



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

**PRIMARY ROAD SYSTEM
CRAWFORD COUNTY
BRIDGE REPLACEMENT-PPCB**

H Sheets Rocky Run 4.5 mi W of Co Rd M55

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

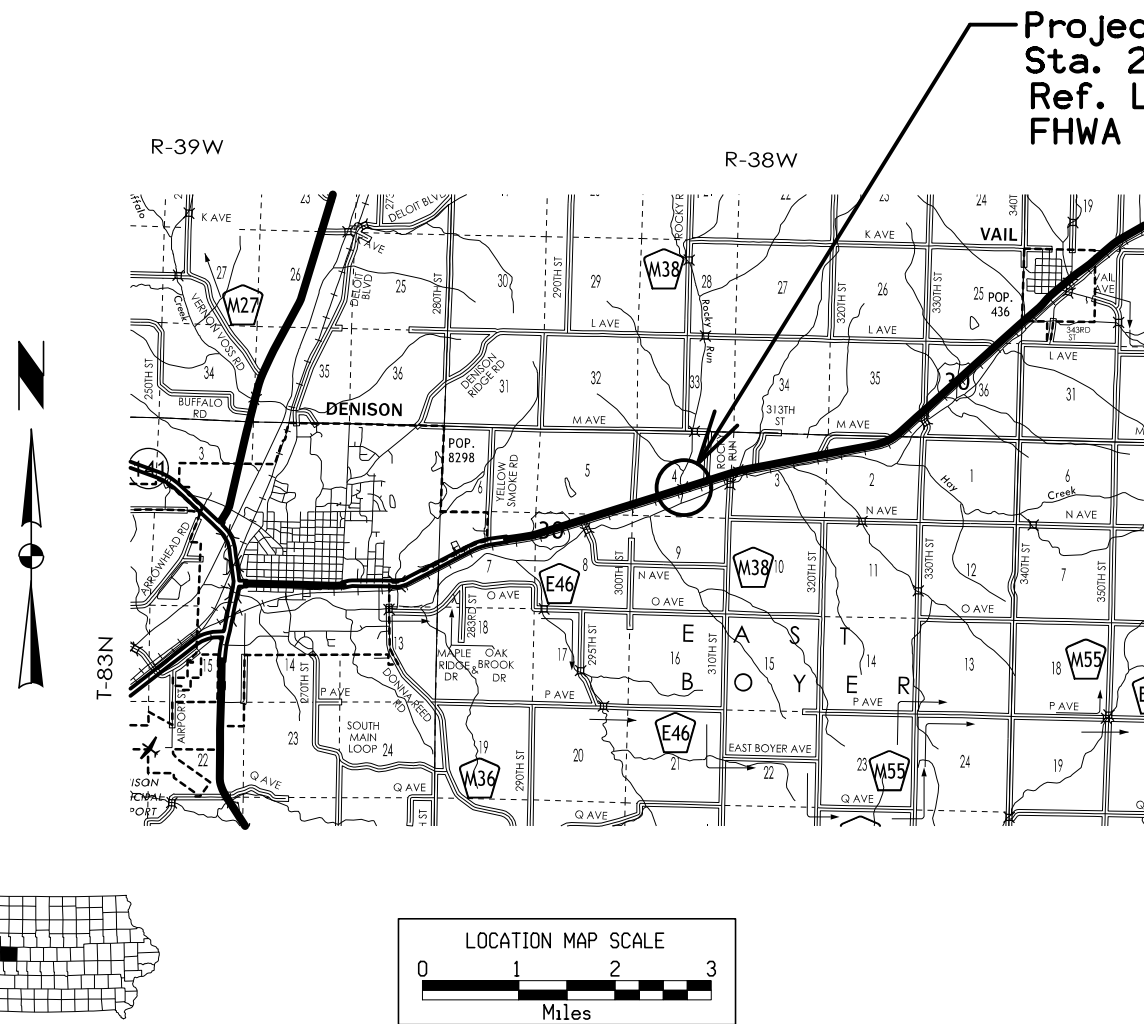
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.1	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 5	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	"Mainline Name"
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
* J.1	Traffic Control Plan
* J.1	Staging Notes
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3 - 5	Staging and Traffic Control Sheets
V Sheets	Bridge and Culvert Situation Plans
V.1	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 7	Mainline Cross Sections
	* Color Plan Sheets

REVISIONS	TOTAL
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PROJECT IDENTIFICATION NUMBER	18-24-030-010
PROJECT NUMBER	BRFN-030-2(168)--39-24
R.O.W. PROJECT NUMBER	NHSN-030-2(169)--2R-24



Schedule:	
D4-	08-23-2022
B3-	10-04-2022

DESIGN DATA RURAL			
2023 AADT	4,300	V.P.D.	
2043 AADT	5,400	V.P.D.	
20-- DHV	--	V.P.H.	
TRUCKS	16	%	
Total Design ESALs	--		

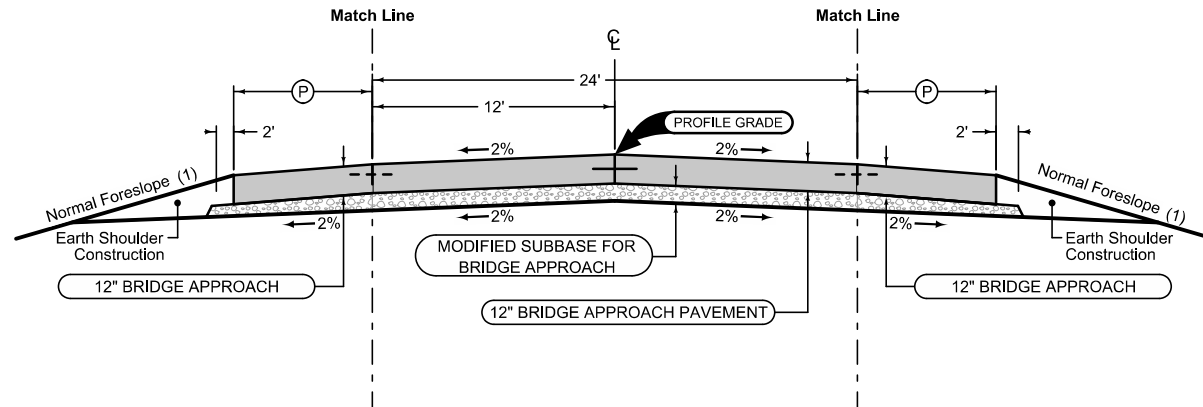
PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 06-09-2021

Shoulder at Bridge Approach

2_P_Guard_10-17-17		
STATION TO STATION		(P) Feet
207+11.82	207+51.34	13.1
207+51.34	207+88.74	13.1-11.6
207+88.74	208+41.00	11.6
209+84.00	210+73.76	11.6
210+73.76	211+11.16	11.6-13.1
211+11.16	211+50.73	13.1



Mainline Jointing:
See MOD. BR- 203 in U-Sheets

2P_10-19-10	
STATION TO STATION	
207+91.00	208+61.00
209+64.00	210+34.00

Shoulder at Bridge Approach

2_P_Guard_10-17-17		
STATION TO STATION		(P) Feet
206+74.29	207+13.84	13.1
207+13.84	207+51.74	13.1-11.6
207+51.74	208+41.00	11.6
209+84.00	210+35.76	11.6
210+35.76	210+73.66	11.6-13.1
210+73.66	211+13.22	13.1

(1) Refer Standard Road Plan EW 202 and cross sections for additional details

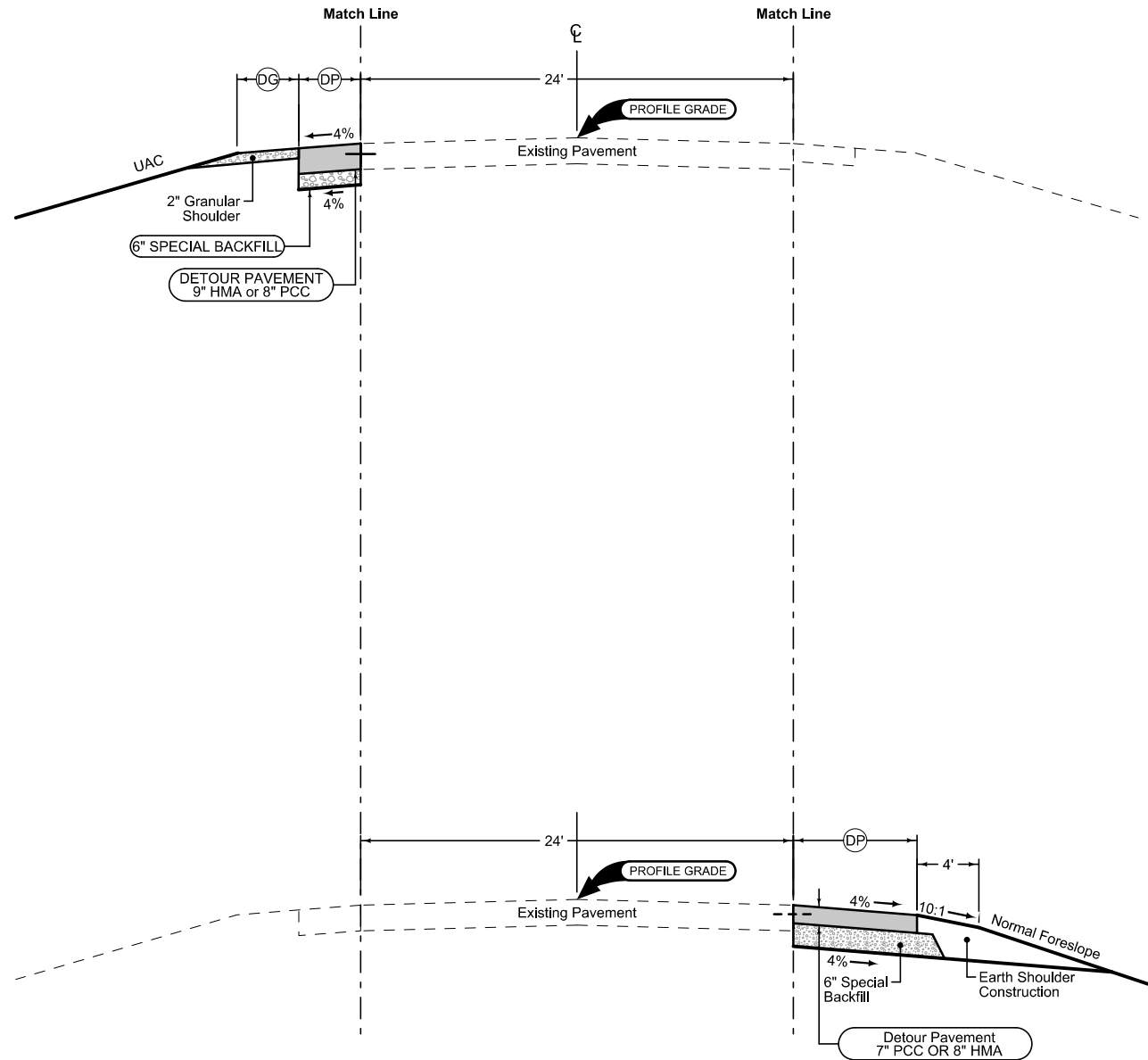
See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

US 30

SHOULDER STRENGTHENING

PCC Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 17' spacing
 HMA Jointing:
 Longitudinal joint: B

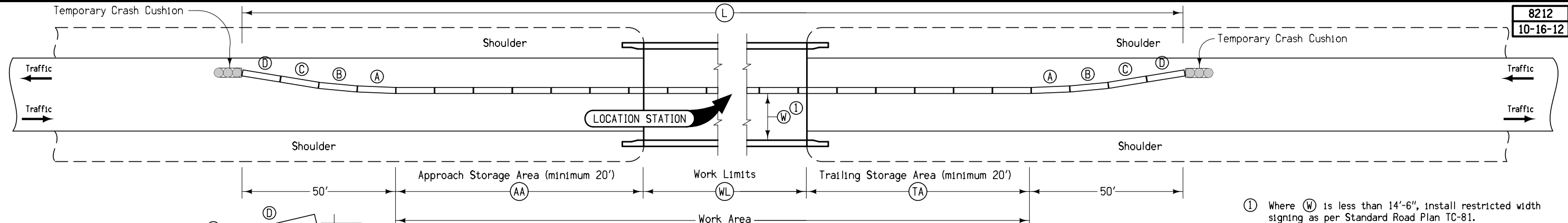
2_C_FullPCC_04-21-20			
STATION TO STATION		DP Feet	DG Feet
206+01	208+84	4	6
209+51	212+32	4	6



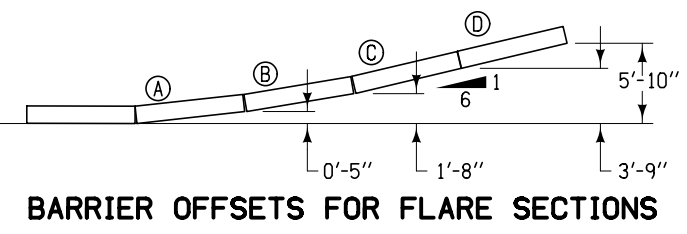
SHOULDER STRENGTHENING

PCC Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 17' spacing
 HMA Jointing:
 Longitudinal joint: B

2_P_ALT_04-21-20		
STATION TO STATION		DP Feet
206+01	208+82	10
209+51	212+32	10

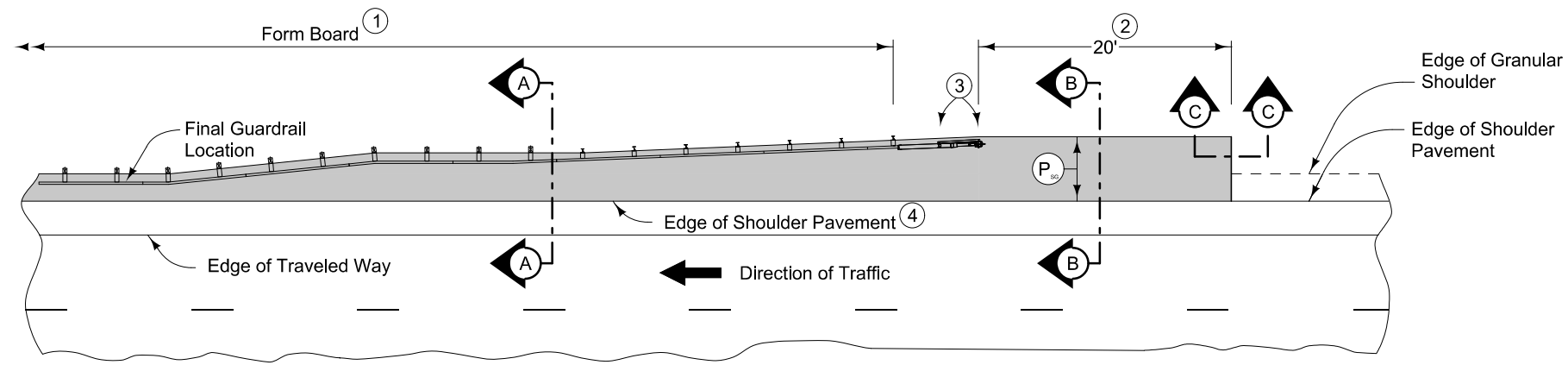


① Where W is less than 14'-6", install restricted width signing as per Standard Road Plan TC-81.



Station	Side	AA	WL	TA	L	Anchored X	W ^①	Remarks
		Feet	Feet	Feet	Feet		Ft-inches	

**TEMPORARY CONCRETE BARRIER LAYOUT
for Two-Way Traffic**



PLAN VIEW

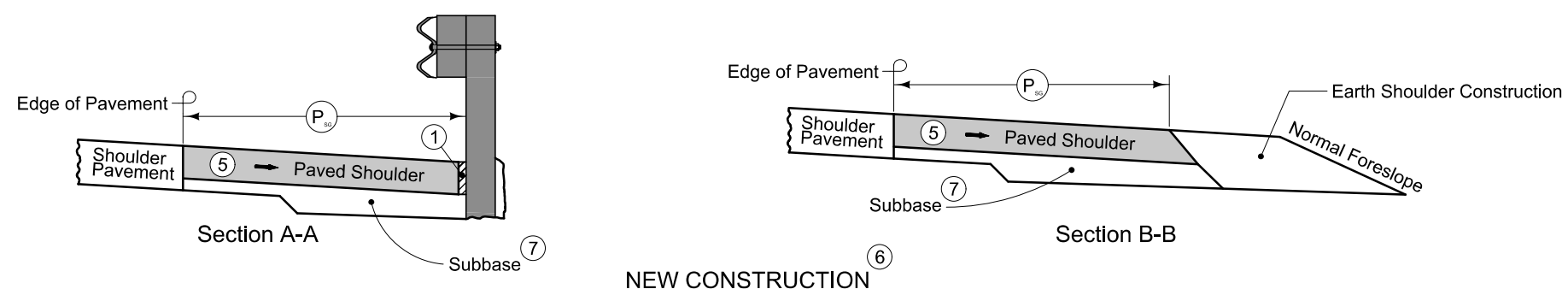
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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

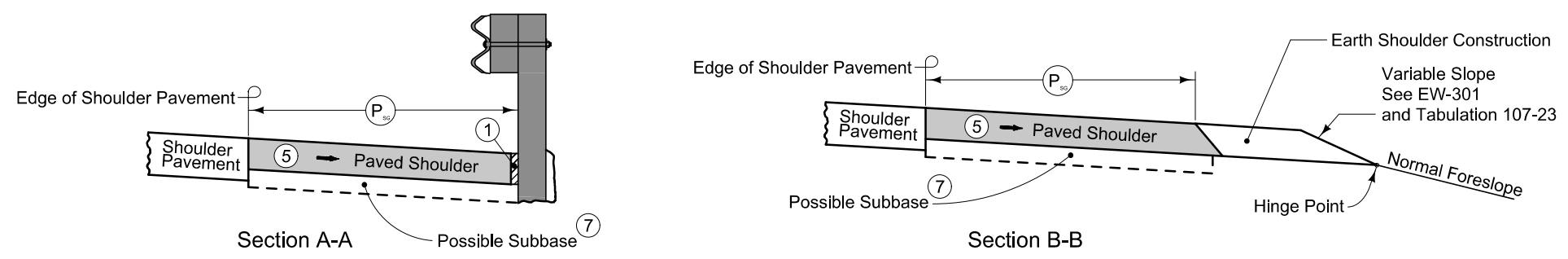
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

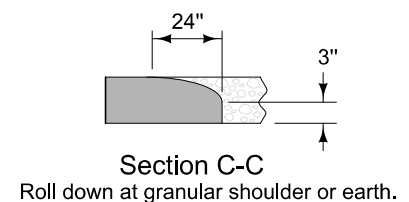
- ① PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves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



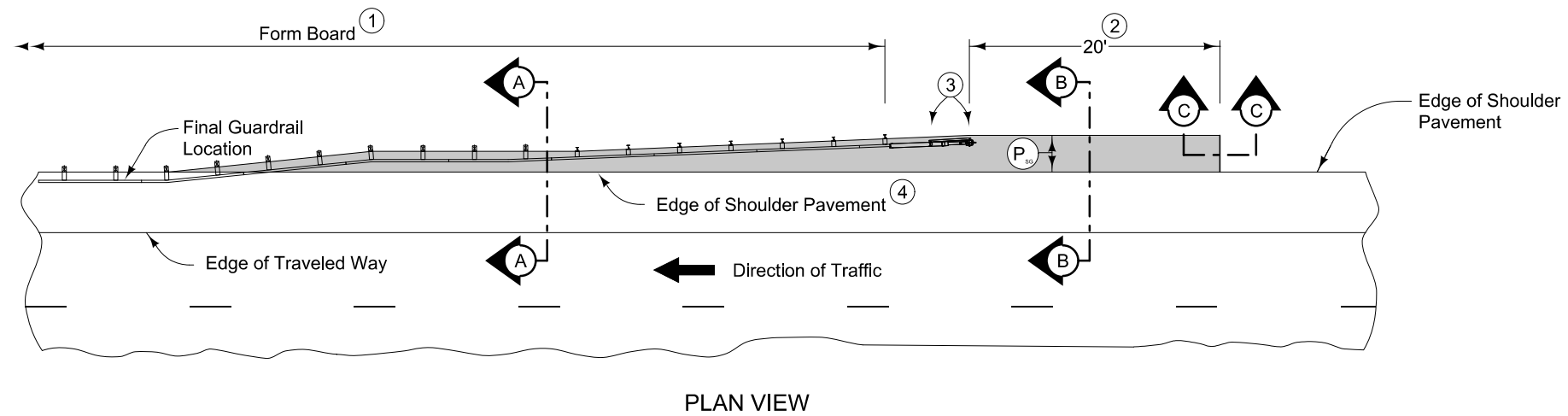
NEW CONSTRUCTION



EXISTING SHOULDER



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



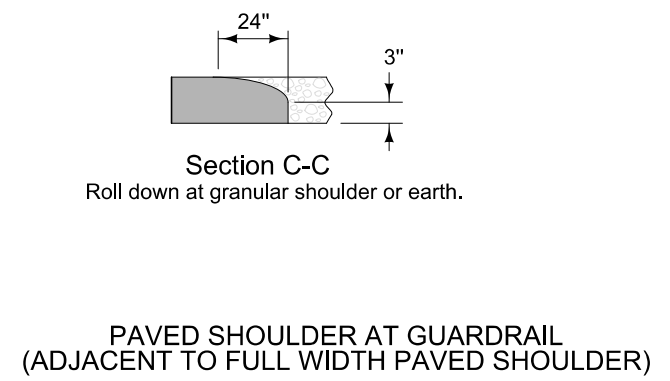
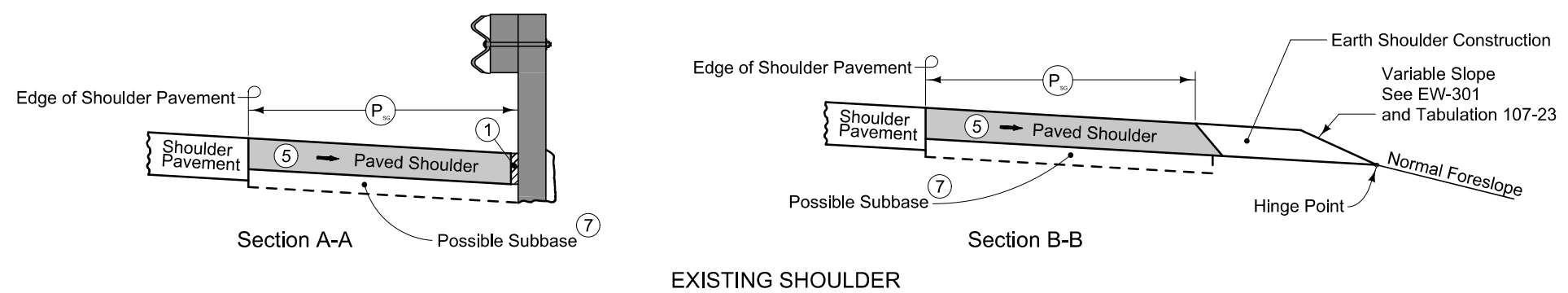
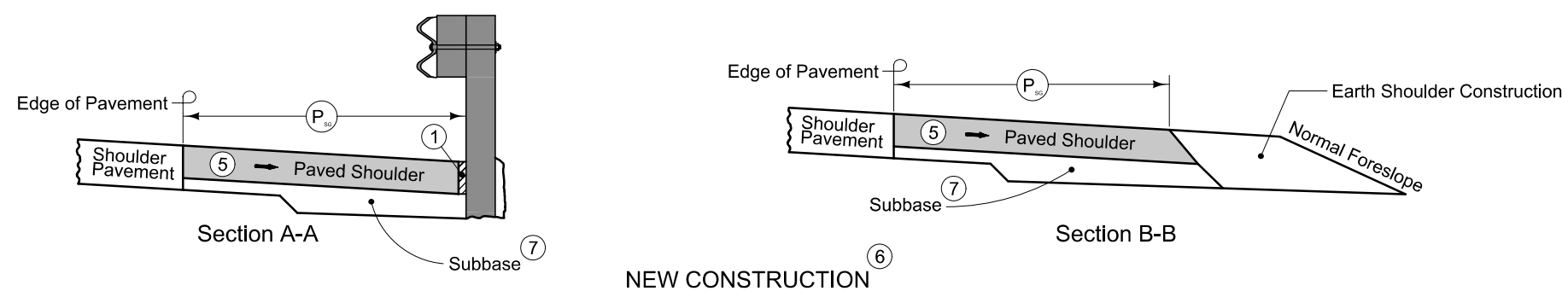
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- ⑤ Match shoulder slope.
- ⑥ The Contractor has the option to pave the paved shoulder at guardrail and the full width paved shoulder as one operation.
- ⑦ Refer to other details in the plan.



SURVEY SYMBOLS

- POT Tangent Point
- SP Stream Profile
- CP Control Point
- WC Wild Card (Misc. Field Shot)
- SNP Unpaved Shoulder
- BL Topo Breakline
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- GR Ground Shot
- BNK Stream Bank
- RIP Rip-Rap
- ENU Edge Unpaved Entrance & Parking
- GDL Guard Rail Steel
- GU Gutter In Front of Curb
- CU Back of Curb
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- PPA Power Pole MidAmerican Energy
- ROW Right of Way Mark
- PIP Pipe Culvert
- SOP Size of Pipe or Culvert
- CON Concrete or A/C Slab
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- SBR Size of Bridge
- RET Retaining Walls
- T1 TL1D Frontier Communications - Quality D
- F0 FO1D Windstream Communications - Quality D
- F02 FO2D ICN - Quality D
- W WL1D West Central Iowa Rural Water - Quality D
- PLG Location of General Photo
- CUL Culvert
- TPD Telephone Pedestal
- PRO Profile Shot
- TLNR Tree Line Right
- TW Top of Water
- EW Edge of Water
- DIK Centerline of Dike or Dam
- INB Storm Sewer Beehive Intake
- TIL Tile Line
- TDC Tree Deciduous
- BLS Bridge Low Steel

UTILITY LEGEND

- PPA Power Pole MidAmerican Energy
- T1 TL1D Frontier Communications - Quality D
- F0 FO1D Windstream Communications - Quality D
- F02 FO2D ICN - Quality D
- W WL1D West Central Iowa Rural Water - Quality D

Frontier Communications
Trent Flockhart
(515) 573-1268
Trent.flockhart@ftr.com

Iowa Communications Network
Shannon Marlow
(800) 572-3940
icnoutsideplantiowaonecall@iowa.gov

MIDAMER-ELEC
Ryan Boell
(712) 792-7055
rdbuell@midamerican.com

Windstream Communications
Locate Desk
(800) 289-1901
LOCATE.DESK@WINDSTREAM.COM

West Central Iowa Rural Water
Dean Lorenzen
(712) 655-2534
wcirwa@mmctsu.com

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		
Design Color No.		
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

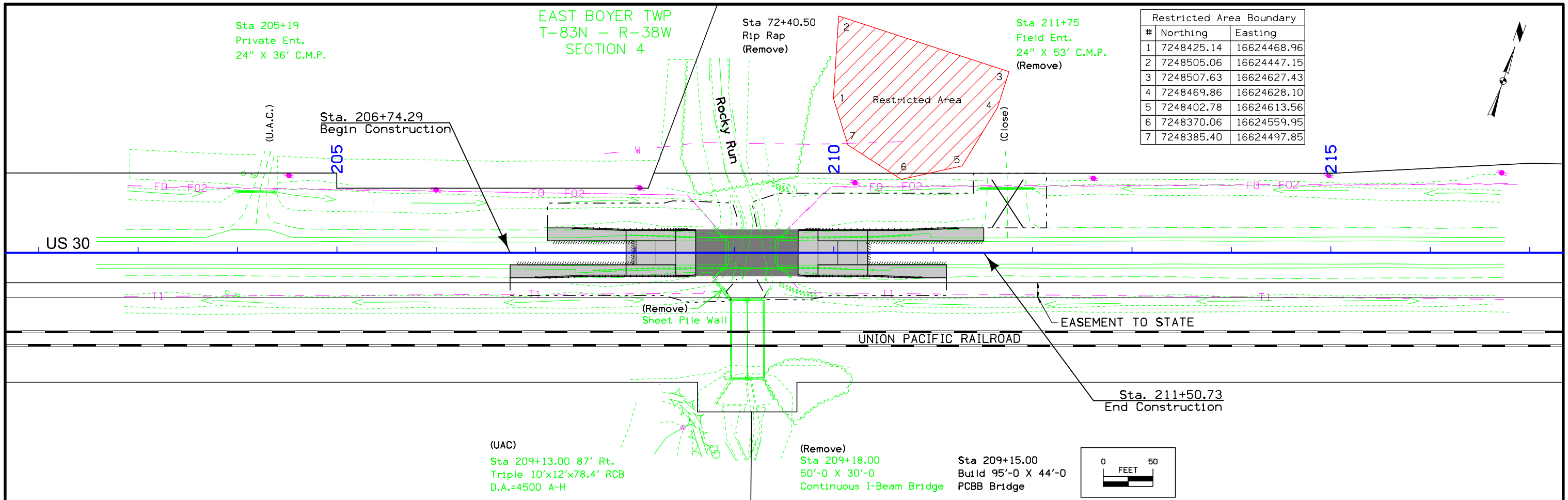
LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

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

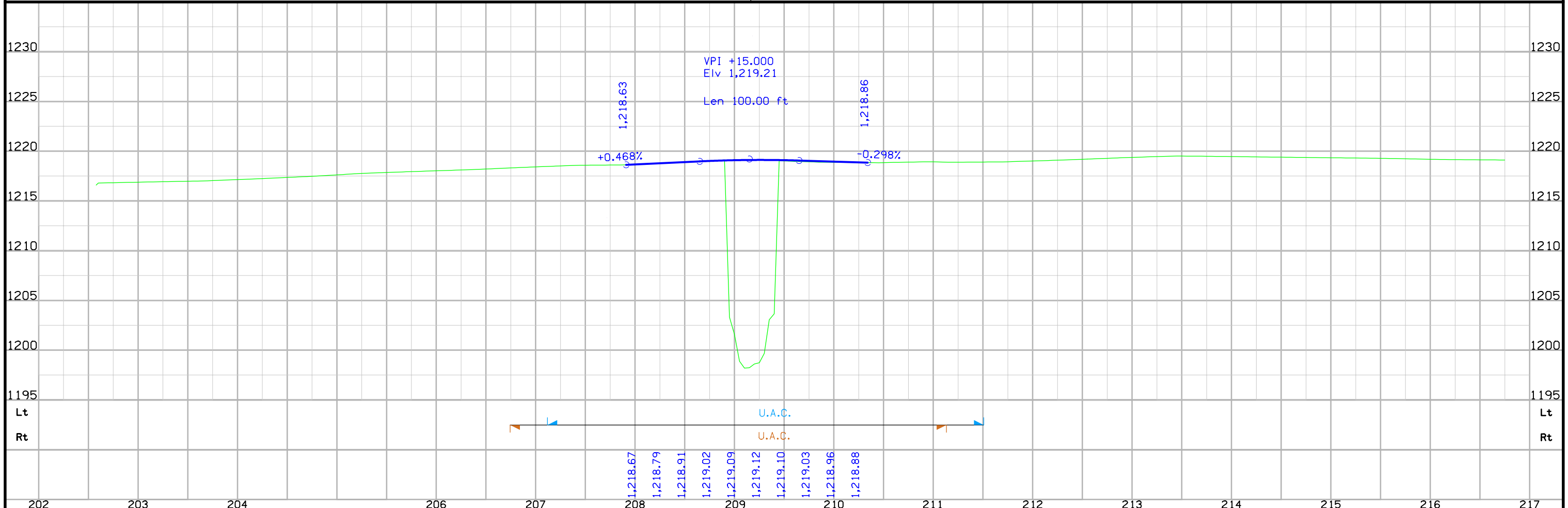
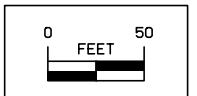
- ### RIGHT-OF-WAY LEGEND
- Proposed Right-of-Way
 - Existing Right of Way
 - Existing and Proposed Right-of-Way
 - Easement and Existing Right-of-Way
 - Easement (Temporary)
 - Easement
 - C/A Access Control
 - Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



Restricted Area Boundary		
#	Northing	Easting
1	7248425.14	16624468.96
2	7248505.06	16624447.15
3	7248507.63	16624627.43
4	7248469.86	16624628.10
5	7248402.78	16624613.56
6	7248370.06	16624559.95
7	7248385.40	16624497.85



Survey Information

Crawford County
BRFN-030-2(168)- -39-24
Rocky Run 4.5 mi W of Co Rd M55
Type of Work: Bridge-Unspecified
Project Directory: 2403001018
PIN 18-24-030-010
Sap-0434.1

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. GSVS 005, GSVS 006, and GSVS 007.

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. NHSN-30-2(103)—2R-24. Survey stationing was equated to the plan POT at Sta. 193+79.4 and run ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

POT Sta. 193+63.31 As-built Plans Project No. NHSN-30-2(103)—2R-24
Survey POT Sta. 193+63.31

POT Sta. 221+43.70 As-built Project No. NHSN-30-2(103)—2R-24
Survey POT Sta. 221+43.89

Party Personnel

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

Date(s) of Survey

Begin Date 10/03/2019
End Date 10/28/2019

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction or removal US 30 over Rocky Run Creek. Project datum and control information is provided by Design Survey Office. This project is a full field DTM.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. GSVS 005, GSVS 006, and GSVS 007 by doing concurrent 6 hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

This survey observed 3 NGS GPS control with published NAVD88 heights to compare to local ground control:

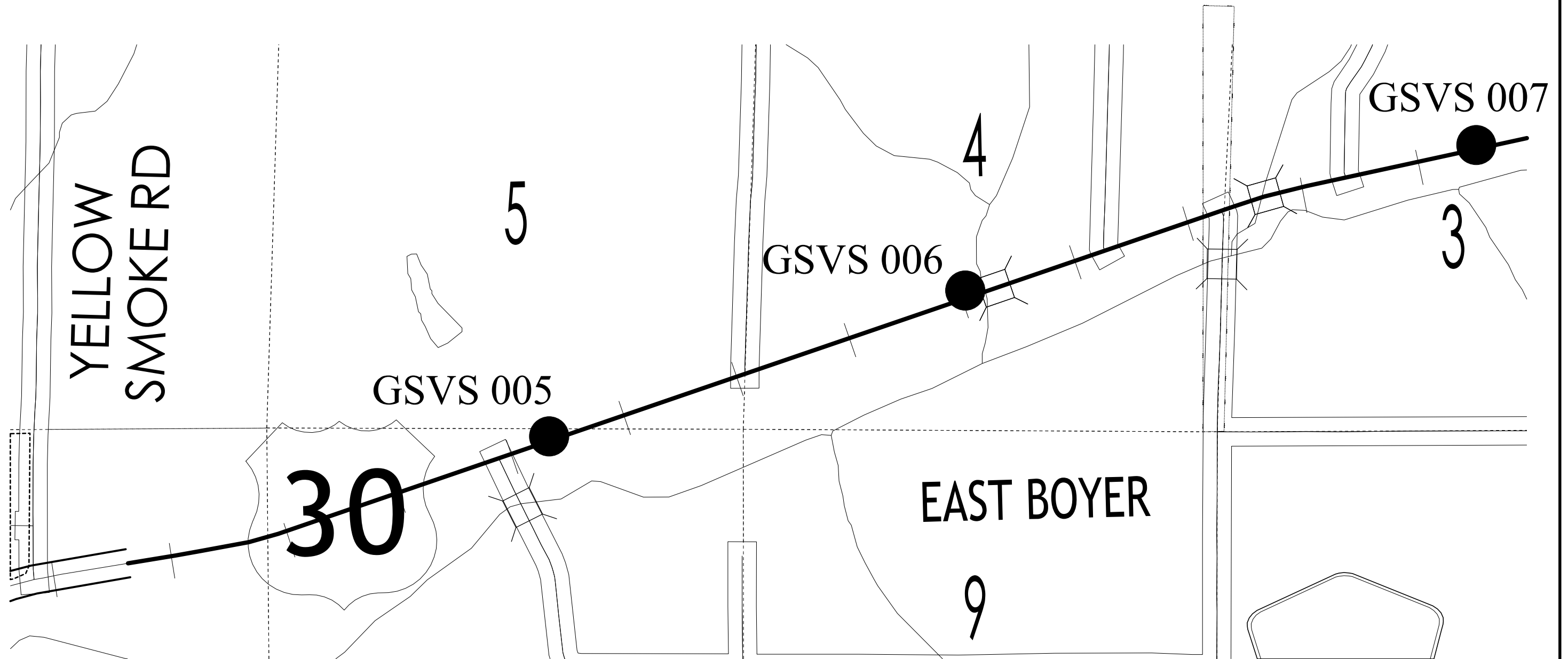
NGS mark designated GSVS 005 (PID DP4459) has a published Elev. of 1209.88
Survey Elev. = 1209.72

NGS mark designated GSVS 006 (PID DP4460) has a published Elev. of 1218.13
Survey Elev. = 1217.995

NGS mark designated GSVS 007 (PID DP4461) has a published Elev. of 1224.14
Survey Elev. = 1224.004

CONTROL POINT VICINITY MAP

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



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 6

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

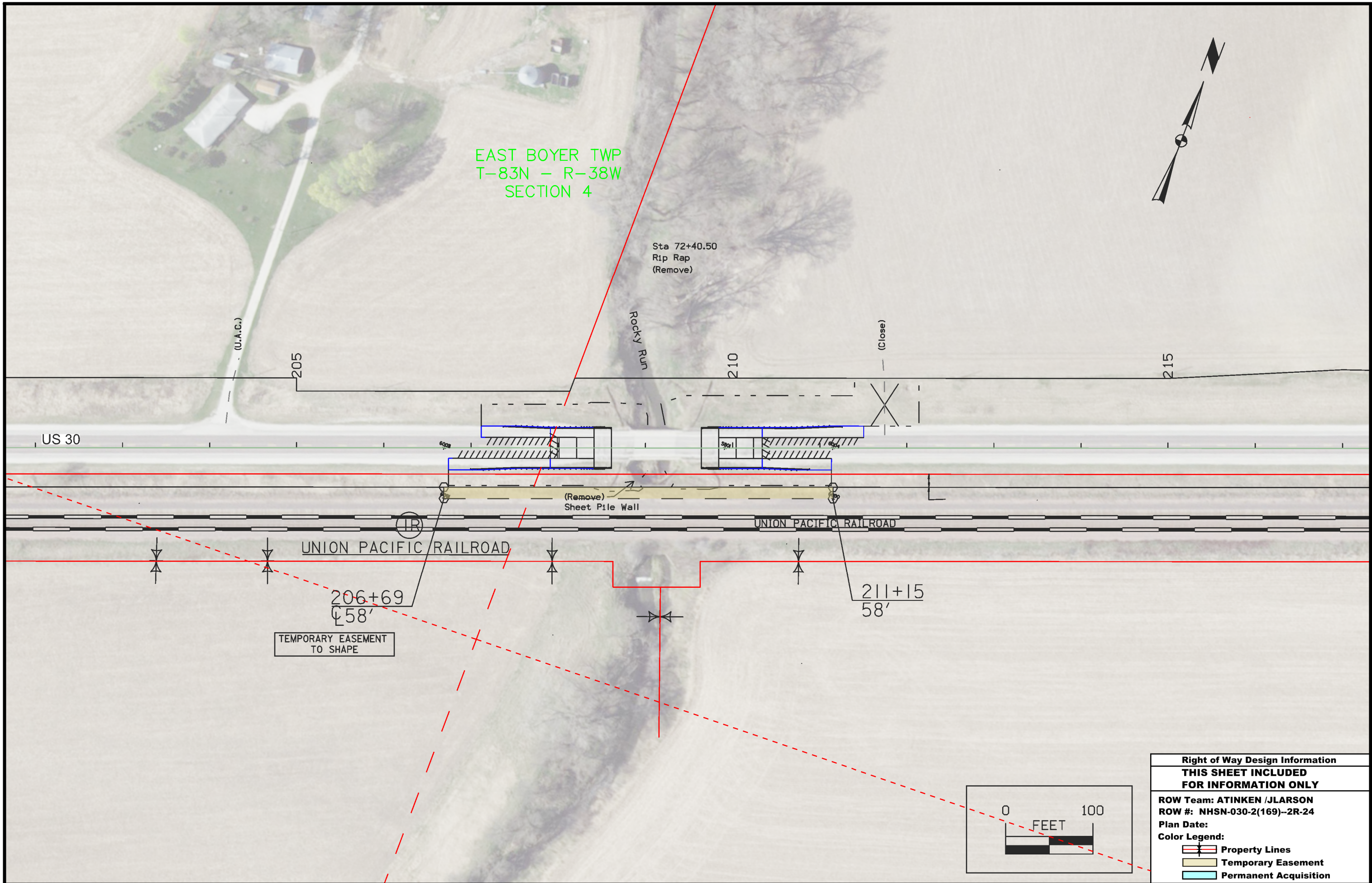
HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 6

North Coordinate	East Coordinate	Elevation	Feature Code-Description
7246598.6	16619474.04	1209.72	CP NGS DISK PID DP4459 67FT SW OF METAL ROW POST 46FT N CL US HWY 30 11FT SSE OF FIBERGLASS WITNESS POST
7248239.82	16624315.19	1217.99	CP NGS DISK PID DP4460 36.5FT SSE OF UTILITY POLE 31FT N OF CL US HWY 30 6FT NW OF WITNESS POST
7249839.8	16629786.45	1224	CP NGS DISK PID DP4461 45FT SSW OF METAL FENCE POST AT A GTE CABLE BOX 43FT N OF CL OF US HWY 30 4.5FT W OS FIBERGLASS WITNESS POST

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.



EAST BOYER TWP
T-83N - R-38W
SECTION 4

Sta 72+40.50
Rip Rap
(Remove)

Rocky Run

(Close)

205

210

215

US 30

(Remove)
Sheet Pile Wall

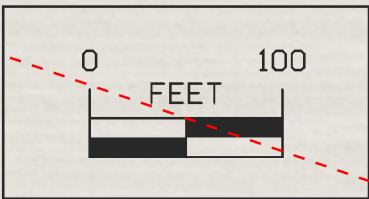
UNION PACIFIC RAILROAD

UNION PACIFIC RAILROAD

206+69
58'

TEMPORARY EASEMENT
TO SHAPE

211+15
58'



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: ATINKEN /JLARSON	
ROW #: NHSN-030-2(169)--2R-24	
Plan Date:	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

TRAFFIC CONTROL PLAN

Maintain traffic on US 30 at all times.
Utilize TC-217 Lane Closure with Signals and TBR for staged bridge construction.
Maintain access to entrance at Sta. 205+19 at all times.

STAGING NOTES

Stage 1:
Traffic:
Day Time: Single lane closure with Flaggers, TC-213
Night Time: Shoulder closure, TC-202
Construction: Widen WB lane with detour pavement
Stage 2:
Traffic: Utilize lane closure with signals, TC-217
Construction: EB half of bridge
Stage 3:
Traffic: Utilize lane closure with signals, TC-217
Construction: WB half of bridge










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
US 30	EB Stg 1	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	12'-0"	11'-0"		
US 30	WB Stg 1	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	12'-0"	11'-0"		
US 30	WB Stg 1	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Temporary Signal	2459.2S030	Vertical	NA	15'-0"	14'-0"		
US 30	EB Stg 2	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	14'-6"	NA		
US 30	EB Stg 2	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Temporary Signal	2459.2S030	Vertical	NA	15'-0"	14'-0"		
US 30	WB Stg 2	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	14'-6"	NA		

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

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

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





















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

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

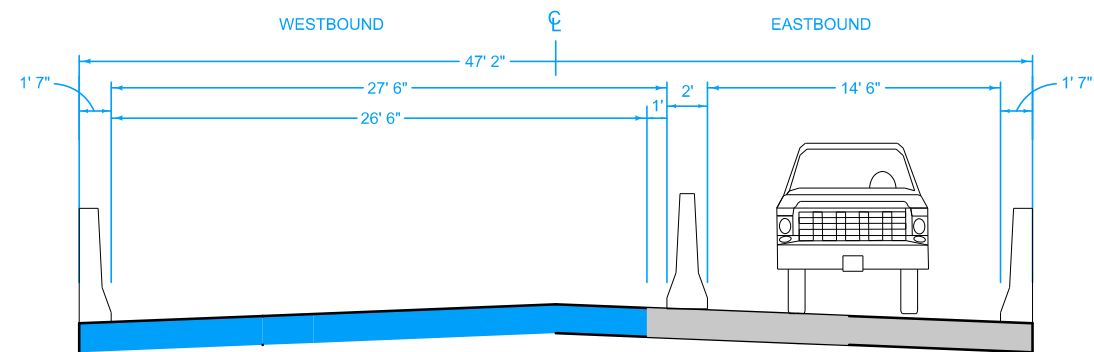
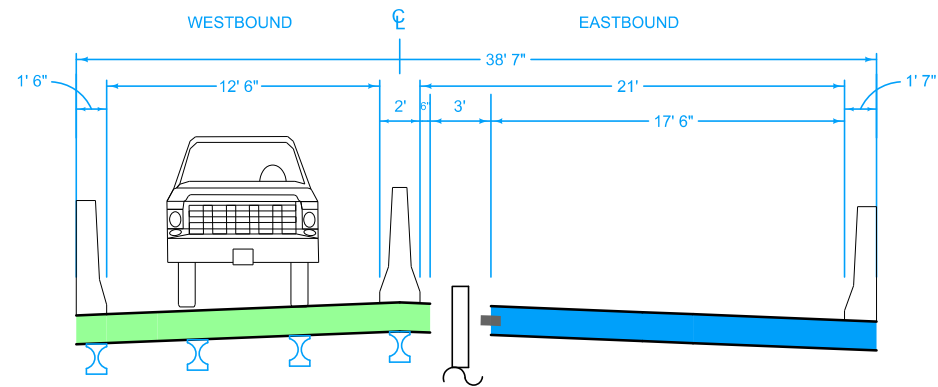
**PLAN VIEW PATTERN AND SYMBOL LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**

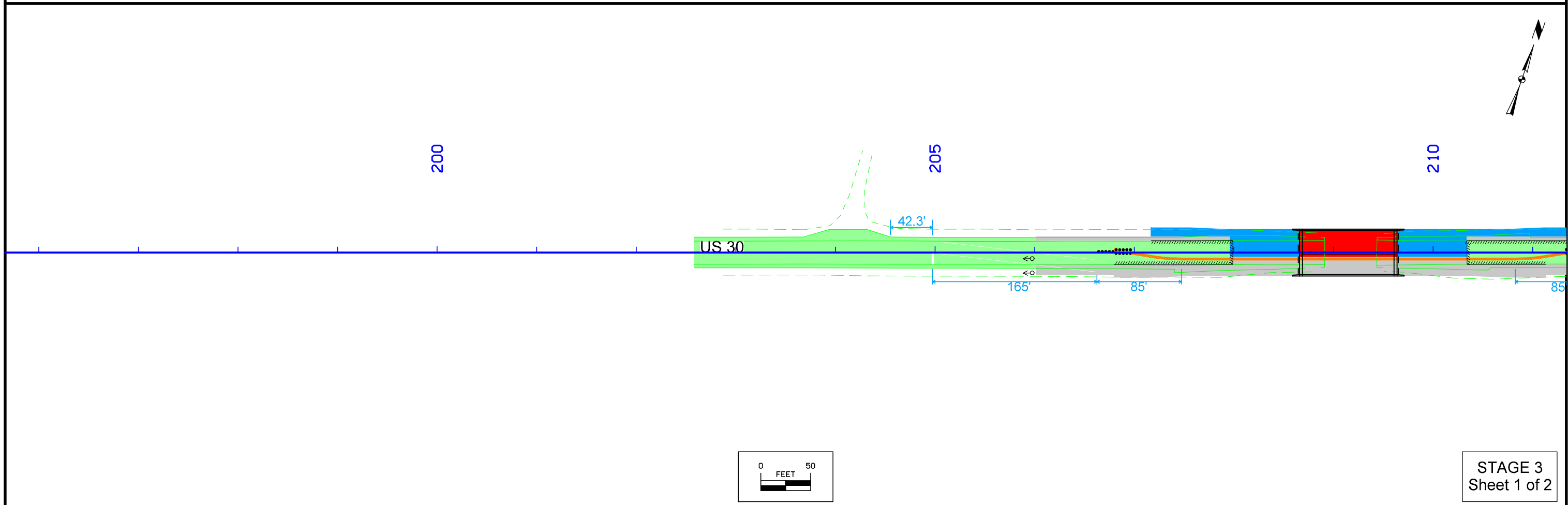
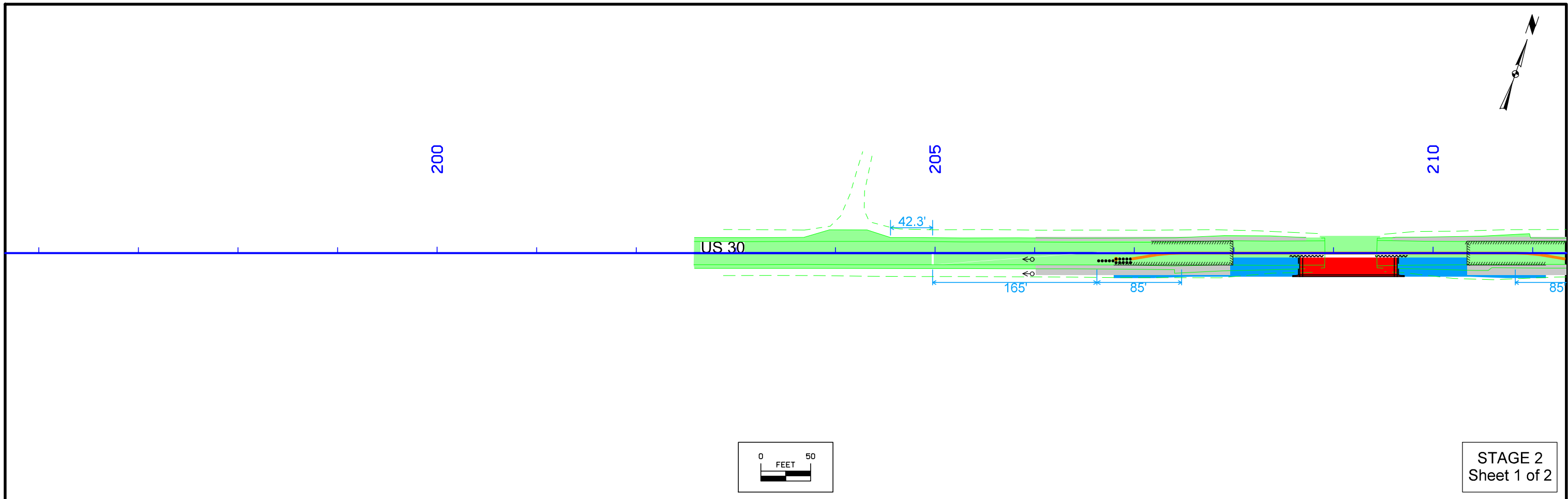
	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic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

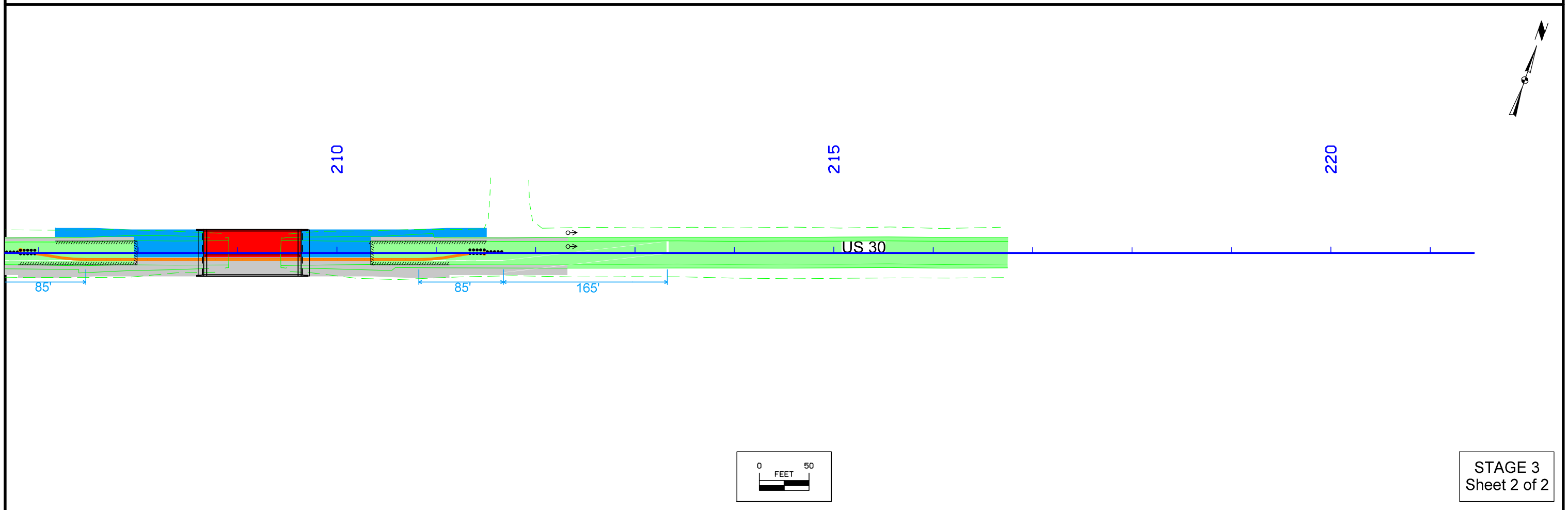
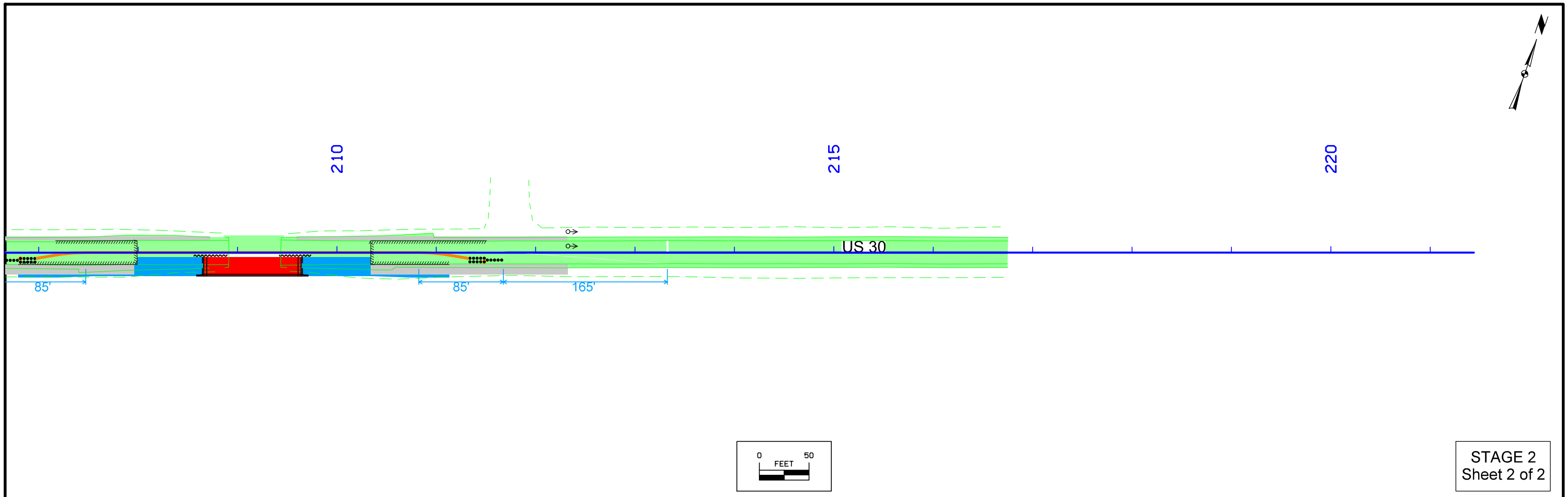
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

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

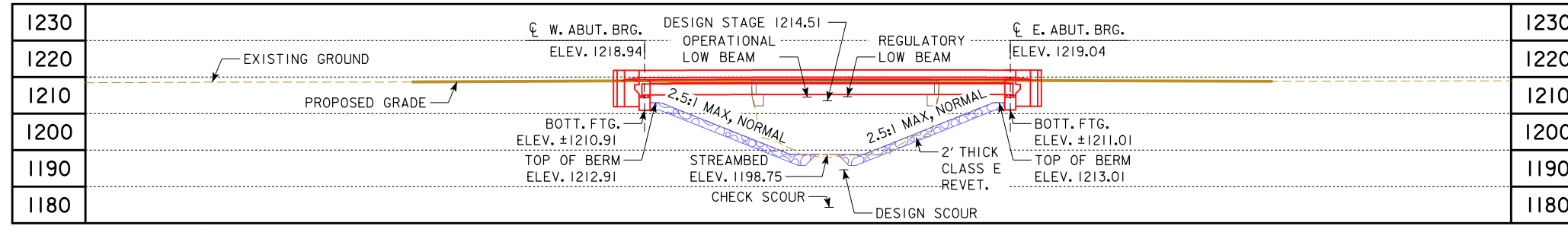
(COVERS SHEET SERIES J)







CONTROL POINT NGS DISK PID DP4460: N 7248239.82, E 16624315.19, 36.5 FEET SSE OF UTILITY POLE, 31 FEET NORTH OF CL US HWY 30, 6 FEET NW OF WITNESS POST, ELEV. 1217.99



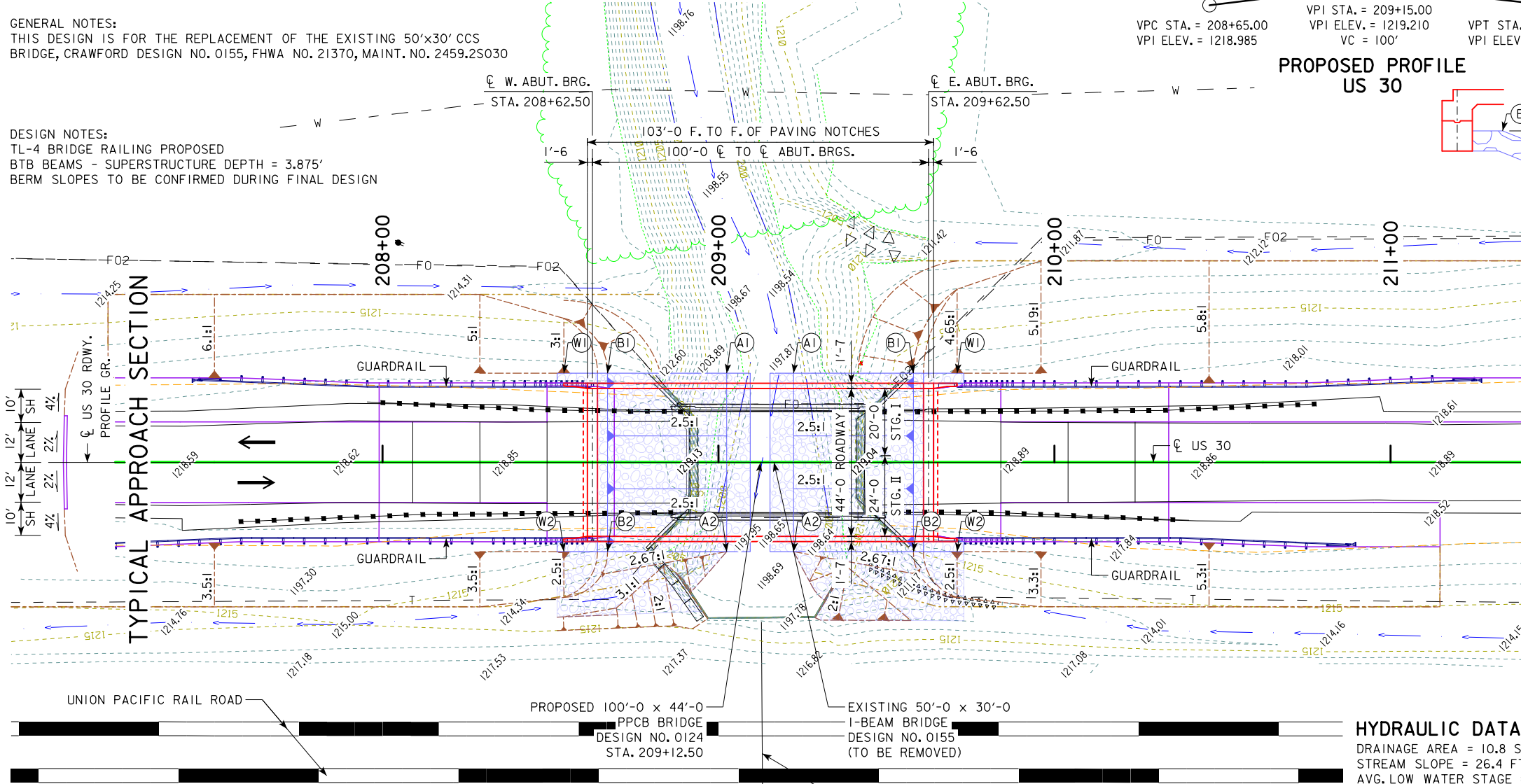
BERM SLOPE LOCATION TABLE						
POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	209+02.47	26.58' LT.	1198.75	209+22.35	26.58' RT.	1198.75
A2	209+02.47	26.58' RT.	1198.75	209+22.35	26.58' LT.	1198.75
B1	208+67.00	26.58' LT.	1212.94	209+58.00	26.58' RT.	1213.01
B2	208+67.00	26.58' RT.	1212.94	209+58.00	26.58' LT.	1213.01
W1	208+54.00	26.58' LT.	1218.35	209+71.00	26.58' RT.	1218.45
W2	208+54.00	26.58' RT.	1218.35	209+71.00	26.58' LT.	1218.45

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

TOP OF BRIDGE DECK AT CL ROADWAY IS 0.03' BELOW THE PGL TO ACCOUNT FOR PARABOLIC CROWN

GENERAL NOTES:
THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 50'x30' CCS BRIDGE, CRAWFORD DESIGN NO. 0155, FHWA NO. 21370, MAINT. NO. 2459.2S030

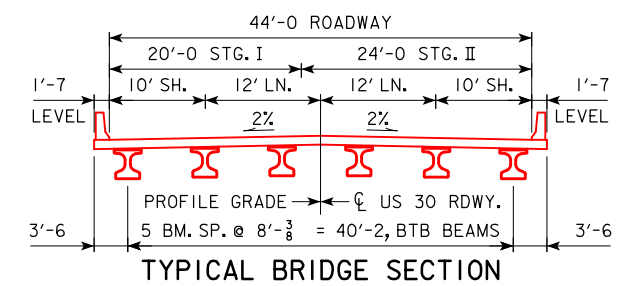
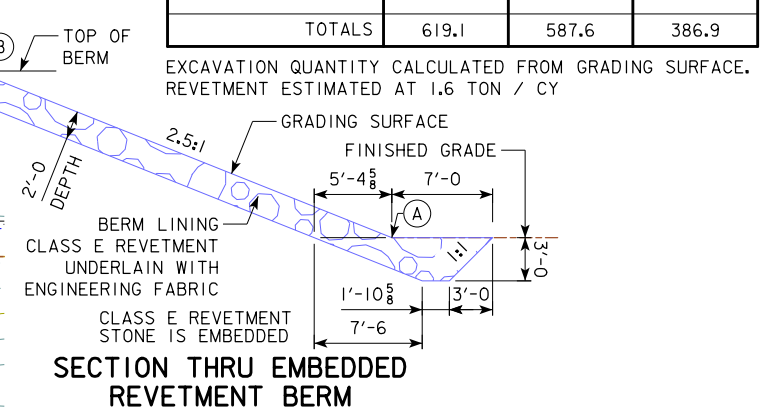
DESIGN NOTES:
TL-4 BRIDGE RAILING PROPOSED
BTB BEAMS - SUPERSTRUCTURE DEPTH = 3.875'
BERM SLOPES TO BE CONFIRMED DURING FINAL DESIGN



UNION PACIFIC RAIL ROAD
PROPOSED 100'-0" x 44'-0" PPCB BRIDGE DESIGN NO. 0124 STA. 209+12.50
EXISTING 50'-0" x 30'-0" I-BEAM BRIDGE DESIGN NO. 0155 (TO BE REMOVED)
EXISTING TRIPLE 12' X 10' X 78.4' REINFORCED CONCRETE BOX (UAC)

ESTIMATED BERM ARMORING QUANTITIES			
LOCATION	CLASS E REVET. (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - WEST	309.0	293.2	193.1
BERM LINING - EAST	310.1	294.4	193.8
TOTALS	619.1	587.6	386.9

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. REVETMENT ESTIMATED AT 1.6 TON / CY



UTILITIES LEGEND:
FO - BURIED FIBER LINE - WINDSTREAM COMMUNICATIONS
F02 - BURIED FIBER LINE - ICN
T - BURIED COPPER LINE - FRONTIER COMMUNICATIONS
W - BURIED PVC - WEST CENTRAL IOWA RURAL WATER

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

LOCATION	TRAFFIC ESTIMATE	
US 30 OVER ROCKY RUN	2023 AADT	4300 V.P.D.
T-83N R-38W	2043 AADT	5400 V.P.D.
SECTION 4	2023 AADT	5400 V.P.D.
EAST BOYER TOWNSHIP	2023 DHV	16 V.P.H.
CRAWFORD COUNTY	TRUCKS	16 %
FHWA NO. 21371	TOTAL	
BRIDGE MAINT. NO. 2459.2S030	DESIGN ESALs	
LATITUDE 42.028172°		
LONGITUDE -95.275357°		

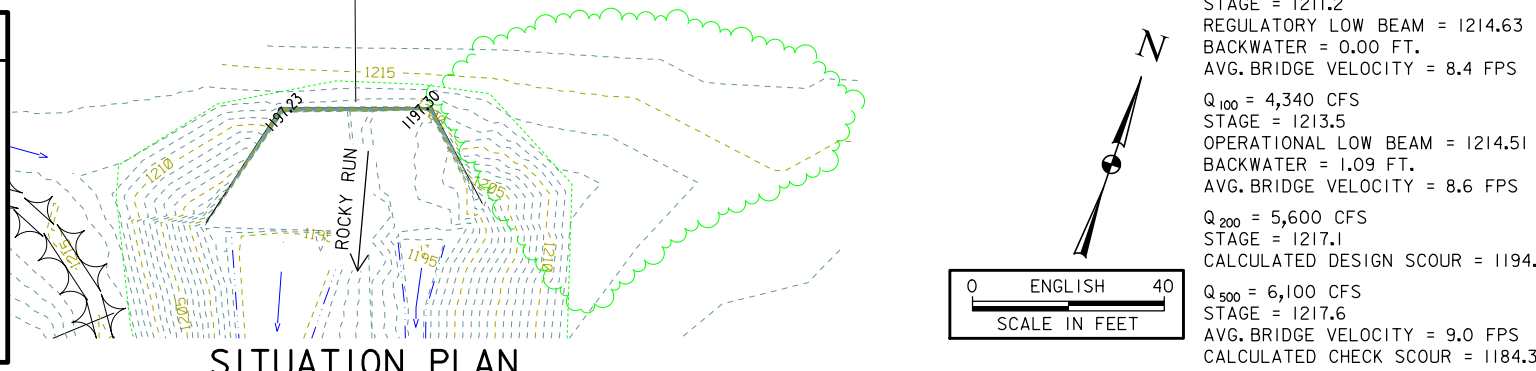
HYDRAULIC DATA
DRAINAGE AREA = 10.8 SQ. MI.
STREAM SLOPE = 26.4 FT./MI.
AVG. LOW WATER STAGE = 1200.0
Q₅₀ = 3,600 CFS
STAGE = 1211.2
REGULATORY LOW BEAM = 1214.63
BACKWATER = 0.00 FT.
AVG. BRIDGE VELOCITY = 8.4 FPS
Q₁₀₀ = 4,340 CFS
STAGE = 1213.5
OPERATIONAL LOW BEAM = 1214.51
BACKWATER = 1.09 FT.
AVG. BRIDGE VELOCITY = 8.6 FPS
Q₂₀₀ = 5,600 CFS
STAGE = 1217.1
CALCULATED DESIGN SCOUR = 1194.6
Q₅₀₀ = 6,100 CFS
STAGE = 1217.6
AVG. BRIDGE VELOCITY = 9.0 FPS
CALCULATED CHECK SCOUR = 1184.3

HYDRAULIC DESIGN

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

Signature: **Matthew J. Erickson** Date: 04/28/2021
Printed or Typed Name: **Matthew J. Erickson**
My license renewal date is December 31, 2022

Pages or sheets covered by this seal: V.1



PRELIMINARY
DESIGN FOR 0° SKEW
**100'-0" X 44'-0" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGE**
100'-0" SINGLE SPAN
SITUATION PLAN
STATION 209+12.50 (CL US 30) APRIL, 2021
CRAWFORD COUNTY
IOWA DOT - TRANSPORTATION DEVELOPMENT DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 31852 DESIGN NO. 0123

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

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

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- TOPSOIL — Topsoil (Class 10)
- Slope Dressing Only
- CL 10 — Class 10 Materials
- SEL LO — Select Loams And Clay-Loams
- SEL SA — Select Sand
- UNS A — Unsuitable Type A Disposal
- UNS B — Unsuitable Type B Disposal
- UNS C — Unsuitable Type C Disposal
- SHALE — Shale
- WASTE — Waste
- B&W LS — Broken and Weathered Rock
- ROCK — Solid Rock
- BLDRS — Boulders

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

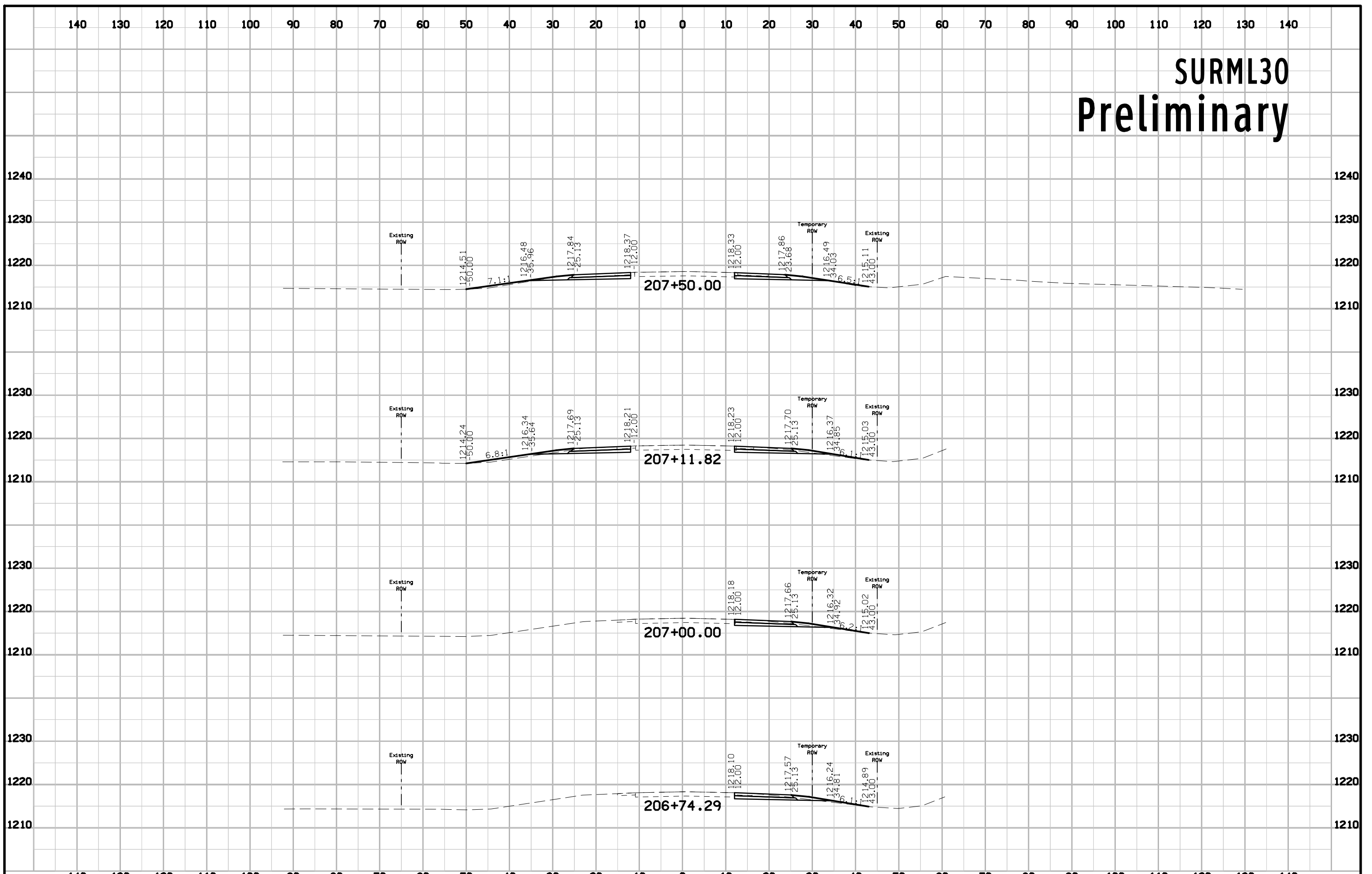
Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

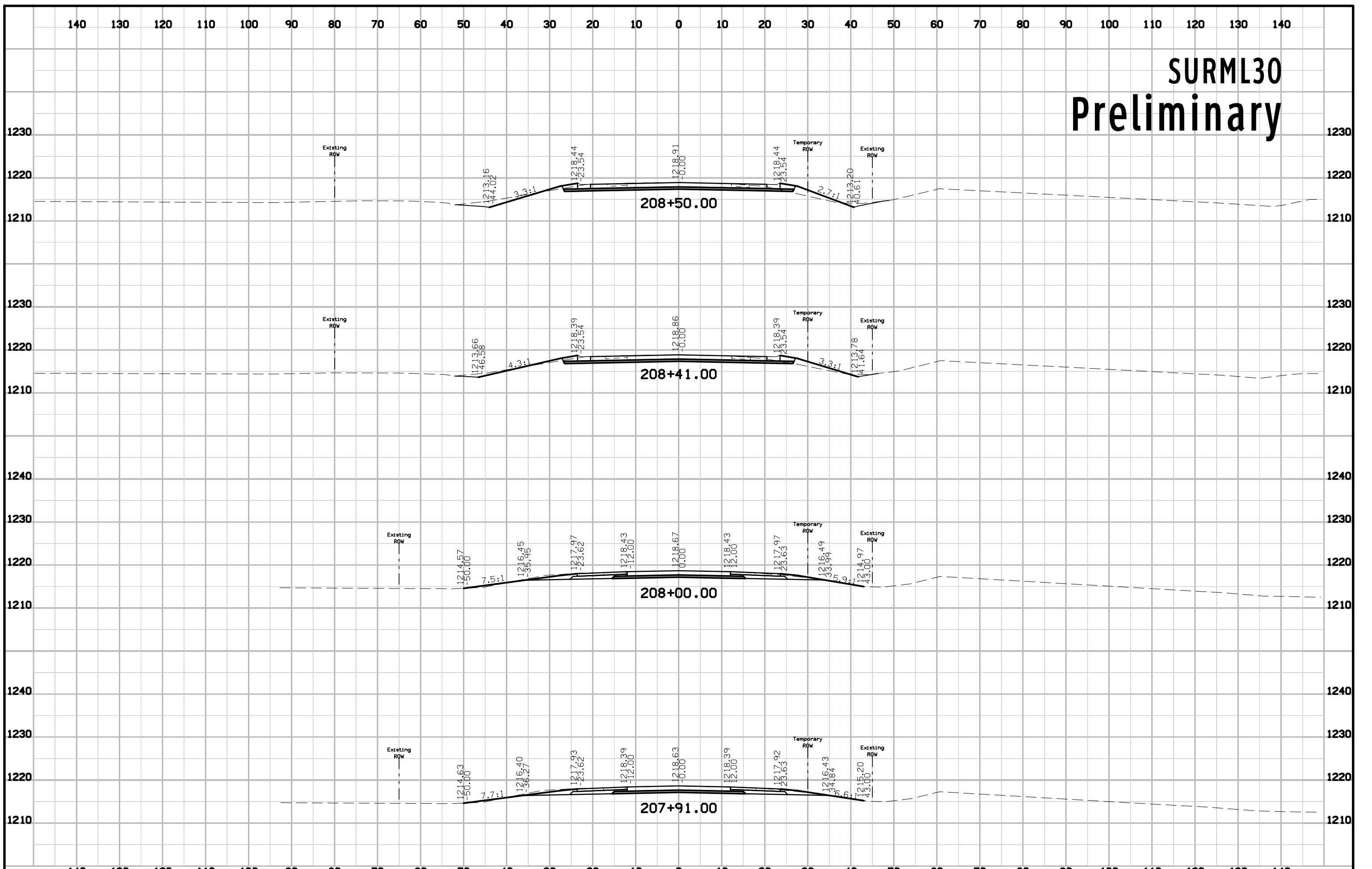
- Existing ROW
|
Existing Right-of-Way Limit
- Proposed ROW
|
Proposed Right-of-Way Limit
- Temporary ROW
|
Temporary Right-of-Way Limit

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

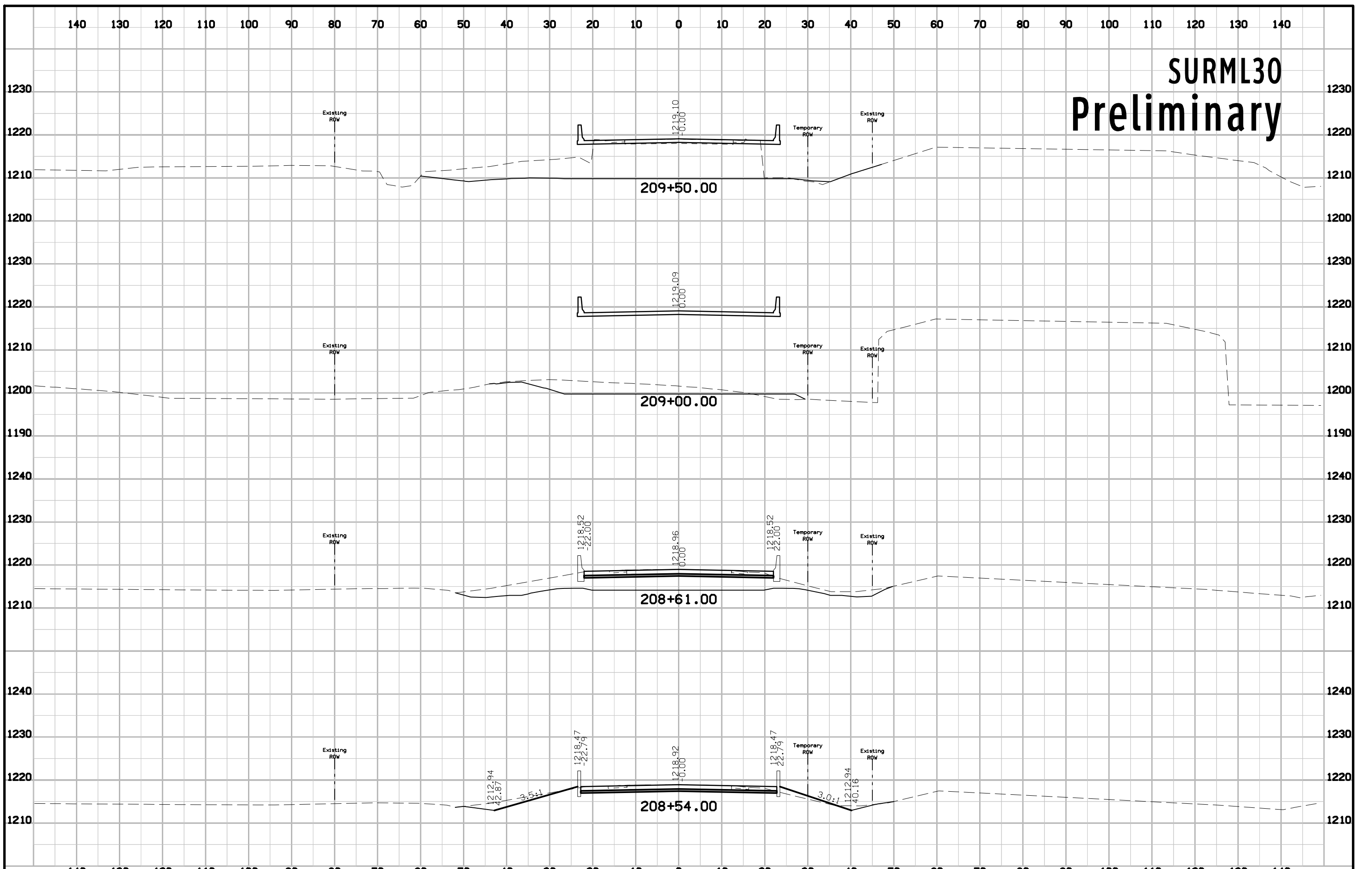
SURML30 Preliminary



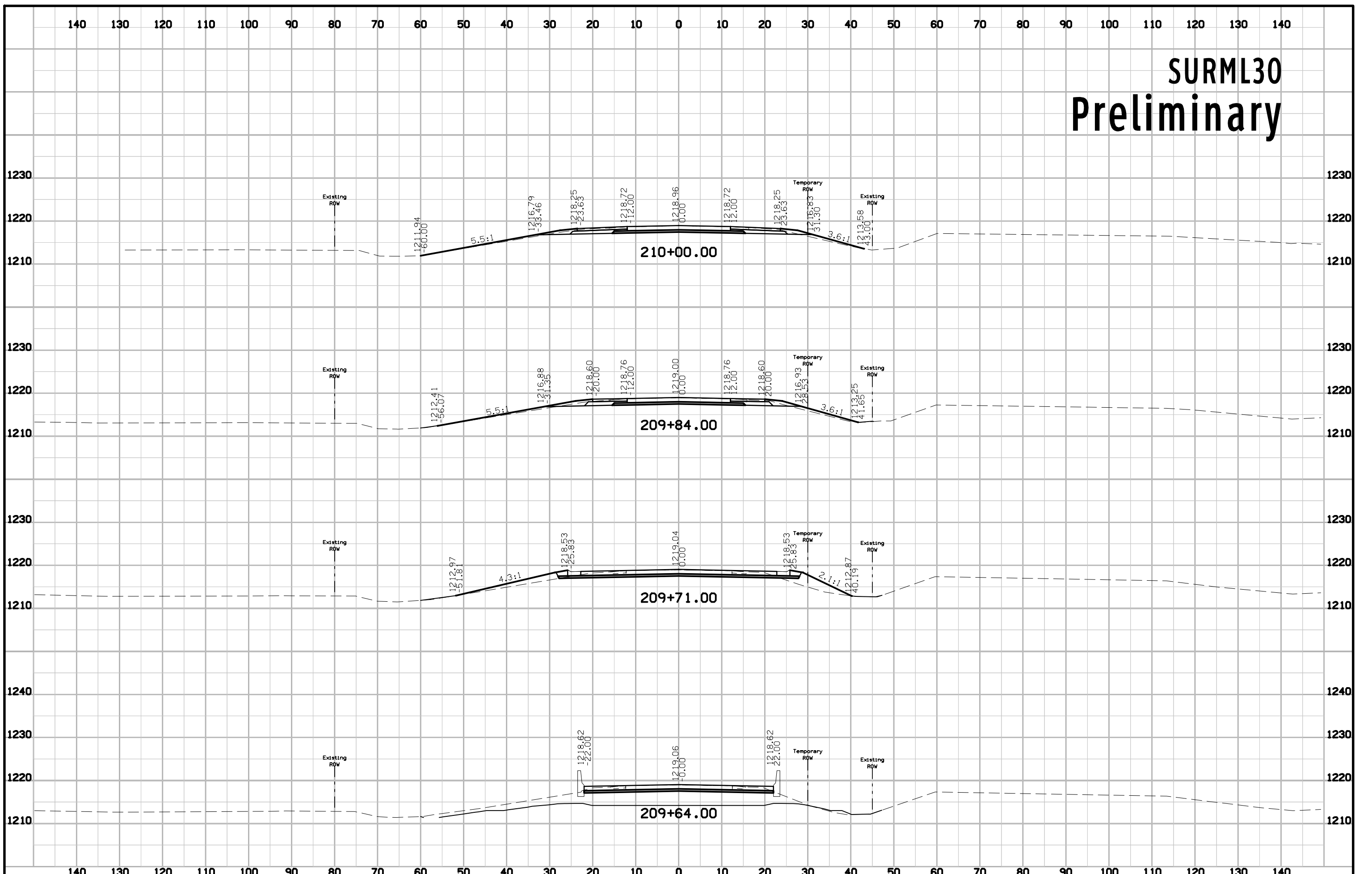
SURML30 Preliminary



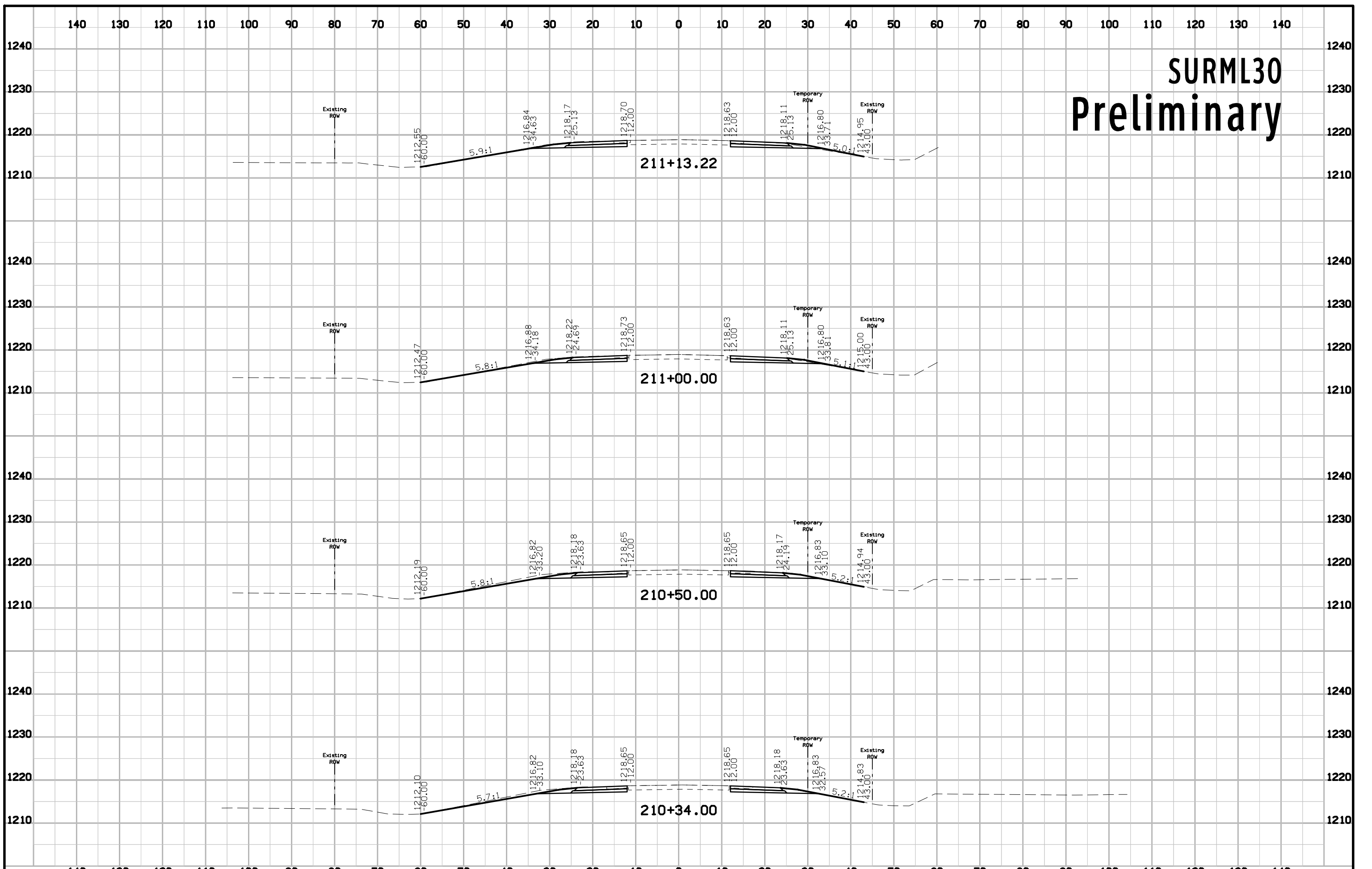
SURML30 Preliminary



SURML30 Preliminary



SURML30 Preliminary



SURML30 Preliminary

