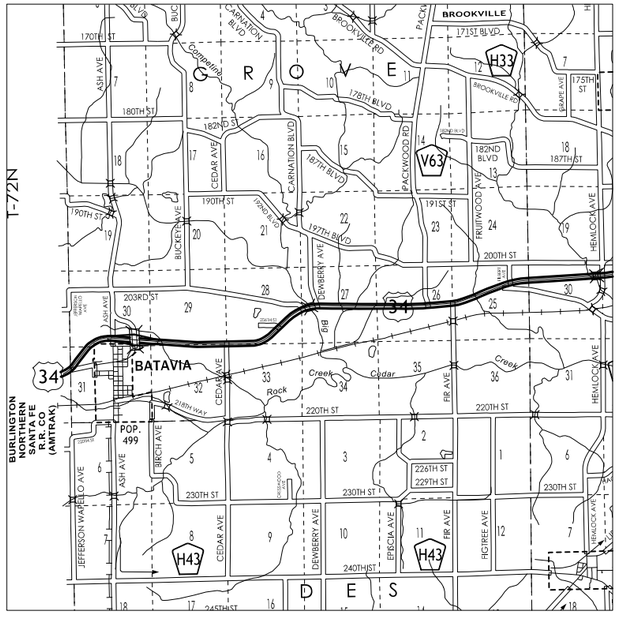
LETTING DATE

BRF-034-8(56)--38-51

JEFFERSON Co.

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2 - 9	Project Concept Statement
A.10	Design Criteria
B Sheets	**Typical Cross Sections and Details**
B.1 - 2	Typical Cross Sections and Details
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	U.S. Highway 34
G Sheets	**Survey Sheets**
G.1	Reference Ties and Bench Marks
G.2	Horizontal Control Tab. & Super for all Alignments
J Sheets	**Traffic Control and Staging Sheets**
* J.1	Traffic Control and Staging Notes
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3	Staging and Traffic Control Sheets Stages I and II
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 - 16	Mainline Cross Sections
	* Color Plan Sheets



IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

JEFFERSON COUNTY

US 34 Eastbound over Big Cedar Creek
1.5 miles west of County Road V63

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

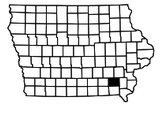
Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

NO MILEAGE SUMMARY

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

REVISIONS

TOTAL
PROJECT IDENTIFICATION NUMBER
11-51-034-030
PROJECT NUMBER
BRF-034-8(56)--38-51
R.O.W. PROJECT NUMBER



LOCATION MAP SCALE
0 1 2 3
Miles

DESIGN DATA RURAL		
2016 AADT	7300	V.P.D.
2036 AADT	10000	V.P.D.
2036 DHV	1100	V.P.H.
TRUCKS	15	%
Total Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN – Date: 3-28-2014

ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER BRF-034-8(56)--38-51	SHEET NUMBER A.1

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IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District 5 **DATE:** November 4, 2013

ATTENTION: James V. Armstrong **PROJECT:** Jefferson County
BRF-034-8(56)--38-51

FROM: Kevin K. Patel PIN: 11-51-034-030

OFFICE: Design

SUBJECT: Project Concept Statement; (REVISED Final Approval, D0)

This project involves the replacement of the U.S. 34 eastbound bridge (Maint No. 5105.8R034) over Big Cedar Creek, 1.5 miles west of the junction with County Road V63.

A concept review was held on August 15, 2012. Those present included Greg Mulder and Mark Van Dyke from the District 5 Office; Steve Seivert from the Office of Bridges and Structures; Mike Carlson from the Office of Location and Environment; Jeff McCollough from the Office of Traffic and Safety and Kevin Patel and Amy Schleier from the Office of Design.

The two alternatives considered were:

1. Replace existing bridge with a 209'-8" x 40' prestressed, pretensioned, concrete C beam bridge using crossovers. The estimated cost of this alternative is $2,034,900.
2. Replace existing bridge with a 209' x 40' prestressed, pretensioned, concrete BTB beam bridge using staged construction. The estimated cost of this alternative is $2,084,900.

Alternative 2 is preferred as this option reduces the disruption to side road traffic and only impacts the eastbound lanes. This revision is required to include updates for correcting the superelevation rate for the 3 mainline curves adjacent to the bridge. Traffic will be maintained by staged construction. Right of way will not be required.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Thursday, Oct. 31, 2013. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2016. The Office of Design will coordinate plan preparation with assistance from the Office of Bridges and Structures.

KKP: als
Attach.
cc:

J. F. Adam
K. D. Nicholson
M. D. Masteller
N. M. Miller
G. A. Novey
B. C. Worrel
J. W. Smith
S. P. Anderson
B. D. Hofer
D. L. Newell
S. J. Gent
W.A. Sorenson
M. Van Dyke
J. R. Phillips
FHWA
J. R. Selmer
D. L. Maifield
B. R. Smith
C. C. Poole
D. R. Claman
J. S. McClain
M. J. Sankey
Z.T. Bitting
J. P. Rost
L. C. Funnell
T. D. Crouch
D. E. Sprengeler
J. D. Owen
B. M. Clancy
M.E. Ross
M. J. Kennerly
R. L. Stanley
A. A. Welch
N. L. McDonald
P. Lu
M. A. Swenson
R.A Younie
D. R. Tebben
S. C. Marler
M. E. Khoda
J.W. Laaser-Webb
E. C. Wright
C. E. Belgarde
L. Wielenga

REVISED FINAL PROJECT CONCEPT STATEMENT

U.S. 34 Eastbound Bridge over Big Cedar Creek
1.5 miles west of Co. Rd. V-63

Jefferson County
Project #BRF-034-8(56)--38-51
PIN: 11-51-034-030
Maint. No. 5105.8R034
FHWA No. 31290

Highway Division
Office of Design

Kevin K. Patel, P.E.
515-239-1540

November 4, 2013

I. STUDY AREA

A. Project Description

This project involves the replacement of the eastbound U.S. highway 34 bridge (Maint. No. 5105.8R034) over Big Cedar Creek.

The two alternatives considered were:

1. Replace existing bridge with a 209'-8" x 40' prestressed pretensioned concrete beam bridge using crossovers. The estimated cost of this alternative is $2,034,900.
2. Replace existing bridge with a 209' x 40' prestressed pretensioned concrete beam bridge using staged construction. The estimated cost of this alternative is $2,084,900.

Alternative 2 is preferred as this option reduces the disruption to side road traffic and only impacts the eastbound lanes.

This revision is required to include updates for correcting the superelevation rate for the 3 mainline curves adjacent to the bridge.

B. Need for Project

This is a 204' x 28' three span I-girder bridge which was built in 1955 and was overlaid with low-slump concrete in 1981. This bridge has a load capacity that is below current design standards. The bridge is classified as functional obsolete due to the deck width. The substructure of the bridge has significant deterioration near the pier bearings. The overlay is at the end of its service life and the deck is not in a condition that would make a second overlay viable. There is no practical or economical way to fix and widen the structure, therefore the bridge should be replaced.

Approaching the eastbound bridge

Trailing side of the eastbound bridge

C. Present Facility

The existing structure is a 204 ft. x 28 ft. three span continuous I-beam bridge constructed in 1955.

U.S. 34 in the project area is 24 ft. roadway with 10 ft. wide effective shoulders (4 ft. paved, 6 ft. granular) and 2.5:1 foreslopes, constructed in 1955. HMA resurfacing was accomplished in 1979, 1984, 1992 and 2011. The shoulders were partially paved with the 2011 project.

D. Traffic Estimates

The 2016 and 2036 average daily traffic estimates are 7,300 ADT with 15% trucks and 10,000 ADT with 15% trucks, respectively.

E. Sufficiency Ratings

U.S. 34 is classified as a "commercial and industrial" route and is a maintenance service level "B" road with a sufficiency rating of 81. The federal bridge sufficiency rating is 59.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2007 through December 31, 2011, there was one crash which was property damage only.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 – Replace the eastbound bridge using crossovers (two-lane-two-way-traffic)

Replace the existing 200 ft. x 28 ft. continuous I-beam bridge with a 209 ft.-8 in. x 40 ft. prestressed pretensioned concrete C beam bridge.

The existing typical cross section adjacent to the bridge consists of a 24 ft. roadway (32 ft. wide pavement) with 10 ft. effective shoulders (4 ft. outside pavement and 6 ft. granular) and 2.5:1 outside foreslopes.

The existing superelevation rate will be corrected through the 3 mainline curves adjacent to the bridge. The superelevation rate will be corrected by placing an HMA resurfacing wedge from approximately station 158+08 to 189+60, a distance of 3,152 feet (see attachment for details). There are two left turn lanes within these limits that will also need to be resurfaced. The existing superelevation will be corrected from approximately 3.2% to 5.6%. In order to limit the additional resurfacing on the outside of the curve, the inside edge will be milled approximately 2 inches deep. Class 10 will be required to build up the median foreslope to prevent a drop off. Milled rumble strips will be placed in the inside and outside 4' paved shoulder within the resurfaced area.

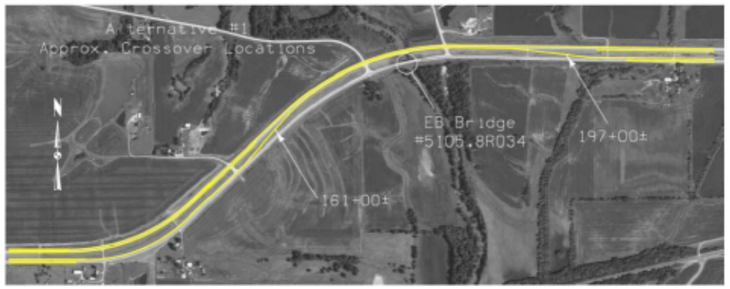
This bridge will be constructed on the existing vertical and horizontal alignment. The new bridge however, will be placed at the desired 5.6% superelevation rate. Construct new bridge approaches. Replace the existing approach guardrail with new guardrail and pave the shoulders 20 ft. beyond the ends of the guardrail. Class 10 will be necessary to construct the new guardrail blisters. Place class E revetment for slope protection under the bridge. Construct bridge end drains on each end of the bridge.

The existing outside foreslopes for the eastbound lanes adjacent to the bridge approach sections are approximately 2.5:1. These outside foreslopes on both the approach and trailing side should be flattened to the greatest extent possible (ideally 6:1/3:1) while still remaining within the existing right of way. The median foreslopes will be 6:1. Care should be exercised to ensure that the median drainage is not adversely affected.

Apply erosion control and rural seeding and fertilizing to all disturbed areas. The ditch on the southwest quadrant of the bridge should be lined with rip-rap to prevent erosion.

No right of way will be required for this project.

Traffic will be maintained by crossovers and two-lane-two-way traffic in the west-bound lanes. Temporary lane separator system (TLSS) should be used to prohibit left turns between the crossovers; however, right-in-right-out movements will be allowed.



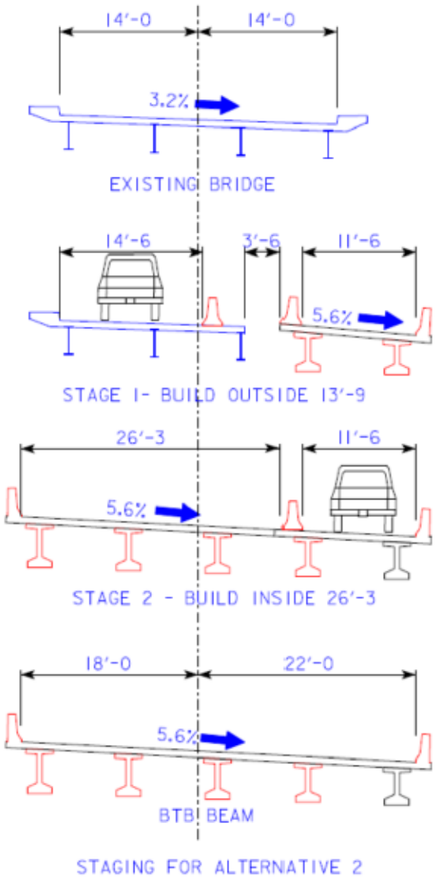
Bridge Items	Estimated Costs
New Bridge	$ 781,000
Bridge Removal	47,600
Cofferdams	50,000
Revetment	54,000
Mobilization - 10%	93,300
Contingency - 20%	186,500
Bridge Costs	**$ 1,212,400**
Roadway Items	
Crossovers	$ 242,200
Bridge Approaches	70,500
Removal of Pavement	2,100
Bridge end drains	6,700
Guardrail (Includes Removal)	17,600
Paved Shoulders for Guardrail	9,200
Class 10 for Guardrail Blisters	9,900
Class 10 for flattening foreslopes	1,200
Clearing and Grubbing	2,800
Erosion Control	5,000
Wetland Mitigation	50,000
Traffic Control - 5%	20,900
Mobilization - 5%	20,900
M & C - 30%	137,700
Roadway Costs	**$ 596,700**
HMA Wedge Cost Estimate	**$ 225,800**
Project Total	**$2,034,900**

Alternative #2 - Replace the eastbound bridge using staged construction

Replace the existing eastbound 200 ft. x 28 ft. continuous I-beam bridge with a 209 ft. x 40 ft. prestressed pretensioned concrete BTB beam bridge, using staged construction.

This alternative is similar to alternative 1; however, staged construction will be utilized in lieu or median crossovers in order to maintain traffic. During stage 1, a 14 ft. 6 in. lane will be provided and during stage 2, an 11 ft. 6 in. lane will be provided. During stage 2, lane width restriction signing will be in place.

One lane of eastbound traffic open at all times. See staging diagram below.



STAGING FOR ALTERNATIVE 2

Bridge Items	Estimated Costs
New Bridge	$ 824,300
Bridge Removal	47,600
Cofferdams	100,000
Revetment	54,000
Staging - 10%	102,600
Mobilization - 10%	102,600
Contingency - 20%	246,200
Bridge Costs	**$ 1,477,300**
Roadway Items	
Bridge Approaches	70,500
Removal of Pavement	2,100
Bridge end drains	6,700
Guardrail (Includes Removal)	17,600
Paved Shoulders for Guardrail	9,200
Class 10 for Guardrail Blisters	9,900
Class 10 for flattening foreslopes	1,200
Clearing and Grubbing	2,800
Temporary concrete barrier rail	10,300
Erosion Control	5,000
Wetland Mitigation	50,000
Staging – 30%	55,600
Traffic Control - 5%	9,300
Mobilization - 5%	9,300
M & C - 30%	77,800
Roadway Costs	**$ 337,300**
HMA Wedge Cost Estimate (Includes Staging)	**$ 270,300**
Project Total	**$2,084,900**

B. Detour Analysis

In Alternative 1, traffic will be maintained via crossovers and two-way-two-lane traffic in the westbound lanes of U.S. 34. Crossovers would be constructed at approximate stations 161+00 and 197+00. During the period of two-way-two-lane traffic, all left turns will be prohibited.

In Alternative 2, the preferred alternative, traffic will be maintained via staged construction with one lane of eastbound traffic open at all times. During stage 1, a 14 ft. 6 in. lane will be provided and during stage 2, an 11 ft. 6 in. lane will be provided. During stage 2, lane width restriction signing will be in place.

C. Recommendations

It is recommended that the present structure be replaced, as described in Alternative No.2.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Office of Bridges and Structures will coordinate the plan preparation with assistance from the Office of Design.

E. Special Considerations

No bike path or sidewalk will be required as part of this project.

Right of Way will not be required for this project.

The Office of Location and Environment has reviewed this project and has determined that a Section 404 Permit will be required. It is expected that the work will be covered by a Nationwide Permit.

An asbestos inspection was requested by the Office of Location and Environment. This inspection has been completed and asbestos was found in the expansion joints. This material cannot be removed without some demolition; therefore, this will require the bridge contractor to coordinate with a licensed asbestos contractor so that the material can be removed as it is exposed during demolition of the bridge.

Utilities found at the bridge location include: Windstream, Access Energy, Mediacom, Wapello Rural Water, Farmers Telephone and ICN.

The total cost of alternative 2 is $2,084,900 with $1,833,100 eligible for BRF funding and the remaining $251,800 to be paid for using other funding sources.

F. Program Status

Site data has been developed by the Office of Design. This project is listed in the 2013-2017 Iowa Transportation Improvement Program, with $15,000 programmed for right of way in FY 2015 and $1,820,000 for replacement in FY 2016. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

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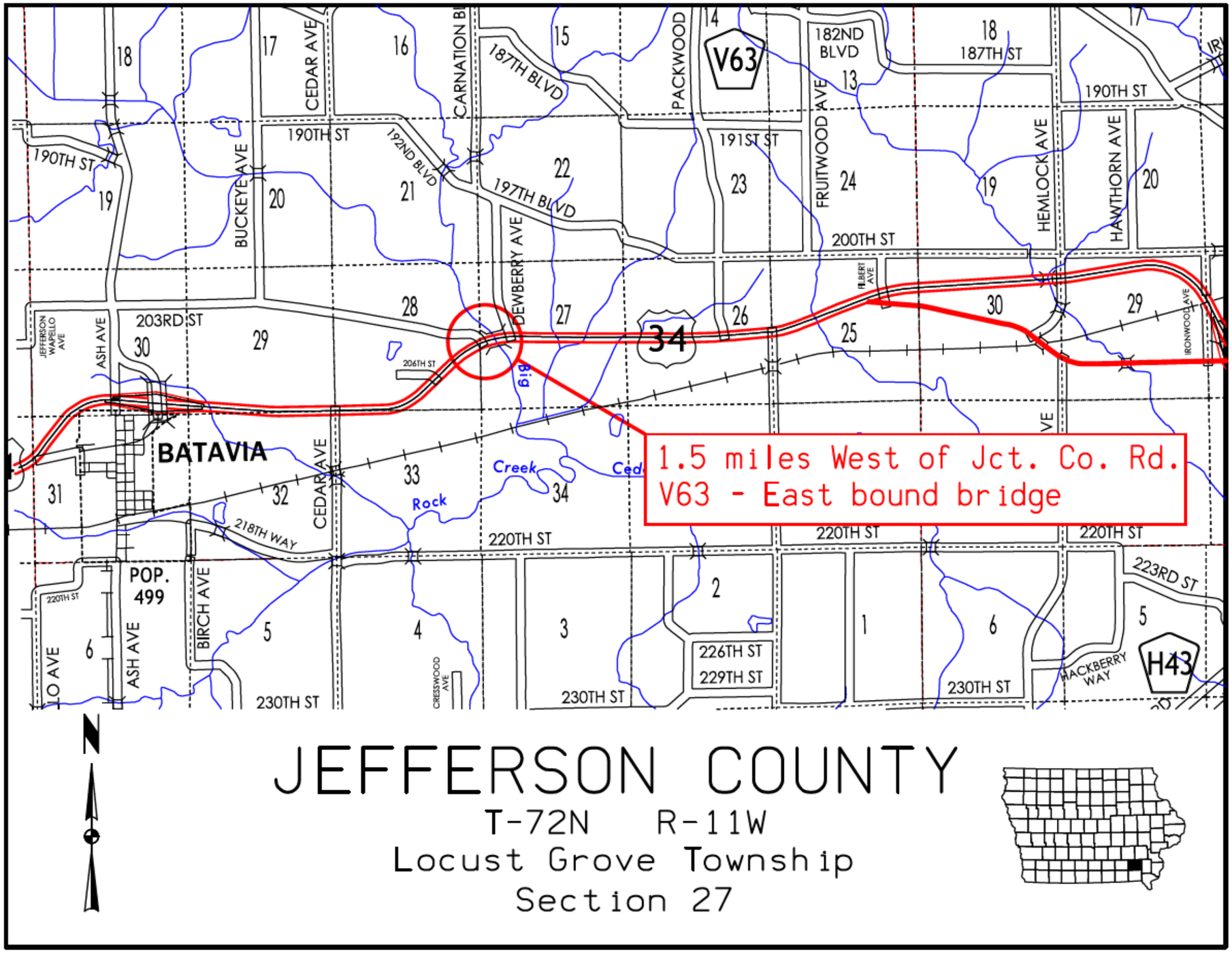

ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER BRF-034-8(56)--38-51	SHEET NUMBER A.7

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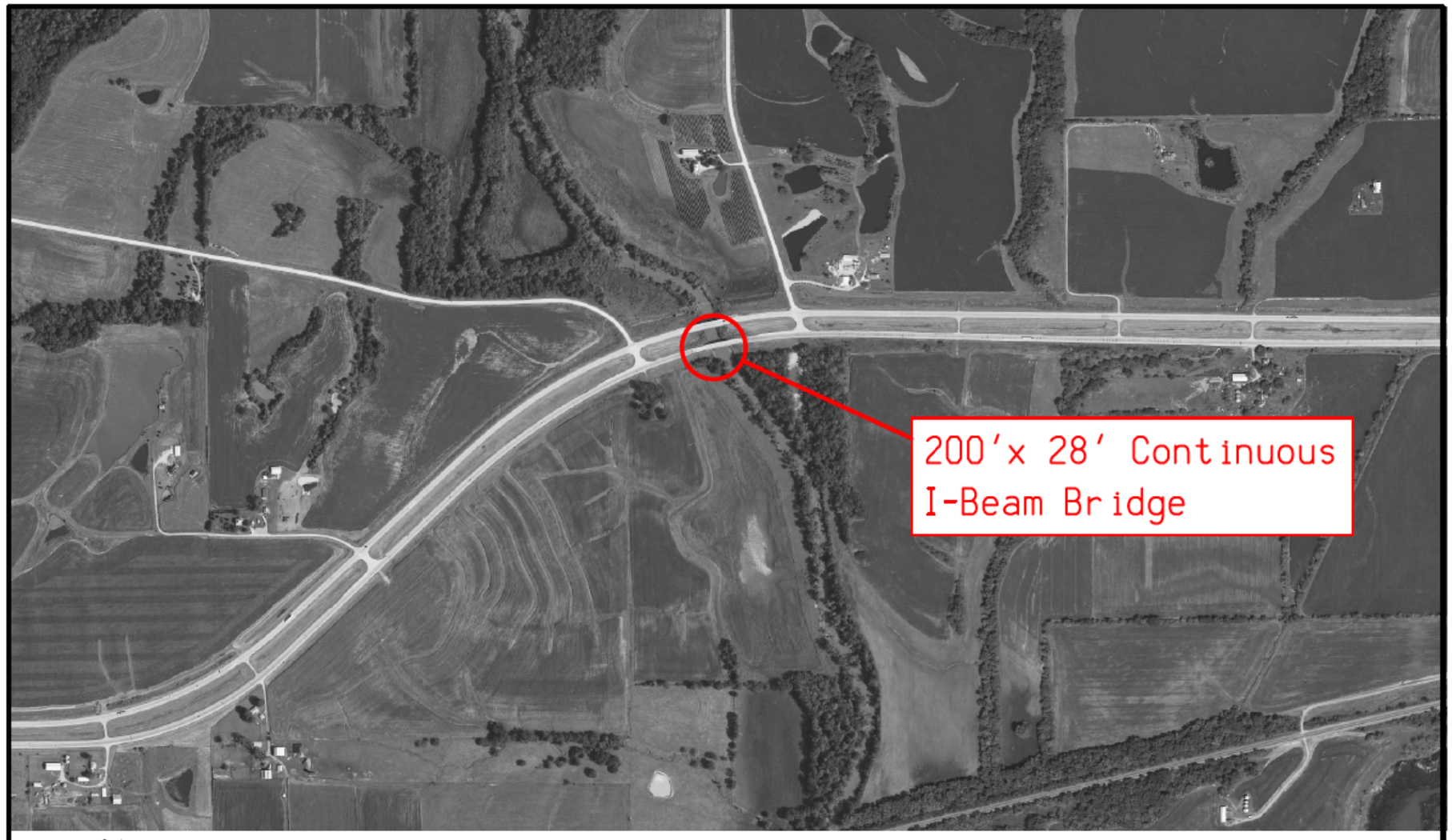


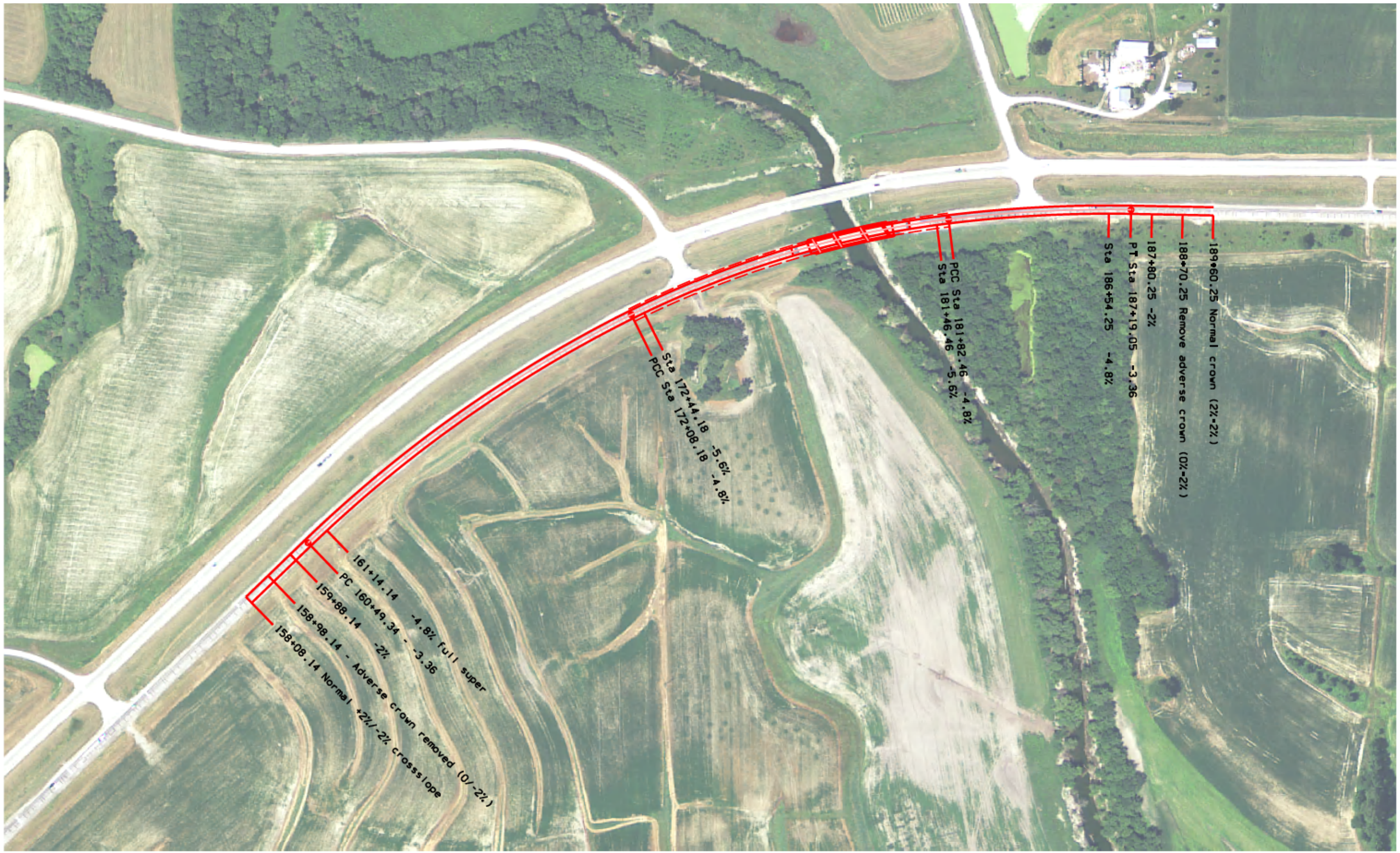
N

JEFFERSON COUNTY

BRF-034-8(56)--38-51

Maint. #5105.8R034

FHWA #31290



ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER BRF-034-8(56)--38-51	SHEET NUMBER A.9

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Roadway	US 34 Over Big Cedar Creek		
PIN Number	PIN: 11-51-034-030	**Submittal Date**	
Project Number	BRF-034-8(56)--38-51		**Approval Date**
District	5	**Assistant District Engineer**	
County	Jefferson	**or**	
Route	US 34	**Office Director**	
Location	1.5 mile west of the County Road V63 Jct		
Work Type			
Segment Manager			
Designer	Schemmer Associates		

Design Manual Section 1C-1
last update: 08-05-13

Rural Expressways (Rural Arterials)

Design Element		Preferred	Acceptable Criteria	Project Values
Design speed (mph)		70	50	70
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6
Design lane width (ft)		12	12	12
Full depth paved width (ft)	Outside lane	14', 12' if using full depth paved shoulders	12	12
	Inside lane(s)	12	12	12
Right turn lane or an auxiliary lane (ft)		12	10	NA
Left turn lane (ft)		12	10	12
Pavement cross-slope (on tangent sections)	Through lanes	2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	1.5% minimum, 3% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	
	Crown break at centerline	4%	4% maximum	
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	NA
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	NA
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	6:1 - no 10:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3:1
	Curbed roadways	2%	not steeper than 3:1	NA
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	6:1
	w/o drainage structures	10:1	6:1	6:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	--
	Median ditch depth (ft)	4	--	--
Median width (ft) (Refer to Section 3E-1)		64	50	NA
Bridge width—new	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	40
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	40
Bridge width—existing		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right of the design lane widths	NA
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	NA
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	NA
	Over railroad	23.3	23.3	NA
	Sign trusses and pedestrian crossings	17.5	17	NA
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service		B	B	NA

Roadway Design Speed (mph) =	70

Design Manual Section 1C-1
last update: 08-05-13

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 2B-1)			425	495	570	645	730	820	425	495	570	645	730	820	730
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	2040
		e_{max} = 8%	--	--	--	--	--	--	758	980	1200	1480	1810	2210	NA
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	210
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	247
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	161
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	106
Minimum gradient (%)	(Refer to Section 2E-1)		0.5						0.3% with a curb, 0.0% without a curb						
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4			3			7	6	6	--	--	--	NA
		Rural roadways							5	5	4	4	4	4	NA
		Interstates							5	5	4	4	4	4	NA
Clear zone			See "Preferred Clear Zone" table in Section 2A-2						See "Acceptable Clear Zone" table in Section 2A-2						30

Design year ADT =	10,000

Design Manual Section 1C-1
last update: 08-05-13

Effective Shoulder Width and Type for Multilane Arterials

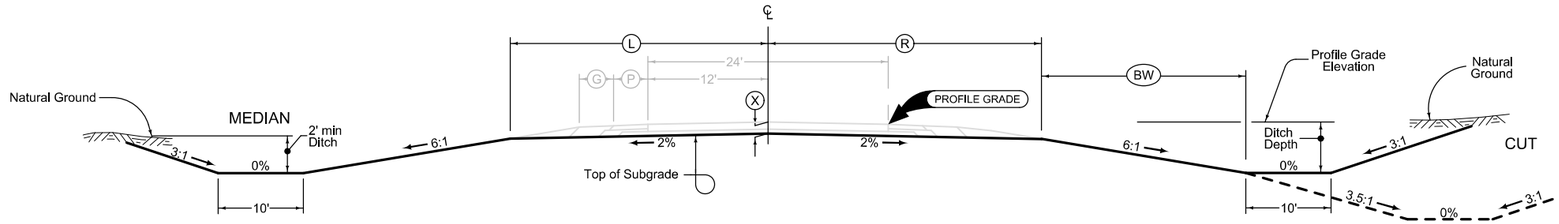
Preferred (Values shown in feet)					Acceptable (Values shown in feet)					Project Values
	Rural Roadways		Urban Roadways			Rural Roadways		Urban Roadways		
Auxiliary lanes or turn lanes with shoulders	6		6		Auxiliary lanes or turn lanes with shoulders	6		0		6
Turn lanes with curbs	6		See Section 3C-2		Turn lanes with curbs	6		0		NA
Expressways	Outside		Median Side		Expressways	Outside		Median Side		NA
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	6	6						
On roadways approaching urban areas (due to increased bike traffic)	10	10	6	6	Routes where bicycles are to be accommodated	8	4	4	4	NA
On all curves with a superelevation rate of 7.0% or greater	10	10	6	6						
On roadways with design year ADT > 6500 vpd	10	6	6	6	On all other Expressways (Multilane Arterials)	8	2*	4	4	10' w/ 4' paved
On all other Expressways (Multilane Arterials)	10	4	6	4						

*Requires safety edge-See 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:

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
U.S. HIGHWAY 34 (East)	177+25.25	177+96.52	28	37.0	22	11.0
	BRIDGE					
U.S. HIGHWAY 34 (East)	180+13.71	180+88.43	28	37.0	22	11.0

2-_Grade_BR
Modified

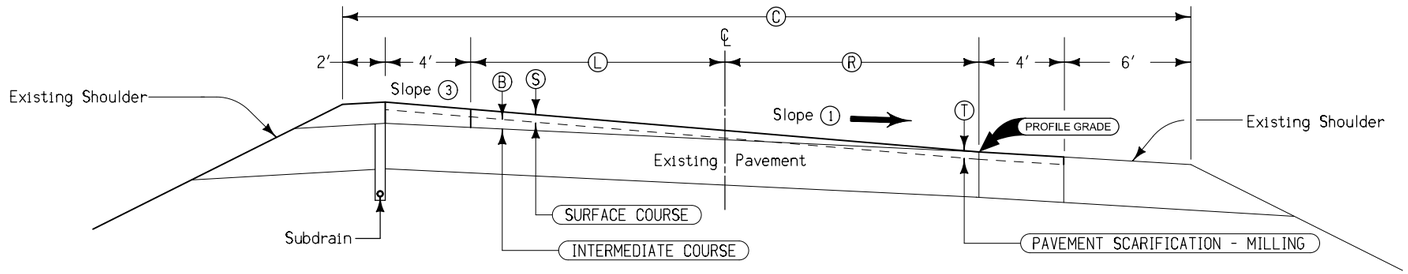


Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

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

2 LANE GRADING - EASTBOUND
(Barnroof Section)

2618
Modified



Notes:

(1) Pavement slope shall be revised from an existing superelevation rate of 3.2% to a maximum superelevation rate of 5.6%. Minimum depth of new surfacing shall be 2". Section shown may be modified as directed by the Engineer through additional areas of special shaping.
Refer to tabulation listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.

(2) Tack Coat estimated for 2 applications.

(3) Shoulder slope to match pavement slope.

DESIGN RATES	
ITEM	RATE
Surface Course	145 lbs./cu. ft.
Intermediate Course	145 lbs./cu. ft.
Tack Coat	0.05 gal./sq. yd.

Design Quantities Per Station

Location			(S)	(B)	(T)	(C)	(L)	(R)	Tack Coat (2)	Asphalt Binder	Hot Mix Asphalt (Tons)		Pavement Scarification	Remarks
Road Identification	Station To Station		Inches	Inches	Inches	Feet	Feet	Feet	Gallons	Tons	Surface	Intermediate	Sq. Yds.	
U.S. HIGHWAY 34	158+87.44	177+25.25	2	1.5-5	2	40	12	12	687	97	851	770	6495	
U.S. HIGHWAY 34	180+88.43	188+76.45	2	1.5-5	2	40	12	12	295	42	359	330	2776	

TYPICAL CROSS SECTION HMA RESURFACING & PAVEMENT SCARIFICATION

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

U.S. HIGHWAY 34

ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER BRF-034-8(56)--38-51	SHEET NUMBER B.1

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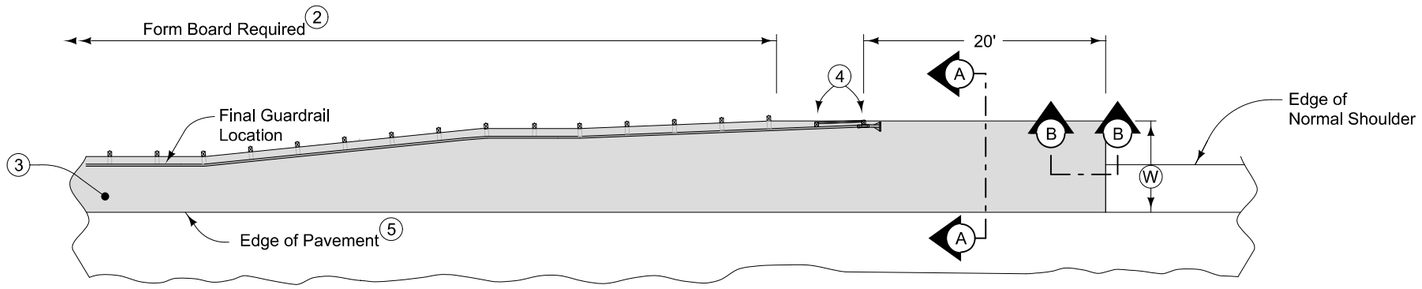
Modified
02-04-14

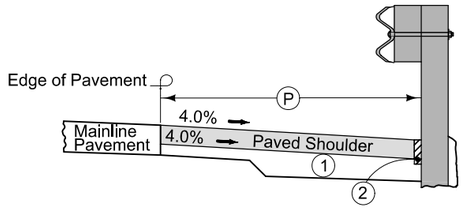


8" HMA Paved Shoulder at guardrail to accommodate possible detour traffic.
7" PCC may be substituted with the following joint layout:

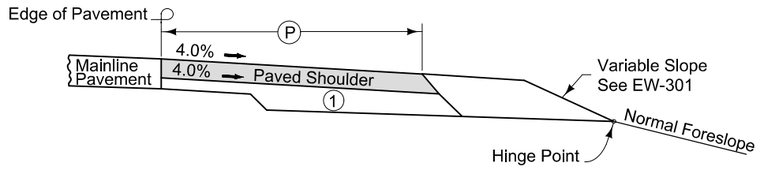
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at W/2 from edge of mainline pavement when W is greater than 10' wide. Terminate longitudinal 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 & reinstallation of guardrail will be allowed with no additional payment.

Refer to Shoulder tabulation (112-9) for quantities.

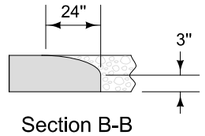


Typical Section with Form Board



Section A-A

1. 6" subgrade treatment.
2. When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.
3. Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.
4. Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.
5. 'KT-1' joint for PCC shoulder.
   'B' joint for HMA shoulder.



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

PAVED SHOULDER AT GUARDRAIL

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

U.S. HIGHWAY 34

ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER BRF-034-8(56)--38-51	SHEET NUMBER B.2

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SURVEY SYMBOLS

- PIP Pipe Culvert
- BLD Building or Foundation
- FWD Wood Fence
- FW Wire Fence
- TDC Tree Deciduous
- FCL Chain Link and Security Fence
- MM Mile Marker Post
- SL Speed Limit Sign
- TEV Evergeen Tree
- SHR Shrub
- SI Sign
- LUM Luminaire
- MH Utility Access (Manhole)
- WV Water Valve
- LP L.P. Tank
- PR Electic Riser Pole
- TV Satelite TV Dish
- EB Electrical Box
- MIS Miscellaneous
- GP Guard Post (Less Than 4 Posts)
- WEL Well
- SEP Septic Tank
- PPA Power Pole Co. 1
- TPD Telephone Pedestal
- CIS Cistern
- SLO Silo
- LIN Miscellaneous Line
- STP Stump
- WHU RV Water Hook Up
- TLNL Tree Line Left
- WM Wind Mill
- TFR Tree Fruit
- TLNR Tree Line Right
- BRG Bridge
- IN Storm Sewer Intake
- CUL Culvert
- LC Lot Corner
- HDG Hedge Row
- GDL Guard Rail Steel
- FLG Flag Poles
- UV Underground Utility Vault
- GPR Guard Post (4 or More Posts)
- TR Telephone Riser Pole
- RET Retaining Walls
- T1 – TLA Underground Telephone Line Co. 1
- EP Edge of Paved Roads (ML or SR)
- EG Edge of Gravel Road
- CU Back of Curb
- GU Gutter In Front of Curb
- SWK Sidewalk
- CON Concrete or A/C Slab
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- SNP Unpaved Shoulder
- RIP Rip-Rap
- EW Edge of Water
- DIK Centerline of Dike or Dam
- W – WLA Underground Water Line Co. 1
- G – GLA Underground Gas Line Co. 1
- E1 – ELA Underground Electric Line Co. 1
- FO – FOA Underground Fiber Optic Line Co. 1

UTILITY LEGEND

- Alliant Energy
- Alliant Energy
- TP Mediacom Telephone Pedestal
- UV Underground Utility Vault
- TR Telephone Riser Pole
- W – Warren Water District (QLD2)
- G – Alliant Energy (QLD2)
- E1 – Alliant Energy (QLD2)
- E2 – Iowa Department of Transportation (QLD2)
- FO – MediaCom Communications (QLD2)

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)

ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER BRF-034-8(56)--38-51	SHEET NUMBER D.1

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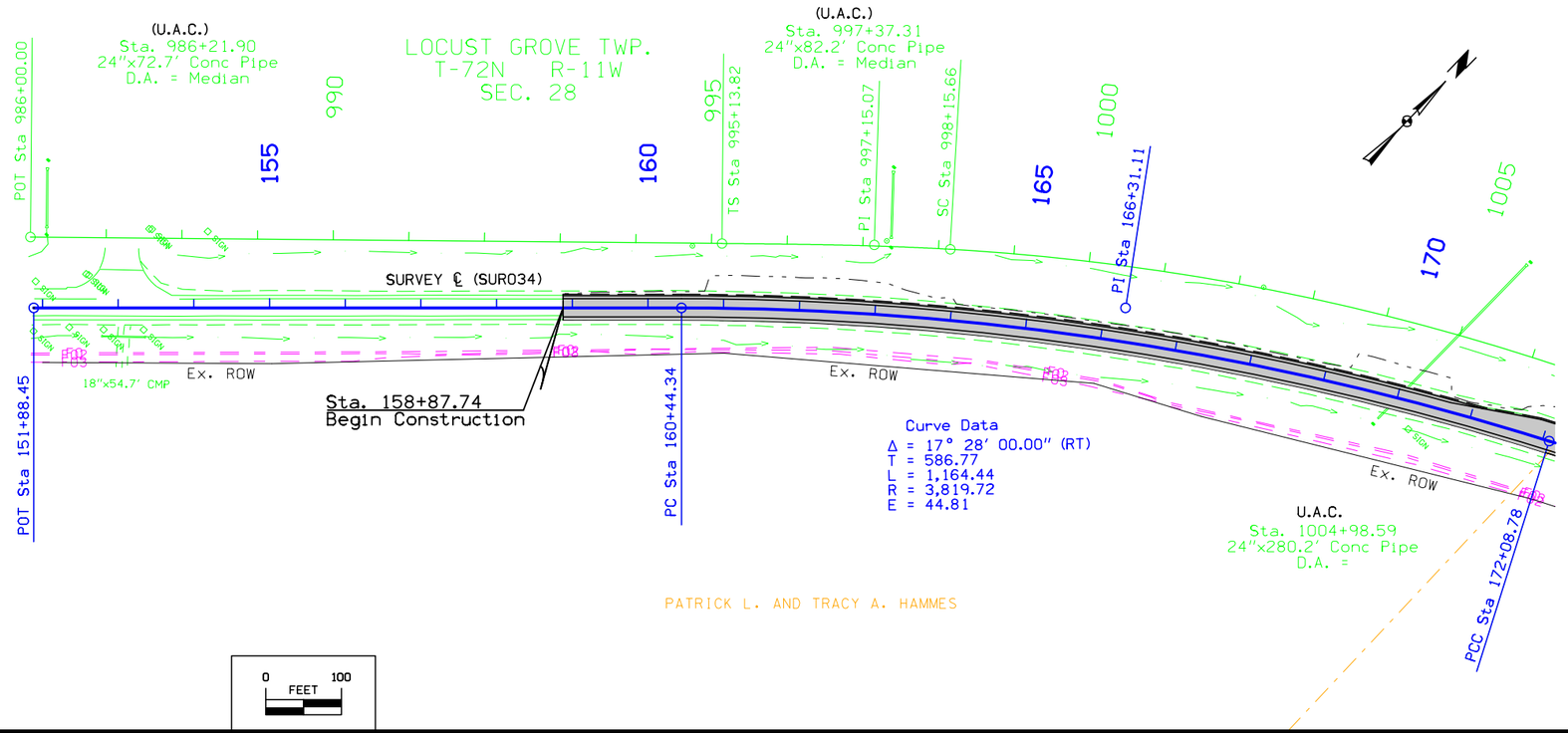

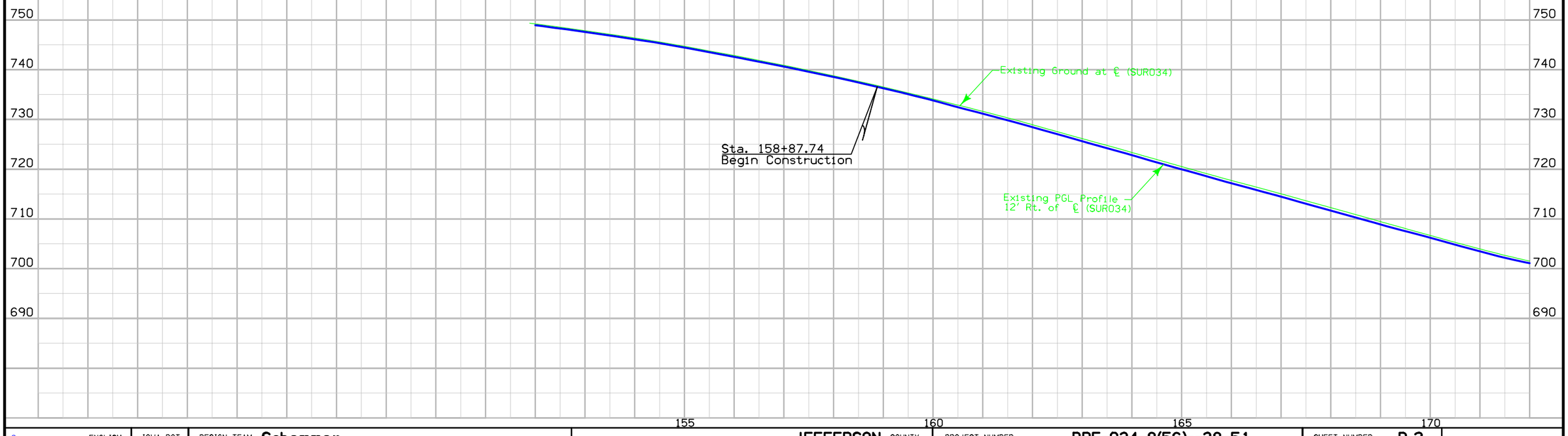

C	ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER	BRF-034-8(56)--38-51	SHEET NUMBER D.2

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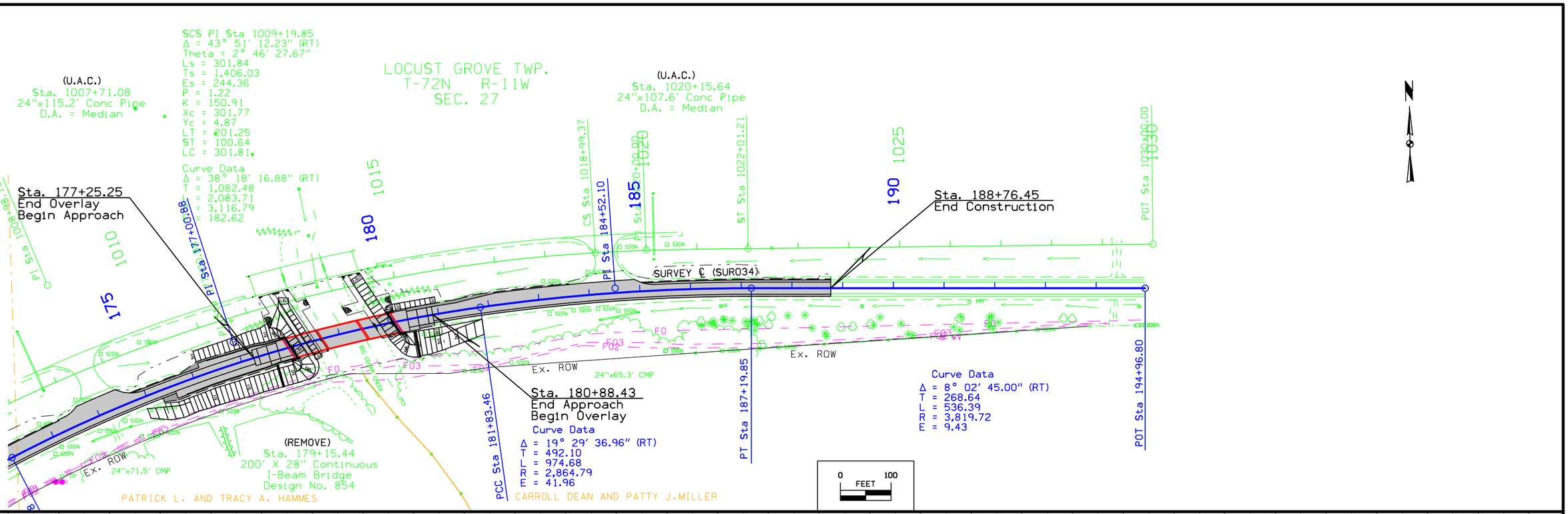

C	ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER	BRF-034-8(56)--38-51	SHEET NUMBER D.3

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Survey Information

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge replacement of the U.S. 34 Eastbound Bridge over Big Cedar Creek. This project is a Full Field Survey. Survey was originally performed in June of 2013 on the eastbound bridge over Big Cedar Creek under SAP #0743. SAP #0743 was a partial DTM survey. This survey extended the survey limits along the eastbound lanes to the west and east of the original survey.

Vertical Control

Vertical datum for this survey is relative to NAVD88 (IaRTN-2013 Adjustment) computed using Geoid 12A. US Survey feet.

The survey control is relative to IaRTN reference stations. Multiple Iowa RTN observations were completed on G001. After review of these observations, the shots were manually averaged to establish the site BM elevation. A level run was then completed through project control points and benchmarks. The error was allowable and the error was distributed proportionately among the project monuments.

Vertical equations are as follows:

Datum Benchmark
#503 this survey — Elevation = 726.26 NAVD88
Elevation = 726.04 NAVD88
Project # NHSX-034-8(53)--3H-51 — 221.296 (metric)
Station 124 — BM G124/DISK stamped "G 124 1935) in top step in NE corner of CB & Q Railroad overpass concrete structure over Cedar Avenue.

Horizontal Control

Measurement units for this survey are US survey feet NAD83(2011) IaRTN-2013 Adjustment. Iowa State Plane South coordinates were transformed to project ground coordinates by applying a 1/combined scale factor from held point G001 at the center of the project to minimize ground distortion.

State Plane Coordinate Zone 1402 (Iowa South)
State Plane Coordinate held at Point G001
N=370916.65 E=2021730.89
Combined Scale Factor (Grid)=0.999925517
1 / Grid= 1.0000744885

Local Project Coordinates Conversion Equation:

Local Project Coord y=[(State Plane y-hold point y)1/grid factor]+hold point y
Local Project Coord x=[(State Plane x-hold point x)1/grid factor]+hold point x

Point	STATE PLANE COORDS(Y)	STATE PLANE COORDS(X)	LOCAL PROJECT COORDS(Y)	LOCAL PROJECT COORDS(X)
G001	370916.65	2021730.89	370916.65	2021730.89
G002	370724.29	2021157.08	370724.28	2021157.04
G003	370931.26	2022133.67	370931.26	2022133.70

Geopak Alignment Chains created:
SUR034M U.S. Highway 34 Median Alignment
SUR034 U.S. Highway 34 Eastbound Alignment

US 34 Over Big Cedar.prj - Geopak Project
Job034.gpk - Geopak Coordinate Geometry Database
Microstation/Geopak USER File Index
Path: W:\Projects\

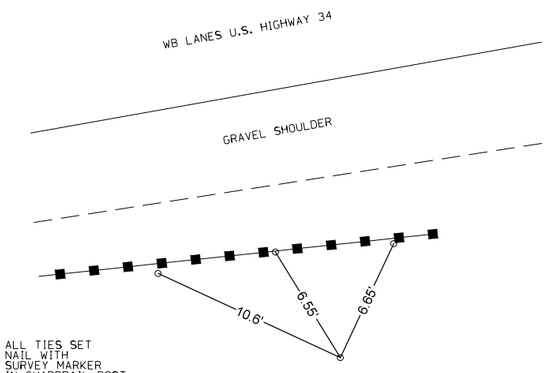
Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans Jefferson County Project No. NHSX-034-8(53)--3H-51(metric). The alignment utilized the existing as built metric alignment in the median of US 34 and converted the metric stationing to US ft. by applying a factor of 3.2808333333. Survey stationing was equated to the plan at the TS Station 995+13.82 (303+31.872 metric). Station was run ahead without equation through PC Station 1079+77.88 (329+11.725 metric).

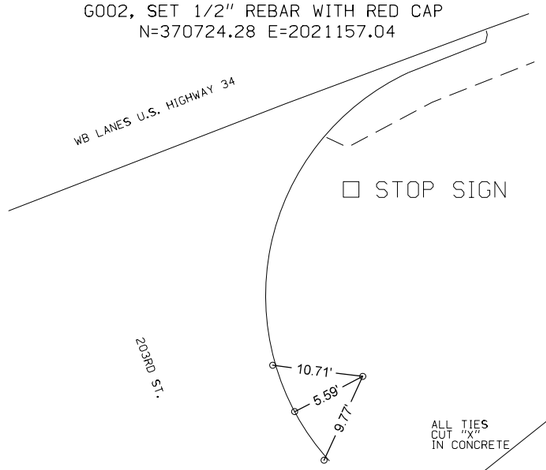
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
501	370866.57	2021462.47	704.14	1012+20.27	-27.03	BM	CUT TRIANGLE ON SW CORNER OF WB HWY 34 OVERPASS
502	370915.97	2021678.22	704.87	1014+39.74	-26.98	BM	CUT TRIANGLE ON SE CORNER OF WB HWY 34 OVERPASS
503	366115.05	2015882.09	726.26			BM	BM G124/DISK
504	370907.47	2021455.67	706.20	1012+24.15	-68.31	BM	IDOT PLUG IN NW BRIDGEWALL WB HWY34

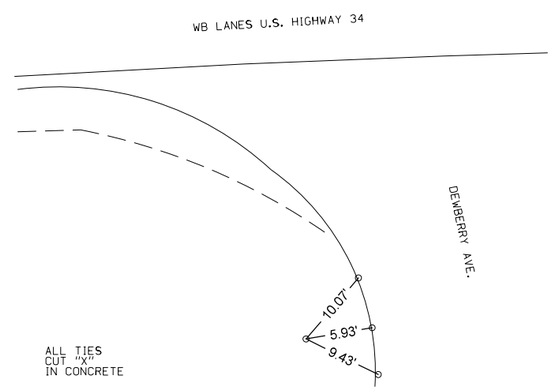
STA. 1014+91.30, 18.12' Lt.
G001, SET 1/2" REBAR WITH RED CAP
N=370916.65 E=2021730.89



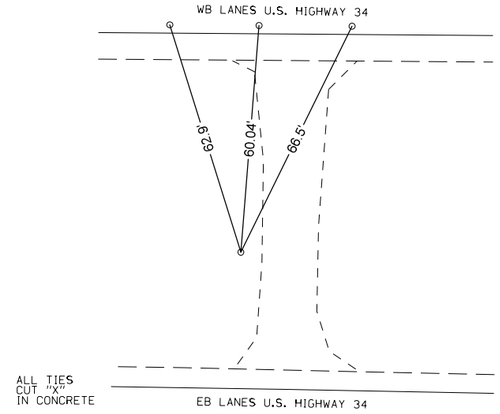
STA. 1008+86.35, 13.99' Rt.
G002, SET 1/2" REBAR WITH RED CAP
N=370724.28 E=2021157.04



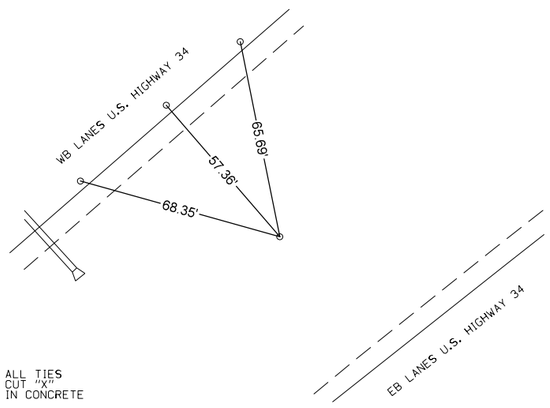
STA. 1018+93.14, 11.29' Rt.
G003, SET 1/2" REBAR WITH RED CAP
N=370931.26 E=2022133.70



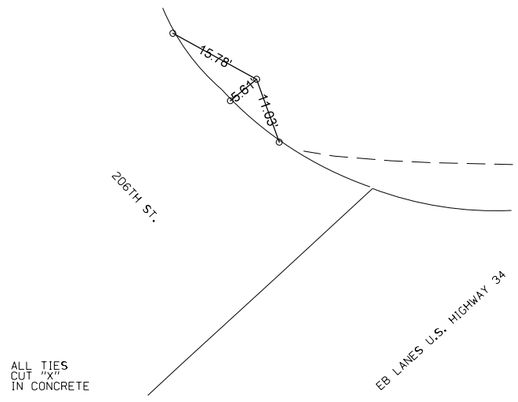
STA. 1029+14.81, 25.61' Rt.
G004, SET 1/2" REBAR WITH RED CAP
N=370916.23 E=2023154.65



STA. 997+95.56, 22.94' Rt.
G005, SET 1/2" REBAR WITH RED CAP
N=370159.60 E=2020237.77



STA. 1008+86.35, 13.99' Rt.
G006, SET 1/2" REBAR WITH RED CAP
N=369447.02 E=2019472.24



ALL VIEWS

NOT TO SCALE

DETAILS OF REFERENCE INFORMATION

All References Horizontal Distances
(unless otherwise noted)

108-26A
08-01-08

STAGING NOTES

Maintain one lane of traffic on U.S. 34 at all times.
1. Build the outside 13'-9" of proposed bridge while maintaining 14'-6" inside eastbound lane as shown on J.3. Provide temporary surfacing to the outside eastbound lane for traffic shifting in stage II.
2. Build the inside 26'-3" of proposed bridge while maintaining a 11'-6" outside eastbound lane with width restriction signing as shown on J.3

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

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

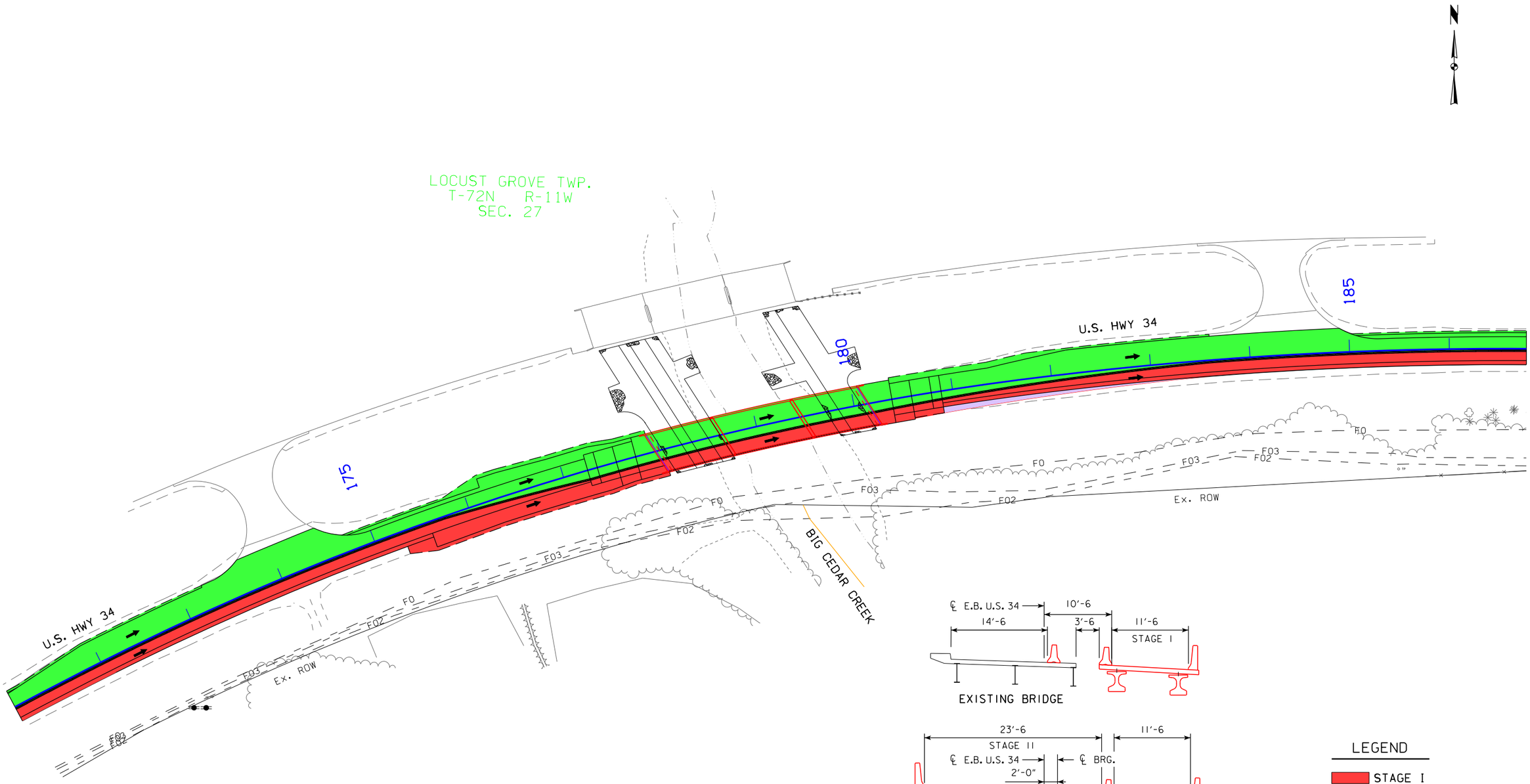
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

●	Channelizing Device	■■■	Crash Cushion
✕	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

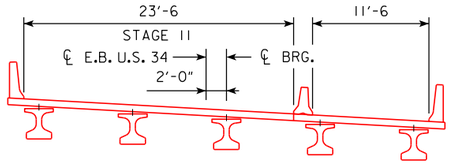
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)



EXISTING BRIDGE



STAGING DETAILS AT BRIDGE

LEGEND

STAGE I

STAGE II

STAGING SCHEMATICS

C ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER	BRF-034-8(56)--38-51	SHEET NUMBER J.3

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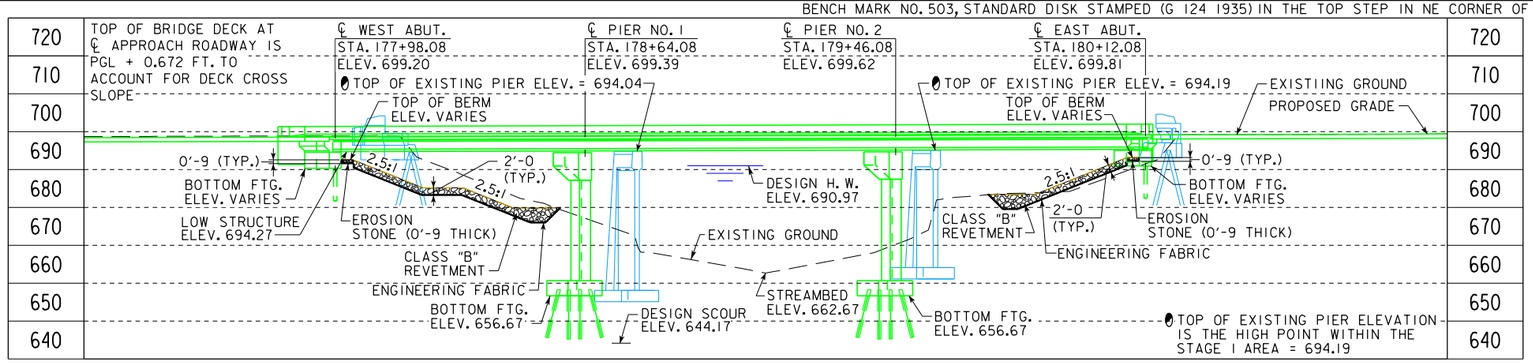
PROPOSED BRIDGE RAIL TL-4.

STRAIGHT BEAMS PLACED ALONG THE CHORD LINE, DECK SLAB IS CURVED ABOVE BEAMS.

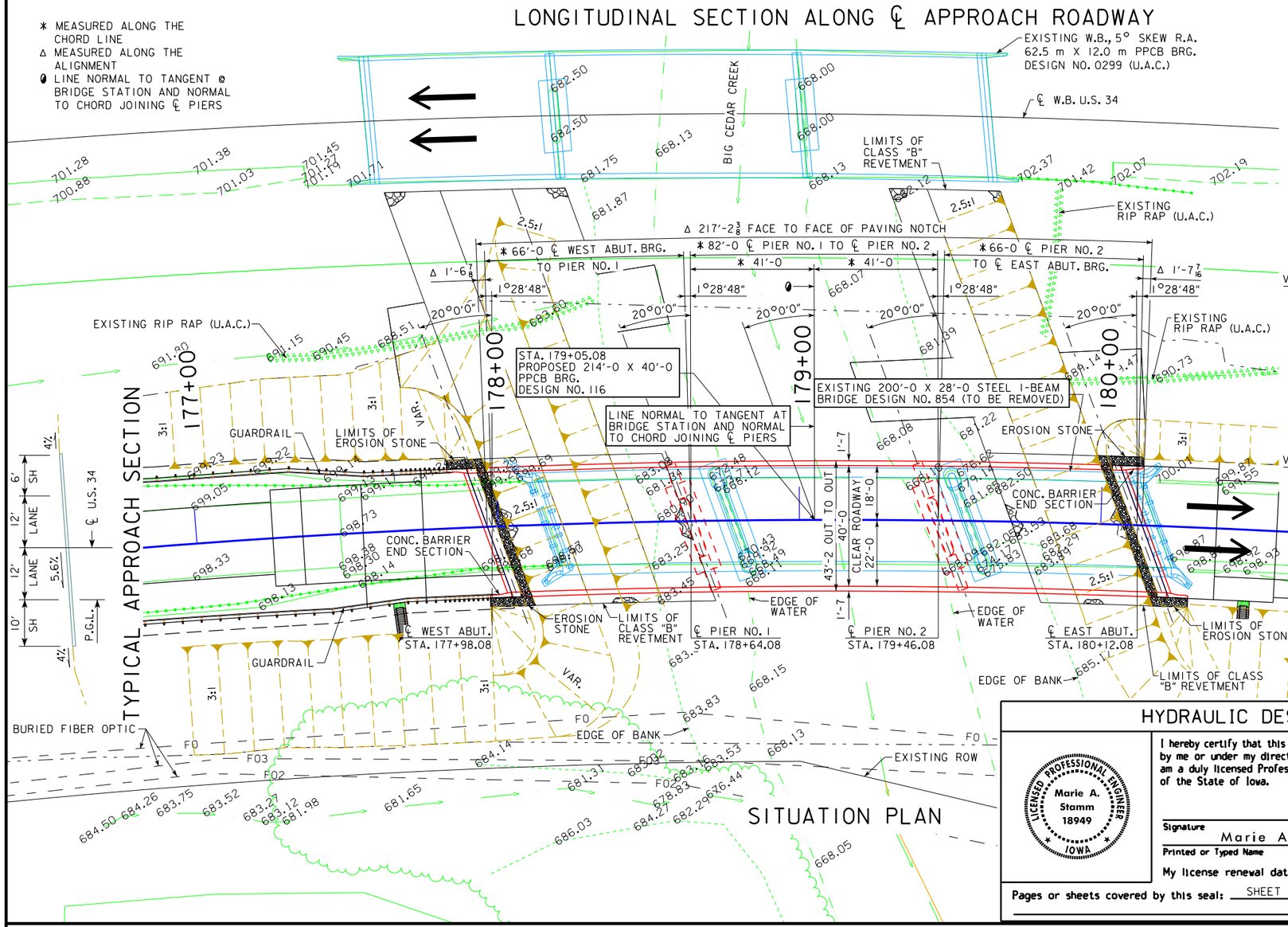
CLASS "B" REVETMENT STONE AND EROSION STONE IS EMBEDDED.

BENCH MARK NO. 503, STANDARD DISK STAMPED (G 124 1935) IN THE TOP STEP IN NE CORNER OF CB & Q RAILROAD OVERPASS CONCRETE STRUCTURE OVER CEDAR AVENUE.



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

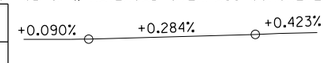
* MEASURED ALONG THE CHORD LINE
Δ MEASURED ALONG THE ALIGNMENT
⌀ LINE NORMAL TO TANGENT @ BRIDGE STATION AND NORMAL TO CHORD JOINING ℄ PIERS



TYPICAL APPROACH SECTION

SITUATION PLAN

PROPOSED PROFILE GRADE U.S. 34



℄ U.S. 34 E.B. CURVE DATA

PI STA. 177+00.88
Δ = 19°29'96" (RT)
D = 2°0.0'0.0"
T = 492.10
L = 974.68
E = 41.96
R = 2,864.79
e = 5.6%
I = -
x = -
PC STA. 172+08.78
PT STA. 181+83.46

HYDRAULIC DATA

DRAINAGE AREA = 254 SQ. MI.
STREAM SLOPE = 3.59 FT./MI.
AVG. LOW WATER STAGE = 668.1

Q_{50} = 21,100 CFS
STAGE = 690.97
BACKWATER = 0.60 FT.
AVG. BRIDGE VELOCITY = 9.24 FPS

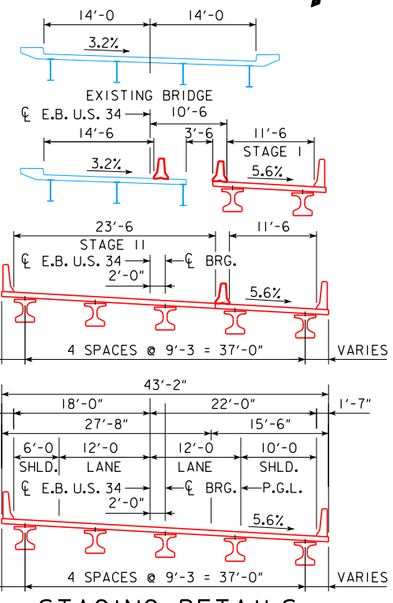
Q_{100} = 24,500 CFS
STAGE = 691.99
BACKWATER = 0.73 FT.
AVG. BRIDGE VELOCITY = 10.13 FPS

Q_{200} = 29,500 CFS
STAGE = 693.41
CALCULATED DESIGN SCOUR = 18.5 FT.

Q_{500} = 32,900 CFS
STAGE = 694.26
AVG. BRIDGE VELOCITY = 12.1 FPS
CALCULATED CHECK SCOUR = 20.2 FT.

ROADWAY OVERTOP ELEV. = 699.9
STA. 175+00

EXTREME HW STAGE = 693.8
DATE = 1930



STAGING DETAILS

TRAFFIC ESTIMATE

2016	AADT	7300	V.P.D.
2036	AADT	10000	V.P.D.
2036	DHV	1100	V.P.H.
TRUCKS		15	%
TOTAL DESIGN ESALs		-	

LOCATION

U. S. 34 OVER BIG CEDAR CREEK
T-72N R-11W
SECTION 27
LOCUST GROVE TOWNSHIP
JEFFERSON COUNTY
FHWA NO. 31291
BRIDGE MAINT. NO. 5105.8R034
LATITUDE 41.009425°
LONGITUDE -92.118616°

UTILITIES LEGEND:

MEDIACOM CABLE FO
FARMERS TELEPHONE CO. FO2
IOWA COMMUNICATIONS NETWORK FO3

PRELIMINARY

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Marie A. Stamm
18949
IOWA

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

Signature Date
Marie A. Stamm
Printed or Typed Name

My license renewal date is December 31, 2014

Pages or sheets covered by this seal: SHEET V.1

0 ENGLISH 40
SCALE IN FEET

DESIGN FOR 20°R.A. SKEW ON A 2864.79' RADIUS

214'-0 X 40'-0 PRESTRESSED PRETENSIONED CONC. BEAM BRG.

66'-0 END SPANS BTB BEAMS 82'-0 INTERIOR SPAN

SITUATION PLAN

STA. 179+05.08 FEBRUARY, 2014

JEFFERSON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 30768 DESIGN NO. 116

DESIGN TEAM : SCHEMMER | JEFFERSON COUNTY | PROJECT NUMBER BRF-034-8(56)--38-51 | SHEET NUMBER V.1

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BENCH MARK NO. 503, STANDARD DISK STAMPED (G 124 1935) IN THE TOP STEP IN NE CORNER OF CB & Q RAILROAD OVERPASS CONCRETE STRUCTURE OVER CEDAR AVENUE.

GRADING CONTROL/REVETMENT TABLE

POINT	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	-	-	-
G1	178+22.01	LT. 94.36	683.17	-	-	-
G2	178+04.44	LT. 102.89	684.98	-	-	-
G3	176+94.85	LT. 70.73	691.52	-	-	-
G4	176+93.83	RT. 69.90	685.08	-	-	-
G5	-	-	-	180+97.66	LT. 34.23	696.21
G6	-	-	-	180+95.38	RT. 72.18	684.07
G7	-	-	-	179+45.33	LT. 98.75	686.88
R1	177+67.93	LT. 112.21	695.00	-	-	-
R2	178+25.62	LT. 111.35	682.36	-	-	-
R3	-	-	-	179+29.16	LT. 109.93	681.18
R4	-	-	-	179+64.67	LT. 109.48	696.63
R5	177+67.03	LT. 73.85	689.53	-	-	-
R6	178+53.67	LT. 85.13	668.66	-	-	-
R7	178+58.10	LT. 65.57	668.05	-	-	-
R8	-	-	-	178+72.05	RT. 26.58	673.80
R9	-	-	-	179+16.72	LT. 52.11	667.75
R10	-	-	-	179+23.70	LT. 32.45	667.82
R11	-	-	-	180+11.44	LT. 58.52	691.04
R12	-	-	-	179+80.77	RT. 25.58	683.12

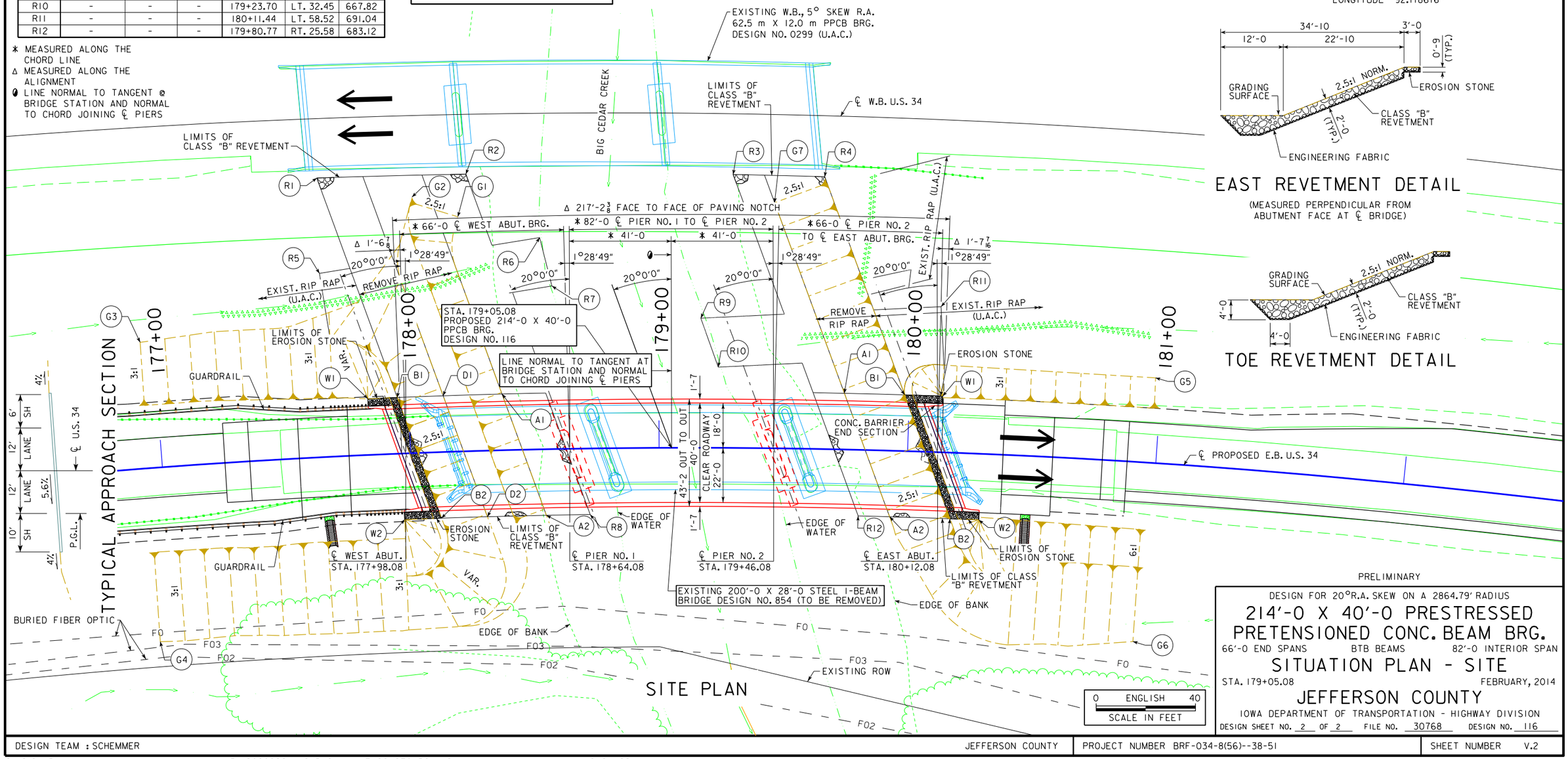
BERM SLOPE LOCATION TABLE

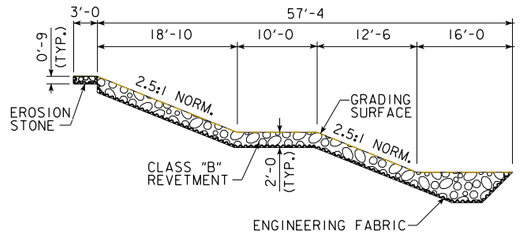
POINT	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	178+40.29	LT. 22.58	683.37	179+74.08	LT. 22.58	686.90
A2	178+54.17	RT. 26.58	680.67	179+93.52	RT. 26.58	684.19
B1	177+94.65	LT. 22.58	694.91	179+99.07	LT. 22.58	695.50
B2	178+12.54	RT. 26.58	692.21	180+16.97	RT. 26.58	692.79
D1	178+13.89	LT. 22.58	687.56	-	-	-
D2	178+30.19	RT. 26.58	684.85	-	-	-
W1	177+81.95	LT. 22.58	700.10	180+13.95	LT. 22.58	700.76
W2	177+97.66	RT. 26.58	697.73	180+29.66	RT. 26.58	698.39

CLASS "B" REVETMENT AND EROSION STONE ARE EMBEDED
ELEVATIONS SHOWN ARE GRADING SURFACE

QUANTITIES
CLASS 'B' REVETMENT 1597 TONS
ENGINEERING FABRIC 1759 SQ. YDS.
EROSION STONE 42 TONS
EXCAVATION 1141 CU. YD.

* MEASURED ALONG THE CHORD LINE
Δ MEASURED ALONG THE ALIGNMENT
◐ LINE NORMAL TO TANGENT @ BRIDGE STATION AND NORMAL TO CHORD JOINING ℄ PIERS





WEST REVETMENT DETAIL
(MEASURED PERPENDICULAR FROM ABUTMENT FACE AT ℄ BRIDGE)

EAST REVETMENT DETAIL
(MEASURED PERPENDICULAR FROM ABUTMENT FACE AT ℄ BRIDGE)

TOE REVETMENT DETAIL

TRAFFIC ESTIMATE

2016 AADT	7300	V.P.D.
2036 AADT	10000	V.P.D.
2036 DHV	1100	V.P.H.
TRUCKS	15	%
TOTAL DESIGN ESALs	-	

LOCATION
U. S. 34 OVER BIG CEDAR CREEK
T-72N R-11W
SECTION 27
LOCUST GROVE TOWNSHIP
JEFFERSON COUNTY
FHWA NO. 31291
BRIDGE MAINT. NO. 5105.8R034
LATITUDE 41.009425°
LONGITUDE -92.118616°

N

PRELIMINARY

DESIGN FOR 20°R.A. SKEW ON A 2864.79' RADIUS

214'-0 X 40'-0 PRESTRESSED PRETENSIONED CONC. BEAM BRG.

66'-0 END SPANS BTB BEAMS 82'-0 INTERIOR SPAN

SITUATION PLAN - SITE

STA. 179+05.08 FEBRUARY, 2014

JEFFERSON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. 30768 DESIGN NO. 116

DESIGN TEAM : SCHEMMER | JEFFERSON COUNTY | PROJECT NUMBER BRF-034-8(56)--38-51 | SHEET NUMBER V.2

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LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

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

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- TS — Topsoil (Class 10)
- TS A — Topsoil (Type A Disposal)
- TS B — Topsoil (Type B Disposal)
- TS C — Topsoil (Type C Disposal)
- 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

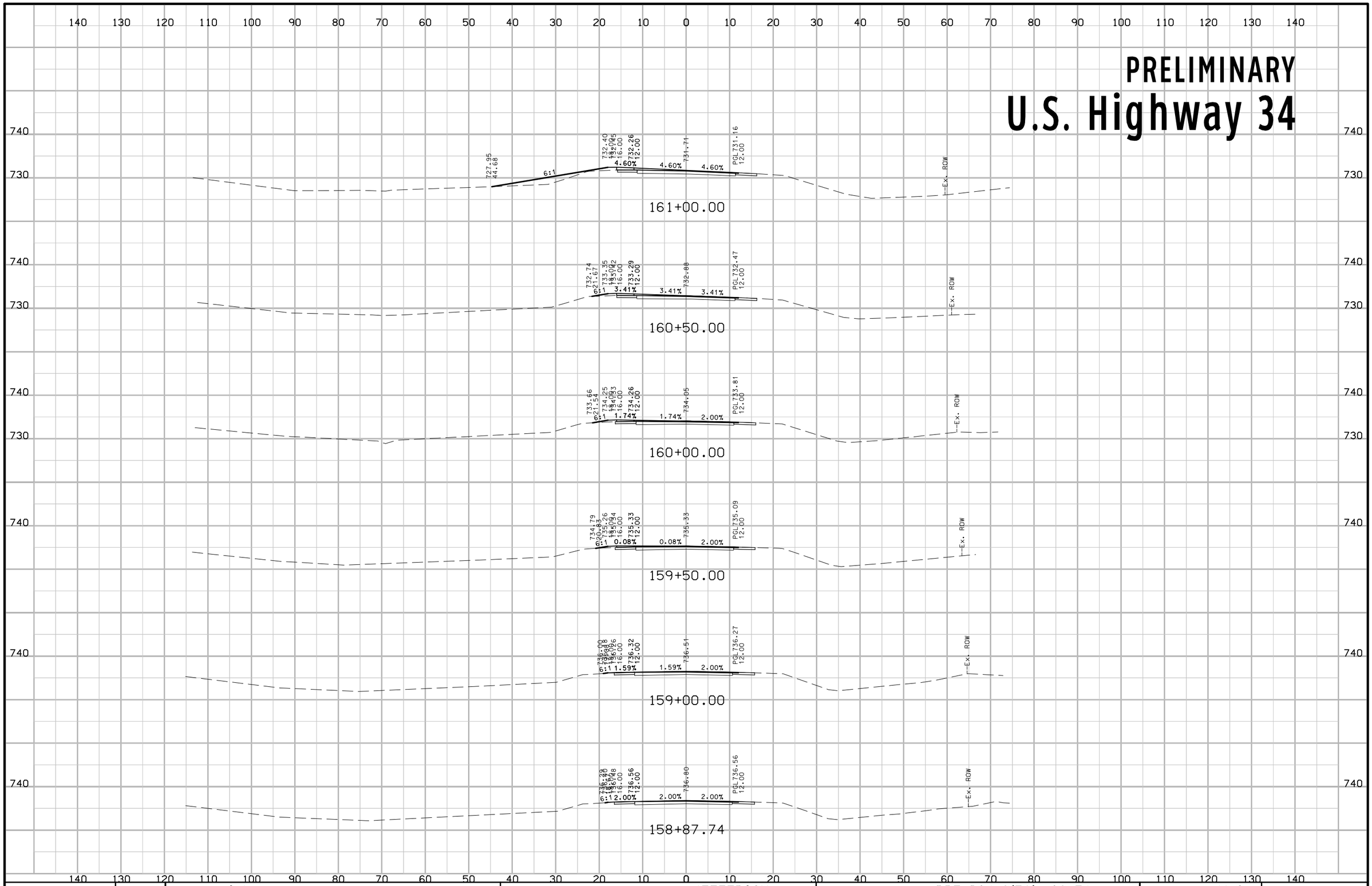
Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

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

PRELIMINARY

U.S. Highway 34



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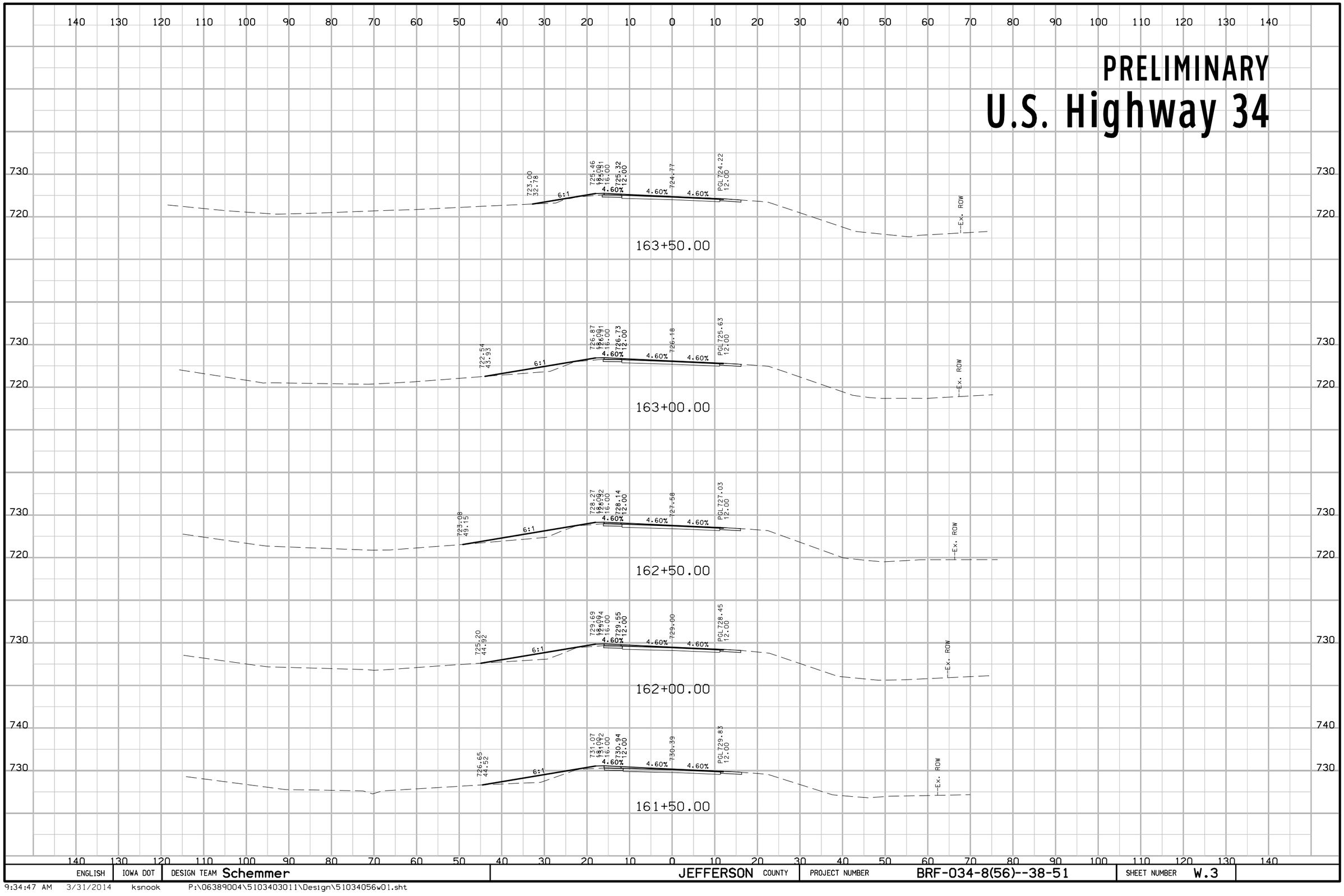
PRELIMINARY

U.S. Highway 34



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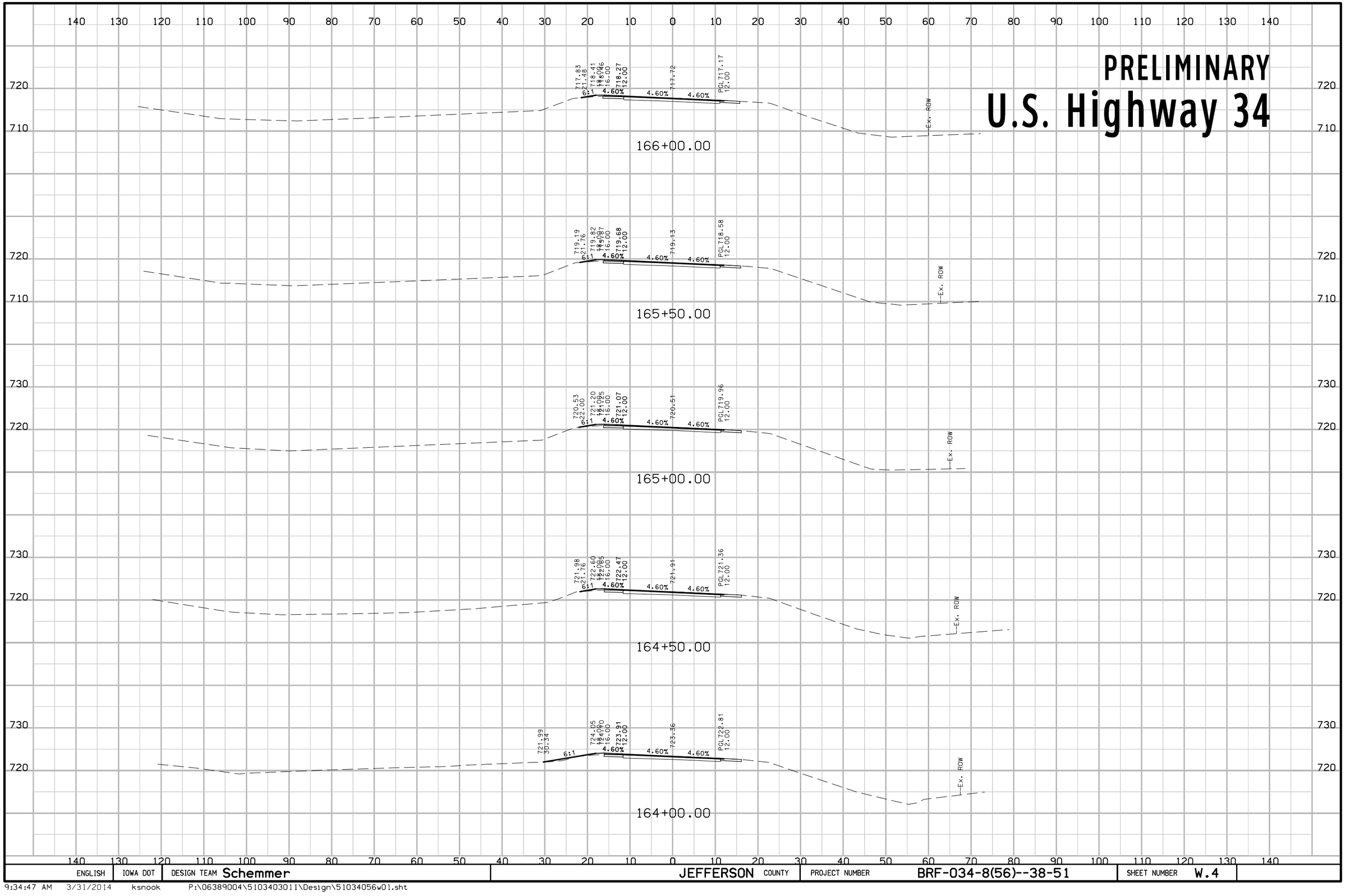
PRELIMINARY

U.S. Highway 34



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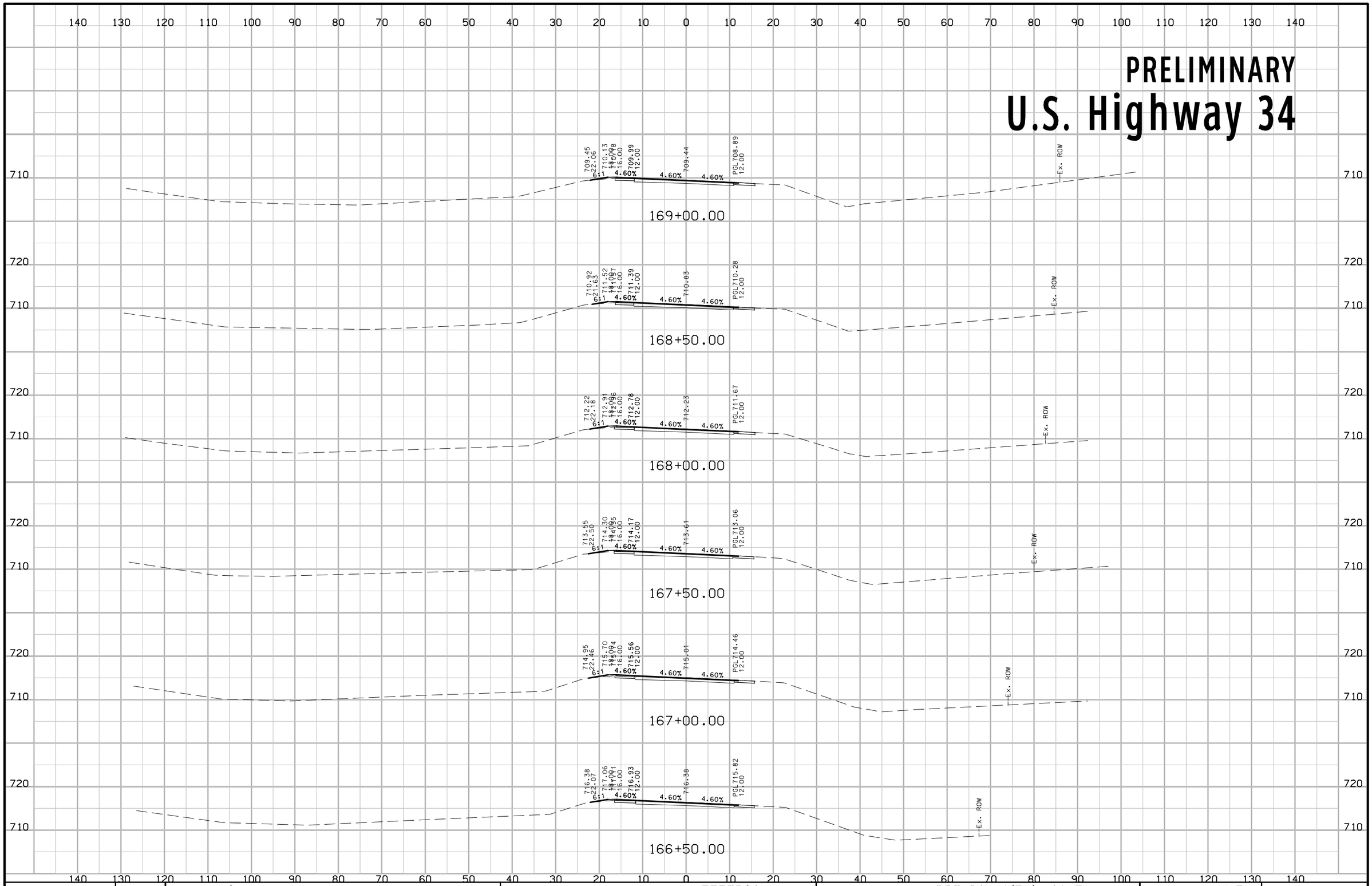
PRELIMINARY

U.S. Highway 34



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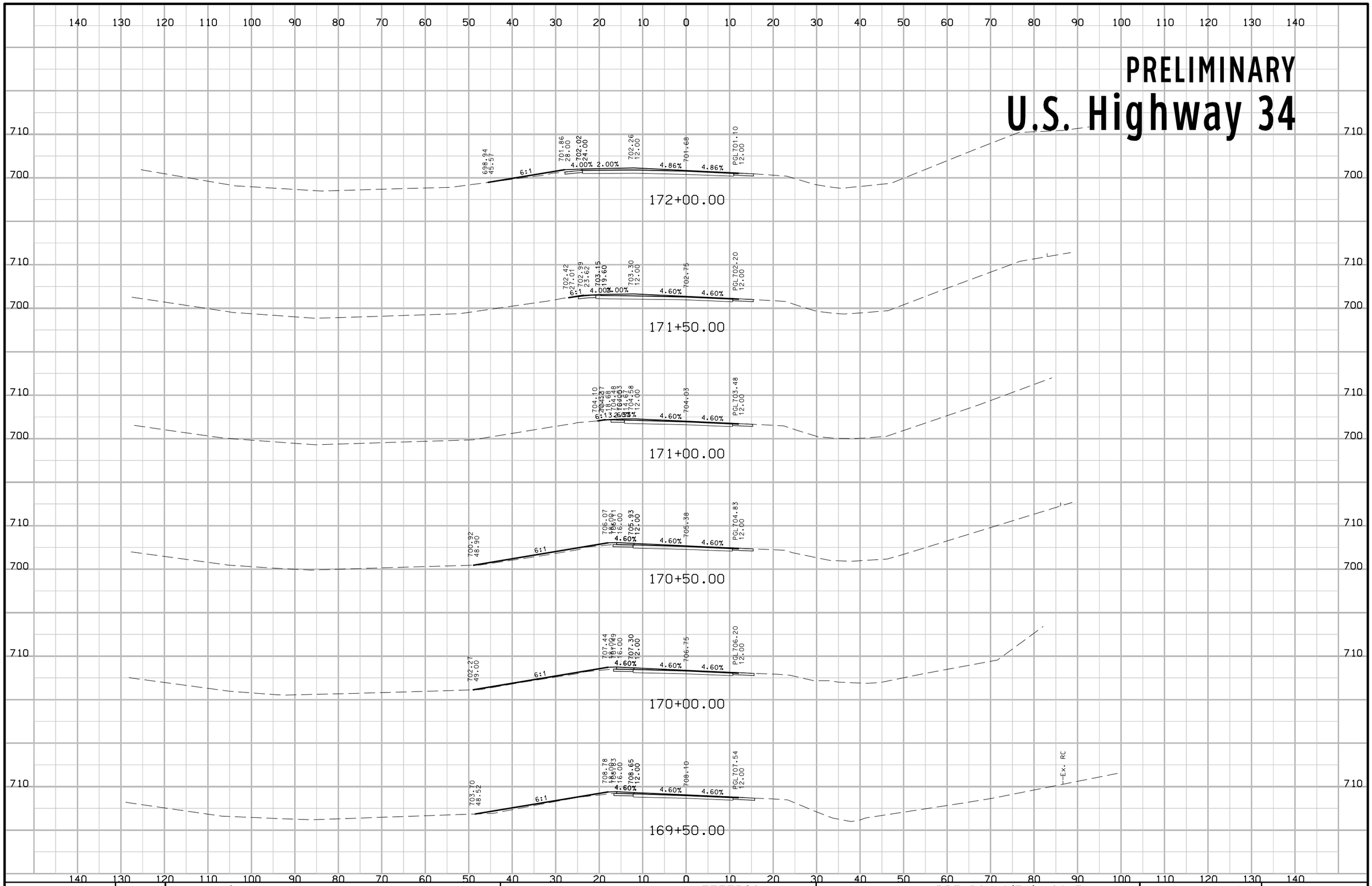
PRELIMINARY

U.S. Highway 34



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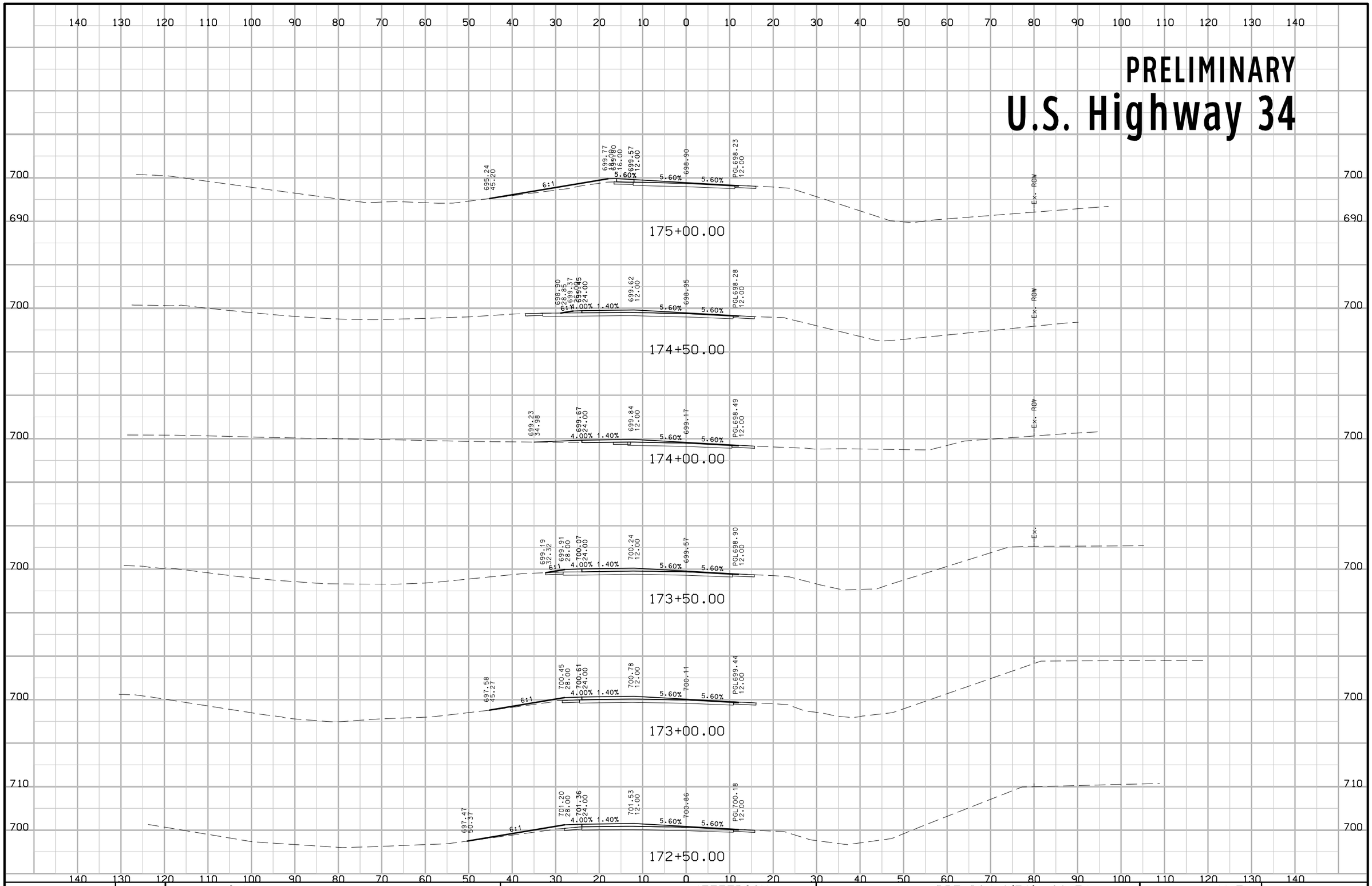
PRELIMINARY

U.S. Highway 34



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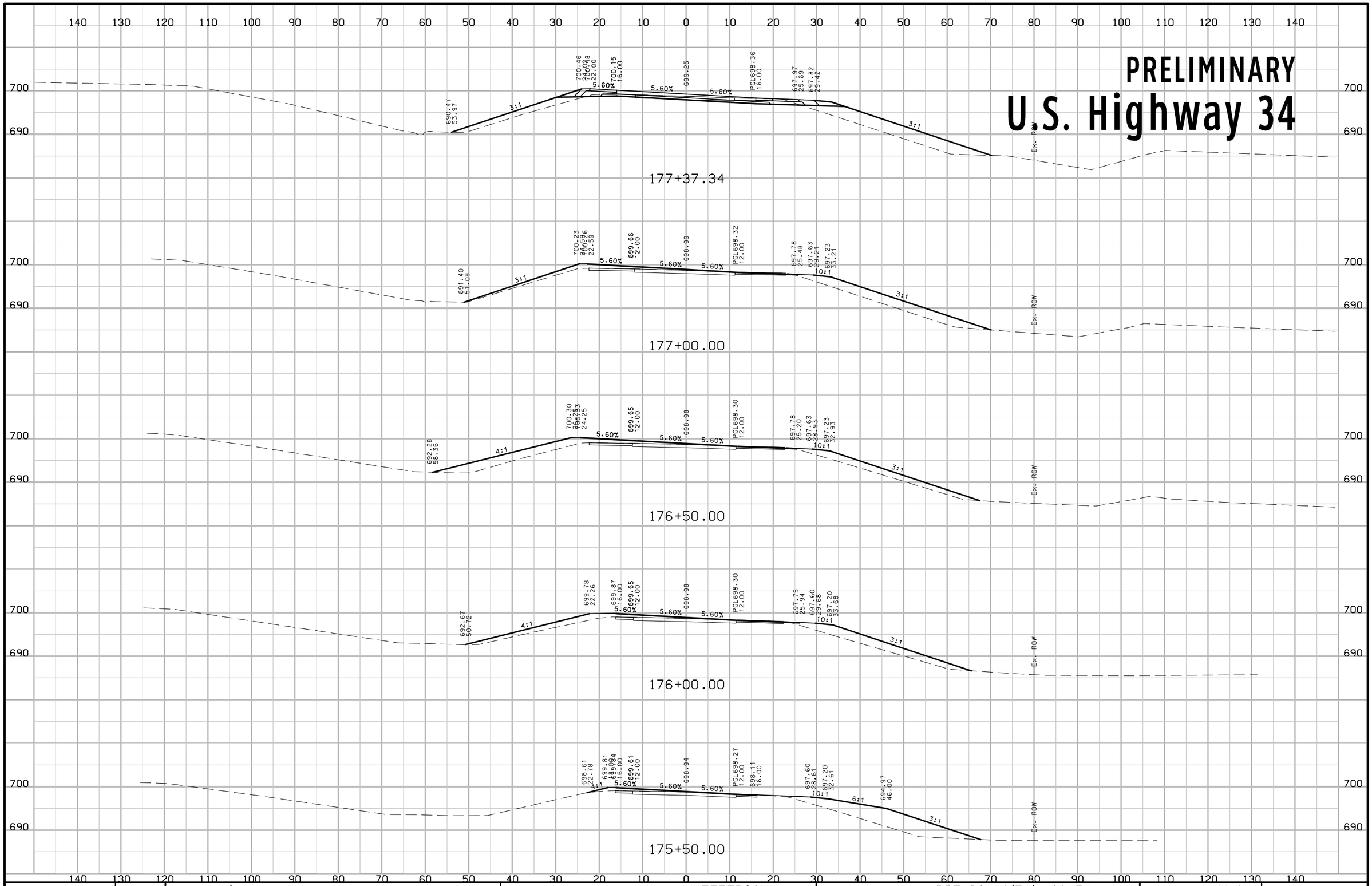
PRELIMINARY

U.S. Highway 34



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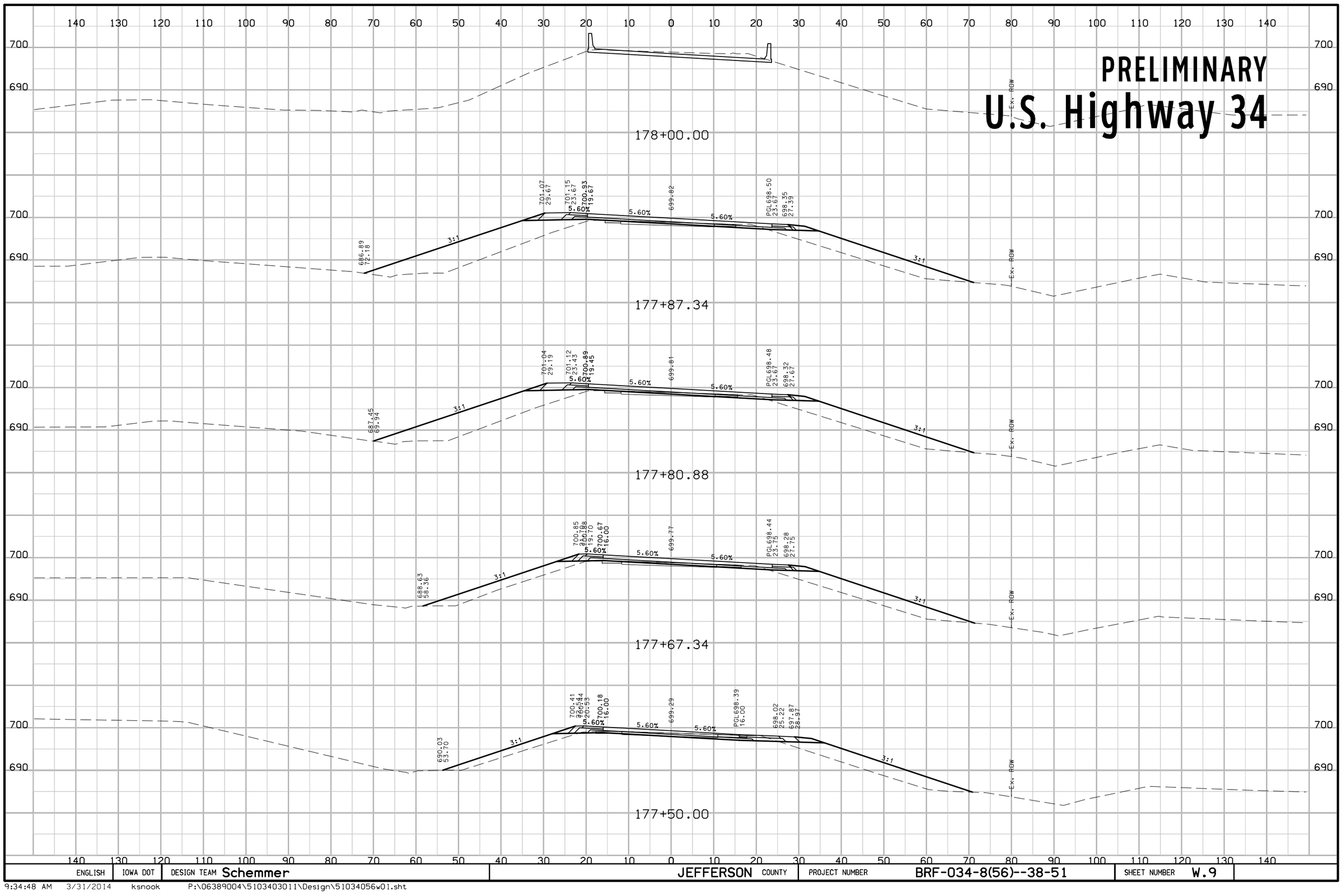
PRELIMINARY

U.S. Highway 34



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PRELIMINARY
U.S. Highway 34

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

700
690
680
670

EX. ROW

179+00.00

700
690
680

EX. ROW

178+50.00

700
690

EX. ROW

178+02.76

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

ENGLISH	IOWA DOT	DESIGN TEAM Schemmer	JEFFERSON COUNTY	PROJECT NUMBER BRF-034-8(56)--38-51	SHEET NUMBER W.10

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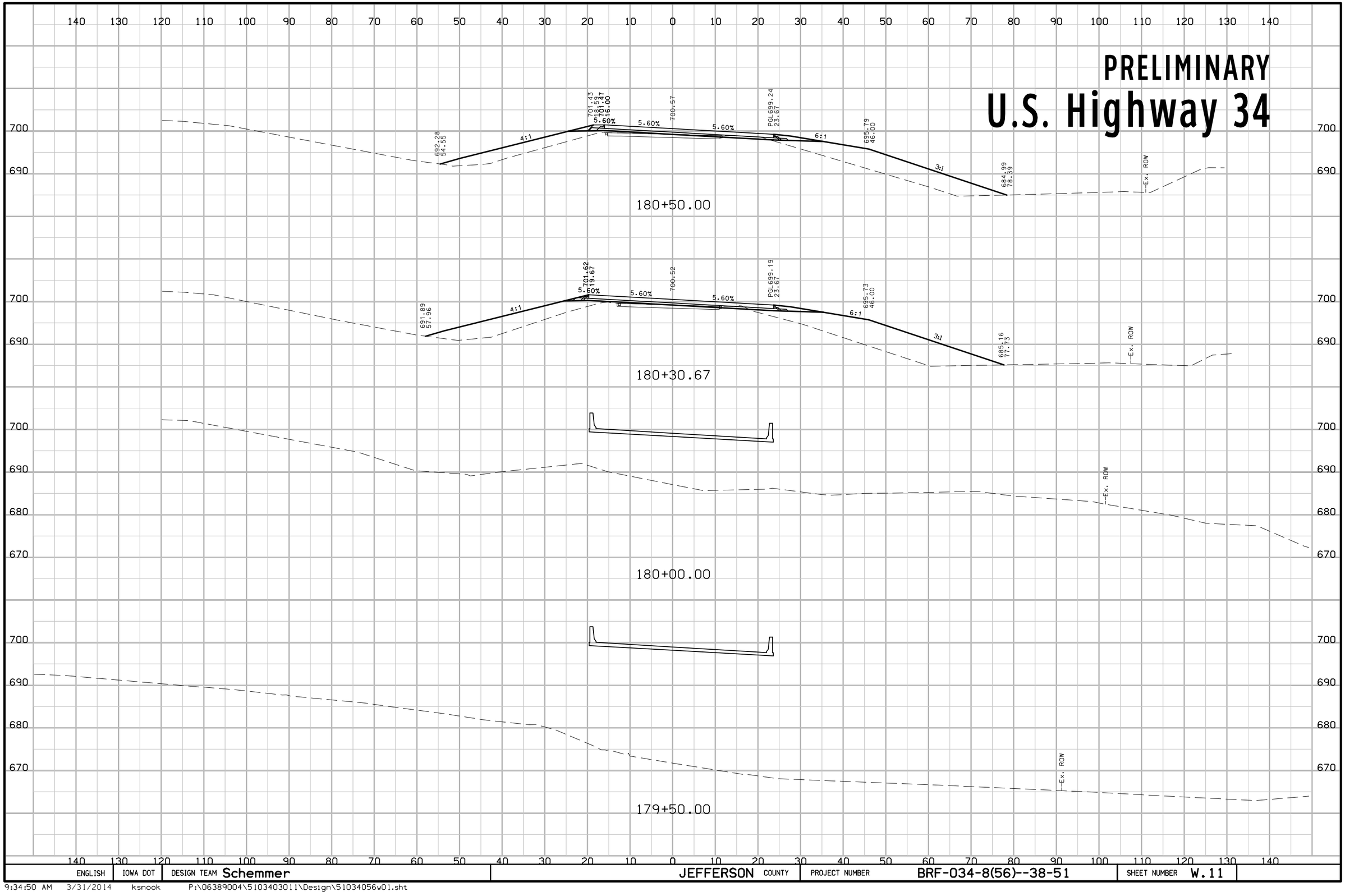
PRELIMINARY

U.S. Highway 34



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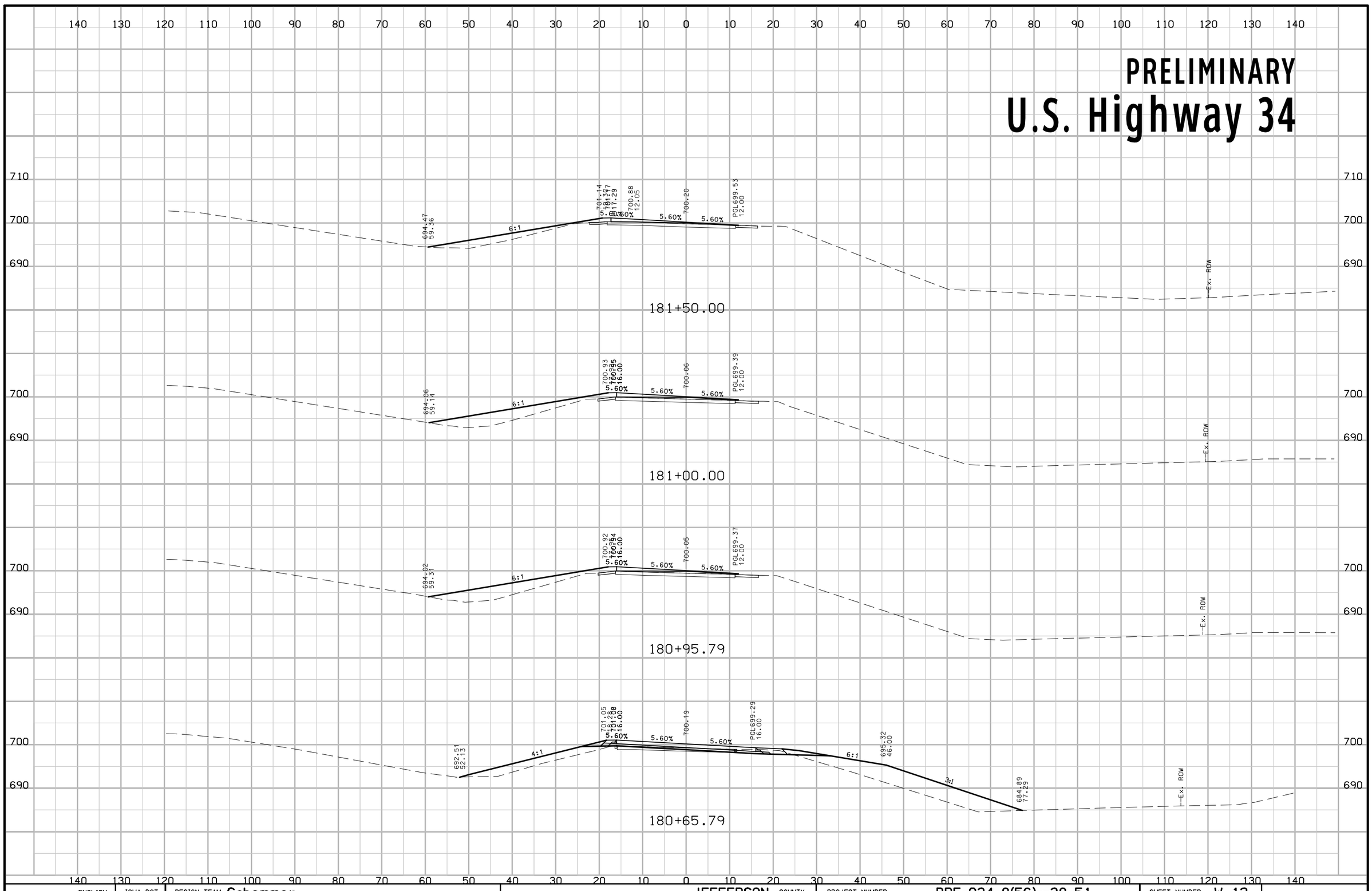
PRELIMINARY

U.S. Highway 34



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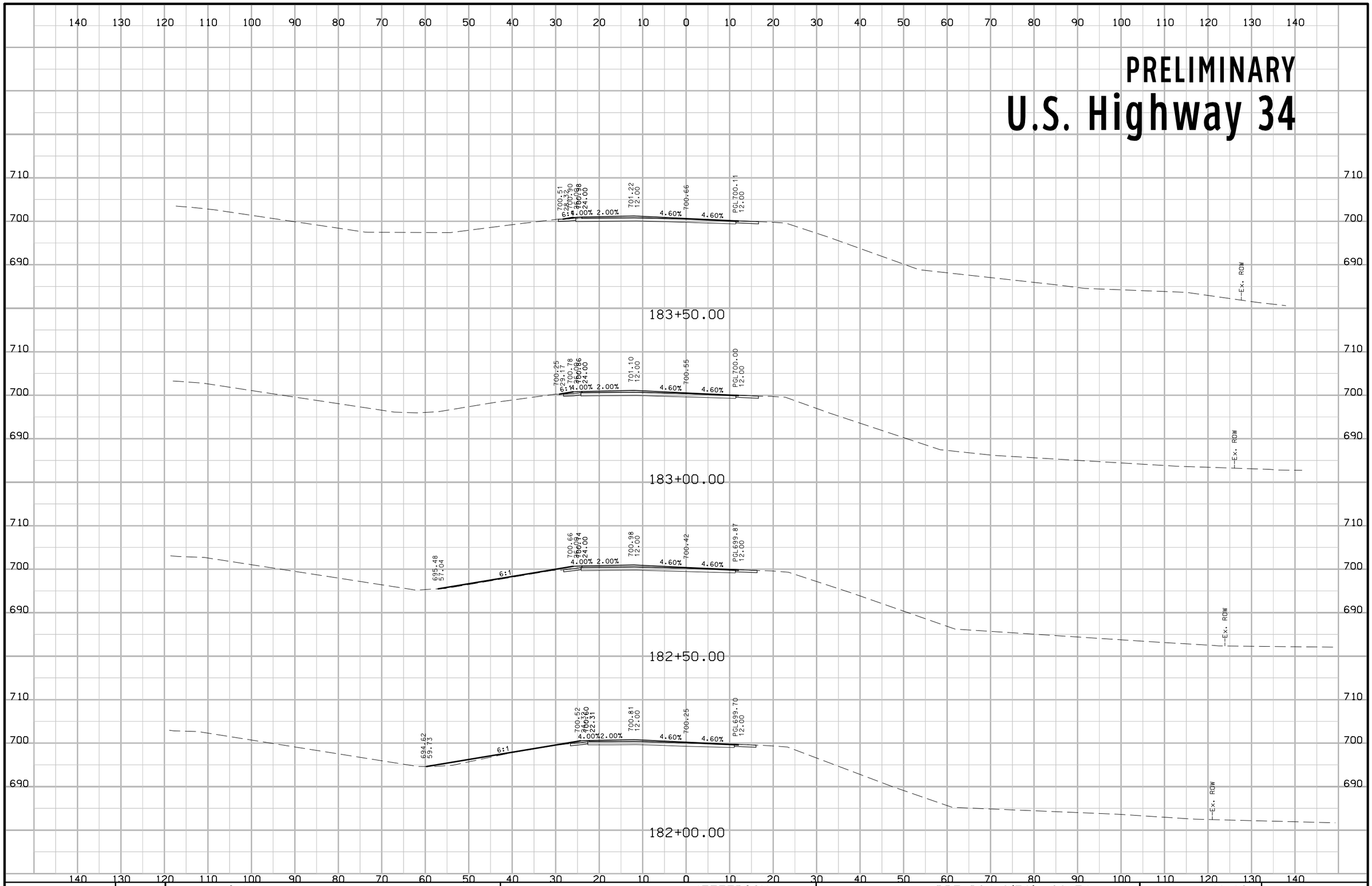
PRELIMINARY

U.S. Highway 34



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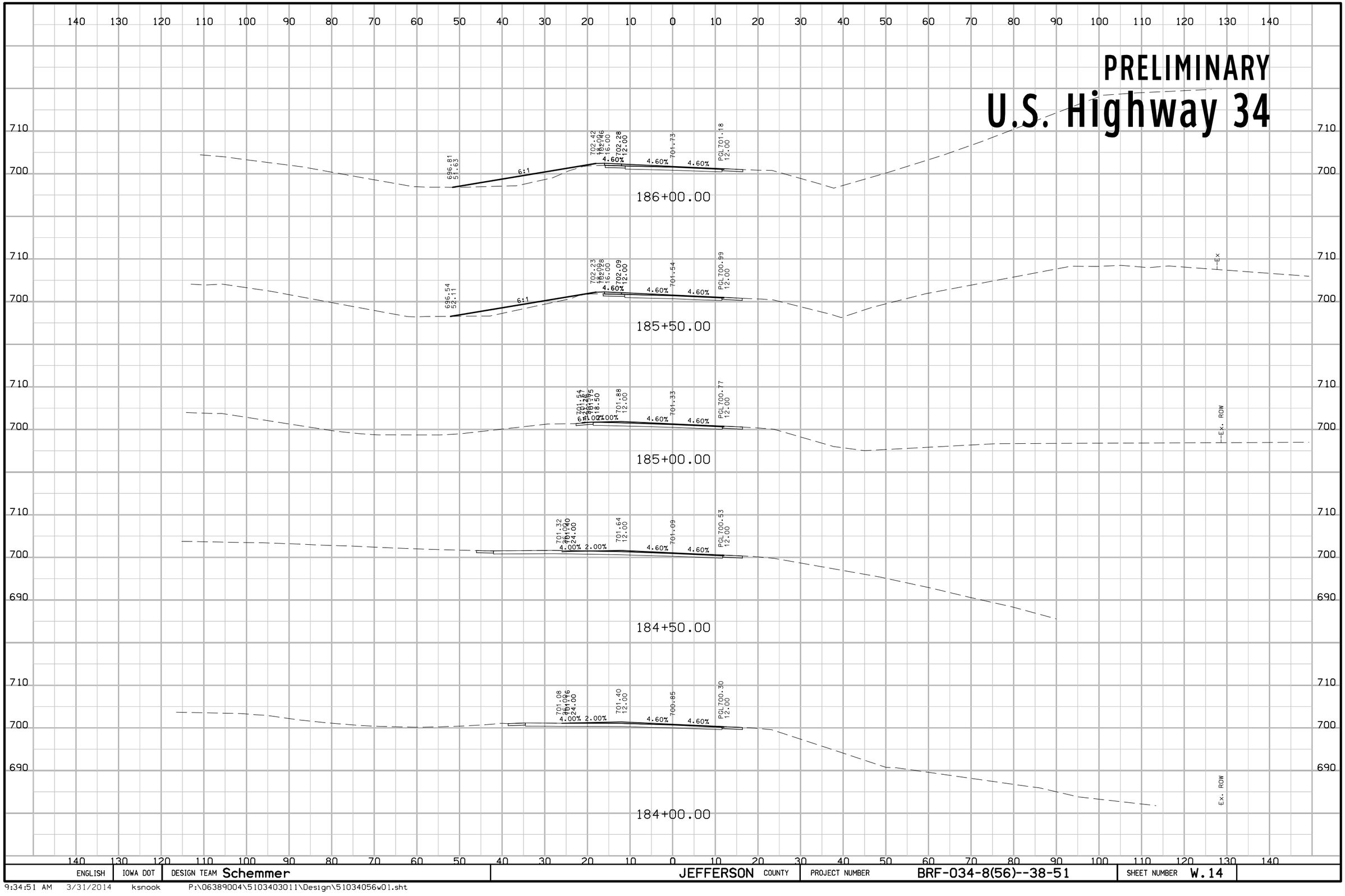
PRELIMINARY

U.S. Highway 34



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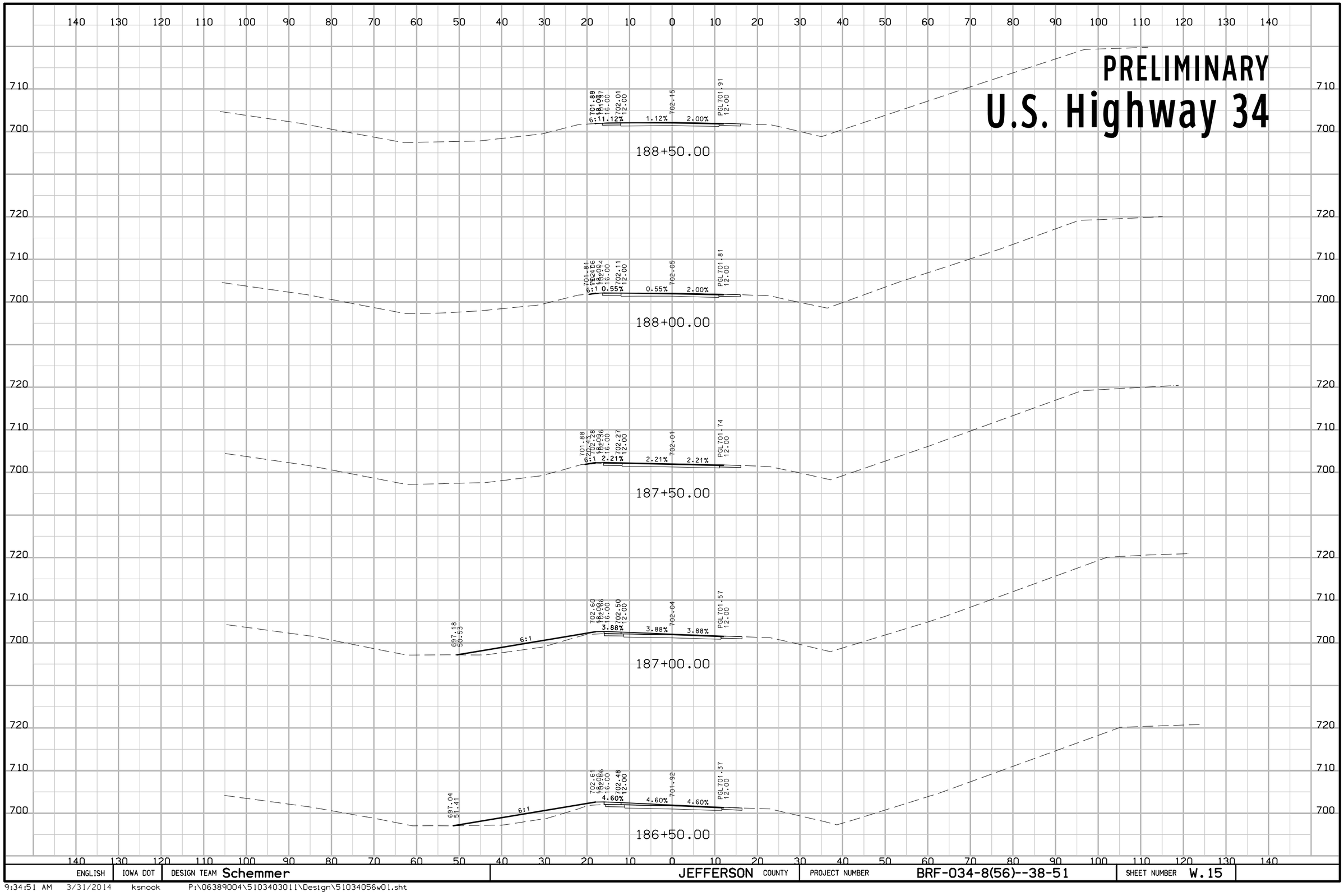
PRELIMINARY

U.S. Highway 34



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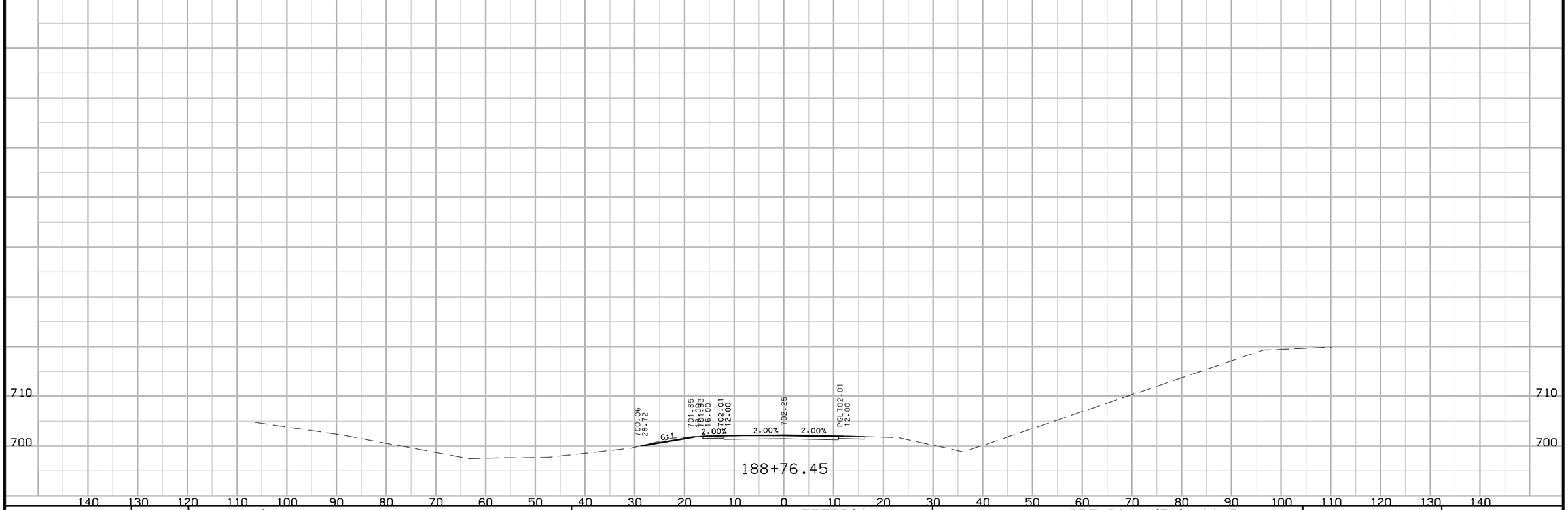
PRELIMINARY

U.S. Highway 34



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