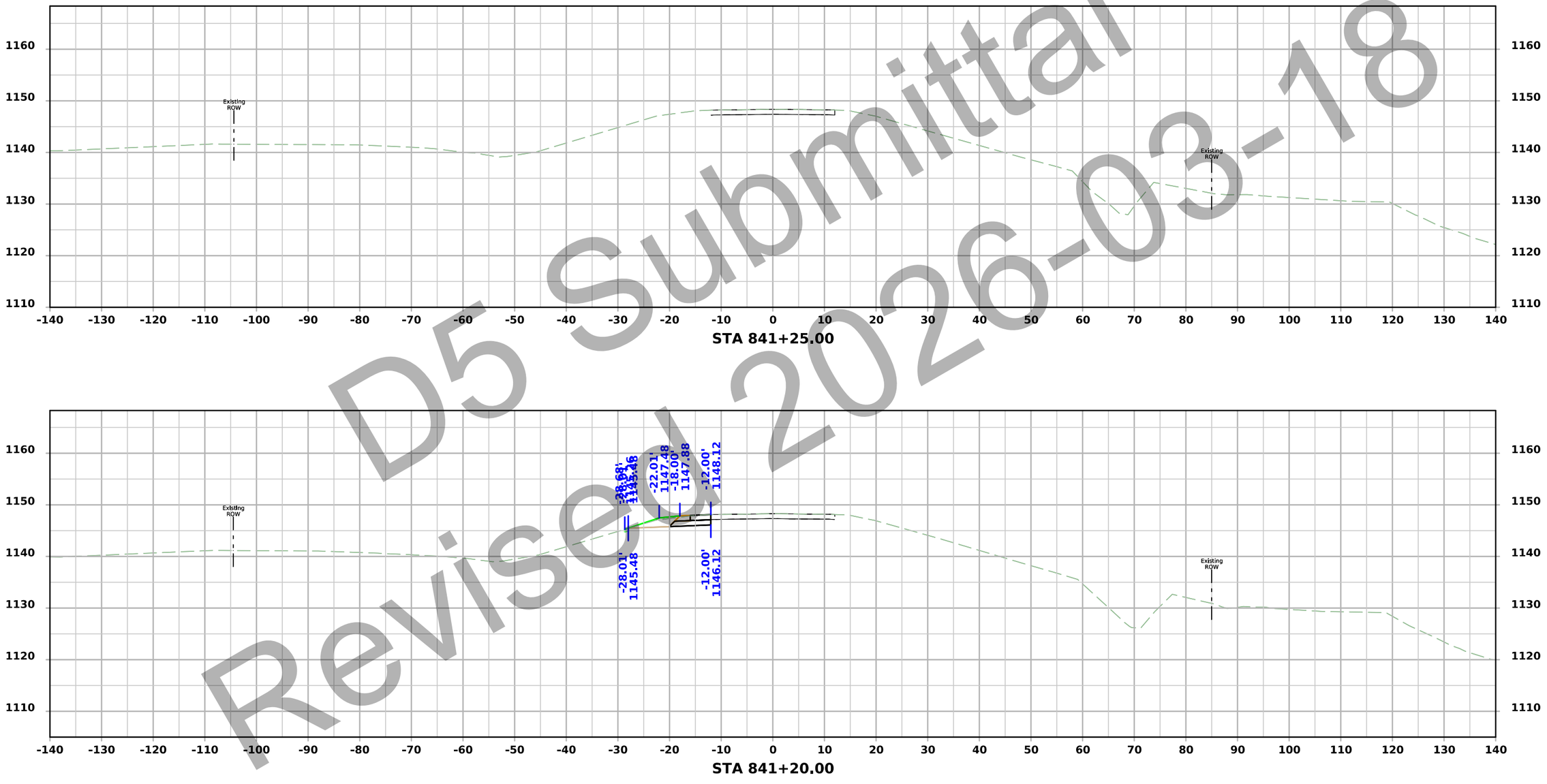




| FILE NO. | ENGLISH | DESIGN TEAM Flattery\Bell\Boudreaux\Schneider | CASS COUNTY | PROJECT NUMBER BRF-006-2(046)--38-15 | SHEET NUMBER W.16 | REVISED |
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