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PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
CASS COUNTY
Pipe Culverts
Median Pipe Under I-80
0.5 Mi W of IA 173 (EB)

Refer to the Plan Sheets for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.13 of the Specifications.

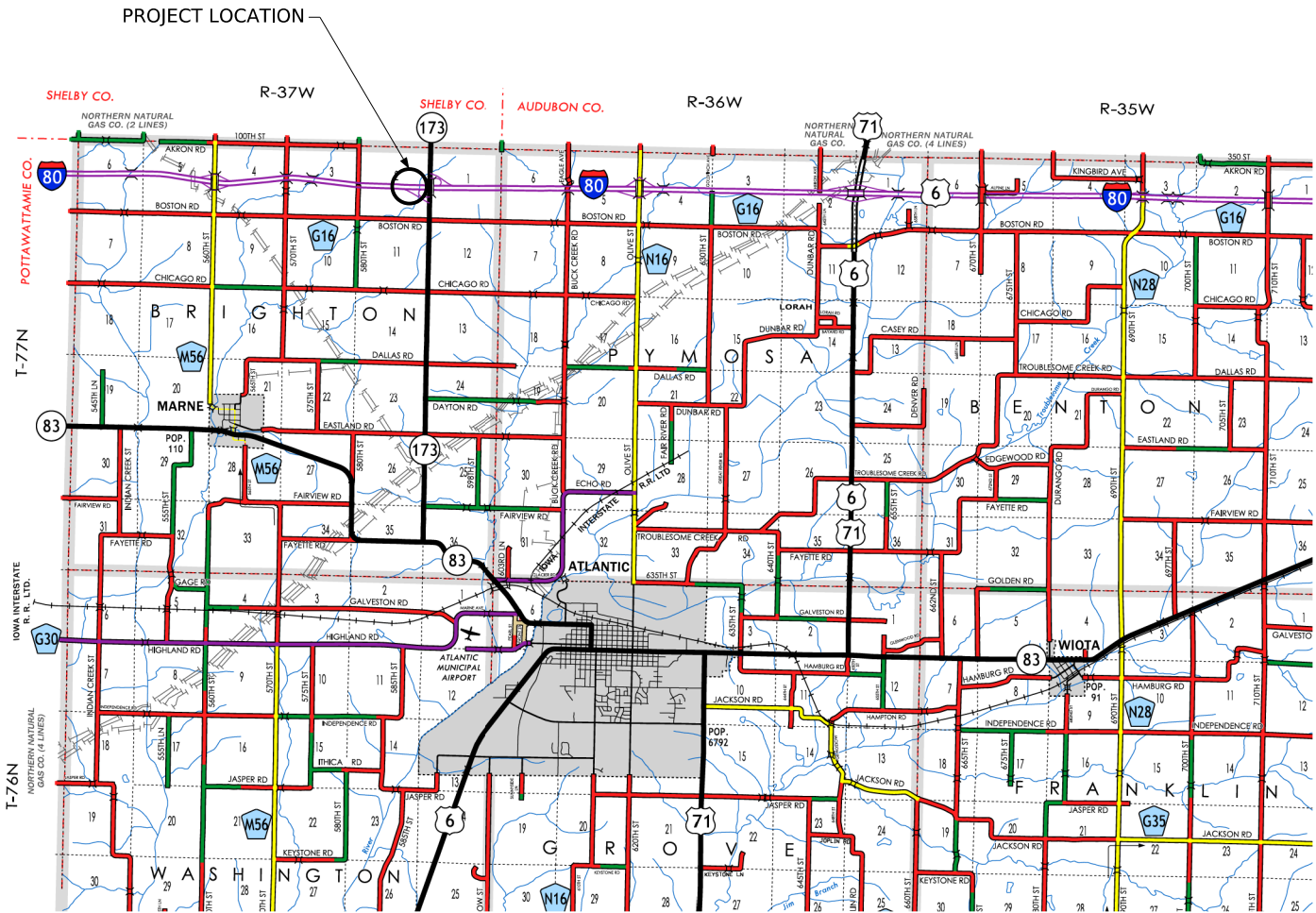
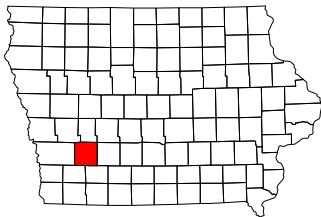
Revisions

TOTAL	
10	
PROJECT IDENTIFICATION NUMBER	
26-15-080-030	
PROJECT NUMBER	
IMN-080-1(588)54--0E-15	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
1508003026	



Design Data Rural

2024 AADT 11,200 V.P.D.
TRUCKS 44 %



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 Dan Kimball Date 8-27-26
Printed or Typed Name Daniel D. Kimball
My license renewal date is December 31, 2027

Pages or sheets covered by this seal: All Sheets

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items
Design :

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Roadway Items	Design	Total	
1	2102-2625000	EMBANKMENT-IN-PLACE	CY		15	15	Provide class 10 material according to Section 2102 of the Standard Specifications. Material shall be provided by the Contractor and is anticipated for ditch block construction within the median per EW-110 as well as filling and shaping the existing scour hole within the roadside ditch.
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY		50	50	Includes all work in preparation of final grades required after pipe removal, proposed pipe placement, ditch grading, placement of revetment and topsoil as shown on the drawings. The bounding limits of article 2402.02(b) are not applicable. Excess excavated material shall be disposed of by the Contractor off of the project site.
3	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY		50	50	Quantity will be computed on the basis of a uniform 8 inch cut within the project area. Sufficient field measurements will be taken to assure reasonable conformity with the required depth of cut. Item is for slope establishment and ditch grading after project completion. This will include full restoration of the bore pit locations.
4	2115-0100000	MODIFIED SUBBASE	CY	20		20	Item is for filling of the existing void under the shoulder and mainline roadway created by the failing culvert. Material shall be placed and compacted prior to installation of the finish patch.
5	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	EACH		2	2	Refer to Tab. 104-3. Item shall include a DR-205 Apron guard for the median inlet which will be considered incidental to this bid item. Aprons shall be tied with a DR-121 Type 2 Connection.
6	2416-1262024	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.	LF		76	76	Installation shall be completed per Iowa DOT Specifications Section 2553 for trenchless construction utilizing the jack and boring method. Casing pipe shall meet Iowa DOT specifications. Borings pipes shall be constructed fully within Iowa DOT ROW and restored to existing conditions after project completion.
7	2502-6745952	REMOVAL OF SUBDRAIN	LF	25		25	Item is for removal of subdrain above the existing failing median pipe.
8	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF		80	80	Existing subdrain shall be located and cut to allow for installation of the proposed median drain pipe. The existing drain shall be extended with outlets on either side of the proposed median drain pipe. Refer to Sheet V.1 for location information.
9	2502-8221303	SUBDRAIN OUTLET, DR-303	EACH		2	2	
10	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF		34	34	Item is for removal and disposal of approximately 34' of the CMP portion of the existing median drain. This also includes removal and disposal of the existing 24" concrete apron and apron guard.
11	2503-0200341	STORM SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA.	LF		46	46	Item is for plugging and filling of approximately 46' of the RCP portion of the existing median drain per Iowa DOT Specification 2503.
12	2507-6800061	REVTMENT, CLASS E	TON		65	65	Estimated at 1.6 Ton/CY. Class E Revetment shall meet requirements of Article 4120. Broken concrete and granite is not allowed. Bid item includes 10% additional quantity.
13	2526-8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY	LS	1		1	

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Roadway Items	Design	Total	
14	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1		1	Refer to TC-283 for traffic control layout. Prior to construction, perform a survey to lay out the proposed design per Section 2526.01. The survey shall indicate the established baselines and finished grades as needed for construction.
15	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	1		1	Refer to Tab. 108-27. Item is for night work required during single lane closures on I-80
16	2528-8445110	TRAFFIC CONTROL	LS	1		1	Refer to Traffic Control Plan on Sheet J.1.
17	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	48.9		48.9	Refer to Tab. 102-6C. Patching shall be full depth HMA. Depth is anticipated to be 19" of HMA pavement to match the existing roadway. Replacement of pavement markings shall be considered incidental to this bid item.
18	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	1		1	Refer to Tab. 102-6C. Patching shall be full depth HMA.
19	2529-8202000	RUMBLE STRIP PANEL (IN FULL DEPTH PATCH)	EACH	1		1	To be included within full depth shoulder panel construction.
20	2533-4980005	MOBILIZATION	LS	1		1	- -
21	2602-0000020	SILT FENCE	LF	100		100	Refer to Tab. 100-17.
22	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	100		100	Refer to Tab. 100-17.
23	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	100		100	Item is for construction of a construction entrance. The entrance shall be constructed per EC-303 and shall be completely removed and restored to a vegetative condition after project completion which shall be incidental to this bid item. Coordinate entrance location with the Project Engineer prior to construction.

100_01D 8/15/22
PROJECT DESCRIPTION
This project is for the emergency repair of an RCP Median pipe and associated patching along I-80 Westbound. The project area is located approximately 0.5 Mi. W of IA 173.

108_27

8/15/22

TEMPORARY FLOODLIGHTING LUMINAIRES

Possible Standard: LI-130

Line No.	Item No.	Station	Offset (FT)	Number Luminaires	Remarks
1.0		236+91.00		1	

100_17 8/15/22					
TABULATION OF SILT FENCES					
Refer to EC-201					
Line No.	Station From	Station To	Side	Length (FT)	Remarks
1.0	+0.00		Left	100.00	Cooridnate Placement with Engineer

105_04 4/21/26		
STANDARDS		
The following Standards apply to construction work on this project.		
Number	Date	Title
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-283	04-18-23	Surveying Operations
TC-402	04-18-23	Work Within 15 ft of Traveled Way
TC-418	04-18-23	Lane Closure on Divided Highway
EC-201	04-20-21	Silt Fence
EC-301	10-18-22	Rock Erosion Control (REC)
EC-303	10-19-21	Stabilized Construction Entrance
DR-121	04-18-23	Connected Pipe Joints
DR-201	10-17-23	Concrete Aprons
DR-213	10-18-22	Pipe Apron Guard
DR-303	10-17-17	Subdrains (Longitudinal)
DR-601	04-18-17	Reinforced Concrete Pipe Culvert
EW-110	10-20-15	Ditch Blocks and Dikes
LI-130	10-17-17	Temporary Floodlighting Luminaires
PM-110	10-15-24	Line Types
PM-115	04-15-25	Grooving for Line Types

111_25 4/21/26			
INDEX OF TABULATIONS			
Line No.	Tabulation	Tabulation Title	Sheet No.
1.0	100_01D	PROJECT DESCRIPTION	C.3
2.0	108_27	TEMPORARY FLOODLIGHTING LUMINAIRES	C.3
3.0	100_17	TABULATION OF SILT FENCES	C.3
4.0	105_04	STANDARD ROAD PLANS	C.3
5.0	104_03	DRAINAGE STRUCTURE BY ROAD CONTRACTOR	C.3
6.0	111_25	INDEX OF TABULATIONS	C.3
7.0	102_06C	FULL-DEPTH PATCHES	C.3
8.0	102_05	EXISTING PAVEMENT	C.4
9.0	232_03A	EROSION CONTROL (RURAL SEEDING)	C.4
10.0	262_06	UTILITIES (NOT A POINT 25 PROJECT)	C.4
11.0	281_01	SECTION 404 PERMIT AND CONDITIONS	C.4

104_03
3/18/24

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
* Not a bid item
(1) Diameter or equivalent diameter
(2) UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe
(3) Backfill according to DR-101

Drainage Area (ACRE)	Location	Type	Size (IN) (1)	Pipe Classification	Kind of Pipe (2)	Length New Const. (LF)	Length of total that is Trenchless	Bedding Class	Design Cover (H) (FT)	Camber* (DR-102) (FT)	Apron No. (IN)	Apron No. (OUT)	Apron Guard* (DR-213) (No.)	Elbow* (DR-141) (No.)	Diaphragm* (DR-501) (No.)	Tee Section* (DR-142) (No.)	"D" Section* (DR-141) (No.)	Reducer* (No.)	Type 'C' Conn.* (DR-122)	Type 'C' Conn.* (No.)	Connected Pipe Joint* (DR-121)	Type	4" Perforated Subdrain* (FT)	Flow Line Elevation LT.	Flow Line Elevation RT.	Flow Line Elevation Other	Flow Line Elevation Other	Dimensions Lineal Feet Total (Left)	Dimensions Lineal Feet Total (Right)	Dimensions Lineal Feet Extensions	Dimensions Lineal Feet Extensions	Skew Ahead Degrees (Left)	Skew Ahead Degrees (Right)	Dike Location	Dike Station	Dike Elevation	Dike Type	Class 20 (CY)	Flowable Mortar	Floodable Backfill* (A)	Porous Backfill* (B)	Flooded Backfill(A+B)	Remarks	
1.6	236+91.10	DR-601	24.0	2000D	RCP	76.0	76.0		6.00	0.17	1	1	1								Type 2			1299.98	1307.99			76.00	48.50	27.50				Rt.	237+05.00	1310.50	G							Trenchless

102_06C 4/21/26																					
FULL-DEPTH PATCHES																					
Line No.	Count	Station	Reference Location Sign	Direction of Travel	Side	Length (FT)	Width (FT)	Patch Thickness (IN)	Patch Repair or Finish	PCC Patch Type	PCC Patch Quantity (SY)	HMA Patches (SY)	Composite HMA (TON)	Subbase Patches (PR-140) (SY)	Subbase Patch with 'EF' Joint (PR-101) (SY)	Patch Subdrain PR-101 or PR-140 (No.)	'CD' Joints (No.)	'CT' Joints (No.)	'EF' Joints PR-101 (No.)	Anchor Lugs Removal (No.)	Remarks
1.0	1	237+00.00		WB	Left	22.0	20.0	19.0	Finish			48.9									Includes Shoulder

FILE NO. -	ENGLISH	DESIGN TEAM AECOM	CASS COUNTY	PROJECT NUMBER IMN-080-1(588)54--0E-15	SHEET NUMBER C.3
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102_05 9/29/23																					
EXISTING PAVEMENT																					
Line No.	County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforcement Type	Remarks
1.0		I-80	WB	MP 049 71	MP 055 33	2022		IMX-080-1(508)50--02-15	HMA	1.5					MIL	1.5	FT CALHOUN_ANE 01	C.LST.			
2.0		I-80	WB	MP 049 71	MP 055 33	2008		IM-080-1(302)50-13-15	HMA	2.0	HMA	2.0			SCR	2.0					
3.0		I-80	WB	MP 049 71	MP 055 33	1990		IR-80-1(174)40	AAC	4.0	TBB	13.0	GSB	9.0							

232_03A
9/28/22

EROSION CONTROL (RURAL SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

104_09A
5/6/24

LONGITUDINAL SUBDRAIN SHOULDER

* Not a bid item.

Line No.	Road or Lane Identification	Station From	Station To	Side	Depth (IN) (D)	Subdrain Size (IN)	Length (FT)	Outlet Station	Outlet Type	Porous Backfill* (CY)	Remarks
1.0	I-80	236+75.00	236+85.00	Left	30.0	4.0	40.0	236+85.00	DR-303	2.5	Tie to Existing
2.0	I-80	237+10.00	237+20.00	Left	30.0	4.0	40.0	237+10.00	DR-303	2.5	Tie to Existing
Total:							80				

262_06
9/28/22

UTILITIES (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

281_01
9/28/22

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 14. A copy of this permit is available from the Iowa DOT website (<http://www.envpermits.iowadot.gov/>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

Survey Information

SURVEY INDEX

County: Cass
PIN: 26-15-080-030
Project Number: IMN-080-1(588)54--0E-15
Location: 0.5 mi W of IA 173 (WB)
Type of Work: 3581-Pipe Culverts
Project Directory: 1508003026

Alignment Information

The horizontal alignment for US Interstate 80 was found in the DistrictROW folder named DIS_15080rowZ07.dgn

Survey Personnel

Aaron Mueller – Professional Land Surveyor
Ethan Nicholas – Survey Party Chief

Date(s) of Survey

Begin Date 07/23/2026
End Date 08/06/2026

General Information

This survey is for US Interstate 80 Shoulder/Pipe Culvert Repair at location 2,300 feet W of Hwy 173 Interchange. This survey request was for the US Interstate 80 corridor only. This project is a Full Field DTM survey.

Utility Information

For logging data and other utility details see Utility Survey and Ownership Report in the Utility folder of the PrelimSurvey project directory.

Project Control

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on primary project control points. Three six-minute observations were taken with a minimum two-hour time span between and used in a weighted average to obtain final coordinate values. For additional details of the control survey, contact the Preliminary Survey department.

PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 7
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018 CONUS

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) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 07(U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: CONUS

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING
HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
Ia. Regional Coordinate System Zone 07 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: CONUS

Point Name	Northing	Easting	Elevation	Code
1	7254815.64	17383092.75	1324.70	FENO
2	7254750.85	17379636.98	1314.91	FENO
3	7252258.87	17381411.37	1286.37	FENO

TRAFFIC CONTROL CLOSURE TABLE(S)

* This is to only be used in conjunction with Tabulation 108-23A.
"X" area indicates times that lane closures are not allowed.

Roadway Name	Day	12:00 AM	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00 PM	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
I-80	Sunday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
I-80	Monday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
I-80	Tuesday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
I-80	Wednesday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
I-80	Thursday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
I-80	Friday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												
I-80	Saturday													X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X												

511 TRAVEL RESTRICTIONS

Line No.	Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
1.0				No Restrictions Anticipated				None					

TRAFFIC CONTROL PLAN

Traffic on I-80 shall be maintained at all times during construction.

The contractor shall follow Standard Road Plan TC-402 for work within 15' of the traveled way.

For patching work on I-80, the contractor shall maintain at least one lane of traffic utilizing Standard Road Plan TC-418. See Tabulation 108-23B for times when lane and shoulder closures are restricted on I-80.

This is considered a Traffic Critical Project.

STAGING NOTES

The contractor shall be limited to closing only one lane/shoulder on I-80 at a time. Refer to Tabulation 108-23B for times when lane/shoulder closures will not be permitted. When work in complete, open both WB lanes of traffic on I-80.

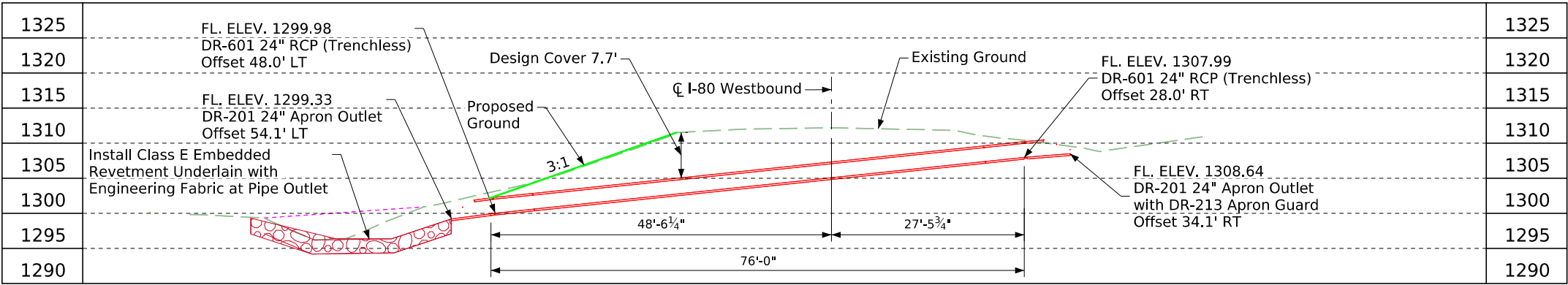
COORDINATED OPERATIONS

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

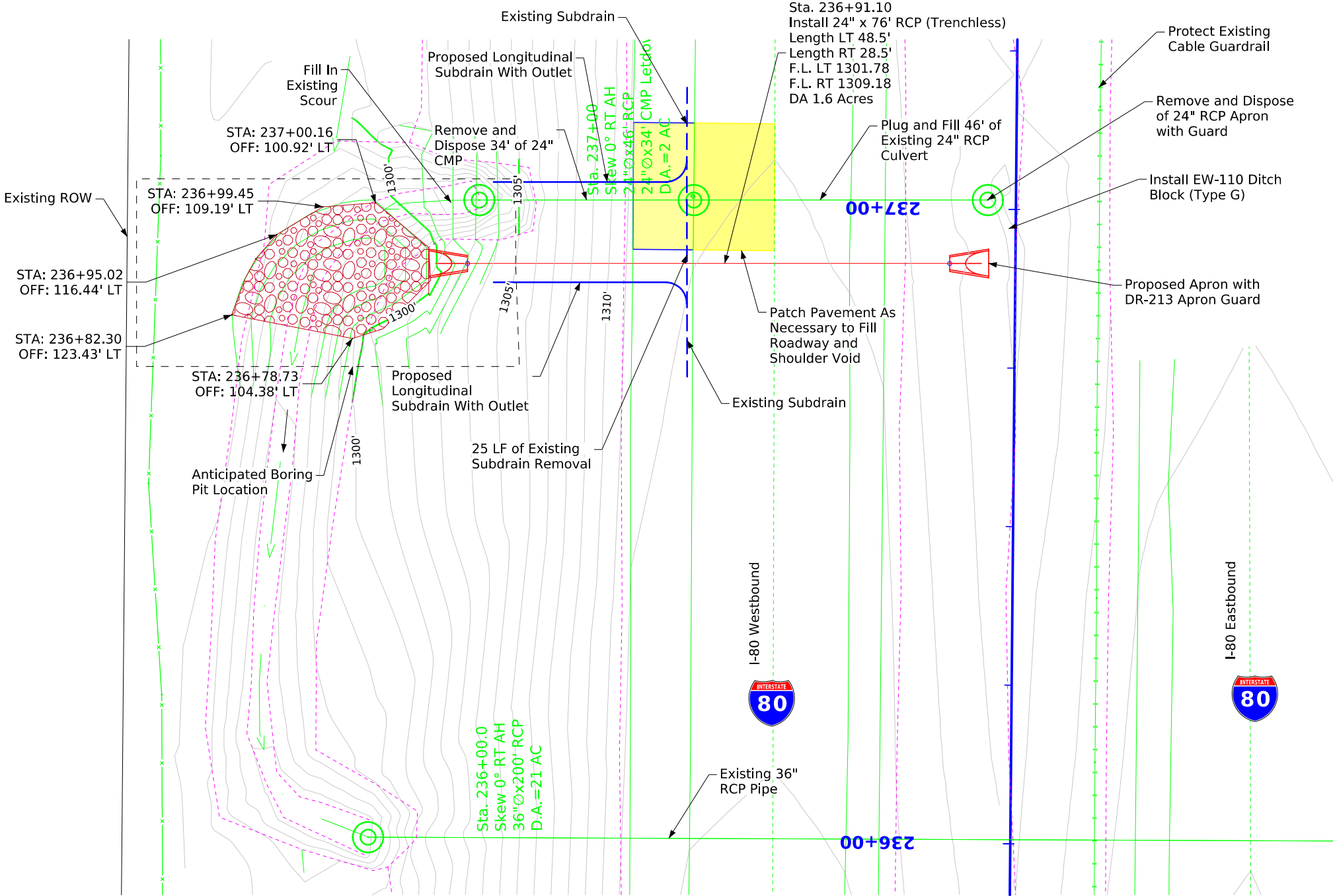
Type of Work

To Be Discussed at Precon



Control Point:
Point No. 2, N: 7254750.85, E: 173.79636.98, Elev: 1314.91, FENO

Longitudinal Section Along C Culvert



Notes:

Access From WB I-80.

Contractor to Complete Work Within the Existing ROW Limits.

Class 'E' Revetment is Embedded.

Location

I-80 Over Median Pipe
T-77N R-37W
Section 02
Brighton Township
Cass County
Latitude 41.4970468°
Longitude -95.0685929°

Hydraulic Data

Drainage Area = 1.6 Acres

Design For 0 Deg Skew

24" x 76' RCP

Trenchless Median Pipe

Situation Plan

STA. 236+91.10 (I-80)

Turn-in Date: Aug 2026

Cass County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. -

Design Sheet No. 1 of 1

FHWA/Asset -