

STATEMENT OF ESTIMATED QUANTITIES

Notes	Item Number	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1
1	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	16
1	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	253
2	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	44
3	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	249
3	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	620
	2104.518	REMOVE CONCRETE WALK	SQ FT	924
4	2105.607	COMMON EXCAVATION	CU YD	11
5	2123.510	MOTOR GRADER	HOUR	24
	2130.523	WATER	M GALLON	213
6,7,8	2211.509	AGGREGATE BASE CLASS 5	TON	102
	2215.504	FULL DEPTH RECLAMATION	SQ YD	30378
9	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	48
10	2221.509	SHOULDER BASE AGGREGATE CLASS 5	TON	620
	2232.604	MILL BITUMINOUS PAVEMENT (SPECIAL)	SQ YD	109
	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1550
11	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3;B)	TON	43
12	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4;C)	TON	71
	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (4;C)	TON	6987
4	2521.602	DRILL AND GROUT REINF BAR (EPOXY COATED)	EACH	27
	2521.618	CONCRETE CURB RAMP WALK	SQ FT	924
	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	44
	2531.618	TRUNCATED DOMES	SQ FT	48
13	2540.602	MAIL BOX SUPPORT	EACH	25
	2545.602	ADJUST HANDHOLE	EACH	11
14	2550.602	LOOP DETECTOR DESIGN NMC	EACH	13
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
15	2563.601	TRAFFIC CONTROL	LUMP SUM	1
16	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	30
	2574.507	COMMON TOPSOIL BORROW	CU YD	1152
17	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	13823
18	2581.503	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	458
19	2582.503	4" SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	13122
19	2582.503	4" BROKEN LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	110
19	2582.503	8" DOTTED LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	72
19	2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT GROUND IN (WR)	LIN FT	6201
20	2582.503	24" SOLID LINE PREFORM THERMO GROUND IN	LIN FT	275
20	2582.518	PAVEMENT MESSAGE PREFORM TAPE GROUND IN	SQ FT	124
20	2582.518	CROSSWALK PREFORM THERMOPLASTIC GROUND IN	SQ FT	342

CONSTRUCTION NOTES

1	REFERENCE DETAILS (PAGE 4 & 5) FOR REMOVAL DETAILS
2	ITEM FOR CONCRETE DRIVEWAYS. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
3	ITEM FOR BITUMINOUS DRIVEWAYS AND STREET APPROACHES. CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
4	ITEM FOR THE PEDESTRIAN RAMPS
5	ITEM USED TO MOVE EXCESS RECLAIM MATERIAL AT THE RECLAIM AREA LIMITS TO CREATE A SMOOTH TRANSITION BETWEEN THE PROPOSED AND EXISTING PAVEMENT AND SUPER ELEVATION CORRECTION AREAS.
6	ITEM FOR SUPERELEVATION / GRADE CORRECTION.
7	GRAVEL BASE FOR CONCRETE AND BITUMINOUS STREET APPROACHES AND DRIVEWAYS.
8	GRAVEL BASE FOR BITUMINOUS DRIVEWAYS.
9	ITEM USED TO HAUL EXCESS RECLAIM FROM TIE-IN POINTS AND SUPER ELEVATION CORRECTION AREAS TO BE REUSED ON SITE.
10	ITEM INCLUDES 7 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
11	ITEM FOR BITUMINOUS DRIVEWAYS. DRIVEWAYS SHALL BE PAVED AFTER MAINLINE AND BEFORE FINAL STRIPING.
12	STREET APPROACHES SHALL BE PAVED AFTER MAINLINE, AND BEFORE FINAL STRIPING (CSAH 18 NOT INCLUDED).
13	MAILBOXES ARE TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY, CONTRACTOR IS RESPONSIBLE FOR CONTACTING. MAILBOX REMOVAL AND ALL MATERIALS ARE INCIDENTAL TO INSTALLATION.
14	FULL LOOP REPLACEMENT REQUIRED. CONTRACTOR SHALL CONTACT ANOKA COUNTY TO DETERMINE PLACEMENT. SIGNAL PLANS ARE INCLUDED AT THE END OF THIS PLAN.
15	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.
16	3 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, SHALL BE INSTALLED 10 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
17	TYPE 3 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM. SEE "BASIS OF PLANNED QUANTITIES" FOR APPLICATION RATES.
18	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.
19	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING. CANNOT BE INSTALLED SOONER THAN 48 HOURS.
20	INCLUDES ALL THERMOPLASTIC STOP BARS, GORE AREA HATCHING, CROSSWALKS, LANE DESIGNATION ARROWS, AND PAVEMENT MESSAGES.

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

MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
8150C	INSTALLATION OF CULVERT MARKERS
9350B	MAILBOX SUPPORT - SWING-AWAY TYPE

BASIS OF PLANNED QUANTITIES

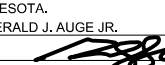
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS
2575	SEED MIXTURE 25-121	61 LBS./ ACRE
2574	FERTILIZER TYPE 3	350 LBS./ ACRE
2575	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS./ ACRE

NO	DATE	BY	CKD	APPR	REVISION
	03/09/2023				12:30:28 PM

NAME: P:\23-01-00\CSAH 17_(CSAH 18-1000' S CSAH 18)\Base\Proposed\CP.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: 03/01/2023 LICENSE NO. 26511

DRAWN BY KPR DATE 02/01/2023

DESIGN BY KPR DATE 02/01/2023

CHECKED BY CO DATE 02/28/2023



STATE AID PROJECT 002-618-038

STATE AID PROJECT 002-617-030

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 32 Sheets

SUPERELEVATION CORRECTION TAB

STATION	POINT	RTL GRADE	LEFT GRADE	RIGHT GRADE	BYPASS GRADE
27+50	BEGIN SUPER LT		-2.0%	-2.0%	
28+00			-1.0%	-2.0%	
28+50			0.0%	-2.0%	
29+00			1.0%	-2.0%	
29+50	BEGIN SUPER RT		2.0%	-2.0%	
30+00			3.0%	-3.0%	
30+11	PC		3.2%	-3.2%	
30+50			4.0%	-4.0%	
31+00			5.0%	-5.0%	
31+50	BEGIN FULL SUPER		6.0%	-6.0%	
32+00			6.0%	-6.0%	
32+50			6.0%	-6.0%	-6.0%
33+00			6.0%	-6.0%	-6.0%
33+50			6.0%	-6.0%	-6.0%
34+00			6.0%	-6.0%	-6.0%
34+50			6.0%	-6.0%	-6.0%
35+00			6.0%	-6.0%	-6.0%
35+50		-1.0%	6.0%	-6.0%	-6.0%
36+00		-1.0%	6.0%	-6.0%	-6.0%
36+50		-1.0%	6.0%	-6.0%	-6.0%
37+00		-1.0%	6.0%	-6.0%	-6.0%
38+00		-1.0%	6.0%	-6.0%	-6.0%
38+50		-1.0%	6.0%	-6.0%	-6.0%
39+00		-1.0%	6.0%	-6.0%	-6.0%
39+50		-1.0%	6.0%	-6.0%	-6.0%
40+00		-1.0%	6.0%	-6.0%	-6.0%
40+50	END FULL SUPER		6.0%	-6.0%	
41+00			5.0%	-5.0%	
41+50			4.0%	-4.0%	
42+00			3.0%	-3.0%	
42+20	PT		2.6%	-2.6%	
42+50	END SUPER RT		2.0%	-2.0%	
43+00			1.0%	-2.0%	
43+50			0.0%	-2.0%	
44+00			-1.0%	-2.0%	
44+50	END SUPER LT		-2.0%	-2.0%	

SUPERELEVATION CORRECTION TAB

STATION	POINT	LEFT GRADE	RIGHT GRADE
50+00	BEGIN SUPER RT	-2.0%	-2.0%
50+50		-2.0%	-1.0%
51+00		-2.0%	0.0%
51+50		-2.0%	1.0%
52+00	BEGIN SUPER LT	-2.0%	2.0%
52+46	PC	-2.9%	2.9%
52+50		-3.0%	3.0%
53+00		-4.0%	4.0%
53+50		-5.0%	5.0%
54+00	BEGIN FULL SUPER	-6.0%	6.0%
54+50		-6.0%	6.0%
55+00		-6.0%	6.0%
55+50		-6.0%	6.0%
56+00		-6.0%	6.0%
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60+50		-6.0%	6.0%
61+00		-6.0%	6.0%
61+50		-6.0%	6.0%
62+00		-6.0%	6.0%
62+50		-6.0%	6.0%
62+88	MATCH EXIST. SUPER	-6.0%	6.0%

BITUMINOUS STREET SUMMARY

LOCATION	BITUMINOUS		NOTES
	2360 TYPE SP 12.5 WEAR (4,C)		
	TON		
LEVER ST	20	[1]	
ROCKNEY ST	19	[1]	
173 RD AVE	7	[1]	
170 TH LANE	15	[1]	
169 TH LANE	11	[1]	
PROJECT TOTAL	72		

BITUMINOUS SUMMARY NOTES:


[1] QUANTITY ESTIMATED FOR 2 LIFTS

NO	DATE	BY	CKD	APPR	REVISION
	03/09/2023				12:35:40 PM

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**ANOKA COUNTY
HIGHWAY DEPT.**

STATE AID PROJECT 002-618-038
STATE AID PROJECT 002-617-030

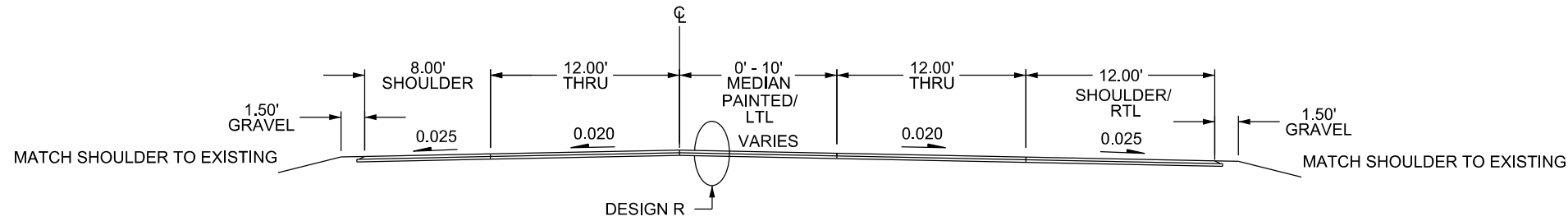
TABULATIONS

Sheet 3 of 32 Sheets

marichar

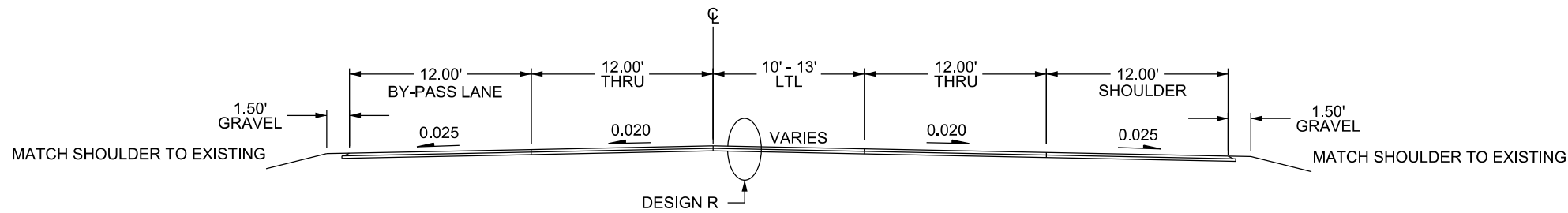
CSAH 17 - Lexington Ave EXISTING / PROPOSED SECTION

10+22.00 - 19+75.00

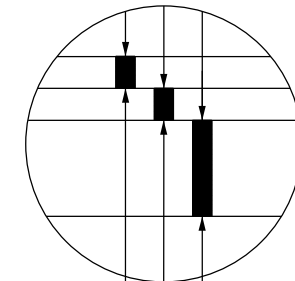


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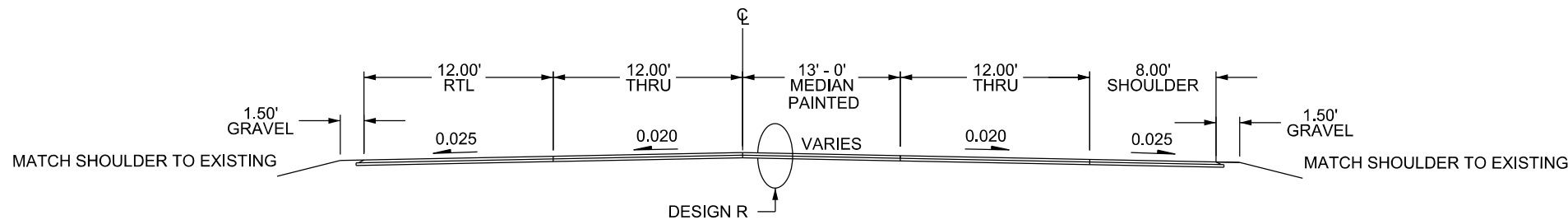
DESIGN R RECLAIM SECTION



2.0" BITUMINOUS WEAR(SPWEB440C)
 2.0" BITUMINOUS WEAR(SPWEB440C)
 RECLAIMED BITUMINOUS


CSAH 18 - Lexington Ave EXISTING / PROPOSED SECTION

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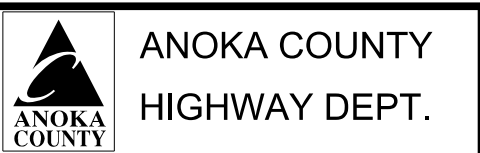


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STATE AID PROJECT 002-618-038
 STATE AID PROJECT 002-617-030

TYPICAL SECTIONS
 Sheet 4 of 32 Sheets

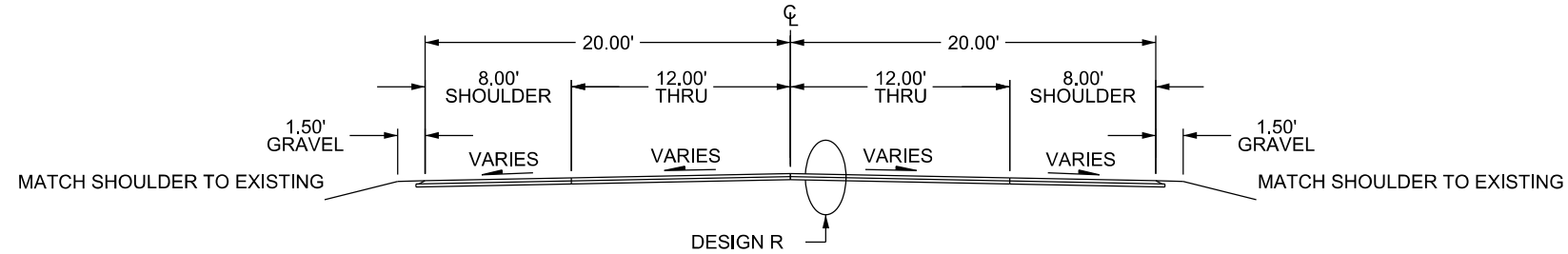
marichar

CSAH 18 - Lexington Ave

EXISTING / PROPOSED SECTION

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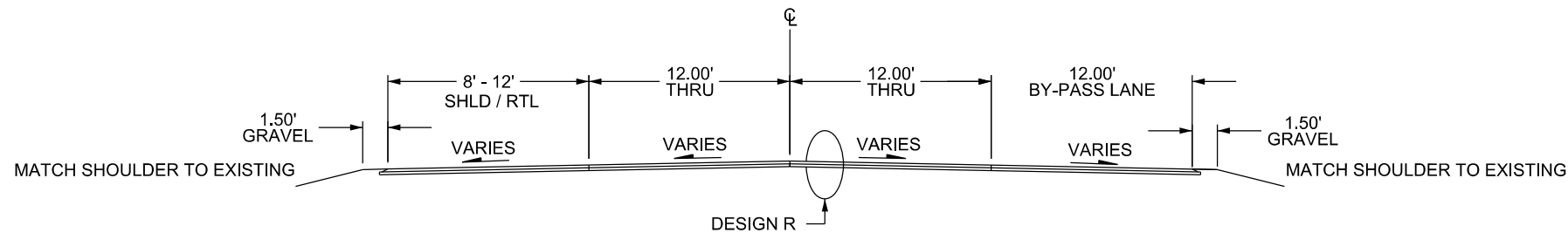
39+00.00 - 62+88.00



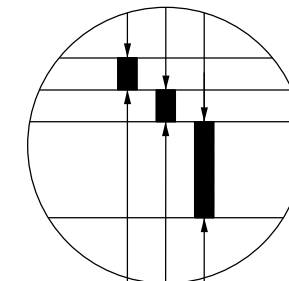
CSAH 18 - Lexington Ave

EXISTING / PROPOSED SECTION

32+40.00 - 39+00.00



DESIGN R RECLAIM SECTION

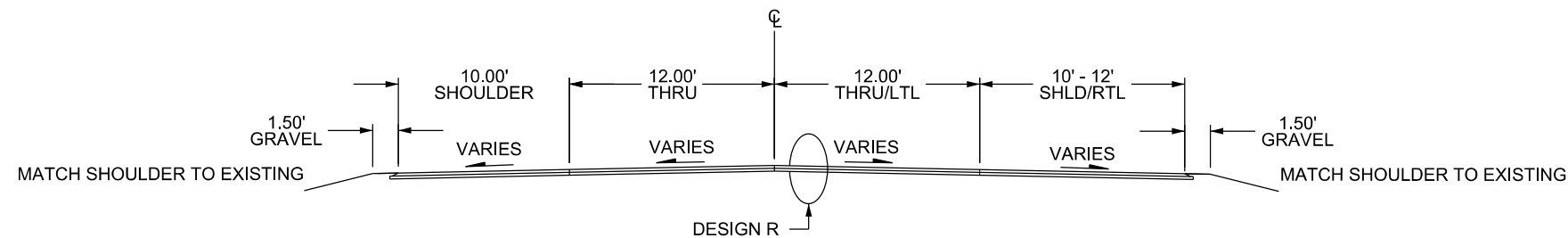


2.0" BITUMINOUS WEAR(SPWEB440C)
 2.0" BITUMINOUS WEAR(SPWEB440C)
 RECLAIMED BITUMINOUS

CSAH 18 - Crosstown Blvd


EXISTING / PROPOSED SECTION

208+30 - 212+47.00




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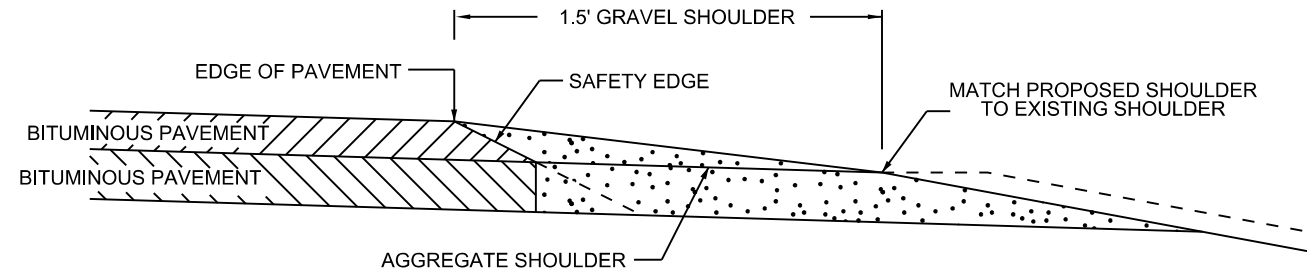
 ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-618-038
 STATE AID PROJECT 002-617-030

TYPICAL SECTIONS
 Sheet 5 of 32 Sheets

SHOULDER DETAIL

BITUMINOUS SAFETY EDGE
GRAVEL SHOULDER



SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

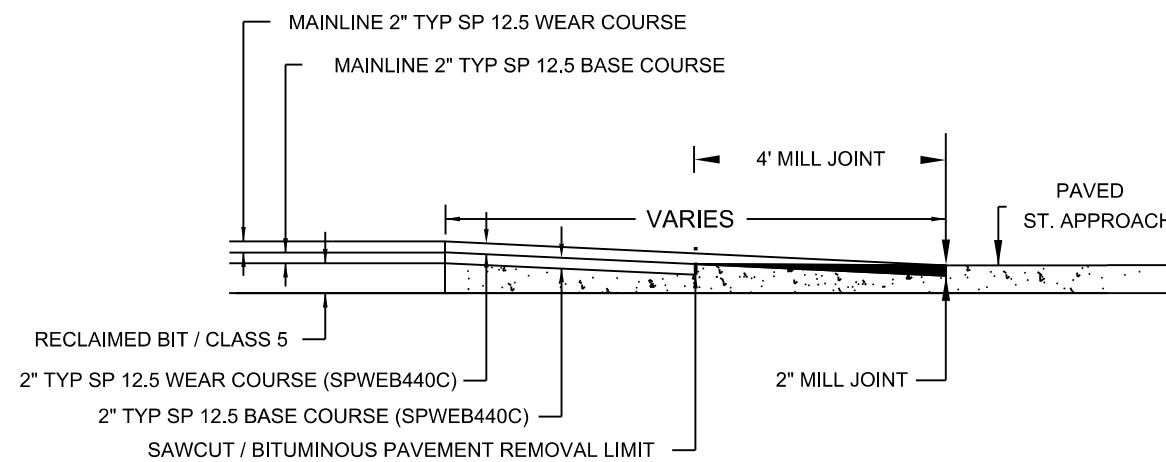
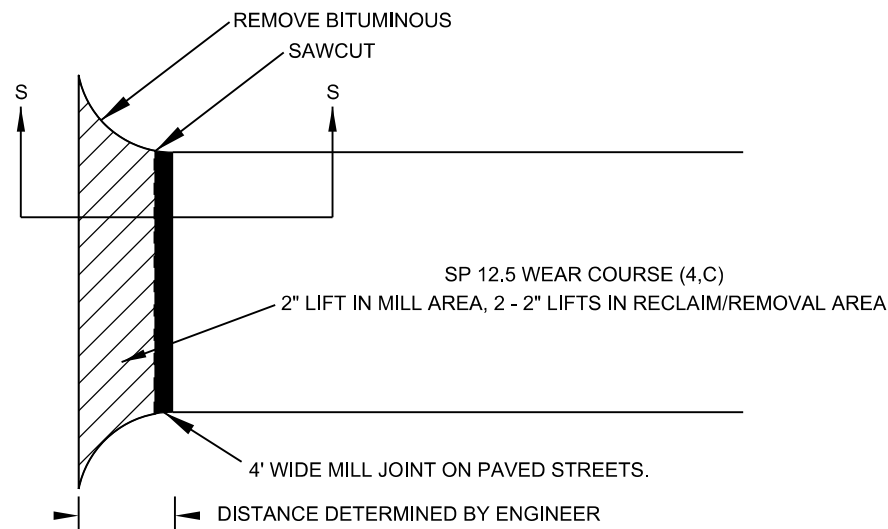
OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS .

STREET APPROACH DETAIL (RECLAIM)


PLAN VIEW

BITUMINOUS STREET


SECTION S - S



NO	DATE	BY	CKD	APPR	REVISION	03/02/2023	6:50:10 AM
NAME: P:\23-01-00\CSAH 17_(CSAH 18-1000' S CSAH 18)\Base\Proposed\CP.dgn							

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 ANOKA COUNTY
HIGHWAY DEPT.

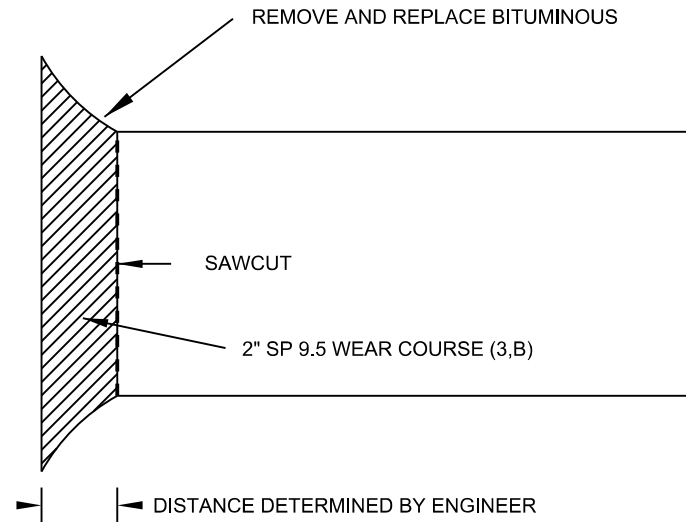
STATE AID PROJECT 002-618-038
 STATE AID PROJECT 002-617-030

DETAILS
 Sheet 6 of 32 Sheets

RECLAIM AREA - DRIVEWAY DETAIL

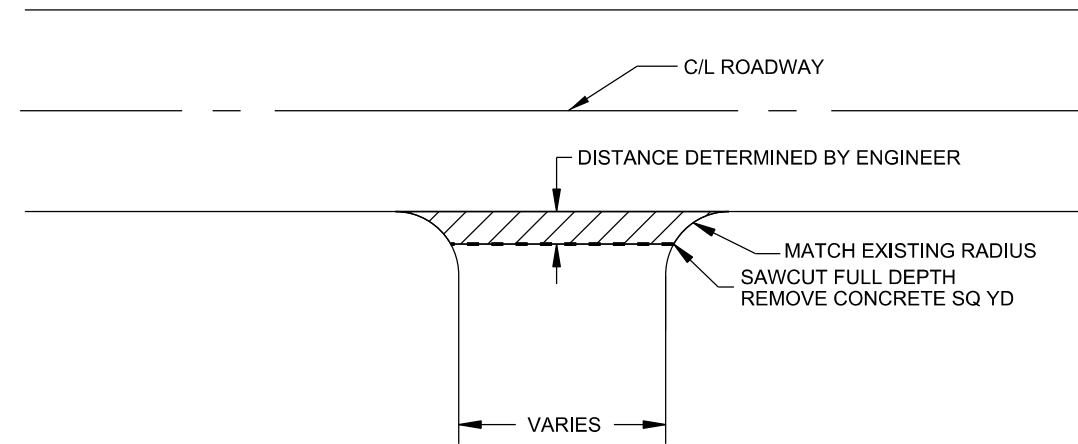
BITUMINOUS

PLAN VIEW



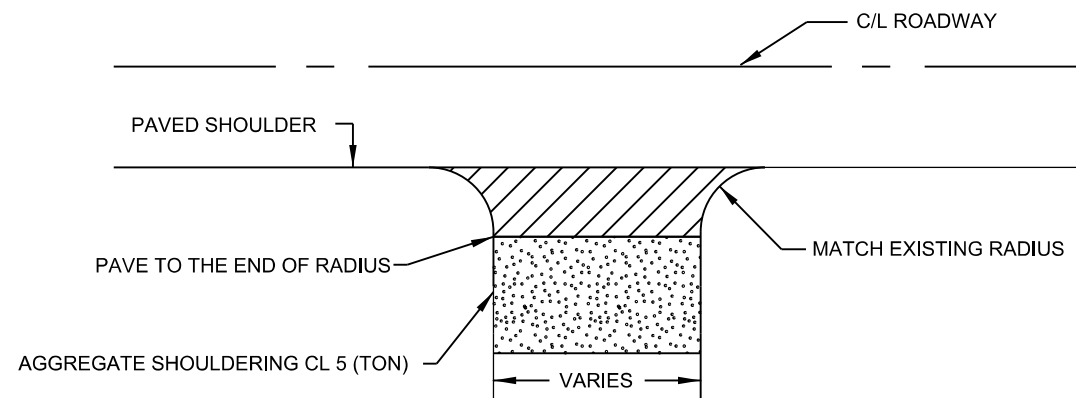
DRIVEWAY DETAIL

CONCRETE DRIVEWAY



STREET APPROACH DETAIL

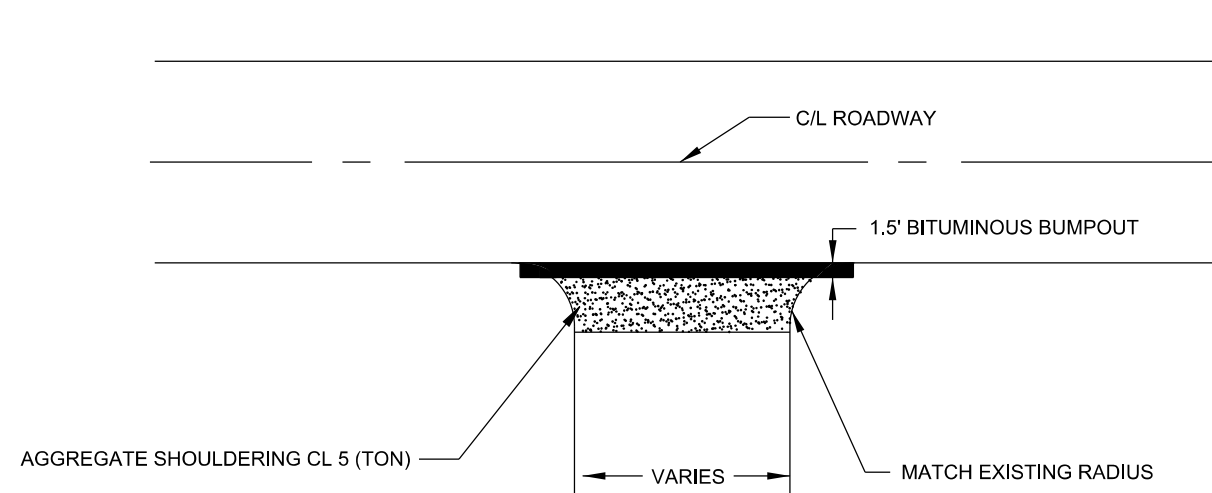
UNPAVED STREET (OPAL STREET)



UNPAVED STREET APPROCHES, PAVED SEPRATE FROM MAINLINE

DRIVEWAY DETAIL

GRAVEL / FIELD ENTRANCE



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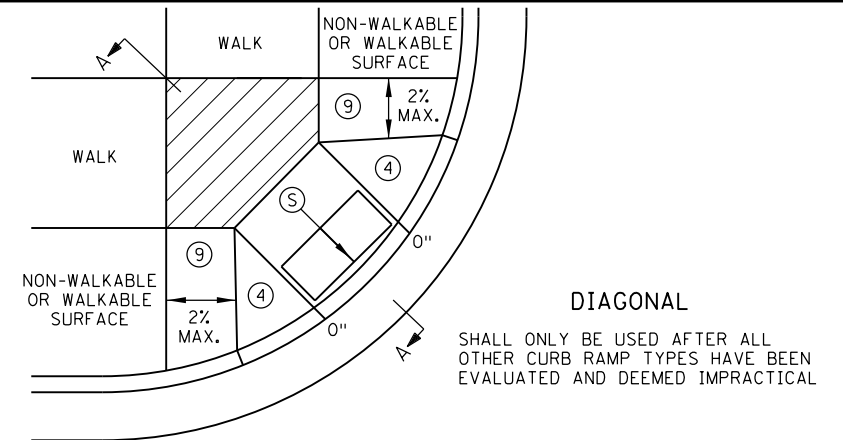
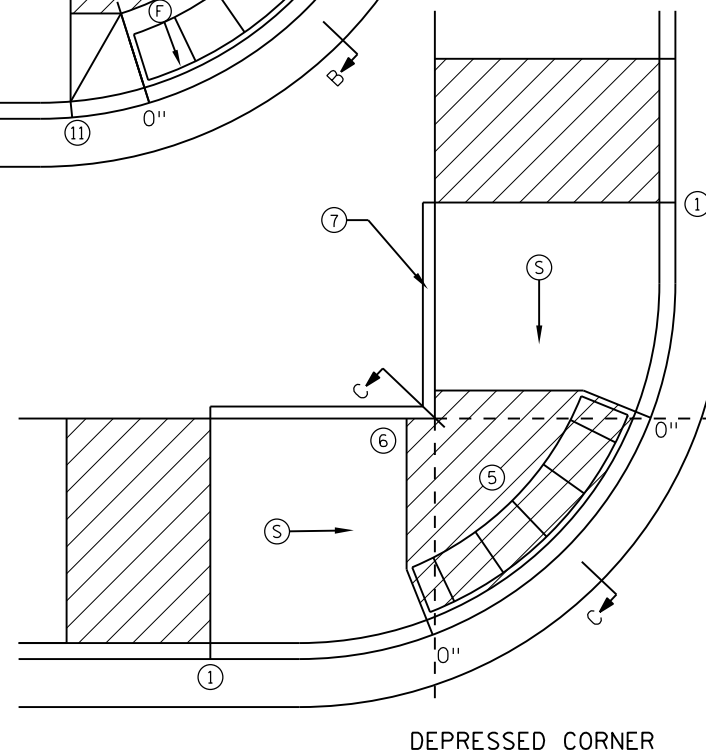
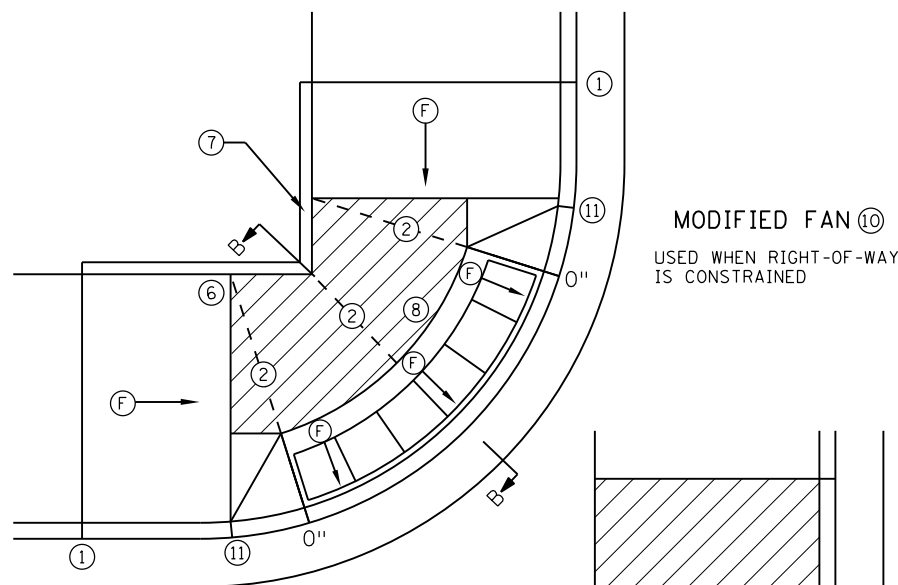
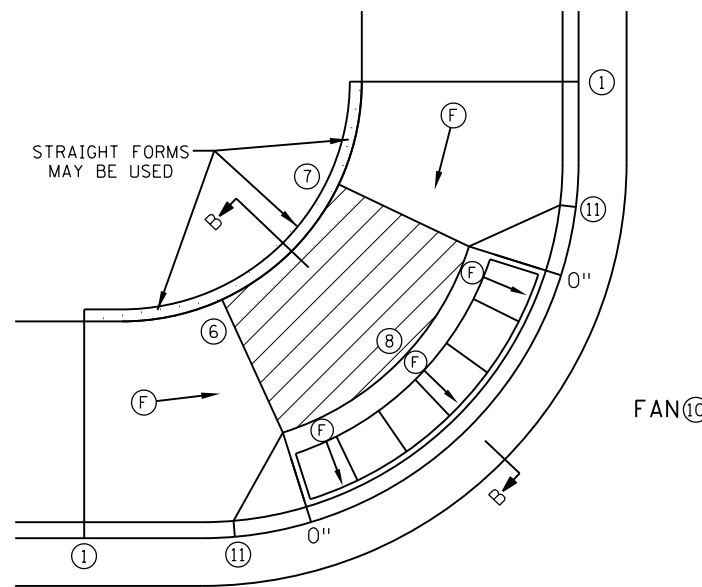
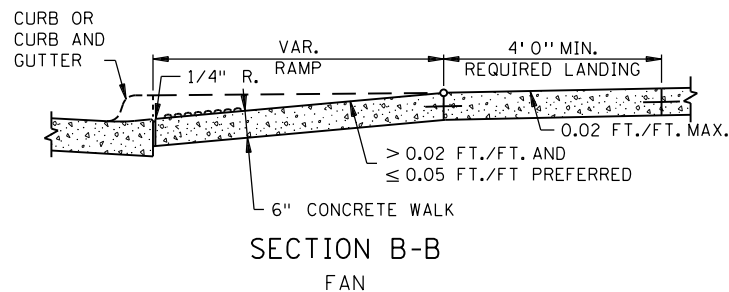
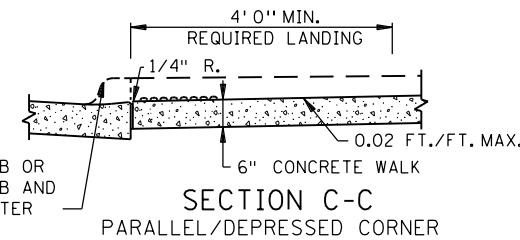
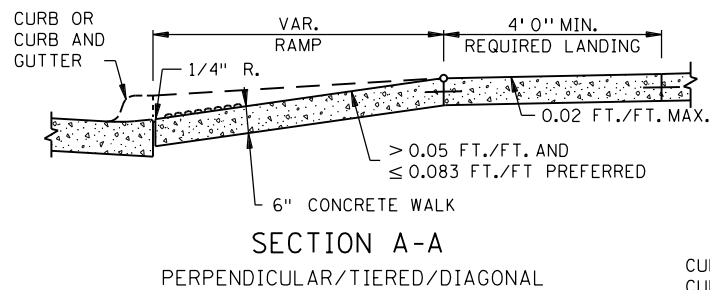
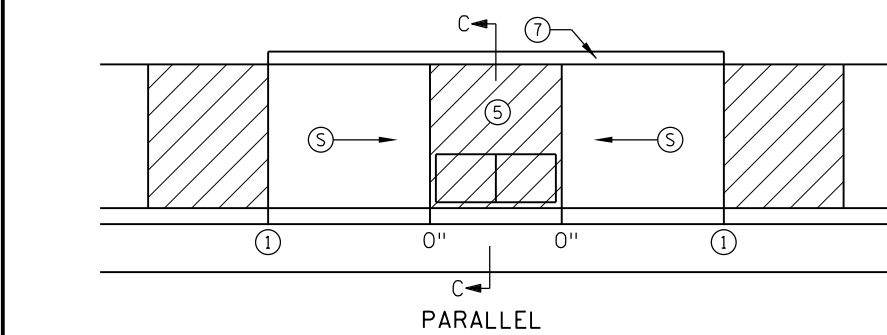
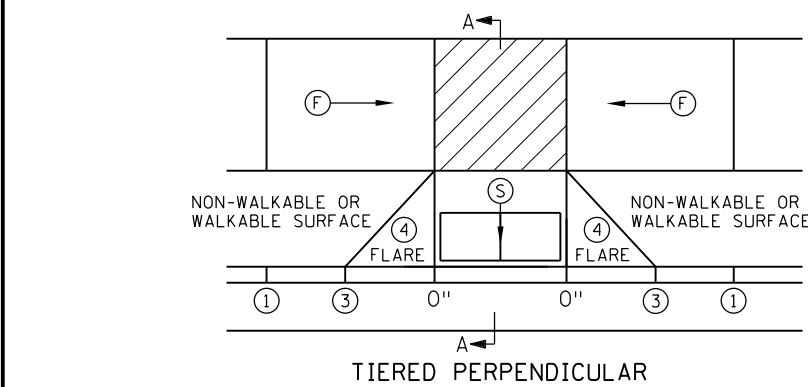
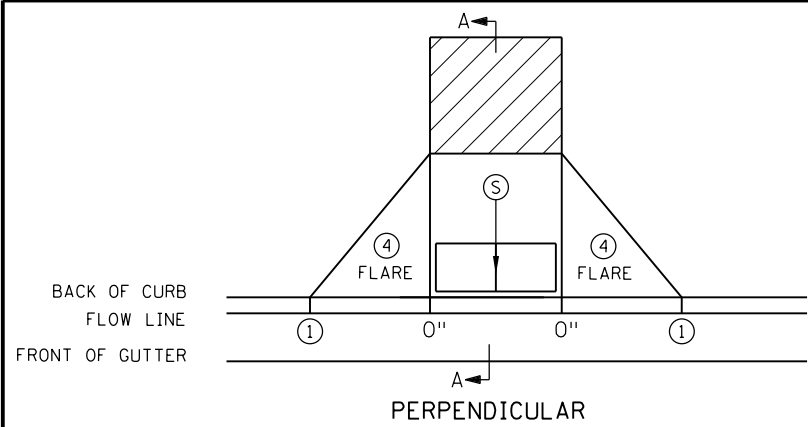
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-618-038

STATE AID PROJECT 002-617-030

PLOTTED/REVISED: 03/02/2023

DISTRICT #: PLOT NAME: \$\$\$\PLOT\NAME\$\$\$
PATH & FILENAME: P:\23-01-00\CSAH 17-(CSAH 18-1000) S CSAH 18\Base\Proposed\CF.dgn



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 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 SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.
- 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 THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.
- WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE 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.
- 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 LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑧ A 7' MIN TOP RADIUS GRADE BREAK IS 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.
- ⑪ INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

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 PAR.
	X" CURB HEIGHT

REVISION:

APPROVED: 11-04-2021

Jeffrey Perkins
JEFFREY PERKINS
OPERATIONS DIVISION

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DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 1 OF 6

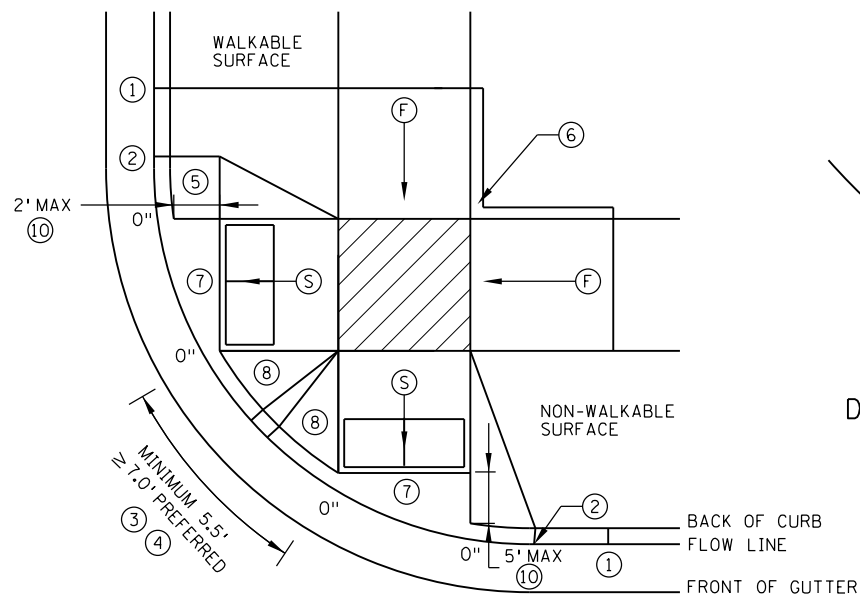
APPROVED: 11-04-2021
REVISED:

Thomas Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

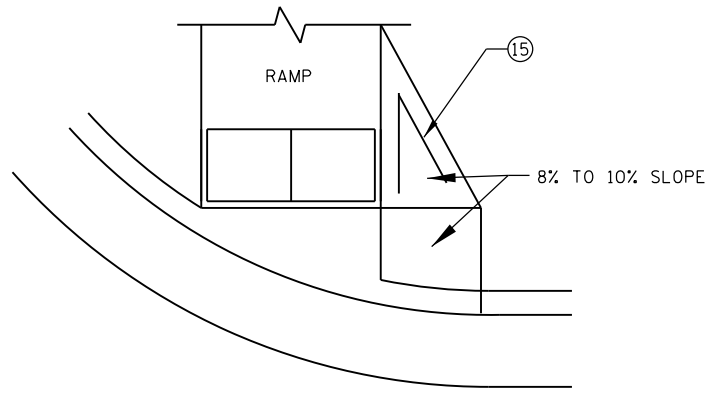
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 03/02/2023

DISTRICT #: PLOT NAME: \$\$\$@PLOT\$NAME\$\$\$
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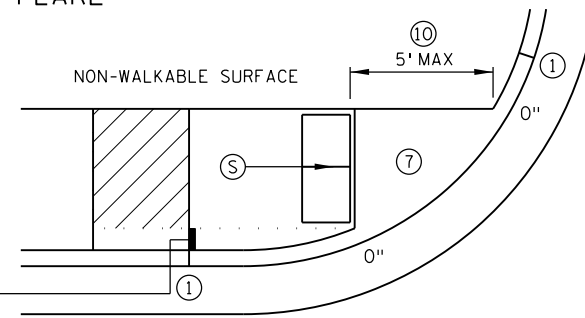


COMBINED DIRECTIONAL

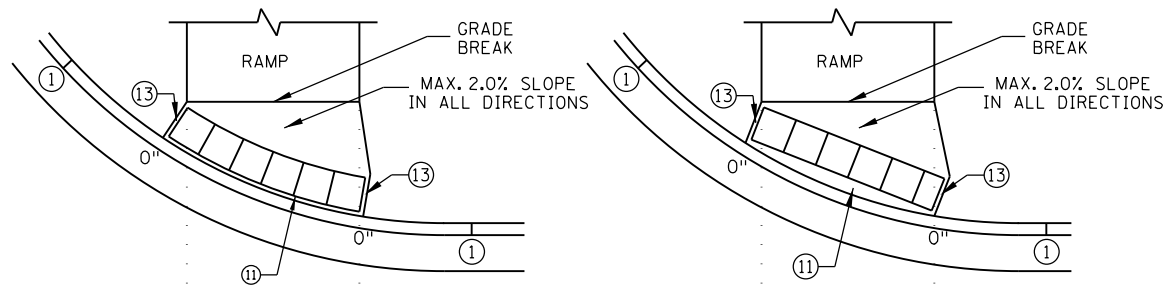


DIRECTIONAL RAMP WALKABLE FLARE

IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.

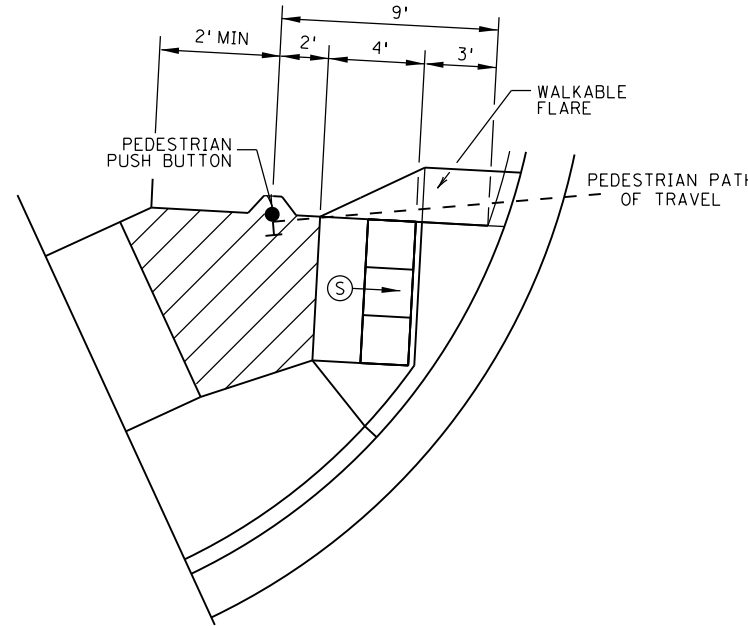


STANDARD ONE-WAY DIRECTIONAL ⑨



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



SEMI-DIRECTIONAL RAMP ③④⑨

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)

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 THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE 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 SHALL 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.
- ⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND

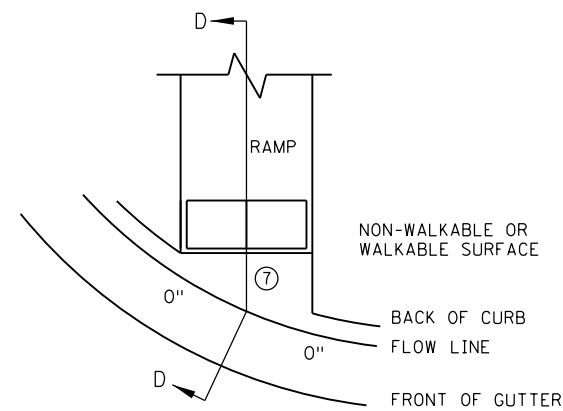
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

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%.

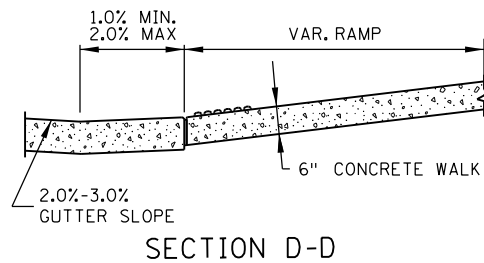
⑥ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

⑦ 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



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D

REVISION:

APPROVED: 11-04-2021

Jeff J. Perkins
JEFFREY PERKINS
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

2 OF 6

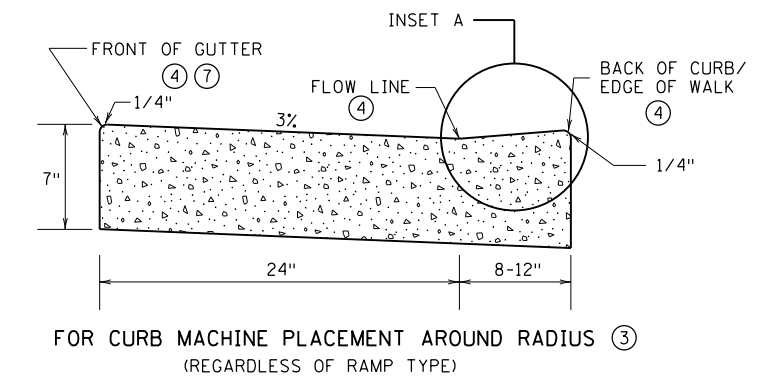
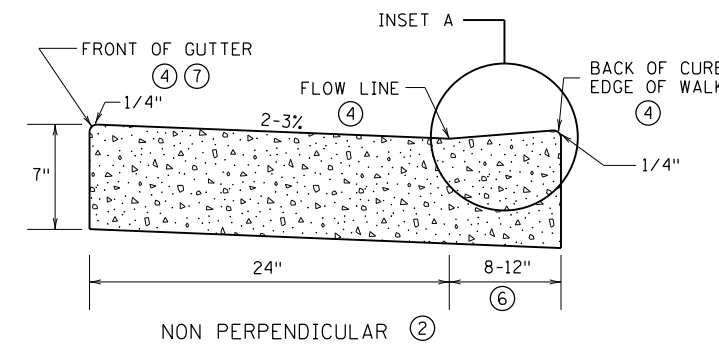
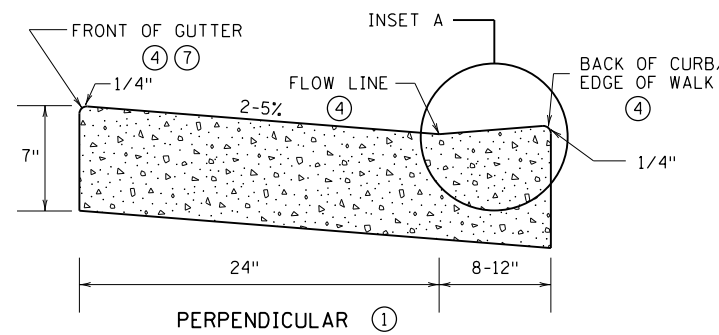
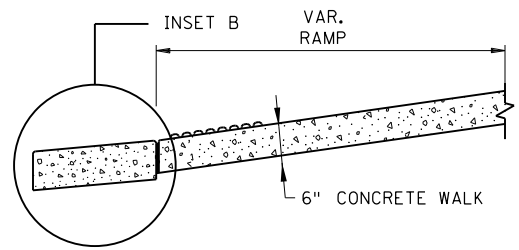
Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 11-04-2021
REVISED:

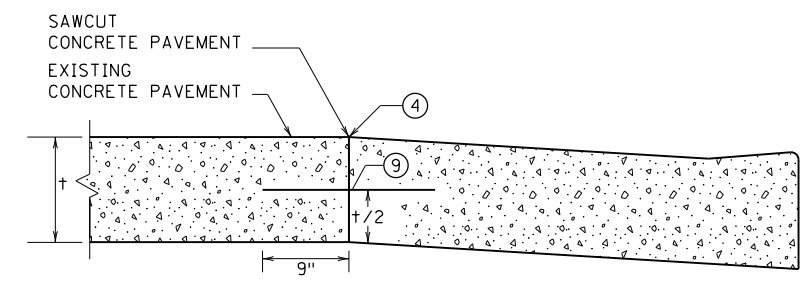
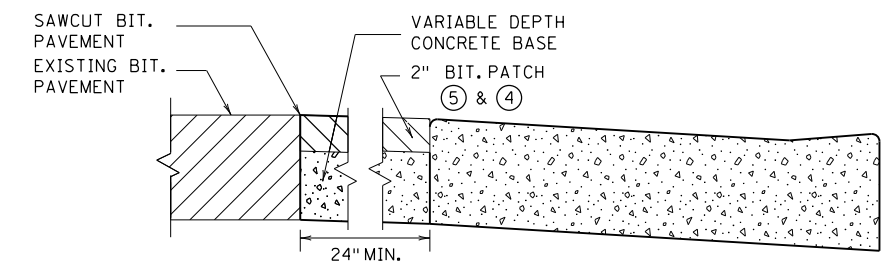
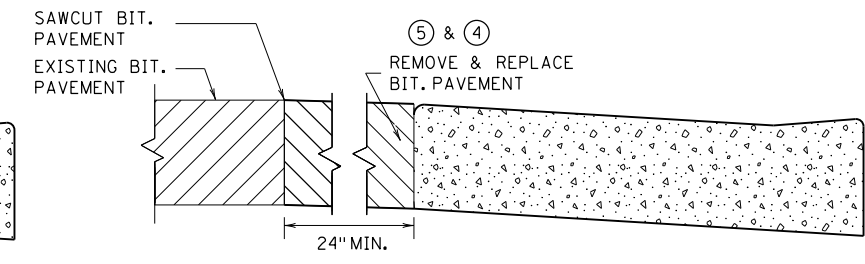
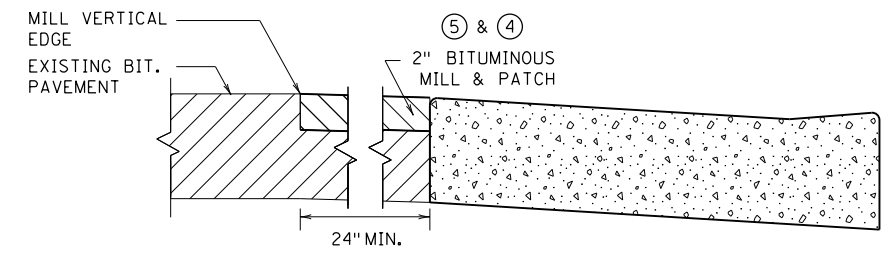
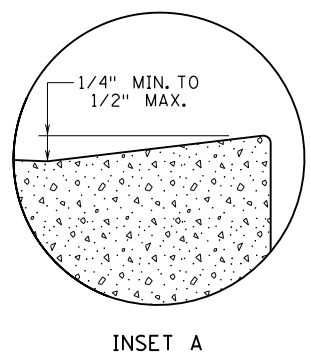
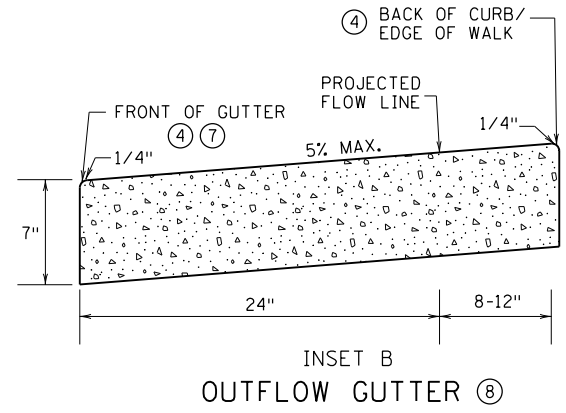
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 03/02/2023

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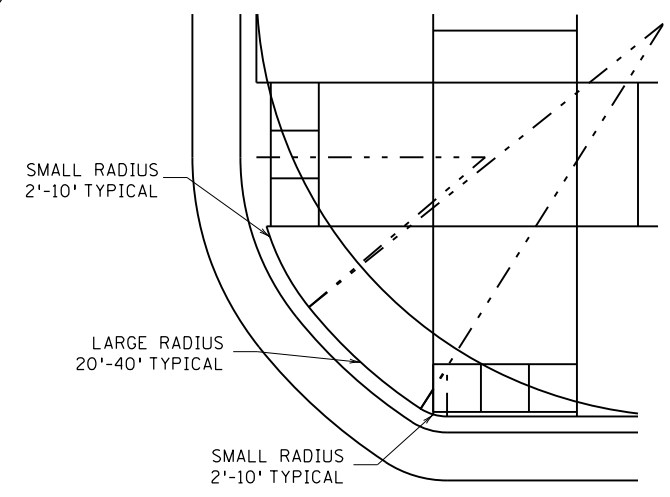
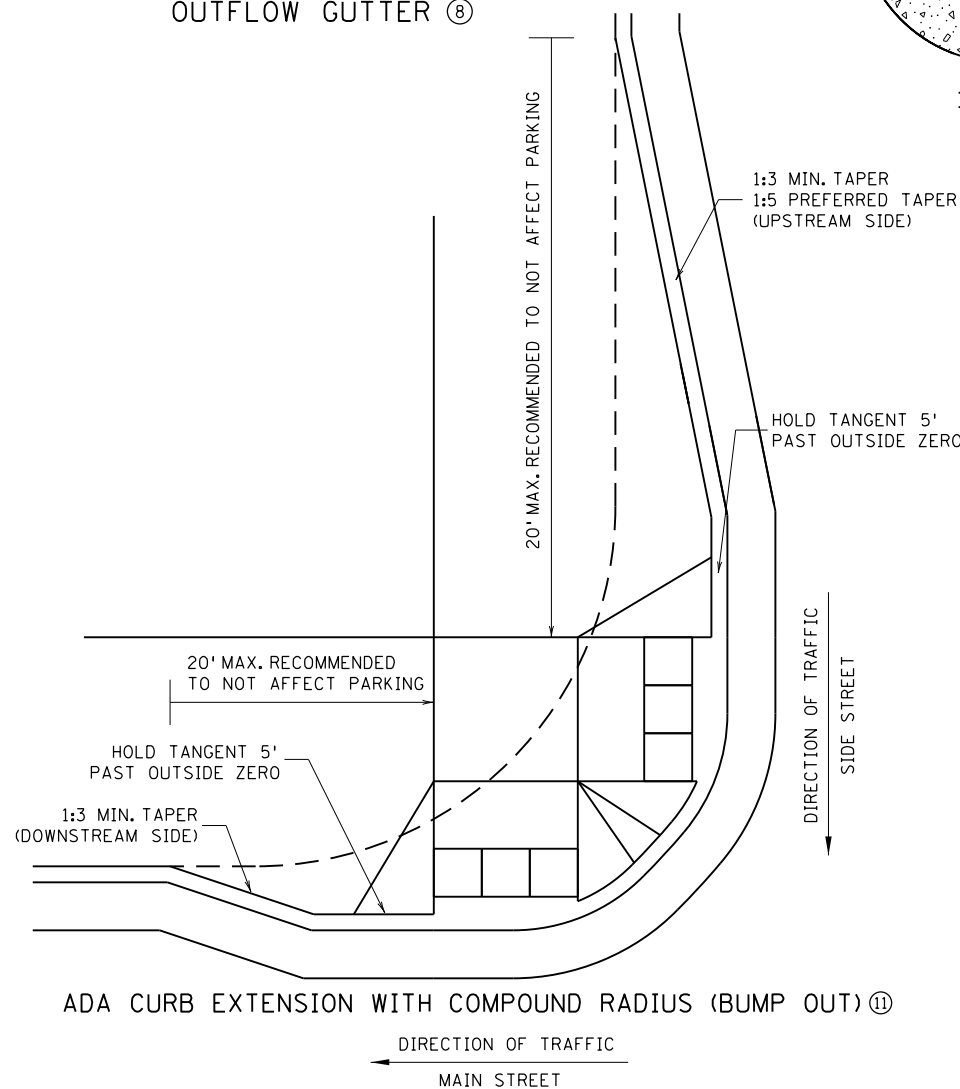


PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER FOR USE ON CURB RAMP RETROFITS



COMBINED DIRECTIONAL (COMPOUND RADIUS)

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 RAMPS. 2) FOR USE AT CURB RAMPS 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 RAMPS. 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.

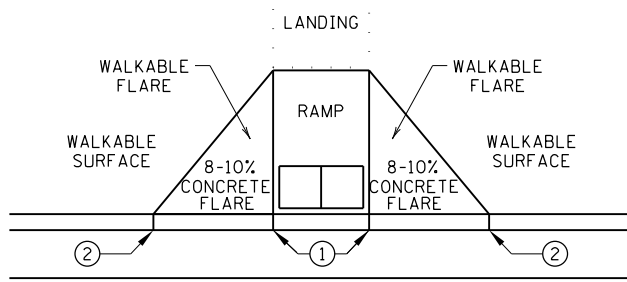
REVISION: APPROVED: 11-04-2021 Jeff J. Perkins OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLAN 5-297.250 3 OF 6 APPROVED: 11-04-2021 REVISOR: Thomas Styrbicki STATE DESIGN ENGINEER

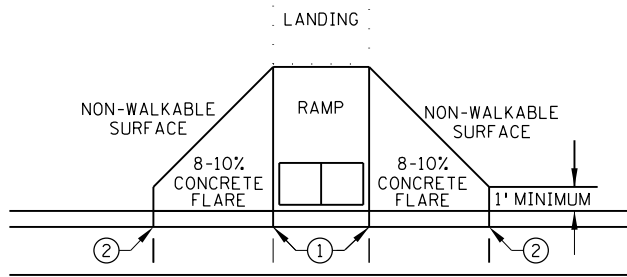
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 03/02/2023

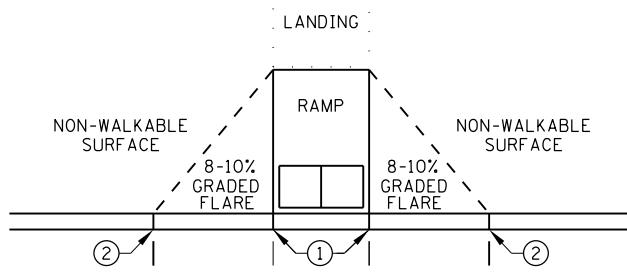
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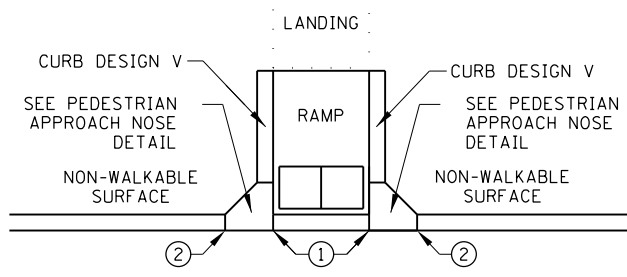
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

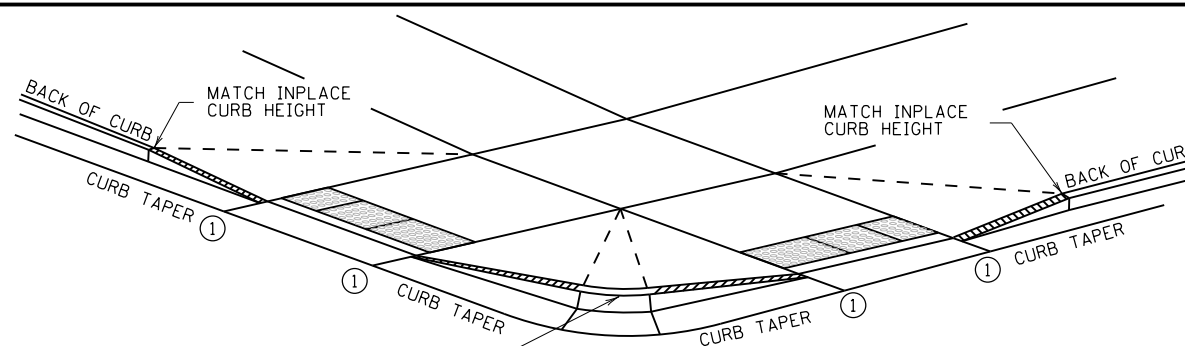


GRADED FLARES



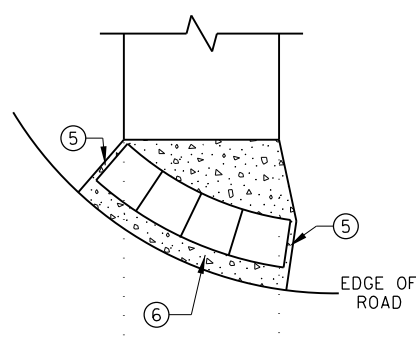
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

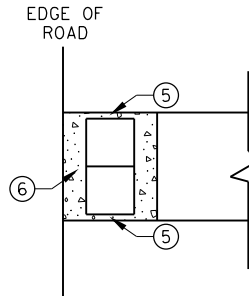


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH
CURB AND GUTTER ⑦

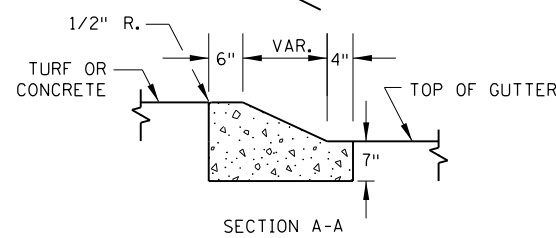
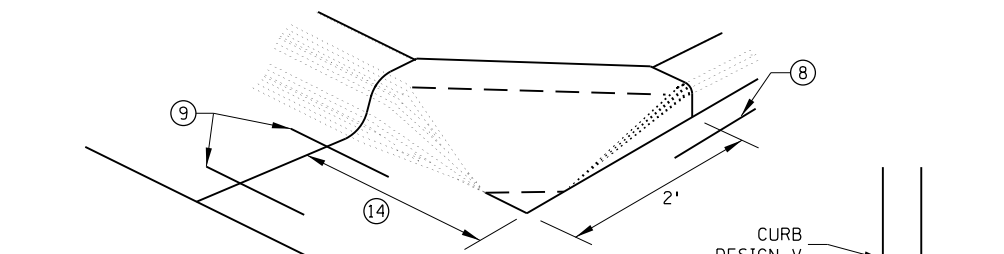


RADIAL DETECTABLE WARNING

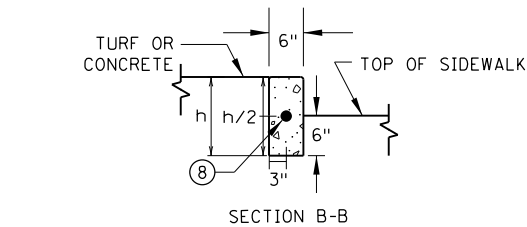


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

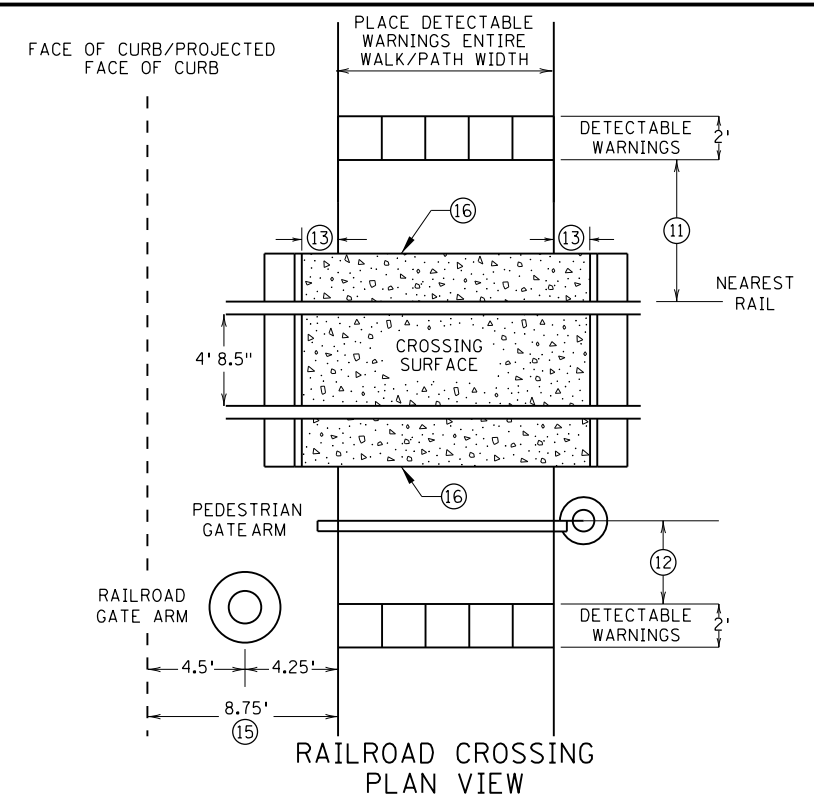


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

- INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.
- 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. SEE INSET A ON SHEET 3 OF 6.
- ② FULL CURB HEIGHT.
- ③ 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.
- ④ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑤ 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.
- ⑥ 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.
- ⑦ 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.
- ⑧ 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.
- ⑨ 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.
- ⑩ 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. CONSTRUCT THESE TAPERS AT 0" -3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.
- ⑪ 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.
- ⑫ 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 ⑪.
- ⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑮ 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.
- ⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

REVISION:
 APPROVED: 11-04-2021
 Jeff J. Pel
 JEFFREY PERKINS
 OPERATIONS DIVISION

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STANDARD PLAN 5-297.250

4 OF 6

Tom Strybicki
 THOMAS STRYBICKI
 STATE DESIGN ENGINEER

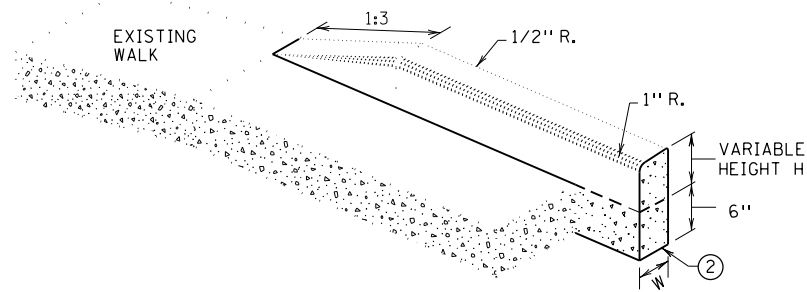
APPROVED: 11-04-2021
 REVISED:

PEDESTRIAN CURB RAMP DETAILS

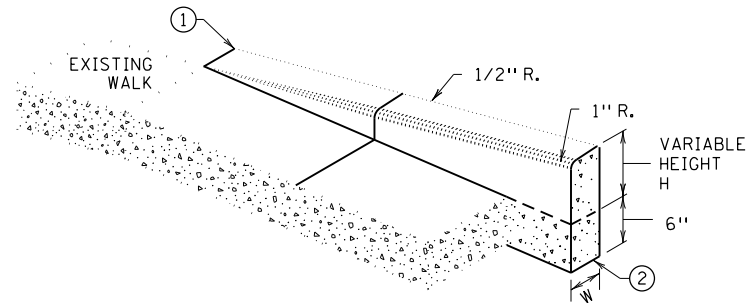
STATE AID PROJ. NO. 002-618-038 & 002-617-030 SHEET NO. 12 OF 32 SHEETS

PLOTTED/REVISED: 03/02/2023

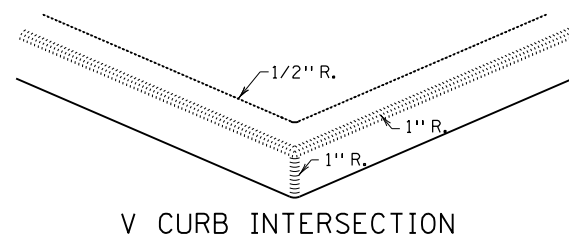
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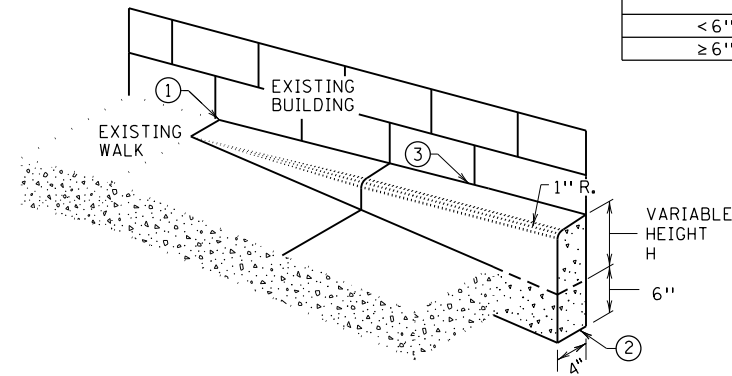
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

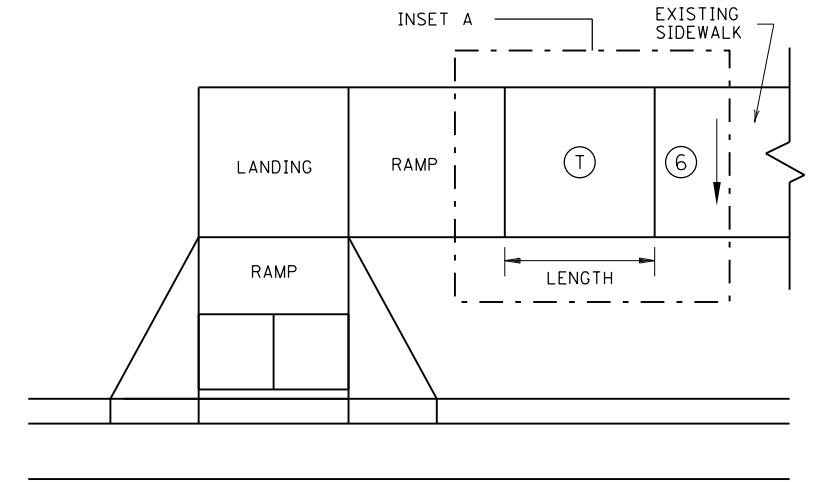


V CURB INTERSECTION

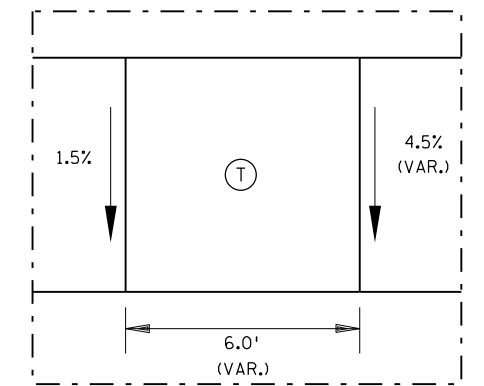


V CURB ADJACENT TO BUILDING
OR BARRIER

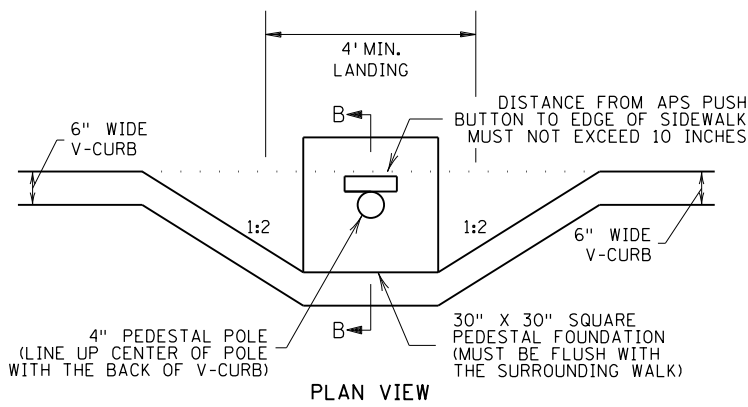
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



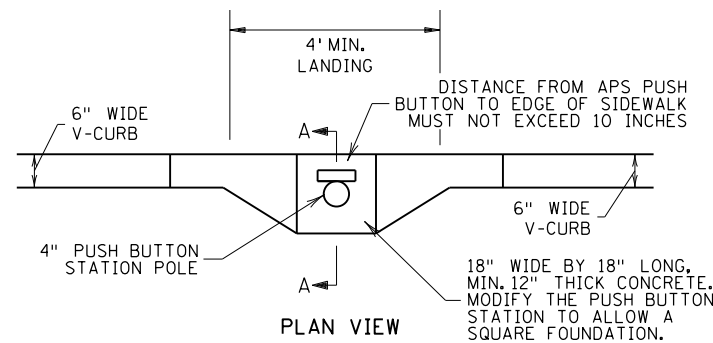
TRANSITION PANEL ④ ⑤



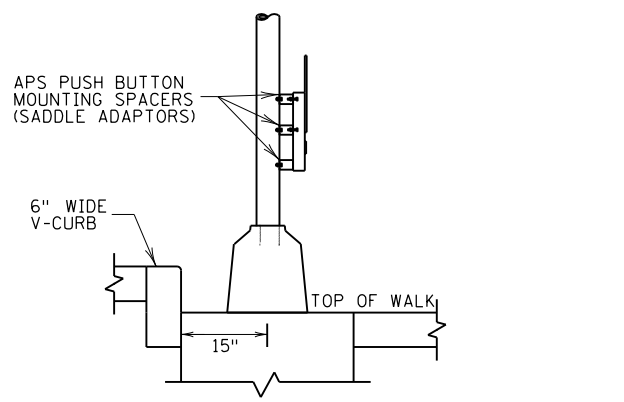
INSET A



PLAN VIEW

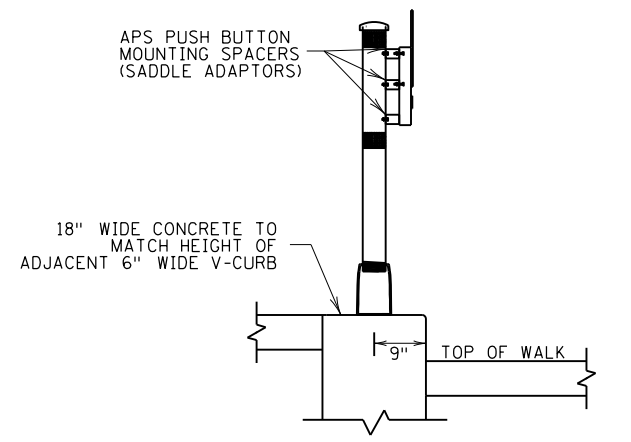


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

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 CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
- 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.
- Ⓢ 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 PARS.
 - Ⓣ 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: 11-04-2021
 Jeff J. Perkins
 OPERATIONS DIVISION

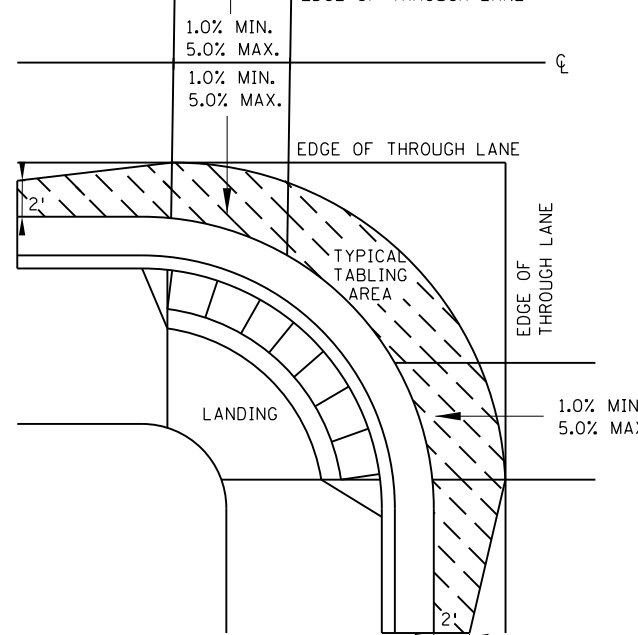
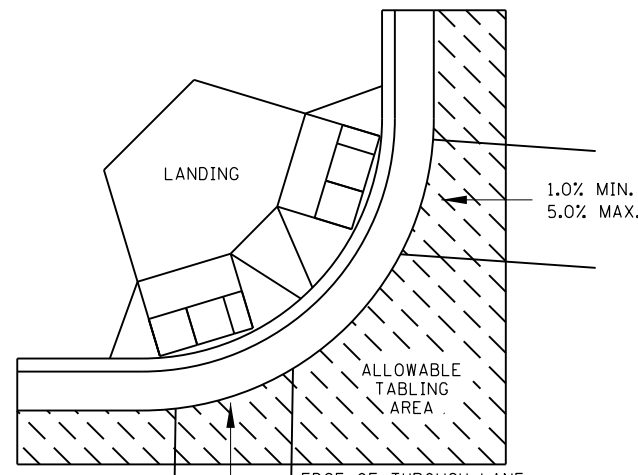
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 OF
 TRANSPORTATION

STANDARD PLAN 5-297.250 5 OF 6
 APPROVED: 11-04-2021
 REVISED:
 THOMAS STYRBICKI
 STATE DESIGN ENGINEER

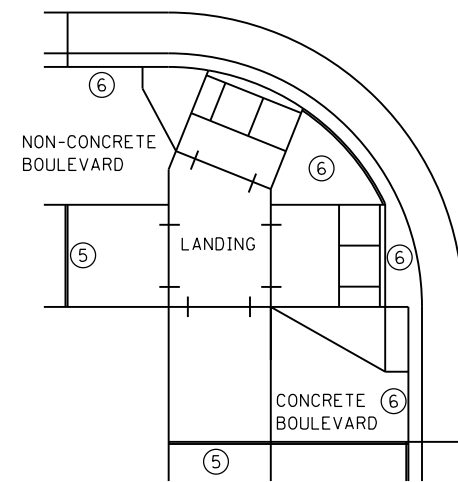
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 03/02/2023

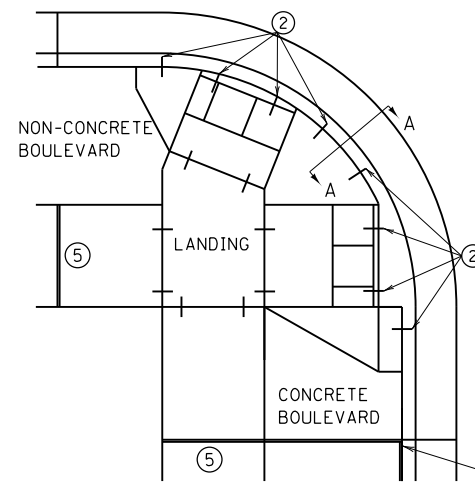
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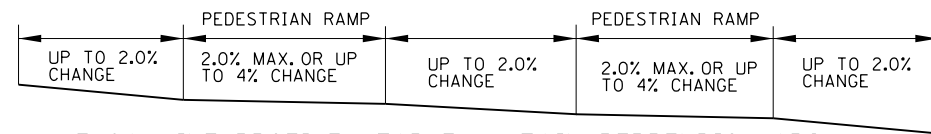
CURB LINE AND ROAD CROSSING ADJUSTMENTS



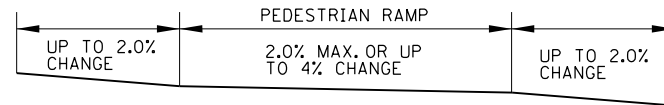
EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS



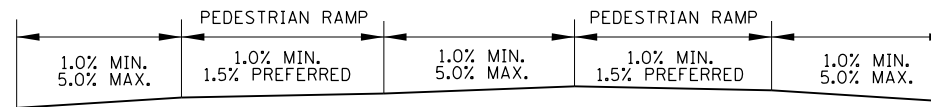
CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



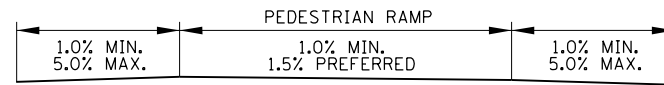
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



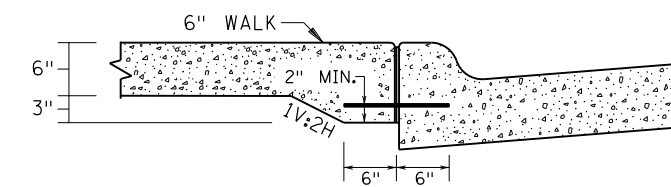
FLOW LINE PROFILE "TABLE" - FAN



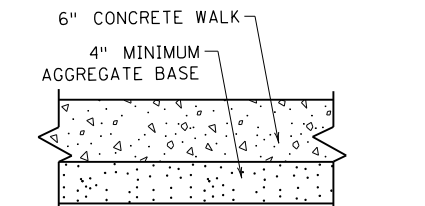
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



FLOW LINE PROFILE RAISE - FAN

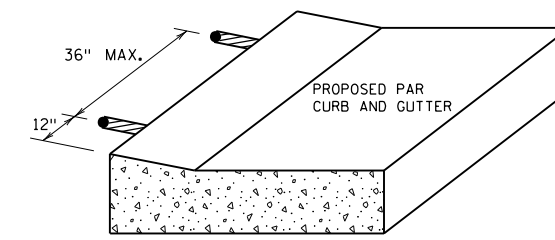


SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES

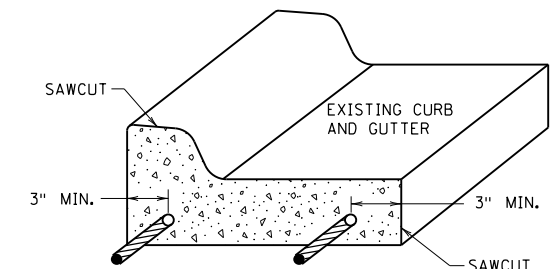


TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

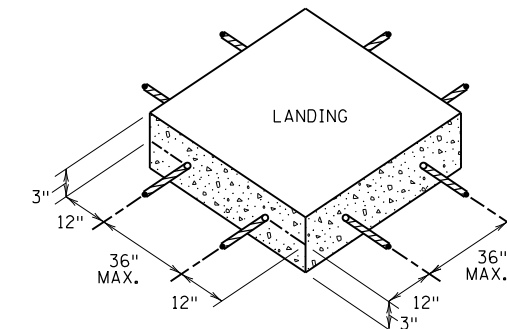
END SILL CURB AT TOP OF CURB RAMP AND DRIVEWAY FLARES.



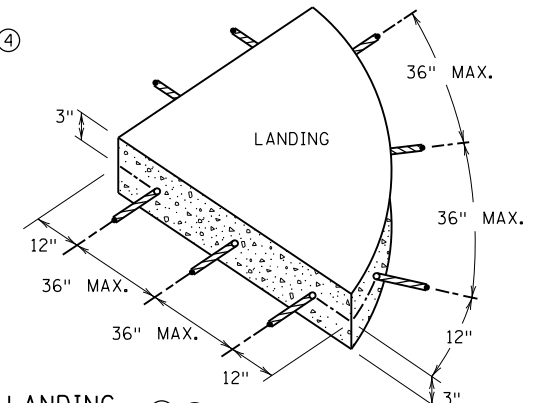
CURB RAMP REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



GENERAL NOTES:

"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

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 (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.
- 3) DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.
- 4) THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.
- 5) CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
- 6) USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021

Jeff J. Pel
JEFF PERKINS
OPERATIONS DIVISION

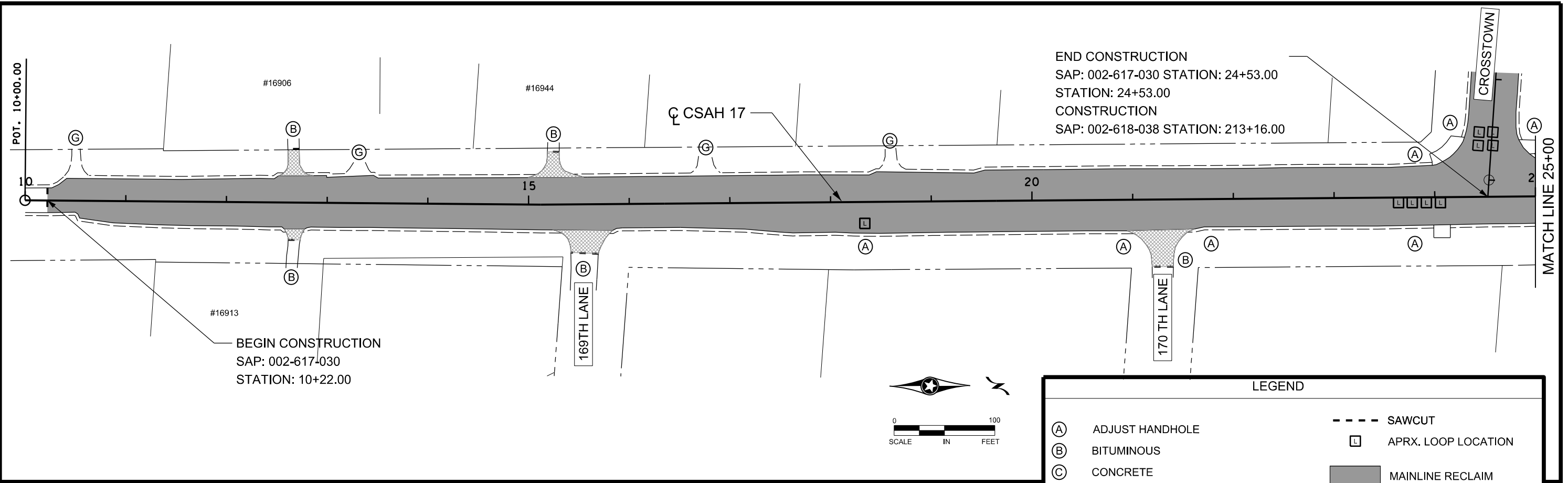
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STANDARD PLAN 5-297.250 6 OF 6

APPROVED: 11-04-2021
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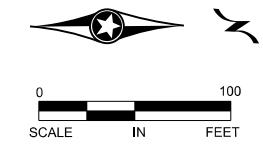
Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

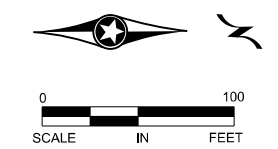
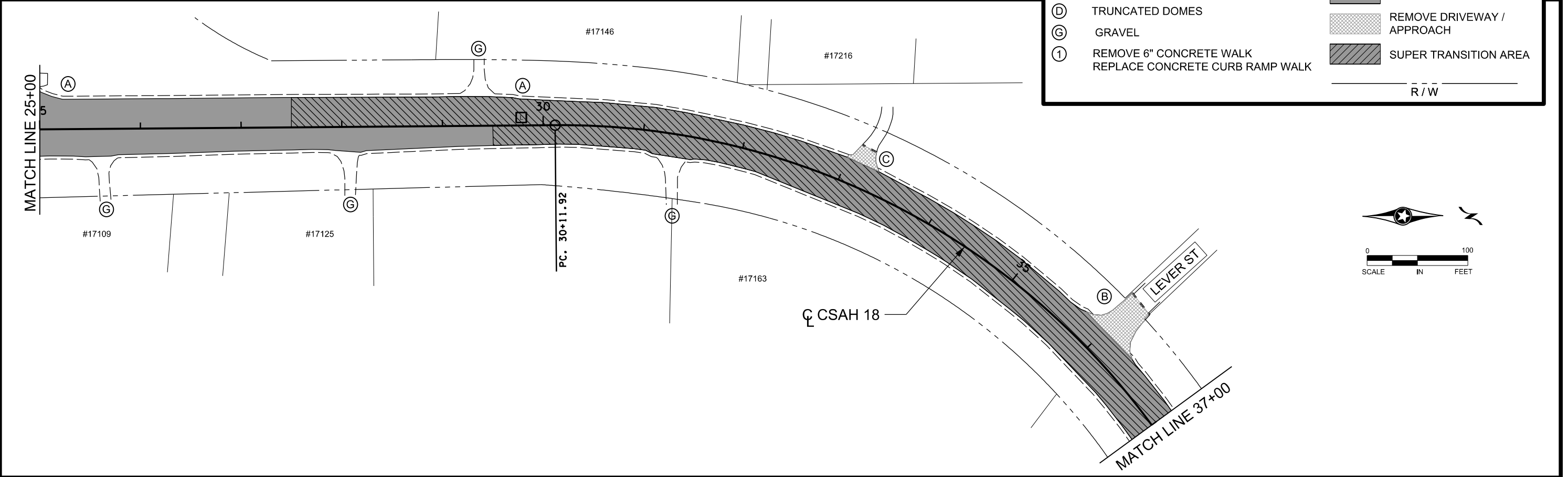


END CONSTRUCTION
 SAP: 002-617-030 STATION: 24+53.00
 STATION: 24+53.00
 CONSTRUCTION
 SAP: 002-618-038 STATION: 213+16.00

BEGIN CONSTRUCTION
 SAP: 002-617-030
 STATION: 10+22.00



LEGEND			
(A)	ADJUST HANDHOLE	---	SAWCUT
(B)	BITUMINOUS	□	APRX. LOOP LOCATION
(C)	CONCRETE	■	MAINLINE RECLAIM
(D)	TRUNCATED DOMES	▨	REMOVE DRIVEWAY / APPROACH
(G)	GRAVEL	▩	SUPER TRANSITION AREA
(1)	REMOVE 6" CONCRETE WALK REPLACE CONCRETE CURB RAMP WALK	— R / W —	

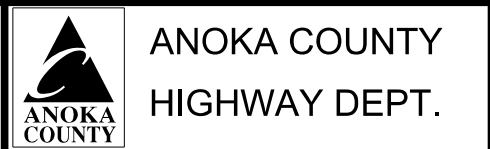


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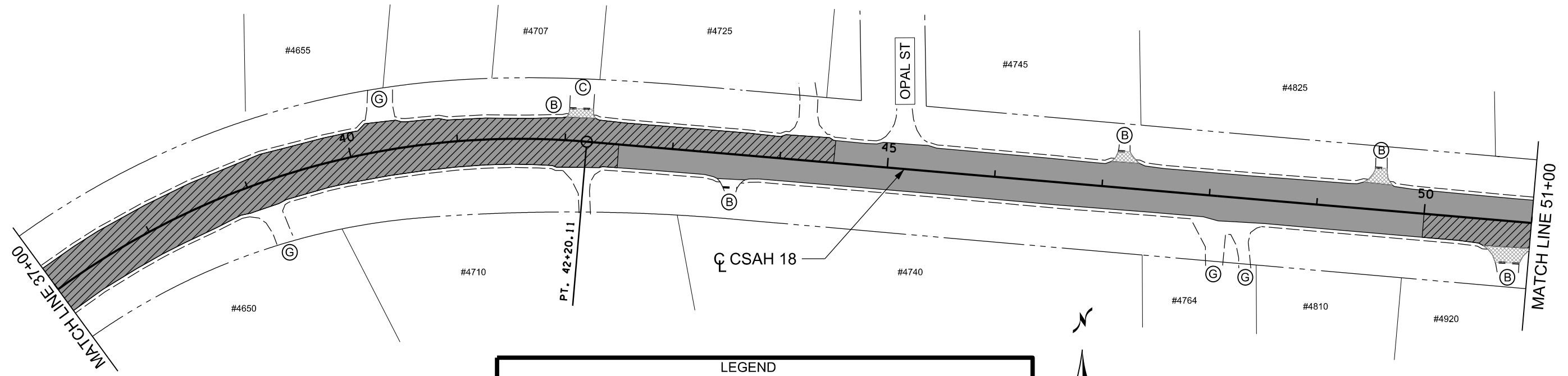
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: GERALD J. AUGER JR.
 SIGNATURE: *[Signature]*
 DATE: 03/01/2023 LICENSE NO. 26511

DRAWN BY: KPR DATE: 02/01/2023
 DESIGN BY: KPR DATE: 02/01/2023
 CHECKED BY: CO DATE: 02/28/2023



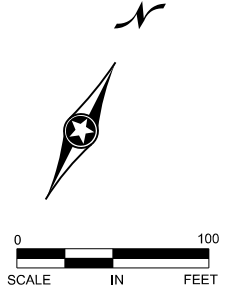
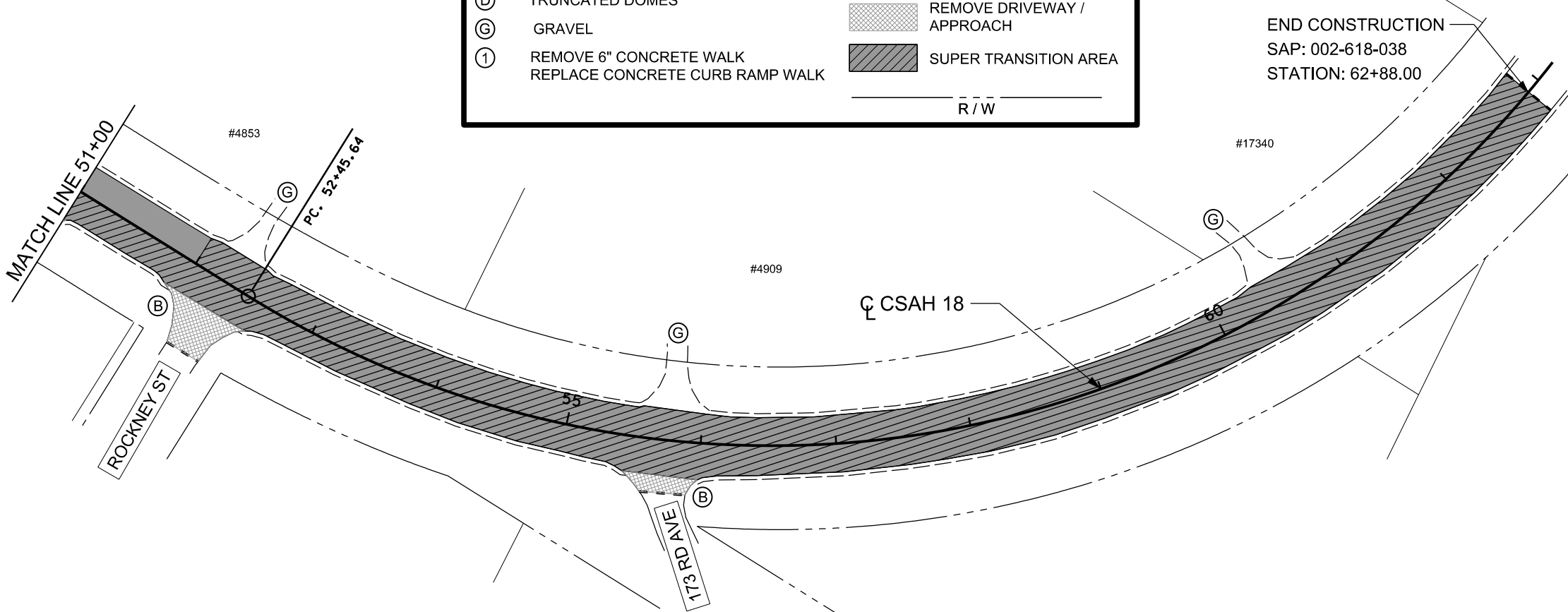
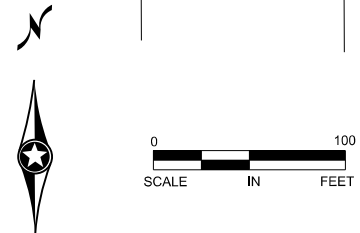
STATE AID PROJECT 002-618-038
 STATE AID PROJECT 002-617-030

CONSTRUCTION PLAN
 STA 10+22.00 TO 37+00.00
 Sheet 15 of 32 Sheets



LEGEND

(A) ADJUST HANDHOLE	--- SAWCUT
(B) BITUMINOUS	[L] APRX. LOOP LOCATION
(C) CONCRETE	[Solid Grey] MAINLINE RECLAIM
(D) TRUNCATED DOMES	[Cross-hatch] REMOVE DRIVEWAY / APPROACH
(G) GRAVEL	[Diagonal Hatch] SUPER TRANSITION AREA
(1) REMOVE 6" CONCRETE WALK REPLACE CONCRETE CURB RAMP WALK	— R / W —



NO	DATE	BY	CKD	APPR	REVISION	
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PRINT NAME: GERALD J. AUGER JR.

SIGNATURE:

DATE: 03/01/2023 LICENSE NO. 26511

DRAWN BY KPR DATE 02/01/2023

DESIGN BY KPR DATE 02/01/2023

CHECKED BY CO DATE 02/28/2023

**ANOKA COUNTY
HIGHWAY DEPT.**

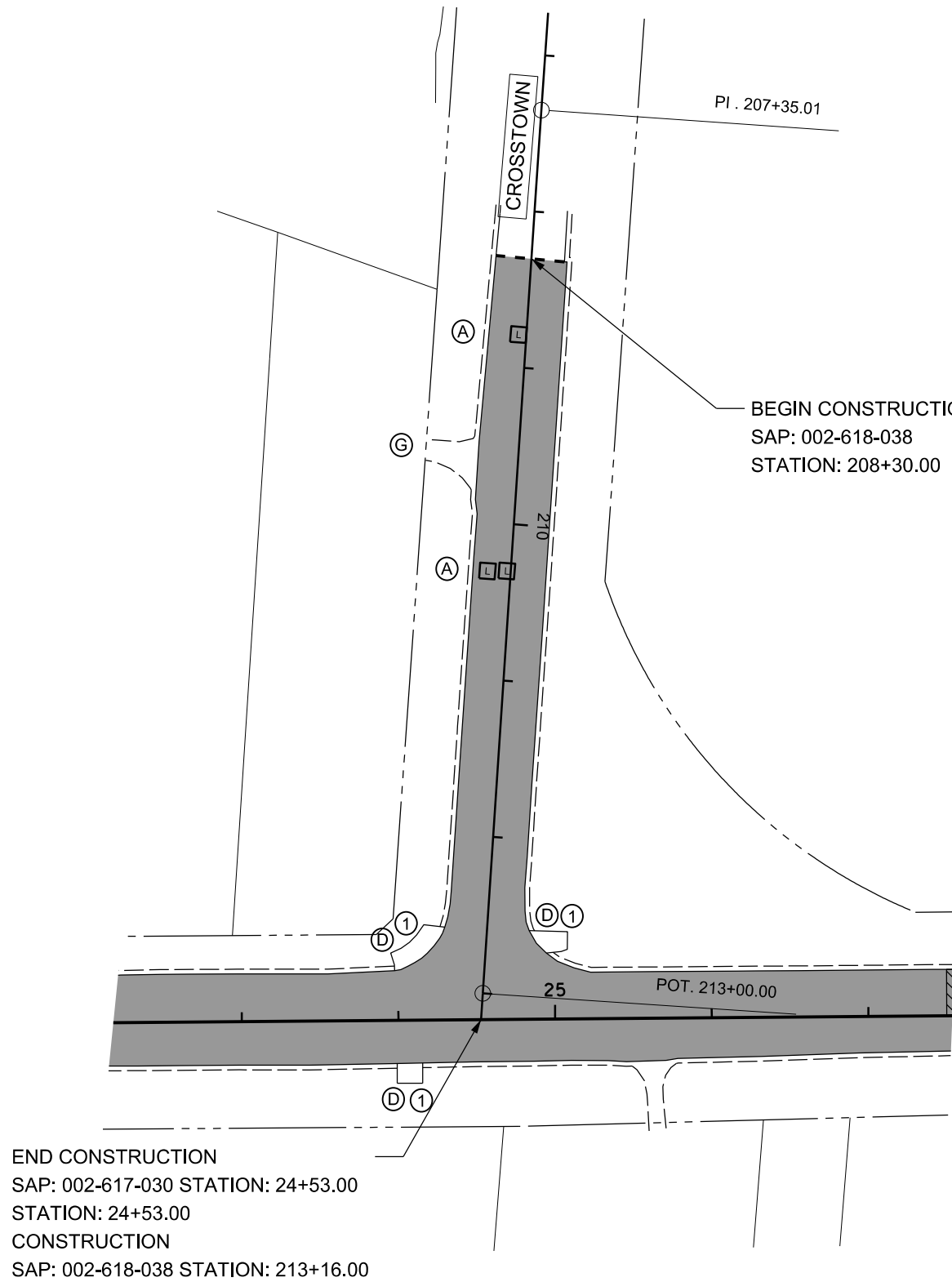
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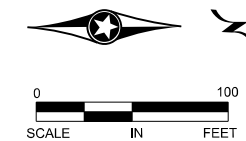
CONSTRUCTION PLAN

STA 37+00.00 TO 62+88.00

Sheet 16 of 32 Sheets



LEGEND			
(A)	ADJUST HANDHOLE	---	SAWCUT
(B)	BITUMINOUS	□	APRX. LOOP LOCATION
(C)	CONCRETE	■	MAINLINE RECLAIM
(D)	TRUNCATED DOMES	▨	REMOVE DRIVEWAY / APPROACH
(G)	GRAVEL	▩	SUPER TRANSITION AREA
(1)	REMOVE 6" CONCRETE WALK REPLACE CONCRETE CURB RAMP WALK	— — — — —	R/W



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CHECKED BY CO DATE 02/28/2023

**ANOKA COUNTY
HIGHWAY DEPT.**

STATE AID PROJECT 002-618-038

STATE AID PROJECT 002-617-030

CONSTRUCTION PLAN
CROSSTOWN STUB TO CSAH 17 / 18

Sheet 17 of 32 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 BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI COMP LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

A MULTI COMP LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE. GLASS BEADS SHALL BE APPLIED AT A MINIMUM RATE OF 25LBS 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	NOTES
4" SOLID LINE MULTICOMP GROUND IN (WR) (WHITE)	LIN FT	12607	
4" SOLID LINE MULTICOMP GROUND IN (WR) (YELLOW)	LIN FT	515	
4" BROKEN LINE MULTICOMP GROUND IN (WR) (YELLOW)	LIN FT	110	1
8" DOTTED LINE MULTICOMP GROUND IN (WR) (WHITE)	LIN FT	72	2
4" SOLID DBL LINE MULTICOMP GROUND IN (WR) (YELLOW)	LIN FT	6201	
24" SOLID LINE PREFORMED THERMOPLASTIC GROUND IN (WHITE)	LIN FT	82	
24" SOLID LINE PREFORMED THERMOPLASTIC GROUND IN (YELLOW)	LIN FT	512	
3'x6' ZEBRA CROSSWALK PREFORMED THERMOPLASTIC GROUND IN (WHITE)	SQ FT	342	
PAVEMENT MESSAGE PREFORMED THERMOPLASTIC GROUND IN (LEFT ARROW)	SQ FT	62	
PAVEMENT MESSAGE PREFORMED THERMOPLASTIC GROUND IN (RIGHT ARROW)	SQ FT	62	

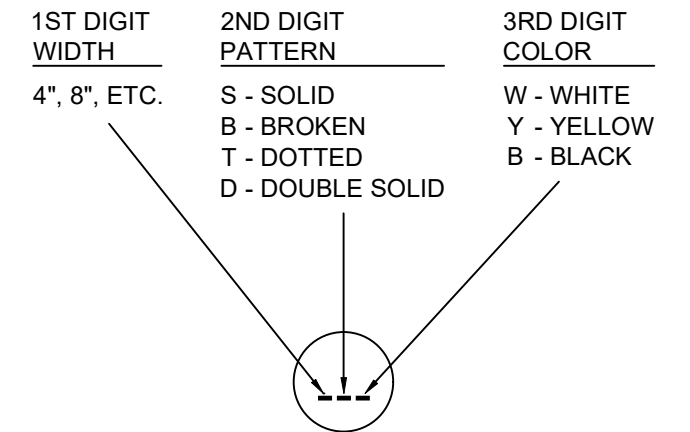
- 1 10' SKIP, 40' GAP
- 2 3' SKIP, 12' GAP

SYMBOLS & MATERIALS LEGEND



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

STRIPING KEY

-  CIRCLE - MULTI COMP GROUND IN
-  TRIANGLE - PAINT
-  SQUARE - POLY PREFORM THERMOPLASTIC
-  PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



EXAMPLE: (4SW) = SOLID LINE WHITE - MULTI COMP

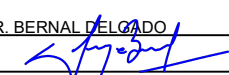
-  - - - - - BROKEN LINE - 50' CYCLE (10' LINE, 40' GAP)
-  DOTTED LINE - 15' CYCLE (3' LINE, 12' GAP) UNLESS SHOWN OTHERWISE IN THE PLAN

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\23-01-00\CSAH_17_(CSAH 18-1000'S CSAH 18)\Base\Traffic\Perm Mrkg Guide.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: JORGE R. BERNAL DELGADO DATE: 03-02-23

SIGNATURE:  LICENSE NO. 57216

DRAWN BY: TMV DATE: 02/17/23

DESIGN BY: TMV DATE: 02/17/23

CHECKED BY: JRB DATE: 03/02/23

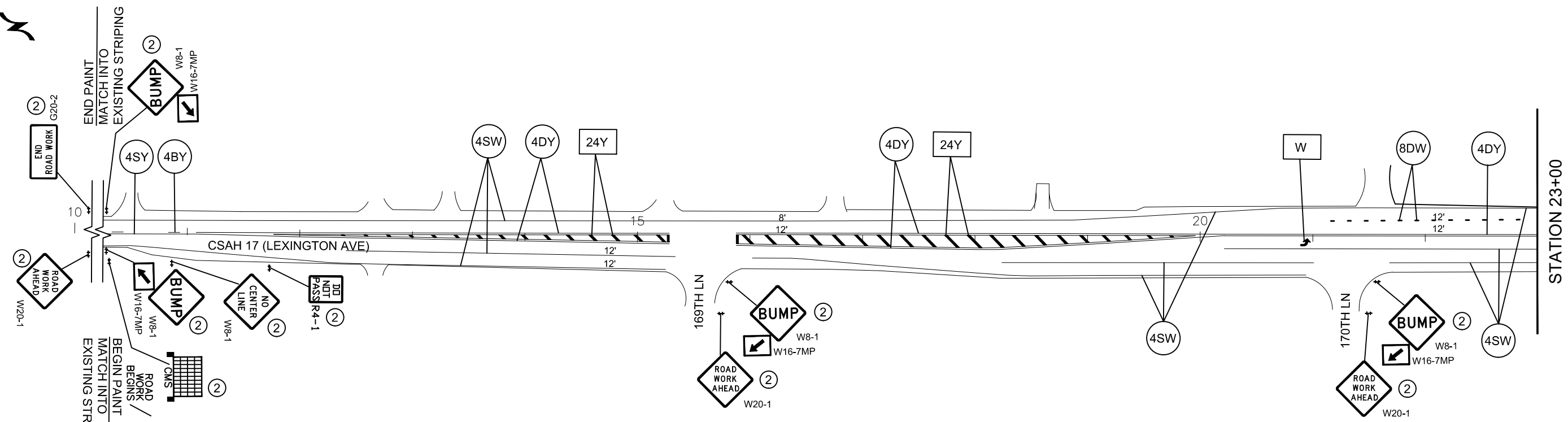
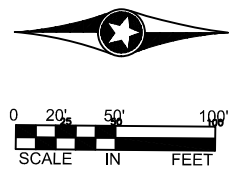


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HIGHWAY DEPT.**

SAP 002-618-038
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PERMANENT PAVEMENT MARKING PLAN DETAILS

SHEET 18 OF 32 SHEETS



END ROAD WORK G20-2

END PAINT MATCH INTO EXISTING STRIPING

BEGIN PAINT MATCH INTO EXISTING STRIPING

F & I CMS 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF WORK

SIGN NOTES:
 ② TEMPORARY TRAFFIC CONTROL SIGN

STRIPING KEY

- CIRCLE - MULTI COMP GROUND IN (WR)
- SQUARE - POLY PREFORM THERMO GROUND IN

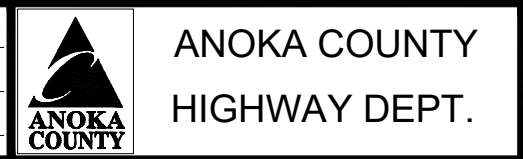
NOTES (TYP):

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND 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. ANY 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.

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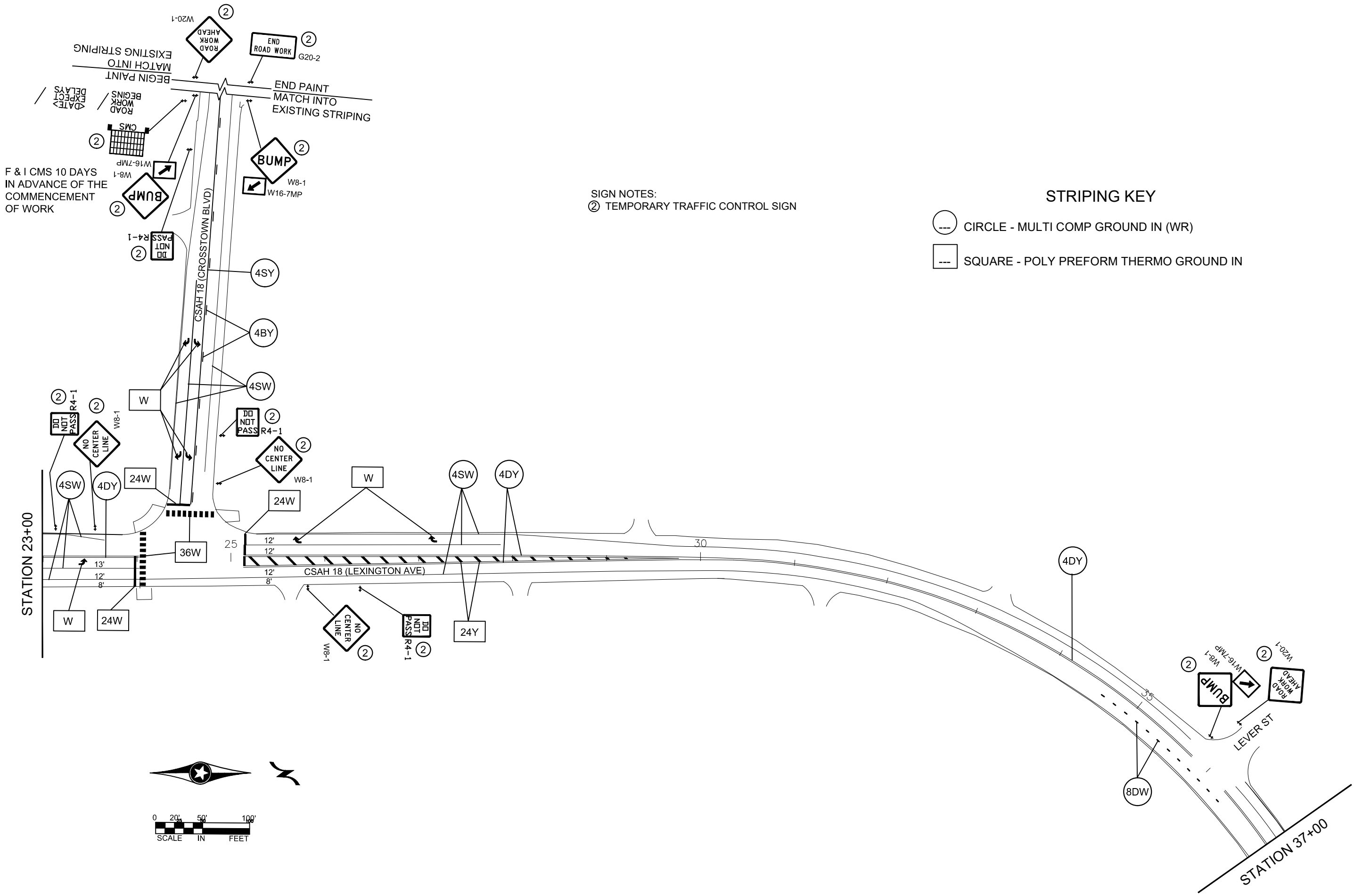
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 PRINT NAME: JORGE R. BERNAL DEUGADO
 SIGNATURE: [Signature]
 DATE: 03-02-23 LICENSE NO. 57216

DRAWN BY TMV DATE 02/16/23
 DESIGN BY TMV DATE 02/16/23
 CHECKED BY JRB DATE 03/02/23



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TEMPORARY SIGNING & PERMANENT STRIPING
 Sheet 19 of 32 Sheets



F & I CMS 10 DAYS IN ADVANCE OF THE COMMENCEMENT OF WORK

SIGN NOTES:
 ② TEMPORARY TRAFFIC CONTROL SIGN

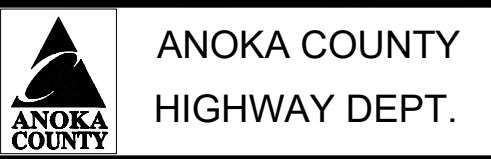
STRIPING KEY

- --- CIRCLE - MULTI COMP GROUND IN (WR)
- --- SQUARE - POLY PREFORM THERMO GROUND IN

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NAME: P:\23-01-00\CSAH 17 (CSAH 18-1000' S CSAH 18)\Base\Traffic\Temp Striping Perm Striping.dwg					

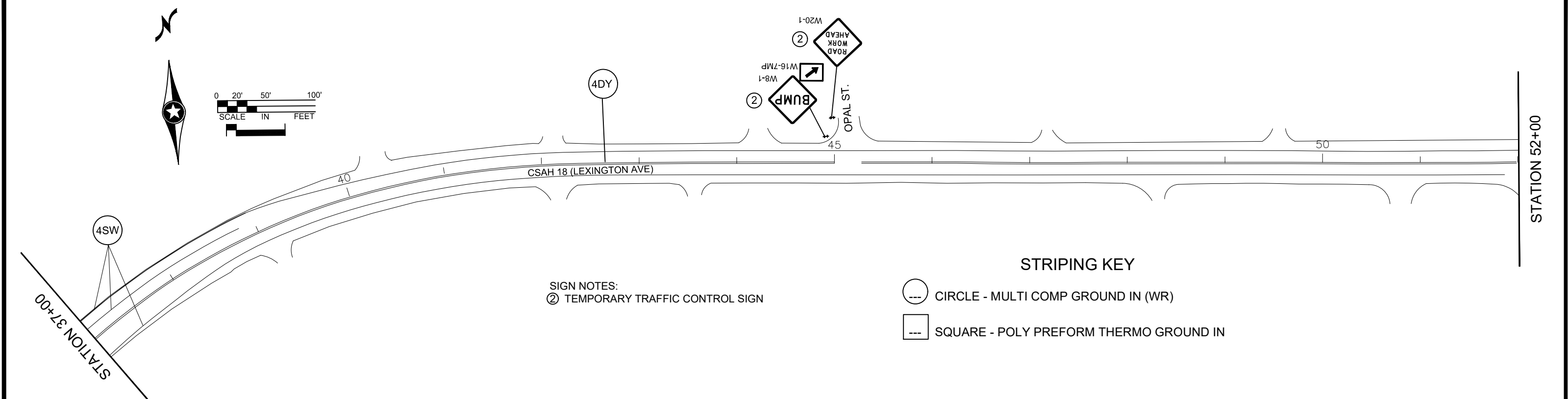
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 PRINT NAME: JORGE R. FERMAL DELGADO
 SIGNATURE: [Signature]
 DATE: 03-02-23 LICENSE NO. 57216

DRAWN BY TMV DATE 02/16/23
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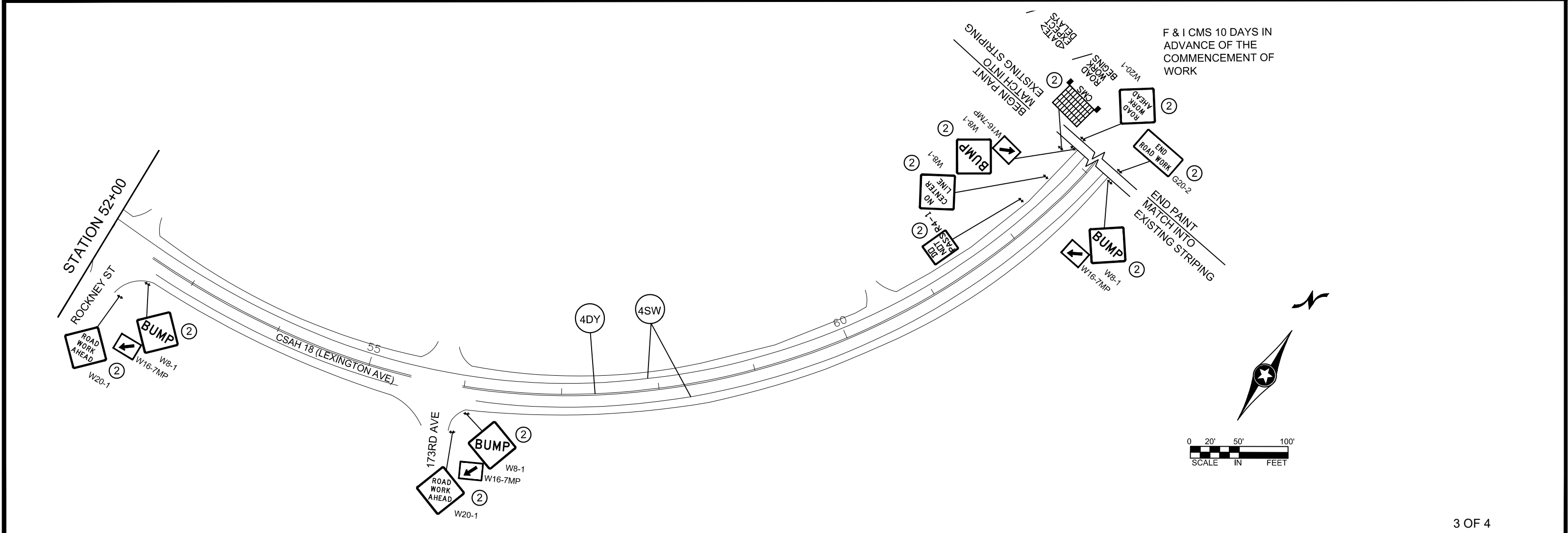
TEMPORARY SIGNING & PERMANENT STRIPING
 Sheet 20 of 32 Sheets



SIGN NOTES:
 ② TEMPORARY TRAFFIC CONTROL SIGN

STRIPING KEY

- CIRCLE - MULTI COMP GROUND IN (WR)
- SQUARE - POLY PREFORM THERMO GROUND IN

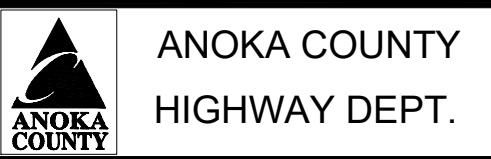


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 SAP 002-618-038
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TEMPORARY SIGNING &
 PERMANENT STRIPING
 Sheet 21 of 32 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-1	48" x 48"		5
R4-1	24" x 30"		6
R4-2	24" x 30"		0
G20-2	36" x 18"		3
W8-1	48" x 48"		AS NEEDED (ESTIMATED 12)
W16-7P	30" x 18"		(ESTIMATED 12)
W3-4	48" x 48"		AS NEEDED
W8-1	48" x 48"		AS NEEDED
W8-8	48" x 48"		AS NEEDED
W8-9	48" x 48"		AS NEEDED

TEMPORARY TRAFFIC CONTROL SIGNS			
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W8-11	48" x 48"		AS NEEDED
W8-23	48" x 48"		AS NEEDED
W20-1	48" x 48"		AS NEEDED (ESTIMATED 9)
W20-4	48" x 48"		AS NEEDED
W20-7	48" x 48"		AS NEEDED
		REFLECTORIZED REBOUNDABLE DRUM 	AS NEEDED (ESTIMATED 10)
		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. 	3 AT 10 DAYS EA

CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

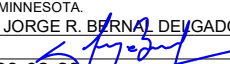
		R	O	A	D		
		W	O	R	K		
		B	E	G	I	N	S

	<	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.

NO	DATE	BY	CKD	APPR	REVISION

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 SIGNATURE: 
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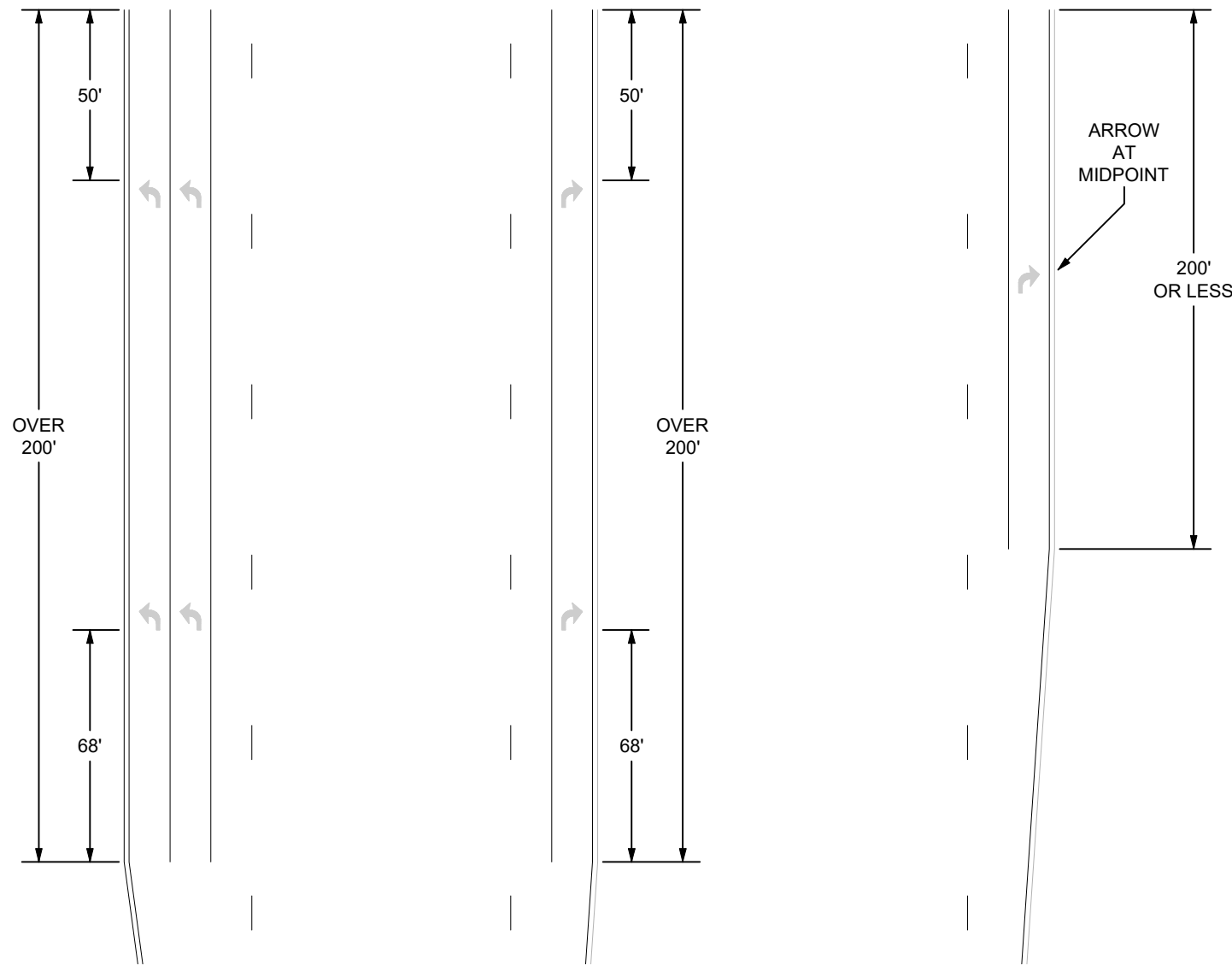
DRAWN BY TMV DATE 02/16/23
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 **ANOKA COUNTY**
HIGHWAY DEPT.

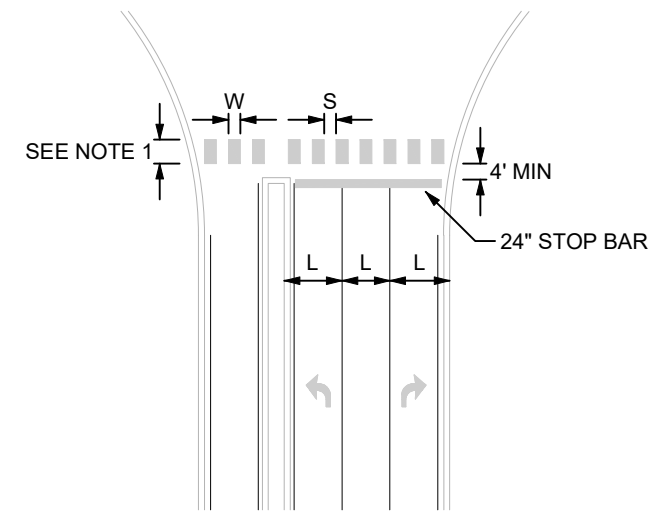
SAP 002-618-038
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PAVEMENT MARKING TYPICALS

TURN LANE ARROW PLACEMENT

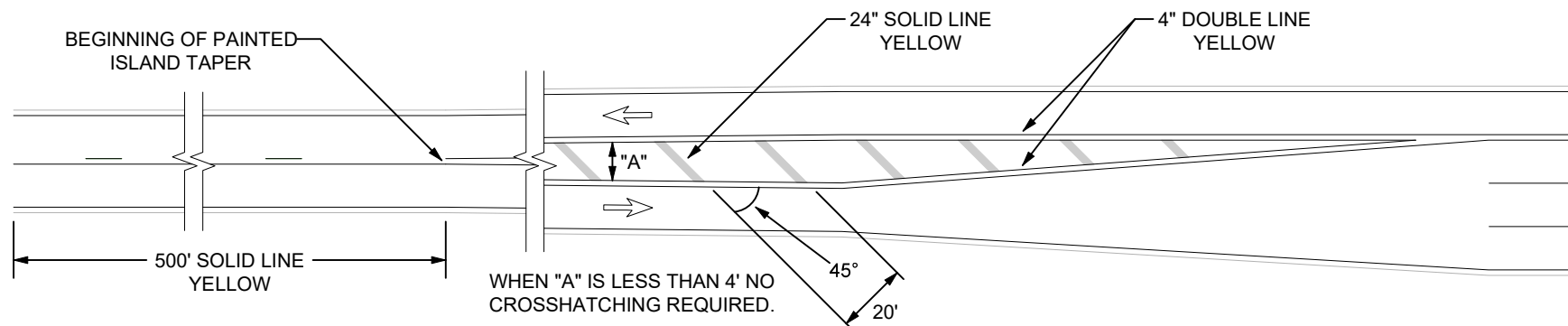


PEDESTRIAN CROSSWALK



(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREAS	(S) 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'

LEFT TURN ISLAND MARKINGS



CROSSWALK NOTES:

1. THE BLOCKS SHALL BE A MINIMUM OF 6' AND AT LEAST AS LONG AS THE TRUNCATED DOMES. FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED-USE PATH.
2. BLOCKS TO BE CENTERED ON CENTERLINE AND LANE LINES.
3. A MINIMUM OF 1.5' CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF BLOCK FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
4. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11' INSIDE LANE.
5. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
6. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES.
7. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
8. LOCATION OF CROSSWALK BLOCKS, STOP BARS, SIGNAL LOOPS AND PEDESTRIAN RAMP ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGINEER.

NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: JORGE R. BERNAL DELGADO
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ANOKA COUNTY
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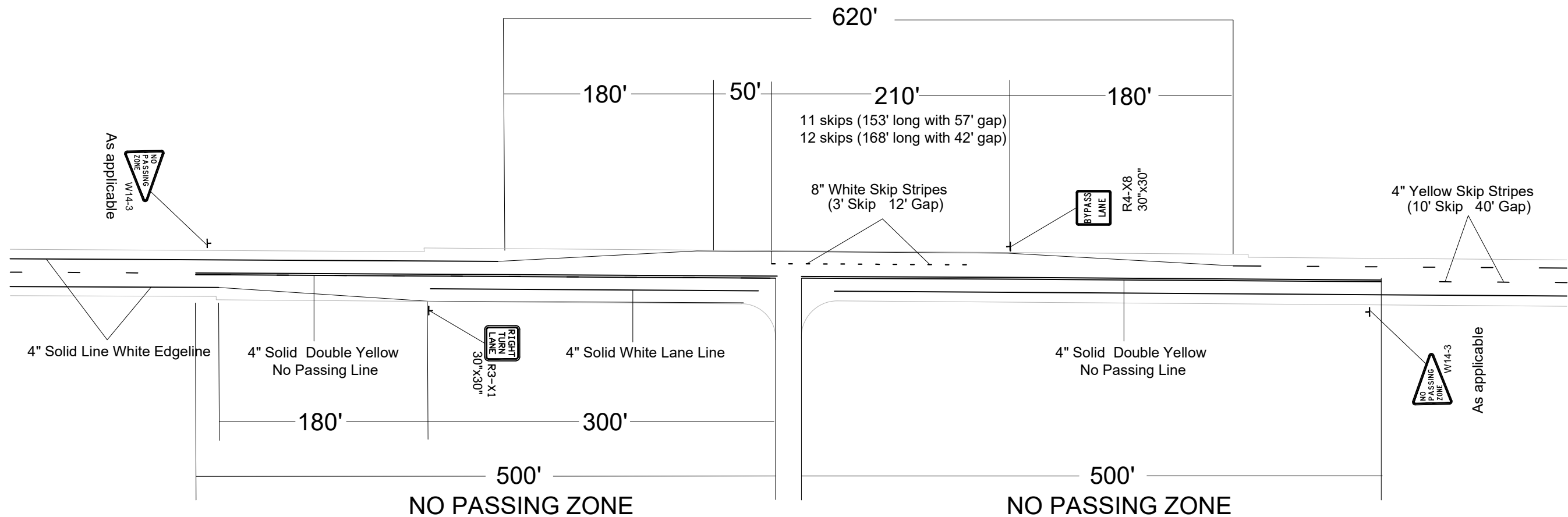
SIGNING & STRIPING
 DETAILS

Sheet 23 of 32 Sheets

A.C.H.D.

BY-PASS TYPICAL

REVISED 10.8.18



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\23-01-00\CSAH_17 (CSAH 18-1000' S CSAH 18)\Base\Traffic\Signing & Striping Details.dwg

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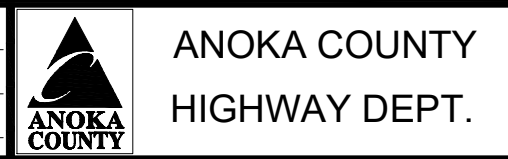
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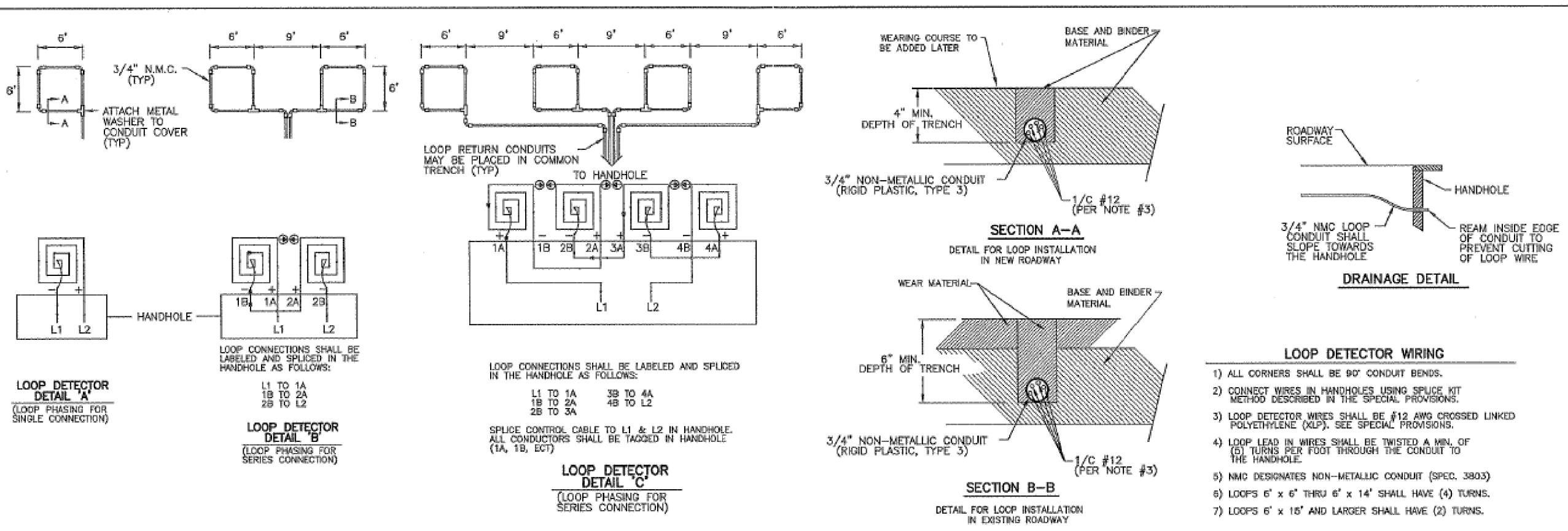
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SIGNING & STRIPING
DETAILS

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FOR REFERENCE PURPOSES ONLY

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO.'s	(A)
SIGNAL BASE NO.	(B)
SIGNAL FACE NO.	(C)
LUMINAIRE NO.	(D)
CONTROLLER AND CABINET	(E)
CONTROLLER AND CABINET - IN PLACE	(F)
HANDHOLE	(G)
HANDHOLE - IN PLACE	(H)
RIGID STEEL CONDUIT (RSC)	(I)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(J)
SIGNAL FACE WITH BACKGROUND SHIELD	(K)
SIGNAL FACE W/O BACKGROUND SHIELD	(L)
SIGNAL FACE - IN PLACE	(M)
PEDESTRIAN INDICATORS	(N)
PEDESTRIAN INDICATORS - IN PLACE	(O)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(P)
PEDESTRIAN PUSH BUTTON STATION	(Q)
TRAFFIC SIGNAL PEDESTAL	(R)
TRAFFIC SIGNAL PEDESTAL - IN PLACE	(S)
TRAFFIC SIGNAL POLE AND MAST ARM	(T)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(U)
STREET LIGHT POLE AND LUMINAIRE	(V)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(W)
MAST ARM AND LUMINAIRE	(X)
MAST ARM AND LUMINAIRE - IN PLACE	(Y)
WOOD POLE	(Z)
WOOD POLE - IN PLACE	(AA)
SOURCE OF POWER	(AB)
RAILROAD SIGNAL - IN PLACE	(AC)
RIGHT OF WAY LINE	(AD)
CENTERLINE	(AE)
EDGE OF ROADWAY	(AF)
SHOULDERLINE	(AG)
CURB LINE	(AH)
STOP BAR	(AI)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(AJ)

ABBREVIATIONS

J-1(EG)	SIGNAL HEAD PHASE "3" - NO. "1"	P2-1(EG)	PED INDICATION PHASE "2" - NO. "1"
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE "2" - NO. "1"
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE "2" - NO. "1"	PED	PEDESTRIAN
D/WK	DON'T WALK	R	RED
EGG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HPS	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BOX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

CONDUCTOR COLOR CODE

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

TRAFFIC SIGNAL TABULATION

ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY
2565	TRAFFIC CONTROL SIGNAL SYSTEM	SIG. SYS.	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1
2565	SIGNAL SERVICE CABINET	EACH	1

TRAFFIC SIGNAL STANDARD PLATES

THESE TRAFFIC SIGNAL STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:

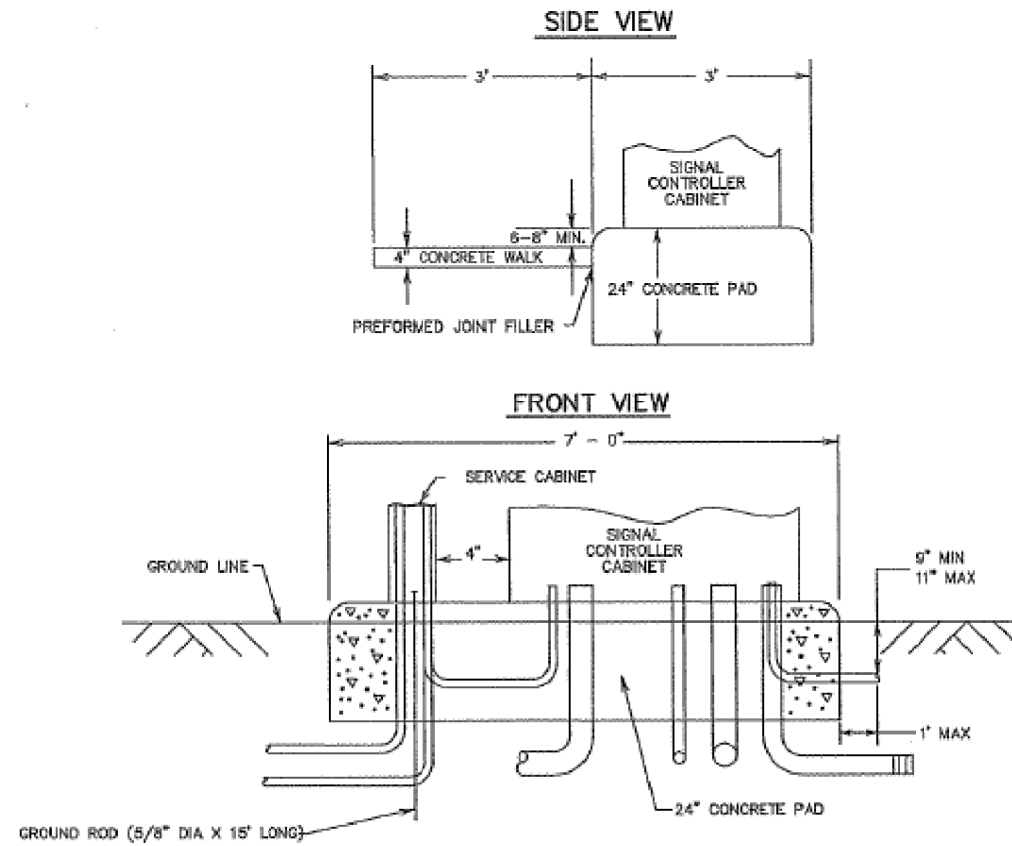
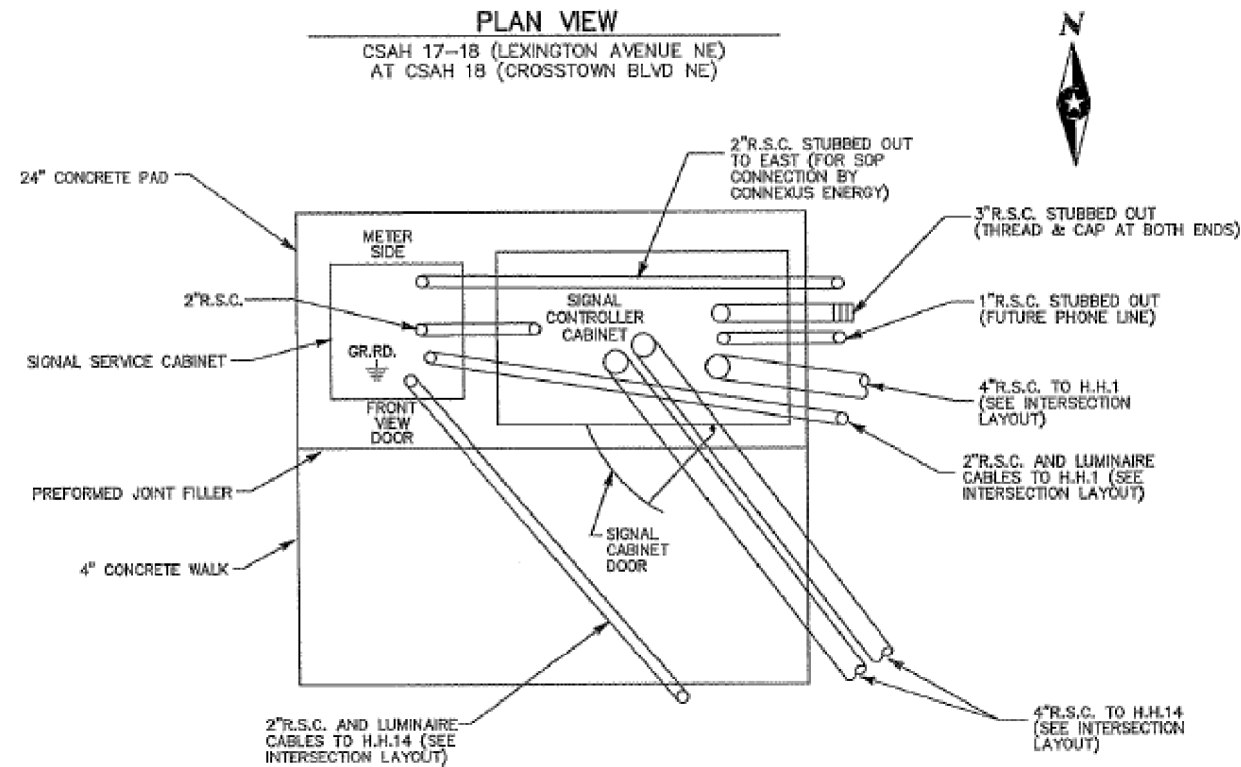
PLATE NO.	DESCRIPTION
* 8000 I	STANDARD BARRICADES
* 8111 E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
* 8112 G	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
* 8114 A	PVC HANDHOLE/PULLBOX (NO VEHICLE LOAD) (2 SHEETS)
* 8118 D	SERVICE EQUIPMENT & POLE-TRAFFIC CONTROL SIGNALS
* 8119 C	GROUND MOUNTED CABINET FOUNDATION
* 8121 G	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
* 8122 F	PEDESTAL & PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT)
* 8123 G	POLE & MAST ARM-LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
* 8126 K	POLE FOUNDATION (P&G & P&TD)

* - APPLIES TO THIS PROJECT

S.P. 002-617-020
S.A.P. 197-020-003

DRAWN BY: JMC DESIGNER: JMG CHECKED BY: JMG	REVISIONS NO. BY DATE	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. Date: January 28, 2013 Name: John M. Gray, PE Lic. No.: 22457	 PHONE: (612) 450-2000 3035 WADSWORTH CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY, MINNESOTA CITY OF HAM LAKE	TRAFFIC SIGNAL SYSTEM DETAILS AND STANDARD PLATES CSAH 17-18 (LEXINGTON AVE NE) AT CSAH 18 (CROSSTOWN BLVD NE)	FILE NO. ANOKC 122254 SIGNAL SHEET 1 OF 8	50 70
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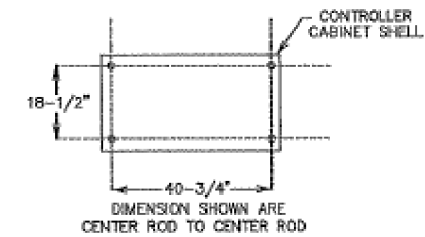
TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)



NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF THE NEW EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4-INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON THE EQUIPMENT PAD FOUNDATION AS SHOWN.

CONTROLLER CABINET
TYPE "P" & "R"
BOLT PATTERN



S.P. 002-617-020
S.A.P. 197-020-003

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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: January 29, 2023
Name: John M. Gray, PE
Lic. No.: 22657

SEH
PHONE: (651) 490-2000
3635 WADSWORTH CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY,
MINNESOTA
CITY OF HAM LAKE

TRAFFIC SIGNAL SYSTEM
EQUIPMENT PAD DETAILS
CSAH 17-18 (LEXINGTON AVE NE)
AT CSAH 18 (CROSSTOWN BLVD NE)

FILE NO.
ANOKC 122254
SIGNAL SHEET
2 OF 8
51
70

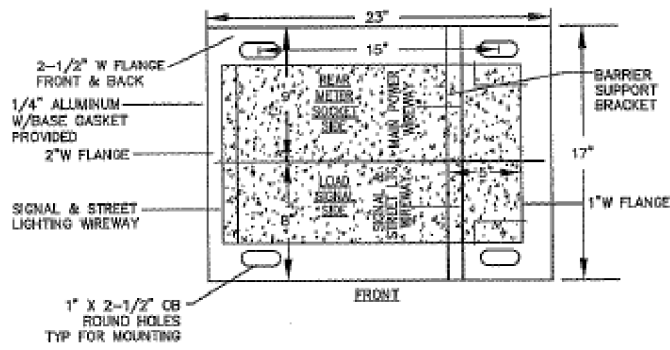
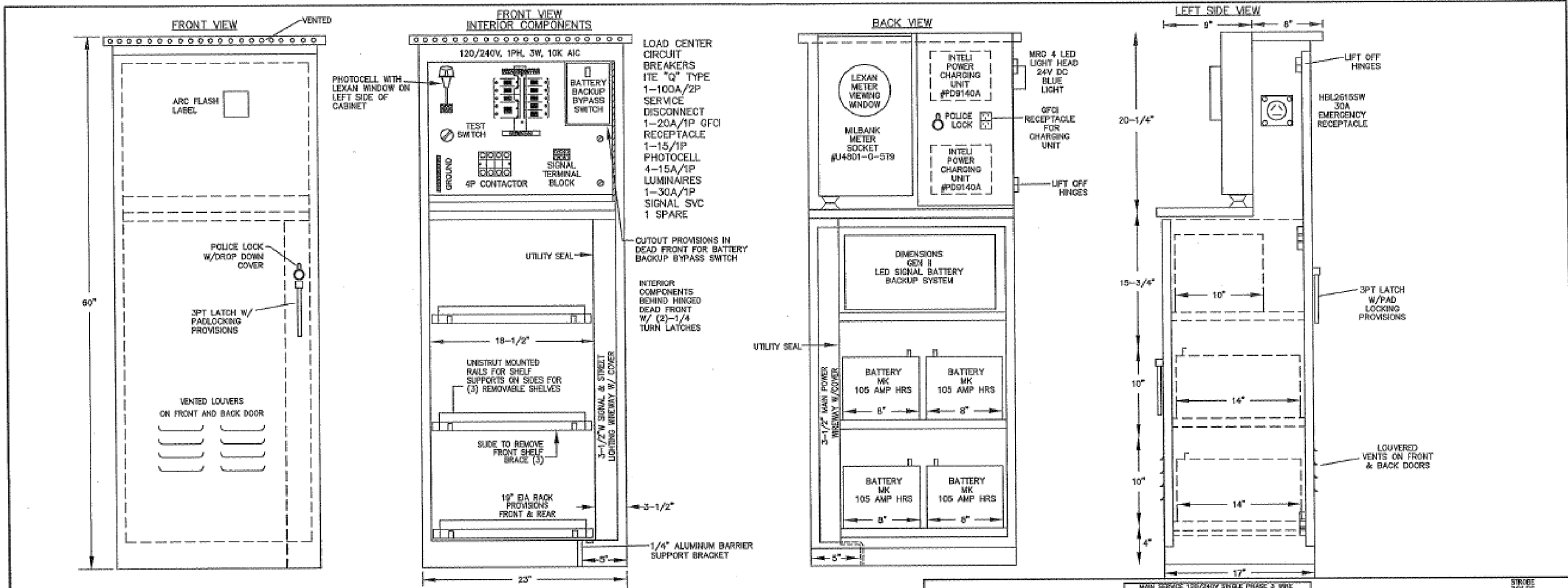
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NAME: P:\23-01-00\CSAH 17_(CSAH 18-1000' S CSAH 18)\Base\Proposed\CP.dgn							

ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-618-038
STATE AID PROJECT 002-617-030

EXISTING SIGNAL PLANS
Sheet 26 of 32 Sheets

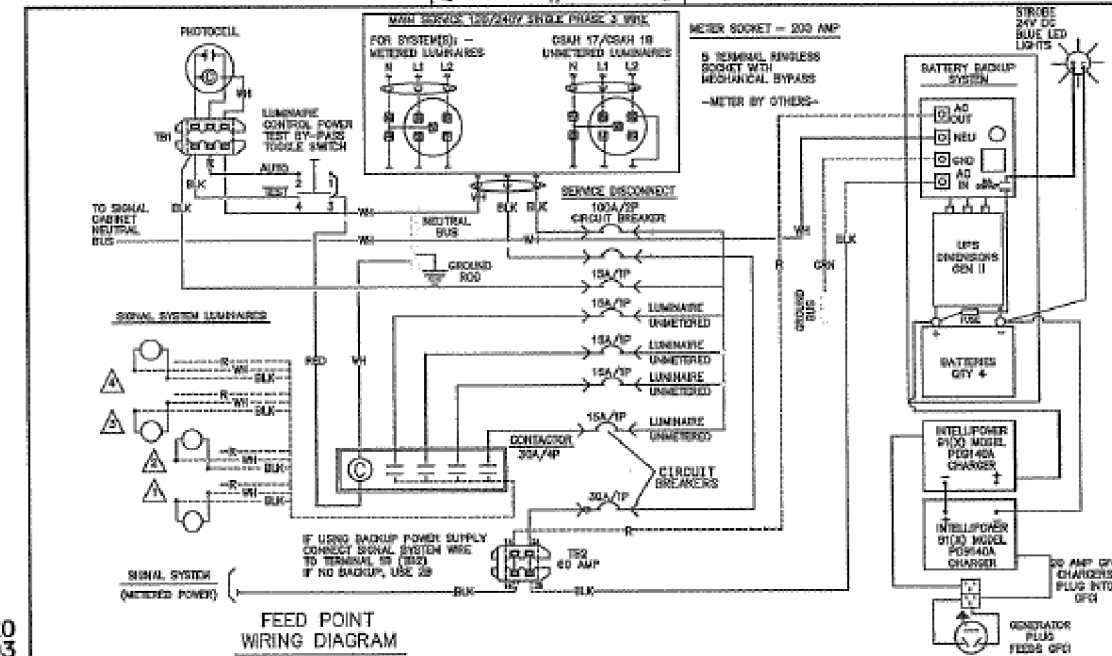
FOR REFERENCE PURPOSES ONLY



CABINET CONSTRUCTION

- NEMA 3R
- 1/8" ALUMINUM 5052-H32
- ANODIZED 30 MINUTE CLEAR
- NEOPRENE GASKETED DOORS
- NON-CORRODING HARDWARE
- ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINET.



S.P. 002-617-020
S.A.P. 197-020-003

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

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.

John M. Gray, PE
Name: John M. Gray, PE
Date: January 28, 2023
Lic. No.: 22457

SEH
PHONE: (651) 490-3000
3335 WADSWORTH CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY,
MINNESOTA
CITY OF HAM LAKE

TRAFFIC SIGNAL SYSTEM
SERVICE CABINET DETAILS
CSAH 17-18 (LEXINGTON AVE NE)
AT CSAH 18 (CROSSTOWN BLVD NE)

FILE NO.
ANOKC 122254
SIGNAL SHEET
3 OF 8

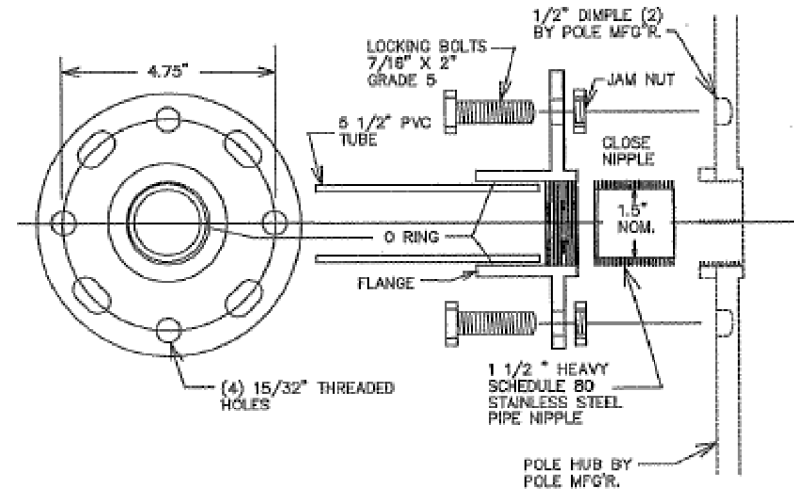
52
70

NO.	DATE	BY	CKD	APPR	REVISION	03/02/2023	6:50:20 AM
NAME: P:\23-01-00\CSAH 17_(CSAH 18-1000' S CSAH 18)\Base\Proposed\CP.dgn							

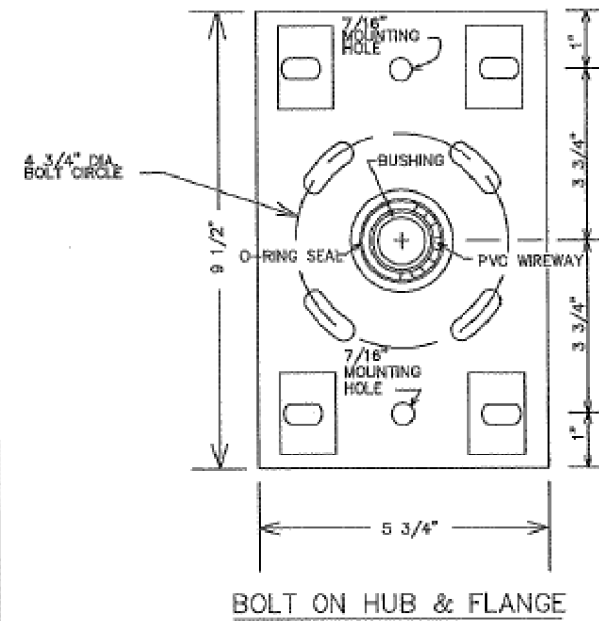
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-618-038
STATE AID PROJECT 002-617-030

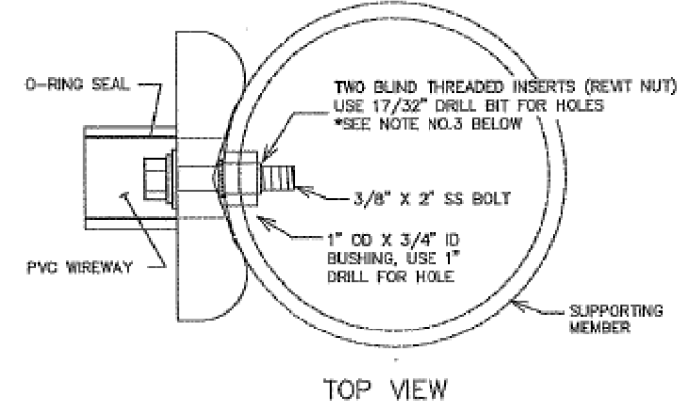
EXISTING SIGNAL PLANS
Sheet 27 of 32 Sheets



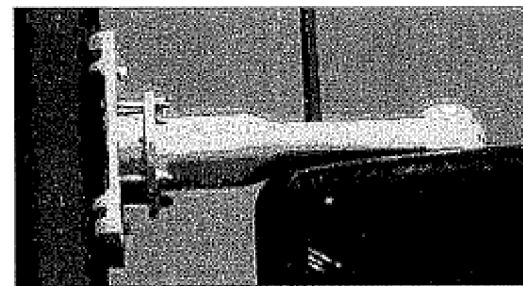
THREADED HUB AND FLANGE POLE ADAPTOR



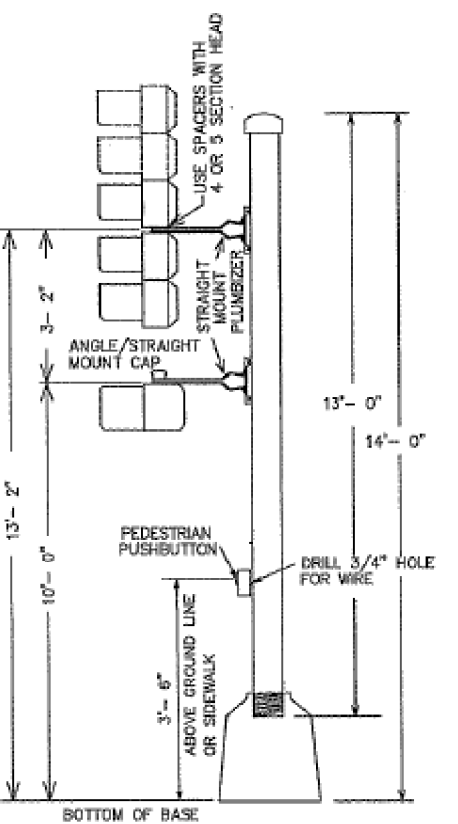
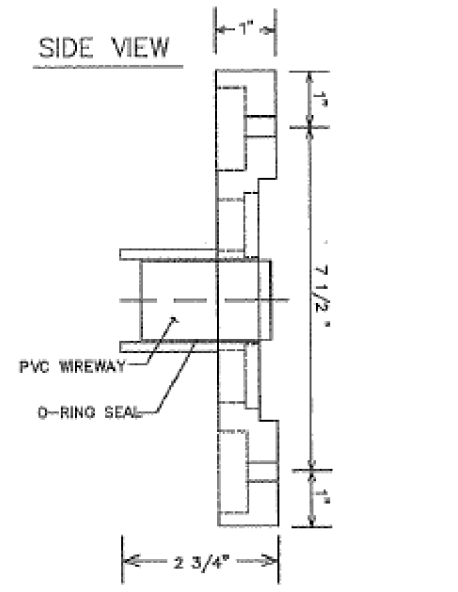
BOLT ON HUB & FLANGE



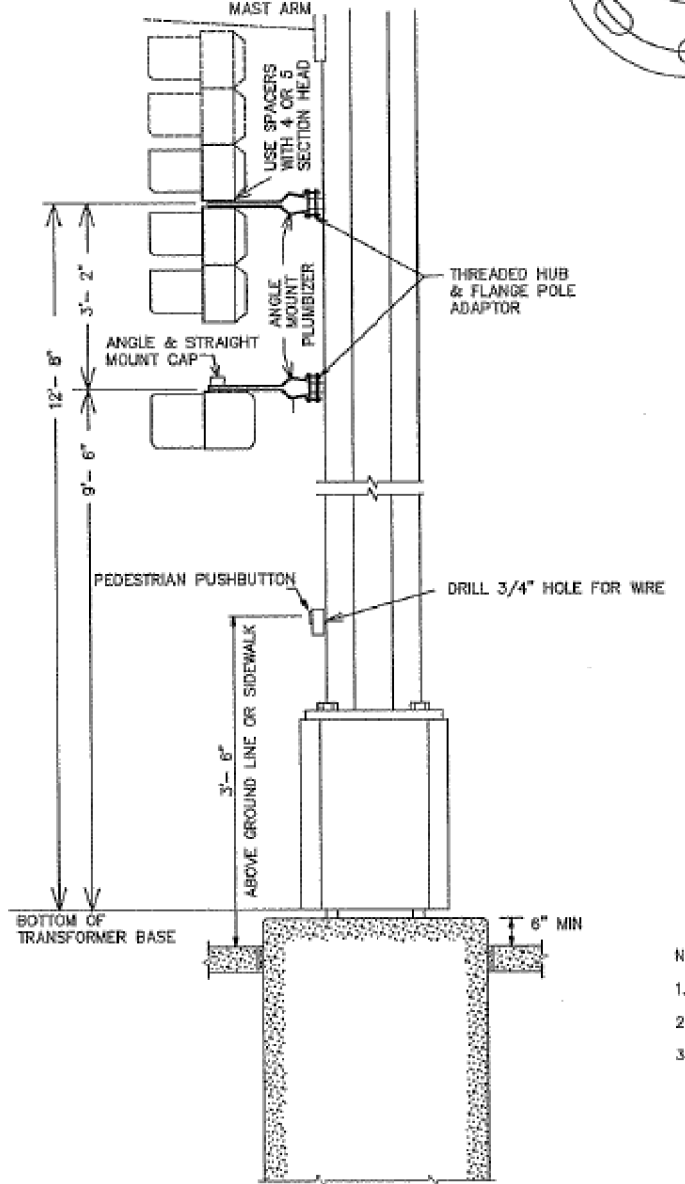
TOP VIEW



- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
 3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSTALLED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
 4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.

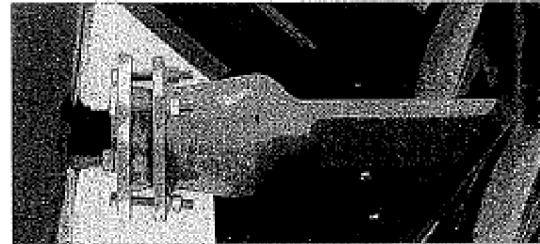


TYPICAL PEDESTAL MOUNTING NOT TO SCALE



TYPICAL SIGNAL POLE MOUNTING NOT TO SCALE

- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
 3. SEE STANDARD PLATE NUMBER B123 FOR ADDITIONAL SIGNAL POLE DETAILS.



DESIGNED BY: JMG	NO.	BY	DATE	REVISIONS
CHECKED BY: JMG				
DESIGN TEAM				

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.

John M. Greg FC
 Name: John M. Greg FC
 Date: February 28, 2013
 Lic. No.: 22457

SEH
 PHONE: (651) 495-3000
 3030 WAKARUSA CENTER DR.
 ST. PAUL, MN 55110

ANOKA COUNTY,
 MINNESOTA
 CITY OF HAM LAKE

TRAFFIC SIGNAL SYSTEM
 ONE WAY POLE MOUNT DETAILS
 CSAH 17-18 (LEXINGTON AVE NE)
 AT CSAH 18 (CROSSTOWN BLVD NE)

S.P. 002-617-020
 S.A.P. 197-020-003

FILE NO.
 ANOKC 122284
 SIGNAL SHEET
 4 OF 8

53
 70

NO	DATE	BY	CKD	APPR	REVISION	03/02/2023	6:50:24 AM
NAME: P:\23-01-00\CSAH 17_(CSAH 18-1000' S CSAH 18)\Base\Proposed\CP.dgn							

ANOKA COUNTY
 HIGHWAY DEPT.

STATE AID PROJECT 002-618-038
 STATE AID PROJECT 002-617-030

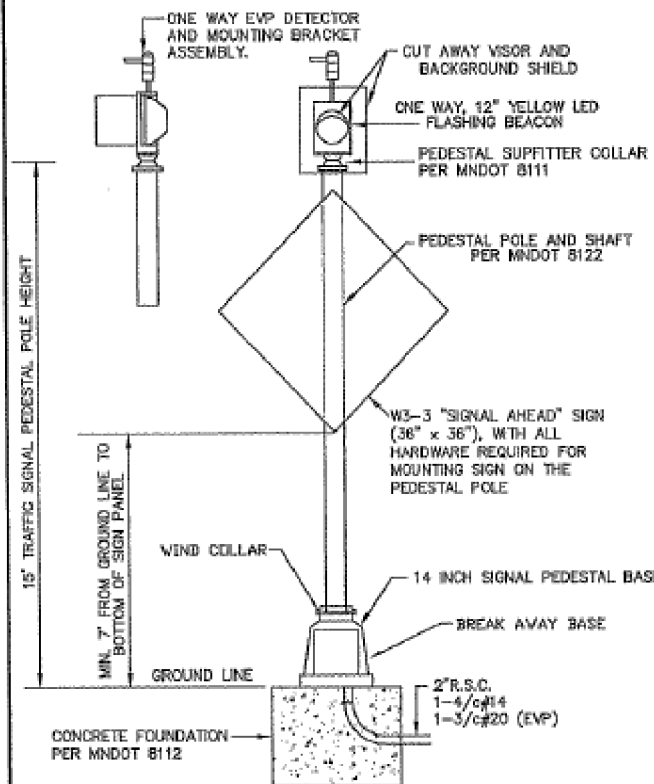
EXISTING SIGNAL PLANS
 Sheet 28 of 32 Sheets

MAST ARM MOUNTED SIGNS							
SIGN PANELS - TYPE D (FURNISH AND INSTALL)							
SIGN PANEL	SIZE (Inches)	NO. REQ.	BRACKETS PER SIGN	BRACKET SPACING (**)	AREA (sq. ft.) PER SIGN	POLE NO.	α
D-1	156x24	1	5	-	26.00	2	15'
D-2	126x24	1	5	-	21.00	3	8'
D-3	156x24	1	5	-	26.00	4	8'
TOTALS		3			73.00		

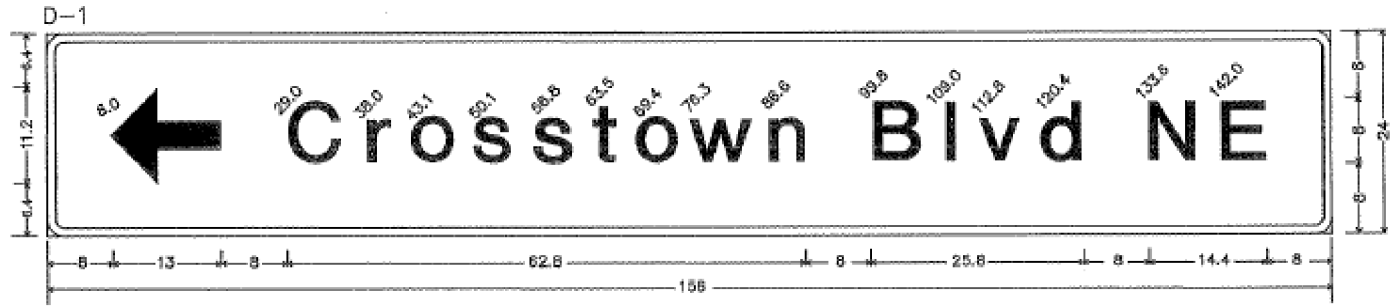
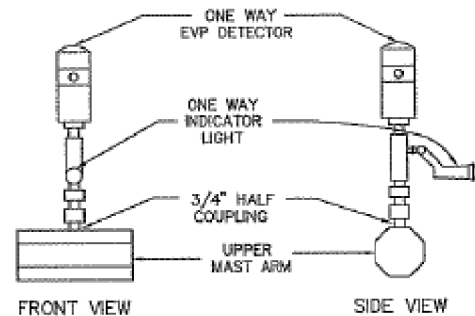
(**)- SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE SPECIAL PROVISIONS AND STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 7/06/07) FOR BRACKET SPACING REQUIREMENTS.

SIGNAL SYSTEM MOUNTED SIGNS									
SIGN PANELS - TYPE C (FURNISH AND INSTALL)									
SIGN PANEL	SIZE (in.)	NO. REQ.	NO. POSTS PER SIGN	POST SPACING (in.)	SQ. FT. PER SIGN	POLE NO.	α	PANEL LEGEND	
R9-3	18x18	2	①	-	2.25	1,2	-	NO PEDESTRIAN CROSSING (SYMBOL)	
R10-X12	42x48	1	2	-	14.00	2	1'	LEFT TURN YIELD ON FLASHING YELLOW ARROW	
W3-3	36x36	1	②	-	9.00	6	-	SIGNAL AHEAD	
TOTALS		4			27.50				

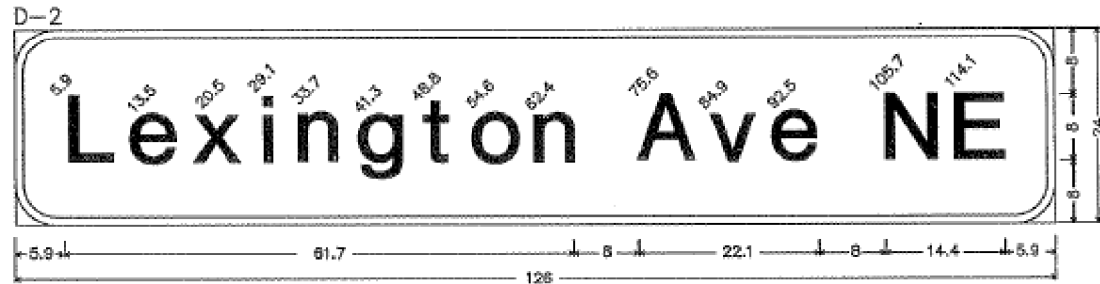
PEDESTAL POLE MOUNTED EVP/ADVANCE FLASHER



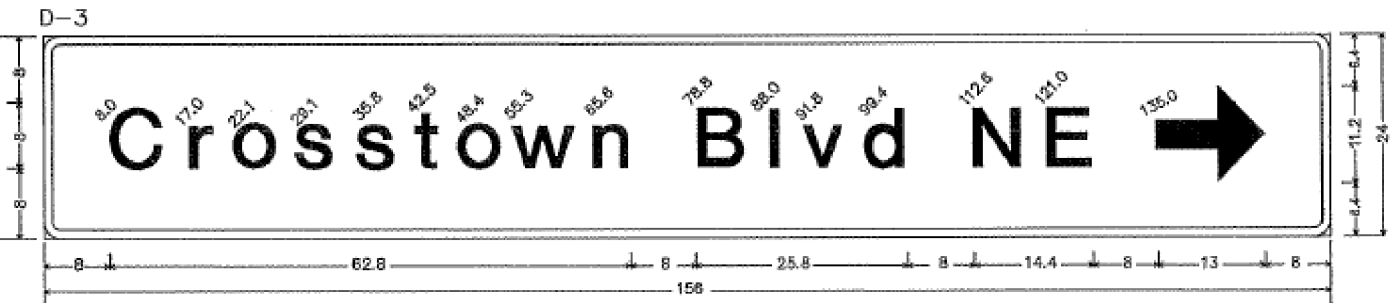
EVP DETECTOR AND LIGHT MOUNTING DETAIL ON MAST ARM



3.0" Radius, 1.0" Border, White on Green
Arrow 5 - 13.0" 180°, (Crosstown Blvd NE) E Mod.



3.0" Radius, 1.0" Border, White on Green
(Lexington Avenue NE) E Mod.



3.0" Radius, 1.0" Border, White on Green
(Crosstown Blvd NE) E Mod., Arrow 5-13.0" 0°

GENERAL SIGNING NOTES:

- 1) COLOR FOR ALL TYPE D SIGNS SHOWN SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
- 2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- 3) FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE STANDARD SIGNS MANUAL PAGE 105A (REVISION DATE: 7/06/07), AND SPECIAL PROVISIONS.
- 4) SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS.
- 5) FURNISHING AND INSTALLING TYPE C AND D SIGNS AS SHOWN SHALL BE INCLUDED UNDER ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM). SEE SPECIAL PROVISIONS.
- 6) ALL NEW TYPE C AND D SIGN PANELS SHOWN SHALL BE FABRICATED USING HP SHEETING. SEE SPECIAL PROVISIONS.
- 7) ① = INSTALL SIGN PANEL ON TRAFFIC SIGNAL MAST ARM POLE.
- 8) ② = INSTALL SIGN PANEL ON TRAFFIC SIGNAL PEDESTAL POLE.
- 9) SEE STANDARD SIGNS MANUAL FOR ARROW DETAILS.

S.P. 002-617-020
S.A.P. 197-020-003

DESIGNER	JMG	NO.	BY	DATE	REVISIONS
CHECKED BY	JMG				

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: January 29, 2013
Name: John M. Gray, PE
Lic. No.: 22457

SEH
PHONE: (851) 480-2000
2535 WADSWORTH CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY,
MINNESOTA
CITY OF HAM LAKE

TRAFFIC SIGNAL SYSTEM
SIGNING AND MISCELLANEOUS DETAILS
CSAH 17-18 (LEXINGTON AVE NE)
AT CSAH 18 (CROSSTOWN BLVD NE)

FILE NO.
ANOKA 122256
SIGNAL SHEET
5 OF 8
54
70

NO.	DATE	BY	CHKD	APPR	REVISION	TIME
	03/02/2023					6:50:28 AM

NAME: P:\23-01-00\CSAH 17_(CSAH 18-1000' S CSAH 18)\Base\Proposed\CP.dgn

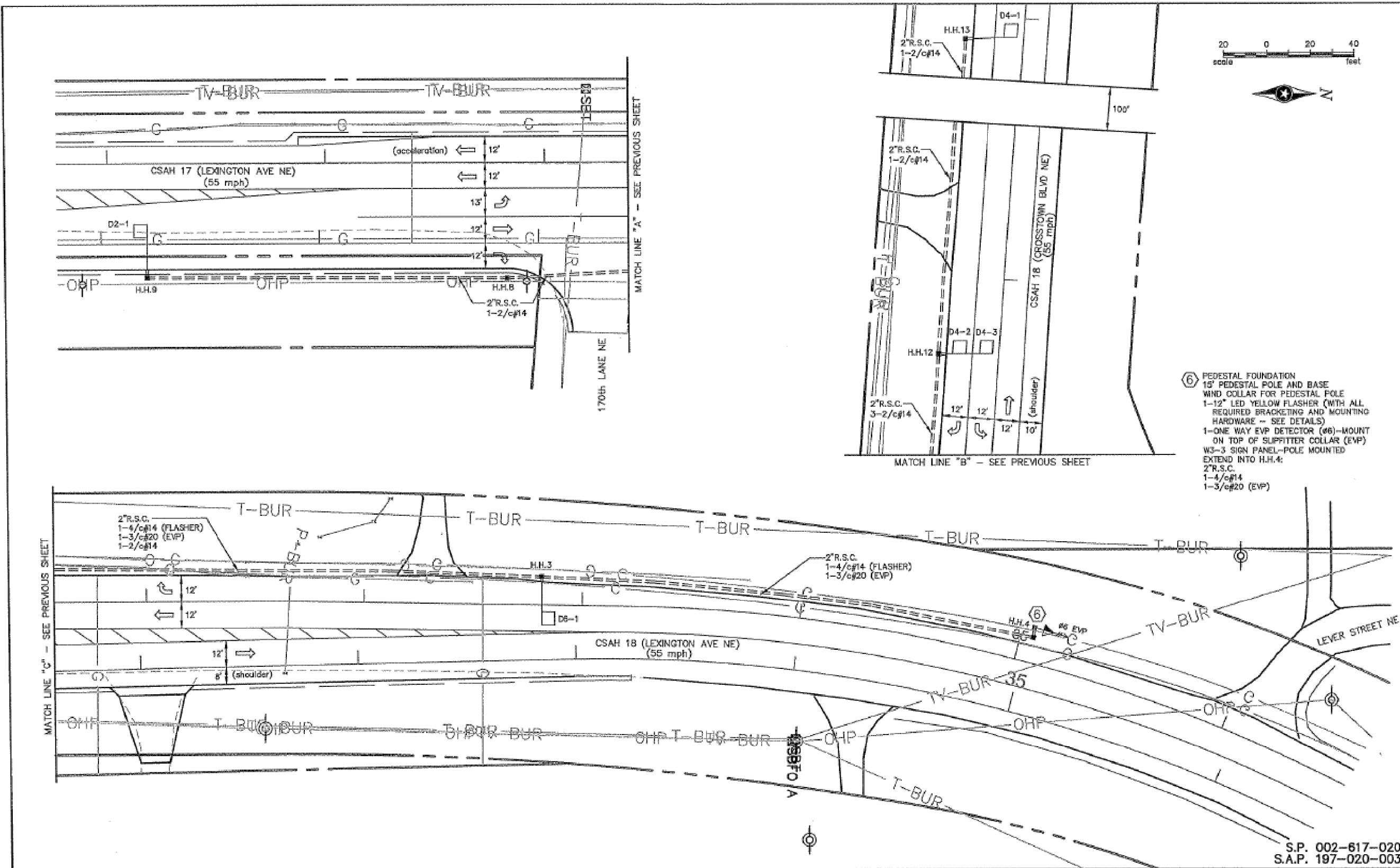
ANOKA COUNTY
HIGHWAY DEPT.

STATE AID PROJECT 002-618-038
STATE AID PROJECT 002-617-030

EXISTING SIGNAL PLANS
Sheet 29 of 32 Sheets

FOR REFERENCE PURPOSES ONLY

FOR REFERENCE PURPOSES ONLY



- ⑥ PEDESTAL FOUNDATION
- 18" PEDESTAL POLE AND BASE
- WIND COLLAR FOR PEDESTAL POLE
- 1-12" LED YELLOW FLASHER (WITH ALL REQUIRED BRACKETING AND MOUNTING HARDWARE - SEE DETAILS)
- 1-ONE WAY EVP DETECTOR (#6)-MOUNT ON TOP OF SUPPLIER COLLAR (EVP)
- W3-3 SIGN PANEL-POLE MOUNTED EXTEND INTO H.H.4:
- 2" R.S.C.
- 1-4/c#14
- 1-3/c#20 (EVP)

DRAWN 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.	 PHONE: (612) 480-2000 3335 WARMAN CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY, MINNESOTA CITY OF HAM LAKE	TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT CSAH 17-18 (LEXINGTON AVE NE) AT CSAH 18 (CROSSTOWN BLVD NE)	FILE NO. ANOKA 122264 SIGNAL SHEET 7 OF 8	56 70
CHECKED BY: JMG	DESIGN TEAM	Date: January 28, 2023 Name: John M. Greg, PE Lic. No.: 22357					

NO	DATE	BY	CKD	APPR	REVISION	
	03/02/2023					6:50:36 AM

NAME: P:\23-01-00\CSAH 17_(CSAH 18-1000' S CSAH 18)\Base\Proposed\CP.dgn

 ANOKA COUNTY HIGHWAY DEPT.	STATE AID PROJECT 002-618-038 STATE AID PROJECT 002-617-030
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EXISTING SIGNAL PLANS	Sheet 31 of 32 Sheets
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