IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE:	District 3	**DATE:**	June 30, 2020
ATTENTION:	Tony Lazarowicz	**PROJECT:**	Crawford County BRFN-030-2(168)--39-24
FROM:	John E. Bartholomew		18-24-030-010
BUREAU:	Design		
SUBJECT:	**REVISED** Project Concept Statement; (Final, D0)		

This project involves the replacement of the U.S. 30 bridge (Maint. No. 2459.2S030) over Rocky Run, 4.5 miles west of County Road M55.

A concept review was held on November 6, 2019. Those present included Tony Lazarowicz and Darwin Bishop from the District 3 Office; Matt Erickson from the Bridges and Structures Bureau; Mike Carlson from the Location and Environment Bureau; and John Bartholomew, Jacob Page and Hollie Richey from the Design Bureau.

The two alternatives considered were:
1. Remove and replace the existing 50 ft. x 30 ft. steel beam bridge with a 95ft. x 44 ft. prestressed concrete beam bridge using staged construction.
2. Remove and replace the existing 50 ft. x 30 ft. steel beam bridge with a 95ft. x 44 ft. prestressed concrete beam bridge utilizing a lateral slide and an off-site detour.

Alternative 1 is the preferred alternative due to the lengthy out of distance travel required for an adequate off-site detour route (see attached concept for details). The preliminary estimated project cost is **$1,054,695**. It appears that right of way may be required for this project. Traffic will be maintained by using staged construction.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by weekday, Tuesday, June 23, 2020. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2023. The Bridges and Structures Bureau will coordinate plan preparation with assistance from the Design Bureau.

JEB:hsr
Attach.
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
S. Majors	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. Hofer
B. E. Azeltine	T. D. Crouch	S. J. Gent
S. Anderson	P. C. Keen	J. Selmer
K. K. Patel	S. Godbold	J. Vortherms
D. R. Claman	J. Hauber	A. Abu-Hawash
M. E. Khoda	K. Olson	S. Neubauer
E. Engle	M. Hobbs	D. Bishop
V. Brewer	M. Carlson	L. Sievers
B. Dolan	T. Huju	D. Schultz
M. K. Solberg	S. Tymkowicz	K. Mulvihill
M. Erickson	FHWA	

REVISED FINAL PROJECT CONCEPT STATEMENT

U.S. 30 bridge over Rocky Run, 4.5 miles west of County Road M55.

Crawford County
BRFN-030-2(168)--39-24
PIN: 18-24-030-010
Maint. No. 2459.2S030
FHWA No. 21370

Highway Division
Bureau of Design

John Bartholomew, P.E.
515-239-1540

June 30, 2020

I. STUDY AREA

A. Project Description

This project involves the replacement of the U.S. 30 bridge (Maint. No. 2459.2S030) over Rocky Run.

The two alternatives considered were:

1. Remove and replace the existing 50 ft. x 30 ft. steel beam bridge with a 95ft. x 44 ft. prestressed concrete beam bridge using staged construction.
2. Remove and replace the existing 50 ft. x 30 ft. steel beam bridge with a 95ft. x 44 ft. prestressed concrete beam bridge utilizing a lateral slide and an off-site detour.

Alternative 1 is the preferred alternative due to the lengthy out of distance travel required for an adequate off-site detour route. Alternative 2 was discussed and dismissed due to the inadequate off-site detour routes available. The preliminary estimated project cost is **$1,054,695.**

B. Need for Project

The existing bridge is a 50 ft. x 30 ft. steel beam bridge constructed in 1929, widened in 1956. The bridge deck was overlaid in 1996 and was epoxy injected. The overlay is now reaching the end of its service life. There are areas of section loss at the ends of the steel girders and the bridge is fatigue vulnerable. The bridge was designed for live loads below current standards. Due to the extent of these deficiencies and section loss, the bridge should be replaced.

Looking south

Looking southwest

C. Present Facility

The existing structure is a 50 ft. x 30 ft. I-beam bridge constructed in 1955.

U.S. 30 in the project area is 18 ft. wide PCC pavement with 8 ft. wide granular shoulders, constructed in 1930. In 1960 the roadway was resurfaced with 3 inches of HMA and widened to 24 ft. In 1982 1 inch of HMA resurfacing was placed along with 0.75 inch of milling. HMA resurfacing of 5 inches was accomplished in 1998 with 10 ft. wide granular shoulders. In 2015, 4 ft. of the 10 ft. granular shoulders were paved with HMA.

D. Traffic Estimates

The 2023 construction year and 2043 design year average daily traffic estimates are 4,300 ADT with 16 % trucks and 5,400 ADT with 16 % trucks, respectively.

E. Sufficiency Ratings

U.S. 30 is classified as a "commercial and industrial" route and is a maintenance service level "B" roadway. The federal bridge sufficiency rating is 77.6.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2014 through December 31, 2018, there were 2 personal property crashes.

II. PROJECT CONCEPT

A. Feasible Alternatives

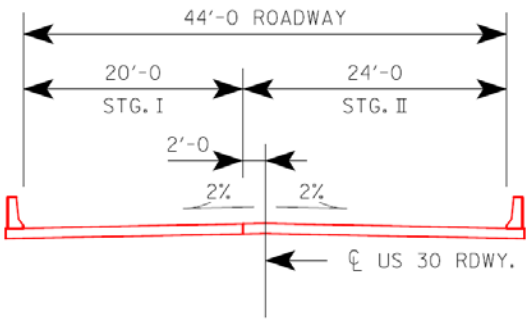
Alternative #1 - Replace with a 95 ft. x 44 ft. prestressed concrete beam bridge utilizing staged construction.

The existing 50 ft. x 30 ft., I-beam bridge will be replaced with a 95 ft. x 44 ft., prestressed concrete beam bridge.

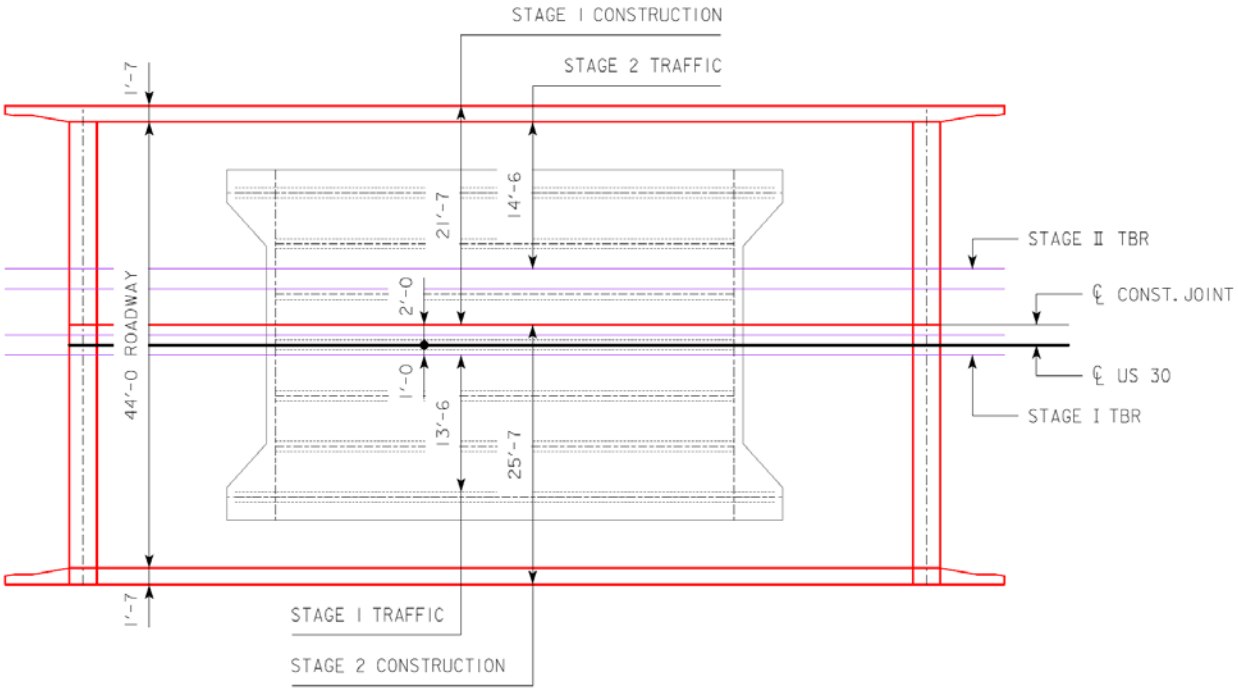
The typical cross section adjacent to the bridge will consist of a 24 ft. roadway (32 ft. wide pavement) with 10 ft. effective shoulders (4 ft. paved, and 6 ft. granular) and 6:1/3:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and the shoulders will be paved 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. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on both ends of the bridge.

The bridge will be built with staged construction while maintaining a single lane of traffic. The bridge will be constructed in two stages. Stage 1 will shift traffic to the westbound lane and construct the new eastbound lane of the bridge. Stage two will shift the traffic over to the newly constructed EB lane and construct the new WB lane. Approximately 250 ft. of temporary pavement will be placed on both ends of the bridge to allow stage 2 traffic to shift over during construction.



TYPICAL BRIDGE SECTION



One lane of traffic in each direction will be maintained via staged construction utilizing temporary traffic signals.

There is an existing property entrance in the northwest quadrant. Access will need to be maintained at all times.

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

It appears that right of way may be required for this project.

Bridge Items	Estimated Costs
New Bridge	$ 438,900
Bridge Removal	10,500
Revetment	35,000
Staging - 10%	48,440
Mobilization - 10%	53,280
M & C - 20%	117,220
Bridge Costs	**$ 703,340**

Roadway Items	
Bridge Approaches	$101,900
Removal of Pavement	4,800
Guardrail (Includes Removal)	14,720
Paved Shoulders for Guardrail	6,460
Class 10 for Guardrail Blisters	30,825
Bridge End Drains	5,400
Temporary Pavement	19,700
Special Backfill	4,600
Class 13 Waste	1,500
Temporary Traffic Signals	15,150
Temporary Barrier Rail	50,000
Debris Removal	10,000
Seeding and Fertilizing	1,000
Right of Way	5,000
Erosion Control	10,000
Traffic Control - 10%	28,100
Mobilization - 5%	14,100
M & C - 10%	28,100
Roadway costs	**$ 351,355**
Project Total	**$1,054,695**

Alternative #2 - Replace with a 95 ft. x 44 ft. prestressed concrete beam bridge utilizing lateral slide.

This alternative is similar to alternative 1; however, in lieu of staged construction, an off-site detour was discussed.

This alternative was discussed and dismissed due to no preferred detour route and lengthy out of distance travel to the public.

B. Detour Analysis

There will be no off-site detour due to lengthy out of distance travel to the public.

Traffic will be maintained via staged construction with traffic reduced down to one lane via the use of temporary traffic signals.

C. Recommendations

It is recommended that the present structure be removed and 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.

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to U.S. 30; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The Union Pacific Railroad runs along the south side of U.S. 30 in the project area. A railroad agreement to establish an easement will be needed if any work, personnel, materials, or equipment will be on the railroad ROW.

The ABC Rating Score of 36 is less than the first stage filter threshold of 50, therefore this bridge will not be considered further as a candidate for ABC construction.

Debris removal may be necessary prior to construction for fallen trees, logs, or branches caught against the piers in the water way.

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

Additional survey will be needed. Survey of railroad centerline and railroad culvert downstream of the bridge has been requested.

Right of Way may be required for this project.

Location and Environment notes that an archaeological site (13CF50) is located north of the current alignment of US 30 near Rocky Run. Additional archaeological survey (H01) will be needed to fully define limits of the site. At this time avoidance of the site is recommended. Restrictions maybe need to avoid and minimize impacts to the site during construction.

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

G. Program Status

Site data has been developed by the Design Bureau. This project is listed in the 2020-2024 Iowa Transportation Improvement Program, with $575,000 programmed for replacement in FY 2023. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

JEB:hsr


Crawford County
BRFN-030-2(168)--39-24
Rocky Run 4.5 mi W of Co. Rd. M55
FHWA No. 21370
Maint. No. 2459.2S030
J Ave
345th St
M55
21390
64
Vail
330th St
L Ave
63
62
61
60
21380
21370
59
58
57
56
601005
55
21521
2
39
3
4
Denison Ridge Rd
Ridge Rd
Crawford
Crawford County
Denison
N 20th St
S 20th St
1470

Utilities

Centurylink
Tom Sturmer
(720) 578-8090
Thomas.sturmer@centurylink.com

Frontier Communications
Trent Flockhart
(515) 573-1268
Trent.flockhart@ftr.com

Iowa Communications Network
Shannon Marlow
(800) 572-3940
icnoutsideplantiowaonecall@iowa.gov

MIDAMER-ELEC
Ryan Boell
(712) 792-7055
rdboell@midamerican.com

MIDAMER-GAS
Ryan Boell
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Windstream Communications
Locate Desk
(800) 289-1901
LOCATE.DESK@WINDSTREAM.COM

West Central Iowa Rural Water
Dean Lorenzen
(712) 655-2534
wcirwa@mmctsu.com

Bridge Office Attachment for Concept Statement

Date: October 16, 2019
By: Matt Erickson
Location: U.S. 30 over Rocky Run River

County: Crawford
Project No.: BRFN-030-2(168)--39-24
Pin No.: 18-24-030-010

1. Regulatory/Coordination

   a. Iowa DNR Flood Plain permit = No
   b. Iowa DNR Sovereign Lands permit = No
   c. Local Record of Coordination = No
   d. Flood Insurance Study = No. Zone A Panel 1900910005B, September 1, 1986
   e. Drainage District = No

2. Hydrologic/Hydraulic Analysis/RIDB Dataset

   a. Design discharges determined = Yes (USGS 87-4132)
   b. Hydraulic analysis done = Started (IABB with lidar complete, HEC-RAS with survey will be needed for final hydraulics)
   c. Riverine Infrastructure Database = Yes (DA=10.8 sq.mi. > 10 sq.mi.)

3. Structure/Roadway Layout Considerations

   a. The bridge size shall be verified after survey and hydraulic modeling is complete.

4. Special construction issues

   a. The roadway will be open during construction with staged traffic.
   b. The bridge will be a lateral slide project with a 14 day road closure and off-site detour.

5. Special survey = Yes. See below.

6. Aesthetic enhancements = No.

Special Survey:

We request the following in addition to the routine survey data.

A. Survey of the railroad culvert downstream of the bridge:
   a. Structure headwall inlet and outlet flowlines
   b. If silted record silted thalweg in addition to structure flowline.
   c. Top of parapet at facia.

B. Survey of railroad centerline

LETTING DATE 12-20-2022

BRIDGE REPLACEMENT-PPCB
BRFN-030-2(168)--39-24

CRAWFORD Co.

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

CRAWFORD COUNTY

BRIDGE REPLACEMENT-PPCB

Rocky Run 4.5 mi W of Co Rd M55

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

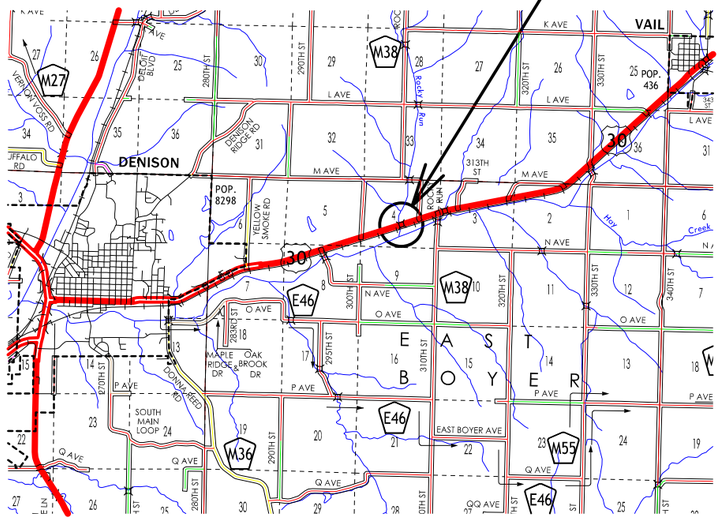
IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

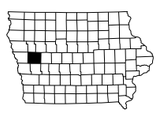
REVISIONS

TOTAL
--
PROJECT IDENTIFICATION NUMBER
18-24-030-010
PROJECT NUMBER
BRFN-030-2(168)--39-24
R.O.W. PROJECT NUMBER
NHSN-030-2(169)--2R-24

INDEX OF SHEETS

Project Location
Sta. 209+17.51
Ref. Loc. 59.20





DESIGN DATA RURAL		
2023 AADT	4,300	V.P.D.
2043 AADT	5,400	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	16	%
Total Design ESALs	--	

Schedule:
D3- 11-13-2020
B1- 02-12-2021
D5- 03-05-2021
D4- 08-23-2022
B3- 10-04-2022

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: 10-19-2020

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER A.1

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Notes /Questions

1. Any known existing maintenance issues?

2. Drainage:
   a. Preliminary design looks to be able to UAC ditches. Any known issues or letdown needs?

   b. Berm shaping impacts of ditches to be determined. How should existing sheet pile wall between US 30 bridge and railroad RCB wing be addressed?

   c. Are there any tile lines not shown in survey?

   d. Discuss flood debris. Significant debris was present during the Concept, but a recent site visit showed that it is no longer present.

   e. Any there any existing drainage issues?

3. Staging and Traffic Control:
   a. Is there enough room to stage construct bridge? Consider temporary shoring and bridge deck tie rebar.

   b. Can shoulder strengthening detour pavement be left in place?

      i. If left in place, should it be full width in both directions?

   c. Stage 1 – Should shoulder strengthening detour pavement be trenched in for short distance?

   d. Discuss TBR length needs.

   e. Discuss signal location with respect to west entrance.

   f. Can east field entrance be closed?

      i. Permanent due to proximity of guardrail and alternate entrance?

      ii. If yes, then excavate out existing entrance?

      iii. If no, then temporarily close for staging with safety closure?

   g. Are PDMS wanted for early notification prior to activation of signals?

   h. Any other special Traffic Management issues?

4. Removals:
   a. Existing guardrail looks to be new. Would Maintenance like us to deliver it to them?

      i. If yes, which location and contact person? Is this project using federal funds?

   b. Are there other removal items to discuss?

5. ROW
   a. Any impacts anticipated along north ROW at this time?

   b. South ROW has two lines with 15' offset in District Survey: DisPropLines (near road) and DisRowExist (near tracks)

6. Railroad:
   a. Any other Railroad issues to discuss?

7. Environmental:
   a. Discuss possible archaeological site north of US 30.

   b. Any other environmental issues?

8. Utilities:
   a. Discuss number of conduit lines in bridge barrier.

   b. Any other utility issues?

9. Any other special issues to address?

Project Criteria

Roadway	US 30		
PIN Number	18-24-030-010	**Submittal Date**	
Project Number	BRFN-030-2(168)--39-24		**Approval Date**
District	District 3	**Assistant District Engineer**	Shane Tymkowicz
County	CRAWFORD	**or**	
Route	US 30	**Office Director**	
Location	U.S. 30 bridge over Rocky Run, 4.5 miles west of County Road M55		
Work Type	Bridge Replacement-PPCB		
Segment Manager			
Designer			

Design Manual Section 1C-1
Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	60	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	
Climbing Lane (ft)		12	12	
Left turn lane (ft)		12	10	
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	
	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	44
	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. offset left and right	30
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	

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Design year ADT = 5400

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
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	0*	10 (4 paved)
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	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*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:

Roadway Design Speed (mph) = 60

Design Manual Section 1C-1
Last Updated: 04-29-19

Design Criteria for High Speed Roadways

Design Element			Preferred Criteria, Design Speed, mph						Acceptable Criteria, Design Speed, mph						Project Values
			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	
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	
		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	
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	
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	
		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						
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4		3				7	6	6	--	--	--	
		Rural roadways							5	5	4	4	4	4	
		Interstates							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						

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER A.3

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Concept Statement

REVISED FINAL PROJECT CONCEPT STATEMENT

U.S. 30 bridge over Rocky Run, 4.5 miles west of County Road M55.

Crawford County
BRFN-030-2(168)--39-24
PIN: 18-24-030-010
Maint. No. 2459.2S030
FHWA No. 21370

Highway Division
Bureau of Design

John Bartholomew, P.E.
515-239-1540

June 30, 2020

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Looking south

Looking southwest

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The 2023 construction year and 2043 design year average daily traffic estimates are 4,300 ADT with 16 % trucks and 5,400 ADT with 16 % trucks, respectively.

E. Sufficiency Ratings

U.S. 30 is classified as a "commercial and industrial" route and is a maintenance service level "B" roadway. The federal bridge sufficiency rating is 77.6.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2014 through December 31, 2018, there were 2 personal property crashes.

II. PROJECT CONCEPT

A. Feasible Alternatives

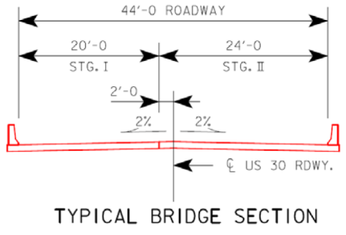
Alternative #1 - Replace with a 95 ft. x 44 ft. prestressed concrete beam bridge utilizing staged construction.

The existing 50 ft. x 30 ft., I-beam bridge will be replaced with a 95 ft. x 44 ft., prestressed concrete beam bridge.

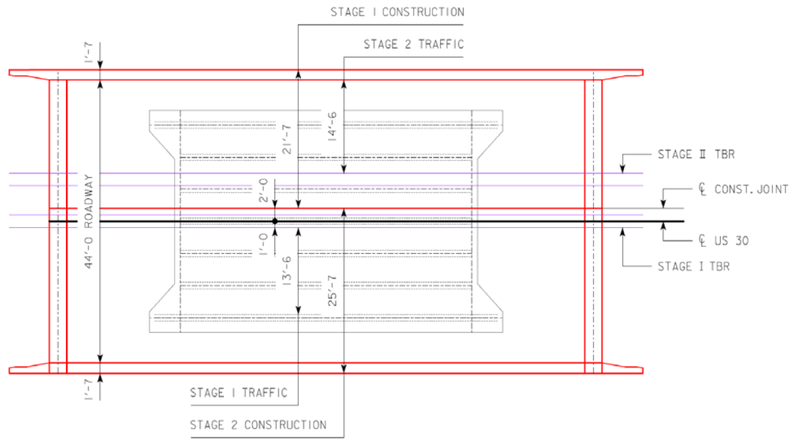
The typical cross section adjacent to the bridge will consist of a 24 ft. roadway (32 ft. wide pavement) with 10 ft. effective shoulders (4 ft. paved, and 6 ft. granular) and 6:1/3:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and the shoulders will be paved 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. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on both ends of the bridge.

The bridge will be built with staged construction while maintaining a single lane of traffic. The bridge will be constructed in two stages. Stage 1 will shift traffic to the westbound lane and construct the new eastbound lane of the bridge. Stage two will shift the traffic over to the newly constructed EB lane and construct the new WB lane. Approximately 250 ft. of temporary pavement will be placed on both ends of the bridge to allow stage 2 traffic to shift over during construction.



TYPICAL BRIDGE SECTION



One lane of traffic in each direction will be maintained via staged construction utilizing temporary traffic signals.

There is an existing property entrance in the northwest quadrant. Access will need to be maintained at all times.

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

It appears that right of way may be required for this project.

Bridge Items	Estimated Costs
New Bridge	$ 438,900
Bridge Removal	10,500
Revetment	35,000
Staging - 10%	48,440
Mobilization - 10%	53,280
M & C - 20%	117,220
Bridge Costs	**$ 703,340**

Roadway Items	
Bridge Approaches	$101,900
Removal of Pavement	4,800
Guardrail (Includes Removal)	14,720
Paved Shoulders for Guardrail	6,460
Class 10 for Guardrail Blisters	30,825
Bridge End Drains	5,400
Temporary Pavement	19,700
Special Backfill	4,600
Class 13 Waste	1,500
Temporary Traffic Signals	15,150
Temporary Barrier Rail	50,000
Debris Removal	10,000
Seeding and Fertilizing	1,000
Right of Way	5,000
Erosion Control	10,000
Traffic Control - 10%	28,100
Mobilization - 5%	14,100
M & C - 10%	28,100
Roadway costs	**$ 351,355**
Project Total	**$1,054,695**

Alternative #2 - Replace with a 95 ft. x 44 ft. prestressed concrete beam bridge utilizing lateral slide.

This alternative is similar to alternative 1; however, in lieu of staged construction, an off-site detour was discussed.

This alternative was discussed and dismissed due to no preferred detour route and lengthy out of distance travel to the public.

B. Detour Analysis

There will be no off-site detour due to lengthy out of distance travel to the public.

Traffic will be maintained via staged construction with traffic reduced down to one lane via the use of temporary traffic signals.

C. Recommendations

It is recommended that the present structure be removed and 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.

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to U.S. 30; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The Union Pacific Railroad runs along the south side of U.S. 30 in the project area. A railroad agreement to establish an easement will be needed if any work, personnel, materials, or equipment will be on the railroad ROW.

The ABC Rating Score of 36 is less than the first stage filter threshold of 50, therefore this bridge will not be considered further as a candidate for ABC construction.

Debris removal may be necessary prior to construction for fallen trees, logs, or branches caught against the piers in the water way.

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

Additional survey will be needed. Survey of railroad centerline and railroad culvert downstream of the bridge has been requested.

Right of Way may be required for this project.

Location and Environment notes that an archaeological site (13CF50) is located north of the current alignment of US 30 near Rocky Run. Additional archaeological survey (H01) will be needed to fully define limits of the site. At this time avoidance of the site is recommended. Restrictions maybe need to avoid and minimize impacts to the site during construction.

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

G. Program Status

Site data has been developed by the Design Bureau. This project is listed in the 2020-2024 Iowa Transportation Improvement Program, with $575,000 programmed for replacement in FY 2023. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

JEB:hsr

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER A.8

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Utilities

Centurylink
Tom Sturmer
(720) 578-8090
Thomas.sturmer@centurylink.com

Frontier Communications
Trent Flockhart
(515) 573-1268
Trent.flockhart@ftr.com

Iowa Communications Network
Shannon Marlow
(800) 572-3940
icnoutsideplantiowaonecall@iowa.gov

MIDAMER-ELEC
Ryan Boell
(712) 792-7055
rdboell@midamerican.com

MIDAMER-GAS
Ryan Boell
(712) 792-7055
rdboell@midamerican.com

Windstream Communications
Locate Desk
(800) 289-1901
LOCATE.DESK@WINDSTREAM.COM

West Central Iowa Rural Water
Dean Lorenzen
(712) 655-2534
wcirwa@mmctsu.com

Bridge Office Attachment for Concept Statement

Date: October 16, 2019
By: Matt Erickson
Location: U.S. 30 over Rocky Run River

County: Crawford
Project No.: BRFN-030-2(168)--39-24
Pin No.: 18-24-030-010

1. Regulatory/Coordination
   a. Iowa DNR Flood Plain permit = No
   b. Iowa DNR Sovereign Lands permit = No
   c. Local Record of Coordination = No
   d. Flood Insurance Study = No. Zone A Panel 1900910005B, September 1, 1986
   e. Drainage District = No

2. Hydrologic/Hydraulic Analysis/RIDB Dataset
   a. Design discharges determined = Yes (USGS 87-4132)
   b. Hydraulic analysis done = Started (IABB with lidar complete, HEC-RAS with survey will be needed for final hydraulics)
   c. Riverine Infrastructure Database = Yes (DA=10.8 sq.mi. > 10 sq.mi.)

3. Structure/Roadway Layout Considerations
   a. The bridge size shall be verified after survey and hydraulic modeling is complete.

4. Special construction issues
   a. The roadway will be open during construction with staged traffic.
   b. The bridge will be a lateral slide project with a 14 day road closure and off-site detour.

5. Special survey = Yes. See below.

6. Aesthetic enhancements = No.

Special Survey:

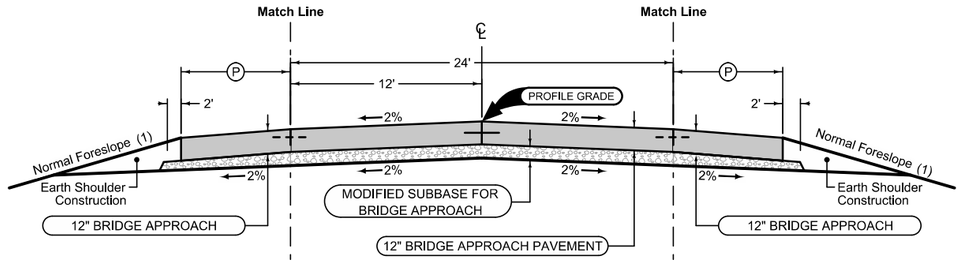
We request the following in addition to the routine survey data.

A. Survey of the railroad culvert downstream of the bridge:
   a. Structure headwall inlet and outlet flowlines
   b. If silted record silted thalweg in addition to structure flowline.
   c. Top of parapet at facia.

B. Survey of railroad centerline

Shoulder at Bridge Approach

2_P_Guard_ 10-17-17		
STATION TO STATION		(P) Feet
207+99.04	208+60.54	11.63
209+72.54	210+34.04	11.63



Mainline Jointing:
See MOD. BR- 203 in U-Sheets

2P_ 10-19-10	
STATION TO STATION	
207+99.04	208+60.54
209+72.54	210+34.04

Shoulder at Bridge Approach

2_P_Guard_ 10-17-17		
STATION TO STATION		(P) Feet
207+99.04	208+60.54	11.63
209+72.54	210+34.04	11.63

(1) Refer Standard Road Plan EW 202 and X-sections for additional details

See Tab 100-24 or 100-25 for pavement quantities.

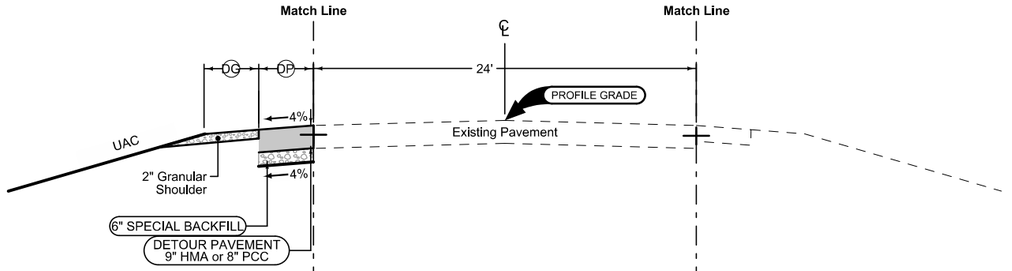
See Tab 112-9 for shoulder quantities.

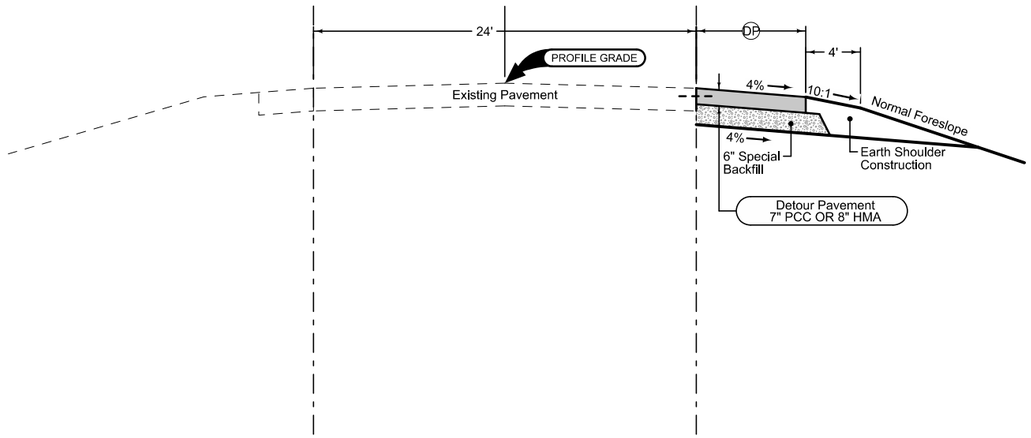
US 30

SHOULDER STRENGTHENING

PCC Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Jointing:
Longitudinal joint: B

2_C_FullPCC_ 04-21-20			
STATION TO STATION		(DP) Feet	(DG) Feet
207+18.34	208+86.25	4	6
209+46.85	211+52.26	4	6

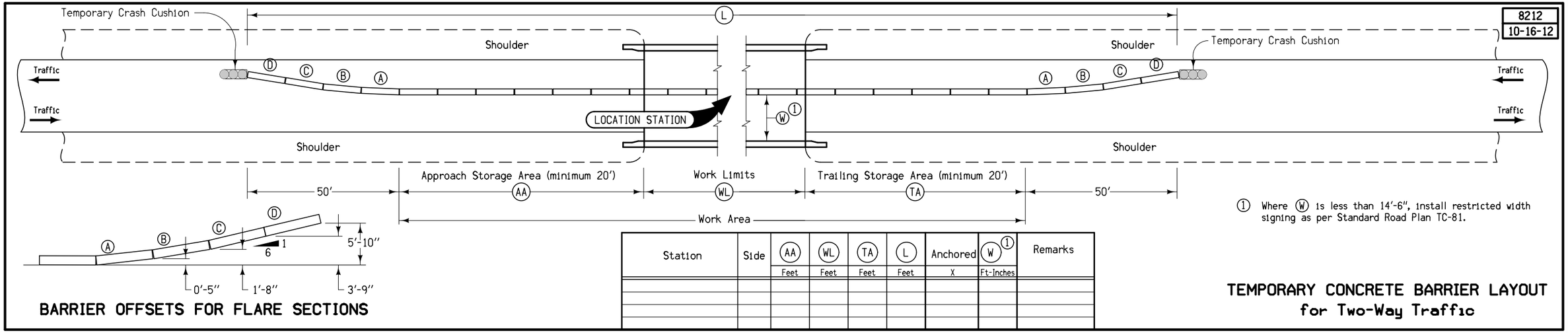




SHOULDER STRENGTHENING

PCC Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Jointing:
Longitudinal joint: B

2_P_ALT_ 04-21-20		
STATION TO STATION		(DP) Feet
205+33.44	207+99.02	10
210+34.04	213+02.91	10



8212
10-16-12

1 Where W is less than 14'-6", install restricted width signing as per Standard Road Plan TC-81.

BARRIER OFFSETS FOR FLARE SECTIONS

Station	Side	AA	WL	TA	L	Anchored	W (1)	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	

TEMPORARY CONCRETE BARRIER LAYOUT for Two-Way Traffic

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER B.3

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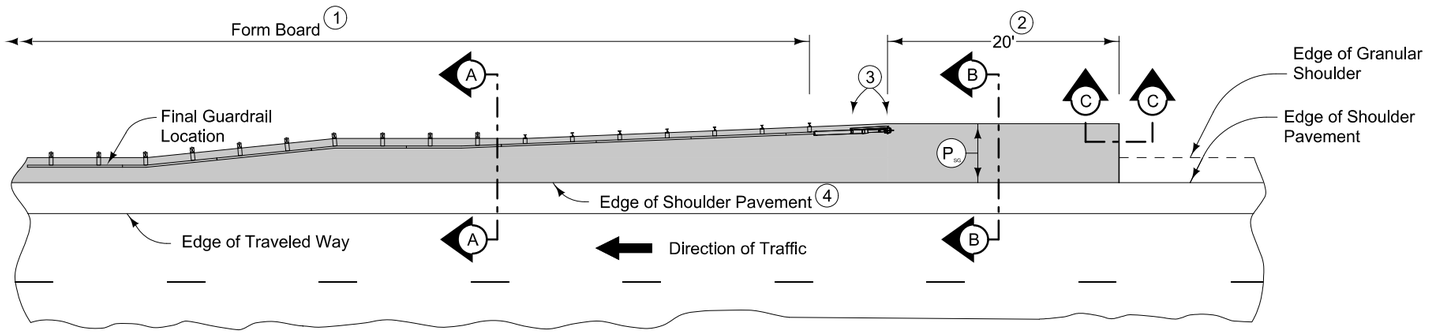
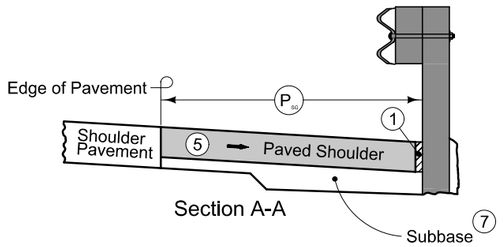
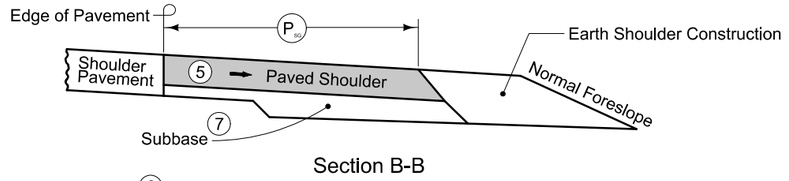


PLAN VIEW

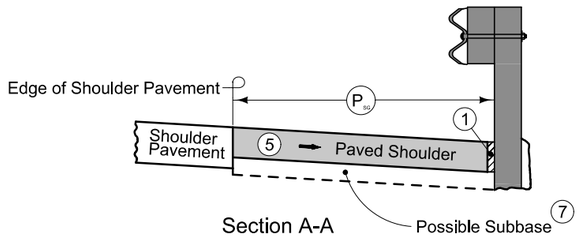


Section A-A

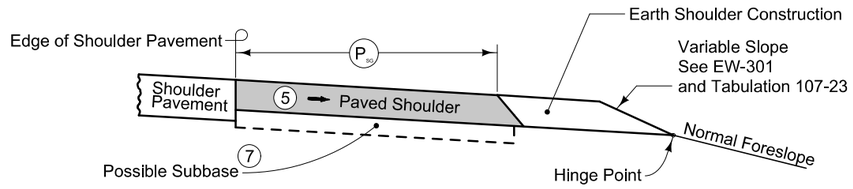


Section B-B

NEW CONSTRUCTION 6



Section A-A



Section B-B

EXISTING SHOULDER

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) 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.

(2) Continue paved shoulder 20 feet beyond the center of the first post.

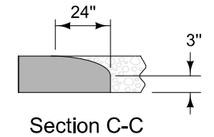
(3) Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

(4) 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.

(5) Match shoulder slope.

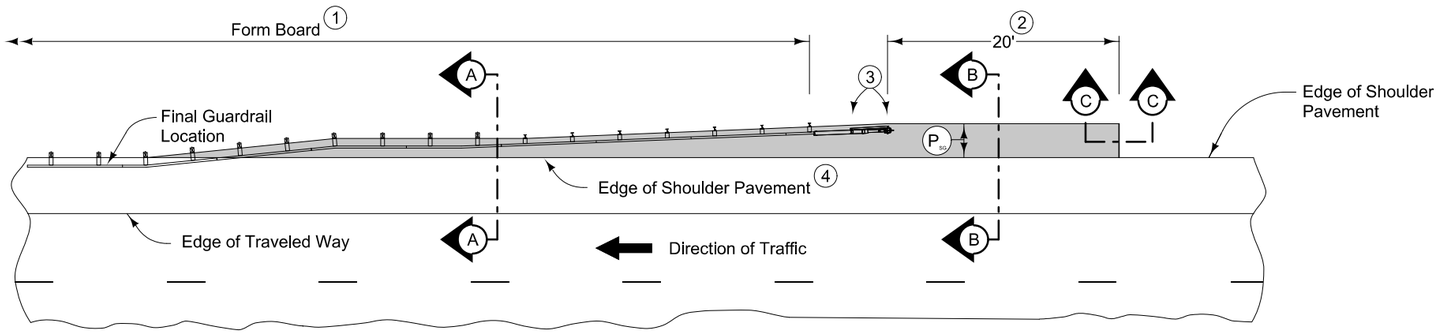
(6) The Contractor has the option to pave the paved shoulder at guardrail and the partial width paved shoulder as one operation.

(7) Refer to other details in the plan.

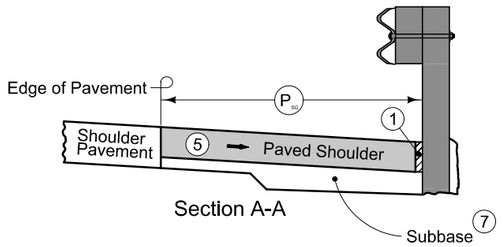


Section C-C
Roll down at granular shoulder or earth.

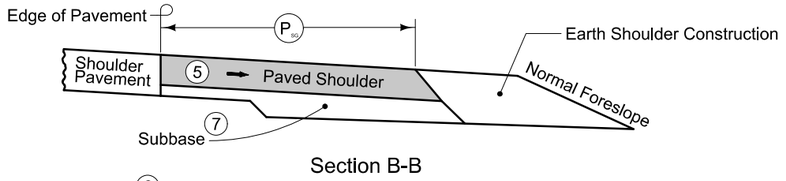
PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)



PLAN VIEW

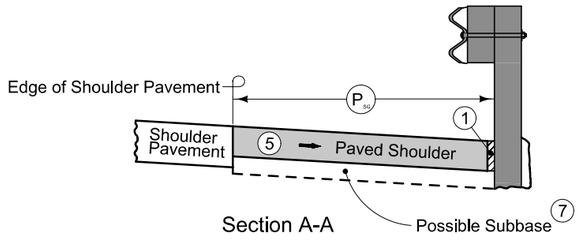


Section A-A

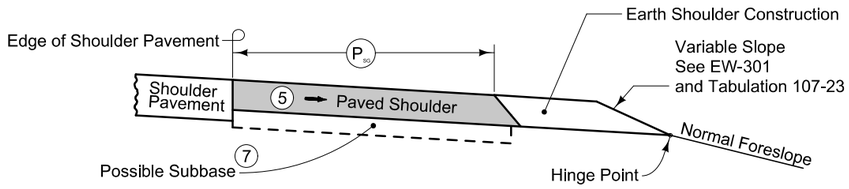


Section B-B

NEW CONSTRUCTION 6



Section A-A



Section B-B

EXISTING SHOULDER

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.

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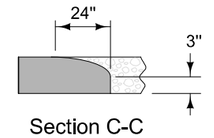
(4) 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.

(5) Match shoulder slope.

(6) The Contractor has the option to pave the paved shoulder at guardrail and the full width paved shoulder as one operation.

(7) Refer to other details in the plan.



Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO FULL WIDTH PAVED SHOULDER)

SURVEY SYMBOLS

- POT Tangent Point
- SP Stream Profile
- CP Control Point
- WC Wild Card (Misc. Field Shot)
- SNP Unpaved Shoulder
- BL Topo Breakline
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- GR Ground Shot
- BNK Stream Bank
- RIP Rip-Rap
- ENU Edge Unpaved Entrance & Parking
- GDL Guard Rail Steel
- GU Gutter In Front of Curb
- CU Back of Curb
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- PPA Power Pole MidAmerican Energy
- ROW Right of Way Mark
- PIP Pipe Culvert
- SOP Size of Pipe or Culvert
- CON Concrete or A/C Slab
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- SBR Size of Bridge
- RET Retaining Walls
- TL1D Frontier Communications - Quality D
- FO1D Windstream Communications - Quality D
- FO2D ICN - Quality D
- WL1D West Central Iowa Rural Water - Quality D
- PLG Location of General Photo
- CUL Culvert
- TPD Telephone Pedestal
- PRO Profile Shot
- TLNR Tree Line Right
- TW Top of Water
- EW Edge of Water
- DIK Centerline of Dike or Dam
- INB Storm Sewer Beehive Intake
- TIL Tile Line
- TDC Tree Deciduous
- BLS Bridge Low Steel

UTILITY LEGEND

- PPA Power Pole MidAmerican Energy
- TL1D Frontier Communications - Quality D
- FO1D Windstream Communications - Quality D
- FO2D ICN - Quality D
- WL1D West Central Iowa Rural Water - Quality D

Frontier Communications
Trent Flockhart
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Trent.flockhart@ftr.com

Iowa Communications Network
Shannon Marlow
(800) 572-3940
icnoutsideplantiowaonecall@iowa.gov

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rdboell@midamerican.com

Windstream Communications
Locate Desk
(800) 289-1901
LOCATE.DESK@WINDSTREAM.COM

West Central Iowa Rural Water
Dean Lorenzen
(712) 655-2534
wcirwa@mmctsu.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
- 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)

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER D.1

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EAST BOYER TWP
T-83N - R-38W
SECTION 4

Sta 205+19
Private Ent.
24" X 36' C.M.P.
(U.A.C.)

Rocky Run

(Remove)
Sta 72+40.50
Rip Rap

Sta 211+75
Field Ent.
24" X 53' C.M.P.
(Closed)

205

Sta. 206+80.82
Begin Construction

210

215

Sta. 211+52.26
End Construction

US 30

(Remove)
Sheet Pile Wall

EASEMENT TO STATE

UNION PACIFIC RAILROAD

(UAC)
Sta 209+13.00 87' Rt.
Triple 10'x12'x78.4' RCB
D.A.=4500 A-H

0 50
FEET

(Remove)
Sta 209+18.00
50'-0 X 30'-0
Continuous I-Beam Bridge

Sta 209+18.00
Build 95'-0 X 44'-0
PCBB Bridge

VPI +15.000
Elv 1,219.21

Len 100.00 ft

1,218.69

1,218.85

+0.450%

-0.300%

U.A.C.

U.A.C.

1,218.69 1,218.80 1,218.91 1,219.02 1,219.09 1,219.12 1,219.09 1,219.03 1,218.95 1,218.88

1230 1225 1220 1215 1210 1205 1200 1195

Lt
Rt

202 203 204 206 207 208 209 210 211 212 213 214 215 216 217

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER D.2

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Crawford County
BRFN-030-2(168)- -39-24
Rocky Run 4.5 mi W of Co Rd M55
Type of Work: Bridge-Unspecified
Project Directory: 2403001018
PIN 18-24-030-010
Sap-0434.1

Party Personnel

Clayton Henningsen- Survey Party Chief
Jason Arn- Survey Party Chief
Paul Harry- Asst. Party Chief

Date(s) of Survey

Begin Date	10/03/2019
End Date	10/28/2019

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction or removal US 30 over Rocky Run Creek. Project datum and control information is provided by Design Survey Office. This project is a full field DTM.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. GSVS 005, GSVS 006, and GSVS 007 by doing concurrent 6 hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

This survey observed 3 NGS GPS control with published NAVD88 heights to compare to local ground control:

NGS mark designated GSVS 005 (PID DP4459) has a published Elev. of 1209.88
Survey Elev. = 1209.72

NGS mark designated GSVS 006 (PID DP4460) has a published Elev. of 1218.13
Survey Elev. = 1217.995

NGS mark designated GSVS 007 (PID DP4461) has a published Elev. of 1224.14
Survey Elev. = 1224.004

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 6 (U.S. Survey Feet). This survey control is relative to IaRTN reference stations. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting concurrent 6 hour static observations on Project Pts. GSVS 005, GSVS 006, and GSVS 007.

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. NHSN-30-2(103)—2R-24. Survey stationing was equated to the plan POT at Sta. 193+79.4 and run ahead without equation throughout the survey.

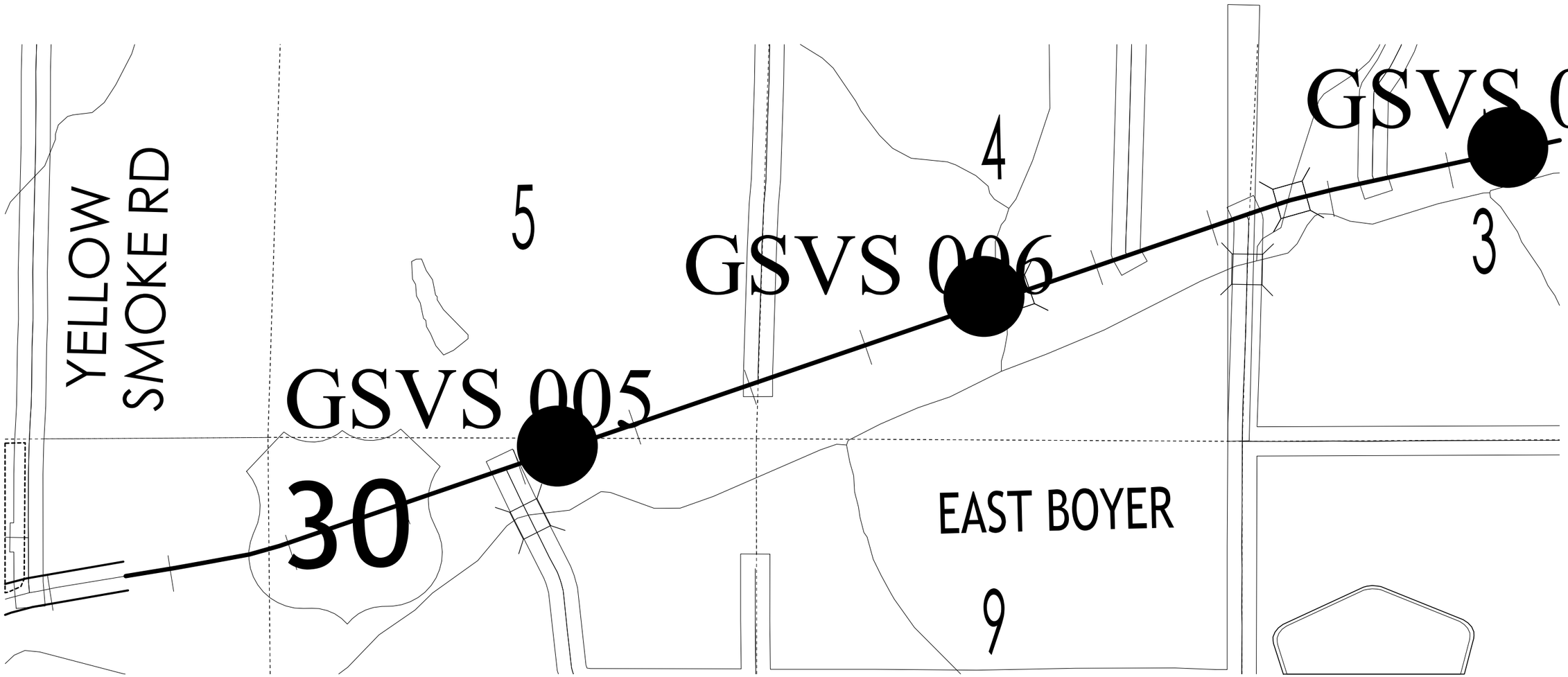
Survey stationing relates to as built plan stationing as follows:

POT Sta. 193+63.31 As-built Plans Project No. NHSN-30-2(103)—2R-24
Survey POT Sta. 193+63.31

POT Sta. 221+43.70 As-built Project No. NHSN-30-2(103)—2R-24
Survey POT Sta. 221+43.89

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
Ia. Regional Coordinate System Zone 6
Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER G.2

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HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 6

North Coordinate	East Coordinate	Elevation	Feature Code-Description
7246598.6	16619474.04	1209.72	CP NGS DISK PID DP4459 67FT SW OF METAL ROW POST 46FT N CL US HWY 30 11FT SSE OF FIBERGLASS WITNESS POST
7248239.82	16624315.19	1217.99	CP NGS DISK PID DP4460 36.5FT SSE OF UTILITY POLE 31FT N OF CL US HWY 30 6FT NW OF WITNESS POST
7249839.8	16629786.45	1224	CP NGS DISK PID DP4461 45FT SSW OF METAL FENCE POST AT A GTE CABLE BOX 43FT N OF CL OFUS HWY 30 4.5FT W OS FIBERGLASS WITNESS POST

ALIGNMENT COORDINATES

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
US 30	SURML30	193+63.31	7247747.89	16622971.36															
	SURML30	221+43.89	7248648.90	16625601.92															

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Maintain traffic on US 30 at all times.

Utilize TC-217 Lane Closure with Signals and TBR for staged bridge construction.

Maintain access to entrance at Sta. 205+19 at all times.

108-26A
08-01-08

STAGING NOTES

Stage 1:
- Traffic:
  - Day Time: Single lane closure with Flaggers, TC-213
  - Night Time: Shoulder closure, TC-202
- Construction: Widen WB lane with detour pavment

Stage 2:
- Traffic: Utilize lane closure with signals, TC-217
- Construction: EB half of bridge

Stage 3:
- Traffic: Utilize lane closure with signals, TC-217
- Construction: WB half of bridge

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 30	EB Stg 1	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	12'-0"	11'-0"		
US 30	WB Stg 1	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	12'-0"	11'-0"		
US 30	WB Stg 1	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Temporary Signal	2459.2S030	Vertical	NA	15'-0"	14'-0"		
US 30	EB Stg 2	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	14'-6"	NA		
US 30	EB Stg 2	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Temporary Signal	2459.2S030	Vertical	NA	15'-0"	14'-0"		
US 30	WB Stg 2	Crawford	U.S. 30 bridge over Rocky Run, 4.5 miles W of Co. Rd M55.	Bridge	Barrier	NA	Horizontal	NA	14'-6"	NA		

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned
SHADING	**Design Color No.**	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

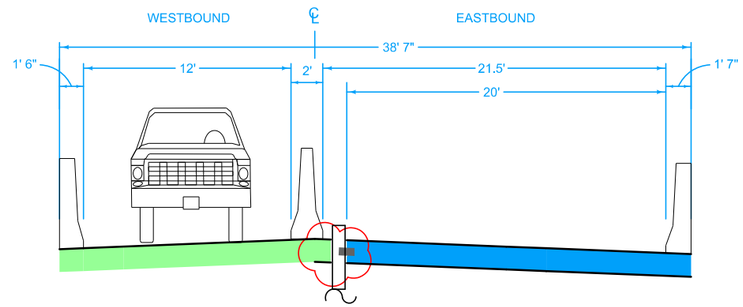
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

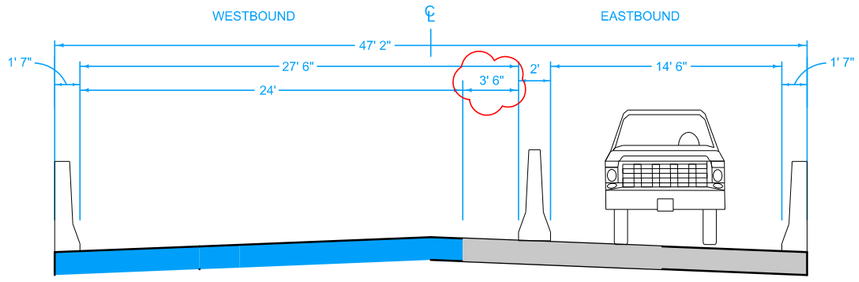
●	Channelizing Device		Crash Cushion (Temp or Perm)
✕	Drum		Traffic Signal
◘	Temporary Lane Separator		Flagger
◆	Tubular Marker		Temporary Floodlighting
♦	Channelizer Marker		Traffic Sign
△	Concrete Barrier Marker		Type III Barricade
ς	Delineator		Type A Warning Light
——	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout	1	Lane Identification

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)





FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER J.3

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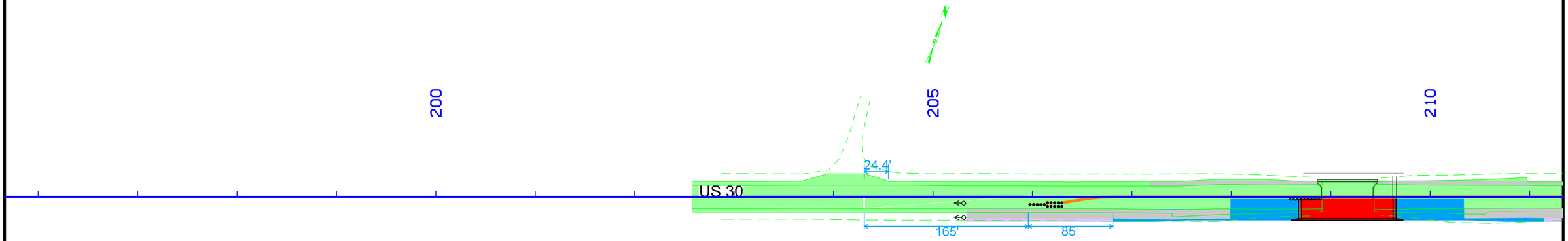

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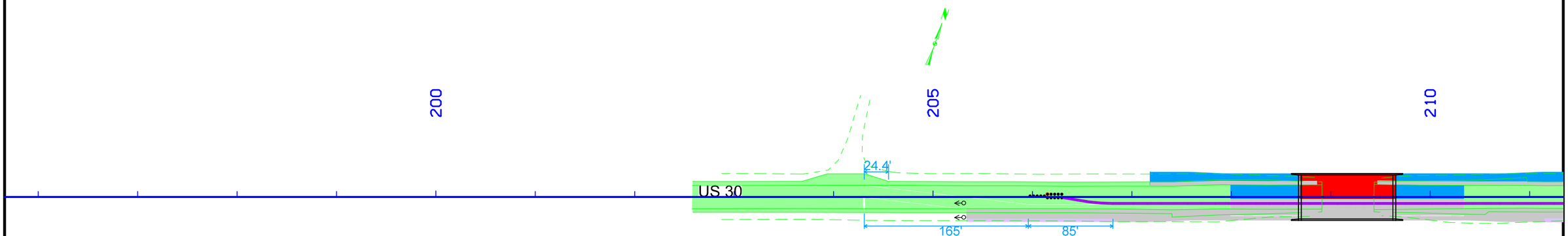
FEET

STAGE 2
(sheet 1 of 2)



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STAGE 3
(sheet 1 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER J.4

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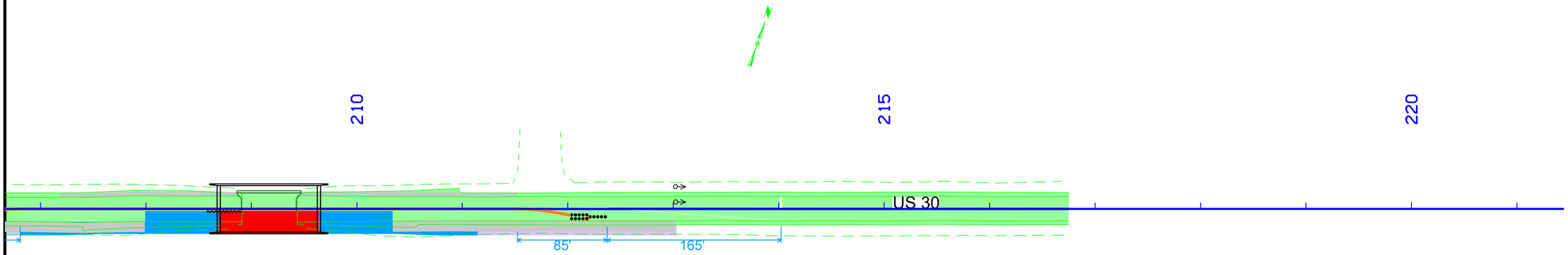

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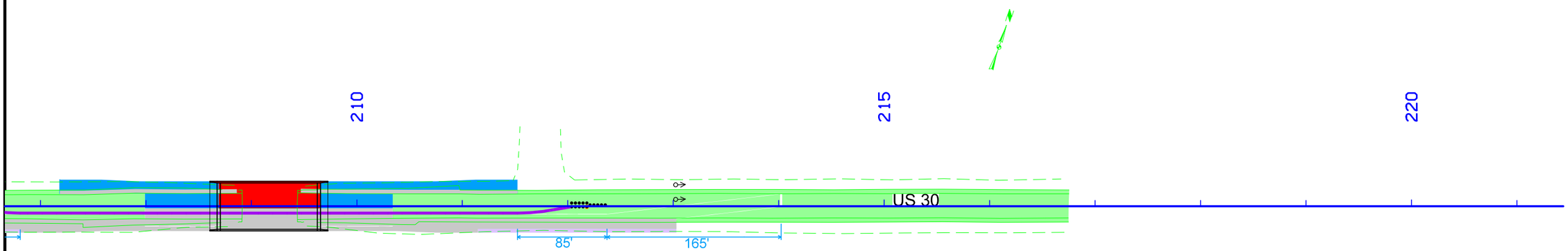
STAGE 2
(sheet 2 of 2)



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STAGE 3
(sheet 2 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER J.5

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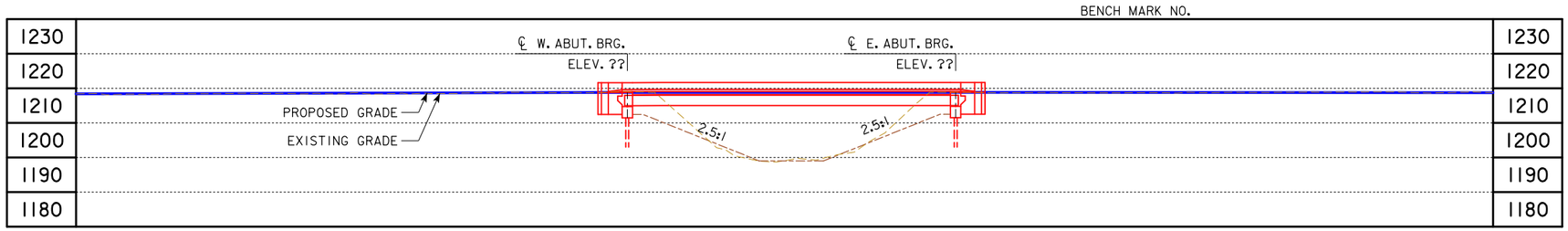
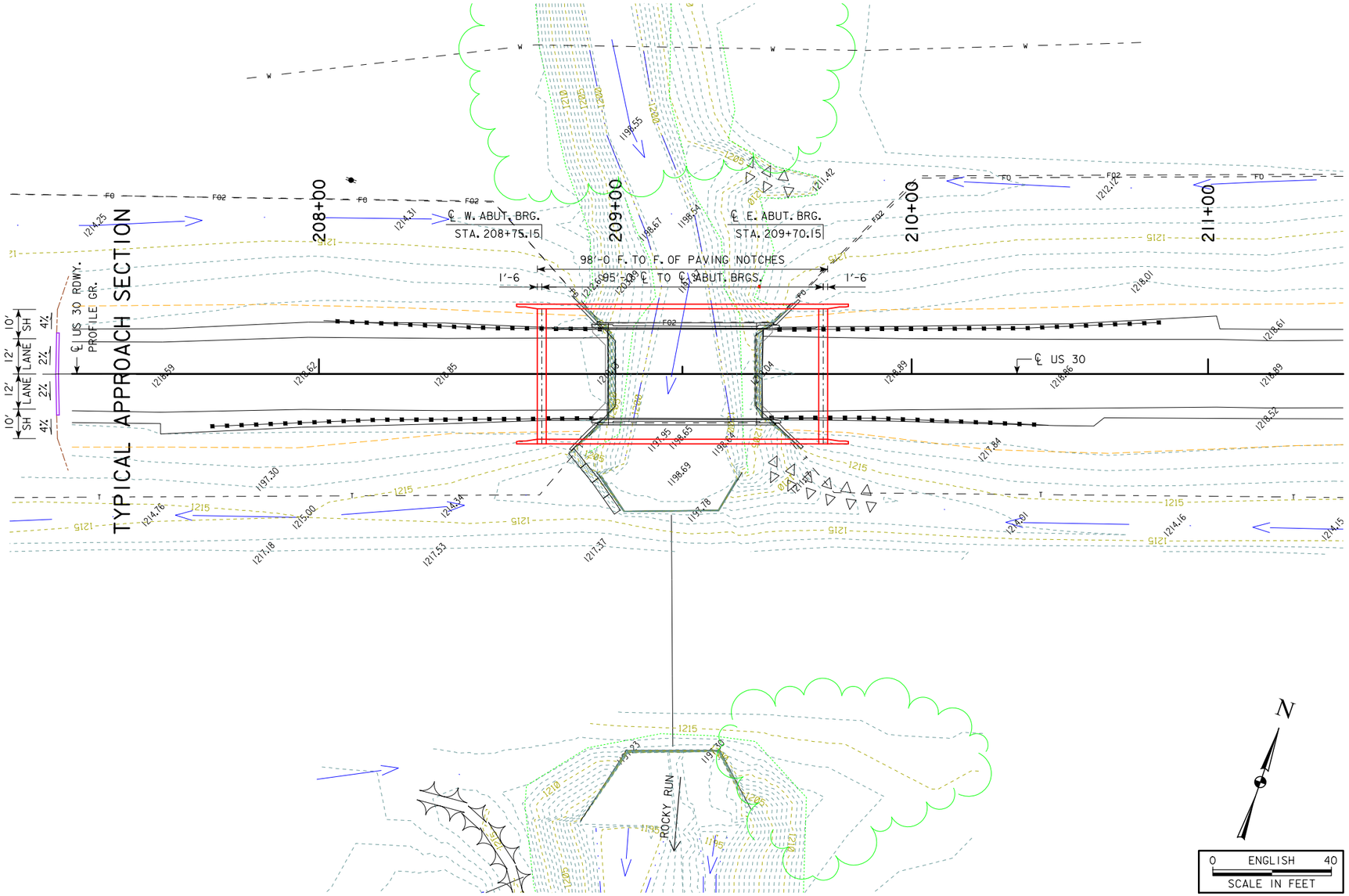
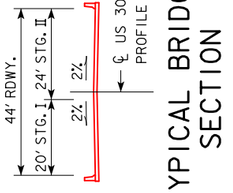


LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY



TYPICAL APPROACH SECTION



TYPICAL BRIDGE SECTION

UTILITIES LEGEND:

FO
FO2
T
W

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

HYDRAULIC DATA

DRAINAGE AREA = 10.8 SQ. MI.
STREAM SLOPE = 53.8 FT./MI.
AVG. LOW WATER STAGE = ???.?

Q_{50} = 3,600 CFS
STAGE = 1209.6
REGULATORY LOW BEAM = ???.?
BACKWATER = 0.0? FT.
AVG. BRIDGE VELOCITY = 7.6? FPS

Q_{100} = 4,340 CFS
STAGE = 1210.4
OPERATIONAL LOW BEAM = ???.?
BACKWATER = 0.0? FT.
AVG. BRIDGE VELOCITY = 8.1? FPS

LOCATION

US 30 OVER ROCKY RUN
T-83N R-38W
SECTION 4
EAST BOYER TOWNSHIP
CRAWFORD COUNTY
FHWA NO. 21370 (EXISTING)
FHWA NO. ????
BRIDGE MAINT. NO. 2459.2S030
LATITUDE 42.028174°
LONGITUDE -95.275350°

TRAFFIC ESTIMATE

2018 AADT	4010	V.P.D.
2023 AADT	4300	V.P.D.
202_ DHV	_	V.P.H.
TRUCKS	17	%
TOTAL DESIGN ESALs	_	

N

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY

DESIGN FOR 0° SKEW

95'-0 X 44'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

90'-0 SINGLE SPAN

STATION 209+22.65 (US 30) OCTOBER, 2020

CRAWFORD COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ? FILE NO. 31852 DESIGN NO. 0123

DESIGN TEAM	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER

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)

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

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

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

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing 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)

FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER W.1

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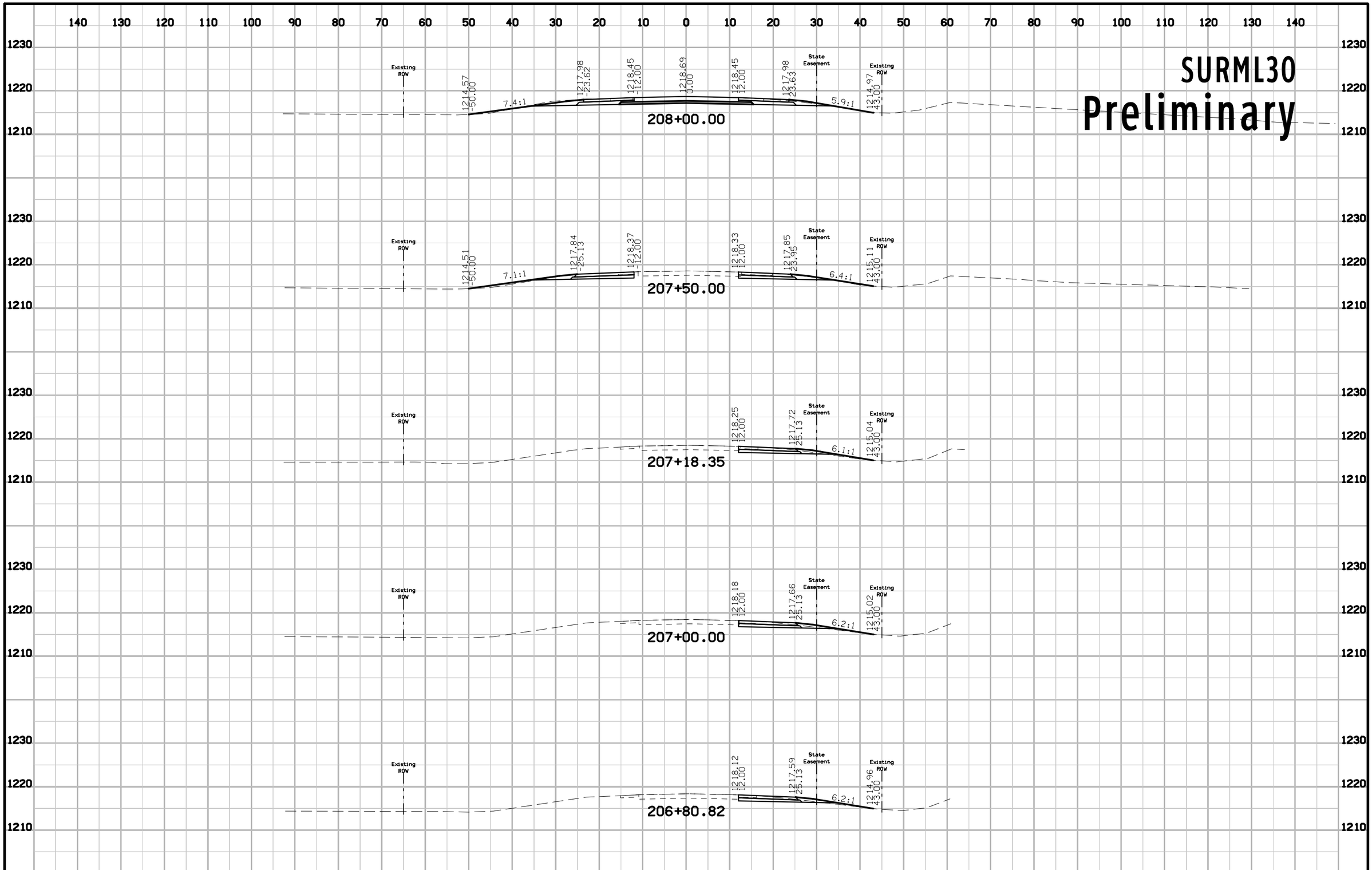
SURML30

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	CRAWFORD COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER W.2

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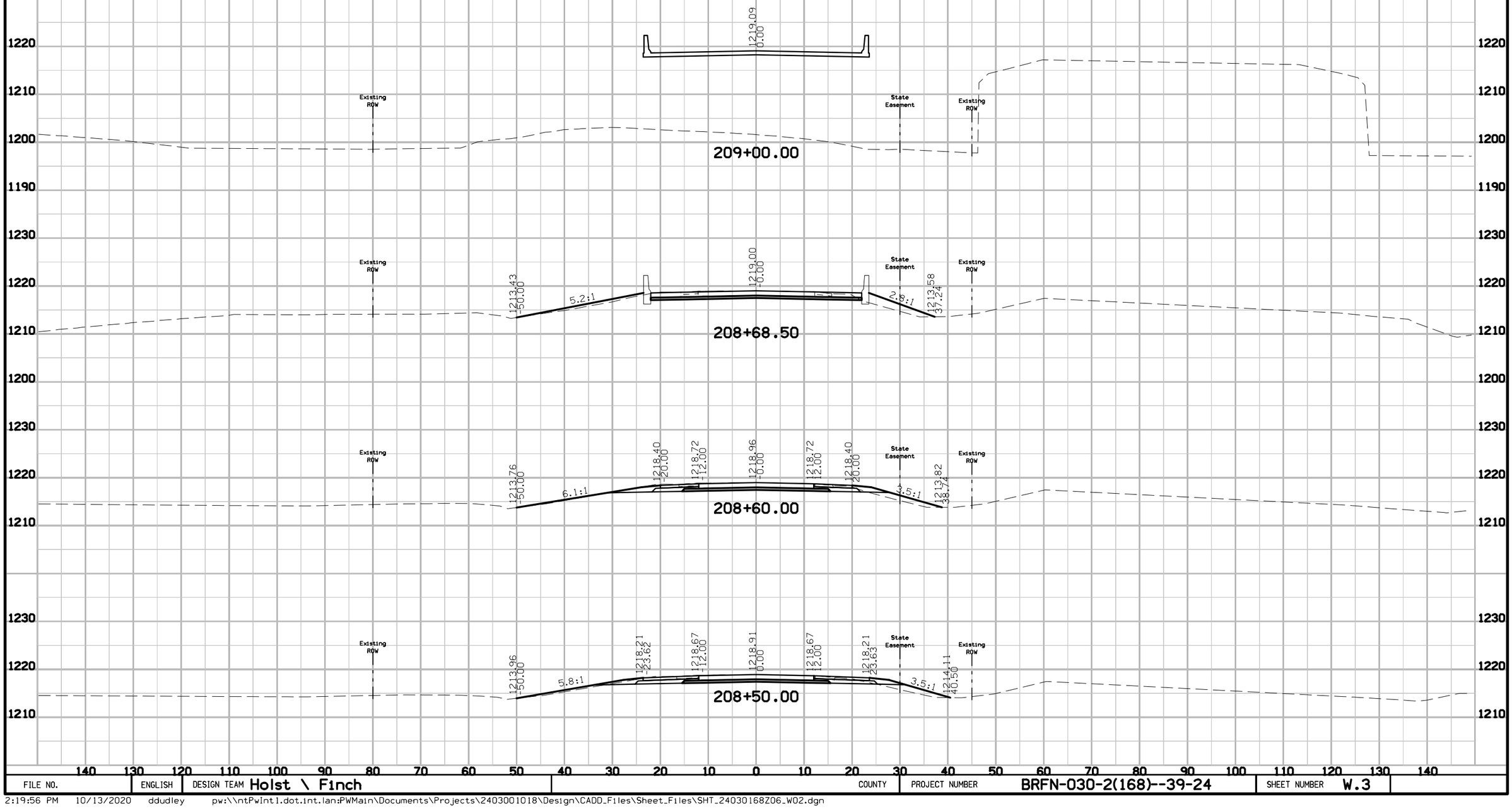
SURML30

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER W.3

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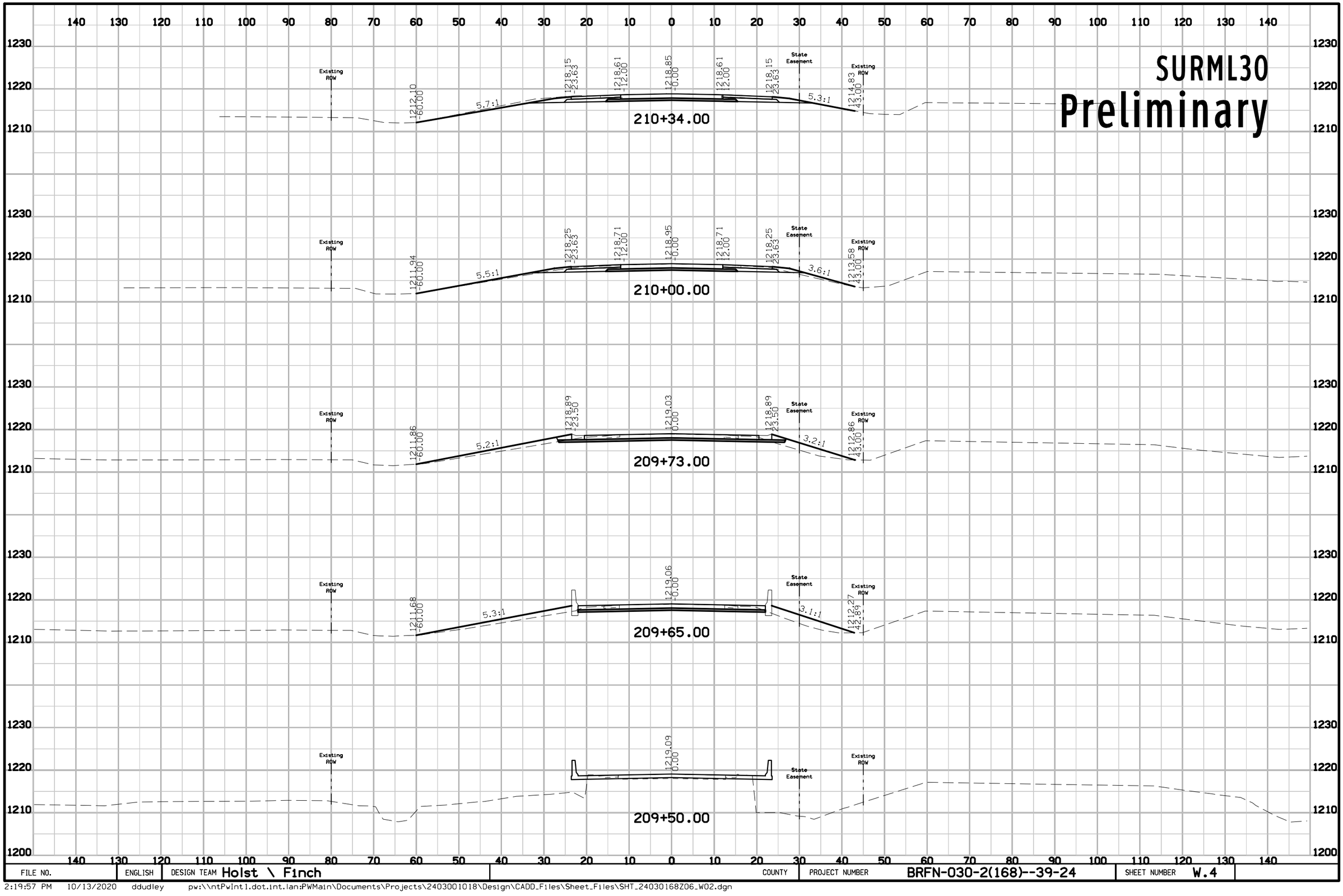
SURML30

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER W.4

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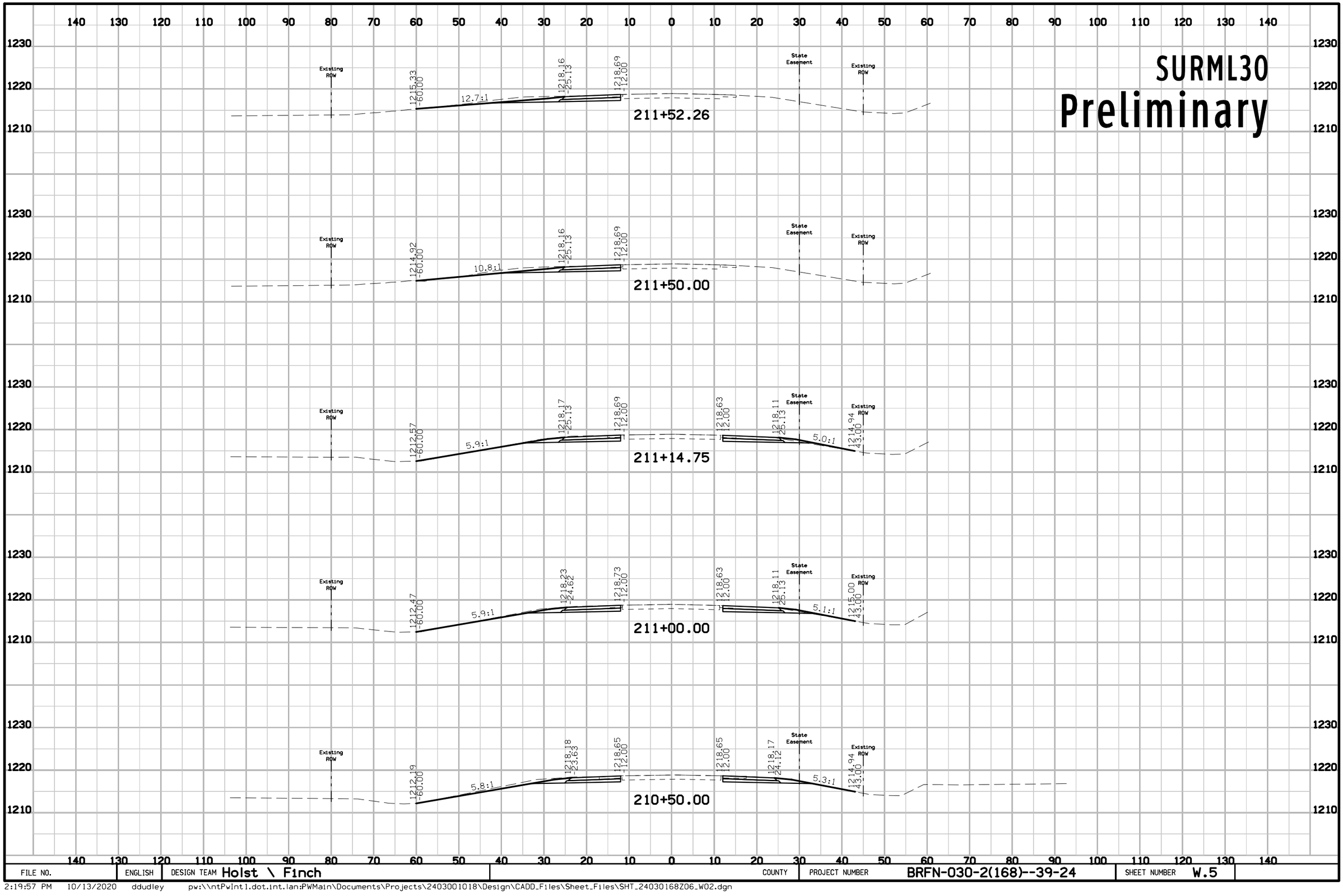
SURML30

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Holst \ Finch	COUNTY	PROJECT NUMBER BRFN-030-2(168)--39-24	SHEET NUMBER W.5

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