

# MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR SIGN REPLACEMENT  
 LOCATED ON T.H. 65 600' SO. OF 209TH AVE. N.E. TO 3/4 MILE NORTH OF 221ST AVE. N.E.

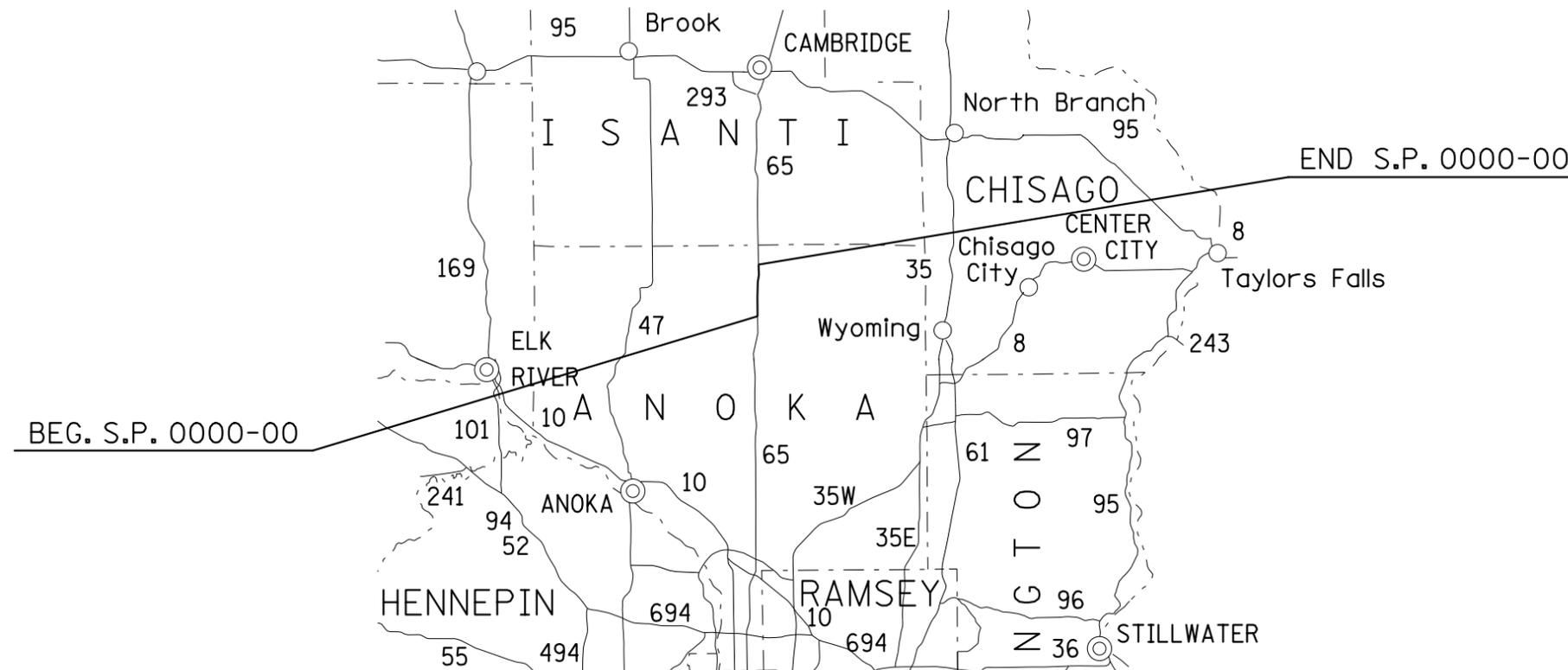
GOVERNING SPECIFICATIONS  
 THE 2014 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION  
 'STANDARD SPECIFICATIONS FOR CONSTRUCTION' AND THE 2014 EDITION OF THE  
 'MATERIALS LAB SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION' SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM AND BE PLACED IN  
 ACCORDANCE WITH THE 'MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL  
 DEVICES' (MN MUTCD) AND PART VI, 'FIELD MANUAL' FOR TEMPORARY TRAFFIC  
 CONTROL DEVICES.

## INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES
3-6	DATA SHEETS
7	PUBLIC UTILITIES
8-15	ROADWAY LAYOUTS
16-18	SIGN PANEL LAYOUTS
19-20	PLACEMENT DETAILS
21-25	STRUCTURAL DETAILS

THIS PLAN CONTAINS 25 SHEETS



SCALE  
 10 MILES

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

STATE PROJ. NO. CHARGE IDENTIFIER  
 0000-00

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: \_\_\_\_\_ LICENSE # \_\_\_\_\_

DATE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

DESIGN SQUAD \_\_\_\_\_

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: \_\_\_\_\_ LICENSE # \_\_\_\_\_

DATE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

PLOTTED/REVISED: 10/27/2014

DISTRICT #: METRO  
 IPLOT NAME: TSH  
 PATH & FILENAME: IP\_PWP-d1432400TSH.dgn

STATEMENT OF ESTIMATED QUANTITIES					
SHEET NO.	CHART I.D.	ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITIES
		2021.501	MOBILIZATION	LUMP SUM	1
		2104.509	REMOVE SIGN TYPE C	EACH	59
5	D	2104.509	REMOVE SIGN TYPE D	EACH	16
		2104.509	REMOVE MARKER	EACH	6
3	B	2104.523	SALVAGE SIGN TYPE C	EACH	2
5	E	2104.523	SALVAGE SIGN TYPE D	EACH	2
		2563.601	TRAFFIC CONTROL	LUMP SUM	1
3	A	2564.531	SIGN PANELS TYPE C	SQ. FT.	759
4	C	2564.531	SIGN PANELS TYPE D	SQ. FT.	573
6	H	2564.531	SIGN PANELS TYPE OVERLAY	SQ. FT.	32
3	B	2564.537	INSTALL SIGN TYPE C	EACH	2
5	E	2564.537	INSTALL SIGN TYPE D	EACH	2
6	G	2564.551	REFERENCE POST MARKER	EACH	6
6	F	2564.552	HAZARD MARKER X4-2	EACH	2

PLOTTED/REVISED: 10/27/2014

DISTRICT #: METRO  
 IPLOT NAME: CHARTS1  
 PATH & FILENAME: IP\_PWP-d1432400\CHARTS.dgn

SIGN PANELS TYPE C										A	
SIGN NO.	QUANT.	POSTS			MTG HT. (1) (FT.)	PANEL			CODE NO.	PANEL LEGEND	
		NO. & TYPE	KNEE BRACES QUANT.	LEN. (FT.)		SIZE (IN.)	AREA (SQ. FT.)	TOTAL AREA (SQ. FT.)			
C-1	4	2-U	1	19	7	48 x 18	6.00	24.00	R6-1(L)	ONE WAY	(2)
						48 x 18	6.00	24.00	R6-1(R)	ONE WAY	(2)
						36 x 36	9.00	36.00	R1-1	STOP	(2)
						30 x 24	5.00	20.00	R6-3a	DIVIDED HIGHWAY	(2)
C-2	4	2-U	1	17	7	48 x 18	6.00	24.00	R6-1(L)	ONE WAY	(2)
						36 EQUIL.	3.90	15.60	R1-2	YIELD	(2)
C-3	7	2-U	1	16	7	36 x 36	9.00	63.00	R5-1	DO NOT ENTER	
C-4	6	2-U		14	7	48 x 18	6.00	36.00	R6-1(L)	ONE WAY	
C-5	9	2-U		15	7	30 x 30	6.25	56.25	R3-7	RIGHT LANE MUST TURN RIGHT	
C-6	8	2-U		15	7	30 x 30	6.25	50.00	R3-7	LEFT LANE MUST TURN LEFT	
C-7	4	2-U	1	17	7	48 x 18	6.00	24.00	R6-1(R)	ONE WAY	(2)
						48 x 18	6.00	24.00	R6-1(L)	ONE WAY	(2)
						36 EQUIL.	3.90	15.60	R1-2	YIELD	(2)
C-8	3	2-U		14	7	48 x 18	6.00	18.00	R6-1(R)	ONE WAY	(2)
C-9	2	2-U	1	17	7	48 x 48	16.00	32.00	W3-3	SIGNAL AHEAD	
C-10	4	2-U	1	18	7	48 x 60	20.00	80.00	R2-1	SPEED LIMIT 65	
C-11	2	2-U	1	17	7	30 x 15	3.13	6.25	M3-3ma	SOUTH	(2)
						36 x 36	9.00	18.00	M1-5a	MINNESOTA 65	(2)
(6) C-12	2				7	48 x 18	6.00	12.00	R6-1(L)	ONE WAY	(3)
						48 x 18	6.00	12.00	R6-1(R)	ONE WAY	(3)
C-13	2	2-U	1	17	7	30 x 15	3.13	6.25	M3-1ma	NORTH	(2)
						36 x 36	9.00	18.00	M1-5a	MINNESOTA 65	(2)
C-14	2	2-U	1	17	7	48 x 18	6.00	12.00	R6-1(R)	ONE WAY	(2)
						36 x 36	9.00	18.00	R1-1	STOP	(2)
C-15	2	2-U	1	19	7	48 x 18	6.00	12.00	R6-1(L)	ONE WAY	(2)
						48 x 18	6.00	12.00	R6-1(R)	ONE WAY	(2)
						36 x 36	9.00	18.00	R1-1	STOP	(2)
						30 x 24	5.00	10.00	R6-3	DIVIDED HIGHWAY	(2)
C-16	2	2-U	1	17	7	48 x 18	6.00	12.00	R6-1(R)	ONE WAY	(4)
						36 EQUIL.	3.90	7.80	R1-2	YIELD	(4)
(5) C-17	2	1-ST		11	7	36 x 36	9.00	18.00	R5-1	DO NOT ENTER	
(5) C-18	2	1-ST		10	7	48 x 18	6.00	12.00	R6-1(L)	ONE WAY	(3)
						48 x 18	6.00	12.00	R6-1(R)	ONE WAY	(3)
TOTAL						758.75					

SALVAGE & INSTALL SIGN TYPE C								B
SIGN NO.	QUANT.	POSTS			MTG HT. (1) (FT.)	PANEL		PANEL LEGEND
		NO. & TYPE	KNEE BRACES QUANT.	LEN. (FT.)		SIZE (IN.)		
C-201	2	2-U	1	16	7	60 x 36	ADOPT A HIGHWAY	
TOTAL		2						

- SPECIFIC NOTES:**
- (1) MOUNTING HEIGHT IS MINIMUM, SEE SHEET 22 FOR TYPICAL MOUNTING.
  - (2) FOR PUNCHING AND MOUNTING DETAILS, SEE SHEET 23.
  - (3) MOUNTED BACK TO BACK.
  - (4) MOUNTED BACK TO BACK WITH ONEWAY ABOVE YIELD.
  - (5) MOUNTED IN CONCRETE, SEE SHEET 24.
  - (6) MOUNTED ON SIGNAL, SEE SHEET 25.

- GENERAL NOTES:**
- 1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
  - 2. SEE SHEETS 21-25 FOR STRUCTURAL DETAILS.
  - 3. SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS.

PLOTTED/REVISED: 10/27/2014

DISTRICT #: METRO  
 I/PLOT NAME: CHARTS2  
 PATH & FILENAME: IP\_PWP-d1432400CHARTS.dgn

SIGN PANELS TYPE D <span style="float: right;">C</span>										
SIGN NO.	QUANT.	POSTS				MTG HT. (1) (FT.)	PANEL			PANEL LEGEND
		NO. & TYPE	KNEE BRACES QUANT.	LEN. (FT.)	SPACING (IN.)		SIZE (IN.)	AREA (SQ. FT.)	TOTAL AREA (SQ. FT.)	
D-1	2	2-U	2	18	42	7	72 x 60	30.00	60.00	
D-2	1	2-U	2	17	54	7	84 x 48	28.00	28.00	
D-3	2	2-U	2	17	54	7	84 x 48	28.00	56.00	
D-4	1	2-U	2	18	30	7	48 x 66	22.00	22.00	
D-5	1	2-U	2	18	30	7	48 x 66	22.00	22.00	
D-6	1	2-U	2	17	54	7	84 x 48	28.00	28.00	
D-7	2	3-U	3	19	45	7	102 x 78	55.25	110.50	
D-8	1	2-U	2	17	60	7	102 x 48	34.00	34.00	
D-9	1	2-U	2	17	60	7	102 x 48	34.00	34.00	
D-10	1	2-U	2	17	60	7	102 x 48	34.00	34.00	
D-11	2	3-U	3	19	45	7	102 x 78	55.25	110.50	
D-12	1	2-U	2	17	60	7	102 x 48	34.00	34.00	
TOTAL									573.00	

**SPECIFIC NOTES:**

- (1) MOUNTING HEIGHT IS MINIMUM, SEE SHEET 22 FOR TYPICAL MOUNTING.

**GENERAL NOTES:**

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEETS 21-25 FOR STRUCTURAL DETAILS.
3. SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS.

**D SIGN DATA**

REMOVE SIGN TYPE D						D
SIGN NO.	QUANT.	POSTS		PANEL SIZE (IN.)	PANEL LEGEND	
		NO. & TYPE	KNEE BRACES QUANT.			
D-101	2	2-U	2	72 x 60		
D-102	1	2-U	2	84 x 48	The Refuge Golf Club ← 3 MI	
D-103	2	2-U	2	84 x 48	Sims Rd ↔	
D-104	1	2-U	1	48 x 66		
D-105	1	2-U	1	48 x 66		
D-106	1	2-U	2	84 x 48	The Refuge Golf Club 3 MI →	
D-107	2	3-U	3	102 x 78		
D-108	1	2-U	2	102 x 48	219th Ave ←	
D-109	1	2-U	2	102 x 48	Lake George Regional Park ←	
D-110	1	2-U	2	102 x 48	219th Ave →	
D-111	2	3-U	3	102 x 78		
D-112	1	2-U	2	102 x 48	Lake George Regional Park →	
TOTAL	16					

SALVAGE & INSTALL SIGN TYPE D									E
SIGN NO.	QUANT.	POSTS				MTG HT. (FT.) (1)	PANEL SIZE (IN.)	PANEL LEGEND	
		NO. & TYPE	KNEE BRACE QUANT.	LEN. (FT.)	SPACING (IN.)				
D-201	1	2-U	2	17	90	7	144 x 48	CITY HALL - COMMUNITY CENTER 1 MI →	
D-202	1	2-U	2	17	90	7	144 x 48	CITY HALL - COMMUNITY CENTER ← 1 MI	
TOTAL	2								

D SIGN DATA

MARKERS (1)			F
TYPE	QUANTITY	LOCATION	
HAZARD MARKER (X4-2)	2	ISLAND	

(2)(3)

REFERENCE POST MARKER (1)				G
CODE NO.	QUANTITY	SIZE (IN.)	LEGEND	
D10-2	2	12 x 36	MILE 26	
D10-2	2	12 x 36	MILE 27	
D10-2	2	12 x 36	MILE 28	
TOTAL	6			

SIGN PANELS TYPE OVERLAY						H
CODE NO.	QUANT.	SIZE (IN.)	AREA (SQ. FT.)	TOTAL (SQ. FT.)	LEGEND	
M1-6a	4	24 x 24	4.00	16.00	COUNTY 74	
M1-6a	4	24 x 24	4.00	16.00	COUNTY 86	
TOTAL				32.00		

**SPECIFIC NOTES:**

- (1) PLACE ON 3 LB/FT POST (MNDOT 3401).
- (2) MOUNTED IN CONCRETE.
- (3) YELLOW ON BLACK

GENERAL NOTES:

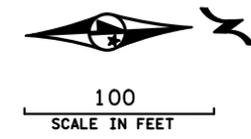
- NO UTILITIES WILL BE AFFECTED BY WORK ON THIS PROJECT.
- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

UTILITIES

THE FOLLOWING LIST SHOWS THE UTILITY COMPANIES WITHIN THE PROJECT LIMITS

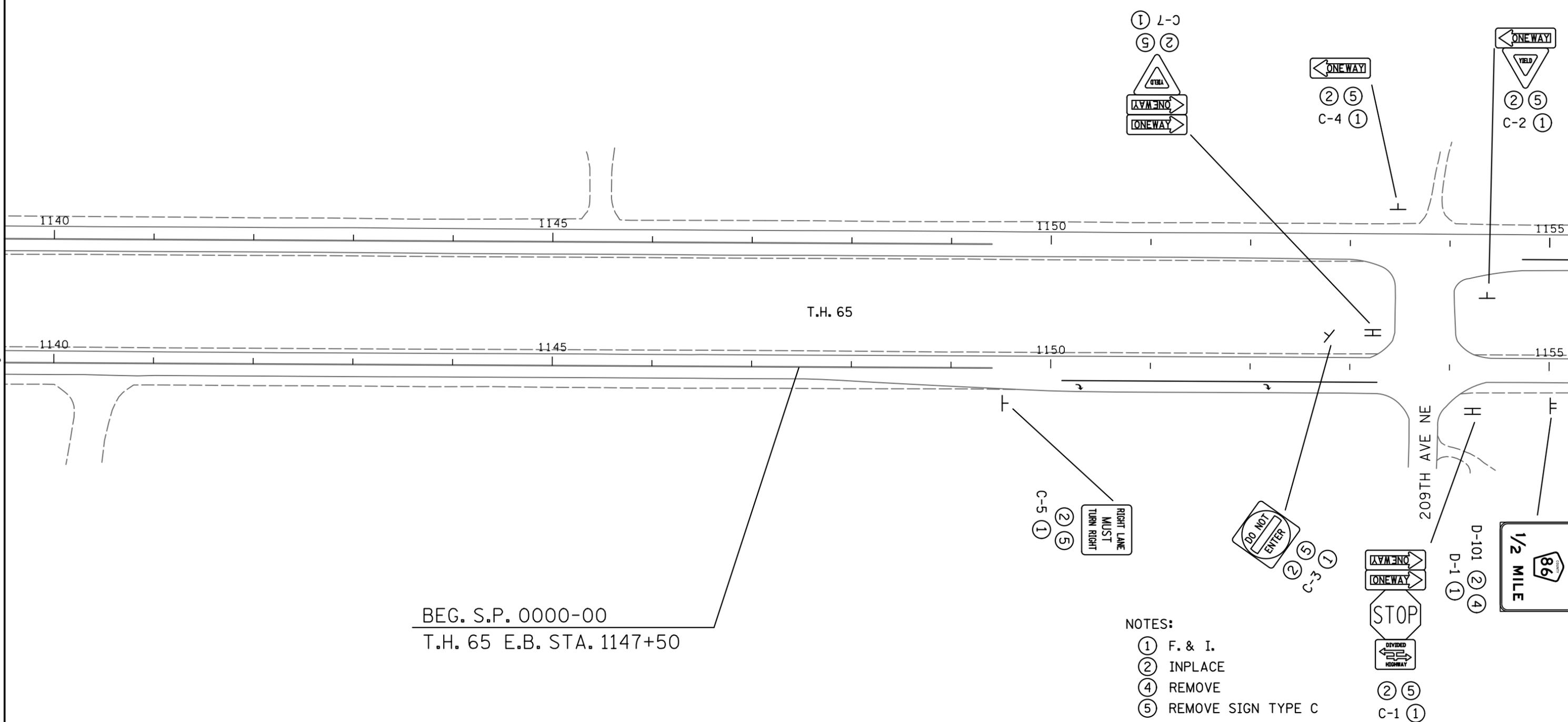
CENTERPOINT ENERGY  
 MN/DOT  
 MINNESOTA POWER  
 QWEST CORPORATION  
 US CABLE  
 XCEL ENERGY

(THIS IS JUST AN EXAMPLE OF HOW TO LIST UTILITY COMPANIES)



PLOTTED/REVISED: 10/27/2014

DISTRICT #: METRO  
I/PLOT NAME: AT GRADE EXSAMPLE PLANB  
PATH & FILENAME: IP\_PWF-d1432400VAT GRADE EXSAMPLE PLAN.dgn



BEG. S.P. 0000-00  
T.H. 65 E.B. STA. 1147+50

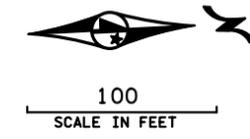
- NOTES:
- ① F. & I.
  - ② INPLACE
  - ④ REMOVE
  - ⑤ REMOVE SIGN TYPE C

**T.H. 65 STA. 1139 + 50 - 1155 + 50**

DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_ CERTIFIED BY \_\_\_\_\_ LIC. NO. \_\_\_\_\_ DATE 10/27/2014

STATE PROJ. NO. AT GRADE SAMPLE SHEET NO. 8 OF 25 SHEETS

PLOTTED/REVISED: 10/27/2014



LEFT LANE  
MUST  
TURN LEFT

② ⑤ ①

C-6

MILE  
2 6

② ④ ①

ONEWAY

② ⑤ ①  
C-8

1160

1165

1170

T.H. 65

1160

1165

1170

② ④ ①

MILE  
2 6

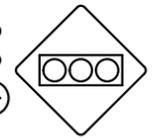
D-102 ② ④  
D-2 ①

The Refuge  
Golf Club  
3 MI

D-103 ② ④  
D-3 ①

Sims Rd

C-9 ①

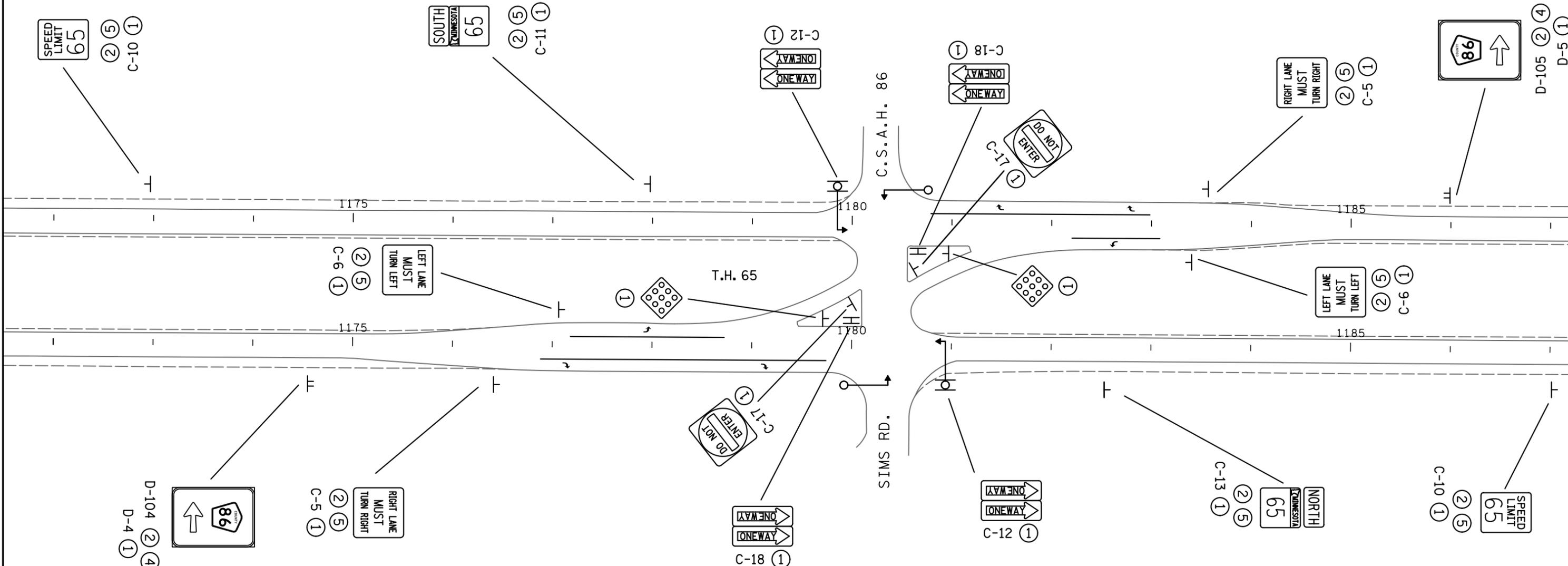


NOTES:

- ① F. & I.
- ② INPLACE
- ④ REMOVE
- ⑤ REMOVE SIGN TYPE C

DISTRICT #: METRO  
PLOT NAME: AT GRADE EXSAMPLE PLANT  
PATH & FILENAME: IP\_PWP-d1432400VAT GRADE EXSAMPLE PLAN.dgn

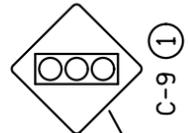
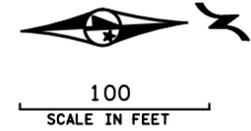
T.H. 65 STA. 1155 + 50 - 1171 + 50



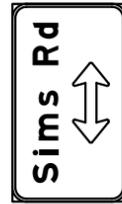
- NOTES:
- ① F. & I.
  - ② INPLACE
  - ④ REMOVE
  - ⑤ REMOVE SIGN TYPE C

**T.H. 65 STA. 1171+50 - 1187+50**

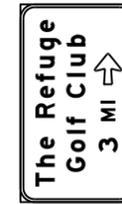
PLOTTED/REVISED: 10/27/2014



C-9 ①



D-103 ② ④  
D-3 ①



D-106 ② ④  
D-6 ①

1190

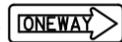
1195

1200

1190

1195

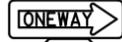
1200



② ⑤  
C-8 ①

T.H. 65

215TH AVE NE



② ⑤  
C-14 ①



C-5 ② ⑤  
①



C-5 ② ⑤  
①

NOTES:

- ① F. & I.
- ② INPLACE
- ④ REMOVE
- ⑤ REMOVE SIGN TYPE C

T.H. 65 STA. 1187 + 50 - 1203 + 50

DRAWN BY:

CHECKED BY:

CERTIFIED BY \_\_\_\_\_

LICENSED PROFESSIONAL ENGINEER

LIC. NO. \_\_\_\_\_

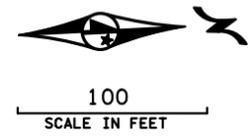
DATE 10/27/2014

STATE PROJ. NO. AT GRADE SAMPLE

SHEET NO. 11

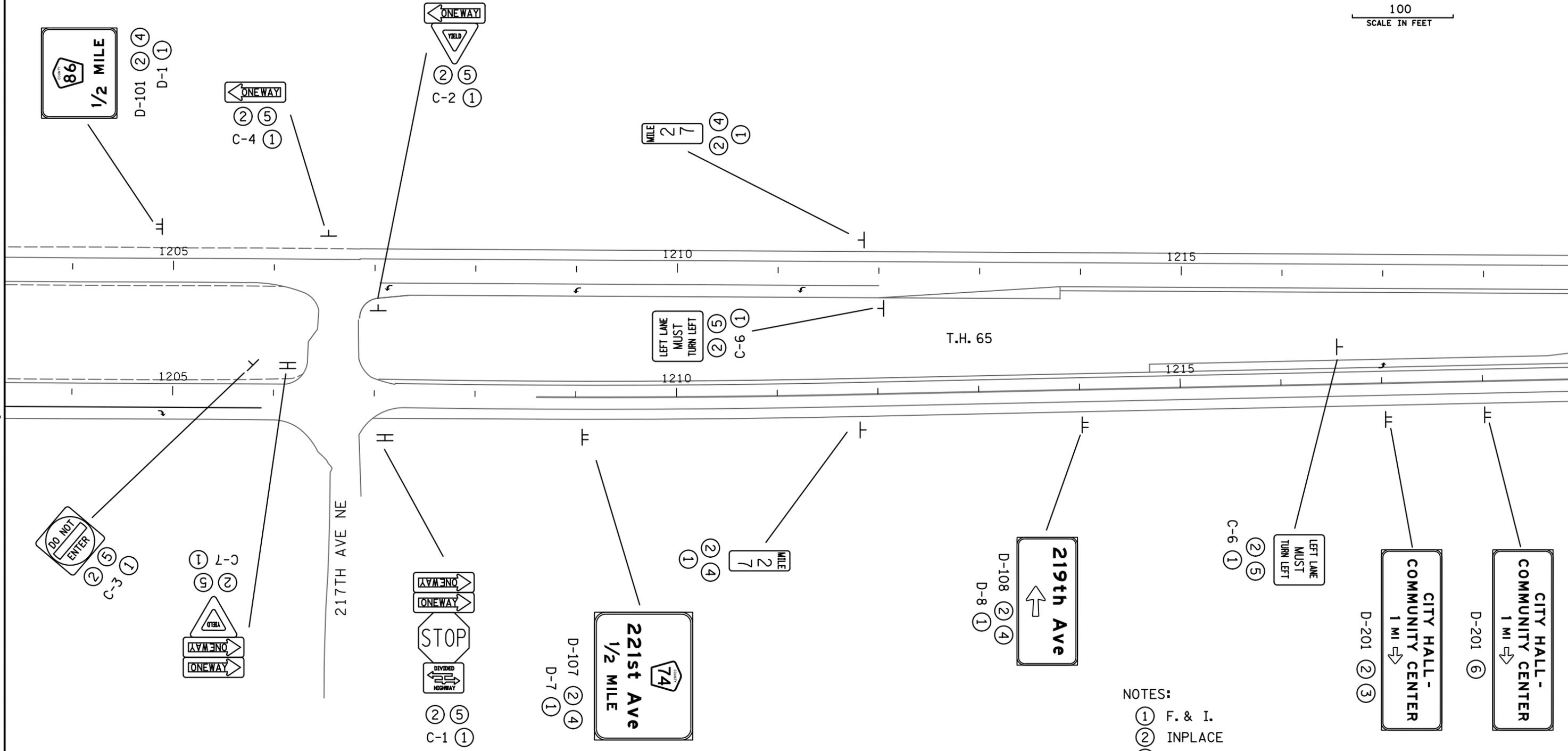
OF 25 SHEETS

DISTRICT #: METRO  
PLOT NAME: AT GRADE EXSAMPLE PLANS  
PATH & FILENAME: IP\_PWP\1432400\AT GRADE EXSAMPLE PLAN.dgn



PLOTTED/REVISED: 10/27/2014

DISTRICT #: METRO  
 I/PLOT NAME: AT GRADE EXSAMPLE PLANA4  
 PATH & FILENAME: IP\_PWP/d1432400VAT GRADE EXSAMPLE PLAN.dgn

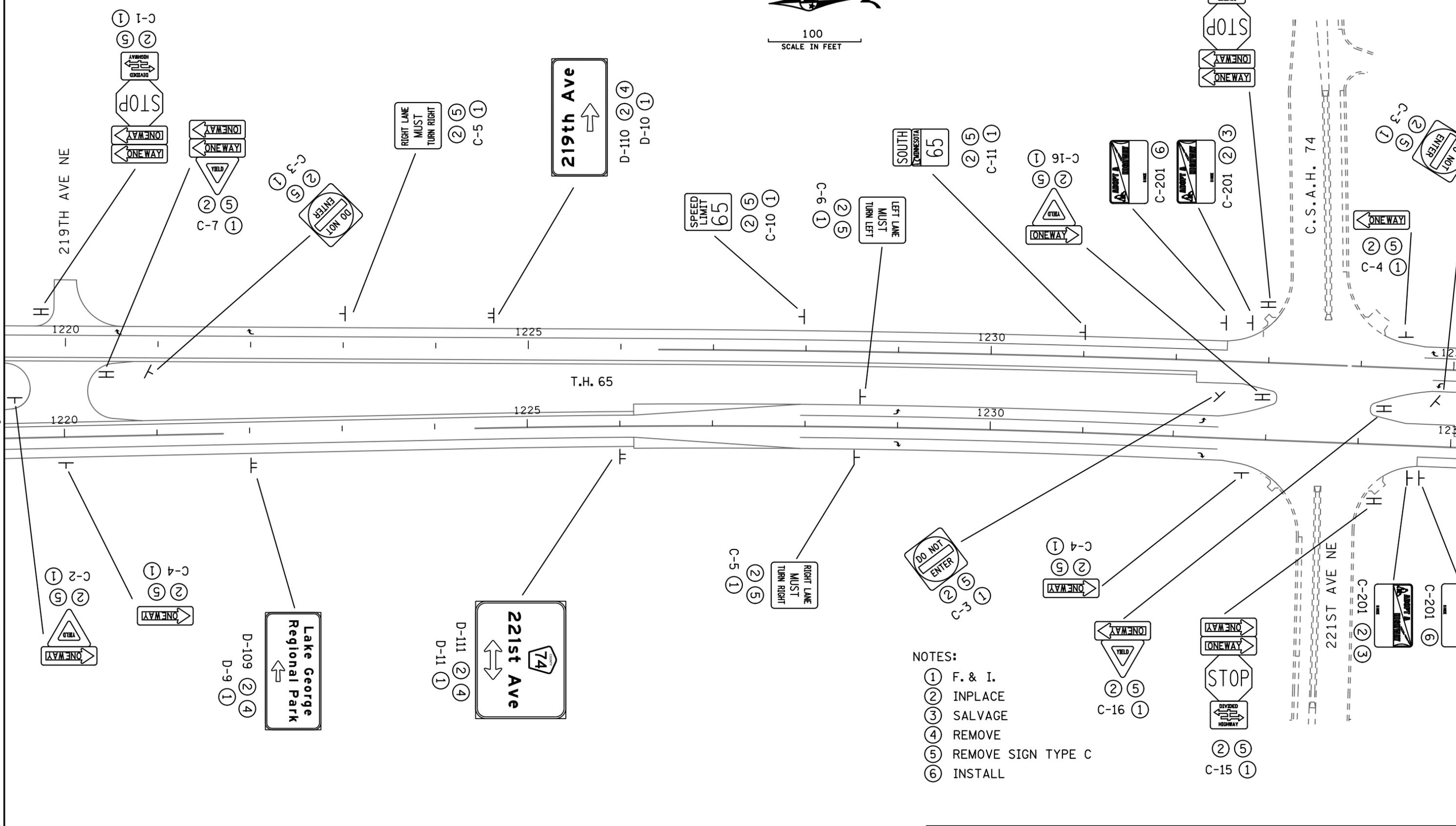
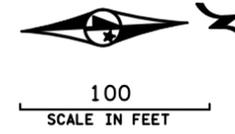


- NOTES:
- ① F. & I.
  - ② INPLACE
  - ③ SALVAGE
  - ④ REMOVE
  - ⑤ REMOVE SIGN TYPE C
  - ⑥ INSTALL

**T.H. 65 STA. 1203 + 50 - 1219 + 30**

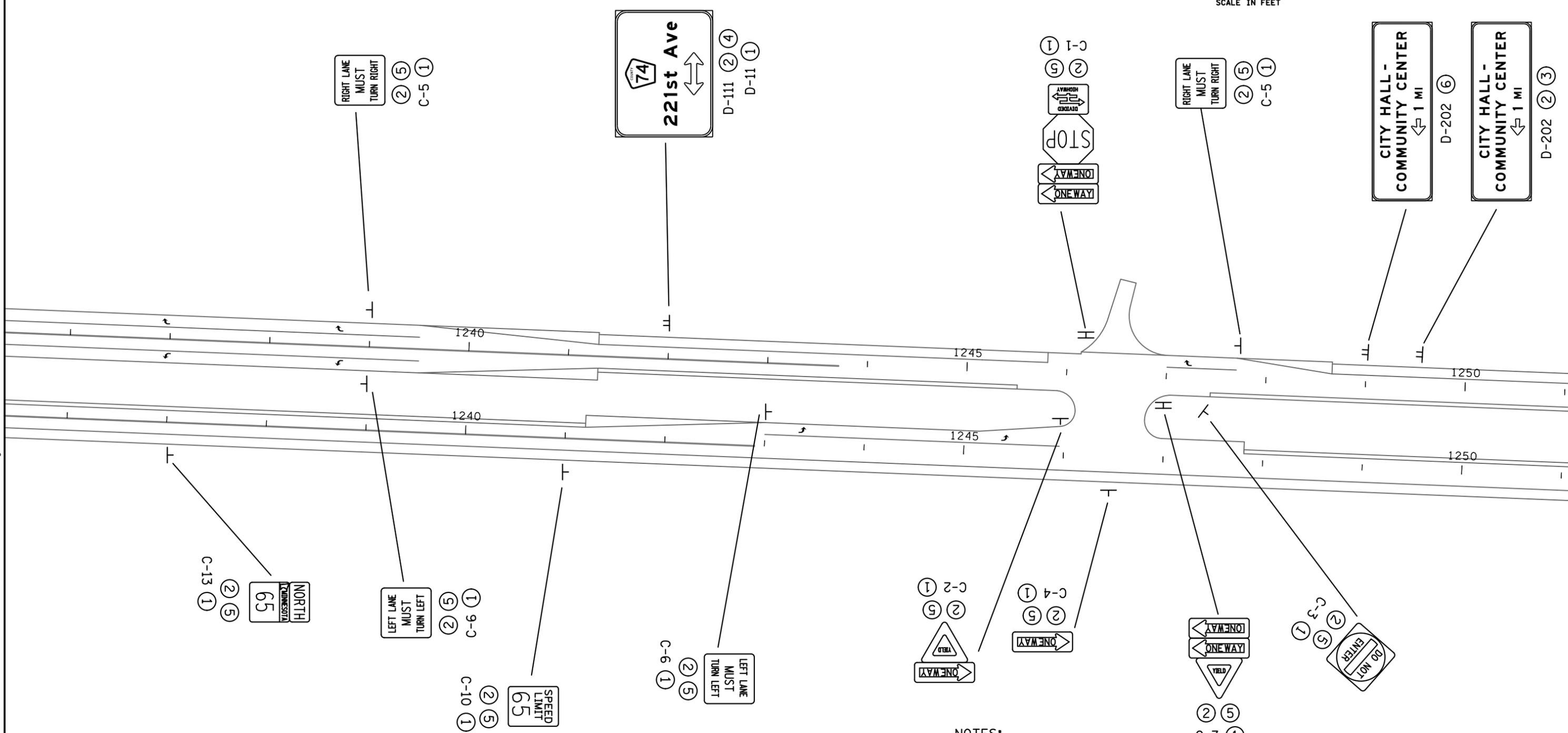
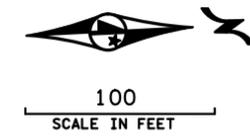
PLOTTED/REVISED: 10/27/2014

DISTRICT #: METRO  
IPLOT NAME: AT GRADE EXSAMPLE PLAN3  
PATH & FILENAME: IP\_PWP-d1432400VAT GRADE EXSAMPLE PLAN.dgn



- NOTES:
- ① F. & I.
  - ② INPLACE
  - ③ SALVAGE
  - ④ REMOVE
  - ⑤ REMOVE SIGN TYPE C
  - ⑥ INSTALL

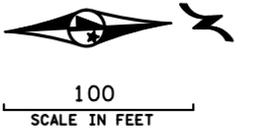
PLOTTED/REVISED: 10/27/2014



- NOTES:
- ① F. & I.
  - ② INPLACE
  - ③ SALVAGE
  - ④ REMOVE
  - ⑤ REMOVE SIGN TYPE C
  - ⑥ INSTALL

DISTRICT #: METRO  
I/PLOT NAME: AT GRADE EXSAMPLE PLAN2  
PATH & FILENAME: IP\_PWP-d1432400VAT GRADE EXSAMPLE PLAN.dgn

PLOTTED/REVISED: 10/27/2014



Lake George Regional Park  
↑

D-112 (2) (4)  
D-12 (1)

C-14 (1)  
(5) (2)  
STOP  
← ONEWAY

C-3 (1)  
(2) (5)  
DO NOT ENTER

74  
221st Ave  
1/2 MILE

D-107 (2) (4)  
D-7 (1)

MILE 28  
(2) (4) (1)

T.H. 65

1255

1260

1265

BR. NO. 6752

1255

1260

1265

CEDAR CREEK

C-8-C (1)  
(5) (2)  
← ONEWAY

MILE 28  
(2) (4) (1)

NOTES:

- (1) F. & I.
- (2) INPLACE
- (4) REMOVE
- (5) REMOVE SIGN TYPE C

END S.P. 0000-00  
T.H. 65 E.B. STA. 1267+00

T.H. 65 STA. 1251+30 - 1267+30

DRAWN BY:

CHECKED BY:

CERTIFIED BY \_\_\_\_\_

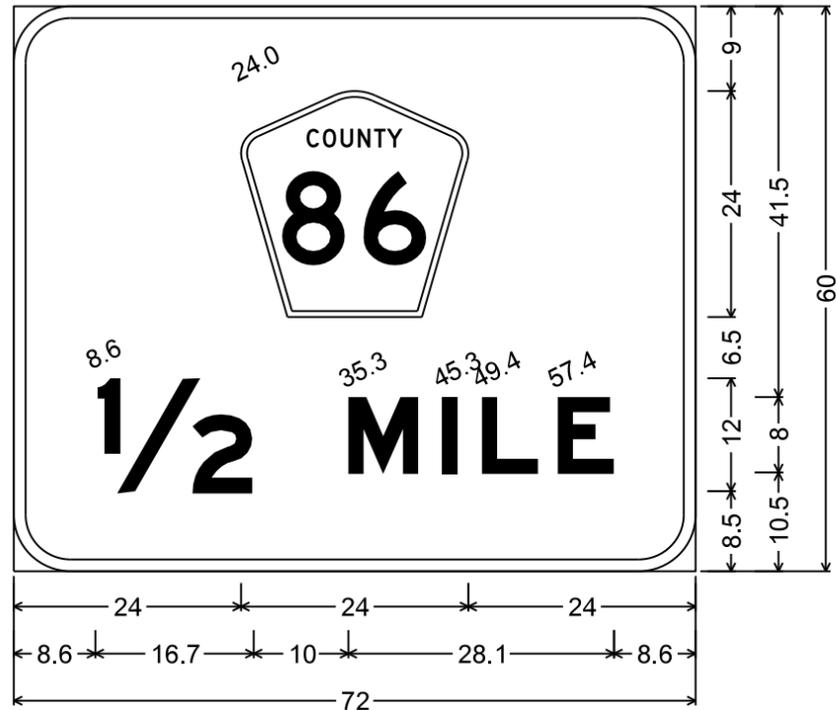
LICENSED PROFESSIONAL ENGINEER

LIC. NO. \_\_\_\_\_

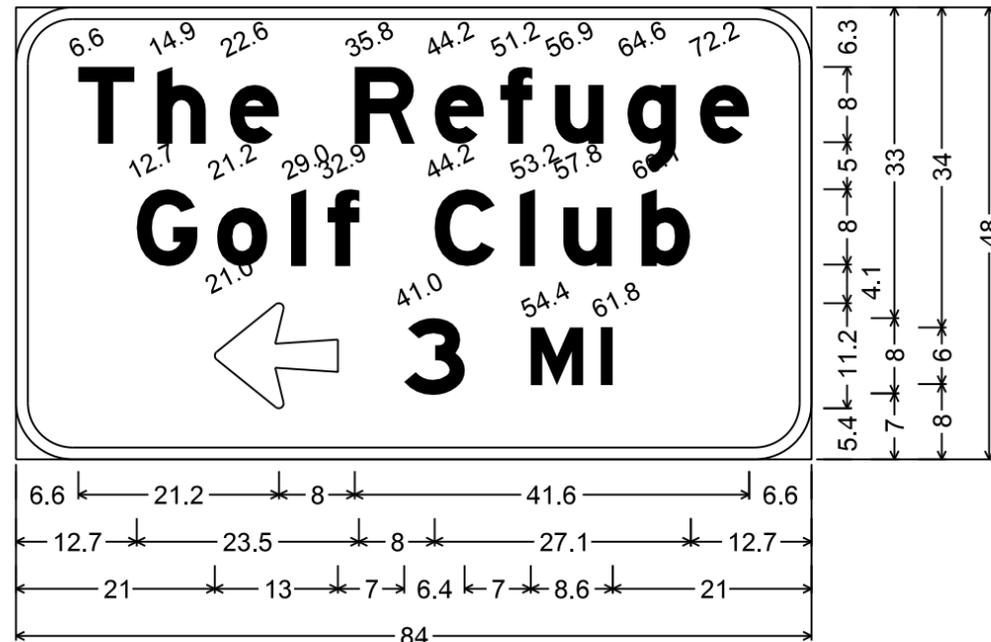
DATE 10/27/2014

STATE PROJ. NO. AT GRADE SAMPLE SHEET NO. 15 OF 25 SHEETS

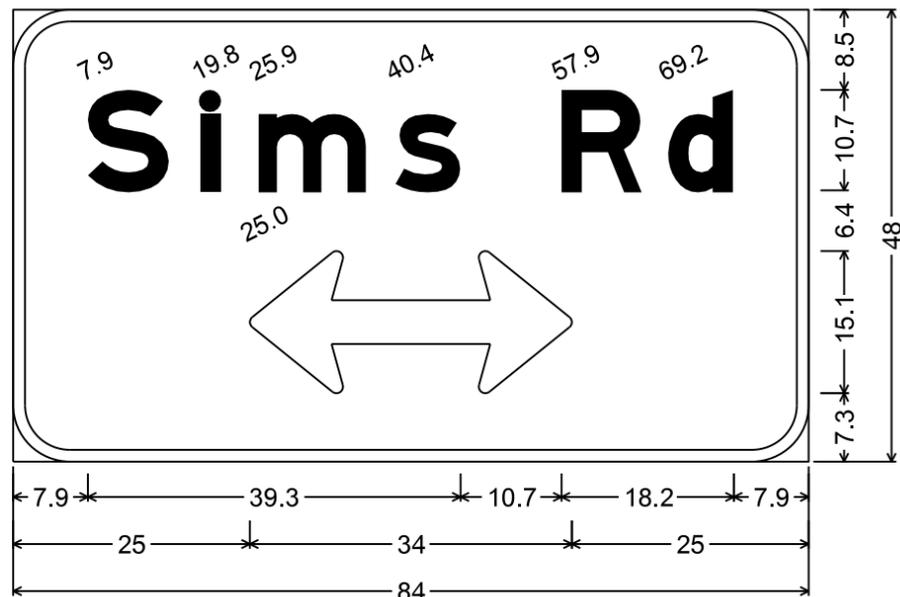
DISTRICT #: METRO  
I/PLOT NAME: AT GRADE EXSAMPLE PLAN1  
PATH & FILENAME: IP\_PWP-d1432400VAT GRADE EXSAMPLE PLAN.dgn



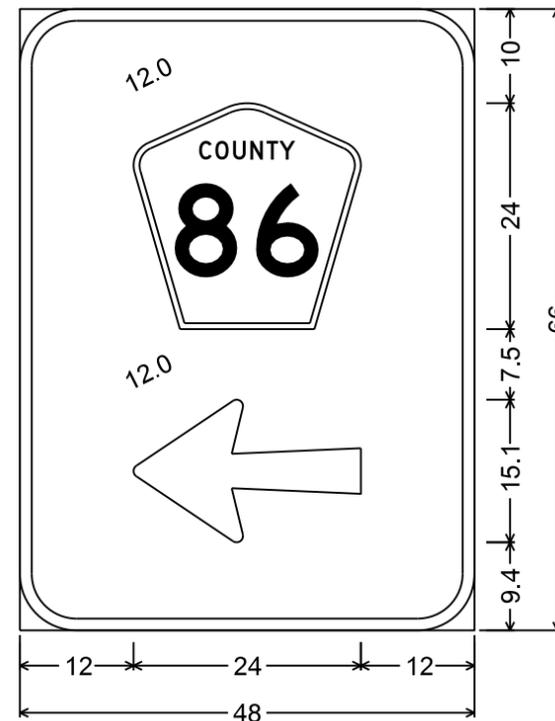
D-1; 6.0" Radius, 1.3" Border, White on Green; [1/2 MILE] E Mod;



D-2; 6.0" Radius, 1.3" Border, White on Brown; [The Refuge] E Mod; [Golf Club] E Mod; Arrow 5 - 13.0" 180°; [3 MI] E Mod;

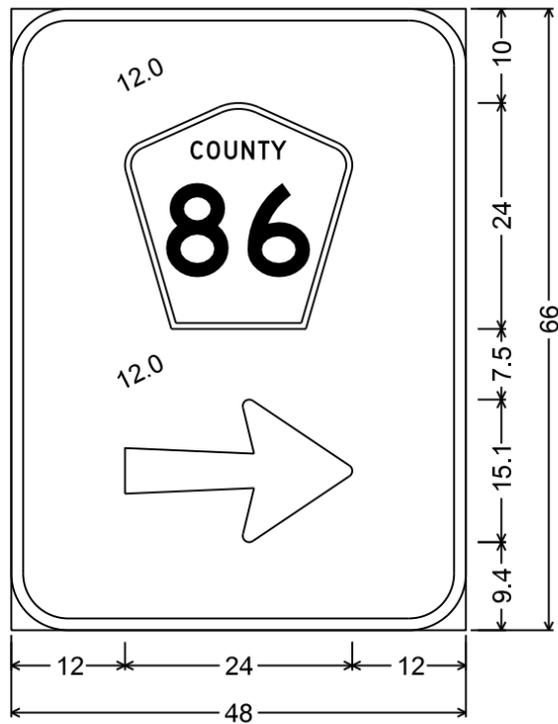


D-3; 6.0" Radius, 1.3" Border, White on Green; [Sims Rd] E Mod; Double Headed Arrow 6 - 34.0" 0°;

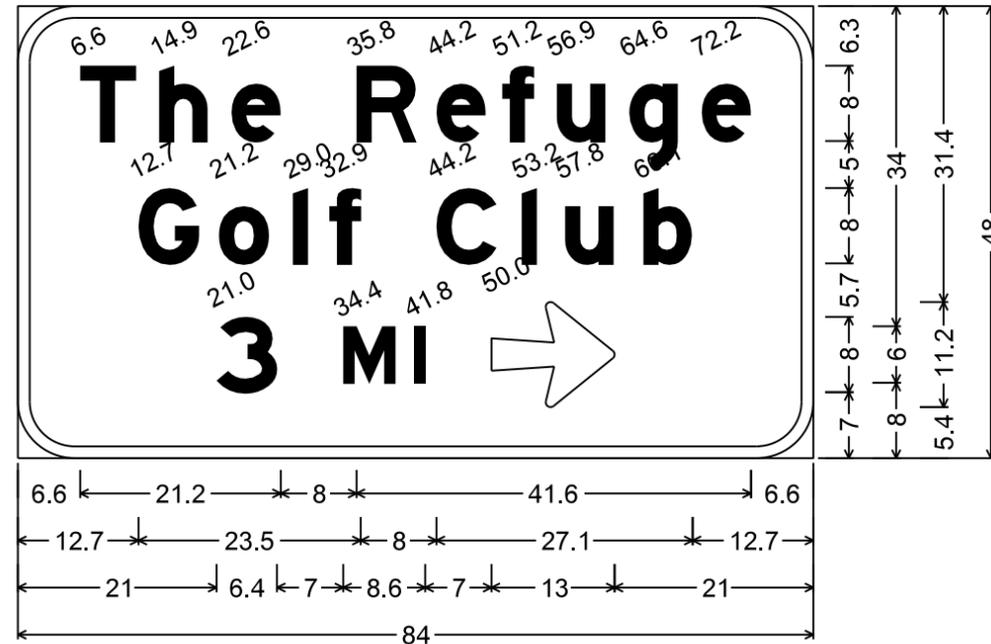


D-4; 6.0" Radius, 1.3" Border, White on Green; Arrow 15 - 24.0" 180°;

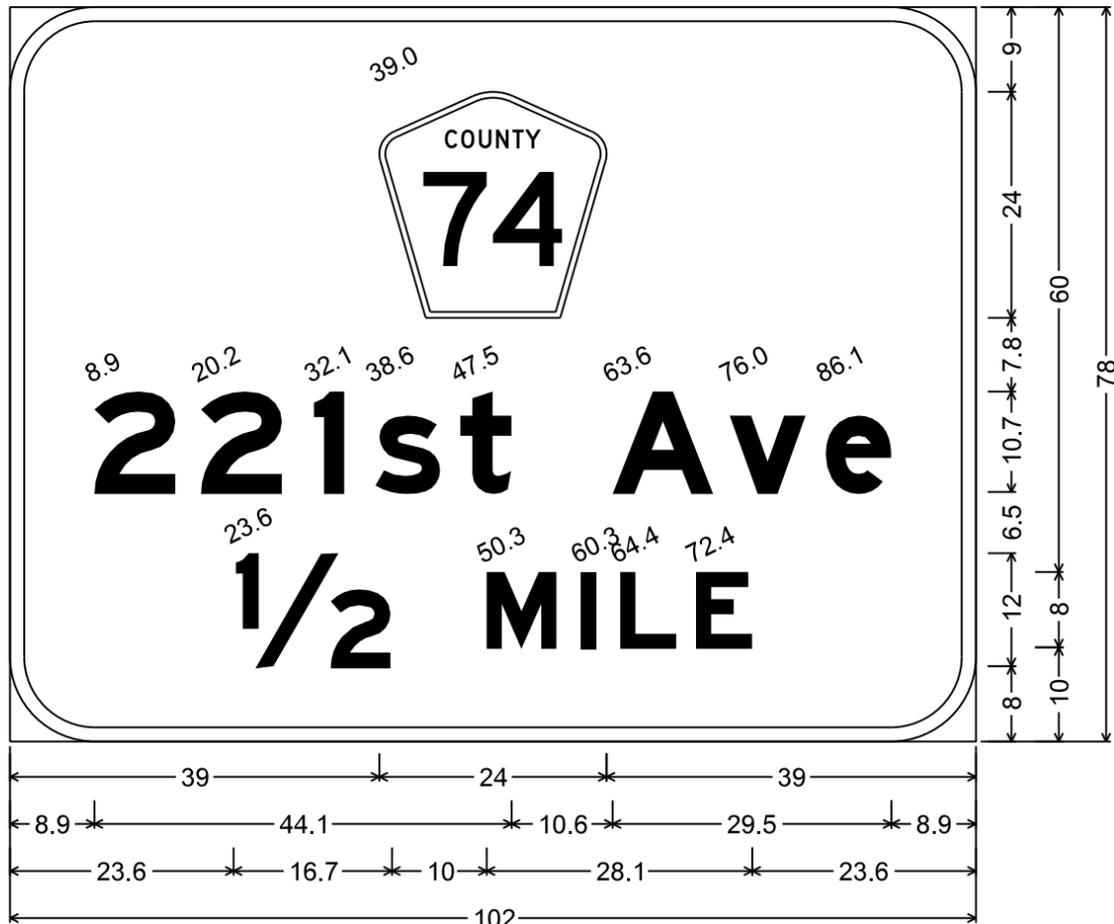
TYPE D SIGN PANELS



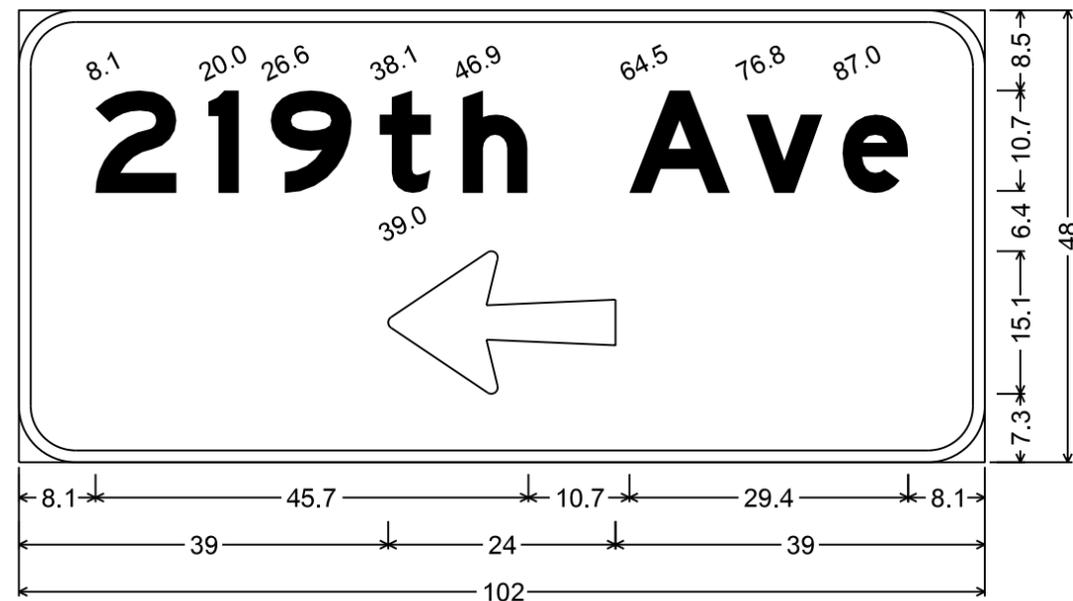
D-5;  
6.0" Radius, 1.3" Border, White on Green;  
Arrow 15 - 24.0" 0°;



D-6; 6.0" Radius, 1.3" Border, White on Brown;  
[The Refuge] E Mod; [Golf Club] E Mod; [3 MI] E Mod;  
Arrow 5 - 13.0" 0°;



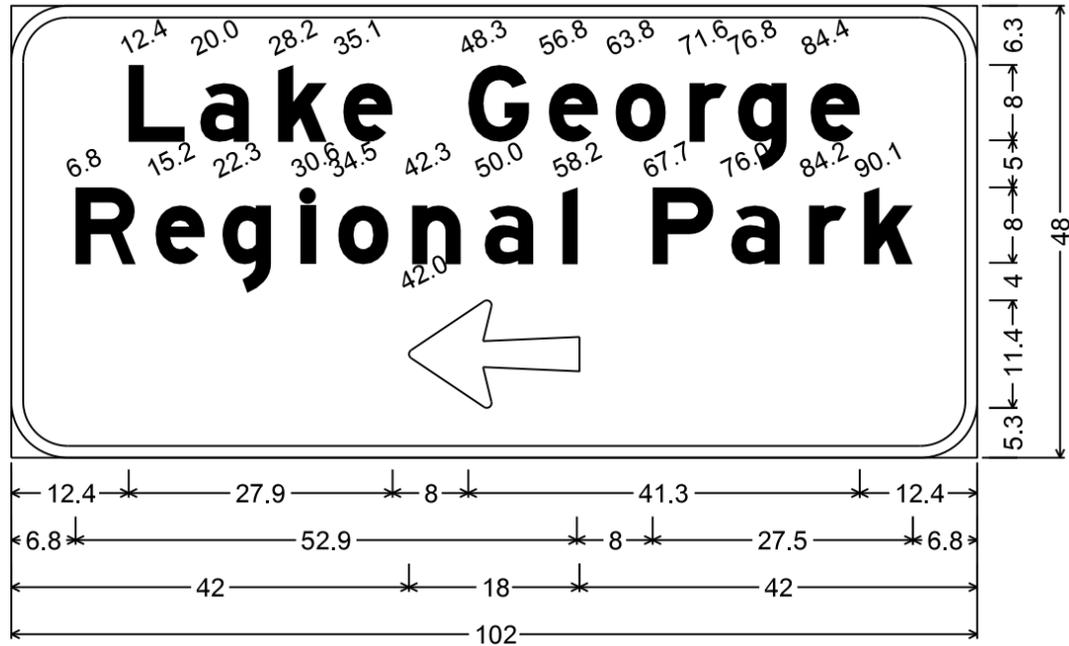
D-7; 9.0" Radius, 1.5" Border, White on Green;  
[221st Ave] E Mod; [1/2 MILE] E Mod;



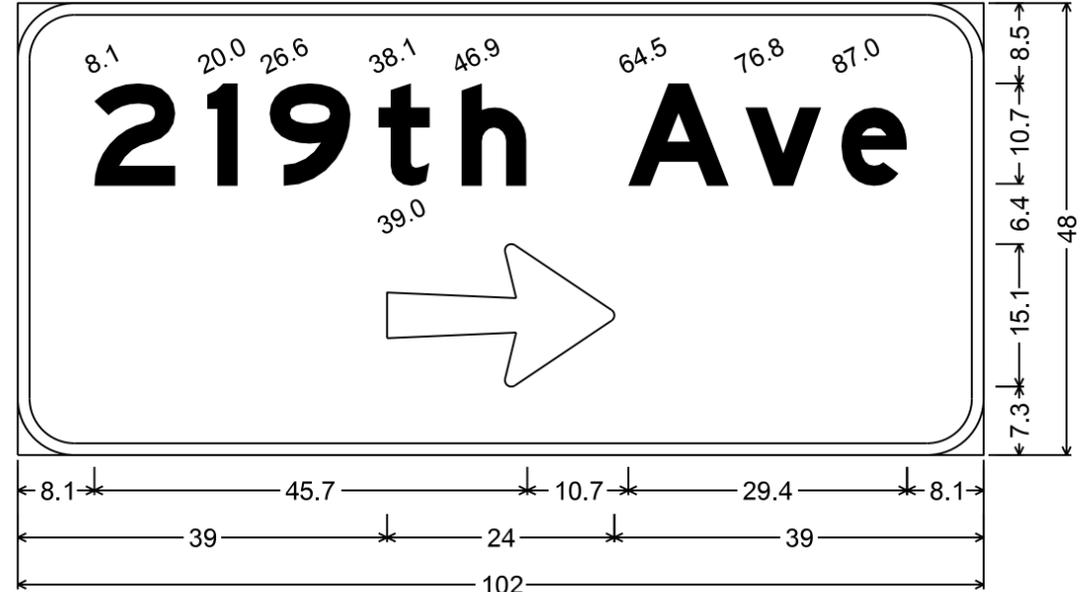
D-8; 6.0" Radius, 1.3" Border, White on Green;  
[219th Ave] E Mod; Arrow 15 - 24.0" 180°;

**TYPE D SIGN PANELS**

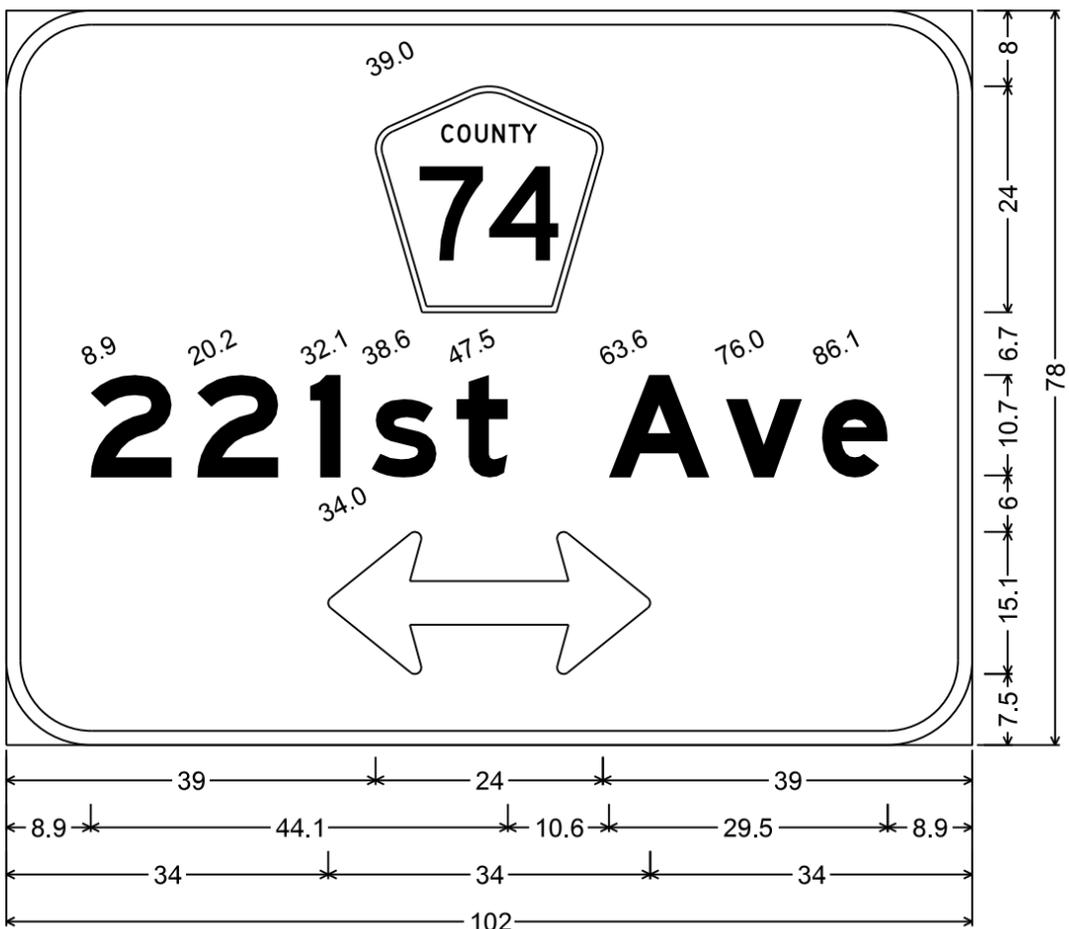
PLOTTED/REVISED: 10/27/2014



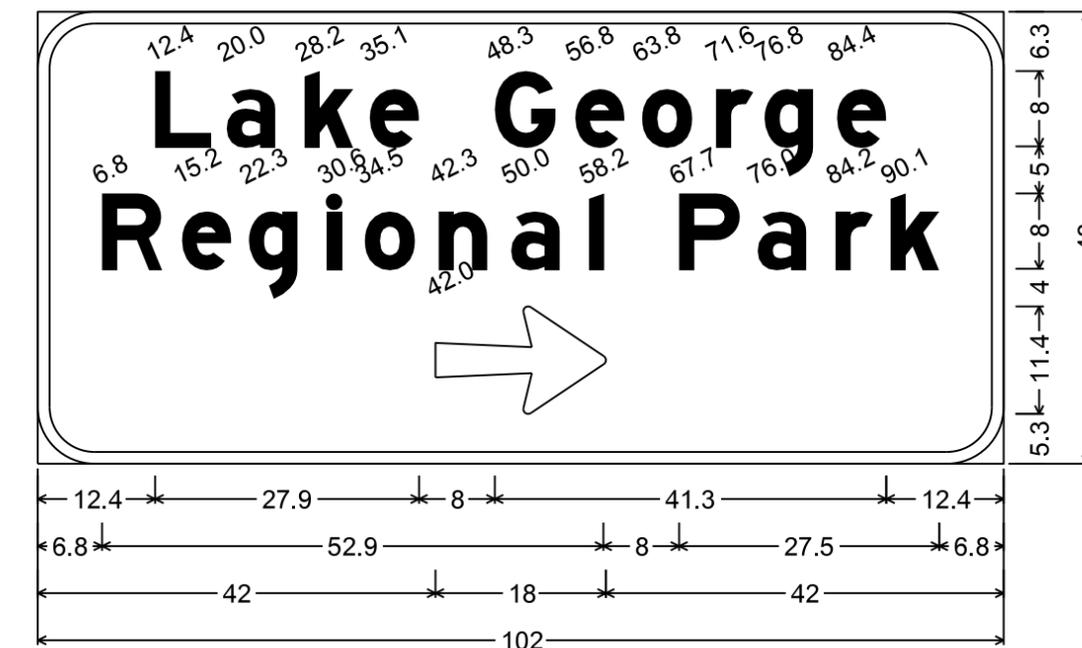
D-9; 6.0" Radius, 1.3" Border, White on Brown;  
 [Lake George] E Mod; [Regional Park] E Mod; Arrow 14 - 18.0" 180°;



D-10; 6.0" Radius, 1.3" Border, White on Green;  
 [219th Ave] E Mod; Arrow 15 - 24.0" 0°;



D-11; 9.0" Radius, 1.5" Border, White on Green;  
 [221st Ave] E Mod; Double Headed Arrow 6 - 34.0" 0°;

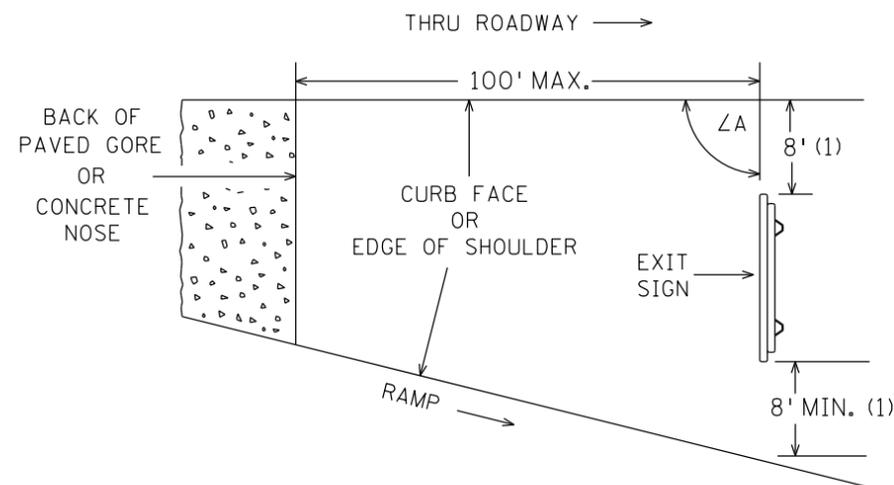


D-12; 6.0" Radius, 1.3" Border, White on Brown;  
 [Lake George] E Mod; [Regional Park] E Mod; Arrow 14 - 18.0" 0°;

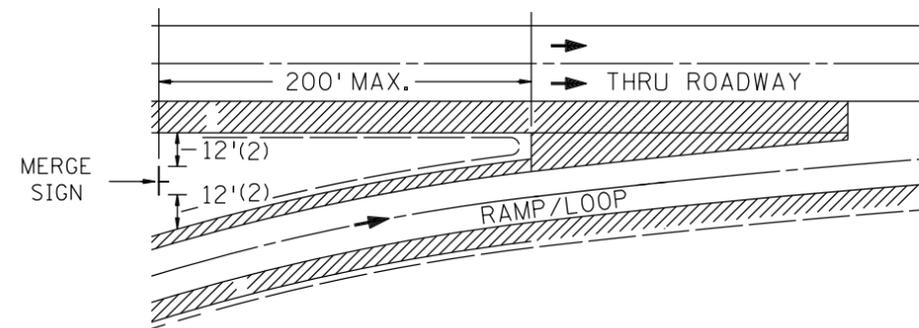
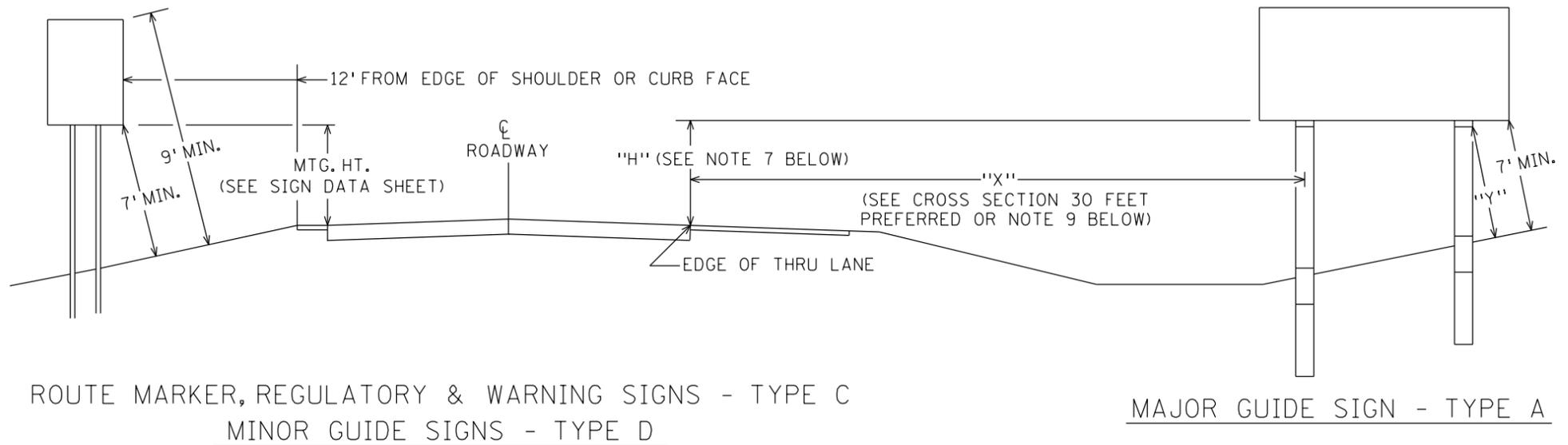
DISTRICT #: METRO  
 PLOT NAME: PANELS2  
 PATH & FILENAME: IP\_PWP-d1432400PANELS.dgn

**TYPE D SIGN PANELS**

GORE PLACEMENT



ROADSIDE PLACEMENT



SPECIFIC NOTES:

(1) EXIT SIGNS

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER WHO WILL CONSULT WITH THE STATE SIGNING ENGINEER.

(2) MERGE SIGNS

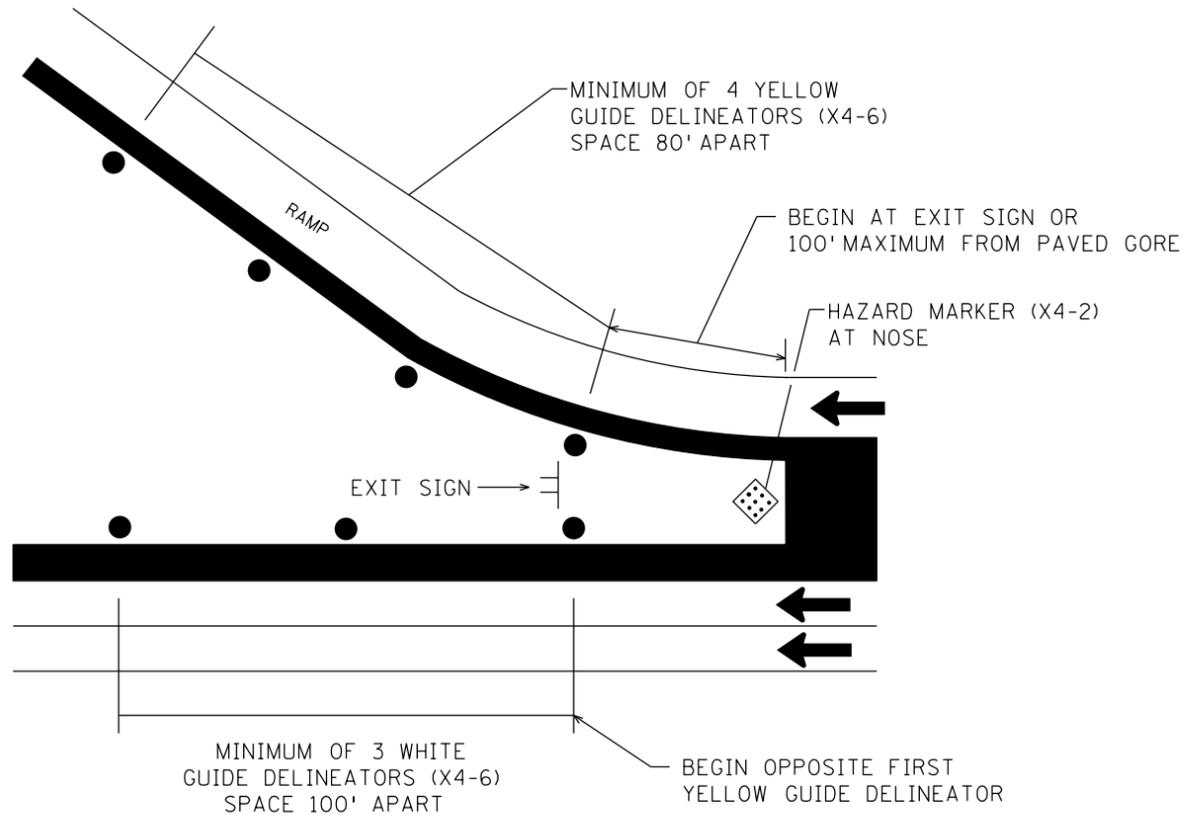
IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER WHO WILL CONSULT WITH THE STATE SIGNING ENGINEER.

NOTES:

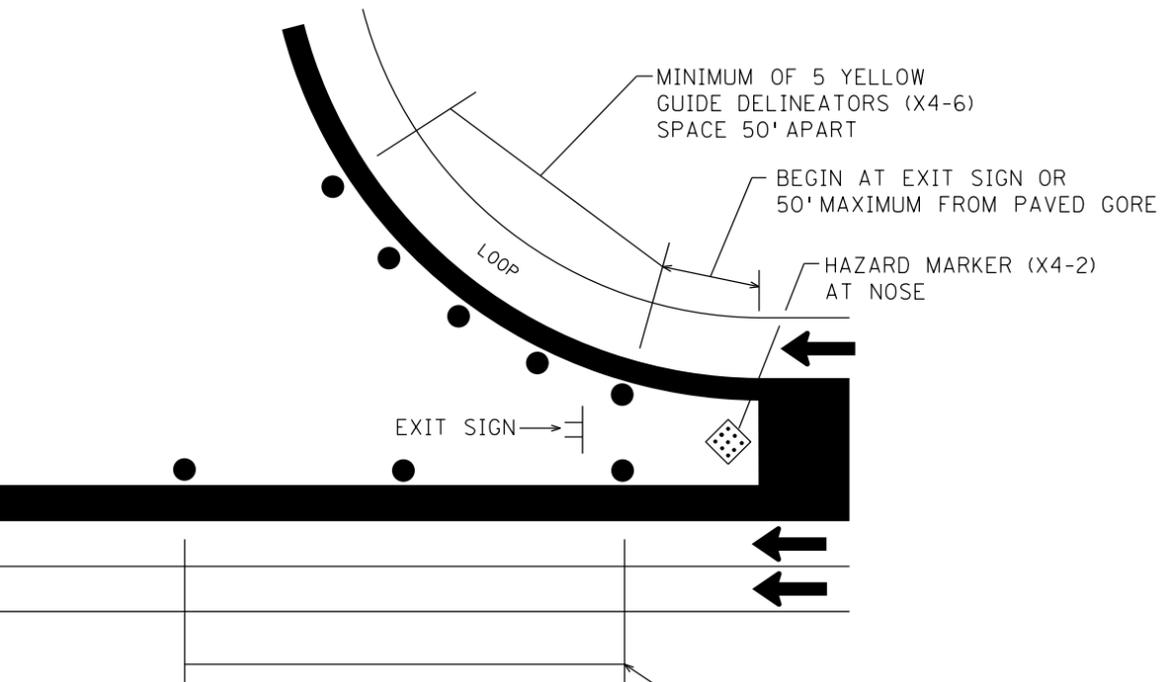
1. IF A SECONDARY SIGN IS MOUNTED BELOW A MAJOR SIGN, THE MAJOR SIGN SHALL BE AT LEAST 8' ABOVE THE THRU LANE EDGE AND THE SECONDARY SIGN AT LEAST 5'.
2. ALL ROUTE MARKERS, WARNING AND REGULATORY SIGNS SHALL BE AT LEAST 7' ABOVE THRU LANE EDGE.
3. SIGN FACES SHALL BE VERTICAL.
4. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
5. TO AVOID SPECULAR GLARE,  $\angle A$  SHALL BE APPROXIMATELY  $93^\circ$  FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY  $92^\circ$  FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
6. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
7. WHERE "X" IS LESS THAN 30', "H" SHALL BE  $7' \pm 6''$ . WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
8. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
9. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

SIGN PLACEMENT

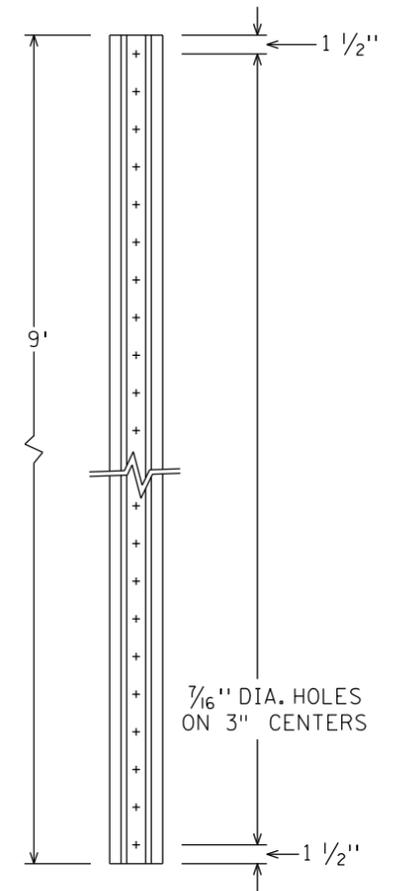
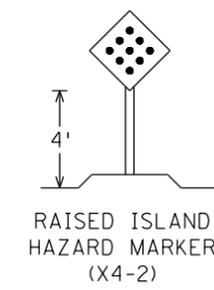
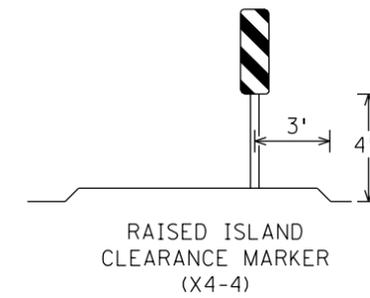
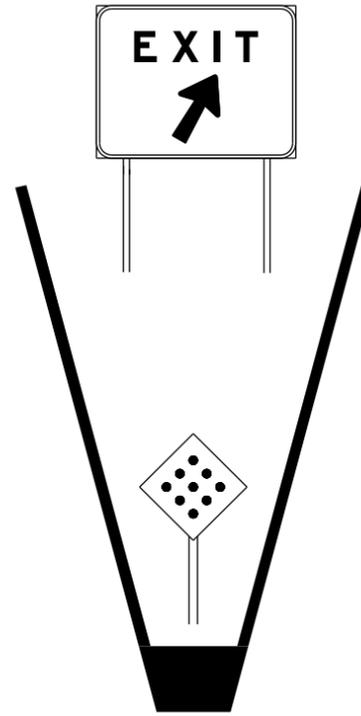
PLOTTED/REVISED: 10/27/2014



PLAN A RAMP DELINEATION

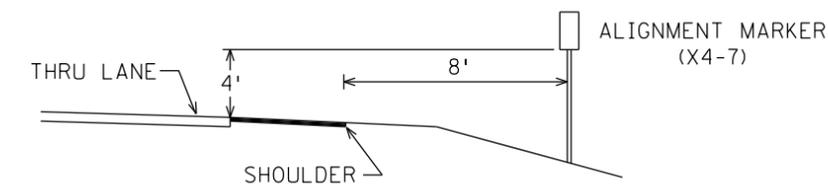
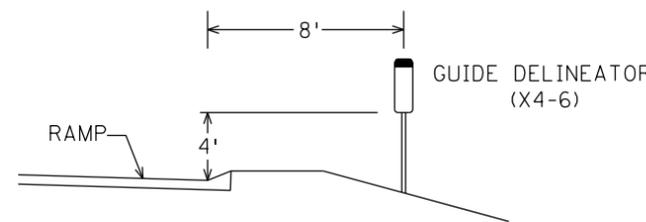
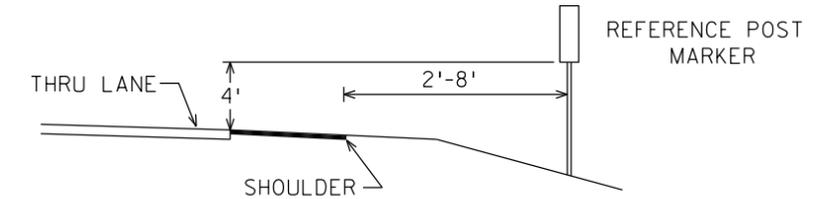
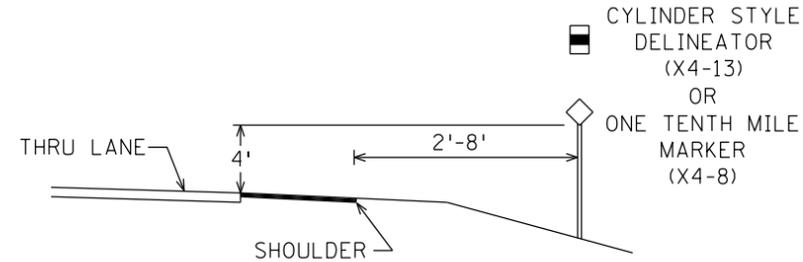


PLAN B LOOP DELINEATION



MNDOT 3401 NORMAL WEIGHT = 2 LB./FT.

DELINEATOR POST

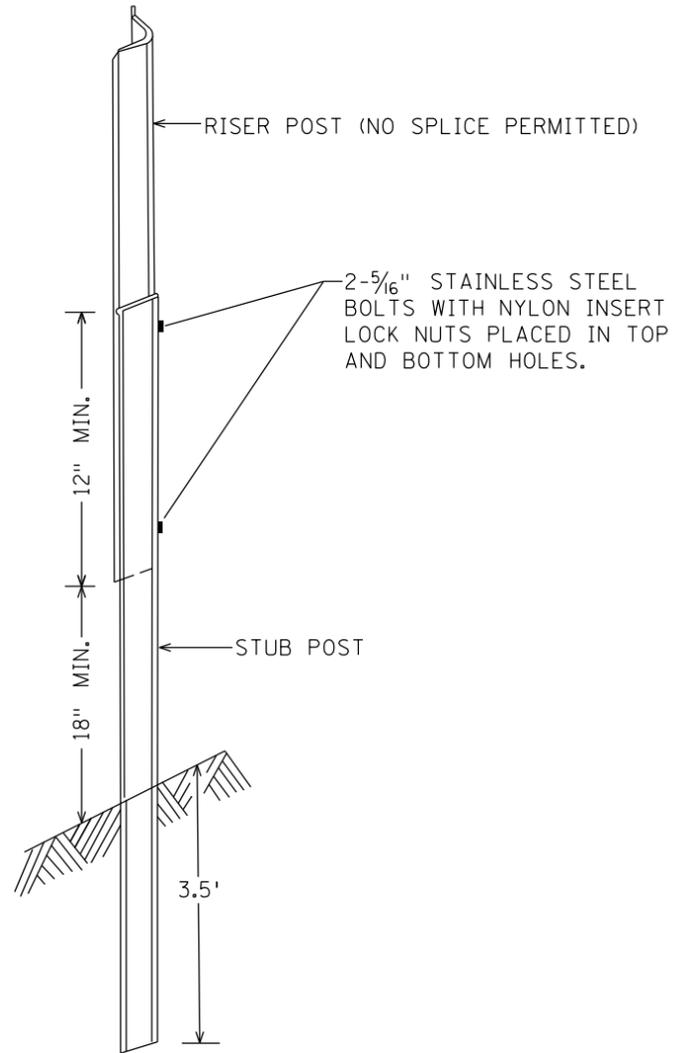


TYPICAL PLACEMENT

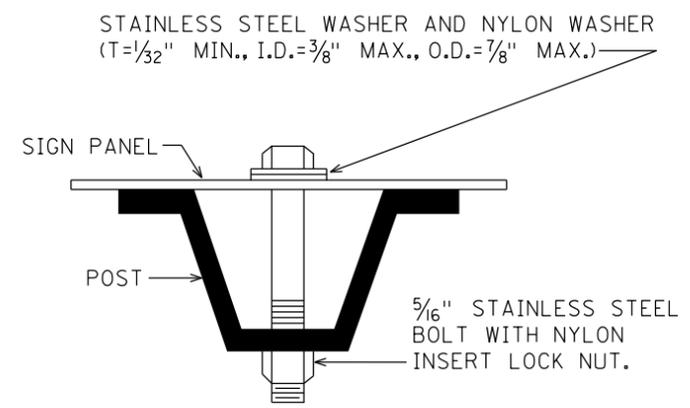
DELINEATORS AND MARKERS

DISTRICT #: METRO  
I/PLOT NAME: STD4  
PATH & FILENAME: IP\_PWP-d1432400STD.dgn

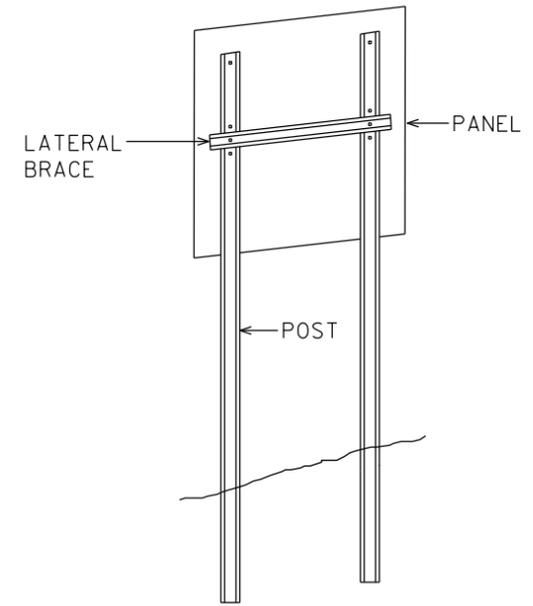
TYPE C & D POST



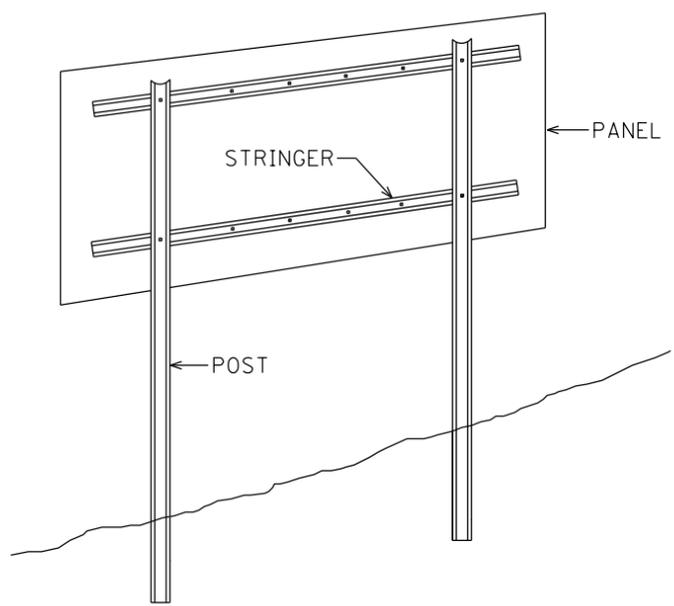
U POST SPLICE



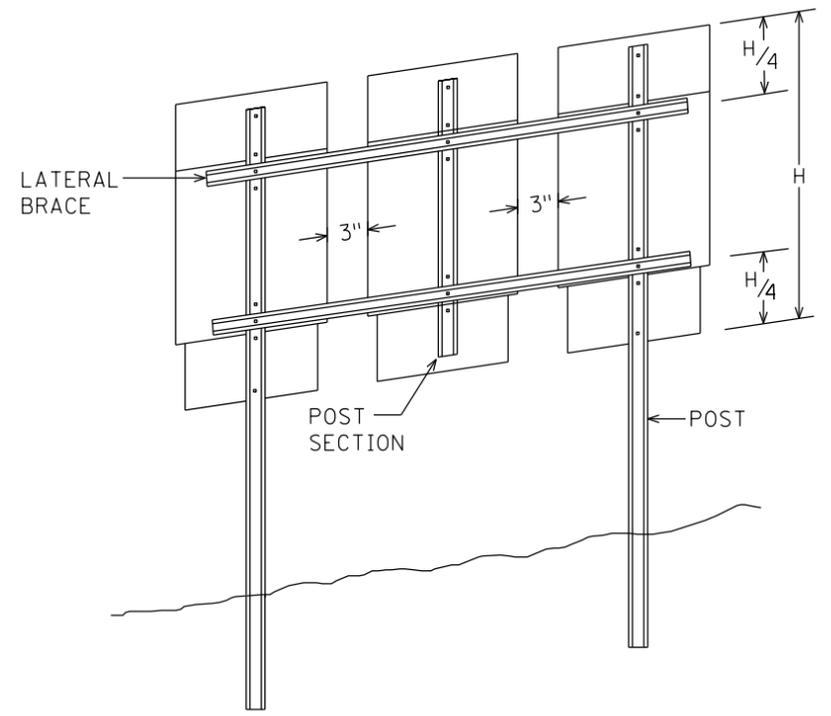
U POST MOUNTING  
TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

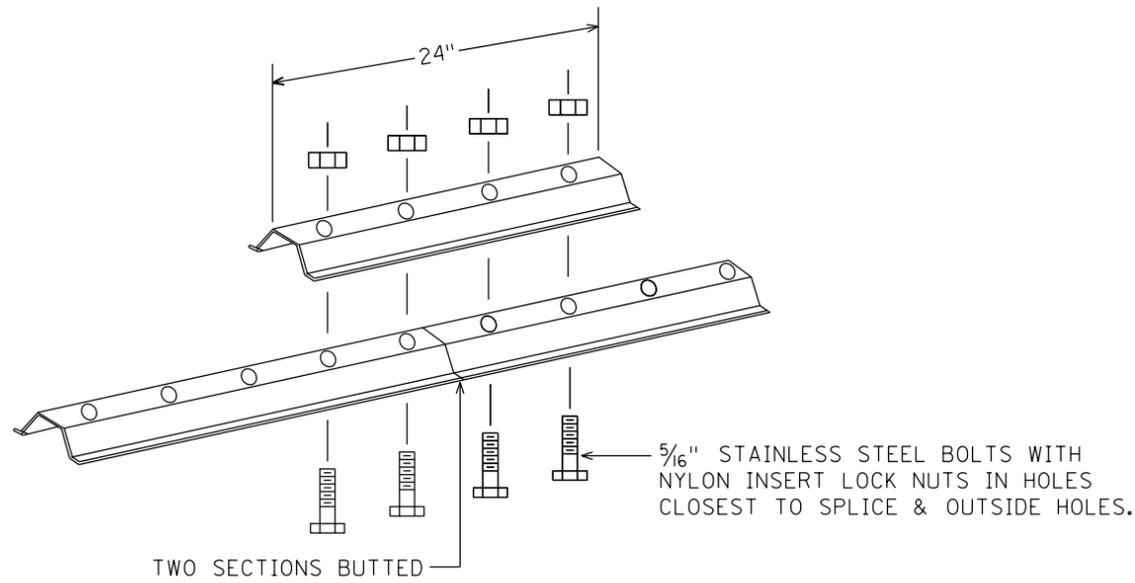
1. USE 3 LB/FT STUB POSTS, RISER POSTS, STRINGERS, KNEE BRACES, LATERAL BRACES AND KNEE BRACE STUB POSTS. ALL SHALL CONFORM TO MNDOT 3401.
2. FOR TYPE D SIGN POSTS LENGTHS AND SPACINGS, SEE SIGN DATA SHEET.
3. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
4. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
5. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
6. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
7. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
8. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 3 1/2'.
9. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
10. COLLARS SHALL BE USED TO SHIM OVERLAYS AND DEMOUNTABLE LEGEND AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A5.
11. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
12. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
13. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN  
STRUCTURAL DETAILS

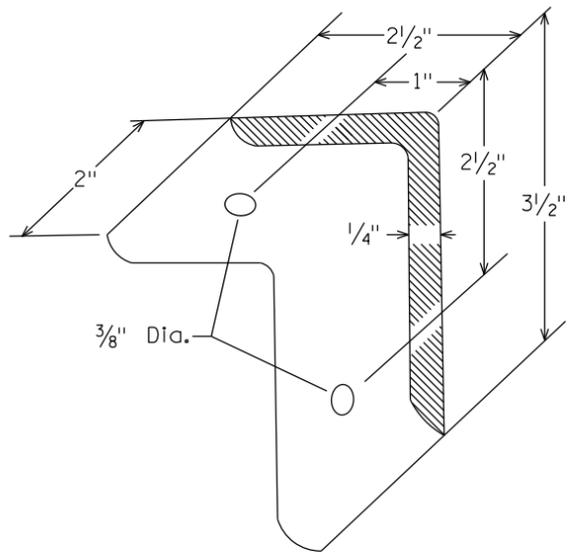
PLOTTED/REVISED: 10/27/2014

DISTRICT #: METRO  
PLOT NAME: STD5  
PATH & FILENAME: IP\_PWP-d1432400STD.dgn

PLOTTED/REVISED: 10/27/2014

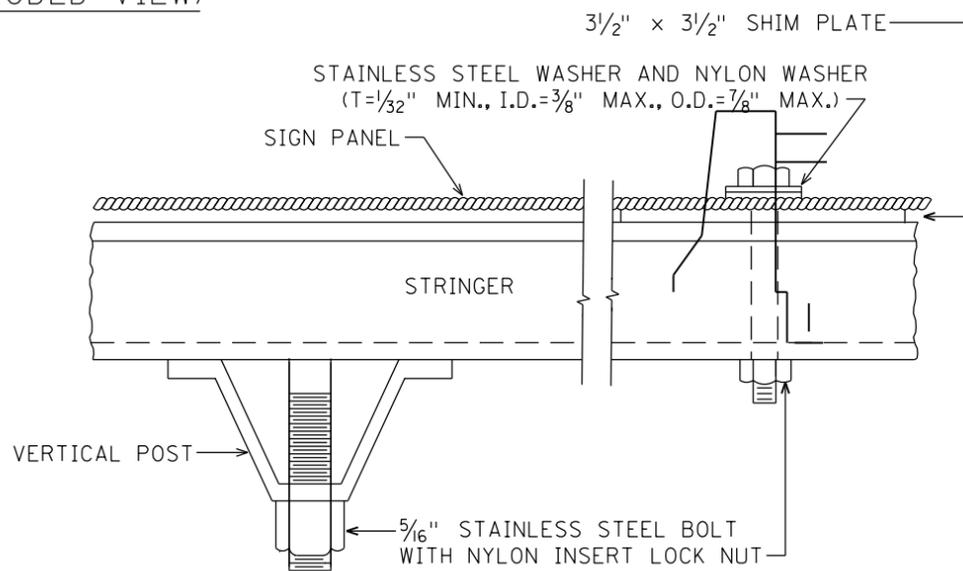
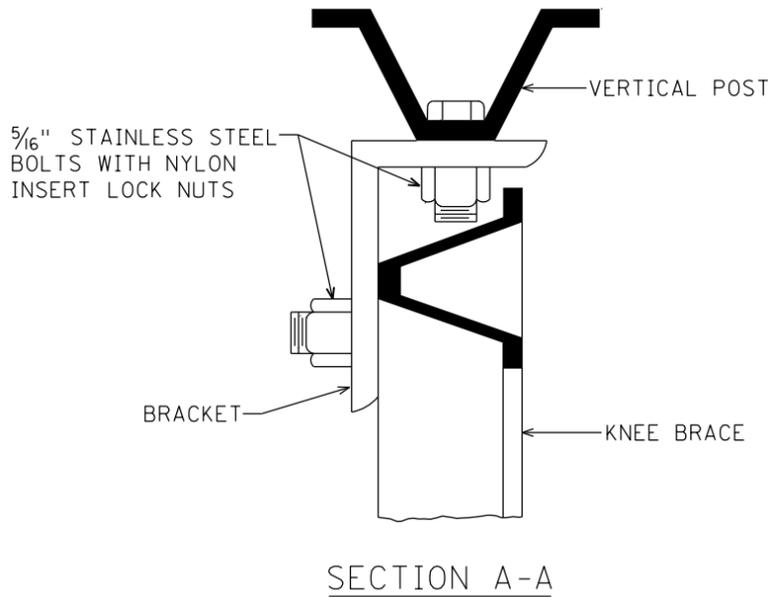


LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)

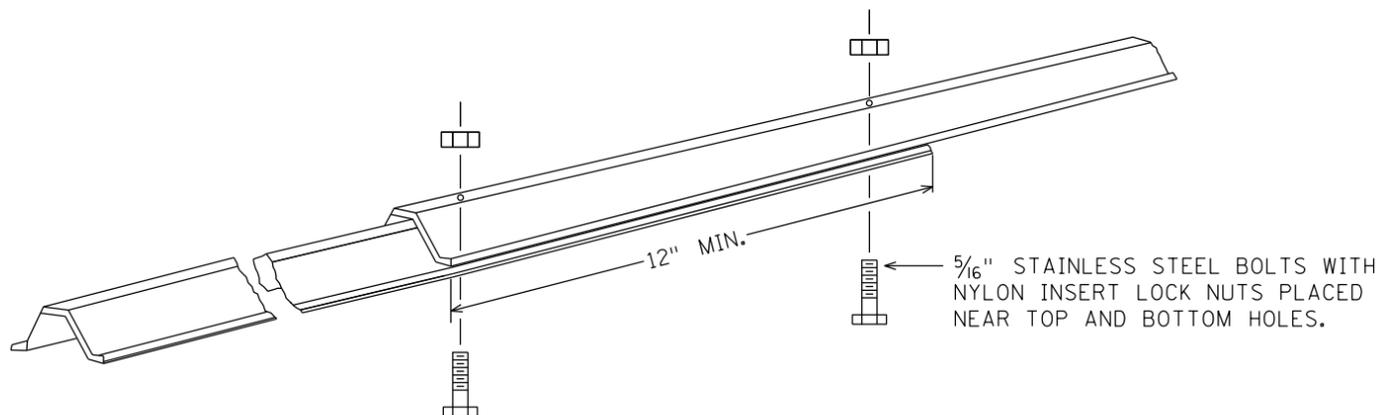


A-FRAME BRACKET

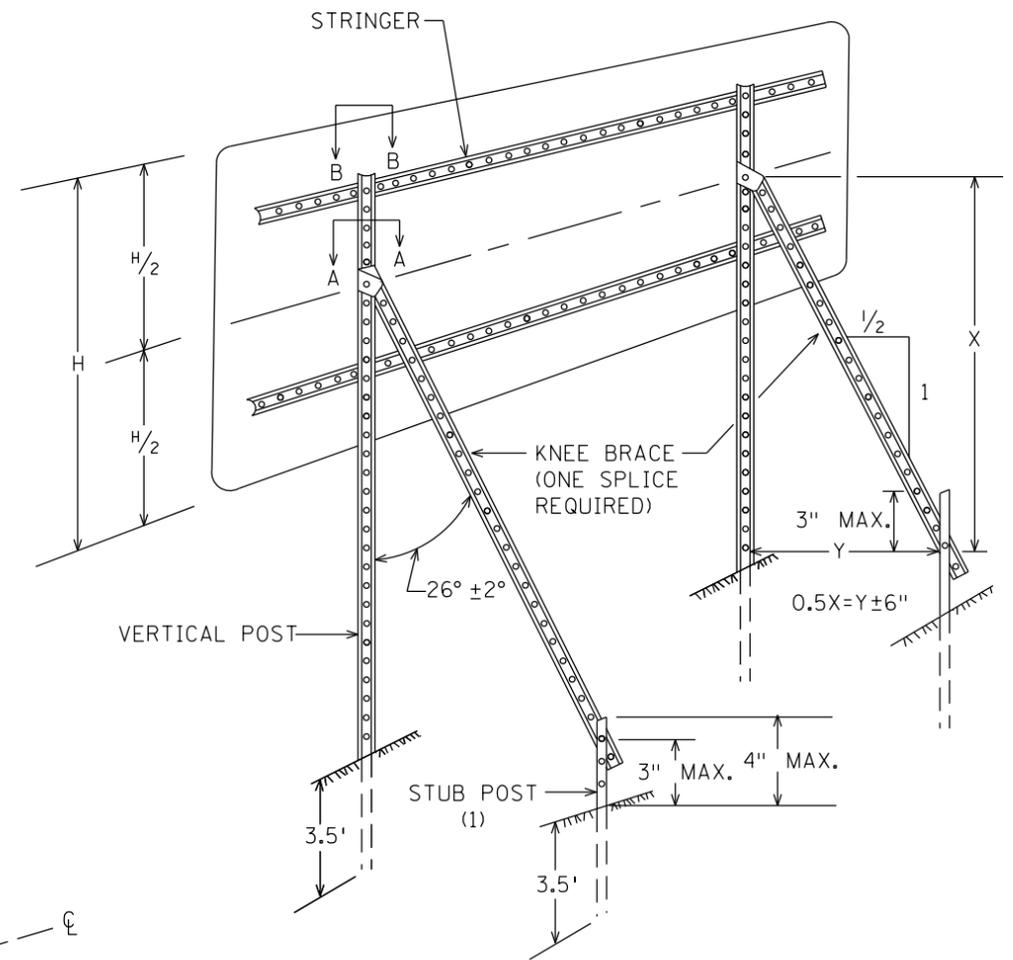
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



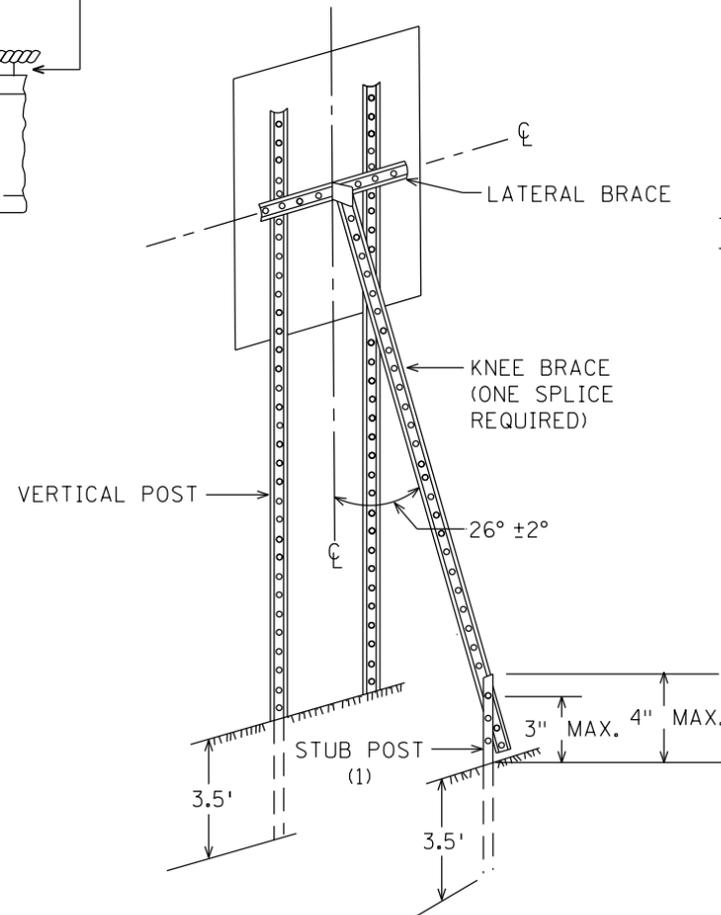
SECTION B-B



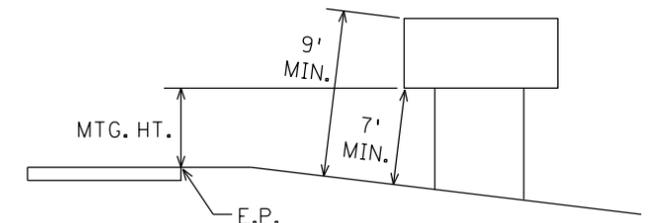
KNEE BRACE SPLICE



TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS



TYPICAL "A-FRAME" INSTALLATION TYPE "C" SIGNS



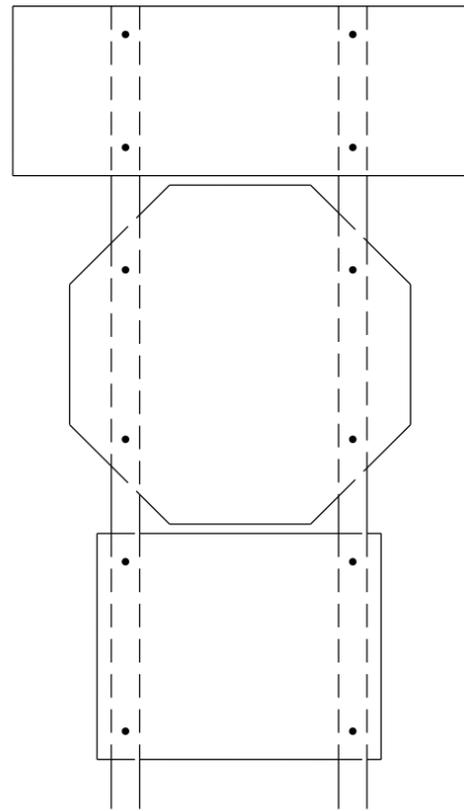
TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.

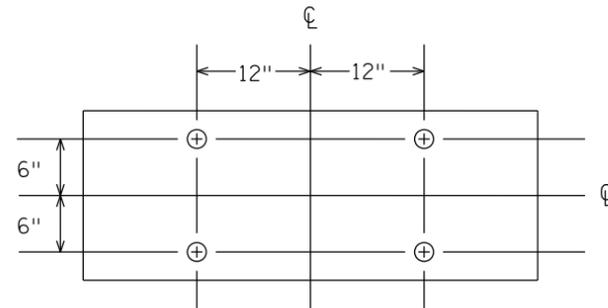
TYPE C & D SIGN STRUCTURAL DETAILS

Sheet 2 of 3

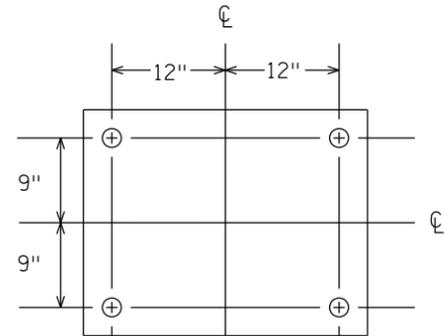
DISTRICT #: METRO  
I/PLOT NAME: STD6  
PATH & FILENAME: IP\_PWP-d1432400STD.dgn



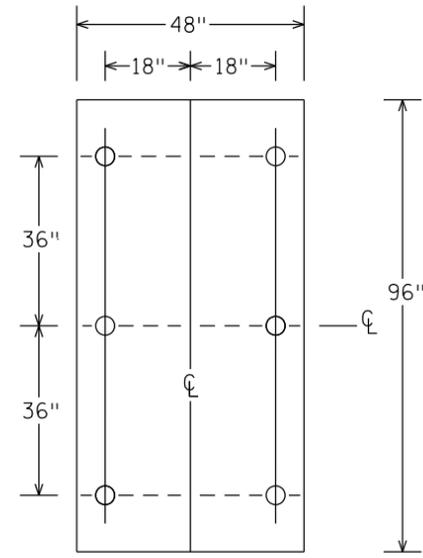
R6-1, R1-1 & (R6-3 OR R6-3a)  
MOUNTING



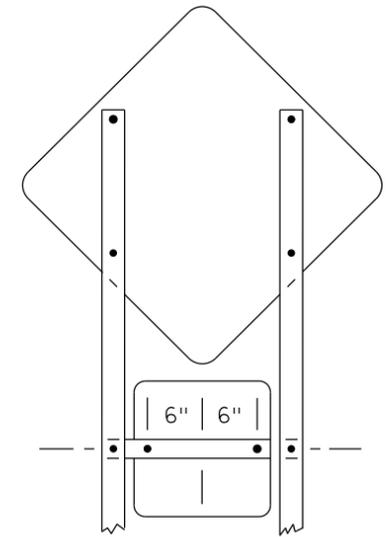
PUNCHING FOR R6-1(48" x 18")



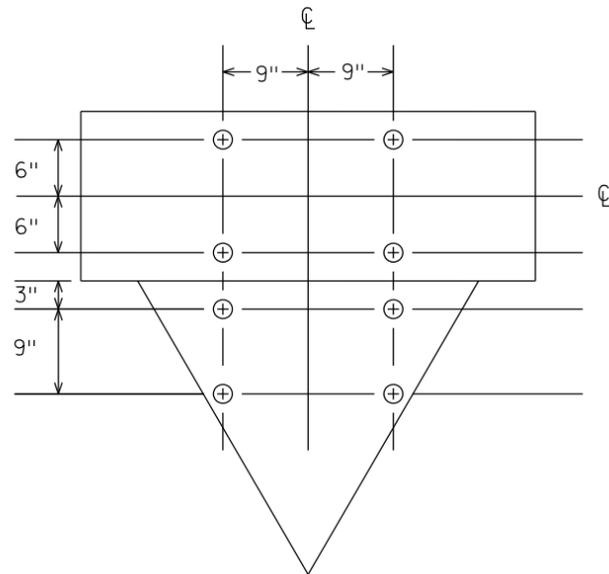
PUNCHING FOR R6-3 OR R6-3a(30" x 24")



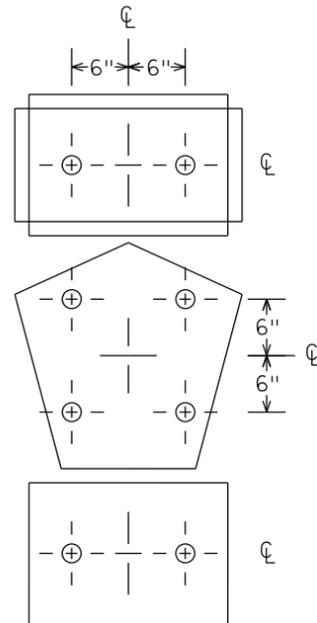
PUNCHING FOR R2-4b  
SPEED LIMIT



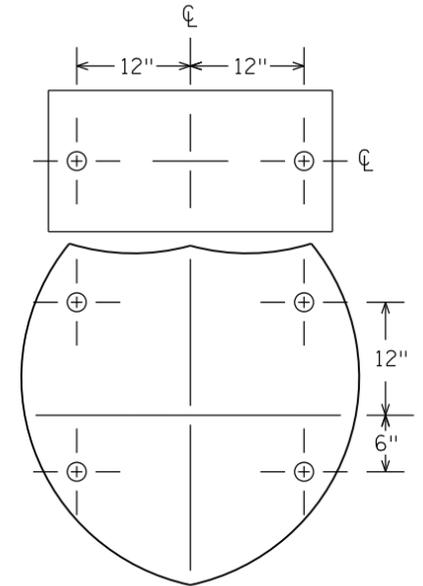
(W1-1, W1-2, W1-3, W1-4 OR W1-5) & W13-1  
MOUNTING



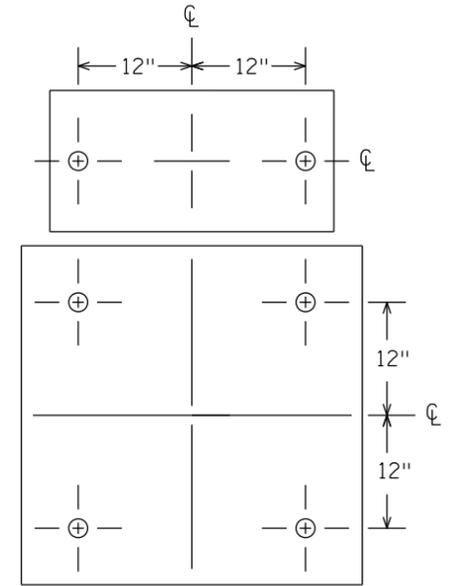
PUNCHING FOR R6-1(48" x 18")  
& R1-2(36" x 36" x 36")



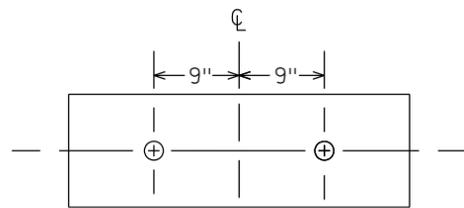
M2-1A [21" x 15"] OR  
(M3-1A, M3-2A, M3-3A OR M3-4A) [24" x 12"] AND  
M1-6 [24" x 24"] AND  
(M5-1A, M5-2A, M6-1A, M6-2A, M6-3A M6-4A, M6-5A OR M6-6A) [21" x 15"]  
PUNCHING



(M3-1A, M3-2A, M3-3A OR M3-4A) [30" x 15"] AND  
M1-1 [45" x 36" OR 36" x 36"]  
PUNCHING

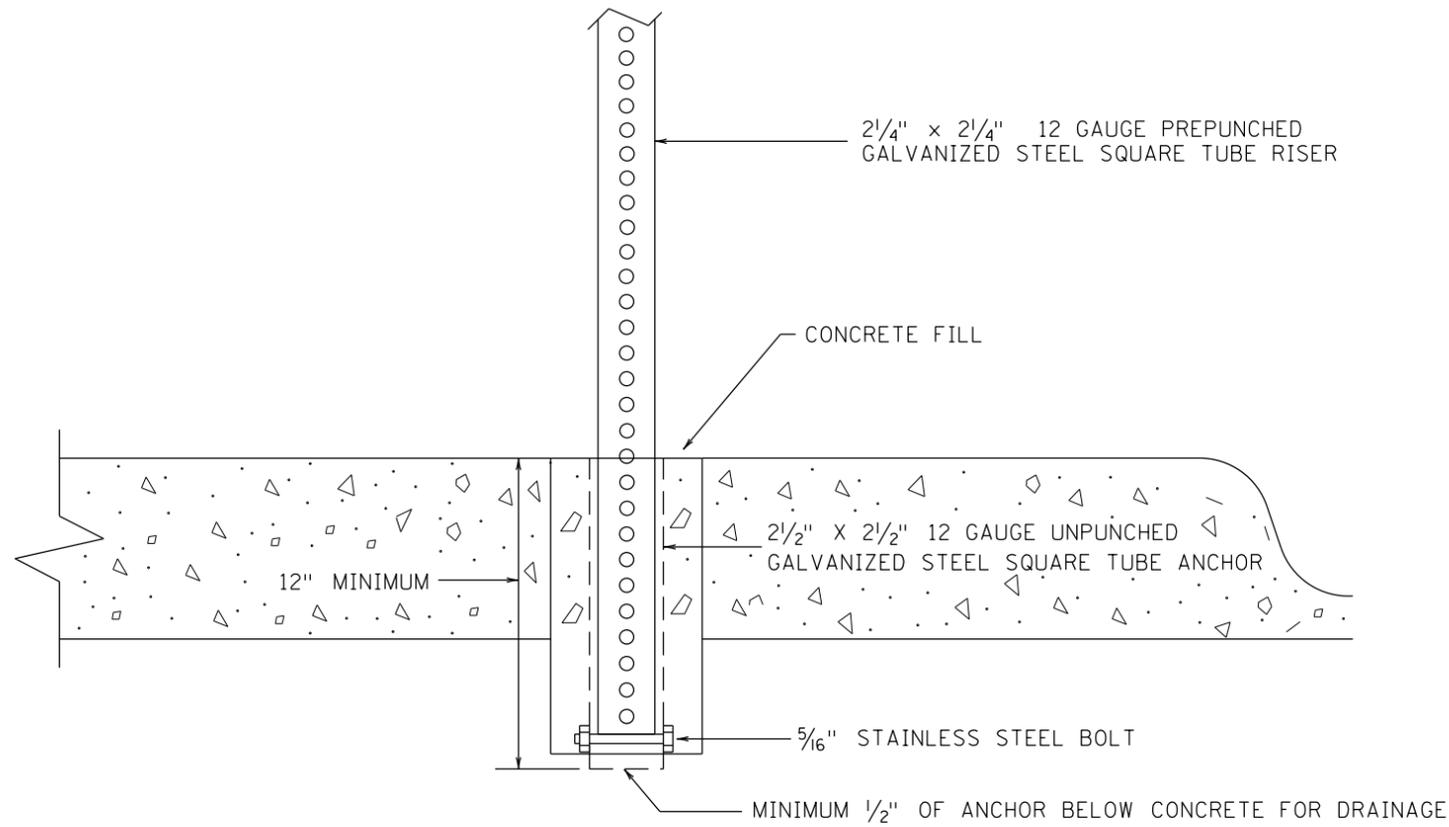


(M3-1, M3-1A, M3-2, M3-2A, M3-3, M3-3A M3-4 OR  
M3-4A) [30" x 15"] AND (M1-4 OR M1-5A) [36" x 36"]  
PUNCHING



PUNCHING FOR R6-1(36" x 12")

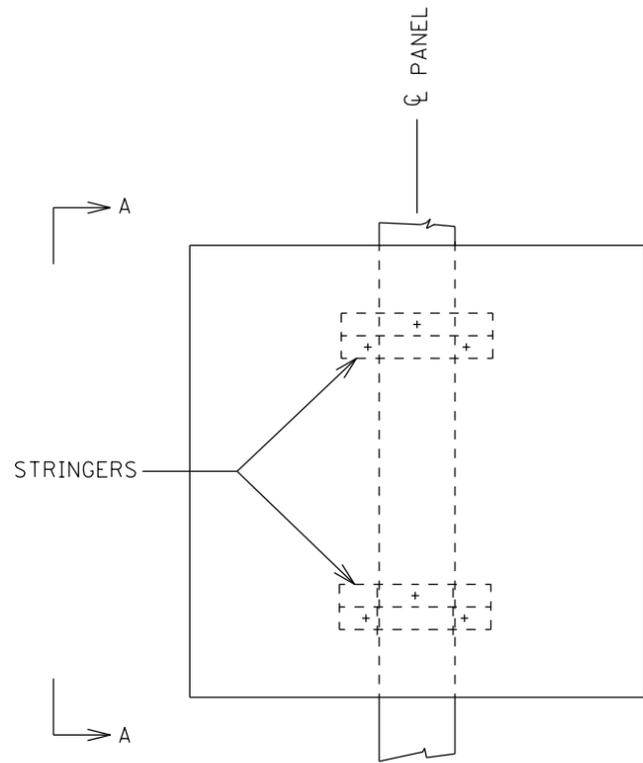
TYPE C & D SIGN  
STRUCTURAL DETAILS



NOTES:

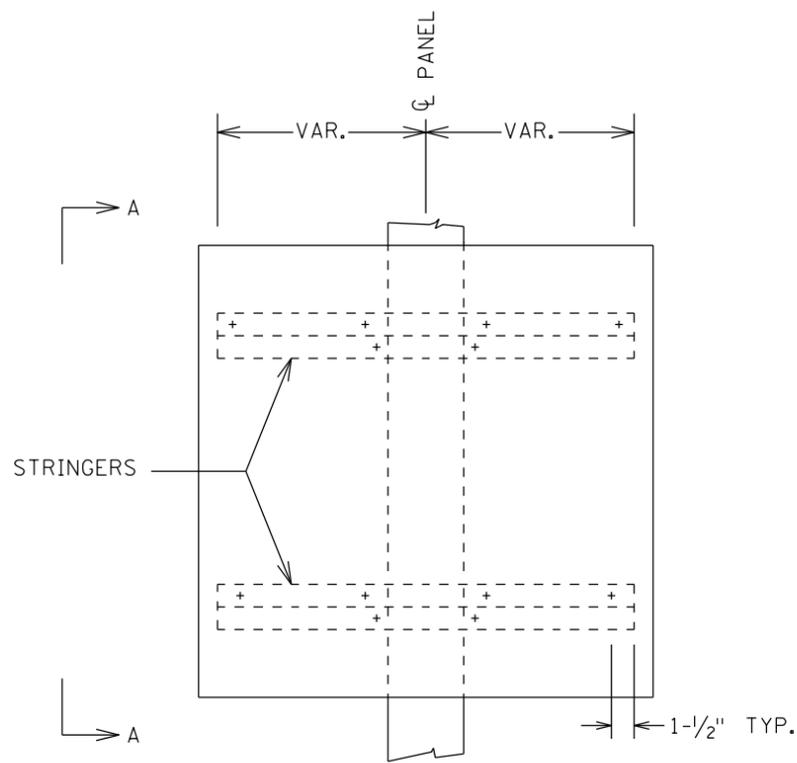
1. DRILL AN 8" DIAMETER HOLE THE FULL DEPTH OF THE ANCHOR.
2. DRILL 3/8" HOLES ON OPPOSITE SIDES OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR APPROX. 1" FROM THE BOTTOM OF THE ANCHOR. INSERT A 5/16" STAINLESS STEEL BOLT THROUGH THE HOLES AND SECURE WITH A STAINLESS STEEL LOCK NUT WITH NYLON INSERT. THE PREPUNCHED GALVANIZED STEEL SQUARE TUBE RISER (TO BE INSERTED INSIDE THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR) WILL REST ON BOLT.
3. INSERT THE ANCHOR IN THE HOLE.
4. AFTER INSTALLATION OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR, FILL THE HOLE WITH A CONCRETE MIX APPROVED BY THE ENGINEER AND LEVEL OFF THE TOP OF CONCRETE.

TYPE C SIGNS, DELINEATORS & MARKERS IN CONCRETE



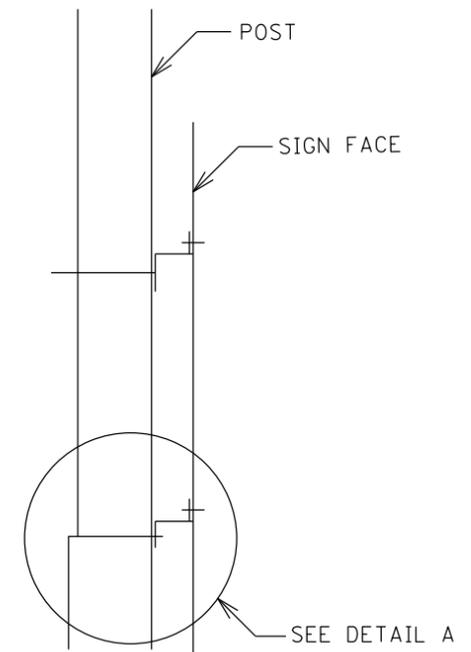
TYPE "C" SIGNS WITH SINGLE POST PUNCHING

ELEVATION

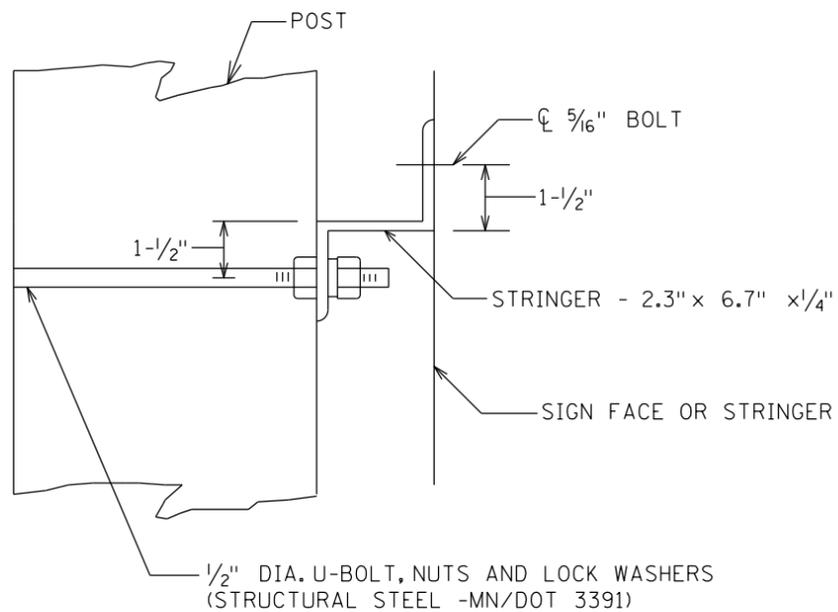


TYPE "C" SIGNS WITH 2-POST PUNCHING

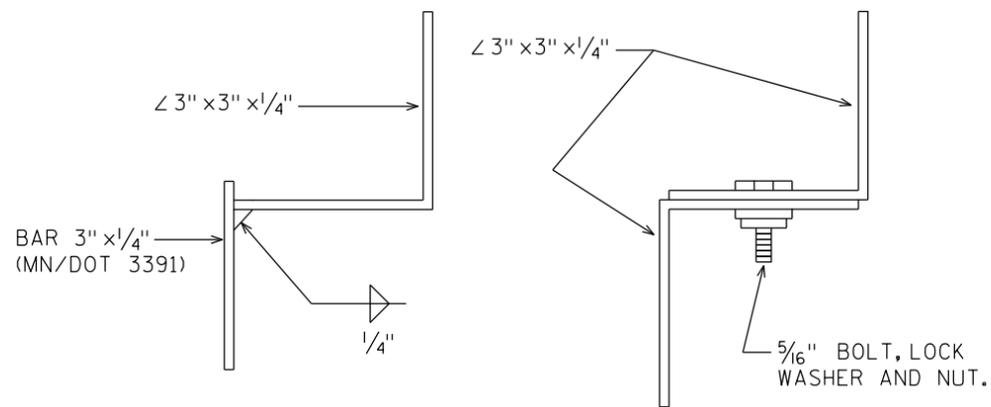
ELEVATION



VIEW A-A



DETAIL A



DETAIL A STRINGER ALTERNATES

NOTES:

1. FOR DETAILS AND NOTES NOT SHOWN SEE "C" & "D" SIGN DETAILS.
2. FOR BACK TO BACK MOUNTINGS, ROTATE STRINGERS FOR ONE PANEL 180° FROM WHAT IS SHOWN SUCH THAT PANELS CAN BE MOUNTED AT SAME ELEVATION.
3. DETAIL A STRINGER MAY BE ONE OF THE THREE DESIGNS DETAILED OR AN APPROVED EQUAL. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH MN/DOT 3306 AND GALVANIZED IN ACCORDANCE WITH MN/DOT 3394. FASTENERS SHALL BE IN ACCORDANCE WITH MN/DOT 3391.2B AND SHALL BE GALVANIZED EITHER BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153, OR BY THE MECHANICAL PROCESS IN ACCORDANCE WITH ASTM B695, CLASS 50 OR GREATER.

TYPE C SIGNS MOUNTED ON O-POSTS,  
OH SIGN POSTS OR SIGNAL STANDARDS