

For Project Location Map  
Refer to Sheet No. A.02

No.	DESCRIPTION
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**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

**PRIMARY ROAD SYSTEM  
BREMER COUNTY  
RCB CULVERT EXTENSION**

US 63 - Crane Creek 1.5 mi S of IA 188 (SB)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



**NEED ADDITIONAL SURVEY**

DESIGN DATA RURAL			
2024	AADT	6,100	V.P.D.
2044	AADT	7,900	V.P.D.
2044	DHV	820	V.P.H.
	TRUCKS	19	%
	Total Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Michael J. Janecek	Primary Signature Block
V.1	Phillip M. Harpole	Hydraulic Design

REVISIONS

**FIELD EXAM MARK-UP**

TOTAL
32
PROJECT IDENTIFICATION NUMBER
19-09-063-010
PROJECT NUMBER
BRFN-063-7(107)--39-09
R.O.W. PROJECT NUMBER

**Field Exam held on-site on 6/03/21**

Meeting Attendees:

- Matt Erickson (IDOT)
- Jenifer Bates (Shive-Hattery)
- Joe Appel (Shive-Hattery)
- Mike Janecek (Shive-Hattery)
- Mark Harpole (Shive-Hattery)

**Field Exam held virtually on 6/14/21**

Meeting Attendees:

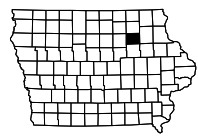
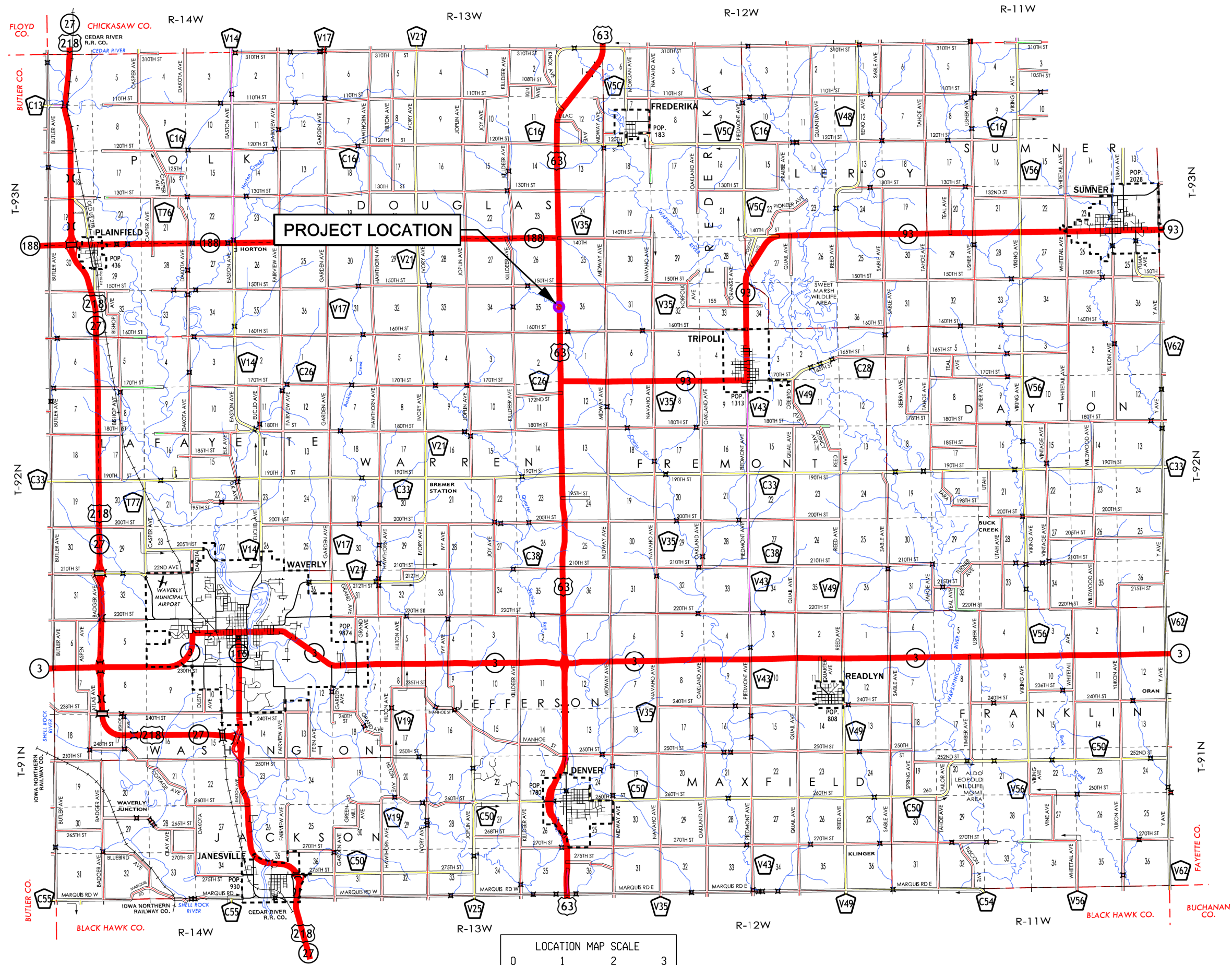
- Nick Humpal (IDOT)
- Tracy Meise (IDOT)
- Steven Schroder (IDOT)
- Kevin Smith (IDOT)
- Matt Erickson (IDOT)
- Jason Dighton (IDOT)
- Ron Loecher (IDOT)
- Jenifer Bates (Shive-Hattery)
- Mike Janecek (Shive-Hattery)

- D3 PLAN - Date: July 16, 2021
- D5 PLAN - Date: October 15, 2021
- D4 PLAN - Date: July 23, 2024

**PRELIMINARY PLANS**

Subject to change by final design.

D2 PLAN - Date: June 18, 2021



<b>Roadway</b>			
<b>PIN Number</b>	19-09-063-010	<b>Submittal Date</b>	06/10/20
<b>Project Number</b>	BRFN-063-7(107)--39-09		<b>Approval Date</b>
<b>District</b>	District 2	<b>Assistant District Engineer</b>	Nick Humpal
<b>County</b>	BREMER	<b>Office Director</b>	
<b>Route</b>	US 63 SB		
<b>Location</b>	Crane Creek 1.5 mi S of IA 188 (SB)		
<b>Work Type</b>	Bridge Replacement		
<b>Segment Manager</b>	John Bartholomew		
<b>Designer</b>	Jenifer Bates		
<a href="#">Design Manual Section 1C-1</a> Last Updated: 04-29-19			
<b>Rural Expressways (Rural Arterials)</b>			
Design Element	Preferred	Acceptable Criteria	Project Values
Design speed (mph)	70	50	70
Maximum superelevation rate (Refer to Section 2A-2)	6%	8%	6%
Design lane width (ft)	12	12	12
Full depth paved width (ft)	Outside lane	12	12
	Inside lane(s)	12	12
Right turn lane or an auxiliary lane (ft)	12	10	12
Left turn lane (ft)	12	10	12
Pavement cross-slope (on tangent sections)	Through lanes	2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	1.5% minimum, 3% maximum
	Auxiliary and turn lanes	3%	3% maximum
	Crown break at centerline	4%	4% maximum
Shoulder cross-slope (on tangent sections)	4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1
	Curbed roadways	2%	not steeper than 3:1
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)	3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures	8:1	6:1
	w/o drainage structures	10:1	6:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--
	Median ditch depth (ft)	4	2
Median width (ft) (Refer to Section 3E-1)	64	50	Match Exst
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths
Bridge width—existing*	design lane widths + no less than 2 ft left and right		design lane widths + 2 ft left and right of the design lane widths
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14
	Over railroad	23.3	23.3
	Sign trusses and pedestrian crossings	17.5	17
Structural Capacity	Contact Office of Bridges and Structures		Contact Office of Bridges and Structures
Level of Service	B	B	B
*FHWA notification via email is required if acceptable criteria is not met on the NHS system (No formal design exception required)			

Design year ADT = 6100		Effective Shoulder Width and Type for Multilane Arterials								
<a href="#">Design Manual Section 1C-1</a> Last Updated: 04-29-19		Preferred (Values shown in feet)				Acceptable (Values shown in feet)				Project Values
Design Element		Rural Roadways		Urban Roadways		Rural Roadways		Urban Roadways		Project Values
Auxiliary lanes or turn lanes with shoulders		6		6		6		0		6
Turn lanes with curbs		6		See Section <a href="#">3C-2</a>		6		0		N/A
Expressways		Outside		Median Side		Outside		Median Side		Outside Effective = 10' Paved = 6' Median Effective = 6' Paved = 6'
		Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated		10	10	6	6	8	4	4	4	
On roadways approaching urban areas (due to increased bike traffic)		10	10	6	6	8	4	4	4	
On all other Expressways (Multilane Arterials)		10	6	6	6	8	0*	4	4	
On all curves with a superelevation rate of 7.0% or greater		10	10	6	6					
On roadways with design year ADT > 6500 vpd		10	6	6	6					

\*Requires safety edge-See Section [3C-6](#)  
 Curbs should be located beyond the outer edge of the effective shoulder width in rural areas  
 Refer to Section [3C-2](#) for curb offsets in urban areas  
**Notes:** Exst shoulders are granular so confirm want 6' paved both sides.

Roadway Design Speed (mph) = 75		Design Criteria for High Speed Roadways													
<a href="#">Design Manual Section 1C-1</a> Last Updated: 04-29-19		Preferred Criteria						Acceptable Criteria						Project Values	
Design Element		Design Speed, mph						Design Speed, mph						Project Values	
		50	55	60	65	70	75	50	55	60	65	70	75		
Stopping sight distance (ft) (Refer to Section <a href="#">6D-1</a> )		425	495	570	645	730	820	425	495	570	645	730	820	820	
Minimum horizontal curve radius (ft) (Refer to Sections <a href="#">2A-2</a> and <a href="#">2A-3</a> )	Method 5 superelevation and side friction distribution	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	2500	
	$e_{max} = 6\%$														
	$e_{max} = 8\%$	--	--	--	--	--	--	758	960	1200	1480	1810	2210	--	
Minimum vertical curve length (ft) (Refer to Section <a href="#">2B-1</a> )		150	165	180	195	210	225	150	165	180	195	210	225	225	
Minimum rate of vertical curvature (K) (Refer to Section <a href="#">2B-1</a> )	crest vertical curves	84	114	151	193	247	312	84	114	151	193	247	312	312	
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	206
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	206
Minimum gradient (%) (Refer to Section <a href="#">2B-1</a> )		0.5						0.3% with a curb, 0.0% without a curb						0.5	
Maximum gradient (%) (Refer to Section <a href="#">2B-1</a> )	Urban roadways	4		3				7	6	6	--	--	--		
	Rural roadways	4		3				5	5	4	4	4	4	4	
	Interstates	4		3				5	5	4	4	4	4	4	
Clear zone		See "Preferred Clear Zone" table in Section <a href="#">8A-2</a>						See "Acceptable Clear Zone" table in Section <a href="#">8A-2</a>						34'	

FINAL PROJECT CONCEPT STATEMENT

US 63 Bridge over Crane Creek 1.5 mi S of IA 188 (SB).

IOWA DEPARTMENT OF TRANSPORTATION

**TO OFFICE:** District 2  
**ATTENTION:** E. Jon Ranney  
**FROM:** Jenifer Bates  
**OFFICE:** Shive-Hattery  
**SUBJECT:** Project Concept Statement; (Final, D0)

**DATE:** August 13, 2020  
**PROJECT:** Bremer County  
BRFN-063-7(107)--39-09  
PIN: 19-09-063-010

Bremer County  
Proj. BRFN-063-7(107)--39-09  
PIN: 19-09-063-010  
Maint. No. 0986.3L063  
FHWA No. 15470

Jenifer J. Bates, P.E.  
515-223-8104

August 13, 2020

This project involves the replacement of the US 63 bridge (Maint. No 0986.3L063) over Crane Creek 1.5 mi S of IA 188 (SB).

A concept review was held virtually on July 23, 2020. Those present included Nick Humpal and Randy Taylor from District 2; Steven Schroder, David Claman, Matt Erickson from the Iowa DOT and Jenifer Bates, Joe Appel, Mike Janecek, and Mark Harpole from Shive-Hattery.

One alternative was considered:

- 1) Replace the existing structure with an extension of the adjacent triple 12' x 10' x 141' reinforced concrete box (RCB) placed at a 30-degree left ahead skew with a 15-degree bend with an estimated cost of \$2,686,900 (see attached concept for details). Additional right of way looks like it will be required. Traffic will be maintained by shifting traffic to accommodate two-lane, two-way traffic on the northbound lanes via median crossovers.

Alternative 1 is the preferred alternative due to the site topography, adjacent existing structure, and safety considerations.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by August 12, 2020. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2024. The Bridges and Structures Bureau will coordinate the plan preparation with the assistance of the Design Bureau and Shive-Hattery.

Cc:	C. Purcell	M. J. Kennerly	K. D. Nicholson
	S. J. Megivern	J. S. Nelson	B. Walls
	M. Nop	M. A. Swenson	R. A. Younie
	K. Brink	D. L. Newell	J. W. Laaser-Webb
	W. A. Sorenson	D. E. Sprengeler	E. C. Wright
	M. E. Ross	A. A. Welch	N. M. Miller
	C. C. Poole	B. Bradley	B. E. Azeltine
	B. D. Hofer	T. D. Crouch	S. J. Gent
	S. Anderson	J. Selmer	K. K. Patel
	S. Godbold	D. R. Claman	J. Hauber
	A. Abu-Hawash	M. E. Khoda	K. Olson
	S. Neubauer	T. Abbett	M. Kelly
	B. Dolan	P. Hjelmstad	N. Humpal
	M. K. Solberg	G. Pavelka	R. Loecher
	R. Gelhaus	J. Bartholomew	

SH Project #4202350

Shive-Hattery | 4125 Westown Parkway | Suite 100 | West Des Moines, IA 50266 | 515.223.8104 | shive-hattery.com



I. STUDY AREA

A. Project Description

This project involves the replacement of the US 63 bridge (Maint. No 0986.3L063) over Crane Creek 1.5 mi S of IA 188 (SB).

The alternative considered was:

1. Replace the existing structure with an extension of the adjacent triple 12' x 10' x 141' reinforced concrete box (RCB) placed at a 30-degree left ahead skew with a 15-degree bend.

Alternative 1 is the preferred alternative due to the site topography, adjacent existing structure, and safety considerations.

Traffic will be shifted to the accommodate two-lane, two-way traffic on the northbound lanes via median crossovers.

The preliminary project cost is \$2,646,900.

B. Need for Project

This is a 73' X 30' steel girder bridge that was built in 1957 and overlaid in 1984. The bridge is a fracture critical structure. The deck contains leaching cracks and hollows. The superstructure has severe rust with section loss. The abutments have large and leaching cracks. Due to the age, condition of the substructure, and the bridge being a fracture critical structure, a replacement is recommended.



SH Project #4202340



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C. Present Facility

The existing structure is a 73' X 30' steel girder bridge constructed in 1957.

US 63 in the project area is 24' wide PCC pavement with 10' wide granular shoulders and 4:1 foreslopes, constructed in 1929 as a gravel road. Original paving plans could not be located, but the roadway was widened and resurfaced with ACC over multiple years (1956, 1960, and 1984). The northbound lanes of US 63 were added in 2010. The southbound lanes (which this project is located on) are the original highway alignment.

D. Traffic Estimates

The 2024 construction year and 2044 design year average daily traffic estimates are 6,100 ADT with 19 % trucks and 7,900 ADT with 19 % trucks, respectively.

E. Sufficiency Ratings

US 63 is classified as a Commercial and Industrial route and is a maintenance service level B roadway. The federal bridge sufficiency rating is 77.5.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2015 through December 31, 2019, there were 4 crashes including, 1 personal injury crash and 3 personal property crashes.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 - Replace with a culvert

The existing 73' X 30' steel girder bridge will be replaced with an extension of the adjacent triple 12' x 10' x 141' reinforced concrete box (RCB) placed at a 30-degree left ahead skew with a 15-degree bend.

The typical cross section over the culvert and through the pavement reconstruction will consist of a 24' wide roadway with 10' effective outside shoulder (6' paved and 4' granular) and 6' wide effective inside shoulder (6' paved).

The existing grade will need to be raised a minimum of 3 ft. which will require approximately 1265 LF of roadway reconstruction (610 LF north and 655 LF south). Pavement typical section was estimated at 10 in. PCC over 12 in. modified subbase with 100% subdrain coverage on the SB lanes.

The roadway will be reconstructed on the existing horizontal alignment. The flow line of the box will tie into the existing box and therefore not be buried 1' below the existing flow line. The existing ditches will need to be relocated to meet the inlet and outlet flowlines of the new RCB.

Class E revetment will be placed at the ends of the RCB.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way appears to be required for this project.

During construction, traffic will be shifted to accommodate two-lane, two-way traffic on the northbound lanes. This will be accomplished via the use of single lane median crossovers which will be constructed south and north of the proposed culvert. The crossovers will be removed at the completion of the project. See attached D.2 plan sheet for approximate crossover locations. Locations may need to be adjusted during preliminary design to not conflict with the quarry entrance south of the project and the existing median crossing north of the project.

<b>Bridge Items</b>	<u>Estimated Costs</u>
New Culvert	\$426,000
Bridge Removal	\$17,400
Revetment	\$8,800
Engineer Fabric	\$900
Mobilization - 10%	\$45,300
M & C - 20%	<u>\$99,700</u>
<b>Bridge Costs</b>	<b>\$ 598,100</b>

<b>Roadway Items</b>	
Clearing and Grubbing	\$20,000
Special Backfill	\$82,500
Embankment in place, contractor furnished	\$360,000
Excavation Class 10	\$50,000
Compaction w/Moisture Control	\$3,000
Modified Subbase	\$59,200
Granular Shoulder	\$28,600
Paved Shoulder	\$130,100
PCC Pavement	\$276,300
Detour Pavement	\$195,200
Granular Surfacing on Rd, Class A	\$2,700
Flooded Backfill	\$10,600
Excavation Class 20	\$15,000
Apron, Concrete 24"	\$6,000
Culvert, Concrete Roadway Pipe, 24"	\$23,400
Longitudinal Subdrain	\$30,600
Subdrain Outlet	\$2,400
Removal of Pavement	\$66,000
Erosion Control	\$50,000
Right of Way	\$10,000
Traffic Control - 5%	\$78,400
Mobilization - 5%	\$78,400
M & C - 30%	<u>\$470,400</u>
<b>Roadway costs</b>	<b>\$2,048,800</b>

**Project Total** **\$2,646,900**

B. Detour Analysis

Southbound US 63 will be closed and traffic will be shifted to accommodate two-lane, two-way traffic on the northbound lanes via median crossovers. Therefore, no detour analysis was completed.

C. Recommendations

It is recommended that the present structure be replaced as described in Alternative No. 1.

D. Construction Sequence

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

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to US 63; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The ABC Rating Score of 24 is less than the first stage filter threshold of 50, therefore no further evaluation is considered.

Additional survey is requested for approximately 1000' feet north and south of the proposed culvert extension, including both the northbound and southbound lanes to be able to design the proposed road reconstruction, median crossovers and traffic control.

Right of Way appears to be required for this project.

Once the Location and Environment Bureau has completed their review, comments will be incorporated into the final concept statement.

F. Program Status

Site data has been developed by Shive-Hattery. This project is listed in the 2020-2024 Iowa Transportation Improvement Program, with \$1,100,000 programmed for replacement in FY 2024. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

The following page has a map of the county showing the location of the project area.

Attachment A - Utilities

**Jenifer J. Bates**

**From:** ia@occinc.com  
**Sent:** Monday, June 15, 2020 7:08 AM  
**To:** Page, Jason  
**Subject:** Design Information Results for Ticket # 552004187

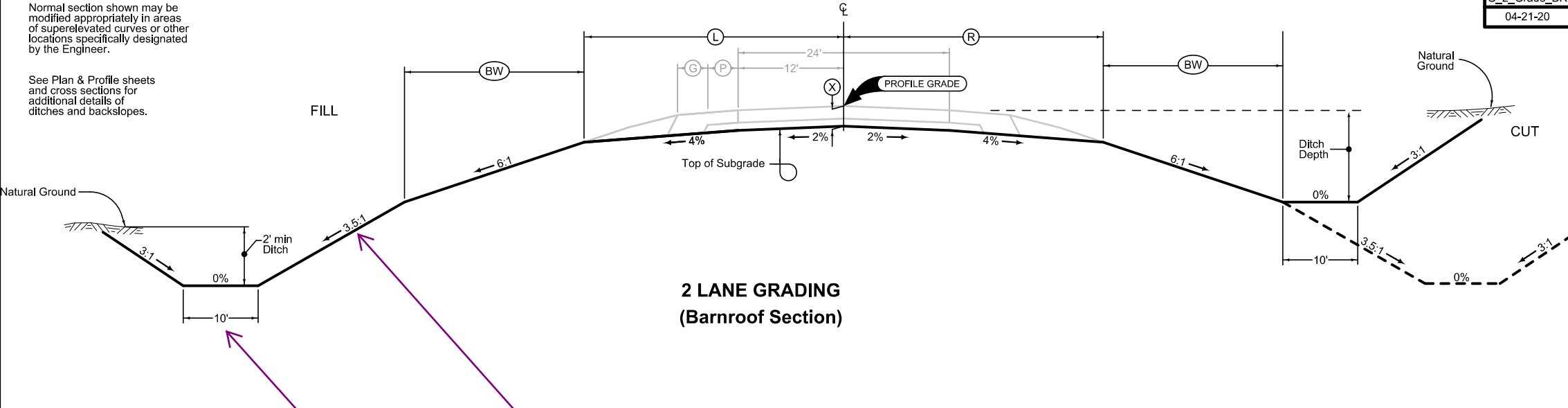
( ANE ) ALLIANT ENERGY  
 Contact Name : Alliant Energy Field Engineer  
 Contact Phone : 8002554268  
 Contact Email : locate\_IPL@alliantenergy.com  
 Locate Requested: N

( BBM ) BUTLER BREMER MUTUAL TELEPHONE  
 Contact Name : Stuart C Dietz  
 Contact Phone : 3192764458  
 Contact Email : stuart@butler-bremer.com  
 Locate Requested: N

LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	Ⓐ Feet	Ⓑ Feet	Ⓓ Inches	Ⓑ <sub>W</sub> Feet
US 63	407+72.50    420+35.61	13.76	29.20	22	13.76

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.



Can go to 3:1 if it helps avoid impact to power poles/right of way

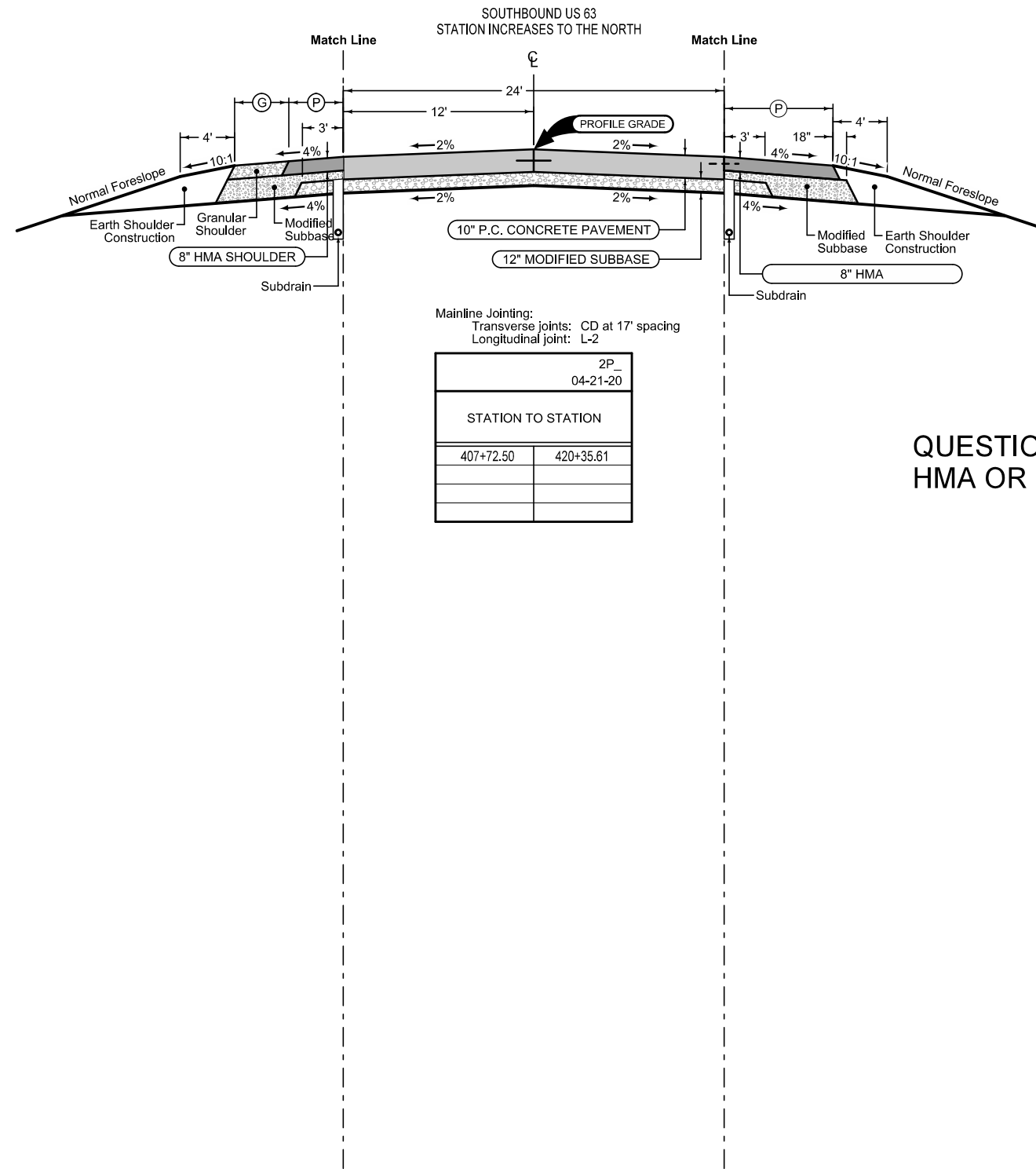
Do not lessen ditch width



**Combination Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

2_C_			
04-21-20			
STATION TO STATION	(P)	(G)	
	Feet	Feet	
407+72.50	420+35.61	6	4



**Paved Shoulder at Guardrail**

PCC Shoulder Jointing:  
Longitudinal joint: BT-1 or BT-5  
Transverse joints: C at mainline spacing  
HMA Shoulder Jointing:  
Longitudinal joint: B

2_P_Guard_		
04-21-20		
STATION TO STATION	(P)	
	Feet	
407+72.50	420+35.61	6

2P_	
04-21-20	
STATION TO STATION	
407+72.50	420+35.61

QUESTIONS:  
HMA OR PCC SHOULDERS? ALTERNATE?

See Tab 100-24 or 100-25 for pavement quantities.  
See Tab 112-9 for shoulder quantities.

**US 63**

### SURVEY SYMBOLS

- CP Control Point
- ▲ SCR Section Corner
- △ ROW Right of Way Mark
- △ BM Bench Mark
- EW Edge of Water
- WC Wild Card (Misc. Field Shot)
- GR Ground Shot
- ← DU Centerline Draw or Stream (Up)
- BL Topo Breakline
- SNP Unpaved Shoulder
- SH Paved Shoulder
- EP Edge of Paved Roads (ML or SR)
- C Centerline BL of Road (ML or SR)
- LIN Miscellaneous Line
- ↓ PLG Location of General Photo
- D Centerline Draw or Stream (Down)
- △△△△△ RIP Rip-Rap
- BNK Stream Bank
- PPA Power Pole Co. 1
- PIP Pipe Culvert
- CON Concrete or A/C Slab
- CUL Culvert
- SOP Size of Pipe or Culvert
- SBR Size of Bridge
- BRG Bridge
- GDL Guard Rail Steel
- BD Bridge Deck
- BCL Bridge Centerline
- BLS Bridge Low Steel
- OUT Tile Outlet

### UTILITY LEGEND

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

Remark Abbreviations  
 QLA Quality Level A Highest guideline quality level  
 QLD Quality Level D Lowest guideline quality level

● PPA Power Pole Alliant Energy  
 800-255-4268  
 locate\_IPL@alliantenergy.com

### 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

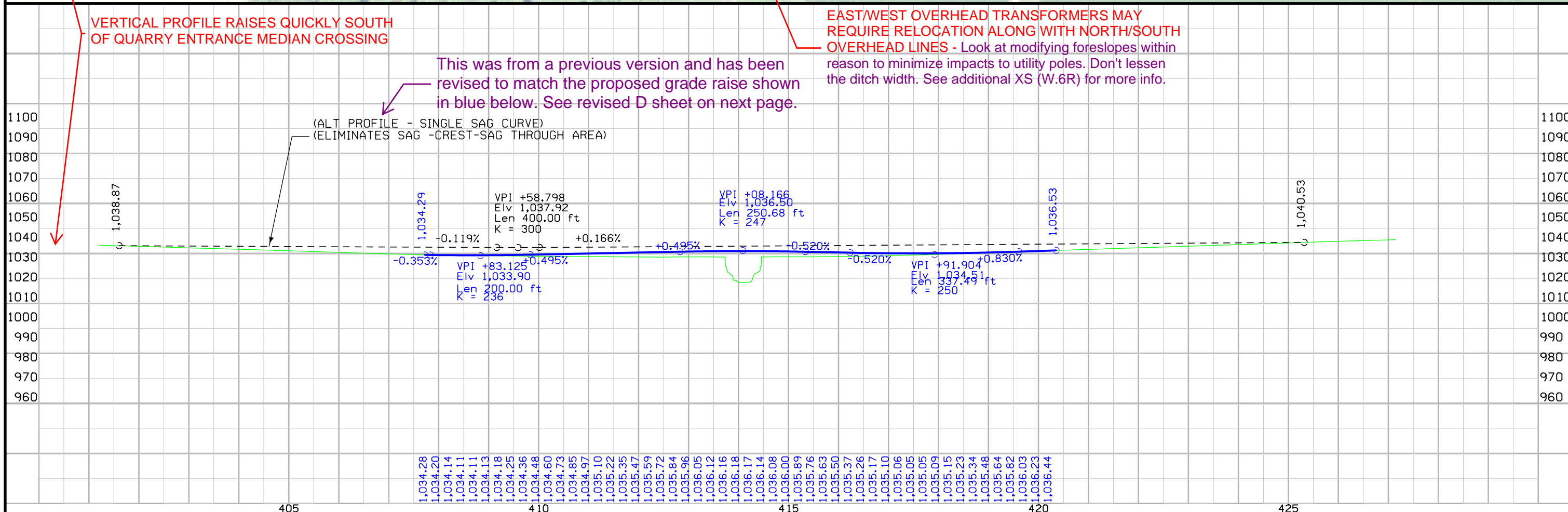
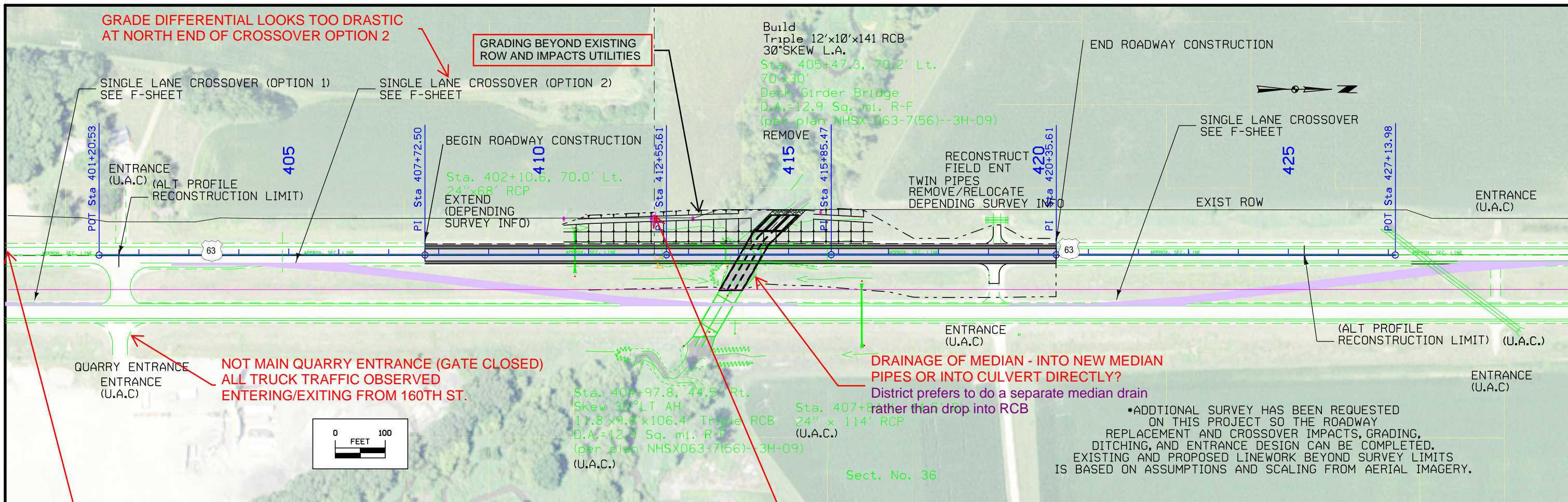
LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

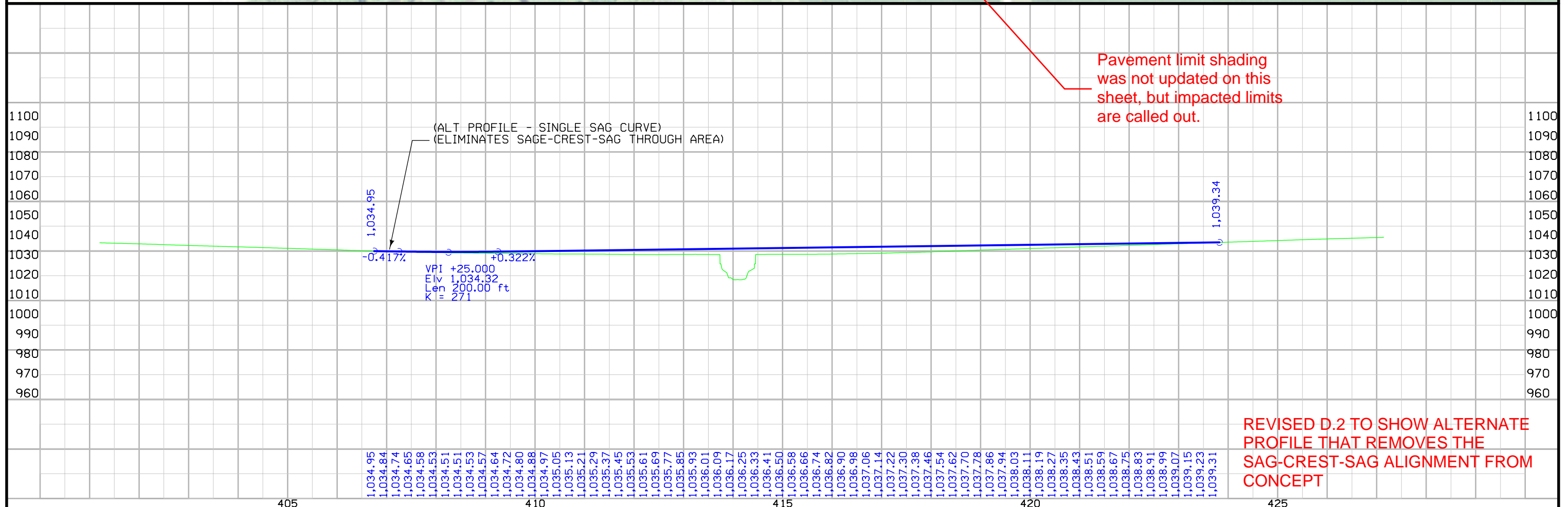
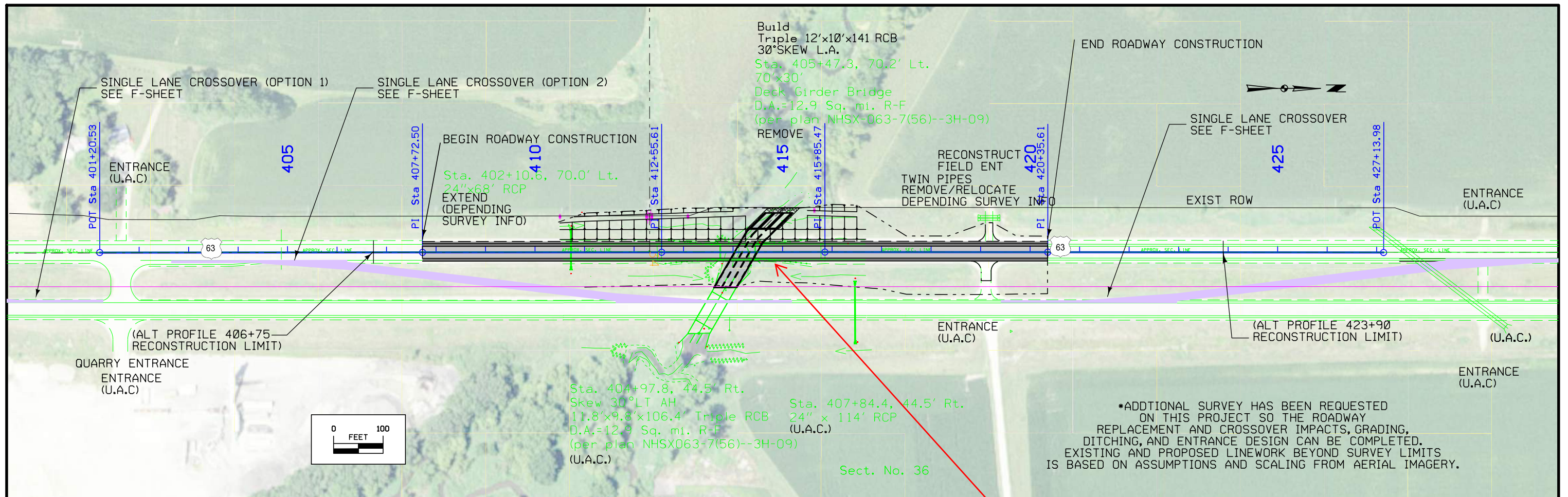
- Reference Point
- Station
- ▲ Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- ▨ Pavement Removal
- ▩ Clearing & Grubbing Area

### 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)

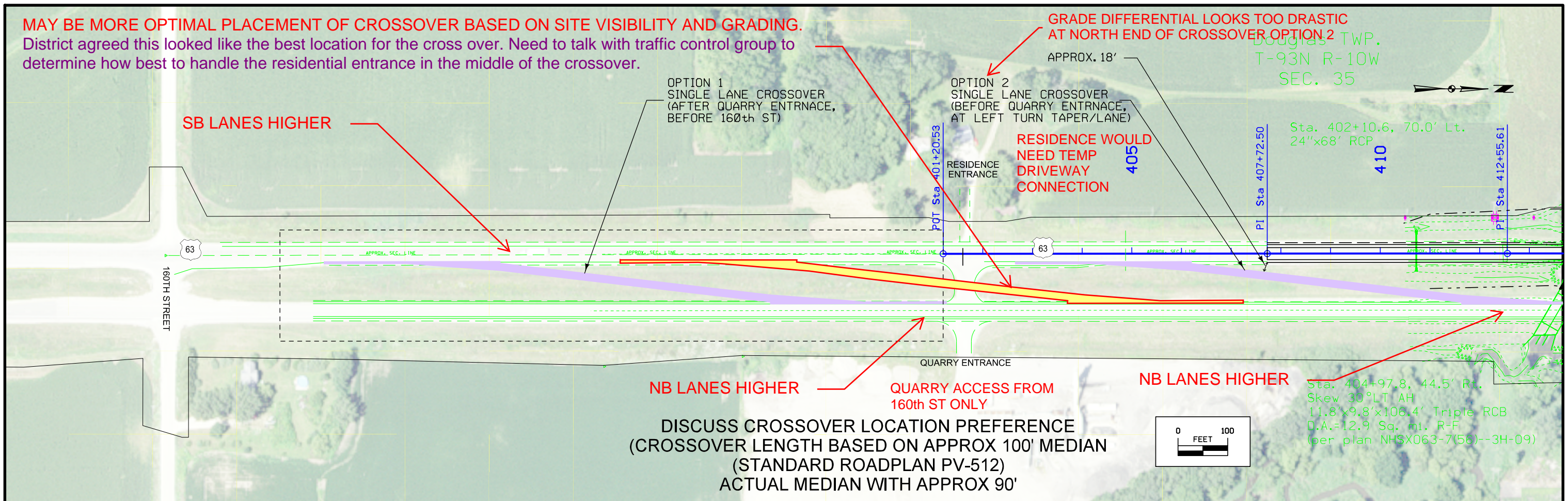




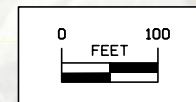
FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT / Shive-Hattery	BREMER COUNTY	PROJECT NUMBER	BRFN-063-7(107)--39-09	SHEET NUMBER	D.2
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**MAY BE MORE OPTIMAL PLACEMENT OF CROSSOVER BASED ON SITE VISIBILITY AND GRADING.**  
 District agreed this looked like the best location for the cross over. Need to talk with traffic control group to determine how best to handle the residential entrance in the middle of the crossover.

**GRADE DIFFERENTIAL LOOKS TOO DRASTIC AT NORTH END OF CROSSOVER OPTION 2**

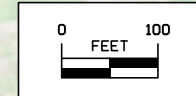
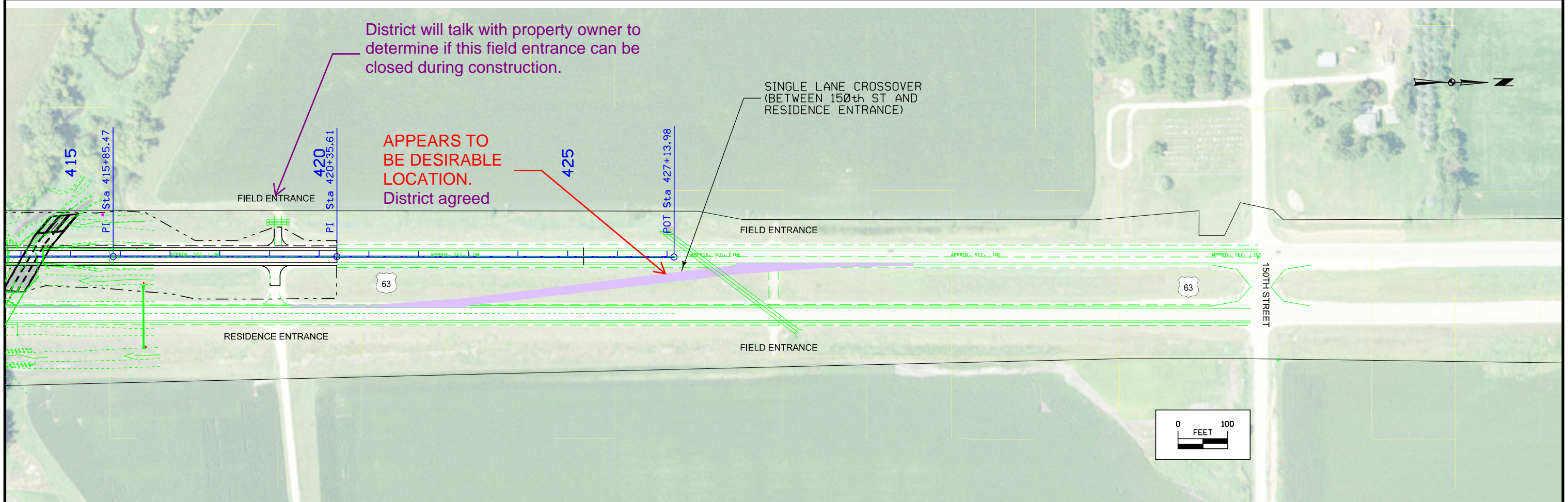


**DISCUSS CROSSOVER LOCATION PREFERENCE**  
 (CROSSOVER LENGTH BASED ON APPROX 100' MEDIAN  
 (STANDARD ROADPLAN PV-512)  
 ACTUAL MEDIAN WITH APPROX 90'



District will talk with property owner to determine if this field entrance can be closed during construction.

**APPEARS TO BE DESIRABLE LOCATION.**  
 District agreed



## Survey Information

Bremer County  
BRFN-063-7(107)—39-09  
Crane Creek 1.5 mi S of IA 188  
Bridge-Unspecified  
PIN 19-09-063-010  
Sap-168.1

### General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge replacement and reconstruction of South bound lanes U.S. Highway 63. Project datum and control information is provided by Design Survey Office. This project is a Full Field Concept survey with Photo control. This survey request was for the U.S Hwy. 63 corridor only.

### Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12B). GRS80 Ellipsoidal Height was computed at project control Pts. 631859, 631864, 631868, 99-009, 99-011, and DETTMER by conducting three concurrent six-hour static observations. Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup relative to Pt. 631864 and Pts. 631859 and 631868. Two observations with a minimum of four-hours between were collected and used in a weighted average.

This survey observed 3 local area county Control Monuments with published NAVD88 heights to compare to local ground control:

Bremer County Control mark 304 designated CBN control station "DETTMER" PID NK0514 has a published Elev. of 1060.71  
Survey Elev. = 1060.62

Bremer County GPS Control Pt 99-009 has a published Elev. of 1032.27  
Survey Elev. = 1032.21

Bremer County GPS Control Pt 99-011 has a published Elev. of 1033.96  
Survey Elev. = 1033.95

This survey observed 1 As-Built plan benchmark to compare to local ground control:

BM 541B As-Built Plan Project No. NHSX-063-7(56)—3H-09 Metric Elev. 315.176 =  
English Elev. 1034.04  
English Survey Elev. 1033.82 = Metric Survey Elev. 315.109

The vertical difference is -0.22 feet = -0.067 meters to be applied to as built plan elevations.

### Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 5 (U.S. Survey Feet). This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting three concurrent six-hour static observations at project control Pts. 631859, 631864, 631868, 99-009, 99-011, and DETTMER.

### Alignment Information

The horizontal alignment for the South bound lanes (Old U.S. 63) is a retrace of As-built Plans Project No. F-63-7(13)—20-09. Survey stationing was equated to the plan PI at Sta. 403+69.98 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 368+34.74 As-built Plans Project No. F-63-7(13)—20-09  
Survey PI Sta. 368+34.74

PI Sta. 385+75.82 As-built Plans Project No. F-63-7(13)—20-09  
Survey PI Sta. 385+75.82

PI Sta. 403+69.98 As-built Plans Project No. F-63-7(13)—20-09  
Survey PI Sta. 403+69.98

PI Sta. 430+27.97 As-built Plans Project No. F-63-7(13)—20-09  
Survey PI Sta. 430+27.70

Bridge Sta. 405+48 As-built Plans Project No. F-63-7(13)—20-09  
Survey Bridge Sta. 405+47.72

The horizontal alignment for the Relocated U.S. Hwy. 63 center line is a retrace of As-built Plans Project No. NHSX-063-7(59)—3H-09. Survey stationing was equated to the plan PI at Metric Sta. 133+95.994 and run ahead without equation throughout the survey. The plan metric stationing was converted to English As-built Plans Project No. F-63-7(13)—20-09 stationing at plan PI Sta. 133+95.994 and run ahead without equation throughout the survey.

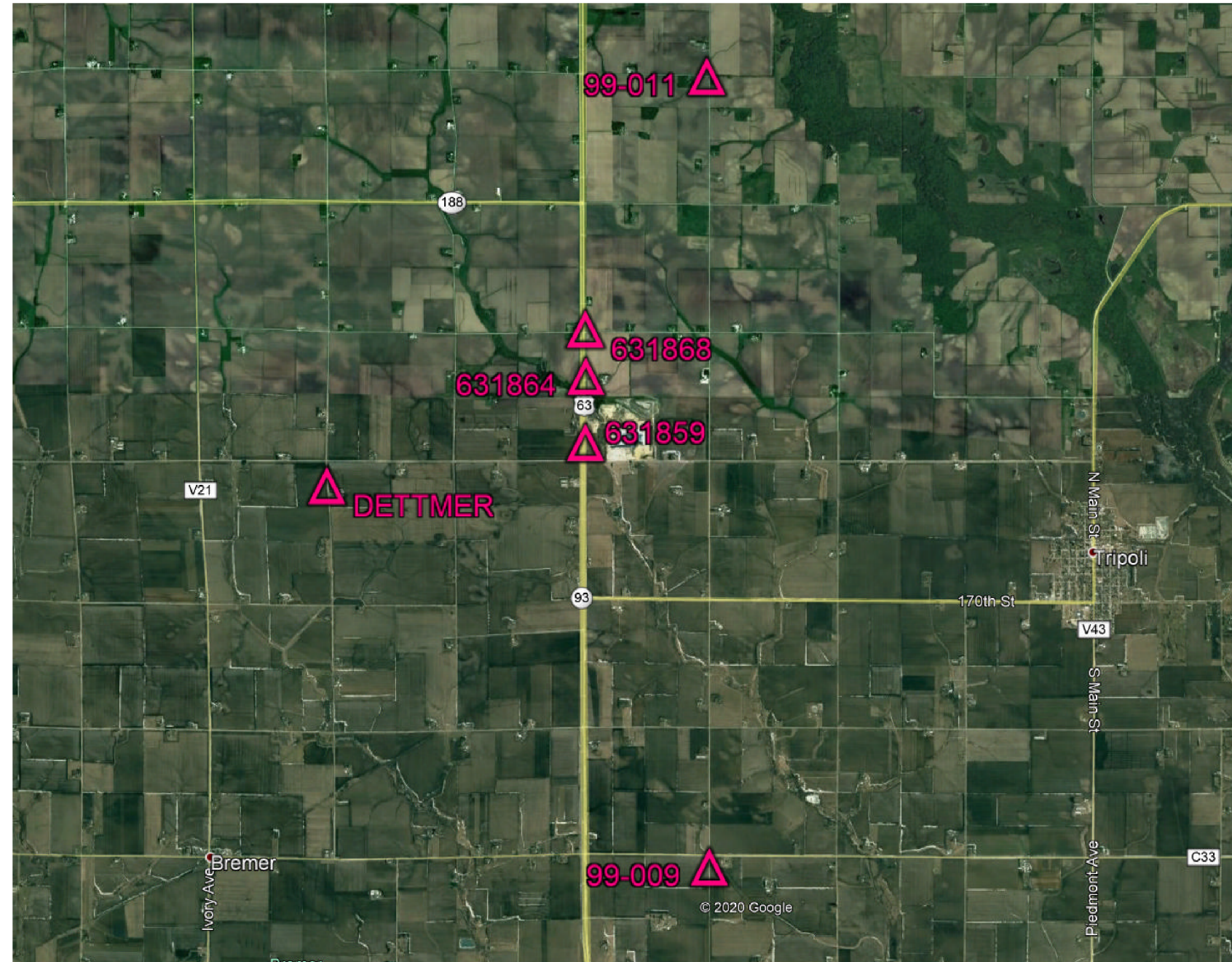
PI Sta. 133+95.994 As-built Plans Project No. NHSX-063-7(59)—3H-09  
Metric Survey PI Sta. 133+95.994 = English Survey PI Sta. 368+34.68

PI Sta. 139+26.699 As-built Plans Project No. NHSX-063-7(59)—3H-09  
Metric Survey PI Sta. 139+26.689 = English Survey PI Sta. 385+75.80

PI Sta. 152+83.633 As-built Plans Project No. NHSX-063-7(59)—3H-09  
Metric Survey PI Sta. 152+83.612 = English Survey PI Sta. 430+27.64

## 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 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 5

Coordinate listing from next sheet will be used with 1aRTN for monument recovery. No other reference ties are given.

# HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 5

Point Name	Northing	Easting	Elevation	Code	Description
631859	8962185.200	15476728.764	1046.567	BM	SET FENO MONUMENT 795 FT N OF CTR 160TH ST_80 FT E OF CTR N BOUND US 63_810 FT S OF CTR QUARRY ENT
631864	8964793.801	15476693.515	1036.470	BM	SET FENO MONUMENT 0.64 MI N OF 160TH ST_46 FT E OF CTR N BOUND US 63_43 FT N OF CTR PRVT DRV ENT_88 FT NW OF A POW POLE
631868	8966777.230	15476727.429	1046.385	BM	SET FENO MONUMENT 55 FT N OF CTR 150TH ST_78 FT E OF CTR N BOUND US 63_119 FT NW OF A POW POLE
99-009	8944552.034	15481843.220	1032.212	BM	FD BREMER CO GPS CONTROL POINT 99-009 23FT EAST OF CTR MIDWAY AVE AND 463FT SOUTH OF 190TH ST
99-011	8977286.132	15481768.315	1033.946	BM	FD BREMER CO GPS CONTROL POINT 99-011 22FT SOUTH OF CTR 130TH ST AND 110FT WEST OF MIDWAY AVE
DETTMER	8960375.843	15465959.057	1060.621	BM	FD NGS CBN CONTROL STATION DETTMER WITH HARN WITNESS POST 0.2MI SOUTH OF 160TH ST AND 33FT WEST OF CTR JOPLIN AVE



108-23A  
08-01-08

### TRAFFIC CONTROL PLAN

1) While southbound lanes are being reconstructed, southbound US 63 traffic will be shifted to the inside northbound lane by means of median crossover. (TC-61)

2) Northbound and Southbound US 63 traffic through the work area will be reduced to one lane in each direction (Per TC-61)

3) US 63 traffic will return to normal operation with shoulder closures as necessary to remove median crossover.

108-26A  
08-01-08

### STAGING NOTES

Stage 1:  
Construct median crossovers.

Stage 2:  
Remove southbound US 63 lanes with traffic routed on northbound US 63 lanes. Construct culvert and replace roadway.

Stage 3:  
With US 63 traffic under normal operation, remove median crossovers and restore median.

108-25  
10-21-14

### 511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
US 63	Both	Bremer	1.5 Miles South of IA 188	Crane Creek			None					

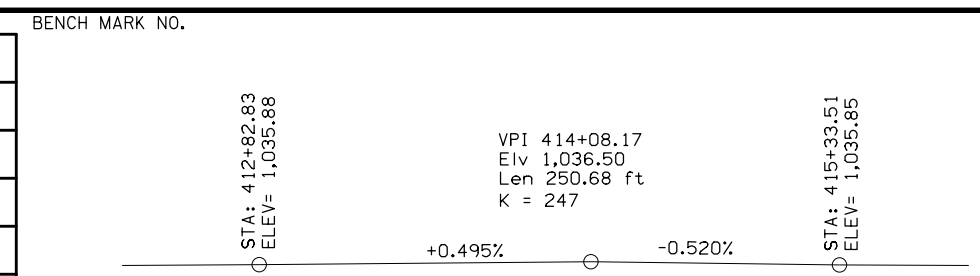
111-01  
04-17-12

### COORDINATED OPERATIONS

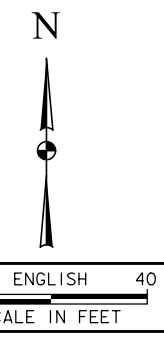
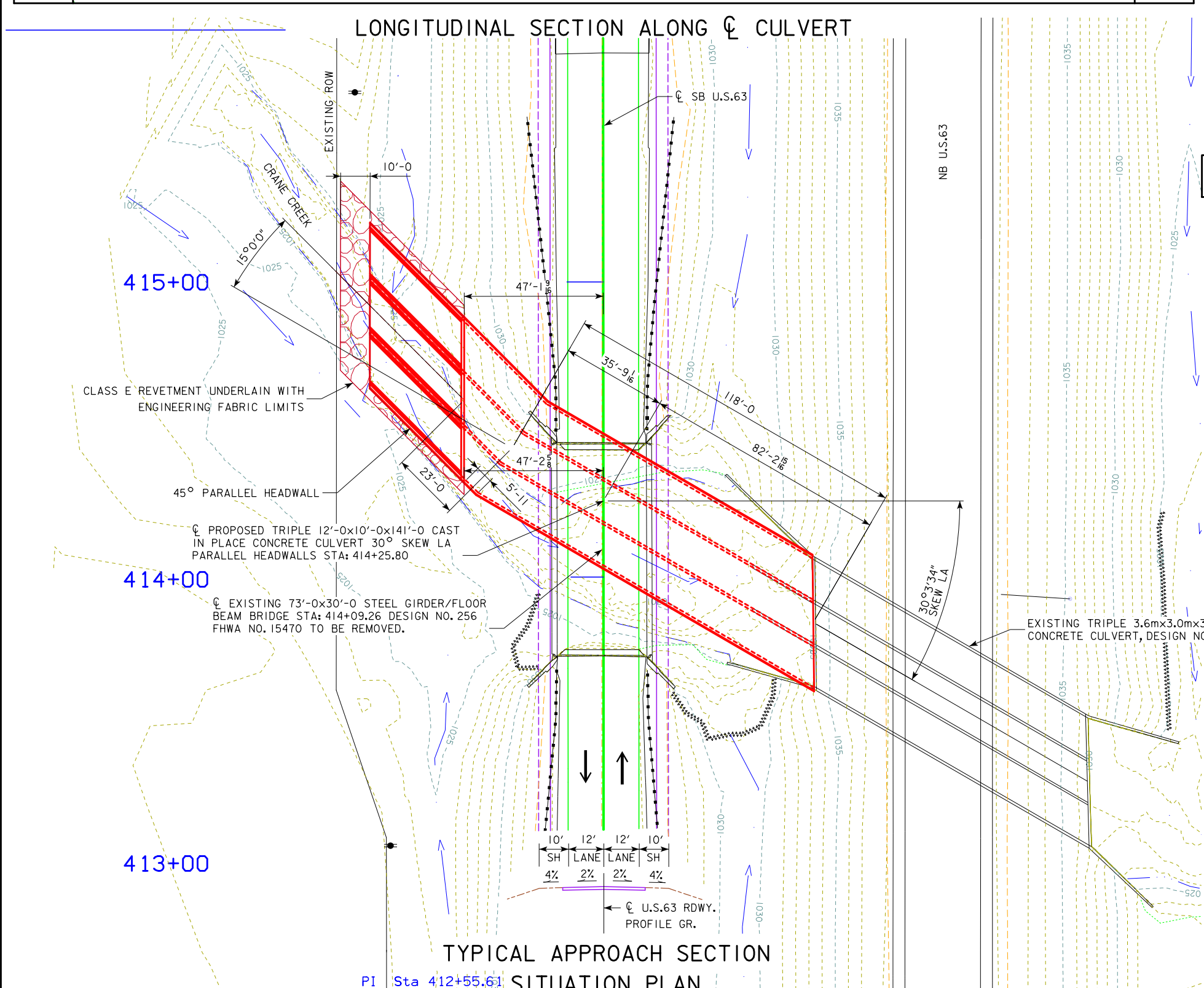
Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
None Provided	

1050	EXISTING 73'-0x30'-0 STEEL GIRDER/FLOOR BEAM BRIDGE TO BE REMOVED.	1050
1040	DESIGN H.W. ELEV.= 1033.50	1040
1030	CLASS E REVETMENT UNDERLAIN WITH ENGINEERING FABRIC ELEV.= 1022.20	1030
1020	EXISTING GROUND	1020
1010	F.L.ELEV.= 1022.20	1010
1000		1000



LONGITUDINAL SECTION ALONG  $\phi$  CULVERT



PROPOSED PROFILE GRADE U.S.63

NOTES:

- EXISTING 73'-0x30'-0 STEEL GIRDER/FLOOR BEAM BRIDGE DESIGN NO. 256 TO BE REMOVED.
- DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
- FLOW LINE OF CULVERT NOT NOMINALLY BURIED 1.0 FOOT.
- FINAL DESIGN TO CONSIDER A TRANSITION AREA AT THE INTERIOR WALL FACES BETWEEN THE EXISTING METRIC DIMENSIONS AND THE PROPOSED CAST IN PLACE CULVERT DIMENSIONS.

HYDRAULIC DATA

DRAINAGE AREA = 11.90 ACRES  
 $Q_{50} = 2,930$  CFS  
 HW ELEV. = 1033.50  
 STREAM SLOPE = 9.44 FT./MI.

UTILITIES LEGEND:

UTILITY POLE  
 UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

LOCATION

US 63 OVER CRANE CREEK  
 T-93N R-13W  
 SECTION 35 & 36  
 DOUGLAS TOWNSHIP  
 BREMER COUNTY  
 FHWA NO. ?  
 BRIDGE MAINT. NO. 0986.3S063  
 LATITUDE 42.826378°  
 LONGITUDE -92.337481°

TRAFFIC ESTIMATE

2024 AADT	6100	V.P.D.
2044 AADT	7900	V.P.D.
2044 DHV	820	V.P.H.
TRUCKS	19	%
TOTAL DESIGN ESALS		

DESIGN FOR 30° SKEW L.A.  
**TRIPLE 12'-0x10'-0x141'-0 CAST IN PLACE CONCRETE CULVERT**

**SITUATION PLAN**  
 STA: 414+25.80  
**BREMER COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO.      OF 1 FILE NO. 31933 DESIGN NO. 124

**LINE SURVEY SYMBOLS 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)**

- Topsoil (Class 10)
- Slope Dressing Only
- Class 10 Materials
- Select Loams And Clay-Loams
- Select Sand
- Unsuitable Type A Disposal
- Unsuitable Type B Disposal
- Unsuitable Type C Disposal
- Shale
- Waste
- Broken and Weathered Rock
- Solid Rock
- 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**

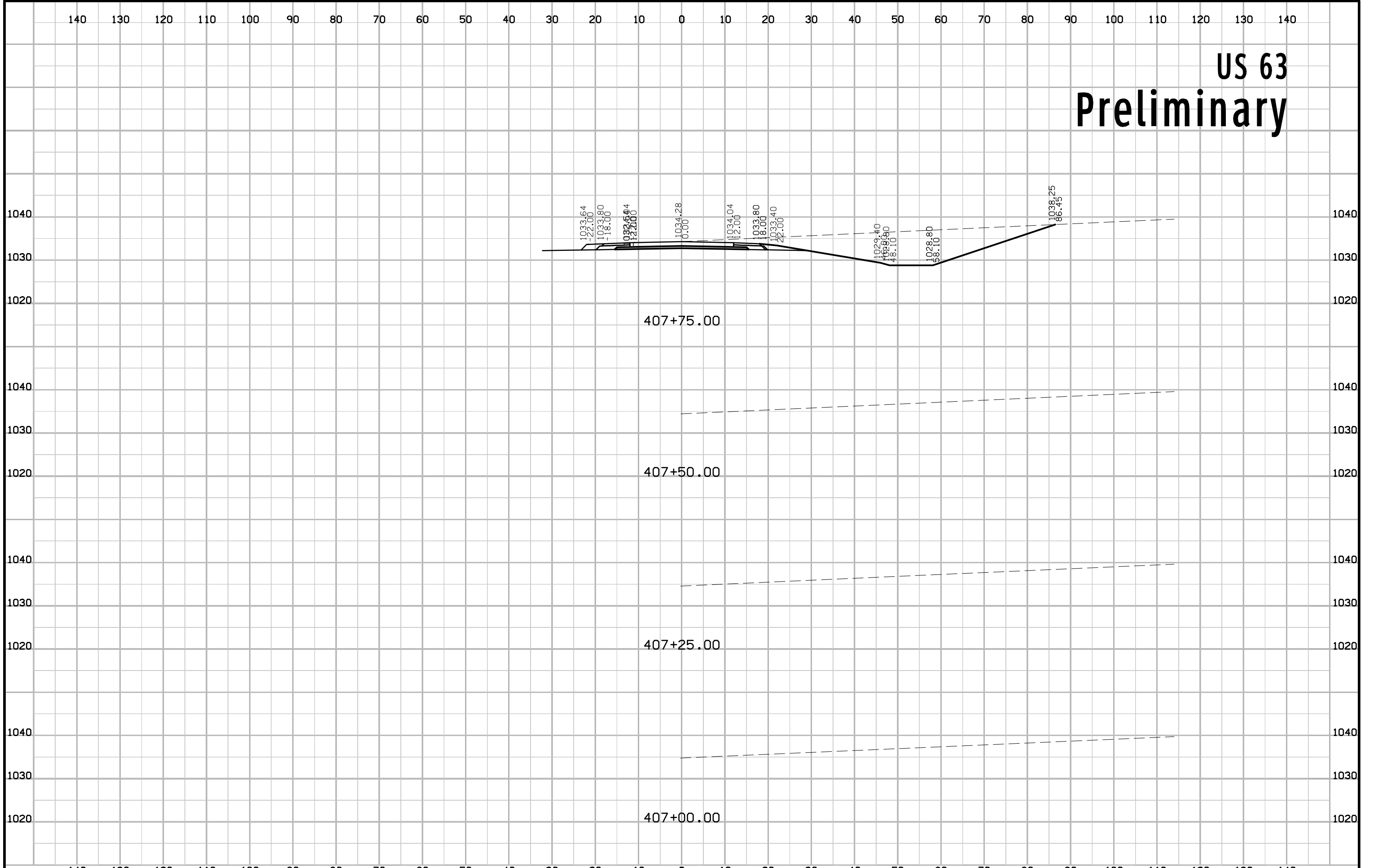
- Existing ROW  
|  
Existing Right-of-Way Limit
- Proposed ROW  
|  
Proposed Right-of-Way Limit
- Temporary ROW  
|  
Temporary Right-of-Way Limit

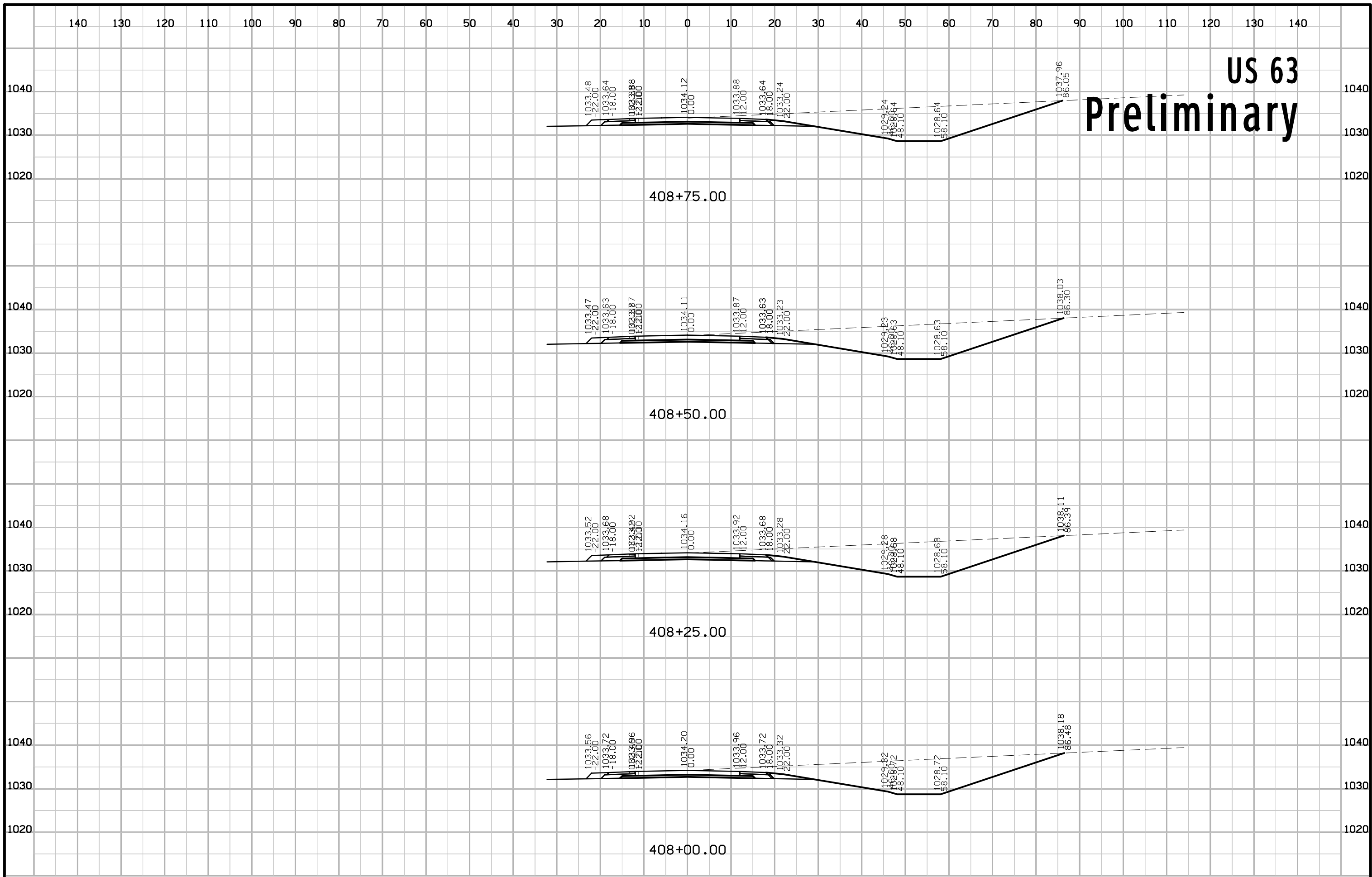
**UTILITY LEGEND**

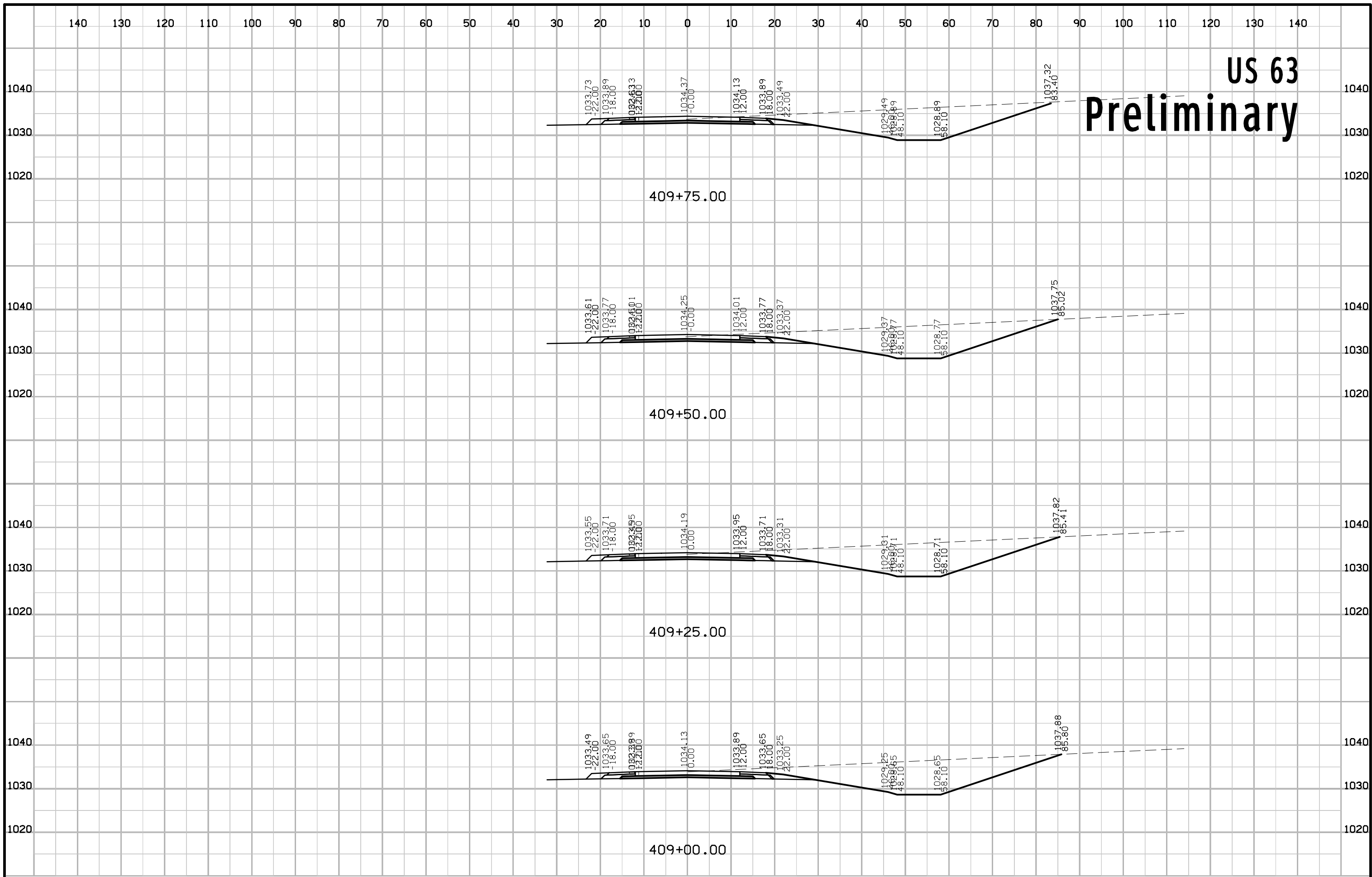
**CROSS SECTION  
LEGEND AND SYMBOL  
INFORMATION SHEET**

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

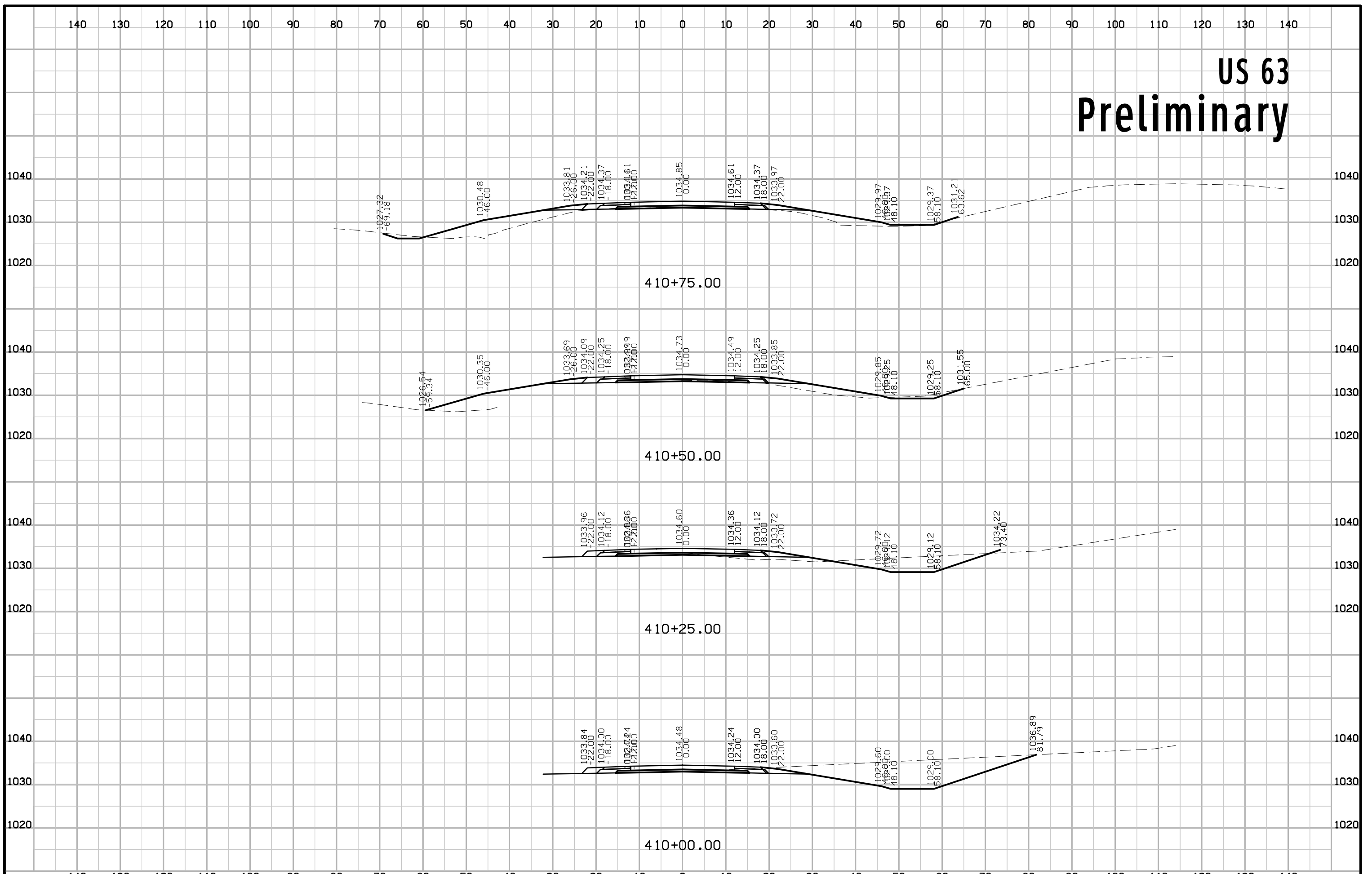
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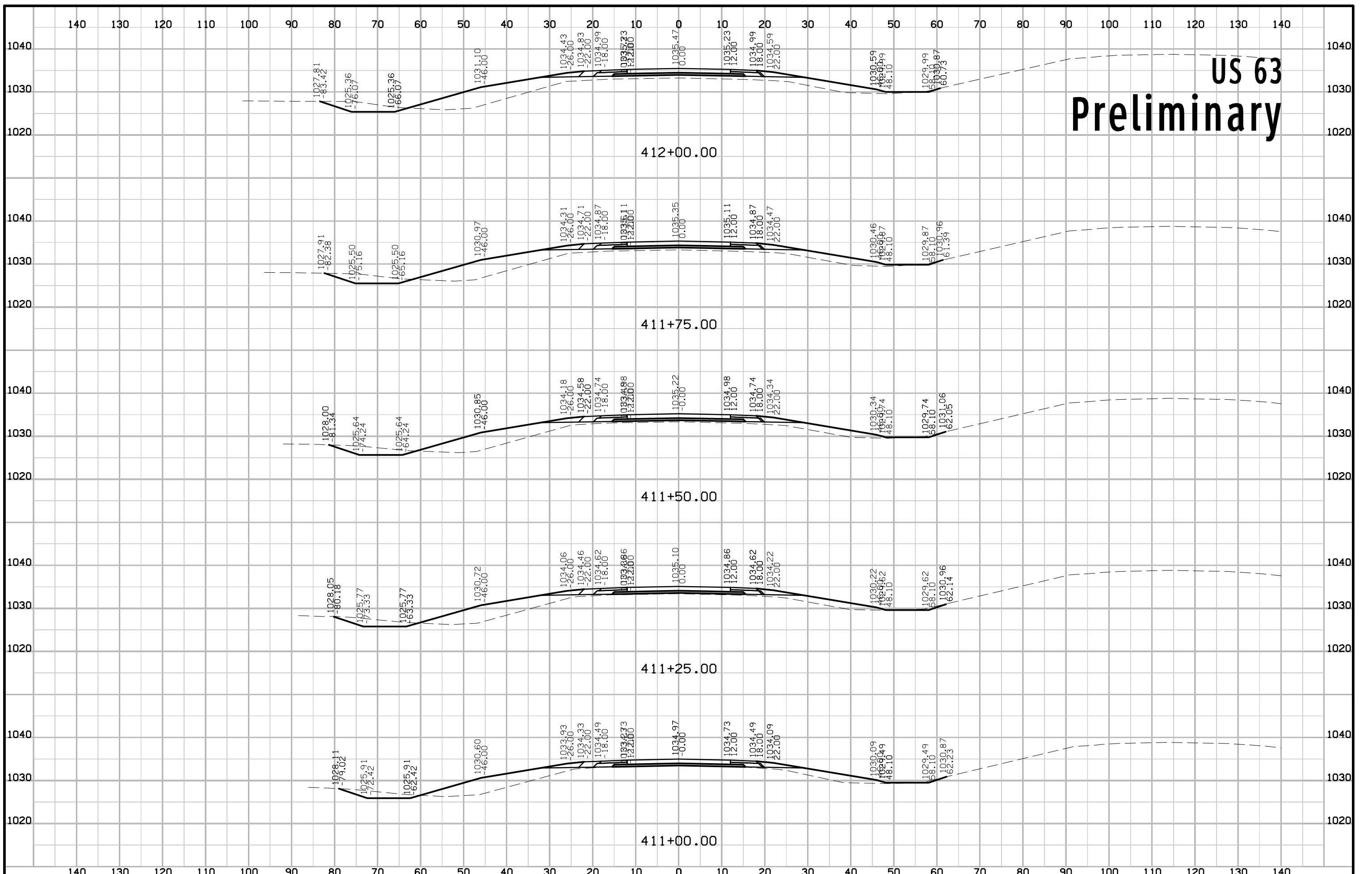




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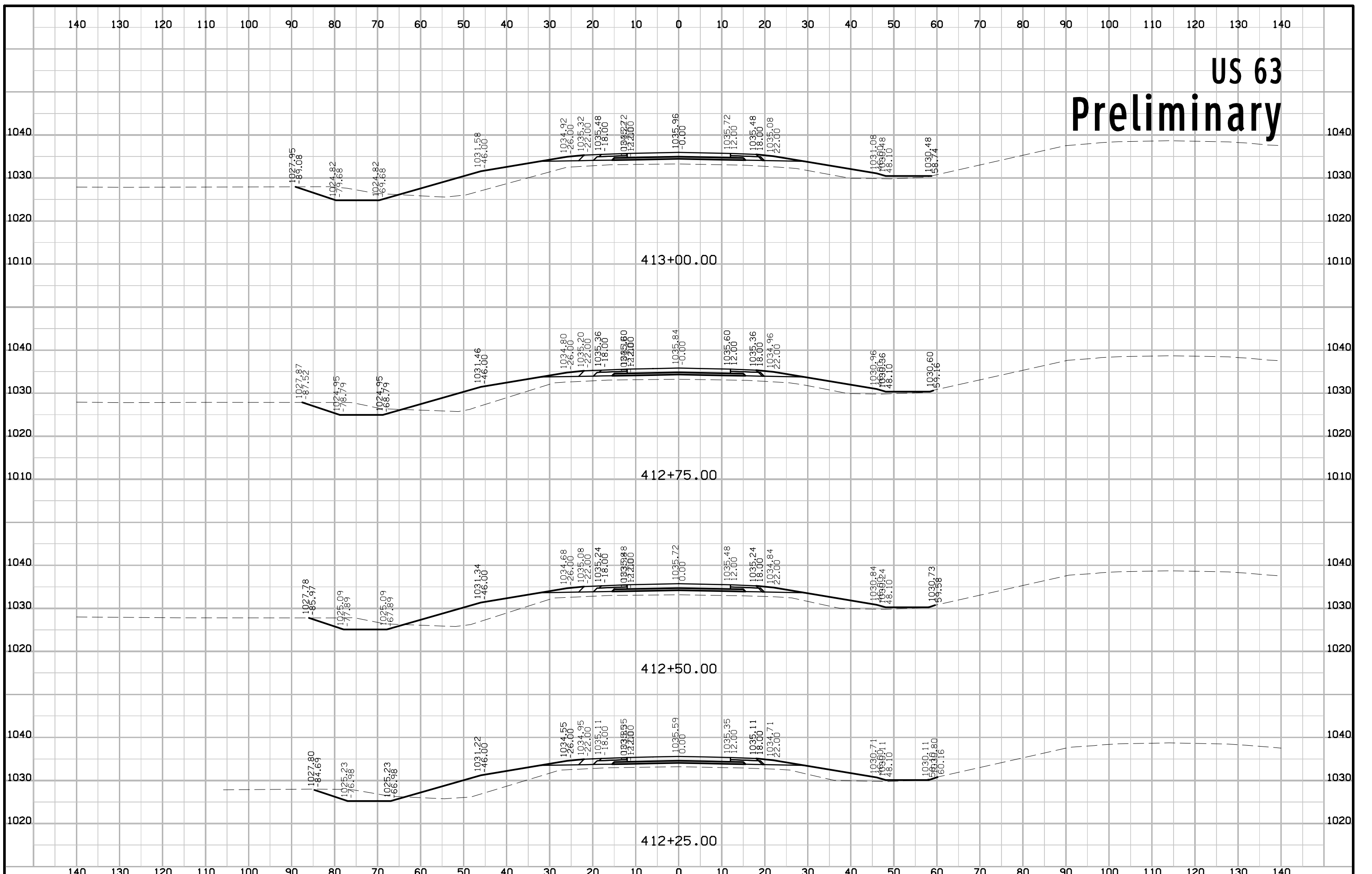


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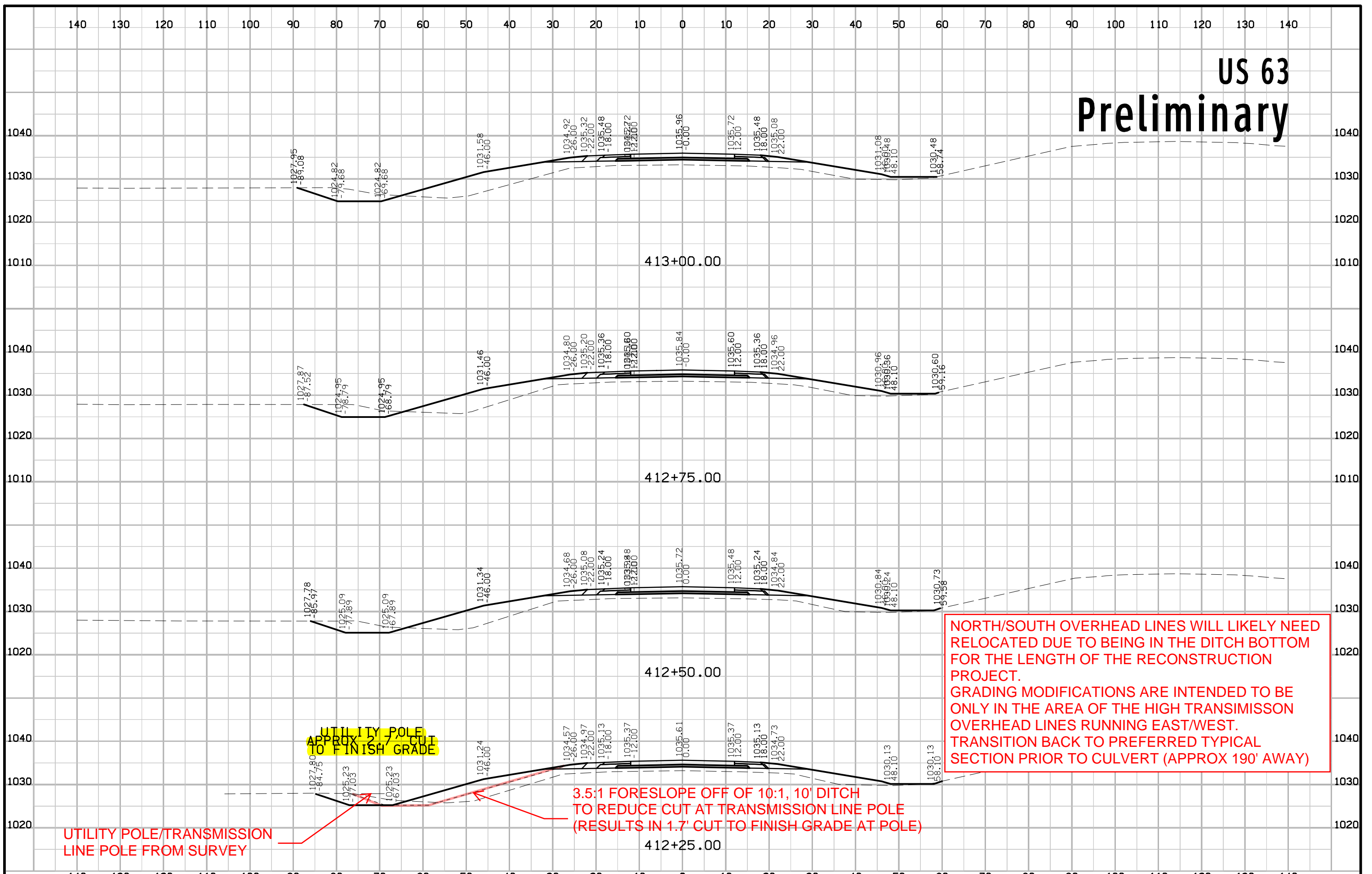




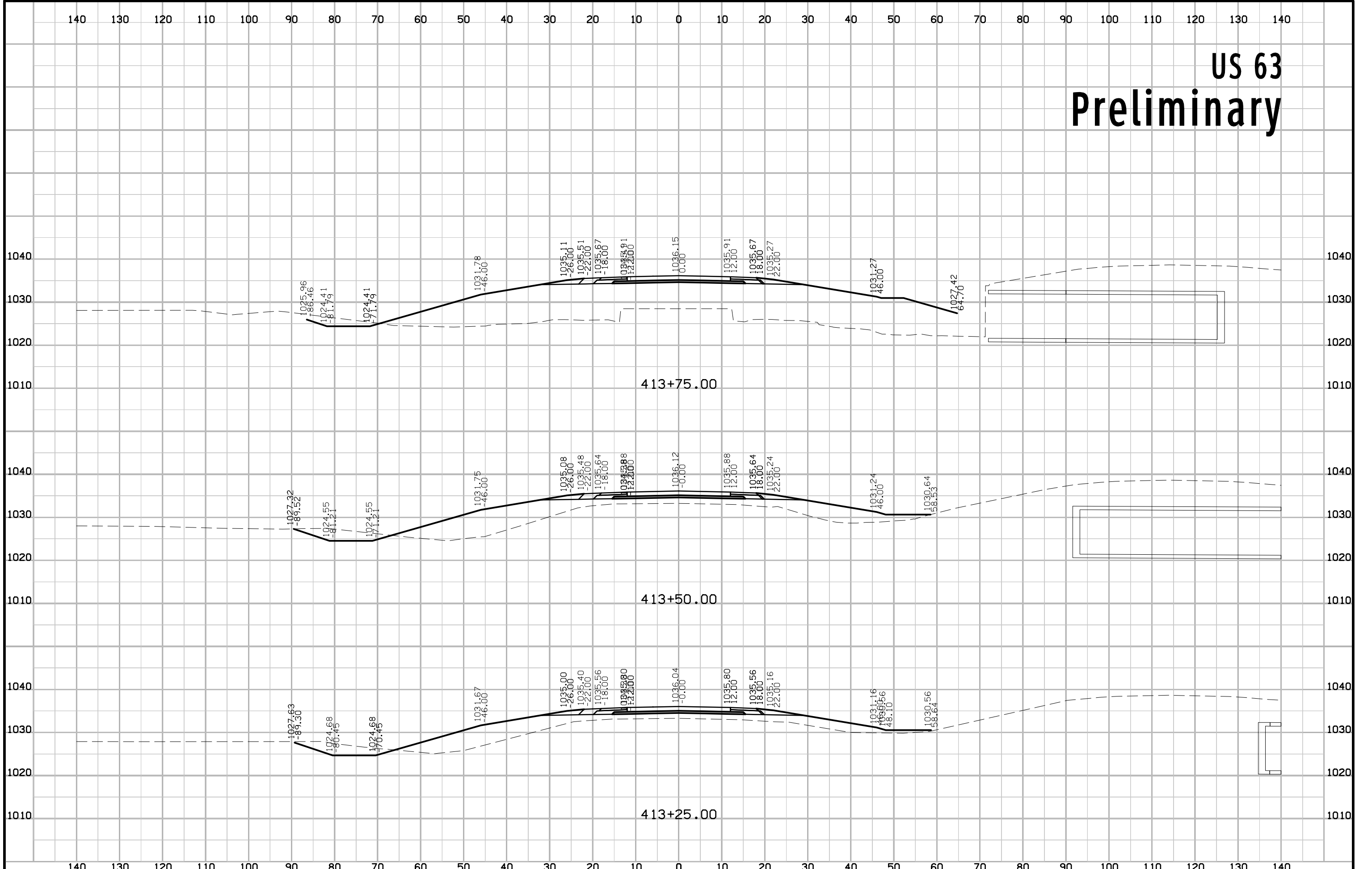
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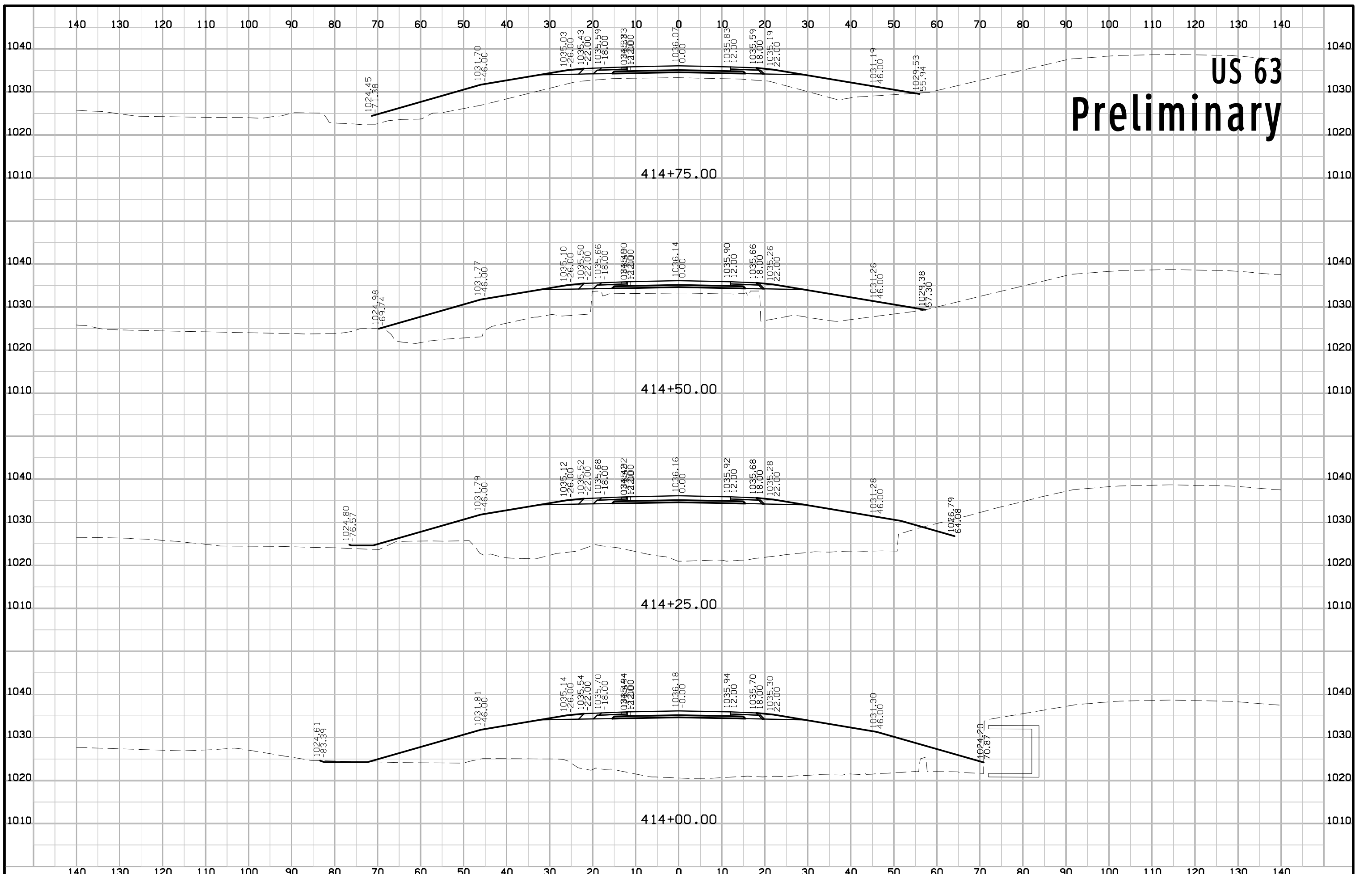
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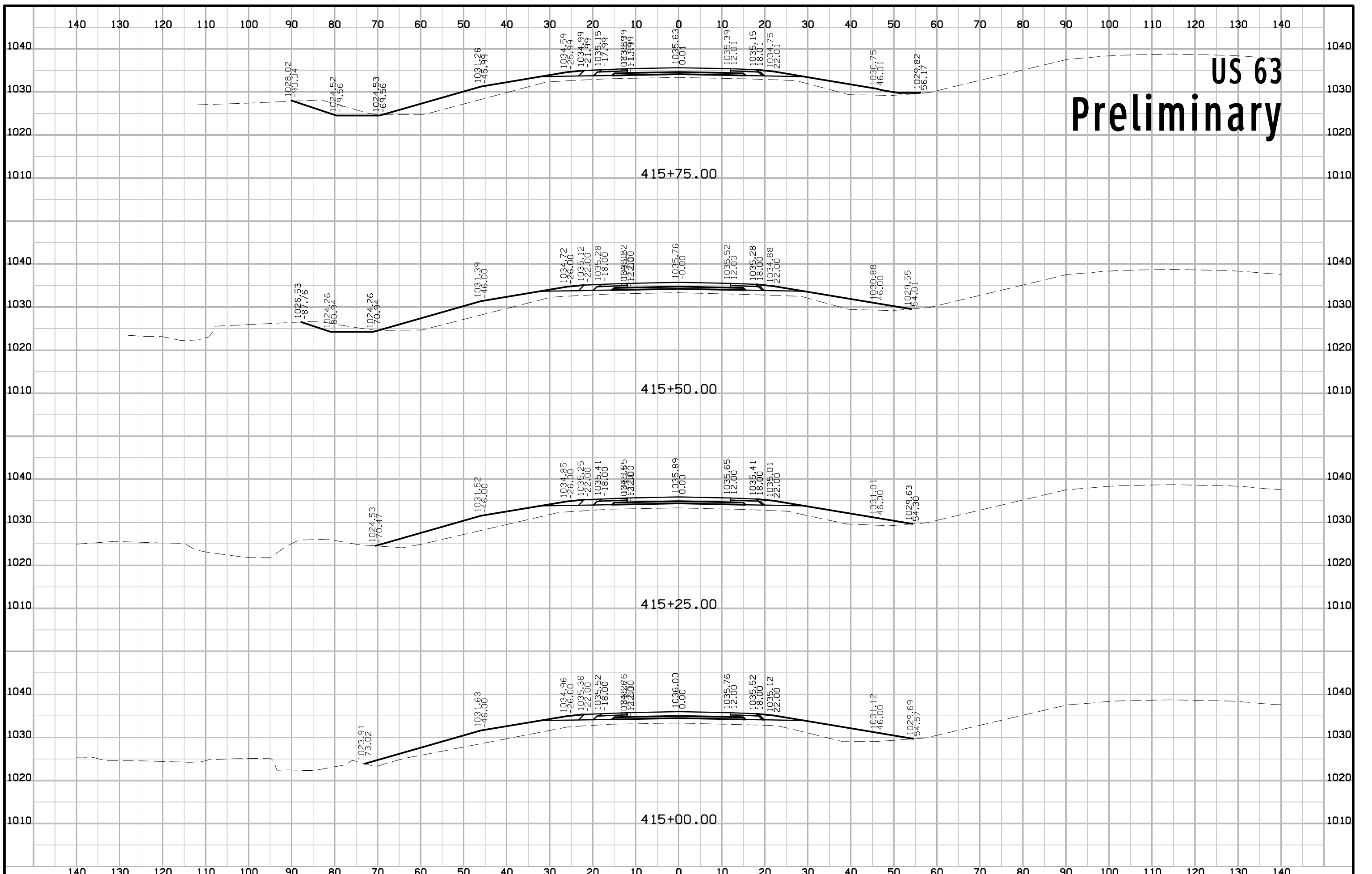
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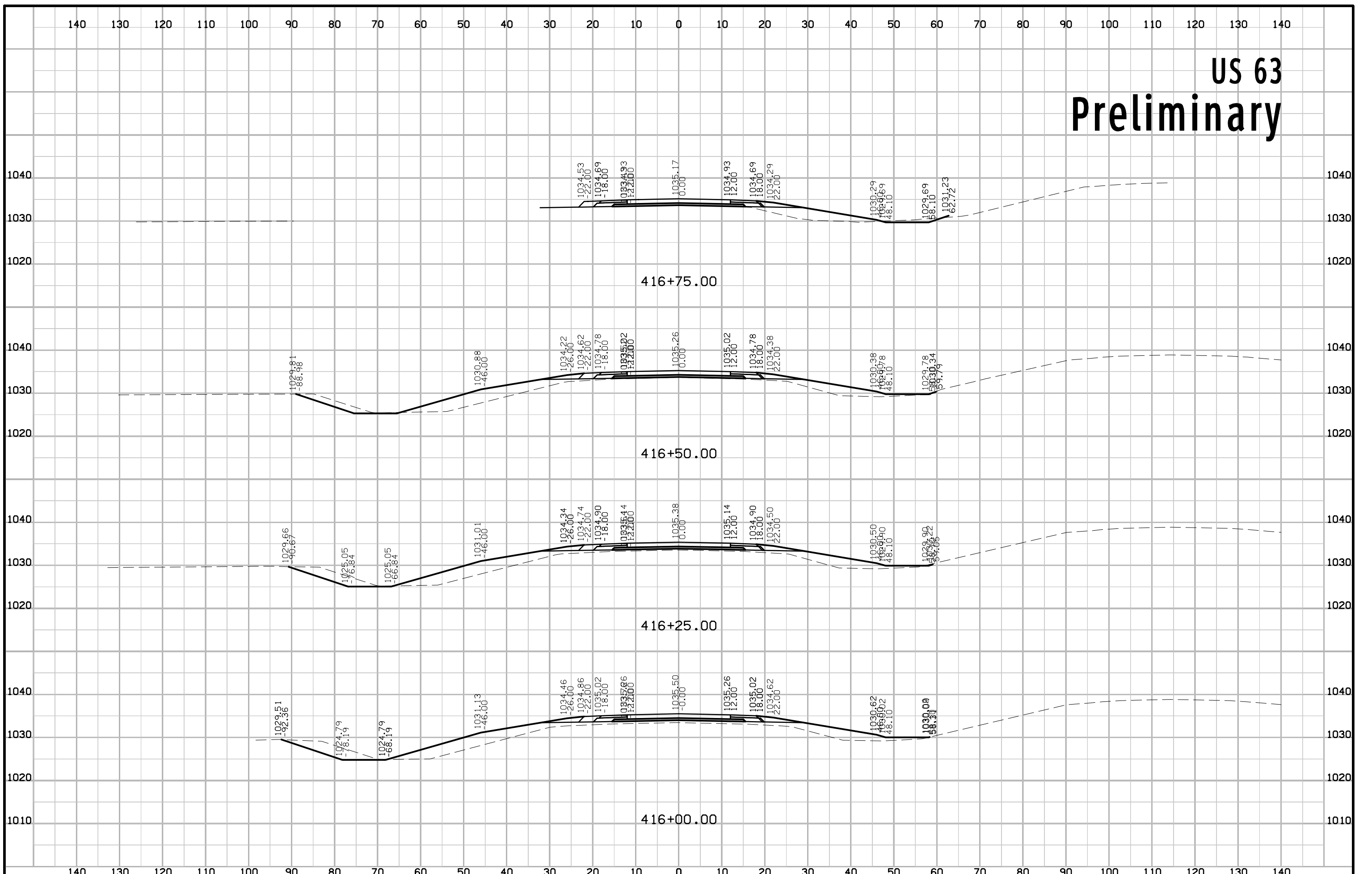
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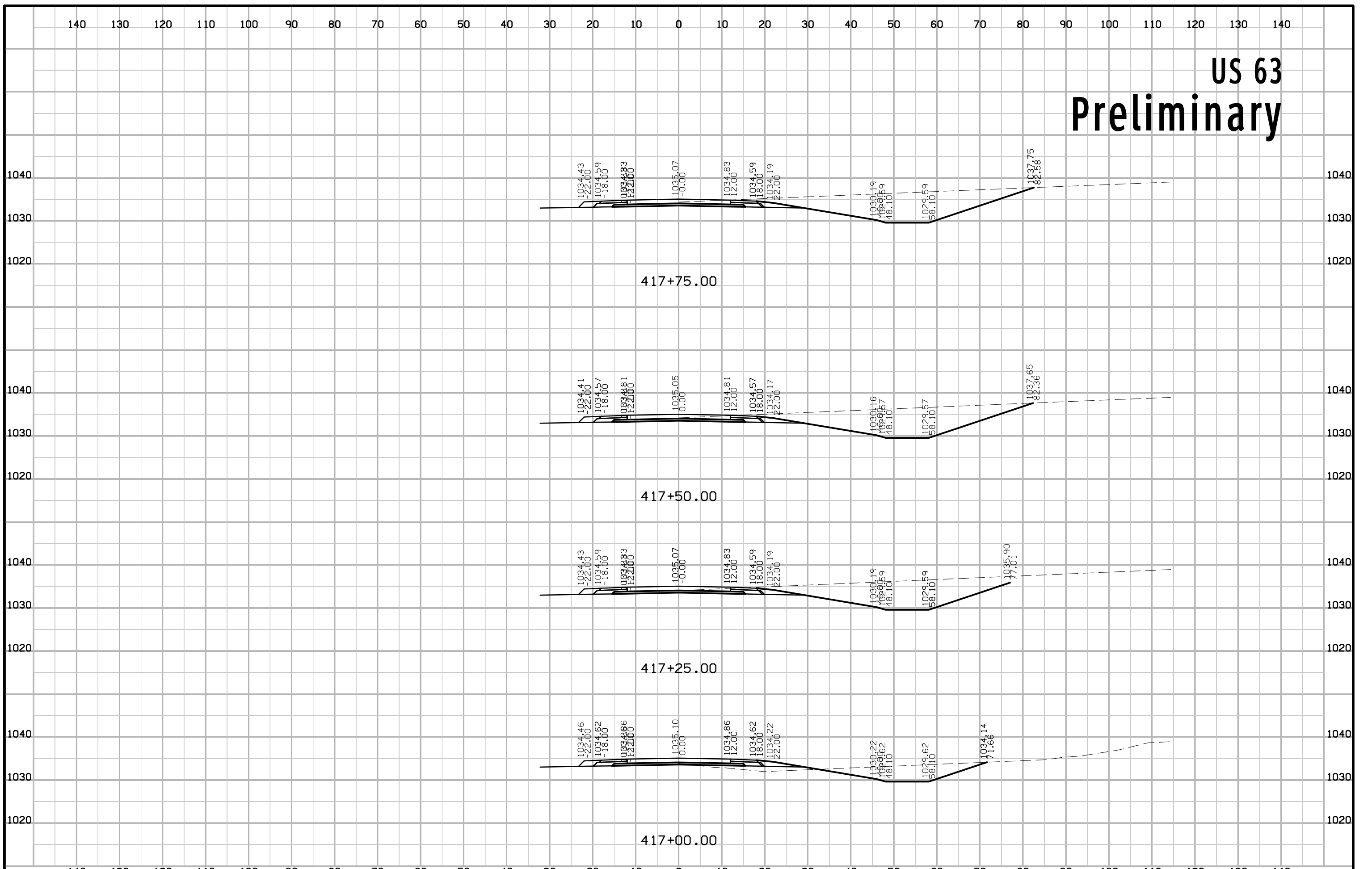
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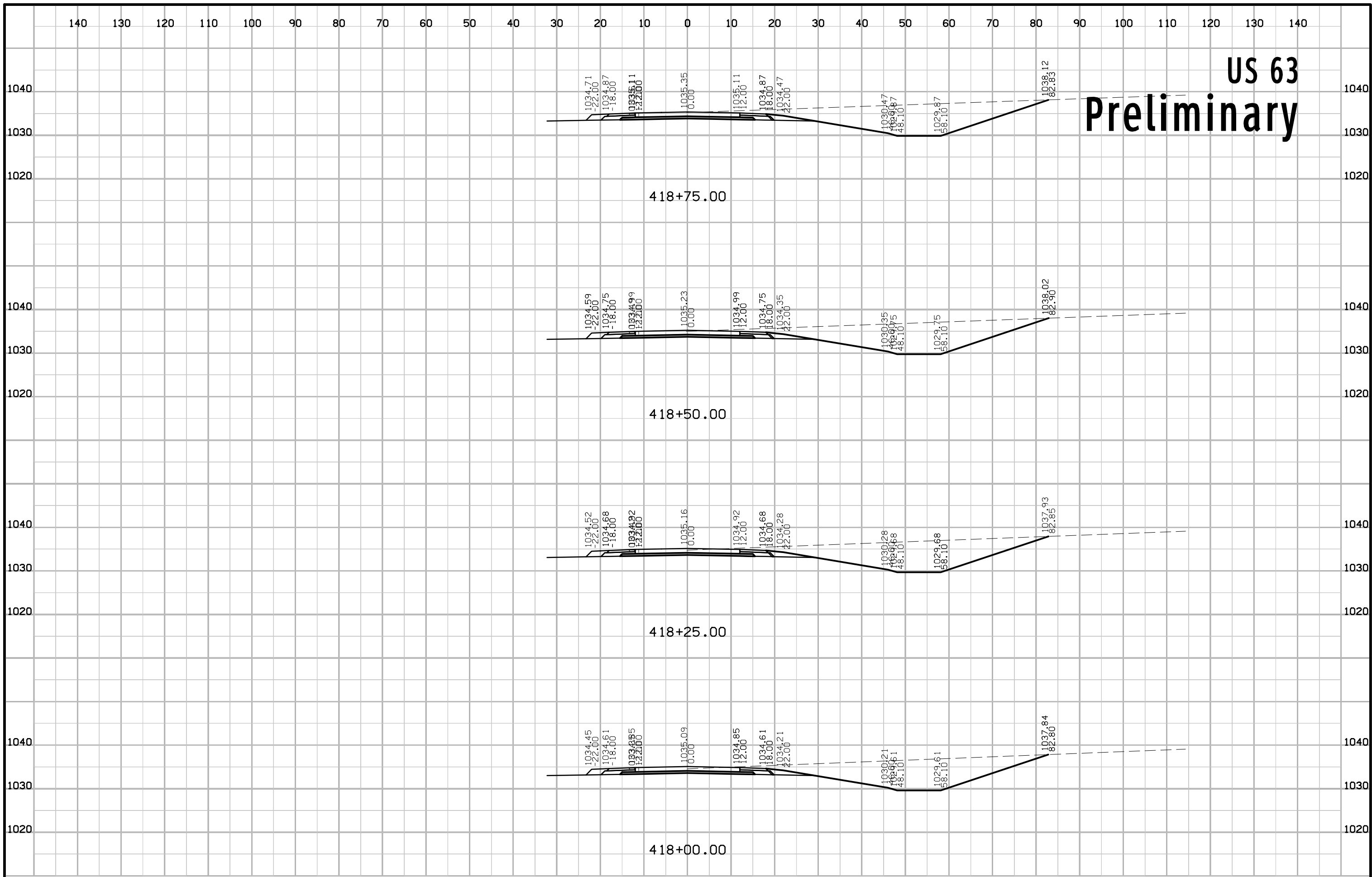


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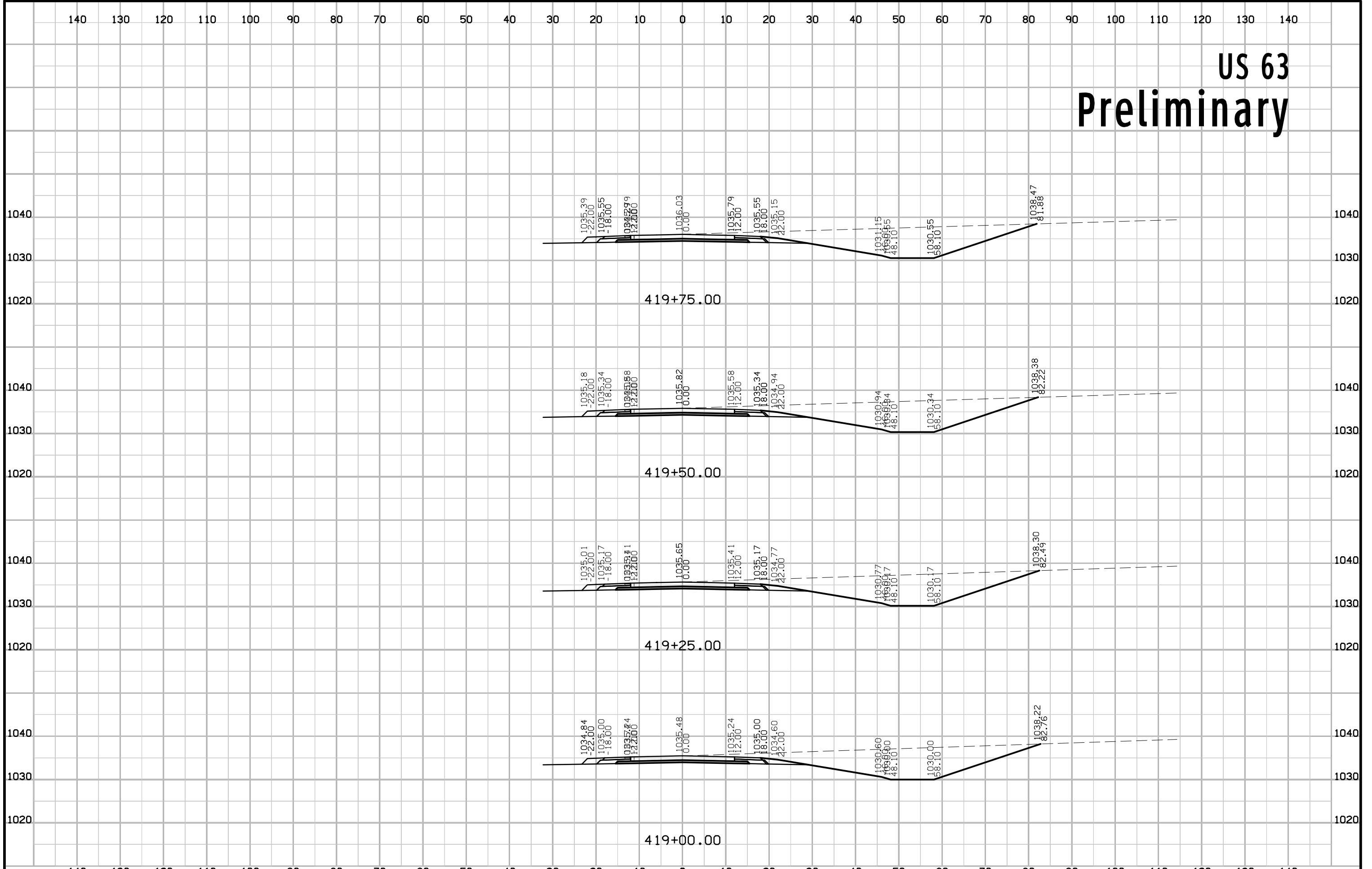
# US 63 Preliminary







# US 63 Preliminary



# US 63 Preliminary

