

Index of Sheets	
No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
C.1 - C.2	Estimated Quantities and Reference Notes
C.3 - C.4	Tabulations
G.1 - G.3	Survey Information
J.1	Traffic Control Plan
V.1	General Plan
V.2	Situation Plan
V.3	Vent Hole Layout



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
PAGE COUNTY
RCB Culvert - Repair

Drainage Ditch Under US 59
3.7 mi N of NCL Shenandoah

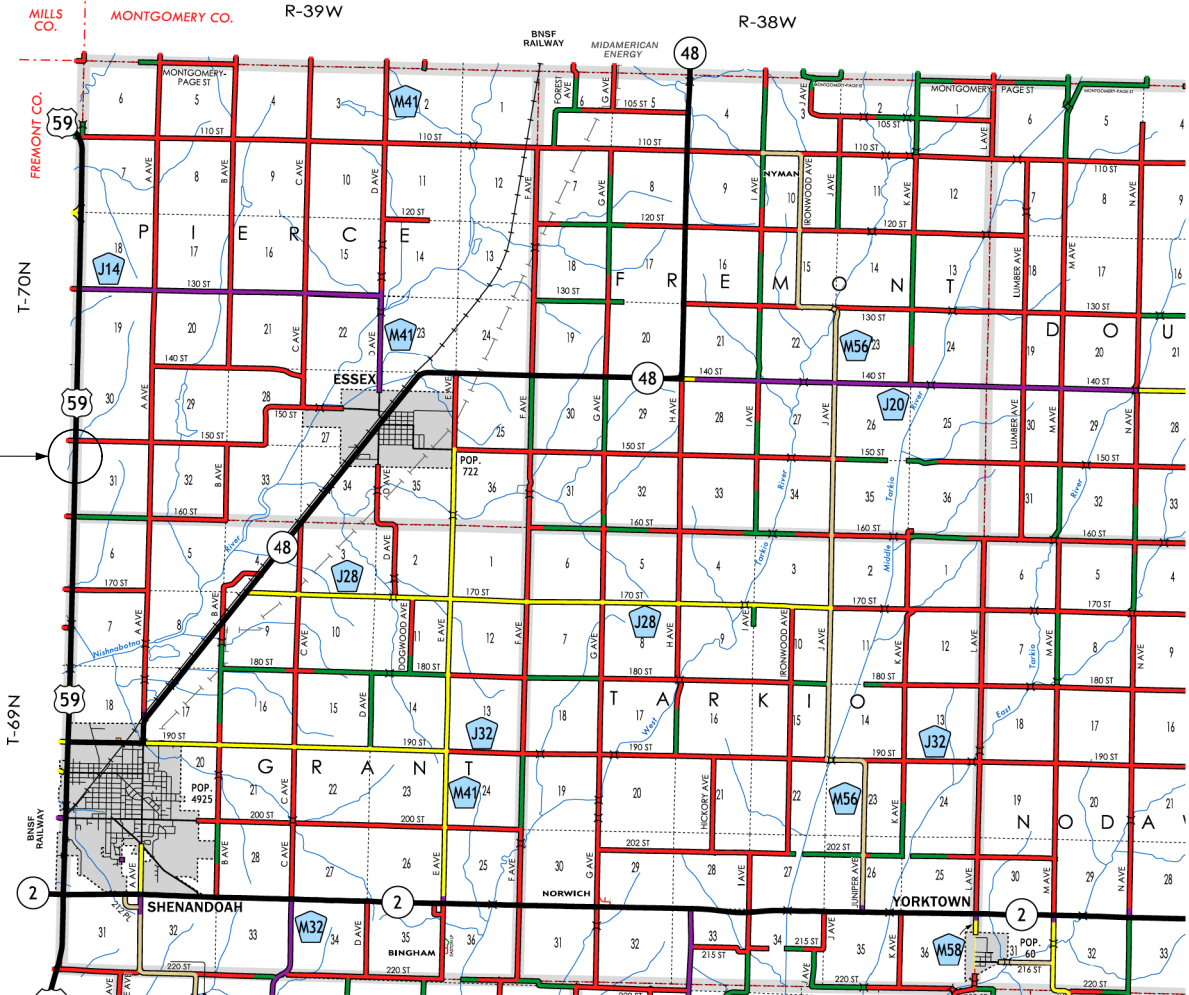
Refer to the Plan Sheets for list of applicable specifications.

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



	TOTAL
	12
PROJECT IDENTIFICATION NUMBER	
26-73-059-030	
PROJECT NUMBER	
NHSN-059-1(045)--2R-73	
R.O.W. PROJECT NUMBER	
-	
PROJECT DIRECTORY NUMBER	
7305903026	

Project Location



Design Data Rural

2024 AADT 1,760 V.P.D.
TRUCKS 6.7 %



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 Daniel D. Kimball Date 8-27-26

Printed or Typed Name

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
Structural :

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Roadway Items	Structural	Total	
1	2101-0850001	CLEARING AND GRUBBING	ACRE		0.1	0.1	All material generated as a result of the Clearing and Grubbing shall become the property of the Contractor and must be disposed of off-site. All wood material must be disposed of according to Iowa DOT Agriculture and Land Stewardship Emerald Ash Borer Quarantine Order. For more information, see www.iowatreepests.com .
2	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY		80	80	Includes all work in preparation of grade for placement of revetment and topsoil including excavation to the limits shown on the drawings. The bounding limits of article 2402.02(b) are not applicable. Item includes removal of existing sediment within the existing RCB barrel and aprons and will not be paid for separately. Excess excavated material shall be disposed of by the Contractor off of the project site. Temporary stream crossings shall be constructed according to standard road plan EW-401 and general specification 2547 and shall be considered incidental to this bid item, if required.
3	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY		100	100	Quantity will be computed on the basis of a uniform 8 inch cut within the disturbed portion of the project area. Sufficient field measurements will be taken to assure reasonable conformity with the required depth of cut. Item is installation and restoration of the construction entrance.
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	2210-0475290	MACADAM STONE BASE	TON		10	10	Includes furnish and placement of macadam stone base to fill in scour areas under the revetment as shown in the drawings. Compaction requirements in accordance with Article 2210.03, C, of the Standard Specifications are waived. Material shall be compacted as required to provide a stable working surface for placement of revetment.
6	2417-1060120	CULVERT, CORRUGATED METAL ROADWAY PIPE, 120 IN. DIA.	LF		86	86	Item shall be installed within the existing RCB. CMP shall be a minimum of 8 gage steel. Ends of pipe shall be mitered to match the existing RCB Skew.
7	2506-4984000	FLOWABLE MORTAR	CY		200	200	Item is for filling the void between the newly installed CMP and existing RCB. Installation/vent holes shall be utilized for installation as shown in the plan sheets. Contractor to provide an installation layout to the Engineer for approval prior to installation. Item also includes quantity for filling the base of the undermined outlet curtain wall to fill voids. Material shall be pumped under the curtain wall to fill existing voids.
8	2507-3250005	ENGINEERING FABRIC	SY		160	160	Engineering fabric shall be material specified for embankment erosion control according to Article 4196.01, B, 3.
9	2507-6800061	REVETMENT, CLASS E	TON		130	130	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.
10	2526-8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY	LS	1		1	Item is for locating and marking all critical points needed for construction.
11	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.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Roadway Items	Structural	Total	
12	2528-8445110	TRAFFIC CONTROL	LS	1		1	Refer to Traffic Control Plan on Sheet J.1.
13	2528-8445113	FLAGGERS	EACH	0		0	See Proposal. One lane shall be maintained on US 59 during construction. Flaggers shall be utilized during daytime working hours. Two lanes shall be open when flaggers are not present.
14	2529-2242304	CD JOINT ASSEMBLY	EACH	2		2	Refer to Tab. 102-6C.
15	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	48.9		48.9	Refer to Tab 102-6C. Patching shall be full depth PCC. Patch shall utilize an M4-5 hour mix per Iowa DOT Specification Section 2529. Mainline patching thickness is anticipated to be 11" PCC and the shoulder area is anticipated to be 8" PCC . Replacement of pavement markings shall be considered incidental to this bid item.
16	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	2		2	Refer to Tab. 102-6C .
17	2529-8202000	RUMBLE STRIP PANEL (IN FULL DEPTH PATCH)	EACH	1		1	To be included within full depth shoulder panel construction.
18	2533-4980005	MOBILIZATION	LS	1		1	- -
19	2602-0000020	SILT FENCE	LF	100		100	Refer to Tab. 100-17.
20	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	100		100	Refer to Tab. 100-17.
21	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	200		200	Item is for construction and of a construction entrance. Anticipated entrance location shown on Sheet V.1 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.

PROJECT DESCRIPTION		100_01D 8/15/22
This project is for the emergency repair of an existing RCB culvert under US 59 and associated patching in Page county. The project involves installing a CMP pipe within the existing culvert and associated roadway patching. The project area is 3.7 mi N of NCL Shenandoah.		

INDEX OF TABULATIONS				111_25 4/21/26
Line No.	Tabulation	Tabulation Title		Sheet No.
1.0	100_01D	PROJECT DESCRIPTION		C.3
2.0	111_25	INDEX OF TABULATIONS		C.3
3.0	105_04	STANDARD ROAD PLANS		C.3
4.0	102_05	EXISTING PAVEMENT		C.3
5.0	102_06C	FULL-DEPTH PATCHES		C.3
6.0	281_01	SECTION 404 PERMIT AND CONDITIONS		C.3
7.0	232_11	EROSION CONTROL (STABILIZING CROP SEEDING)		C.4
8.0	232_03A	EROSION CONTROL (RURAL SEEDING)		C.4
9.0	262_06	UTILITIES (NOT A POINT 25 PROJECT)		C.4
10.0	100_17	TABULATION OF SILT FENCES		C.4
11.0	104_03	DRAINAGE STRUCTURE BY ROAD CONTRACTOR		C.4

STANDARDS			105_04 4/21/26
The following Standards apply to construction work on this project.			
Number	Date	Title	
DR-104	04-19-16	Depth of Cover Tables for Concrete and Corrugated Pipe	
EC-201	04-20-21	Silt Fence	
EC-301	10-18-22	Rock Erosion Control (REC)	
EC-303	10-19-21	Stabilized Construction Entrance	
PM-110	10-15-24	Line Types	
PR-103	10-21-25	Full Depth PCC Patch with Dowels	
PV-101	10-21-25	Joints	
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)	
TC-202	04-18-23	Work Within 15 ft of Traveled Way	
TC-213	04-18-23	Lane Closure with Flaggers	
TC-283	04-18-23	Surveying Operations	

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. 3. 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.

EXISTING PAVEMENT																					102_05 9/29/23
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	Page	US 59		MP 010 61	MP 020 06	2013		NHSX-059-1(29)--3H-73	HMA	1.5	HMA	1.5					CRESCENT_A78 002	C.LST.	4		
2.0	Page	US 59		MP 010 61	MP 020 06	2013	W	NHSX-059-1(29)--3H-73	HMA	1.5	HMA	1.5	HMA	5.0			WEEPING WATER MI	C.LST.	4		5" Subbase for Shoulder Widening
3.0	Page	US 59		MP 010 61	MP 020 06	1960		F-442(8)	PCC	8.0											

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	227+78.00		2-Lane	Left	20.0	14.0	11.0	Finish	PCC With Dowels (PR-103)	31.1						1				
2.0	1	227+78.00		2-Lane	Left	20.0	8.0	8.0	Finish	PCC With Dowels (PR-103)	17.8						1				
Total:												48.9				2					

232_11
6/21/23

EROSION CONTROL (STABILIZING CROP 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.

If outside of permanent seeding dates in Section 2601 of the Standard Specifications, or if required by a storm water permit, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,1 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 incidental to mobilization and will not be paid for separately.

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.

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.

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	+.00			100.00	Cooridnate Placement with Engineer

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)	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
595.2	227+78.00		120.0		CMP	86.0	86.0															1041.31	1042.26			46.00	40.00				45.9										

Survey Information

SURVEY INDEX

County: Page
PIN: 26-73-059-030
Project Number: NHSN-059-1(045)--2R-73
Location: 3.7 mi N of NCL Shenandoah
Type of Work: 3041-RCB Culvert - Repair
Project Directory: 7305903026

Alignment Information

Alignment information provided by ROW.

Survey Personnel

Aaron Mueller – Professional Land Surveyor
Elias Riley – Survey Party Chief
Twa Da ae –Survey Technician

Date(s) of Survey

Begin Date 08/05/2026
End Date 08/06/2026

General Information

This survey is for US Hwy 59 Culvert Repair at location 270 feet South of Intersection with 150th Street. This survey request was for the US Hwy 59 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 12
(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 12 (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 12 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: CONUS

Point Name	Northing	Easting	Elevation	Description
1	6170604.14	22047550.00	1075.18	FENO
2	6172384.19	22046642.23	1117.97	FENO
3	6172325.99	22048956.32	1119.18	FENO

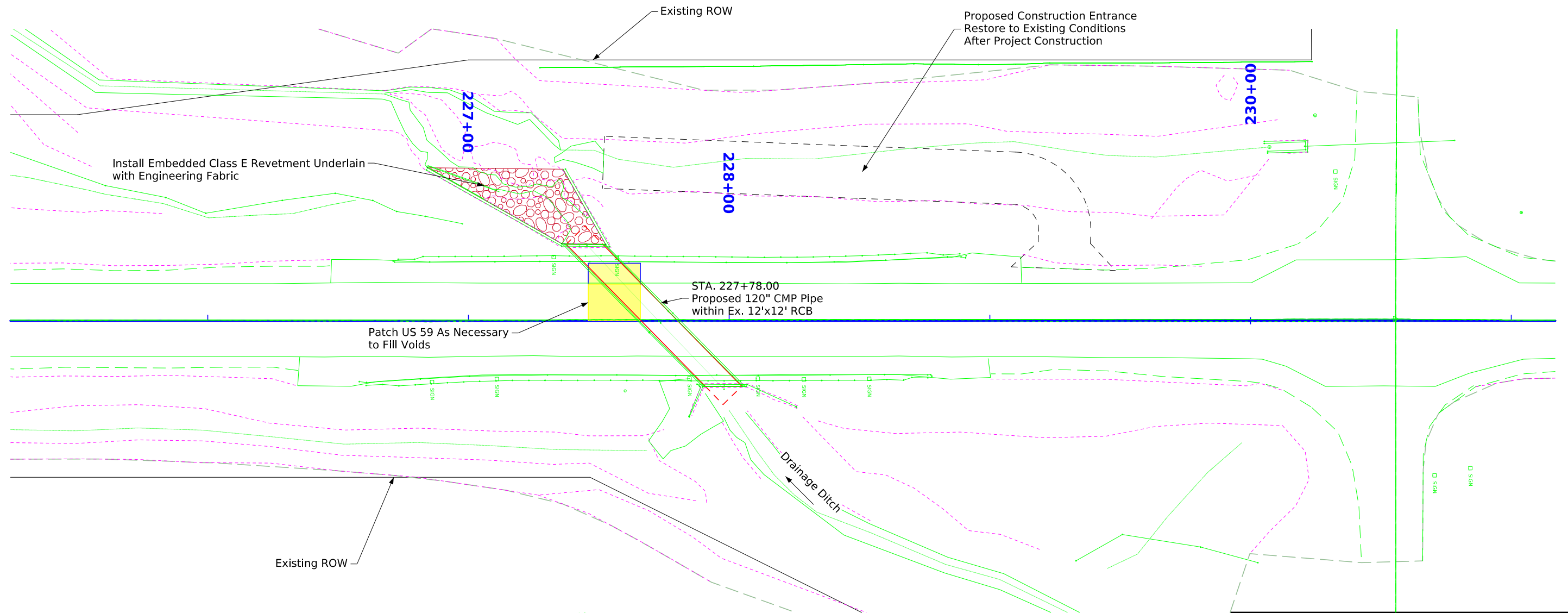
108_25
3/28/24

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 are Anticipated				None					

108_23A 8/15/22	TRAFFIC CONTROL PLAN
Traffic on US 59 and Co. Rd J22/150th Street shall be maintained at all times during construction.	
The contractor shall follow Standard Road Plan TC-202 for work within 15' of the traveled way.	
For PCC patching work on US 59, the contractor shall maintain two-way, one-lane traffic utilizing Standard Road Plan TC-213.	
This is not considered a Traffic Critical Project.	

108_26A 8/15/22	STAGING NOTES
The contractor shall stage PCC Patching construction on US 59 by shifting and maintaining one-lane/two-way traffic in a single lane utilizing Standard Road Plan TC-213.	
When work is complete, open both lanes of traffic in the northbound and southbound directions.	

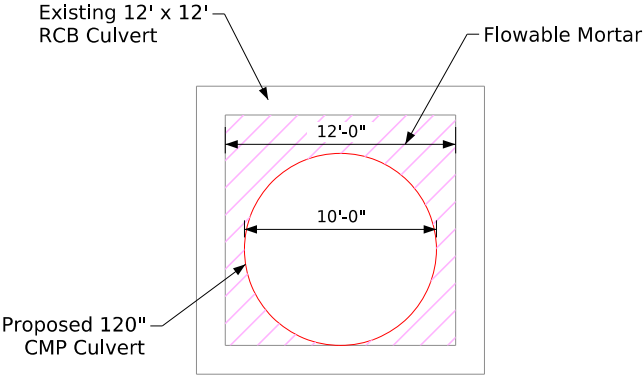
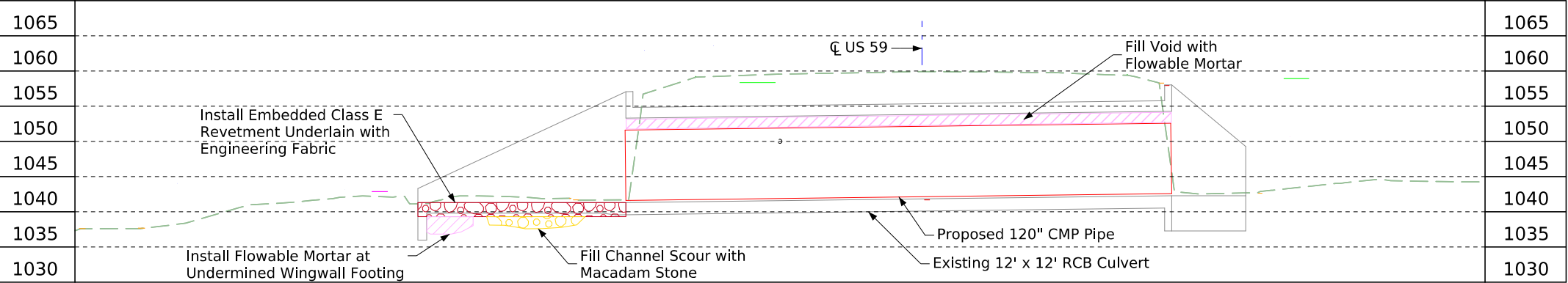
111_01 10/14/22	COORDINATED OPERATIONS
Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.	
Project	Type of Work
To Be Discussed at Precon	



Situation Plan

Design For 45.9 Degree Skew
120" x 86' CMP Pipe
Inside Existing 12' x 12' Culvert
General Plan
STA. 227+78 (US 59) Turn-in Date: August 2026
Page County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. - Design Sheet No. V.1 of 3

Control Point:
Point No. 2, N: 6172384.19, E: 22046642.23 , Elev: 1117.97, FENO

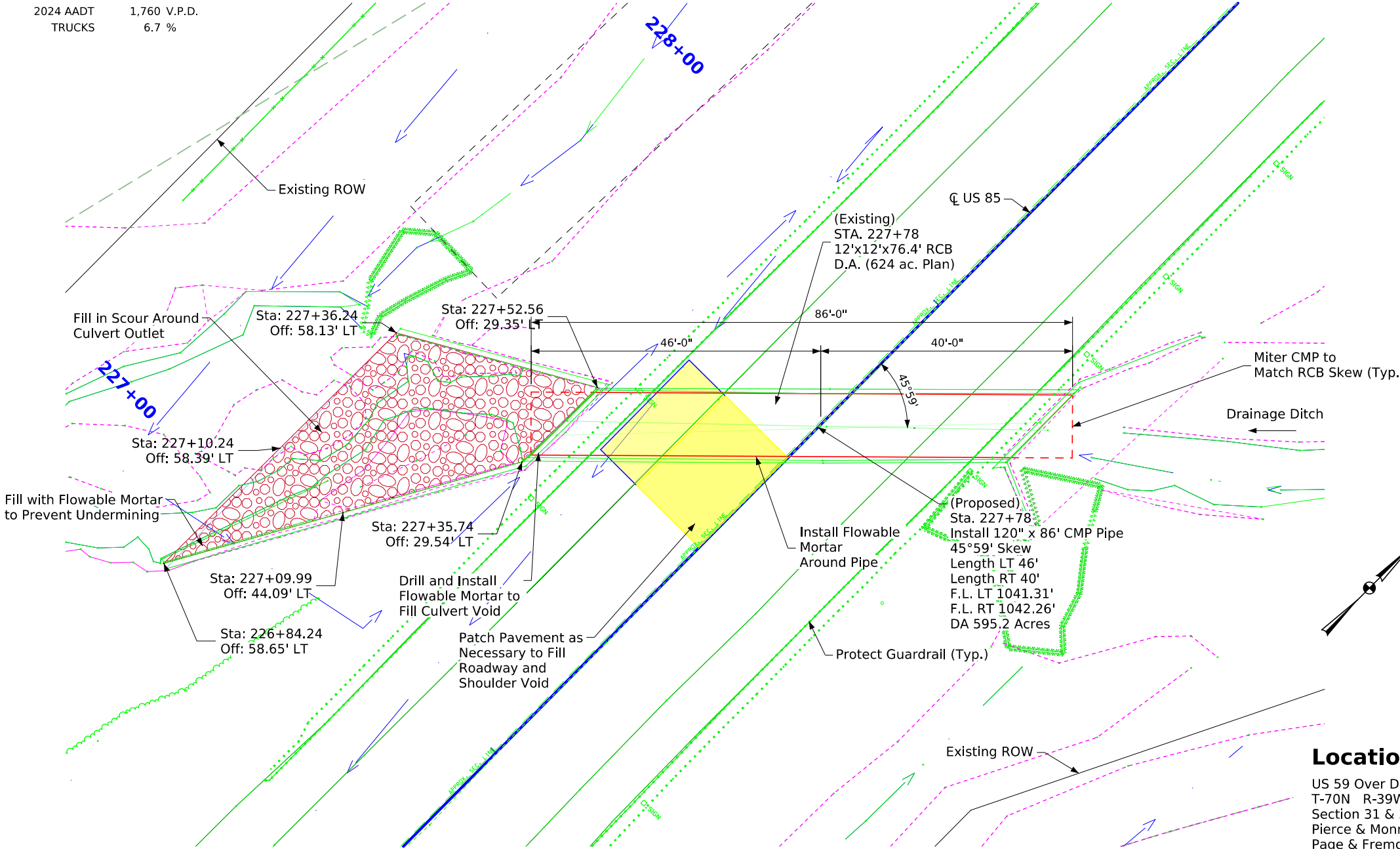


Typical Section Through Culvert

Traffic Estimate

2024 AADT 1,760 V.P.D.
TRUCKS 6.7 %

Longitudinal Section Along Q Culvert



Situation Plan

Hydraulic Data

RIDB: "Not Applicable"
Drainage Area = 595.2 Acres
Stream Slope = 48.6 Ft./Mi.
Q₅₀ = 761 cfs
HW Elev. = 1053.02
Exit Velocity = 14.07 fps

Q₁₀₀ = 896 cfs
HW Elev. = 1054.52
Exit Velocity = 14.76 fps

Utilities Note:

Utilities shown on this sheet are for information only.
See Road Design sheets for utility information.

General Utility Symbols:

E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
T - Telephone Line
W - Water Line
FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
● - Power Poles

Location

US 59 Over Drainage Ditch
T-70N R-39W & 40W
Section 31 & 36
Pierce & Monroe Township
Page & Fremont County
Latitude 40.828464°
Longitude -95.384714°

Design For 45.9 Degree Skew
120" x 86' CMP Pipe
Inside Existing 12' x 12' Culvert

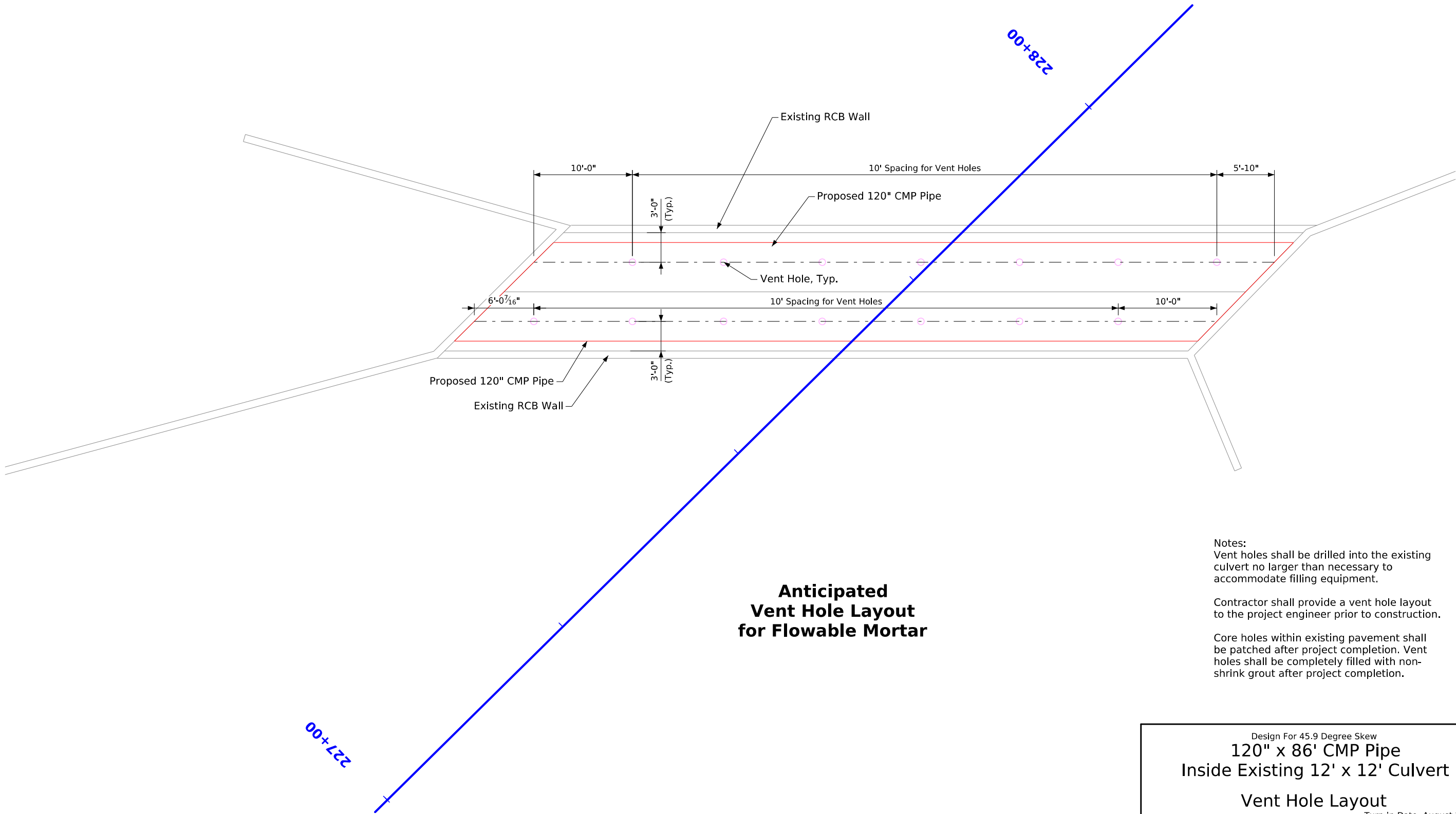
Situation Plan

STA. 227+78 (US 59) Turn-in Date: August 2026

Page County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. - Design Sheet No. V.2 of 3



**Anticipated
Vent Hole Layout
for Flowable Mortar**

Notes:
Vent holes shall be drilled into the existing culvert no larger than necessary to accommodate filling equipment.

Contractor shall provide a vent hole layout to the project engineer prior to construction.

Core holes within existing pavement shall be patched after project completion. Vent holes shall be completely filled with non-shrink grout after project completion.

Design For 45.9 Degree Skew

120" x 86' CMP Pipe

Inside Existing 12' x 12' Culvert

Vent Hole Layout

STA. 227+78 (US 59) Turn-In Date: August 2026

Page County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. - Design Sheet No. V.3 of 3