

BRIDGE REPLACEMENT - CCS LETTING DATE
BRF-065-8(57)--38-17

LEGEND

INTERSTATE HIGHWAY	
PRIMARY HIGHWAY-DIVIDED	
PRIMARY HIGHWAY	
PORTLAND CEMENT CONCRETE ROAD	
ASPHALT ROAD	
BITUMINOUS ROAD	
GRAVEL ROAD	
EARTHEN ROAD	
INTERSTATE HIGHWAY	
UNITED STATES HIGHWAY	
STATE HIGHWAY	
COUNTY HIGHWAY	
RAILROAD	
PIPELINE	
AIRPORT	
HYDROLOGY	
BRIDGE	
STATE BOUNDARY	
COUNTY BOUNDARY	
CORPORATE BOUNDARY	
TOWNSHIP LINE	
SECTION LINE	
ROAD NAMES	
UNINCORPORATED PLACE	



PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM
CERRO GORDO COUNTY

BRIDGE REPLACEMENT - CCS
US65 OVER EAST BRANCH BEAVERDAM CREEK

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.



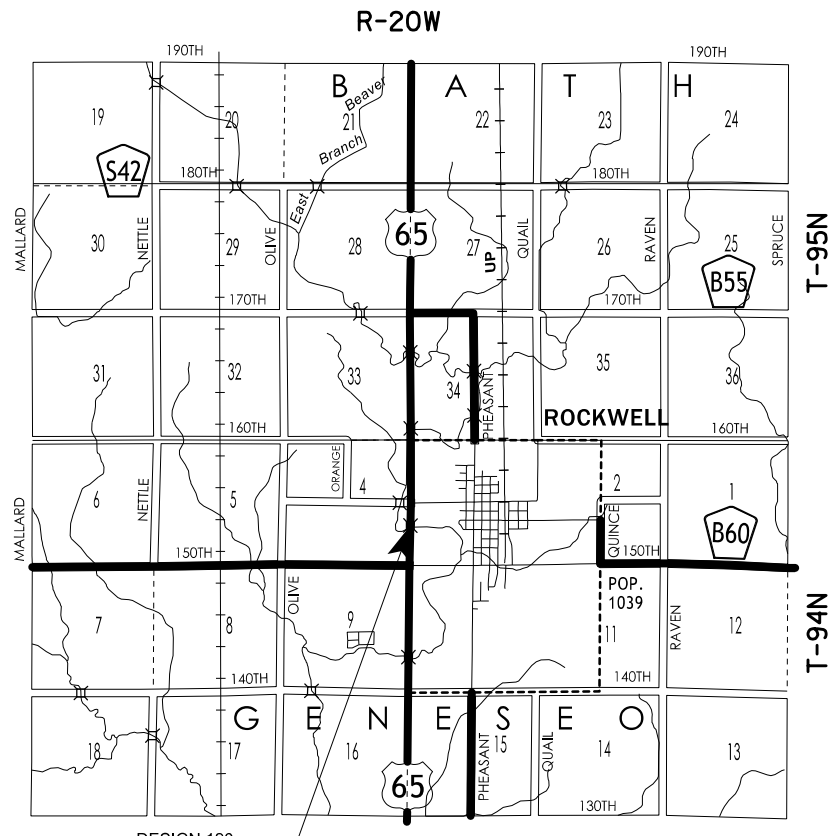
1-800-292-8989
www.iowaonecall.com



TOTAL SHEETS	8
PROJECT NUMBER	BRF-065-8(57)--38-17
R.O.W. PROJECT NUMBER	?
PROJECT IDENTIFICATION NUMBER	15-17-065-020

INDEX OF SHEETS	
NO.	DESCRIPTION
A.1	TITLE SHEET
A.2-6	PROJECT CONCEPT
A.7-9	DESIGN CRITERIA
A.10	QUESTIONS & COMMENTS
B.1	PAVED SHOULDER AT GUARDRAIL
D.1	PLAN AND PROFILE LEGEND
D.2	PLAN AND PROFILE
G.1	SURVEY INFORMATION
V.1	SITUATION PLAN
V.2	SITE PLAN
W.1-W.2	CROSS SECTIONS

CERRO GORDO COUNTY - DESIGN 120



LOCATION MAP

PRELIMINARY
NOT FOR CONSTRUCTION

CUT	(ML)	800 CY
FILL+30%	(ML)	950 CY
CONTRACTOR FURNISH		150 CY

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
I	LAWRENCE J. SPELLERBERG	HYDRAULIC & STRUCTURAL
SPS.I	-	GEOTECHNICAL DESIGN
BRIDGE STANDARDS	NORMAN L. McDONALD	STRUCTURAL DESIGN

HYDRAULIC & STRUCTURAL 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.

Signature: Lawrence J. Spellerberg Date: ??-??-20??

Printed or Typed Name: Lawrence J. Spellerberg

My license renewal date is December 31, 2017

Pages or sheets covered by this seal: SHEETS ? THRU ? OF ?

MAP NOT TO SCALE

T-94N R-20W
SECTION 3 / 4
GENESEO TWP.
CERRO GORDO COUNTY

DESIGN DATA RURAL			
2020 AADT	3,400	V.P.D.	
2040 AADT	3,900	V.P.D.	
2040 DHV	-	V.P.H.	
TRUCKS	10/14	%	
Total Design ESALs	-		

FIELD EXAM PLANS

Subject to change by final design.

D2 PLAN - DATE: SEPTEMBER 7, 2017

PROJECT DIRECTORY NAME: I70650215

IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District 2
ATTENTION: E. Jon Ranney
FROM: Kevin K. Patel
OFFICE: Design
SUBJECT: Project Concept Statement; (Final, D0)

DATE: March 31, 2016
PROJECT: Cerro Gordo County
BRF-065-8(57)--38-17
PIN: 15-17-065-020

C. Purcell	M. J. Kennerly	K. D. Nicholson
D. L. Maifield	S. J. Megivern	A. A. Welch
N. M. Miller	C. C. Poole	N. L. McDonald
G. A. Novey	D. R. Claman	P. Lu
A. Abu-Hawash	J. S. McClain	M. A. Swenson
M. J. Sankey	R. A. Younie	D. R. Tebben
B. D. Hofer	K. Brink	D. L. Newell
B. E. Azeltine	M. E. Khoda	S. J. Gent
T. D. Crouch	J.W. Laaser-Webb	W.A. Sorenson
D. E. Sprengeler	E. C. Wright	D. L. Little
D. L. Roeber	K. L. Rostad	N. J. Humpal
M. R. Callahan	P. Hjelmstad	G.F. Pavelka
T. A. Abbett	B. J. Dolan	FHWA
M. E. Ross		

This project involves the replacement of the U.S. 65 bridge (1784.9S065) over the East Branch of Beaverdam Creek, 0.4 miles north of County Road B60.

A concept review was held on September 4, 2015. Those present included Nick Humpal, Kevin Smith and Peter Andera from the District 2 Office; Chris King from the Office of Bridges and Structures; Lindsay Edgar from the Office of Location and Environment; and Kevin Patel, Sanon Sala and Amy Schleier from the Office of Design.

It is recommended to replace the bridge with a 150 ft. x 44 ft. continuous concrete slab bridge. Traffic will be detoured. The preliminary estimated project cost is \$1,378,800.

The original draft concept was sent out for comment on October 22, 2015. The revised draft was issued on February 29, 2016 to update the structure from a twin 10 ft. x 12 ft. x 108 ft. reinforced concrete box culvert to a 150 ft. x 44 ft. continuous concrete slab bridge due to new hydraulic information.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Wednesday, March 23, 2016. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2020. The Office of Bridges and Structures will coordinate plan preparation with assistance from the Office of Design.

KKP: als
Attach.
cc:

FINAL PROJECT CONCEPT STATEMENT

U.S. 65 Bridge over the East Branch of Beaverdam Creek,
0.4 miles north of County Road B60

Cerro Gordo County
BRF-065-8(57)--38-17
PIN: 15-17-065-020
Maint. No. 1784.9S065
FHWA No. 18890

Highway Division
Office of Design

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

March 31, 2016

Cerro Gordo County
BRF-065-8(57)--38-17
PIN: 15-17-065-020
Page 2

C. Present Facility

The existing structure is a 90 ft. x 28 ft. continuous concrete slab bridge constructed in 1955.

U.S. 65 in the project area is 24 ft. wide PCC pavement with 10 ft. wide partially paved shoulders and 3:1 foreslopes, constructed in 1931. HMA resurfacing was accomplished in 1958, 1978 and 2001.

D. Traffic Estimates

The 2020 and 2040 average daily traffic estimates are 3,400 ADT with 10% trucks and 3,900 ADT with 14% trucks, respectively.

E. Sufficiency Ratings

U.S. 65 is classified as an "area development" route and is a maintenance service level "C" road. The federal bridge sufficiency rating is 71.3.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2010 through December 31, 2014, there were 2 crashes, both resulted in property damage only.

I. STUDY AREA

A. Project Description

This project involves the replacement of the U.S. 65 bridge (1784.9S065) over the East Branch of Beaverdam Creek, 0.4 miles north of County Road B60.

It is recommended to replace the bridge with a 150 ft. x 44 ft. continuous concrete slab bridge. Traffic will be detoured. The preliminary estimated project cost is \$1,378,800.

B. Need for Project

The existing 90' x 28' concrete slab bridge was built in 1955 and overlaid in 1981. The deck, deck overlay, superstructure and substructure are all at the end of their service life. Deteriorations are found in all the structural components. The near approach of the bridge is in a poor condition. In addition, the structure was designed for H20 load and needs to be strengthened to HS20. Provided with the size of the bridge, the bridge repair in conjunction with bridge strengthening would not be cost effective; therefore, the bridge should be replaced.



II. PROJECT CONCEPT

A. Feasible Alternative - Replace with a 150 ft. x 44 ft. continuous concrete slab bridge

The existing 90 ft. x 28 ft. continuous concrete slab bridge will be replaced with a 150 ft. x 44 ft. continuous concrete slab bridge.

The typical cross section adjacent to the bridge will consist of a 24 ft. roadway (28 ft. wide pavement) with 10 ft. effective shoulders and 6:1/3:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. No mainline pavement will be replaced beyond the new bridge approaches. Replace the existing guardrail with new guardrail and pave the shoulders 20 ft. beyond the ends of the guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Place class E revetment for slope protection under the bridge. Construct bridge end drains on each end of the bridge.

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

Right of way appears to be required for this project.

Traffic will be maintained by an off-site detour.

Bridge Items	<u>Estimated Costs</u>
New Bridge	\$ 649,500
Bridge Removal	22,500
Revetment	50,000
Mobilization - 10%	72,200
M & C - 20%	<u>158,900</u>
Bridge Costs	\$ 953,100

Roadway Items	
Bridge Approaches	\$98,300
Embankment in place, contractor furnished	7,600
Removal of Pavement	3,400
Excavation Class 13 Waste	1,500
Guardrail (Includes Removal)	26,600
Paved Shoulders for Guardrail	29,600
Class 10 for Guardrail Blisters	12,000
Bridge End Drains	12,000
Clearing and Grubbing	2,300
Seeding and Fertilizing	800
Erosion Control	50,000
Wetland Mitigation	50,000
Traffic Control - 5%	14,700
Mobilization - 5%	14,700
Right of Way	4,000
M & C - 30%	<u>98,200</u>
Roadway costs	\$ 425,700

Project Total \$ 1,378,800

B. Detour Analysis

It is anticipated the detour will be in place for approximately 120 days. The detour would follow County Road B60 west 4 miles, then turn north on County Road S34 for 6 miles. The detour would then turn east on County Road B43 for 4 miles and return to U.S. 65. Out of distance travel is 8 miles. The total distance user cost is anticipated to be \$734,000. The cost for county road maintenance will be \$48,200 as calculated by the Gas Tax Method. Detour signing costs will be \$10,000.

The Cerro Gordo U.S. 65 bridge over the East Branch of Beaverdam Creek (Maint. No. 1785.7S065) is scheduled for replacement during the same construction season. Since this bridge is 0.7 miles north of the bridge in this concept, it is proposed to use the same detour for both projects. The northern bridge project is BRF-065-8(59)-38-17. Local access will be provided on a side road (155th St./Elm St. W) which runs between the two bridges.

C. Recommendations

It is recommended that the present structure be replaced as described in this concept.

D. Construction Sequence

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

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to U.S. 65; therefore, no ADA accommodations are planned in conjunction with this project.

F. Regulatory

1. The project is on the border of the Rockwell city limits.
2. The project is shown on the Cerro Gordo County and Incorporated Areas Flood Insurance Rate Map to be within a non-detailed Zone A (Panel 19033C0355C dated May 16, 2012).
3. The site drainage area is above the flood plain development permit threshold for urban areas. Therefore, an application for flood plain development permit will be submitted to the Iowa Department of Natural Resources. The District may choose to coordinate plan intents and design base flood elevations with the City and County, however, a signed "Record of Coordination" form is not required.

G. Special Considerations

The Accelerated Bridge Construction (ABC) rating score was 21, less than the first stage filter threshold of 50; therefore, an ABC option was dismissed from further consideration.

Survey information should include low floor elevations of the upstream buildings west of U.S. 65 and south of the County Road (Elm St.).

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

Right of Way appears to be required for this project.

There is a crest vertical curve south of the bridge that does not meet current K value requirements. However, as this curve is outside the project limits, it will be used as constructed.

The Office of Location and Environment has reviewed this project and based on preliminary observations, has determined that a Section 404 Permit will be required. It is expected that the work will be covered by Nationwide Permit 14.

The concept layout should avoid conflict with existing foundations. Shallow rock is anticipated to be encountered. For this reason, concrete encase steel H-Piles may be considered for the pier pile bents.

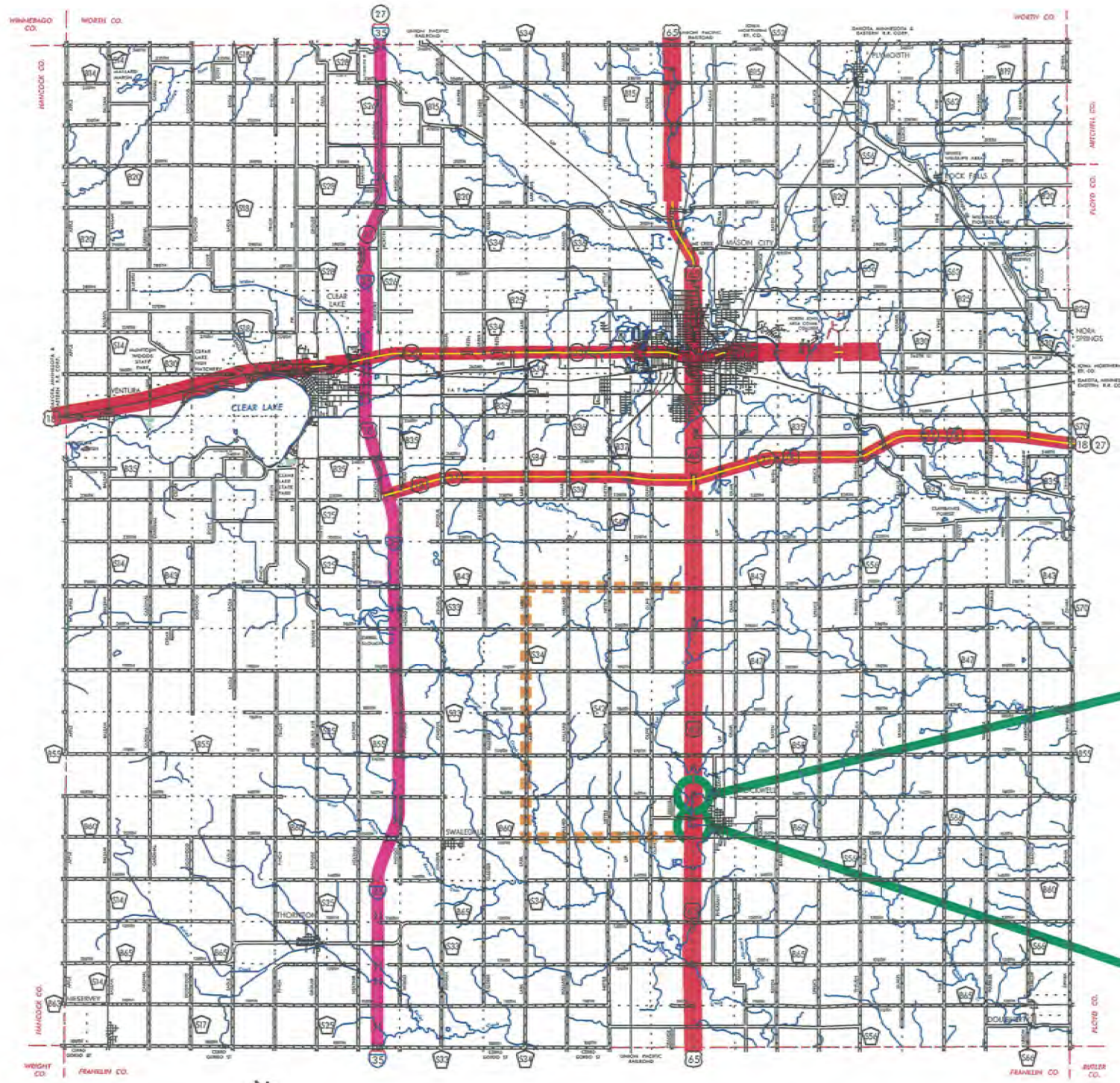
H. Program Status

Site data has been developed by the Office of Design. This project is listed in the 2016-2020 Iowa Transportation Improvement Program, with \$1,050,000 programmed for replacement in FY 2020. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

KKP: als



CERRO GORDO CO.
Bridge over the East Branch
of Beaverdam Creek, 0.4 mi.
north of Co. Rd. B60
Maint. #1784.9S065 - FHWA #18890



CERRO GORDO COUNTY

Bridges over the East Branch of Beaverdam Creek

1.1 mi. N of
County Rd. B60
1785.7S065
FHWA #18900

0.4 mi. N of
County Rd. B60
1784.9S065
FHWA #18890



..... Proposed detour route

Roadway	U.S. 65		
PIN Number	15-17-065-020	Submittal Date	
Project Number	BRF-065-8(57)--38-17		Approval Date
District	District 2	Assistant District Engineer	
County	Cerro Gordo (17)	or	
Route	U.S. 65	Office Director	
Location	East Branch Beaverdam Creek. 0.4 miles north of Co. Rd. B60		
Work Type	Bridge replacement		
Segment Manager			
Designer			

Design Manual Section 1C-1 last update: 05-06-14		Rural Two-Lane Highways (Rural Arterials)		
Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6%
Design lane width (ft)		12	12	12
Full depth paved width (ft)		14	12	14
Right turn lane (ft)		12	10	NA
Climbing Lane (ft)		12	12	NA
Left turn lane (ft)		12	10	NA
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	
	Crown break at centerline	4%	4% maximum	
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	NA
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	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	
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	--	
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	44 ft.
Bridge width—existing		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	
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 bridges	17.5	17	
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service		B	B	

Rural Two-Lane Highways (Rural Arterials)

Roadway Design Speed (mph) = 60			Design Criteria for High Speed Roadways												
Design Manual Section 1C-1 last update: 05-06-14			Preferred Criteria						Acceptable Criteria						Project Values
Design Element			Design Speed, mph						Design Speed, mph						
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	>570
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e _{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	NA
		e _{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	600
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	NA
	sag vertical curves	roadways without fixed source lighting	96	115	136	157	181	206	96	115	136	157	181	206	153
roadways with fixed-source lighting		96	115	136	157	181	206	54	66	78	91	106	121		
Minimum gradient (%) (Refer to Section 2B-1)			0.5						0.3% with a curb, 0.0% without a curb						1.23
Maximum gradient (%) (Refer to Section 2B-1)	Urban roadways		4			3			7	6	6	--	--	--	
	Rural roadways		4			3			5	5	4	4	4	4	-2.69
	Interstates		4			3			5	5	4	4	4	4	
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						30

Rural Two-Lane Highways (Rural Arterials)

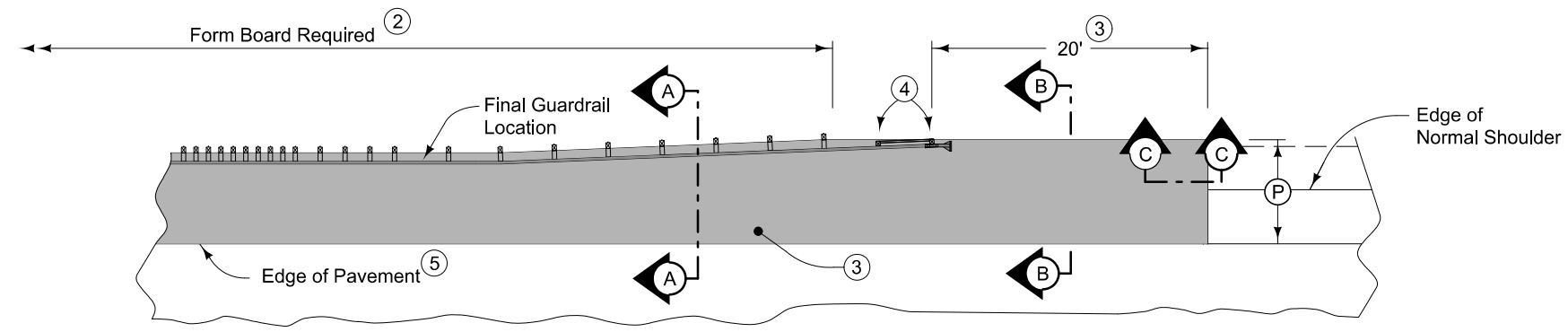
Design year ADT = 3,900					
Design Manual Section 1C-1 last update: 05-06-14		Effective Shoulder Width and Type for Two-Lane Highways			
Preferred (values shown in feet)			Acceptable (values shown in feet)		
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width
Climbing Lanes	6	4	Climbing Lanes	4	0
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	2*
On roadways approaching urban areas (due to increased bike traffic)	10	10			
On all curves with a superelevation rate of 7.0% or greater	10	10			
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	2*
On all other NHS	10	4			
On non-NHS routes with design year ADT > 3000	10	4	Design year ADT < 400 vpd	4	2*
On non-NHS routes with design year ADT < 3000	8	2*			

*Requires safety edge-Refer to 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:

* Shoulders will be paved as they are adjacent to the bridge guardrail.

QUESTIONS & COMMENTS



Plan View

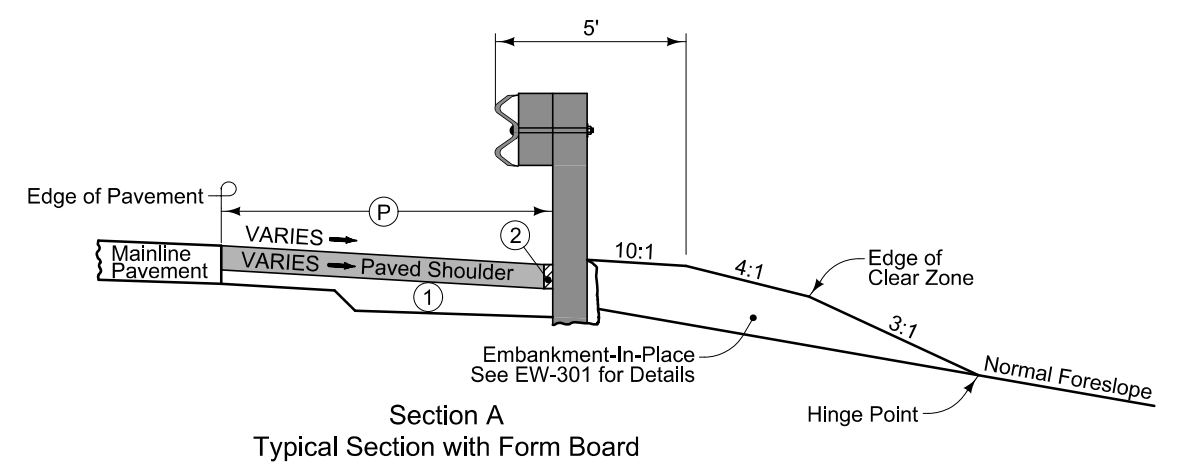
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

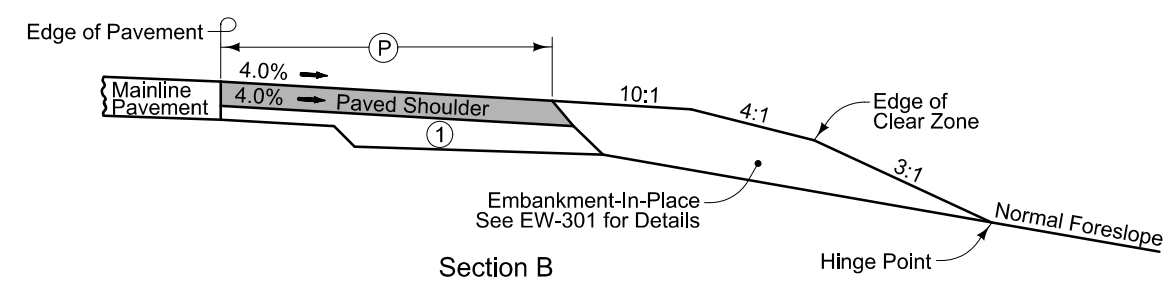
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

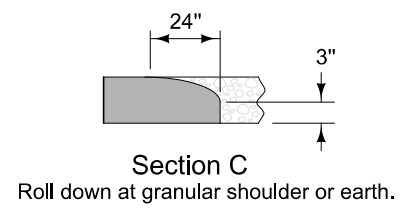
- ① For subgrade treatment, refer to other details in the plan.
- ② PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder. 'B' joint for HMA shoulder.



Section A
Typical Section with Form Board



Section B



Section C

Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

SURVEY SYMBOLS

- PPA Power Pole Co. 1
- TEV Evergreen Tree
- SI Sign
- TPD Telephone Pedestal
- TDC Tree Deciduous
- MIS Miscellaneous
- SHR Shrub
- CP Control Point
- TW Top of Water
- LC Lot Corner
- FW Wire Fence
- BRG Bridge
- GDL Guard Rail Steel
- ENU Edge Unpaved Entrance & Parking
- SNP Unpaved Shoulder
- ENT Centerline BL of Entrance
- EP Edge Concrete or A/C Slab
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- EW Edge of Water
- BC Back of Curb
- PIP Pipe Culvert

UTILITY LEGEND

- Mid-American Energy
 - Century Link
 - F0 - AT & T
 - F02 - ICN
- Flags for additional utilities were found at the site in the SW ditch.

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
 - Access Control
 - Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

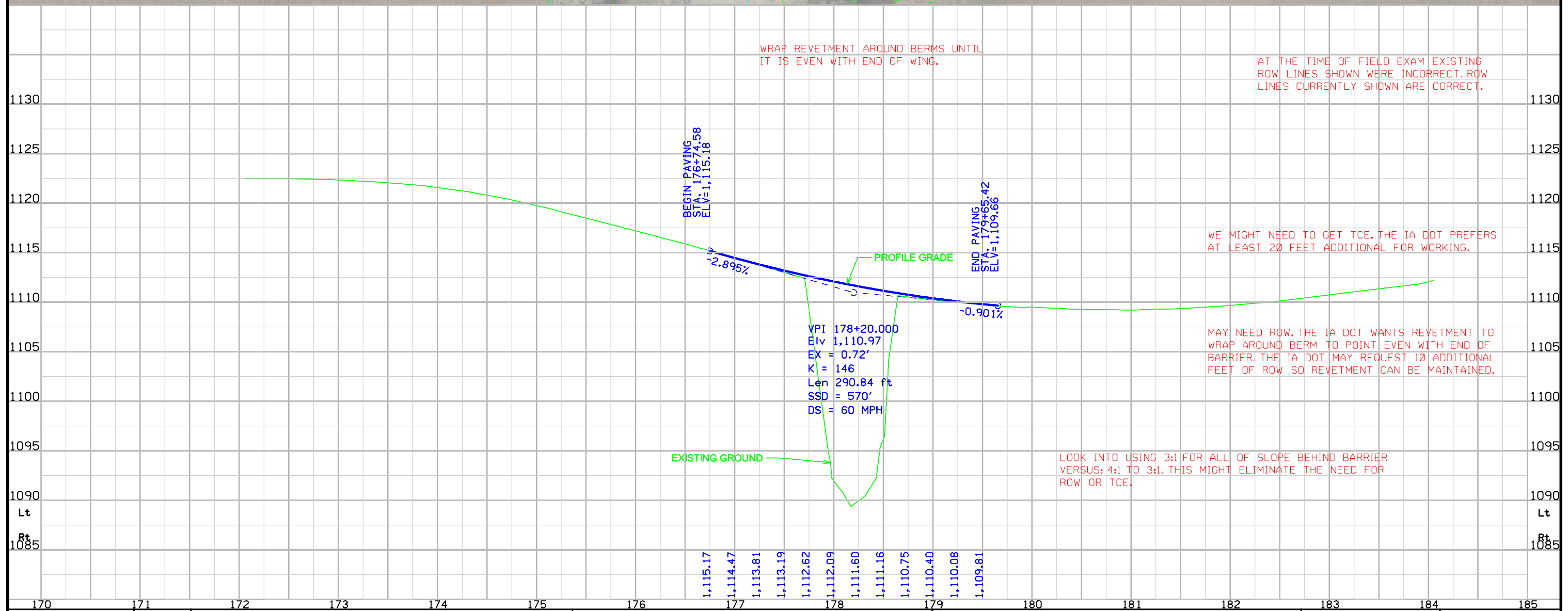
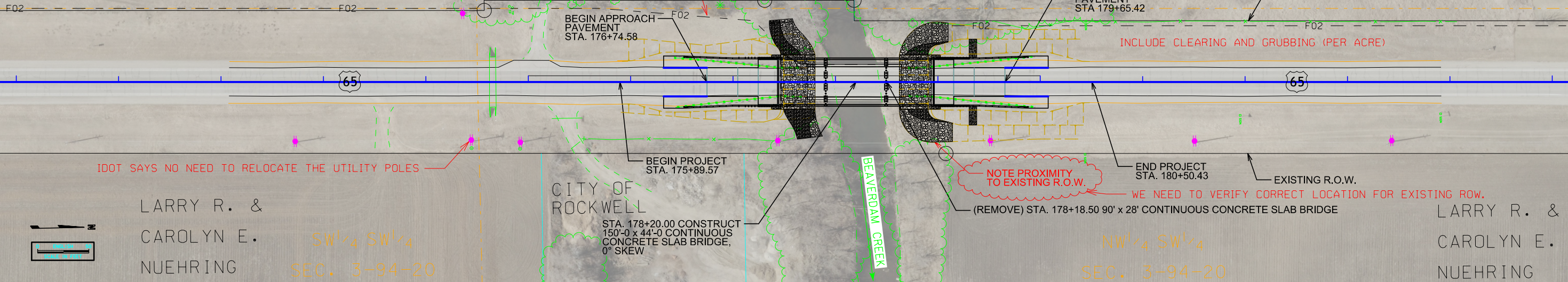
FIVE STAR COOPERATIVE

NW COR SW 1/4-SW 1/4
SEC. 3-94-20. FD 3/4" PIPE

FRANCIS X &
BARBARA J.
MCKINNON

170

185



SURVEY INFORMATION

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction on US 65 over East Branch Beaver Dam Creek approximately 1600 feet North of County road B-60. This project is a Partial DTM with Photo control.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12B). GRS80 Ellipsoidal Height was computed at project Pt. 100 by postprocessing a four hour static session referenced to three Iowa RTN reference stations. The vertical standard deviation of these observations was less than 0.03 ft. at 95% confidence level (2 sigma). Additional benchmarks were established with a digital level loop relative with Pt. 100. The loop error met 3rd Order accuracy and the error was distributed proportionately among the project bench marks.

This survey observed 1 NGS Control Monument with published NAVD88 heights to compare to local ground control:

NGS Cooperative Base Network Control Station designated Bean has a published Elev. Of 1215. Survey Elev. = 1214.88

Horizontal Control

The project coordinate system for this survey is Iowa State Plane North Zone (U.S. Survey Feet). This survey control is relative to Iowa RTN reference stations. Iowa RTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by postprocessing four hour static sessions on each control point. The horizontal standard deviation of these observations was less than 0.03 ft. at 95% confidence level (2 sigma).

Combined Scale Factor of project= 0.999912295

The Combined Scale Factor may be used for total station stakeout and location to survey in the State Plane coordinate system.

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans for Cerro Gordo County FN Project No. 155 dated 2-27-1959. Survey stationing was equated to the plan P1 at STA 161+56.5 and run ahead without equation to the P.O.T at Station 187+59.8 which was established from the East III corner of Section 4-94-20 at Station 187+59.1, 35.1' LT.

Utility Information

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

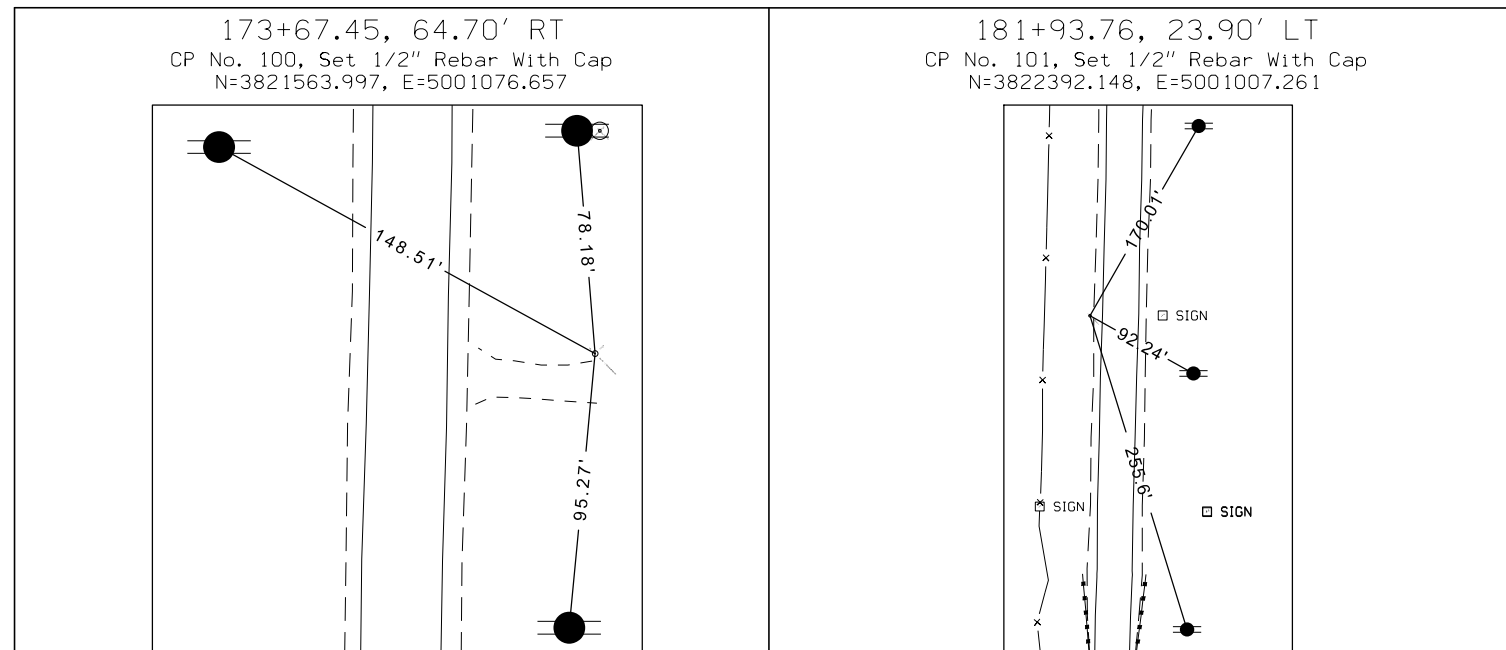
QLA - Quality Level A Highest guideline quality level
QLD - Quality Level D Lowest guideline quality level

A One-call utility locate request (Ticket# 551605400) was made December 8, 2016. The following Companies were listed:

Company	Remark
MidAmerican Energy	Overhead Electric Lines
Centurylink	Not Affected
Iowa Communications Network	Buried Comm. Line
Rockwell Cooperative Tel.	Not Affected
Mediacom	Not Affected
City of Rockwell	Not Affected
AT&T	Buried Fiber Optic Line

VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
100	3821563.997	5001076.657	1121.684	173+67.45	64.701	CP	100 SET 1/2" REBAR WITH CAP
101	3822392.148	5001007.261	1108.529	181+93.76	-23.903	CP	101 SET 1/2" REBAR WITH CAP



SURVEY INFORMATION

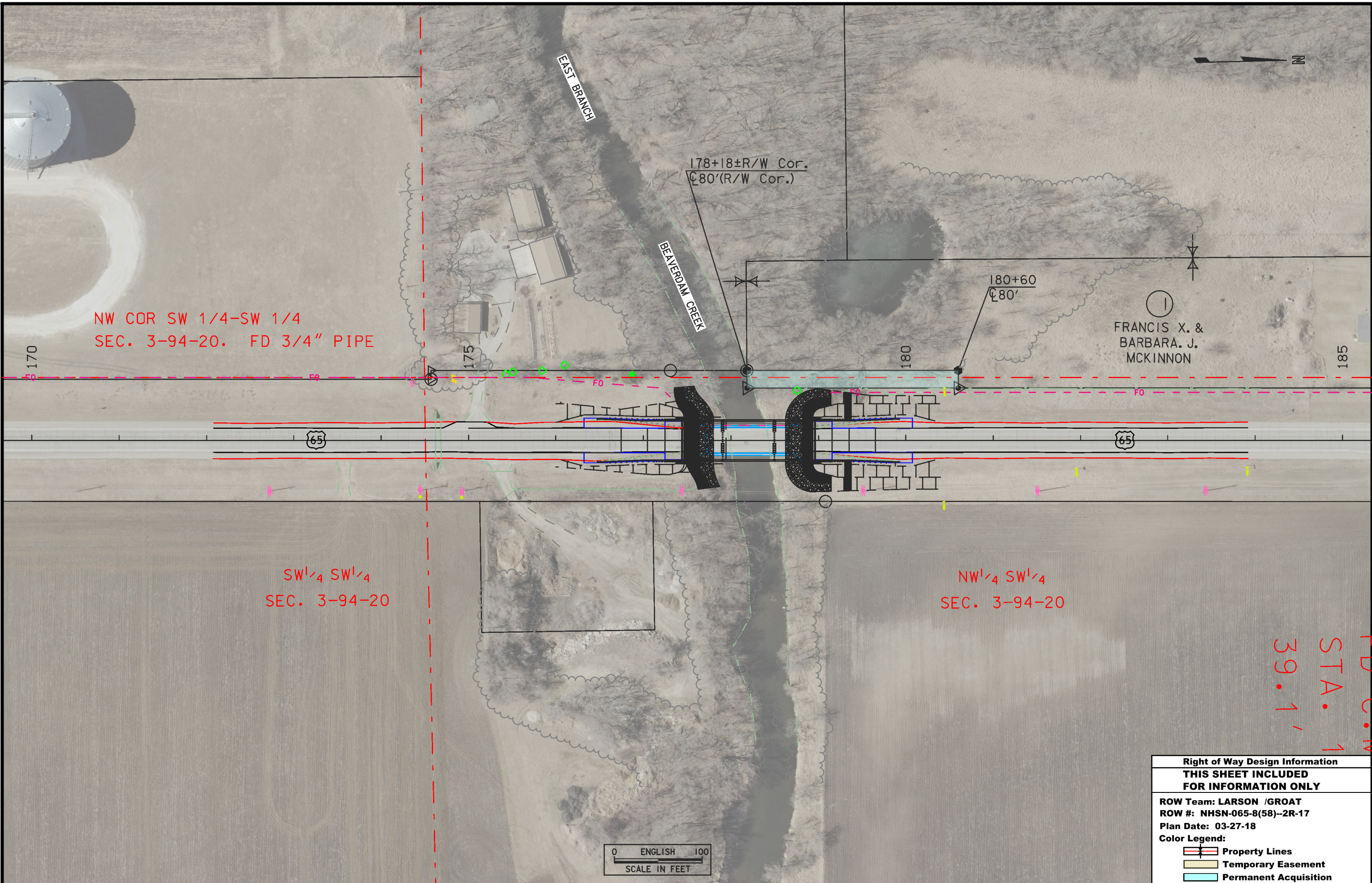
NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

Cerro Gordo ROW: NHSN-065-8(58)--2R-17

PIN 15-17-065-020

East Branch Beaverdam Creek 0.4 mi N of Co Rd B60

PARCEL NO.	OWNER NAME	STATE		COUNTY		CITY		EXCESS	TEMP EASE		BORROW		MITIGATION	OTHER HOUSE	BUILDING(S)	A/C ONLY	TOTAL ACQ.
		FEE	EASE	FEE	EASE	FEE	EASE		FEE	T.E.							
1	FRANCIS X MCKINNON - Fee		0.11 AC														
1 Parcel	"TOTALS	0 AC	0.11 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC					
		0 SF		0 SF	0 SF	0 SF	0 SF	0 SF	0 SF	0 SF							

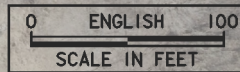


NW COR SW 1/4-SW 1/4
SEC. 3-94-20. FD 3/4" PIPE

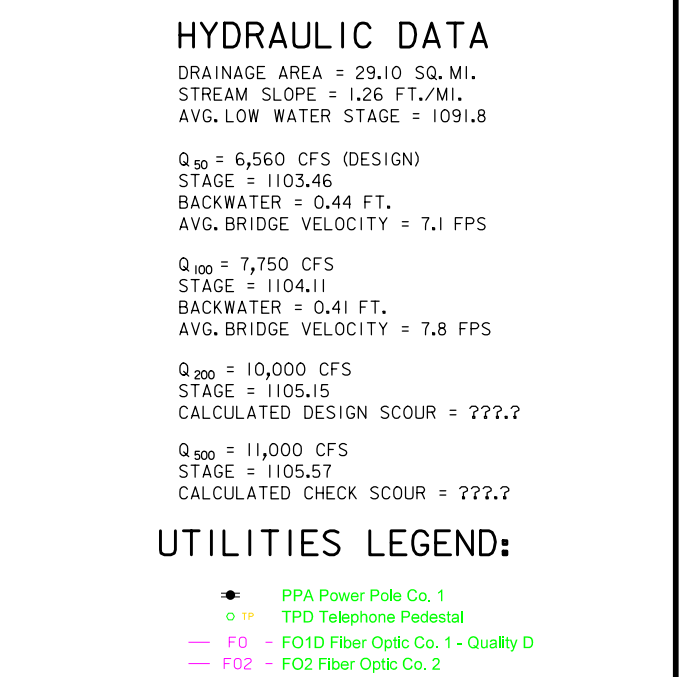
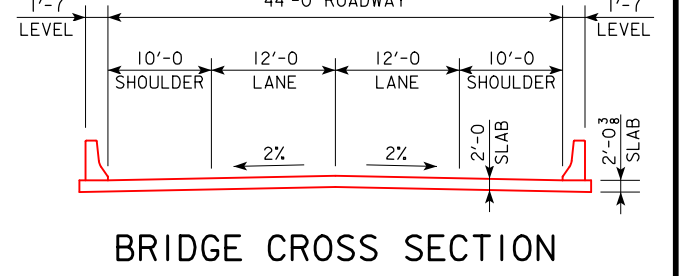
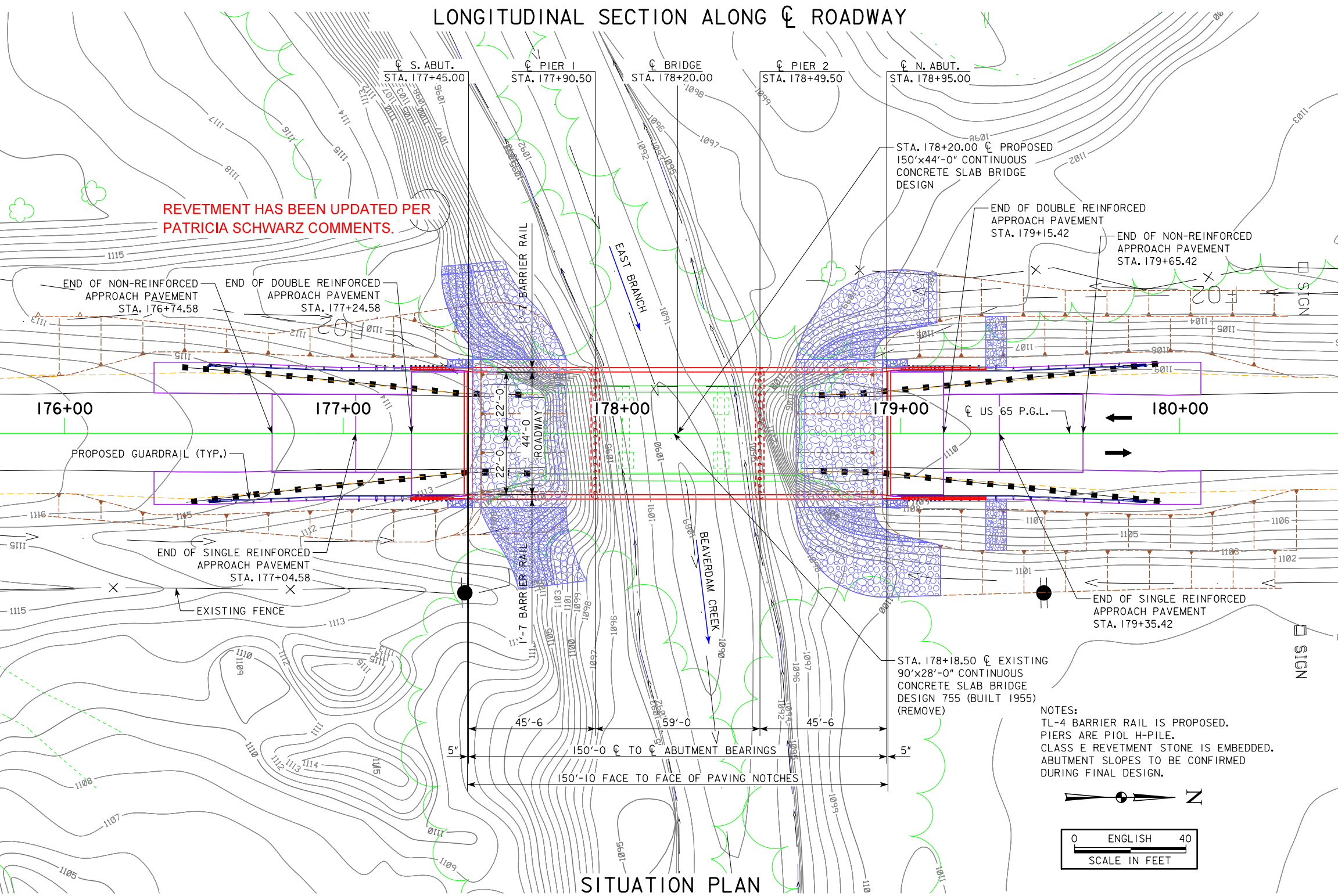
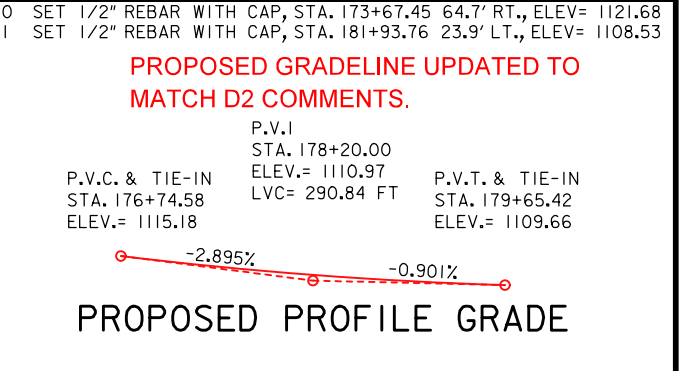
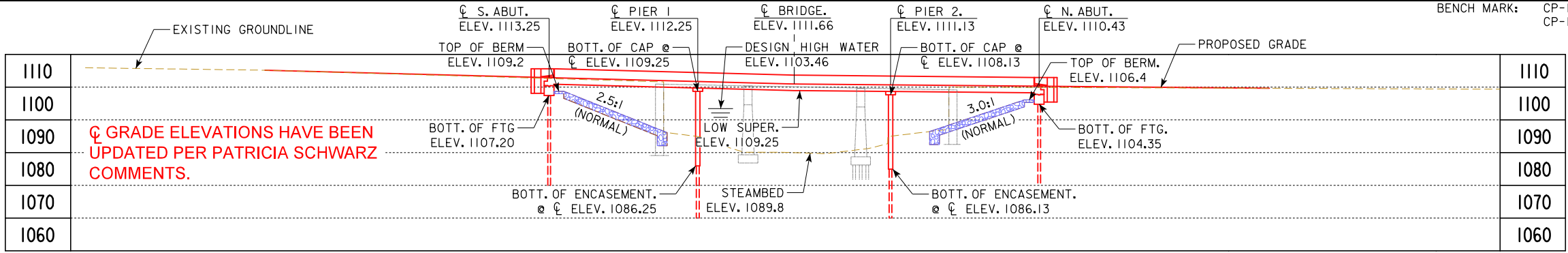
SW 1/4 SW 1/4
SEC. 3-94-20

NW 1/4 SW 1/4
SEC. 3-94-20

STA. 1
39.1'



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-065-8(58)--2R-17	
Plan Date: 03-27-18	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



150'-0" X 44'-0" CONTINUOUS CONCRETE SLAB BRIDGE

45'-6" END SPANS 59'-0" INTERIOR SPAN

SITUATION PLAN

STA. 178+20.00 @ US 65 SEPTEMBER, 2017

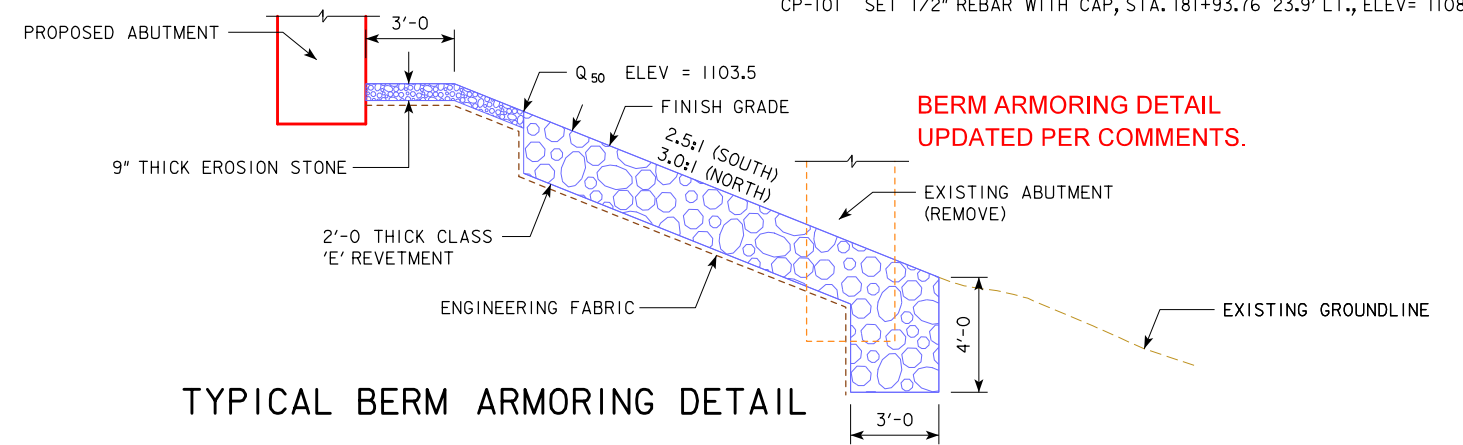
CERRO GORDO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 8 FILE NO. 31513 DESIGN NO. 120

BERM SLOPE LOCATION TABLE						
POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	177+80.00	26.58' LT.	1097.0	178+62.50	26.58' LT.	1097.0
A2	177+80.00	26.58' RT.	1097.0	178+62.50	26.58' RT.	1097.0
B1	177+49.50	26.58' LT.	1109.2	178+90.50	26.58' LT.	1106.4
B2	177+49.50	26.58' RT.	1109.2	178+90.50	26.58' RT.	1106.4
W1	177+37.50	26.58' LT.	1112.75	179+02.50	26.58' LT.	1109.61
W2	177+37.50	26.58' RT.	1112.75	179+02.50	26.58' RT.	1109.61

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

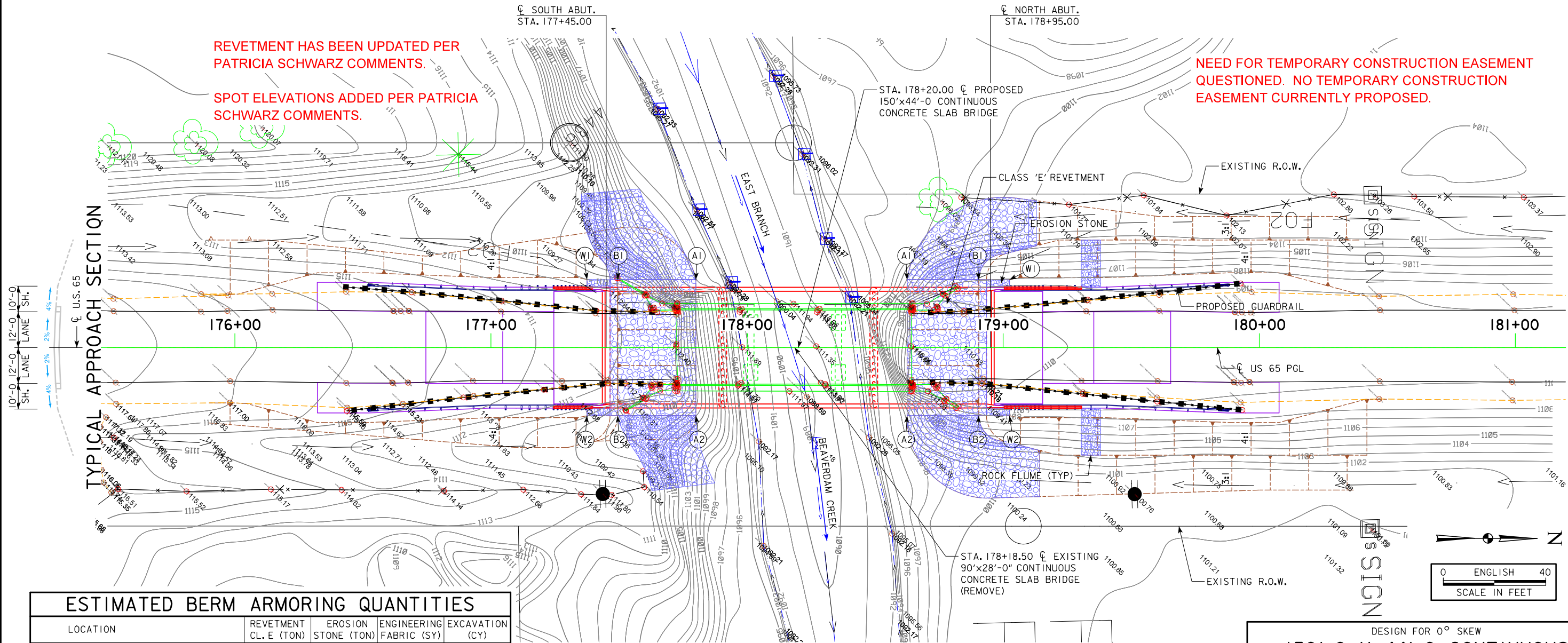


TYPICAL BERM ARMORING DETAIL

REVETMENT HAS BEEN UPDATED PER PATRICIA SCHWARZ COMMENTS.

SPOT ELEVATIONS ADDED PER PATRICIA SCHWARZ COMMENTS.

NEED FOR TEMPORARY CONSTRUCTION EASEMENT QUESTIONED. NO TEMPORARY CONSTRUCTION EASEMENT CURRENTLY PROPOSED.



SITE PLAN

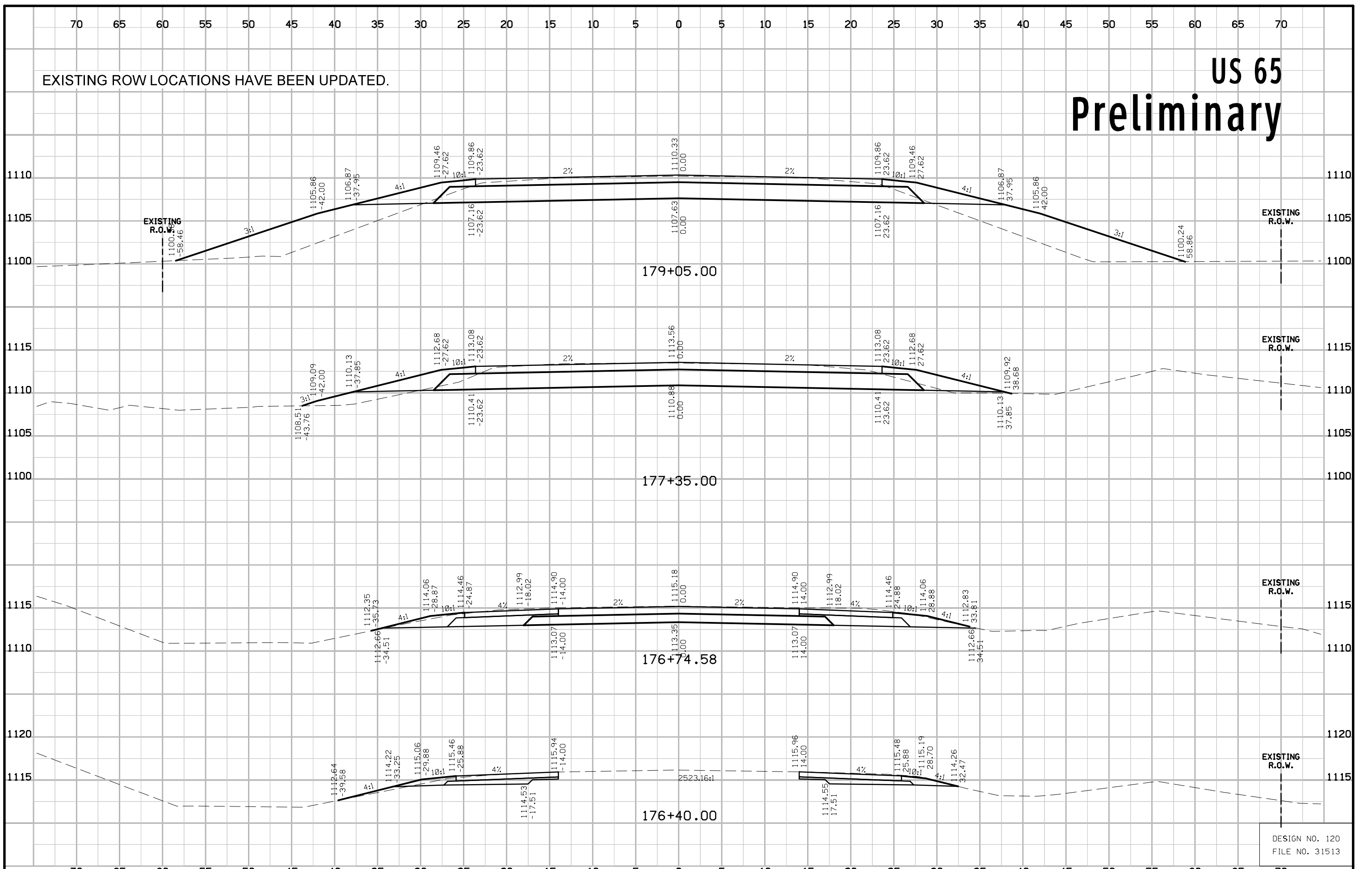
ESTIMATED BERM ARMORING QUANTITIES				
LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
SOUTH ABUTMENT BERM	300	35	475	280
NORTH ABUTMENT BERM	410	50	580	200
TOTALS	710	85	1,055	480

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

DESIGN FOR 0° SKEW
150'-0" X 44'-0" CONTINUOUS CONCRETE SLAB BRIDGE
 45'-6" END SPANS 59'-0" INTERIOR SPAN
SITUATION PLAN
 STA. 178+20.00 (US 65) APRIL, 2017
CERRO GORDO COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. _____ OF 8 FILE NO. 31513 DESIGN NO. 120

US 65 Preliminary

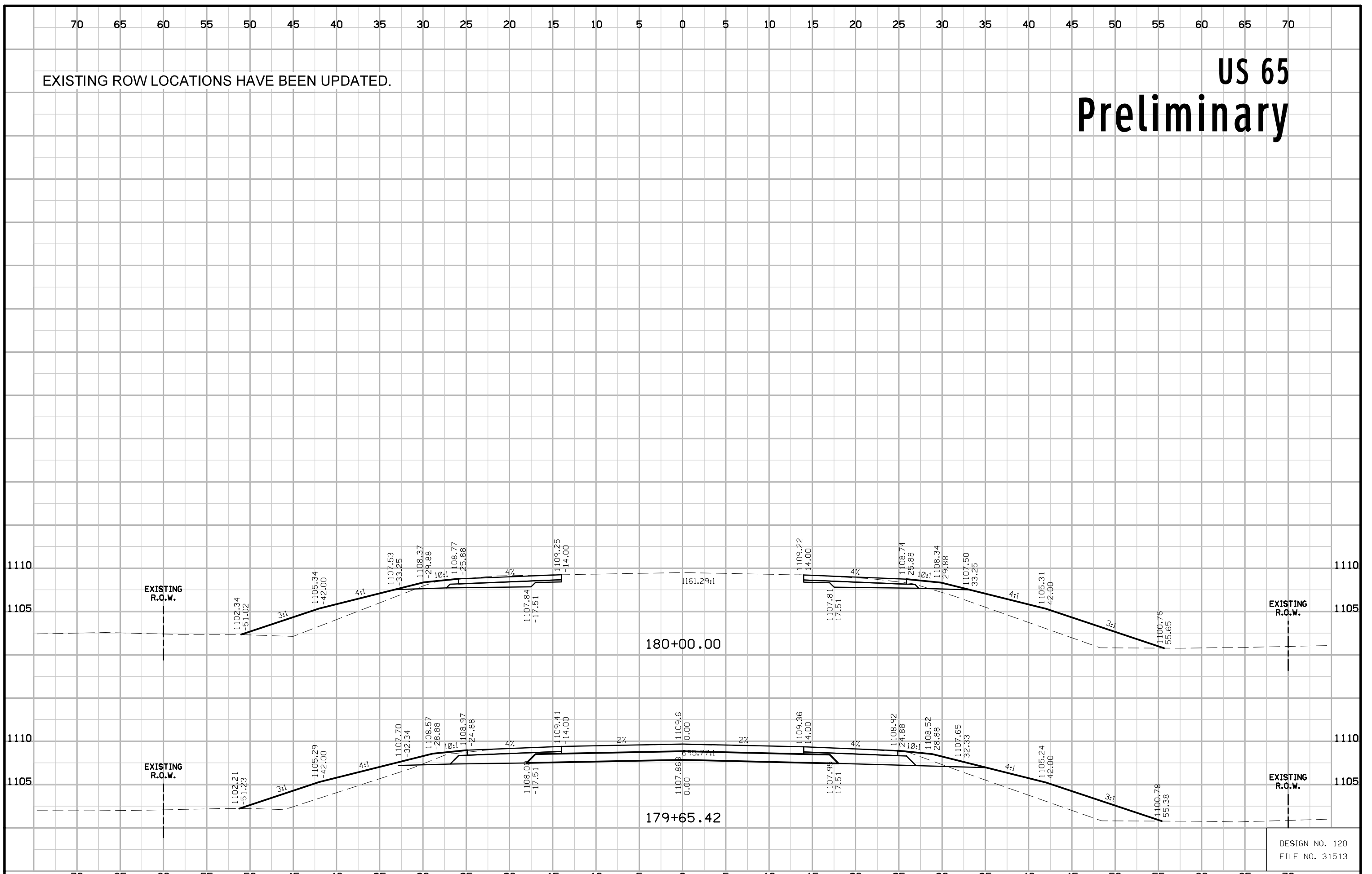
EXISTING ROW LOCATIONS HAVE BEEN UPDATED.



DESIGN NO. 120
FILE NO. 31513

US 65 Preliminary

EXISTING ROW LOCATIONS HAVE BEEN UPDATED.



DESIGN NO. 120
FILE NO. 31513