JASPER Co. RCB CULVERT REPLACEMENT - TWIN BOX BRFN-006-4(175)--39-50

LETTING DATE 11-16-2021

Attendees:

Tony Gustafson } District 1
Allison Smyth }
Dave Wells - Marshalltown Construction
Emily Perrott - Location & Environment
Wade Harris - Shive Hattery

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

JASPER COUNTY

RCB CULVERT REPLACEMENT - TWIN BOX

Ditch 0.2 mi E of Co Rd T12

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

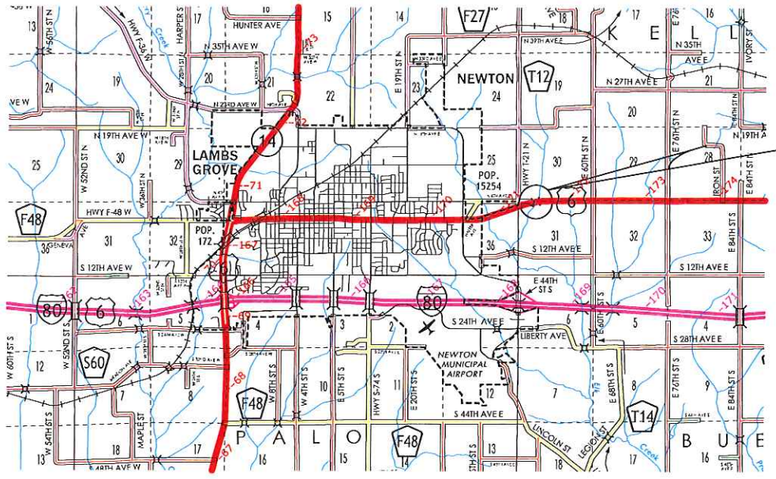
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

IOWA ONE CALL
1-800-292-8989 | 811
www.iowaonecall.com

REVISIONS

	TOTAL 18
PROJECT IDENTIFICATION NUMBER	
17-50-006-010	
PROJECT NUMBER	
BRFN-006-4(175)--39-50	
R.O.W. PROJECT NUMBER	

INDEX OF SHEETS



Project Location
Ref. Loc. 171.6
Maint. No. 5071.6S006
ID 30470

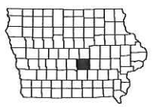
B1 Plan - Date: 9-27-19

D3 PLAN - Date: 6-28-2019

D5 PLAN - Date: 11-1-2019

D4 PLAN - Date: 7-20-2021

Letting - Date: 11-16-2021



LOCATION MAP SCALE
0 1 2 3
Miles

DESIGN DATA RURAL

20-21 AADT	3500	V.P.D.
20-41 AADT	3700	V.P.D.
20-41 DHV	390	V.P.H.
TRUCKS	5	%
Total Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN - Date: 5-16-2019

FILE NO.	ENGLISH	DESIGN TEAM Gustafson \ Smyth	JASPER COUNTY	PROJECT NUMBER BRFN-006-4(175)--39-50	SHEET NUMBER A.1

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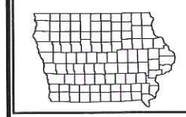
FIELD EXAM CHECKLIST

1 - Duration of project? 3 months
2 - Speed Limit 55
3 - Speed Limit during construction
4 - Is sight distance a problem?
5 - Patching quantities full depth, partial depth, and surface.
6 - Does patching need to be done in the project area or do the construction limits need to be extended? Who will provide locations of patches by milepost?
7 - Are rumble strips going to be placed with this project or a separate project?
8 - Leveling and strengthening locations and lengths (i.e. station to station).
9 - Areas of haul-outs.
10 - Do any of the utilities need to be relocated (power/telephone poles) either permanently or temporarily for construction?
11 - Names and addresses of affected utility companies. - Jerry - major relocation
12 - Locations of entrances to be reshaped.
13 - Are there existing drainage problems?
14 - Are there any Wetland Impacts or any other environmental issues? TBD
15 - Note any special features not shown on plan.
16 - Note condition of existing culverts. N/A
17 - Names of affected special events.
18 - Locations of mailboxes to be relocated to a minimum of 8' from the pavement edge.
(Trees within ft from edge of roadway are to be removed. Those outside ft will be reviewed from survey data.)
19 - Number and location of EF joints.
20 - Disposition of bridge handrail and guardrail, including posts. Ck. Nancy?
21 - Inventory of existing guardrail.
22 - Remove & Reinstall Signs District Maintenance or by the Contractor?
23 - Longitudinal joint repair locations (station to station).
24 - Locations and quantities of engineering fabric to be placed over random cracks.
25 - Tabulation of adjustment of fixtures.
26 - Clearing and grubbing quantities by unit or by area?
27 - Resurfacing Projects is District Survey able to preserve Section Corners & Points? If "no", then add these items under Construction Survey.

Contractor furnish borrow? (Yes) / (No)
Full depth patches to be PCC? (Yes) / (No)
Full depth PCC patches to be doweled? (Yes) / (No)
Soils to determine and provide tabulation of subdrains? (Yes) / (No)
Pollution Prevention Plan required? (Yes) / (No)
Field Office? (Yes) / (No)
Construction Survey and or Point Preservation by DOT or Contractor? See Dist. 1 Surveyor for this (DOT) / (Contractor).
Survey by Office of Design? (Yes) / (No)
Pavement markings for turn lanes as determined by the District? (Yes) / (No)
Any RWIS or Traffic Recorder Sites within project limits? (Yes) / (No)



FIELD EXAM NOTES

task maint. about guardrail

+ Shive Hattery to provide precast option TSL also.

DO we need to buy FL one Foot like on Green 144.

FILE NO.	ENGLISH	DESIGN TEAM Gustafson \ Smyth	JASPER COUNTY	PROJECT NUMBER BRFN-006-4(175)--39-50	SHEET NUMBER A.2

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Preferred Clear Zone Distances (feet)
(Based on AASHTO Roadside Design Guide, 4th Edition)

		FORESLOPES			BACKSLOPES		
design speed	design ADT	6:1 or flatter	Steeper than 6:1, up to and including 4:1	Steeper than 4:1	Steeper than 4:1*	4:1 or flatter, up to 6:1	6:1 or flatter
40 mph or less	ADT < 750	10	10	**	10	10	10
	750 ≤ ADT < 1500	12	14	**	12	12	12
	1500 ≤ ADT < 6000	14	16	**	14	14	14
	ADT ≥ 6000	16	18	**	16	16	16
45 – 50 mph	ADT < 750	12	14	**	10	10	12
	750 ≤ ADT < 1500	16	20	**	12	14	16
	1500 ≤ ADT < 6000	18	26	**	14	16	18
	ADT ≥ 6000	22	28	**	16	20	22
55 mph	ADT < 750	14	18	**	10	12	12
	750 ≤ ADT < 1500	18	24	**	12	16	18
	1500 ≤ ADT < 6000	22	30	**	16	18	22
	ADT ≥ 6000	24	32	**	18	22	24
60 mph	ADT < 750	18	24	**	12	14	16
	750 ≤ ADT < 1500	24	32	**	14	18	22
	1500 ≤ ADT < 6000	30	40	**	18	22	26
	ADT ≥ 6000	32	44	**	22	26	28
65 – 70 mph	ADT < 750	20	26	**	12	16	16
	750 ≤ ADT < 1500	26	36	**	16	20	22
	1500 ≤ ADT < 6000	32	42	**	20	24	28
	ADT ≥ 6000	34	46	**	24	30	30

* Backslopes as steep as 2.5:1 can be considered as part of the clear zone, as long as they are relatively smooth and do not contain any fixed objects. Refer to Section 8A-4 of the Design Manual for information regarding backslopes steeper than 2.5:1.

** Since a vehicle traveling on a slope steeper than 4:1 is likely to be diverted to the bottom of the slope, the width of any slope steeper than 4:1 cannot be counted in the clear zone determination. Refer to Section 8A-2 of the Design Manual for information on providing clear recovery areas at the base of steep slopes.

Chapter 8—Safety Design

Section 8A-2—Clear Zones
Revision Date: 01-05-17

Acceptable Clear Zone Distances (feet)
(Based on AASHTO Roadside Design Guide, 4th edition)

		FORESLOPES			BACKSLOPES		
design speed	design ADT	6:1 or flatter	Steeper than 6:1, up to and including 4:1	Steeper than 4:1	Steeper than 4:1*	4:1 or flatter, up to 6:1	6:1 or flatter
40 mph or less	ADT < 750	7	7	**	7	7	7
	750 ≤ ADT < 1500	10	12	**	10	10	10
	1500 ≤ ADT < 6000	12	14	**	12	12	12
	ADT ≥ 6000	14	16	**	14	14	14
45 – 50 mph	ADT < 750	10	12	**	8	8	10
	750 ≤ ADT < 1500	14	16	**	10	12	14
	1500 ≤ ADT < 6000	16	20	**	12	14	16
	ADT ≥ 6000	20	24	**	14	18	20
55 mph	ADT < 750	12	14	**	8	10	10
	750 ≤ ADT < 1500	16	20	**	10	14	16
	1500 ≤ ADT < 6000	20	24	**	14	16	20
	ADT ≥ 6000	22	26	**	16	20	22
60 mph	ADT < 750	16	20	**	10	12	14
	750 ≤ ADT < 1500	20	26	**	12	16	20
	1500 ≤ ADT < 6000	26	30	**	14	18	24
	ADT ≥ 6000	30	30	**	20	24	26
65 – 70 mph	ADT < 750	18	20	**	10	14	14
	750 ≤ ADT < 1500	24	28	**	12	18	20
	1500 ≤ ADT < 6000	28	30	**	16	22	26
	ADT ≥ 6000	30	30	**	22	26	28

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** Since a vehicle traveling on a slope steeper than 4:1 is likely to be diverted to the bottom of the slope, the width of any slope steeper than 4:1 cannot be counted in the clear zone determination. Refer to Section 8A-2 of the Design Manual for information on providing clear recovery areas at the base of steep slopes.

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ARCHITECTURE + ENGINEERING

IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District 1

DATE: October 18, 2018

ATTENTION: Scott Dockstader

PROJECT: Jasper County
BRFN-006-4(175)--39-50
PIN: 17-50-006-010

FROM: Jenifer Bates

OFFICE: Shive-Hattery

SUBJECT: Project Concept Statement; (Final Approval D0)

This project involves the replacement of the US 6 bridge (Maint. No. 5071.6S006) over drainage ditch, 0.2 miles east of SR T12.

A concept review was held on September 25, 2018. Those present included Tony Gustafson from the District 1 Office and Jenifer Bates, Joe Appel, Wade Harris, and Mark Harpole from Shive-Hattery.

Two alternatives were considered:

1. Replace the existing bridge with a twin 12' x 12' RCB culvert, fifteen degree skew using a detour with an estimated cost of $599,600.

2. Replace the existing bridge with a twin 12' x 12' RCB culvert, zero degree skew, using the flowable mortar method. No project costs were developed for this alternative.

Alternative 1 is the preferred alternative due it being a better fit to the existing stream, less complicated construction (and therefore typically less cost), and better vertical clearance.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Thursday, October 11, 2018. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2021. The Office of Bridges and Structures will coordinate plan preparation with assistance from the Office of Design.

Cc:
C. Purcell
S. J. Megivern
G. A. Novey
D. R. Tebben
J. W. Laaser-Webb
E. C. Wright
N. M. Miller
B. E. Azeltine
S. J. Gent
J. Selmer
D. R. Claman
M. E. Khoda
V. Brewer
J. Garton
A. Loonan
A. Smyth
M. J. Kennerly
J. S. Nelson
M. A. Swenson
K. Brink
W. A. Sorenson
M. E. Ross
C. C. Poole
B. D. Hofer
S. Anderson
K. K. Patel
J. Hauber
K. Olson
M. Clayton
T. J. Gustafson
L. Starbuck
J. Bartholomew
K. D. Nicholson
B. Walls
R. A. Younie
D. L. Newell
D. E. Sprengeler
A. A. Welch
M. J. Sankey
T. D. Crouch
P. C. Keen
S. Godbold
A. Abu-Hawash
S. Neubauer
M. Donovan
J. Lavine
J. Tibodeau

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FINAL PROJECT CONCEPT STATEMENT

US 6 – Bridge over Drainage Ditch, 0.2 miles east of SR T12

Jasper County
BRFN-006-4(175)--39-50
PIN: 17-50-006-010
Maint No. 5071.6S006
FHWA No. 30470

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

October 18, 2018

I. STUDY AREA

A. Project Description

This project involves the replacement of the US 6 bridge (Maint. No. 5071.6S006) over drainage ditch, 0.2 miles east of SR T12.

Two alternatives were considered:

1. Replace the existing bridge with a twin 12' x 12' RCB culvert, fifteen degree skew.
2. Replace the existing bridge with a twin 12' x 12' RCB culvert, zero degree skew, using the flowable mortar method.

Alternative 1 is the preferred alternative due it being a better fit to the existing stream, less complicated construction (and therefore typically less cost), and better vertical clearance.

Traffic will be maintained with a detour.

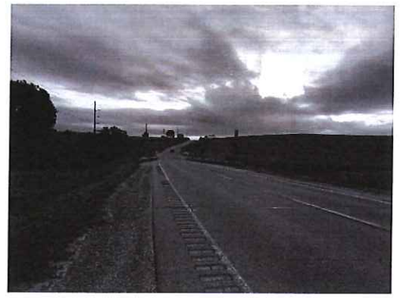
The preliminary project cost is $599,600.

B. Need for Project

The existing structure is a 36.2 ft. long by 30 ft. wide steel beam bridge built in 1951 and is near the end of its useful life. The existing bridge width does not meet current standards. The bridge was designed for H20 design load.

SH Project #4172081

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



Looking East

Looking North

C. Present Facility

US 6 is a two lane roadway. The existing structure is a one span, 36.2 ft. long x 30 ft. steel beam bridge constructed in 1951.

US 6 in the project area was originally 18 ft. wide PCC pavement paved in 1926. US 6 was then widened to 24 ft. and resurfaced with ACC in 1951. The roadway has 10 ft. wide granular shoulders with 3:1 foreslopes.

D. Traffic Estimates

The 2021 construction year and 2041 design year average daily traffic estimates are 3,500 ADT with 5% trucks and 3,700 ADT with 5% trucks, respectively.

E. Sufficiency Ratings

US 6 is classified as an access route and is a maintenance service level "C" road. The federal bridge sufficiency rating is 74.5.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2013 through December 31, 2017, there were a total of four property damage only crashes. An animal was listed as the major cause for two of those and the other two were listed as ran off the road on the right side.

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II. PROJECT CONCEPT

A. Feasible Alternatives

Proposed Alternative #1 – Box Culvert, 15 degree skew, detour

Replace the existing structure with a twin 12' x 12' RCB culvert on a 15 degree skew. The bottom of the culvert will be lowered 1 ft. A detour is provided. Culvert minimum cover is met and profile grade will not need to be adjusted. Structure is located on a roadway curve.

There is a box culvert to the east that was replaced three years ago, and it was constructed using a detour. Project is outside of City limits. Project does not cross a drainage district. Possibly use riprap wedges at box ends.

The proposed culvert length used 6:1 slopes to the headwall. This slope option has the least amount of impact to the ROW. We also looked at using a 4:1 slope to the headwall, but the resulting culvert length was shorter than the required clear zone length for a 4:1 slope.

The typical section through the culvert section will consist of a 24 ft. roadway with 10 ft. shoulders (4 ft. paved, 6 ft. granular) and 6:1 foreslopes. The removal of the existing bridge and bridge approach pavement will require approximately 175 ft. of new 9 in. PCC pavement over 6 in. of modified subbase.

The existing guardrail will be removed. Class 10 excavation and borrow will be necessary to build out the foreslopes and reshape the ditches to drain to the culvert openings. Place Class E revetment at culvert ends.

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

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

Traffic will be maintained by an offsite detour.

Culvert Items	Estimated Costs
New Culvert	$170,300
Headwalls	$120,100
Revetment	$12,500
Engineering Fabric	$700
Remove exist structure	$8,900
Mobilization – 10%	$31,300
Contingency – 20%	$68,800
Culvert Costs	**$412,600**

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Roadway Items	Estimated Costs
Excavation, Class 10	$17,500
Modified Subbase	$5,800
Removal of Pavement	$5,300
Granular Shoulders	$1,900
Pavement, 9" PCC	$34,900
Erosion Control	$50,000
Clearing & Grubbing	$5,000
Traffic Control – 5%	$6,700
Mobilization – 5%	$6,700
Right-of-Way	$10,000
M & C – 30%	$43,200
Roadway Total	**$187,000**
Project Total	**$599,600**

Alternative #2 – Flowable Mortar Box Culvert

Replace the existing structure with a twin 12' x 12' RCB culvert on a zero degree skew using the flowable mortar method. This would allow the roadway to remain open for the majority of construction. Flowable mortar clearance requirements are met with vertical clearance being right at the 1 ft. minimum. A zero degree skew culvert would be required to construct the culvert between the existing bridge abutments. However, the zero degree skew does not fit the existing stream alignment. A fifteen degree bend placed on the south side of the roadway would fit the stream better but still require stream layout modification. The flowable mortar option was not recommended due to stream fit, a more complicated bend and tight vertical clearance. No project costs were developed for this alternative.

B. Detour Analysis
US 6 will be closed and an offsite detour will be utilized. It is anticipated the detour will be in place for approximately 60 days. The detour would follow Iowa Speedway Dr south to Interstate 80, then east to IA 224, then north to US 6. Out of distance is 3.2 miles. The total out of distance user cost is anticipated to be $131,300. The cost for county road maintenance will be $12,900 as calculated by the Gas Tax Method. Detour signing costs will be $8,125.

C. Recommendations
It is recommended the present structure be replaced as described in Alternative #1 above.

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D. Construction Sequence
It is anticipated all work on this project will be awarded to one prime contractor. The Office of Bridges and Structures will coordinate the plan preparation with the assistance of the Office of Design and Shive-Hattery.

E. ADA Accommodations
There are no bike paths or sidewalks adjacent to US 6; therefore no ADA accommodations are planned in conjunction with this project.

F. Special Considerations
The Accelerated Bridge Constructed (ABC) Rating Score of 18. Score based on using a single span bridge although a box culvert is proposed. Score is less than 50 therefore no further evaluation is considered.

This will not be a traffic critical project.

Standard survey coverage will be required.

Right-of-Way will be required for this project.

A listing of existing utilities present within the project limits are shown in Attachment A.

The District cultural resources manager has not yet completed a cultural resources review on this project.

The Office of Location and Environment has not yet reviewed this project to determine if a Section 404 Permit will be required.

G. Program Status

Site data has been developed by Shive-Hattery. This project is listed in the 2018-2022 Iowa Transportation Improvement Program with $625,000 for replacement in FY 2021. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

Following pages include a map of the county and location of project area with the proposed detour route shown and the concept drawing.

Attachment A - Utilities

SH Project 4172081 | October 18, 2018

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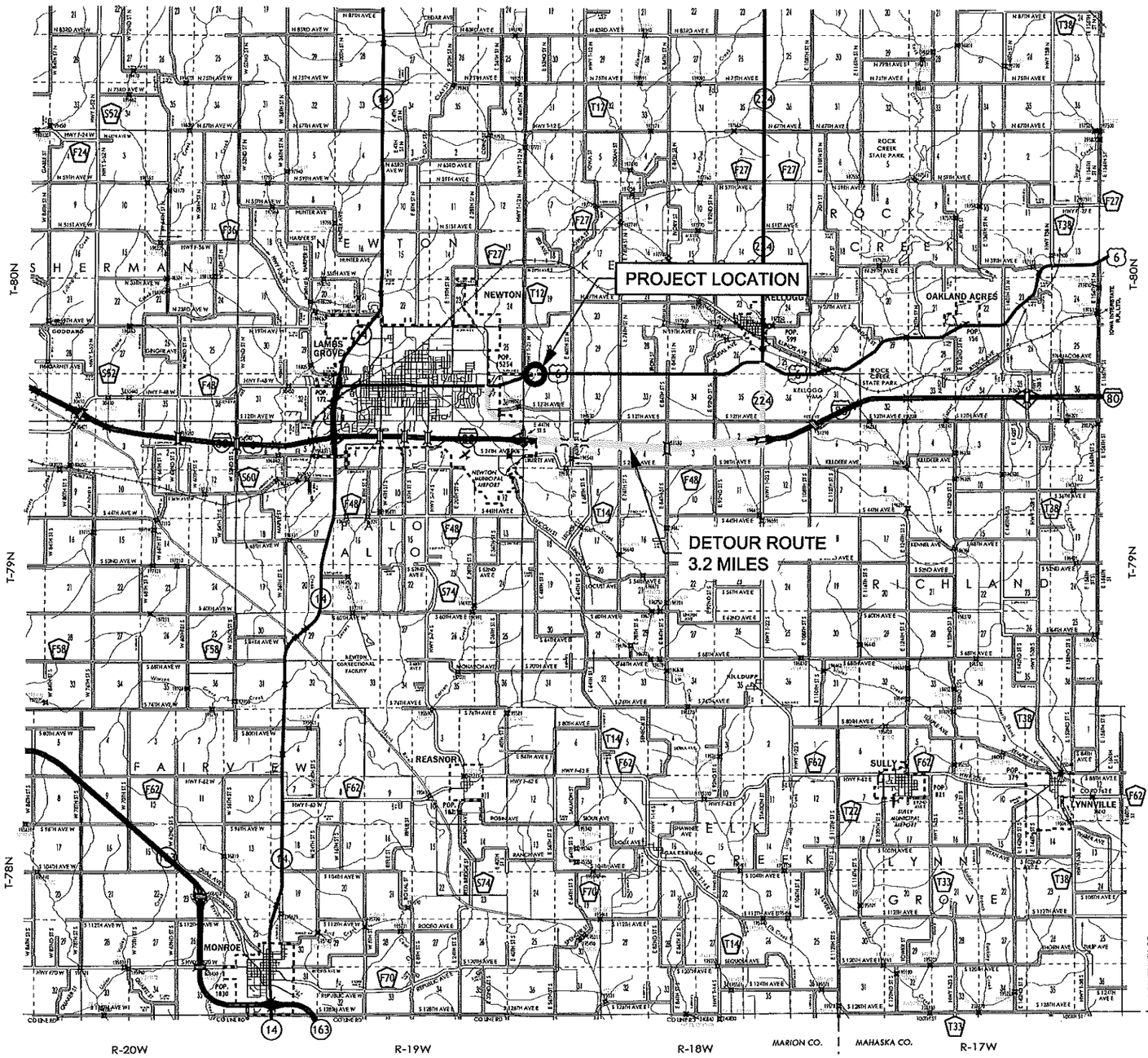
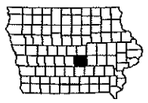


JASPER COUNTY



DETOUR ROUTE

FILE NO.	ENGLISH	DESIGN TEAM Gustafson \ Smyth	JASPER COUNTY	PROJECT NUMBER BRFN-006-4(175)--39-50	SHEET NUMBER A.7

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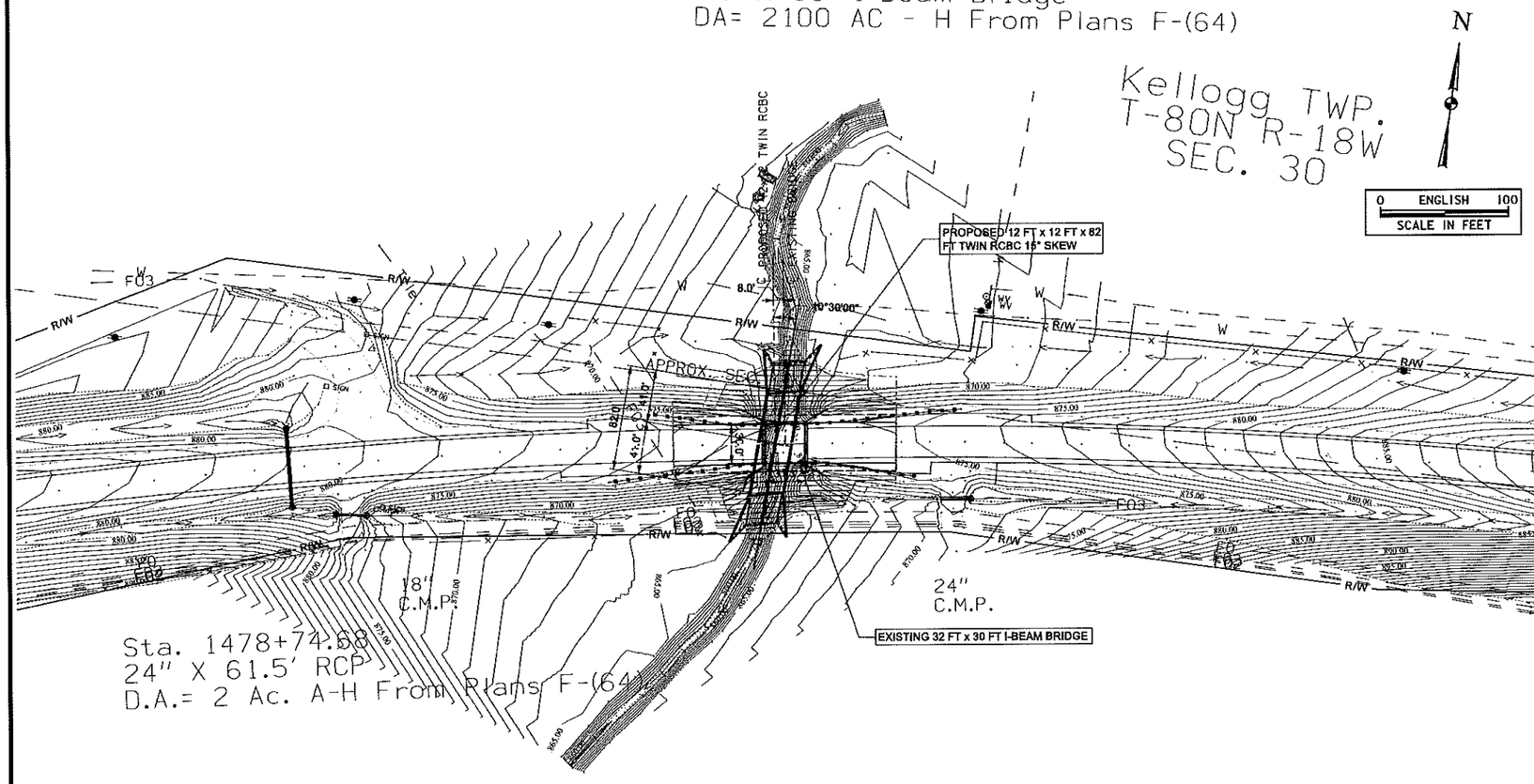
	BENCH MARK NO.	
X		X
X		X
X		X
X		X
X		X
X		X

HYDRAULIC DATA

DRAINAGE AREA = 3.59 SQ.MI.
Q_{50} = 1,390 CFS
HW ELEV. = 868.9
STREAM SLOPE = 27 FT./MI.

LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

Sta. 1482+04.93
Skew 0.0
32' X 30' I-Beam Bridge
DA= 2100 AC - H From Plans F-(64)



SITUATION PLAN

NOTE: ROW BASED ON IDOT SHP FILES

UTILITIES LEGEND:

SYMBOL - TYPE - COMPANY NAME
-OR-
NO KNOWN UTILITIES
-OR-
UTILITY SURVEY NOT CONDUCTED

LOCATION	TRAFFIC ESTIMATE		
US6 BRIDGE OVER DITCH	2021 AADT	3500	V.P.D.
.2 MI. E. CO. RD. T12	2041 AADT	3700	V.P.D.
T-80N R-18W	2041 DHV	390	V.P.H.
SECTION 30	TRUCKS	5	%
KELLOGG TOWNSHIP	TOTAL		
JASPER COUNTY	DESIGN ESALs	-	
FHWA NO. 30470			
BRIDGE MAINT. NO. 5071.6S006			
LATITUDE 41.702672°			
LONGITUDE -92.995372°			

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ? FILE NO. ? DESIGN NO. ?

DESIGN TEAM SHIVE-HATTERY | JASPER COUNTY | PROJECT NUMBER BRFN-006-4(175)--39-50 | SHEET NUMBER ??

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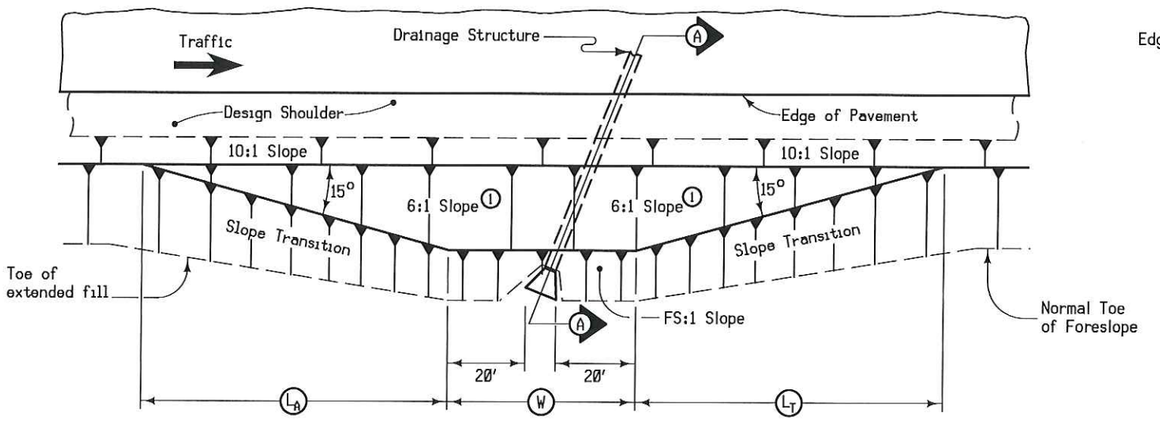
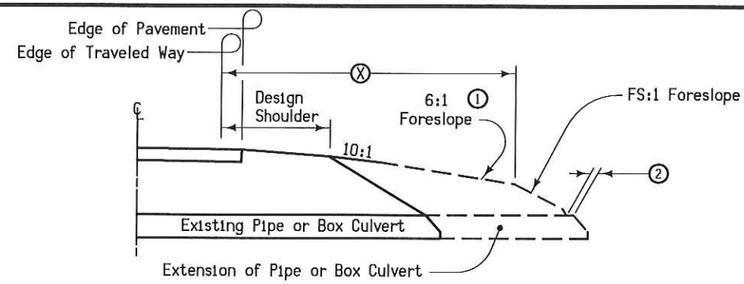


PLAN VIEW



SECTION A-A

STRUCTURE LOCATION		W	L_A	L_T	X	FS
STATION ③	SIDE	Feet	Feet	Feet	Feet	

DESIGNER INFO

4312
04-18-17

At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, flatten as indicated so as to cover the structre. Minimum earth cover is 6 inches.

① Slope may be flatter than 6:1.

② 6 inch minimum for pipe installations or to top of headwall on RCB.

③ At ℄ of road.

W = Pipe or RCB opening width plus 20 feet each side.

BARNROOF FORESLOPE AT SKEWED DRAINAGE STRUCTURE

Need paving typical

FILE NO.	ENGLISH	DESIGN TEAM Gustafson \ Smyth	JASPER COUNTY	PROJECT NUMBER BRFN-006-4(175)--39-50	SHEET NUMBER B.1

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SURVEY SYMBOLS

- BM Bench Mark
- SNP Unpaved Shoulder
- BL Topo Breakline
- EG Edge of Gravel Road
- C Centerline BL of Road (ML or SR)
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- SH Paved Shoulder
- EP Edge of Paved Roads (ML or SR)
- D Centerline Draw or Stream (Down)
- SIGN SI Sign
- PIP Pipe Culvert
- SOP Size of Pipe or Culvert
- BNK Stream Bank
- GR Ground Shot
- GDL Guard Rail Steel
- BD Bridge Deck
- CON Concrete or A/C Slab
- BRG Bridge
- BCL Bridge Centerline
- LIN Miscellaneous Line
- TIL Tile Line
- OUT Tile Outlet
- FW Wire Fence
- FHD Fire Hydrants
- WV WV Water Valve
- TP TPD Telephone Pedestal
- EW Edge of Water
- WL1D Water Line Co. 1 - Quality D
- PPA Power Pole Co. 1
- FO2D Fiber Optic Co. 2 - Quality D
- FO1D Fiber Optic Co. 1 - Quality D
- FO3D Fiber Optic Co. 3 - Quality D
- POT Tangent Point
- REF Reference Tie Point
- PI Tangent Point
- PT Curve Point
- PC Curve Point
- PRO Profile Shot
- BLS Bridge Low Steel
- DU Centerline Draw or Stream (Up)
- SBR Size of Bridge
- TW Top of Water

UTILITY LEGEND

- WL1D - Iowa Regional Utility - Quality D
- PPA - Alliant Energy
- FO2D - Windstream - Quality D
- FO1D - Aureon - Quality D
- FO3D - Grinnell - Quality D

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

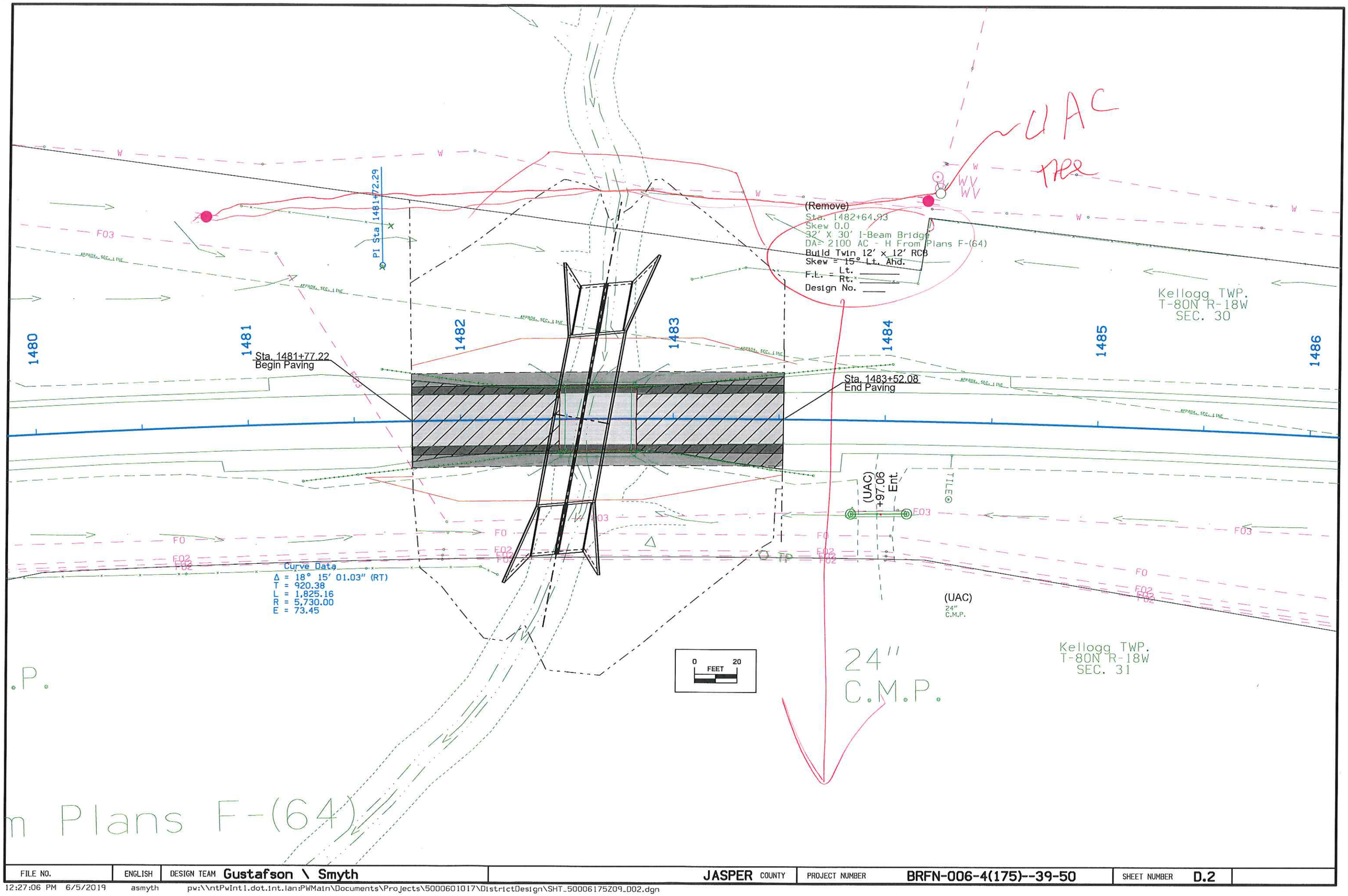
- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

FILE NO.	ENGLISH	DESIGN TEAM Gustafson \ Smyth	JASPER COUNTY	PROJECT NUMBER BRFN-006-4(175)--39-50	SHEET NUMBER D.1

12:26:38 PM 6/5/2019 asmyth pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\5000601017\DistrictDesign\zSHT_50006175Z09_LGD.dgn



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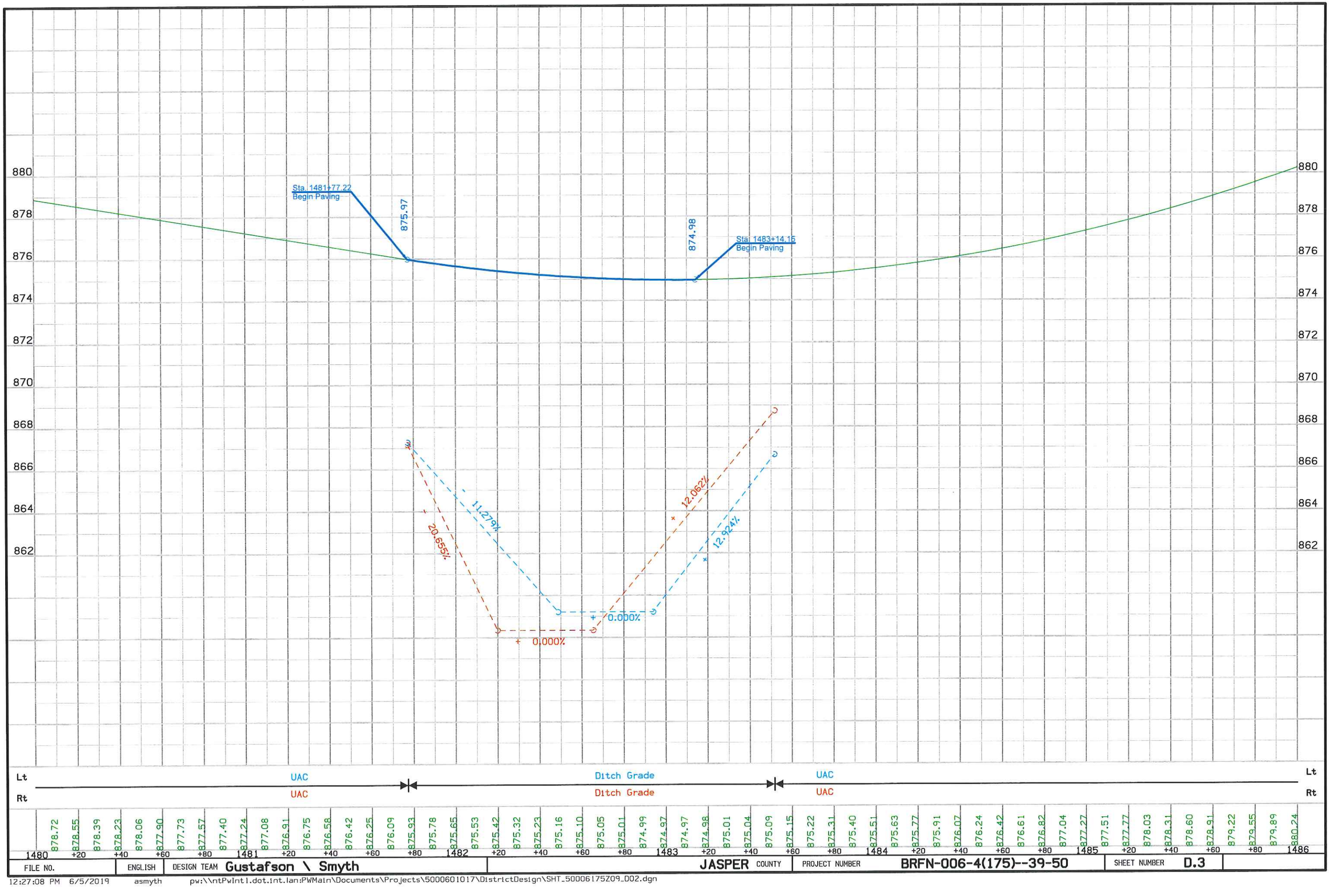


FILE NO.	ENGLISH	DESIGN TEAM Gustafson \ Smyth	JASPER COUNTY	PROJECT NUMBER BRFN-006-4(175)--39-50	SHEET NUMBER D.3

12:27:08 PM 6/5/2019 asmyth pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\5000601017\DistrictDesign\SHT_50006175Z09_D02.dgn

Survey Information

County: Jasper
SAP 694.1
IaRCS Zone 9
PIN: 17-50-006-010
Project Number: BRFN-006-4(175)--39-50
Location: Ditch 0.2 mi E of Co Rd T12
Type of Work: Bridge-Unspecified
Project Directory: 5000601017

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction 0.2mi E of Co Rd T12 on State Hwy 6. Project datum and control information is provided by Design Survey Office. This project is a Partial DTM with Photo control.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12A). Benchmarks were placed throughout the project using post processed static observations relative to IaRTN Base Network. A minimum of 6hrs of data was simultaneously collected on each of these primary control points.

H05 is a Jasper County GPS Monument. It was checked only for horizontal and vertical tolerance. The difference of less than 0.10 ft. is within acceptable tolerance.

Horizontal Control

The project coordinate system for this survey is IaRCS Zone 09 (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.

H05 is a Jasper County GPS Monument. It was checked only for horizontal and vertical tolerance. The difference of less than 0.10 ft. is within acceptable tolerance.

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. f-(64). Survey stationing was equated to the plan POT at STA 1462+82.29 and ran ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

POT STA.1462+82.29 Project No. F-(64)
Survey POT Sta.1462+82.29

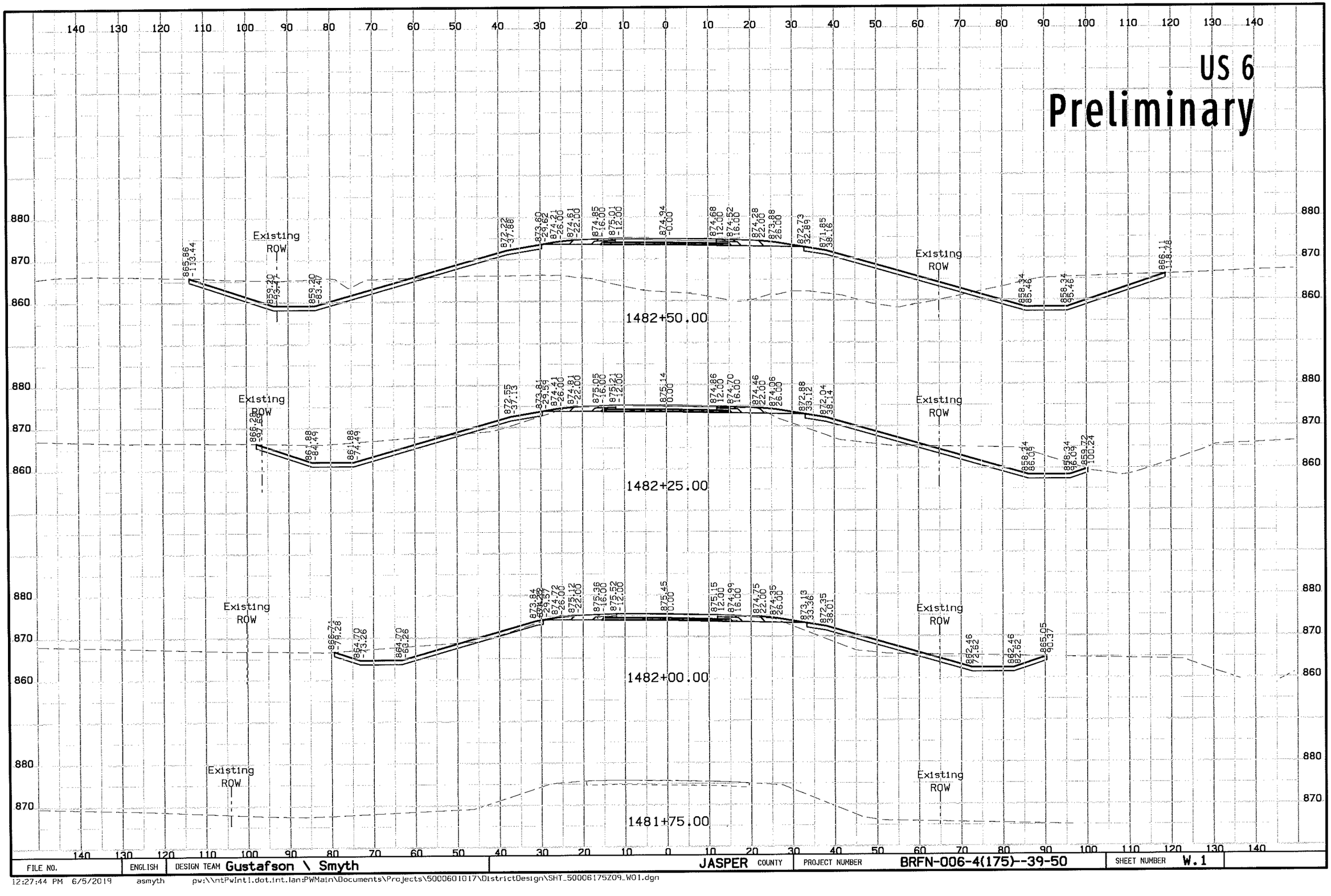
PC STA. 1472+52 Project No. F-(64)
Survey PC STA 1472+51.92

PI STA 1481+72.3 Project No. F-(64)
Survey PI STA 1481+72.29

PT STA 1490+77 Back = 1495+30.25 Ahead Project No. F-(64)
Survey PT STA 1490+77.08

PI STA 1501+95.2 Project No. F-(64)
Survey PI STA 1497+41.09

US 6
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM Gustafson \ Smyth	JASPER COUNTY	PROJECT NUMBER BRFN-006-4(175)--39-50	SHEET NUMBER W.1

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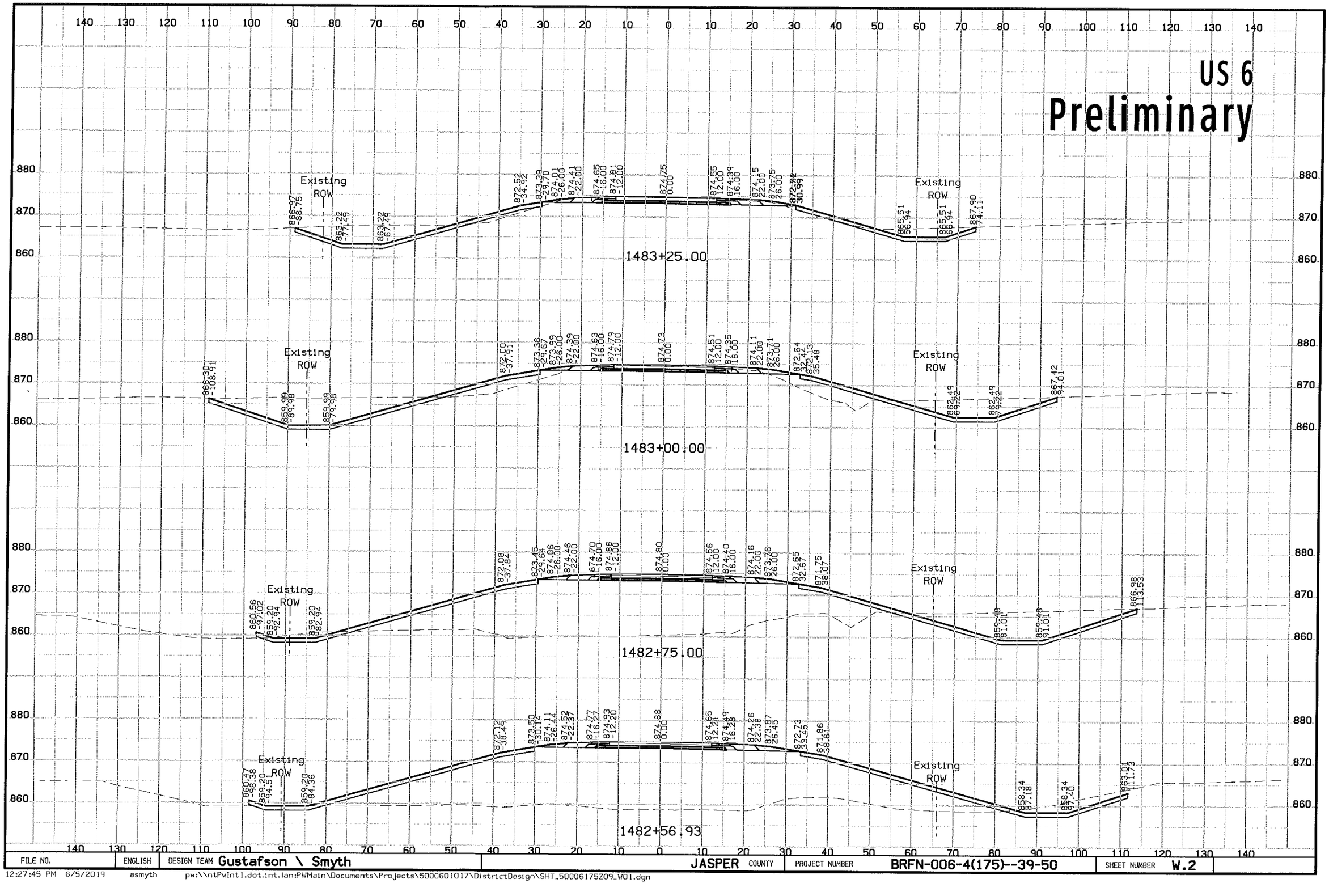
US 6

Preliminary



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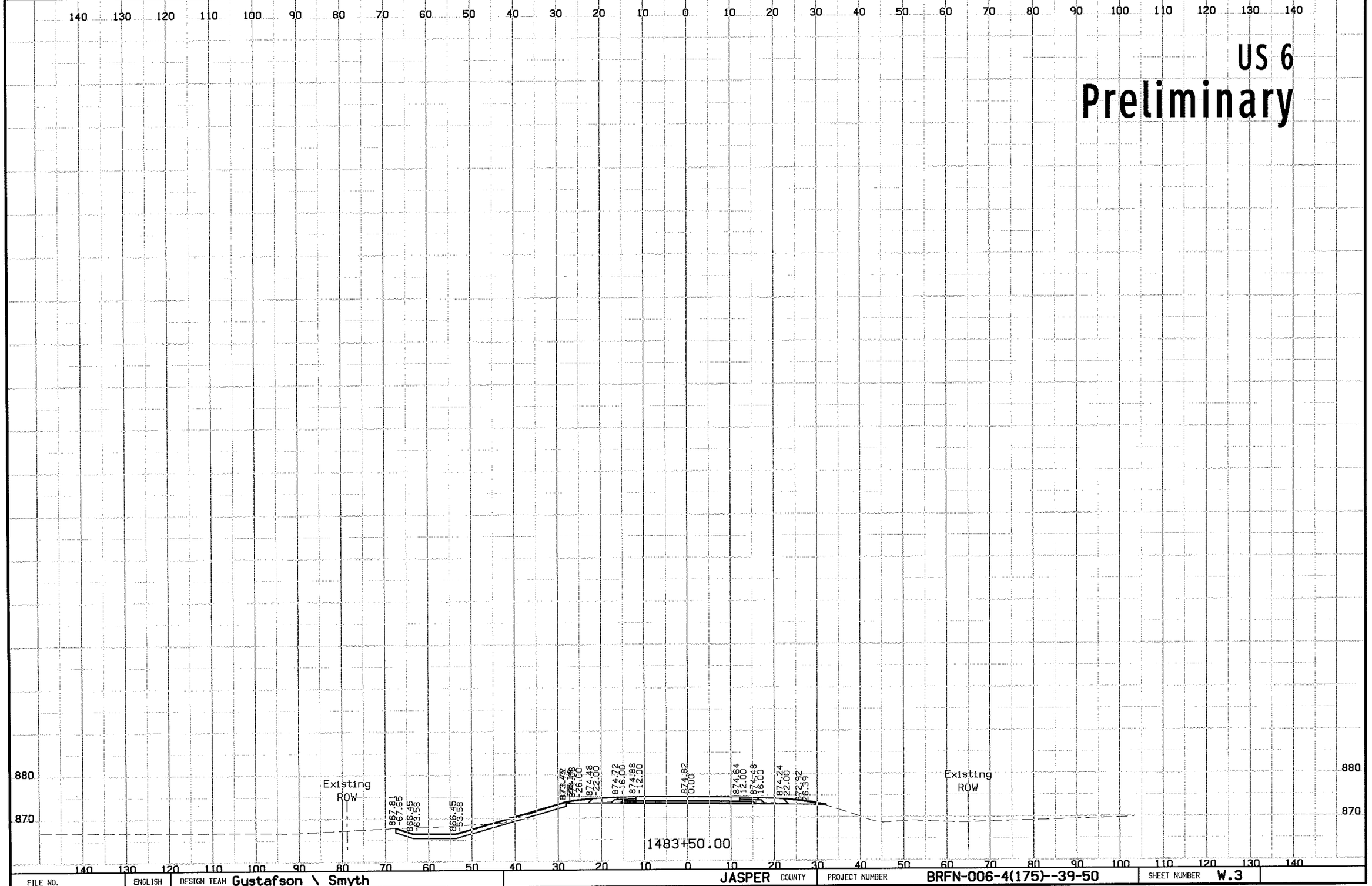
US 6

Preliminary



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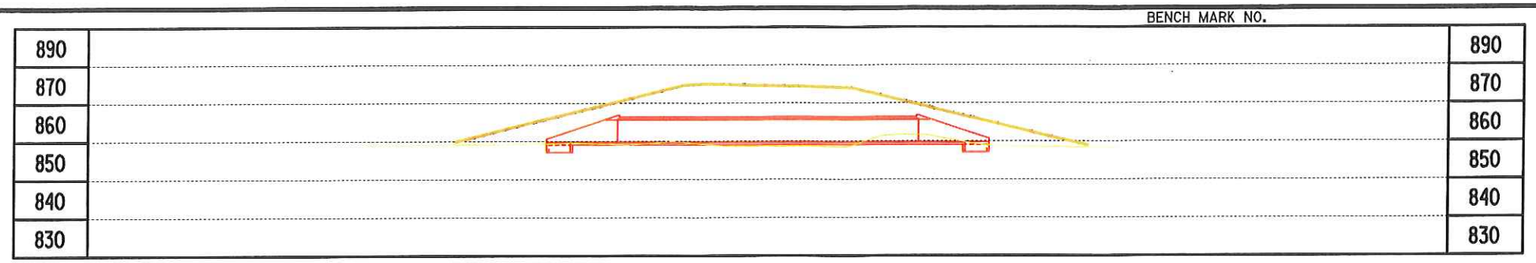
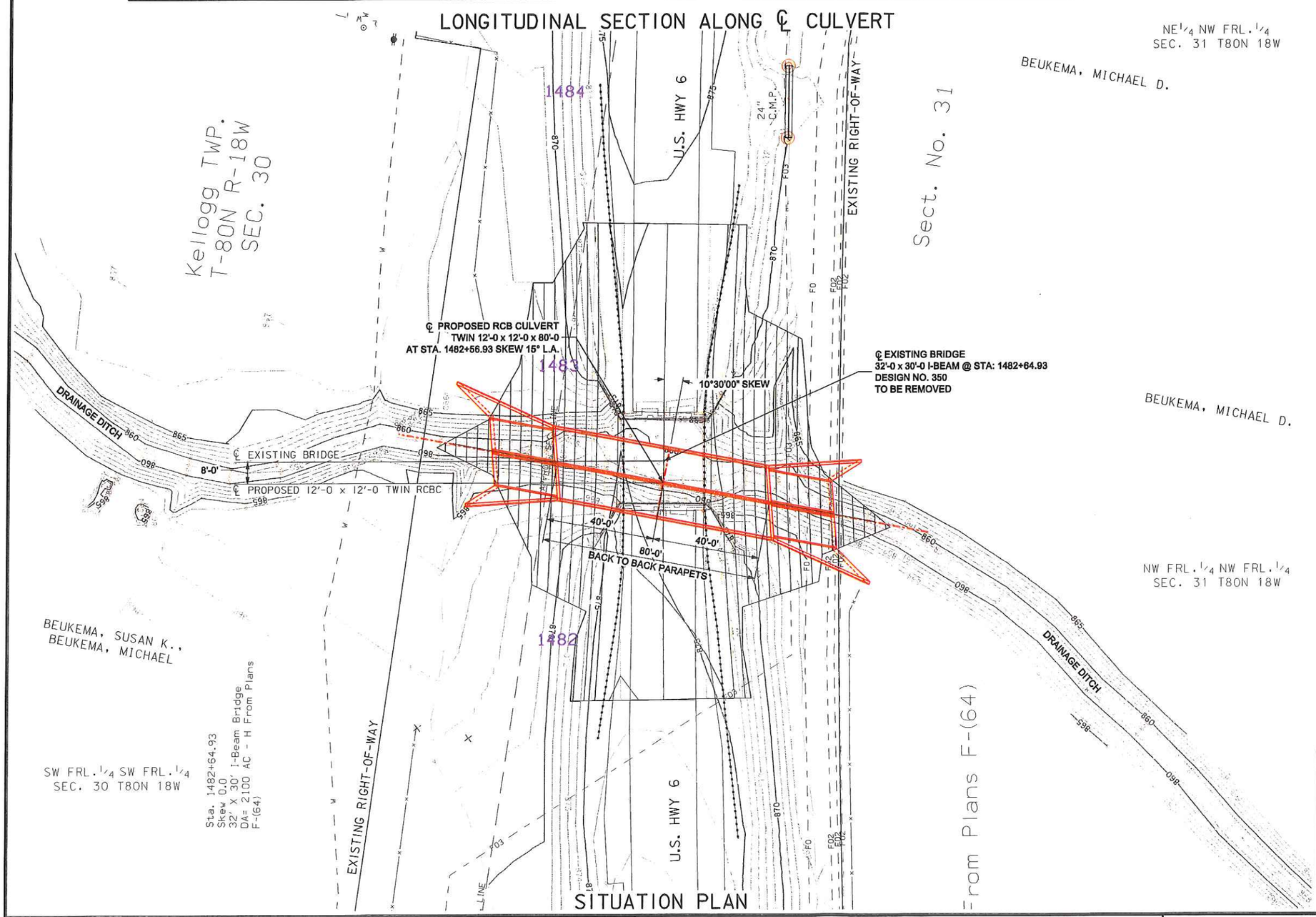
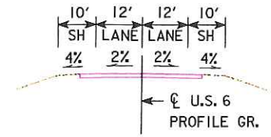
BENCH MARK NO.



LONGITUDINAL SECTION ALONG ℄ CULVERT



PROPOSED PROFILE GRADE U.S. 6



TYPICAL APPROACH SECTION

NOTES:

1. EXISTING 32'-0 x 30'-0 I-BEAM BRIDGE DESIGN NO. 350.
2. DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
3. FLOW LINE OF CULVERT NOMINALLY BURRIED 1.0 FOOT.

HYDRAULIC DATA

DRAINAGE AREA = 3.59 SQ.MI.
Q_{50} = 1,390 CFS
HW ELEV. = 868.9
STREAM SLOPE = 27 FT./MI.
Q_{100} =
Q_{500} =

N

0 ENGLISH 40
SCALE IN FEET

UTILITIES LEGEND:

FIBER OPTIC LINE	AUREON NETWORK SERVICES
FIBER OPTIC LINE	WINDSTREAM COMMUNICATIONS
FIBER OPTIC LINE	GRINNELL MUTUAL REINSURANCE CO.
WATER MAIN	IOWA REGIONAL UTILITY ASSOC.

LOCATION

U.S. 6 BRIDGE OVER DITCH
.2 MI. E. CO. RD. T12
T-80N R-18W
SECTION 30
KELLOGG TOWNSHIP
JASPER COUNTY
FHWA NO. 30470
BRIDGE MAINT. NO. 5071.6S006
LATITUDE 41.702672°
LONGITUDE -92.995372°

TRAFFIC ESTIMATE

2021 AADT	3500	V.P.D.
2041 AADT	3700	V.P.D.
2041 DHV	390	V.P.H.
TRUCKS	5	%
TOTAL DESIGN ESALs		

DESIGN FOR 15° SKEW L.A.

TWIN 12'-0 X 12'-0 X 80'-0 CAST IN PLACE CONCRETE CULVERT

SITUATION PLAN

STATION 1482+56.93 JUNE 2019

JASPER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM SHIVE-HATTERY | JASPER COUNTY | PROJECT NUMBER BRFN-006-4(175)--39-50 | SHEET NUMBER ??