LETTING DATE 07-18-2023

BRIDGE REPLACEMENT-PPCB
BRF-926-0(17)--38-94

WEBSTER COUNTY

IOWA DOT

REVISIONS

TOTAL 35
PROJECT IDENTIFICATION NUMBER
18-94-926-010
PROJECT NUMBER
BRF-926-0(17)--38-94
R.O.W. PROJECT NUMBER
STPN-926-0(18)--2J-94

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
WEBSTER COUNTY
BRIDGE REPLACEMENT-PPCB

Business U.S. 20 (IA 926) westbound bridge over the Des Monies River and B Ave, 1.3 miles north of the south junction of U.S. 169 in Fort Dodge

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

INDEX OF SHEETS

DESIGN DATA RURAL			
2023	AADT	15500	V.P.D.
2043	AADT	15800	V.P.D.
20 --	DHV	1634	V.P.H.
TRUCKS		5	%
Total Design ESALs		--	

INDEX OF SEALS

	X	
X	X	X

P9: 07–06–2022
D4: 03–21–2023

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN – Date: 03–15–2022

FILE NO.	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER A.1

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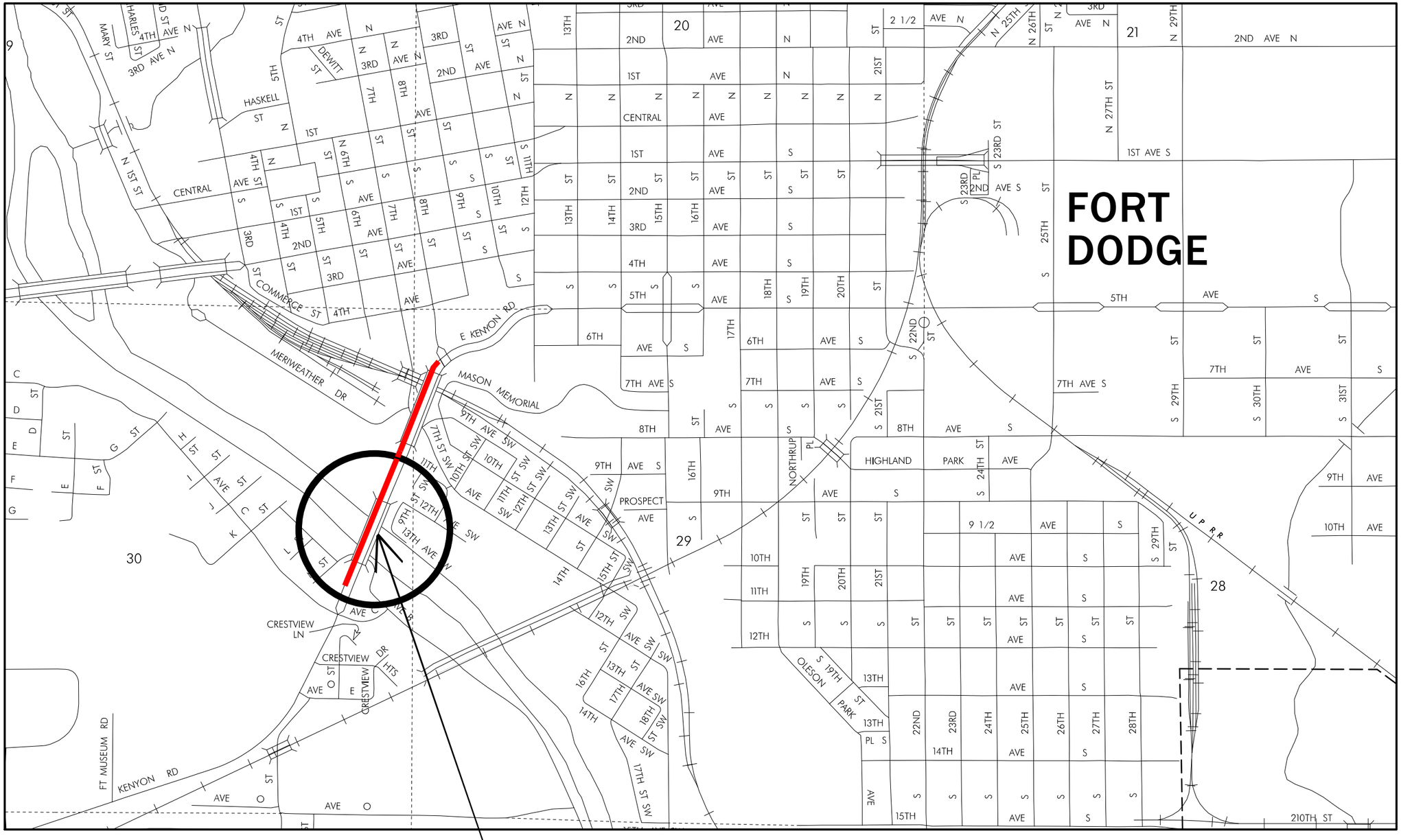
T-89N



FILE NO.	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER A.2

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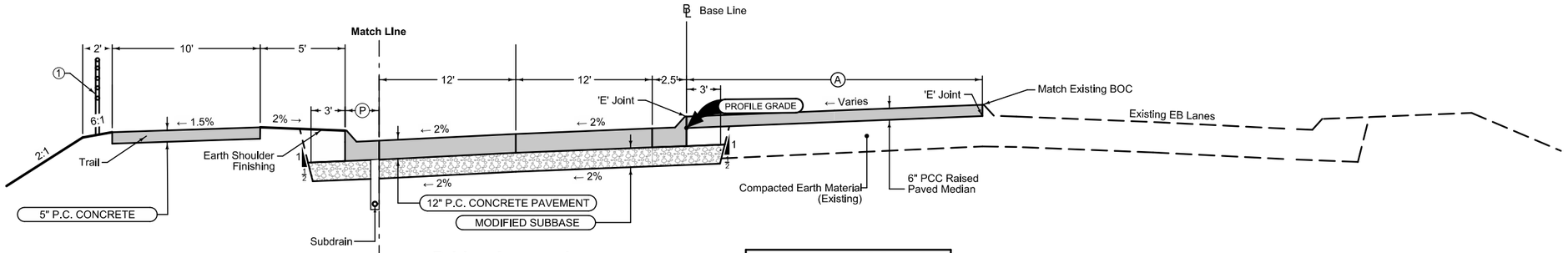
Curbed Shoulder with Trail

STATION TO STATION		Ⓟ Feet	Curb Type See PV-102
719+25.35	719+54.52	2.5-5.5	6" Std
719+54.52	719+81.75	5.5	6" Std

2_Curb_ 04-21-20

① Safety rail from Sta. 719+25.35 to Sta. 719+81.75
② Nominal 3'



Bridge Approach

BEGIN STATION	END STATION
719+11.75	719+81.75
725+56.75	726+26.75

4DP_Raised_Out_ 04-21-20

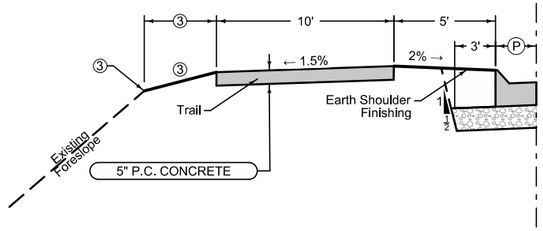
BEGIN STATION	END STATION	Ⓐ Feet
719+11.75	719+81.75	②
725+56.75	726+26.75	②

Curbed Shoulder with Trail

STATION TO STATION		Ⓟ Feet	Curb Type See PV-102
719+11.75	719+25.35	2.5	6" Std

2_Curb_ 04-21-20

③ Tie to existing break

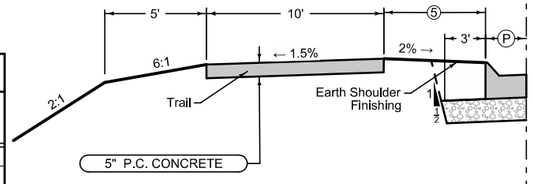


Curbed Shoulder with Trail

STATION TO STATION		Ⓟ Feet	Curb Type See PV-102
725+56.75	726+26.75	5.5	4" Sloped ④

2_Curb_ 04-21-20

④ 9" wide sloped curb. Refer to BA-203
⑤ Width varies. Refer to Sheet B.4



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

IA 926

Curbed Shoulder with Trail

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

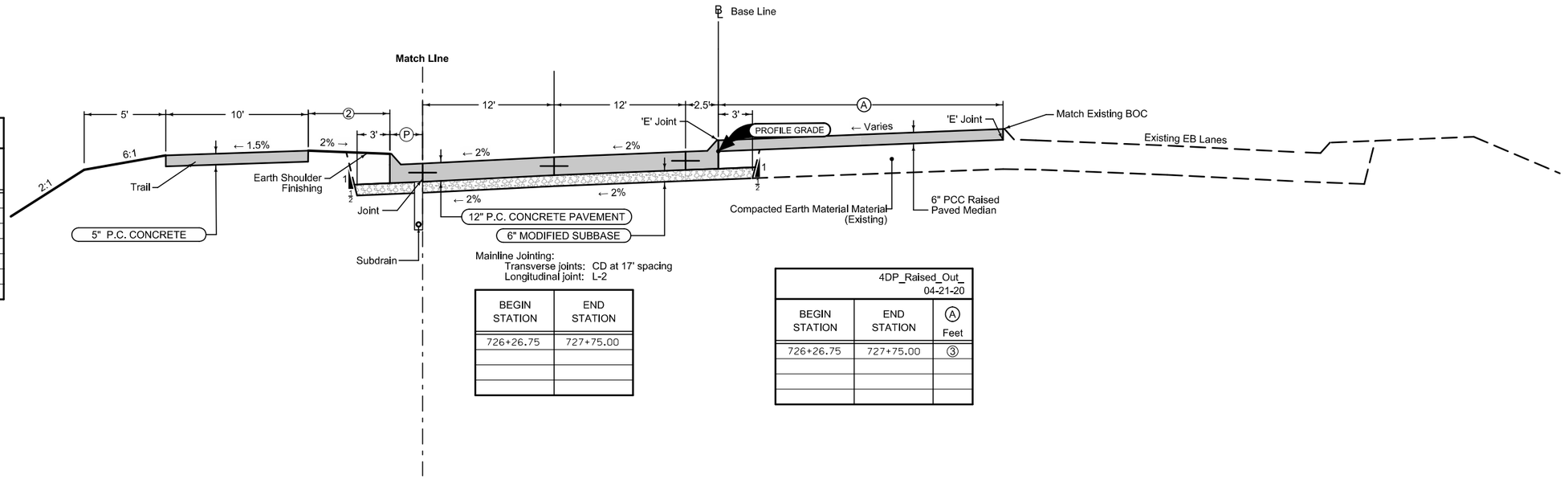
Single pour: L-2
Staged : KT-2
Transverse: C at 17' spacing

2_Curb_ 04-21-20			
STATION TO STATION		(P) Feet	Curb Type See PV-102
726+26.75	727+68.02	5.5	4" Sloped①
727+68.02	727+75.00	5.5-5.3	6" Std

① 9" wide sloped curb. Refer to BA-203

② Width varies. Refer to Sheet B.4

③ Nominal 3'-5'



Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

BEGIN STATION	END STATION
726+26.75	727+75.00

4DP_Raised_Out_ 04-21-20		
BEGIN STATION	END STATION	Ⓐ Feet
726+26.75	727+75.00	③

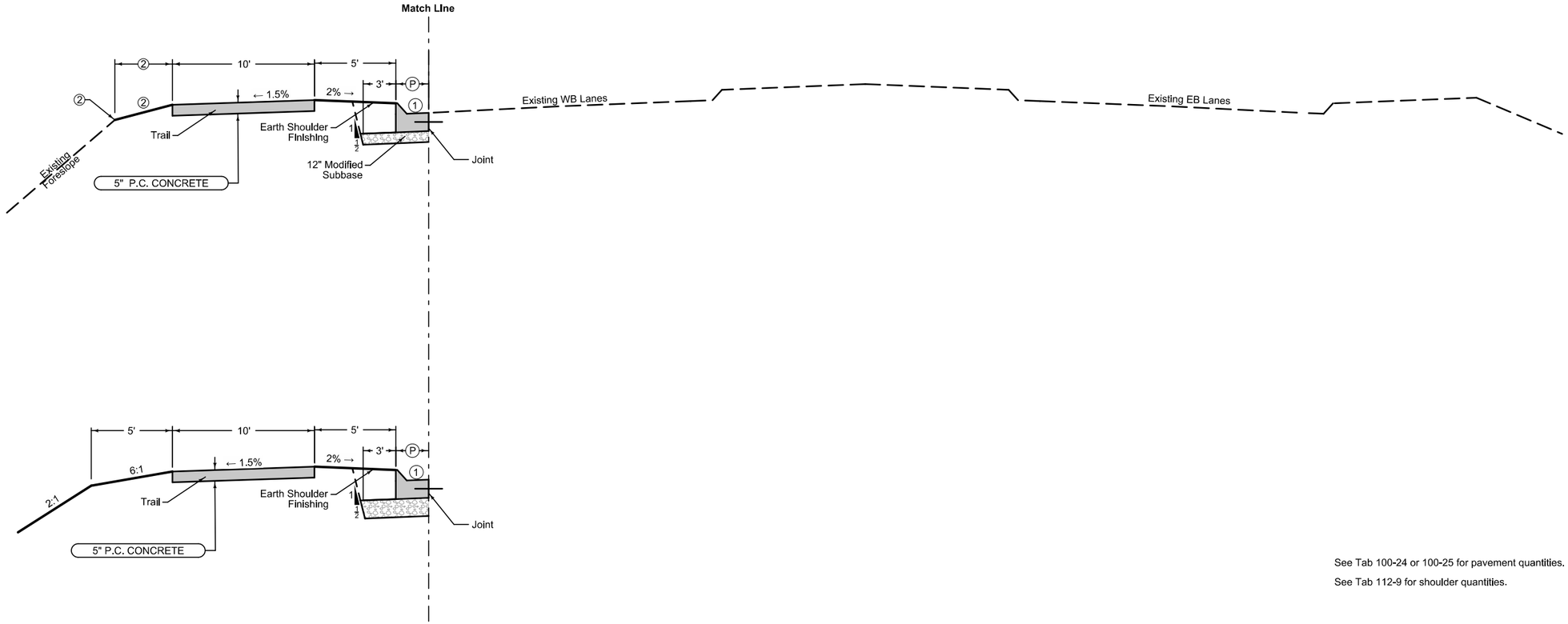
Curbed Shoulder with Trail

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Transverse: Match Main Line Joint Spacing

STATION TO STATION		Ⓟ Feet	2_Curb_ 04-21-20 Curb Type See PV-102
718+00.00	719+11.75	2.5	6" Std

① Match existing cross slope
② Tie to existing break



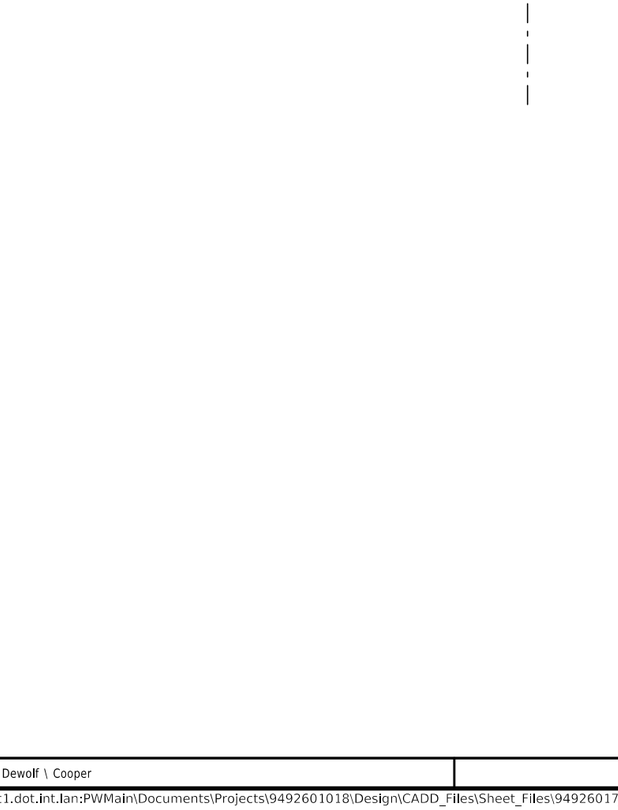
Curbed Shoulder with Trail

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Transverse: Match Main Line Joint Spacing

STATION TO STATION		Ⓟ Feet	2_Curb_ 04-21-20 Curb Type See PV-102
727+75.00	728+03.39	5.3-2.5	6" Std

① Match existing cross slope

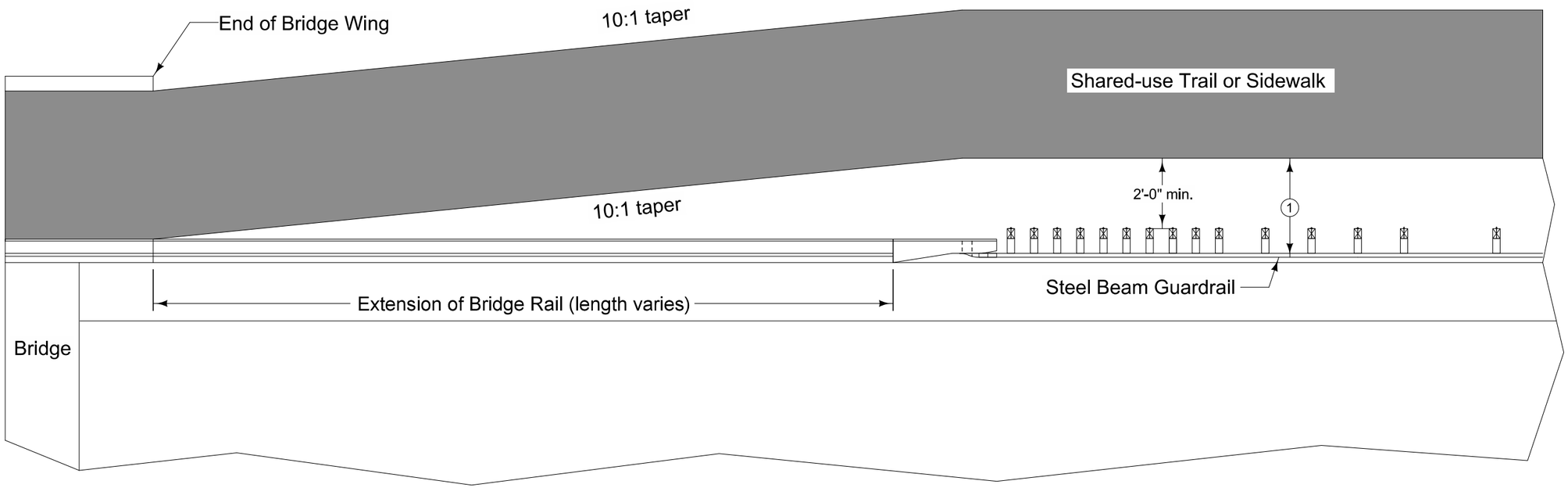


See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

IA 926

(1) Refer to table below for minimum distance between face of guardrail and edge of Shared-use Trail or Sidewalk.

Posted Speed Limit (mph)	Minimum Distance (feet)
<45	4
45 or greater	5



IOWADOT

ROAD DESIGN DETAIL

REVISION	
NEW	10-18-16

560-6

SHEET 1 of 1

REVISIONS: New.

SHARED-USE TRAIL OR SIDEWALK BEHIND STEEL BEAM GUARDRAIL AT BRIDGE APPROACH

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER B.4	

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SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

SAN — SA1D Sanitary Sewer City of Fort Dodge - Quality D
ST S — ST1D Storm Sewer City of Fort Dodge - Quality D
W — WL1D Water Line City of Fort Dodge - Quality D
Jeff Wood
819 1st Avenue S
Fort Dodge, IA 50501-4739
jwood@fortdodgeiowa.org
(515) 955-6139

FO — FO1D Fiber Optic Frontier Communcations - Quality D
TI — TL1D Telephone Line Frontier Communications - Quality D
Trent Flockhart
600 1st Avenue North
Fort Dodge, IA 50501
Trent.Flockhart@ftr.com
(515) 573-1268

TV — GL1D Cable TV Line Mediacom Communications Corporation - Quality D
Mike Lawler
1225 2nd Ave. S
Fort Dodge, IA 50501
mlawler@mediacomcc.com
(515) 955-6100

PPA Power Pole MidAmerican Energy - Quality D
E1 — EL1D Electric Line MidAmerican Energy - Quality D
G — GL1D Gas Line MidAmerican Energy - Quality D
G2 — GL2D Gas Line MidAmerican Energy - Quality D
Brian Sewell
4000 1st Ave. S
Fort Dodge, IA 50501
Brian.Sewell@midamerican.com
(515) 574-5042

G3 — GL3D Gas Line MidAmerican Energy - Quality D
Matt Kovacic
2811 5th Avenue
Rock Island, IL 61201
mskovacic@midamerican.com
(309) 793-3704

T2 — TL2D Telephone Line ICN Iowa Communcation Network - 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.**	
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 Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER D.1

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(Remove)
Sta. 722+69-35' LT
480.6' X 34' MULTIPLE SPAN
DECK TRUSS BRIDGE
WITH 2-40' X 34' APPROACH
SPANS & 2-5' CONC. WKS.
D.A.=4190 SQ. MILE

Sta. 722+66.91
Build: 571'-0" X 30'-0" PPCB
Skew: 0°
Design No. 124

Sta. 718+00.00
Begin Trail and
Curb & Gutter Paving
Begin Project

Sta. 728+03.39
End Trail and Curb &
Gutter Paving
End Project

DOUGLAS TWP
T-89N R-28W
SEC. 30

GARAGE
GARAGE/CARPORT
SHED
COMMERCIAL BUILDING

715+00 716+00 717+00 718+00 719+00 720+00 721+00 722+00 723+00 724+00 725+00 726+00 727+00 728+00 729+00 730+00

10:1
15:1
10:1

IA 926 WB
IA 926 EB

Sta. 719+11.75
Begin Bridge
Approach

Sta. 726+26.75
End Bridge
Approach

Sta. 727+75.00
End Paving

(U.A.C)
WIDEN BRIDGE WELDED GIRDER
556' X 30' CONT.
AT Sta. 722+69
DESIGN NO. 172
DESIGN Q=36,000 CU. FT.

Sta. 717+25.60
15"x63' RCP
(U.A.C)

Sta. 718+73.90
36"x233' RCP
(U.A.C)

Sta. 719+44.87
15"x67' RCP

24" CMP
(U.A.C)

Sta. 726+45.74
15"x32' RCP
(U.A.C)

Sta. 729+49.13
15"x69' RCP

14+95.83
5' RCP

COOPER T
T-89N R-2
SEC. 2

SAN. SAN. SAN. SAN. SAN. SAN. SAN. SAN. SAN. SAN.

APPROX. SEC. LINE

0 FEET 50

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER D.2	

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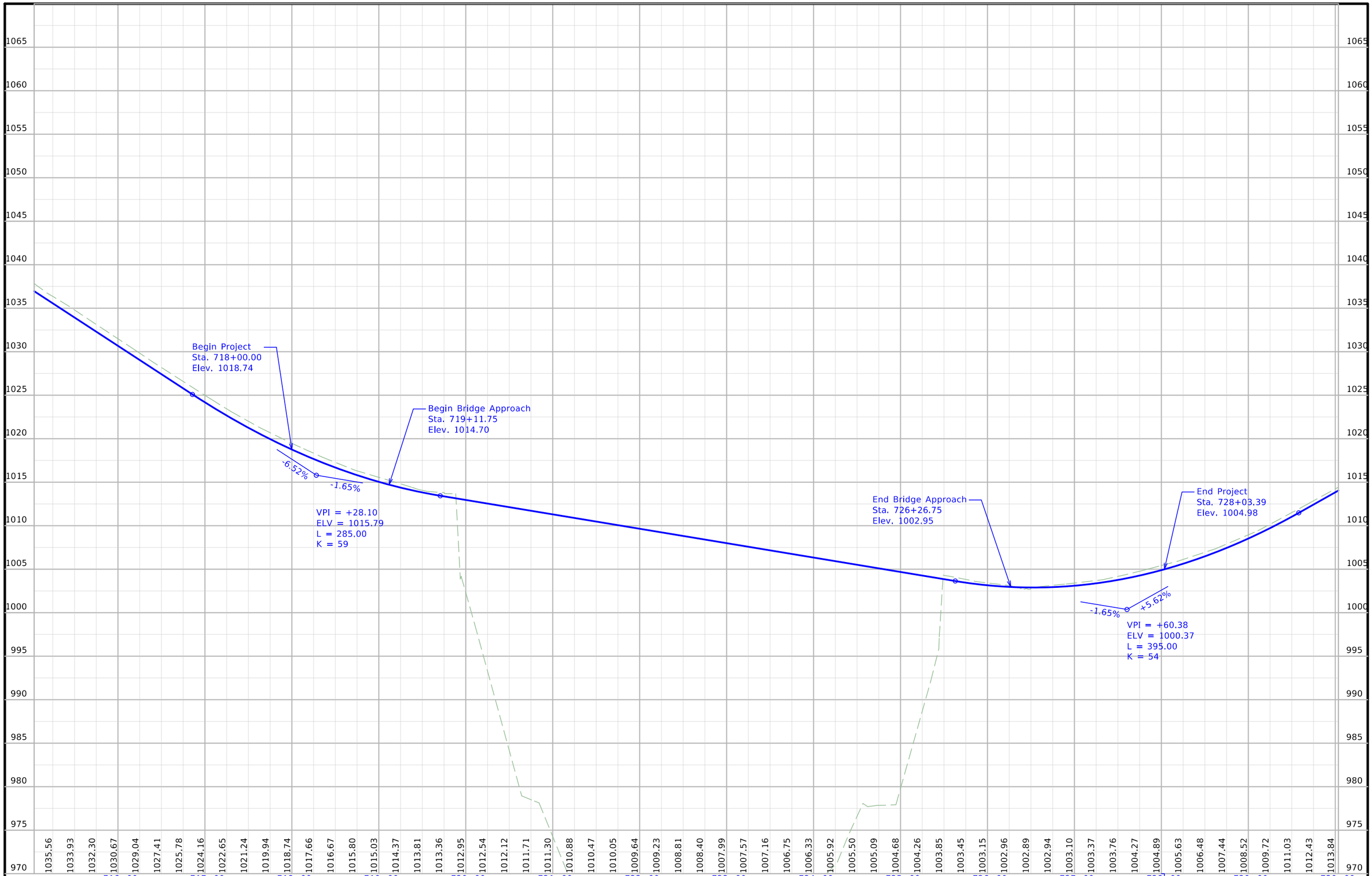

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER D.3

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Survey Information

Webster County
BRF-926-0(17)—38-94
BRF-926-0(19)—38-94
US 20 Fort Dodge
PIN 18-94-926-010
18-94-926-020
Sap-09590

General Information

Measurement units for this survey are US survey feet. This preliminary engineering survey is for improvements to US 20 over Des Moines River and B Ave 1.3 miles north of south junction US 169 in Fort Dodge. This project is a full field survey within the survey limits.

Vertical Control

Vertical datum for this survey is relative to NAVD88, Geoid 12b.

Vertical positions were established by static observations and post processed using concurrent observations from the IaRTN Fort Dodge and Clarion reference stations.

Horizontal Control

The project coordinate system is the Iowa Regional Coordinate System, Zone 4. Horizontal datum is NAD83 (2011) for Epoch 2010.00. The projection parameters for Zone 4 of the IaRCS is defined below:

Lambert Conformal Conic Projection North American Datum of 1983
Origin Lat: 42°32'00"N
Origin Central Meridian: 094°50'00"W
Central Meridian Scale: 1.000045
False Northing: 8,600,000
False Easting: 14,500,000

Horizontal positions for site control were established by static observations and post processed using concurrent observations from the IaRTN Fort Dodge and Clarion reference stations

Alignment Information

US 20
The horizontal alignment for this survey is a retrace of as-built plans U-20-3(11)—40-94. Survey stationing was equated to the plan POC at station 747+50.00 and run back without equation.

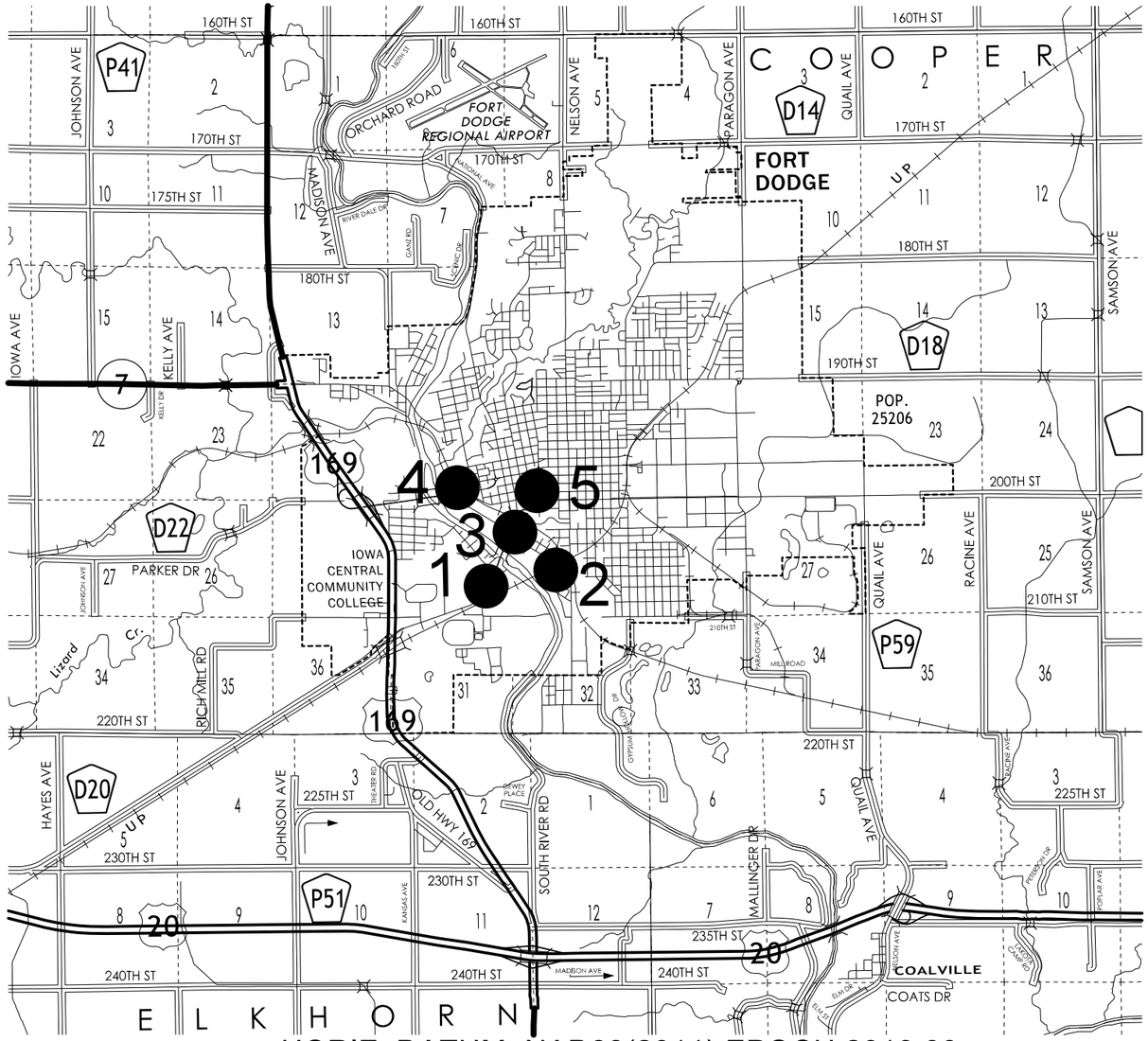
Utility Information
Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

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

A One-call utility locate request (Ticket# 552004559) was made July 7, 2020. The following Companies were listed:

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

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	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

Point Name	Northing	Easting	Elevation	Feature Definition	Description
CP1	8585070.70	14673125.15	1079.760	CP	SET FENO MONUMENT//IDOT BRASS CAP NW QUADRANT OF KENYON ROAD AND AVE E//+/-20FT NORTH OF UNITY POINT SIGN//+/-20FT WEST OF SIDEWALK
CP2	8586386.79	14675715.07	1005.635	CP	SET FENO MONUMENT//IDOT BRASS CAP SOUTH SIDE OF 11TH AVE SW INLINE WITH POWERPOLE//+/-7FT SOUTH OF BACK OF CURB//+/-70FT EAST OF 13TH ST SW
CP3	8587469.60	14674403.20	1008.556	CP	SET FENO MONUMENT//IDOT BRASS CAP SOUTH SIDE OF 11TH AVE SW INLINE WITH 1ST PIER FROM SOUTH SIDE OF NORTH BOUND BRIDGE//+/-45FT SOUTHWEST OF BACK OF CURB//ACROSS FROM ROW SIGN
CP4	8588826.74	14671977.48	991.811	CP	SET FENO MONUMENT//IDOT BRASS CAP SOUTH SIDE OF MERIWETHER DRIVE//5FT SOUTH OF BACK OF CURB//ACROSS FROM 2ND LIGHT POLE WEST OF DRIVE TO RIVERFRONT PARKING LOT
CP5	8588447.63	14674882.86	1084.993	CP	SET FENO MONUMENT//IDOT BRASS CAP SOUTH SIDE OF KENYON ROAD//+/-5FT SOUTH OF SIDEWALK//+/-75FT EAST OF 2ND POWER POLE EAST OF S 8TH ST

108-23A
08-01-08

TRAFFIC CONTROL PLAN

IA 926 west bound lanes will be closed during construction. Through traffic will be maintained via crossovers detailed in Sheets J.3 through J.9. The contractor shall provide access to all entrances at all times.

111-01
04-17-12

COORDINATED OPERATIONS

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

Project	Type of Work
BRF-926-0(19)--38-94	Bridge Replacement

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

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

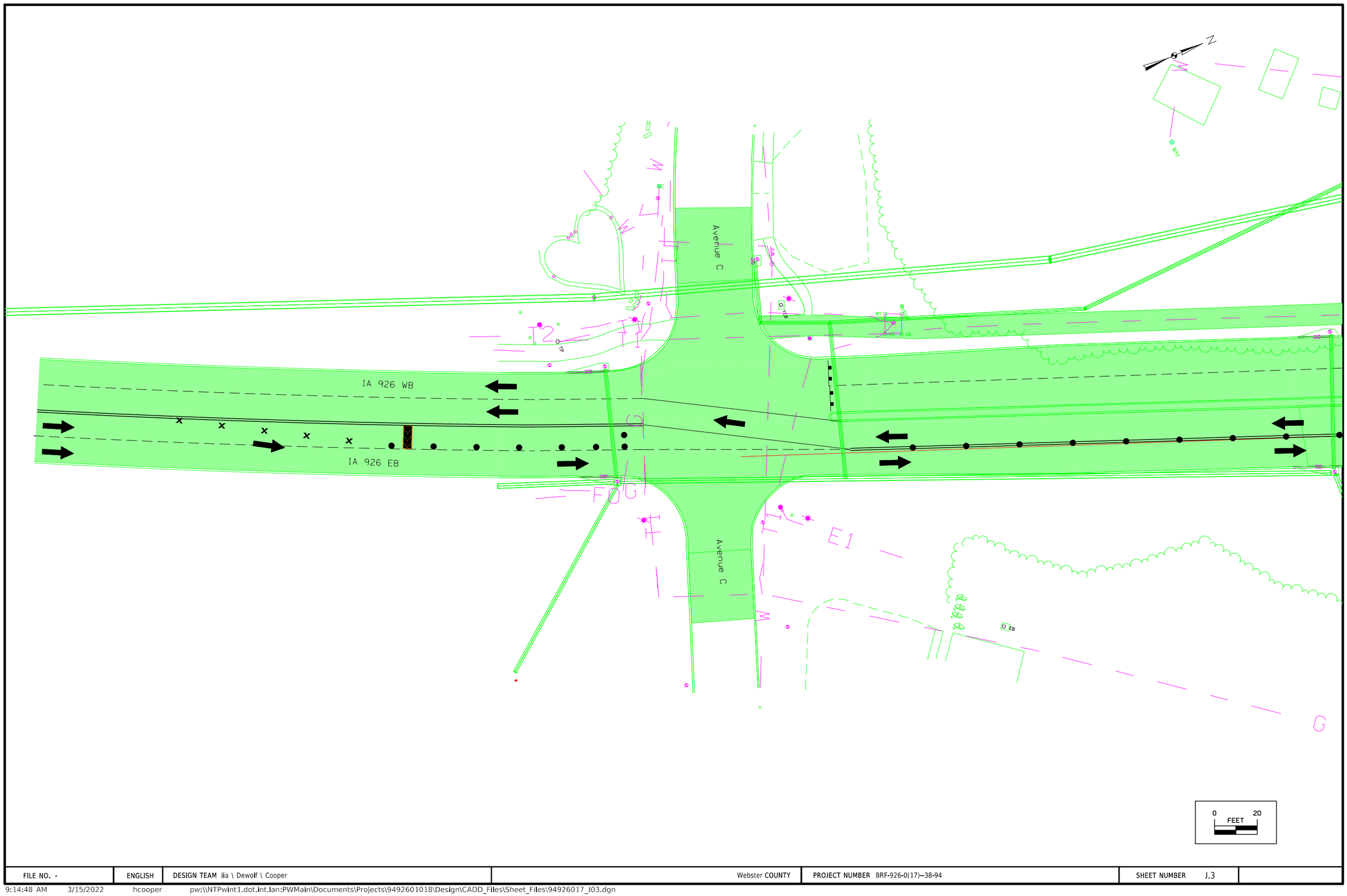
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

●	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
⊰	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 Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER J.3

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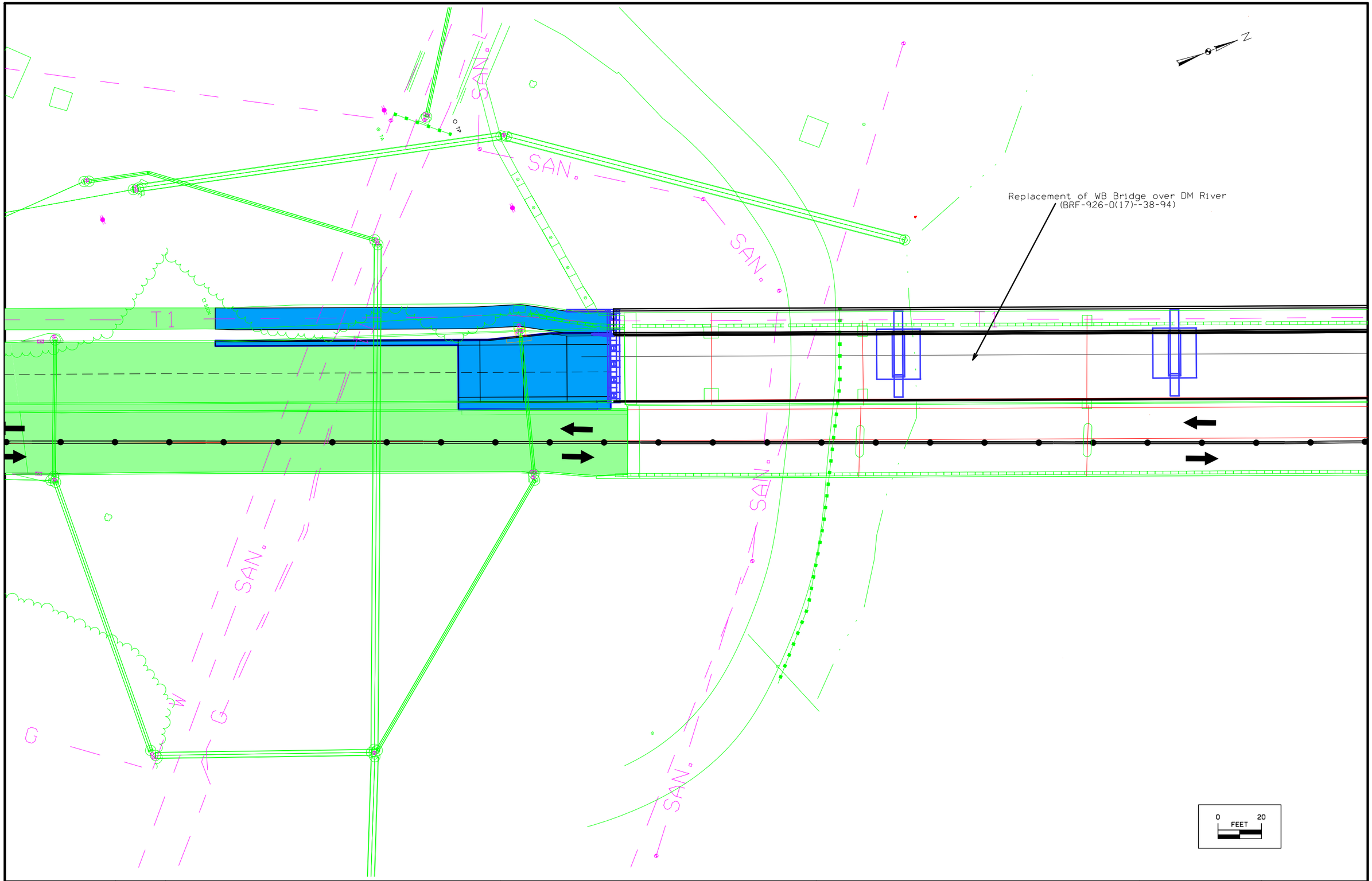

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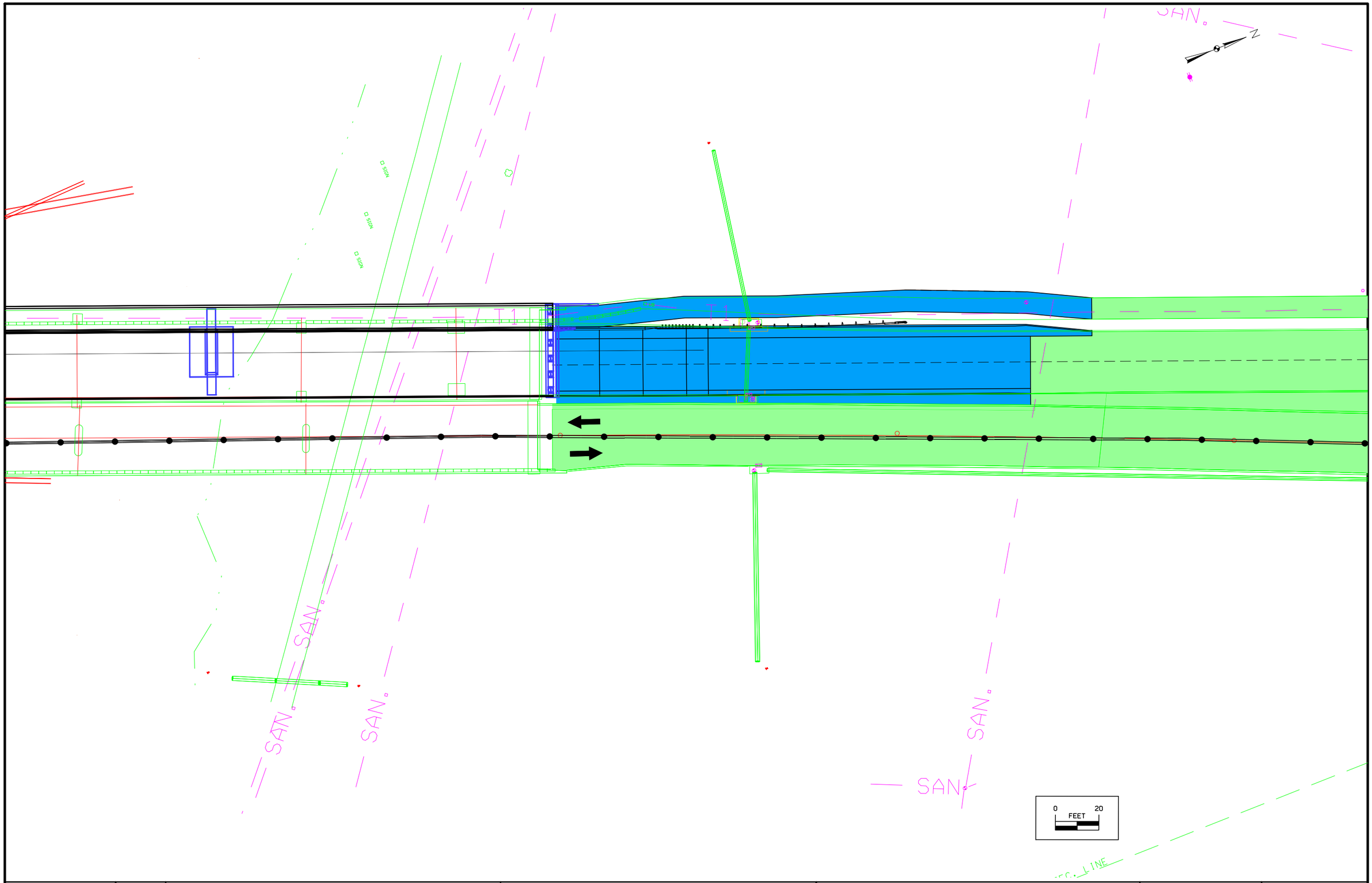

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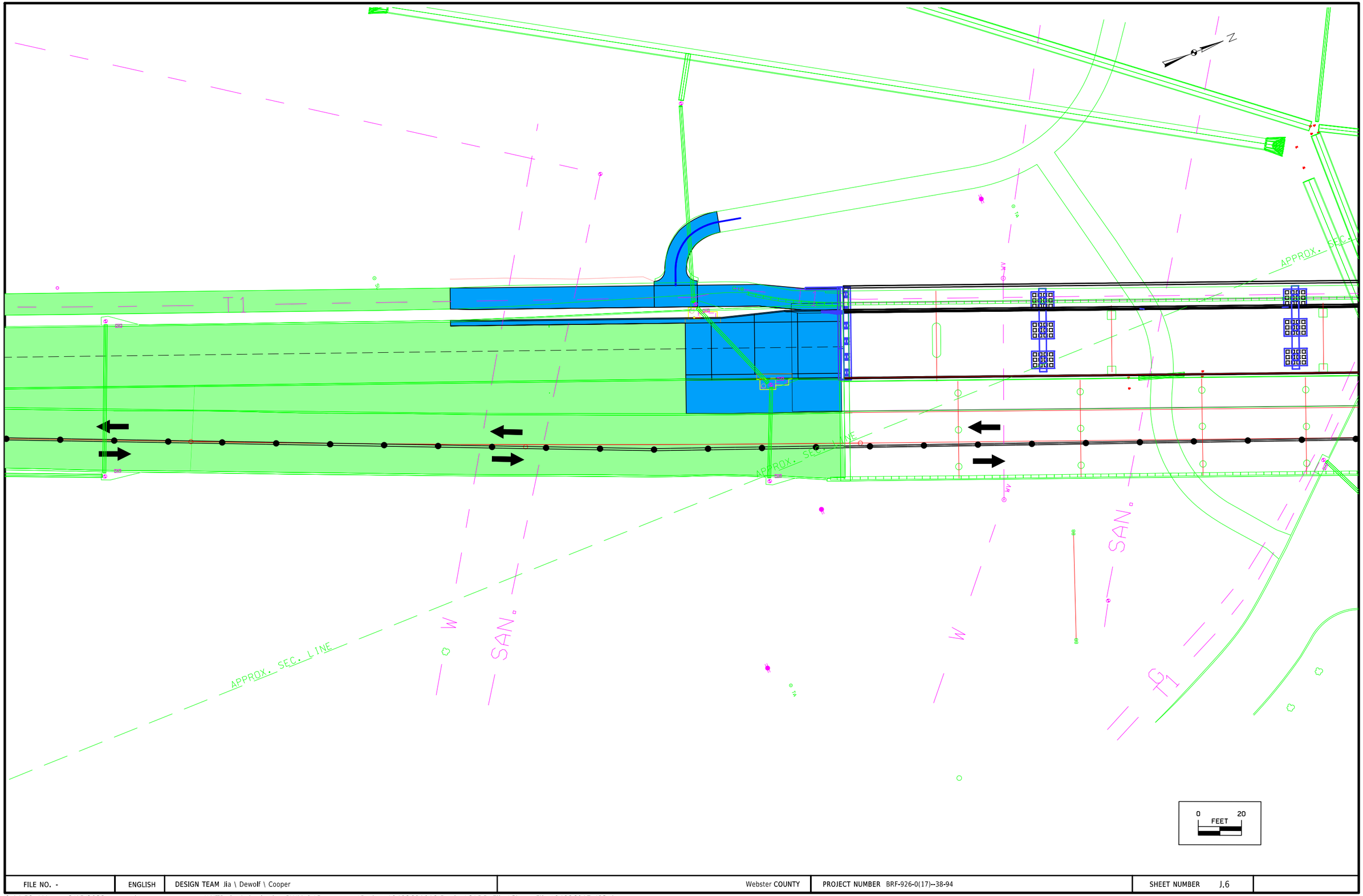

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER J.6

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Replacement of WB Bridge over RR
(BRF-926-0(19)--38-94)

APPROX. SEC. LINE

SAN.

T1

T3

0 20
FEET

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER J.7

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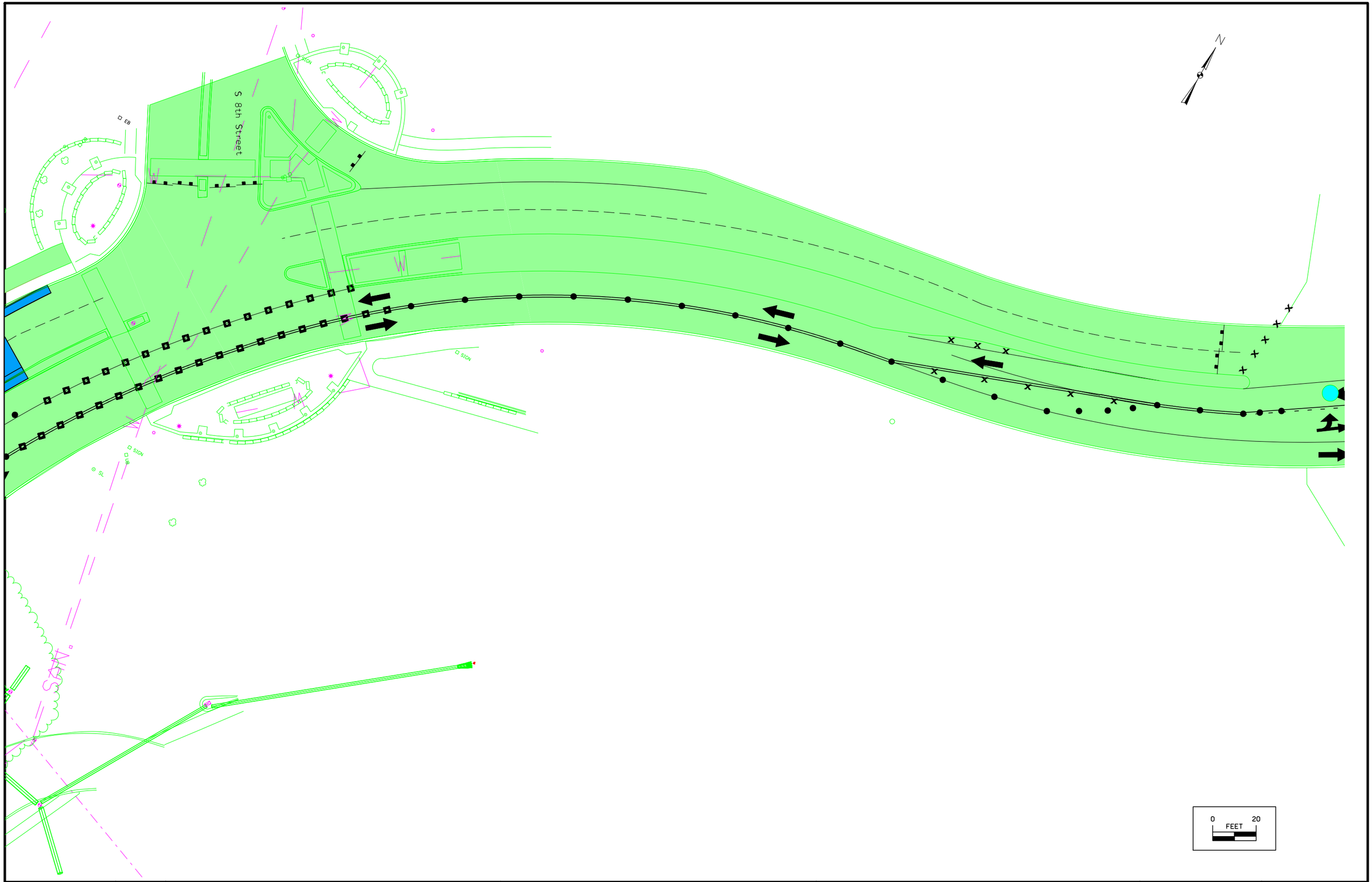

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER J.8

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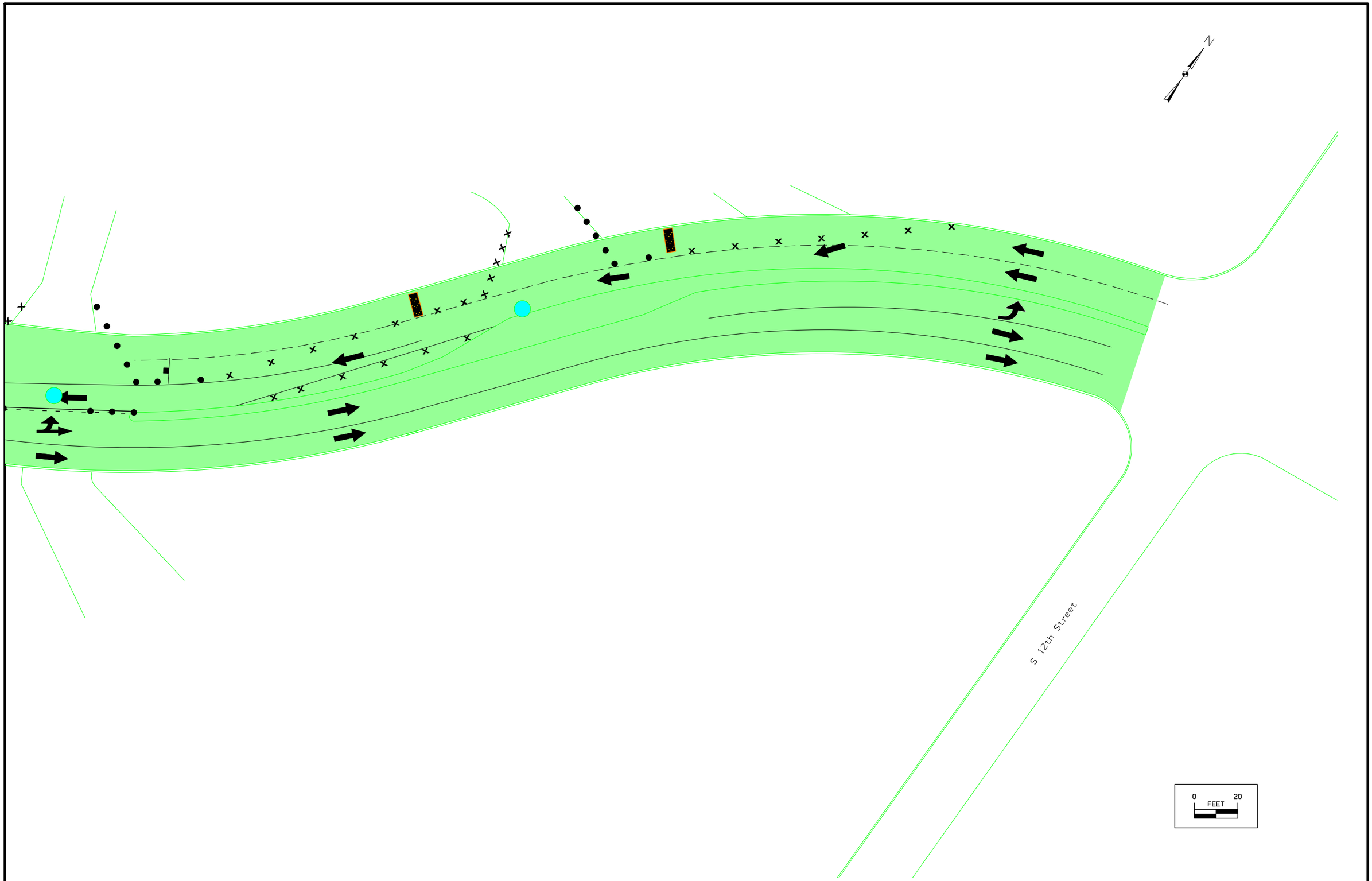

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper		Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER J.9

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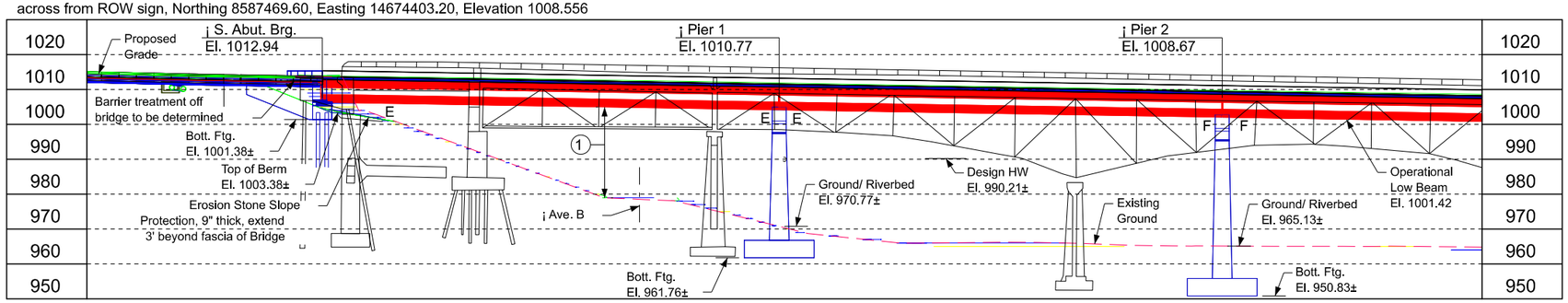
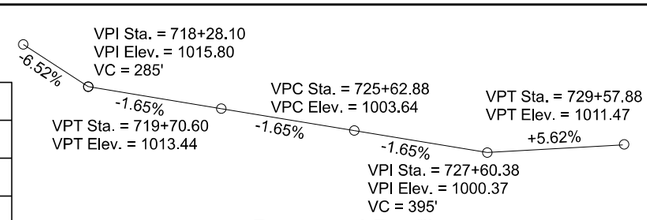
Control Point: Set feno monument DOT brass cap South side of 11th Ave. SW inline with 1st pier from South side of Northbound bridge ±45 ft Southwest of back of curb across from ROW sign, Northing 8587469.60, Easting 14674403.20, Elevation 1008.556



Longitudinal Section Along ℄ Roadway



Proposed Profile Grade SB IA 926

Note:
1. Top of bridge deck at centerline roadway is 0.29' below the profile grade to account for deck cross slope.

2. The bridge will be designed to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q100 [BDM 3.2.2.4].

General Notes
1. This Design is for the replacement of the existing 560'-7" x 33'-0" Steel Truss and Pretensioned Prestressed Concrete Beam Bridge with 5' Sidewalk, Design Nos. 134 & 475, FHWA No. 52081, Maint No. 9401.3L926

Notes to the designer:
1. Bridge aesthetics to be incorporated during final design.
2. Barrier type to be determined during final design.
3. Berm slopes to be confirmed during final design.
4. T-type pier proposed.
5. BTE Beams proposed.
6. Non-standard abutment wingwall
7. Straight 6'-0" fence proposed along sidewalk.
8. An Iowa DNR Sovereign Lands Permit is required.
9. As this project requires a Sovereign Lands Permit, bid item reference notes shall restrict broken concrete as a substitute for revetment [BDM 3.2.7.3.5].
10. A 404 Permit is required.
11. An Iowa DNR Flood Plan Permit is required. Preliminary Design will submit the application and place the permit in the PW Regulatory_Permits subdirectory upon receipt.
12. Pier 1 is located outside the acceptable clear zone of 12 ft.
13. Instrumentation for load testing of the bridge is scheduled to be installed before demolition of the bridge. Purdue University will be coordinating the load testing with the Contractor and the Iowa DOT.

Notes to the designer (Continued):
14. Requirements for state water trail or paddling route are applicable. Signage, plan notes, and bid items shall be addressed by Design Bureau and included in road plans.
15. In compliance with Section 7 of the Endangered Species Act of 1973, a review of the project area shows a state threatened fish species, mudpuppy (Necturus maculosus), just downstream of the project. Further reviews required when more project details are known and coordination with the Iowa Department of Natural Resources will be required to see if any timing restrictions in the water are required.
16. Barrier and fence treatments at the end of the bridge to be determined.
17. The project design and check scour will be limited by the elevation to competent rock.
18. 100 & 500 yr. stages and discharges from Webster County F.I.S. dated 12/4/2012. 25, 50 & 200 yr. discharges estimated using StreamStats flows calibrated to the F.I.S. flows.
19. The use of semi-integral abutments will be investigated during final design.

① Minimum Vertical Clearance

Proposed Condition
Overhead Station = 720+64.36, Offset 39.58' Lt
Overhead Elevation = 1011.09
Depth of Superstructure = 6'-1"
Underpass Elevation = 979.44
Minimum Vertical Clearance = 25'-6"

Existing Condition
Overhead Station = 720+64.36, Offset 39.58' Lt
Overhead Elevation = 1011.26
Depth of Superstructure = 13'-6"
Underpass Elevation = 979.44
Minimum Vertical Clearance = 18'-3"

Traffic Estimate

2023 AADT	7,578	V.P.D.
2043 AADT	7,726	V.P.D.
2043 DHV	642	V.P.H.
Trucks	5	%
Total		
Design ESALs	1,127,996	

Hydraulic Data

Drainage Area = 4,230 Sq. Mi.
Stream Slope = 5.0 Ft./Mi.
Avg. Low Water Stage = 974.5

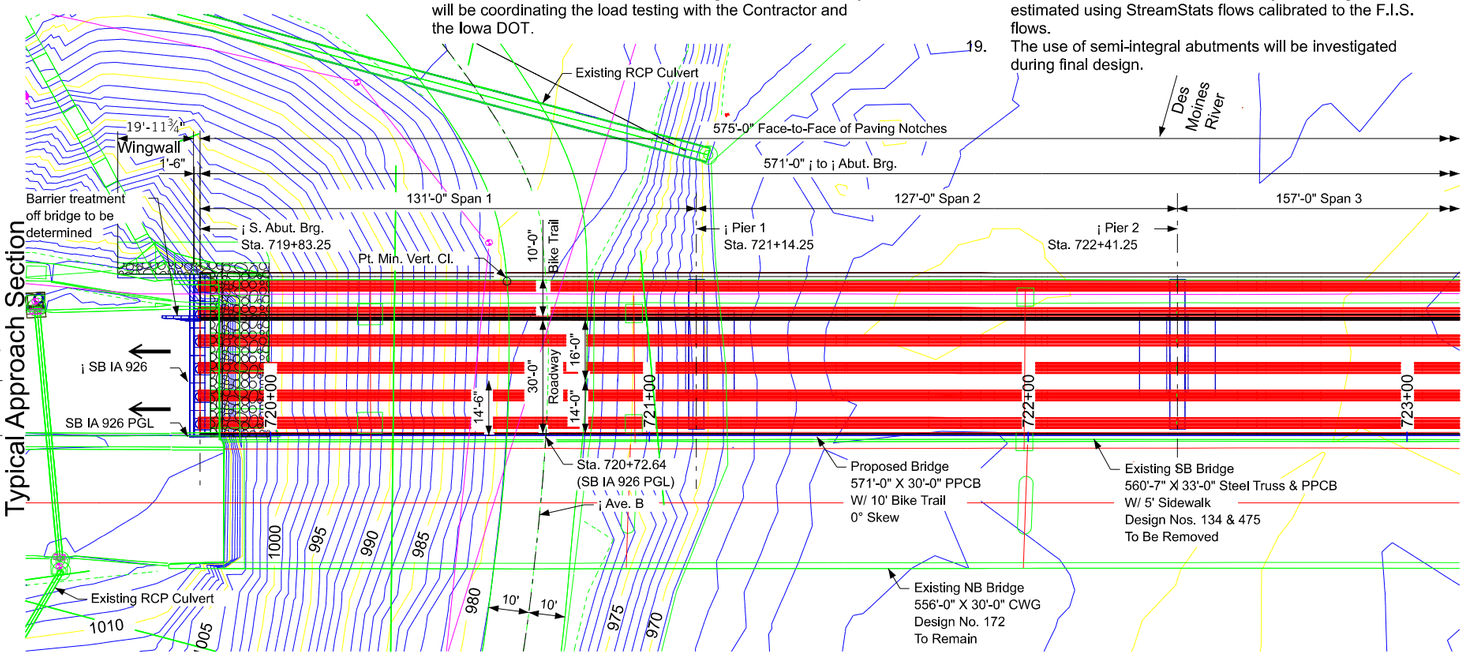
Q_{25} = 32,710 CFS
Stage = 987.06

Q_{50} = 38,120 CFS
Stage = 988.61
Regulatory Low Beam = 996.85
Avg. Bridge Velocity = 6.74 FPS

Q_{100} = 44,130 CFS
Stage = 990.21
Operational Low Beam = 1001.42
Backwater = 0.0 Ft.
Avg. Bridge Velocity = 6.99 FPS

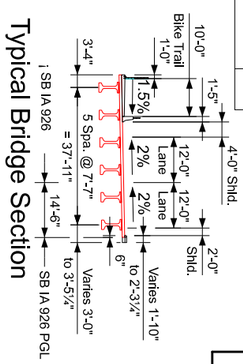
Q_{200} = 50,620 CFS
Stage = 991.83
Calculated Design Scour = 967.12

Q_{500} = 58,810 CFS
Stage = 994.2
Calculated Check Scour = 957.49



Situation Plan

Typical Approach Section



Typical Bridge Section

Location

IA 926 over the Des Moines River
T-89N R-28W
Section 30
Wahkonsa Township
Webster County
City of Fort Dodge
Bridge Maint. No. 9401.3L926
FHWA No. 52081
Latitude 42.494595°
Longitude -94.188863°

Utilities Legend

SAN - Sanitary Sewer
T1 - Telephone

0 ENGLISH 40
SCALE IN FEET

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.

LICENSED PROFESSIONAL ENGINEER xxxxx xxxxxxx IOWA

Signature xx/xx/xxxx Date
XXXXXXXXXX
Printed or Typed Name
My license renewal date is December 31, xxxx
Pages or sheets covered by this seal:

Design For 0° Skew

571'-0" X 30'-0" PPCB Bridge W/ 10'-0" Bike Trail

131'-0", 156'-0" End Spans 127'-0", 157'-0" Interior Spans

Situation Plan (1 of 2)

STA. 722+66.91 (SB IA 926) TS&L Date February 2022

Webster County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124 Design Sheet No. 001 of 3 FHWA No. 52082

FILE NO. 32182	ENGLISH	DESIGN TEAM KMS/MFH/KMP	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER V.1	REVISED

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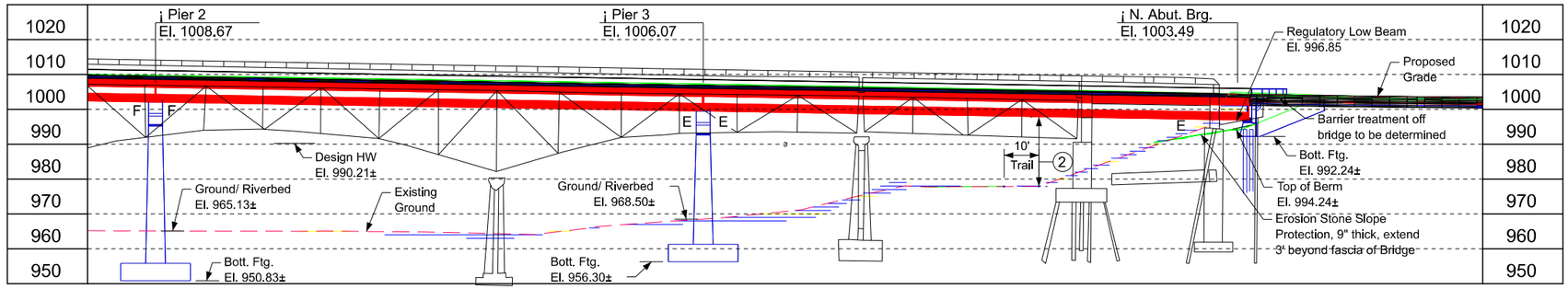


Longitudinal Section Along ¡ Roadway

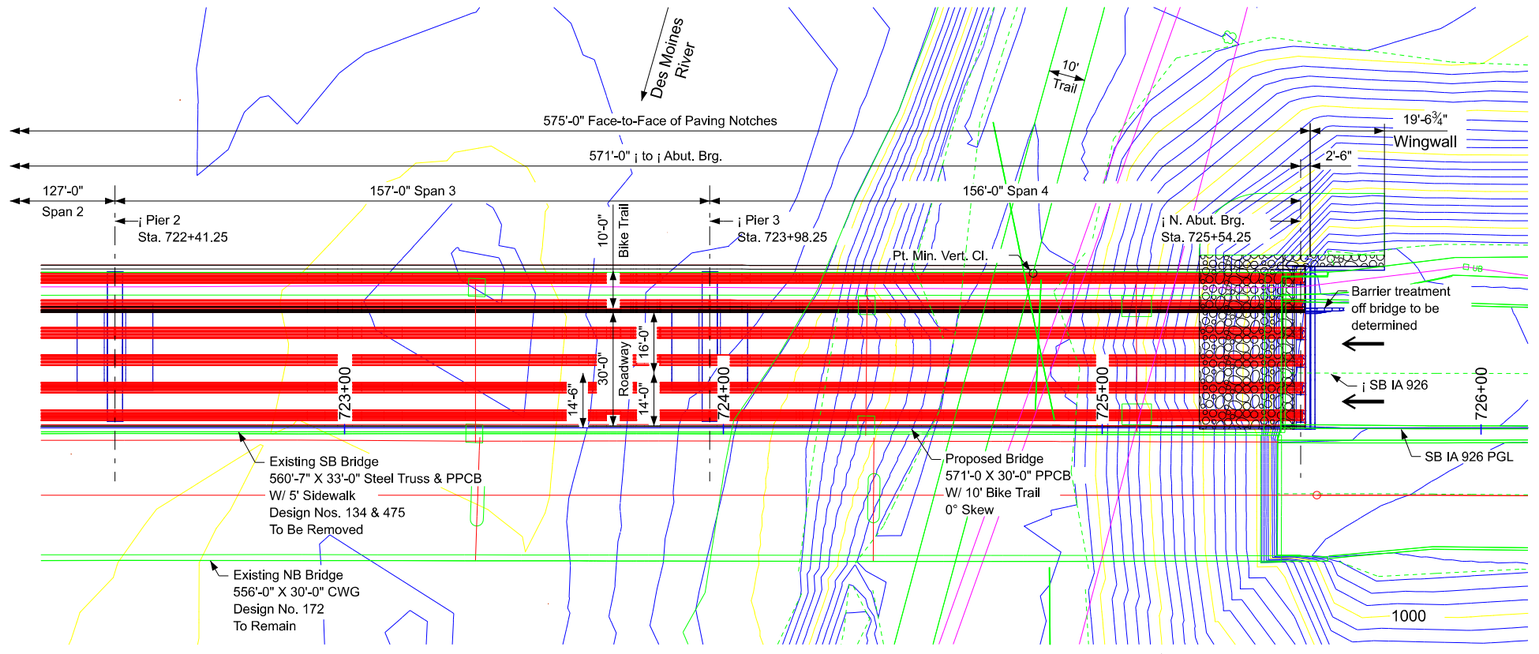
② Minimum Vertical Clearance

Proposed Condition

Overhead Station = 724+83.26, Offset 39.58' Lt
Overhead Elevation = 1004.16
Depth of Superstructure = 6'-1"
Underpass Elevation = 997.96
Minimum Vertical Clearance = 20'-1"

Existing Condition

Overhead Station = 724+83.26, Offset 39.58' Lt
Overhead Elevation = 1004.97
Depth of Superstructure = 13'-6"
Underpass Elevation = 977.96
Minimum Vertical Clearance = 13'-6"



Situation Plan

0 ENGLISH 40
SCALE IN FEET

Design For 0° Skew

571'-0" X 30'-0" PPCB Bridge W/ 10'-0" Bike Trail

131'-0", 156'-0" End Spans 127'-0", 157'-0" Interior Spans

Situation Plan (2 of 2)

STA. 722+66.91 (SB IA 926) TS&L Date February 2022

Webster County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124 Design Sheet No. 002 of 3 FHWA No. 52082

FILE NO. 32182	ENGLISH	DESIGN TEAM KMS/MFH/KMP	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER V.2	REVISED

12:13:59 PM 2/14/2022 ksnider c:\pw_work\pwmain\kevin.snider\d1319918\OBM_94926017_BENESCH_124_52081_Z04.dgn

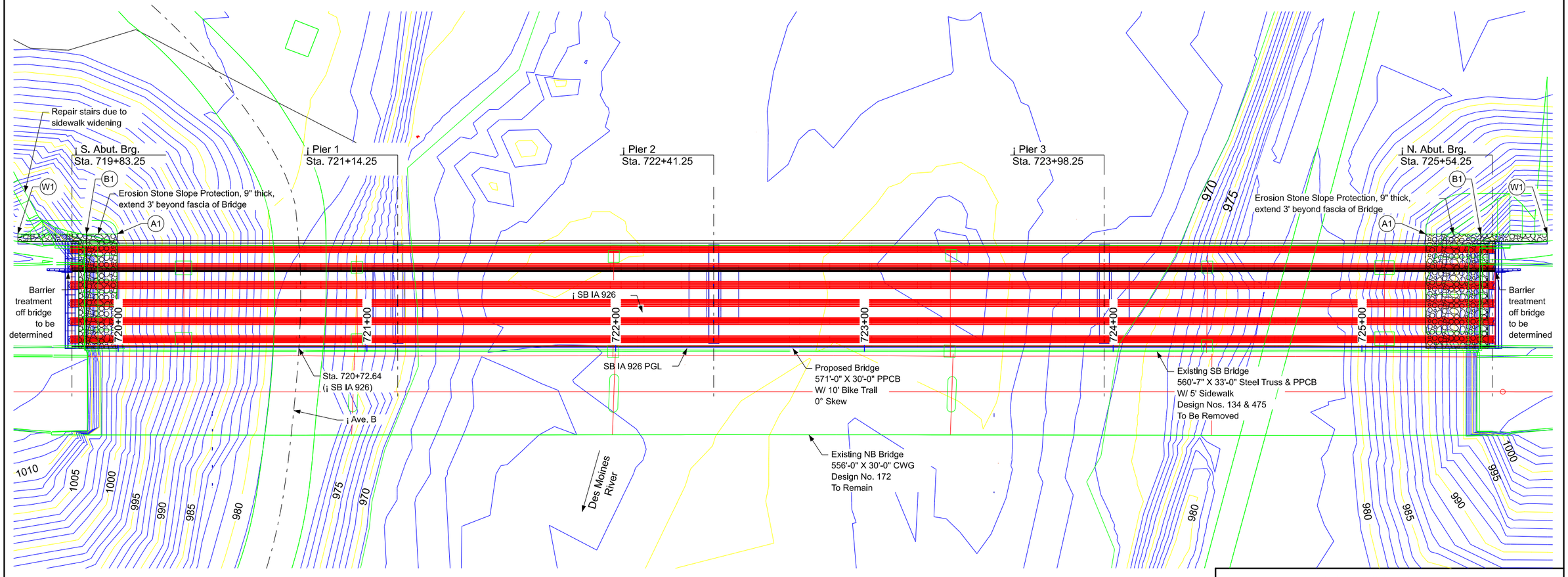
Berm Slope Location Table

Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	719+99.61	45.92' Lt.	1000.50	725+25.59	45.92' Lt.	989.00
B1	719+87.16	45.92' Lt.	1003.38	725+47.74	45.92' Lt.	994.24
W1	719+59.68	45.92' Lt.	1013.00	725+74.47	45.92' Lt.	1003.00

Berm slope elevations reflect the grading surface.

Estimated Berm Slope Quantities

Location	Erosion Stone (TON)	Engineering Fabric (SY)
South Abutment	37.04	91.46
North Abutment	75.74	187.02



Site Plan

Design For 0° Skew (LA or RA)

571'-0" X 30'-0" PPCB Bridge W/ 10'-0" Bike Trail

131'-0", 156'-0" End Spans 127'-0", 157'-0" Interior Spans

Site Plan

STA. 722+66.91 (SB IA 926) TS&L Date February 2022

Webster County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 124 Design Sheet No. 003 of 3 FHWA No. 52082

FILE NO. 32182	ENGLISH	DESIGN TEAM KMS/MFH/KMP	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER V.3	REVISED

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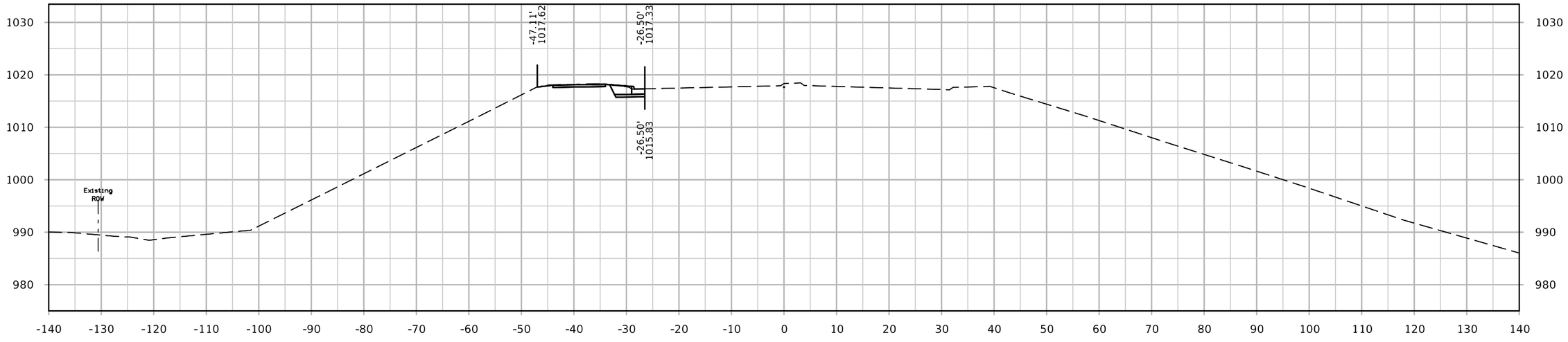
ML - IA 926



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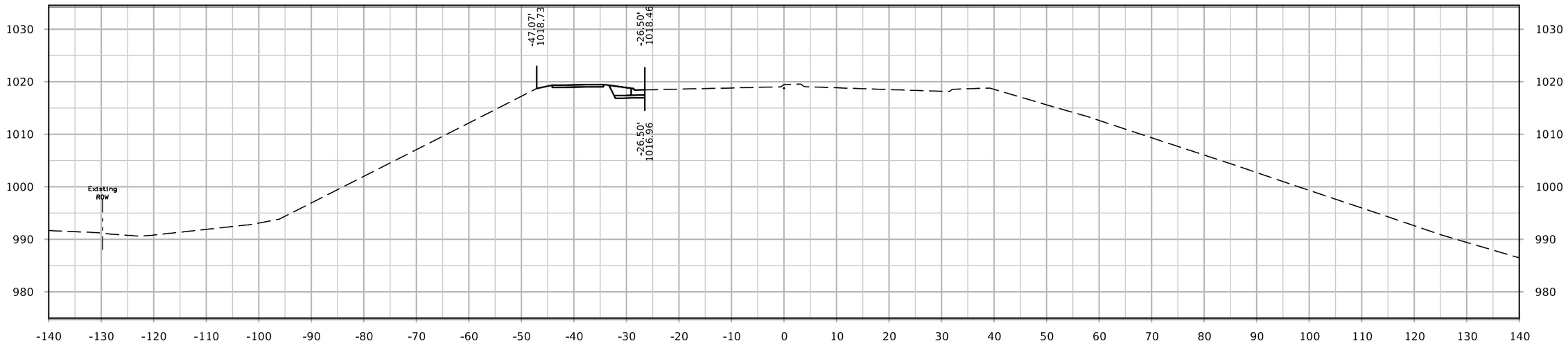

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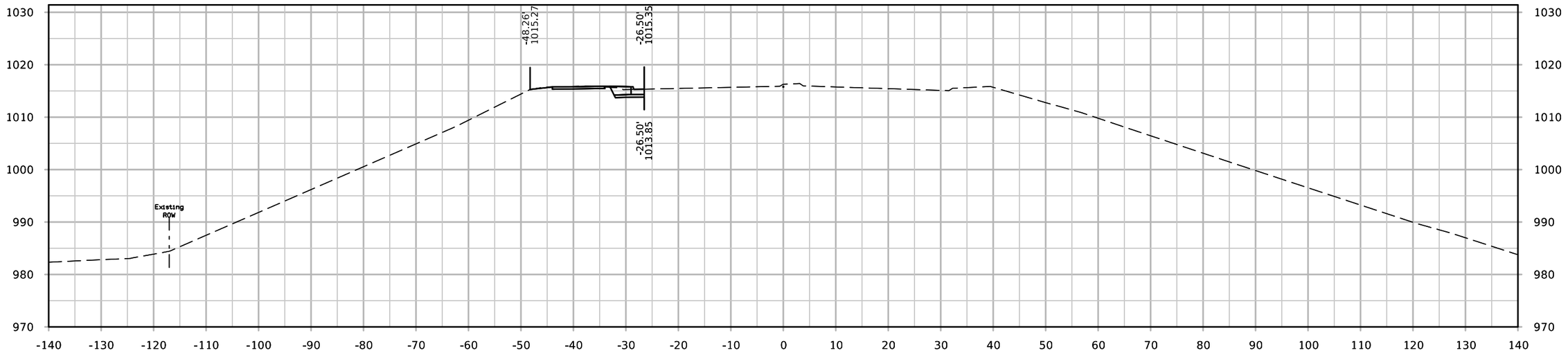
ML - IA 926



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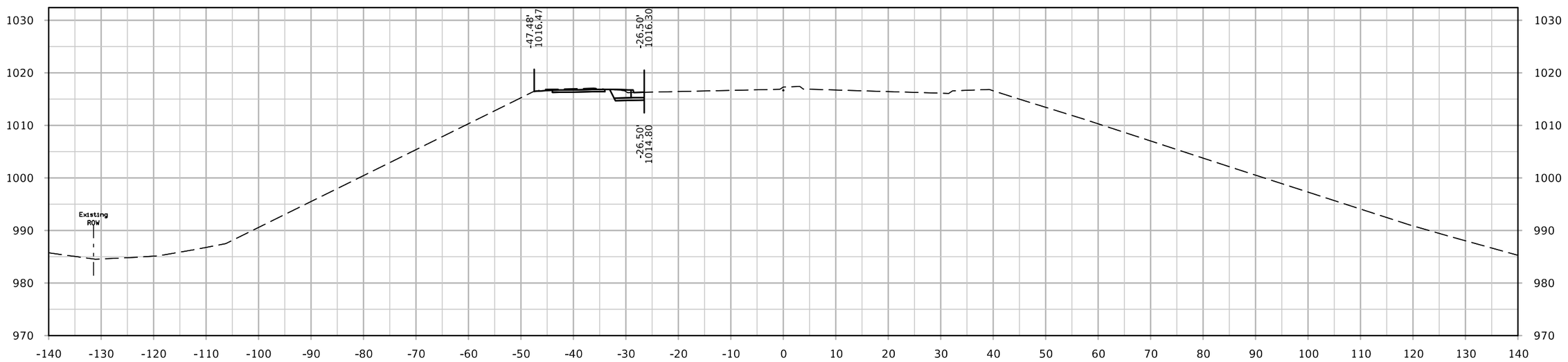

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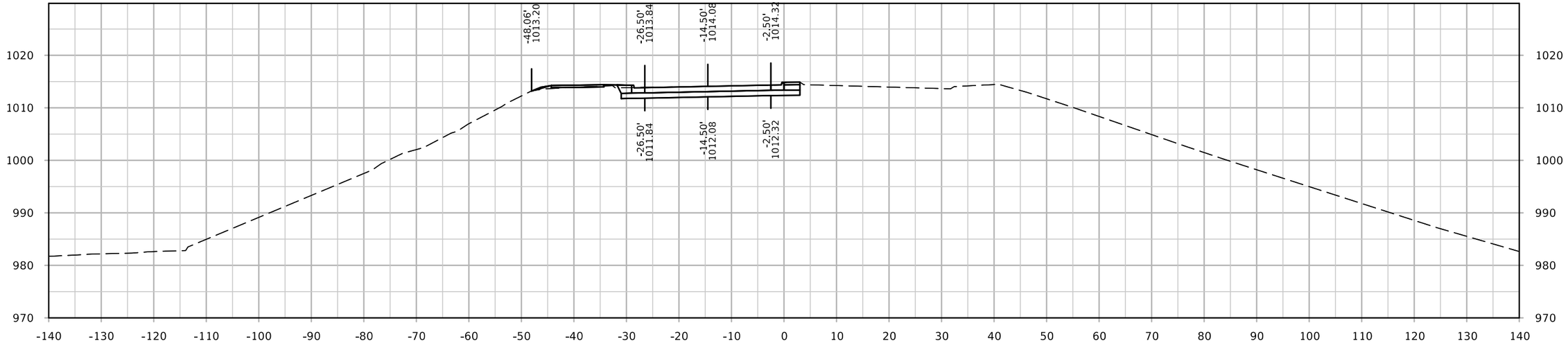
ML - IA 926



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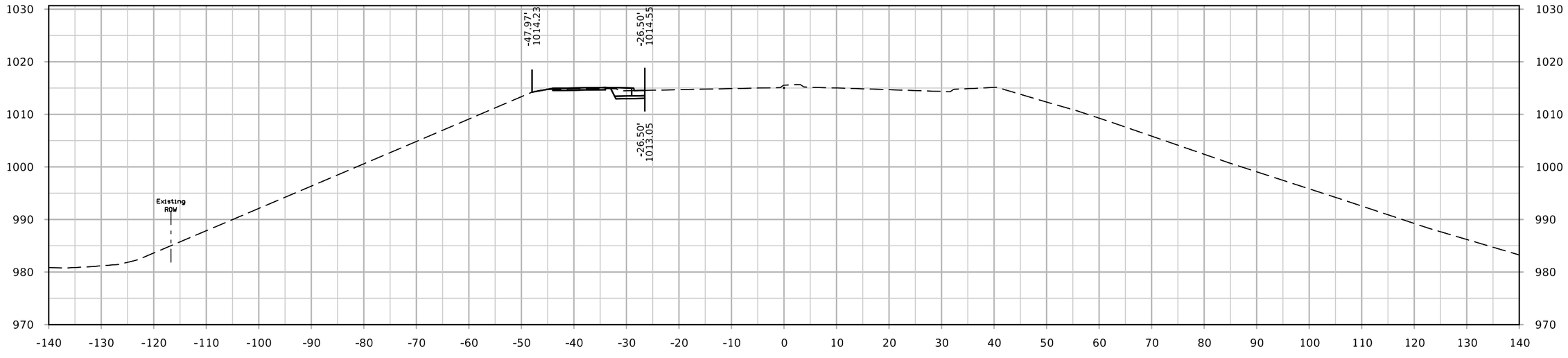

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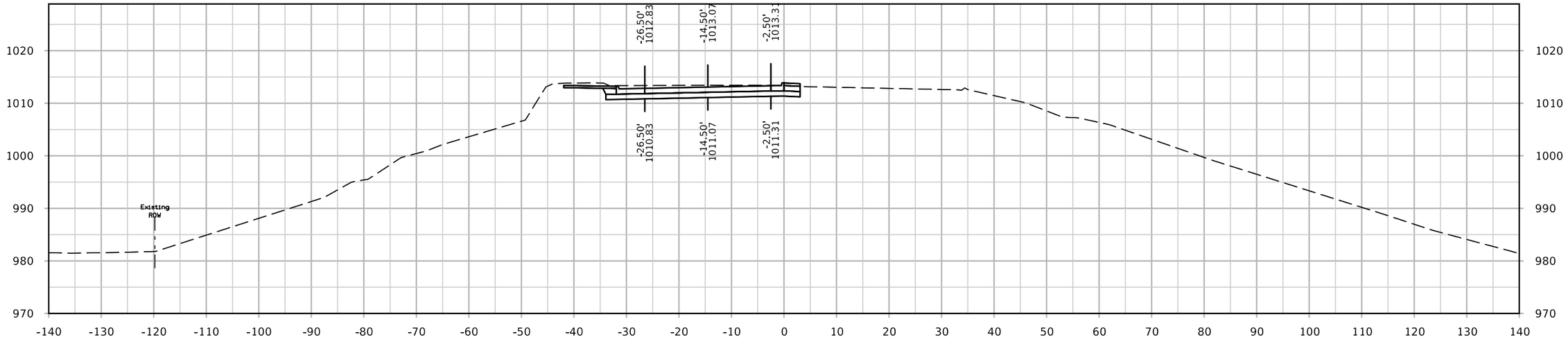
ML - IA 926



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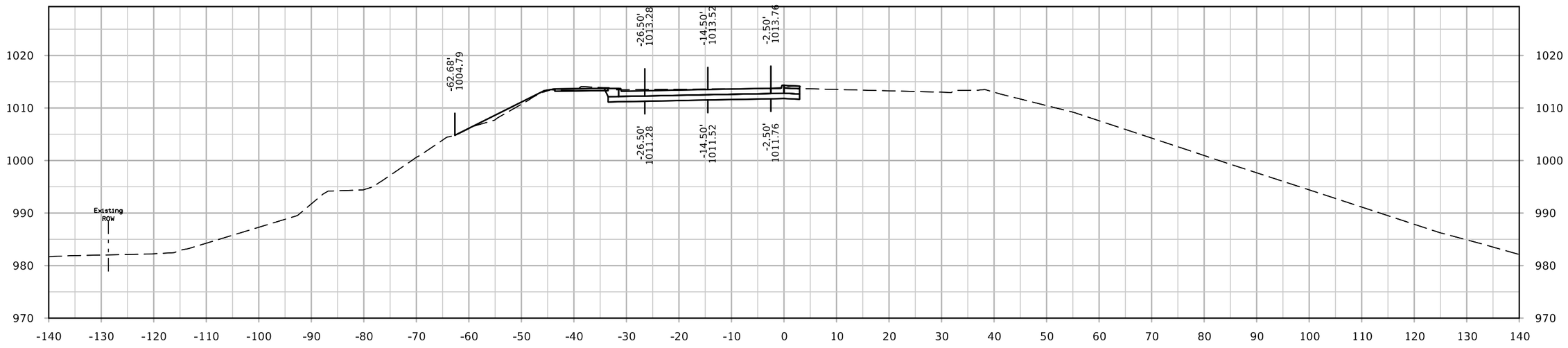

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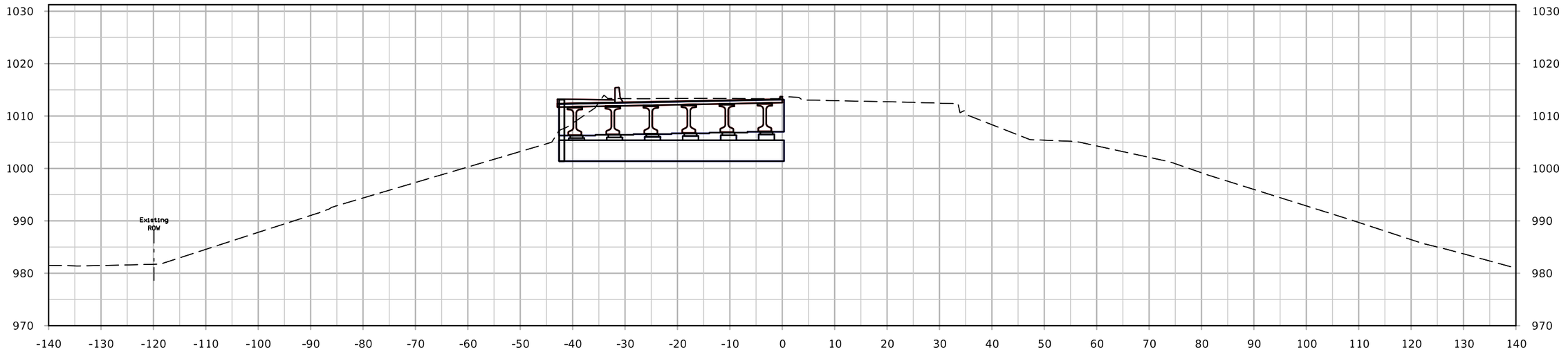
ML - IA 926



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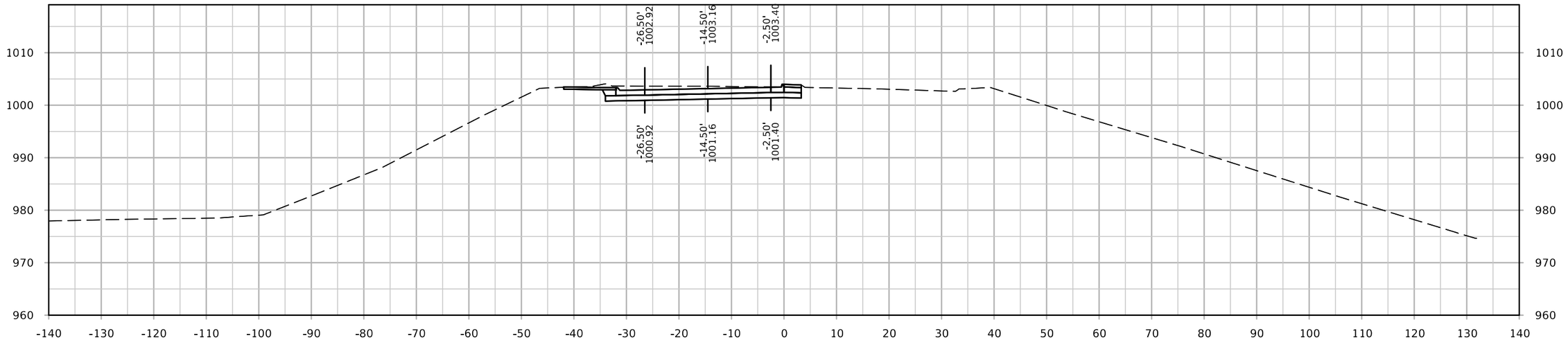
ML - IA 926



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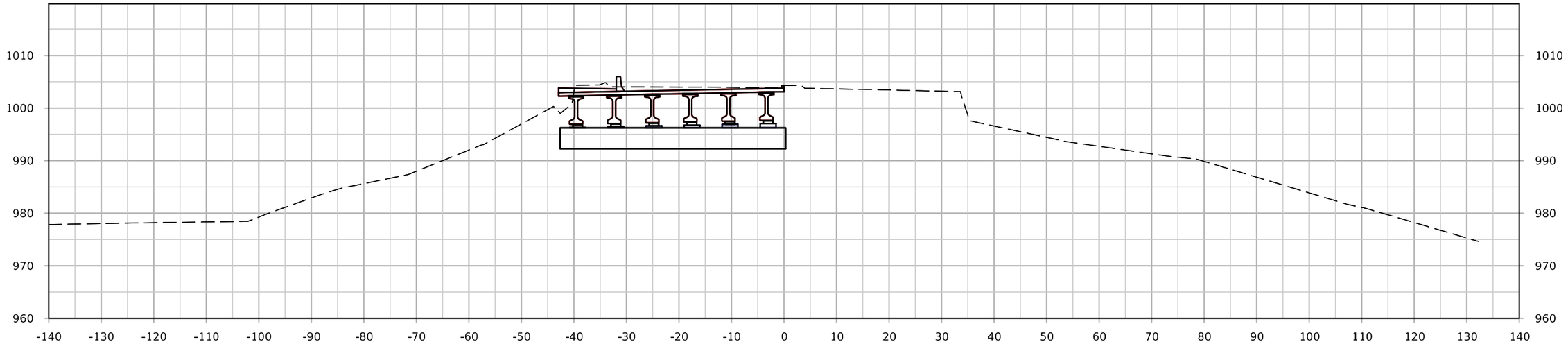

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FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER W.6

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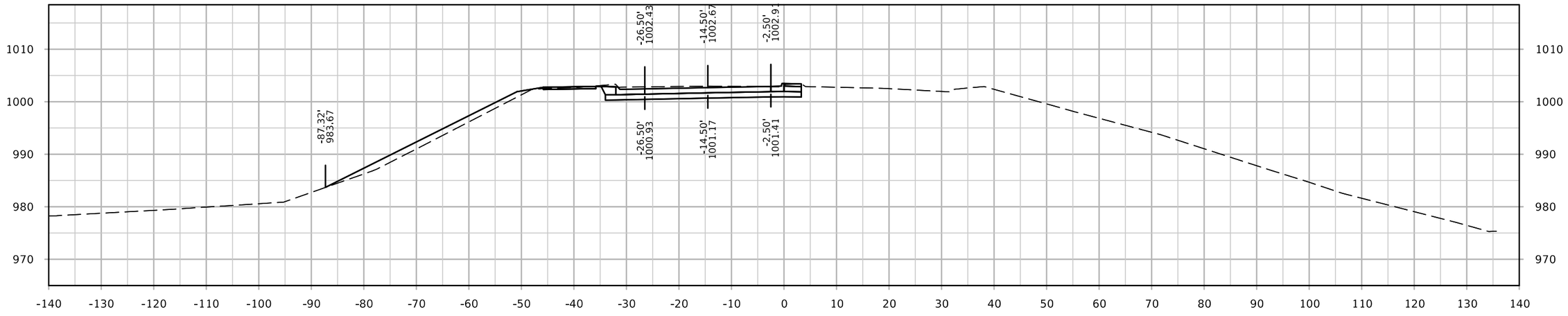
ML - IA 926



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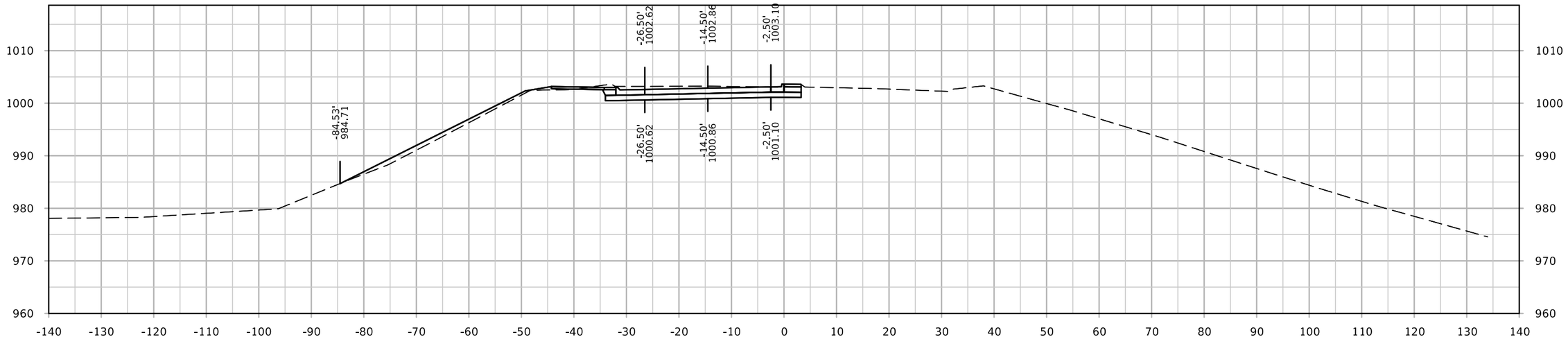

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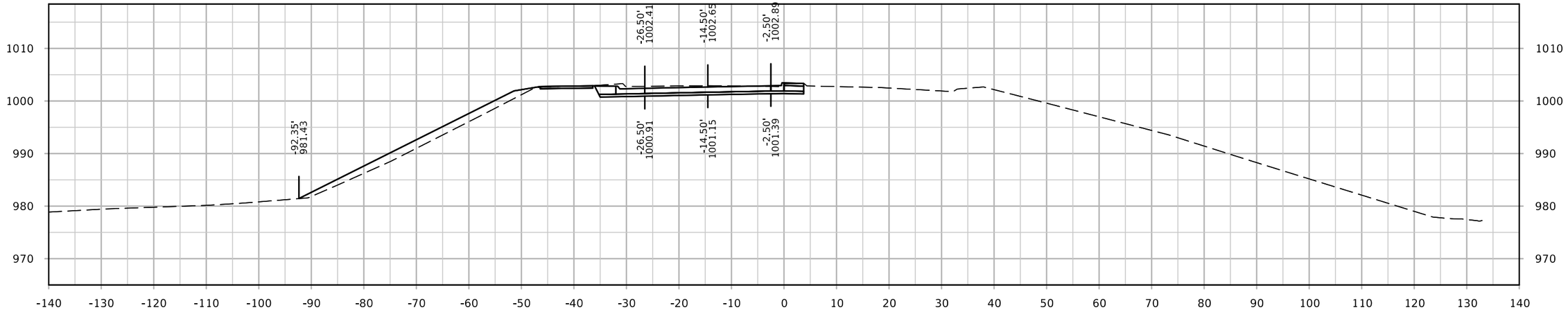
ML - IA 926



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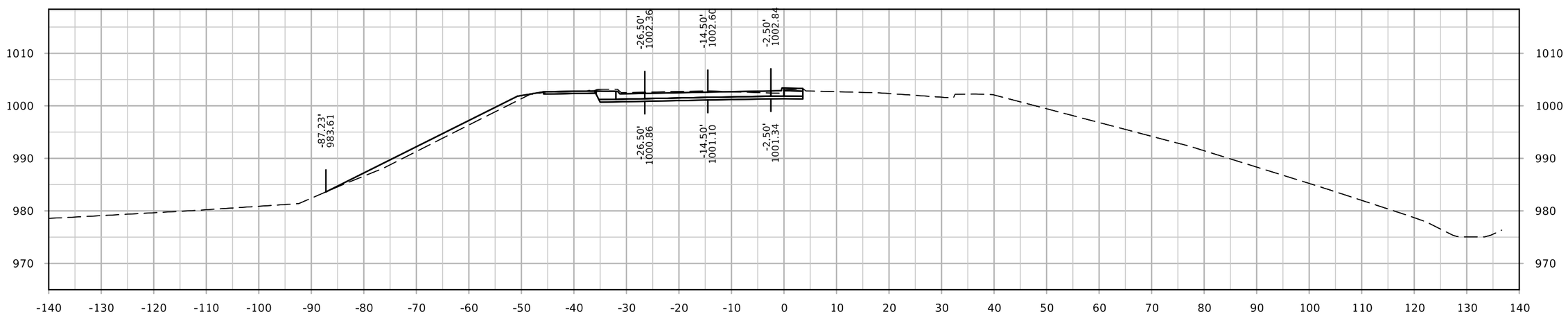

STA. 726+50.00

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER W.8

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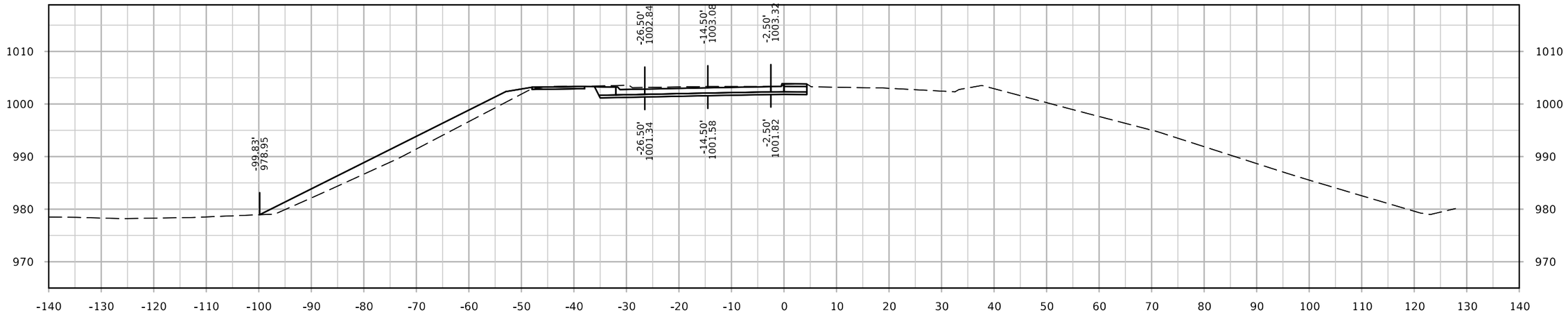
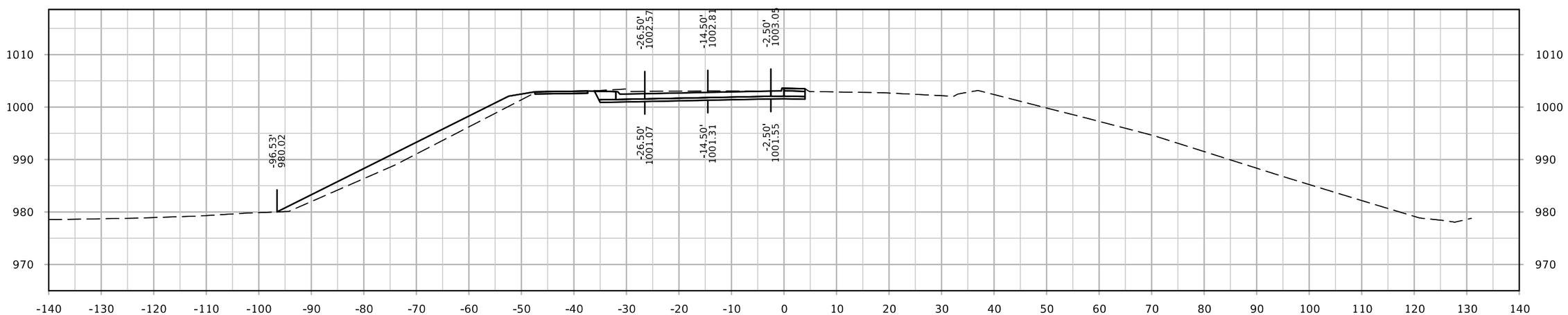
ML - IA 926



STA. 727+25.00



STA. 727+00.00

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER W.9

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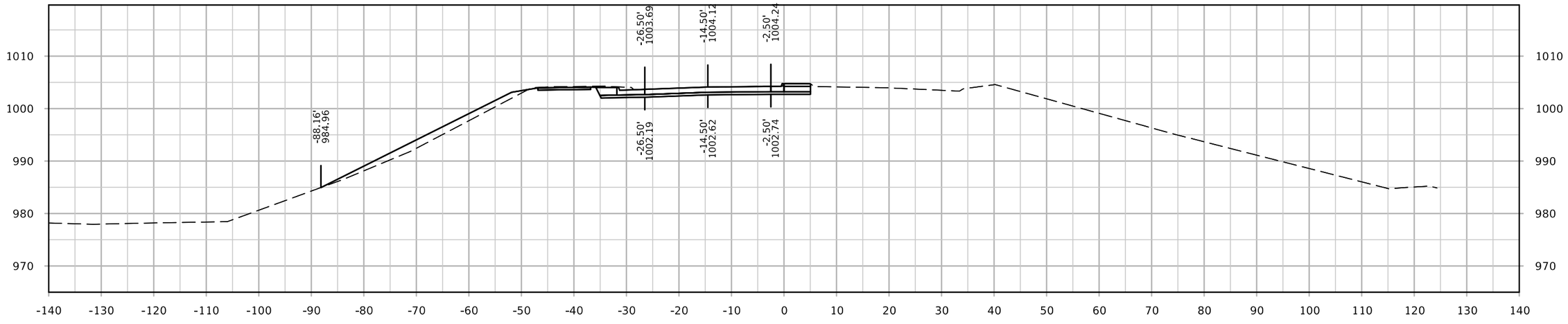
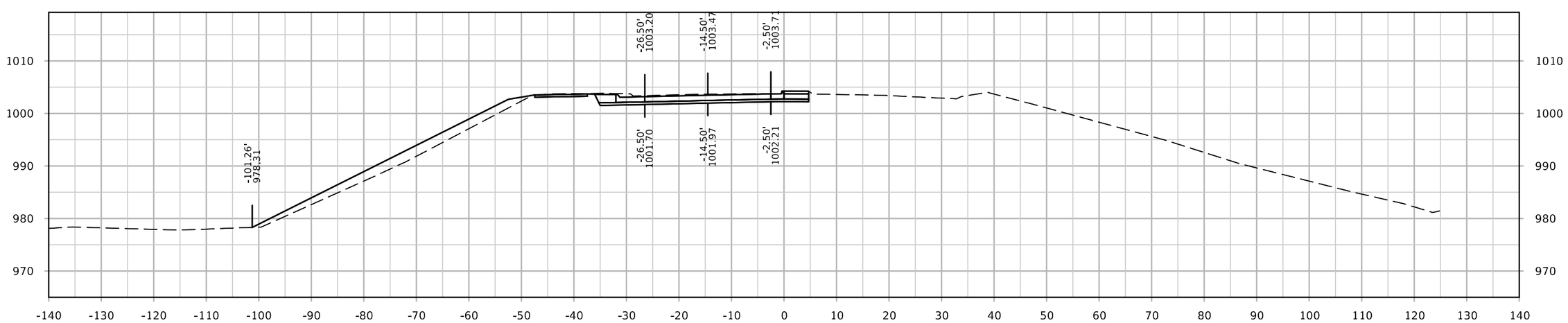
ML - IA 926



STA. 727+75.00



STA. 727+50.00

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER W.10

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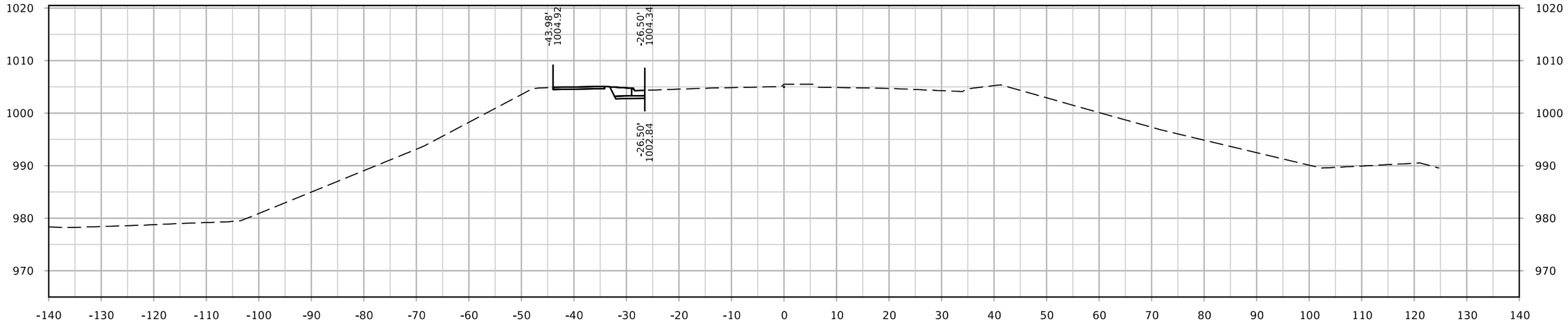
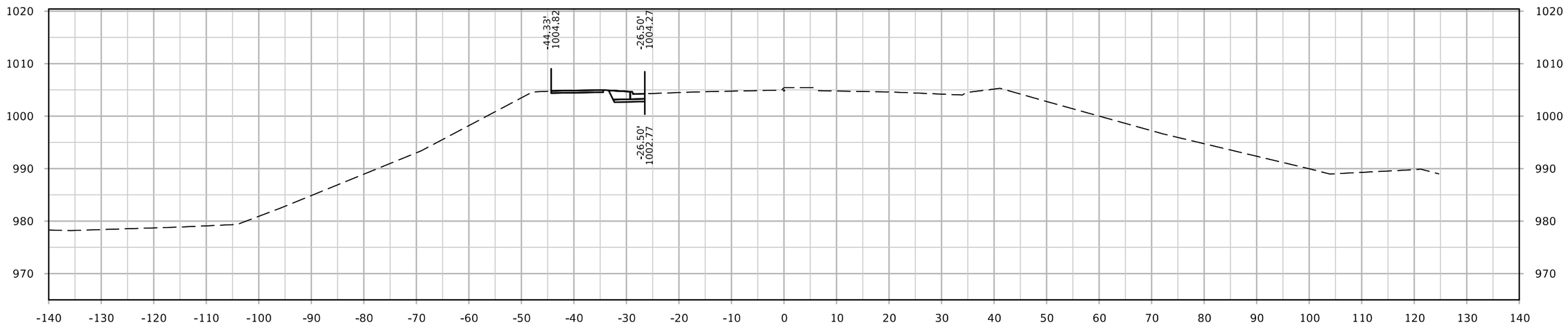
ML - IA 926



STA. 728+03.39



STA. 728+00.00

FILE NO. -	ENGLISH	DESIGN TEAM Jia \ Dewolf \ Cooper	Webster COUNTY	PROJECT NUMBER BRF-926-0(17)--38-94	SHEET NUMBER W.11

11:56:49 AM 3/15/2022 hcooper pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9492601018\Design\CADD_Files\Cross_Sections\94926017_ML926_XS.dgn