





**STATEMENT OF ESTIMATED QUANTITIES**

NOTES	ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED	ANOKA COUNTY SAP 002-632-018	RAMSEY COUNTY SAP 002-601-015
	2021.501	MOBILIZATION	LUMP SUM	1	0.675	0.325
	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	2	1.3	0.7
3	2104.502	SALVAGE SIGN	EACH	8	5.4	2.6
1,2	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	1966	1327.0	639.0
2	2104.503	SAWING CONC PAVEMENT (FULL DEPTH)	LIN FT	311	209.9	101.1
1,2	2104.503	REMOVE CURB & GUTTER	LIN FT	924	623.7	300.3
	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	260	175.5	84.5
	2104.518	REMOVE BITUMINOUS WALK	SQ FT	1503	1014.5	488.5
2	2104.518	REMOVE CONCRETE WALK	SQ FT	754	508.9	245.1
2	2104.518	REMOVE CONCRETE MEDIAN	SQ FT	695	469.1	225.9
	2105.507	COMMON EXCAVATION	CU YD	175	118.1	56.9
5	2211.509	AGGREGATE BASE CLASS 5	TON	155	104.6	50.4
6	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	33754	22783.9	10970.1
7	2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	3341	2255.2	1085.8
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1855	1252.1	602.9
8	2360.509	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	TON	30	20.2	9.8
9	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4:F)	TON	384	259.2	124.8
	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4:F)	TON	3882	2620.3	1261.7
10	2504.602	ADJUST GATE VALVE	EACH	24	16.2	7.8
11	2506.502	CASTING ASSEMBLY	EACH	32	21.6	10.4
13	2506.503	RECONSTRUCT DRAINAGE STRUCTURE	LIN FT	5.6	3.8	1.8
12	2506.602	GROUT CATCH BASIN OR MAN HOLE	EACH	1	0.7	0.3
14	2521.518	4" CONCRETE WALK	SQ FT	695	469.1	225.9
4	2521.518	6" CONCRETE WALK	SQ FT	2084	1406.7	677.3
1	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	924	623.7	300.3
	2531.602	CONCRETE MEDIAN NOSE-SPECIAL	EACH	10	6.7	3.3
	2531.604	8" CONCRETE VALLEY GUTTER	SQ YD	5	3.4	1.6
	2531.618	TRUNCATED DOMES	SQ FT	466	314.5	151.5
24	2550.602	LOOP DETECTOR DESIGN NMC	EACH	4	2.7	1.3
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.675	0.325
15,16	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.675	0.325
17	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20	13.5	6.5
	2564.518	SIGN PANELS TYPE C	SQ FT	9.00	6.10	2.90
3	2564.602	INSTALL SIGN	EACH	8	5.4	2.6
25	2565.602	RIGID PVC LOOP DETECTOR 6'X6'	EACH	7	4.7	2.3
18	2573.502	STORM DRAIN INLET PROTECTION	EACH	37	25.0	12.0
19	2574.507	COMMON TOPSOIL BORROW	CU YD	103	69.5	33.5
19	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	400	270.0	130.0
20	2581.503	REMOVABLE PERFORM PAVEMENT MARKING TAPE	LIN FT	218	147.1	70.9
23	2582.503	4" BROKEN LINE PAINT	LIN FT	2180	1471.5	708.5
21	2582.503	4" SOLID LINE MULTI COMP	LIN FT	14140	9544.5	4595.5
21	2582.503	4" BROKEN LINE MULTI COMP	LIN FT	2008	1355.4	652.6
21	2582.503	8" BROKEN LINE MULTI COMP	LIN FT	120	81.0	39.0
21	2582.503	4" DBLE SOLID LINE MULTI COMP	LIN FT	4305	2905.9	1399.1
22	2582.518	PAVT MSSG PREF THERMO	SQ FT	200	135.0	65.0
26	2582.518	PAVT MSSG PREF THERMO ESR GR IN	SQ FT	378	255.1	122.9
22	2582.518	CROSSWALK PREF THERMO	SQ FT	882	595.3	286.7
22	2582.603	PAVEMENT MARKING SPECIAL	LIN FT	694	468.4	225.6

**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 THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2575	SEED MIXTURE 25-121	61 LBS./ ACRE
2574	FERTILIZER TYPE 3	350 LBS./ ACRE
2575	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS./ ACRE

**CONSTRUCTION NOTES**

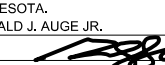
1	REFERENCE DETAILS (SHEET 9).
2	REFERENCE DETAILS FOR REMOVAL DETAILS. INCLUDES CURB, WALK, AND MEDIAN.
3	ITEM USED FOR SIGNS IN MEDIAN AND/OR PEDESTRIAN RAMP REPLACEMENT AREAS.
4	ITEM TO BE USED FOR NEW CONCRETE WALK.
5	GRAVEL USED AS BASE FOR NEW CONCRETE WALK, AND CURB PATCHES.
6	DETAIL MILLING AROUND MANHOLES, CATCH BASINS, GATE VALVES, AND ALONG CURB LINE IS INCIDENTAL TO THIS ITEM.
7	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.
8	ITEM INCLUDES BITUMINOUS PATCHING AROUND NEW CURB, STORM STRUCTURE REPAIRS, AND ANY POTHoles.
9	STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING
10	GATE VALVES TO BE ADJUSTED ONLY AS NECESSARY AS DETERMINED BY THE ENGINEER.
11	ITEM INCLUDES FULL REPLACEMENT OF CASTING ADJUSTMENT RINGS. SEE STORM TABULATIONS FOR RING HEIGHTS.
12	ITEM INCLUDES GROUTING OF INVERTS, DOGHOUSES, RINGS, AND CASTINGS AS REQUIRED (SEE DRAINAGE TAP, PAGE 3).
13	PAY HEIGHT IS MEASURED FROM INVERT OF OUTLET PIPE TO TOP OF PRECAST CONCRETE STRUCTURE PLUS AN ALLOWANCE OF 0.70 FEET FOR THE DEPTH OF THE CONCRETE BASE, REGARDLESS OF ITS ACTUAL THICKNESS. CONCRETE ADJUSTMENT RINGS ARE INCIDENTAL. CONNECTIONS TO EXISTING STORM SEWER ARE INCIDENTAL.
14	ITEM USED FOR CONCRETE MEDIANS.
15	CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNAGE WHENEVER EXISTING SIGNAGE IS REMOVED. TEMPORARY SIGNAGE SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
16	ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO, AND BE INSTALLED 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 PERMANENT PAVEMENT MARKINGS ARE NOT PRESENT.
17	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
18	ALL DRAINAGE STRUCTURES AFFECTED BY THIS PROJECT MUST HAVE INLET PROTECTION.
19	TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM.
20	CENTERLINE AND LANE DESIGNATION SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON MILLED SURFACE AND EACH NEW LIFT OF PAVEMENT; SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR IS TO REMOVE PRIOR TO FINAL STRIPING.
21	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
22	INCLUDES ALL THERMOPLASTIC STOP BARS, GORE AREA HATCHING, CROSSWALKS, LANE DESIGNATION AND PAVEMENT MESSAGES.
23	ITEM TO BE USED AS TEMPORARY CENTERLINE STRIPING ON MILLED SURFACE, INSTALLED THE SAME DAY AS MILLING OPERATION.
24	LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY TO DETERMINE PLACEMENT. SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN.
25	LOOP REPLACEMENT REQUIRED AT CSAH 32 AND TH 65 IF LOOPS ARE DAMAGED DURING MILLING PROCESS. CONTRACTOR SHALL CONTACT PETE ELLWANGER (MNDOT), 651-775-1279, FOR COORDINATION ON PLACEMENT, SIGNAL FLASH OPERATION, AND INSTALL SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN.
26	INSTALLED AT CSAH 32 AND TH 65. CONTACT PETE ELLWANGER (MNDOT), 651-775-1279, FOR PLACEMENT AND SIGNAL FLASH OPERATION DURING INSTALL.

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

MNDOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
3007F	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
4002F	MANHOLE OR CATCH BASIN (MASONRY, FIELD CONSTRUCTION) - DESIGN C
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4024A	48" DIA. PRECAST SHALLOW DEPTH CATCH BASIN - DESIGN SD
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715 AND 716
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)- CASTING NO. 825
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000J	CHANNELIZERS
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)

NO	DATE	BY	CKD	APPR	REVISION
	02/26/2021				

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.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: GERALD J. AUGER JR.  
 SIGNATURE:   
 DATE: 02-24-2021 LICENSE NO. 26511

DRAWN BY: MAR DATE: 02/26/2021  
 DESIGN BY: MAR DATE: 02/26/2021  
 CHECKED BY: CO DATE: 02/26/2021



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

**STATEMENT OF ESTIMATED QUANTITIES**  
 Sheet 2 of 36 Sheets


**STORM DRAINAGE TAB**

NUMBER	TYPE	ACTION	NEWCASTING TYPE	FURNISH AND INSTALL CASTING ASSEMBLY	RING HEIGHT (INCIDENTAL)	REMOVE STRUCTURE	GROUT CATCH BASIN OR MANHOLE	CONSTRUCT DRAINAGE STRUCTURE W/ BLOCK	CONNECT TO EXISTING STORM SEWER (INCIDENTAL)	NOTES
				EACH	LIN FT	EACH	EACH	EACH	EACH	
100	CB	GROUT					1			GROUT ALL
101	CB	RE-RING	A	1	0.6					
102	CB	GROUT					1			
103	CB	RE-RING	A	1	0.3					
104	CB	RE-RING	A	1	0.2					
105	CB	GROUT					1			GROUT RINGS & CLEAN OUT
108	CB	GROUT					1			
110	CB	GROUT					1			GROUT ALL
111	CB	GROUT					1			GROUT ALL
112	CB	RE-RING/GROUT	A	1	0.65		1			GROUT INVERT
113	CB	RECONST	A	1	0.4	1		2.4	2	REBUILD W/ BLOCK
114	CB	RECONST	A	1	0.65	1		3.2	3	REBUILD W/ BLOCK
115	CB	GROUT					1			GROUT ALL
116	CB	RE-RING	A	1	0.5					
117	CB	RE-RING	A	1	0.45					
118	CB	RE-RING	A	1	0.75					
119	CB	GROUT					1			GROUT ALL
120	CB	GROUT					1			GROUT ALL
121	CB	RE-RING	A	1	0.3					
122	CB	RE-RING	A	1	1					
123	CB	RE-RING	A	1	0.75					
124	CB	GROUT					1			
125	CB	RE-RING	A	1	0.7					
126	CB	RE-RING	A	1	0.65					
127	CB	GROUT					1			
128	CB	RE-RING	A	1	0.8					
129	CB	GROUT					1			GROUT ALL
130	CB	RE-RING	A	1	1.35					
131	CB	RE-RING	A	1	0.75					
132	CB	RE-RING	A	1	0.3					
133	CB	RE-RING/GROUT	A	1	0.75		1			GROUT DOG HOUSE
134	CB	GROUT					1			
135	CB	RE-RING	A	1	0.6					
136	CB	RE-RING	A	1	1.0					
137	CB	GROUT					1			
138	CB	RE-RING	A	1	1.2					
139	CB	RE-RING	A	1	1.35					
200	MH	GROUT					1			
201	MH	GROUT					1			
203	MH	GROUT					1			
204	MH	GROUT					1			
204A	MH	RE-RING	A-7D	1	0.9					WRAP WITH INFI-SHIELD (INCIDENTAL)
205	MH	INVERT/RE-RING	A-7D	1	1.0		1			NEW INVERT & GROUT STRUCTURE
206	MH	RE-RING	A-7D	1	1.2					WRAP WITH INFI-SHIELD (INCIDENTAL)
300	MH	RE-RING	SAN	1	1.5					WRAP WITH INFI-SHIELD (INCIDENTAL)
301	MH	RE-RING	SAN	1	2.0					WRAP WITH INFI-SHIELD (INCIDENTAL)
302	MH	RE-RING	SAN	1	1.6					WRAP WITH INFI-SHIELD (INCIDENTAL)
304	MH	GROUT					1			
305	MH	GROUT					1			
306	MH	GROUT					1			
309	MH	GROUT					1			
310	MH	RE-RING	SAN	1	0.35					WRAP WITH INFI-SHIELD (INCIDENTAL)
313	MH	GROUT					1			
314	MH	RE-RING	SAN	1	1.8					WRAP WITH INFI-SHIELD (INCIDENTAL)
315	MH	GROUT					1			
320	MH	GROUT					1			
321	MH	GROUT					1			
400	MH	RE-RING	SAN	1	1.2					
<b>TOTALS</b>				<b>32</b>	<b>27.6</b>	<b>2</b>	<b>29</b>	<b>5.6</b>	<b>5</b>	

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	DESCRIPTION	NOTES	QUANTITY
A-7D	700-7	715		STD. PLATE: 4101D, 4110F	CASTING COVER STAMPED "STORM SEWER"	3
SAN	NEENAH R-1733	NEENAH R1733-5044		301-CP LID WITH RUBBER GASKET ON BOTTOM	CASTING COVER STAMPED "SANITARY SEWER"	6
TYPE A	R3250 EVSP		No		SEE DETAILS - SHEET 9	23
TYPE A	R3250 DVSP		Yes		SEE DETAILS - SHEET 9	
ALL CASTING HEIGHTS ARE TO BE VERIFIED IN THE FIELD ALL MANHOLE COVERS SHOULD BE LABELED AS STORM OR SANITARY NEW CASTINGS TO BE INSTALLED AFTER ASPHALT MILLING IS COMPLETED MANHOLE CASTINGS TO BE RECESSED 1/4" FROM TOP OF FINISHED MAT						

NO	DATE	BY	CKD	APPR	REVISION
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**ANOKA COUNTY  
HIGHWAY DEPT.**

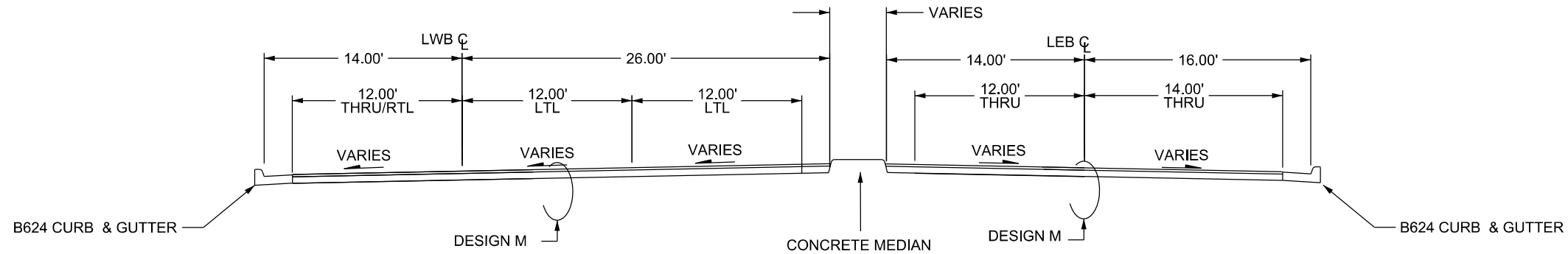
STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

TABULATIONS

Sheet 3 of 36 Sheets

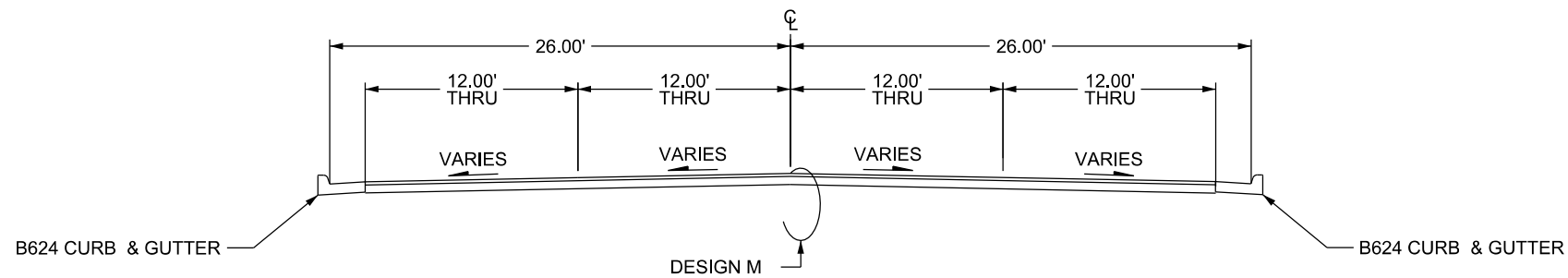
CSAH 32 - 85th Ave NE  
(EXISTING/PROPOSED) SECTION

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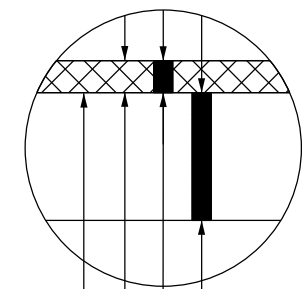


CSAH 32 - 85th Ave NE  
(EXISTING/PROPOSED) SECTION

13+50.00 - 41+00.00



DESIGN M  
MILL SECTION



BIT MATERIAL FOR TACK MN DOT SPEC. 2357  
2.0" MILL BITUMINOUS  
2.0" BITUMINOUS WEAR(SPWEB440F)  
REMAINING BITUMINOUS

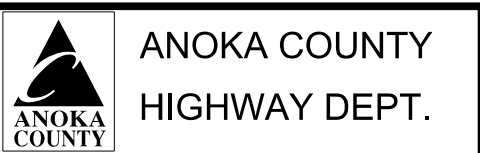
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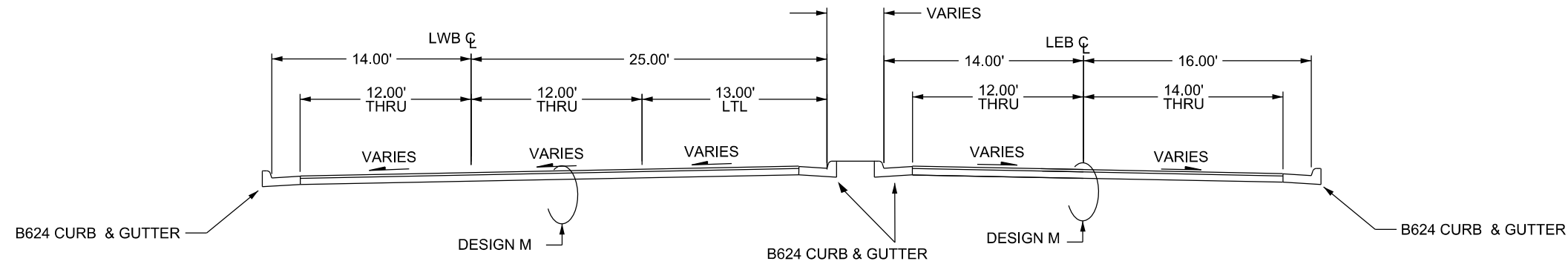


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TYPICAL SECTIONS  
Sheet 4 of 36 Sheets

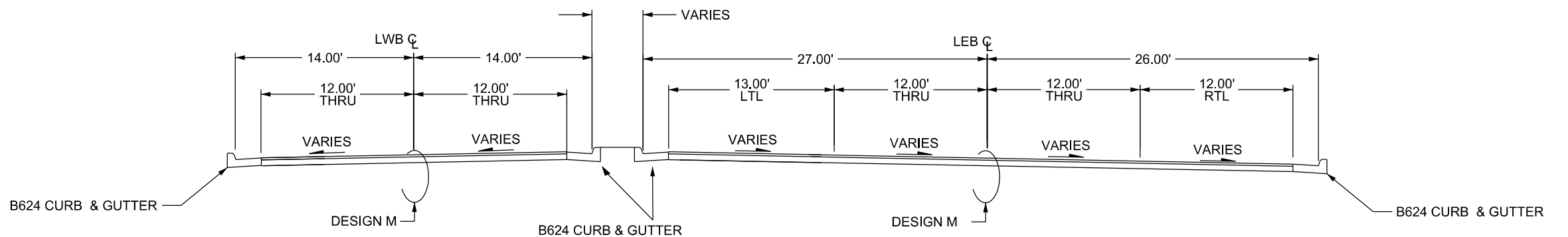
**CSAH 32 - 85th Ave NE**  
(EXISTING/PROPOSED) SECTION

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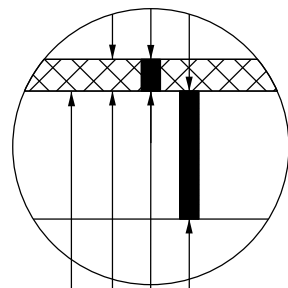


**CSAH 32 - 85th Ave NE**  
(EXISTING/PROPOSED) SECTION

51+00.00 - 53+80.00



**DESIGN M**  
**MILL SECTION**




- REMAINING BITUMINOUS
- 2.0" BITUMINOUS WEAR (SPWEB440F)
- 2.0" MILL BITUMINOUS
- BIT MATERIAL FOR TACK MN DOT SPEC. 2357

**\*\*NOTE: ALL PAVING SHALL BE PULLED IN THE SAME DIRECTION AS TRAFFIC FOR THAT LANE(S) OF TRAVEL**


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

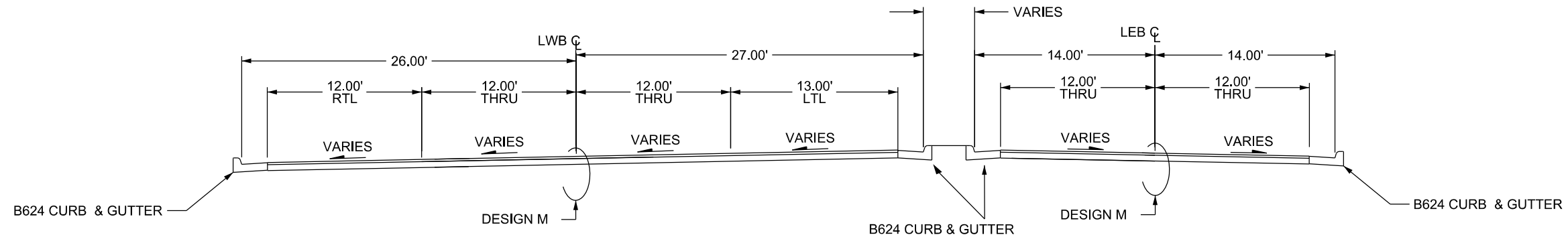


STATE AID PROJECT 002-632-018  
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TYPICAL SECTIONS  
 Sheet 5 of 36 Sheets

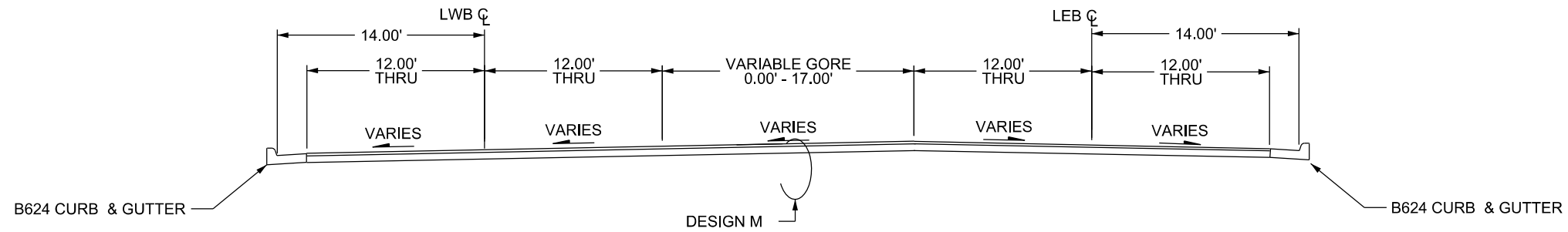
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(EXISTING/PROPOSED) SECTION

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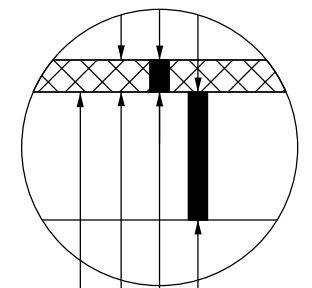


**CSAH 32 - 85th Ave NE**  
(EXISTING/PROPOSED) SECTION

41+00.00 - 46+60.00  
59+75.00 - 65+00.00



**DESIGN M**  
**MILL SECTION**




BIT MATERIAL FOR TACK MN DOT SPEC. 2357  
2.0" MILL BITUMINOUS  
2.0" BITUMINOUS WEAR(SPWEB440F)  
REMAINING BITUMINOUS


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

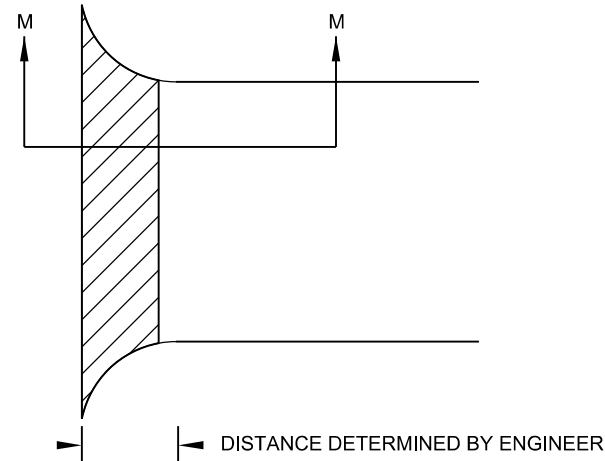
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TYPICAL SECTIONS  
Sheet 6 of 36 Sheets

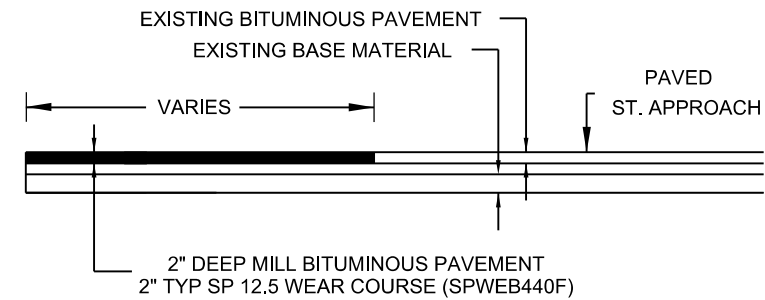
# STREET APPROACH DETAIL (MILL & OVERLAY)

## BITUMINOUS STREET

PLAN VIEW

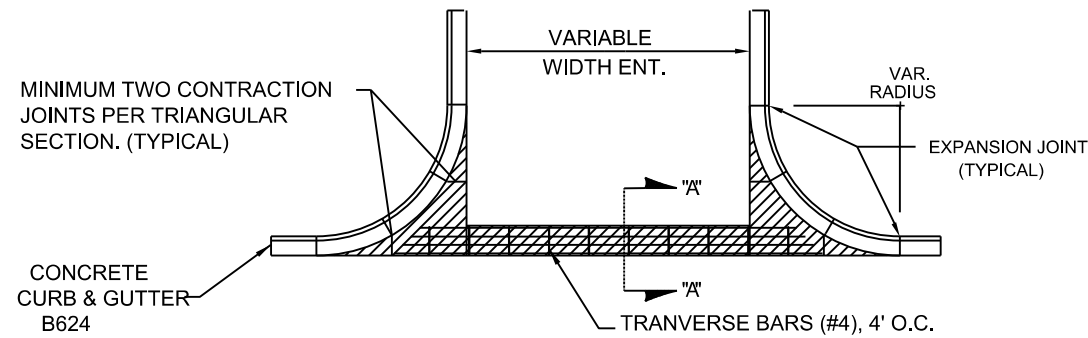


SECTION M - M

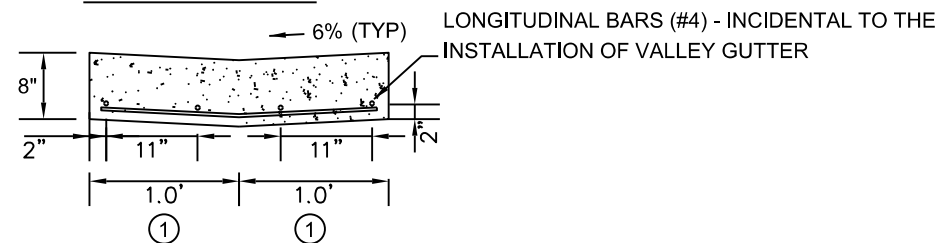


CROSS GUTTER DETAIL

PAID FOR AS 8" VALLEY GUTTER



SECTION "A"- "A"




DESIGNATES 8 INCH DEPTH CONCRETE

MATCH GUTTER WIDTH.

NO	DATE	BY	CKD	APPR	REVISION	02/26/2021	8:29:31 AM

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.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: GERALD J. AUGER JR.  
 SIGNATURE:   
 DATE: 02-24-2021 LICENSE NO. 26511

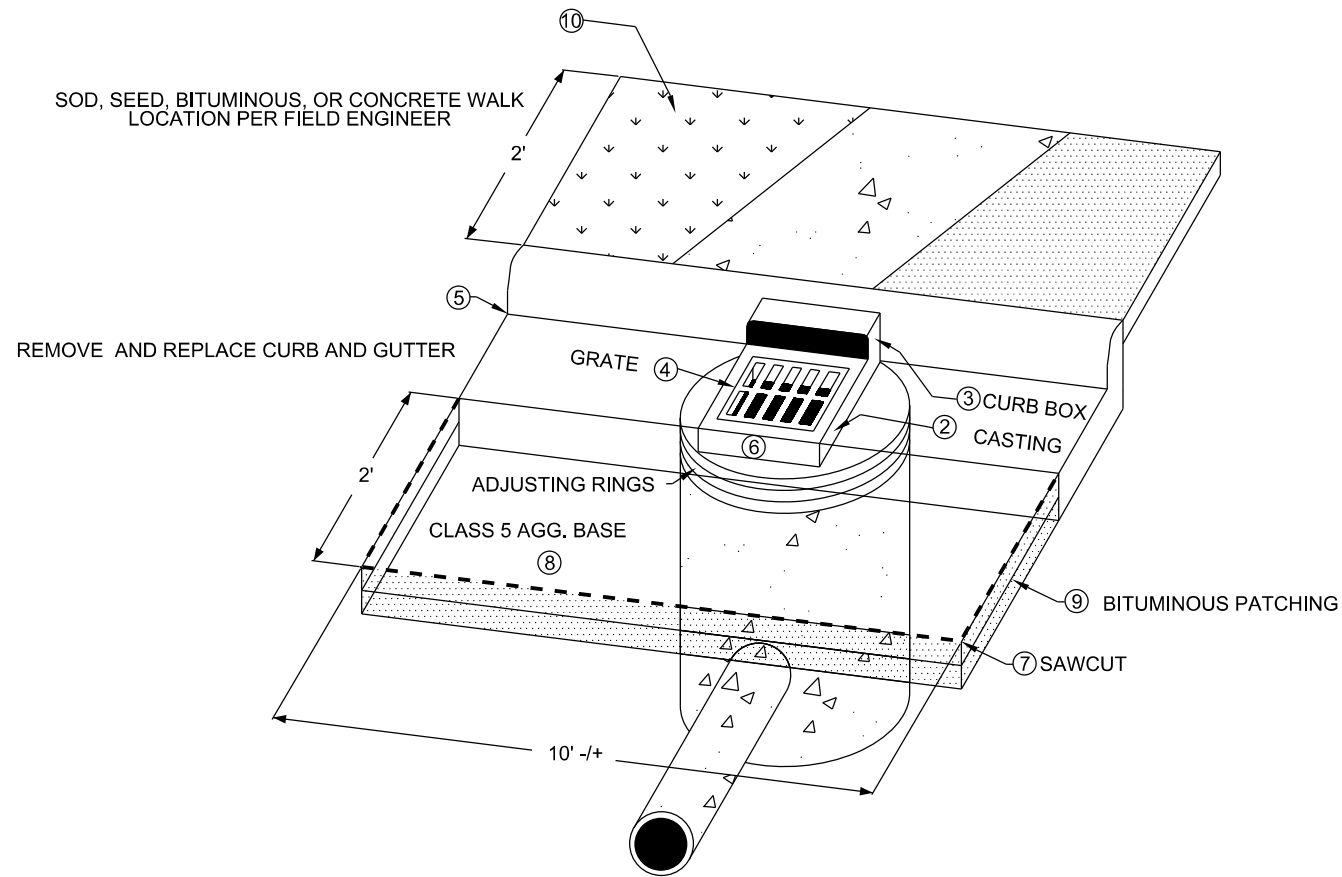
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 DESIGN BY: MAR DATE 12/16/2020  
 CHECKED BY: CO DATE 12/16/2020

 ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

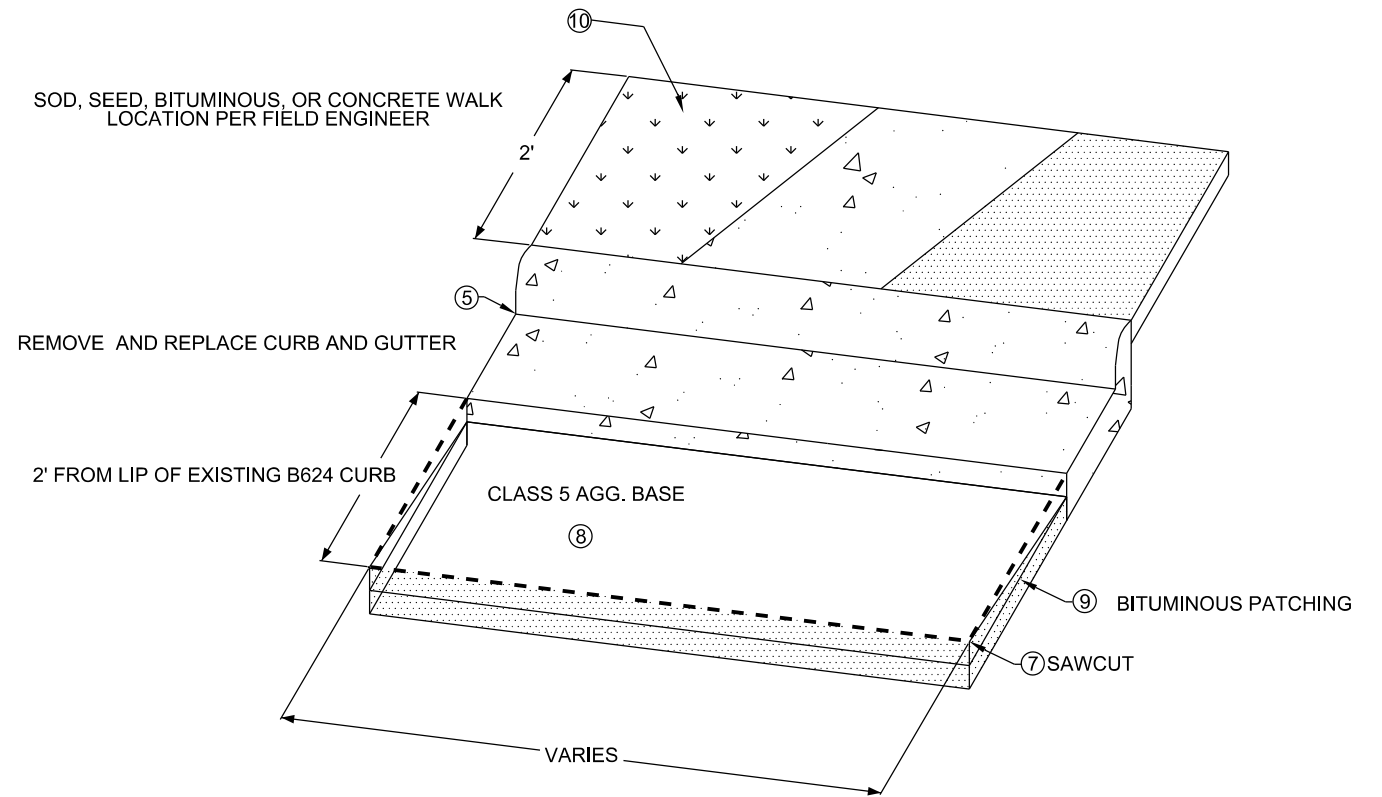
### CATCH BASIN DETAIL

SEE STRUCTURE TAB FOR LOCATION  
(PAGE 3)



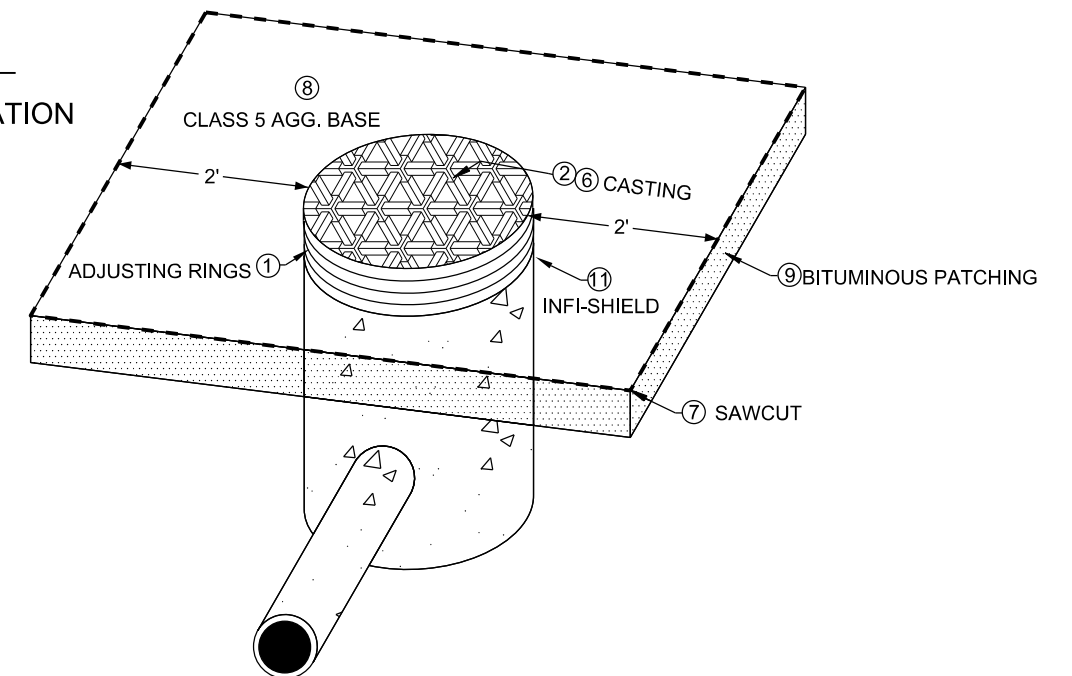
### NEW CURB DETAIL

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 7100H, FORM CURB TO FIT CASTING
- 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 5 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
- ⑪ WRAP STORM SEWER MANHOLE AND SANITARY SEWER MANHOLE CONCRETE ADJUSTING RINGS & CASTINGS WITH INFI-SHIELD SEAL WRAP OR APPROVED EQUIVALENT. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. INFI-SHIELD WRAP INCIDENTAL TO ADJUSTMENT.

NO	DATE	BY	CKD	APPR	REVISION		
	02/26/2021					8:29:31 AM	

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.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.  
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ANOKA COUNTY  
HIGHWAY DEPT.

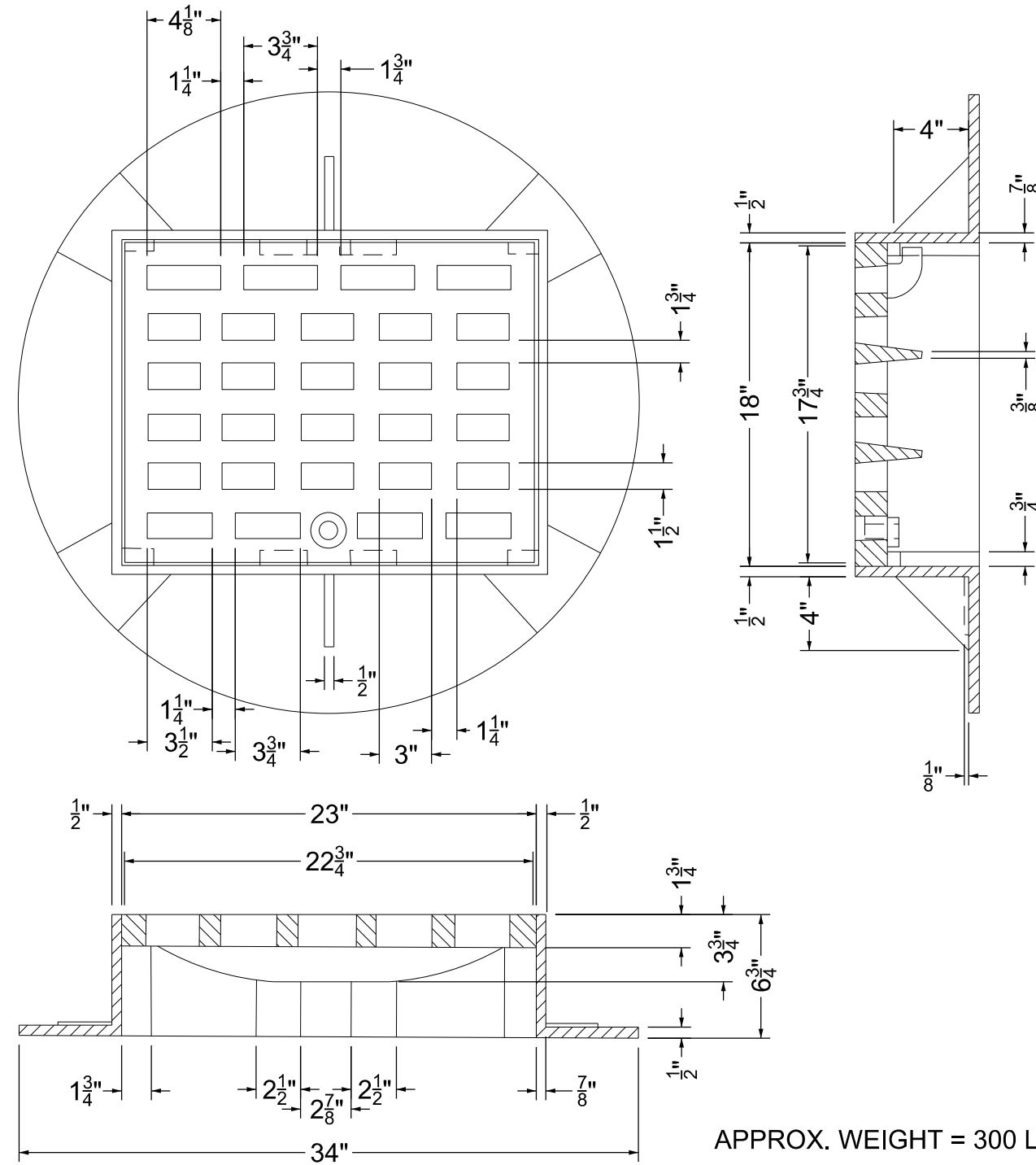
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 STATE AID PROJECT 062-601-015

DETAILS

Sheet 8 of 36 Sheets

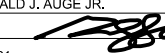


FRAME RING AND CASTING TYPE A




NO	DATE	BY	CKD	APPR	REVISION	

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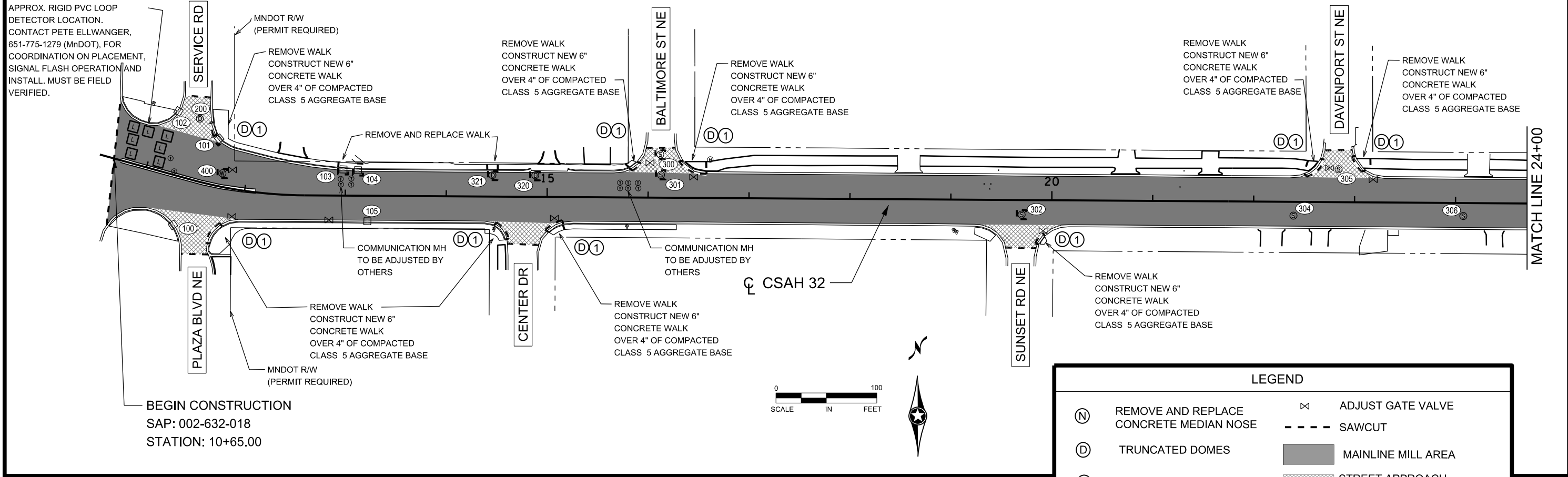
 ANOKA COUNTY  
 HIGHWAY DEPT.

STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

DETAILS  
 Sheet 9 of 36 Sheets

AP Anders

APPROX. RIGID PVC LOOP DETECTOR LOCATION. CONTACT PETE ELLWANGER, 651-775-1279 (MnDOT), FOR COORDINATION ON PLACEMENT, SIGNAL FLASH OPERATION AND INSTALL. MUST BE FIELD VERIFIED.

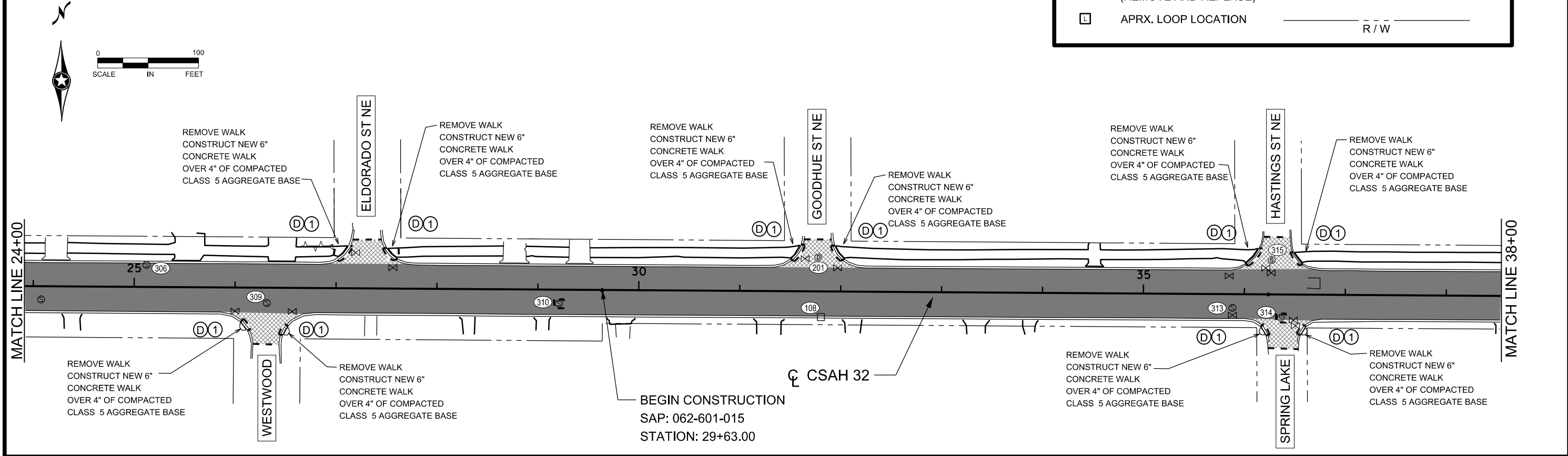


BEGIN CONSTRUCTION  
SAP: 002-632-018  
STATION: 10+65.00



**LEGEND**

(N)	REMOVE AND REPLACE CONCRETE MEDIAN NOSE	⊗	ADJUST GATE VALVE
(D)	TRUNCATED DOMES	- - -	SAWCUT
(1)	6" CONCRETE WALK (REMOVE AND REPLACE)	■	MAINLINE MILL AREA
(L)	APRX. LOOP LOCATION	▨	STREET APPROACH MILL SPECIAL AREA
		---	R/W



BEGIN CONSTRUCTION  
SAP: 062-601-015  
STATION: 29+63.00

NO	DATE	BY	CKD	APPR	REVISION	
	02/26/2021					8:29:35 AM

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP1.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: GERALD J. AUGER JR.

SIGNATURE: *[Signature]*

DATE: 02-24-2021 LICENSE NO. 26511

DRAWN BY: MAR DATE 12/16/2020

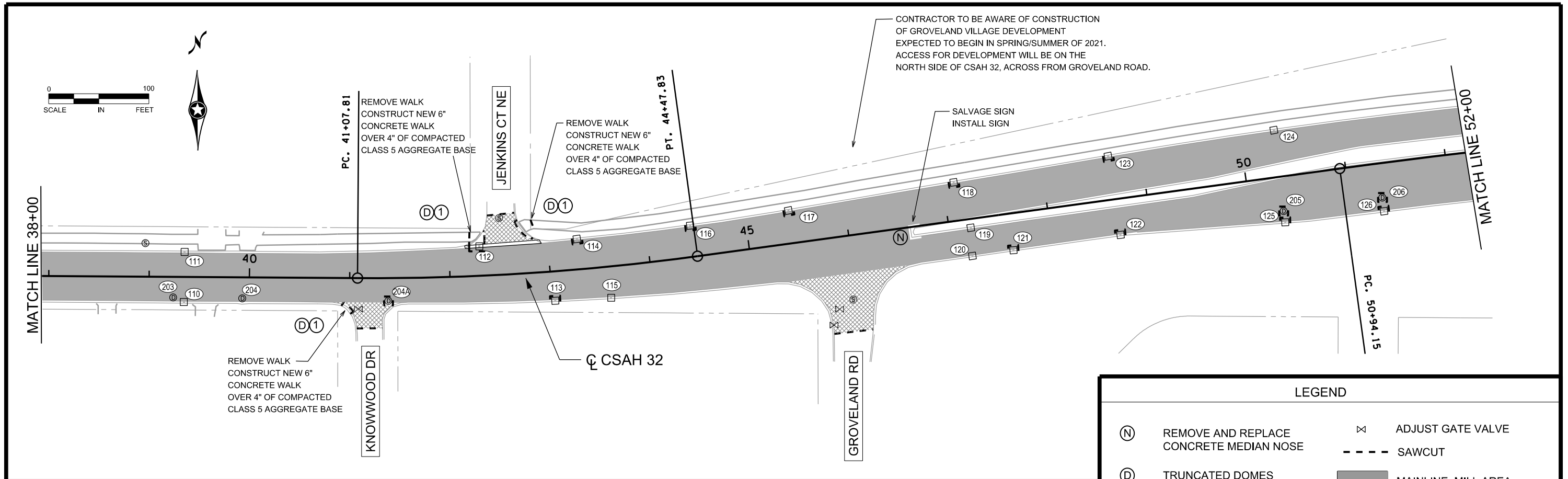
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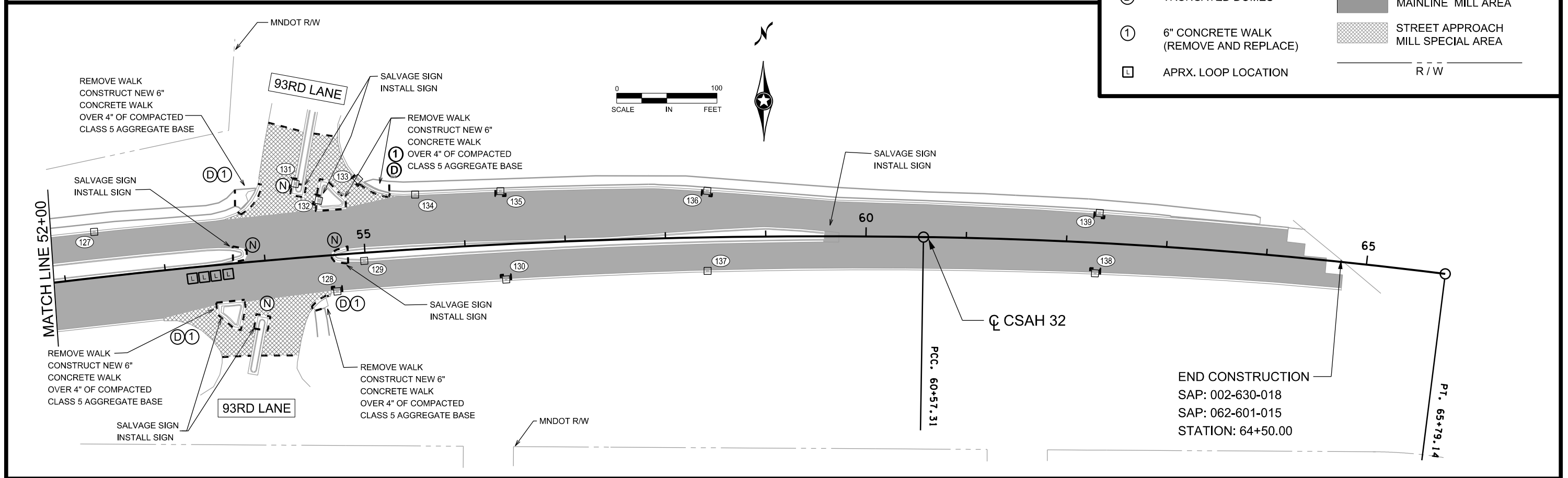
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE AID PROJECT 002-632-018  
STATE AID PROJECT 062-601-015

**CONSTRUCTION PLAN**  
STA 10+65 TO 38+00  
Sheet 10 of 36 Sheets



LEGEND			
(N)	REMOVE AND REPLACE CONCRETE MEDIAN NOSE	⊗	ADJUST GATE VALVE
(D)	TRUNCATED DOMES	- - -	SAWCUT
(1)	6" CONCRETE WALK (REMOVE AND REPLACE)	[Hatched Box]	MAINLINE MILL AREA
[Square]	APRX. LOOP LOCATION	[Hatched Box]	STREET APPROACH MILL SPECIAL AREA
		- - -	R / W



NO	DATE	BY	CKD	APPR	REVISION		
						02/26/2021	8:29:37 AM

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.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: GERALD J. AUGER JR.

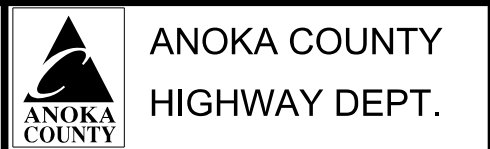
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DATE: 02-24-2021 LICENSE NO. 26511

DRAWN BY: MAR DATE 12/16/2020

DESIGN BY: MAR DATE 12/16/2020

CHECKED BY: CO DATE 12/16/2020



STATE AID PROJECT 002-632-018

STATE AID PROJECT 062-601-015

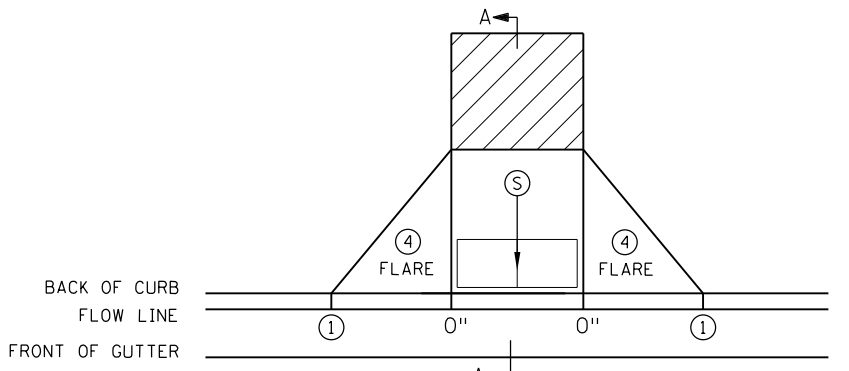
CONSTRUCTION PLAN

STA 38+00 TO 64+50

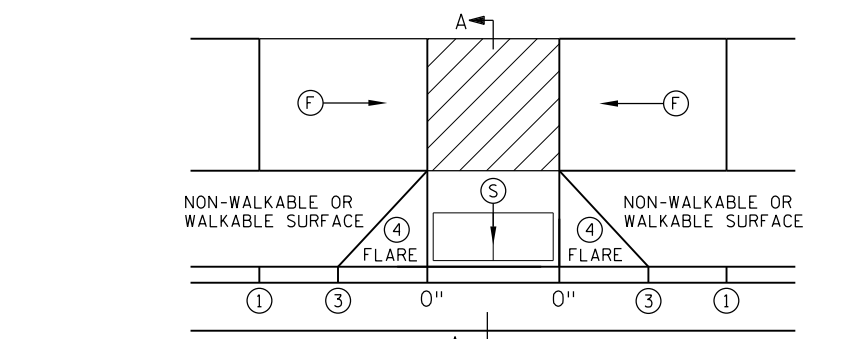
Sheet 11 of 36 Sheets

PLOTTED/REVISED:  
02/26/2021

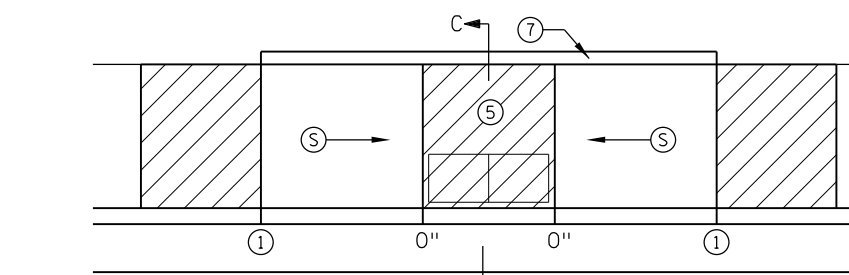
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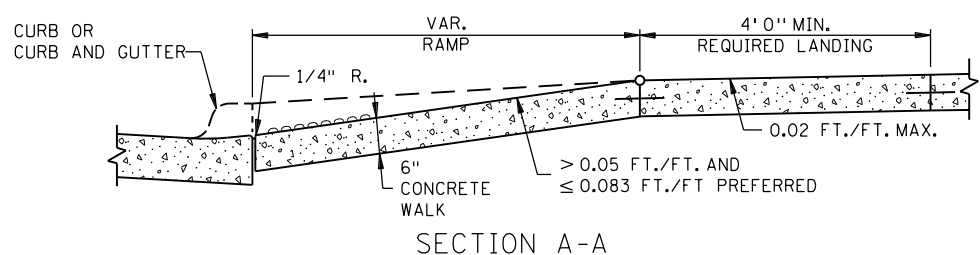
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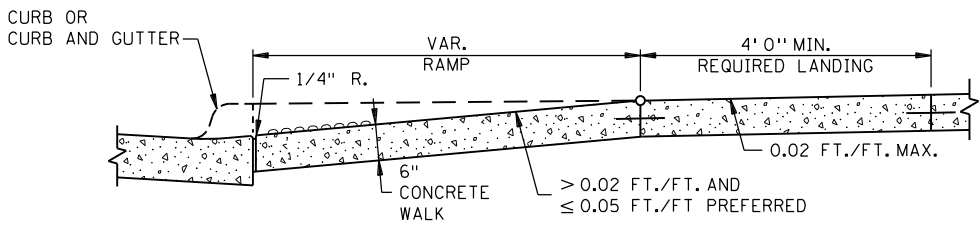
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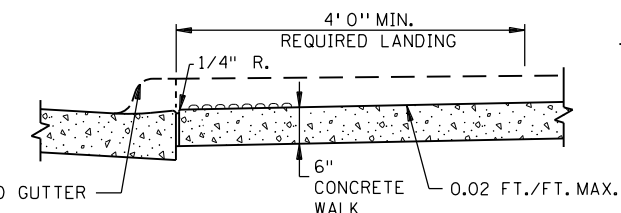
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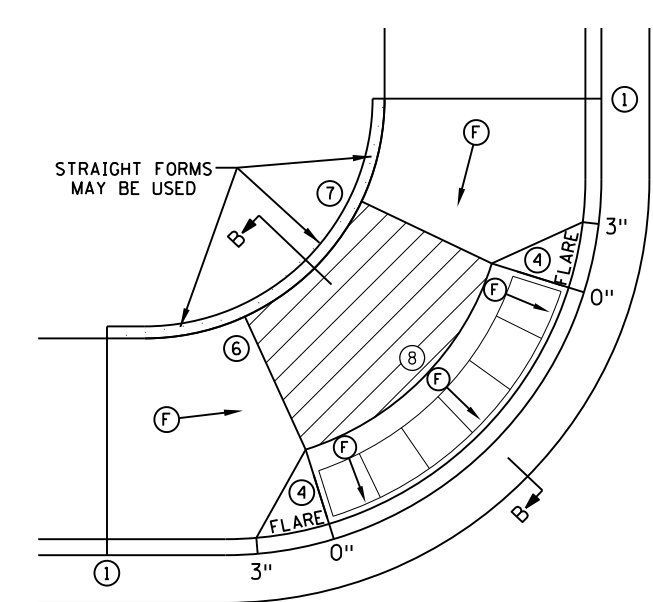
**SECTION A-A  
PERPENDICULAR/TIERED/DIAGONAL**



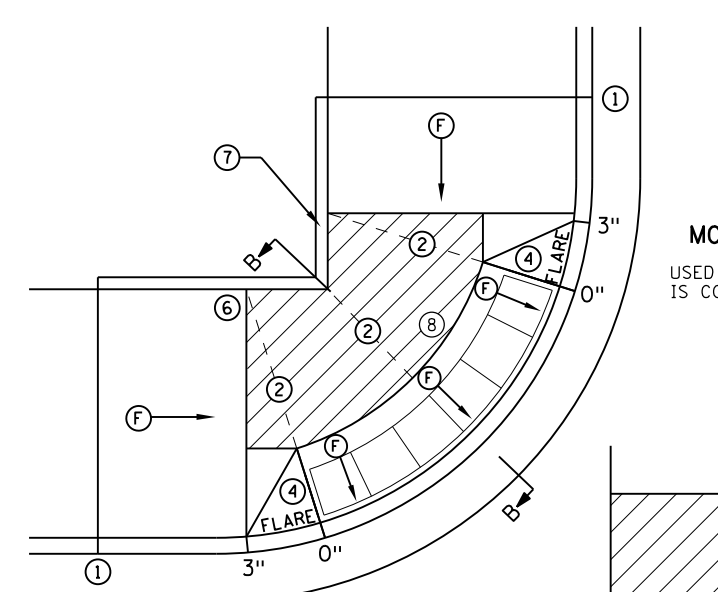
**SECTION B-B  
FAN**



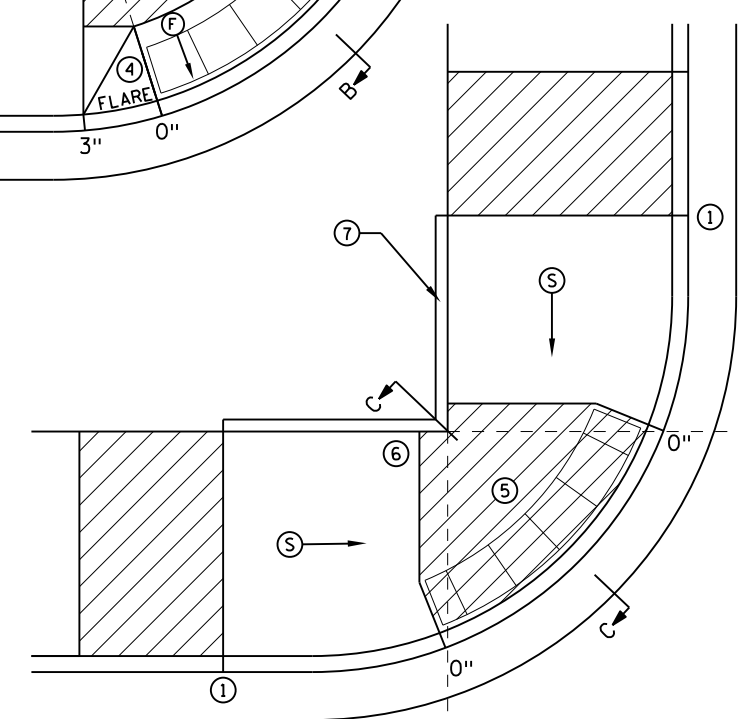
**SECTION C-C  
PARALLEL/DEPRESSED CORNER**



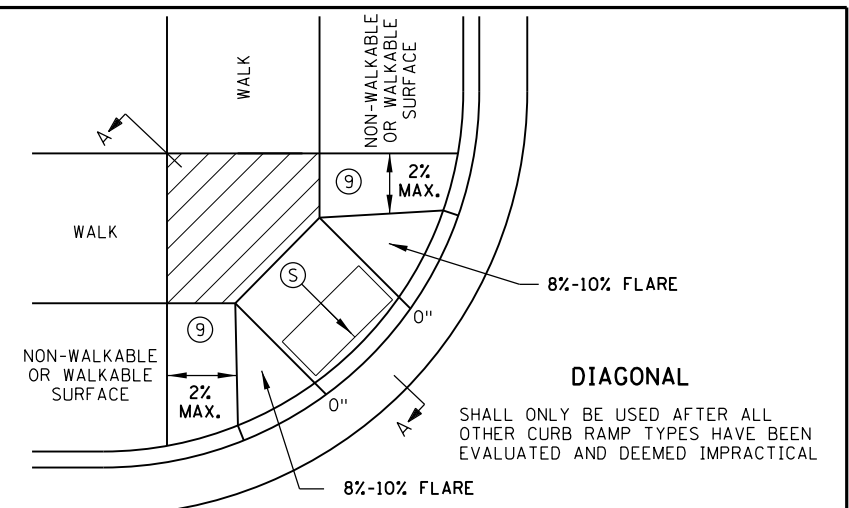
**FAN ⑩**



**MODIFIED FAN ⑩  
USED WHEN RIGHT-OF-WAY IS CONSTRAINED**



**DEPRESSED CORNER**



**DIAGONAL**

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

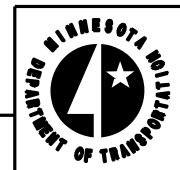
**NOTES:**

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
  - INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
  - SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
  - CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
  - ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.)
  - TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).
  - TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
  - WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
  - ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
  - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
  - RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- ① MATCH FULL HEIGHT CURB.
  - ② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
  - ③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
  - ④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
  - ⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
  - ⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
  - ⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
  - ⑧ A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
  - ⑨ PAVE FULL WALK WIDTH.
  - ⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND	
	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
	CURB HEIGHT

REVISION:  
APPROVED: JANUARY 23, 2017  
*Ann Sobr*  
OPERATIONS ENGINEER

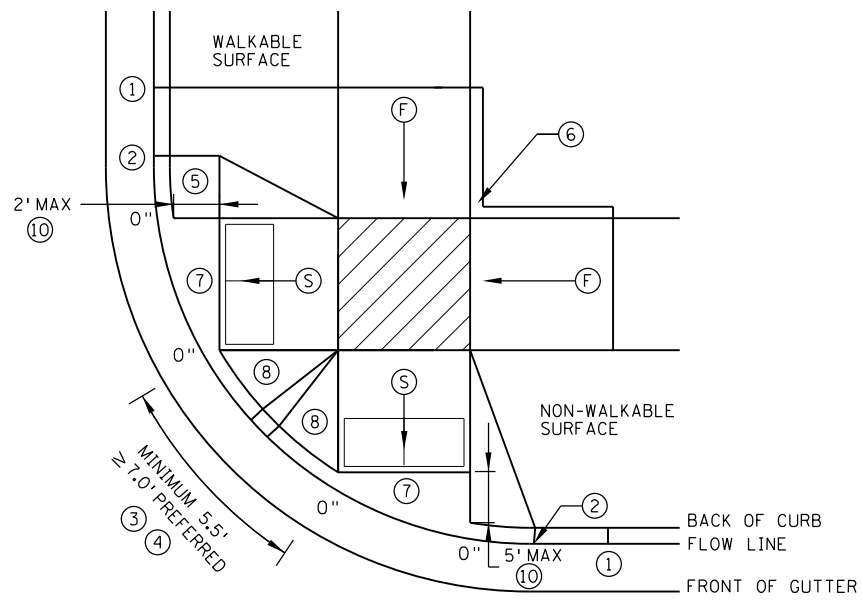
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SAP 062-601-015



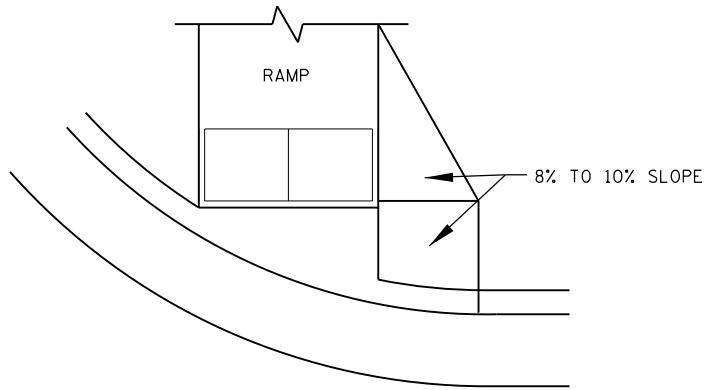
REVISOR:  
*Tom S...*  
APPROVED:  
1-23-2017  
STATE DESIGN ENGINEER

PLOTTED/REVISED:  
02/26/2021

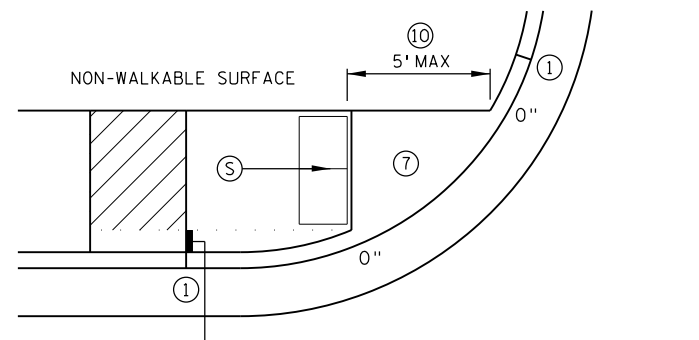
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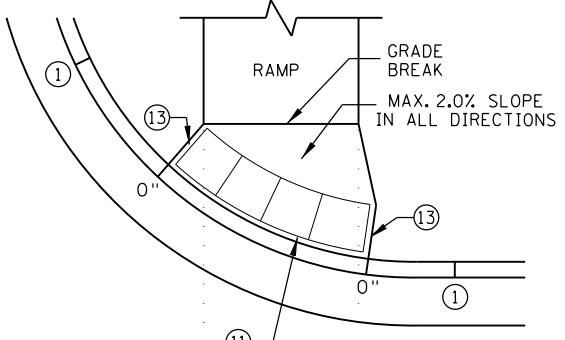
COMBINED DIRECTIONAL ⑨



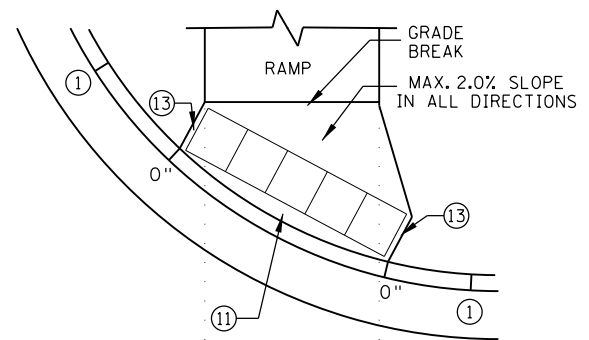
DIRECTIONAL RAMP WALKABLE FLARE



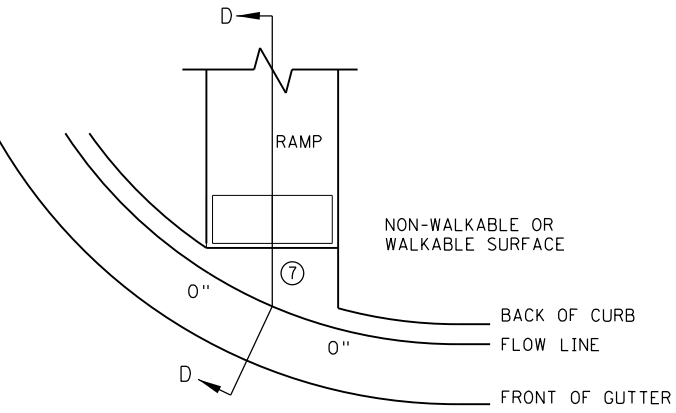
STANDARD ONE-WAY DIRECTIONAL ⑨



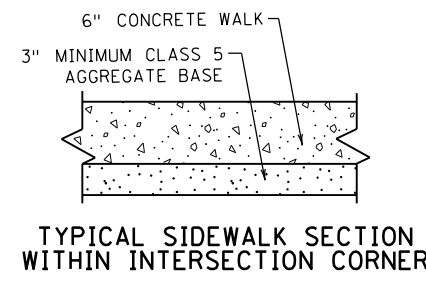
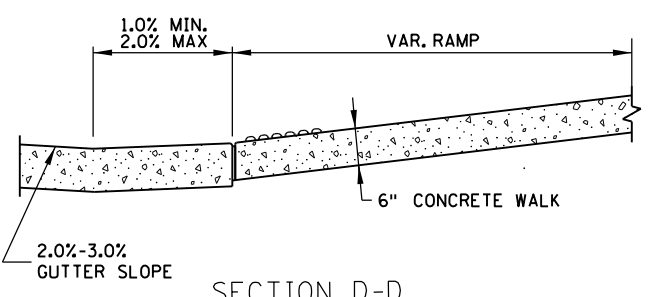
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫



CURB FOR DIRECTIONAL RAMPS ⑭



- NOTES:**
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.
- ① MATCH FULL CURB HEIGHT.
  - ② 3" HIGH CURB WHEN USING A 3' LONG RAMP  
4" HIGH CURB WHEN USING A 4' LONG RAMP.
  - ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)  
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
  - ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
  - ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.
  - ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
  - ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
  - ⑧ 8% TO 10% WALKABLE FLARE.
  - ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
  - ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
  - ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
  - ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
  - ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
  - ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
[Hatched Box]	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN, PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
X"	CURB HEIGHT

REVISION:  
 APPROVED: JANUARY 23, 2017  
 [Signature]  
 OPERATIONS ENGINEER

SAP 002-632-018  
 SAP 062-601-015

MINNESOTA DEPARTMENT OF TRANSPORTATION  
 [Signature]  
 STATE DESIGN ENGINEER

REVISED:  
 APPROVED:  
 1-23-2017

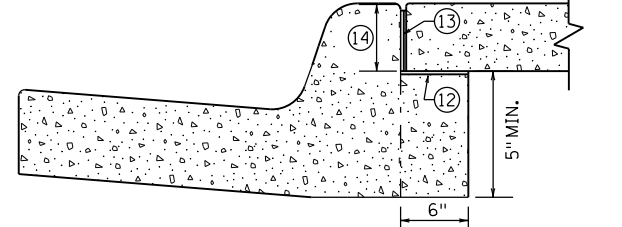
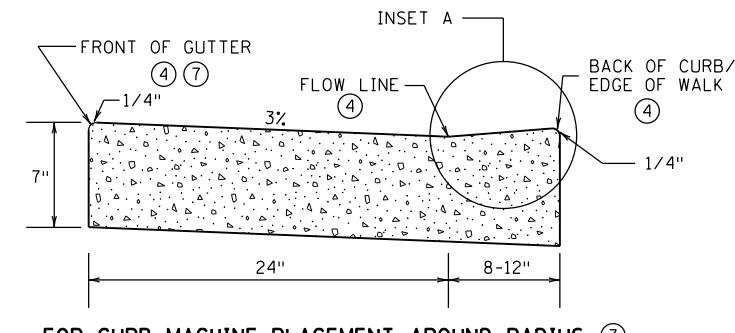
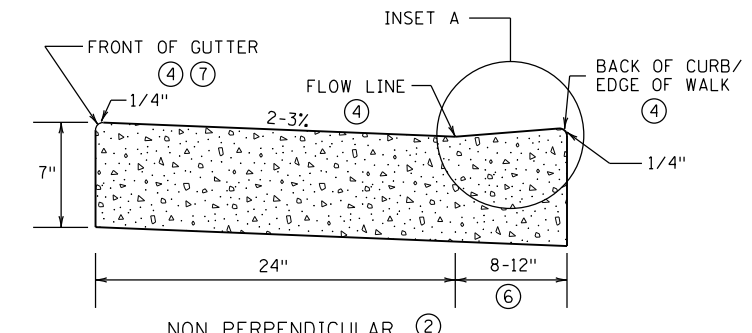
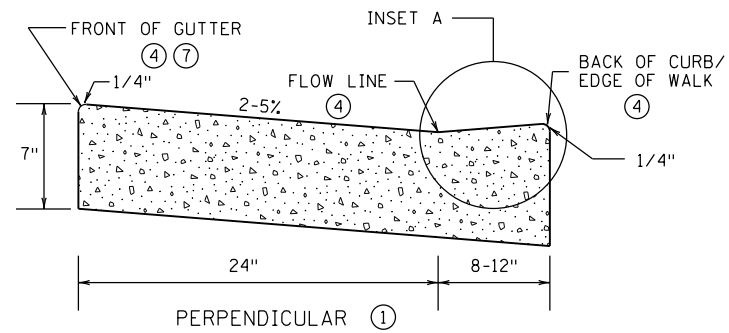
PEDESTRIAN CURB RAMP DETAILS (2 OF 6)  
 STANDARD PLAN 5-297.250 13 OF 36



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02/26/2021

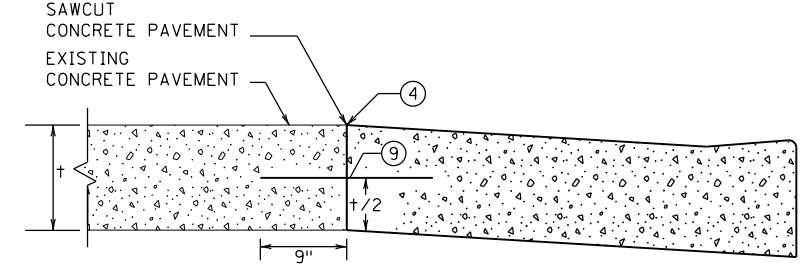
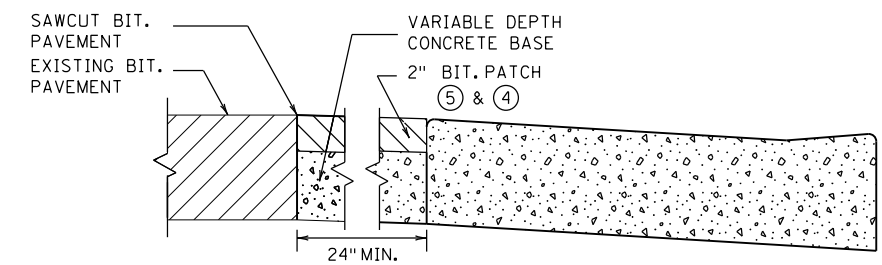
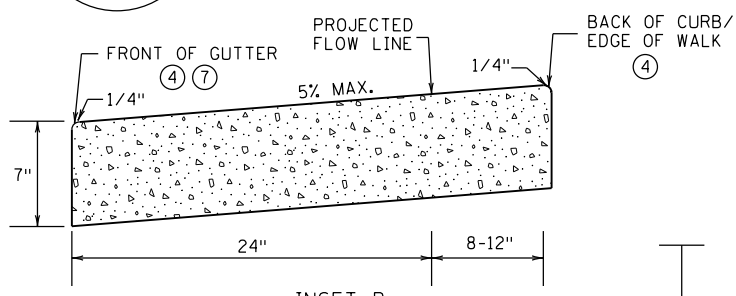
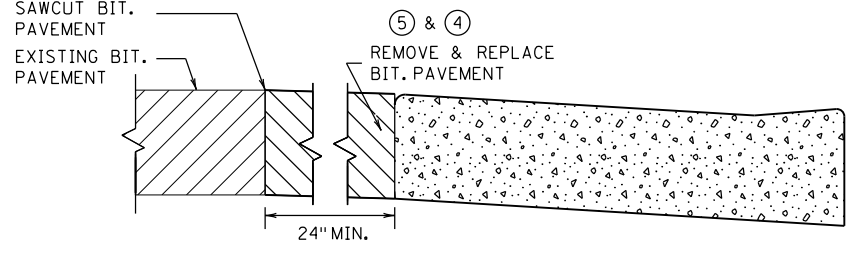
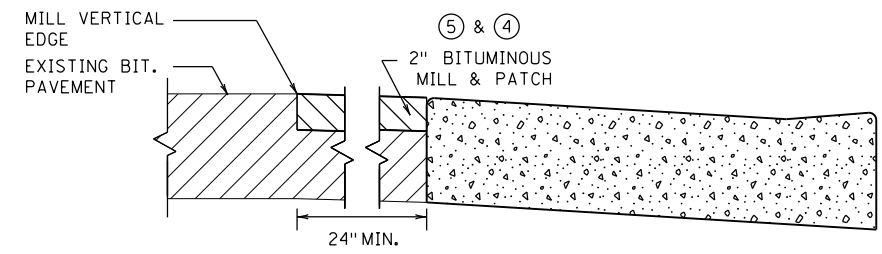
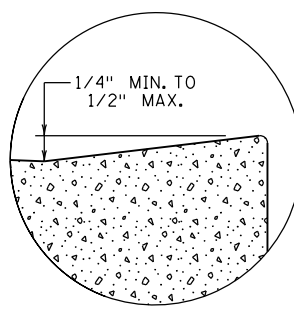
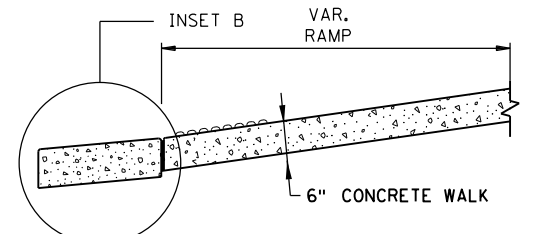
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OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB  
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



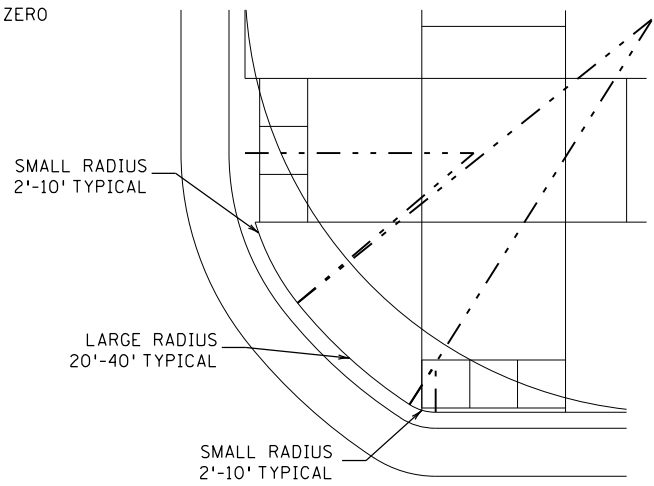
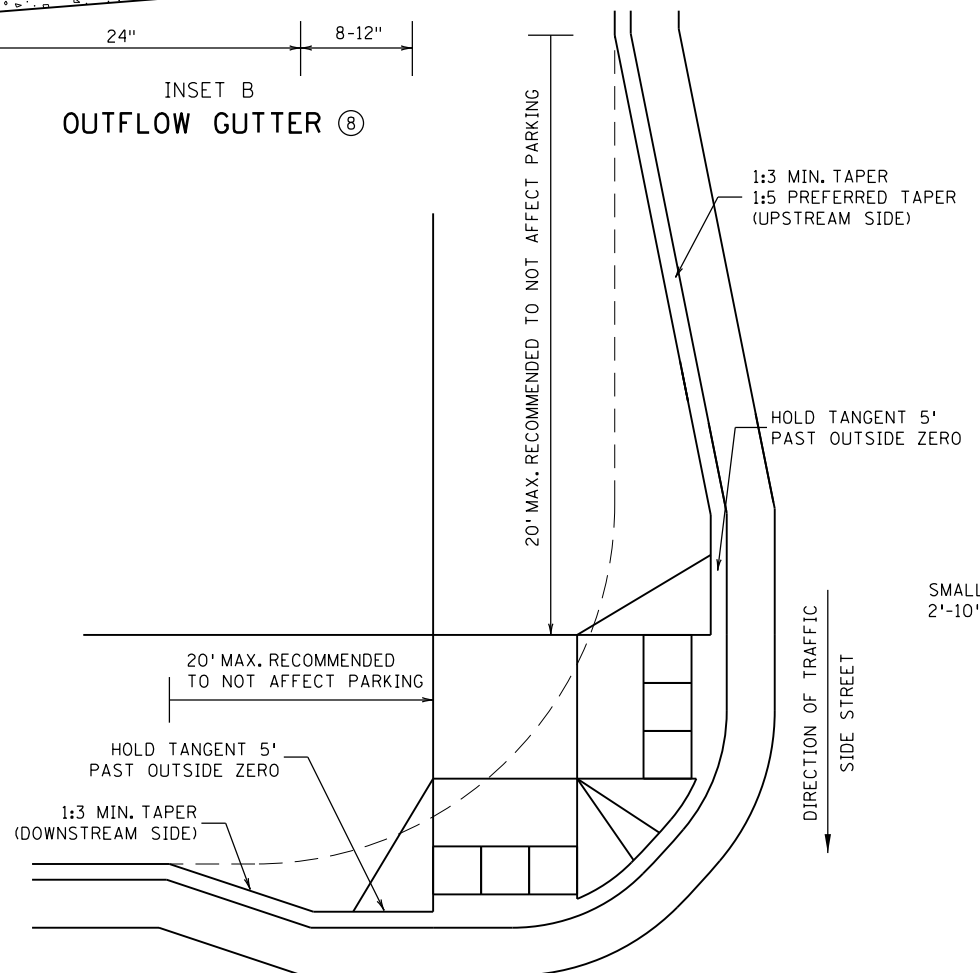
ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS

NOTES:

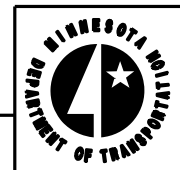
- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
- ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
- ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMP.
- ② FOR USE AT CURB RAMP WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
- ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMP.
- ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4\".
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
- ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5\" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
- ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
- ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18\" LONG TIE BARS AT 30\" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1\" MINIMUM FROM ALL JOINTS.
- ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
- ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.
- ⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.
- ⑬ 1/2\" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.
- ⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4\" MIN.



COMBINED DIRECTIONAL (COMPOUND RADIUS) ⑩

REVISION:
APPROVED: JANUARY 23, 2017
<i>Ann Sobor</i> OPERATIONS ENGINEER

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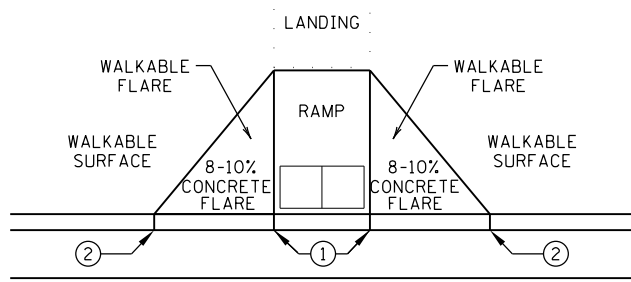


REVISOR: Tom S...  
APPROVED: 1-23-2017  
STATE DESIGN ENGINEER

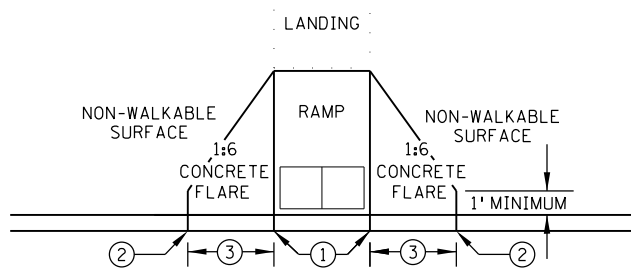
PLOTTED/REVISED:  
02/26/2021

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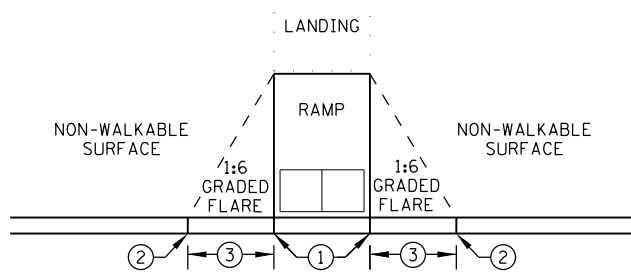
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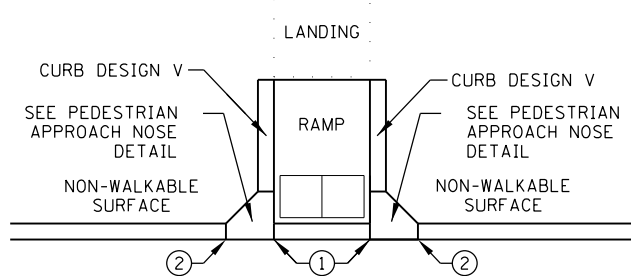
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

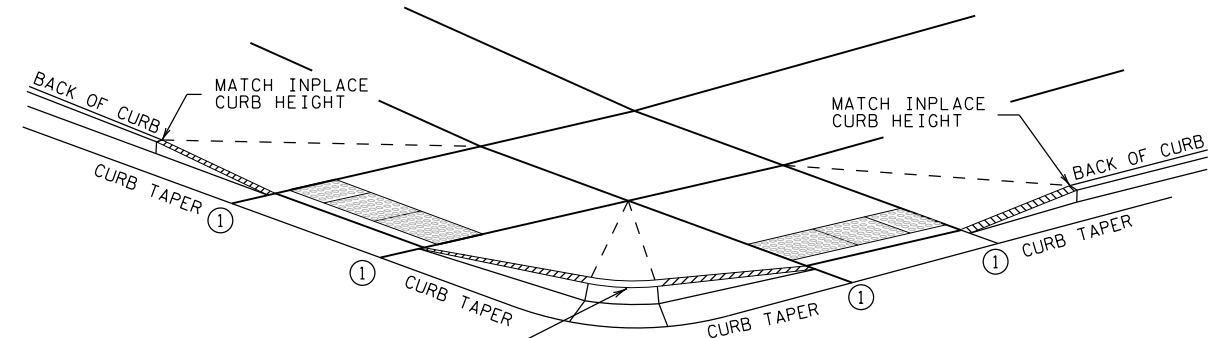


GRADED FLARES



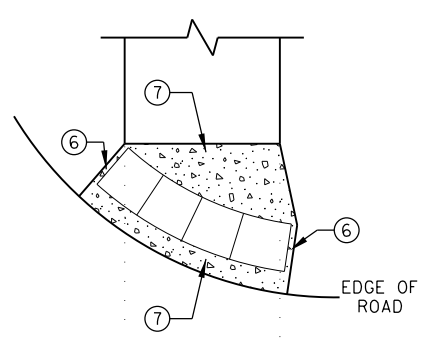
RETURNED CURB ⑤

TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

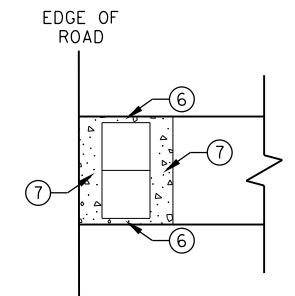


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑧  
CURB AND GUTTER

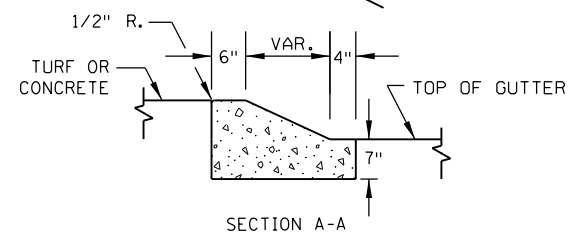
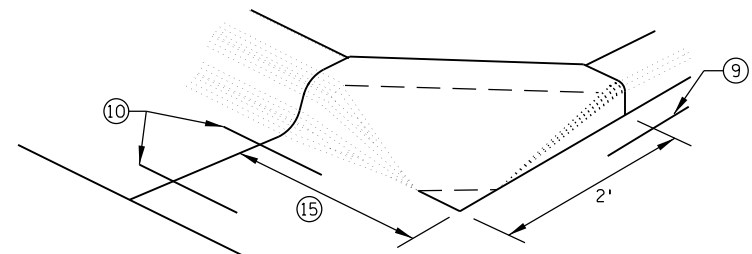


RADIAL DETECTABLE WARNING

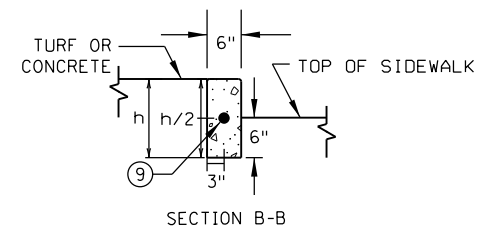


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER



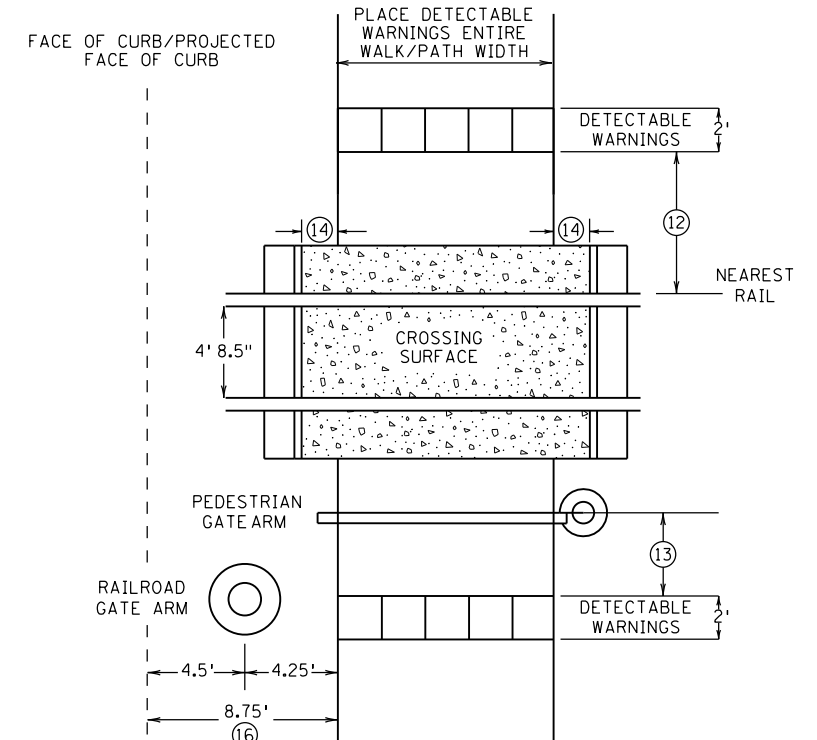
SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH  
NOSE DETAIL  
(FOR RETURNED CURB  
SIDE TREATMENT)

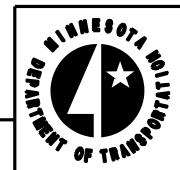
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RAILROAD CROSSING  
PLAN VIEW

NOTES:

- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.
- ④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
- ⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
- ⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
- ⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
- ⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.
- ⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.
- ⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.



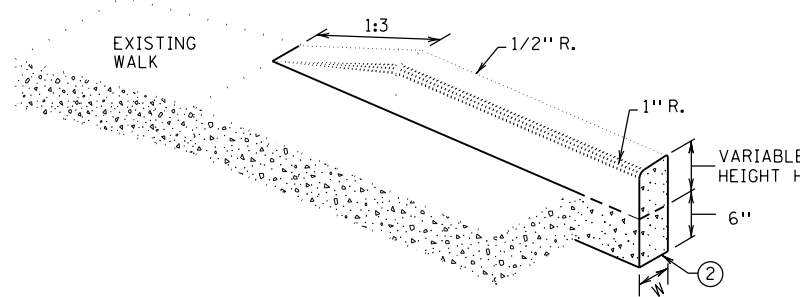
Tom Jahn  
STATE DESIGN ENGINEER

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1-23-2017

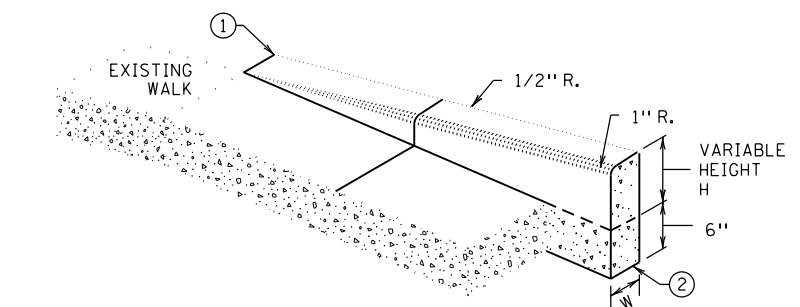
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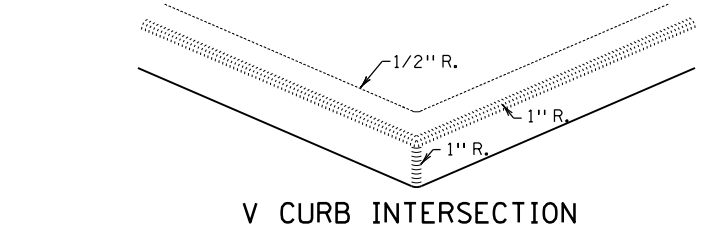
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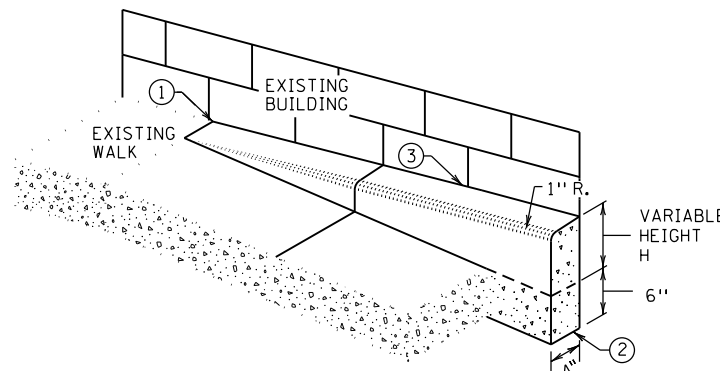
V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

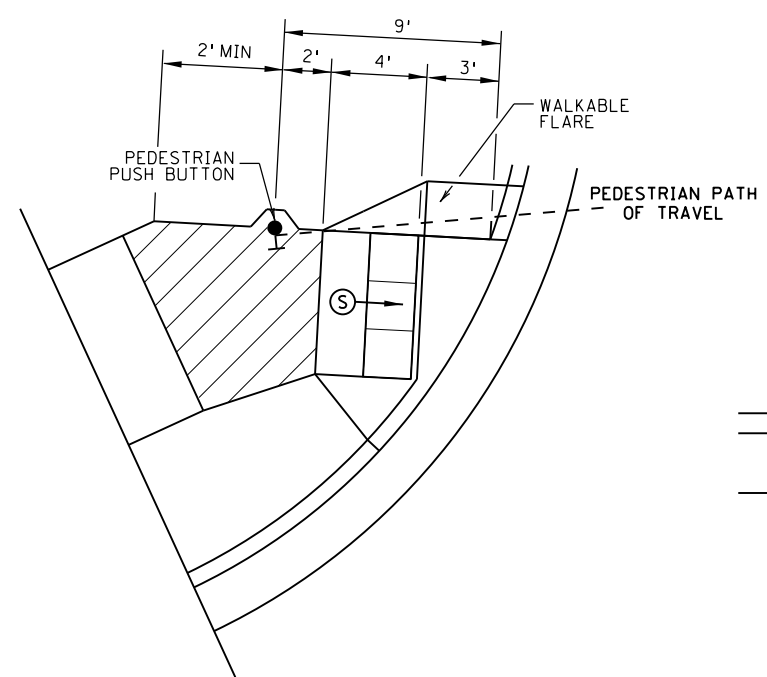


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING  
OR BARRIER

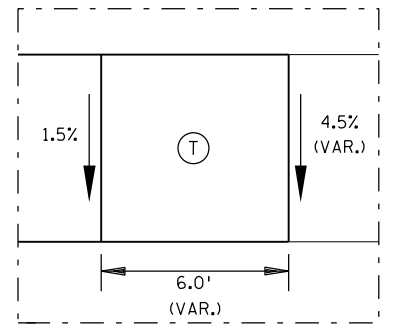
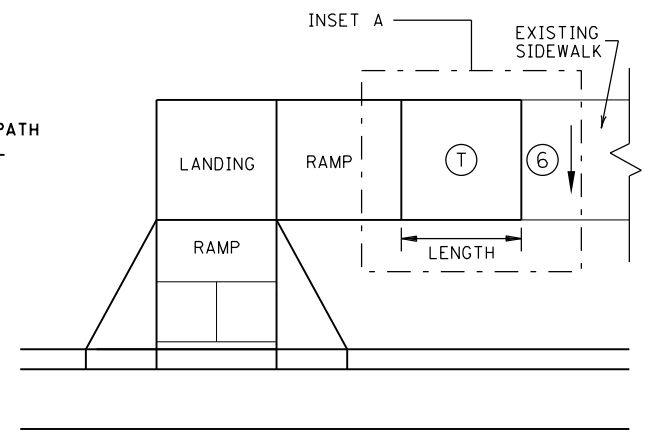
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



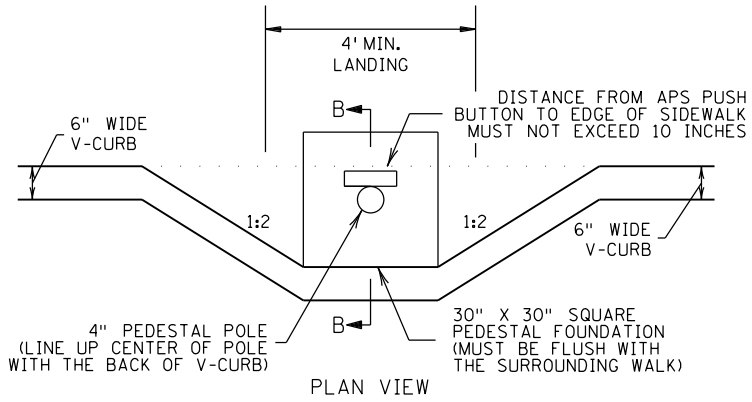
SEMI-DIRECTIONAL RAMP (3,4,9)

3' DOME SETBACK, 4' LONG RAMP AND  
PUSH BUTTON 9' FROM THE BACK OF CURB

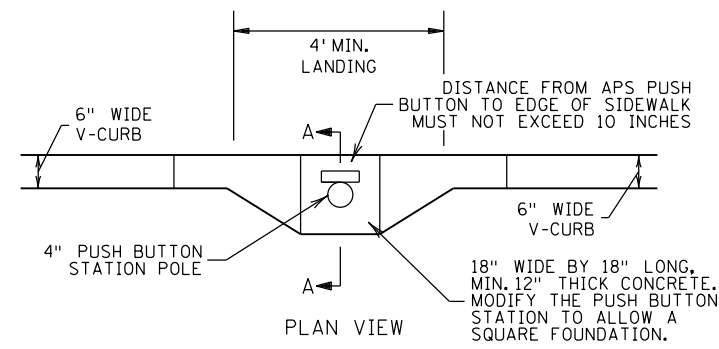
PRIMARYLY USED FOR APS APPLICATIONS  
WHERE THE PAR DOES NOT CONTINUE PAST  
THE PUSH BUTTON (DEAD-END SIDEWALK)



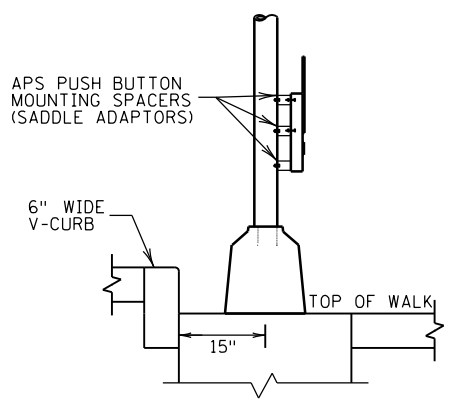
TRANSITION PANEL (4,5)



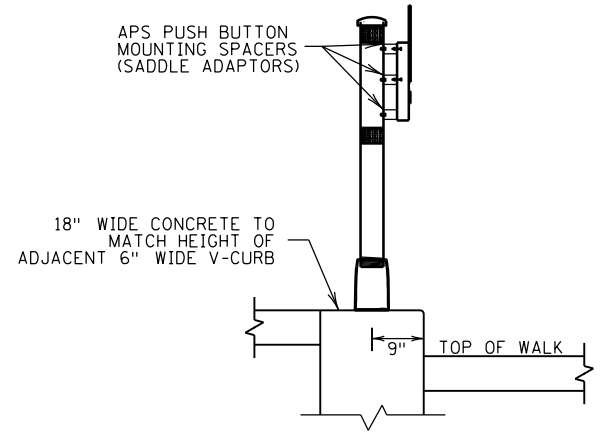
PLAN VIEW



PLAN VIEW



SECTION B-B



SECTION A-A

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)

PUSH BUTTON STATION (V-CURB)

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

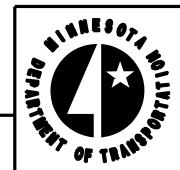
LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- ⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- ④ TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:
APPROVED: JANUARY 23, 2017
<i>Ann Sabo</i> OPERATIONS ENGINEER

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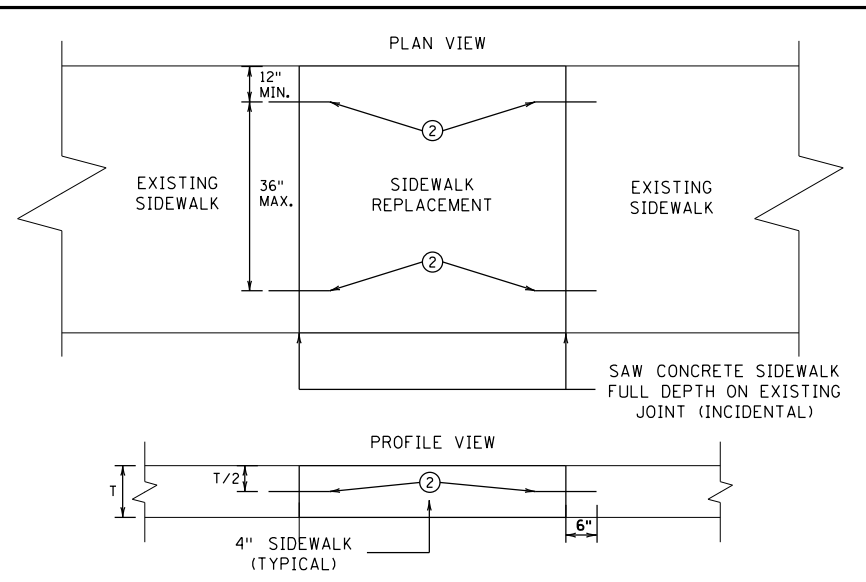
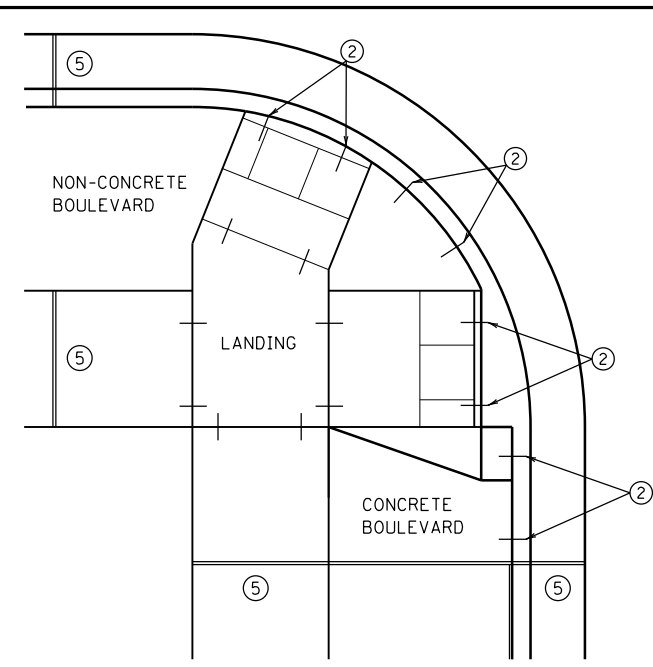
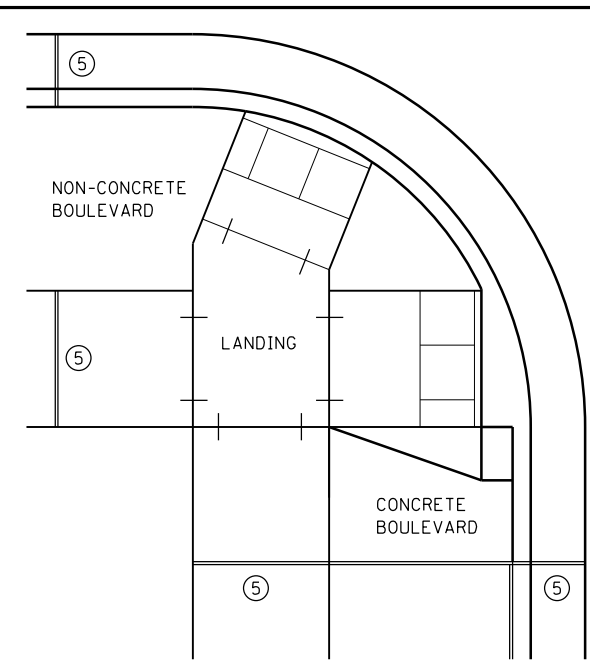
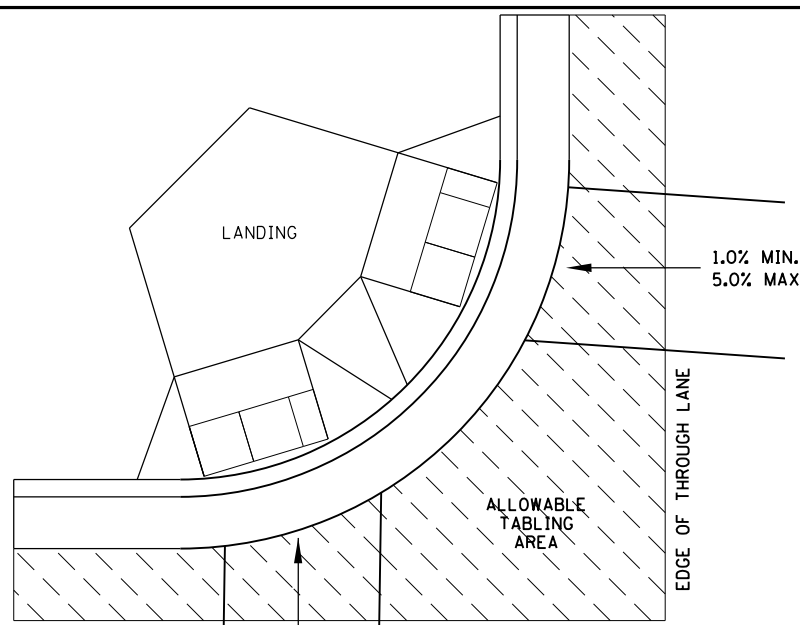
Tom Sh...  
STATE DESIGN ENGINEER

REVISED:  
APPROVED:  
1-23-2017

PLOTTED/REVISED:  
02/26/2021

DISTRICT #: AFAnders  
USER NAME: AFAnders  
PATH & FILENAME: P:\21-01-000CSAH\_32-TH65-TH10\Bases\Proposed\CSAH\_32-CP2.dgn

FILE NAME: CSAH\_32-CP2.dgn

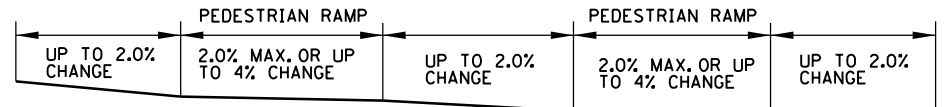
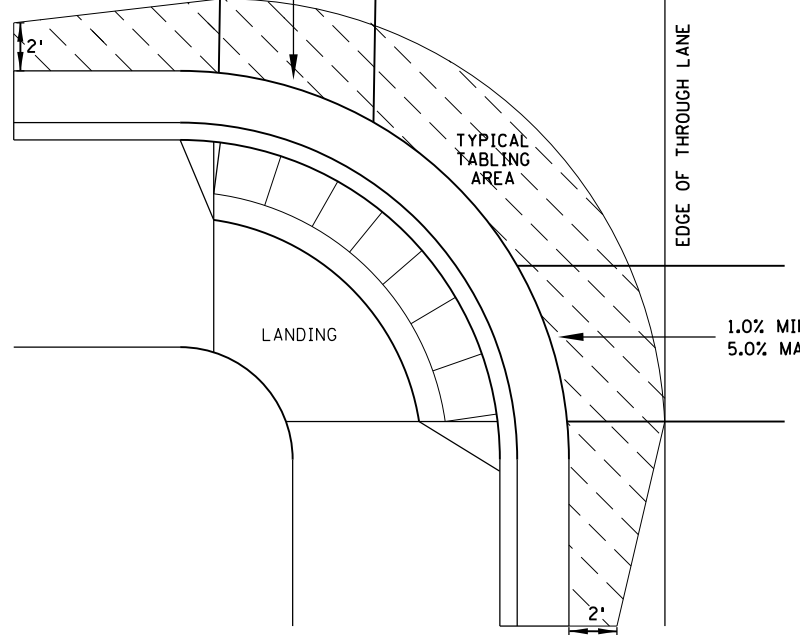
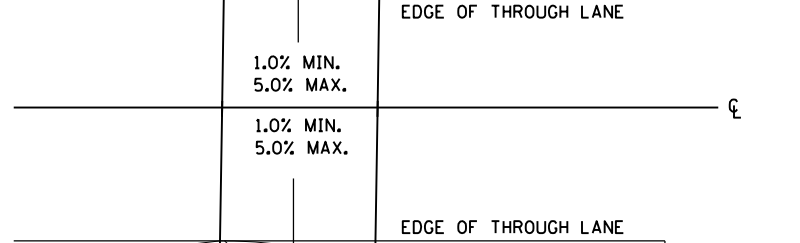


**OPTIONAL SIDEWALK REINFORCEMENT**

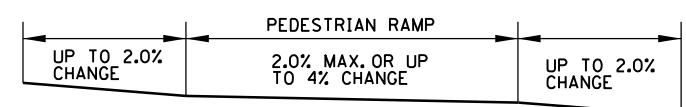
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

**EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS**

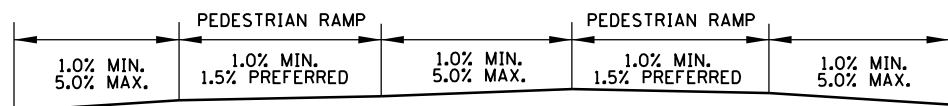
**OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS**



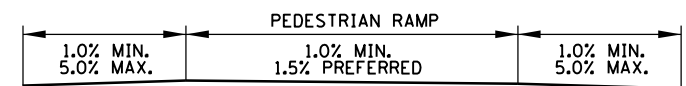
**FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS**



**FLOW LINE PROFILE "TABLE" - FAN**



**FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS**



**FLOW LINE PROFILE RAISE - FAN**

**CURB LINE AND ROAD CROSSING ADJUSTMENTS**

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

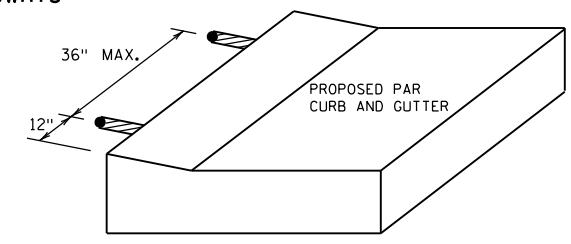
MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

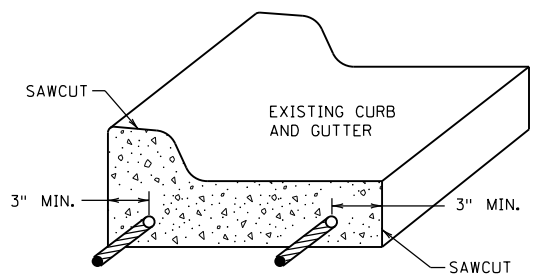
STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

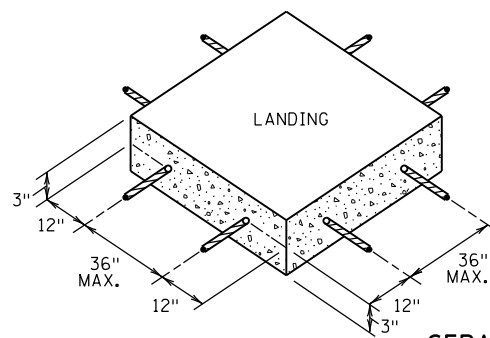
- 1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL



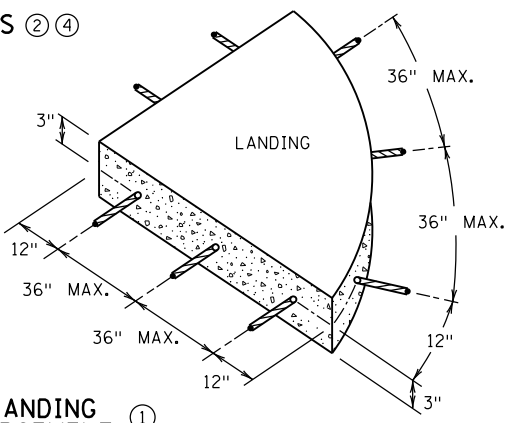
**OPTIONAL CURB LINE REINFORCEMENT DETAILS**



**CURB AND GUTTER REINFORCEMENT**



**SEPARATE LANDING POUR REINFORCEMENT**



**NOTES:**

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
- ④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
- ⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:
APPROVED: JANUARY 23, 2017
<i>Ann Sabo</i> OPERATIONS ENGINEER



*Tom S...*  
STATE DESIGN ENGINEER

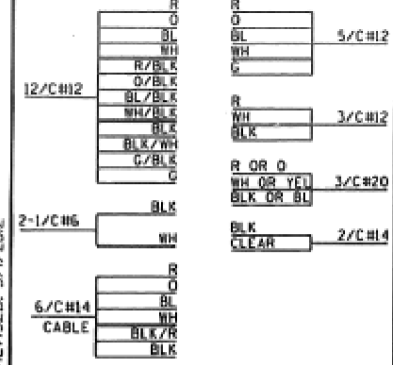
REVISED:  
APPROVED:  
1-23-2017

SAP 002-632-018 SAP 062-601-015	
PEDESTRIAN CURB RAMP DETAILS (6 OF 6)	
STANDARD PLAN 5-297.250	17 OF 36





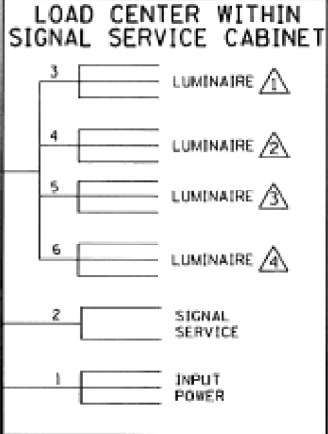
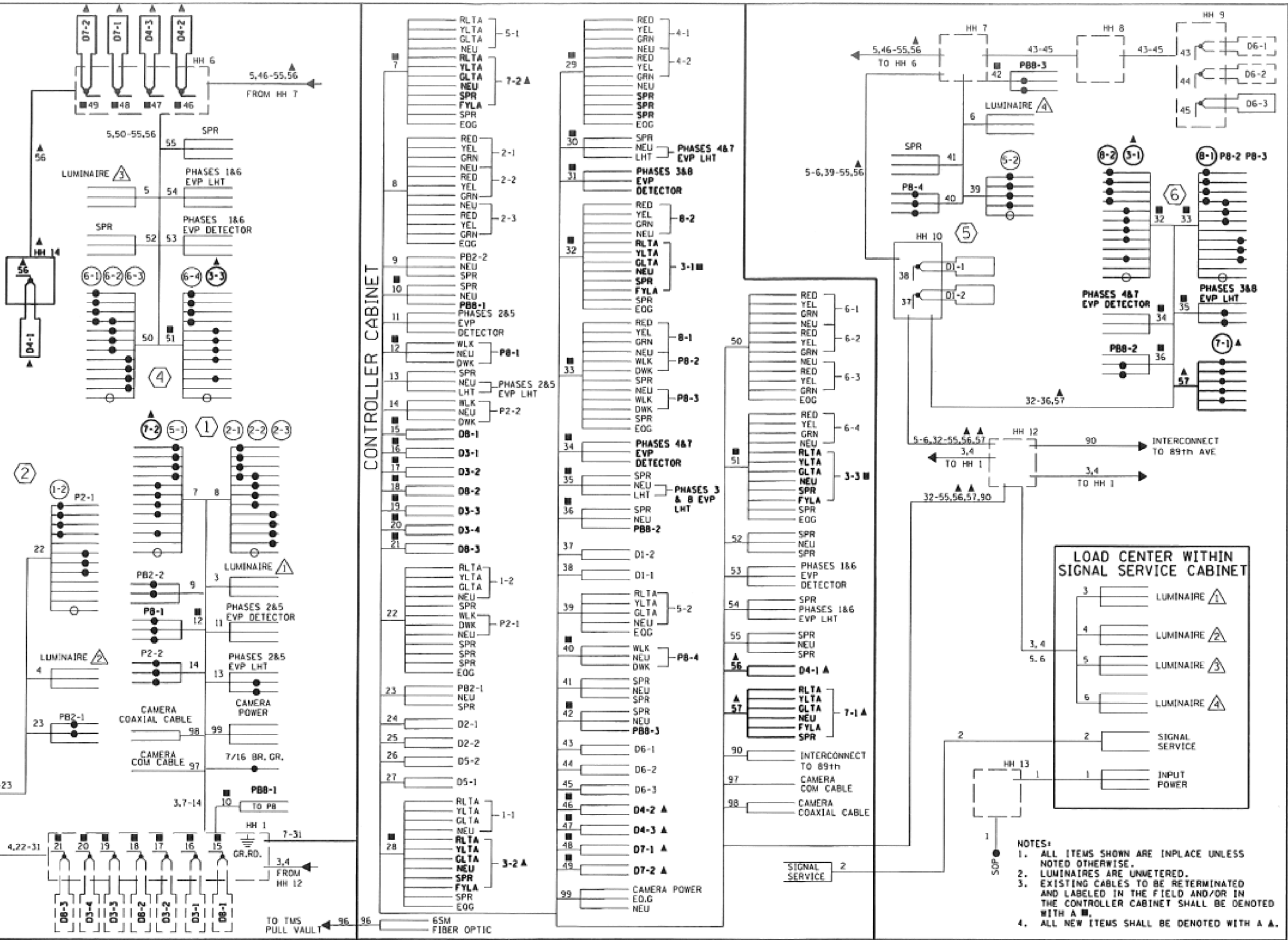
CONDUCTOR COLOR CODING



NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

PLOTTED/REVISED: 3/1/2012

DISTRICT: 1, SS01PLOT-SS-04.dwg  
FILE NAME: SS01PLOT-SS-04.dwg  
PATH & FILE NAME: \_NCADD-Steels v0207104\_urd.dwg



- NOTES: 1. ALL ITEMS SHOWN ARE IN PLACE UNLESS NOTED OTHERWISE. 2. LUMINAIRES ARE UNWATERED. 3. EXISTING CABLES TO BE REYERMINATED AND LABELED IN THE FIELD AND/OR IN THE CONTROLLER CABINET SHALL BE DENOTED WITH A #. 4. ALL NEW ITEMS SHALL BE DENOTED WITH A #.

Table with columns: BY, DATE, REVISIONS

SYSTEM ID: 21165 T.E. 5580  
METER ADDRESS: 8501 CENTRAL AVENUE N.E.  
MASTER ID: NA T.E. NA



FIELD WIRING DIAGRAM  
REVISE SIGNAL SYSTEM  
T.H. 65 (CENTRAL AVE. NE) AT  
C.S.A.H. 32 (85TH AVE. NE)  
IN BLAINE, ANOKA COUNTY

CERTIFIED BY: [Signature] L.T.C. NO. 41642 DATE: 3-1-12  
STATE PROJ. NO. 0207-104 (T.H. 65) SHEET NO. SS-04 OF SS-08 SHEETS

FOR REFERENCE PURPOSES ONLY

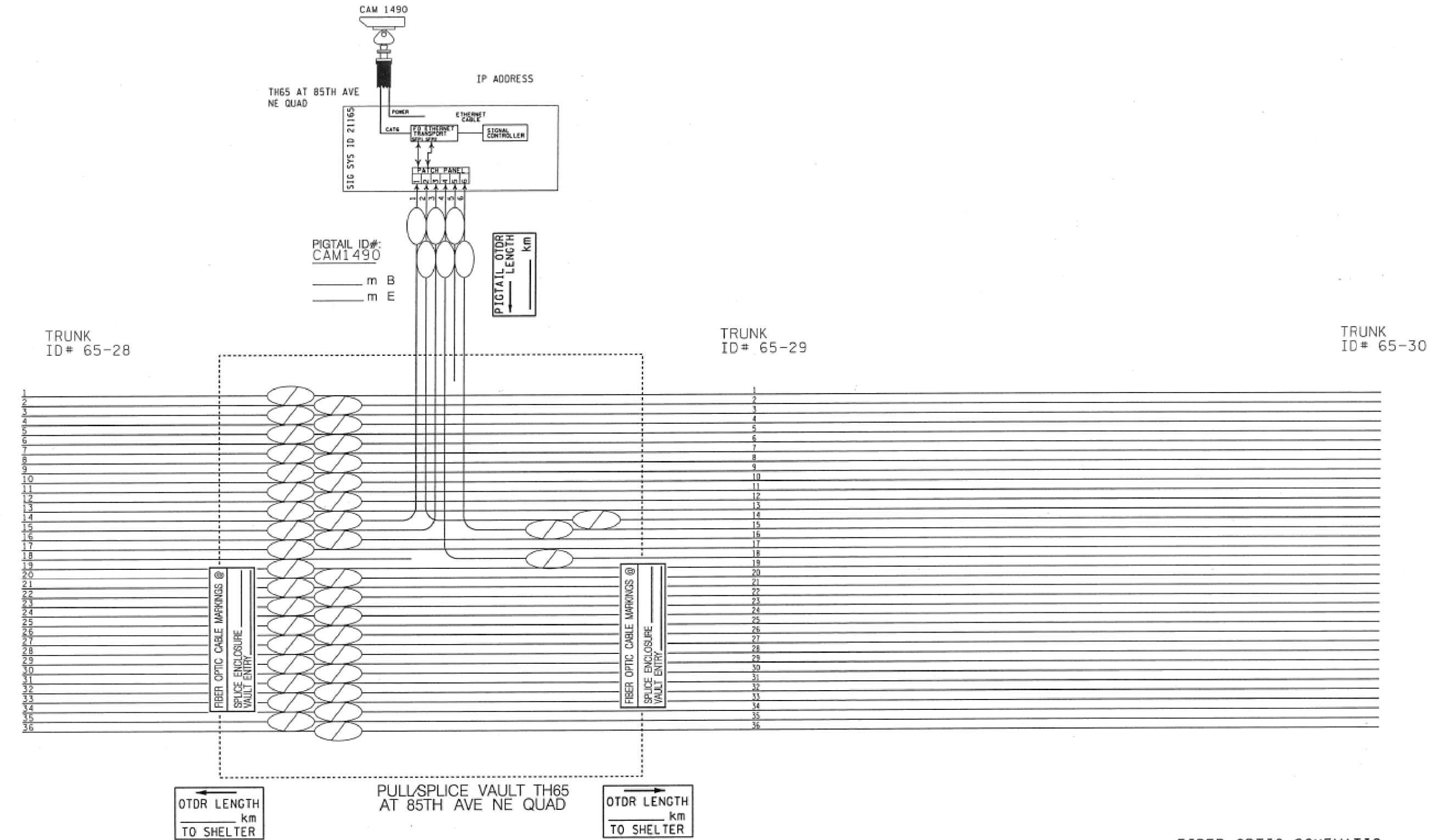
Table with columns: NO, DATE, BY, CKD, APPR, REVISION, 02/26/2021, 8:29:47 AM

DRAWN BY: MAR DATE 12/16/2020  
DESIGN BY: MAR DATE 12/16/2020  
CHECKED BY: CO DATE 12/16/2020



STATE AID PROJECT 002-632-018  
STATE AID PROJECT 062-601-015

EXISTING SIGNAL PLANS  
Sheet 19 of 36 Sheets



FIBER OPTIC SCHEMATIC  
TH 65 AT 85TH AVE

REV. NO.	MAY 19 / /
REV. NO.	MAY 19 / /

CERTIFIED BY *[Signature]* LIC. NO. 26530 MAY 19 2011  
 LICENSED PROFESSIONAL ENGINEER

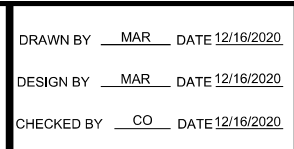
STATE PROJ. NO. 0207-94 (TH 65) SHEET NO. SZ89 OF SZ102 SHEETS

FOR REFERENCE PURPOSES ONLY

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	02/26/2021					8:29:55 AM

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DRAWN BY	MAR	DATE	12/16/2020
DESIGN BY	MAR	DATE	12/16/2020
CHECKED BY	CO	DATE	12/16/2020



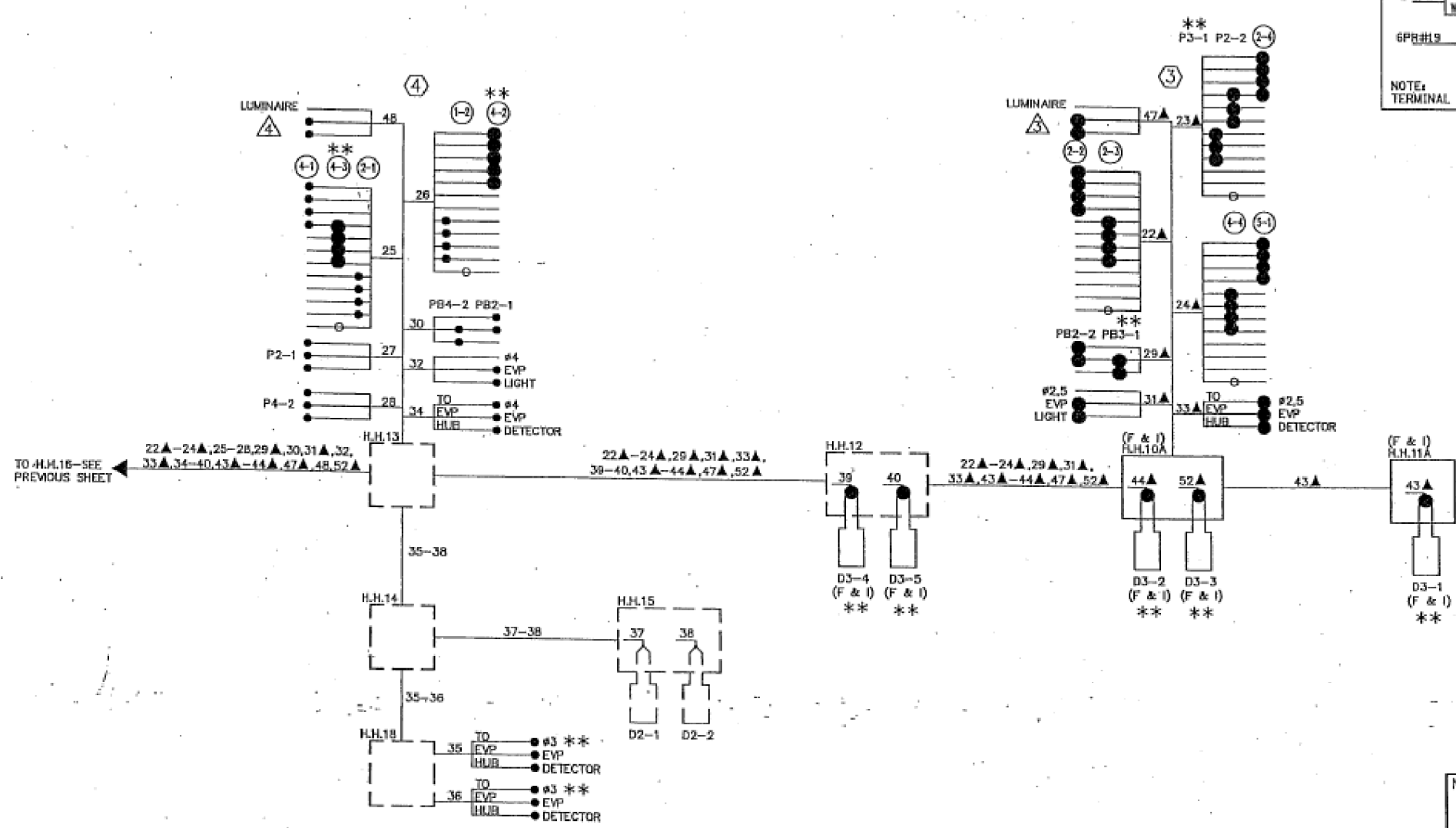
ANOKA COUNTY  
HIGHWAY DEPT.

STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

EXISTING SIGNAL PLANS  
 Sheet 20 of 36 Sheets

CONDUCTOR COLOR CODE			
TO SIGNAL CABINET		TO DEVICE	
R	OR	R	RED
0		Y	YEL
BL		GR	GRN
WH		NEU	NEU
R/BLK		YL	YLT
0/BLK		GL	GLT
BL/BLK		SPR	SPR
WH/BLK		R	RED
BLK		Y	YEL
BLK/WH		GR	GRN
0/BLK		NEU	NEU
R		GL	GLT
0		SPR	SPR
BLK		R	RED
WH		Y	YEL
0		GR	GRN
BLK		NEU	NEU
WH		GL	GLT
0		SPR	SPR
BLK		R	RED
WH		Y	YEL
0		GR	GRN
BLK		NEU	NEU
WH		GL	GLT
0		SPR	SPR

NOTE: TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



- NOTES:
- 1) ALL CABLES AND CONDUCTORS ARE IN PLACE & SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY ▲ ▲ (CABLES AND CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR).
  - 2) ● = INPLACE TERMINATION.
  - 3) ● = NEW TERMINATION ON INPLACE OR NEW CABLE.
  - 4) F & I = LOOP DETECTOR/HANDHOLE TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
  - 5) \*\* = RELABEL INPLACE/ADD NEW VEHICLE OR PEDESTRIAN SIGNAL INDICATION OR LOOP DETECTOR AS SHOWN.

DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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.

Printed Name: JOHN M. GRAY Date: 12/15/20

SEH PHONE: (651) 490-2000 3535 WADSWORTH CENTER DR. ST. PAUL, MN 55110

RAMBEY COUNTY  
**COUNTY ROAD J**  
 S.A.P. 02-632-14, S.A.P. 62-601-11

REVISE SIGNAL SYSTEM 'B'  
 FIELD WIRING DIAGRAM  
 COUNTY ROAD J/85TH AVENUE NE (CSAH 1/32)  
 AT AIRPORT ROAD

FILE NO.	262
ARANS0503	
SG16	297
OF 9551	

FOR REFERENCE PURPOSES ONLY

NO.	DATE	BY	CKD	APPR	REVISION	

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.dgn

METER ADDRESS = 2060 85TH AVENUE NE

DRAWN BY: MAR DATE 12/16/2020  
 DESIGN BY: MAR DATE 12/16/2020  
 CHECKED BY: CO DATE 12/16/2020

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

STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

EXISTING SIGNAL PLANS  
 Sheet 21 of 36 Sheets

1-26-07

- ① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION  
TYPE PA100-A-45-D40-9 (DAVIT AT 350")  
LUMINAIRE-200 W HPS W/ PEC  
AND CHECK SWITCH  
3-ONE WAY SIGNALS-OVERHEAD  
TYPE 10B - POLE MOUNTED 180"  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
2-R6-1 SIGN PANELS - POLE MOUNTED 0° & 180"  
ONE WAY EVP DETECTOR AND LIGHT (R6,1)  
EXTENDED INTO H.H.2:  
3" R.S.C.  
3-12/c\*12  
2-3/c\*12  
1-3/c\*20  
1-3/c\*12 (LUM)
- INPLACE (SALVAGE) TYPE 10B BRACKETING - POLE MOUNTED 90"  
ONE WAY SIGNAL - POLE MOUNTED (B-4)
- INPLACE (S&I) - 1 SET PEDESTRIAN INDICATIONS (P4-1)
- F&I TYPE 10B BRACKETING - POLE MOUNTED 90"  
ONE WAY SIGNAL - POLE MOUNTED (3-4)

- ② INPLACE (MAINTAIN INPLACE) PAB5 POLE FOUNDATION  
TYPE PAB5-A-25-D40-9 (DAVIT AT 350")  
LUMINAIRE-200 W HPS W/ PEC  
AND CHECK SWITCH  
2-TYPE 10B - POLE MOUNTED 0° & 270"  
TYPE 10A - POLE MOUNTED 180"  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (R3)  
EXTENDED INTO H.H.6:  
3" R.S.C.  
2-12/c\*12  
4-3/c\*12  
1-3/c\*20  
1-3/c\*12 (LUM)
- INPLACE (SALVAGE) 2-ONE WAY SIGNALS-OVERHEAD (B-2, B-3)  
R10-12 SIGN PANEL-OVERHEAD
- F&I - 2-ONE WAY SIGNALS-OVERHEAD (3-2, 3-3)

- ③ INPLACE (REMOVE) PA100 POLE FOUNDATION  
EXTENDED INTO H.H.10:  
3" R.S.C.  
3-12/c\*12  
2-3/c\*12  
1-3/c\*20  
1-3/c\*12 (LUM)
- INPLACE (S&I) TYPE PA100-A-45-D40-9 (DAVIT AT 350")  
LUMINAIRE-200 W HPS W/ PEC  
AND CHECK SWITCH  
3-ONE WAY SIGNALS-OVERHEAD  
2-TYPE 10B - POLE MOUNTED 90° & 180"  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
2-R6-1 SIGN PANELS - POLE MOUNTED 0° & 180"  
ONE WAY EVP DETECTOR AND LIGHT (R2,5)
- F&I PA100 POLE FOUNDATION  
12" RLTA/YLTA/GLTA LENSES FOR 4-4  
(SALVAGE RYG LENSES)  
EXTENDED INTO H.H.10A:  
3" R.S.C.  
3-12/c\*12  
2-3/c\*12  
1-3/c\*20  
1-3/c\*12 (LUM)

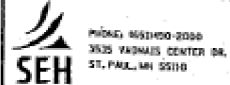
- ④ INPLACE (MAINTAIN INPLACE) PAB5 POLE FOUNDATION  
TYPE PAB5-A-25-D40-9 (DAVIT AT 350")  
LUMINAIRE-200 W HPS W/ PEC  
AND CHECK SWITCH  
ONE WAY SIGNAL-OVERHEAD (4-3)  
2-TYPE 10B - POLE MOUNTED 0° & 270"  
TYPE 10A - POLE MOUNTED 180"  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
TYPE D SIGN PANEL-OVERHEAD  
ONE WAY EVP DETECTOR AND LIGHT (R4)  
EXTENDED INTO H.H.13:  
3" R.S.C.  
2-12/c\*12  
4-3/c\*12  
1-3/c\*20  
1-3/c\*12 (LUM)
- INPLACE (SALVAGE) ONE WAY SIGNAL-OVERHEAD (4-2)  
R10-12 SIGN PANEL-OVERHEAD
- F&I ONE WAY SIGNAL-OVERHEAD (4-2)  
12" RLTA/YLTA/GLTA LENSES FOR 4-3  
(SALVAGE RYG LENSES)

METER ADDRESS = 2060 85TH AVENUE NE

DESIGN TEAM			
DRAWN BY:	CJE		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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.

Certified by: *[Signature]* Lic. No. 22457  
 Printed Name: JOHN M. DRY Date: 02/17/2008



RAMSEY COUNTY  
 COUNTY ROAD J  
 S.A.P. 02-632-14, S.A.P. 62-601-11

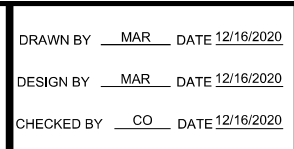
REVISE SIGNAL SYSTEM "B"  
 INTERSECTION LAYOUT  
 COUNTY ROAD J/85TH AVENUE NE (CSAH 1/32)  
 AT AIRPORT ROAD

FILE NO. 260  
 ARAMSE0503  
 SG14  
 OF 505  
 297

NO	DATE	BY	CKD	APPR	REVISION	TIME
	02/26/2021					8:30:11 AM

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.dgn

DRAWN BY: MAR DATE 12/16/2020  
 DESIGN BY: MAR DATE 12/16/2020  
 CHECKED BY: CO DATE 12/16/2020



ANOKA COUNTY  
 HIGHWAY DEPT.

STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

EXISTING SIGNAL PLANS  
 Sheet 22 of 36 Sheets

FOR REFERENCE PURPOSES ONLY

PLOTTED/REVISED: 3/1/2012

DISTRICT #: #80DISTRICT08  
PLOT NAME: ssm\pilot\name.sss  
PATH & FILENAME: \_C:\ADD\red\sc\0207104\_2.dwg

- (A) INP- EQUIPMENT PAD  
CONTROLLER AND CABINET  
SERVICE CABINET
- CONTROLLER CABINET TO HH 1  
103 mm RSC  
5-12/C\*12  
7-3/C\*12  
2-3/C\*20  
11-2/C\*14  
1-3/C\*14 (CAMERA POWER)  
1-COM CABLE  
1-COAXIAL CABLE
- CONTROLLER CABINET TO HH 12  
103 mm RSC  
4-12/C\*12  
8-3/C\*12  
F&I: 1-6/C\*14  
F&I: 1-2/C\*14
- 9-27/C\*14  
2-3/C\*20  
1-6PR\*19
- SERVICE CABINET TO  
CONTROLLER CABINET  
53 mm RSC  
2-1/C\*6  
1-1/C\*6 INS. GR.
- SERVICE CABINET TO HH 12  
53 mm RSC  
53 mm RSC (CUT, SPLICE & EXTEND INPLACE)  
4-3/C\*12
- HH 12 TO HH 1  
53 mm RSC  
2-3/C\*12 (LUM)
- CONTROLLER CABINET TO TMS PULL VAULT  
1.5" CONDUIT INSIDE EXISTING 2" CONDUIT;  
1-6 SM FIBER OPTIC
- STUB OUT (THREAD AND CAP BOTH ENDS)  
78 mm RSC
- SERVICE CABINET TO HH 13  
53 mm RSC  
3-1/C\*2

- (B) INP- S.O.P.  
WOOD POLE AND TRANSFORMER (INPLACE)  
53 mm RSC RISER AND WEATHERHEAD  
53 mm RSC TO HH 13  
3-1/C\*2

- (4) INP- PA100 POLE FOUNDATION  
TYPE PA100-A-16.8-D12.2-2.7 (55' MAST ARM)  
(DAVIT AT 350°)  
2-SWING AWAY HINGES  
3-ONE WAY SIGNALS OVERHEAD AT 0 m, 4.1 m & 7.7 m  
1-TYPE 10B POLE MOUNTED AT 270°  
REMOVE: 1-3 SECTION HEAD TYPE 10A POLE MOUNTED AT 90°  
F & I: 1-4 SECTION HEAD TYPE 10A POLE MOUNTED AT 90°
- 1-ONE WAY EVP DETECTOR AND CONF. LIGHT  
0.6 m FROM END OF MAST ARM (PHASES 1 & 6)  
LUMINAIRE 200 W HPS  
2-R9-3a SIGN (NO PED) FACING POLE 3 AND 5  
1-R6-1(R) SIGN (ONE WAY) AT 0°  
1-R6-1(L) SIGN (ONE WAY) AT 180°  
EXTEND INTO HH 6  
78 mm RSC  
2-12/C\*12  
3-3/C\*12  
1-3/C\*12 (LUM)  
1-3/C\*20

- (5) INP- PA90 POLE FOUNDATION  
TYPE PA90-D12.2-2.7 (DAVIT AT 350°)  
1-TYPE 10C POLE MOUNTED AT 270° (0° IS SOUTH)  
1-C.D. PED INDICATION  
LUMINAIRE 200 W HPS  
1-R9-3a SIGN (NO PED) FACING POLE 4  
EXTEND INTO HH 7  
78 mm RSC  
3-3/C\*12  
1-5/C\*12  
1-3/C\*12 (LUM)
- INP- AP5 PED PB STA (PBB-3)  
1-APS PB AND SIGN (RT ARROW)  
1 1/4" CONDUIT TO HH 7  
1-2/C \*14

- (3) INP- PA100 POLE FOUNDATION  
TYPE PA100-A-13.7 (45' MAST ARM)  
2-SWING AWAY HINGES  
REMOVE: 1-ONE WAY SIGNAL OVERHEAD AT 0°  
(EX. HEAD 4-3, SEE EXISTING INTERSECTION LAYOUT)  
RELOCATE: 1-ONE WAY SIGNAL OVERHEAD AT 19' TO 9.7' FROM THE  
END OF THE MAST ARM FOR PHASE 4 (HEAD 4-2)  
F&I: 1-ONE WAY 4 SECTION HEAD SIGNAL OVERHEAD AT 0°  
F&I: 1-R10-X12 SIGN ADJACENT TO HEAD 3-2
- 1-TYPE 10A POLE MOUNTED AT 270°  
1-ONE WAY EVP DETECTOR (PHASES 3 & 6) POLE MOUNTED  
1-ONE WAY EVP CONFIRMATORY LIGHT (PHASES 4 & 7)  
0.6 m FROM END OF MAST ARM  
2-R9-3a SIGNS (NO PED) FACING POLES 2 & 4  
EXTEND INTO HH 5  
78 mm RSC  
2-12/C\*12  
1-3/C\*12  
1-3/C\*20

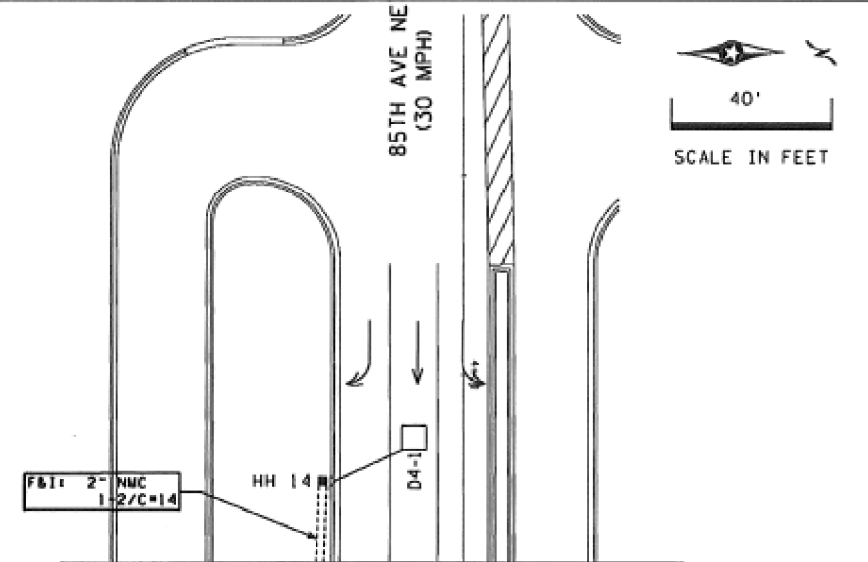
- (6) INP- PA90 POLE FOUNDATION  
TYPE PA90-A-10.7 (35' MAST ARM)  
2-SWING AWAY HINGES  
1-ONE WAY SIGNAL OVERHEAD AT 5.5 m  
REMOVE: 1-ONE WAY SIGNAL OVERHEAD AT 0°  
(EX. HEAD 3-3, SEE EXISTING INTERSECTION LAYOUT)  
F&I: 1-ONE WAY 4 SECTION HEAD OVERHEAD AT 0°  
(HEAD 3-1)  
F&I: 1-ONE WAY 4 SECTION HEAD OVERHEAD AT 8.2'  
(HEAD 7-1)  
F&I: 1-R10-X12 SIGN ADJACENT TO HEAD 7-1
- 1-TYPE 10B POLE MOUNTED AT 270°  
2-C.D. PED INDICATIONS  
1-TYPE 30A POLE MOUNTED AT 90°  
1-ONE WAY EVP DETECTOR (PHASES 4 & 7) FROM  
END OF MAST ARM  
1-ONE WAY EVP CONFIRMATORY LIGHT (PHASES 3 & 6)  
FROM END OF MAST ARM  
1-APS PB AND SIGN (PBB-2) (BOTH ARROW)  
EXTEND INTO HH 11  
78 mm RSC  
2-12/C\*12  
F&I: 1-6/C\*14
- INP- 2-3/C\*12  
1-3/C\*20

- (2) INP- PA90 POLE FOUNDATION  
TYPE PA90-D12.2-2.7 (DAVIT AT 350°)  
1-TYPE 10B POLE MOUNTED AT 270° (0° IS NORTH)  
1-C.D. PED INDICATION  
LUMINAIRE 200 W HPS  
1-APS PB AND SIGN (PB2-1) (RT ARROW)  
1-R9-3a SIGN (NO PED)  
FACING POLE 3  
EXTEND INTO HH 2  
78 mm RSC  
1-12/C\*12  
1-3/C\*12  
1-3/C\*12 (LUM)

- (1) INP- PA100 POLE FOUNDATION  
TYPE PA100-A-16.8 (55' MAST ARM)  
1-X6-350/CAN 400 EXTENSION (MOUNTED AT 350 DEG)  
(INCLUDES LIGHTNING ROD, 7/16" GROUND BRAID AND GROUND ROD)  
1-VIDEO CAMERA WITH MOUNT  
2-SWING-AWAY HINGES  
3-ONE WAY SIGNALS OVERHEAD AT 0 m, 3.6 m & 7.2 m  
MODIFY: 1-TYPE 20C POLE MOUNTED AT 270° AND  
REPLACE EX. 3 SECTION HEAD (HEAD 4-4)  
WITH 4 SECTION HEAD (HEAD 7-2)
- 2-C.D. PED INDICATIONS  
1-ONE WAY EVP DETECTOR AND CONF. LIGHT  
0.6 m FROM END OF MAST ARM (PHASE 2 & 5)  
LUMINAIRE 200 W HPS  
1-R6-1(R) SIGN (ONE WAY) AT 180°  
1-R6-1(L) SIGN (ONE WAY) AT 0°  
1-APS PB AND SIGN (PB2-2) (LT ARROW)  
EXTEND INTO HH 1  
78 mm RSC  
2-12/C\*12  
5-3/C\*12  
1-3/C\*12 (LUM)  
1-3/C\*20  
1-7/16" GROUNDING BRAID TO GROUND ROD IN HH 1;  
1-3/C\*14 (CAMERA POWER)  
1-COM CABLE  
1-COAXIAL CABLE
- INP- AP5 PED PB STA (PBB-1)  
1-APS PB AND SIGN (RT ARROW)  
1 1/4" CONDUIT TO HH 1  
1-2/C \*14

NOTES:

- ALL ITEMS ARE INPLACE UNLESS NOTED OTHERWISE.
- ALL ITEMS THAT SHALL REQUIRE WORK ARE NOTED BY [ ].
- FOR WORK REQUIRED SEE INTERSECTION LAYOUT (SS-02)  
AND WIRING DIAGRAM (SS-04) FOR ADDITIONAL INFORMATION.



NOTES:  
- FOR UTILITY INFORMATION SEE NOTES 9 AND 10 ON SHEET SS-02.

BY	DATE	REVISIONS

SYSTEM ID: 21165 T.E. 5580  
METER ADDRESS: 8501 CENTRAL AVENUE N.E.  
MASTER ID: NA T.E. NA



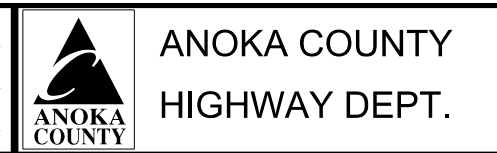
MATCHLINE AND INTERSECTION NOTES  
REVISE SIGNAL SYSTEM  
T.H. 65 (CENTRAL AVE. NE) AT  
C.S.A.H. 32 (85TH AVE. NE)  
IN BLAINE, ANOKA COUNTY

CERTIFIED BY: *Paul J. Jany* L.C. NO. 41642 DATE: 3-1-12  
DRAWN BY: DKY CKD BY: PJZ DATE: 03-01-12  
STATE PROJ. NO. 0207-104 (T.H. 65) SHEET NO. SS-03 OF SS-08 SHEETS

NO	DATE	BY	CKD	APPR	REVISION	2/26/2021	8:30:19 AM

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.dgn

DRAWN BY: MAR DATE: 12/16/2020  
DESIGN BY: MAR DATE: 12/16/2020  
CHECKED BY: CO DATE: 12/16/2020



STATE AID PROJECT 002-632-018  
STATE AID PROJECT 062-601-015

EXISTING SIGNAL PLANS  
Sheet 23 of 36 Sheets

FOR REFERENCE PURPOSES ONLY



Co0215co MDROSF000023 TMS  
PLOTTED: 5/25/2011 1:51:40 PM

INDEX OF REFRACTION

PROVIDE CABLE MANUFACTURERS INDEX OF REFRACTION USED FOR TESTING ON PROJECT.

○ = FURNISHED SPLICE, NO SPLICE OTRD READING REQUIRED AT THIS LOCATION

⊗ POWER METER TEST POINT  
INSERT OPTICAL LINK LOSS IN dB  
(TEST MULTI MODE FIBER AT 1300)  
(TEST SINGLE MODE FIBER AT 1550)



INSERT OTRD SPLICE LOSS SHOT FROM THIS DIRECTION

○ = FO CABLE SPLICE POINT & OTRD TEST SPLICE READING

⊗ = OTRD TEST SPLICE READING ON INPLACE CABLE

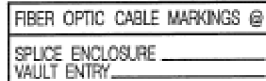


PROVIDE TRUNK AND PIGTAIL OTRD FIBER LENGTH MEASUREMENTS USING OTRD READINGS FROM CONNECTORS AT SHELTER OR CABINETS TO SPLICE POINTS IN VAULTS

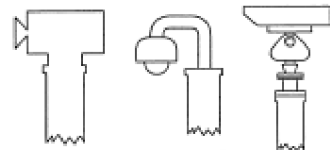
PIGTAIL ID#:

PROVIDE PIGTAIL CABLE JACKET DISTANCE MARKINGS AT ENTRY TO CONTROL CABINET AND AT ENTRY TO OUTDOOR FIBER SPLICE ENCLOSURE

m B  
m E



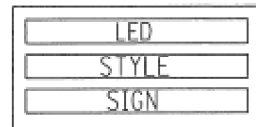
PROVIDE TRUNK CABLE JACKET DISTANCE MARKINGS AT ENTRY TO VAULT AND AT ENTRY TO OUTDOOR FIBER SPLICE ENCLOSURE



EXISTING CAMERA WITH PAN AND TILT UNIT



F&I CAMERA WITH PAN AND TILT UNIT

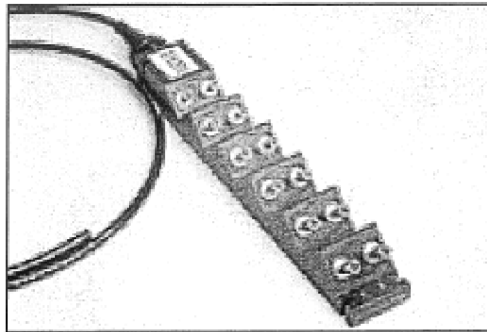


DYNAMIC MESSAGE SIGN

FIBER OPTIC PATCHCORD



TWISTED PAIR INTERCONNECT



FACTORY TERMINATED FIBER OPTIC PATCH/PIGTAIL PANEL



FO ETHERNET TRANSPORT



ETHERNET/SERIAL CONVERTER



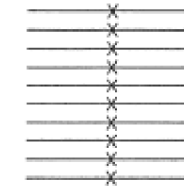
ETHERNET/SERIAL CONVERTER



ETHERNET SWITCH

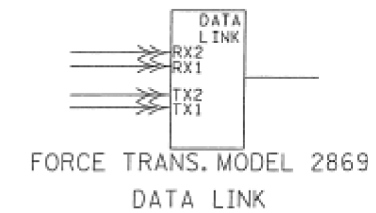
COMMON ETHERNET EQUIPMENT

EXISTING FO CABLE SPLICE POINT

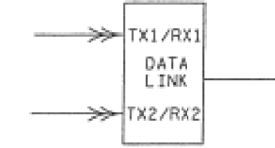


FIBER OPTIC PIGTAIL SPLICE DIAGRAM

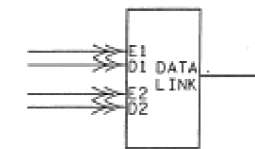
(SPLICE UNUSED FIBERS TOGETHER IN THE SPLICE VAULT SO THAT THE FIBERS CAN BE TESTED)



FORCE TRANS. MODEL 2869 DATA LINK



OPTELECOM MODEM DATA LINK



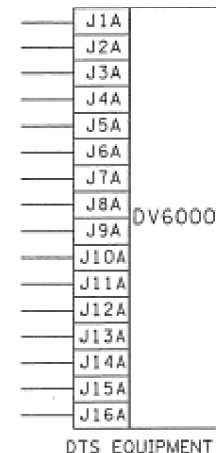
EIA/TIA 232 DATA LINK



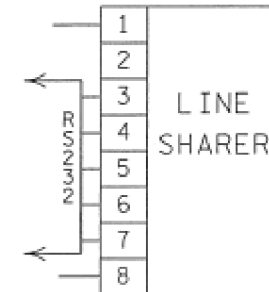
VIDEO & DATA TRANSCEIVER TRANSMITTER

- [170] 170 CONTROLLER
- [DMS] CHANGEABLE MESSAGE SIGN
- [FLS] FLASHER
- [RCS] RAMP CONTROL SIGNAL
- [LDS] LOOP DETECTOR STATION
- [LD] LOOP DETECTOR'S'
- [ILCS] INTELLIGENT LANE CONTROL SIGN

LEGEND FOR COMMUNICATION SCHEMATICS



DTS EQUIPMENT



RS 232 LINE SHARER

REV. NO.	DATE:	/ /
REV. NO.	DATE:	/ /

CERTIFIED BY *[Signature]* LIC.NO. 26530 MAY 19 2011 STATE PROJ. NO. 0207-94 (TH 65) SHEET NO. SZ75 OF SZ102 SHEETS

NO	DATE	BY	CKD	APPR	REVISION	02/26/2021	8:30:27 AM

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.dgn

DRAWN BY MAR DATE 12/16/2020  
DESIGN BY MAR DATE 12/16/2020  
CHECKED BY CO DATE 12/16/2020



ANOKA COUNTY HIGHWAY DEPT.

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STATE AID PROJECT 062-601-015

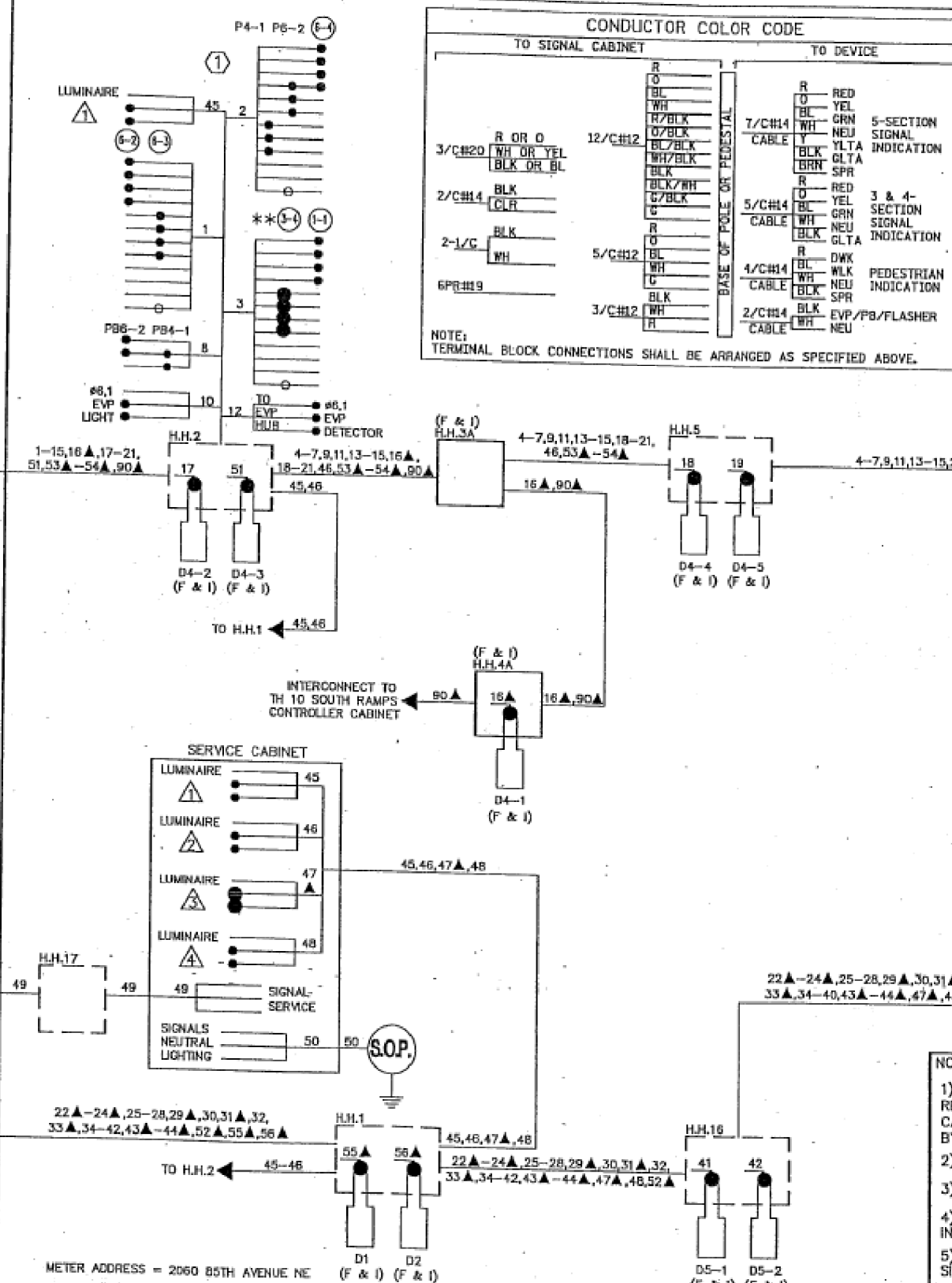
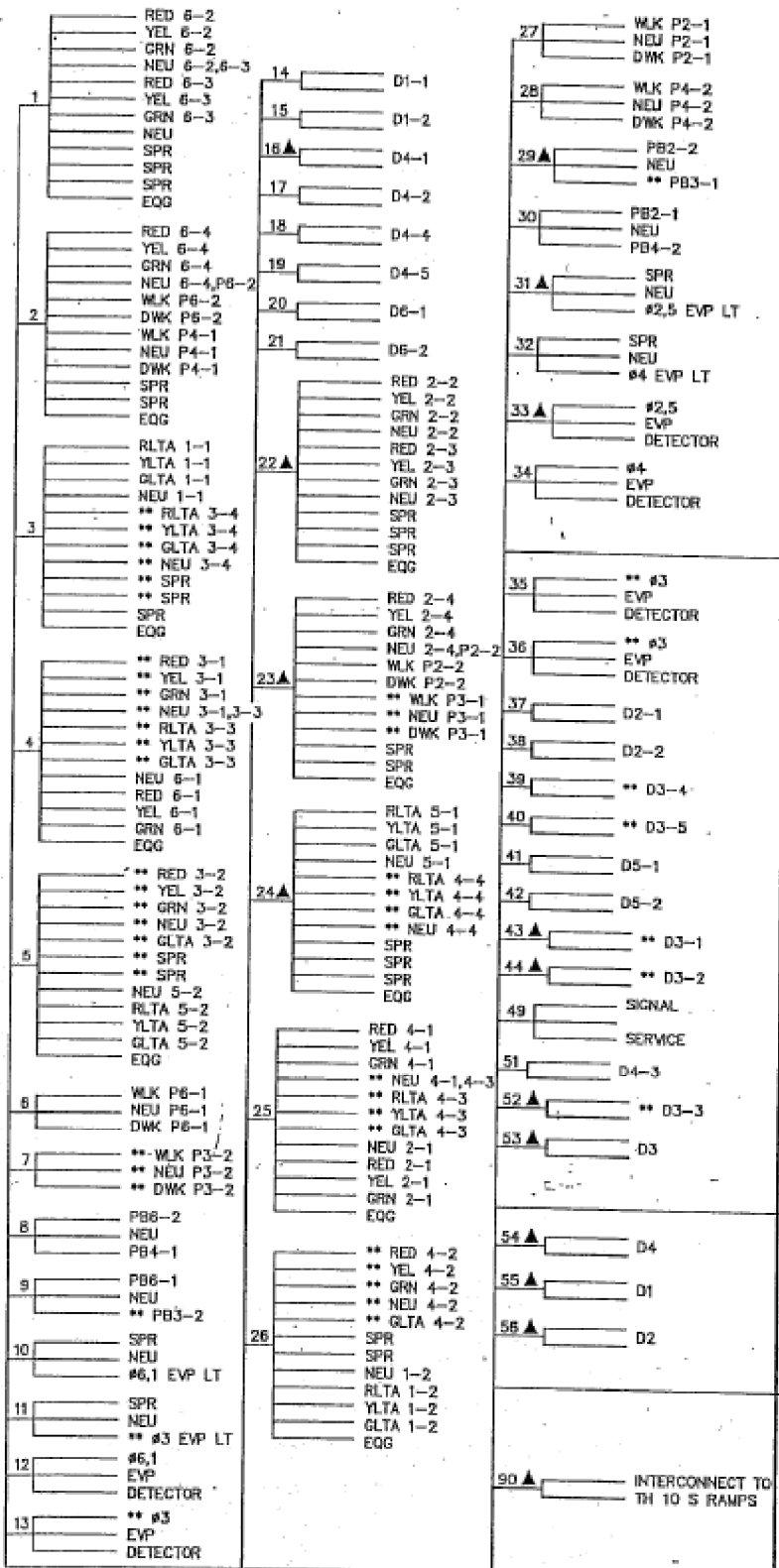
EXISTING SIGNAL PLANS

Sheet 24 of 36 Sheets

FOR REFERENCE PURPOSES ONLY



# 5667 CONTROLLER AND CABINET



**NOTES:**

- 1) ALL CABLES AND CONDUCTORS ARE IN PLACE & SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY ▲ ▲ CABLES AND CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR.
- 2) ● = IN PLACE TERMINATION.
- 3) ● = NEW TERMINATION ON INPLACE OR NEW CABLE.
- 4) F & I = LOOP DETECTOR/HANDHOLE TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 5) \*\* = RELABEL INPLACE/ADD NEW VEHICLE OR PEDESTRIAN SIGNAL INDICATION OR LOOP DETECTOR AS SHOWN.

DESIGN TEAM	NO.	BY	DATE
DRAWN BY: JMG			
DESIGNER: JMG			
CHECKED BY: JMG			

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.

Certified By: *John M. Gray* License: 22457  
 Printed Name: JOHN M. GRAY Date: 12/15/22

**RAMBEY COUNTY**  
**COUNTY ROAD J**  
 S.A.P. 02-632-14, S.A.P. 62-601-11

**REVISE SIGNAL SYSTEM "B"**  
**FIELD WIRING DIAGRAM**  
 COUNTY ROAD J/85TH AVENUE NE (CSAH 1/32)  
 AT AIRPORT ROAD

FILE NO. ARAMES0503  
 261  
 SG15  
 OF 5051  
 297

FOR REFERENCE PURPOSES ONLY

NO.	DATE	BY	CKD	APPR	REVISION	02/26/2021	8:30:43 AM

NAME: P:\21-01-00\CSAH\_32\_(TH65-TH10)\Base\Proposed\CSAH\_32\_CP2.dgn

DRAWN BY: MAR DATE 12/16/2020  
 DESIGN BY: MAR DATE 12/16/2020  
 CHECKED BY: CO DATE 12/16/2020

**ANOKA COUNTY HIGHWAY DEPT.**

STATE AID PROJECT 002-632-018  
 STATE AID PROJECT 062-601-015

EXISTING SIGNAL PLANS  
 Sheet 26 of 36 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.

**MULTI COMPONENT (MULTI COMP):**

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 MULTI COMP PAVEMENT MARKINGS.

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

A MULTI COMP RESIN LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE. GLASS BEANS SHALL BE APPLIED AT A MINIMUM RATE OF 25LB POUNDS 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 FILD 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.

PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - MULTI COMP	LIN FT	11540
1 4" BROKEN LINE WHITE - MULTI COMP	LIN FT	2008
2 8" BROKEN LINE WHITE - MULTI COMP	LIN FT	120
4" SOLID LINE YELLOW - MULTI COMP	LIN FT	2600
4" SOLID DOUBLE LINE YELLOW - MULTI COMP	LIN FT	4305
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (PMS)*	LIN FT	152
24" SOLID LINE WHITE - PREF THERMO ESR GR IN	SQ FT	72
24" SOLID LINE YELLOW - PREFORMED THERMOPLASTIC (PMS)*	LIN FT	542
3'X6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	882
3'X6' ZEBRA CROSSWALK - PREF THERMO ESR GR IN	SQ FT	306
PAVEMENT MESSAGE (LEFT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	108
PAVEMENT MESSAGE (RIGHT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	62
PAVEMENT MESSAGE (THRU / RIGHT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	30

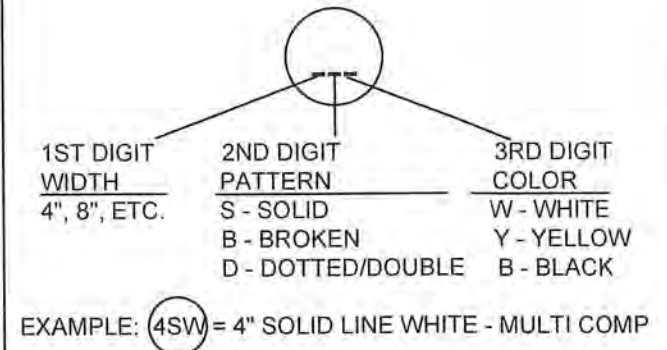
- 1 10' STRIPE, 40' GAP
- 2 3' STRIPE, 12' GAP
- \* PAVEMENT MARKING SPECIAL

**SYMBOLS & MATERIALS LEGEND**

- █ CROSSWALK BLOCK WHITE-POLY PREFORM
- ← PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

**STRIPING KEY**

- CIRCLE - MULTI COMP
- SQUARE - POLY PREFORM THERMOPLASTIC
- △ TRIANGLE - PAINT
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\21-01-00\CSAH 32 (TH65-TH10)\Base\Traffic\Perm pvmt mrkg guide notes\_guidelines.dwg

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: JOSEPH J. MACPHERSON, P.E.  
SIGNATURE: *[Signature]*  
DATE: 3-1-11 REG. NO. 46732

DRAWN BY: LJK DATE: 1/14/21  
DESIGN BY: LJK DATE: 1/14/21  
CHECKED BY: DATE:



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

STATE AID PROJECT 002-632-018  
STATE AID PROJECT 062-601-015

PERMANENT MARKING TABULATION  
Sheet 27 of 36 Sheets



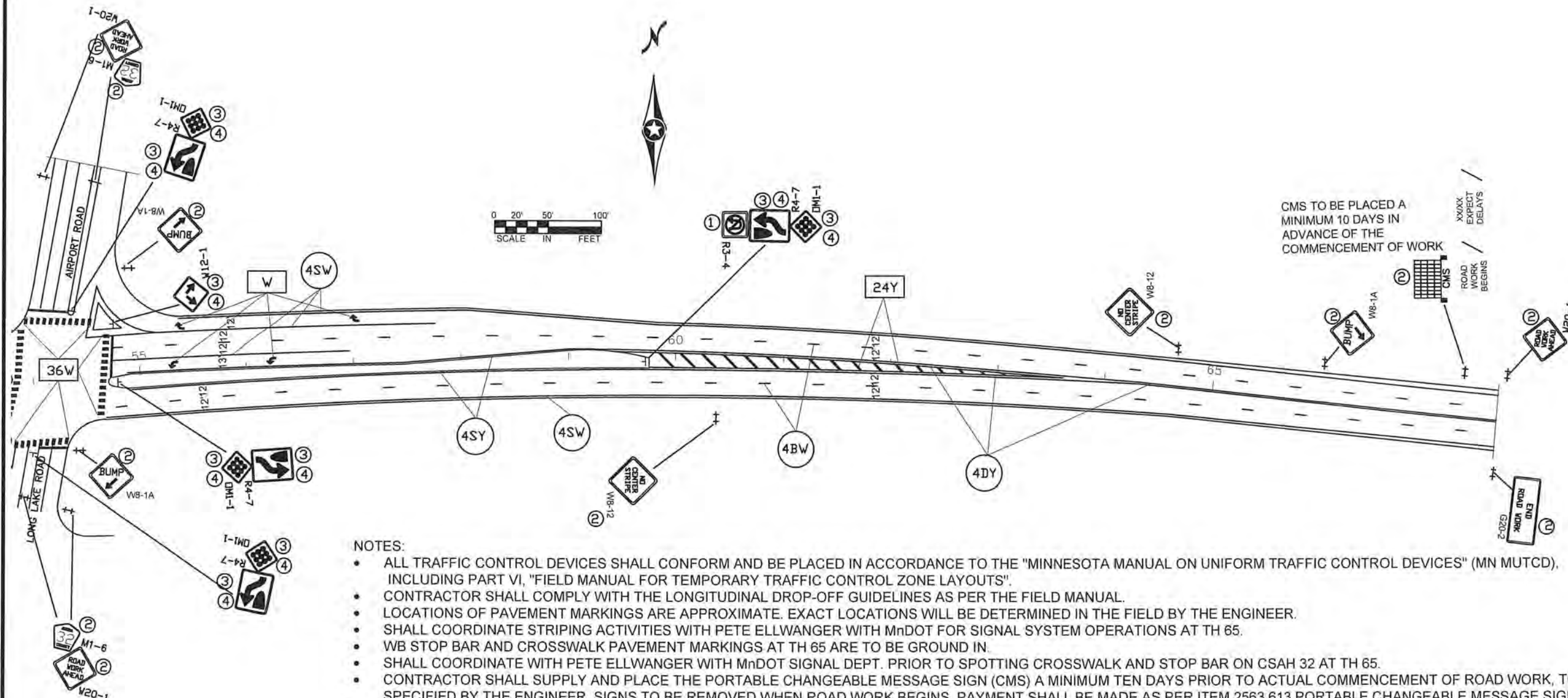








- SIGN NOTES:
- 1 FURNISH & INSTALL SIGN
  - 2 TEMPORARY TRAFFIC CONTROL SIGN
  - 3 SALVAGE PERMANENT SIGN
  - 4 RE-INSTALL PERMANENT SIGN



CMS TO BE PLACED A MINIMUM 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF WORK

ROAD WORK BEGINS

ROAD WORK EXPECTS DELAYS

- 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.
  - SHALL COORDINATE STRIPING ACTIVITIES WITH PETE ELLWANGER WITH MnDOT FOR SIGNAL SYSTEM OPERATIONS AT TH 65.
  - WB STOP BAR AND CROSSWALK PAVEMENT MARKINGS AT TH 65 ARE TO BE GROUND IN.
  - SHALL COORDINATE WITH PETE ELLWANGER WITH MnDOT SIGNAL DEPT. PRIOR TO SPOTTING CROSSWALK AND STOP BAR ON CSAH 32 AT TH 65.
  - CONTRACTOR SHALL SUPPLY AND PLACE THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM TEN 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.
  - ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAYS IN CONSTRUCTION AREA.
  - 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.

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CHKD</th> <th>APPR</th> <th>REVISION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>NAME: P:121-01-00\CSAH 32 (TH65-TH10)\Base\Traffic\Signing &amp; Striping.dwg</p>	NO	DATE	BY	CHKD	APPR	REVISION							<p>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.</p> <p>PRINT NAME: JOSEPH J. MACPHERSON, P.E.</p> <p>SIGNATURE: <i>[Signature]</i></p> <p>DATE: 3-1-21 LICENSE NO. 46732</p>	<p>DRAWN BY: LJK DATE: 1/14/21</p> <p>DESIGN BY: LJK DATE: 1/14/21</p> <p>CHECKED BY: _____ DATE: _____</p>	<div style="text-align: center;"> <p><b>ANOKA COUNTY</b> <b>HIGHWAY DEPT.</b></p> </div> <p>STATE AID PROJECT 002-632-018 STATE AID PROJECT 062-601-015</p>	<p>TEMPORARY SIGNING, PERMANENT SIGNING, AND STRIPING</p> <p>Sheet <u>30</u> of <u>36</u> Sheets</p>
NO	DATE	BY	CHKD	APPR	REVISION											



TEMPORARY TRAFFIC CONTROL SIGNS							
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	NO. POST	Mounting Height (ft.)		
W8-12	48" x 48"		11	2	7.0'		
R4-1	24" x 30"		0	1	7.0'		
R4-2	24" x 30"		0	1	7.0'		
G20-2	36" x 18"		2	2	7.0'		
W8-1	48" x 48"		AS NEEDED				
W8-1A	48" x 48"		AS NEEDED (ESTIMATED 18)				
W8-8	48" x 48"		AS NEEDED				
W8-9	48" x 48"		AS NEEDED				
	48" x 48"		AS NEEDED				
W8-11	48" x 48"		AS NEEDED				
W20-1	48" x 48"		AS NEEDED (ESTIMATED 16)				
M1-6	24" x 24"		4		7.0'		
W20-1	48" x 48"		4				
REFLECTORIZED REBOUNDABLE DRUM			AS NEEDED				
CMS sign to be placed a minimum of ten days prior to actual commencement of road work. Signs to be removed when road work begins.			2 AT 10 DAYS EA				

EXISTING SIGN TAB					
STATION	ADDRESS/ DESCRIPTION (NOTES)	SALVAGE SIGN TYPE C	REINSTALL SALVAGE SIGN TYPE C	SIGN NUMBER	SIGN LEGEND
		EACH	EACH		
12+10	MEDIAN	1	1	R3-4	NO U-TURN
				R4-7	KEEP RIGHT
				OM1-1	9 BUTTON
46+60	MEDIAN	1	1	R4-7	KEEP RIGHT
				OM1-1	9 BUTTON
53+70	MEDIAN	1	1	R4-7	KEEP RIGHT
				OM1-1	9 BUTTON
54+00	93RD LANE MEDIAN	1	1	R4-7	KEEP RIGHT
				OM1-1	9 BUTTON
54+40	93RD LANE MEDIAN	1	1	R4-7	KEEP RIGHT
				OM1-1	9 BUTTON
54+70	93RD LANE PORKCHOP	1	1	W12-1	DOUBLE ARROW
54+75	MEDIAN	1	1	R4-7	KEEP RIGHT
				OM1-1	9 BUTTON
				R3-4	NO U-TURN
59+70	MEDIAN	1	1	R4-7	KEEP RIGHT
				OM1-1	9 BUTTON
TOTAL		8	8		

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	

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

SIGN PANELS TYPE C						
SIGN DESIGNATION	SIGN SIZE	SIZE AREA (FT <sup>2</sup> )	Total Installations	Total Area (ft <sup>2</sup> )	Posts per Installation	Notes
R3-4	36" x 36"	9	1	9	1	A
Project Totals			1	9		

NOTES: This table illustrates quantities for F&I new type "C" signs only.  
 A Sign mounted on back of R4-7 Sign Post Assembly

NO	DATE	BY	CHKD	APPR	REVISION

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: JOSEPH J. MACPHERSON, P.E.  
 SIGNATURE:   
 DATE: 5-1-21 LICENSE NO. 45732

DRAWN BY: LJK DATE: 1/14/21  
 DESIGN BY: LJK DATE: 1/14/21  
 CHECKED BY: DATE:

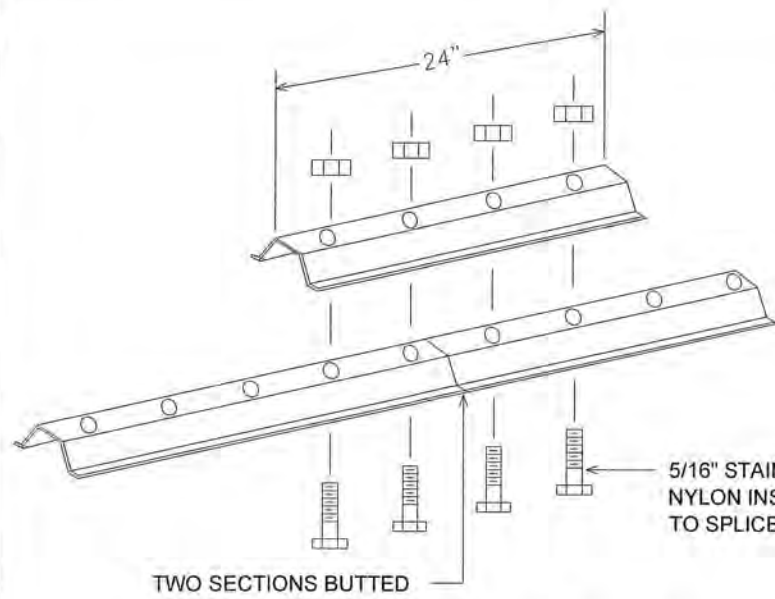


ANOKA COUNTY  
 HIGHWAY DEPT.

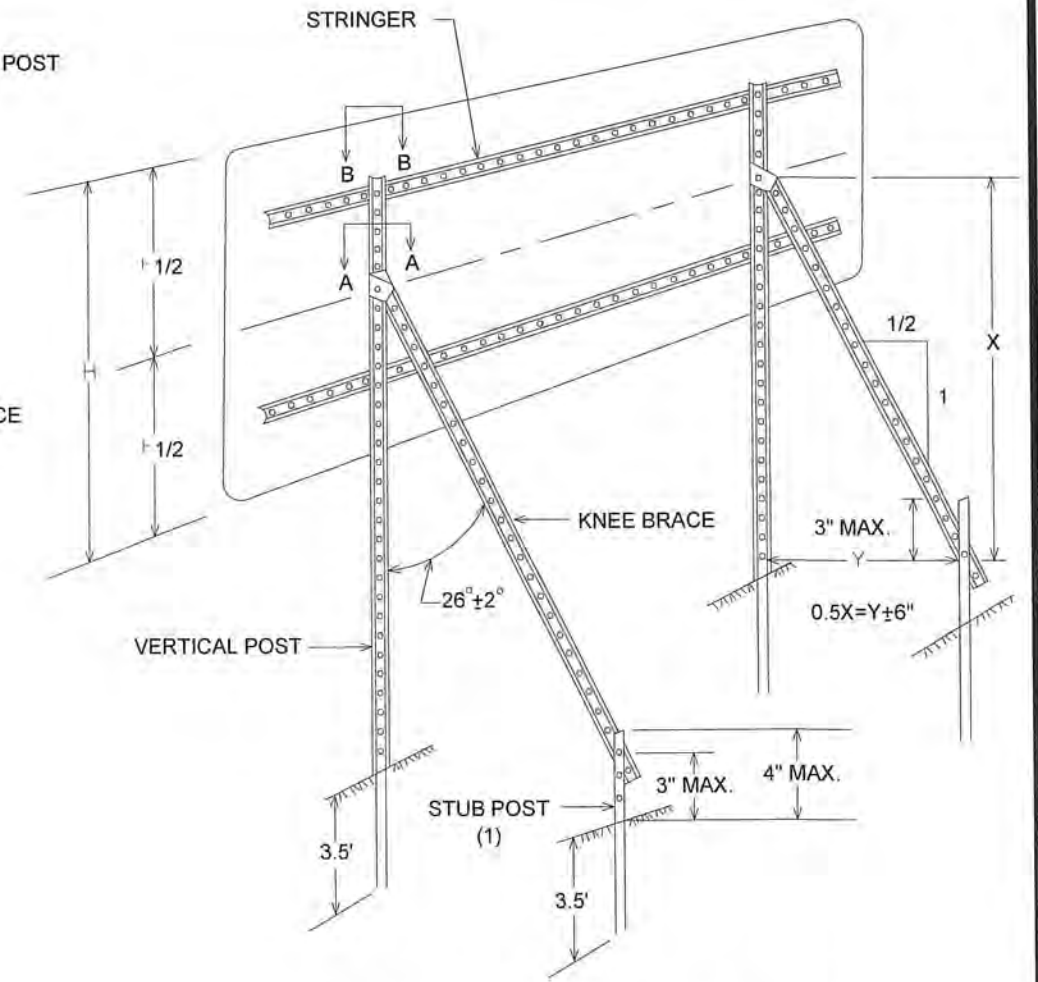
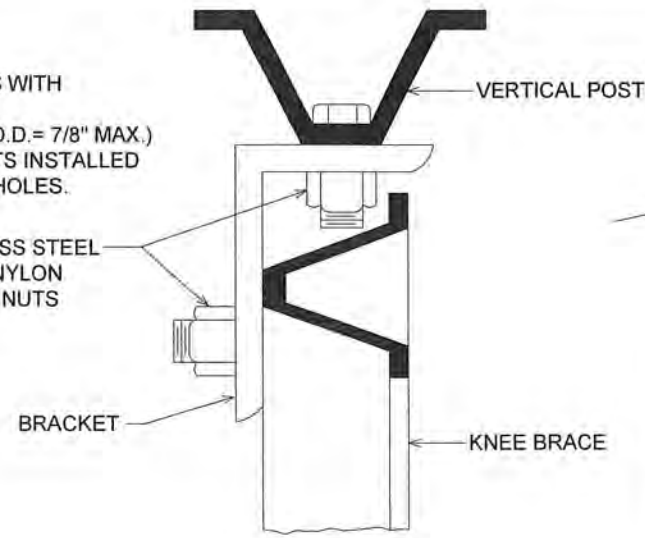
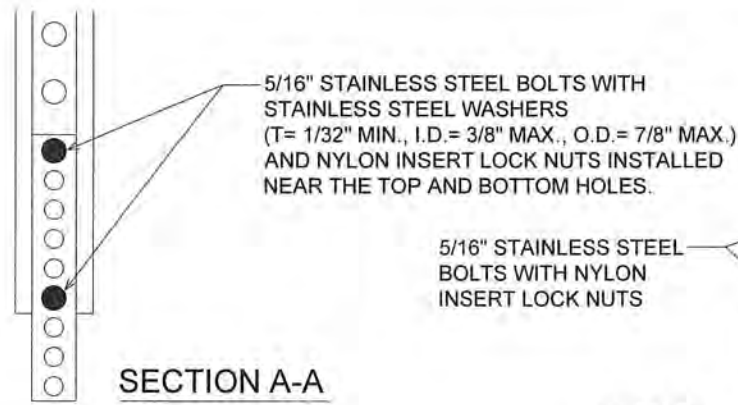
STATE AID PROJECT 002-632-018  
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TEMPORARY SIGNING,  
 PERMANENT SIGNING,  
 AND QUANTITIES

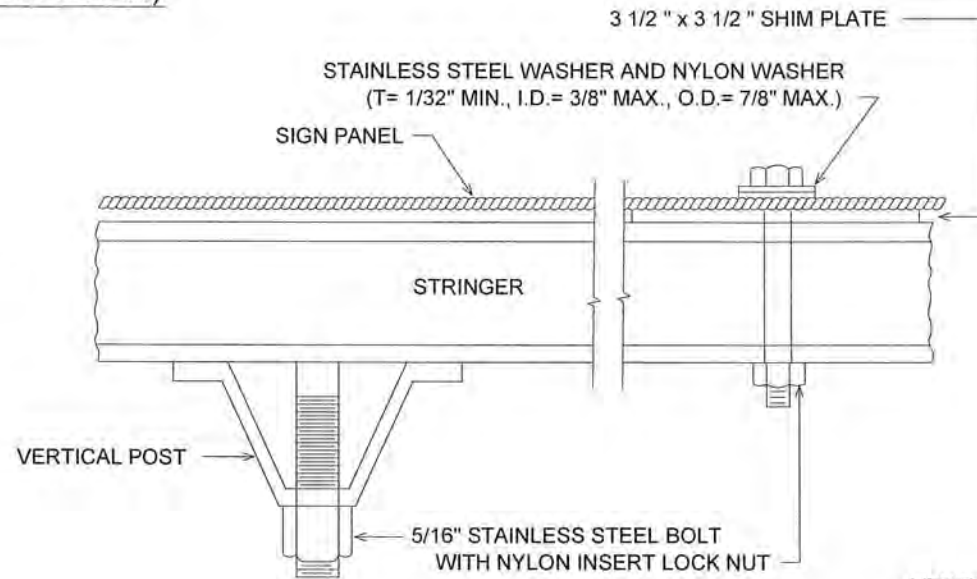




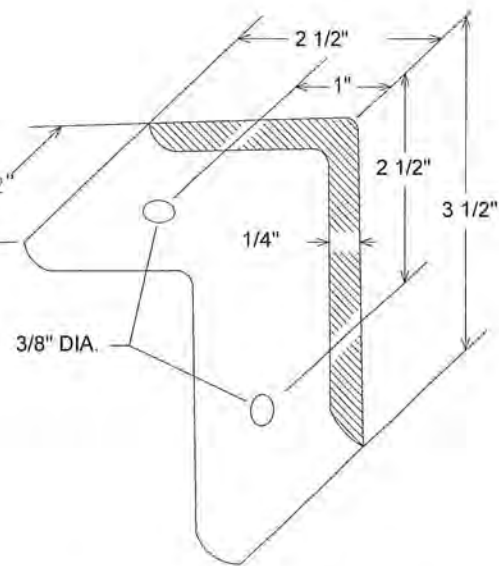
**LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)**



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

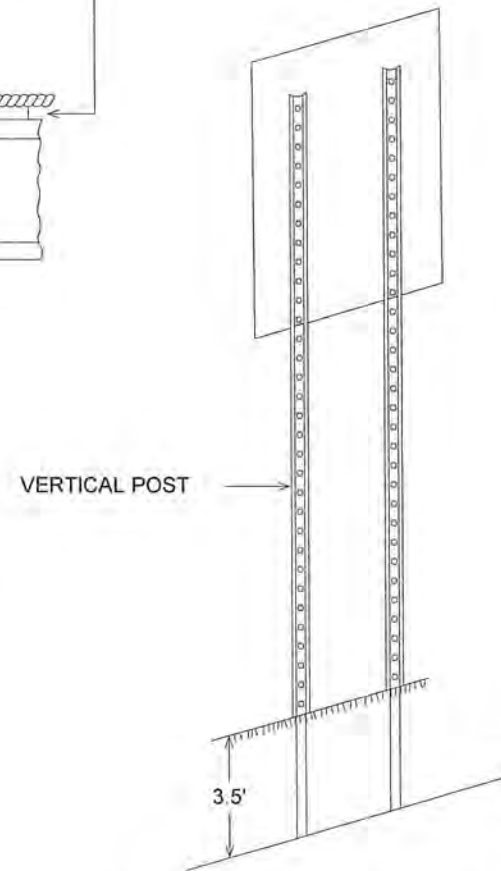


**SECTION B-B**

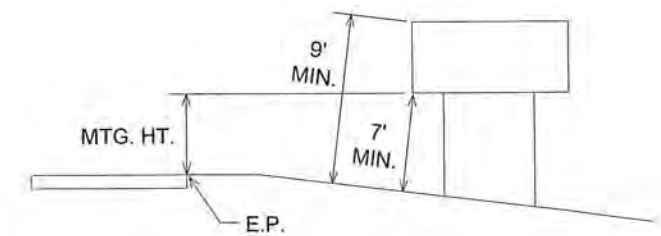


**A-FRAME BRACKET**

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



**TYPICAL INSTALLATION 36" AND LARGER TYPE "C" SIGNS**



**TYPICAL MOUNTING**

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

**TYPE C & D SIGN STRUCTURAL DETAILS**

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 LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

DATE: 3-1-21 LICENSE NO. 48732

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

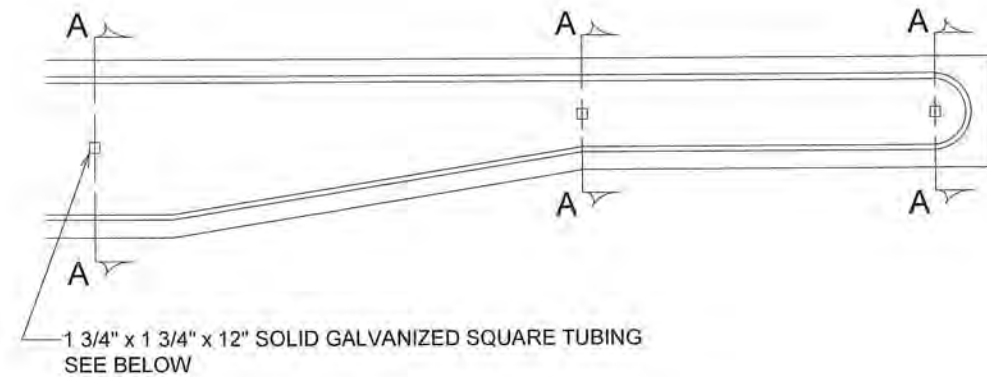
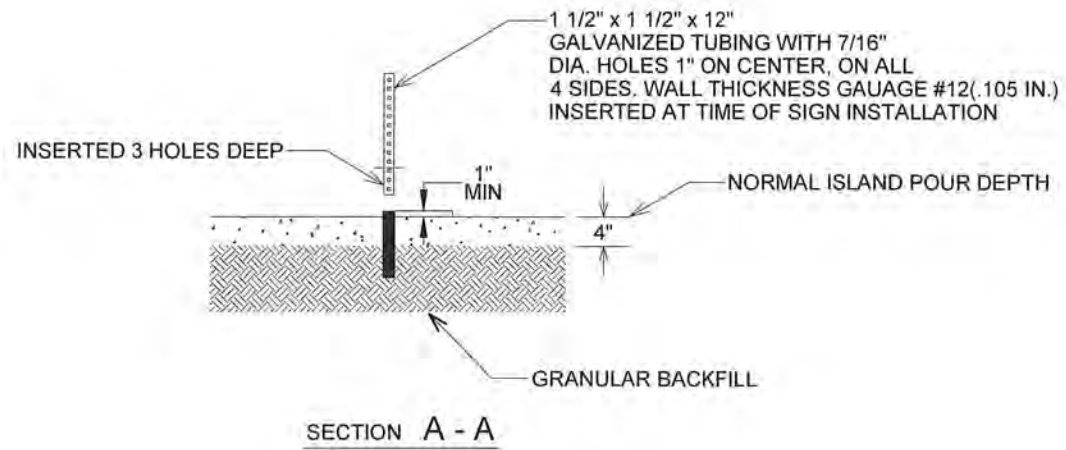
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CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

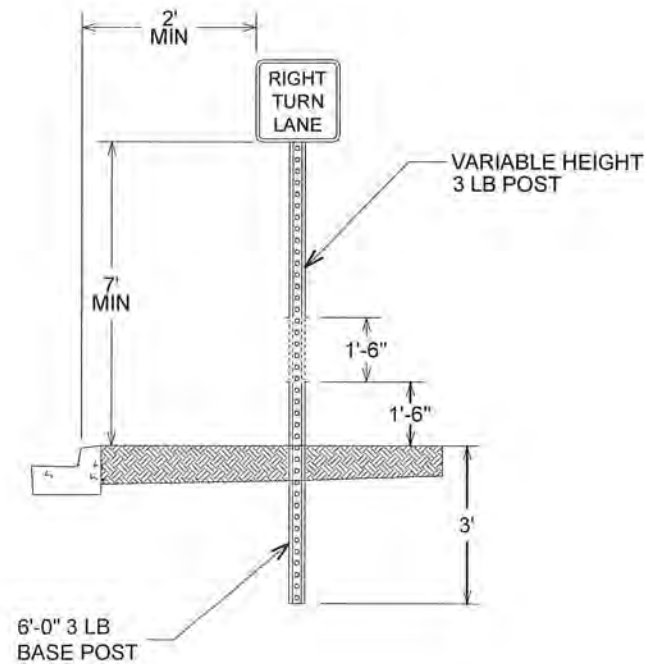
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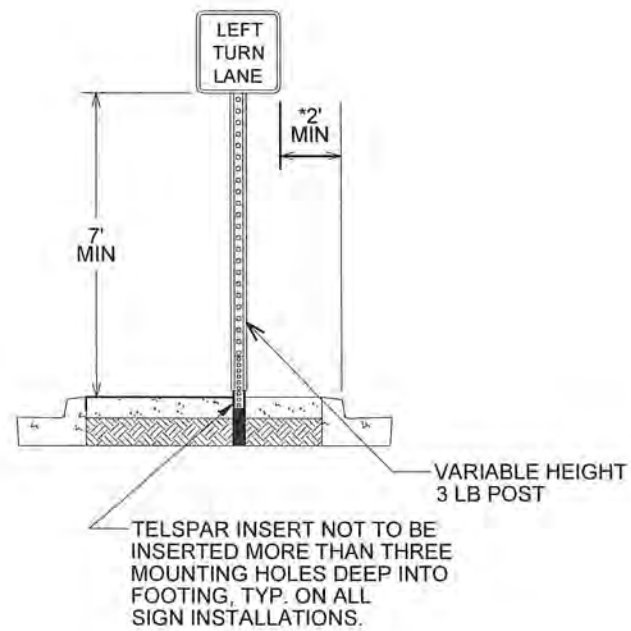




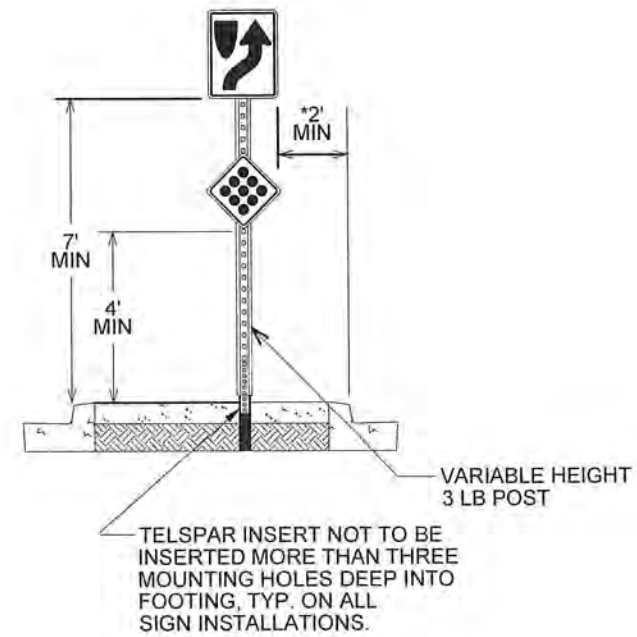
GROUND POST MOUNT SIGN  
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN  
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN  
INSTALLATION TYPICAL  
KEEP RIGHT/CLUSTER



\*1' MIN FOR NARROW URBAN LOCATIONS

**INSTALLATION NEAR SIDEWALK (MN MUTCD)**  
The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway, the secondary sign shall not project more than 4 inches into the pedestrian facility.

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 LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: JOSEPH J. MACPHERSON, P.E.  
 SIGNATURE: *[Signature]*  
 DATE: 8-1-2010 LICENSE NO. 46732

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

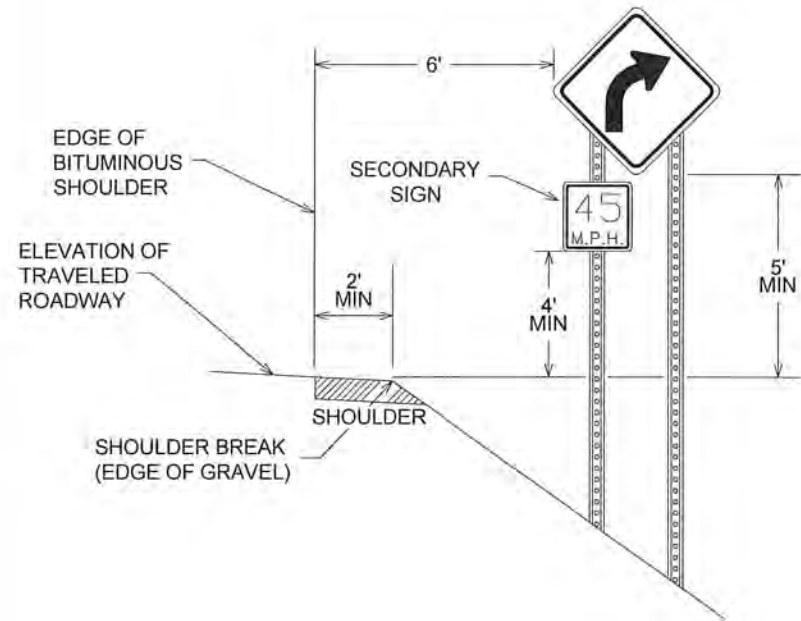


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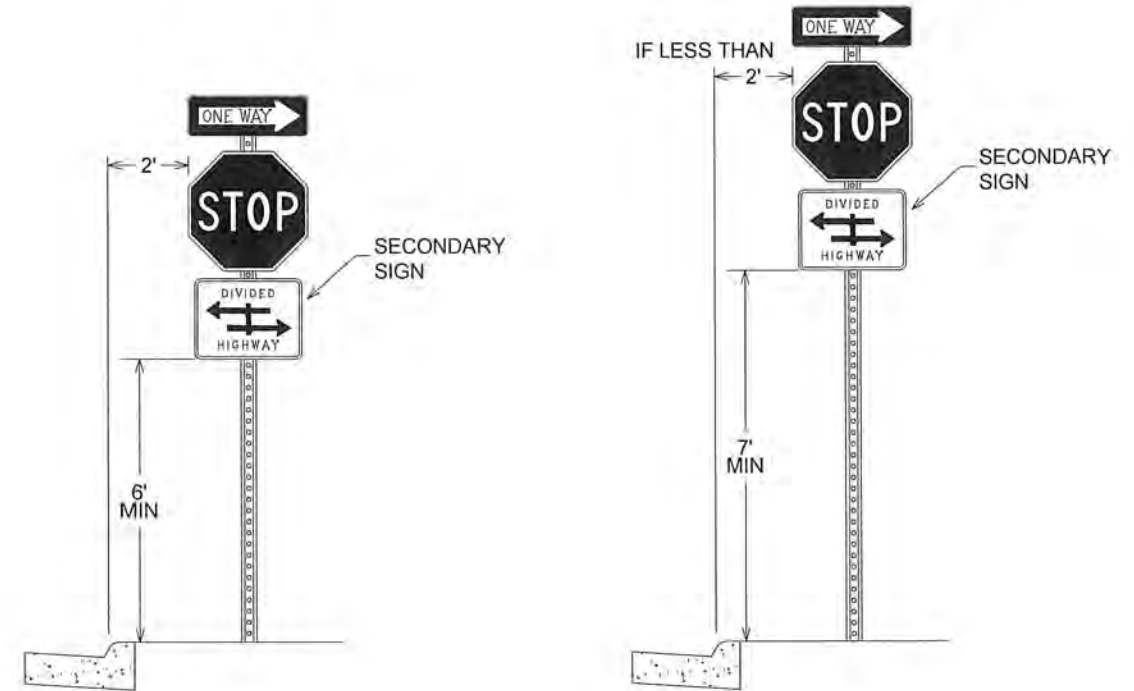
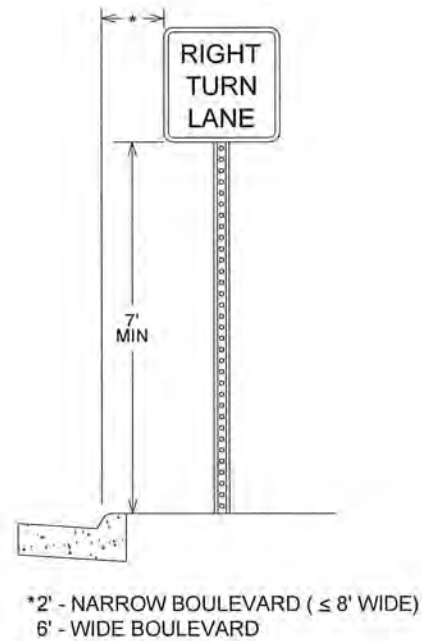
STATE AID PROJECT 002-632-018  
STATE AID PROJECT 062-601-015

SIGNING & STRIPING  
DETAILS  
Sheet 33 of 36 Sheets

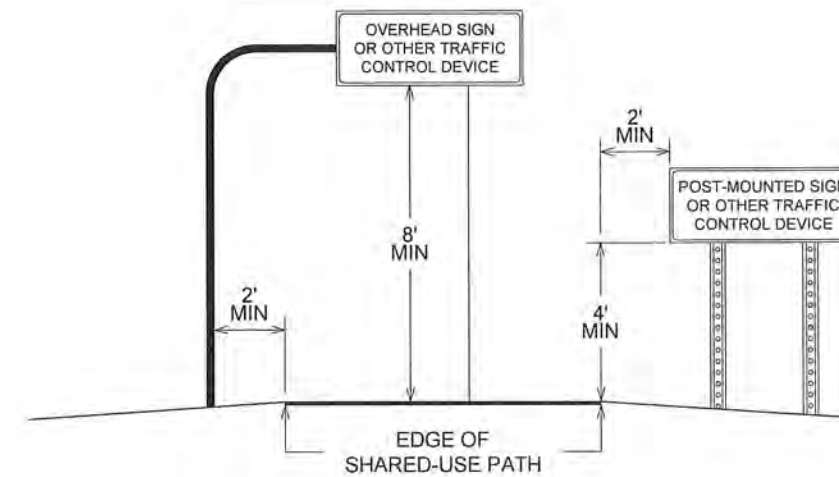
TYPICAL SIGN PLACEMENT  
(RURAL)



TYPICAL SIGN PLACEMENT  
(URBAN)



TYPICAL SIGN PLACEMENT  
SHARED-USE PATH



NOTES:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN A DISTANCE OF 2' BETWEEN SIGNS AND BITUMINOUS TRAIL
- 7' SIGN CLEARANCE IF A 2' DISTANCE BETWEEN SIGN AND BITUMINOUS TRAIL CANNOT BE MAINTAINED

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 LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: JOSEPH J. MACPHERSON, P.E.  
 SIGNATURE: *[Signature]*  
 DATE: 3-1-21 LICENSE NO. 46732

DRAWN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DESIGN BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



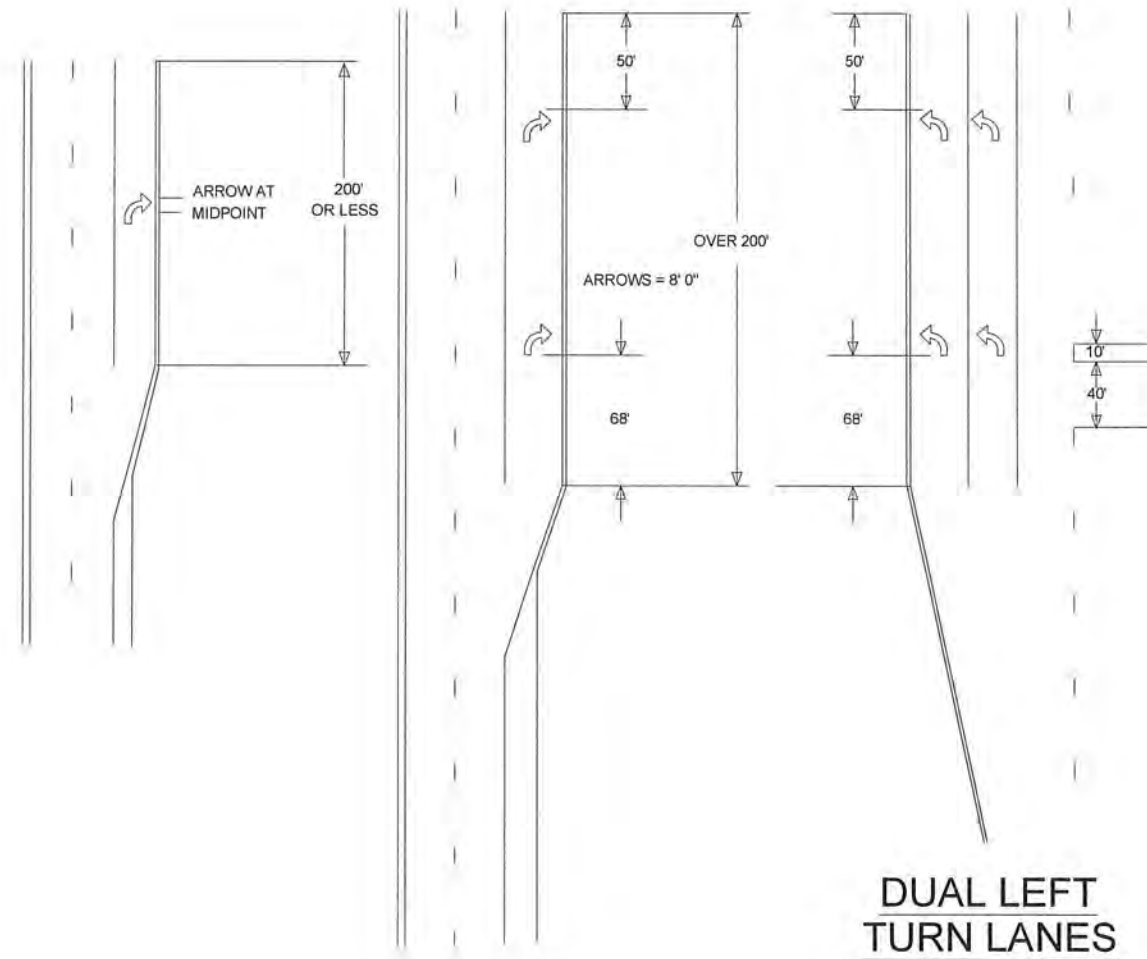
ANOKA COUNTY  
HIGHWAY DEPT.

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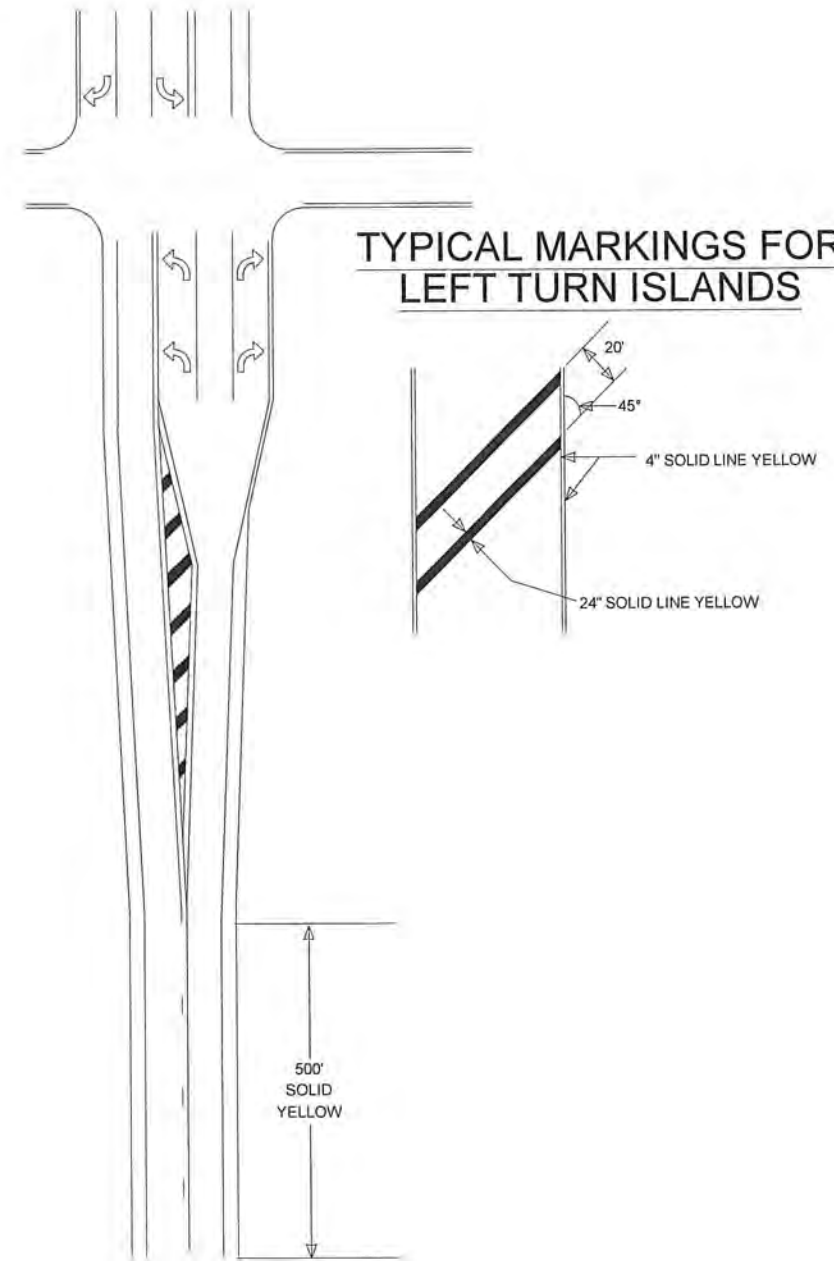
SIGNING & STRIPING  
DETAILS



**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



**TYPICAL MARKINGS FOR  
LEFT TURN ISLANDS**



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\21-01-00\CSAH 32 (TH65-TH10)\Base\Traffic\Sign&Stripe Details.dwg

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: JOSEPH J. MACPHERSON, P.E.

SIGNATURE: *[Signature]*

DATE: 3-1-20 LICENSE NO. 46732

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_

DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_



**ANOKA COUNTY  
HIGHWAY DEPT.**

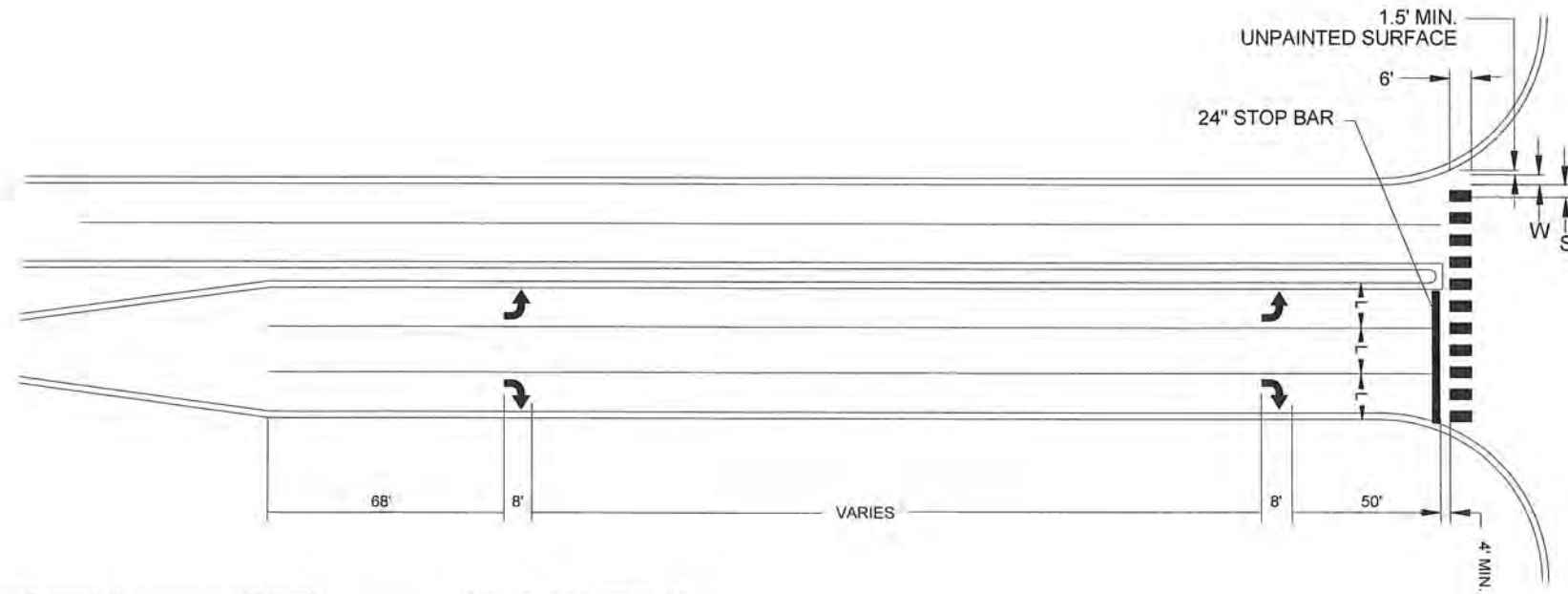
STATE AID PROJECT 002-632-018  
STATE AID PROJECT 062-601-015

**SIGNING & STRIPING  
DETAILS**

Sheet 35 of 36 Sheets



# 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.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\21-01-00\CSAH 32 (TH65-TH10)\Base\Traffic\Sign&Stripe Details.dwg

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: JOSEPH J. MACPHERSON, P.E.  
 SIGNATURE: *[Signature]*  
 DATE: 3-1-21 LICENSE NO. 46732

DRAWN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGN BY \_\_\_\_\_ DATE \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

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

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