



# Iowa Department of Transportation

## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM HANCOCK COUNTY BRIDGE REPLACEMENT - CCS

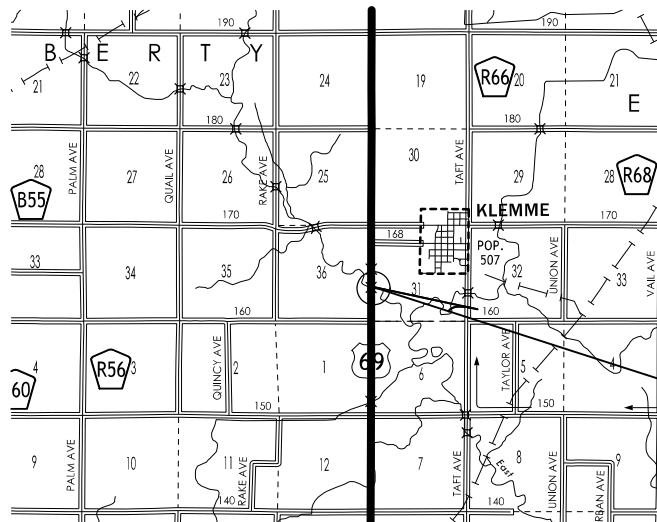
U.S. 69, 0.6 miles South of County Road B-55

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



Sta. 334+16.000  
Project Location



### DESIGN DATA RURAL

2015 AADT	1,800	V.P.D.
2035 AADT	2,300	V.P.D.
2035 DHV	240	V.P.H.
TRUCKS	18	%
Total Design ESALs	--	

### INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Paul W. Flattery	Primary Signature Block

## PRELIMINARY PLANS

Subject to change by final design.

### D5 PLAN - Date: 2/8/2013

PRELIMINARY EARTHWORK				
	Cut (Cu Yds)	Fill (Cu Yds)	Balance (Cu Yds)	Area (Sq Yds)
328+00 to 339+75	2,702	5,501	2,799	
			x 30% shrink	
Totals			3,639	

PRODUCTION DATES	
Event	Date
D2	August 28, 2012
D3	October 12, 2012
D5	February 8, 2013
Letting	November 18, 2014

INDEX OF SHEETS	
No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1	Typical Grading details
B.2	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	Plan Sheet U.S. 69
* D.3	Profile Sheet U.S. 69
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1	Reference Ties and Bench Marks
G.2	Horizontal Control Tab. & Super for all Alignments
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
V.1 - 2	Bridge and Culvert Situation and Site Plans
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 10	Mainline Cross Sections
	* Color Plan Sheets

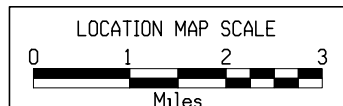
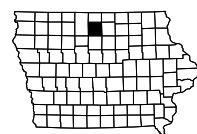
TOTAL	21
PROJECT IDENTIFICATION NUMBER	10-41-069-010
PROJECT NUMBER	BRF-069-8(25)--38-41
R.O.W. PROJECT NUMBER	STPN-069-8(26)--2J-41

REVISIONS
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LETTING DATE  
11/18/2014

BRIDGE REPLACEMENT - CCS  
BRF-069-8(25)--38-41

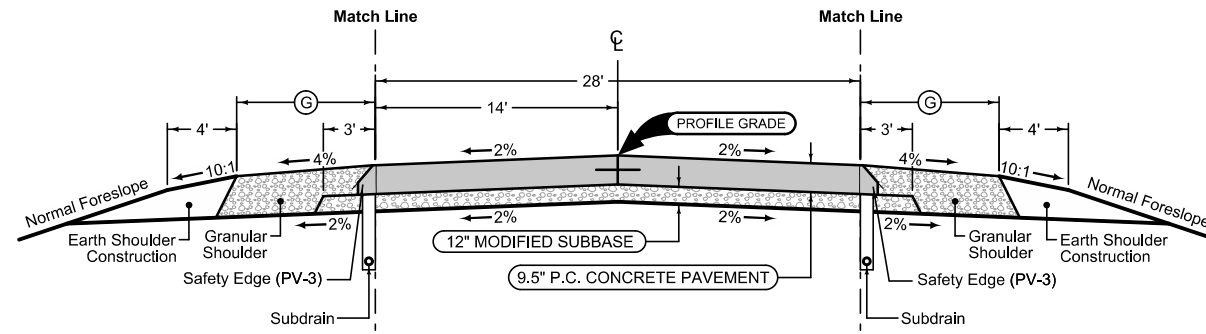
# HANCOCK CO.





**Granular Shoulder**

2_G_ 10-19-10		
STATION TO STATION		Ⓞ Feet
327+93	328+41	4' to 6'
328+41	359+90	6'
336+91	339+26.7	6'
339+26.7	339+86	4' to 6'



**Granular Shoulder**

2_G_ 10-19-10		
STATION TO STATION		Ⓞ Feet
327+93	328+41	4' to 6'
328+41	331+62	6'
335+93.1	339+28.8	6'
339+28.8	339+86	4' to 6'

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

2P_ 10-19-10	
STATION TO STATION	
327+93.00	332+85.70
335+77.29	339+86.00

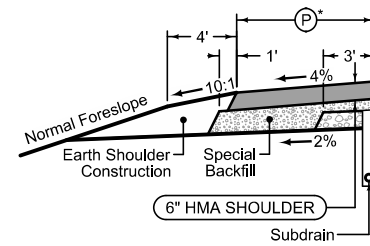
To Bridge Approach  
 From Bridge Approach

**Paved Shoulder at Guardrail**

Shoulder Jointing:  
 Longitudinal joint: B

\* See 7156 for shoulder width and additional breaks.

2_P_Guard_ 10-19-10		
STATION TO STATION		
332+52.89	333+61.3	
335+11.3	336+91.2	

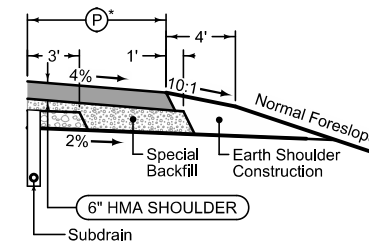


**Paved Shoulder at Guardrail**

Shoulder Jointing:  
 Longitudinal joint: B

\* See 7156 for shoulder width and additional breaks.







2_P_Guard_ 10-19-10		
STATION TO STATION		
331+62.04	333+41.69	
334+91.69	335+93.11	



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

**ROADWAY IDENTIFICATION**














### SURVEY SYMBOLS

- GDL Guard Rail Steel
- CUL Culvert
- BRG Bridge
- PIP Pipe Culvert
- LIN Miscellaneous Line
- SF Silt Fence (Wetlands)
- PPA Power Pole Co. 1
- Tile — TIL Tile Line
- OUT Tile Outlet
- TOP Top of Bridge Pier
- x — FW Wire Fence
- # — FCL Chain Link and Security Fence
- — — SNP Unpaved Shoulder
- EP Edge of Paved Roads (ML or SR)
- EW Edge of Water
- D Centerline Draw or Stream (Down)
- SH Paved Shoulder
- — — ENU Edge Unpaved Entrance & Parking
- ▲▲▲▲▲▲▲▲ RIP Rip-Rap
- ← DU Centerline Draw or Stream (Up)
- CU Back of Curb
- ENT Centerline BL of Entrance
- BNK Stream Bank
-  GU Gutter In Front of Curb
-  EG Edge of Gravel Road
-  SP Stream Profile
- F02 — FOB Underground Fiber Optic Co. 2
- F0 — FOA Underground Fiber Optic Co. 1
-  BD Bridge Deck
-  BCL Bridge Centerline
-  TW Top of Water
- BLS Bridge Low Steel
- PRO Profile Shot
- SBR Size of Bridge
- SIGN SI Sign
- TP TPD Telephone Pedestal
- MM MM Mile Marker Post







### UTILITY LEGEND



- TP Communications 1 Network Inc.(QLA)
- F0 — Communications 1 Network Inc. Underground Fiber Optic (QLD)
- Communications 1 Cablevision**  
**Randolph Yeakel**  
**105 S Main Street, Box 20**  
**Kanawha, Ia. 50447**  
**641-762-3772**  
**ryeakel@comm1net.net**
- F02 — Iowa Network Services Inc. Underground Fiber Optic (QLD)
- Iowa Network Services**  
**Jeff Klocko**  
**4201 Corporate Drive**  
**West Des Moines, Ia. 50266**  
**515-830-0445**  
**Jeff@netins.net**
- City of Klemme Power Pole (QLA)
- City of Klemme**  
**Larry Warren**  
**204 E. Main Street**  
**Klemme, Ia. 50449**  
**641-587-2018**

### 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

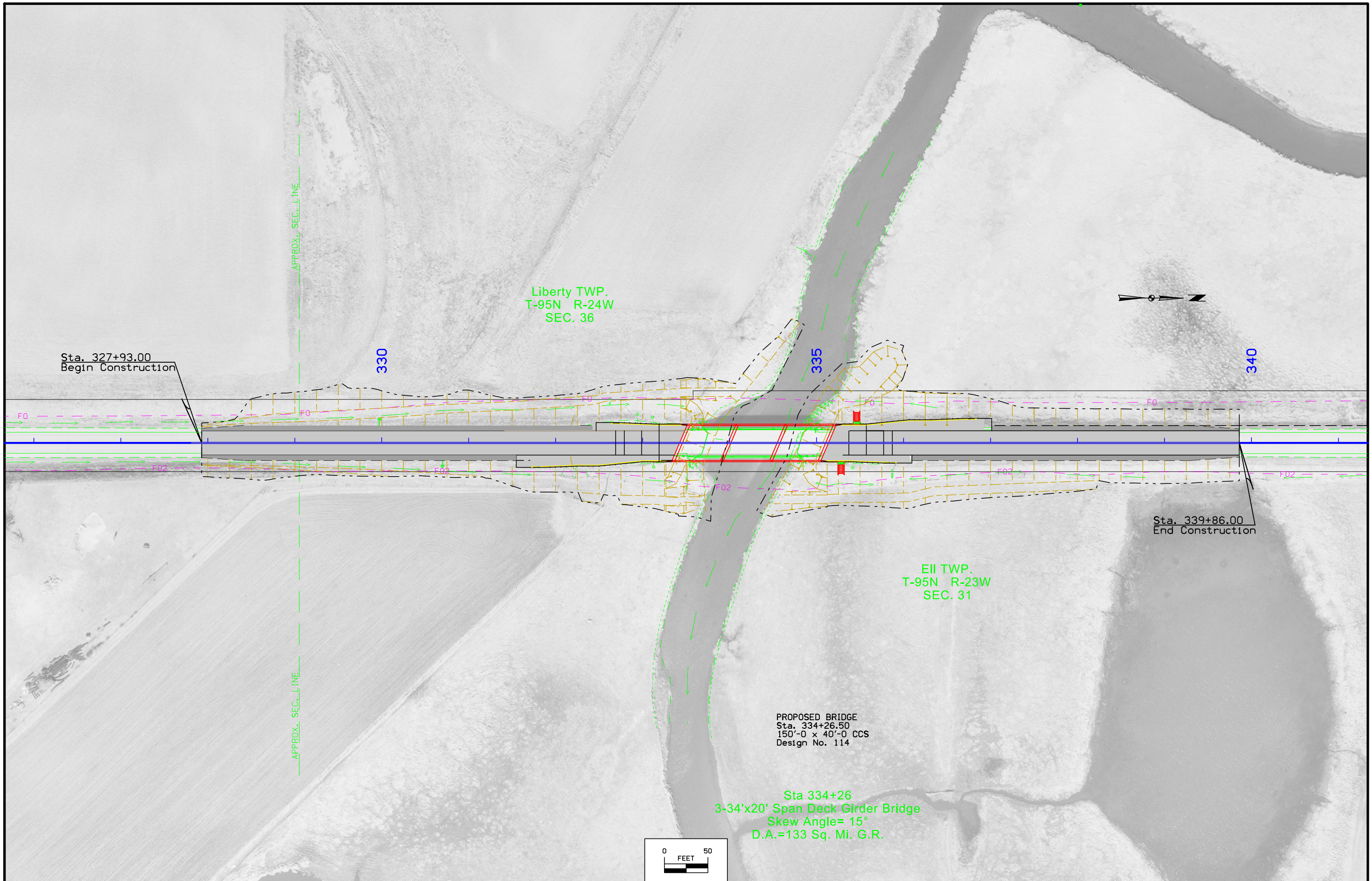
LINEWORK	Design Color No.	
Green	(2)	 Existing Ground Line Profile
Blue	(1)	 Proposed Profile and Annotation
Magenta	(5)	 Existing Utilities
Blue, Light	(230)	 Proposed Ditch Grades, Left
Black	(0)	 Proposed Ditch Grades, Median
Rust	(14)	 Proposed Ditch Grades, Right

- 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)**



Sta. 327+93.00  
Begin Construction

330

Liberty TWP.  
T-95N R-24W  
SEC. 36

335

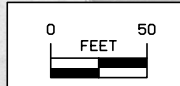
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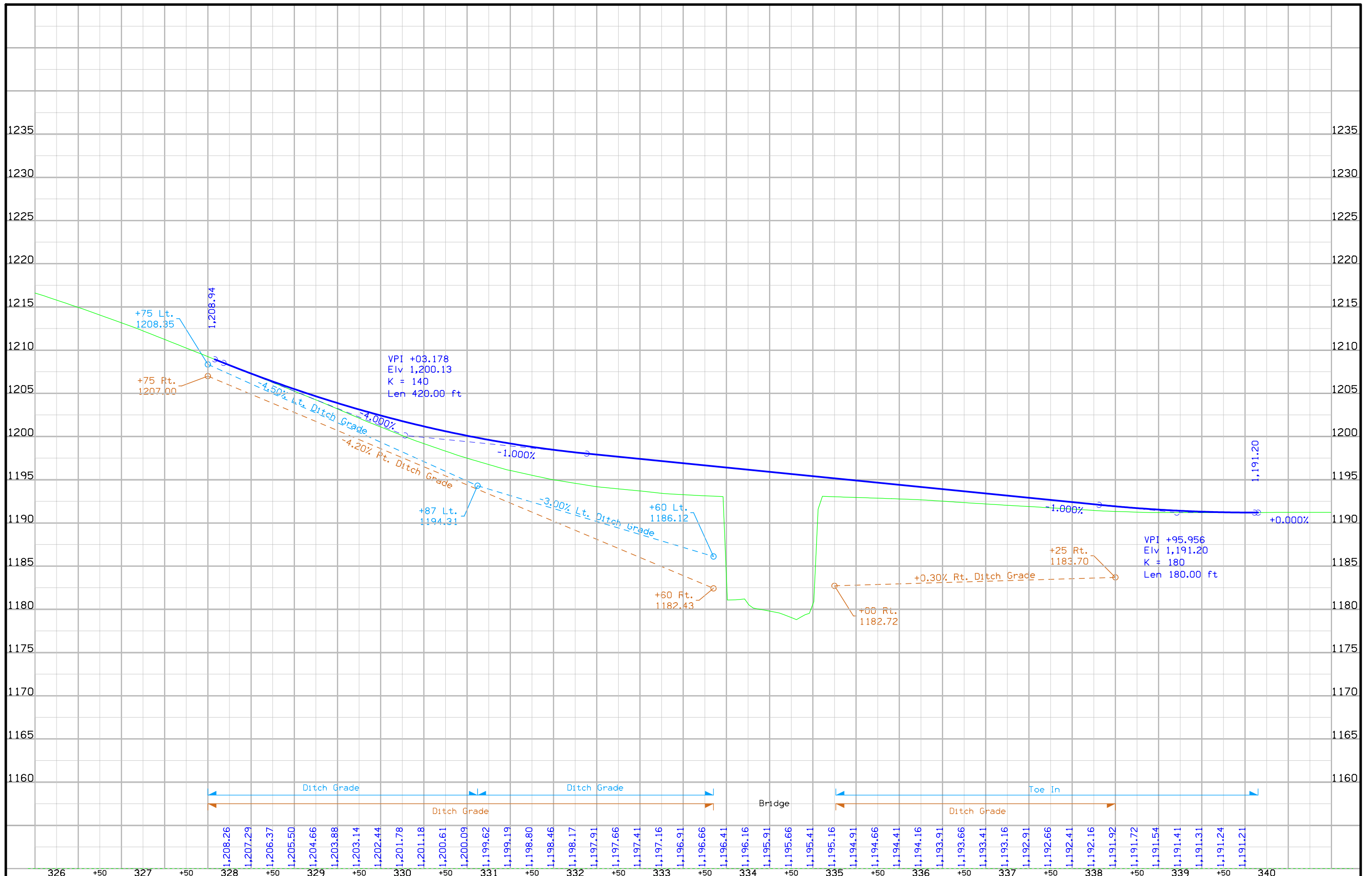
Sta. 339+86.00  
End Construction

EII TWP.  
T-95N R-23W  
SEC. 31

PROPOSED BRIDGE  
Sta. 334+26.50  
150'-0" x 40'-0" CCS  
Design No. 114

Sta 334+26  
3-34'x20' Span Deck Girder Bridge  
Skew Angle= 15°  
D.A.=133 Sq. Mi. G.R.





## Survey Information

### General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction of U.S. 69 Bridge (Maint. No. 4185.2S069) over the East Branch of the Iowa River, 0.6 miles south of County Road B-55. This project is a Partial DTM with Photo control.

### Vertical Control

Vertical datum for this survey is relative to NAVD88. Hancock GPS point 037 was used to determine the vertical datum of this project. Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup relative to Pt. 37. A minimum of three observations with appropriate time spans between were collected. The vertical standard deviation of these observations was less than 0.03 ft. at 95% confidence level (2 sigma).

Hancock County Control mark 37 has a published Elev. of 1211.91  
Survey Elev. = 1211.91

### Horizontal Control

Hancock County Control markers were used to transfer NAD83 (1996) Iowa State Plane South Zone (US Survey Feet.) coordinates to Project Control. The project coordinates are scaled around Pt. 37 at 3825735.60 N, 4890153.38 E, and 1211.91 EL.

1/Combined Scale Factor of project= 1.000091784986

The 1/Combined Scale Factor, scaled about point 37, may be used for GNSS stakeout and location to survey in the Project Coordinate system.

### Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. F-139. Survey stationing was equated to the plan at POT Sta. 315+86.0 at the intersection of US 69 and 160th St. and run ahead without equation throughout the survey.

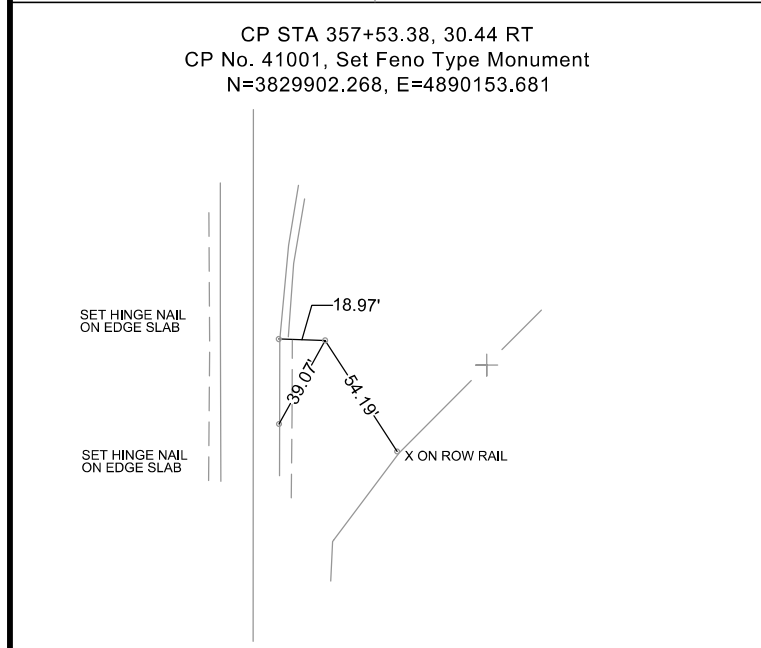
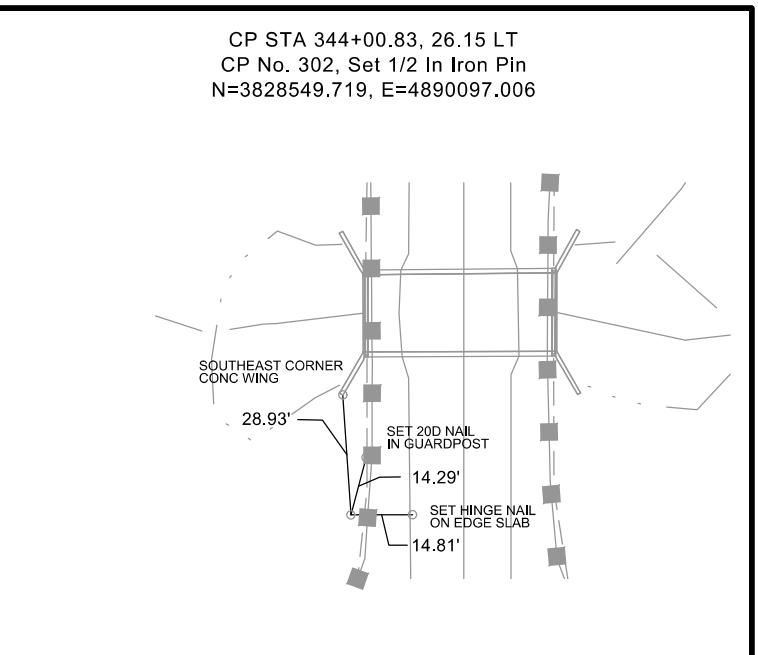
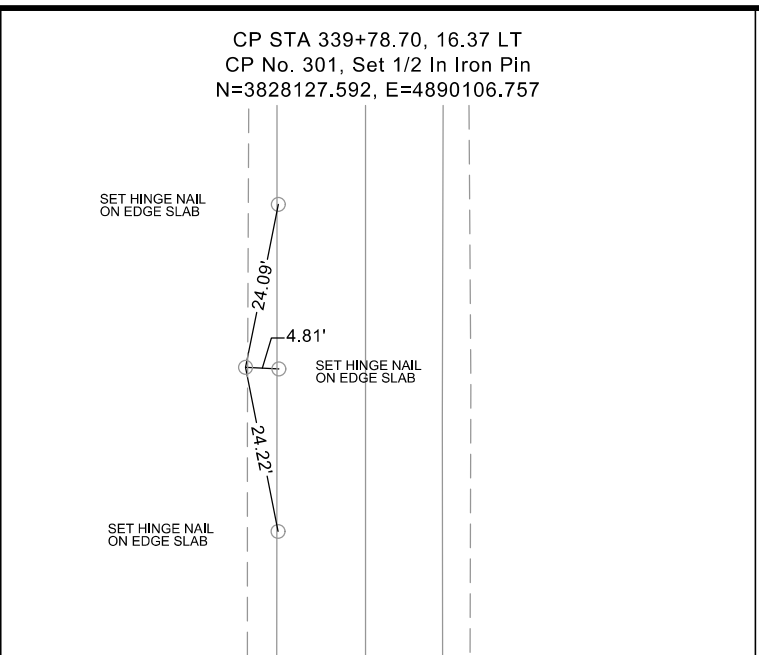
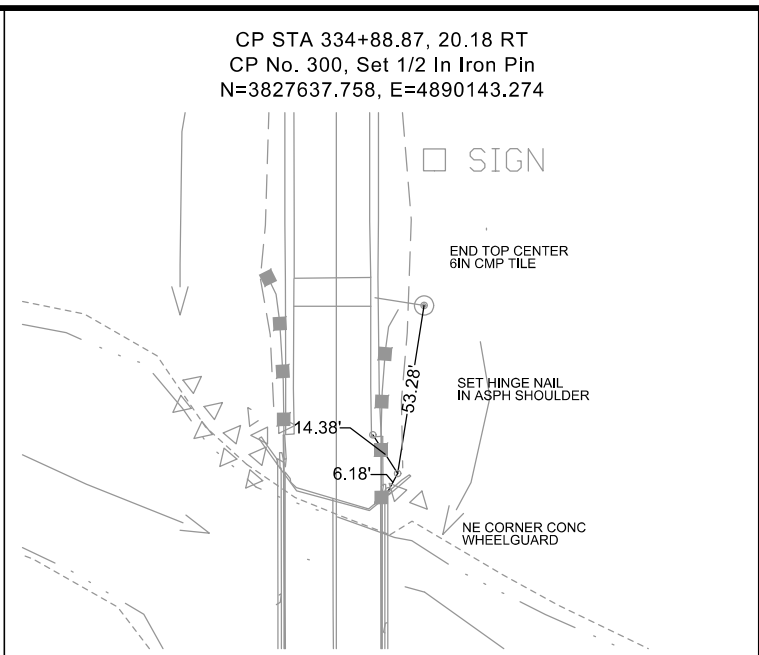
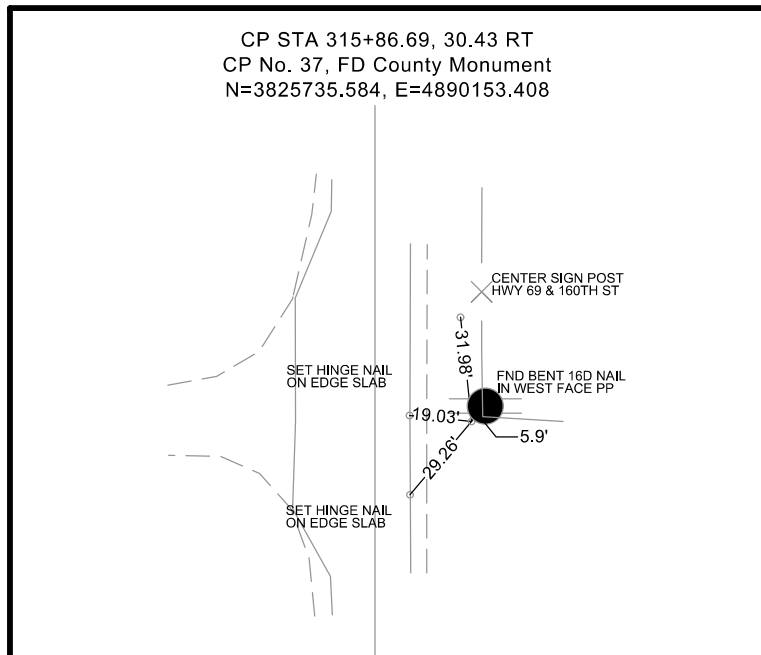
Equations are as follows:

POT STA 315+86.0 Project No. F-139  
Survey POT STA 315+86.0

POT STA 368+63.2 Project No. F-139  
Survey POT STA 368+62.6

## VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
500	3825765.503	4890072.719	1212.924	316+16.61	-50.261	BM	SET X BALL OF ROW RAIL
501	3827507.214	4890139.275	1195.840	333+58.32	16.186	BM	DOT BUTTON SE COR BRG
502	3828608.741	4890146.612	1190.636	344+59.85	23.454	BM	IHC BUTTON NE WING WALL
503	3829856.815	4890183.164	1205.504	357+07.93	59.928	BM	SET X BALL OF RAIL





PARCEL CHECK BY PROJ UPDATED 02/26/13 15:09 PAGE: 1

R2360003 PARCEL CHECK LIST BY PROJECT NUMBER  
COUNTY : HANCOCK PROJECT NO. :STPN-069-8(26)--2J-41 PIN: 10-41-069010-00  
CONSTRUCTION NO.:BRF-069-8(25)--38-41 ASSIGNED TO: SJD

DESCRIPTION : Over E. Branch Iowa River 0.6 Mile S. OfCo. Rd. B-55

PARCEL KEY OWNER TYPE R/W W.D OR EASE. BORROW W.D OR EASE. HOUSE OR OTHER COMMERCIAL OCC ENVIRONMENTAL CONCERNS

-----  
0001 26699 EDWARD A. SWANSON FEE STATE OF IOWA  
KIMBERLY A. SWANSON FEE 0.33 EASE ACRE  
  
0002 26700 CLARENCE J. LARSEN TRUST FEE STATE OF IOWA  
LARAINÉ L. VELDHUSE TRUSTEE FEE 0.44 EASE ACRE  
  
0003 26701 T & C SPECIALTIES FEE STATE OF IOWA  
DIANE TRAMPÉL FEE 1.00 EASE ACRE  
RICHARD TRAMPÉL FEE

STATE OF IOWA

1.77 EASEMENT ACRES

3 TOTAL PARCELS ON PROJECT

①  
EDWARD A. & KIMBERLY A.  
 SWANSON

②  
LARAINÉ L. VELDHOUSE, TRUSTEE  
 OF THE CLARENCE J.  
 LARSEN TRUST

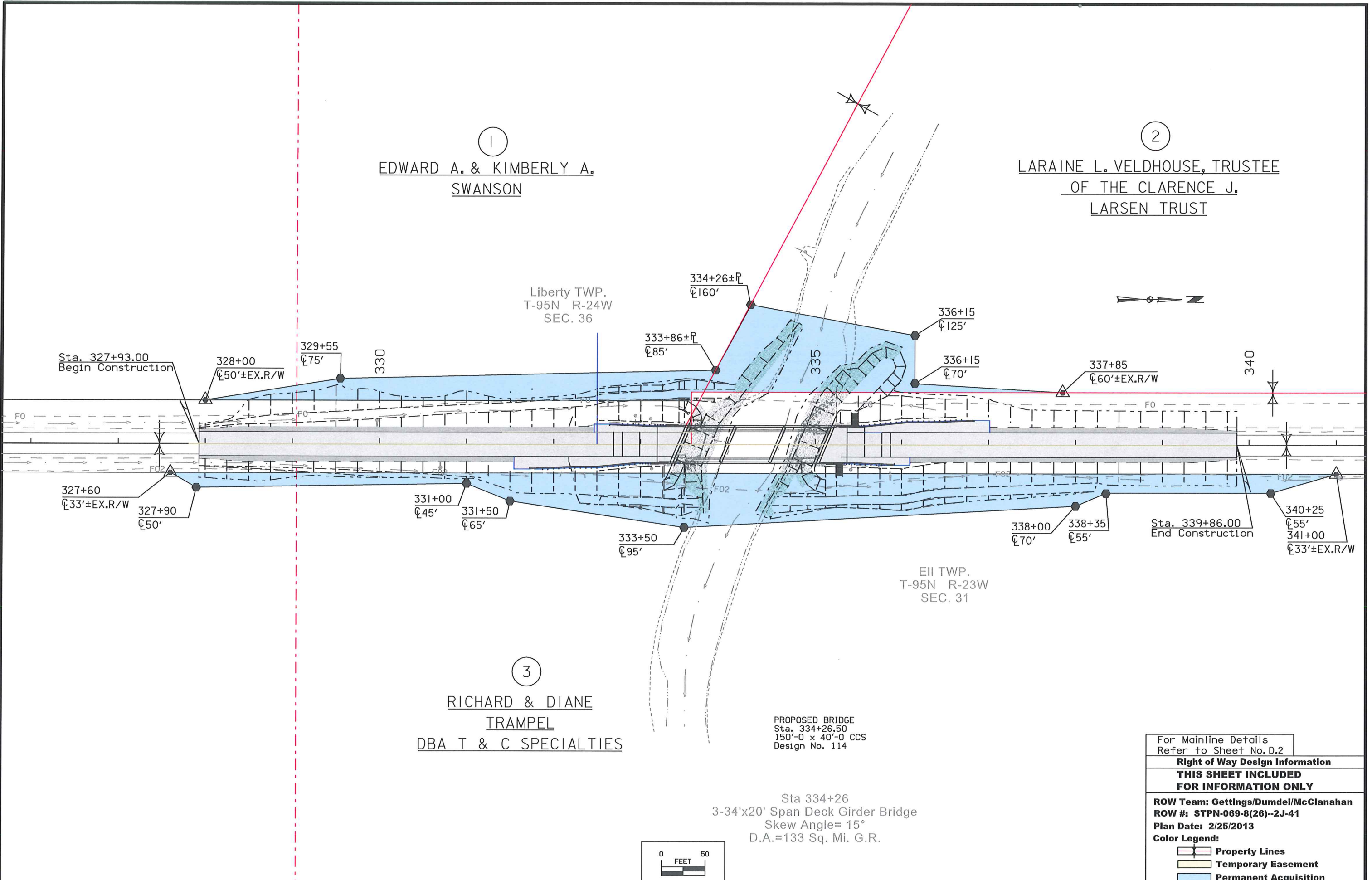
Liberty TWP.  
 T-95N R-24W  
 SEC. 36

EII TWP.  
 T-95N R-23W  
 SEC. 31

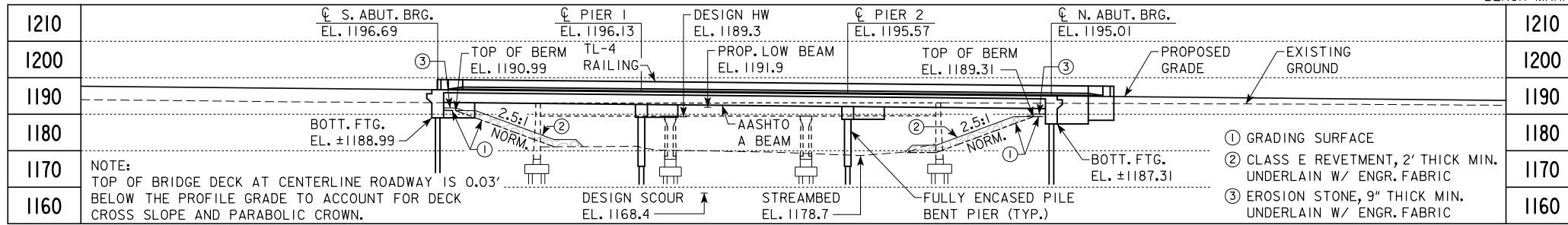
③  
RICHARD & DIANE  
 TRAMPEL  
 DBA T & C SPECIALTIES

PROPOSED BRIDGE  
 Sta. 334+26.50  
 150'-0" x 40'-0" CCS  
 Design No. 114

Sta 334+26  
 3-34'x20' Span Deck Girder Bridge  
 Skew Angle= 15°  
 D.A.=133 Sq. Mi. G.R.



For Mainline Details Refer to Sheet No. D.2
<b>Right of Way Design Information</b>
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>
<b>ROW Team: Gettings/Dumdel/McClanahan</b>
<b>ROW #: STPN-069-8(26)--2J-41</b>
<b>Plan Date: 2/25/2013</b>
<b>Color Legend:</b>
Property Lines
Temporary Easement
Permanent Acquisition



-1.00%

VPI STA = 330+03.18 VPI STA = 338+95.96  
 VPI ELEV = 1200.13 VPI ELEV = 1191.20  
 VC = 420' VC = 180'

**PROPOSED PROFILE GRADE US 69**

**LONGITUDINAL SECTION ALONG C APPROACH ROADWAY**

**HYDRAULIC DATA**

DRAINAGE AREA = 133 SQ. MI.  
 STREAM SLOPE = 0.53 FT./MI.  
 AVG. LOW WATER STAGE = 1180.7

Q<sub>50</sub> = 4,670 CFS  
 STAGE = 1189.3  
 BACKWATER = 0.54 FT.  
 AVG. BRIDGE VELOCITY = 5.0 FPS

Q<sub>100</sub> = 5,640 CFS  
 STAGE = 1190.0  
 BACKWATER = 0.59 FT.

Q<sub>OVERTOP</sub> = 6,050 CFS  
 AVG. BRIDGE VELOCITY = 5.4 FPS  
 CALCULATED DESIGN SCOUR = 1168.4  
 CALCULATED CHECK SCOUR = 1168.4  
 ROADWAY OVERTOP EL. 1190.7  
 STA. 343+74

Q<sub>200</sub> = 6,680 CFS

Q<sub>500</sub> = 8,040 CFS

DISCHARGES OBTAINED FROM DISCONTINUED USGS GAGE 05449000

**TRAFFIC ESTIMATE**

2015 AADT	1,800	V.P.D.
2035 AADT	2,300	V.P.D.
2021 DHV	-	V.P.H.
TRUCKS	18	%
TOTAL DESIGN ESALS	-	

**LOCATION**

US 69 OVER E. BRANCH IOWA RIVER  
 T-95N R-23W  
 SECTION 31  
 ELL TOWNSHIP  
 HANCOCK COUNTY  
 BRIDGE MAINT. NO. 4185.2S069  
 LATITUDE 43.000216°  
 LONGITUDE -93.616357°

PRELIMINARY

DESIGN FOR 23° SKEW L.A.

**168'-0 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE**

55'-9 END SPANS 56'-6 INTERIOR SPAN

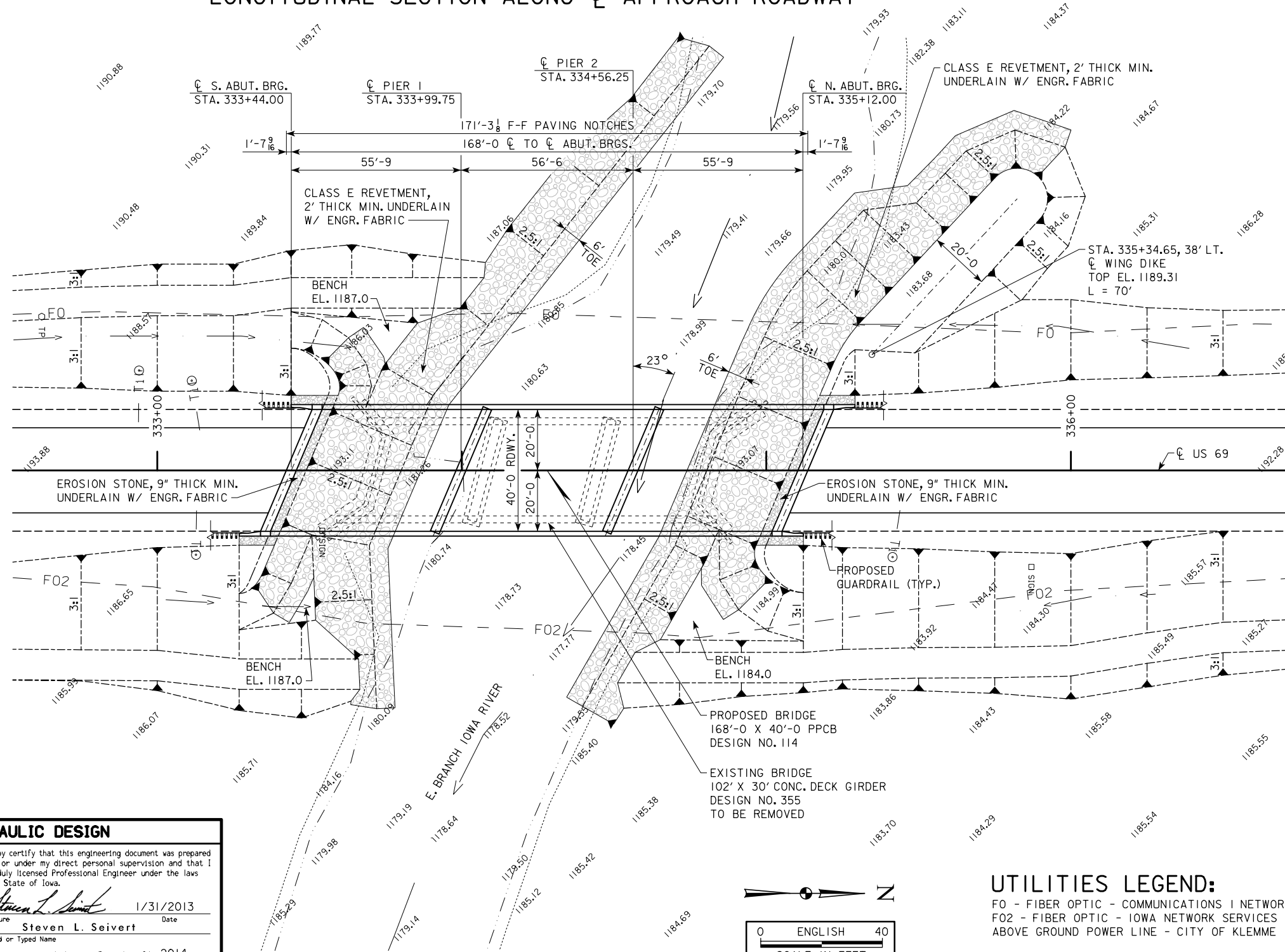
**SITUATION PLAN**

STATION 334+28.00 FEB 2013

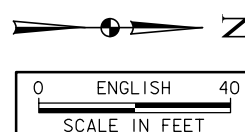
**HANCOCK COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 1 OF 2 FILE NO. 30637 DESIGN NO. 114

**TYPICAL APPROACH SECTION**



**SITUATION PLAN**



**UTILITIES LEGEND:**

FO - FIBER OPTIC - COMMUNICATIONS NETWORK  
 F02 - FIBER OPTIC - IOWA NETWORK SERVICES  
 ABOVE GROUND POWER LINE - CITY OF KLEMME

**HYDRAULIC DESIGN**

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

*Steven L. Seivert* 1/31/2013  
 Signature Date  
 Steven L. Seivert  
 Printed or Typed Name  
 My license renewal date is December 31, 2014

Pages or sheets covered by this seal: V.01, V.02

BERM SLOPE LOCATION TABLE						
POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	333+90.53	26.58' LT	1179.50	334+90.77	26.58' LT	1179.50
A2	333+69.66	26.58' RT	1179.50	334+70.03	26.58' RT	1179.50
B1	333+59.32	26.58' LT	1190.99	335+17.54	26.58' LT	1189.31
B2	333+38.45	26.58' RT	1190.99	334+99.93	26.58' RT	1189.31
W1	333+43.86	26.58' LT	1196.17	335+29.12	26.58' LT	1194.32
W2	333+26.88	26.58' RT	1196.34	335+12.14	26.58' RT	1194.49

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

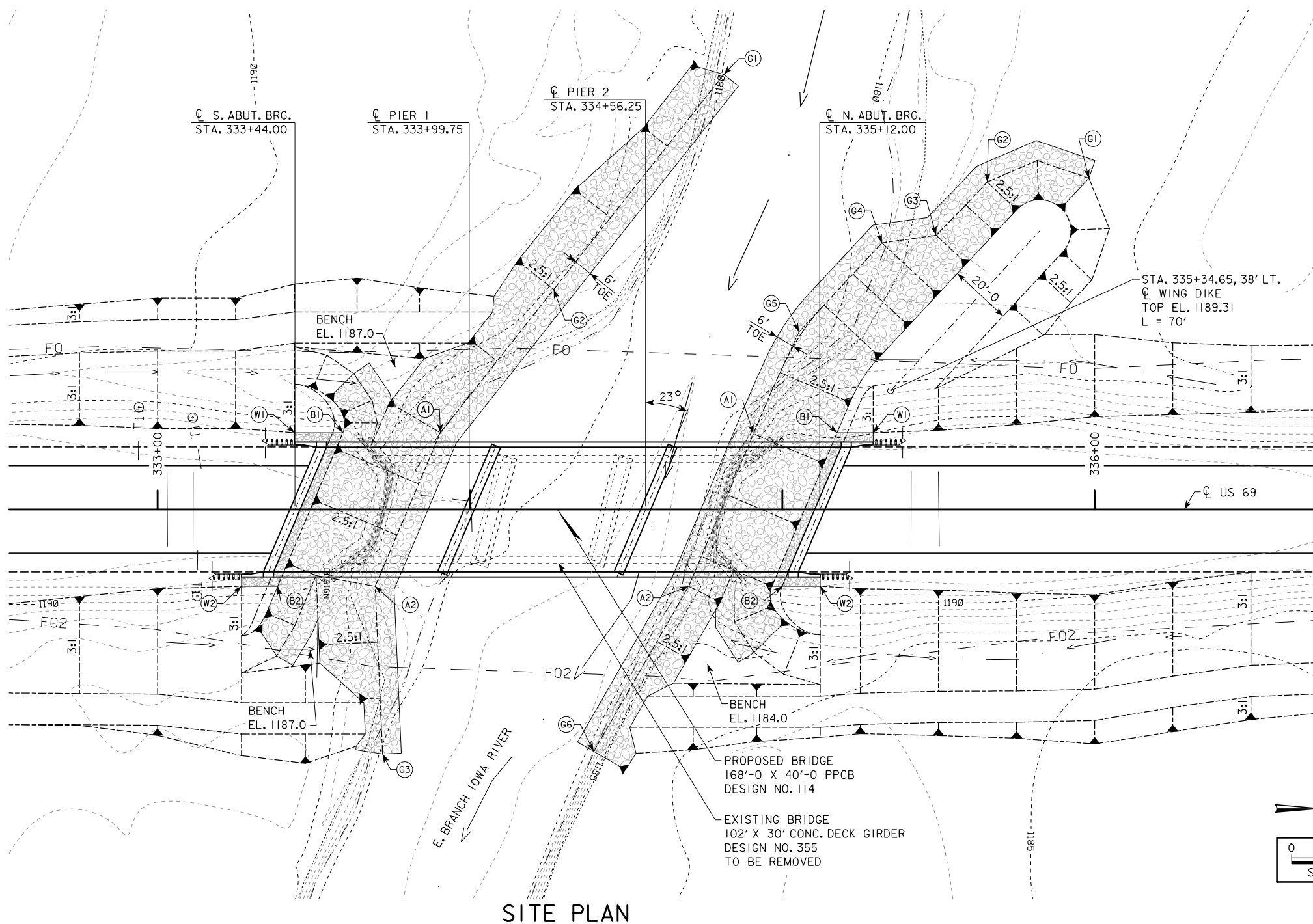
GRADING CONTROL - SOUTH

- Ⓒ1 334+81.28, 139.36' LT, EL. 1179.60
- Ⓒ2 334+26.83, 70.49' LT, EL. 1179.50
- Ⓒ3 333+72.04, 78.27' RT, EL. 1179.50

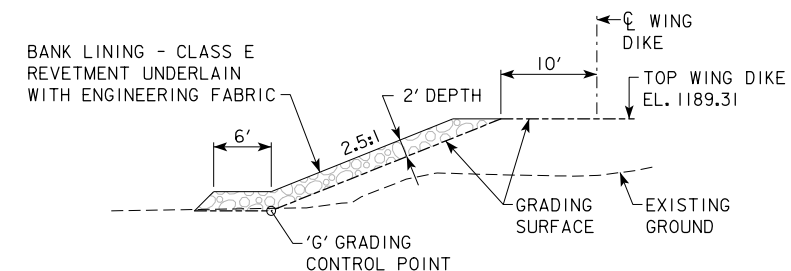
GRADING CONTROL - NORTH

- Ⓒ1 335+98.15, 106.10' LT, EL. 1184.06
- Ⓒ2 335+65.59, 104.86' LT, EL. 1184.12
- Ⓒ3 335+49.25, 87.83' LT, EL. 1183.99
- Ⓒ4 335+31.91, 85.40' LT, EL. 1179.60
- Ⓒ5 335+05.38, 56.95' LT, EL. 1179.50
- Ⓒ6 334+39.63, 77.48' RT, EL. 1179.50

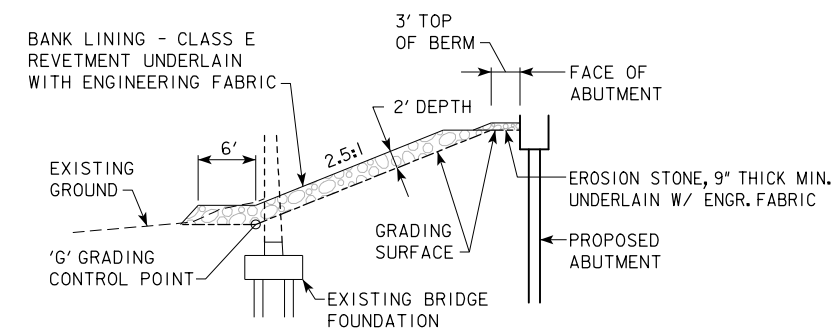
ESTIMATED EROSION CONTROL QUANTITIES				
LOCATION	REVESTMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
SOUTH	726	9.4	854	--
NORTH	748	9.4	870	--
TOTALS	1,474	18.8	1,724	--



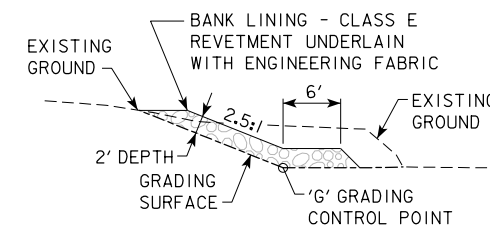
SITE PLAN



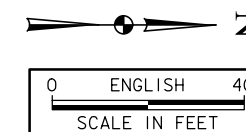
SECTION THRU BANK LINING AT WING DIKE



SECTION THRU NON-EMBEDDED BANK LINING AT ABUTMENT BERM



SECTION THRU TYPICAL BANK LINING



PRELIMINARY

DESIGN FOR 23° SKEW L.A.

**168'-0" X 40'-0" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE**

55'-9" END SPANS 56'-6" INTERIOR SPAN

**SITUATION PLAN - SITE**

STATION 334+28.00 FEB 2013

**HANCOCK COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 30637 DESIGN NO. 114

**LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)**

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

**LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)**

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

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

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

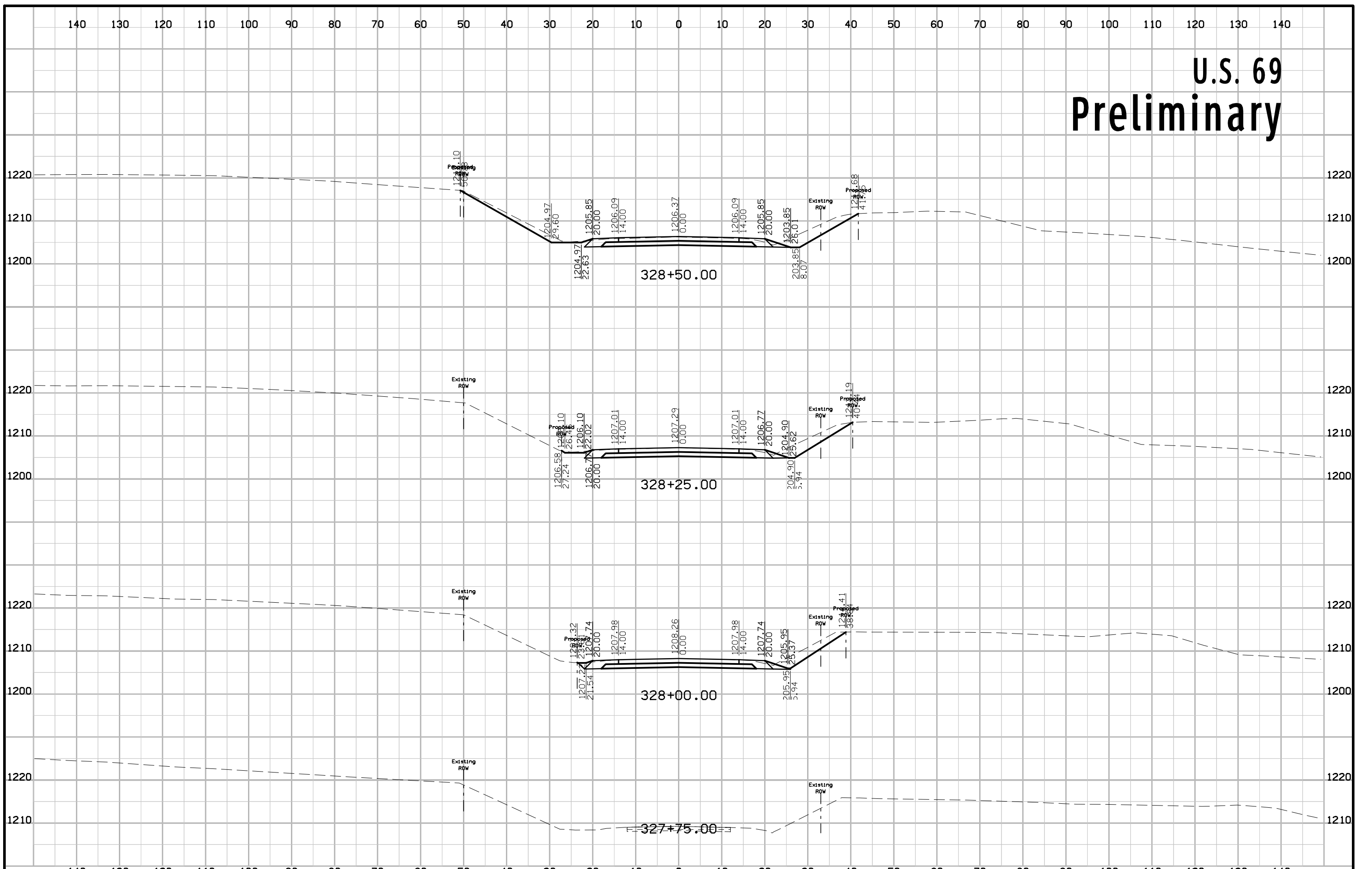
**SYMBOL LEGEND OF CROSS SECTION SHEETS**

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

**CROSS SECTION  
LEGEND AND SYMBOL  
INFORMATION SHEET**

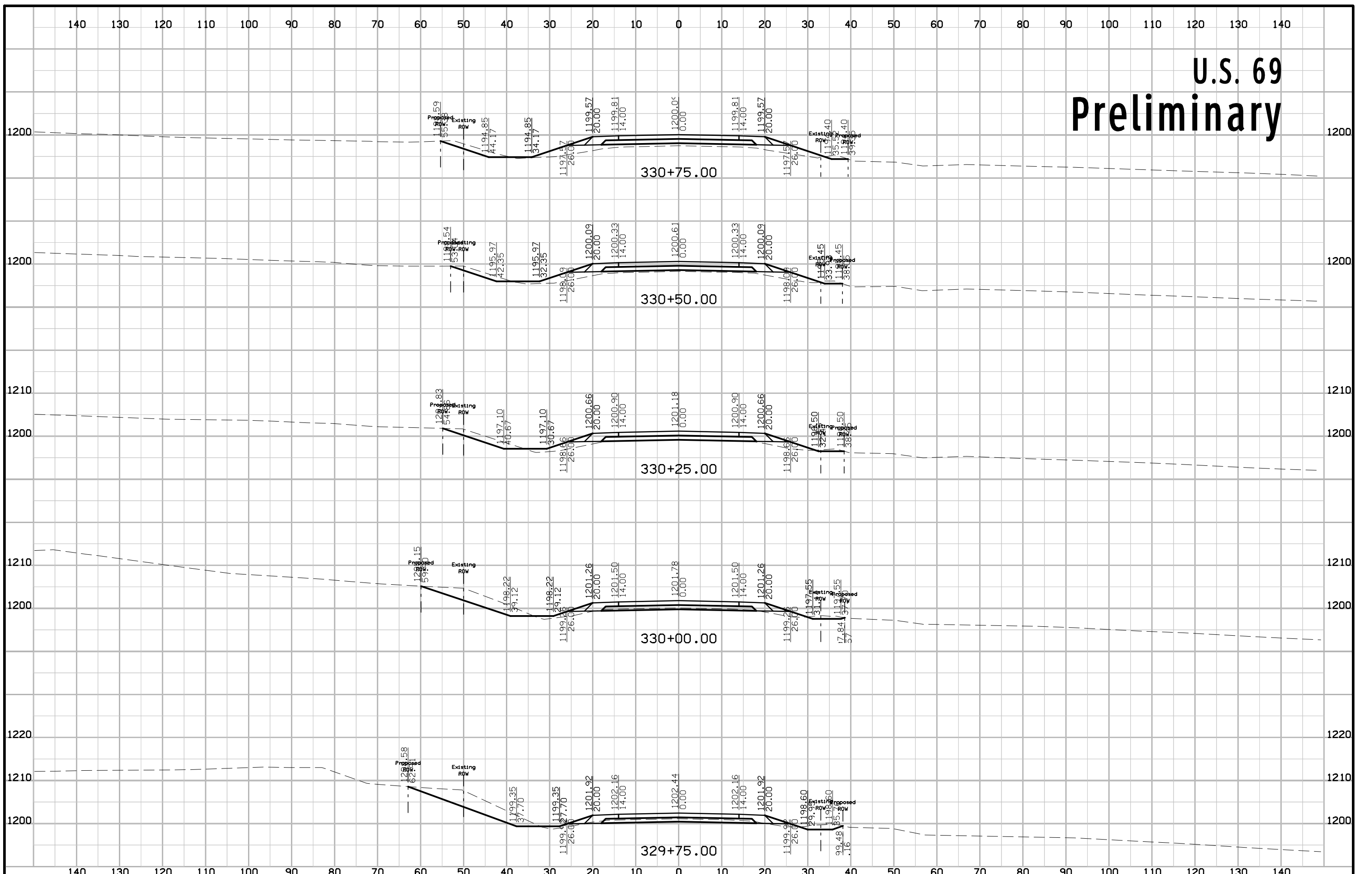
(COVERS SHEET SERIES W, X, Y, & Z)

# U.S. 69 Preliminary



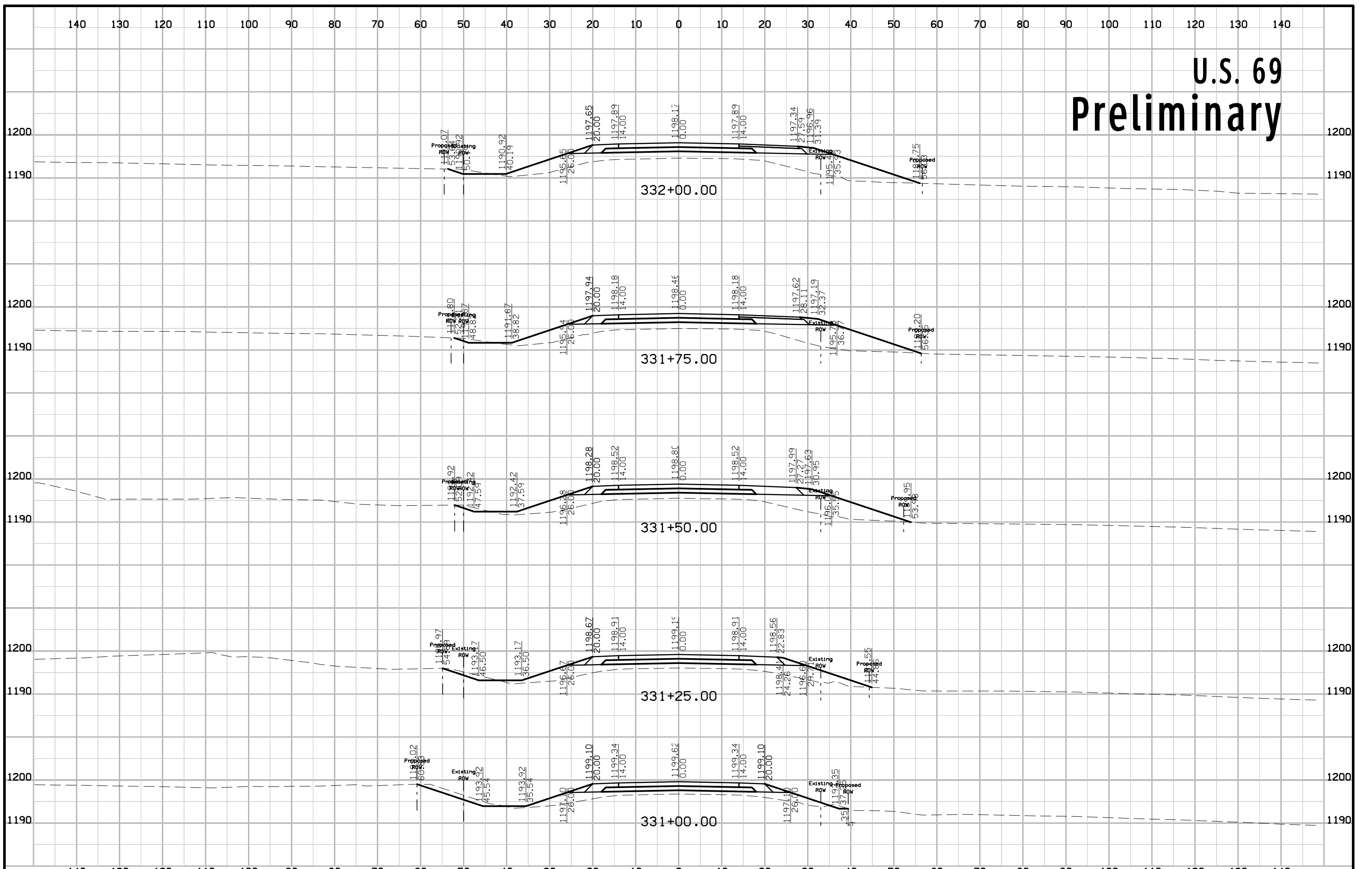


# U.S. 69 Preliminary

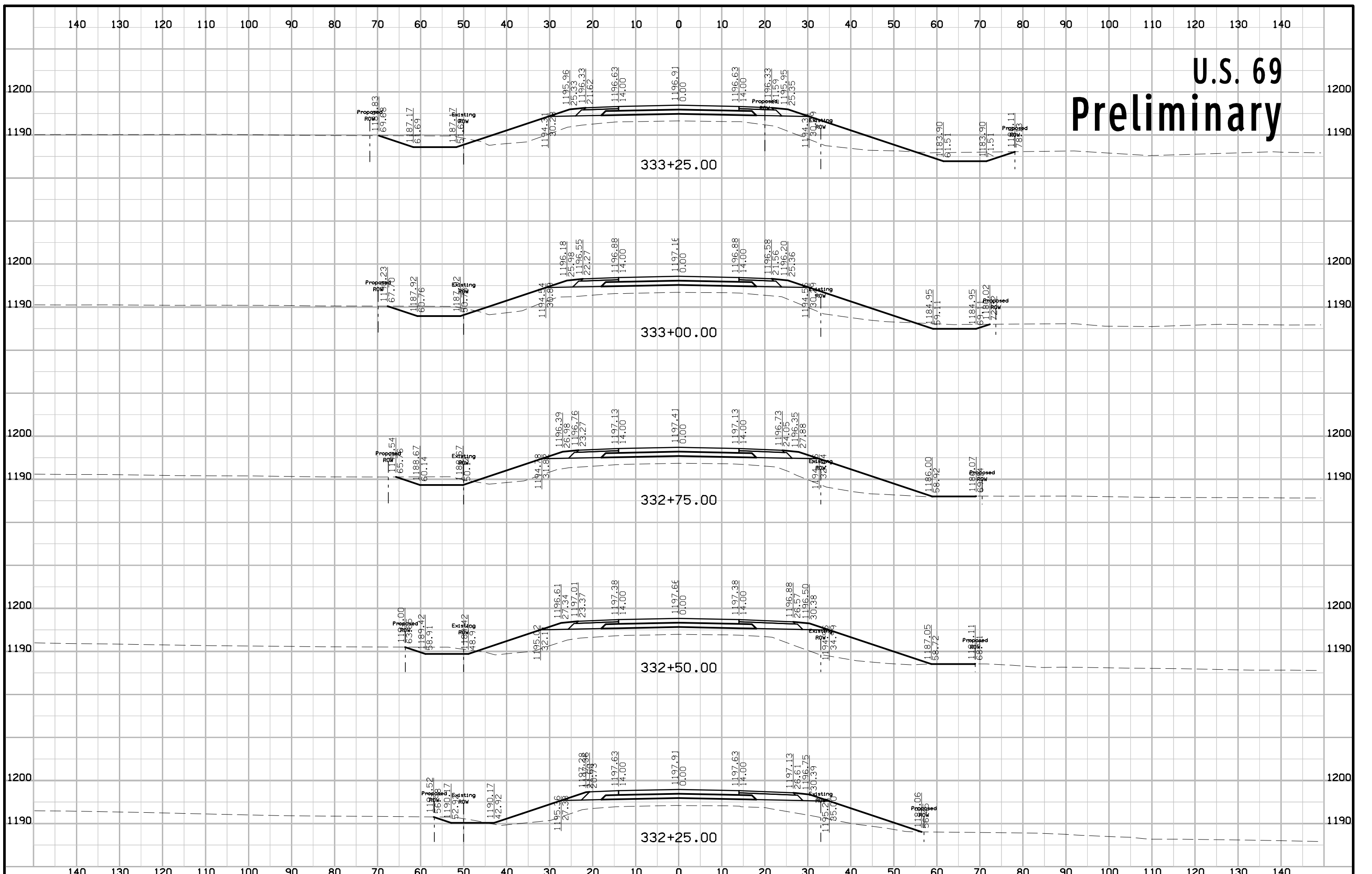




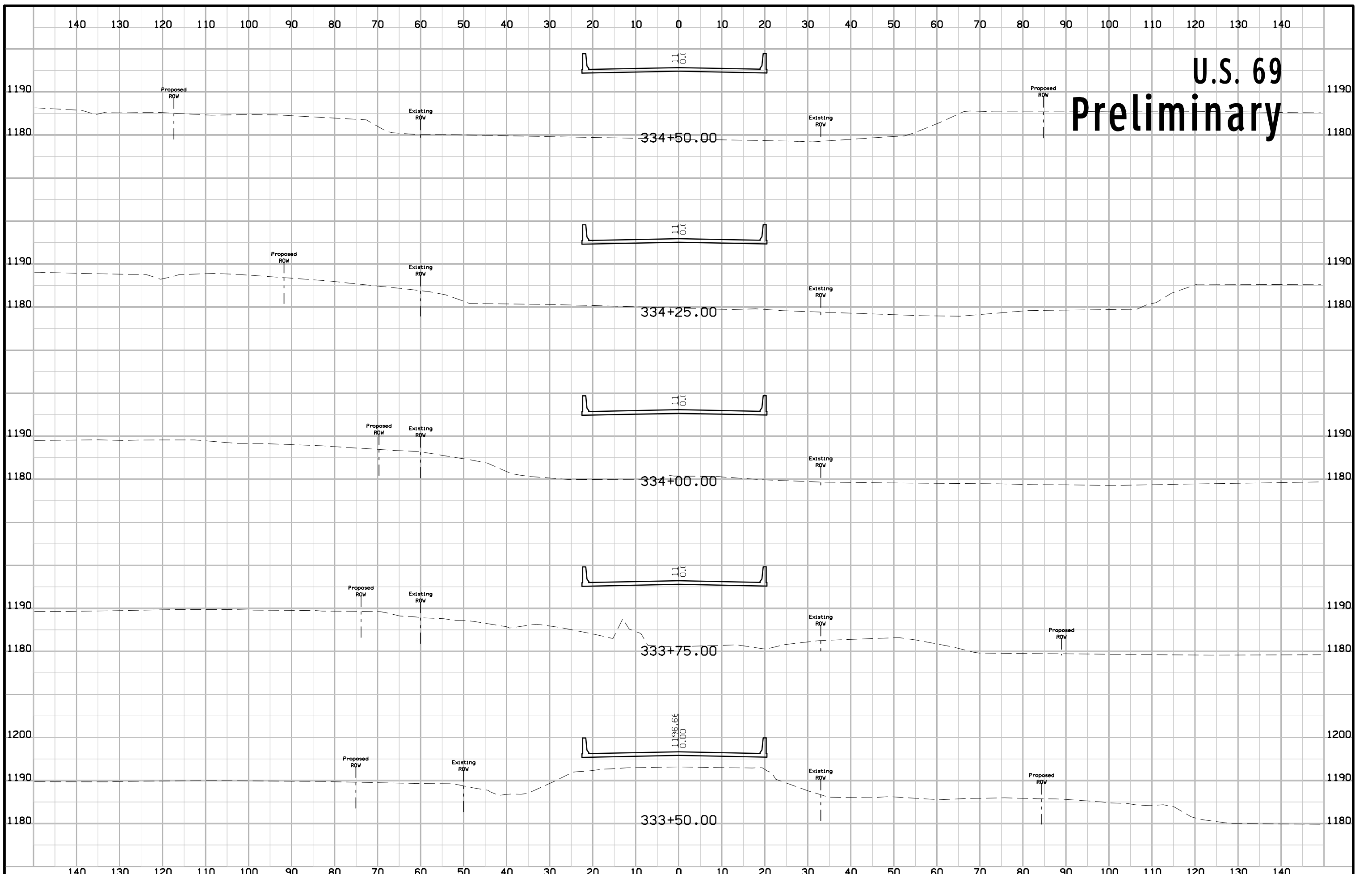
# U.S. 69 Preliminary



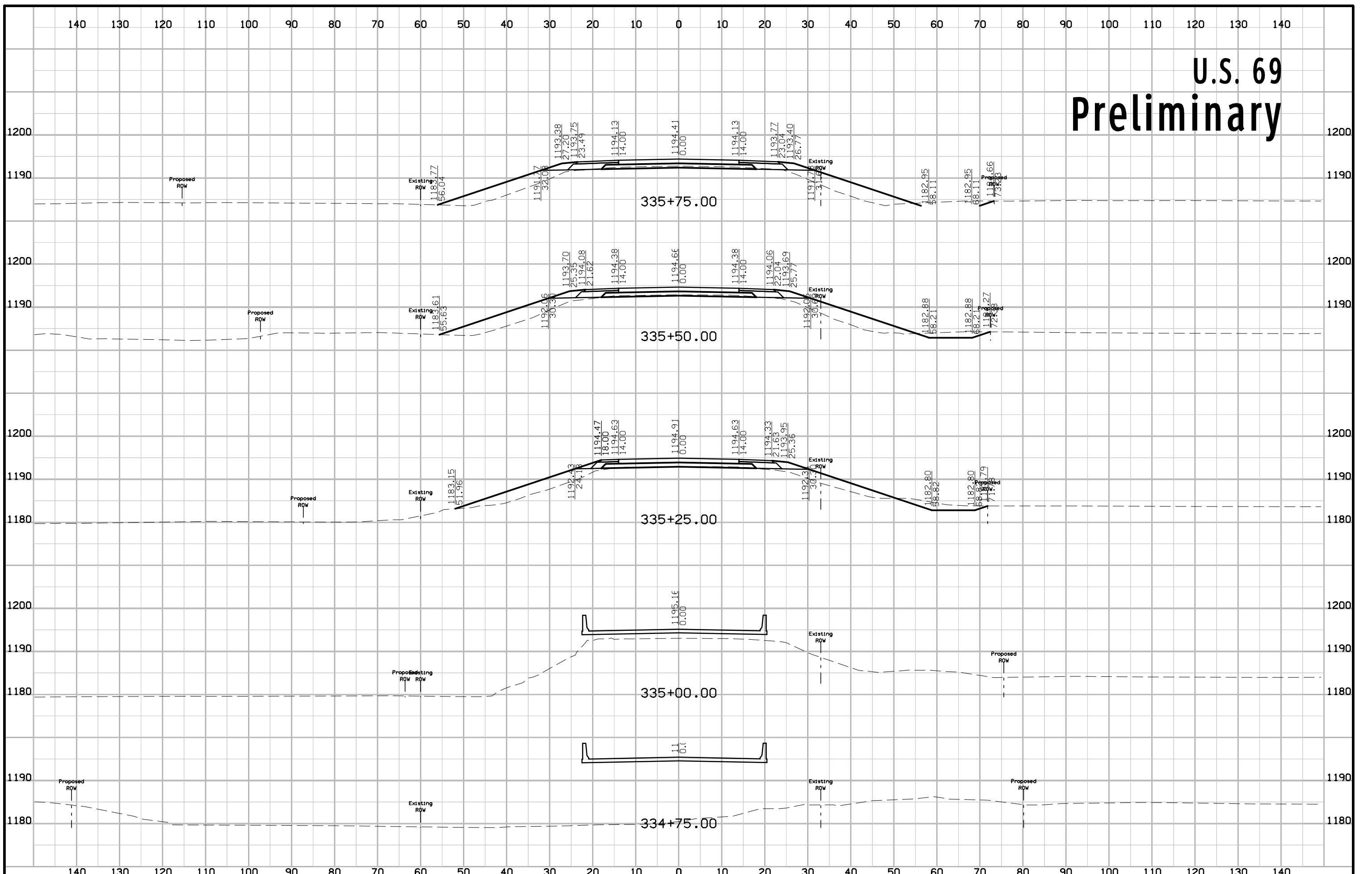
# U.S. 69 Preliminary



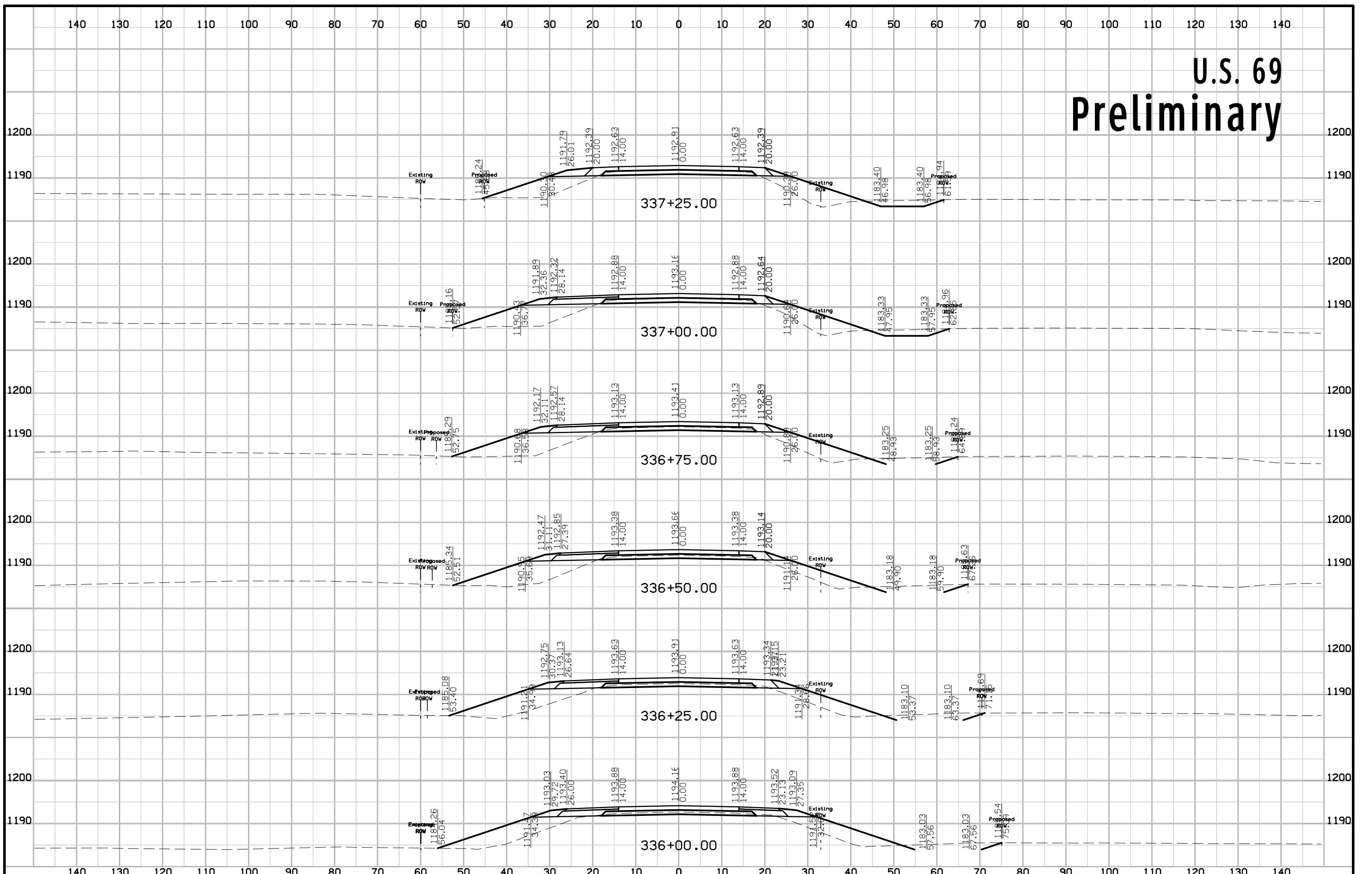
# U.S. 69 Preliminary



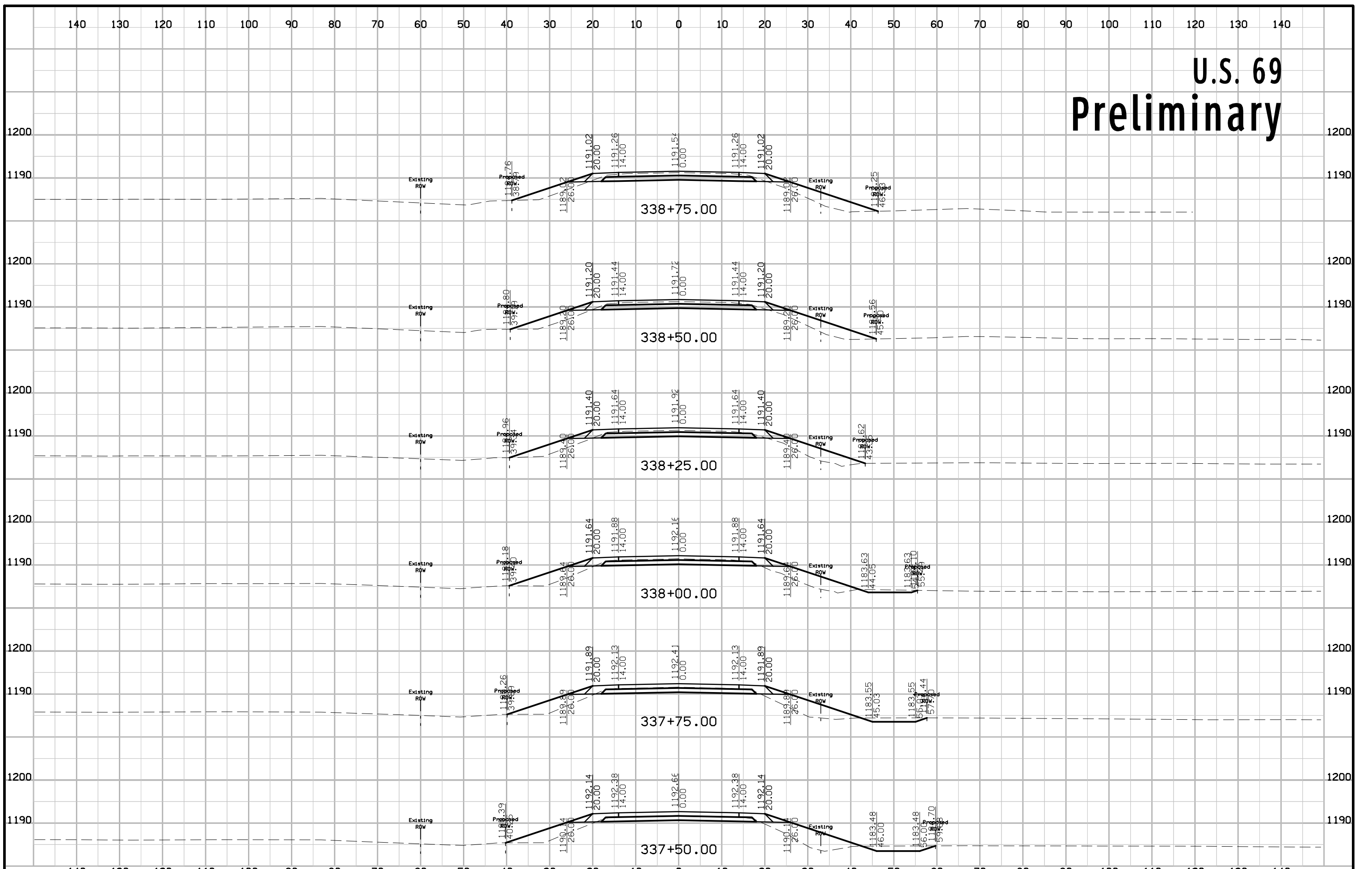
# U.S. 69 Preliminary



# U.S. 69 Preliminary



# U.S. 69 Preliminary



# U.S. 69 Preliminary

