LETTING DATE Oct 15 2024

Bridge Replacement
BRFN-059-5(60)--39-24

CRAWFORD COUNTY

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 2	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1	Project Description
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US 59
G Sheets	**Survey Sheets**
G.1 - 3	Reference Ties and Bench Marks
G.4	Horizontal Control Tab. & Super for all Alignments
J Sheets	**Traffic Control and Staging Sheets**
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R Sheets	**Erosion Control Sheets**
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* RR.2	Drainage Basin and Erosion Control Device Maps
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
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X Sheets	**Side Road Cross Sections**
* X.1 - 6	RCB Excavations
* X.7 - 15	G AVENUE
	* Color Plan Sheets

IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

CRAWFORD COUNTY

Bridge Replacement

US 59 Bridge over East Soldier River, 2.9 miles south of County Road E16

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.

REVISIONS

	TOTAL
	44
PROJECT IDENTIFICATION NUMBER	
20-24-059-010	
PROJECT NUMBER	
BRFN-059-5(60)--39-24	
R.O.W. PROJECT NUMBER	
NHSN-059-5(61)--2R-24	

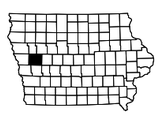
MILEAGE SUMMARY 105-1 09-27-94

Div.	Location	Lin. Ft.	Miles
1	Sta. 377+94.85 to Sta. 383+00.00	505.15	0.096
	Deduct Bridge at Sta. 379+71.40	34.64	0.006
	Total New Bridge at Sta. 379+71.22	21.07	0.004
	Total Length of Roadway in Project	470.51	0.089
	Total Length of Bridge in Project	34.64	0.006
	Total Net Length of Project	505.15	0.096

STA. 383+00.00
END CONSTRUCTION

PROJECT LOCATION

STA. 377+94.85
BEGIN CONSTRUCTION



LOCATION MAP SCALE
0 1 2 3
Miles

DESIGN DATA RURAL			
2025	AADT	3200	V.P.D.
2045	AADT	3700	V.P.D.
2025	DHV	38.0	V.P.H.
TRUCKS		12	%
Total Design ESALs		--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Brian T. Higginbotham	Primary Signature Block

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN – Date: 11/01/2022

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER A.1

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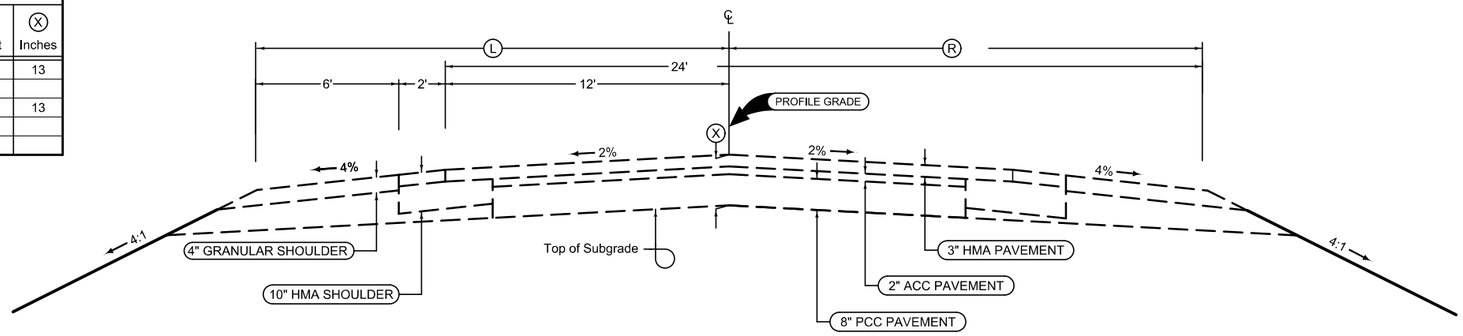
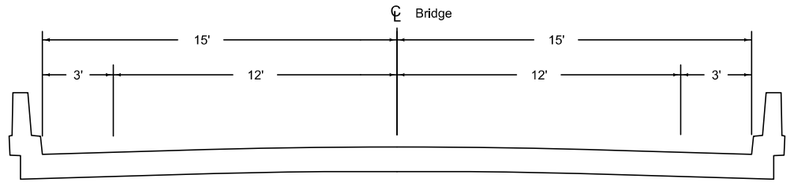
LOCATION			DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION		Ⓛ Feet	Ⓡ Feet	Ⓧ Inches
US 59	377+94.85	379+53.90	20	20	13
Bridge					
US 59	379+90.10	383+00.00	20	20	13

G_2_Grade
Modified



2 LANE EXISTING ROADWAY

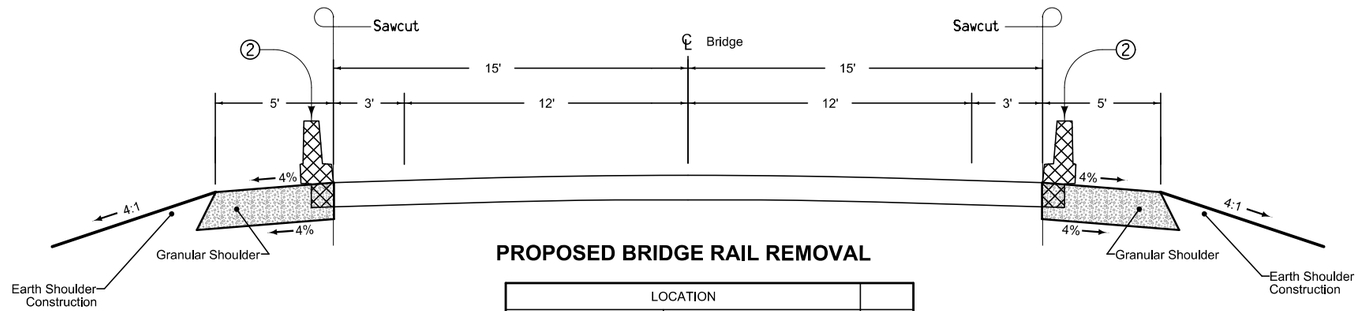
Exist Bridge
04-21-22



2 LANE EXISTING BRIDGE

LOCATION		
ROAD IDENTIFICATION	STATION TO STATION	
US 59	379+53.90	379+90.10

Bridge Shld.
08-31-22



PROPOSED BRIDGE RAIL REMOVAL

LOCATION			
ROAD IDENTIFICATION	STATION TO STATION		SIDE
US 59	379+44.88	379+80.66	LT
US 59	379+62.45	379+97.75	RT

① Sawcut at face of Bridge Rail. Replace with 5' wide granular shoulder.

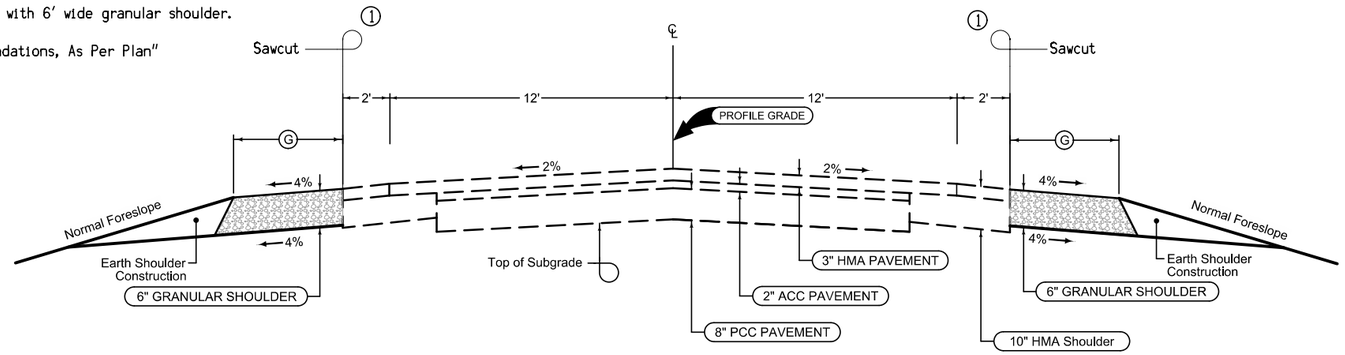
② Removal of Bridge Rail paid for as "Removals, As Per Plan"

③ Refer to 4317 Modified on Sheet U.1 for additional details.

G_2_Grade
Modified

① Sawcut at 14' from ℄. Remove guardrail pavement. Replace with 6' wide granular shoulder.

② Removal of Attenuator Anchor paid for as "Removal of Foundations, As Per Plan"



PROPOSED GUARDRAIL PAVEMENT REMOVAL

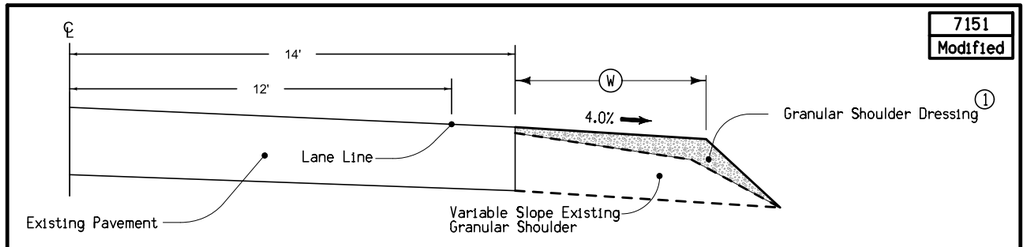
Granular Shoulder

		2_G_SR_ 04-21-20
STATION TO STATION		Ⓖ Feet
377+94.85	379+44.88	6
379+80.66	379+85.28	6

Granular Shoulder

			2_G_SR_ MODIFIED
STATION TO STATION		Ⓖ Feet	Remarks
379+57.50	379+62.45	6	②
379+97.75	381+65.39	6	

7151
Modified

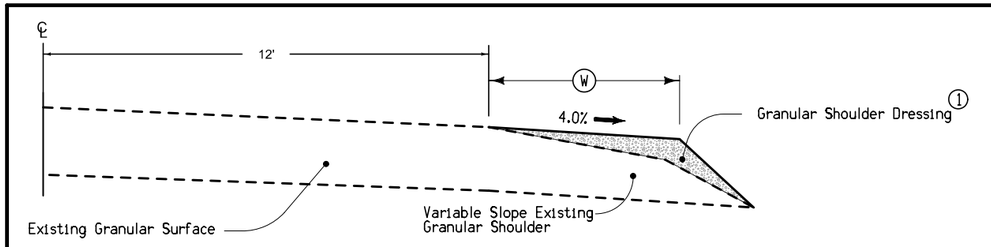


TYPICAL SECTION RETROFIT GRANULAR SHOULDER

Location				Ⓦ	①
Road Identification	Station To Station		Side	Feet	TON/STA
US 59	377+94.85	379+36.45	RT	6	3.56
US 59	381+65.39	383+00.00	RT	6	6.56
US 59	381+69.99	383+00.00	LT	6	10.72

① Dressing estimated at Tons Per STA

7151
Modified



TYPICAL SECTION RETROFIT GRANULAR SHOULDER

Location				Ⓦ	①
Road Identification	Station To Station		Side	Feet	TON/STA
G AVENUE	2379+30.00	2380+37.00	LT	3	42.3
G AVENUE	2379+30.00	2380+37.00	RT	3	15.5

① Dressing estimated at Tons Per STA

② 12' off ℄ or along return alignement. See Sheet G.4

100-1D
10-18-05

PROJECT DESCRIPTION

This project involves the placement of a new twin 8' X 10' RCB under the existing US 59 bridge (maint. No. 2411.7509) over the East Soldier River, 2.9 miles south of County Road E16. The existing bridge will remain in-place and existing bridge rails and guardrail will be removed. The culvert ends will extend beyond the roadway clear zone.

102-5
04-18-17

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
1	CRAWFORD	US59	NB/SB	MP 104.83	MP 117.59	2012		STP-059-5(51)--2C-24	HMA	1.5		1.5				2					
	CRAWFORD	US59	NB/SB	MP 104.83	MP 117.59	2012	Widening	STP-059-5(51)--2C-24	HMA	1.5		1.5	HMA	7							
2	CRAWFORD	US 59	NB/SB	MP 104.83	MP 117.59	1991		FN-59-5(23--21-24	ACC	2		2					FT. DODGE MINE	C LST.			
3	CRAWFORD	US 59	NB/SB	MP 104.83	MP 117.59	1948		F-879 (2)	PCC	8							SACTON	GRAVEL	3	FD-1	

SURVEY SYMBOLS

- BCL Bridge Centerline
- BD Bridge Deck
- BL Topo Breakline
- BNK Stream Bank
- BRG Bridge
- C Centerline BL of Road (ML or SR)
- CON Concrete or A/C Slab
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- EG Edge of Gravel Road
- ENT Centerline BL of Entrance
- ENU Edge Unpaved Entrance & Parking
- EP Edge of Paved Roads (ML or SR)
- EW Edge of Water
- FO — FO1D - Arcadia Telephone Cooperative - Quality D
- FO2 — FO2D - ICN - Quality D
- GDL Guard Rail Steel
- PIP Pipe Culvert
- RET Retaining Walls
- RIP Rip-Rap
- SH Paved Shoulder
- SNP Unpaved Shoulder
- T1 — TL1D - Windstream - Quality D
- W — WL1D - West Central Iowa Rural Water - Quality D
- CP Control Point
- SOP Size of Pipe or Culvert
- PRO Profile Shot
- WC Wild Card (Misc. Field Shot)
- SBR Size of Bridge
- PLG Location of General Photo
- SIGN SI Sign
- DTM Photogrammetry Elv Control Check
- TP TPD Telephone Pedestal
- GR Ground Shot
- TW Top of Water
- SP Stream Profile
- PPA Western Iowa Power Co
- PR Electic Riser Pole
- MIS Miscellaneous
- B BIN Grain Bin
- BLS Bridge Low Steel

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

- FO — FO1D - Arcadia Telephone Cooperative - Quality D
- FO2 — FO2D - ICN - Quality D
- T1 — TL1D - Windstream - Quality D
- W — WL1D - West Central Iowa Rural Water - Quality D
- PPA Western Iowa Power Co

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

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
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER D.1

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Morgan TWP.
T-85N R-40W
SEC. 36

Hanover TWP.
T-84N R-40W
SEC. 1

Goodrich TWP.
T-84N R-39W
SEC. 6

Otter Creek TWP.
T-85N R-39W
SEC. 31

Sta. 374+56.3
12'x12'x67' RCB
D.A.=835 A-VH
(UAC)

24" X 99 C.M.P.
(UAC)

Approx ROW (60')

Sta. 379+71.4
Skew 30 RT AH
32' x 30' I-Beam Bridge
D.A.=2100 A-VH
(UAC - Place RCB beneath)

Class E Revetment

Δ = 07°21'34.12" (RT)
T = 78.49
L = 156.77
R = 1220.52
E = 2.52

PCC 2378+39.55

Sta. 2379+55.83
Install 24" X 110' CMP
Skew = 23.1° LA
FL. N = 1358.402
FL. S = 1357.450

18' X 33'
Concrete Block
Streambed Protection
(Remove)

Sta. 380+87.2, 62.1 Lt.
24"x 78 CMP
D.A.=1 A-H
(Fill and Abandon)

Δ = 29°16'57.37" (RT)
T = 107.99
L = 211.26
R = 413.35
E = 13.87

Erosion Stone
Rock Flume

PI 2379+47.54

18" x 24 C.M.P.
(UAC)

Approx ROW (60')

Sta. 378+23 to Sta. 380+28 LT
Remove Guardrail

Sta. 377+94.85 (ML059)
Begin Construction

Remove Bridge Rail

Sta. 383+00.00 (ML059)
End Construction

POB 1376+97.63

Sta. 376+97.63
Sta. 1376+97.63

PCC 2380+50.81

POB 2380+50.81

Sta. 380+50.81
Sta. 2380+50.81

Remove Bridge Rail
Remove Attenuator Anchor

Sta. 379+36 to
Sta. 381+43 RT
Remove Guardrail

Sta. 379+71.22
Build Twin 8' x 10' x 154' RCB
Skew = 30° RA
Lt. 1341.26
F.L.= Rt. 1345.52
Design No. 0225

Approx ROW (60')

24" X 171 C.M.P.
(UAC)

Δ = 02°54'27.24" (RT)
T = 30.97
L = 61.92
R = 1220.25
E = 0.39

PI 1378+10.96
PRC 1378+33.73
PT 1378+95.65
PC 1377+88.18
PRC 1378+33.73
PI 1378+64.70

Δ = 02°08'18.99" (LT)
T = 22.78
L = 45.55
R = 1220.25
E = 0.21

20' X 40'
Class E Revetment
(Remove)

Groudline Intercept

EAST SOLDIER RIVER

US 59

0 50
FEET

Sta. 377+14.1, 62.2 Rt.
30" x 70 RCP
D.A.=11 A-H
(UAC)

Design No. 0225
File No. 32179

Profile Grade Line
(Existing and Proposed)

Sta. 377+94.85
Begin Construction

VPI = +72.00
ELV = 1368.04
L = 36.00
K = 232

Sta. 382+00.00
End Construction

-5.15%
+0.25%
VPI = +27.50
ELV = 1367.04
L = 455.00
K = 84

+0.08%
-0.08%

-0.23%
+4.78%
VPI = +81.00
ELV = 1367.38
L = 438.00
K = 87

Existing Ground
Proposed CMP Outlet
Existing CMP Outlet
Proposed Culvert Outlet

LT +08
1358.40

Proposed CMP Inlet
Exisiting CMP Inlet

LT +00
1360.60

+1.15% LT Ditch Grade

RT +00
1360.10

Proposed Culvert Inlet

LT +95
1357.40

-16.71% LT Ditch Grade

+5.69% RT Ditch Grade

LT +93
1341.00

RT +42
1345.42

(Use as Constructed)
Ditch Grade
(Use as Constructed)
Ditch Grade
Ditch Grade
(Use as Constructed)
(Use as Constructed)

Lt
Rt

1377.50 1376.33 1375.22 1374.20 1373.24 1372.36 1371.56 1370.83 1370.17 1369.59 1369.08 1368.64 1368.28 1368.00 1367.79 1367.65 1367.59 1367.60 1367.66 1367.72 1367.78 1367.84 1367.91 1367.97 1368.03 1368.09 1368.16 1368.22 1368.14 1368.04 1368.03 1368.06 1368.14 1368.16 1368.10 1368.04 1367.97 1367.91 1367.86 1367.88 1367.96 1368.12 1368.35 1368.65 1369.03 1369.47 1369.99 1370.57 1371.23 1371.96 1372.76 1373.64 1374.58 1375.60 1376.69 1377.85 1379.04 1380.24 1381.43 1382.63

373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00 381+00 382+00 383+00 384+00 385+00 386+00 387+00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER D.2

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Crawford County
BRFN-059-5(60)- -39-24
Soldier River 2.9 mi S of Co Rd E16
Project Directory: 2405901020
PIN 20-24-059-010
Sap-0627.4

Party Personnel

Clayton Henningsen- Survey Party Chief
Jason Arn- Survey Party Chief
Paul Harry- Asst. Party Chief

Date(s) of Survey

Begin Date	06/01/2020
End Date	07/21/2020

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction on US 59 south of Schleswig. This is a partial terrain and underground structure field survey with aerial image and lidar acquired terrain added in the Photogrammetry section of the Design Office.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. 24059013, 24059014, 24059015, H 186, and F 94 by doing concurrent 6 hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

This survey observed 2 NGS GPS control with published NAVD88 heights to compare to local ground control:

NGS mark designated F 94 (PID NL0331) has a published Elev. of 1368.06
Survey Elev. = 1368.074

NGS mark designated H 186 (PID DP4672) has a published Elev. of 1421.31
Survey Elev. = 1421.144

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 6 (U.S. Survey Feet). This survey control is relative to IaRTN reference stations. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting concurrent 6 hour static observations on Project Pts. 24059013, 24059014, 24059015, H 186, and F 94.

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. F-879(2). Survey stationing was equated to the plan POT at Sta. 346+79.0 and run ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

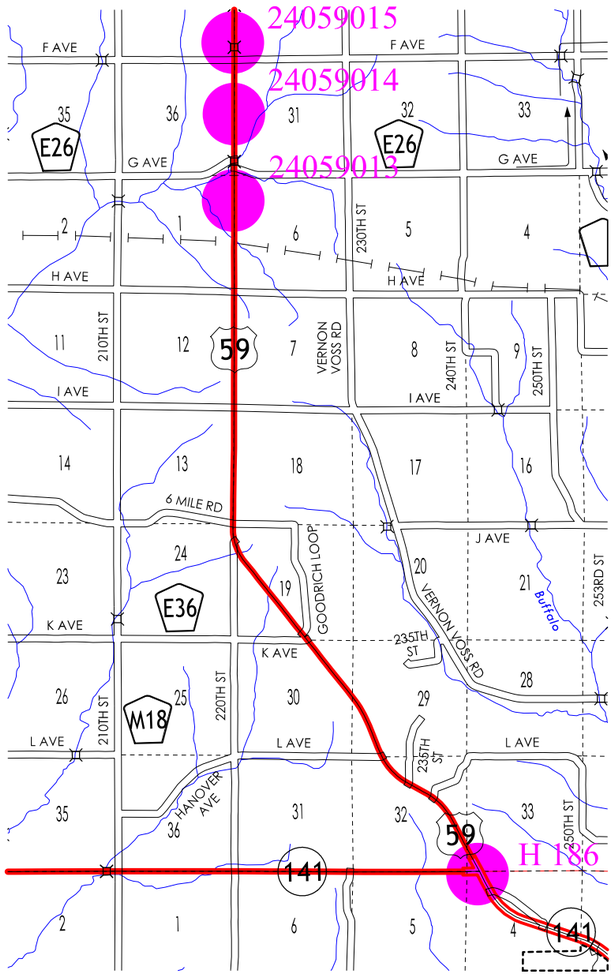
POT Sta. 346+79.0 As-built Plans Project No. F-879(2)
Survey POT Sta. 346+79.0

POT Sta 399+44.4 As-built Plans Project No. F-879(2)
Survey POT Sta. 399+42.74

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points

Primary control is for use with RTK base stations and for RTN validation.
Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 6

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 6

Control Points are Bench Marks

Point Name	North Coordinate	East Coordinate	Elevation	Feature Code- Monument Description
24059013	7281846.238	16579639.74	1412.678	CP 24059013 AT THE INTERSECTION OF HIGHWAY 59 AND CO RD E16 IN SCHLESWIG GO 3.2 MI SOUTH ALONG HWY 59 SET FENO MONUMENT IN FIELD ENTRANCE ON WEST SIDE OF HIGHWAY 25 FEET SOUTH OF ENTRANCE CENTERLINE 52 FEET WEST OF HWY 59 CENTERLINE
24059014	7285783.945	16579668.86	1408.904	CP 24059014 AT THE INTERSECTION OF HIGHWAY 59 AND CO RD E16 IN SCHLESWIG GO 2.4 MI SOUTH ALONG HWY 59 FOUND BUTTON ON INLET HDWL 3X3 BOX CULVERT 26 FEET WEST HWY 59 CENTERLINE 24 FEET NORTH OF A NO PASSING ZONE SIGN AND 41 FEET EAST OF A BURIED FIBER OPTIC CABLE SIGN
24059015	7286929.934	16579620.3	1439.036	CP 24059015 AT THE INTERSECTION OF HIGHWAY 59 AND CO RD E16 IN SCHLESWIG GO 2.2 MI SOUTH ALONG HWY 59 FOUND X ON ROW RAIL ALONG NORTH EDGE OF ENTRANCE TO WEST 31 FEET SOUTHWEST OF TOP CENTER INLET 24 IN CMP 75 WEST OF HWY 59 CENTERLINE 76 FEET SOUTH OF P POLE
F 94	7310322.422	16627374.37	1368.074	CP F 94 AT KIRON GO EAST ALONG B AVE 3.0 MILES AT INTERSECTION OF B AVE AND 310TH ST GO NORTH 0.1 MILE ALONG 310 TH ST FOLLOW FENCELINE 500 FEET TO THE EAST ALONG OLD RR BED A STANDARD DISK STAMPED F 94 1935 AND SET IN THE TOP OF A CONCRETE POST 6 FEET NORTHEAST OF CORNER POST
H 186	7251200.108	16590760.15	1421.153	CP H 186 THE STATION IS LOCATED ABOUT 9.1 MI SOUTH-SOUTHEAST OF SCHLESWIG 8.9 MI NORTH-NORTHEAST OF DOW CITY AND 2.6 MI WEST-NORTHWEST OF DENISON THE GRAVITY CONTROL MARK IS FOUND NORTHWEST OF DENISON AT THE JUNCTION OF STATE ROUTE 141 AND 59 61 FT EAST OF THE FOG LINE OF THE STATE ROUTE 141 RAMP TO STATE ROUTE 59 ALIGNED WITH A YIELD SIGN 40.5 FT SOUTH OF A YIELD SIGN 31 FT SOUTHEAST OF A USGS GRAY WELL BOX 8.5 FT WEST OF A T-POST ENCASED IN ORANGE TUBING 1.7 FT SOUTHWEST OF A FIBERGLASS WITNESS POST AND SET IN THE TOP OF A 1 FT DIAMETER BY 4 FT DEEP BELLOWED OUT CONCRETE MONUMENT SURROUNDED BY A 2 FT DIAMETER BY 0.5 FT DEEP CONCRETE COLLAR

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)
20000	ML059	346+79.00	7280347.47	16579689.68															
20001	ML059	399+42.74	7285611.21	16579694.49															
30000	CULV379	1376+18.51	7283398.03	16579444.90															
30001	CULV379	1376+88.48	7283457.74	16579481.39															
30002	CULV379	1378+56.71	7283582.71	16579594.00															
30003	CULV379	1380+84.61	7283696.66	16579791.37															
30004	CULV379	1381+56.65	7283738.84	16579849.77															
30005	CULV379	1382+17.37	7283784.70	16579889.57															
30006	CULV379	1383+05.43	7283835.12	16579961.77															
30007	CULV379	1383+78.14	7283894.41	16580003.86															
31000	SR G AVE							1376+82.78	7283594.39	16579353.67	1377+61.27	7283638.32	16579418.72	1378+39.55	7283673.55	16579488.86			
31001	SR G AVE							1378+39.55	7283673.55	16579488.86	1379+47.54	7283723.05	16579584.84	1380+50.81	7283719.28	16579692.76			
31010	SR G AVE RET 1	1379+37.05	7283690.65	16579584.12															
31011	SR G AVE RET 1							1379+83.30	7283694.57	16579628.18	1380+21.96	7283702.03	16579664.48	1380+29.92	7283665.90	16579672.71			
31020	SR G AVE RET 2	1379+30.00	7283720.43	16579569.31															
31021	SR G AVE RET 2							1379+83.42	7283831.61	16579623.53	1380+22.33	7283753.96	16579662.30	1380+28.26	7283798.25	16579668.68			
31022	SR G AVE RET 2	1380+32.13	7283838.48	16579672.87															

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	
31000	SR G AVE										7° 21' 32.4" RT	78.494'	156.772'	1220.520'	2.521'	
31001	SR G AVE										29° 16' 58.8" RT	107.989'	211.256'	413.353'	13.873'	
31011	SR G AVE RET 1										88° 47' 13.2"	37.058'	58.655'	37.851'	15.121'	
31021	SR G AVE RET 2										51° 51' 32.4"	44.751'	83.307'	92.041'	10.303'	

108-23A
08-01-08

TRAFFIC CONTROL PLAN

There will be no off-site detour for US 59. One lane of traffic will be maintained during backfilling of the culvert under the bridge utilizing lane closure with flaggers. County Roads E26 G Avenue (east and west) will remain open.

108-26A
08-01-08

STAGING NOTES

Contractor shall remove bridge rail, contiguous guardrail, guardrail anchor, and approach curb in a single day, backfill adjacent to the driving surface of the bridge, and not allow overnight non-traversable slopes (3:1 or steeper).

Bridge rail, guardrail, anchor, and curb on opposite side of bridge may be removed on a separate day.

LINE STYLE LEGEND OF LANDSCAPE SHEETS

LINESTYLE	Design Element
- - - - - - - - - - - -	Living Snow Fence Single Row
==========:	Living Snow Fence Double Row
———	Mechanical Edge

CELL LEGEND OF LANDSCAPE SHEETS

CELL	Design Element	Plant Diameter
	Clearing	
	Proposed Shrub	
	Proposed Understory Tree	
	Proposed Conifer Tree	
	Proposed Overstory Tree	

PATTERN LEGEND OF LANDSCAPE SHEETS

Brush Clearing

Spary Area

Clearing & Grubbing

LINE STYLE LEGEND OF EROSION CONTROL SHEETS

LINESTYLE	Design Element
	Silt Fence
9"	Perimeter and Slope Sediment Control Device (9")
12"	Perimeter and Slope Sediment Control Device (12")
20"	Perimeter and Slope Sediment Control Device (20")
	Open-Throat Curb Intake Sediment Filter
	Concentrated Flow
	Rock Check and Rock Check Dam
	Sheet Flow

CELL LEGEND OF EROSION CONTROL SHEETS

CELL	Design Element
	Temporary Sediment Control basin
	Erosion Control for Circular Intake or Manhole Well
	Erosion Control for Rectangular Intake or Manhole Well
	Grate Intake Sediment Filter Bag
	Silt Basin
	Silt Fence Tail
	Stormwater Drainage Basin Discharge Point

PLAN VIEW COLOR LEGEND OF EROSION CONTROL 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
Black	(0)	Permanent Erosion Control Features
Blaze Orange	(222)	Temporary Erosion Control Features

SHADING	Design Color No.		Transparency
Citron	(234)	Mulching, All Types	50%
Light Brown	(238)	Special Ditch Control, Wood Excelsior Mat	0%
Grass Green	(233)	8FT Mow Strip	50%

PATTERN LEGEND OF EROSION CONTROL SHEETS

Seeding and Fertilizing

R — Seeding and Fertilizing (Rural)

U — Seeding and Fertilizing (Urban)

N — Native Grass Seeding

ST — Salt Tolerant Seeding

WL — Wetland Grass Seeding

WF — Wildflower Seeding

SOD — Sodding

Turf Reinforcement Mat Type 1

Turf Reinforcement Mat Type 2

Turf Reinforcement Mat Type 3

Turf Reinforcement Mat Type 4

Slope Protection, Wood Excelsior Mat

Transition Mat

Rock Features, Permanent

Rock Features, Temporary

EROSION CONTROL LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES R)

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER RR.1

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Morgan TWP.
T-85N R-40W
SEC. 36

Hanover TWP.
T-84N R-40W
SEC. 1

Goodrich TWP.
T-84N R-39W
SEC. 6

Otter Creek TWP.
T-85N R-39W
SEC. 31

59

372+00 373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00 381+00 382+00 383+00 384+00 385+00 386+00 387+00

2377+00 2378+00 2379+00 2380+00

Sta. 374+56.3
12'x12'x67' RCB
D.A.=835 A-VH
(UAC)

24" X 99 C.M.P.
(UAC)

Approx ROW (60')

Sta. 377+94.85 (ML059)
Begin Construction

Sta. 379+71.4
Skew 30 RT AH
32' x 30' I-Beam Bridge
D.A.=2100 A-VH
(UAC - Place RCB beneath)

Sta. 2379+55.83
Install 24" X 110' CMP
Skew = 23.1° LA
FL. N = 1358.402
FL. S = 1357.450

PC 2376+82.78 POB 2376+82.78

PI 2377+61.27

Δ = 07°21'34.12" (RT)
T = 78.49
L = 156.77
R = 1220.52
E = 2.52

PCC 2378+39.55

G AVE

Δ = 29°16'57.37" (RT)
T = 107.99
L = 211.26
R = 413.35
E = 13.87

PI 2379+47.54

Sta. 380+87.2, 62.1 Lt.
24"x 78 CMP
D.A.=1 A-H
(Fill and Abandon)

18" x 24 C.M.P.
(UAC)

Approx ROW (60')

Sta. 383+00.00 (ML059)
End Construction

PCC 2380+50.81 POE 2380+50.81

Sta. 380+50.81
Sta. 2380+50.81

Approx ROW (60')

POB 1376+97.63

Sta. 376+97.63
Sta. 1376+97.63

FH2

Approx ROW (60')

24" X 171 C.M.P.
(UAC)

PI 1378+10.96

PC 1377+88.18

PRC 1378+33.73

PRC 1378+33.73

PT 1378+95.65

PI 1378+64.70

G AVE

Δ = 02°54'27.24" (RT)
T = 30.97
L = 61.92
R = 1220.25
E = 0.39

Δ = 02°08'18.99" (LT)
T = 22.78
L = 45.55
R = 1220.25
E = 0.21

Sta. 377+14.1, 62.2 Rt.
30" x 70 RCP
D.A.=11 A-H
(UAC)

POE 1380+14.13

1380+00

SCS PI Sta 1380+14.10
Δ = 05°02'46.2"
Θ = 00°00'00.0"
Ls = 0.0000sf
Ts = 225.9120sf
Es = 20.7361sf

Groudline Intercept

EAST SOLDIER RIVER

Sta. 379+71.22
Build Twin 8' x 10' x 154' RCB
Skew = 30° RA
Lt. 1341.26
F.L.= Rt. 1345.52
Design No. 0225

US 59
0 50
FEET

Design No. 0225
File No. 32179

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER RR.2	

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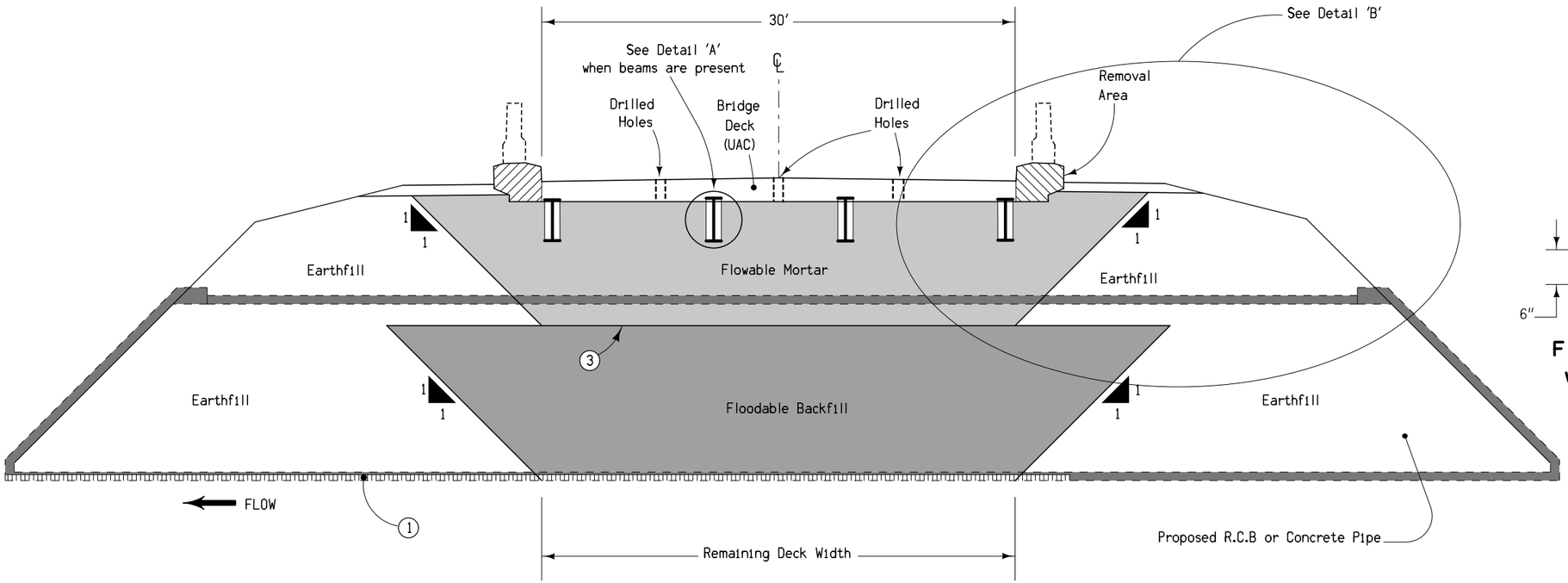
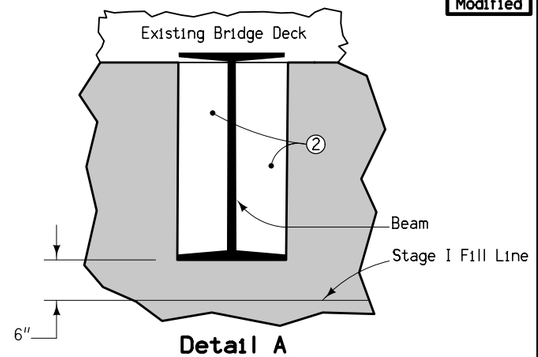
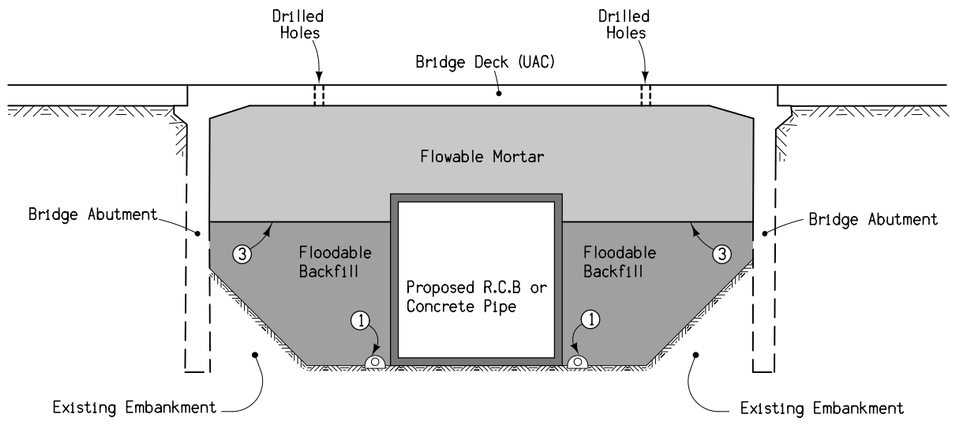
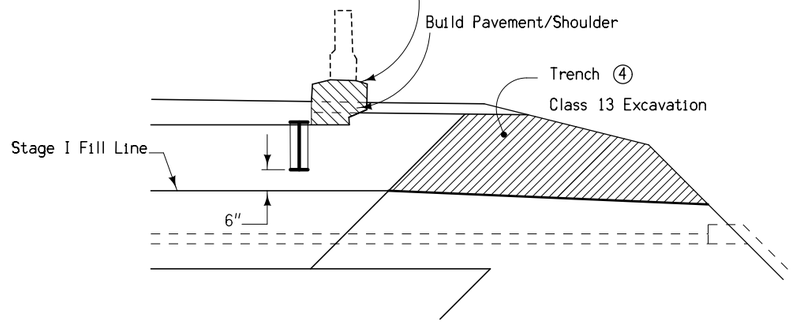




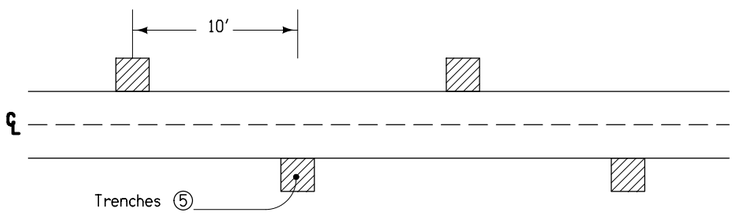
Detail A
Flange Filler Material Area when beams are present



Section along Centerline



Detail B (Beam Bridge)



Trench Layout

Denotes pay limits for flowable mortar

Denotes pay limits for flooded backfill

① 4" Subdrain at flowline elevation of culvert with 4" cover of porous backfill.

② Place Flange Filler Material to fill pocket area between flanges to prevent flowable mortar from building up. Flange Filler Material is incidental to flowable mortar.

③ Fill void with the maximum amount of Floodable Backfill possible. Distance from Floodable Backfill to bridge beams (when present) or bridge deck shall not exceed 5'.

④ Cut trenches in the soil plug to provide drainage for the flowable mortar. Backfill the trenches with open graded crushed stone, gravel, or recycled PCC to allow water to drain. Backfill material is incidental to flowable mortar.

⑤ Place trenches at 10' spacing with two trenches on each side of the roadway.

FILL FOR CULVERT USED IN BRIDGE REPLACEMENTS

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER U.1

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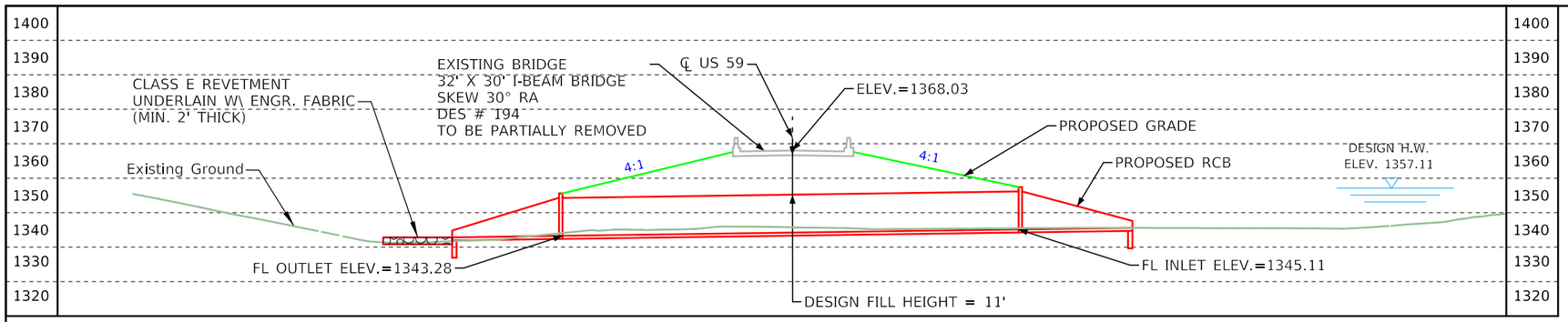
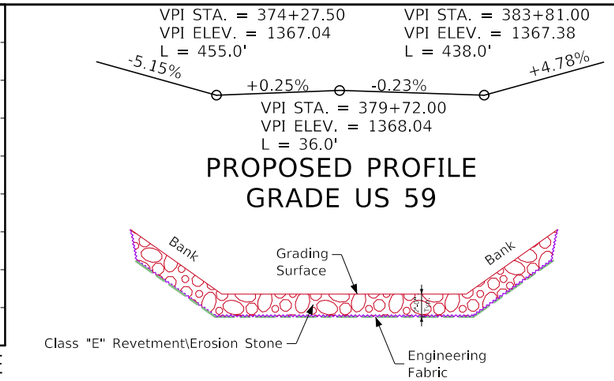
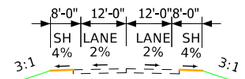




UTILTIES LEGEND:

- FO Arcadia Telephone Cooperative
- FO2 ICN
- T1 Windstream
- W Western Central Iowa Rural Water
- Western Iowa Power Co

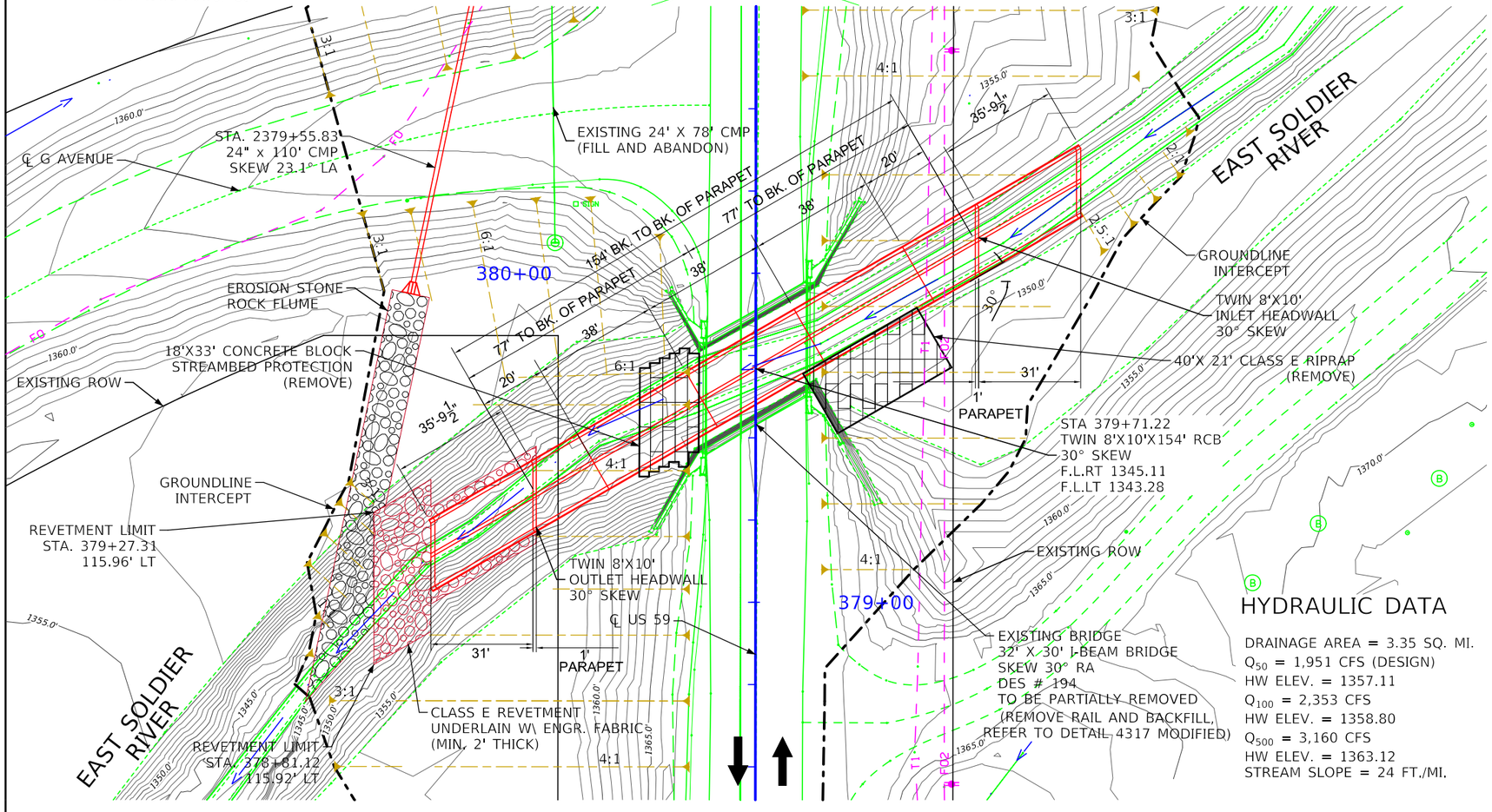
LONGITUDINAL SECTION ALONG ℄ OF CULVERT



0 20 FEET

TRAFFIC ESTIMATE

2025	AADT	3,200	V.P.D.
2045	AADT	3,700	V.P.D.
2025	DHV	38.0	V.P.H.
TRUCKS		12	%



SITUATION PLAN

HYDRAULIC DATA

DRAINAGE AREA = 3.35 SQ. MI.
Q_{50} = 1,951 CFS (DESIGN)
HW ELEV. = 1357.11
Q_{100} = 2,353 CFS
HW ELEV. = 1358.80
Q_{500} = 3,160 CFS
HW ELEV. = 1363.12
STREAM SLOPE = 24 FT./MI.

Estimated Revetment Quantities Included With Road Plans

Location	Revetment Class "E" (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	Excavation (CY)
Outlet	107		146	60
Rock Flume		167	184	103
Totals	107	167	330	163

Excavation quantity calculated from grading surface.
Quantities shown for information only. See Road Sheets.

N

BENCHMARK NO. CP 24059014
NORTHING: 7285783.945
EASTING: 16579668.86
ELEV. 1408.904

BENCHMARK NO. CP F 94
NORTHING: 7310322.422
EASTING: 16627374.37
ELEV. 1368.074

BENCHMARK NO. CP H 186
NORTHING: 7251200.108
EASTING: 16590760.15
ELEV. 1421.153

BENCHMARK NO. CP 24059015
NORTHING: 7286929.934
EASTING: 16579620.3
ELEV. 1439.036

BENCHMARK NO. CP 24059013
NORTHING: 7281846.238
EASTING: 16579639.74
ELEV. 1412.678

LOCATION

US 59 BRIDGE OVER
EAST SOLDIER RIVER
T-85N R-40W
SECTION 36
MORGAN TOWNSHIP
CRAWFORD COUNTY
FHWA NO. 21510
BRIDGE MAINT. NO. 2411.75059
LATITUDE 42.125801°
LONGITUDE -95.439531°

HYDRAULIC & STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER Jonathan E. Peterson 19518 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.

XX-XX-XXXX
Signature Date

Jonathan E. Peterson
Printed or Typed Name

My license renewal date is December 31, 2022

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

Preliminary
Not for Construction

Design For 30 Degree Skew RA

Twin 8'-0" x 10'-0" x 154'-0" Reinforced Concrete Box Culvert

Preliminary Situation Plan

STA. 379+71.22 (US 59)
Turn-in Date: October 2022

Crawford County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0225 Design Sheet No. 1 of 3 FHWA/Asset 21510

NOTES:
ALL UNITS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.
DRAINAGE THROUGH EXISTING CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER V.1

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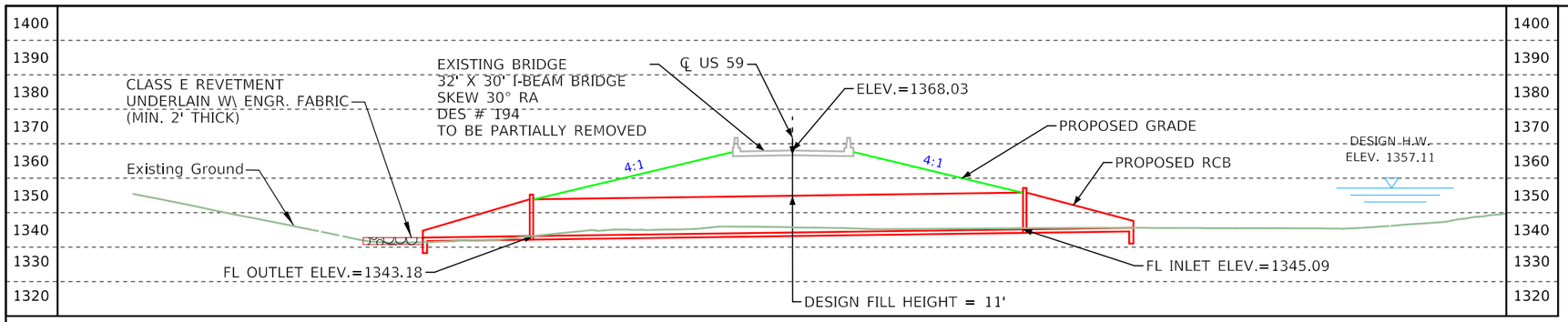
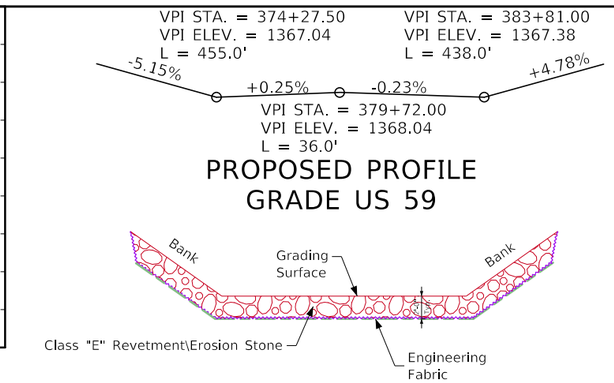
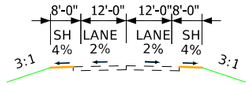


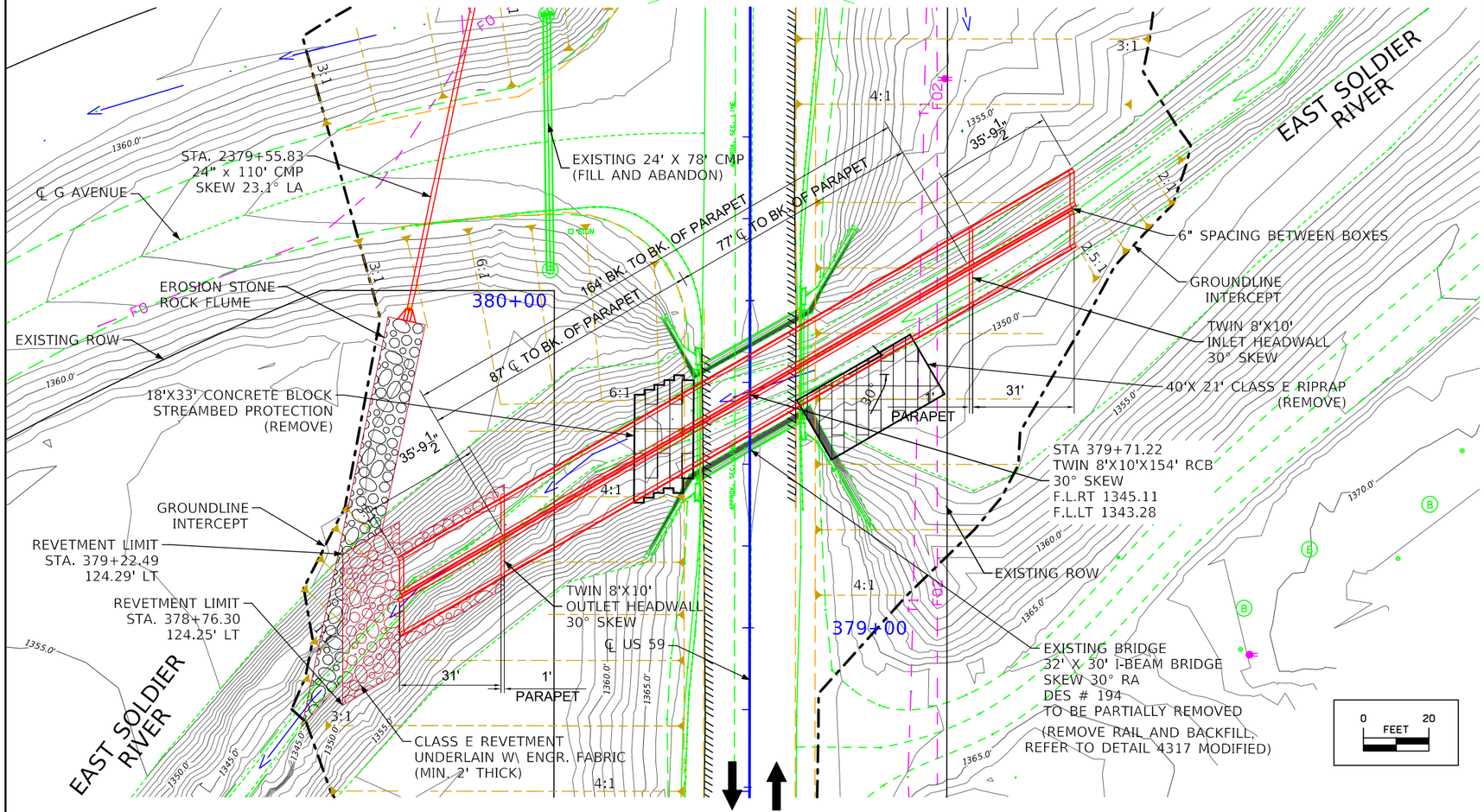


UTILTIES LEGEND:

FO Arcadia Telephone Cooperative
FO2 ICN
T1 Windstream
W Western Central Iowa Rural Water
Western Iowa Power Co

LONGITUDINAL SECTION ALONG ℄ OF CULVERT





SITUATION PLAN

NOTES:
ALL UNITS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.
DRAINAGE THROUGH EXISTING CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
6 INCH GAP BETWEEN CULVERT BARRELS

Estimated Revetment Quantities Included With Road Plans

Location	Revetment Class "E" (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	Excavation (CY)
Outlet	107		146	60
Rock Flume		167	184	103
Totals	107	167	330	163

Excavation quantity calculated from grading surface.
Quantities shown for information only. See Road Sheets.

N

BENCHMARK NO. CP 24059014
NORTHING: 7285783.945
EASTING: 16579668.86
ELEV. 1408.904

BENCHMARK NO. CP F 94
NORTHING: 7310322.422
EASTING: 16627374.37
ELEV. 1368.074

BENCHMARK NO. CP H 186
NORTHING: 7251200.108
EASTING: 16590760.15
ELEV. 1421.153

BENCHMARK NO. CP 24059015
NORTHING: 7286929.934
EASTING: 16579620.3
ELEV. 1439.036

BENCHMARK NO. CP 24059013
NORTHING: 7281846.238
EASTING: 16579639.74
ELEV. 1412.678

LOCATION

US 59 BRIDGE OVER
EAST SOLDIER RIVER
T-85N R-40W
SECTION 36
MORGAN TOWNSHIP
CRAWFORD COUNTY
FHWA NO. 21510
BRIDGE MAINT. NO. 2411.75059
LATITUDE 42.125801°
LONGITUDE -95.439531°

HYDRAULIC DATA

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HW ELEV. = 1357.11
Q_{100} = 2,353 CFS
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HW ELEV. = 1363.12
STREAM SLOPE = 24 FT./MI.

TRAFFIC ESTIMATE

2025 AADT 3,200 V.P.D.
2045 AADT 3,700 V.P.D.
2025 DHV 38.0 V.P.H.
TRUCKS 12 %

Design For 30 Degree Skew RA

TWIN 8'-0" X 10'-0" X 164'-0" PRECAST CONCRETE BOX CULVERT

Preliminary Situation Plan

STA. 379+71.22 (US 59)
Turn-in Date: October 2022

Crawford County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0225 Design Sheet No. 2 of 3 FHWA/Asset 21510

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER V.2	

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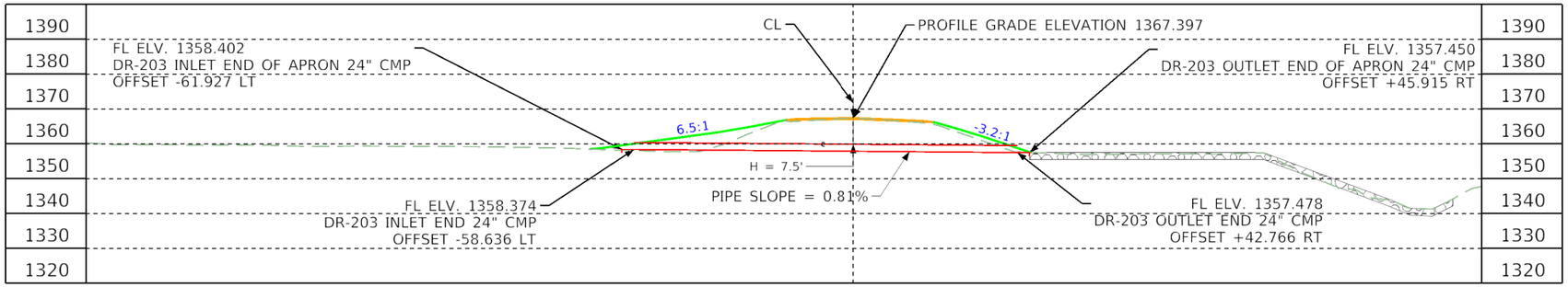


BENCHMARK NO. CP 24059013
NORTHING: 7281846.238
EASTING: 16579639.74
ELEV. 1412.678

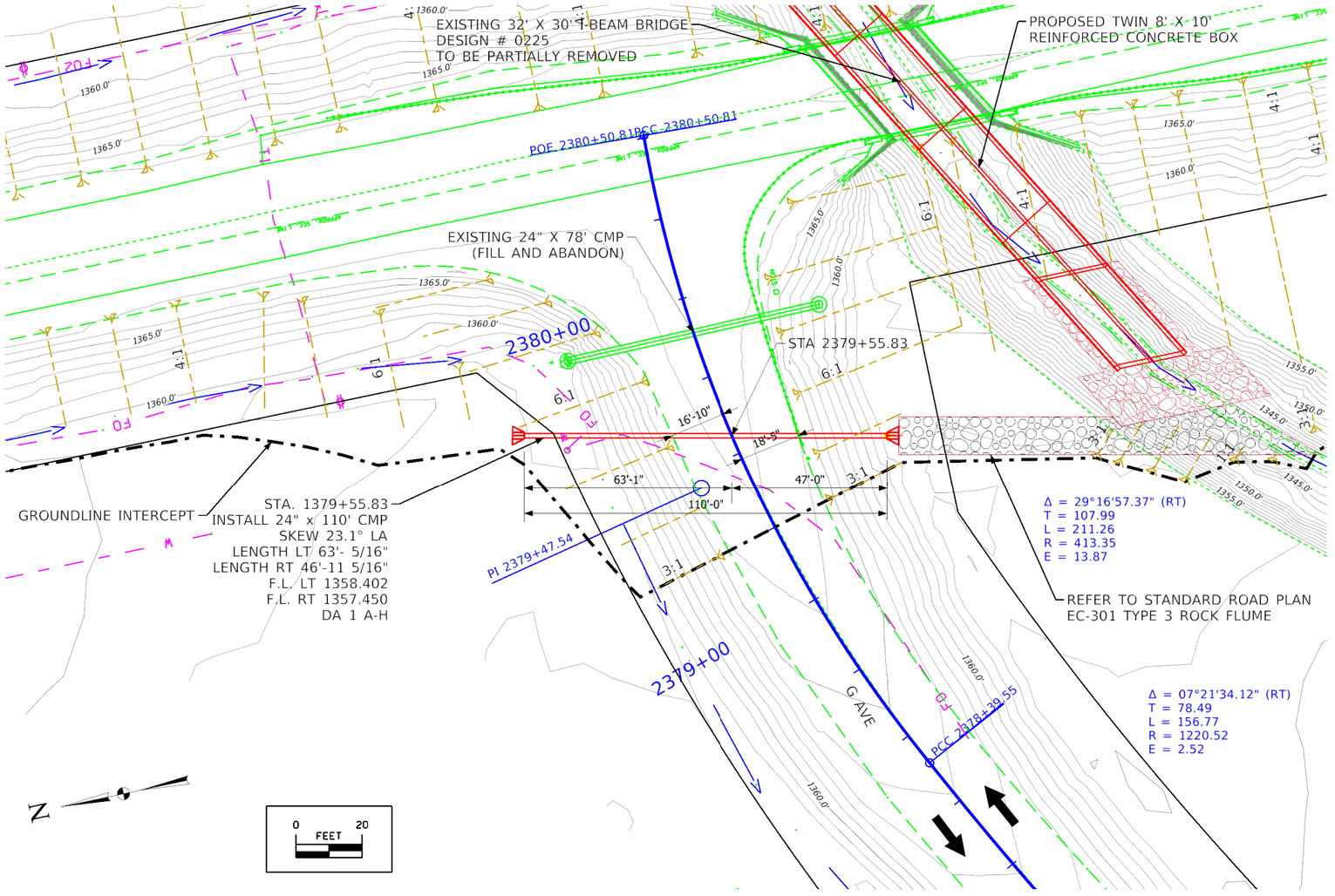
BENCHMARK NO. CP 24059014
NORTHING: 7285783.945
EASTING: 16579668.86
ELEV. 1408.904

BENCHMARK NO. CP 24059015
NORTHING: 7286929.934
EASTING: 16579620.3
ELEV. 1439.036

BENCHMARK NO. CP F 94
NORTHING: 7310322.422
EASTING: 16627374.37
ELEV. 1368.074

BENCHMARK NO. CP H 186
NORTHING: 7251200.108
EASTING: 16590760.15
ELEV. 1421.153

LONGITUDINAL SECTION ALONG ℄ CULVERT



UTILTIES LEGEND:

FO Arcadia Telephone Cooperative
FO2 ICN
T1 Windstream
W Western Central Iowa Rural Water
Western Iowa Power Co

HYDRAULIC DATA

Drainage Area = 1.0 Acres
Q_{50} = 4 CFS
HW Elev. = 1359.36

LOCATION

County Road E26
G Avenue
T-85N R-40W
Section 36
Morgan Township
Crawford County
Latitude 42.126042°
Longitude -95.439814°

PIPE PLAT

Design For 23.1° Skew LA
24" x 110'
Corrugated Metal Pipe

PLAT PLAN

STA. 2379+55.83 (G AVENUE)
October 2022

Crawford County
IOWA DEPARTMENT OF TRANSPORTATION

Design No. N/A Design Sheet No. 3 of 3 FHWA/Asset

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER V.3	

3:34:58 PM 10/25/2022 kcr c:\pw_work\pwmain\kyle.rockwell\d1322862\ORD_24059060_DOT_PIPE_CULVERTS_Z06.dgn

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
Concrete	
(0)	Barrier Concrete
(0)	Barrier Concrete Footing
(0)	Curb Gutter
(48)	Flowable Mortar
(0)	Median Concrete
(0)	PCC Pavement
(0)	Sidewalk
Shoulder	
(209)	Shoulder HMA
(0)	Shoulder PCC
(6)	Shoulder Granular
Existing	
(0)	Existing Pavement
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
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 Substrata
(48)	Broken Weathered Substrata
(3)	Core Out Substrata
(203)	Existing Pavement Substrata
(6)	Loam Substrata
(80)	Rock Substrata
(4)	Select Sand Substrata
(3)	Shale Substrata
(10)	Topsoil Substrata
Unsuitable / Waste	
(3)	Unsuitable Type A
(13)	Unsuitable Type B
(11)	Unsuitable Type C
(3)	Waste

NOTES:

NOTES:

CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER W.1

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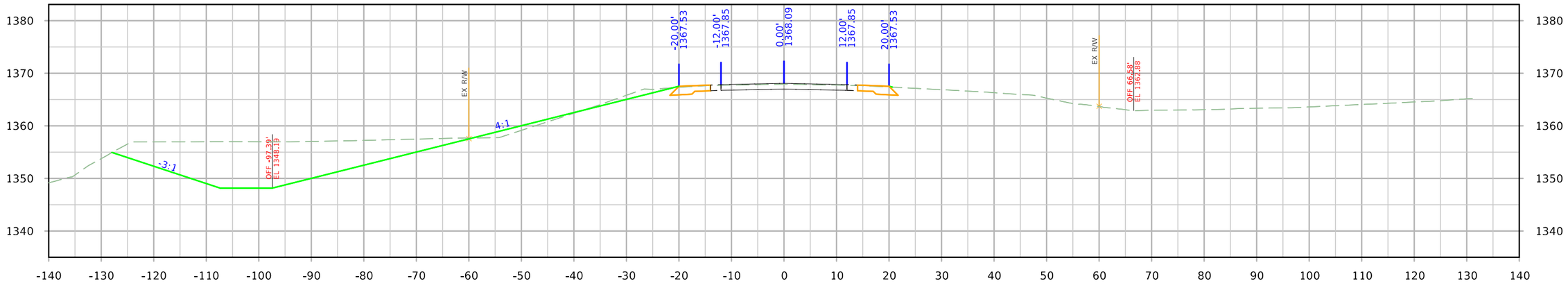
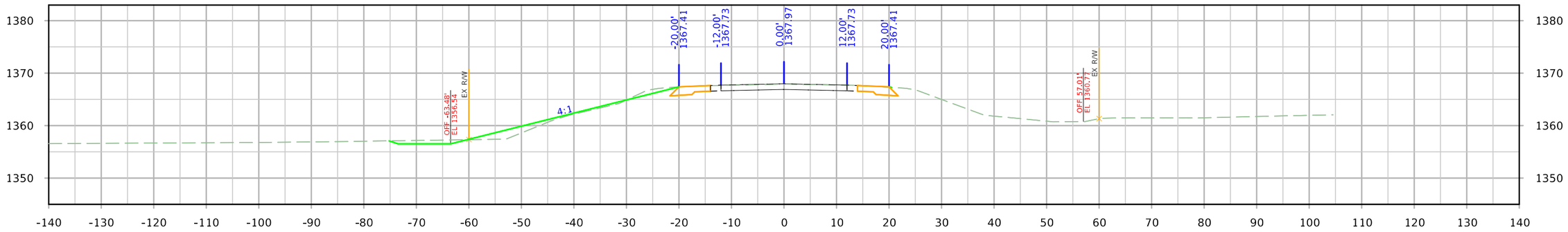


STA. 378+50.00



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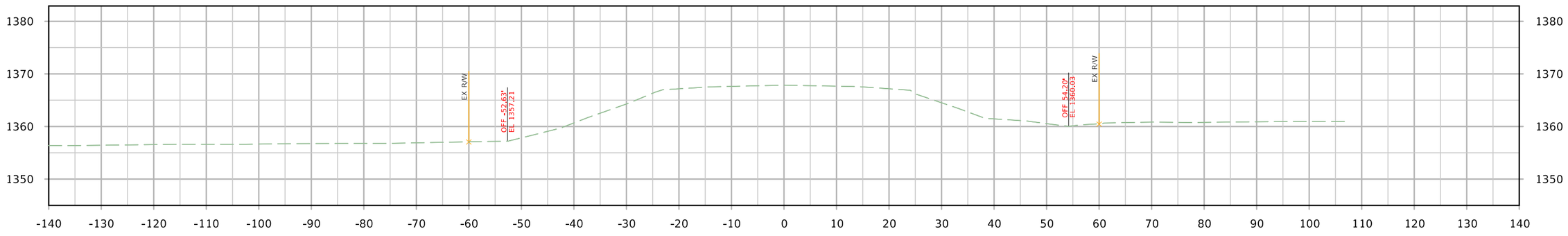

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FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER W.2	

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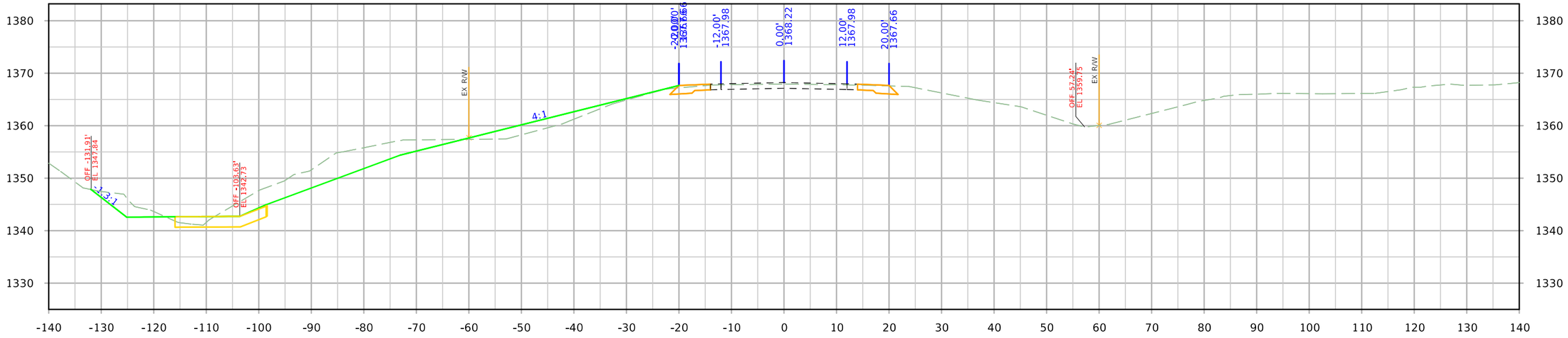
ML - US59



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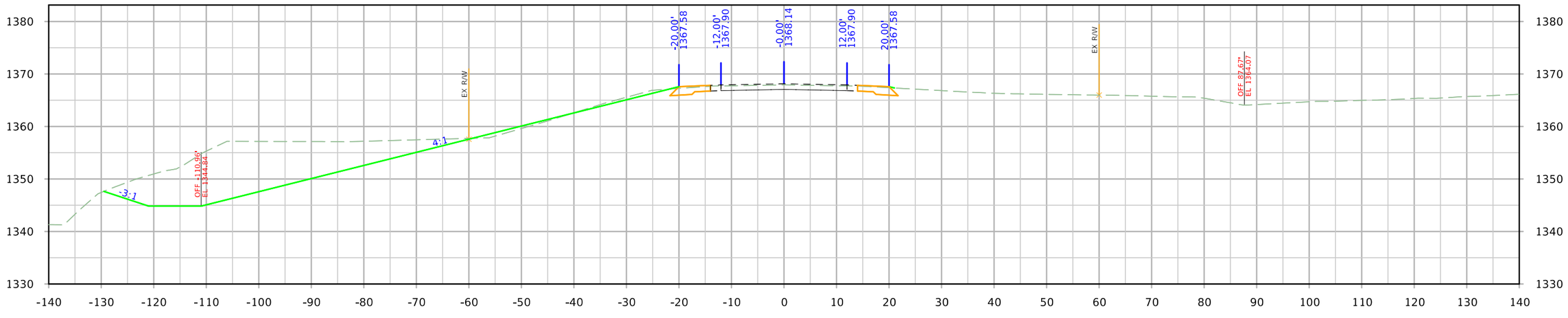

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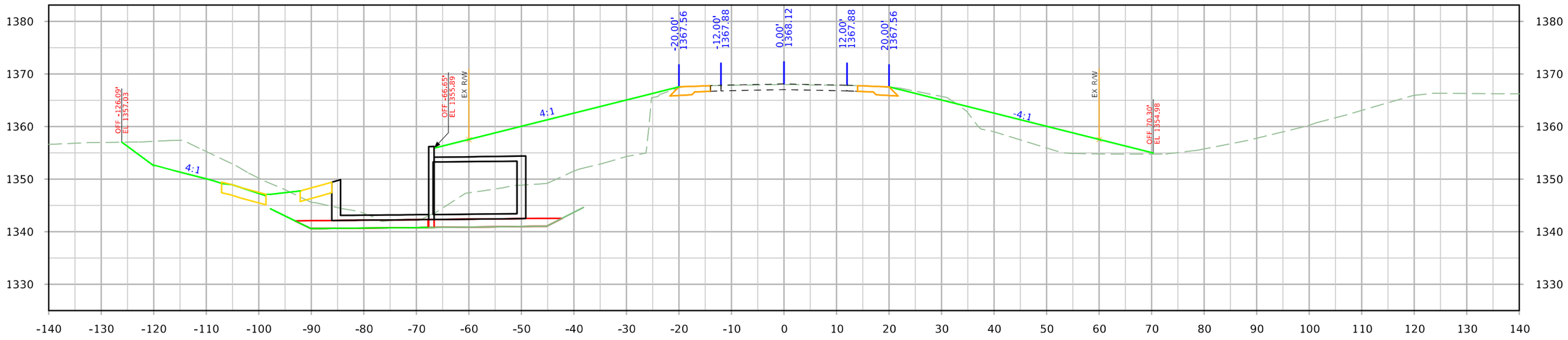

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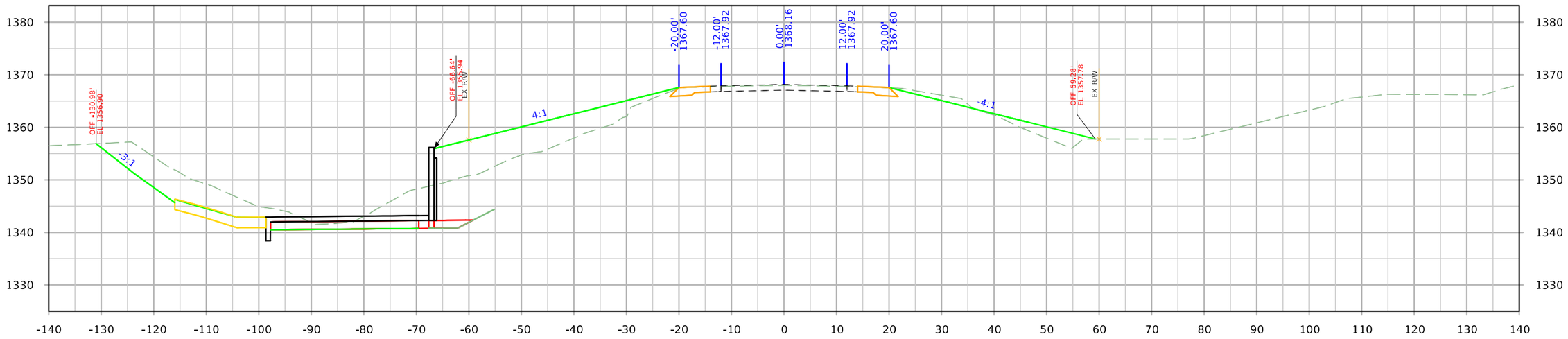

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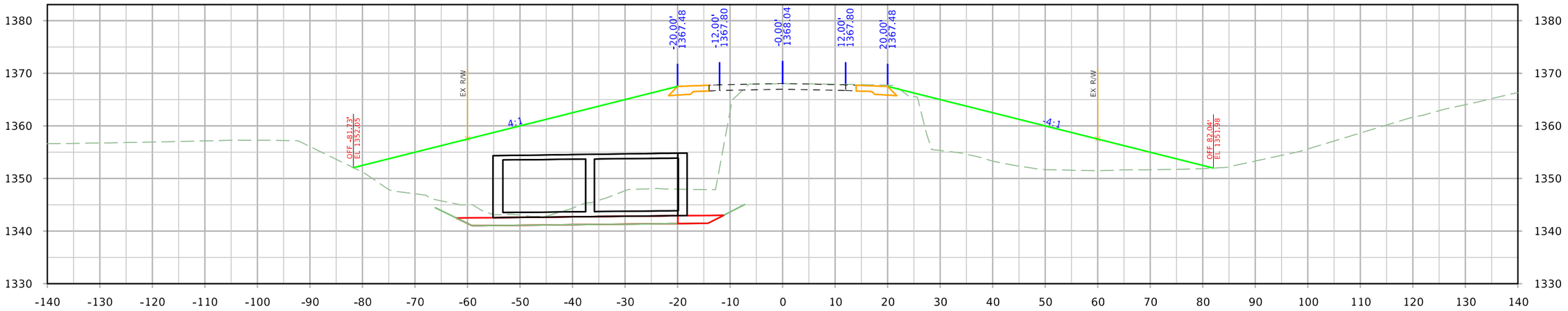

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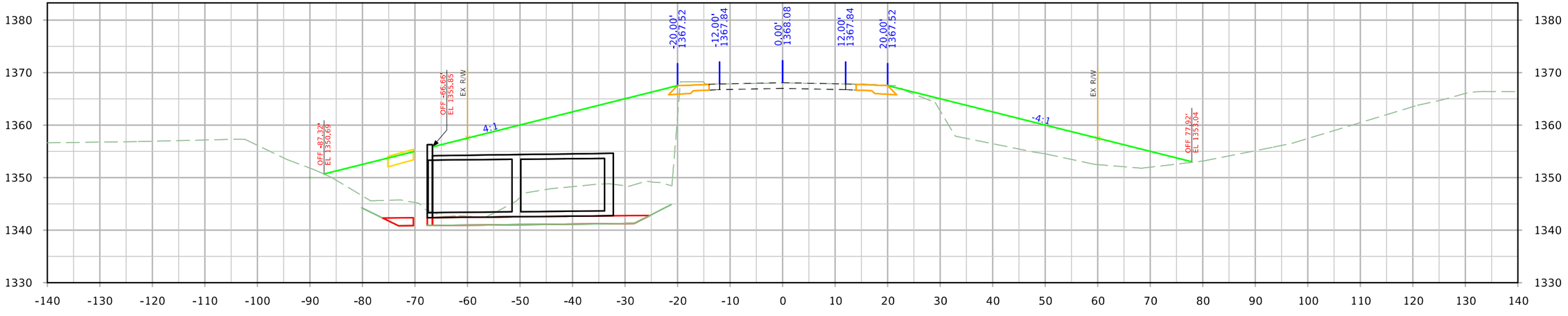

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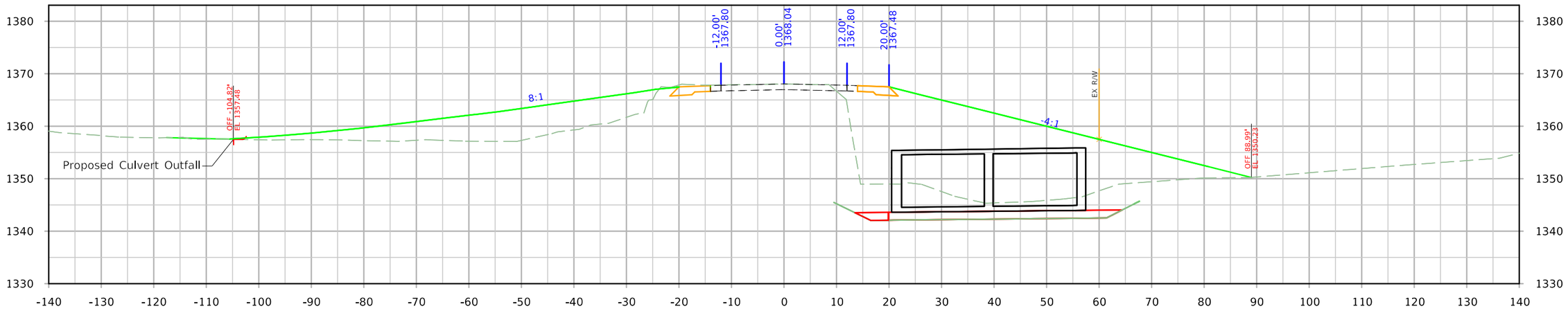
ML - US59



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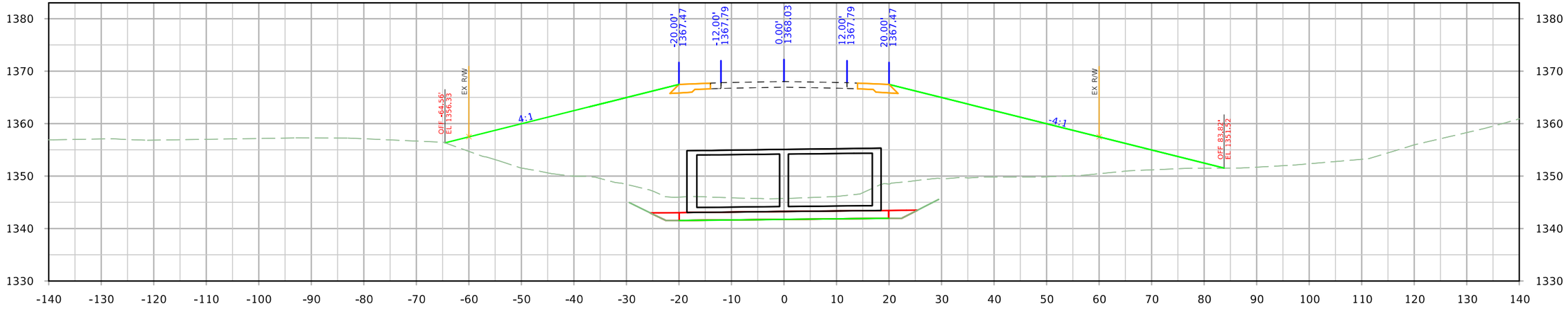

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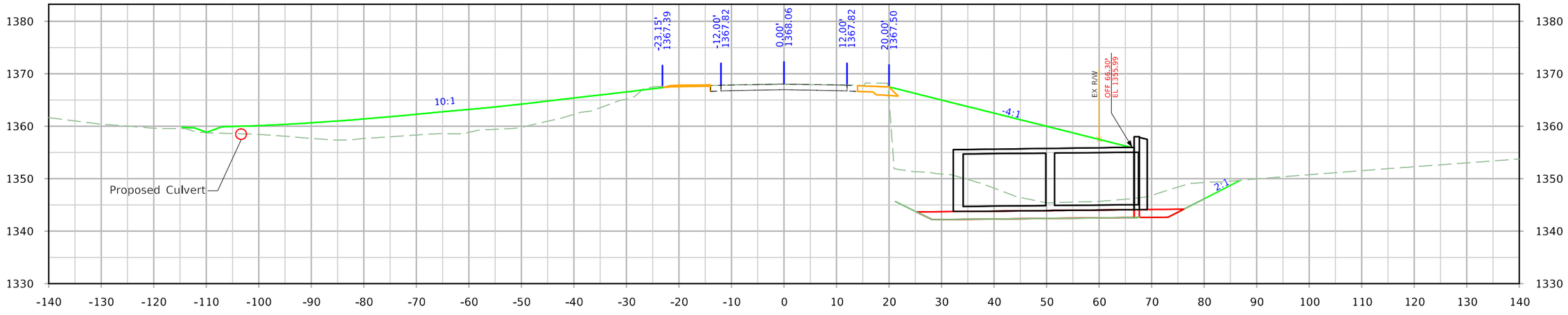

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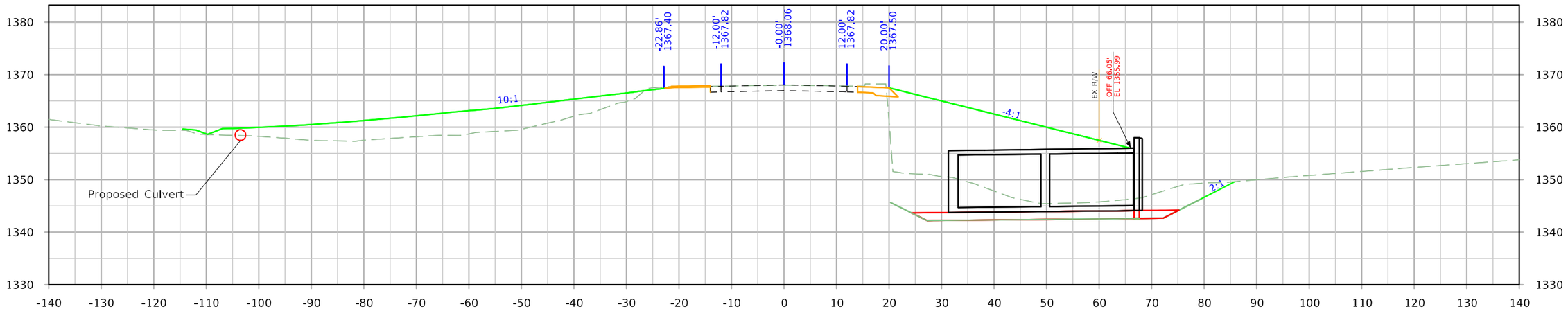

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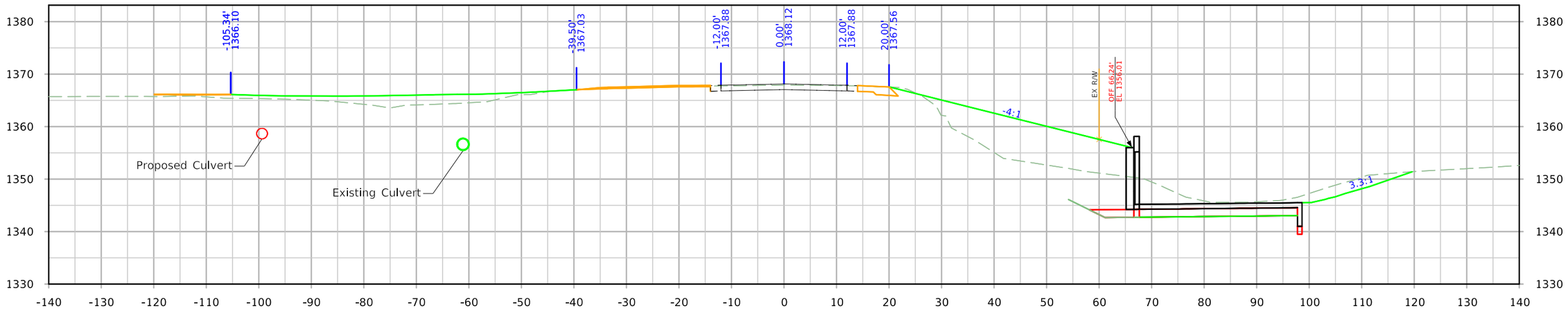

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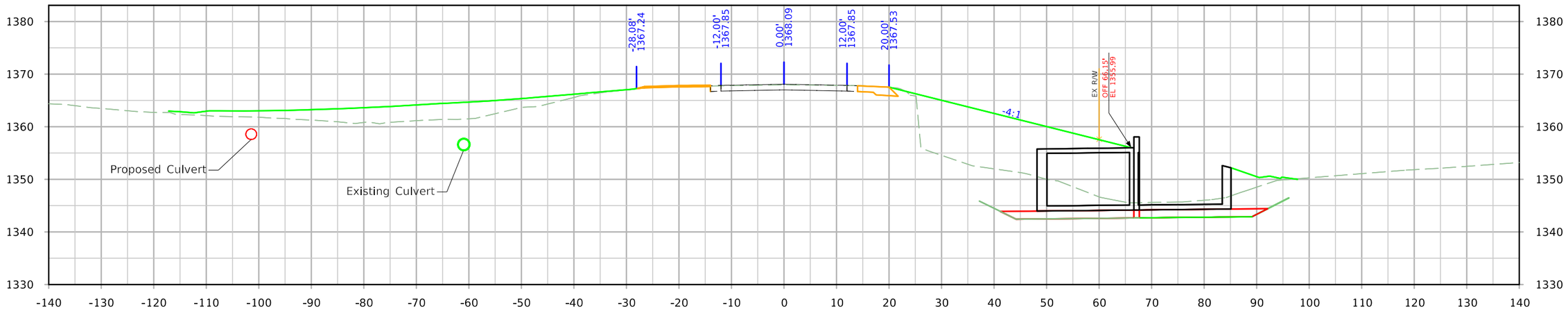

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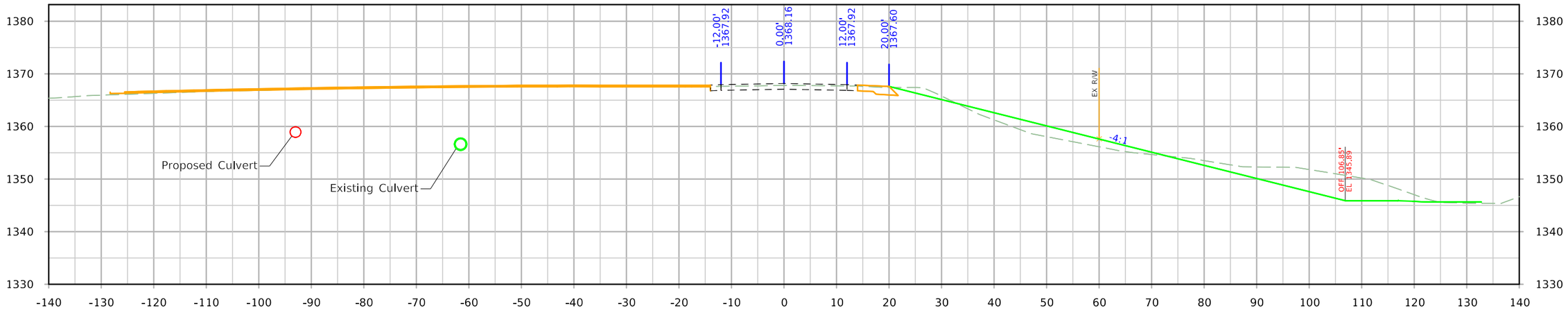

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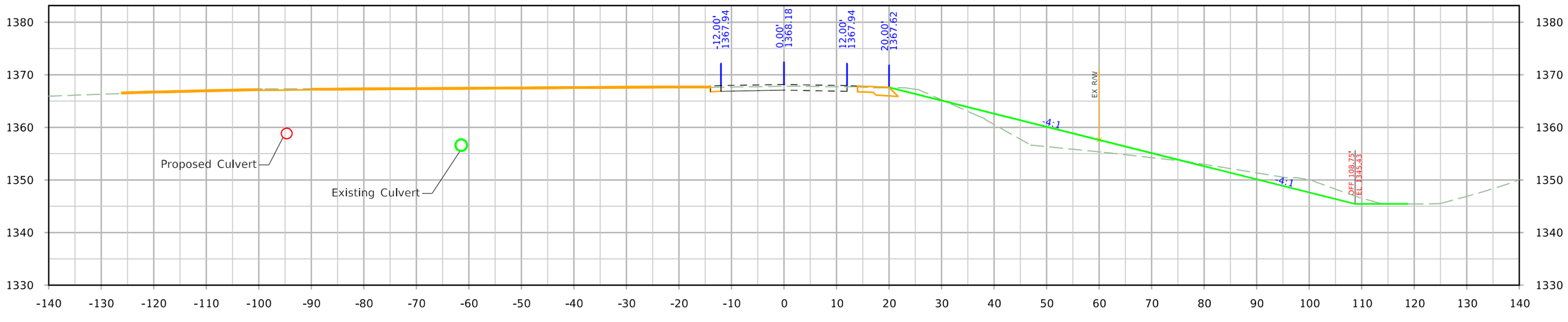

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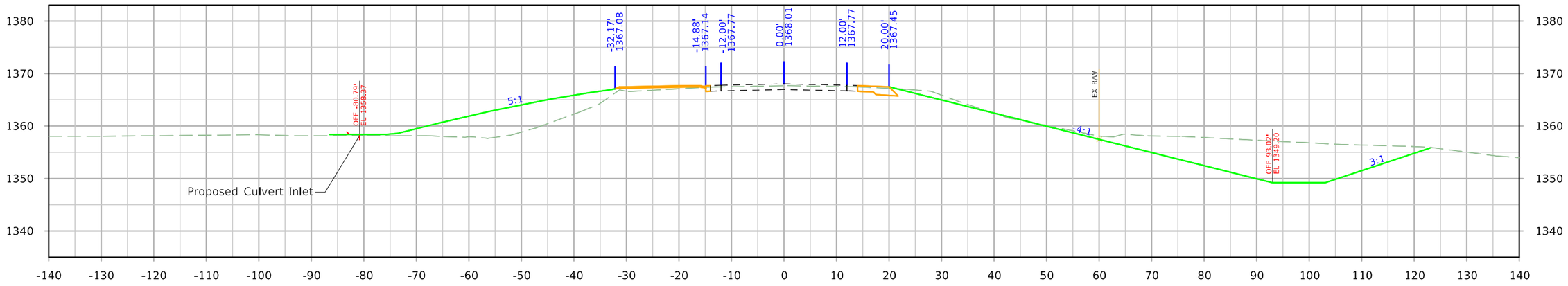

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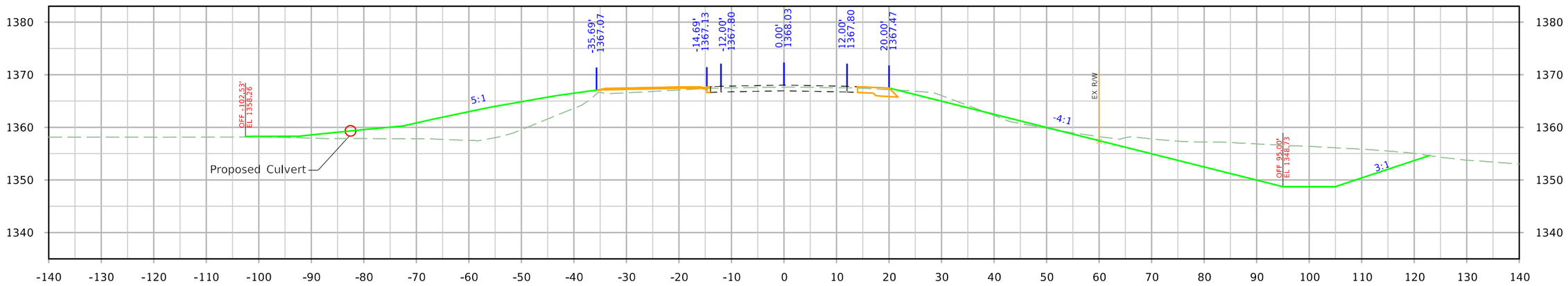

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FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER W.10	

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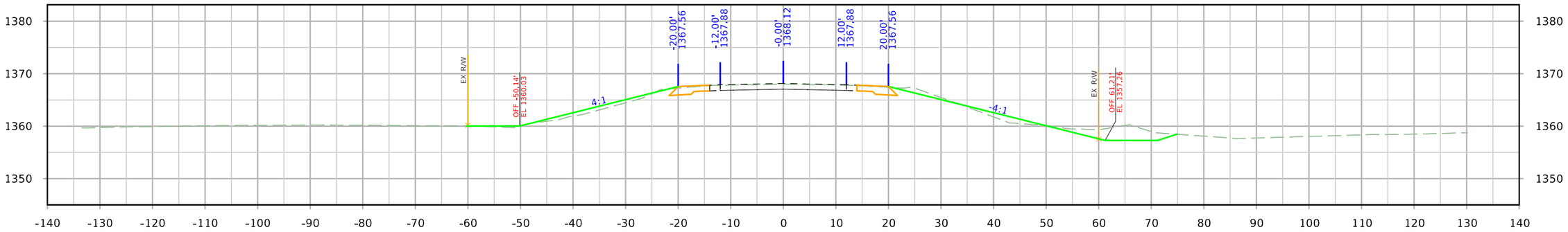

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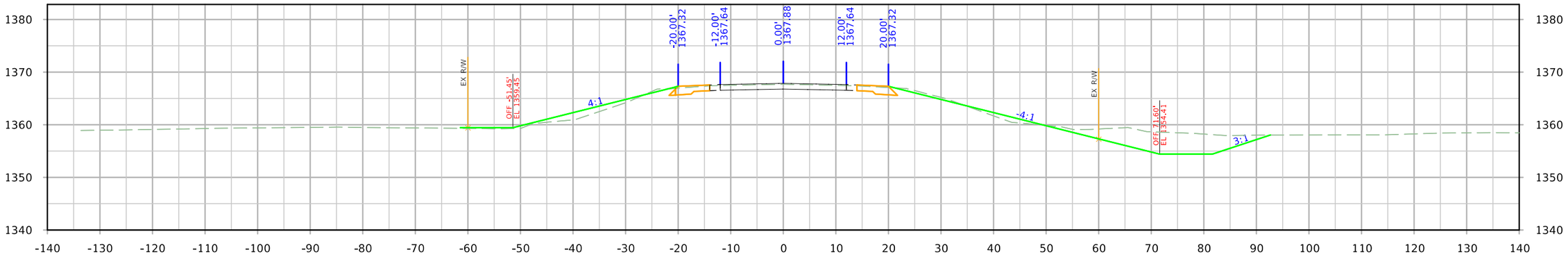

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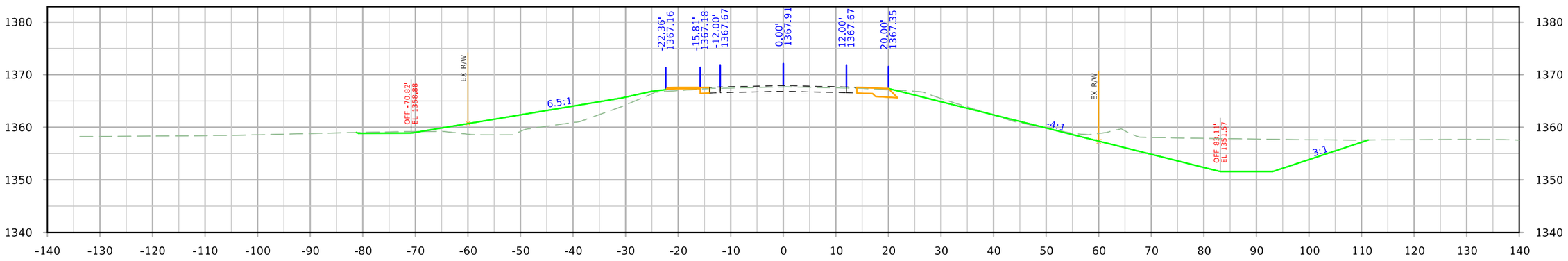

STA. 381+50.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER W.11	

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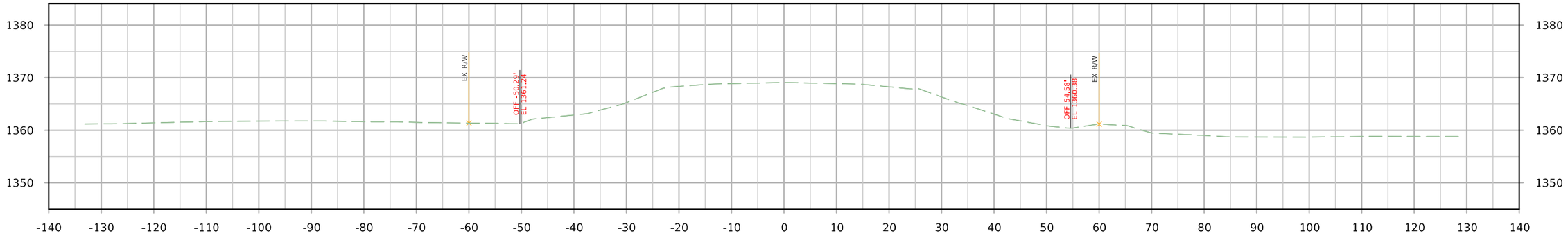

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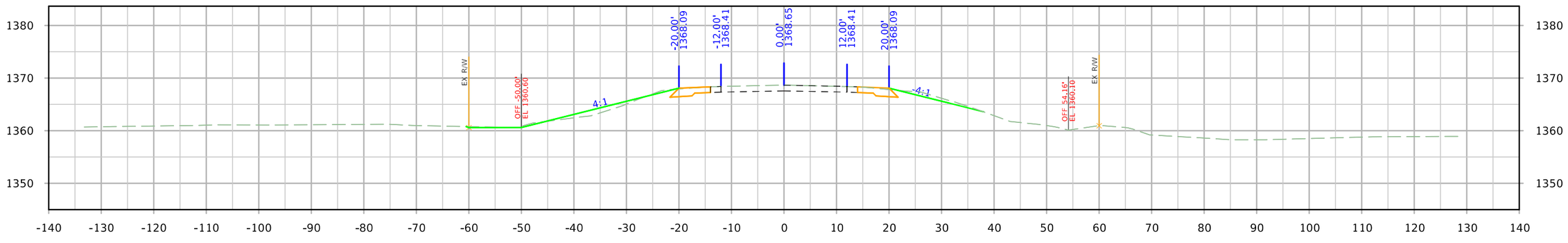

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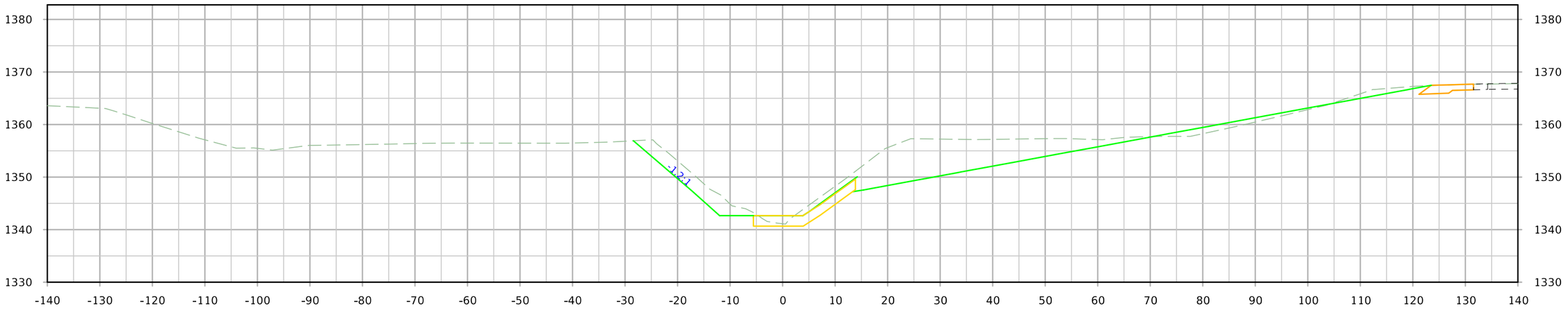
RCB Excavation



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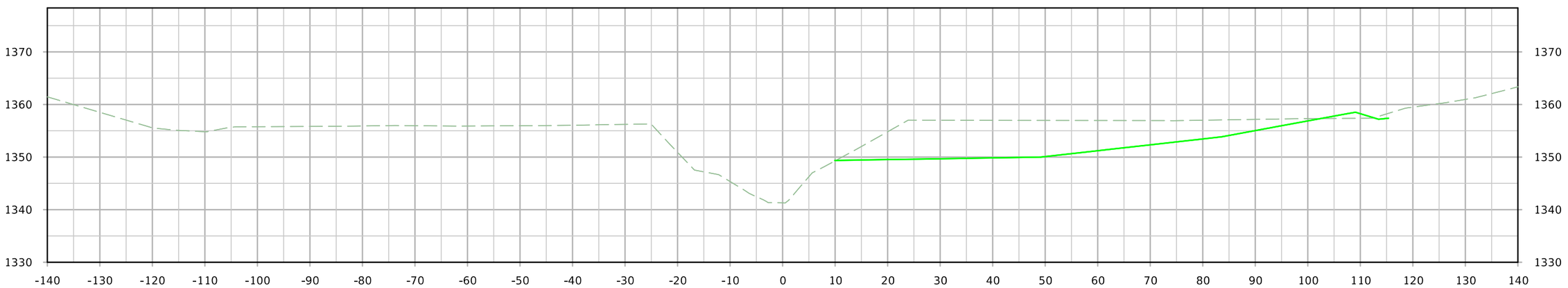

STA. 1378+00.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.1	

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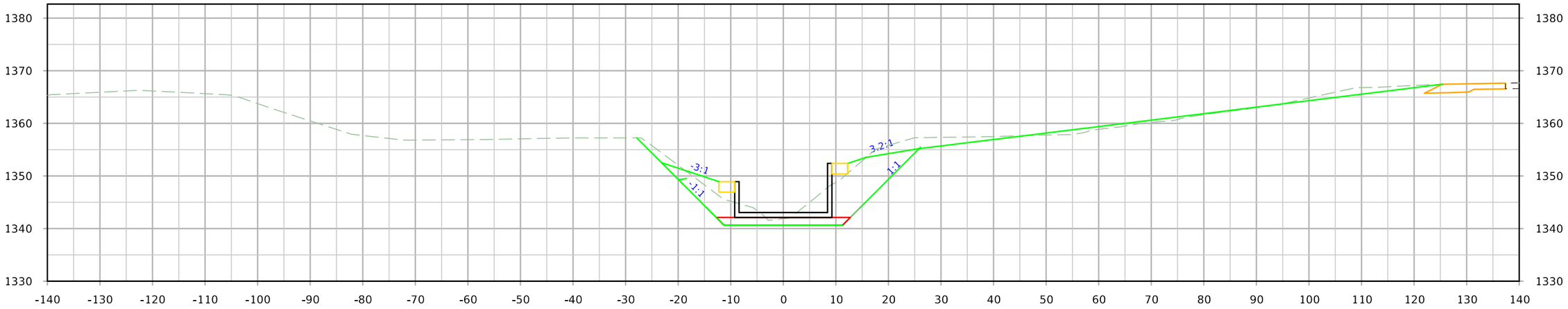
RCB Excavation



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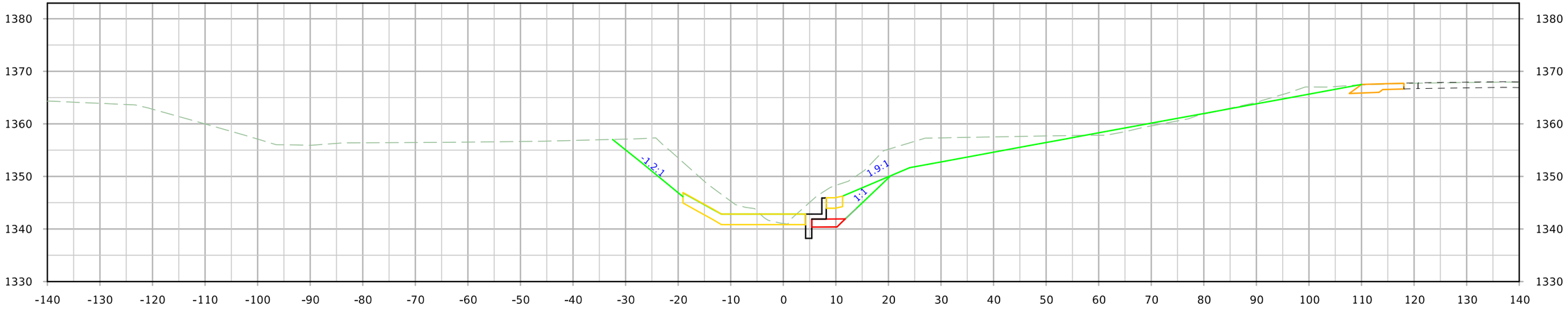

STA. 1378+52.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.2

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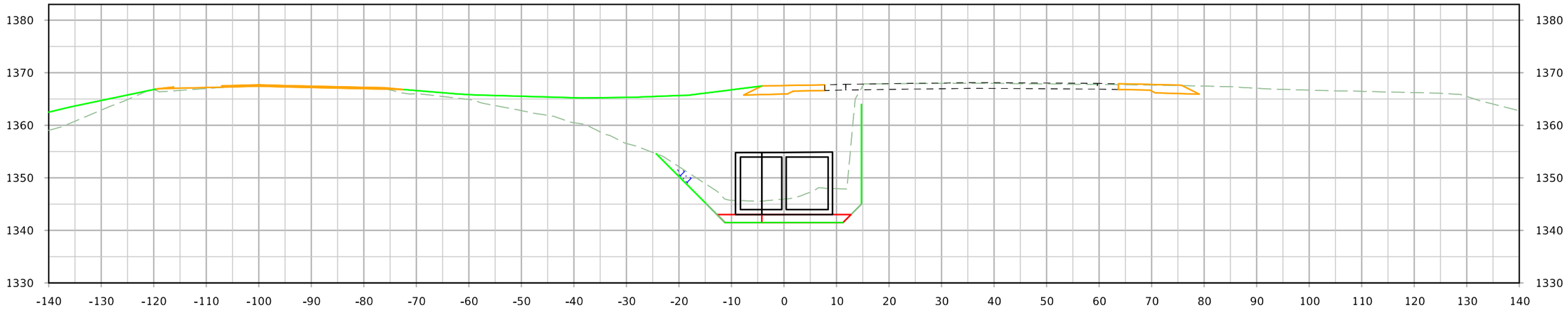
RCB Excavation



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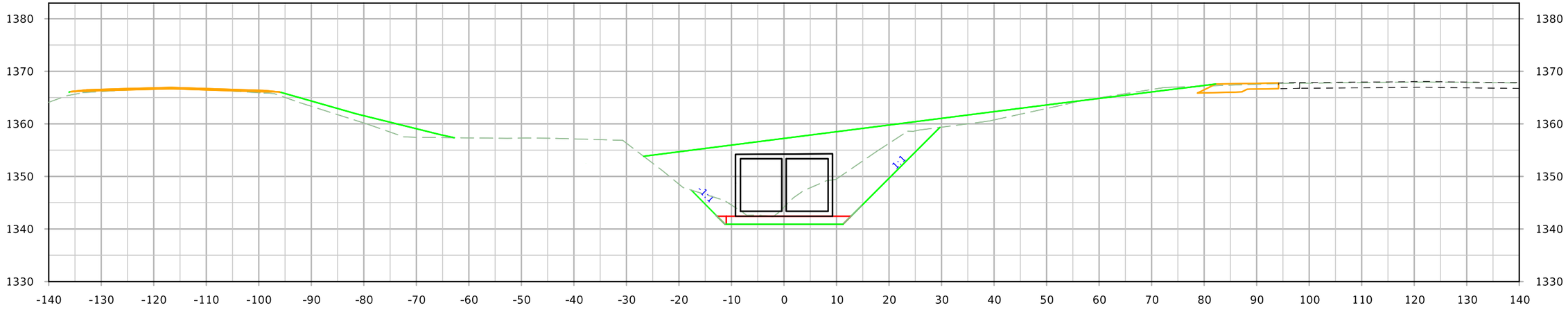

STA. 1379+00.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.3

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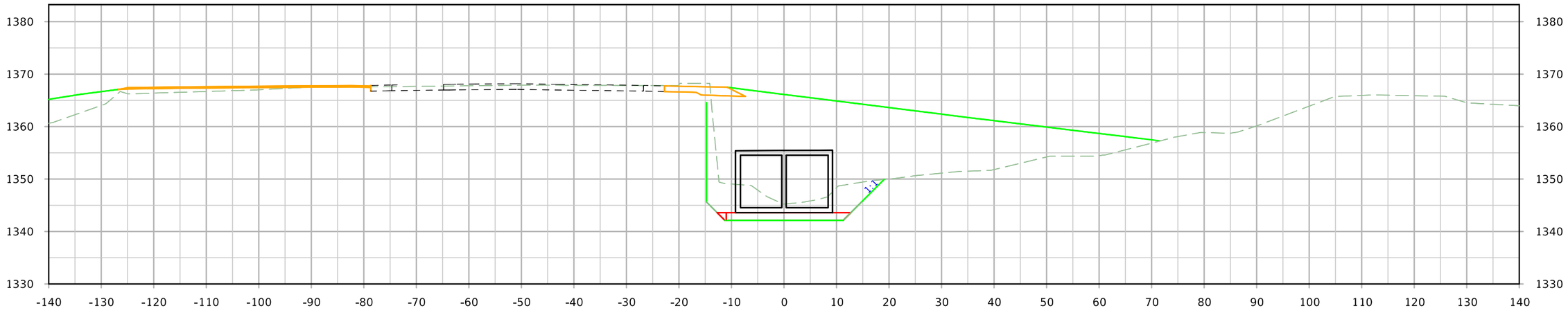
RCB Excavation



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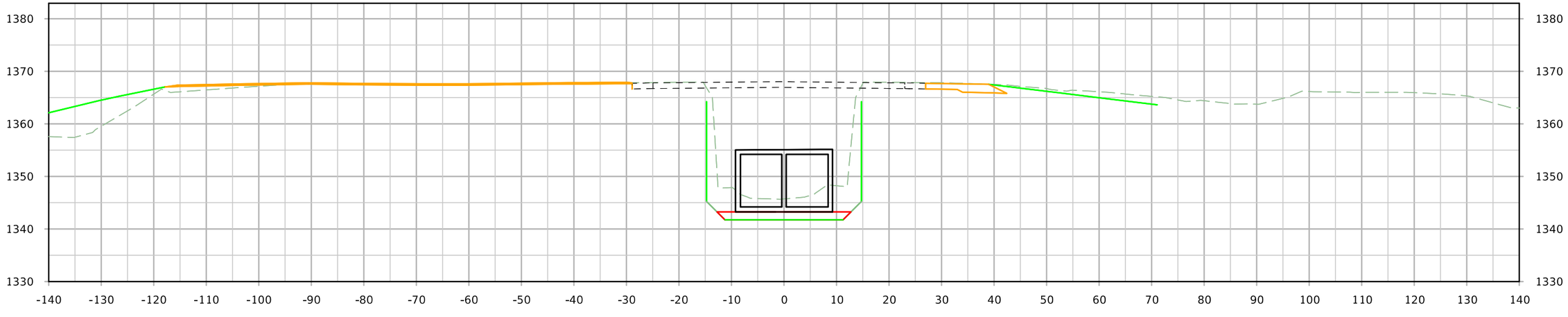

STA. 1379+71.22

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.4

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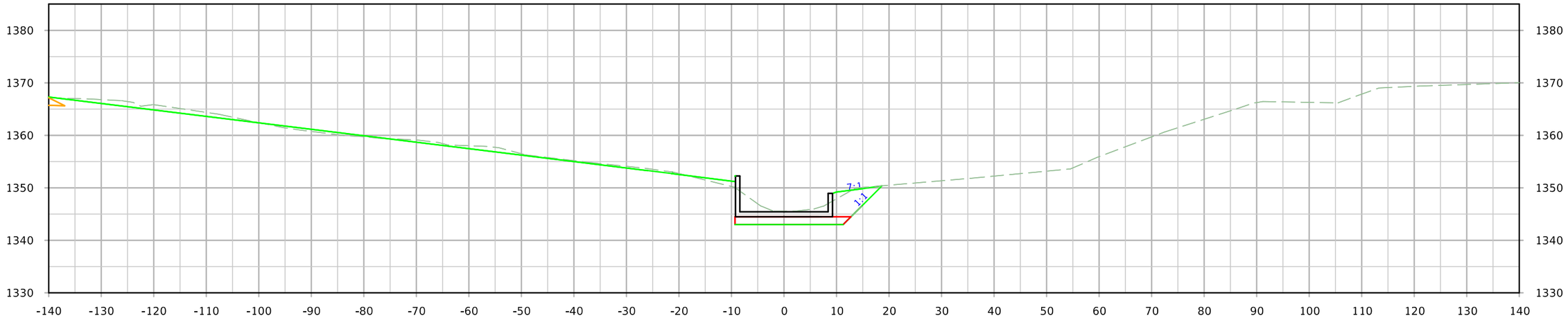
RCB Excavation



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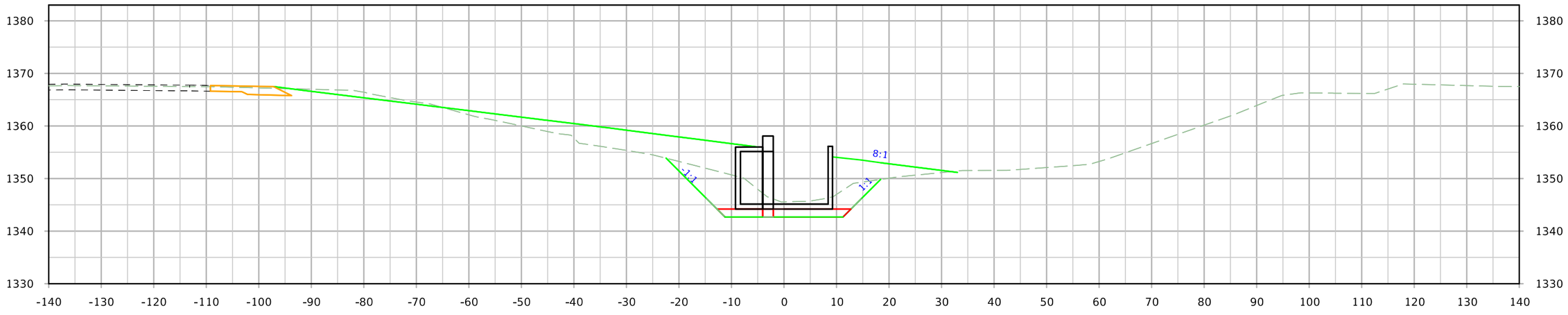

STA. 1380+50.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.5

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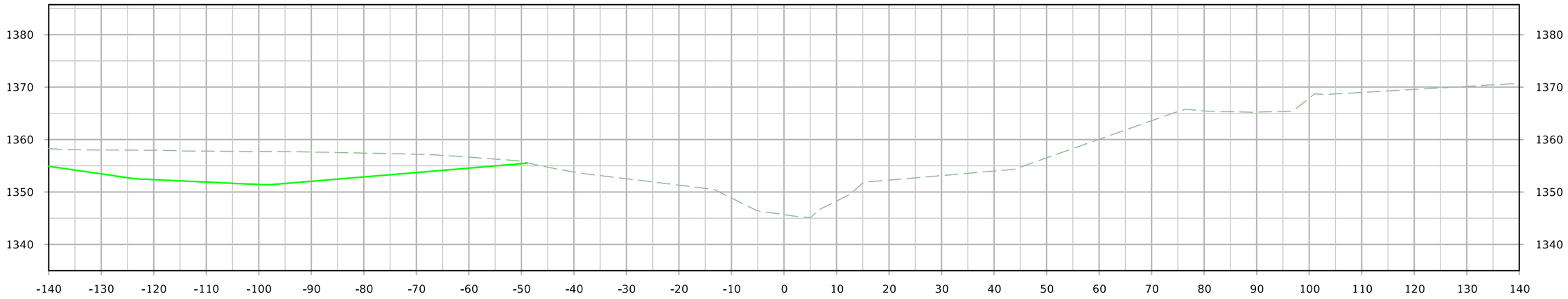
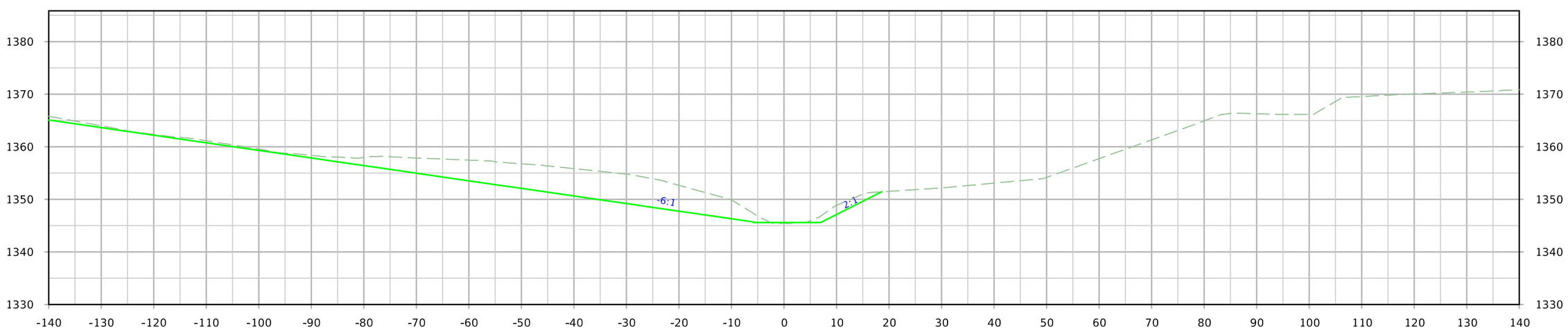
RCB Excavation



STA. 1381+50.00



STA. 1381+00.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.6

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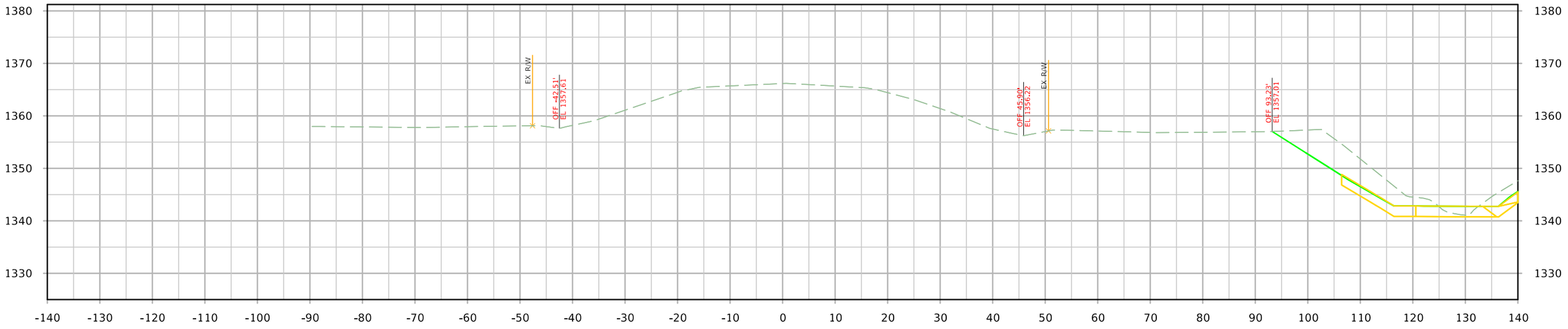
G AVENUE



STA. 2379+00.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.7	

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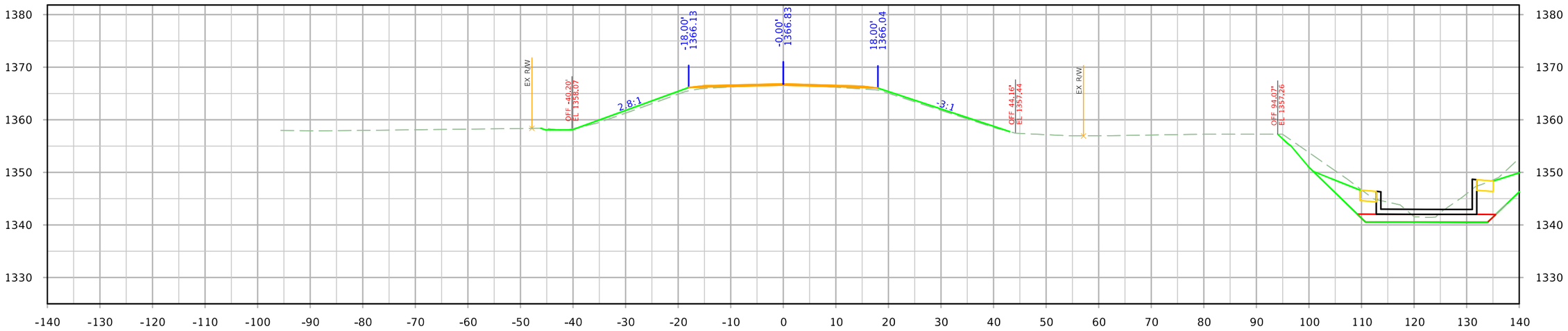
G AVENUE



STA. 2379+25.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.8	

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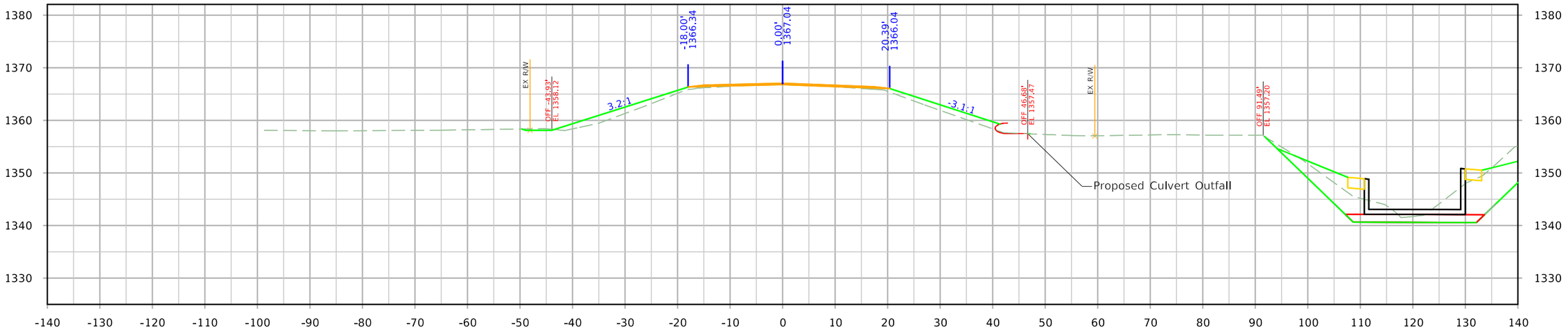

STA. 2379+35.32

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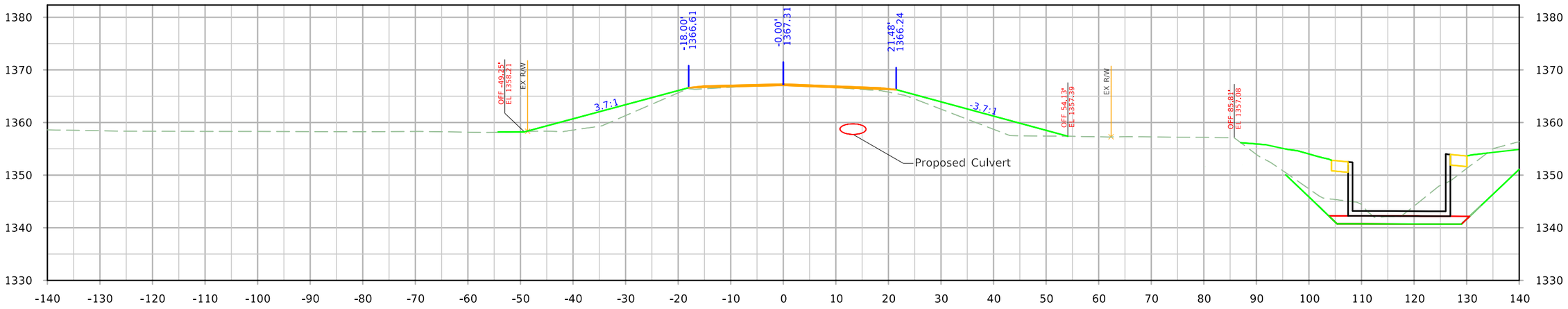

STA. 2379+50.00

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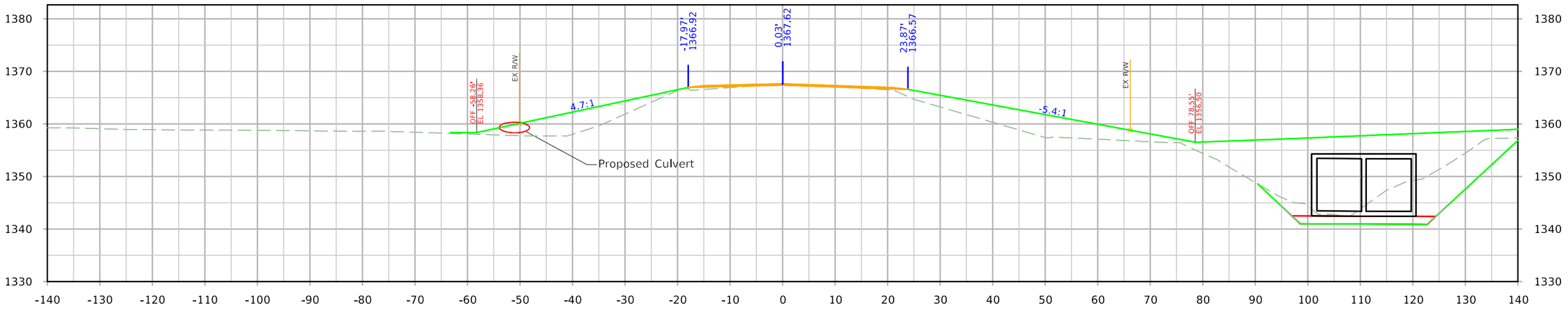

STA. 2379+75.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.11	

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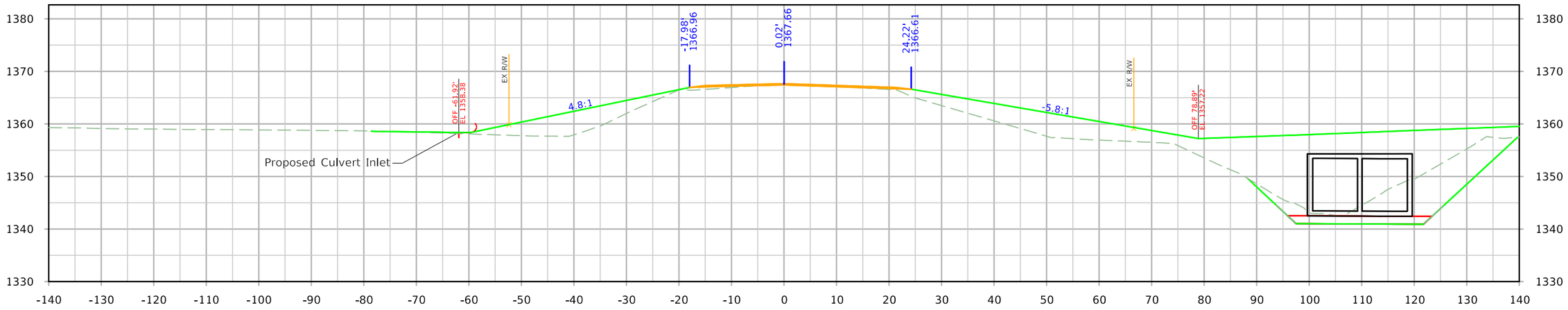

STA. 2379+78.51

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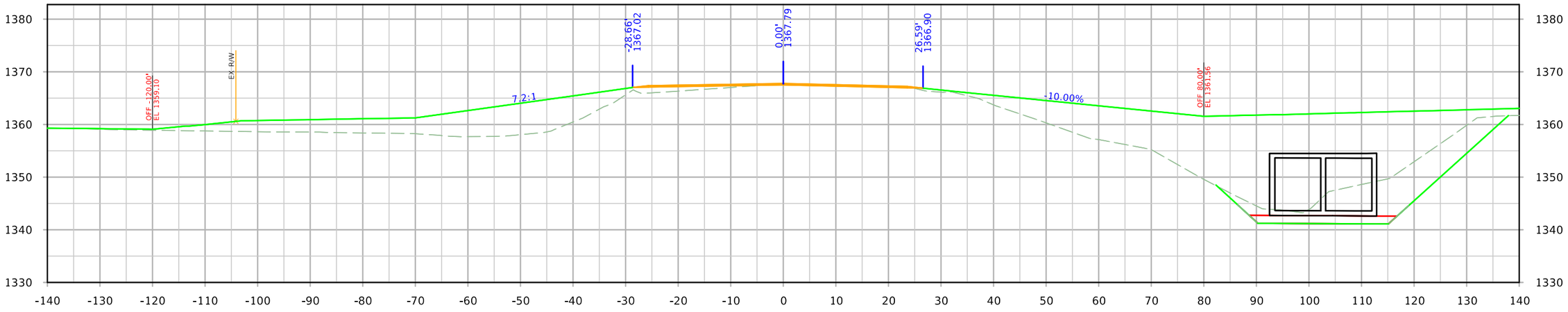

STA. 2380+00.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.13	

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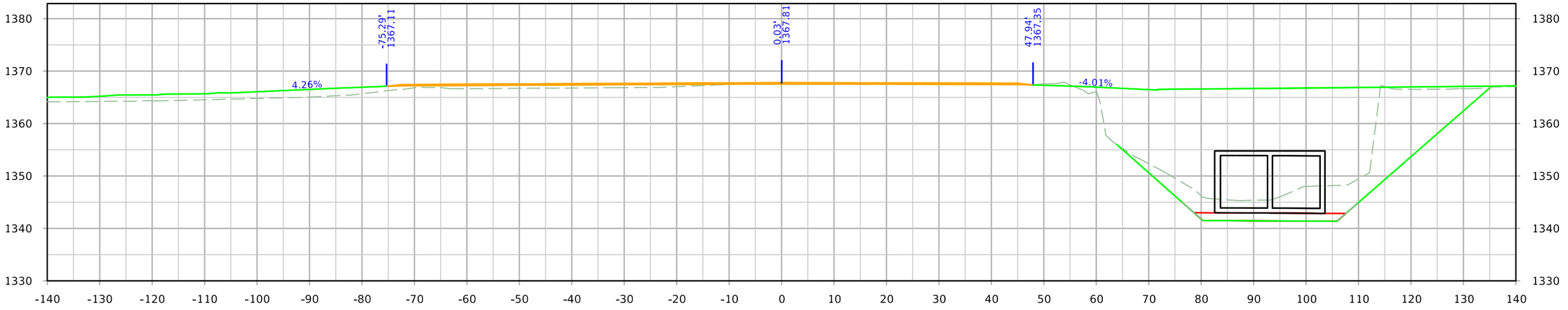

STA. 2380+25.00

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.14	

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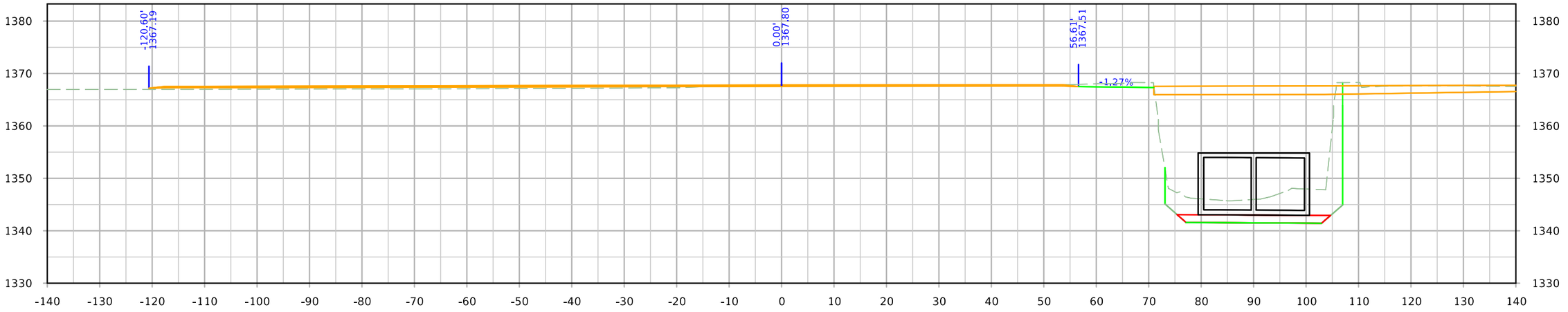

STA. 2380+32.13

FILE NO. 32179	ENGLISH	DESIGN TEAM Iowa DOT / HGM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-059-5(60)--39-24	SHEET NUMBER X.15	

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