



REVISIONS

TOTAL	..
PROJECT IDENTIFICATION NUMBER	20-23-136-060
PROJECT NUMBER	BRF-136-1(103)--38-23
R.O.W. PROJECT NUMBER	

INDEX OF SHEETS	
No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
* A.1	Title Sheet
* A.2	Location Map Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 2	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA 136
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1 - 3	Reference Ties and Bench Marks
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
* V.1	Bridge and Culvert Situation Plan
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 5	Mainline Cross Sections
	* Color Plan Sheets

PLANS OF PROPOSED IMPROVEMENT ON THE  
**PRIMARY ROAD SYSTEM**  
**CLINTON COUNTY**  
Bridge Replacement  
Branch Prairie Creek 4.0 Mi N of US 61

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



DESIGN DATA RURAL			
2025	AADT	800	V.P.D.
2045	AADT	900	V.P.D.
2045	DHV	100	V.P.H.
	TRUCKS	11	%
	Total Design ESALs	..	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Michael J. Janecek	Primary Signature Block
V.1	Phillip M. Harpole	Hydraulic Design

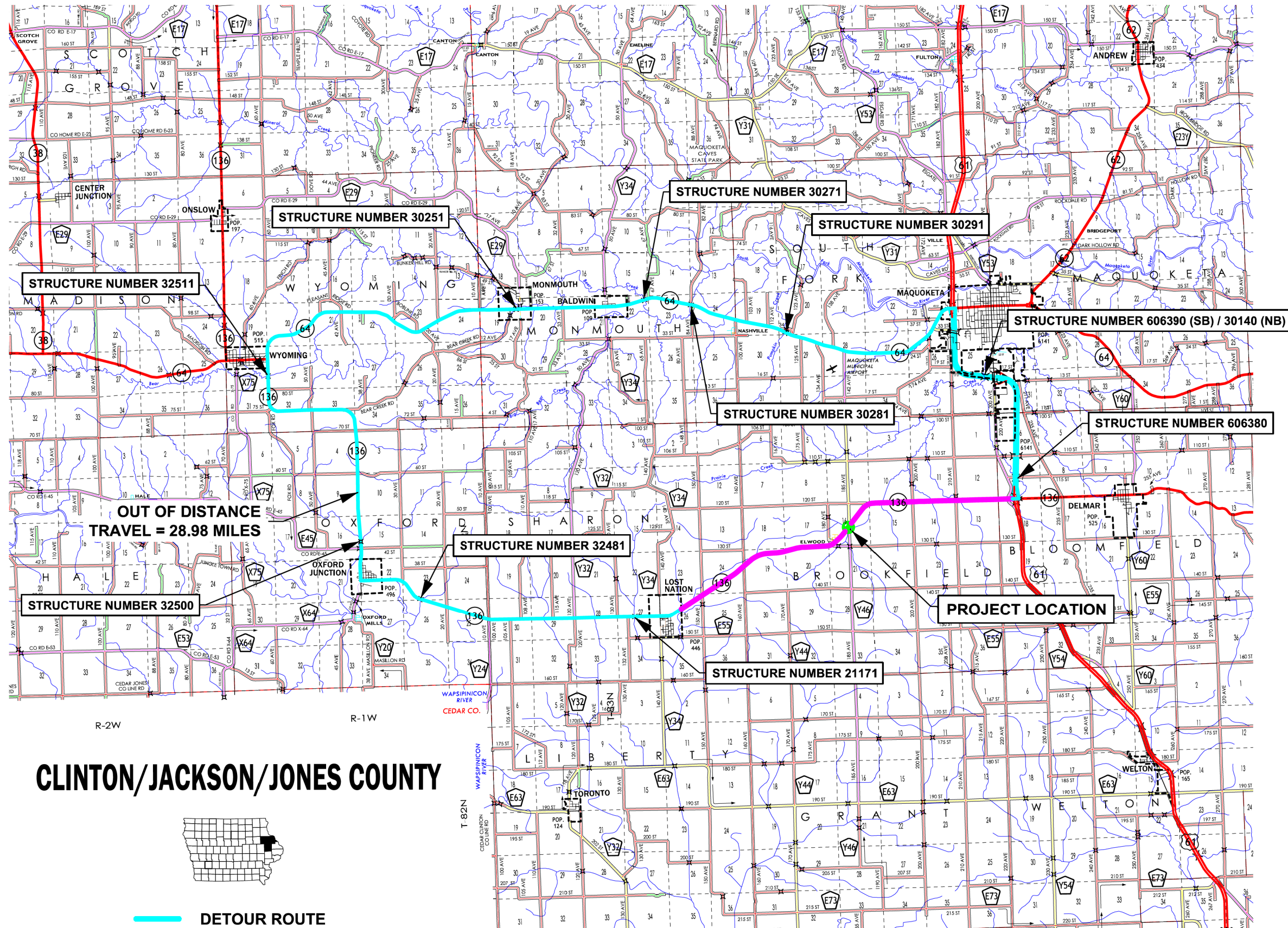
D2 PLAN - June 18, 2024  
D5 PLAN - Sept 16, 2022

PRELIMINARY PLANS

Subject to change by final design.

D3 PLAN - May 20, 2022

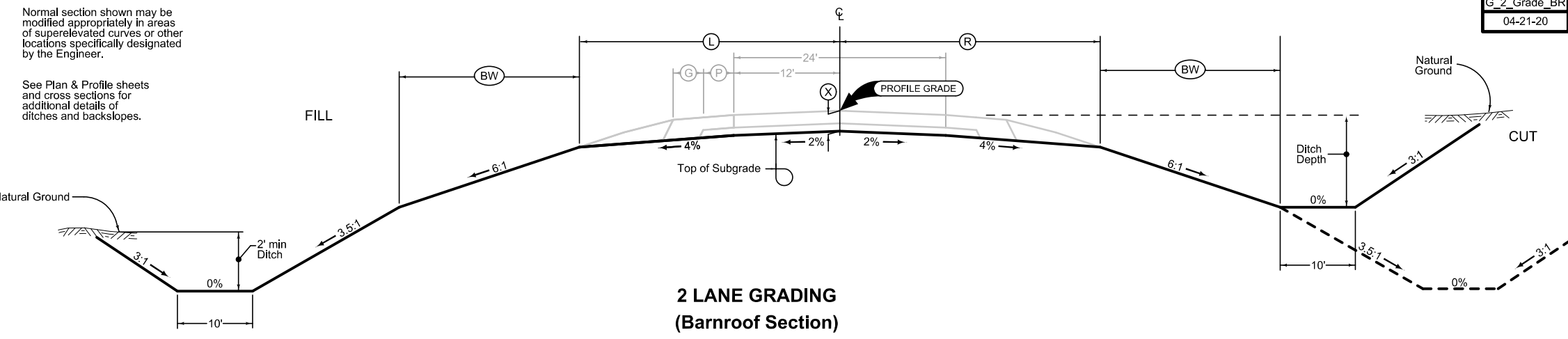




LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	X Inches	BW Feet
IA 136	682+71.25 684+28.61	33.94	33.94	16	2.06

Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.



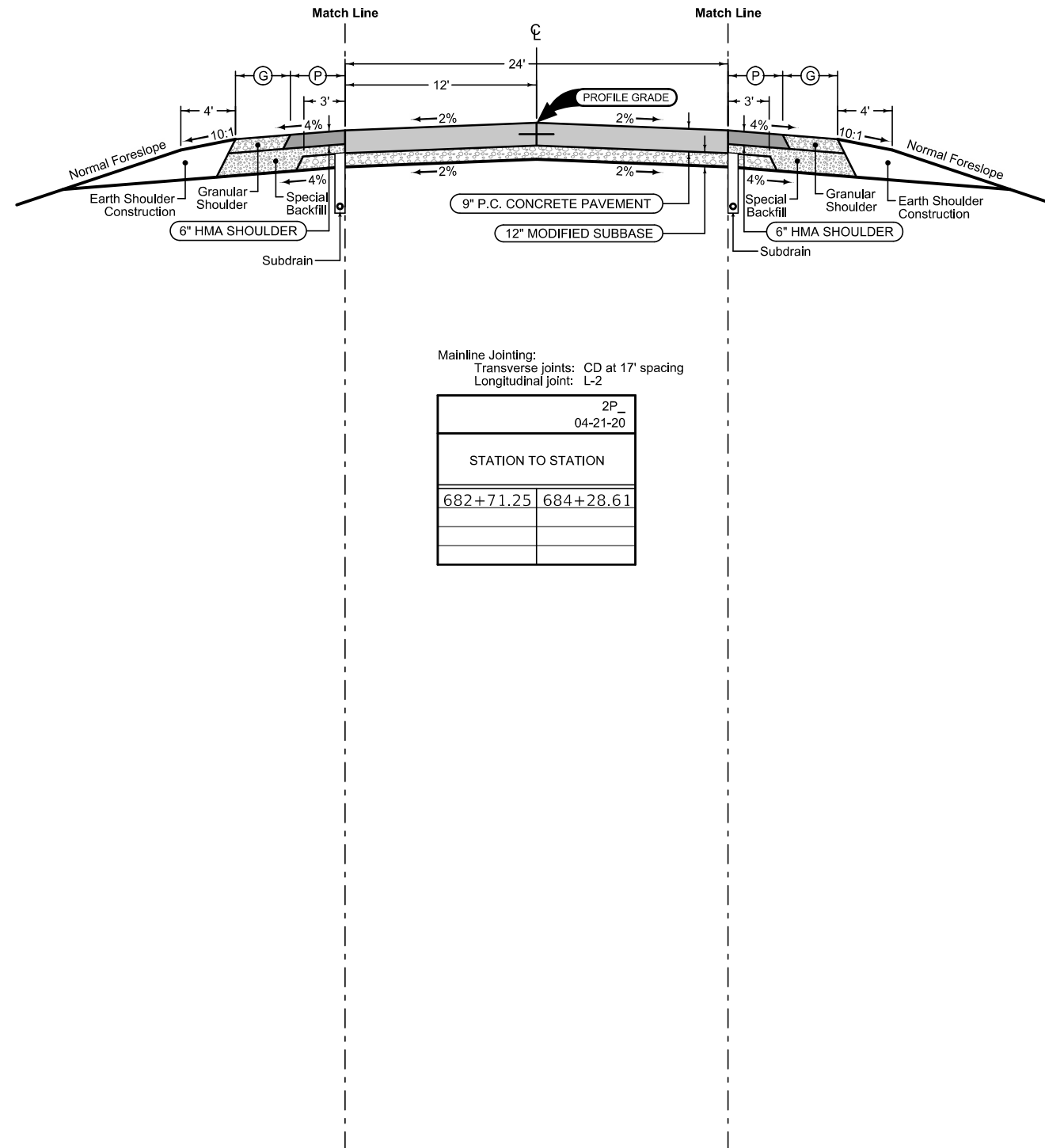
**2 LANE GRADING  
(Barnroof Section)**

G\_2\_Grade\_BR  
04-21-20

**Combination Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

		2_C_04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
682+71.25	684+28.61	4	4



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

		2P_04-21-20	
STATION TO STATION			
682+71.25	684+28.61		

**Combination Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

		2_C_04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
682+71.25	684+28.61	4	4

### SURVEY SYMBOLS

- |  |                                   |  |                              |
|--|-----------------------------------|--|------------------------------|
|  | Interstate Highway Symbol         |  | Septic Tank                  |
|  | U.S. Highway Symbol               |  | Cistern                      |
|  | Iowa Highway Symbol               |  | L.P. Gas Tank (No Footing)   |
|  | County Road Highway Symbol        |  | Underground Storage Tank     |
|  | Evergreen Tree                    |  | Latrine                      |
|  | Deciduous Tree                    |  | Satellite TV Dish            |
|  | Fruit Tree                        |  | Water Hook Up                |
|  | Shrub (Bushes)                    |  | Radio Tower                  |
|  | Timber                            |  | Tower Anchor                 |
|  | Hedge                             |  | Guardrail (Beam or Cable)    |
|  | Stump                             |  | Guard Post (one or two)      |
|  | Swamp                             |  | Guard Post (over two)        |
|  | Rock Outcrop                      |  | Filler Pipe                  |
|  | Broken Concrete                   |  | Gas Valve                    |
|  | Revetment (Rip Rap)               |  | Water Valve                  |
|  | Cemetery                          |  | Speed Limit Sign             |
|  | Grave                             |  | Mile Marker Post             |
|  | Cave                              |  | Sign                         |
|  | Sink Hole                         |  | Traffic Signal Control Box   |
|  | Board Fence                       |  | Rail Road Signal Control Box |
|  | Chain Link or Security Fence      |  | Telephone Switch Box         |
|  | Wire Fence                        |  | Electric Box                 |
|  | 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                      |  |                              |
|  | Water Hydrant (Rural)             |  |                              |

### UTILITY LEGEND

### 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
Yellow	(4)		Proposed Pavement Shading
Orange	(6)		Proposed Granular Shading
Orange	(70)		Proposed Shoulder Granular Shading
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading
Yellow	(70)		Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)		Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)		Grading Shading
Orange, Light	(134)		Proposed Granular Entrance Shading
Yellow	(220)		Proposed Paved Entrance Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading
Green, Light	(225)		Existing Pavement Shading
Red	(3)		Proposed Structure Shading

### PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

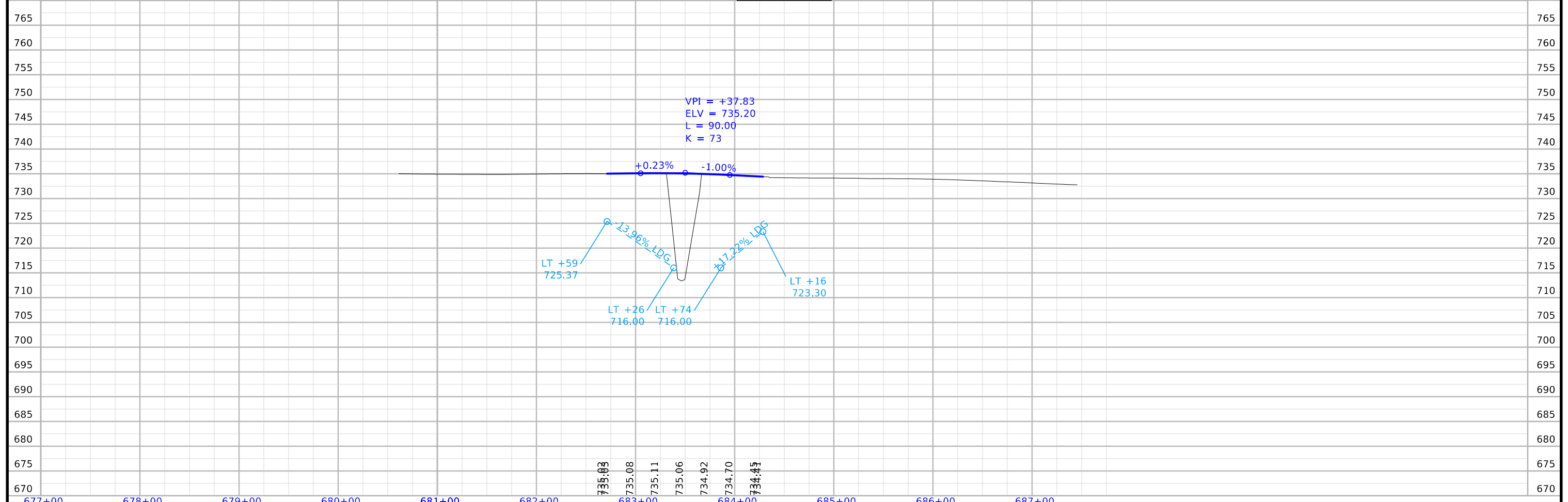
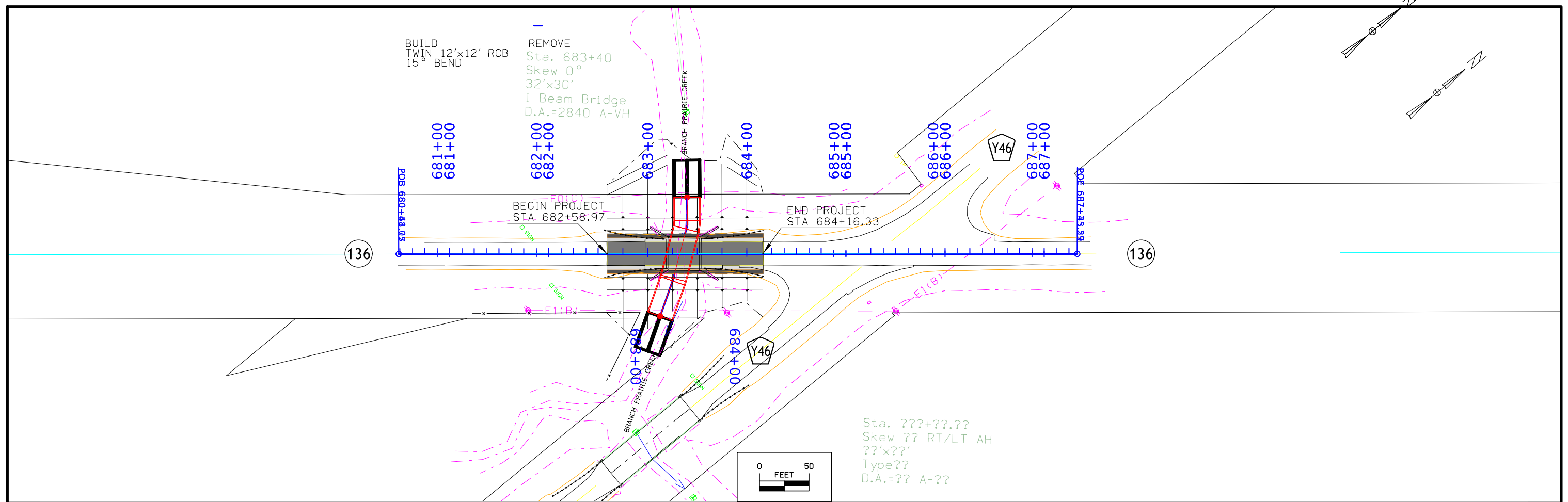
LINEWORK		Design Color No.	
Green	(2)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

- |  |                             |  |                          |
|--|-----------------------------|--|--------------------------|
|  | Reference Point             |  | Survey Line              |
|  | Station                     |  | Section Corner           |
|  | Ground Line Intercept       |  | Saw Cut                  |
|  | Guardrail                   |  | Trench Drain             |
|  | HighTension Cable Guardrail |  | Sheet Pile               |
|  | Pavement Removal            |  | Clearing & Grubbing Area |

- ### RIGHT-OF-WAY LEGEND
- - 
  - 
  - 
  - 
  - 
  - 
  -

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



677+00	678+00	679+00	680+00	681+00	682+00	683+00	684+00	685+00	686+00	687+00		
FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT / SHIVE-HATTERY					CLINTON COUNTY	PROJECT NUMBER	BRF-136-1(103)--38-23		SHEET NUMBER	D.2

## Survey Information

Clinton County  
BRF-136-1(103)-38-23  
State Highway 136 and 185<sup>th</sup> Avenue over Elwood Creek  
PIN 20-23-136-060  
Sap-766.5

datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by IARTN observations with appropriate occupation times. Additional control points were placed throughout the project using a Total Station setup relative to Point 1 and Point 2.

### 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# 552104696) was made August 02, 2021. The following Companies were listed:**

<u>Company (Quality)</u>	<u>Symbol</u>	<u>Remark</u>
Alliant Energy (ASE)	PPA	Power Poles South of IA 136 & East of 185 <sup>th</sup> Ave; Clear
Lost Nation-Elwood Telephone (LN1)	FOA	Buried Fiber Optic Line North of IA 136; Marked

Following are the list of contacts made in the order they were received:

( ASE ) ALLIANT ENERGY

Contact Name : Alliant Energy Field Engineer Contact Phone: 8002554268 Contact Email: [locate\\_IPL@alliantenergy.com](mailto:locate_IPL@alliantenergy.com)

( LN1 ) LOST NATION-ELWOOD TELEPHONE

Contact Name : Jody Holtz  
Contact Phone: 5636782470  
Contact Email: [jody@lencomm.com](mailto:jody@lencomm.com)

### Party Personnel

Murray Berting – Survey Party Chief  
Gavin Gear – Assistant Survey Party Chief

### Date(s) of Survey

Begin Date 08/23/2021  
End Date 10/22/2021

### General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction and reconstruction of State Highway 136 and 185<sup>th</sup> Avenue, over Elwood Creek. Project datum and control information is provided by Shive-Hattery Inc. This project is a Preliminary DTM Field Survey. This survey request was for the (2) Bridges over Elwood Creek, State Highway 136 and 185<sup>th</sup> Avenue Corridor and Elwood Creek.

### Vertical Control

IARTN  
Vertical datum for this survey is NAVD88 (Computed using Geoid12B). Additional benchmarks were placed throughout the project using a Total Station setup relative to Point 1 and Point 2. Vertical control was verified between control points with check shots by Total Station through multiple setup from various occupation points with a vertical error of less than 0.05 feet.

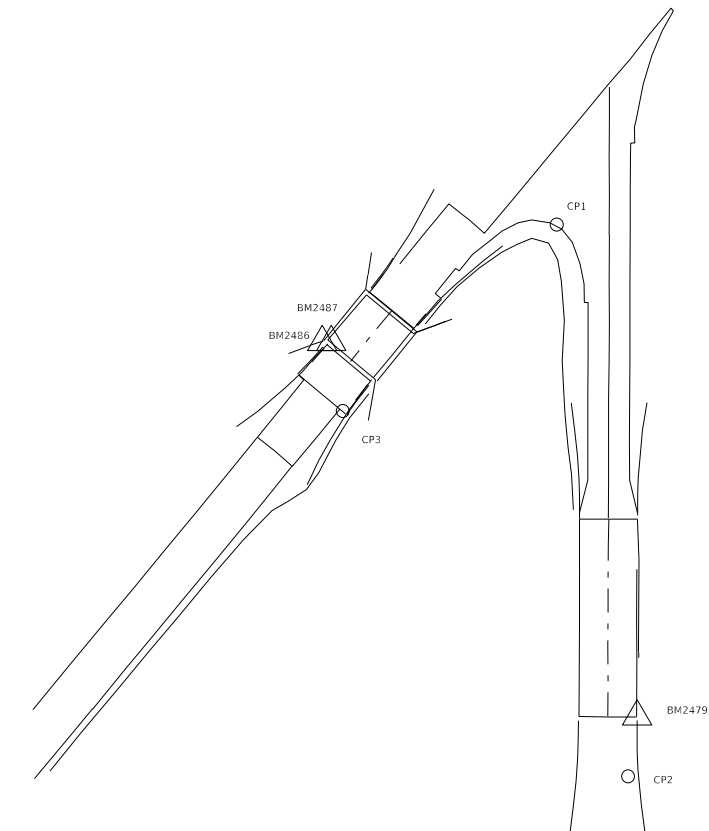
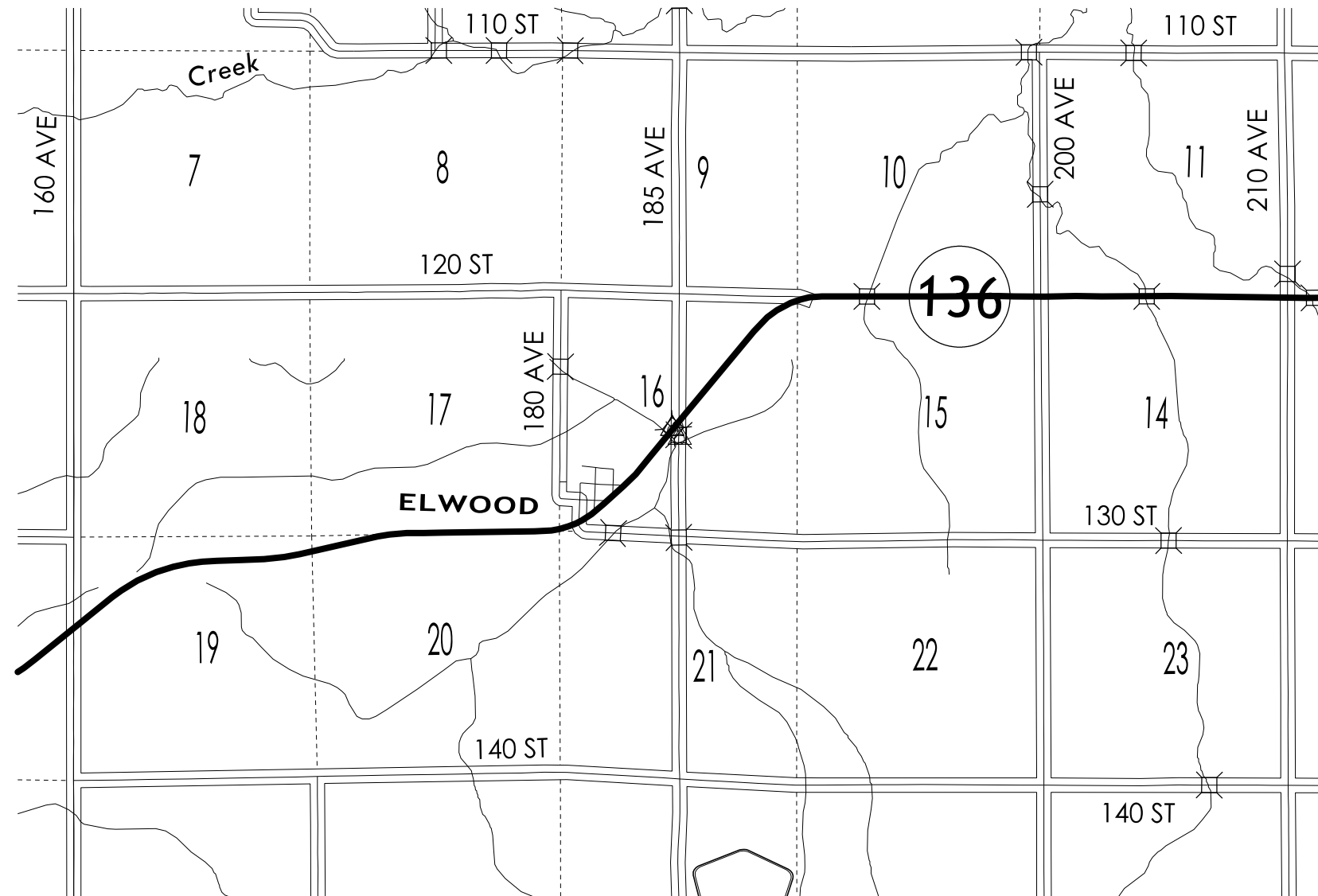
This survey found (3) local control benchmark monuments (benchmark disc on bridge abutment in SE corner bridge of 185<sup>th</sup> Avenue, benchmark 'cut X' and benchmark disc in the SW corner bridge of State Highway 136). No vertical information was available at the time field work was completed.

### Horizontal Control

**(Project Coordinates from Redundant IARTN Observations)**

### 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

Ia. Regional Coordinate System Zone XX

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) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone XX  
Project Control Marks are Bench Marks

POINT NAME	Y	X	Z	FEATURE DEFINITION - DESCRIPTION
1	8236239.306	21445635.030	732.929	CP1 CX (CUT 'X' IN PAVEMENT)
2	8236142.234	21445523.810	734.813	CP2 CX (CUT 'X' IN PAVEMENT)
3	8235951.975	21445671.990	733.413	CP3 CX (CUT 'X' IN PAVEMENT)
2479	8235983.807	21445677.470	736.445	BM B1657 1981
2786	8236177.857	21445513.480	737.904	BM DISC
2787	8236177.949	21445514.850	737.128	BM CX (CUT 'X' IN PAVEMENT)

**NOTE:**

The first two digits in the control point name refer to the county number.  
The next 3 digits refer to the highway number.  
The next 3 digits refer to the highway milepost.  
The last digit refers to the distance from the referenced milepost to the nearest tenth of a mile.

**108-26A**  
08-01-08

### STAGING NOTES

Stage 1:  
With IA 136 traffic using detour, remove and replace bridge over the stream with a culvert.

Stage 2:  
Reopen IA 136 to normal traffic pattern.

**108-23A**  
08-01-08

### TRAFFIC CONTROL PLAN

1) While bridge and approaches are being removed and replaced with RCB culvert, IA 136 traffic shall be maintained via an off-site detour. Detours are furnished, maintained and removed by the Contractor. Refer to TC-252 for road closure and advanced signage details.

2) Contractor will furnish, install, maintain, and remove detour signs. All existing signs that conflict with detour shall be covered. These functions shall be included in the Traffic Control Bid Item.

**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
			No Travel Restrictions Expected									

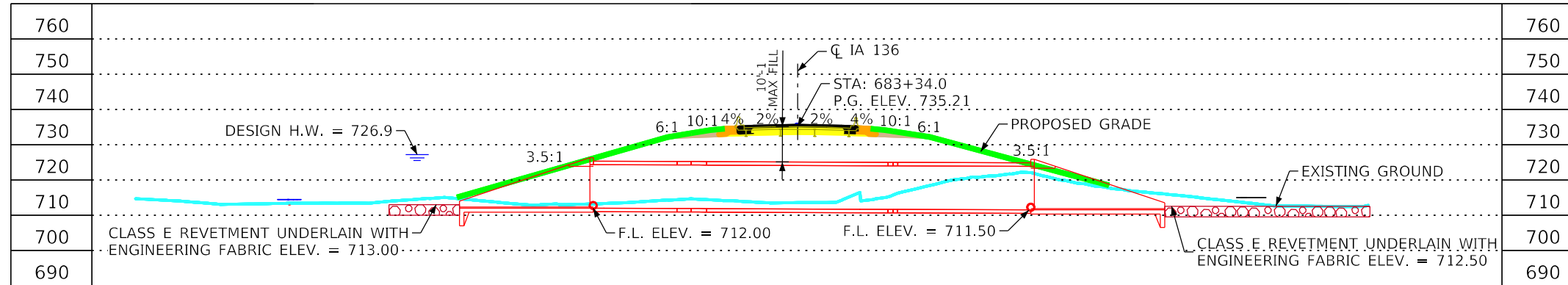
**111-01**  
04-17-12

### COORDINATED OPERATIONS

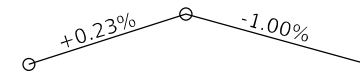
Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work

Control Point: 2786, Y=8236177.857, X=21445513.480, Z=737.904, BM DISC



LONGITUDINAL SECTION ALONG  $\bar{C}$  CULVERT



VPI Sta. = 683+37.83 L = 90'  
VPI Elev. = 735.20

**Proposed Profile  
Grade IA 136**

**Notes:**

**GENERAL NOTES**

- THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 33'-3x30'-0 STEEL I BEAM BRIDGE DESIGN NO. 151, CLINTON FWHA NO. 21150, MAINT. NO. 2334.1s136

**DESIGNER NOTES**

- BURIED AND OVERHEAD UTILITIES TO BE RELOCATED TEMPORARILY OR PERMANENTLY AS REQUIRED FOR CONSTRUCTION

**PLAN NOTES**

- DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
- FLOW LINE OF CULVERT HAS BEEN SET 1 FOOT BELOW STREAMBED.

**Hydraulic Data**

Drainage Area = 4.26 Sq. Mi.  
Q<sub>50</sub> = 2,200 CFS  
HW Elev. = 726.9  
Stream Slope = 29.0 Ft./Mi.

Q<sub>100</sub> = 2,610 CFS  
HW Elev. = 728.6

Q<sub>500</sub> = 3,710 CFS  
HW Elev. = 733.6

**Utilities Legend**

- F0(C) Fiber Optic Line
- E1(B) Electric Line
- Power Pole

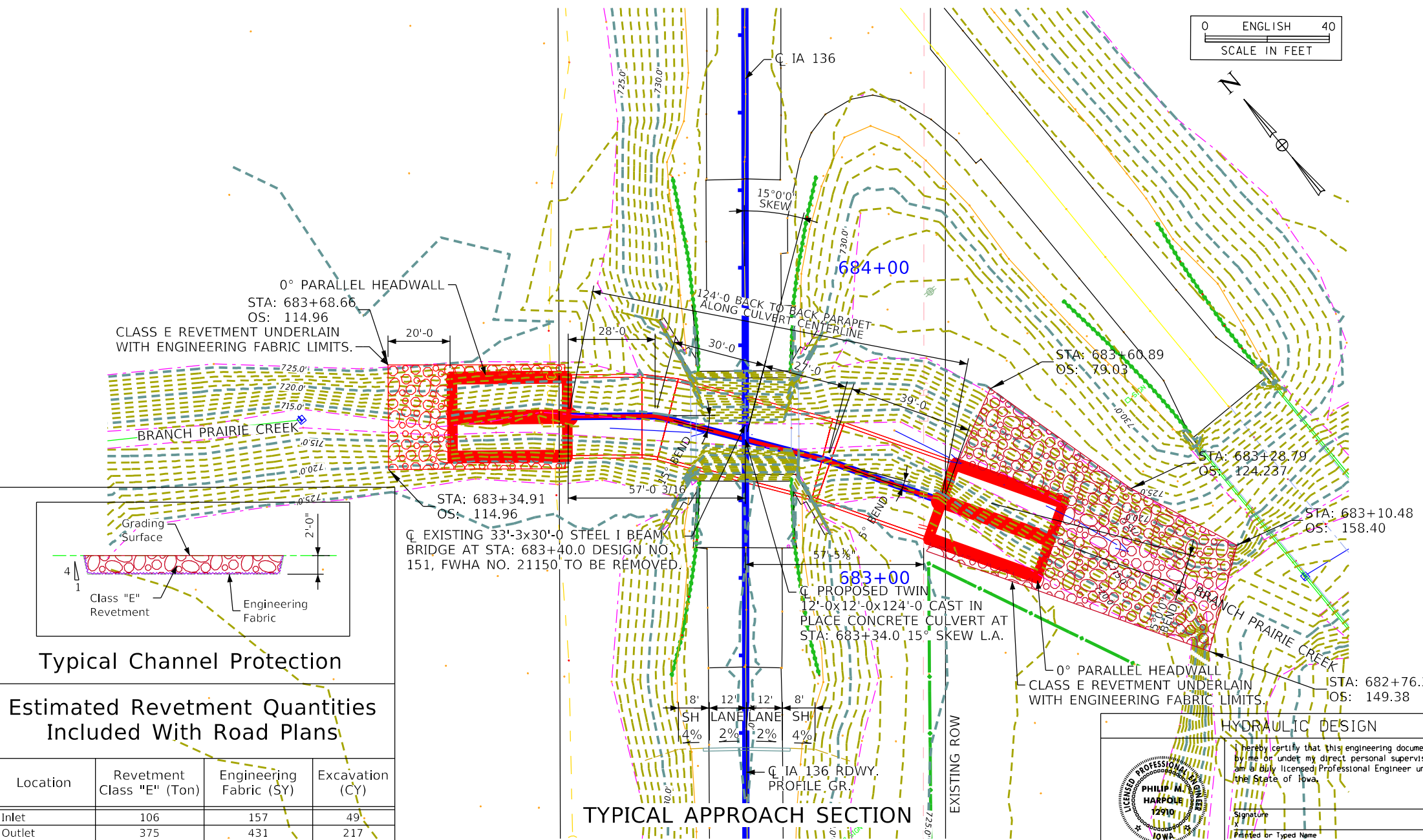
UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

**Location**

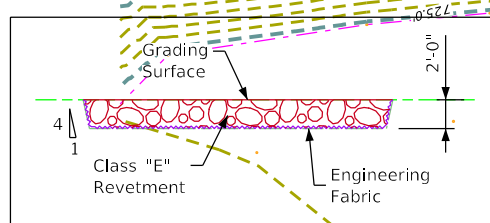
IA 136 Over Branch  
Prairie Creek  
T-83N R-2E  
Section 16  
Brookfield Township  
Clinton County  
FHWA No.  
Bridge Maint. No. 2334.1s136  
Latitude 41.995817°  
Longitude -90.733619°

**Traffic Estimate**

2025 AADT	800	V.P.D.
2045 AADT	900	V.P.D.
2045 DHV	100	V.P.H.
Trucks	11	%
Total		
Design ESALS		



TYPICAL APPROACH SECTION  
SITUATION PLAN



Typical Channel Protection

**Estimated Revetment Quantities Included With Road Plans**

Location	Revetment Class "E" (Ton)	Engineering Fabric (SY)	Excavation (CY)
Inlet	106	157	49
Outlet	375	431	217
Totals	481	588	266

Excavation quantity calculated from grading surface. Quantities shown for information only. See Road Sheets.

**HYDRAULIC DESIGN**

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

Signature: \_\_\_\_\_ Date: XX-XX-XXXX  
Printed or Typed Name: \_\_\_\_\_  
My license renewal date is December 31, 20XX

Pages or sheets covered by this seal: X

Design For 15° Skew L.A.

**TWIN 12'-0x12'-0x124'-0 CAST IN PLACE CONCRETE CULVERT**

**SITUATION PLAN**

STA. 683+34.0 (IA 136)

May 2022

Clinton County

Iowa Department of Transportation

Design No. XXX Design Sheet No. 001 of 001 FHWA No. XXXXXX

## CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature	Design Color No.	Feature
<b>Aggregate</b>			
(64)	Choke Stone	(8)	Behind Curb Cut
(42)	Engineering Fabric	(6)	Granular
(8)	Flooded Backfill	(13)	Granular Back Fill
(92)	Macadam Stone	(48)	Rock Undercut
(20)	Modified	(8)	Shoulder Earth Fill
(12)	Plowing Shaping	(2)	Side Slopes
(14)	Porous Backfill	(226)	Side Slopes Dressing
(8)	Revetment Class A	<b>Substrata</b>	
(6)	Revetment Class B	(128)	Boulder Substrata
(62)	Revetment Class C	(209)	Boulder Removed Substrata
(188)	Revetment Class D	(48)	Broken Weathered Substrata
(28)	Revetment Class E	(210)	Broken Weathered Removed Substrata
(12)	Shoulder Special Backfill	(3)	Core Out Substrata
(12)	Special Backfill	(195)	Core Out Remove and Replace Substrata
(20)	Subbase	(115)	Core Out Remove Only Substrata
(20)	Subbase Lower	(203)	Existing Pavement Substrata
(20)	Subbase Upper	(200)	Existing Pavement Remove and Replace Substrata
(118)	Subgrade Treatment	(184)	Existing Pavement Remove Only Substrata
<b>Asphalt</b>			
(207)	HMA Base Course	(6)	Loam Substrata
(207)	HMA Interim Course	(211)	Loam Removed Substrata
(207)	HMA Surface Course	(80)	Rock Substrata
<b>Concrete</b>			
(0)	Barrier Concrete	(212)	Rock Removed Substrata
(0)	Barrier Concrete Footing	(4)	Select Sand Substrata
(0)	Curb Gutter	(214)	Select Sand Removed Substrata
(48)	Flowable Mortar	(3)	Shale Substrata
(0)	Median Concrete	(215)	Shale Removed Substrata
(0)	PCC Pavement	(10)	Topsoil Substrata
(0)	Sidewalk	(4)	Topsoil Remove and Replace Substrata
<b>Shoulder</b>			
(209)	Shoulder HMA	(2)	Topsoil Remove Only Substrata
(0)	Shoulder PCC	<b>Unsuitable / Waste</b>	
(6)	Shoulder Granular	(3)	Unsuitable Type A
<b>Existing</b>			
(0)	Existing Pavement	(216)	Unsuitable Type A Removed
<b>Structural</b>			
(0)	Bridge	(13)	Unsuitable Type B
(21)	Guardrail	(217)	Unsuitable Type B Removed
(112)	Noise Wall	(11)	Unsuitable Type C
(112)	Noise Wall Footing	(218)	Unsuitable Type C Removed
(112)	Retaining Wall Back	(3)	Waste
(112)	Retaining Wall Back Excavate	(219)	Waste Removed
(112)	Retaining Wall Face	<b>Trigger Switches</b>	
(112)	Retaining Wall Front Excavate	(27)	Do Not Construct
(112)	Retaining Wall Front Footing		
(112)	Retaining Wall MSE Gutter		
(112)	Retaining Wall Reinforced Earth		

**NOTES:**

Text

**NOTES:**

Text

## CROSS SECTIONS LEGEND AND INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

