GRADING

IMN-029-6(280)132-0E-97

WOODBURY Co.

LETTING DATE

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet and Location Map
A.2	Design Criteria Sheets
B Sheets	**Typical Cross Sections and Details**
B.1	Typical Cross Sections and Details
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	I-29
E Sheets	**Side Road Plan and Profile Sheets**
* E.1 - 2	K-35
G Sheets	**Survey Sheets**
G.1 - 3	Survey and Alignment Data
G.4	Superelevation Tabulation
Q Sheets	**Soils Sheets**
Q.1	Soils Legend & Symbol Information Sheet
Q.2 - 3	Soils Sheets K-35
W Sheets	**Mainline Cross Sections**
W.1	Cross Sections Legend & Symbol Information Sheet
X Sheets	**Side Road Cross Sections**
X.1 - 22	Side Road Cross Sections
	* Color Plan Sheets

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

WOODBURY COUNTY

GRADING

County Road K-35/Carroll Ave. over I-29
4.2 miles North of IA 141

SCALES: As Noted

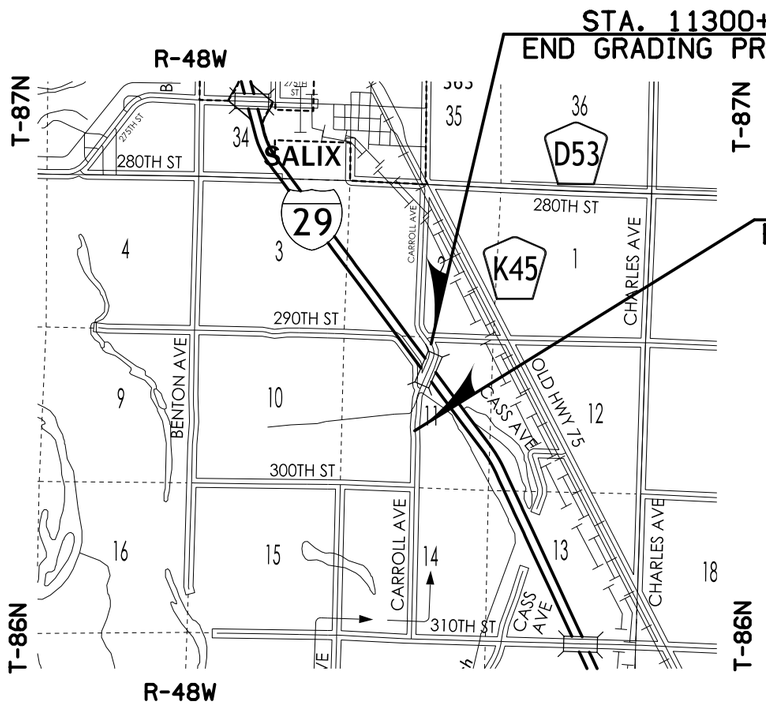
Refer to the Proposal Form for list of applicable specifications.

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

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

REVISIONS

TOTAL 37
PROJECT IDENTIFICATION NUMBER
16-97-029-050
PROJECT NUMBER
IMN-029-6(280)132-0E-97
R.O.W. PROJECT NUMBER
TBA



STA. 11279+25.00
BEGIN GRADING PROJECT

LOCATION MAP SCALE
0 0.5 1 1.5
Miles

DESIGN DATA RURAL		
2016 AADT	80	V.P.D.
20-- AADT	TBD	V.P.D.
20-- DHV	TBD	V.P.H.
TRUCKS	TBD	%
Total Design ESALs	TBD	

ROADWAY DESIGN

PROFESSIONAL ENGINEER — LICENSED — Daniel J. Smith 17558 — IOWA

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

Signature — Date

Daniel J. Smith, P.E.
Printed or Typed Name

My license renewal date is December 31, 2018

Pages or sheets covered by this seal: A.1-A.2, B.1, D.1-D.2, E.1-E.2, G.1-G.4, Q.1-Q.2 W.1, X.1-X.22

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

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: Sept. 15, 2017

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER A.1

12:37:50 PM 9/15/2017 mander23 pw:\\projectwise.ch2m.com:DEN001\Documents\684571 - IOWA ON CALL BRIDGE\Work in Progress\9702905016_K35\Design\SHT_9702980Z04A01.dgn

Design Criteria Worksheet

Roadway			
PIN Number	16-97-029-050	**Submittal Date**	9/15/2017
Project Number	IMN-029-6(280)132--0E-97	**Revison Date**	
District	District 3		
County	Woodbury		
Route	K-35		
Location	County Road K-35 over I-29, 4.2 miles north of IA 141		
Work Type	Bridge Raising and Grading		
Segment Manager			
Designer	CH2M		
Design year ADT =	80		

Design Manual Section 1C-1
Last Updated: 05-26-17

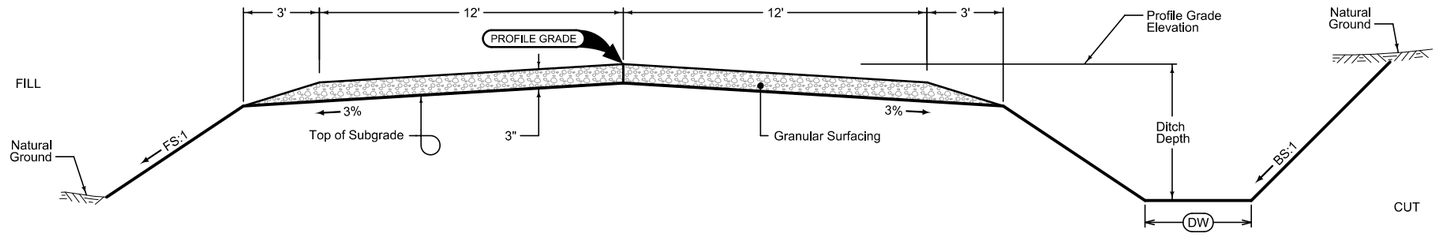
Secondary Roads

Design Elements		Project value	Local Systems I.M. 3.210 value	Remarks
Design speed (mph)		40	50	
Design lane width (ft.)		12 (a)	10	
Shoulder width (ft.)		3 (a)	3	
Bridge width - new (ft.)		NA	24	
Bridge width - existing (ft.)		24	20	
Maximum super elevation rate (%)		4% (b)	8%	
Minimum radius (ft.)		572 (b)	758	
Stopping sight distance (ft.)		305 (d)	425	
Vertical curve length (ft.)		120 (c)	NA	
Minimum rate of vertical curvature (K)	Crest	44 (d)	84	
	Sag	64 (d)	96	
Minimum gradient (%)		0.5% (c)	NA	
Maximum gradient (%)		6%	6%	
Foreslope		3:1 (e)	2:1	
Backslope		3:1 (f)	NA	
Traverse slopes		8:1 (g)	NA	
Clearzone		8-10	8-10	See I.M. 3.215

Notes:

a) Based on existing roadway approach top width of 30'
b) Based on existing roadway alignment and design speed 40 mph
c) Per Iowa DOT Design Manual Chapter 2B-1
d) Per Iowa DOT Design Manual Chapter 6D-1
e) See Project Statement
f) Per Iowa Design Manual Chapter 1C-1, Rural Two Lane, 3:1 preferred and 2.5:1 acceptable
g) Per Iowa DOT Design Manual Chapter 3F-3

LOCATION			DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION		FS	BS	(DW) Feet
K-35	11279+25.00	11300+00.00	3	NA	NA



GRADING AND GRANULAR SURFACING

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_GradeGran
10-17-17

SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- RET Retaining Walls
- EP Edge of Paved Roads (ML or SR)
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- CU Back of Curb
- GU Gutter In Front of Curb
- SI Sign (SIGN)
- GDL Guard Rail Steel
- PIP Pipe Culvert
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- GDC Guard Rail Cable
- GR Ground Shot
- BL Topo Breakline
- PPA Power Pole Co. 1
- TDC Tree Deciduous
- Default_Point Default Point Feature
- FW Wire Fence
- MIS Miscellaneous
- TLNR Tree Line Right
- TEV Evergeen Tree
- TPD Telephone Pedestal (TP)
- SNP Unpaved Shoulder
- EG Edge of Gravel Road
- FWD Wood Fence
- BBB Bottom of Bridge Beam
- TOP Top of Bridge Pier
- TLNL Tree Line Left

UTILITY LEGEND

— E1 —	(Overhead)	MidAmerican Energy Company Contact: Pat Lee Phone: 712-233-4832

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)

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER D.1

9:38:50 AM 9/14/2017 mander23 pw:\\projectwise.ch2m.com:DEN001\Documents\684571 - IOWA ON CALL BRIDGE\Work in Progress\9702905016_K35\Design\SHT_9702928004.lgd

LAKEPORT TWP.
T-86N R-47W
SEC.11

EXISTING ROW

EXISTING ROW

COUNTY ROAD K-35

1285

1290

1295

EX. I 29 SURVEY ℄

EX. I 29 SB (U.A.C.)

EX. I 29 NB (U.A.C.)

(U.A.C.)
Sta. 1281+00
24" x 54' R.C.P.
F.L. = Lt. 1075.03
Rt. 1068.00

POT STA. 1290+26.80 (EX. I 29) =
POT STA. 11290+26.80 (K-35)

(U.A.C.)
Sta. 1291+17
24" x 168' R.C.P.
F.L. = Lt. 1075.06
Rt. 1077.50

(U.A.C.)
Sta. 1296+00
24" x 66' R.C.P.
F.L. = Lt. 1078.58
Rt. 1078.08

EXISTING ROW

EXISTING ROW

0 FEET 50

EX. I 29

For Side Road Details
Refer to Sheets No. E.1 & E.2

1095
1090
1085
1080
1075
1070
1065

EXISTING GROUND

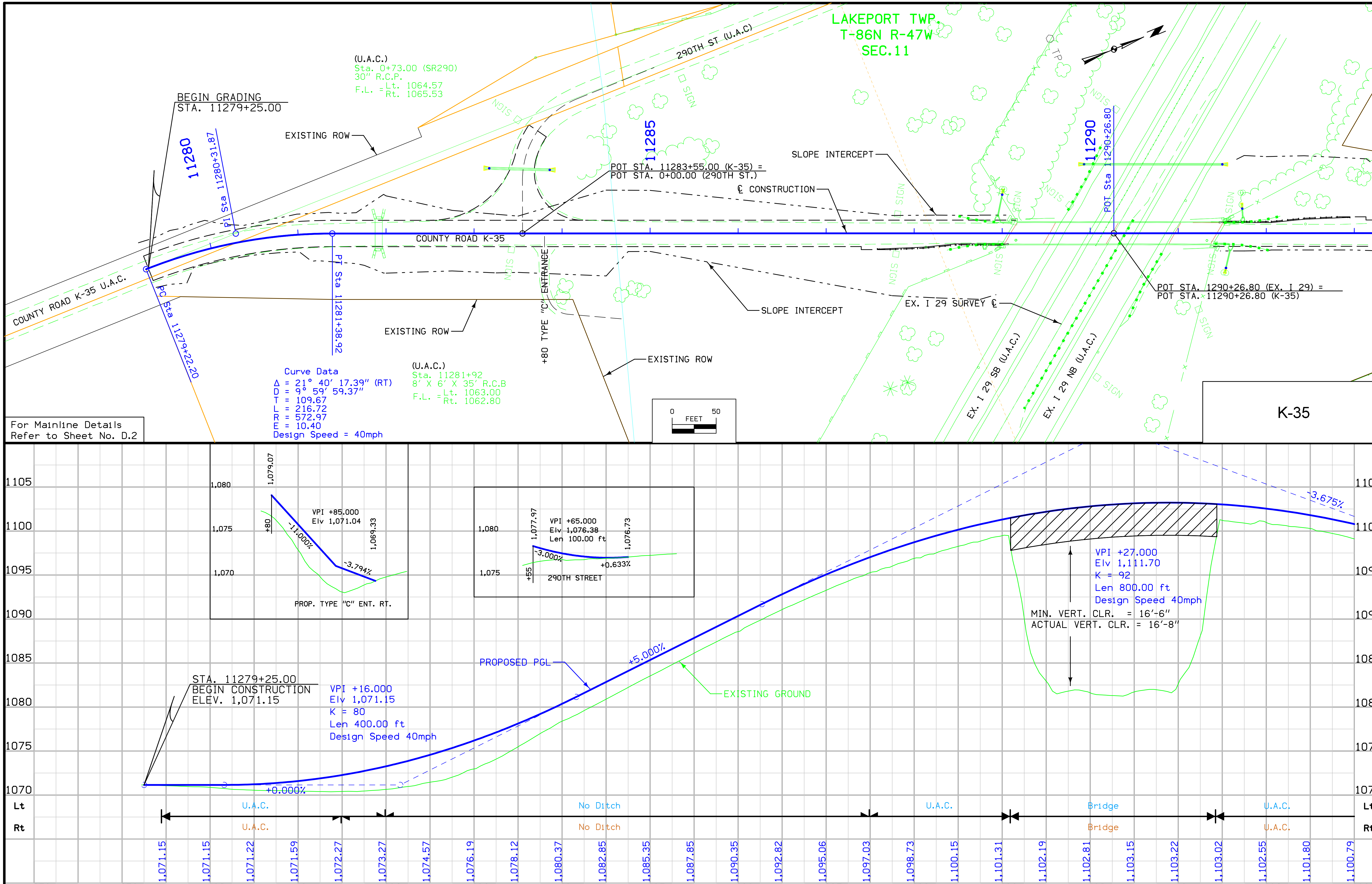
Lt
Med
Rt

U.A.C.
U.A.C.
U.A.C.

1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295 1296

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER D.2

9:40:14 AM 9/14/2017 mander23 pw:\\projectwise.ch2m.com:DEN001\Documents\684571 - IOWA ON CALL BRIDGE\Work in Progress\9702905016_K35\Design\SHT_9702928004D01.dgn



FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER E.1

12:49:05 PM 9/15/2017 mander23 pw:\\projectwise.ch2m.com:DEN001\Documents\684571 - IOWA ON CALL BRIDGE\Work in Progress\9702905016_K35\Design\SHT_97029280Z04E01.dgn

LAKEPORT TWP.
T-86N R-47W
SEC.11

Curve Data
Δ = 59° 59′ 12.14″ (LT)
D = 9° 59′ 57.68″
T = 330.73
L = 599.91
R = 572.99
E = 88.60
Design Speed = 40mph

PC Sta 11294+26.60

11295

SLOPE INTERCEPT

EXISTING ROW

END GRADING
STA. 11300+00.00

℄ CONSTRUCTION

11300

PT Sta 11300+26.51

COUNTY ROAD K-35

EXISTING ROW

SLOPE INTERCEPT

RI Sta 11297+57.33

11305

PI Sta 11307+16.40

COUNTY ROAD K-35 U.A.C.

PC Sta 11305+12.30

PT Sta 11309+04.43

EXISTING ROW

290TH ST. U.A.C.

Curve Data
Δ = 39° 12′ 59.64″ (RT)
D = 10° 00′ 02.55″
T = 204.10
L = 392.14
R = 572.92
E = 35.27

0 FEET 50

For Mainline Details
Refer to Sheet No. D.2

K-35

PROPOSED PGL

-3.675%

EXISTING GROUND

VPI +95.050
Elv 1,083.47
K = 115
Len 400.00 ft
Design Speed 40mph

-0.195%

STA. 11300+00.00
END CONSTRUCTION
ELEV. 1,083.07

1110 1105 1100 1095 1090 1085 1080 1075

Lt U.A.C.
Rt U.A.C.

1,099.51 1,097.95 1,096.15 1,094.31 1,092.48 1,090.64 1,088.93 1,087.44 1,086.17 1,085.12 1,084.28 1,083.66 1,083.26 1,083.07

11293 11294 11295 11296 11297 11298 11299 11300 11301 11302 11303 11304 11305 11306 11307 11308

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER E.2

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Survey Information

WOODBURY COUNTY
IMN-029-6(280)132-0E-97
290TH STREET AND CARROLL AVENUE K-35

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction and reconstruction of County Road Carroll Ave over I-29., Project datum and control information is provided by Shive-Hattery, Inc.

Vertical Control

Bench Mark IHC CAP from IOWA DOT PLANS **VERTCAL DATUM: NAVD88**

Horizontal Control

HORIZIZONTAL DATUM: NAD83(2011) EPOCH 2013.00
Ia. Regional Coordinate System Zone 4

Point Name	Northing	Easting	Elevation	Description
1	8512366.8409	14108561.4788	1082.5680	CP1 MAG NAIL WITH WASHER
2	8512051.925	414108803.1848	1081.5880	CP2 MAG NAIL WITH WASHER
3	8512146.7252	14108685.6728	1099.8140	CP3 CUT X IN BRIDGE DECK
4	8512346.9661	14108768.7950	1101.3250	CP4 CUT X IN BRIDGE DECK
5	8512373.8515	14108754.80181	101.6100	BM5 NE COR BRIDGE ON WING WALL IHC CAP

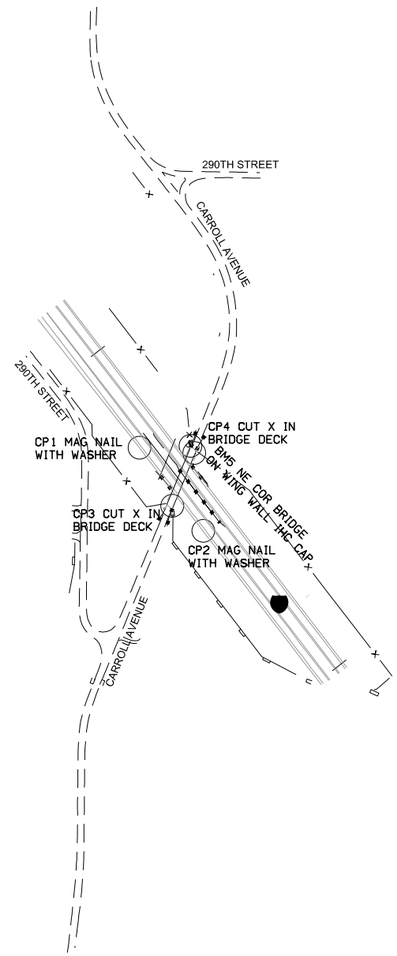
Alignment Information

No horizontal aligment was created for this project.

CONTROL POINT VICINITY MAP

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

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



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 4

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 4

Point Name	Northing	Easting	Elevation	Description
1	8512366.8409	14108561.4788	1082.5680	CP1 MAG NAIL WITH WASHER
2	8512051.925	414108803.1848	1081.5880	CP2 MAG NAIL WITH WASHER
3	8512146.7252	14108685.6728	1099.8140	CP3 CUT X IN BRIDGE DECK
4	8512346.9661	14108768.7950	1101.3250	CP4 CUT X IN BRIDGE DECK
5	8512373.8515	14108754.80181	101.6100	BM5 NE COR BRIDGE ON WING WALL IHC CAP

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)
SRDK35	K-35																		
CUR SRK35_1								11279+22.20	8,511,220.7811	14,108,338.4351	11280+31.87	8,511,330.4410	14,108,339.9270	11281+38.92	8,511,431.7987	14,108,381.8092			
SRK354		11290+26.80	8,512,252.3871	14,108,720.8857															
CUR SRK35_6								11294+26.60	8,512,621.8831	14,108,873.5656	11297+57.33	8,512,927.5460	14,108,999.8690	11300+26.51	8,513,189.8061	14,108,798.3697			
CUR SRK35_9								11305+12.30	8,513,575.0250	14,108,502.3990	11307+16.40	8,513,736.8709	14,108,378.0498	11309+04.43	8,513,940.8831	14,108,384.0365			
SR290	290TH ST.																		
SRD290		0+00.00	8,511,631.5025	14,108,464.3290															
CUR SRD2901								0+60.40	8,511,654.5702	14,108,408.5034	1+27.73	8,511,680.2802	14,108,346.2837	1+78.91	8,511,747.6012	14,108,346.6946			
SRD291		2+73.04	8,511,841.7308	14,108,347.2690															
ML029	EX. I-29																		
1001		1256+62.74	8,509,584.8970	14,110,770.6090															
1000		1379+34.36	8,519,315.5370	14,103,293.4980															

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	
SRDK35	K-35															
CUR SRK35_1											21° 40' 17.39" RT	109.6700'	216.7188'	572.9678'	10.4014'	
CUR SRK35_6											59° 59' 12.14" LT	330.7300'	599.9057'	572.9947'	88.5983'	
CUR SRK35_9											39° 12' 59.64" RT	204.1000'	392.1379'	572.9173'	35.2694'	
SR290	290TH ST.															
CUR SRD2901											67° 53' 55.37" RT	67.3223'	118.5056'	100.0000'	20.5500'	

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER G.3

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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														
SRDK35	SRK35_1	572.97	4.0	83	62	PV-301	11279+25.00	11279+35.33	11279+97.33	11280+18.33									High side ties to existing -0.5%
							11282+59.02	11281+97.02	11281+35.02	11281+14.02									High side ties to existing 3.0%
SRDK35	SRK35_6	572.99	4.0	83	62	PV-301	11293+06.50	11293+68.50	11294+30.50	11294+51.50									
							11299+58.00	11300+00.00											

SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- RET Retaining Walls
- EP Edge of Paved Roads (ML or SR)
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- CU Back of Curb
- GU Gutter In Front of Curb
- SIGN SI Sign
- GDL Guard Rail Steel
- PIP Pipe Culvert
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- GDC Guard Rail Cable
- GR Ground Shot
- BL Topo Breakline
- PPA Power Pole Co. 1
- TDC Tree Deciduous
- Default_Point Default Point Feature
- FW Wire Fence
- MIS Miscellaneous
- TLNR Tree Line Right
- TEV Evergeen Tree
- TP TPD Telephone Pedestal
- SNP Unpaved Shoulder
- EG Edge of Gravel Road
- FWD Wood Fence
- BBB Bottom of Bridge Beam
- TOP Top of Bridge Pier
- TLNL Tree Line Left

UTILITY LEGEND

E1	(Overhead)	MidAmerican Energy Company Contact: Pat Lee Phone: 712-233-4832

PLAN VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Purple (Halo)	(15)	Backslope Drains
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING	**Design Color No.**	
Brown, Light	(236)	Core Out

PROFILE VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Blue	(1)	Proposed Alignment, Stationing, and Alignment Annotation
Green	(2)	Existing Ground Line Profile
Green, Med	(227)	Topsoil
Green, Med	(227)	Slope Dressing Only
Orange	(6)	Loam
Brown, Dark	(238)	Class 10
Brown, Med	(237)	Sand
Red	(3)	Unsuitable A
Pink, Dark	(13)	Unsuitable B
Pink	(11)	Unsuitable C
Red	(3)	Shale
Red	(3)	Waste
Gray, Light	(48)	Broken and Weathered Rock
Gray, Med	(80)	Rock
Gray, V.Dark	(128)	Boulders

PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

- Drill
- Dig/Core
- $-H_2O-$ Water
- Treatment
- DRY Dry
- Sand Blanket
- S Sample
- Soil Remediation Area
- Plugged
- Select Soil
- M Moisture
- Select Sand
- Shelby
- Slope Dressing Only
- Blow Count
- Broken and Weathered Rock
- Dens. Core
- Rock

Soils Book No. _____

Date(s) Drilled _____

- Sandstone
- Unsuitable A
- Unsuitable B
- Unsuitable C
- Sandy Soil
- Boulders
- Shale

Reference Point — Survey Line

Station — Section Corner

Ground Line Intercept

Saw Cut

Guardrail

Clearing & Grubbing Area

Pavement Removal

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- A/C Access Control

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

SOILS LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES Q & R)

FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER	IMN-029-6(280)132-0E-97	SHEET NUMBER	Q.1

4:28:09 PM 9/15/2017 mander23 pw:\\projectwise.ch2m.com:DEN001\Documents\684571 - IOWA ON CALL BRIDGE\Work in Progress\97029050l6_K35\Design\SHT_97029280Z04.lgd

LAKEPORT TWP.
T-86N R-47W
SEC.11

EXISTING ROW

EXISTING ROW

EXISTING ROW

EXISTING ROW

EXISTING ROW

EXISTING ROW

11285

℄ CONSTRUCTION

11290

POT Sta 11290+26.80

11295

PC Sta 11294+26.60

PI Sta 11297+57.33

COUNTY ROAD K-35

B2-K35

B1-K35

POT STA. 11290+26.80 (K-35) =
POT STA. 1290+26.80 (EX. I 29)

EX. I 29 SURVEY ℄

EX. I 29 SB (U.A.C.)

EX. I 29 NB (U.A.C.)

0 50
FEET

For Profile Refer to Sheet No. Q.3

K-35

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER Q.2

6:17:58 PM 9/15/2017 mander23 pw:\\projectwise.ch2m.com:DEN001\Documents\684571 - IOWA ON CALL BRIDGE\Work in Progress\9702905016_K35\Design\SHT_9702928ZO4001.dgn

CUT MOISTURE
CUT DENSITY (lb/ft³)
PLASTIC LIMIT

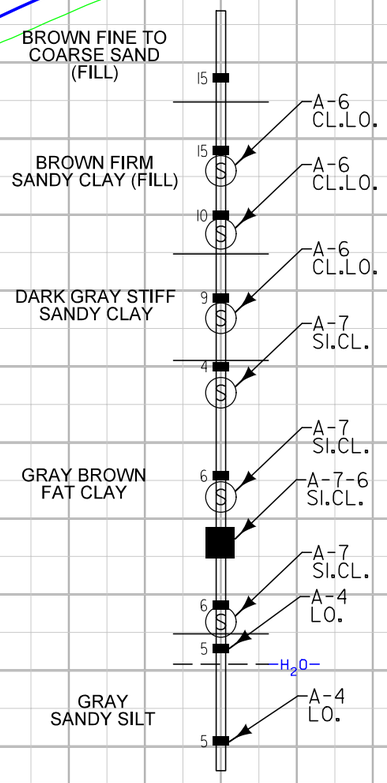
21,42,31,32,29,27,40,30
--,--,--,--,--,--,--,--
--,--,--,--,--,21,--,--

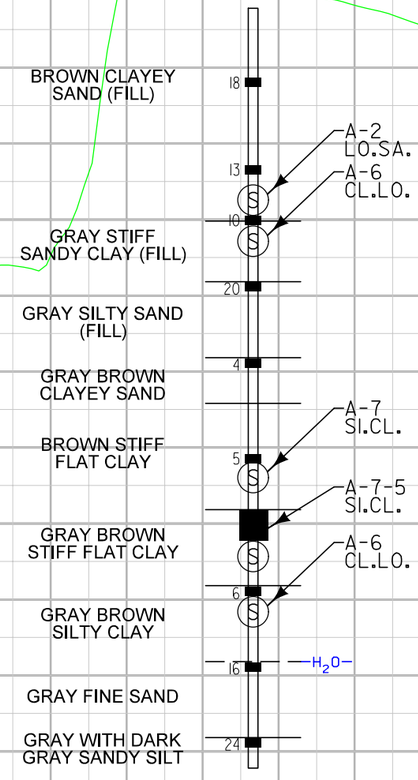
19,21,44,36,29
--,--,--,--,--
--,--,--,22,--

1115 1110 1105 1100 1095 1090 1085 1080 1075 1070 1065 1060 1055 1050 1045 1040 1035 1030 1025

PROPOSED GRADE

EXISTING GROUND





SHELBY TUBE CORE DATA

CORE NO.	B1-K35, ST-1	B2-K35, ST-1
CLASSIFICATION [AASHTO]	A-7-5	A-7-6
COEFF.CONSOL. SQ.FT /DAY	-	-
TRIAXIAL COMPRESSION	-	-
COHESION - PSF	-	-
FRICTION COEFF.	-	-
MOISTURE CONTENT %	36	27
DRY DENSITY - PCF	-	-
UU-UNCONSOLIDATED & UNDRAINED	1831	2176
CU-CONSOLIDATED & UNDRAINED		

B2-K35
RT 21

B1-K35
RT 5

K-35

11281 11282 11283 11284 11285 11286 11287 11288 11289 11290 11291 11292 11293 11294 11295 11296

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT\CH2M	WOODBURY COUNTY	PROJECT NUMBER IMN-029-6(280)132-0E-97	SHEET NUMBER Q.3

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LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

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

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

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

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

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

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing Right-of-Way Limit

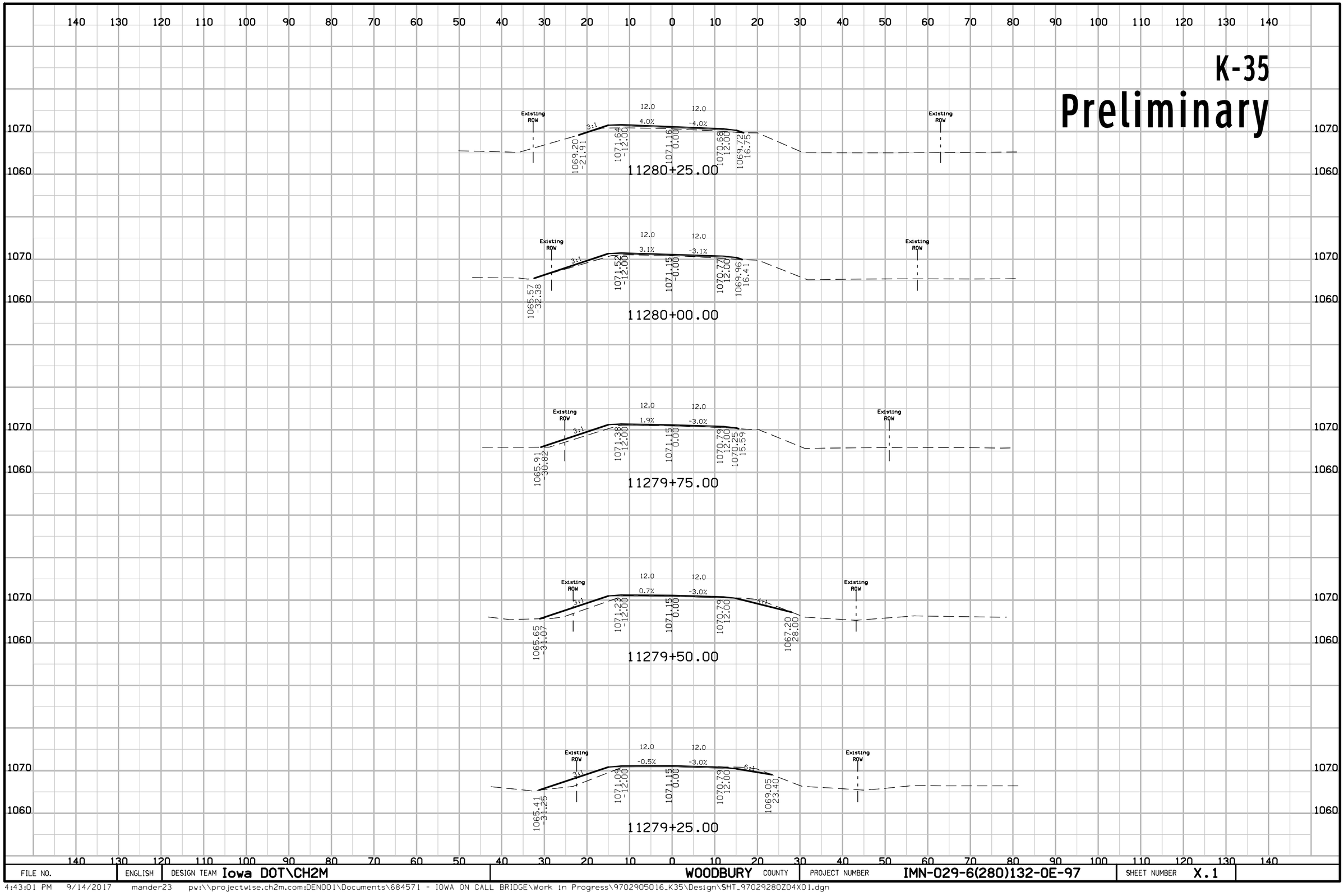
Proposed Right-of-Way Limit

Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES W & X

K-35
Preliminary



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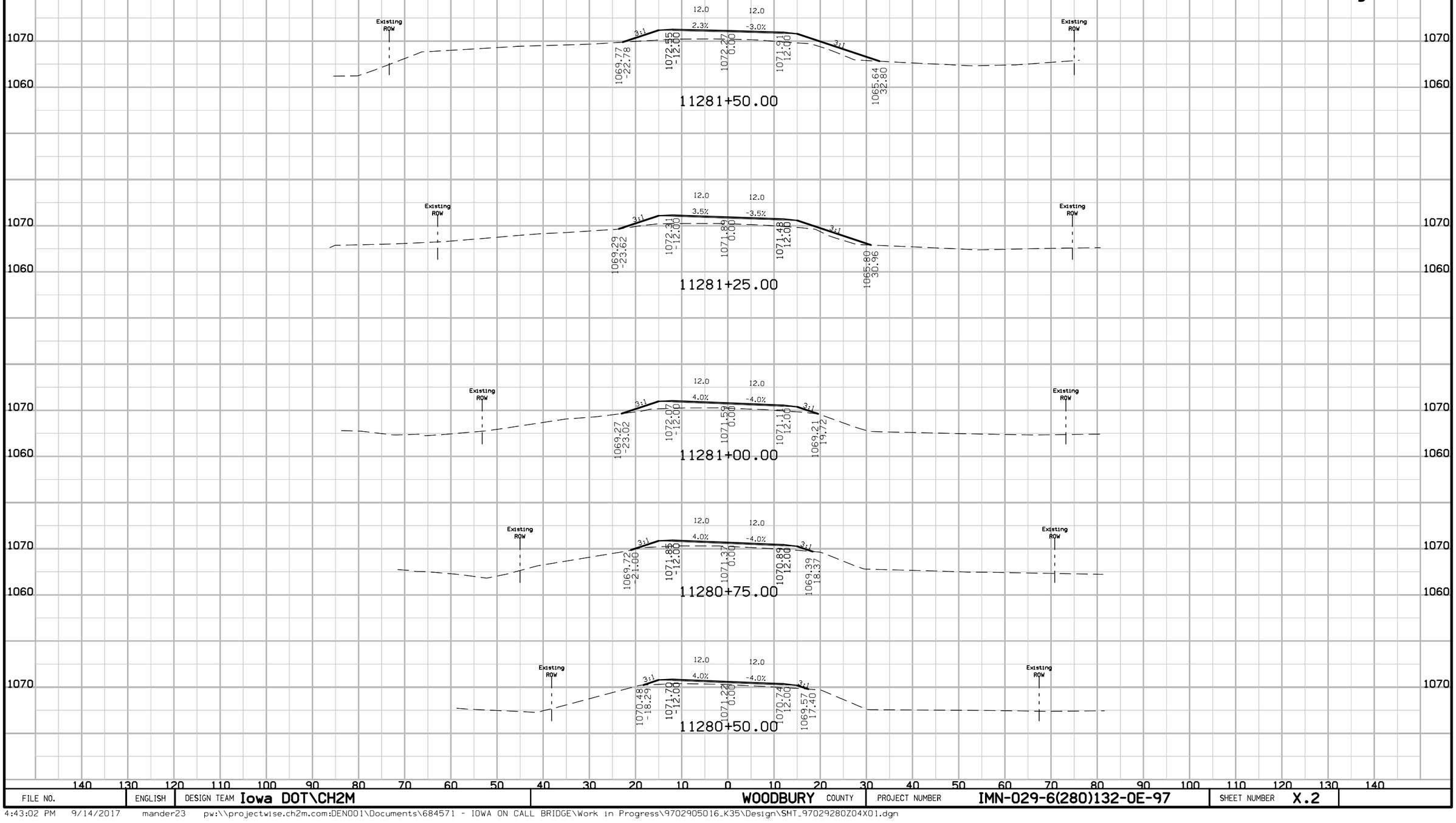
K-35

Preliminary



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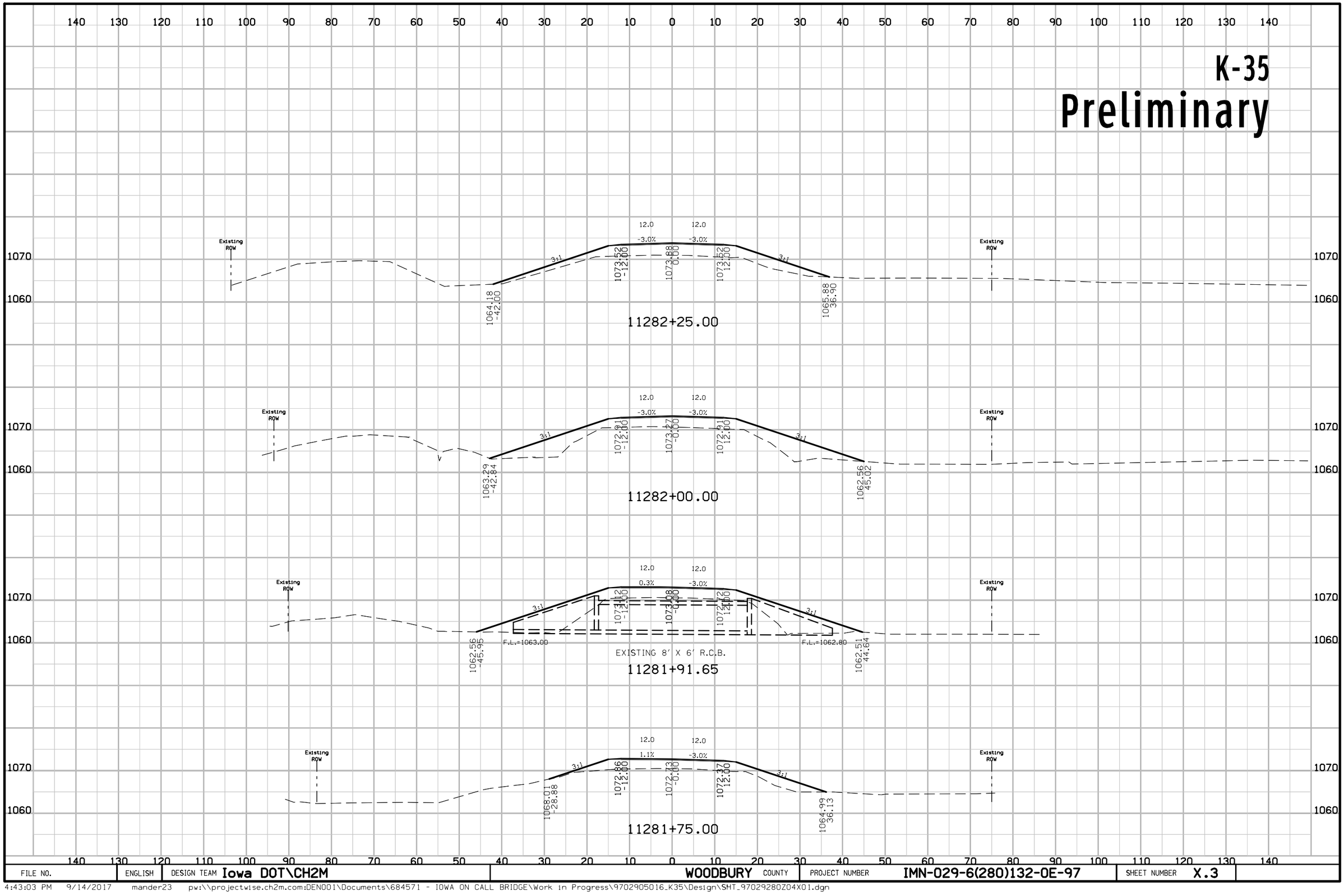
K-35
Preliminary



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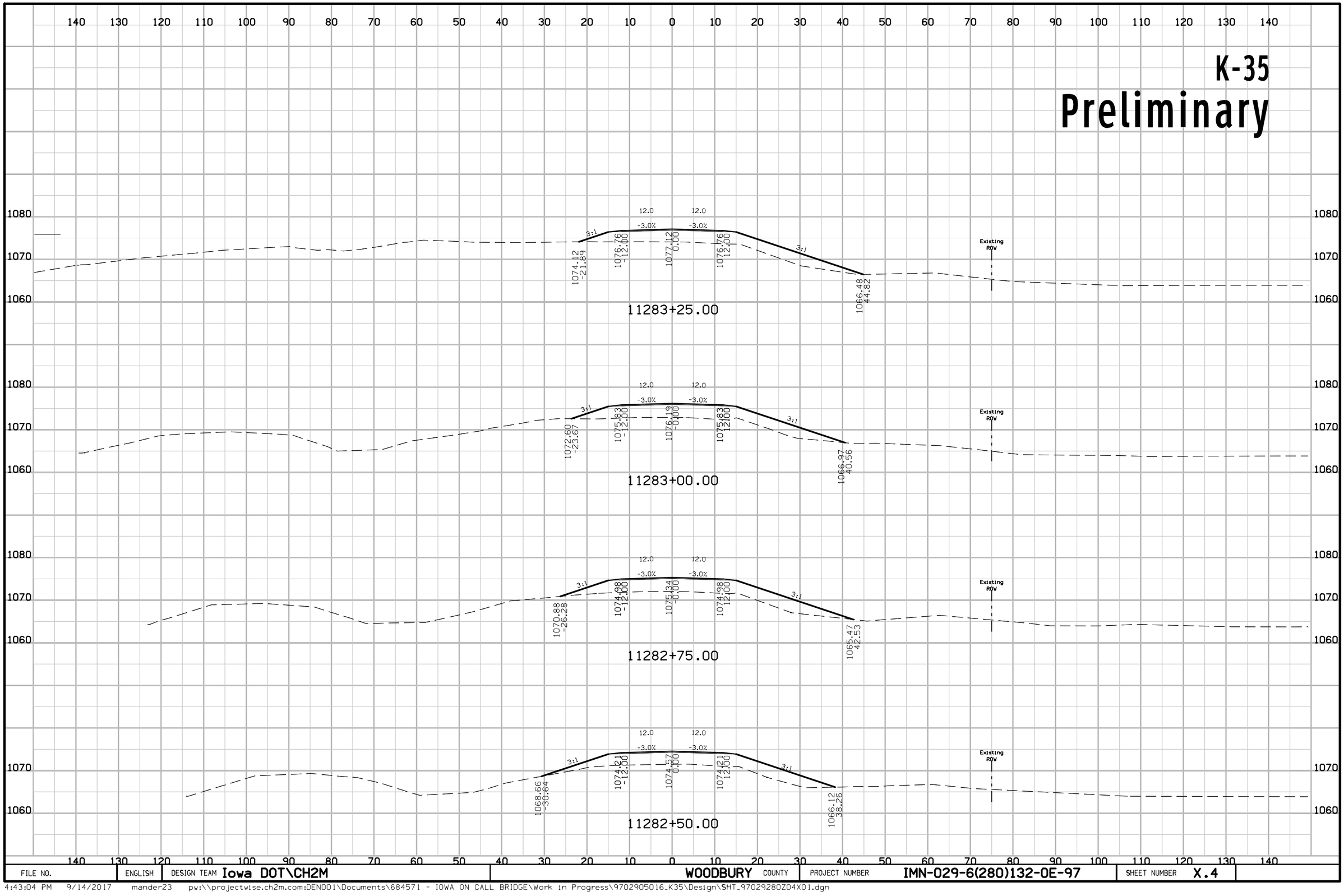
K-35
Preliminary



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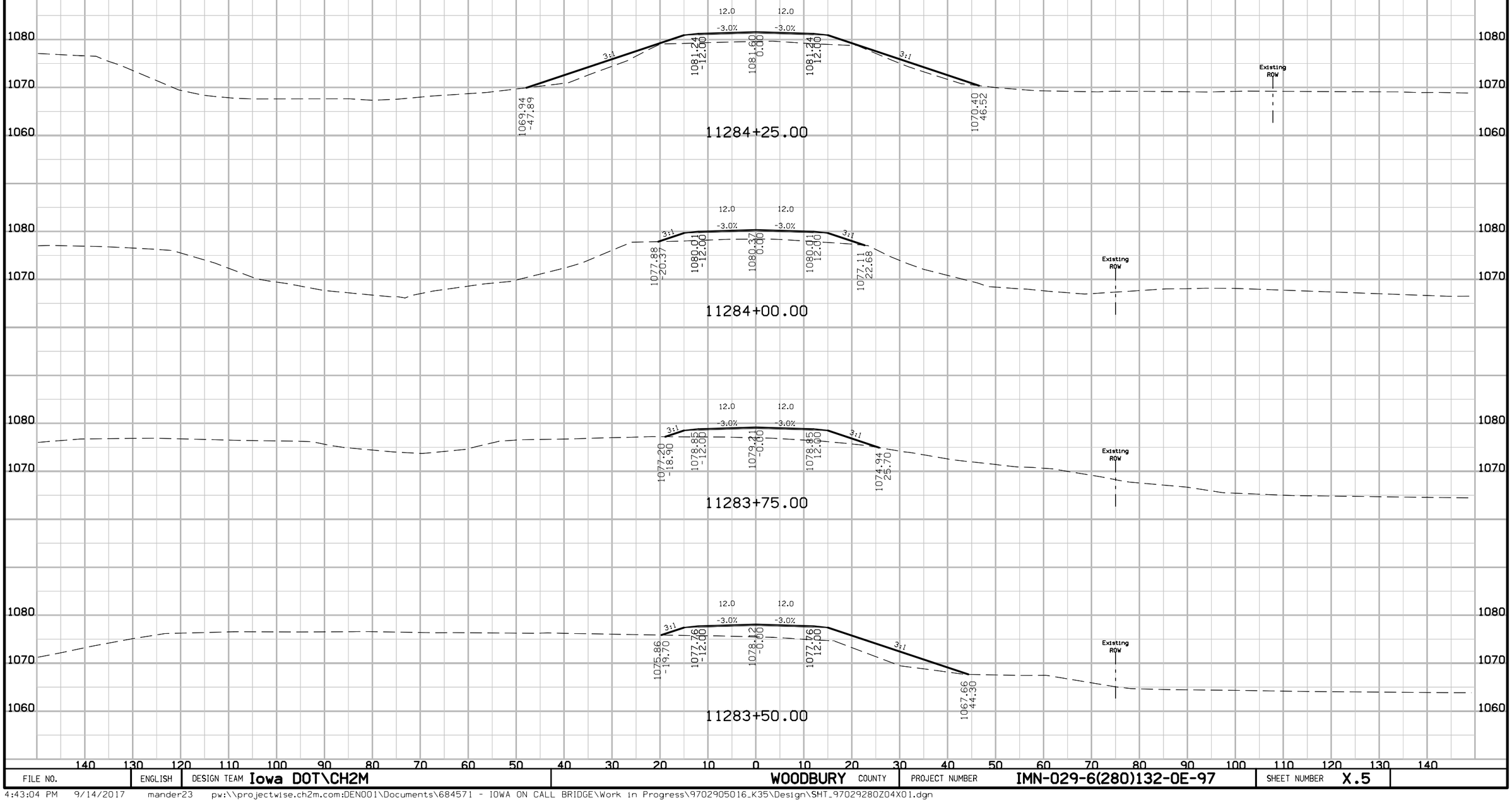
K-35
Preliminary



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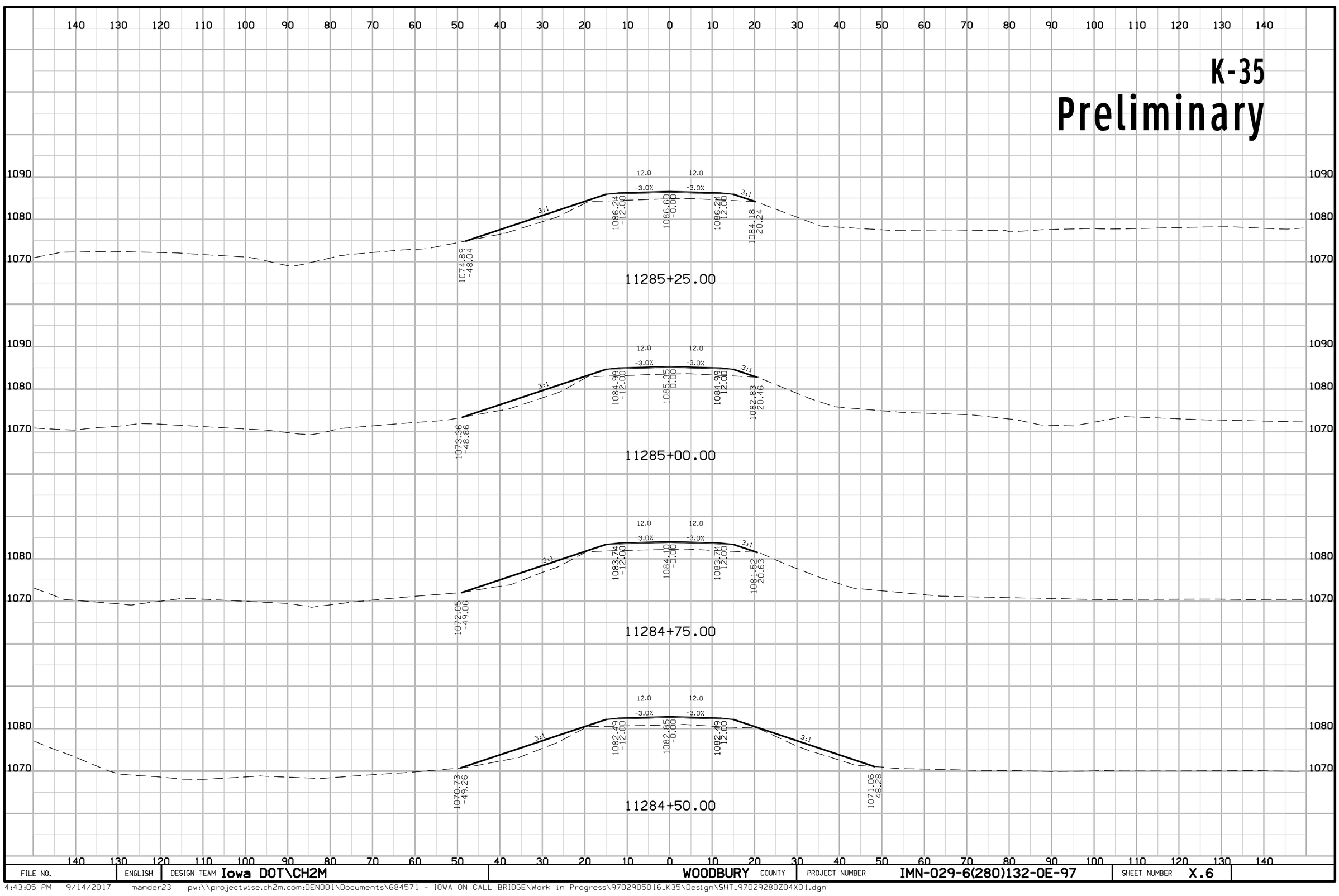
K-35
Preliminary



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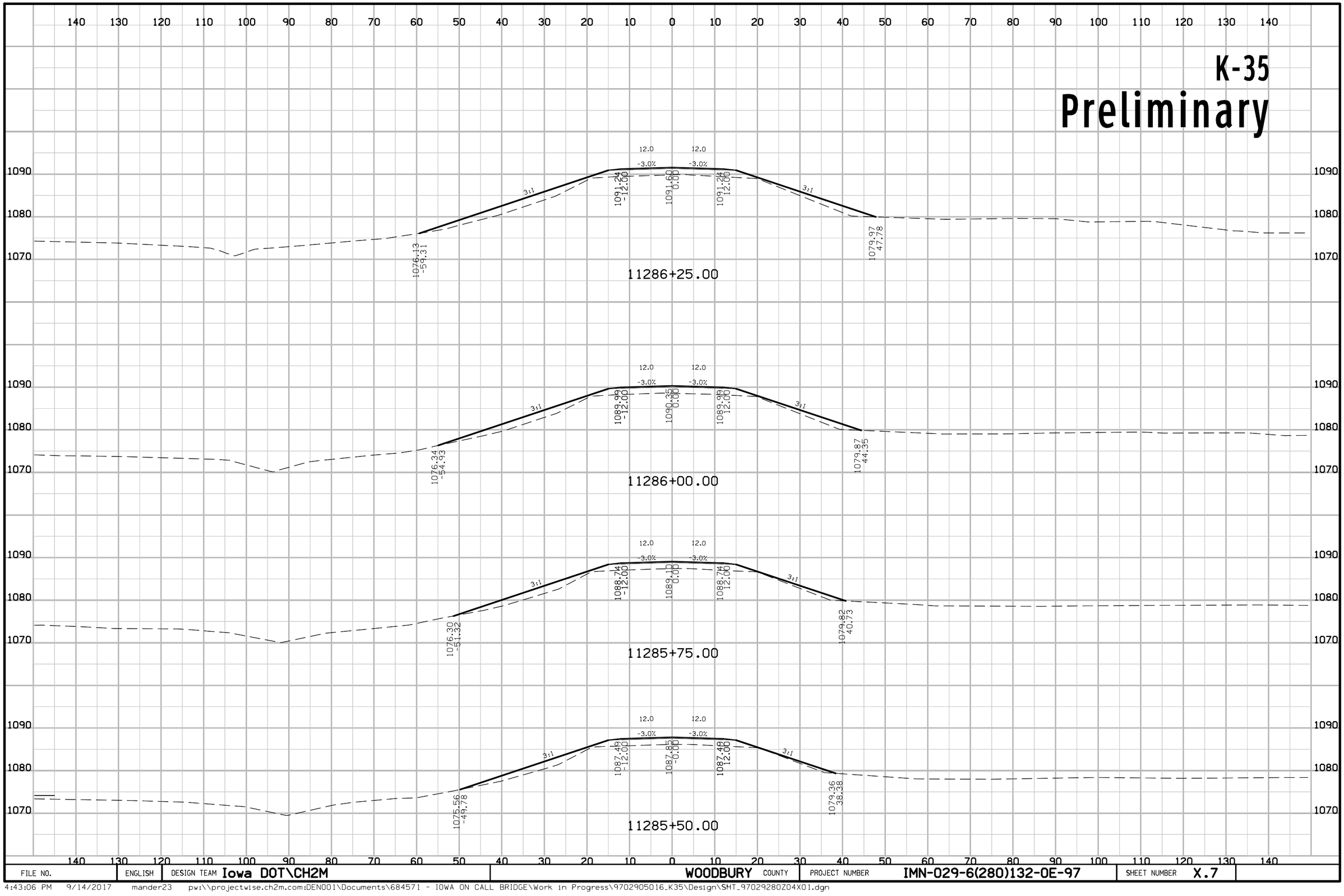
K-35

Preliminary



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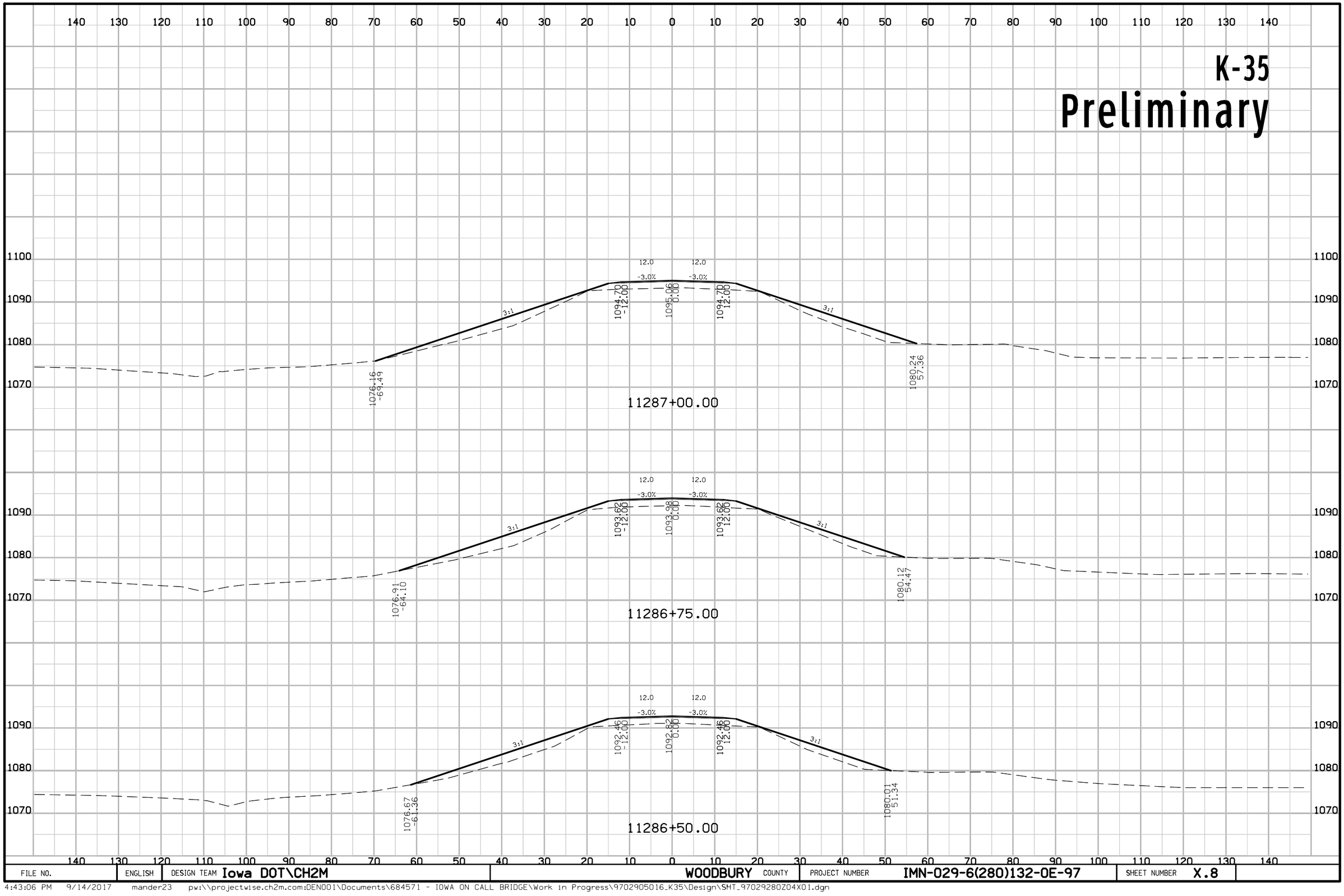
K-35
Preliminary



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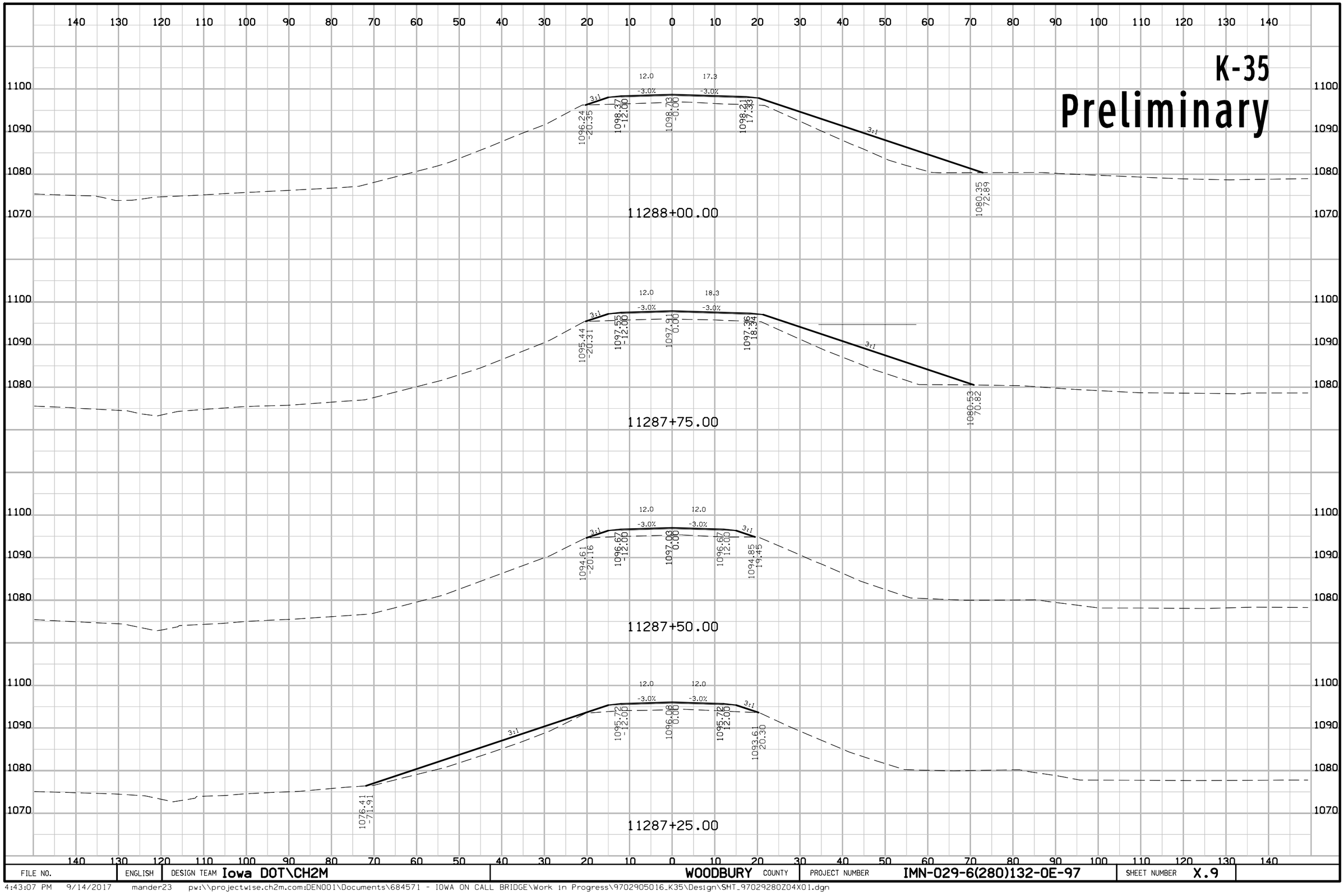
K-35

Preliminary



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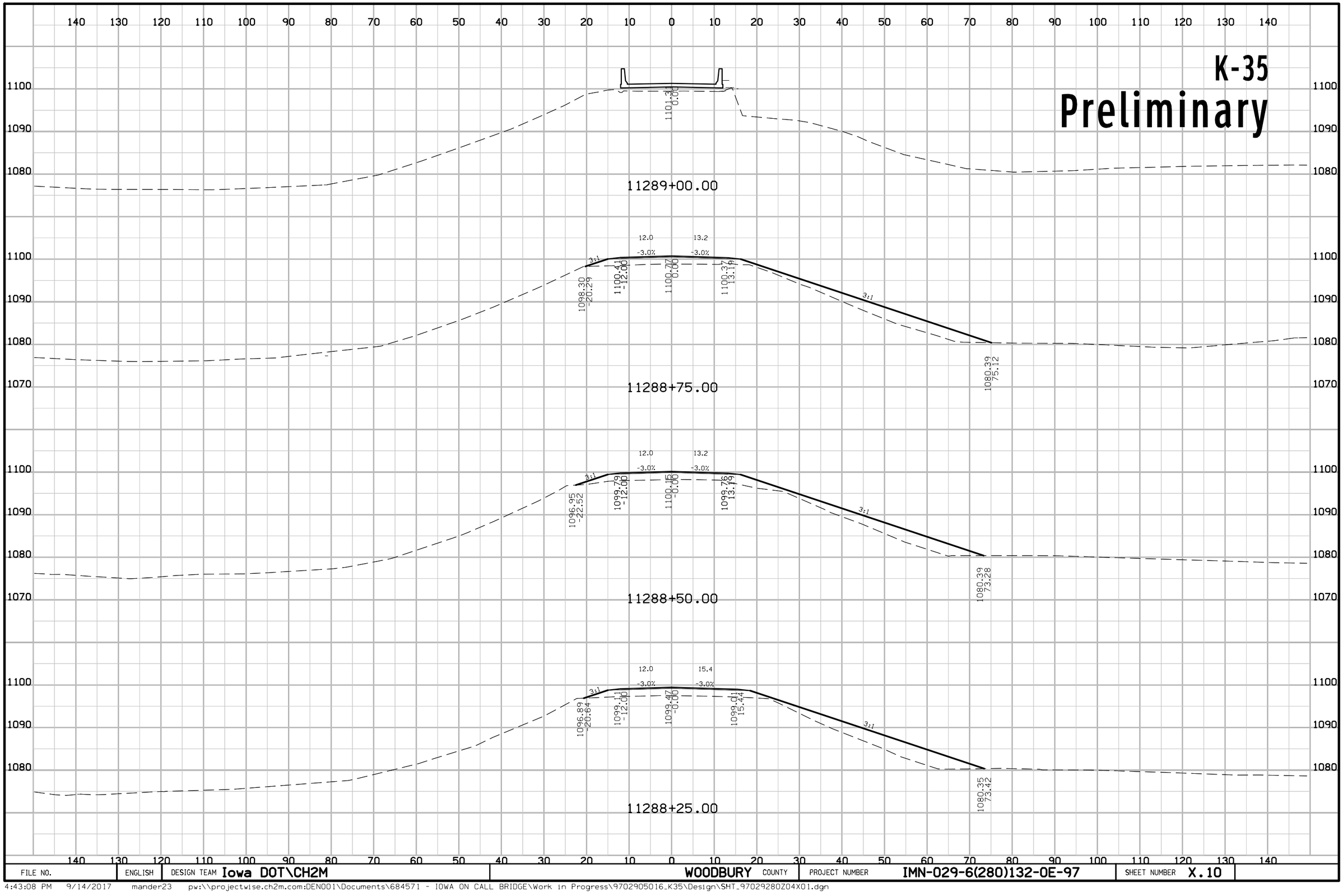
K-35

Preliminary



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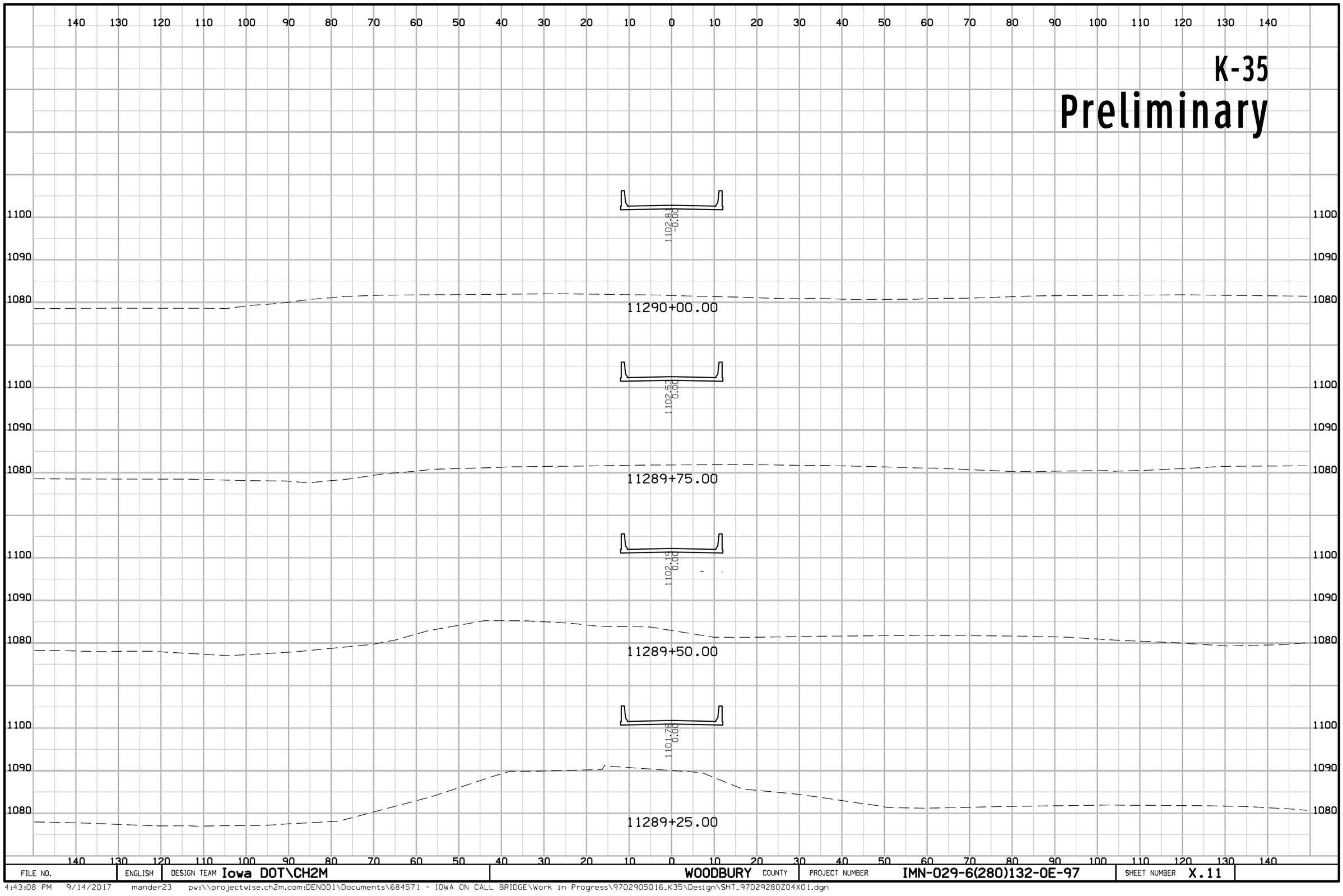
K-35
Preliminary



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K-35
Preliminary

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1100
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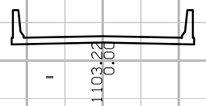

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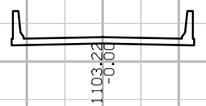

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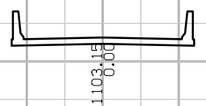

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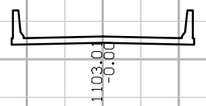

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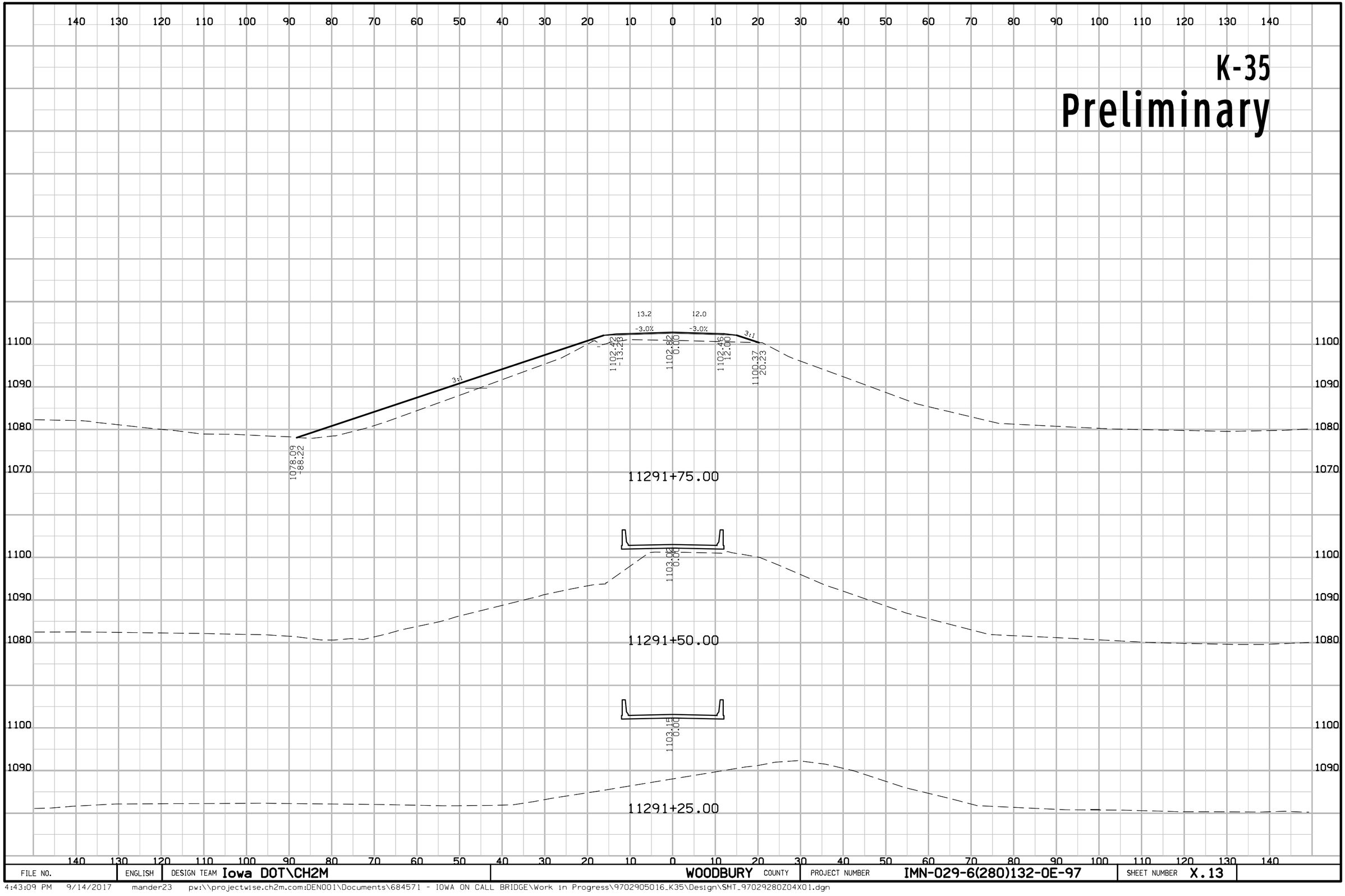
K-35

Preliminary



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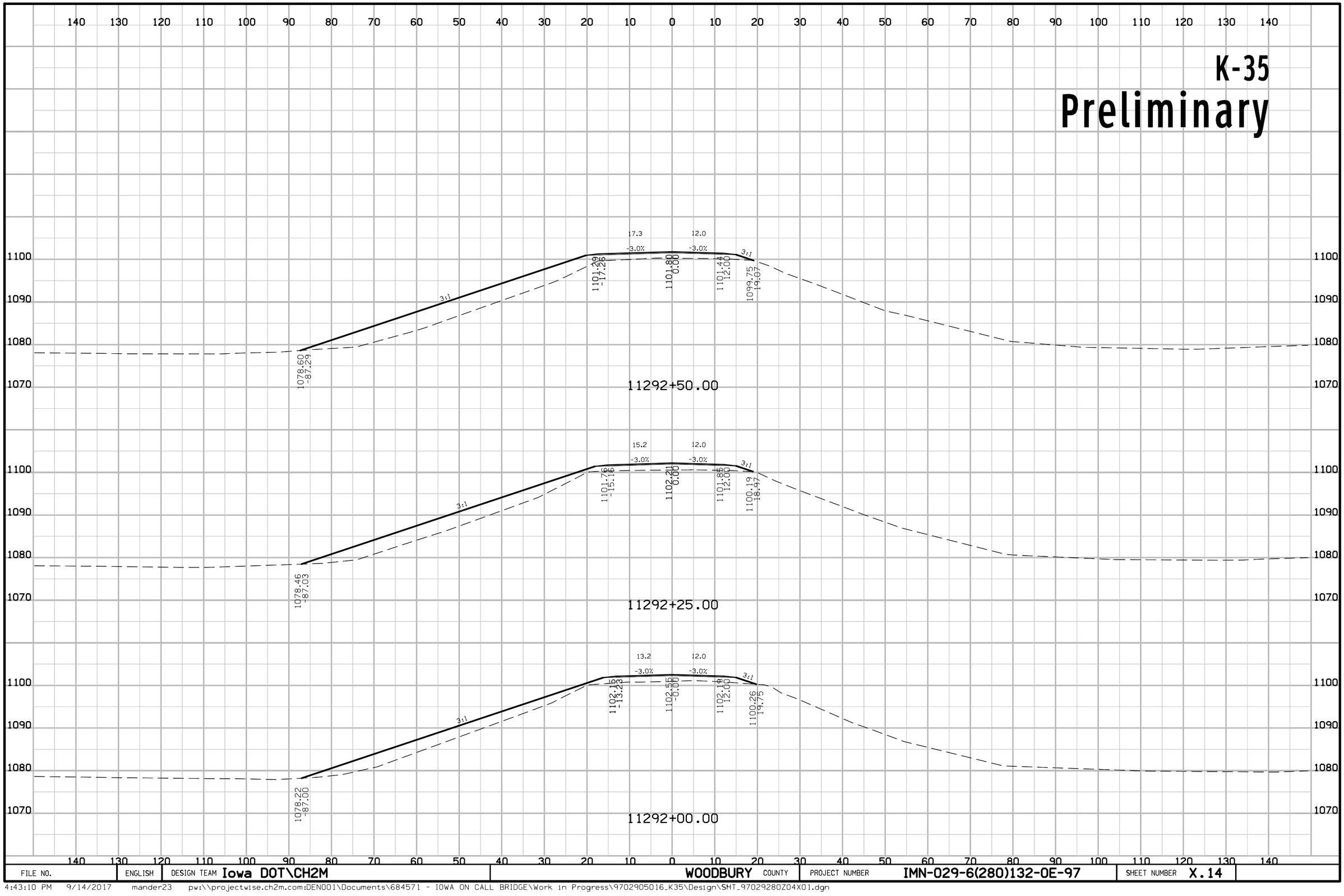
K-35
Preliminary



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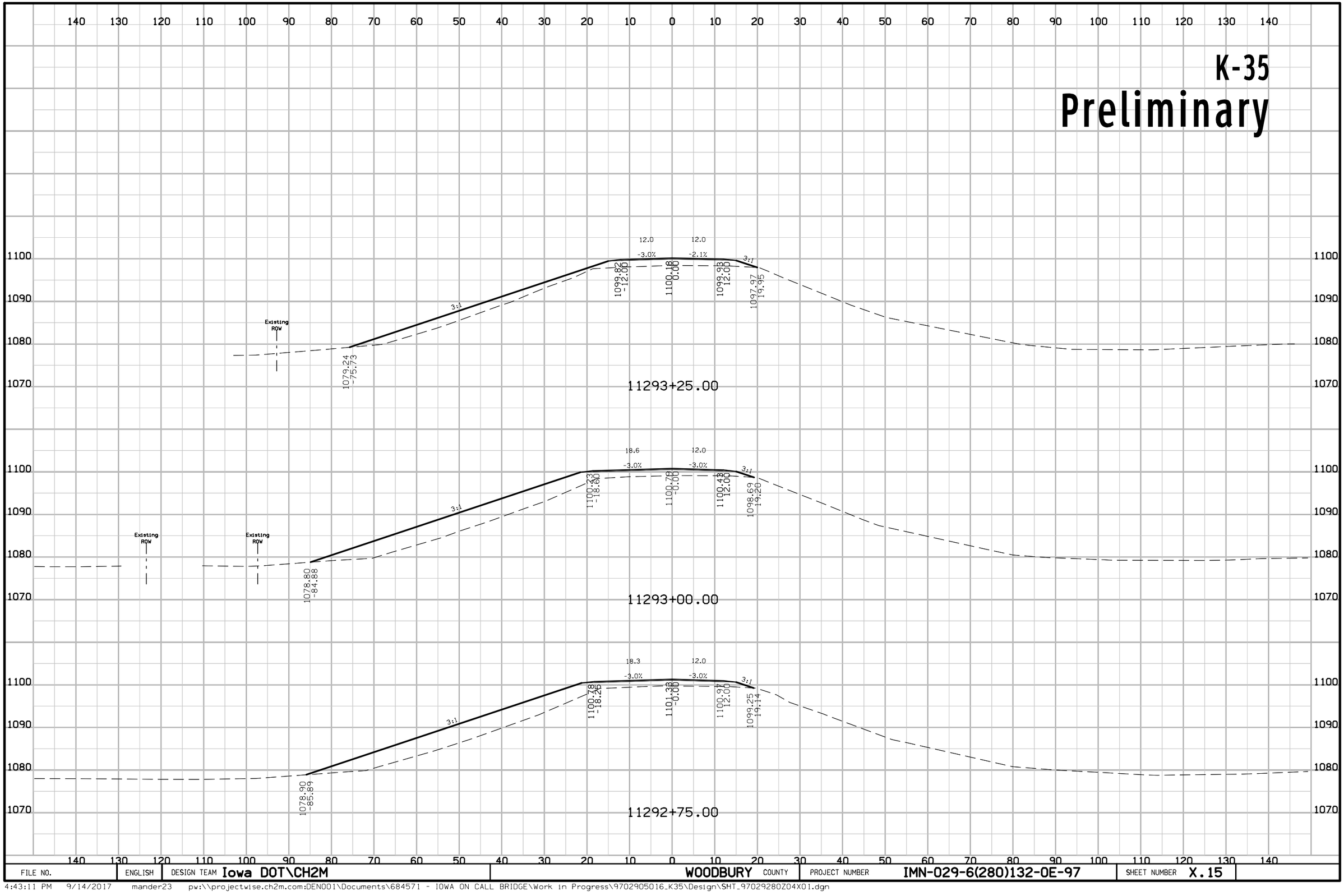
K-35
Preliminary



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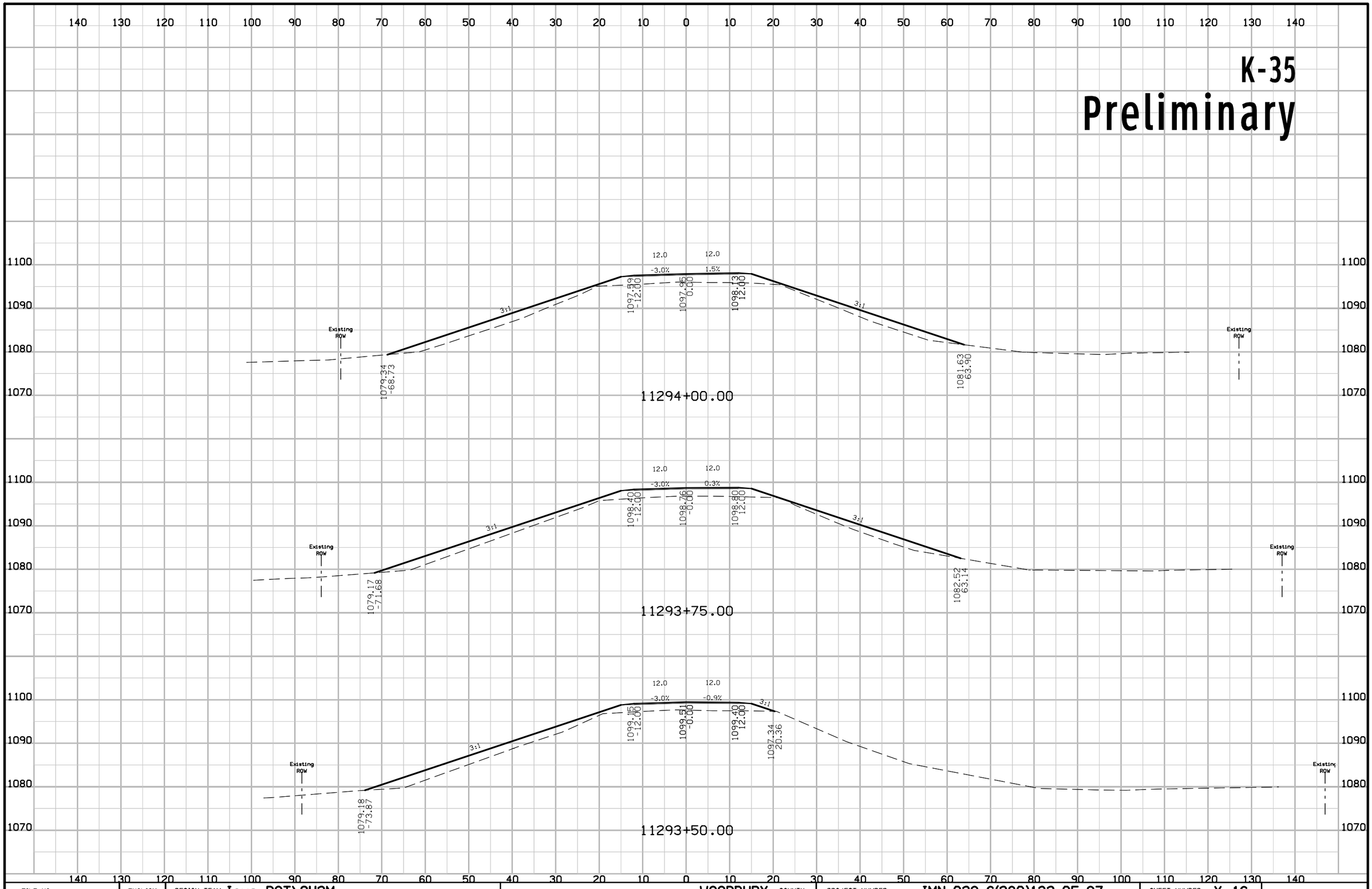
K-35
Preliminary



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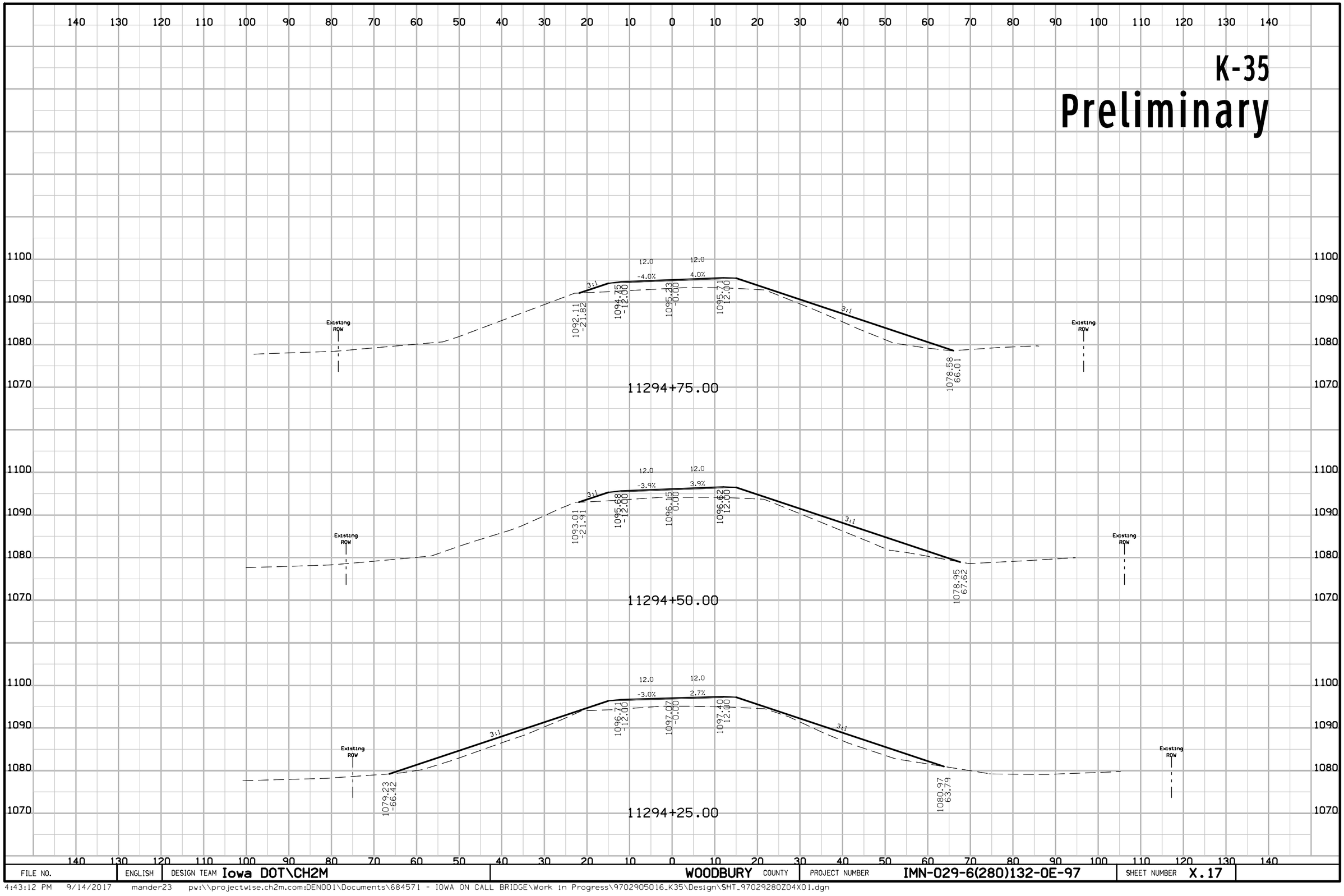
K-35
Preliminary



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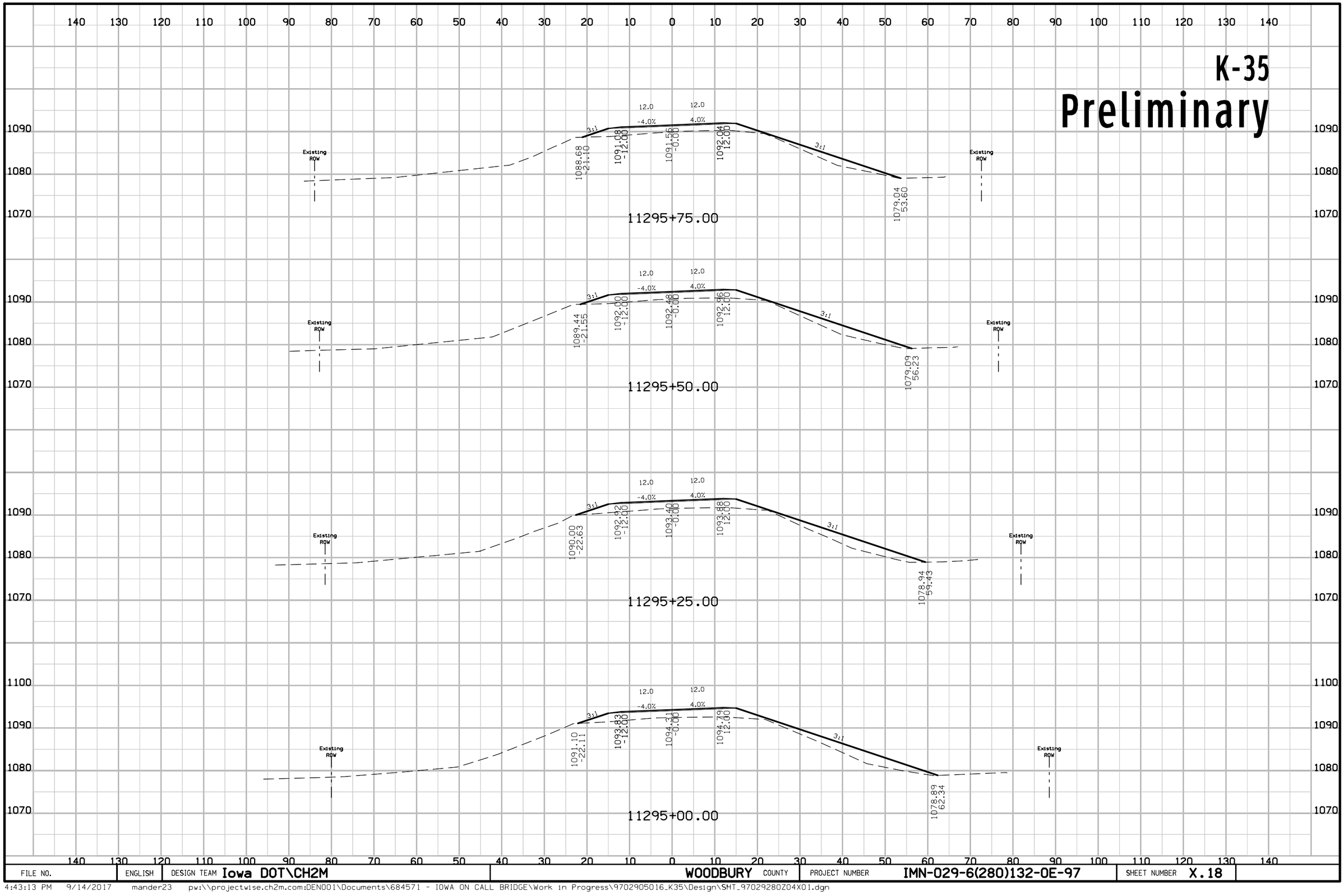
K-35

Preliminary



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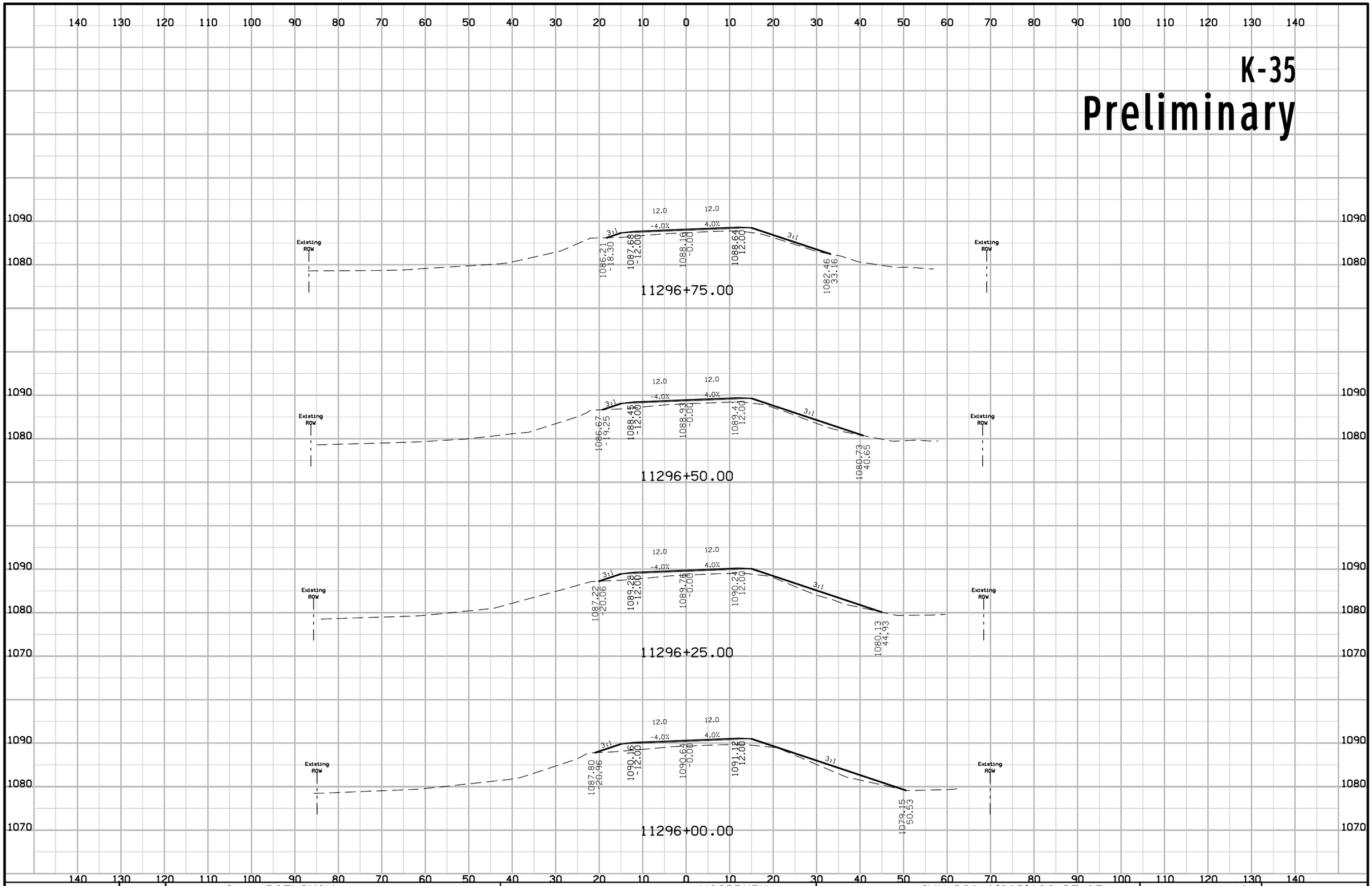
K-35
Preliminary



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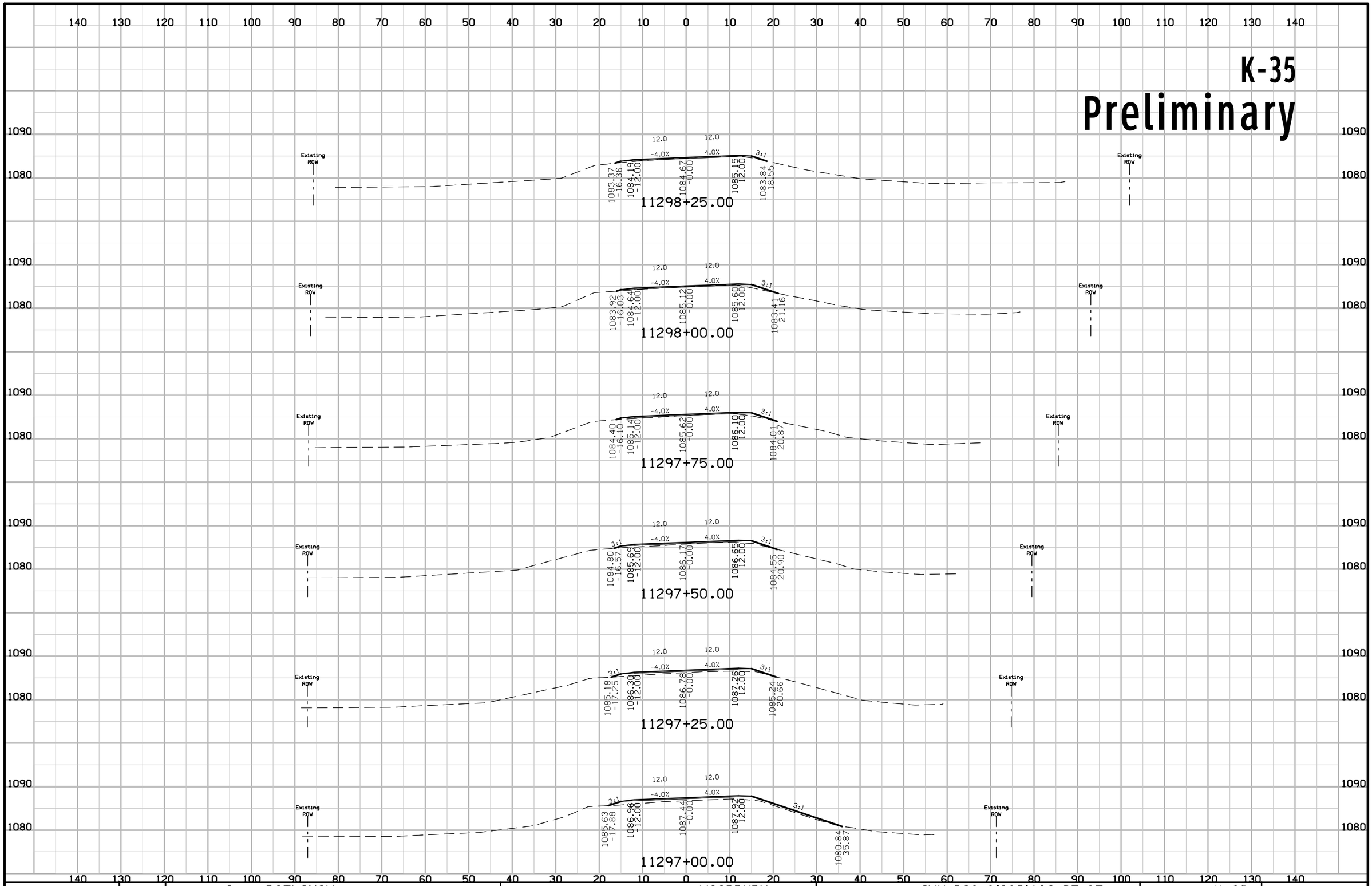
K-35

Preliminary



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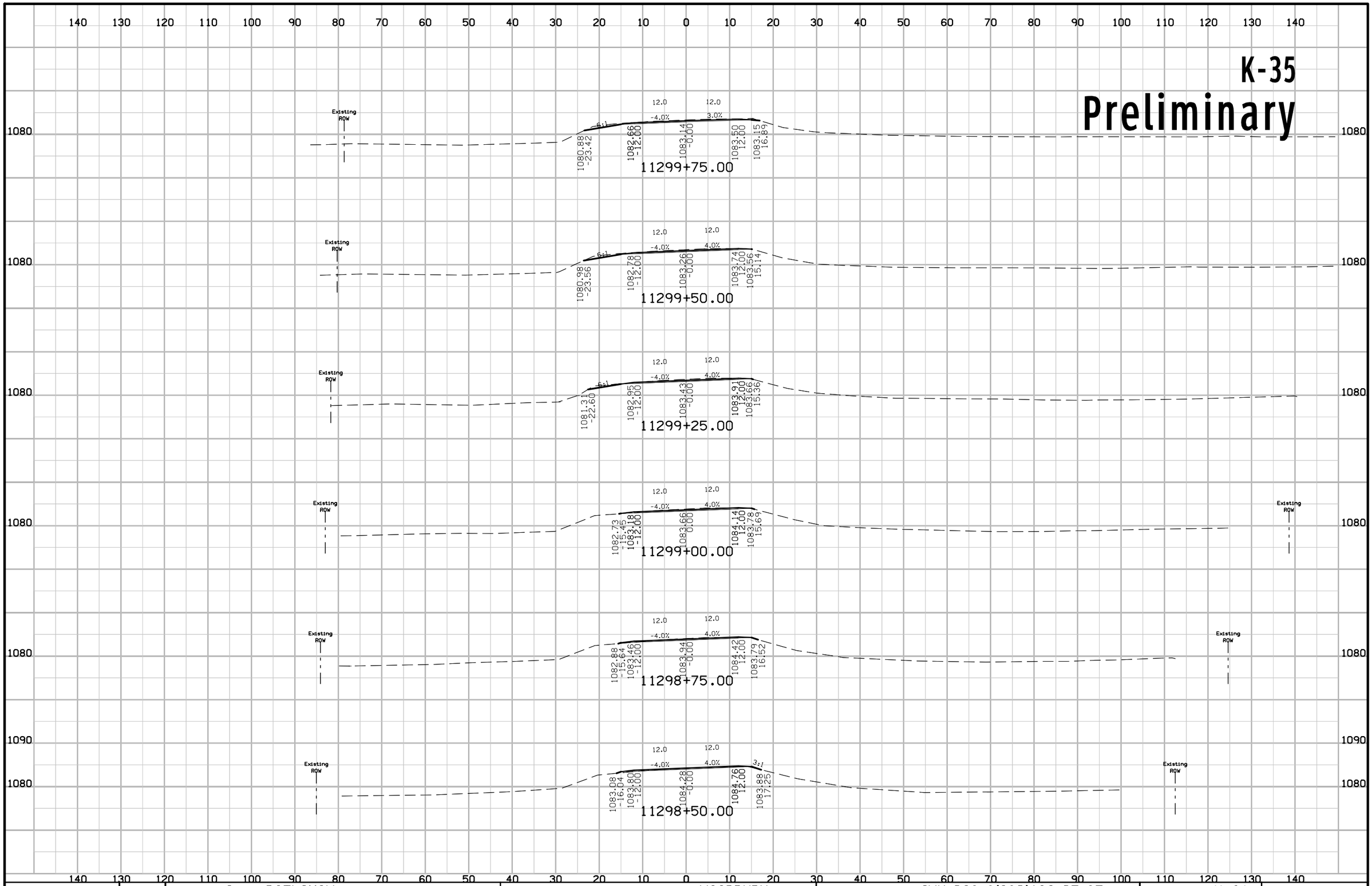
K-35

Preliminary



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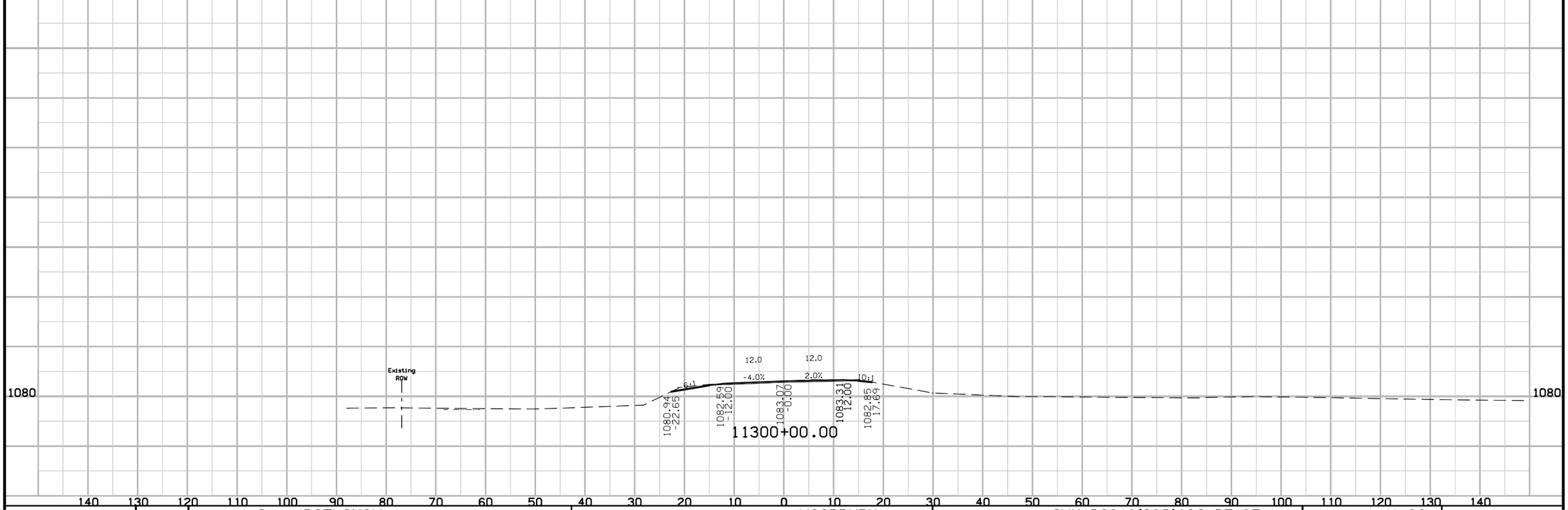
K-35

Preliminary



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