



and interpreted as a late Woodland period prehistoric burial mound and received your concurrence on 12/13/2011.

Due to the location of the prehistoric burial mound (13VB837) near the project area, the Office of Locations and Environments proposes to enact the following condition to ensure avoidance of this site during construction activities:

- No construction activities is allowed beyond ten (10) feet from the needs line near this site. The 10' line is shown in the D5 design file (89098007.dsn), in model "Limits of Construction", on level rowdsnPSConstructPlot (non-plotting level).

Foreslopes at 3:1 are proposed throughout the project to minimize impacts to adjacent properties and reduce right of way needs. This issue was determined at the Field Exam based on discussion on the impacts and the posted speed limit of 25 mph.

Utilities on this project are as follows: Rathbun Rural Water, Rathbun Water Sanitary Sewer, Windstream Communications Telephone, and Windstream Communications Fiber Optics.

The current letting date is September 17, 2013.

You may indicate your acceptance or request additional information by e-mail.

YJ:mk

Attach.

cc: M. J. Kennerly	N. L. McDonald
K. D. Nicholson	G. A. Novey
D. L. Maifield	D. R. Claman
R. L. Stanley	J. P. Rost
Judy Lensing	S. C. Marler
E. J. Ranney	L. C. Funnell
D. A. Widick	T. L. Gettings
S. J. Gent	M. A. Swenson
T. Crouch	J. W. Smith
E. C. Wright	D. A. Popp
J. N. McCollough	B. Bradley
J. Vortherms	J. Armstrong
G. Mulder	B. Clancy
Scott Sweet, WHKS	Randy Schlei

## D-5 Checklist

- D-5 shell letter completed (needs to include all directory information, required reference files and geopak files etc.)
- Complete x-sections available (need to be sheeted & batch plotable & list no. of sheets in each file.)
- Plans and cross section files have been sheeted for batch plotting.
- Culverts and structures complete
- Overhead signs and signals preliminary location identified.
- Structure TS+L for all 4' and larger, pipes or culverts.
- Entrance (PDA) locations match access control letter
- Entrance profile(s) on the plans and x-sections
- Stability berms completed
- Final ditching done
- Borrows identified
- Wetland ROW requirements identified
- Plan sheets checked for Township Range, scale, and other details
- Plan sheets PDFs created and check printed
- Tab sheet for special needs included
- Utility Legend

K:\7288\06\_700AH\89098007\Design\055\submit\89098007.sht 6/13/2012 A-1

**VAN BUREN COUNTY** PCC Pavement - Grade and New  
**BRF-098-1(7)--38-89**

LETTING DATE  
 09/17/13

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 - 3	Typical Cross Sections and Details
<b>C Sheets</b>	<b>Quantities and General Information</b>
C.1	Points of Access Tab.
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 5	Iowa Highway 98
<b>E Sheets</b>	<b>Side Road Plan and Profile Sheets</b>
* E.1	Eagle Drive
* E.2	Hawk Drive
<b>F Sheets</b>	<b>Detour or Temporary Pavement Sheets</b>
* F.1	IA 98 Detour Plan and Profile Sheet
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1	Survey Information
G.2	Reference Ties and Benchmarks
G.3	Horizontal Control Tabulation
G.4	Superelevation Tabulation
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
* J.1	Traffic Control Plan and Staging Notes
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3	Staging and Traffic Control Sheets Stage 1
* J.4	Staging and Traffic Control Sheets Stage 2
* J.5	Staging and Traffic Control Sheets Stage 3
* J.6	Staging and Traffic Control Sheets Stage 4
<b>L Sheets</b>	<b>Geometric, Staking and Jointing Sheets</b>
L.1	Geometric Sheet IA 98 and Eagle Drive
L.2	Geometric Sheet IA 98 and Hawk Drive
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
V.1	Culvert Situation Plans
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 13	Iowa Highway 98 Cross Sections
<b>X Sheets</b>	<b>Side Road Cross Sections</b>
X.1 - 6	Eagle Drive Cross Sections
X.7	Hawk Drive Cross Sections
X.8 - 11	IA 98 Detour Cross Sections
	* Color Plan Sheets



# Iowa Department of Transportation

## Highway Division

### PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM

# VAN BUREN COUNTY

## Bridge Replacement

On IA 98 over the Des Moines River  
1.5 mi. south of Jct. Ia 16

SCALES: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series 2009, plus General Supplemental Specifications; and applicable Supplemental Specifications, Developmental Specifications, and Special Provisions, shall apply to construction on this project.

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

For Project Location Map  
Refer to Sheet A.2



04-30-02	101-5
<b>DESIGN DATA URBAN</b>	
2015 AADT	1280 V.P.D.
2035 AADT	1550 V.P.D.
20 DHV	V.P.H.
TRUCKS	%
Total	
Design ESALs	

REVISIONS

TOTAL	51
PROJECT IDENTIFICATION NUMBER	09-89-098-010
PROJECT NUMBER	BRF-098-1(7)--38-89
R.O.W. PROJECT NUMBER	

### MILEAGE SUMMARY

105-1  
09-27-94

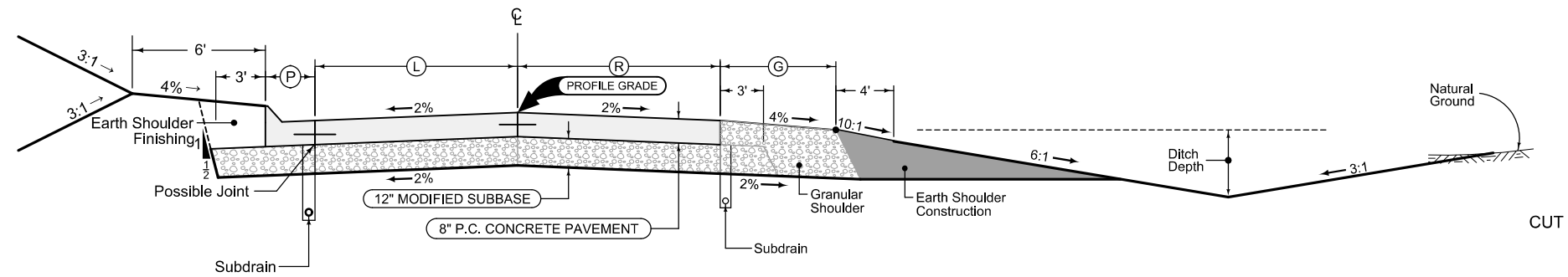
Div.	Location	Lin. Ft.	Miles
	Sta 107+95 to Sta 127+00	1,905	
	Deduct Bridge Sta 117+15	810	
	Total Net Project Length	1,095	0.207

# PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 06-13-2012



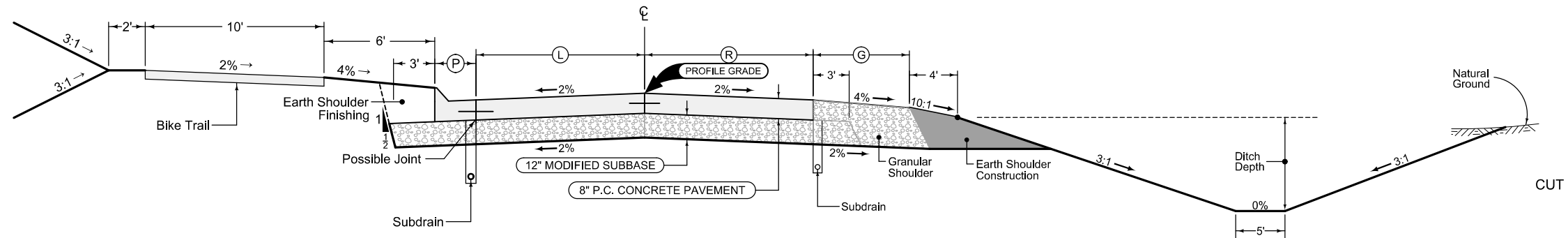


LOCATION		DIMENSIONS				Curb Type See PV-102
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	G Feet	P Feet	
IA 98	107+95.00 109+50.00	12	14	6	2.0	6" Standard

2 LANE PCC PAVEMENT

IOWA HIGHWAY 98

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

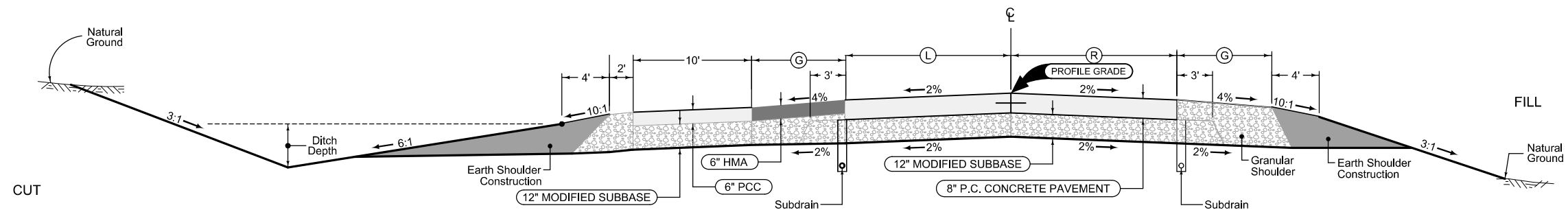


LOCATION		DIMENSIONS				Curb Type See PV-102
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	G Feet	P Feet	
IA 98	109+50.00 110+25.00	12	14	6	2.0	6" Standard

2 LANE PCC PAVEMENT

IOWA HIGHWAY 98

See plan & profile sheets and cross sections for additional details of ditches and backslopes.



LOCATION		DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	G Feet
IA 98	110+25.00 110+80.00	14	14	6

2 LANE PCC PAVEMENT

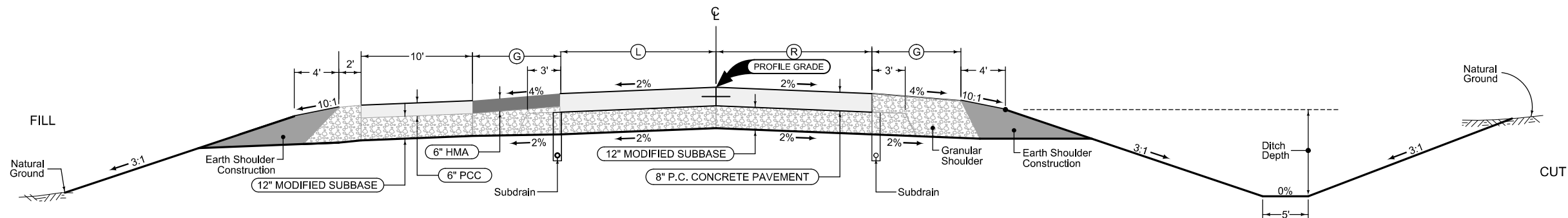
IOWA HIGHWAY 98

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

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6/13/2012 B.1

WHKS-4



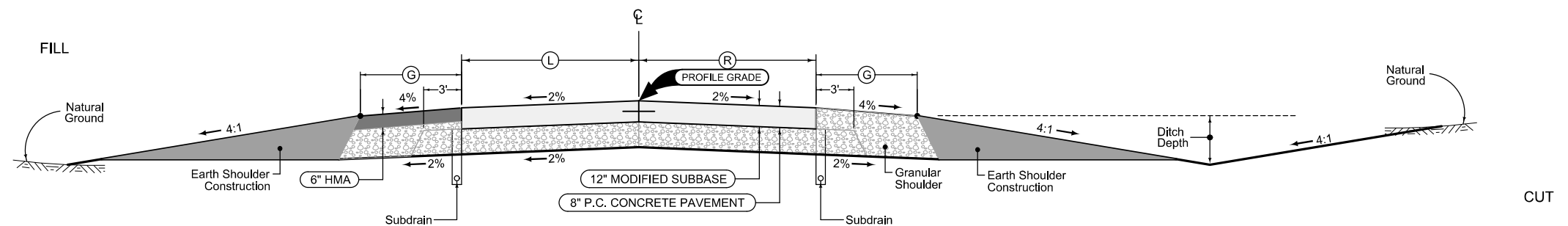
LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	(L)	(R)	(G)	
		Feet	Feet	Feet	
IA 98	110+80.00	112+38.25	14	14	6
	121+91.75	125+31.83	14	14	6

2 LANE PCC PAVEMENT

IOWA HIGHWAY 98

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

WHKS-5



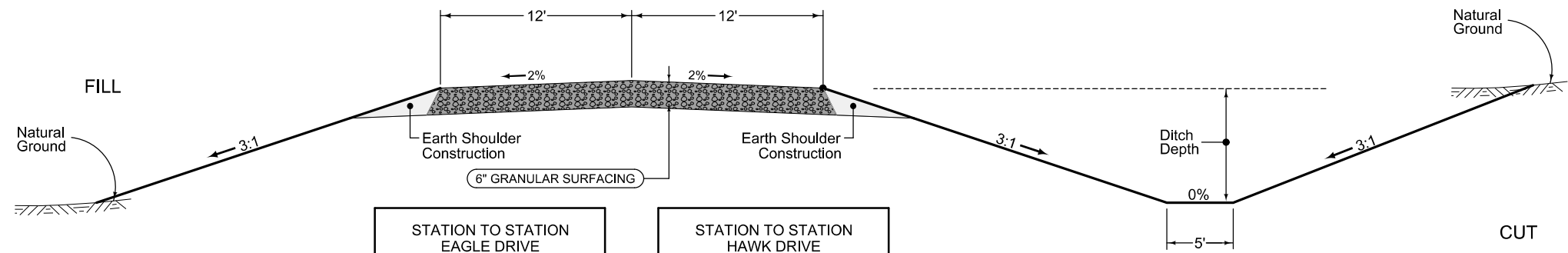
LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	(L)	(R)	(G)	
		Feet	Feet	Feet	
IA 98	125+31.83	127+00.00	14	14	6

2 LANE PCC PAVEMENT

IOWA HIGHWAY 98

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

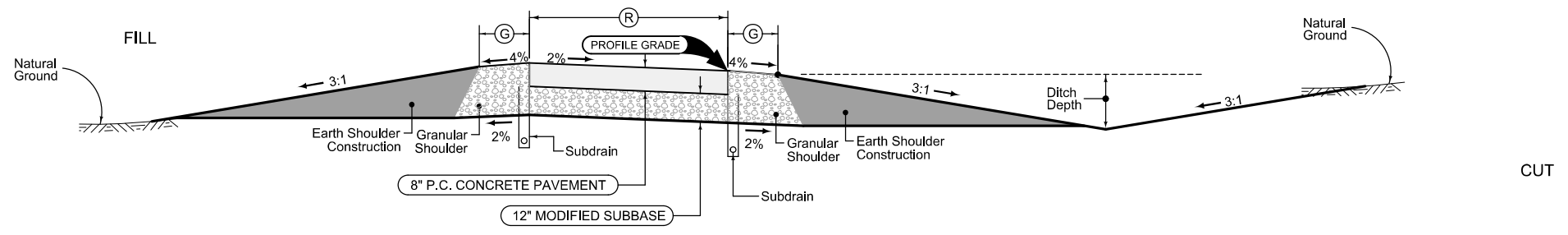
WHKS-6



STATION TO STATION EAGLE DRIVE		STATION TO STATION HAWK DRIVE	
1107+00.00	1111+12.26	1124+00.00	1124+56.24

2 LANE GRANULAR SURFACING

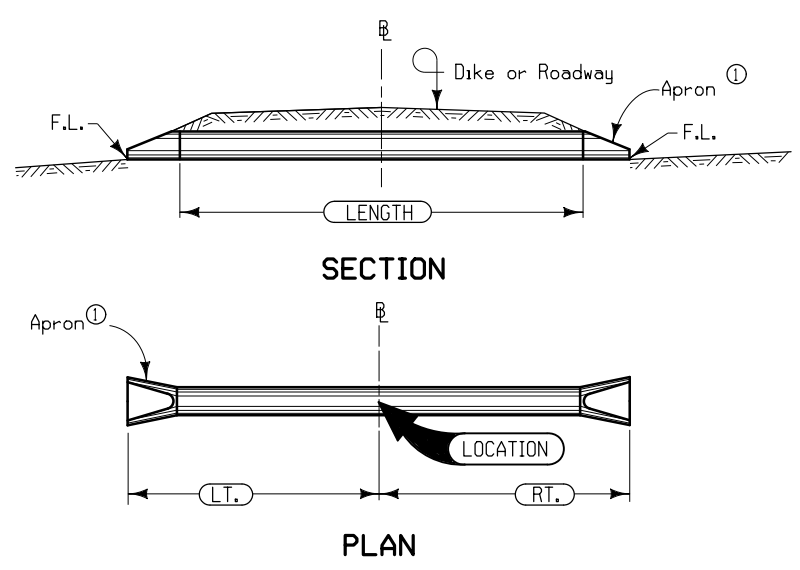
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6/13/2012 B.2



1 LANE TEMPORARY PCC PAVEMENT

TEMPORARY IOWA HIGHWAY 98

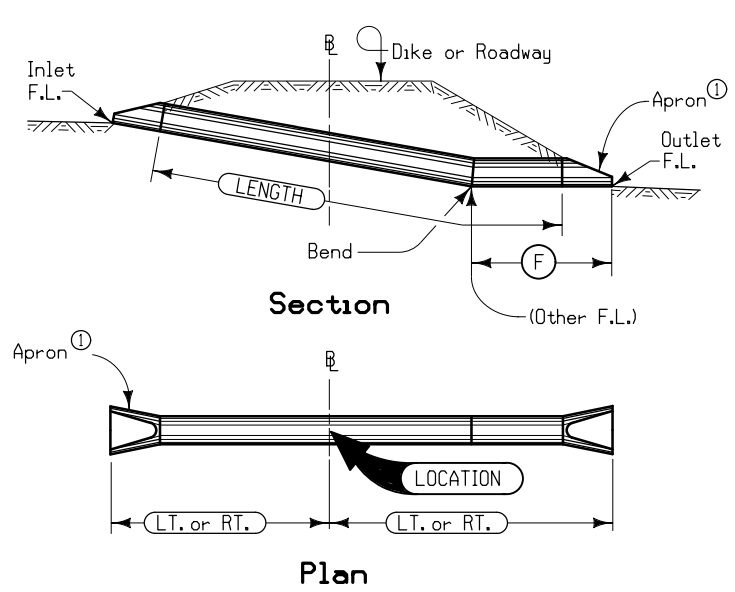
LOCATION		DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION	(R) Feet	(G) Feet
TEMP. IA 98	0+50.00 4+97.56	12	2



PIPE CULVERT

Notes:  
 B shall be C of roadway, dike, survey, or other; as detailed on plans.  
 Skew angle is the angle which one end of the pipe is ahead (by stationing) of line perpendicular to the B (example skew Rt. ahead 30°).  
 Refer to tabular listing and other plans for additional information.  
 ① See Standard Road Plan RF-3 For Conc. or RF-5 for Metal.

1101  
04-30-02



PIPE CULVERT LETDOWN STRUCTURE

Notes:  
 B shall be C of roadway, dike, survey, or other; as detailed on plans.  
 "Bend" may be accomplished by use of metal elbow, Pipe Adapter (RF-2), Type "D" Section or Concrete Elbow (RF-13) as specified.  
 Refer to tabular listing and other plans for additional information.  
 ① See Standard Road Plan RF-3 For Conc. or RF-5 for Metal.

1201  
10-16-07

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6/13/2012 B.3
































- ① Refer to MI-210
- ② Refer to RL-8 for Type B or C. Type A per plan.  
Predetermined for access point not constructed with this project.

**POINTS OF ACCESS**





Refer to Cross-Sections

Location		Type ② A, B, C, or Predetermined	Length of Opening			W	PR ① ②	SR ②	Pipe Culvert (RF-30A or RF-30B)				Aprons	Driveway Surface Area		Driveway Surfacing Material	Remarks	
Station	Side		Case ①	1 1/2" Dropped Curb	3" Dropped Curb				H	Size	Pipe Length	Lt. ②		Rt. ②	No.			HMA SY
			1 or 2	LF	LF	FT	FT	FT	FT	IN	LF	LF	LF		SY	SY	TON	
IA 98																		
108+10	Rt.	C				16.7										6.4	3.220	
109+84	Lt.	B				24.0	100 Rt. 35 Lt.									244.8		Jefferson St.
110+45	Lt.	B				24.0		35.0	1.3	18.0	54.0	25.2	34.0	2			54.970	
125+14	Rt.	B				24.0		35.0	1.6	24.0	50.0	29.2	33.0	2			34.030	1st St.
126+34	Lt.	C				18.0		15.0	1.1	18.0	37.0	21.7	20.5	2			16.060	
126+63	Rt.	C				18.0		15.0	1.0	24.0	30.0	20.1	22.1	2			11.320	
Eagle Dr.																		
1109+54	Rt.	C				20.0		15.0									34.630	Madison St.
Hawk Dr.																		
1124+28	Lt.	C				24.0		15.0	1.4	24.0	56.0	42.1	26.2	2			61.160	

### SURVEY SYMBOLS

-  Iowa Highway Symbol
-  Evergreen Tree
-  Deciduous Tree
-  Shrub (Bushes)
-  Timber
-  Hedge
-  Revetment (Rip Rap)
-  Tile Outlet
-  Existing Drainage
-  Proposed Drainage
-  Beehive Intake
-  Existing Intake
-  Existing Utility Access (Manhole)
-  Water Hydrant (Rural)
-  Luminaire
-  Telephone Pole
-  Power Pole
-  Existing Water Line
-  Existing Sanitary Sewer Line
-  Existing Telephone Line
-  Existing Fiber Optics Telephone Line
-  Existing Storm Sewer Line
-  Existing Gas Line
-  Guardrail (Beam or Cable)
-  Guard Post (one or two)
-  Gas Valve
-  Water Valve
-  Speed Limit Sign
-  Sign

### UTILITY LEGEND

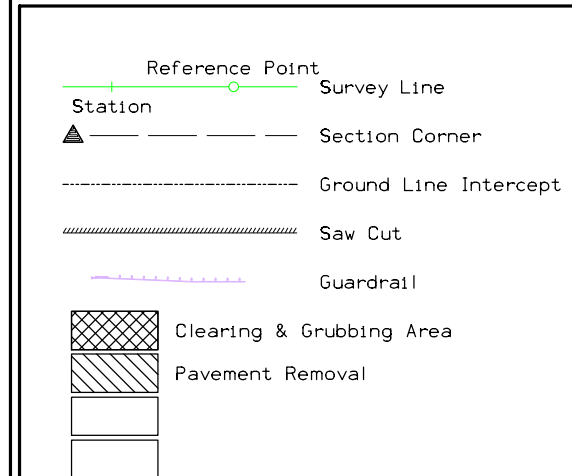
-  Rathbun Rural Water Water Line
-  Rathbun Rural Water Sanitary Sewer Line
-  Windstream Communications Telephone Line
-  Windstream Communications Fiber Optics Telephone Line

### 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
Gray, Dark	(112)	Proposed Sidewalk Shading
Brown, Light	(236)	Grading 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

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
-  Excess
-  Access Control

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

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6/13/2012 D-1

VILLAGE TWP.  
T-70N R-11W  
SEC. 26

Sta. 110+43.43, 21.01' Lt.  
15" X 26" C.M.P.

(Remove)  
Sta. 110+45 44.06 Lt.  
Install 18" CMP  
F.L. = Lt. 627.63  
Rt. 625.31  
Type "C" Ent.

Curve Data  
Δ = 91° 40' 07.61" (RT)  
T = 203.85  
L = 316.78  
R = 198.00  
E = 86.18

CITY OF LEANDO

POT Sta 111+75.00 IA 98  
= POT Sta 111+75.00 Eagle Dr.

+45 Prop.  
W = 24'  
Type "B" Ent.

PI Sta 110+59.06  
Curve No. 110415.68  
Ez

PT Sta 111+72.00

+10 Prop.  
Type "C" Ent.  
W = 16.7'

(REMOVE)  
Sta. 111+25 105.28 Rt.  
Install 24" RCP w/Aprons  
F.L. = Lt. 612.46  
Rt. 611.84

Sta. 117+14.2  
780' X 24' Continuous  
Through Girder Bridge Conc.  
Floor & Substructure  
D.A. = 13,406 Sq. Ft. - VF-F

(REMOVE)  
Sta 117+28.48  
Build 810' x 40'  
Continuous Welded  
Girder Bridge

Sta. 109+56.65, 0.77' Rt.  
24" X 61' Conc. Pipe  
D.A. = 1 Ac. R

(REMOVE)  
Sta. 109+56  
Install 24" RCP Letdown  
w/Aprons  
Skew = 34° Rt. Ahd.  
Lt. 631.54  
F.L. = Rt. 623.05

POT Sta 106+01.02

STA. 107+95.00  
BEGIN CONSTRUCTION

Limits of Construction (Typ.)

SAWCUT



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D.2  
6/13/2012

For Superelevation Information  
Refer to Sheet No. G.4

For Side Road Details  
Refer to Sheet No. E.1

For Curve Information  
Refer to Sheet No. G.3

For Profile  
Refer to Sheet No. D.3

ENGLISH

IOWA DOT

DESIGN TEAM **WHKS & Co.**

VAN BUREN COUNTY

PROJECT NUMBER

**BRF-098-1(7)--38-89**

SHEET NUMBER

**D.2**

SYSTEMTIME

USERNAME DGNSPEC



VILLAGE TWP.  
T-70N R-11W  
SEC. 26



Des Moines River

120

130

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6/13/2012 D.4

Limits of Construction (Typ.)

(U.A.C.)  
TWIN 10' X 8' X 35.7' R.C.P.

POT Sta 125+02.0 IA 98  
= POT Sta 1125+15.34 Hawk Dr.

Sta. 127+64.32, 25.89' Lt.  
18" X 39' C.M.P.

(REMOVE)  
Sta. 126+34 30.87 Lt.  
Install 18" CMP  
F.L. = Lt. 596.70  
Rt. 596.85  
Type "C" Ent.

15" X 27' C.M.P.  
24" X 38' Conc. Pipe

STA. 127+00.00  
END CONSTRUCTION

PI Sta 122+42.13

PC Sta 121+89.57

PRC Sta 122+92.32

PI Sta 123+29.37

PCC Sta 123+65.57

1125

60° 0' 0"

PT Sta 126+29.48  
PI Sta 124+97.90

+63 Prop. Type "C" Ent.  
W = 18'

(U.A.C.)  
Sta. 124+45  
24" X 85' Conc. Pipe  
D.A. = 3 Ac. F

(U.A.C.)  
Sta. 124+92  
18" X 131' Conc. Pipe  
D.A. = 5 Ac. F

(U.A.C.)  
Sta. 124+92  
18" X 131' Conc. Pipe  
D.A. = 5 Ac. F

Sta. 124+44.63, 0.25' Lt.  
24" X 85' Conc. Pipe  
D.A. = 3 Ac. F

(REMOVE)  
Sta. 124+50  
Install 24" RCP  
Skew = 30° Rt. Ahd.  
F.L. = Lt. 593.29  
Rt. 595.53

Sta. 124+91.44, 0.12' Lt.  
18" X 131' Conc. Pipe  
D.A. = 5 Ac. F

(REMOVE)  
Sta. 125+14 35.69 Rt.  
Install 24" RCP  
F.L. = Lt. 595.79  
Rt. 595.55

Sta. 126+59.90, 26.71'  
24" X 24' Conc. Pipe

(REMOVE)  
Sta. 126+63 27.25 Rt.  
Install 24" RCP  
F.L. = Lt. 596.44  
Rt. 596.19  
Type "C" Ent.

Sta. 127+22.08, 27.32' Rt.  
24" X 24' Conc. Pipe

(U.A.C.)

Curve Data  
Δ = 29° 43' 57.85" (RT)  
T = 52.56  
L = 102.75  
R = 198.00  
E = 6.86

Curve Data  
Δ = 21° 11' 51.29" (LT)  
T = 37.05  
L = 73.25  
R = 198.00  
E = 3.44

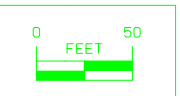
Curve Data  
Δ = 10° 33' 19.10" (LT)  
T = 132.33  
L = 263.90  
R = 1,432.50  
E = 6.10

CITY OF DOUDS

For Side Road Details  
Refer to Sheet No. E.2

For Curve Information  
Refer to Sheet No. G.3

For Profile  
Refer to Sheet No. D.5



ENGLISH

IOWA DOT

DESIGN TEAM **WHKS & Co.**

VAN BUREN COUNTY

PROJECT NUMBER

**BRF-098-1(7)--38-89**

SHEET NUMBER

**D.4**

SYSTEMTIME USERNAME DGNSPEC







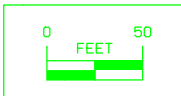


VILLAGE TWP.  
T-70N R-11W  
SEC. 26

CITY OF LEANDRO  
105  
12" X 40' C.M.P.  
Washington St.

Curve Data  
Δ = 84° 02' 23.84" (RT)  
T = 135.16  
L = 220.02  
R = 150.00  
E = 51.91

Curve Data No. E2  
PI Sta 110+15.68  
PC Sta 109+17.36  
PT Sta 110+70.15  
Δ = 91° 40' 05.18" (RT)  
T = 98.32  
L = 152.79  
R = 95.50  
E = 41.57

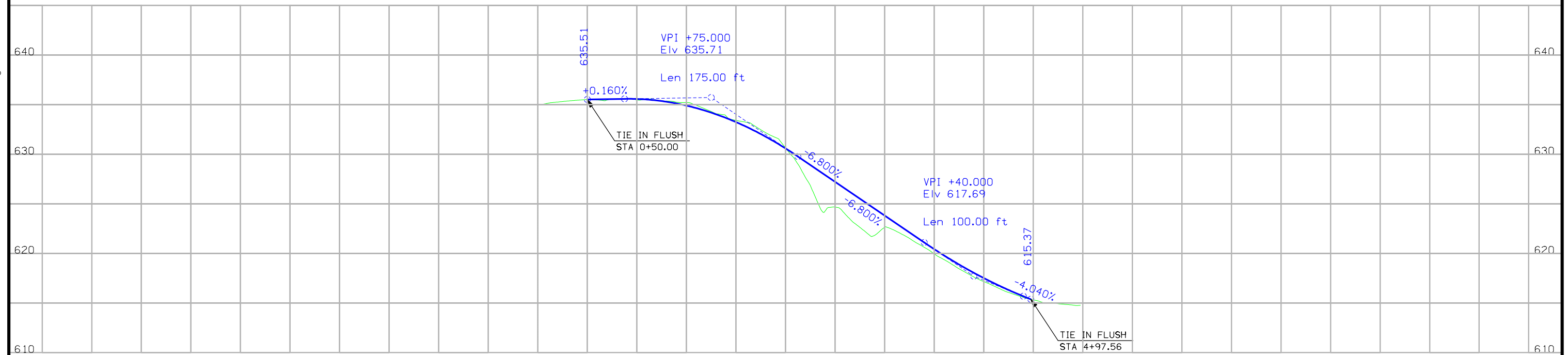


For Curve Information  
Refer to Sheet No. G.3

STA. 0+50.00  
BEGIN CONSTRUCTION

STA. 4+97.56  
END CONSTRUCTION

Cut = 420 CY  
Fill+30% = 167 CY  
Waste = 253 CY  
420 CY



1' V Ditch U.A.C. U.A.C.

634.94	635.51	635.51	635.47	635.56	635.20	634.89	633.41	633.23	630.63	630.58	624.67	627.21	622.62	623.81	619.96	620.43	617.15	617.51	615.31
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------

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6/13/2012 F.1

# SURVEY INFORMATION

Van Buren County  
 Sap 0676  
 BRF-098-1(7)--38-89  
 Ia 98 - Bridge over the Des Moines River 1.5 Miles South of IA 16  
 PIN 09-89-098-010

**General Information**

This survey is in English Units.

Control Information – Opus & RTN observations were utilized as a basis for project control.  
 25 Control Points were held fixed in the RTK calibration.

- 11 held fixed Vertically; 10,16,53,55,56,501,502,503,504,507,995
- 6 held fixed Horizontally; 11,12,128,129,131,998,
- 8 held fixed Vertically and Horizontally; 13,14,15,50,51,994,996,999,

**Vertical Datum**

This survey is relative to NAVD 88 vertical datum.

Elevations on this project were acquired from IaRTN observations. Davis & Van Buren County monuments and 3rd order benchmarks were observed with both IaRTN and Opus as a redundancy check. At the project location, CP15 was observed with both a IaRTN observation and in a four-hour static GPS observation. The vertical difference between the two observations was 0.02 feet. The IaRTN elevation value of 605.615 was held fixed in a bench level loop. CP14 was observed with both a IaRTN observation and in a four-hour static GPS observation. The vertical difference between the two observations was also 0.02 feet. The IaRTN elevation value of 612.980 was held fixed in a bench level loop.

A bench level loop originated and terminated on BM500, elevation 618.291 on BM500 was computed by backing elevations south from CP14.

The adjusted elevations of all CP and BM points along the route were held fixed in the RTK vertical calibration. The total length of the loop was 2.5 mile with a missed closure of 0.016 feet.

The difference between NAVD88 to NGVD29 is difficult to determine at this project because;  
 NGS datasheets show a vertical difference of 0.06' on C124, 14 miles NW of this project (29 lower than 88) between NAVD88 to NGVD29.  
 NGS datasheets show a vertical difference of 0.11' on H124, 12 miles N of this project (29 higher than 88) between NAVD88 to NGVD29.  
 NGS datasheets show a vertical difference of 0.01' on J121, 13 miles S of this project (29 lower than 88) between NAVD88 to NGVD29.  
 NGS datasheets show a vertical difference of 0.06' on D121, 14 miles SW of this project (29 lower than 88) between NAVD88 to NGVD29.

An estimated vertical difference at the project site is 0.05' were (29 higher is than 88) between NAVD88 to NGVD29, (determined using H124 & J121).

**Equations:**

BM#502 this survey Elev. =619.113  
 BM 5 Elev. =620.35 1963 Grading Plan #737  
 BM#502 Elev. =619.16 (Computed NGVD 29)

BM#503 this survey Elev. =619.006  
 BM 5 Elev. =616.27 1955 AB Plans FN#737  
 BM#502 Elev. =619.06 (Computed NGVD 29)

CL Bridge @ Pier 3 & CL Bridge Elev. = 618.81 This Survey  
 = CL Bridge @ Pier 3 & CL Bridge Elev. = 619.81 1951 Design Plan FN 737  
 (Note Existing Bridge Floor was replaced and repaired in 1983 FN-98-1(3)—21-89 Plan)

**Horizontal Datum**

**Project Coordinate Transformation**

Iowa State Plane South Zone coordinates in US feet were transformed to project ground coordinates using a 1/combined scale factor broadcast about a held point. The held State Plane coordinate and project coordinate at CP13 are N= 307397.635 E=2030701.430

1 / GRID = 1.000055503

VERTICAL DATUM = NAVD 88 <-> HORIZONTAL DATUM = NAD 83 (IARTN)

**Local Project Plane Coordinate Conversion Equation:**

- a. Local Project Coord y = [(State Plane y - hold point y) 1/grid factor] + hold point y
- b. Local Project Coord x = [(State Plane x - hold point x) 1/grid factor] + hold point x

**ALL COORDINATES CONVERTED TO ENGLISH UNITS**

POINT	STATE PLANE COORD(Y)	STATE PLANE COORD(X)	POINT SCALE FACTOR	LOCAL PROJECT COORD(Y)	LOCAL PROJECT COORD(X)	ESTIMATED GPS DERIVED ORTHOMETRIC HEIGHT	Levelled
10	304698.544	2025518.130	0.99996944	304698.394	2025517.842	733.526	
11	304706.886	2032495.254	0.99996947	304706.737	2032495.354	635.029	
12	309128.849	2027699.463	0.99996810	309128.945	2027699.296	594.078	
14	308156.623	2031069.506	0.99996841	308156.665	2031069.526	612.931	612.980
13	307397.635	2030701.430	0.99996864	307397.635	2030701.430	613.059	613.067
15	307913.630	2033507.479	0.99996849	307913.659	2033507.635	605.615	605.621
16	315277.148	2034229.374	0.99996643	315277.585	2034229.570	762.224	
100	313483.823	2032400.138	0.99996684	313484.161	2032400.232	709.450	
128	299295.860	2007230.220	0.99997905	299295.410	2007228.917	805.585	
129	313820.380	2005683.460	0.99996662	313820.736	2005682.071	751.670	
131	330861.440	2022902.230	0.99996210	330862.742	2022901.797	773.300	
135	299536.850	2037848.720	0.99997113	299536.414	2037849.117	626.240	
136	330935.060	2035946.900	0.99996214	330936.366	2035947.191	752.990	
500	306790.417	2031166.513	0.99996882	306790.383	2031166.539	618.221	618.291
994	315276.192	2025615.999	0.99996629	315276.629	2025615.717	638.866	
996	309166.764	2053739.068	0.99996822	309166.862	2053740.347	745.264	
997	313077.465	2021060.100	0.99996690	313077.780	2021059.565	599.067	
998	315153.327	2016339.542	0.99996628	315153.757	2016338.745	606.118	
999	327279.310	2023499.032	0.99996302	327280.413	2023498.632	774.687	

**Alignment**

The mainline alignment is a retrace of the existing alignment found on the 1963 Erosion Plan #737. Two station equations found on the AB plans were not duplicated for this survey. Stationing was backed up & carried forward from PI Station 110+15.68 ahead to the EOP without equation.

**Alignment Notes/Equations**

PI Sta 110+15.68 This Survey (Computed point)  
 = PI Sta 110+15.681963 Erosion Plan #737

Note (The AB Plan overlap equation found on the 1963 Erosion Plan #737 near Sta 110+41.38 was not used on this survey).

POT Sta 112+58.35 This Survey (Found "X")  
 = POT Sta 112+25.8 1963 Erosion Plan #737

PI Sta STA 122+81.285 This Survey (Found "X")  
 = PI Sta 122+50.2 1963 Erosion Plan #737

PI Sta STA 125+23.712 This Survey (Found "X")  
 = PI Sta 124+93.0 1963 Erosion Plan #737

Computed Position not reset or used this survey alignment  
 POT Sta 127+27.59 Computed Sta This Survey Alignment  
 = Sta 126+96.9 1963 Erosion Plan #737  
 = Sta 6+30.1 Ahead 1963 Erosion Plan #737

**BENCHMARKS**

NO.	STATION	DESCRIPTION	ELEVATION
No. 500 Sta.	103+58.388	22.78 Lt. Y: 306790.383 X:2031166.539	CUT"X" on West side Umbrella Intake----- 618.291
No. 501 Sta.	109+31.189	204.828 Lt. Y: 306878.478 X:2030549.433	CUT"X" on Conc Base at Flag Pole----- 635.879
No. 502 Sta.	113+16.514	16.674 Rt. Y: 307389.124 X:2030744.037	Fd "X" SE Hndrl of Brg =AB BM#5 EI 620.35 1963 Grading Plan #737----- 619.113
No. 503 Sta.	121+13.370	16.74 Rt. Y: 308108.351 X:2031087.100	Fd "X" NE Hndrl of Brg =AB BM#6 EI 620.27 1963 Grading Plan #737----- 619.006
No. 504 Sta.	124+04.430	144.831 Lt. Y: 308447.870 X:2031084.993	Fd IHC BM on Inlet Hdwl Twin 10 x 8 x 35.7 RCB----- 596.947
No. 505 Sta.	125+36.176	29.725 Rt. Y: 308473.480 X:2031299.974	FD "X" ON NW COR Umbrella Intake =AB BM#7 EI 599.17 1963 Grading Plan #737----- 597.919
No. 506 Sta.	130+64.472	39.175 Rt. Y: 308954.814 X:2031522.257	Fd "X" ON Foundation =AB BM#8 EI 603.83 1963 Grading Plan #737----- 602.566
No. 507 Sta.	135+52.800	17.204 Lt. Y: 309425.181 X:2031665.080	Fd IHC BM on Inlet Hdwl Twin 3x2 RCB =AB BM#9 EI 610.08 1963 Grading Plan #737----- 608.805
No. 508 Sta.	131+66.635	1159.986 Rt. Y: 308602.022 X:2032590.991	Set RR Spk N Side PP----- 602.467
No. 995 Sta.	126+01.677	21750.099 Rt. Y: 299585.760 X:2051120.517	Fd RR Spk E Side PP =NAVD29 3rd order BM"UE4C" EI=637.43 Eldon Quad Line 5----- 637.264
No. 996 Sta.	110+19.241	23216.352 Rt. Y: 309166.862 X:2053740.347	Fd Standard Tablet Stamped "4 FDR 1964 745" =NAVD29 3rd order BM "4 FDR" EI=745.499 Eldon Quad Line 5----- 745.245
No. 997 Sta.	121+96.930	11173.732 Lt. Y: 313077.780 X:2021059.565	Fd Chisled square on 3 x 3 RCB =NAVD29 3rd order BM"UE21A" EI=599.18 Eldon Quad Line 8 ----- 599.057
No. 998 Sta.	121+24.303	16328.033 Lt. Y: 315153.757 X:2016338.745	Fd Standard Tablet Stamped "21 FDR 1964 606" =NAVD29 3rd order BM"21 FDR" EI=606.269 Eldon Quad Line 8 ----- 606.136
No. 994 Sta.	*****	Y: 315276.629 X:2025615.717	Fd Chisled square on 24" RCP =NAVD29 3rd order BM"UE21C" EI=638.98 Eldon Quad Line 8 ----- 638.855
No. 999 Sta.	*****	Y: 327280.413 X:2023498.632	Fd Standard Tablet Stamped "12 FDR 1964 755" =NAVD29 3rd order BM"12 FDR" EI=774.580 Eldon Quad Line 6 ----- 774.710

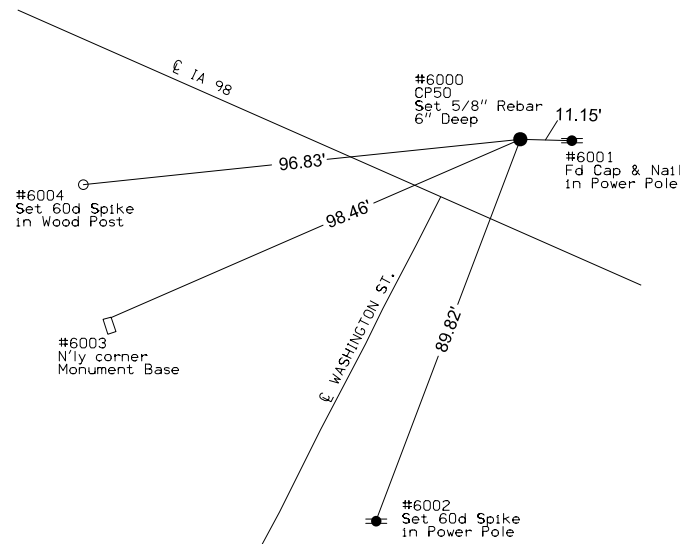
**MISCELLANEOUS LOCATIONS**

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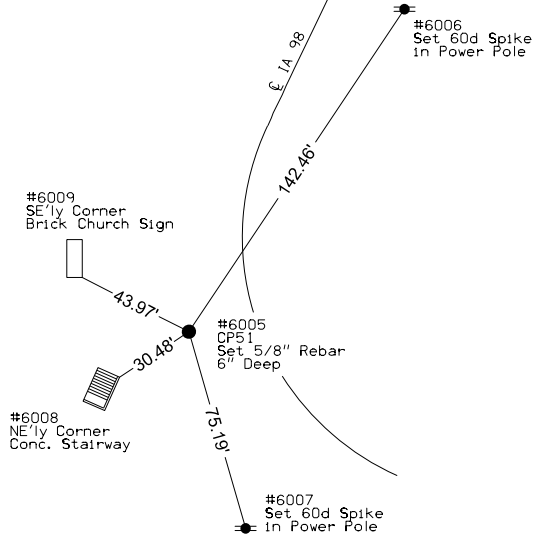
6-1

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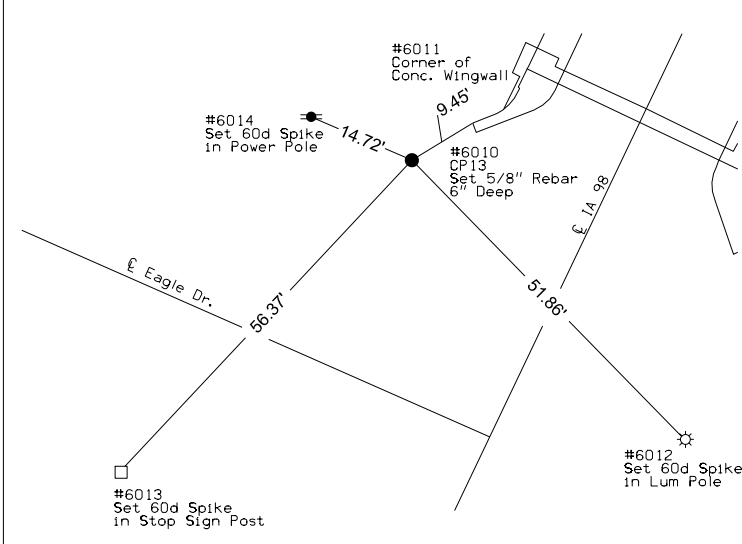
C.P. STA. 106+58.35 RIGHT 18.68  
 CP50, Set Rebar 6" Deep  
 XC=2030915.039 YC=306957.914



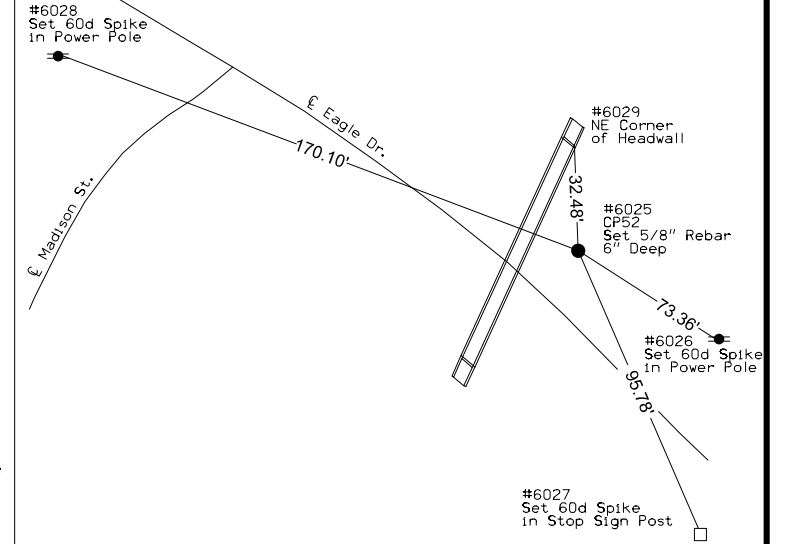
C.P. STA. 109+99.81 LEFT 24.70  
 CP51, Set Rebar 6" Deep  
 XC=2030594.009 YC=307098.272



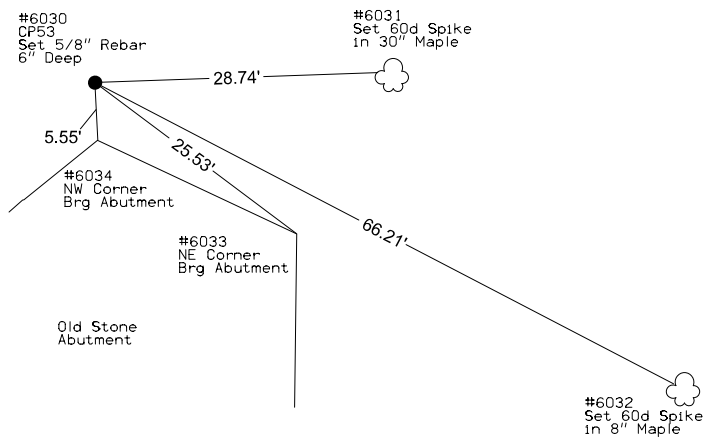
C.P. STA. 113+05.86 LEFT 25.45  
 CP13, Set Rebar 6" Deep  
 XC=2030701.430 YC=307397.635



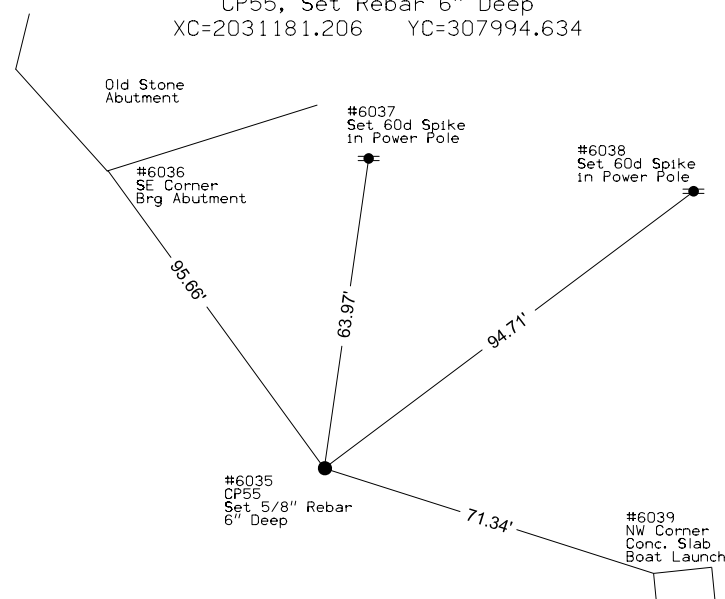
C.P. STA. 113+15.18 LEFT 114.80  
 CP52, Set Rebar 6" Deep  
 XC=2030624.790 YC=307444.511



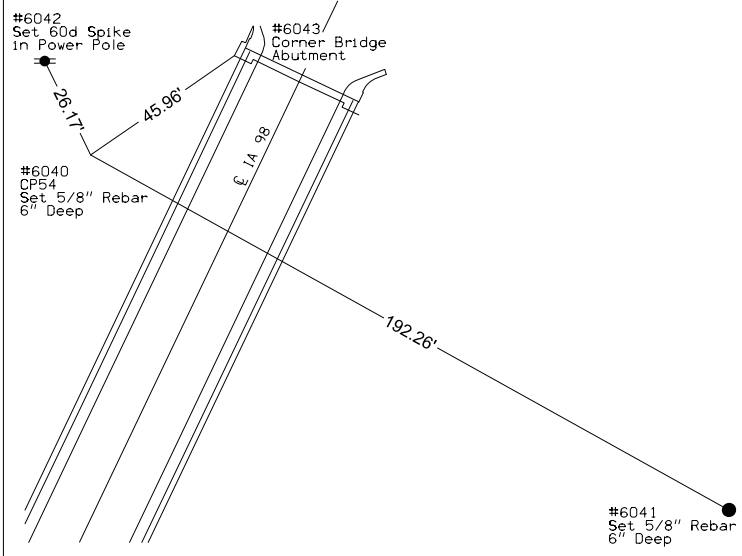
C.P. STA. 113+73.79 RIGHT 40.75  
 CP53, Set Rebar 6" Deep  
 XC=2030790.424 YC=307430.457



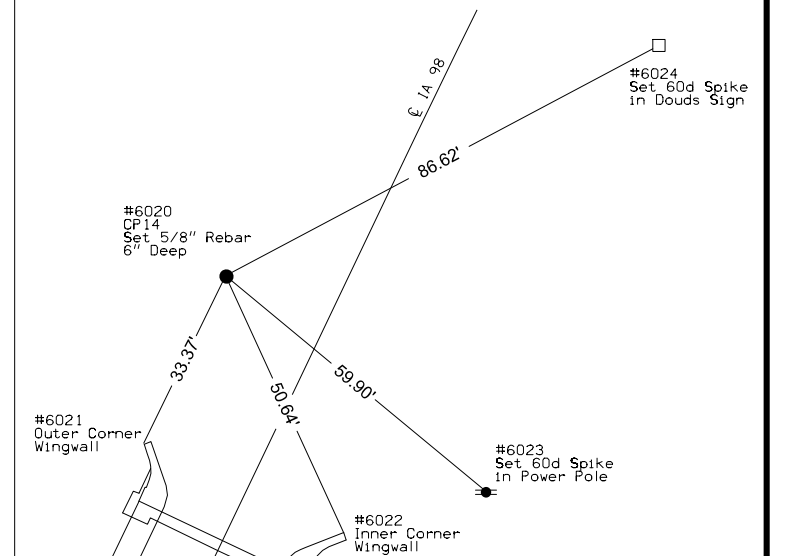
C.P. STA. 120+51.24 RIGHT 150.63  
 CP55, Set Rebar 6" Deep  
 XC=2031181.206 YC=307994.634



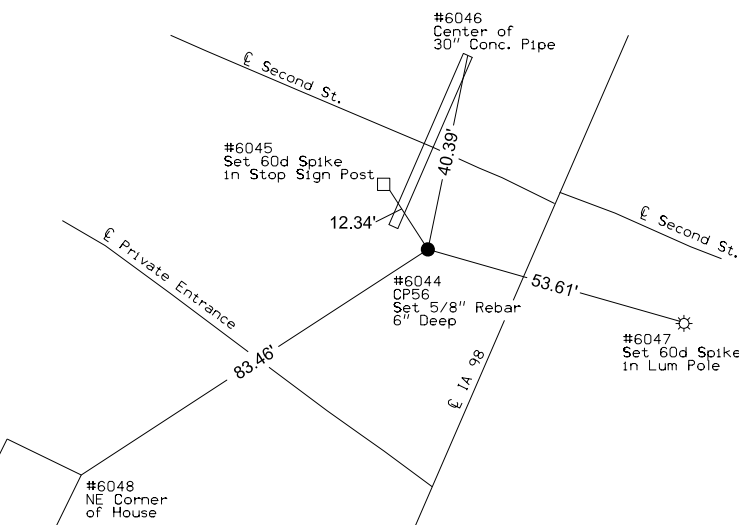
C.P. STA. 120+63.35 LEFT 41.24  
 CP54, Set Rebar 6" Deep  
 XC=2031013.231 YC=308088.161



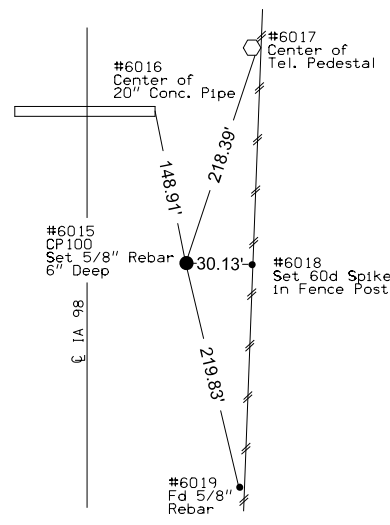
C.P. STA. 121+49.42 LEFT 19.92  
 CP14, Set Rebar 6" Deep  
 XC=2031069.526 YC=308156.665



C.P. STA. 128+02.78 LEFT 20.13  
 CP56, Set Rebar 6" Deep  
 XC=2031363.613 YC=308738.413



CP100, Set Rebar 6" Deep  
 XC=2032400.232 YC=313484.161

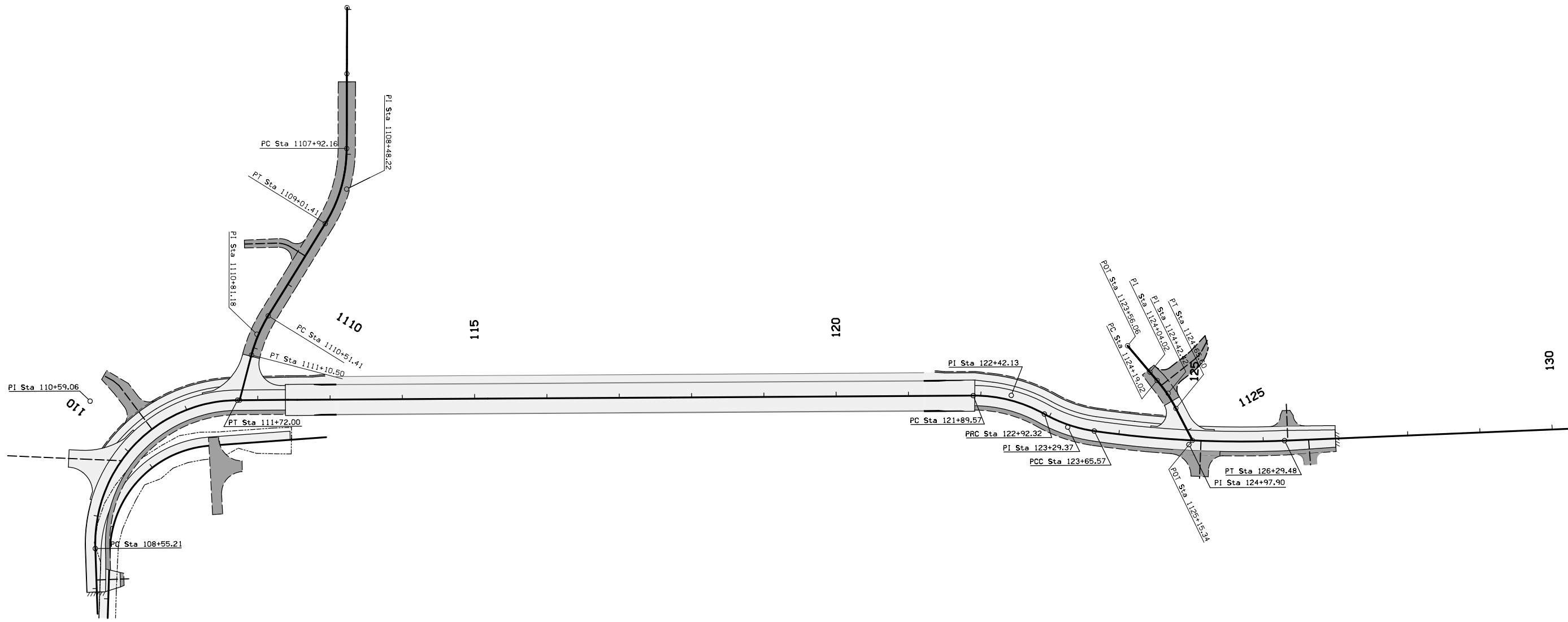


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G-2

6/13/2012

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**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)
21000	IOWA 98	106+01.02	306,917.664	2,030,959.934															
MLO98-1							108+55.21	307,020.354	2,030,727.410	110+59.06	307,102.708	2,030,540.933	111+72.00	307,286.708	2,030,628.682				
MLO98-2							121+89.57	308,205.185	2,031,066.705	122+42.13	308,252.625	2,031,089.329	122+92.32	308,119.954	2,031,132.504				
MLO98-3							122+92.32	308,282.600	2,031,132.504	123+29.37	308,303.729	2,031,162.938	123+65.57	308,334.434	2,031,183.674				
MLO98-4							123+65.57	308,334.434	2,031,183.674	124+97.90	308,444.096	2,031,257.730	126+29.48	308,565.468	2,031,310.445				
21001		136+19.47	309,473.509	2,031,704.827															
	EAGLE DRIVE																		
30034		1105+97.45	307,659.699	2,030,206.553															
30035		1106+88.79	307,619.582	2,030,288.609															
EAGLE_1-1							1107+92.16	307,574.293	2,030,381.535	1108+48.22	307,549.736	2,030,431.923	1109+01.41	307,502.410	2,030,461.961				
EAGLE_1-2							1110+51.41	307,375.766	2,030,542.343	1110+81.18	307,350.634	2,030,558.295	1111+10.50	307,331.303	2,030,580.932				
30036		1111+75.00	307,289.420	2,030,629.976															
30037		1112+39.49	307,247.538	2,030,679.020															
	HAWK DRIVE																		
30027		1123+56.06	308,427.366	2,031,097.838															
30028		1124+04.02	308,439.255	2,031,144.299															
HAWK_1-1							1124+19.02	308,443.113	2,031,158.794	1124+42.42	308,449.133	2,031,181.408	1124+65.60	308,449.715	2,031,204.801				
30029		1125+15.34	308,450.951	2,031,254.527															
	TEMP. IA 98																		
30040		0+00.00	306,959.743	2,030,886.384															
TEMP98-1							1+66.83	307,037.145	2,030,738.592	3+01.99	307,099.849	2,030,618.862	3+86.85	307,225.442	2,030,668.796				
30041		5+47.56	307,374.783	2,030,728.170															

**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
IA 98	ML098-1	198	2.0	34	34	PV-301	107+97.41 112+29.80	108+31.41 111+95.80	108+65.41 111+61.80	108+65.41 111+61.80				108+55.21 111+72.00						



R2360003 PARCEL CHECK LIST BY PROJECT NUMBER  
 COUNTY : VAN BUREN PROJECT NO. :STPN-098-1(8)--2J-89 PIN: 09-89-098010-00  
 CONSTRUCTION NO.:BRF-098-1(7)--38-89 ASSIGNED TO: NLC

DESCRIPTION : Over Des Moines River 1.5 Miles S. Of Ia. 16

PARCEL KEY OWNER TYPE R/W W.D OR EASE. BORROW W.D OR EASE. HOUSE OR OTHER COMMERCIAL OCC ENVIRONMENTAL CONCERNS

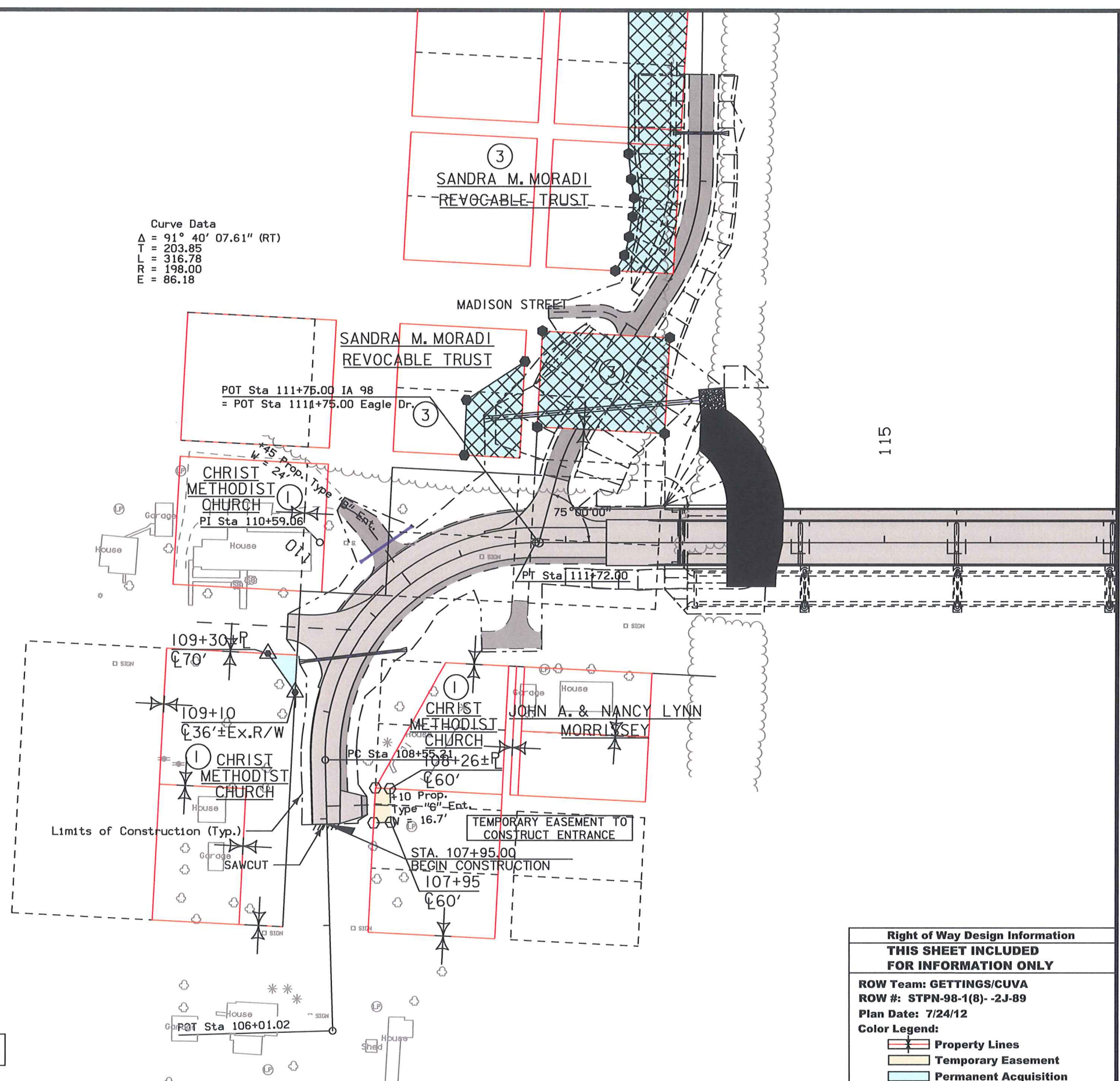
0001	26484	CHRIST UNITED METHODIST CHURCH	FEE STATE OF IOWA	476.00	EASE SQFT				
0003	26485	SANDRA M. MORADI REVOCABLE TRUST	FEE VAN BUREN COUNTY	27,156.00	EASE SQFT				
0004	26486	THERESA J. GUSTAFSON JOEL GUSTAFSON	FEE STATE OF IOWA FEE	454.00	EASE SQFT				
0005	26487	DOUDS COMMUNITY CLUB INC.	FEE STATE OF IOWA	720.00	EASE SQFT				
0006	26488	DOUGLAS J. DICK RACHEL A. DICK	FEE STATE OF IOWA FEE	1,070.00	EASE SQFT				
0007	26489	JOSHUA D. PILCHER	FEE STATE OF IOWA	688.00	EASE SQFT				

COUNTY of VAN BUREN  
27,156.00 EASEMENT SQFT

STATE OF IOWA  
3,408.00 EASEMENT SQFT

6 TOTAL PARCELS ON PROJECT

Curve Data  
 $\Delta = 91^\circ 40' 07.61''$  (RT)  
 $T = 203.85$   
 $L = 316.78$   
 $R = 198.00$   
 $E = 86.18$



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: GETTINGS/CUVA	
ROW #: STPN-98-1(8)-2J-89	
Plan Date: 7/24/12	
Color Legend:	
Property Lines	
Temporary Easement	
Permanent Acquisition	

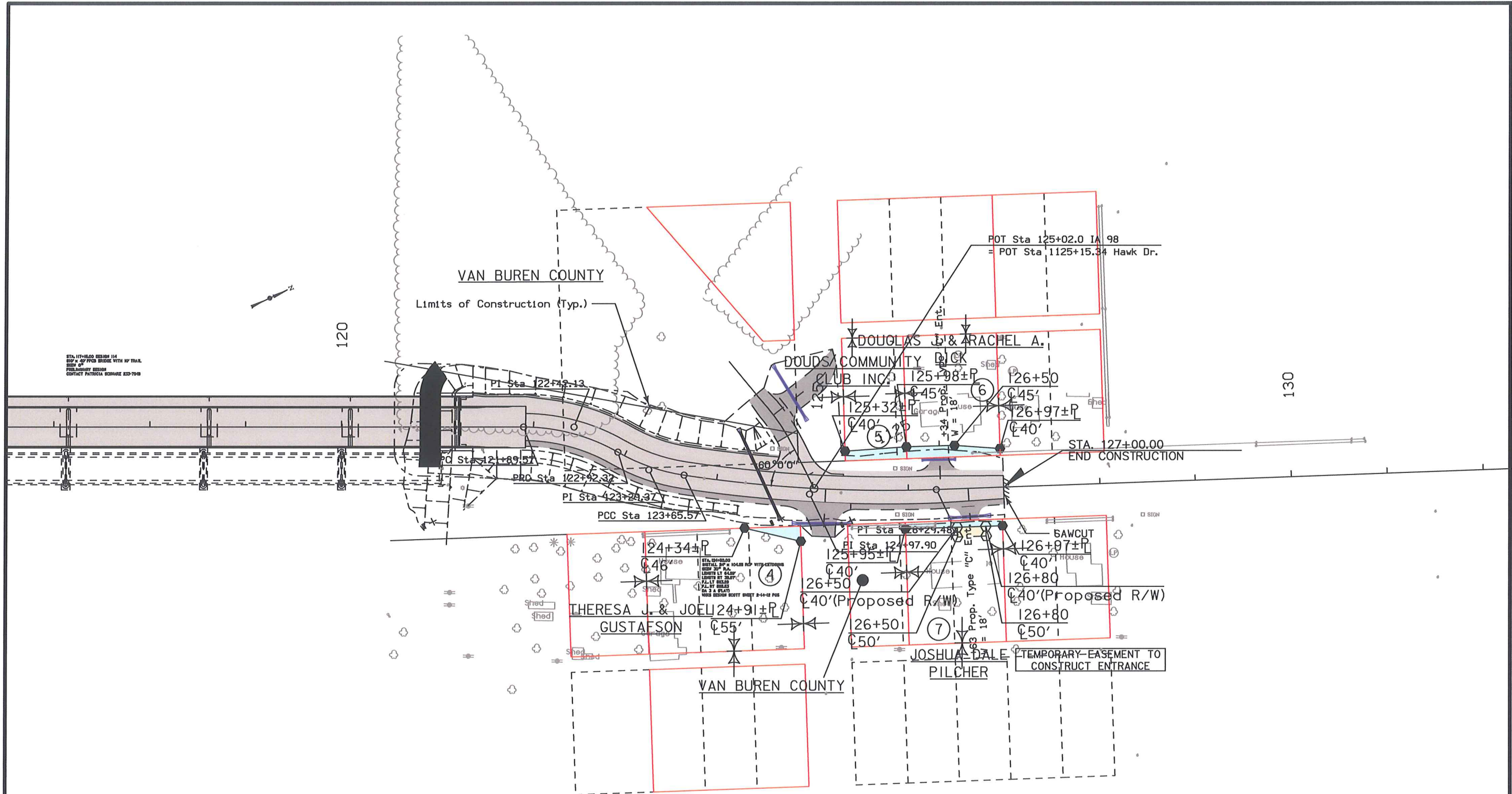
For Superelevation Information  
 Refer to Sheet No. G.4

For Side Road Details  
 Refer to Sheet No. E.1

For Curve Information  
 Refer to Sheet No. G.3

For Profile  
 Refer to Sheet No. D.3

\$PATH\$  
\$MODELNAME\$  
\$DATE\$



STA. 127+00.00 DESIGN 1:4  
 STEP # 02 FROM BRIDGE WITH BY FINAL  
 STEP # 01  
 PRELIMINARY DESIGN  
 CONTACT PATRICIA SCHMIDT 833-7900

Curve Data  
 $\Delta = 29^\circ 43' 57.85''$  (RT)  
 T = 52.56  
 L = 102.75  
 R = 198.00  
 E = 6.86

Curve Data  
 $\Delta = 21^\circ 11' 51.29''$  (LT)  
 T = 37.05  
 L = 73.25  
 R = 198.00  
 E = 3.44

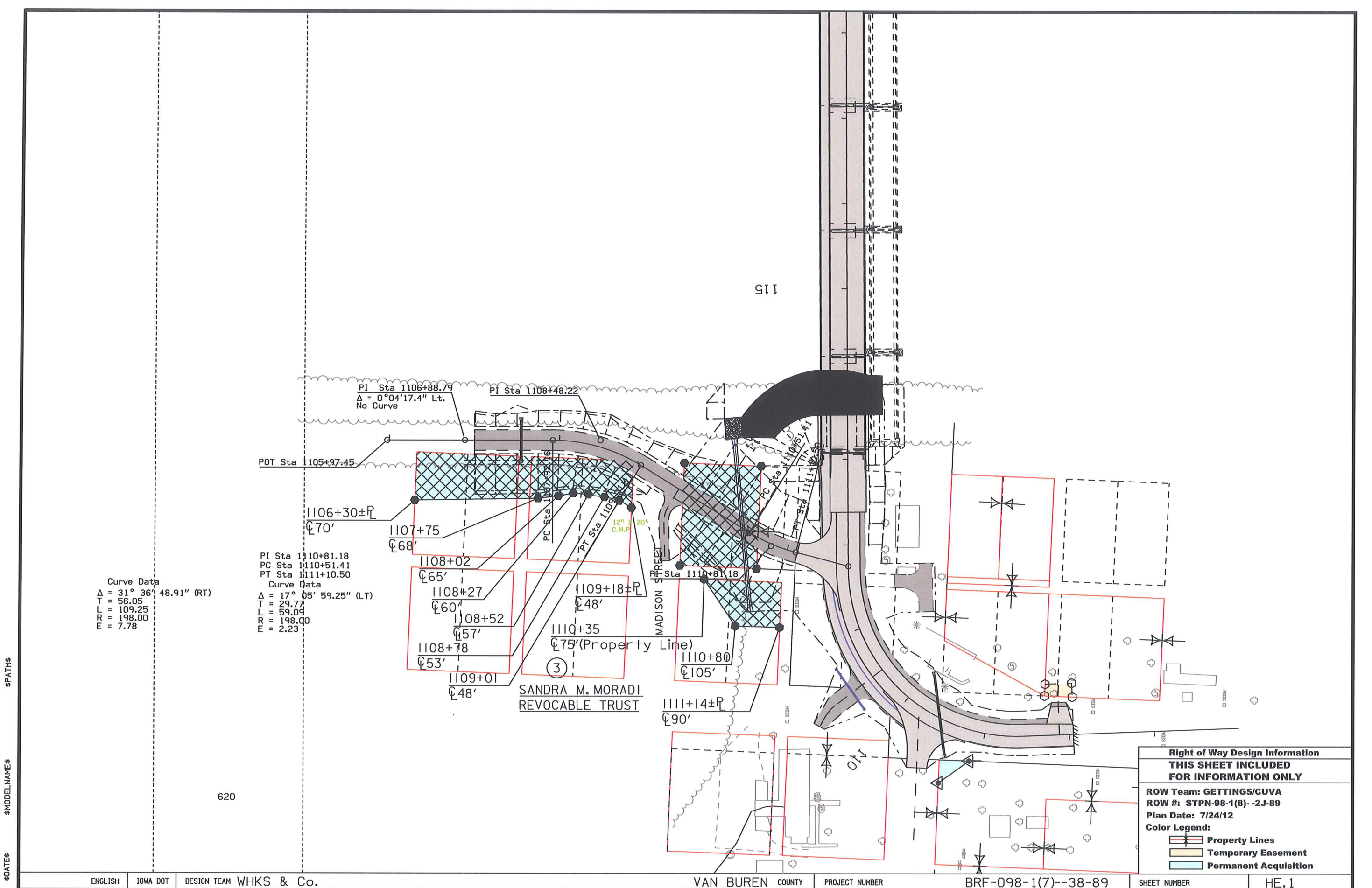
Curve Data  
 $\Delta = 10^\circ 33' 19.10''$  (LT)  
 T = 132.33  
 L = 263.90  
 R = 1,432.50  
 E = 6.10

For Side Road Details Refer to Sheet No. E.2  
 For Curve Information Refer to Sheet No. G.3  
 For Profile Refer to Sheet No. D.5

<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: GETTINGS/CUVA	
ROW #: STPN-98-1(8)-2J-89	
Plan Date: 7/24/12	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

\$PATHS  
\$MODELNAME\$  
\$DATE\$





Curve Data  
 $\Delta = 31^\circ 36' 48.91''$  (RT)  
 T = 56.05  
 L = 109.25  
 R = 198.00  
 E = 7.78

PI Sta 1110+81.18  
 PC Sta 1110+51.41  
 PT Sta 1111+10.50  
 Curve Data  
 $\Delta = 17^\circ 05' 59.25''$  (LT)  
 T = 29.77  
 L = 59.04  
 R = 198.00  
 E = 2.23

SANDRA M. MORADI  
 REVOCABLE TRUST

③

1110+35  
 $\varnothing 75'$  (Property Line)

1111+14±P  
 $\varnothing 90'$

\$PATH\$

\$MODELNAME\$

\$DATE\$

620

Right of Way Design Information THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: GETTINGS/CUVA	
ROW #: STPN-98-1(8)-2J-89	
Plan Date: 7/24/12	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

**STAGING NOTES**

1. Stage 1 - Construct temporary pavement from Sta 0+00 to Sta 4+97.56. Construct 4' shoulder strengthening from Sta 123+39 to Sta 127+27. Begin constructing Bridge.
  - Stage 2 - Construct Southbound lane of IA 98. Construct 6' paved shoulder and 10' bike path. Construct bridge approach pavements. Construct Bridge. Construct Eagle Drive and Hawk Drive. Construct temporary pavement from Sta 127+00 to Sta 127+60.
  - Stage 3 - Construct Northbound lane of IA 98. Construct 6' granular shoulder. Construct hammerhead turn around on Jefferson St. Remove existing bridge.
  - Stage 4 - Construct 2' curb and gutter section from Sta 107+95 to Sta 109+20.
2. Contractor shall stage construction to minimize inconvenience to traffic, maximize use and preservation of existing pavement, and improve coordination among projects within the corridor.
  3. Situations may arise which preclude adhering to the original construction sequence or which, in the opinion of the Contractor, would readily lend themselves to more efficient staging operations. Should the Contractor desire to deviate from the original plan, an alternate plan shall be submitted to the Engineer for review and approval.

**TRAFFIC CONTROL PLAN**

1. Contractor must maintain traffic on the route at all times.
2. Traffic control on this project shall be in accordance with Standard Road Plans TC-1, TC-202, TC-216, and TC-252. Devices and the current Standard Specifications. For additional complementary information, refer to Part 6 of the Manual on Uniform Traffic Control
3. The contractor shall coordinate traffic control with other projects in the area.








**TABULATION OF SPECIAL EVENTS**

Event	Location	Date

**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

**TRAFFIC CONTROL  
AND  
STAGING**

(COVERS SHEET SERIES J)

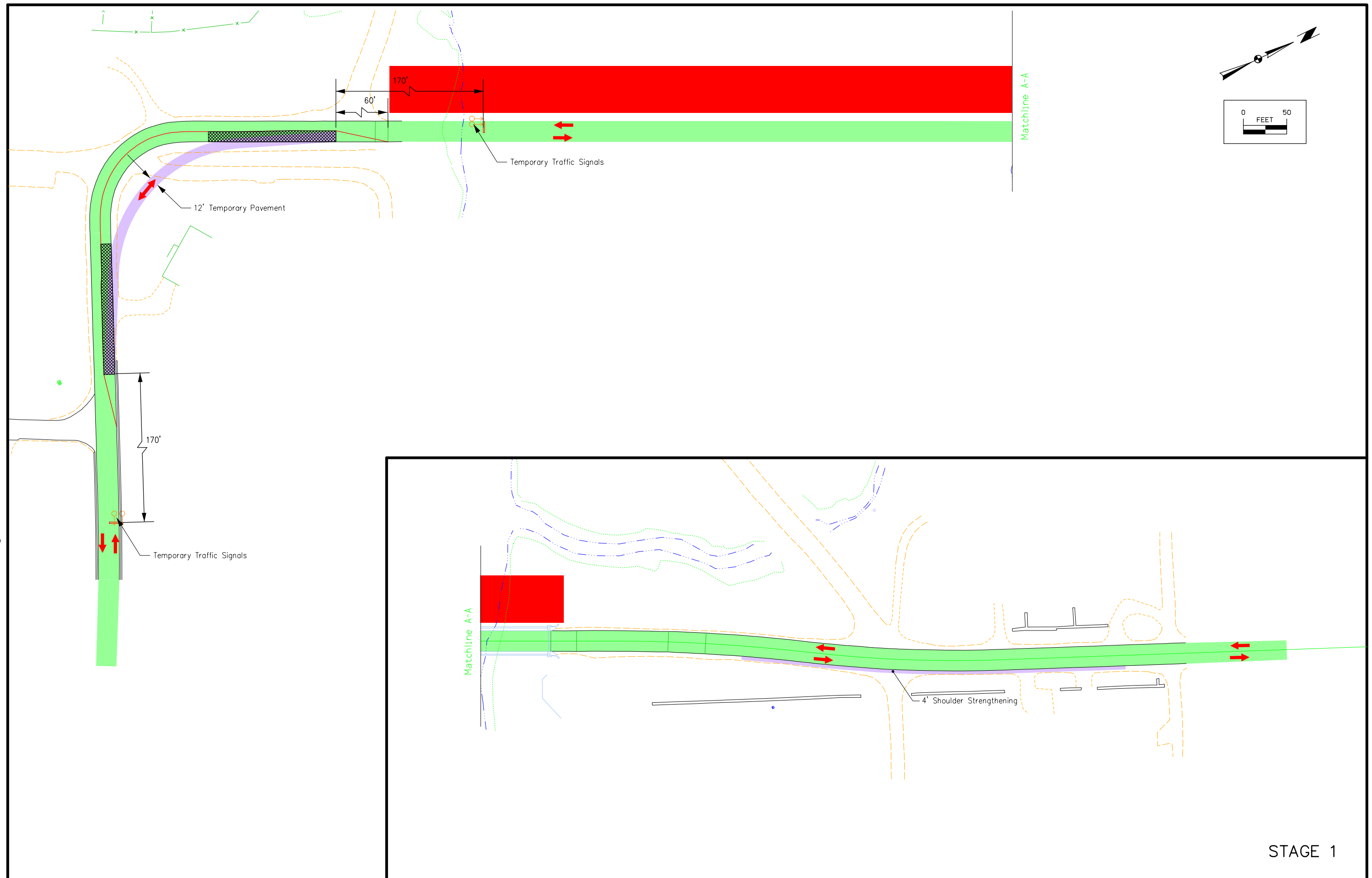
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J-2

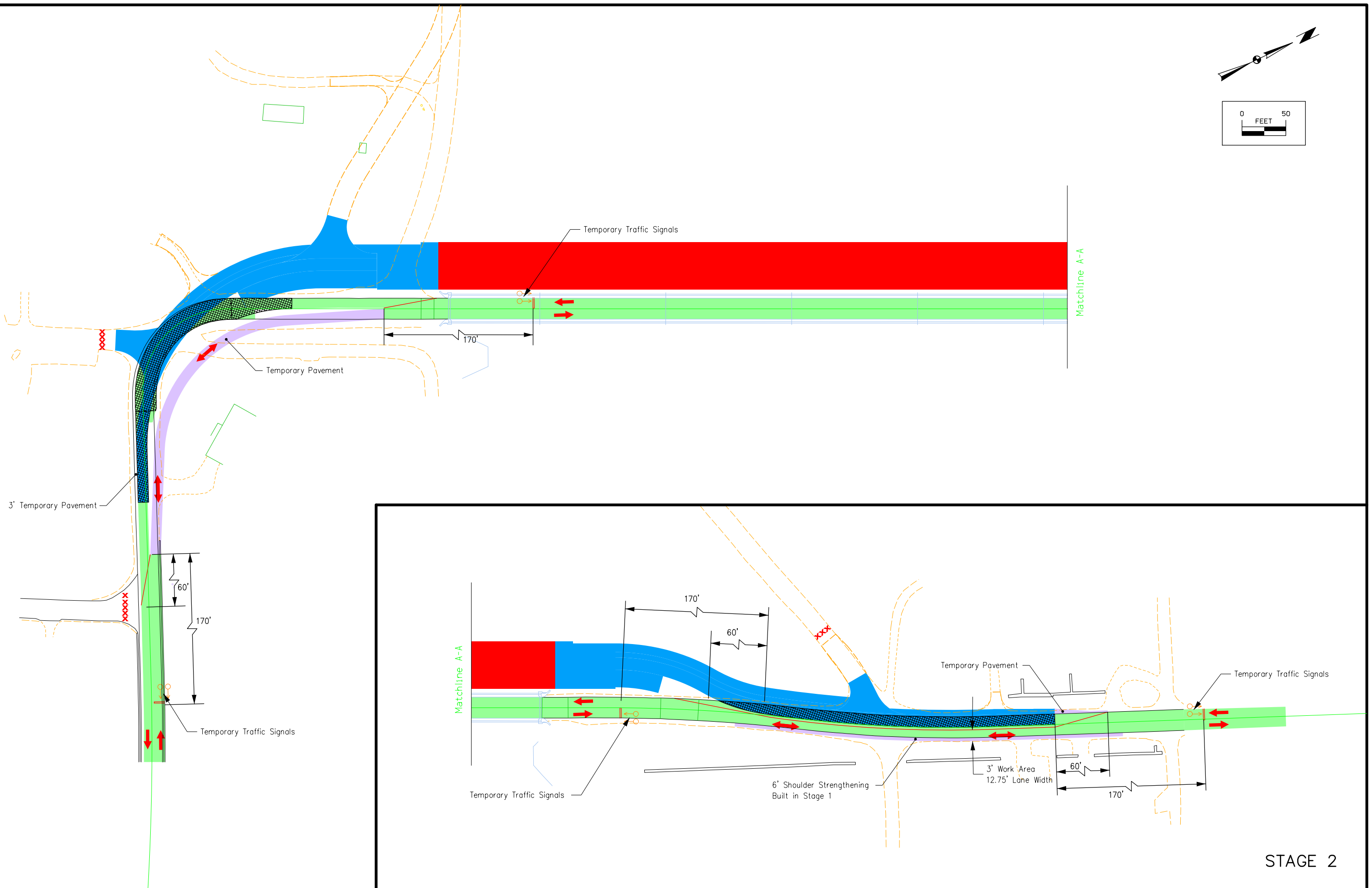
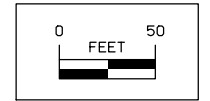
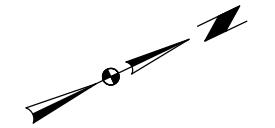
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6/13/2012 J.3



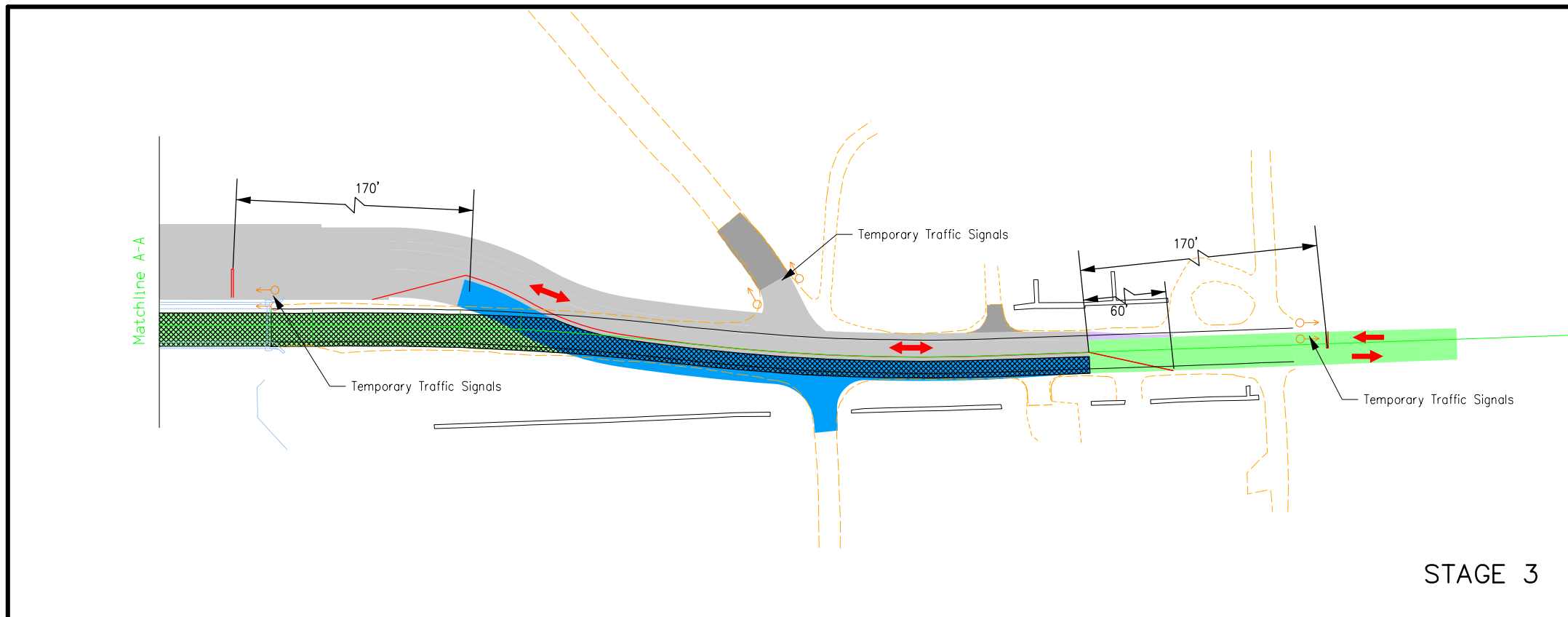
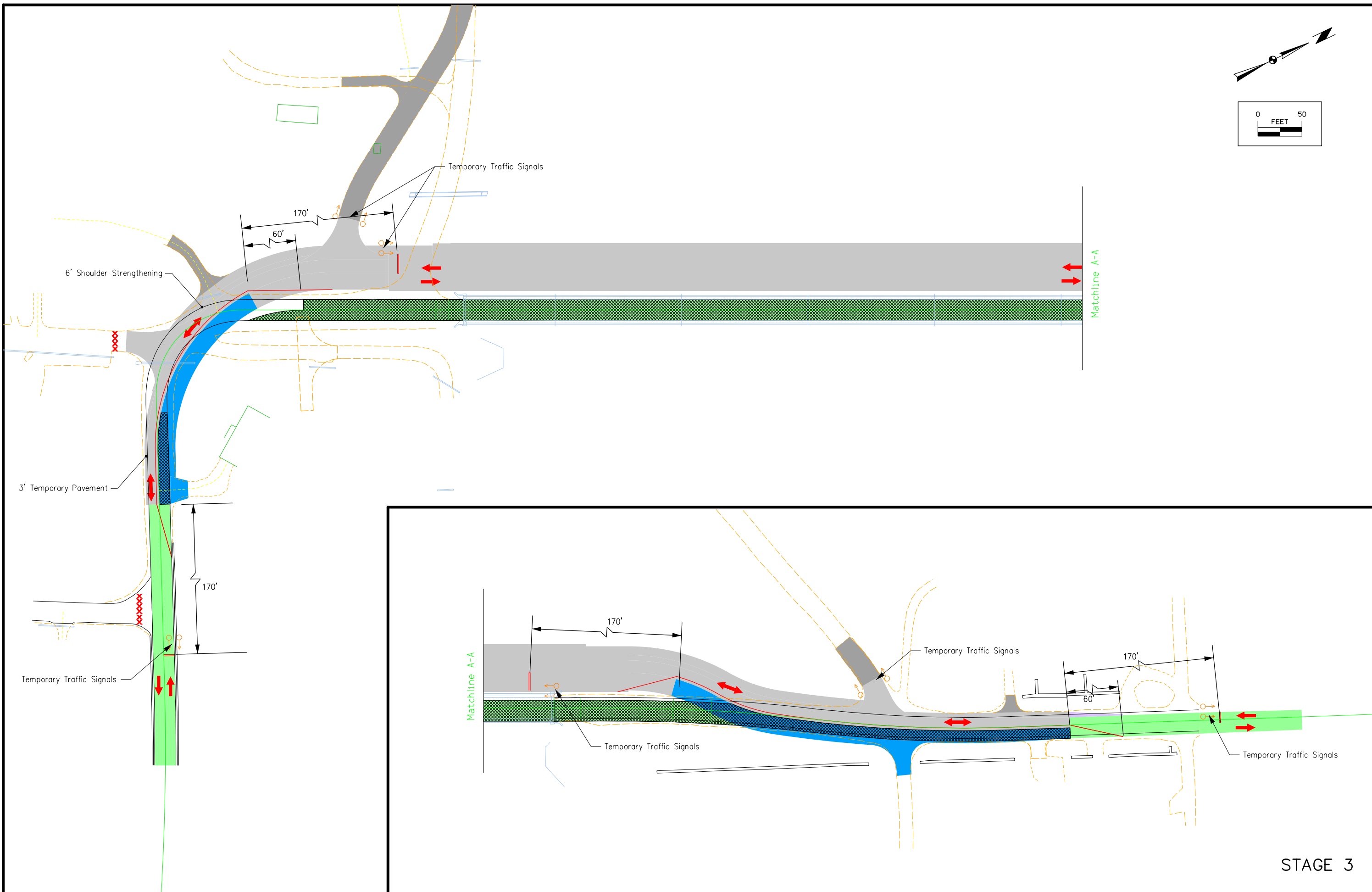
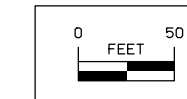
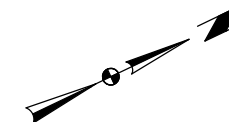
STAGE 1



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6/13/2012 J.4

STAGE 2

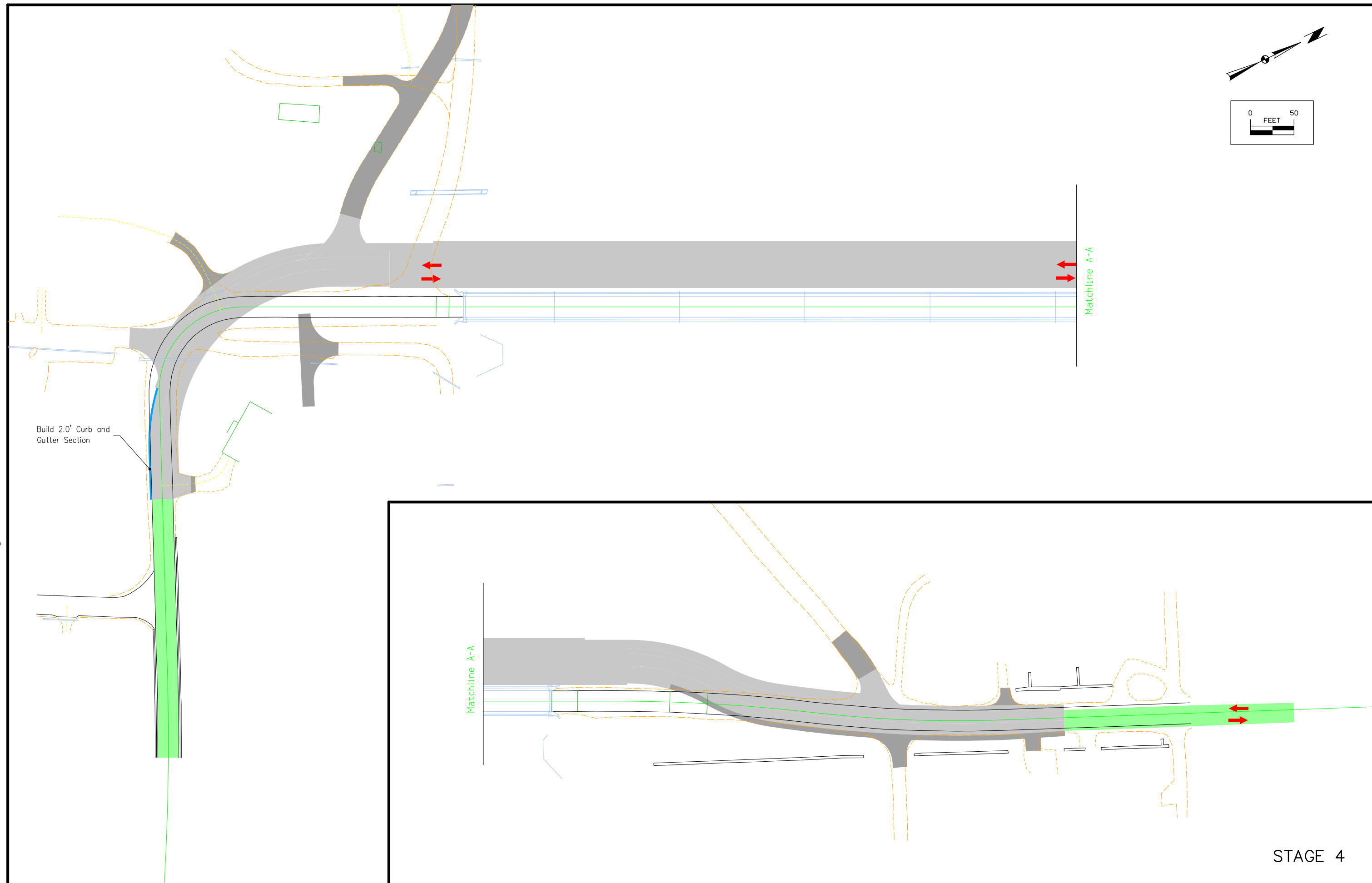
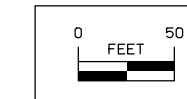
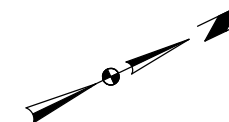


STAGE 3

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J.5

6/13/2012



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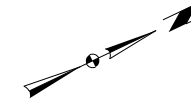
J.6

6/13/2012

STAGE 4

NOTE:  
 Refer to G sheets for horizontal alignment information.  
 Refer to appropriate Standard Road Plans for additional information.

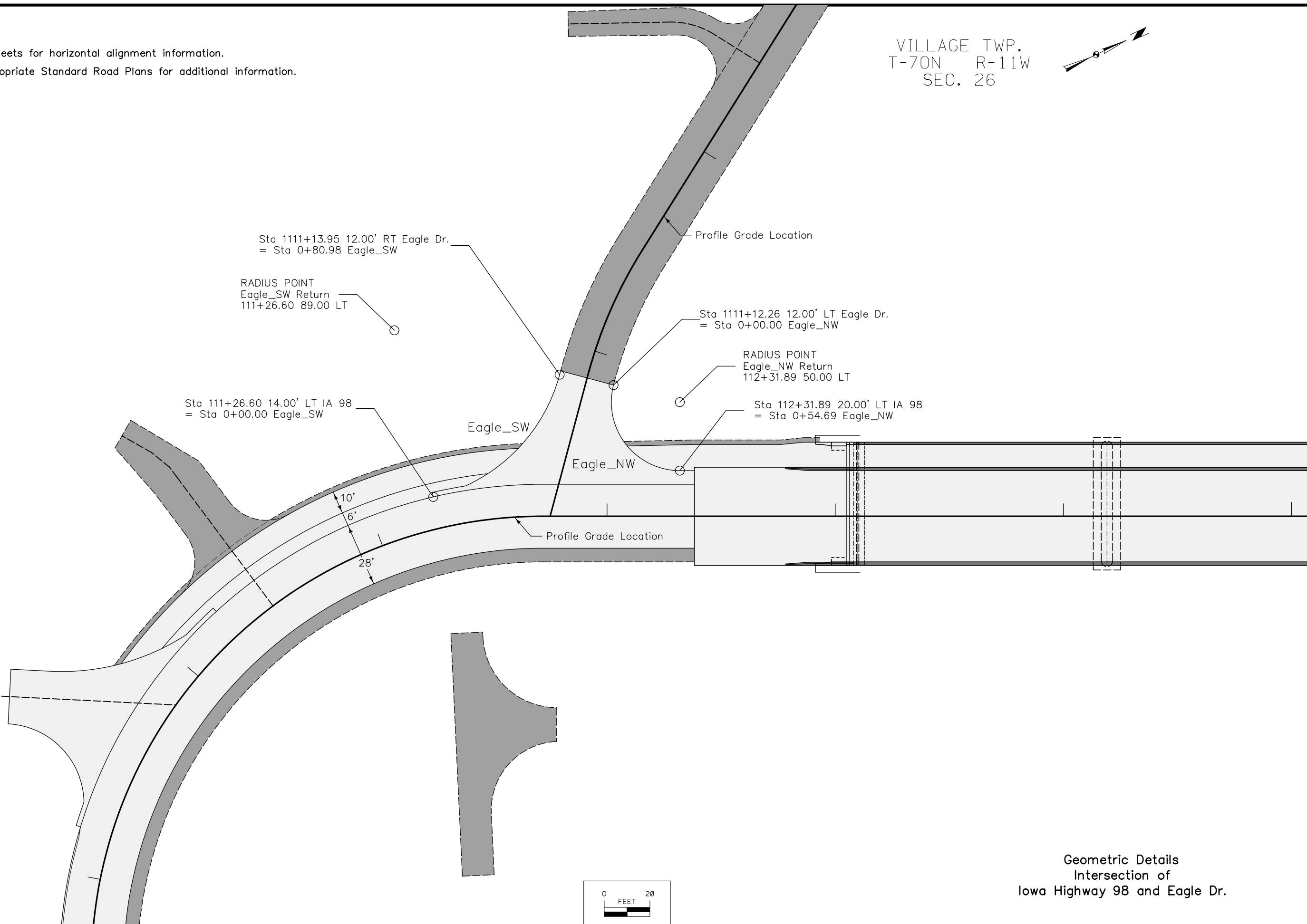
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 T-70N R-11W  
 SEC. 26



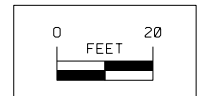
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L-1

6/13/2012



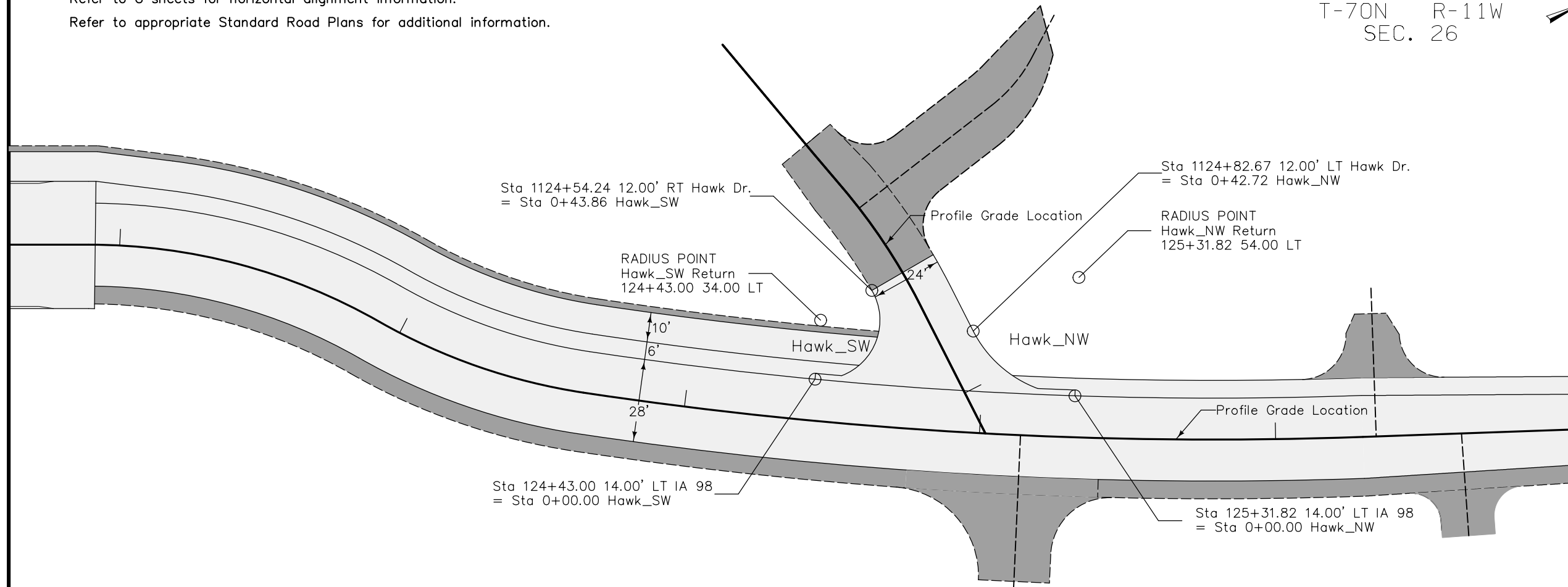
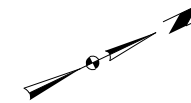
Geometric Details  
 Intersection of  
 Iowa Highway 98 and Eagle Dr.





NOTE:  
 Refer to G sheets for horizontal alignment information.  
 Refer to appropriate Standard Road Plans for additional information.

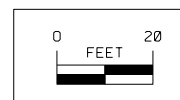
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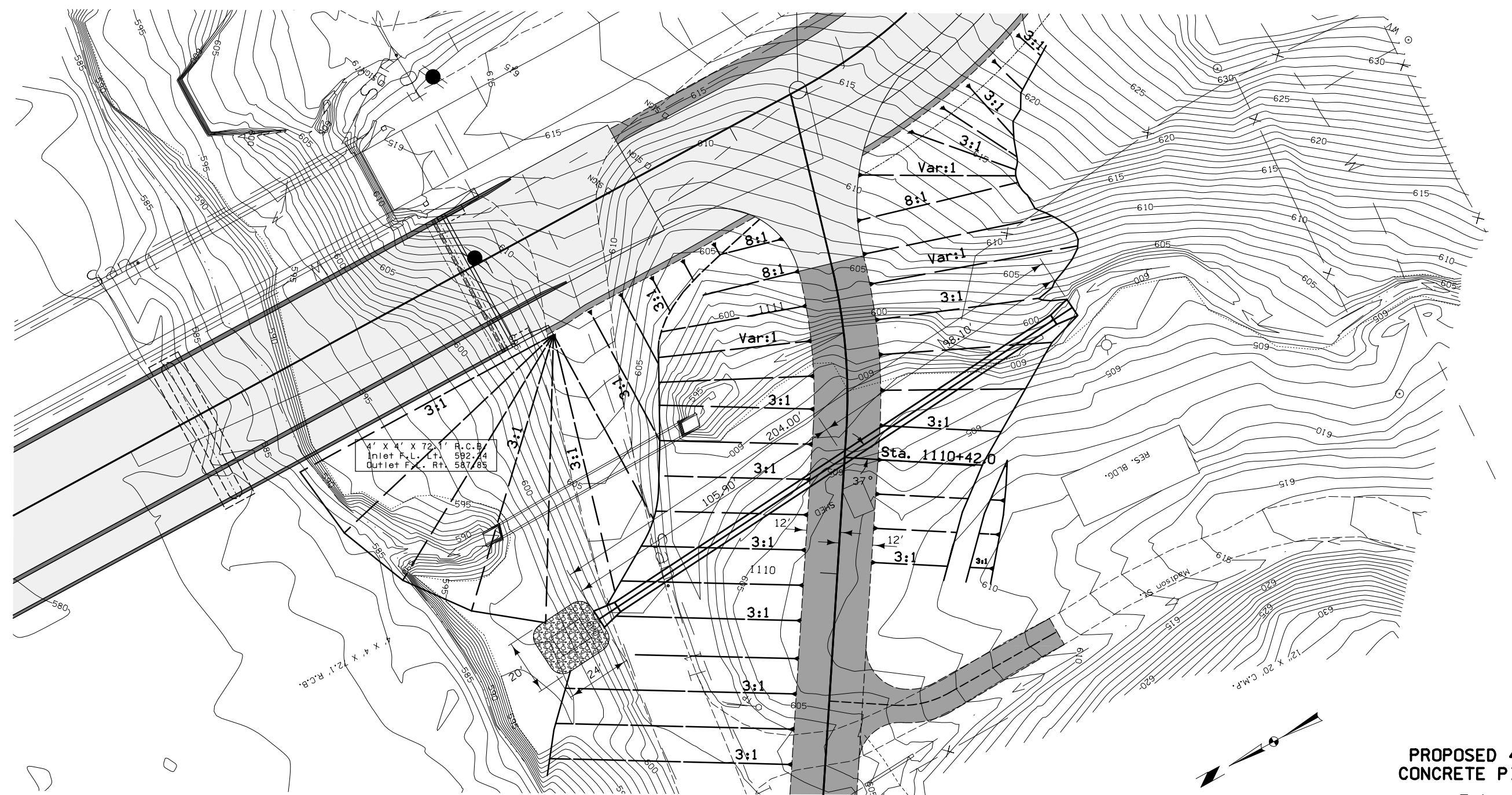
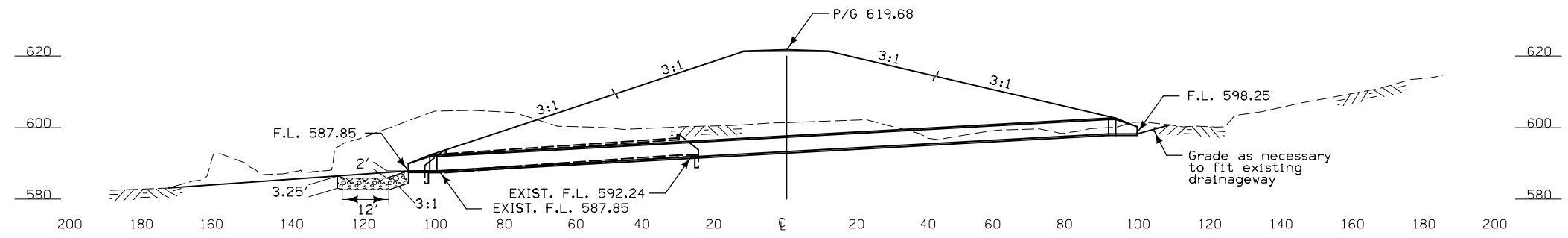


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6/13/2012 L.2

Geometric Details  
 Intersection of  
 Iowa Highway 98 and Hawk Dr.



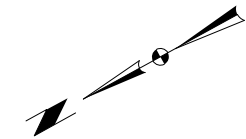
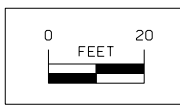


4' x 4' x 72' R.C.B.  
 Inlet F.L. Lt. 592.24  
 Outlet F.L. Rt. 587.85

Sta. 1110+42.0

**PROPOSED 48" REINFORCED  
 CONCRETE PIPE WITH APRONS**  
 F.L. Lt. 587.85  
 F.L. Rt. 598.25

**STA. 1110+42.0**  
**Skew 37° Rt.**



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V.1

6/13/2012

**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 L0----- 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**

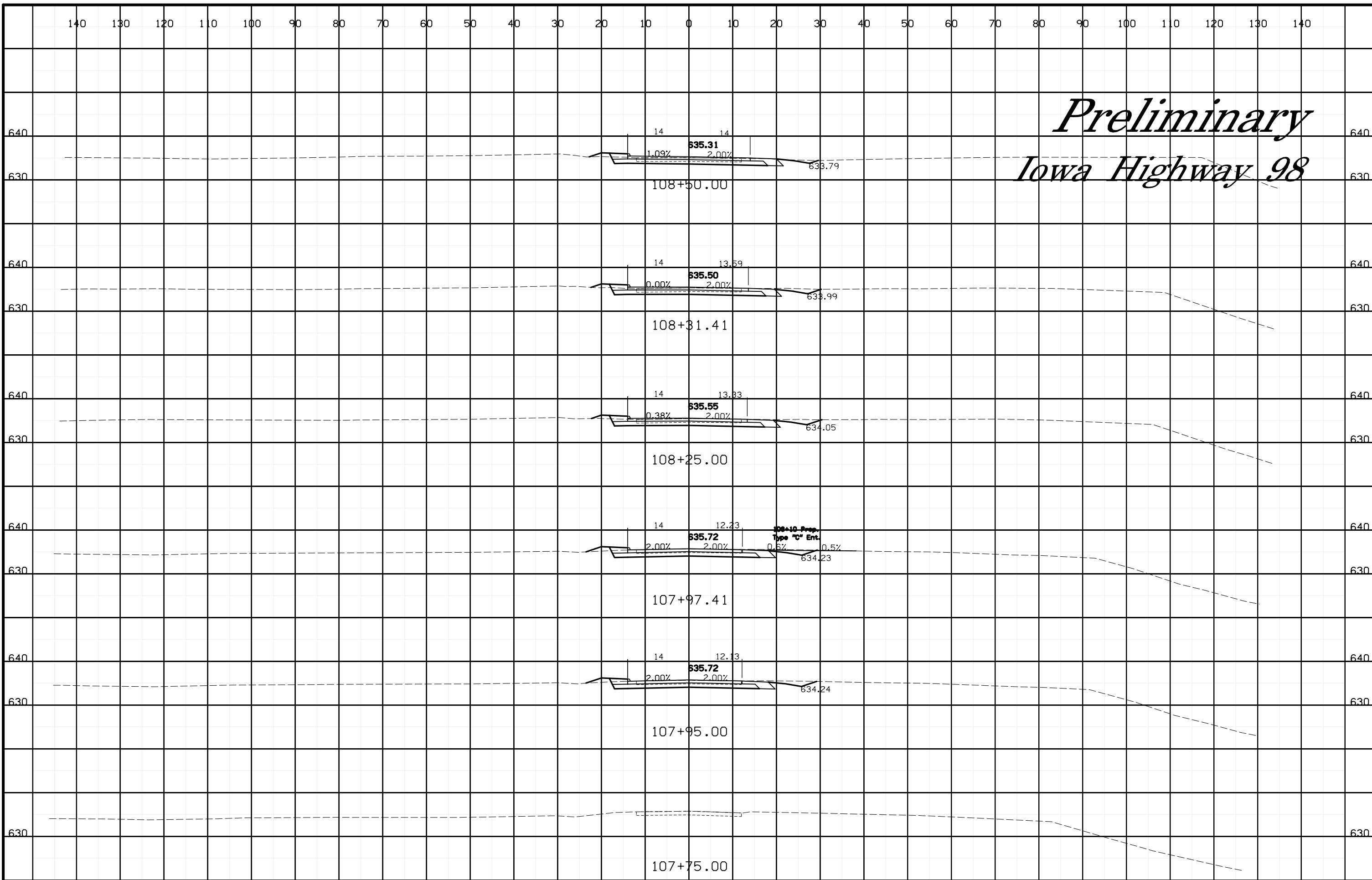
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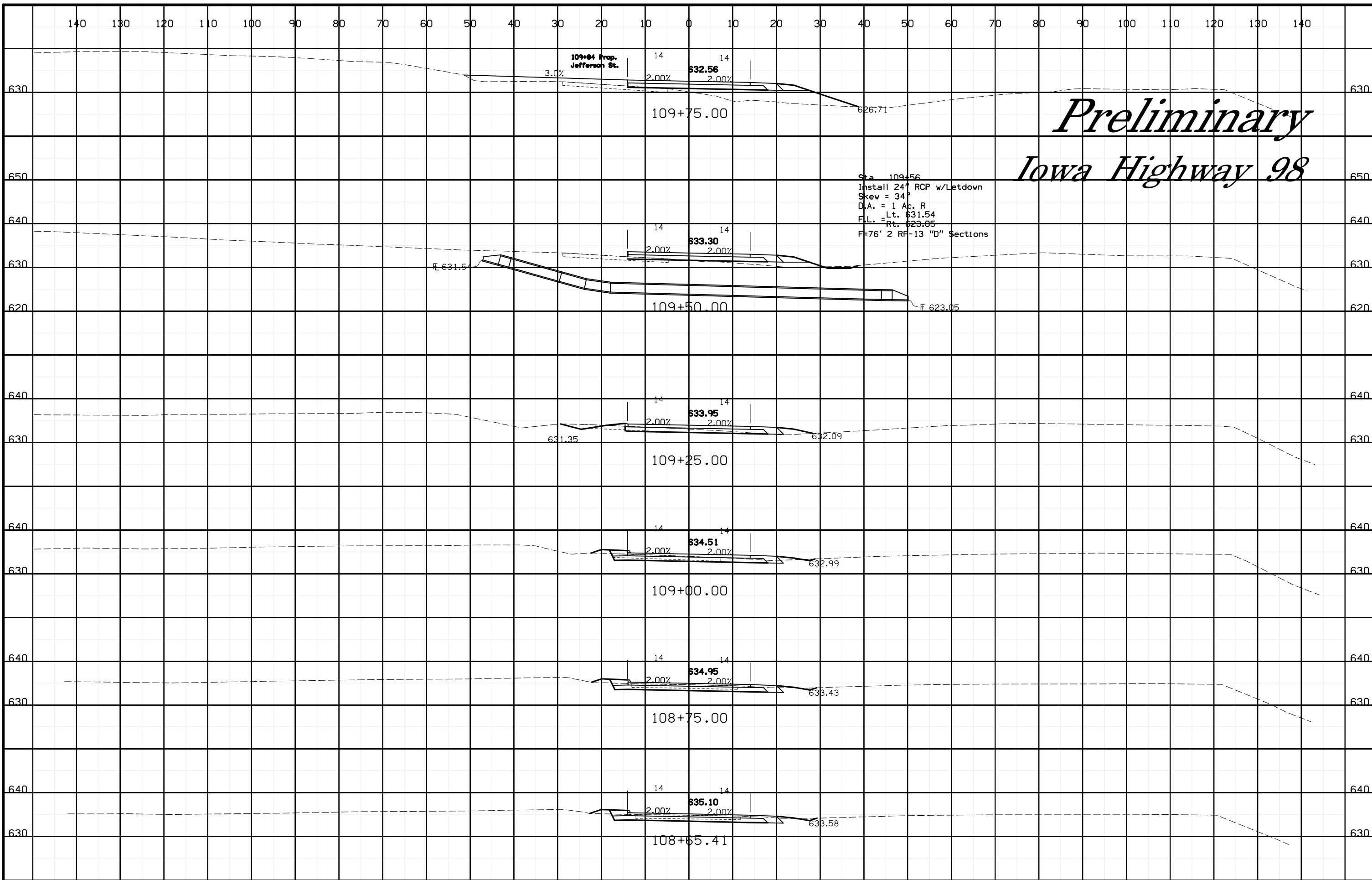
IA 98 X-Section Sheets

6/13/2012

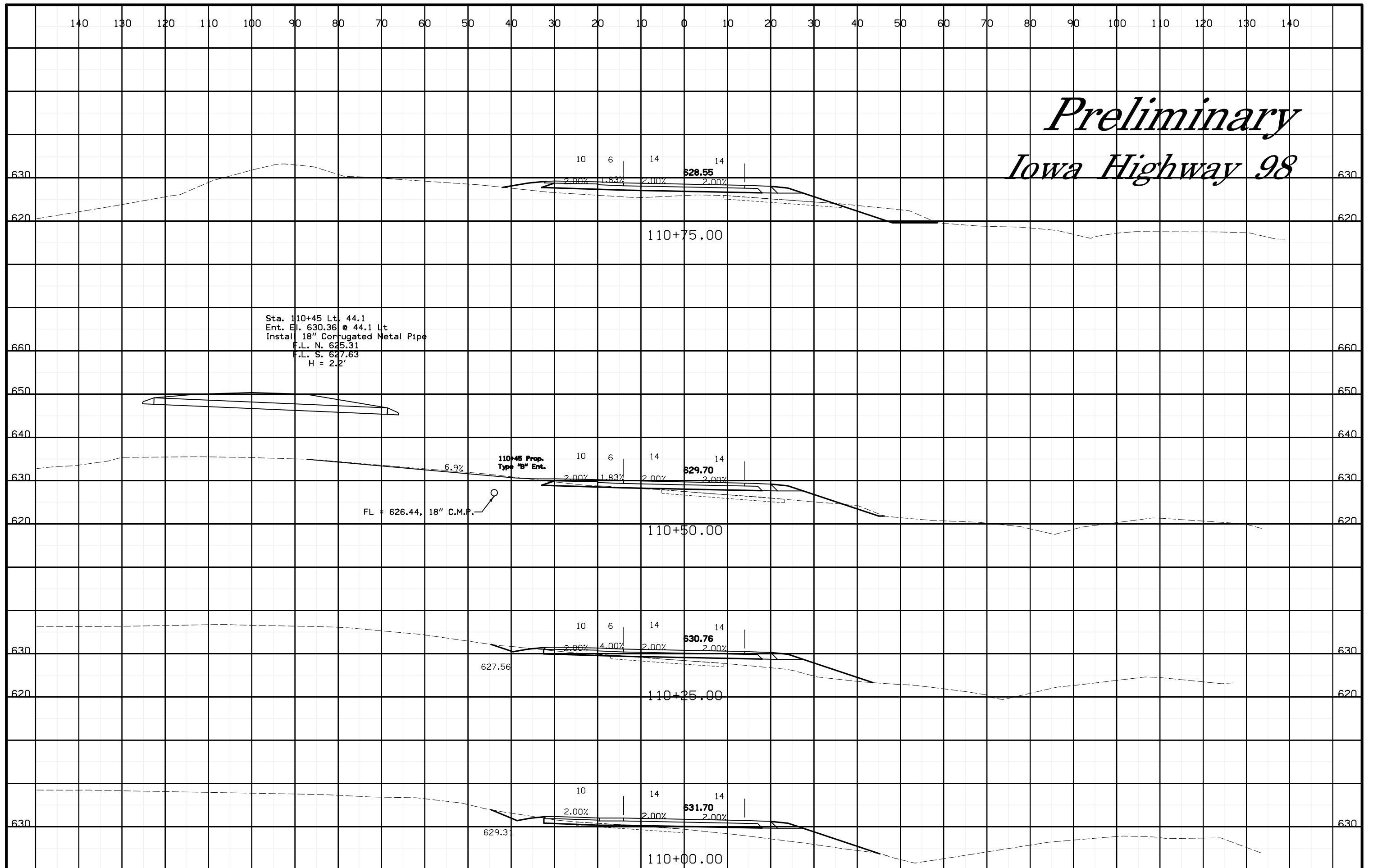
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IA 98 X-Section Sheets  
6/13/2012



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IA 98 X-Section Sheets  
6/13/2012



# Preliminary Iowa Highway 98

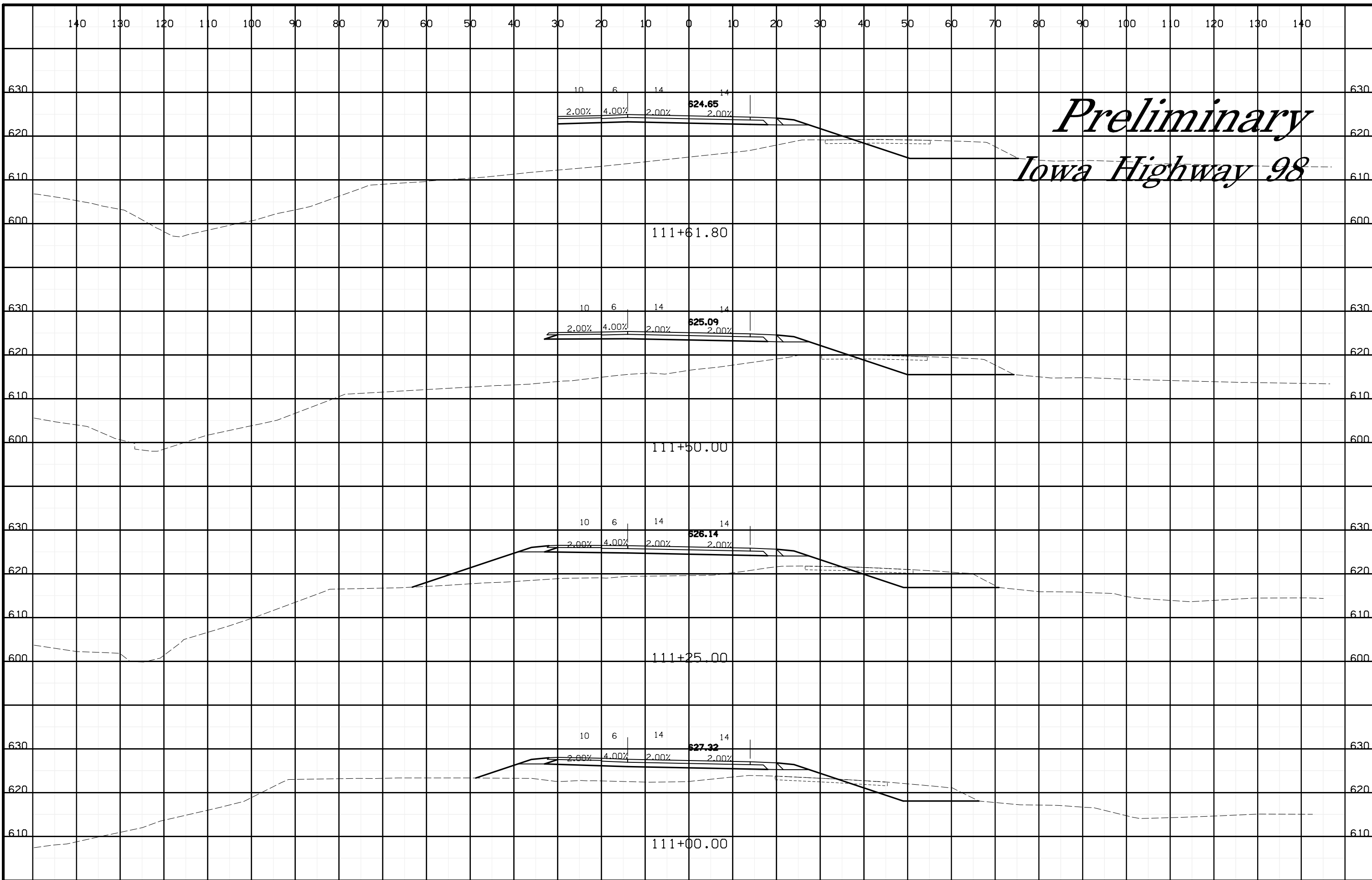


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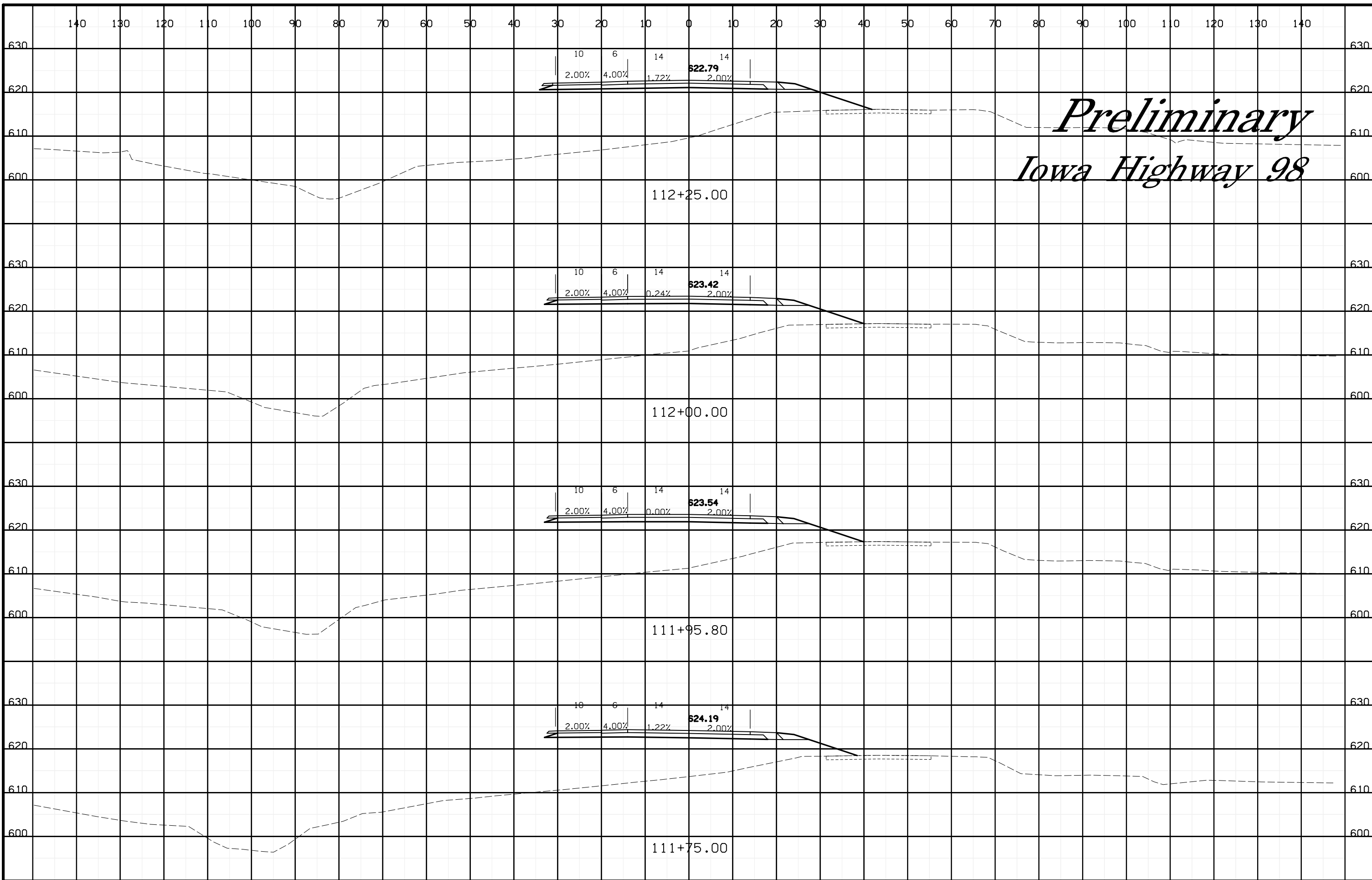
IA 98 X-Section Sheets

6/13/2012

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IA 98 X-Section Sheets  
6/13/2012

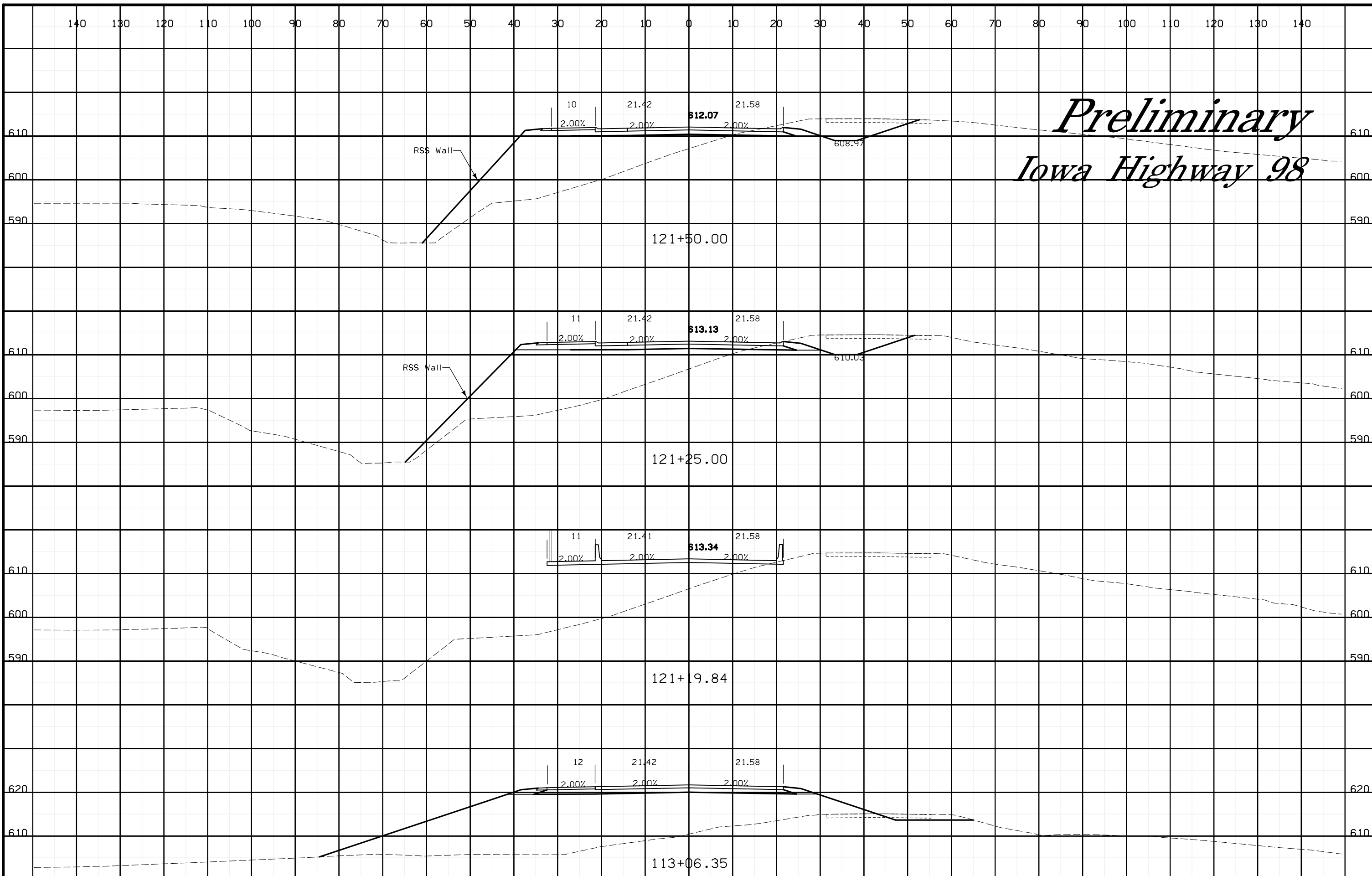


# Preliminary Iowa Highway 98



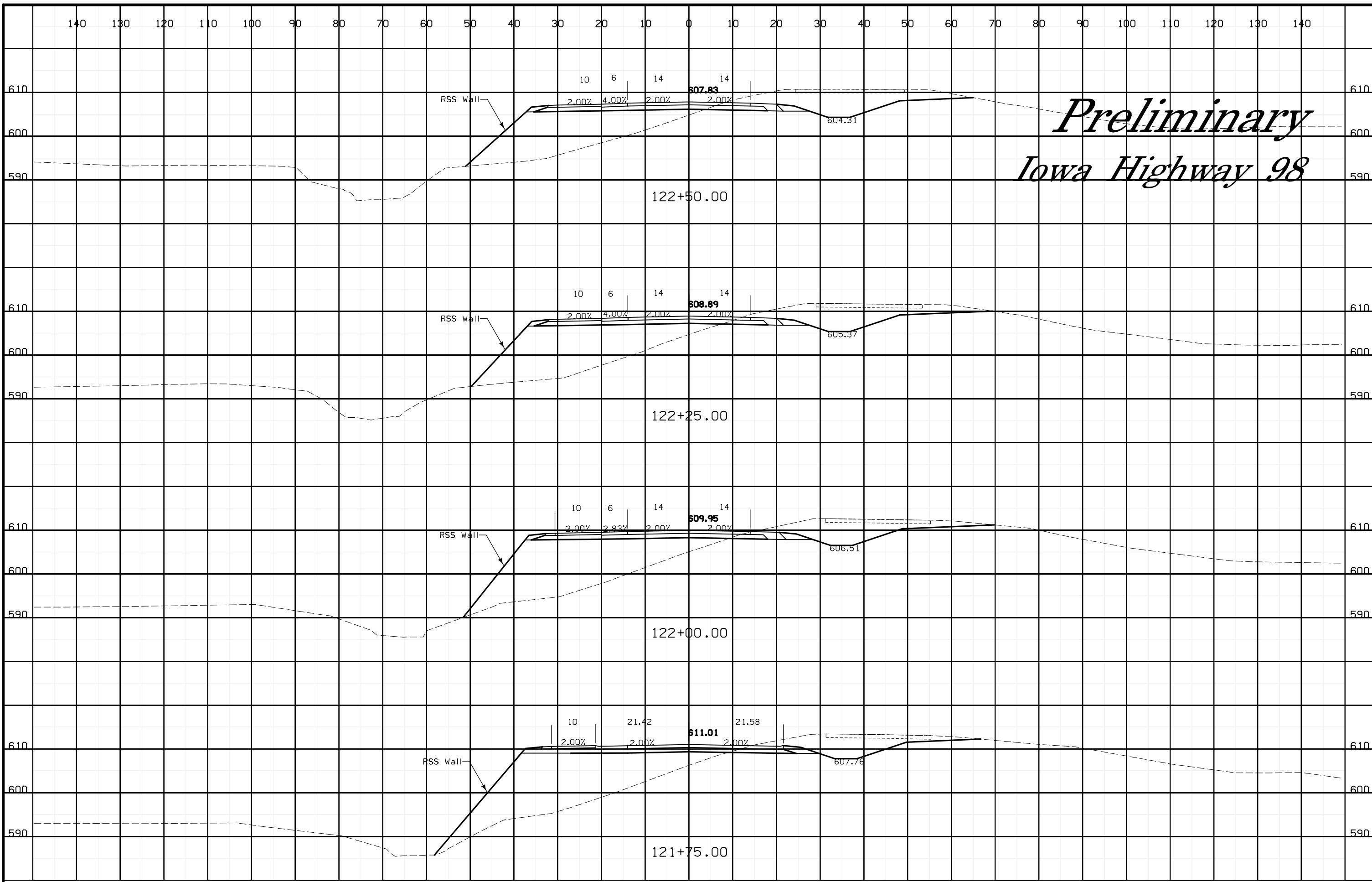


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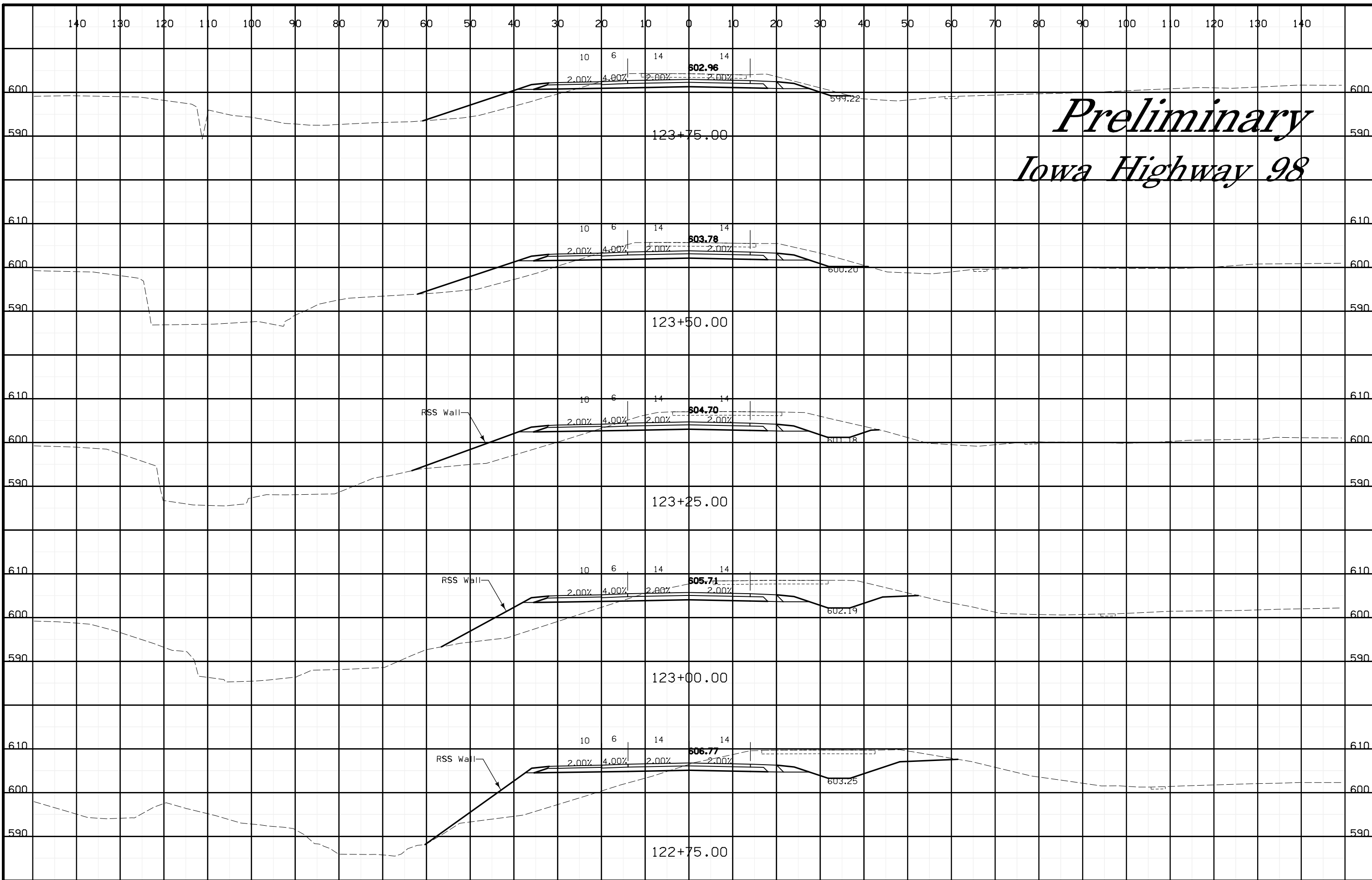


# Preliminary Iowa Highway 98

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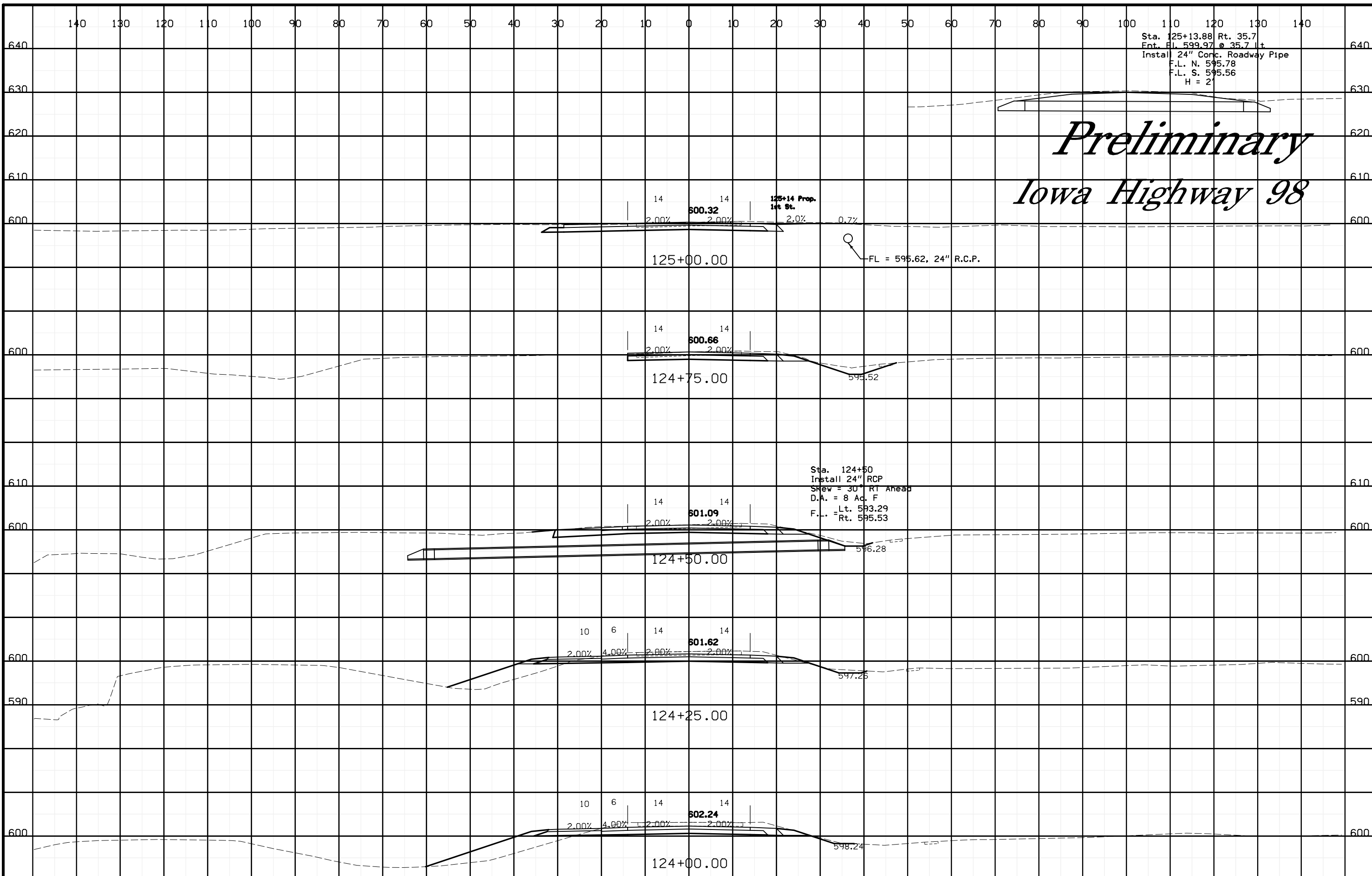


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IA 98 X-Section Sheets  
6/13/2012



# Preliminary Iowa Highway 98

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IA 98 X-Section Sheets  
6/13/2012



Sta. 125+13.88 Rt. 35.7  
Ent. Fl. 599.97 @ 35.7 Lt.  
Install 24" Conc. Roadway Pipe  
F.L. N. 595.78  
F.L. S. 595.56  
H = 2'

# Preliminary Iowa Highway 98

14 14  
2.00% 2.00% 2.0% 0.7%  
125+00.00  
FL = 595.62, 24" R.C.P.

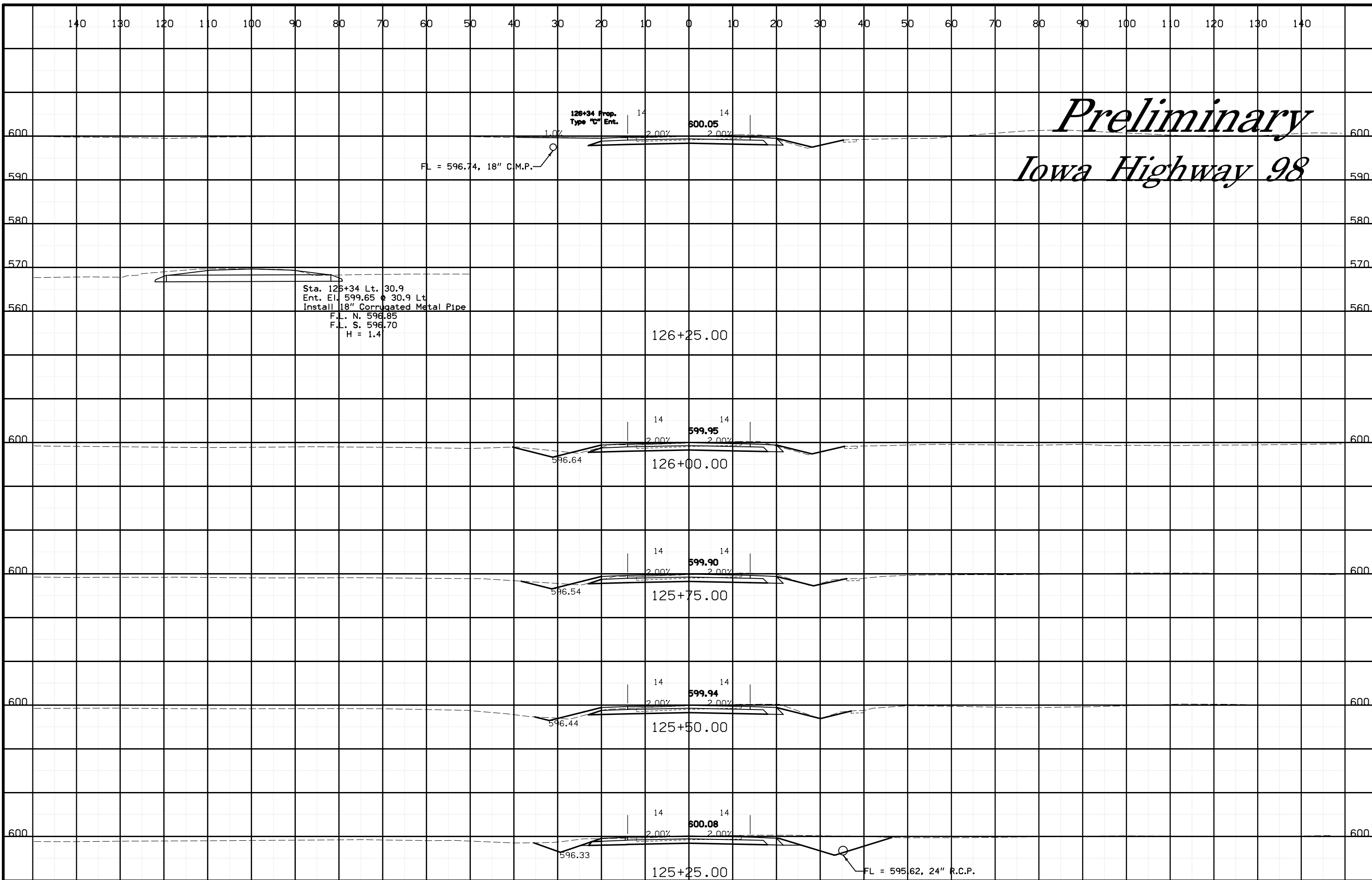
14 14  
2.00% 2.00%  
124+75.00  
595.52

14 14  
2.00% 2.00%  
124+50.00  
596.28  
Sta. 124+50  
Install 24" RCP  
Slew = 30° RT Ahead  
D.A. = 8 Ac. F  
F.L. = Lt. 593.29  
Rt. 595.53

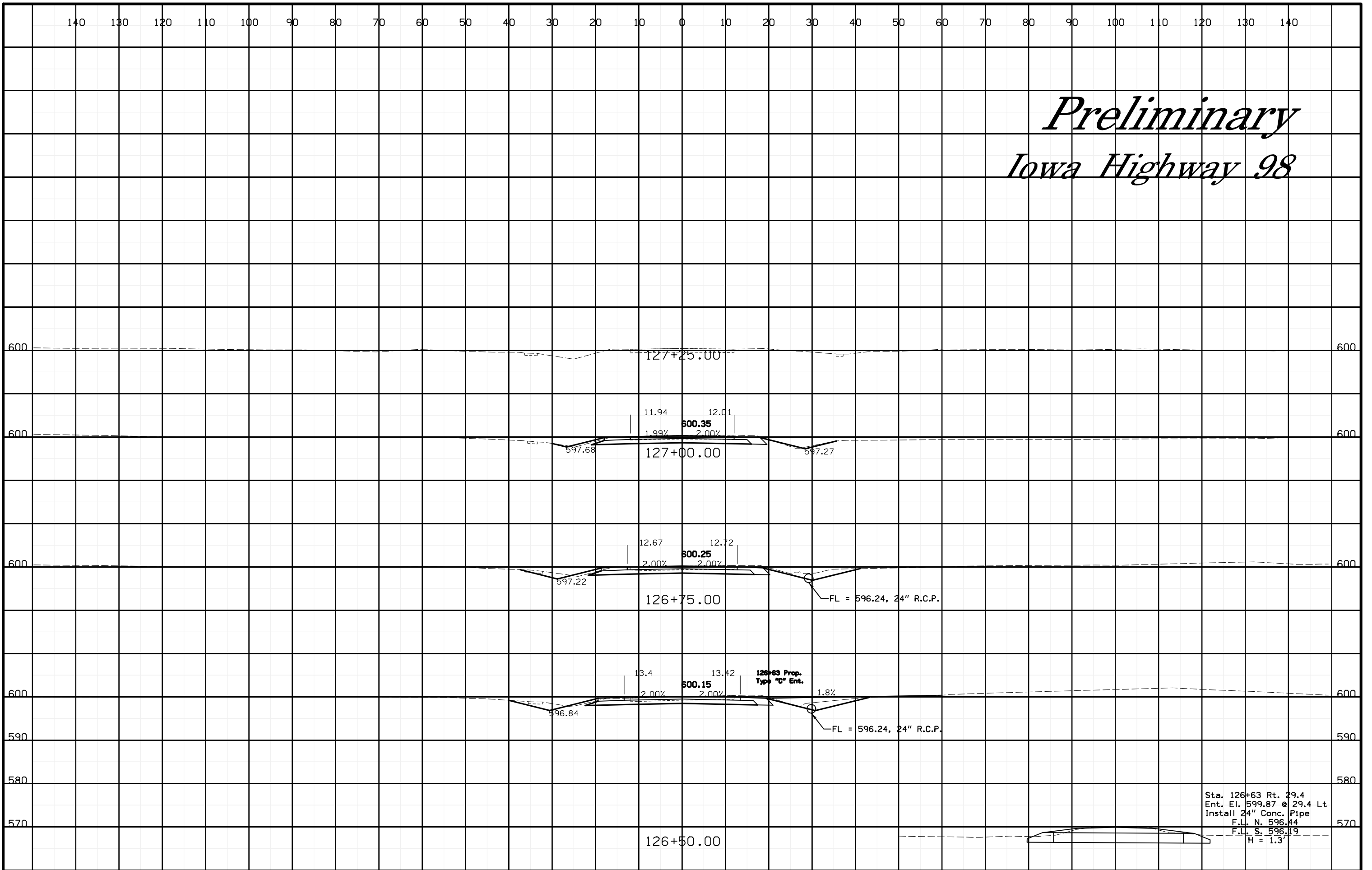
10 6 14 14  
2.00% 4.00% 2.00% 2.00%  
124+25.00  
597.26

10 6 14 14  
2.00% 4.00% 2.00% 2.00%  
124+00.00  
598.24

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IA 98 X-Section Sheets  
6/13/2012



# Preliminary Iowa Highway 98

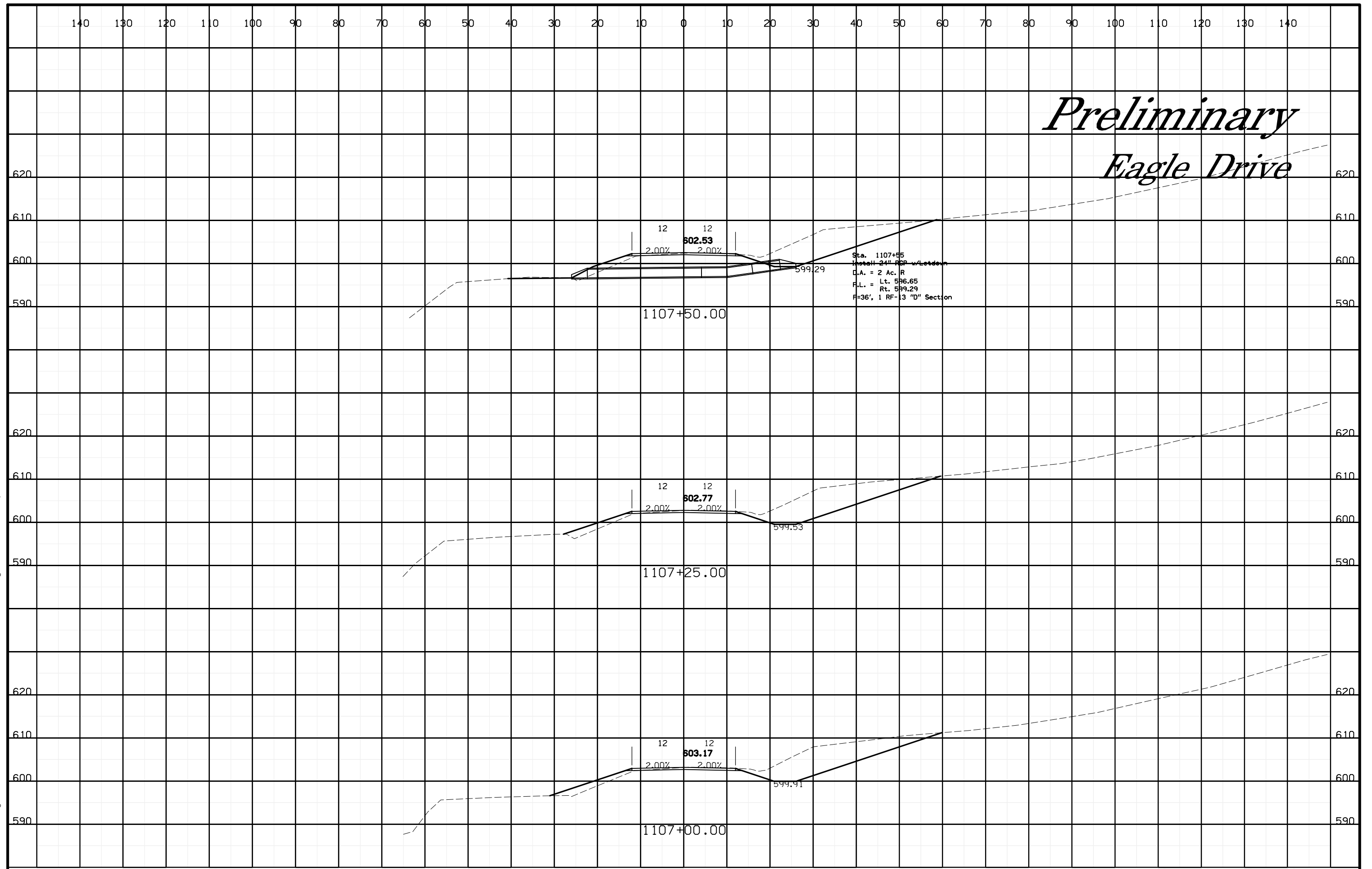


Sta. 126+63 Rt. 29.4  
Ent. El. 599.87 @ 29.4 Lt  
Install 24" Conc. Pipe  
F.L. N. 596.44  
F.L. S. 596.19  
H = 1.3'

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IA 98 X-Section Sheets  
16/13/2012

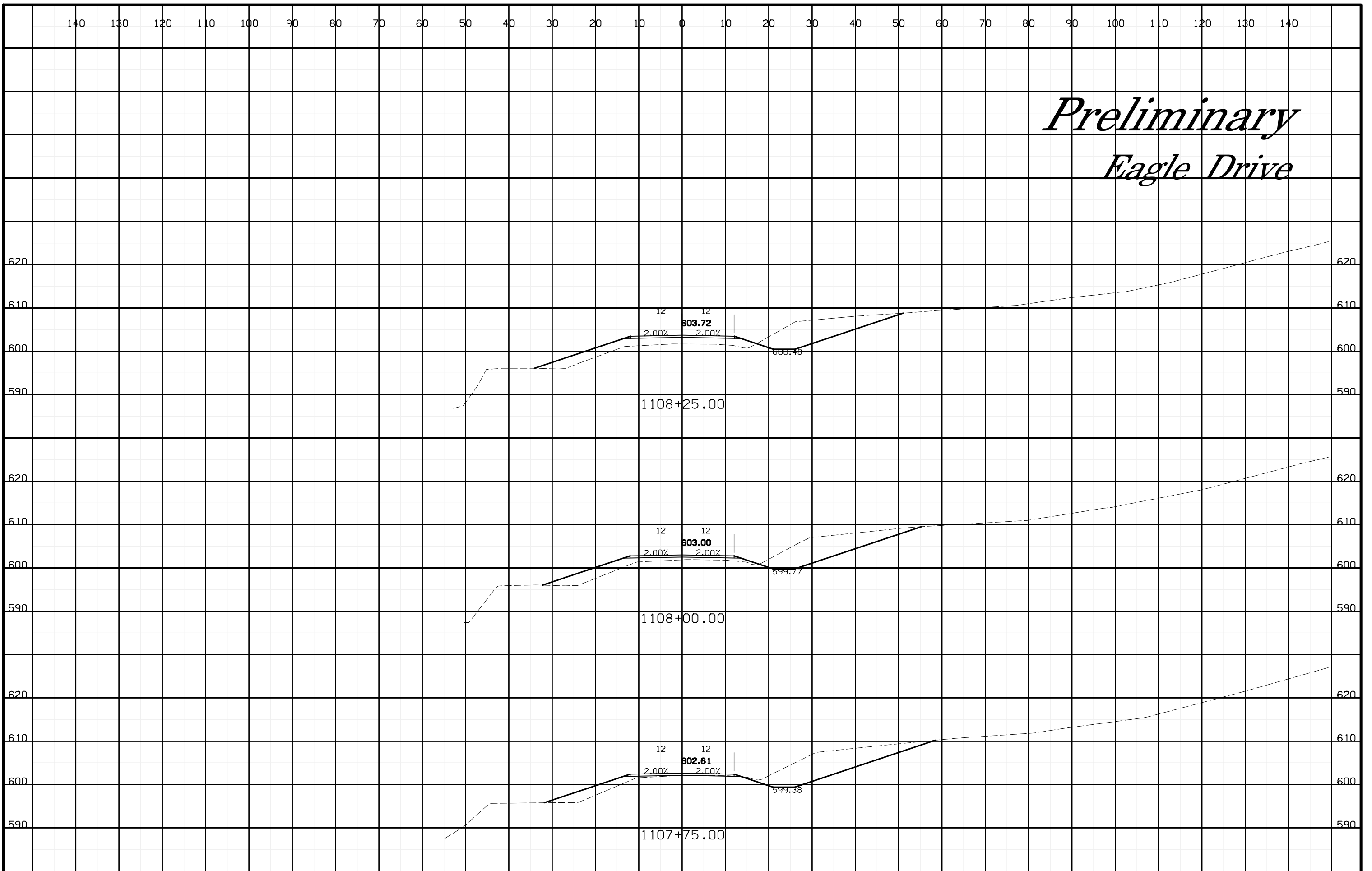
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# Preliminary Eagle Drive





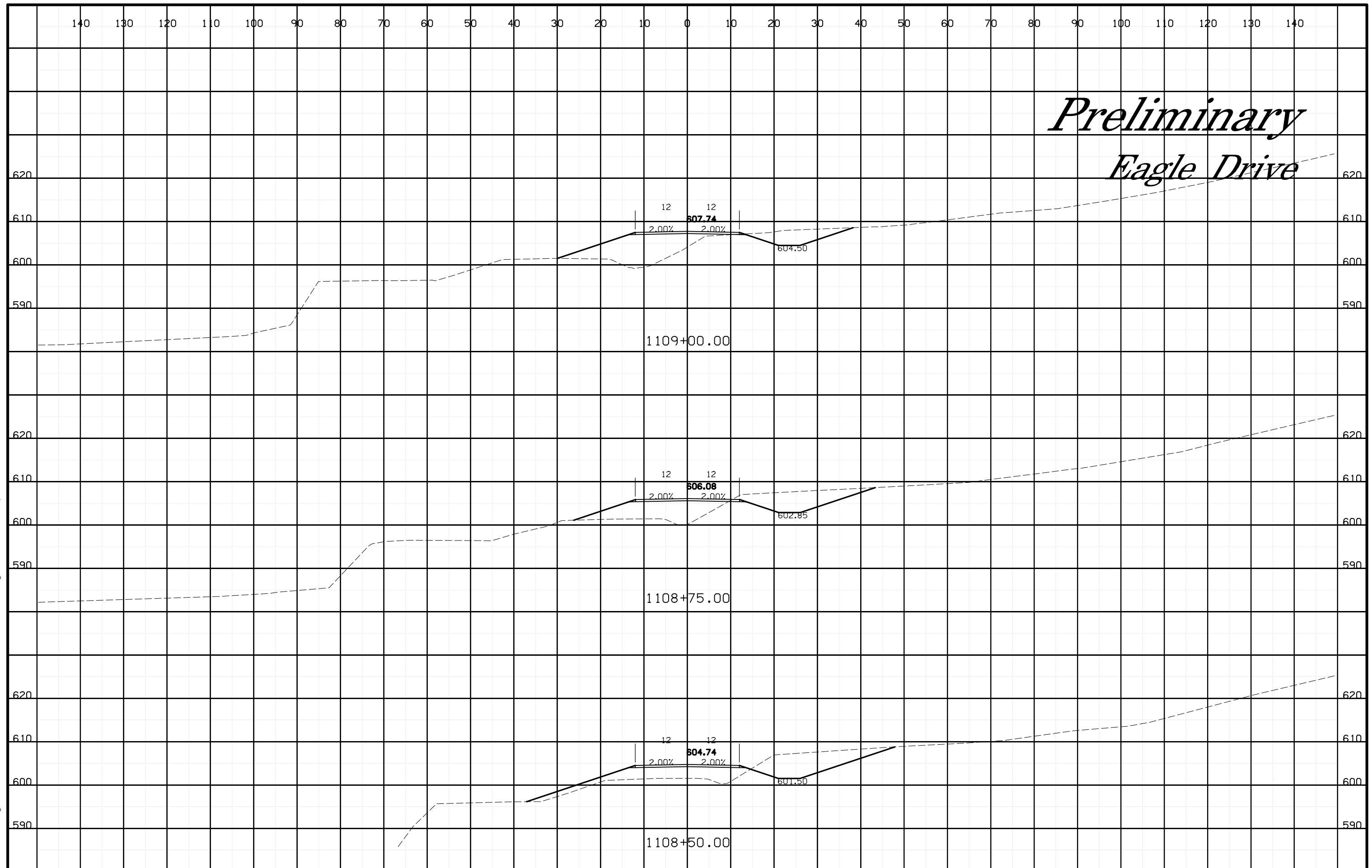
# Preliminary Eagle Drive



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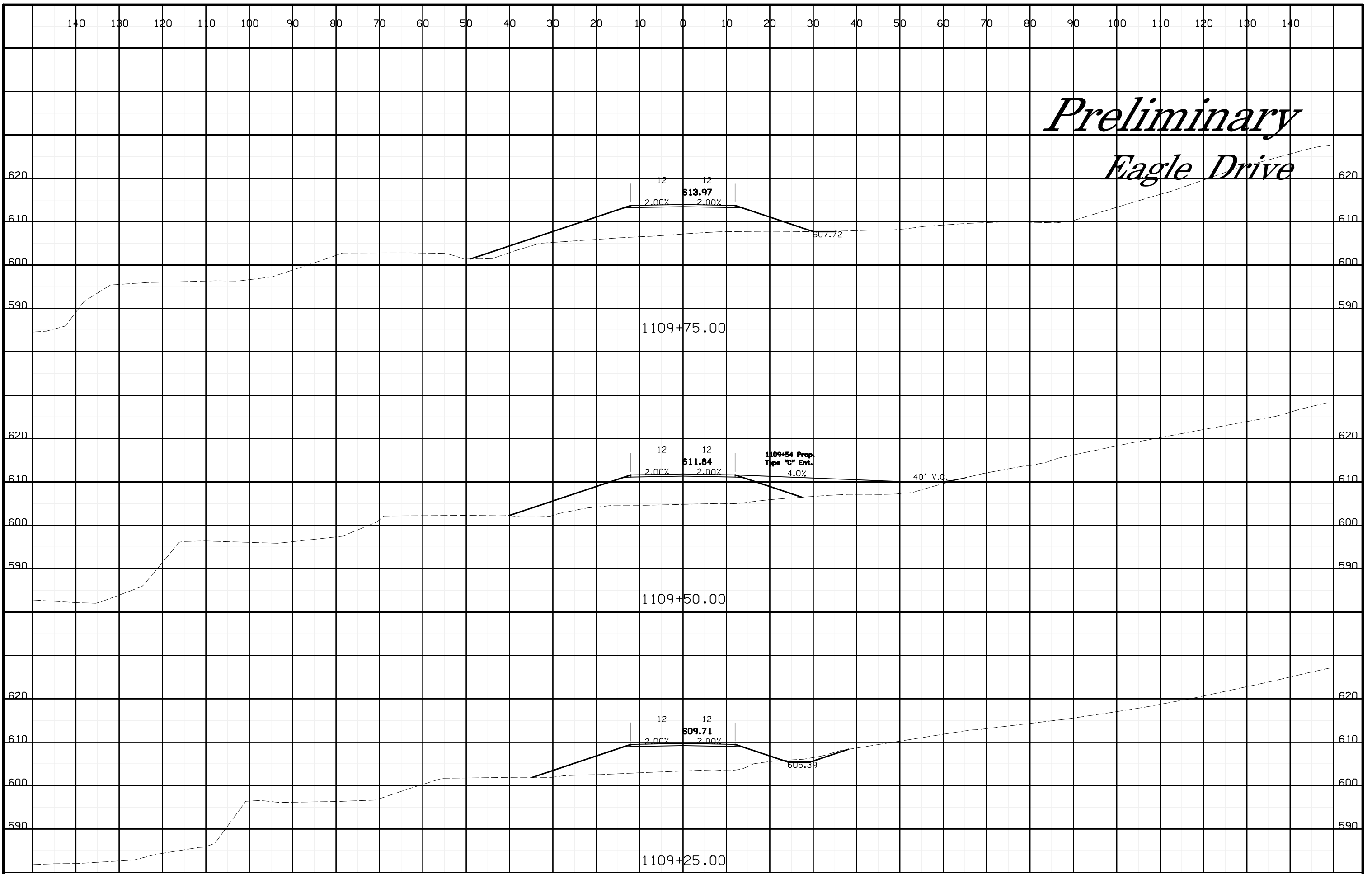
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# Preliminary Eagle Drive

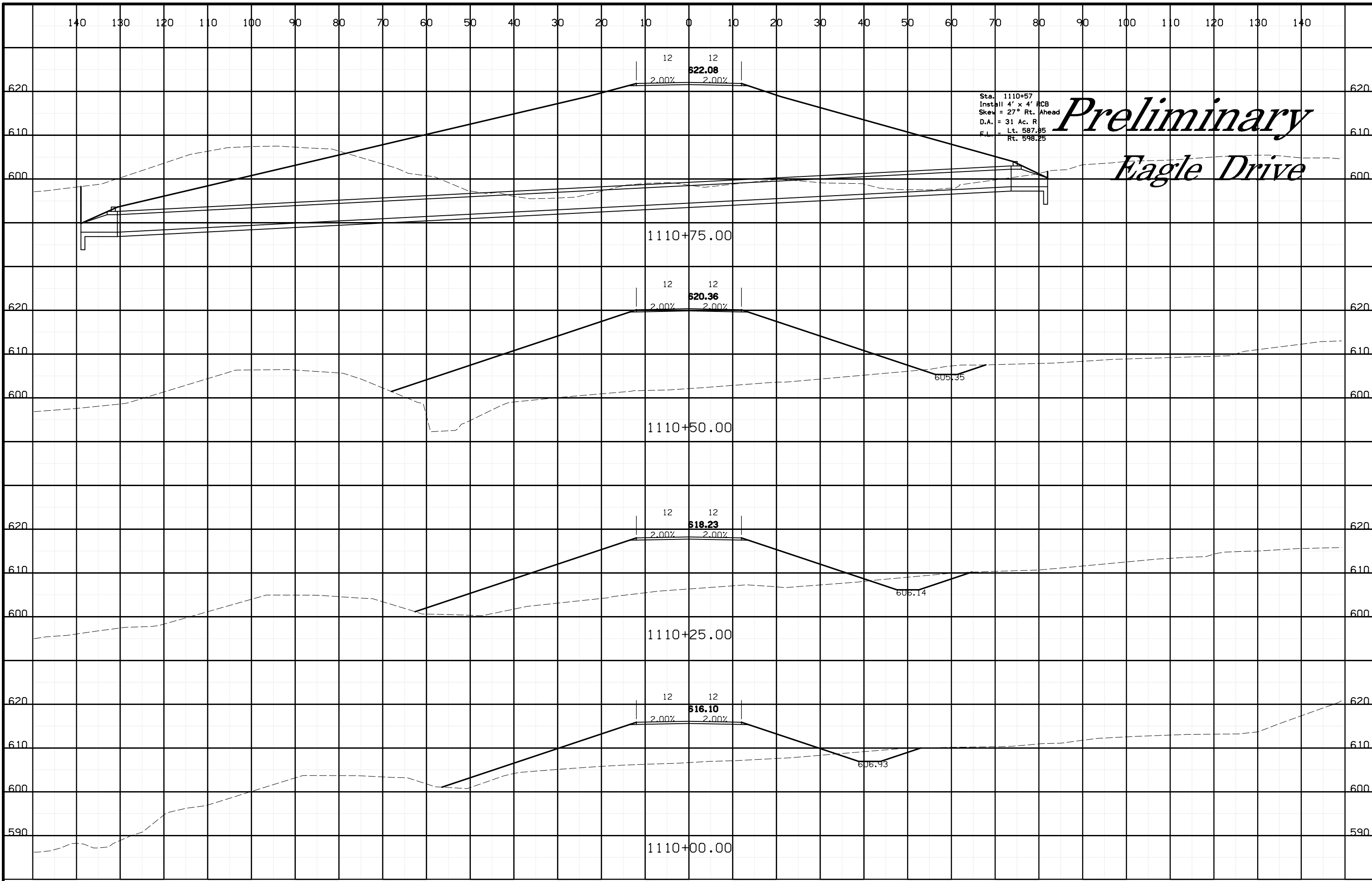


6/13/2012 Eagle Dr. X-Section Sheets C:\Documents and Settings\chollen\Desktop\X-Sections\89098007\_XS.dsn

# Preliminary Eagle Drive



6/13/2012 Eagle Dr. X-Section Sheets C:\Documents and Settings\chollie\ Desktop\X-Sections\89098007\_X5.dsn

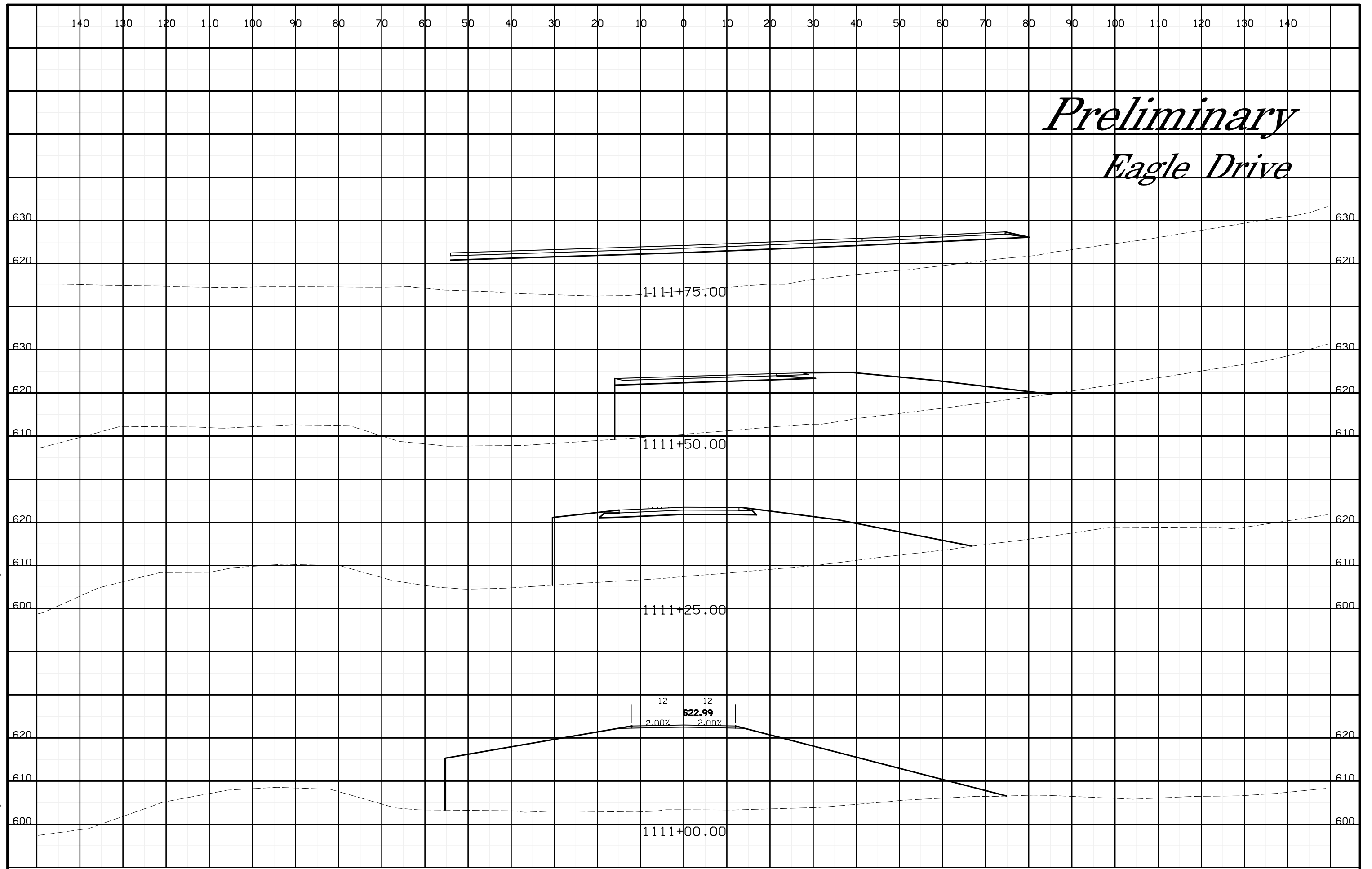


*Preliminary*  
*Eagle Drive*

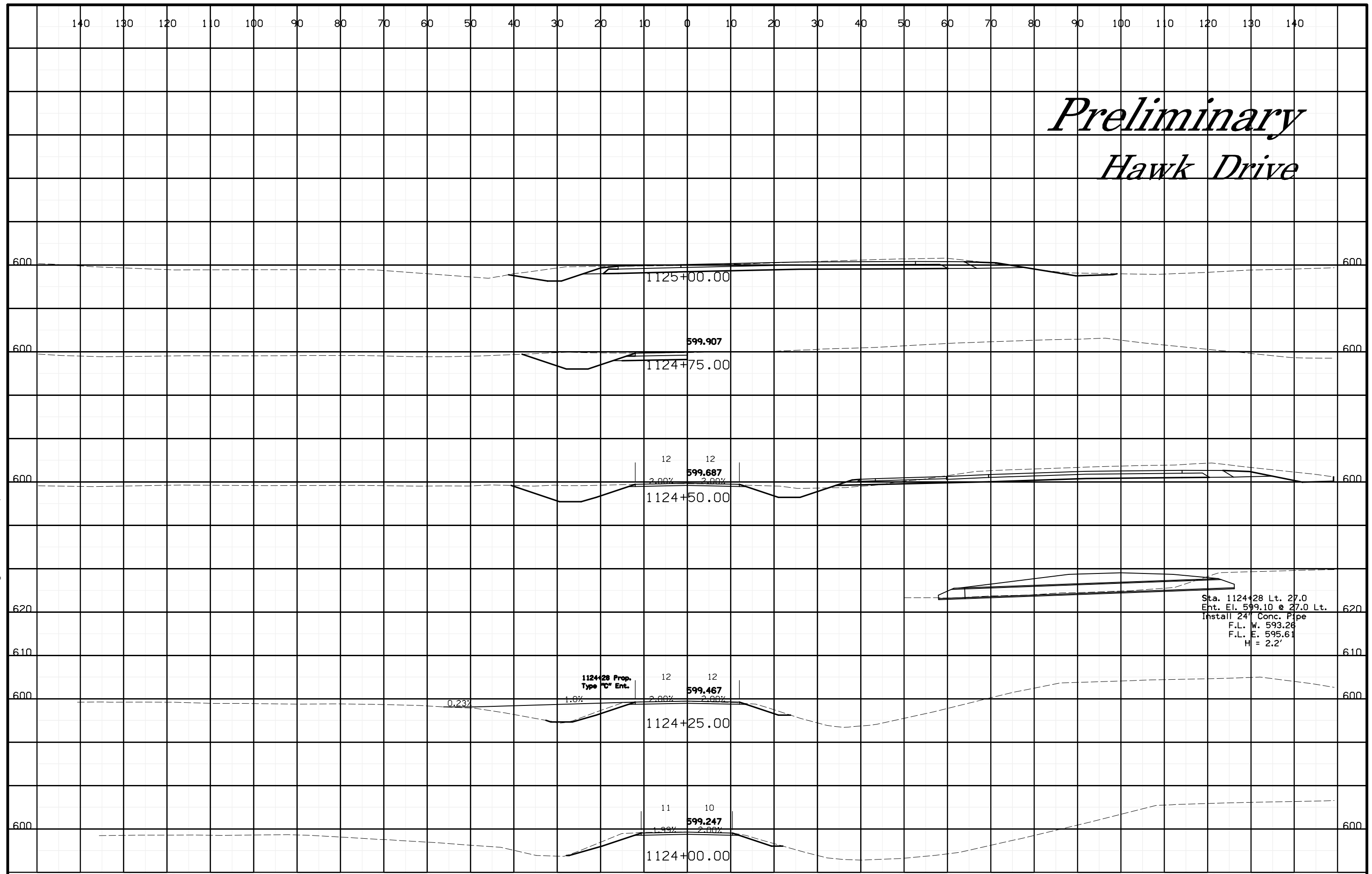
Sta. 1110+57  
Install 4' x 4' RCB  
Skew = 27° Rt. Ahead  
D.A. = 31 Ac. R  
F.L. = Lt. 587.85  
Rt. 598.25

6/13/2012 Eagle Dr. X-Section Sheets C:\Documents and Settings\chollie\ Desktop\X-Sections\89098007\_XS.dsn

# Preliminary Eagle Drive



# Preliminary Hawk Drive

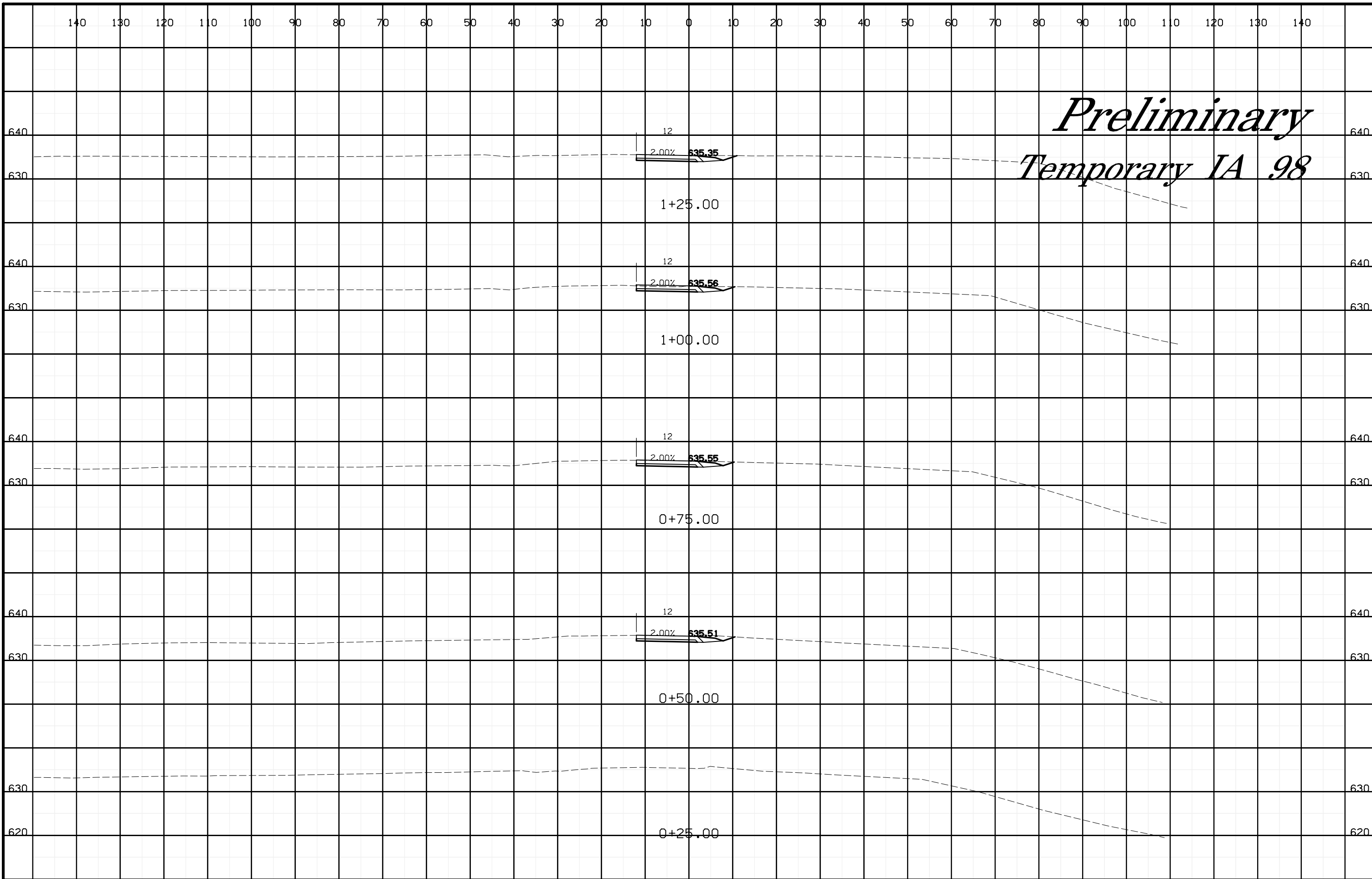


Sta. 1124+28 Lt. 27.0  
Ent. El. 599.10 @ 27.0 Lt.  
Install 24" Conc. Pipe  
F.L. W. 593.26  
F.L. E. 595.61  
H = 2.2'

1124+28 Prop.  
Type 12" Ent.

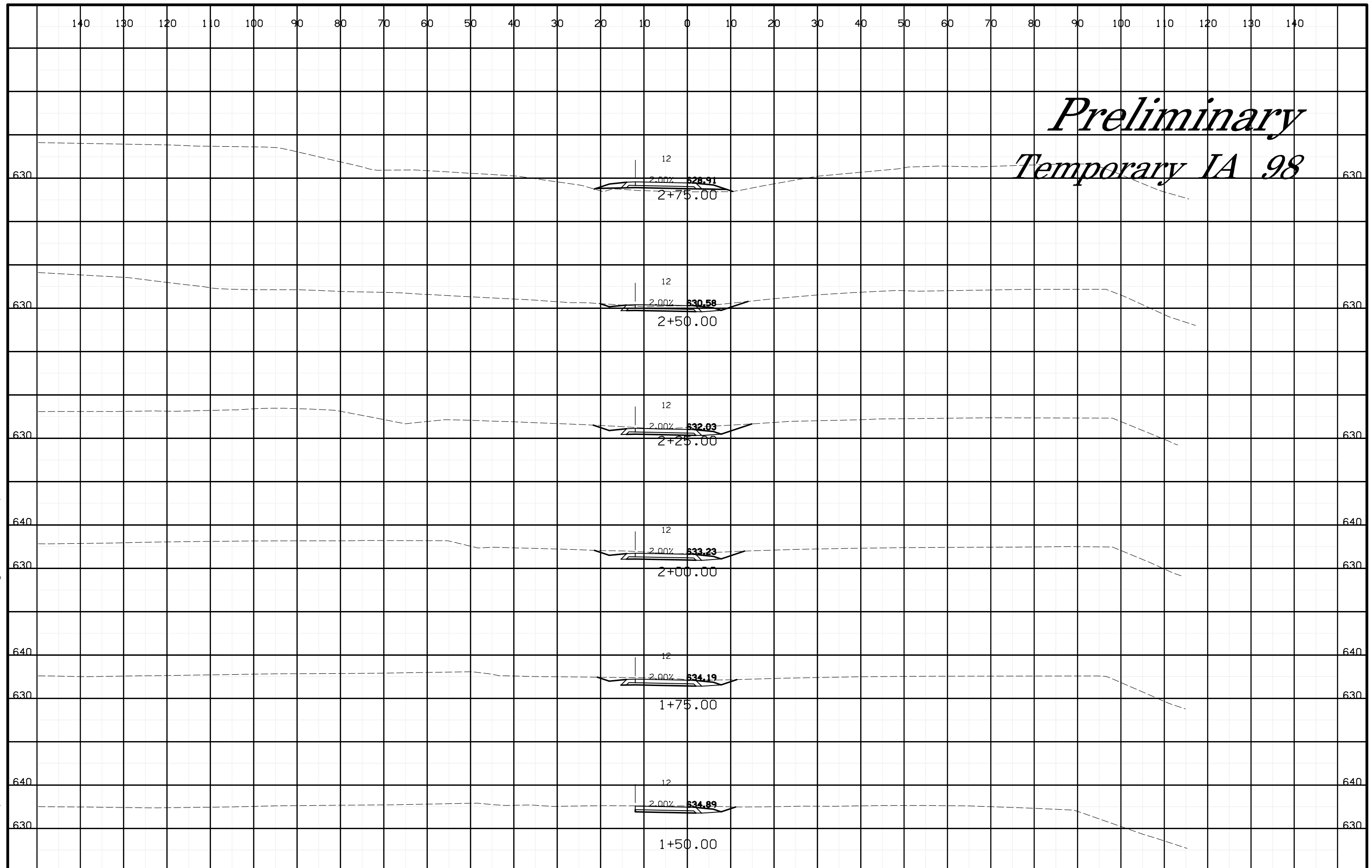
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Temp. X-Section Sheets  
6/13/2012



*Preliminary  
Temporary IA 98*

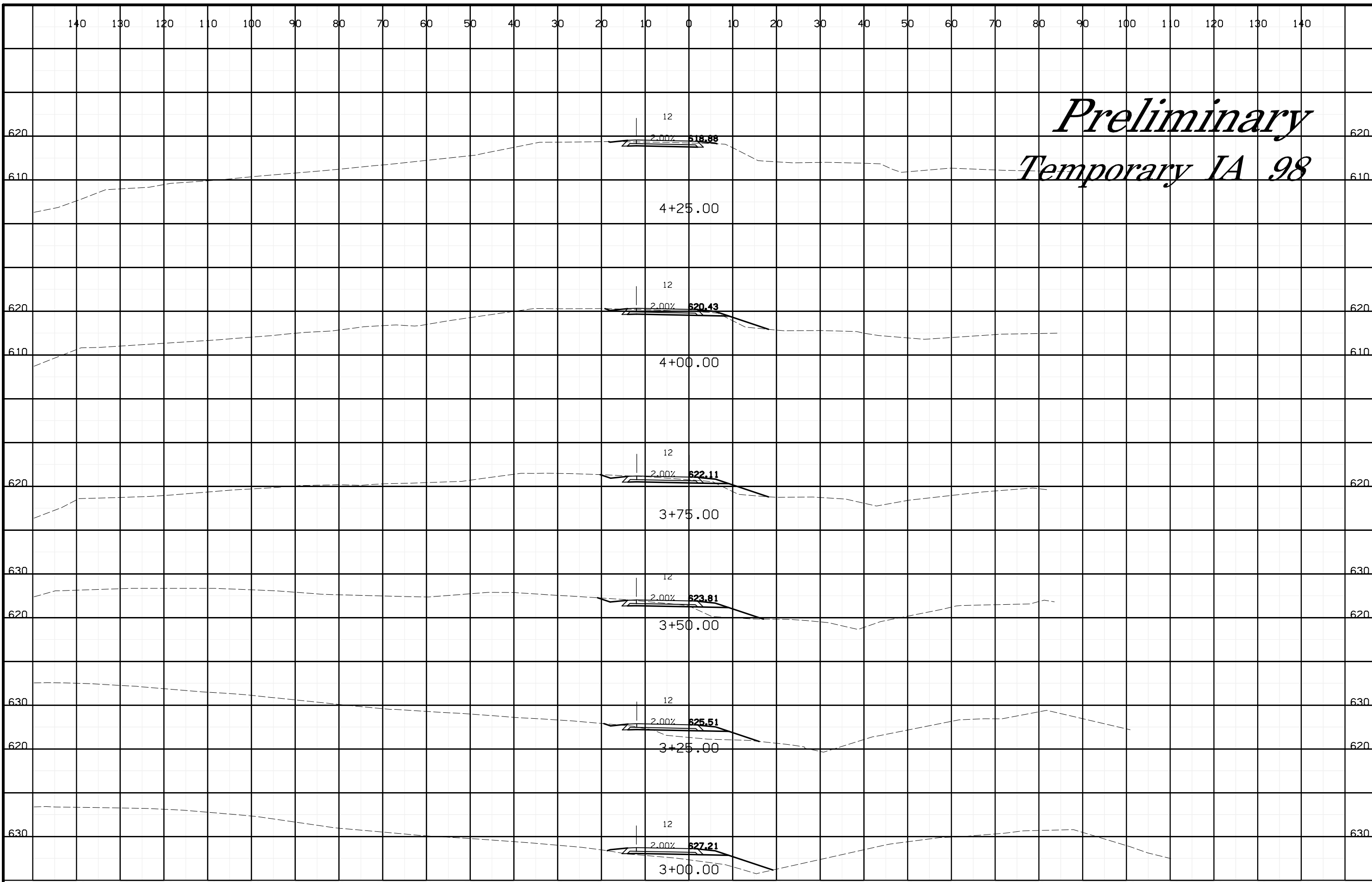
# Preliminary Temporary IA 98



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Temp. X-Section Sheets  
6/13/2012



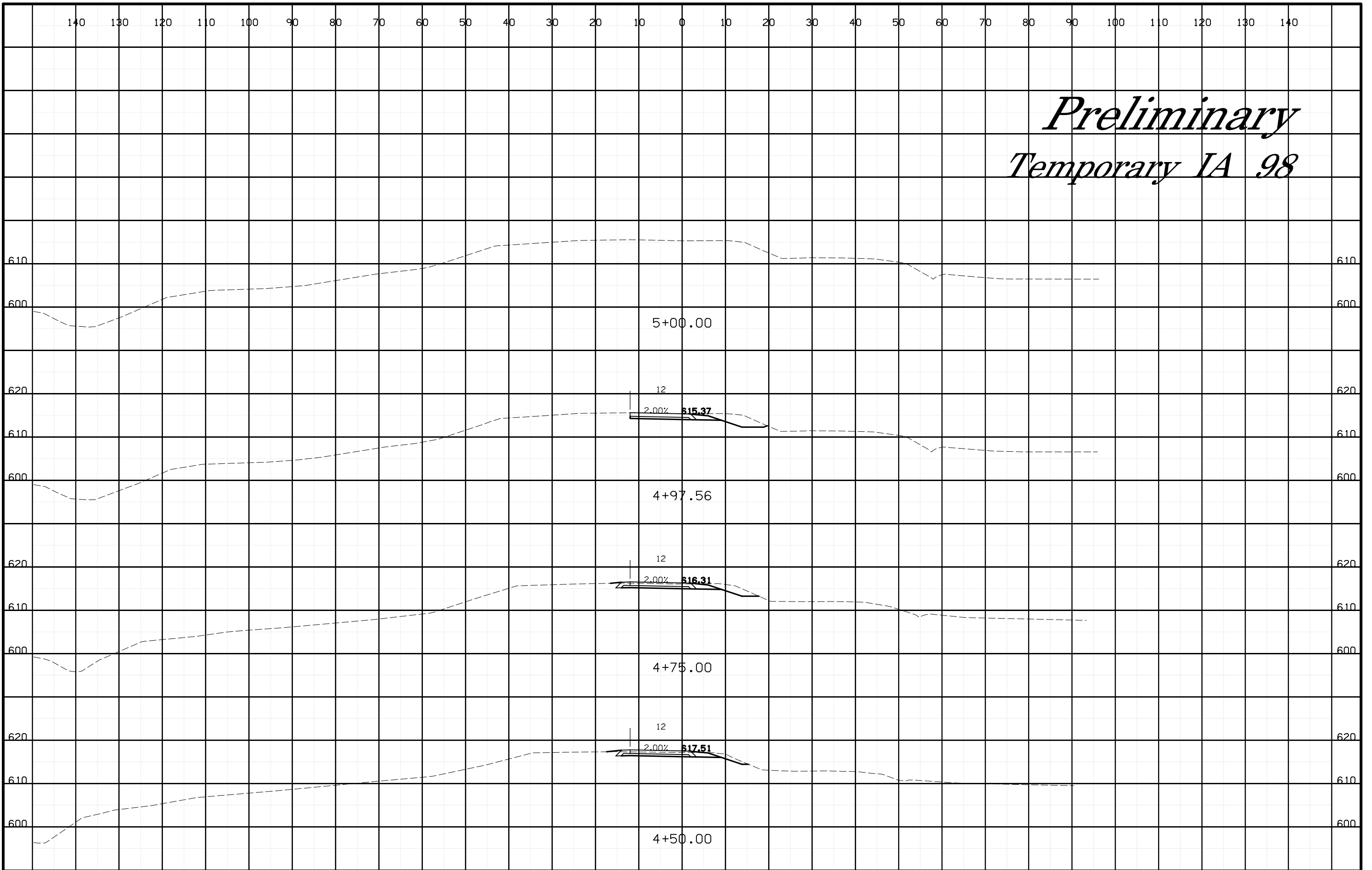
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Temp. X-Section Sheets  
6/13/2012



*Preliminary  
Temporary IA 98*

# *Preliminary*

## *Temporary IA 98*



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Temp. X-Section Sheets

6/13/2012