



# Iowa Department of Transportation

## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

### PRIMARY ROAD SYSTEM

# SCOTT COUNTY

## SLIDE REPAIR

US 67 Slide Area Approximately 1.5 Miles S. Of I-80.

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

### NO MILEAGE SUMMARY



REVISIONS

TOTAL

37

PROJECT IDENTIFICATION NUMBER

11-82-067-010

PROJECT NUMBER

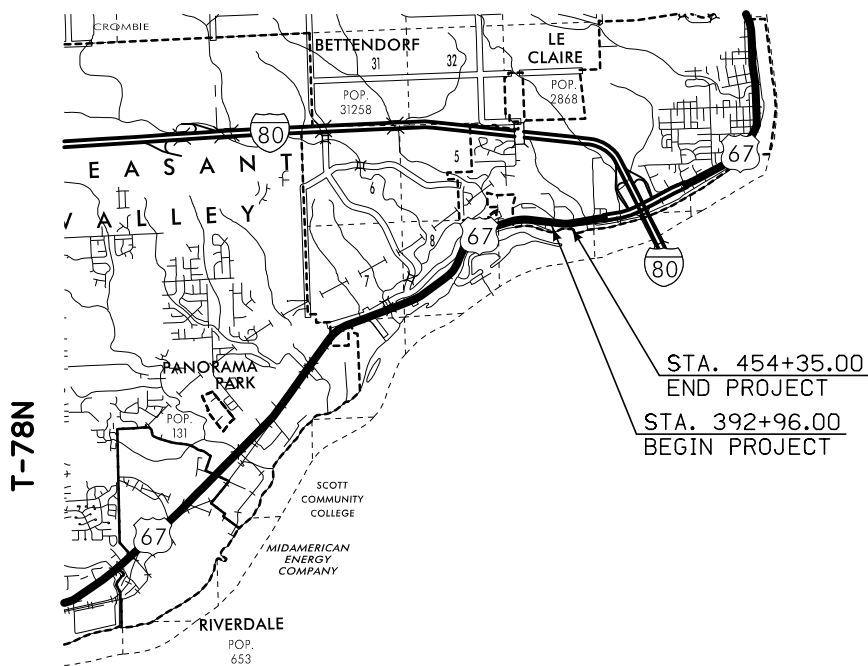
NHSN-067-1(125)--2R-82

R.O.W. PROJECT NUMBER

NHSN-067-1(131)--2R-82

#### INDEX OF SHEETS

No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1	Typical Cross Sections and Details
<b>C Sheets</b>	<b>Quantities and General Information</b>
C.1	Project Description
C.1	Estimated Project Quantities
C.1 - 2	Estimate Reference Information
C.3	Standard Road Plans
C.3	Index of Tabulations
C.3	General Notes
C.4 - 7	Tabulations
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan and Profile Sheet Legend
* D.2	Plan and Profile Sheet US 67
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1 - 2	Reference Ties and Bench Marks
G.3 - 4	Horizontal Control Tab. for Mainline and Side Roads
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
* J.1	Traffic Control Plan
* J.1	Staging Notes Stage
* J.1	Tabulation of Special Events
* J.2	Staging Sheet Legend
* J.3	Traffic control for H-Pile installation
<b>M Sheets</b>	<b>Storm Sewer Sheets</b>
M.1	Storm Sewer Tabulation
M.2	Storm Sewer Legend
M.3 - 4	Storm Sewer Plan and Profile Sheets US 67
<b>Q Sheets</b>	<b>Soils Sheets</b>
Q.1	Soils Sheets US 67
<b>T Sheets</b>	<b>Earthwork Quantity Sheets</b>
T.1	Earthwork Quantity Sheet
<b>U Sheets</b>	<b>500 Series, Mod.Stds. and Detail Sheets</b>
* U.1 - 5	500 Series, Modified Standards and Detail Sheets
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1	Cross Sections Legend
W.2 - 8	Mainline Cross Sections
	* Color Plan Sheets



101-4 04-30-02			
DESIGN DATA RURAL			
2010 AADT	7,800	V.P.D.	
20-- AADT	--	V.P.D.	
20-- DHV	--	V.P.H.	
TRUCKS	--	%	
Total Design ESALs	--		

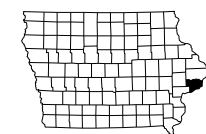
INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Elijah D. Gansen	Primary Signature Block
Q.1	Robert L. Stanley	Geotechnical Design

D5 PLAN - Date: 9-28-2011

LETTING DATE  
1/18/2012

SLIDE REPAIR  
NHSN-067-1(125)--2R-82

SCOTT CO.



ENGLISH IOWA DOT DESIGN TEAM Flattery\Gansen

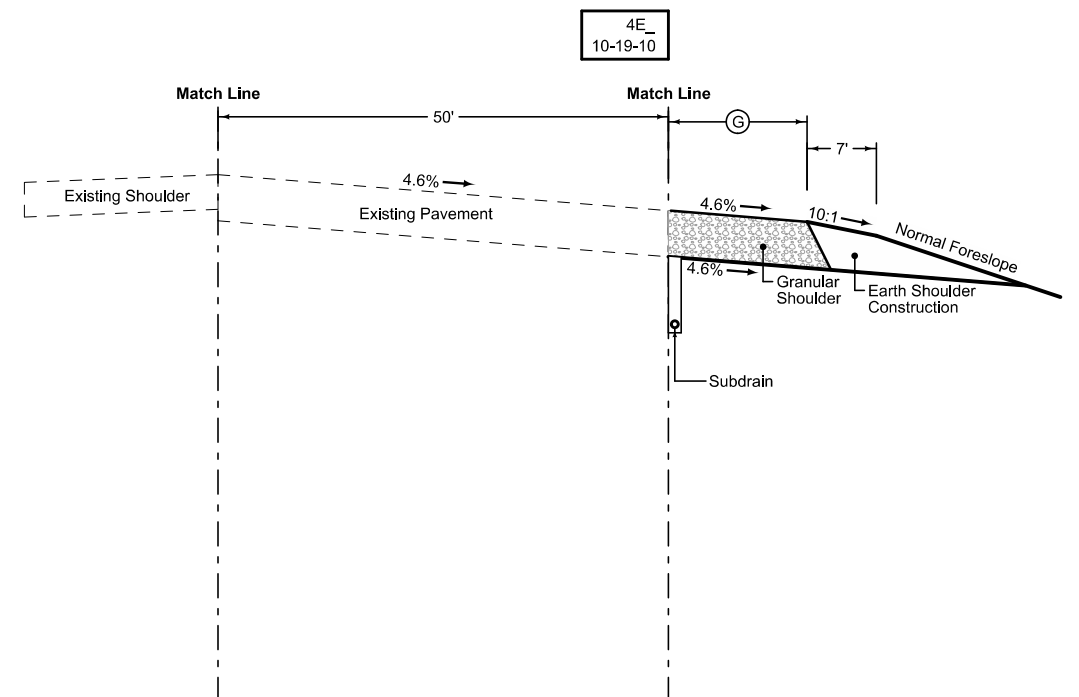
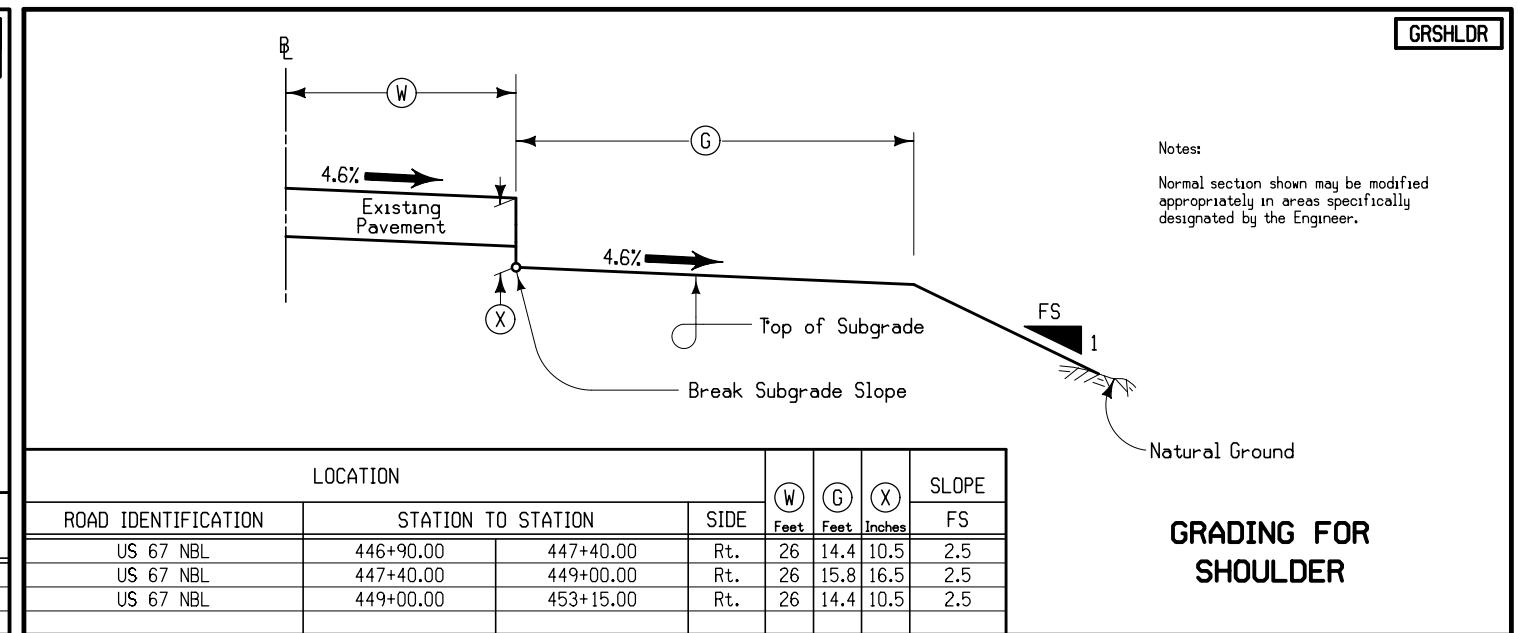
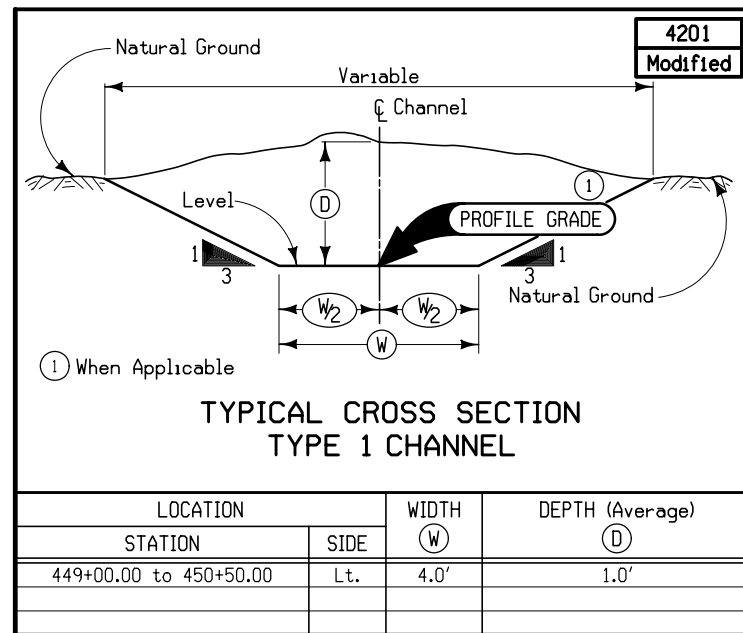
SCOTT COUNTY

PROJECT NUMBER

NHSN-067-1(125)--2R-82

SHEET NUMBER

A.1



**Granular Shoulder**

**2\_G\_ 10-19-10**

STATION TO STATION		⊙
		Feet
446+90.00	453+15.00	6

See Tab 112-9 for shoulder quantities.

**US 67**

### SURVEY SYMBOLS

- SIGN SI Sign
- GDL Guard Rail Steel
- St.S. STA Storm Sewer Line Co. 1
- GV GV Gas Valve
- PPA Power Pole Co. 1
- MM MM Mile Marker Post
- PIP Pipe Culvert
- LIN Miscellaneous Line
- TDC Tree Deciduous
- RET Retaining Walls
- IN Storm Sewer Intake
- ~ TLNL Tree Line Left
- RR Centerline of Railroad Tracks
- SNP Unpaved Shoulder
- RIP Rip-Rap
- CON Concrete or A/C Slab
- EG Edge of Gravel Road
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- ← DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- G GLA Underground Gas Line Co. 1
- CU Back of Curb
- GU Gutter In Front of Curb
- T1 Underground Telephone Line Co. 1

### UTILITY LEGEND

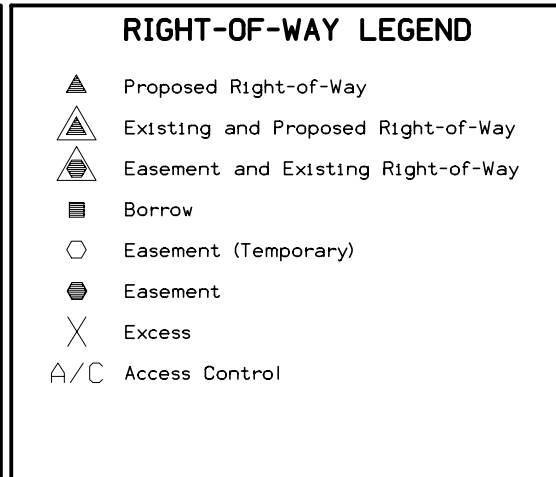
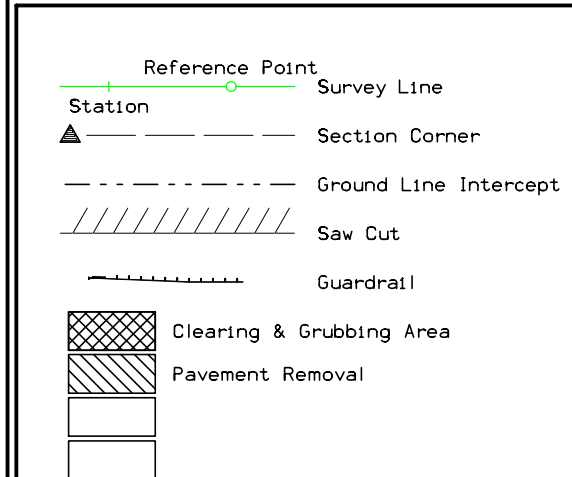
- Mid American Energy
- G Mid American Energy
- T1 CenturyLink

### 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.	
Yellow	(4)	Highlight for Critical Notes or Features	
Red	(3)	Delineates Restricted Areas	
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	
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	



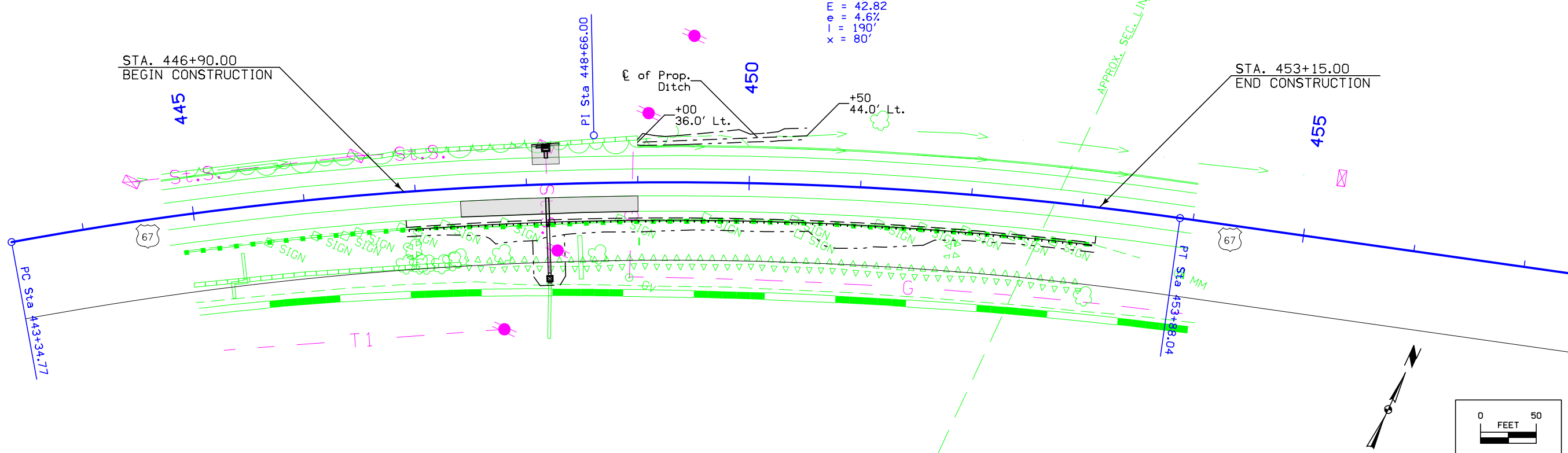
## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

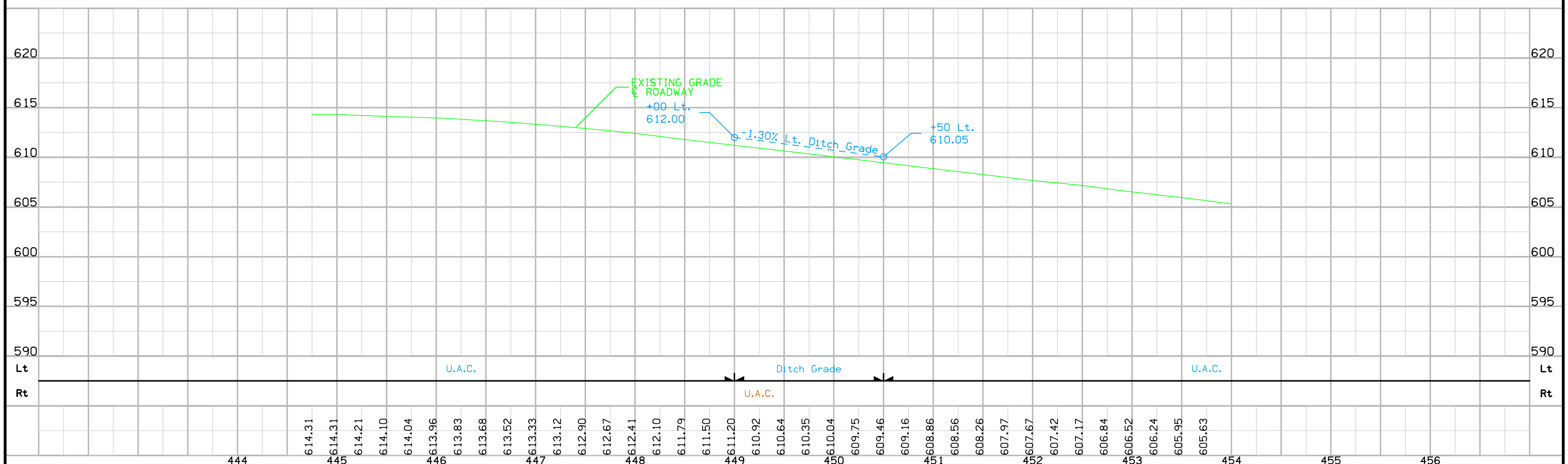
LECLAIRE TWP.  
T-78N R-5E  
SEC. 8

LECLAIRE TWP.  
T-78N R-5E  
SEC. 9

Curve Data (U.A.C.)  
 $\Delta = 18^\circ 25' 56.36''$  (RT)  
 $T = 531.23$   
 $L = 1,053.27$   
 $PR = 3,274.04$   
 $E = 42.82$   
 $i = 4.6\%$   
 $l = 190'$   
 $x = 80'$



Cut = 128 Cu. Yd.  
 Contractor Furnish = 18 Cu. Yd.  
 147 Cu. Yd.  
 Fill+30% = 147 Cu. Yd.



ENGLISH	IOWA DOT	DESIGN TEAM	Flattery\Gansen	SCOTT COUNTY	PROJECT NUMBER	NHSN-067-1(125)--2R-82	SHEET NUMBER	D.2
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## Survey Information

### General Information

Measurement units for this survey are US survey feet.

This survey is for the repair of Highway 67 slide area approx. 1.5 miles south of Interstate 80 in Scott County.

### Vertical Control

Vertical datum for this survey is relative to NAVD88.

Vertical datum for this survey is relative to NAVD88 (Computed by OPUS using GEOID09). A 2 hour static session was completed on Point G002. The reported peak-to-peak accuracy of the orthometric height was 0.117(m). Survey is relative to NAVD 88 at a certainty level of 0.4 feet at G002. A level run from Point G002 was then completed through project control points and benchmarks. The error was allowable and the error was distributed proportionately among the project monuments.

### Horizontal Control

Measurement units for this survey are U.S. survey feet.

Iowa State Plane South Zone coordinates were transformed to project ground coordinates using a 1/combined scale factor broadcast about held point G002 at the east end of project using OPUS in US Feet. The State Plane coordinate and Project Coordinate at:

G002 are: N = 591494.80                      E = 2489063.40

Combined Scale = 0.99994631  
1/Combined Scale = 1.000053693

VERTICAL DATUM = NAVD88 (COMPUTED from OPUS observations using GEOID09)  
HORIZONTAL DATUM = NAD83 (1996CORS) for Epoch 2002.0000 From OPUS

### Alignment Information

The horizontal alignment for this survey is a retrace of the Scott County P.C.C. Pavement Grade/Replace on U.S. 67 from 249th Ave. in Pleasant Valley northeasterly to I-80 in LeClaire; Project Number F-67-1(72)—20-82. Survey stationing was equated holding P.C. Sta. 170+56.58.

P.C. Sta. 443+34.77 This Survey  
= P.C. Sta. 443+34.77 O.R. Scott County Proj. # F-67-1(72)—20-82

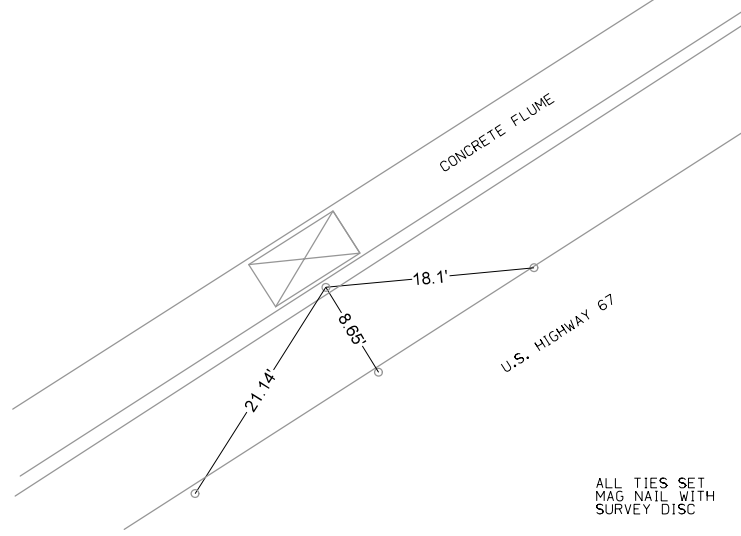
P.T. Sta. 453+88.04 This Survey  
= P.T. Sta. 453+88.10 O.R. Scott County Proj. # F-67-1(72)—20-82

P.O.T. Sta. 460+10.70 This Survey  
= P.C. Sta. 460+10.70 O.R. Scott County Proj. # F-67-1(72)—20-82

## VERTICAL CONTROL

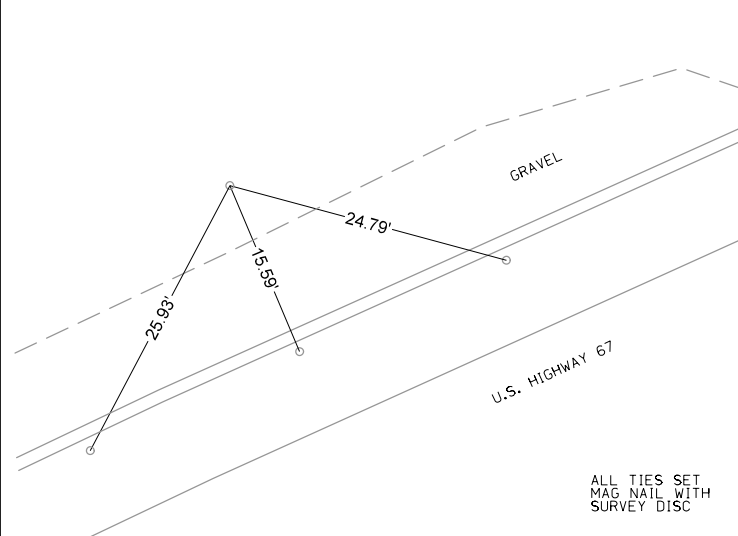
Point	North	East	Elevation	Station	Offset	Feature	Description
501	591462.878	2489010.741	614.932	448+92.42	-39.876	BM	DOT PLUG AT TOP OF WALL
502	591707.868	2489593.602	605.417	455+17.19	-66.675	BM	SPIKE IN POWER POLE

STA. 444+49.14, 33.08 Lt.  
CP G001, SET CUT "X" IN CURB AT INTAKE  
N=591236.53, E=2488624.22



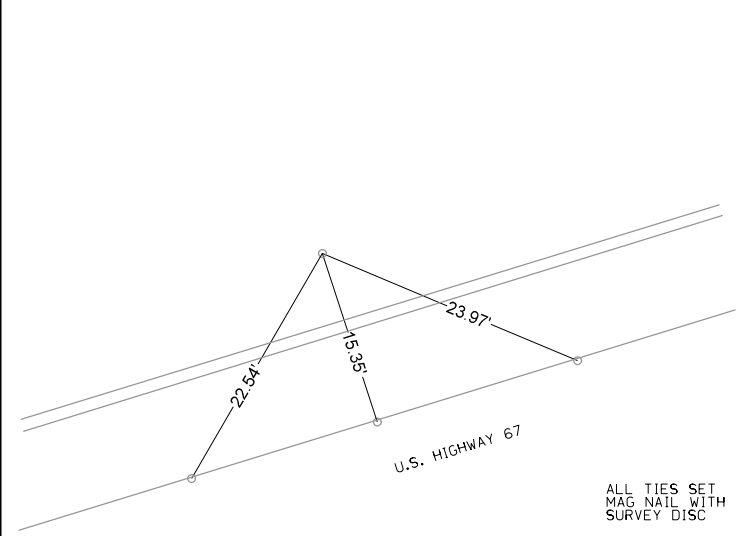
ALL TIES SET  
MAG NAIL WITH  
SURVEY DISC

STA. 449+52.84, 46.47 Lt.  
CP G002, SET 1/2" REBAR  
N=591494.80, E=2489063.40



ALL TIES SET  
MAG NAIL WITH  
SURVEY DISC

STA. 454+22.06, 39.30 Lt.  
CP G003, SET 1/2" REBAR  
N=591654.03, E=2489510.53



ALL TIES SET  
MAG NAIL WITH  
SURVEY DISC

### ALIGNMENT COORDINATES

101-16  
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
US 67 C1 4002		460+10.70	591,787.46	2,490,085.20				443+34.77	591,144.35	2,488,548.00	448+66.00	591,451.82	2,488,981.21	453+88.04	591,606.55	2,489,489.40			

### SPIRAL OR CIRCULAR CURVE DATA

101-17  
04-19-11

Name	Location	$\Delta_{scs}$	Horizontal Alignment Data													Remarks									
			Spiral Data					Curve Data																	
			$\theta_s$	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	$\Delta_c$	T	L	R	E										
US 67 C1																									

## SUPERELEVATION DATA

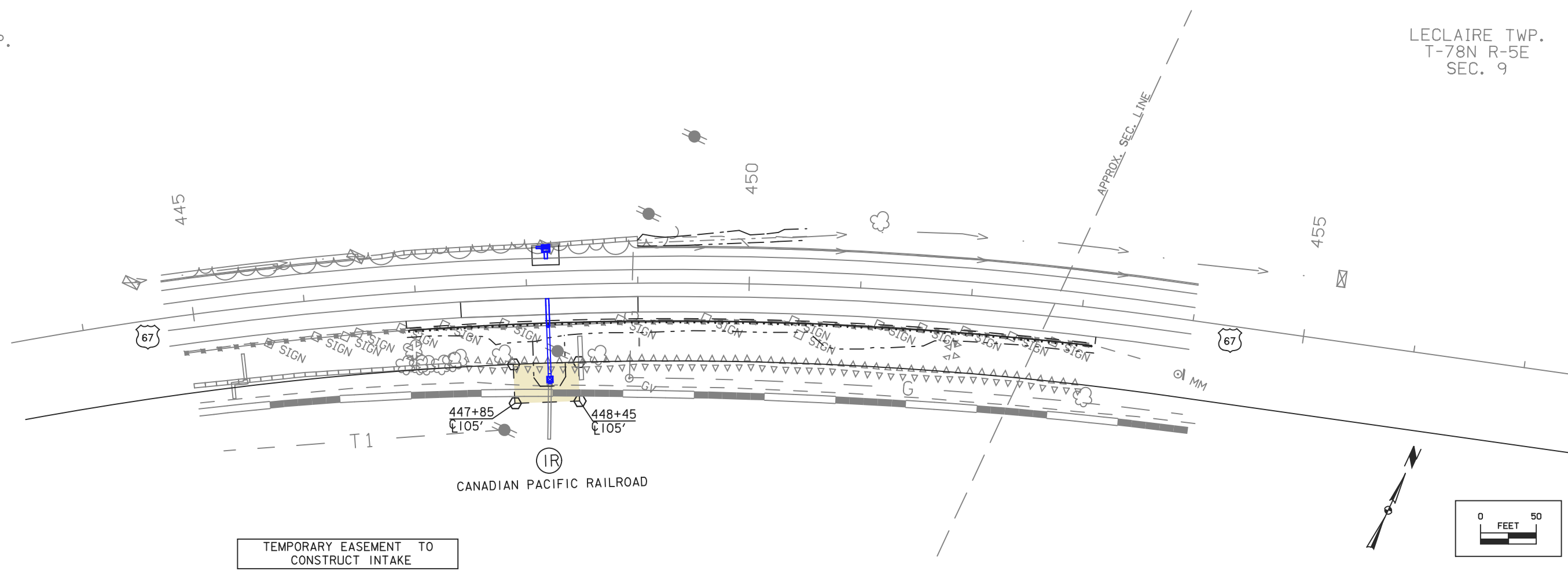
See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e	L	x														
			FT	FT	FT														
US 67	C1	3274.04	4.6	190	80														



LECLAIRE TWP.  
T-78N R-5E  
SEC. 8

LECLAIRE TWP.  
T-78N R-5E  
SEC. 9

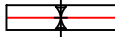
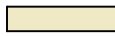
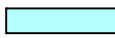


TEMPORARY EASEMENT TO  
CONSTRUCT INTAKE

**Right of Way Design Information**

**ROW Team: GETTINGS/CUVA/GROAT**  
**ROW #: NHSN-067-1(131)-2R-82**  
**Plan Date: 10-11-11**

**Color Legend:**

-  **Property Lines**
-  **Temporary Easement**
-  **Permanent Acquisition**

PARCEL CHECK BY PROJ UPDATED 10/11/11 14:54 PAGE: 1

R2360003 PARCEL CHECK LIST BY PROJECT NUMBER

COUNTY : SCOTT PROJECT NO. :NHSN-067-1(131)--2R-82

CONSTRUCTION NO.:NHSN-067-1(125)--2R-82

DESCRIPTION : US 67 Slide Area Approx. 1.5 Miles S. Of I-80

PARCEL	KEY	OWNER	TYPE	R/
0001 R	26149	CANADIAN PACIFIC RAILROAD	FEE	

1 TOTAL PARCELS ON PROJECT

102-15  
08-01-08

### TABULATION OF SPECIAL EVENTS

Event	Location	Date
None provided.		

108-23A  
08-01-08

### TRAFFIC CONTROL PLAN

1. One lane of traffic in each direction shall be maintained on US 67 at all times. Lane closures will be allowed for the installation of the H-piles, removal and replacement of pavement, storm sewer repair, and shouldering.
2. Traffic control on this plan shall be in accordance with the Standard Road Plans listed in Tab 104-5 in the C Sheets in this plan. For additional complimentary information refer to Part 6 of the Manual on Uniform Traffic Control Devices and to the Curent Standard Specifcations.

108-26A  
08-01-08








### STAGING NOTES

- Stage 1:  
Set up traffic control as shown on Sheet J.3 and U.5. Remove and stockpile guardrail to be removed. Install H-Piles.
- Stage 2:  
Remove TBR and leave the outside northbound lane closed. Remove pavement, repair storm sewer and replace intake. Patch pavement, install new granular shoulder, and grading for guardrail as shown in the B Sheets. Grade ditch adjacent to the southbound lanes.
- Stage 3:  
Reinstall guardrail, place final pavement markings, and restore traffic to normal operation.

**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, Light	(236)	Proposed Grading Limits 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		












**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

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, 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**

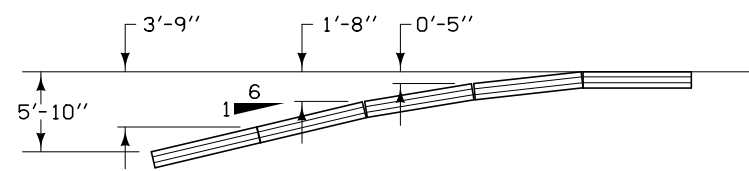
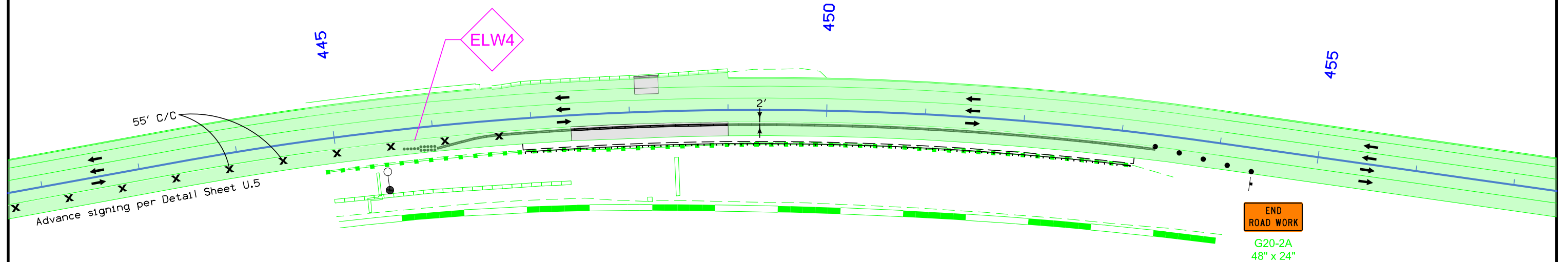
	42" Channelizer		Temporary Traffic Signal
	Drum		Traffic Sign
	Orange Plastic Safety Fence		Type III Barricade-Plan View
	Temporary Barrier Rail		Type A Warning Light
	Temporary Floodlighting		Pavement Removal
	Temporary Crash Cushion		

**TRAFFIC CONTROL  
AND  
STAGING  
LEGEND AND SYMBOL  
INFORMATION SHEET**

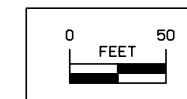
(COVERS SHEET SERIES J)

LECLAIRE TWP.  
T-78N R-5E  
SEC. 8

LECLAIRE TWP.  
T-78N R-5E  
SEC. 9



BARRIER OFFSETS FOR FLARE SECTIONS



**TBR LAYOUT FOR  
H-PILE INSTALLATION**

## STORM SEWER

\* Bid Item  
\*\* For SW-545

For bedding and backfill purposes under Primary roads, use material complying with Article 4120.04 (Class A Crushed Stone) of the Standard Specifications for all bedding and backfill. Place and compact the material according to Article 2435.03, A and Article 2552.03, E (Class I materials).

INTAKES AND UTILITY ACCESSES						PIPES														
						Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. A 4 ft length is added to Design Length to account for length to center of structures. No additional length is included for pipes that do not connect to a structure.														
No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade	Bottom Well	Extension Length**	Notes	Line Number	Intake/Utility Access No.		Class 'D'	Pipe Diameter	Bid* Length	Design Length	Slope %	Flow Lines			Pipe Profile Sheet No.	Notes	
			Elev.	Elev.	FT			From	To		IN	FT	FT		Inlet Elevation	Outlet Elevation	Other Elevation			
189	448+18.3,34.56' Lt.	SW-549	612.93	606.58	-		P-188	Ex.	188	2000	18	10	6	0.96	608.52	608.49	-	M.3	Requires 1 RF-2 'C-1'collar	
							P-189		188	Ex.	2000	30	12	8	3.33	608.28	608.06	-	M.4	Requires 1 RF-2 'C-1'collar
							P-191	Ex.	P-192	2000	30	36	36	4.60	606.40	605.30	-	M.4	1	
							P-192	P-191	P-193	CMP	30	4	2.93	4.60	605.30	605.17	-	M.4	2,3	
							P-193	P-192	P-194	CMP	30	44	43.64	43.76	605.17	587.67	-	M.4	3	
195	448+18.3,84.78' Lt.	SW-513	-	586.84	-	Top Elev.=593.09,Intlet Elev.=591.84	P-194	P-193	195	CMP	30	7.5	3.5	4.60	587.67	587.50	-	M.4	3	
							P-195	195	Ex.	CMP	30	7	3	2.99	587.40	587.34	-	M.4	Connect to existing 30" CMP	
E189	448+18.3,34.56' Lt.	RA-33				Remove	E-188	E188	E189	2000	18	-	169	0.96	610.11	608.49	-	M.4	Remove 6' on outlet end	
E191	448+18.3,88.72' Rt.	SW-513				Remove	E-190	E189	E191	2000	30	-	120	4.60	608.49	587.34	-	M.4	4	
<p>Notes:</p> <ol style="list-style-type: none"> <li>Requires 1 RF-2 'C-1'collar, RF-14 Type 2 connected joints.</li> <li>Requires 1 RF-2 'C-3'collar and 1-21" RF-13 elbow.</li> <li>P-191, P-192, and P-193 are a CMP letdown structure with a total pipe length of 50.07 feet including 2-21" RF-13 elbows and RF-2 'C-3' collar. Pipe lengths measured down the centerline of the pipe.</li> <li>Remove 8' on inlet end and 76' on outlet end of existing pipe. Leave remaining 36' in place.</li> </ol>																				

### SURVEY SYMBOLS

- SIGN SI Sign
- GDL Guard Rail Steel
- St.S. STA Storm Sewer Line Co. 1
- GV GV Gas Valve
- PPA Power Pole Co. 1
- MM MM Mile Marker Post
- PIP Pipe Culvert
- LIN Miscellaneous Line
- ⊕ TDC Tree Deciduous
- ▤ RET Retaining Walls
- ⊠ IN Storm Sewer Intake
- ⌒ TLNL Tree Line Left
- ▬ RR Centerline of Railroad Tracks
- SNP Unpaved Shoulder
- ⋈ RIP Rip-Rap
- CON Concrete or A/C Slab
- EG Edge of Gravel Road
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- ← DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- G GLA Underground Gas Line Co. 1
- CU Back of Curb
- GU Gutter In Front of Curb
- T1 Underground Telephone Line Co. 1

### UTILITY LEGEND

- Mid American Energy
- G Mid American Energy
- T1 CenturyLink

### PLAN VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	Description
Gray, Dark	(112)	Existing Topographic Features, Utilities, and Labels
Black	(17)	Proposed Storm Sewer Details, Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING	Design Color No.	Description
Gray, Light	(48)	Proposed Pavement Shading

### PROFILE VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	Description
Gray, Dark	(112)	Existing Ground Line Profile and Existing Utilities Information
Black	(17)	Proposed Pipes and Intakes

### PLAN VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- ▬ Pipe to Install
- - - St.S. - - - Previously Constructed Pipe
- ⊠ Previously Constructed Intake or Utility Access

### PROFILE VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- - - Existing Ground
- ▬ Proposed Ground
- ▬ Previously Constructed Pipe or Structure
- ▬ Proposed Pipe or Structure

- Reference Point
- Station
- ▲ Section Corner
- - - Ground Line Intercept
- ▨ Saw Cut
- ▬ Guardrail
- ▨ Clearing & Grubbing Area
- ▨ Pavement Removal

### RIGHT-OF-WAY LEGEND

- ▲ Proposed Right-of-Way
- ▤ Existing and Proposed Right-of-Way
- ▤ Easement and Existing Right-of-Way
- ▤ Borrow
- Easement (Temporary)
- ⊕ Easement
- X Excess
- A/C Access Control

# STORM SEWER LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES M)

LECLAIRE TWP.  
T-78N R-5E  
SEC. 8

444

187  
St.S.

445

446

188

447

E-188

189

E189

PI Sta 448+66.00

St.S. 448

P-188

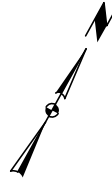
P-189

RF-2 'C-1' Collar

RF-2 'C-1' Collar

449

450



E-190

RF-2 'C-1' Collar

P-191

RF-2 'C-3' Collar

P-192

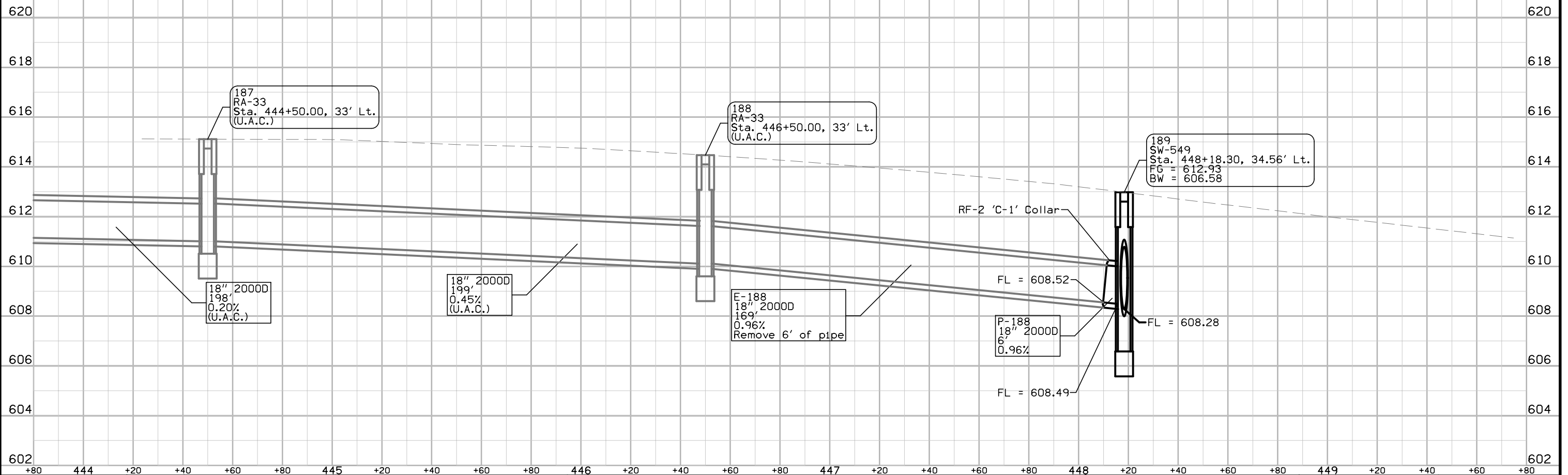
P-193

195

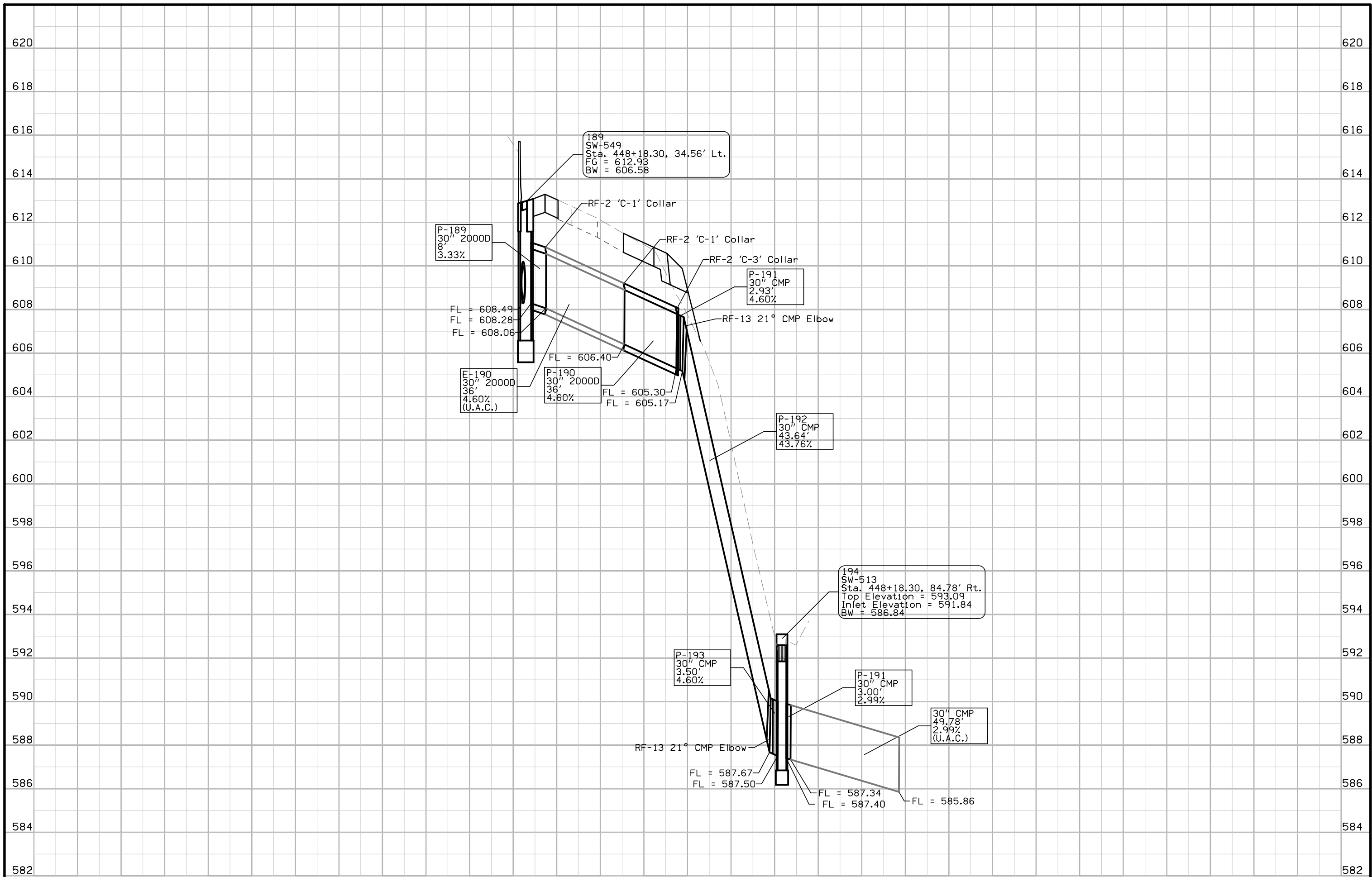
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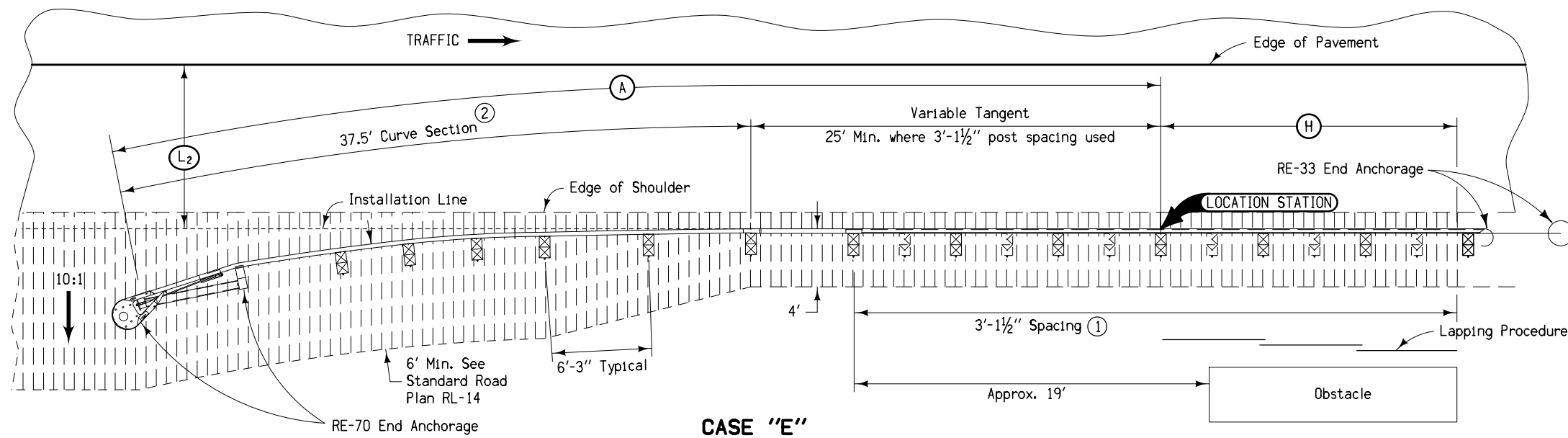
P-195

E191

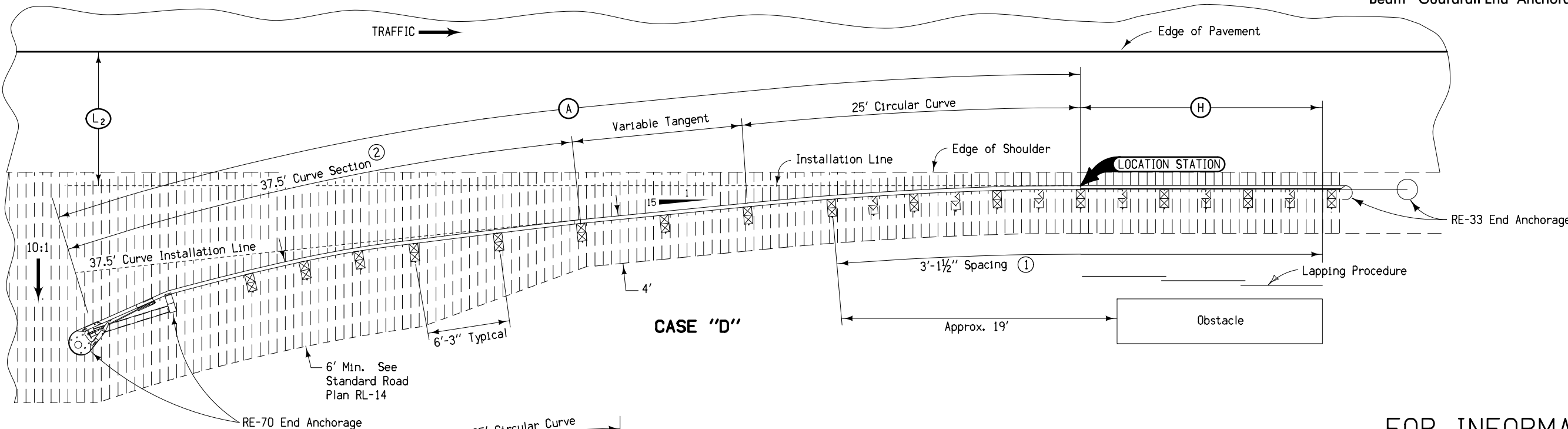




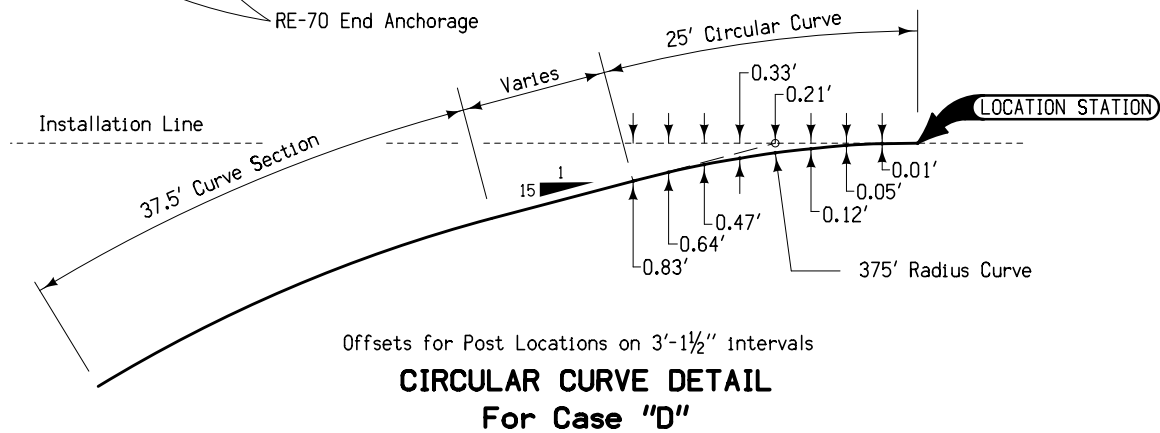




CASE "E"



CASE "D"



Offsets for Post Locations on 3'-1 1/2" Intervals  
CIRCULAR CURVE DETAIL  
For Case "D"

- ① Where obstacle is 4'-6" or more from installation line, all post spacing shall be 6'-3". When obstacle is less than 4'-6" (3' for box culvert) from installation line, the post spacing adjacent to the obstacle and to a point approximately 19' in front of the obstacle shall be 3' 1-1/2".
- ② Refer to Standard Road Plan RE-70 for details of 37.5' Curve Section.

**GENERAL NOTES:**  
 Details indicated hereon are for installation of formed steel beam guardrail for obstacles located adjacent to the traveled way. For information regarding individual installations, refer to Tabulation of Beam Guardrail Installations, other Standard Road Plans and detailed project plans for additional data. Any modifications to these layouts shall be at the direction of the Engineer.

Materials and methods of construction shall be in accordance with current Standard and Supplemental Specifications.

In areas where the guardrail diverges from the installation line, a smooth profile shall be established. Grade a 10:1 slope from the edge of the shoulder to behind the guardrail post as detailed on Standard Road Plan RL-14. Refer to project plans for specific requirements.

Guardrail shall be lapped towards the obstacle.  
 Price bid for contract items shall be considered full compensation for furnishing all materials and constructing guardrail essentially as indicated hereon.

Contract items for guardrail construction are:  
 Formed Steel Beam Guardrail  
 Beam Guardrail Posts  
 Beam Guardrail End Anchorage (By Type)

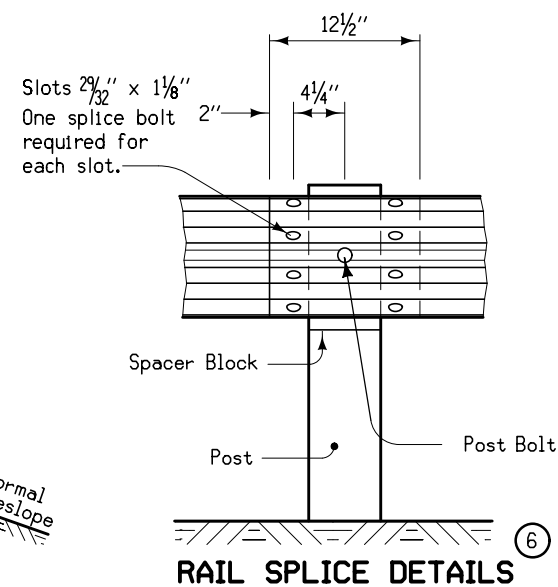
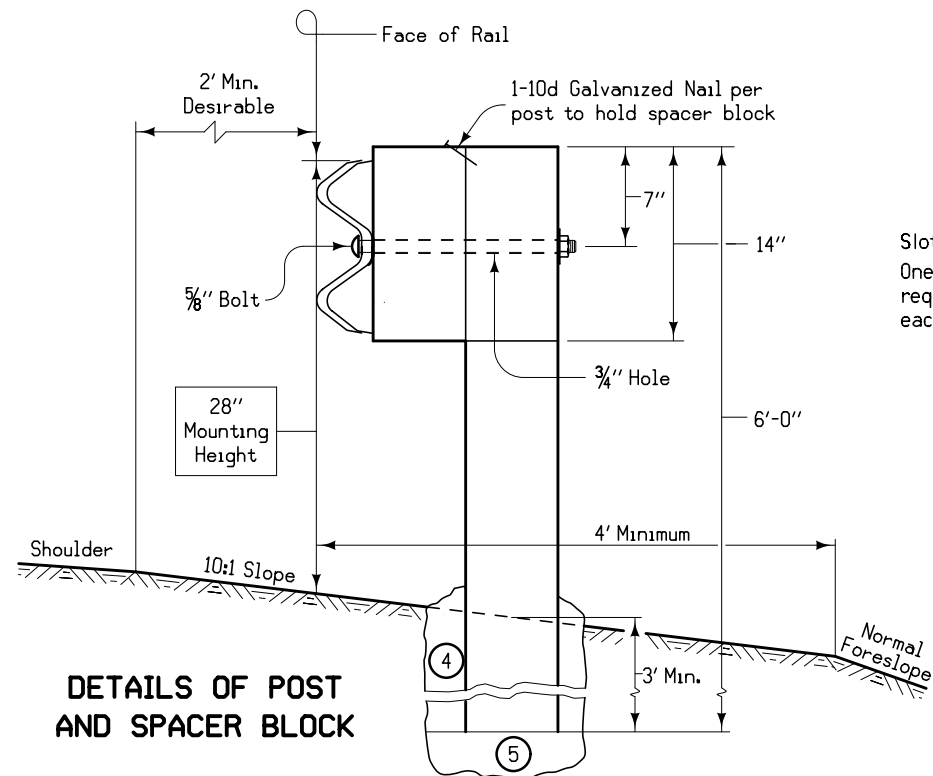
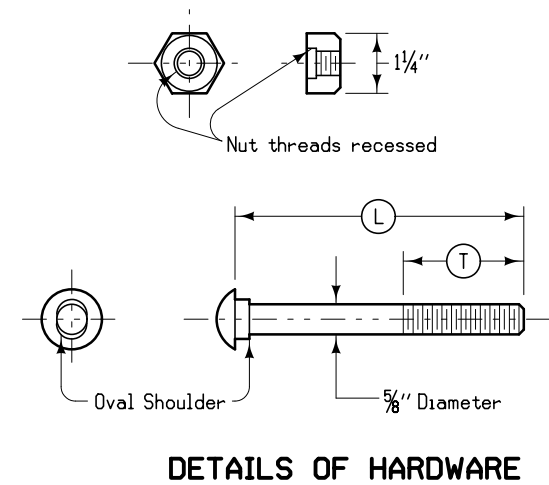
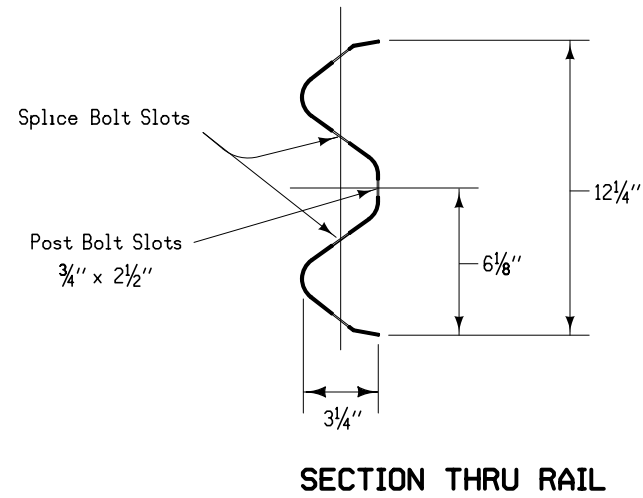
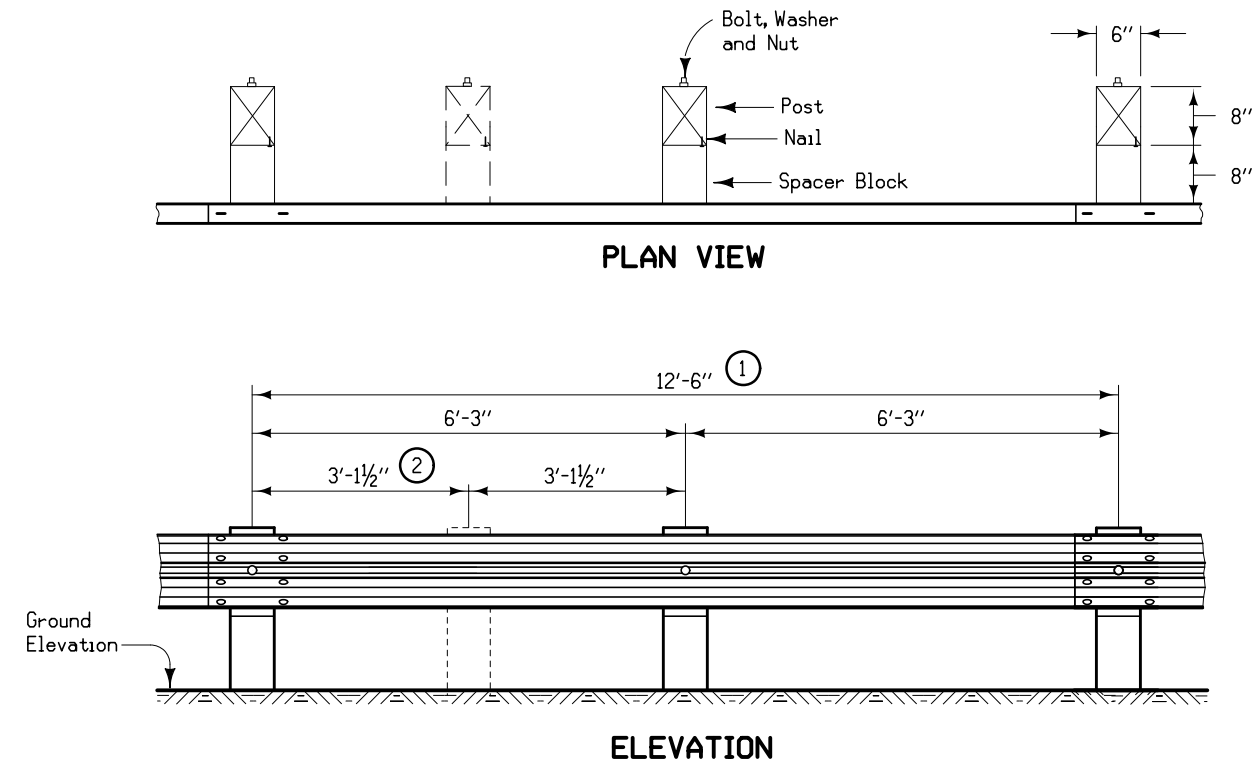
FOR INFORMATION ONLY

Iowa Department of Transportation  
 Project Development Division

**STANDARD ROAD PLAN RE-55**

REVISION: Show new end anchorage (MELT) and grading requirements.	REVISION NO. 6
	REVISION DATE 10-31-95
APPROVED BY DESIGN METHODS ENGINEER	

**GUARDRAIL INSTALLATIONS  
 (SIDE OBSTACLE, ONE-WAY TRAFFIC)**



Wood Post	(T)	(L)
8" Single Spacer	2 1/2"	18"
8" Double Spacer	2"	25"
Splice Bolt	1 1/8"	1 1/4"

(L) = Min. Length of Bolt (3)  
 (T) = Min. Thread Length

**GENERAL NOTES:**

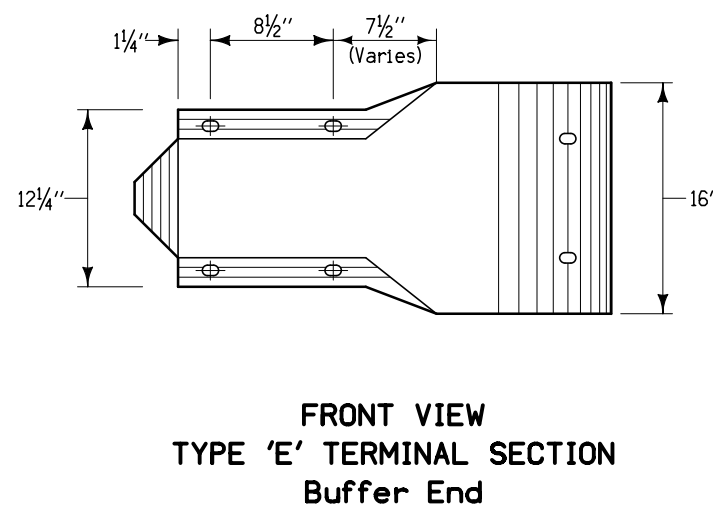
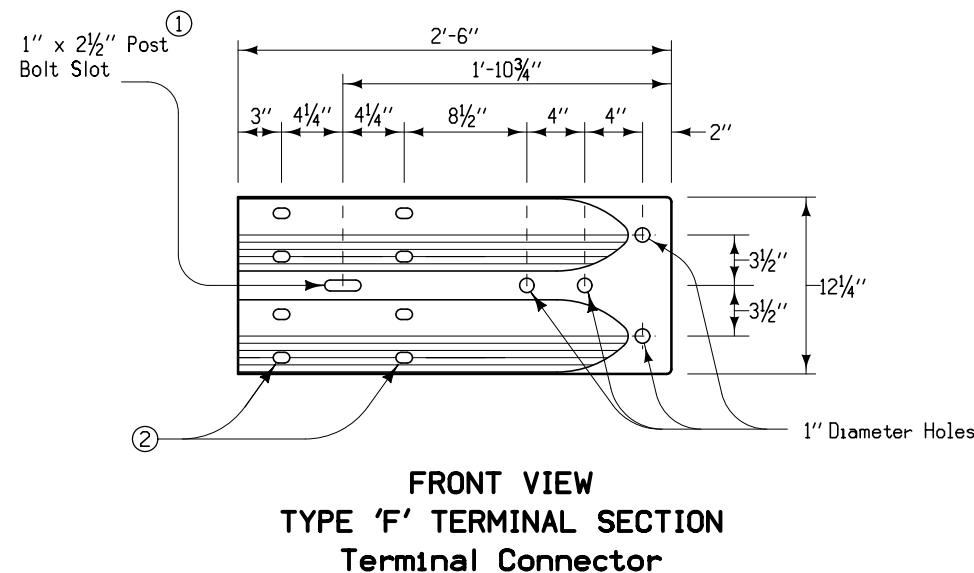
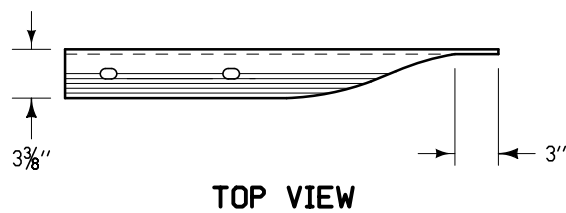
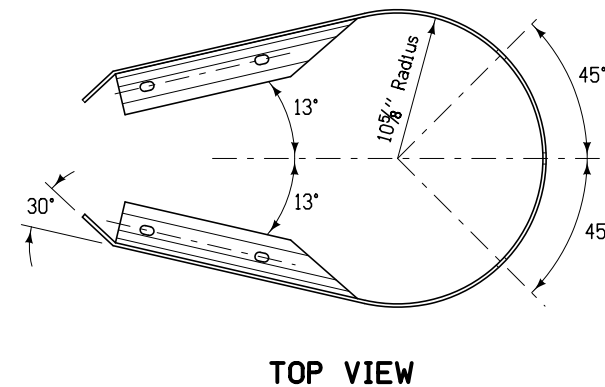
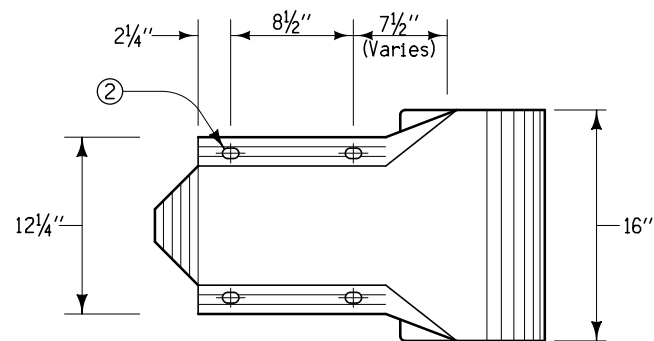
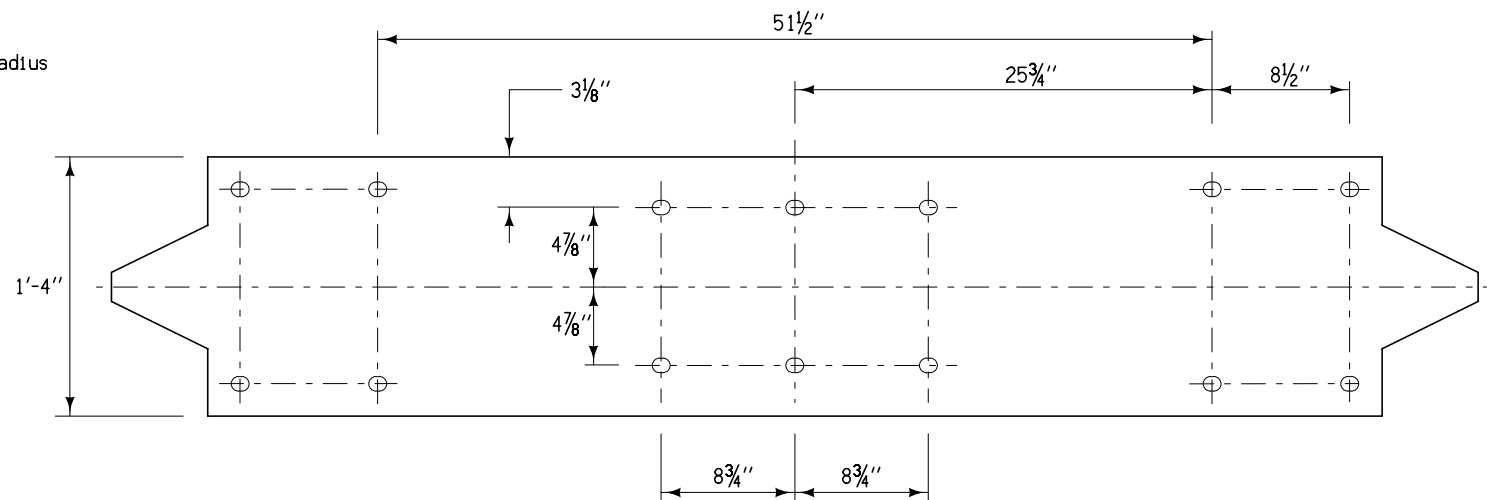
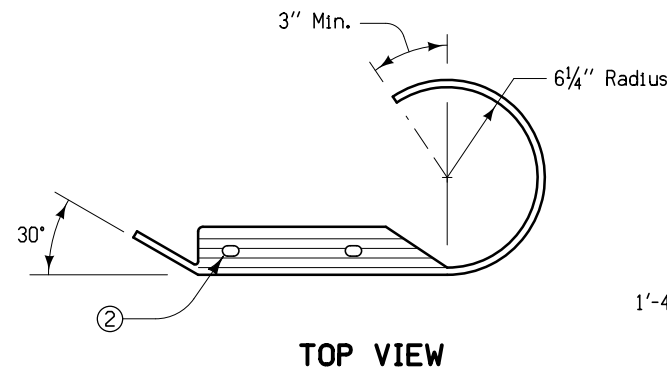
All beam rail installed on curvilinear alignment of a radius less than 150 feet shall be shop curved to the proper radius by the fabricator.

A splice in the beam railing shall occur only at a post location. The Engineer may modify the length of beam railing or number of posts required. Any such adjustment shall be compensated for at the contract price.

When the removal of traffic markers, barriers or warning devices is necessary for proper installation of guardrail or end anchorage, they shall be removed at the direction of the Engineer. Removal of these devices shall require temporary warning markers, provided by the Contractor, if not reinstalled on the same day as construction begins.

- ① Unless specified otherwise, rail elements may be furnished in either 25' or 12'-6" sections.
- ② 3'-1 1/2" spacing may be required where space for guardrail deflection is limited. Refer to Standard Road Plans for specific requirements.
- ③ For any case requiring bolt other than as indicated, the bolt lengths shall be of proper length to accomplish the intended purpose.
- ④ When guardrail posts are to be installed in HMA or PCC shoulders, the Contractor will be required to predrill or cut holes of equal diameter for post. Where drilled post holes are used, they shall be backfilled and tamped with material removed from the holes unless specified otherwise.
- ⑤ Any over-depth portion of hole shall be backfilled with sand and firmly tamped.
- ⑥ Splice lap direction shall be as specified on detail project plans and appropriate Standard Road Plans.

<b>MODIFIED STANDARD ROAD PLAN</b>	REVISION	
	6	10-19-04
	<b>RE-12A</b>	
SHEET 1 of 1		
MODIFICATIONS: Changed Mounting height to 28"		
<b>FORMED STEEL BEAM GUARDRAIL AND POSTS FOR BLOCKED-OUT GUARDRAIL (W-BEAM)</b>		



**GENERAL NOTES:**

Terminal section shall be required as part of the end treatment for all guardrail installations unless specifically indicated otherwise in project plans.

Fabrication and installation of terminal sections shall be in accordance with current Standard and Supplemental Specifications and other appropriate Standard Road Plans.

Refer to "Tabulation of Guardrail Installations" for additional details of installations.

The thickness of the type 'B' terminals shall not be less than 12 gage. The thickness of type 'E' and 'F' terminals shall not be less than 10 gage.

Furnishing and installing terminal sections will not be paid for separately, but shall be considered incidental to the price bid for other guardrail work required.

- ① If supplied with a 3/4" x 2 1/2" slot, the slot must be field reamed or drilled for a 7/8" bolt.
- ② 29/32" x 1 1/8" slots ( acceptable if supplied with 29/32" x 3" slots).

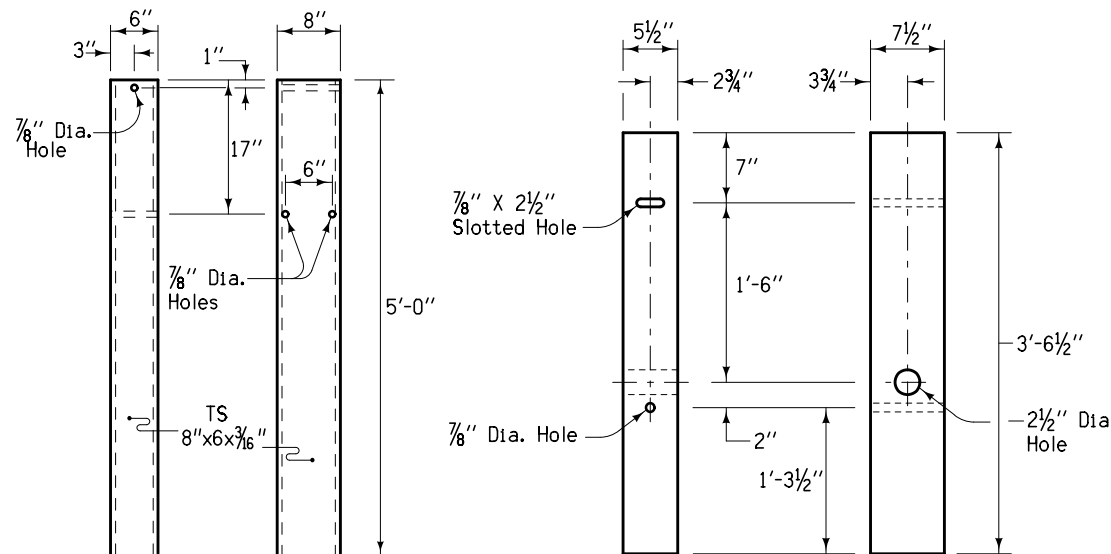
**FOR INFORMATION ONLY**



**STANDARD ROAD PLAN RE-2A**

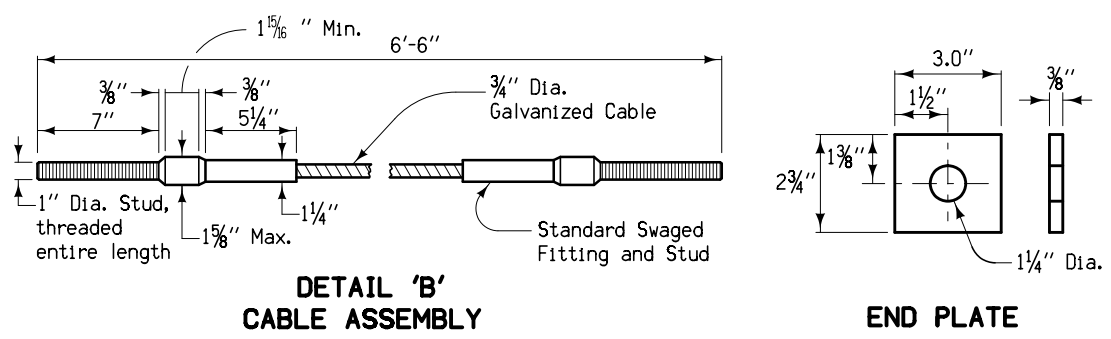
REVISION: Remove references to RE-70 (MELT) end anchorage.	REVISION NO. 4
APPROVED BY DESIGN METHODS ENGINEER	REVISION DATE 01-12-99

**FORMED STEEL 'W' BEAM RAILING  
TERMINAL SECTIONS**



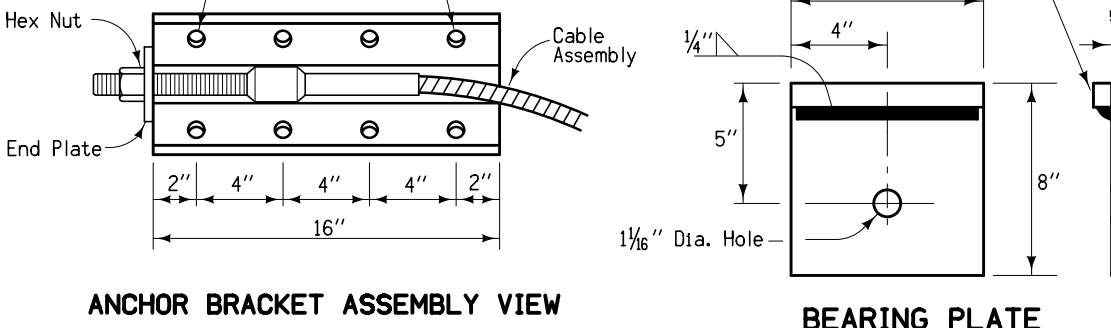
**FRONT SIDE**  
STEEL ANCHOR TUBE

**FRONT SIDE**  
WOOD TERMINAL POST



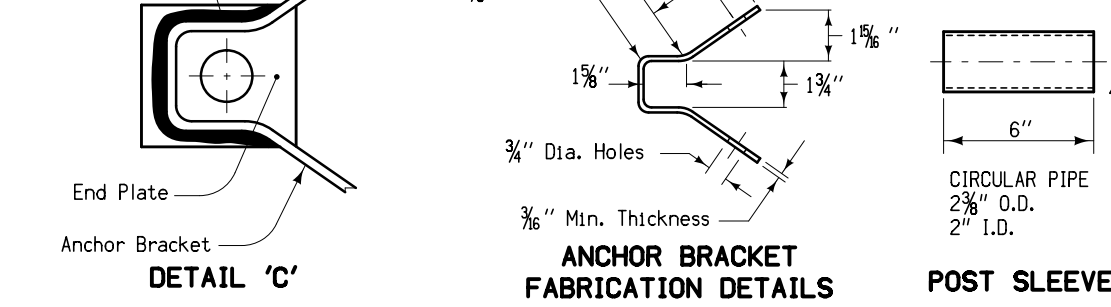
**DETAIL 'B'**  
CABLE ASSEMBLY

**END PLATE**



**ANCHOR BRACKET ASSEMBLY VIEW**

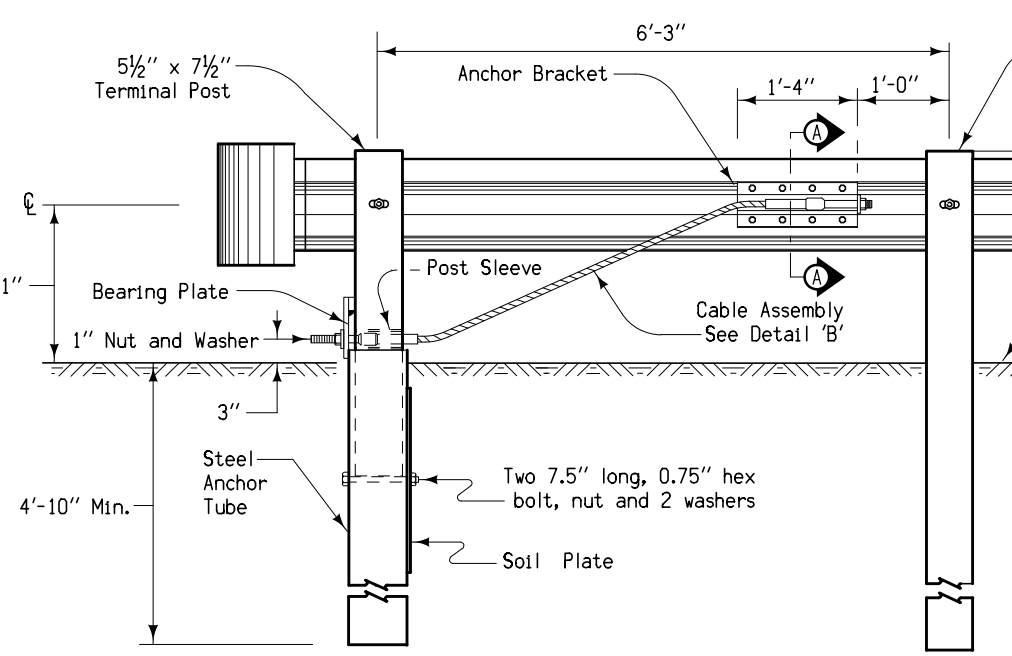
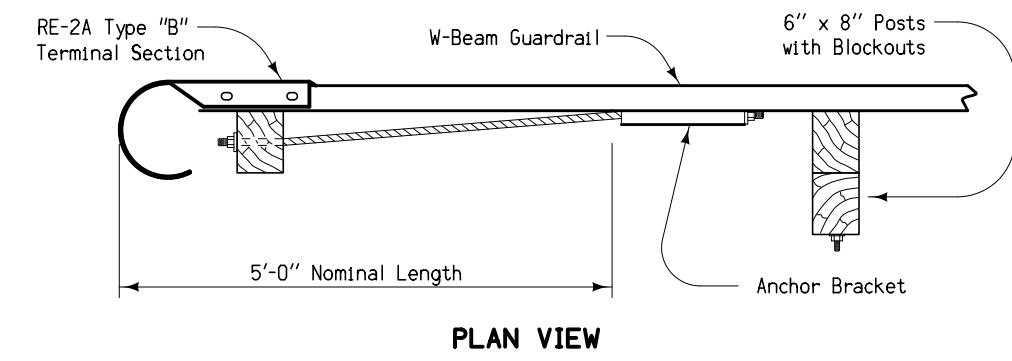
**BEARING PLATE**



**DETAIL 'C'**

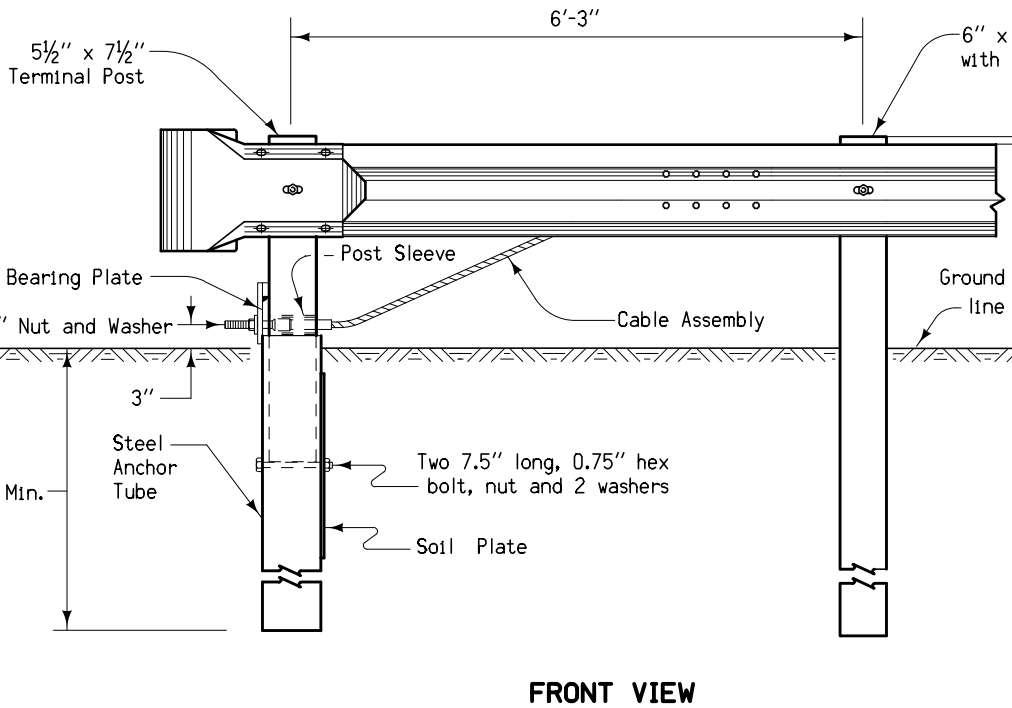
**ANCHOR BRACKET FABRICATION DETAILS**

**POST SLEEVE**



**PLAN VIEW**

**BACK VIEW**



**FRONT VIEW**

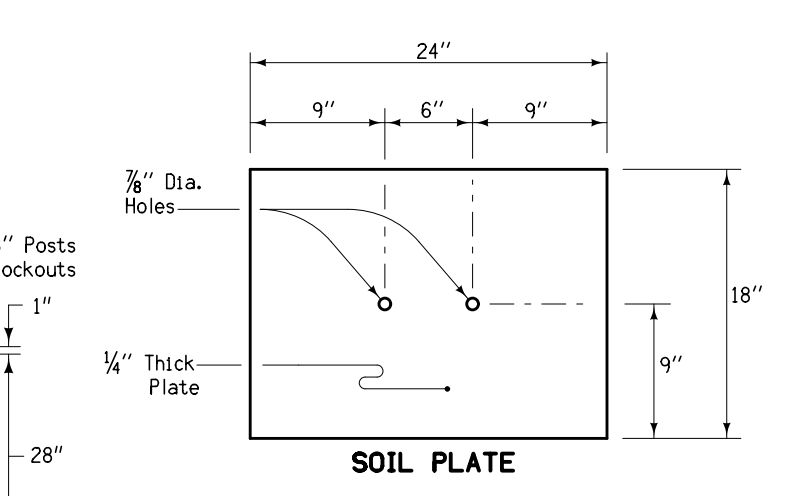
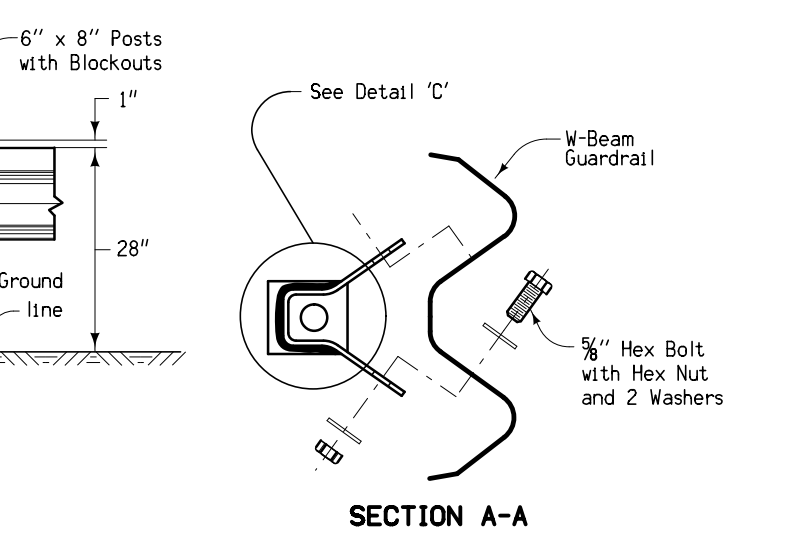
**GENERAL NOTES**

All hardware shall conform to the specifications set forth in "A Guide to Standardized Barrier Hardware", published by AASHTO.

The price bid for "Guardrail, End Anchorage, Beam, RE-33A", shall be considered full compensation for furnishing the materials detailed on this sheet and the construction of the end anchorage. W-Beam guardrail and 6" x 8" post with blockout are not included with this bid item.

① Two 7.5" long, 3/4" hex bolt, nut and washers under head and nut.

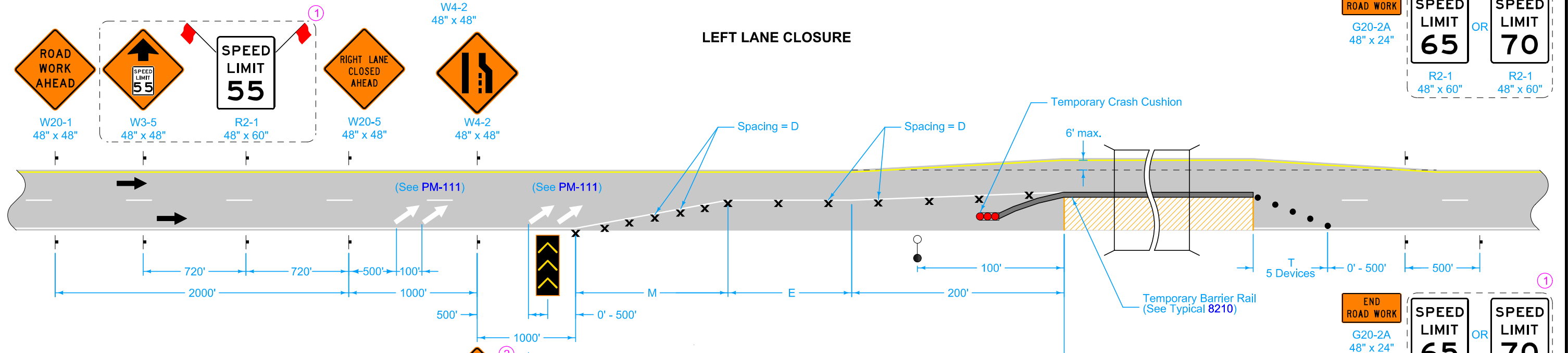
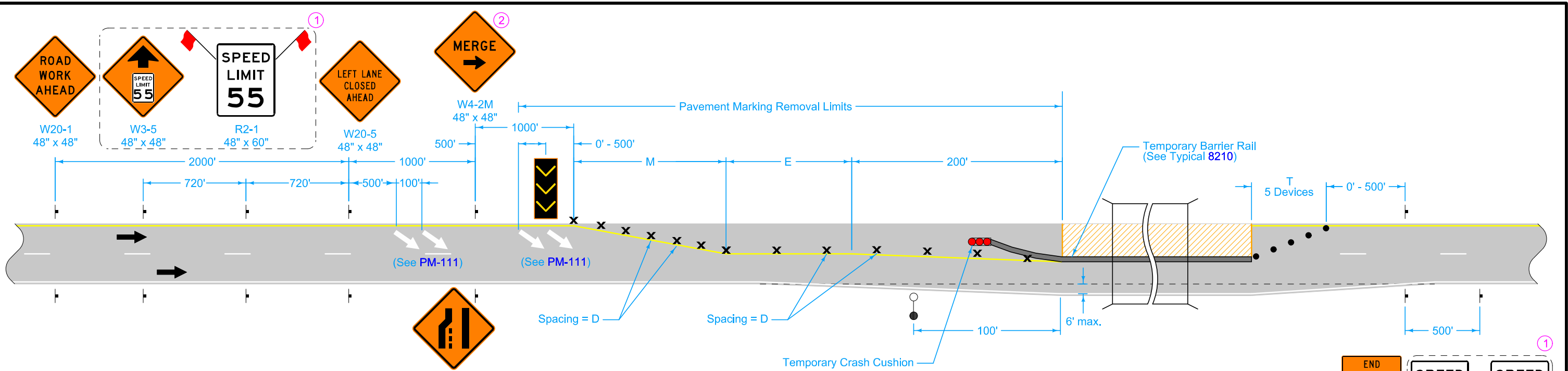
② One 10" long, 3/4" hex bolt, nut and washers under head and nut.



<b>MODIFIED STANDARD ROAD PLAN</b>	REVISION	
	4	10-21-03
	<b>RE-33A</b>	
SHEET 1 of 1		

MODIFICATIONS: Changed mounting height to 28"

**BEAM GUARDRAIL  
END ANCHORAGE  
(W BEAM)**



**LEGEND**

- ↑ Traffic Sign
- x Drum
- 42" Channelizer
- ←←← Arrow Panel
- Temporary Floodlighting
- Temporary Crash Cushion
- ▨ Work Area
- ← Direction of Traffic

SPEED LIMIT (mph)	D	E	M	T
45 - 50	45'	300'	630'	100'
55 - 60	55'	400'	770'	100'
65 - 70	65'	500'	910'	100'

**LEFT LANE CLOSURE**

When the Average Daily Traffic (ADT) exceeds 20,000 vehicles per day or when a traffic queue extends beyond the advanced signing, place RIGHT LANE CLOSED 4 MILES and RIGHT LANE CLOSED 2 MILES signs (W20-5) on both sides of the roadway 4 miles and 2 miles in advance of the lane closure, respectively.

① For roadways with a posted speed limit of 60 mph or greater before road work:  
Place SPEED LIMIT AHEAD sign and SPEED LIMIT 55 sign prior to the lane closure as shown. Place SPEED LIMIT 65 or 70 beyond the work area as shown.

Remove or cover all existing signs that conflict with 55 mph speed limit while 55 mph speed limit is in effect.

② Refer to SI-881 for sign details.

- Possible Contract Items:  
 Painted Symbols and Legends  
 Pavement Marking Items  
 Pavement Markings Removed  
 Symbols and Legends Removed  
 Temporary Barrier Rail  
 Temporary Crash Cushions  
 Temporary Floodlighting
- Possible Tabulations:  
 108-22  
 108-27  
 108-29  
 108-30  
 108-33

END ROAD WORK  
G20-2A  
48" x 24"

SPEED LIMIT 65 OR SPEED LIMIT 70  
R2-1 48" x 60" OR R2-1 48" x 60"

END ROAD WORK  
G20-2A  
48" x 24"

SPEED LIMIT 65 OR SPEED LIMIT 70  
R2-1 48" x 60" OR R2-1 48" x 60"

<b>MODIFIED STANDARD ROAD PLAN</b>	REVISION	
	7	10-18-11
	<b>TC-421</b>	
SHEET 1 of 1		
MODIFICATIONS: Removed "or Vertical Panel" from 42" Channelizer in Legend. Added W20-5 signs.		
<b>LANE CLOSURE WITH TBR</b>		

**LEGEND OF CROSS SECTION SHEETS (ROAD)**

- - - - - - Existing Ground Line
- ===== Proposed Template
- ===== Proposed Topsoil Placement
- - - - - Additional Topsoil Removal
- ===== Subgrade Treatment
- - - - - Granular Shoulder
- ===== Pavement
- - - - - Existing Pipe\RCB
- ===== Proposed Pipe\RCB
- ===== Proposed Dike
- ===== All Elements Associated with Proposed Entrances

**LEGEND OF CROSS SECTION SHEETS (SOILS)**

- TS----- Topsoil (Class 10)
- TS A----- Topsoil (Type A Disposal)
- TS B----- Topsoil (Type B Disposal)
- TS C----- Topsoil (Type C Disposal)
- CL 10----- Class 10 Materials
- SEL LO----- Select Loams And Clay-Loams
- SEL SA----- Select Sand
- UNS A----- Unsuitable Type A Disposal
- UNS B----- Unsuitable Type B Disposal
- UNS C----- Unsuitable Type C Disposal
- SHALE----- Shale
- WASTE----- Waste
- B&W LS----- Broken and Weathered Rock
- ROCK----- Solid Rock
- BLDRS----- Boulders

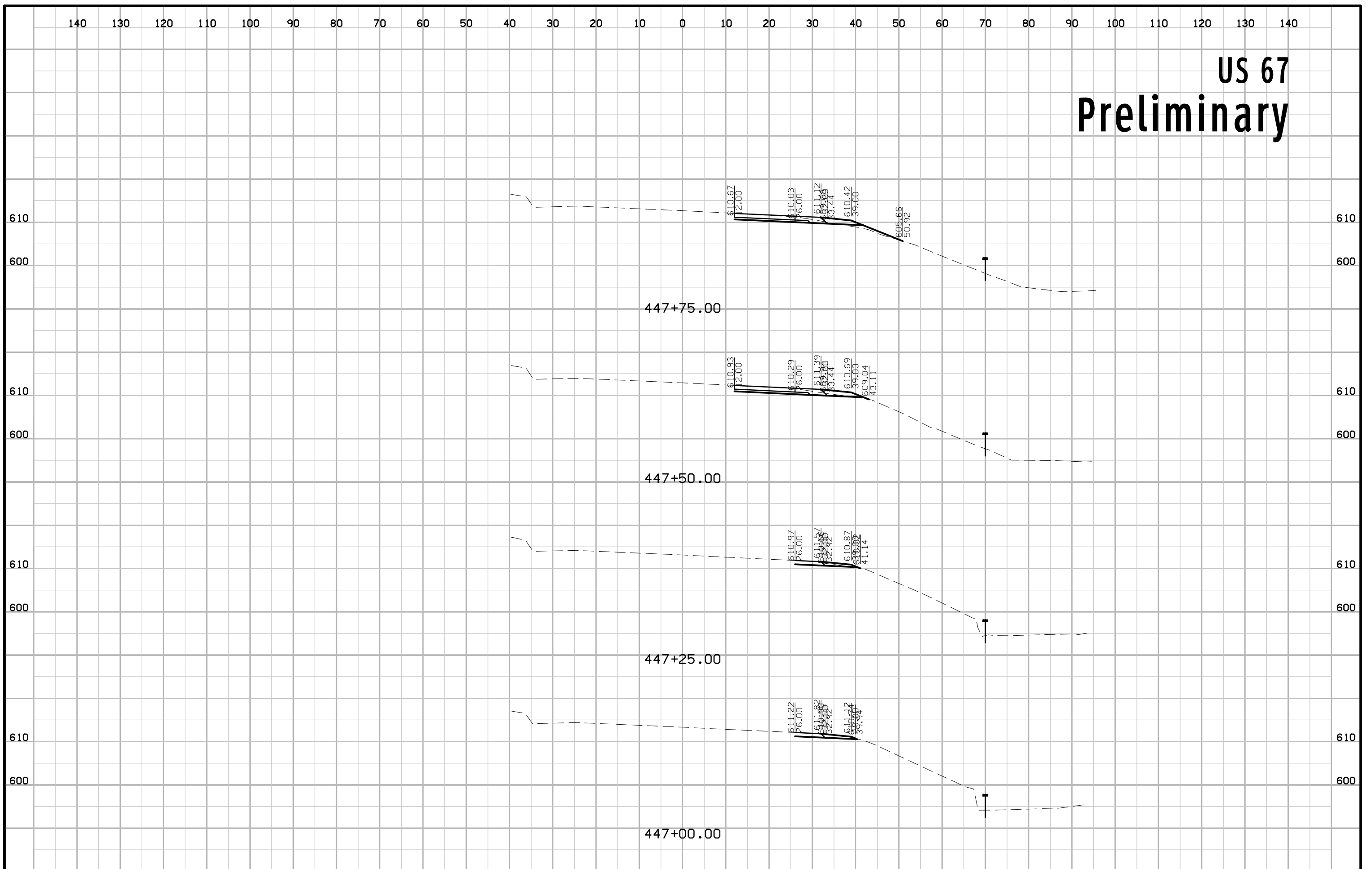
Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

**CROSS SECTION  
LEGEND AND SYMBOL  
INFORMATION SHEET**

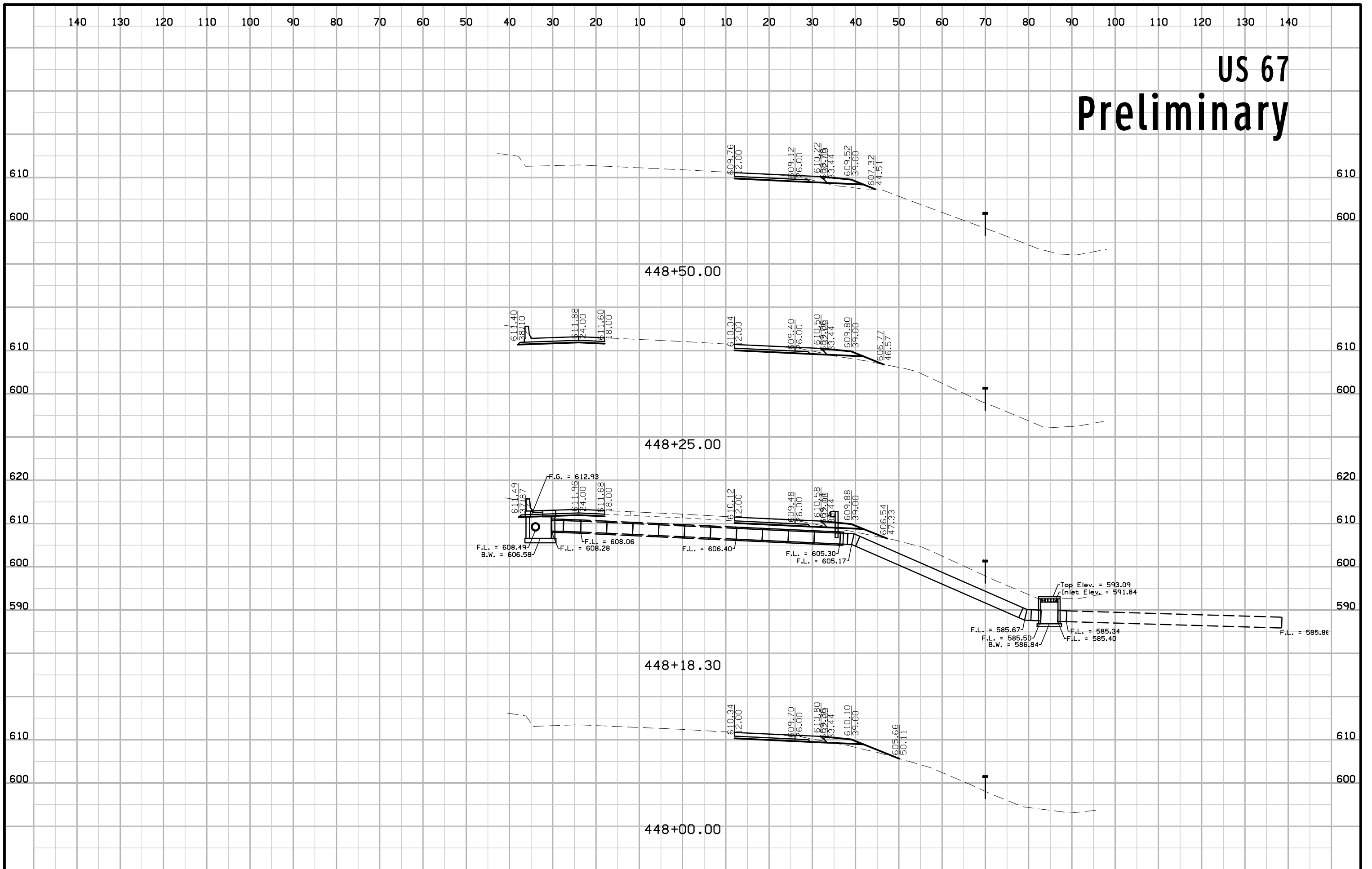
(COVERS SHEET SERIES W, X, Y, & Z)

# US 67 Preliminary

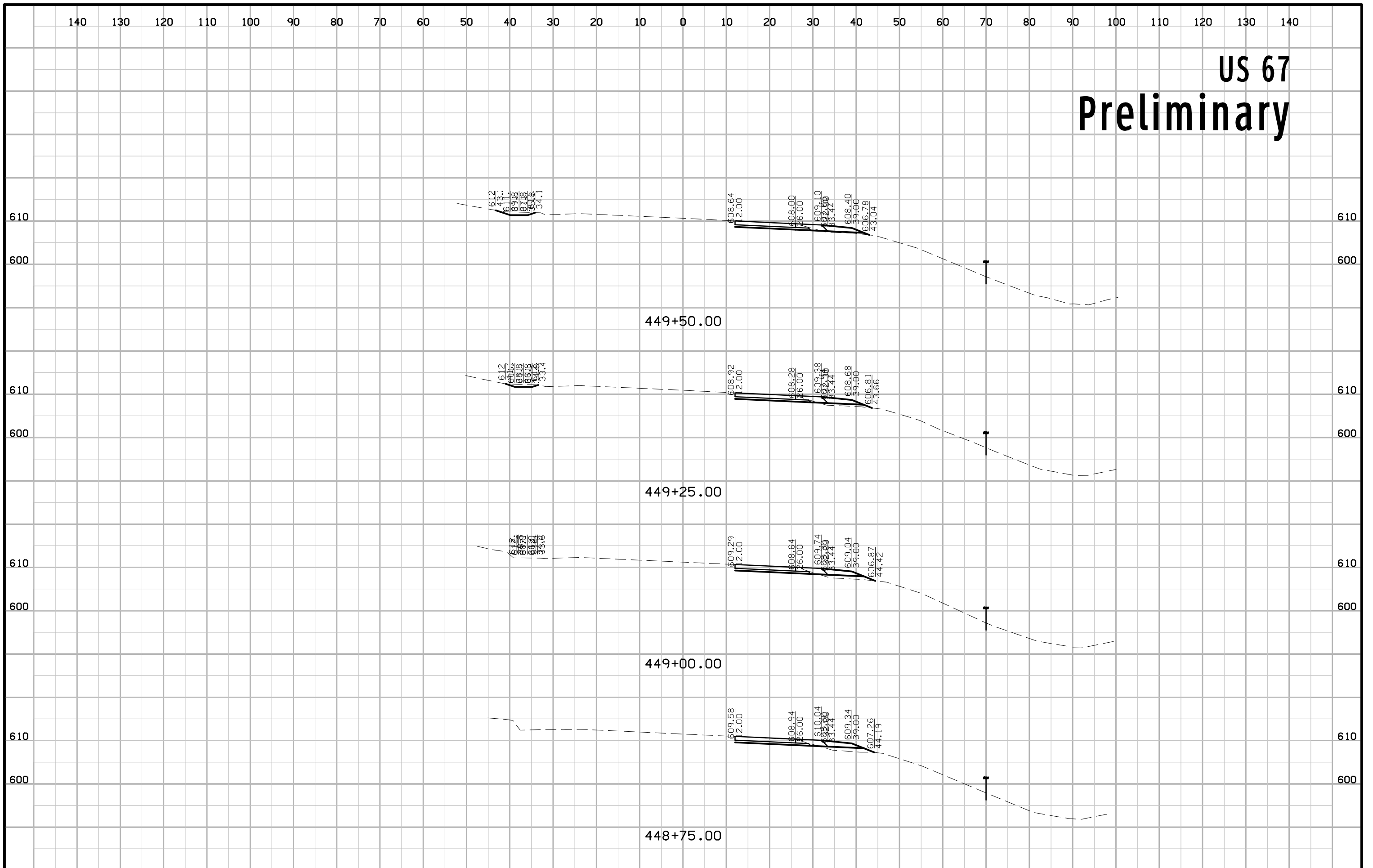




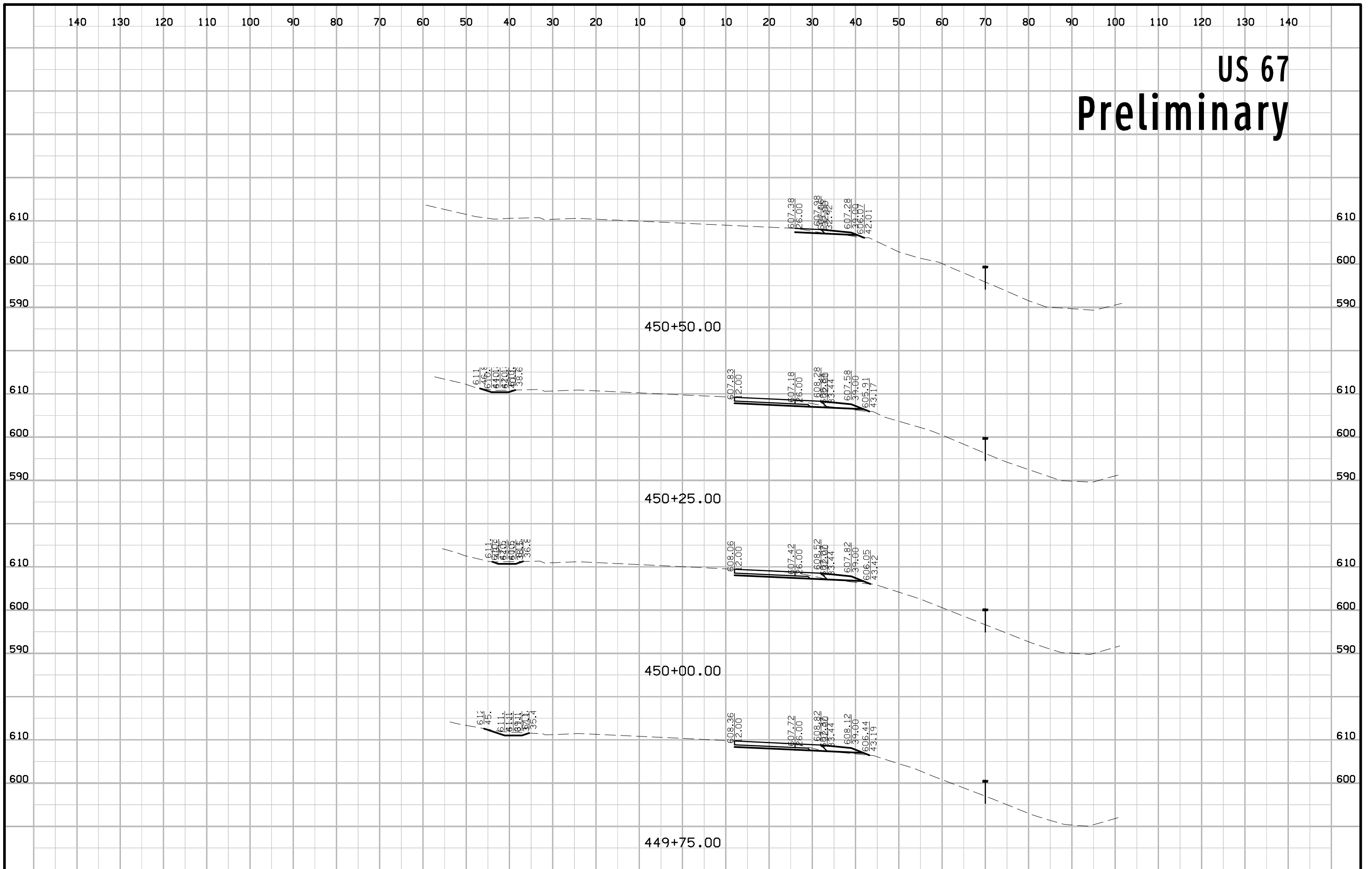
# US 67 Preliminary



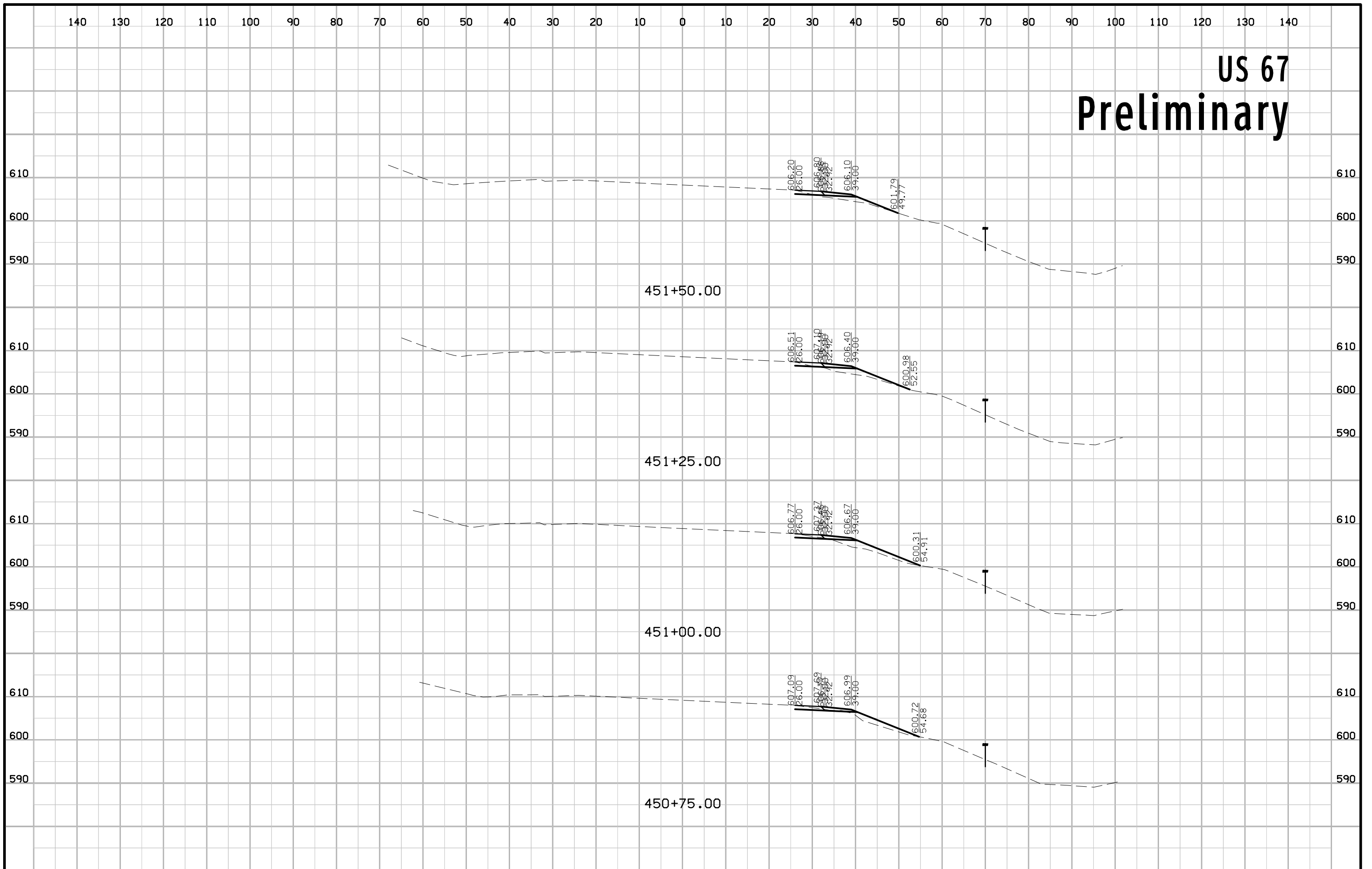
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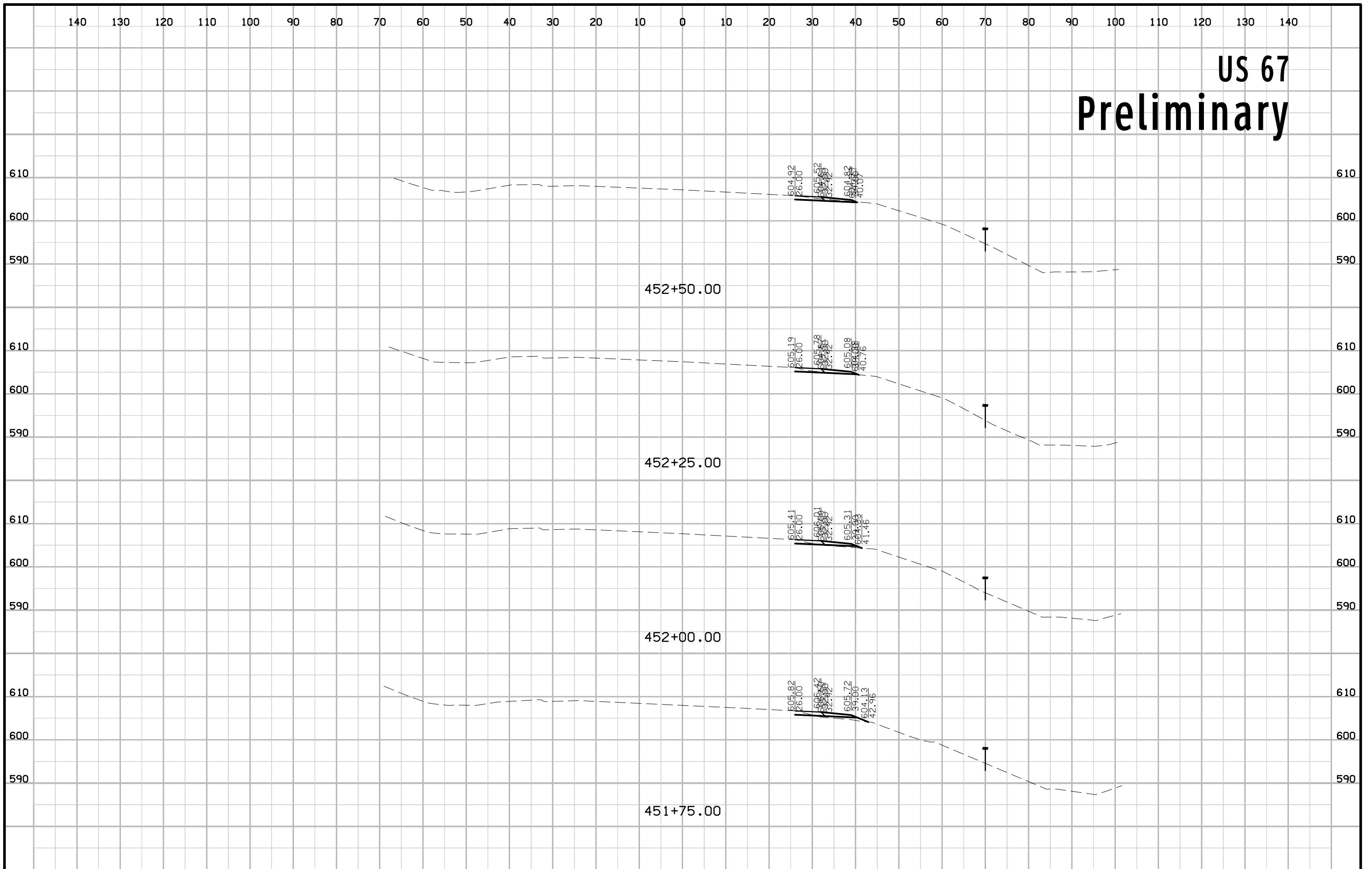
# US 67 Preliminary



# US 67 Preliminary



# US 67 Preliminary



# US 67 Preliminary

