

# MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

CONSTRUCTION PLAN FOR \_\_\_\_\_ MILL BITUMINOUS, BITUMINOUS SURFACING, CURB & GUTTER, AND SEWER REPAIRS \_\_\_\_\_

LOCATED ON CSAH 35 BETWEEN CSAH 6 AND 69 TH AVE

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

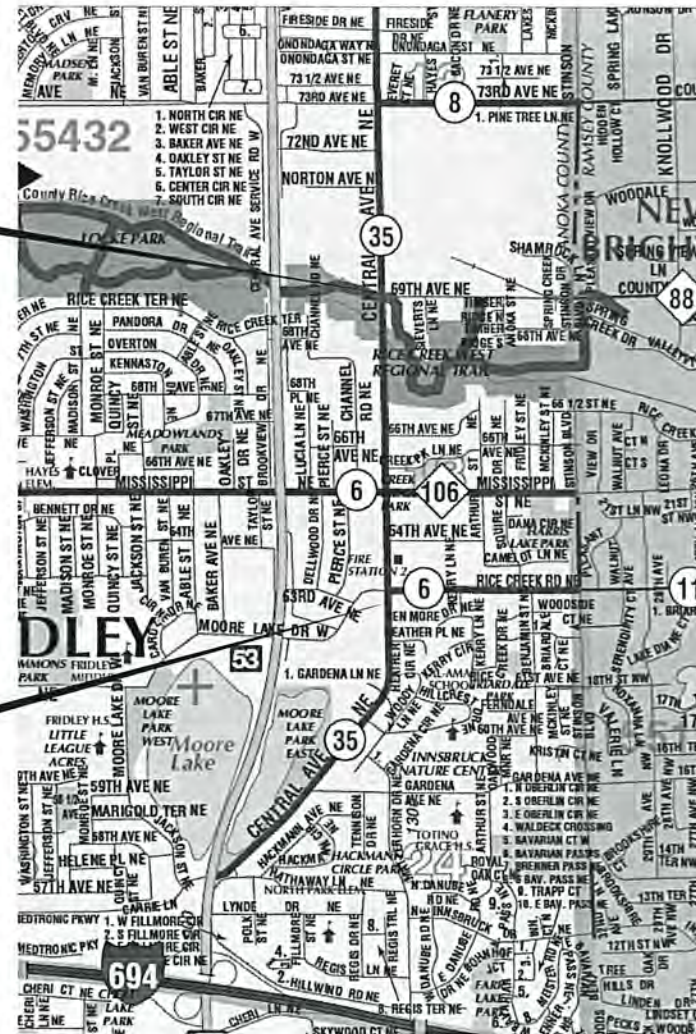
THIS PLAN CONTAINS 22 SHEETS

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END CP 16-17-35  
CSAH 35, STA: 52+58

BEGIN CP 16-17-35  
CSAH 35, STA: 10+31



## PROJECT LOCATION



	<u>CSAH 35</u>	
GROSS LENGTH	4227 FEET	0.800 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	4227 FEET	0.800 MILES
DESIGN SPEED	40 MPH	
CURRENT ADT	7113	

CITY OF FRIDLEY  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTION 20  
TOWNSHIP 30 NORTHWEST  
RANGE 23 WEST

Approved: 4/11/2016  
ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CSAH\_35(CSAH6-69th)\Base\PROPOSED\PLAN.dgn

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: MATTHEW J. JOHN  
SIGNATURE:   
DATE: 4/8/2016 LICENSE NO: 51639

DRAWN BY: KPR DATE: 3/18/2016  
DESIGN BY: KPR DATE: 3/18/2016  
CHECKED BY: MJJ DATE: 3/22/2016



**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 16-17-35

TITLE SHEET  
Sheet 1 of 22 Sheets

mjjohn

**STATEMENT OF ESTIMATED QUANTITIES**

ITEM NUMBER	ITEM DESCRIPTION	NOTES	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
2021.501	MOBILIZATION		LUMP SUM	1
2102.501	PAVEMENT MARKING REMOVAL		SQ FT	10
2102.502	PAVEMENT MARKING REMOVAL		LIN FT	162
2104.501	REMOVE SEWER PIPE (STORM)		LIN FT	18
2104.501	REMOVE CURB & GUTTER	1	LIN FT	2631
2104.503	REMOVE BITUMINOUS WALK		SQ FT	1651
2104.503	REMOVE CONCRETE WALK	1	SQ FT	1210
2104.503	REMOVE CONCRETE MEDIAN	1,2	SQ FT	836
2104.505	REMOVE BITUMINOUS PAVEMENT		SQ YD	763
2104.509	REMOVE CATCH BASIN		EACH	1
2104.509	REMOVE CASTING	1	EACH	12
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	1	LIN FT	188
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	1	LIN FT	2888
2104.523	SALVAGE SIGN PANEL TYPE C		EACH	18
2104.618	REMOVE BRICK PAVER		SQ FT	583
2105.523	COMMON BORROW		CU YD	20
2211.501	AGGREGATE BASE CLASS 5	2,3	TON	140
2232.501	MILL BITUMINOUS SURFACE (2.0")	4	SQ YD	19269
2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	5	SQ YD	1737
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	1050
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	6	TON	200
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (4,E)		TON	2216
2360.505	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	3,7	TON	159
2501.511	15" RC PIPE CULVERT CLASS III		LIN FT	6
2501.511	21" RC PIPE SEWER CLASS III		LIN FT	8
2501.515	21" RC PIPE APRON		EACH	1
2504.602	ADJUST GATE VALVE	8	EACH	15
2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN H		LIN FT	3
2506.501	CONSTRUCT DRAINAGE STRUTURE DESIGN 48-4020		LIN FT	4
2506.516	CASTING ASSEMBLY	9	EACH	15
2506.602	GROUT CATCH BASIN OR MANHOLE	10	EACH	11
2511.501	RANDOM RIPRAP CLASS III		CU YD	41
2521.501	6" CONCRETE WALK		SQ FT	3061
2531.501	CONCRETE CURB AND GUTTER DESIGN B618	1	LIN FT	403
2532.501	CONCRETE CURB AND GUTTER DESIGN B624	1	LIN FT	15
2531.501	CONCRETE CURB AND GUTTER DESIGN S512	1	LIN FT	1914
2531.618	TRUNCATED DOMES		SQ FT	200
2545.602	ADJUST HANDHOLE	8	EACH	4
2550.602	LOOP DETECTOR DESIGN NMC	11	EACH	12
2563.601	TRAFFIC CONTROL	12,13	LUMP SUM	1
2563.610	POLICE OFFICER		HOURL	40
2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	14	UNIT DAY	14
2564.531	SIGN PANEL TYPE C		SF	43.25
2565.602	RELOCATE PUSH BUTTON	8	EACH	6
2573.530	STORM DRAIN INLET PROTECTION	15	EACH	28
2574.525	COMMON TOPSOIL BORROW (LV)		CU YD	171
2575.523	EROSION CONTROL BLANKETS CATEGORY 0	16	SQ YD	1023
2581.501	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	17	LN FT	676
2582.501	PAVEMENT MESSG PREF THERMO	18, 20	SQ FT	2753
2582.502	4" SOLID LINE EPOXY	18	LN FT	12380
2582.502	4" BROKEN LINE EPOXY	18	LN FT	510
2582.502	4" DOUBLE SOLID LINE EPOXY	18	LN FT	2405

**CONSTRUCTION NOTES**

1	REFERENCE DETAILS (PAGE 5) FOR REMOVAL DETAILS
2	EXCAVATION AND DISPOSAL OF EXISTING GRADING MATERIAL IS INCIDENTAL TO AGGREGATE BASE CLASS 5.
3	ITEM USED AT CONCRETE CURB, MEDIAN AND WALK REPLACEMENT AREAS, AS WELL AS AT STORM AND SANITARY SEWER
4	DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM
5	TO BE USED FOR MILLING STREET APPROACHES AND/OR DETAIL MILLING AREAS AS IDENTIFIED IN THE PLAN. DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
6	STREET APPROACHES ARE TO BE PAVED AFTER MAINLINE PAVING BUT BEFORE FINAL STRIPING.
7	ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, MEDIAN REMOVAL, AND ANY POTHOLES.
8	ITEM TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
9	ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS.
10	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, AND CASTINGS AS REQUIRED (SEE DRAINAGE TAB, PAGE 3).
11	FULL LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY TO DETERMINE PLACEMENT. SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN. INCLUDES ADVANCE LOOPS ON SIDE STREETS. (OUTSIDE OF MILL AREA, NOT SHOWN
12	CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
13	ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO AND BE INSTALED IN ACCORDANCE WITH THE MOST CURRENT REVISION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE AND STOP HERE ON RED SIGNS SHALL BE INPLACE WHENEVER PERMANENET PAVEMENT MARKINGS ARE NOT PRESENT.
14	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
15	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
16	TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM.
17	CENTERLINE AND LANE DESIGNATION SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL PAINT STRIPING.
18	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
19	SOUTH OF MILLING LIMITS STATION 8+69 TO 10+31
20	INCLUDES ALL THERMOPLASTIC STOP BARS, GORE AREA HATCHING, CROSSWALKS, LANE DESIGNATION ARROWS AND PAVEMENT MESSAGES.

**BASIS OF PLANNED QUANTITIES**

2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS

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**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 16-17-35

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 22 Sheets

csoslerh

**STORM DRAINAGE TAB**

NUMBER	TYPE	ACTION	NEW CASTING	FURNISH AND INSTALL CASTING ASSEMBLY	RING HIEGHT	GROUT CATCH BASIN OR MANHOLE	SAWING CONCRETE PAVEMENT (FULL DEPTH)	REMOVE CURB & GUTTER	CONCRETE CURB & GUTTER DESIGN S512	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN B624	SAWING PAVEMENT (FULL DEPTH)	REMOVE BITUMINOUS PAVEMENT	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	NOTES
					LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ YD	TON		
100	CB	GROUT STRUCTURE				1									
101	CB	RE-RING	R-3250-1	1	0.8		6	25	25			14	2	1	
102	MH/SAN	OK													
103	CB	RE-RING	R3067-V	1	1.4		6	25	25			27	5	2	
105	CB	RE-RING / GROUT STRUCTURE	R-3250-1	1	0.2	1	6	10		10		14	2	1	
115	MH/SAN	OK													
117	MH/SAN	RE-RING	R-1733	1	0.8							40	11	2	
119	MH/SAN	RE-RING	R-1733	1	0.9							40	11	2	
121	MH/SAN	OK													
122	CB	GROUT STRUCTURE				1									
123	CB	OK													
124	CB	OK													
125	CB	RE-RING / GROUT STRUCTURE	R-3030	1	0.6	1	6	10		10		14	2	1	
126	CB	GROUT STRUCTURE				1									
127	CB	RE-RING	R-3030	1	0.3		6	10		10		14	2	1	
128	MH/STR	OK													
130	CB	GROUT STRUCTURE				1									
133	CB	REMOVE / REPLACE STRUCTURE	R-3250 DVSP	2				9			15	4	3.3	0.6	REMOVE LOW POINT STRUCTURE. REPLACE WITH (1) H STRUCTURE, (6) 15" RC PIPE, (1) 48-4020, (8) 21" RC PIPE AND (1) 21" RCP APRON
134	CB	RE-RING	R-3250 DVSP	1	0.8		6	25		25		29	5.6	1.0	RE-REING DUE TO CURB REPLACEMENT / WASHOUT
137	CB	GROUT STRUCTURE				1									
138	CB	GROUT STRUCTURE				1									
140	CB	OK													
141	CB	GROUT STRUCTURE				1									
142	CB	RE-RING	R-3030	1	0.3		6	30		30		14	7	1	
143	CB	OK													
144	CB	OK													
145	MH/SAN	RE-RING	R-1733	1	0.4							40	11	2	
146	CB	RE-RING / GROUT STRUCTURE	R-3030	1	0.0	1	6	30		30		34	7	2	
147	CB	RE-RING	R3067-V	1	0.5		6	30		30		32	7	2	
148	CB	RE-RING	R3067-V	1	0.2		6	30		30		34	7	2	
149	MH/STR	OK													
150	CB	OK													
152	CB	GROUT STRUCTURE				1									
<b>TOTALS</b>				15	7.2	11	60	234	50	175	15	350	82.9	20.6	

**CASTING ASSEMBLIES SUMMARY**

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	PLATE	QUANTITY	DESCRIPTION	NOTES
NEENAH*	R-1733				3	STD. PLATE: 4101D, 4110F	CASTING COVER STAMPED "SANITARY SEWER"
NEENAH*	R-3250-1		YES		2		
NEENAH*	R-3067-V		YES		3		
NEENAH*	R-3030		YES		4		GRATE R
NEENAH*	R-3250 DVSP		YES		3		

\*OR APPROVED EQUAL  
 ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD.  
 ALL MANHOLE COVERS SHALL BE STAMPED AS STORM SEWER OR SANITARY SEWER.

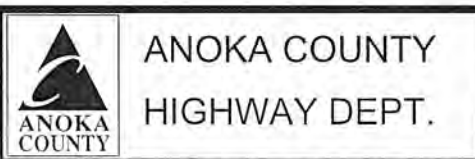
**MNDOT STANDARD PLATES**

PLATE NUMBER	DESCRIPTION
4006L	MANHOLE OR CATCH BASIN
4020J	MANHOLE OR CATCH BASIN
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4035N	CONCRETE WALK
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE
7038A	DETECTABLE WARNING SURFACE
7100H	CONCRETE CURB AND GUTTER

NO	DATE	BY	CKD	APPR	REVISION	03/30/2016	11:41:52 AM
NAME: P:\16-01-00\CSAH_35(CSAH6-69th)\Base\PROPOSED\PLAN.dgn							

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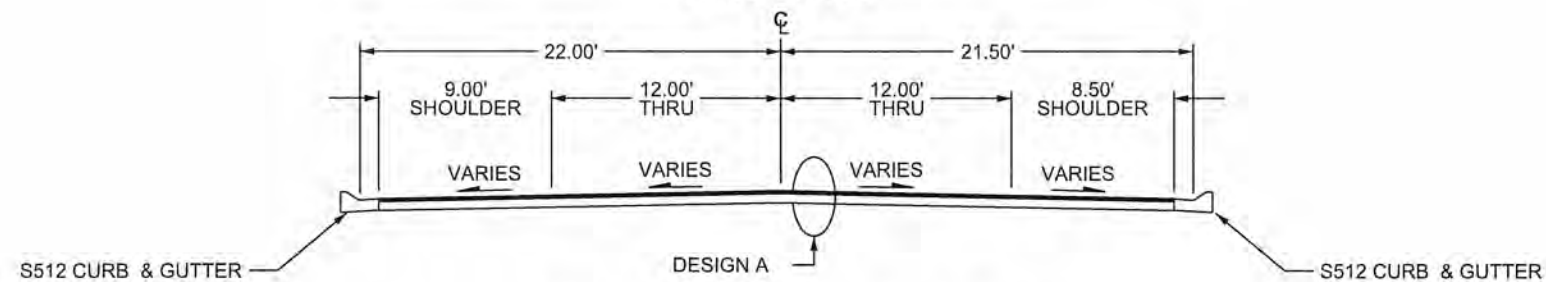
ANOKA COUNTY  
 HIGHWAY DEPT.  
 COUNTY PROJECT 16-17-35

TABULATIONS  
 Sheet 3 of 22 Sheets

csost/erh

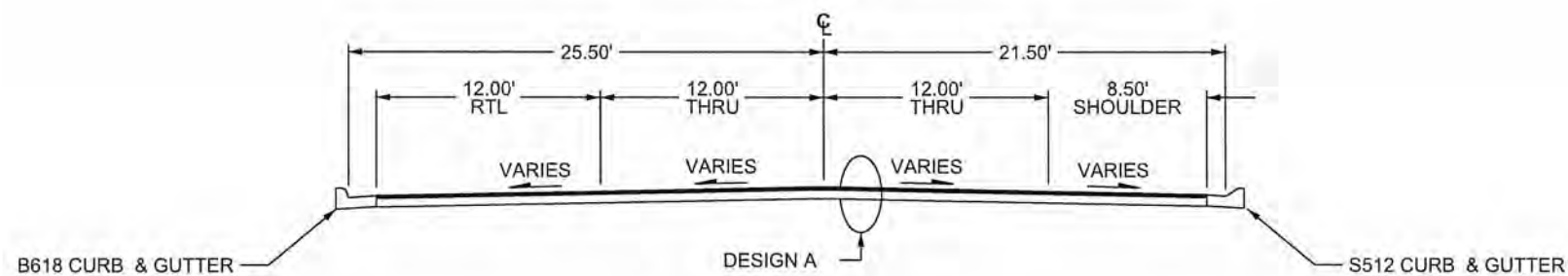
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(EXISTING/PROPOSED) SECTION

10+31 - 12+20  
13+30 - 47+60



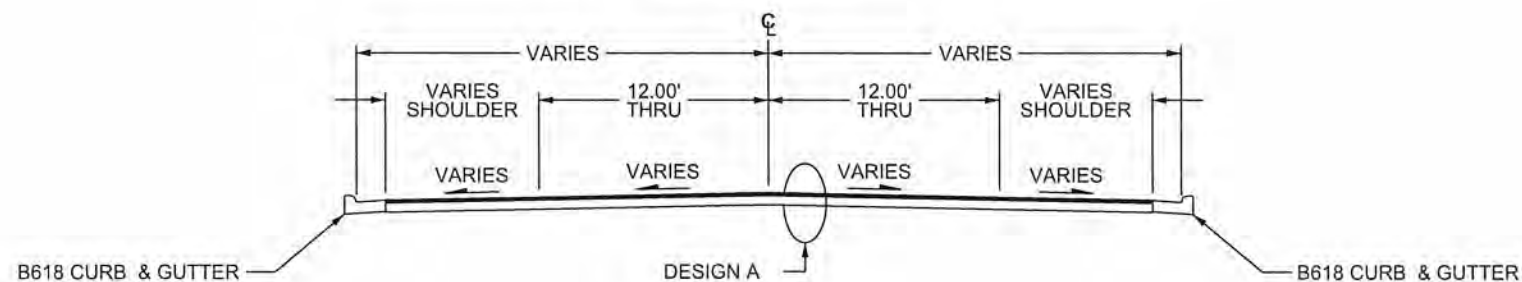
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(PROPOSED) SECTION

12+20 - 13+30

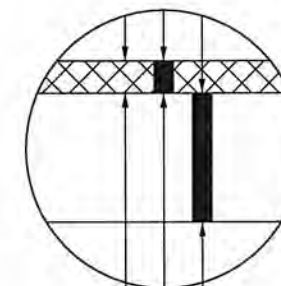


(OLD CENTRAL - CSAH 35)  
(EXISTING/PROPOSED) SECTION

47+60 - 50+30



DESIGN A  
MILL SECTION



2.0" MILL BITUMINOUS  
2.0" BITUMINOUS WEAR (SPWEB440E)  
REMAINING BITUMINOUS

NO	DATE	BY	CHKD	APPR	REVISION
	03/30/2016				
NAME: P:\16-01-00\CSAH_35(CSAH6-69th)\Base\PROPOSED\PLAN.dgn					

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HIGHWAY DEPT.

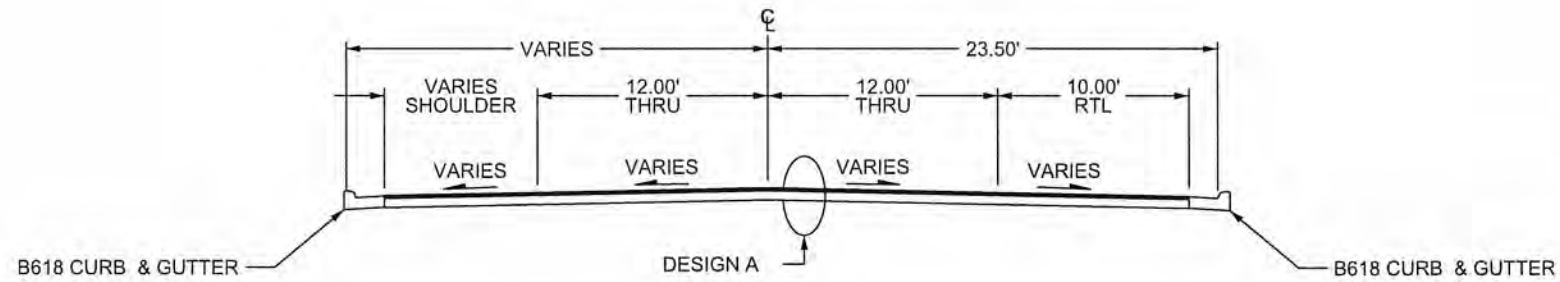
COUNTY PROJECT 16-17-35

TYPICAL SECTIONS  
Sheet 4 of 22 Sheets

csost/eh

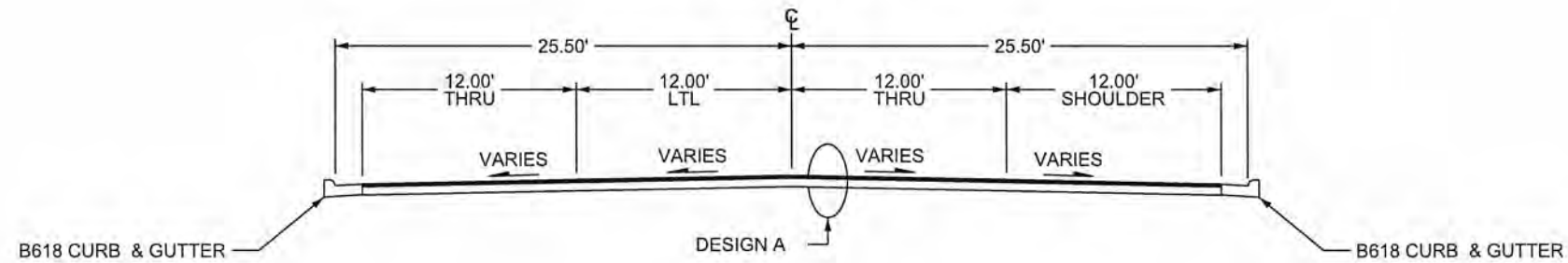
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50+30 - 51+20

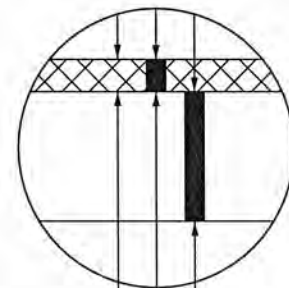


(OLD CENTRAL - CSAH 35)  
(EXISTING/PROPOSED) SECTION

51+20 - 52+58



DESIGN A  
MILL SECTION



2.0" MILL BITUMINOUS  
2.0" BITUMINOUS WEAR (SPWEB440E)  
REMAINING BITUMINOUS

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HIGHWAY DEPT.

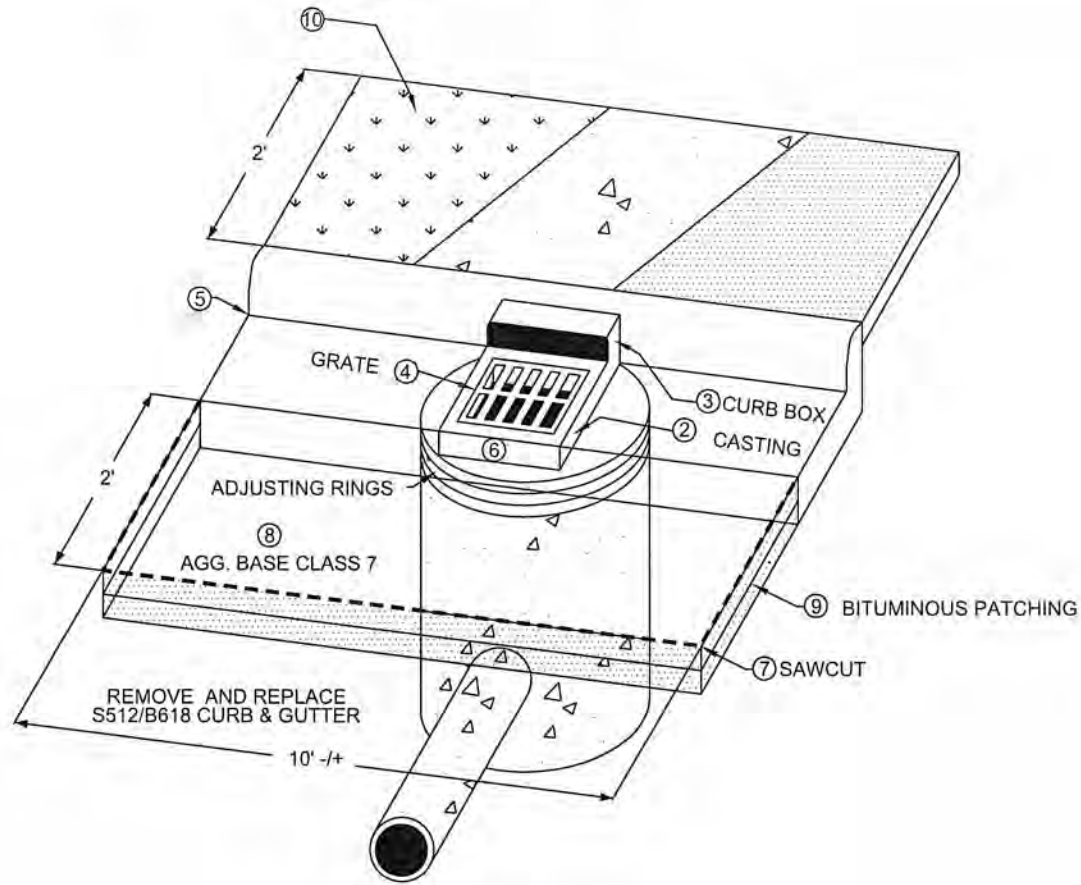
COUNTY PROJECT 16-17-35

TYPICAL SECTIONS  
Sheet 5 of 22 Sheets

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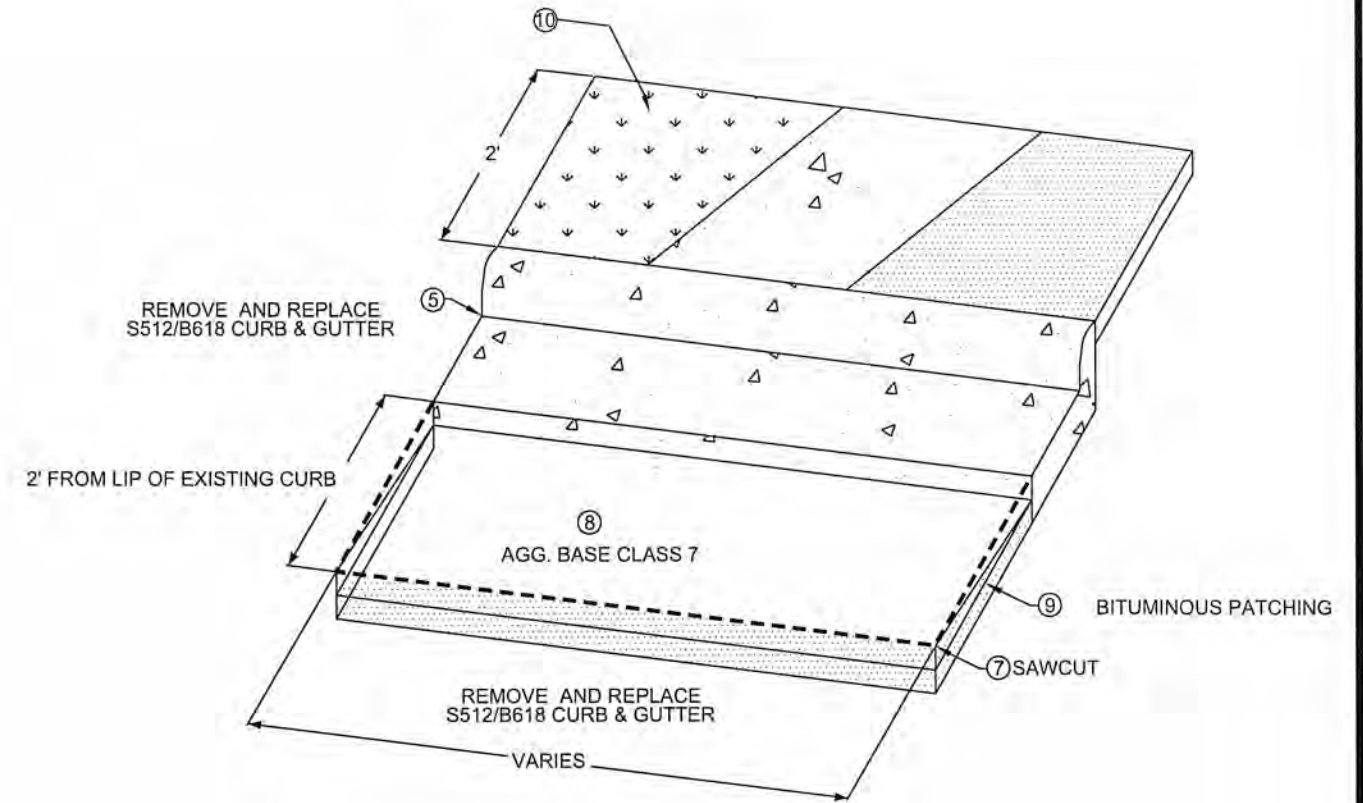
### CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 3)



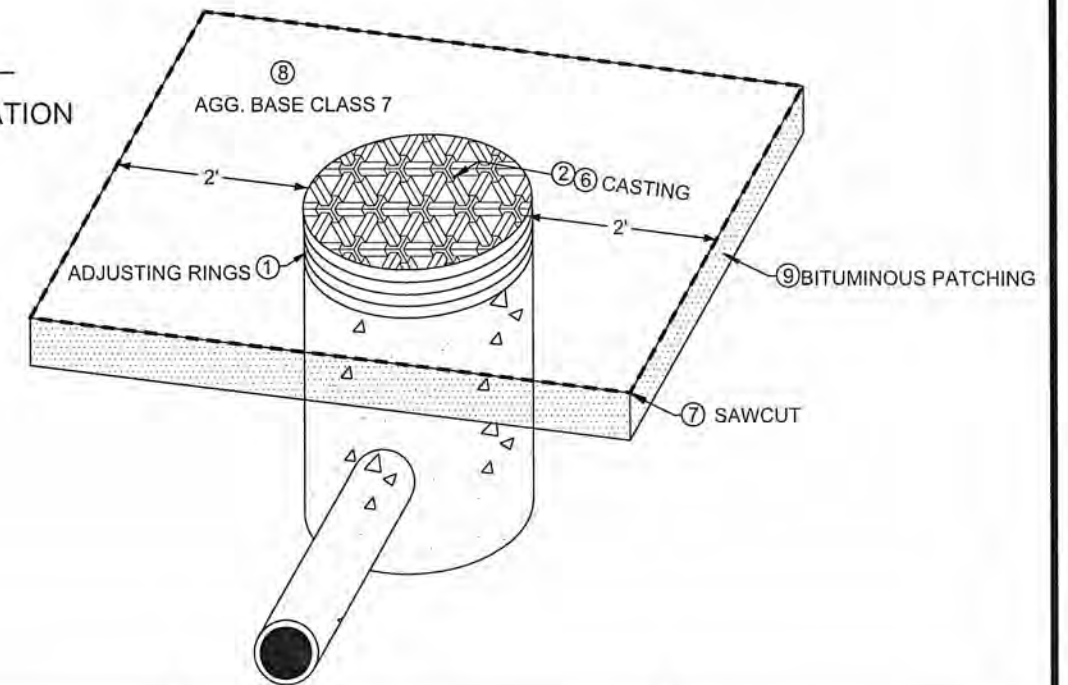
### NEW CURB DETAIL

SEE PLAN FOR LOCATION



### MANHOLE DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 3)



### NOTES

FOR TRAFFIC CONTROL AT CATCH BASIN AND MANHOLE REPAIRS REFER TO THE MINNESOTA MANUAL ON TEMPORARY TRAFFIC CONTROL LAYOUTS FIELD MANUAL.

- ① CONCRETE ENCASED CONCRETE ADJUSTING RINGS STANDARD PLATE 4026A
- ② RING AND FRAME CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ③ CURB BOX MATCHES CASTING REFERENCE CHART FOR CASTING TYPE
- ④ GRATE CASTING; REFERENCE CASTING ASSEMBLIES SUMMARY CHART FOR CASTING TYPE
- ⑤ CONCRETE CURB AND GUTTER DESIGN B STANDARD PLATE 7100G
- ⑥ INSTALLATION OF CATCH BASIN OR MANHOLE CASTINGS; REFERENCE STANDARD PLATE PER TYPE OF CASTING
- ⑦ SAWCUT BITUMINOUS PAVEMENT / CONCRETE CURB FULL DEPTH.
- ⑧ ADD AND COMPACT AGGREGATE BASE CLASS 7 AROUND REPAIRED STRUCTURE. ITEM INCIDENTAL TO ENTIRE STRUCTURE REPAIR
- ⑨ REMOVE VARIABLE DEPTH BITUMINOUS, PATCH WITH 2, 3" LIFTS OF BITUMINOUS, TOP LIFT SHOULD TAPER TO BOTTOM LIFT AT CURB.
- ⑩ REPLACE DISTURBED AREA BEHIND CATCH BASIN WITH EITHER SOD (RESIDENTIAL AREAS), EROSION CONTROL BLANKET, BITUMINOUS, OR CONCRETE

NO	DATE	BY	CHKD	APPR	REVISION	

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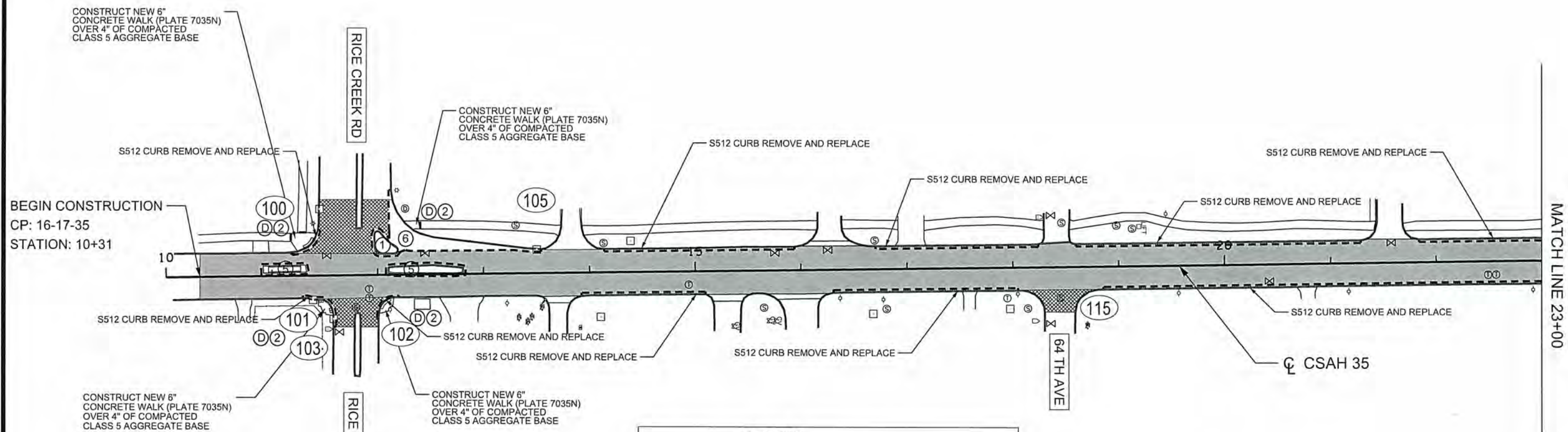


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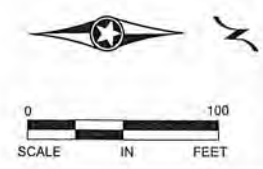
COUNTY PROJECT 16-17-35

DETAILS  
Sheet 6 of 22 Sheets

csosterh



LEGEND	
(D)	TRUNCATED DOMES
(1)	REMOVE CONCRETE MEDIAN AND CONCRETE CURB
(2)	6" CONCRETE WALK (REMOVE AND REPLACE)
(3)	4" REMOVE BIT WALK 6" REPLACE CONCRETE WALK
(4)	ADJUST HANDHOLE
(5)	REMOVE BRICK PAVERS AND CONCRETE CURB
(6)	REMOVE BITUMINOUS
[ ]	APRX. LOOP LOCATION
[X]	ADJUST GATE VALVE
---	SAWCUT / CURB REPLACEMENT
[ ]	MAINLINE MILL AREA
[ ]	STREET APPROACH MILL AREA



NO	DATE	BY	CKD	APPR	REVISION	DATE	TIME
	04/11/2016						11:34:21 AM

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PRINT NAME: MATTHEW J. JOHN  
SIGNATURE: *[Signature]*  
DATE: 4/11/2016 LICENSE NO. 51639

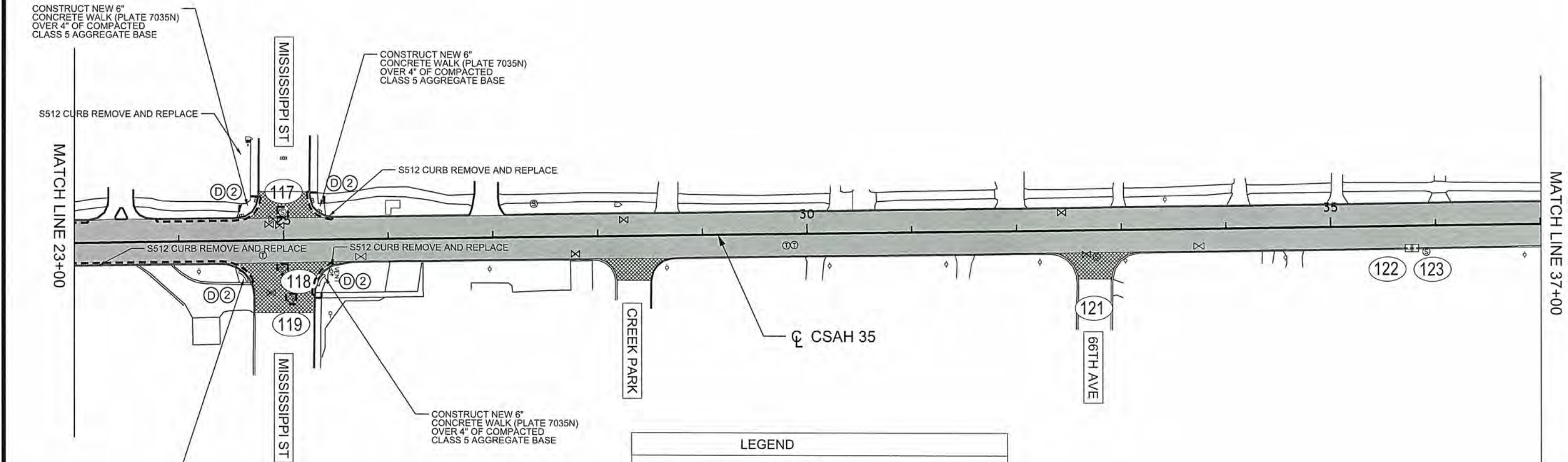
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DESIGN BY: KPR DATE: 3/18/2016  
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

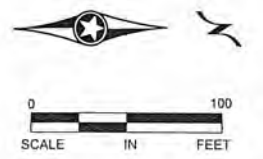
COUNTY PROJECT 16-17-35

CONSTRUCTION PLAN  
STA 10+31 TO 23+00  
Sheet 7 of 22 Sheets

CS051871



LEGEND	
⊙	TRUNCATED DOMES
①	REMOVE CONCRETE MEDIAN AND CONCRETE CURB
②	6" CONCRETE WALK (REMOVE AND REPLACE)
③	4" REMOVE BIT WALK 6" REPLACE CONCRETE WALK
④	ADJUST HANDHOLE
⑤	REMOVE BRICK PAVERS AND CONCRETE CURB
⑥	REMOVE BITUMINOUS
□	APRX. LOOP LOCATION
⊗	ADJUST GATE VALVE
---	SAWCUT / CURB REPLACEMENT
▭	MAINLINE MILL AREA
▨	STREET APPROACH MILL AREA



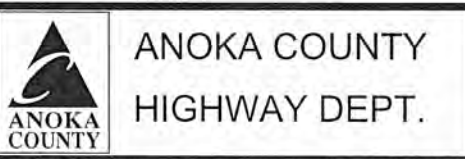
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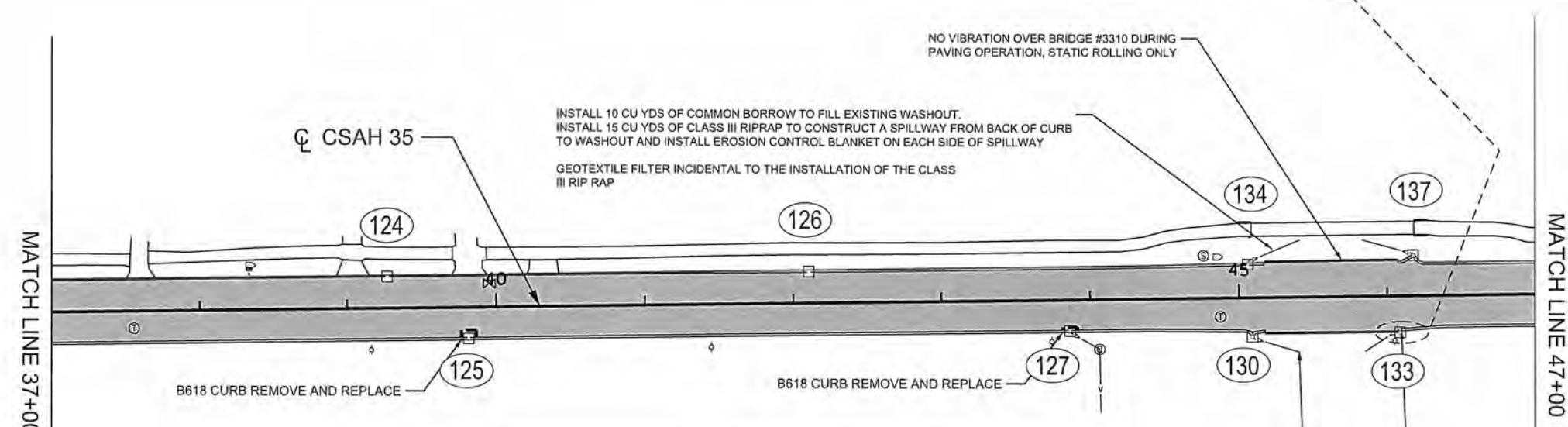
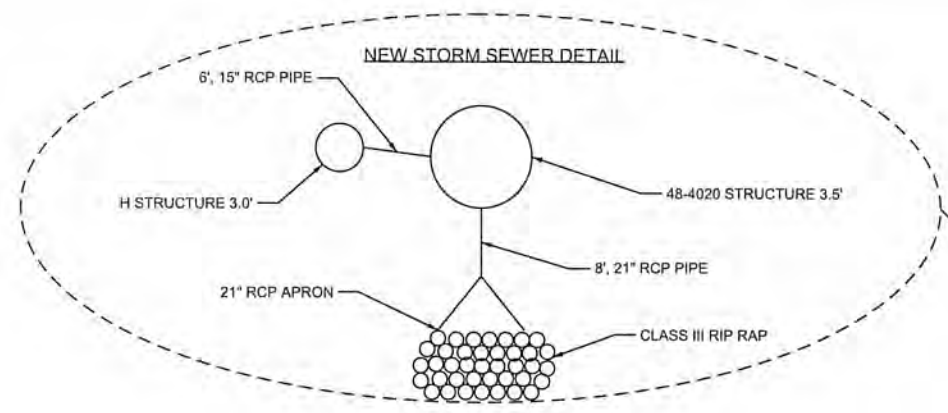


COUNTY PROJECT 16-17-35

CONSTRUCTION PLAN  
 STA 23+00 TO 37+00  
 Sheet 8 of 22 Sheets



CS051871



INSTALL 10 CU YDS OF COMMON BORROW TO FILL EXISTING WASHOUT.  
 INSTALL 15 CU YDS OF CLASS III RIPRAP TO CONSTRUCT A SPILLWAY FROM BACK OF CURB  
 TO WASHOUT AND INSTALL EROSION CONTROL BLANKET ON EACH SIDE OF SPILLWAY  
 GEOTEXTILE FILTER INCIDENTAL TO THE INSTALLATION OF THE CLASS  
 III RIP RAP

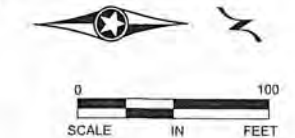
LEGEND	
⓪	TRUNCATED DOMES
①	REMOVE CONCRETE MEDIAN AND CONCRETE CURB
②	6" CONCRETE WALK (REMOVE AND REPLACE)
③	4" REMOVE BIT WALK 6" REPLACE CONCRETE WALK
④	ADJUST HANDHOLE
⑤	REMOVE BRICK PAVERS AND CONCRETE CURB
⑥	REMOVE BITUMINOUS
ⓧ	APRX. LOOP LOCATION
⊗	ADJUST GATE VALVE
---	SAWCUT / CURB REPLACEMENT
■	MAINLINE MILL AREA
▨	STREET APPROACH MILL AREA

REMOVE LOW POINT STRUCTURE, REMOVE 4' OF CMP AT LOW POINT  
 STRUCTURE, AND REMOVE 6' OF CMP AT APRON END. REPLACE WITH  
 (3.0' TALL) H STRUCTURE, 6' OF 15" RCP PIPE TO (3.5' TALL) 48-4020,  
 8' OF 21" RCP PIPE TO (1) 21" RCP APRON AND CLASS III RIP RAP

FLOATING SILT CURTAIN AND GEOTEXTILE FILTER INCIDENTAL TO  
 THE INSTALLATION OF THE CLASS III RIP RAP

REMOVE 8' OF CMP AT WINGWALL / PIPE OUTLET  
 FILL VOID / WASHOUT WITH 10 CU YDS OF COMMON  
 BORROW AND 16 CU YDS OF CLASS III RIP RAP.

FLOATING SILT CURTAIN AND GEOTEXTILE FILTER  
 INCIDENTAL TO THE INSTALLATION OF THE CLASS  
 III RIP RAP



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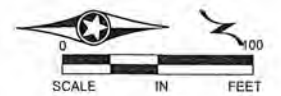
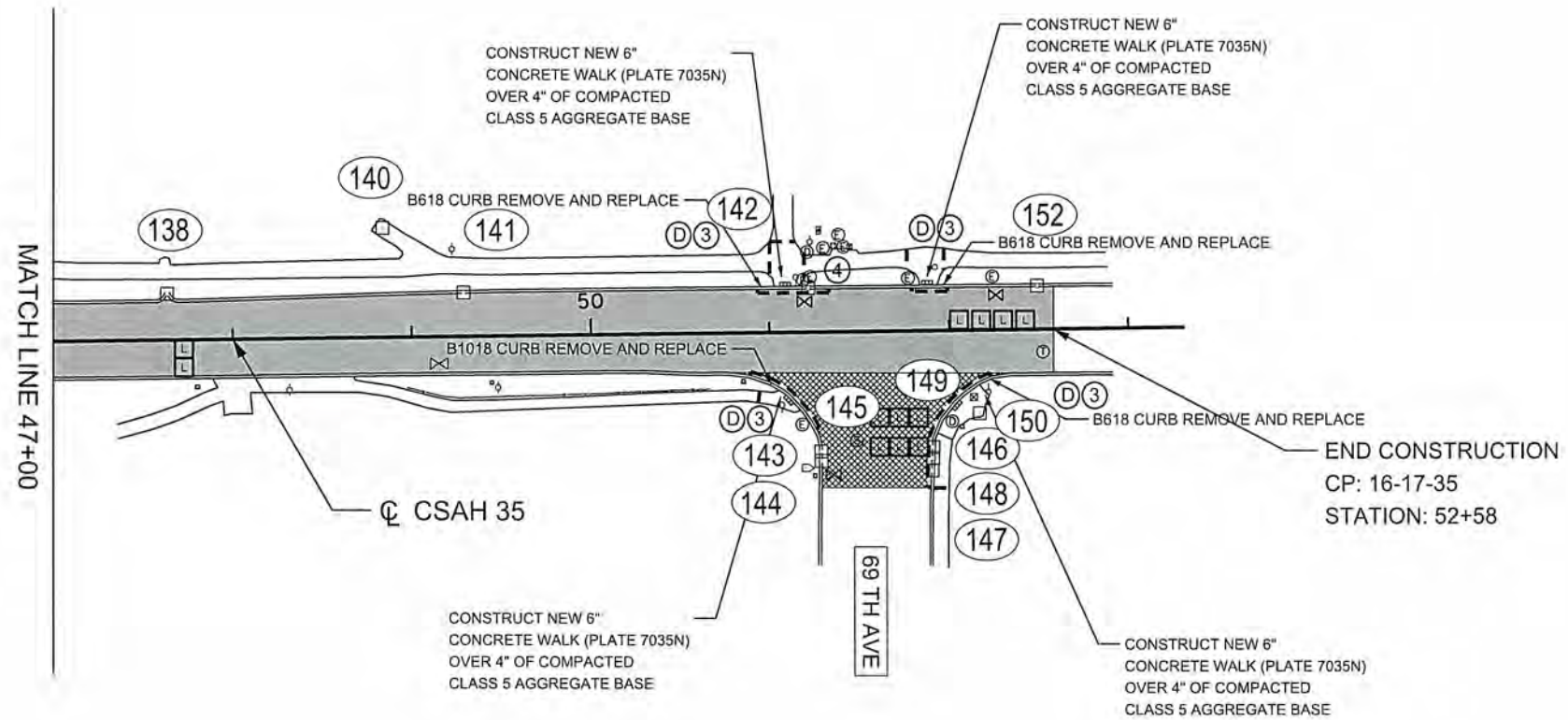
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

COUNTY PROJECT 16-17-35

CONSTRUCTION PLAN  
 STA 37+00 TO 47+00  
 Sheet 9 of 22 Sheets

csos1e17

LEGEND	
Ⓚ	TRUNCATED DOMES
①	REMOVE CONCRETE MEDIAN AND CONCRETE CURB
②	6" CONCRETE WALK (REMOVE AND REPLACE)
③	4" REMOVE BIT WALK 6" REPLACE CONCRETE WALK
④	ADJUST HANDHOLE
⑤	REMOVE BRICK PAVERS AND CONCRETE CURB
⑥	REMOVE BITUMINOUS
□	APRX. LOOP LOCATION
⊗	ADJUST GATE VALVE
---	SAWCUT / CURB REPLACEMENT
▭	MAINLINE MILL AREA
▨	STREET APPROACH MILL AREA



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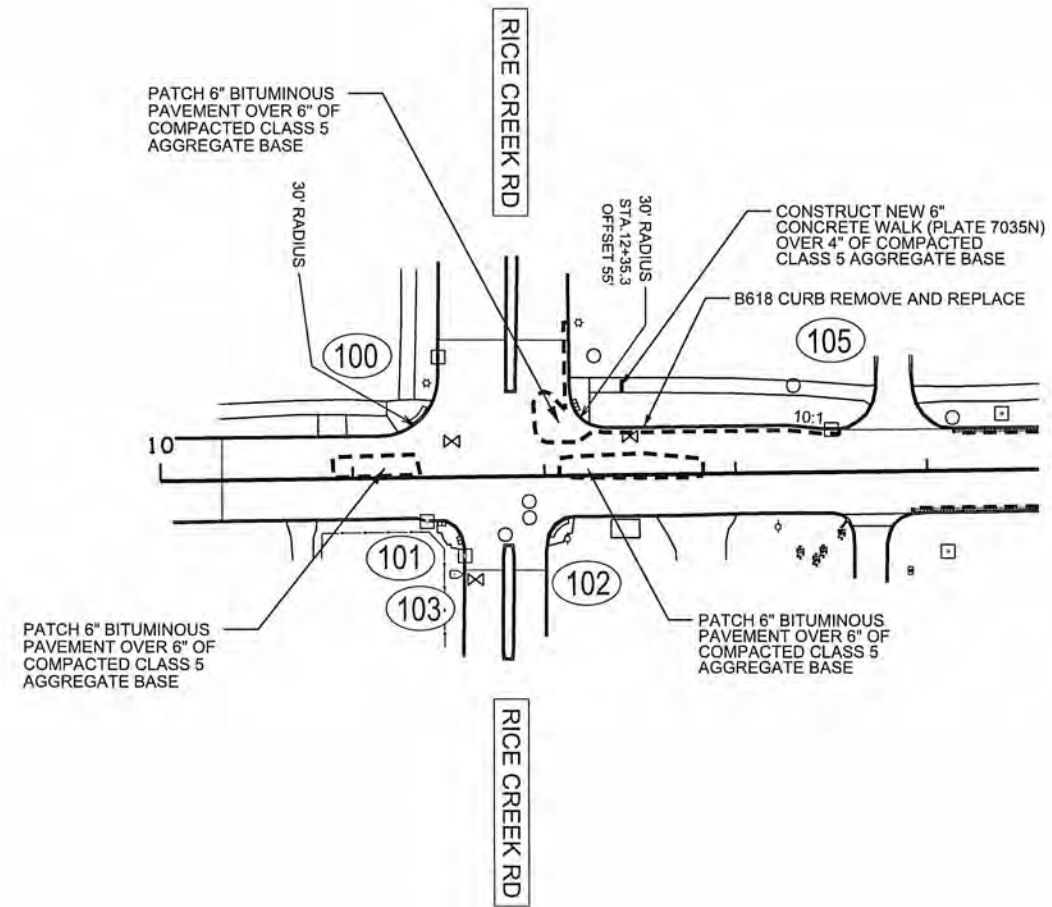
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**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 16-17-35

**CONSTRUCTION PLAN**  
 STA 47+00 TO 52+58  
 Sheet 10 of 22 Sheets



NO	DATE	BY	CKD	APPR	REVISION		
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ANOKA COUNTY  
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COUNTY PROJECT 16-17-35

INTERSECTION DETAIL  
 Sheet 11 of 22 Sheets

**PERMANENT PAVEMENT MARKING PLAN**  
NOTES AND GUIDELINES

**GENERAL INFORMATION:**

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. ANOKA COUNTY HIGHWAY DEPARTMENT WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS, LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS, ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

**EPOXY:**

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4" WIDE AND 15 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES FAHRENHEIT OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

**PREFORMED THERMOPLASTIC:**

THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

**PAINT:**

AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICATION IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES FARHENHEIT OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

PERMANENT MARKING QUANTITIES		
ITEM	UNIT	TOTAL QUANTITY
REMOVALS - 4" DOUBLE LINE YELLOW - PAINT	LIN FT	162
REMOVALS - 24" SOLID LINE YELLOW - PREFORMED THERMOPLASTIC	LIN FT	5
4" SOLID LINE WHITE - EPOXY PAINT	LIN FT	10315
4" BROKEN LINE WHITE - EPOXY PAINT	LIN FT	40
4" SOLID LINE YELLOW - EPOXY PAINT	LIN FT	2065
4" BROKEN LINE YELLOW - EPOXY PAINT	LIN FT	470
4" DOUBLE SOLID LINE YELLOW - EPOXY PAINT	LIN FT	2405
24" SOLID LINE YELLOW - PREFORMED THERMOPLASTIC	SQ FT	326
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC	SQ FT	480
3'x6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	1818
PAVEMENT MESSAGE (RT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	45
PAVEMENT MESSAGE (LT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	30

**SYMBOLS & MATERIALS LEGEND**

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

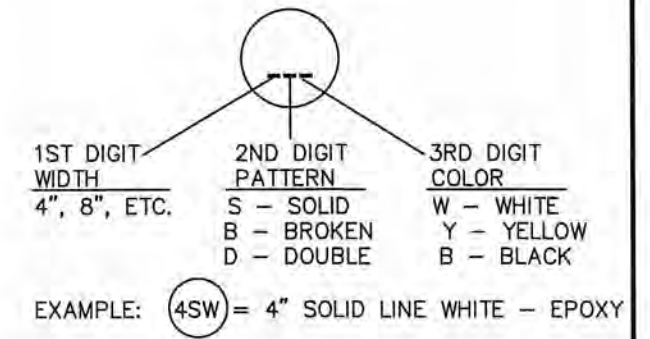
↩ PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

**STRIPING KEY**

○ CIRCLE - EPOXY    □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



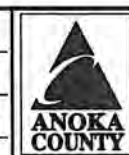
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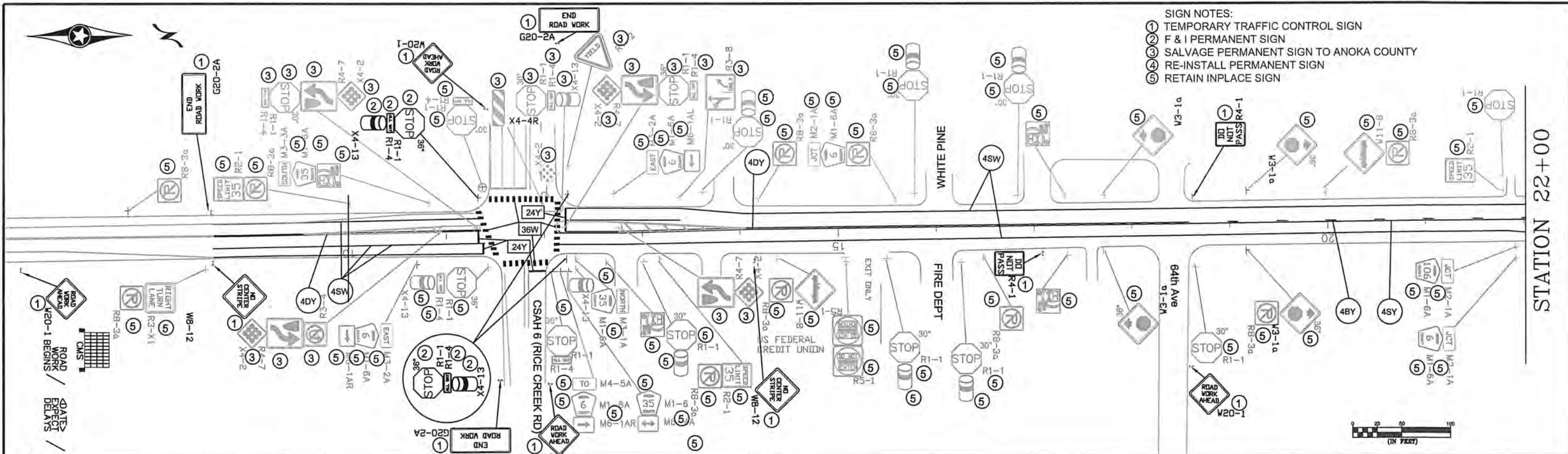
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DESIGN BY: RLB DATE: 2/14/14  
CHECKED BY: JR DATE: 2/14/14



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**HIGHWAY DEPT.**

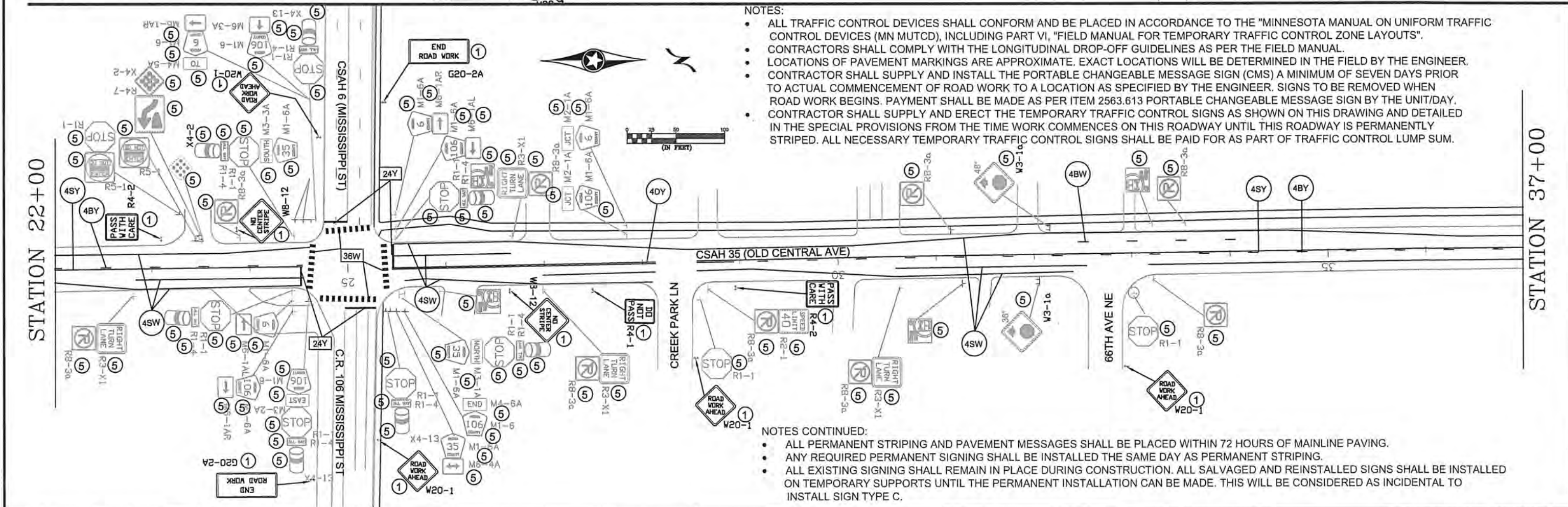
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STATE AID PROJECT NO. \_\_\_\_\_  
STATE AID PROJECT NO. \_\_\_\_\_  
COUNTY PROJECT NO. 16-17-35

PERMANENT MARKING TABULATION  
Sheet 12 of 22 Sheets



- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
  - ② F & I PERMANENT SIGN
  - ③ SALVAGE PERMANENT SIGN TO ANOKA COUNTY
  - ④ RE-INSTALL PERMANENT SIGN
  - ⑤ RETAIN INPLACE SIGN

- NOTES:
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - CONTRACTORS SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
  - LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
  - CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.



- NOTES CONTINUED:
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
  - ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING.
  - ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CSAH 35\Bases\Traffic\Signing\_Striping.dwg

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**ANOKA COUNTY**  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_

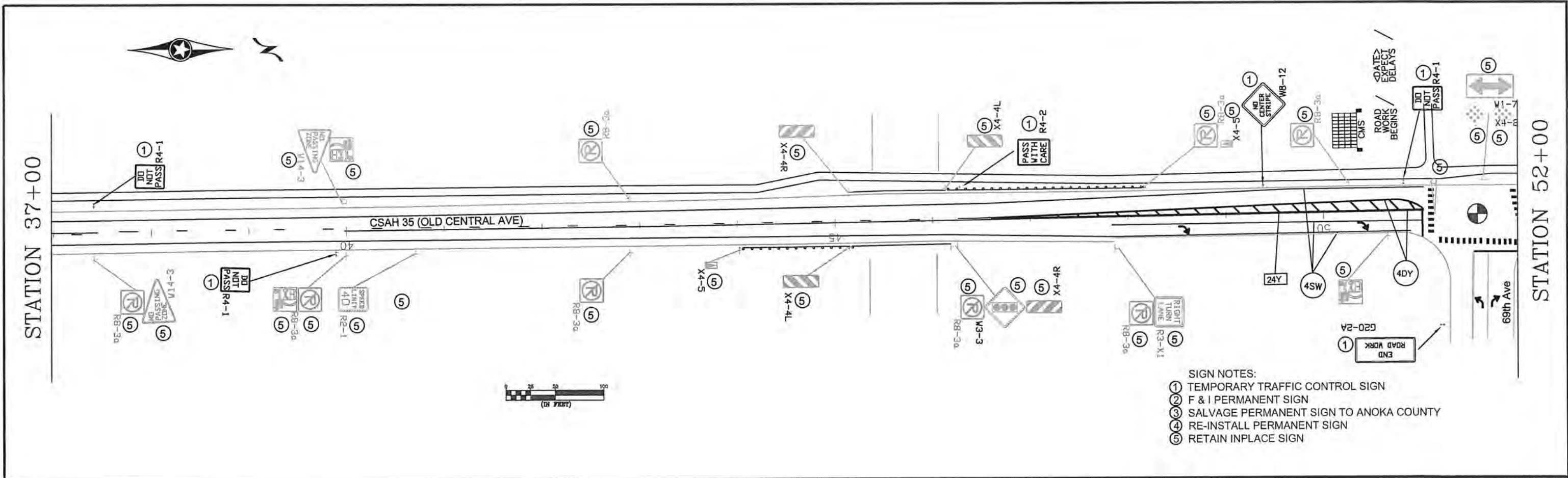
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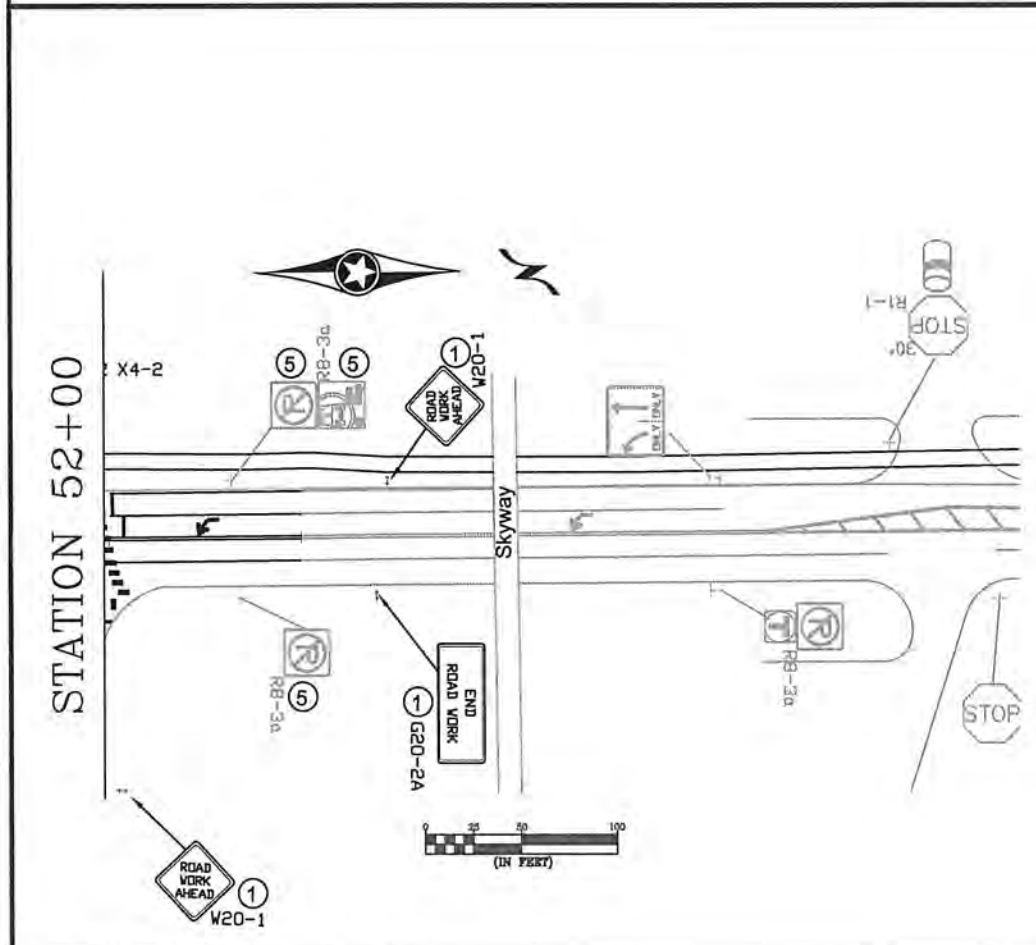
COUNTY PROJECT NO. 16-17-35

TEMPORARY SIGNING,  
PERMANENT SIGNING  
AND STRIPING

Sheet 13 of 22 Sheets



- SIGN NOTES:
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  - ② F & I PERMANENT SIGN
  - ③ SALVAGE PERMANENT SIGN TO ANOKA COUNTY
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HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_

STATE AID PROJECT NO. \_\_\_\_\_

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COUNTY PROJECT NO. 16-17-35

TEMPORARY SIGNING,  
PERMANENT SIGNING  
AND STRIPING

Sheet 14 of 22 Sheets

**TEMPORARY TRAFFIC CONTROL SIGNS**

M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT (to pavement edge) FT.
W8-12	48" x 48"	16.00		5	2	7.0'
R4-1	24" x 30"	5.00		6	1	7.0'
R4-2	24" x 30"	5.00		3	1	7.0'
G20-2A	48" x 24"	8.00		7	2	7.0'
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-9	48" x 48"	16.00		AS NEEDED		
	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00		AS NEEDED		
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 10)		
CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.					2	

CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.

**CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT**

		R	O	A	D		
		W	O	R	K		
		B	E	G	I	N	S

	<	D	A	T	E	>	
	E	X	P	E	C	T	
	D	E	L	A	Y	S	

M EXISTING SIGN TAB									
STATION	ADDRESS/ DESCRIPTION (NOTES)	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE D	SALVAGE SIGN TYPE SPECIAL (1)	INSTALL SIGN TYPE C	INSTALL SIGN TYPE D	INSTALL SIGN TYPE SPECIAL (1)	SIGN NUMBER	SIGN LEGEND
		EACH	EACH	EACH	EACH	EACH	EACH		
10+90	Median	1						R3-4 R14-7 X4-2	No U Turn Keep Right 9-Button
11+30	Median	1						R1-1 R1-4 R4-7 X4-2	STOP ALL WAY Keep Right 9-Button
12+00	Pork Chop Isle	1						X4-4R	Object Marker
12+05	Pork Chop Isle	1						X4-2	9-Button
12+20	Pork Chop Isle	1						R1-1 R1-4 X4-13	STOP ALL WAY Object Marker
12+25	Left	1						R1-2	Yield
12+25	Median	1						R1-1 R1-4 R4-7 X4-2	STOP ALL WAY Keep Right 9-Button
13+40	Left	1						R3-8	Lane Designation
TOTAL		18	0	0	0	0	0		

**CONSTRUCTION NOTES:**

1. SIGN TYPE SPECIAL ARE TO REMAIN VISIBLE AT ALL TIMES. SHALL BE PAID BY THE EACH, WHEN RELOCATION IS REQUIRED.

SIGN PANELS TYPE C							E
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R1-1	36" x 36"		3	9.00	27.00	1	7.0'
R1-4	18" x 6"		3	0.75	2.25		
X4-13	4" x 15"		2	0.42	0.84		
TOTAL			8		43.25		

**NOTES:**

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

NO	DATE	BY	CKD	APPR	REVISION

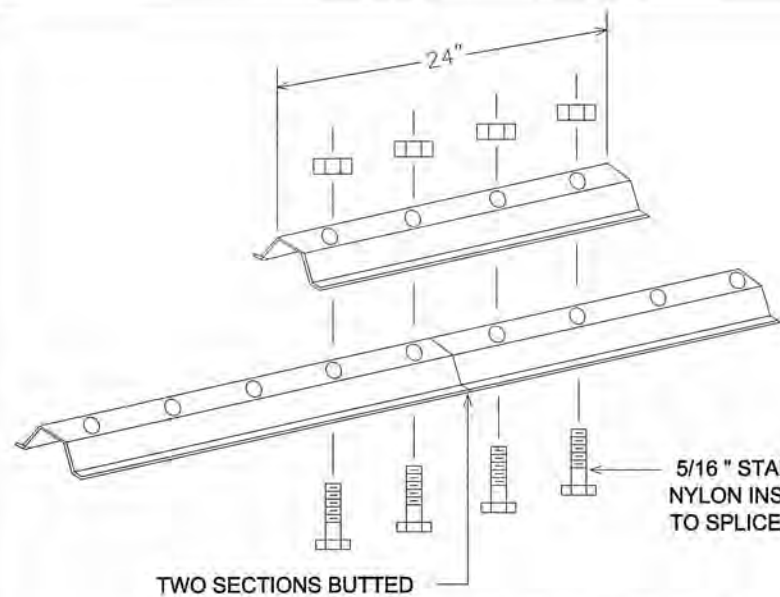
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: MATTHEW J. JOHN  
 SIGNATURE:   
 DATE: 4/8/2016 REG. NO. 51639

DRAWN BY: RLB DATE: 2/18/16  
 DESIGN BY: RLB DATE: 2/18/16  
 CHECKED BY: JR DATE: 2/18/16

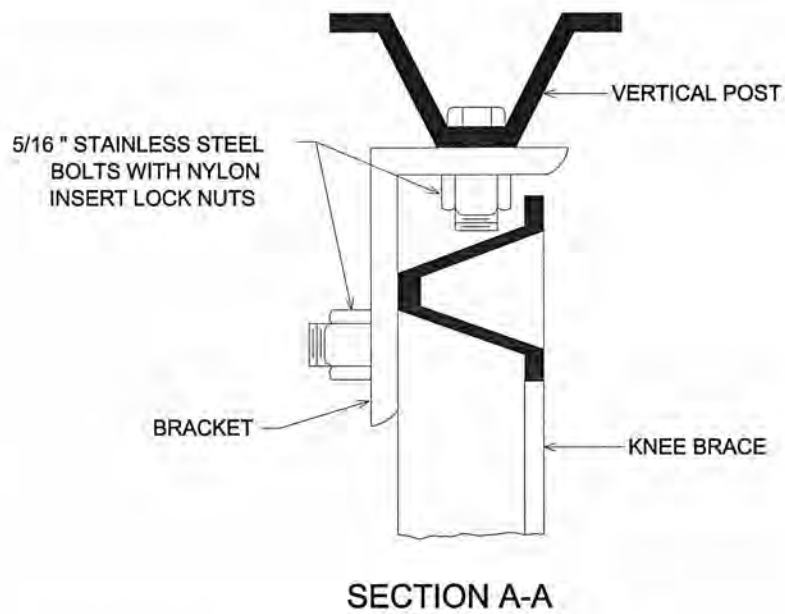
**ANOKA COUNTY HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 16-17-35

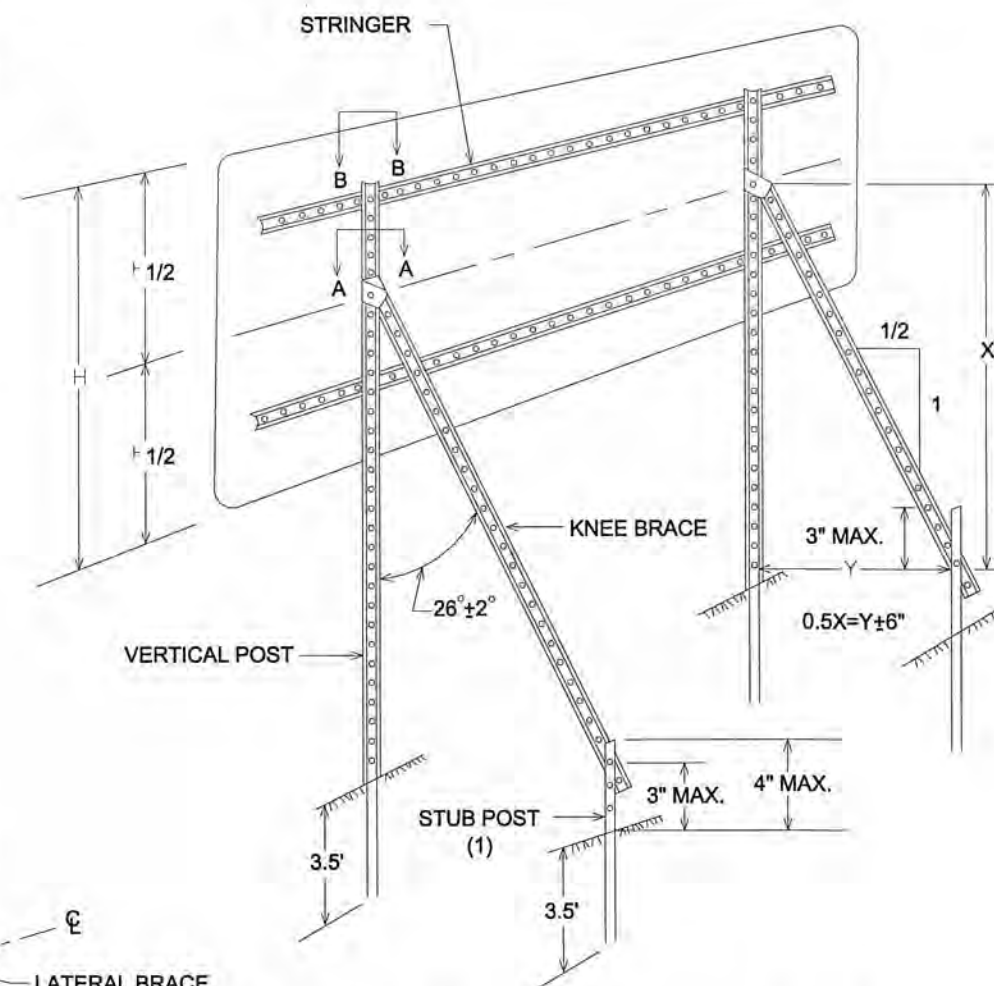
TRAFFIC CONTROL QUANTITY  
 Sheet 15 of 22 Sheets



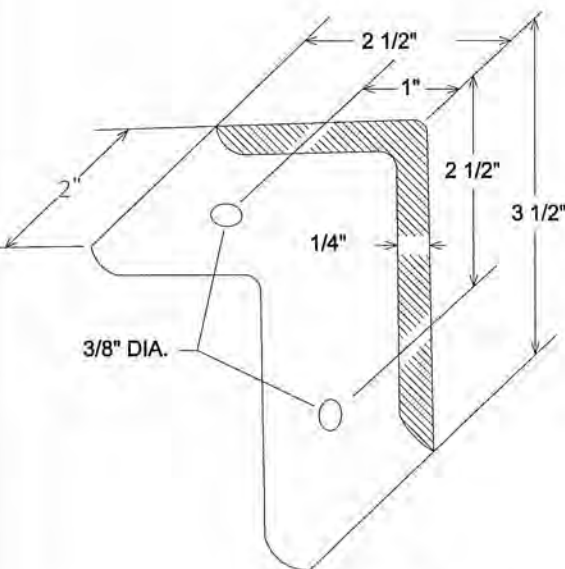
**LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)**



**SECTION A-A**

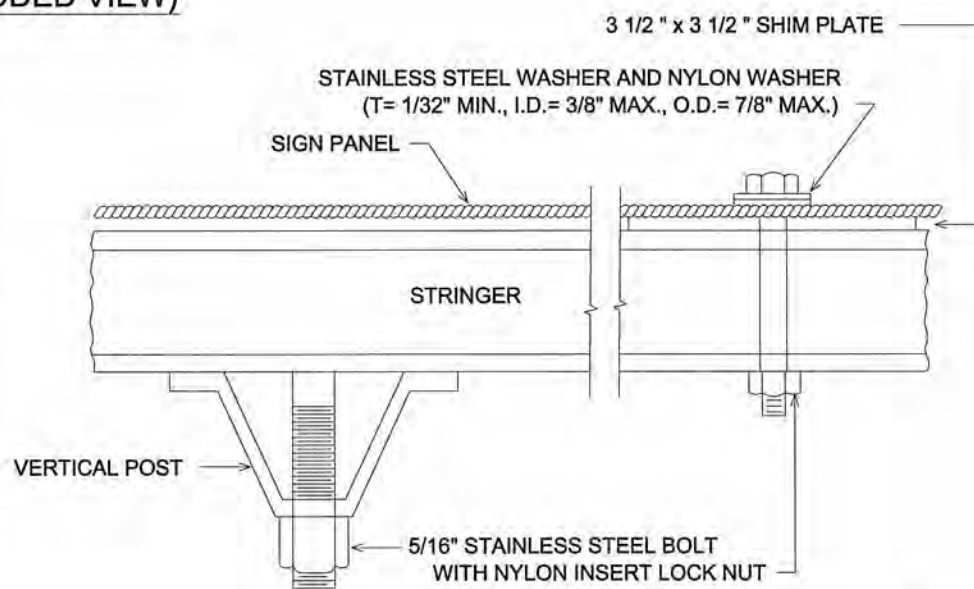


**TYPICAL "A-FRAME" INSTALLATION  
TYPE "D" SIGNS**

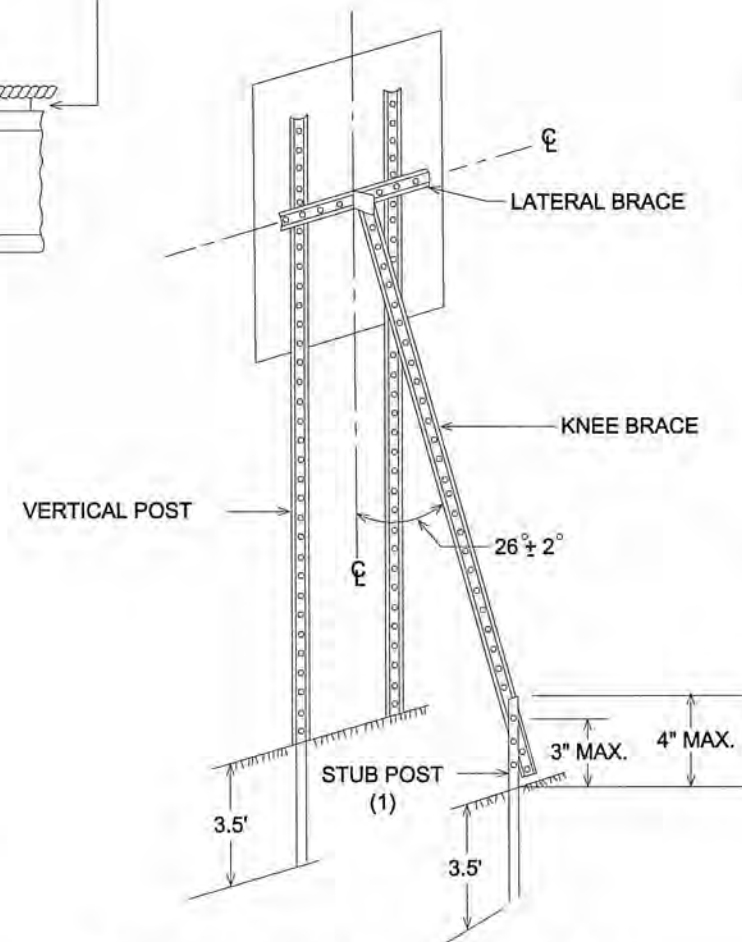


**A-FRAME BRACKET**

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



**SECTION B-B**



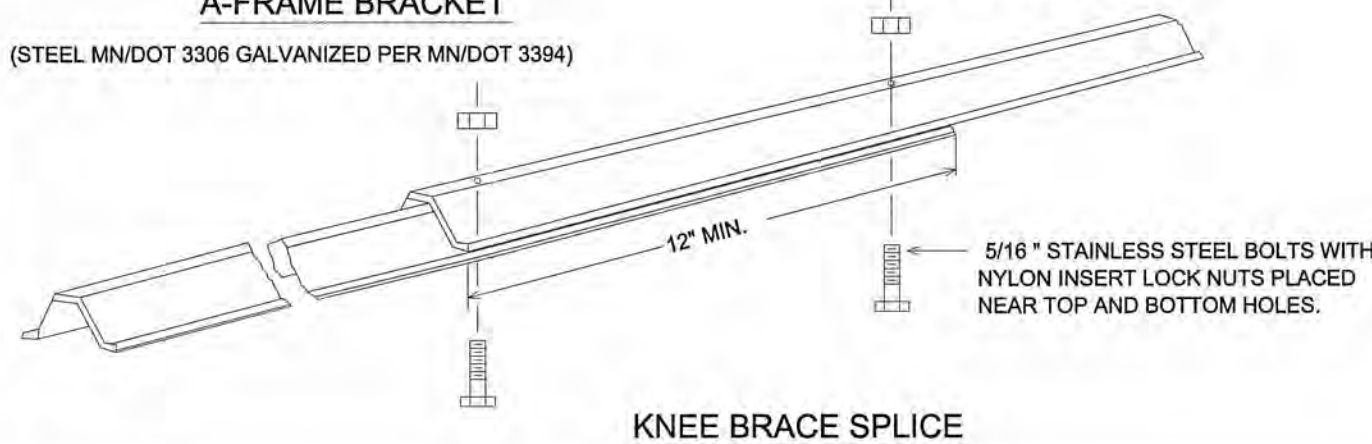
**TYPICAL "A-FRAME" INSTALLATION  
TYPE "C" SIGNS**



**TYPICAL MOUNTING**

(1) OFFSET STUB POST 1' TOWARD ROADWAY  
RELATIVE TO VERTICAL POST.

**TYPE C & D SIGN  
STRUCTURAL DETAILS**



**KNEE BRACE SPLICE**

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME  
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PRINT NAME: MATTHEW J. JOHN  
SIGNATURE: [Signature]  
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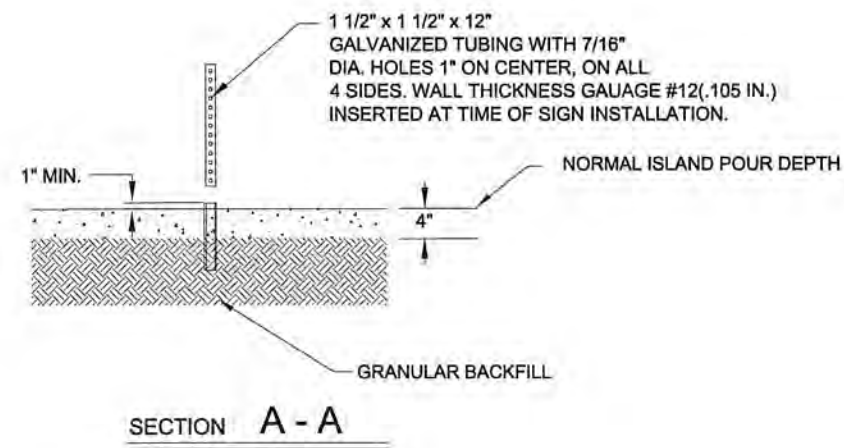
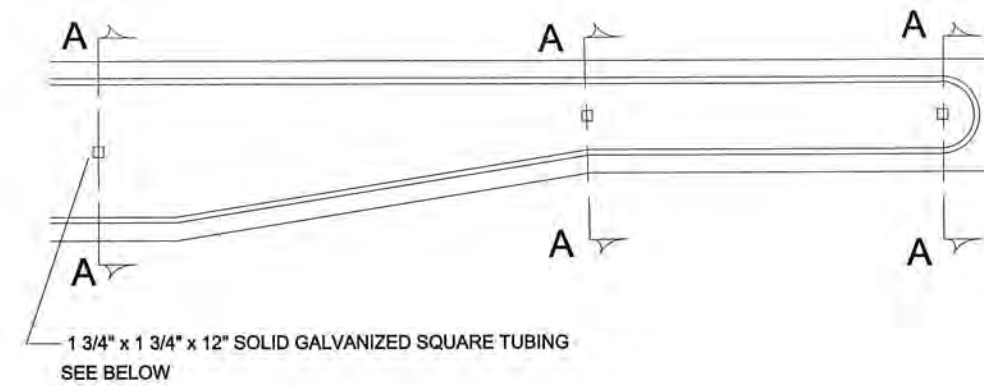
**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
STATE AID PROJECT NO. \_\_\_\_\_  
STATE AID PROJECT NO. \_\_\_\_\_  
COUNTY PROJECT NO. 16-17-35

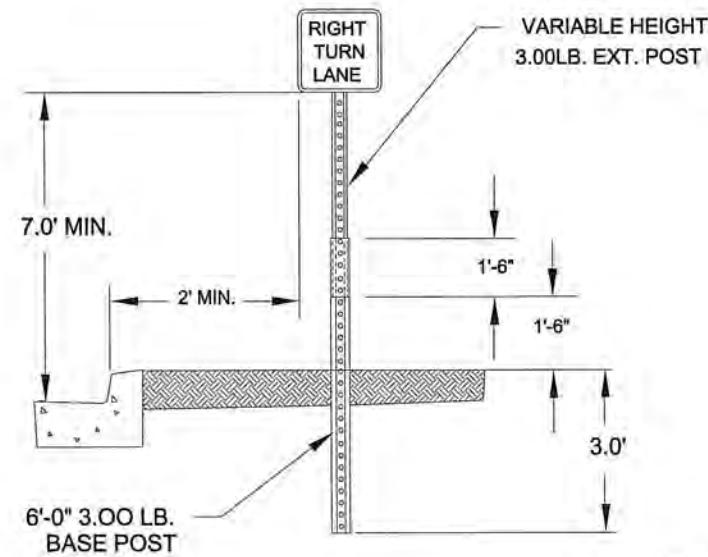
**SIGNING & STRIPING  
DETAILS**

Sheet 16 of 22 Sheets

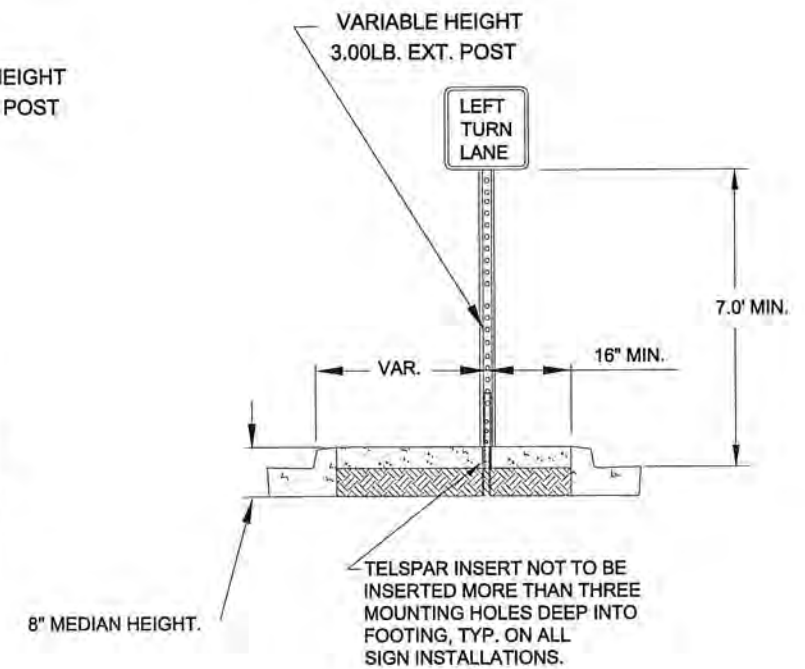




GROUND POST MOUNT SIGN  
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN  
INSTALLATION TYPICAL



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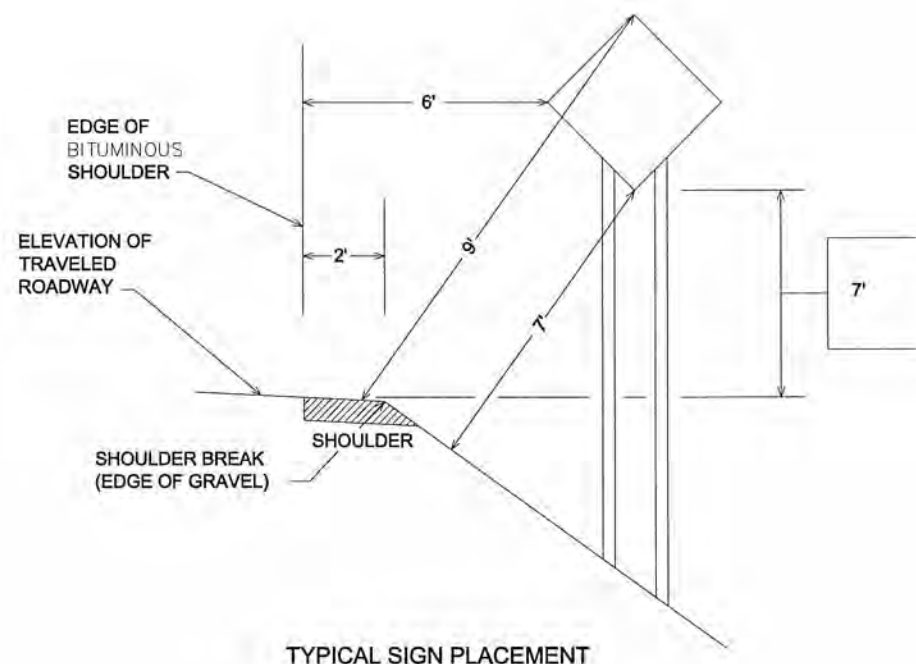
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DETAILS

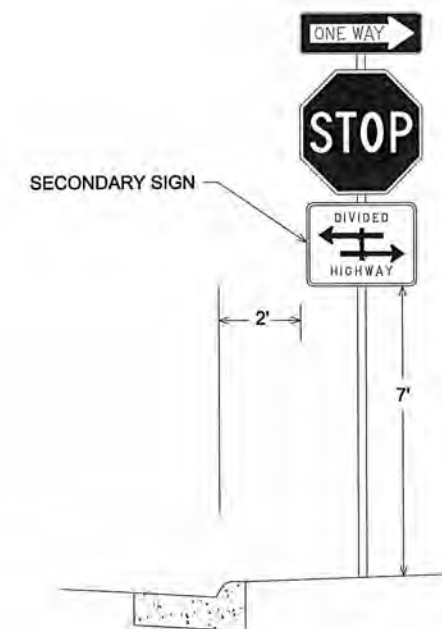
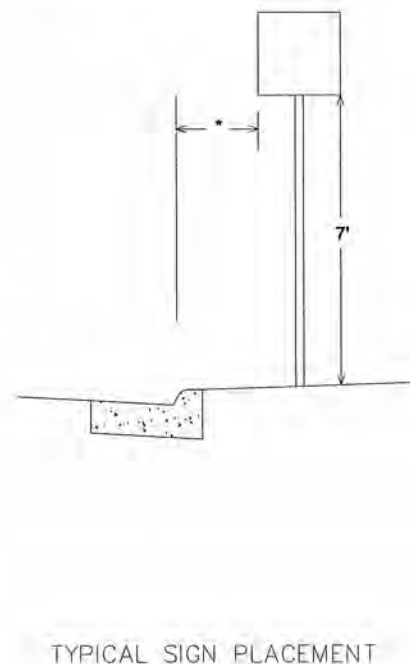
Sheet 17 of 22 Sheets

RURAL



URBAN

- 2' - NARROW BOULEVARD (< 8' WIDE)
- 6' - WIDE BOULEVARD



NOTE:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN 2' CLEAR FROM SIGNS TO BITUMINOUS TRAIL

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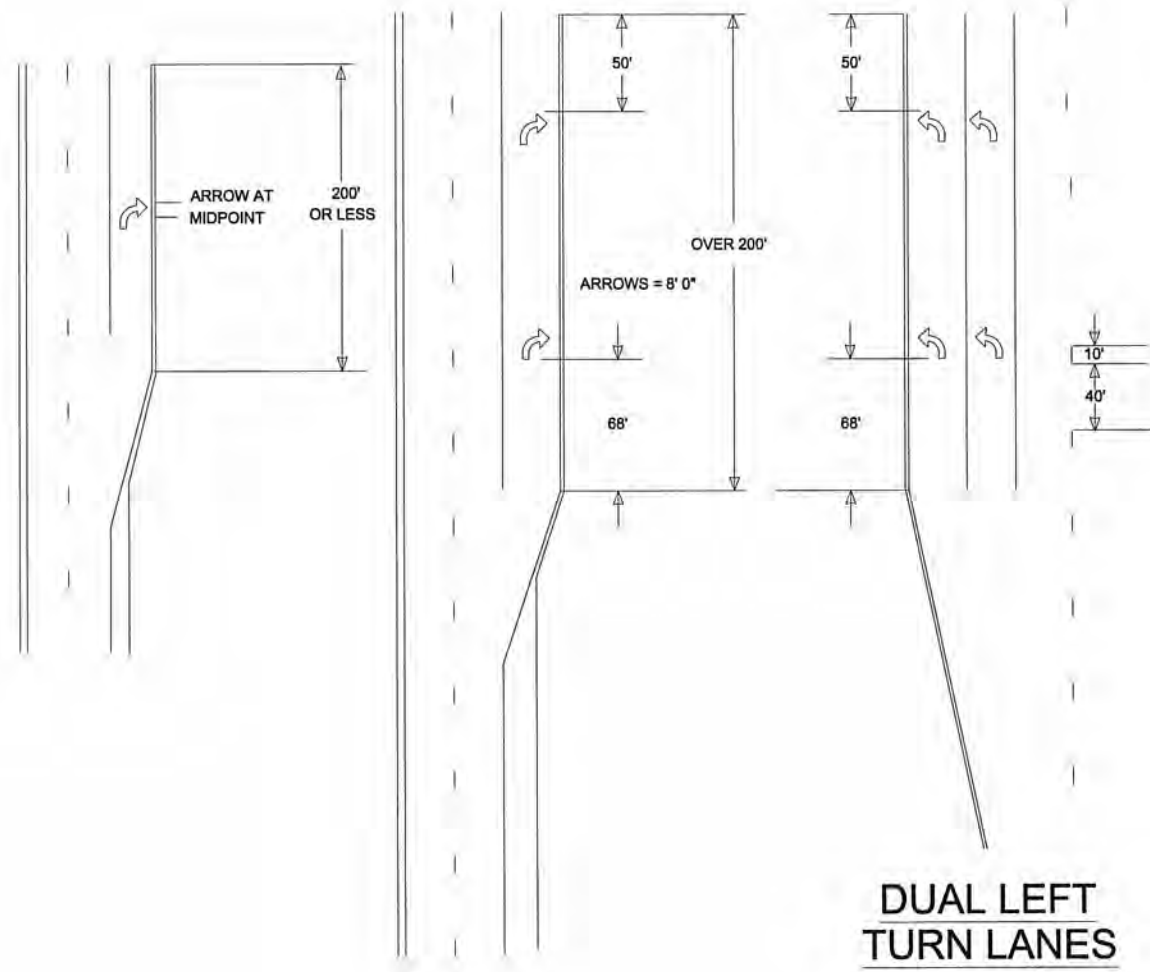
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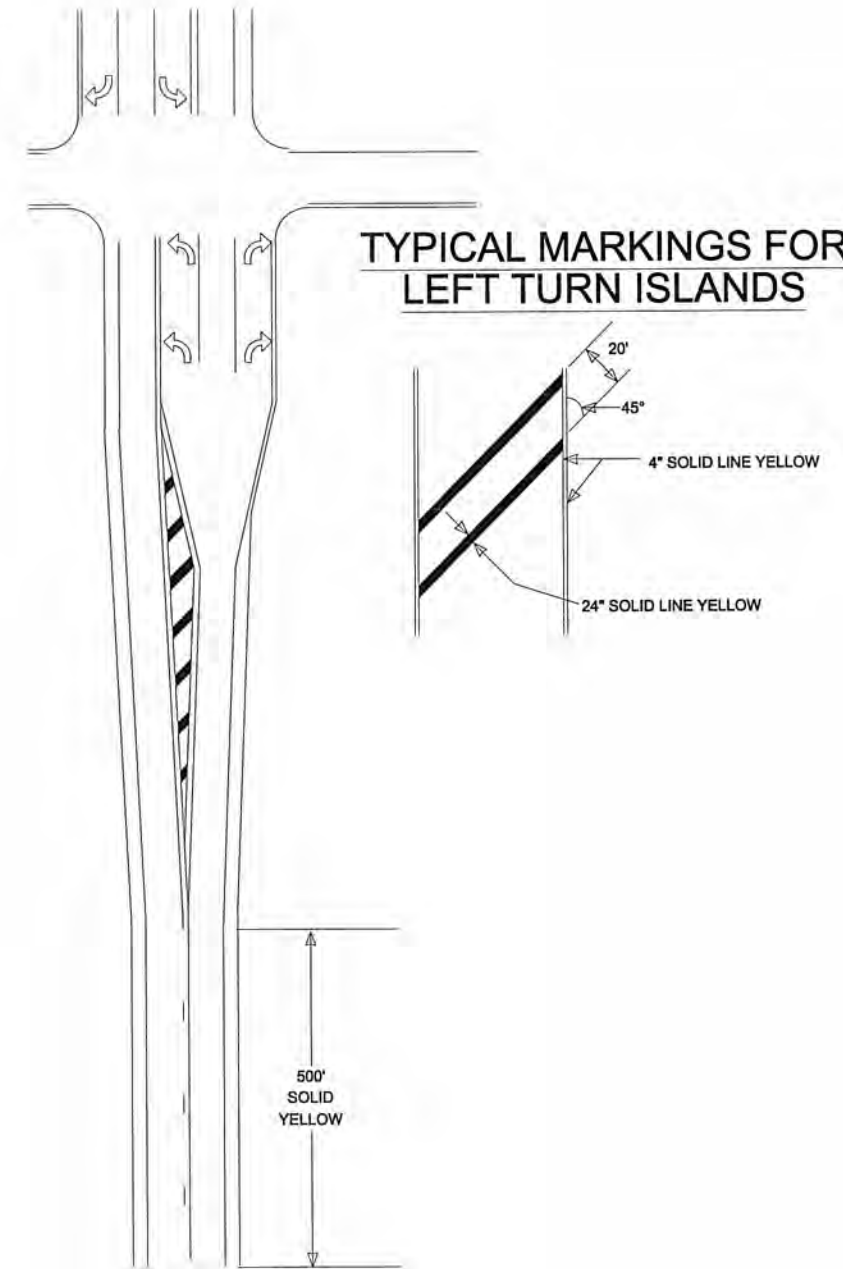
SIGNING & STRIPING  
DETAILS

Sheet 18 of 22 Sheets

**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



**TYPICAL MARKINGS FOR  
LEFT TURN ISLANDS**



NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE: *Matthew J. John*

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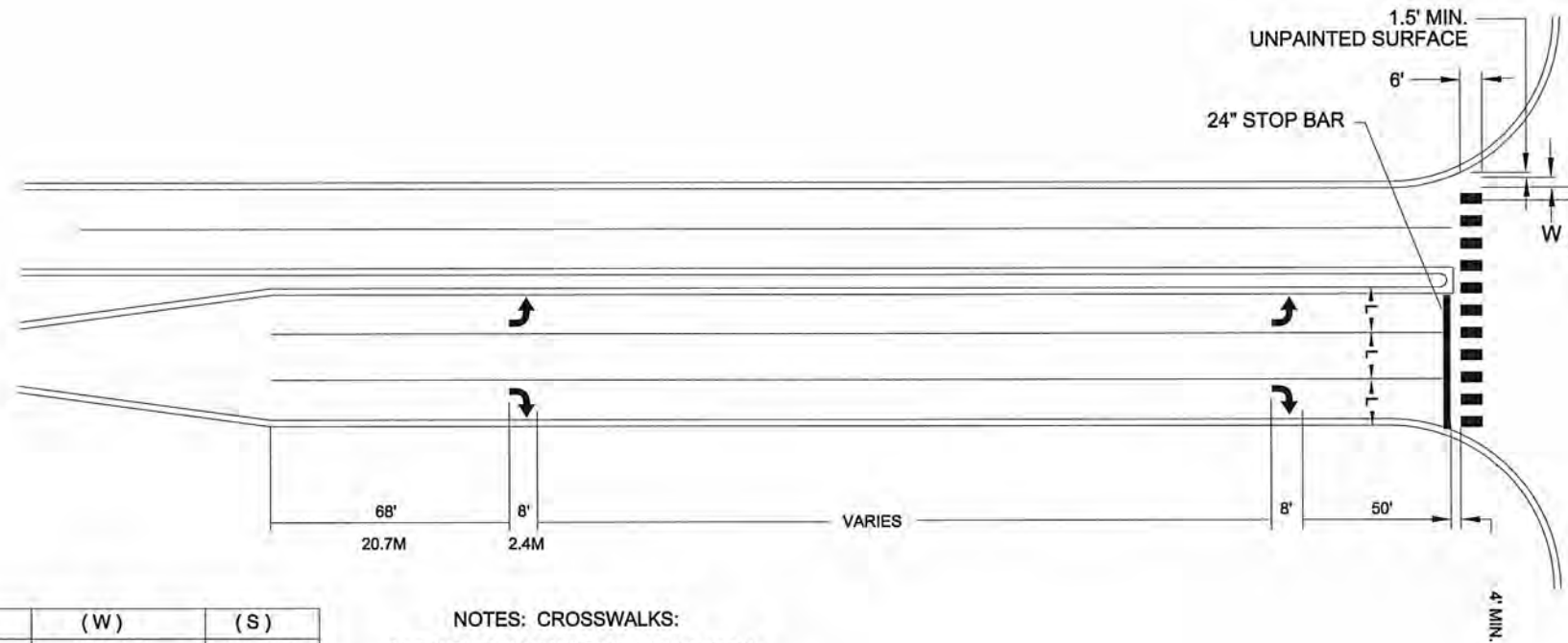
STATE AID PROJECT NO. \_\_\_\_\_

COUNTY PROJECT NO. 16-17-35

**SIGNING & STRIPING  
DETAILS**

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## MARKINGS FOR PEDESTRIAN CROSSWALKS



(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

### NOTES: CROSSWALKS:

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMP ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES, EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

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SIGNING & STRIPING  
 DETAILS

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- NOTES:**
- 1) EACH NEW VEHICLE SIGNAL FACE SHALL HAVE A BACKGROUND SURF.
  - 2) ALL RED INDICATORS SHALL BE REPLACED WITH 300 mm LED RED INDICATORS. SEE SPECIAL PROVISIONS.
  - 3) ALL ITEMS OF SIGNAL SYSTEM AND INFRASTRUCTURE SHALL BE IN PLACE AS SHOWN, EXCEPT AS NOTED BY R & S (REMOVE AND SALVAGE), U & I (SALVAGE AND REINSTALL), AND F & I (FURNISH AND INSTALL).
  - 4) INDICATOR SHALL PROVIDE EXTENDED BRACKETS FOR EACH POLE MOUNTED VEHICLE SIGNAL FACE.
  - 5) CONTRACTOR SHALL PAINT ALL NEW AND REPLACED ITEMS OF SIGNAL SYSTEM. SEE SPECIAL PROVISIONS.
  - 6) LOCATION OF POLES, HANDHOLES, LOOP DETECTORS AND CABINETS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 7) SEE SPECIAL PROVISIONS REGARDING REMOVAL, SALVAGING AND/OR REINSTALLING OF INFRASTRUCTURE.
  - 8) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER UNIFORM STANDARD PRACTICES (MUTCD).
  - 9) ALL INFRASTRUCTURE INDICATORS SHALL BE REMOVED AND SALVAGED BY THE CONTRACTOR, AND SHALL BE REPLACED WITH ONE SECTION AND/OR WARNING PERSON INDICATORS (WITH THE HAND INDICATOR BEING LED).

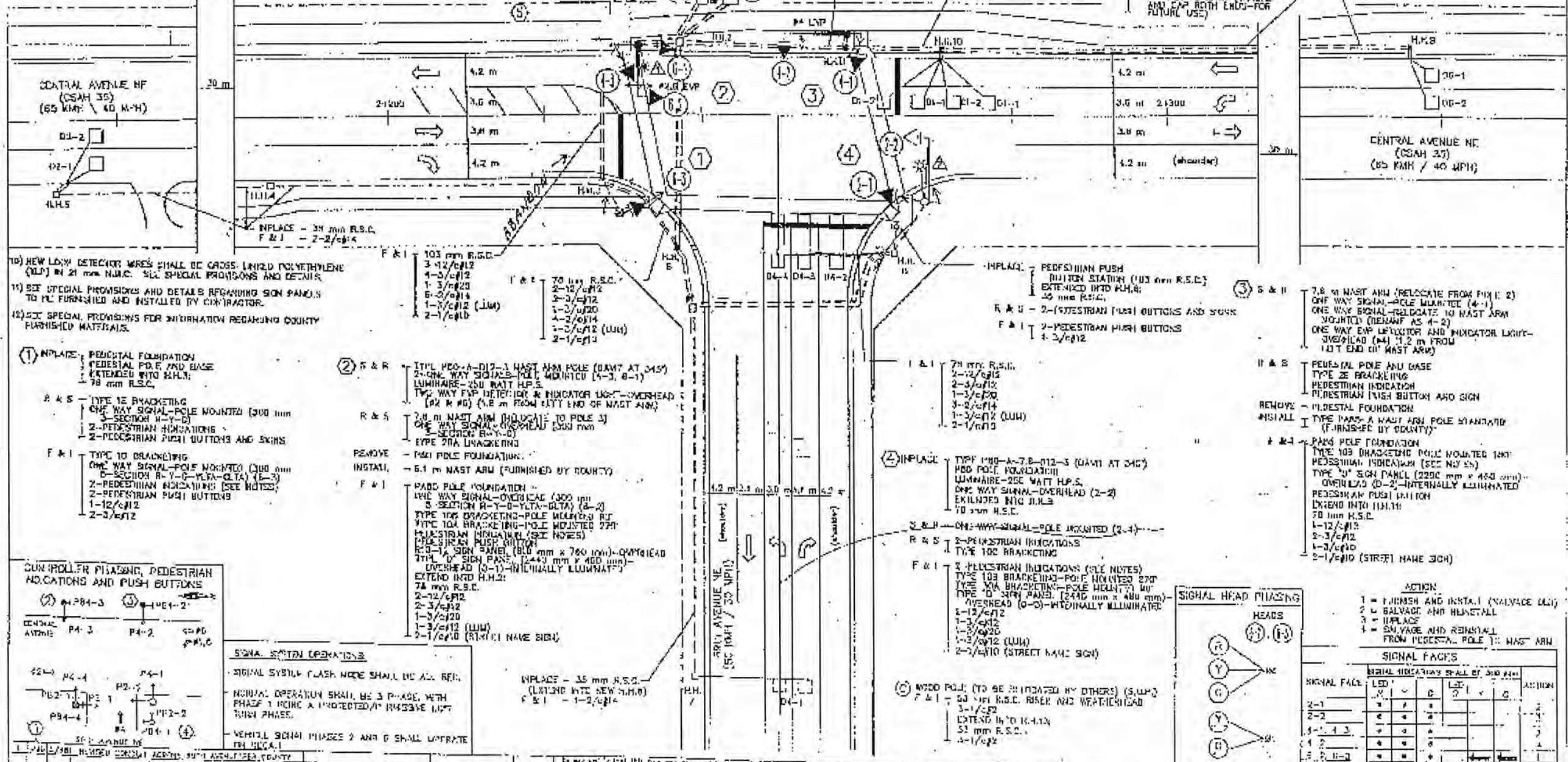
NUMBER	SIZE (m)	LOCATION	FUNCTION	STATUS
D1-1	2-1.7x1.7	1.5 m x 10.0 m	1-12	F & I
D1-2	2-1.7x1.7	1.5 m x 6.0 m	1-12	F & I
D2-1	1.7x1.7	9.1 m	1	F & I
D2-2	1.7x1.7	9.1 m	1	F & I
D4-1	2-1.7x1.7	6.0 m	6	IMP. W/CL
D4-2	2-1.7x1.7	6.0 m x 3.0 m	6	F & I
D4-3	2-1.7x1.7	6.0 m x 3.0 m	6	F & I
D4-4	2-1.7x1.7	6.0 m x 3.0 m	6	F & I
D6-1	1.7x1.7	9.1 m	1	F & I
D6-2	1.7x1.7	9.1 m	1	F & I

- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
  - 2) CALL ONLY
  - 3) EXTEND ONLY
  - 4) CALL ONLY DENSITY
  - 5) DELAYED CALL ONLY
  - 6) DELAYED CALL - DENSITY
  - 7) DELAYED CALL - IMMEDIATE EXTEND
  - 8) CARRY OVER (STATION)
  - 9) ADVISORY DETECTOR
  - 10) SATELLITE DETECTOR
  - 11) CALL DURING 64 ONLY
  - 12) EXTEND DURING M AND ME ONLY

- R & S - REMOVE**
- 300V CABINET
  - CABINET FOUNDATION
  - 100V CABINET
  - EXTEND INTO H.H.12
  - 53 mm R.S.C.
  - 3-1/2" x 1/2"
  - EXTEND INTO H.H.12
  - 53 mm R.S.C.
  - METREX SIGNAL SERVICE
  - 3-1/2" x 1/2"
  - EXTEND INTO H.H.12
  - 53 mm R.S.C.
  - UNIMOUNTED STREET LIGHT/SIGNAL SERVICE
  - 3-1/2" x 1/2"
  - 6-1/2" x 1/2" (STREET NAME SIGN)

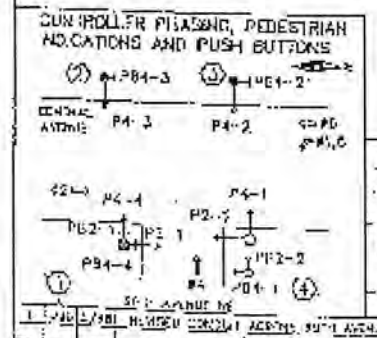
- R & S - REMOVE AND CABINET**
- CABINET FOUNDATION
  - EXTEND INTO H.H.12
  - 36 mm R.S.C.
  - HELIXED SIGNAL SERVICE
  - 3-1/2" x 1/2"
  - EXTEND INTO H.H.12
  - 103 mm R.S.C.
  - 3-12" x 1/2"
  - 4-1/2" x 1/2"
  - 1-3/4" x 1/2"
  - 2-3/4" x 1/2"
  - 8-2" x 1/2"
  - EXTEND INTO H.H.12
  - 103 mm R.S.C.
  - 1-12" x 1/2"
  - 1-72 mm R.S.C. FROM CABINET TO EAST (LINEAD AND EXT. BOTH ENDS-FOR FUTURE USE)

- R & S - REMOVE**
- 110V POLE AND BASE
  - TYPE 4A
  - PEDESTRIAN PUSH BUTTON AND SIGN
  - REMOVE - PEDESTRIAN FOUNDATION



- 10) NEW LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLPE) IN 21 mm N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
- 11) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
- 12) SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING COUNTY FURNISHED MATERIALS.

- 1) INPLACE - PEDESTAL FOUNDATION**
- PEDESTAL POLE AND BASE
  - EXTENDED INTO H.H.12
  - 78 mm R.S.C.
- R & S - TYPE 12 BRACKETING**
- ONE WAY SIGNAL-POLE MOUNTED (300 mm)
  - 3-SECTION H-Y-D
  - 2-PEDESTRIAN INDICATORS
  - 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
- F & I - TYPE 10 BRACKETING**
- ONE WAY SIGNAL-POLE MOUNTED (300 mm)
  - 5-SECTION H-Y-D (15-3)
  - 2-PEDESTRIAN INDICATORS (SEE NOTES)
  - 2-PEDESTRIAN PUSH BUTTONS
  - 1-12" x 1/2"
  - 2-3/4" x 1/2"

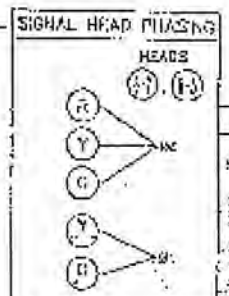


- 2) R & R**
- TYPE 103-A-D17-3 MAST ARM POLE (DAMT AT 045)
  - 2-ONE WAY SIGNALS-POLE MOUNTED (15-3, 6-1)
  - LUMINAIRE-250 WATT H.P.S.
  - TYPE 104 SIGN PANEL (2440 mm x 480 mm) OVERHEAD
  - (2x 1x 6) (4.6 m FROM EAST END OF MAST ARM)
- R & S**
- 7.8 m MAST ARM (RELOCATE TO POLE 3)
  - ONE WAY SIGNAL-POLE MOUNTED (300 mm)
  - 3-SECTION H-Y-D
  - TYPE 103 BRACKETING
- REMOVE**
- 110V POLE FOUNDATION
- INSTALL**
- 6.1 m MAST ARM (FURNISHED BY COUNTY)
- F & I**
- POLE FOUNDATION
  - ONE WAY SIGNAL-POLE MOUNTED (300 mm)
  - 5-SECTION H-Y-D (15-3)
  - TYPE 103 BRACKETING-POLE MOUNTED BY TYPE 104 BRACKETING-POLE MOUNTED PER PEDESTRIAN INDICATORS (SEE NOTES)
  - PEDESTRIAN PUSH BUTTON
  - R-3-1A SIGN PANEL (810 mm x 760 mm)-OVERHEAD
  - TYPE 104 SIGN PANEL (2440 mm x 480 mm)-OVERHEAD (0-0)-INTERNALLY ILLUMINATED
  - EXTEND INTO H.H.12
  - 78 mm R.S.C.
  - 2-12" x 1/2"
  - 2-3/4" x 1/2"
  - 1-3/4" x 1/2"
  - 1-3/4" x 1/2" (W/CL)
  - 2-1/4" x 1/2" (STREET NAME SIGN)

- INPLACE - 35 mm R.S.C.**
- (EXTEND INTO NEW SIGN)
  - F & I - 1-2" x 1/2"

- INPLACE**
- TYPE 103-A-D17-3 (DAMT AT 045)
  - PEDESTAL FOUNDATION
  - LUMINAIRE-250 WATT H.P.S.
  - ONE WAY SIGNAL-POLE MOUNTED (300 mm)
  - EXTENDED INTO H.H.12
  - 78 mm R.S.C.
- R & S**
- 2-PEDESTRIAN INDICATORS
  - TYPE 103 BRACKETING
- F & I**
- 2-PEDESTRIAN INDICATORS (SEE NOTES)
  - TYPE 103 BRACKETING-POLE MOUNTED 270
  - TYPE 104 BRACKETING-POLE MOUNTED 270
  - TYPE 104 SIGN PANEL (2440 mm x 480 mm)-OVERHEAD (0-0)-INTERNALLY ILLUMINATED
  - EXTEND INTO H.H.12
  - 78 mm R.S.C.
  - 2-12" x 1/2"
  - 1-3/4" x 1/2"
  - 1-3/4" x 1/2" (W/CL)
  - 2-1/4" x 1/2" (STREET NAME SIGN)

- 3) R & S**
- 7.8 m MAST ARM (RELOCATE FROM POLE 2)
  - ONE WAY SIGNAL-POLE MOUNTED (4-1)
  - ONE WAY SIGNAL-RELOCATE TO MAST ARM
  - WOULDN'T (REMARK AS 4-2)
  - ONE WAY EXP. LEV. INDICATOR AND INDICATOR LIGHT-SIGNAL (44) 1.2 m FROM EAST END OF MAST ARM
- R & S**
- PEDESTAL POLE AND BASE
  - TYPE 2E BRACKETING
  - PEDESTRIAN INDICATOR
  - PEDESTRIAN PUSH BUTTON AND SIGN
  - PEDESTAL FOUNDATION
- REMOVE**
- TYPE 103-A MAST ARM POLE STANDARD (FURNISHED BY COUNTY)
- INSTALL**
- TYPE 103 BRACKETING
  - TYPE 103 BRACKETING POLE MOUNTED 180
  - PEDESTRIAN INDICATOR (SEE NOTES)
  - TYPE 104 SIGN PANEL (2200 mm x 480 mm) OVERHEAD (0-2)-INTERNALLY ILLUMINATED
  - PEDESTRIAN PUSH BUTTON
  - EXTEND INTO H.H.12
  - 78 mm R.S.C.
  - 1-12" x 1/2"
  - 2-3/4" x 1/2"
  - 1-3/4" x 1/2"
  - 2-1/4" x 1/2" (STREET NAME SIGN)



**ACTION**

- 1 = FURNISH AND INSTALL (SALVAGE ONLY)
- 2 = SALVAGE AND REINSTALL
- 3 = INPLACE
- 4 = SALVAGE AND REINSTALL FROM PEDESTAL POLE TO MAST ARM

**SIGNAL FACES**

SIGNAL FACE	LED	1	2	3	4	ACTION
2-1	W	*	*	*	*	2
2-2	W	*	*	*	*	2
3-1, 3-2	W	*	*	*	*	2
4-1	W	*	*	*	*	2
5-1, 5-2	W	*	*	*	*	2
6-1	W	*	*	*	*	2

ANOKA COUNTY, MINNESOTA  
CITY OF ANDLEY

REVISE SIGNAL SYSTEM INTERSECTION LAYOUT

FILL NO. 16-17-35

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: MATHEW J. JOHN

SIGNATURE: [Signature]

DATE: 4/8/2016 LICENSE NO. 51639

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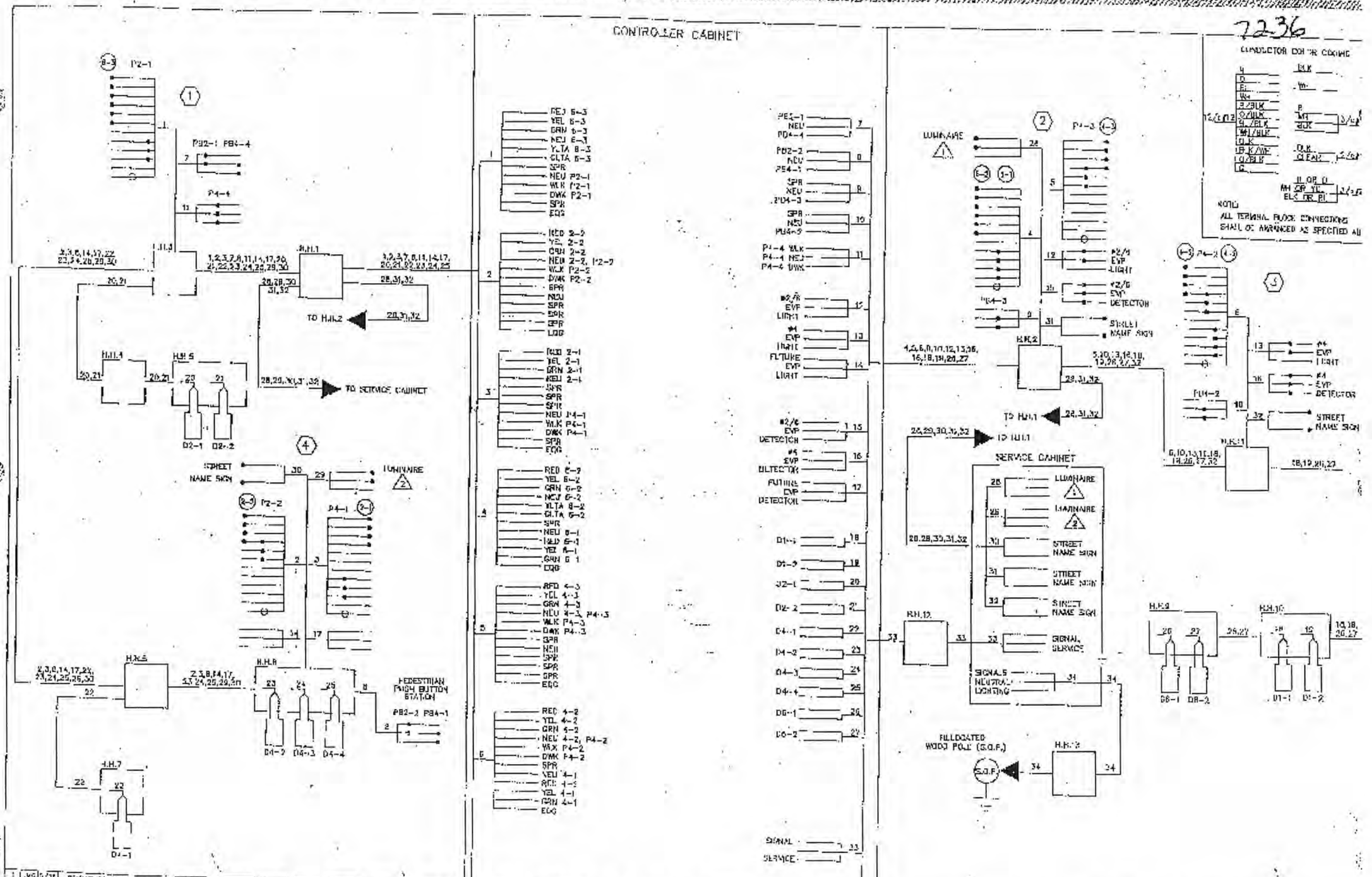
CHECKED BY: MJJ DATE: SDATES

ANOKA COUNTY HIGHWAY DEPT.

COUNTY PROJECT 16-17-35

ORIGINAL SIGNAL PLANS

Sheet 21 of 22 Sheets



7236

CONDUCTOR COLOR CODE

4	BLK
5	BRN
6	GRN
7	WHT
8	RED
9	YEL
10	BLU
11	OR
12	PUR
13	SLV
14	OPN
15	GRY
16	DRK
17	LTG
18	TRK
19	DRK
20	TRK
21	DRK
22	TRK
23	DRK
24	TRK
25	DRK
26	TRK
27	DRK
28	TRK
29	DRK
30	TRK
31	DRK
32	TRK
33	DRK
34	TRK

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ADVANCED AS SPECIFIED AND

NO.	DATE	BY	CKD	APPR	REVISION	SDATES	STIMES

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: MATHEW J. JOHN  
 SIGNATURE: *Mathe J. John*  
 DATE: 4/8/2016 LICENSE NO. 51639

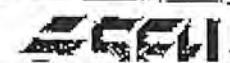
DRAWN BY: KPR DATE: 3/18/2016  
 DESIGN BY: KPR DATE: 3/18/2016  
 CHECKED BY: MJJ DATE: SDATES



ANOKA COUNTY HIGHWAY DEPT.

COUNTY PROJECT 16-17-35

ORIGINAL SIGNAL PLANS  
 Sheet 22 of 22 Sheets



ANOKA COUNTY, MINNESOTA  
 CITY OF EDEN

REVISE SIGNAL SYSTEM

FILE NO.