LETTING DATE
December 16, 2014

PCC PAVEMENT - GRADE & NEW
BRFIMX-29-6(246)134--14-97
WOODBURY CO.

INDEX OF SHEETS

* Color Plan Sheets

Iowa Department of Transportation

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM

WOODBURY COUNTY

PCC PAVEMENT - GRADE & NEW

CO. RD. K-25 (SALIX) INTERCHANGE 6.4 MILES N. OF IA 141

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

REVISIONS

TOTAL 123
PROJECT IDENTIFICATION NUMBER
12-97-029-030
PROJECT NUMBER
BRFIMX-29-6(246)134--14-97
R.O.W. PROJECT NUMBER

Anticipated Project Development Schedule:

D2 - Design Field Exam
May 23, 2013

D3 - Plans for Preliminary Bridge
June 13, 2013

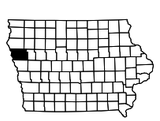
B1 - Bridges and Structures Layout
August 6, 2013

S2 - Identification of Soils Related ROW Issues
October 31, 2013

D5 - Plans to Right of Way
January 10, 2014

Preliminary Earthwork: 21,000 CY Cut (Total)
98,000 CY Fill (Total)
61,000 CY EPS Lightweight Fill
12,700 CY Waste

For Project Location Map
Refer to Sheet A.2



I-29 DESIGN DATA RURAL		
2016 AADT	19,500	V.P.D.
2036 AADT	31,300	V.P.D.
2036 DHV	2,230	V.P.H.
TRUCKS	22	%
Total Design ESALs	--	

Co. Rd. K-25 DESIGN DATA RURAL		
2016 AADT	1180	V.P.D.
2036 AADT	1611	V.P.D.
2036 DHV	109	V.P.H.
TRUCKS	5	%
Total Design ESALs	--	

D5 PLANS

Subject to change by final design.

D5 PLAN – Date: Jan. 10, 2014

ENGLISH | IOWA DOT | DESIGN TEAM Snyder and Associates, Inc. | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER A.1

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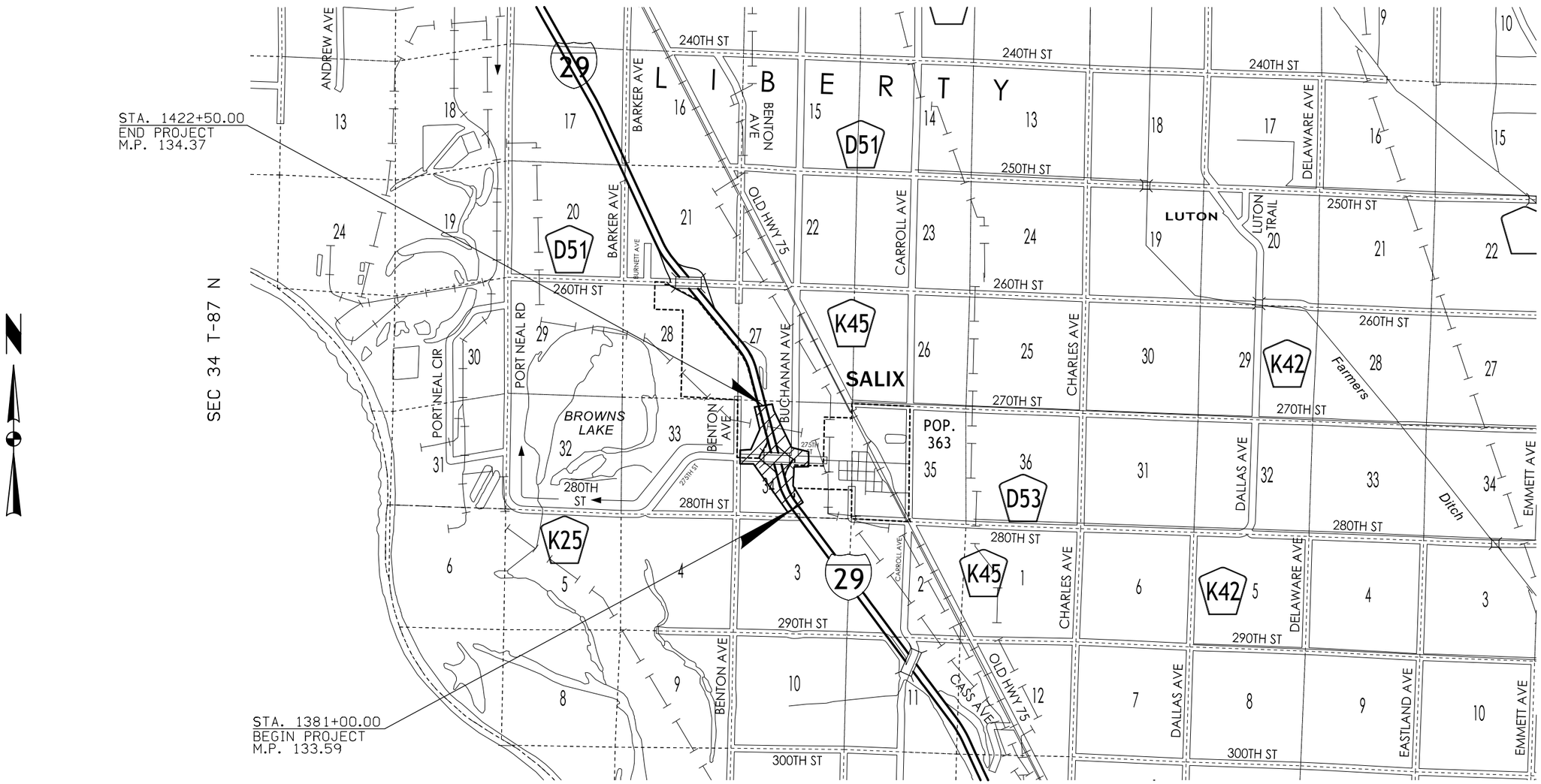

LOCATION MAP SCALE
0 0.5 1 1.5
Miles

ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER A.2

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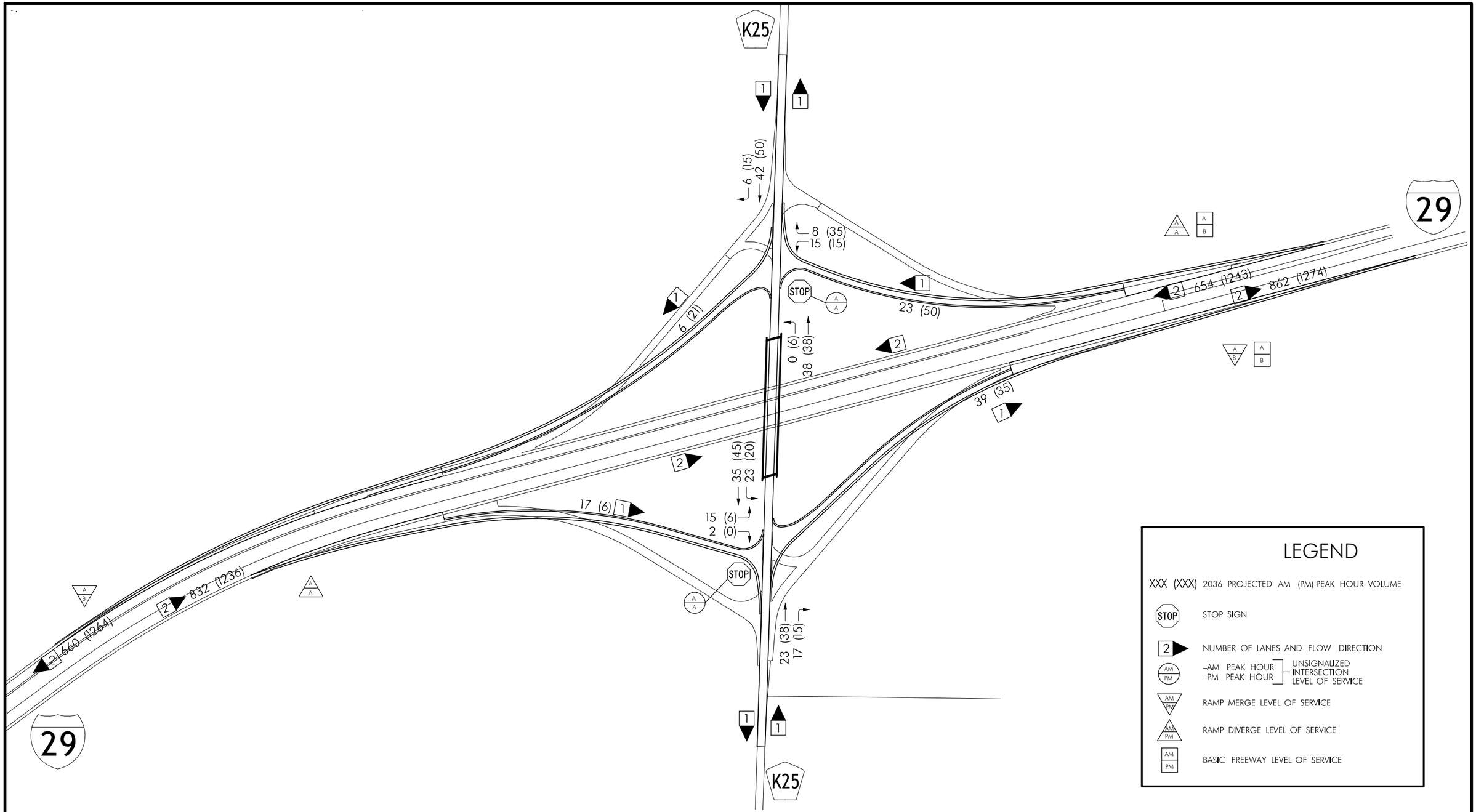


LEGEND

XXX (XXX) 2036 PROJECTED AM (PM) PEAK HOUR VOLUME

STOP STOP SIGN

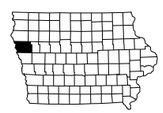
2 NUMBER OF LANES AND FLOW DIRECTION

AM –AM PEAK HOUR
PM –PM PEAK HOUR
UNSIGNALIZED INTERSECTION LEVEL OF SERVICE

AM PM RAMP MERGE LEVEL OF SERVICE

AM PM RAMP DIVERGE LEVEL OF SERVICE

AM PM BASIC FREEWAY LEVEL OF SERVICE



NOT TO SCALE

TRAFFIC DATA

ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER A.3

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Project Number: BRFIMX-29-6(246)134--14-97
Route: K-25 - Rural Major Collector
Date of Information: 3/28/2012
Date of Base Design Manual Information: 7/29/2011

Last Updated 7/29/2011			Acceptable Values	Preferred Values	Project Values	Comments
Design Element			Roadway Type: Rural Two-Lane Highways	Roadway Type: Rural Two-Lane Highways		
design speed (mph)			Cannot be less than the posted speed limit	60	50	Transitional Facility, Posted Speed Limit 45 MPH
full depth paved width (ft)		outside lane	12	14	12	
		inside lane(s)			12	
design lane width (ft)			11	12	12	
auxiliary-lane width (ft) (includes turn lanes)			10	12	12	
parking-lane width (ft)					--	
pavement cross-slope (%)			1.5% minimum, 3% maximum	2%, However, when adjacent lanes slope in the same direction, increase	2.00%	
effective shoulder width and type (see Section 3C-4)			See Shoulder Tables	See Shoulder Tables		
shoulder cross-slope (%)			not less than the adjacent lane, 2 to 8% for paved, 4 to 6% for granular, 6 to 8% for earth	4	4.00%	
foreslope (see Roadway Typical Cross Sections)	adjacent to shoulder		3:1	10:1 for 4' then 6:1	10:1 for 4' then 6:1	Barnroof section within ramps
	beyond standard ditch depth and design clearzone		3:1	3.5:1	4:1	
	Curbed roadways		4% for 12' behind curbs, then not steeper than 3:1	4% toward roadway for 12', then not steeper than 4:1		
normal outside ditch (depth x width) (ft)			--	5 x 10	5 x 10	
normal median ditch depth (ft)			--	--	--	
normal median width (ft) (if applicable)			--	--	--	
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)			2.5:1	3:1	3:1	
bridge width—new (ft)			design lane widths + effective shoulder widths	design lane widths + effective shoulder widths or curb to curb street width	40	
bridge width—for Use as Constructed bridges (ft)			design lane widths + 2 ft offset each side		28	
transverse slopes	w/ drainage structures		6:1	8:1	8:1	
	w/o drainage structures		6:1	10:1	10:1	
	at sideroads		6:1	6:1	6:1	
Vertical clearance (ft) (above lanes & shoulders)(see Section 8A-2)		Over primary	16	16.5	16.5	
		over non-primary	14	16.5 at interchange locations, 15 at all	--	
		over railroad	23.3	23.3	--	
		sign truss	17	17.5	--	
Structural Capacity			Contact Office of Bridges and Structures	--	--	
Level of Service			B	--	B	

Project Number: BRFIMX-29-6(246)134--14-97
Route: K-25 - Rural Major Collector
Date of Information: 3/28/2012
Date of Base Design Manual Information: 7/29/2011

Design Element		Acceptable Values Design Speed, mph	Preferred Values Design Speed, mph	Project Values	Comments
		50	50		
Stopping sight distance (ft) (see Section 6D-1)		425	425	425	
Minimum horizontal curve radius (ft)	e_{max} = 4%	--	--		
	e_{max} = 6%	833	833	833	
	e_{max} = 8%	758			
Minimum vertical curve length (ft)		150	150	150	
Minimum rate of vertical curvature (K)	crest	84	136	136	
	sag	96	96	96	
Minimum gradient (%)		0.3% with a curb, 0.0% without a curb	0.5	0.50%	Existing roadway at 0.11%
Maximum gradient (%) on ramps			4%		
	Upgrades	5			
	Downgrades	Equal to the maximum upgrade gradient.			
Maximum gradient (%) on roadways other than ramps		5	4	5.00%	
Clearzone		See "Acceptable Clear Zone" table in Section 8A-2	See "Preferred Clear Zone" table in Section 8A-2	20	20' for barnroof width determination, 26' for obstructions
Curb type		4" Sloped is maximum height for 6" Sloped for all other routes	4" Sloped is maximum height for interstate routes, 6" Sloped for all other		

Project Number: BRFIMX-29-6(246)134--14-97
Route: I-29 - Exit Ramp
Date of Information: 3/28/2012
Date of Base Design Manual Information: 7/29/2011

Last Updated 7/29/2011

Design Element			Acceptable Values — Roadway Type: Ramps — one lane	Preferred Values — Roadway Type: Ramps — one lane	Project Values	Comments
design speed (mph)					60	45 mph near at grade terminal
full depth paved width (ft)		outside lane	See Ramp Tables	See Ramp Tables	16	
		inside lane(s)				
design lane width (ft)					16	
auxiliary-lane width (ft) (includes turn lanes)			10	12	12	
parking-lane width (ft)					--	
pavement cross-slope (%)			1.5% minimum, 3% maximum	2%	2.00%	
effective shoulder width and type (see Section 3C-4)			See Ramp Tables	See Ramp Tables	6	6 foot Right, 4' Left (in direction of travel)
shoulder cross-slope (%)			not less than the adjacent lane, 2 to 6% for paved, 4 to 6% for granular, 6 to 8% for earth	4	4.00%	
foreslope (see Roadway Typical Cross Sections)	adjacent to shoulder		4:1 for interstates, 3:1 for others	10:1 for 4' then 6:1	6:1	10:1 for 4 feet
	beyond standard ditch depth and design clearzone		3:1	3.5:1	3.5:1	Or flatter for stability purposes
	Curbed roadways		not steeper than 3:1	Curbed roadways are not preferred	--	
normal outside ditch (depth × width) (ft)			--	5 x 10	5 x 10	
normal median ditch depth (ft)			--	--	--	
normal median width (ft) (if applicable)			--	--	--	
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)			2.5:1	3:1	3:1	
bridge width—new (ft)			design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	--	
bridge width—for Use as Constructed bridges (ft)			design lane widths + 2 ft offset each side		--	
transverse slopes	w/ drainage structures		6:1	8:1	8:1	
	w/o drainage structures		6:1	10:1	10:1	
	at sideroads		6:1	6:1	6:1	
Vertical clearance (ft) (above lanes & shoulders)(see Section 8A-2)		Over primary	16	16.5	--	
		over non-primary	14	16.5 at interchange locations, 15 at all	--	
		over railroad	23.3	23.3	--	
		sign truss	17	17.5	--	
Structural Capacity			Contact Office of Bridges and Structures	--	--	
Level of Service			--	--	--	

Chapter 1 - General Information

1C-1 - Selecting Design Criteria

Project Number: BRFIMX-29-6(246)134--14-97
Route: I-29 - Exit Ramp
Date of Information: 3/28/2012
Date of Base Design Manual Information: 7/29/2011

Design Element		Acceptable Values — Design Speed, mph — 60	Preferred Values — Design Speed, mph — 60	Project Values	Comments
Stopping sight distance (ft) (see Section 6D-1)		570	570	570	
Minimum horizontal curve radius (ft)	e_{max} = 4%	--	--		
	e_{max} = 6%	1330	1330	1330	
	e_{max} = 8%	1200			
Minimum vertical curve length (ft)		180	180	180	
Minimum rate of vertical curvature (K)	crest	151	245	245	
	sag	136	136	136	
Minimum gradient (%)		0.3% with a curb, 0.0% without a curb	0.5	0.50%	
Maximum gradient (%) on ramps			4%		
	Upgrades	5		4.00%	
	Downgrades	Equal to the maximum upgrade gradient.		4.00%	
Maximum gradient (%) on roadways other than ramps		4	3		
Clearzone		See "Acceptable Clear Zone" table in Section 8A-2	See "Preferred Clear Zone" table in Section 8A-2	24	
Curb type		4" Sloped is maximum height for 6" Sloped for all other routes	4" Sloped is maximum height for interstate routes, 6" Sloped for all other		

Project Number: BRFIMX-29-6(246)134--14-97
Route: I-29 - Rural Interstate
Date of Information: 3/28/2012
Date of Base Design Manual Information: 7/29/2011

Last Updated 7/29/2011			Acceptable Values	Preferred Values	Project Values	Comments
Design Element			Roadway Type: Interstates: Rural	Roadway Type: Interstates		
design speed (mph)			70	75	75	
full depth paved width (ft)		outside lane	12	14', 12' if using full depth paved shoulders	14'	Pavement Marking at 12'
		inside lane(s)	12	12	12	
design lane width (ft)			12	12	12	
auxiliary-lane width (ft) (includes turn lanes)			12	12	12	
parking-lane width (ft)						
pavement cross-slope (%)			1.5% minimum, 3% maximum	2%. However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	2.00%	
effective shoulder width and type (see Section 3C-4)			See Shoulder Tables	See Shoulder Tables	10'	As-Built Values: 10' Outside Shoulder (Paved), 6' Inside Shoulder (Paved)
shoulder cross-slope (%)			2 to 6% but not less than the adjacent lane	4% unless shoulders will be used for staging or potential future lanes.	4.00%	
foreslope (see Roadway Typical Cross Sections)	adjacent to shoulder		4:1	10:1 for 4' then 6:1	6:1	10:1 for 4'
	beyond standard ditch depth and design clearzone		3:1	3.5:1	2.5:1	As-Built Value, no new construction
	Curbed roadways		not steeper than 3:1	Curbed roadways are not preferred		
normal outside ditch (depth × width) (ft)			--	5 x 10	5 x 10	As-Built Value ranges from 3.5 x 10 to 5 x 10
normal median ditch depth (ft)			3' minimum	4	3.5	As-Built Value: 3.5 min, 4.5 max
normal median width (ft) (if applicable)			36	82	50	As-Built Value, no new construction
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)			2.5:1	3:1	2.5:1	
bridge width—new (ft)			design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	--	
bridge width—for Use as Constructed bridges (ft)			design lane widths + 3.5' offset on each side		--	
transverse slopes	w/ drainage structures		6:1	8:1	8:1	
	w/o drainage structures		6:1	10:1	10:1	
	at sideroads		6:1	6:1	6:1	
Vertical clearance (ft) (above lanes & shoulders)(see Section 8A-2)		Over primary	16	16.5	16.5	
		over non-primary	14	16.5 at interchange locations, 15 at all other	--	
		over railroad	23.3	23.3	--	
		sign truss	17	17.5	--	
Structural Capacity			Contact Office of Bridges and Structures	--	--	
Level of Service			B for Rural, C for Urban	--	B	

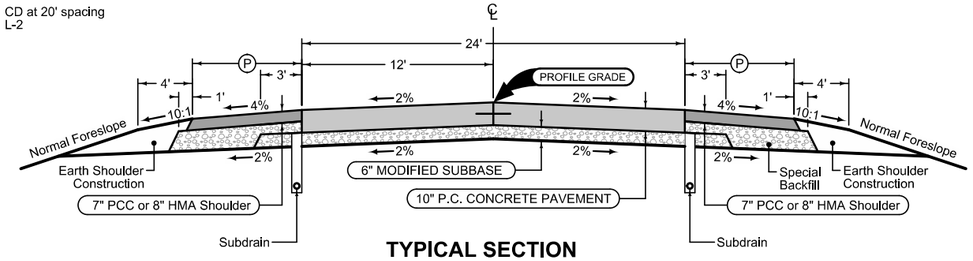
Project Number: BRFIMX-29-6(246)134--14-97
Route: I-29 - Rural Interstate
Date of Information: 3/28/2012
Date of Base Design Manual Information: 7/29/2011

Design Element		Acceptable Values Design Speed, mph	Preferred Values Design Speed, mph	Project Values	Comments
		70	75		
Stopping sight distance (ft) (see Section 6D-1)		730	820	820	
Minimum horizontal curve radius (ft)	e_{max} = 4%	--	--		
	e_{max} = 6%	2040	2500	2500	
	e_{max} = 8%	1810			
Minimum vertical curve length (ft)		210	225	225	
Minimum rate of vertical curvature (K)	crest	247	506	506	
	sag	181	206	206	
Minimum gradient (%)		0.3% with a curb, 0.0% without a curb	0.5	0.50%	
Maximum gradient (%) on ramps			4%		
	Upgrades	--			
	Downgrades	Equal to the maximum upgrade gradient. In special cases, may be 2% greater but			
Maximum gradient (%) on roadways other than ramps		4	3	3.00%	
Clearzone		See "Acceptable Clear Zone" table in Section 8A-2	See "Preferred Clear Zone" table in Section 8A-2	46	
Curb type		4" Sloped is maximum height for 6" Sloped for all other routes	4" Sloped is maximum height for interstate routes, 6" Sloped for all other		

Detail 1

LOCATION			DIMENSIONS
ROAD IDENTIFICATION	STATION TO STATION		Ⓟ FEET
K-25	11397+13.40	11401+10.35	8
K-25	11405+16.49	11409+20.82	8

Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2



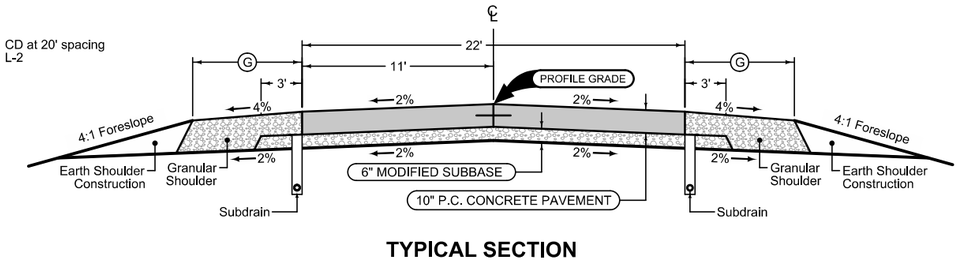
TYPICAL SECTION
(K-25)

Note:
Typical section transitions between detail 1 and detail 2 between Sta 11396+63.40 - 11397+13.40 & Sta 11409+20.82 - 11409+70.82

Detail 2

LOCATION			DIMENSIONS
ROAD IDENTIFICATION	STATION TO STATION		Ⓟ FEET
K-25	11392+80.00	11396+63.40	6
K-25	11409+70.82	11413+10.00	6

Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2



TYPICAL SECTION
(K-25)

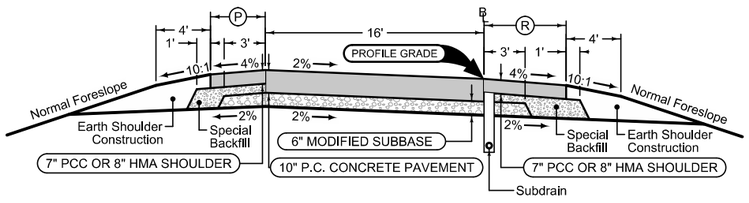
Note:
Typical section transitions between detail 1 and detail 2 between Sta 11396+63.40 - 11397+13.40 & Sta 11409+20.82 - 11409+70.82

Detail 3

LOCATION			DIMENSIONS	
RAMP	BEGIN STATION	END STATION	Ⓟ FEET	Ⓡ FEET
A	1503+72.54	1514+00.00	4	6
B	2593+00.00	2602+47.45	4	6
C	3593+31.02	3604+98.03	4	6
D	4501+21.84	4510+21.34	4	6

Section shown in the direction of traffic.

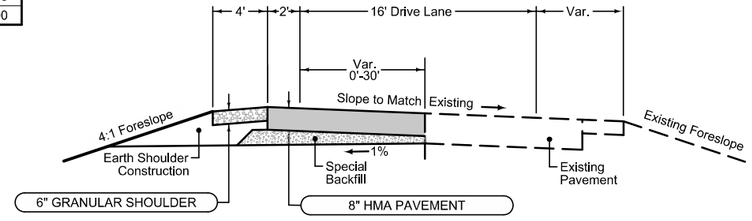
Ramp Jointing:
Transverse joints: CD at 20' spacing.



TYPICAL SECTION
(PCC Ramp Paving)

Detail 4

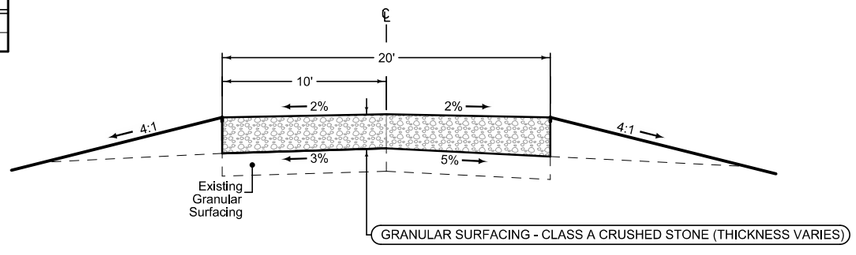
LOCATION		
ROAD IDENTIFICATION	STATION TO STATION	
Ramp A	1508+32.00	1511+94.00
Ramp B	2594+56.00	2597+60.00
Ramp C	3596+07.00	3598+03.00
Ramp D	4506+55.00	4509+93.00



TYPICAL SECTION
(Temporary Paving)

Detail 5

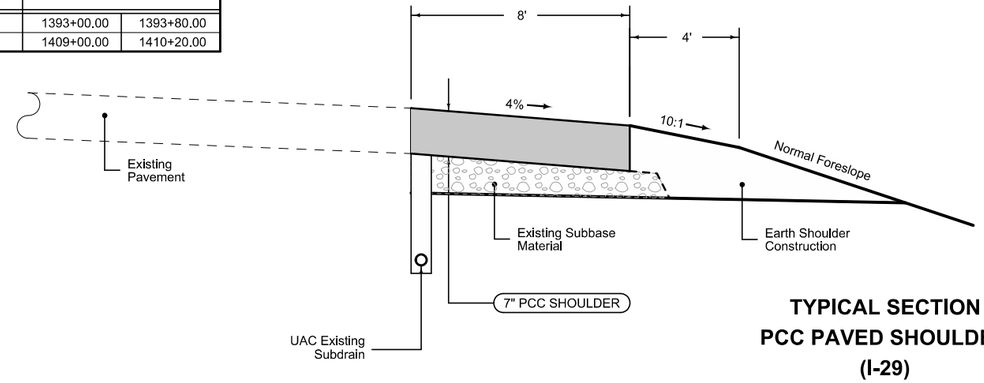
LOCATION	
STATION TO STATION	
21411+65.88	21412+70.66



TYPICAL SECTION
(Buchanan Avenue)

Detail 6

LOCATION		
ROAD IDENTIFICATION	STATION TO STATION	
I-29 NB	1393+00.00	1393+80.00
I-29 NB	1409+00.00	1410+20.00



TYPICAL SECTION
PCC PAVED SHOULDER
(I-29)

ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER B.1

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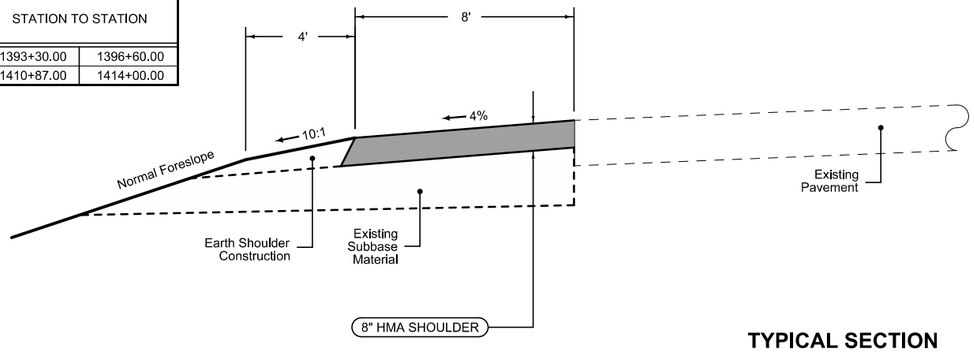
Detail 7

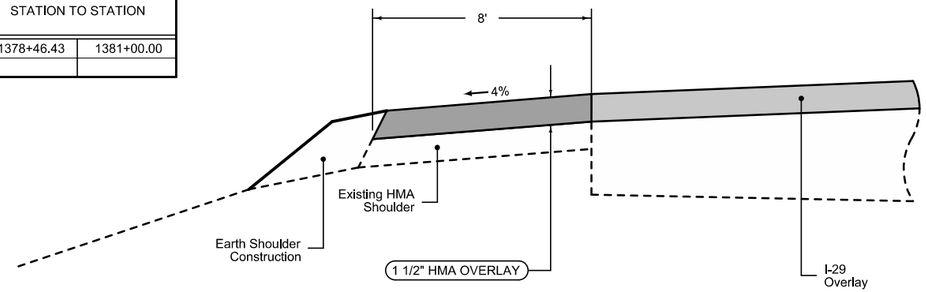
LOCATION		
ROAD IDENTIFICATION	STATION TO STATION	
I-29 SB	1393+30.00	1396+60.00
I-29 SB	1410+87.00	1414+00.00



TYPICAL SECTION
HMA PAVED SHOULDER
(I-29)

Detail 8

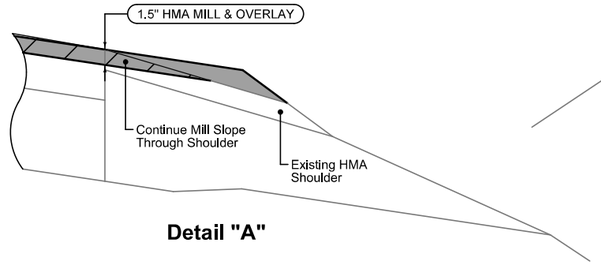
LOCATION		
ROAD IDENTIFICATION	STATION TO STATION	
I-29 SB	1378+46.43	1381+00.00



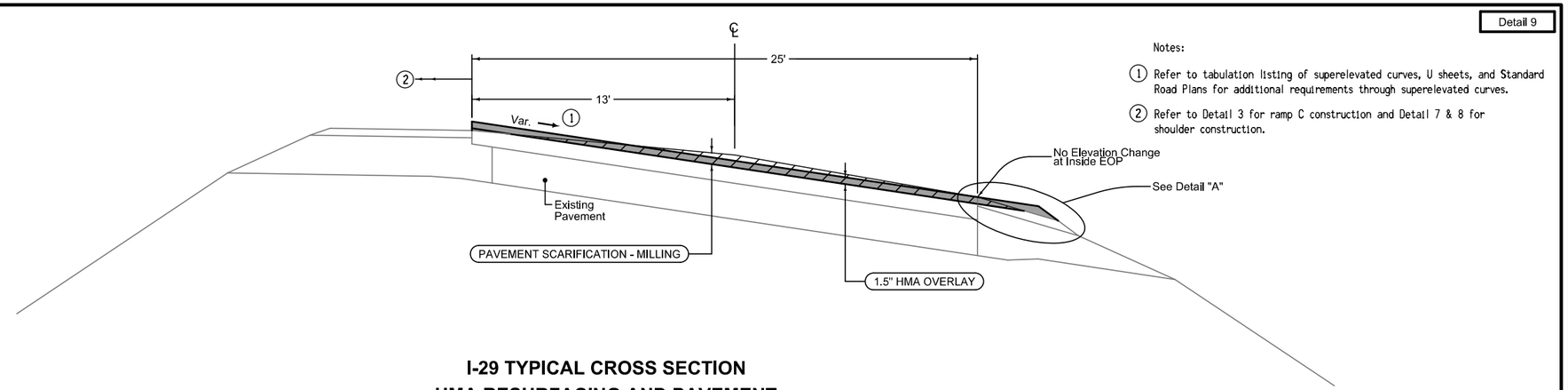
TYPICAL SECTION
SHOULDER OVERLAY
(I-29)

Detail 9

LOCATION		
ROAD IDENTIFICATION	BEGIN STATION	END STATION
I-29 (SB ONLY)	1378+46.43	1393+70.19



Detail "A"

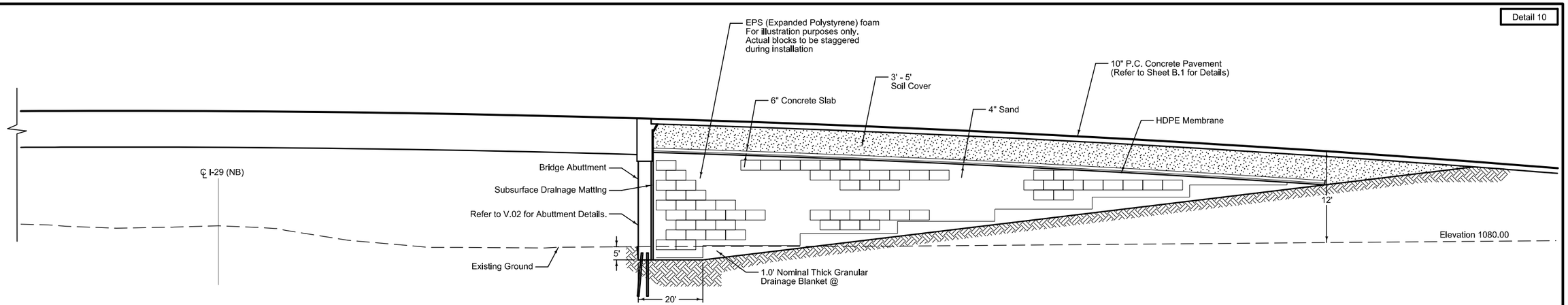


Notes:

1. Refer to tabulation listing of superelevated curves, U sheets, and Standard Road Plans for additional requirements through superelevated curves.
2. Refer to Detail 3 for ramp C construction and Detail 7 & 8 for shoulder construction.

I-29 TYPICAL CROSS SECTION
HMA RESURFACING AND PAVEMENT
SCARIFICATION

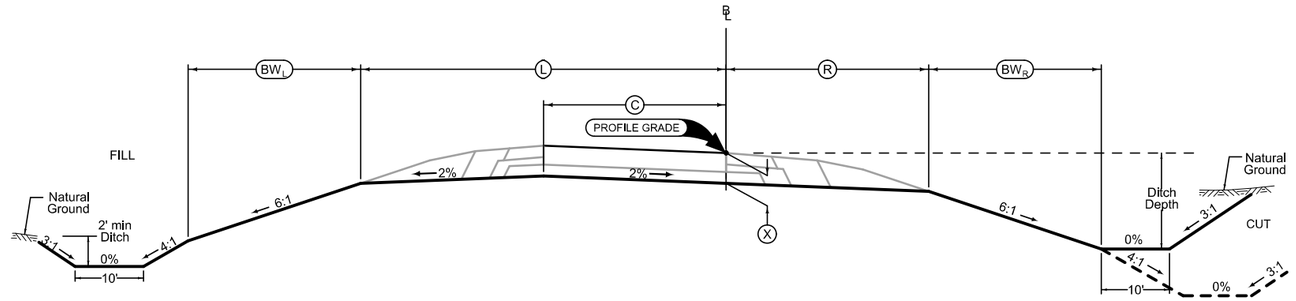
Detail 10



EPS (Expanded Polystyrene) foam Embankment

LOCATION			DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION	(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW_L) Feet	(BW_R) Feet
I-29 & K-25	A	1503+72.54	1514+00.00	30.4	16.1	16	16	9.6	7.9
I-29 & K-25	B	2593+00.00	2602+47.64	30.4	16.1	16	16	9.6	7.9
I-29 & K-25	C	3591+00.00	3604+98.03	30.4	16.1	16	16	9.6	7.9
I-29 & K-25	D	4501+04.75	4510+21.34	30.4	16.1	16	16	9.6	7.9

G_1R_Grade
10-18-11



RAMP GRADING

Section view is in direction of traffic.

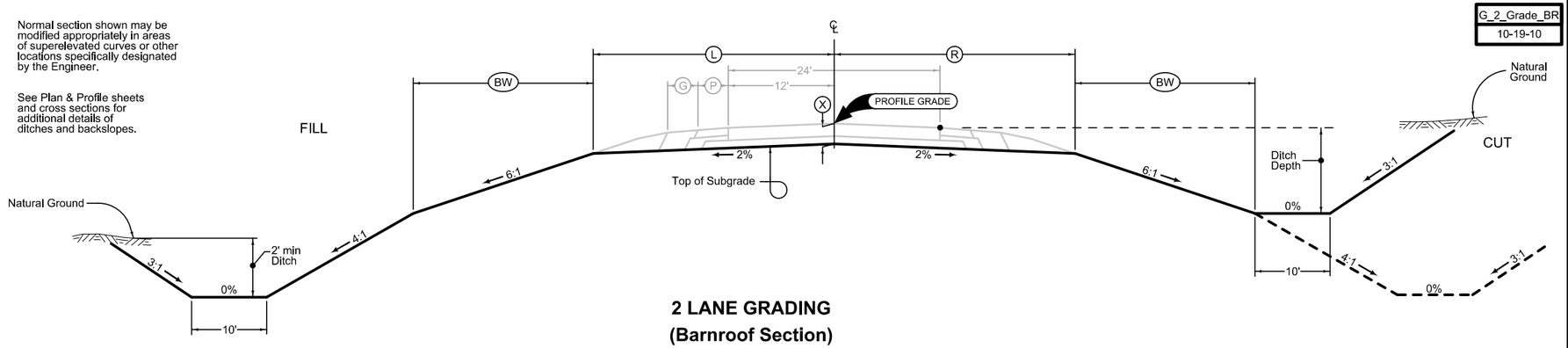
Normal sections shown may be appropriately modified for areas specifically designated by the Engineer such as intersections or superelevated curves.

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
K-25	11397+13.40	11401+10.35	29.80	29.80	16	2.2
K-25	11405+16.49	11409+20.82	29.80	29.80	16	2.2

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.

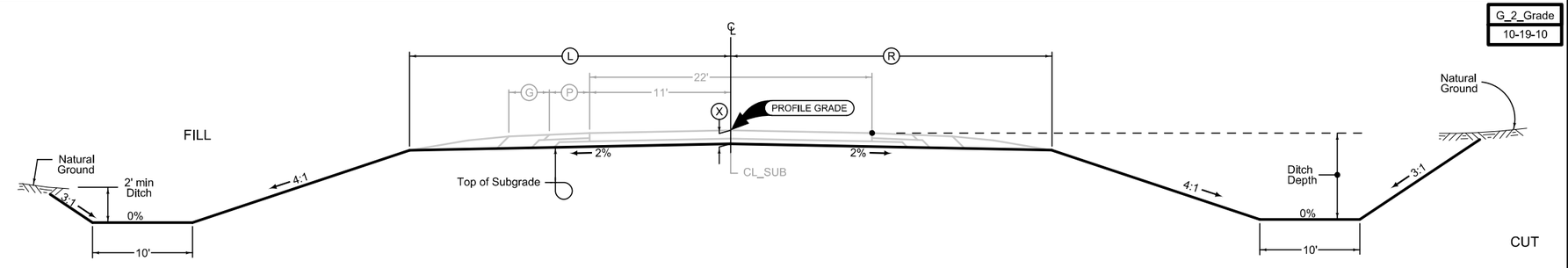
G_2_Grade_BR
10-19-10



2 LANE GRADING
(Barnroof Section)

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	FS
K-25	11392+80.00	11397+85.53	22.30	22.30	16	4:1
K-25	11409+20.82	11413+10.00	22.30	22.30	16	4:1

G_2_Grade
10-19-10



2 LANE GRADING

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.

SURVEY SYMBOLS

- LC Lot Corner
- BRG Bridge
- PPA Power Pole Co. 1
- SI Sign
- OUT Tile Outlet
- MH Utility Access (Manhole)
- TLNR Tree Line Right
- LUM Luminaire
- MIS Miscellaneous
- PIP Pipe Culvert
- SL Speed Limit Sign
- GDL Guard Rail (Rail and Cable)
- STA Storm Sewer Line Co. 1
- INB Storm Sewer Beehive Intake
- STP Stump
- TPD Telephone Pedestal
- TDC Tree Deciduous
- FW Wire Fence
- MM Mile Marker Post
- SHR Shrub
- GP Guard Post (Less Than 4 Posts)
- TEV Evergeen Tree
- EB Electrical Box
- TLNL Tree Line Left
- PLG Location of General Photo
- PR Electic Riser Pole
- COR Round Bridge Pier Column
- LIN Miscellaneous Line
- S Soil Sampling Site (Wetlands)
- COS Square Bridge Pier Column
- CON Concrete or A/C Slab
- ENP Edge Paved Entrance & Park Lot
- SNP Unpaved Shoulder
- EP Edge of Paved Roads (ML or SR)
- DU Centerline Draw or Stream (Up)
- SH Paved Shoulder
- GU Gutter In Front of Curb
- CU Back of Curb
- ENT Centerline BL of Entrance
- ENU Edge Unpaved Entrance & Parking
- EG Edge of Gravel Road
- D Centerline Draw or Stream (Down)
- GHB Underground High Pres Gas Co 2
- ELA Underground Electric Line Co. 1
- GLA Underground Gas Line Co. 1
- FOA Underground Fiber Optic Co. 1
- FOB Underground Fiber Optic Co. 2
- TLA Underground Telephone Line Co. 1
- SOP Size of Pipe or Culvert
- BLS Bridge Low Steel
- PRO Profile Shot
- BD Bridge Deck

UTILITY LEGEND

WOODBURY COUNTY RURAL ELECTRIC
Contact Name : Noel Plummer
Contact Phone: 7128733125
Contact Email:

G2-HP
NORTHERN NATURAL GAS COMPANY
Contact Name : Tim Parks
Contact Phone: 4025302166
Contact Email: Tim.Parks@nngco.com

FO2
LONG LINES (formerly NORTHWEST
Contact Name : Russell Black
Contact Phone: 7129435566
Contact Email: Rblack@pionet.net

G
MIDAMERICAN ENERGY COMPANY
Contact Name : Barb Parks
Contact Phone: 7122334866
Contact Email: BTParks@midamerican.com

T
LONG LINES (formerly NORTHWEST
Contact Name : Russell Black
Contact Phone: 7129435566
Contact Email: Rblack@pionet.net

IOWA DEPARTMENT OF TRANSPORTATION
Contact Name : Jon Allen
Contact Phone: 7124283300
Contact Email:

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 Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER D.1

2:21:24 PM 1/10/2014 NEC D:\1120800E\CADD\9702903012\Design\97029246lgd.sht

SCS PI Sta 1386+15.22
Δ = 21° 52′ 40.15″ (RT)
Theta = 2° 30′ 01.07″
Ls = 250.00
Ts = 678.79
Es = 53.94
P = 0.91
K = 124.99
Xc = 249.95
Yc = 3.64
LT = 166.68
ST = 83.35
LC = 249.98

Curve Data
Δ = 16° 52′ 38.02″ (RT)
T = 424.96
L = 843.76
R = 2,864.45
E = 31.35

Sta. 1390+99.86
30″ X 179.6′ RCP
D.A. =
U.A.C.

Sta 1393+70.19 (ML I-29)
End Milling and Resurfacing

Sta 1378+46.43 (ML I-29)
Begin Milling and Resurfacing

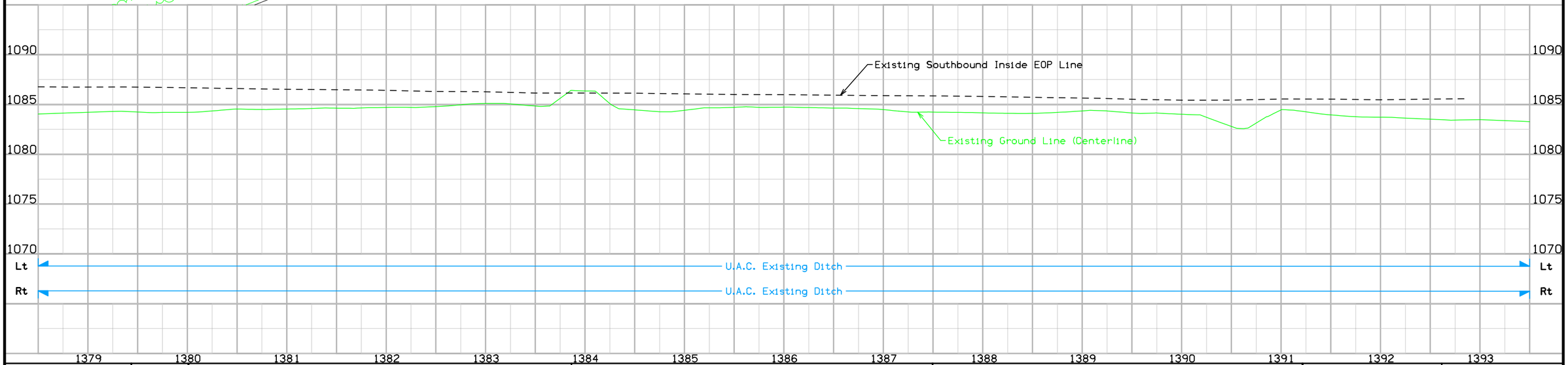
1380
1385
1390

PI Sta 1386+11.99
PI Sta 1391+13.54
15″ CMP
SCS Sta 1390+30.19
ST Sta 1394+80.19
PI Sta 1380+03.11
TS Sta 1379+36.43
SC Sta 1381+86.43

Sta 1390+99.86 I-29
Install 30″x6′ Culvert Extension
F.L. = Lt. 1079.85 (Ex.)
Rt. 1079.87

0 FEET 50

Interstate 29 (Southbound)



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER D.2

3:49:50 PM 1/10/2014 KMW D:\1120800e\Cadd\9702903012\Design\97029246D2.sht

LIBERTY TWP.
T-87N R-47W
SEC. 34

11390

11395

11400

PT Sta 11388+14.94

PI Sta 11394+00.10

℄ Co. Rd K-25

Ramp A

Ramp C

F02

P1

24" CMP

15" RCP

Sta. 11392+80.00
Begin Sideroad Construction (K-25)

U.A.C. Existing Entrance

Sta. 11393+73.24
24" X 72.6' RCP
D.A. =
U.A.C.

POT Sta 11398+56.38 =
POT Sta 1503+59.77 (Ramp A)
POT Sta 3605+15.00 (Ramp C)

Posted Speed Limit: 45 mph

Existing Access Control Ends at Sta. 11395+07.21

0 FEET 50

VPI +70.000
Elv 1,084.24
ex = 1.68'
K = 97
Len 360.00 ft
DS = 50 mph

Sta. 11392+80.00
Begin Sideroad Profile (K-25)
Elev. = 1084.47

Proposed Profile Grade

+3.600%

-0.123%

Existing Ground Line

U.A.C. Existing Ditch

No Ditch

U.A.C. Existing Ditch

No. Ditch

1110 1105 1100 1095 1090 1085 1080

Lt Rt

1,084.45 1,084.48 1,084.57 1,084.73 1,084.95 1,085.23 1,085.59 1,086.00 1,086.48 1,087.02 1,087.63 1,088.31 1,089.05 1,089.85 1,090.72 1,091.62 1,092.52 1,093.42 1,094.32 1,095.22 1,096.12 1,097.01 1,097.86 1,098.66 1,099.42 1,100.14 1,100.81 1,101.44 1,102.02 1,102.56 1,103.05 1,103.50 1,103.90 1,104.26 1,104.57 1,104.84 1,105.07

11387 11388 11389 11390 11391 11392 11393 11394 11395 11396 11397 11398 11399 11400 11401 11402

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER E.1

2:21:29 PM 1/10/2014 NEC D:\1120800E\CADD\9702903012\Design\97029246E1.sht

Sta 11403+13.42
215'-5" x 28'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 2 - 256'-0" x 28'-0"
Continuous Concrete Slab Approaches
with 16°-33' skew (R.A.)

LIBERTY TWP.
T-87N R-47W
SEC. 34

Buchanan Ave.

11405 | 11410 | 11415

21412

POT Sta 11403+13.42 =
POT Sta 1403+12.61 (I-29)

POT Sta 11407+70.97 =
POT Sta 2602+59.88 (Ramp B)
POT Sta 4501+04.75 (Ramp D)

Sta 11412+00.07

Co. Rd. K-25

Sta. 11413+10.00
End Side Road Construction (K-25)

+97.22 Prop. Type "C" Ent.

+90.11 Prop. Type "C" Ent.

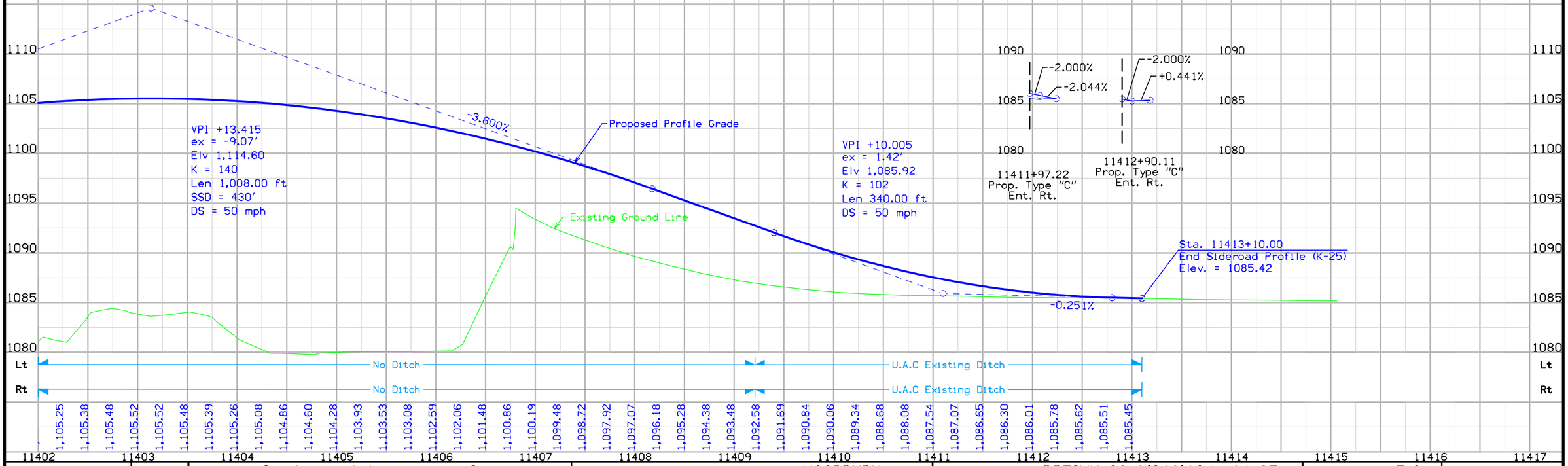
POT Sta 11411+54.88 (K-25) =
Sta 21411+54.88 (Buchanan)

Sta 11403+13.42
Construct 403'-0" x 40'-0" Continuous
Rolled Steel Beam Bridge with 17° Skew (R.A.)

0 FEET 50

Posted Speed Limit: 45 mph

Existing Access Control Ends
at Sta. 11411+31.80



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER E.2	

2:21:29 PM 1/10/2014 NEC D:\1120800E\CADD\9702903012\Design\97029246E1.sht

LIBERTY TWP.
T-87N R-47W
SEC. 34

11410

21412

Sta. 21411+65.88
Begin Construction

POT Sta 21411+54.88 (Buchanan) =
Sta 11411+54.88 (K-25)

Sta. 21412+70.66
End Construction

Buchanan Ave.

PI Sta 11412+00.07

0 50
FEET

1100
1095
1090
1085
1080
1075
1070
1065
Lt
Rt

1086.54
1,084.51

-2.000%
-3.000%
-0.500%

Sta 21411+65.88
Match Proposed

Sta 21412+70.66
Match Existing

VPI +66.880
Elv 1,086.30

VPI +20.000
Elv 1,084.71
K = 32
Len 80.00 ft
DS = 25 mph

U.A.C. Existing
Ditch
U.A.C. Existing
Ditch

1086.06
1085.37
1084.87
1084.57

21411
21412
21413

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER E.3

2:21:30 PM 1/10/2014 NEC D:\1120800E\CADD\9702903012\Design\97029246E1.sht

Survey Information

General Information

Measurement units for this survey are US survey feet. This survey is for proposed interchange reconstruction at Interstate 29 with Woodbury County Highway K-25 near Salix. Project datum and control information is provided by Design Survey Office. This project is a complete field survey for the digital terrain model.

Horizontal Control

Control was provided by District office from the previous project IM-029-6(183)132—13-97.

All measurements for this survey are US Survey Feet. Coordinates for this project are project specific coordinates. The coordinates are relative to State Plane, Iowa North 1401 (NAD83-1996) scaled around a point at 3589600.00 N, 4163400.000 E, 1080.00 Elev. Ground scale factor (1/combined factor) of 1.0000829856.

The above listed parameters were used to create the coordinate system in the data collector prior to field surveys. The Iowa RTN (NAD83-1996 EPOCH 2002.000) was used as our correction for the site. Horizontal control was verified by check shots on the existing control. Verification shots matched very well. Additional control was added using RTK rover and bipod averaging multiple occupation settings to derive the final coordinate positions.

Vertical Control

Vertical datum for this survey is relative to NAVD88.

Benchmarks were provided by the local district office and were established for an overlay project on I29 recently completed.

A digital level loop was run from BM #503 through the project benchmarks and returned to BM #503. The loop error was allowable and the error was distributed proportionately among the project marks. The ingegrity of BM #503 also verified by a verification loop from to BM #553 located in Salix.

Vertical equations are as follows:

Datum Benchmark
BM # 503 Elevation = 1094.94 NAVD 1988
Elevation = 1094.44 NGVD 1929 Computed but not used

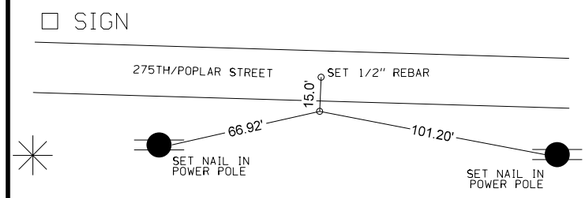
Alignment Information

Alignment information was provided by Iowa Department of Transportation District 3.

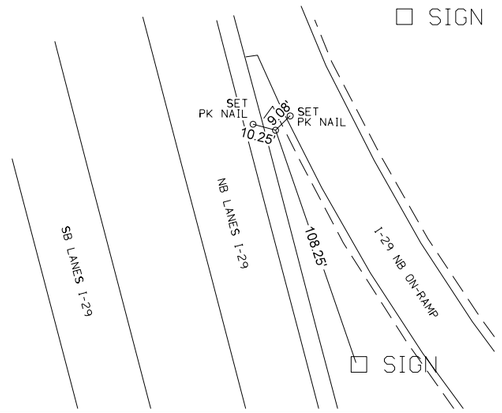
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
BM503	3588040.400	4163526.800	1094.940	1402+26.76	352.411	BM	FND IHC IN NORTHEAST WINGWALL
BM600	3589488.048	4162678.455	1082.950	1418+42.73	-99.247	BM	SOUTHEAST ANCHOR BOLT OF EAST SUPPORT OF EXIT 134 SIGN
BM601	3588004.616	4161919.081	1084.360	1406+01.63	-1211.401	BM	SET RR SPIKE IN 3RD POWER POLE WEST OF SB I29 RAMP ALONG SOUTH SIDE 275TH STREET
BM602	3588027.859	4162801.878	1096.160	1403+99.26	-351.798	BM	SET PK NAIL IN SOUTHWEST ABUTMENT
BM603	3586599.920	4163665.002	1081.100	1387+85.29	95.205	BM	SOUTHWEST ANCHOR BOLT OF WEST SUPPORT OF EXIT 134 SALIX SIGN EAST SIDE I29 SOUTH OF BRIDGE
BM604	3585832.020	4163882.539	1081.920	1380+07.43	-99.651	BM	NORTHEAST ANCHOR BOLT OF EAST SUPPORT WEIGH STATION SIGN WEST SIDE I29 SOUTH OF BRIDGE

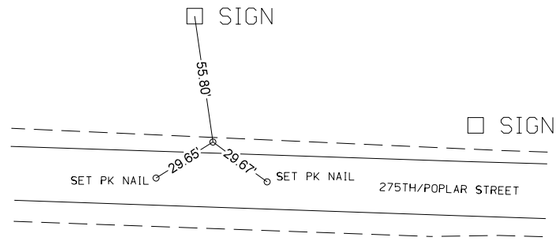
STA. 11415+87.20, 15.46′ Rt.
CP 1, SET 1/2″ REBAR IN SHOULDER
SOUTH OF POPLAR STREET EAST OF I-29
N=3587977.64 E=4164436.76



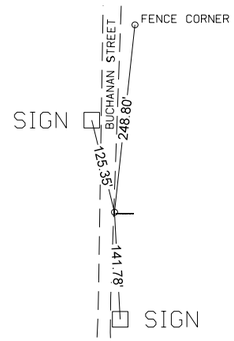
STA. 1409+55.22, 63.78′ Rt.
CP 2, SET 1/2″ REBAR AT INTERSECTION
OF NORTHBOUND I-29 & ON-RAMP
N=3588671.33 E=4163062.15



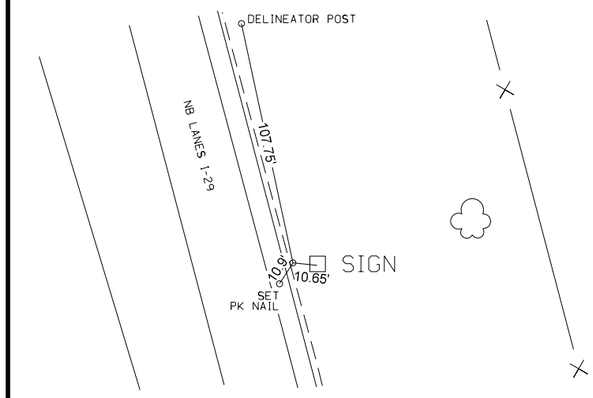
STA. 11386+10.93, 16.99′ Lt.
CP 3, SET 1/2″ REBAR IN SHOULDER
NORTH OF POPLAR STREET EAST OF BENTON STREET
N=3588103.37 E=4161463.13



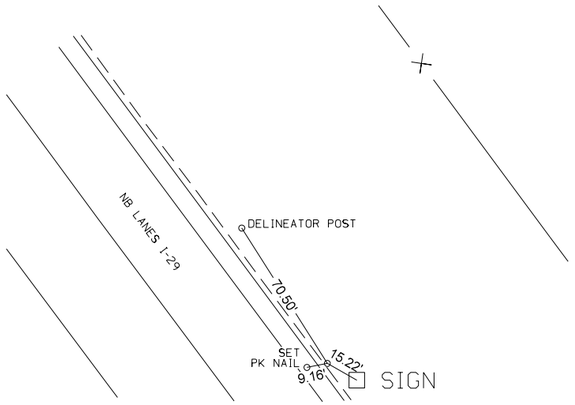
STA. 11411+62.14, 664.07′ Lt.
CP 4, SET 1/2″ REBAR IN EAST EDGE OF GRAVEL
BUCHANAN STREET NORTH OF POPLAR STREET
N=3588670.92 E=4164033.17



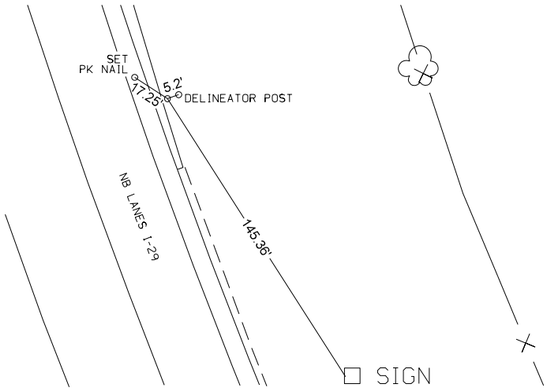
STA. 1421+99.24, 62.92′ Rt.
CP 5, SET 1/2″ REBAR AT EDGE OF SHOULDER
EAST SIDE OF NORTHBOUND I-29
N=3589874.10 E=4162744.47



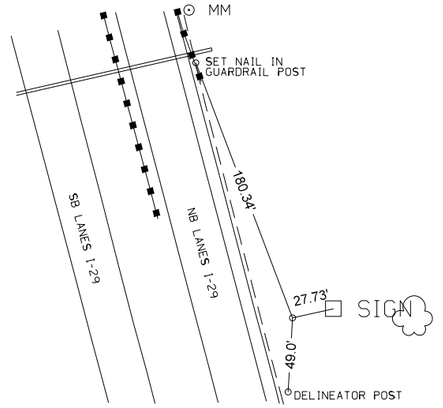
STA. 1377+89.24, 62.89′ Rt.
CP 6, SET 1/2″ REBAR AT EDGE OF SHOULDER
EAST SIDE OF NORTHBOUND I-29
N=3585753.58 E=4164143.30



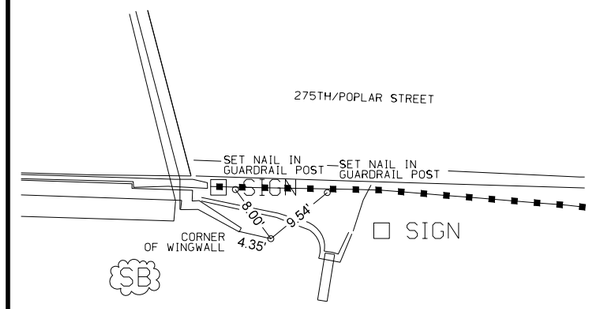
STA. 1389+33.32, 65.45′ Rt.
CP 7, SET 1/2″ REBAR AT EDGE OF SHOULDER
EAST SIDE OF NORTHBOUND I-29
N=3586724.02 E=4163586.39



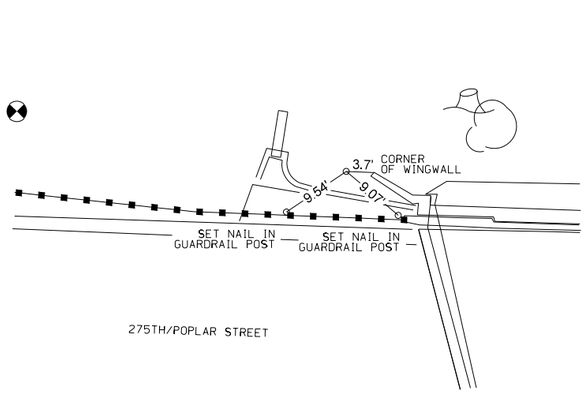
STA. 1400+09.17, 81.72′ Rt.
CP 8, SET 1/2″ REBAR AT
EAST SIDE OF NORTHBOUND I-29
N=3587761.04 E=4163320.45



STA. 11406+95.21, 21.41′ Rt.
CP 9, SET 1/2″ REBAR 4.35′ EAST
OF SE WINGWALL OF POPLAR STREET OVERPASS
N=3588000.35 E=4163545.08



STA. 11399+32.46, 21.41′ Lt.
CP 10, SET 1/2″ REBAR 3.7′ WEST
OF NW WINGWALL OF POPLAR STREET OVERPASS
N=3588066.95 E=4162784.04



C	ENGLISH	IOWA DOT	DESIGN TEAM	Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER G.2

11:03:43 AM 4/26/2013 JJC D:\1120800E\cadd\9702903012\PrelimSurvey\9702903012.sur

ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
Interstate 29																			
1024		1256+65.03	3,575,986.74	4,171,327.26															
JS105		1379+36.43	3,585,834.18	4,164,005.01															
CLMLB					1379+36.43	3,585,834.18	4,164,005.01				1381+03.11	3,585,967.93	4,163,905.55				1381+86.43	3,586,036.93	4,163,858.78
CLML								1381+86.43	3,586,036.93	4,163,858.78	1386+11.39	3,586,388.68	4,163,620.33	1390+30.19	3,586,794.51	4,163,494.27			
CLMLA					1390+30.19	3,586,794.51	4,163,494.27				1391+13.54	3,586,874.11	4,163,469.55				1392+80.19	3,587,035.29	4,163,427.10
1025		1392+80.19	3,587,035.29	4,163,427.10															
1031		1443+79.49	3,591,966.42	4,162,128.33															
Co. Rd. K-25																			
CLSR								11382+41.56	3,588,103.81	4,161,093.52	11385+28.27	3,588,087.88	4,161,379.78	11388+14.94	3,588,079.42	4,161,666.36			
JS104		11388+14.94	3,588,079.42	4,161,666.36															
JS100		11394+00.10	3,588,062.16	4,162,251.27															
JS102		11412+00.07	3,588,006.00	4,164,050.36															
7000		11432+12.48	3,587,938.91	4,166,061.66															
K-25 Ramp A																			
34000		1503+59.77	3,588,047.92	4,162,707.32															
SRK25A-1								1504+91.76	3,588,170.48	4,162,756.31	1508+84.97	3,588,535.60	4,162,902.26	1512+56.70	3,588,921.69	4,162,827.78			
34001	Point M	1514+00.00	3,589,062.40	4,162,800.63															
K-25 Ramp B																			
35025	Point M	2593+00.00	3,587,077.68	4,163,510.24															
SRK25B-1								2593+00.00	3,587,077.68	4,163,510.24	2596+32.98	3,587,404.60	4,163,447.05	2599+53.81	3,587,724.97	4,163,537.82			
35001		2602+59.82	3,588,019.39	4,163,621.24															
K-25 Ramp C																			
36001	Point G	3591+00.00	3,586,842.60	4,163,408.96															
SRK25C-1								3593+73.72	3,587,103.44	4,163,325.98	3598+27.46	3,587,535.82	4,163,188.42	3602+66.08	3,587,866.51	4,162,877.75			
36003		3605+15.00	3,588,047.92	4,162,707.32															
K-25 Ramp D																			
37000		4501+04.87	3,588,019.39	4,163,621.24															
SRK25D-1								4505+19.08	3,588,321.28	4,163,337.63	4507+46.69	3,588,487.17	4,163,181.79	4509+70.00	3,588,695.21	4,163,089.46			
SRK25D-2								4509+70.00	3,588,695.21	4,163,089.46	4511+10.23	3,588,823.39	4,163,032.58	4512+50.00	3,588,958.25	4,162,994.14			
37002	Point G	4512+50.00	3,588,958.25	4,162,994.14															
Buchanan Ave																			
1		21411+04.88	3,587,957.43	4,164,003.64															
2		21413+20.67	3,588,173.11	4,164,010.37															

SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

Name	Location	Δ_{scs}	Horizontal Alignment Data												Remarks
			Spiral Data							Curve Data					
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ_c	T	L	R	E	
Interstate 29																
CLMLB			2° 30′ 01.07″ RT	250.00′	678.79′	2,918.39	249.95	3.64	166.68′	83.35′						
CLML											16° 52′ 38.02″ RT	424.96′	843.76′	2,864.45′	31.35′	
CLMLA			2° 30′ 01.07″ RT	250.00′	678.79′	2,918.39	249.95	3.64	166.68′	83.35′						
Co. Rd. K-25																
CLSR											1° 29′ 42.43″ LT	286.70′	573.37′	21,972.64′	1.87′	
K-25 Ramp A																
SRK25A-1											32° 42′ 27.36″ LT	393.21′	764.95′	1,340.00′	56.50′	
K-25 Ramp B																
SRK25B-1											26° 45′ 26.88″ RT	332.98′	653.81′	1,400.00′	39.05′	
K-25 Ramp C																
SRK25C-1											25° 33′ 51.54″ LT	453.73′	892.36′	2,000.00′	50.82′	
K-25 Ramp D																
SRK25D-1											19° 16′ 50.11″ RT	227.61′	450.92′	1,340.00′	19.19′	
SRK25D-2											8° 01′ 17.07″ RT	140.23′	280.00′	2,000.00′	4.91′	

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SUPERELEVATION DATA

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e	L	x														
		FT	%	FT	FT														
K-25 Ramp A	SRK25A-1	1340	6.0	186	62	PV-303			1504+91.76	1505+47.76						1504+85.76	1504+85.76		Match K-25 Pavement, See 'K' Sheets
									1512+56.70	1512+00.70						1512+62.70	1512+62.70		Match SRP PV-410, See 'K' Sheets
K-25 Ramp B	SRK25B-1	1400	6.0	186	62	PV-303			2593+00.00	2593+00.00									Special Taper, See 'K' Sheets
							2600+21.81		2599+53.81	2598+97.81						2599+59.81	2599+59.81		
K-25 Ramp C	SRK25C-1	2000	5.4	168	62	PV-303	3591+93.72	3592+55.72	3593+73.72	3594+23.72						3593+79.72	3593+79.72		
							3603+22.08		3602+66.08	3602+16.08						3602+60.08	3602+60.08		
K-25 Ramp D	SRK25D-1	1340	6.0	186	62	PV-303	4504+51.08		4505+19.08	4505+75.08						4505+13.08	4505+13.08		
							4510+94.00		4509+70.00	4509+70.00									Compound Curve, See 'K' Sheets
K-25 Ramp D	SRK25D-2	2000	5.4	168	62	PV-303			4509+70.00	4509+80.00									Compound Curve, See 'K' Sheets
									4512+50.00	4512+00.00						4512+44.00	4512+44.00		Match SRP PV-411, See 'K' Sheets
I-29	CLML	2864	5.6	250	90	PV-302	1378+46.43	1379+36.43	1380+26.43	1381+86.43			1381+86.43			1381+15.00	1381+15.00		Superelevation Correction by
							1393+70.19	1392+80.19	1391+90.19	1390+30.19			1390+30.19			1391+01.62	1391+01.62		mill and overlay

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic on Interstate 29 will be maintained during construction except for short duration closures (per SRP TC-454) to accomodate bridge demolition and setting new beams.

Shoulder and/or lane closures (per SRP TC-402, TC-418 & TC-420) will be necessary for bridge and ramp construction.

Traffic on the exit and entrance ramps will be maintined except for short duration closures (per SPR TC-417) to accomodate staged construction.

County Road K-25 will be closed at the bridge for the duration of the project. Through traffic will be detoured, see sheet J.7 for detour routes.

108-26A
08-01-08

STAGING NOTES

See Staging Plans for Individual Stages and Notes.

Stage 1 Notes:

- Install traffic control to close Co. Rd. K-25 between the ramps. Ramps to remain open.
- Begin bridge and pavement demolition on Co. Rd. K-25.
- Install traffic control on I-29 and on ramps per TC-418 (Lane closure) and TC-420 (Lane closure at ramps).
- Construct temporary pavement.

0 100 FEET

Co. Rd. K-25

Ramp C

Ramp A

Interstate 29

Ramp B

Ramp D

STAGING COLOR LEGEND OF PLAN

SHADING	Design Color No.	
Yellow	(4)	Proposed Pavement
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Black	(0)	Pavement Removal

Staging Plan
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C | ENGLISH | IOWA DOT | DESIGN TEAM Snyder and Associates, Inc. | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER J.2

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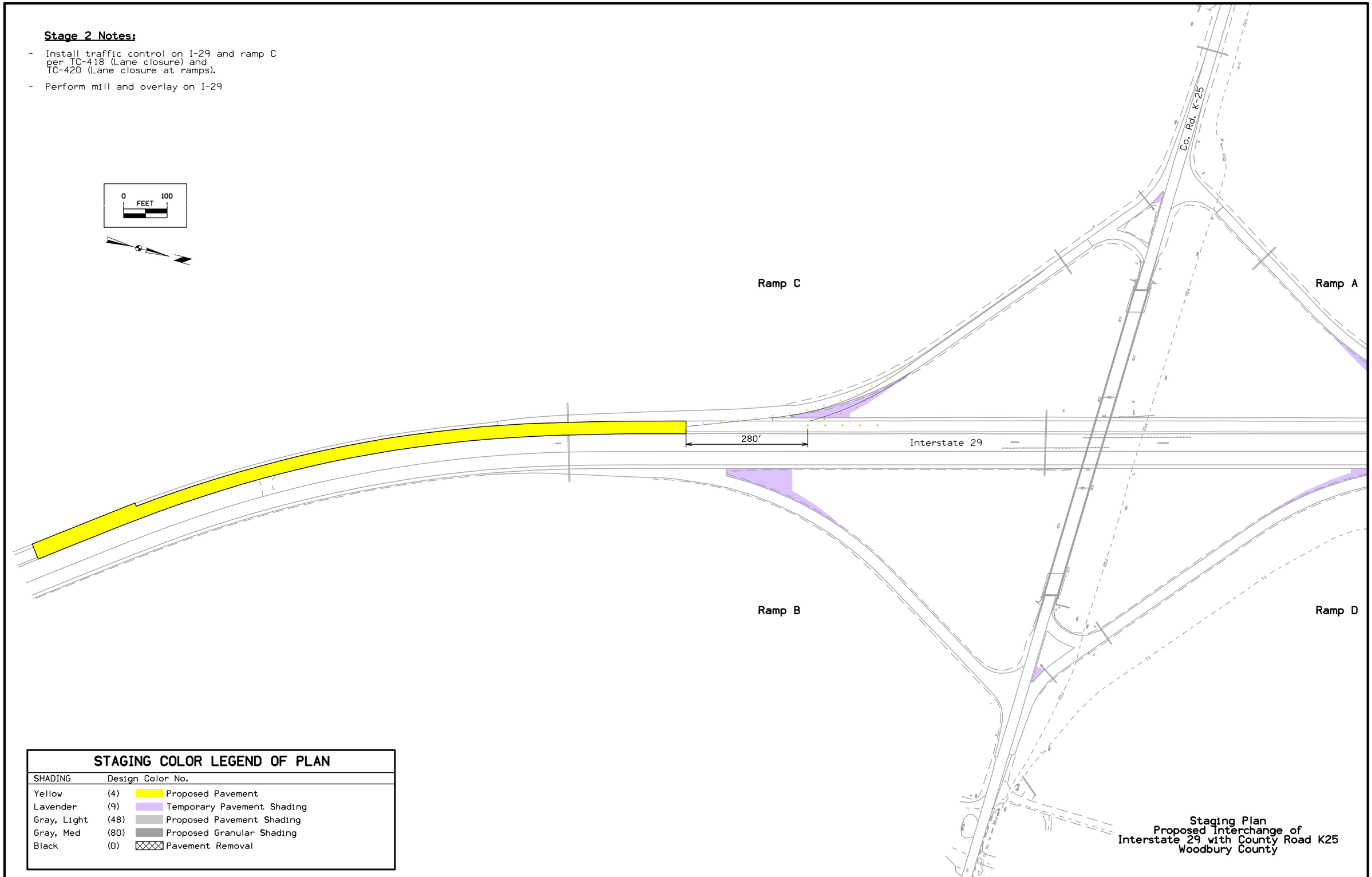
Stage 2 Notes:

- Install traffic control on I-29 and ramp C per TC-418 (Lane closure) and TC-420 (Lane closure at ramps).
- Perform mill and overlay on I-29

0 FEET 100



STAGING COLOR LEGEND OF PLAN		
SHADING	Design Color No.	
Yellow	(4)	Proposed Pavement
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Black	(0)	Pavement Removal

Staging Plan
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER J.3

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Stage 3 Notes:

- Modify traffic control on I-29 and ramps, shift ramp traffic on to temporary pavement.
- Install 18" RCP culvert to handle Ramp D infield drainage during construction, connect to existing with concrete collar.
- Construct ramp terminals, K-25 pavement, ramp pavement and K-25 bridge as shown.

Co. Rd. K-25

Ramp C

Ramp A

Ramp B

Ramp D

Interstate 29

280′

280′

280′

280

0 100 FEET

STAGING COLOR LEGEND OF PLAN

SHADING	Design Color No.	
Yellow	(4)	Proposed Pavement
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Black	(0)	Pavement Removal

Staging Plan
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER J.4

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Stage 4 Notes:

- Install traffic control to close ramp B, ramp D and K-25 at East end of project.
- Construct remaining ramp B and ramp D pavement as shown.
- Construct remaining K-25 pavement on East side of interchange as shown.
- Construction of Woodbury County project on K-25, east of the interchange, should take place concurent with work on ramp B and ramp D.
- Open traffic to ramp B, ramp D and Eastbound K-25, Westbound K-25 to remain closed at East ramps.
- Perform work on West half of interchange in a similar fashion to work on East side of interchange.

0 FEET 100

Ramp C

Co. Rd. K-25

Ramp A

Interstate 29

Ramp B

Ramp D

STAGING COLOR LEGEND OF PLAN

SHADING	Design Color No.	
Yellow	(4)	Proposed Pavement
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Black	(0)	Pavement Removal

Staging Plan
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C | ENGLISH | IOWA DOT | DESIGN TEAM Snyder and Associates, Inc. | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER J.5

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Stage 5 Notes:

- Remove remaining pavement as shown.
- Complete grading of ditches and install permanent erosion control.

0 FEET 100

Co. Rd. K-25

Interstate 29

Ramp A

Ramp B

Ramp C

Ramp D

STAGING COLOR LEGEND OF PLAN

SHADING	Design Color No.	
Yellow	(4)	Proposed Pavement
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Black	(0)	Pavement Removal

Staging Plan
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER J.6

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Detour Plan
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER J.7

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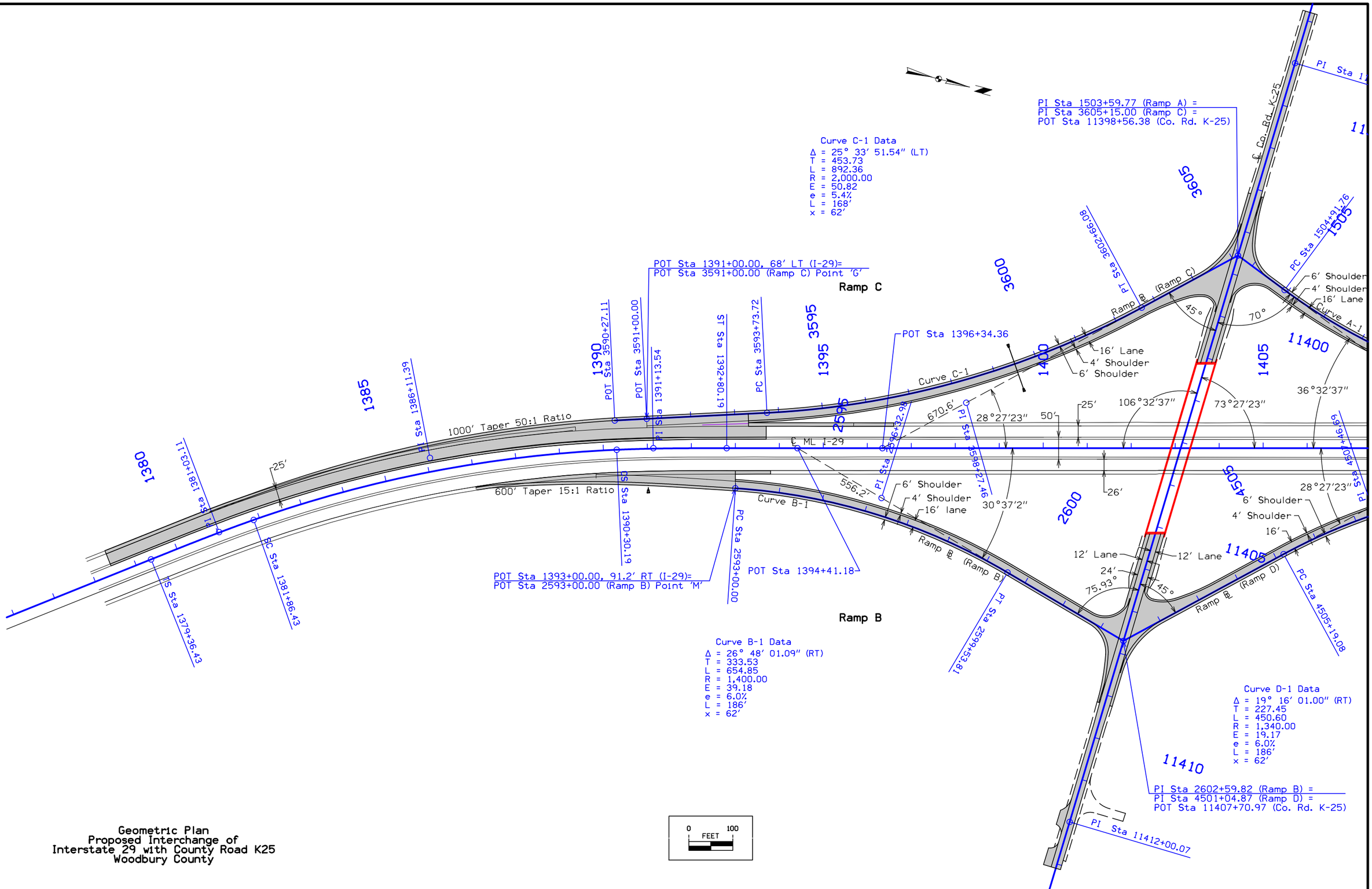

Geometric Plan
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER K.1

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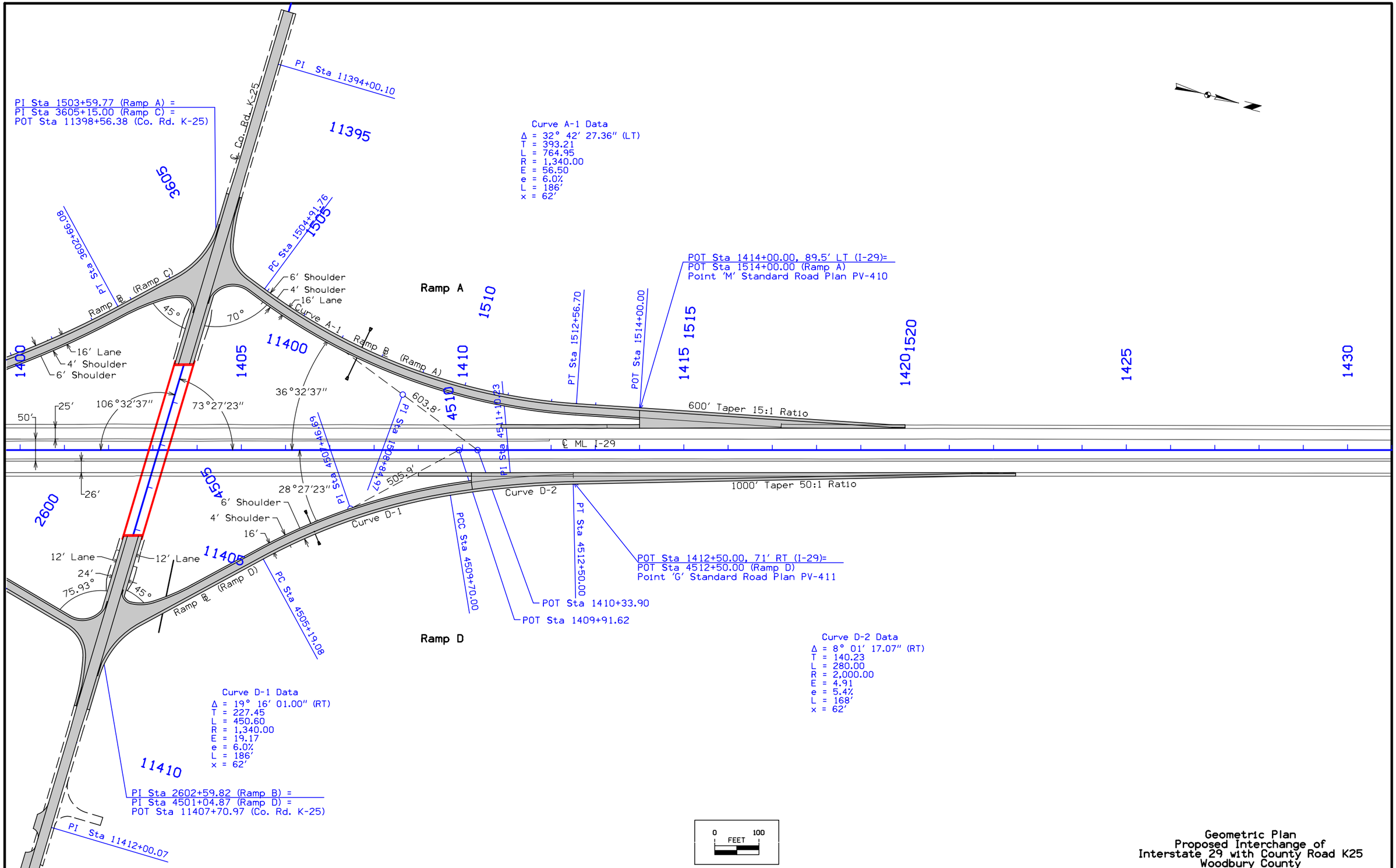

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER K.2

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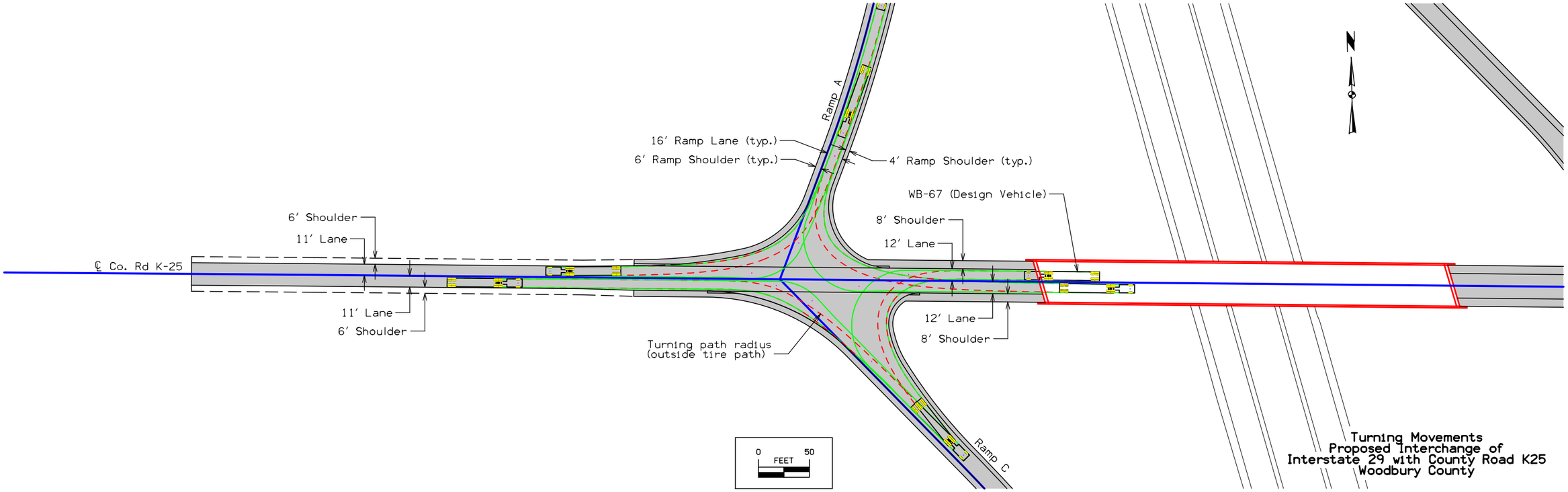
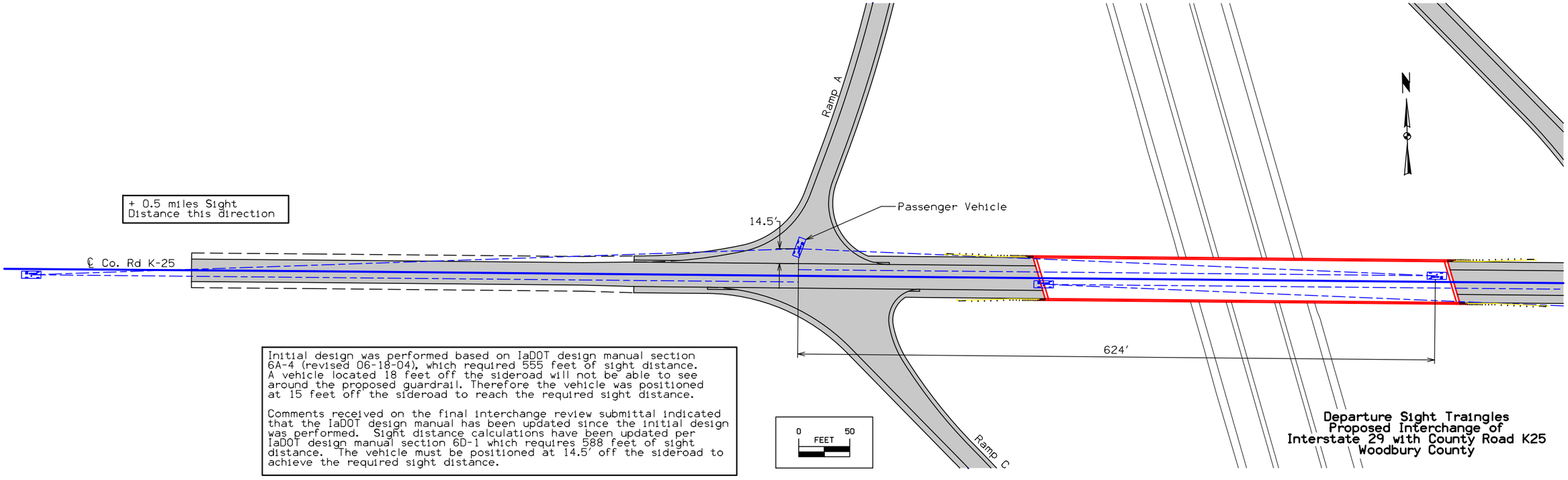


Turning Movements
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County



Initial design was performed based on IaDOT design manual section 6A-4 (revised 06-18-04), which required 555 feet of sight distance. A vehicle located 18 feet off the sideroad will not be able to see around the proposed guardrail. Therefore the vehicle was positioned at 15 feet off the sideroad to reach the required sight distance.

Comments received on the final interchange review submittal indicated that the IaDOT design manual has been updated since the initial design was performed. Sight distance calculations have been updated per IaDOT design manual section 6D-1 which requires 588 feet of sight distance. The vehicle must be positioned at 14.5′ off the sideroad to achieve the required sight distance.

Departure Sight Traingles
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER K.3

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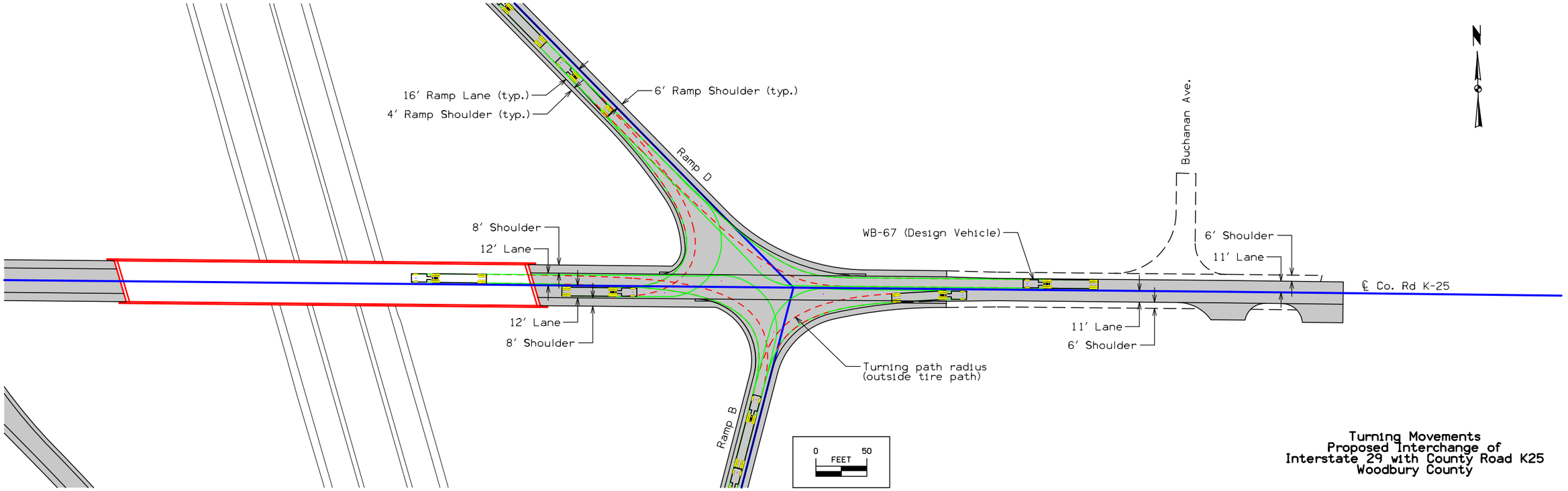
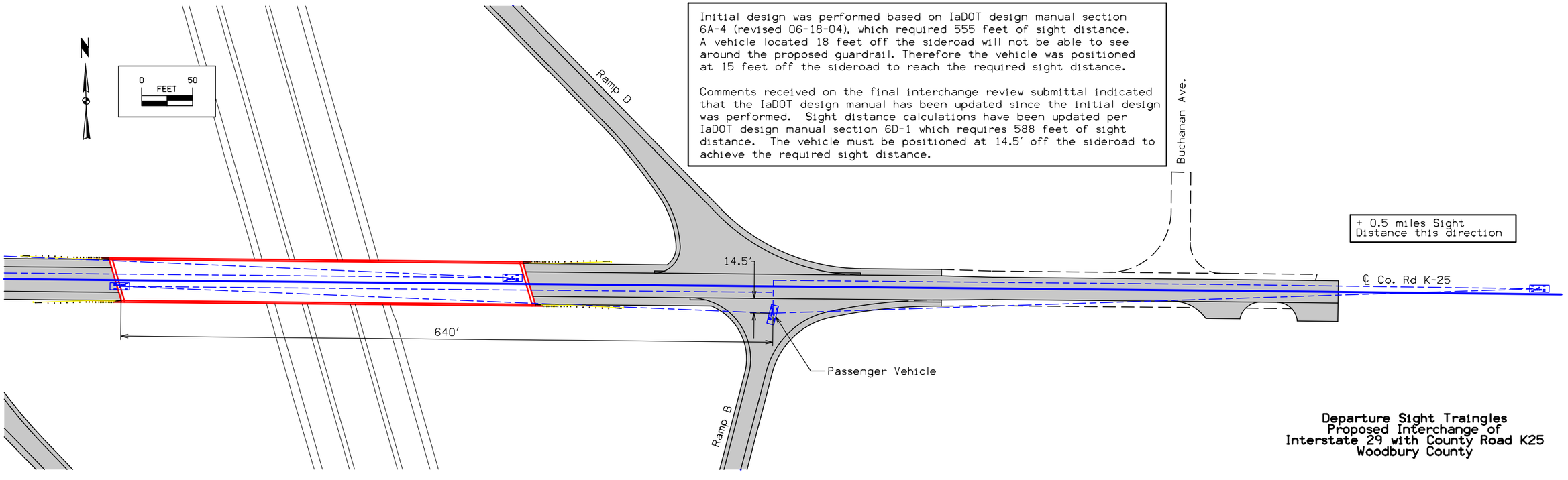


Turning Movements
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County



Departure Sight Traingles
Proposed Interchange of
Interstate 29 with County Road K25
Woodbury County

C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER K.4	

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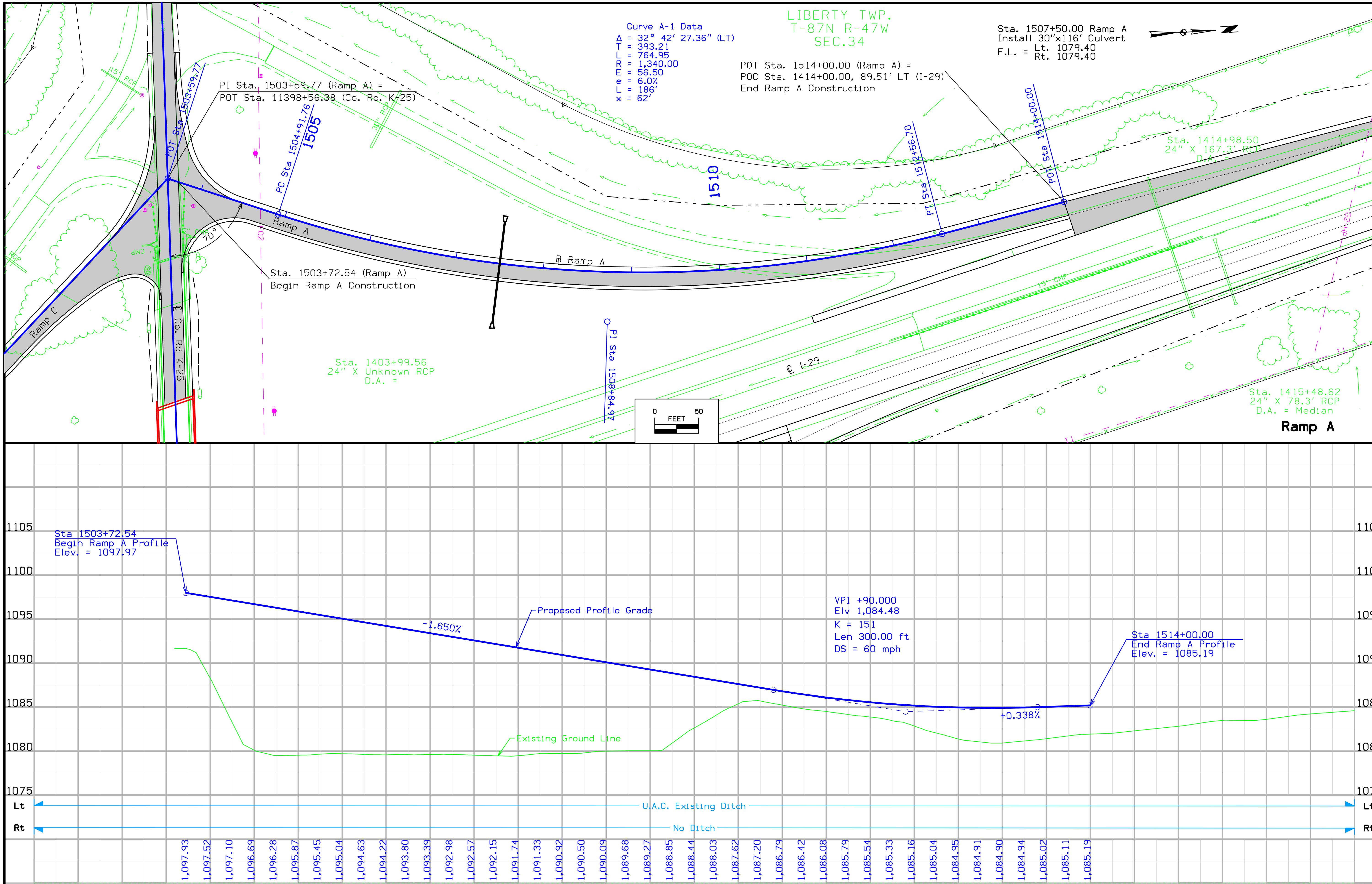
LIBERTY TWP.
T-87N R-47W
SEC.34
Curve A-1 Data
Δ = 32° 42' 27.36" (LT)
T = 393.21
L = 764.95
R = 1,340.00
E = 56.50
e = 6.0%
L = 186'
x = 62'
Sta. 1507+50.00 Ramp A
Install 30"x116' Culvert
F.L. = Lt. 1079.40
Rt. 1079.40
PI Sta. 1503+59.77 (Ramp A) =
POT Sta. 11398+56.38 (Co. Rd. K-25)
POT Sta. 1514+00.00 (Ramp A) =
POC Sta. 1414+00.00, 89.51' LT (I-29)
End Ramp A Construction
POT Sta 1503+59.77
PC Sta 1504+91.76
1505
1510
PT Sta 1512+56.70
POT Sta 1514+00.00
Sta. 1414+98.50
24" X 167.3' RCP
D.A. =
Ramp A
℄ Ramp A
70°
Sta. 1503+72.54 (Ramp A)
Begin Ramp A Construction
Ramp C
℄ Co. Rd K-25
PI Sta 1508+84.97
Sta. 1403+99.56
24" X Unknown RCP
D.A. =
℄ I-29
15" CMP
0 FEET 50
Sta. 1415+48.62
24" X 78.3' RCP
D.A. = Median
Ramp A
1105
1100
1095
1090
1085
1080
1075
Sta 1503+72.54
Begin Ramp A Profile
Elev. = 1097.97
-1.650%
Proposed Profile Grade
VPI +90.000
Elv 1,084.48
K = 151
Len 300.00 ft
DS = 60 mph
Sta 1514+00.00
End Ramp A Profile
Elev. = 1085.19
+0.338%
Existing Ground Line
Lt
Rt
U.A.C. Existing Ditch
No Ditch
1,097.93
1,097.52
1,097.10
1,096.69
1,096.28
1,095.87
1,095.45
1,095.04
1,094.63
1,094.22
1,093.80
1,093.39
1,092.98
1,092.57
1,092.15
1,091.74
1,091.33
1,090.92
1,090.50
1,090.09
1,089.68
1,089.27
1,088.85
1,088.44
1,088.03
1,087.62
1,087.20
1,086.79
1,086.42
1,086.08
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ENGLISH | IOWA DOT | DESIGN TEAM **Snyder and Associates, Inc.** | **WOODBURY** COUNTY | PROJECT NUMBER **BRFIMX-29-6(246)134--14-97** | SHEET NUMBER **K.5**

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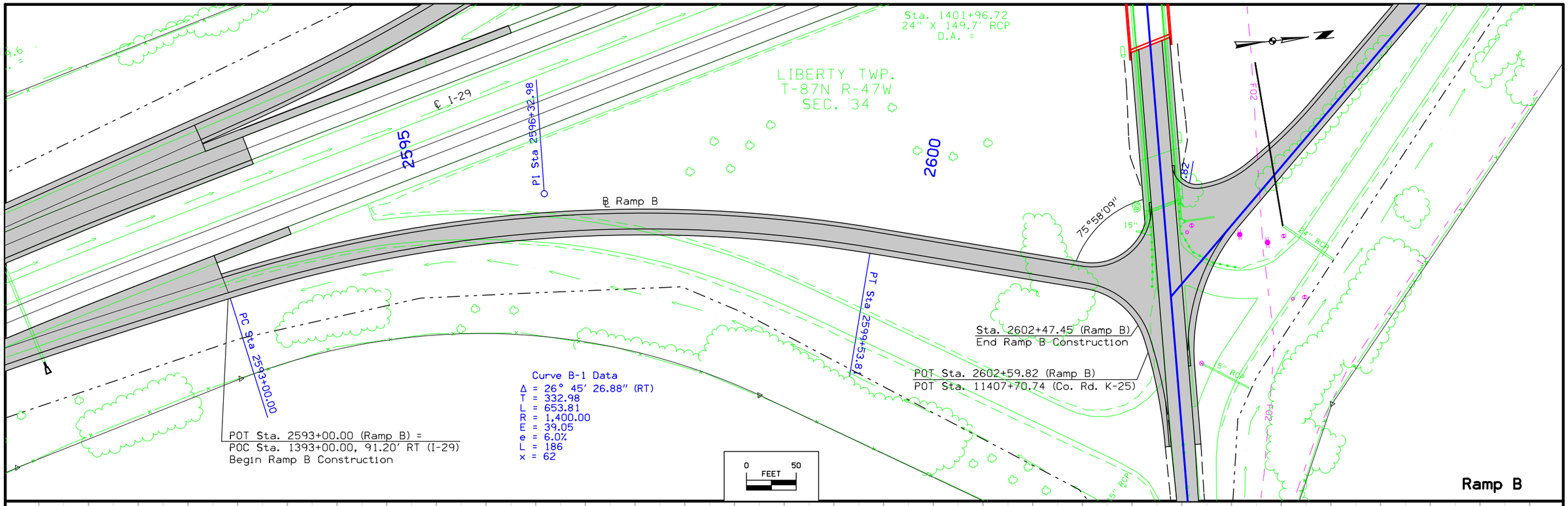

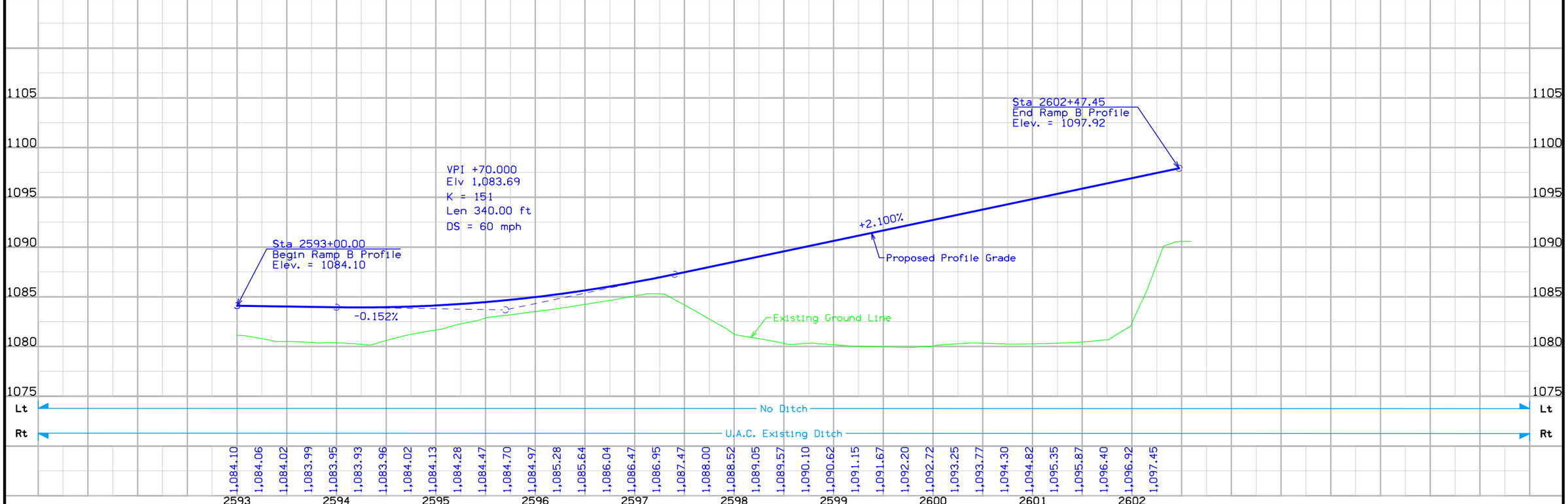

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER K.6	

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LIBERTY TWP.
T-87N R-47W
SEC. 34

Sta. 3599+50.00 Ramp C
Install 24"x100' Culvert
F.L. = Lt. 1079.60
Rt. 1079.60

Sta. 1390+99.86
30" X 179.6' RCP
D.A. =

POT Sta 3591+00.00

POT Sta. 3591+00.00 (Ramp C) =
POT Sta. 1391+00.00, 68' LT (I-29)

Sta. 3593+31.02 (Ramp C)
Begin Ramp C Construction

PC Sta 3593+73.72

15" CMP

Install 105 LF
of trench Drain

℄ I-29

PI Sta 3598+27.46

PI Sta 3602+66.08

℄ Ramp C

PI Sta. 3605+15.00 (Ramp C) =
POT Sta. 11398+56.38 (Co. Rd K-25)

POT Sta 3605+15.00

15" RCP

24" RCP

45°

℄ Co. Rd K-25

Curve C-1 Data
Δ = 25° 33' 51.54" (LT)
T = 453.73
L = 892.36
R = 2,000.00
E = 50.82
e = 5.4%
Γ = 168'
x = 62'

Sta. 1402+37.85
24" X Unknown RCP
D.A. =

18" CMP

0 FEET 50

Ramp C

3595 3600 3605

VPI +40.000
Elv 1,082.93
K = 139
Len 360.00 ft
DS = 60 mph

Sta 3593+31.02
Begin Ramp C Profile
Elev. = 1085.02

-1.000%

Proposed Profile Grade

+1.595%

Sta 3604+98.03
Begin Ramp C Profile
Elev. = 1098.21

Existing Ground Line

1105 1100 1095 1090 1085 1080 1075

Lt U.A.C. Existing Ditch
Rt No Ditch

1,084.83 1,084.59 1,084.39 1,084.23 1,084.12 1,084.06 1,084.04 1,084.06 1,084.13 1,084.25 1,084.41 1,084.61 1,084.86 1,085.16 1,085.50 1,085.88 1,086.28 1,086.68 1,087.08 1,087.48 1,087.87 1,088.27 1,088.67 1,089.07 1,089.47 1,089.87 1,090.27 1,090.67 1,091.06 1,091.46 1,091.86 1,092.26 1,092.66 1,093.06 1,093.46 1,093.86 1,094.25 1,094.65 1,095.05 1,095.45 1,095.85 1,096.25 1,096.65 1,097.05 1,097.44 1,097.84

3591 3592 3593 3594 3595 3596 3597 3598 3599 3600 3601 3602 3603 3604 3605

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER	K.7

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PI Sta. 4501+04.87 (Ramp D)
POT Sta. 11407+70.74 (Co. Rd K-25)

Sta. 4510+21.34 (Ramp D)
End Ramp D Construction

℄ I-29

Ramp A

Ramp B

4505

4510

PI Sta 4507+46.69

PI Sta 4511+10.23

POT Sta 4501+04.87

45°

℄ Ramp D

PC Sta 4505+19.08

PC Sta 4509+70.00

PT Sta 4512+50.00

℄ Co. Rd. K-25

Connect to Existing

Sta. 4506+50.00 Ramp D
Install 24"x70' Culvert
F.L. = Lt. 1080.90
Rt. 1080.90

Curve D-1 Data
Δ = 19° 16' 50.11" (RT)
T = 227.61
L = 450.92
R = 1,340.00
E = 19.19
e = 6.0%
L = 186'
x = 62'

POT Sta. 4512+50.00 (Ramp D) =
POT Sta. 1412+50.00, 71.08' RT (I-29)

Curve D-2 Data
Δ = 8° 01' 17.07" (RT)
T = 140.23
L = 280.00
R = 2,000.00
E = 4.91
e = 5.4%
L = 168'
x = 62'

Sta. 4501+21.84 (Ramp D)
Begin Ramp D Construction

0 FEET 50

LIBERTY TWP.
T-87N R-47W
SEC. 34

Ramp D

Sta 4501+21.84
Begin Ramp D Profile
Elev. = 1098.21

VPI +00.000
Elv 1,096.78
K = 100
Len 220.00 ft
SSD = 412'
DS = 45 mph

VPI +50.000
Elv 1,083.28
K = 140
Len 500.00 ft
DS = 60 mph

Sta 4510+21.34
End Ramp D Profile
Elev. = 1084.81

-0.800%

-3.000%

+0.562%

Proposed Profile Grade

Existing Ground Line

1105 1100 1095 1090 1085 1080 1075

Lt — No Ditch

Rt — U.A.C. Existing Ditch

1,098.18 1,097.98 1,097.78 1,097.58 1,097.32 1,097.00 1,096.62 1,096.18 1,095.67 1,095.10 1,094.47 1,093.78 1,093.03 1,092.28 1,091.53 1,090.78 1,090.06 1,089.37 1,088.74 1,088.14 1,087.59 1,087.09 1,086.63 1,086.21 1,085.84 1,085.51 1,085.23 1,084.99 1,084.80 1,084.65 1,084.54 1,084.48 1,084.47 1,084.50 1,084.57 1,084.69

4502 4503 4504 4505 4506 4507 4508 4509 4510 4511 4512 4513 4514

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER K.8	

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LIBERTY TWP.
T-87N R-47W
SEC. 34

N

Ramp 'A'

16.00'

1505

Sta 1504+45.68, 0.00' LT Ramp A=
Sta 11398+85.76, 80.73' LT K-25

Sta 1504+64.05, 16.00' RT Ramp A=
Sta 11399+07.08, 92.52' LT K-25

SRK25A_RET_2

SRK25A_RET_1

Sta 1503+69.66, 41.82' LT Ramp A=
Sta 11398+20.46, 23.60' LT K-25

Sta 11397+13.40, 12.00' LT K-25=
Sta 1503+59.77, 138.46' LT Ramp A

Sta 11399+63.46, 12' LT K-25=
Sta 1504+07.67, 96.52' RT Ramp A

1504

CURVE SRK25A_RET_2-2

CURVE SRK25A_RET_2-1

CURVE SRK25A_RET_1-1

11397 11398 11399 11400 11401 11402

11.00' 12.00'

11.00' 12.00'

70°00'00"

45°00'00"

12.00'

12.00'

K25

50.00'
Transition

CURVE SRK25C_RET_4-3

CURVE SRK25C_RET_3-1

Sta 11399+93.41, 12.00' RT K-25=
Sta 3604+09.61, 88.41' RT Ramp C

Sta 11397+85.53, 12.00' RT K-25

3605

Sta 3604+05.31, 42.42' RT Ramp C=
Sta 11399+63.99, 47.57' RT K-25

CURVE SRK25C_RET_4-2

POT Sta 11398+56.38 K-25
= POT Sta 1503+59.77 Ramp A
= POT Sta 3605+15.00 Ramp C

Sta 3603+70.08, 27.29' RT Ramp C=
Sta 11399+78.14, 83.18' RT K-25

3604

SRK25C_RET_3

SRK25C_RET_4

CURVE SRK25C_RET_4-1

Sta 3604+15.18, 0.00' RT Ramp C=
Sta 11399+26.95, 70.58' RT K-25

Ramp 'C'

Sta 3602+64.78, 16.00' RT Ramp C=
Sta 11400+44.63, 165.62' RT K-25

3603

16.00'

NOTES:

Refer to G sheets for horizontal alignment information.

0 20
FEET

**Geometric Details
Intersection of
County Road K25 and Ramps A and C**

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.1

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LIBERTY TWP.
T-87N R-47W
SEC. 34

N

+47.76
6.0%
16.0'
Ramp 'A'
Uniform Transition
1505
+84.76
4.0%
16.0'
1097.10
1098.05
Sta 0+40.78 SRK25A_RET_1=
Sta 1504+26.34, 29.33' RT Ramp A
1098.04
Sta 0+50.88 SRK25A_RET_1=
Sta 1504+19.05, 36.31' Ramp A
1098.27
Sta 0+69.55 SRK25A_RET_1=
Sta 11399+22.09, 28.53' LT K-25
1098.97
Sta 0+79.54 SRK25A_RET_1=
Sta 11399+29.87, 22.29' LT K-25
1099.34
Sta 1+45.34 SRK25A_RET_2=
Sta 1503+95.61, 15.21' LT Ramp A
1097.06
Sta 1+08.85 SRK25A_RET_2 =
Sta 11398+21.39, 23.81' LT K-25
1096.32
1096.76
1097.42
1096.68
1504
Constant 4% Slope
Special Shaping
11397
11398
11399
11400
11401
11402
1092.76
10'
1098.37
10'
10'
1100.91
4.0%
16.0'
1099.39
1099.84
Constant 2% Slope
2.0%
12.0'
2.0%
K25
1100.55
1100.84
1095.36
6.06%
16.0'
1101.63
Sta 1+97.41 SRK25C_RET_4=
Sta 11399+63.93, 22.12' RT K-25
1100.24
Sta 1+67.55 SRK25C_RET_4=
Sta 11399+68.24, 25.68' RT K-25
1100.24
Sta 1+44.69 SRK25C_RET_4 =
Sta 11399+63.93, 47.57' RT K-25
1098.99
Sta 1+40.14 SRK25C_RET_4=
Sta 11399+64.88, 52.02' RT K-25
1098.47
Sta 1+13.44 SRK25C_RET_4=
Sta 11399+74.40, 76.88' RT K-25
1097.33
Special Shaping
Special Shaping
10'
10'
3605
Uniform Transition
Sta 0+78.54 SRK25C_RET_3 =
Sta 11398+62.07, 27.22' RT K-25
1097.61
1097.81
1096.89
3604
2.0%
16.0'
Constant 2% Slope
2.0%
16.0'
1096.88
Sta 1+06.11 SRK25C_RET_4 =
Sta 11399+78.14, 83.18' RT K-25
1097.22
+55.08
+21.89
1095.10
3603
Uniform Transition
Ramp 'C'
+16.08
5.4%
16.0'
0 FEET 20

Staking Details
Intersection of
County Road K25 and Ramps A and C

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.2	

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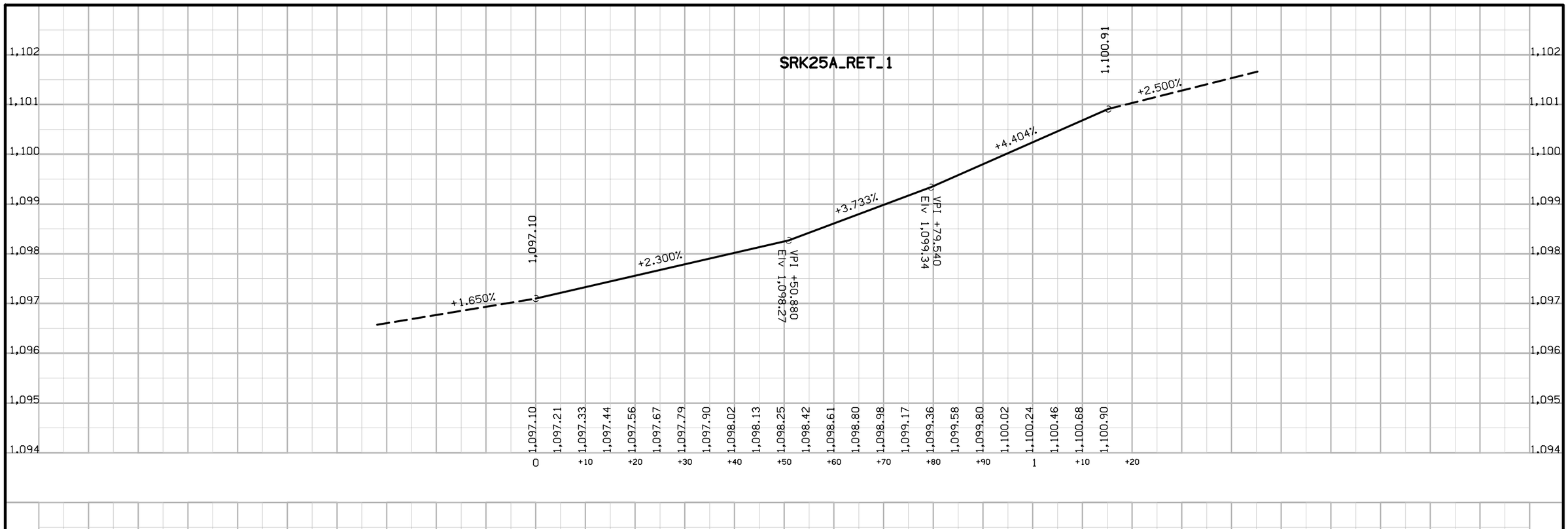

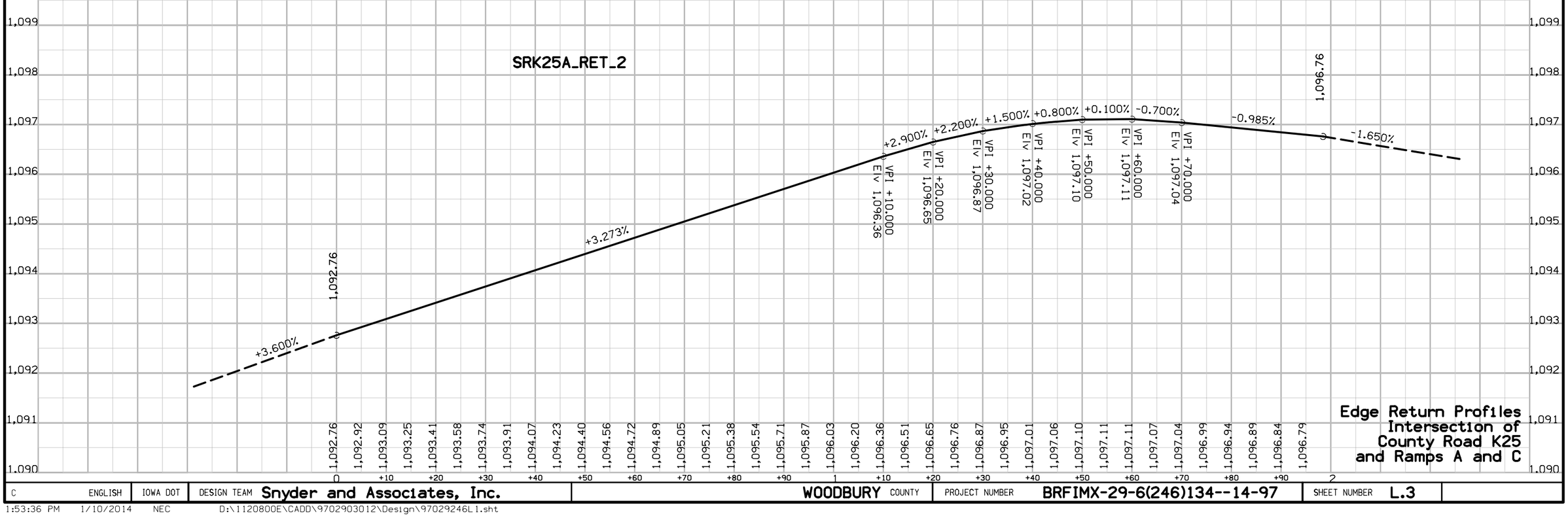

Edge Return Profiles
Intersection of
County Road K25
and Ramps A and C

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.3	

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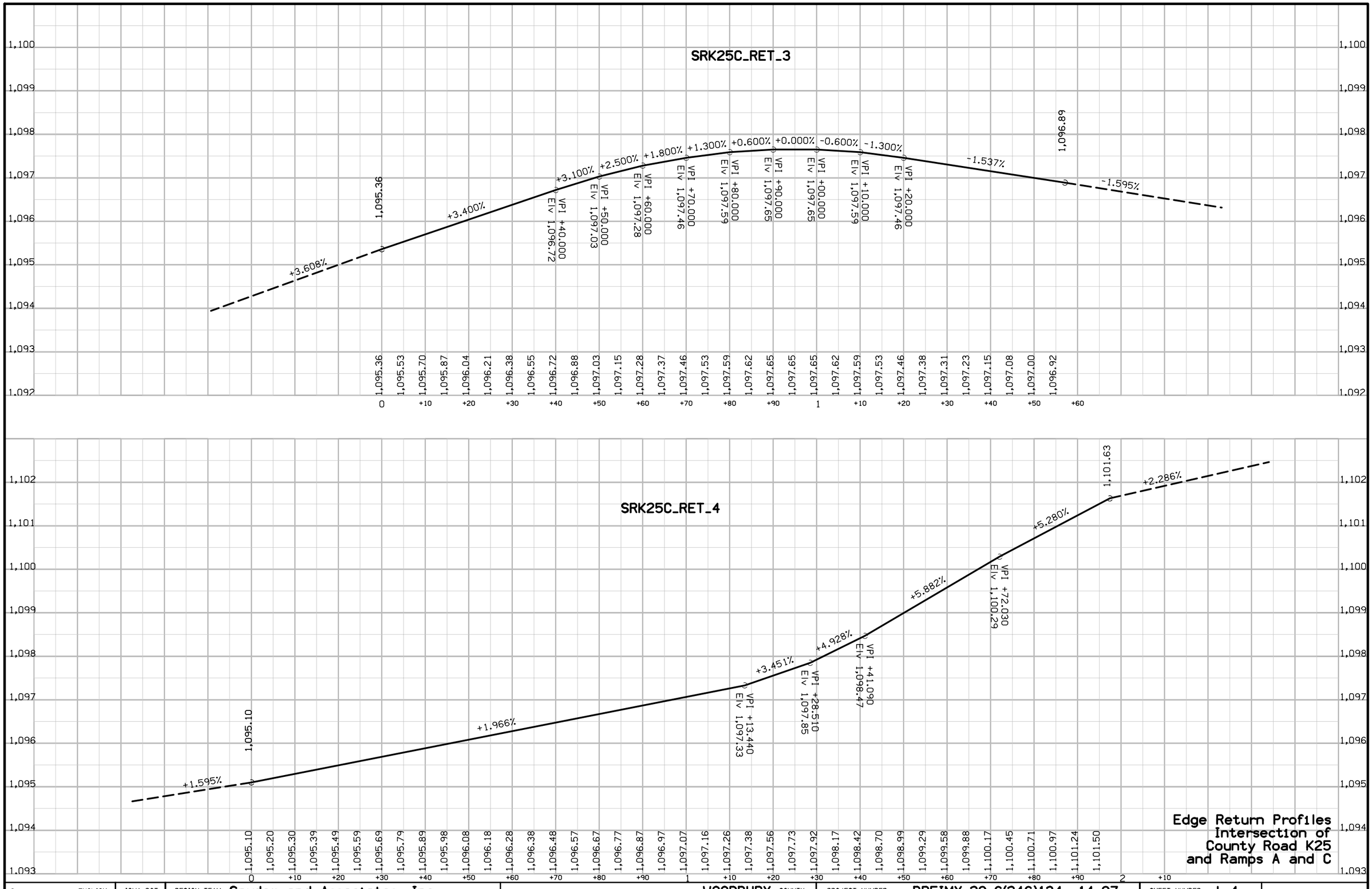

Edge Return Profiles
Intersection of
County Road K25
and Ramps A and C

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.4	

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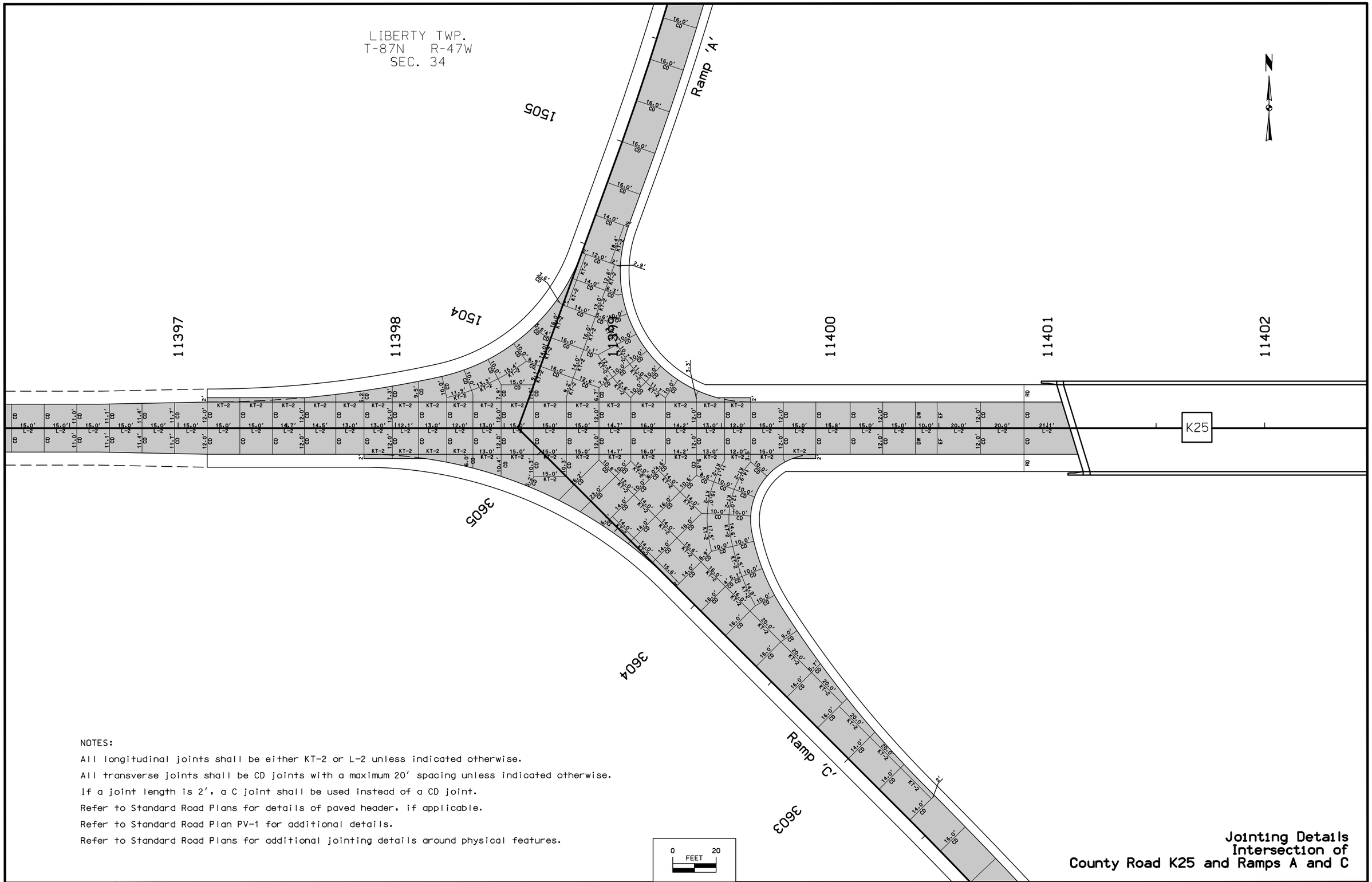
LIBERTY TWP.
T-87N R-47W
SEC. 34



NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All transverse joints shall be CD joints with a maximum 20' spacing unless indicated otherwise.

If a joint length is 2', a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

Jointing Details
Intersection of
County Road K25 and Ramps A and C

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.5	

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LIBERTY TWP.
T-87N R-47W
SEC. 34

N

Ramp 'D'

4504

16.00'

Sta 4503+49.37, 16.00' LT Ramp D =
Sta 11405+86.54, 161.57' LT K-25

SRK25D_RET_2

4503

CURVE SRK25D_RET_2-3

Sta 4502+54.45, 25.09' LT Ramp D =
Sta 11406+47.23, 88.02' LT K-25

CURVE SRK25D_RET_2-2

Sta 4502+07.57, 48.03' LT Ramp D =
Sta 11406+64.16, 38.66' LT K-25

Sta 11406+39.21, 12.00' LT K-25
Sta 4502+06.36, 84.52' LT Ramp D

CURVE SRK25D_RET_2-1

4502

SRK25D_RET_1

Sta 4502+04.69, Ramp D =
Sta 11407+00.16, 70.58' LT K-25

POT Sta 11407+70.74 K-25
= POT Sta 2602+59.82 Ramp B
= POT Sta 4501+04.87 Ramp D

Sta 11408+41.58, 12.00' LT K-25

CURVE SRK25D_RET_1-1

11404 11405 11406 11407 11408 11409

50.00'
Transition

45°00'00"

K25

12.00' 12.00' 12.00' 12.00' 11.00' 11.00'

75°58'09"

CURVE SRK25B_RET_4-2

CURVE SRK25B_RET_4-1

Sta 11409+20.82, 12.00' RT K-25

Sta 11406+69.21, 12.00' RT K-25 =
Sta 2602+23.56, 95.59' LT Ramp B

CURVE SRK25B_RET_3-1

2602

Sta 2602+45.55, 43.86' RT Ramp B =
Sta 11408+09.83, 24.47' LT K-25

SRK25B_RET_4

SRK25B_RET_3

Sta 2601+74.18, Ramp B =
Sta 11407+49.98, 83.08' RT K-25

Sta 2601+66.61, 16.00' LT Ramp B =
Sta 11407+32.62, 86.55' RT K-25

2601

Ramp 'B'

16.00'

0 20
FEET

NOTES:
Refer to G sheets for horizontal alignment information.

Geometric Details
Intersection of
County Road K25 and Ramps B and D

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.6

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LIBERTY TWP.
T-87N R-47W
SEC. 34

N

Ramp 'D'

4504

1095.44

Constant 2% Slope

4503

Sta 0+93.73 SRK25D_RET_2 =
Sta 11406+47.23, 88.02' LT K-25
1097.60

Sta 0+68.95 SRK25D_RET_2=
Sta 11406+58.43, 65.99' LT K-25
1098.54

Sta 0+40.93 SRK25D_RET_2 =
Sta 11406+64.16, 38.66' LT K-25
1099.74

Sta 0+28.13 SRK25D_RET_2=
Sta 11406+61.77, 26.23' LT K-25
1100.29

+36.84

2.0%
16.0'

1097.54

1097.81

14'

4502

Uniform Transition

Special Shaping

11404 11405 11406 11407 11408 11409

1095.35

1101.50

1100.47

5.19%
16.0'

K25

2.0% 12.0'

Constant 2% Slope

Constant 2% Slope

Constant 2% Slope

Constant 2% Slope

2.0% 12.0'

3.75%
16.0'

1100.63

Sta 0+36.15 SRK25B_RET_3=
Sta 11407+08.41, 22.57' RT K-25
1099.27

1099.50

10'

Special Shaping

4602

Uniform Transition

10'

1096.69

11092.49

Sta 0+88.17 SRK25B_RET_4 =
Sta 11408+09.83, 24.47' RT K-25
1096.41

1097.27

Sta 0+82.42 SRK25B_RET_4=
Sta 11408+04.28, 25.95' RT K-25
1096.56

Sta 0+70.33 SRK25B_RET_3=
Sta 11407+29.70, 48.71' RT K-25
1097.99

1097.64

2.0%
16.0'

+88.45

Sta 0+44.41 SRK25B_RET_4=
Sta 11407+71.85, 45.09' RT K-25
1096.97

1096.54

1096.38

Constant 2% Slope

4601

Ramp 'B'

0 FEET 20

Staking Details
Intersection of
County Road K25 and Ramps B and D

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.7	

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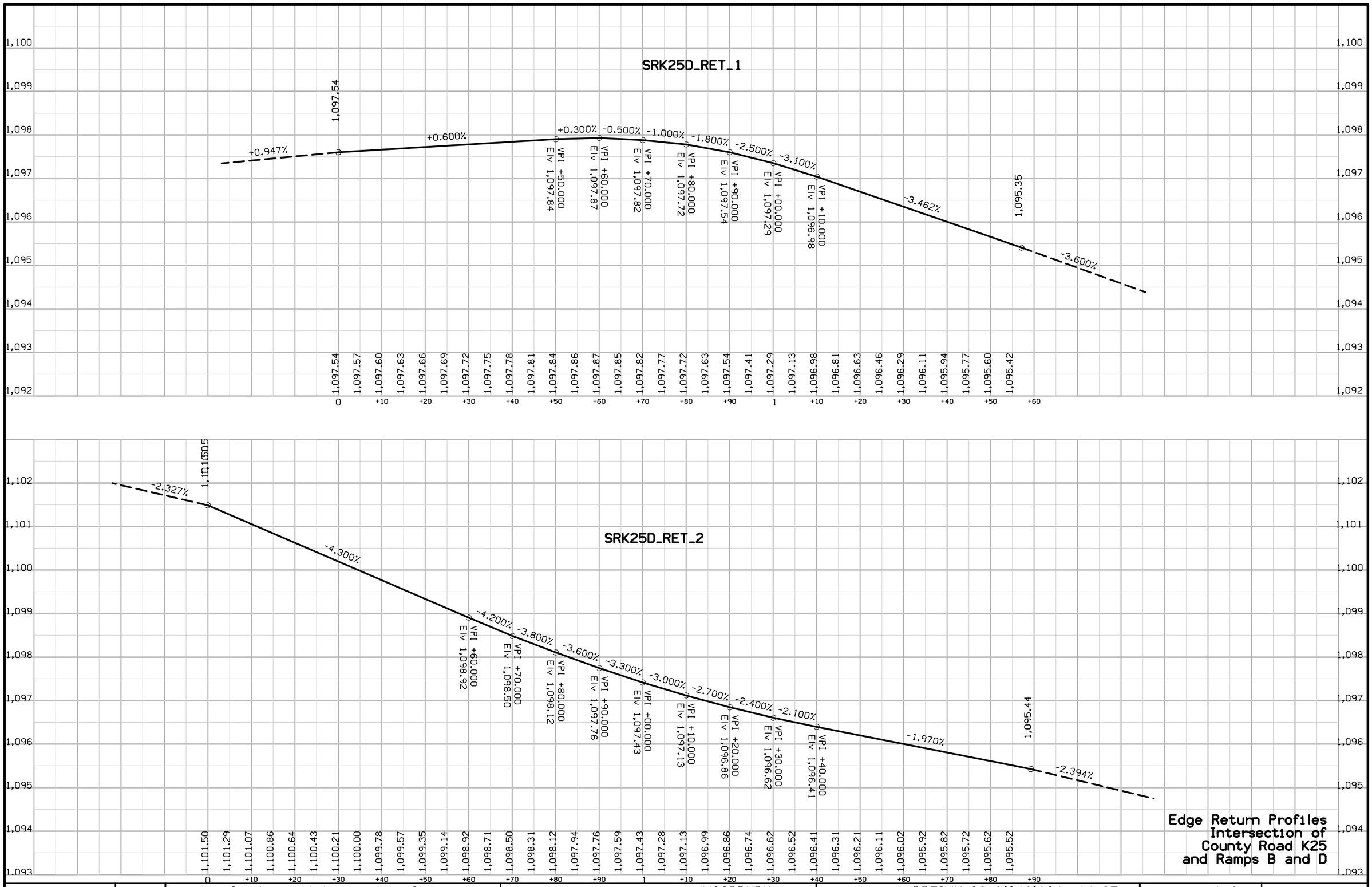

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.8	

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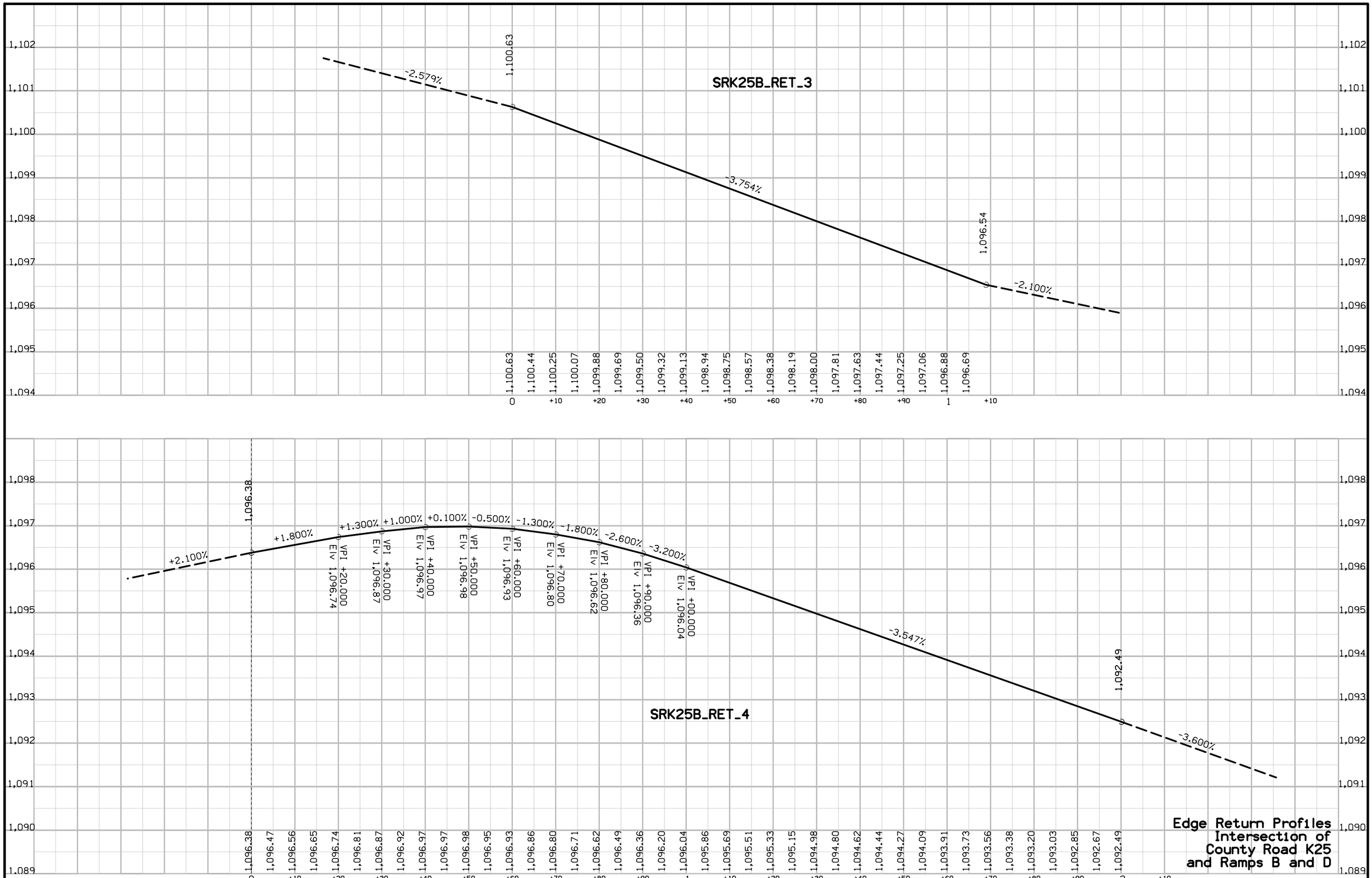

Edge Return Profiles
Intersection of
County Road K25
and Ramps B and D

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.9	

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LIBERTY TWP.
T-87N R-47W
SEC. 34

Ramp 'D'

Ramp 'B'

2602

2601

4504

4503

11404

11405

11406

11407

11408

11409

K25

NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All transverse joints shall be CD joints with a maximum 20' spacing unless indicated otherwise.

If a joint length is 2', a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

0 20
FEET

Jointing Details
Intersection of
County Road K25 and Ramps B and D

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER L.10	

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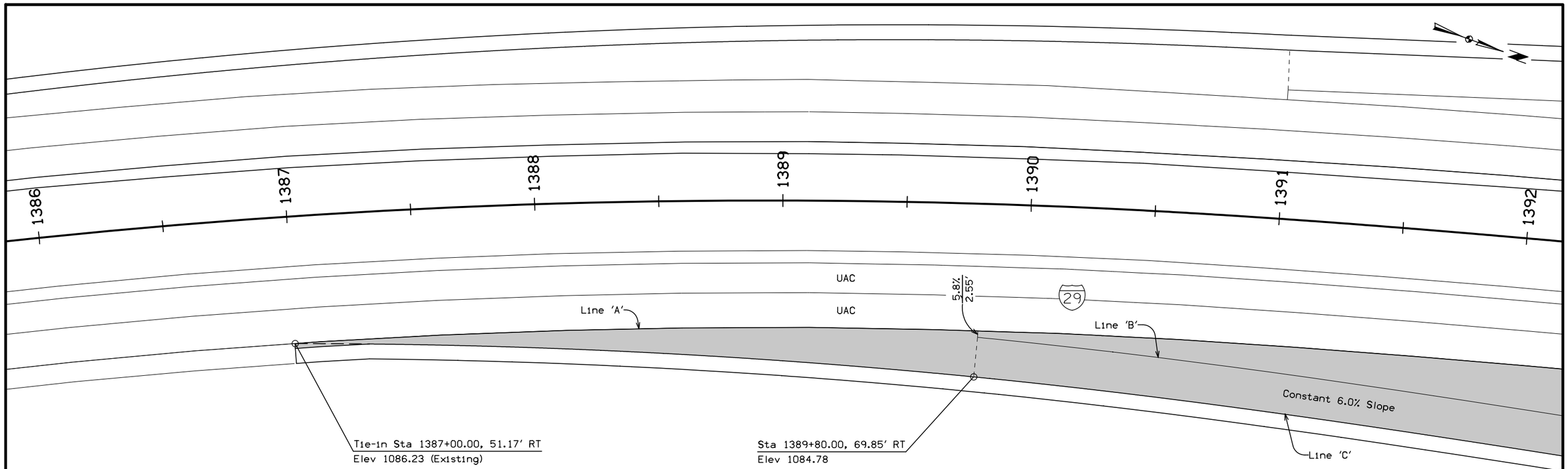

LIBERTY TWP.
T-87N R-47W
SEC. 34

		1387+00	1387+25	1387+50	1387+75	1388+00	1388+25	1388+50	1388+75	1389+00	1389+25	1389+50	1389+75	1390+00	1390+25	1390+50	1390+75	1391+00
Line A Elevation (Match Existing)		1086.23	1086.20	1086.15	1086.13	1086.11	1086.08	1086.03	1085.99	1085.97	1085.94	1085.92	1085.90	1085.88	1085.88	1085.90	1385.93	1385.98
Line A to Line B	Slope													5.99%	5.76%	5.28%	5.21%	5.26%
	Offset													4.01	5.73	7.39	9.03	10.65
Line B Elevation														1085.64	1085.55	1085.51	1085.46	1085.42
Line B to Line C	Slope													Constant 6.0% Slope				
	Offset													Constant 16.00' Width				
Line A to Line C	Slope	6.04%	6.00%	6.29%	6.23%	6.01%	6.02%	6.10%	6.12%	6.06%	6.07%	6.02%	6.02%	Variable Slope				
	Offset	2.00	2.00	3.34	4.97	6.65	8.31	10.00	11.65	13.37	15.00	16.61	18.26	19.97	21.70	23.36	25.01	26.64
Line C Elevation		1086.11	1086.08	1085.94	1085.82	1085.71	1085.58	1085.42	1085.28	1085.16	1085.03	1084.92	1084.80	1084.68	1084.59	1084.55	1084.50	1084.46

Geometric and Staking Details
I-29/K-25 Interchange
Northbound Exit Ramp
Ramp 'B'
Sheet 1 of 2

0 20
FEET

ENGLISH | IOWA DOT | DESIGN TEAM **Snyder and Associates, Inc.** | **WOODBURY** COUNTY | PROJECT NUMBER **BRFIMX-29-6(246)134--14-97** | SHEET NUMBER **U.1**

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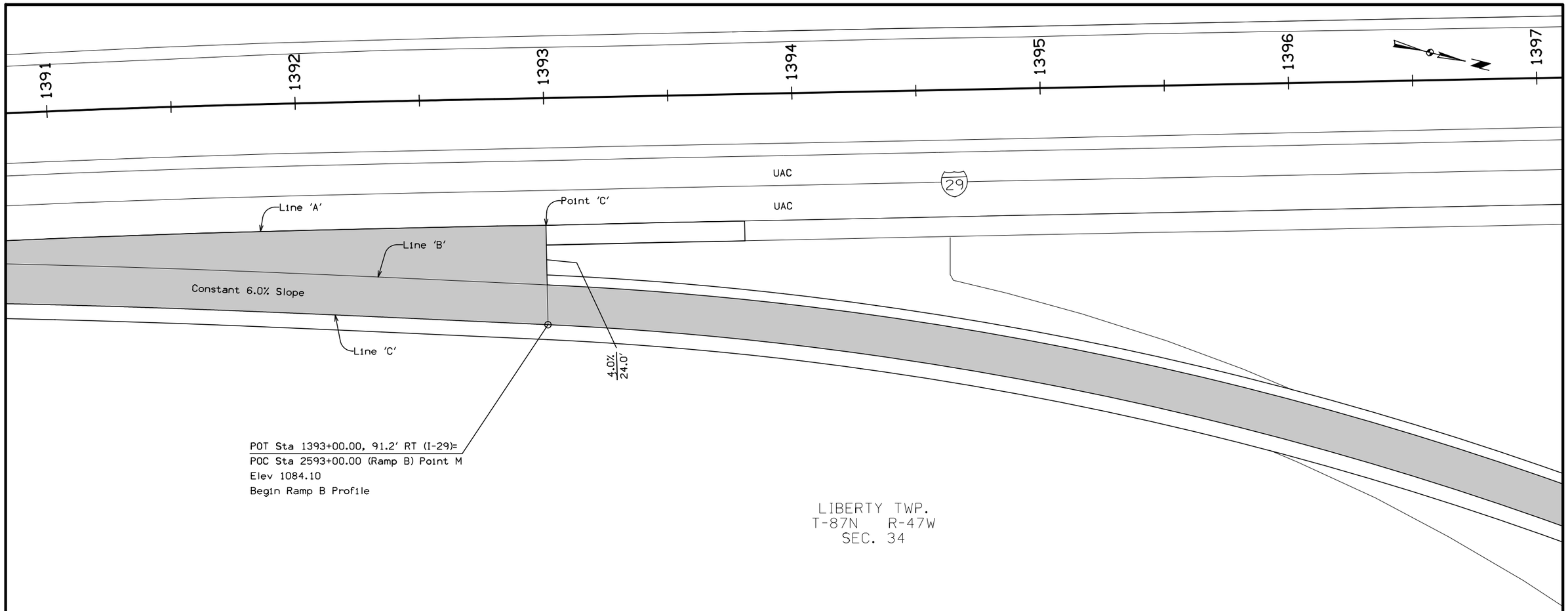

		1391+00	1391+25	1391+50	1391+75	1392+00	1392+25	1392+50	1392+75	1393+00
Line A Elevation (Match Existing)		1085.98	1086.01	1086.04	1086.07	1086.10	1086.09	1086.07	1086.05	1086.02
Line A to Line B	Slope	5.26%	5.20%	5.08%	5.05%	4.96%	4.68%	4.44%	4.21%	4.01%
	Offset	10.65	12.30	13.99	15.66	17.35	19.02	20.72	22.34	24.00
Line B Elevation		1085.42	1085.37	1085.33	1085.28	1085.24	1085.20	1085.15	1085.11	1085.06
Line B to Line C	Slope	Constant 6.00% Slope								
	Offset	Constant 16' Width								
Line A to Line C	Slope	Variable Slope								
	Offset	26.64	28.29	29.99	31.66	33.36	35.04	36.74	38.37	40.00
Line C Elevation		1084.46	1084.41	1084.37	1084.32	1084.28	1084.24	1084.19	1084.15	1084.10

0 FEET 20

Geometric and Staking Details
I-29/K-25 Interchange
Northbound Exit Ramp
Ramp 'B'
Sheet 2 of 2

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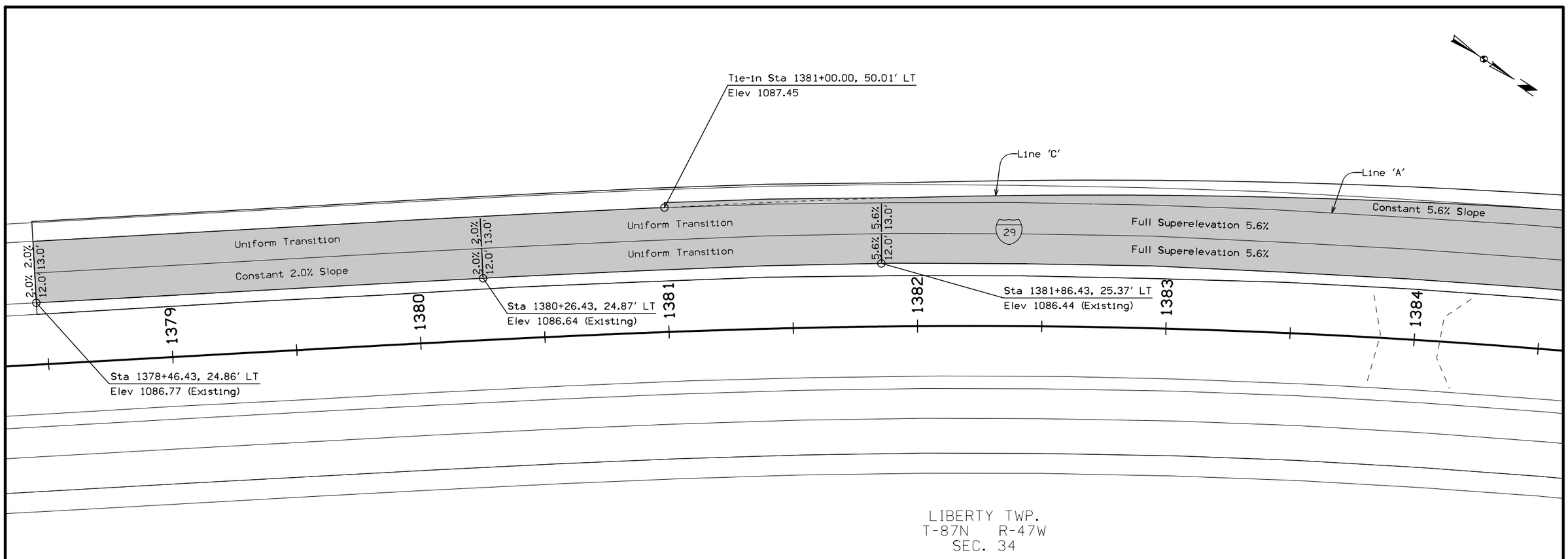

LIBERTY TWP.
T-87N R-47W
SEC. 34

		1381+00	1381+25	1381+50	1381+75	1382+00	1382+25	1382+50	1382+75	1383+00	1383+25	1383+50	1383+75	1384+00	1384+25	1384+50
Line A Elevation		1087.45	1087.56	1087.66	1087.76	1087.77	1087.73	1087.68	1087.66	1087.64	1087.57	1087.53	1087.53	1087.52	1087.54	1087.53
Line A to Line B	Slope															
	Offset															
Line B Elevation																
Line B to Line C	Slope															
	Offset															
Line A to Line C	Slope	3.66%	4.22%	4.78%	5.34%	Constant 5.06% Slope										
	Offset	2.00	2.00	2.00	2.00	2.15	2.65	3.13	3.69	4.21	4.74	5.32	5.97	6.44	6.74	7.07
Line C Elevation		1087.52	1087.64	1087.76	1087.87	1087.90	1087.88	1087.86	1087.87	1087.88	1087.85	1087.83	1087.86	1087.88	1087.91	1087.92

0 20
FEET

Geometric and Staking Details
I-29/K-25 Interchange
Southbound Entrance Ramp
Ramp 'C'
Sheet 1 of 3

ENGLISH | IOWA DOT | DESIGN TEAM Snyder and Associates, Inc. | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER U.3

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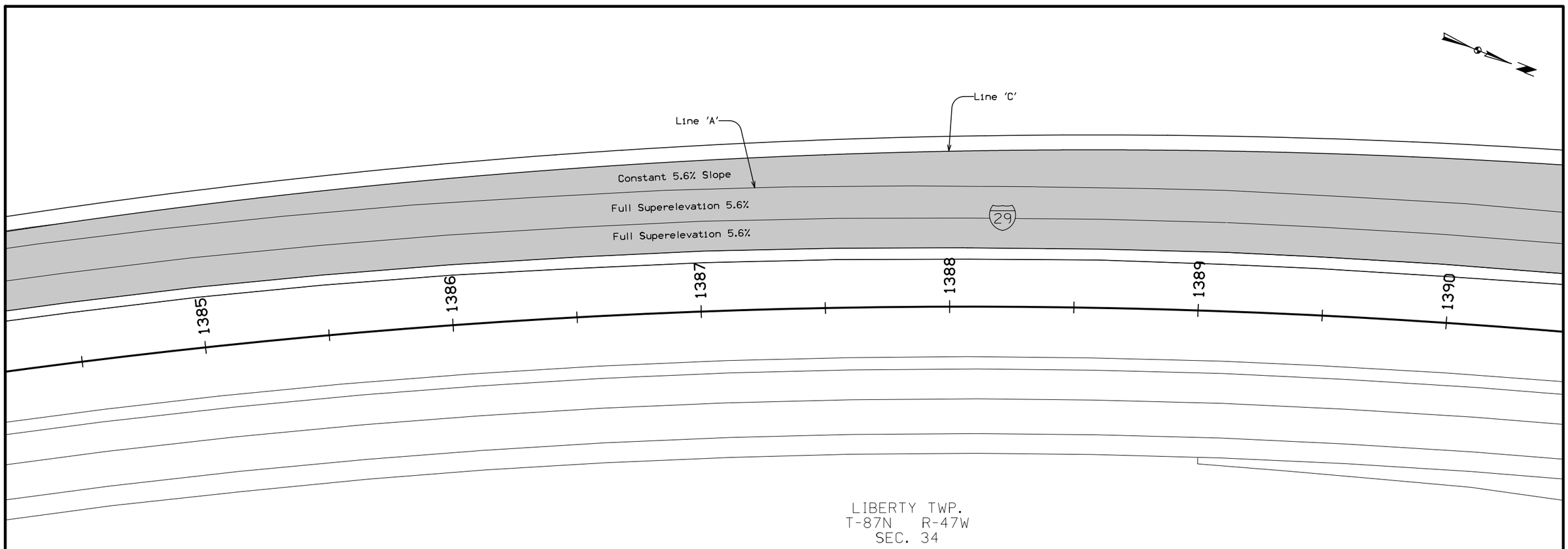

LIBERTY TWP.
T-87N R-47W
SEC. 34

		1384+75	1385+00	1385+25	1385+50	1385+75	1386+00	1386+25	1386+50	1386+75	1387+00	1387+25	1387+50	1387+75	1388+00	1388+25	1388+50	1388+75
Line A Elevation		1087.50	1087.46	1087.43	1087.39	1087.40	1087.38	1087.36	1087.33	1087.32	1087.29	1087.27	1087.26	1087.23	1087.19	1087.15	1087.11	1087.07
Line A to Line B	Slope																	
	Offset																	
Line B Elevation																		
Line B to Line C	Slope																	
	Offset																	
Line A to Line C	Slope	Constant 5.60% Slope																
	Offset	7.48	7.92	8.35	8.79	9.19	9.69	10.28	10.75	11.09	11.57	12.15	12.77	13.42	14.05	14.63	15.13	15.48
Line C Elevation		1087.92	1087.90	1087.9	1087.88	1087.91	1087.92	1087.94	1087.93	1087.94	1087.93	1087.95	1087.97	1087.98	1087.98	1087.97	1087.95	1087.94

Geometric and Staking Details
I-29/K-25 Interchange
Southbound Entrance Ramp
Ramp 'C'
Sheet 2 of 3

0 20
FEET

ENGLISH | IOWA DOT | DESIGN TEAM Snyder and Associates, Inc. | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER U.4

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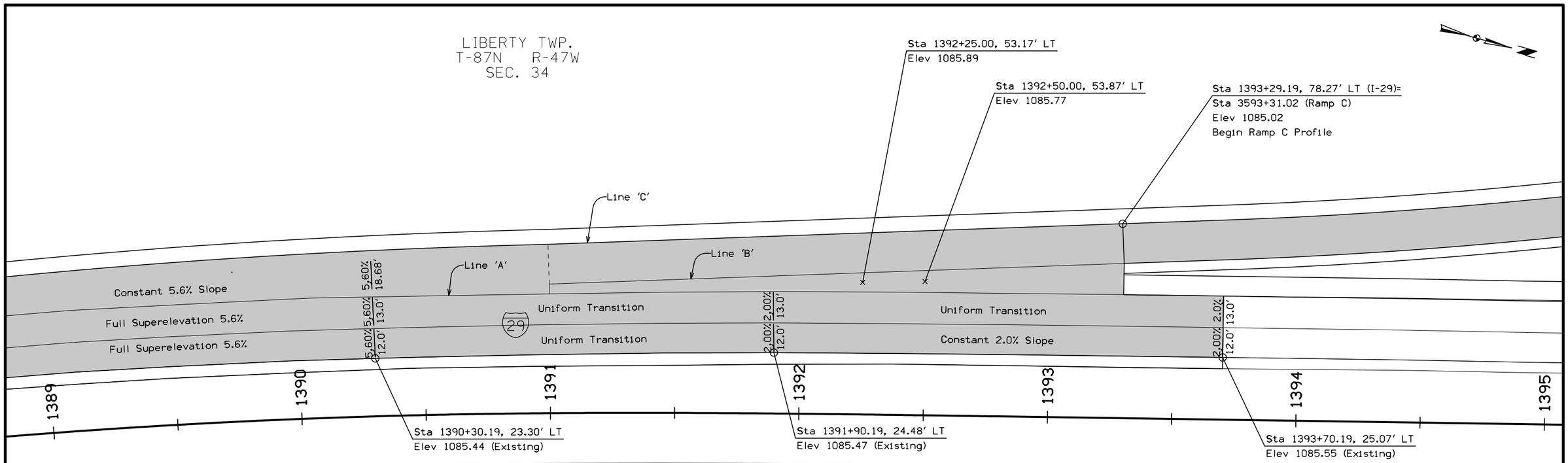


		1389+00	1389+25	1389+50	1389+75	1390+00	1390+25	1390+50	1390+75	1391+00	1391+25	1391+50	1391+75	1392+00	1392+25	1392+50	1392+75	1393+00
Line A Elevation		1087.04	1086.97	1086.90	1086.86	1086.82	1086.83	1086.73	1086.63	1086.52	1086.39	1086.25	1086.07	1085.95	1085.93	1085.88	1085.82	1085.76
Line A to Line B	Slope									4.04%	2.89%	1.98%	2.05%	1.34%	Slope Varies		1.51%	1.89%
	Offset									4.00	4.50	5.06	5.85	6.70	7.71	8.77	9.96	11.13
Line B Elevation										1086.68	1086.52	1086.35	1086.19	1086.04	1085.91	1085.79	1085.67	1085.55
Line B to Line C	Slope									4.04%	3.48%	2.93%	2.38%	1.76%	0.95%	0.14%	0.68%	1.48%
	Offset									Constant 16' Width								
Line A to Line C	Slope	Constant 5.60% Slope						5.16%	4.60%	Slope Varies								
	Offset	15.77	16.35	17.01	17.51	17.82	18.53	19.18	19.68	20.00	20.51	21.07	21.86	22.71	23.72	24.79	25.98	27.15
Line C Elevation		1087.92	1087.97	1087.85	1087.84	1087.82	1087.87	1087.72	1087.54	1087.33	1087.08	1086.82	1086.57	1086.32	1086.06	1085.81	1085.56	1085.31

		1393+25	1393+30
Line A Elevation		1085.69	1085.68
Line A to Line B	Slope	2.12%	2.16%
	Offset	12.27	12.50
Line B Elevation		1085.43	1085.41
Line B to Line C	Slope	2.29%	2.42%
	Offset	Constant 16' Width	
Line A to Line C	Slope	Slope Varies	
	Offset	28.29	28.50
Line C Elevation		1085.06	1085.02

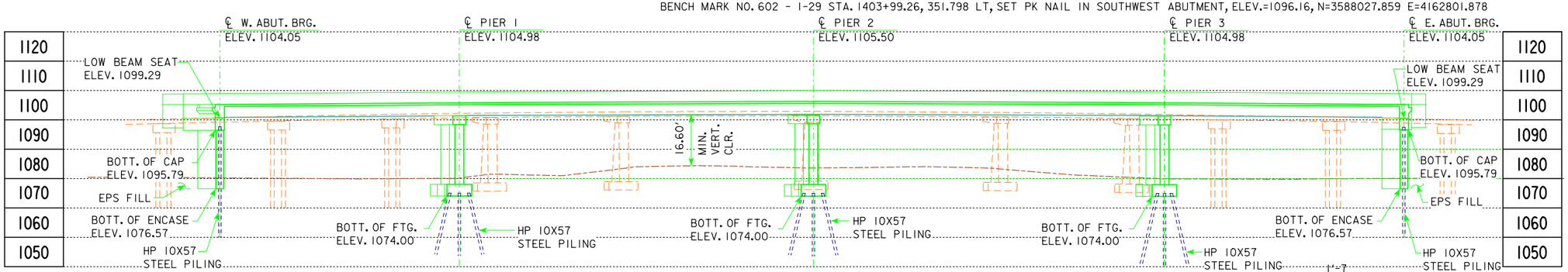
0 FEET 20

Geometric and Staking Details
I-29/K-25 Interchange
Southbound Entrance Ramp
Ramp 'C'
Sheet 3 of 3

ENGLISH | IOWA DOT | DESIGN TEAM Snyder and Associates, Inc. | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER U.5

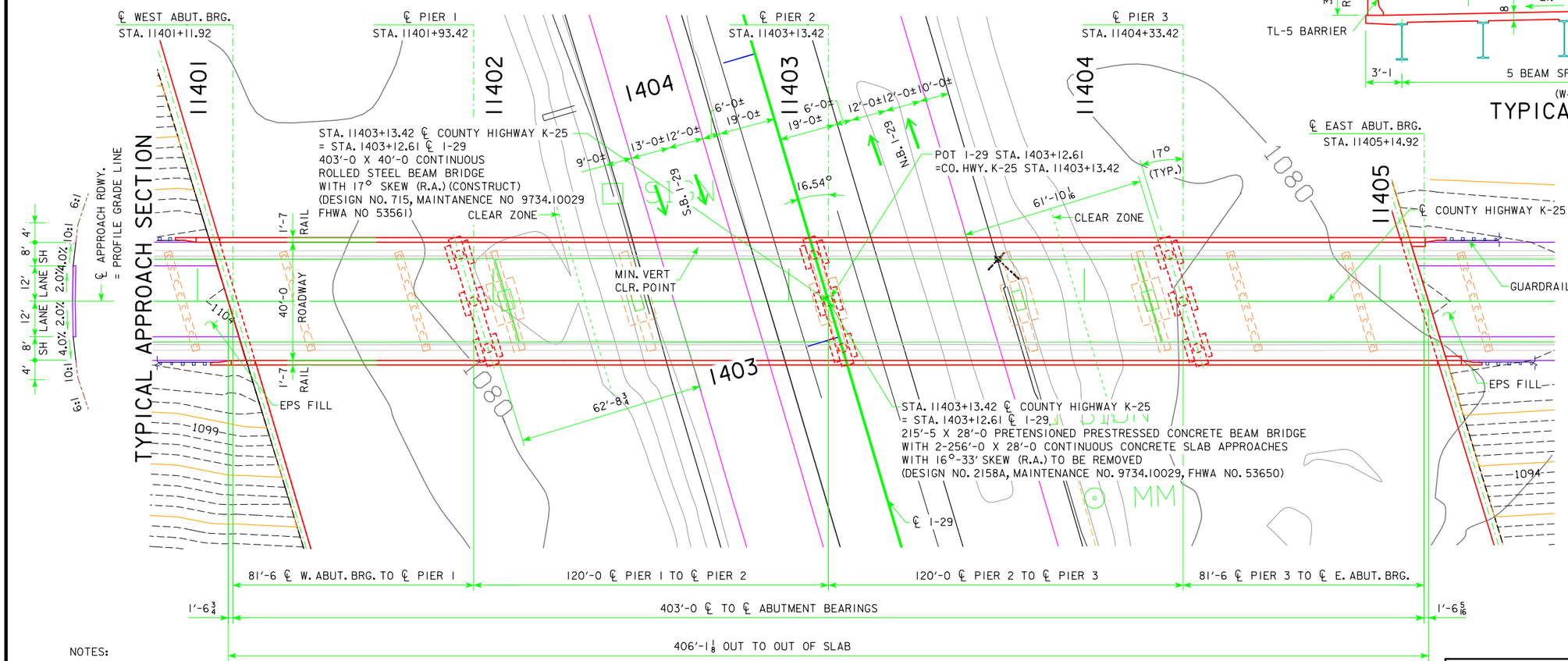
1:53:43 PM 1/10/2014 NEC D:\1120800E\CADD\9702903012\Design\97029246U1.sht

BENCH MARK NO. 601 - I-29 STA. 1406+01.63, 1211.401 LT, SET RR SPIKE IN 3RD POWER POLE WEST OF SB I-29 RAMP ALONG SOUTH SIDE 275TH STREET, ELEV.=1084.36, N=3588004.616 E=4161919.081
BENCH MARK NO. 602 - I-29 STA. 1403+99.26, 351.798 LT, SET PK NAIL IN SOUTHWEST ABUTMENT, ELEV.=1096.16, N=3588027.859 E=4162801.878

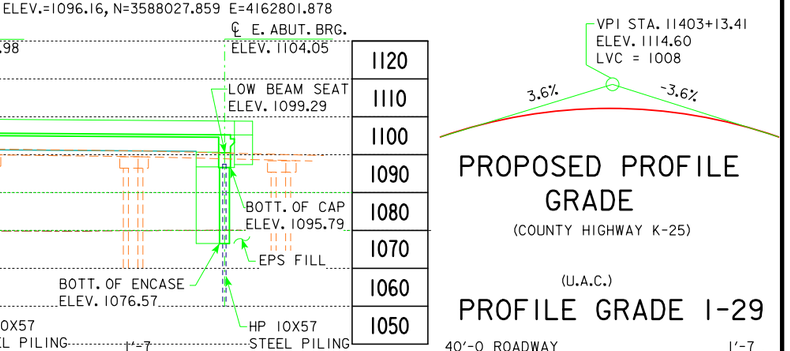


LONGITUDINAL SECTION ALONG ℄ ROADWAY

NOTE: TOP OF BRIDGE DECK AT CENTERLINE ROADWAY
IS 0.03 FEET BELOW THE PROFILE GRADE



TYPICAL APPROACH SECTION

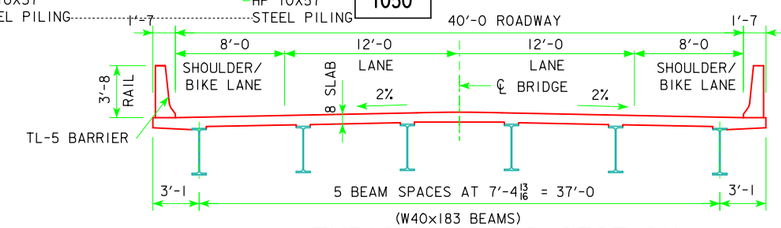


PROPOSED PROFILE GRADE

(COUNTY HIGHWAY K-25)

(U.A.C.)

PROFILE GRADE I-29



(W40x183 BEAMS)

TYPICAL CROSS SECTION LOCATION

COUNTY HIGHWAY K-25
AT THE INTERCHANGE
OF I-29 (K-25 OVER I-29)
T-87N R-47W
SECTION 34
LIBERTY TOWNSHIP
WOODBURY COUNTY
BRIDGE MAINT. NO. 9734.10029
FHWA NO. 53651
LATITUDE 42.308488°
LONGITUDE -96.303119°

COUNTY HIGHWAY K-25 TRAFFIC ESTIMATE

2016 AADT	1,180	V.P.D.
2036 AADT	1,611	V.P.D.
2036 DHV	109	V.P.H.
TRUCKS	5	%
TOTAL DESIGN ESALs	-	

I-29 TRAFFIC ESTIMATE

2016 AADT	19,500	V.P.D.
2036 AADT	31,300	V.P.D.
2036 DHV	3,230	V.P.H.
TRUCKS	22	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

NOTES:

1. BRIDGE RAIL TO BE TL-5 BARRIER AS REQUESTED BY DISTRICT, FOR SNOW REMOVAL PURPOSES.
2. AESTHETICS ARE NOT PROPOSED.
3. PIERS ARE FRAME PIERS ON PILE CAP FOOTINGS.
4. BEAM SIZE IS ASSUMED. ACTUAL BEAM SIZE TO BE DETERMINED DURING FINAL DESIGN. PROFILE WILL BE ADJUSTED IF NECESSARY.
5. PIER #2 TO BE DESIGNED FOR VEHICLE COLLISION FORCES.

SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

N

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 11402+69.38, OFFSET 18.33 LT
OVERHEAD ELEVATION = 1105.09
DEPTH OF SUPERSTRUCTURE = 4.08 FT
UNDERPASS STATION = 1403+42.72, OFFSET 37.00 LT
UNDERPASS ELEVATION = 1084.41
MINIMUM VERTICAL CLEARANCE = 16.60 FT

0 ENGLISH 40
SCALE IN FEET

DESIGN FOR 17° SKEW (R.A.)

403'-0 X 40'-0 CONTINUOUS ROLLED STEEL BEAM BRIDGE

86'-6 END SPANS 115'-0 INTERIOR SPANS

SITUATION PLAN

STATION 11403+13.42 OCTOBER 2013

WOODBURY COUNTY

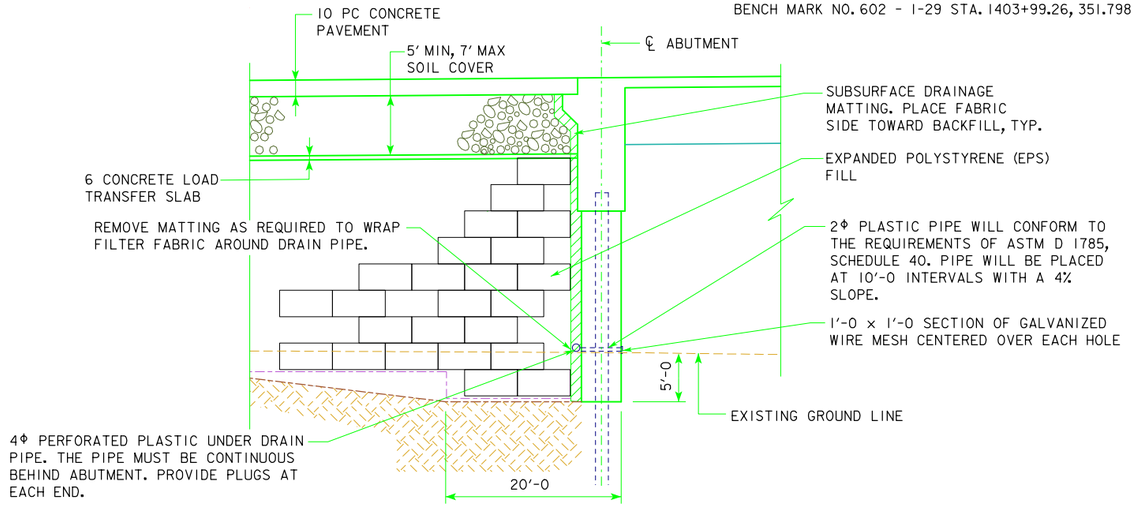
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 3 FILE NO. 30998 DESIGN NO. 715

DESIGN TEAM SHUCK-BRITSON INC. 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477

S.B.I. NO. 112.0800.01E | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER V.1

BENCH MARK NO. 601 - I-29 STA. 1406+01.63, 1211.401 LT, SET RR SPIKE IN 3RD POWER POLE WEST OF SB I-29 RAMP ALONG SOUTH SIDE 275TH STREET, ELEV.=1084.36, N=3588004.616 E=4161919.081
BENCH MARK NO. 602 - I-29 STA. 1403+99.26, 351.798 LT, SET PK NAIL IN SOUTHWEST ABUTMENT, ELEV.=1096.16, N=3588027.859 E=4162801.878



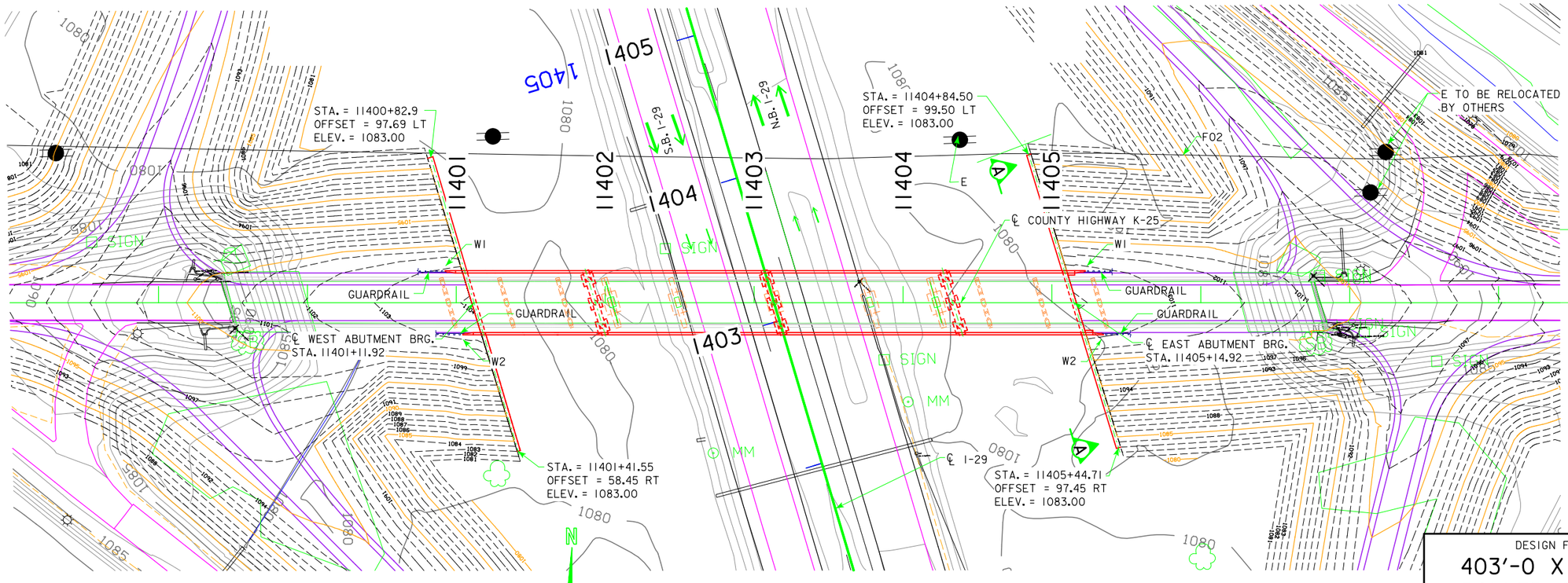
SECTION THRU ABUTMENT

NOTE: SEE SHEET B.3 FOR ADDITIONAL EPS FILL DETAILS

BERM SLOPE LOCATION TABLE

POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
W1	11400+92.48	-24.58	1103.89	11405+22.31	-24.58	1104.07
W2	11401+04.36	24.58	1104.07	11405+34.53	24.58	1103.88

THE ABUTMENT IS SUPPORTED ON AN ENCASED PILE BENT. THE ENCASEMENT ACTS AS A FACE FOR THE EPS FILL. A BRIDGE BERM IS NOT PRESENT FOR THIS BRIDGE.



SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

FOR VIEW A-A
SEE DESIGN SHEET 3.

NOTE: PROPOSED CONTOURS NOT SHOWN AT THIS TIME

0 ENGLISH 80
SCALE IN FEET

UTILITIES LEGEND:

F02 - LONG LINES
E - WOODBURY COUNTY RURAL ELECTRIC

PRELIMINARY

DESIGN FOR 17° SKEW (R.A.)

403'-0 X 40'-0 CONTINUOUS ROLLED STEEL BEAM BRIDGE

86'-6 END SPANS 115'-0 INTERIOR SPANS

SITUATION PLAN - SITE

STATION 11403+13.42 OCTOBER 2013

WOODBURY COUNTY

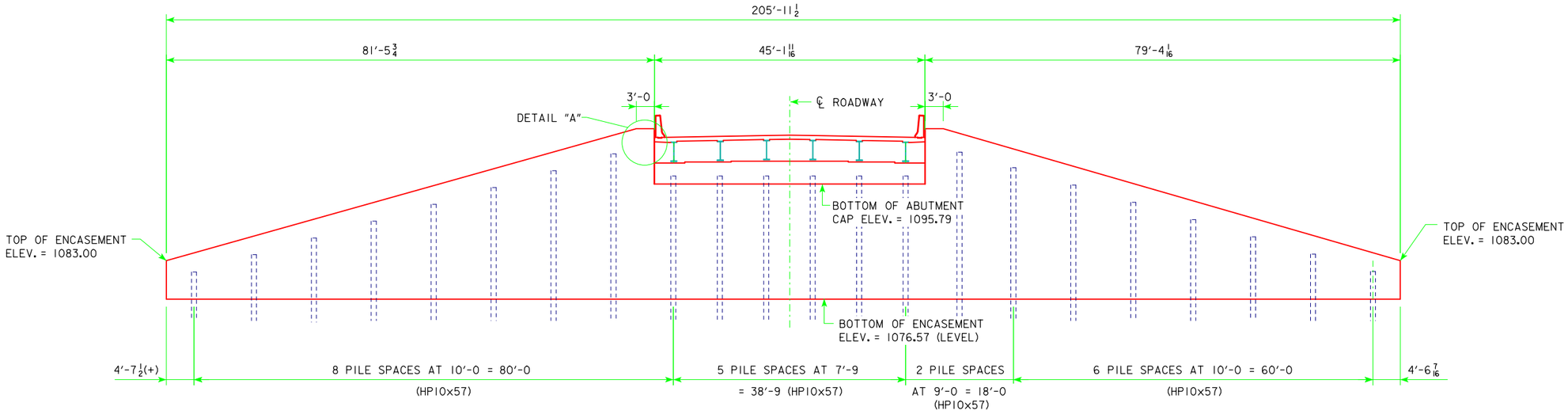
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 3 FILE NO. 30998 DESIGN NO. 715

DESIGN TEAM SHUCK-BRITSON
2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477

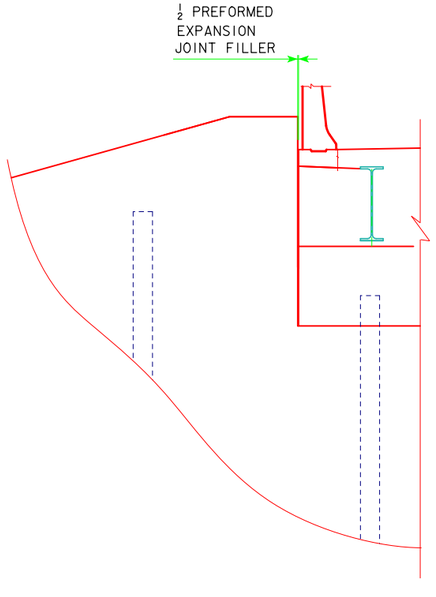
S.B.I. NO. 112.0800.01E | WOODBURY COUNTY | PROJECT NUMBER BRFIMX-29-6(246)134--14-97 | SHEET NUMBER V.2

BENCH MARK NO. 601 - I-29 STA. 1406+01.63, 1211.401 LT, SET RR SPIKE IN 3RD POWER POLE WEST OF SB I-29 RAMP ALONG SOUTH SIDE 275TH STREET, ELEV.=1084.36, N=3588004.616 E=4161919.081
BENCH MARK NO. 602 - I-29 STA. 1403+99.26, 351.798 LT, SET PK NAIL IN SOUTHWEST ABUTMENT, ELEV.=1096.16, N=3588027.859 E=4162801.878



VEIW A-A

(ALONG SKEW) (EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR)
(NOTE: PILE SPACING ASSUMED. FINAL SPACING TO BE DETERMINED DURING FINAL DESIGN.)



DETAIL "A"

PRELIMINARY

DESIGN FOR 17° SKEW (R.A.)

403'-0 X 40'-0 CONTINUOUS ROLLED STEEL BEAM BRIDGE

86'-6 END SPANS 115'-0 INTERIOR SPANS

SITUATION PLAN - MISC.

STATION 11403+13.42 OCTOBER 2013

WOODBURY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 3 FILE NO. 30998 DESIGN NO. 715

DESIGN TEAM	SHUCK-BRITSON INC. 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477	S.B.I. NO. 112.0800.01E	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER V.3

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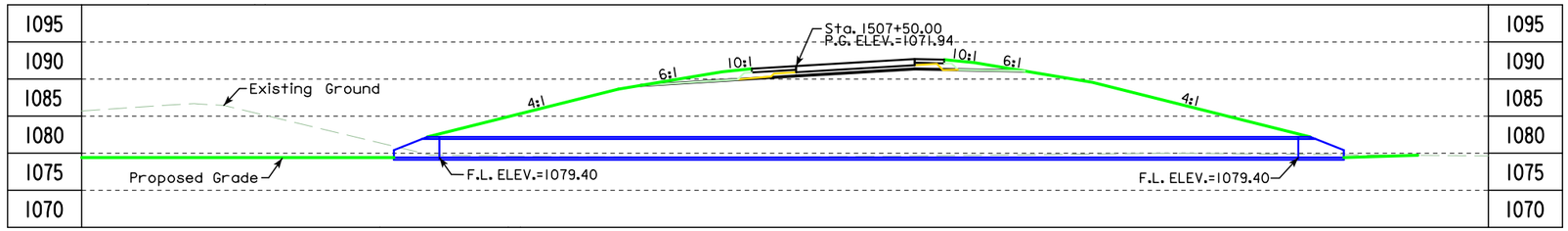
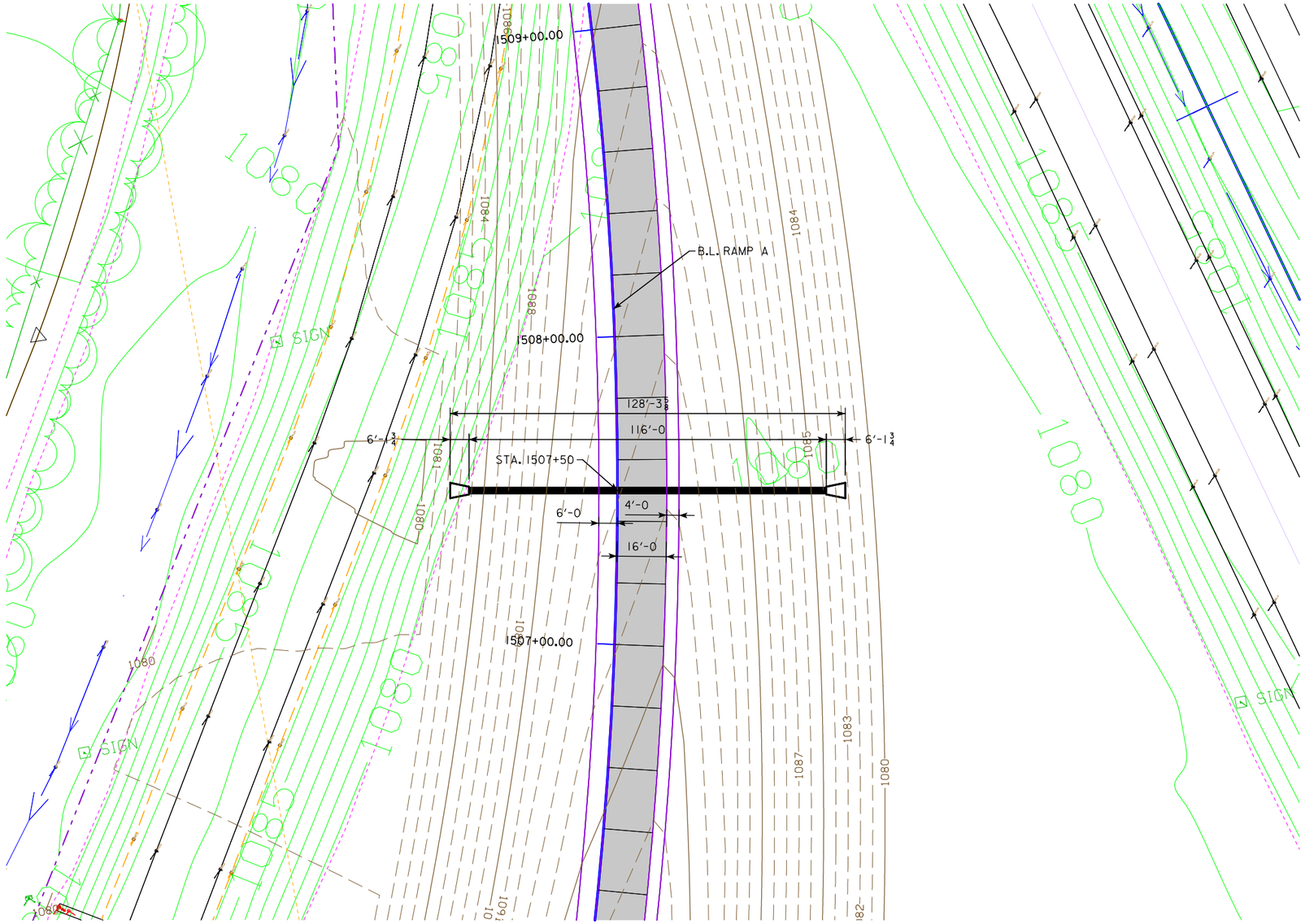


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

HYDRAULIC DATA

DRAINAGE AREA = 4.87 ACRES VERY FLAT
DESIGN DISCHARGE, Q = 5.23 CFS
EQUALIZATION CULVERT

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S.
T-87-N R-47-W
SECTION 34
LIBERTY TOWNSHIP
WOODBURY COUNTY

TRAFFIC ESTIMATE

2016 AADT	449	V.P.D.
2036 AADT	612	V.P.D.
2036 DHV	50	V.P.H.
TRUCKS	4	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 0° SKEW

30" X 116' REINFORCED CONCRETE PIPE

SITUATION PLAN

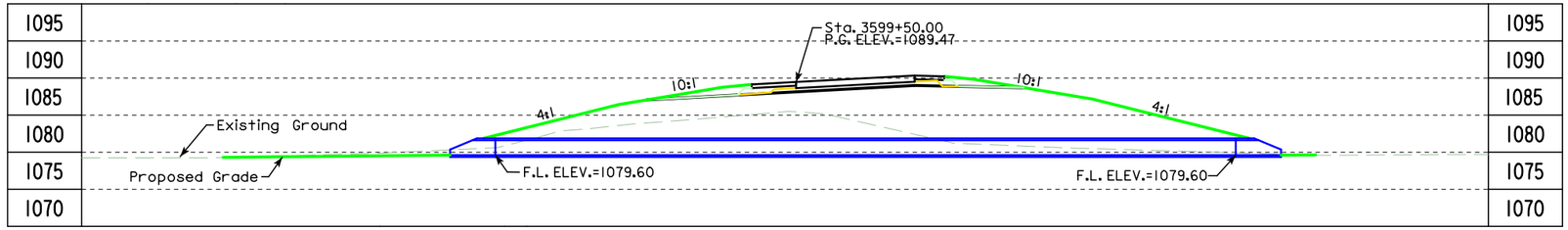
STA. 1507+50.00 B.L. Interchange Ramp A AUGUST 2013

WOODBURY COUNTY

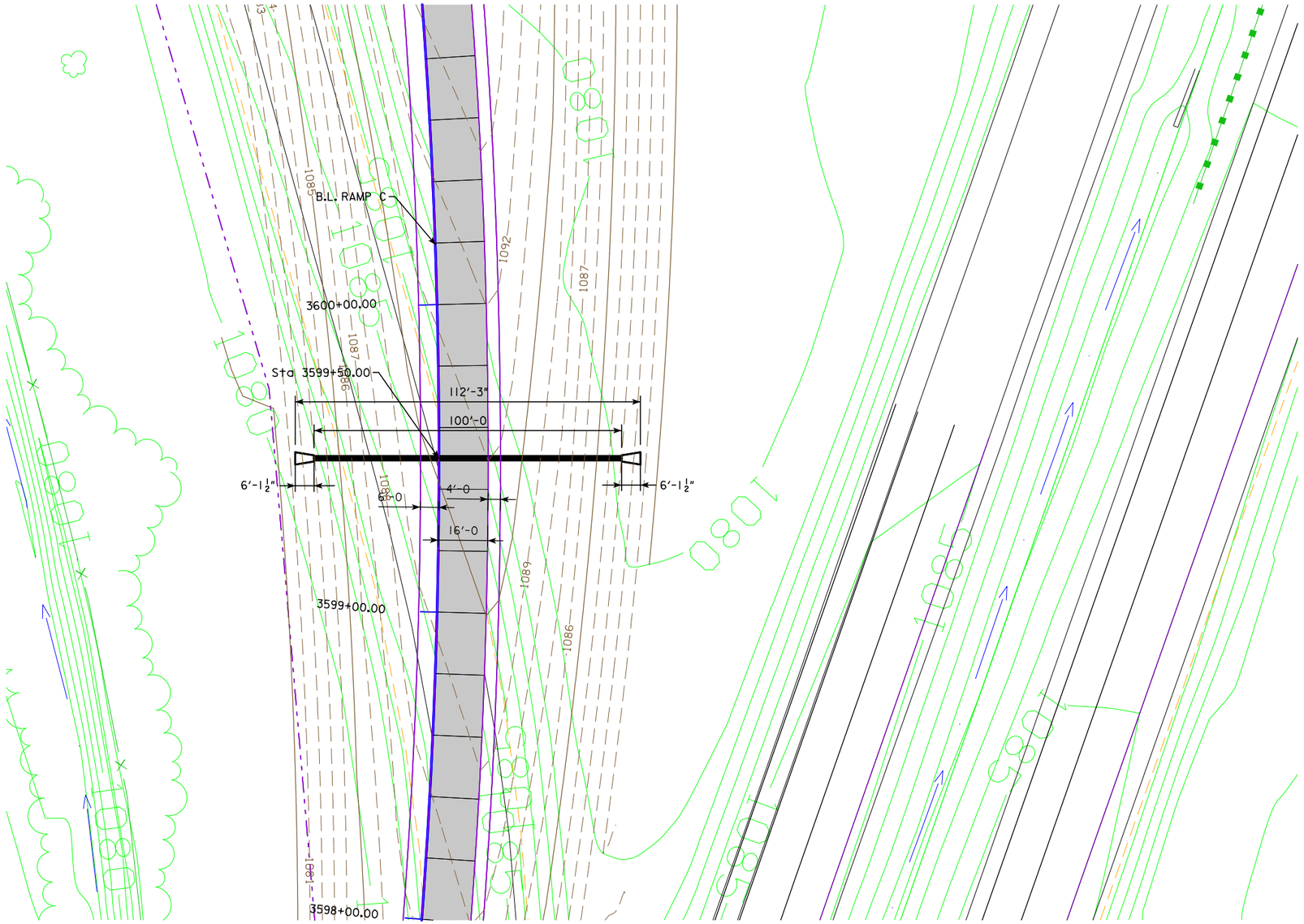
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. - OF - FILE NO. - DESIGN NO. -

DESIGN TEAM	Snyder and Associates, Inc.	WOODBURY	COUNTY	PROJECT NUMBER BRFIMX-29-6(249)134--14-97	SHEET NUMBER V.4



LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

HYDRAULIC DATA

DRAINAGE AREA = 37 ACRES VERY FLAT
DESIGN DISCHARGE, Q = 23.43 CFS
EQUALIZATION CULVERT

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S.
T-87-N R-47-W
SECTION 34
LIBERTY TOWNSHIP
WOODBURY COUNTY

TRAFFIC ESTIMATE

2016 AADT	171	V.P.D.
2036 AADT	233	V.P.D.
2036 DHV	21	V.P.H.
TRUCKS	4	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 0° SKEW

24" X 100' REINFORCED CONCRETE PIPE

SITUATION PLAN

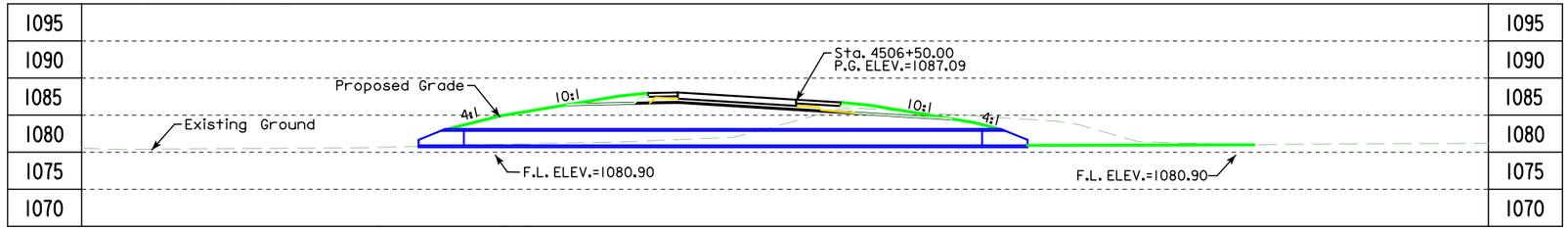
STA. 3599+50.00 B.L. Interchange Ramp C AUGUST 2013

WOODBURY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

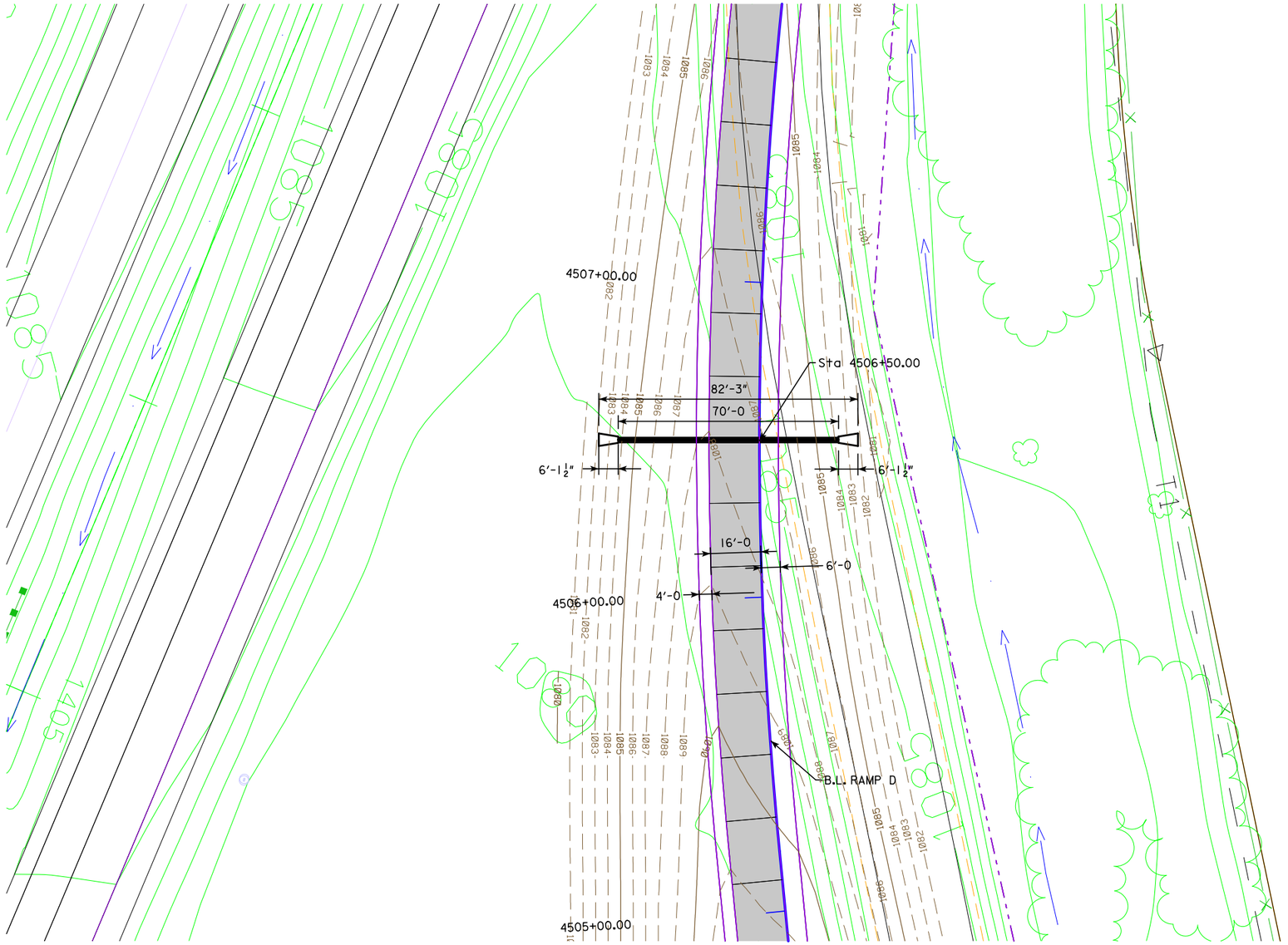
DESIGN SHEET NO. - OF - FILE NO. - DESIGN NO. -

DESIGN TEAM	Snyder and Associates, Inc.	WOODBURY	COUNTY	PROJECT NUMBER BRFIMX-29-6(249)134--14-97	SHEET NUMBER V.5



0 ENGLISH 40
SCALE IN FEET

LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

HYDRAULIC DATA

DRAINAGE AREA = 13 ACRES VERY FLAT
DESIGN DISCHARGE, Q = 10.81 CFS
EQUALIZATION CULVERT

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S.
T-87-N R-47-W
SECTION 34
LIBERTY TOWNSHIP
WOODBURY COUNTY

TRAFFIC ESTIMATE

2016 AADT	547	V.P.D.
2036 AADT	746	V.P.D.
2036 DHV	39	V.P.H.
TRUCKS	5	%
TOTAL DESIGN ESALs	-	

PRELIMINARY

DESIGN FOR 0° SKEW

24" X 70' REINFORCED CONCRETE PIPE

SITUATION PLAN

STA. 4506+50.00 B.L. Interchange Ramp D AUGUST 2013

WOODBURY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. - OF - FILE NO. - DESIGN NO. -

DESIGN TEAM **Snyder and Associates, Inc.** **WOODBURY** COUNTY PROJECT NUMBER **BRFIMX-29-6(249)134--14-97** SHEET NUMBER **V.6**

Mainline I–29

Preliminary

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

1100
1090
1080
1070

1380+00.00

1379+50.00

1379+00.00

1378+50.00

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER W.1

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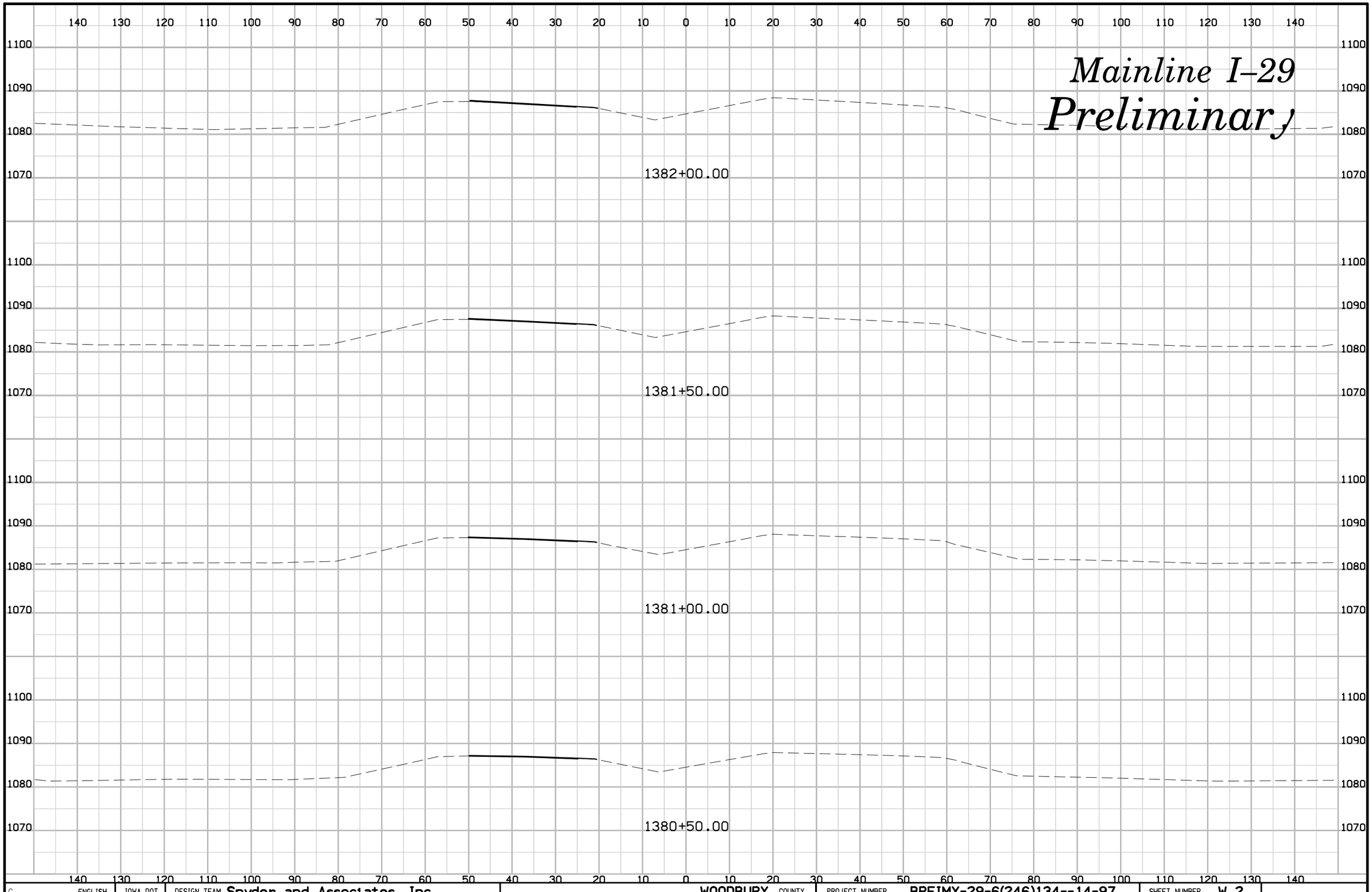
Mainline I–29

Preliminary



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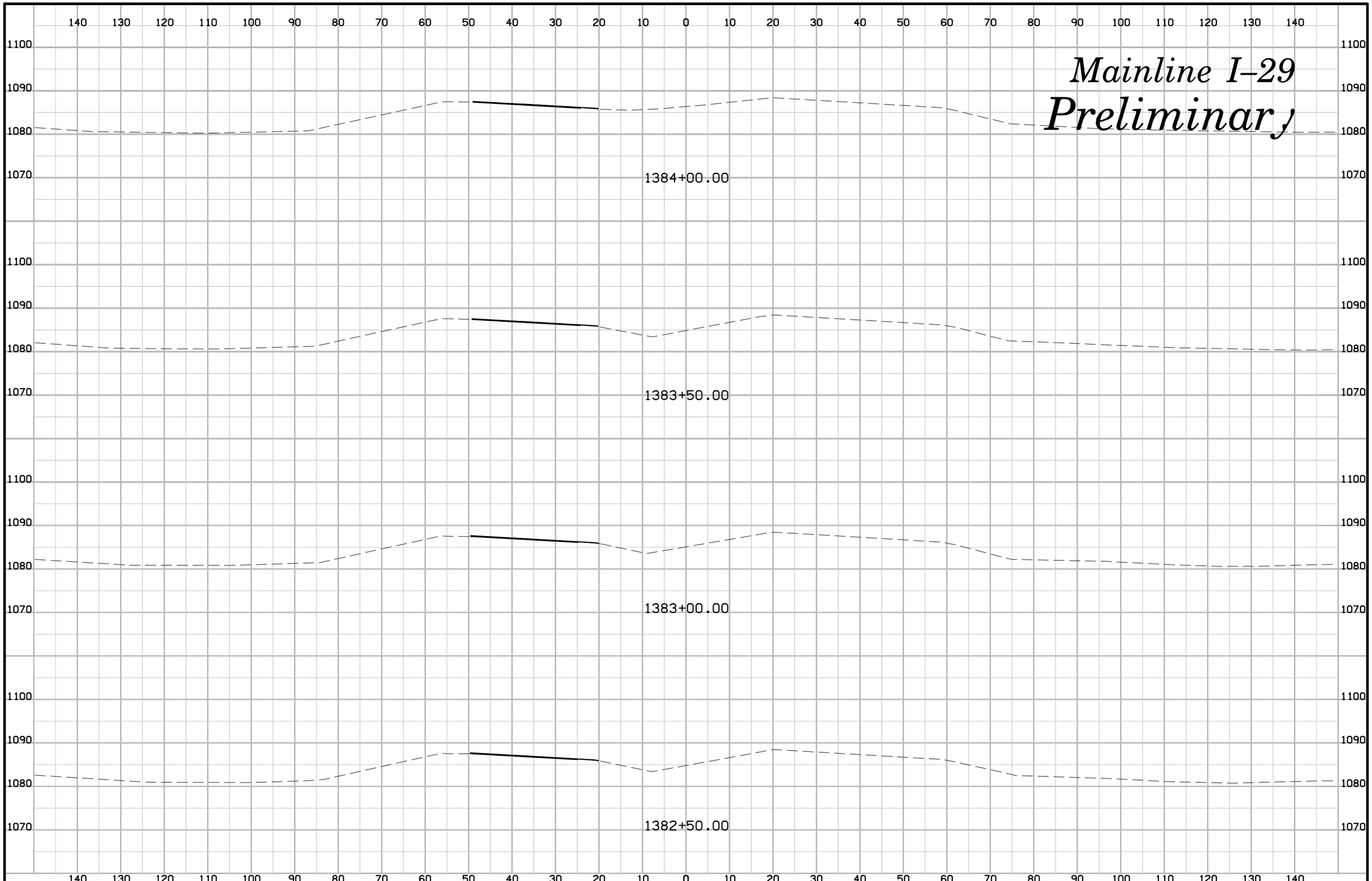
Mainline I–29

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER W.3	

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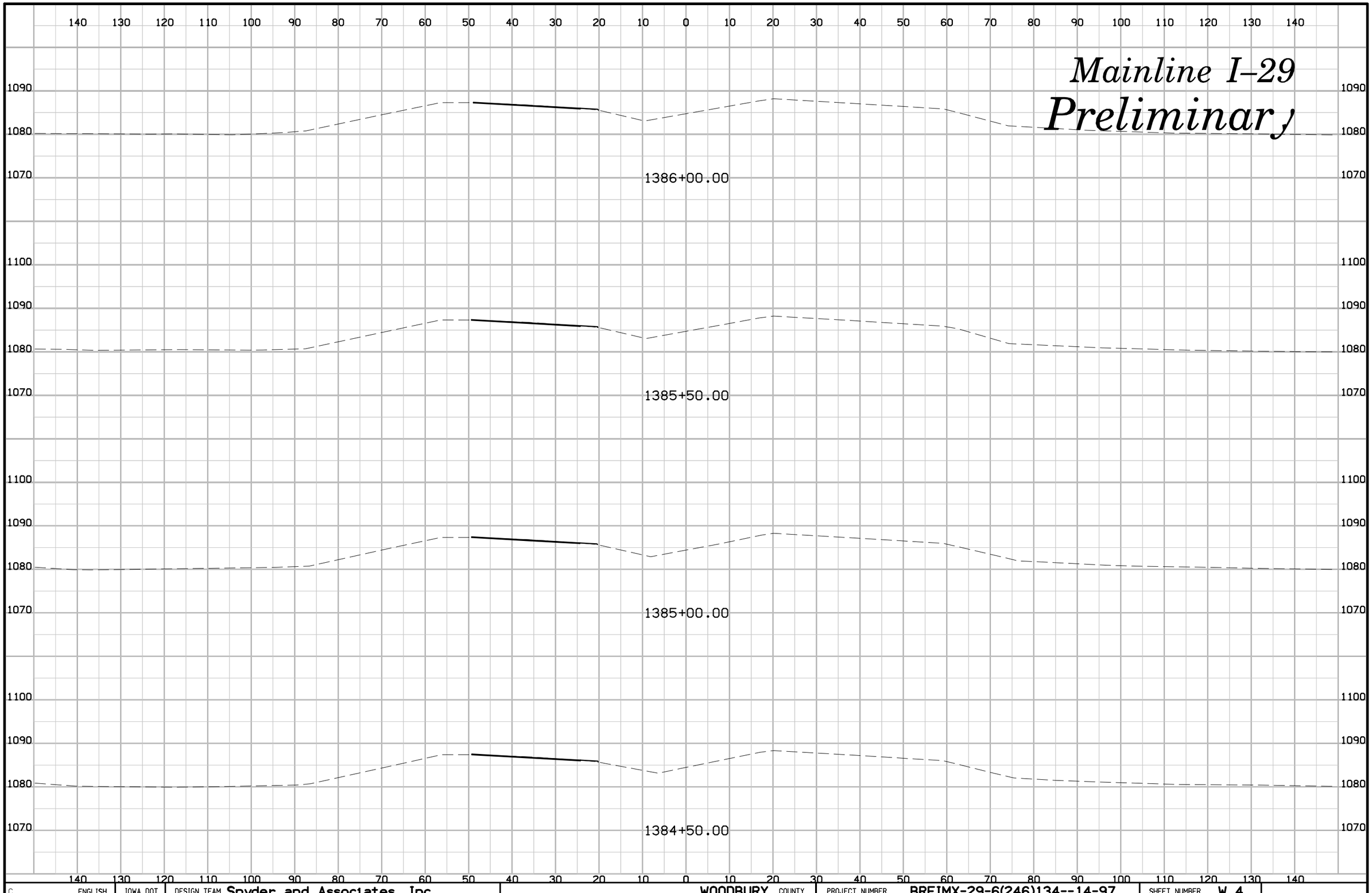
Mainline I–29

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER W.4	

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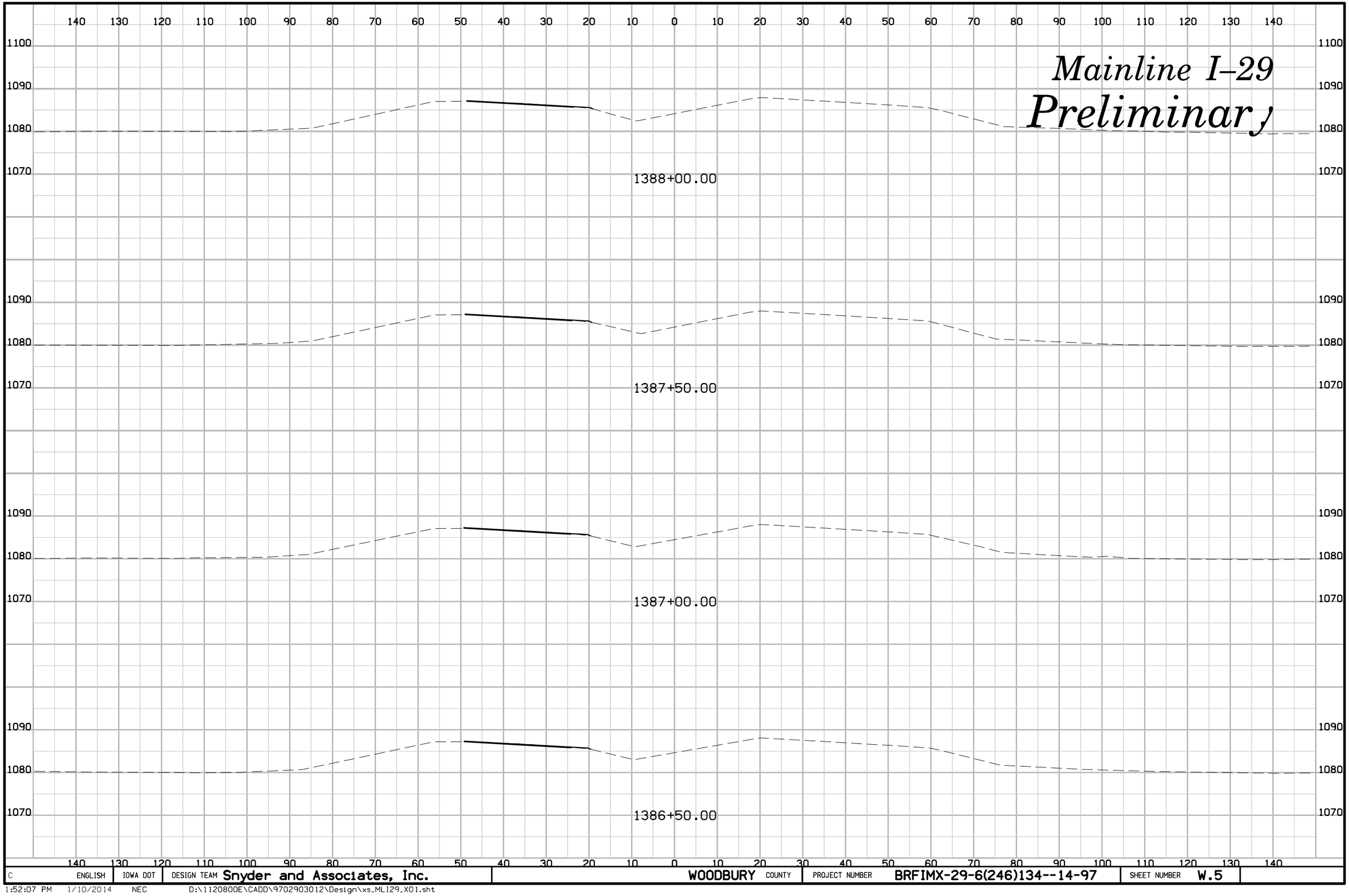
Mainline I–29

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER W.5

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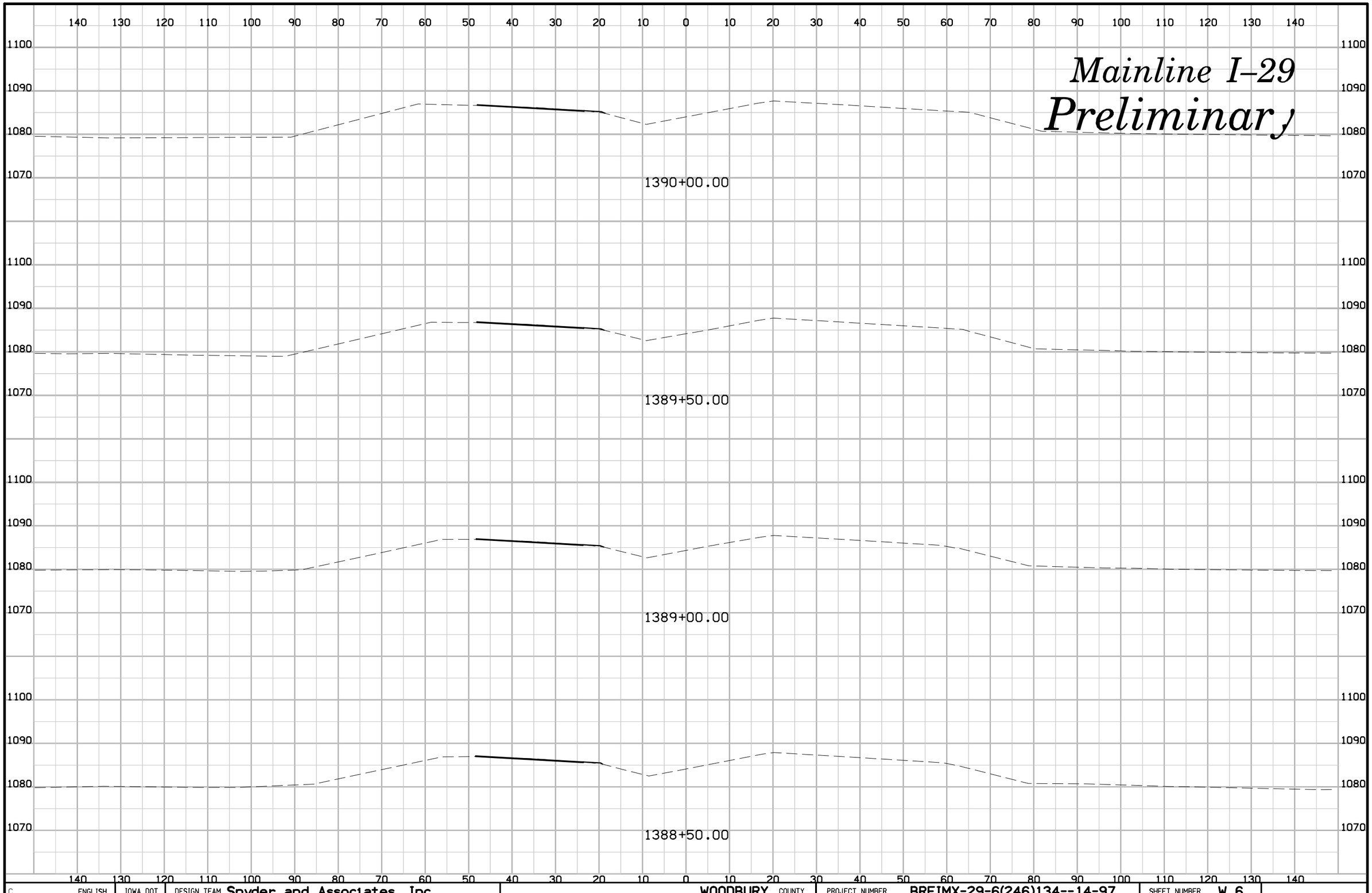
Mainline I–29

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER W.6	

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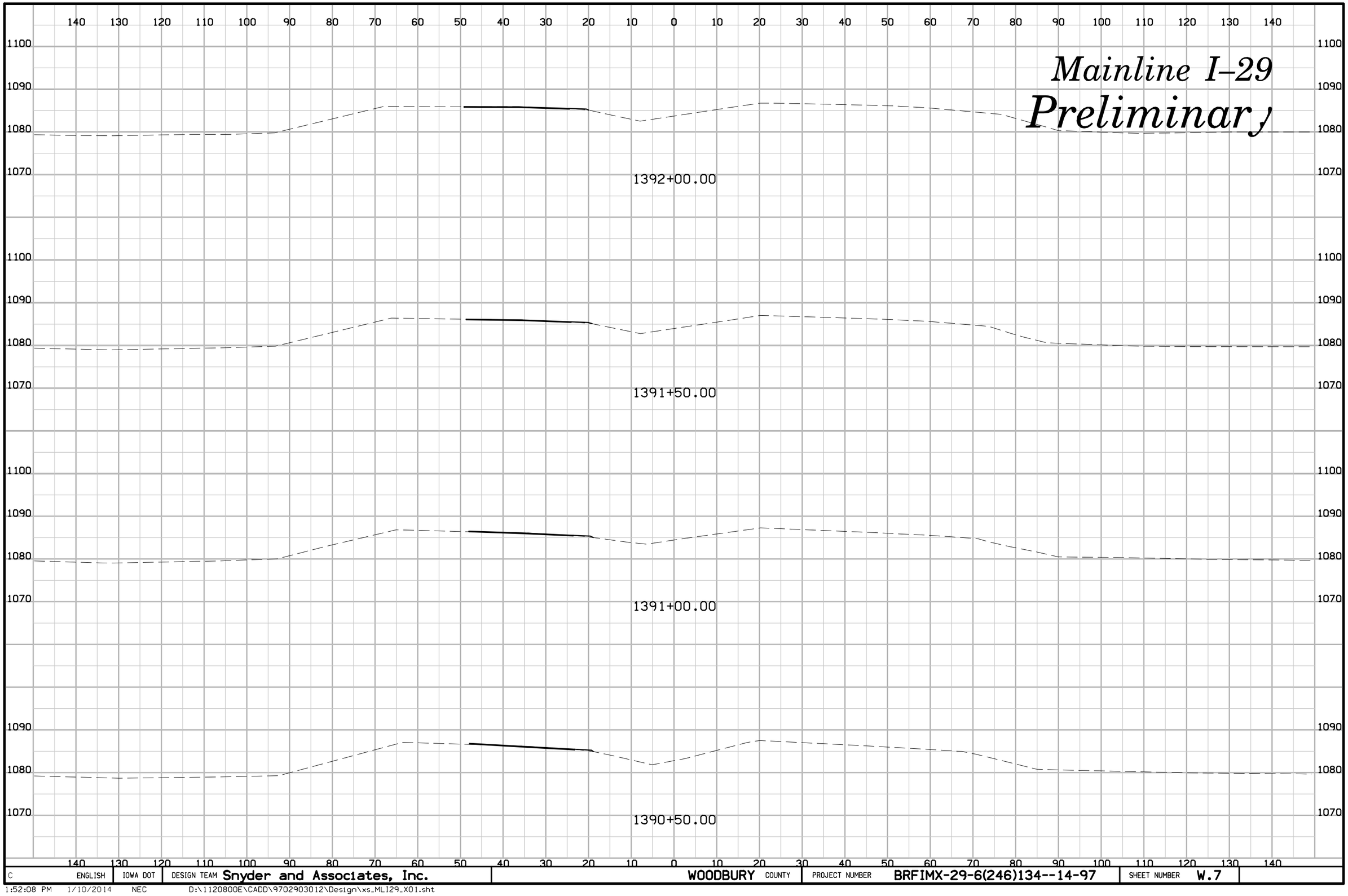
Mainline I–29

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER W.7	

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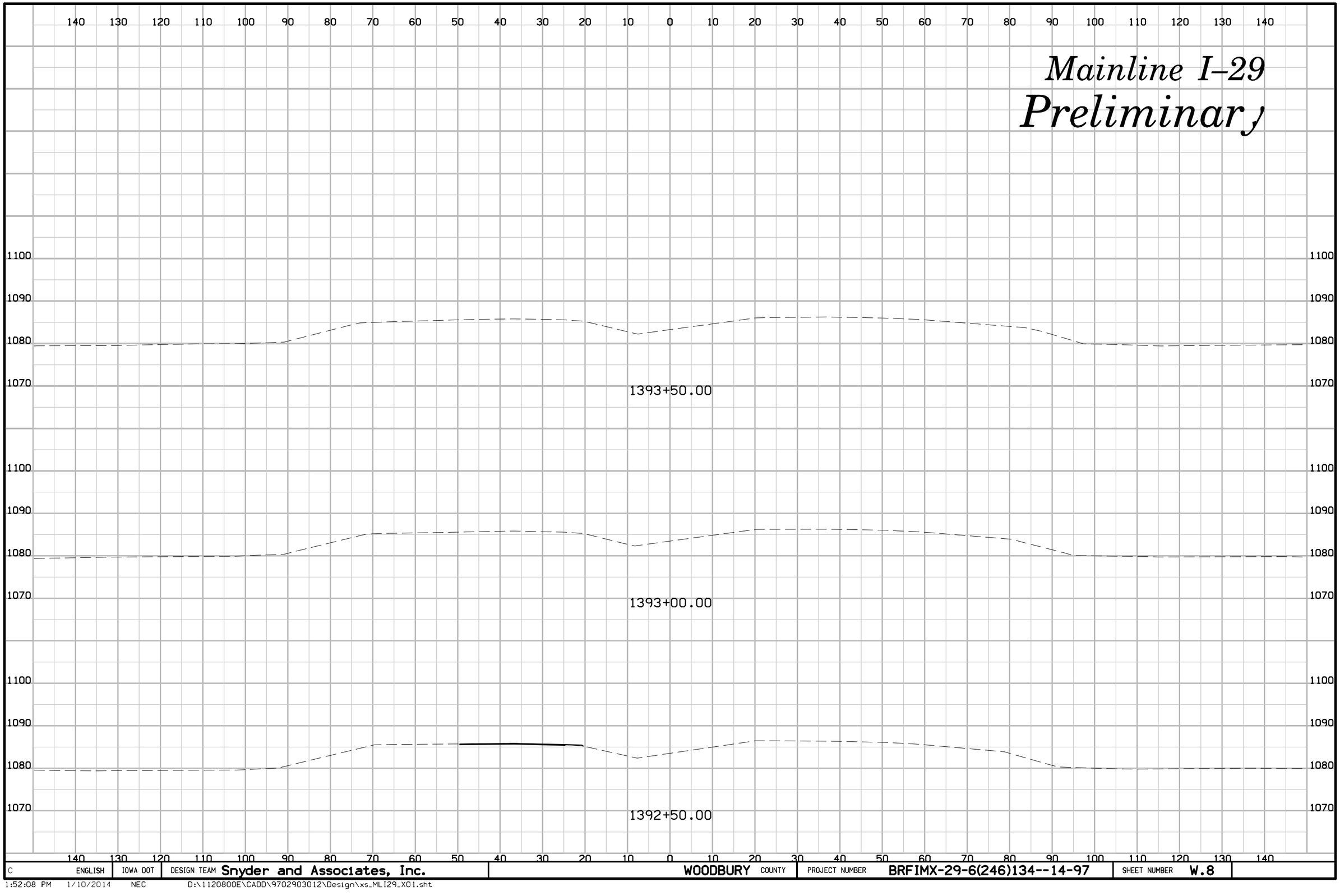
Mainline I–29

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER W.8	

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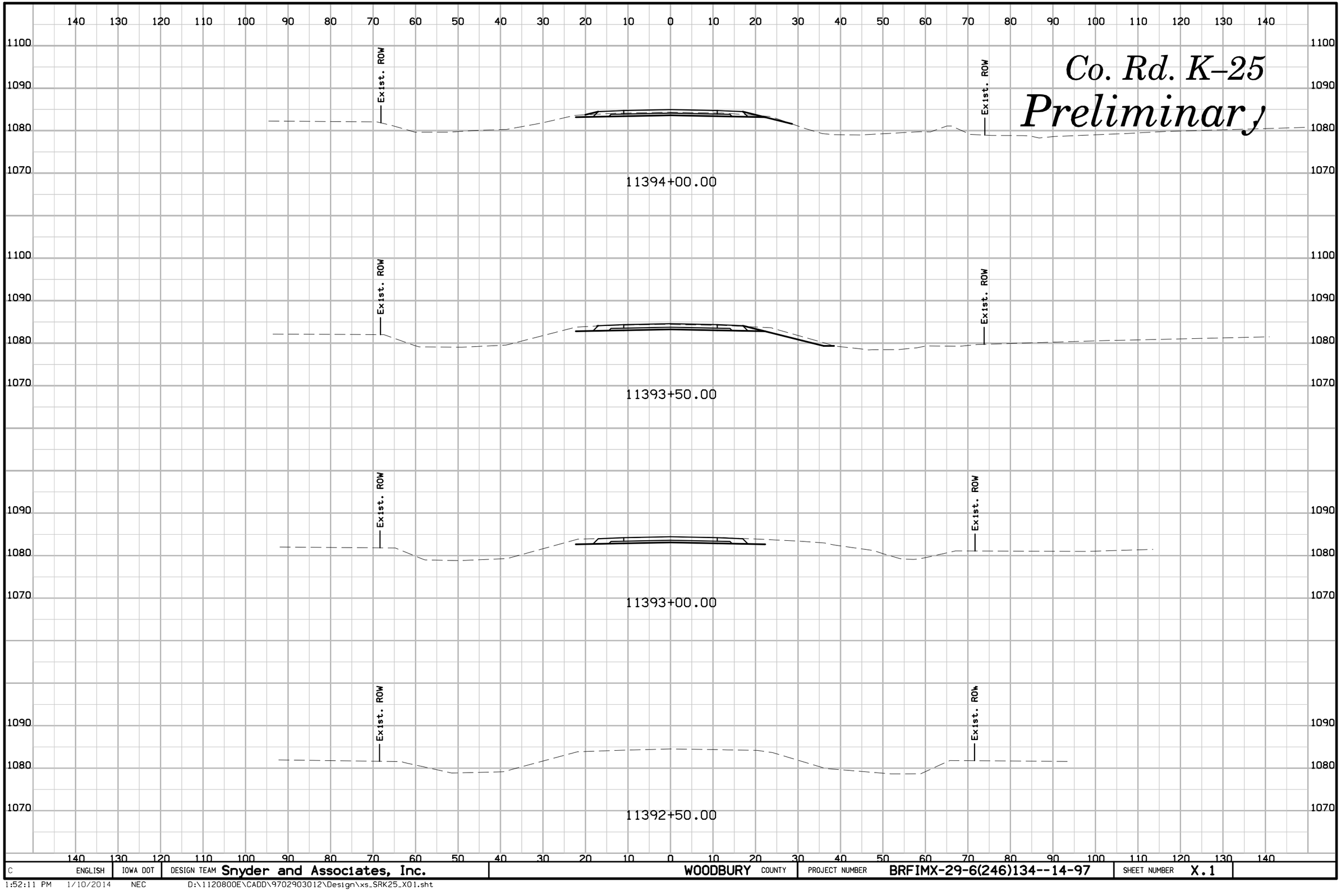
Co. Rd. K-25

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.1	

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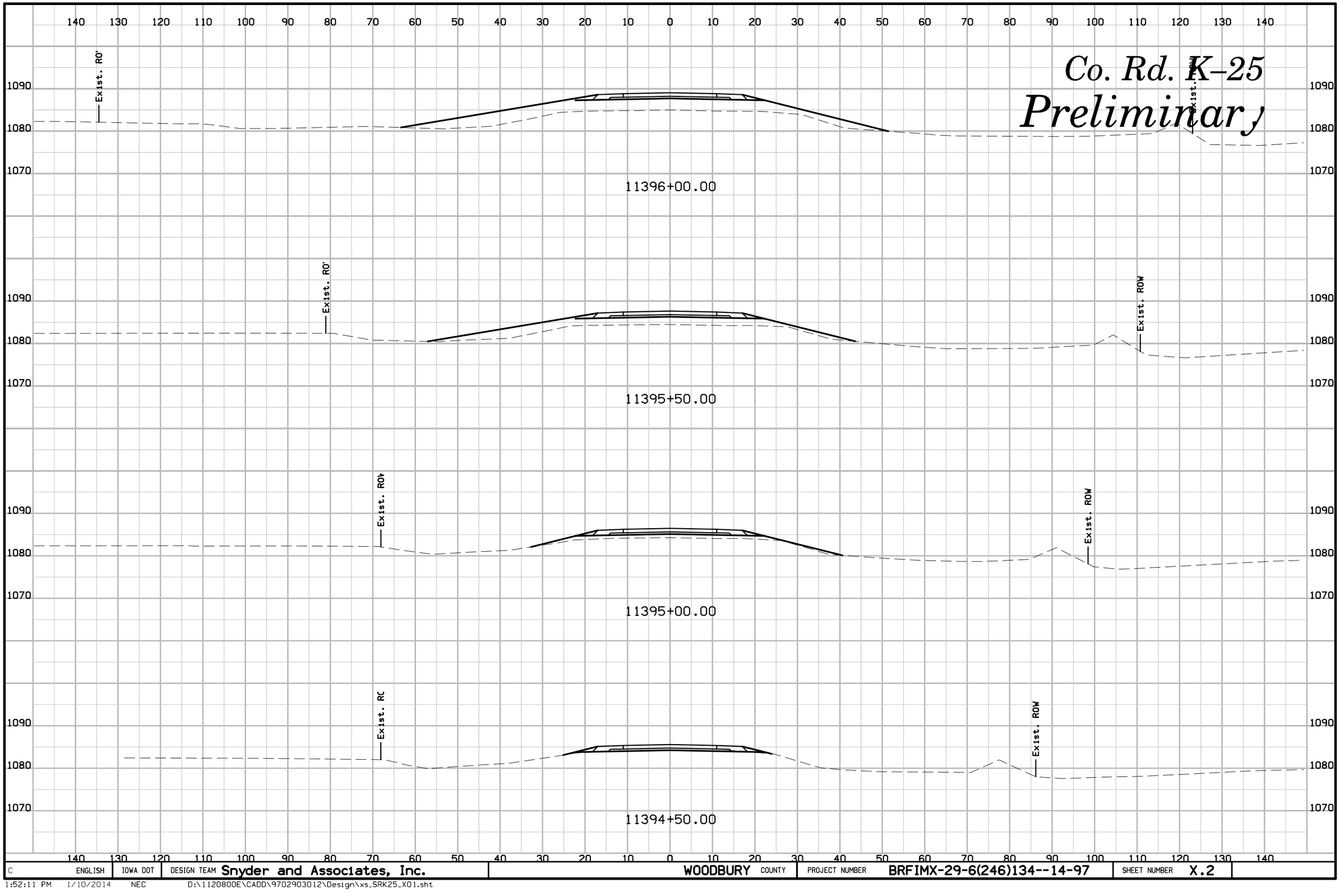
Co. Rd. K-25

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.2	

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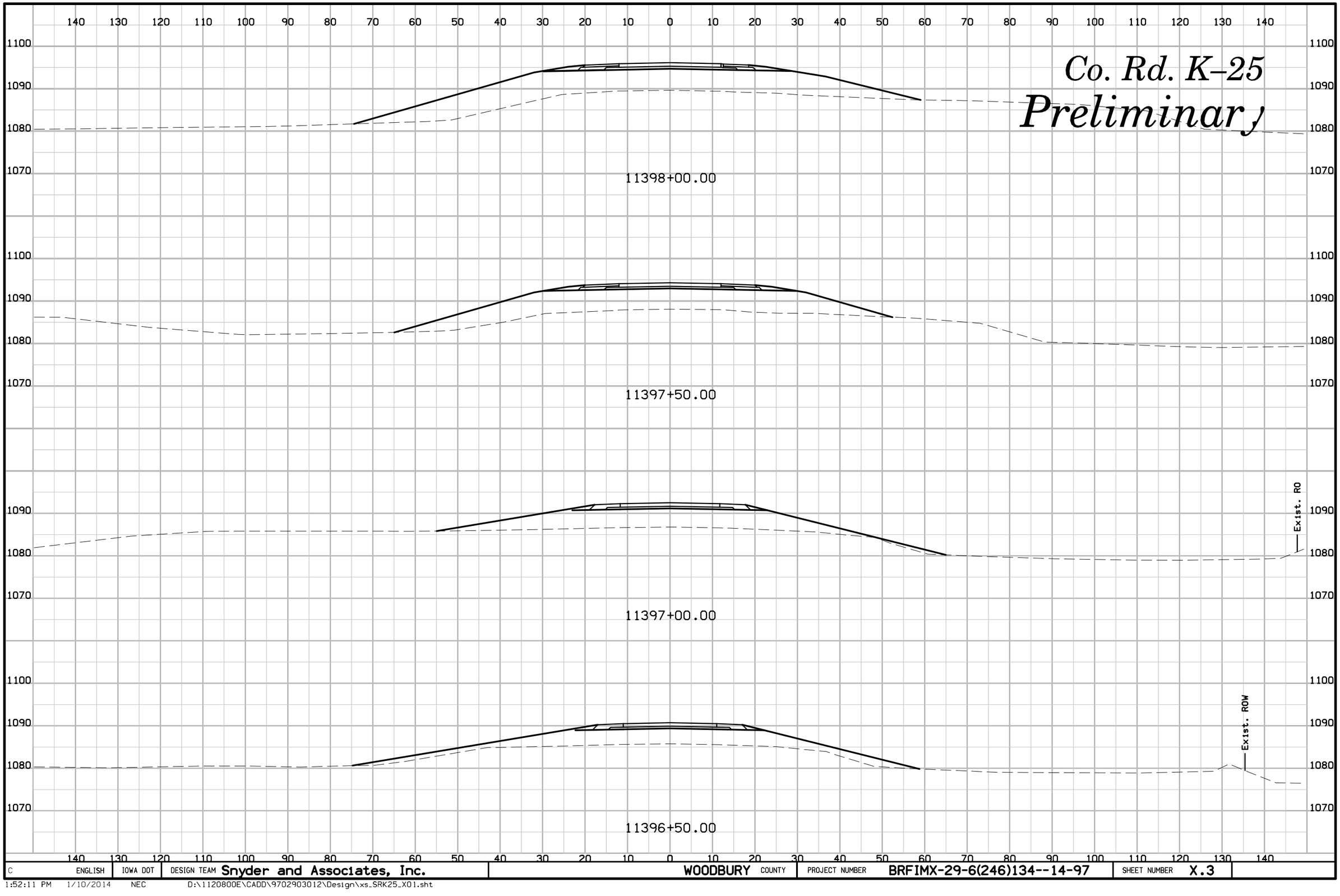
Co. Rd. K-25

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.3

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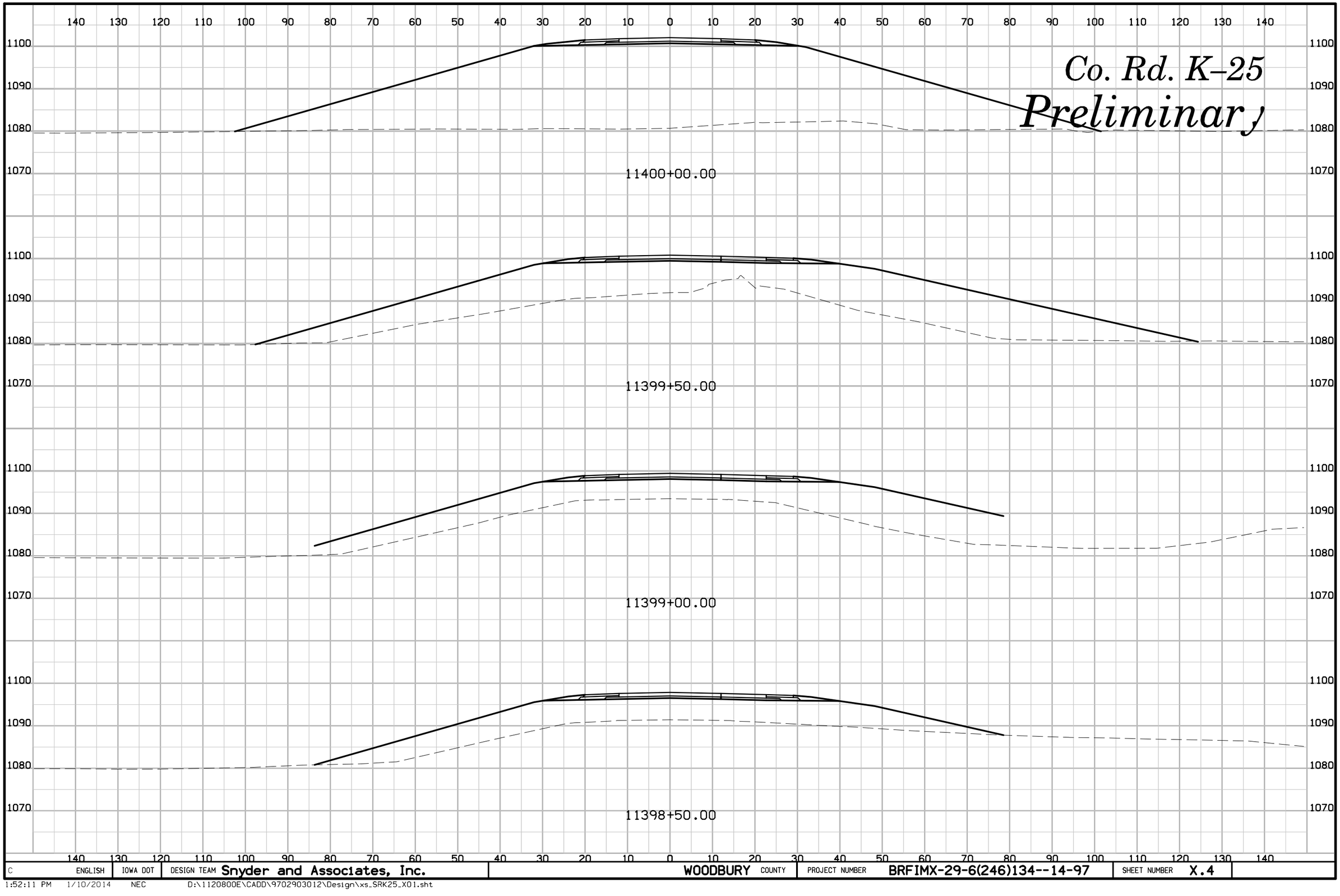
Co. Rd. K–25

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.4

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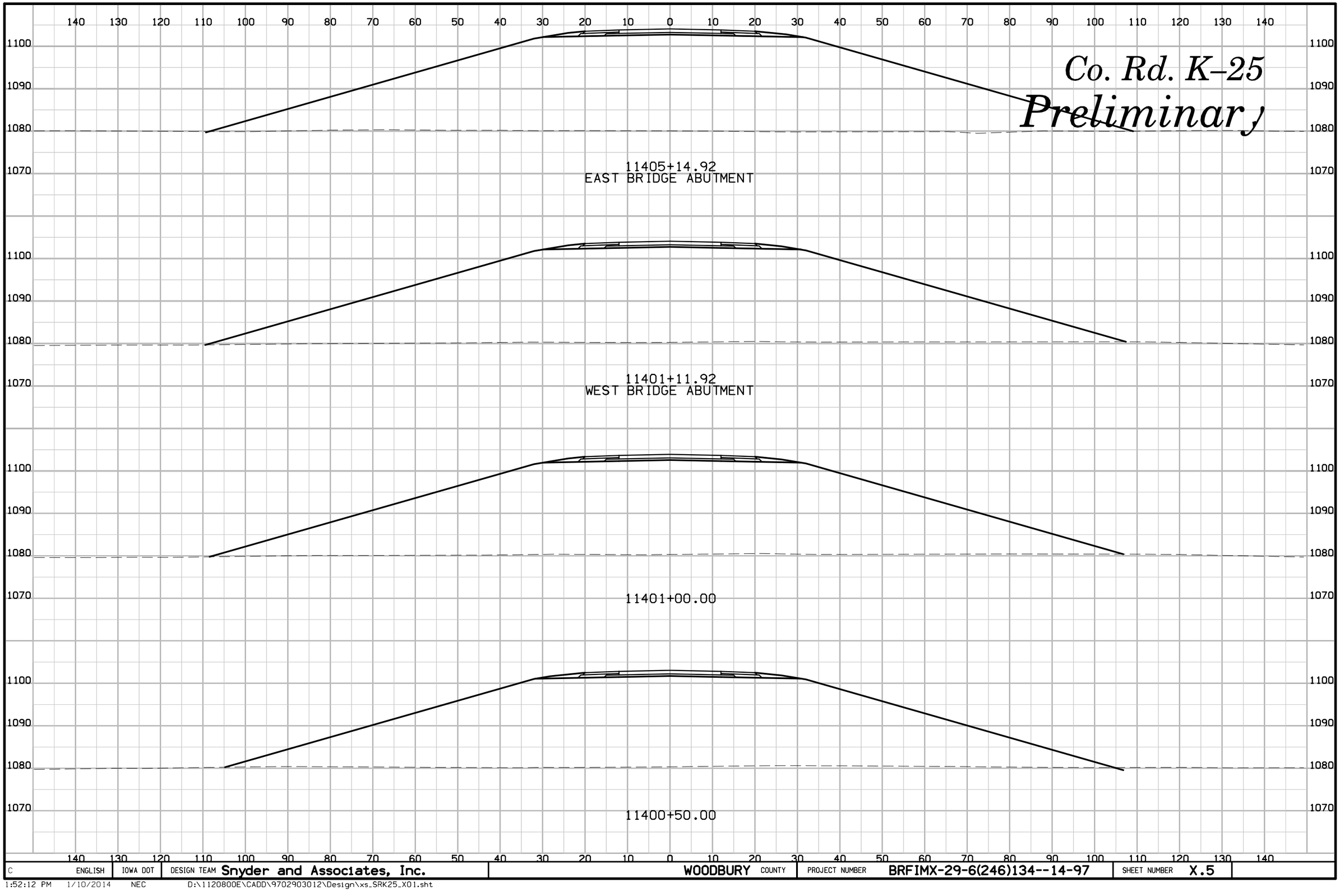
Co. Rd. K-25

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.5

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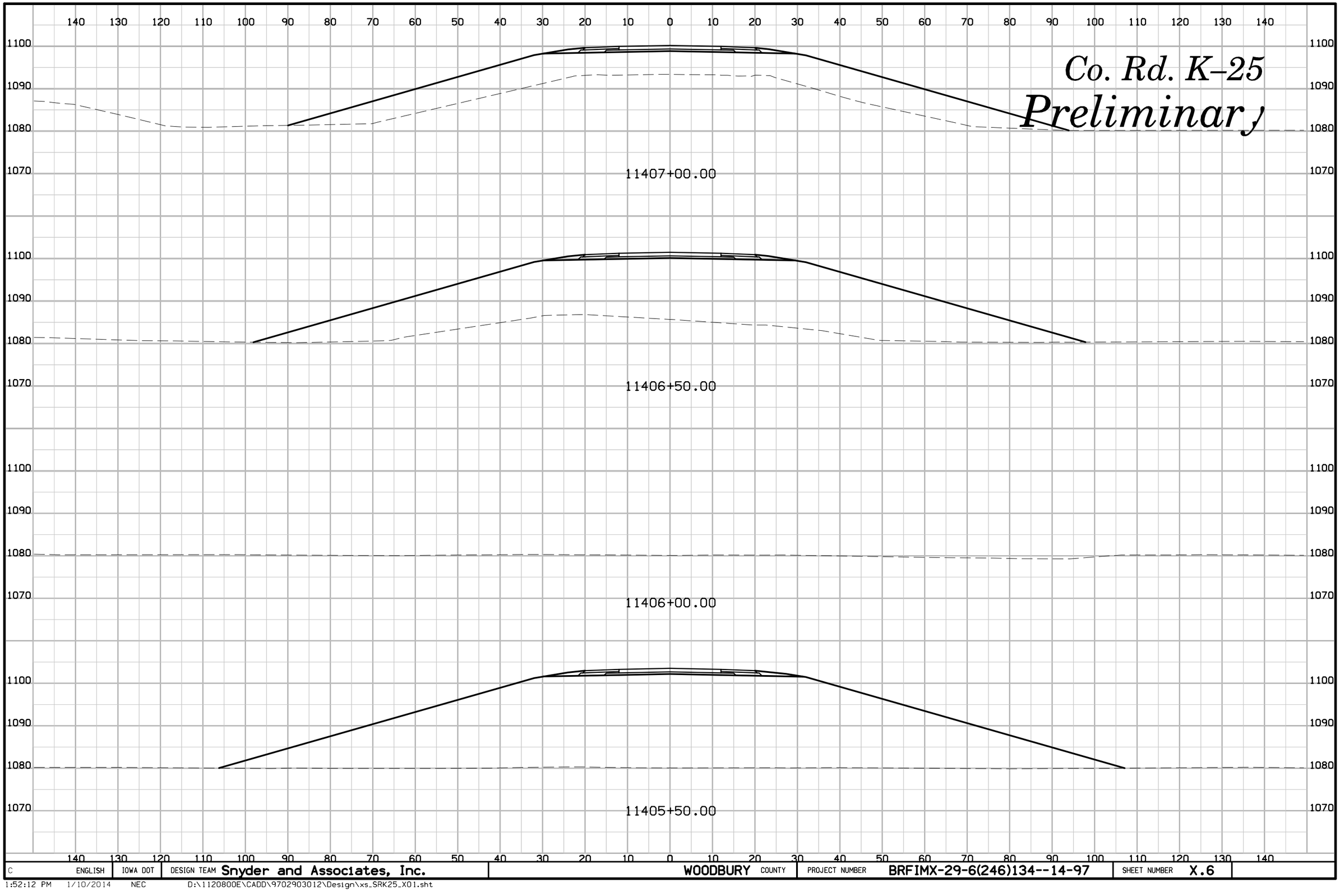
Co. Rd. K–25

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.6	

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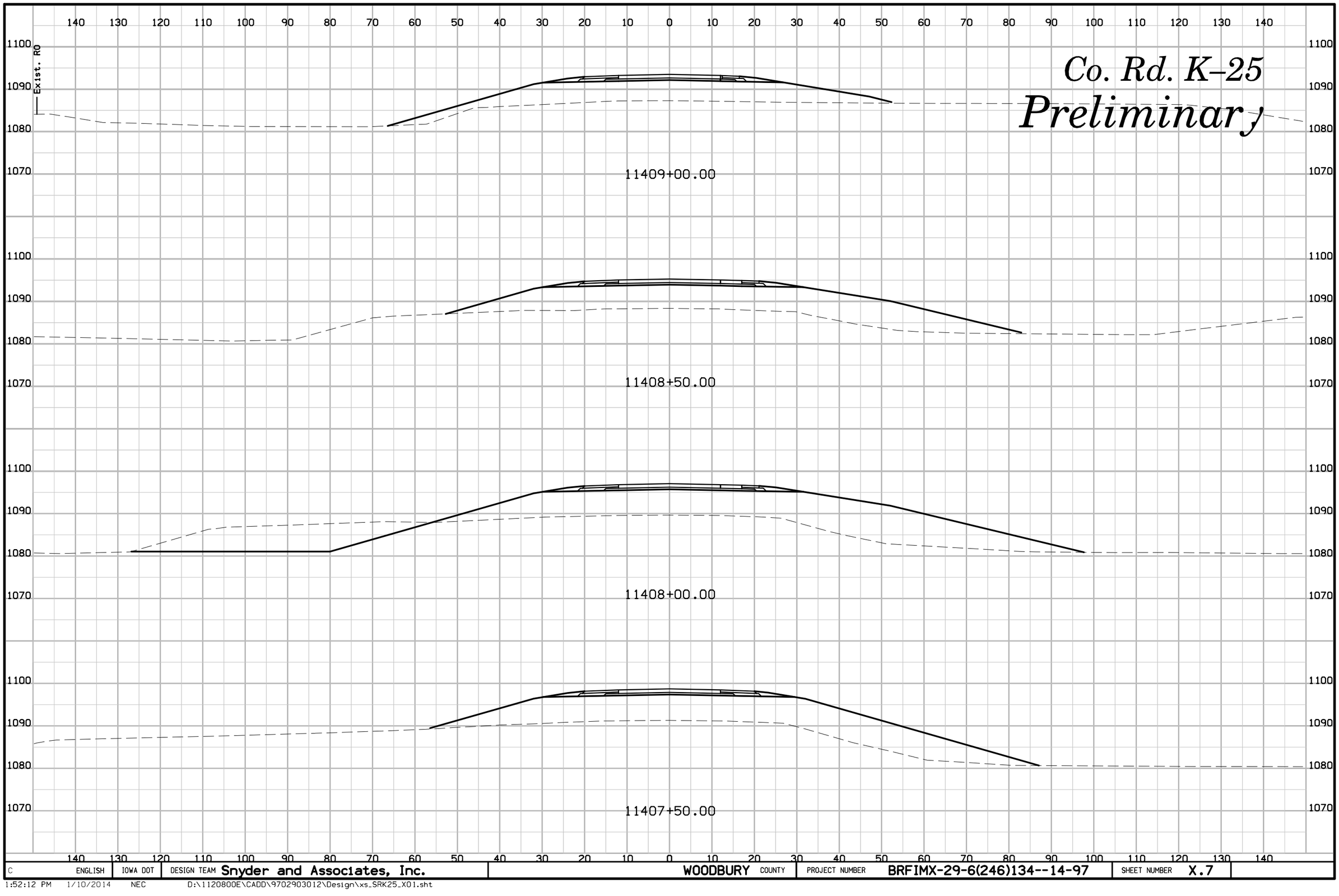
Co. Rd. K–25

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.7	

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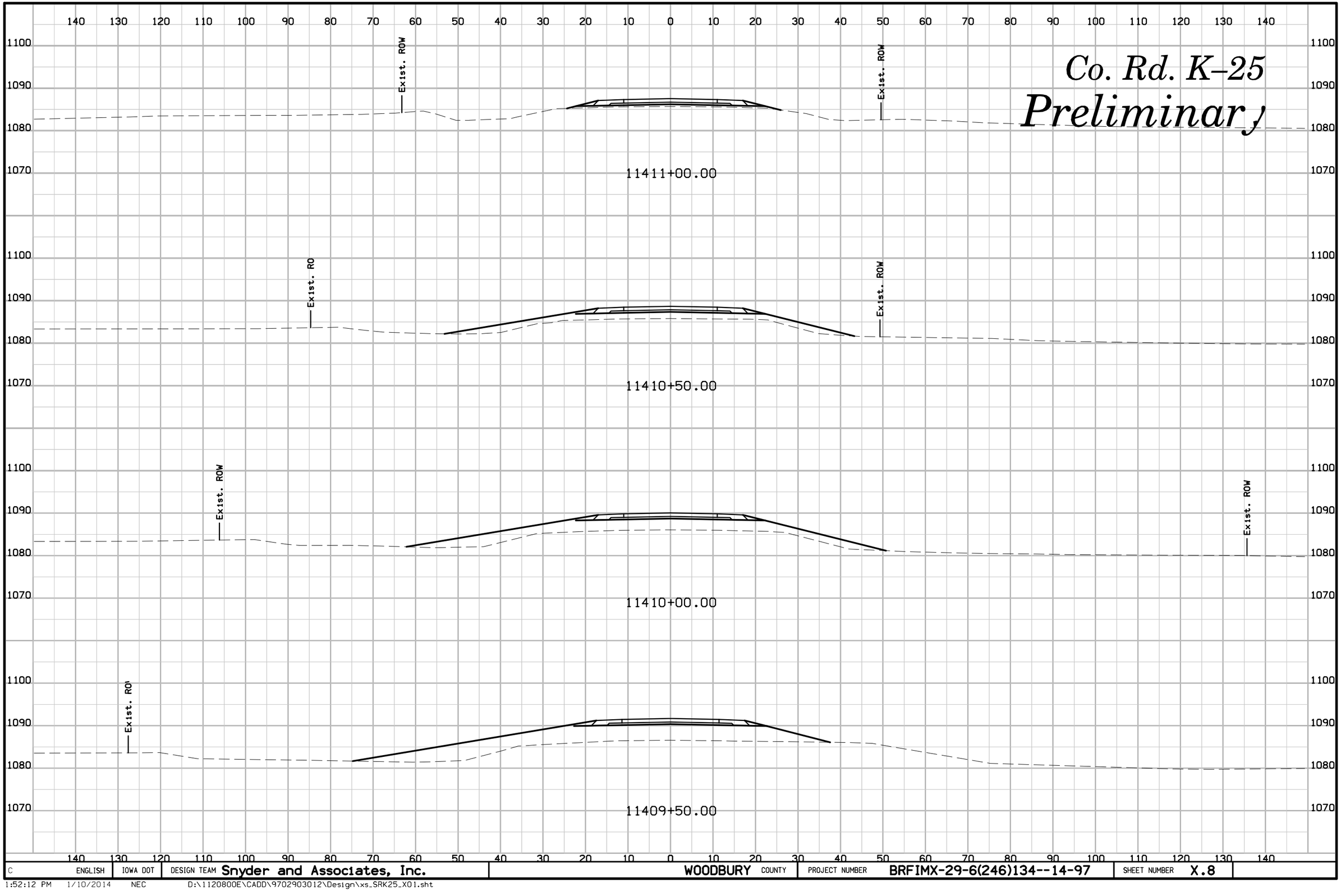
Co. Rd. K–25

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.8	

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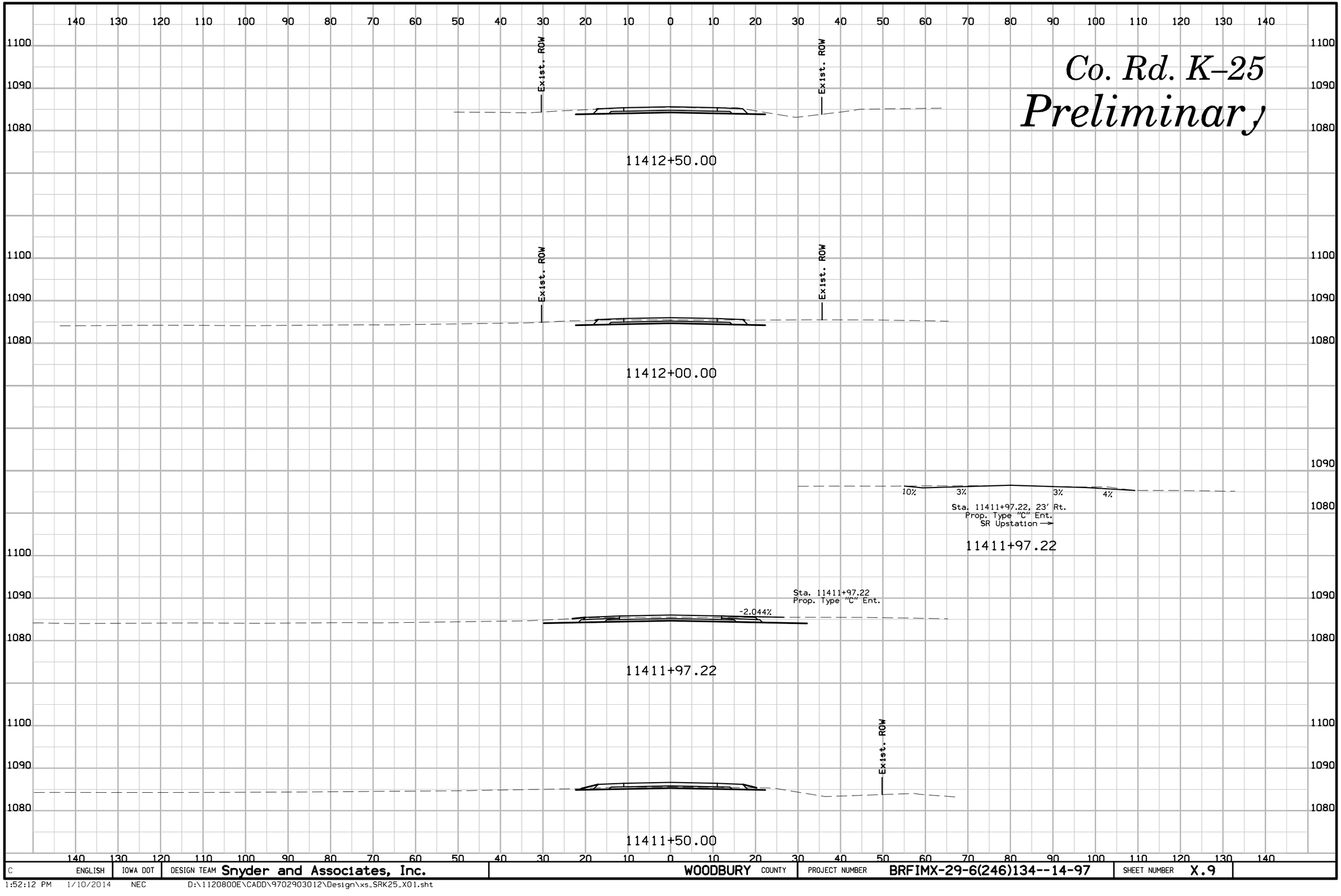
Co. Rd. K-25

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER X.9		

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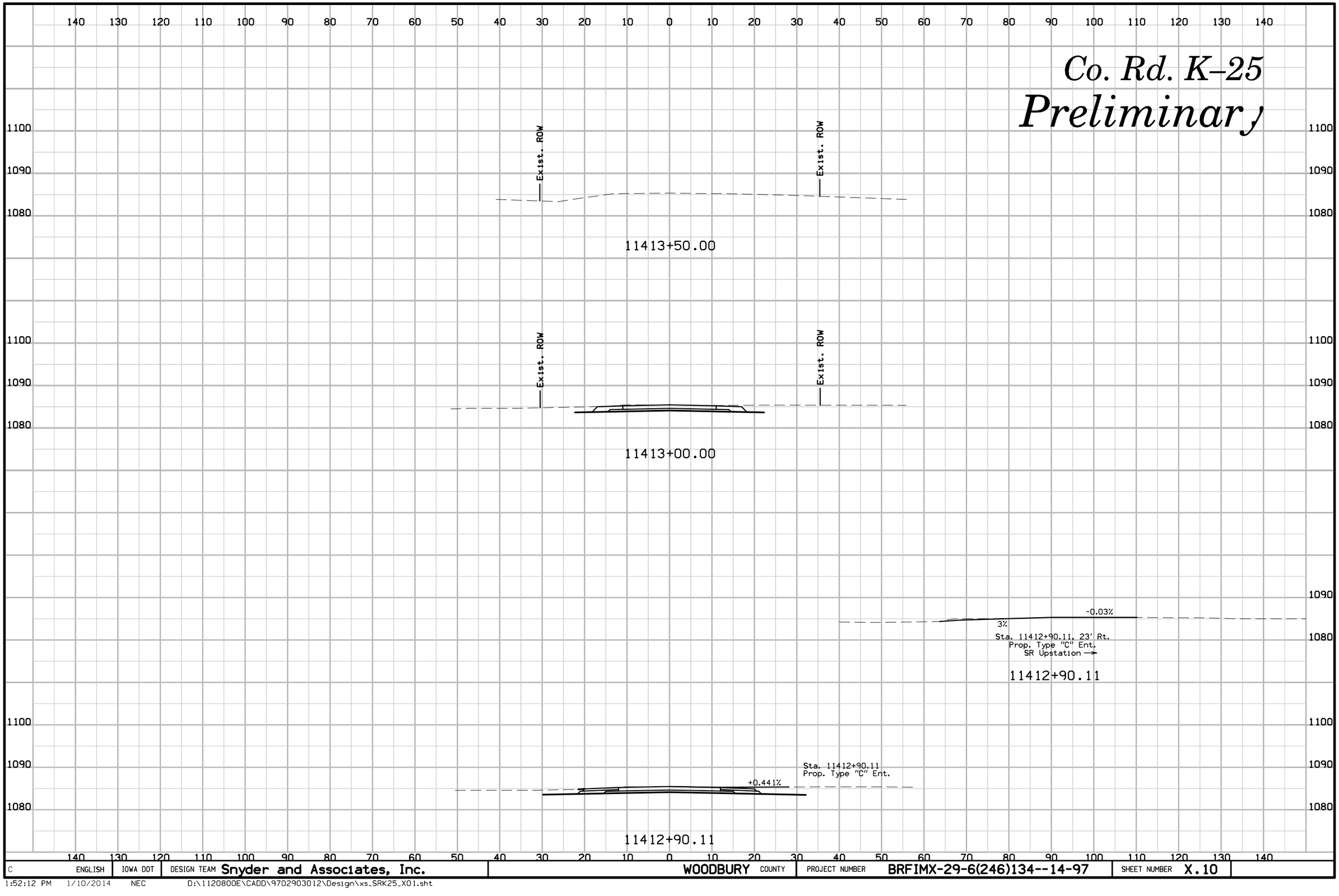
Co. Rd. K–25

Preliminary



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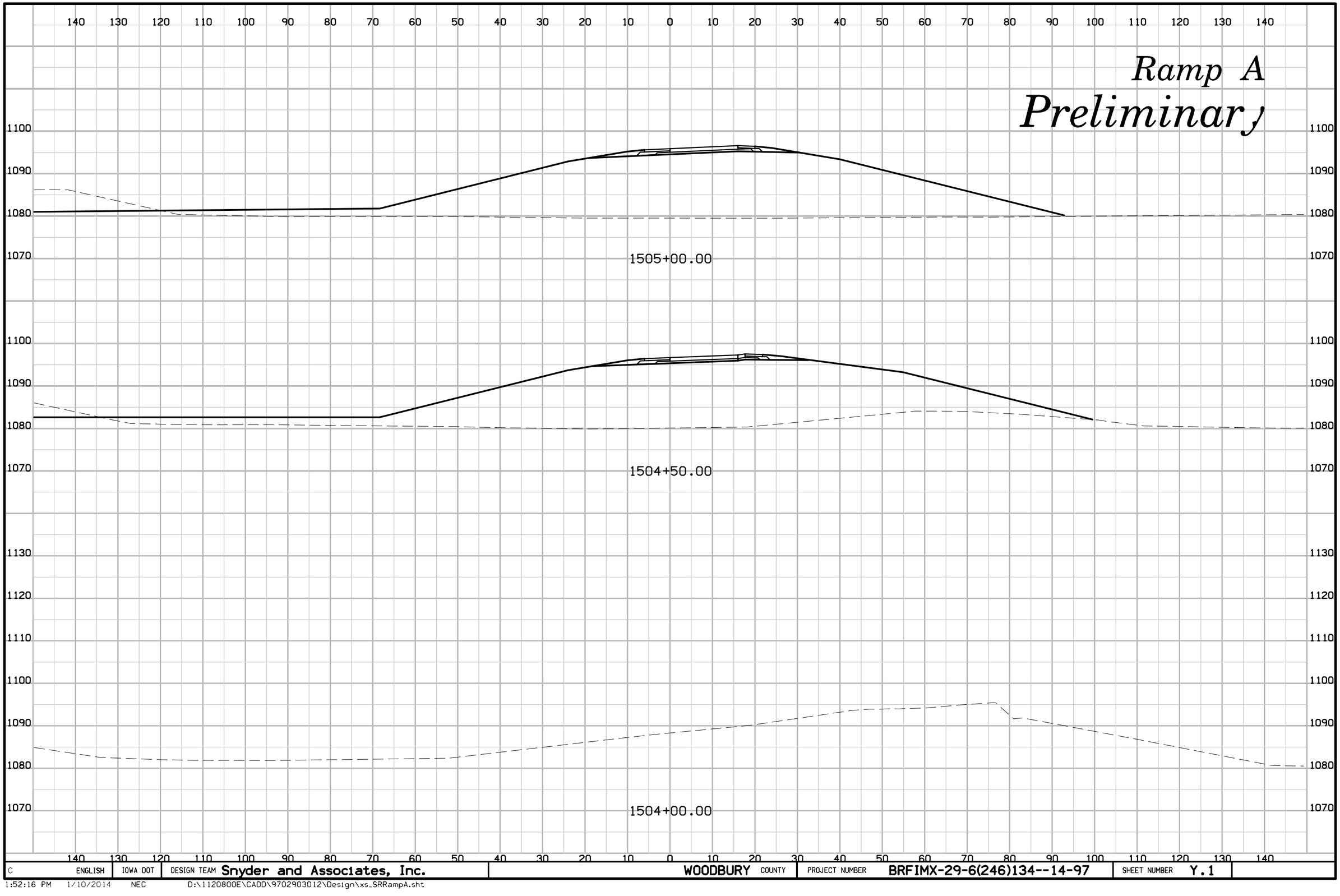
Ramp A

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.1	

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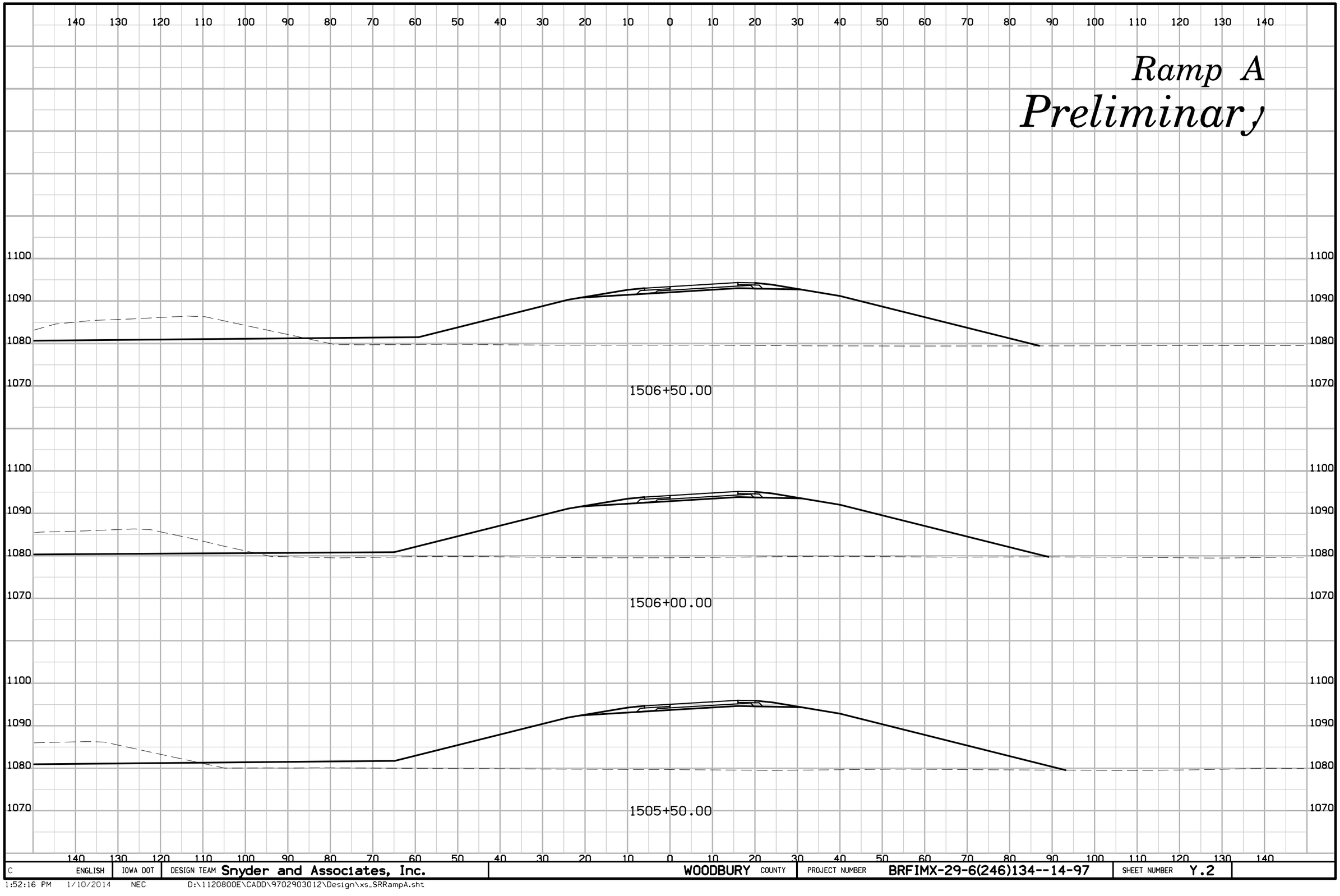
Ramp A

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.2		

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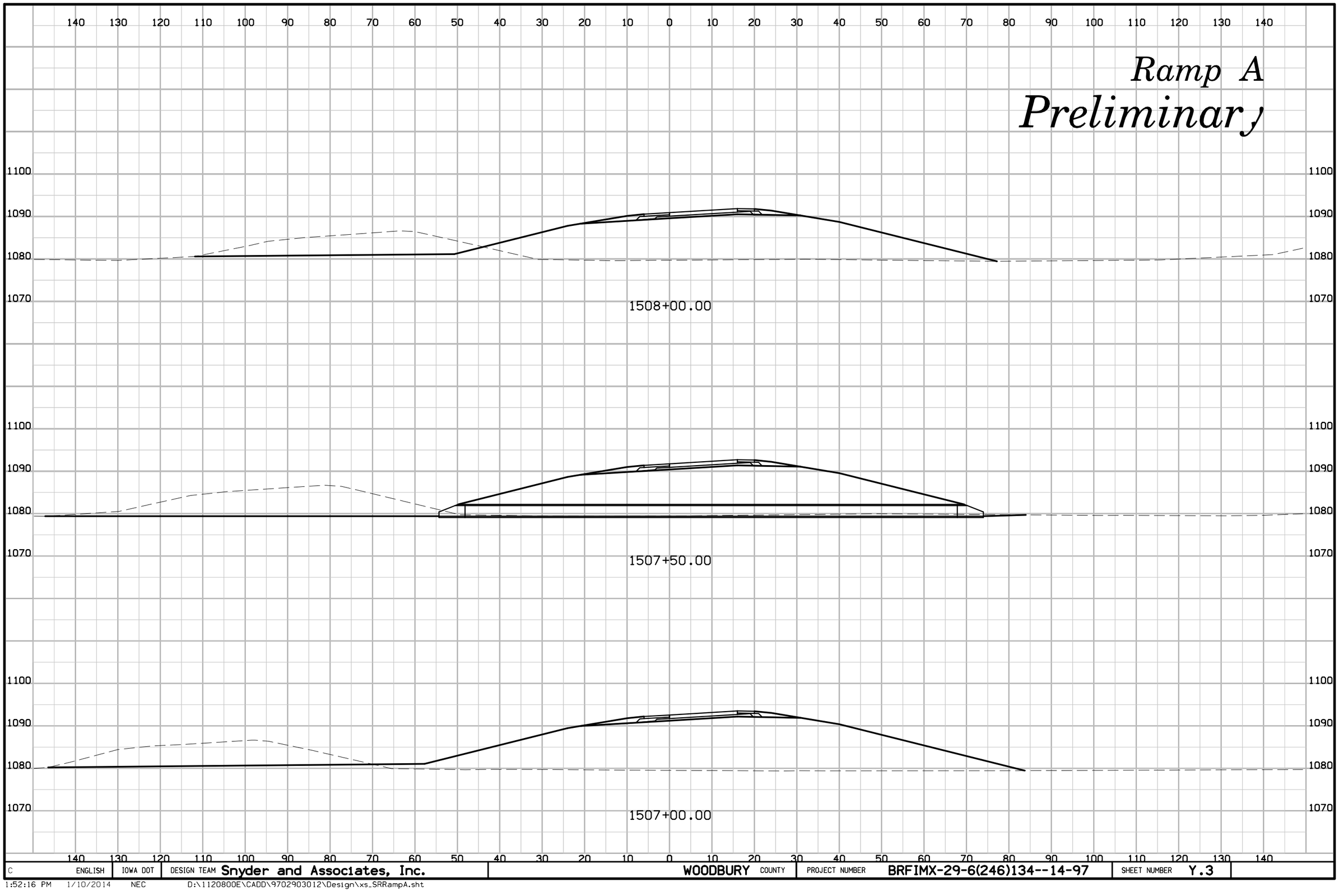
Ramp A

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.3		

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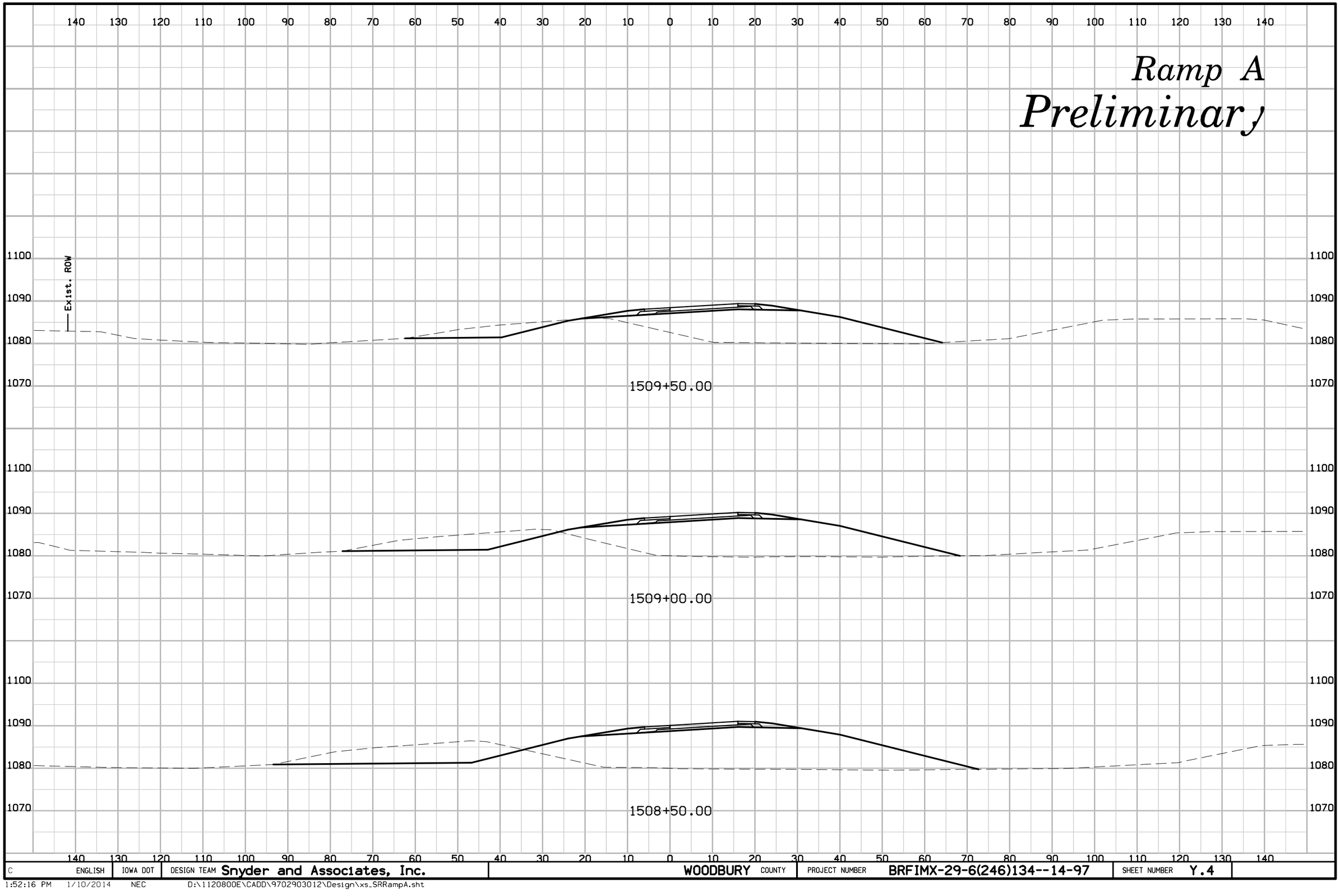
Ramp A

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.4	

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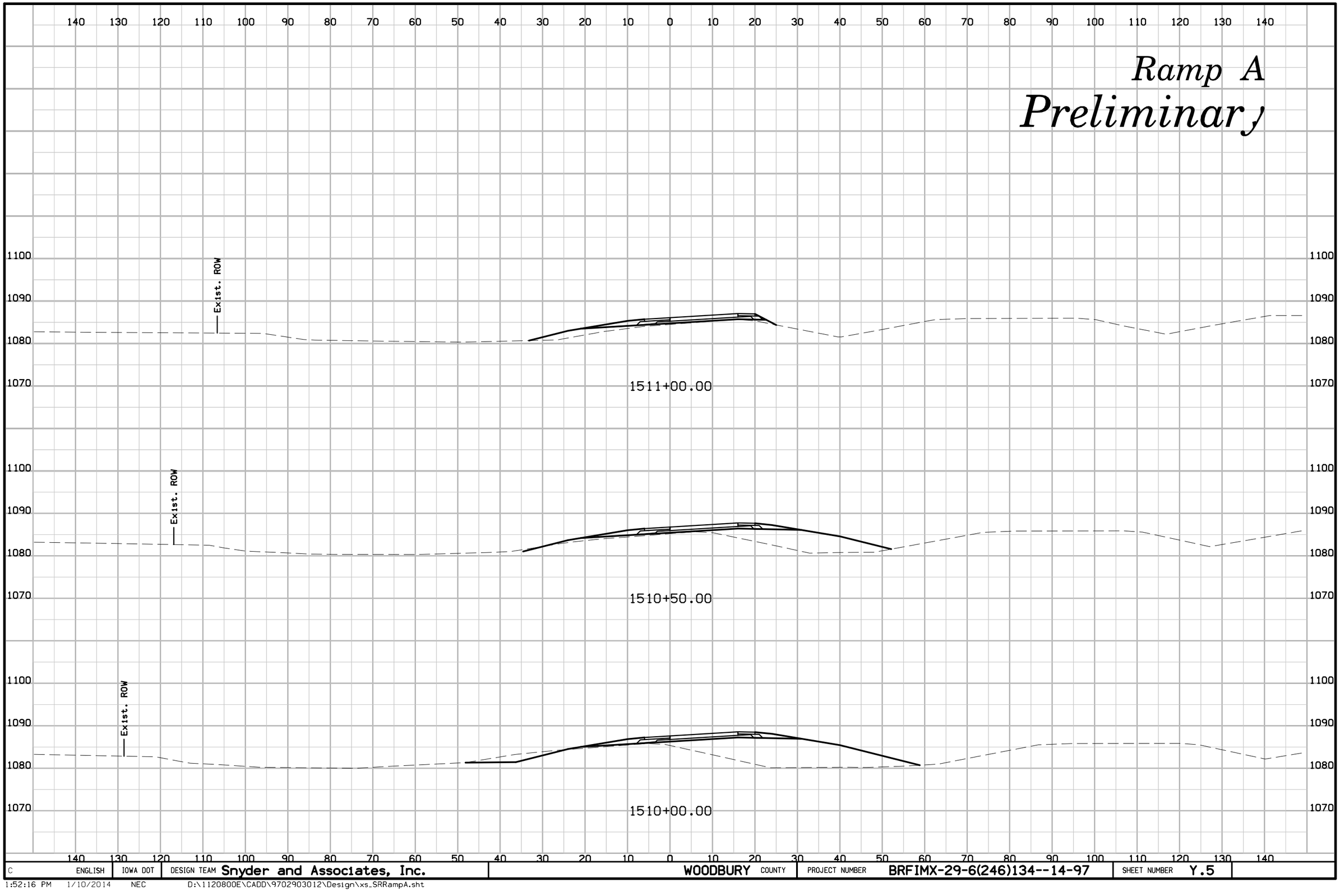
Ramp A

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.5

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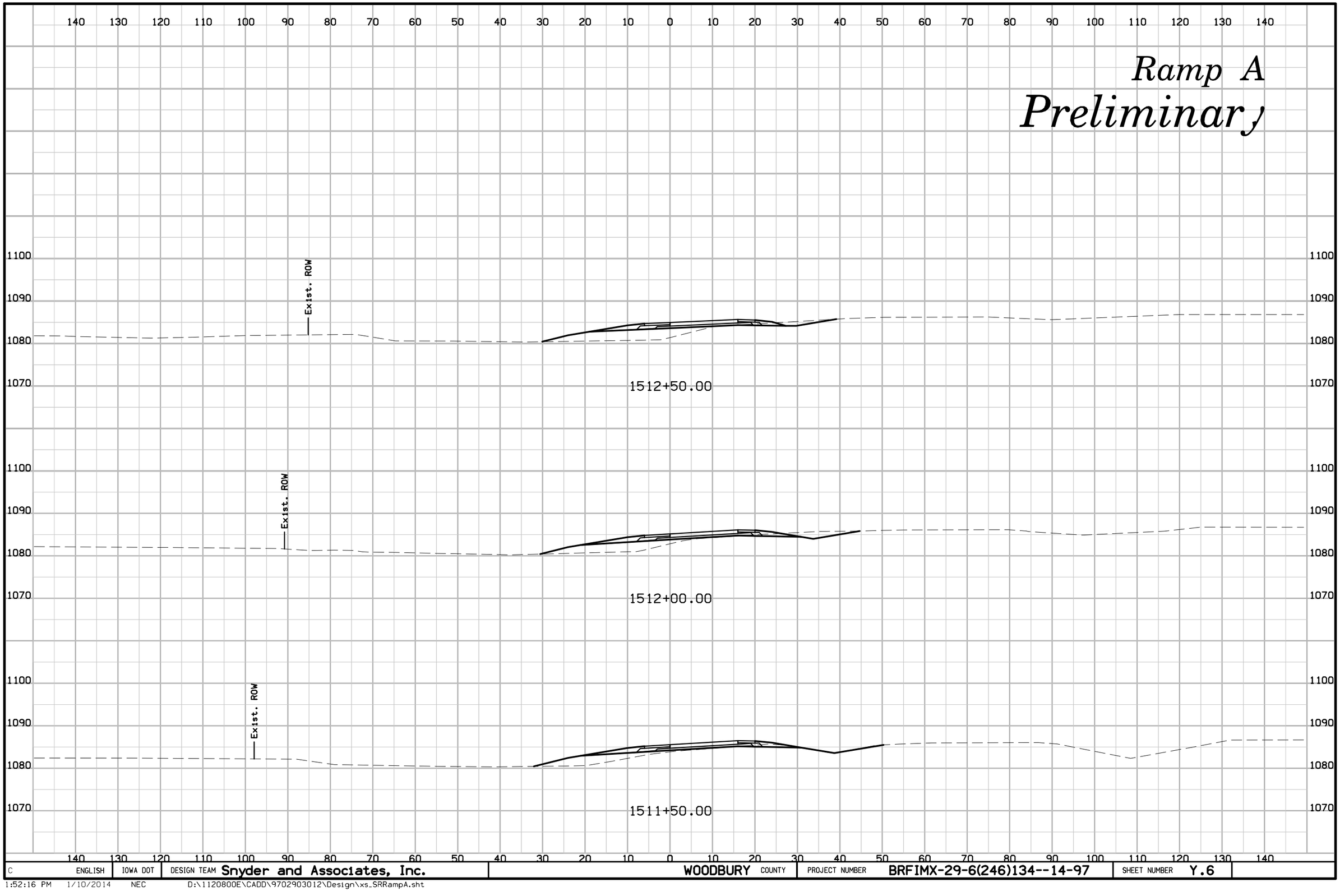
Ramp A

Preliminary



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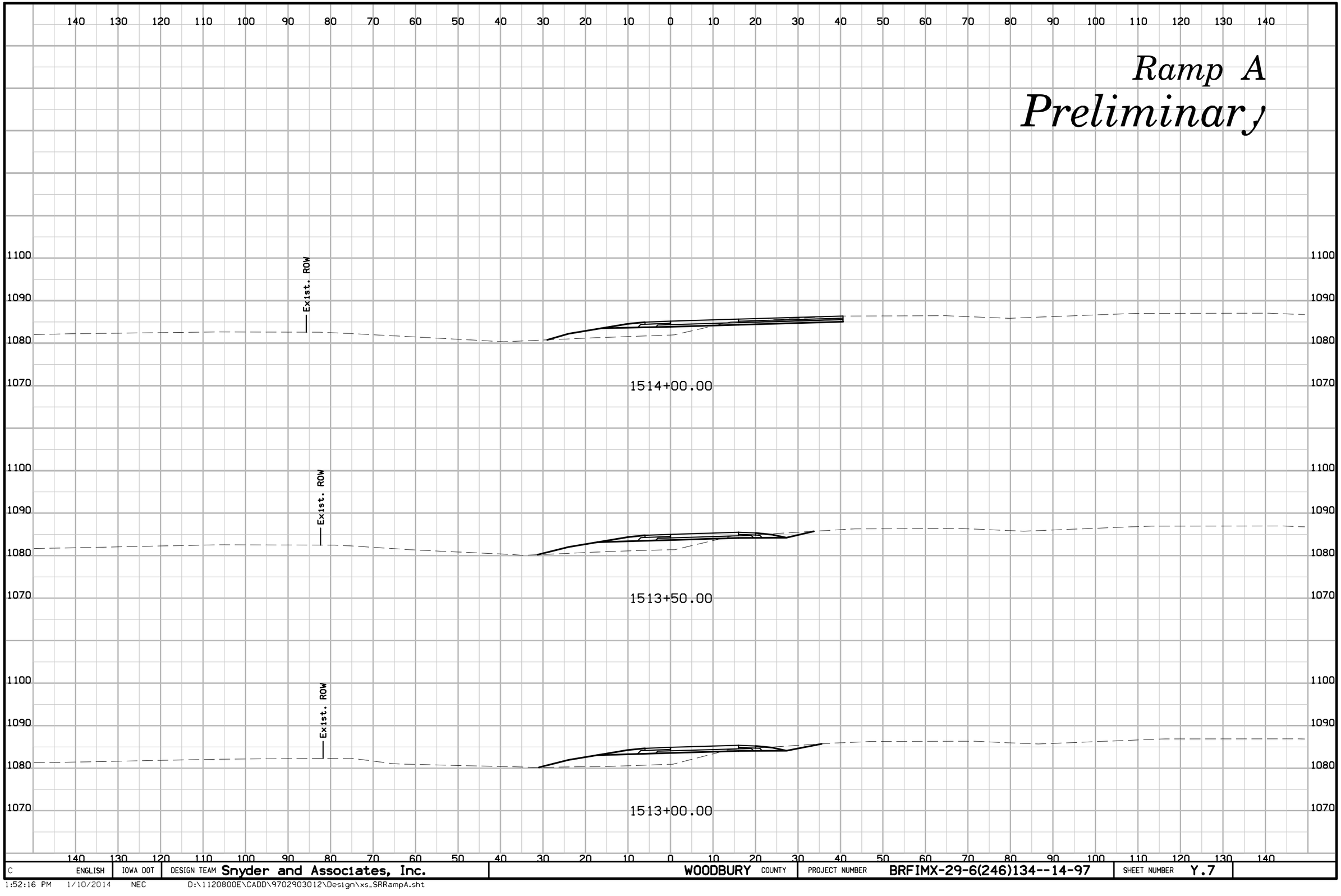
Ramp A

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.7	

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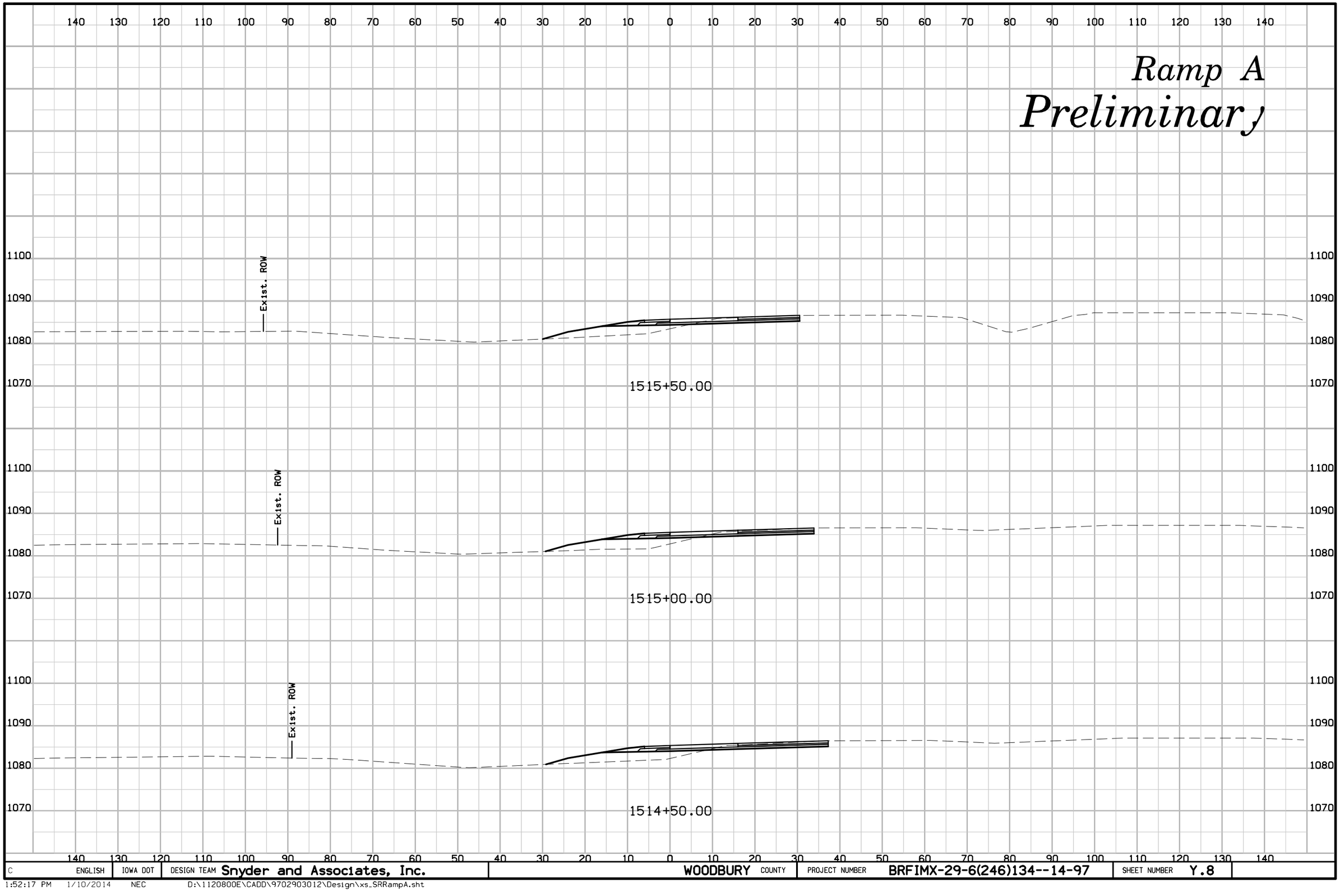
Ramp A

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.8	

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Ramp A

Preliminary

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

1100
1090
1080
1070

Exist. ROW

1517+00.00

1516+50.00

1516+00.00

C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.9		

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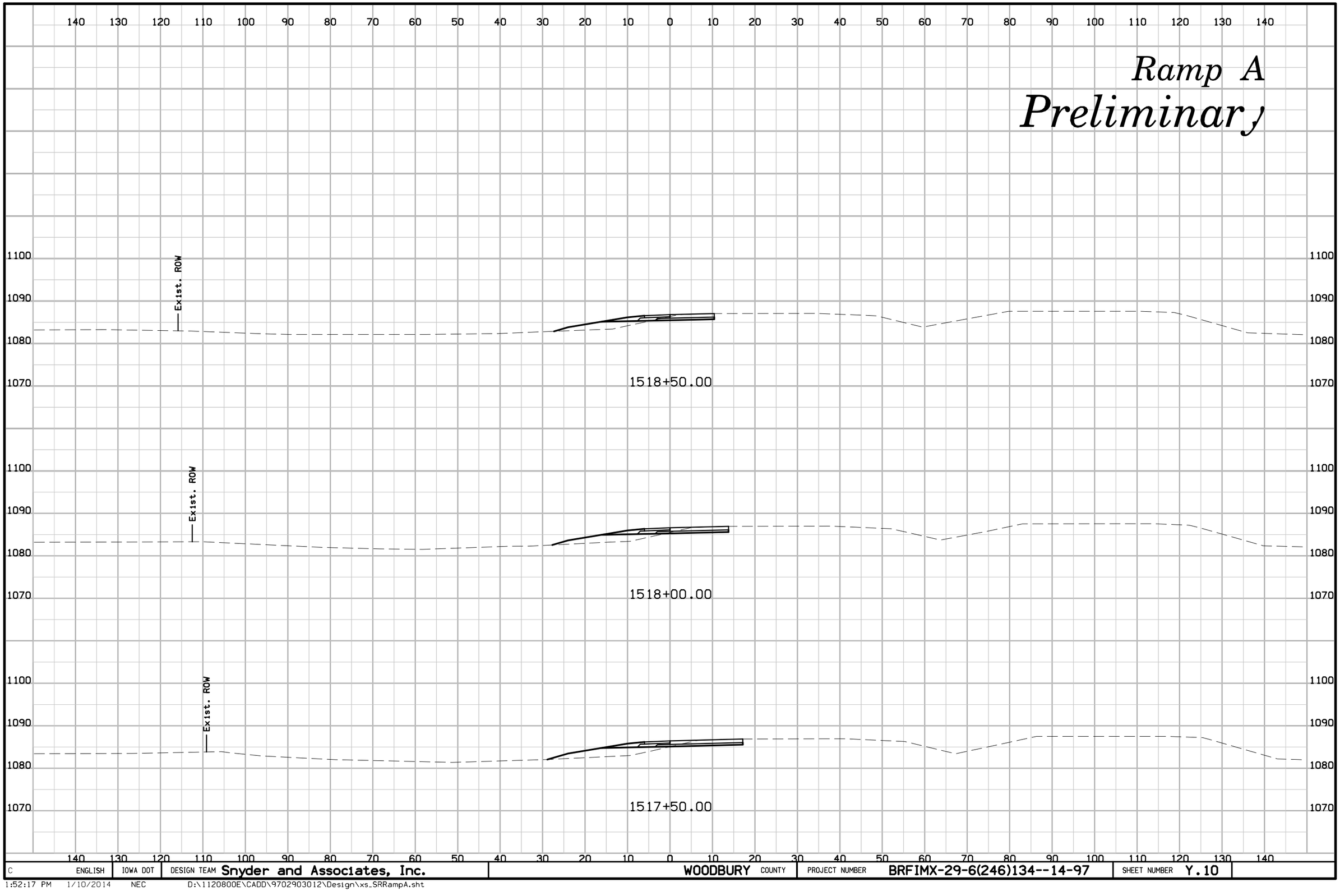
Ramp A

Preliminary



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Ramp A

Preliminary

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

1100
1090
1080

Exist. ROW

1520+00.00

1519+50.00

1519+00.00

1070

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.11

1:52:17 PM 1/10/2014 NEC D:\1120800E\CADD\9702903012\Design\xs_SRRampA.sht

Ramp B

Preliminary

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

1110
1100
1090
1080
1070

Exist. ROW

2588+50.00

2588+00.00

2587+50.00

C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.12	

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Ramp B

Preliminary

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

1110
1100
1090
1080
1070

Exist. ROW

2590+00.00

2589+50.00

2589+00.00

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.13

1:52:21 PM 1/10/2014 NEC D:\1120800E\CADD\9702903012\Design\xs_SRRampB.sht

Ramp B

Preliminary

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

1100
1090
1080
1070

Exist. ROW

2591+50.00

1100
1090
1080
1070

Exist. ROW

2591+00.00

1110
1100
1090
1080
1070

Exist. ROW

2590+50.00

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

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.14

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Ramp B
Preliminary

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

1100
1090
1080
1070

Exist. ROW

2593+00.00

2592+50.00

2592+00.00

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.15

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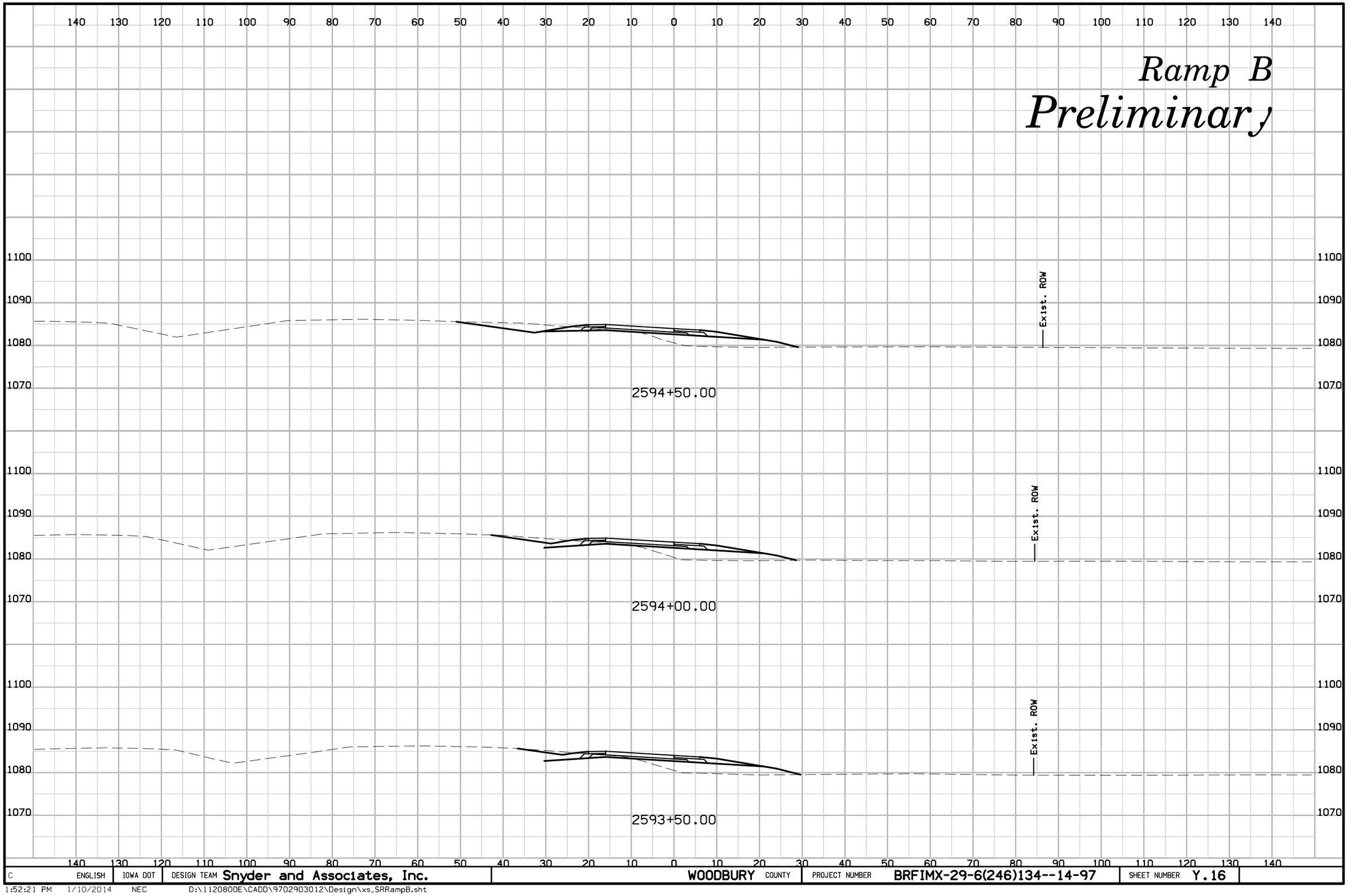
Ramp B

Preliminary



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Ramp B

Preliminary

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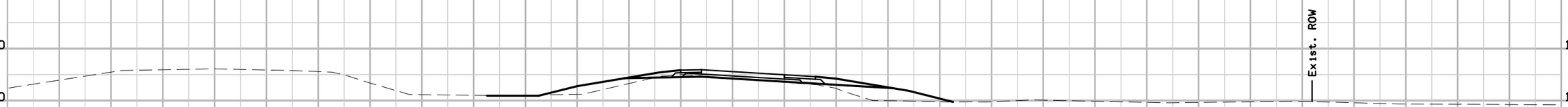
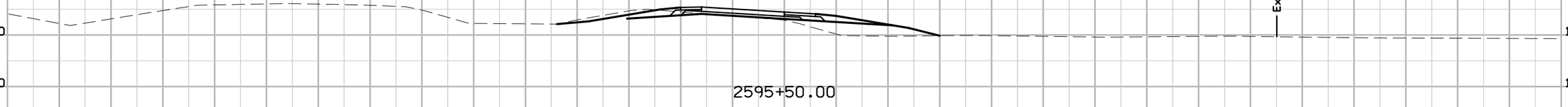
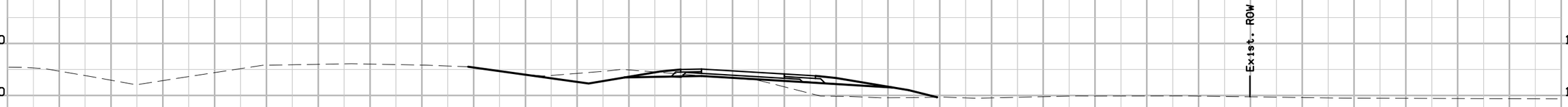
1100
1090
1080
1070



2596+00.00



2595+50.00



2595+00.00

C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.17	

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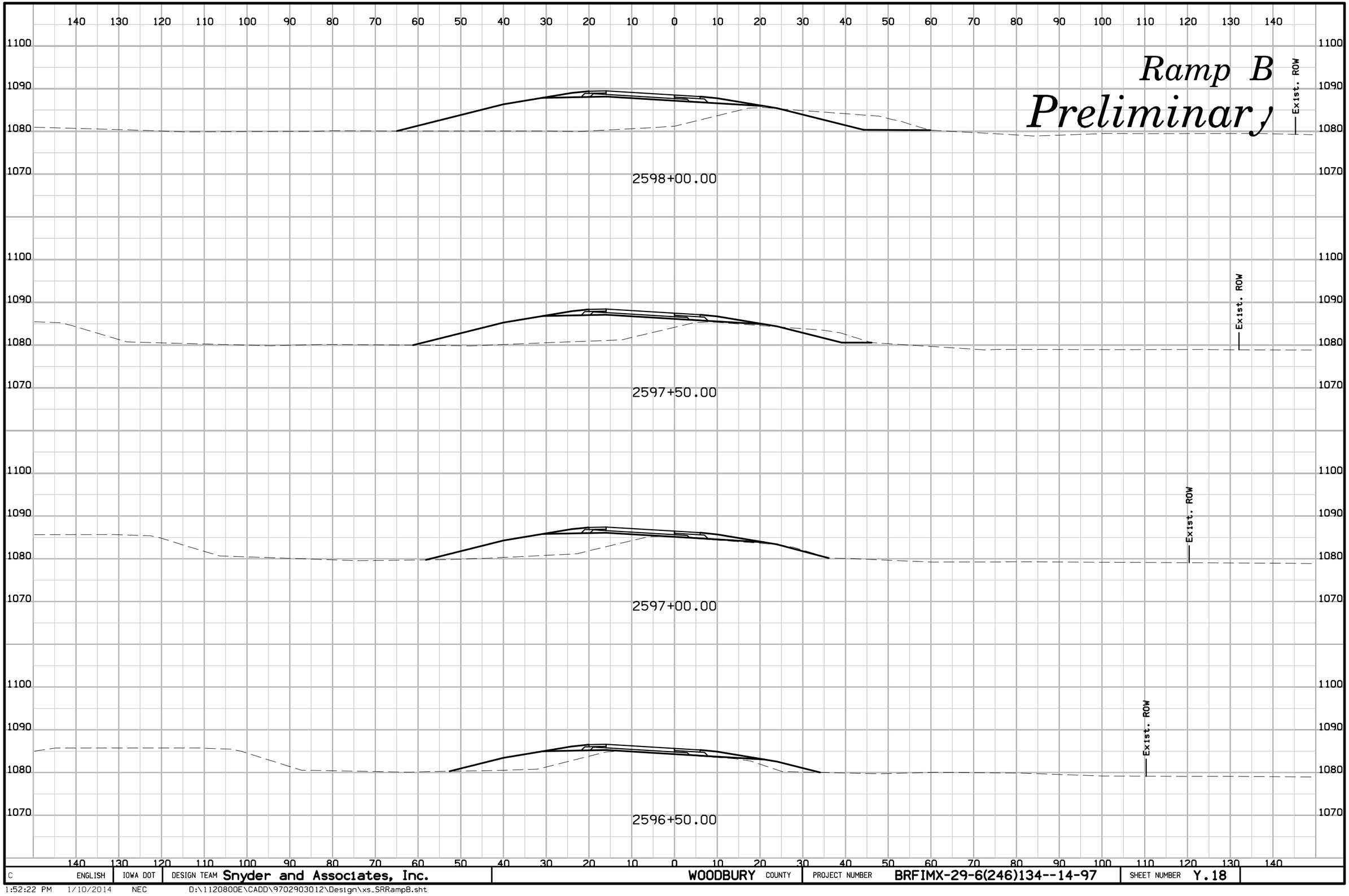
Ramp B

Preliminary



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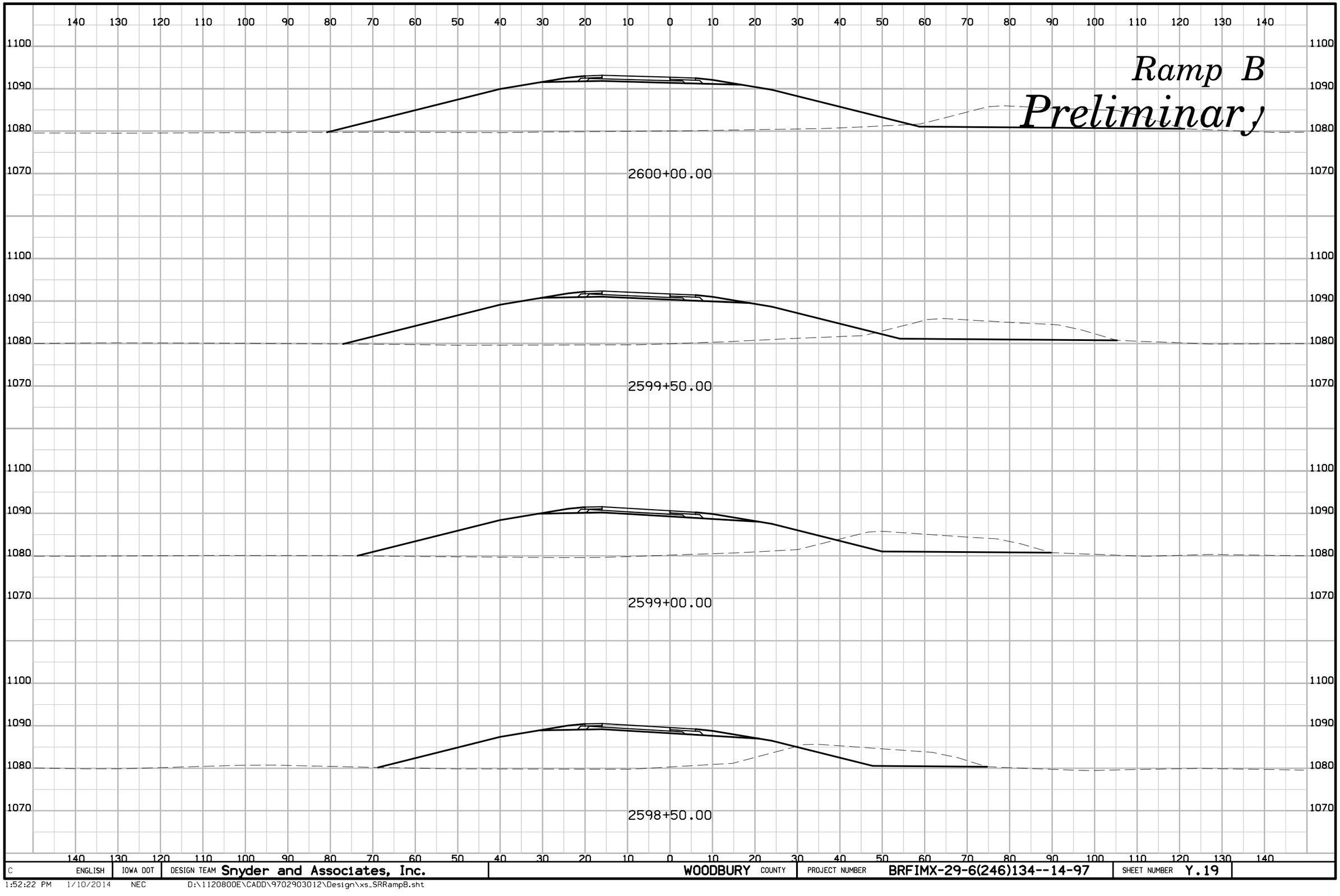
Ramp B

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.19	

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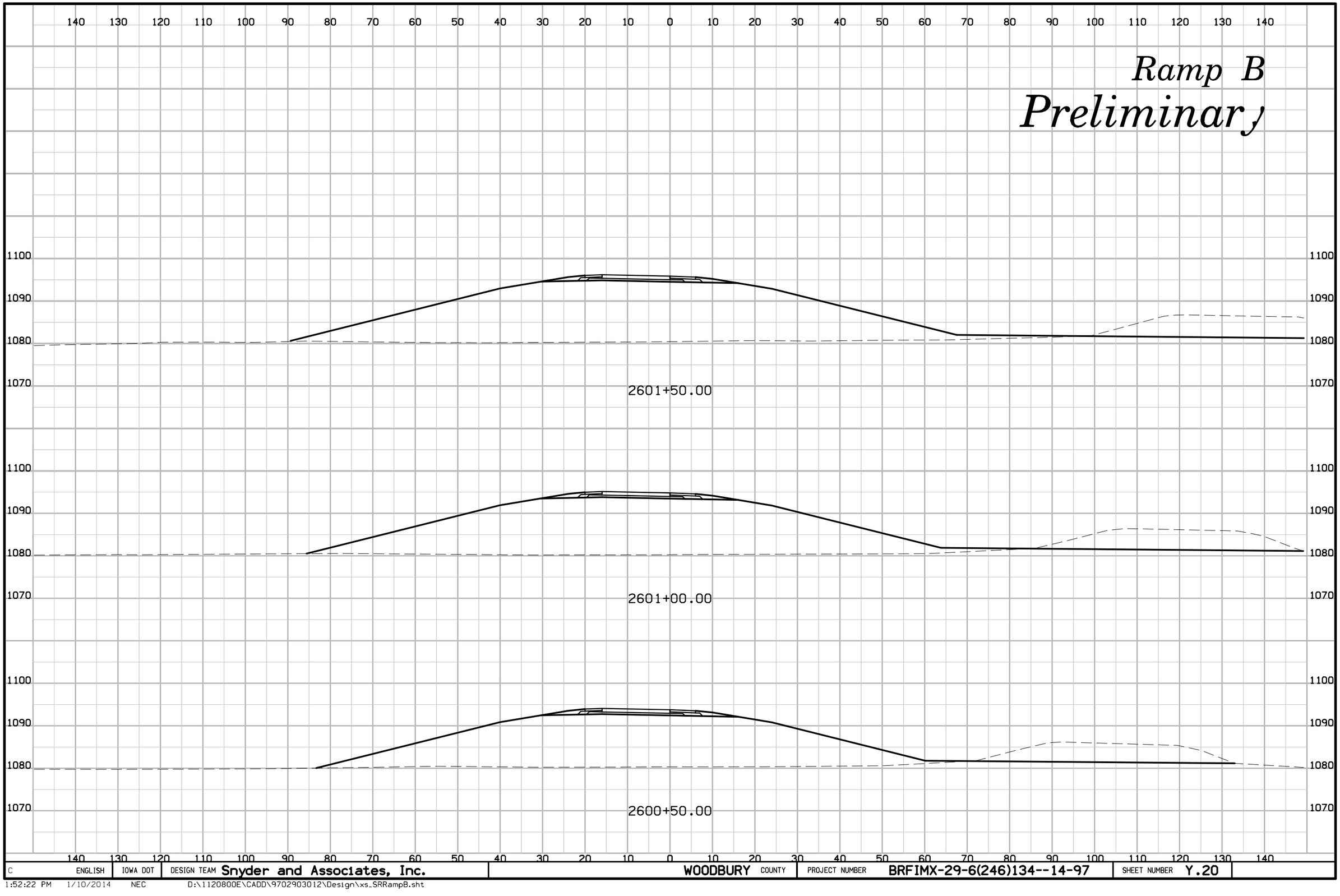
Ramp B

Preliminary



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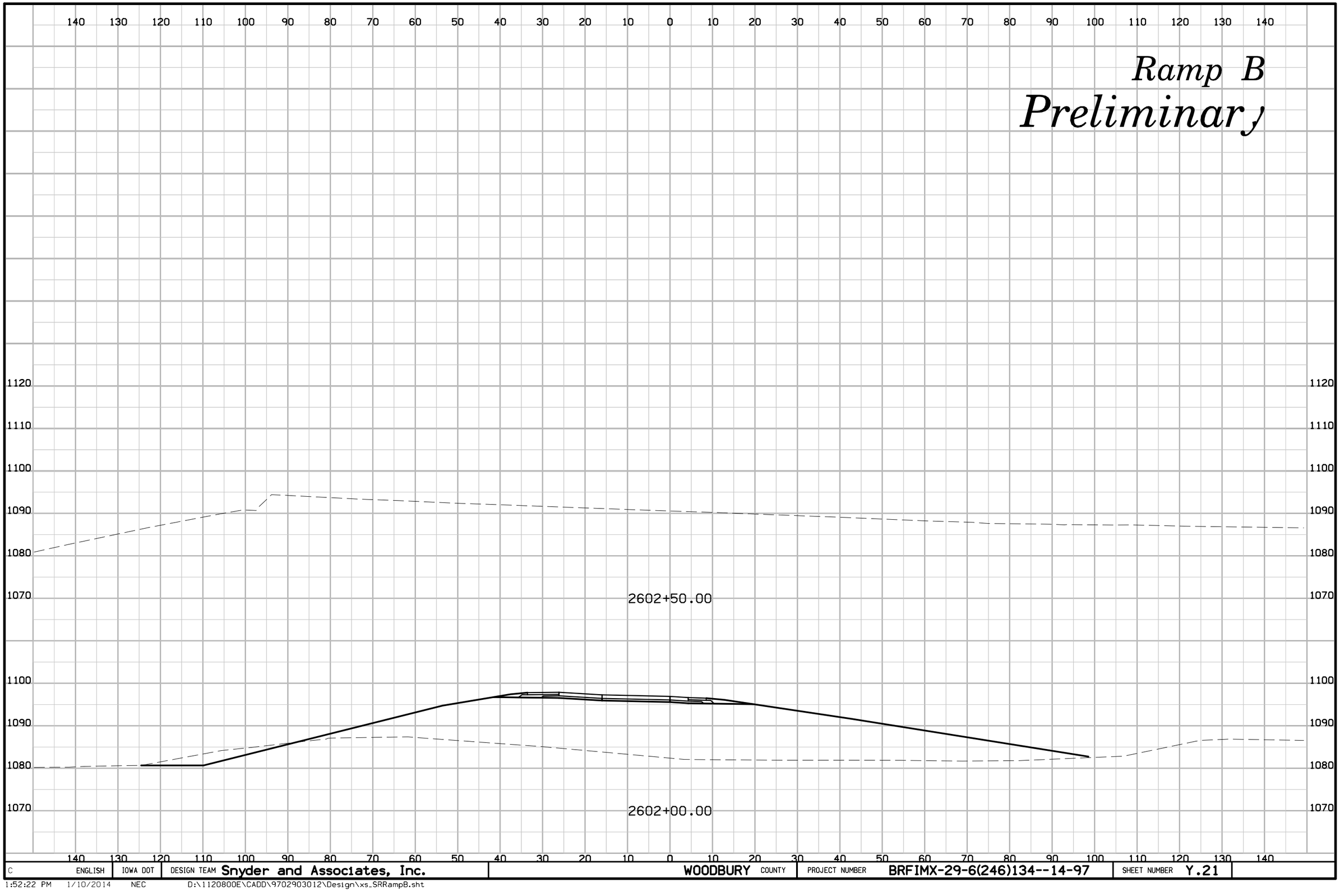
Ramp B

Preliminary



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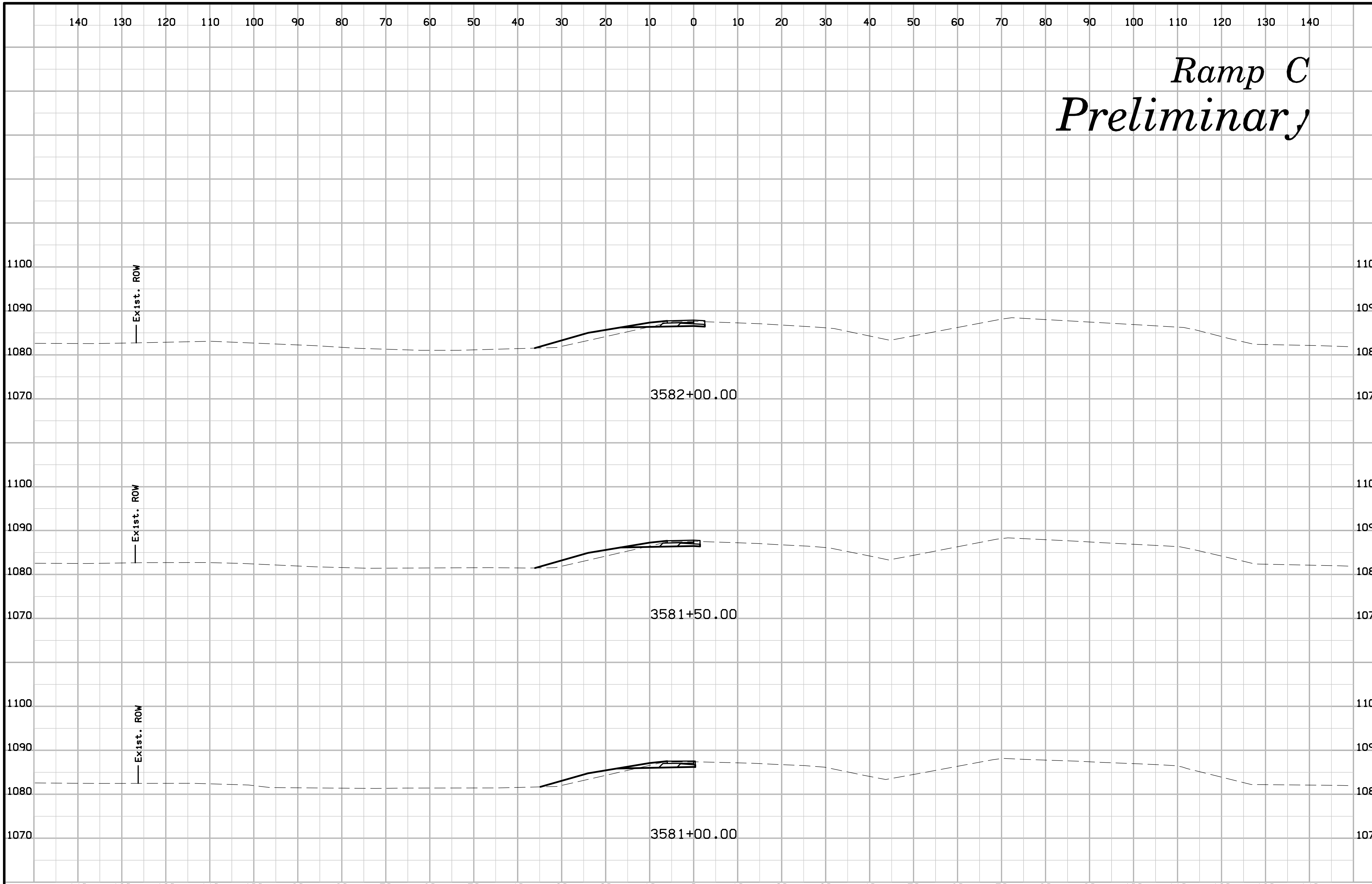
Ramp C
Preliminary



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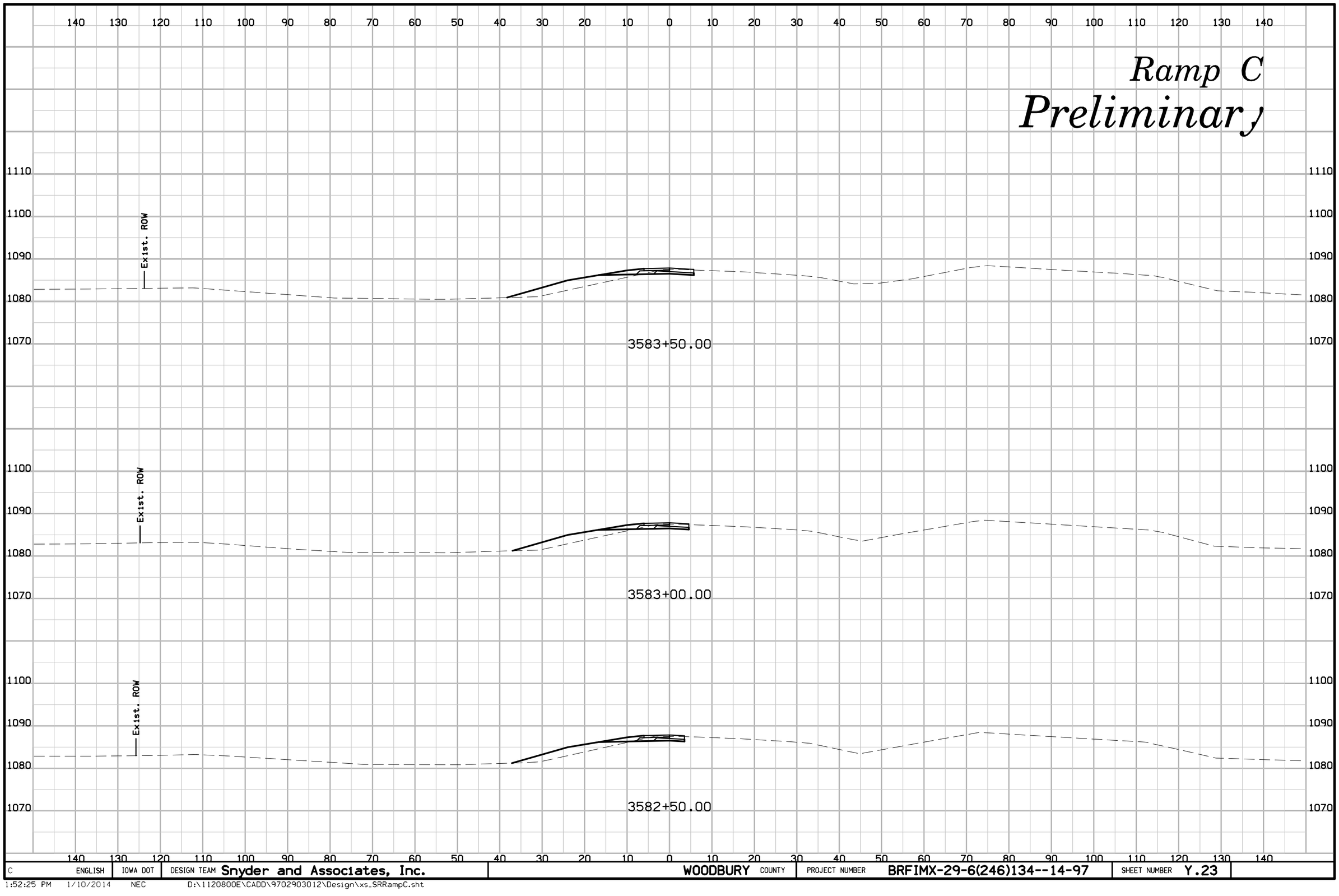
Ramp C

Preliminary



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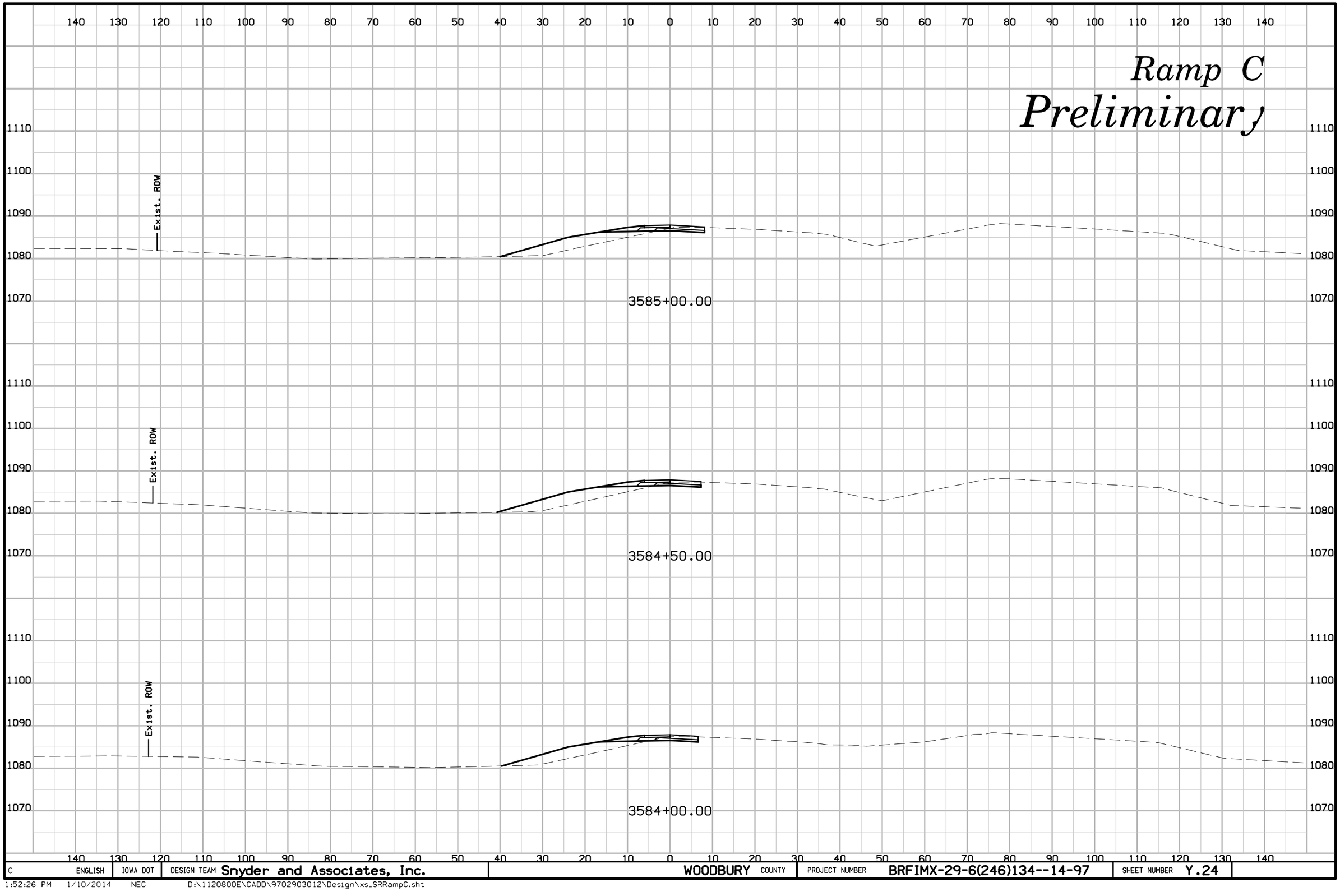
Ramp C

Preliminary



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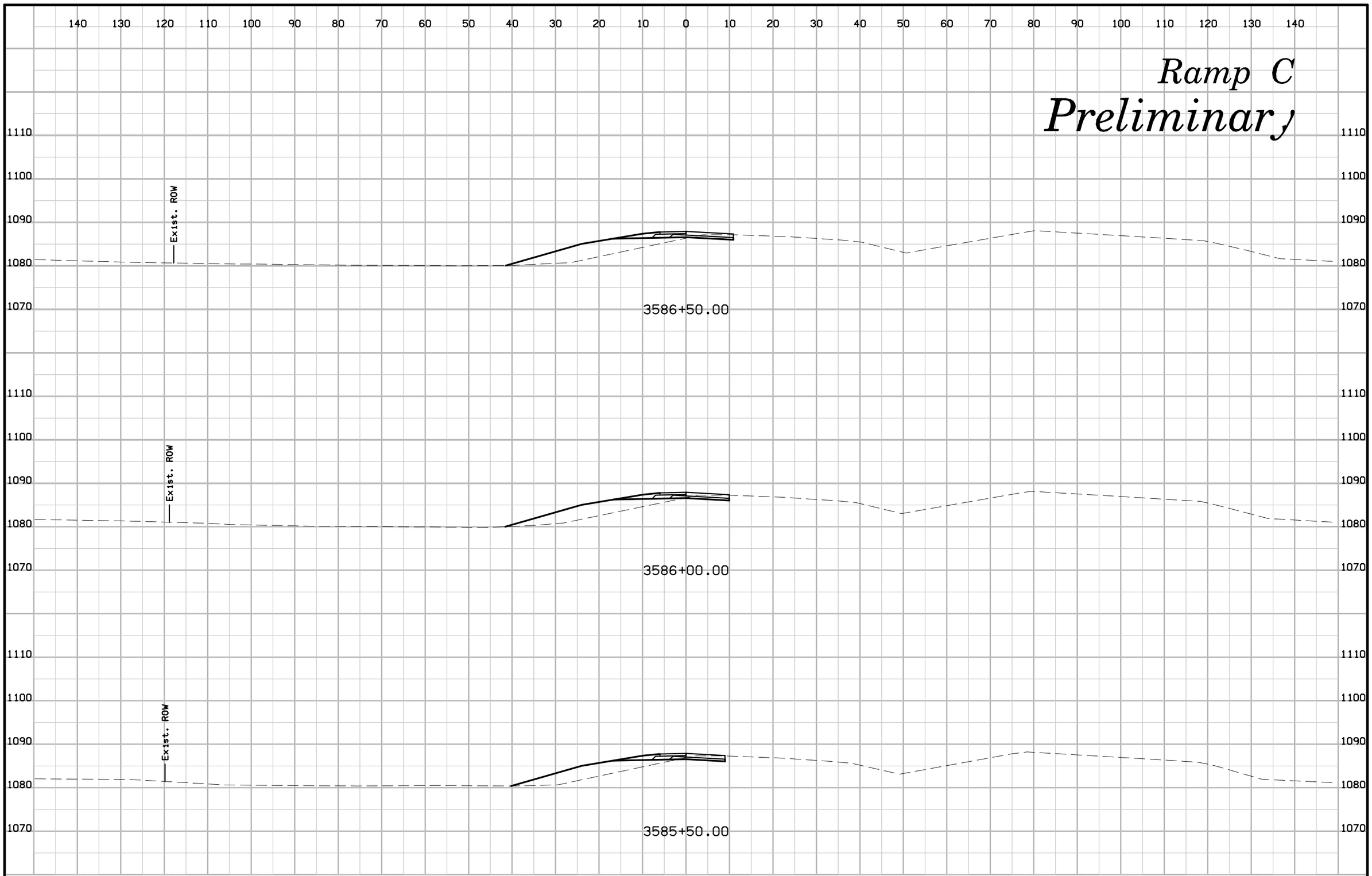
Ramp C

Preliminary



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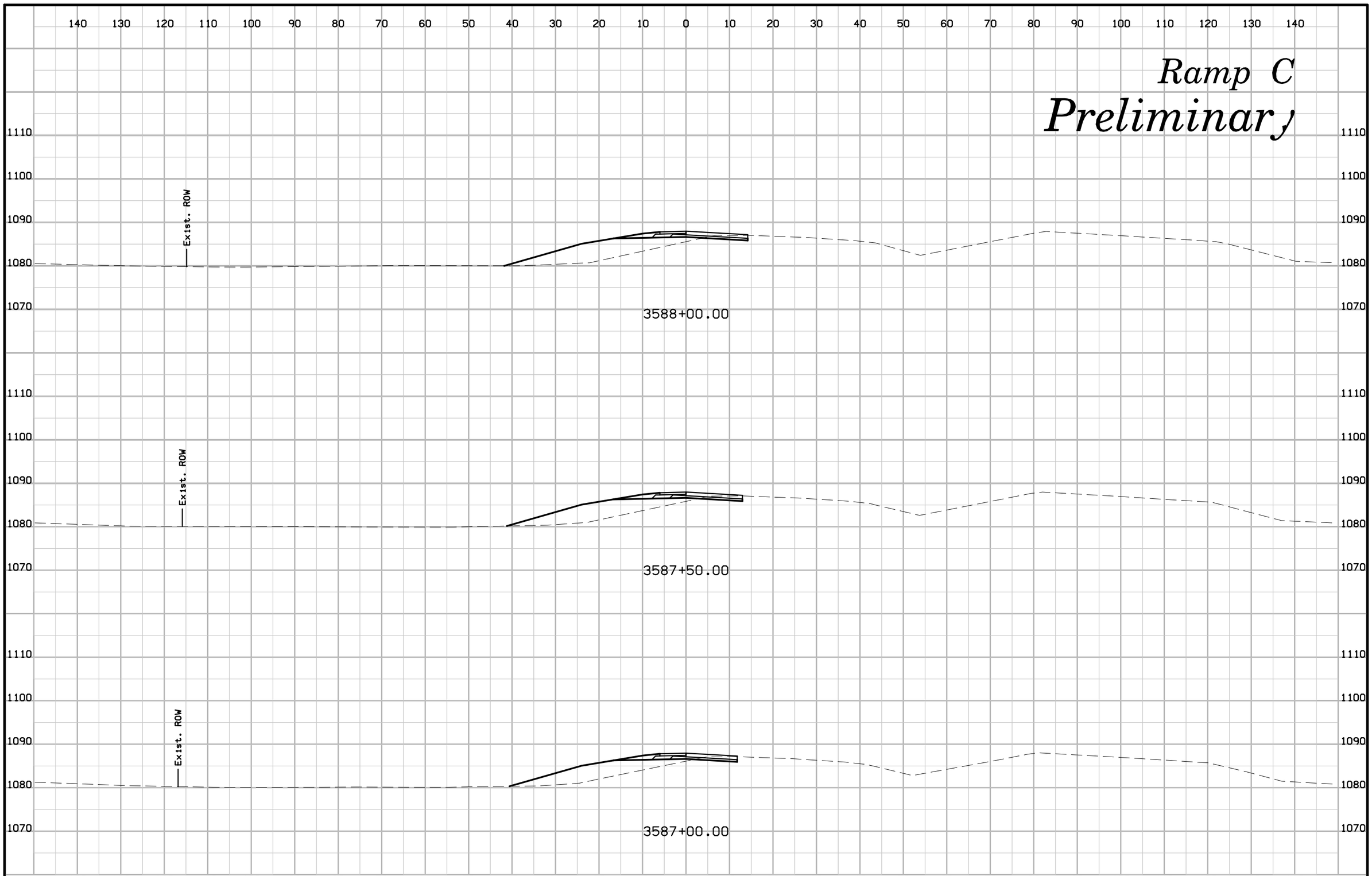
Ramp C

Preliminary



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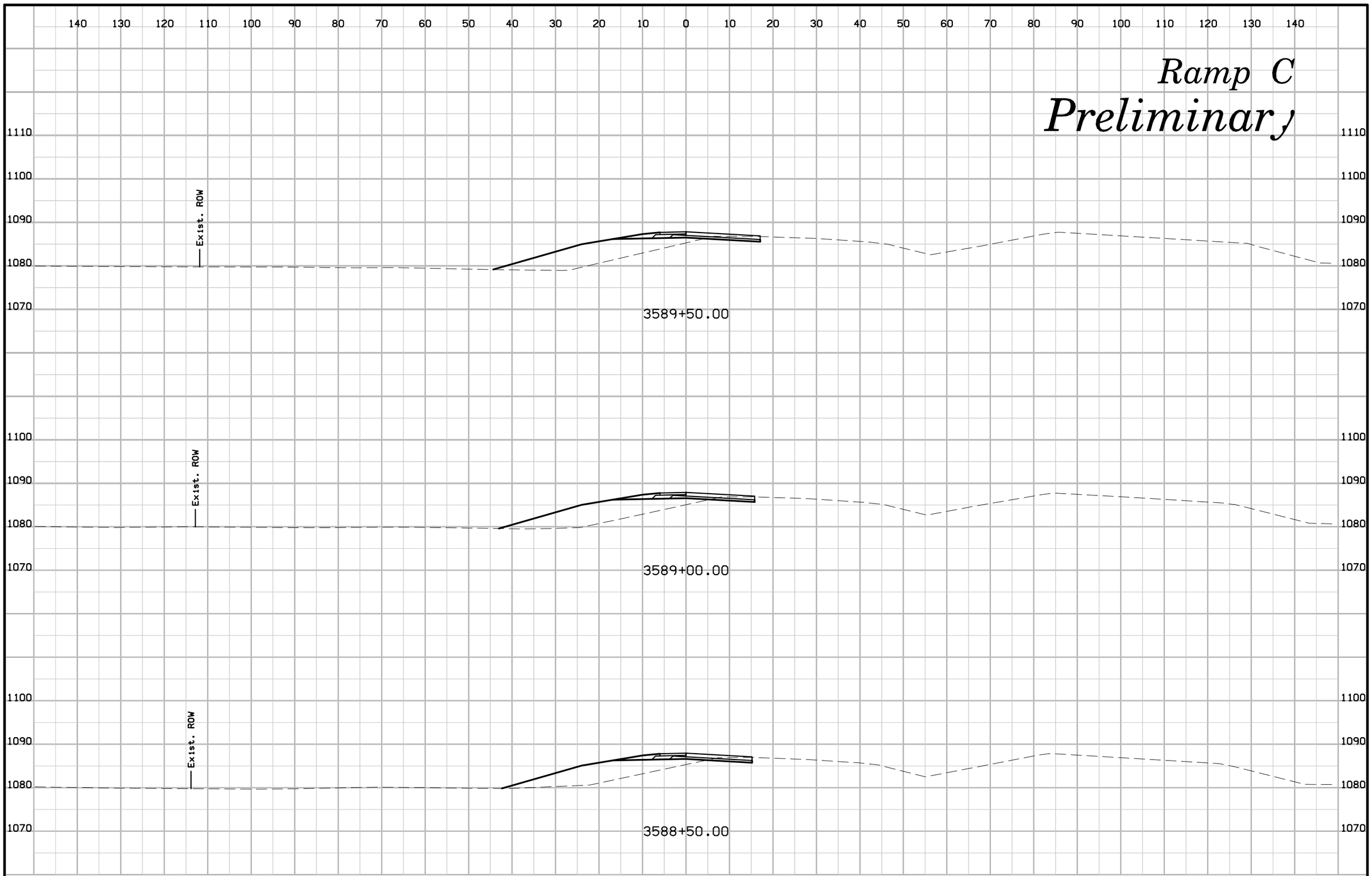
Ramp C

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.27	

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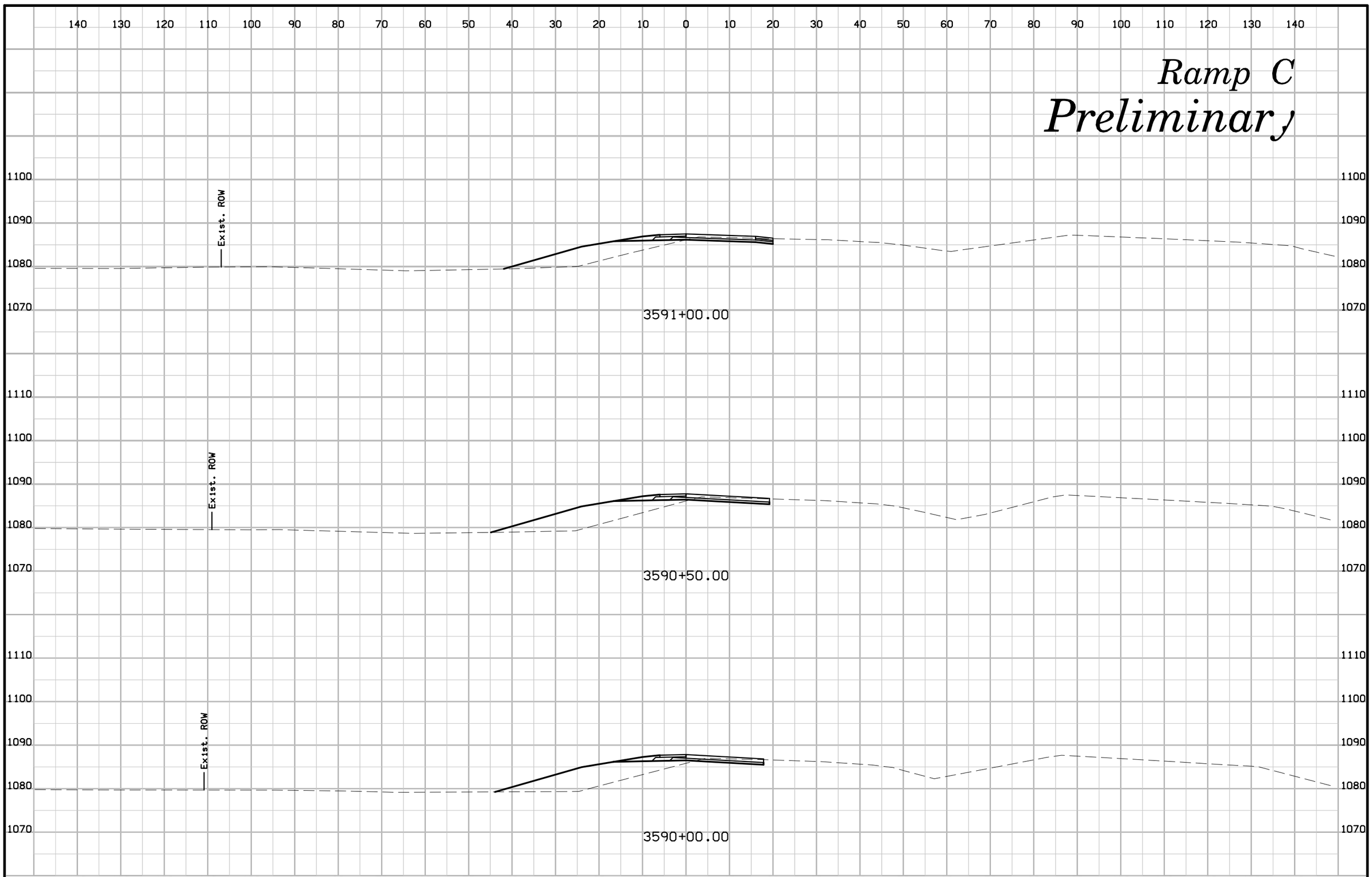
Ramp C

Preliminary



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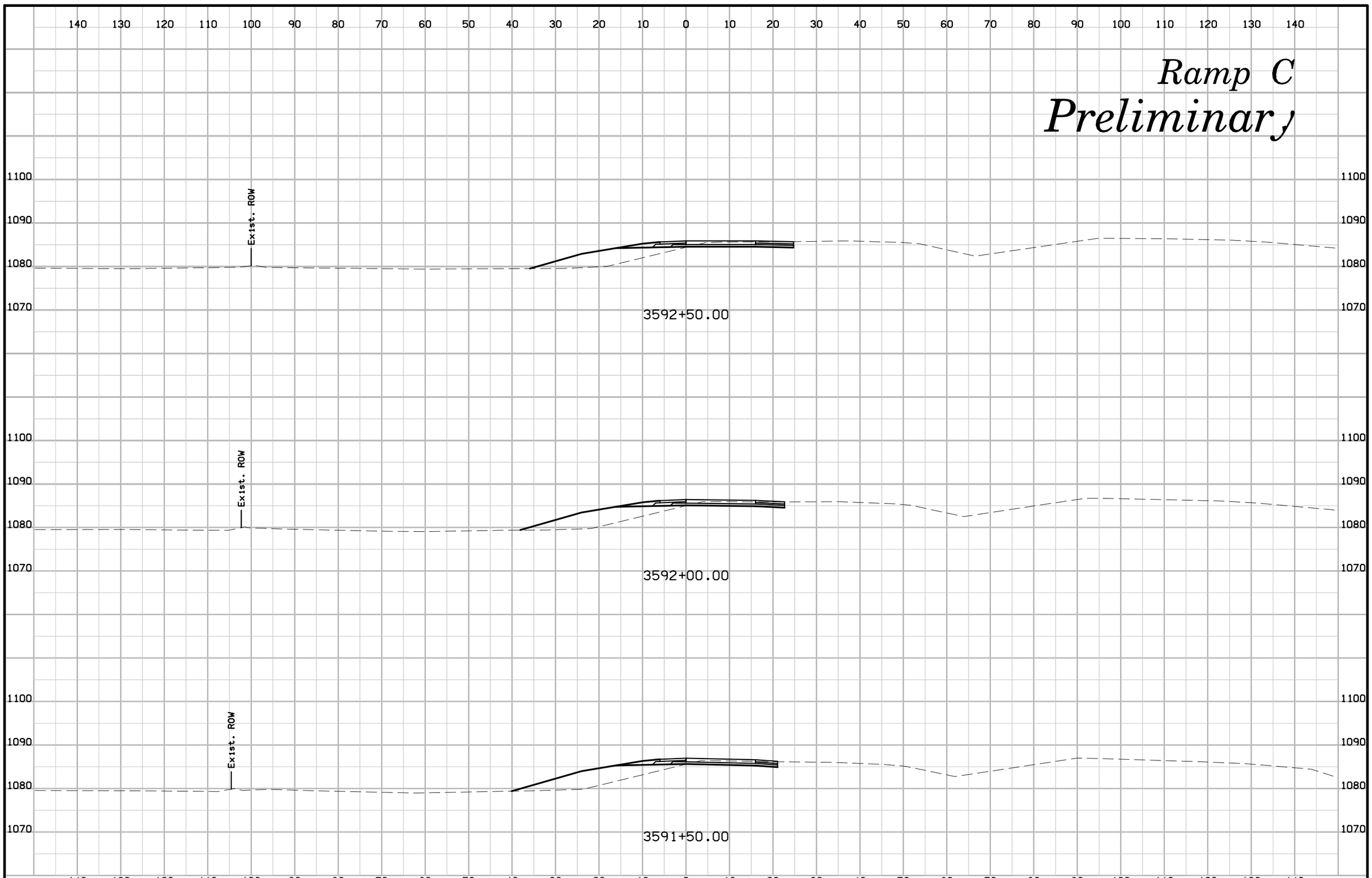
Ramp C

Preliminary



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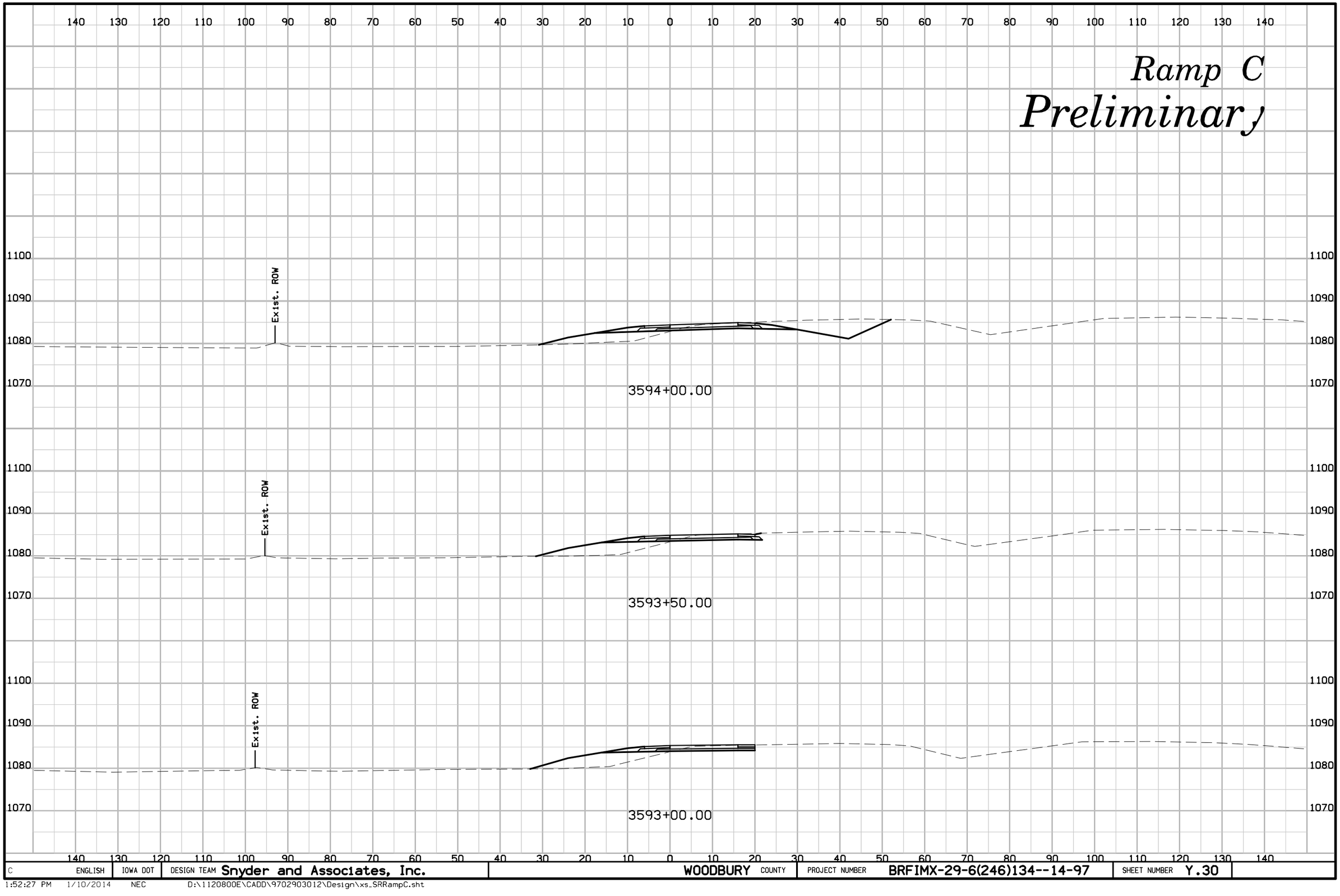
Ramp C

Preliminary



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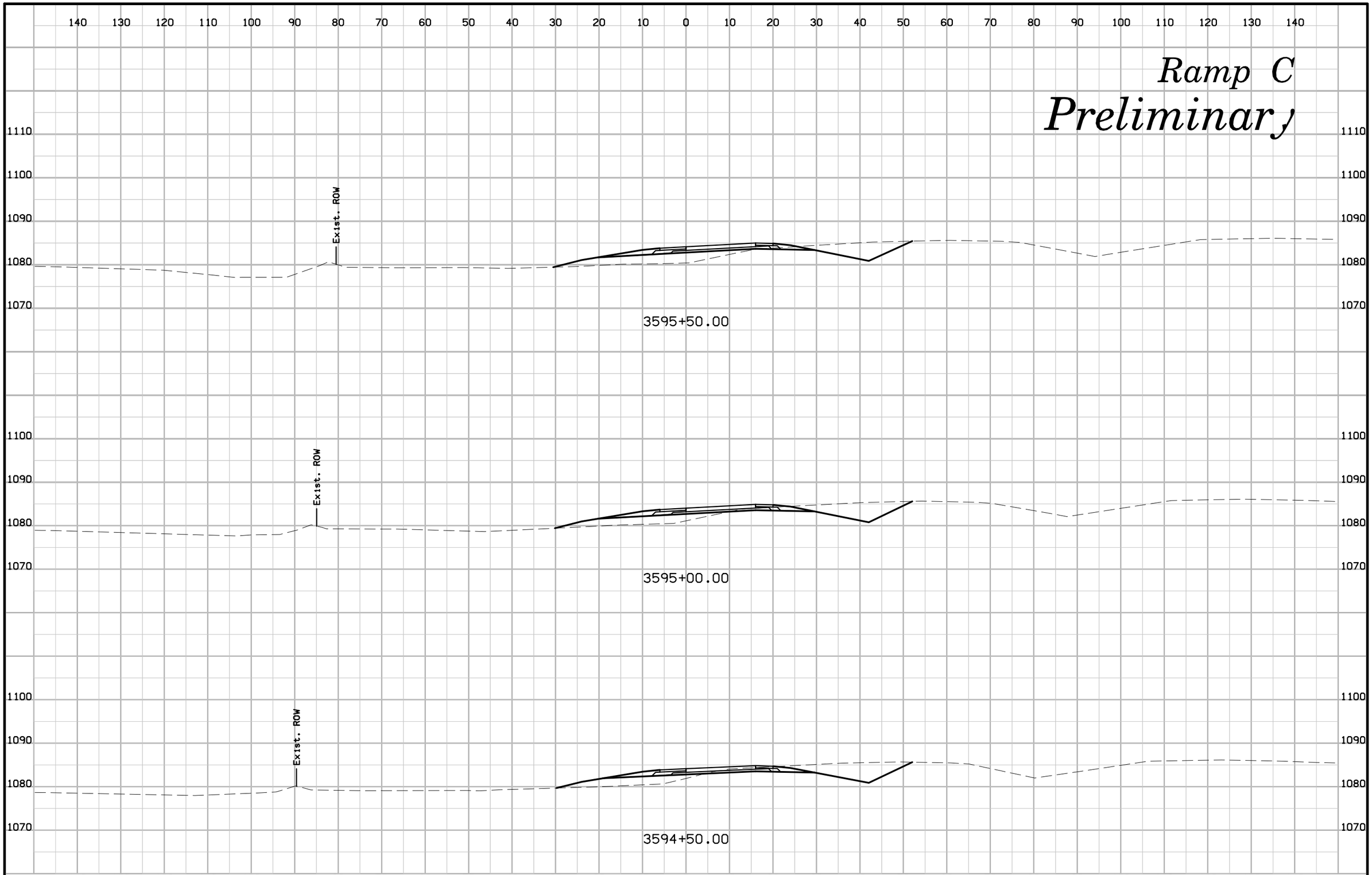
Ramp C

Preliminary



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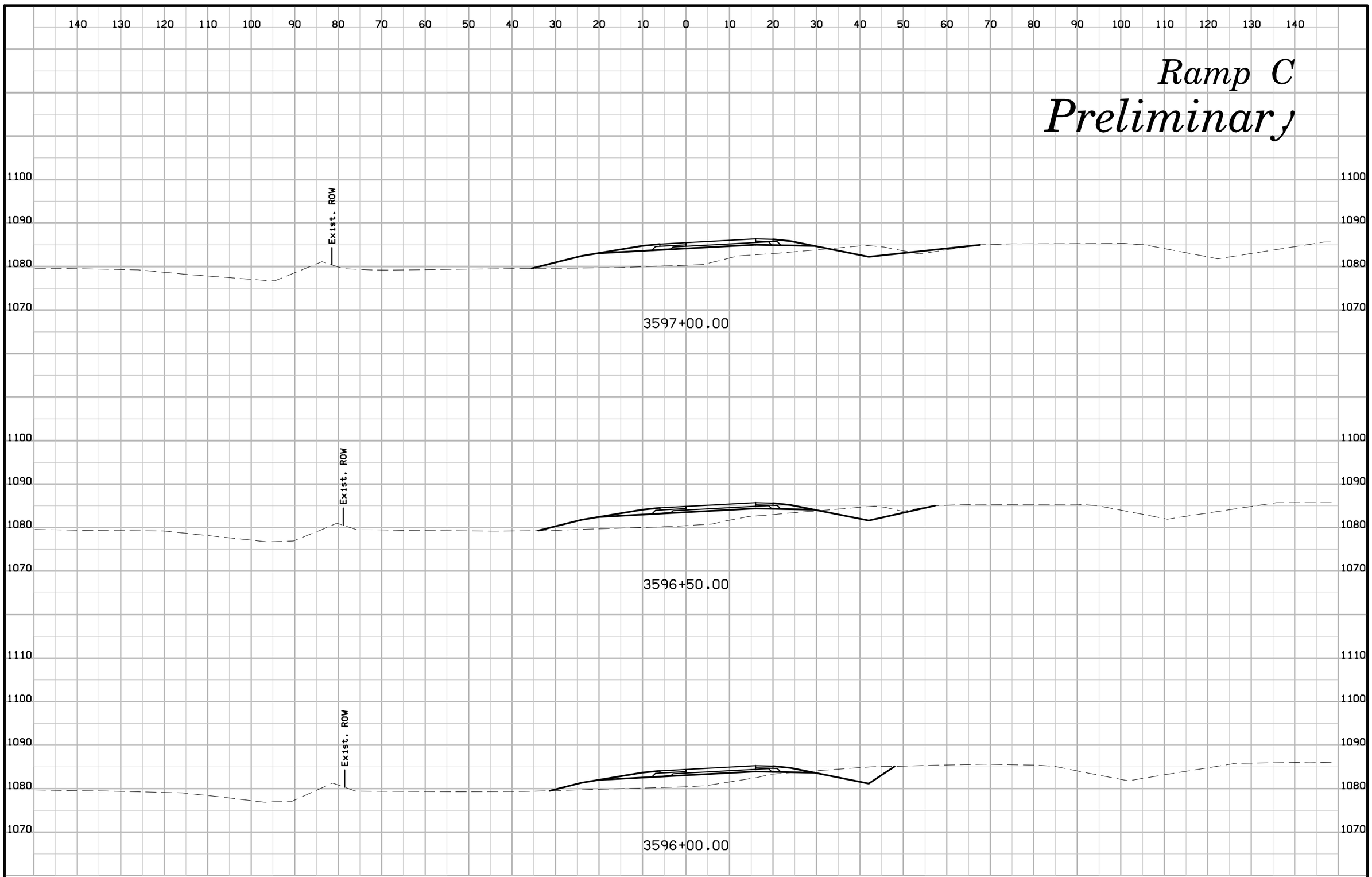
Ramp C

Preliminary



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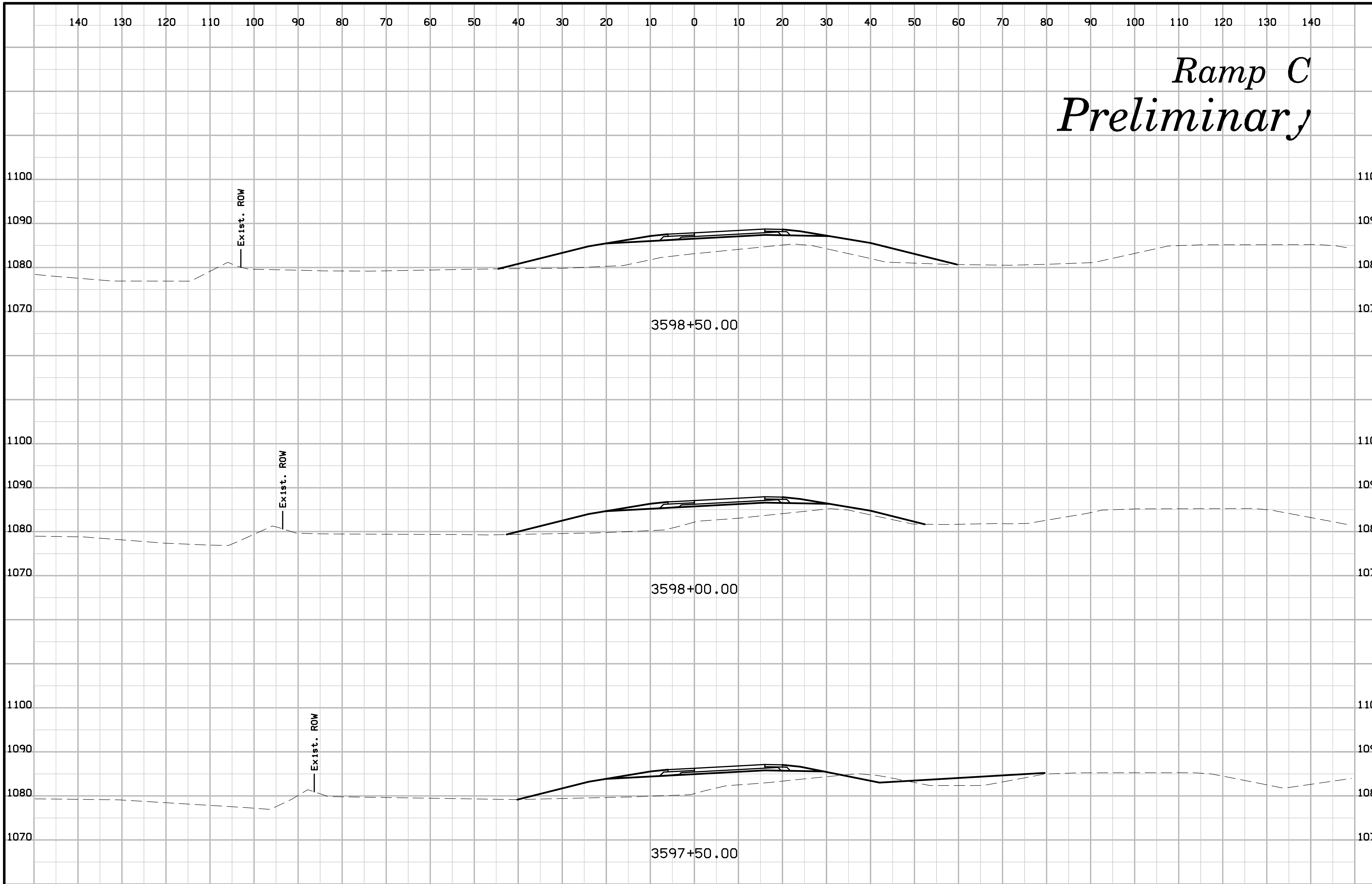
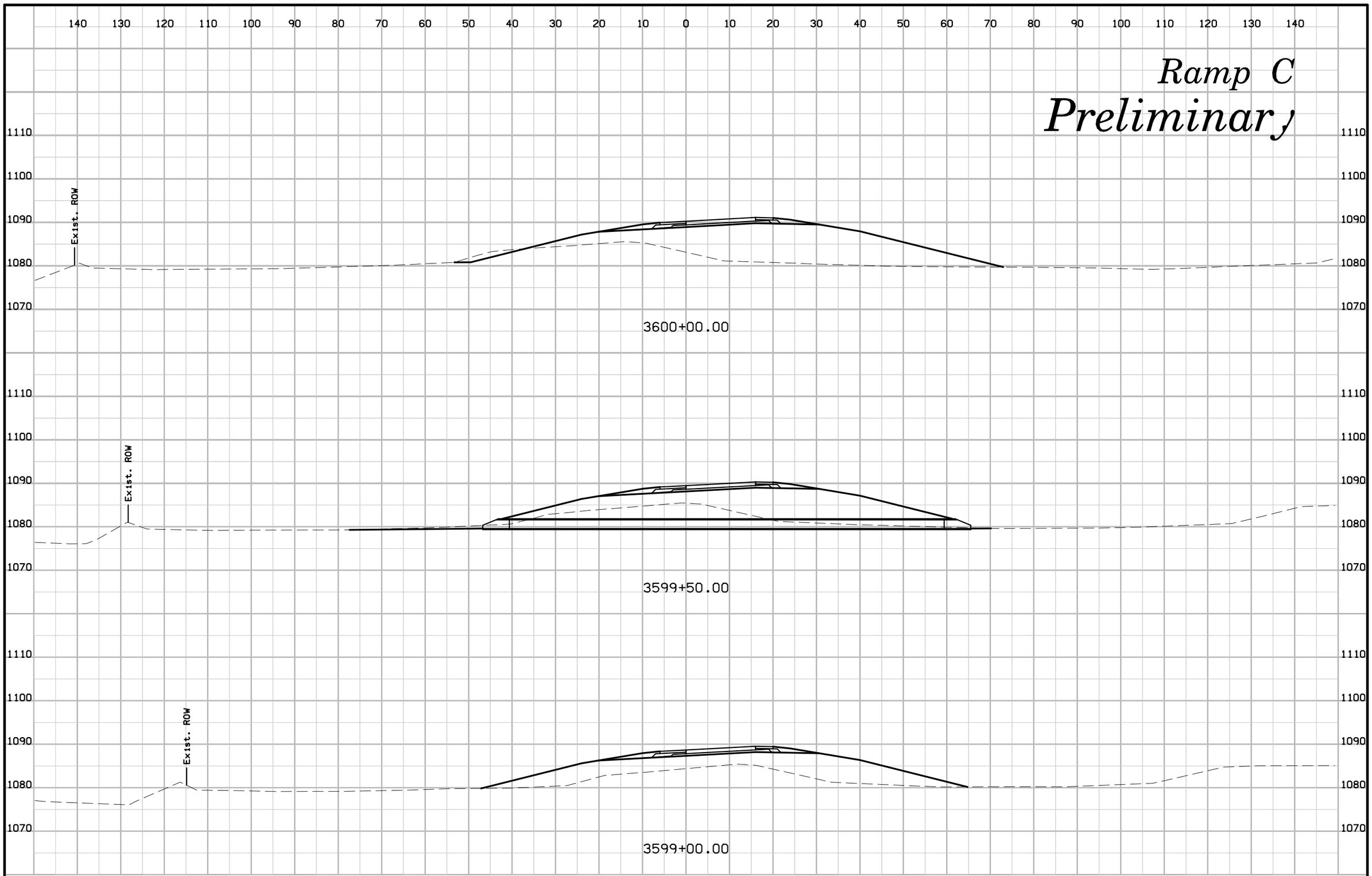
Ramp C
Preliminary



ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.33

Ramp C

Preliminary



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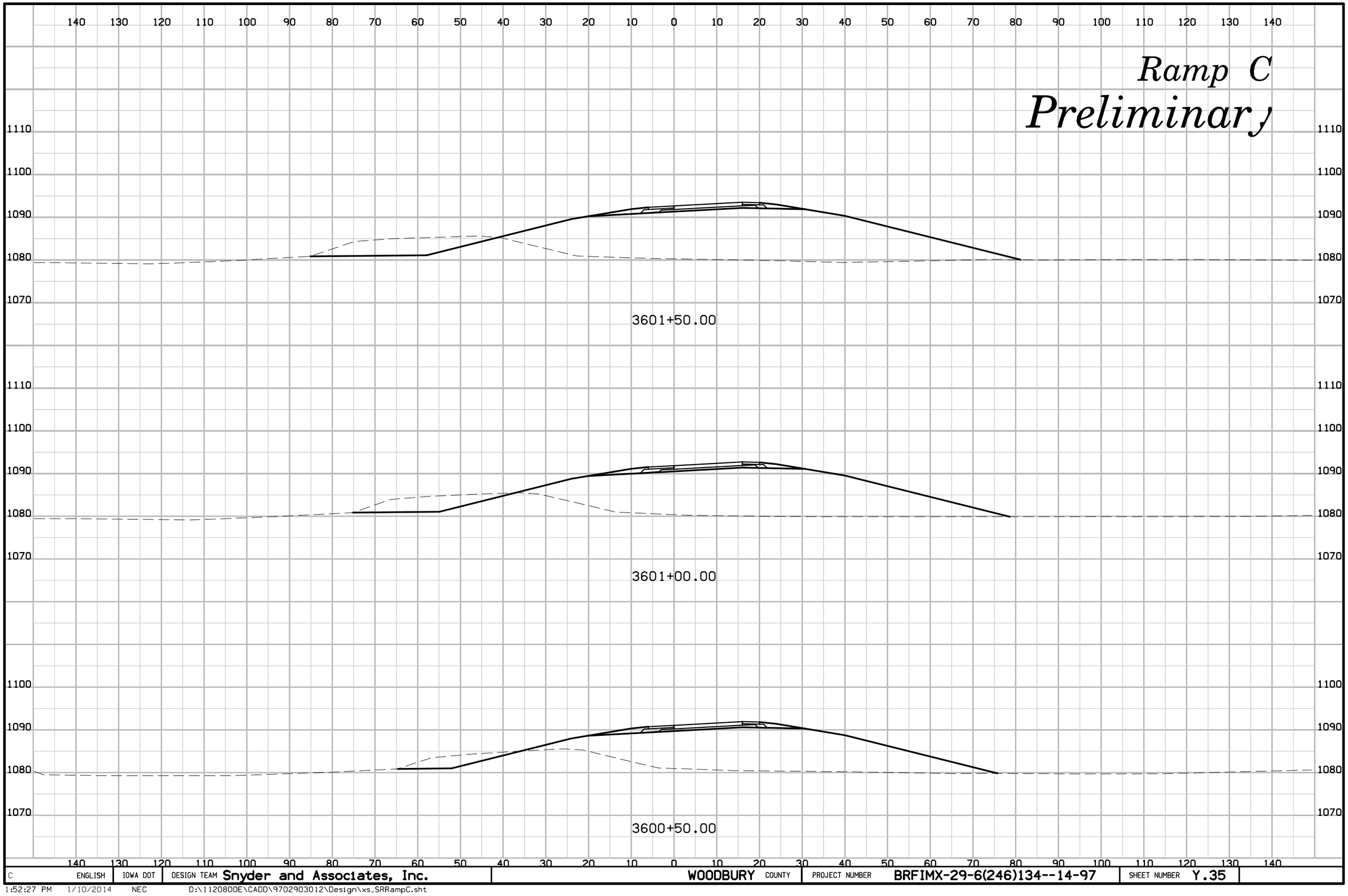
Ramp C

Preliminary



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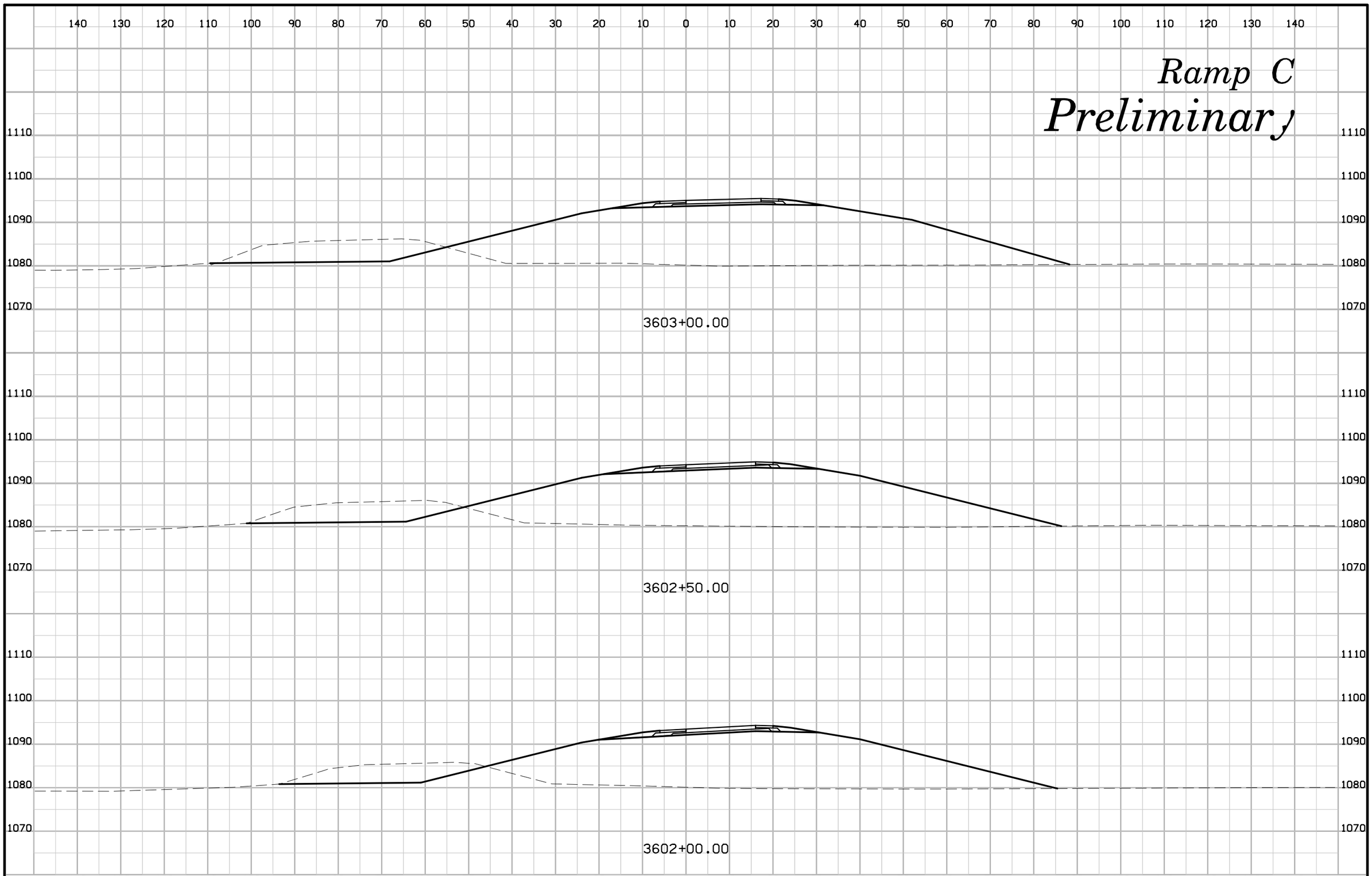
Ramp C

Preliminary



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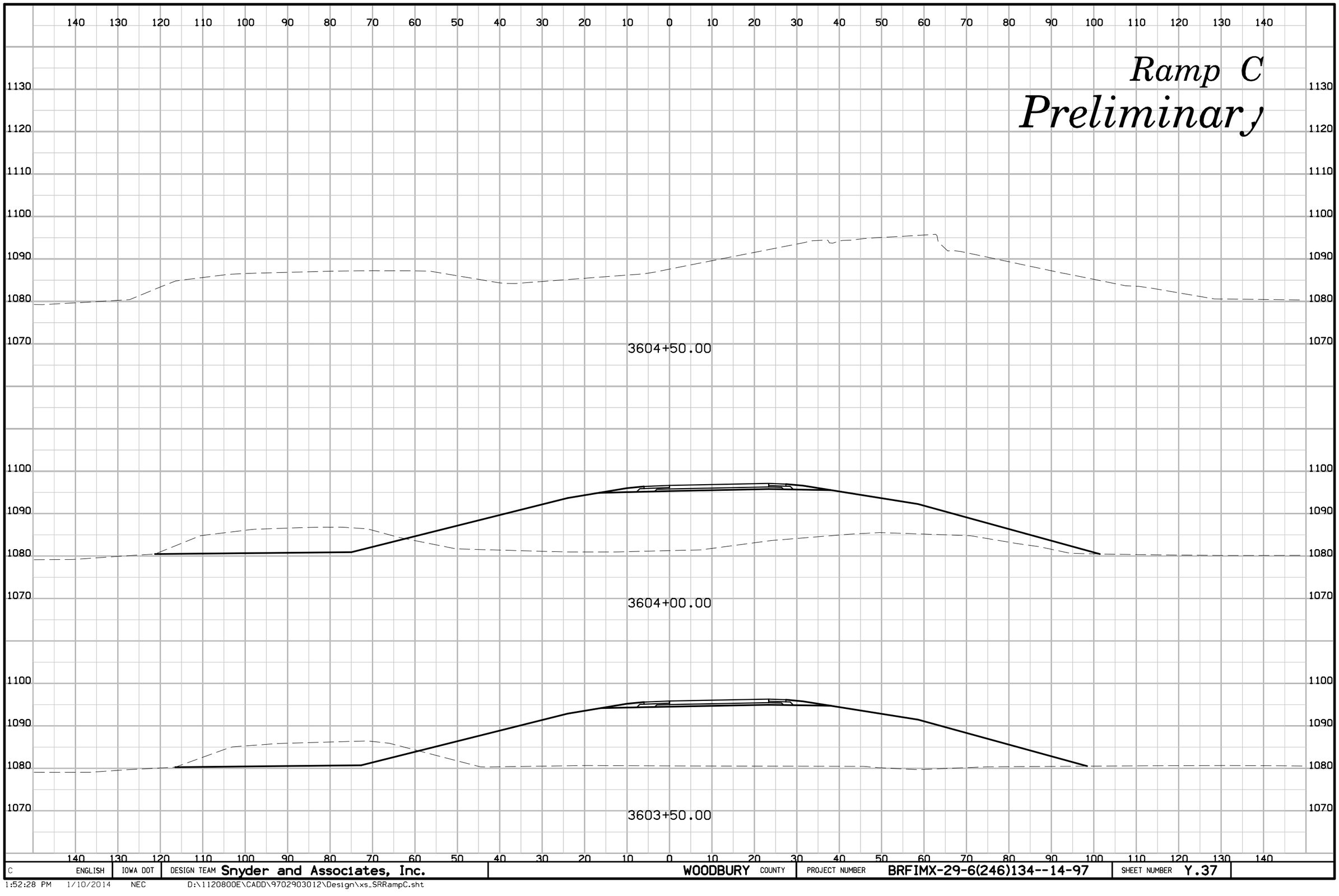
Ramp C

Preliminary



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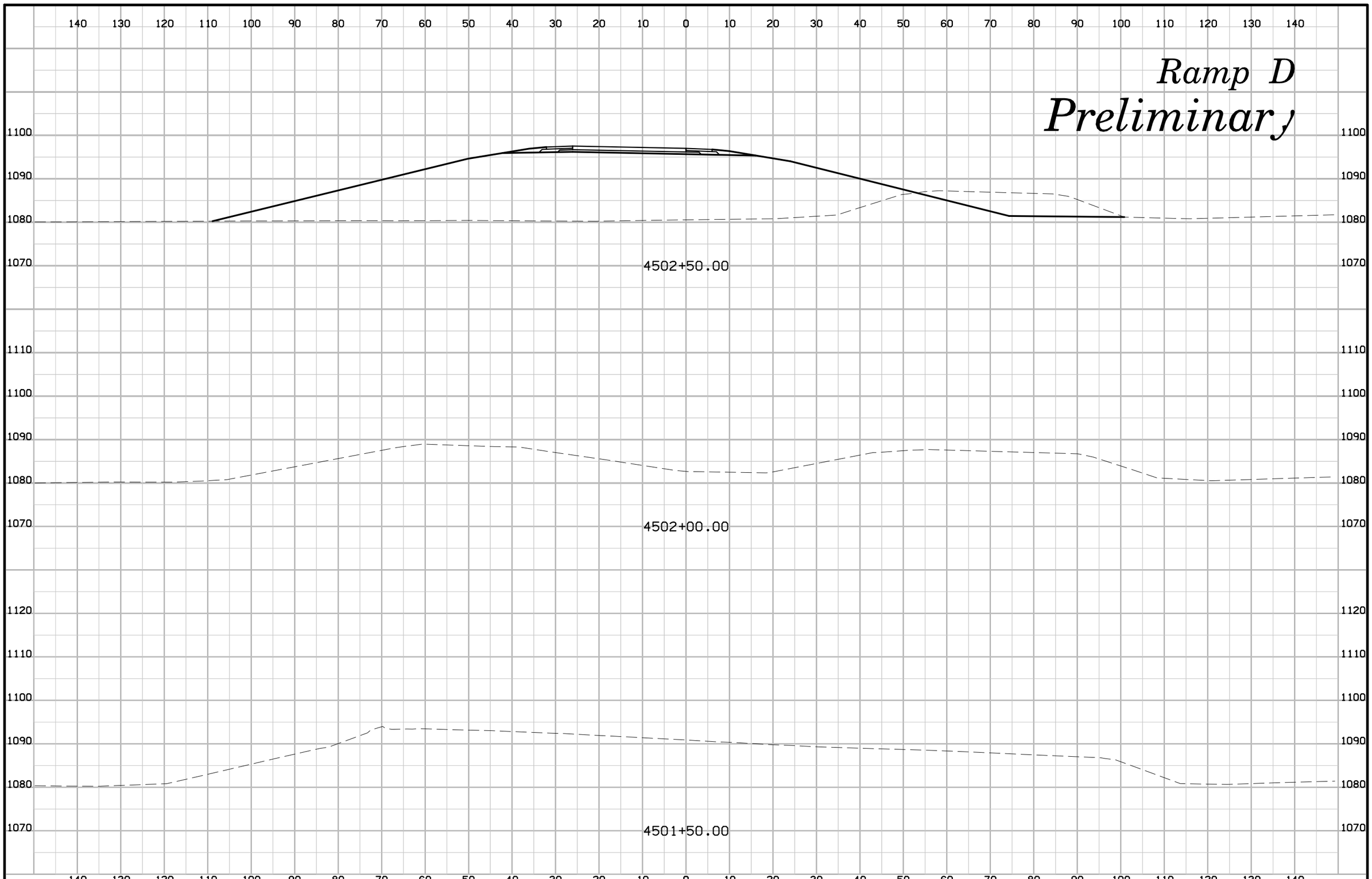
Ramp D

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.38

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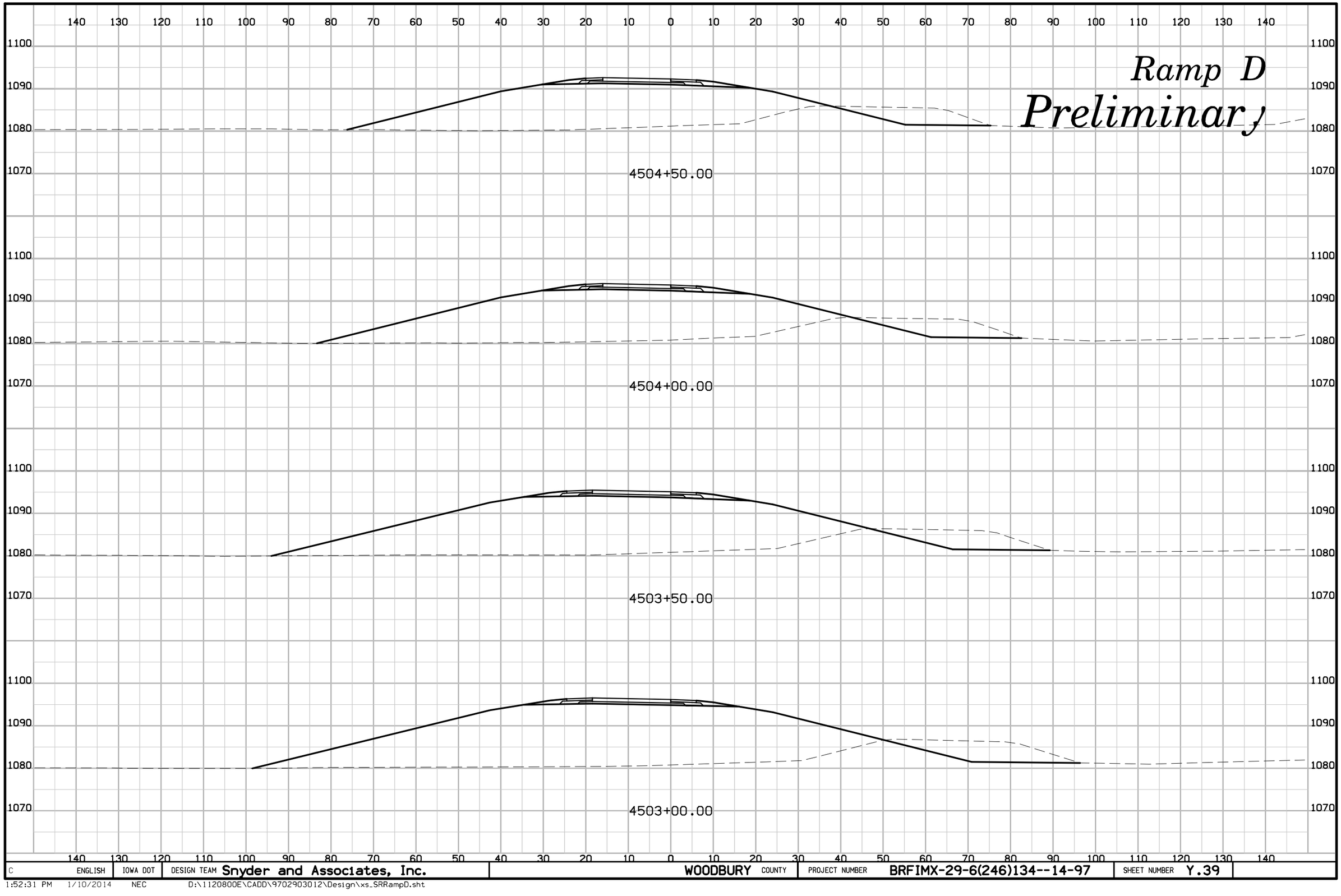
Ramp D

Preliminary



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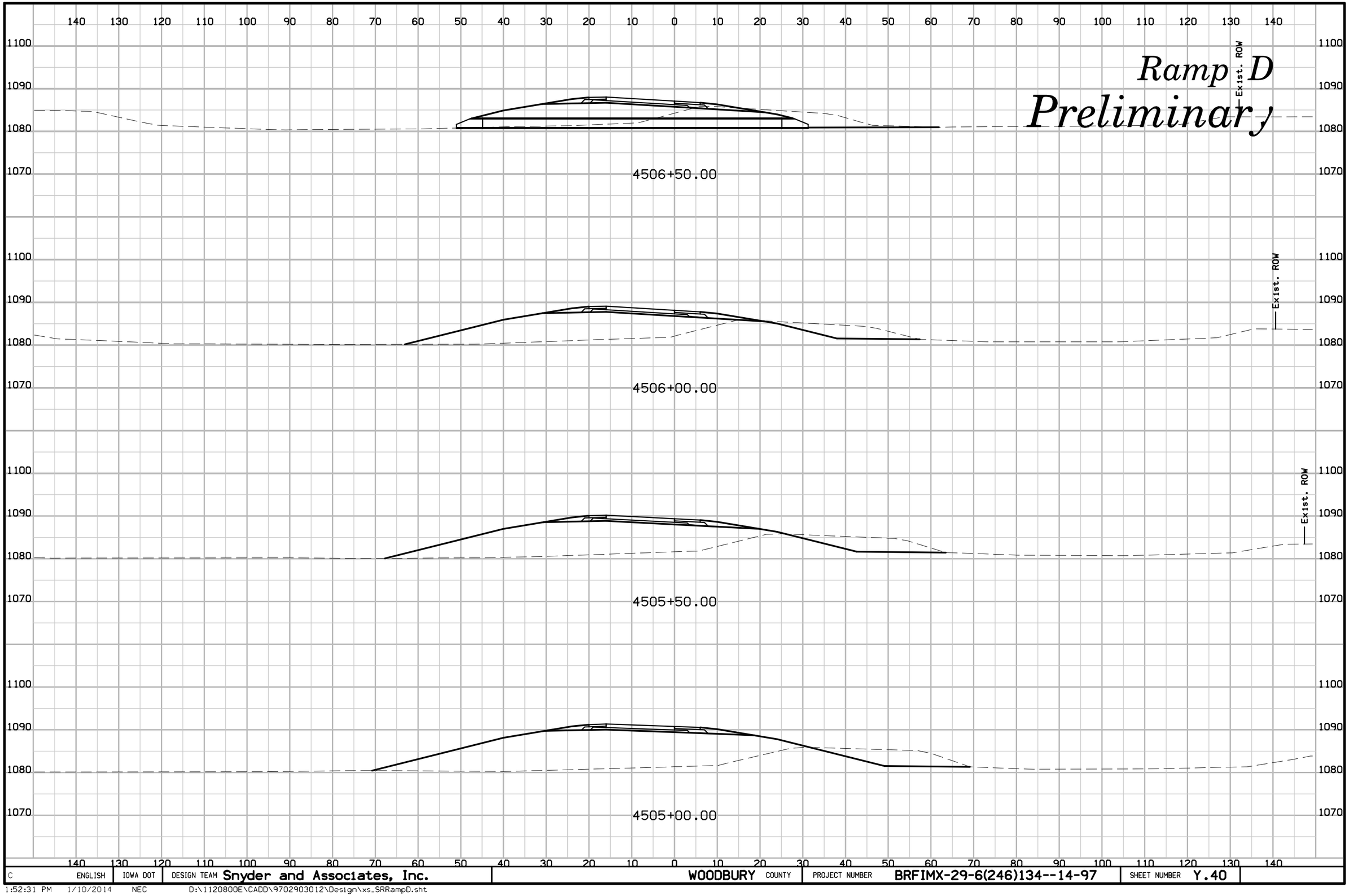
Ramp D

Preliminary



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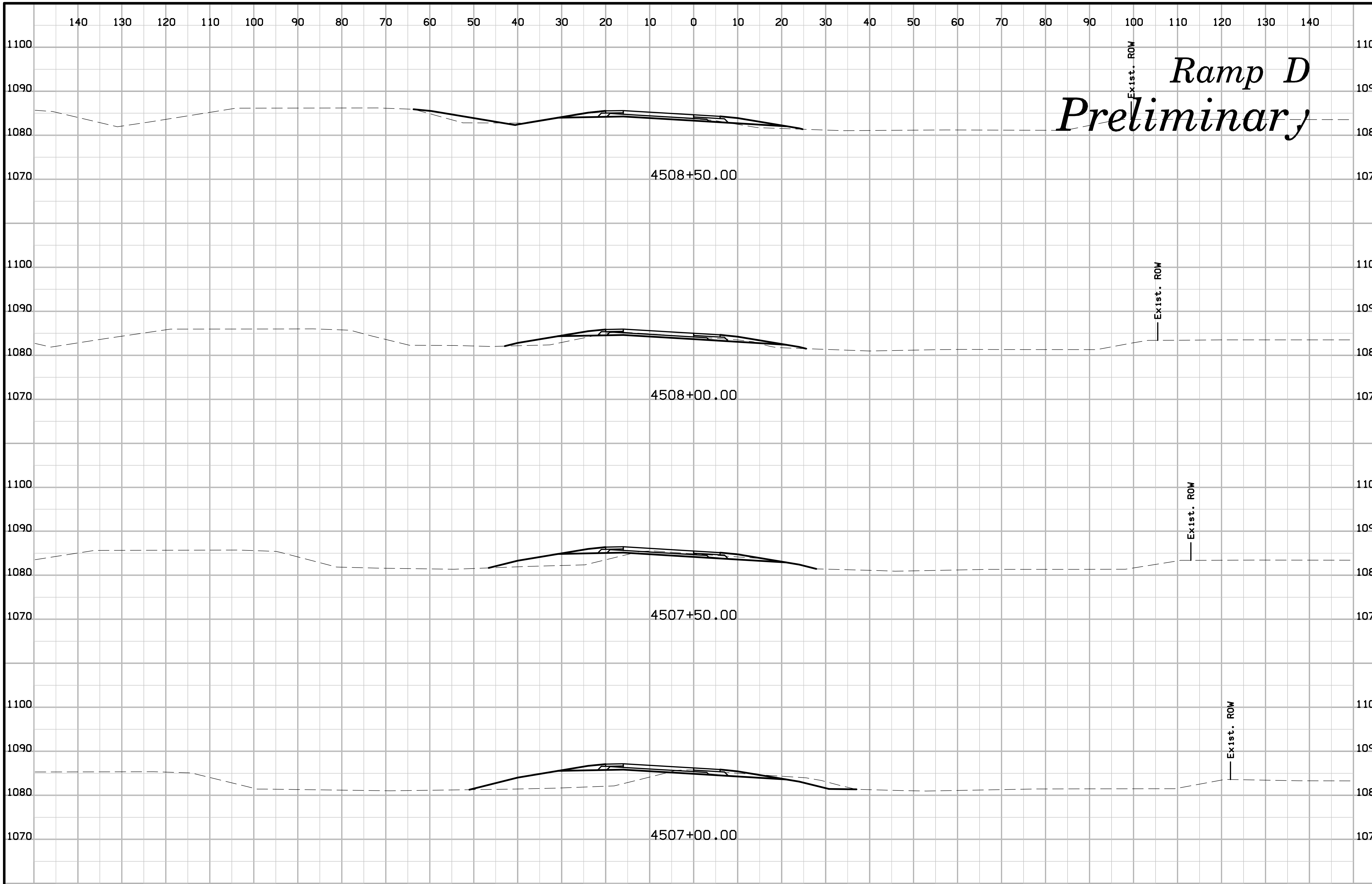

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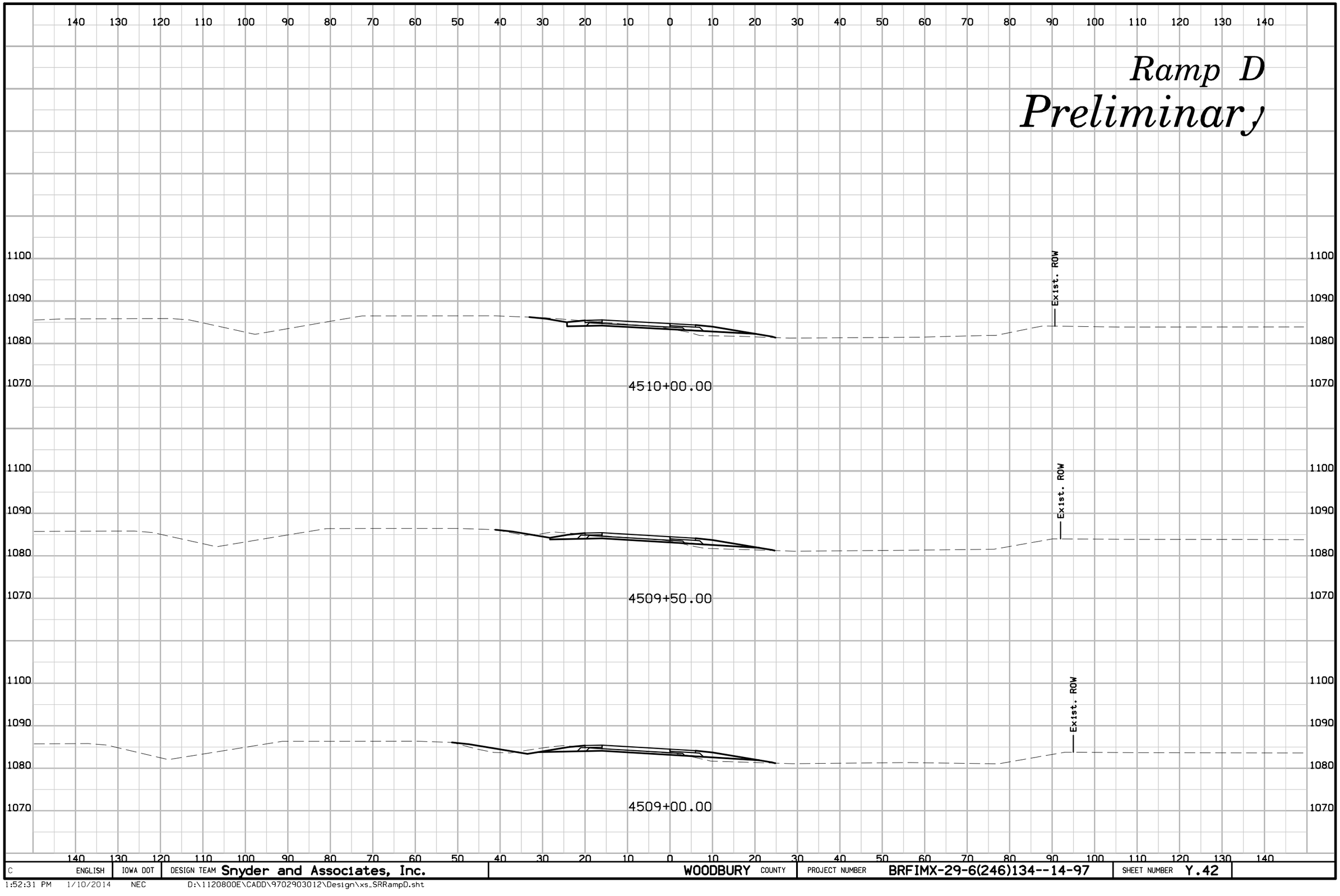
Ramp D

Preliminary



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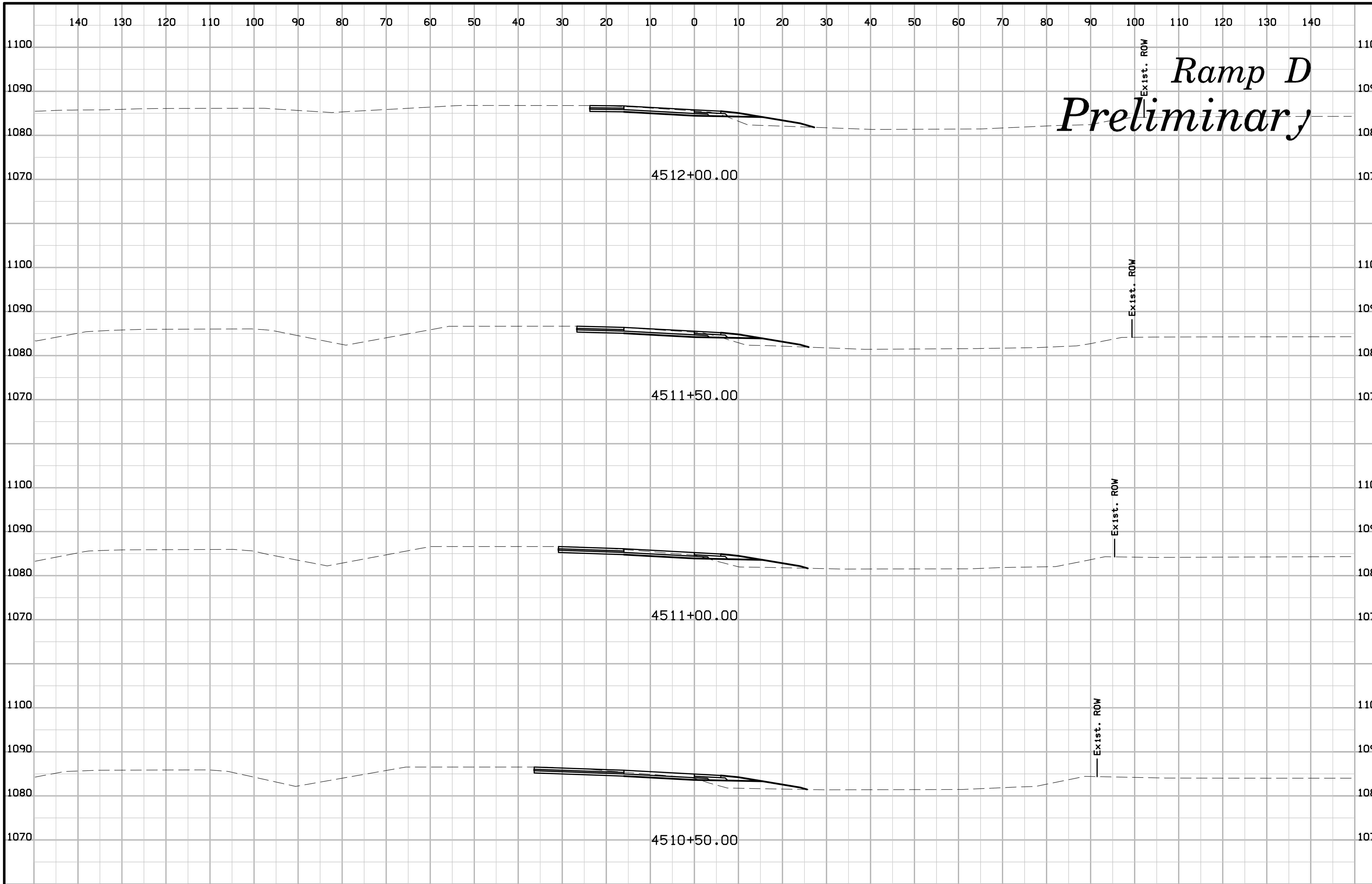

ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER	BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.43

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Ramp D

Preliminary

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

1100
1090
1080
1070

Exist. ROW

4513+50.00

4513+00.00

4512+50.00

C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.44

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Ramp D

Preliminary

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

1100
1090
1080
1070

Exist. ROW

4515+00.00

4514+50.00

4514+00.00

C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.45	

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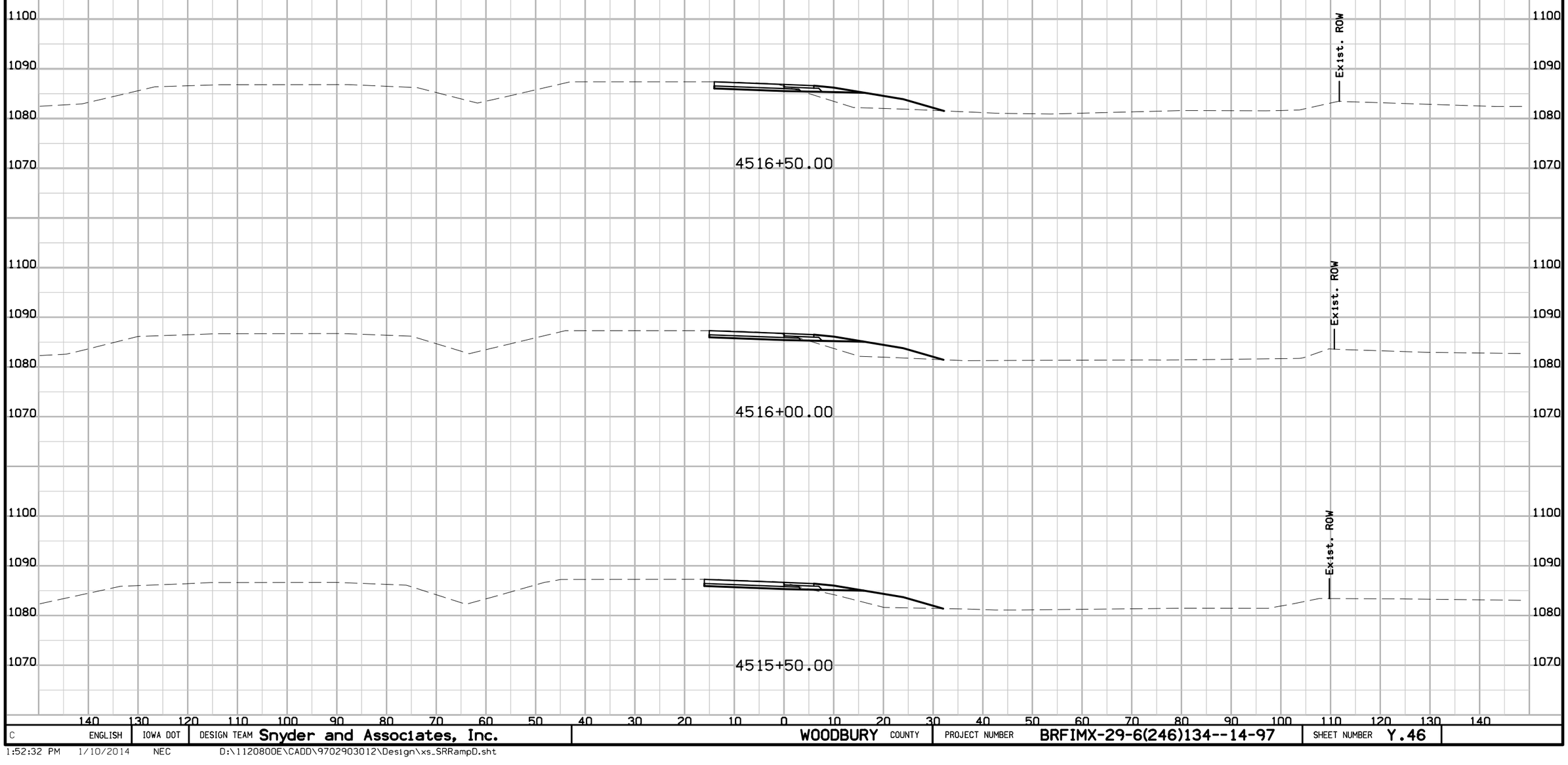
Ramp D

Preliminary



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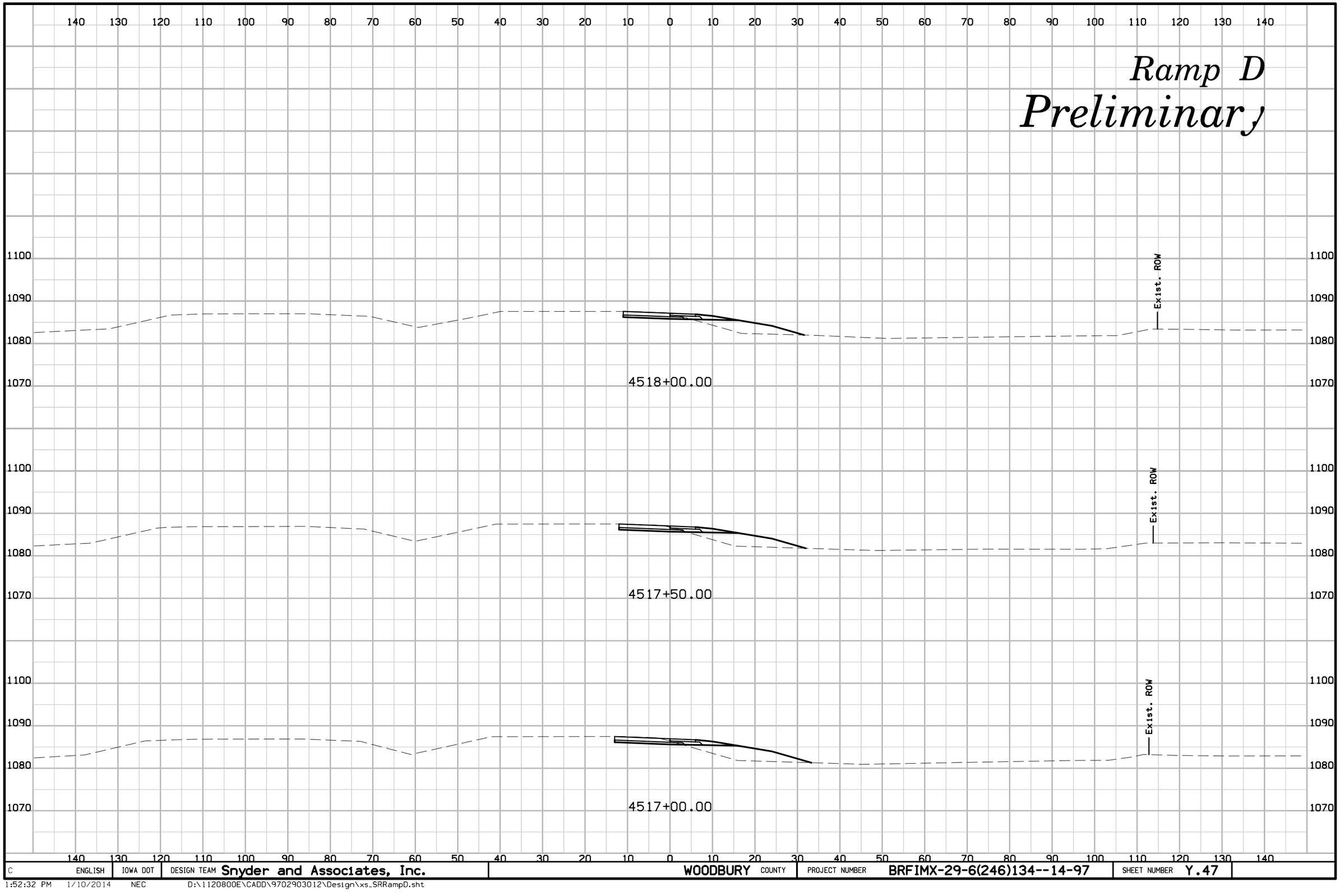
Ramp D

Preliminary



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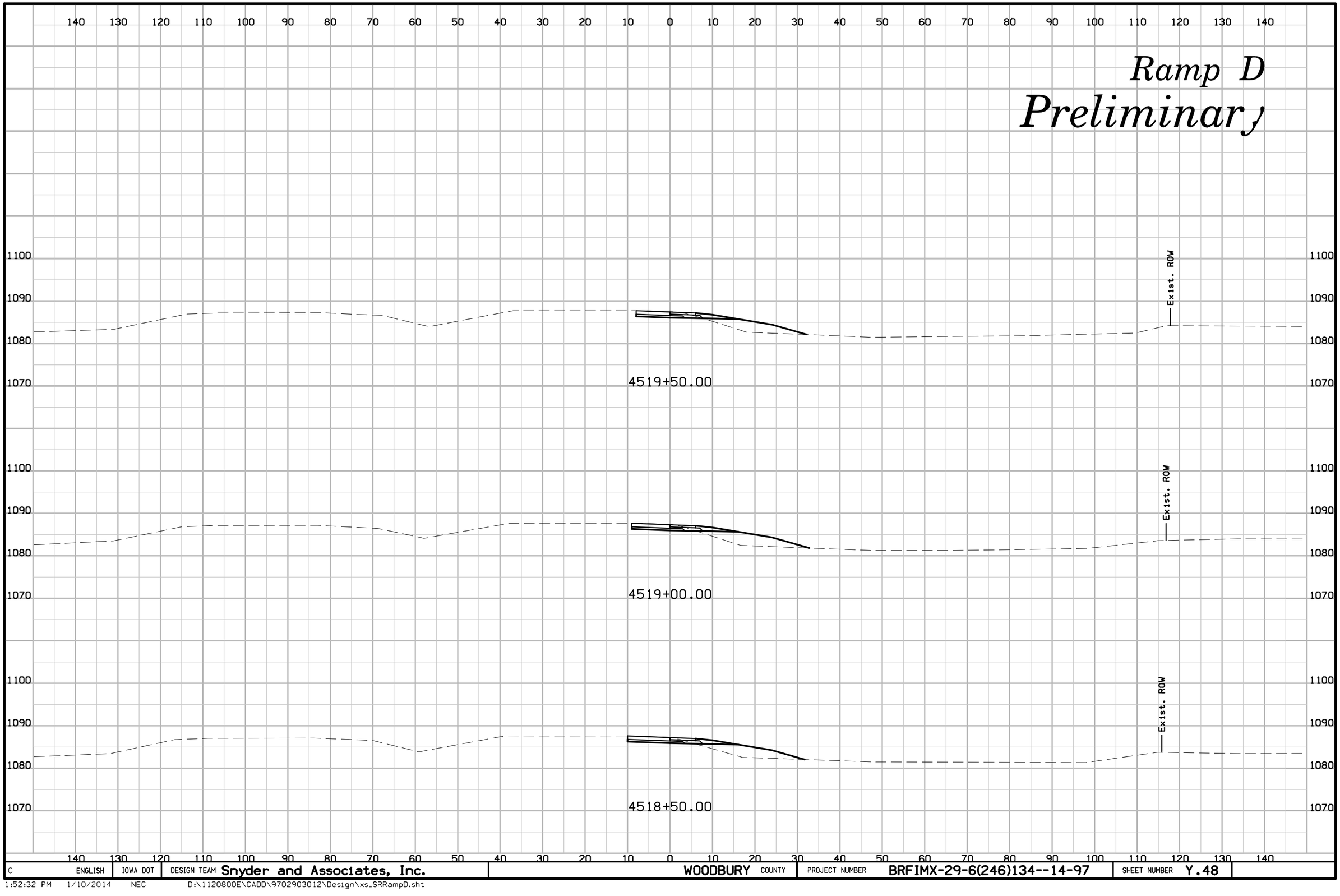
Ramp D

Preliminary



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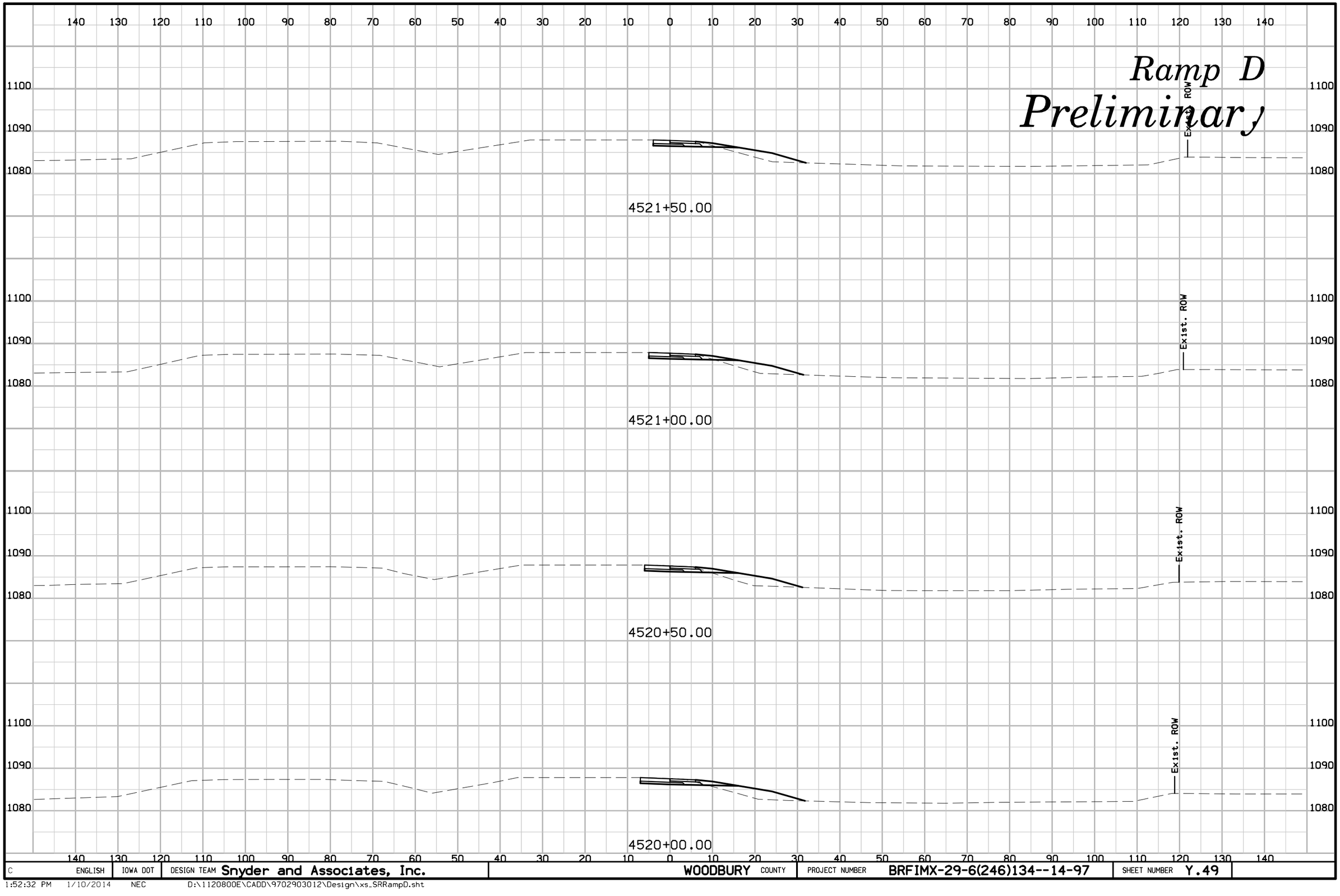
Ramp D

Preliminary



C ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.49	

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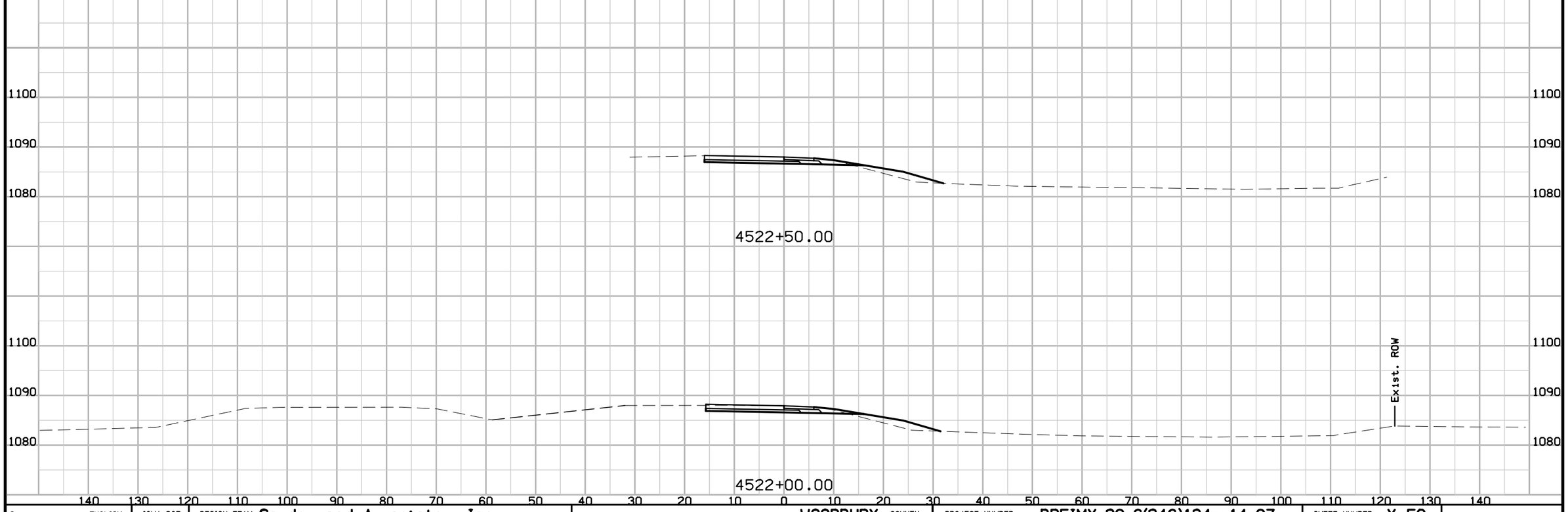
Ramp D

Preliminary



C	ENGLISH	IOWA DOT	DESIGN TEAM Snyder and Associates, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFIMX-29-6(246)134--14-97	SHEET NUMBER Y.50

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