LETTING DATE
Dec 19 2028

Bridge Replacement - PPC Beam
BRF-034-3(043)--38-02

ADAMS COUNTY

INDEX OF SHEETS	
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A.2	Design Criteria
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IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

ADAMS COUNTY

Bridge Replacement - PPC Beam

Kemp Creek 4.8 mi W of IA 148

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

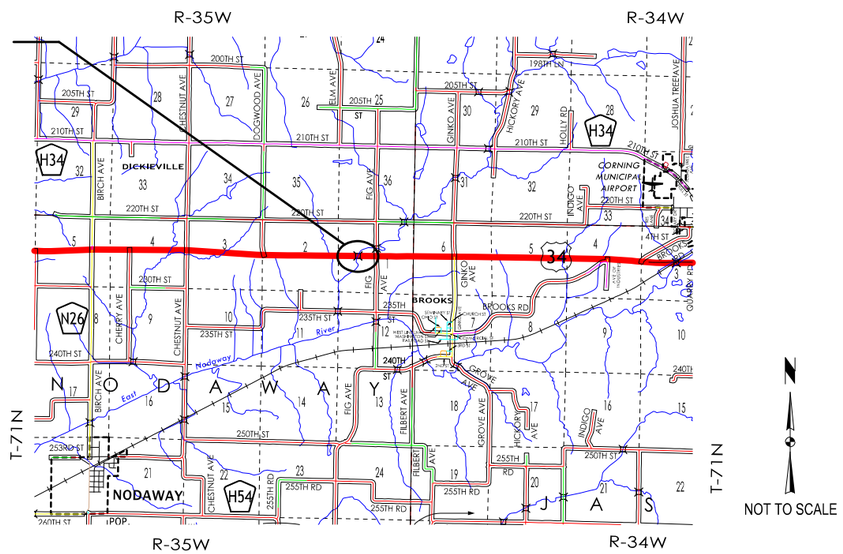
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

IOWA ONE CALL
1-800-292-8989
811
www.iowaonecall.com

REVISIONS

TOTAL
28
PROJECT IDENTIFICATION NUMBER
24-02-034-010
PROJECT NUMBER
BRF-034-3(043)--38-02
R.O.W. PROJECT NUMBER
NHNSN-034-3(044)--2R-02

PROJECT LOCATION
FHWA #013310



NOT TO SCALE

INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	Cindy A. Spencer	Primary Signature Block	X
V.1	David J. Mulholland	Hydraulic Signature	X

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 1-23-25

FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER A.1

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

Roadway	U.S. 34		
PIN Number	24-02-034-010	**Submittal Date**	
Project Number	BRF-034-3(43)--38-02		**Approval Date**
District	District 4	**Assistant District Engineer**	Wes Mayberry
County	ADAMS	**or**	
Route	U.S. 34	**Office Director**	
Location	Over Kemp Creek		
Work Type	Bridge Replacement		
Segment Manager			
Designer	Snyder & Associates, Inc.		

Design Manual Section 1C-1
Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6%
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	3%
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	N/A
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	4" sloped
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	10:1 / 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	N/A
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures	8:1	6:1	8:1
	w/o drainage structures	10:1	6:1	10:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	5 x 10
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	44'
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	44'
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	N/A
	Over railroad	23.3	23.3	23.5'
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service		B	B	B

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Design year ADT = 2230 (2016)

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	10' effective, 10' paved
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*Requires safety edge-Refer to Section 3C-6

Curbs should be located beyond the outer edge of the effective shoulder width in rural areas

Refer to Section 3C-2 for curb offsets in urban areas

Notes: Shoulder width proposed matches US 34 over BNSF / E Nodaway River project, just east of this one.

Roadway Design Speed (mph) = 60

Design Manual Section 1C-1
Last Updated: 04-29-19

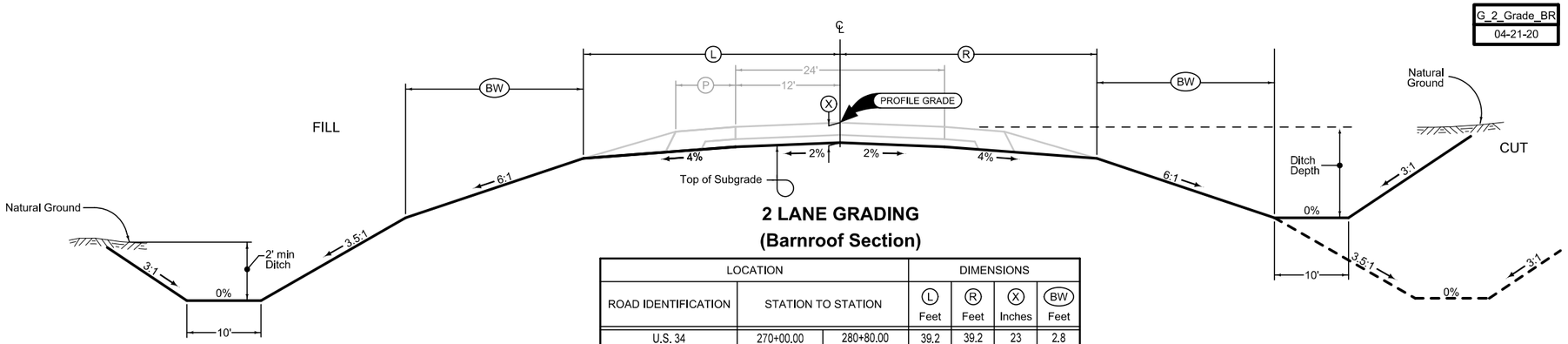
Design Criteria for High Speed Roadways

Design Element			Preferred Criteria, Design Speed, mph						Acceptable Criteria, Design Speed, mph						Project Values
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	570
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e_{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	1330
		e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	180
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	151
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	136
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	136
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						.5
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4			3			7	6	6	–	–	–	
		Rural roadways							5	5	4	4	4	4	3
		Interstates							5	5	4	4	4	4	
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						30'

G_2_Grade_BR
04-21-20

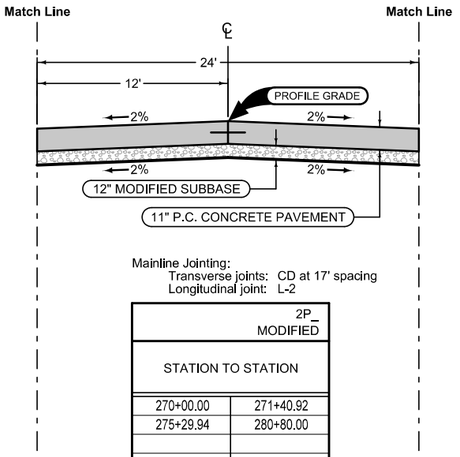
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of dltches and backslopes.



2 LANE GRADING
(Barnroof Section)

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
U.S. 34	270+00.00	280+80.00	39.2	39.2	23	2.8



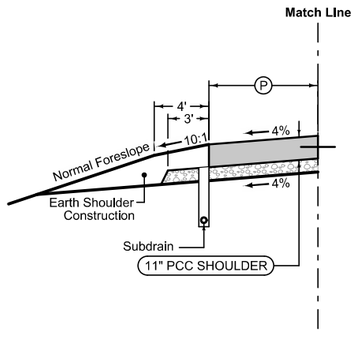
Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

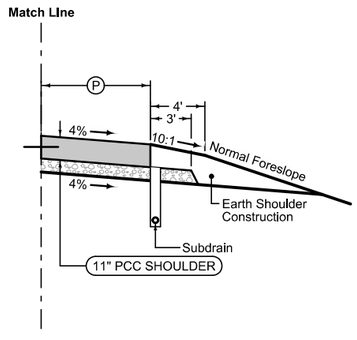
2P_ MODIFIED	
STATION TO STATION	
270+00.00	271+40.92
275+29.94	280+80.00

Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: BT-6
Transverse joints: C at 17' spacing

2_P_FullPCC_ MODIFIED		
STATION TO STATION		(P) Feet
270+00.00	271+40.92	10
275+29.94	280+80.00	10

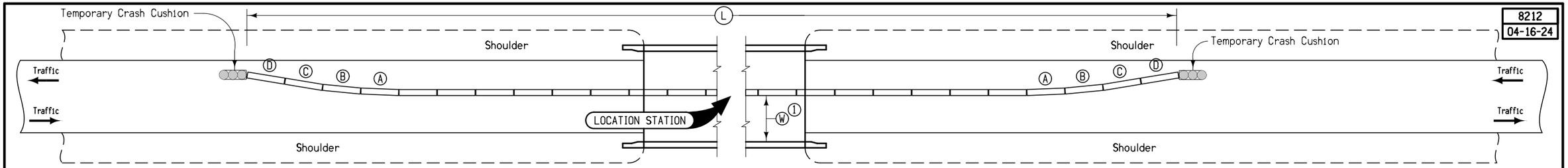




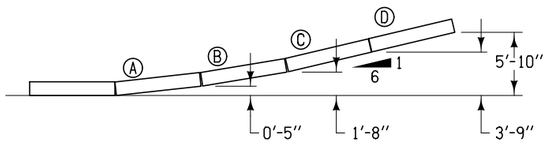
Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: BT-6
Transverse joints: C at 17' spacing

2_P_FullPCC_ MODIFIED		
STATION TO STATION		(P) Feet
270+00.00	271+40.92	10
275+29.94	280+80.00	10



1 Where W is less than 15'-6", install restricted width signing as per Standard Road Plan TC-81.

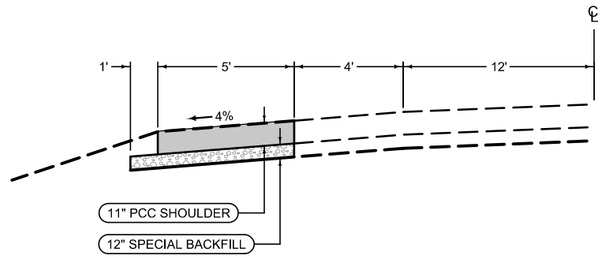


BARRIER OFFSETS FOR FLARE SECTIONS

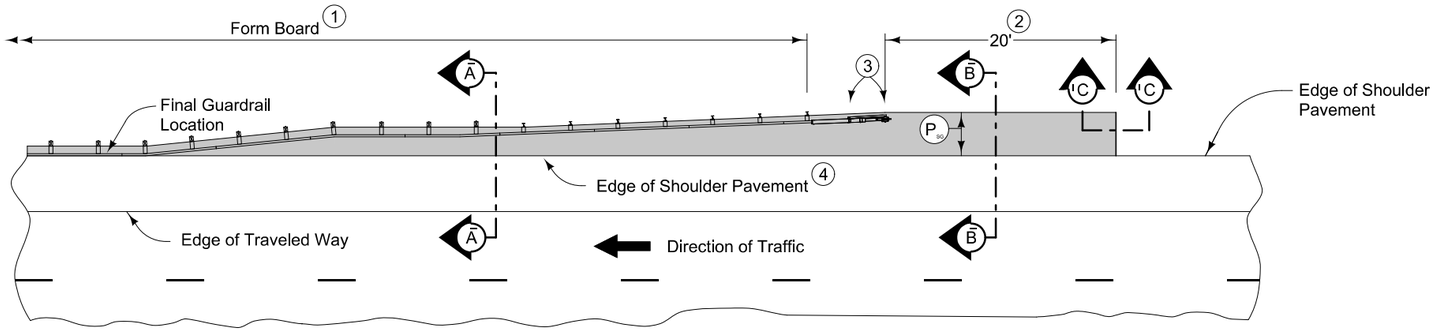
Station	Side	AA	WL	TA	L	Anchored	W (1)	Remarks
		Feet	Feet	Feet	Feet	X	Ft-inches	
273+35.43	RT	22.5	1080	22.5	1225	X	15'-0"	Stage 2
273+35.43	LT	22.5	1080	22.5	1225	X	11'-0"	Stage 3

TEMPORARY CONCRETE BARRIER LAYOUT for Two-Way Traffic

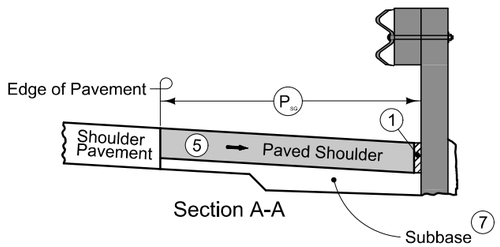
STATION TO STATION	
266+52.50	270+00.00
280+80.00	284+27.46



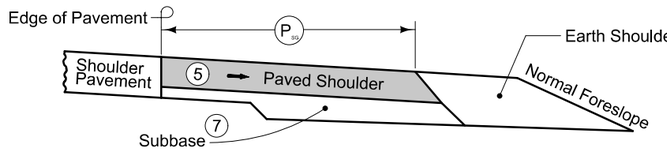
SHOULDER WIDENING



PLAN VIEW

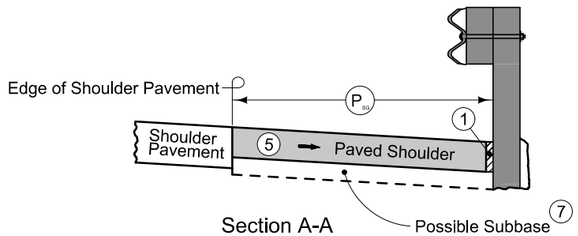


Section A-A

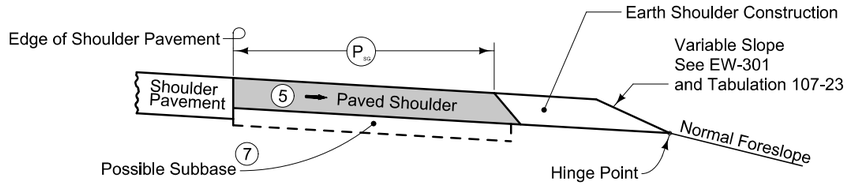


Section B-B

NEW CONSTRUCTION 6



Section A-A



Section B-B

EXISTING SHOULDER

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.

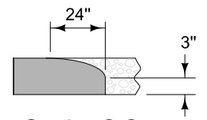
(3) Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

(4) 'KT' (per PV-101) joint for PCC shoulder.
'B' (per PV-101) joint for HMA shoulder.

(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.



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

PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO FULL 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

F05 — ICN IOWA COMMUNICATIONS NETWORK
DAVE AUGSPURGER
515-725-4604
icnoutsideplantiowaonecall@iowa.gov

F04 — INS AUREON NETWORK SERVICES
JEFF KLOCKO
515-830-0445
jeff.klocko@aureon.com

W — SIR SOUTHERN IOWA RURAL WATER ASSO
CHAD MAHAN
641-782-5744
cmahan@sirwa.org

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 Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER D.1

4:36:17 PM 6/17/2026 mkjartanson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_LEG.dgn

NODAWAY TWP.
T-71N
R-25W
SEC. 1
ADAMS COUNTY

Remove Letdown Pipes

48"x63 LF.
Corg. Metal Pipe

48"x65 LF.
Corg. Metal Pipe

Construction Limits

STA 280+80.00 (GEOMBL_US34)
END CONSTRUCTION

U.S. 34

U.S. 34

STA 270+00.00 (GEOMBL_US34)
BEGIN CONSTRUCTION

KEMP CREEK

Construction Limits

Sta. 273+50.00
Skew 30° LT AH
200' x 30' Continuous I-Beam Bridge
D.A.=44.4 Sq. Mi. R-H

0 50
FEET

PROPOSED PROFILE GRADE

EXISTING GROUND PROFILE

VPC = 270+00.00
EL = 1096.95

+0.21%

+0.50%

VPI = +00.00
EL = 1097.16
L = 200.00'
K = 684

VPT = 272+00.00
EL = 1097.66

VPC = 275+80.00
EL = 1099.56

+0.50%

+3.97%

VPI = +30.00
EL = 1100.81
L = 500.00'
K = 144

VPT = 280+80.00
EL = 1110.74

RT +00
1085.60

-1.47% RT Ditch Grade

RT +50
1083.40

LT +00
1082.20

-1.00% LT
Ditch Grade

LT +91
1080.29

-11.67% RT
Ditch Grade

-9.59% LT
Ditch Grade

RT +94
1078.25

-5.73% RT
Ditch Grade

RT +47
1075.00

LT +40
1066.00

RT +20
1066.00

+15.31% RT Ditch Grade

RT +76
1089.95

±0.20% RT Ditch Grade

RT +00
1090.40

+1.85% RT
Ditch Grade

RT +00
1092.25

+2.70% RT
Ditch Grade

RT +50
1093.60

+5.07% RT Ditch Grade

RT +80
1105.25

1110
1100
1090
1080
1070

1096.95 1097.01 1097.07 1097.15 1097.23 1097.32 1097.43 1097.54 1097.66 1097.78 1097.91 1098.03 1098.16 1098.28 1098.41 1098.53 1098.66 1098.78 1098.91 1099.03 1099.16 1099.28 1099.41 1099.53 1099.67 1099.85 1100.08 1100.35 1100.66 1101.01 1101.41 1101.85 1102.34 1102.87 1103.44 1104.05 1104.71 1105.41 1106.16 1106.95 1107.78 1108.66 1109.58 1110.54

270+00 275+00 280+00

FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER D.2

4:10:26 PM 6/17/2026 mkjartanson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_D02.dgn

108-23A
08-01-08

TRAFFIC CONTROL PLAN

1. At least one lane of traffic will remian open on U.S. 34 at all times. Lane and shoulder closures as necessary will be per applicable Standard Road plans referenced elsewhere in these plans.

2. Notify the Engineer at least 7 calendar days prior to proposed lane closures. Install portable dynamic message signs (PDMS's) (1 mile?) east and west of closure location at least (3 days) prior to closure and throughout the duration of the lane closure.

3. Access to individual properties throughout the project limits shall be maintained at all times.

4. Install signage on Fig Avenue to alert motorists to potential queueing from lane closures / signals.

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
BRF-034-3(41)--38-02	Bridge Replacement - CWG

108-26A
08-01-08

STAGING NOTES

U.S. 34 will remain open to traffic during construction. The proposed bridge will be constructed in stages to allow at least one lane of traffic to be maintained.

Stage 1:
Construct shoulder strengthening.
Construct embankment and other items outside of the existing roadway pavement.

For work adjacent to or just outside the existing roadway shoulders, close roadway shoulders per Standard Road Plan TC-202.

For shoulder strengthening, short term lane closures will be allower per Standard Road Plan TC-213 (Lane CLosure with Flaggers). Overnight lane closures will not be allowed.

Stage 2:
Construct north half of proposed bridge and roadway. Refer to J sheets for removal and reconstruction limits, and traffic control layouts.

A single lane of traffic will be maintained on the existing bridge / roadway and shoulders using temporary traffic signals and TBR.

Stage 3:
Construct south half of proposed bridge and roadway. Refer to J sheets for construction limits and traffic control layouts.

A single lane of traffic will utilize the new pavement and bridge constructed with Stage 2, using temporary traffic signals and TBR.

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
Orange	(6)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Cyan	(7)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

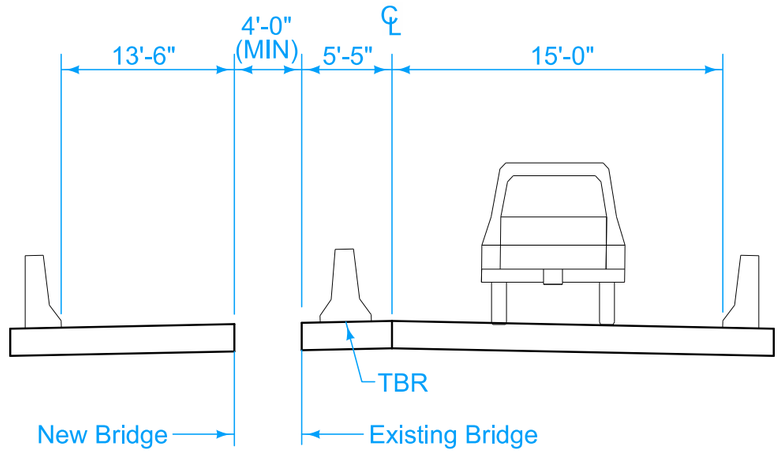
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

●	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	1	Lane Identification

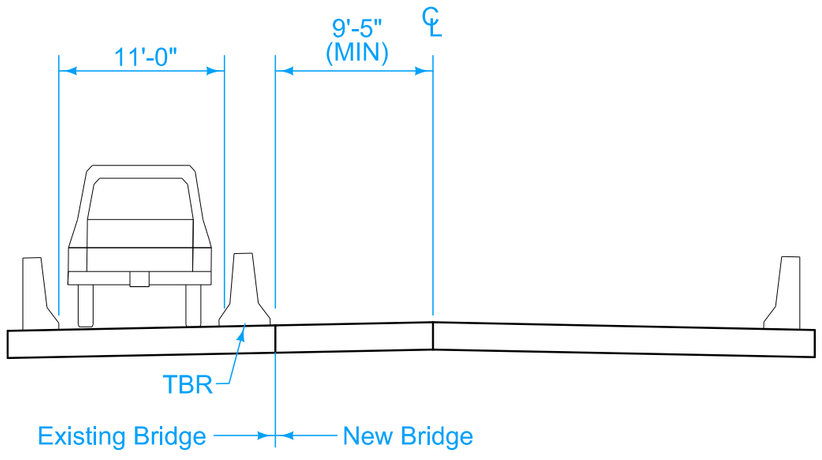
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

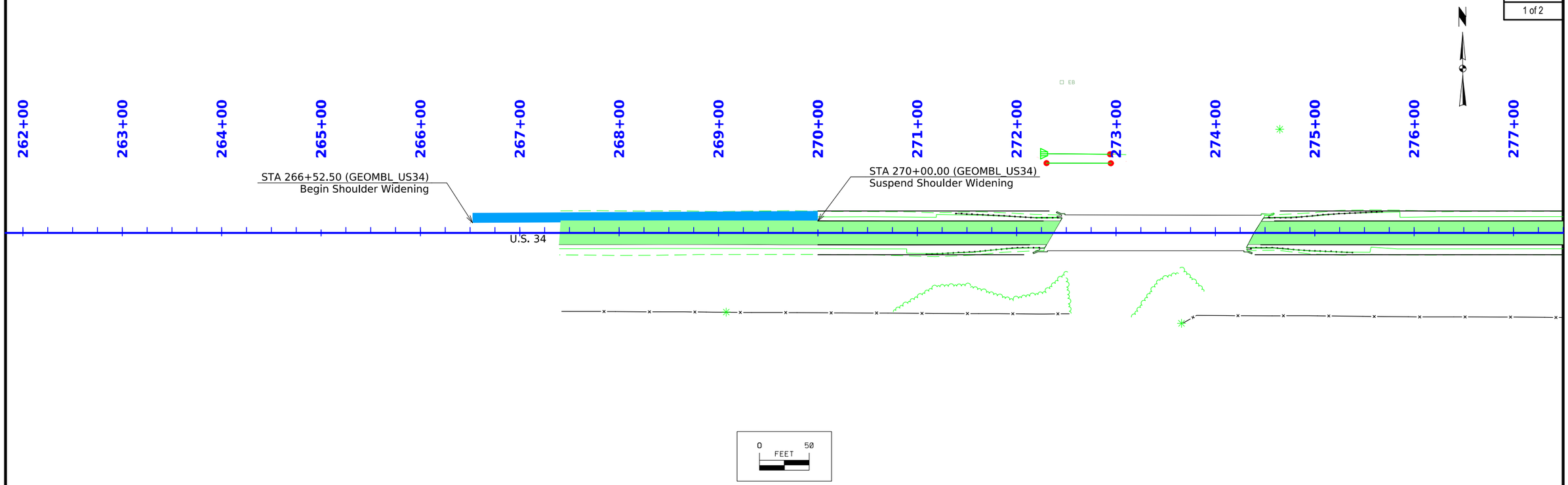


US 34 W.B. ADAMS COUNTY
STAGE 2

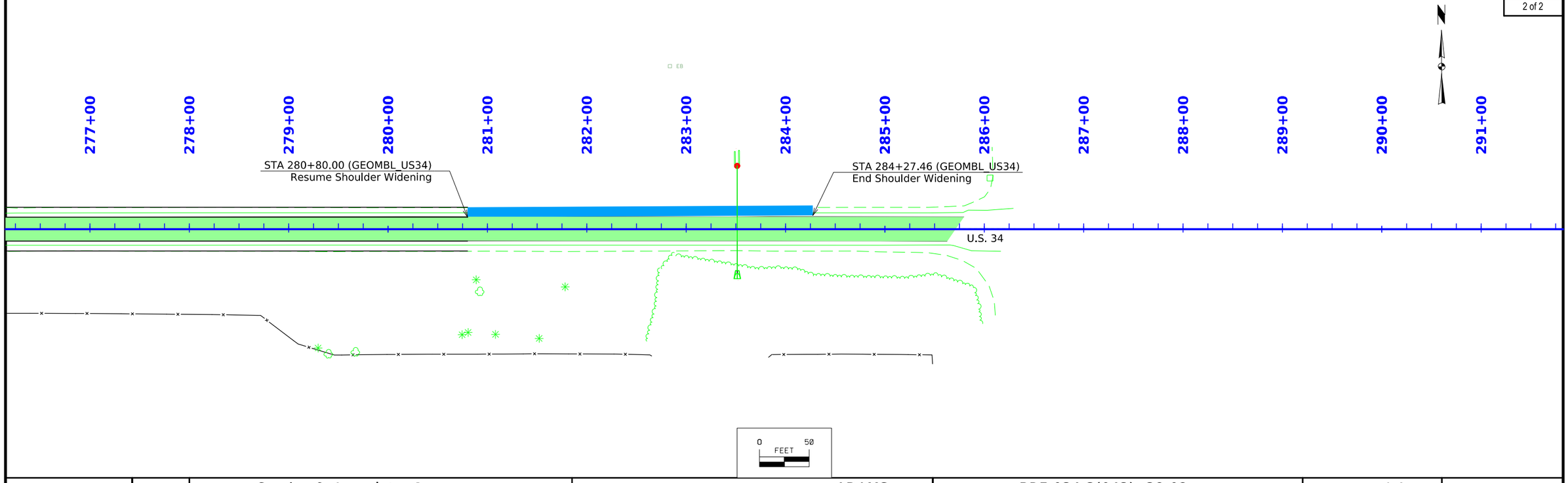


US 34 E.B. ADAMS COUNTY
STAGE 3

STAGE 1
1 of 2



STAGE 1
2 of 2



FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER J.4

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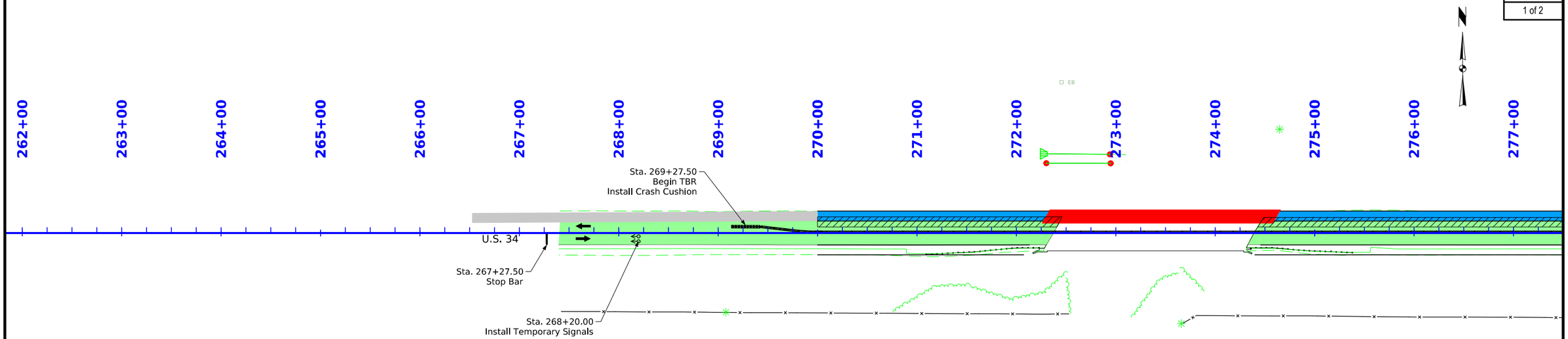
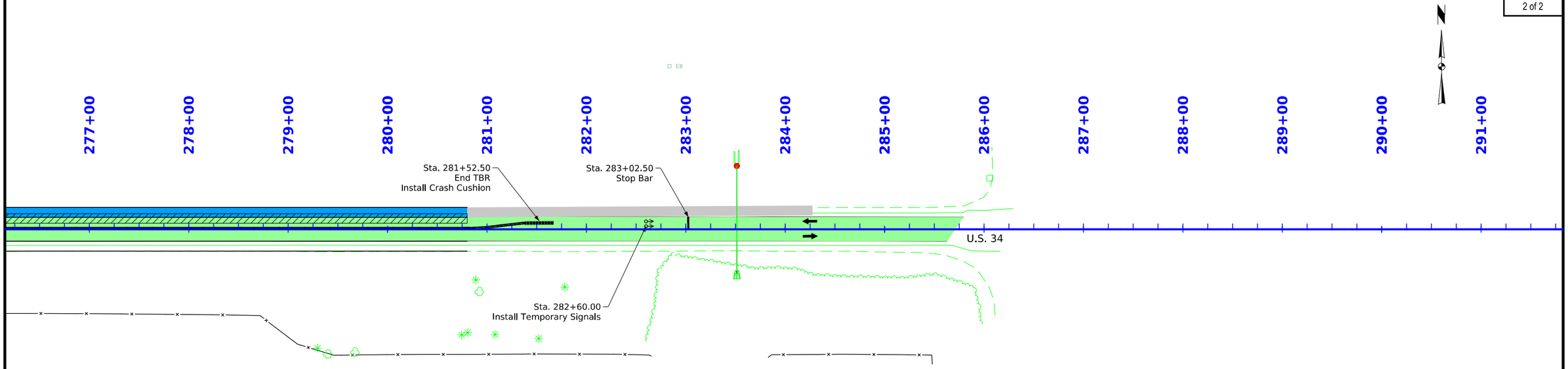
STAGE 2
1 of 2



Refer to SRP TC-217
For Additional Information

STAGE 2
2 of 2



Refer to SRP TC-217
For Additional Information

FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER J.5

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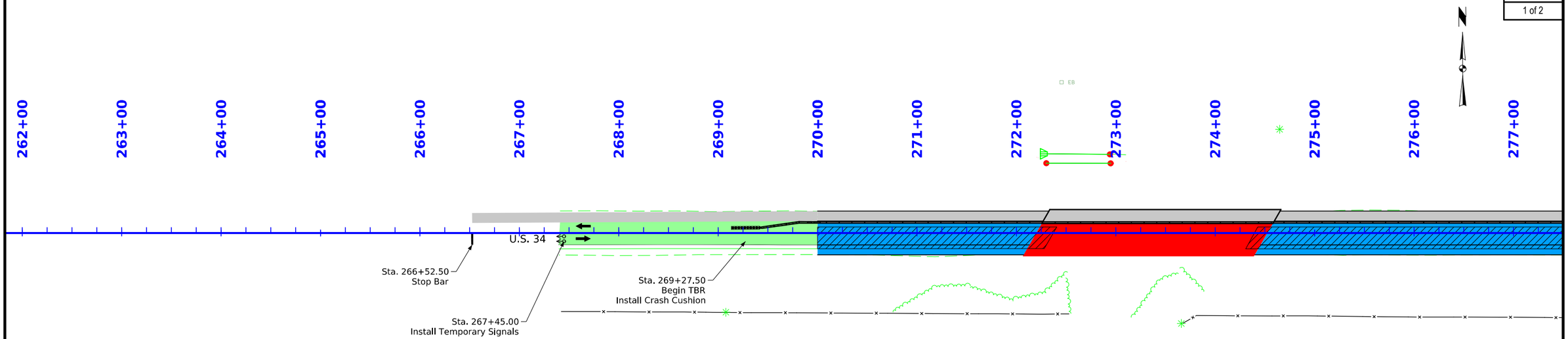
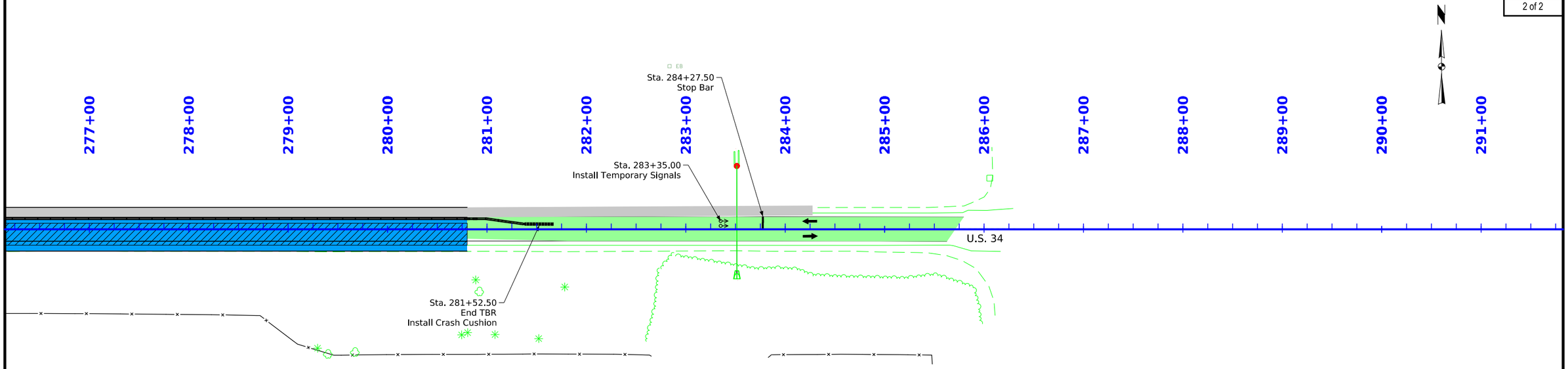
STAGE 3
1 of 2



Refer to SRP TC-217
For Additional Information

STAGE 3
2 of 2



Refer to SRP TC-217
For Additional Information

FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER J.6

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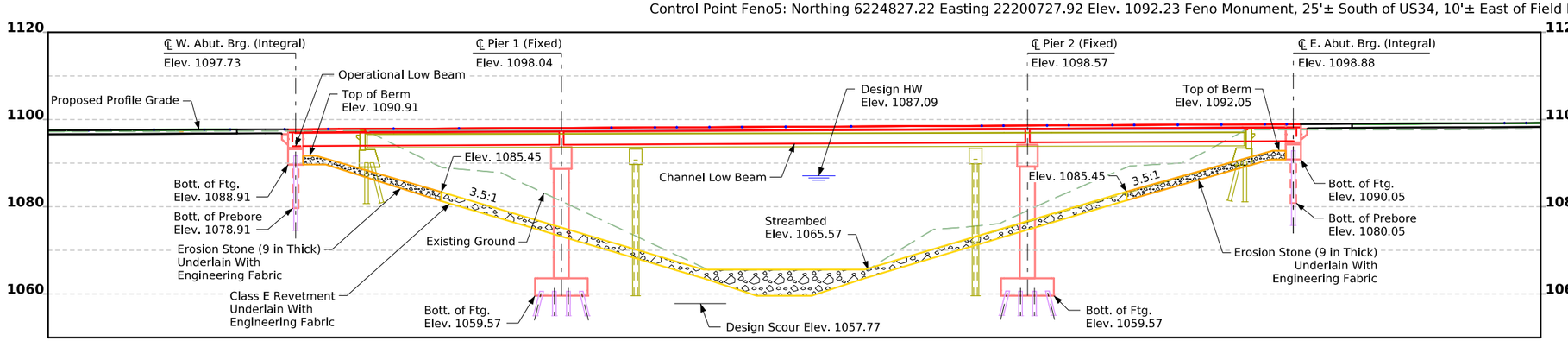
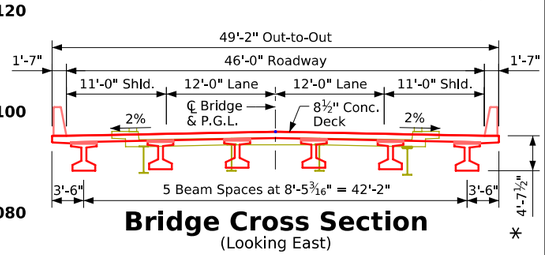
Control Point Feno5: Northing 6224827.22 Easting 22200727.92 Elev. 1092.23 Feno Monument, 25'± South of US34, 10'± East of Field Drive, 25'± Northeast of Fence Corner, 1250'± West of Camp Creek





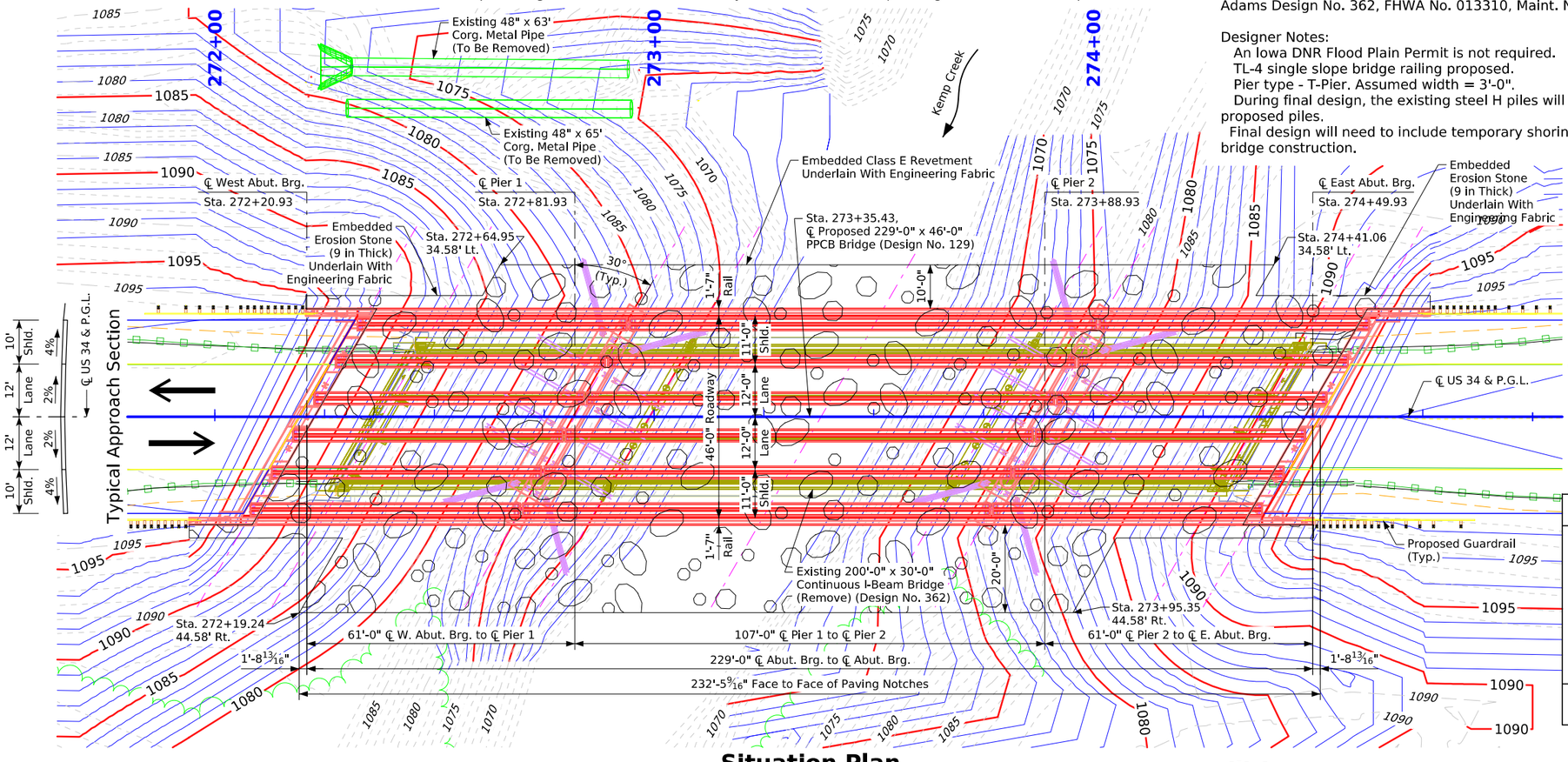
Bridge Cross Section

(Looking East)

* Structure depth of 4.625' assumes 8.5 in. deck, 2 in. concrete haunch, and 45 in. girder depth.

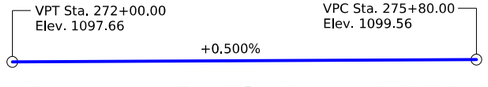
Longitudinal Section Along ℄ Approach Roadway

Top of bridge deck at centerline roadway is 0.03 ft. below the profile grade to account for parabolic crown.

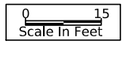


Situation Plan

All dimensions are in feet unless noted otherwise.



Proposed Profile Grade US 34



SHUCK-BRITSON

General Notes:

This design is for the replacement of the existing 200'-0" x 30'-0 I-Beam Bridge, Adams Design No. 362, FHWA No. 013310, Maint. No. 0257.3S034.

Designer Notes:

An Iowa DNR Flood Plain Permit is not required.
TL-4 single slope bridge railing proposed.
Pier type - T-Pier. Assumed width = 3'-0".
During final design, the existing steel H piles will be considered when designing proposed piles.
Final design will need to include temporary shoring to accomdate staging of bridge construction.

Location

US 34 over Kemp Creek
T-71N R-35W
Section 1
Nordaway Township
Adams County
FHWA No. 013311
Bridge Maint.
No. 0257.3S034
Latitude 40.979892°
Longitude -94.829103°

Traffic Estimate

2024 AADT	2,620 V.P.D.
2047 AADT	----- V.P.D.
2047 DVH	----- V.P.D.
TRUCKS	26 %
Total Design ESALs	--

Hydraulic Data

RIDB: "KempC_Adams_1.28"
Drainage Area = 44.8 Sq. Mi.
Stream Slope (HGL) = 5.3 ft./Mi.
Avg. Low Water Stage = 1066.0

Operational Low Beam = 1092.66
Channel Low Beam = 1093.29

Q_{50} = 8860 cfs
Stage = 1085.45
Operational Freeboard = 7.2 ft.
Avg. Bridge Velocity = 4.8 fps

Q_{100} = 10600 cfs (Design)
Stage = 1087.09
Operational Freeboard = 5.6 ft.
Backwater = 0.03 ft.
Avg. Bridge Velocity = 5.1 fps

Q_{200} = 12300 cfs
Stage = 1088.41
Calculated Design Scour = 1057.77

Q_{500} = 14400 cfs
Stage = 1089.60
Channel Freeboard = 3.7 ft.
Avg. Bridge Velocity = 5.7 fps
Calculated Check Scour = 1057.67

Roadway Overtop 1095.43
Sta. 260+50

Extreme HW Stage = Unknown
Date = Unknown

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
T - Telephone Line
W - Water Line
FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
-●- Power Poles

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.

David J. Mulholland — 01-23-2026
Signature — Date
David J. Mulholland
Printed or Typed Name
My license renewal date is December 31, 2026
Pages or sheets covered by this seal: Sheets V.1 - V.2
(Hydraulic Data, Channel Grading and Revetment)

LICENSED PROFESSIONAL ENGINEER
David J. Mulholland
P14746
IOWA

Preliminary

Design For 30 Degree Skew LA

229'-0" x 46'-0" Pretensioned Prestressed Concrete Beam Bridge

61'-0" End Spans — 107'-0" Interior Span

Situation Plan

STA. 273+35.43 (US 34) — Turn-in Date: January 2026

Adams County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 129 — Design Sheet No. 1 of 3 — FHWA No. 013311

FILE NO. 32892	ENGLISH	DESIGN TEAM JLH\JAG\CLS\SR	Adams COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER V.1

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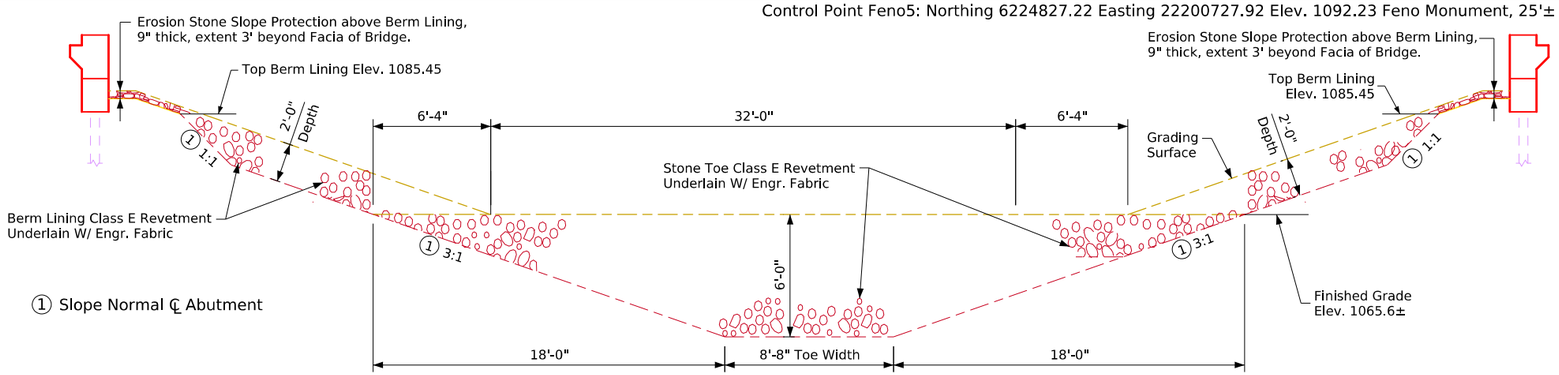
Control Point Feno5: Northing 6224827.22 Easting 22200727.92 Elev. 1092.23 Feno Monument, 25'± South of US34, 10'± East of Field Drive, 25'± Northeast of Fence Corner, 1250'± West of Camp Creek

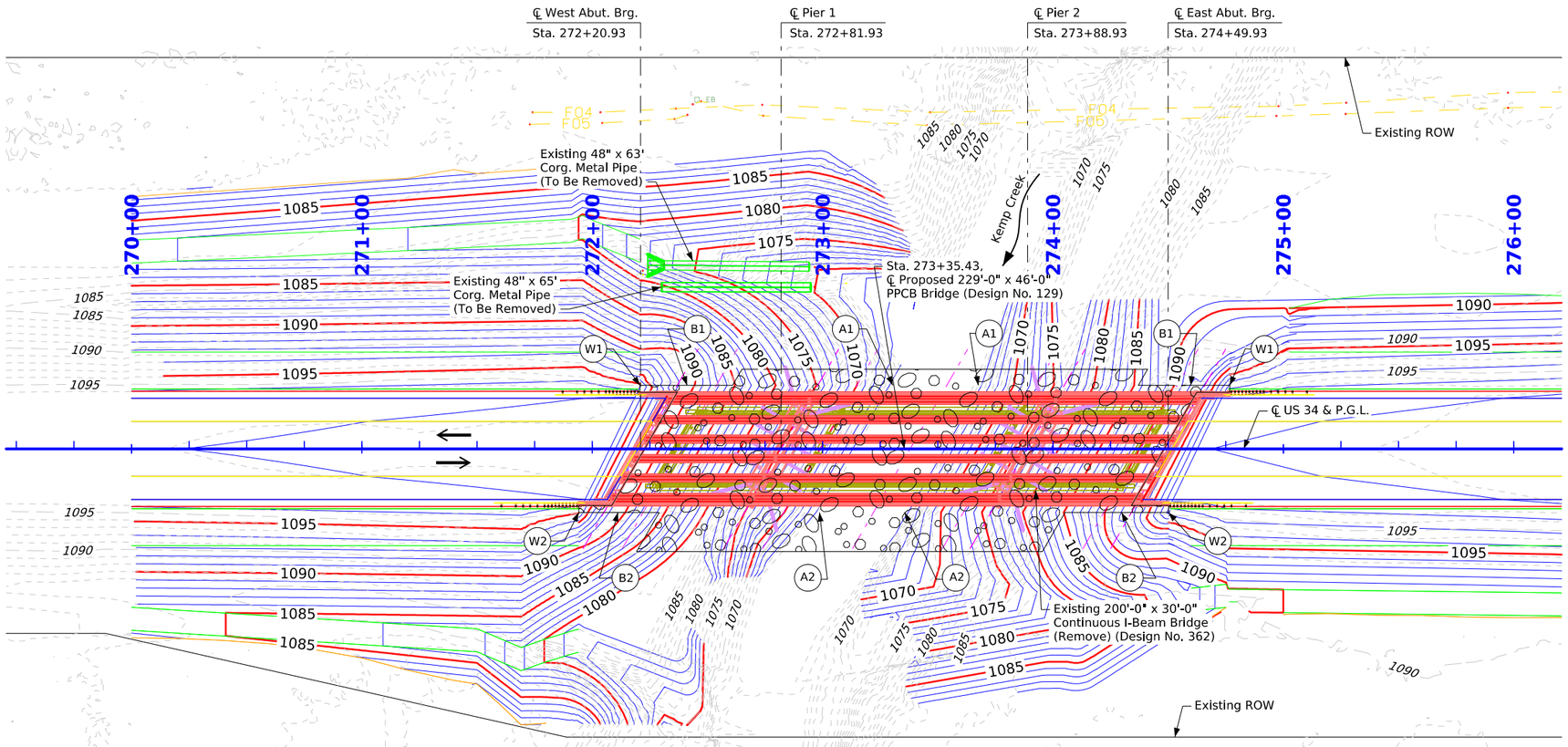


Berm Slope Location Table

Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	273+30.49	27.58' Lt.	1065.57	273+67.52	27.58' Lt.	1065.57
A2	272+98.64	27.58' Rt.	1065.57	273+35.59	27.58' Rt.	1065.57
B1	272+41.14	27.58' Lt.	1090.91	274+59.74	27.58' Lt.	1092.05
B2	272+11.12	27.58' Rt.	1090.91	274+29.72	27.58' Rt.	1092.05
W1	272+20.71	27.58' Lt.	1097.12	274+76.71	27.58' Lt.	1098.40
W2	271+94.15	27.58' Rt.	1096.99	274+50.15	27.58' Rt.	1098.27

Berm Slope and Revetment Points Elevations reflect the Grading Surface.

Section Thru Stone Toe and Berm Lining (Embedded)



Site Plan

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
T - Telephone Line
W - Water Line
FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
- Power Poles

Estimated Berm Armoring Quantities

Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - West Abutment	1080	57	765	700
Berm Lining - East Abutment	1080	67	791	706
Totals	2160	124	1556	1406

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans. Density used for Class E quantity calculations is 1.5 T/CY and for Erosion Stone is 1.6 T/CY.

0 30
Scale In Feet

N

Design For 30 Degree Skew LA

229'-0" x 46'-0" Pretensioned Prestressed Concrete Beam Bridge

61'-0" End Spans 107'-0" Interior Span

Situation Plan - Site

STA. 273+35.43 (US 34) Turn-in Date: January 2026

Adams County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 129 Design Sheet No. 2 of 3 FHWA No. 013311

FILE NO. 32892	ENGLISH	DESIGN TEAM JLH\JAG\CLS\SR	Adams COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER V.2	

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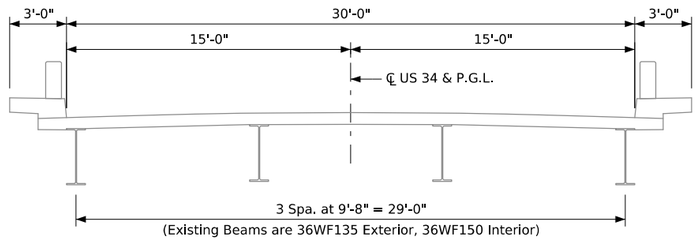
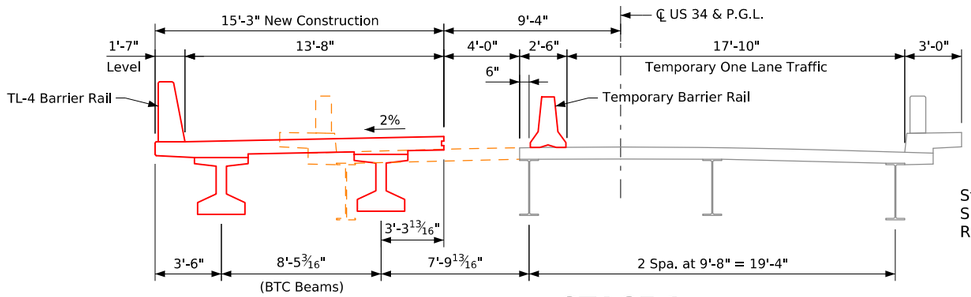
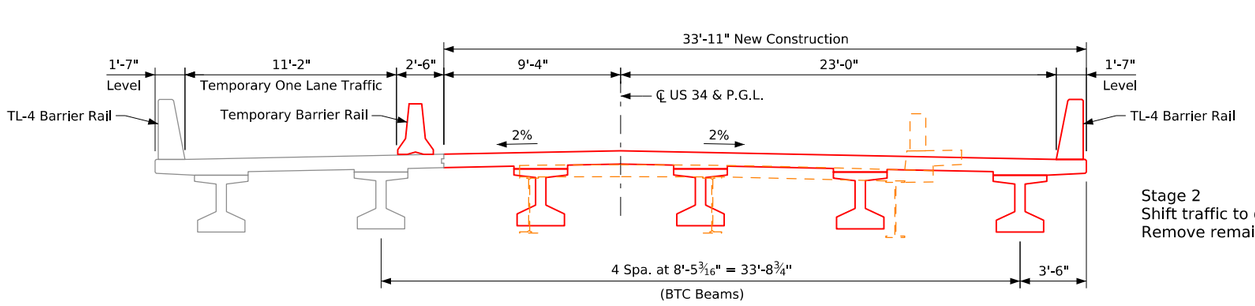


EXISTING
(Looking Ahead Station - East)



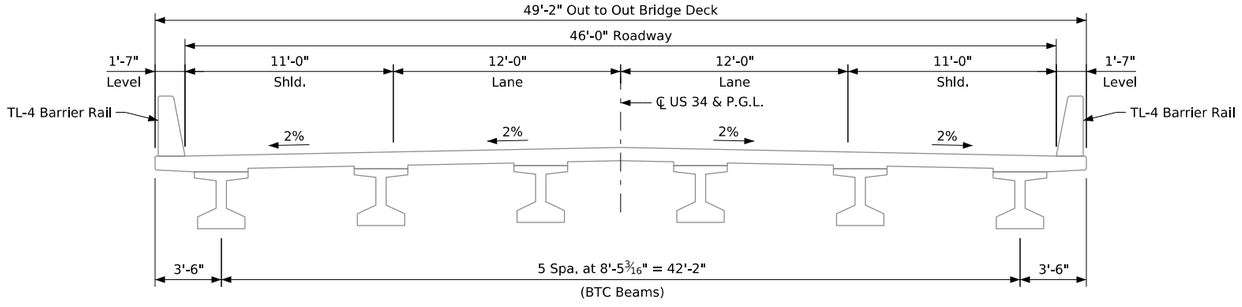
STAGE 1
(Looking Ahead Station - East)

Stage 1
Shift traffic to one lane traffic on the south side of the existing bridge.
Remove north portion of existing bridge and construct north portion of bridge.



STAGE 2
(Looking Ahead Station - East)

Stage 2
Shift traffic to one lane traffic on the newly constructed north portion of bridge.
Remove remaining portion of existing bridge and construct south portion of bridge.



FINAL
(Looking Ahead Station - East)

Final Stage
Shift traffic to one lane traffic on the newly constructed south portion of bridge.
Remove temporary barrier rail.

Note:
Closure pour not required per BDM 5.2.4.1.2.

SHUCK-BRITSON

Design For 30 Degree Skew LA

229'-0" x 46'-0" Pretensioned Prestressed Concrete Beam Bridge

61'-0" End Spans — 107'-0" Interior Span

Staging

STA. 273+35.43 (US 34) — Turn-in Date: January 2026

Adams County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 129 — Design Sheet No. 3 of 3 — FHWA No. 013311

FILE NO. 32892	ENGLISH	DESIGN TEAM JLH\JAG\CLS\SR	Adams COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER V.3

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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

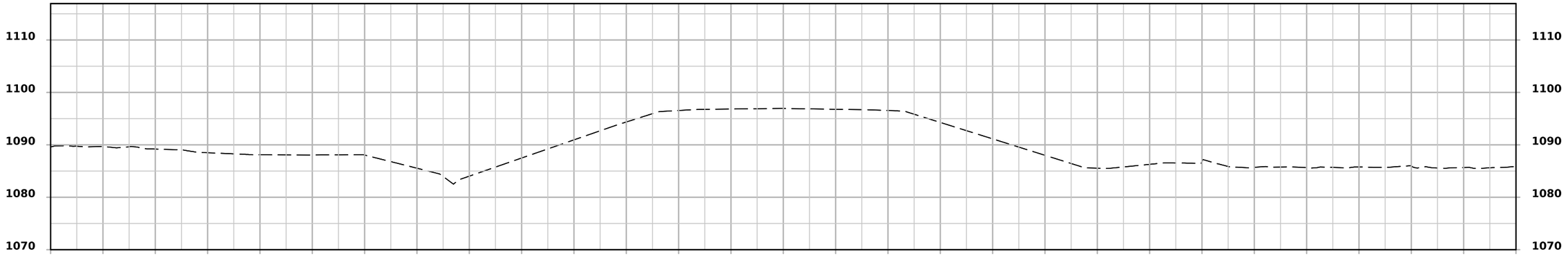
NOTES:

Text

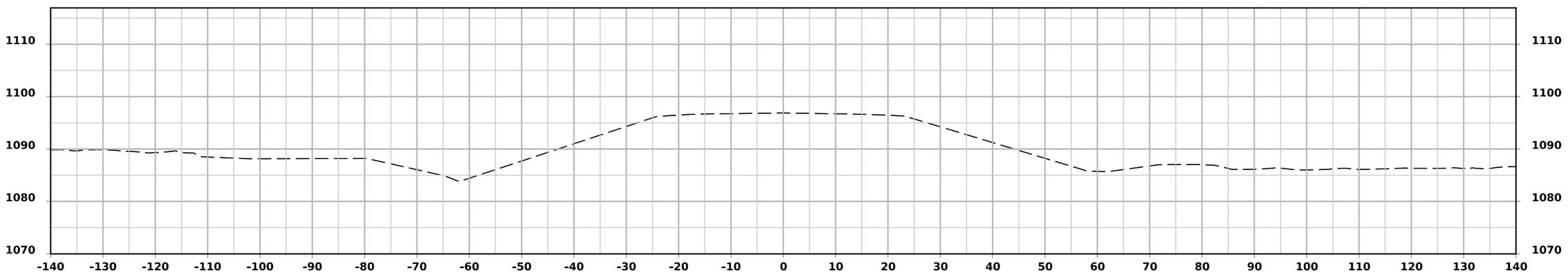
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

ML - US34



STA 270+00.00



STA 269+75.00

FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.2

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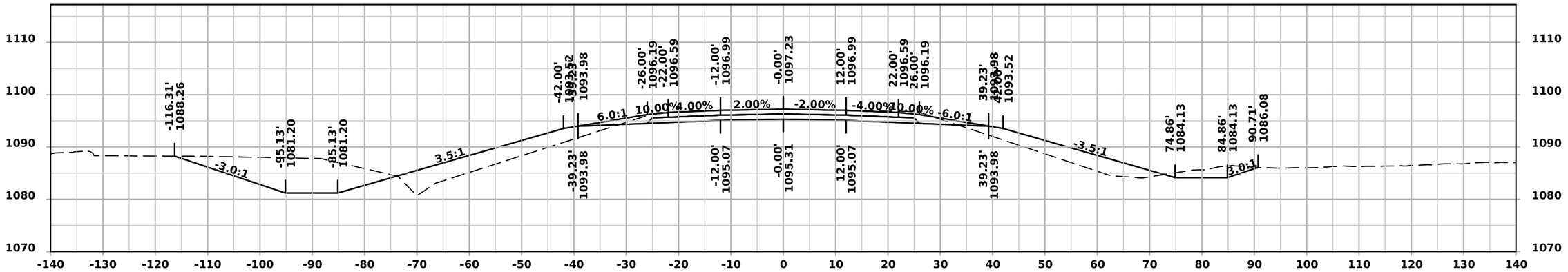
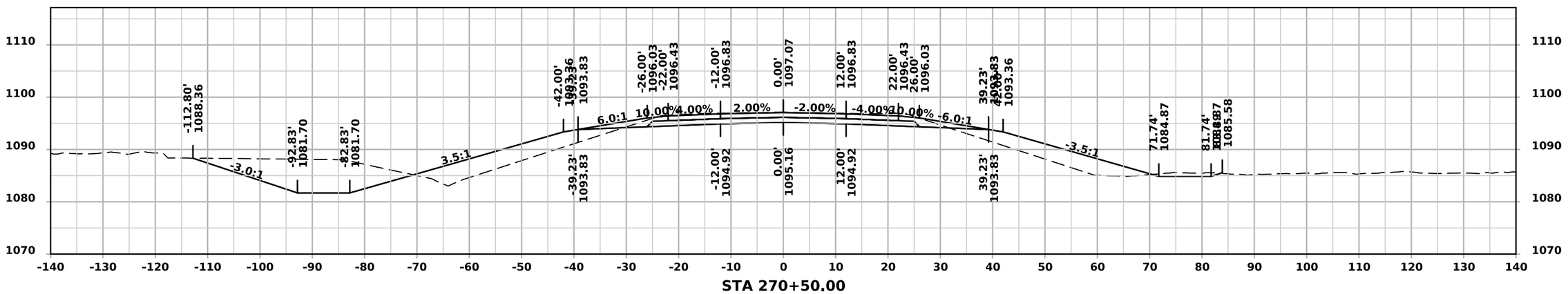
ML - US34



STA 271+00.00

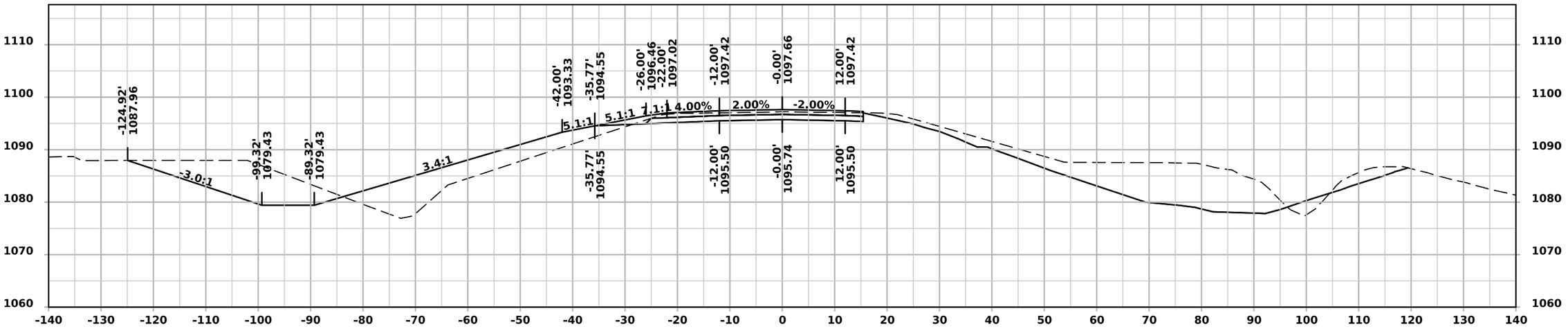


STA 270+50.00

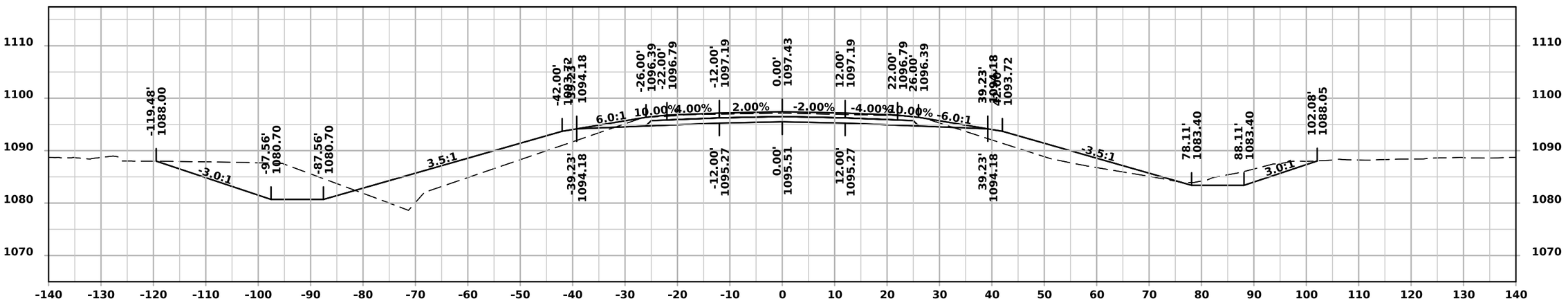
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.3

3:17:20 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



STA 272+00.00

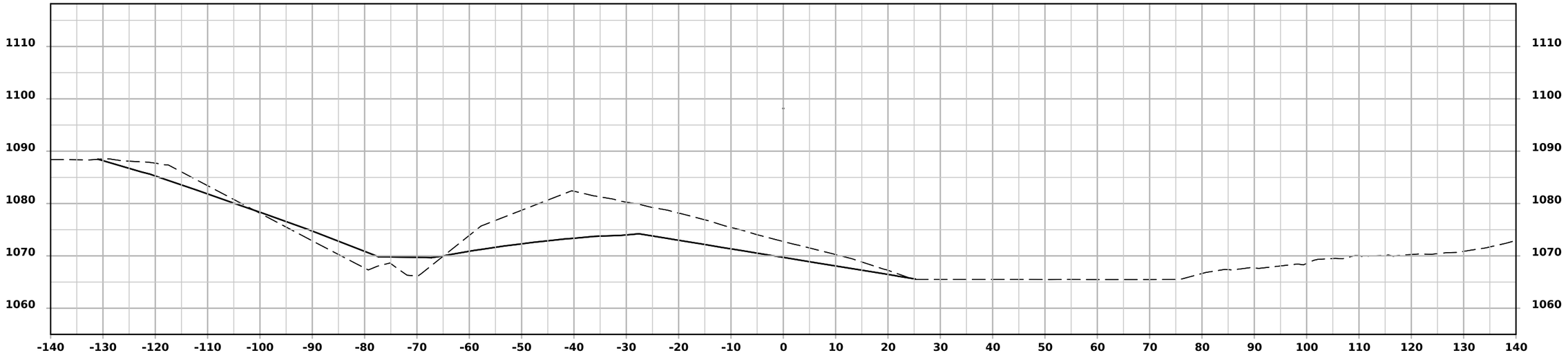


STA 271+50.00

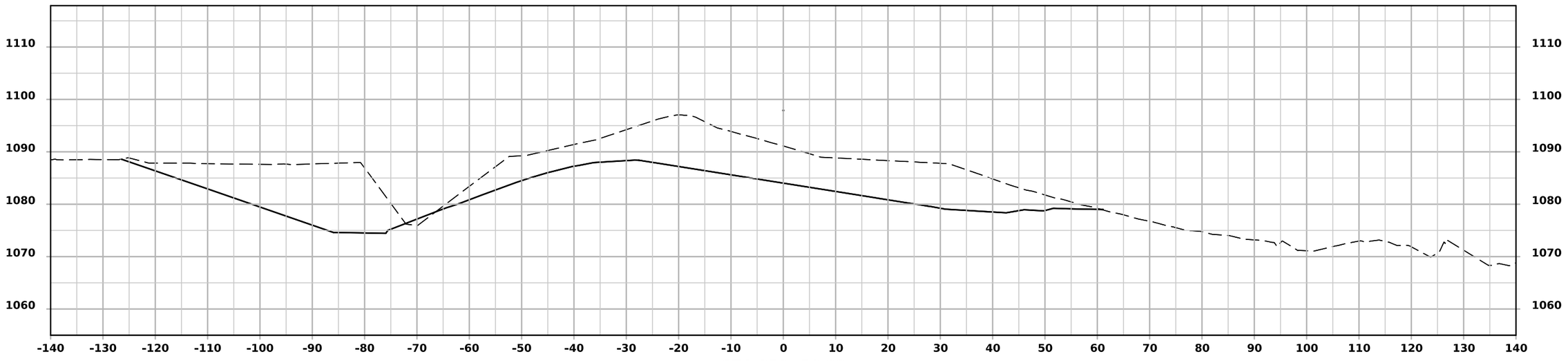
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.4

1:43:55 PM 2/18/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



STA 273+00.00

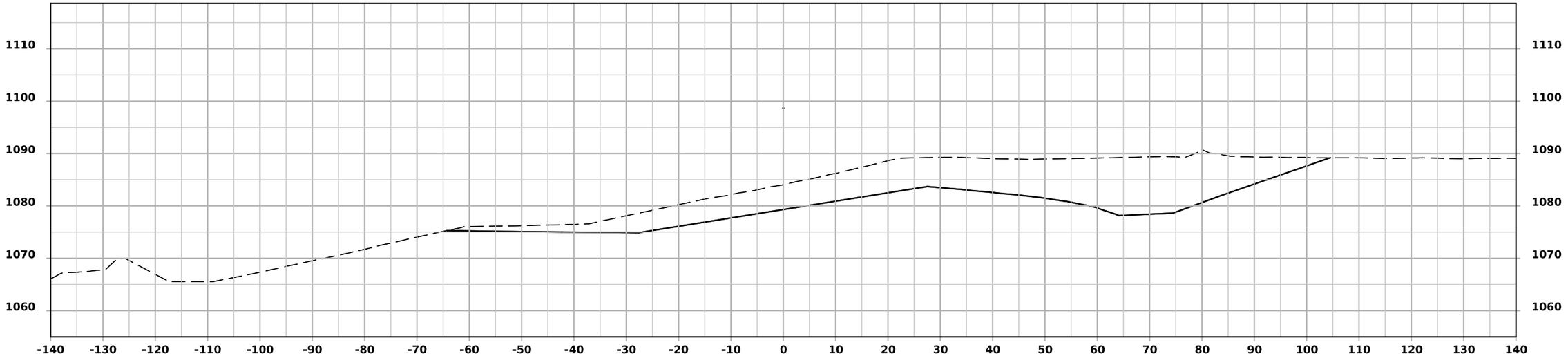


STA 272+50.00

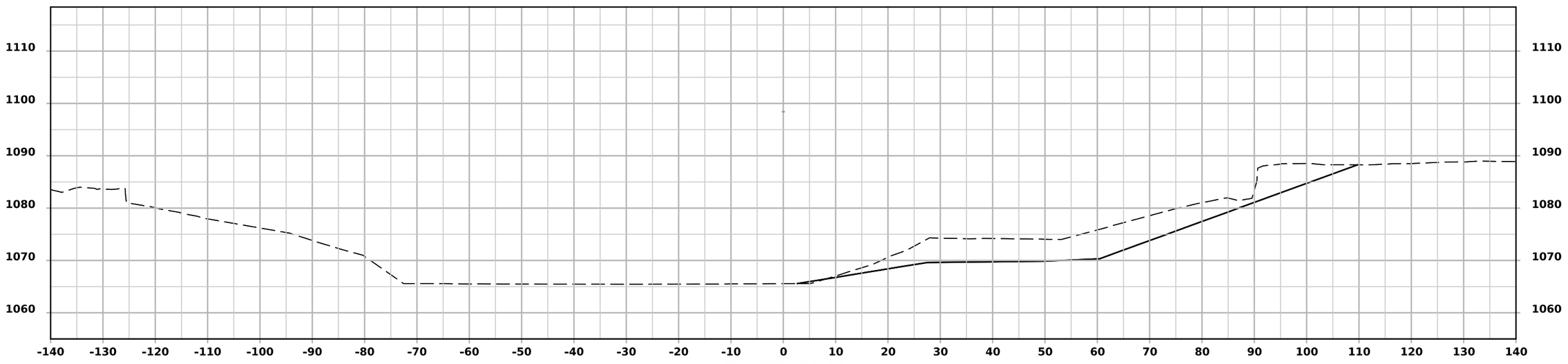
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.5

1:43:56 PM 2/18/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



STA 274+00.00

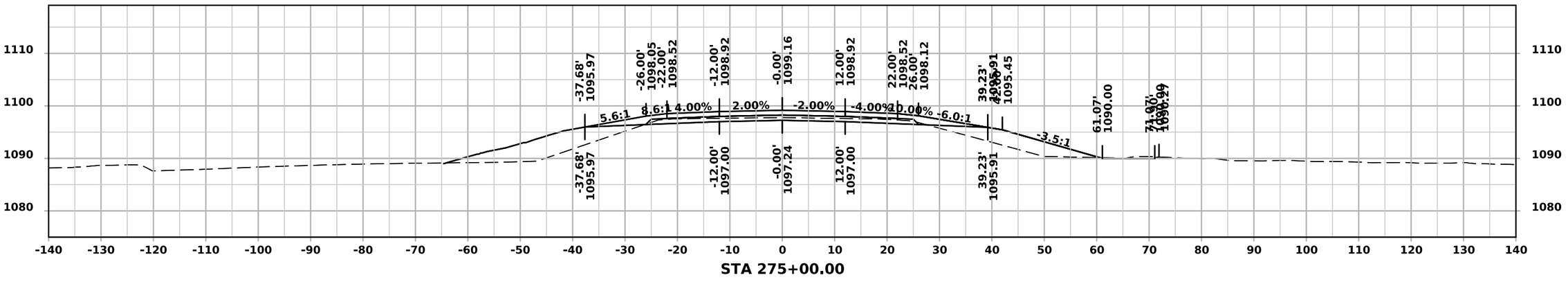


STA 273+50.00

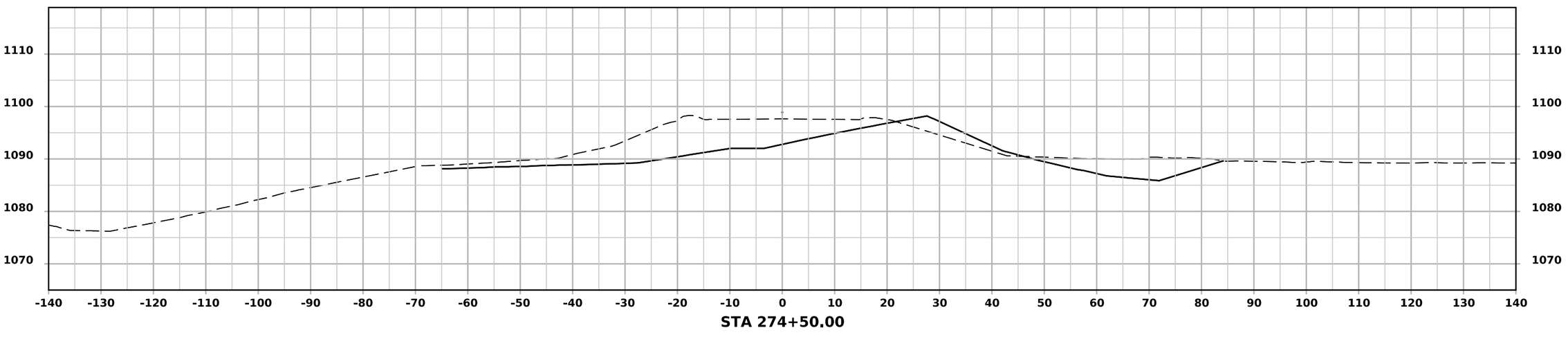
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.6

3:17:22 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



STA 275+00.00

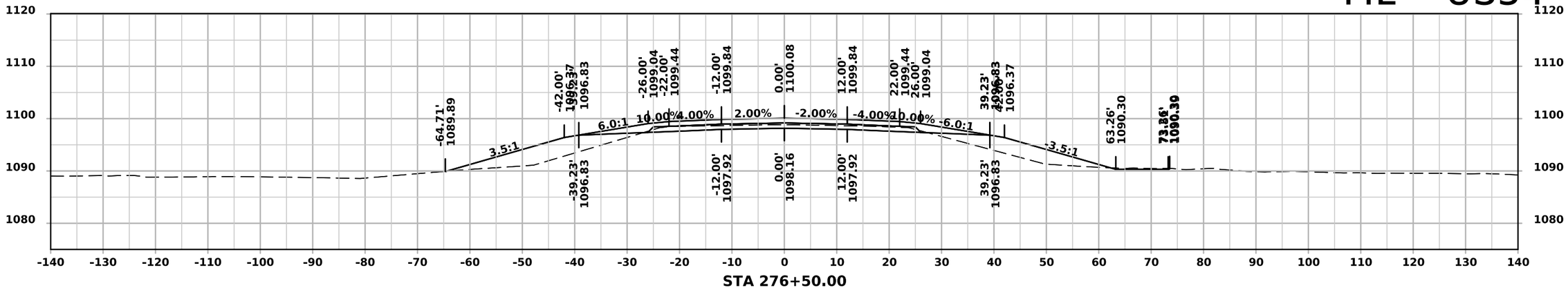


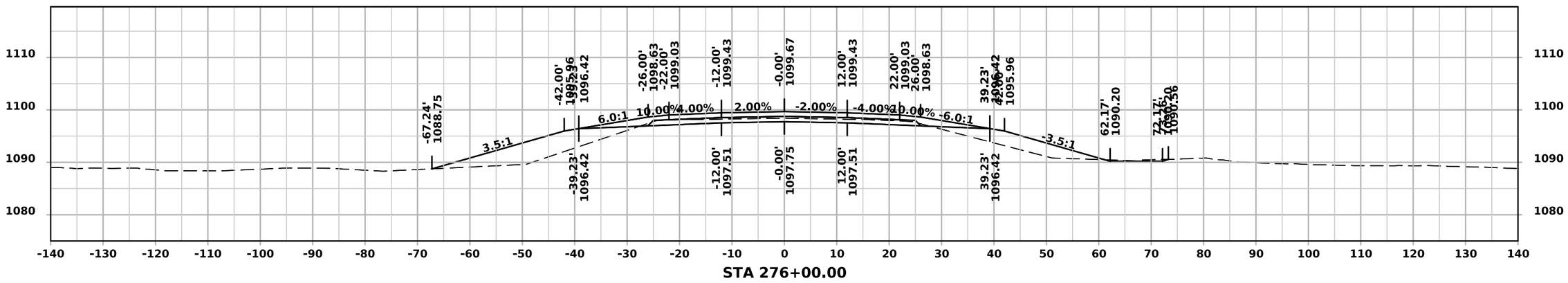
STA 274+50.00

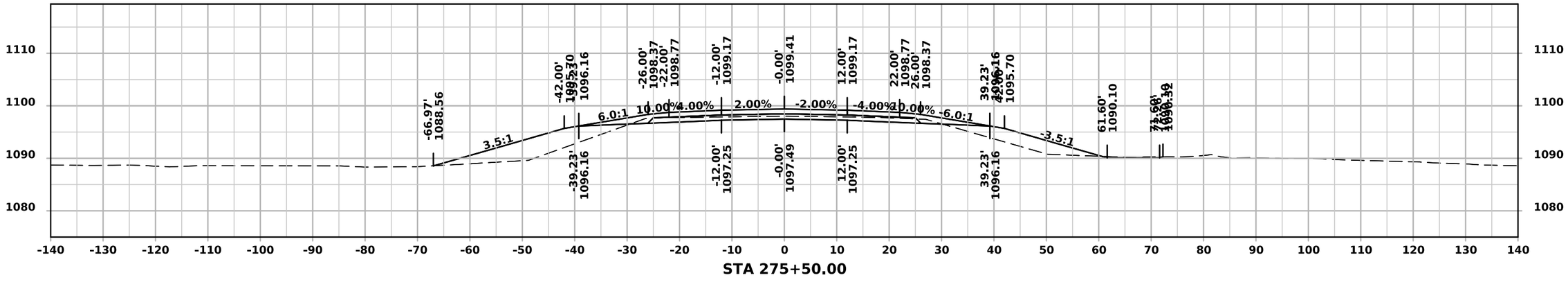
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.7	

3:17:23 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



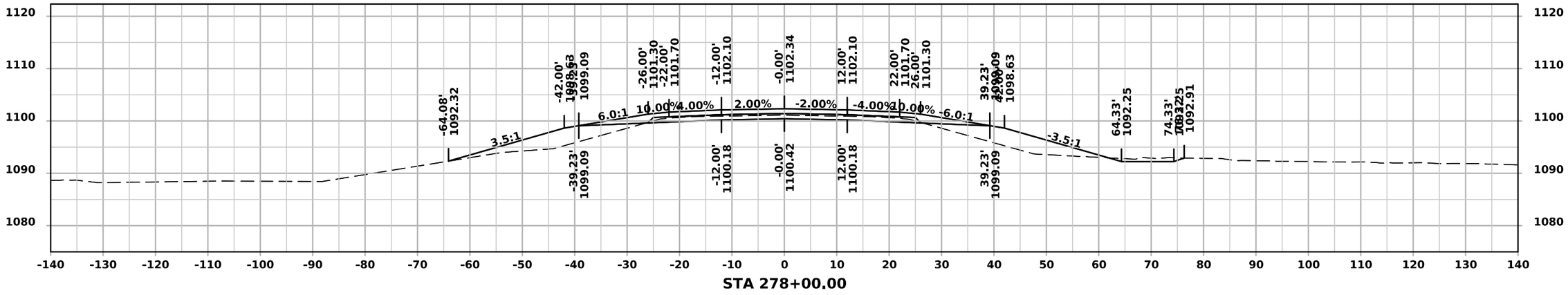


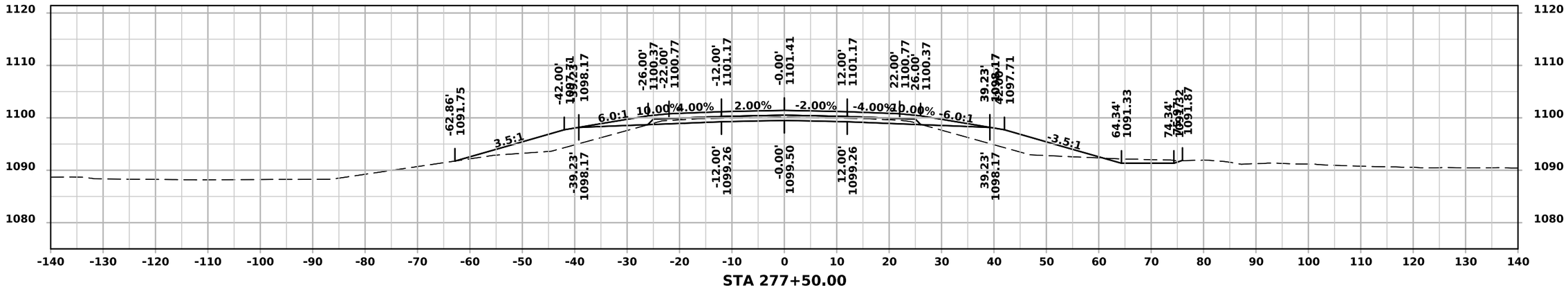


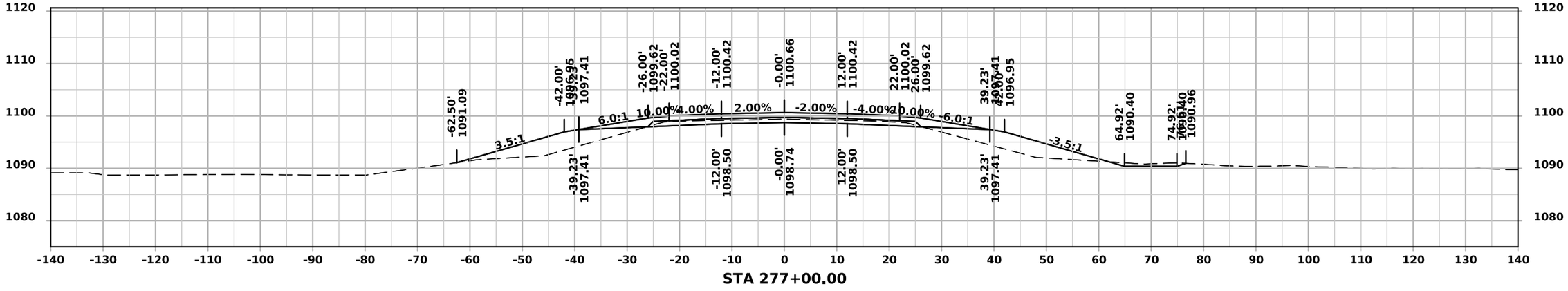
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.8

3:17:23 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



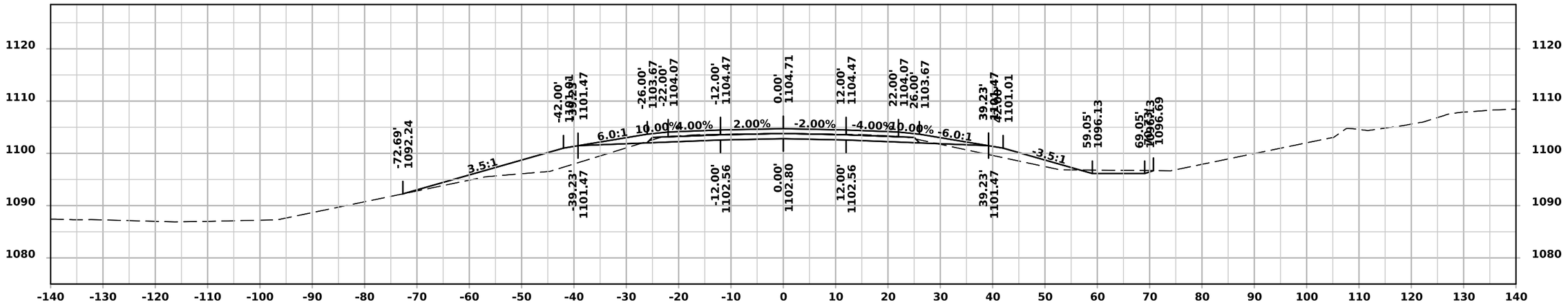




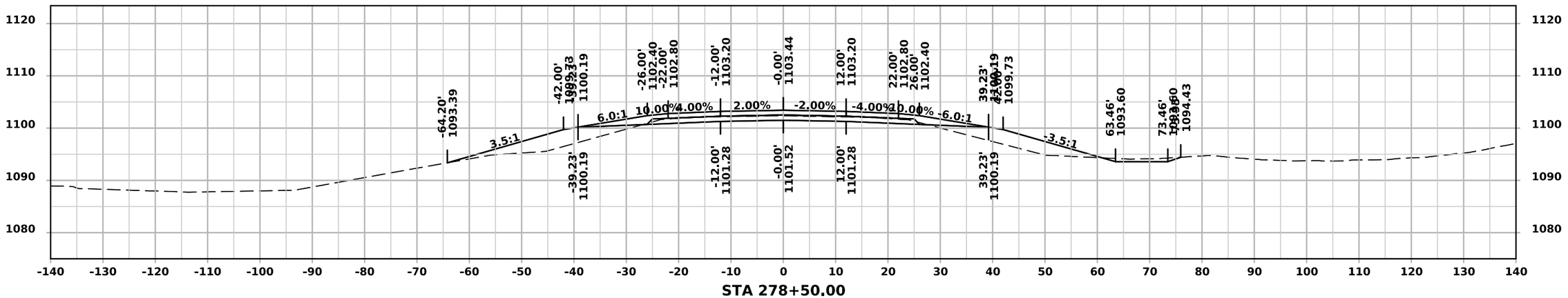
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.9

3:17:24 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



STA 279+00.00

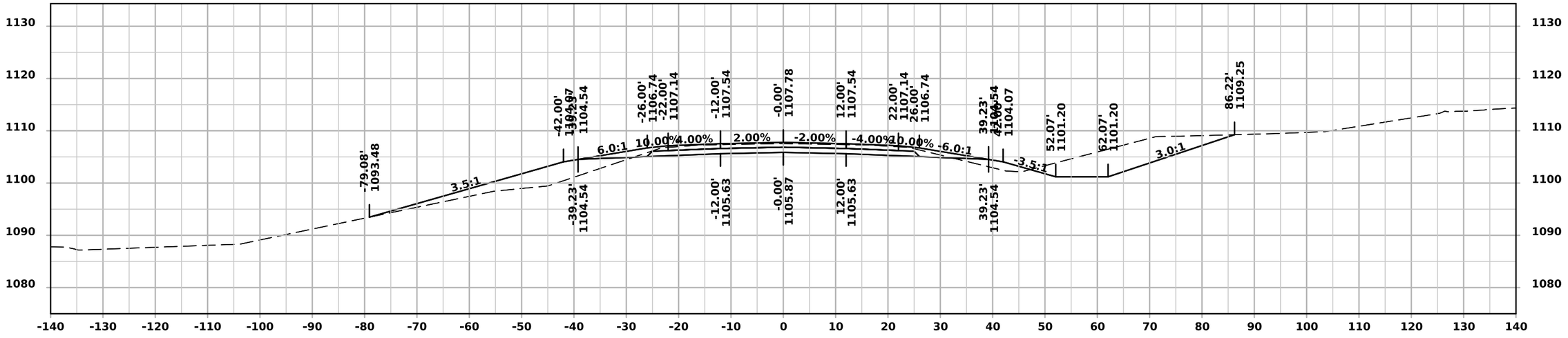


STA 278+50.00

FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.10

3:17:25 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



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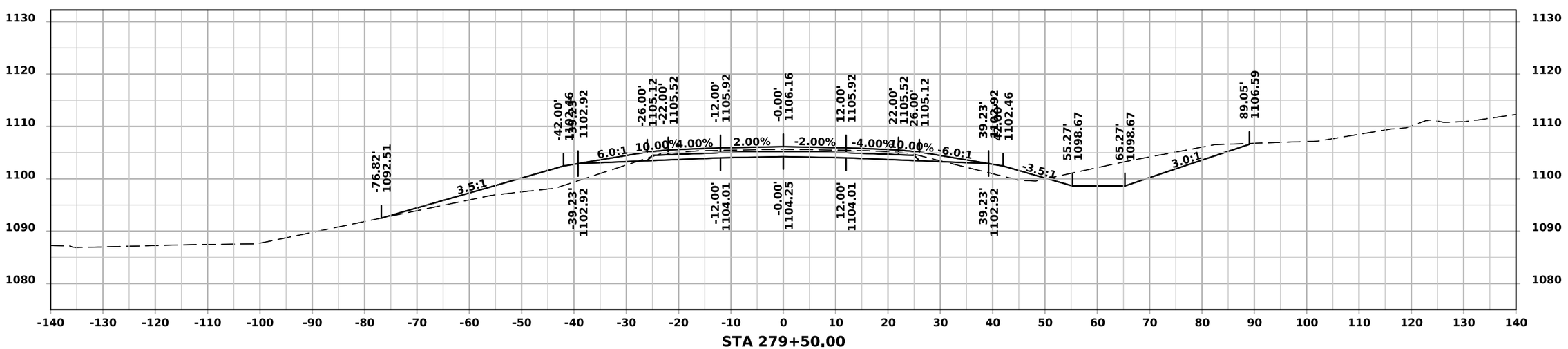

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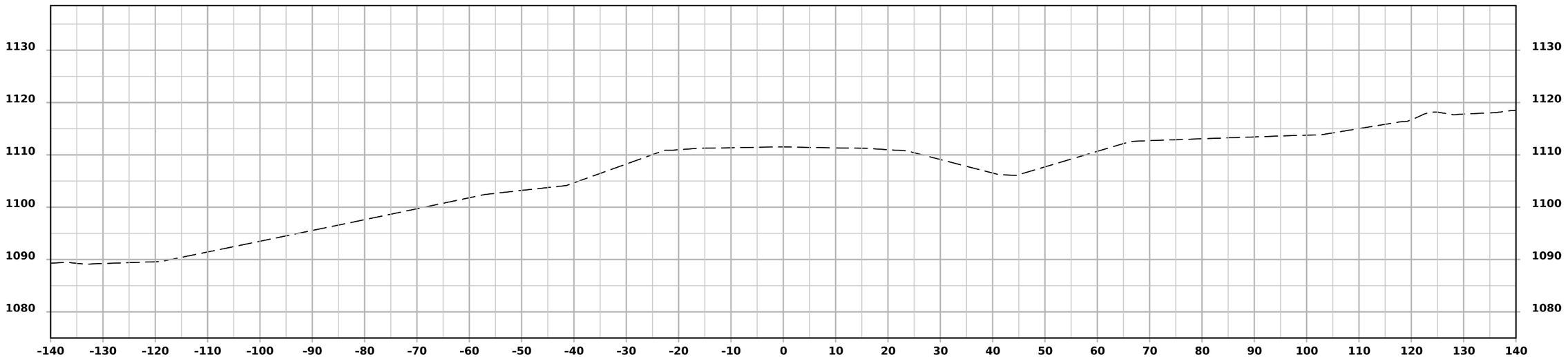
FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.11

3:17:26 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn

ML - US34



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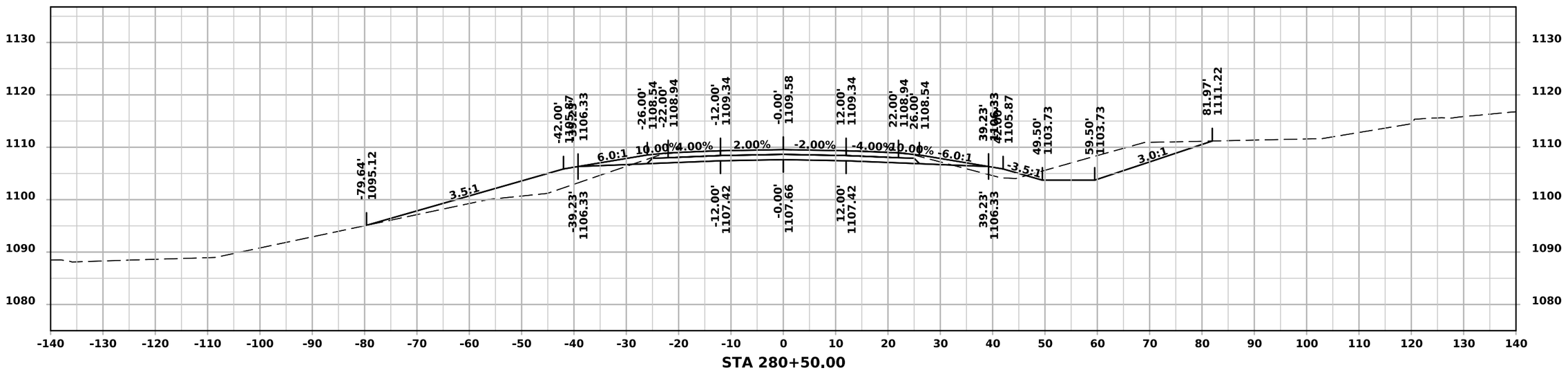

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FILE NO. --	ENGLISH	DESIGN TEAM Snyder & Associates,Inc.	ADAMS COUNTY	PROJECT NUMBER BRF-034-3(043)--38-02	SHEET NUMBER W.12

3:17:26 PM 1/23/2026 bjohnson pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0203401024\Design\CADD_Files\Sheet_Files\SHT_SNYDER_02034043Z12_W01.dgn