



Right of way will be required to construct and maintain the project.

Traffic will be maintained via an off-site detour during construction. The detour will begin at the intersection of IA 38 and U.S. 30 in Stanwood and proceed west on U.S. 30, 14.5 miles to IA 1. The detour will then go north approximately 12 miles on IA 1 to the intersection with U.S. 151. Traffic will then proceed to the northeast on U.S. 151 for approximately 15 miles to the intersection with IA 38. The out of distance travel is approximately 13.5 miles. It was recommended that no lane closures be allowed on IA 38 until June 1<sup>st</sup> to avoid impacting school bus routes.

No plans are included in this submittal; however, plan sheets may be viewed as pdf files at PW:\projectwise.dot.int.lan:PWMain\Documents\Projects\1603803015\Design\DesignEvents\D2\D2\_16038039\_Plan.pdf

This project is currently scheduled for an October 2019 letting. The final concept cost estimate for this project was \$1,031,850. The current cost estimate is now approximately \$675,000 (\$435,000 for the RCB items and \$240,000 for the roadway items). The reduction in cost is attributed to changing from the 36' x 10' concrete arch culvert that was shown in the final concept to a triple 10' x 9' RCB. This change was recommended due to the existing soft soils present and the possible adverse impacts to the 24" tile line under the existing bridge.

### **Machine Guidance Electronic Files Checklist**

*Add information to address any incomplete items below:*

<b>Yes</b>	<b>N/A</b>	<b>No</b>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Horizontal and Vertical Alignments Complete
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Typical Templates showing proposed Pavement, Shoulder, Foreslope design
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correct Feature Naming for Roadway Breaklines and Components

**KKP:**

M. J. Sankey	S. J. Gent	M. J. Kennerly
T. Hamski	W.A. Sorenson	J. Strum
E. C. Wright	B. R. Smith	T. Nicholson
J. Holst	K. D. Nicholson	A. Janus
K. Brink	J. E. Laaser-Webb	T. Crouch
V. A. Brewer	D. R. Tebben	M. D. Masteller
N. L. Cuva	M. A. Swenson	C. B. Brakke
D. E. Sprengeler	N. L. McDonald	D. A. Popp
B. Bradley	G. A. Novey	D. R. Claman
J. McCollough	S. P. Anderson	B. Hofer
B. Kreinbring	K. Yanna	D. McDonald
N. Abuissa	H. Holak	E. D. Gansen
S. Flockhart	P. C. Keen	P. Schwarz
J. R. Schoenrock	FHWA	W. N. Cameron
J. Garton	S. J. Megivern	M. K. Solberg
B. Filides	K. Clute	T. Bowman

STRUCTURES MISCELLANEOUS  
BRFN-038-2(39)--39-16

**CEDAR CO.**

LETTING DATE  
10/15/2019



**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

**CEDAR COUNTY**  
STRUCTURES MISCELLANEOUS

Ditch 1.0 mi N of US 30

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

PROJECT IDENTIFICATION NUMBER

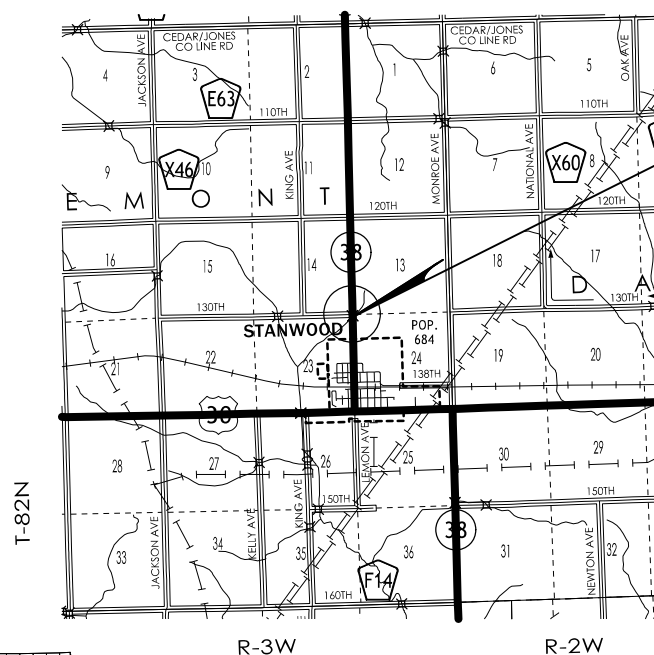
15-16-038-030

PROJECT NUMBER

BRFN-038-2(39)--39-16

R.O.W. PROJECT NUMBER

STPN-038-2(40)--2J-16



STA 52+53.00  
PROJECT LOCATION  
M.P. 36.10  
FHWA No. 18370

- D3 05-12-2017
- D5 09-15-2017
- D4 06-18-2019

**DESIGN DATA RURAL**

2020 AADT	1,500	V.P.D.
2040 AADT	1,800	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	16	%
Total Design ESALs	--	

**PRELIMINARY PLANS**

Subject to change by final design.

D2 PLAN - Date: 04-14-2017



FINAL PROJECT CONCEPT STATEMENT

IA 38 bridge over a drainage ditch, 1 mile north of U.S. 30.

Cedar County  
BRFN-038-2(39)--39-16  
PIN: 15-16-038-030  
Maint. No.1636.1S038  
FHWA No. 18370

Highway Division  
Office of Design

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

July 29, 2016

Cedar County  
BRFN-038-2(39)--39-16  
PIN: 15-16-038-030  
Page 2



Looking South



Looking East

I. STUDY AREA

A. Project Description

This project involves the replacement of the IA 38 bridge (Maint. No 1636.1S030) over a drainage ditch, 1 mile north of U.S. 30.

Three alternatives were considered for replacing the existing 29'6" x 30' bridge, which included, a 100 ft. x 40 ft. slab bridge, a twin precast 10 ft. x 10 ft. x 84 ft. reinforced box culvert, and a 36' x 10' concrete arch culvert. The slab bridge was dismissed from further consideration due to the close proximity of the sideroad intersection which would require relocation to avoid conflict with the bridge guardrail. The twin RCB was also dismissed for further evaluation as the RCB would be built directly over an existing 24" concrete drainage tile located in the bottom of the stream bed, resulting in undesirable loads on the drainage tile. Therefore, as the concrete arch culvert avoided these concerns it will be the recommended alternative. The concrete arch culvert is estimated to cost \$1,031,850.

B. Need for Project

Cracks with exposed and rusted reinforcing are found at both the deck and substructures. All bridge components, including the overlay, are at the end of their service life. Different levels of deterioration are spread throughout the bridge. In addition, the structure was designed for H20 loads. Provided with the size and condition of the structure, bridge repair in conjunction with bridge strengthening would not be an economical option; therefore, the structure should be replaced.

C. Present Facility

This is a 29'6" x 30' single span concrete slab bridge which was constructed in 1952 and overlaid in 1983. A permanent scour countermeasure project was completed in 2010 by placing an articulating block mat under the bridge.

IA 38 in the project area is 22' wide Type B asphalt cement concrete pavement with 10' wide granular shoulders and 4:1 foreslopes, constructed in 1955. HMA resurfacing was accomplished in 1965 and 1994.

D. Traffic Estimates

The 2020 and 2040 average daily traffic estimates are 1,500 ADT with 16% trucks and 1,800 ADT with 16% trucks, respectively.

E. Sufficiency Ratings

IA 38 is classified as an access route and is a maintenance service level "C" road. The federal bridge sufficiency rating is 67.4.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2010 through December 31, 2014, there were no crashes in the vicinity of the bridge.

II. PROJECT CONCEPT

A. Recommended Alternative

Replace with a Concrete Arch Culvert

The existing 29'- 6 x 30', concrete slab bridge will be replaced with a 36' x 10' x 84' concrete arch culvert.

The typical roadway cross section will consist of 24 ft. wide pavement with 10 ft. granular shoulders and 6:1/3:1 foreslopes.

The existing bridge will be removed along with a total of 38 ft. of adjacent bridge approach section (19 ft. each end of the bridge) to allow for the new arch culvert to be installed. Piling will be required for the arch culvert footings. The arch culvert will span over the existing 24" concrete drainage tile that is located below the stream bed. After the culvert has been installed, floodable backfill and class 10 material will be used as backfill material. New 10" PCC pavement, along with 6" of granular subbase and 12" of special backfill will provide the new pavement structure. New 10' wide granular shoulders and 6:1/ 3:1 foreslopes will then be provided. The new 6:1/3:1 barnroof grading will transition into and around the existing southern radius return for 130<sup>th</sup> Street, just north of the existing bridge site. A safety dike will be constructed opposite the side road.

The articulated block mat under the existing bridge should be removed. Care shall be exercised to avoid damaging the existing 24" drainage tile that is under the existing bridge.

Class E revetment will be placed at the ends of the RCB. Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way will not be required for this project.

Traffic will be maintained on an offsite detour.

<b>Bridge Items</b>	<u>Estimated Costs</u>
Concrete Arch Culvert	\$ 238,000
Wingwalls	70,000
Piling	210,000
Revetment	52,500
Removal of Existing Bridge Structure's Sub Total	<u>50,000</u>
Mobilization - 10%	62,050
M & C - 20%	<u>124,100</u>
<b>Bridge Costs</b>	<b>\$ 806,650</b>

<b>Roadway Items</b>	
PCC Pavement	25,200
Granular Subbase	1,300
Special Backfill	3,500
Removal of Pavement	1,100
Removal of Guardrail	1,400
Removal of Articulated Mat	3,100
Flooded Backfill	4,800
Class 13 Waste	1,100
Contractor Furnished Embankment	7,300
Safety Dike with Culvert	6,300
Strip, Salvage and Spread Topsoil	1,200
Seeding and Fertilizing	1,100
Erosion Control	50,000
Wetland Mitigation	50,000
Traffic Control 5%	7,900
Mobilization 5%	<u>7,900</u>
Sub-total	173,200
M&C 30%	<u>52,000</u>
<b>Total</b>	<b>\$225,200</b>

**Project Total** **\$1,031,850**

B. Detour Analysis

Traffic will be maintained via an off-site detour during construction. The detour will begin at the intersection of IA 38 and U.S. 30 in Stanwood and proceed west on U.S. 30, 14.5 miles to IA 1. The detour will then go north approximately 12 miles on IA 1 to the intersection with U.S. 151. Traffic will then proceed northeasterly on U.S. 151 for approximately 15 miles to the intersection with IA 38. The out of distance travel is approximately 13.5 miles. This results in an out of distance user cost of approximately \$301,000, based upon a closure period of 60 days.

C. Construction Sequence

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

D. ADA Accommodations

There are no bike paths or sidewalks adjacent to IA 38; therefore, no ADA accommodations are planned in conjunction with this project.

E. Special Considerations

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

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

Right of Way will not be required for this project.

The Office of Location and Environment has reviewed this project and no special concerns were noted.

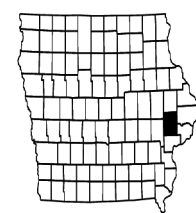
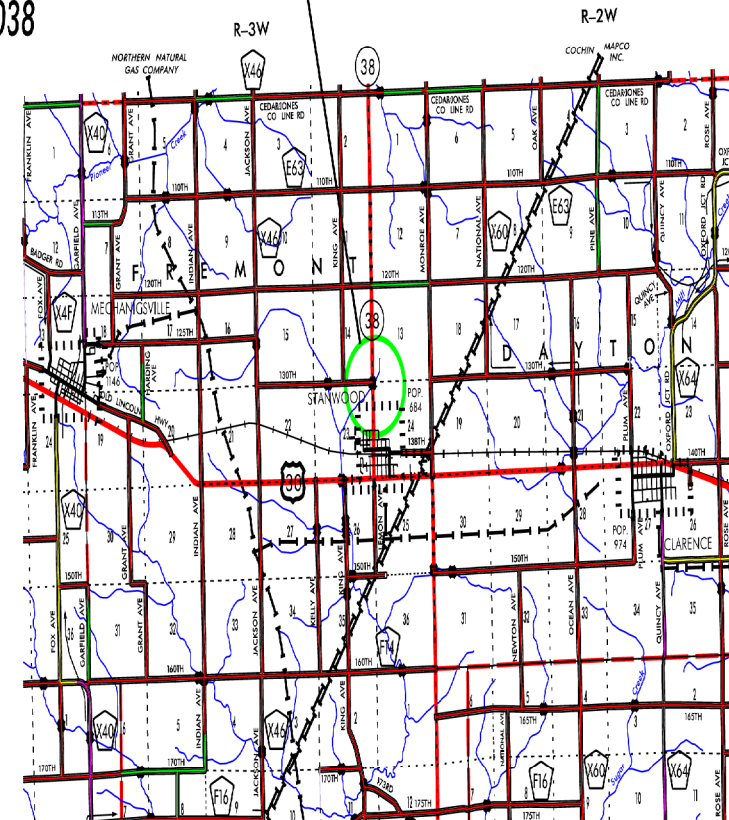
F. Program Status

Site data has been developed by the Office of Design. This project is listed in the 2017-2021 Iowa Transportation Improvement Program for \$750,000 in 2020. Right of way is shown in 2019 for \$15,000. Costs for this project may be eligible for bridge replacement funds.

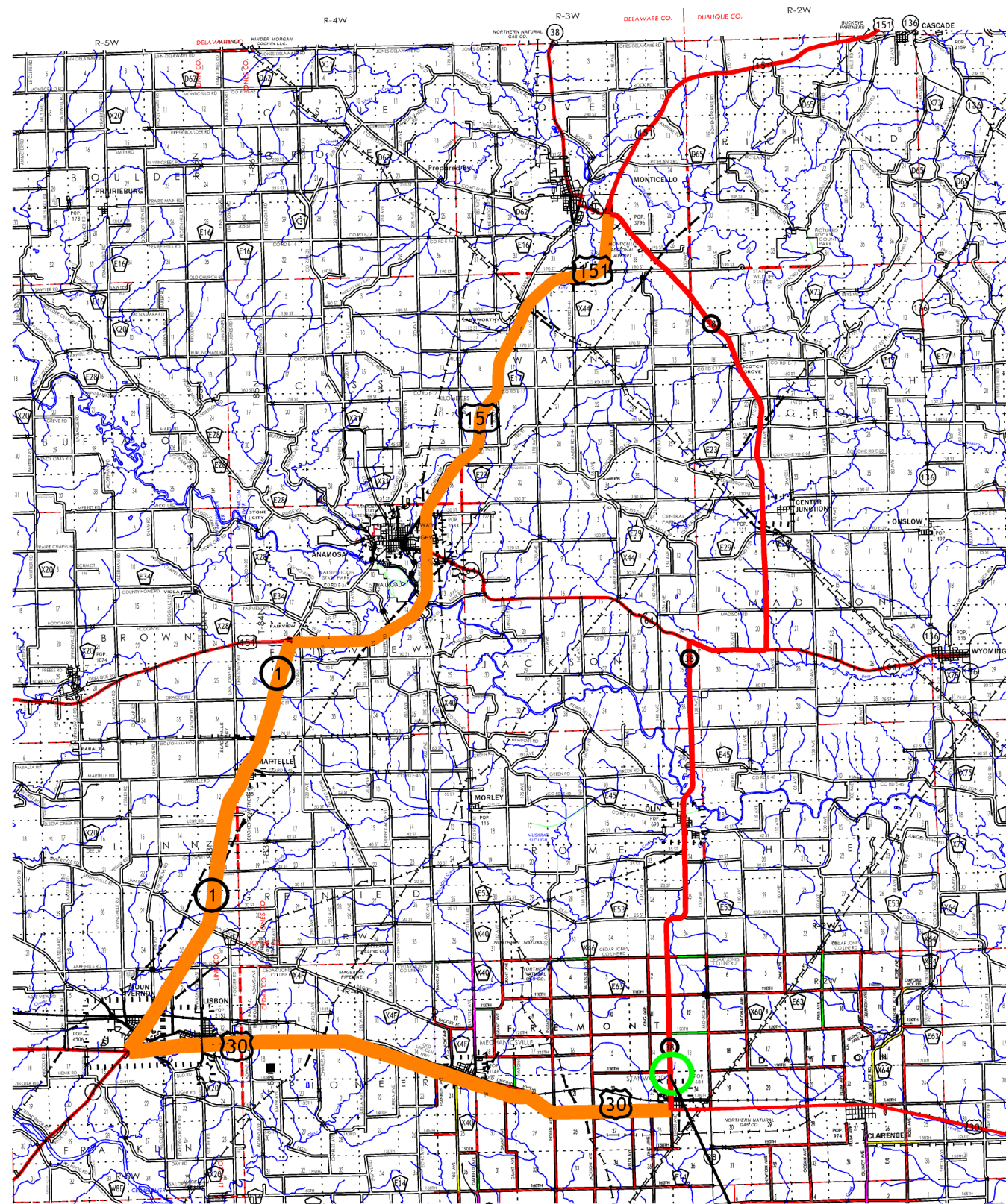
KKP: jmb

# CEDAR COUNTY

STA 52+51.6  
 FHWA 18370  
 MAINT. NO. 1636.TS038  
 DESIGN 3751



ON IA 38, 1.0 MILES NORTH OF US 30  
 BRFN-038-2(39)-39-16  
 PIN: 15-16-038-030



**— DETOUR**

**PROJECT SITE**



<b>Roadway</b>	IA 38		
<b>PIN Number</b>	15-16-038-030	<b>Submittal Date</b>	
<b>Project Number</b>	BRFN-038-2(39)--39-16	<b>Approval Date</b>	
<b>District</b>	District 6	<b>Assistant District Engineer</b>	
<b>County</b>	Cedar (16)	<b>or</b>	
<b>Route</b>	38	<b>Office Director</b>	
<b>Location</b>	Ditch 1.0 mi N of US 30		
<b>Work Type</b>	Structures - Miscellaneous		
<b>Segment Manager</b>	Strum		
<b>Designer</b>	Janus		

[Design Manual Section 1C-1](#)  
[last update: 12-08-16](#)

### Rural Two-Lane Highways (Rural Arterials)

Design Element	Preferred	Acceptable	Project Values
Design speed (mph)	60	50	60
Maximum superelevation rate (Refer to Section <a href="#">2A-2</a> )	6%	8%	
Design lane width (ft)	12	12	12
Full depth paved width (ft)	14	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	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3% maximum	
	Crown break at centerline	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 <a href="#">3C-2</a> )	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	4:1 (6:1 at RCB)
	Beyond standard ditch depth and design clear zone	3.5:1	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 <a href="#">3G-1</a> )	Outside ditch (depth x width) (ft)	5 x 10	--
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14
	Over railroad	23.3	23.3
	Sign trusses and pedestrian bridges	17.5	17
Structural Capacity	Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service	B	B	

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

Roadway Design Speed (mph) = 60

[Design Manual Section 1C-1](#)  
last update: 12-08-16

**Design Criteria for High Speed Roadways**

Design Element	Preferred Criteria						Acceptable Criteria						Project Values			
	Design Speed, mph						Design Speed, mph									
	50	55	60	65	70	75	50	55	60	65	70	75				
Stopping sight distance (ft) (Refer to Section <a href="#">6D-1</a> )	425	495	570	645	730	820	425	495	570	645	730	820				
Minimum horizontal curve radius (ft) (Refer to Sections <a href="#">2A-2</a> and <a href="#">2A-3</a> )	Method 5 superelevation and side friction distribution	e <sub>max</sub> = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500		
		e <sub>max</sub> = 8%	--	--	--	--	--	--	--	758	960	1200	1480	1810	2210	
Minimum vertical curve length (ft) (Refer to Section <a href="#">2B-1</a> )	crest vertical curves		150	165	180	195	210	225	150	165	180	195	210	225	100	
Minimum rate of vertical curvature (K) (Refer to Section <a href="#">2B-1</a> )	sag vertical curves	roadways without fixed-source lighting	84	114	151	193	247	312	84	114	151	193	247	312	151	
		roadways with fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206		
Minimum gradient (%)	(Refer to Section <a href="#">2B-1</a> )		0.5						0.3% with a curb, 0.0% without a curb						0.15%	
Maximum gradient (%)	(Refer to Section <a href="#">2B-1</a> )	Urban roadways	4	3						7	6	6	--	--	--	--
		Rural roadways		5	5	4	4	4	4	4						
		Interstates		5	5	4	4	4	4	4						
Clear zone		See "Preferred Clear Zone" table in Section <a href="#">8A-2</a>						See "Acceptable Clear Zone" table in Section <a href="#">8A-2</a>						30		



- Existing guardrail length.  
Disposition of existing guardrail

- Are there wetland impacts or other environmental issues?

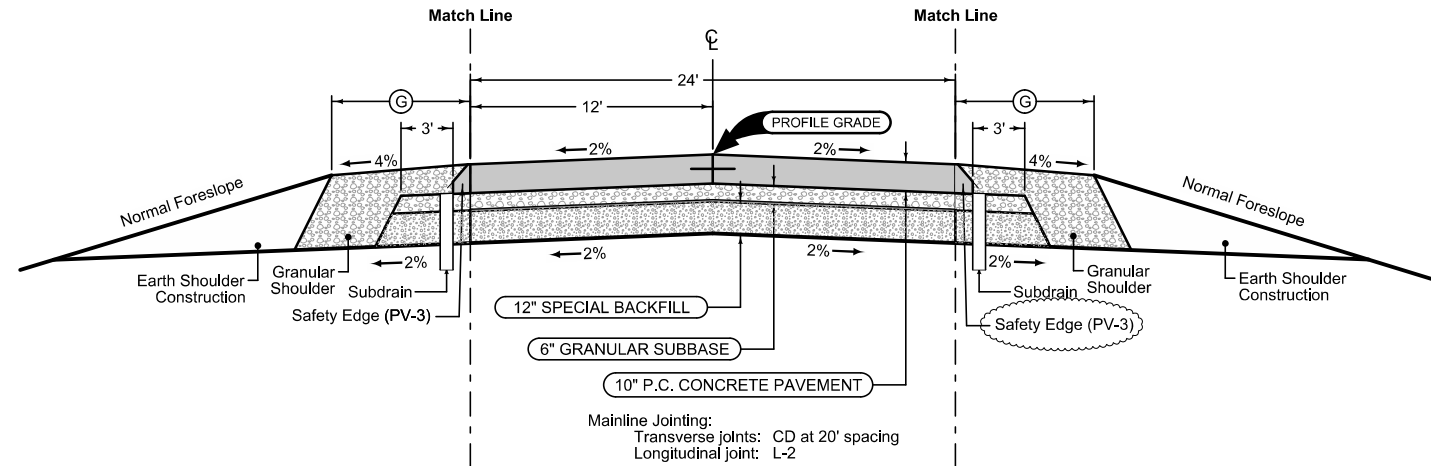
- Is special erosion control needed (Rip-rap, silt ditches etc.)?

- Is safety ramp needed?  
130th St AADT 2014 - 60 V.P.D.



**Granular Shoulder with Safety Edge**

		2_G_
		10-21-14
STATION TO STATION		⊙
		Feet
52+00.00	52+87.00	10



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

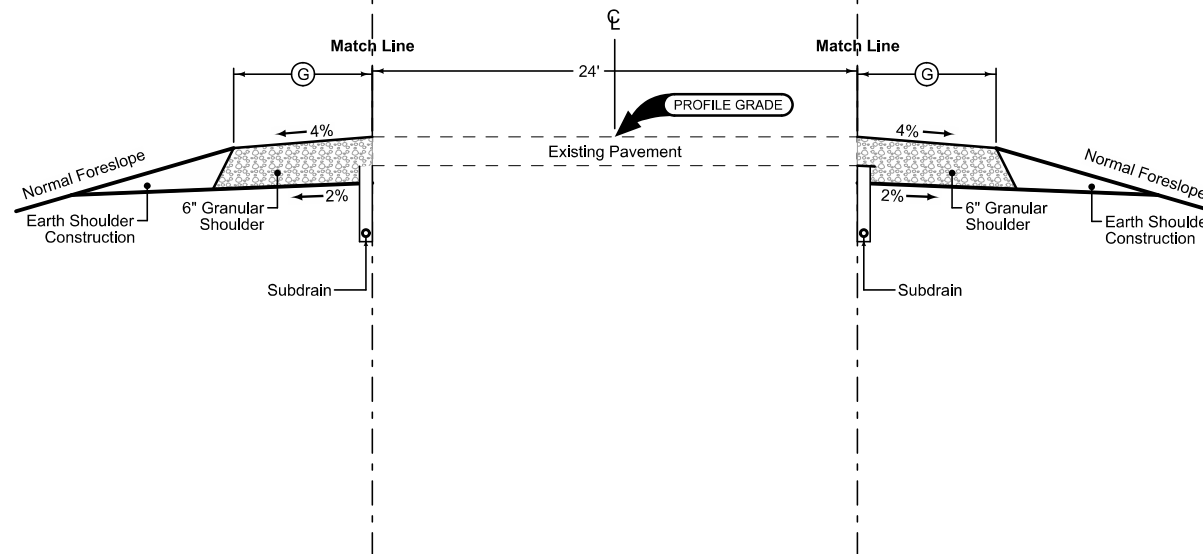
		2P_
		10-19-10
STATION TO STATION		
52+19.00	52+87.00	

**Granular Shoulder with Safety Edge**

		2_G_
		10-21-14
STATION TO STATION		⊙
		Feet
52+00.00	52+87.00	10

**Granular Shoulder**

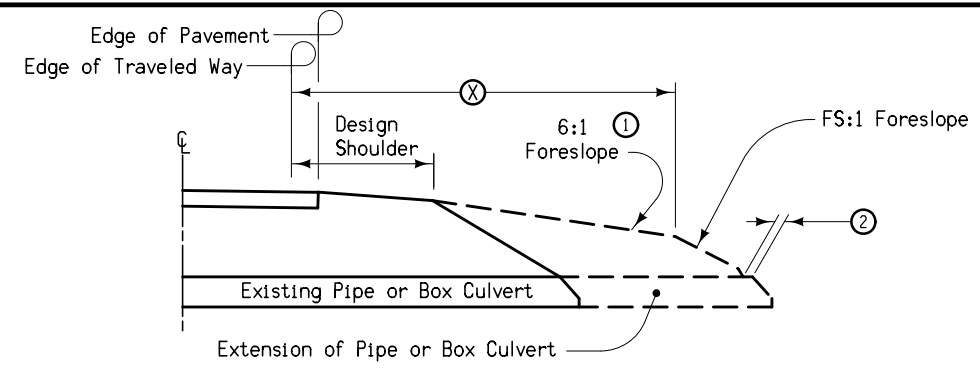
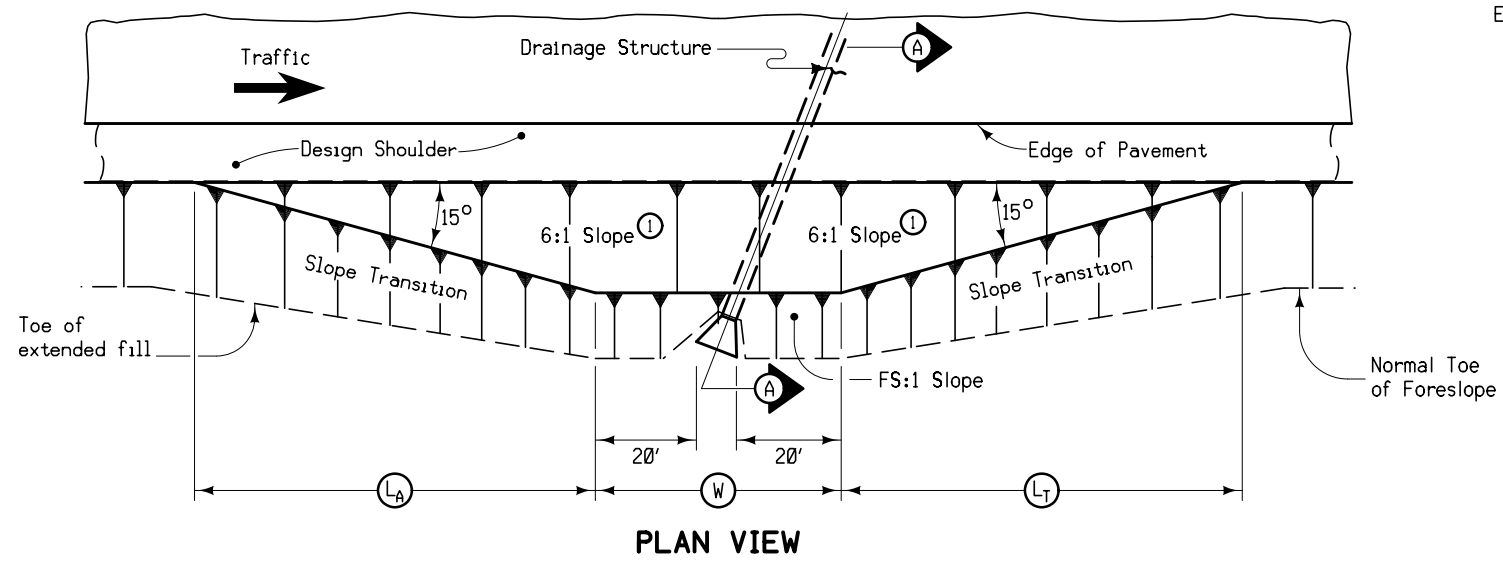
		2_G_
		10-19-10
STATION TO STATION		⊙
		Feet
51+70.00	52+00.00	10



**Granular Shoulder**

		2_G_
		10-19-10
STATION TO STATION		⊙
		Feet
51+70.00	52+00.00	10
52+87.00	53+37.00	10

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

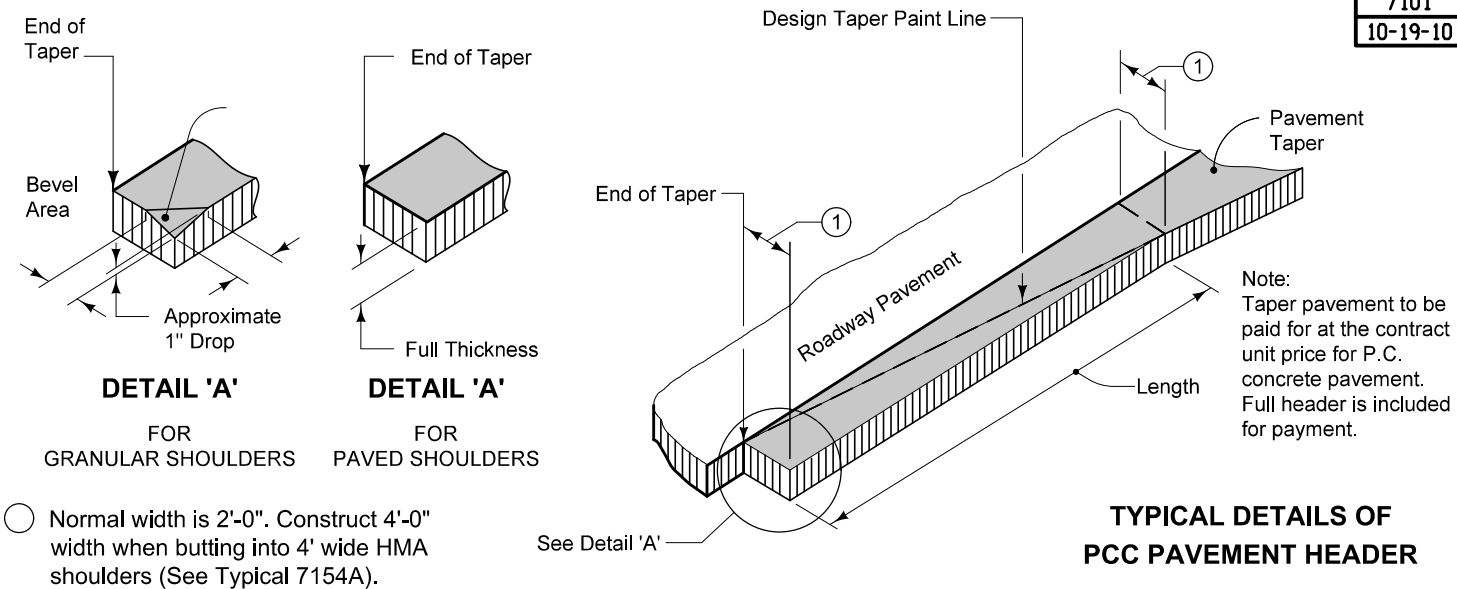


- At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, flatten as indicated so as to cover the structure. Minimum earth cover is 6 inches.
- ① Slope may be flatter than 6:1.
  - ② 6 inch minimum for pipe installations or to top of headwall on RCB.
  - ③ At  $\phi$  of road.
  - Ⓜ = Pipe or RCB opening width plus 20 feet each side.

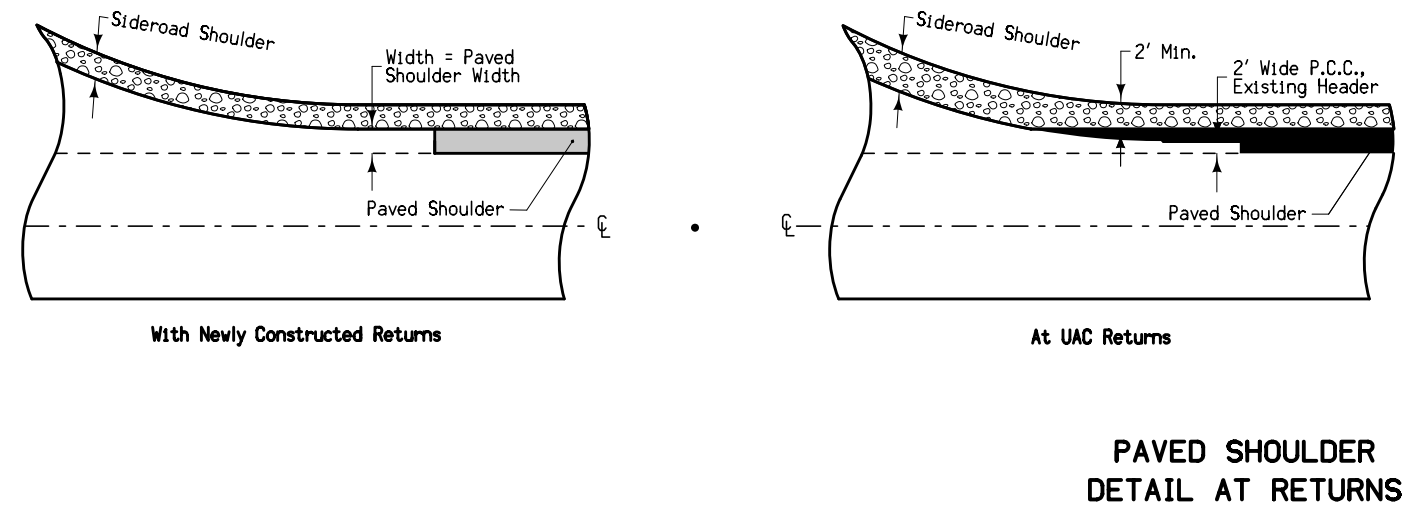
STRUCTURE LOCATION		Ⓜ	L <sub>A</sub>	L <sub>T</sub>	X	FS
STATION ③	SIDE	Feet	Feet	Feet	Feet	
52+45.00	RT	83.0	74.6	74.6	30	3
52+45.00	LT	83.0	-	74.6	30	3

**BARNROOF FORESLOPE AT SKEWED DRAINAGE STRUCTURE**

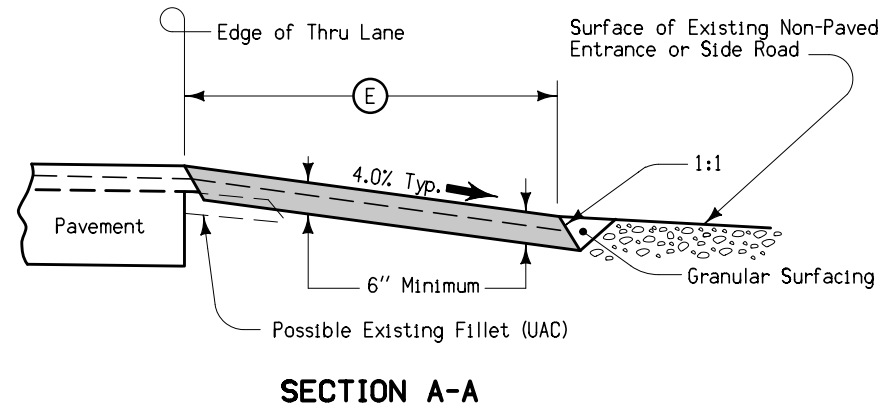
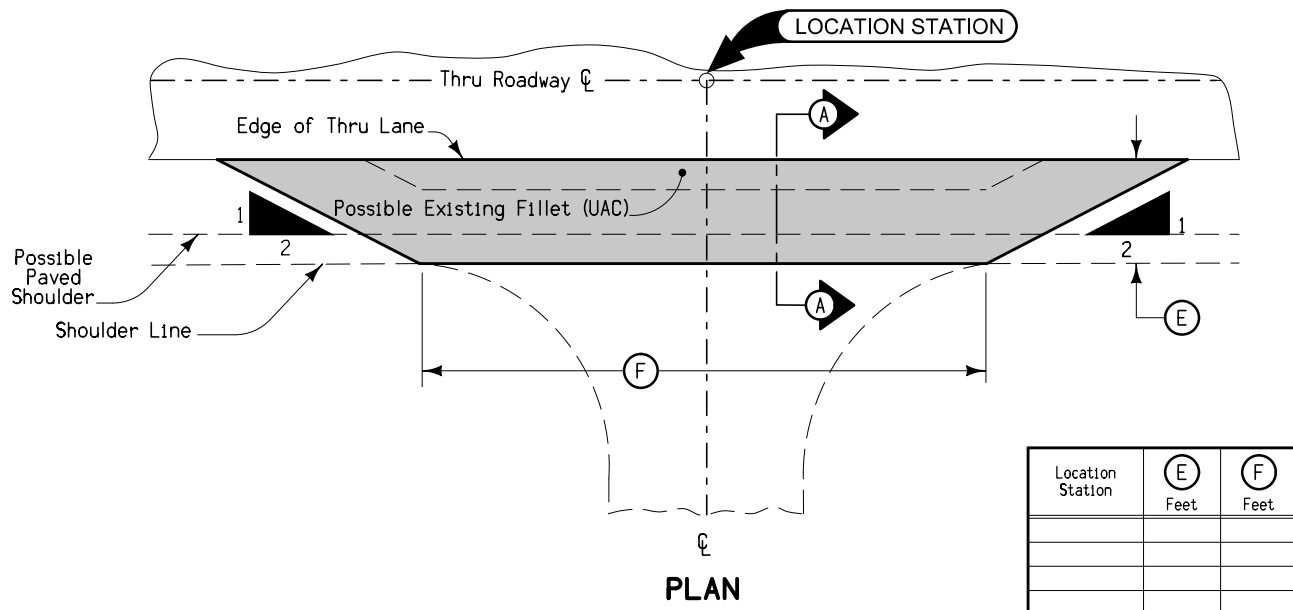
7101  
10-19-10



7154B  
10-20-09



7148  
10-21-14



Special shaping of existing surface prior to placement of fillet may be required by the Engineer and is incidental to other work on the project.  
Quantities included with mainline quantities.

**FILLET FOR NON-PAVED ENTRANCES OR SIDE ROADS**







## Survey Information

County: Cedar  
 PIN: 15-16-038-030  
 Project Number: BRFN-038-2(39)--39-16  
 Location: Ditch 1.0 mi N of US 30  
 Type of Work: Bridge-Unspecified  
 Project Directory: 1603803015  
 Sap-862

County: Cedar  
 PIN: 15-16-038-030  
 Project Number: BRFN-038-2(39)--39-16  
 Location: Ditch 1.0 mi N of US 30  
 Type of Work: Bridge-Unspecified  
 Project Directory: 1603803015  
 Sap-862

Field Personnel  
 John Bennett- Asst. Party Chief

Office Personnel  
 Norman Miller- Survey Manager  
 Eric Diedrich-Design Technician Specialist

Date(s) of Survey  
 Begin Date 08/10/2016  
 End Field Work Date 09/15/2016  
 End Mapping Date 03/01/2017

General Information  
 Measurement units for this survey are US survey feet. This survey is for proposed Bridge replacement. This project is a Partial DTM with Photo control. Bentley OpenRoads was used to map this survey.

Vertical Control  
 Vertical datum for this survey is NAVD88 (Computed using Geoid12A). Ellipsoidal heights were transferred to project points 1 and 2 from nearby Iowa RTN reference stations using static survey and post processing.

Survey elevations were obtained on the bridge features and are compared to the 1951 FN 234 situation plan sheet at Station 52+53.0 as follows:

Plan north and south abutment elevation = 841.65  
 Survey north and south abutment elevation = 822.81  
 Plan elevation= survey elevation + 18.84

Plan south end floor grade elevation = 843.44  
 Survey south end floor grade elevation = 824.76  
 Plan elevation= survey elevation + 18.68

Plan north end floor grade elevation = 843.44  
 Survey north end floor grade elevation = 824.82  
 Plan elevation= survey elevation + 18.62

There were no benchmarks remaining inside the survey limits from FN-234 plans. The best estimate that can be made between plan and survey datum is Plan datum = Survey datum + 18.71' with a standard deviation of 0.11'.

Horizontal Control  
 The project coordinate system for this survey is Iowa Regional Coordinate System Zone 10 (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 transferred to project points 1 and 2 from nearby Iowa RTN reference stations using static survey and post processing.

Point	Northing	Easting	Elevation	Feature	Description
1	8021771.8	20640791.72	844.74	CP	FD. 5/8" X 40" REROD - SET FOR PREVIOUS PHOTO CONTROL PROJECT FOR US 30 PROJECT.
2	8025888.69	20640095.69	823.92	CP	SET 5/8IN X 40IN REBAR
3	8024526.46	20640069.45	821.42	CP	1/2" REROD EMBEDDED IN 4" SQUARE CONC REF MONUMENT NW OF PI PT 20.
4	8028570.73	20640176.61	826.19	CP	1/2" REROD EMBEDDED IN 4" SQUARE CONC REF MONUMENT NE OF QUARTER SECTION CORNER PT 40.
20	8024494	20640129.61	825.63	PI	39+78 FD PK 1/4" BELOW SURFACE
30	8025834.74	20640125.48	824.66	SCR	NW COR 24-82-3 FD PK 0.1 BELOW SURFACE
32	8025823.8	20637412.46	829.08	SCR	S 1/4 14-82-3 FD 1/2" X30IN REBAR BENT DUG
40	8028512.21	20640112.58	829.66	SCR	TILL VERT SPIN PULL STRIGHTEN REPLACE 4" DEEP
500	8025783.63	20640141.19	825.17	BM	E 1/4 14-82-3 FD PK ON SURFACE IHC PLUG ON NE WING WALL BRG

### Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans FN-234. Survey stationing was equated to the plan PI at STA 39+78.00 and run ahead without station equation to POT Sta 79+95.70.

Alignment Name: SUR038

Station	Northing	Easting	
PI 39+78.00	8024493.995	20640129.607	
POT 79+95.70	8028511.677	20640117.162	
Tangential Direction:	N 0°10'39" W		
Tangential Length:	4017.70		

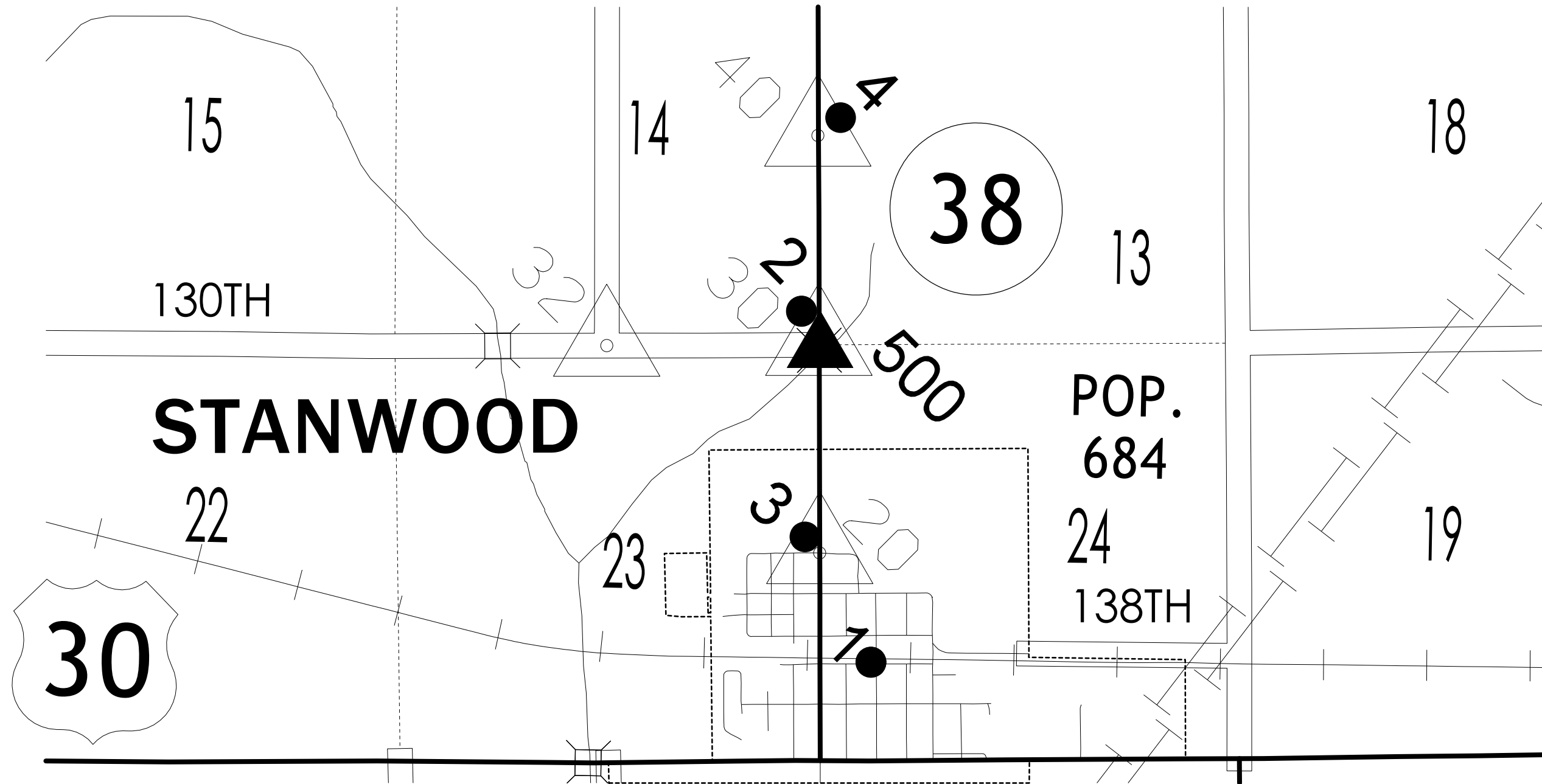
Survey stationing relates to as built plan stationing as follows:

PI Sta. 39+78.0 Plans =  
 Survey PI Sta. 39+78.0

POT Sta 79+96.3 Plans =  
 Survey POT STA 79+95.70

### 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 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 10

Coordinate listing from next sheet will be used with 1aRTN for monument  
 recovery. No other reference ties are given.

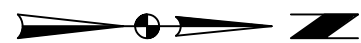
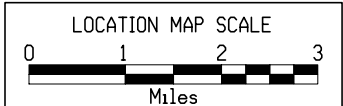
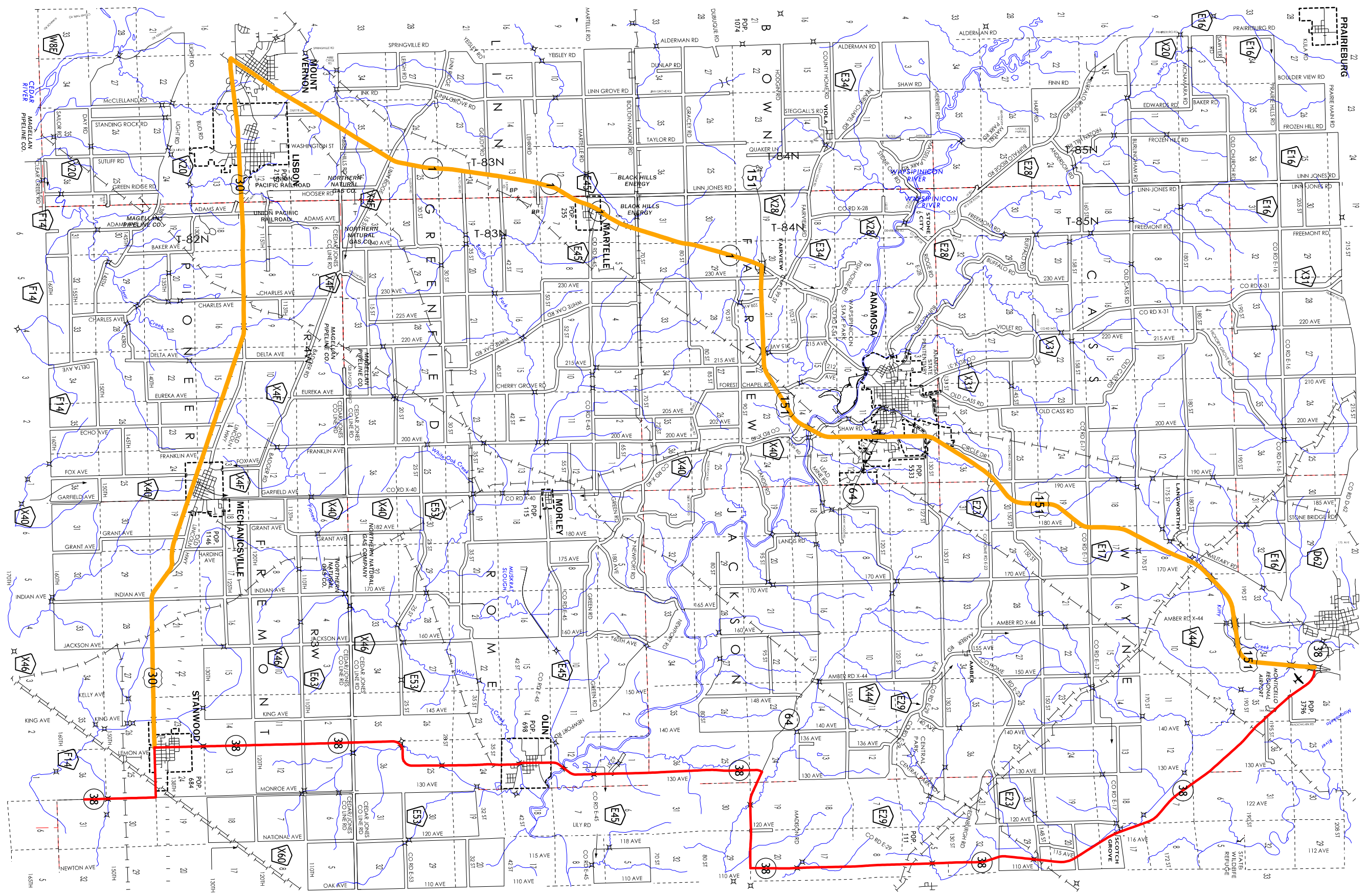
HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

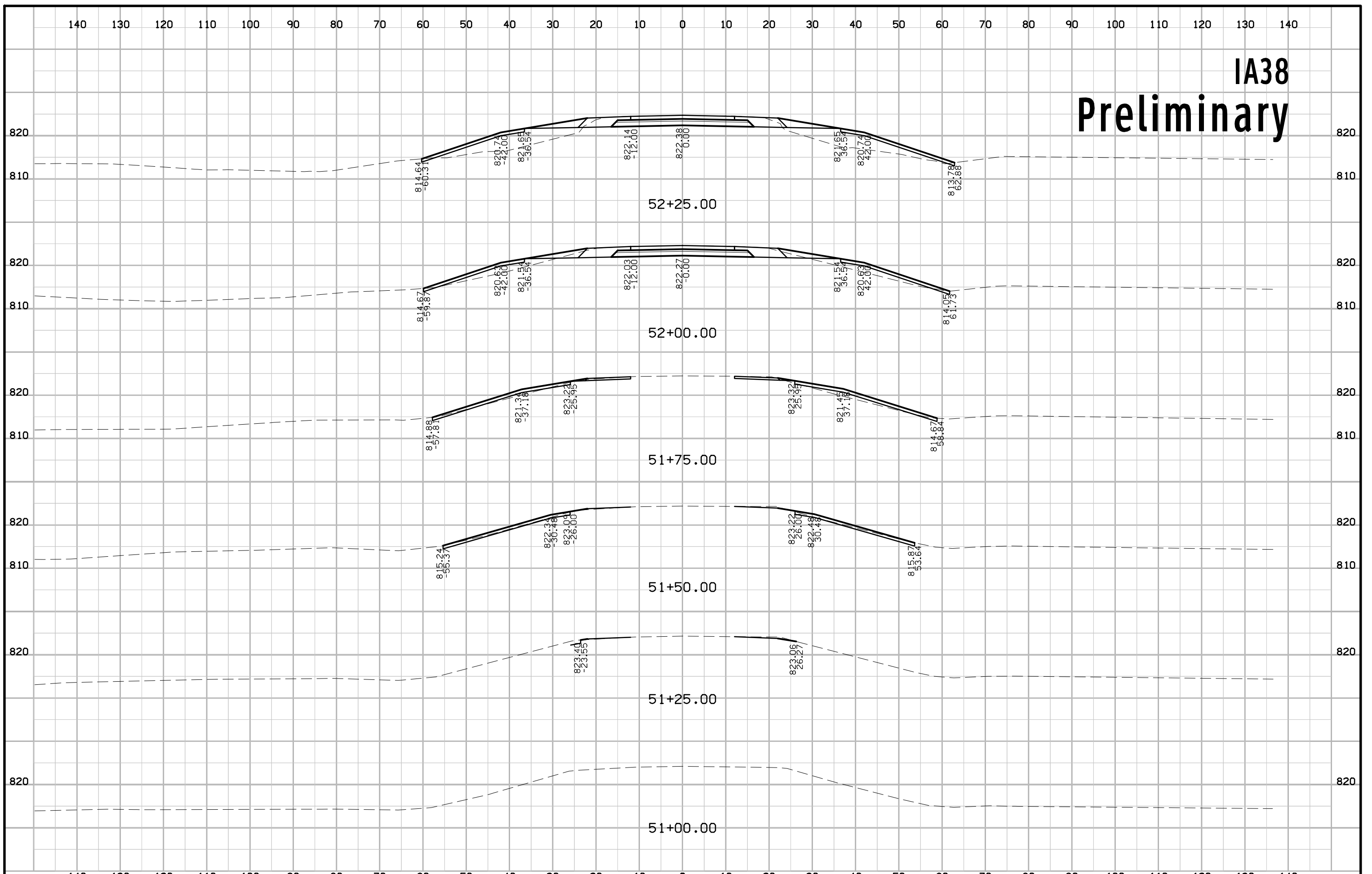
Ia. Regional Coordinate System Zone 10

Point	Northing	Easting	Elevation	Feature	Description
1	8021771.8	20640791.72	844.74	CP	FD. 5/8" X 40" REROD - SET FOR PREVIOUS PHOTO CONTROL PROJECT FOR US 30 PROJECT.
2	8025888.69	20640095.69	823.92	CP	SET 5/8IN X 40IN REBAR
3	8024526.46	20640069.45	821.42	CP	1/2" REROD EMBEDDED IN 4" SQUARE CONC REF MONUMENT NW OF PI PT 20.
4	8028570.73	20640176.61	826.19	CP	1/2" REROD EMBEDDED IN 4" SQUARE CONC REF MONUMENT NE OF QUARTER SECTION CORNER PT 40.
20	8024494	20640129.61	825.63	PI	39+78 FD PK 1/4IN BELOW SURFACE
30	8025834.74	20640125.48	824.66	SCR	NW COR 24-82-3 FD PK 0.1 BELOW SURFACE
32	8025823.8	20637412.46	829.08	SCR	S 1/4 14-82-3 FD 1/2X30IN REBAR BENT DUG TILL VERT SPIN PULL STRIGHTEN REPLACE 4IN DEEP
40	8028512.21	20640112.58	829.66	SCR	E 1/4 14-82-3 FD PK ON SURFACE
500	8025783.63	20640141.19	825.17	BM	IHC ON NE WING WALL BRG

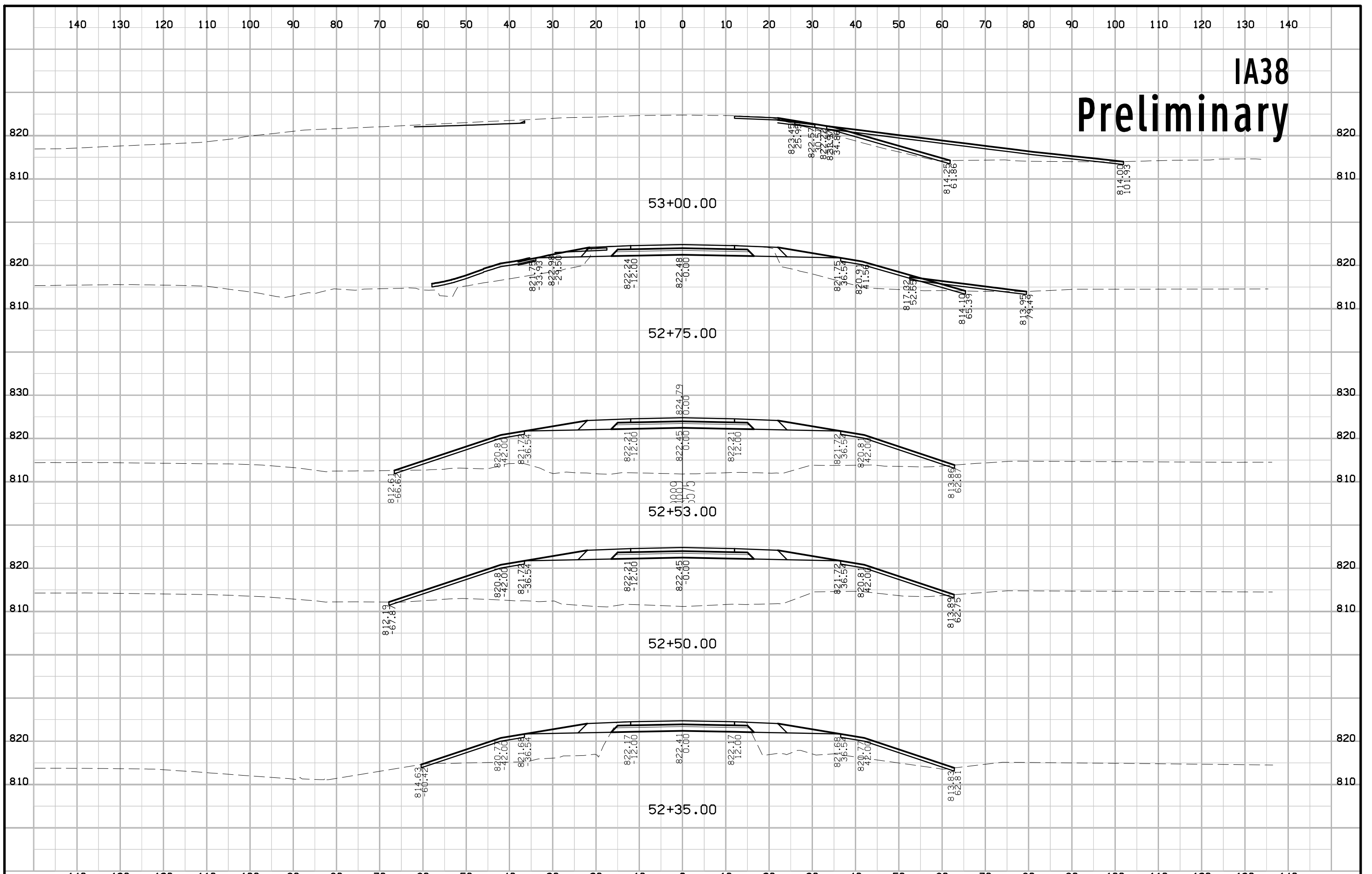


**—** DETOUR

# IA38 Preliminary



# IA38 Preliminary





# IA38 Preliminary

