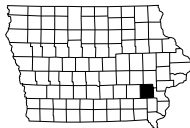


WASHINGTON Co.

BRIDGE REPLACEMENT-PPCB
BRF-001-4(50)--38-92

LETTING DATE
12/18/2018



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 3	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	IA 1
G Sheets	Survey Sheets
G.1	Reference Ties and Bench Marks
G.2	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
V Sheets	Bridge and Culvert Situation Plans
V.1 - 2	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1 - 6	Mainline Cross Sections
	* Color Plan Sheets



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
WASHINGTON COUNTY
BRIDGE REPLACEMENT-PPCB

Camp Creek 3.1 mi. S of IA 22

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL	
19	
PROJECT IDENTIFICATION NUMBER	
14-92-001-020	
PROJECT NUMBER	
BRF-001-4(50)--38-92	
R.O.W. PROJECT NUMBER	
NHSN-001-4(51)--2R-92	

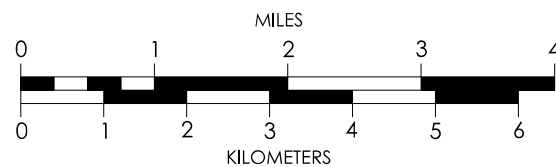
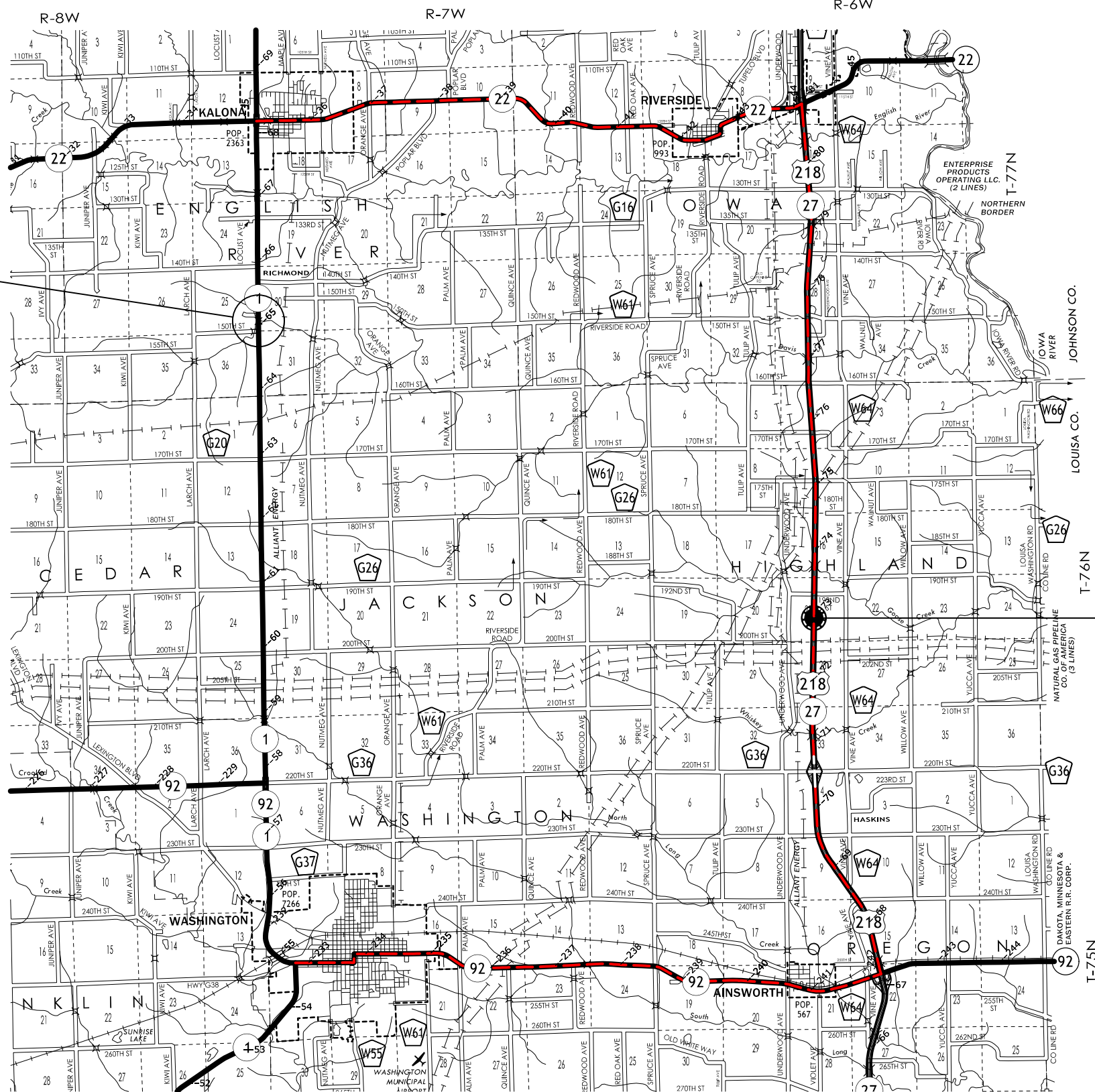
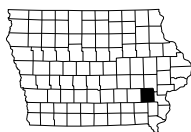
DESIGN DATA RURAL				
2018	AADT	3400	V.P.D.	
2038	AADT	3800	V.P.D.	
20--	DHV	--	V.P.H.	
TRUCKS		11	%	
Total				
Design ESALs		--		

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

PRELIMINARY PLANS

Subject to change by final design.

PROJECT LOCATION
M.P. 65.10



LEGEND

Detour Route



FILE NO.

ENGLISH

DESIGN TEAM **Flattery \ Bottjen \ Crystal**

WASHINGTON COUNTY

PROJECT NUMBER

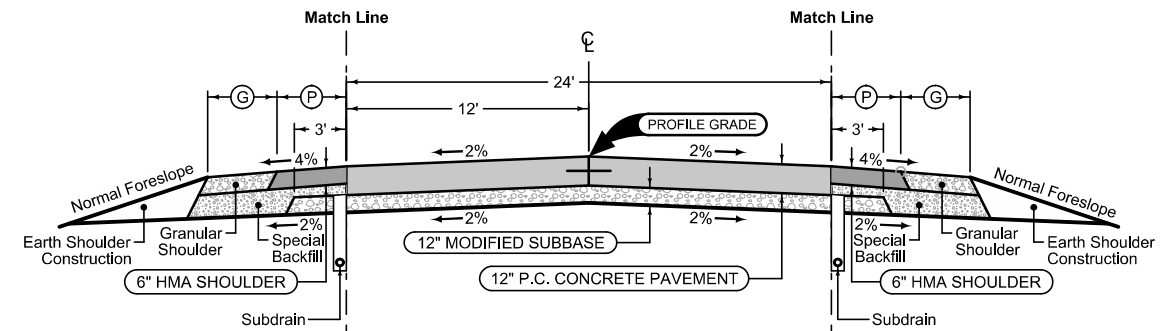
BRF-001-4(50)--38-92

SHEET NUMBER

A.2

Shoulder Jointing:
Longitudinal joint: B

2 C			
10-15-13			
STATION TO STATION		(P) Feet	(G) Feet
1190+00.00	1190+48.50	4.0	6.0
Bridge			
1192+51.50	1193+00.00	4.0	6.0



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

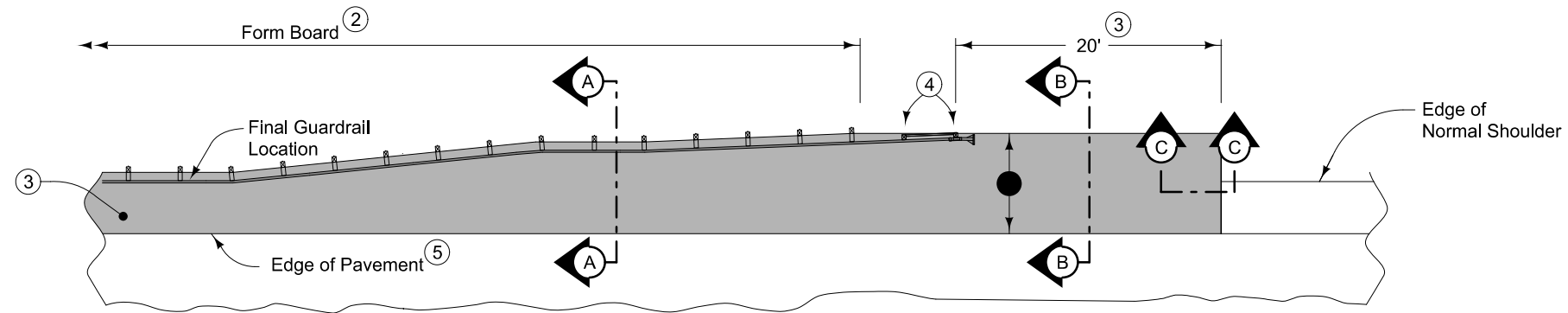
2P.	
10-19-10	
STATION TO STATION	
1190+00.00	1190+18.50
Bridge	
1192+81.50	1193+00.00

Shoulder Jointing:
Longitudinal joint: B

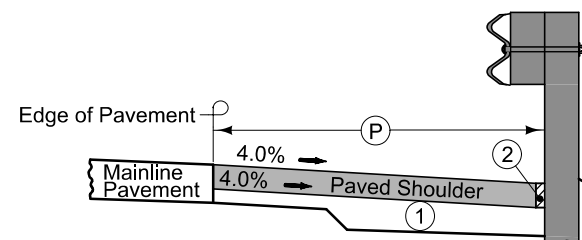
2.C_			
10-15-13			
STATION TO STATION		(P) Feet	(G) Feet
1190+00.00	1190+48.50	4.0	6.0
Bridge			
1192+51.50	1193+00.00	4.0	6.0

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

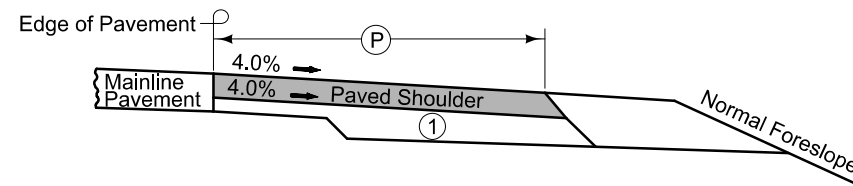
See Tab 112-9 for shoulder quantities.



PLAN VIEW

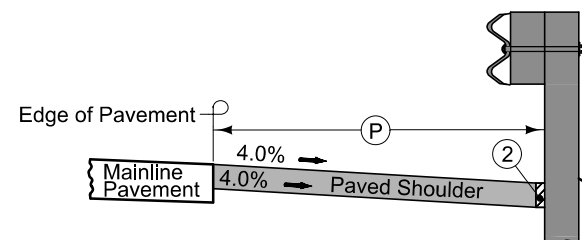


Section A-A

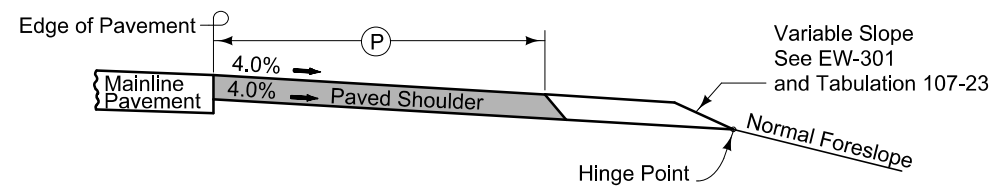


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

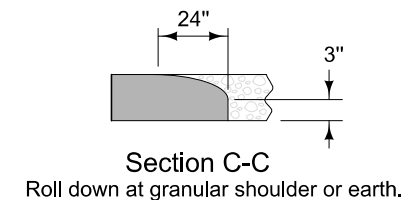
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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 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.



PAVED SHOULDER AT GUARDRAIL

SURVEY SYMBOLS

COS Square Bridge Pier Column

PPA Power Pole Co. 1

SI Sign

TPD Telephone Pedestal

OUT Tile Outlet

SP Stream Profile

TW Top of Water

TLNL Tree Line Left

BRG Bridge

TOP Top of Bridge Pier

LIN Miscellaneous Line

GDL Guard Rail Steel

TLNR Tree Line Right

Tile - TIL Tile Line

SNP Unpaved Shoulder

DU Centerline Draw or Stream (Up)

ENU Edge Unpaved Entrance & Parking

EP Edge of Paved Roads (ML or SR)

D Centerline Draw or Stream (Down)

BNK Stream Bank

ENT Centerline BL of Entrance

EW Edge of Water

FO - FO1D Fiber Optic Co. 1 - Quality D

FO2 - FO2D Fiber Optic Co. 2 - Quality D

PIP Pipe Culvert

UTILITY LEGEND

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

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

PPA Power Pole Co. 1

FO - Iowa Communications Network

FO2 - Kalona Communications Telephone Cooperative

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

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

FILE NO.

ENGLISH

DESIGN TEAM

Flattery \ Bottjen \ Crystal

WASHINGTON

COUNTY

PROJECT NUMBER

BRF-001-4(50)--38-92

SHEET NUMBER

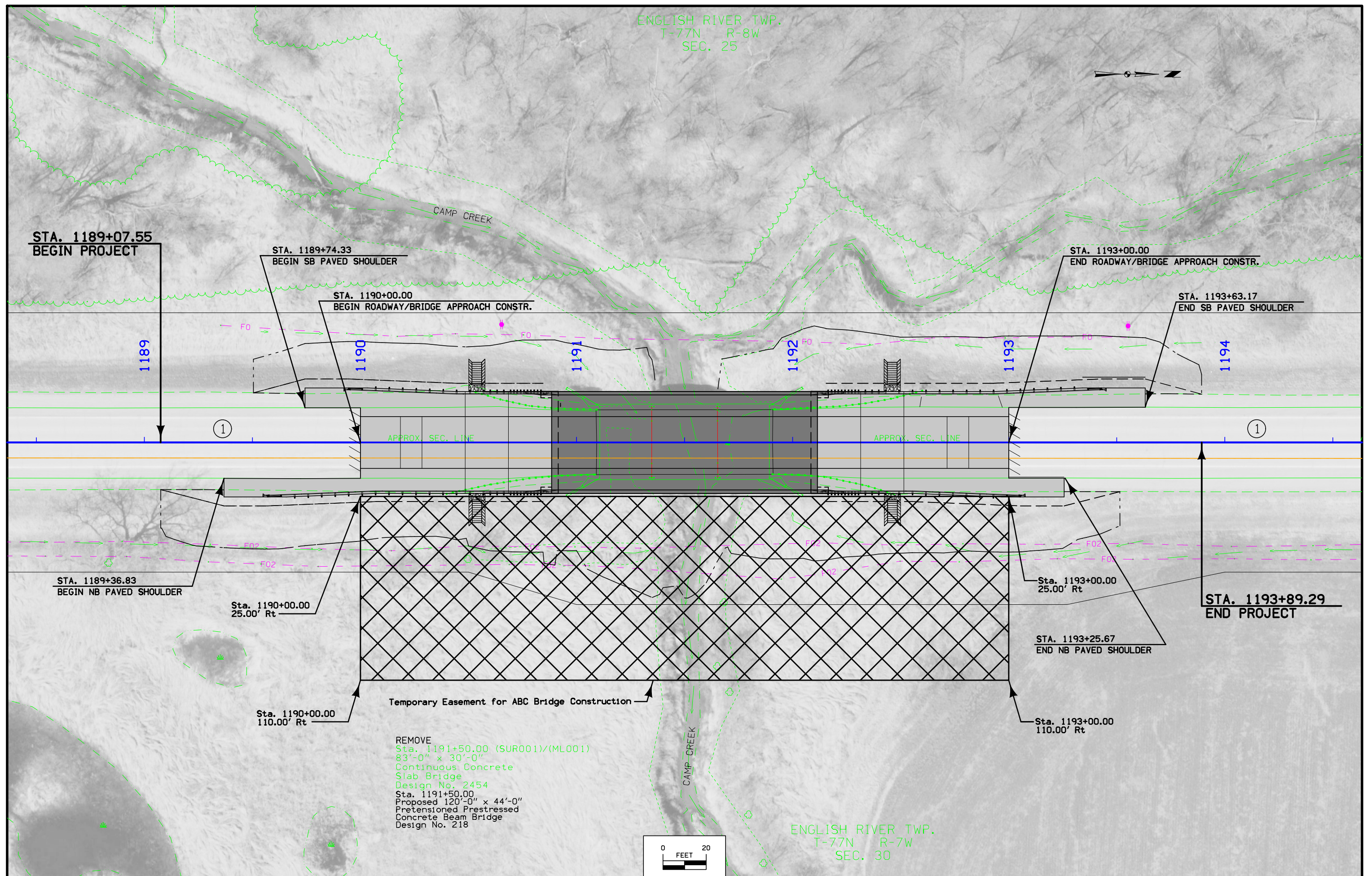
D.1

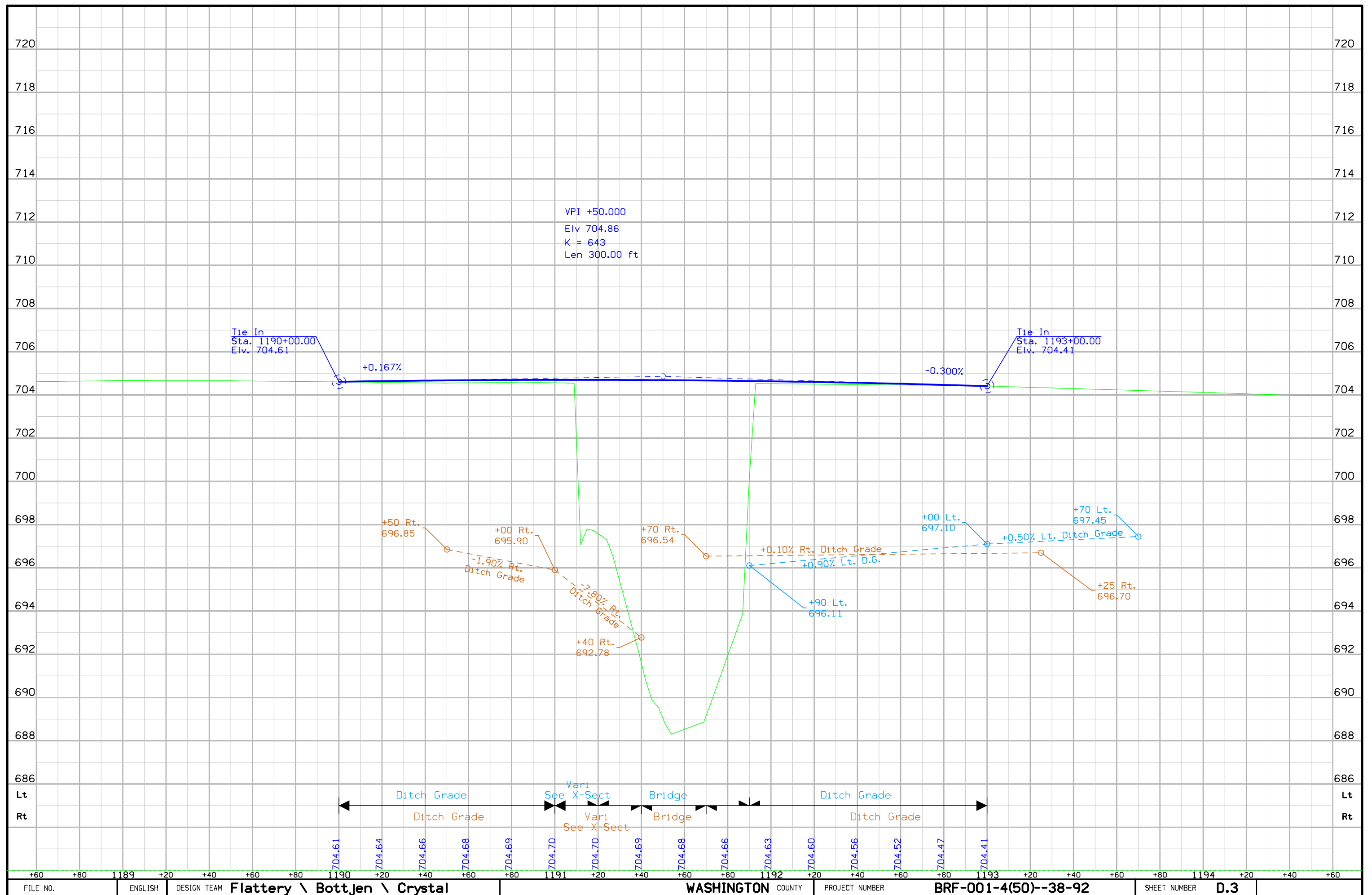
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1/10/2017

wcrysta

pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\9200102014\Design\92001050.LGD.sht





Survey Information
Washington County
BRF-001-4(50)—38-92
Iowa Highway 1
Bridge over Camp Creek
PIN 14-92-001-020
Sap-0851

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge replacement along IA highway 1 over Camp Creek. Project datum and control information is IA RCS zone 13. 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 Pts. 920102 and Washington County Pt. 114. A minimum of 6hrs of data was simultaneously collected on each of these primary control points.

This survey observed 1 Johnson County Control Monument with published NAVD88 Geoid93C heights to compare to local ground control:
Point name 114 Elev. of 764.02'
Survey Elev. = 764.00'

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 13 (U.S. Survey Feet). Control was placed throughout the project using post processed static observations relative to Pts. 920102 and Washington County Pt. 114. A minimum of 6hrs of data was simultaneously collected on each of these primary control points. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00.The horizontal standard deviation of this observation was less than 0.07 ft. at 95% confidence level (2 sigma). An additional control point was placed at the beginning of the project using a GNSS Base-Rover setup relative to Pt. 1. A minimum of three observations with appropriate time spans between were averaged. The horizontal standard deviation of these observations were less than 0.02 ft. at 95% confidence level (2 sigma).

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. F-167(5). Survey stationing was equated to the Bridge STA 1191+50.00 and run back and ahead without equation throughout the survey.

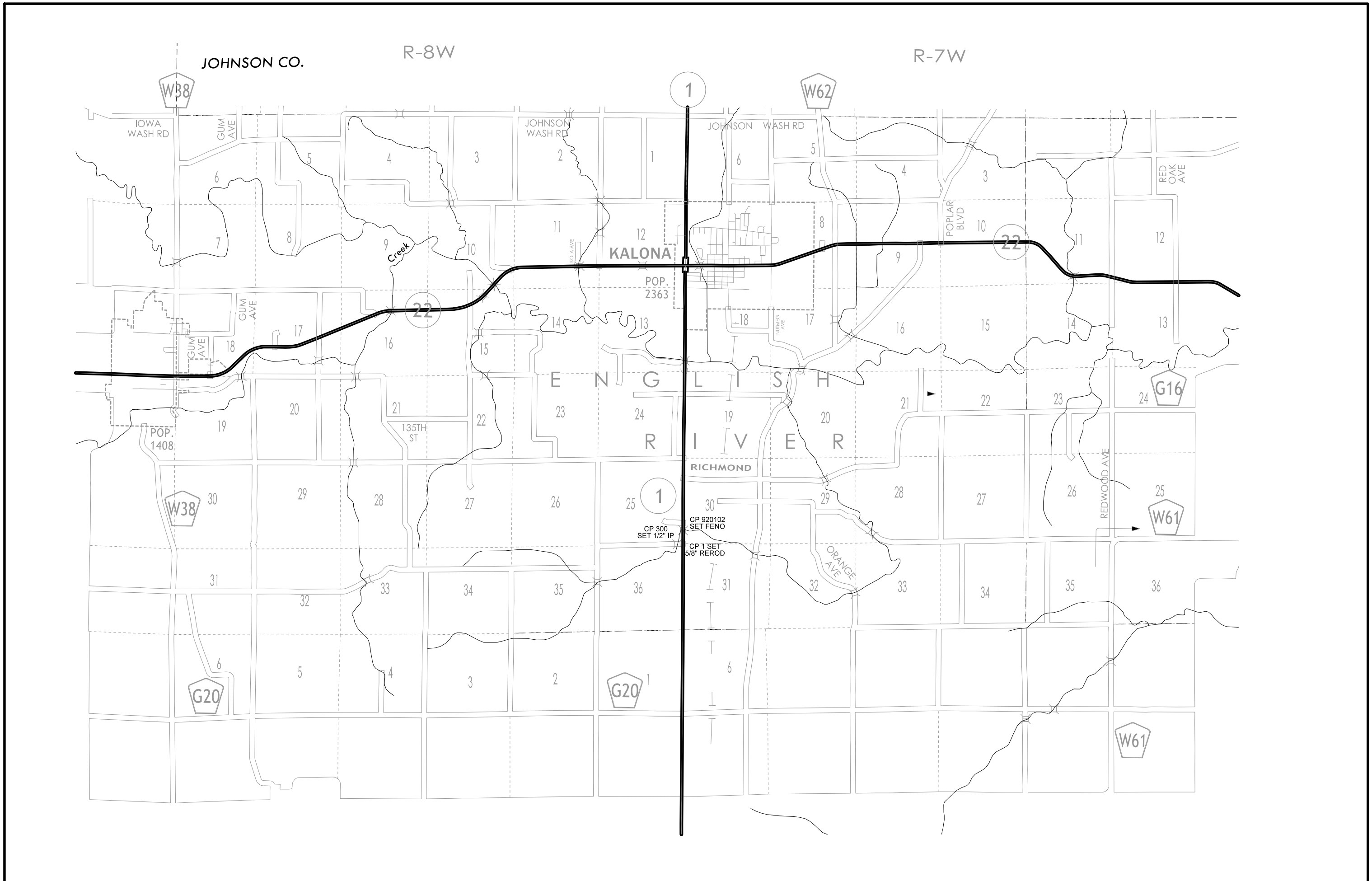
Survey stationing relates to as built plan stationing as follows:

POT Sta. 1170+14.45 As-built Plans Project No. F-167(5)
Survey PI Sta. 1170+14.89

PI STA 1204+24.65 Project No. F-167(5)
Survey PI STA 1204+24.52

PROJECT CONTROL (BENCHMARKS)

Point	North	East	Elevation	Station	Offset	Feature	Description
1	6833153.5400	23555327.7900	702.2940	1183+10.14	31.8470	CP	SET 5/8IN REROD
300	6833958.5620	23555257.0100	697.5780	1191+15.07	-40.0473	CP	SET IP
920102	6834424.4540	23555327.4290	701.9450	1195+81.06	29.7266	FENO	FENO SET FENO⌘ DEFAULT POINT FEATURE



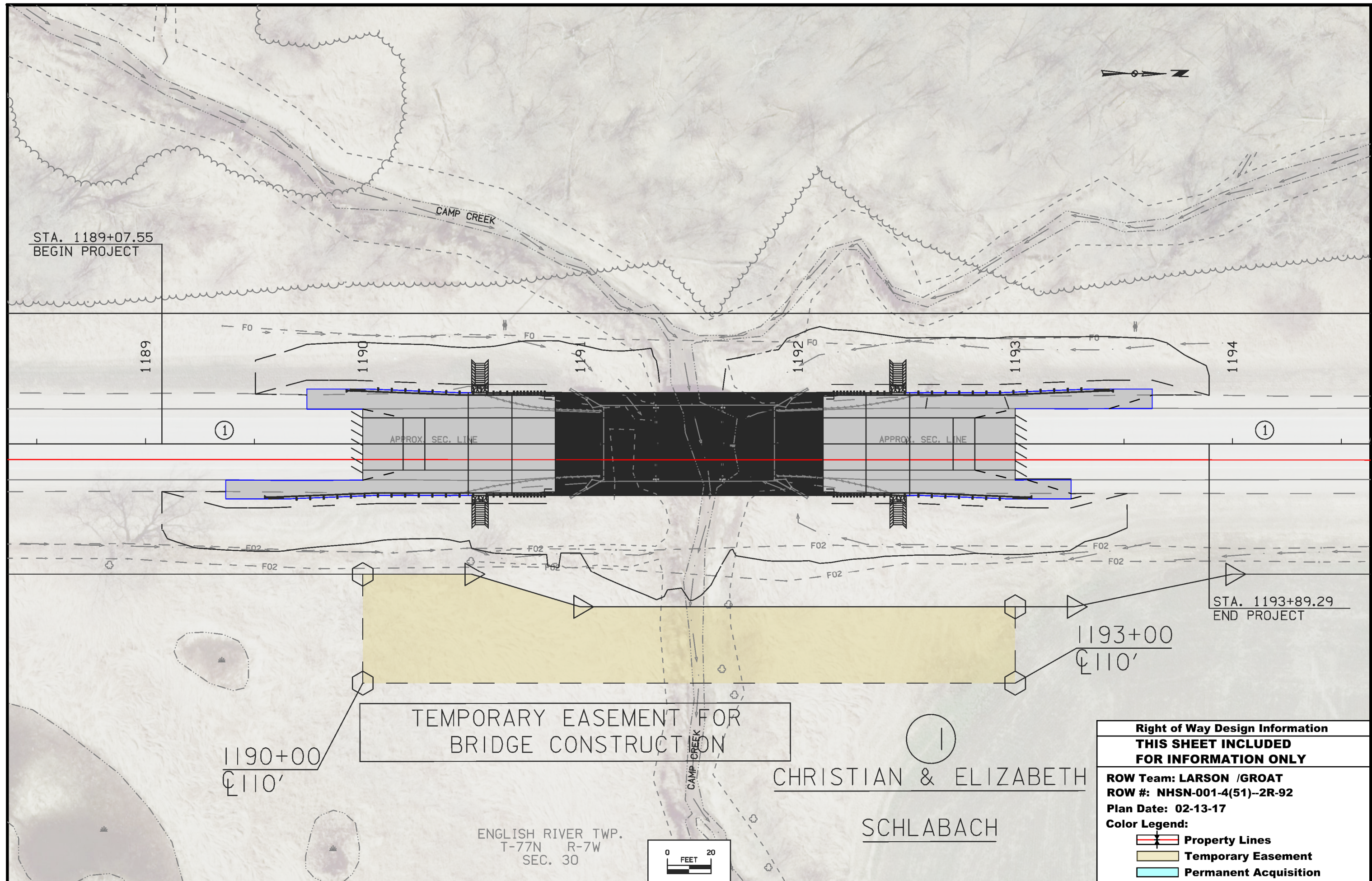
Washington

ROW: NHSN-001-4(51)--2R-92

Camp Creek 3.1 mi S of IA 22

PIN 14-92-001-020

PARCEL NO.	OWNER NAME	STATE		COUNTY		CITY		EXCESS	BORROW		MITIGATION	OTHER	HOUSE	BUILDING(S)	A/C ONLY	TOTAL ACQ.
		FEE	EASE	FEE	EASE	FEE	EASE		FEE	T.E.						
1	Christian Schlabach - Fee															
1 Parcel	"TOTALS	0 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							



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-001-4(51)--2R-92	
Plan Date: 02-13-17	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

108-26A
08-01-08

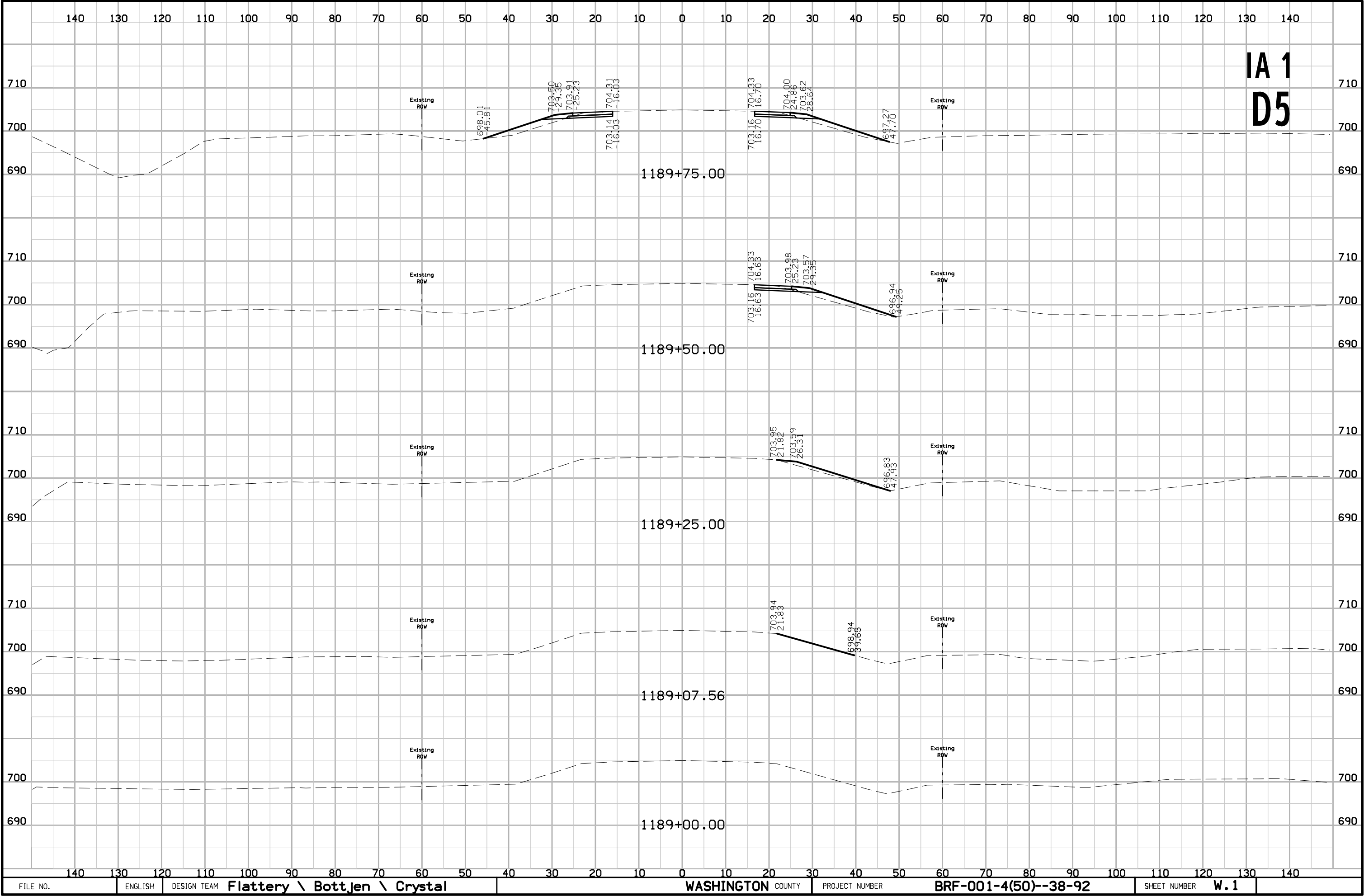
STAGING NOTES

108-23A
08-01-08

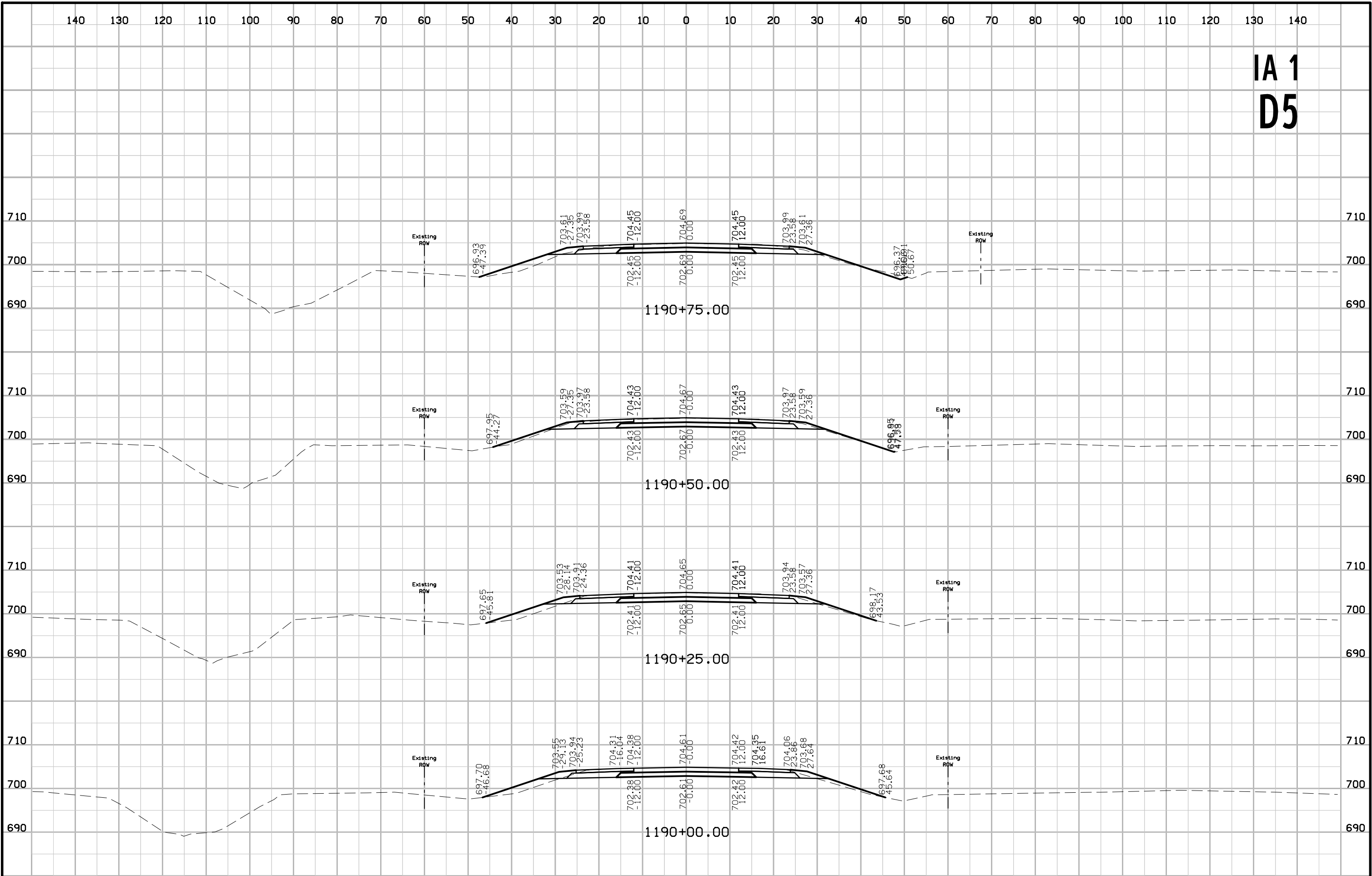
TRAFFIC CONTROL PLAN

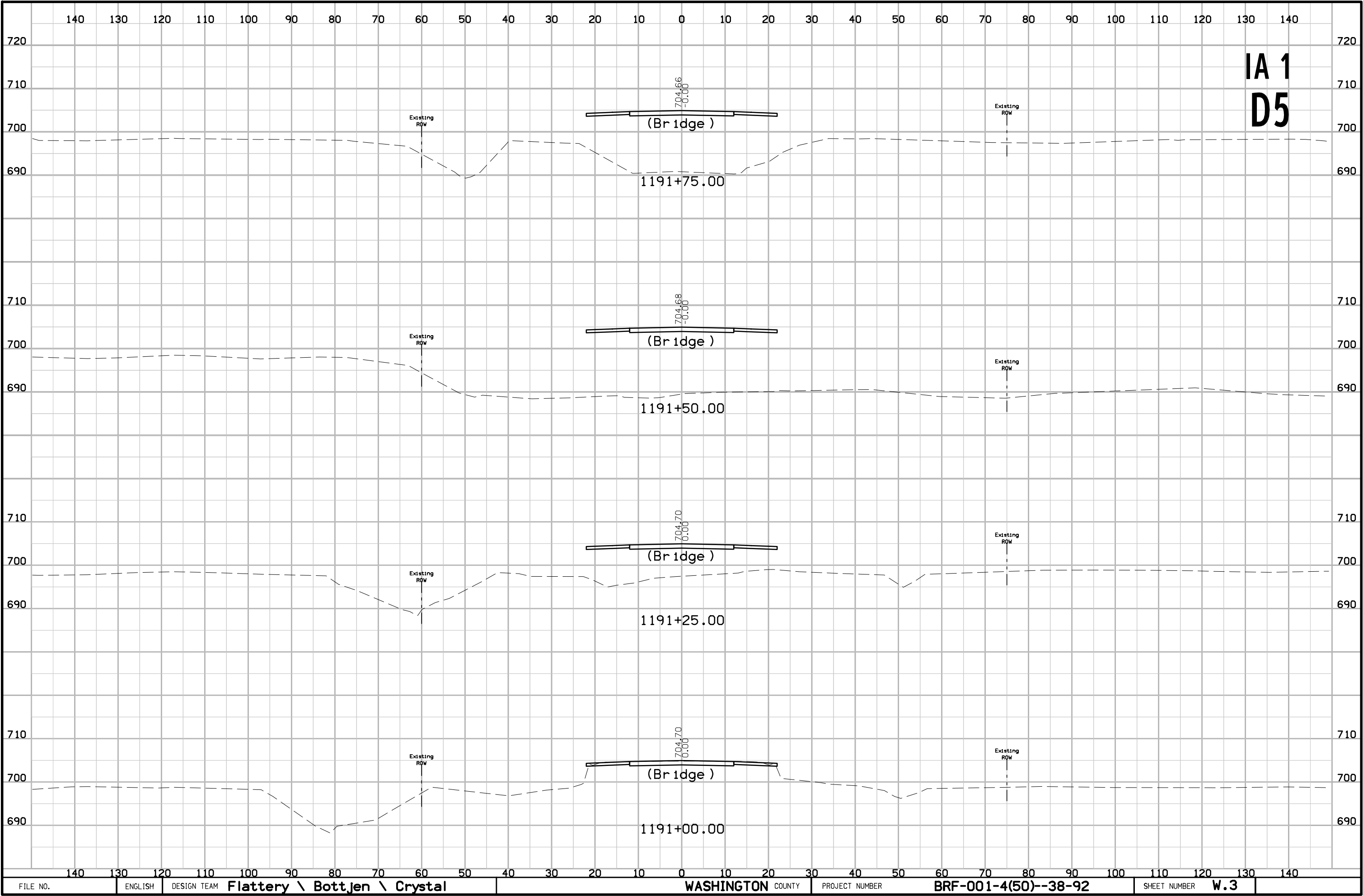
Traffic will be maintained via an off-site detour. Proposed Detour: IA 1 / IA 22 east / U.S. 218 south / IA 92 west / IA 1
Out of distance travel is 18 miles.

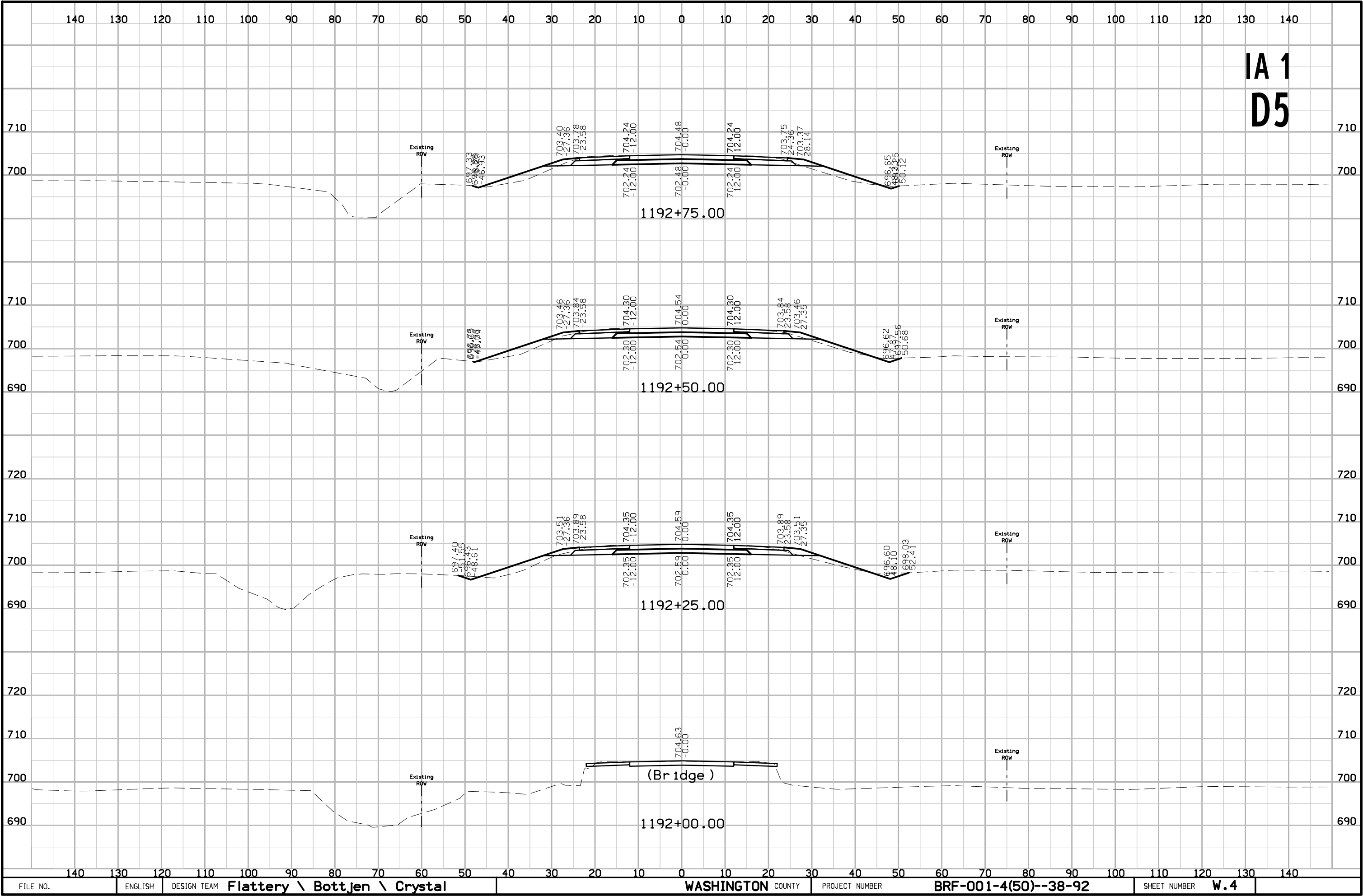
511 TRAVEL RESTRICTIONS													108-25 10-21-14
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks	

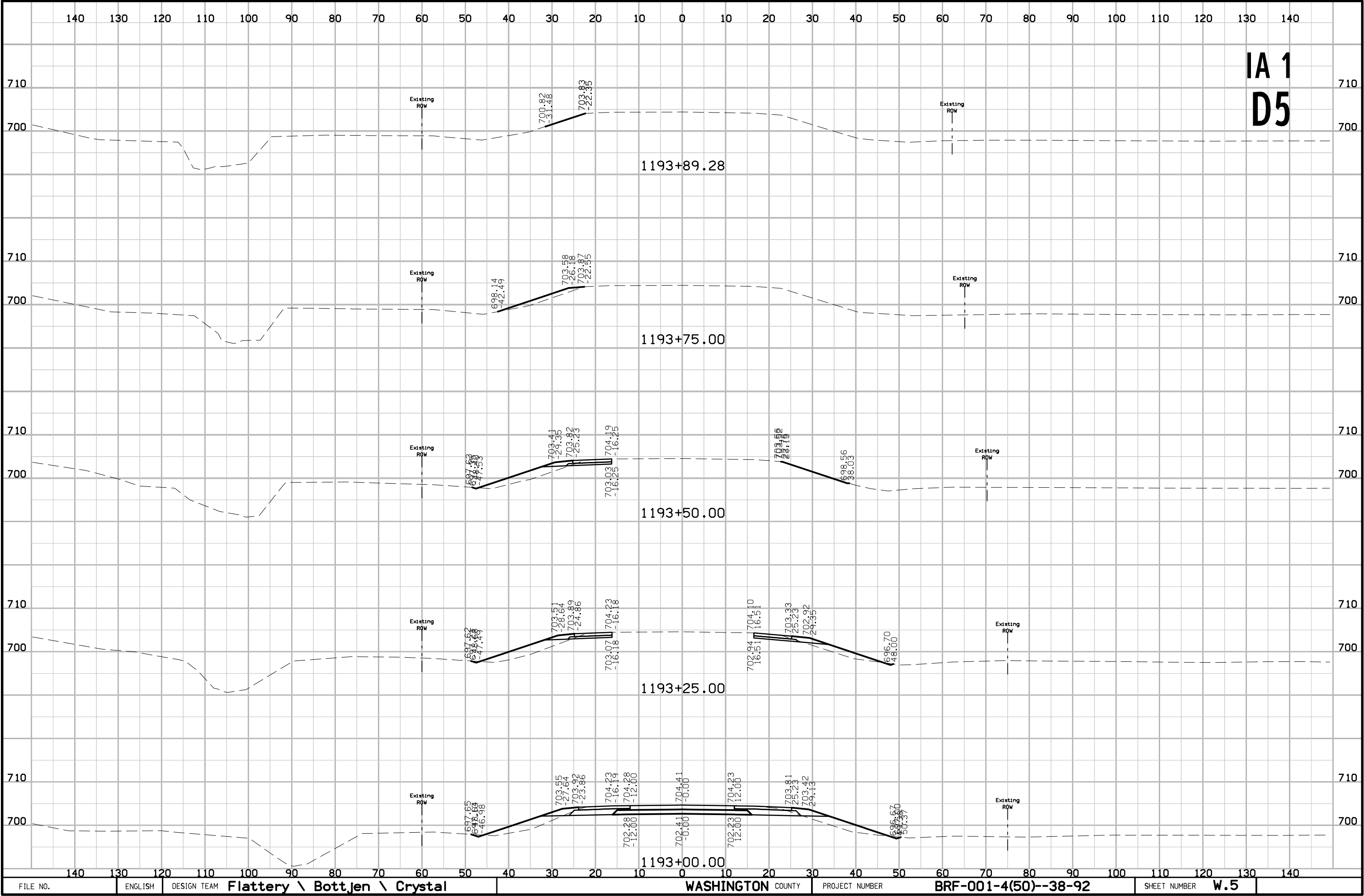


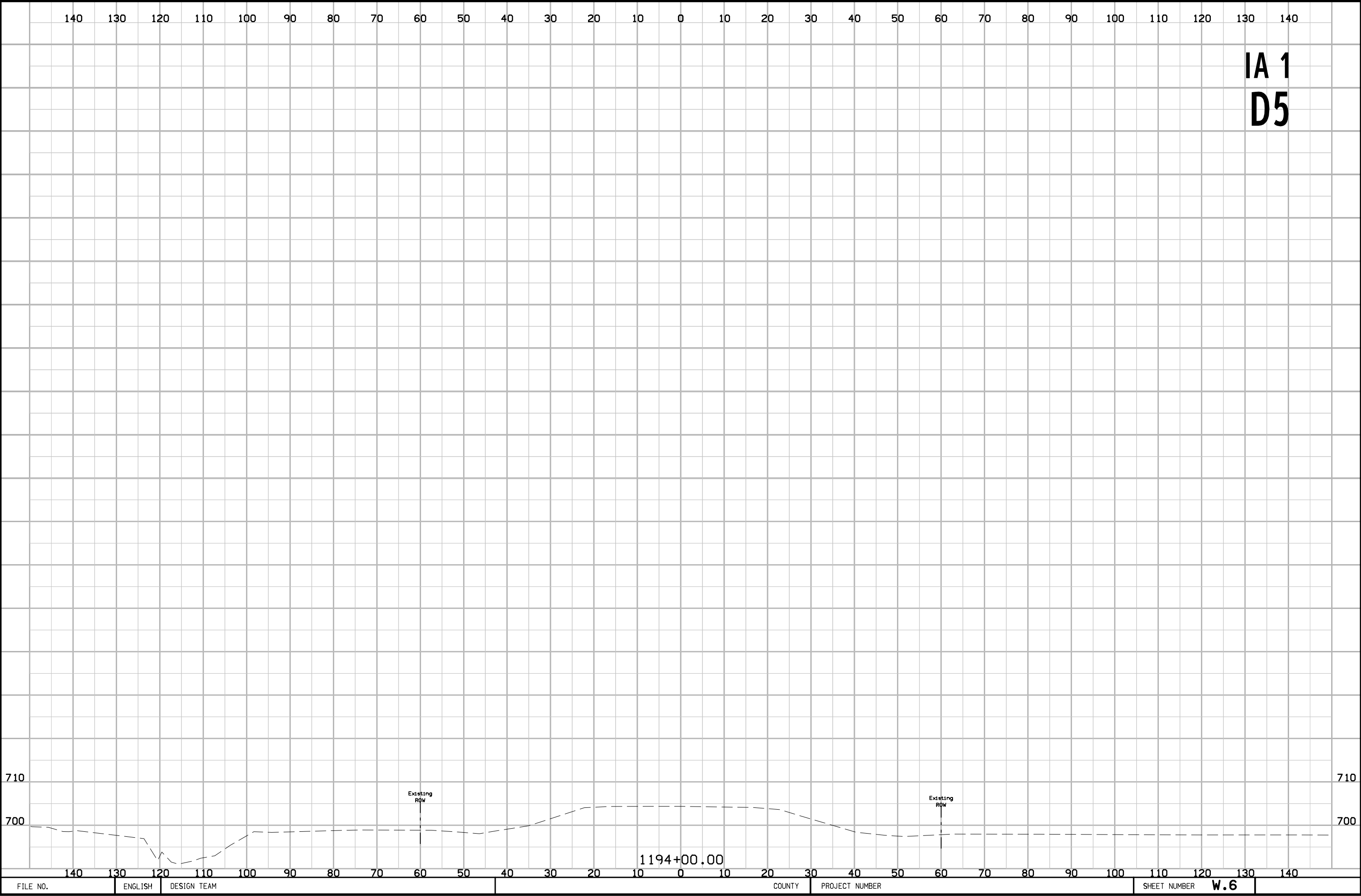
IA 1
D5

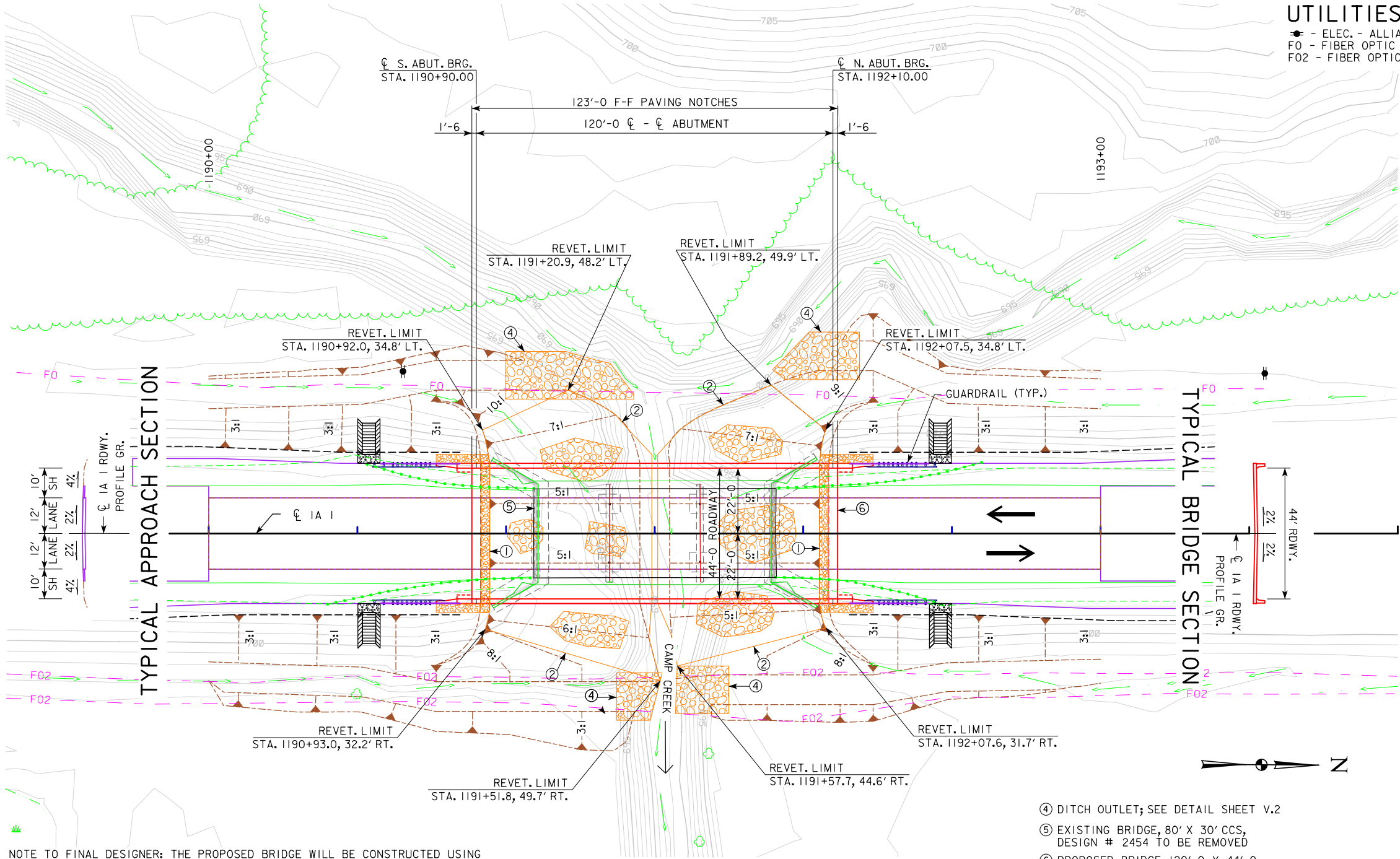
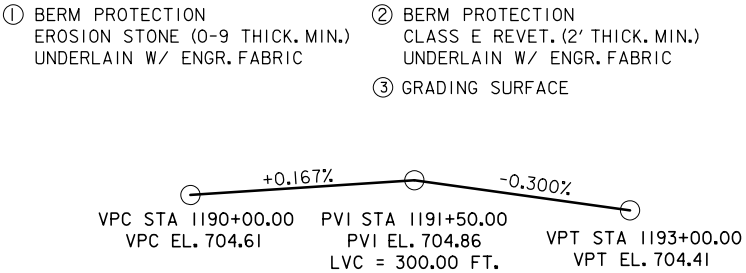
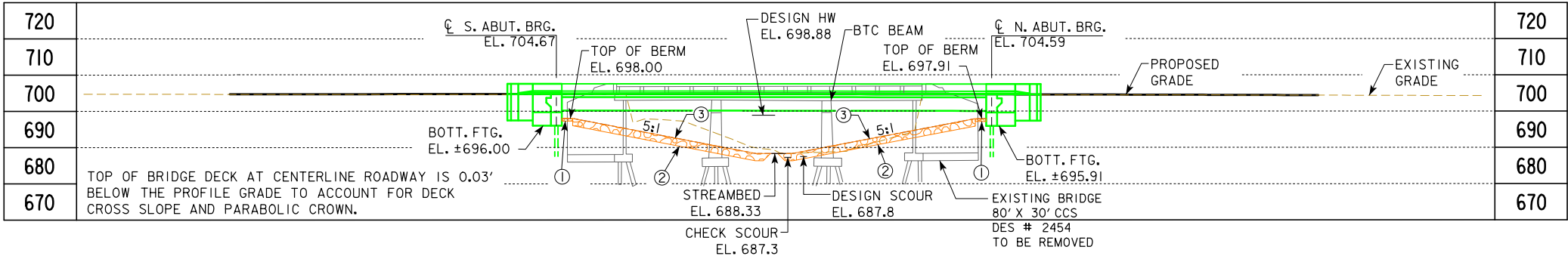












UTILITIES LEGEND:

- ELEC. - ALLIANT ENERGY
- FO - FIBER OPTIC - KALONA COOP
- F02 - FIBER OPTIC - ICN

HYDRAULIC DATA

DRAINAGE AREA = 8.6 SQ. MI.
STREAM SLOPE = 21.6 FT./MI.
AVG. LOW WATER STAGE = 690.0

Q₅₀ = 3,790 CFS
STAGE = 698.88
BACKWATER = 0.39 FT.
AVG. BRIDGE VELOCITY = 5.5 FPS

Q₁₀₀ = 4,510 CFS
STAGE = 699.18
BACKWATER = 0.66 FT.
AVG. BRIDGE VELOCITY = 6.2 FPS

Q₂₀₀ = 5,880 CFS
STAGE = 699.70
CALCULATED DESIGN SCOUR = 687.8

Q₅₀₀ = 6,510 CFS
STAGE = 699.89
CALCULATED CHECK SCOUR = 687.3

ROADWAY OVERTOP 703.72
STA. 1184+24.3

LOCATION

IA I OVER CAMP CREEK
T-77N R-7W
SECTION 30
ENGLISH RIVER TOWNSHIP
WASHINGTON COUNTY
FHWA NO. 51661
BRIDGE MAINT. NO. 9265.IS001
LATITUDE 41.440978°
LONGITUDE -91.714993°

TRAFFIC ESTIMATE

2018 AADT	3,400	V.P.D.
2038 AADT	3,800	V.P.D.
202_ DHV	-	V.P.H.
TRUCKS	11	%
TOTAL DESIGN ESALs	-	

NOTE TO FINAL DESIGNER: THE PROPOSED BRIDGE WILL BE CONSTRUCTED USING ACCELERATED BRIDGE CONSTRUCTION (ABC) METHODS. THE LATERAL SLIDE METHOD HAS BEEN CHOSEN AS THE PREFERRED METHOD TO CONSTRUCT THE BRIDGE. A WORKING AREA EAST OF THE EXISTING BRIDGE SHALL BE USED TO CONSTRUCT THE NEW BRIDGE. REFER TO THE FINAL CONCEPT FOR MORE DETAILS.

④ DITCH OUTLET; SEE DETAIL SHEET V.2
⑤ EXISTING BRIDGE, 80' X 30' CCS, DESIGN # 2454 TO BE REMOVED
⑥ PROPOSED BRIDGE, 120'-0 X 44'-0 PPCB, SKEW 0°

TYPE TL-4 BRIDGE RAILING PROPOSED

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY
DESIGN FOR 0° SKEW

**120'-0 X 44'-0 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGE**

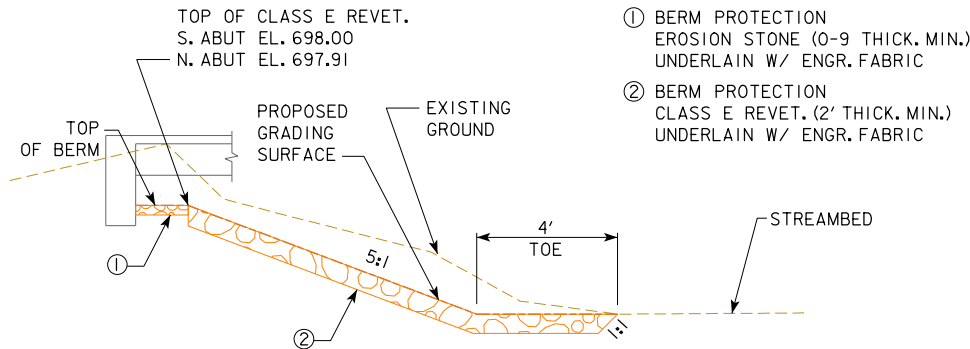
120'-0 SINGLE SPAN BTC BEAMS

SITUATION PLAN

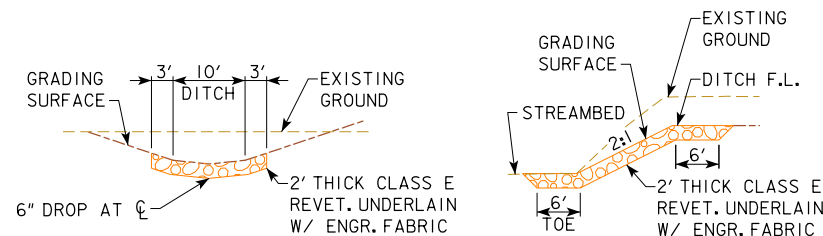
STATION 1191+50.00 OCTOBER 2016

WASHINGTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 2 FILE NO. 31400 DESIGN NO. 218



TYPICAL SECTION AT BRIDGE BERM
REVETMENT PROTECTION



TYPICAL SECTIONS AT DITCH OUTLET

BERM SLOPE LOCATION TABLE

SOUTH ABUTMENT			NORTH ABUTMENT			
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	1191+44.38	26.58' LT	688.33	1191+54.71	26.58' LT	688.33
A2	1191+45.00	0	688.33	1191+55.00	0	688.33
A3	1191+45.79	26.58' RT	688.33	1191+55.18	26.58' RT	688.33
B1	1190+93.95	26.58' LT	698.00	1192+05.78	26.58' LT	697.91
B2	1190+94.50	0	698.00	1192+05.50	0	697.91
B3	1190+94.32	26.58' RT	698.00	1192+05.94	26.58' RT	697.91
G1	1190+76.50	58.23' LT	696.69	1192+23.50	64.78' LT	696.41
G2	1190+76.50	48.23' LT	696.69	1192+23.50	54.78' LT	696.41
G3	1191+05.78	58.23' LT	696.25	1192+12.95	64.78' LT	696.32
G4	1191+20.92	48.23' LT	696.12	1192+04.72	54.78' LT	696.24
G5	1190+76.50	49.88' RT	696.14	1192+23.50	47.58' RT	696.77
G6	1190+76.50	49.82' RT	696.14	1192+23.50	57.58' RT	696.77
G7	1191+43.12	49.82' RT	692.85	1191+69.82	47.58' RT	696.61
G8	1191+43.12	59.88' RT	692.85	1191+69.82	57.58' RT	696.61
W1	1190+76.50	26.58' LT	703.90	1192+23.50	26.58' LT	703.80
W2	1190+76.50	26.58' RT	703.90	1192+23.50	26.58' RT	703.80

W - END WING / EROSION STONE
BERM SLOPE TABLE ELEVATIONS REFLECT GRADING SURFACE
G3, G4, G7 AND G8 ARE DITCH FLOW LINE POINTS (SEE DITCH OUTLET DETAIL)

GRADING CONTROL-SOUTH AND NORTH:

POINTS A1, A2 AND A3 ARE BERM GRADING CONTROL LINE

NOTE: BANK GRADING CONTROL LINE LOCATED AT BASE OF 5:1 SLOPE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	560	8	610	345
BERM LINING - NORTH ABUTMENT	530	8	580	335
SOUTH DITCH OUTLETS	98		135	61
NORTH DITCH OUTLETS	82		109	55
TOTALS	1,270	16	1,434	796

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

HYDRAULIC DESIGN



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

Signature: *David J. Mulholland* Date: 10/28/16

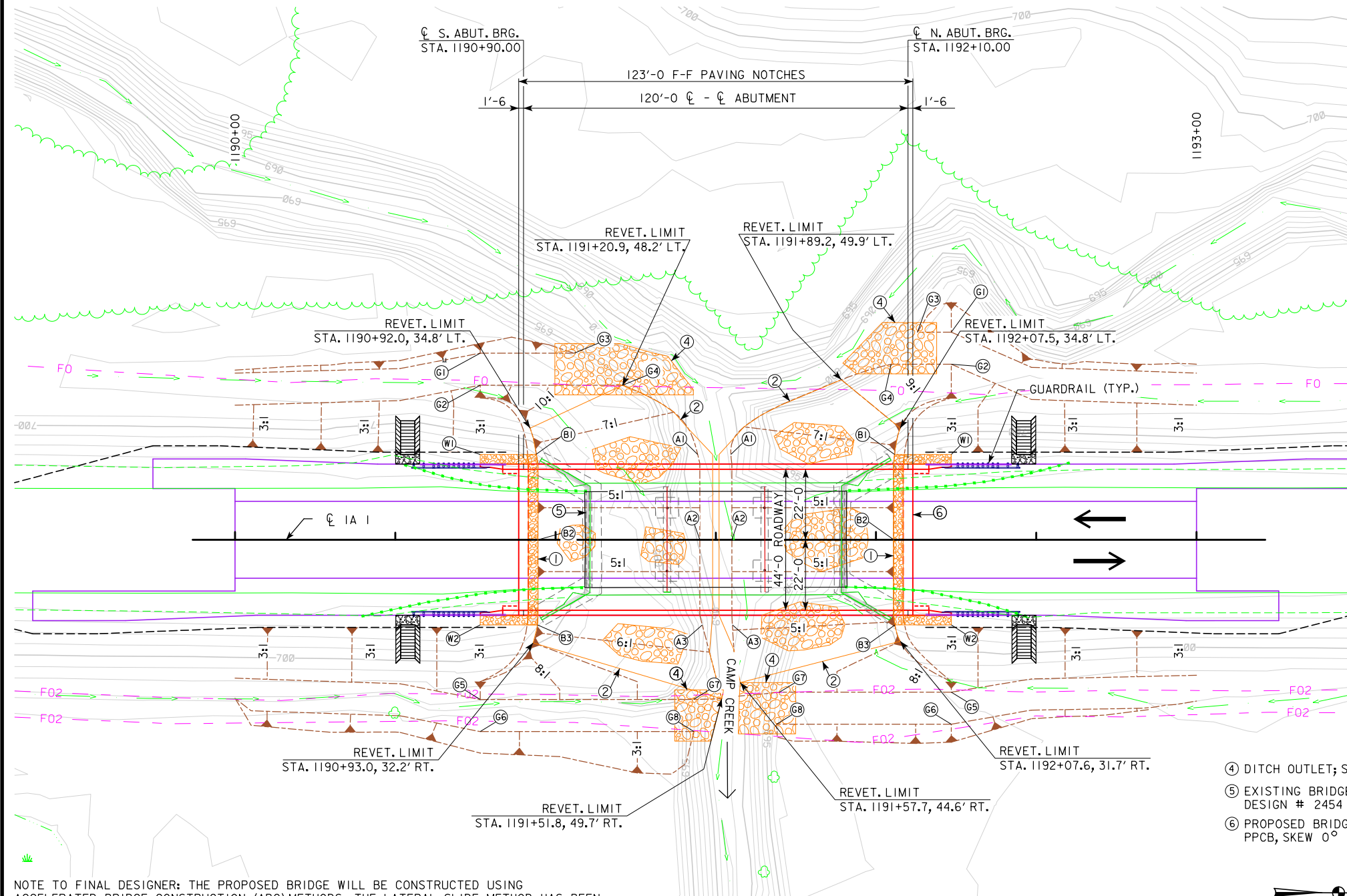
Printed or Typed Name: David J. Mulholland

My license renewal date is December 31, 2016

Pages or sheets covered by this seal: V.1 AND V.2

0 ENGLISH 40
SCALE IN FEET

- ④ DITCH OUTLET; SEE DETAIL SHEET V.2
⑤ EXISTING BRIDGE, 80' X 30' CCS, DESIGN # 2454 TO BE REMOVED
⑥ PROPOSED BRIDGE, 120'-0 X 44'-0 PPCB, SKEW 0°



SITE PLAN

NOTE TO FINAL DESIGNER: THE PROPOSED BRIDGE WILL BE CONSTRUCTED USING ACCELERATED BRIDGE CONSTRUCTION (ABC) METHODS. THE LATERAL SLIDE METHOD HAS BEEN CHOSEN AS THE PREFERRED METHOD TO CONSTRUCT THE BRIDGE. A WORKING AREA EAST OF THE EXISTING BRIDGE SHALL BE USED TO CONSTRUCT THE NEW BRIDGE. REFER TO THE FINAL CONCEPT FOR MORE DETAILS.

PRELIMINARY
DESIGN FOR 0° SKEW

**120'-0 X 44'-0 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGE**

120'-0 SINGLE SPAN BTC BEAMS

SITUATION PLAN-SITE

STATION 1191+50.00 OCTOBER 2016

WASHINGTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 2 FILE NO. 31400 DESIGN NO. 218