

PLAN SYMBOLS

- COUNTY LINE _____
- TOWNSHIP OR RANGE LINE _____
- SECTION LINE _____
- QUARTER LINE _____
- SIXTEENTH LINE _____
- RIGHT OF WAY LINE _____
- SLOPE EASEMENT _____
- EXISTING RIGHT OF WAY _____
- PROPERTY LINE _____
- CORPORATE OR CITY LIMITS
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT OF WAY _____
- RIVER OR CREEK
- DRAINAGE DITCH _____
- CULVERT _____
- DROP INLET _____
- GUARD RAIL _____
- BARBED WIRE FENCE _____
- WOVEN WIRE FENCE _____
- CHAIN LINK FENCE _____
- WOOD FENCE _____
- STONE WALL OR FENCE _____
- HEDGE _____

- LOWLAND
- TIMBER
- ORCHARD
- BRUSH
- NURSERY

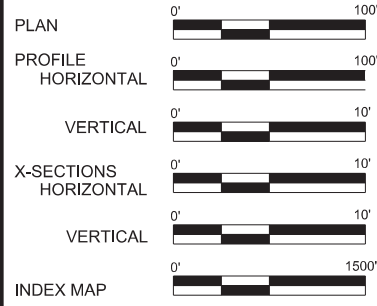
- CATTLE GUARD
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE

- BUILDING (One Story Frame)
- F-FRAME C-CONCRETE
- S-STONE T-TILE
- B-BRICK ST-STUCCO
- RAILROAD CROSSING BELL
- RAILROAD CROSSING GATE
- MANHOLE
- CATCH BASIN
- FIRE HYDRANT
- CAST IRON MONUMENT
- IRON PIN
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY

UTILITY SYMBOLS

- POWER POLE LINE _____
- TELEPHONE OR TELEGRAPH POLE LINE _____
- JOINT TELEPHONE & POWER ON POWER POLES _____
- ON TELEPHONE POLES _____
- ANCHOR _____
- STEEL TOWER _____
- STREET LIGHT
- PEDESTAL (Cable Terminal)
- GAS MAIN _____
- WATERMAIN _____
- TELEPHONE CABLE IN CONDUIT _____
- ELECTRIC CABLE IN CONDUIT _____
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE T-BUR _____
- BURIED ELECTRIC CABLE P-BUR _____
- OVERHEAD UTILITY CABLE OHU _____
- SEWER (Sanitary or Storm) _____
- SEWER MANHOLE

SCALES



MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

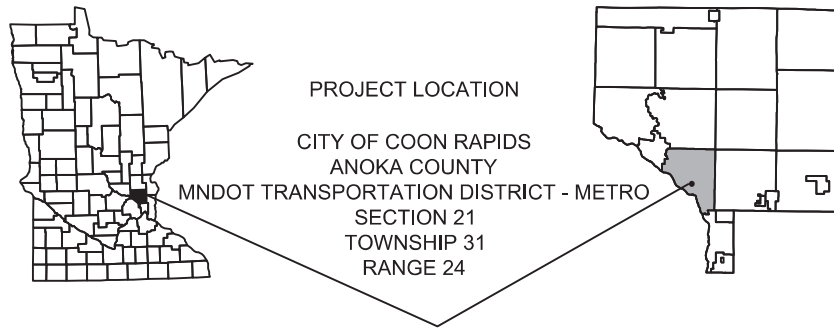
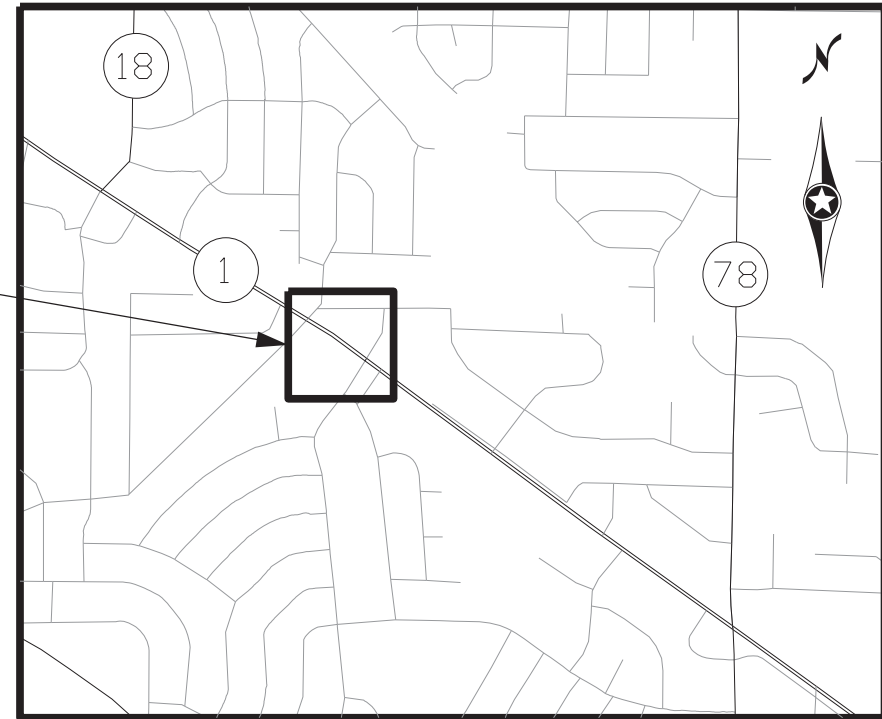
CONSTRUCTION PLAN FOR PEDESTRIAN RAMP IMPROVEMENTS & SIGNAL REPLACEMENT

SAP 002-601-063 & SAP 114-020-062 LOCATED AT CSAH 1 (COON RAPIDS BLVD) AND XAVIS ST

ANOKA COUNTY SAP 002-601-063
CITY OF COON RAPIDS SAP 114-020-062
CITY OF COON RAPIDS PROJECT NO. 23-14



PROJECT LOCATION



GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE "SUPPLEMENTAL SPECIFICATIONS DATED SEPTEMBER 2022 SHALL GOVERN

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	TABULATIONS
4	EXISTING UTILITY & TOPOGRAPHY PLAN
5 - 17	STANDARD PLATES & BASIS OF QUANTITIES, INDEX TABS
18	REMOVAL PLAN
19	CONSTRUCTION PLAN
20	INTERSECTION DETAILS
21	TURF EST. AND EROSION CONTROL PLAN & DETAILS
22 - 25	SIGNING & STRIPING PLANS
27 - 43	SIGNAL PLANS

THIS PLAN CONTAINS 43 SHEETS

APPROVED **Joseph MacPherson** Digitally signed by Joseph MacPherson Date: 2023.07.13 13:32:58 -05'00' **07/13/23**
ANOKA COUNTY ENGINEER DATE

APPROVED **Mark C. Hansen** Digitally signed by Mark C. Hansen Date: 2023.07.25 08:34:12 -05'00' **07/25/23**
CITY OF COON RAPIDS ENGINEER DATE

Lucas Lortie Digitally signed by Lucas Lortie Date: 2023.07.27 09:10:30 -05'00' **DATE**
For DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

Lucas Lortie Digitally signed by Lucas Lortie Date: 2023.07.27 09:10:46 -05'00' **DATE**
For STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_tsh01.dgn 06/27/2023 9:02:18 AM

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: Aaron Anderson
SIGNATURE:
DATE: 06/27/23 LICENSE NO. 58657

DRAWN BY APA DATE 05/12/23
DESIGN BY APA DATE 05/12/23
CHECKED BY ST DATE 05/12/23

**ANOKA COUNTY
HIGHWAY DEPT.**

SAP 002-601-063
SAP 114-020-062
CP 23-14

TITLE SHEET
Sheet 1 of 43 Sheets

STATEMENT OF ESTIMATED QUANTITIES					PARTICIPATING		NON-PARTICIPATING
TAB /NOTE	Item Number	ITEM DESCRIPTION	Unit	TOTAL PROJECT QUANTITIES ESTIMATED	ANOKA COUNTY 002-601-063 ROADWAY QUANTITIES ESTIMATED	CITY OF COON RAPIDS 114-020-062 ROADWAY QUANTITIES ESTIMATED	CITY OF COON RAPIDS 23-14 ROADWAY QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1	0.63	0.28	0.09
[1]	2102.503	PAVEMENT MARKING REMOVAL	LIN FT	210	210		
[1]	2102.518	PAVEMENT MARKING REMOVAL	SQ FT	48	48		
	2104.502	REMOVE CASTING	EACH	2	1		1
[1]	2104.502	REMOVE SIGN TYPE C	EACH	4	2		2
	2104.502	REMOVE SIGNAL SYSTEM	EACH	1	1		
	2104.502	SALVAGE CASTING	EACH	1			1
	2104.502	SALVAGE SIGN TYPE C	EACH	1			1
A	2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	109	78		31
A	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	654	519		135
A	2104.503	REMOVE CURB AND GUTTER	LIN FT	390	276		114
A	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	502	69		433
A	2104.518	REMOVE CONCRETE WALK	SQ FT	1621	1366		255
A	2104.518	REMOVE CONCRETE MEDIAN	SQ FT	77	77		
A	2105.607	COMMON EXCAVATION	CU YD	80	40		40
B	2211.509	AGGREGATE BASE CLASS 5	TON	124	34		90
B	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	45	20		25
	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2;C)	TON	120			120
B	2360.509	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	TON	27	27		
	2504.602	ADJUST VALVE BOX	EACH	1			1
[2]	2506.502	CASTING ASSEMBLY	EACH	2	1		1
	2506.502	INSTALL CASTING	EACH	1			1
C	2521.518	4" CONCRETE WALK	SQ FT	306	96		210
C	2521.518	6" CONCRETE WALK	SQ FT	1671	1501		170
C	2521.602	DRILL AND GROUT REINF BAR (EPOXY COATED)	EACH	80	80		
C	2531.503	CONCRETE CURB AND GUTTER DESIGN B612	LIN FT	56	56		
C	2531.503	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	412	106	106	200
C	2531.602	CONCRETE MEDIAN NOSE-SPECIAL	EACH	2	2		
	2531.603	CONCRETE CURB DESIGN V	LIN FT	24	24		
C	2531.618	TRUNCATED DOMES	SQ FT	156	108		48
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.63	0.28	0.09
[3]	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.63	0.28	0.09
	2563.601	ALTERNATE PEDESTRIAN ROUTE	LUMP SUM	1	0.63	0.28	0.09
[4]	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20	20		
	2564.502	INSTALL SIGN PANEL TYPE C	EACH	1			1
	2564.618	SIGN TYPE C	SQ FT	34.50	14.50		20.00
	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1	0	1	
	2565.501	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1	1		
	2565.516	TRAFFIC CONTROL SIGNAL SYSTEM	SYSTEM	1	0.5	0.5	
	2565.616	VIDEO DETECTOR SYSTEM	SYSTEM	1	1		
	2565.616	TEMPORARY SIGNAL SYSTEM	SYSTEM	1	1		
	2573.501	EROSION CONTROL SUPERVISOR	LUMP SUM	1	1		
D	2573.502	STORM DRAIN INLET PROTECTION	EACH	5	3		2
D	2574.507	COMMON TOPSOIL BORROW	CU YD	18	18		
	2574.507	ORGANIC TOPSOIL BORROW	CU YD	20			20
D	2574.508	FERTILIZER TYPE 3	POUND	14	14		
D	2575.505	SEEDING	ACRE	0.04	0.04		
D	2575.508	SEED MIXTURE 25-121	POUND	4	4		
D	2575.508	HYDRAULIC REINFORCED FIBER MATRIX	POUND	516	156		360
	2582.503	12" SOLID LINE PAINT	LIN FT	24			24
	2582.518	CROSSWALK PAINT	SQ FT	250			250
[5]	2582.518	CROSSWALK PREFORM THERMOPLASTIC	SQ FT	846	846		
[5], [6]	2582.603	PAVEMENT MARKING SPECIAL	LIN FT	139	139		

BASIS OF QUANTITIES		
SPEC NO	DESCRIPTION	RATE
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD / LIFT
2360.501	TYPE SP12.5 WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2575.508	SEED MIXTURE 25-121	61 LBS / ACRE
2575.508	HYDRAULIC REINFORCED FIBER MATRIX	3900 LBS / ACRE
2575.508	FERTILIZER TYPE 3	350 LBS / ACRE

INDEX OF TABULATION CHARTS		
TAB.	DESCRIPTION	SHEET NO.
A	REMOVALS, SAWING AND COMMON EX	3
B	AGGRAGATE & BITUMINOUS SUMMARY	3
C	CONCRETE	3
D	TURF ESTABLISHMENT AND EROSION CONTROL	3


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

MNDOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)

SEE TRAFFIC CONTROL SIGNAL SYSTEM PLANS ON PAGE 29 FOR MORE STANDARD PLATES

[1]	SEE SHEET NUMBER 22 FOR TABULATIONS AND LOCATIONS
[2]	NEENAH R-3030A WITH CURB BOX
[3]	CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL LAYOUT/PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL ATLEAST 14 DAYS PRIOR TO COMMENCEMENT OF WORK. ALL TRAFFIC CONTROL MUST BE COMPLIANT WITH THE MOST CURRENT REVISIONS OF BOTH THE MMUTCD AND THE MNDOT TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL.
[4]	PORTABLE CHANGEABLE MESSAGE SIGN TO BE INSTALLED 10 DAYS PRIOR TO COMMENCEMENT OF WORK
[5]	SEE SHEET NUMBER 24 FOR TABULATIONS AND LOCATIONS
[6]	ITEM REFERENCED AS "24" SOLID LINE STOP BAR PREFORMED THERMOPLASTIC" IN PERMANENT PAVEMENT MARKING TABULATION ON SHEET 24.

NO	DATE	BY	CKD	APPR	REVISION
1	7-24-2023	AA	AA	AA	ADDED VIDEO DETECTOR SYSTEM TO SEQ

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: Aaron Anderson
 SIGNATURE: 
 DATE: 07/24/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23
 DESIGN BY: APA DATE: 05/12/23
 CHECKED BY: ST DATE: 05/12/23



ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-601-063
SAP 114-020-062
CP 23-14

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 43 Sheets

REMOVALS, SAWING AND COMMON EX												A	
LOCATION	ALIGNMENT	STATION	TO	STATION	OFFSET	REMOVE (SPEC. 2104)				SAWING (SPEC. 2104)		COMMON EXCAVATION (SPEC. 2106)	NOTES
						BIT. PAVEMENT	CONC. MEDIAN	CONC. WALK	CONC. CURB & GUTTER	BIT. PAVEMENT	CONC. PAVEMENT		
						(SQ YD)	(SQ FT)	(SQ FT)	(LIN FT)	(LIN FT)	(LIN FT)		
NORTH QUAD	01NB_1	106+45	-	106+80	RT	12		204	49	58	10	10	
EAST QUAD	01NB_1	105+66	-	106+07	RT	12		345	54	61	16	10	[1]
SOUTH QUAD	01SB_1	15+76	-	16+10	LT	20		590	55	73	20	10	
WEST QUAD	01SB_1	16+44	-	16+84	LT	12		227	52	62	18	10	
MEDIAN	01NB_1	105+68	-	105+88	LT	15	80		56	75	8		
MEDIAN	01SB_1	16+66	-	16+83	RT	9	33		30	46	8		
PROJECT TOTAL						80	113	1366	296	375	80	40	

REMOVALS NOTES:
[1] REMOVAL OF V CURB INCIDENTAL TO REMOVE CONC WALK


AGGRAGATE & BITUMINOUS SUMMARY										B
LOCATION	ALIGNMENT	STATION	TO	STATION	OFFSET	2360 BITUMINOUS PATCHING MIXTURE	2357 BIT TACK COAT	AGGREGATE BASE CLASS 5	NOTES	
						TON	GAL	TON		
NORTH QUAD	01NB_1	106+45	-	106+80	RT	4	3	5		
EAST QUAD	01NB_1	105+66	-	106+07	RT	4	3	8		
SOUTH QUAD	01SB_1	15+76	-	16+10	LT	5	4	15		
WEST QUAD	01SB_1	16+44	-	16+84	LT	4	3	6		
MEDIAN	01NB_1	105+68	-	105+88	LT	7	4			
MEDIAN	01SB_1	16+66	-	16+83	RT	3	3			
PROJECT TOTAL						27	20	34		

CONCRETE												C		
LOCATION	ALIGNMENT	STATION	TO	STATION	OFFSET	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN B612	CONCRETE CURB DESIGN V10	6" CONCRETE WALK	4" CONCRETE WALK	DRILL AND GROUT REINF BAR (EPOXY COATED)	TRUNCATED DOMES	CONCRETE MEDIAN	CONCRETE MEDIAN NOSE SPECIAL
						LIN FT	LIN FT	LIN FT	SQ FT	SQ FT	EACH	SQ FT	SQ YD	EACH
NORTH QUAD	01NB_1	106+45	-	106+80	RT	50			217		20	36		
EAST QUAD	01NB_1	105+66	-	106+07	RT	54		24	387		20	24		
SOUTH QUAD	01SB_1	15+76	-	16+10	LT	56			602	96	20	24		
WEST QUAD	01SB_1	16+44	-	16+84	LT	52			295		20	24		
MEDIAN	01NB_1	105+68	-	105+88	LT		34						2	1
MEDIAN	01SB_1	16+66	-	16+83	RT		22						5	1
PROJECT TOTAL						212	56	24	1501	96	80	108	7	2

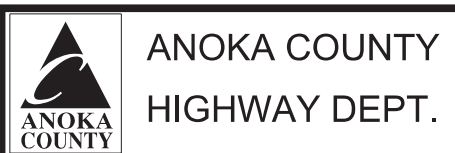
TURF ESTABLISHMENT AND EROSION CONTROL											D
LOCATION	ALIGNMENT	STATION	TO	STATION	OFFSET	STORM DRAIN INLET PROTECTION	COMMON TOPSOIL BORROW	SEEDING	SEED MIXTURE 25-121	HYDRAULIC REINFORCED FIBER MATRIX	FERTILIZER TYPE 3
						EACH	CU YD	ACRE	POUND	POUND	POUND
NORTH QUAD	01NB_1	106+45	-	106+80	RT	1	4	0.01	1	39	3.5
EAST QUAD	01NB_1	105+66	-	106+07	RT	1	4	0.01	1	39	3.5
SOUTH QUAD	01SB_1	15+76	-	16+10	LT		5	0.01	1	39	3.5
WEST QUAD	01SB_1	16+44	-	16+84	LT	1	5	0.01	1	39	3.5
MEDIAN	01NB_1	105+68	-	105+88	LT						
MEDIAN	01SB_1	16+66	-	16+83	RT						
PROJECT TOTAL						3	18	0.04	4	156	14

NO	DATE	BY	CKD	APPR	REVISION

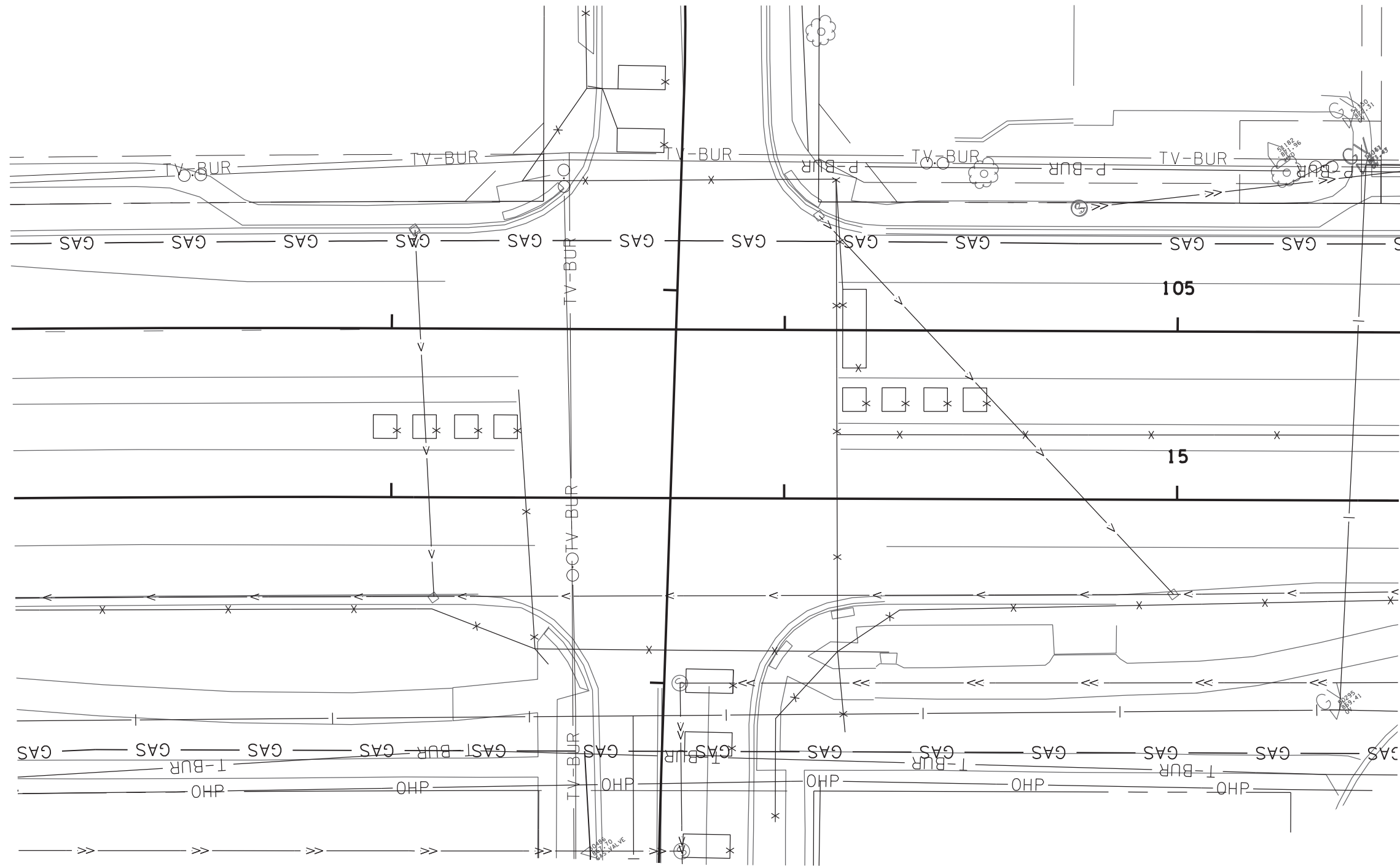
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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 SIGNATURE: 
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DRAWN BY: APA DATE: 05/12/23
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SAP 002-601-063
 SAP 114-020-062
 CP 23-14



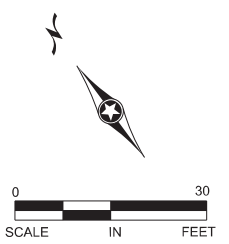
LEGEND	
— GAS —	CENTERPOINT ENERGY
— TV-BUR —	COMCAST
— P-BUR —	XCEL ENERGY
— OHP —	
— T-BUR —	ZAYO
x	TRAFFIC SIGNAL
->	EXISTING STORM SEWER
->>	EXISTING SAN SEWER
	EXISTING WATER MAIN
—	EXISTING R/W
—	INPLACE PERM ESMT

GENERAL NOTES:

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO GUIDELINES OF ASCE/JESI/CI 38-22 ENTITLED "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES".

THE CONTRACTOR SHALL CALL GOPHER STATE ONE CALL (GSOC) AT LEAST 48 HOURS PRIOR TO EXCAVATION OR CONSTRUCTION.

THE CONTRACTOR SHALL COORDINATE THEIR WORK AND COOPERATE WITH THE UTILITY OWNERS AND THEIR FORCES. SOME UTILITIES MAY NEED TO BE RELOCATED CONCURRENTLY WITH THE CONTRACTOR'S WORK.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_top01.dgn 06/27/2023 9:02:28 AM

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: Aaron Anderson

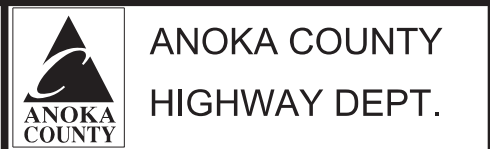
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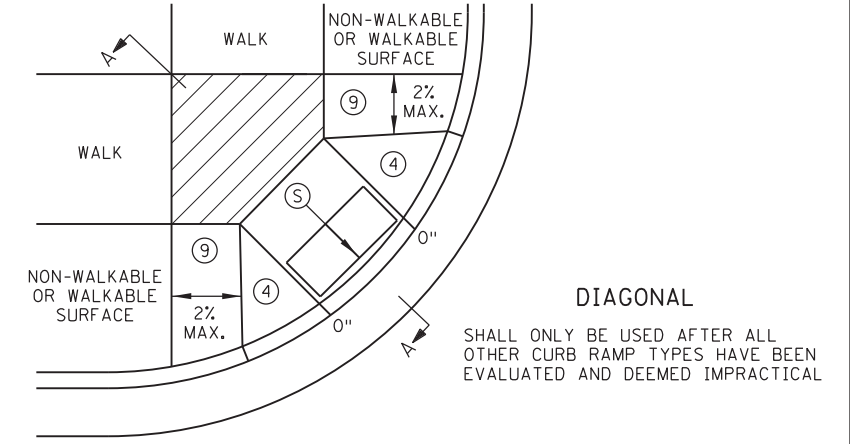
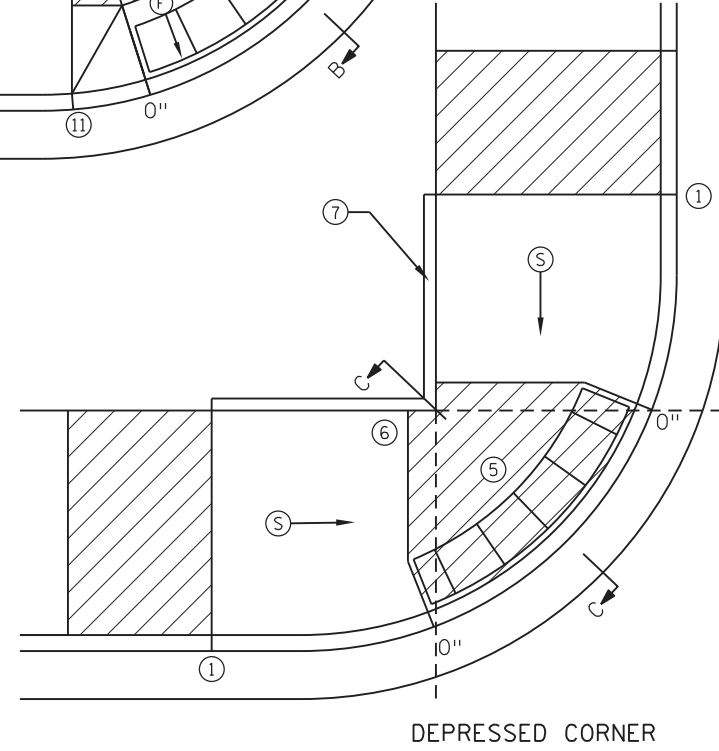
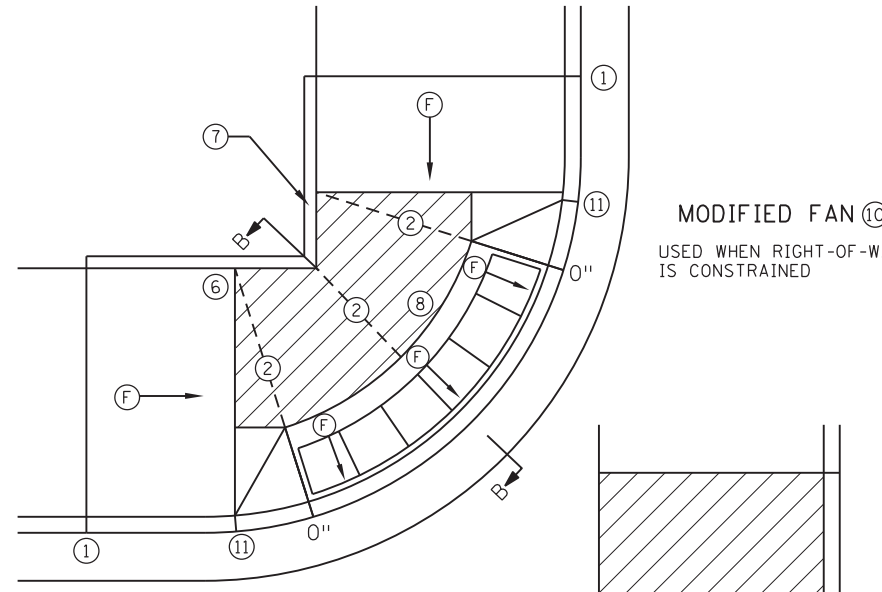
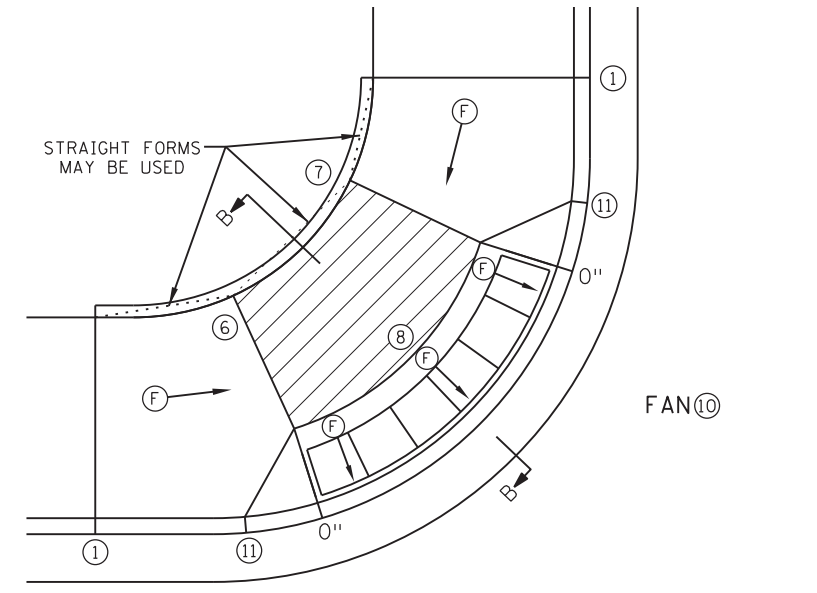
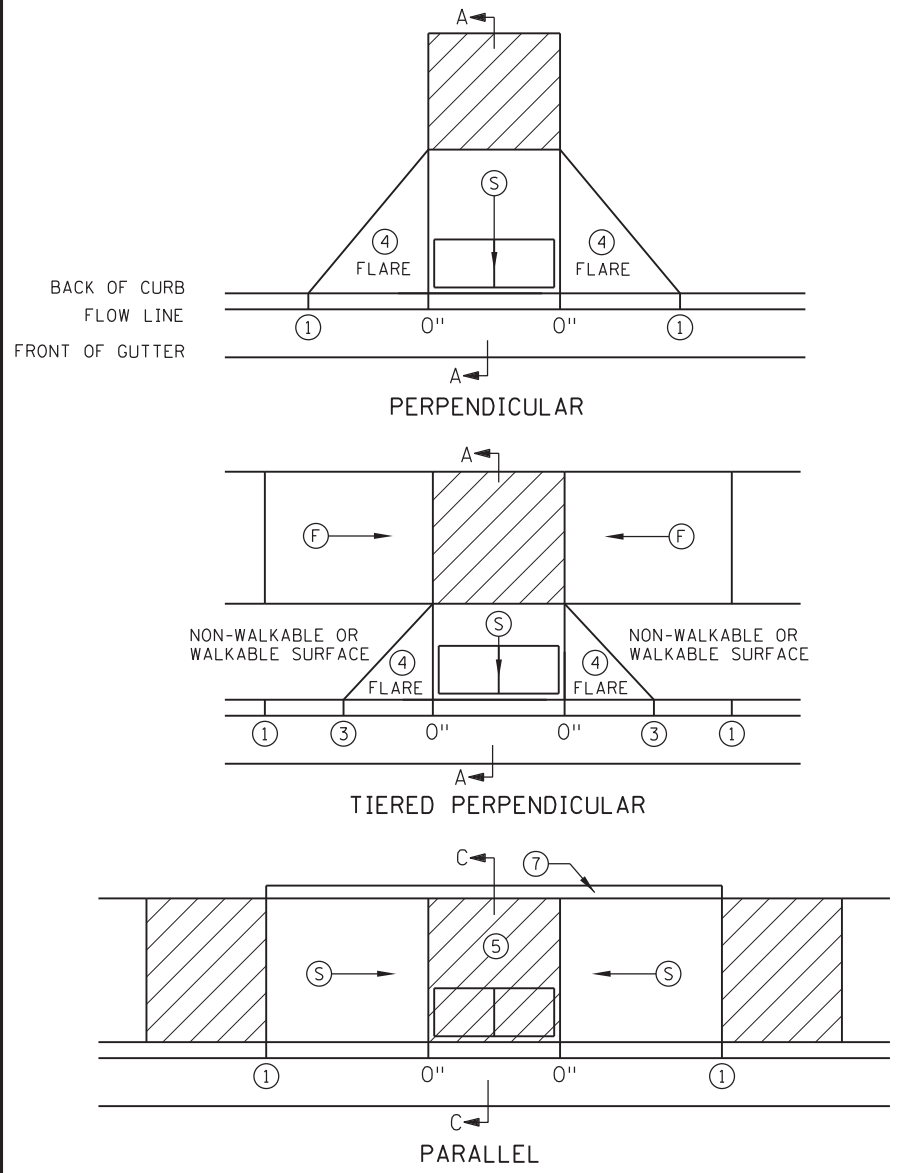
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SAP 114-020-062
CP 23-14

INPLACE UTILITIES & TOPOGRAPHY PLAN

Sheet 4 of 43 Sheets

PLOTTED/REVISED: 06/27/2023

DISTRICT #: PLOT NAME: \$\$\$@IPL01\$NAME\$\$\$ PATH & FILENAME: P:\002-601-063 Xavis Signal\Plan\002601063 STD1.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.

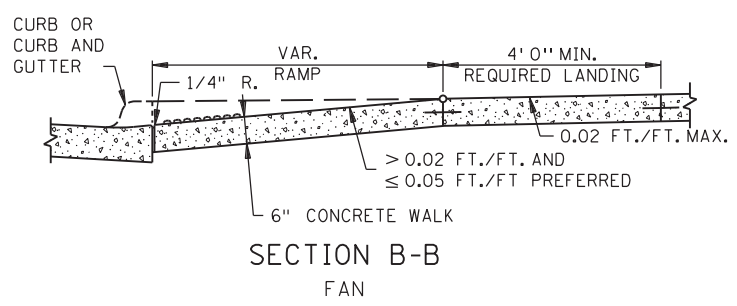
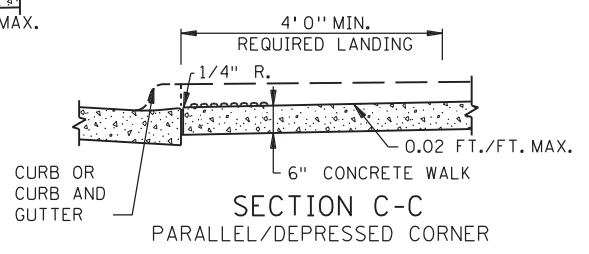
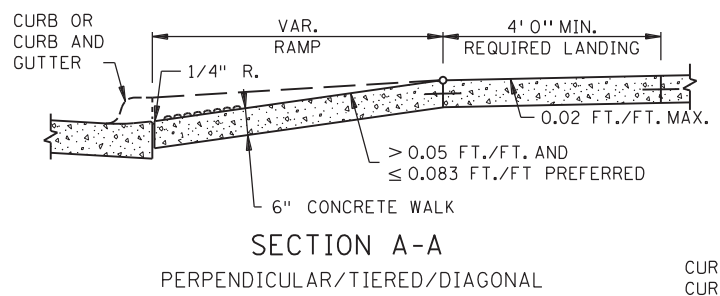
ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

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	
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: 11-04-2021

Jeff J. Pel
JEFFREY PERKINS
OPERATIONS DIVISION

m MINNESOTA
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 1 OF 6

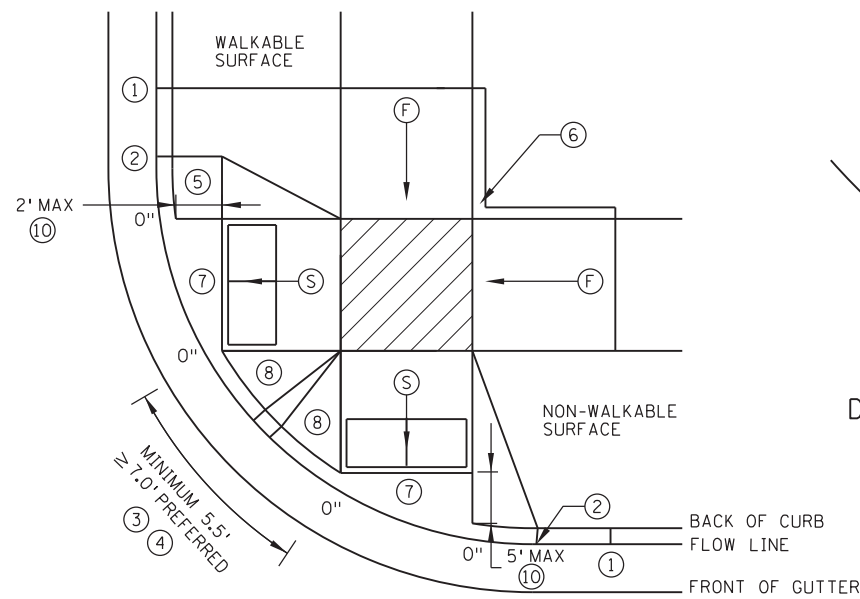
APPROVED: 11-04-2021
REVISED:

Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

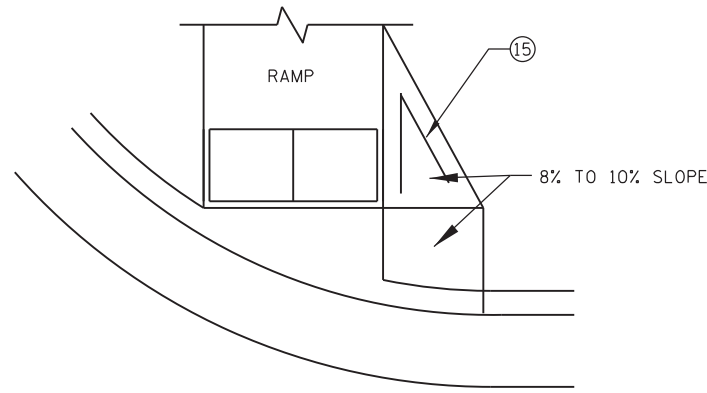
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 06/27/2023

DISTRICT #: PLOT NAME: \$\$\$@IPL01\$NAME\$\$\$
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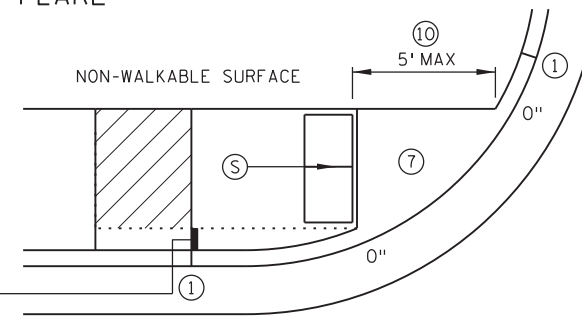


COMBINED DIRECTIONAL

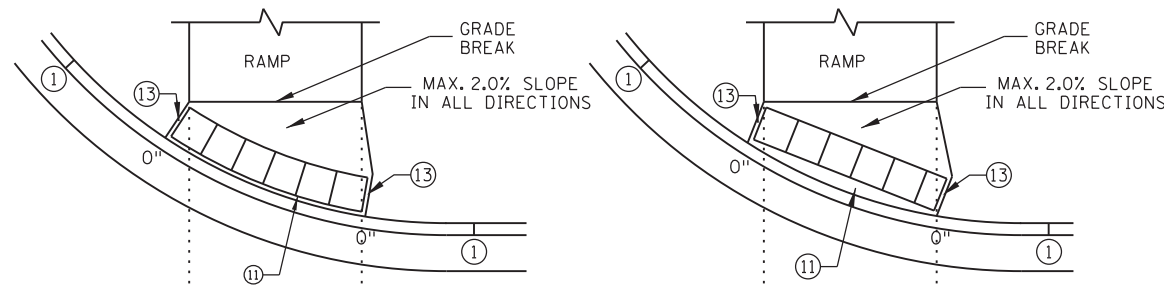


DIRECTIONAL RAMP WALKABLE FLARE

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.

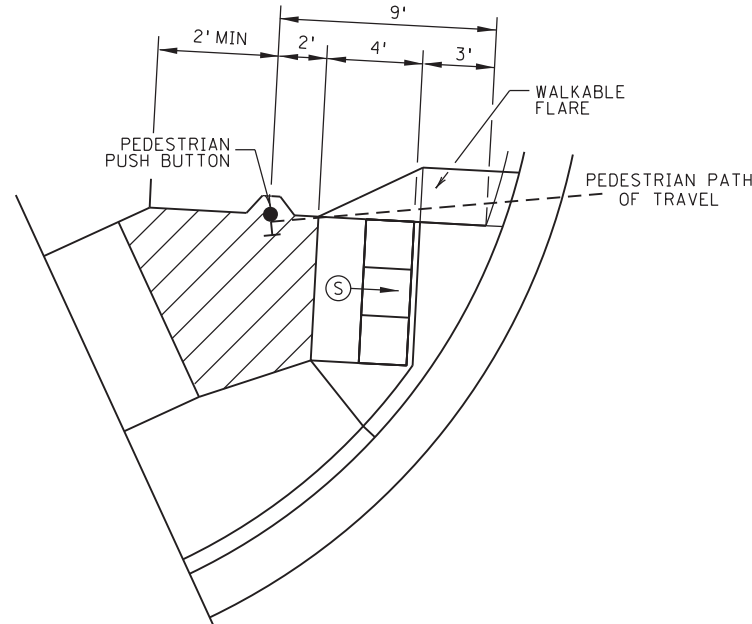


STANDARD ONE-WAY DIRECTIONAL ⑨



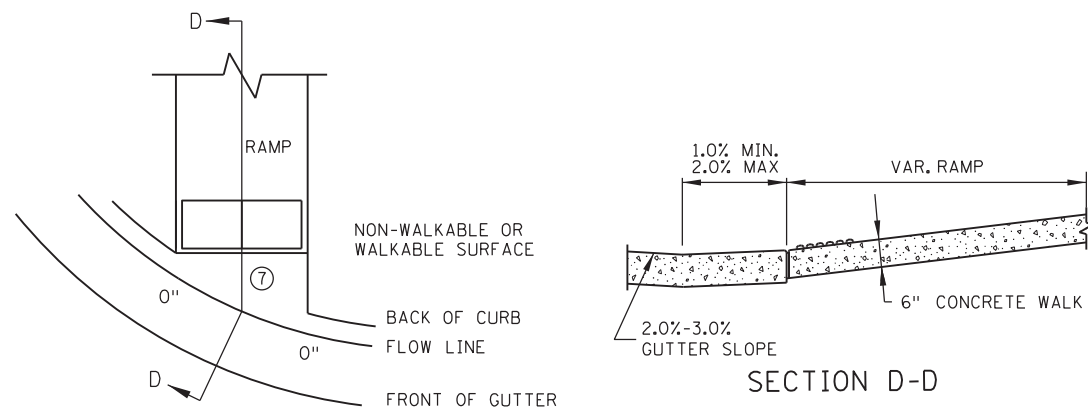
DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

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



SECTION D-D

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 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.	
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: 11-04-2021

Jeff J. Pel
 JEFFREY PERKINS
 OPERATIONS DIVISION

m MINNESOTA
 DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 2 OF 6

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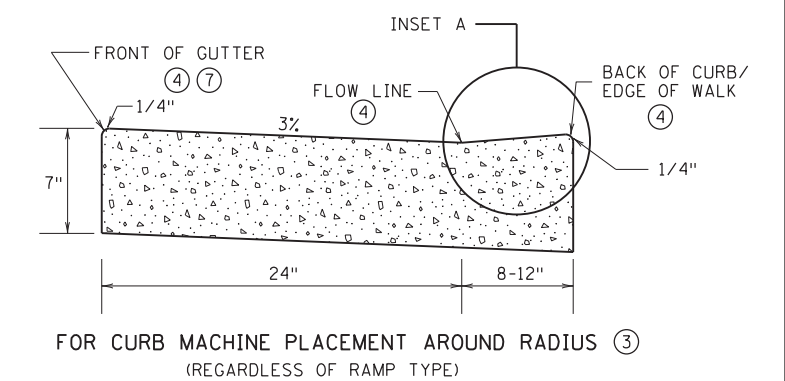
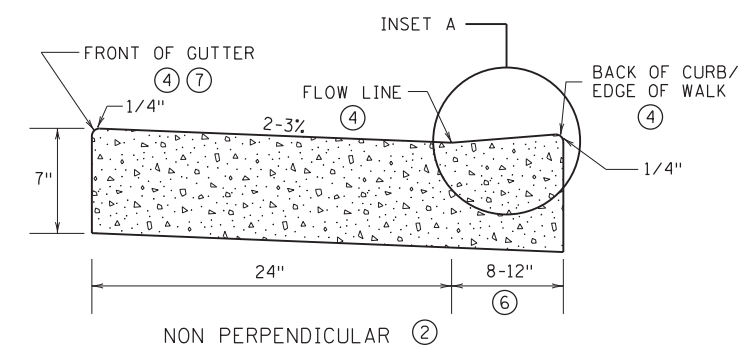
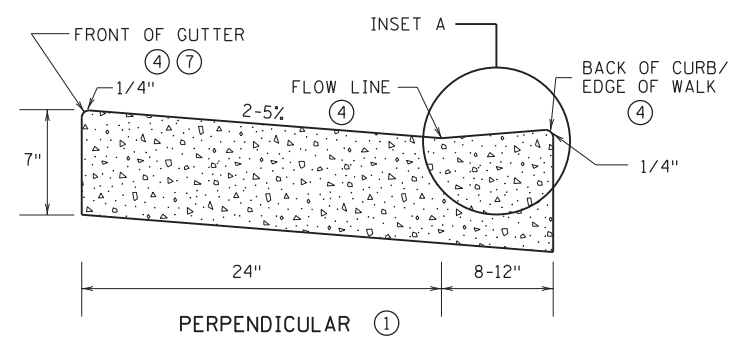
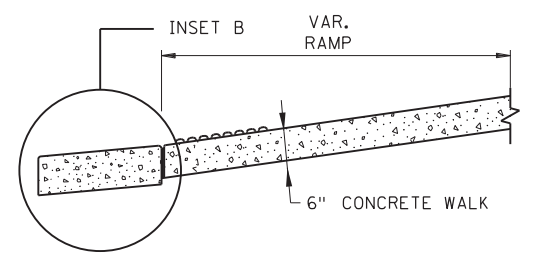
Tom Styrbicki
 THOMAS STYRBICKI
 STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

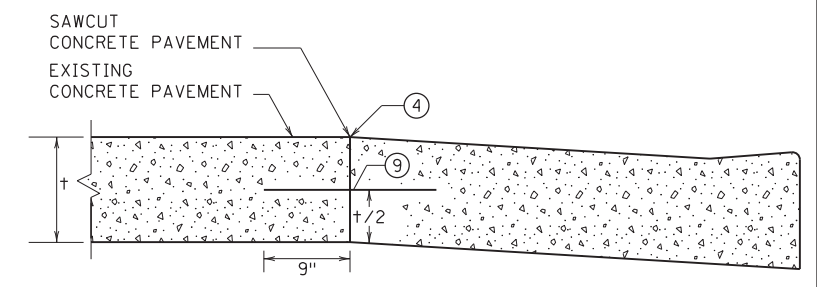
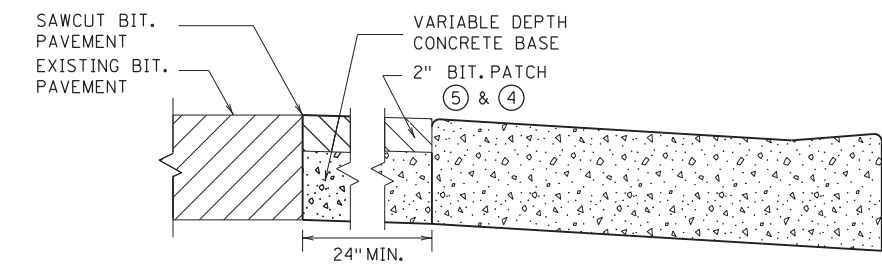
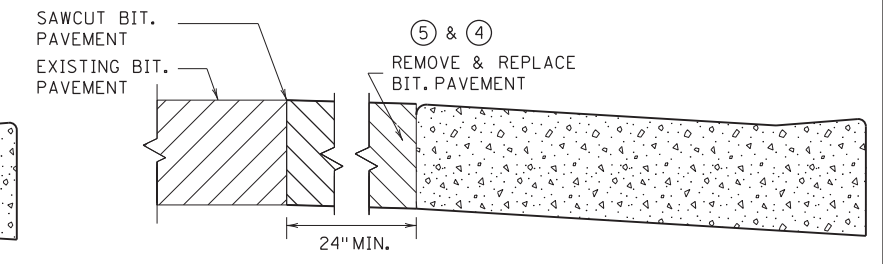
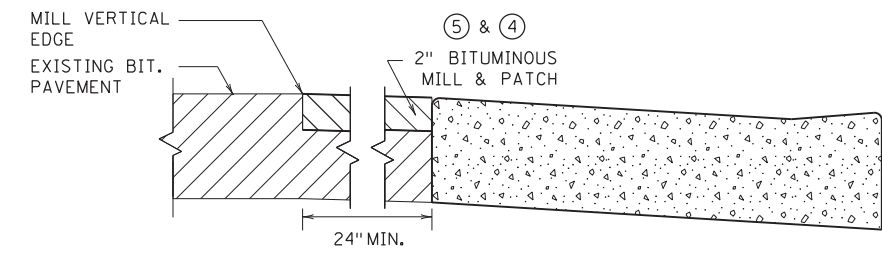
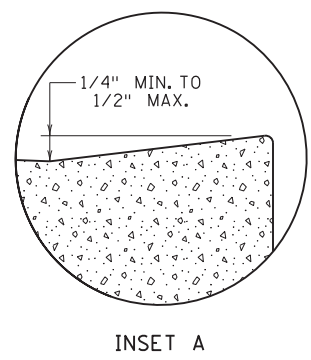
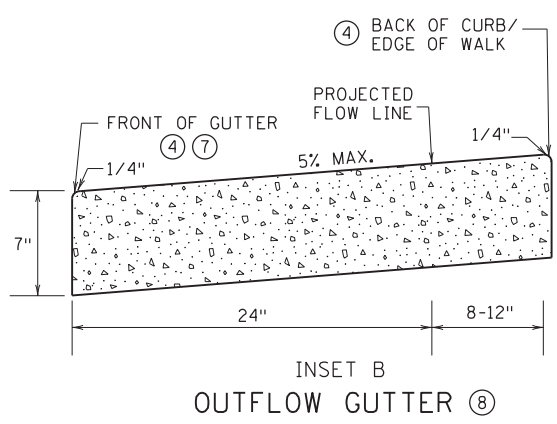
STATE PROJ. NO. SAP 002-601-063 CP 23-14 SHEET NO. 6 OF 43 SHEETS

PLOTTED/REVISED: 06/27/2023

DISTRICT #: PLOT NAME: \$\$\$@PLOT1\$NAME\$\$\$ PATH & FILENAME: P:\002-601-063 Xavis Signal\Plan\002601063 STD1.dgn



PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



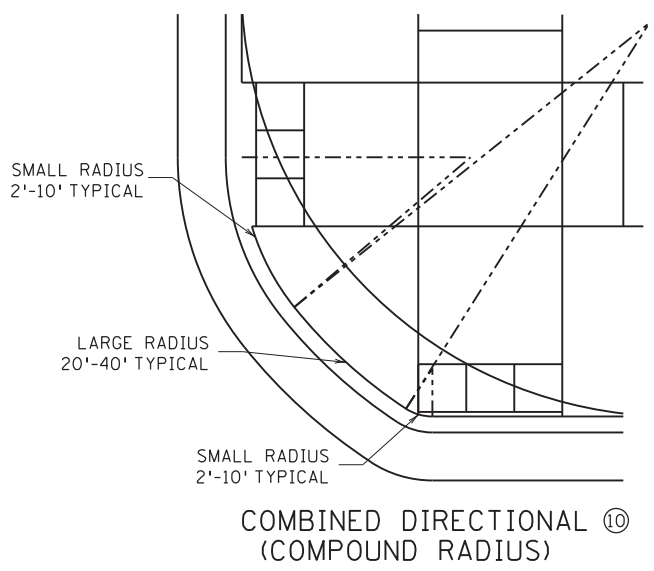
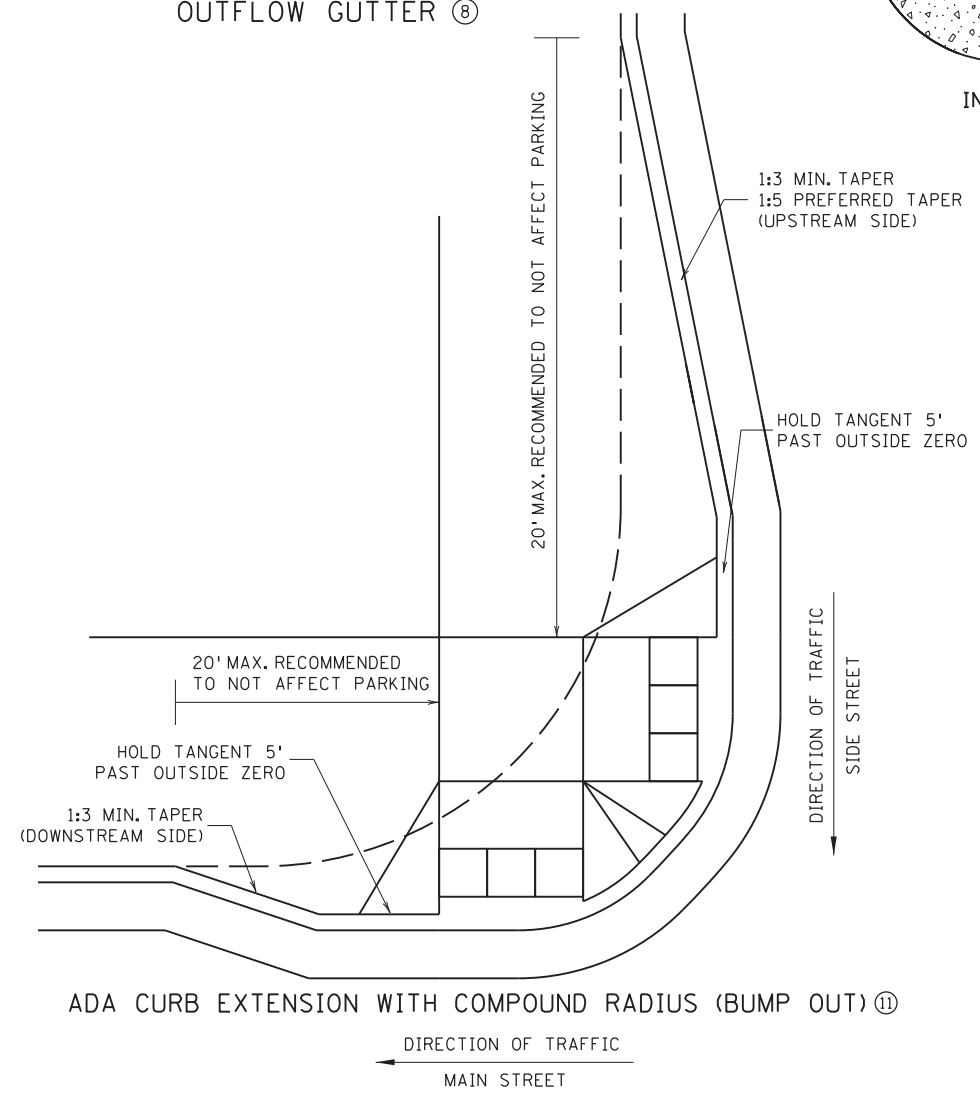
ONLY ALLOWED PER ENGINEER'S APPROVAL

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 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.



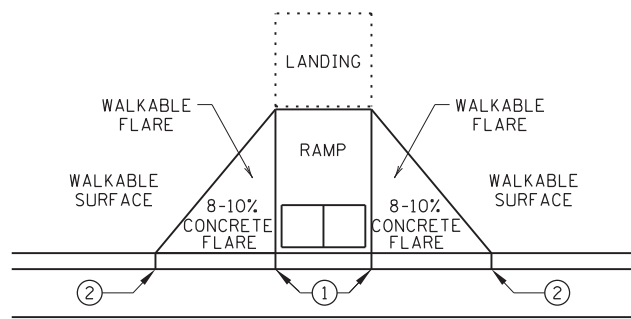
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 APPROVED: 11-04-2021
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 JEFFREY PERKINS
 OPERATIONS DIVISION

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STANDARD PLAN 5-297.250 3 OF 6
 APPROVED: 11-04-2021
 THOMAS STYRBICKI
 STATE DESIGN ENGINEER

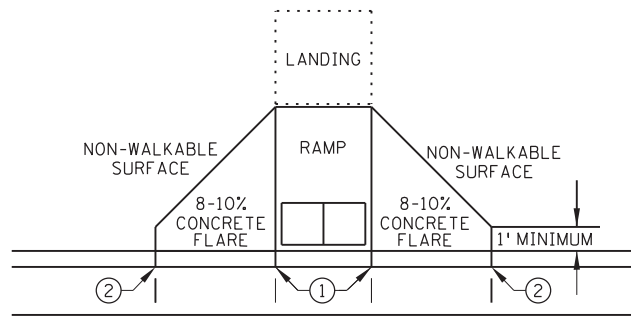
PEDESTRIAN CURB RAMP DETAILS

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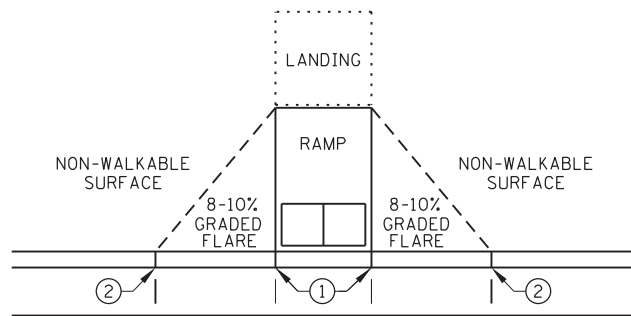
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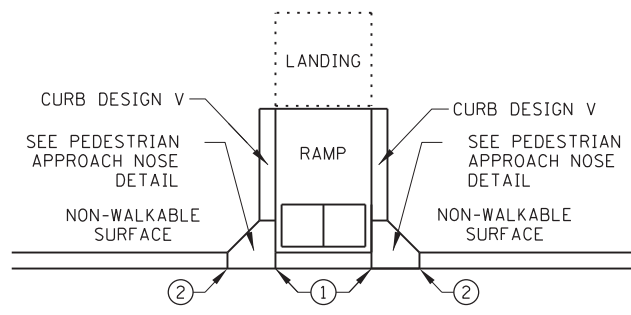
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

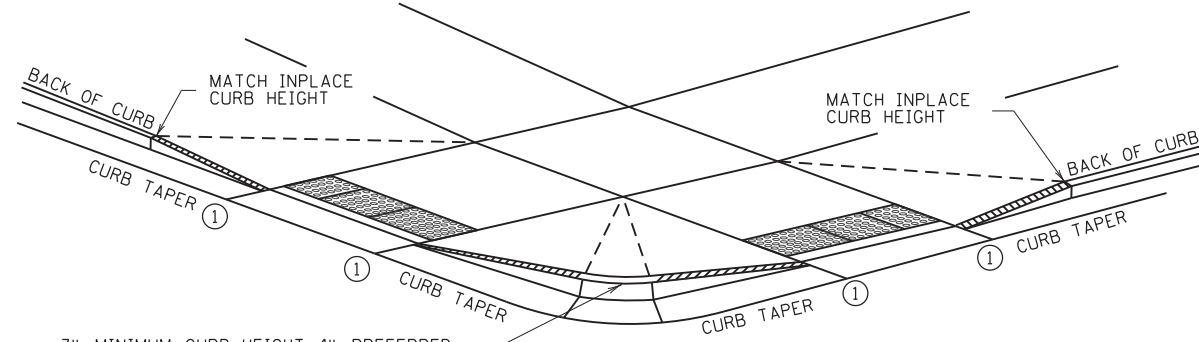


GRADED FLARES



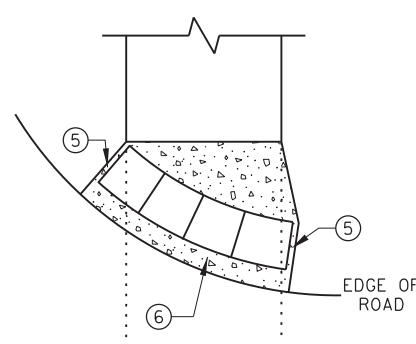
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

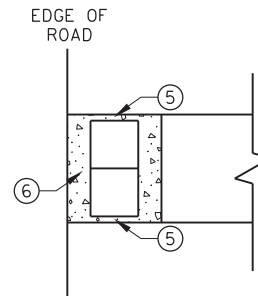


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

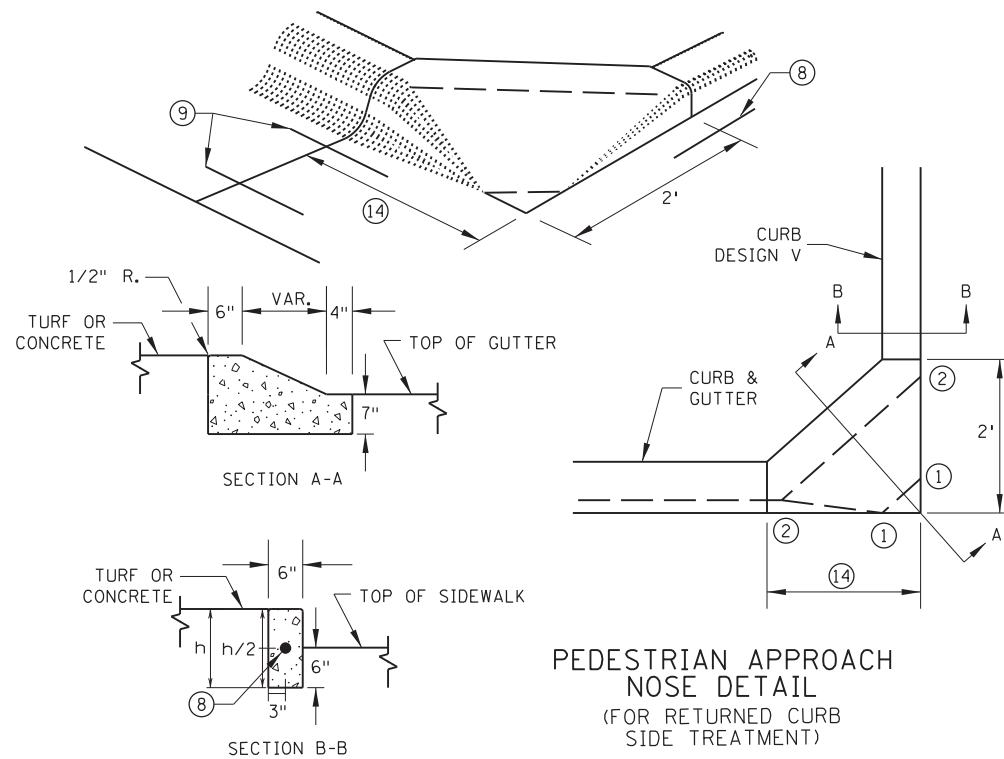


RADIAL DETECTABLE WARNING

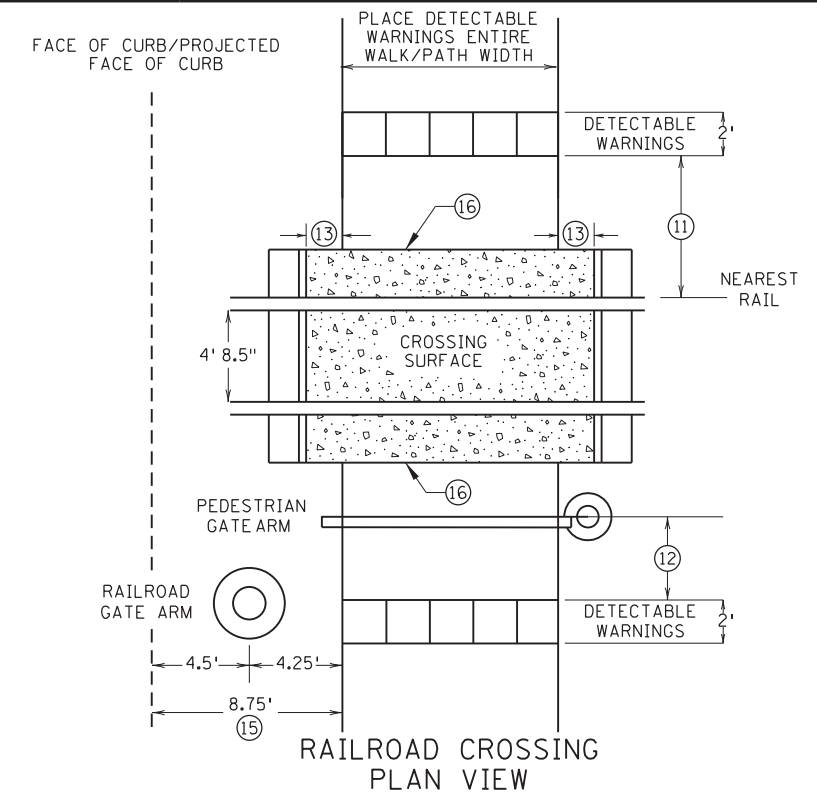


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER



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
<i>Jeff J. Pel</i> JEFFREY PERKINS OPERATIONS DIVISION

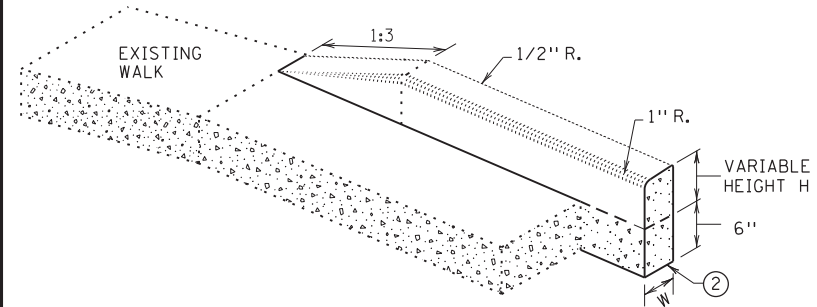


STANDARD PLAN 5-297.250	4 OF 6
APPROVED: 11-04-2021	
REVISED:	
THOMAS STYRBICKI STATE DESIGN ENGINEER	

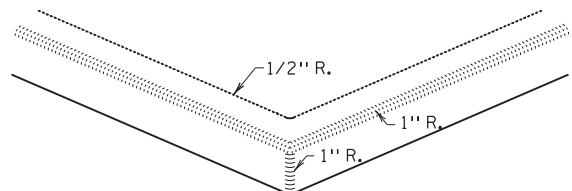
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 06/27/2023

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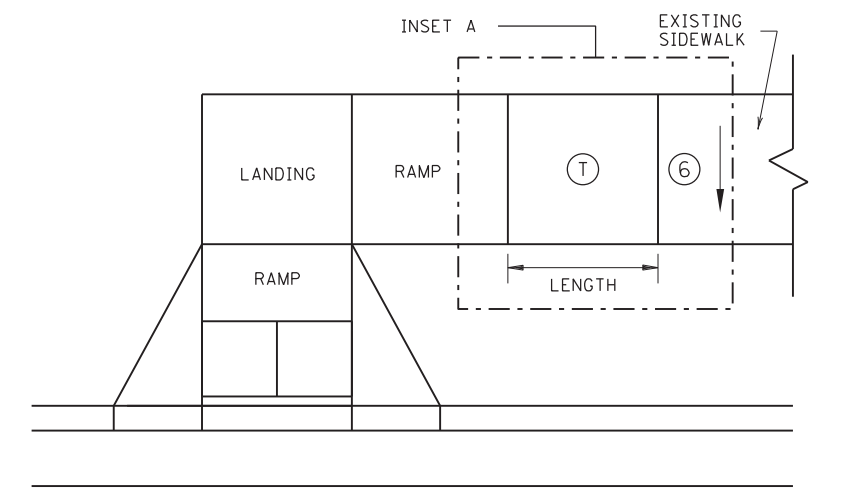


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

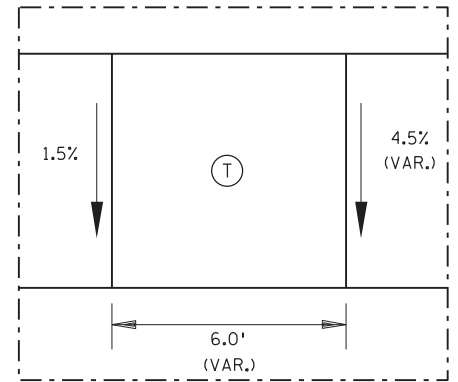


V CURB INTERSECTION

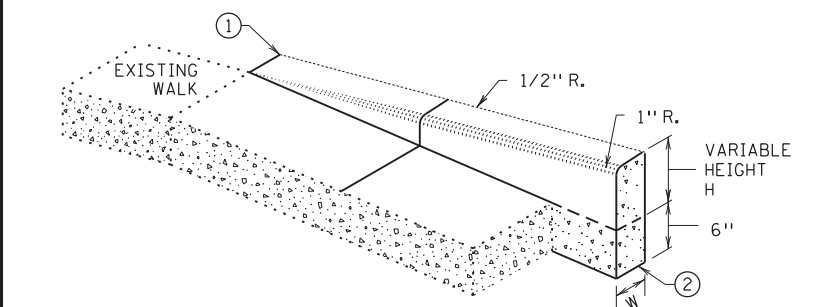
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



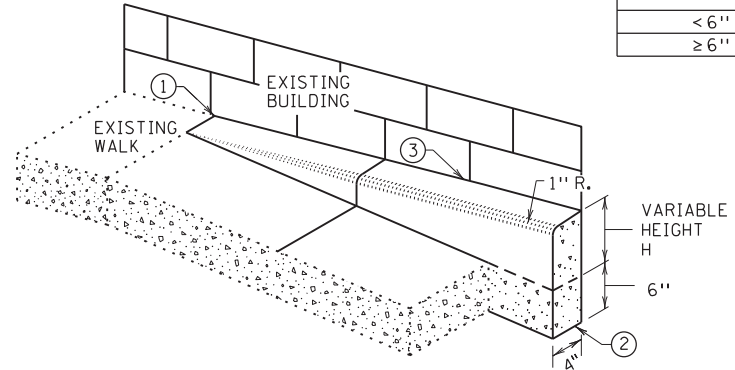
TRANSITION PANEL ④ ⑤



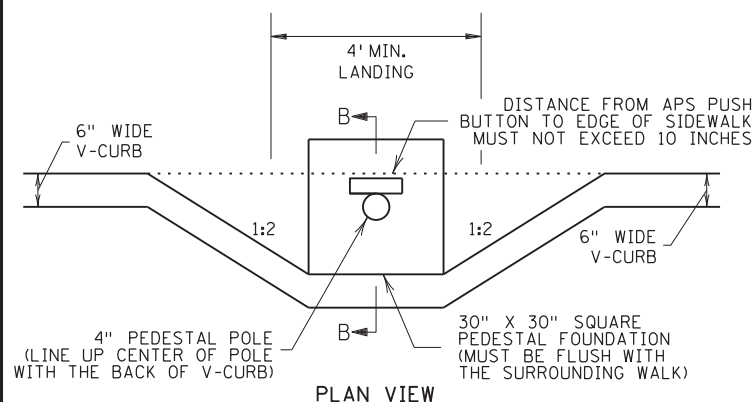
INSET A



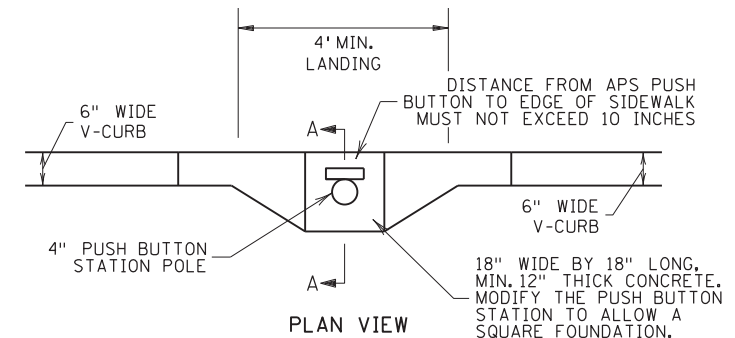
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



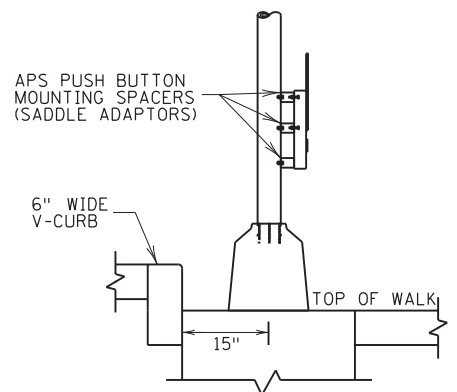
V CURB ADJACENT TO BUILDING
OR BARRIER



PLAN VIEW

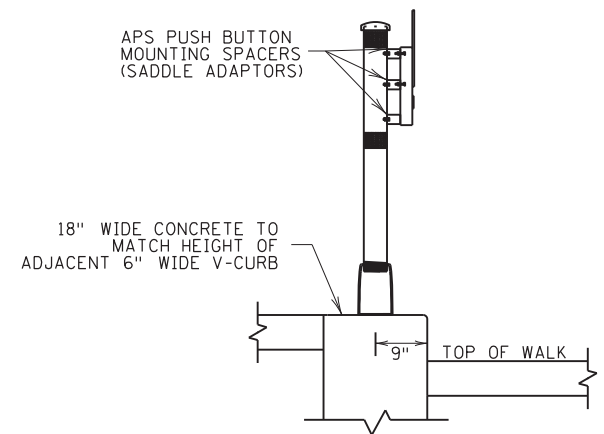


PLAN VIEW



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.

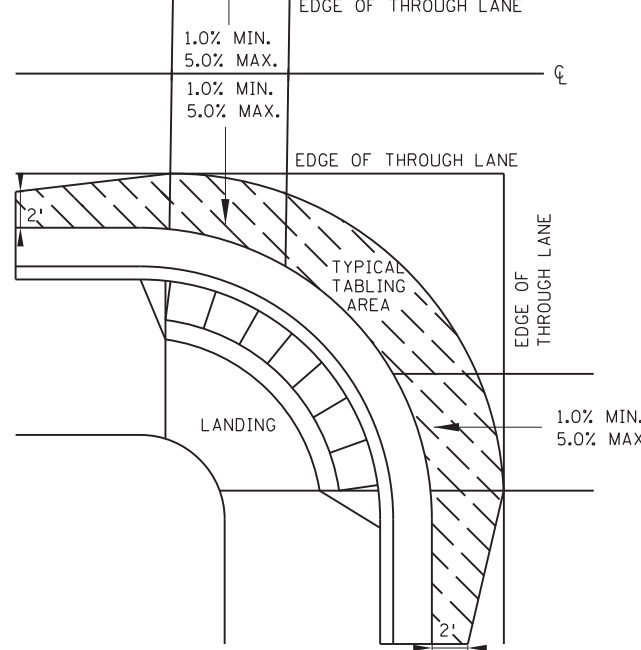
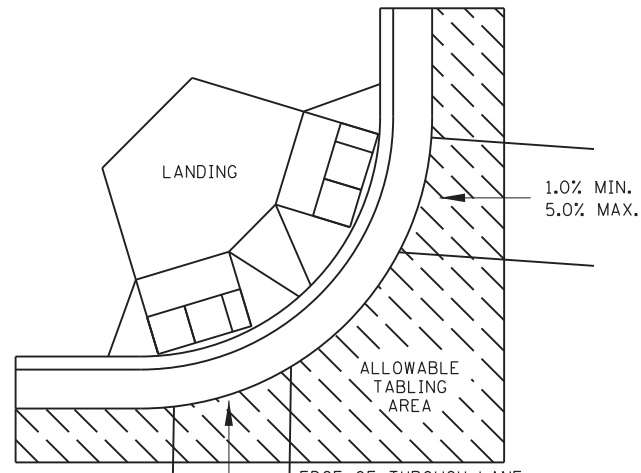
REVISION:
APPROVED: 11-04-2021
Jeff J. Perkins
JEFFREY PERKINS
OPERATIONS DIVISION

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

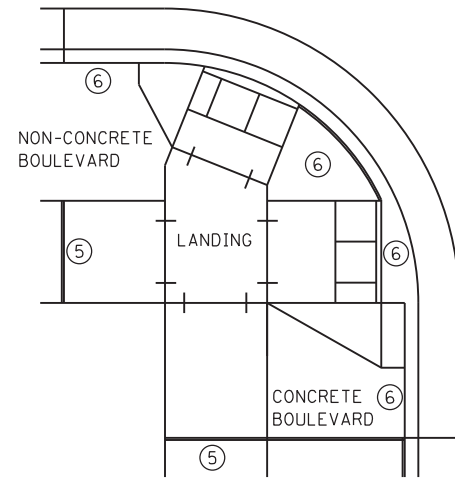
PEDESTRIAN CURB RAMP DETAILS
STATE PROJ. NO. SAP 002-601-063
CP 23-14
SHEET NO. 9 OF 43 SHEETS

PLOTTED/REVISED: 06/27/2023

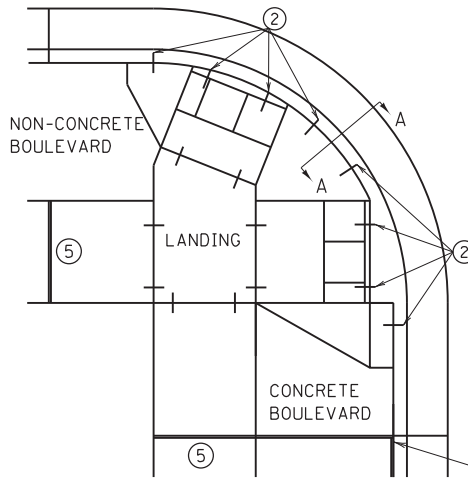
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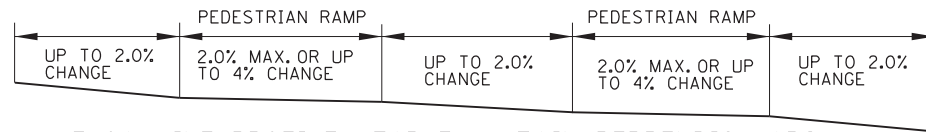
CURB LINE AND ROAD CROSSING ADJUSTMENTS



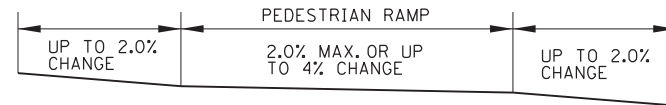
EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS



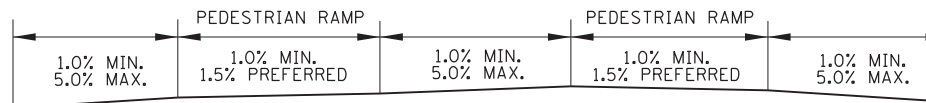
CURB LINE REINFORCEMENT (4) PLACEMENT ON BITUMINOUS ROADWAYS



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



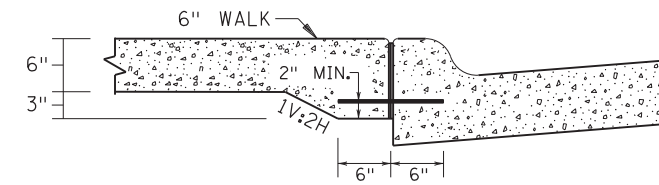
FLOW LINE PROFILE "TABLE" - FAN



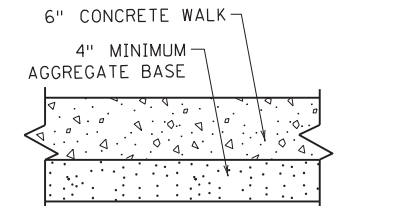
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



FLOW LINE PROFILE RAISE - FAN

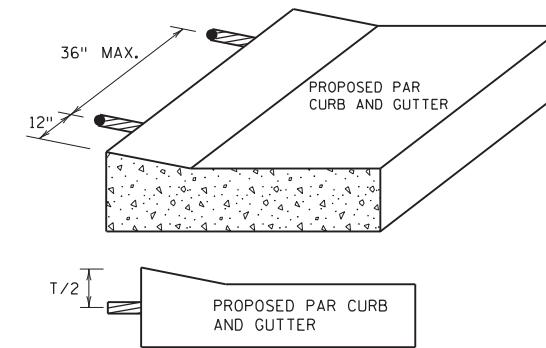


SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES

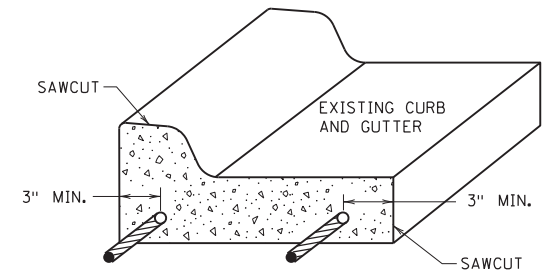


TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

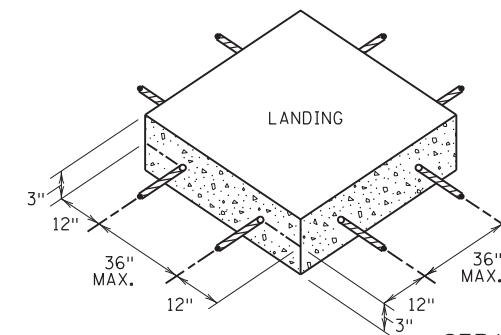
END SILL CURB AT TOP OF CURB RAMP AND DRIVEWAY FLARES.



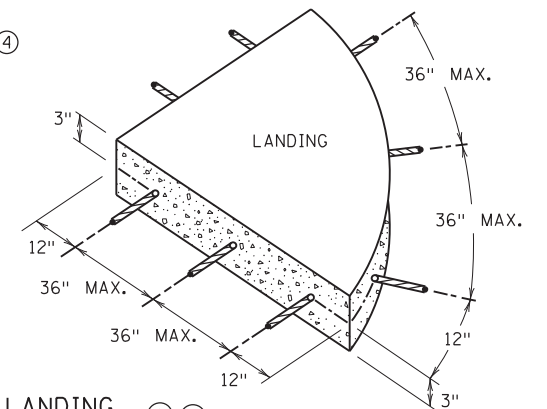
CURB RAMP REINFORCEMENT DETAILS (2) (4)



CURB AND GUTTER REINFORCEMENT (3)



SEPARATE LANDING POUR REINFORCEMENT (1) (2)



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. Perkins
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 MINNESOTA
 DEPARTMENT
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STANDARD PLAN 5-297.250 6 OF 6

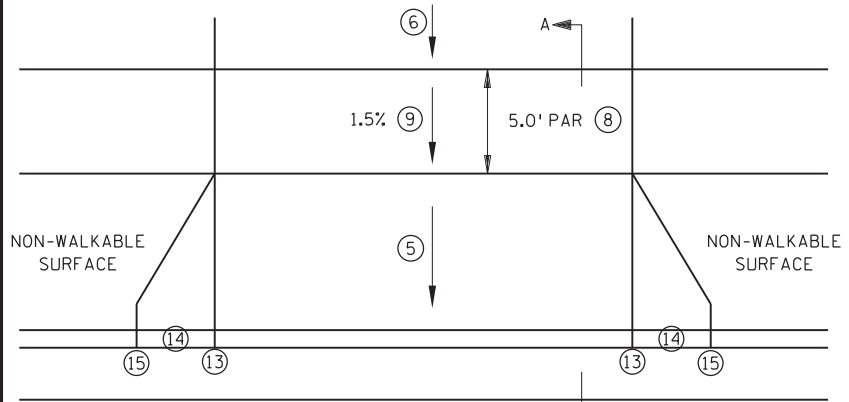
APPROVED: 11-04-2021
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Tom Styrbicki
 THOMAS STYRBICKI
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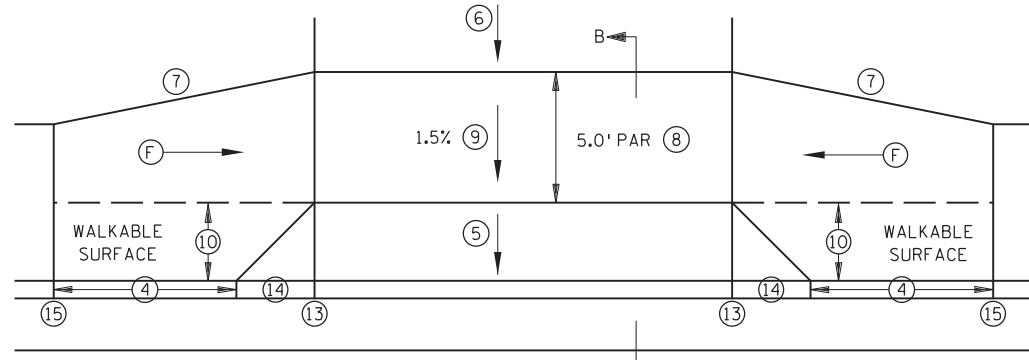
PEDESTRIAN CURB RAMP DETAILS

PLOTTED/REVISED: 06/27/2023

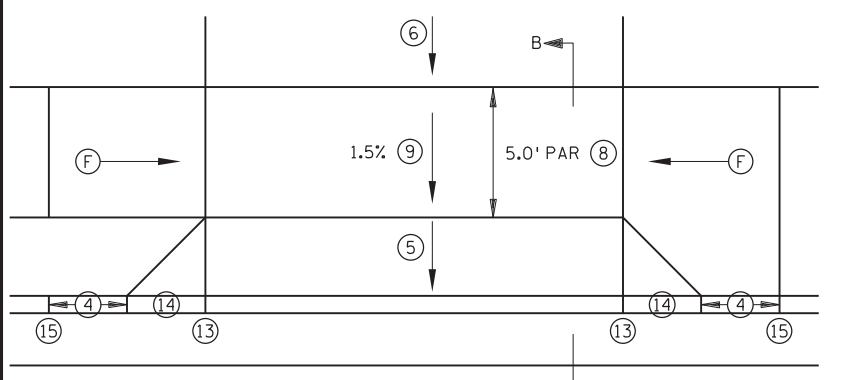
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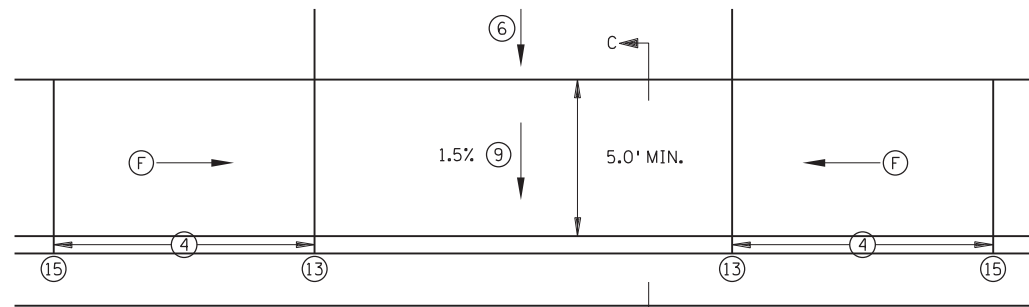
PERPENDICULAR DRIVEWAY ①



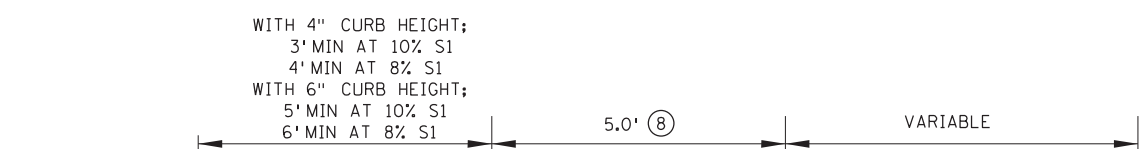
TIERED PERPENDICULAR OFFSET DRIVEWAY ②



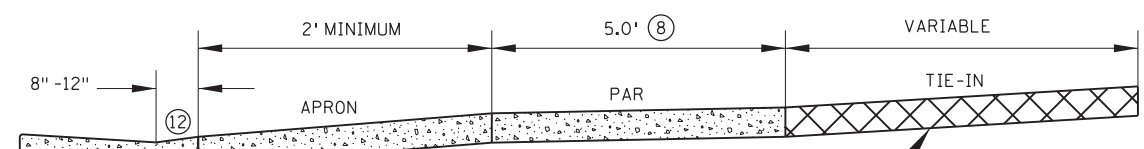
TIERED PERPENDICULAR DRIVEWAY ②



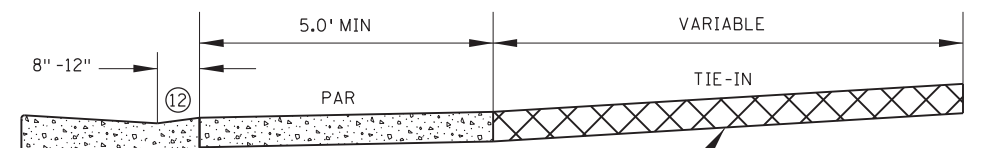
PARALLEL DRIVEWAY ③



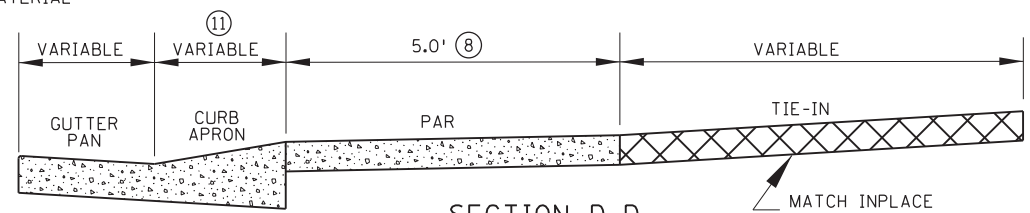
SECTION A-A



SECTION B-B



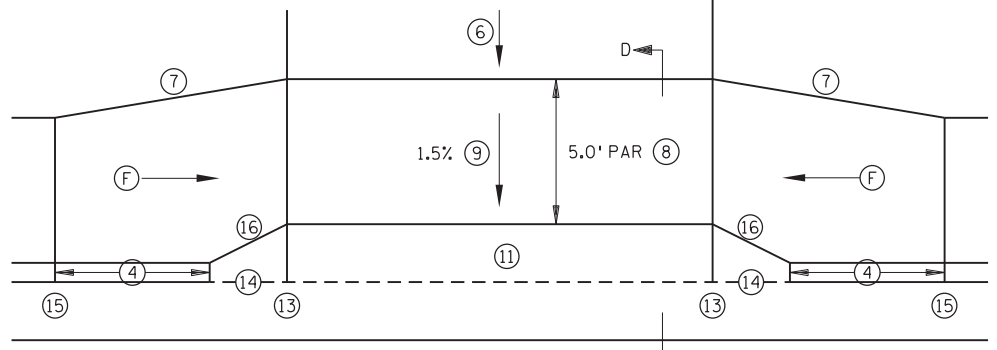
SECTION C-C



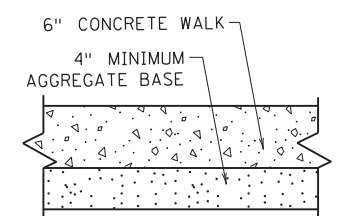
SECTION D-D

LEGEND

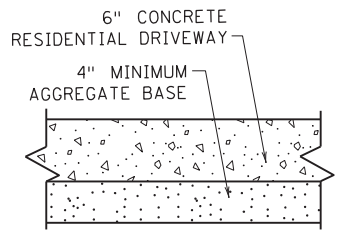
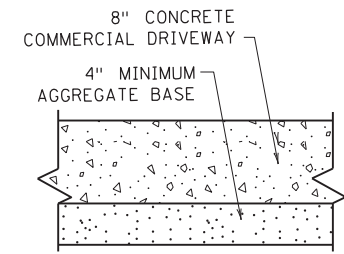
(F) INDICATES DRIVEWAY RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%



INTEGRAL DRIVEWAY APRON



TYPICAL SIDEWALK SECTION ⑰



TYPICAL DRIVEWAY SECTIONS

- NOTES:**
- ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.
- IN URBAN ROADWAY SECTIONS, 6" CURB HEIGHT SHOULD BE USED WHEN 6' OR GREATER BOULEVARD WIDTH IS PROPOSED. WHEN BOULEVARD IS LESS THAN 6' WIDE, 4" CURB HEIGHT SHOULD BE USED.
- MAINTAIN EXISTING DRAINAGE PATTERNS FLOWING TO PUBLIC RIGHT OF WAY.
- ACQUIRE ADEQUATE L3 TO ALLOW FOR A CONTINUOUS PAR PROFILE (UNIFORM TYPICAL SIDEWALK SECTION) THROUGH THE DRIVEWAY APRON.
- IN NO CASE SHALL SIDEWALK PROFILES EXCEED 5.0%, EXCEPT SIDEWALK PROFILES CAN MATCH ROADWAY GRADE IF ROADWAY GRADE IS GREATER THAN 5.0%. RAMP FOR DRIVEWAYS ARE REQUIRED TO FOLLOW THE ABOVE SIDEWALK CRITERIA.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PEDESTRIAN ACCESS ROUTE (PAR). 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- DRIVEWAY TYPES FROM MOST PREFERRED TO LEAST PREFERRED ARE AS FOLLOWS: PERPENDICULAR, TIERED PERPENDICULAR, TIERED PERPENDICULAR OFFSET & PARALLEL.
- PERPENDICULAR DRIVEWAYS ARE THE STANDARD AND STARTING POINT FOR ALL DRIVEWAY DESIGN AND CONSTRUCTION. SHOULD BE USED TO ACHIEVE CONTINUOUS PAR PROFILE THROUGH THE DRIVEWAY. OBTAINING A PERPENDICULAR DRIVEWAY DESIGN BECOMES MORE CRITICAL WITH STEEP ROADWAY PROFILES.
 - TO BE USED WHEN PERPENDICULAR DRIVEWAY DESIGN CANNOT BE ACHIEVED, THE DRIVEWAY PAR IS BELOW ROADWAY CURB HEIGHT. THIS DRIVEWAY TYPE CAN BE USED FOR BOTH PAVED (AS SHOWN) AND GRASS BOULEVARDS.
 - TO BE USED WHEN PERPENDICULAR AND TIERED PERPENDICULAR DRIVEWAY DESIGN CANNOT BE ACHIEVED. CAN BE USED FOR STEEP NEGATIVE SLOPED DRIVEWAYS. DW CURB TYPE 2 SHOULD BE USED TO RAISE PAR ABOVE GUTTER AND REDUCE "ROLLER COASTER" EFFECT. 4" HIGH ROADWAY CURB SHOULD BE USED TO REDUCE "ROLLER COASTER" EFFECT ESPECIALLY WHEN MULTIPLE DRIVEWAYS ARE PRESENT.
 - TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
 - 8% STANDARD, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.
 - S3 8% MAXIMUM, IF THE SLOPE IS EXCEEDED OR CONTINUED FOR MORE THAN 5', ANALYZE VEHICLE TEMPLATES FOR VERTICAL CLEARANCE. IF EXISTING DRIVEWAY IS NEGATIVELY DRAINING, S3 CAN BECOME SLIGHTLY MORE NEGATIVE TO ACHIEVE PERPENDICULAR DRIVEWAY DESIGN IF THE VERTICAL CLEARANCE IS ACHIEVED IN VEHICLE TEMPLATES.
 - 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.
 - 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.
 - THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.
 - SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.
 - INTEGRAL DRIVEWAY APRON TO BE POURED MONOLITHICALLY/INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.
 - SEE SHEET 2 FOR CURB TYPE INFORMATION.
 - 0" CURB IS AT FLOW LINE. SEE DRIVEWAY TABLE FOR BACK OF CURB HEIGHTS.
 - 3' LONG AT 8-10% PREFERRED FOR INITIAL CURB TAPER. REDUCE CURB TAPER SLOPE IF NECESSARY TO MATCH ADJACENT SIDEWALK GRADES.
 - MATCH FULL CURB HEIGHT.
 - 1:2 TAPER RATE ON INTEGRAL DRIVEWAY APRONS.
 - SEE SHEET 4 FOR WHEN 6" WALK IS REQUIRED.

REVISION:

APPROVED: 11-04-2021

Jeff J. Perkins
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DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.254 1 OF 4

APPROVED: 11-04-2021
REVISOR:

Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

PLOTTED/REVISED: 06/27/2023

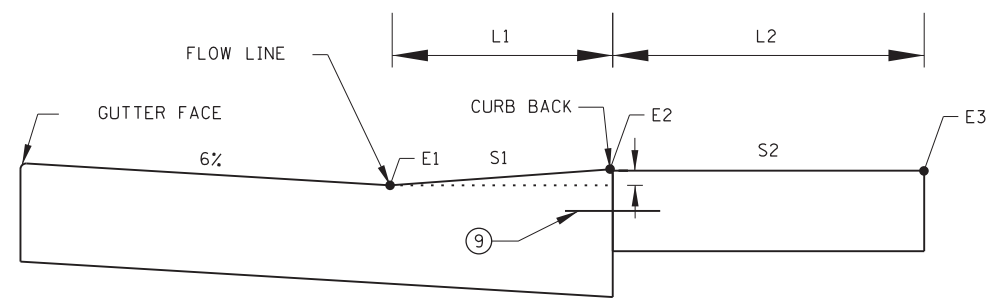
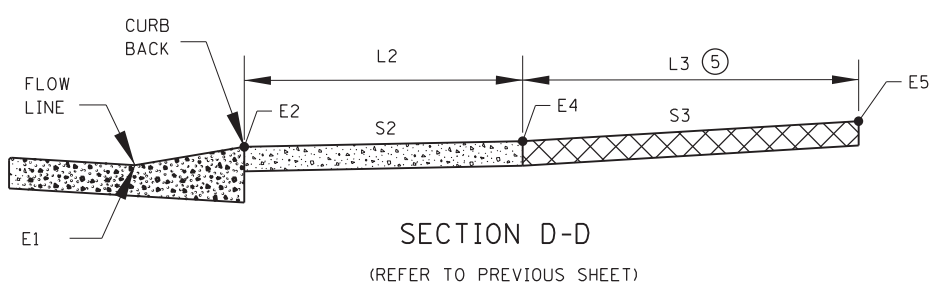
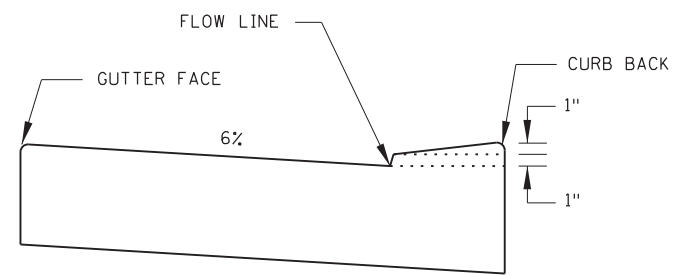
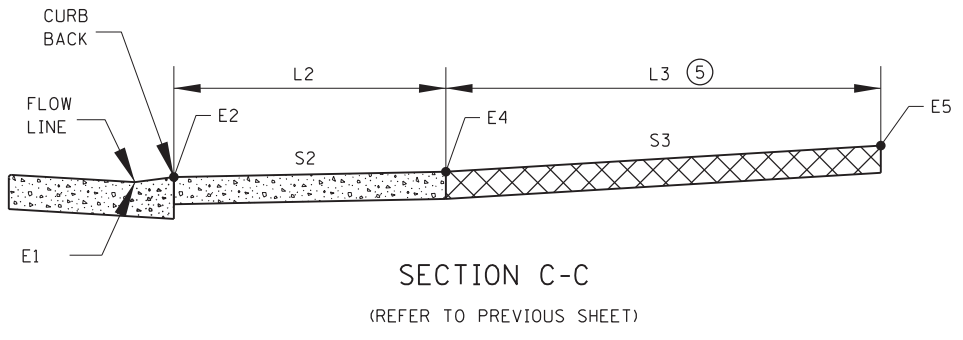
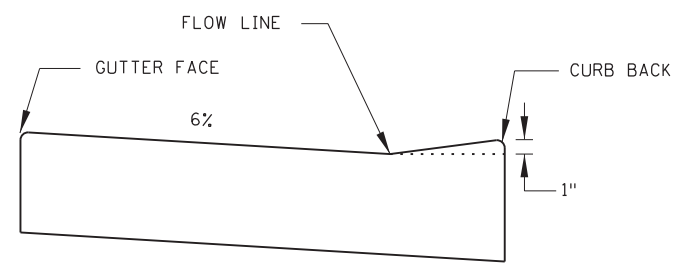
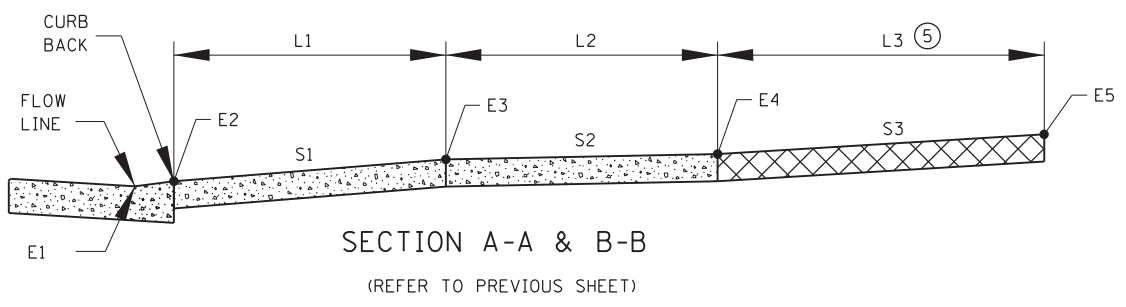
DISTRICT #: PLOT NAME: \$\$\$@PLOTNAME\$\$\$ PATH & FILENAME: P:\002-601-063 Xavis Signal\Plan\002601063 STD4.dgn

DRIVEWAY TABLE ①

STATION	SIDE	DRIVEWAY TYPE ②	CURB TYPE ③	E1	E2	L1	S1	E3	L2	S2 ④	E4	L3 ⑤	S3	EXISTING ⑥	E5	COMMENTS
						FT	%		FT	%		FT	%			

NOTES:

- ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.
- DW CURB TYPE 1 SHALL BE USED WHEN THE DRIVEWAY ACTS AS A PEDESTRIAN RAMP. THE MAX. APRON SLOPE MUST ADHERE TO ADA CRITERIA AS WELL. DW CURB TYPE 1 SHOULD BE USED IF THERE IS ON STREET PARKING.
- WHERE ROADWAY DRAINAGE IS A CONCERN (NEGATIVE SLOPED APRON) DW CURB TYPE 2 CAN BE USED TO HELP KEEP THE WATER ON PUBLIC RIGHT OF WAY.
- S1 8% STANDARD, 10% MAX. COMMERCIAL AND 12% MAX. RESIDENTIAL. IF EXISTING GRADES ARE STEEPER DO NOT MAKE GRADES APPRECIABLY WORSE BY USING BEST PRACTICES SUCH AS DRIVEWAY CURB HEIGHTS, EXTENDING L3 AND/OR STEEPEN S3.
- S3 8% MAXIMUM, IF THIS SLOPE IS EXCEEDED OR CONTINUED FOR MORE THAN 5', ANALYZE VEHICLE TEMPLATES FOR VERTICAL CLEARANCE. SEE FACILITY DESIGN GUIDE, CHAPTER 6, FOR GEOMETRIC DESIGNS OF DRIVEWAYS.
- ① EXAMPLE SHOWN TO BE INCLUDED IN PLAN FOR EACH DRIVEWAY THAT HAS PAR THROUGH IT.
- ② REFERS TO THE FOLLOWING TYPES; PERPENDICULAR DRIVEWAY, TIERED PERPENDICULAR OFFSET DRIVEWAY, TIERED PERPENDICULAR DRIVEWAY, PARALLEL DRIVEWAY, AND INTEGRAL DRIVEWAY APRON.
- ③ DW CURB TYPE 1 IS THE STANDARD AND SHALL BE THE STARTING POINT FOR ALL PERPENDICULAR AND TIERED DRIVEWAYS. DW CURB TYPE 2 SHALL ONLY BE USED AFTER UTILIZING BEST PRACTICES SUCH AS MAXIMIZING S1, S3, AND L3.
- ④ SHOULD BE DESIGNED AT 1.5%.
- ⑤ ACQUIRE ADEQUATE L3 TO ALLOW FOR CONTINUOUS PAR PROFILE (UNIFORM SIDEWALK SECTION) THROUGH THE DRIVEWAY APRON.
- ⑥ PROVIDE INPLACE TIE-IN SLOPE INFORMATION AT BACK OF PROPOSED WALK (S3 AREA).
- ⑦ INFORMATION TO BE INCORPORATED INTO DRIVEWAY TABLE WHEN INTEGRAL DRIVEWAY APRON IS USED. OTHER CURB HEIGHTS & CURB APRON LENGTHS CAN BE USED.
- ⑧ L1 & S1 FOR INTEGRAL DRIVEWAY APRON IS TO FLOWLINE. 12.5% IS MAXIMUM PREFERRED SLOPE.
- ⑨ TIE ADJACENT SECTIONS. CONCRETE DRIVEWAY APRON AND CONCRETE DRIVEWAY SIDEWALK SHALL BE CONSTRUCTED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. DRILL AND GROUT OR CAST IN-PLACE THROUGH HOLES IN THE FORMS NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINT.



CURB TYPE	L1	E2	S1 ⑧
	FT		%
IDA 216	1.33	+0.16	12.5
IDA 220	1.67	+0.16	10
IDA 324	2	+0.24	12.5
IDA 432	2.67	+0.33	12.5

REVISION:

APPROVED: 11-04-2021

Jeff J. Pel
JEFFREY PERKINS
OPERATIONS DIVISION

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MINNESOTA
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.254 2 OF 4

Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 11-04-2021
REVISED:

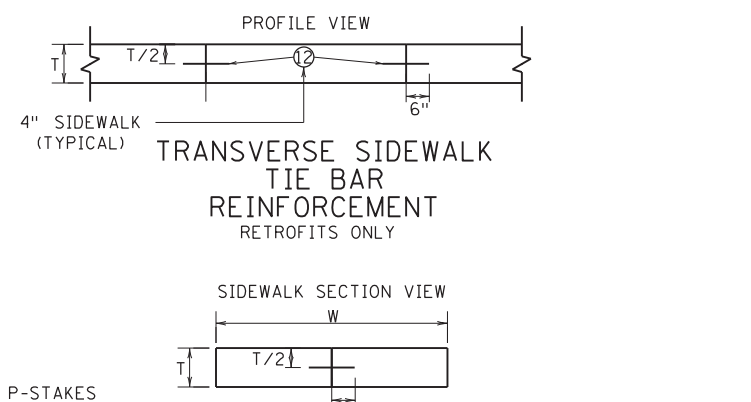
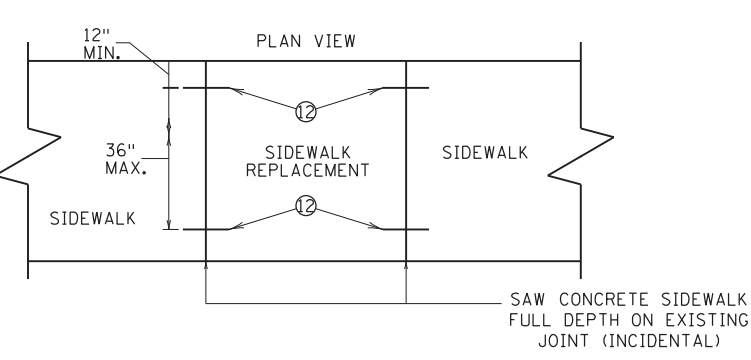
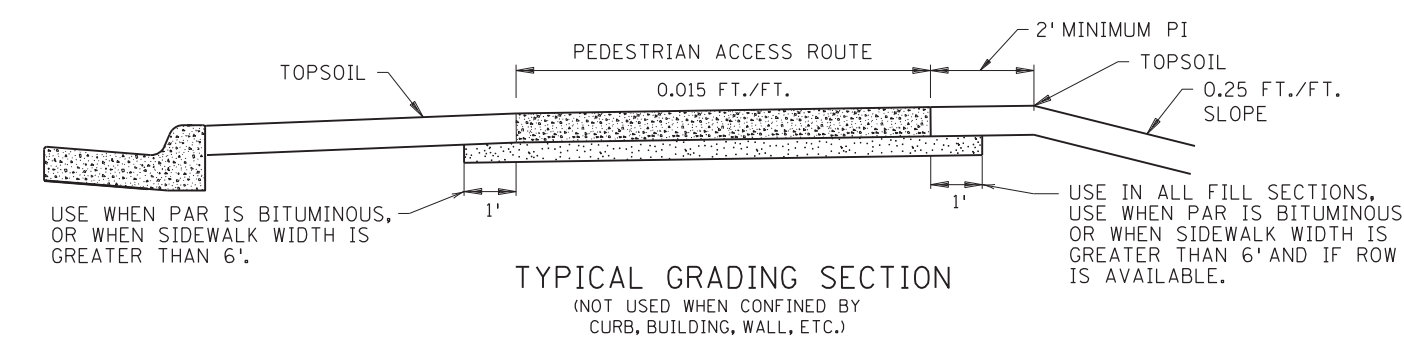
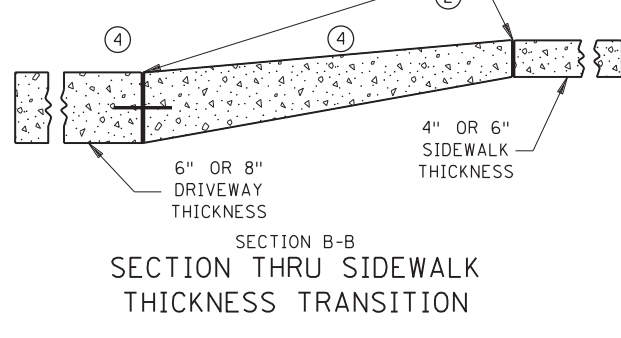
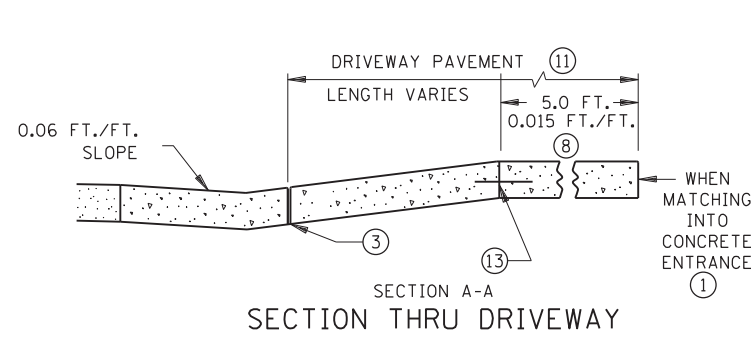
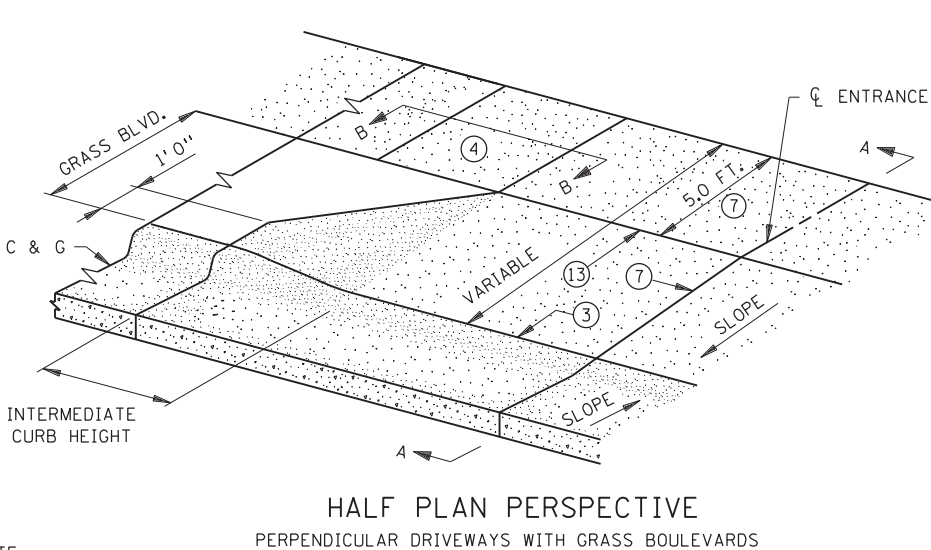
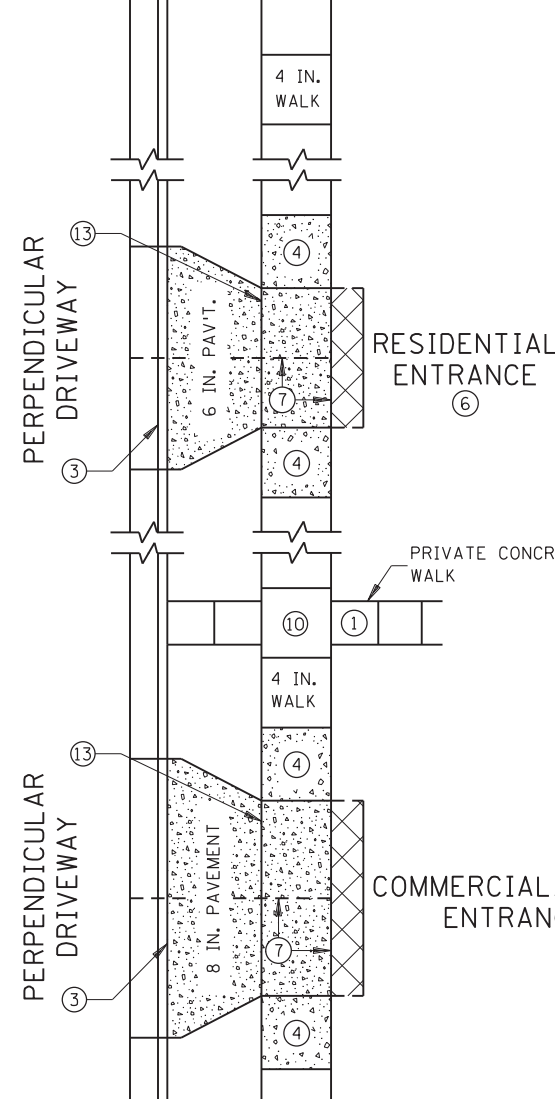
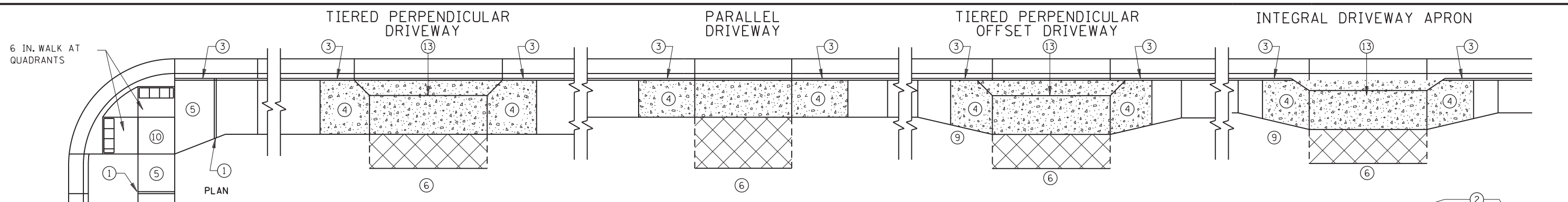
DRIVEWAY AND SIDEWALK DETAILS

STATE PROJ. NO. SAP 002-601-063 CP 23-14 SHEET NO. 12 OF 43 SHEETS

SAP 114-020-062

PLOTTED/REVISED: 06/27/2023

DISTRICT #: PLOT NAME: \$\$\$@IPL01\$NAME\$\$\$ PATH & FILENAME: P:\002-601-063 Xavis Signal\Plan\002601063 STD4.dgn



SIDEWALK WIDTH, W	SIDEWALK THICKNESS, T	TIE BAR SIZE	LENGTH	SPACING
> 7'	4"	No. 4	12"	24"
>10'	6"	No. 4	12"	36"

FOR 4" CONCRETE ONLY: CAST IN PLACE BARS MUST BE SUPPORTED WITH P-STAKES OR REINFORCEMENT BASKETS FOR FULL WIDTH CONCRETE PLACEMENTS.
 FOR 6" CONCRETE ONLY: DRILL AND GROUT OR CAST IN PLACE THROUGH HOLES IN THE FORMS REQUIRED FOR STAGED ADJACENT CONCRETE PLACEMENTS.

- NOTES:**
- ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.
 - TO MINIMIZE SIDEWALK "ROLLER COASTER" EFFECT IT IS DESIRABLE TO KEEP THE PAR ELEVATION CONTINUOUS OR AT LEAST IN THE UPPER HALF OF CURB HEIGHT. 4" HIGH CURB SHOULD BE USED INSTEAD OF 6" HIGH CURB TO HELP THIS PROBLEM WHEN APPLICABLE.
 - 4" HIGH ADJACENT CURB IS PREFERRED WHEN BOULEVARDS 4' OR LESS ARE PRESENT MEASURED FROM THE BACK OF CURB. WHEN THE DRIVEWAY IS SLOPING DOWN FROM THE ROADWAY (NEGATIVE) 4" HIGH ADJACENT CURB SHOULD ALSO BE USED.
 - SEE FACILITY DESIGN GUIDE, CHAPTER 6, FOR GEOMETRIC DESIGN OF DRIVEWAYS.
 - ① CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE. DRIVEWAY EXPANSION SHALL BE PLACED AT TOP OR BOTTOM OF TRANSITION PANEL.
 - ② CONSTRUCT WITH EXPANSION MATERIAL MNDOT PER SPEC. 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE. MAXIMUM ONE EXPANSION PER DRIVEWAY PLACED AT EITHER TOP OR BOTTOM OF CONCRETE THICKNESS TRANSITION. IF MULTIPLE DRIVEWAYS EXIST PLACE ONE EXPANSION BETWEEN EACH DRIVEWAY. IF NO DRIVEWAY EXIST PLACE A MAXIMUM OF ONE EXPANSION PER 150' OF SIDEWALK RUN.
 - ③ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.
 - ④ TRANSITION DRIVEWAY THICKNESS TO WALK THICKNESS. IF THERE IS A CONSTRUCTION JOINT AND NO EXPANSION IS USED, INSTALL TIE BARS.
 - ⑤ TRANSITION CURB RAMP THICKNESS TO WALK THICKNESS.
 - ⑥ MATCH INPLACE DRIVEWAY WIDTH, MATERIAL TYPE AND THICKNESS.
 - ⑦ FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS. CONCRETE PANEL SIZE SHOULD NOT EXCEED 1 1/2 : 1 LENGTH X WIDTH. 81 SF FOR 6" CONCRETE DRIVEWAY WITH 9'X9' MAXIMUM PANEL SIZE. 144 SF FOR 8" CONCRETE DRIVEWAY WITH 12'X12' MAXIMUM PANEL SIZE. MATCH DRIVEWAY APRON AND SIDEWALK JOINTS.
 - ⑧ THE PEDESTRIAN ACCESS ROUTE CROSS-SLOPE, SHALL NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.
 - ⑨ 1:10 MIN. SIDEWALK OFFSET TAPER REQUIRED FOR SIDEWALK REPLACEMENT PROJECTS. 1:3 MIN. AND 1:5 MIN. PREFERRED SIDEWALK OFFSET TAPER FOR DRIVEWAY REPLACEMENT.
 - ⑩ LANDING REQUIRED, SEE NEXT SHEET FOR MORE INFORMATION.
 - ⑪ CONCRETE DRIVEWAY APRON AND CONCRETE DRIVEWAY SIDEWALK SECTIONS SHALL BE CONSTRUCTED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. ENGINEER'S APPROVAL REQUIRED FOR MONOLITHIC PLACEMENTS.
 - ⑫ DRILL AND GROUT NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS. BARS TO BE ADJUSTED TO MATCH SIDEWALK GRADES. TO BE PAID BY EACH.
 - ⑬ DRILL AND GROUT OR CAST IN-PLACE THROUGH HOLES IN THE FORMS NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS.

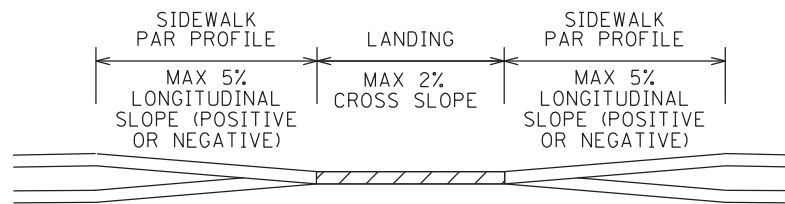
REVISION: 12-23-2021
 APPROVED: 11-04-2021

 JEFFREY PERKINS
 OPERATIONS DIVISION

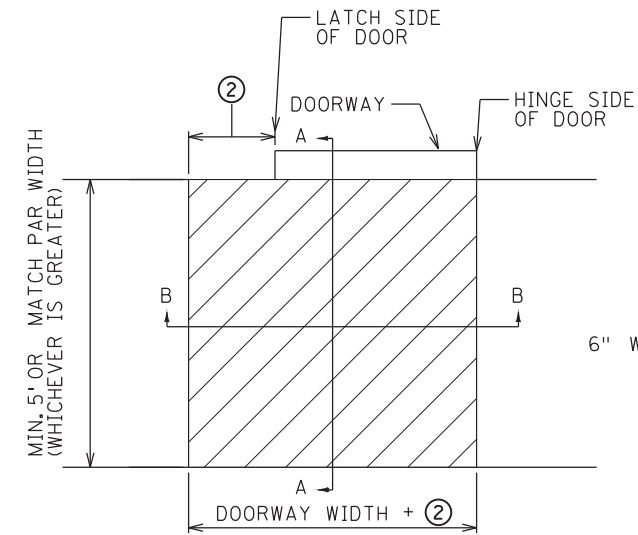
 DEPARTMENT OF TRANSPORTATION	STANDARD PLAN 5-297.254	3 OF 4	DRIVEWAY AND SIDEWALK DETAILS
	 THOMAS STYRBICKI STATE DESIGN ENGINEER	APPROVED: 11-04-2021 REVISED: 12-23-2021	
SHEET NO. 13 OF 43 SHEETS			SAP 114-020-062

PLOTTED/REVISED: 06/27/2023

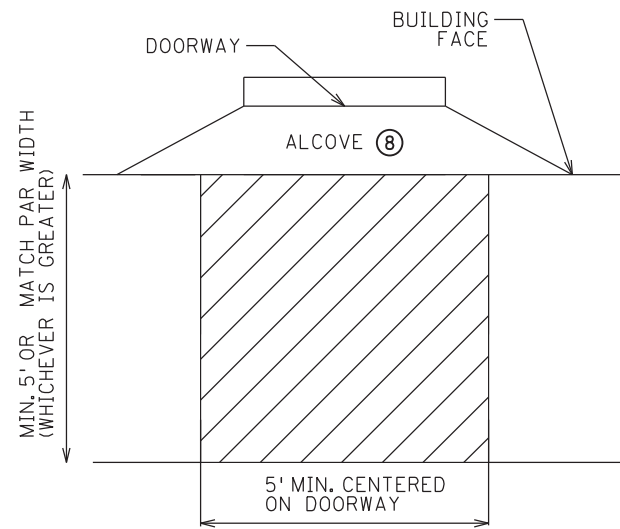
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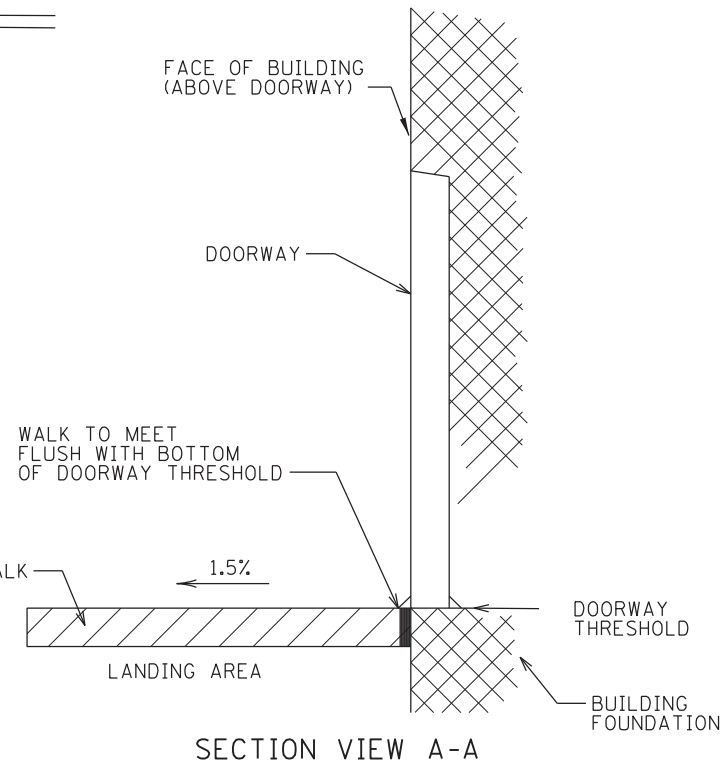
SECTION VIEW B-B



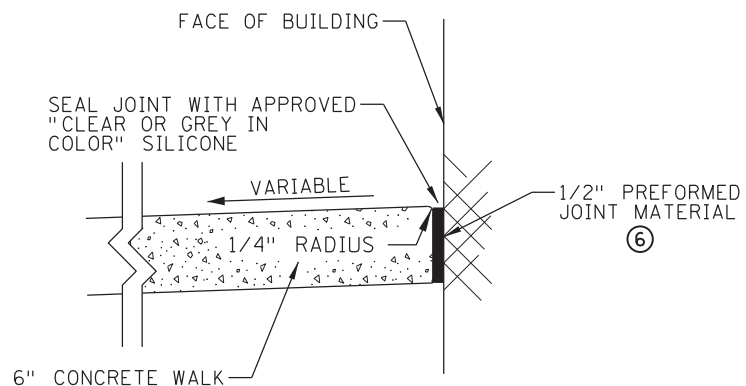
PLAN VIEW DOORWAY



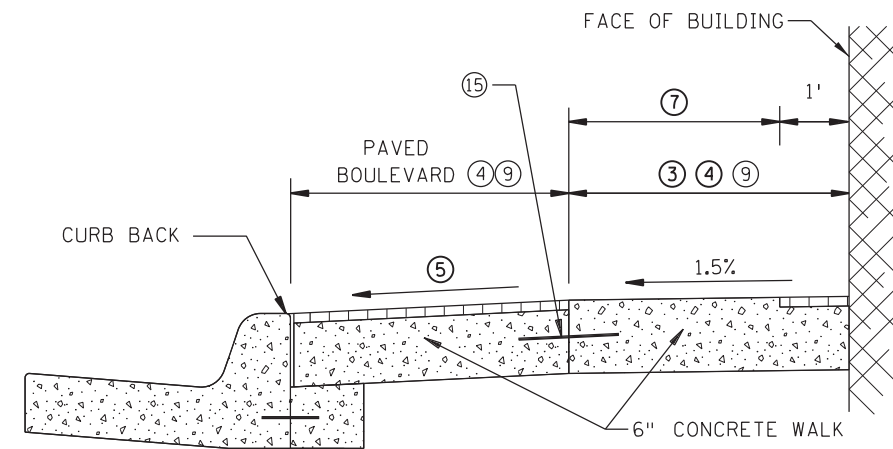
PLAN VIEW DOORWAY WITH ALCOVE
SIDEWALK LANDING REQUIREMENTS ①



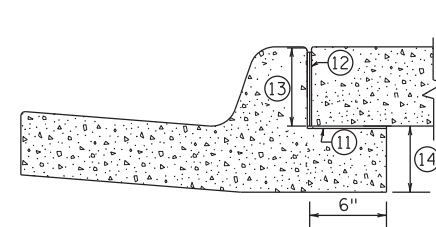
SECTION VIEW A-A



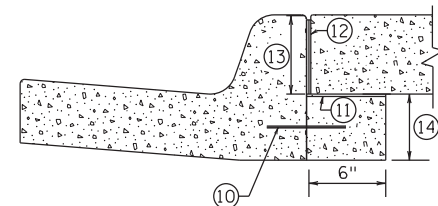
BUILDING JOINT SEAL (INCIDENTAL)



DOWNTOWN SIDEWALK TYPICAL SECTION



SLIP FORM SILL



FIXED FORM SILL

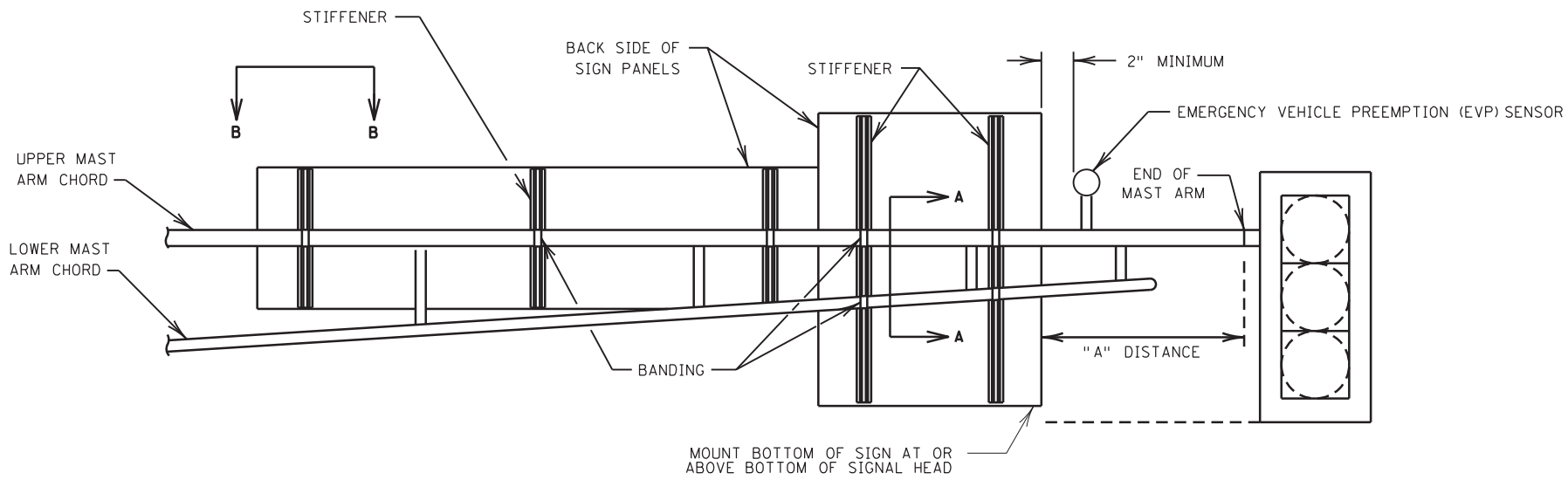
SILL CURB SHOULD BE USED AT ALL LOCATIONS WHEN CONCRETE WALK IS AT BACK OF CURB, INCLUDING PAVED BOULEVARD.
SILL CURB SHALL NOT BE USED IN CURB RAMP AND DRIVEWAY AREAS, INCLUDING CONCRETE FLARES.
SILL CURB WITH 4" WALK CAN USE FIXED OR SLIP FORM OPTIONS.

NOTES:

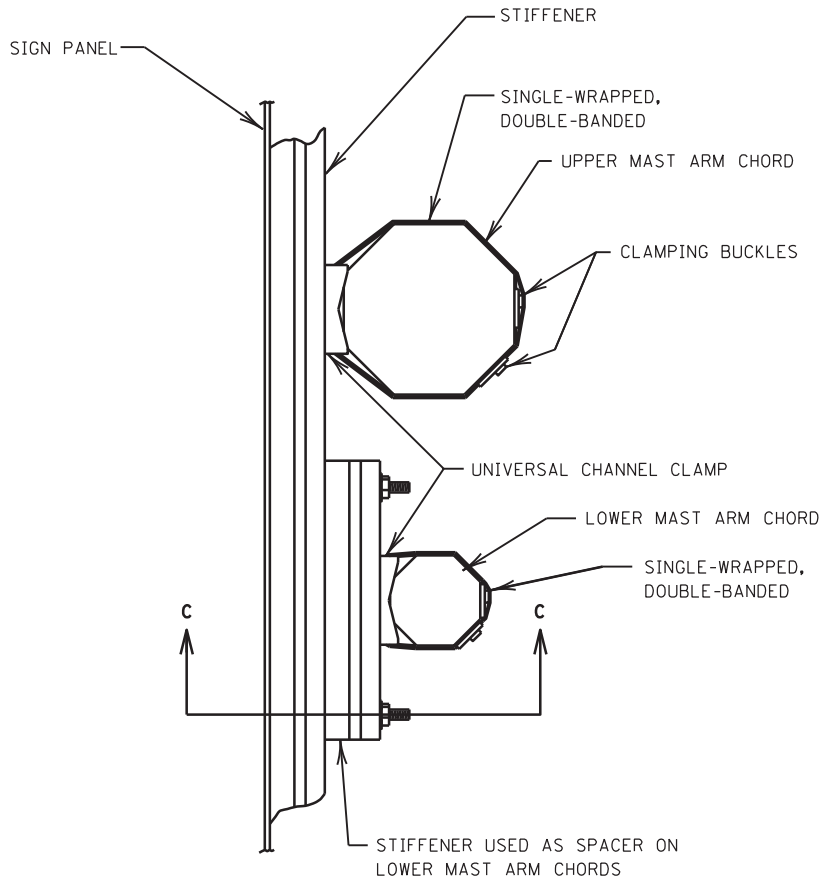
- ① 6" WALK IS REQUIRED:
- 1) IN ALL SIDEWALK LOCATIONS WHERE VARIABLE SLOPED CONCRETE BOULEVARDS ARE PAVED, SUCH AS COMMERCIAL (STORE FRONT, DOWNTOWN) AREAS.
- 2) ANYTIME DRILL AND REINFORCEMENT IS USED TO TIE LONGITUDINAL JOINTS TOGETHER.
- 3) TO ELIMINATE LONGITUDINAL JOINT WHEN INCREASING PANEL SIZE OVER 36SF.
- 4) AT LOCATIONS WHERE MAINTENANCE EQUIPMENT WILL SUBJECT CONCRETE TO HEAVY LOADS.
- ALL SIDEWALK AND BOULEVARD WIDTHS SHALL BE MEASURED FROM BACK OF CURB.
- FIELD ADJUST SIDEWALK PROFILES TO MEET ALL DOORWAY THRESHOLDS.
- SIDEWALK MUST MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING TO THE ROADWAY.
- SEE SPECIAL PROVISIONS FOR SILICONE SPECIFICATIONS.
- ① LANDING CRITERIA IS REQUIRED FOR ALL DOORS, STEPS, AND PRIVATE WALKS. FEASIBILITY DECREASES WITH NARROWER BOULEVARDS AND STEEPER SIDEWALK PROFILES.
- ② 18" MIN. WHEN DOOR SWINGS OUTWARD FROM BUILDING. 12" MIN. WHEN DOOR SWINGS INWARD FROM BUILDING.
- ③ 6' MIN. PAR REQUIRED WHEN ADJACENT TO BUILDINGS.
- ④ 2/3 PAR TO 1/3 BOULEVARD SHOULD BE USED WHEN FEASIBLE. HOLD UNIFORM BOULEVARD WIDTH. 4' PREFERRED MINIMUM BOULEVARD.
- ⑤ 1%-5% FOR THE MAJORITY OF THE BLOCK, WITH EXCEPTIONS UP TO 8% IN CONSTRAINED AREAS.
- ⑥ 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.
- ⑦ TO MINIMIZE VIBRATION AND ROLLING RESISTANCE, AREA SHALL BE FREE OF PAVERS, STAMPED CONCRETE, AND/OR EXCESSIVE JOINTING.
- ⑧ 2% MAX. PER BUILDING CODE. IF GREATER THAN 2%, FLATTEN AS FEASIBLE.
- ⑨ FORM CONTRACTION JOINTS AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANEL SIZE. CONCRETE PANEL SIZE SHOULD NOT EXCEED 1/2 : 1 LENGTH X WIDTH.
- ⑩ DRILL AND GROUT NO. 4 X 8" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONSTRUCTION JOINTS. 1' MINIMUM FROM ADJACENT CONCRETE JOINTS. TIE BARS SHALL BE EMBEDDED 4" WITH 2" MINIMUM CONCRETE COVER AND ARE INCIDENTAL TO SILL PLACEMENT.
- ⑪ FURNISH AND INSTALL THE FULL WIDTH OF THE TOP OF SILL A MINIMUM 2ML THICK POLYTHENE SHEETING.
- ⑫ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.
- ⑬ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.
- ⑭ 6" WALK: 5" MIN. FOR B424; 7" MIN. FOR B624
4" WALK: 7" MIN. FOR B424; 9" MIN. FOR B624
- ⑮ DRILL AND GROUT NO. 4 X 12" LONG TIE BARS (EPOXY COATED). 36" MAXIMUM SPACING BETWEEN BARS WITH 2" MINIMUM CONCRETE COVER PLACED 1' MINIMUM FROM ADJACENT CONCRETE JOINTS.

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

	STANDARD PLAN 5-297.254	4 OF 4	<p align="center">DRIVEWAY AND SIDEWALK DETAILS</p>	
	<p align="center">APPROVED: 11-04-2021 REVISED:</p>			
<p align="center">THOMAS STYRBICKI STATE DESIGN ENGINEER</p>	STATE PROJ. NO.	SAP 002-601-063 SAP 114-020-062	CP 23-14	SHEET NO. 14 OF 43 SHEETS



MAST ARM SIGN MOUNTING



VIEW A-A ①

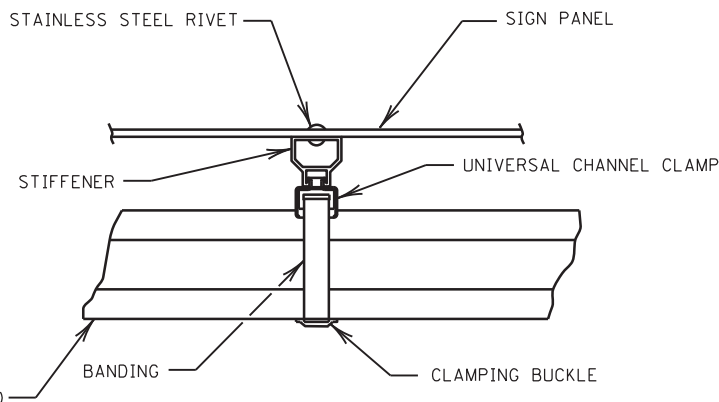
① SIGN PANELS TALLER THAN 36" MUST BE BANDED TO THE LOWER MAST ARM CHORD AT A MINIMUM OF ONE LOCATION. SIGN PANEL SHALL BE BANDED TO THE LOWER MAST ARM AT A LOCATION THAT WILL PROVIDE THE CLOSEST TO PLUMB ALIGNMENT FOR THE SIGN PANEL.

		NUMBER OF EXTRUDED STIFFENERS REQUIRED*													
		PANEL WIDTH													
PANEL HEIGHT		2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	
		2'	2	2	2	3	3	3	4	4	4	5	5	5	5
	3'	2	2	2	3	3	3	4	4	5	5	5	5	5	
	4'	2	2	2	3	3	3	4	4	5	5	5	5	6	
	5'	2	2	2	3	4	4	5	5	5	5	5	5	6	
	6'		2	3	4	4	4	5	5	5	5	5	5	6	
	7'			4	4	5	5	5	5	5	5	5	5	6	

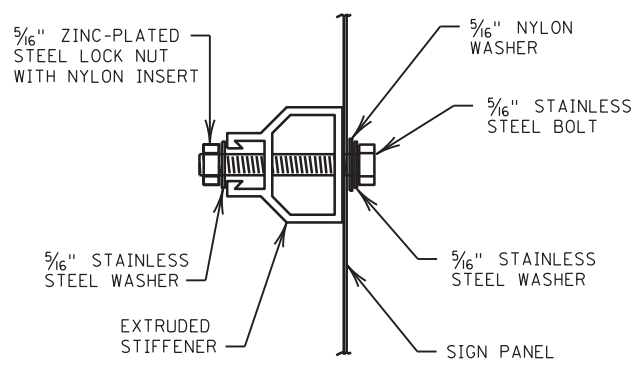
* WHERE SIGN PANEL DIMENSIONS FALL BETWEEN 1' INCREMENTS, USE NEXT HIGHER WIDTH AND/OR HEIGHT DIMENSION.

NOTES:

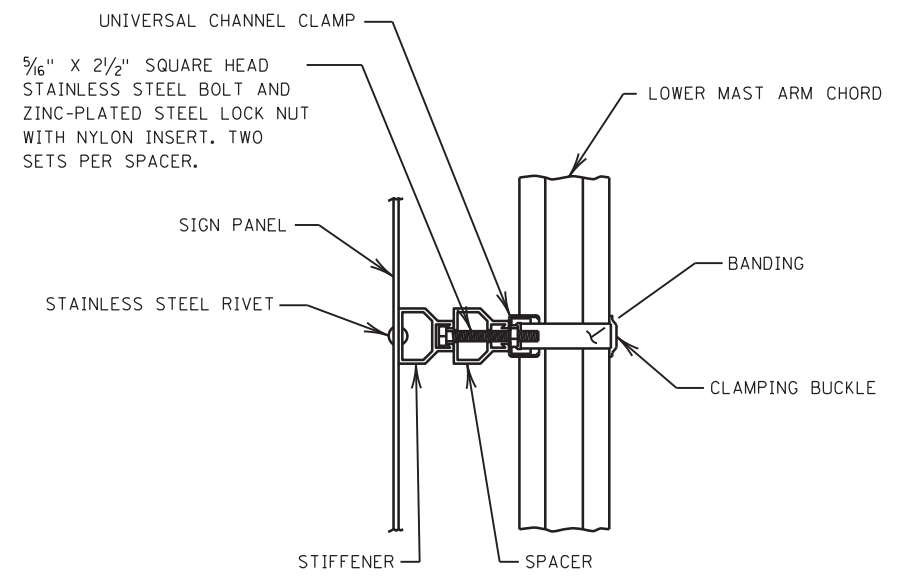
- FURNISH AND INSTALL AT LEAST ONE SPACER FOR EACH SIGN PANEL WHEN PANELS ARE ATTACHED TO THE LOWER MAST ARM CHORD.
- AFFIX SIGNS TO UPPER AND LOWER MAST ARM CHORDS WHEN POSSIBLE.
- POSITION BOTTOM OF SIGN PANEL AT LEAST 17' ABOVE ROADWAY.
- MOUNT SIGN PANELS PLUMB AND SHIM WITH REQUIRED SPACERS AS SHOWN.
- PROVIDE SPACING BETWEEN STIFFENERS OF NO MORE THAN 36".
- PROVIDE A HORIZONTAL DISTANCE OF NO MORE THAN 12" FROM PANEL EDGE TO STIFFENER.
- PROVIDE A VERTICAL DISTANCE OF NO MORE THAN 1" FROM PANEL EDGE TO STIFFENER.
- FURNISH AND INSTALL 1/4" STAINLESS STEEL RIVETS 3" FROM THE PANEL EDGE TO ATTACH THE STIFFENERS TO THE SIGN PANELS. FURNISH AND INSTALL 3/16" STAINLESS STEEL RIVETS AT 6" ON CENTER TO ATTACH THE REMAINDER OF THE STIFFENER TO THE SIGN PANEL.
- FURNISH TWO TYPE 201 STAINLESS STEEL 3/4" WIDE BY 1/32" THICK STRAPS, EACH WITH CLAMPING BUCKLES AND INSTALL SEPARATELY WITH A SINGLE WRAP AROUND THE MAST ARM CHORD. PLACE THE SECOND BANDING STRAP OVER THE FIRST STRAP AND STAGGER THE CLAMPING BUCKLES SO THE BUCKLES ARE NOT DIRECTLY OVER ONE ANOTHER.
- THE "A" DISTANCE IS SHOWN ON THE PLANS. IT IS THE DISTANCE FROM THE END OF THE MAST ARM TO THE EDGE OF EACH SIGN.



VIEW B-B



BOLT ATTACHMENT
ATTACH AT STANDARD PUNCH CODE LOCATIONS



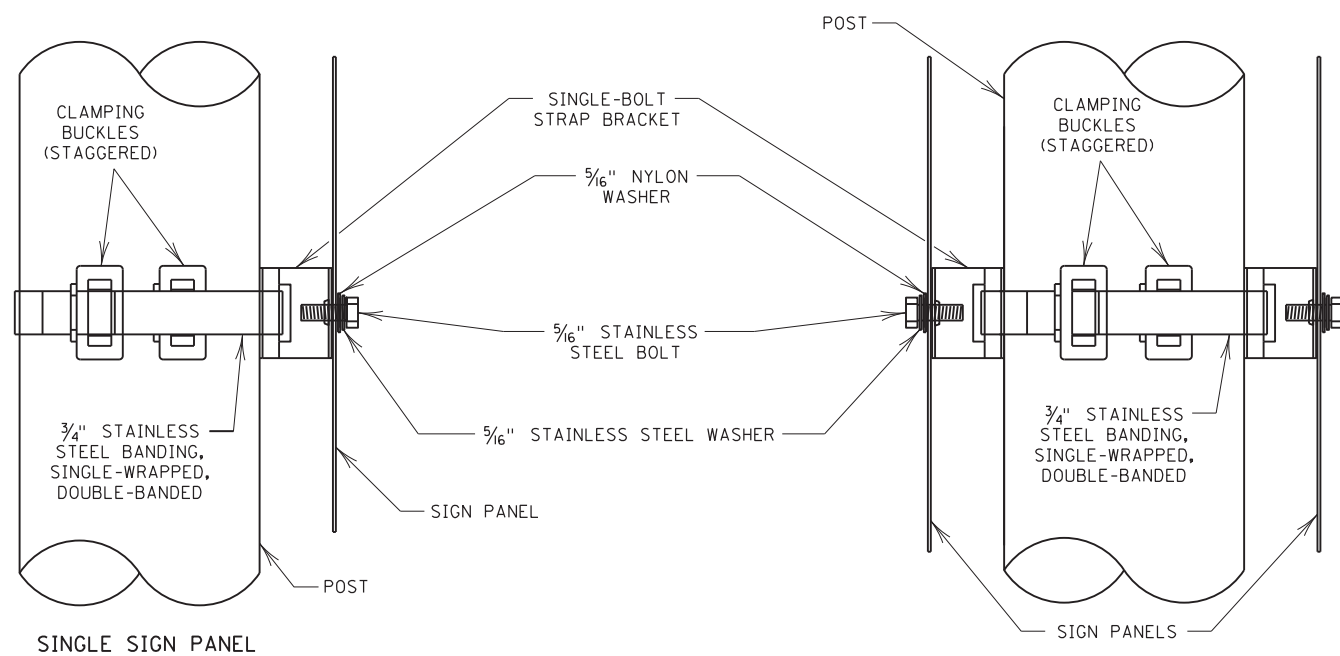
VIEW C-C

REVISION: APRIL 17, 2020
 APPROVED: OCTOBER 16, 2019

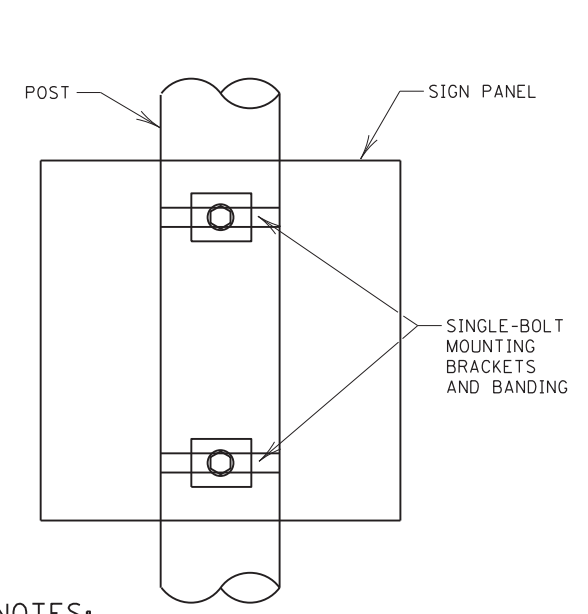
 BRIAN SORENSON
 STATE TRAFFIC ENGINEER

DEPARTMENT OF TRANSPORTATION
 STANDARD PLAN 5-297.731
 1 OF 1
 APPROVED: 10-16-2019
 REVISION: 4-17-2020
 PETER A. HARFF
 STATE DESIGN ENGINEER

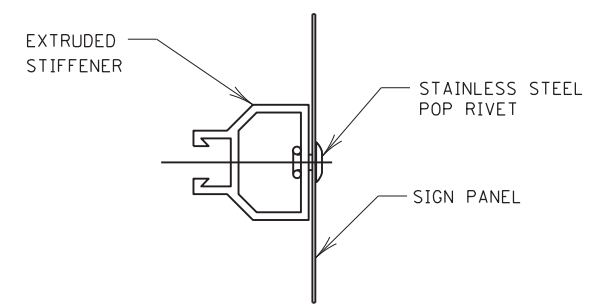
STATE PROJ. NO. SAP 002-601-063
 CP 23-14
 SHEET NO. 15 OF 43 SHEETS
 SIGN MOUNTING DETAILS FOR SIGNAL MAST ARMS



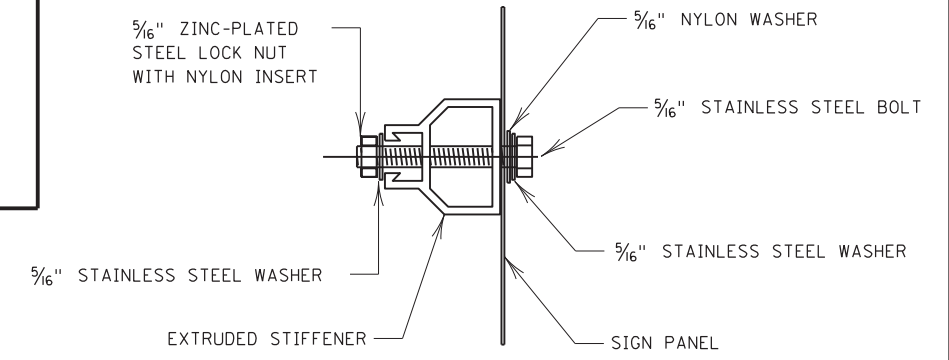
NON-STIFFENER MOUNTING DETAILS
FOR SIGN PANELS UP TO 24" WIDE AND OVERHEAD SIGN IDENTIFICATION PLATES



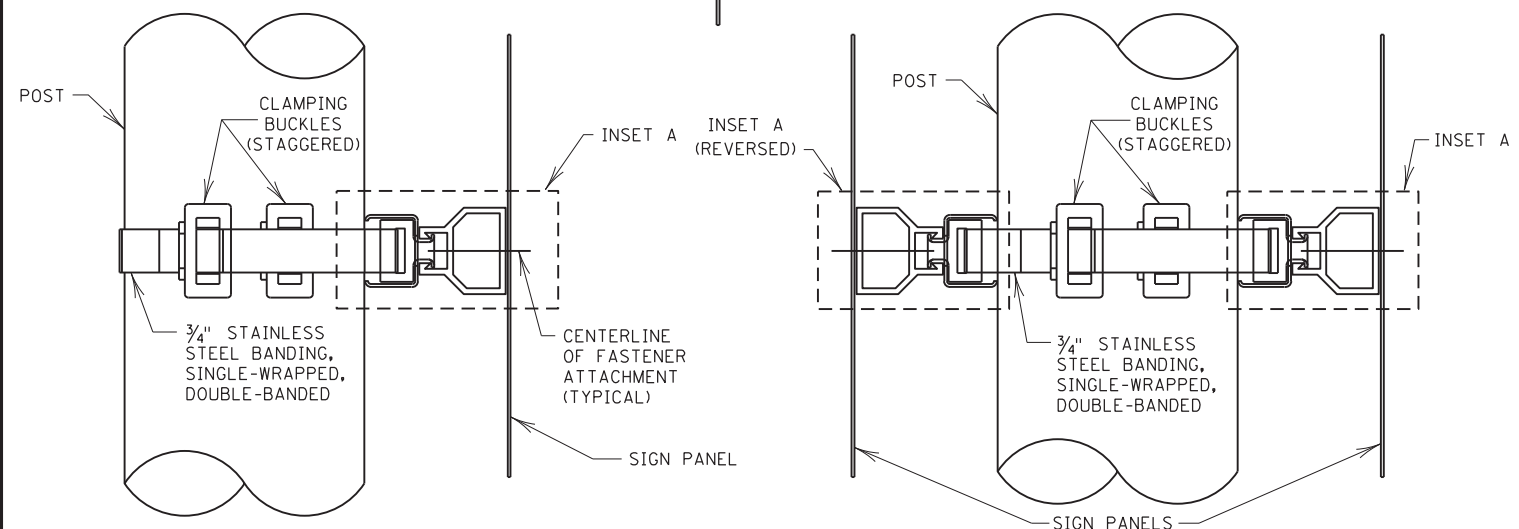
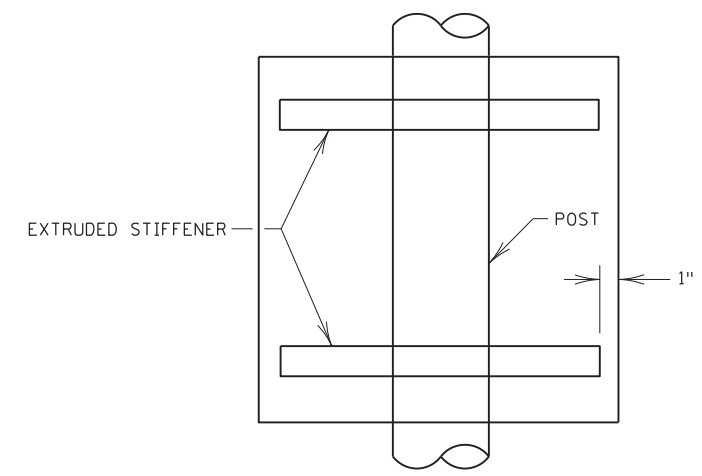
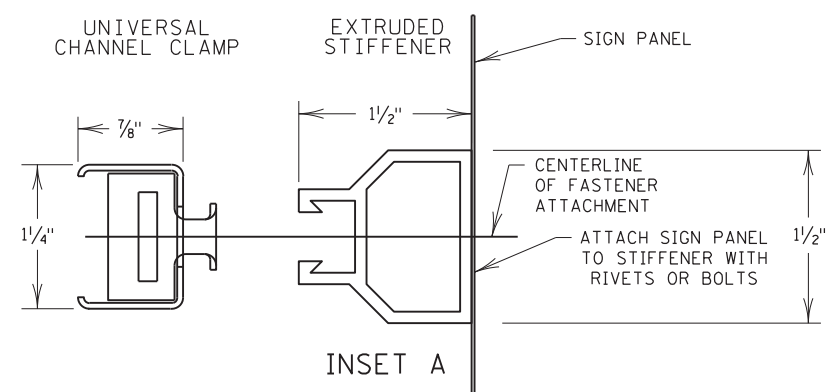
NOTES:
TENSION THE BANDING IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION REQUIREMENTS.
DO NOT MOUNT SIGNS ON BREAKAWAY TRAFFIC SIGNALS AND LUMINAIRE SUPPORTS.



ATTACH 3/16" RIVETS AT 6" INTERVALS. ATTACH END RIVETS 3" FROM SIGN EDGE. USE 1/4" RIVETS FOR THE END RIVETS.
RIVET ATTACHMENT



ATTACH AT STANDARD PUNCH CODE LOCATIONS
BOLT ATTACHMENT



STIFFENER MOUNTING DETAILS
FOR SIGN PANELS 30" WIDE AND LARGER

PANEL HEIGHT	PANEL WIDTH				
	2'	3'	4'	5'	6'
2'	2	2	2	2	3
3'	2	2	2	2	3
4'	2	2	2	2	3
5'	3	3	3	3	3
6'	3	3	3	4	4
7'	3	3	3	4	4

PROVIDE VERTICAL SPACING OF NO MORE THAN 36" BETWEEN STIFFENERS.
PROVIDE A VERTICAL DISTANCE OF NO MORE THAN 12" FROM PANEL EDGE TO STIFFENER.

NOTES:
SPACE STIFFENERS IN ACCORDANCE WITH THE PUNCH CODES SHOWN IN THE MnDOT STANDARD SIGNS AND MARKINGS MANUAL.
ATTACH STIFFENERS TO SIGN PANELS USING FASTENERS. PLACE STIFFENERS AT THE VERTICAL LOCATIONS OF THE MOUNTING HOLES FOR EACH SIGN.
FURNISH AND INSTALL HARDWARE COMPATIBLE WITH STIFFENER MOUNTING SYSTEMS.
FURNISH TWO TYPE 201 STAINLESS STEEL 3/4" WIDE BY 1/32" THICK STRAPS, EACH WITH CLAMPING BUCKLES AND INSTALL SEPARATELY WITH A SINGLE WRAP AROUND THE MAST ARM CHORD. PLACE THE SECOND BANDING STRAP OVER THE FIRST STRAP AND STAGGER THE CLAMPING BUCKLES SO THE BUCKLES ARE NOT DIRECTLY OVER ONE ANOTHER.

REVISION:
APPROVED: OCTOBER 16, 2019
Brian Sorenson
BRIAN SORENSON
STATE TRAFFIC ENGINEER

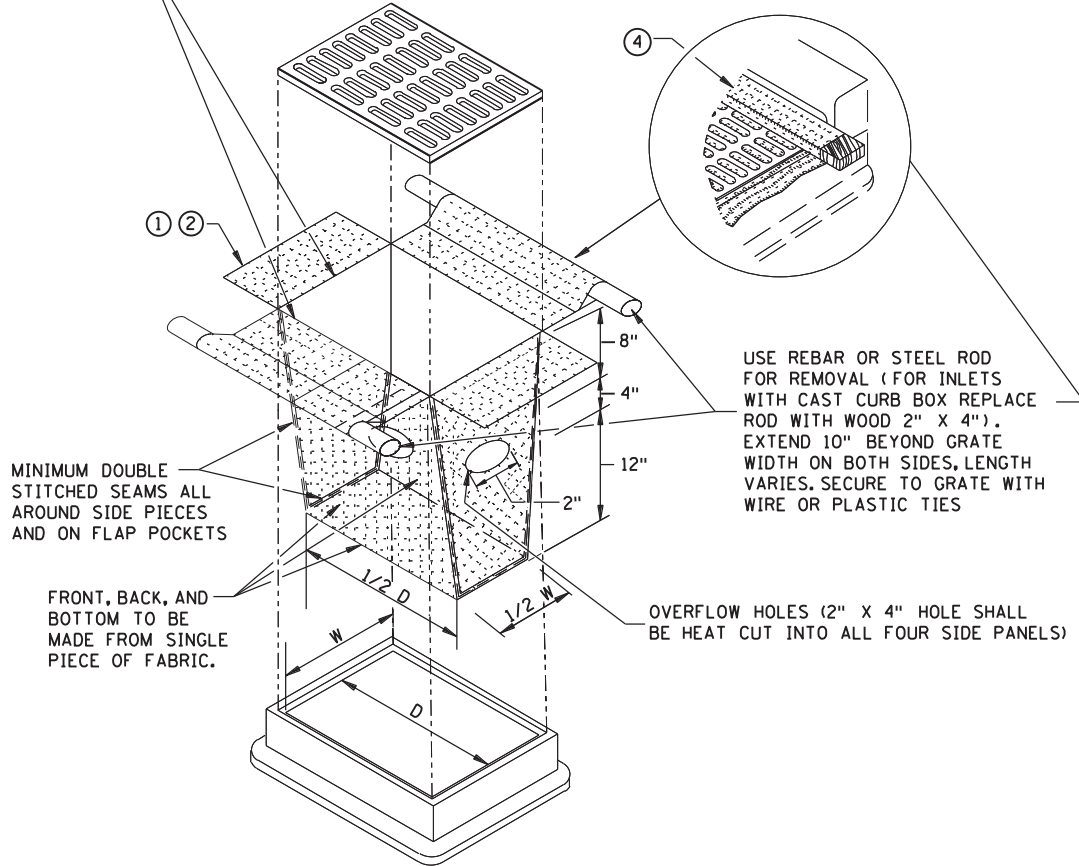
m MINNESOTA
DEPARTMENT OF TRANSPORTATION
Peter A. Harff
PETER A. HARFF
STATE DESIGN ENGINEER
APPROVED: 10-16-2019
REVISOR:

STANDARD PLAN 5-297.730 1 OF 1
SIGN MOUNTING SYSTEMS FOR ROUND SUPPORTS
STATE PROJ. NO. SAP 002-601-063 CP 23-14 SHEET NO. 16 OF 43 SHEETS
SAP 114-020-062

PLOTTED/REVISED: 06/27/2023

DISTRICT #: IPILOT\$NAME\$\$
IPILOT NAME: P:002-601-063 Xavis SignalPlan002601063_ST.D3.dgn

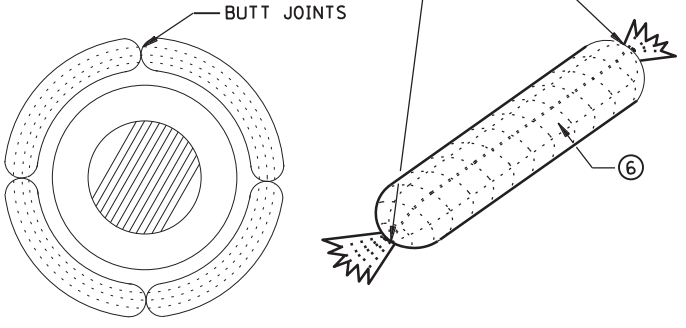
INLET SPECIFICATIONS AS PER THE PLAN
DIMENSION LENGTH AND WIDTH TO MATCH
FLAP POCKET



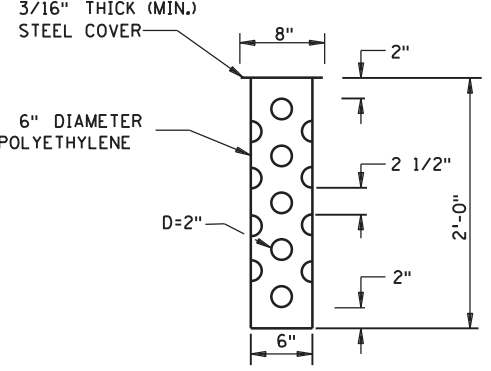
FILTER BAG INSERT ③

(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)

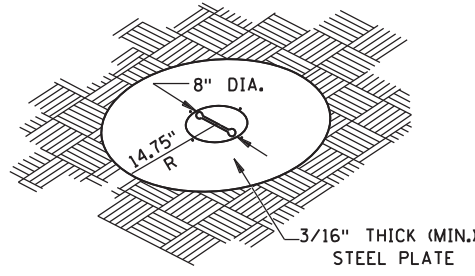
ENDS SECURELY CLOSED TO
PREVENT LOSS OF OPEN GRADED
AGGREGATE FILL. SECURED WITH
50 PSI. ZIP TIE.



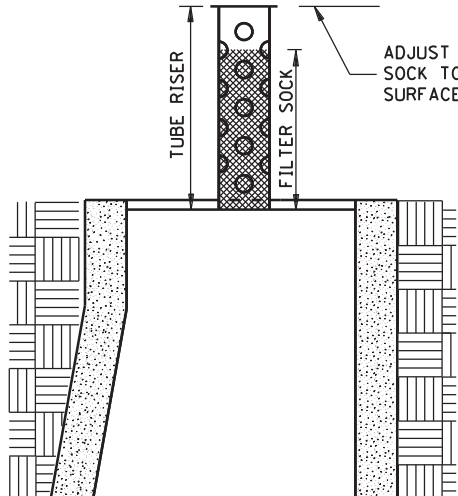
ROCK LOG/COMPOST LOG



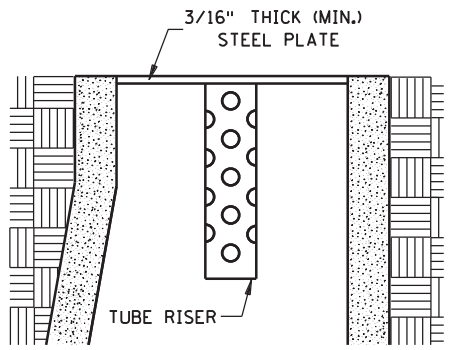
TUBE RISER



PERSPECTIVE VIEW

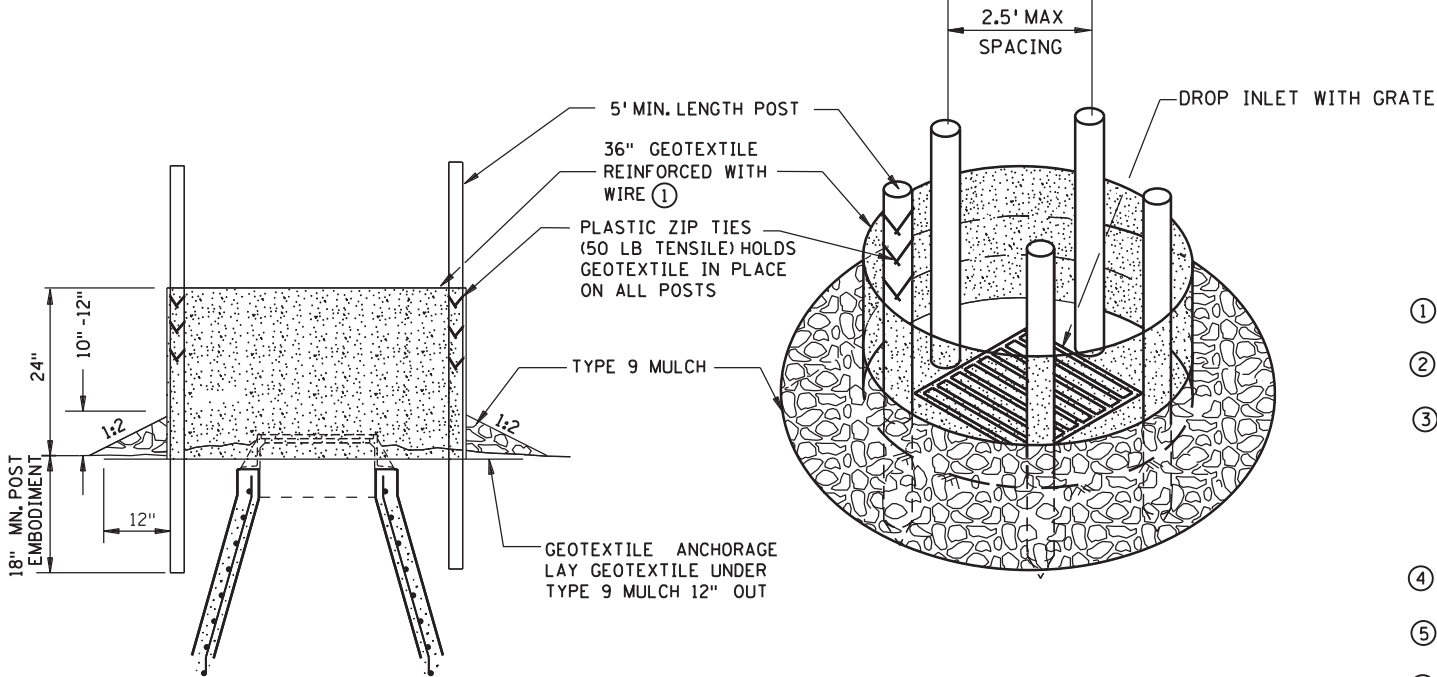


**SECTION
(UP POSITION)**



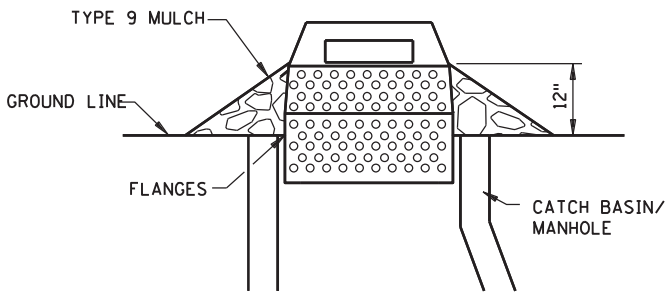
**SECTION
(DOWN POSITION)**

POP-UP HEAD



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS



SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL
OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE
THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW
FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING,
FLANGES AND A LID/COVER.

NOTES:

- SEE SPECS. 2573, 3137, & 3886.
- DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.
- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

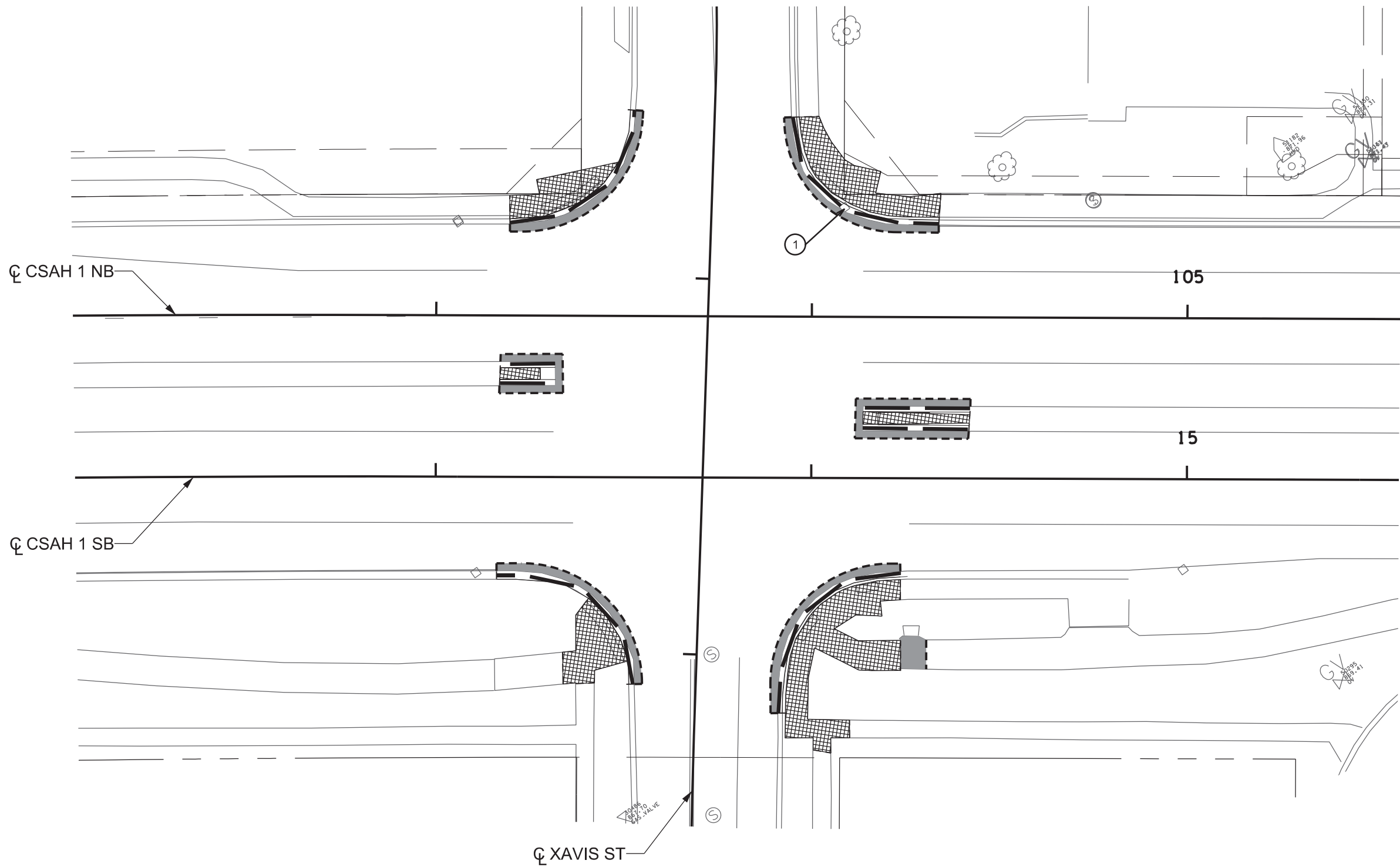
REVISION:
APPROVED: 2-28-2017
<i>[Signature]</i> CHIEF ENVIRONMENTAL OFFICER



STANDARD PLAN 5-297.405	4 OF 8
APPROVED: 2-28-2017	REVISED:
<i>[Signature]</i> STATE DESIGN ENGINEER	

**TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION**

STATE PROJ. NO.	SAP 002-601-063	CP 23-14	SHEET NO. 17 OF 43 SHEETS
	SAP 114-020-062		



LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE CURB AND GUTTER
	SAWING BITUMINOUS/ CONCRETE PAVEMENT
	REMOVE CASTING ASSEMBLY
	EASEMENT
	R/W

REMOVAL NOTES:

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL REMOVALS.

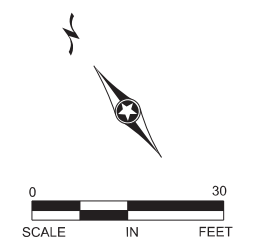
THE CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING AS DIRECTED AND MARKED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL OTHERWISE PROTECT ALL EXISTING TREES NOT SPECIFICALLY MARKED FOR REMOVAL.

ALL MANHOLES AND CATCH BASINS WILL BE PAID FOR AS "REMOVE DRAINAGE STRUCTURE" ITEM 2104.509 CALLED OUT IN REMOVAL PLANS AS MH AND CB. FOR INFORMATION PURPOSES ONLY.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED. SEE INPLACE UTILITY TABULATION FOR MORE INFORMATION.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.

SEE CITY WATERMAIN AND SEWER PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_rem01.dgn 06/27/2023 9:02:36 AM

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: Aaron Anderson

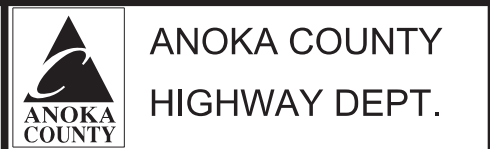
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DATE: 06/27/23 LICENSE NO. 58657

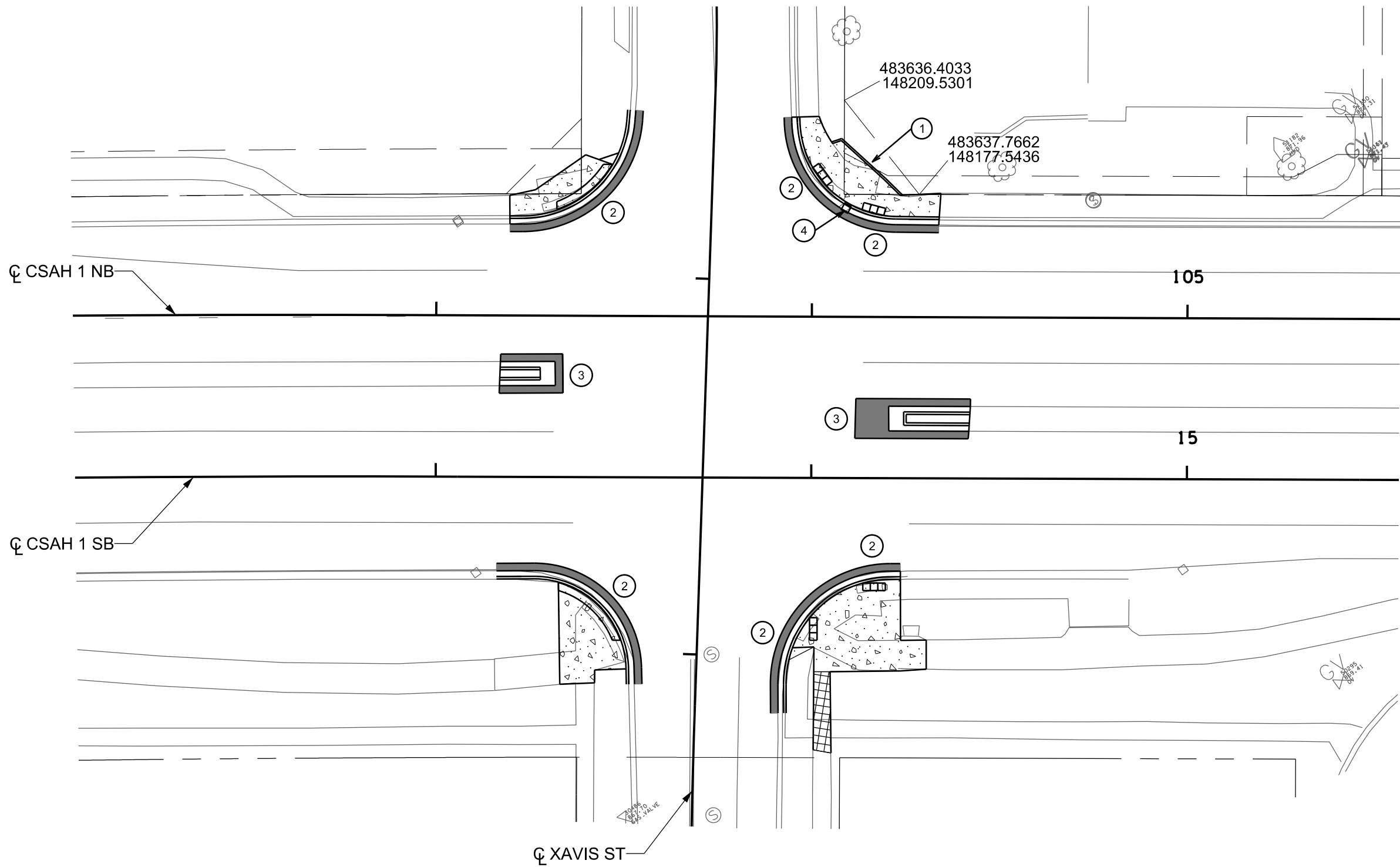
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DESIGN BY: APA DATE: 05/12/23

CHECKED BY: ST DATE: 05/12/23

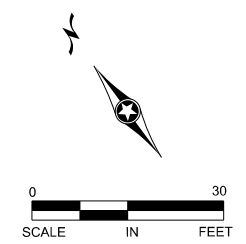


SAP 002-601-063
SAP 114-020-062
CP 23-14



LEGEND	
	BITUMINOUS PATCHING
	6" CONCRETE WALK
	4" CONCRETE WALK
	CONCRETE CURB & GUTTER
	CONCRETE CURB DESIGN V
	TRUNCATED DOMES
	MEDIAN NOSE (STAND PLATE 7113)
	CASTING ASSEMBLY
	EASEMENT
	R/W

NOTES:
 BITUMINOUS PATCHING TO MATCH THICKNESS OF ADJACENT PAVEMENT

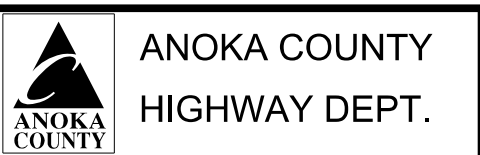


NO	DATE	BY	CKD	APPR	REVISION
1	7-24-2023	AA	AA	AA	UPDATED SW QUADRANT PEDESTRIAN RAMP

NAME: P:\002-601-063 Xavis SignalPlan\Backup Plansheets\002601063_pp01_Backup.dgn 07/24/2023 12:34:06 PM

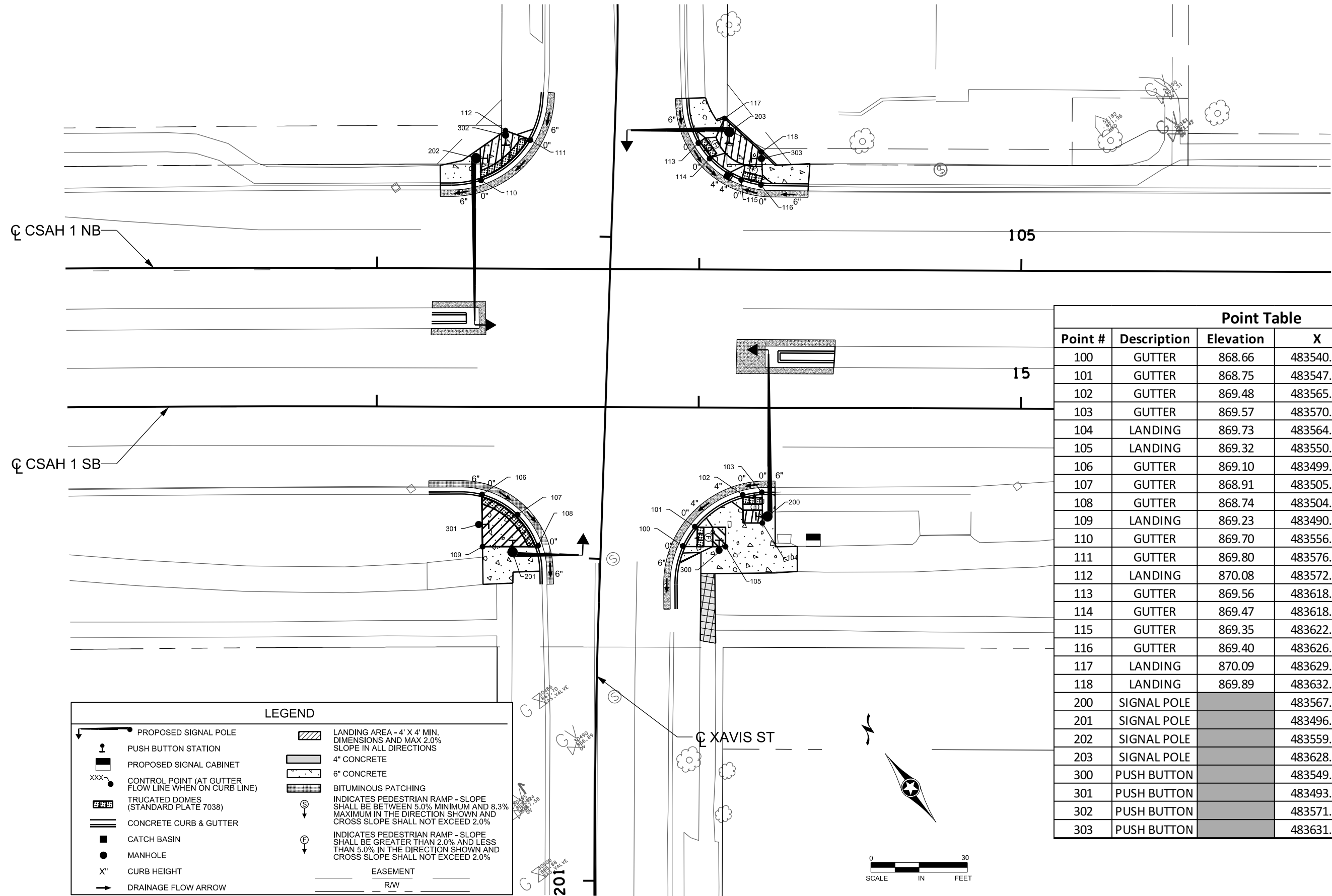
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: Aaron Anderson
 SIGNATURE:
 DATE: 07/24/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23
 DESIGN BY: APA DATE: 05/12/23
 CHECKED BY: ST DATE: 05/12/23



SAP 002-601-063
 SAP 114-020-062
 CP 23-14

CONSTRUCTION PLAN
 Sheet 19 of 43 Sheets



Point Table				
Point #	Description	Elevation	X	Y
100	GUTTER	868.66	483540.7369	148101.4365
101	GUTTER	868.75	483547.3366	148104.2155
102	GUTTER	869.48	483565.2062	148103.5495
103	GUTTER	869.57	483570.4365	148100.6557
104	LANDING	869.73	483564.9878	148092.8763
105	LANDING	869.32	483550.5892	148092.4222
106	GUTTER	869.10	483499.7904	148151.2659
107	GUTTER	868.91	483505.0669	148139.6740
108	GUTTER	868.74	483504.3067	148128.0388
109	LANDING	869.23	483490.4198	148138.0417
110	GUTTER	869.70	483556.9903	148230.2903
111	GUTTER	869.80	483576.7239	148231.4015
112	LANDING	870.08	483572.1813	148238.3442
113	GUTTER	869.56	483618.3682	148199.9832
114	GUTTER	869.47	483618.3894	148194.0280
115	GUTTER	869.35	483622.3662	148182.8745
116	GUTTER	869.40	483626.4017	148178.0335
117	LANDING	870.09	483629.4243	148201.3638
118	LANDING	869.89	483632.5464	148186.1725
200	SIGNAL POLE		483567.4520	148093.5506
201	SIGNAL POLE		483496.9714	148131.2255
202	SIGNAL POLE		483559.7839	148236.7588
203	SIGNAL POLE		483628.1687	148197.1300
300	PUSH BUTTON		483549.1322	148093.9282
301	PUSH BUTTON		483493.4897	148144.3093
302	PUSH BUTTON		483571.4062	148237.1280
303	PUSH BUTTON		483631.3731	148184.5528

LEGEND

	PROPOSED SIGNAL POLE		LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
	PUSH BUTTON STATION		4" CONCRETE
	PROPOSED SIGNAL CABINET		6" CONCRETE
	CONTROL POINT (AT GUTTER FLOW LINE WHEN ON CURB LINE)		BITUMINOUS PATCHING
	TRUNCATED DOMES (STANDARD PLATE 7038)		INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	CONCRETE CURB & GUTTER		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%
	CATCH BASIN		EASEMENT
	MANHOLE		R/W
	X" CURB HEIGHT		
	DRAINAGE FLOW ARROW		

1	7-24-2023	AA	AA	AA	UPDATED SW QUAD PEDESTRIAN RAMP & SIGNAL POLE LOCATION
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-601-063 Xavis SignalPlan\Backup Plansheets\002601063_in01_Backup.dgn 07/24/2023 12:34:07 PM					

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: Aaron Anderson

SIGNATURE:

DATE: 07/24/23 LICENSE NO. 58657

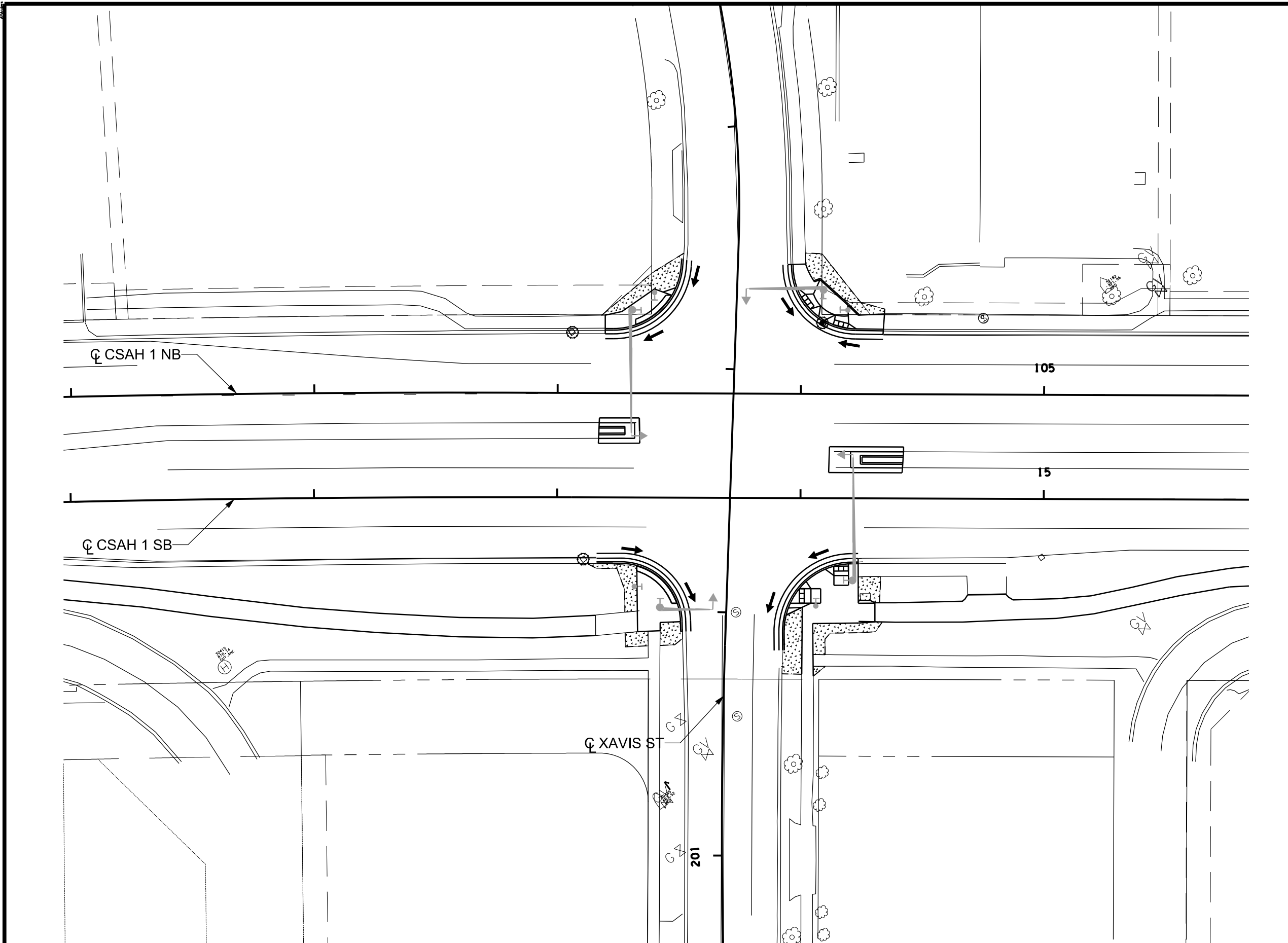
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DESIGN BY: APA DATE: 05/12/23

CHECKED BY: ST DATE: 05/12/23

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-601-063
SAP 114-020-062
CP 23-14

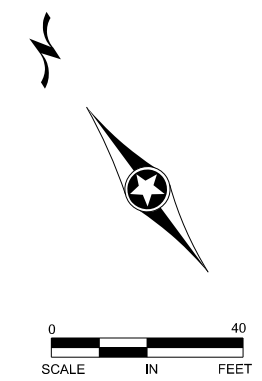


LEGEND

- INLET PROTECTION
- SURFACE FLOW ARROW
- SEEDING MIX 1
- CONSTRUCTION LIMITS

NOTES

1. SEDIMENT CONTROL MUST BE IN PLACE AND APPROVED BY ENGINEER BEFORE ANY PHASE OF CONSTRUCTION CAN BEGIN.
2. IN THE EVENT THAT PERMANENT STABILIZATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED, TEMPORARY STABILIZATION BMPs MUST BE SCHEDULED TO OCCUR WITHIN THAT 7 DAY TIME FRAME
3. ALL STOCKPILES MUST HAVE DOWN GRADIENT PERIMETER SEDIMENT CONTROL IMPLEMENTED AND MAINTAINED AT ALL TIMES.
4. STABILIZATION OF DISTURBED AREAS SHALL BE DONE BY PERMANENT TURF ESTABLISHMENT WHENEVER POSSIBLE.
5. ALL EXPOSED SOILS, NOT COVERED WITH PERMANENT STABILIZATION WITHIN 7 DAYS OF COMPLETION OF CONSTRUCTION ACTIVITY, SHALL BE COVERED WITH STABILIZATION METHOD 3.
6. A NPDES PERMIT OR SWPPP IS NOT REQUIRED FOR THIS PROJECT BASED ON THE DISTURBED AREA, HOWEVER THE REQUIREMENTS WITHIN THE STANDARD LANGUAGE OF THE SWPPP SHALL BE REQUIRED OF THE CONTRACTOR



1	7-24-2023	AA	AA	AA	UPDATED SW QUAD PEDESTRIAN RAMP & SIGNAL POLE LOCATION
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-601-063 Xavis SignalPlan\Backup Plansheets\002601063_EC01_Backup.dgn 07/24/2023 12:34:10 PM					

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: Aaron Anderson

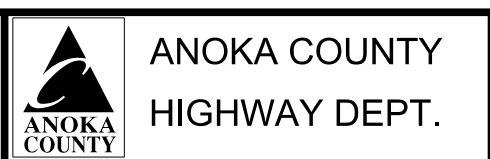
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DATE: 07/27/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23

DESIGN BY: APA DATE: 05/12/23

CHECKED BY: ST DATE: 05/12/23



SAP 002-601-063
SAP 114-020-062
CP 23-14

NOTES (TYP)

- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. SIGNS LABELED FOR REMOVAL SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

SIGNING NOTES

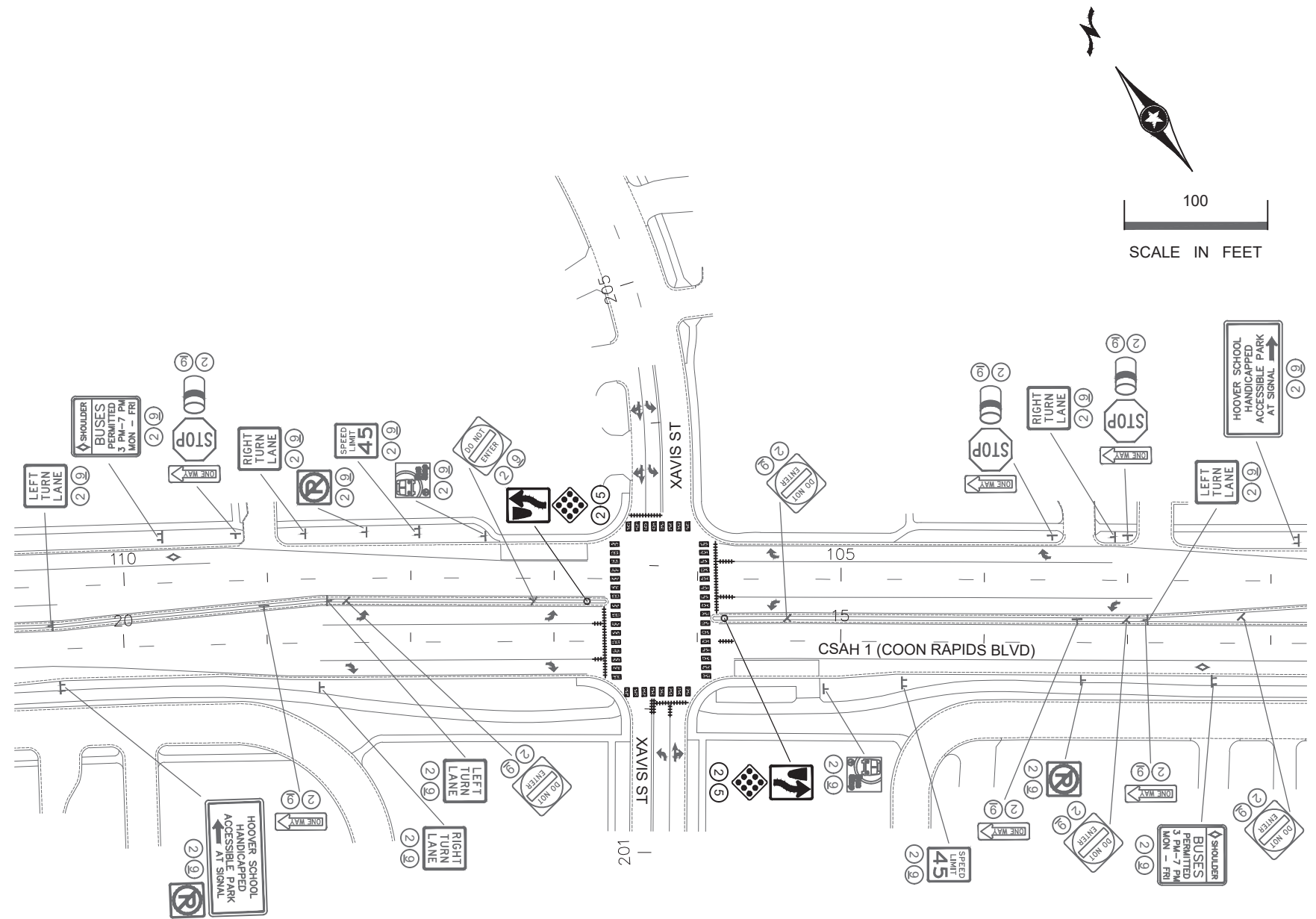
- ② INPLACE
- ⑤ REMOVE
- ⑨ RETAIN INPLACE

REMOVALS LEGEND

③③
+++++

EXISTING SIGN REMOVAL TABULATION				
STATION	ADDRESS/ DESCRIPTION (NOTES)	REMOVE SIGN	SIGN CODE	SIGN LEGEND
		TYPE C EACH		
103+23	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	TYPE 1 OBJECT MARKER
104+19	MEDIAN	1	R4-7	KEEP RIGHT
			OM1-1	TYPE 1 OBJECT MARKER
TOTAL		2		

EXISTING PAVEMENT MARKING REMOVAL TABULATION			
ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	
		WHITE	YELLOW
PAVEMENT MARKING REMOVAL 4" SOLID LINE PAINT	LIN FT	45	
PAVEMENT MARKING REMOVAL 4" SOLID DOUBLE LINE PAINT	LIN FT		10
PAVEMENT MARKING REMOVAL 4" BROKEN LINE PAINT	LIN FT	10	
PAVEMENT MARKING REMOVAL 24" SOLID LINE	LIN FT	145	
PAVEMENT MARKING REMOVAL 3' X 6' CROSSWALK SOLID	SQ FT	48	



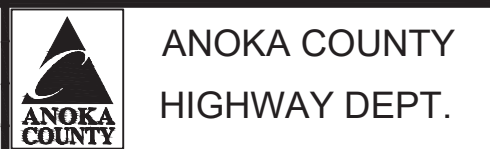
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis Signal\Base\Traffic\Existing Signing and Striping.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: SEAN R. THIEL
 SIGNATURE: *Sean R. Thiel*
 DATE: 07/07/2023 LICENSE NO. 45129

DRAWN BY: FL DATE: 05/09/23
 DESIGN BY: FL DATE: 05/09/23
 CHECKED BY: SRT DATE:



SAP 002-601-063
 SAP 114-020-062
 CP 23-14

**PERMANENT PAVEMENT MARKING PLAN
NOTES & GUIDELINES**

GENERAL INFORMATION:

1. 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.
2. 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.
3. 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.
4. PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.
5. 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.

PERFORMED THERMOPLASTIC:

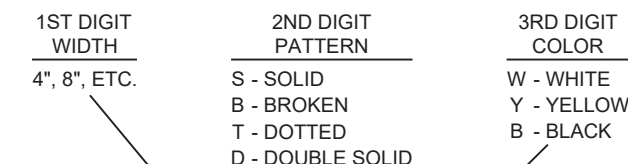
1. THE PERFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PERFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

PAVEMENT MARKING SYMBOLS & MATERIALS LEGEND

■ CROSSWALK BLOCK

STRIPING KEY

○ --- OCTAGON - PREF THERMO



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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis Signal\Base\Traffic\Permanent Pavement Marking Plan Notes and 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: SEAN R. THIEL
SIGNATURE: *Sean R. Thiel*
DATE: 07/07/2023 LICENSE NO. 45129

DRAWN BY FL DATE 05/09/23
DESIGN BY FL DATE 05/09/23
CHECKED BY SRT DATE _____



**ANOKA COUNTY
HIGHWAY DEPT.**

SAP 002-601-063
SAP 114-020-062
CP 23-14

PERMANENT PAVEMENT
MARKING PLAN
NOTES & GUIDELINES

Sheet 23 of 43 Sheets

NOTES (TYP)

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE MOST RECENT EDITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD).
2. 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.
3. SIGNS ATTACHED TO THE SIGNAL SYSTEM EQUIPMENT ARE INCLUDED IN THE SIGNAL DESIGN WORK.
4. SIGNS UNAFFECTED BY CONSTRUCTION HAVE BEEN OMITTED FROM PLAN.
5. REFERENCE SIGNING AND STRIPING DETAILS SHEET AND PAVEMENT MARKING NOTES AND GUIDELINES SHEET FOR INSTALLATION DETAILS.

SIGNING NOTES

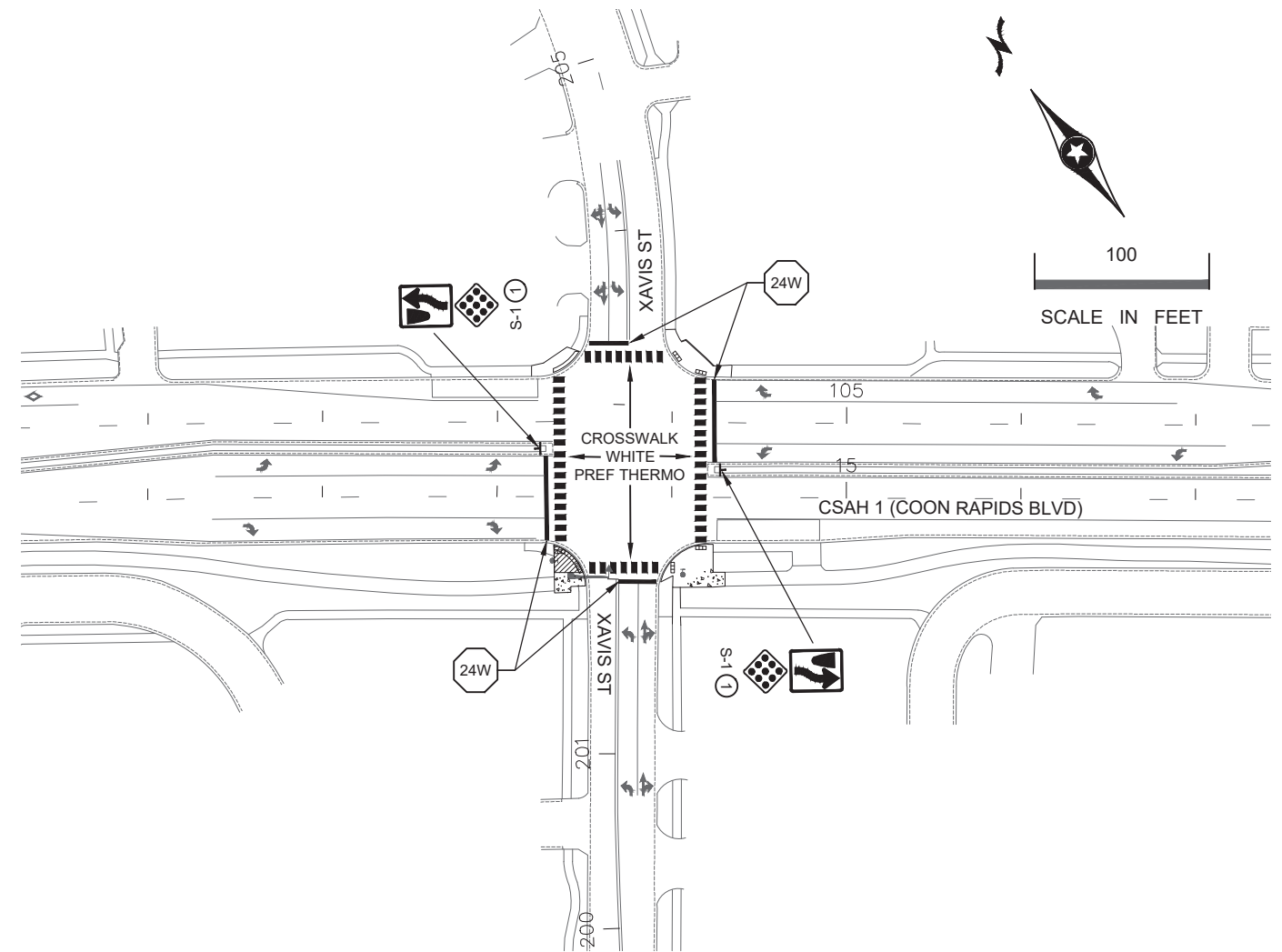
① FABRICATE AND INSTALL

STRIPING KEY

○ STRIPING KEY
 OCTAGON - PREF THERMO

PERMANENT PAVEMENT MARKING TABULATION		
ITEM DESCRIPTION	UNIT	TOTAL QUANTITY
		WHITE
24" SOLID LINE STOP BAR PREFORMED THERMOPLASTIC	LIN FT	139
3' X 6' CROSSWALK PREFORMED THERMOPLASTIC	SQ FT	846

PERMANENT SIGNING TABULATION										
SIGN NUMBER	SIGNS QTY EACH	CODE NUMBER	PANEL LEGEND	TYPE	POSTS / MOUNTING			MTG HT	PANEL	
					SIZE (W X H)	AREA	TOTAL AREA		NUMBER OF POSTS	SURFACE TYPE
S-1	2	R4-7	KEEP RIGHT	C	24 X 30	5.00	10.00	7.0	1	CONCRETE
	2	OM1-1	TYPE 1 OBJECT MARKER	C	18 X 18	2.25	4.50			
					TOTAL AREA = 14.50					



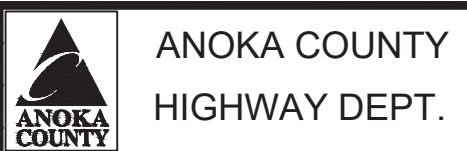
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis Signal\Base\Traffic\Permanent Signing and Striping.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: SEAN R. THIEL
 SIGNATURE: *Sean R. Thiel*
 DATE: 07/26/2023 LICENSE NO. 45129

DRAWN BY: FL DATE: 05/09/23
 DESIGN BY: FL DATE: 05/09/23
 CHECKED BY: SRT DATE: _____

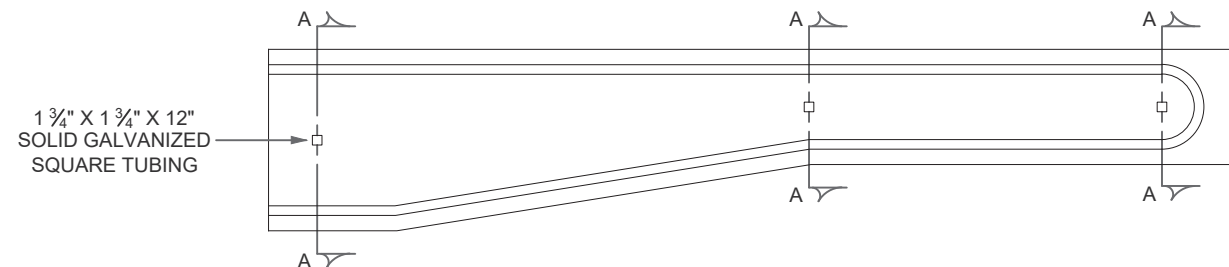
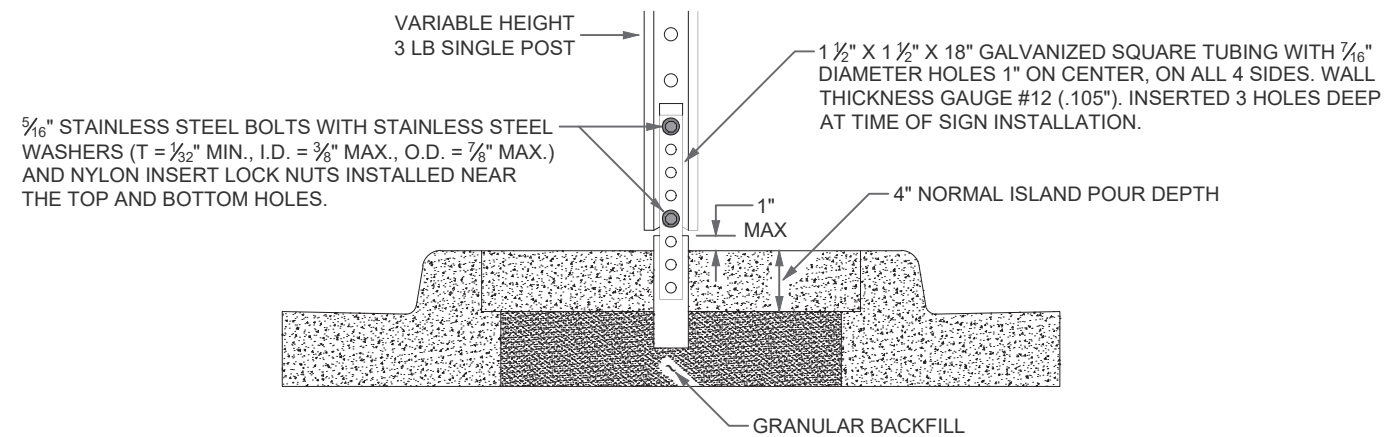


SAP 002-601-063
 SAP 114-020-062
 CP 23-14

PERMANENT SIGNING AND STRIPING
 Sheet 24 of 43 Sheets

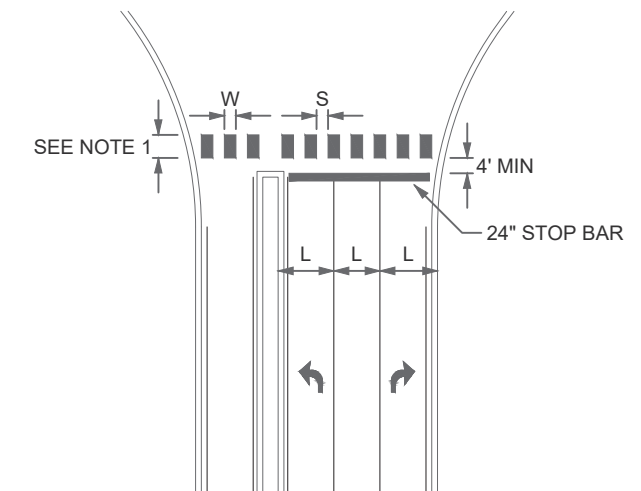
SIGN INSTALLATION TYPICALS

SECTION A-A



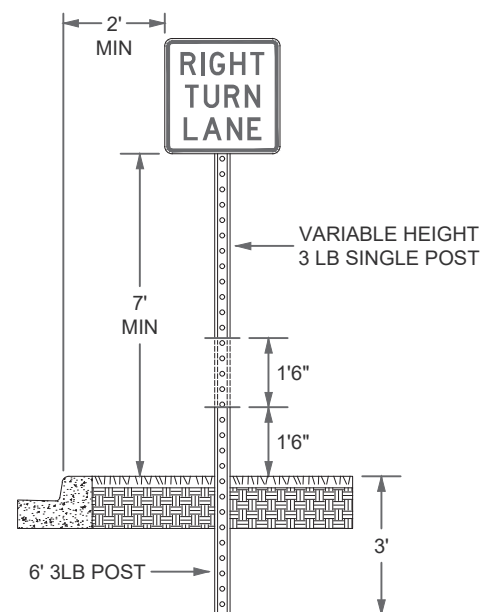
PAVEMENT MARKING TYPICAL

PEDESTRIAN CROSSWALK

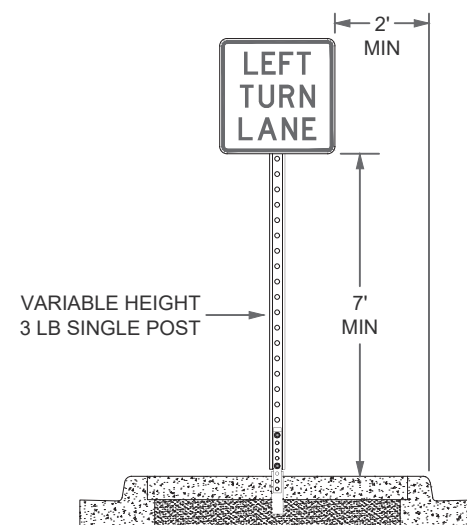


(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREAS	(S) WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

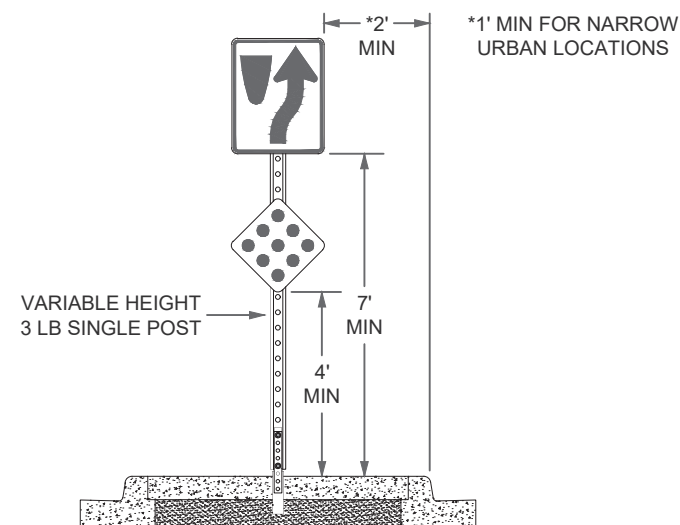
GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT, BREAK-AWAY SIGN INSTALLATION TYPICAL



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



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 RAMPS ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGINEER.

SIGN NOTES:

- TELESAR INSERT NOT TO BE INSERTED MORE THAN 3 MOUNTING HOLES DEEP INTO BASE. TYPICAL ON ALL SIGN INSTALLATIONS.

INSTALLATION NEAR SHARED-USE PATHWAY (MN MUTCD):

- THE MINIMUM HEIGHT MEASURED VERTICALLY FROM THE SHARED-USE PATHWAY TO THE BOTTOM OF THE SIGN SHALL BE 7 FEET. IF A SECONDARY SIGN IS MOUNTED BELOW THE PRIMARY SIGN AND IS MOUNTED LESS THAN 7 FEET, IT SHALL NOT PROJECT MORE THAN 4 INCHES INTO THE SHARED-USE PATHWAY.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis Signal\Base\Traffic\Signing & Striping 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: SEAN R. THIEL
SIGNATURE: *Sean R. Thiel*
DATE: 07/07/2023 LICENSE NO. 45129

DRAWN BY: FL DATE: 05/09/23
DESIGN BY: FL DATE: 05/09/23
CHECKED BY: SRT DATE:



ANOKA COUNTY
HIGHWAY DEPT.

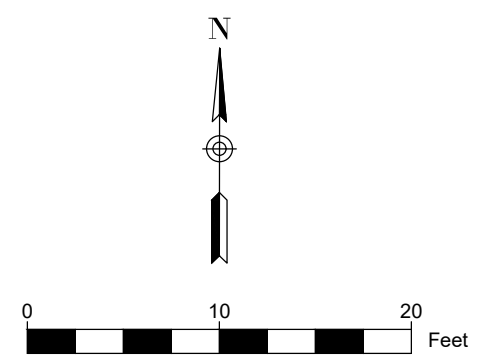
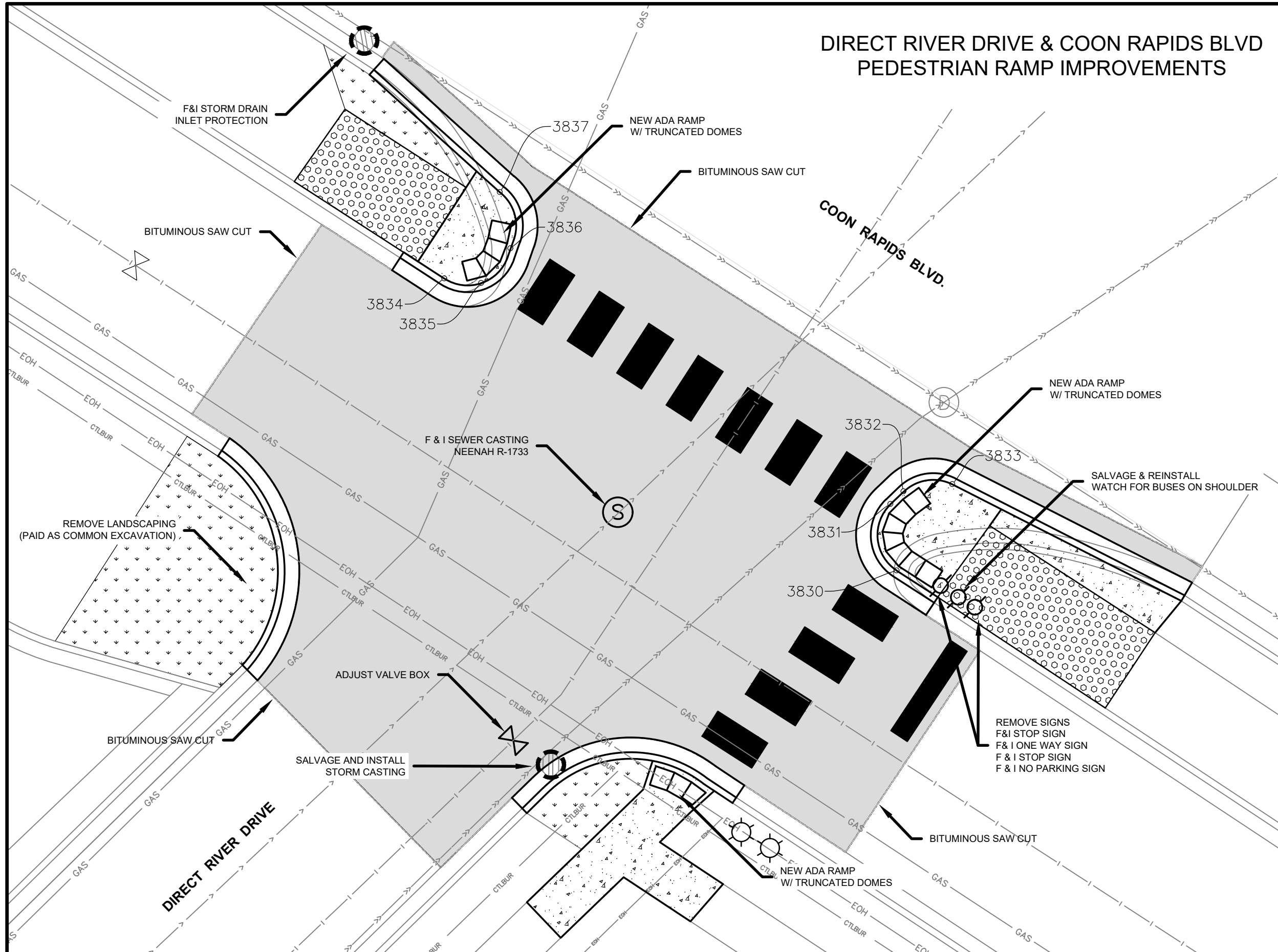
SAP 002-601-063
SAP 114-020-062
CP 23-14

SIGNING & STRIPING
DETAILS
Sheet 25 of 43 Sheets

DIRECT RIVER DRIVE & COON RAPIDS BLVD PEDESTRIAN RAMP IMPROVEMENTS

Point Table				
Point #	Description	Elevation	Northing	Easting
3830	TBC	869.85	148460.40	483029.12
3831	TBC	869.80	148467.17	483028.47
3832	TBC	869.96	148468.45	483029.81
3833	TBC	870.05	148469.18	483034.77
3834	TBC	869.20	148490.11	482983.08
3835	TBC	869.39	148489.66	482986.83
3836	TBC	869.51	148493.19	482989.82
3837	TBC	869.61	148498.90	482988.73

LEGEND	
	CURB
	WATER MAIN
	SANITARY SEWER
	STORM DRAIN
	BITUMINOUS MATCH THICKNESS
	BITUMINOUS 2" THICKNESS
	CONCRETE PAVEMENT
	SEEDING
	WATER GATE VALVE
	SANITARY MANHOLE
	STORM MANHOLE
	STORM CATCH BASIN
	INLET PROTECTION
	SIGN



K:\2023 CAD\23-14 COON RAPIDS PEDS @ DRD\23-14
4:00 PM
July 26, 2023

NO.	DATE	REVISIONS

CITY OF COON RAPIDS
ENGINEERING DEPARTMENT
11155 ROBINSON DRIVE
COON RAPIDS, MN. 55433-3761
763-755-2880
FAX 163-767-6491

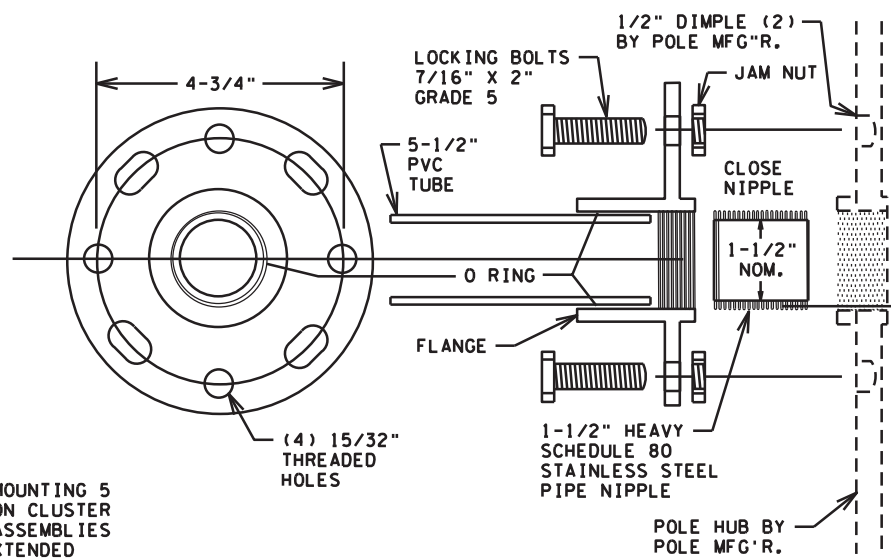
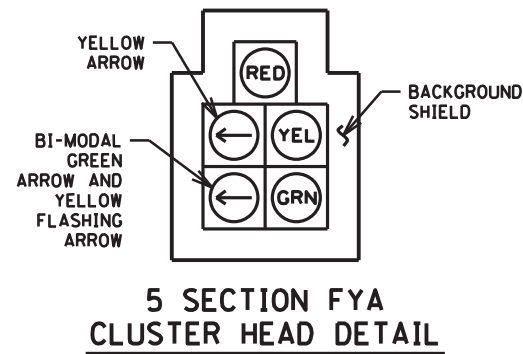
DESIGNED BY: R.T.
DRAWING BY: R.T.
CHECKED BY: M.C.H.
DATE: 7/26/2023

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

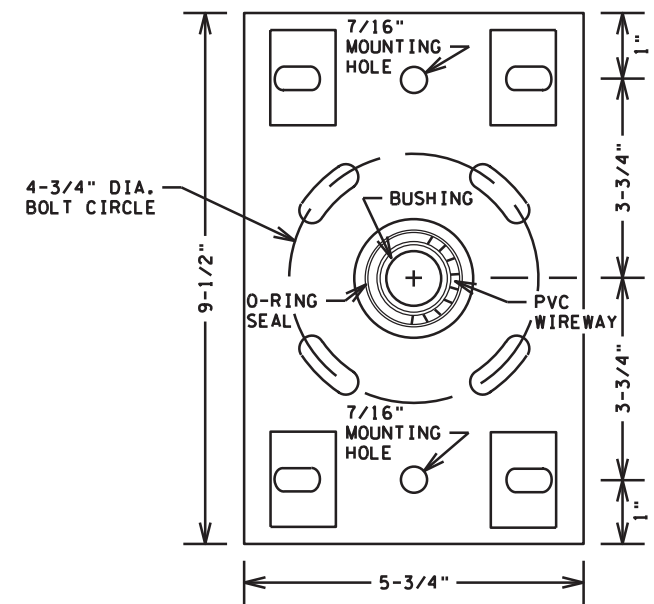
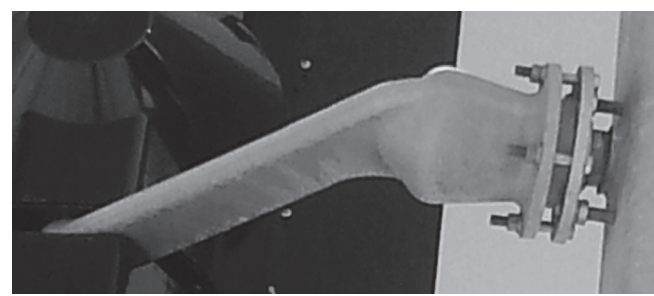
NAME: MARK C. HANSEN P.E.
LICENSE # 43920
DATE: 7/26/2023

23-14 PEDESTRIAN RAMP IMPROVEMENTS
CITY OF COON RAPIDS, MINNESOTA

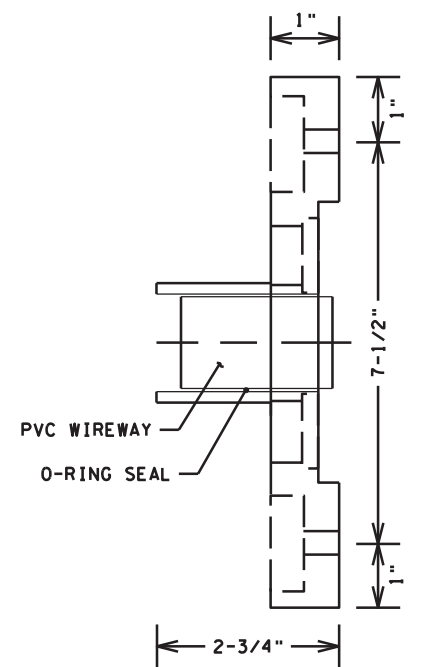
CONSTRUCTION PLAN
SHEET NO. 26 OF 43 SHEETS



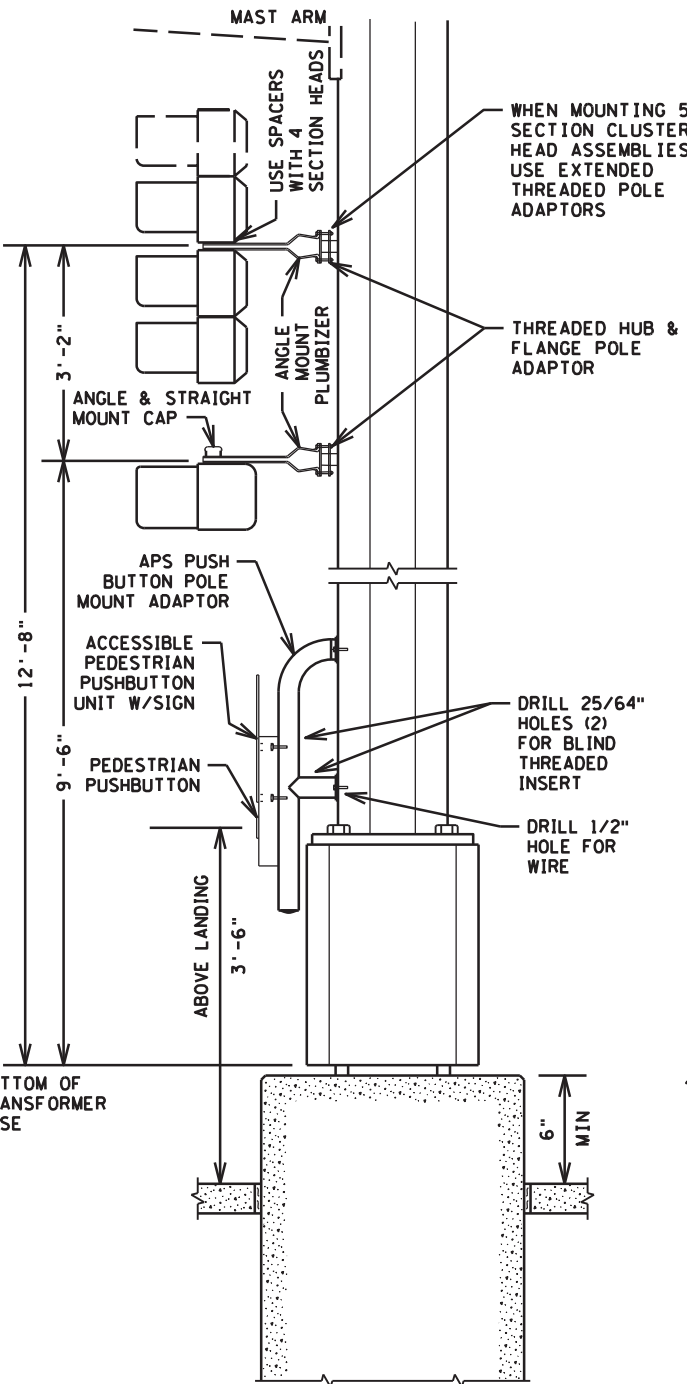
THREADED HUB AND FLANGE POLE ADAPTOR



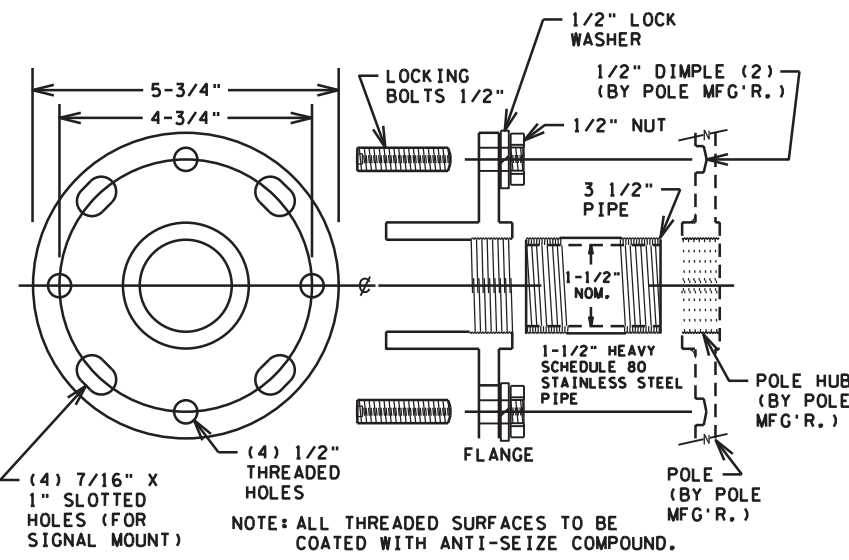
BOLT ON HUB & FLANGE



SIDE VIEW

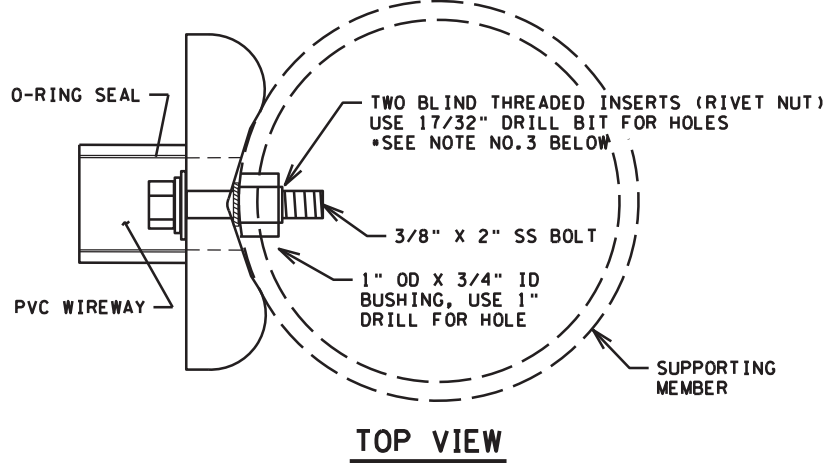


TYPICAL SIGNAL POLE MOUNTING

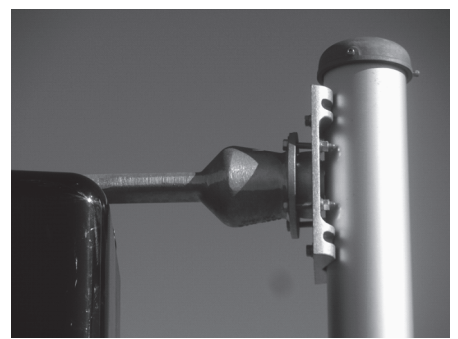


EXTENDED THREADED POLE ADAPTOR

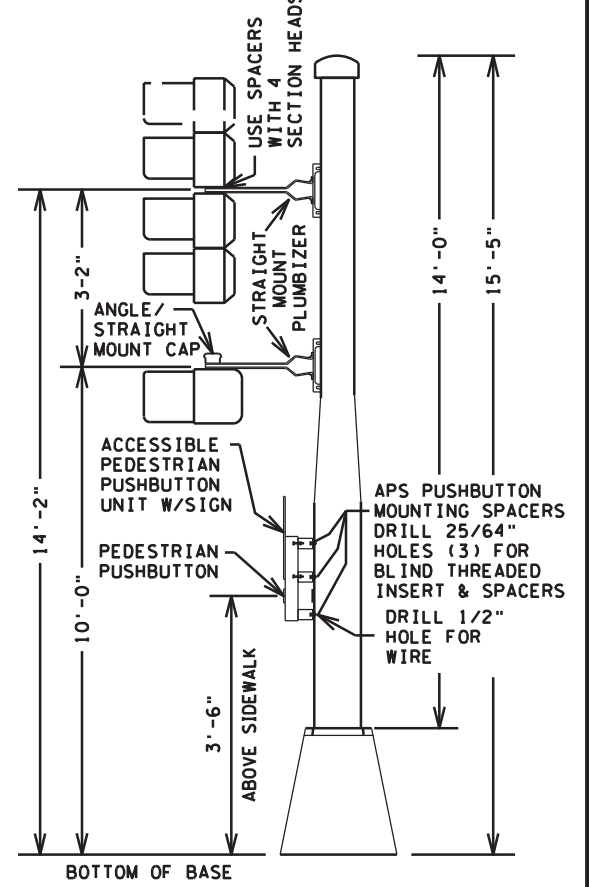
- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
 4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



TOP VIEW



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



TYPICAL PEDESTAL MOUNTING

NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_s04.dgn 06/27/2023 9:02:46 AM

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: Aaron Anderson

SIGNATURE:

DATE: 06/27/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23

DESIGN BY: APA DATE: 05/12/23

CHECKED BY: ST DATE: 05/12/23

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-601-063
SAP 114-020-062
CP 23-14

TRAFFIC SIGNAL SYSTEM
ONE WAY POLE
MOUNT DETAILS

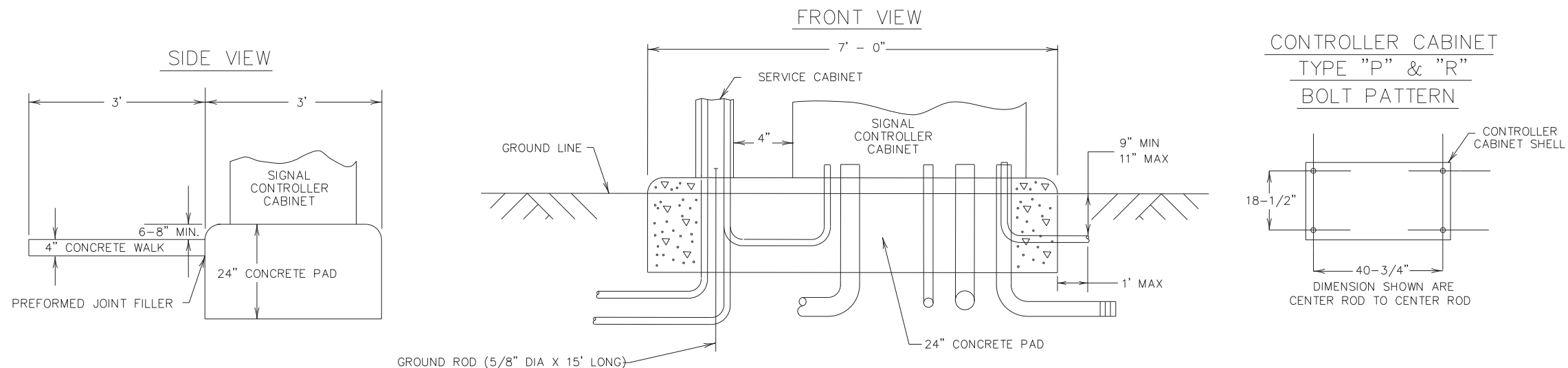
Sheet 27 of 43 Sheets

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

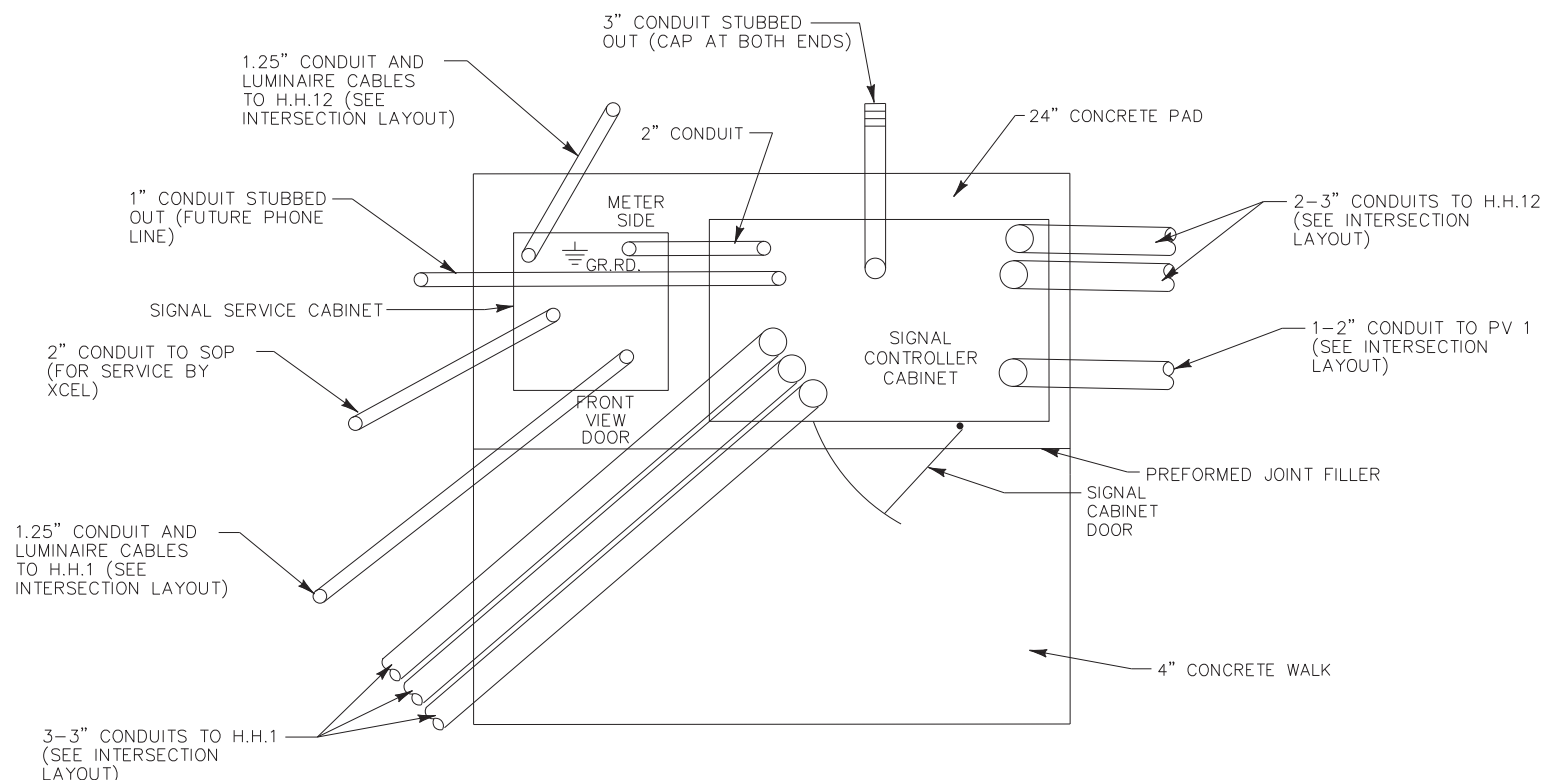
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

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 CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE OF THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3F52 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.



PLAN VIEW LOCATION



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_s02.dgn 06/27/2023 9:02:47 AM

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: Aaron Anderson

SIGNATURE:

DATE: 06/27/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23

DESIGN BY: APA DATE: 05/12/23

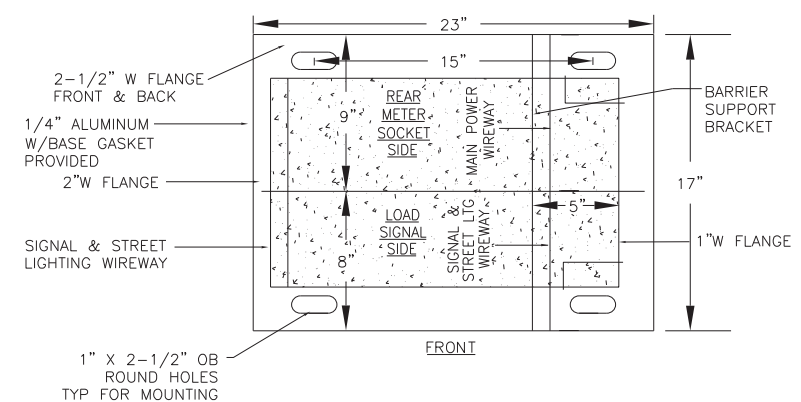
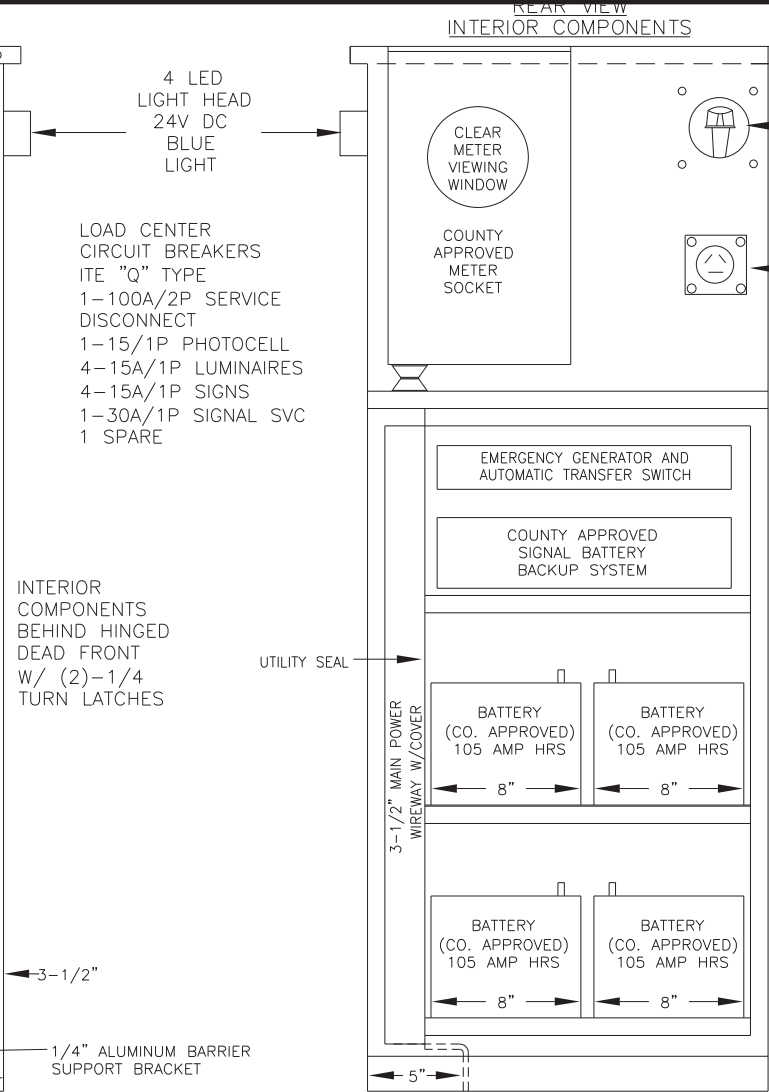
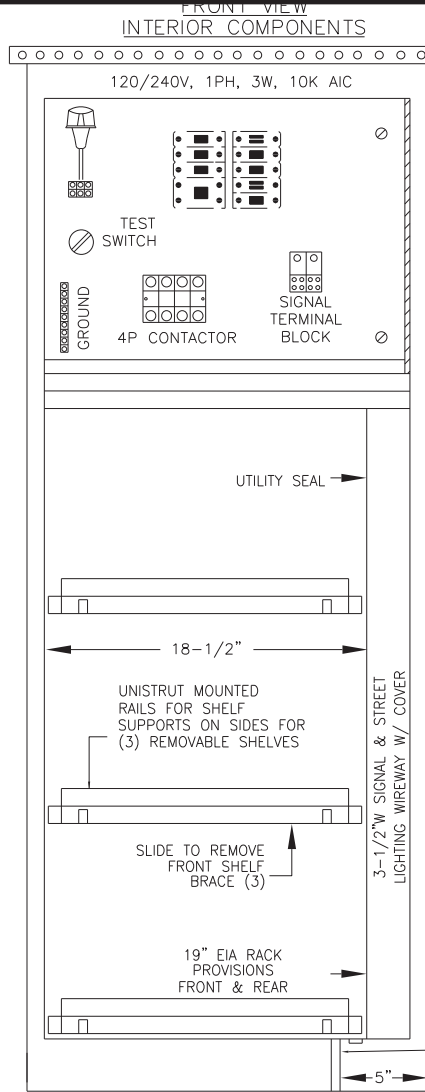
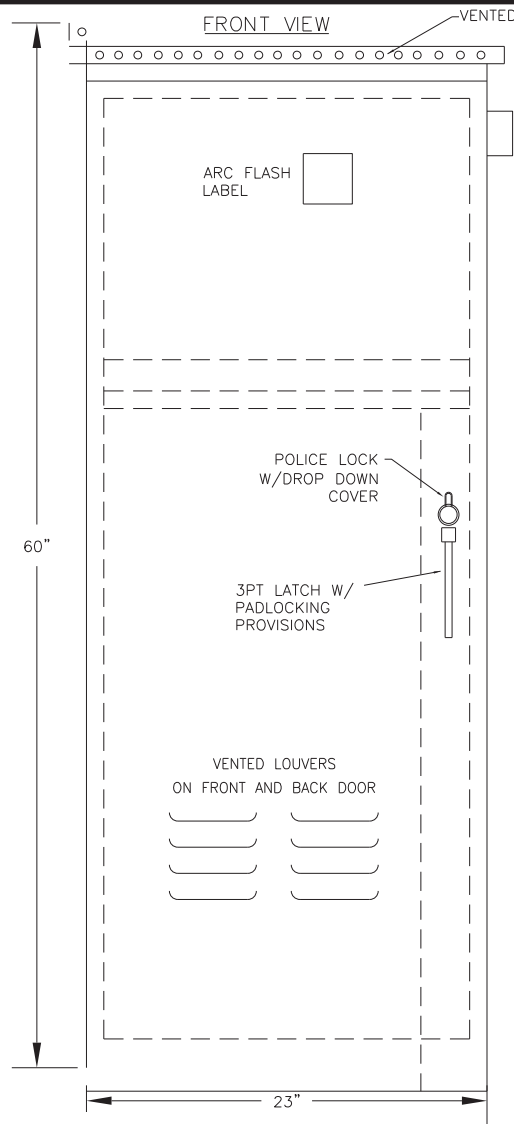
CHECKED BY: ST DATE: 05/12/23

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-601-063
SAP 114-020-062
CP 23-14

CABINET EQUIPMENT PAD DETAIL

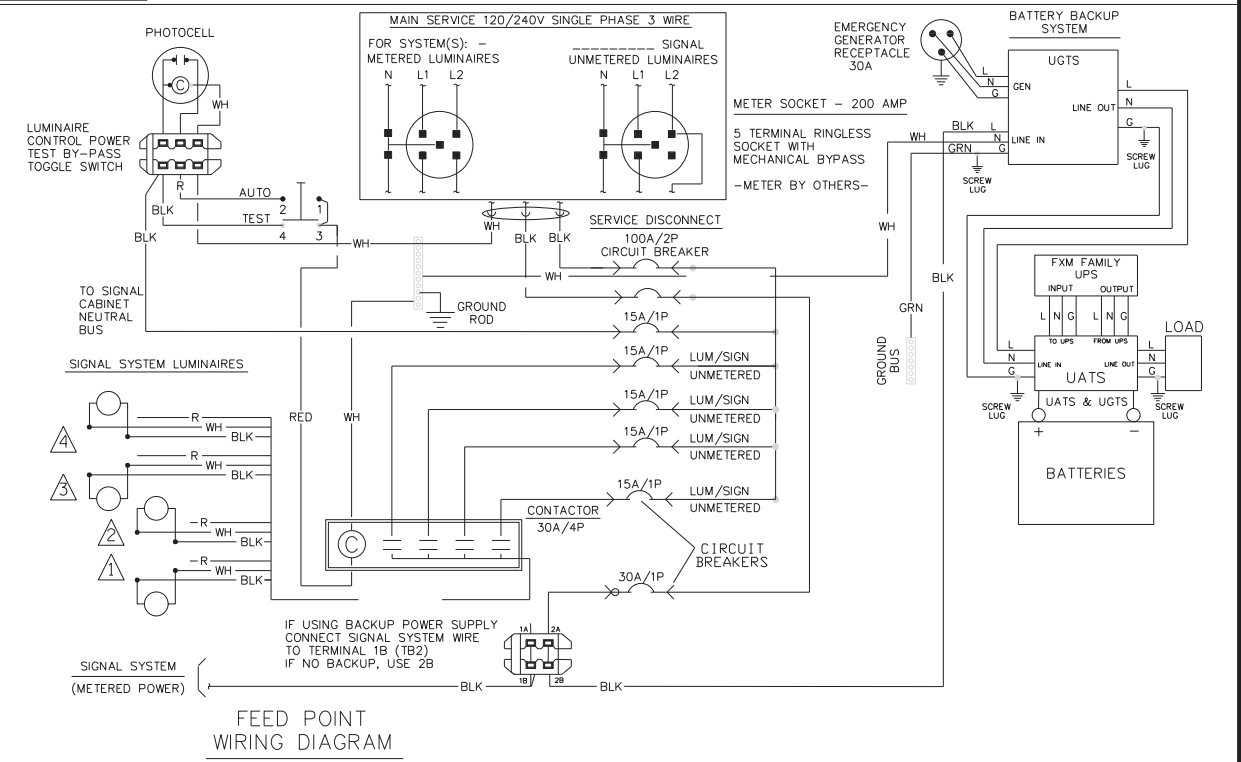
Sheet 28 of 43 Sheets



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.

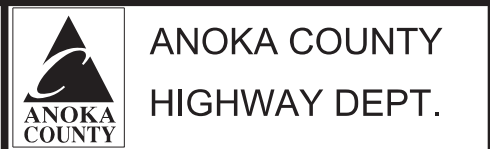


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_s03.dgn 06/27/2023 9:02:48 AM

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: Aaron Anderson
 SIGNATURE:
 DATE: 06/27/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23
 DESIGN BY: APA DATE: 05/12/23
 CHECKED BY: ST DATE: 05/12/23



SAP 002-601-063
 SAP 114-020-062
 CP 23-14

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(1)
SIGNAL FACE NO.	(M)
LUMINAIRE NO.	(L)
CONTROLLER AND CABINET	[Symbol]
CONTROLLER AND CABINET - IN PLACE	[Symbol]
HANDHOLE	[Symbol]
HANDHOLE - IN PLACE	[Symbol]
SCHEDULE 80 PVC CONDUIT	[Symbol]
RIGID STEEL CONDUIT (RSC) - IN PLACE	[Symbol]
SIGNAL FACE WITH BACKGROUND SHIELD	[Symbol]
SIGNAL FACE W/O BACKGROUND SHIELD	[Symbol]
SIGNAL FACE - IN PLACE	[Symbol]
PEDESTRIAN INDICATORS	[Symbol]
PEDESTRIAN INDICATORS - IN PLACE	[Symbol]
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	[Symbol]
PEDESTRIAN PUSH BUTTON STATION	[Symbol]
TRAFFIC SIGNAL PEDESTAL	[Symbol]
TRAFFIC SIGNAL PEDESTAL - INPLACE	[Symbol]
TRAFFIC SIGNAL POLE AND MAST ARM	[Symbol]
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	[Symbol]
STREET LIGHT POLE AND LUMINAIRE	[Symbol]
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	[Symbol]
MAST ARM AND LUMINAIRE	[Symbol]
MAST ARM AND LUMINAIRE - INPLACE	[Symbol]
WOOD POLE	[Symbol]
WOOD POLE - IN PLACE	[Symbol]
SOURCE OF POWER	[Symbol]
RAILROAD SIGNAL - IN PLACE	[Symbol]
RIGHT OF WAY LINE	[Symbol]
CENTERLINE	[Symbol]
EDGE OF ROADWAY	[Symbol]
SHOULDERLINE	[Symbol]
CURB LINE	[Symbol]
STOP BAR	[Symbol]
EMERGENCY VEHICLE PREEMPTION DETECTOR	[Symbol]

ABBREVIATIONS

3-1(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
DWK DON'T WALK	R RED
EQG 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
HH 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

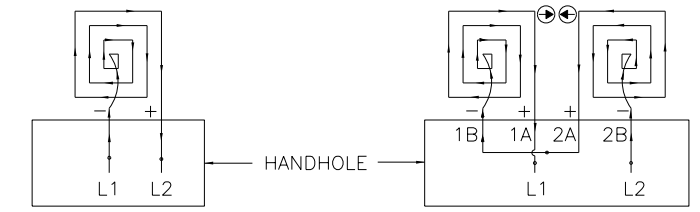
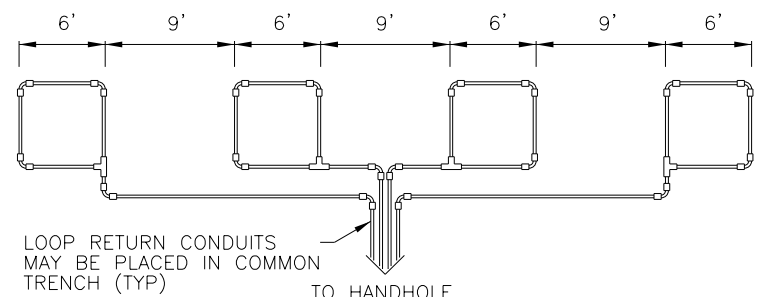
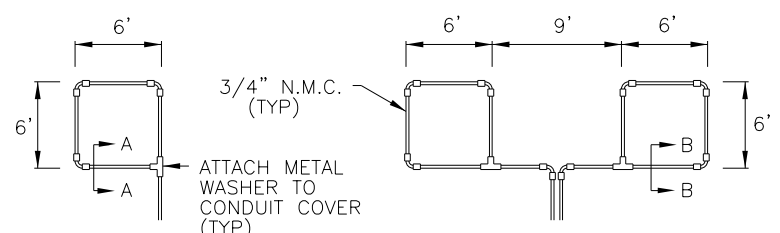
TABULATION OF SIGNAL QUANTITIES

ITEM NUMBER	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	ANOKA COUNTY SAP 002-601-063	COON RAPIDS SAP 114-020-062
2104.502	REMOVE SIGNAL SYSTEM	EACH	1	1	
2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1		1
2565.501	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1	1	
2565.516	TRAFFIC CONTROL SIGNAL SYSTEM	SYSTEM	1	0.5	0.5
2565.616	VIDEO DETECTOR SYSTEM	SYSTEM	1	1	
2565.616	TEMPORARY SIGNAL SYSTEM	SYSTEM	1	1	

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

MNDOT STANDARD PLATES - SIGNAL SYSTEMS

PLATE NO.	DESCRIPTION
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
8119C	GROUND MOUNTED CABINET FOUNDATION
8120Q	POLE FOUNDATION (PA85)
8121H	TRANSFORMER BASE AND POLE BASE PLATE (PA85, PA90 AND PA100) (2 SHEETS)
8122F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
8123G	POLE AND MAST ARM - LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (FOR ALL POLE TYPES) (2 SHEETS)
8126L	POLE FOUNDATION (PA90 AND PA100)
8129A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)



LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

- L1 TO 1A
- 1B TO 2A
- 2B TO L2

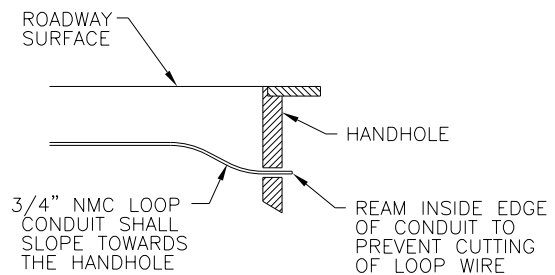
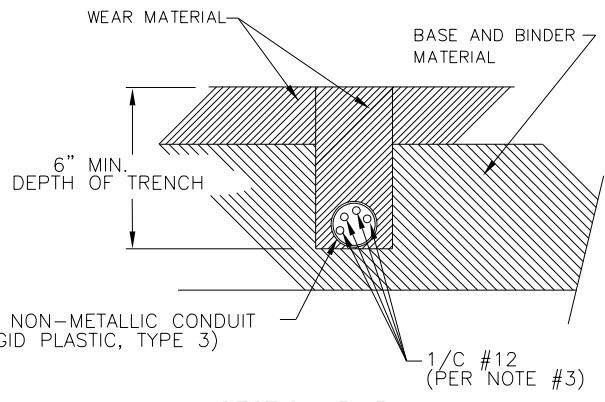
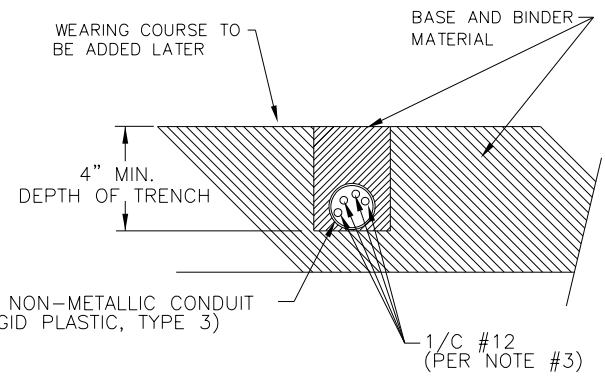
LOOP DETECTOR DETAIL 'B'
(LOOP PHASING FOR SERIES CONNECTION)

LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

- L1 TO 1A 3B TO 4A
- 1B TO 2A 4B TO L2
- 2B TO 3A

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

LOOP DETECTOR DETAIL 'C'
(LOOP PHASING FOR SERIES CONNECTION)



LOOP DETECTOR WIRING

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

1	7-24-2023	AA	AA	AA	UPDATED TABULATION OF SIGNAL QUANTITIES
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-601-063 Xavis SignalPlan\Backup Plansheets\002601063_s01_Backup.dgn 07/24/2023 12:34:12 PM					

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 DATE: 07/24/23 LICENSE NO. 58657

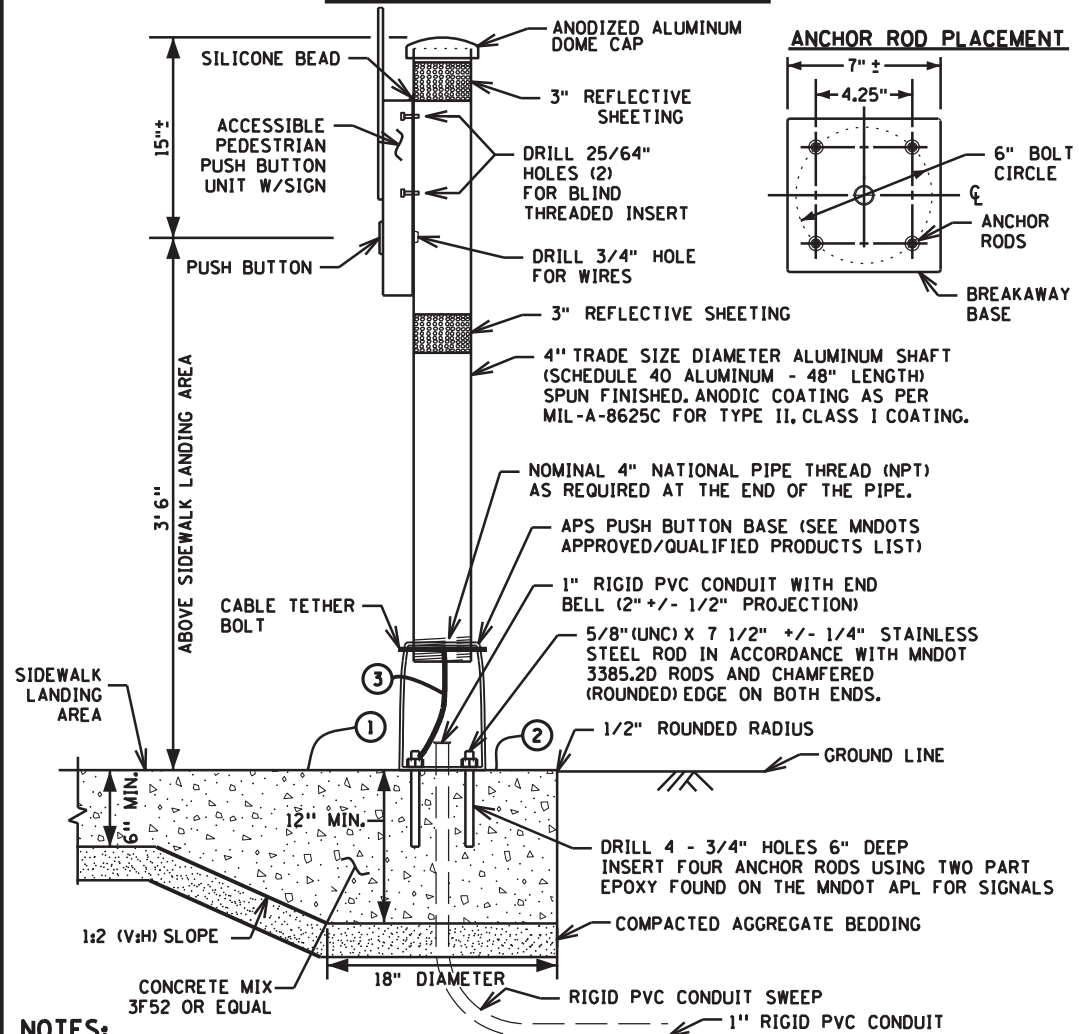
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STANDARDS &
 LOOP DETECTOR DETAIL
 Sheet 30 of 43 Sheets

APS PUSH BUTTON STATION



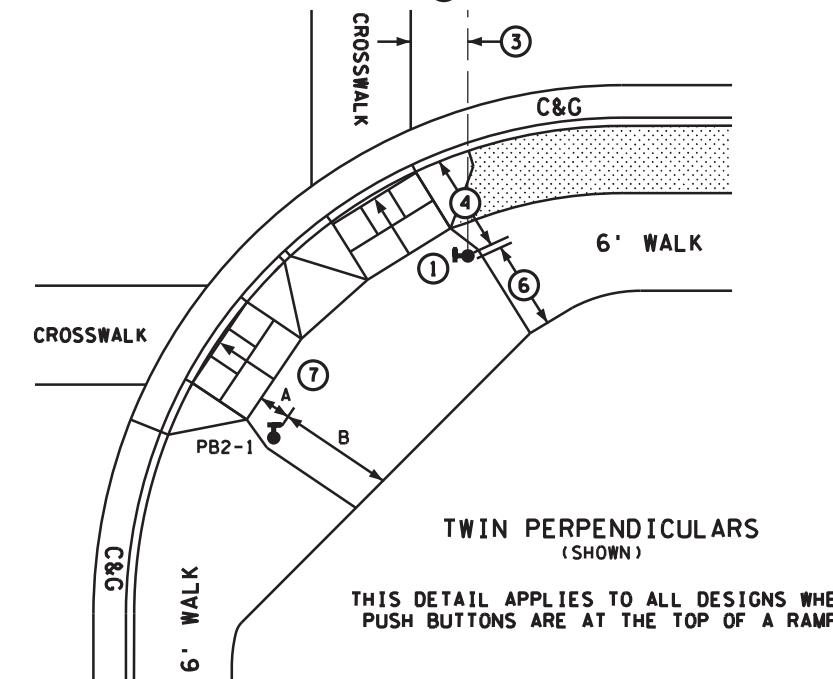
- NOTES:**
- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHAFT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE SHAFT.
 - ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.
 - PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.
 - INSTALL BLIND THREADED INSERTS USING MANUFACTURER'S SPECIFIC INSERTION TOOL.
 - USE ZINC PLATED STEEL 1/4 - 20 UNC BLIND THREADED INSERTS SUITABLE FOR MOUNTING ON SURFACE WALL THICKNESS OF .337. APPROVED BLIND INSERTS ARE LISTED ON MNDOT'S APPROVED/QUALITY PRODUCTS LIST WEBSITE FOR TRAFFIC SIGNALS.
 - USE APS 1/4 - 20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
 - APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" SHAFT.
 - USE WHITE REFLECTIVE SHEETING AT INTERSECTION CORNERS AND YELLOW REFLECTIVE SHEETING IN CENTER MEDIANS. APPROVED TUBE DELINEATOR SHEETING IS LISTED ON MNDOT'S APPROVED/QUALIFIED PRODUCTS LIST WEBSITE FOR SIGNING.
 - AN 18" X 6" FIBER FORMING TUBE MAY BE USED FOR THE LOWER HALF OF THE FOUNDATION WHEN CONDITIONS DO NOT ALLOW FOR THE 18" X 6" HOLE TO STAND OPEN.
- THE PUSH BUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1:2 (V:H) SLOPE GRADE WHERE THE 6" MIN SIDEWALK DEPTH TRANSITIONS TO THE 12" MIN FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1:2 (V:H) SLOPE GRADING 360 DEGREES FOR THE TRANSITION FROM THE SIDEWALK TO THE FOUNDATION WHEN THE FOUNDATION IS NOT LOCATED NEAR EDGE OF SIDEWALK AND IS SURROUNDED BY CONCRETE WALK.
 - ENSURE CONCRETE CONTROL JOINTS AND EDGE OF CONCRETE WALK ARE A MINIMUM 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.
 - INSTALL THE MANUFACTURER PROVIDED CABLE TETHER ASSEMBLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

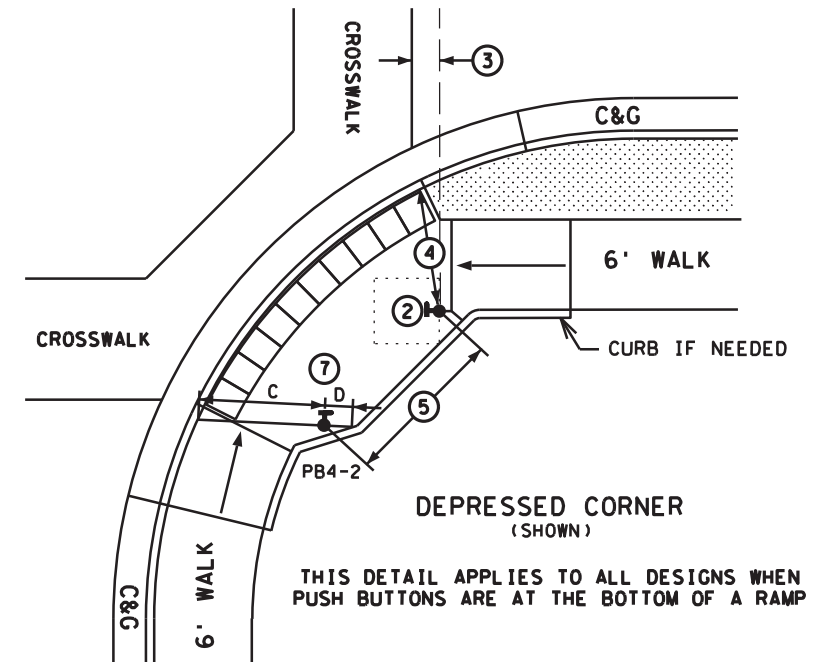
THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:

- THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE OUTSIDE EDGE OF CROSSWALK.
- A MINIMUM 4 FT X 4 FT LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON, WITH A 2 PERCENT MAXIMUM SLOPE IN ALL DIRECTIONS.
- BUTTONS SHALL BE WITHIN 5 FT OF THE OUTSIDE EDGE OF THE CROSSWALK.
- BUTTONS SHALL BE BETWEEN 1.5 FT AND 10 FT FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSH BUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.
- BUTTONS SHALL BE AT LEAST 10 FT APART.
- PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6 FT MINIMUM CLEAR DISTANCE BETWEEN A PUSH BUTTON AND ANY OBSTRUCTIONS, INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSH BUTTON.
- BUTTON SHOULD BE 2 FT MINIMUM FROM RAMP GRADE BREAK AND BACK OF WALK.

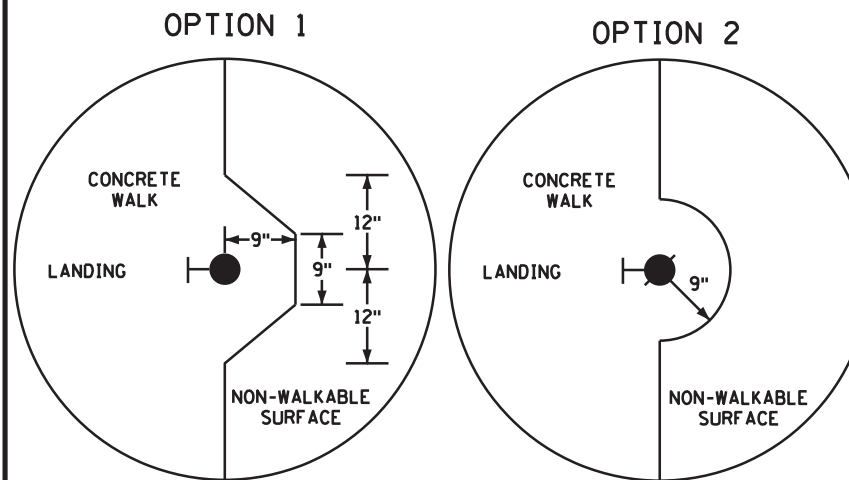


THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE TOP OF A RAMP



THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE BOTTOM OF A RAMP

CONTRACTOR MUST USE OPTION 1 OR 2 WHEN THE APS PUSH BUTTON IS SHOWN AT THE EDGE OF WALK. OPTION USED (OR SELECTED) MUST BE THE SAME THROUGHOUT THE ENTIRE PROJECT.



SIGNAL NO.	X	Y	DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
PB2-1	-	-	A	B
PB4-2	-	-	C	D

- A - DISTANCE MEASURED FROM THE PUSH BUTTON TO THE FRONT OF LANDING/TOP OF RAMP
- B - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE BACK OF LANDING/EDGE OF WALK
- C - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE OUTSIDE EDGE OF DOMES IN THE DIRECTION OF TRAVEL
- D - CLEAR DISTANCE FROM THE PUSH BUTTON TO THE BACK OF LANDING MEASURED IN THE OPPOSITE DIRECTION OF TRAVEL

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SIGNATURE: *[Signature]*

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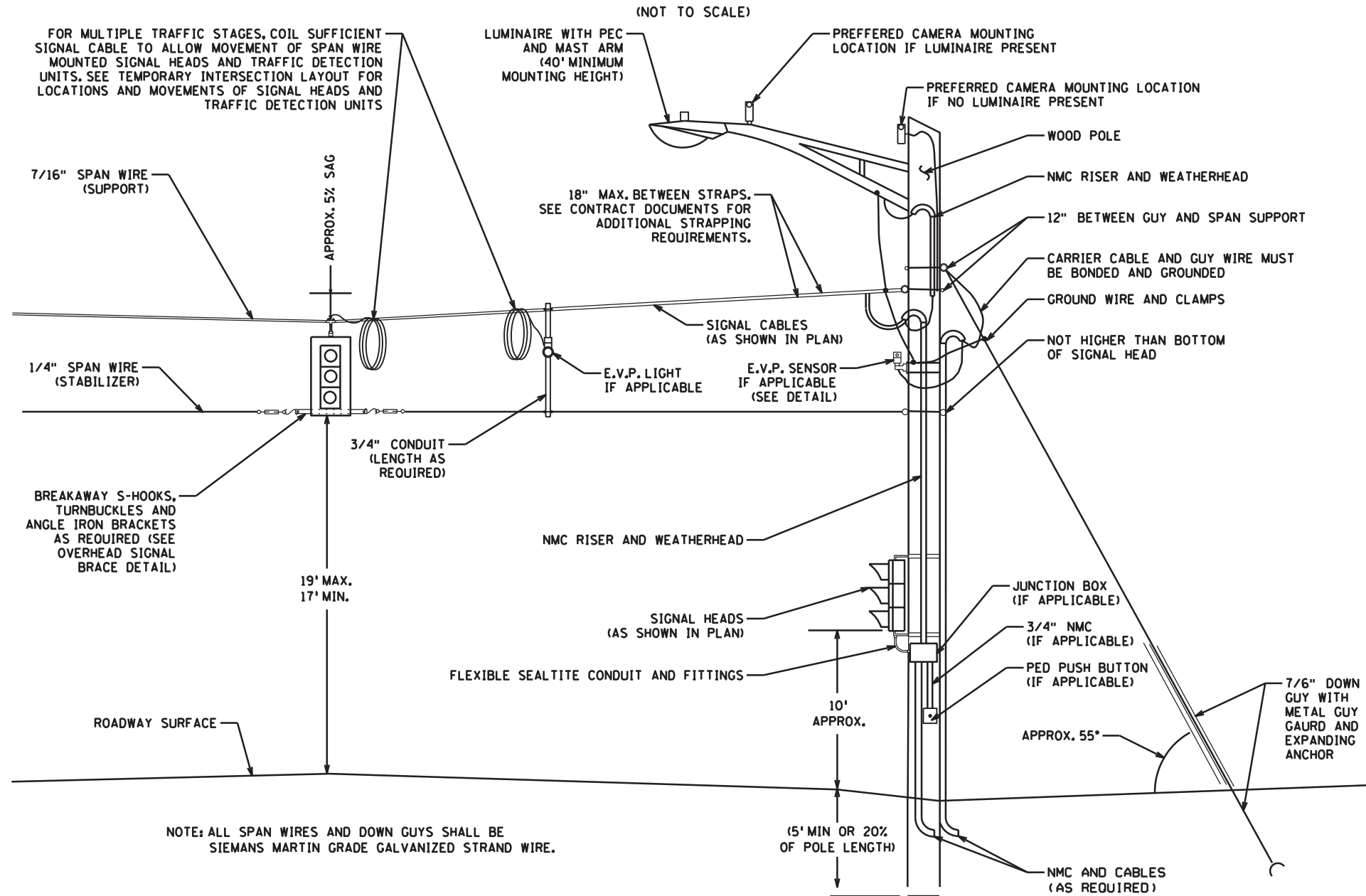
ANOKA COUNTY
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SAP 114-020-062
CP 23-14

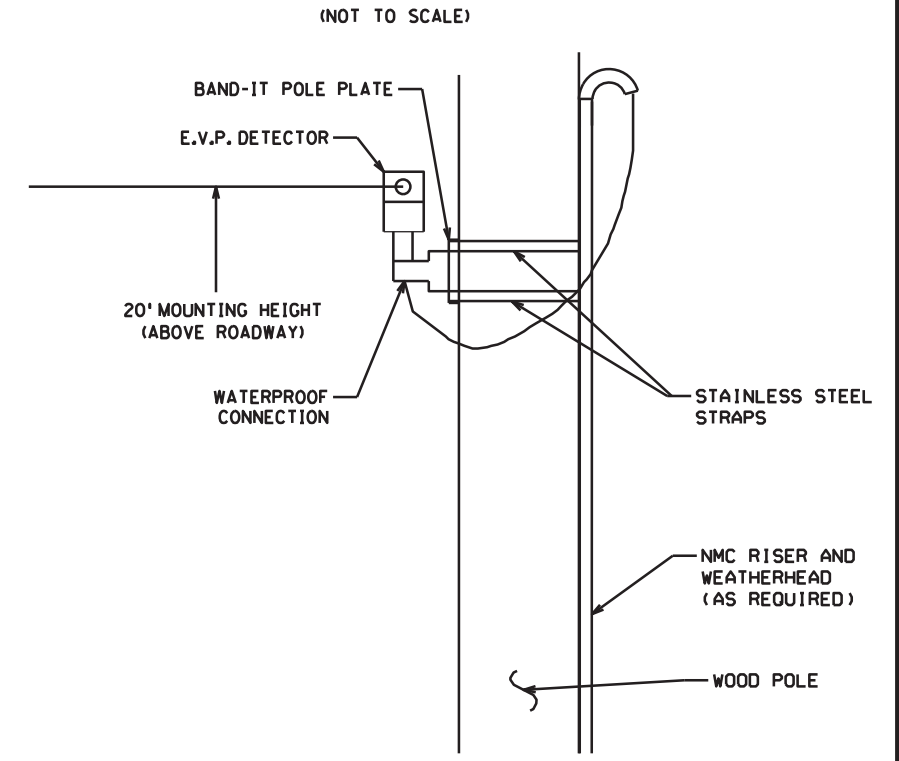
APS PUSH BUTTON STATION DETAILS

Sheet 31 of 43 Sheets

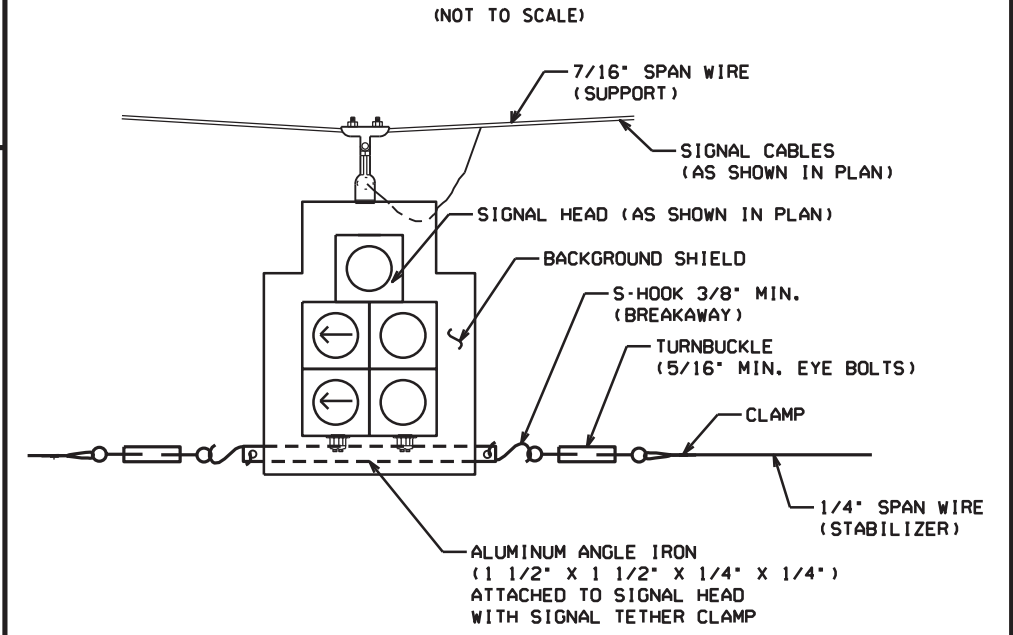
TYPICAL WOOD POLE AND SPAN WIRE MOUNTED TRAFFIC SIGNALS



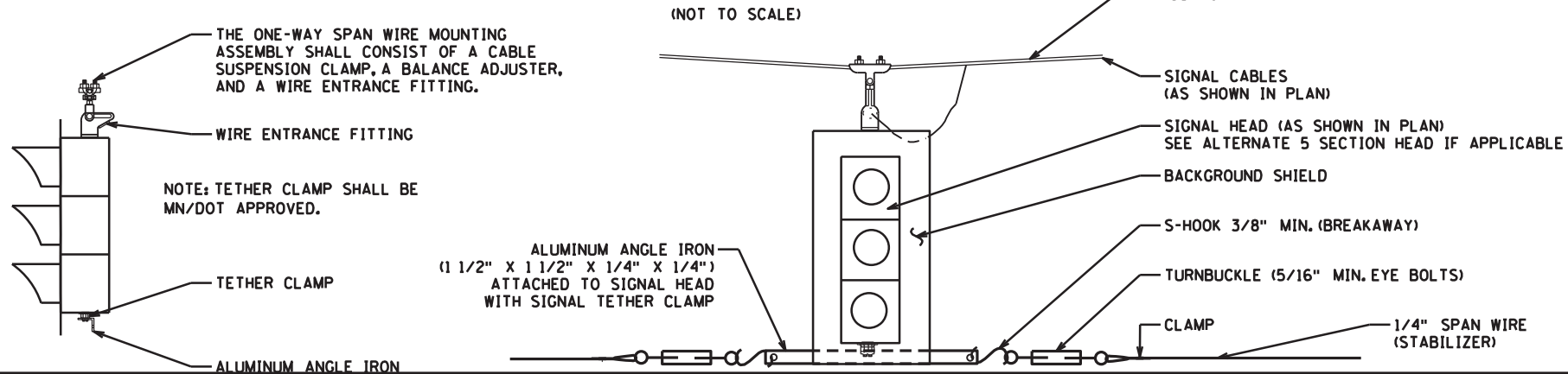
E.V.P. OR TRAFFIC DETECTOR WOOD POLE MOUNT



5 SECTION HEAD OVERHEAD SIGNAL BRACE DETAIL



OVERHEAD SIGNAL BRACE DETAIL



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WOOD POLE & SPAN WIRE DETAIL
 Sheet 32 of 43 Sheets

SIGN PANELS ON SIGNALS

POLE NUMBER	"A" DISTANCE (FEET) OR POLE	PANEL			
		CODE NUMBER	LEGEND	SIZE (INCHES)	AREA (SQ FT)
1	32	D-2	XAVIS ST	54 x 18	6.75
1	0	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
1	POLE	R6-1L	ONE WAY LEFT	36 x 12	3.00
1	POLE	R6-1R	ONE WAY RIGHT	36 x 12	3.00
2	14.5	D-3	ANOKA COUNTY 1 DOUBLE ARROW	36 x 54	13.50
2	0	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
3	32	D-2	XAVIS ST	54 x 18	6.75
3	0	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50
3	POLE	R6-1L	ONE WAY LEFT	36 x 12	3.00
3	POLE	R6-1R	ONE WAY RIGHT	36 x 12	3.00
4	17	D-1	COON RAPIDS BLVD	102 x 18	12.75
4	0	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50

GENERAL NOTE(S):

- SEE MnDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, ARROW DETAILS AND SPLICE PLATE DETAILS.
- FOR NON STANDARD SIGN DESIGNS, LAYOUTS ARE INCLUDED. SIGN PANEL DIMENSIONS ARE IN INCHES.
- SEE STANDARD PLAN 5-297.731 FOR SIGN MOUNTING TO MAST ARM.
- SEE STANDARD PLAN 5-297.730 FOR SIGN MOUNTING TO ROUND POST.
- MOUNTING HEIGHT OF POLE MOUNTED SIGN PANELS MUST BE 7 FOOT MINIMUM.
MOUNTING HEIGHT IS MEASURED FROM BOTTOM OF SIGN PANEL TO SURFACE IMMEDIATELY BELOW THE SIGN PANEL.
- "A" DISTANCE = DISTANCE FROM THE END OF THE MAST ARM TO THE EDGE OF EACH SIGN PANEL.
- SEE INTERSECTION LAYOUT FOR SIGN PLACEMENT OF POLE MOUNTED SIGNS.

CONDUCTOR COLOR CODE

FROM	TO DEVICE	SIGNAL CABINET TO DEVICE
SIGNAL SERVICE 1/C 6 EGC	AS SHOWN ON PLAN	R RED/R/LA O YEL/Y/LA BL GRN/GLA WH NEU BLK/R YLA/FYA BLK GLA
SOP 3-1/C 2 R WH BLK	SIGNAL SERVICE	4 AND 5 SECTION SIGNAL HEADS
SIGNAL SERVICE 3-1/C 6 BLK WH G	SIGNAL CABINET	R RED/DWK BLK/R YEL/WLK BLK GRN/SPR WH NEU
SIGNAL CABINET (6SM) CABLE	SIGNAL CABINET	3 SECTION HEAD PED HEADS
SIGNAL CABINET TO DEVICE 6PR 19	AS SHOWN ON PLAN	R RED BLK/R YEL BLK GRN WH NEU
COAXIAL CABLE	AS SHOWN ON PLAN	R FYA BLK/R YLA BLK GLA WH NEU
4/C 18 BLK WH G	AS SHOWN ON PLAN	5 SECTION (CLUSTER HEADS ONLY)
2/C 14 BLK WH OR CLR	AS SHOWN ON PLAN	BLK BLK G G
3/C 20 R OR O WH OR YEL BLK OR BL	AS SHOWN ON PLAN	BLK BLK G G
CAT 5	AS SHOWN ON PLAN	BLK BLK G G

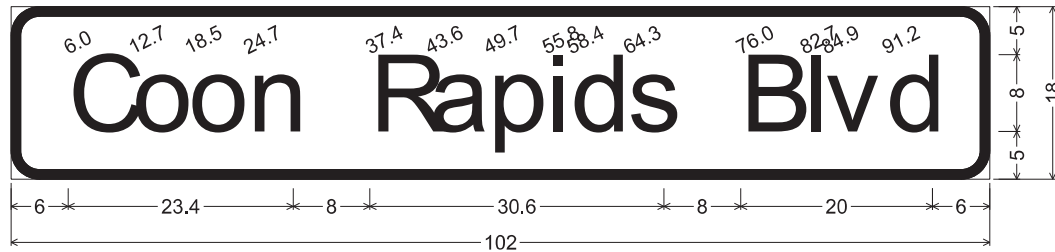
NOTES:
ARRANGE AND TERMINATE CONDUCTORS AND CABLES AS SHOWN WITHOUT SPLICE.
NUMBER ONLY MEANS AWG CONDUCTOR SIZE (e.g. 14=14AWG)
1/C MEANS AN INDIVIDUAL CONDUCTOR NOT PART OF A CABLE ASSEMBLY

CABLE LABELING ABBREVIATIONS

ABBREVIATION	LABEL REFERENCE DSICRIPTION & EXAMPLE	COMPONENT
X-Y	INDICATION NUMBER 2-1	SIGNAL HEAD
X-Y	LOOP NUMBER D2-1	DETECTOR
X-Y	PUSH BUTTON NUMBER PB2-1	PUSH BUTTON
X-Y	PED INDICATION NUMBER P2-1	PED INDICATION
X-Y	LUMINAIRE NUMBER L1	LUMINAIRE
X-Y	EVP PHASE NUMBER EVP 2+5	EVP DETECTOR
X-Y	EVP LIGHT PHASE NUMBER EVPL 2+5	EVP CON. LIGHT
X-Y	VIDEO DETECTION PHASE V2-1	VIDEO DETECTION
X-Y	RADAR DETECTION PHASE RD2-1	RADAR DETECTION
SS	SIGNAL SERVICE	SERVICE WIRE
CC	CABINET COMMS	COMMS CABLE
FO	FIBER OPTIC	FIBER CABLE
SPARE Y	SPARE WIRE TO POLE NUMB. SPARE1	SPARE WIRE
ELYZ *	ENFORC. LIGHT POLE & DIRECTION	ENFORCEMENT LIGHT
PTZ1	PTZ CAMERA POLE NUMBER PTZ1	PTZ CAMERA
IC	INTERCONNECT CABLE	INTERCONNECT
EGC	EQUIPMENT GROUNDING CONDUCTOR	GROUND

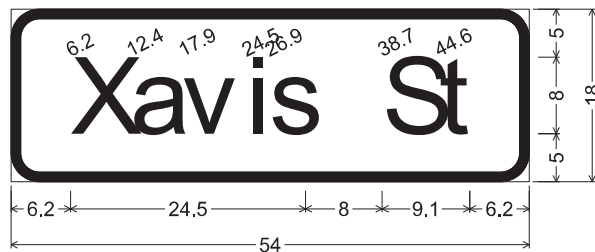
X = SIGNAL SYSTEM PHASE NUMBER; REFER TO THE PLAN
Y = SIGNAL SYSTEM ASSIGNED COMPONENT NUMBER; REFER TO THE PLAN
Z * = DIRECTION
FURNISH AND INSTALL LABELS ON CABLES WITH ABBREVIATIONS SHOWN ON THIS TABLE AND IN ACCORDANCE WITH THE WIRING DIAGRAM.

D-1



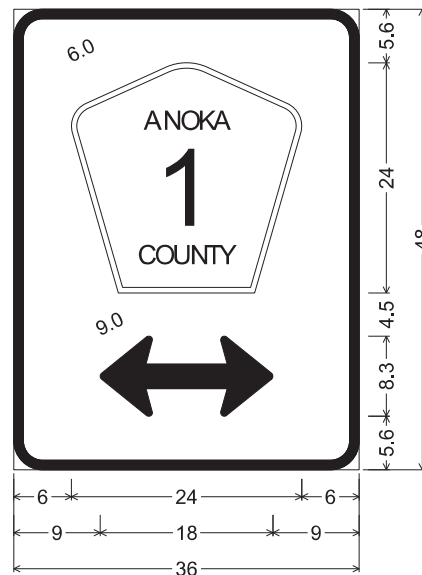
3.0" Radius, 1.0" Border, White on, Green;

D-2



3.0" Radius, 1.0" Border, White on, Green;

D-3



3.0" Radius, 1.0" Border, White on, Green;
Pentagonal County 1 M1-6;
Double Headed Arrow 3 - 18.0" 0';

WIRE COLOR CODE KEY

R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

CONDUCTOR AND CABLE SPECIFICATION CHART

NUMBER OF CONDUCTORS & AWG SIZE	TYPE	Specification Number
1/C 2	INDIVIDUAL SERVICE CONDUCTORS	3815.2B.1
1/C 6	FEEDER AND BRANCH CONDUCTORS	3815.2B.1
1/C 6 INS.GR.	Grounding Conductors	3815.2B.5
2/C 14	Loop Detector Lead-In Cable	3815.2C.4
3/C 14	Signal Control Cable	3815.2C.3
4/C 14	Signal Control Cable	3815.2C.3
6/C 14	Signal Control Cable	3815.2C.3
12/C 14	Signal Control Cable	3815.2C.3
6PR 19	Telephone Cables Outdoor	3815.2C.6.b
3/C 20	EVP Detector Cable	3815.2C.5

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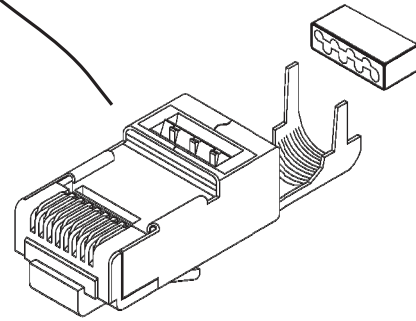
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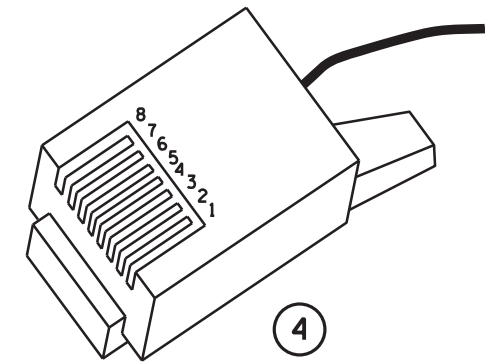
2 CAT 5E (600V RATED) CABLE TERMINATION

F&I RJ45 CABLE TERMINATION - FOR HIGH SPEED APPLICATION. CAT 6 UNSHIELDED MODULAR PLUG, RJ45 (8 CONDUCTOR), GOLD PLATED CONTACTS, ACCEPTS CABLES WITH DIAMETERS UP TO 0.310 INCHES. MEETS CATEGORY 6 ANSI/EIA 568-C.2



3 CAT 5E (600V RATED)

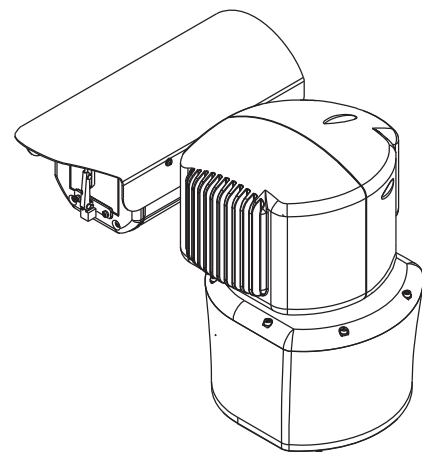
F&I ETHERNET CABLE CAT 5E IN ACCORDANCE WITH 3815.2C.6d. "ETHERNET CABLE (OUTSIDE PLANT)" L-COM PART NO. TFDL5089 MEETS THE REQUIREMENTS. QUABBIN PART NO. 5089 MEETS THE REQUIREMENTS.



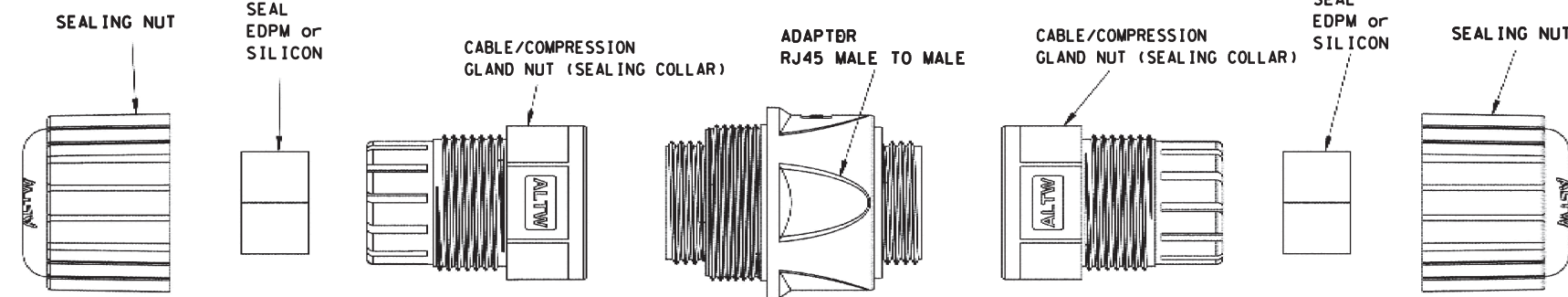
1 WATERPROOF SHIELDED RJ-45 (MALE TO MALE) INLINE COUPLER/ADAPTER

IP67
COPPER ALLOY CONTACT MATERIAL
GOLD CONTACT PLATING
NYLON HOUSING
AMPHENOL PART NO. RDP-00BFFA-SLM7001 &
VPI PART NO. CAT5E-WTP-FF MEETS REQUIREMENTS

1	2	3	4	5	6	7	8
WHITE/ORANGE	ORANGE	WHITE/GREEN	BLUE	WHITE/BLUE	GREEN	WHITE/BROWN	BROWN
CAT 6 RJ-45 PLUG							
T-568B							



IP CAMERA (DEPARTMENT FURNISHED)



FACTORY INSTALLED 20" PIGTAIL WITH CONNECTOR (RJ-45 PLUG)

ETHERNET CABLE 4/PR

RJ-45 PLUG (T-568B) (SUPPLIED WITH CAMERA)



3

INSTALL BETWEEN THE SIGNAL CONTROL CABINET AND THE TOP OF THE SIGNAL POLE. TERMINATE THE ENDS OF THE CABLE WITH RJ-45 (T-568B) CONNECTORS. INSTALL FIELD TERMINATIONS/CONNECTORS AS RECOMMENDED BY THE MANUFACTURER, AND USE THE SPECIFIED INSTALLATION TOOL(S).

4

F&I SHIELDED RJ45 CABLE TERMINATION (CONNECTOR)

CONNECTOR LOCATED IN THE SIGNAL CABINET

CONNECTORS LOCATED AT THE TOP OF THE SIGNAL POLE (IN CAMERA MOUNT)

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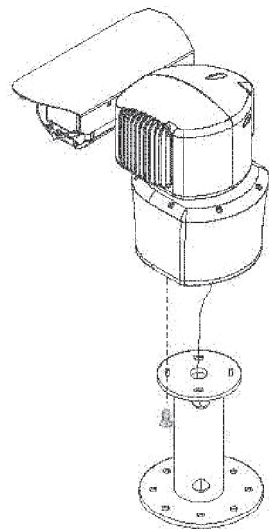
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IP CAMERA CONNECTOR DETAILS
Sheet 34 of 43 Sheets

ISOMETRIC VIEW- CAMERA & MOUNT

(DEPARTMENT FURNISHED)



X6-350/CAM 400

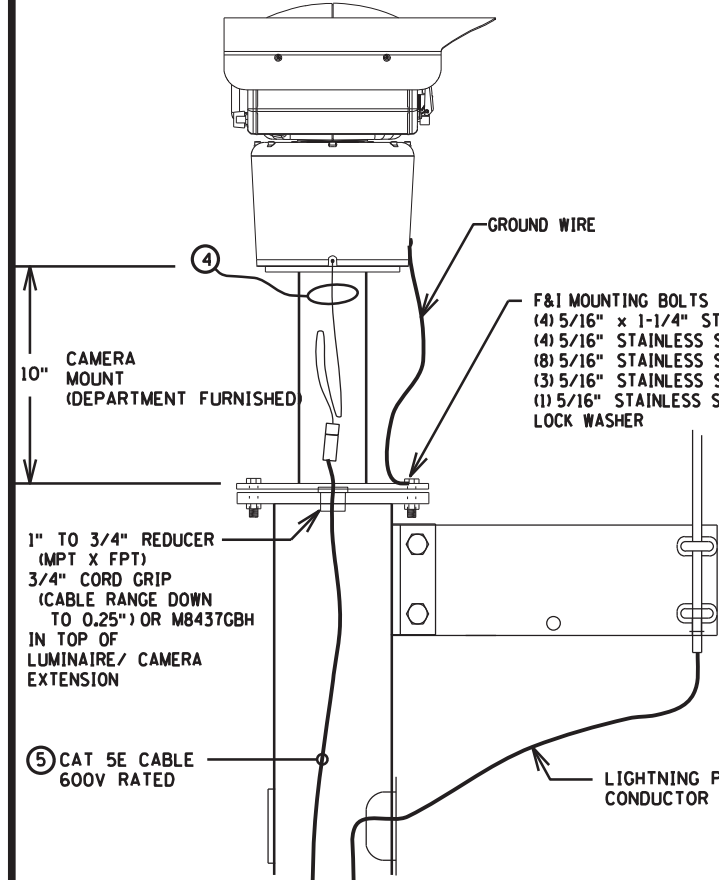
INSTALL CAMERA & MOUNT
(DEPARTMENT FURNISHED)

THE TYPICAL D40-9 LUMINAIRE
EXTENSION IS NOT USED WHEN
THE X6-350/CAM 400 EXTENSION
IS REQUIRED

F&I CAMERA EXTENSION IN
ACCORDANCE WITH THE CONTRACT
F&I LIGHTNING PROTECTION CONDUCTOR,
GROUND ROD, CLAMP #230

CAMERA & MOUNT AT TOP OF EXTENSION

IP CAMERA
(DEPARTMENT FURNISHED)



F&I MOUNTING BOLTS W/ANTI-SEIZE
(4) 5/16" x 1-1/4" STAINLESS STEEL BOLTS
(4) 5/16" STAINLESS STEEL NUTS
(8) 5/16" STAINLESS STEEL FLAT WASHERS
(3) 5/16" STAINLESS STEEL LOCK WASHERS
(1) 5/16" STAINLESS STEEL INTERNAL TOOTH
LOCK WASHER

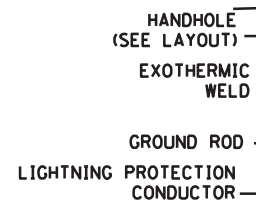
1" TO 3/4" REDUCER
(MPT X FPT)
3/4" CORD GRIP
(CABLE RANGE DOWN
TO 0.25") OR M8437GBH
IN TOP OF
LUMINAIRE/ CAMERA
EXTENSION

5 CAT 5E CABLE
600V RATED

LIGHTNING PROTECTION
CONDUCTOR

NOTES:

- 1 F & I AN NRTL LISTED BRASS, TINNED BRASS OR BRONZE HEX STRAIGHT VERTICAL BASE CONNECTOR INTENDED FOR "LESS ADAPTER" TYPE AIR TERMINALS. AIR TERMINAL THREADS INTO THE TOP OF THE CONDUCTOR AND BOLTS OR SET SCREWS HOLD THE LIGHTNING PROTECTION CONDUCTOR IN PLACE.
- 2 F AND 1 7/16 INCH DIA. LIGHTING PROTECTION CONDUCTOR MEETING THE FOLLOWING: 32 STRANDS OF 17 AWG COPPER WIRE, BRAIDED SMOOTH TWIST, 65,500 CIRCULAR MILS. NET WEIGHT 215 LBS PER 1000 FEET. CONNECT THE LIGHTNING PROTECTION CONDUCTOR WITHOUT SPLICES FROM THE AIR TERMINAL TO THE 5/8 INCH DIA. GROUND IN THE HAND HOLE AS SHOWN.
- 3 CUT A 3/4 INCH DIA. HOLE IN THE ACCESS COVER CLOSEST TO THE CAMERA. F & I A 3/4 INCH CORD GRIP TYPE FITTING INTO THE HOLE TO TRANSITION THE LIGHTNING PROTECTION CONDUCTOR INSIDE THE POLE.
- 4 USE THE 20 INCH CABLE PIGTAIL SUPPLIED WITH THE CAMERA TO TERMINATE A RJ45 PLUG AS SHOWN ON THE IP CAMERA CONNECTOR STANDARD PLAN.
- 5 F&I ETHERNET CABLE IN ACCORDANCE WITH 3815.2C.6.d (CAT 5E), BETWEEN THE SIGNAL CONTROL CABINET AND THE TOP OF THE POLE. TERMINATE THE END OF THE CABLE WITH UNSHIELDED RJ-45 (T-568B) CONNECTORS.



HANDHOLE
(SEE LAYOUT)
EXOTHERMIC
WELD
GROUND ROD
LIGHTNING PROTECTION
CONDUCTOR

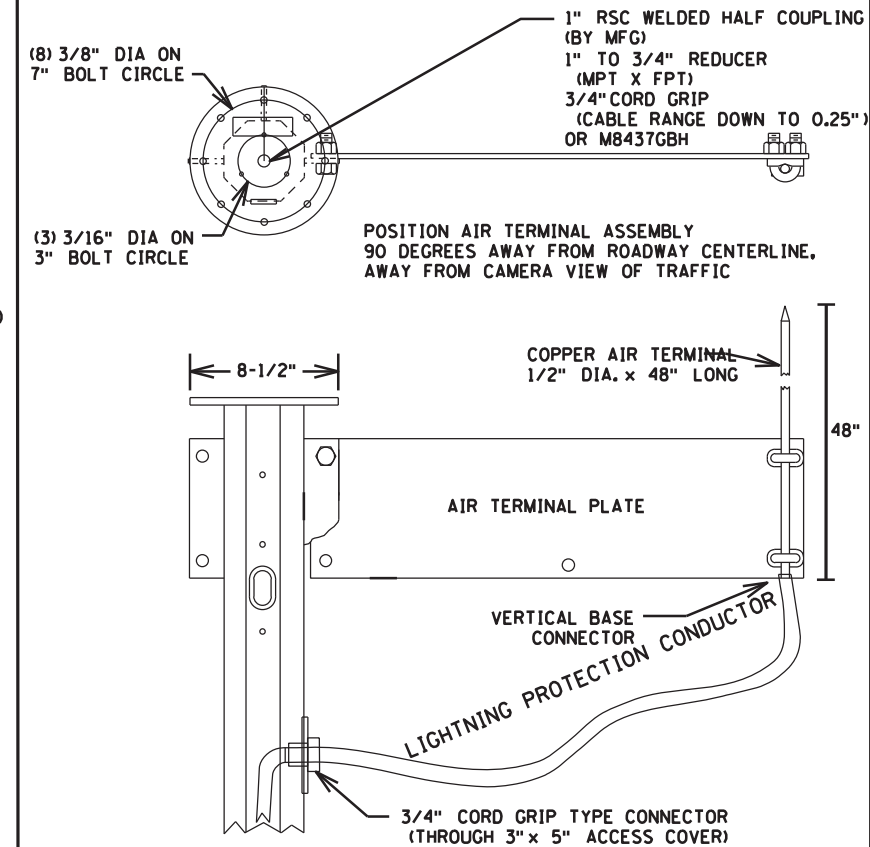
REQUIRED CABLE TERMINATION:
COM CABLE- CAT 5E
SHIELDED -RJ-45 (T-568B)

F/I CAT 5E (TO
CAMERA AT THE TOP OF THE POLE)

PROPOSED SIGNAL
CONTROL CABINET
(DEPARTMENT FURNISHED
OR INPLACE)

DEPARTMENT FURNISHED/INSTALLED:
CAMERA POWER OVER
ETHERNET (POE) INJECTOR
PATCH CORDS
SIGNAL CONTROLLER
MMU
ETHERNET SWITCH

EXTENSION TOP & LIGHTNING PROTECTION DETAIL



(8) 3/8" DIA ON
7" BOLT CIRCLE

(3) 3/16" DIA ON
3" BOLT CIRCLE

POSITION AIR TERMINAL ASSEMBLY
90 DEGREES AWAY FROM ROADWAY CENTERLINE,
AWAY FROM CAMERA VIEW OF TRAFFIC

COPPER AIR TERMINAL
1/2" DIA. x 48" LONG

AIR TERMINAL PLATE

VERTICAL BASE
CONNECTOR

LIGHTNING PROTECTION CONDUCTOR

3/4" CORD GRIP TYPE CONNECTOR
(THROUGH 3" x 5" ACCESS COVER)

- F&I CAT 5E (600V RATED) (WITH THE PROPER TERMINATIONS) FROM THE TOP OF THE POLE TO THE SIGNAL CABINET. (NOT TO EXCEED 250' LENGTH)
- F&I LIGHTNING PROTECTION CONDUCTOR FROM AIR TERMINAL TO THE GROUND ROD IN HANDHOLE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_s108.dgn 06/27/2023 9:02:58 AM

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: Aaron Anderson
SIGNATURE:
DATE: 06/27/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23
DESIGN BY: APA DATE: 05/12/23
CHECKED BY: ST DATE: 05/12/23

**ANOKA COUNTY
HIGHWAY DEPT.**

SAP 002-601-063
SAP 114-020-062
CP 23-14

SIGNAL HEAD CHART

FACE	R	Y	G
1-1, 1-2	←	←	←
2-1, 2-2, 2-3	●	●	●
4-1, 4-2, 4-3	●	●	●
5-1, 5-2	←	←	←
6-1, 6-2, 6-3	●	●	●
8-1, 8-2, 8-3	●	●	●

- ALL SIGNAL INDICATIONS SHALL BE 12" LED
- ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

GRIDSMA RT VIDEO DETECTION

NUMBER	LOCATION	PHASE
V-1	POLE 1	2 & 5
V-1	POLE 1	4
V-2	POLE 3	1 & 6
V-2	POLE 3	8

- VIDEO DETECTION CAMERAS AND MOUNTING HARDWARE PROVIDED BY CONTRACTOR

WP 3

45' WOOD POLE
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
1-ONE WAY EVP DETECTOR AND (PHASE 4) POLE MOUNTED
1-GRIDSMA RT VIDEO CAMERA
15' MAST ARM AND LUMINAIRE LED.
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b) (IEA, LEFT AND RIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14
1-3/C 20 (EVP)
1-CAT 5E
1-1/C 6 INS. GR.

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 14 (LUM)

1-7/16" SPAN WIRE
1-1/4" SPAN WIRE
5-4/C 14
1-3/C 14 (EVP)
1-3/C 14 (LUM)
2-2/C 14
1-CAT 5E
1-1/C 6 INS. GR.

1-7/16" SPAN WIRE
1-1/4" SPAN WIRE
4-4/C 14
1-3/C 14 (EVP)
1-3/C 14 (LUM)
2-2/C 14
1-CAT 5E
1-1/C 6 INS. GR.

1-7/16" SPAN WIRE
1-1/4" SPAN WIRE
5-4/C 14
1-3/C 14 (EVP)
1-3/C 20 (EVP)
1-3/C 14 (LUM)
2-2/C 14
1-CAT 5E
1-1/C 6 INS. GR.

- NOTES:
- CONDUIT SHALL BE SCHEDULE 80 PVC OR SCHEDULE 80 HDPE.
 - ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES, LOOP DETECTORS AND TEMPORARY CABINET BASE ARE VERIFIED IN THE FIELD BY ANOKA COUNTY PERSONNEL.
 - THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
 - THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
 - THE CONTRACTOR SHALL MAINTAIN PED PUSH BUTTONS DURING ALL STAGES OF CONSTRUCTION. IF PUSH BUTTONS NEED TO BE MOUNTED ON SEPARATE POLE DURING CONSTRUCTION, IT IS INCIDENTAL TO THE TEMPORARY TRAFFIC CONTROL SIGNAL PAY ITEM.
 - COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES, EVP DETECTORS AND INDICATOR LIGHTS, AND MICROWAVE DETECTORS TO COORDINATE STAGING SHIFTS.
 - SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY 1-1/C 6 INSULATED GROUNDING CONDUCTOR AS SHOWN IN PLAN.
 - ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
 - CONDUIT SIZES ARE NOMINAL DIAMETER.
 - CONTRACTOR TO PROVIDE TEMPORARY EQUIPMENT PAD TO PLACE COUNTY FURNISHED CONTROLLER AND CABINET.
 - CONTRACTOR TO PROVIDE TEMPORARY PUSH BUTTON STATIONS

WP 4

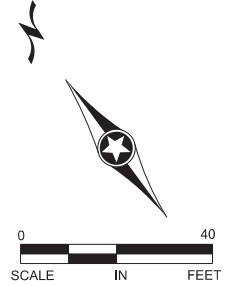
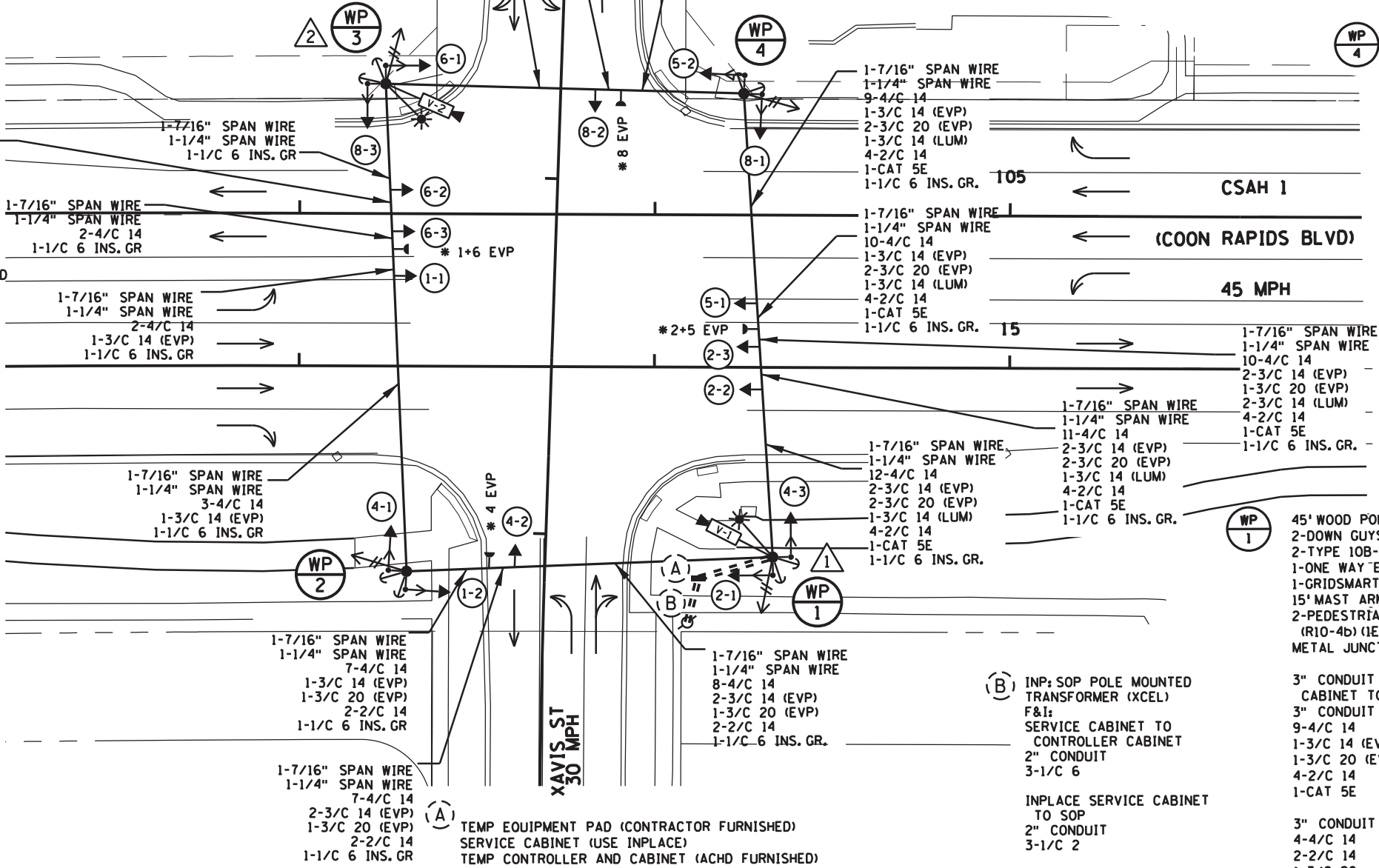
45' WOOD POLE
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
1-ONE WAY EVP DETECTOR AND (PHASE 1+6) POLE MOUNTED
1-GRIDSMA RT VIDEO CAMERA
15' MAST ARM AND LUMINAIRE LED.
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b) (IEA, LEFT AND RIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14
1-3/C 20 (EVP)
1-1/C 6 INS. GR.

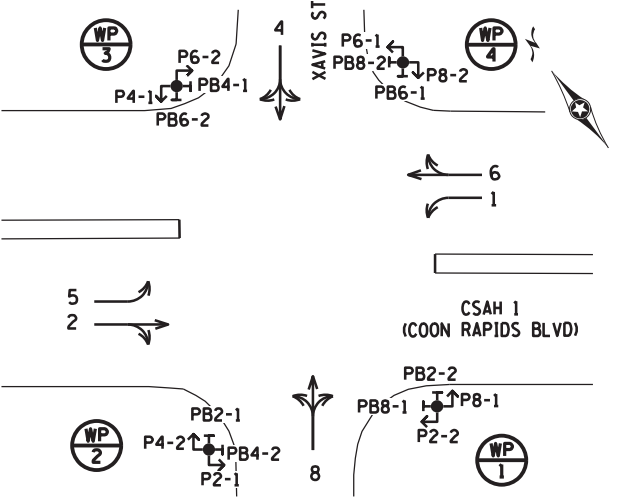
WP 2

45' WOOD POLE
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
1-ONE WAY EVP DETECTOR AND (PHASE 2+5) POLE MOUNTED
1-GRIDSMA RT VIDEO CAMERA
15' MAST ARM AND LUMINAIRE LED.
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b) (IEA, LEFT AND RIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14
1-3/C 20 (EVP)
1-1/C 6 INS. GR.



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

TEMP EQUIPMENT PAD (CONTRACTOR FURNISHED)
SERVICE CABINET (USE INPLACE)
TEMP CONTROLLER AND CABINET (ACHD FURNISHED)
CONTROLLER CABINET TO WP 1:
3" CONDUIT 9-4/C 14
1-3/C 14 (EVP)
1-3/C 20 (EVP)
4-2/C 14
1-CAT 5E

3" CONDUIT 6-4/C 14
2-3/C 14 (EVP)
2-3/C 20 (EVP)
2-2/C 14
1-1/C 6 INS. GR.

3" CONDUIT 9-4/C 14
1-3/C 14 (EVP)
1-3/C 20 (EVP)
2-2/C 14
1-CAT 5E
1-1/C 6 INS. GR.

(B) INP: SOP POLE MOUNTED TRANSFORMER (XCEL)
F&I: SERVICE CABINET TO CONTROLLER CABINET
2" CONDUIT 3-1/C 6
INPLACE SERVICE CABINET TO SOP
2" CONDUIT 3-1/C 2
FROM WP 1 TO SERVICE CABINET
2" CONDUIT 2-3/C 14 (LUM)

3" CONDUIT RISER AND WEATHERHEAD FROM CONTROLLER CABINET TO SPAN WIRES WITH:
3" CONDUIT 9-4/C 14
1-3/C 14 (EVP)
1-3/C 20 (EVP)
4-2/C 14
1-CAT 5E

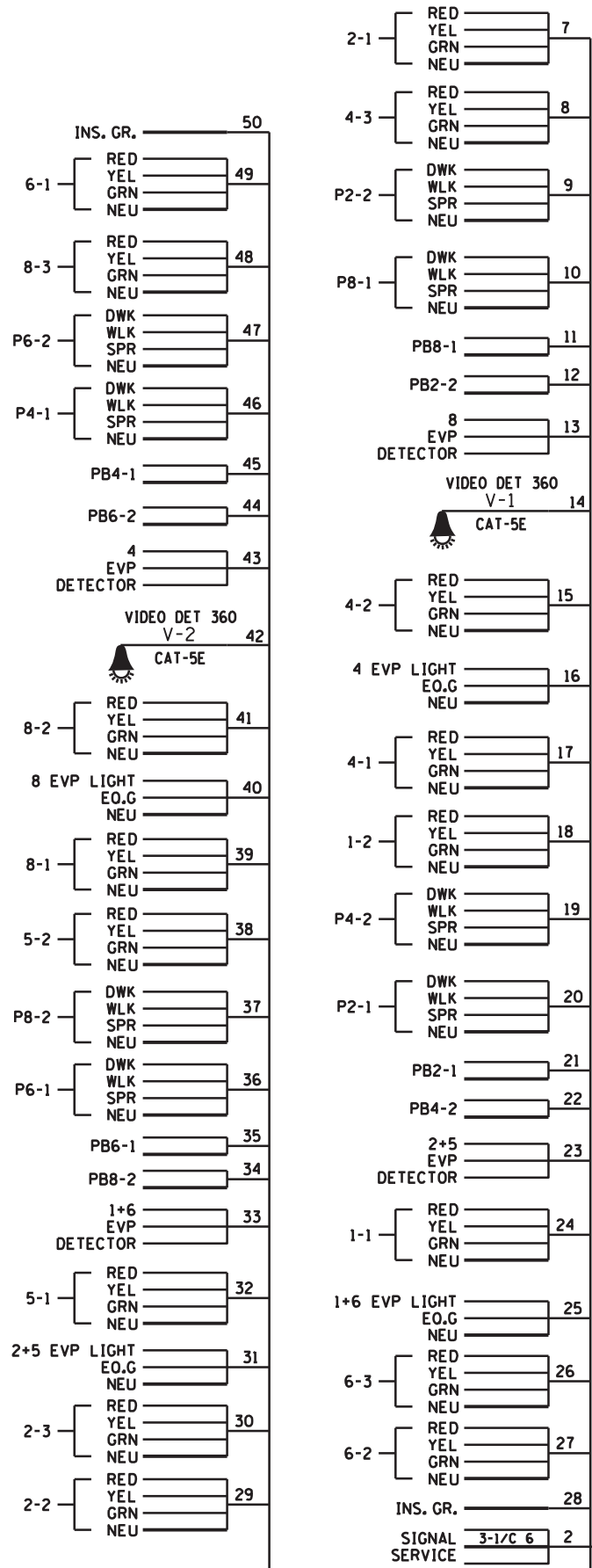
3" CONDUIT 6-4/C 14
2-3/C 14 (EVP)
2-3/C 20 (EVP)
2-2/C 14
1-1/C 6 INS. GR.

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14
1-3/C 20
1-CAT 5E
1-1/C 6 INS. GR.

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 14 (LUM)

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

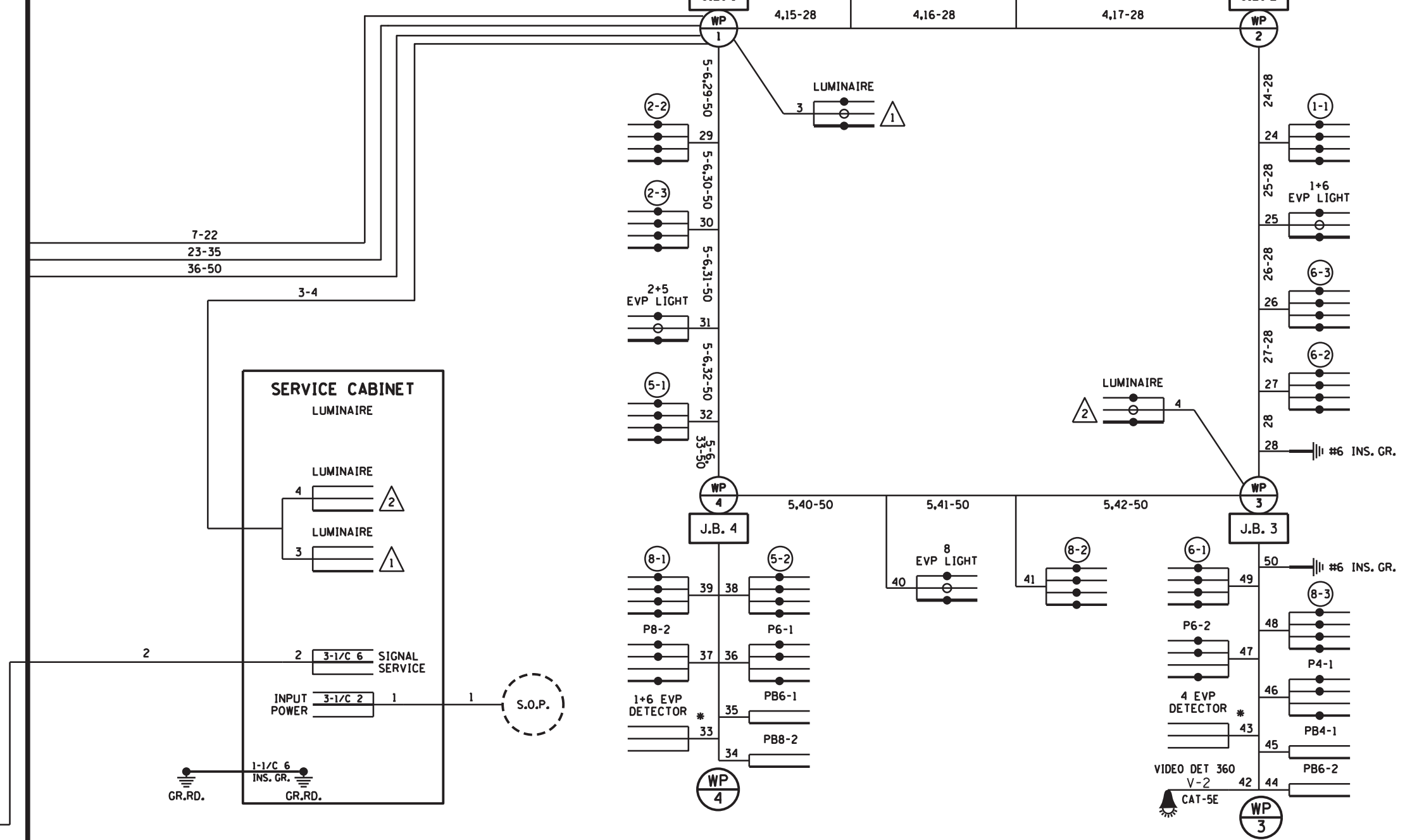
CONTROLLER CABINET



CONDUCTOR COLOR CODE (14 GAUGE)

TO SIGNAL CABINET		TO DEVICE	
1/C 6 G	R	R	RED
6PR 19	O	BL	YEL
	WH	WH	GRN
	BLK	BLK/R	NEU
3-1/C 2	INPUT POWER	BLK	YLA/FYA
		BLK	GLA
3-1/C 6	SIGNAL SERVICE		
		R	RED/DWK
		BLK/R	3 SECTION
		BLK	8 PED
		WH	INDICATION
		BLK	
		G	RED/DWK
		WH	YEL/WLK
		BLK	GRN/SPR
		WH	NEU
12/C 14		BLK	EVP LIGHT
		G	LUM/FLASHER
		BLK	
		WH	
		BLK	
		WH OR CLR	PED PUSH BUTTON
		R OR O	(If Required)
		BLK/WH	
		WH/R	
		3/C 20	WH OR YEL
		BLK OR BL	
		2/C 14	BLK
		WH OR CLR	

NOTE: ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:002-601-063 Xavis SignalPlan1002601063_twd2.dgn 06/27/2023 9:03:01 AM

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: Aaron Anderson

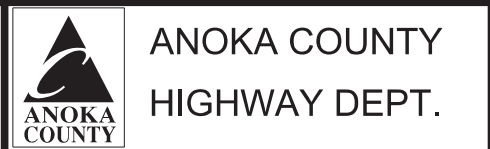
SIGNATURE: *[Signature]*

DATE: 06/27/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23

DESIGN BY: APA DATE: 05/12/23

CHECKED BY: ST DATE: 05/12/23

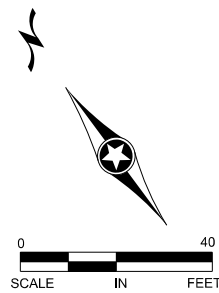


SAP 002-601-063
SAP 114-020-062
CP 23-14

SIGNAL HEAD CHART

FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	●	●	●	●
3-1, 3-2	←	←	←	←
4-1, 4-2	●	●	●	●
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	●	●	●	●
7-1, 7-2	←	←	←	←
8-1, 8-2	●	●	●	●

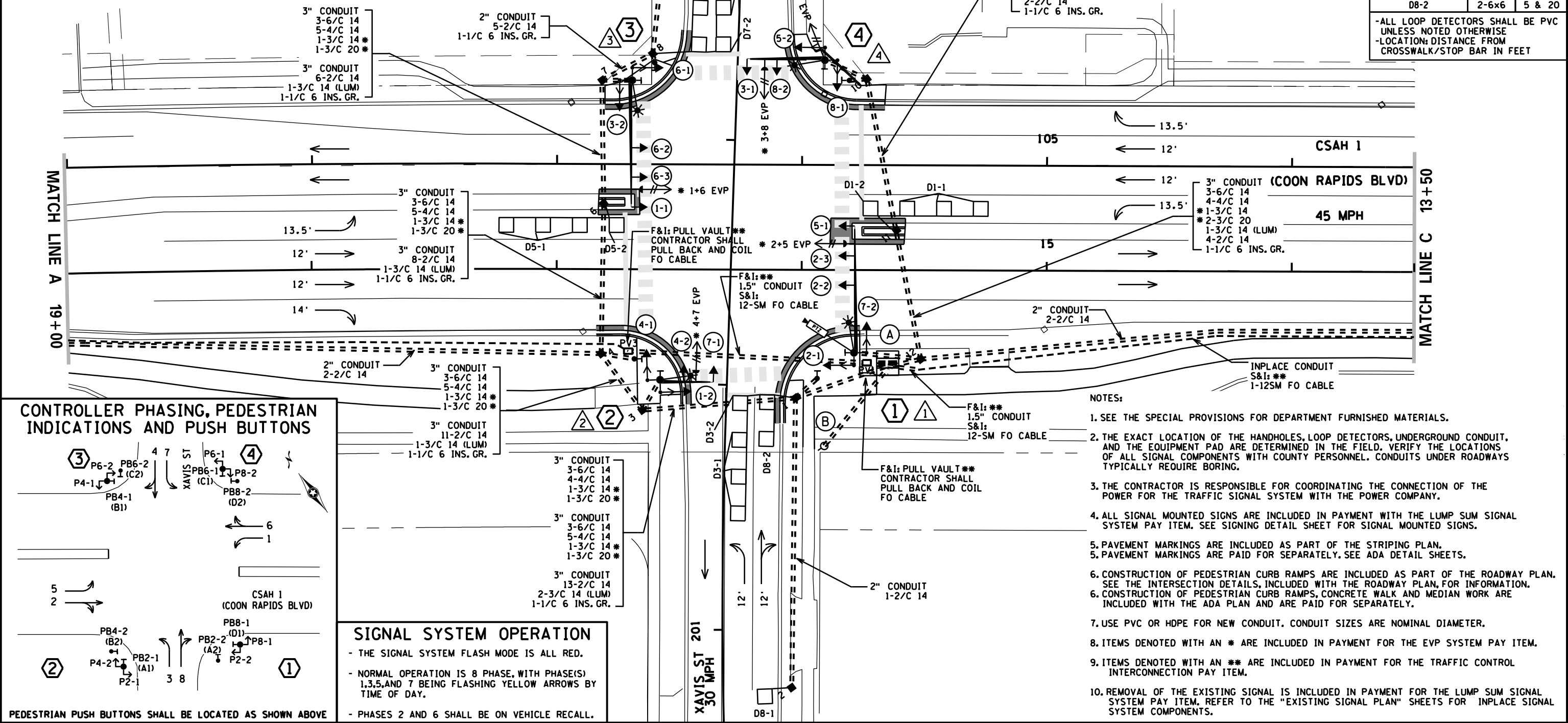
-ALL SIGNAL INDICATIONS SHALL BE 12" LED
 -ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
 -FYA DENOTES FLASHING YELLOW ARROW



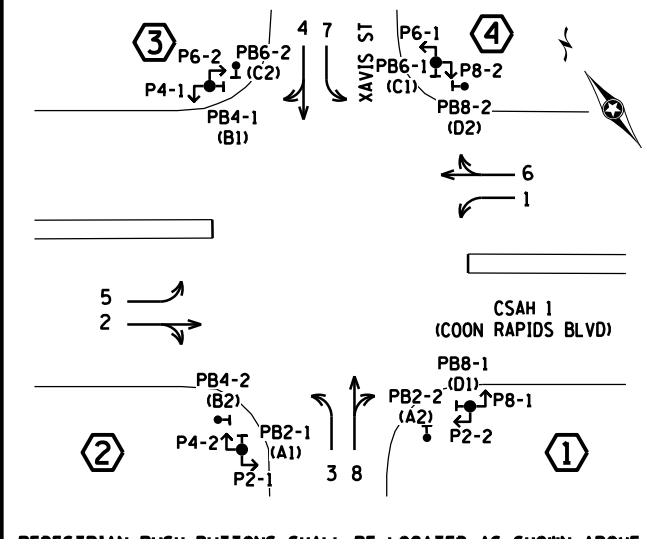
LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION
D1-1	2-6x6	20,35&50
D1-2	2-6x6	5
D2-1, D2-2	6x6	300
D3-1	2-6x6	20,35&50
D3-2	2-6x6	5
D4-1	6x6	120
D4-2	2-6x6	5 & 20
D5-1	2-6x6	20,35&50
D5-2	2-6x6	5
D6-1, D6-2	6x6	300
D7-1	2-6x6	20,35&50
D7-2	2-6x6	5
D8-1	6x6	120
D8-2	2-6x6	5 & 20

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
 -LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASE(S) 1,3,5,AND 7 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

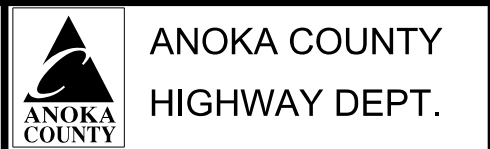
NOTES:

1. SEE THE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.
2. THE EXACT LOCATION OF THE HANDHOLES, LOOP DETECTORS, UNDERGROUND CONDUIT, AND THE EQUIPMENT PAD ARE DETERMINED IN THE FIELD. VERIFY THE LOCATIONS OF ALL SIGNAL COMPONENTS WITH COUNTY PERSONNEL. CONDUITS UNDER ROADWAYS TYPICALLY REQUIRE BORING.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM WITH THE POWER COMPANY.
4. ALL SIGNAL MOUNTED SIGNS ARE INCLUDED IN PAYMENT WITH THE LUMP SUM SIGNAL SYSTEM PAY ITEM. SEE SIGNING DETAIL SHEET FOR SIGNAL MOUNTED SIGNS.
5. PAVEMENT MARKINGS ARE INCLUDED AS PART OF THE STRIPING PLAN. PAVEMENT MARKINGS ARE PAID FOR SEPARATELY. SEE ADA DETAIL SHEETS.
6. CONSTRUCTION OF PEDESTRIAN CURB RAMPS ARE INCLUDED AS PART OF THE ROADWAY PLAN. SEE THE INTERSECTION DETAILS, INCLUDED WITH THE ROADWAY PLAN, FOR INFORMATION.
6. CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK ARE INCLUDED WITH THE ADA PLAN AND ARE PAID FOR SEPARATELY.
7. USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
8. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
9. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
10. REMOVAL OF THE EXISTING SIGNAL IS INCLUDED IN PAYMENT FOR THE LUMP SUM SIGNAL SYSTEM PAY ITEM. REFER TO THE "EXISTING SIGNAL PLAN" SHEETS FOR INPLACE SIGNAL SYSTEM COMPONENTS.

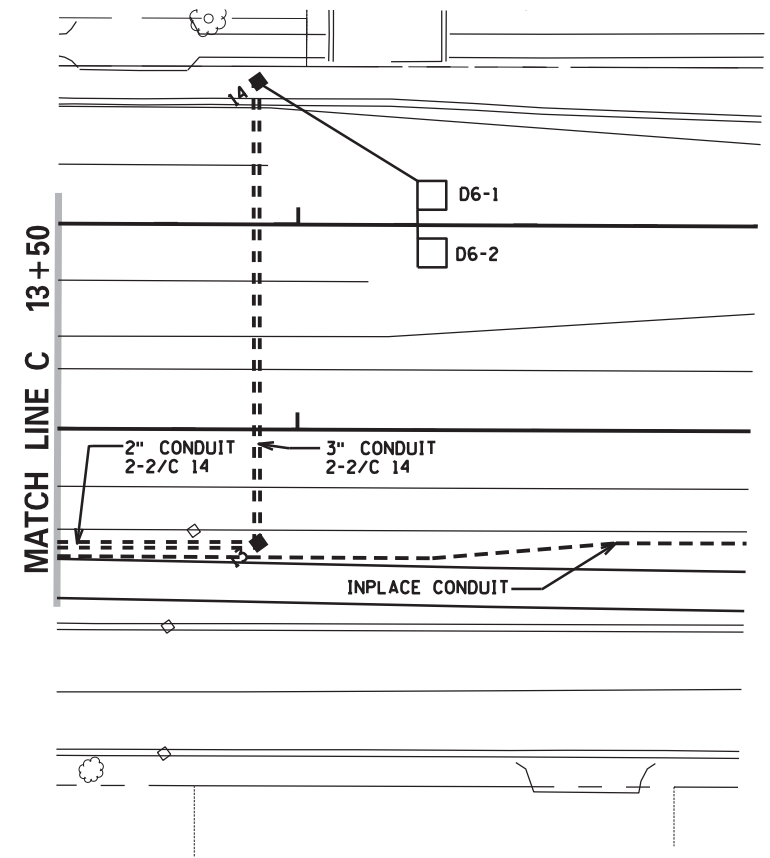
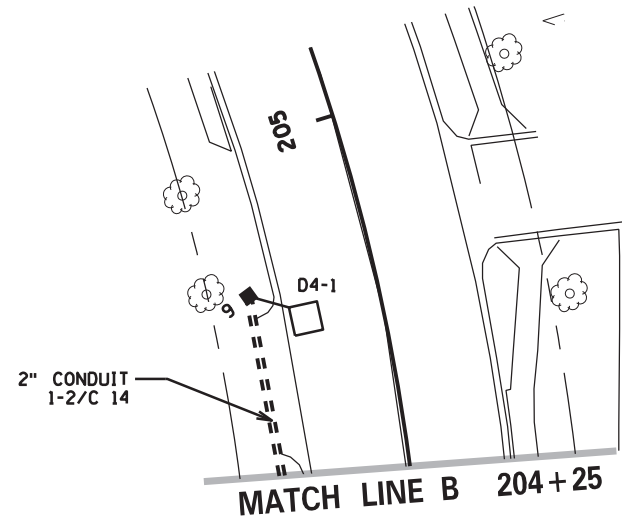
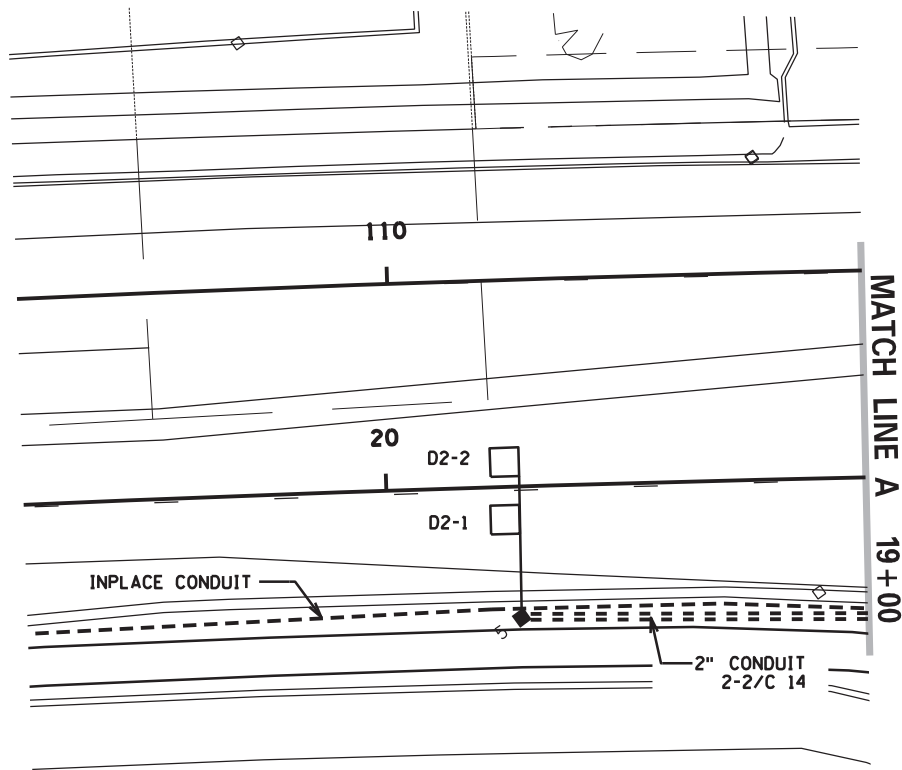
NO	DATE	BY	CKD	APPR	REVISION
1	7-24-2023	AA	AA	AA	UPDATED SW QUAD PEDESTRIAN RAMP & SIGNAL POLE LOCATION

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: Aaron Anderson
 SIGNATURE:
 DATE: 07/24/23 LICENSE NO. 58657

DRAWN BY: APA DATE: 05/12/23
 DESIGN BY: APA DATE: 05/12/23
 CHECKED BY: ST DATE: 05/12/23



SAP 002-601-063
 SAP 114-020-062
 CP 23-14



INTERSECTION NOTES

①

- PA100 POLE FOUNDATION
 TYPE PA100-A-50-X6-350/CAM 400 EXTENSION
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 1-PTZ CAMERA
 * 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB8-1)
 1-R10-X12 SIGN ADJACENT TO HEAD (5-1)
 1-R6-1L SIGN POLE MOUNTED (36 X 12)
 1-R6-1R SIGN POLE MOUNTED (36 X 12)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 12:
 3-6/C 14
 5-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 1-3/C 14 (LUM)
 1-2/C 14
 1-CAT 5E
 1-1/C 6 INS. GR.

ⓑ

- SOP-INPLACE WOOD POLE
 TRANSFORMER (XCEL ENERGY)
 2" CONDUIT RISER AND WEATHERHEAD
 3-1/C 2
 2" CONDUIT INTO SERVICE CABINET:
 3-1/C 2

②

- PA85 POLE FOUNDATION
 TYPE PA85-A-20-D30-9 (DAVIT AT 350 DEG)
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 * 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7)
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB2-1)
 1-R10-X12 SIGN ADJACENT TO HEAD (7-1)
 1-TYPE D SIGN (D-3) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 3:
 3-6/C 14
 4-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 1-3/C 14 (LUM)
 1-2/C 14
 1-1/C 6 INS. GR.

③

- PA100 POLE FOUNDATION
 TYPE PA100-A-50-D30-9 (DAVIT AT 350 DEG)
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 * 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB4-1)
 1-R10-X12 SIGN ADJACENT TO HEAD (1-1)
 1-R6-1L SIGN POLE MOUNTED (36 X 12)
 1-R6-1R SIGN POLE MOUNTED (36 X 12)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 7:
 3-6/C 14
 5-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 1-3/C 14 (LUM)
 1-2/C 14
 1-1/C 6 INS. GR.

④

- PA90 POLE FOUNDATION
 TYPE PA90-A-30-D30-9 (DAVIT AT 350 DEG)
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 * 1-ONE WAY EVP DETECTOR (PHASES 4+7)
 * 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 3+8)
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB6-1)
 1-R10-X12 SIGN ADJACENT TO HEAD (3-1)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 10:
 3-6/C 14
 4-4/C 14
 * 1-3/C 14
 * 2-3/C 20
 1-3/C 14 (LUM)
 1-2/C 14
 1-1/C 6 INS. GR.

Ⓐ


- EQUIPMENT PAD (SEE DETAIL SHEET)
 SERVICE CABINET (SSB) NO BATTERY BACKUP SYSTEM OR BATTERIES
 CONTROLLER AND CABINET (COUNTY FURNISHED)
 3" CONDUIT TO HH 1:
 3-6/C 14
 4-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 3" CONDUIT TO HH 12:
 3-6/C 14
 5-4/C 14
 * 1-3/C 14
 * 1-3/C 20
 1-CAT 5E
 1-1/C 6 INS. GR.
 3" CONDUIT TO HH 12:
 3-6/C 14
 4-4/C 14
 * 1-3/C 14
 * 2-3/C 20
 12-2/C 14
 3" CONDUIT TO HH 1:
 17-2/C 14
 1-1/C 6 INS. GR.

- GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD
 2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
 ** 1.5" CONDUIT TO PULL VAULT:
 ** 1-FO PIGTAIL (6SM)
 CONTROLLER CABINET TO SERVICE CABINET:
 2" CONDUIT
 3-1/C 6
 CONTROLLER CABINET TO SERVICE CABINET (COMMS):
 2" CONDUIT
 1-4/C 14
 SERVICE CABINET TO SOP:
 2" CONDUIT
 3-1/C 2

- SERVICE CABINET TO HH 1:
 1.25" CONDUIT
 2-3/C 14 (LUM)
 SERVICE CABINET TO HH 12:
 1.25" CONDUIT
 2-3/C 14 (LUM)
 SERVICE CABINET TO EXTERNAL GR. RD.:
 1" CONDUIT
 1-1/C 6 INS. GR.
 (SEE EQUIPMENT PAD LAYOUT)

NO	DATE	BY	CKD	APPR	REVISION

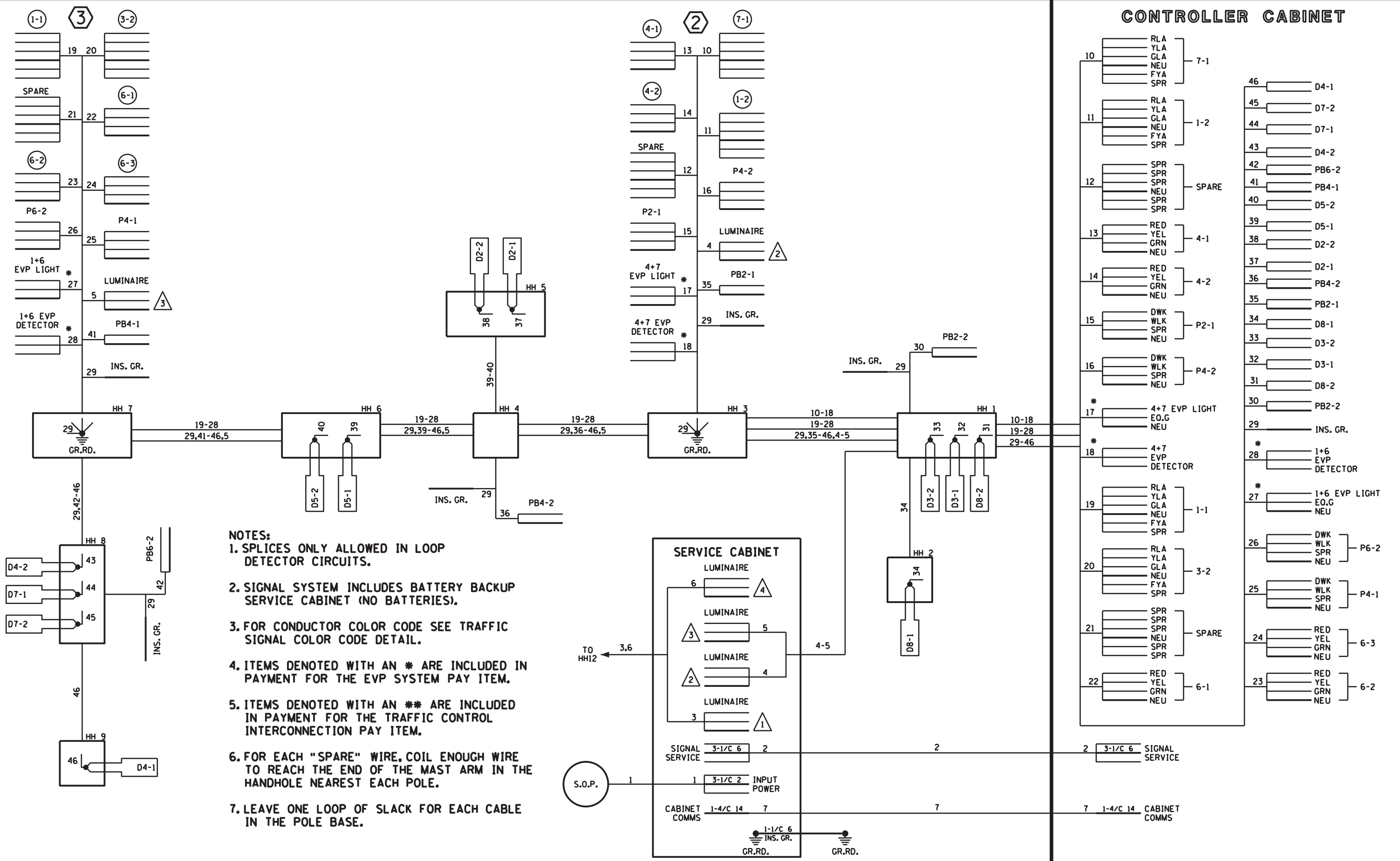
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: Aaron Anderson
 SIGNATURE: 
 DATE: 06/27/23 LICENSE NO. 58657

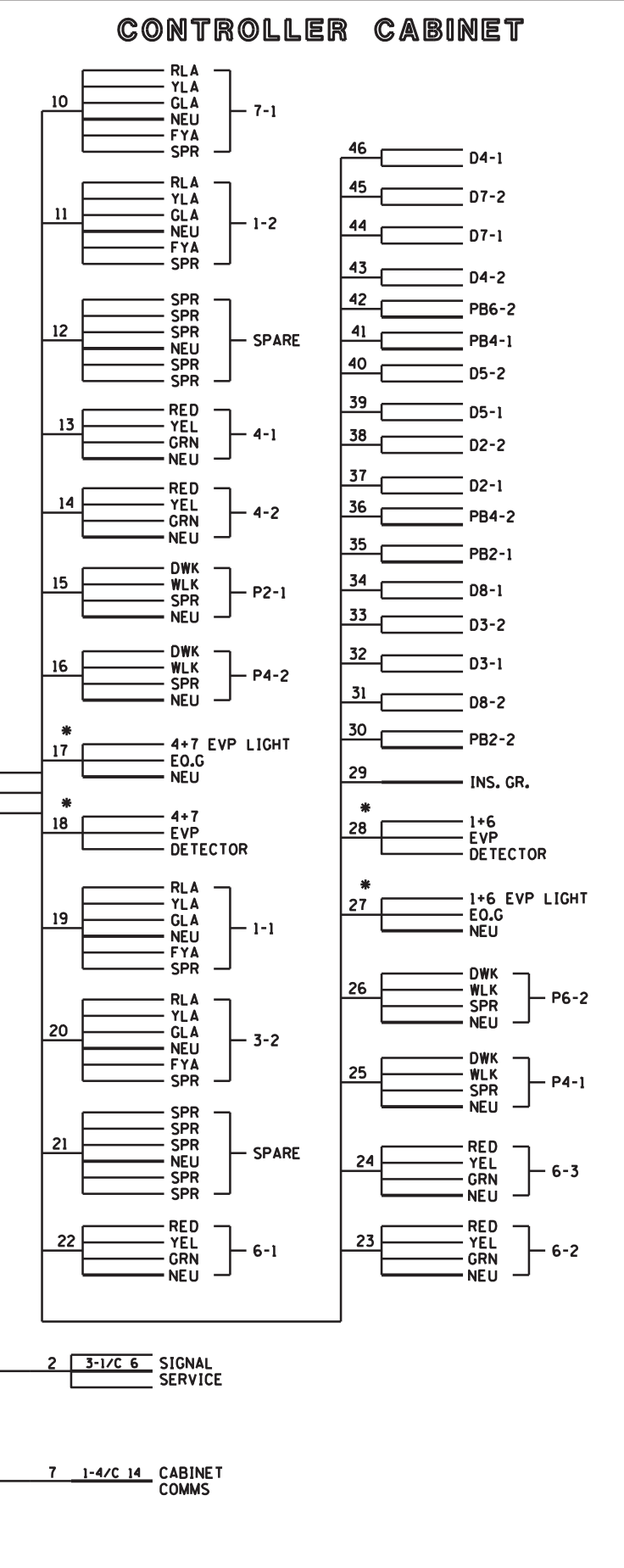
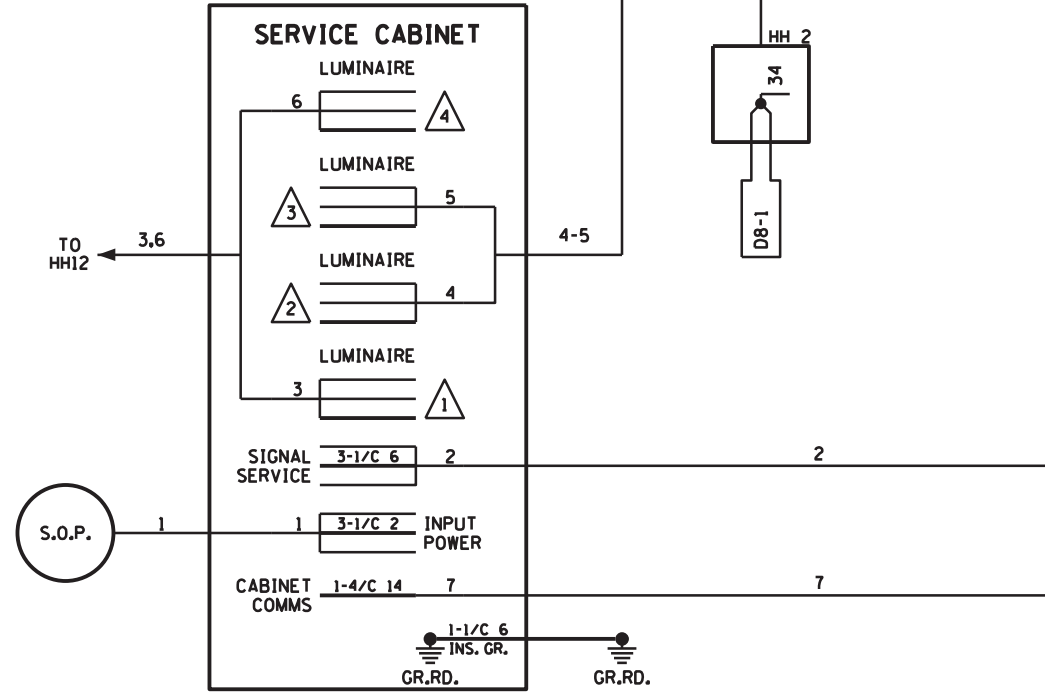
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 SAP 114-020-062
 CP 23-14



- NOTES:**
1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
 2. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET (NO BATTERIES).
 3. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAIL.
 4. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 5. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
 6. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
 7. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.



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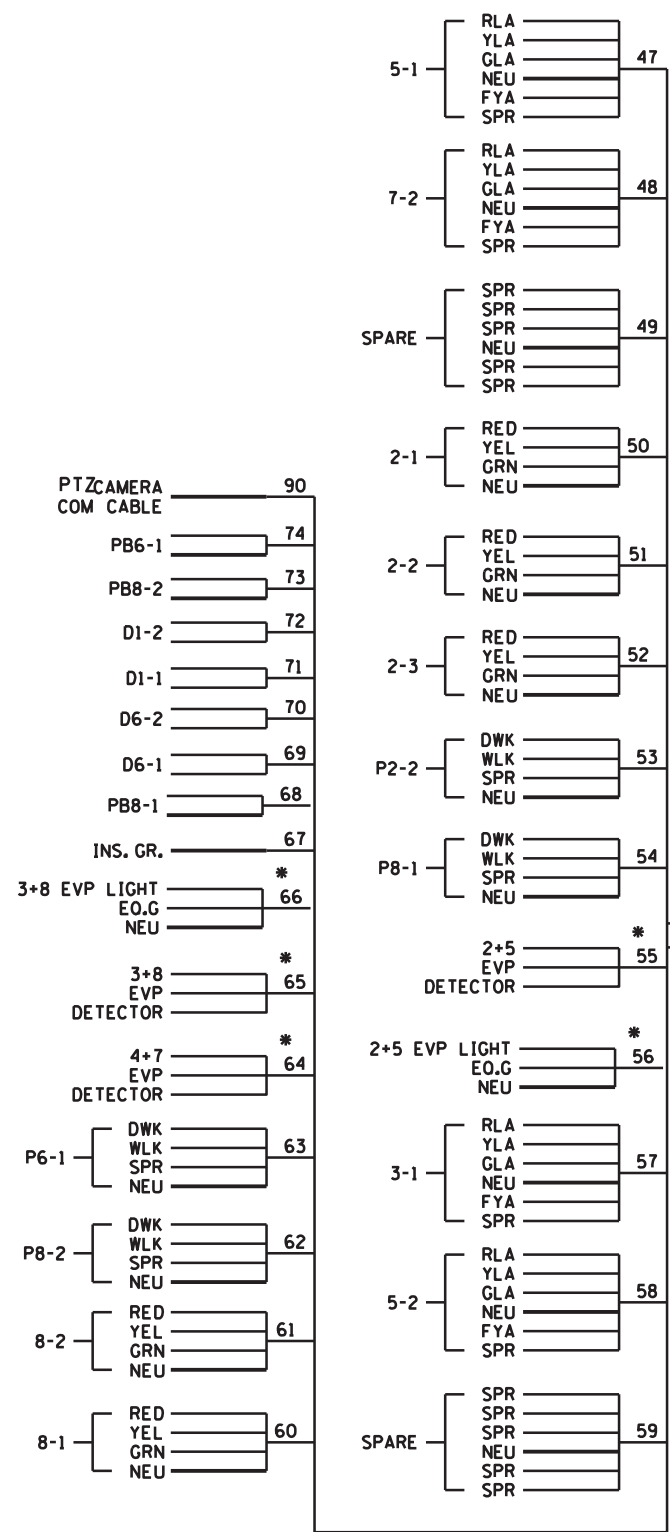
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 PRINT NAME: Aaron Anderson
 SIGNATURE:
 DATE: 06/27/23 LICENSE NO. 58657

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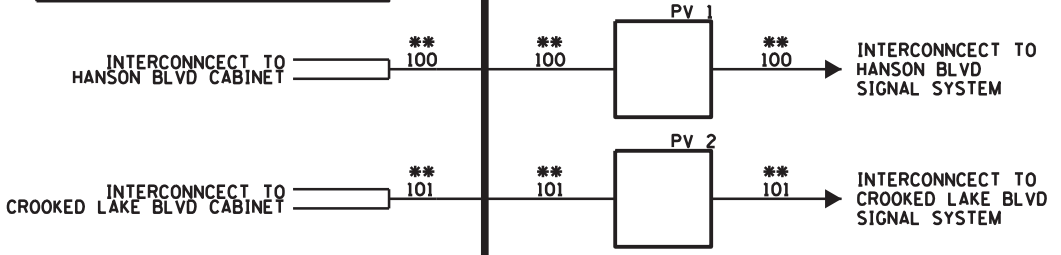
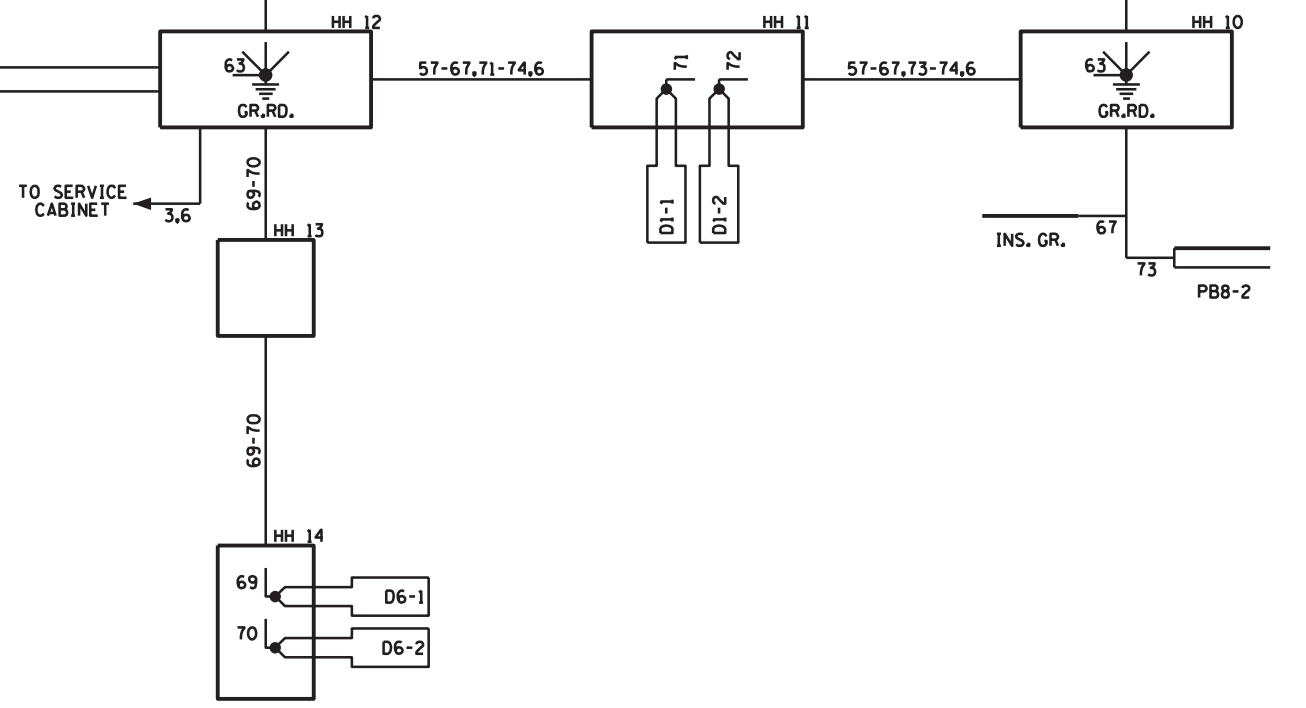
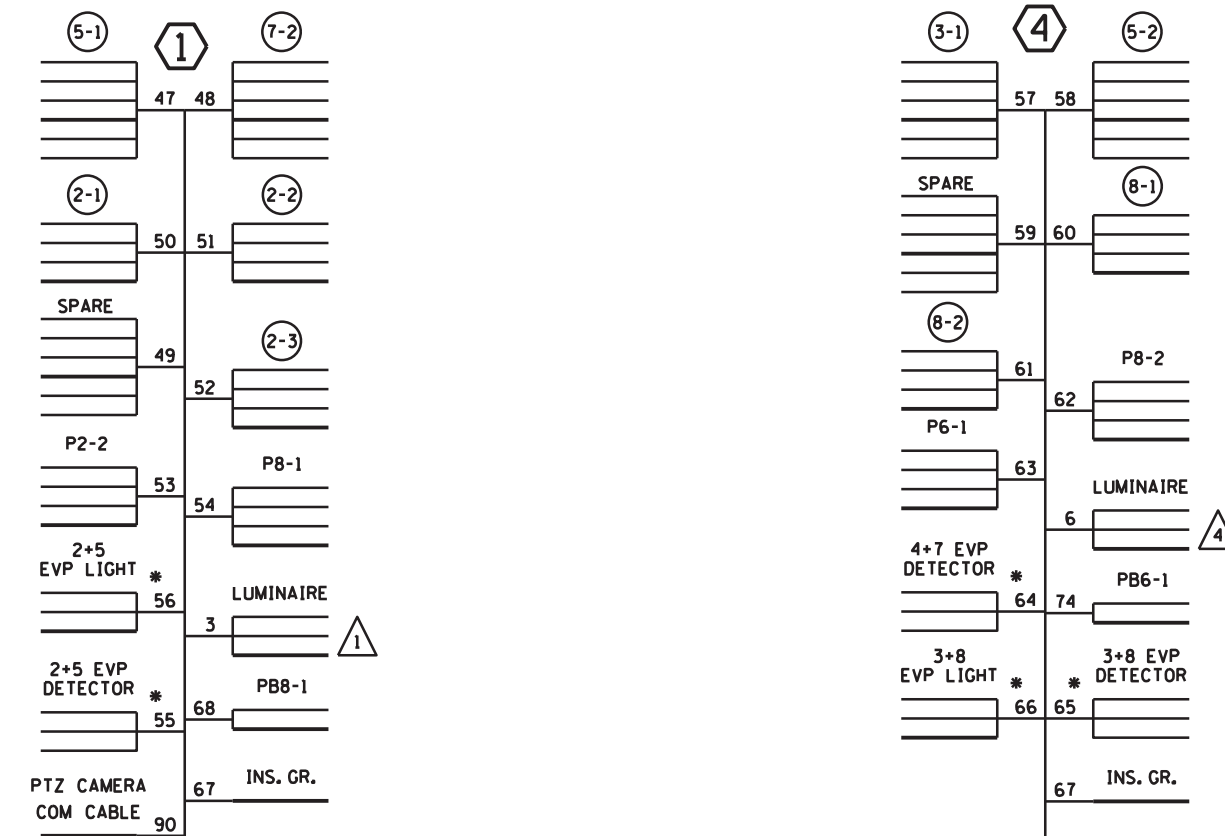
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CONTROLLER CABINET



NOTES:

1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
2. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET (NO BATTERIES).
3. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAIL.
4. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
5. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
6. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
7. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-601-063 Xavis SignalPlan\002601063_wd2.dgn 06/27/2023 9:03:03 AM

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: Aaron Anderson

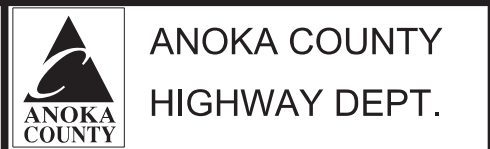
SIGNATURE: *[Signature]*

DATE: 06/27/23 LICENSE NO. 58657

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DESIGN BY: APA DATE: 05/12/23

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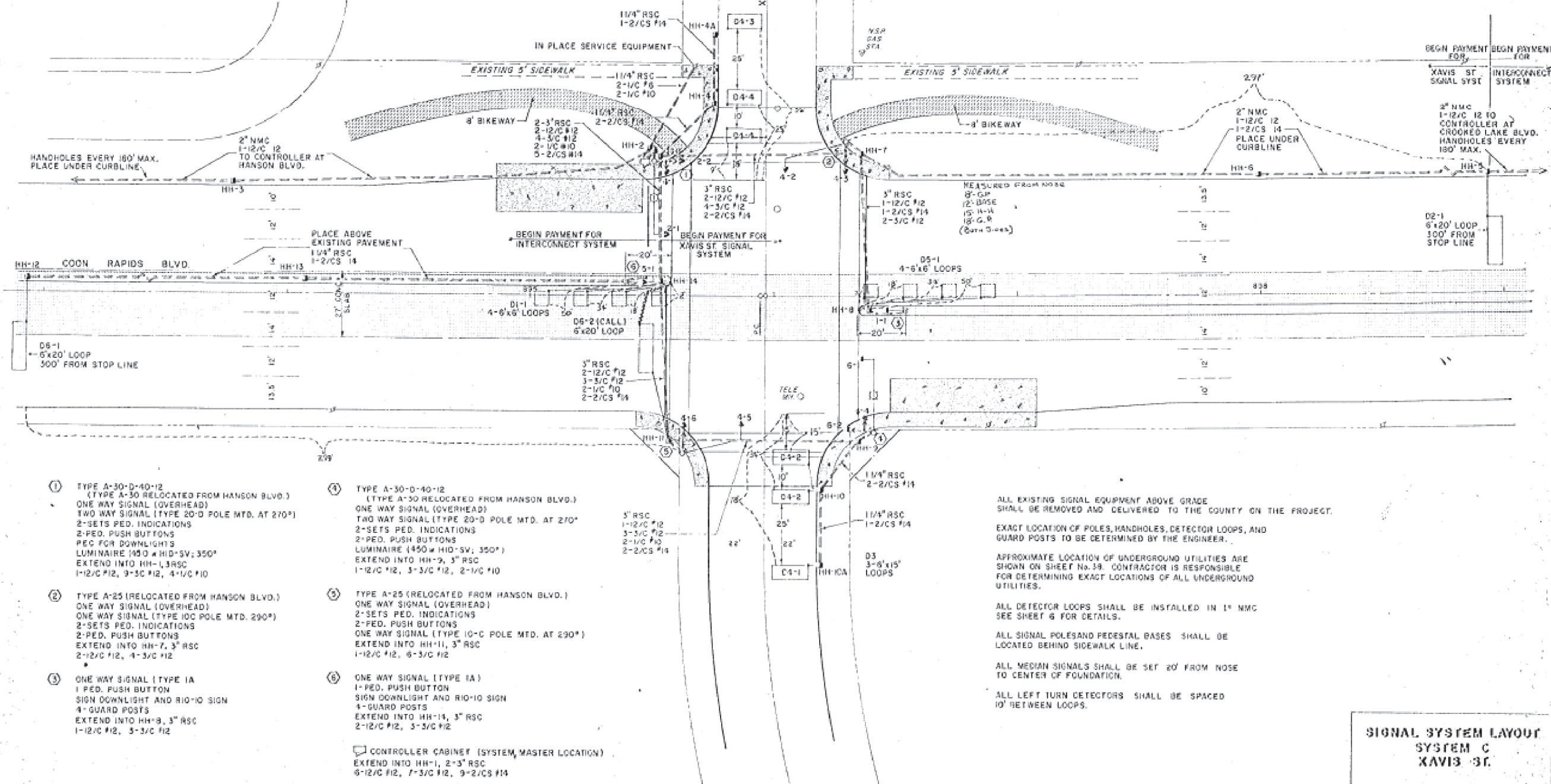
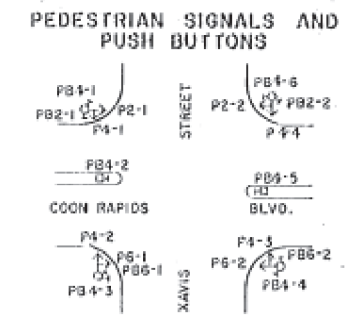
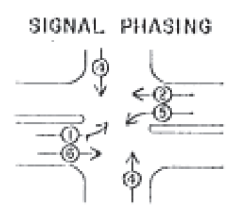


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SIGNAL INDICATIONS									
FACE	PHASE	FLASH	INDICATION SIZE						
			R	Y	G	R	Y	G	
2-1	2	R	12	12	12				
2-2	2	R	12	12	12				
4-1	4	R	12	12	12				
4-2	4	R	12	12	12				
4-3	4	R	12	12	12				
* 1-1	L	R	12	12	12				12
6-1	6	R	12	12	12				
4-4	4	R	12	12	12				
6-2	6	R	12	12	12				
4-5	4	R	12	12	12				
4-6	4	R	12	12	12				
* 5-1	5	R	12	12	12				12

* SPECIAL SIGNAL

LEGEND	
	CONTROLLER CABINET
	HANDHOLE (PULL BOX)
	CONDUIT
	SIGNAL FACE WITH BACKGROUND SHIELD
	PEDESTRIAN INDICATION
	LUMINAIRE
	MAST ARM AND POLE
	SERVICE PEDESTAL
	SERVICE POINT



ALL EXISTING SIGNAL EQUIPMENT ABOVE GRADE SHALL BE REMOVED AND DELIVERED TO THE COUNTY ON THE PROJECT.

EXACT LOCATION OF POLES, HANDHOLES, DETECTOR LOOPS, AND GUARD POSTS TO BE DETERMINED BY THE ENGINEER.

APPROXIMATE LOCATION OF UNDERGROUND UTILITIES ARE SHOWN ON SHEET No. 39. CONTRACTOR IS RESPONSIBLE FOR DETERMINING EXACT LOCATIONS OF ALL UNDERGROUND UTILITIES.

ALL DETECTOR LOOPS SHALL BE INSTALLED IN 1" NMC SEE SHEET 6 FOR DETAILS.

ALL SIGNAL POLES AND PEDESTAL BASES SHALL BE LOCATED BEHIND SIDEWALK LINE.

ALL MEDIAN SIGNALS SHALL BE SET 20' FROM NOSE TO CENTER OF FOUNDATION.

ALL LEFT TURN DETECTORS SHALL BE SPACED 10' BETWEEN LOOPS.

SIGNAL SYSTEM LAYOUT
SYSTEM C
XAVIS ST.

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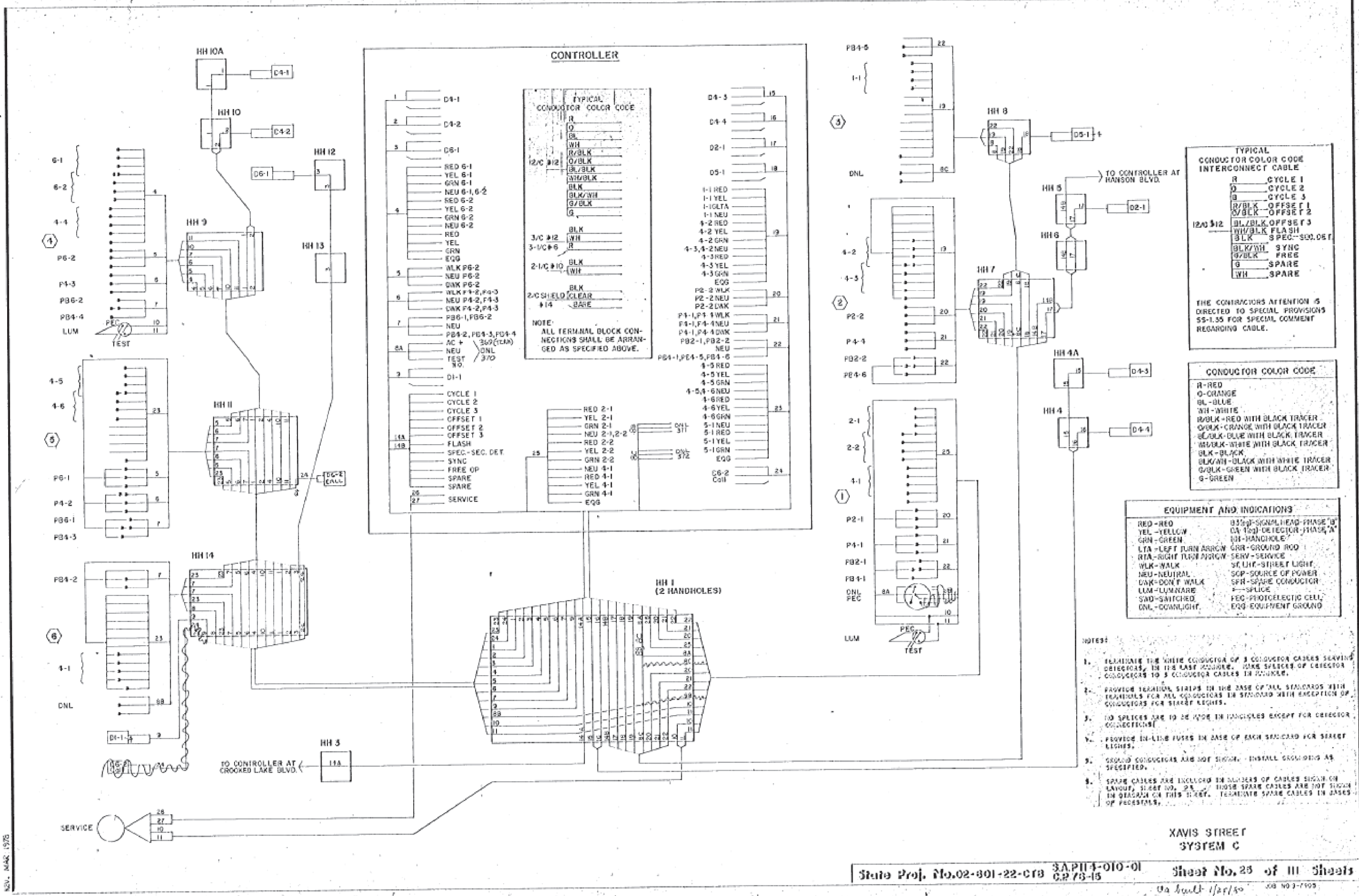


ANOKA COUNTY
HIGHWAY DEPT.

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CP 23-14

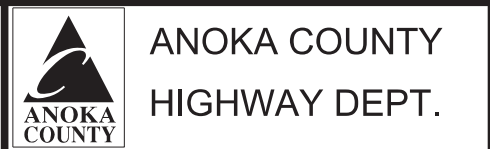
FOR INFORMATION ONLY
Sheet 42 of 43 Sheets

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