

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## XKIMO STREET SURFACE IMPROVEMENT PROJECT

CONSTRUCTION PLANS FOR BITUMINOUS PAVEMENT REMOVAL, BITUMINOUS SURFACING,  
STRIPING AND MISCELLANEOUS CONSTRUCTION

CITY OF RAMSEY  
CITY PROJECT 24-05

S.A.P. 199-117-002 LOCATED ON XKIMO STREET FROM HIGHWAY 47 TO THE CUL-DE-SAC SOUTH OF 142ND AVENUE  
SECTIONS 25 AND 36 TOWNSHIP 32, RANGE 25

### GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL APPLY.

THE 2023 EDITION OF THE CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) STANDARD SPECIFICATIONS SHALL APPLY.

ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

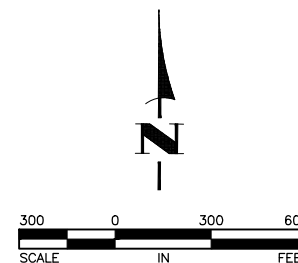
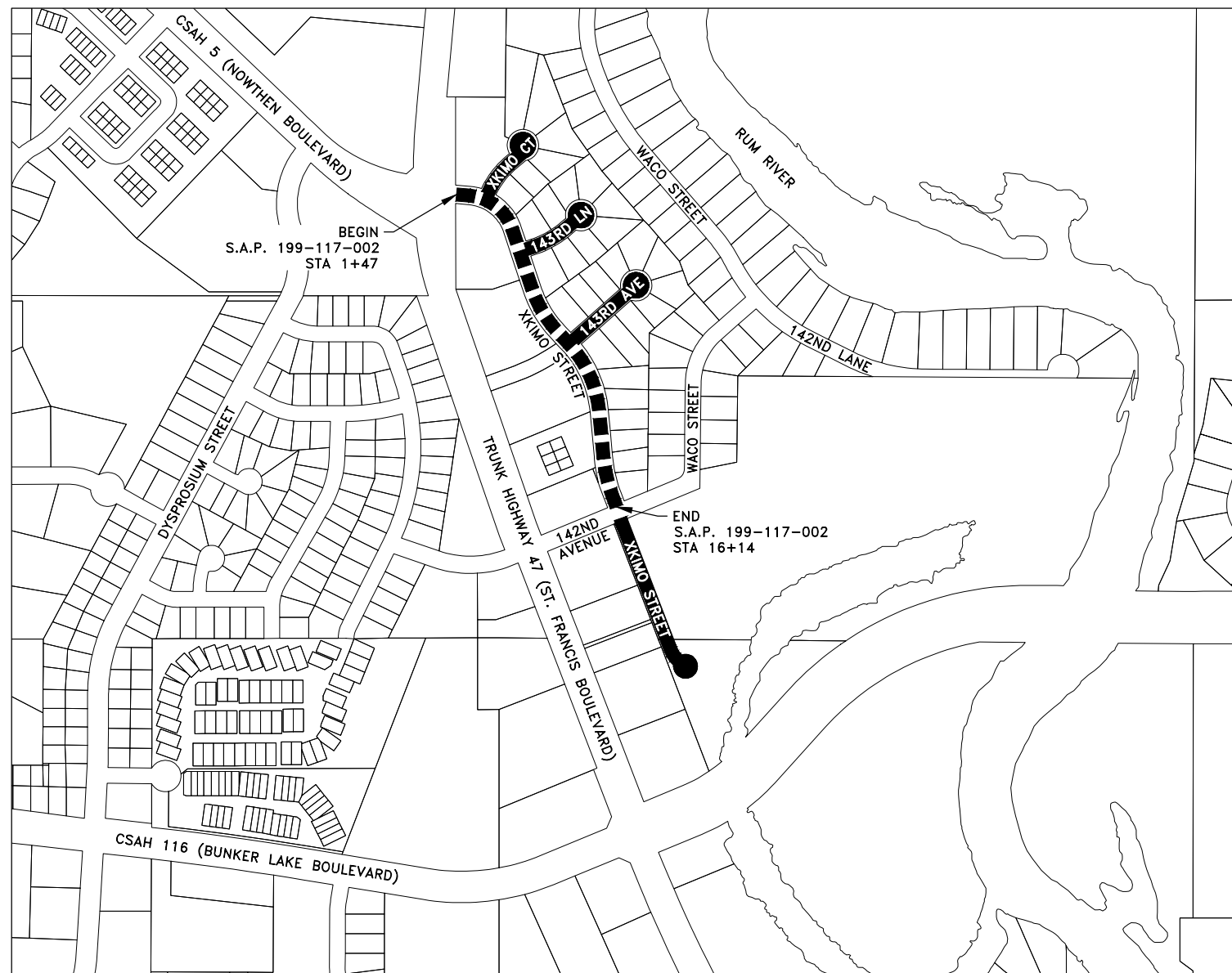
ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

ALL REQUIREMENTS OF THE PROJECT MANUAL FOR THE XKIMO STREET SURFACE IMPROVEMENT PROJECT.

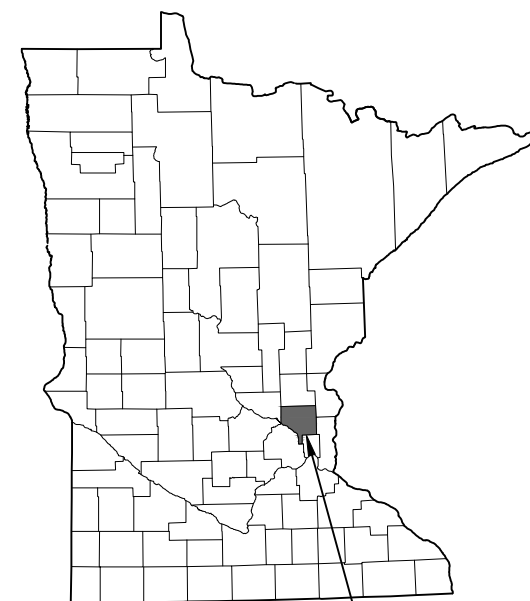
### SHEET INDEX

THIS PLAN CONTAINS 47 SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES, TABULATIONS AND PROJECT LEGEND
3	CONSTRUCTION NOTES AND TYPICAL SECTIONS
4-5	DETAILS
6	CITY STANDARD PLATES
7-12	PEDESTRIAN CURB RAMP DETAILS
13	TRAFFIC CONTROL PLAN
14-15	EXISTING CONDITIONS AND REMOVALS PLAN-XKIMO STREET
16	EXISTING CONDITIONS AND REMOVALS PLAN-XKIMO STREET AND XKIMO COURT
17	EXISTING CONDITIONS AND REMOVALS PLAN-143RD LANE AND 143RD AVENUE
18-22	CONSTRUCTION PLAN-XKIMO STREET
23	CONSTRUCTION PLAN-XKIMO COURT
24	CONSTRUCTION PLAN-143RD LANE
25	CONSTRUCTION PLAN-143RD AVENUE
26-27	PEDESTRIAN CURB RAMP CONSTRUCTION PLANS
28-29	SIGNAGE AND STRIPING PLAN-XKIMO STREET
30	STRIPING NOTES AND LEGEND
31-38	MN/DOT SIGN DETAILS
X1-X6	CROSS SECTIONS-XKIMO STREET
X7	CROSS SECTIONS-XKIMO COURT
X8	CROSS SECTIONS-143RD LANE
X9	CROSS SECTIONS-143RD AVENUE



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."



CITY OF RAMSEY,  
ANOKA COUNTY,  
MINNESOTA

#### LEGEND

- █ PROJECT LOCATION-LOCAL FUNDING
- █ PROJECT LOCATION-STATE AID FUNDING

PROJECT	STA. TO STA.	GROSS LENGTH (FEET)	BRIDGE LENGTH (FEET)	EXCEPTION LENGTH (FEET)	NET LENGTH (FEET)	NET LENGTH (MILES)	ADT (2024)	ADT (2044)	DESIGN ESAL	R VALUE	TON DESIGN	DESIGN SPEED	NUMBER OF LANES	NUMBER OF PARKING LANES	FUNCTIONAL CLASSIFICATION
S.A.P. 199-117-002 XKIMO STREET	1+47 TO 16+14	1467	0	0	1467	0.278	2050	2460	286000	50	10	30	2	2	COLLECTOR

STOPPING SIGHT DISTANCE BASED ON:  
3.5 FT - HEIGHT OF EYE  
2.0 FT - HEIGHT OF OBJECT

APPROVED: RAMSEY CITY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY \_\_\_\_\_ DATE \_\_\_\_\_

STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING \_\_\_\_\_ DATE \_\_\_\_\_

I hereby certify that this plan, specification, or report 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.

*Shane M. Nelson* 43381 DATE 4/12/24  
SHANE M. NELSON, P.E. LIC. NO.  
HAKANSON ANDERSON  
DESIGN ENGINEER

DATE	REVISION

S.A.P. 199-117-002 SHEET 1 OF 38 SHEETS

RA3188

Apr 15, 2024 - 11:09am  
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ESTIMATED QUANTITIES							
ITEM NO.	REF. NOTES	Mn/DOT SPEC. NO.	DESCRIPTION	UNIT	TOTAL	S.A.P. 199-117-002	LOCAL FUNDING
					ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
1		2021.501	MOBILIZATION	LUMP SUM	1	0.57	0.43
2	11	2104.502	REMOVE CONCRETE STRUCTURE	EACH	6	5	1
3		2104.502	REMOVE MANHOLE OR CATCH BASIN	EACH	4	3	1
4		2104.502	REMOVE CASTING	EACH	17	10	7
5		2104.502	REMOVE SIGN	EACH	3	3	
6	10	2104.502	SALVAGE CASTING	EACH	15	11	4
7	2	2104.503	SAWING CONCRETE PAVEMENT - FULL DEPTH	LIN FT	444	298	146
8		2104.503	SAWING BITUMINOUS PAVEMENT - FULL DEPTH	LIN FT	530	311	219
9		2104.503	REMOVE SEWER PIPE (STORM)	LIN FT	124	100	24
10	2	2104.503	REMOVE CURB AND GUTTER	LIN FT	2077	1262	815
11		2104.503	REMOVE WATER SERVICE PIPE	LIN FT	47		47
12		2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	293	105	188
13	2	2104.518	REMOVE CONCRETE WALK	SQ FT	4641	3703	938
14	8	2106.507	EXCAVATION - COMMON	CU YD	258	155	103
15		2112.519	SUBGRADE PREPARATION	ROAD STA	30.8	14.7	16.1
16	4	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	40	20	20
17	4	2130.523	WATER	MGAL	22	10	12
18	3	2211.509	AGGREGATE BASE CLASS 5 MODIFIED	TON	387	195	192
19		2215.504	FULL DEPTH RECLAMATION	SQ YD	12930	6496	6434
20	6	2215.507	HAUL FULL DEPTH RECLAMATION (LV)	CU YD	1869	1056	813
21		2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	32	21	11
22		2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLONS	912	461	451
23		2360.504	TYPE SP 9.5 WEARING COURSE MIXTURE (3:C) 1.5" THICK	SQ YD	577	77	500
24		2360.504	TYPE SP 9.5 WEARING COURSE MIXTURE (3:C) 2.5" THICK	SQ YD	80	53	27
25		2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3:C)	TON	1679	844	835
26		2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C)	TON	1807	1055	752
27		2433.603	SAW AND SEAL JOINT	LIN FT	160	80	80
28		2503.503	12" RC PIPE SEWER DESIGN 3006 CLASS V	LIN FT	16	16	
29		2503.503	15" RC PIPE SEWER DESIGN 3006 CLASS V	LIN FT	54	46	8
30		2503.503	21" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	8	8	
31		2503.503	24" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	76	76	
32		2503.503	30" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	8		8
33		2503.503	36" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	8		8
34		2503.602	CONNECT TO EXISTING STORM SEWER	EACH	8	5	3
35		2504.602	CONNECT TO EXISTING WATERMAIN	EACH	1	1	
36	5	2504.602	VALVE BOX	EACH	5		5
37		2504.602	ADJUST VALVE BOX	EACH	14	9	5
38		2504.602	6" GATE VALVE AND BOX	EACH	1		1
39		2504.603	6" WATERMAIN DUCTILE IRON CL 53	LIN FT	50		50
40		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (2'X3')	EACH	2	2	
41		2506.502	CASTING ASSEMBLY	EACH	17	10	7
42	10	2506.502	INSTALL CASTING	EACH	15	11	4
43		2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020	LIN FT	3.7	3.7	
44		2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 84-4020	LIN FT	8.4		8.4
45		2506.602	GROUT CATCH BASIN OR MANHOLE	EACH	18	13	5
46		2506.602	CLEAN OUT CATCH BASIN	EACH	14	9	5
47		2506.602	PRECAST CONCRETE MANHOLE COVER (48")	EACH	5	4	1
48		2506.602	PRECAST CONCRETE MANHOLE COVER (72")	EACH	1	1	
49		2506.602	CONNECT INTO EXISTING MH OR CB	EACH	1	1	
50	2	2521.518	4" CONCRETE WALK	SQ FT	1264	1264	
51		2521.518	6" CONCRETE WALK	SQ FT	686	474	212
52	2	2531.503	CONCRETE CURB AND GUTTER DESIGN SPECIAL (SURMOUNTABLE)	LIN FT	379	245	134
53		2531.503	CONCRETE CURB AND GUTTER DESIGN B418	LIN FT	270	270	
54	2	2531.503	CONCRETE CURB AND GUTTER DESIGN B612	LIN FT	36	25	11
55	2	2531.503	CONCRETE CURB AND GUTTER DESIGN B618	LIN FT	1415	839	576
56		2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	19		19
57		2531.504	8" CONCRETE DRIVEWAY PAVEMENT	SQ YD	216	177	39
58		2531.604	7" CONCRETE VALLEY GUTTER	SQ YD	79	34	45
59		2531.618	TRUNCATED DOMES	SQ FT	65	38	27
60	9	2545.503	3" NON-METALLIC CONDUIT	LIN FT	150	100	50

ESTIMATED QUANTITIES							
ITEM NO.	REF. NOTES	Mn/DOT SPEC. NO.	DESCRIPTION	UNIT	TOTAL	S.A.P. 199-117-002	LOCAL FUNDING
					ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
61		2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.57	0.43
62		2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.57	0.43
63		2563.601	ALTERNATE PEDESTRIAN ROUTE	LUMP SUM	1	0.57	0.43
64		2564.518	SIGN PANELS TYPE C	SQ FT	20.8	20.8	
65		2565.602	RIGID PVC LOOP DETECTOR 6'X6'	EACH	2	2	
66		2572.503	TEMPORARY FENCE	LIN FT	200	200	
67		2573.501	STABILIZED CONSTRUCTION EXT	LUMP SUM	1	0.57	0.43
68		2573.502	STORM DRAIN INLET PROTECTION	EACH	14	9	5
69	7	2574.507	COMMON TOPSOIL BORROW	CU YD	323	202	121
70	1	2575.605	TURF ESTABLISHMENT	ACRE	1.00	0.60	0.40
71		2582.503	4" SOLID LINE MULTI-COMPONENT	LIN FT	2660	2660	
72		2582.503	12" SOLID LINE MULTI-COMPONENT	LIN FT	40	40	
73		2582.503	24" SOLID LINE MULTI-COMPONENT	LIN FT	40	25	15
74		2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT	LIN FT	1230	1230	
75		2582.518	PAVEMENT MESSAGE MULTI-COMPONENT	SQ FT	91.1	91.1	

**REFERENCE NOTES:**

- ① SEE SHEET 3 FOR ADDITIONAL INFORMATION REGARDING TURF ESTABLISHMENT.
- ② ADDITIONAL CURB AND SIDEWALK REMOVAL MAY BE DETERMINED IN THE FIELD. THE QUANTITIES SHOWN INCLUDE THE QUANTITIES NOTED IN THE PLANS PLUS ADDITIONAL ESTIMATED QUANTITIES.
- ③ AGGREGATE BASE PLACEMENT SHALL BE APPROVED BY THE ENGINEER. CLASS 5 AGGREGATE BASE SHALL MEET THE REQUIREMENTS OF CITY PLATE NO. STR-26.
- ④ SEE SHEET 3 AND SECTION 01 35 00 SPECIAL PROJECT PROCEDURES OF THE PROJECT MANUAL FOR ADDITIONAL INFORMATION.
- ⑤ THIS ITEM INCLUDES REMOVING AND REPLACING DAMAGED VALVE BOXES WITH NEW VALVE BOXES AT THE DISCRETION OF THE ENGINEER.
- ⑥ THIS ITEM INCLUDES ALL LABOR AND EQUIPMENT REQUIRED TO PLACE THE FULL DEPTH RECLAMATION MATERIAL AT THE PUBLIC WORKS SITE, LOCATED AT 14210 JASPER STREET NW.
- ⑦ TOPSOIL SHALL BE BLACK DIRT COMPOSED OF UNCONSOLIDATED MATERIAL, LARGELY UNDECOMPOSED ORGANIC MATTER WHICH IS A SUITABLE FOUNDATION FOR VEGETATIVE GROWTH. THE TOPSOIL SHALL CONTAIN LESS THAN 35% SAND CONTENT.
- ⑧ ITEM SHALL INCLUDE PAYMENT FOR EXCAVATION OF THE SOIL AT THE PUMP HOUSE DRIVEWAY EXPANSION AND CURB AND SIDEWALK REMOVAL.
- ⑨ ITEM INCLUDES PAYMENT FOR CONDUIT PLACED FOR UTILITY CROSSINGS. THE NEED FOR THE CONDUIT WILL BE DETERMINED IN THE FIELD.
- ⑩ ITEMS SALVAGED AS PART OF THE STATE AID PROJECT SHALL BE INSTALLED ON THE STATE AID PROJECT.
- ⑪ ITEM INCLUDES PAYMENT FOR REMOVAL OF SELECT MANHOLE COVERS.

STANDARD PLATES	
THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY	
PLATE NO.	DESCRIPTION
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
4010I	CONCRETE ADJUSTING RINGS
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER (3 FT. X 2 FT. OPENING)
4026B	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE
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)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)

BASIS OF ESTIMATED QUANTITIES	
NON WEARING BITUMINOUS COURSE MIXTURE	113 lbs/yd <sup>2</sup> /in
WEARING COURSE BITUMINOUS MIXTURE	113 lbs/yd <sup>2</sup> /in
BITUMINOUS MATERIAL FOR TACK COAT	0.05 gal/yd <sup>2</sup>
SEED MIXTURE 25-131	220 lbs/acre
HYDRAULIC BONDED FIBER MATRIX	3500 lbs/acre
TYPE 3, SLOW RELEASE FERTILIZER	400 lbs/acre

**LEGEND**

- CITY RIGHT-OF-WAY/PROPERTY LINE
- Mn/DOT RIGHT-OF-WAY LINE
- EASEMENT LINE
- SECTION LINE
- P-BUR BURIED ELECTRIC LINE
- T-BUR BURIED TELEPHONE LINE
- FO-BUR BURIED FIBER OPTIC LINE
- G BURIED GAS LINE
- P-OH OVERHEAD UTILITY LINE
- TV-BUR BURIED TELEVISION LINE
- EXISTING CONCRETE CURB AND GUTTER
- PROPOSED CONCRETE CURB AND GUTTER
- SP TRAFFIC SIGNAL POLE
- Light Pole Symbol LIGHT POLE
- HH HANDHOLE
- Utility Pedestals Symbol UTILITY PEDESTALS
- Utility Pole Symbol UTILITY POLE
- Existing Catch Basins Symbol EXISTING CATCH BASINS
- Existing Storm Sewer Manhole Symbol EXISTING STORM SEWER MANHOLE
- Existing Sanitary Sewer Manhole Symbol EXISTING SANITARY SEWER MANHOLE
- Existing Hydrant Symbol EXISTING HYDRANT
- Existing Watermain Valve Symbol EXISTING WATERMAIN VALVE
- Street Sign Symbol STREET SIGN
- Street Name Sign Symbol STREET NAME SIGN
- XXXX PROPERTY ADDRESS
- C-X BITUMINOUS CORING LOCATION
- B-X SOIL BORING LOCATION
- X X DETAIL NUMBER
- X X SHEET NUMBER

DATE	REVISION

I hereby certify that this plan, specification, or report 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.

*Shane M. Nelson*  
SHANE M. NELSON, P.E.  
Date 4/12/24 Lic. No. 43381

DESIGNED BY: TAE  
DRAWN BY: TAE  
CHECKED BY: SMN



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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**ESTIMATED QUANTITIES, TABULATIONS AND PROJECT LEGEND**  
CITY OF RAMSEY, MINNESOTA

SHEET 2 OF 38 SHEETS  
RA3188

S.A.P. 199-117-002

**GENERAL CONSTRUCTION AND SOILS NOTES:**

- SUITABLE GRADING MATERIAL FOR THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, SILT, DEBRIS, ORGANIC MATERIAL AND OTHER UNSTABLE MATERIAL.
- CONTRACTOR SHALL REVIEW THE GEOTECHNICAL EXPLORATION REPORT PREPARE BY HAUGO GEOTECHNICAL SERVICES, DATED JANUARY 26, 2024, FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.
- WHEN PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT CUT VERTICALLY TO THE BOTTOM OF INPLACE SURFACING OR TOP OF GRADING SUBGRADE, WHICHEVER IS DEEPER, AT A 1(V):2(H) TO THE BOTTOM OF EXCAVATION.
- PROVIDE A SAW CUT WHEN PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT AND AT TERMINI OF CONSTRUCTION TO ENSURE A UNIFORM JOINT.
- BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH MN/DOT SPEC. 2104.
- USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.04 GAL/SY TO 0.06 GAL/SY BETWEEN BITUMINOUS LAYERS. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS.
- PERFORMANCE GRADED (PG) ASPHALT BINDER PG 58H-34, PER MN/DOT SPEC. 3151, SHALL BE USED FOR ALL BITUMINOUS MIXES ON THIS PROJECT.
- THE BITUMINOUS MIXTURES SHALL MEET THE REQUIREMENTS OF SPECIFICATIONS 2360 AND 3139.
- IF NECESSARY, THE UTILITY COMPANIES WILL RELOCATE THEIR FACILITIES CONCURRENTLY WITH THE CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. CONTRACTOR SHALL SCHEDULE CONSTRUCTION IN COOPERATION WITH UTILITY RELOCATION.
- CURB AND SIDEWALK REPLACEMENT AREAS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. CONTRACTOR WILL BE PAID TO SAWCUT SIDEWALK OR CONCRETE CURB AND GUTTER PER ITEM 2104-SAWING CONCRETE PAVEMENT-FULL DEPTH. RESTORATION ADJACENT TO CURB AND SIDEWALK REMOVAL AREAS SHALL BE PER  $\frac{3}{4}$  AND  $\frac{4}{4}$ .

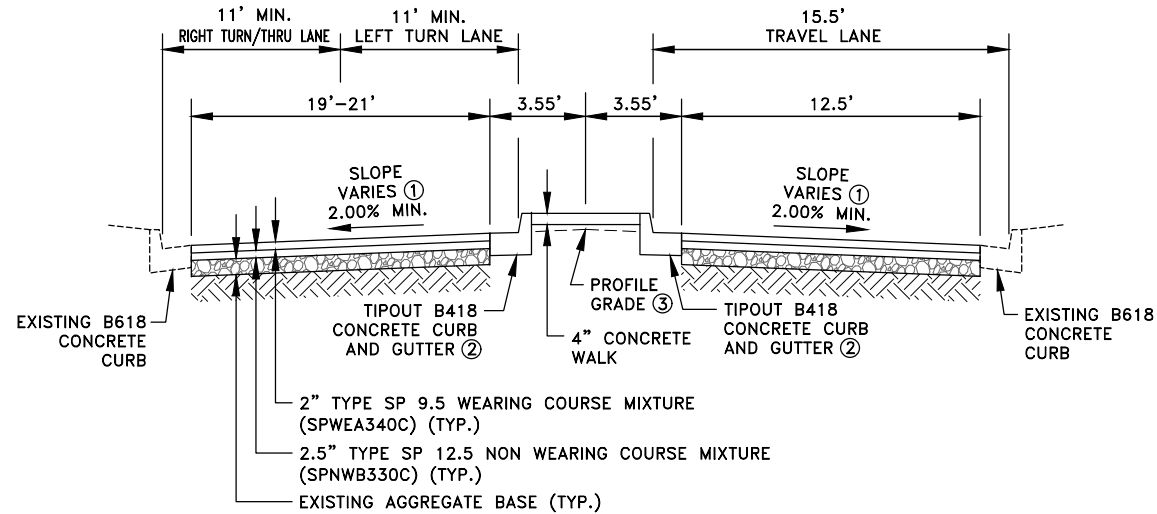
- CONTRACTOR SHALL PREPARE SUBGRADE UNDER CONCRETE CURB AND GUTTER AND SIDEWALKS WITH SUITABLE GRADING MATERIAL. PREPARATION OF THE SUBGRADE SHALL BE INCIDENTAL.
- ALL DISTURBED AREAS SHALL BE RESTORED WITH A MINIMUM OF 4" OF TOPSOIL, SEED MIXTURE 25-131 AT A RATE OF 220 LBS/ACRE, TYPE 3 FERTILIZER AT A RATE OF 400 LBS/ACRE AND HYDRAULIC BONDED FIBER MATRIX AT A RATE OF 3500 LBS/ACRE. PAY ITEM 2575-TURF ESTABLISHMENT, MEASURED BY THE ACRE, SHALL INCLUDE PAYMENT FOR THE SEED, FERTILIZER AND HYDRAULIC BONDED FIBER MATRIX.
- CONTRACTOR SHALL OBTAIN A MN/DOT PERMIT PRIOR TO WORKING IN THE TRUNK HIGHWAY 47 RIGHT-OF-WAY.

**GENERAL EROSION AND SEDIMENT CONTROL NOTES:**

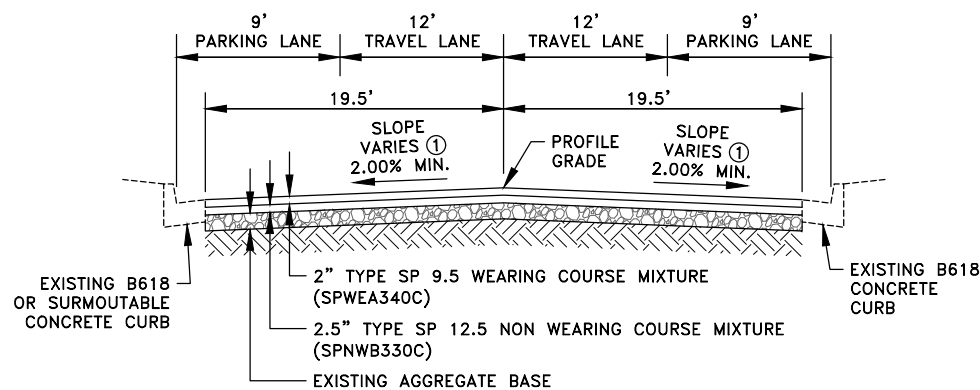
- EROSION AND SEDIMENT CONTROL SHALL CONFORM TO THE MN/DOT EROSION CONTROL HANDBOOK.
- THE CONTRACTOR SHALL INSTALL EROSION AND SEDIMENT CONTROL FACILITIES (BMP'S) PRIOR TO GRADING AND REMOVAL ACTIVITIES. BMP'S SHALL BE MAINTAINED FOR THE DURATION OF CONSTRUCTION ACTIVITIES AND POTENTIAL FOR EROSION HAS PASSED.
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROPERLY DISPOSED OF WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION.
- DUST CONTROL-ALL PUBLIC OR HAUL ROADS USED DURING CONSTRUCTION OF THE PROJECT SHALL BE TREATED WITH WATER OR OTHER ENGINEER APPROVED METHODS AS NECESSARY TO SUPPRESS DUST. THIS WORK SHALL BE PAID PER ITEM 2130-WATER. CONTRACTOR CAN PURCHASE WATER AT EITHER THE ELMCREST PARK FILL STATION, LOCATED NEAR THE INTERSECTION OF QUICKSILVER STREET AND 167TH AVENUE, OR THE PUBLIC WORKS WATER FILL STATION, LOCATED AT 14100 JASPER STREET NW.
- STREET CLEANING-THE CONTRACTOR SHALL CONTINUOUSLY CLEAN AND SWEEP ANY CONSTRUCTION MATERIAL AND DEBRIS THAT MAY BE TRACKED OR DEPOSITED ONTO STREETS LEADING TO OR ADJACENT TO THE PROJECT AREA. IF, UPON THREE HOURS NOTICE FROM THE ENGINEER, STREETS HAVE NOT BEEN CLEANED, THE ENGINEER MAY ORDER SUCH CLEANING BY OTHERS WITH THE COSTS OF SUCH SWEEPING OR CLEANING DEDUCTED FROM CONTRACT PAYMENTS. THIS WORK SHALL BE PAID PER ITEM 2123-STREET SWEEPER (WITH PICKUP BROOM).
- ALTERNATE STORM DRAIN INLET PROTECTION DEVICES MAY BE SUBSTITUTED WITH ENGINEER'S APPROVAL.
- CONTRACTOR SHALL PREPARE A STABILIZED CONSTRUCTION EXIT PER CITY PLATE NO. ERO-5 AT ALL ACCESS POINTS PRIOR TO CONSTRUCTION.

**REFERENCE NOTES:**

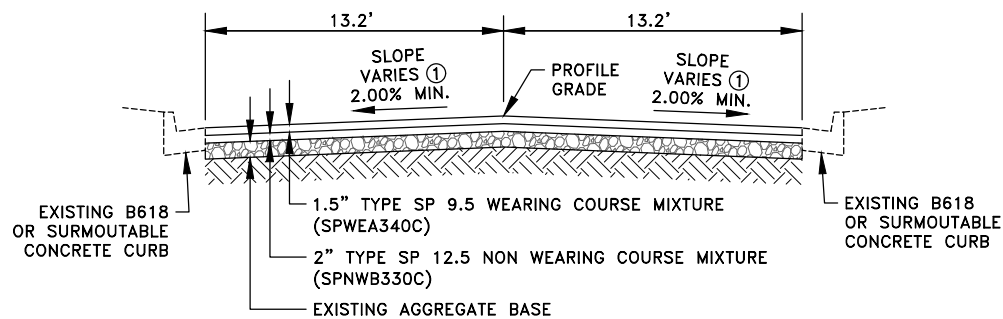
- SEE CROSS SECTION SHEETS FOR ROAD CROSS SECTION GRADES.
- TIPOUT CURB SHALL BE PER  $\frac{4}{3}$ .
- CROSS SLOPE FROM THE CENTERLINE PROFILE TO THE TOE OF THE CURB SHALL BE 2.00%.
- BITUMINOUS DRIVEWAY PAVEMENT SHALL BE PAID PER ITEM 2360-TYPE SP 9.5 WEARING COURSE MIXTURE (3;C) 2.5" THICK.
- BITUMINOUS DRIVEWAY PAVEMENT SHALL BE PAID PER ITEM 2360-TYPE SP 9.5 WEARING COURSE MIXTURE (3;C) 1.5" THICK.



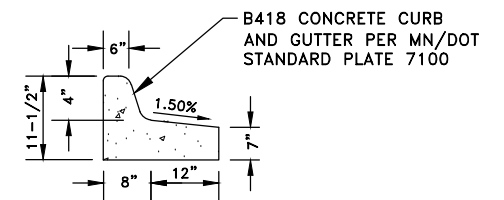
**1**  
**3** TYPICAL SECTION  
XKIMO STREET (STA 1+62 TO 2+84)



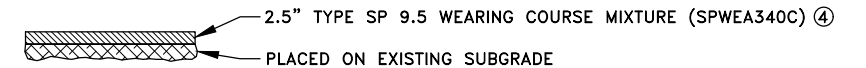
**2**  
**3** TYPICAL SECTION  
XKIMO STREET (STA 2+84 TO 16+14)



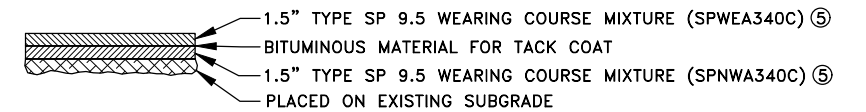
**3**  
**3** TYPICAL SECTION  
XKIMO STREET (STA 16+46 TO 23+19),  
XKIMO COURT, 143RD LANE, AND 143RD AVENUE



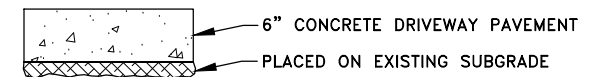
**4**  
**3** TIPOUT CURB DETAIL  
NO SCALE



**5**  
**3** RESIDENTIAL DRIVEWAY  
BITUMINOUS PAVEMENT SECTION  
NO SCALE



**6**  
**3** COMMERCIAL DRIVEWAY  
BITUMINOUS PAVEMENT SECTION  
NO SCALE



**7**  
**3** RESIDENTIAL DRIVEWAY  
CONCRETE PAVEMENT SECTION  
NO SCALE

Apr 15, 2024 - 12:09pm K:\MUNICIPAL\RA3188\ENGINEERING\PLAN DWG\RA3188\_DETAILS.dwg

DATE	REVISION

I hereby certify that this plan, specification, or report 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.

*Shane M. Nelson*  
SHANE M. NELSON, P.E.  
Date 4/12/24 Lic. No. 43381

DESIGNED BY: TAE  
DRAWN BY: TAE  
CHECKED BY: SMN



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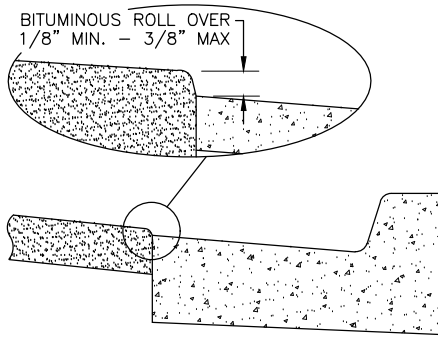
XKIMO STREET SURFACE  
IMPROVEMENT PROJECT

CONSTRUCTION NOTES  
AND TYPICAL SECTIONS  
CITY OF RAMSEY, MINNESOTA

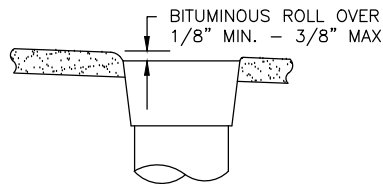
S.A.P. 199-117-002

SHEET  
3  
OF  
38  
SHEETS

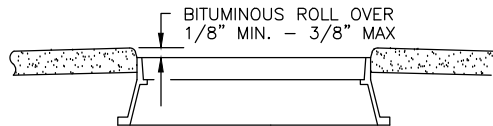
RA3188



PAVING AT CURB DETAIL

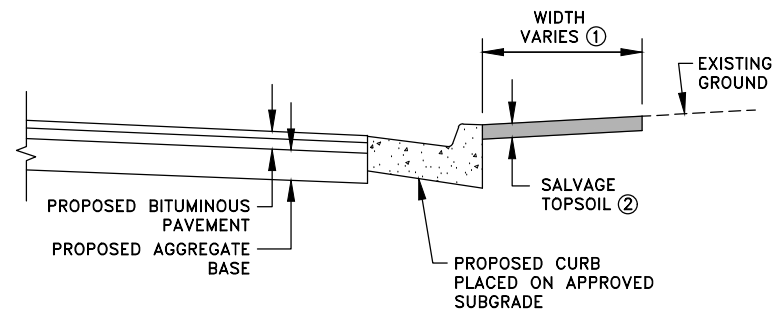


PAVING AT VALVE BOX DETAIL

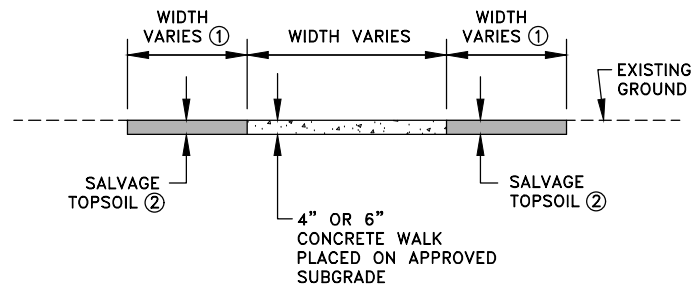


PAVING AT MANHOLE DETAIL

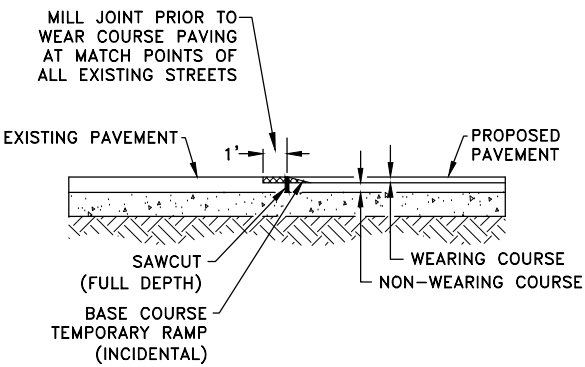
1 PAVING DETAILS  
4 N.T.S.



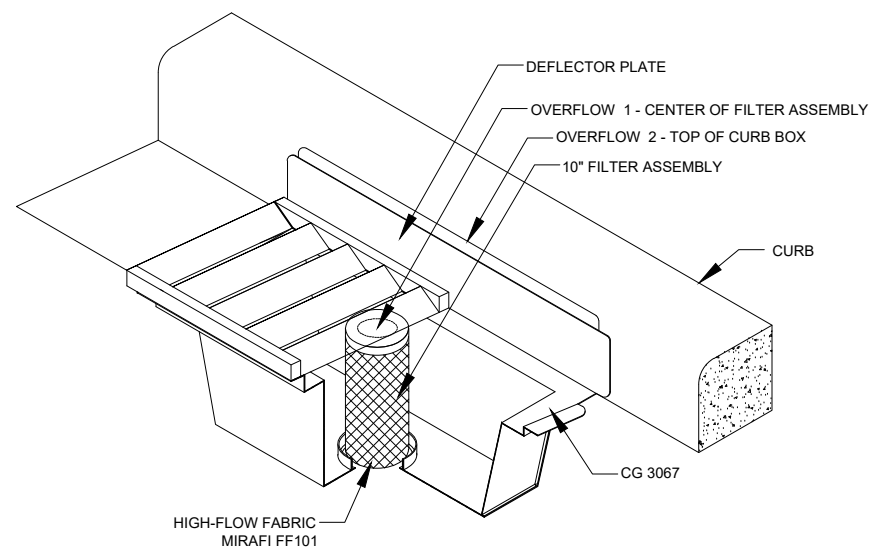
3 RESTORATION AT CURB AND CATCH  
4 BASIN REPLACEMENT LOCATIONS  
NO SCALE



4 RESTORATION AT SIDEWALK AND  
4 PEDESTRIAN CURB RAMP  
NO SCALE

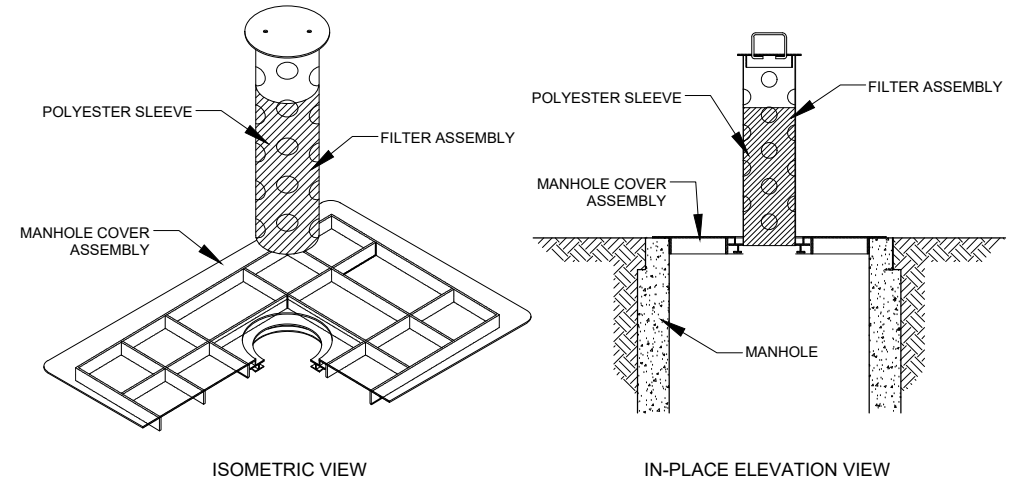


2 WEAR COURSE JOINT MILLING  
4

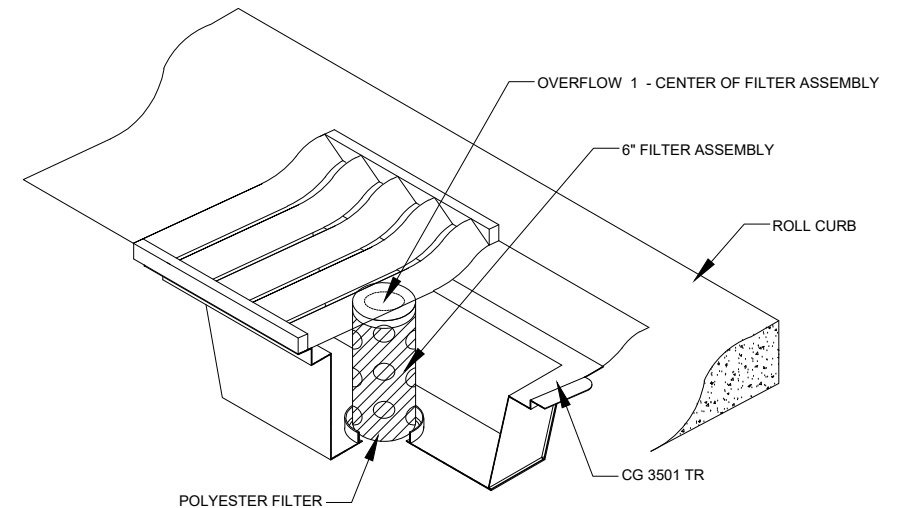


5 STORM DRAIN INLET PROTECTION ③④  
4

- REFERENCE NOTES:  
 ① SEE SHEET 3 FOR RESTORATION REQUIREMENTS.  
 ② CONTRACTOR SHALL SALVAGE AND REPLACE EXISTING TOPSOIL. THIS WORK SHALL BE INCIDENTAL.  
 ③ CONTRACTOR SHALL BE PAID FOR THE NUMBER OF INDIVIDUAL STORM DRAIN INLETS PROTECTED OVER THE LIFE OF THE CONTRACT, REGARDLESS OF THE TYPE AND NUMBER OF DEVICES USED AT EACH STORM DRAIN INLET.  
 ④ INLET PROTECTION SHALL BE INSTALLED ON ALL CASTINGS RECEIVING RUNOFF FROM THE PROJECT AREA. WIMCO MODELS CG 3067, RD 23 AND CG 3501 TR ARE SHOWN.



6 STORM DRAIN INLET PROTECTION ③④  
4



7 STORM DRAIN INLET PROTECTION ③④  
4

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 DRAWN BY: TAE  
 CHECKED BY: SMN



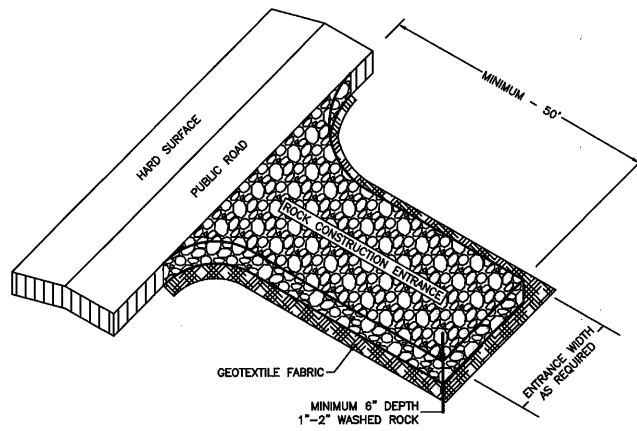
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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**DETAILS**  
 CITY OF RAMSEY, MINNESOTA

SHEET 4 OF 38 SHEETS  
 RA3188

S.A.P. 199-117-002



- NOTE:
1. MINIMUM CONSTRUCTION ENTRANCE WIDTH EQUAL TO PROPOSED ROADWAY WIDTH.
  2. WIDTH OF RADIUS AS REQUIRED TO ENSURE VEHICLES DO NOT TRACK ONTO PUBLIC ROAD.
  3. MAINTENANCE AS REQUIRED TO PREVENT TRACKING ONTO PUBLIC ROADS. THIS MAY REQUIRE TOP DRESSING WITH ADDITIONAL ROCK OR REMOVAL AND REINSTALLATION OF THE ENTRANCE AS NEEDED.

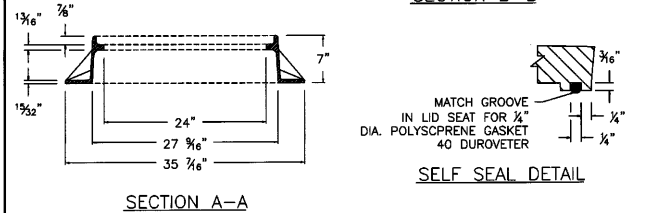
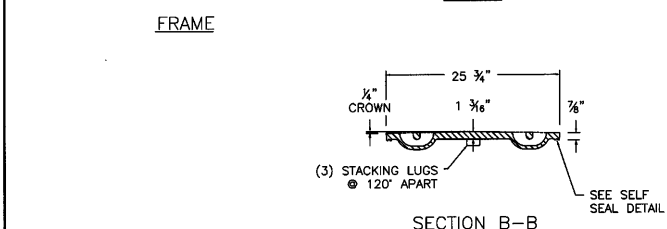
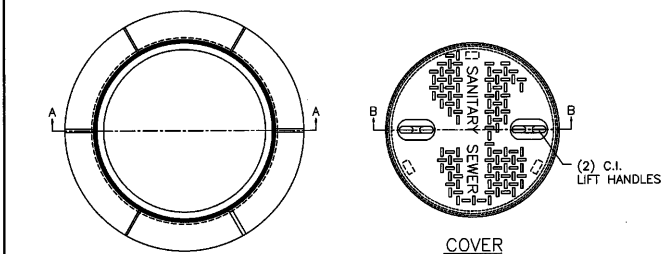
NOT TO SCALE

APPROVED:  
1 - 2016



STANDARD DETAILS:  
ROCK CONSTRUCTION ENTRANCE

CITY PLATE No. ERO-5



NOTE: NOT TO SCALE

APPROVED:  
11 - 2015



STANDARD DETAILS:  
WATER TIGHT CASTING

CITY PLATE No. SEW-2

SALVAGE & REINSTALL EXISTING CASTING, INCIDENTAL.

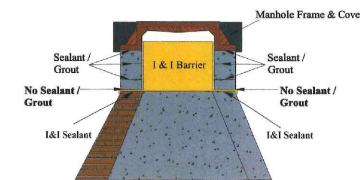
CASTING SEE CITY PLATE NO. SEW-2

CONCRETE ADJUSTMENT RINGS MAX 7'-2" RINGS TO BE INSTALLED. MIN. 2'-2" RINGS TO BE INSTALLED. GROUT BETWEEN RINGS.

WRAP OUTSIDE OF RINGS WITH WATER TIGHT PRODUCT.

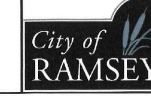
PLACE INTERIOR CHIMNEY SEAL (1 & 1 BARRIER AS MANUFACTURED BY STRIKE PRODUCTS) INSTALLATION TO FOLLOW MANUFACTURER RECOMMENDATIONS.

SHIMS USED FOR LEVELING SHALL BE METAL OR CONCRETE.



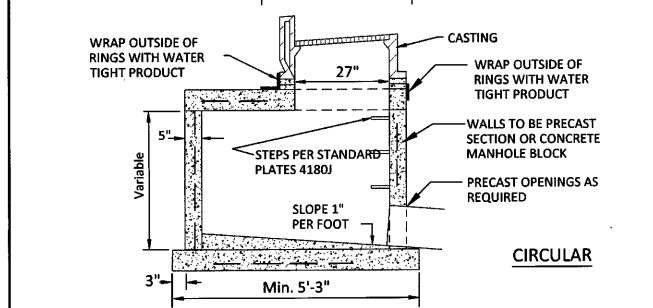
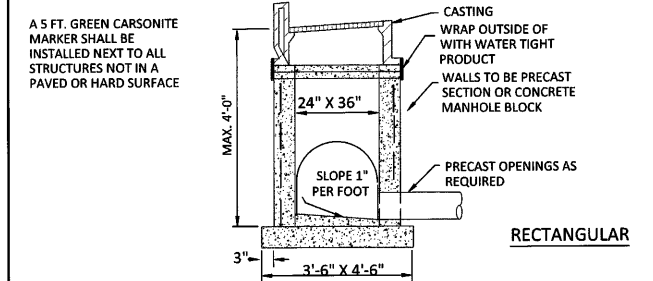
NOT TO SCALE

APPROVED:  
1 - 2022



STANDARD DETAILS:  
SANITARY MANHOLE ADJUSTING RINGS & CHIMNEY SEAL

CITY PLATE No. SEW-7



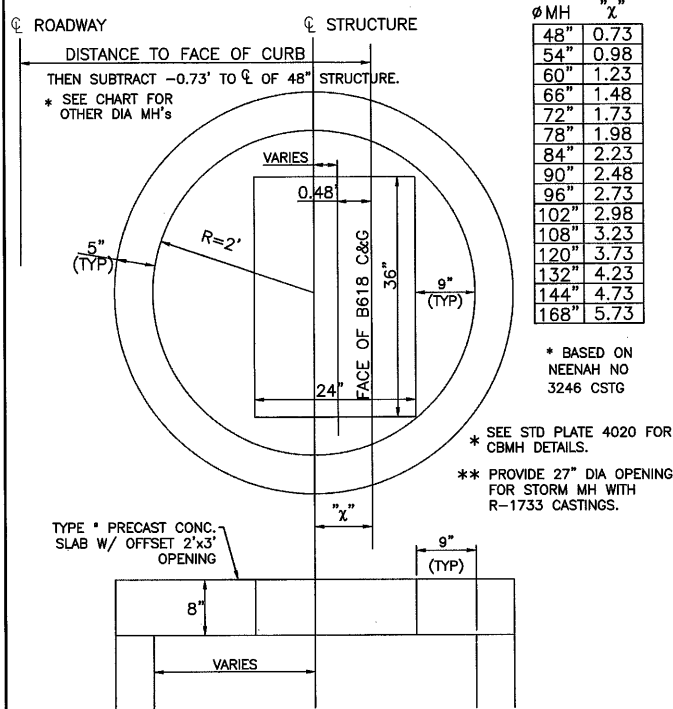
- NOTES:
1. MANHOLE INVERT SHALL SLOPED TO PROVIDE A SMOOTH FLOW FROM INLET TO OUTLET
  2. CONCRETE BASE SHALL BE 6" POURED IN PLACE OR 5" PRECAST SLAB
  3. CONCRETE ADJUSTING RINGS TO BE INSTALLED MAX 7'-2" RINGS, MIN 2'-2" RINGS
  4. GROUT BETWEEN RINGS, SHIMS SHALL BE METAL, CONCRETE OR PLASTIC
  5. INSPECTION OF MANHOLE REQUIRED BEFORE BACKFILLING
  6. A 12 GAUGE COPPER CLAD STEEL TRACER WIRE IS REQUIRED WITH ALL STORM LINES
  7. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE
  8. TRACER WIRES ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS
  9. STEPS ARE REQUIRED IF STRUCTURE FROM THE CASTING TO THE INVERT IS GREATER THAN 4 FEET

APPROVED:  
1 - 2024



STANDARD DETAILS:  
CATCH BASIN

CITY PLATE No. STO-1

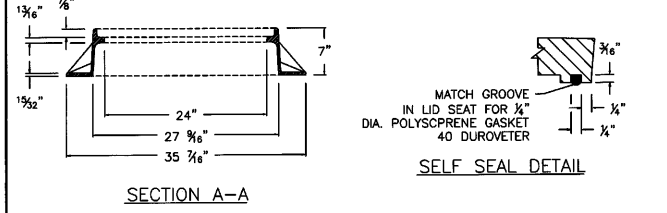
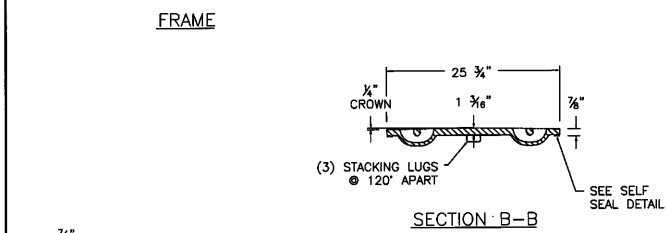
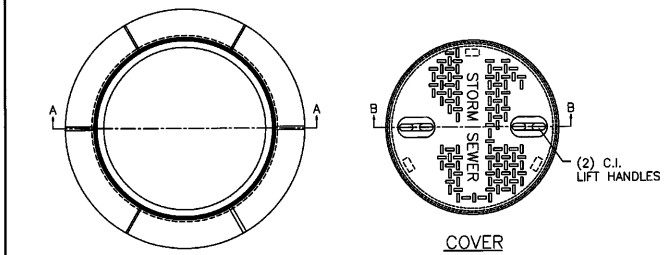


APPROVED:  
4 - 2005



STANDARD DETAILS:  
SLAB TOP MANHOLE COVER

CITY PLATE No. STO-5



NOTE: NOT TO SCALE

APPROVED:  
2 - 2019



STANDARD DETAILS:  
WATER TIGHT CASTING

CITY PLATE No. STO-14

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SHANE M. NELSON, P.E.  
Date 4/12/24 Lic. No. 43381

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CHECKED BY: SMN

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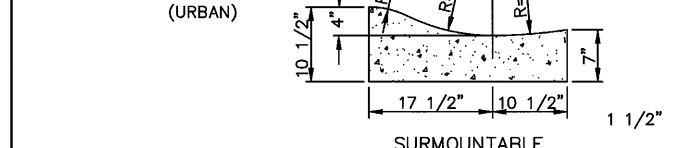
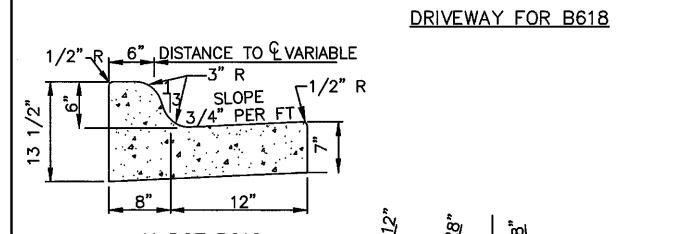
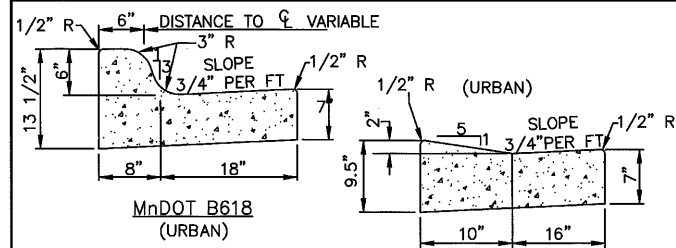
**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**DETAILS**

CITY OF RAMSEY, MINNESOTA

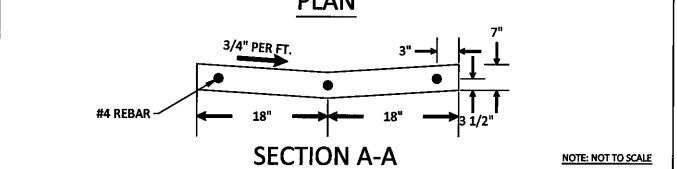
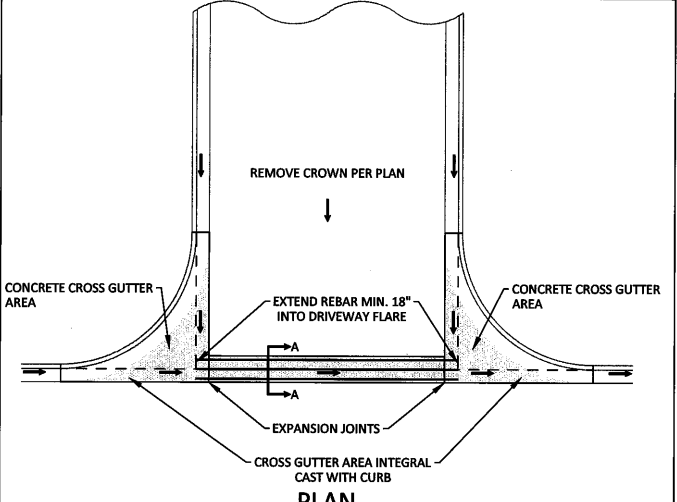
S.A.P. 199-117-002

SHEET 5 OF 38 SHEETS



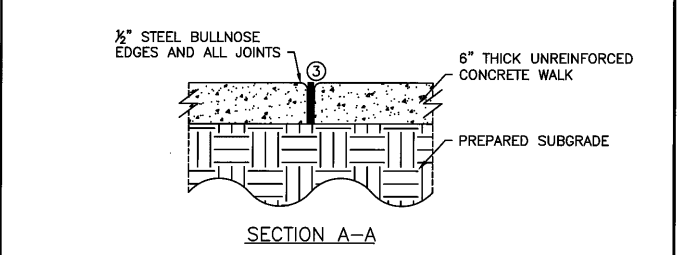
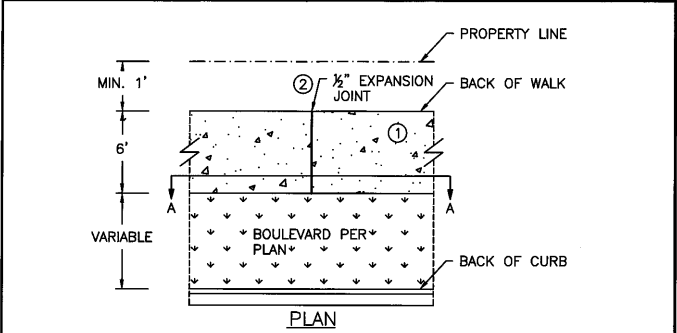
**NOTES:**  
 1. ON WEAR COURSE MILL THE EXISTING BITUMINOUS 1.5" BY 24" IN FRONT OF THE REPLACEMENT CURB.  
 2. ON BASE COURSE SAW CUT AND REMOVE EXISTING BITUMINOUS 18" IN FRONT OF THE REPLACEMENT CURB.

APPROVED: 1 - 2016  
 City of RAMSEY  
 STANDARD DETAILS: CURB AND GUTTER  
 CITY PLATE No. STR-1



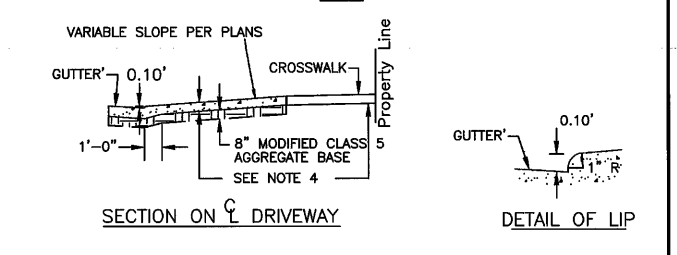
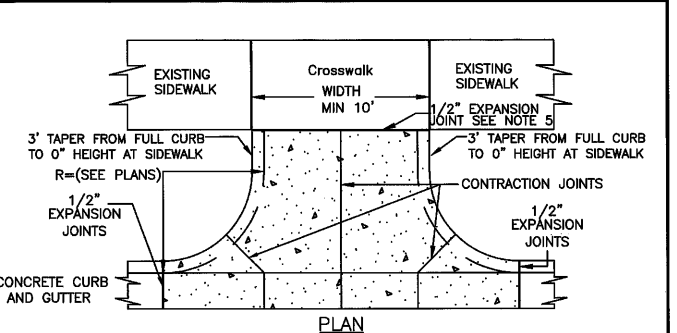
**NOTES:**  
 1. WITH REMOVAL OF EXISTING CURB AT A STREET, MILL BITUMINOUS TO A DEPTH OF 1.5" AND A WIDTH OF 18" IN EXISTING STREET.  
 2. TO BE USED WHENEVER CROSS DRAINAGE IS < 2%.  
 3. CONCRETE CURB AND GUTTER SHALL BE CAST INTEGRAL WITH CONCRETE CROSS GUTTER AREA.  
 4. CONCRETE CURB AND GUTTER SHALL BE PAID SEPARATELY FROM CONCRETE CROSS GUTTER AREA.

APPROVED: 3 - 2017  
 City of RAMSEY  
 STANDARD DETAILS: CROSS GUTTER  
 CITY PLATE No. STR-2



**NOTE:**  
 ① BROOM FINISH CONCRETE WALK SURFACE  
 ② MAXIMUM 100 FOOT SPACING BETWEEN EXPANSION JOINTS  
 ③ 1/2" EXPANSION JOINT MEETING MNDOT SPEC 3702. PROVIDE ONE PIECE OF FILLER FOR THE ENTIRE DEPTH AND WIDTH OF THE JOINT

APPROVED: 10 - 2015  
 City of RAMSEY  
 STANDARD DETAILS: CONCRETE SIDEWALK  
 CITY PLATE No. STR-3



**NOTES:**  
 1. PANEL WIDTH SHALL NOT EXCEED 10 FT. WITHOUT A CENTERLINE CONSTRUCTION JOINT.  
 2. DRIVEWAY TO BE ONE COURSE CONCRETE PAVEMENT. (SEE SPECIAL PROVISIONS FOR CLASS OF CONCRETE.)  
 3. GUTTER TO BE PAVED INTEGRAL WITH DRIVEWAY.  
 4. 8" THICK FOR COMMERCIAL DRIVEWAYS.  
 5. 1/2" EXPANSION JOINT, 1/2" PREFORMED JOINT FILLER MATERIAL, AASHTO M 213 (REQUIRED WHEN 2 CONCRETE AREAS ARE POURED SEPARATELY.)

APPROVED: 4 - 2016  
 City of RAMSEY  
 STANDARD DETAILS: COMMERCIAL DRIVEWAY CURB AND GUTTER  
 CITY PLATE No. STR-14

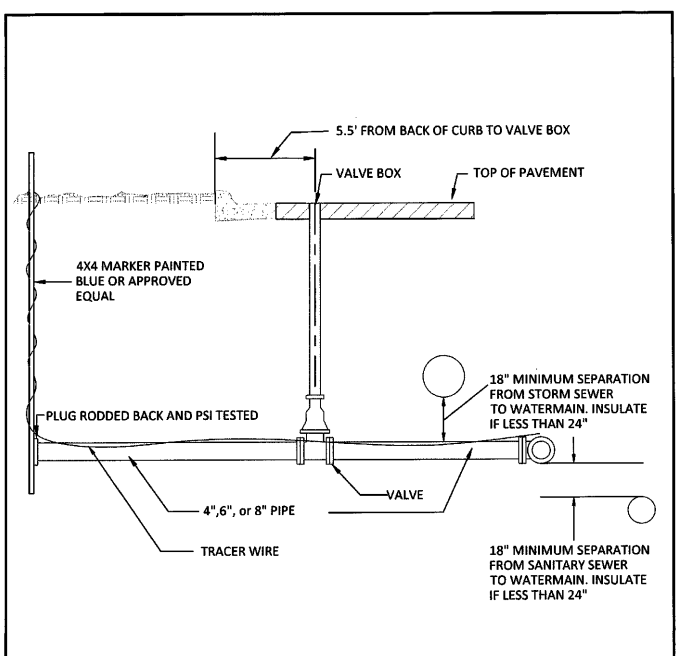
### TABLE A MODIFIED CLASS 5 SPECIFICATIONS

% PASSING

1"	100
3/4"	90 - 100
3/8"	50 - 80
No.4	35 - 70
No.10	20 - 60
No.40	10 - 35
No.200	5 - 10

**NOTES:**  
 1. THE AGGREGATE BASE CONSTRUCTION WILL BE ACCEPTED FOR PAYMENT IN ACCORDANCE WITH THE PROVISIONS IN TABLE A.  
 2. IF THE AGGREGATE BASE FAILS TO MEET THE REQUIREMENTS OF TABLE A THE MATERIAL CAN BE CORRECTED IN PLACE OR REMOVED AND REPLACED WITH MATERIAL THAT MEET THE REQUIREMENTS OF TABLE A.  
 3. IN THE EVENT THAT RECYCLED MATERIAL IS USE IT MUST MEET MNDOT REQUIREMENTS FOR RECYCLED BASE.

APPROVED: 2 - 2003  
 City of RAMSEY  
 STANDARD DETAILS: MODIFIED CLASS 5 SPECIFICATIONS  
 CITY PLATE No. STR-26



**NOTES:**  
 1. SHALL BE BLOCKED OR TIED TO THE MAIN WITH 2-3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.  
 2. 12 GAUGE COPPER CLAD STEEL TRACER WIRE IS REQUIRED WITH ALL WATER LINES (FOR DETAILED INFO, REFER TO MINNESOTA RURAL WATER ASSOCIATION TRACER WIRE SPECIFICATION AT WWW.MRWVA.COM)

APPROVED: 1 - 2024  
 City of RAMSEY  
 STANDARD DETAILS: COMMERCIAL SERVICE  
 CITY PLATE No. WAT-5

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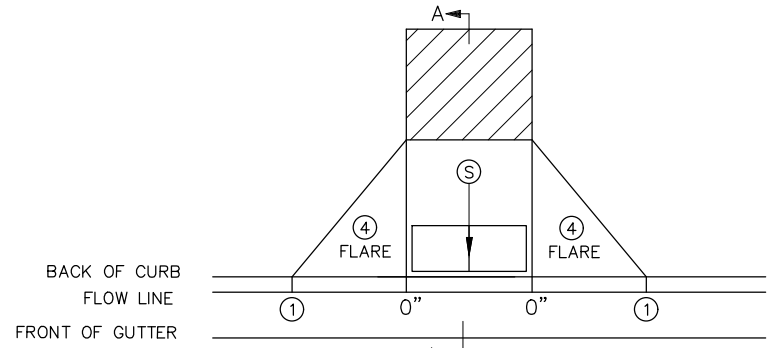
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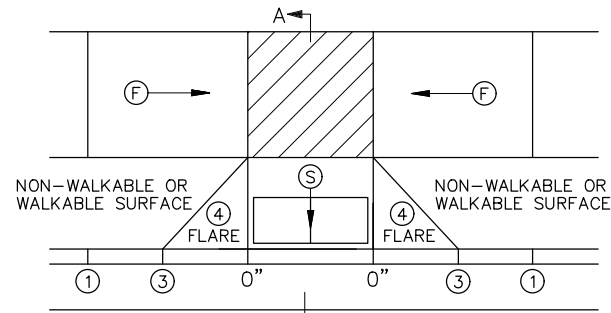
**XKIMO STREET SURFACE  
IMPROVEMENT PROJECT**

**CITY STANDARD PLATES  
CITY OF RAMSEY, MINNESOTA**

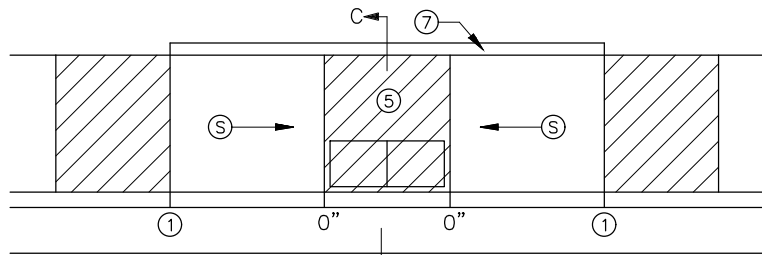
S.A.P. 199-117-002  
 SHEET 6 OF 38 SHEETS  
 RA3188



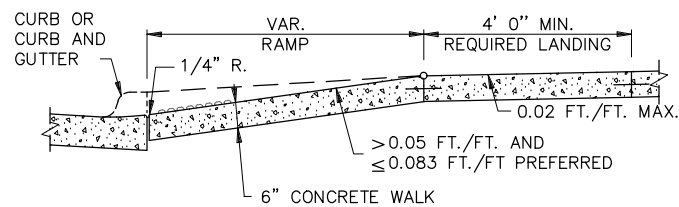
PERPENDICULAR



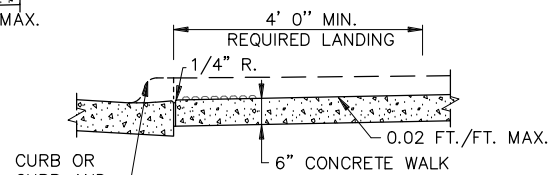
TIERED PERPENDICULAR



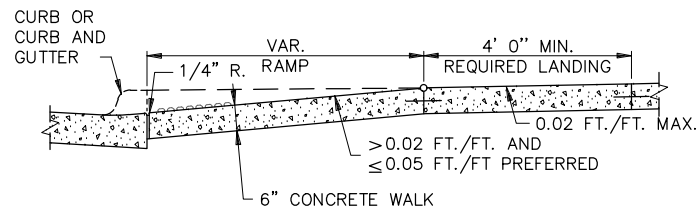
PARALLEL



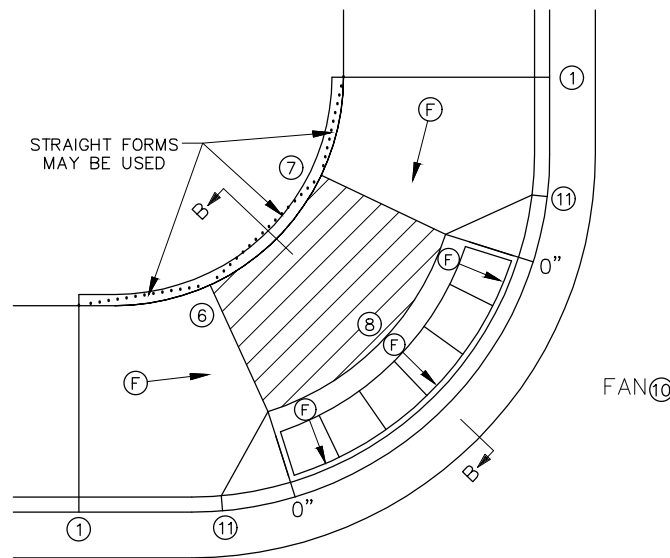
SECTION A-A  
PERPENDICULAR/TIERED/DIAGONAL



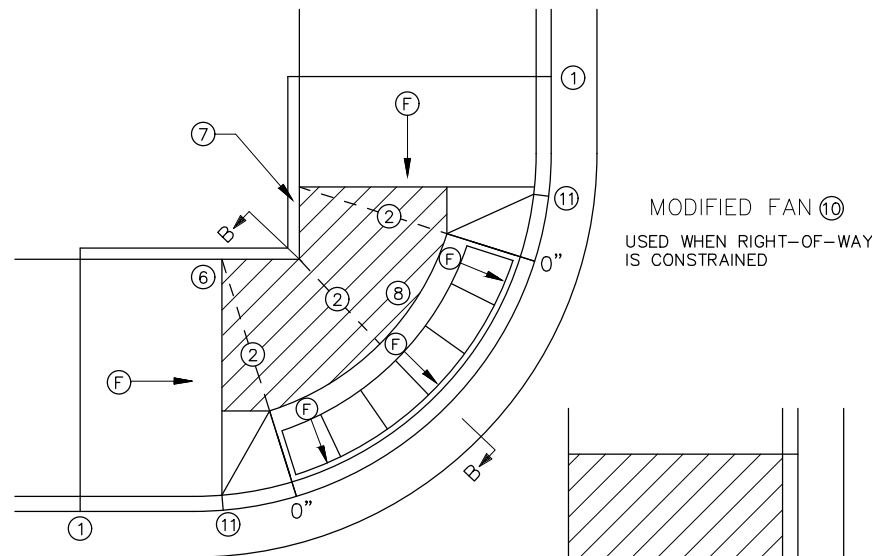
SECTION C-C  
PARALLEL/DEPRESSED CORNER



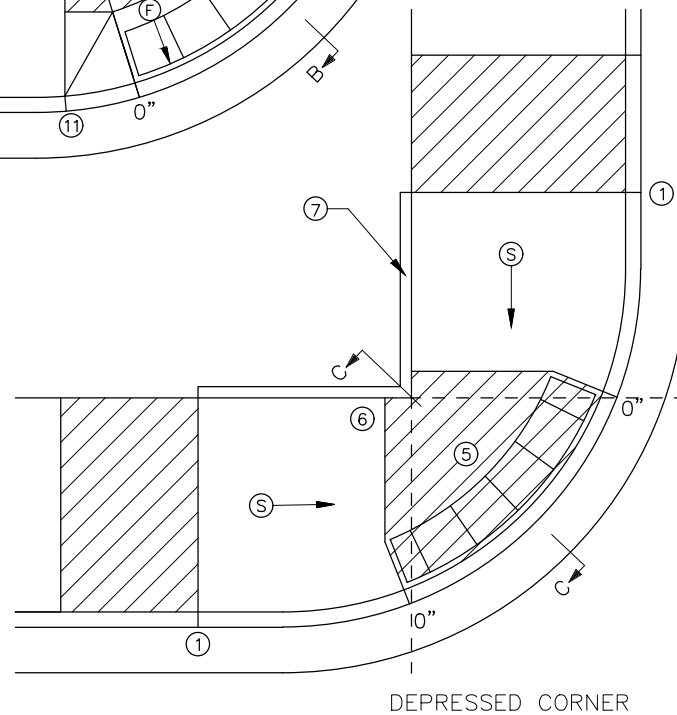
SECTION B-B  
FAN



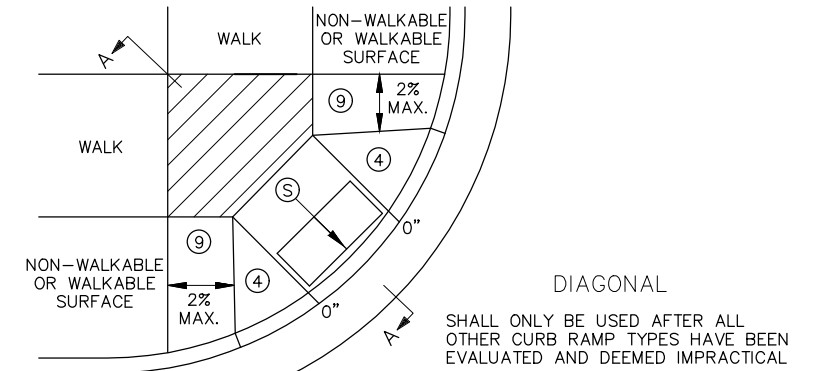
FAN



MODIFIED FAN  
USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



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

NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN (6) BELOW.
- TO ENSURE 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 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.

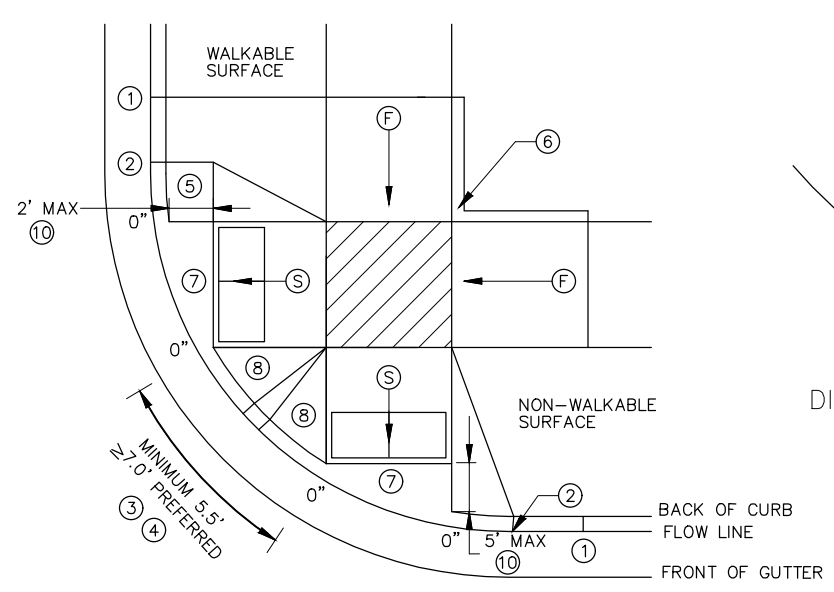
LEGEND	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
(X)	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.
(H)	CURB HEIGHT

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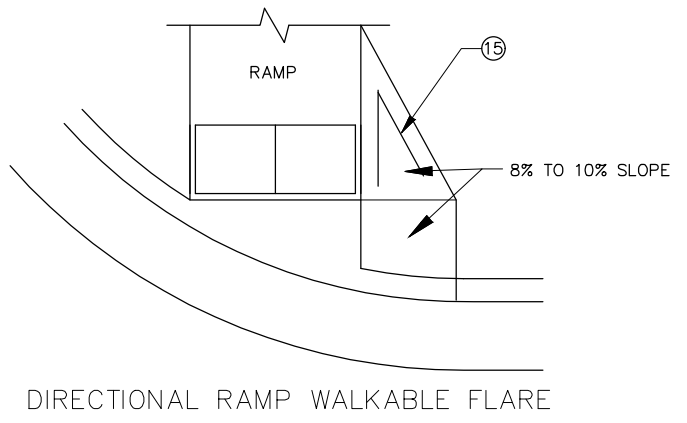
REVISION:  
APPROVED: 11-04-2021  
*Jeffrey J. Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

**m** MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
STANDARD PLAN 5-297.250  
1 OF 6  
APPROVED: 11-04-2021  
REVISOR:  
*Tom S.*  
THOMAS TYRBICKI  
STATE DESIGN ENGINEER  
S.A.P. 199-117-002

PEDESTRIAN CURB RAMP DETAILS

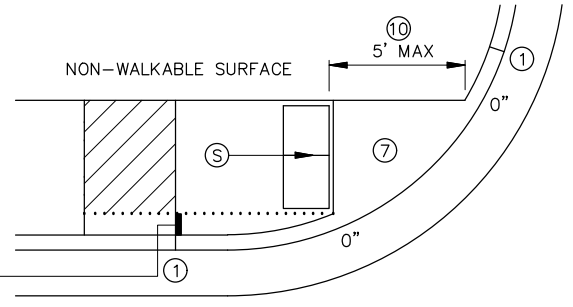


COMBINED DIRECTIONAL

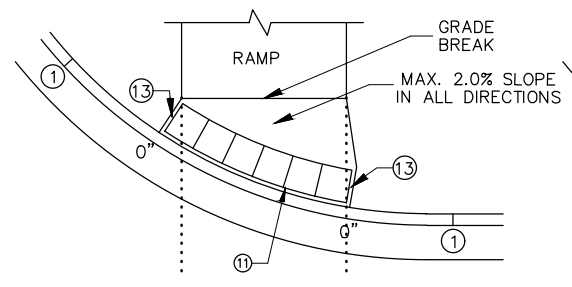


DIRECTIONAL RAMP WALKABLE FLARE

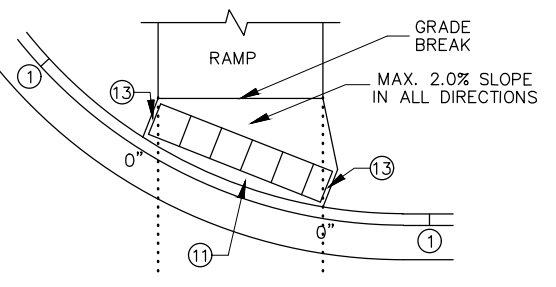
IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.



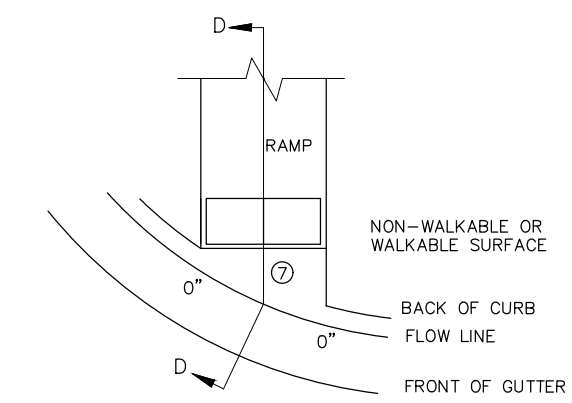
STANDARD ONE-WAY DIRECTIONAL ⑩



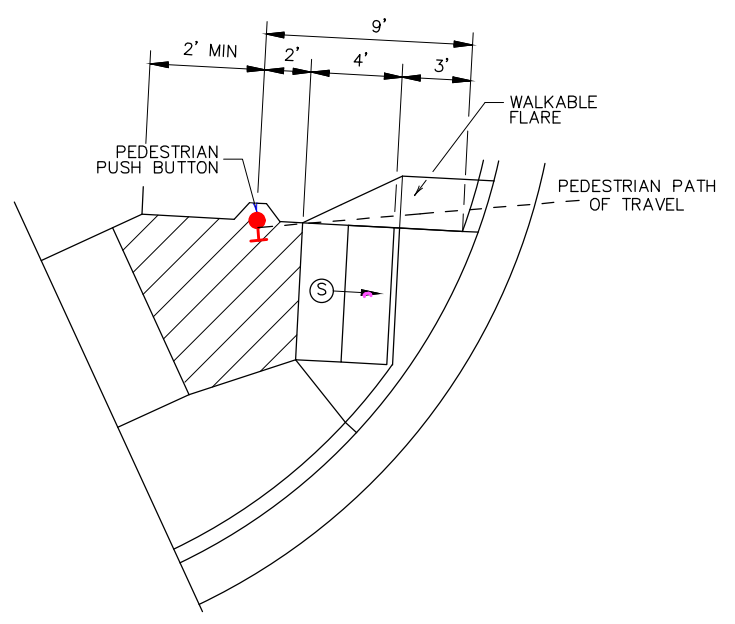
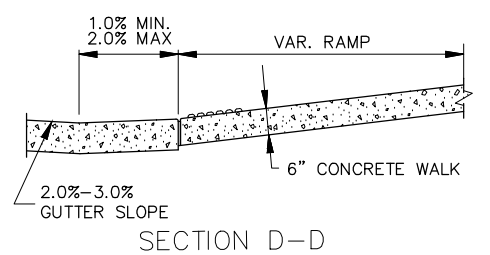
DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫



ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SEMI-DIRECTIONAL RAMP ⑬⑭⑯

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)

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 SETBACK 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

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REVISION:

APPROVED: 11-04-2021

*Jeffrey Perkins*

JEFFREY PERKINS  
OPERATIONS DIVISION

**m** MINNESOTA  
DEPARTMENT OF TRANSPORTATION

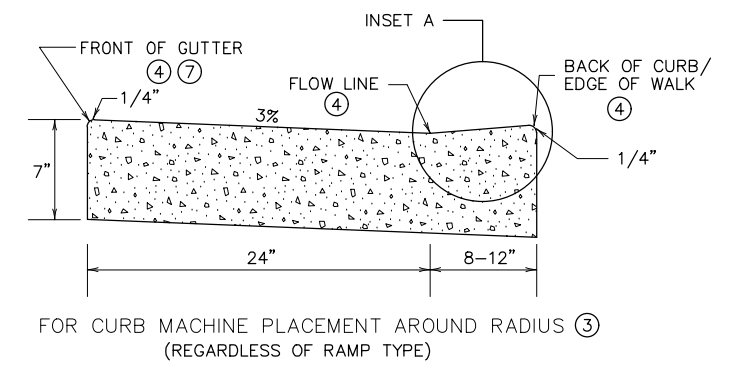
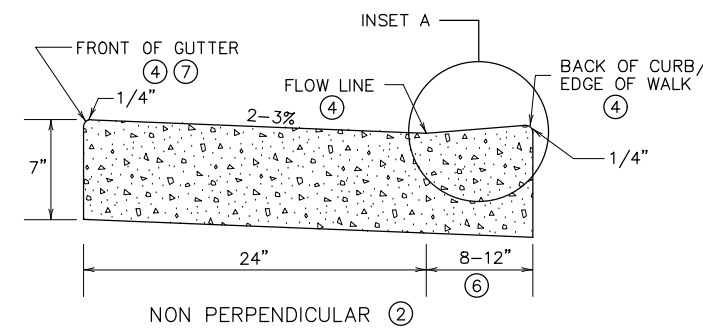
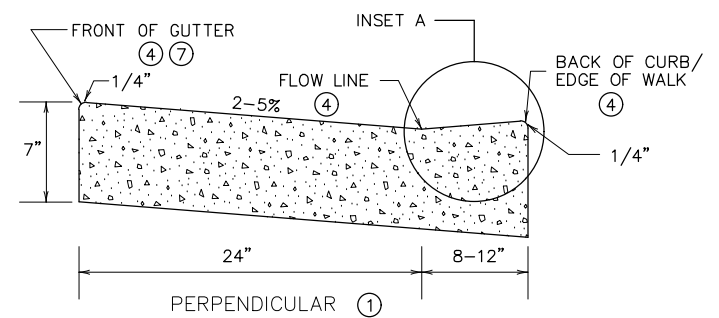
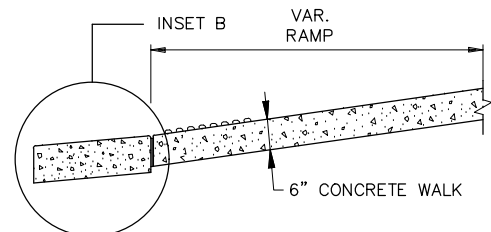
STANDARD PLAN 5-297.250 2 OF 6

*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

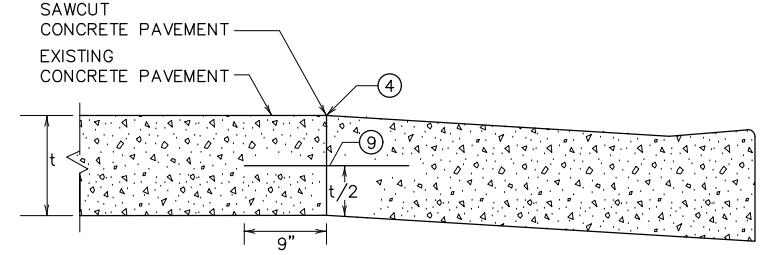
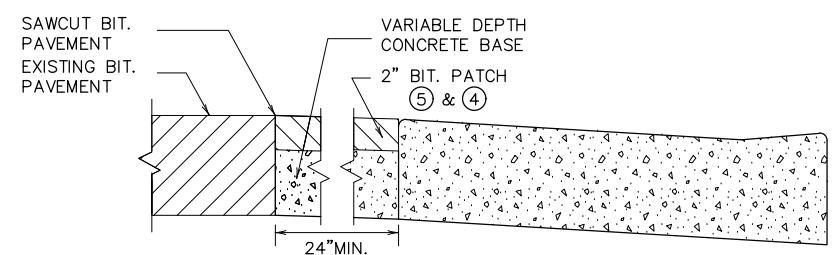
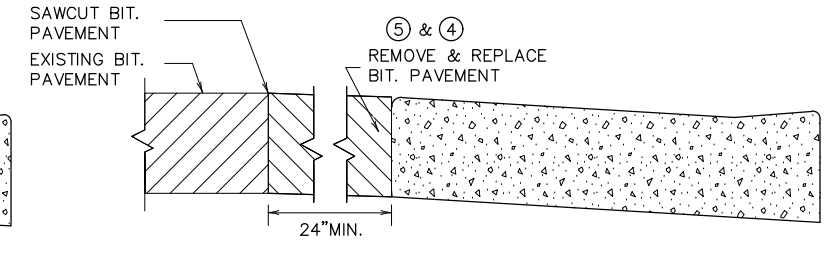
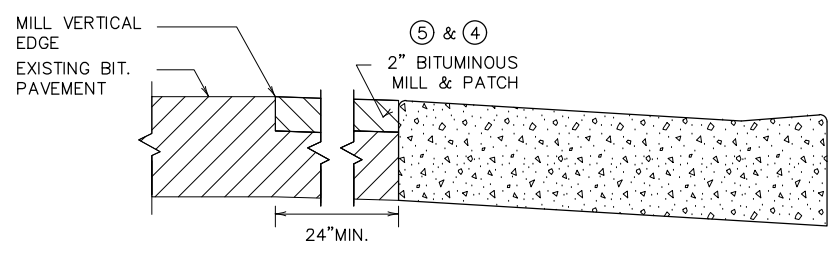
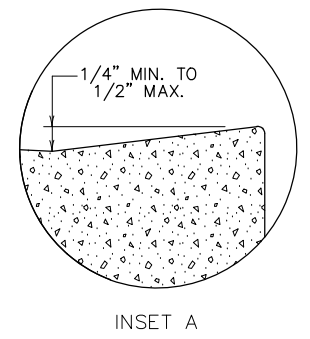
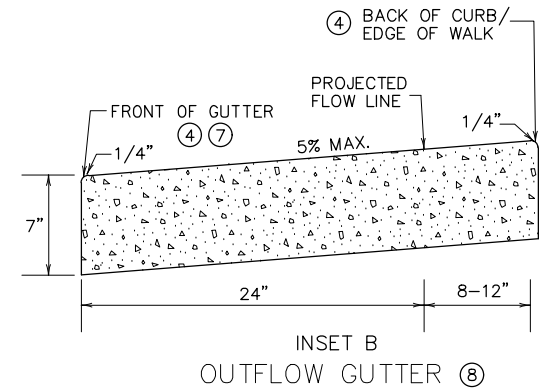
APPROVED: 11-04-2021  
REVISED:

S.A.P. 199-117-002

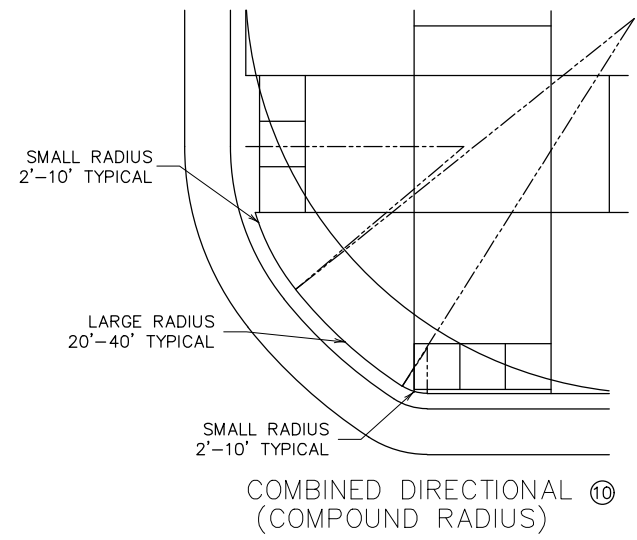
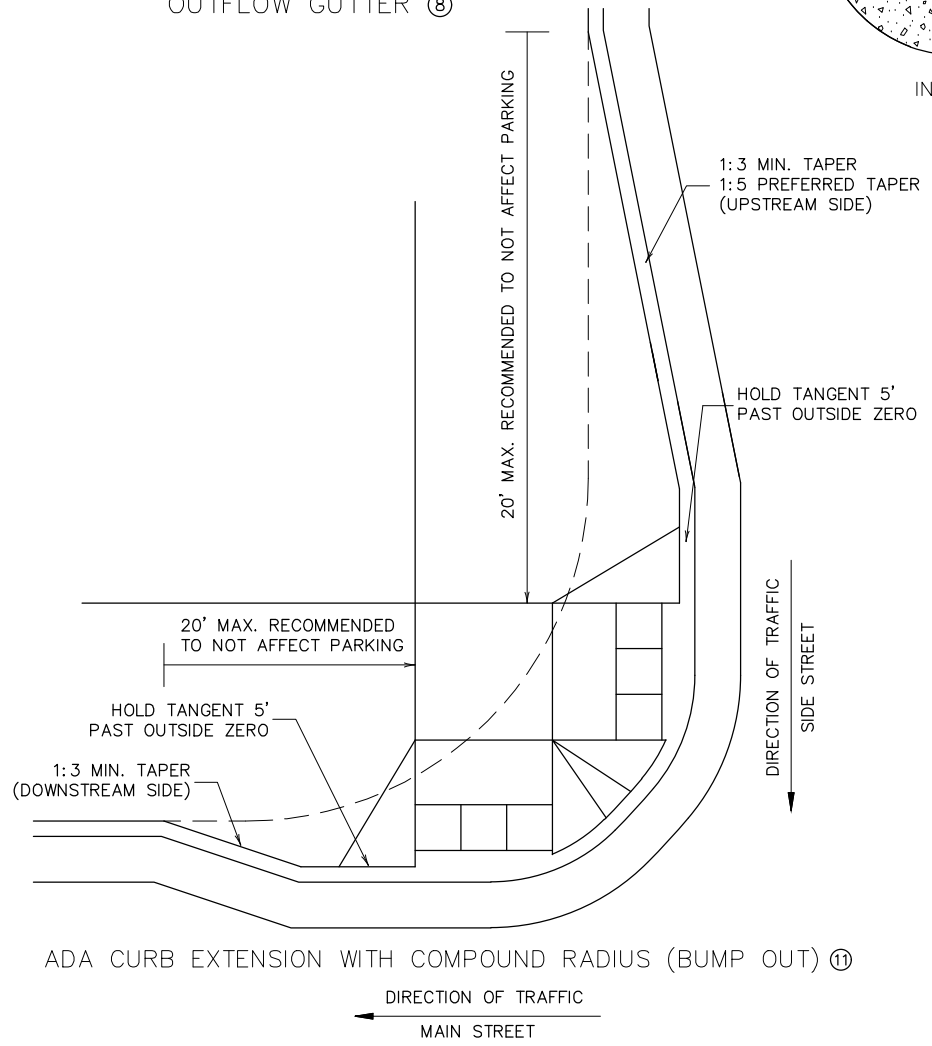
PEDESTRIAN CURB RAMP DETAILS



PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



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



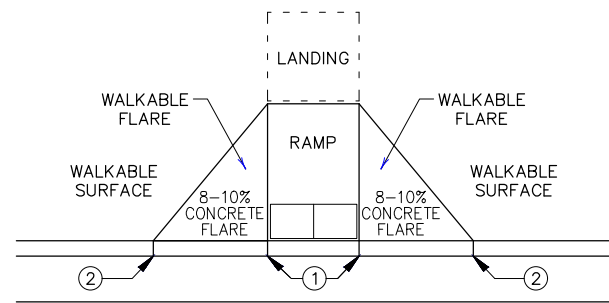
- NOTES:
- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
  - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
  - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF 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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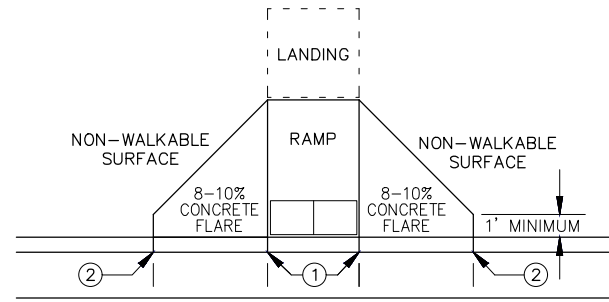
REVISION:  
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**m** MINNESOTA  
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 STANDARD PLAN 5-297.250 3 OF 6  
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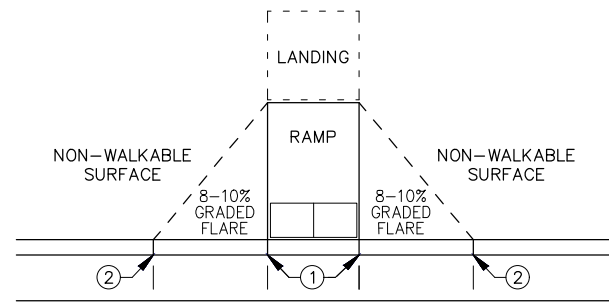
PEDESTRIAN CURB RAMP DETAILS  
 SHEET NO. 9 OF 38 SHEETS



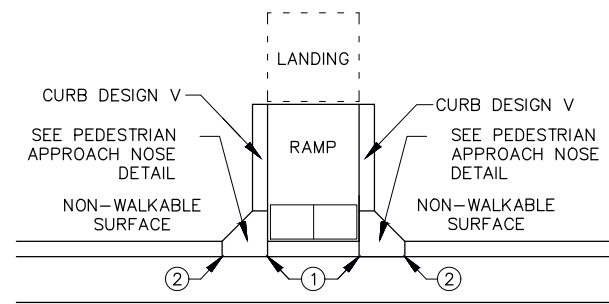
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

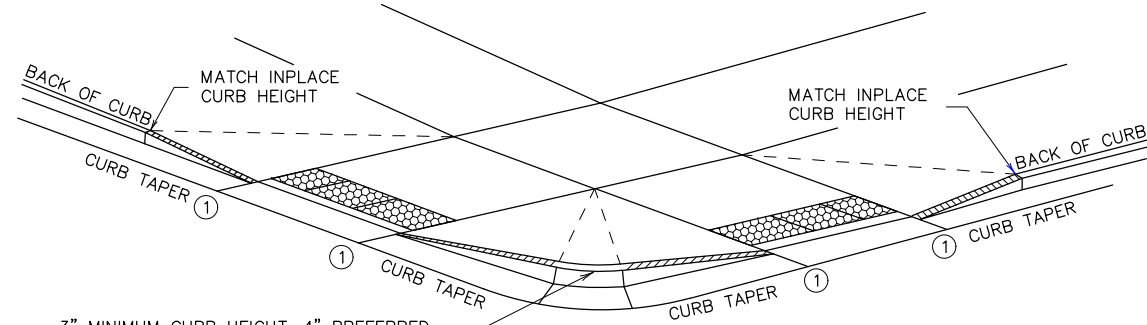


GRADED FLARES



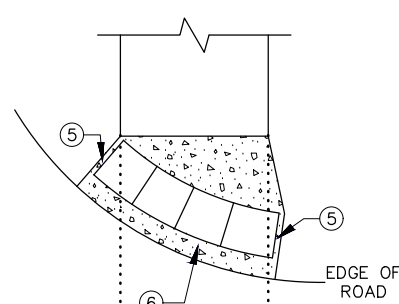
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

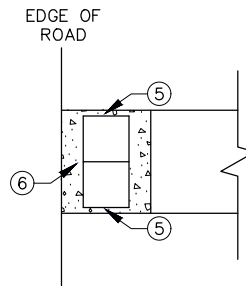


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

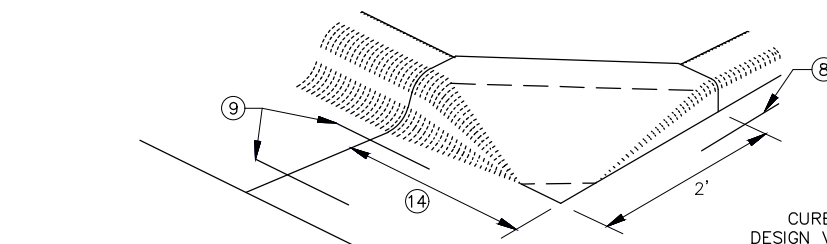


RADIAL DETECTABLE WARNING

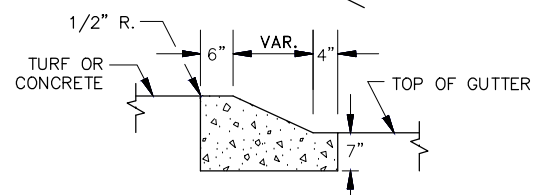


RECTANGULAR DETECTABLE WARNING

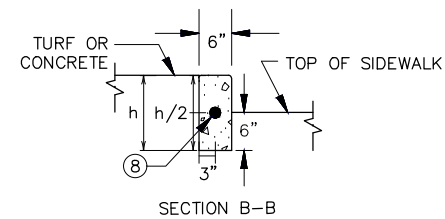
DETECTABLE EDGE WITHOUT CURB AND GUTTER



SECTION A-A

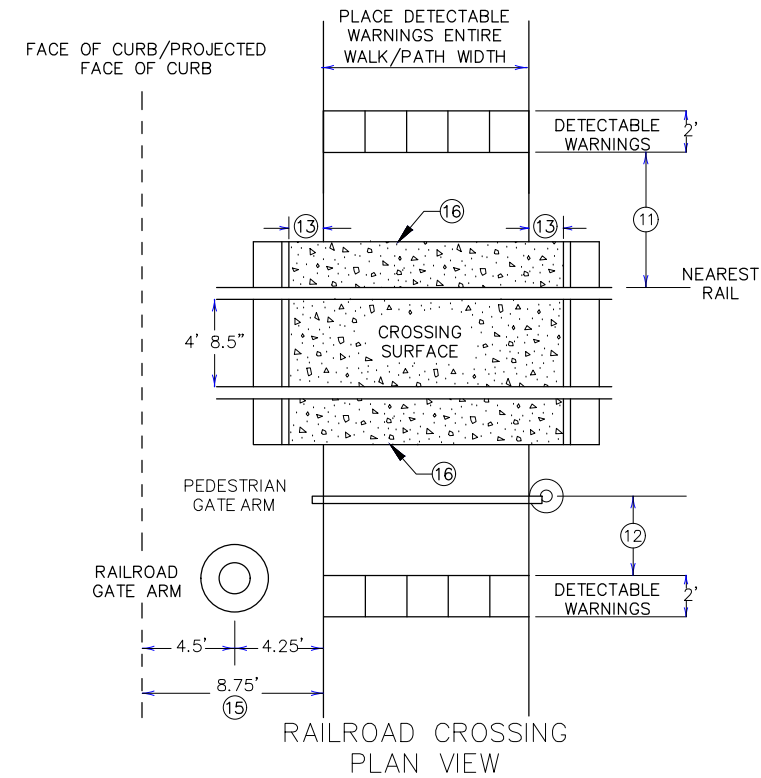


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH NOSE DETAIL  
(FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING  
PLAN VIEW

NOTES:

INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMP 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 TAPER 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.

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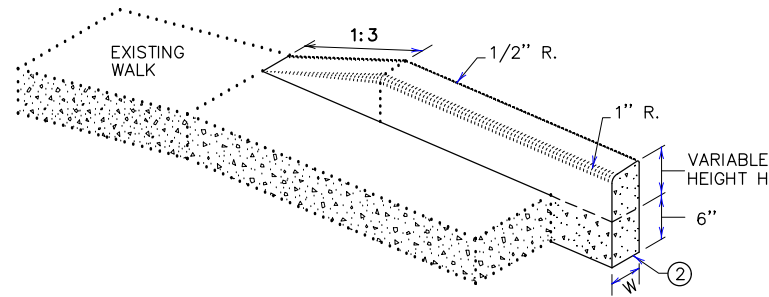
REVISION:  
APPROVED: 11-04-2021  
*Jeffrey Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

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MINNESOTA  
DEPARTMENT  
OF  
TRANSPORTATION

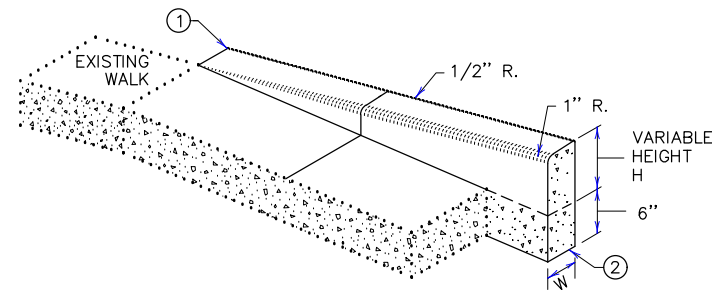
STANDARD PLAN 5-297.250 4 OF 6  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER  
APPROVED: 11-04-2021  
REVISED:  
S.A.P. 199-117-002

PEDESTRIAN CURB RAMP DETAILS

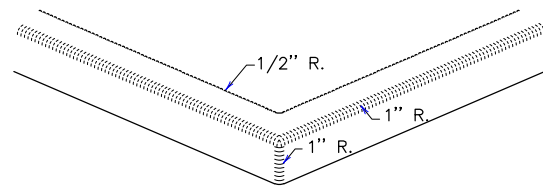
SHEET NO. 10 OF 38 SHEETS



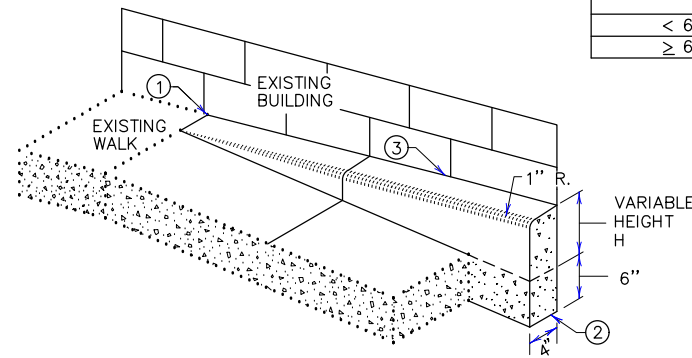
V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

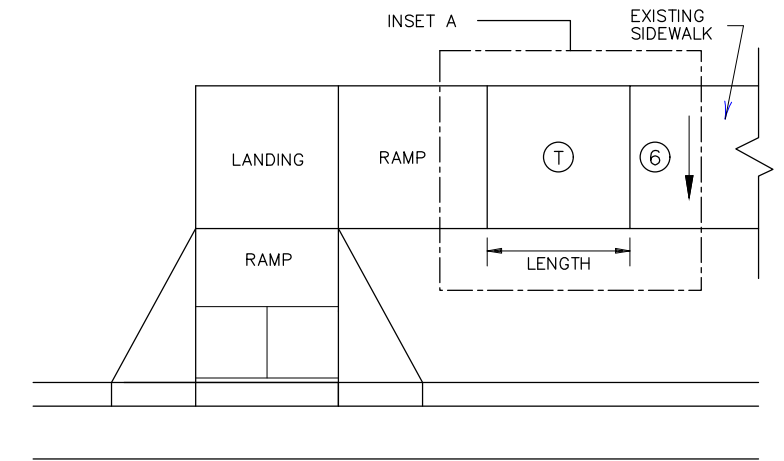


V CURB INTERSECTION

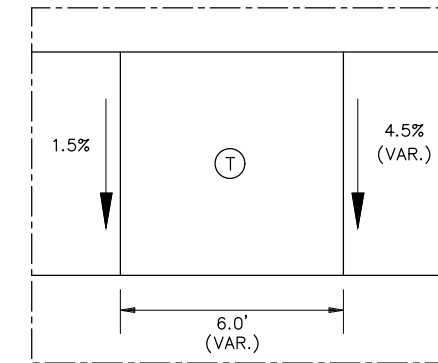


V CURB ADJACENT TO BUILDING  
OR BARRIER

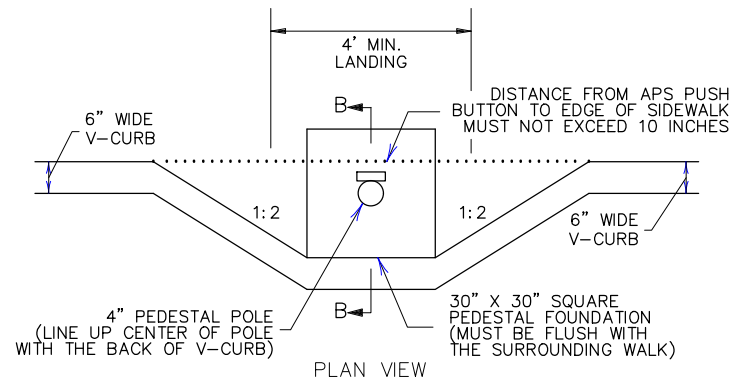
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



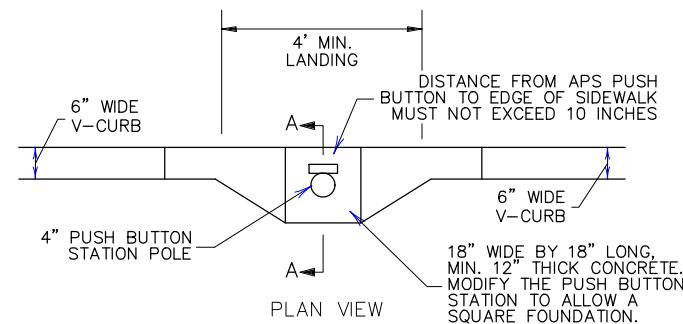
TRANSITION PANEL ④ ⑤



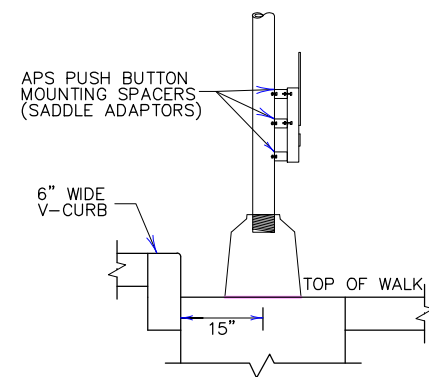
INSET A



PLAN VIEW

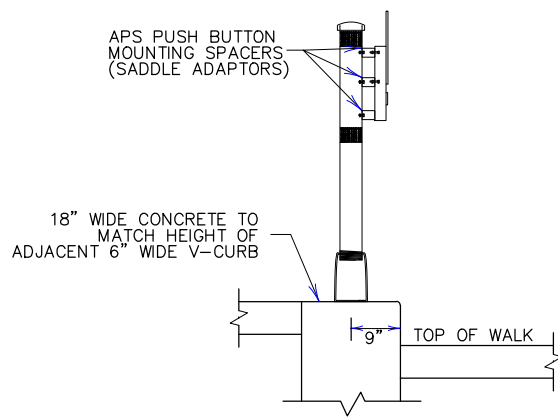


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

- THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
- Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
  - ▨ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
  - Ⓣ TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

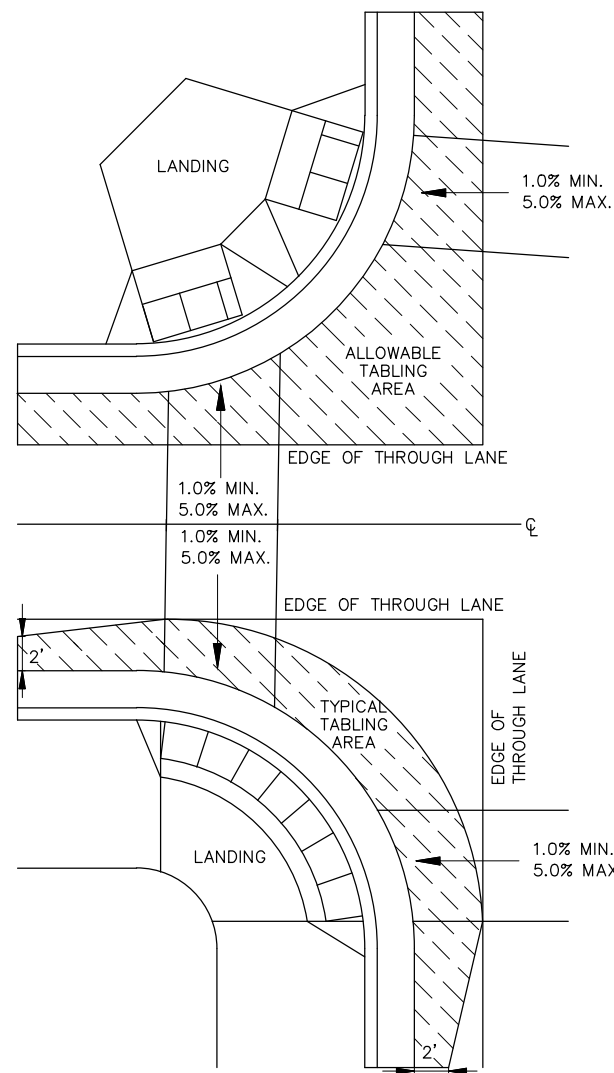
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JEFFREY PERKINS  
OPERATIONS DIVISION

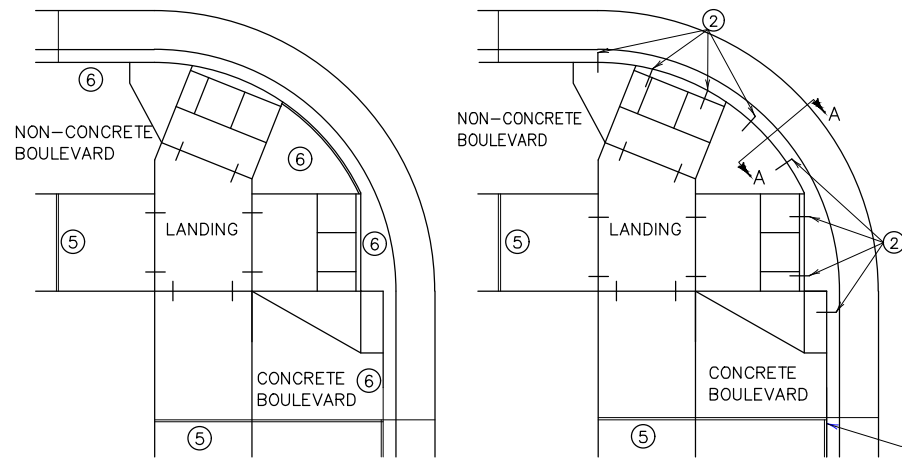
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STANDARD PLAN 5-297.250 5 OF 6  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER  
APPROVED: 11-04-2021  
REVISED:  
S.A.P. 199-117-002

PEDESTRIAN CURB RAMP DETAILS

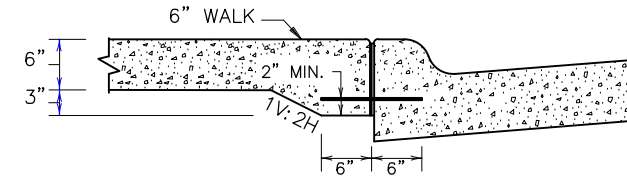


CURB LINE AND ROAD CROSSING ADJUSTMENTS

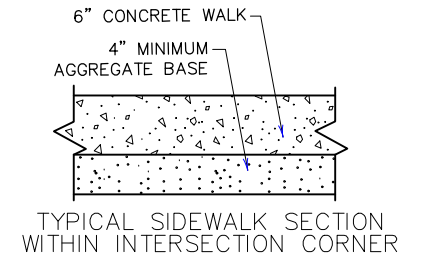


EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS

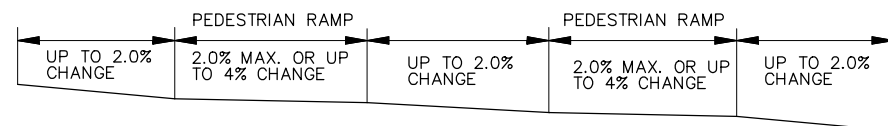
CURB LINE REINFORCEMENT ④ PLACEMENT ON BITUMINOUS ROADWAYS



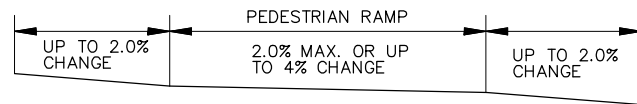
SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES



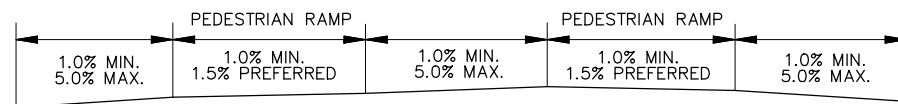
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER



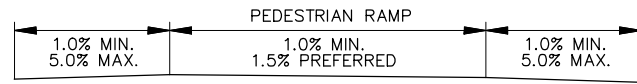
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



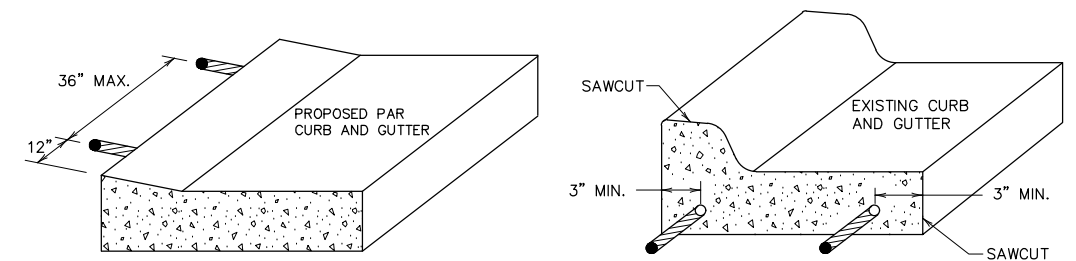
FLOW LINE PROFILE "TABLE" - FAN



FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

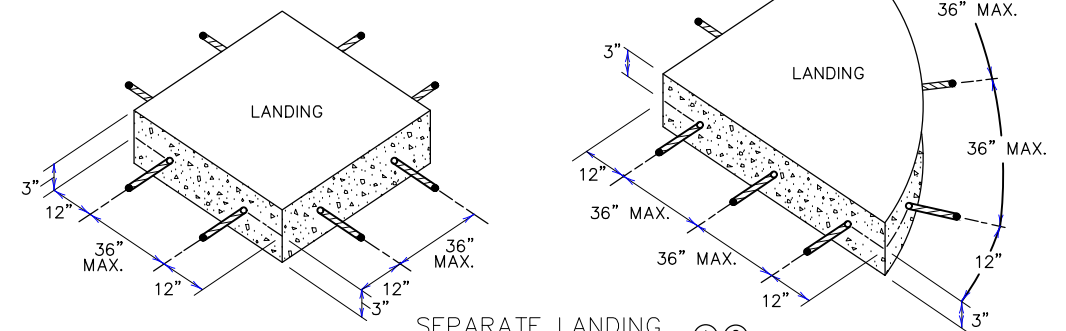


FLOW LINE PROFILE RAISE - FAN



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.

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APPROVED: 11-04-2021

*Jeffrey Perkins*

JEFFREY PERKINS  
OPERATIONS DIVISION

**m** MINNESOTA  
DEPARTMENT OF TRANSPORTATION

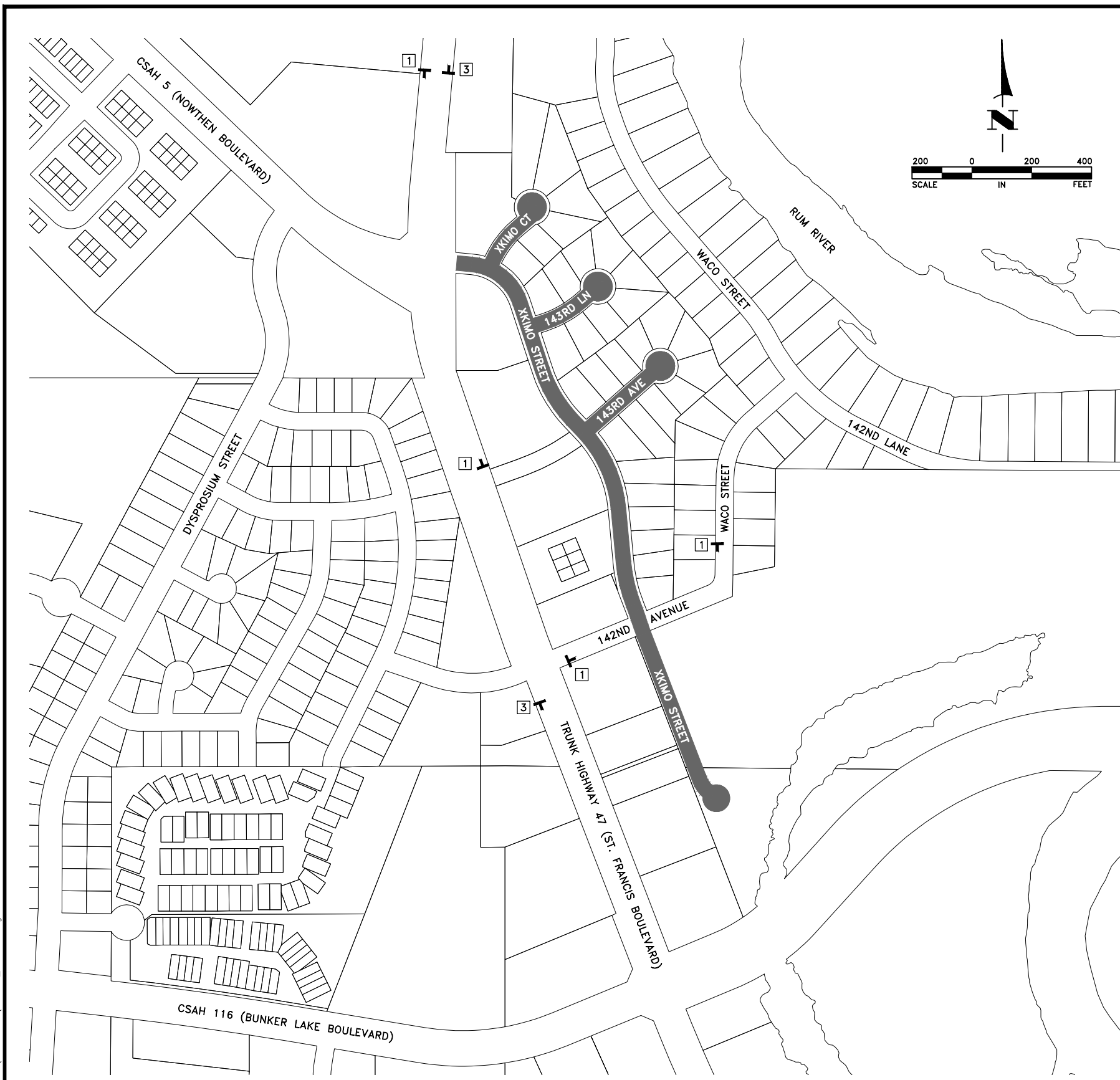
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REVISOR:

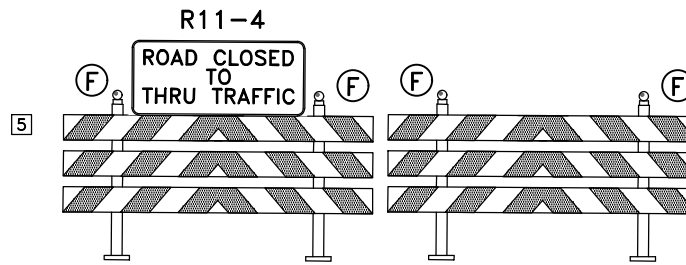
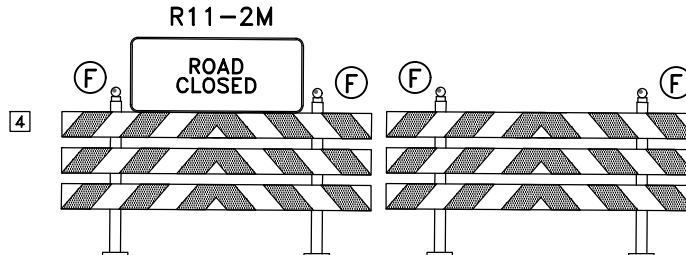
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

S.A.P. 199-117-002

PEDESTRIAN CURB RAMP DETAILS



LEGEND



GENERAL NOTES:

1. ALL TEMPORARY TRAFFIC SIGNS SHOWN ON THIS PLAN SHEET SHALL BE PLACED PRIOR TO THE START OF CONSTRUCTION AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
2. ALL TEMPORARY TRAFFIC CONTROL SIGNS, UNLESS OTHERWISE NOTED, SHALL BE CONSTRUCTED ON TWO PERMANENT POSTS. POSTS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT, OR UNTIL NO LONGER NEEDED, AND ALL DISTURBED AREAS SHALL BE RESTORED.
3. THE TRAFFIC CONTROL SHOWN IS CONSIDERED THE MINIMUM TRAFFIC CONTROL REQUIRED TO COMPLETE THE CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO PROVIDE A SAFE WORK ZONE AT ALL TIMES. THE TRAFFIC CONTROL SHOWN DOES NOT DEPICT TRAFFIC CONTROL THAT IS REQUIRED FOR CONSTRUCTION OF THE BITUMINOUS WEAR COURSE. CONTRACTOR SHALL PROVIDE LAYOUTS FOR APPROVAL BY THE ENGINEER FOR THESE WORK ITEMS. ALL TRAFFIC CONTROL REQUIRED TO COMPLETE THIS PROJECT SHALL BE PAID PER ITEM 2563-TRAFFIC CONTROL.
4. ALL CONTRACTOR TRAFFIC WITHIN THE CITY OF RAMSEY SHALL BE LIMITED TO THE PROJECT AREA, DESIGNATED HAUL ROUTES, APPROVED CITY COLLECTOR STREETS OR COUNTY AND STATE HIGHWAYS.
5. ALL SIGNS SHALL BE REMOVED WITHIN 24 HOURS AFTER THEY ARE NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
6. ORANGE SAFETY FENCE SHALL BE CONSTRUCTED AS NEEDED AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR THE FENCE SHALL BE PER ITEM 2572-TEMPORARY FENCE.
7. FULL ACCESS AT ALL DRIVEWAYS SHALL BE MAINTAINED AND REMAIN FULLY OPERATIONAL AT ALL TIMES. DRIVEWAYS WITHIN THE WORK ZONE MAY BE CLOSED FOR A SHORT PERIOD OF TIME FOR REMOVALS AND PAVEMENT CONSTRUCTION. CLOSURE OF ALL DRIVEWAYS SHALL BE COORDINATED WITH THE PROPERTY OWNER AND CITY. AFTER REMOVAL OF THE PAVEMENT ADJACENT TO THE DRIVEWAYS IN THE WORK ZONE, THE CONTRACTOR SHALL IMMEDIATELY RAMP THE MATCH POINTS WITH BITUMINOUS MILLINGS. ALL LABOR, MATERIAL AND WORK REQUIRED TO MAINTAIN ACCESS SHALL BE INCIDENTAL.
8. CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY PEDESTRIAN ACCESS ROUTE DEVICES, INCLUDING BUT NOT LIMITED TO PEDESTRIAN CHANNELIZERS AND PEDESTRIAN RAILING SYSTEMS, SIDEWALK BARRICADES, TEMPORARY WALKWAY SURFACES, DETECTABLE WARNING SURFACES, AUDIBLE MESSAGE DEVICES, CURB RAMPS, CHANNELIZERS AND ALL REQUIRED SIGNAGE TO MEET ALL REQUIREMENTS OF THE NOVEMBER 2005 VERSION OF THE PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES, THE LATEST VERSION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL-PART 6 AND THE AMERICANS WITH DISABILITIES ACT. THE CONTRACTOR SHALL PROVIDE TEMPORARY PEDESTRIAN ACCESS ROUTE LAYOUTS AND DETOURS FOR ANY PROPOSED SIDEWALK OR TRAIL CLOSURES. ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO MAINTAIN PEDESTRIAN ACCESS ROUTES SHALL BE INCIDENTAL TO ITEM 2563-ALTERNATE PEDESTRIAN ROUTE.

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DATE	REVISION

I hereby certify that this plan, specification, or report 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.

*Shane M. Nelson*  
 SHANE M. NELSON, P.E.  
 Date 4/12/24 Lic. No. 43381

DESIGNED BY: TAE  
 DRAWN BY: TAE  
 CHECKED BY: SMN

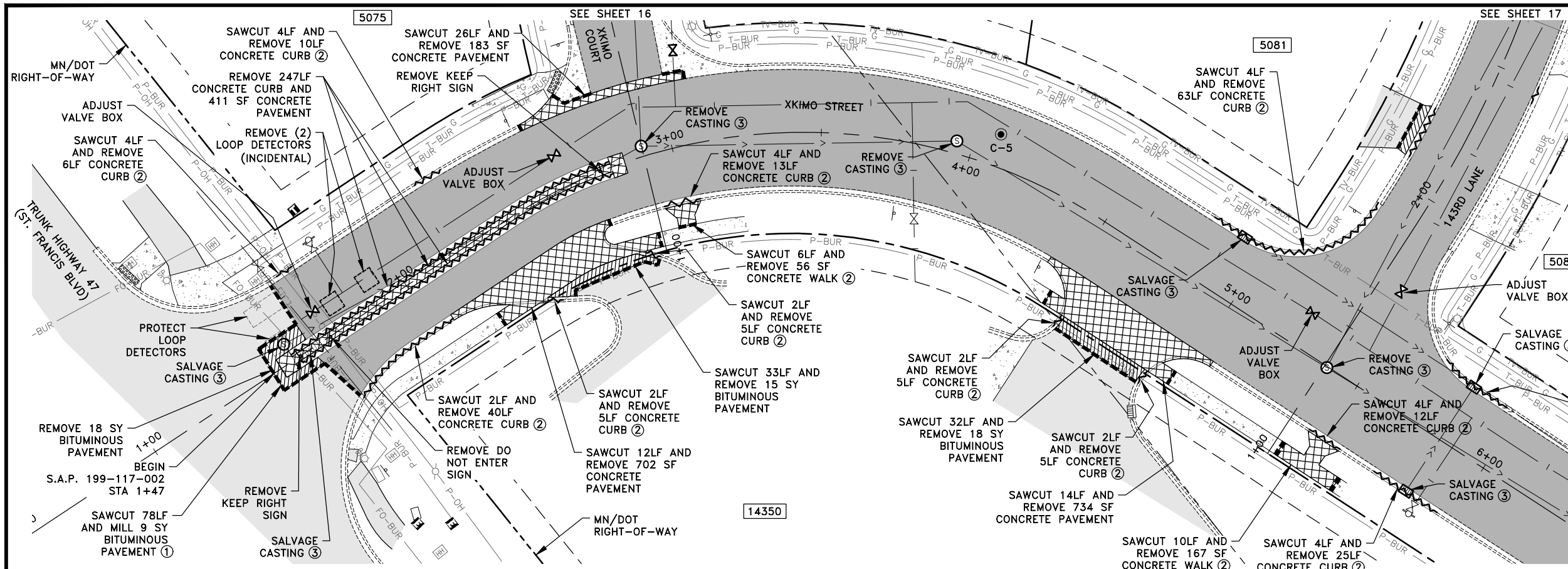


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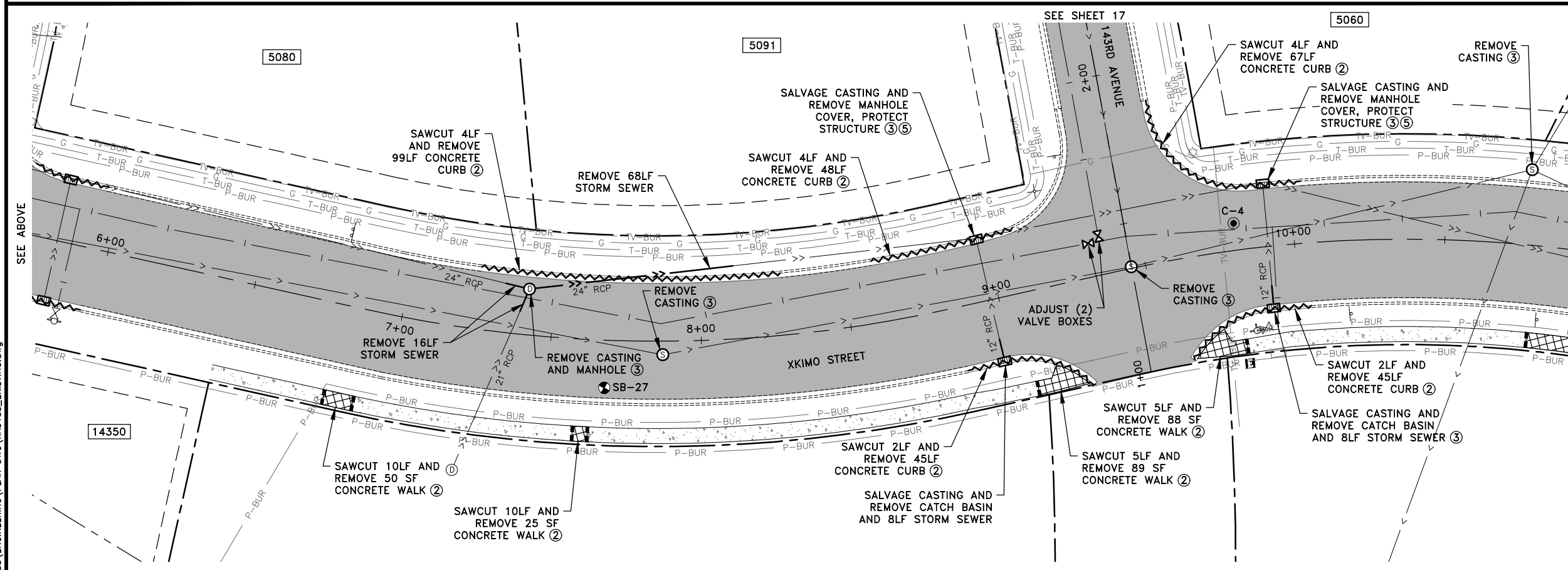
**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**TRAFFIC CONTROL PLAN**  
 CITY OF RAMSEY, MINNESOTA

S.A.P. 199-117-002  
 SHEET 13 OF 38 SHEETS  
 RA3188



- GENERAL NOTES:  
 1. CONTRACTOR SHALL CLEAN LEAVES AND DEBRIS OUT OF ALL CATCH BASINS. THIS WORK SHALL BE PAID PER ITEM 2506-CLEAN OUT CATCH BASIN.
- REFERENCE NOTES:  
 ① SAWING AND MILLING BITUMINOUS PAVEMENT SHALL BE PER ②/④.  
 ② SAWCUTTING CURB AND CONCRETE WALK SHALL BE PAID PER ITEM 2104-SAWING CONCRETE PAVEMENT-FULL DEPTH.  
 ③ REMOVE ADJUSTING RINGS. THIS WORK SHALL BE INCIDENTAL.  
 ④ CONCRETE WALK AND PAVEMENT REMOVAL SHALL BE PAID PER ITEM 2104-REMOVE CONCRETE WALK.  
 ⑤ REMOVAL OF THE MANHOLE COVER SHALL BE PAID PER ITEM 2104-REMOVE CONCRETE STRUCTURE.  
 ⑥ CONTRACTOR SHALL HAUL AND PLACE 3.5" OR 4.5" OF FULL DEPTH RECLAMATION MATERIAL TO THE PUBLIC WORKS SITE LOCATED AT 14210 JASPER STREET NW. THIS WORK SHALL BE PAID PER ITEM 2215-HAUL FULL DEPTH RECLAMATION. CONTRACTOR SHALL THEN SALVAGE THE REMAINING FULL DEPTH RECLAMATION MATERIAL, SCARIFY AND COMPACT 12" OF SUBGRADE MATERIAL AND REPLACE THE FULL DEPTH RECLAMATION MATERIAL. THIS WORK SHALL BE PAID PER ITEM 2112-SUBGRADE PREPARATION.



- LEGEND
- EXISTING BITUMINOUS PAVEMENT
  - EXISTING CONCRETE PAVEMENT
  - FULL DEPTH RECLAMATION ⑥
  - REMOVE BITUMINOUS PAVEMENT
  - REMOVE CONCRETE WALK/PAVEMENT ④
  - CURB REMOVAL

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DATE	REVISION

I hereby certify that this plan, specification, or report 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.

*Shane M. Nelson*  
 SHANE M. NELSON, P.E.  
 Date 4/12/24 Lic. No. 43381

DESIGNED BY: TAE  
 DRAWN BY: TAE  
 CHECKED BY: SMN



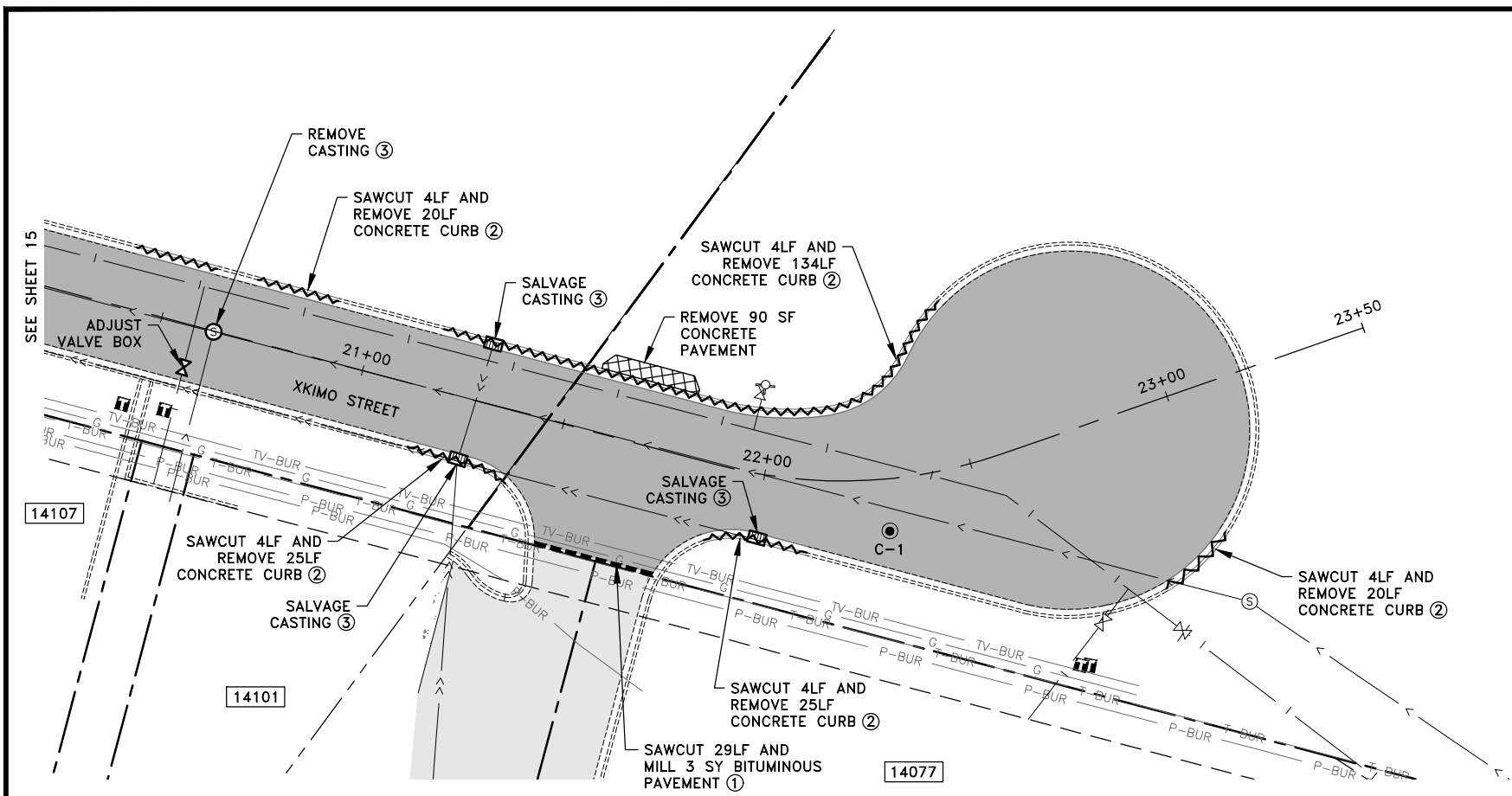
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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

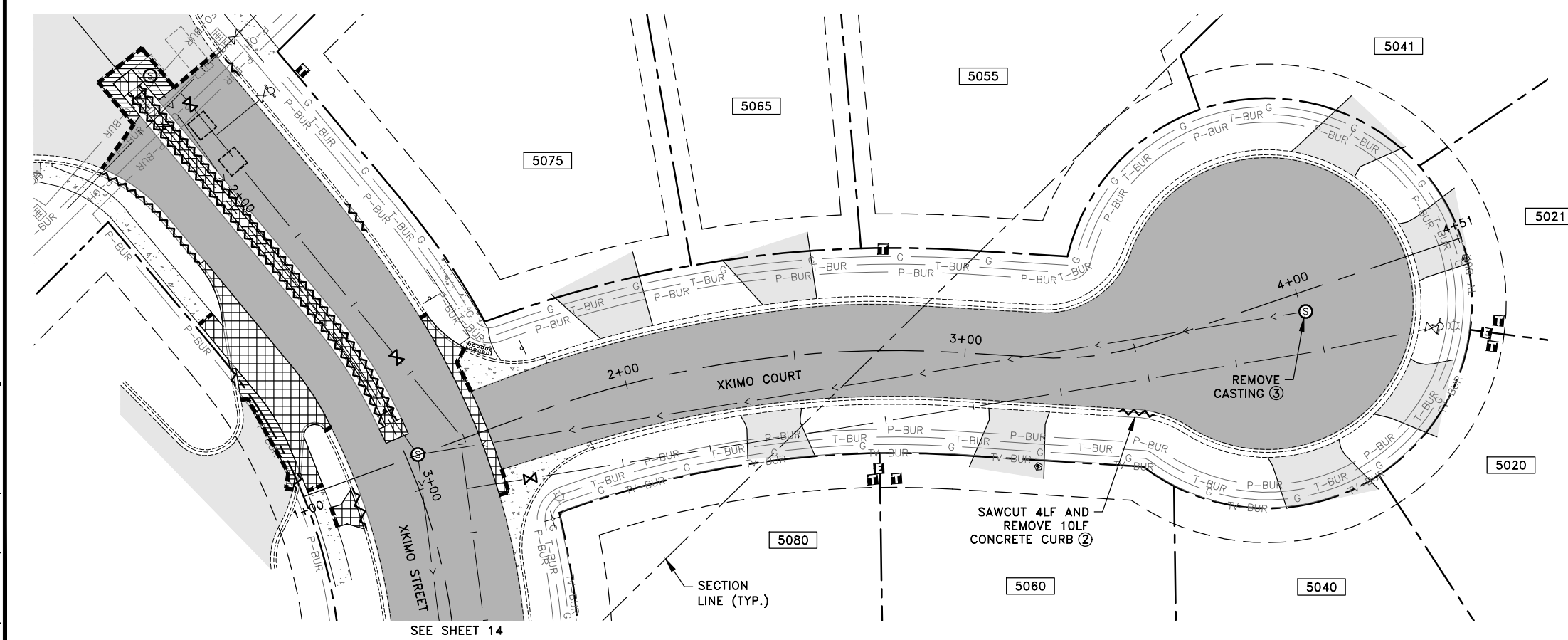
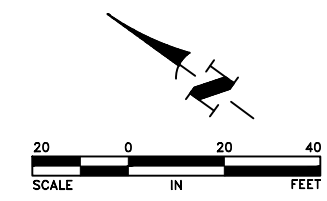
**EXISTING CONDITIONS AND REMOVALS PLAN**  
 XKIMO STREET  
 CITY OF RAMSEY, MINNESOTA

SHEET 14 OF 38 SHEETS  
 RA3188

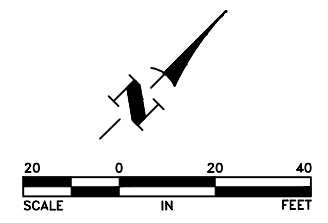




- GENERAL NOTES:
- CONTRACTOR SHALL CLEAN LEAVES AND DEBRIS OUT OF ALL CATCH BASINS. THIS WORK SHALL BE PAID PER ITEM 2506--CLEAN OUT CATCH BASIN.
- REFERENCE NOTES:
- SAWING AND MILLING BITUMINOUS PAVEMENT SHALL BE PER ②/④.
  - SAWCUTTING CURB SHALL BE PAID PER ITEM 2104--SAWING CONCRETE PAVEMENT--FULL DEPTH.
  - REMOVE ADJUSTING RINGS. THIS WORK SHALL BE INCIDENTAL.
  - CONCRETE WALK AND PAVEMENT REMOVAL SHALL BE PAID PER ITEM 2104--REMOVE CONCRETE WALK.
  - CONTRACTOR SHALL HAUL AND PLACE 3.5" OR 4.5" OF FULL DEPTH RECLAMATION MATERIAL TO THE PUBLIC WORKS SITE LOCATED AT 14210 JASPER STREET NW. THIS WORK SHALL BE PAID PER ITEM 2215--HAUL FULL DEPTH RECLAMATION. CONTRACTOR SHALL THEN SALVAGE THE REMAINING FULL DEPTH RECLAMATION MATERIAL, SCARIFY AND COMPACT 12" OF SUBGRADE MATERIAL AND REPLACE THE FULL DEPTH RECLAMATION MATERIAL. THIS WORK SHALL BE PAID PER ITEM 2112--SUBGRADE PREPARATION.



- LEGEND
- EXISTING BITUMINOUS PAVEMENT
  - EXISTING CONCRETE PAVEMENT
  - FULL DEPTH RECLAMATION ⑤
  - REMOVE BITUMINOUS PAVEMENT
  - REMOVE CONCRETE WALK/PAVEMENT ④
  - CURB REMOVAL



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*Shane M. Nelson*  
 SHANE M. NELSON, P.E.  
 Date 4/12/24 Lic. No. 43381

DESIGNED BY: TAE  
 DRAWN BY: TAE  
 CHECKED BY: SMN

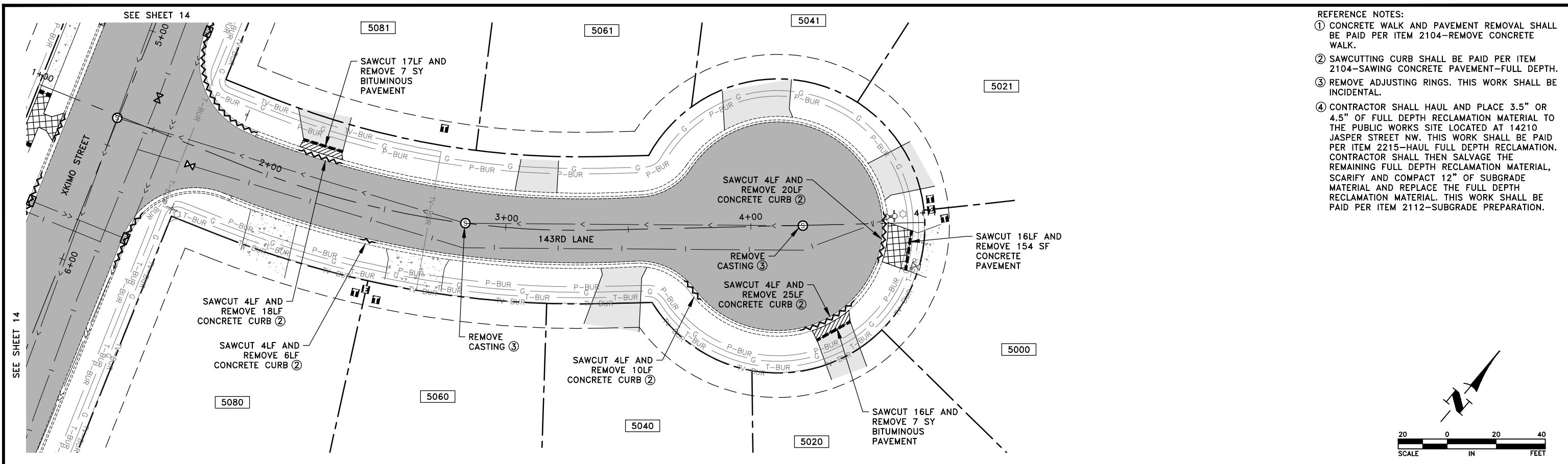


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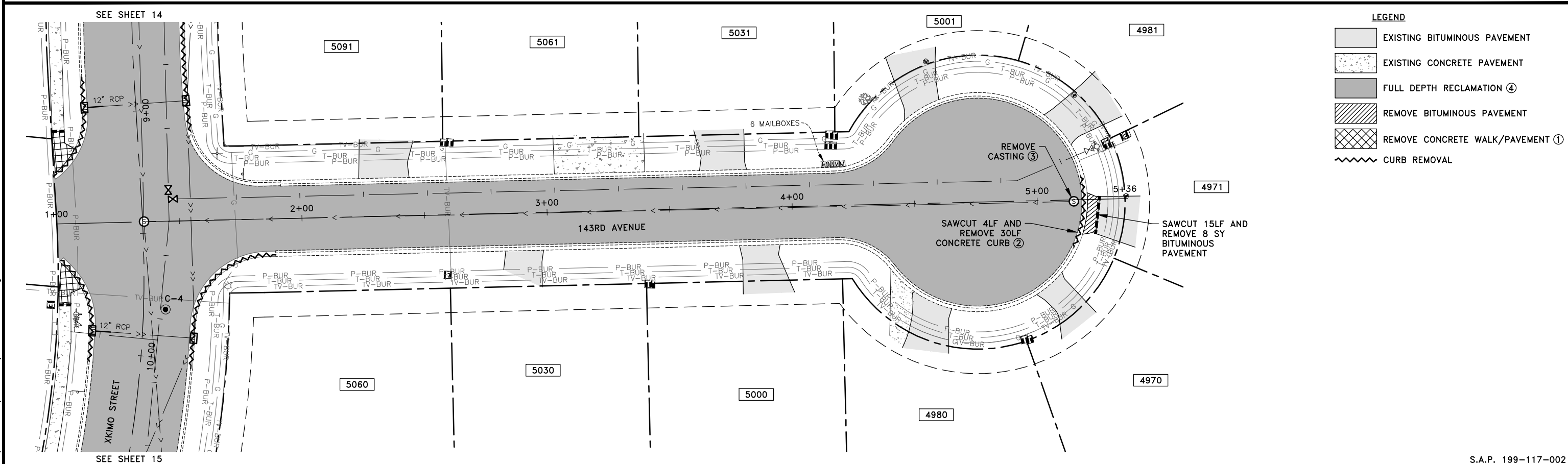
**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**EXISTING CONDITIONS AND REMOVALS PLAN**  
 XKIMO STREET AND XKIMO COURT  
 CITY OF RAMSEY, MINNESOTA

SHEET 16 OF 38 SHEETS  
 S.A.P. 199-117-002



- REFERENCE NOTES:
- ① CONCRETE WALK AND PAVEMENT REMOVAL SHALL BE PAID PER ITEM 2104-REMOVE CONCRETE WALK.
  - ② SAWCUTTING CURB SHALL BE PAID PER ITEM 2104-SAWING CONCRETE PAVEMENT-FULL DEPTH.
  - ③ REMOVE ADJUSTING RINGS. THIS WORK SHALL BE INCIDENTAL.
  - ④ CONTRACTOR SHALL HAUL AND PLACE 3.5" OR 4.5" OF FULL DEPTH RECLAMATION MATERIAL TO THE PUBLIC WORKS SITE LOCATED AT 14210 JASPER STREET NW. THIS WORK SHALL BE PAID PER ITEM 2215-HAUL FULL DEPTH RECLAMATION. CONTRACTOR SHALL THEN SALVAGE THE REMAINING FULL DEPTH RECLAMATION MATERIAL, SCARIFY AND COMPACT 12" OF SUBGRADE MATERIAL AND REPLACE THE FULL DEPTH RECLAMATION MATERIAL. THIS WORK SHALL BE PAID PER ITEM 2112-SUBGRADE PREPARATION.



**LEGEND**

- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT
- FULL DEPTH RECLAMATION ④
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE WALK/PAVEMENT ①
- CURB REMOVAL

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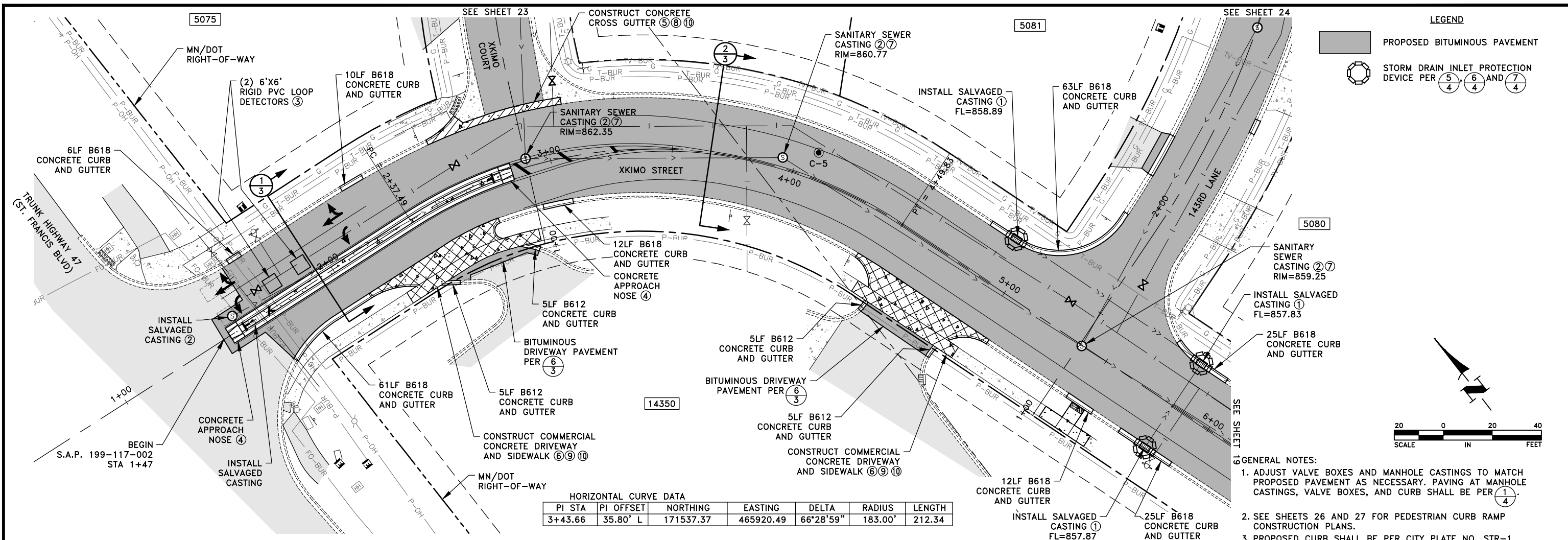


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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

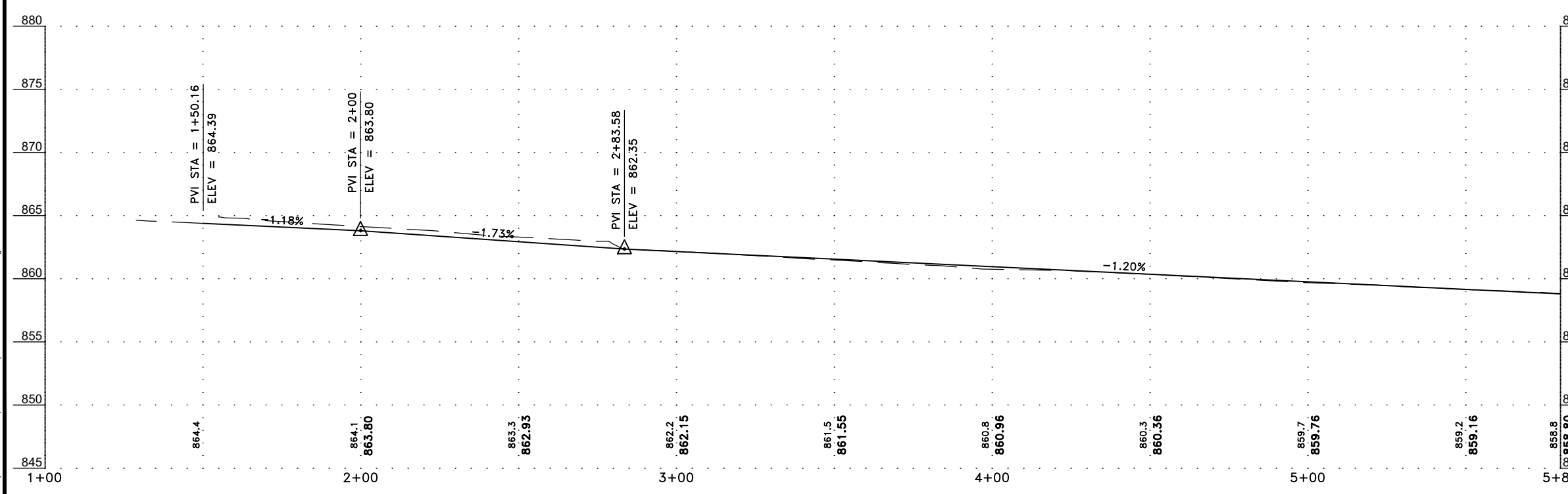
**EXISTING CONDITIONS AND REMOVALS PLAN**  
 143RD LANE AND 143RD AVENUE  
 CITY OF RAMSEY, MINNESOTA

S.A.P. 199-117-002  
 SHEET 17 OF 38 SHEETS  
 RA3188



HORIZONTAL CURVE DATA

PI STA	PI OFFSET	NORTHING	EASTING	DELTA	RADIUS	LENGTH
3+43.66	35.80' L	171537.37	465920.49	66°28'59"	183.00'	212.34



- GENERAL NOTES:
- ADJUST VALVE BOXES AND MANHOLE CASTINGS TO MATCH PROPOSED PAVEMENT AS NECESSARY. PAVING AT MANHOLE CASTINGS, VALVE BOXES, AND CURB SHALL BE PER (1)(4).
  - SEE SHEETS 26 AND 27 FOR PEDESTRIAN CURB RAMP CONSTRUCTION PLANS.
  - PROPOSED CURB SHALL BE PER CITY PLATE NO. STR-1.
  - CONTRACTOR SHALL GROUT THE INVERTS AND DOGHOUSES OF ALL STORM MANHOLES AND CATCH BASINS. THIS WORK SHALL BE PAID PER ITEM 2506-GROUT CATCH BASIN OR MANHOLE.
  - CONCRETE WALK SHALL BE CONSTRUCTED PER CITY PLATE NO. STR-3.
- REFERENCE NOTES:
- PLACE CASTING WITH CONCRETE ADJUSTING RINGS. CONTRACTOR SHALL USE STANDARD AVAILABLE RING THICKNESSES THAT MINIMIZE THE NUMBER OF RINGS REQUIRED. WRAP OUTSIDE OF THE RINGS WITH A WATERTIGHT PRODUCT AND GROUT THE INSIDE OF THE RINGS TO A SMOOTH FINISH. THIS WORK SHALL BE INCIDENTAL.
  - CASTING SHALL BE INSTALLED PER CITY PLATE NO. SEW-7. INTERNAL AND EXTERNAL CHIMNEY SEALS SHALL BE INCIDENTAL.
  - LOOP DETECTOR CONSTRUCTION SHALL BE COORDINATED WITH THE CITY AND MN/DOT. LOOP DETECTORS SHALL BE CONSTRUCTED IN THE AGGREGATE BASE. SEE PROJECT MANUAL FOR ADDITIONAL LOOP DETECTOR INFORMATION.
  - CONCRETE APPROACH NOSE SHALL BE CONSTRUCTED PER MN/DOT STANDARD PLATE 7113. CONCRETE APPROACH NOSE SHALL BE PAID PER ITEM 2521-6" CONCRETE WALK.
  - CONCRETE CROSS GUTTER SHALL BE CONSTRUCTED PER CITY PLATE NO. STR-2.
  - COMMERCIAL CONCRETE DRIVEWAY SHALL BE CONSTRUCTED PER CITY PLATE NO. STR-14.
  - CASTING SHALL BE PER CITY PLATE NO. SEW-2.
  - HATCHED AREA SHALL BE PAID PER ITEM 2531-7" CONCRETE VALLEY GUTTER.
  - HATCHED AREA SHALL BE PAID PER ITEM 2531-8" CONCRETE DRIVEWAY PAVEMENT.
  - CONCRETE SHALL BE CONSTRUCTED IN TWO PHASES TO ALLOW TRAFFIC TO PASS. CONTRACTOR SHALL PROTECT CONCRETE WITH BARRICADES AND FLASHERS AS NECESSARY FOR A MINIMUM OF SEVEN DAYS PRIOR TO ALLOWING TRAFFIC ON THE NEW CONCRETE.
- S.A.P. 199-117-002

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*Shane M. Nelson*  
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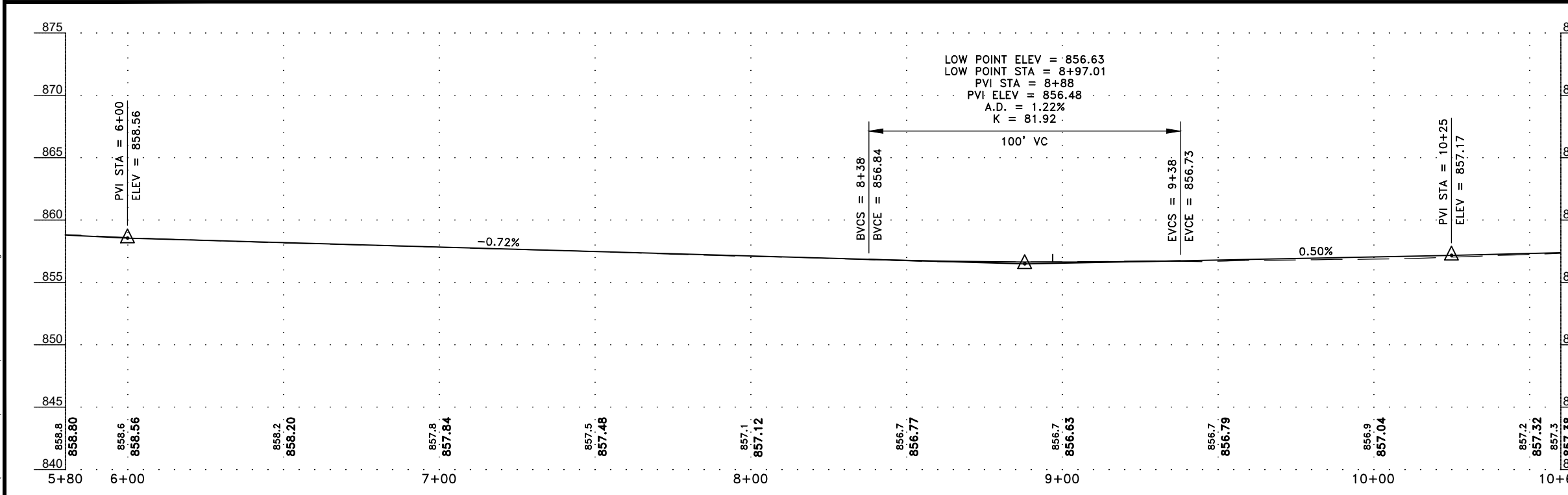
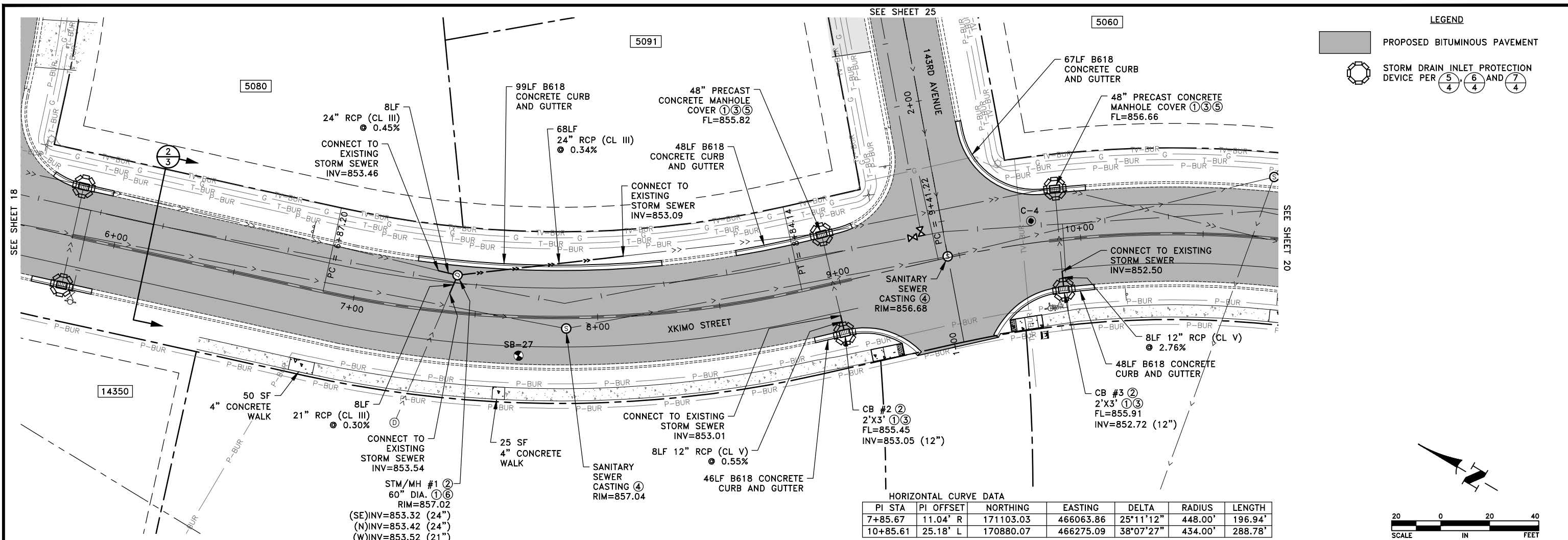


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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**CONSTRUCTION PLAN**  
XKIMO STREET  
CITY OF RAMSEY, MINNESOTA

SHEET 18 OF 38 SHEETS  
RA3188



- GENERAL NOTES:
- ADJUST VALVE BOXES AND MANHOLE CASTINGS TO MATCH PROPOSED PAVEMENT AS NECESSARY. PAVING AT MANHOLE CASTINGS, VALVE BOXES, AND CURB SHALL BE PER ①④.
  - SEE SHEETS 26 AND 27 FOR PEDESTRIAN CURB RAMP CONSTRUCTION PLANS.
  - PROPOSED CURB SHALL BE PER CITY PLATE NO. STR-1.
  - CONTRACTOR SHALL GROUT THE INVERTS AND DOGHOUSES OF ALL STORM MANHOLES AND CATCH BASINS. THIS WORK SHALL BE PAID PER ITEM 2506-GROUT CATCH BASIN OR MANHOLE.
  - CONCRETE WALK SHALL BE CONSTRUCTED PER CITY PLATE NO. STR-3.
- REFERENCE NOTES:
- PLACE CASTING WITH CONCRETE ADJUSTING RINGS. CONTRACTOR SHALL USE STANDARD AVAILABLE RING THICKNESSES THAT MINIMIZE THE NUMBER OF RINGS REQUIRED. WRAP OUTSIDE OF THE RINGS WITH A WATERTIGHT PRODUCT AND GROUT THE INSIDE OF THE RINGS TO A SMOOTH FINISH. THIS WORK SHALL BE INCIDENTAL.
  - CONSTRUCT STRUCTURE PER CITY PLATE NO. STO-1.
  - INSTALL SALVAGED CASTING.
  - CASTING SHALL BE PER CITY PLATE NO. SEW-2. CASTING SHALL BE INSTALLED PER CITY PLATE NO. SEW-7. INTERNAL AND EXTERNAL CHIMNEY SEALS SHALL BE INCIDENTAL.
  - MANHOLE COVER SHALL HAVE A 2'X3' OPENING PER CITY PLATE NO. STO-5.
  - CASTING SHALL BE PER CITY PLATE NO. STO-14 WITH A 4" FRAME.

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 Date 4/12/24 Lic. No. 43381

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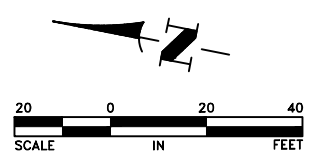
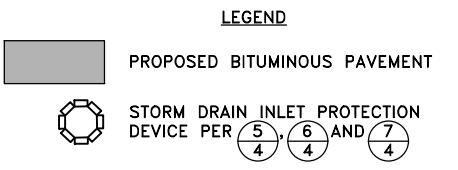
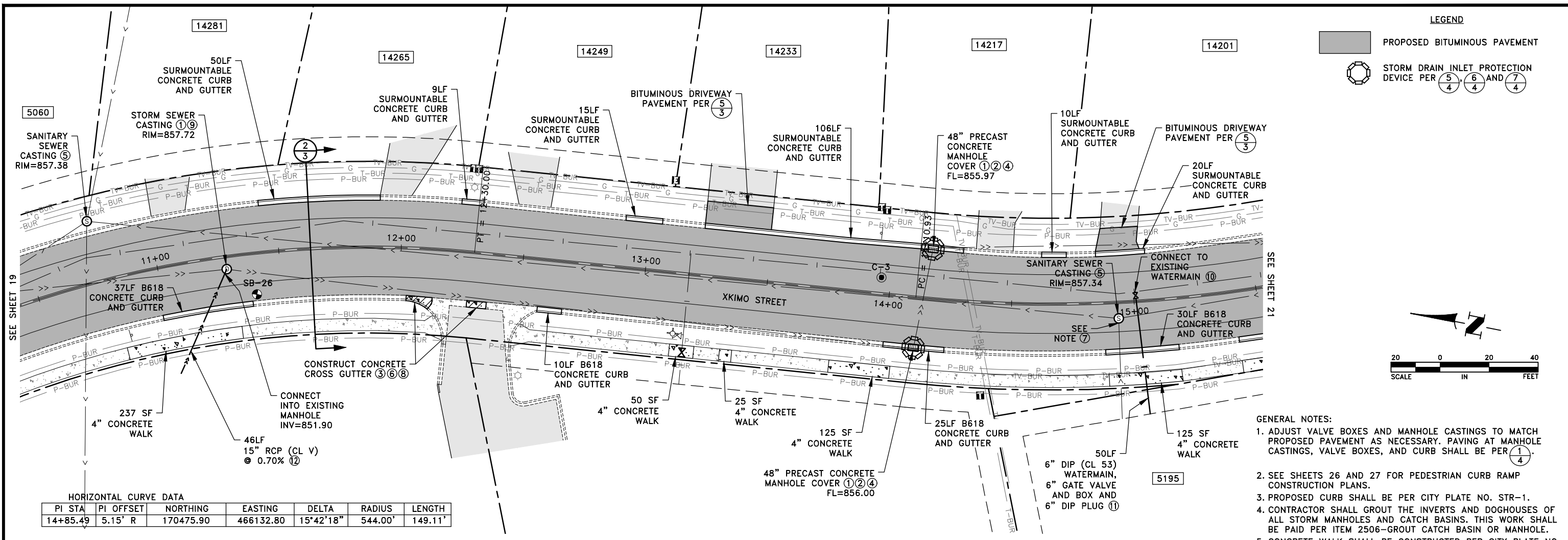
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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**CONSTRUCTION PLAN**  
 XKIMO STREET  
 CITY OF RAMSEY, MINNESOTA

SHEET 19 OF 38 SHEETS  
 RA3188

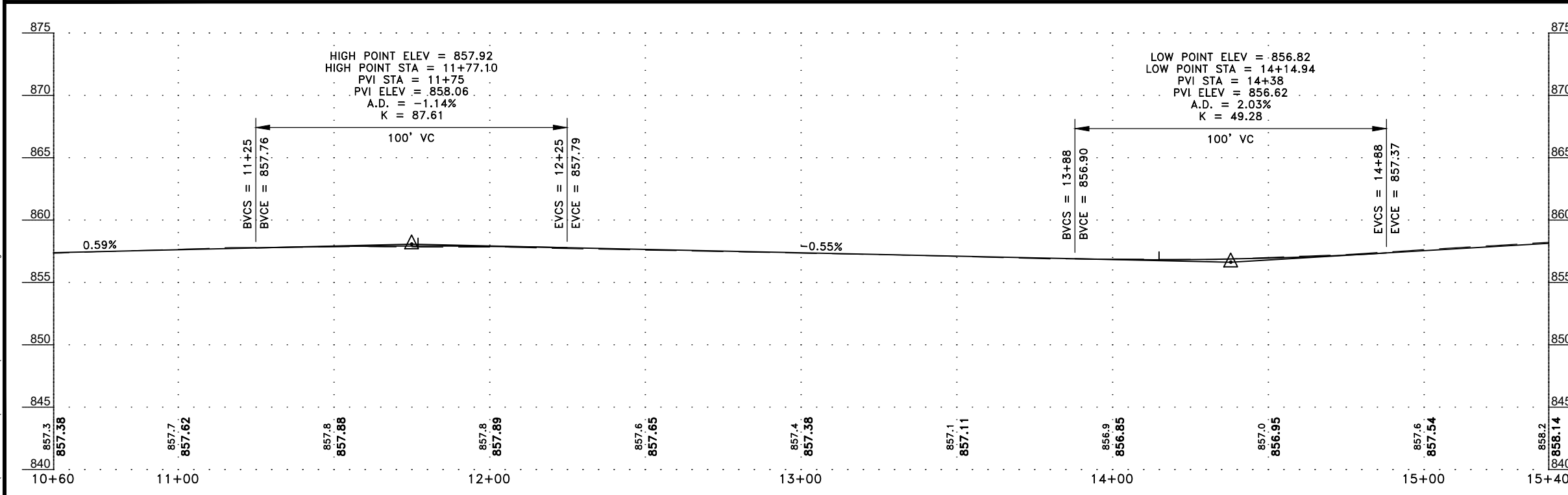
S.A.P. 199-117-002



**HORIZONTAL CURVE DATA**

PI STA	PI OFFSET	NORTHING	EASTING	DELTA	RADIUS	LENGTH
14+85.49	5.15' R	170475.90	466132.80	15°42'18"	544.00'	149.11'

- GENERAL NOTES:**
- ADJUST VALVE BOXES AND MANHOLE CASTINGS TO MATCH PROPOSED PAVEMENT AS NECESSARY. PAVING AT MANHOLE CASTINGS, VALVE BOXES, AND CURB SHALL BE PER 1/4.
  - SEE SHEETS 26 AND 27 FOR PEDESTRIAN CURB RAMP CONSTRUCTION PLANS.
  - PROPOSED CURB SHALL BE PER CITY PLATE NO. STR-1.
  - CONTRACTOR SHALL GROUT THE INVERTS AND DOGHOUSES OF ALL STORM MANHOLES AND CATCH BASINS. THIS WORK SHALL BE PAID PER ITEM 2506-GROUT CATCH BASIN OR MANHOLE.
  - CONCRETE WALK SHALL BE CONSTRUCTED PER CITY PLATE NO. STR-3.



- REFERENCE NOTES:**
- PLACE CASTING WITH CONCRETE ADJUSTING RINGS. CONTRACTOR SHALL USE STANDARD AVAILABLE RING THICKNESSES THAT MINIMIZE THE NUMBER OF RINGS REQUIRED. WRAP OUTSIDE OF THE RINGS WITH A WATERTIGHT PRODUCT AND GROUT THE INSIDE OF THE RINGS TO A SMOOTH FINISH. THIS WORK SHALL BE INCIDENTAL.
  - MANHOLE COVER SHALL HAVE A 2'X3' OPENING PER CITY PLATE NO. STO-5.
  - CONCRETE CROSS GUTTER SHALL BE CONSTRUCTED PER CITY PLATE NO. STR-2.
  - INSTALL SALVAGED CASTING.
  - CASTING SHALL BE PER CITY PLATE NO. SEW-2. CASTING SHALL BE INSTALLED PER CITY PLATE NO. SEW-7. INTERNAL AND EXTERNAL CHIMNEY SEALS SHALL BE INCIDENTAL.
  - HATCHED AREA SHALL BE PAID PER ITEM 2531-7" CONCRETE VALLEY GUTTER.
  - GROUT THE DOGHOUSE OF THE SERVICE PIPE FROM THE WEST. THIS WORK SHALL BE PAID PER ITEM 2506-GROUT CATCH BASIN OR MANHOLE.
  - CONTRACTOR SHALL PROTECT CONCRETE WITH BARRICADES AND FLASHERS AS NECESSARY FOR A MINIMUM OF SEVEN DAYS PRIOR TO ALLOWING TRAFFIC ON THE NEW CONCRETE.
  - CASTING SHALL BE PER CITY PLATE NO. STO-14.
  - WET TAP THE EXISTING 10" DIP WATERMAIN FOR THE 6" DIP WATER SERVICE. VERIFY SIZE AND MATERIAL OF THE EXISTING WATERMAIN PRIOR TO CONSTRUCTION.
  - CONSTRUCT WATER SERVICE PER CITY PLATE NO. WAT-5. DIP PLUG SHALL BE INCIDENTAL.
  - BULKHEAD STORM SEWER BY PLACING A GASKETED CONCRETE PLUG IN THE BELL END OF THE PIPE. THIS WORK SHALL BE INCIDENTAL.

Apr 15, 2024 - 10:24am K:\MUNICIPAL\RA3188\ENGINEERING\PLAN DWG\RA3188\_PP\_XKIMO.dwg

DATE	REVISION

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*Shane M. Nelson*  
**SHANE M. NELSON, P.E.**  
 Lic. No. 43381

Date 4/12/24

DESIGNED BY: TAE  
 DRAWN BY: TAE  
 CHECKED BY: SMN



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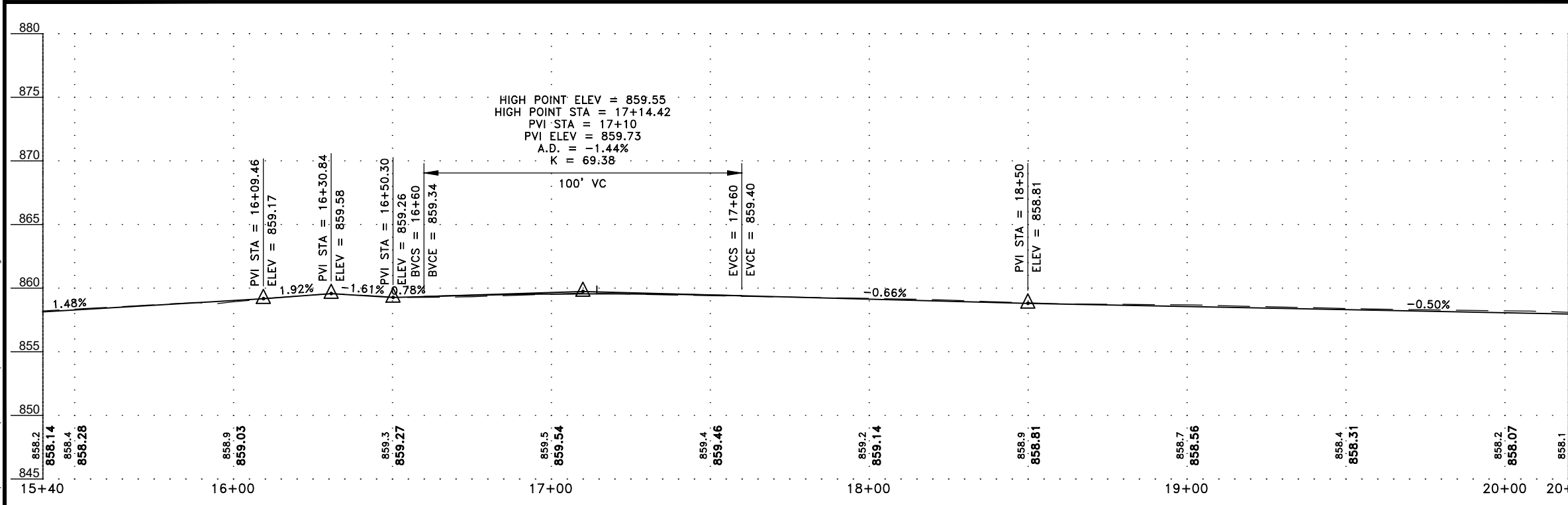
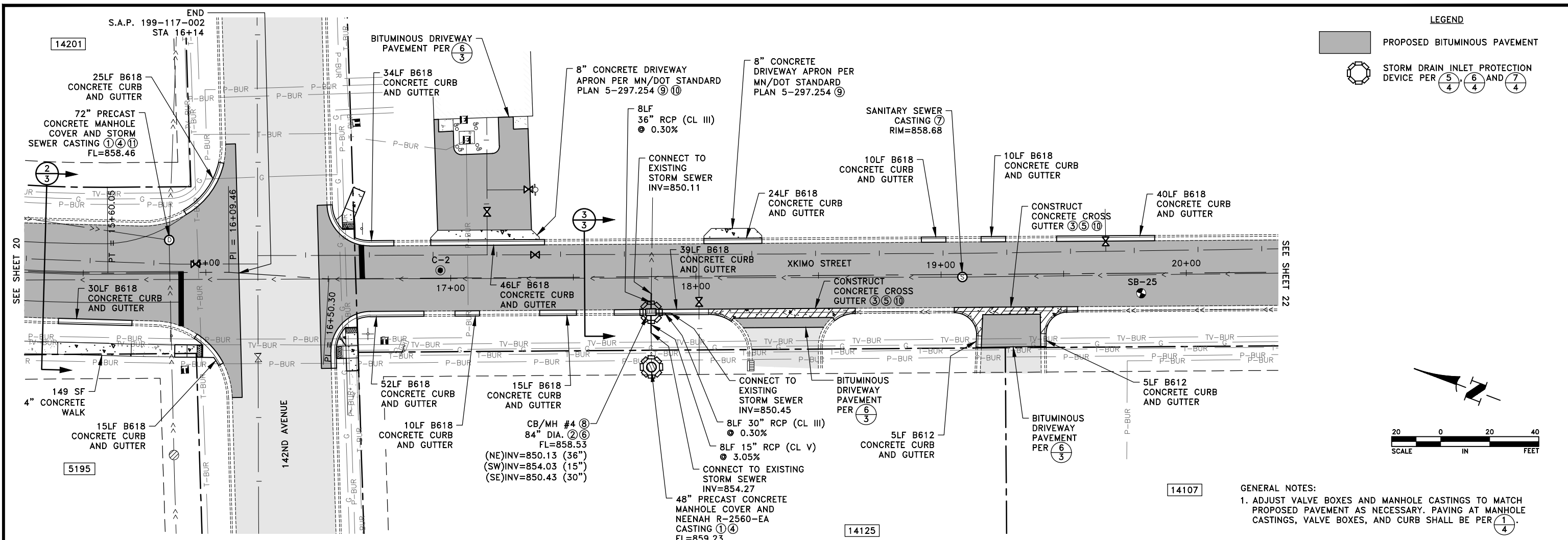
**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**CONSTRUCTION PLAN**  
 XKIMO STREET  
 CITY OF RAMSEY, MINNESOTA

S.A.P. 199-117-002

SHEET 20 OF 38 SHEETS

RA3188



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**CONSTRUCTION PLAN**  
XKIMO STREET  
CITY OF RAMSEY, MINNESOTA





SHEET 21 OF 38 SHEETS  
S.A.P. 199-117-002

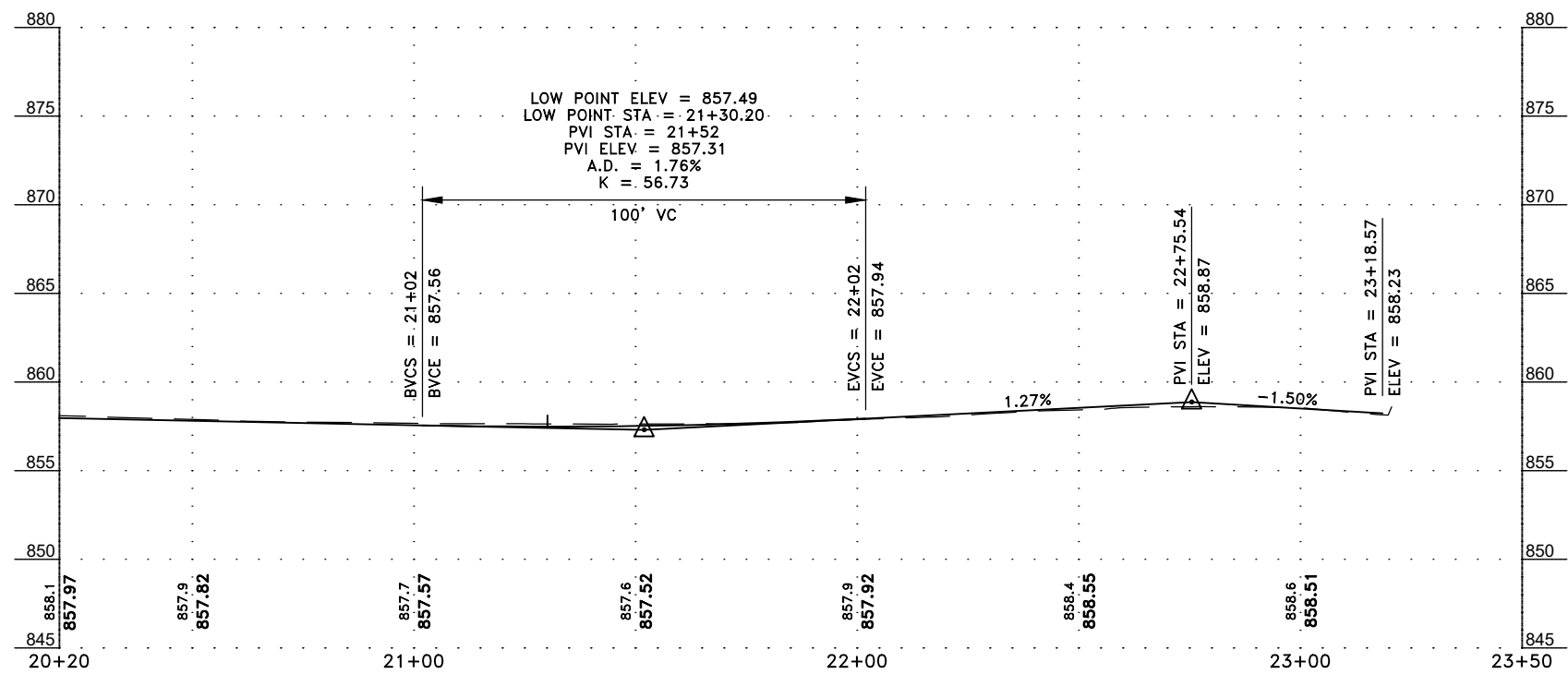
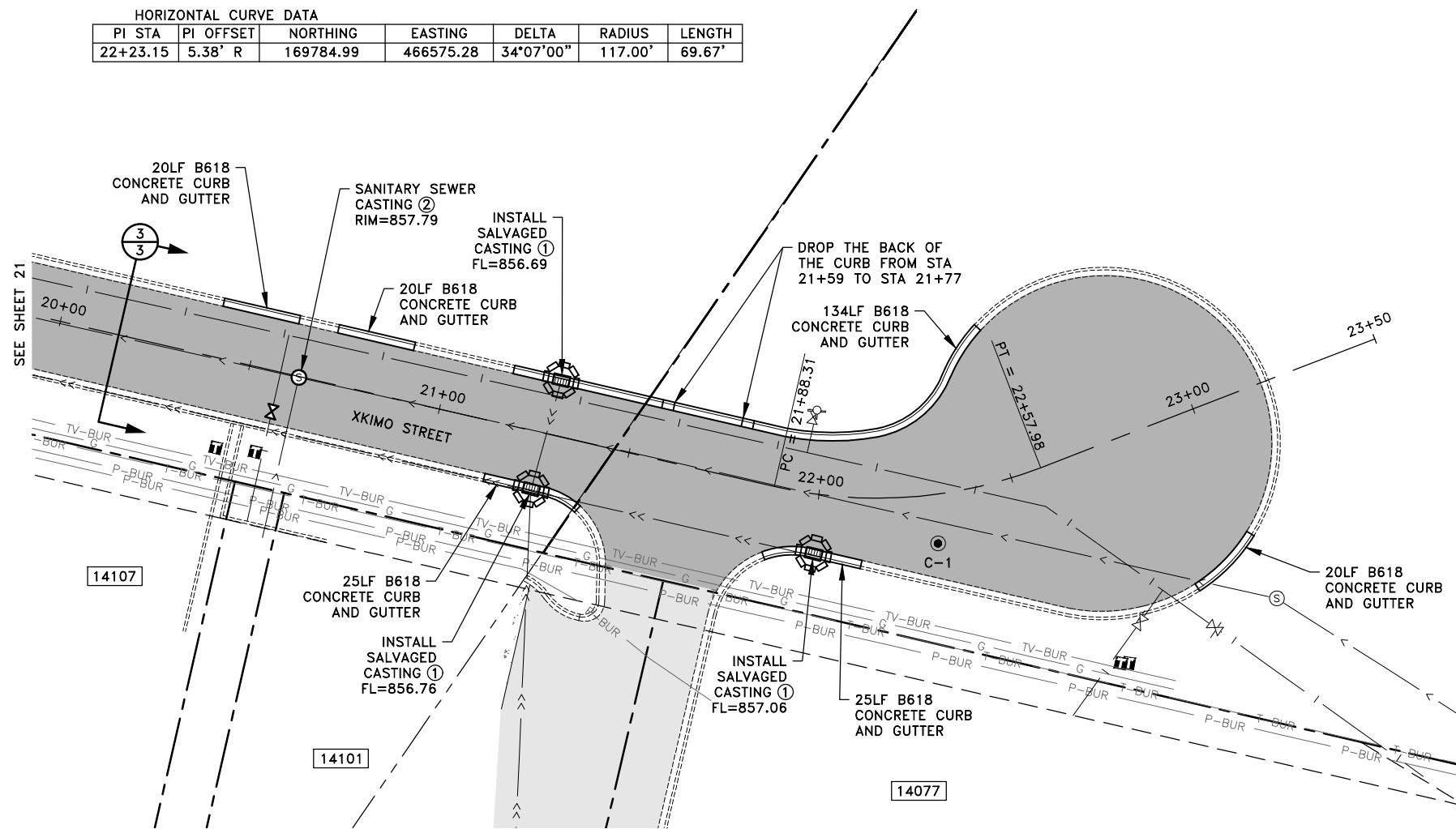
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
HORIZONTAL CURVE DATA						
PI STA	PI OFFSET	NORTHING	EASTING	DELTA	RADIUS	LENGTH
22+23.15	5.38' R	169784.99	466575.28	34°07'00"	117.00'	69.67'

**LEGEND**

 PROPOSED BITUMINOUS PAVEMENT

 STORM DRAIN INLET PROTECTION DEVICE PER   AND 

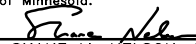


- GENERAL NOTES:**
- ADJUST VALVE BOXES AND MANHOLE CASTINGS TO MATCH PROPOSED PAVEMENT AS NECESSARY. PAVING AT MANHOLE CASTINGS, VALVE BOXES, AND CURB SHALL BE PER .
  - PROPOSED CURB SHALL BE PER CITY PLATE NO. STR-1.
  - CONTRACTOR SHALL GROUT THE INVERTS AND DOGHOUSES OF ALL STORM MANHOLES AND CATCH BASINS. THIS WORK SHALL BE PAID PER ITEM 2506-GROUT CATCH BASIN OR MANHOLE.
- REFERENCE NOTES:**
- PLACE CASTING WITH CONCRETE ADJUSTING RINGS. CONTRACTOR SHALL USE STANDARD AVAILABLE RING THICKNESSES THAT MINIMIZE THE NUMBER OF RINGS REQUIRED. WRAP OUTSIDE OF THE RINGS WITH A WATERTIGHT PRODUCT AND GROUT THE INSIDE OF THE RINGS TO A SMOOTH FINISH. THIS WORK SHALL BE INCIDENTAL.
  - CASTING SHALL BE PER CITY PLATE NO. SEW-2. CASTING SHALL BE INSTALLED PER CITY PLATE NO. SEW-7. INTERNAL AND EXTERNAL CHIMNEY SEALS SHALL BE INCIDENTAL.

Apr 15, 2024 - 10:24am K:\MUNICIPAL\RA3188\ENGINEERING\PLAN DWG\RA3188\_PP\_XKIMO.dwg

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**SHANE M. NELSON, P.E.**  
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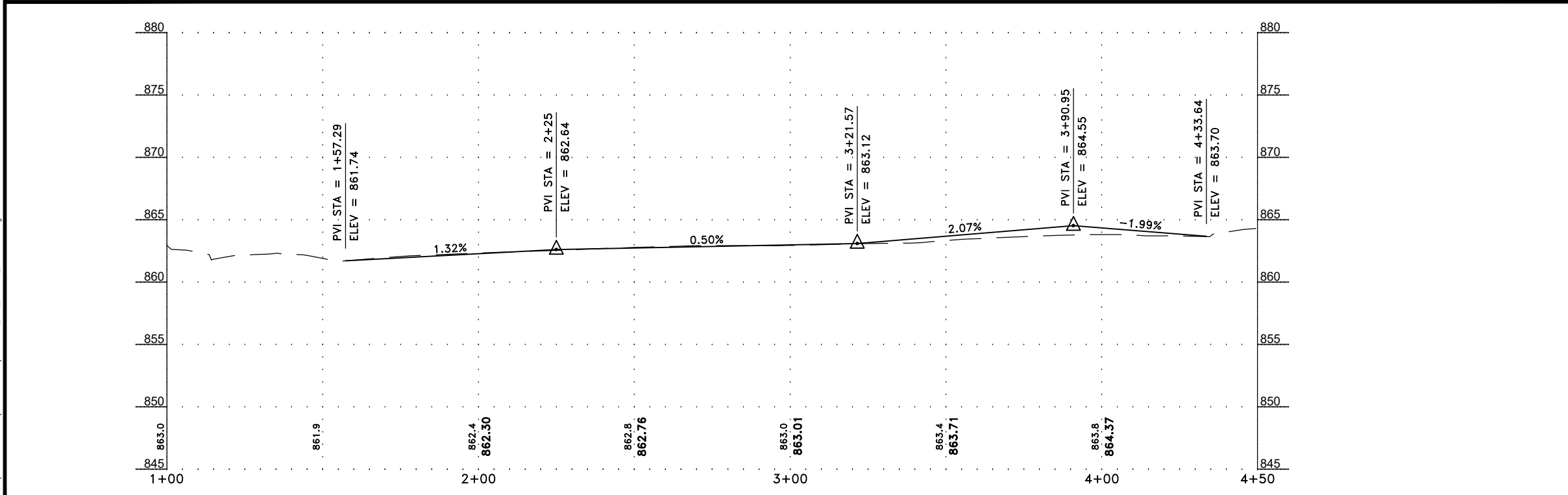
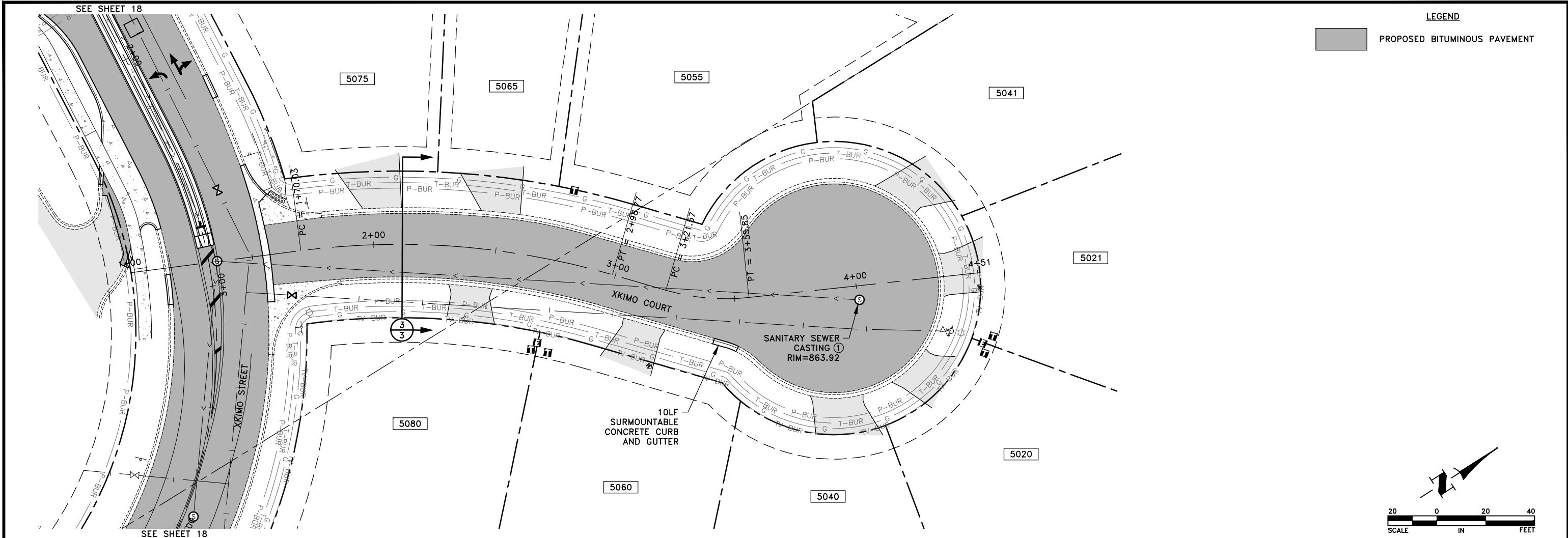


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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**CONSTRUCTION PLAN**  
 XKIMO STREET  
 CITY OF RAMSEY, MINNESOTA

S.A.P. 199-117-002  
 SHEET 22 OF 38 SHEETS  
 RA3188



**GENERAL NOTES:**

- ADJUST VALVE BOXES AND MANHOLE CASTINGS TO MATCH PROPOSED PAVEMENT AS NECESSARY. PAVING AT MANHOLE CASTINGS, VALVE BOXES, AND CURB SHALL BE PER 1/4.
- PROPOSED CURB SHALL BE PER CITY PLATE NO. STR-1.

**REFERENCE NOTES:**

- CASTING SHALL BE PER CITY PLATE NO. SEW-2. CASTING SHALL BE INSTALLED PER CITY PLATE NO. SEW-7. INTERNAL AND EXTERNAL CHIMNEY SEALS SHALL BE INCIDENTAL.

Apr 15, 2024 - 10:24am  
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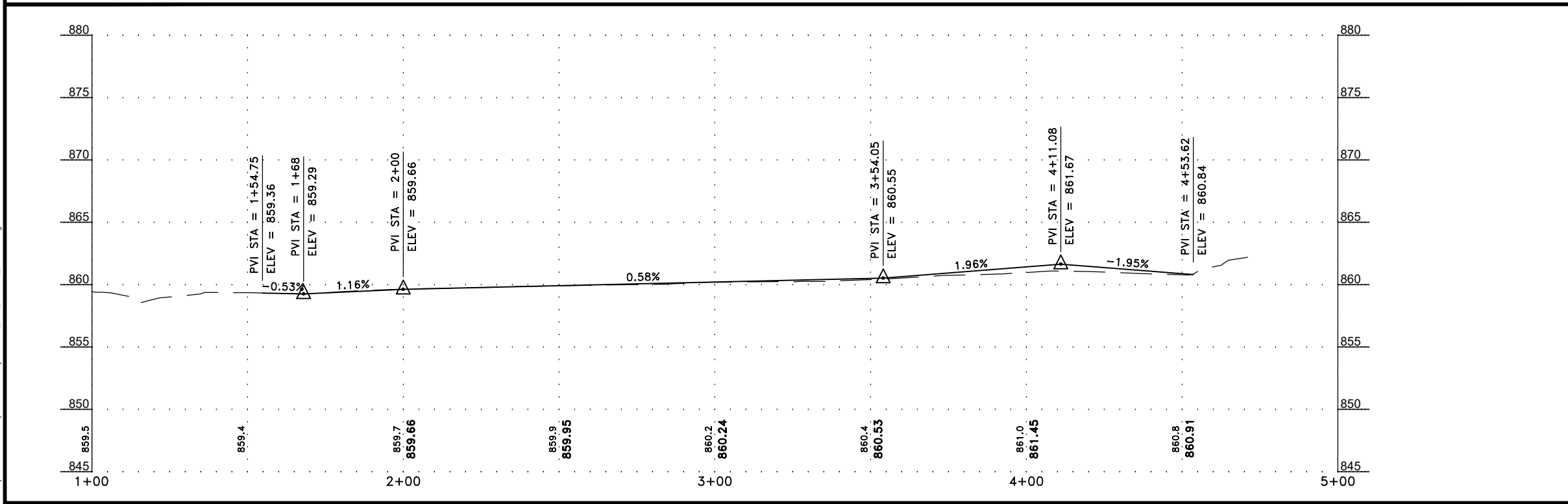
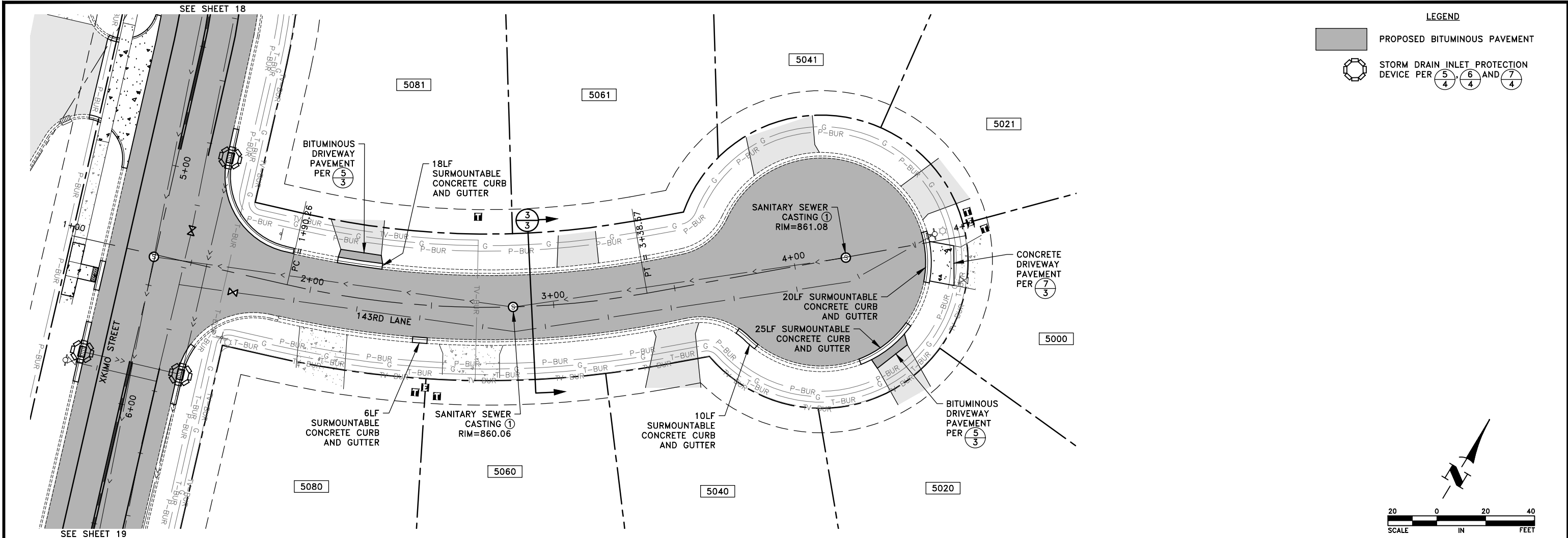


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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**CONSTRUCTION PLAN**  
 XKIMO COURT  
 CITY OF RAMSEY, MINNESOTA

S.A.P. 199-117-002  
 SHEET 23 OF 38 SHEETS  
 RA3188



GENERAL NOTES:  
 1. ADJUST VALVE BOXES AND MANHOLE CASTINGS TO MATCH PROPOSED PAVEMENT AS NECESSARY. PAVING AT MANHOLE CASTINGS, VALVE BOXES, AND CURB SHALL BE PER 1/4.  
 2. PROPOSED CURB SHALL BE PER CITY PLATE NO. STR-1.  
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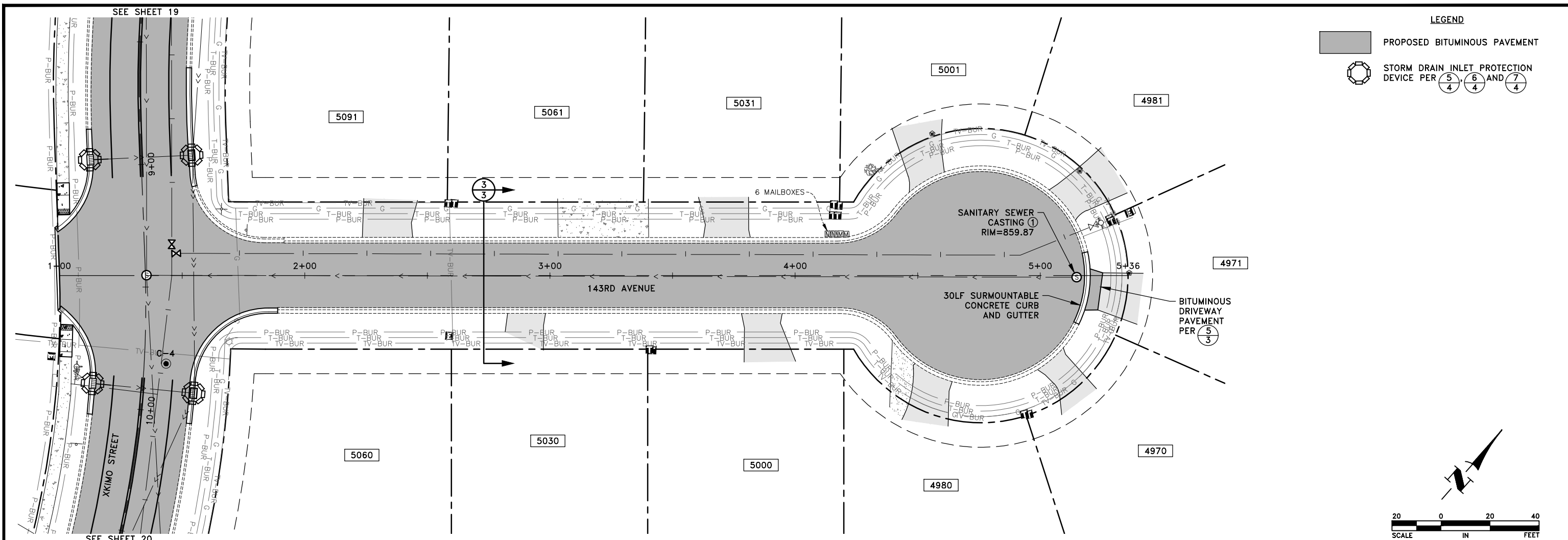


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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**CONSTRUCTION PLAN**  
 143RD LANE  
 CITY OF RAMSEY, MINNESOTA

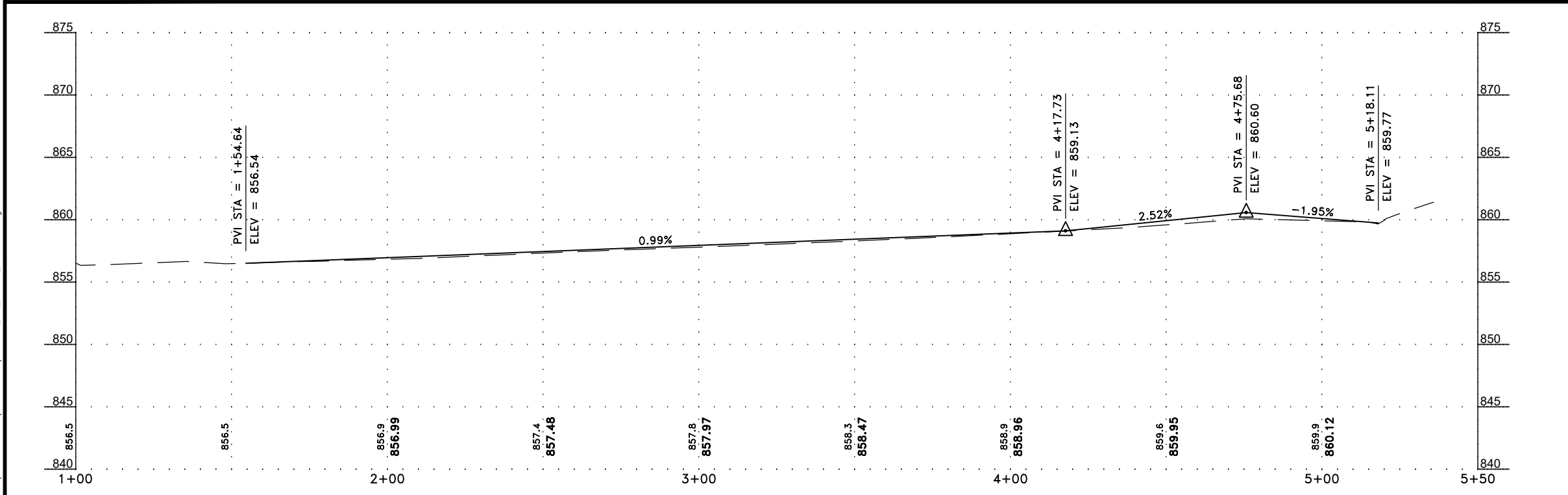
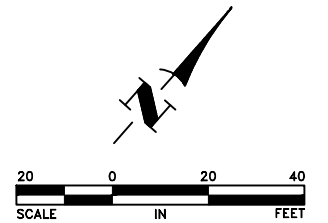
S.A.P. 199-117-002  
 SHEET 24 OF 38 SHEETS  
 RA3188



**LEGEND**

PROPOSED BITUMINOUS PAVEMENT

STORM DRAIN INLET PROTECTION DEVICE PER 5/4, 6/4 AND 7/4



- GENERAL NOTES:**
- ADJUST VALVE BOXES AND MANHOLE CASTINGS TO MATCH PROPOSED PAVEMENT AS NECESSARY. PAVING AT MANHOLE CASTINGS, VALVE BOXES, AND CURB SHALL BE PER 1/4.
  - PROPOSED CURB SHALL BE PER CITY PLATE NO. STR-1.
- REFERENCE NOTES:**
- CASTING SHALL BE PER CITY PLATE NO. SEW-2. CASTING SHALL BE INSTALLED PER CITY PLATE NO. SEW-7. INTERNAL AND EXTERNAL CHIMNEY SEALS SHALL BE INCIDENTAL.

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DATE	REVISION

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*Shane M. Nelson*  
**SHANE M. NELSON, P.E.**  
 Date 4/12/24 Lic. No. 43381

DESIGNED BY: TAE  
 DRAWN BY: TAE  
 CHECKED BY: SMN



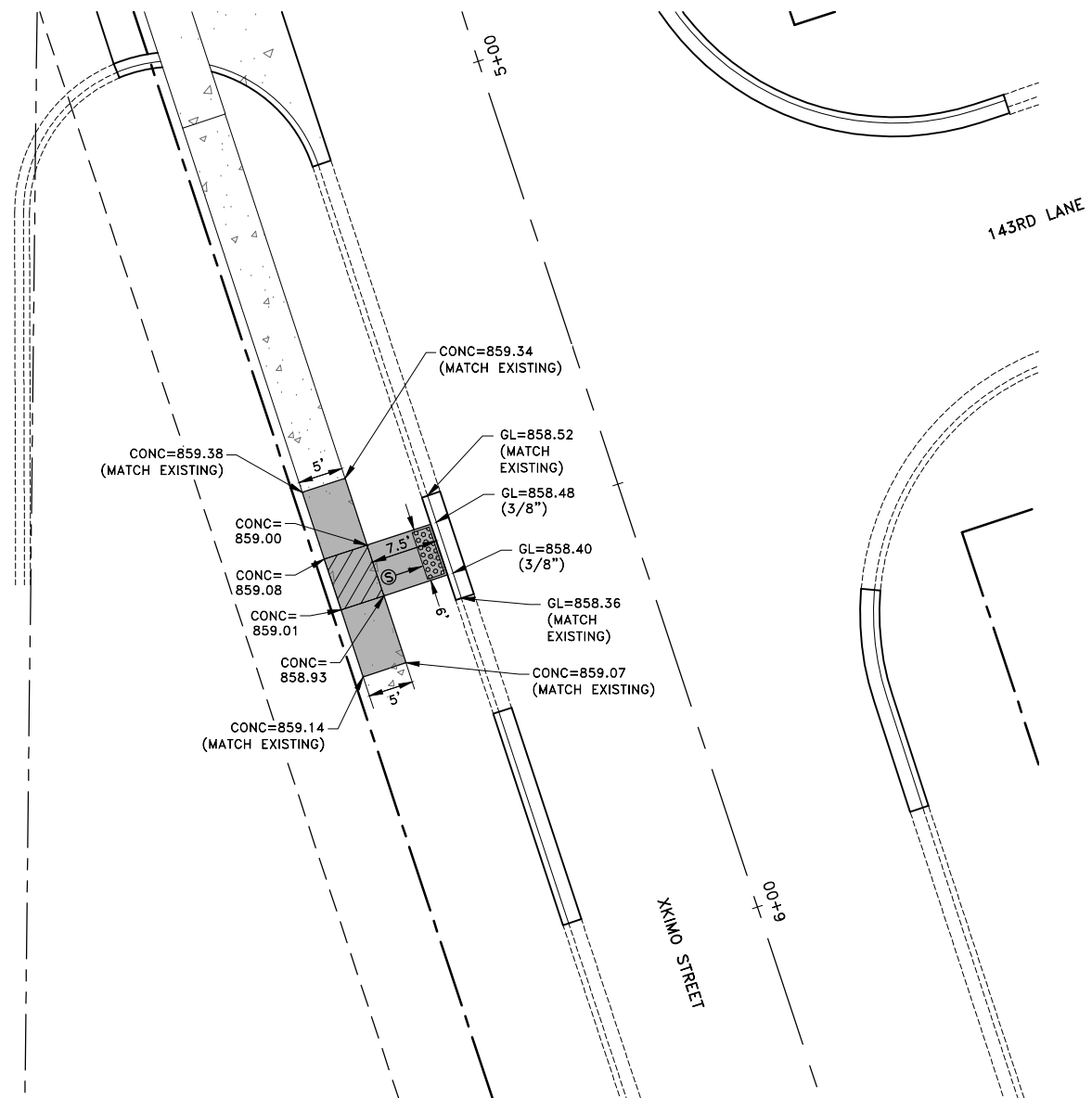
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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**








**CONSTRUCTION PLAN**  
 143RD AVENUE  
 CITY OF RAMSEY, MINNESOTA

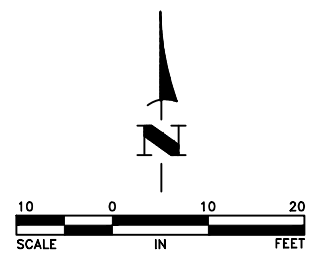
S.A.P. 199-117-002

SHEET 25 OF 38 SHEETS  
 RA3188



GENERAL NOTES:  
 1. SEE SHEETS 7 THROUGH 12 FOR ADDITIONAL PEDESTRIAN CURB RAMP DETAILS.

- LEGEND**
-  LANDING AREA—MAXIMUM 2% SLOPE IN ALL DIRECTIONS
  -  6" CONCRETE WALK
  -  TRUNCATED DOMES
  -  CONC= XXX.XX PROPOSED CONCRETE WALK ELEVATION
  -  GL= XXX.XX PROPOSED GUTTER LINE ELEVATION
  -  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%
  -  PEDESTRIAN RAMP—SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%



S.A.P. 199-117-002

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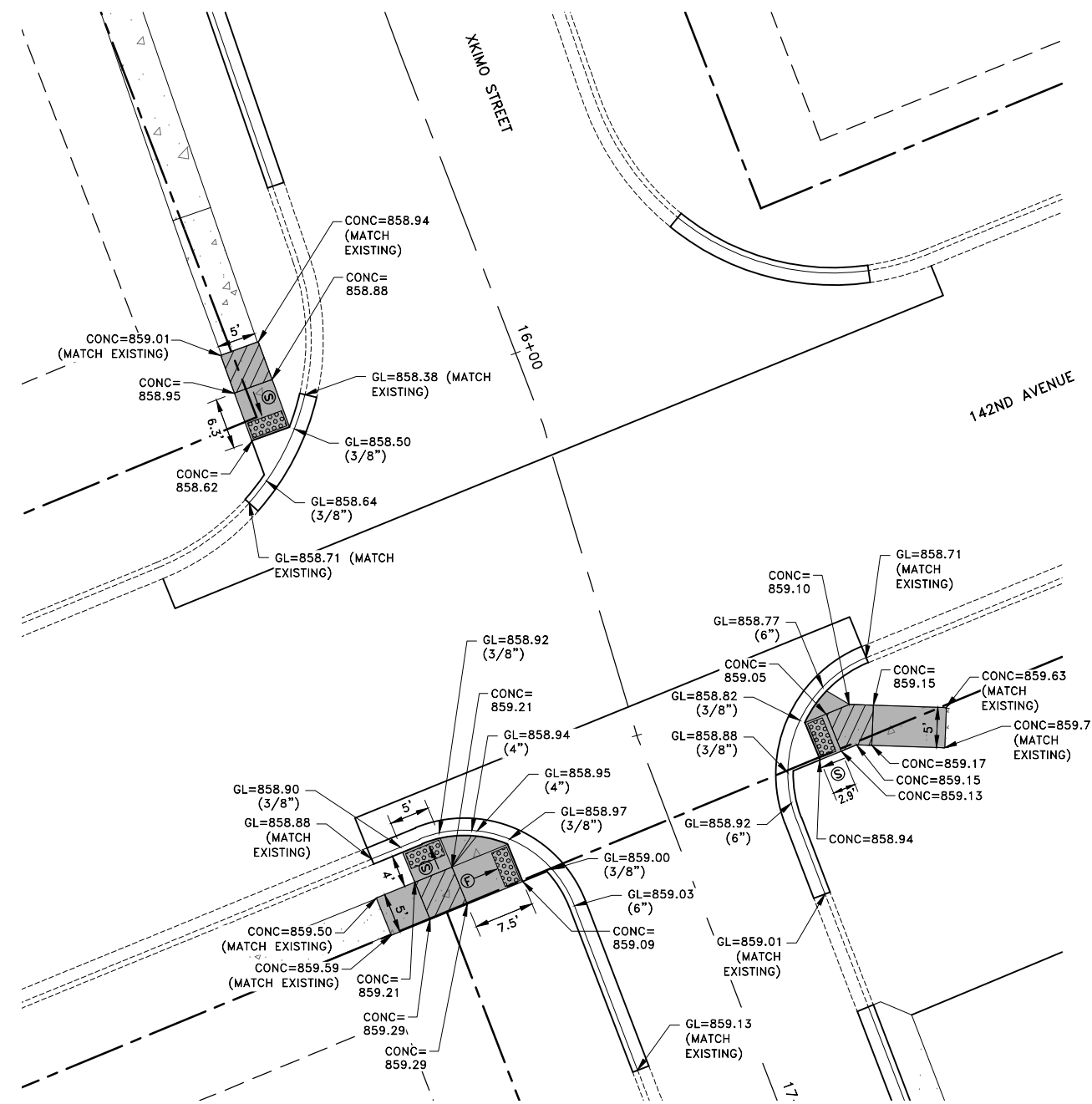
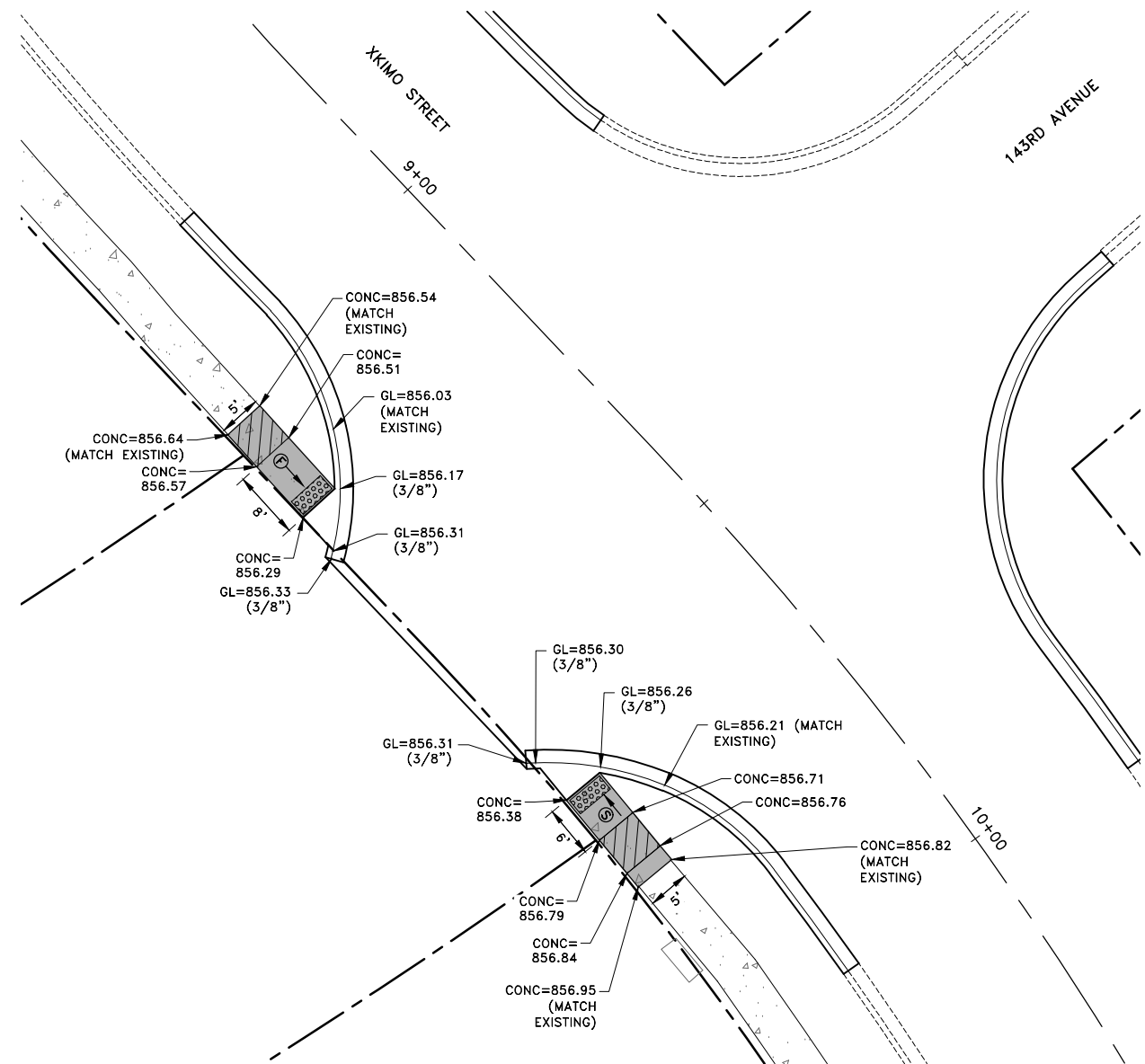
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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

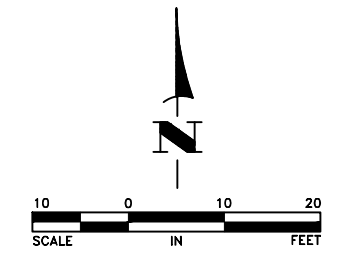
**PEDESTRIAN CURB RAMP CONSTRUCTION PLANS**  
 CITY OF RAMSEY, MINNESOTA

SHEET 26 OF 38 SHEETS  
 RA3188

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- LEGEND**
- LANDING AREA—MAXIMUM 2% SLOPE IN ALL DIRECTIONS
  - 6" CONCRETE WALK
  - TRUNCATED DOMES
  - CONC=XXX.XX PROPOSED CONCRETE WALK ELEVATION
  - GL=XXX.XX PROPOSED GUTTER LINE ELEVATION
  - 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%
  - PEDESTRIAN RAMP—SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%



**GENERAL NOTES:**  
1. SEE SHEETS 7 THROUGH 12 FOR ADDITIONAL PEDESTRIAN CURB RAMP DETAILS.

S.A.P. 199-117-002

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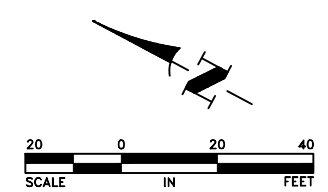
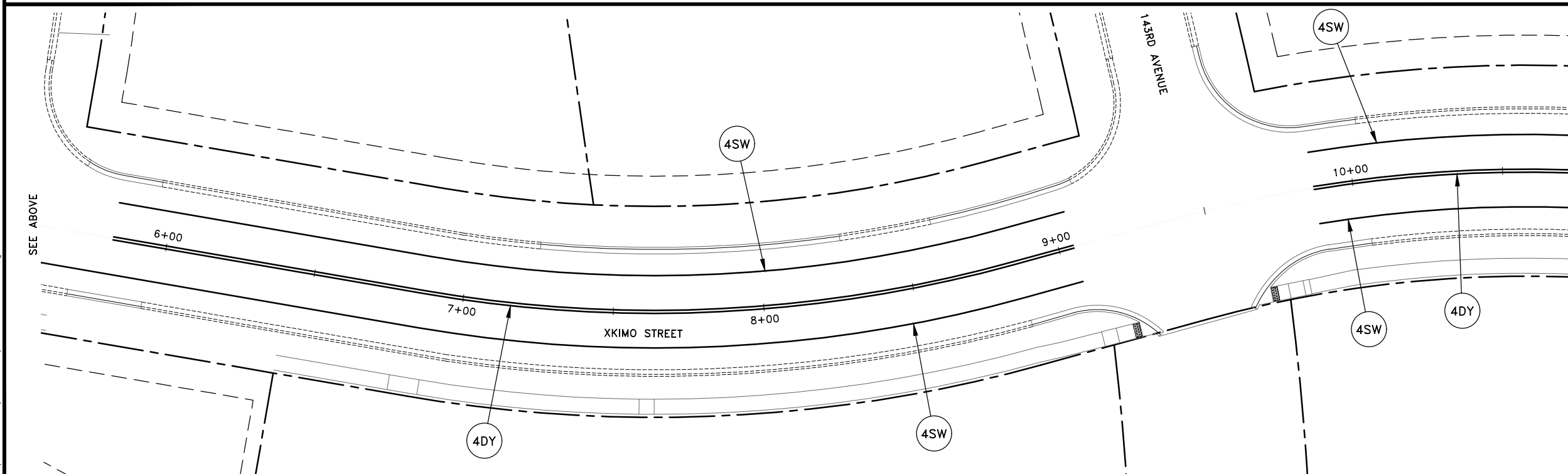
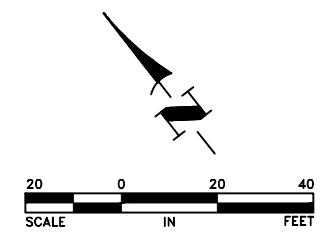
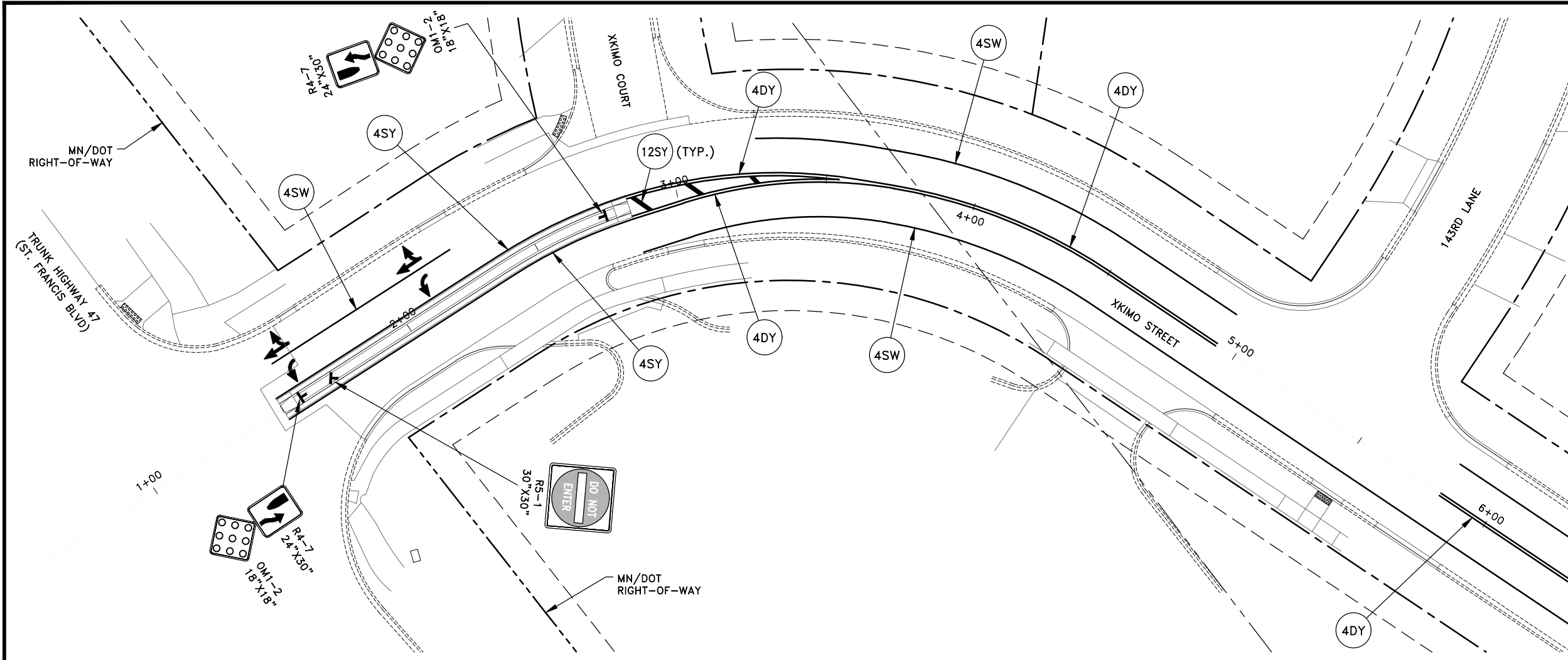
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**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**PEDESTRIAN CURB RAMP CONSTRUCTION PLANS**  
CITY OF RAMSEY, MINNESOTA

SHEET 27 OF 38 SHEETS  
RA3188

- GENERAL NOTES:  
 1. SEE SHEET 30 FOR STRIPING KEY AND NOTES.  
 2. SEE SHEETS 31 TO 38 FOR SIGN INSTALLATION DETAILS.



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 Date 4/12/24 Lic. No. 43381

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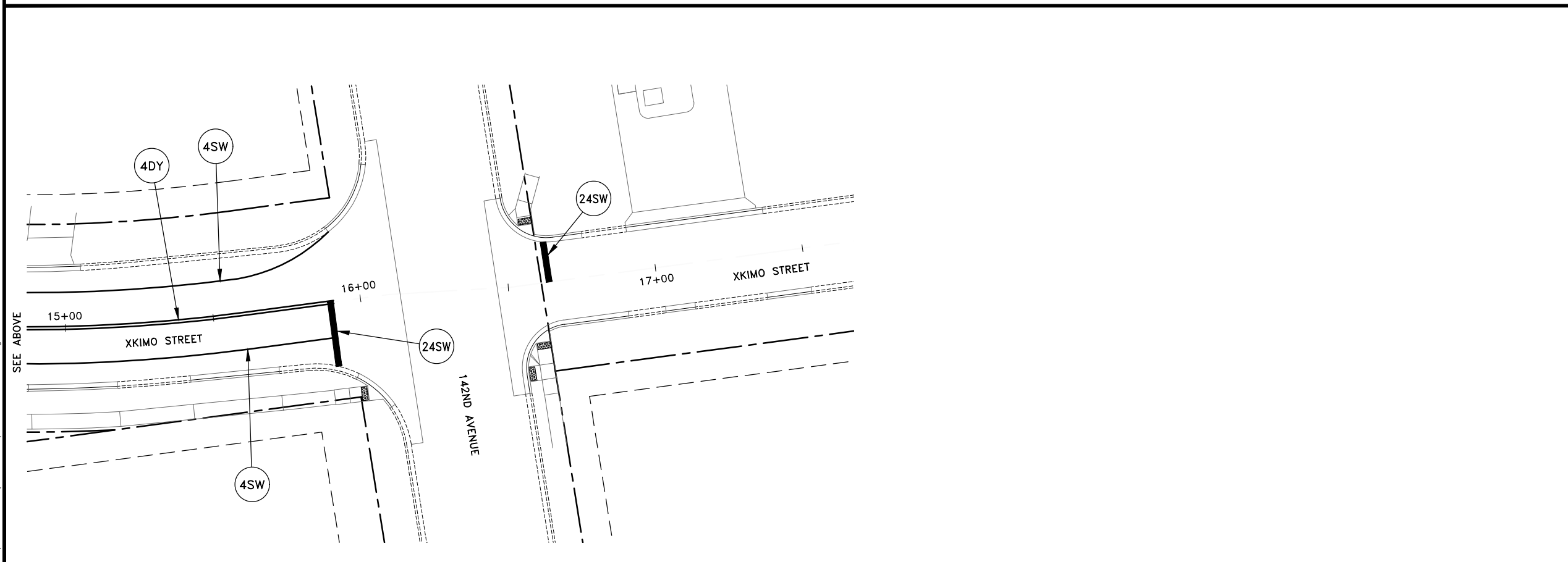
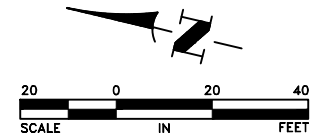
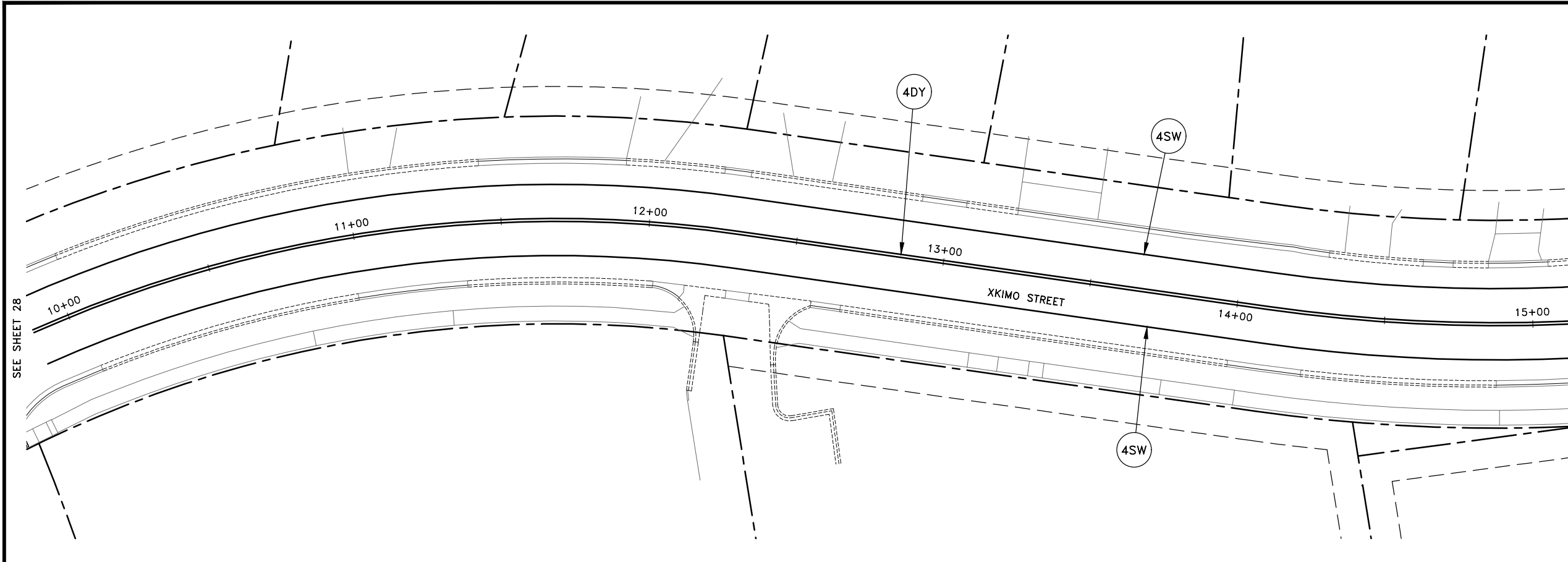
**XKIMO STREET SURFACE IMPROVEMENT PROJECT**

**SIGNAGE AND STRIPING PLAN**  
 XKIMO STREET  
 CITY OF RAMSEY, MINNESOTA

SHEET 28 OF 38 SHEETS  
 RA3188

S.A.P. 199-117-002

GENERAL NOTES:  
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 2. SEE SHEETS 31 TO 38 FOR SIGN INSTALLATION DETAILS.



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TAE  
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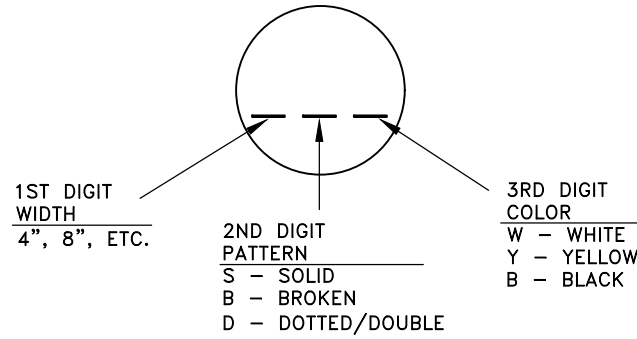
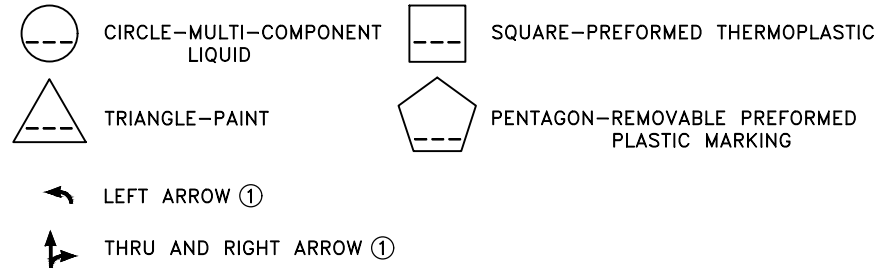
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**SIGNAGE AND STRIPING PLAN**  
 XKIMO STREET  
 CITY OF RAMSEY, MINNESOTA

SHEET 29 OF 38 SHEETS  
 RA3188

STRIPING KEY



EXAMPLE: (4SW) = 4" SOLID LINE WHITE—MULTI—COMPONENT LIQUID

PERMANENT PAVEMENT MARKING GENERAL NOTES AND GUIDELINES:

1. THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR 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 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. THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON—METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. THIS WORK SHALL BE INCIDENTAL.
5. THE STRIPING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING.
6. OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES (°F) OR GREATER.
7. PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

REFERENCE NOTES:

- ① PAVEMENT MESSAGE SHALL BE MULTI—COMPONENT LIQUID.

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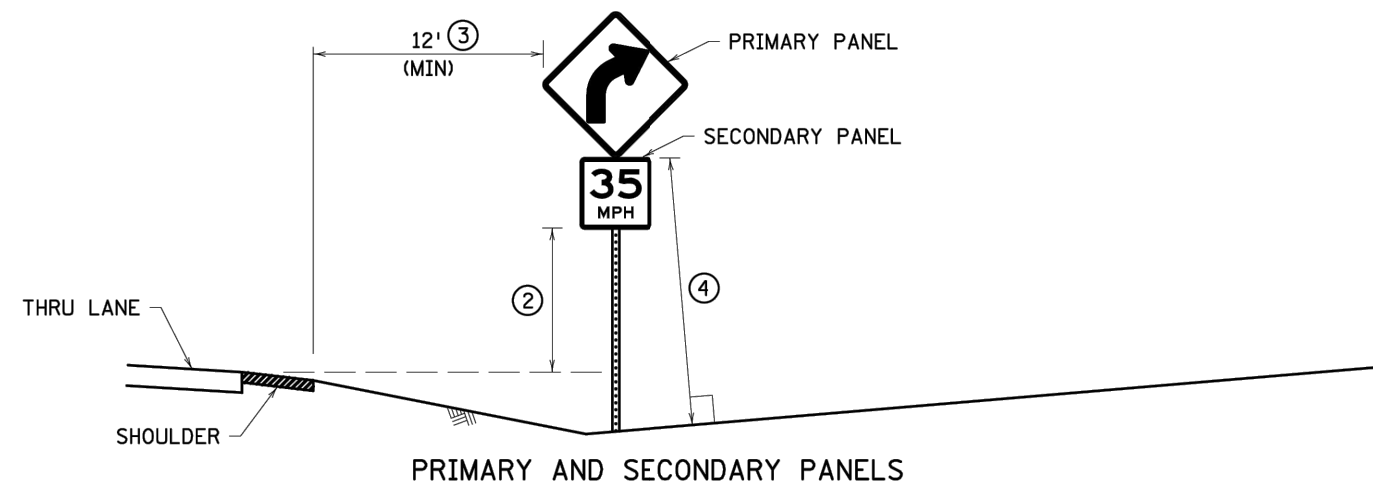
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XKIMO STREET SURFACE IMPROVEMENT PROJECT

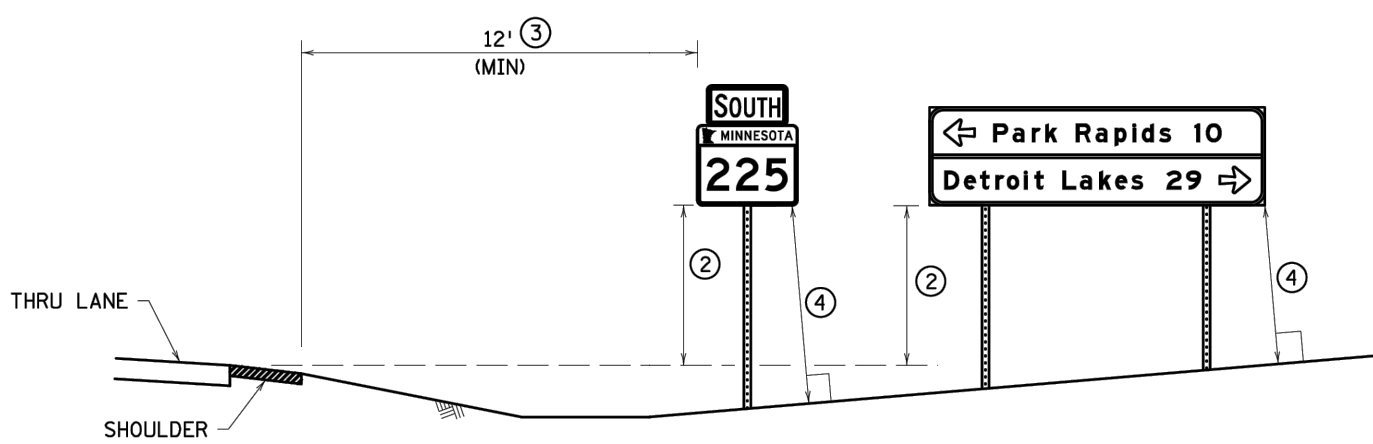
STRIPING NOTES AND LEGEND

CITY OF RAMSEY, MINNESOTA

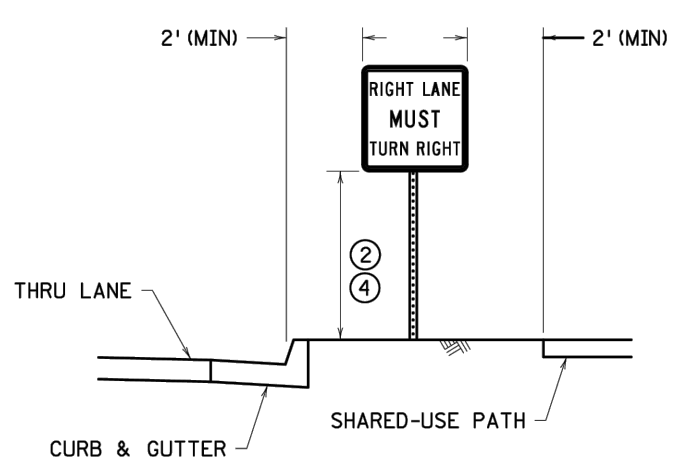
SHEET 30 OF 38 SHEETS



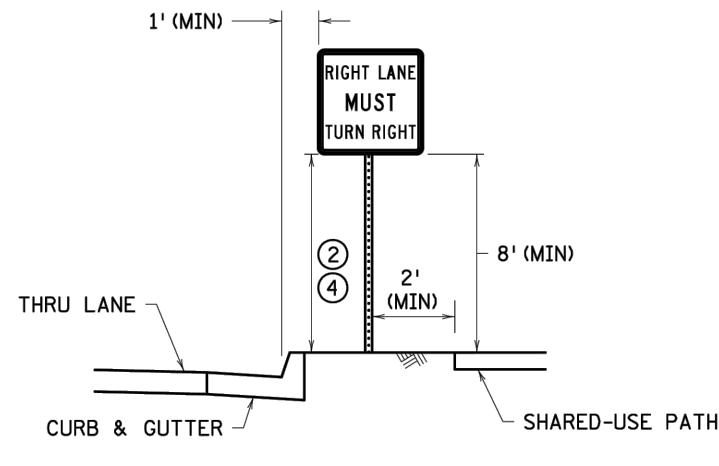
PRIMARY AND SECONDARY PANELS



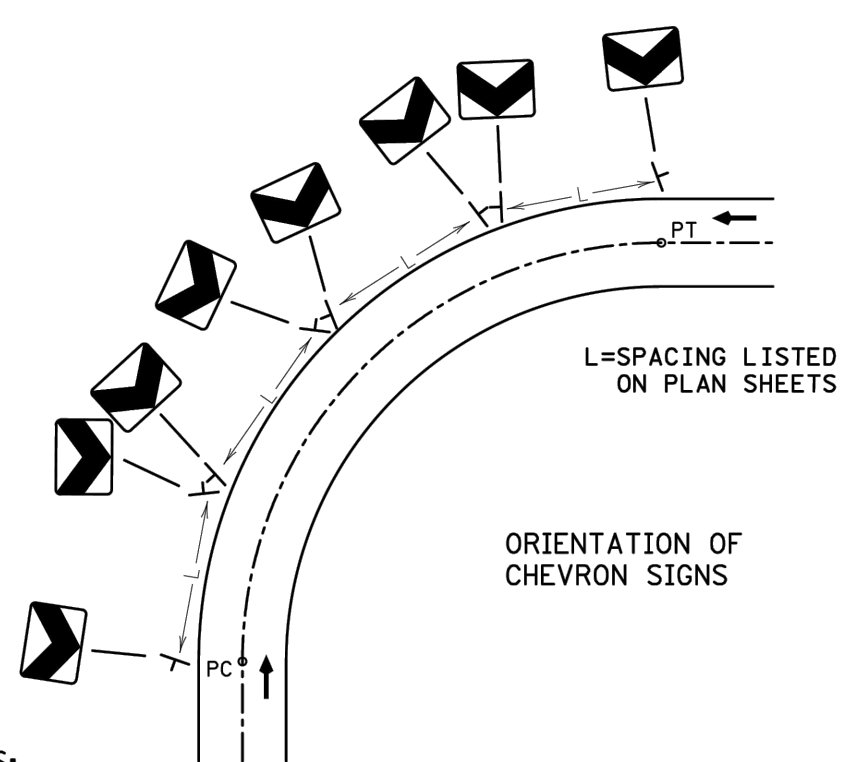
STANDARD LOCATIONS



BOULEVARD LOCATIONS  
6' TO 12' WIDE



BOULEVARD LOCATIONS ①  
LESS THAN 6' WIDE



L=SPACING LISTED  
ON PLAN SHEETS

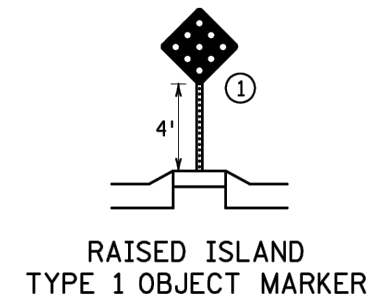
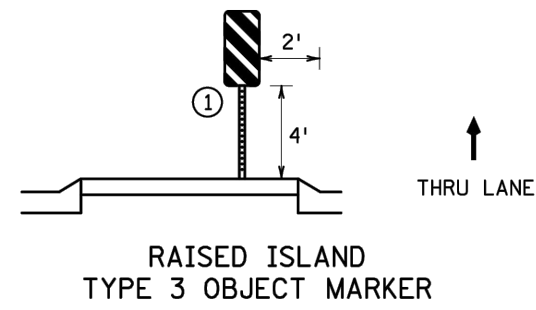
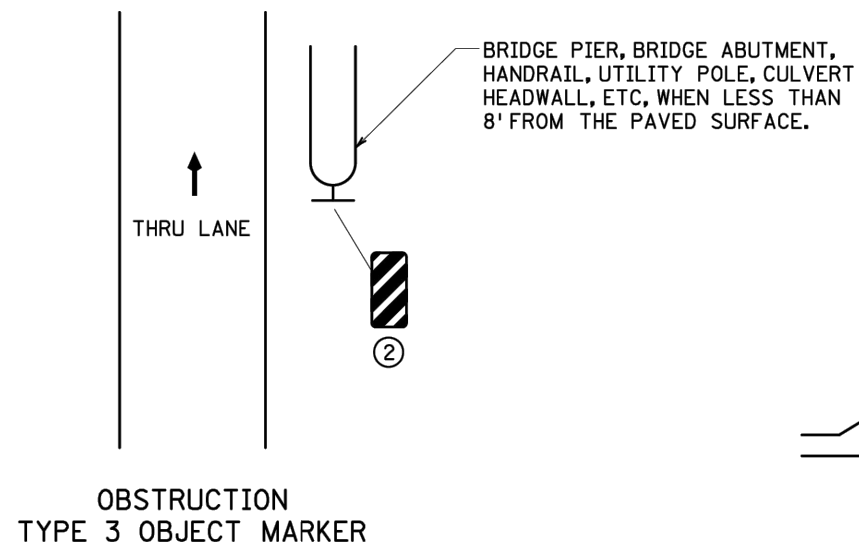
ORIENTATION OF  
CHEVRON SIGNS

NOTES:

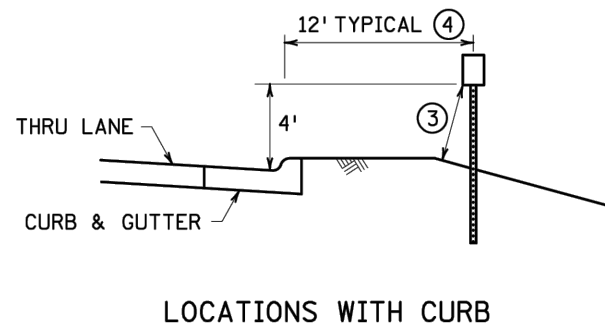
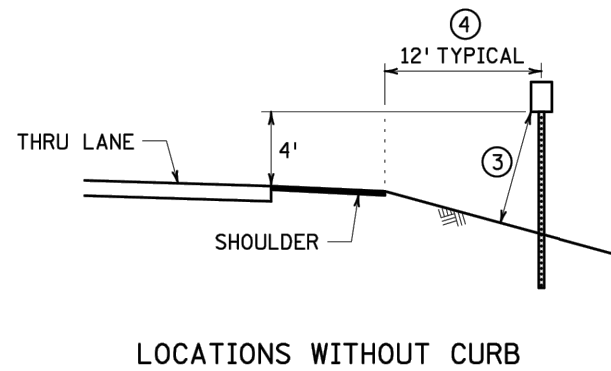
- PLACE SIGNS AND ORIENT THEM APPROXIMATELY AS SHOWN IN THE PLAN, AT RIGHT ANGLES TO THE DIRECTION OF, AND FACING THE TRAFFIC THEY ARE INTENDED TO SERVE, UNLESS OTHERWISE SPECIFIED. TO AVOID SPECULAR GLARE, TURN SIGNS APPROXIMATELY THREE DEGREES AWAY FROM APPROACHING TRAFFIC.
- IF A SIGN NEEDS TO BE REPOSITIONED FROM THE PROPOSED PLAN LOCATION IN ORDER TO AVOID CONFLICTS WITH UTILITIES OR OBSTACLES, CONTACT THE PROJECT ENGINEER.
- MOUNT SIGN FACES PLUMB.
- LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND/OR LEFT SIDE INSTALLATION.
- ERECT OR CONSTRUCT SIGN SUPPORT SO THAT NO PORTION OF THE SIGN PANEL IS WITHIN 15' OF THE RAIL OF A RAILROAD TRACK.
- PLACE SIGNS SUCH THAT OBSTACLES DO NOT BLOCK THEM FROM BEING VIEWED BY THE APPROACHING TRAFFIC.
- PLACE SIGNS A MINIMUM OF 10' FROM THE NEAREST OBSTACLE. OBSTACLES MAY INCLUDE, BUT ARE NOT LIMITED TO, LIGHT POLES, TREES, SIGNS, AND BUILDINGS. SIGNS MAY BE PLACED CLOSER TO SIGNS IN TIGHT AREAS, BUT NO MORE THAN TWO POSTS IN A 7' DIAMETER CIRCLE.
- AVOID PLACING SIGNS IN DITCH BOTTOMS.
- ① ONLY USE WHEN BOULEVARD IS TOO NARROW TO OBTAIN ADEQUATE CURBED LOCATION SIGN OFFSETS.
- ② ALL SIGN MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE LOWEST SIGN PANEL TO THE TOP OF THE CURB, OR IN ABSENCE OF CURB, TO THE NEAR EDGE OF THE THRU-LANE PAVEMENT. SEE SIGN TABULATIONS.
- ③ MINIMUM OFFSET MAY BE REDUCED TO AT LEAST 6' FROM SHOULDER AND AT LEAST 12' FROM THRU LANE IF SITE CONDITIONS PROHIBIT A 12' OFFSET FROM SHOULDER.
- ④ CRASHWORTHY HEIGHT IS AT LEAST 7' FOR BREAKAWAY STRUCTURES AND AT LEAST 4' FOR BENDABLE STRUCTURES. SEE SPECIFIC SQUARE TUBE BASE STRUCTURE PLAN FOR CRASH RESPONSE TYPE. THE CRASHWORTHY HEIGHT IS MEASURED TO THE BOTTOM OF THE PRIMARY SIGN PANEL EXCLUDING ANY SECONDARY SIGN PANELS, MARKERS, DELINEATORS, AND REFERENCE LOCATION SIGN PANELS. ANY SECONDARY SIGN PANELS MOUNTED TO MORE THAN ONE POST ARE CONSIDERED PRIMARY SIGN PANELS FOR CRASHWORTHY PURPOSES.

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<b>LEAD EXPERT OFFICE</b> BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING		<b>STANDARD SIGN PLACEMENT</b>	APPROVED: 08-09-2023 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	<b>STANDARD PLAN</b> 5-297.701	1 OF 1
			<b>STANDARD PLAN</b>	STATE PROJ. NO. 199-117-002 TRUNK HWY. 47	SHEET NO. 31 TOTAL SHEETS 38	



MARKER TYPICAL PLACEMENT



DELINEATOR TYPICAL PLACEMENT

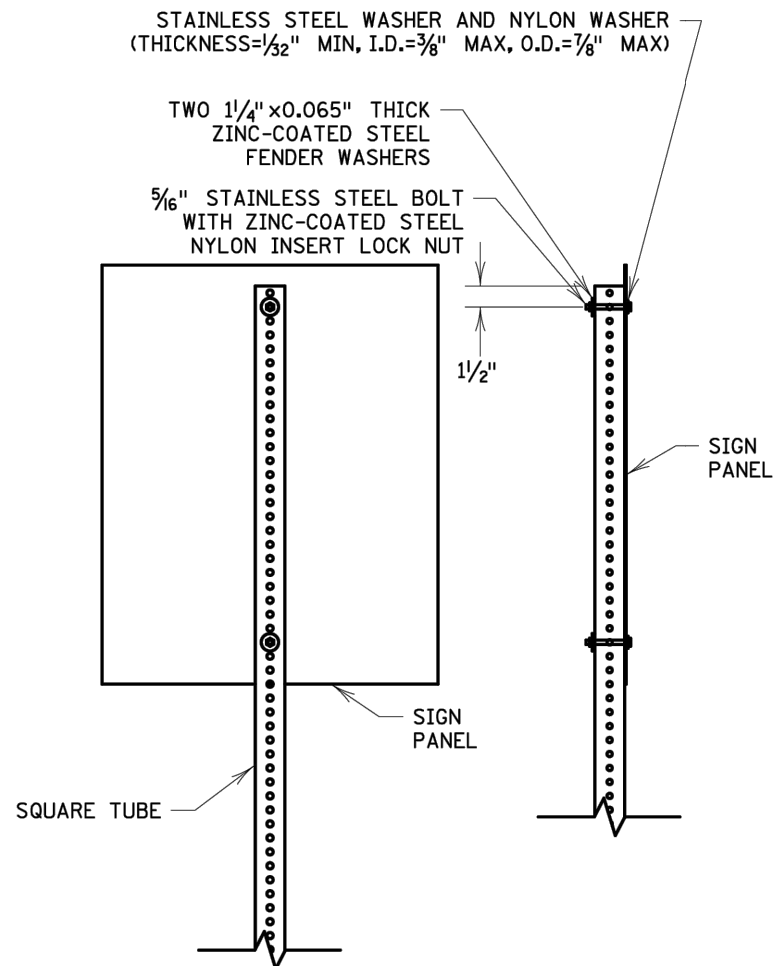
NOTES:

FOR DELINEATOR OFFSETS AT RAMP GORES, SEE STANDARD PLAN 5-297.703.

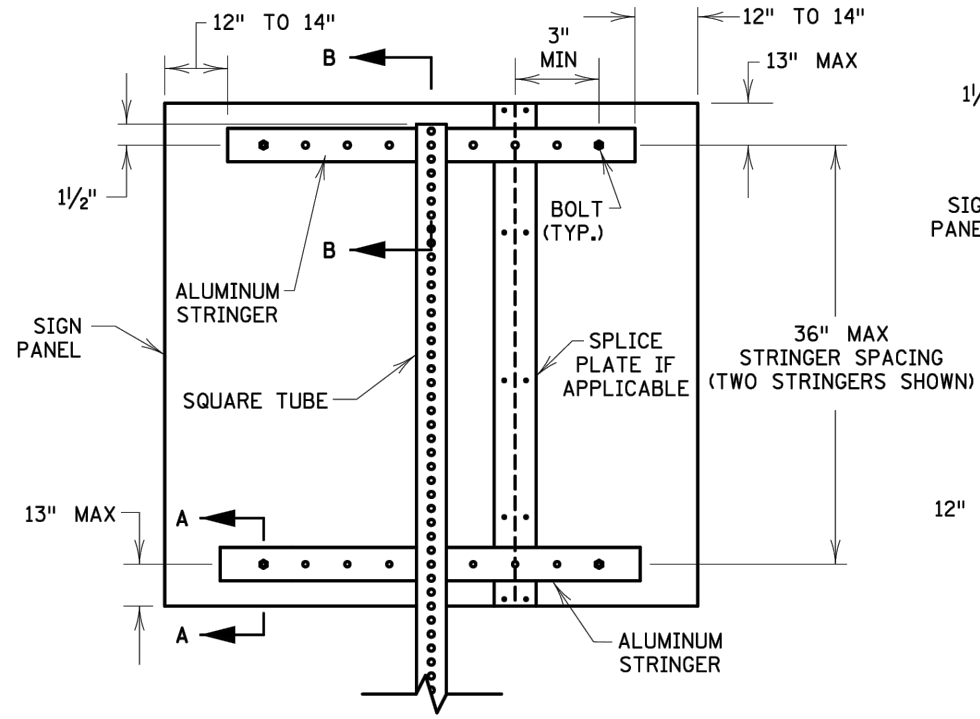
- ① PLACE MARKER AS CLOSE TO THE BEGINNING OF MEDIAN AS POSSIBLE.
- ② PLACE THE EDGE OF THE OBJECT MARKER THAT IS CLOSEST TO THE ROAD USER IN LINE WITH THE CLOSEST EDGE OF THE OBSTRUCTION. ANGLE THE STRIPES DOWNWARD TOWARDS THE SIDE TRAFFIC IS TO PASS THE OBSTRUCTION.
- ③ THE CRASHWORTHY HEIGHT FROM THE GROUND TO ANY PORTION OF THE SIGN PANEL IS AT LEAST 7' FOR BREAKAWAY STRUCTURES AND AT LEAST 4' FOR BENDABLE STRUCTURES. SEE SPECIFIC SQUARE TUBE BASE STRUCTURE PLAN FOR CRASH RESPONSE TYPE.
- ④ ADJUST OFFSET TO MATCH OTHER SIGN OFFSETS ALONG ROADWAY CORRIDOR, BUT NOT MORE THAN 12' NOR LESS THAN 2'.

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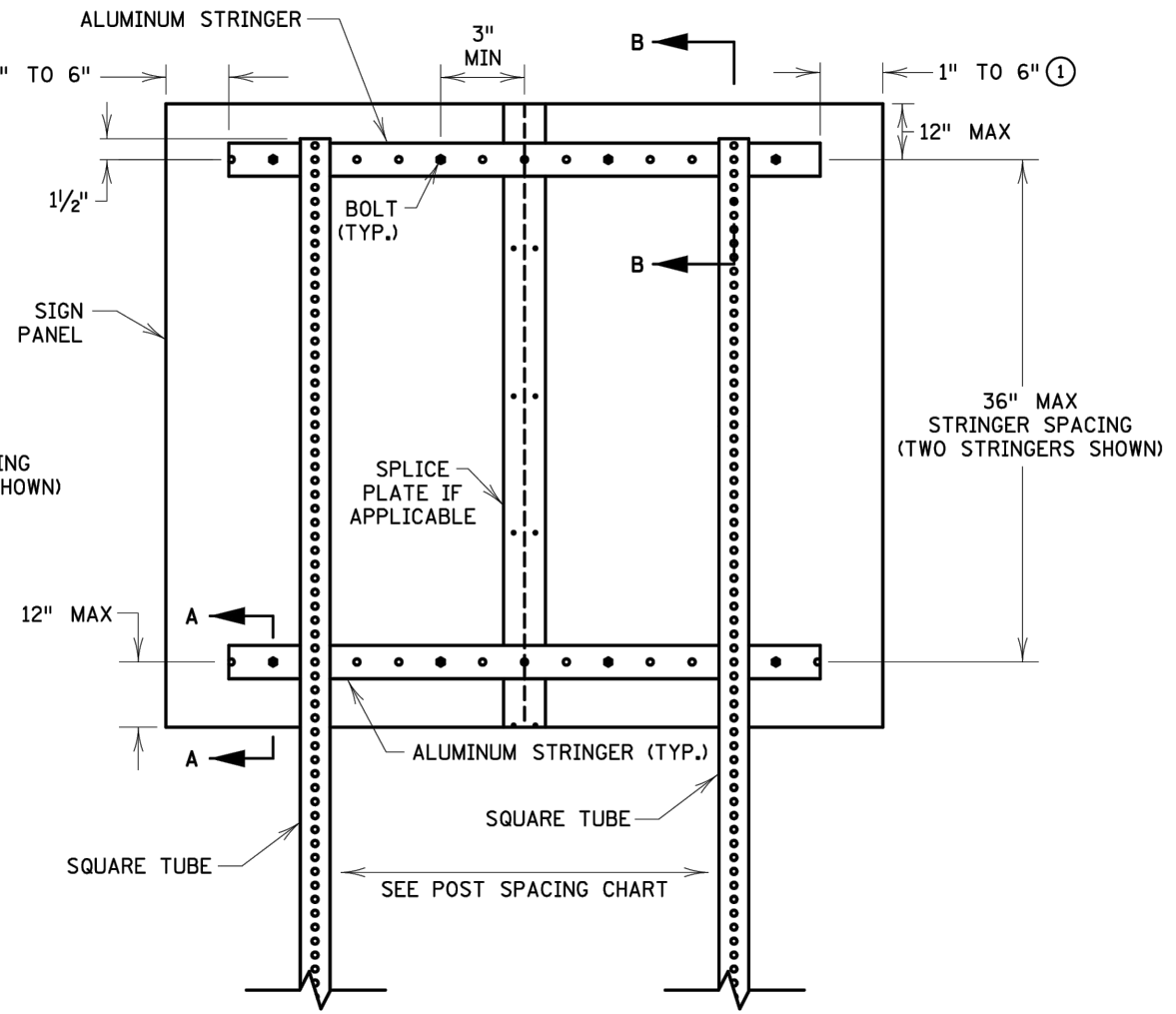
<b>LEAD EXPERT OFFICE</b> BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING		<b>DELINEATOR AND MARKER PLACEMENT</b>		APPROVED: 02-28-2022 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	<b>STANDARD PLAN</b> 5-297.702	1 OF 1
		<b>STANDARD PLAN</b>		STATE PROJ. NO. 199-117-002	SHEET NO. 32	TRUNK HWY. 47	TOTAL SHEETS 38



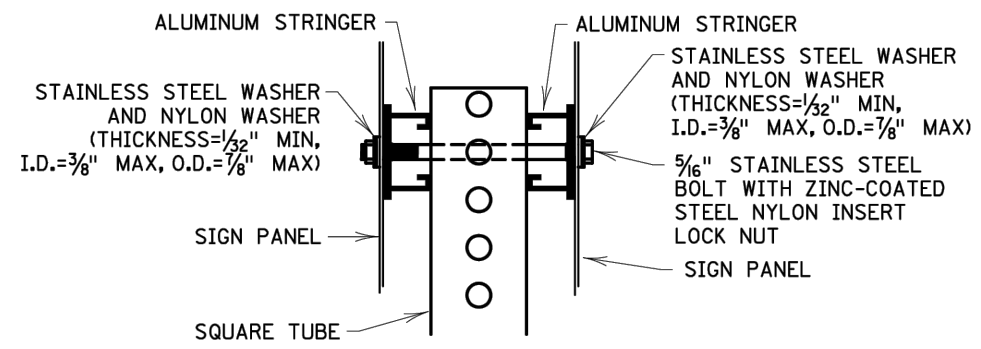
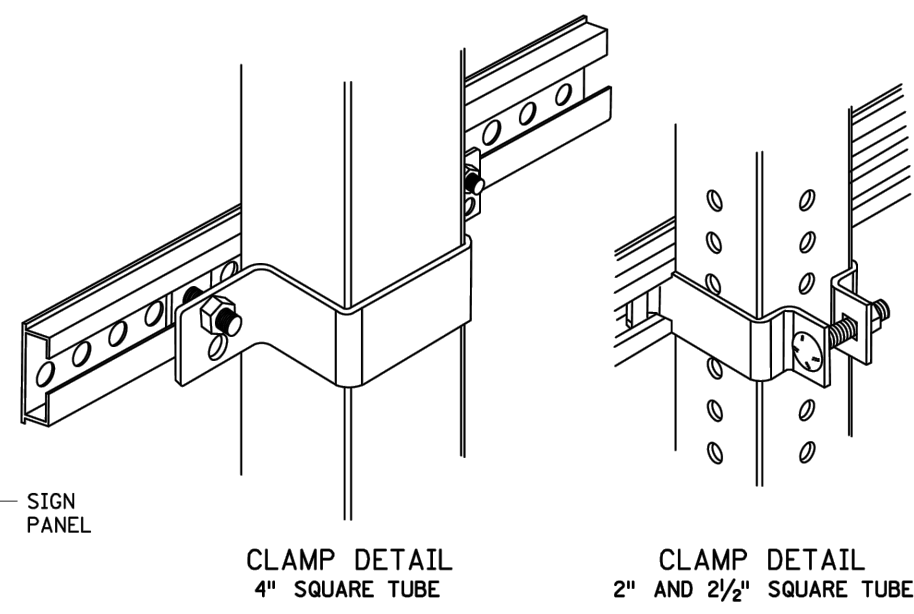
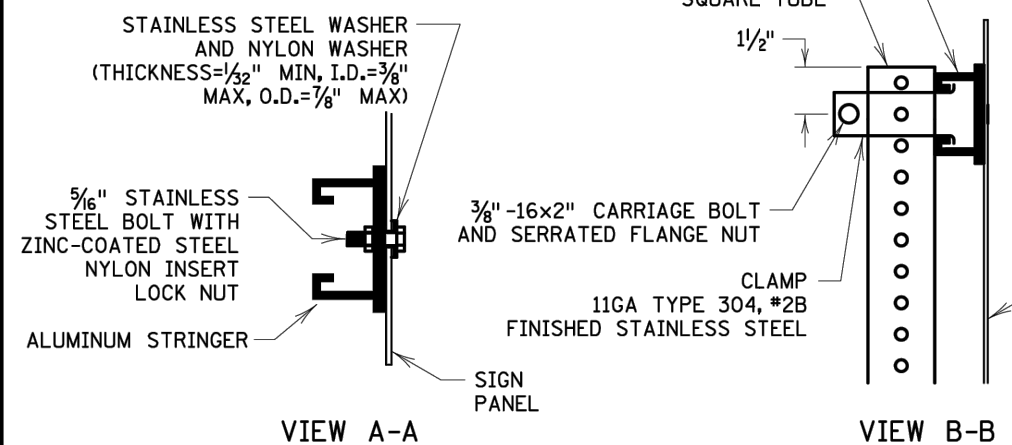
FOR SIGN PANELS UP TO 30" WIDE



FOR SIGN PANELS 36" WIDE OR GREATER ON ONE POST



FOR SIGN PANELS ON TWO OR MORE POSTS



BACK-TO-BACK SIGN MOUNTING WITH STRINGERS

NOTES:  
 BOLT SIGN PANELS TO STRINGERS OR RISER POSTS AT NO GREATER THAN 24" SPACING OR ACCORDING TO THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR MOUNTING HOLES (PUNCH CODES) INFORMATION.  
 CENTER STRINGERS ON SIGN PANEL.

① IF POST SPACING REQUIRES PLACEMENT OF A POST WITHIN THIS AREA, EXTEND STRINGERS AS NEEDED TO ACCOMMODATE THE STRINGER TO POST CLAMP.

LEAD EXPERT OFFICE  
 BRIAN SORENSON  
 STATE TRAFFIC ENGINEER  
 OFFICE OF TRAFFIC ENGINEERING

SQUARE-TUBE SIGN MOUNTING DETAILS

APPROVED: 08-09-2023  
 REVISED:

THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

STANDARD PLAN  
 5-297.718

1 OF 3

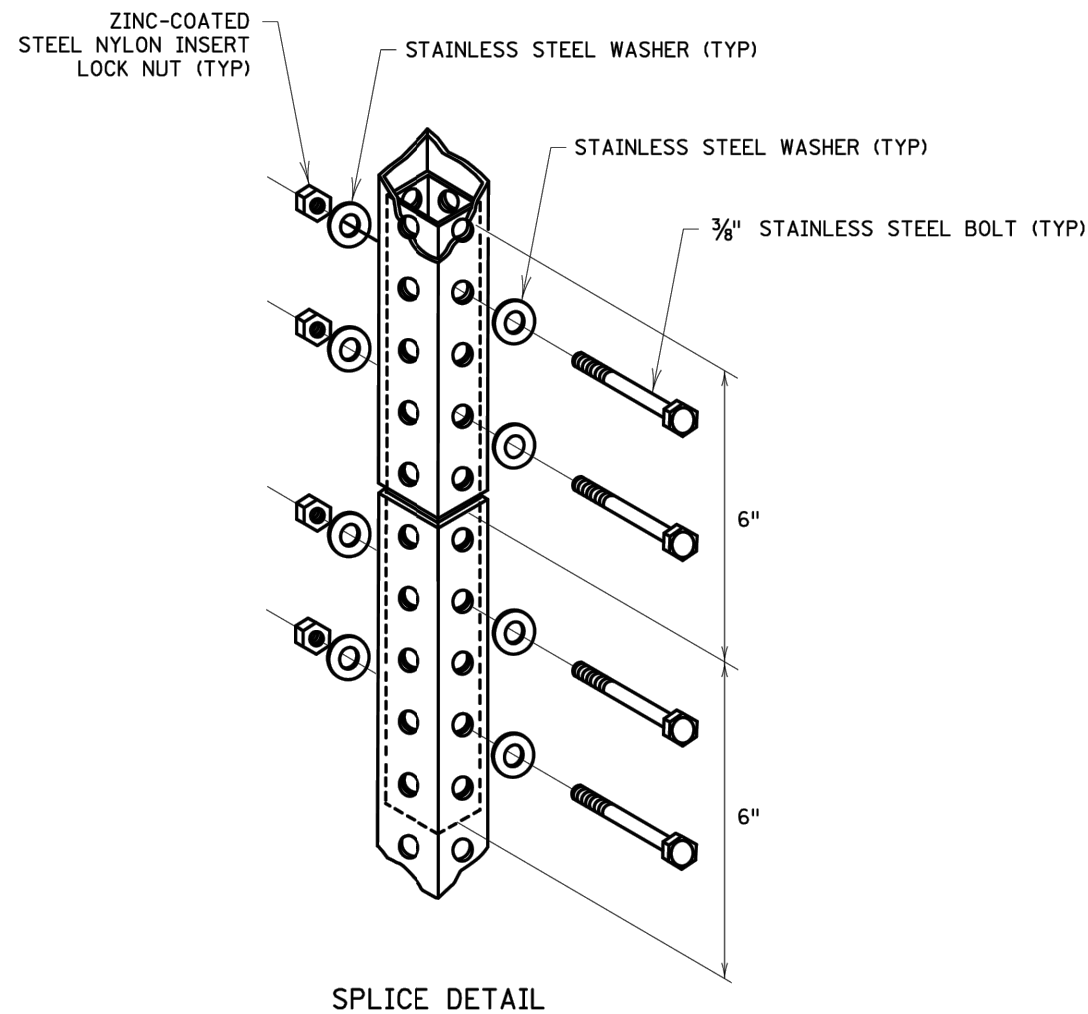


STANDARD PLAN

STATE PROJ. NO. 199-117-002  
 TRUNK HWY. 47

SHEET NO. 33  
 TOTAL SHEETS 38

Apr 15, 2024 - 10:25am  
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PANEL WIDTH	SQUARE TUBE POST SPACING						
	2 POSTS	3 POSTS	4 POSTS	5 POSTS	6 POSTS	7 POSTS	8 POSTS
(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)	(IN)
42	15						
48	21						
54	30						
60	36						
66	36						
72	42						
78	42						
84	48						
90	48	42					
96	48	42					
102	54	42					
108	54	42					
114	60	42					
120	60	48					
126	66	48					
132	66	48	42				
138	72	48	42				
144	72	48	42				
150	78	54	42				
156	78	54	42				
162	84	54	42				
168	84	60	48				
174	90	60	48	42			
180	90	60	48	42			
186	96	66	48	42			
192	96	66	48	42			
198	102	66	54	42			
204	102	72	54	42			
210	108	72	54	42			
216	108	72	54	48	42		
222	114	78	60	48	42		
228	114	78	60	48	42		
234	120	78	60	48	42		
240	120	84	60	48	42		
246		84	66	54	42		
252		84	66	54	42		
258		90	66	54	42	42	
264		90	66	54	48	42	
270		90	72	54	48	42	
276		96	72	60	48	42	
282		96	72	60	48	42	
288		96	72	60	48	42	
294		102	78	60	54	42	
300		102	78	60	54	42	42
306		102	78	66	54	42	42
312		108	78	66	54	48	42
318		108	84	66	54	48	42
324		108	84	66	54	48	42
330		114	84	66	60	48	42
336		114	84	72	60	48	42

DISTANCES ARE CENTER-TO-CENTER OF POSTS

**NOTES:**

NO MORE THAN ONE SPLICE PER POST.

WHEN USED, THE SPLICE MUST BE PLACED AT LEAST 8' ABOVE GROUND. THE PREFERRED PLACEMENT LOCATION IS BEHIND THE SIGN PANEL.

INTERIOR POST STUD SHALL BE ONE SIZE SMALLER FOR TIGHT FIT. IF RISER POST IS 2 1/2", INTERIOR POST IS 2 3/16". IF RISER POST IS 2", INTERIOR POST IS 1 3/4".

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**LEAD EXPERT OFFICE**  
 BRIAN SORENSON  
 STATE TRAFFIC ENGINEER  
 OFFICE OF TRAFFIC ENGINEERING



**SQUARE-TUBE SIGN MOUNTING DETAILS**

APPROVED: 08-09-2023  
 REVISED:

*Thomas Styrbicki*  
 THOMAS STYRBICKI  
 STATE DESIGN ENGINEER

**STANDARD PLAN**  
 5-297.718

2 OF 3

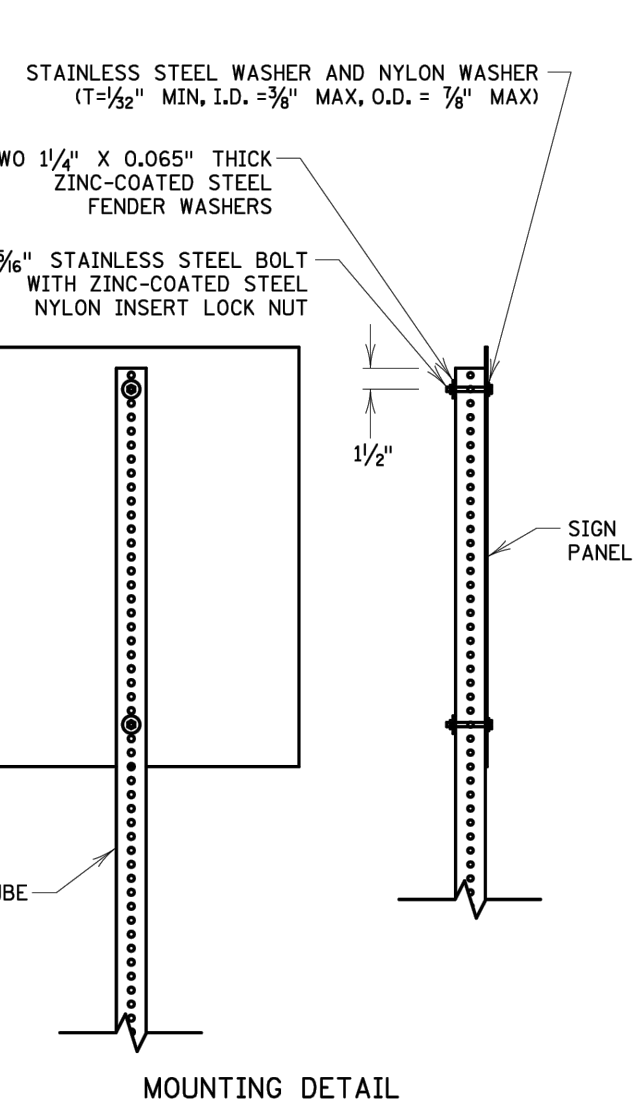
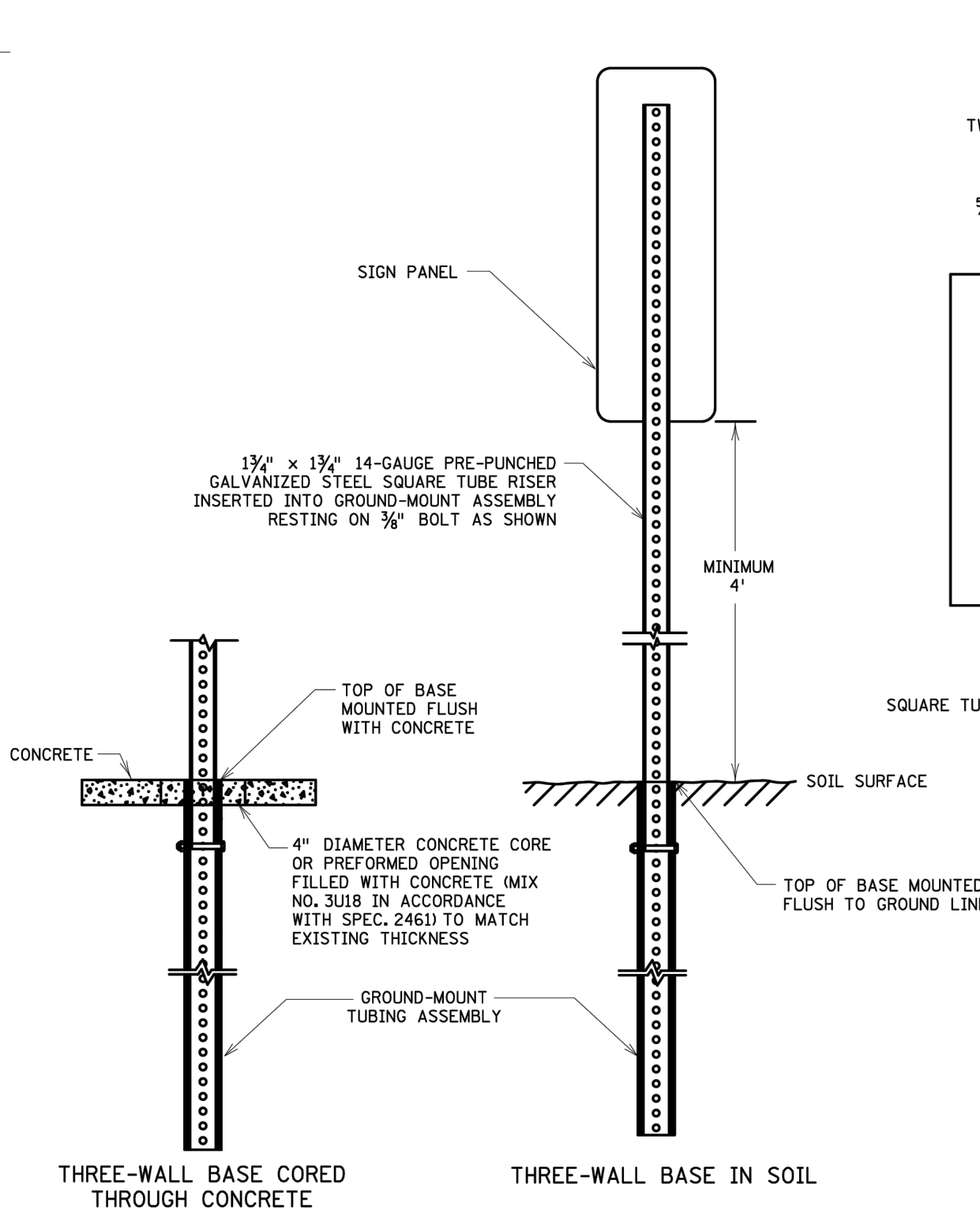
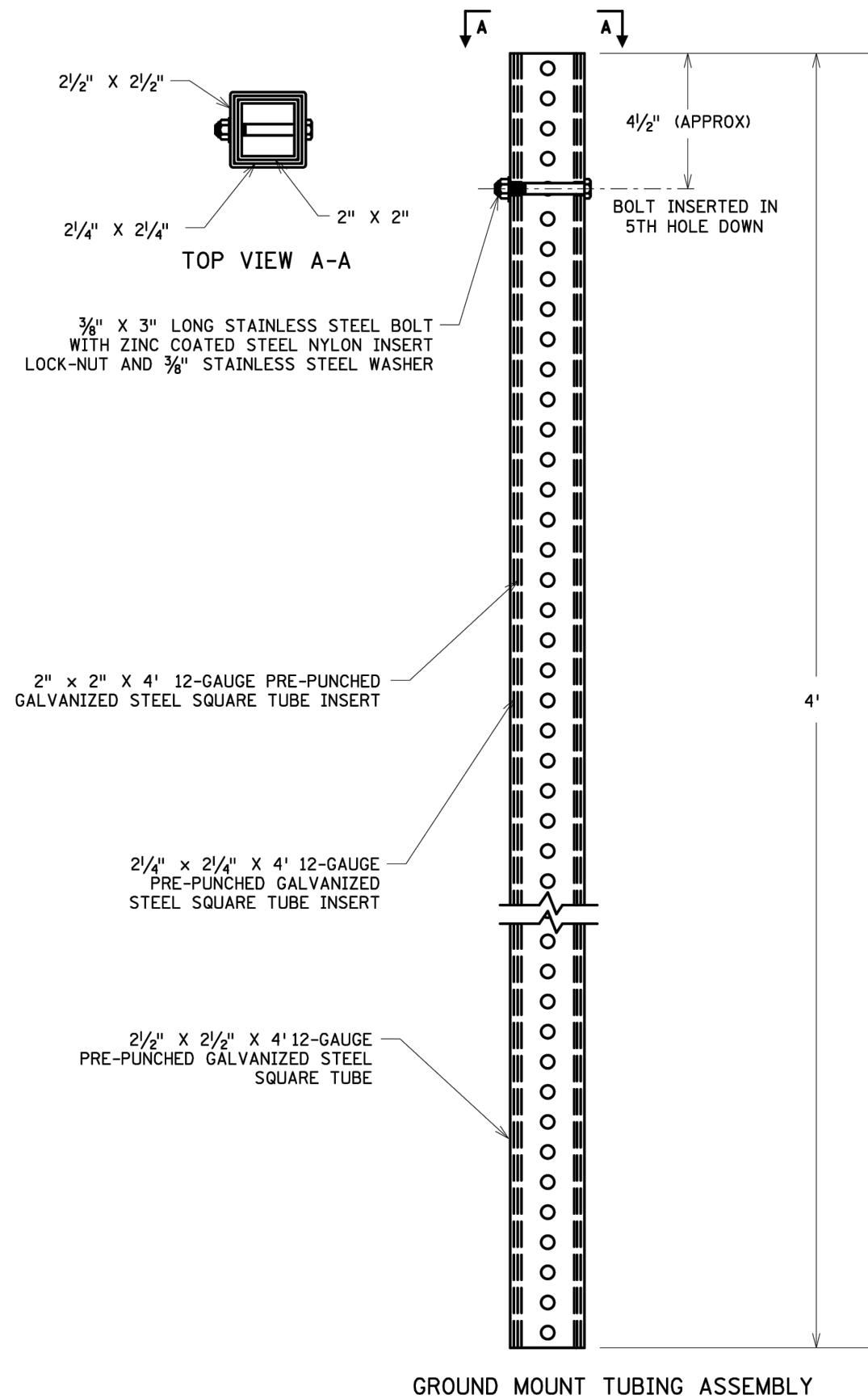
STANDARD PLAN

STATE PROJ. NO. 199-117-002  
 TRUNK HWY. 47

SHEET NO. 34  
 TOTAL SHEETS 38

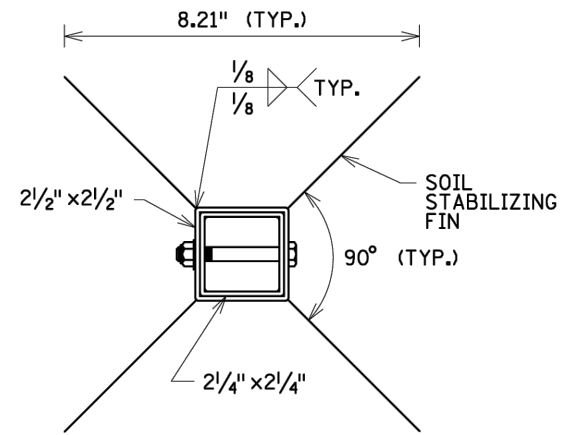


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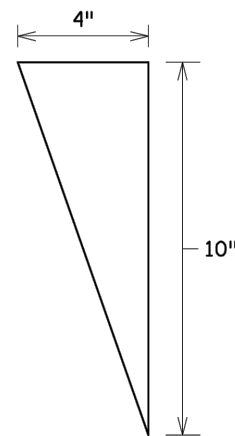


**NOTES:**  
 THE CRASH RESPONSE FOR THIS STRUCTURE IS BENDABLE.  
 TO MEET CRASHWORTHY REQUIREMENTS THE DISTANCE BETWEEN THE BOTTOM OF THE SIGN PANEL AND THE GROUND SURFACE BELOW ANY PORTION OF THE SIGN PANEL SHALL BE A MINIMUM OF 4'. SEE TABULATIONS FOR MOUNTING HEIGHT.  
 SQUARE TUBE SIGN POSTS PER MNDOT SPEC. 3402.

<b>LEAD EXPERT OFFICE</b> BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING	 DEPARTMENT OF TRANSPORTATION	<b>THREE-WALL BASE</b> FOR 1 3/4" SQUARE-TUBE RISER POST	APPROVED: 11-29-2022 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	<b>STANDARD PLAN</b> 5-297.721	<b>1 OF 1</b>
					STATE PROJ. NO. 199-117-002 TRUNK HWY. 47	SHEET NO. 36 TOTAL SHEETS 38



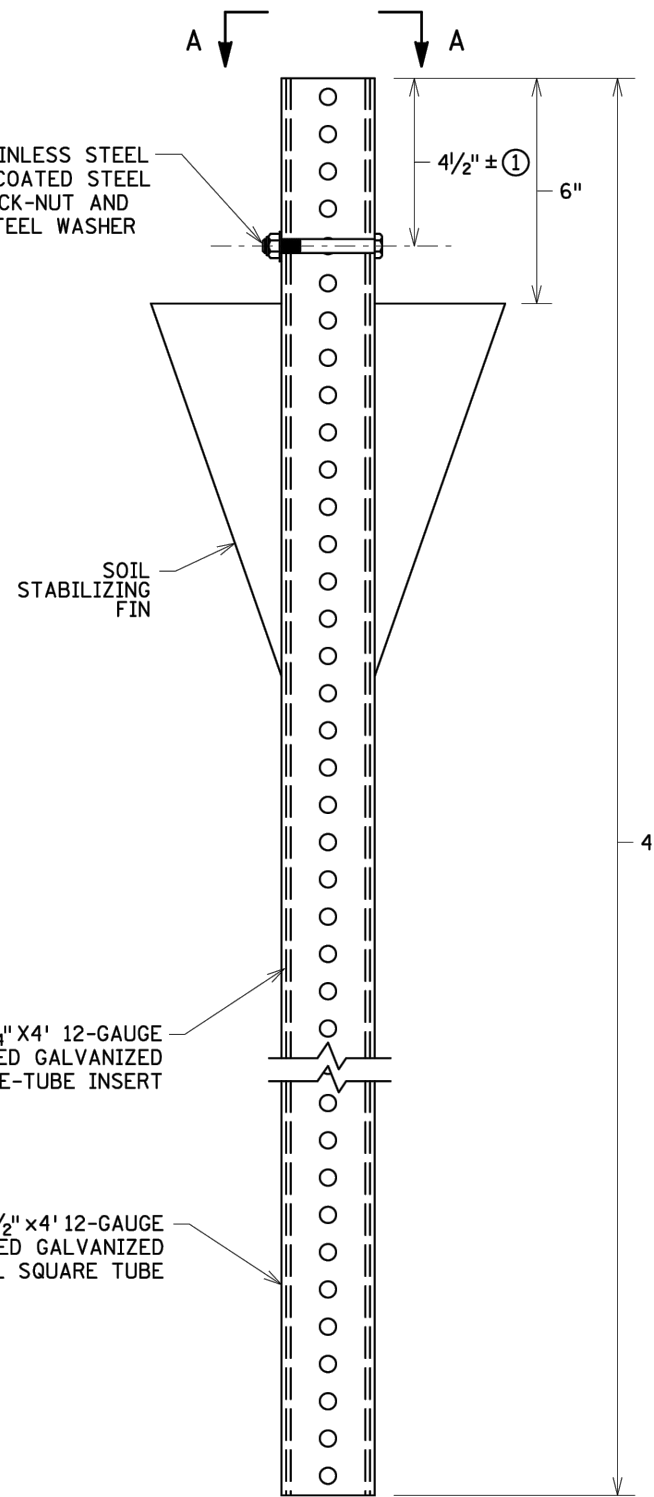
VIEW A-A



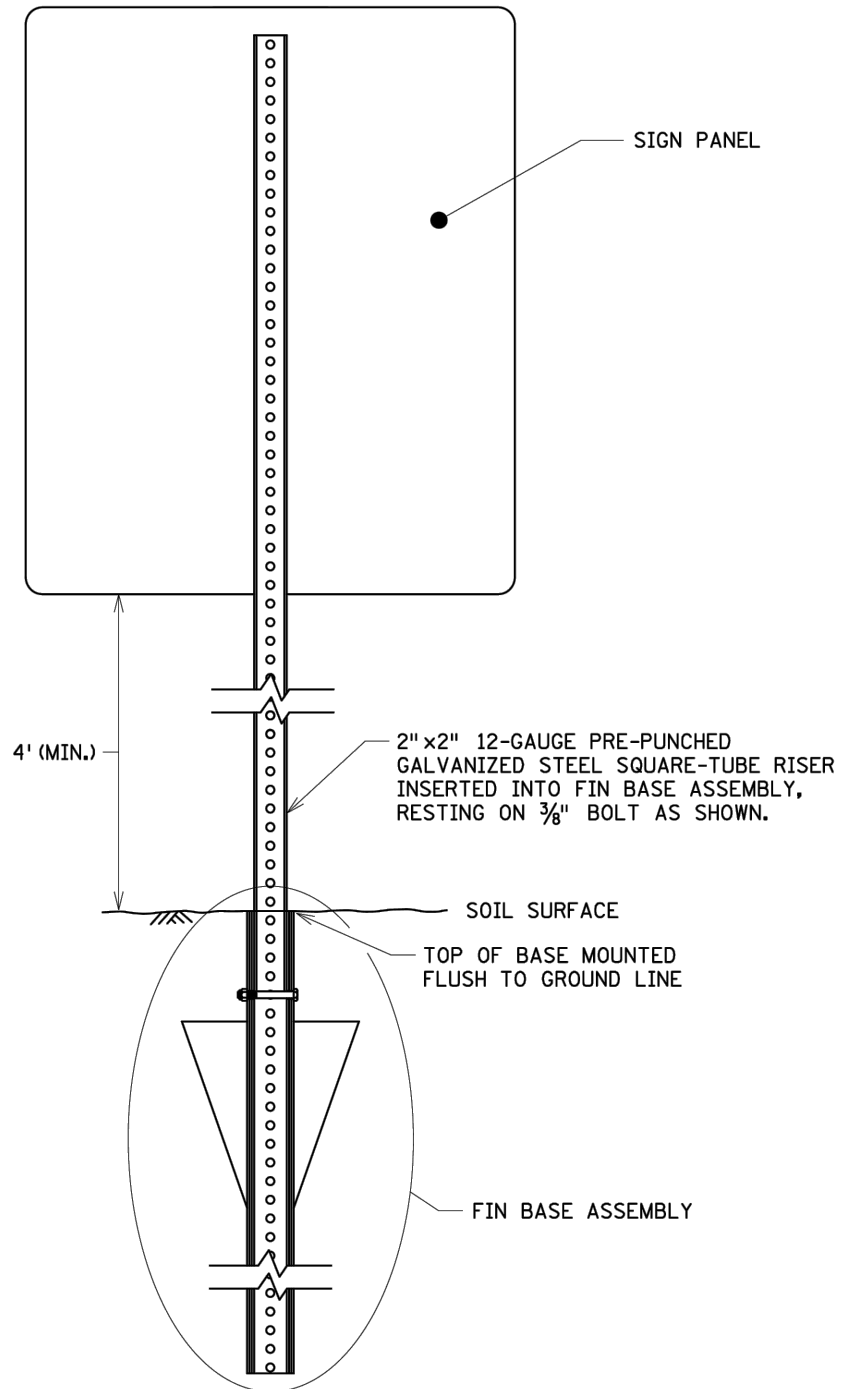
SOIL STABILIZING FIN  
FOUR REQUIRED

12-GAUGE PRE-GALVANIZED ASTM A569 STEEL. WELD THE 10" EDGE OF EACH FIN TO EACH CORNER OF THE 2 1/2" SQUARE TUBE. SEE VIEW A-A FOR WELDING DETAILS. WELDS MUST BE ZINC-COATED.

3/8" x 3" LONG STAINLESS STEEL BOLT WITH ZINC-COATED STEEL NYLON INSERT LOCK-NUT AND 3/8" STAINLESS STEEL WASHER



FIN BASE ASSEMBLY



FIN BASE IN SOIL

NOTES:

THE CRASH RESPONSE TYPE FOR THIS STRUCTURE IS BENDABLE.

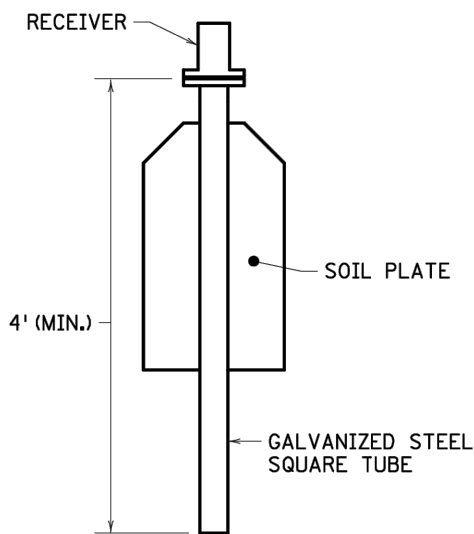
TO MEET CRASHWORTHY REQUIREMENTS, THE DISTANCE BETWEEN THE BOTTOM OF THE SIGN PANEL AND THE GROUND SURFACE BELOW ANY PORTION OF THE SIGN PANEL MUST BE A MINIMUM OF 4'. SEE TABULATIONS FOR MOUNTING HEIGHT.

SEE STANDARD PLAN 5-297.718 FOR ADDITIONAL MOUNTING DETAILS.

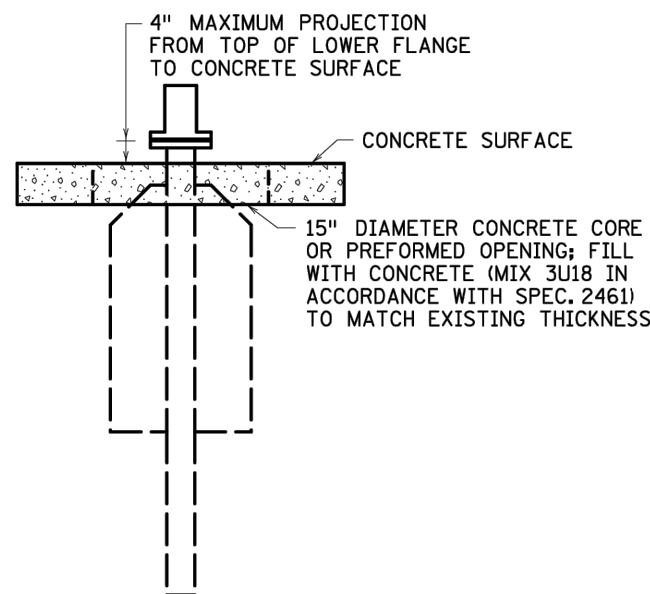
SQUARE-TUBE SIGN POSTS IN ACCORDANCE WITH SPEC. 3402.

① INSERT BOLT IN 5TH HOLE DOWN.

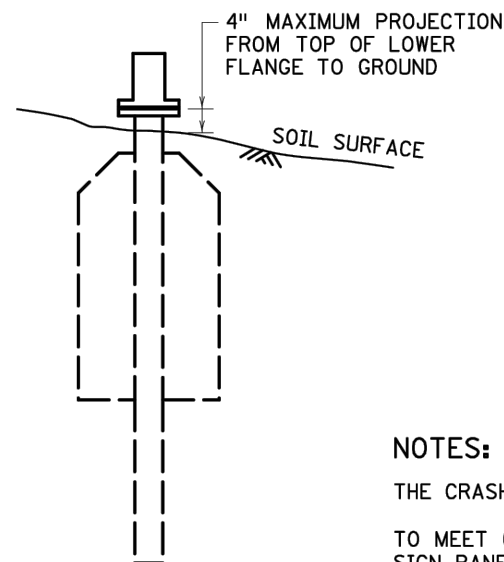
<b>LEAD EXPERT OFFICE</b> BRIAN SORENSON STATE TRAFFIC ENGINEER OFFICE OF TRAFFIC ENGINEERING		<b>FIN BASE</b> FOR 2" SQUARE-TUBE RISER POST IN SOIL		APPROVED: 08-09-2023 REVISED:	 THOMAS STYRBICKI STATE DESIGN ENGINEER	<b>STANDARD PLAN</b> 5-297.722	1 OF 1
		<b>STANDARD PLAN</b>		STATE PROJ. NO. 199-117-002	SHEET NO. <b>37</b>		
				TRUNK HWY. 47	TOTAL SHEETS <b>38</b>		



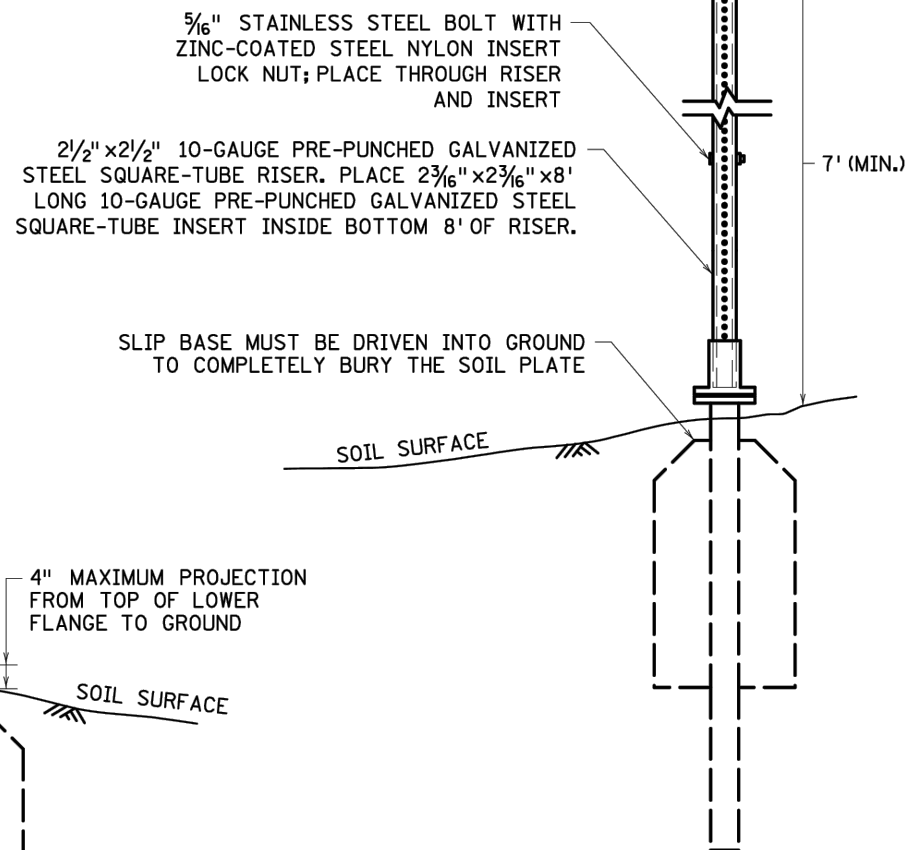
PROPRIETARY SLIP BASE ASSEMBLY ①



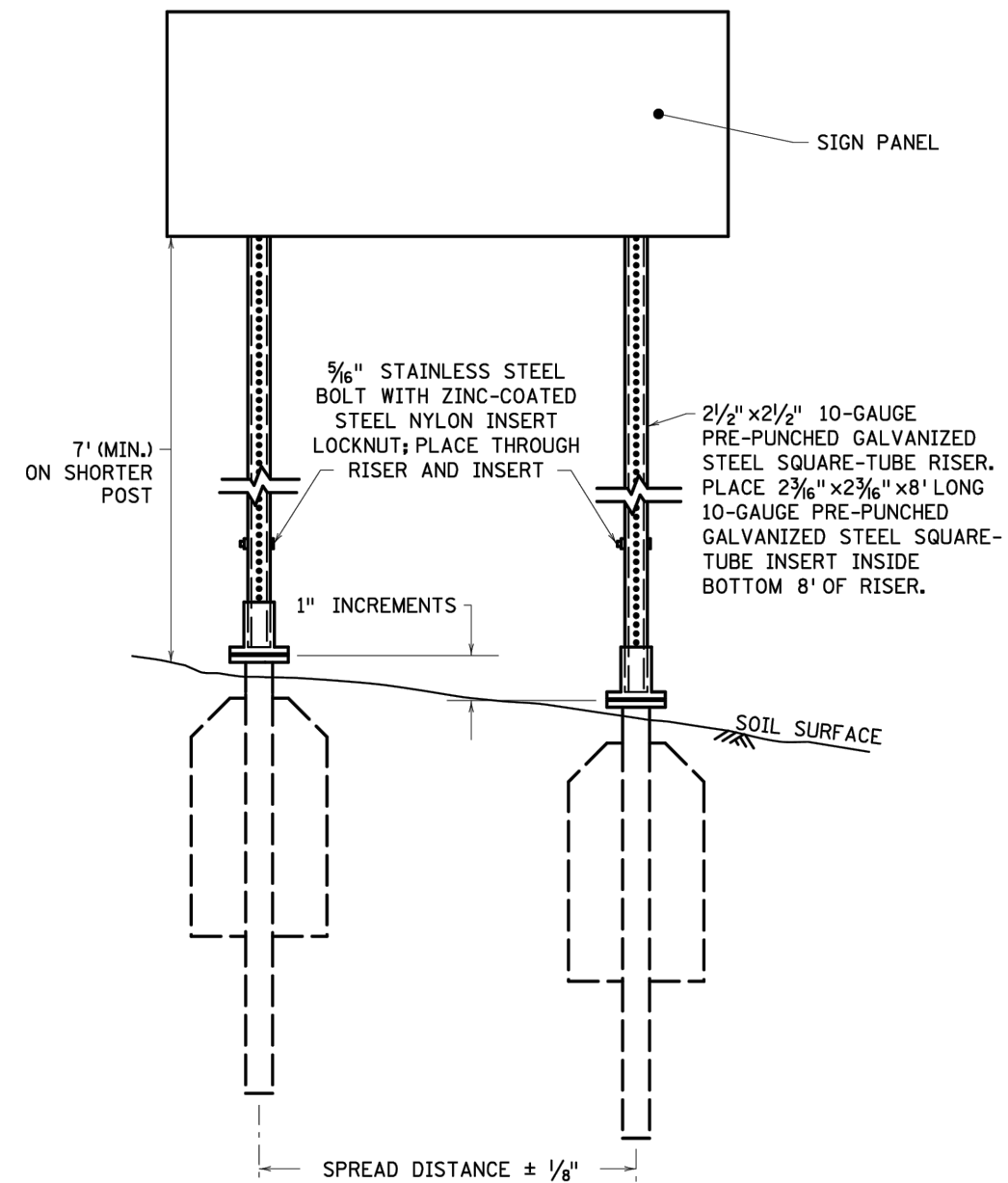
SLIP BASE ASSEMBLY IN CONCRETE



SLIP BASE ASSEMBLY IN SOIL



SLIP BASE ASSEMBLY WITH SINGLE-POST SIGN  
TYPICAL PLACEMENT IN SOIL



SLIP BASE ASSEMBLY WITH MULTIPLE-POST SIGN ②  
TYPICAL PLACEMENT IN SOIL

NOTES:

THE CRASH RESPONSE TYPE FOR THIS STRUCTURE IS BREAKAWAY.

TO MEET CRASHWORTHY REQUIREMENTS, THE DISTANCE BETWEEN THE BOTTOM OF THE PRIMARY SIGN PANEL AND THE GROUND SURFACE BELOW ANY PORTION OF THE PRIMARY SIGN PANEL MUST BE A MINIMUM OF 7'. SEE SIGNING PLAN TABULATIONS FOR MOUNTING HEIGHT.

1/16" -THICK LEVELING SHIMS MAY BE USED TO PLUMB TOP HALF. PLACE SHIMS UNDER TEFLON-COATED SLIP WASHER. MAXIMUM OF TWO SHIMS PER NOTCH POINT.

FOR SIGN PANEL MOUNTING DETAILS, SEE STANDARD PLAN 5-297.718.

SQUARE TUBE SIGN POST IN ACCORDANCE WITH MNDOT SPEC. 3402.

① USE APPROVED PRODUCT FROM THE SIGN STRUCTURES PAGE OF THE SIGNING SECTION OF THE APPROVED PRODUCTS LIST.

② FOR MULTIPLE-POST APPLICATIONS, ENSURE SOIL PLATES ARE COMPLETELY BURIED. IF SOIL SURFACE IS NOT LEVEL, DRIVE THE BASES UNTIL THEY ARE OFFSET IN 1" INCREMENTS. THE BASES MUST BE TRUE AND SQUARE WITH ONE ANOTHER TO ENSURE PROPER UNRESTRICTED INSERTION OF STEEL TUBE RISERS. MOUNT SIGN PANELS LEVEL.

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LEAD EXPERT OFFICE  
BRIAN SORENSON  
STATE TRAFFIC ENGINEER  
OFFICE OF TRAFFIC ENGINEERING



SLIP BASE ASSEMBLY  
FOR 2 1/2" SQUARE-TUBE RISER POST

APPROVED: 08-09-2023  
REVISED:

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

STANDARD PLAN  
5-297.724

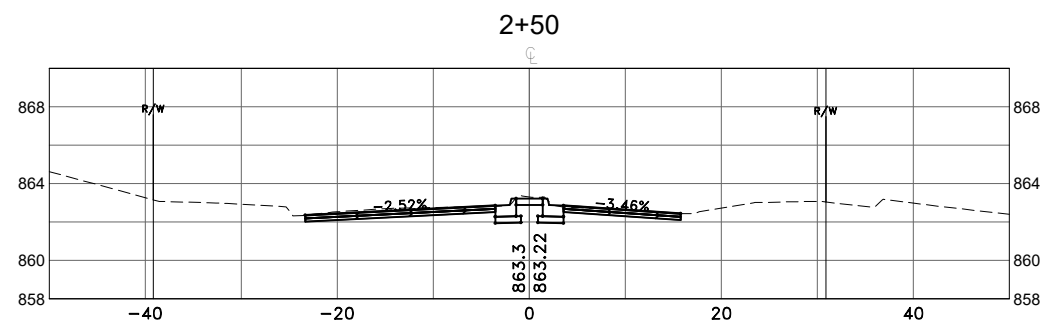
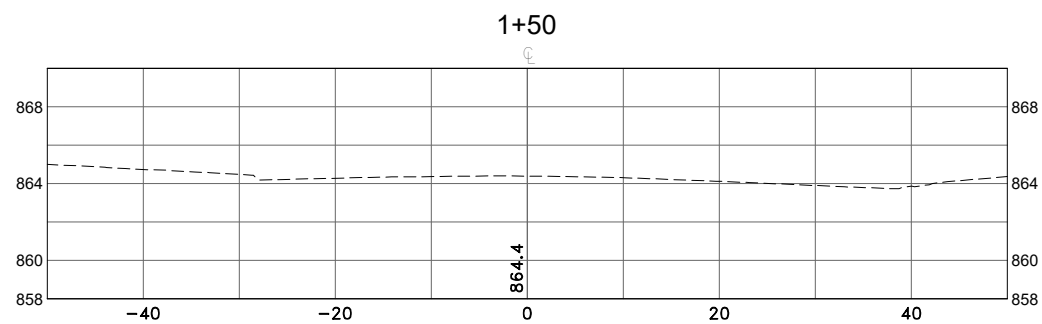
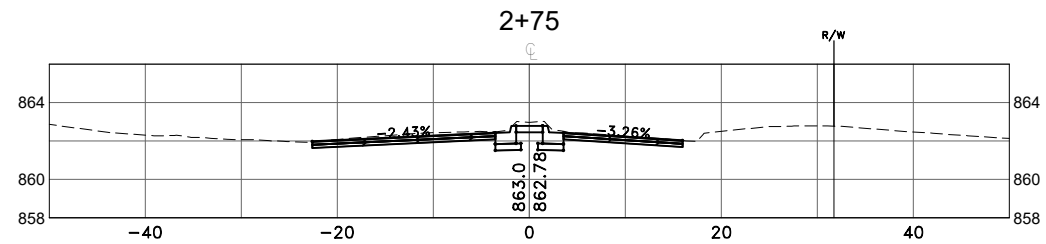
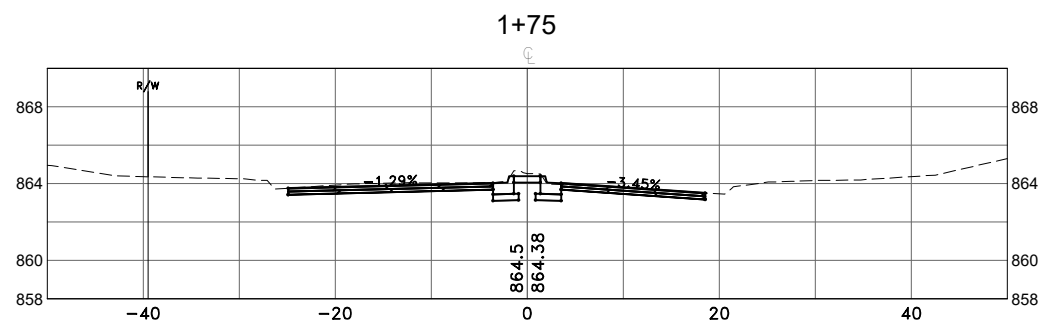
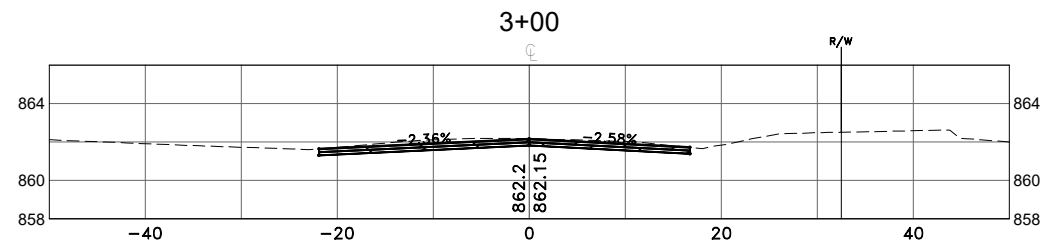
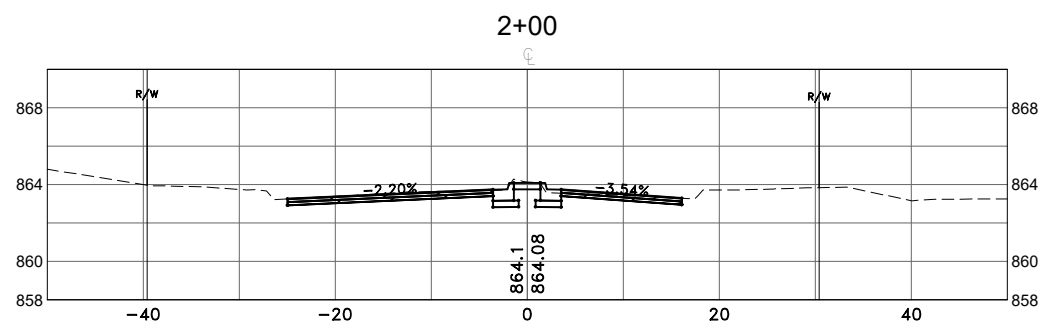
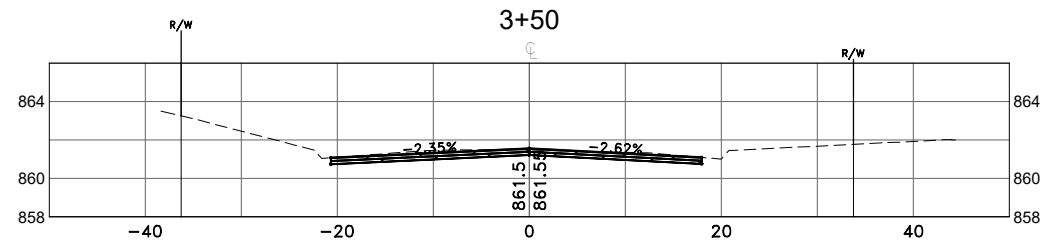
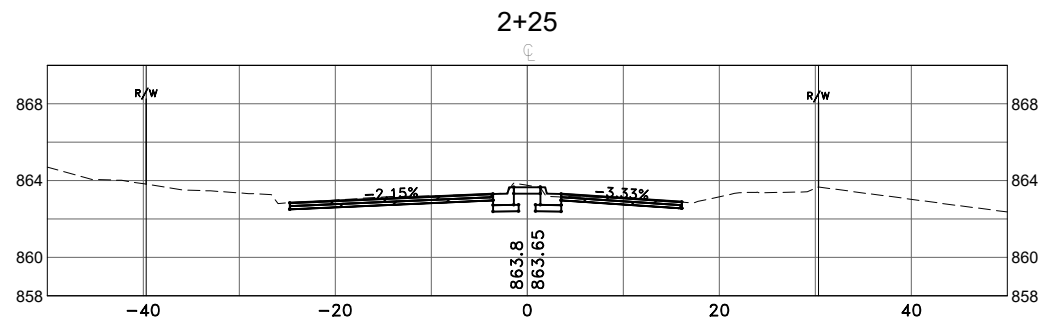
1 OF 1

STANDARD PLAN

STATE PROJ. NO. 199-117-002  
TRUNK HWY. 47

SHEET NO. 38  
TOTAL SHEETS 38

Apr 15, 2024 - 10:25am  
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TAE  
DRAWN BY:  
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CHECKED BY:  
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Civil Engineers and Land Surveyors  
3601 Thurston Ave., Anoka, Minnesota 55303  
763-427-5860 FAX 763-427-0520  
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**XKIMO STREET SURFACE  
IMPROVEMENT PROJECT**

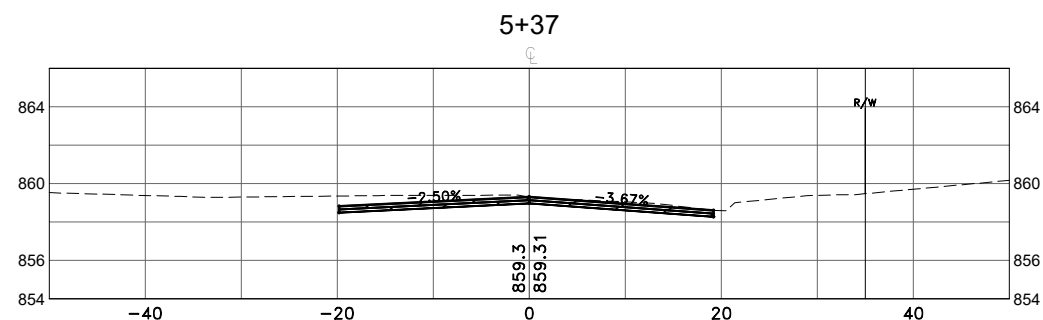
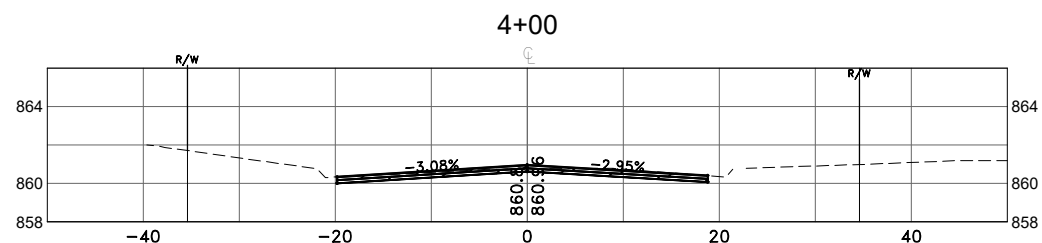
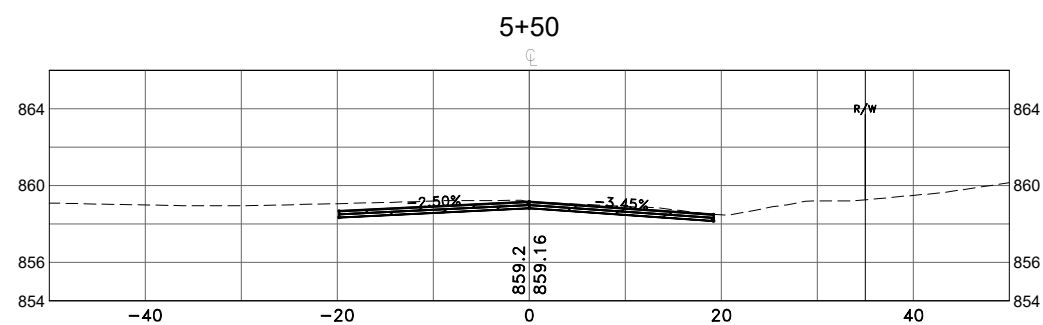
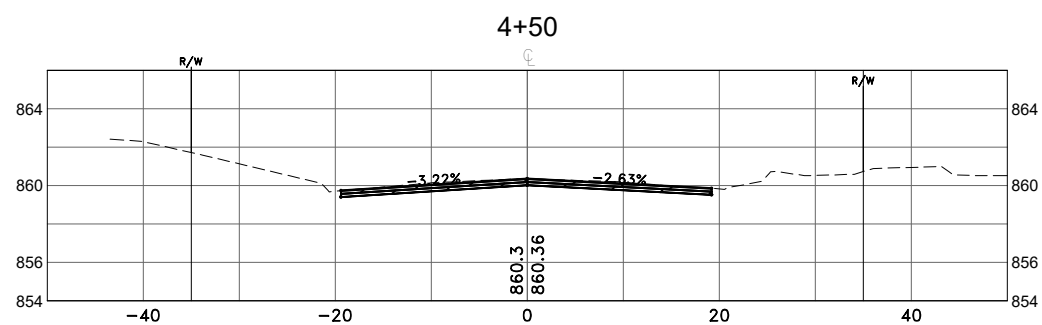
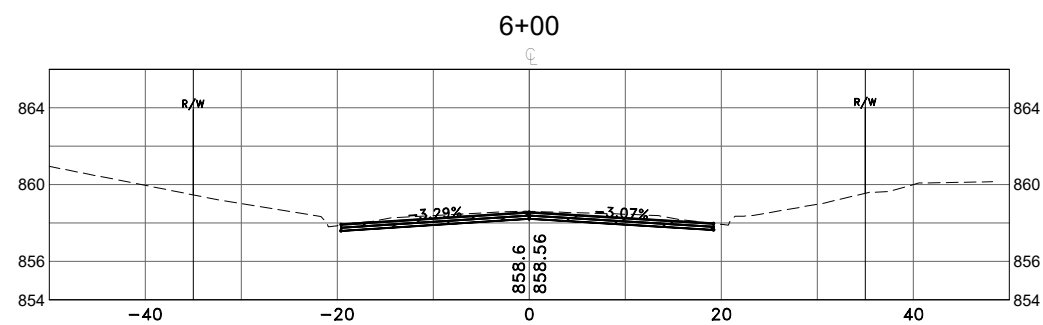
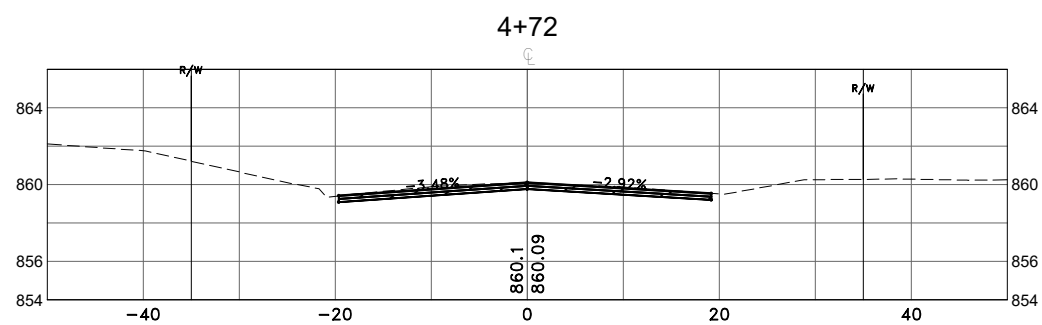
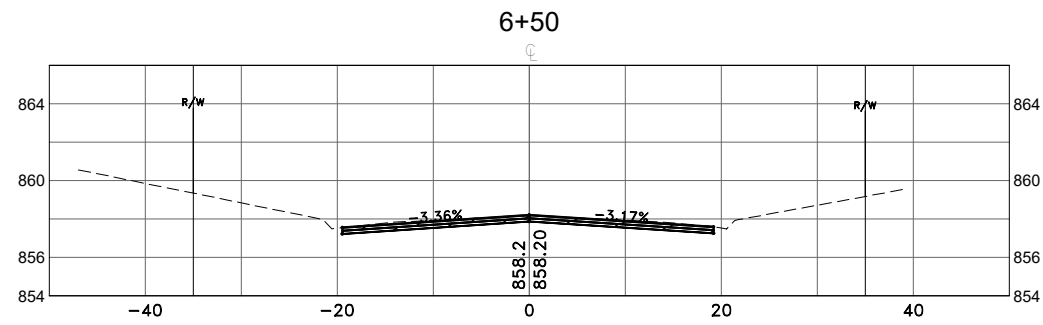
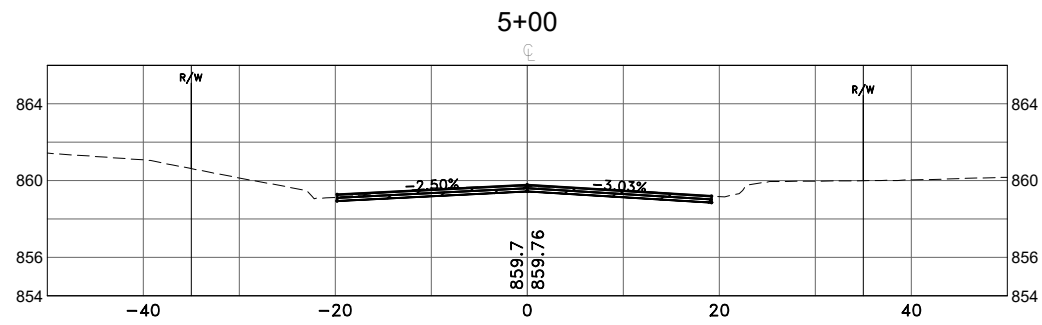
**CROSS SECTIONS**  
**XKIMO STREET**  
**CITY OF RAMSEY, MINNESOTA**

S.A.P. 199-117-002

SHEET  
X1  
OF  
X9  
SHEETS

RA3188

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S.A.P. 199-117-002

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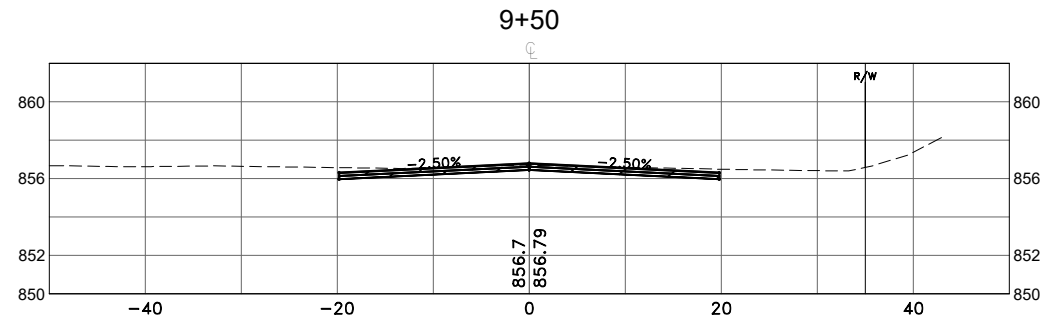
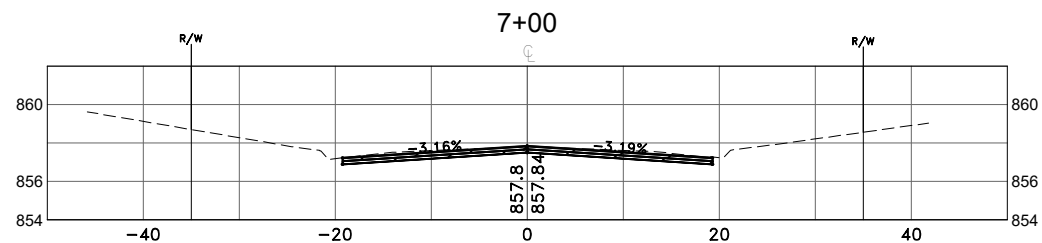
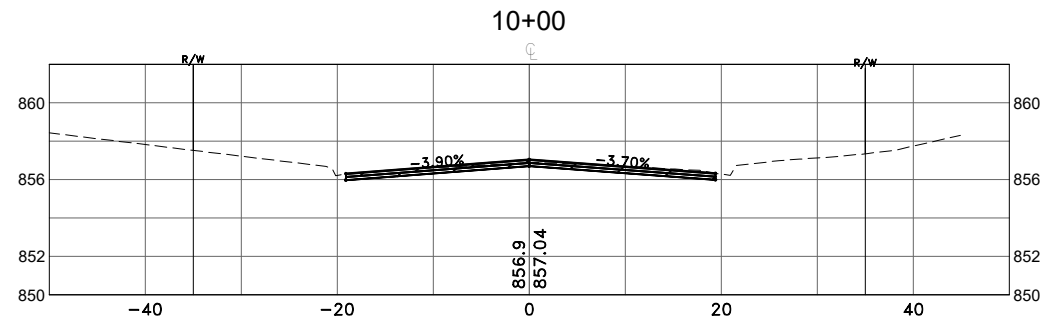
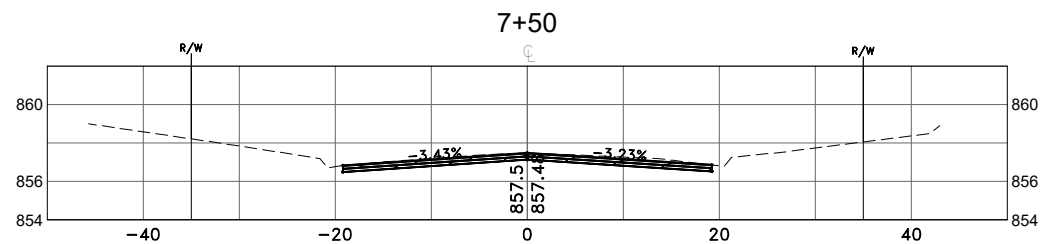
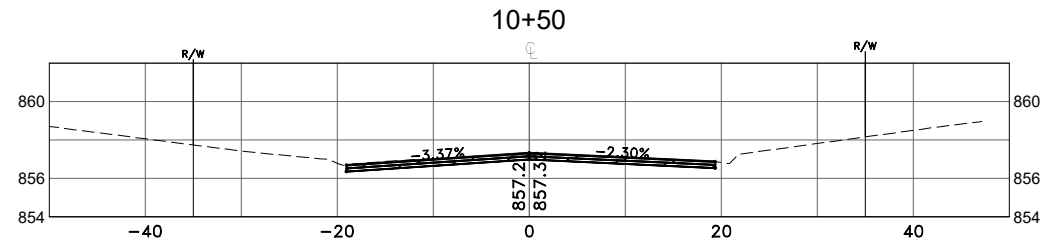
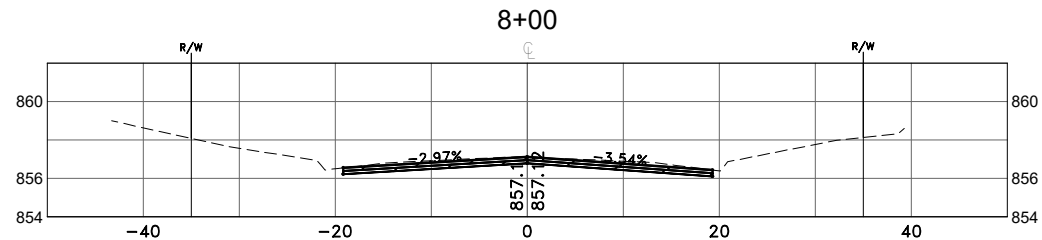
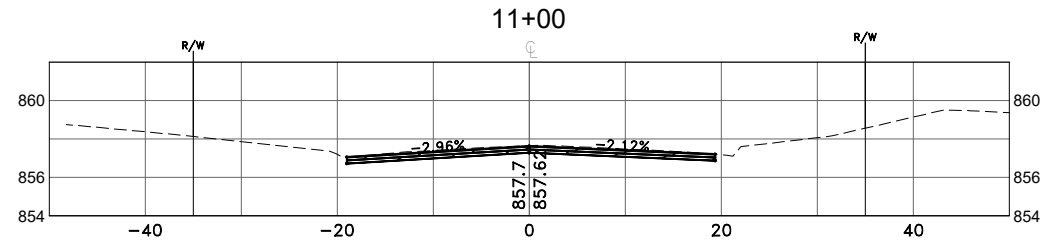
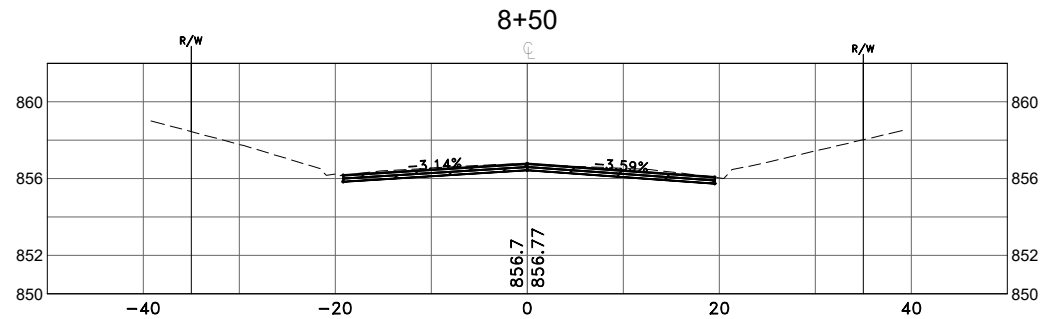
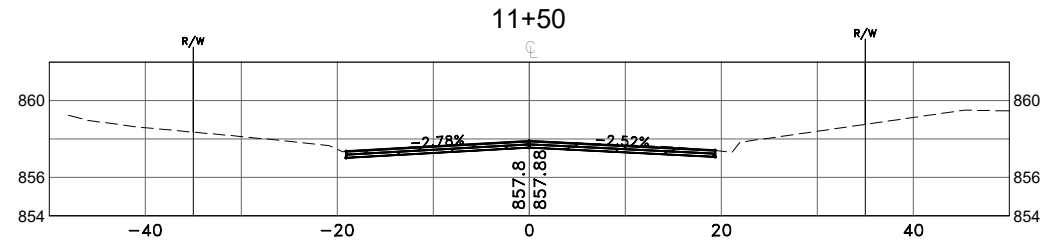
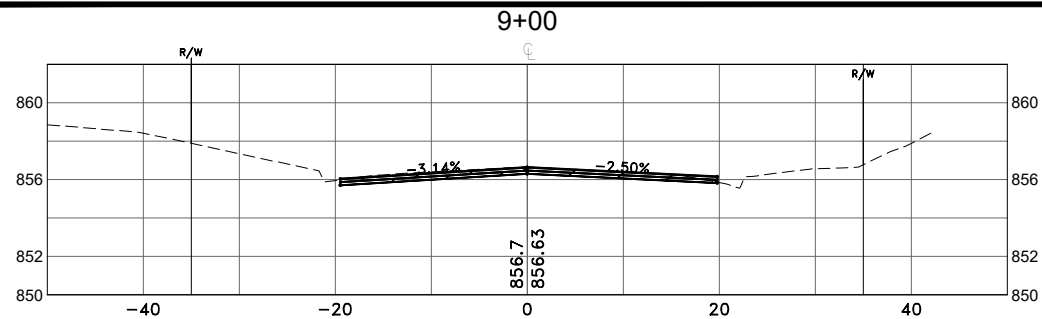
**XKIMO STREET SURFACE  
IMPROVEMENT PROJECT**

**CROSS SECTIONS**  
**XKIMO STREET**  
**CITY OF RAMSEY, MINNESOTA**

SHEET  
X2  
OF  
X9  
SHEETS

RA3188

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**XKIMO STREET SURFACE  
IMPROVEMENT PROJECT**

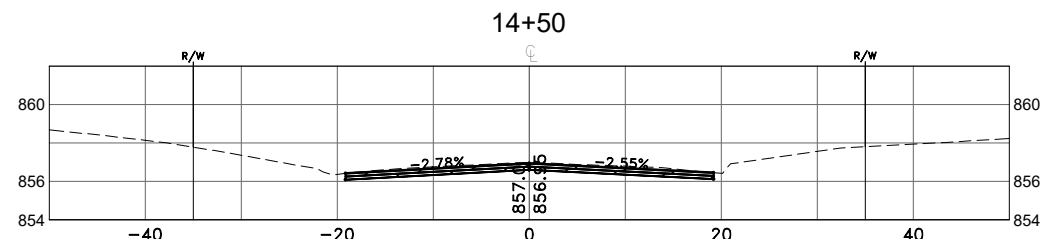
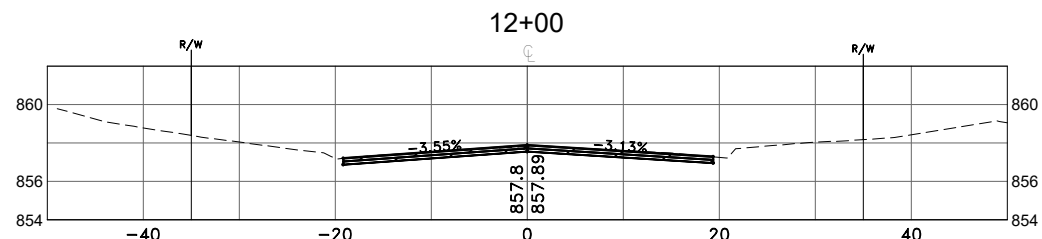
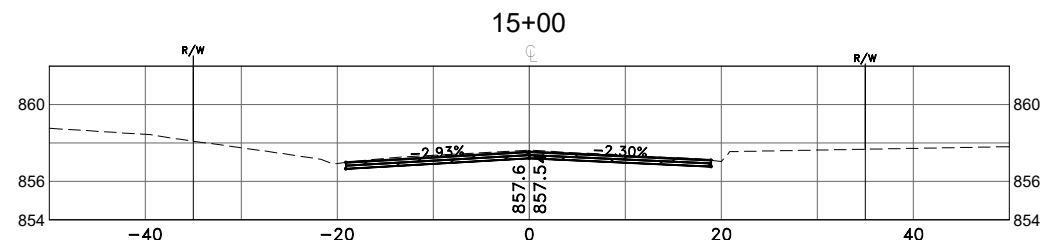
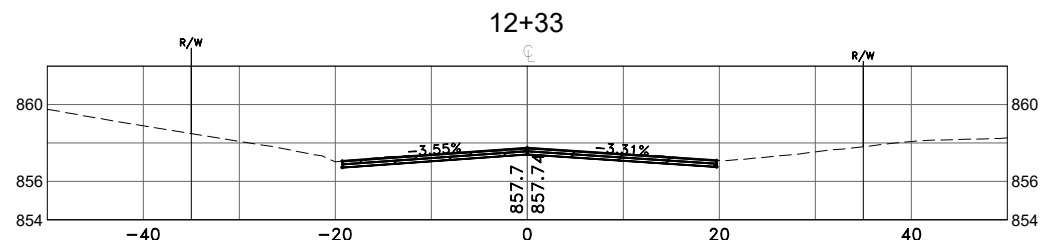
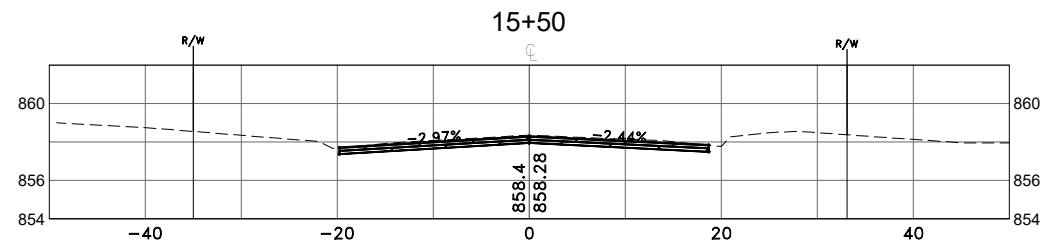
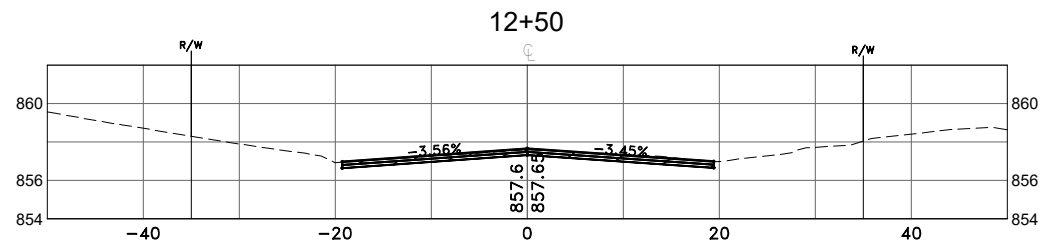
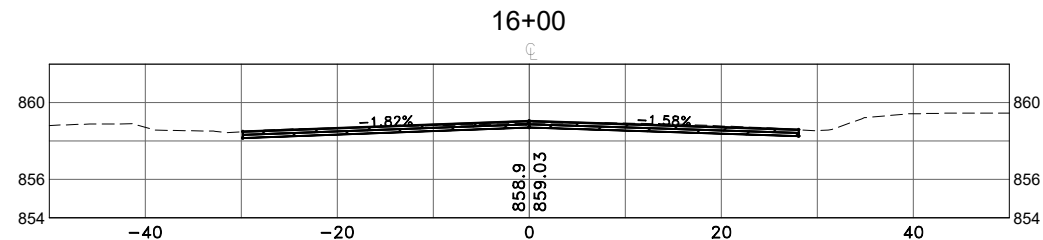
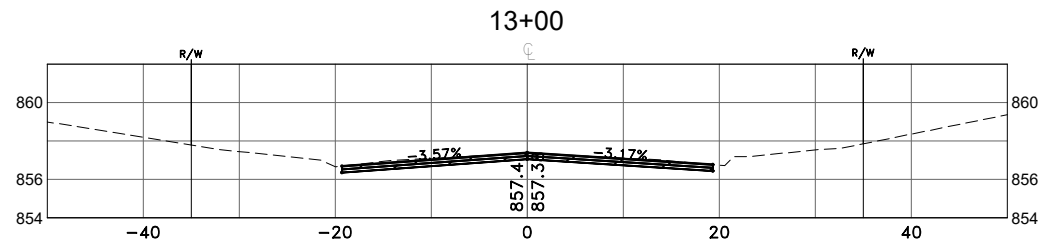
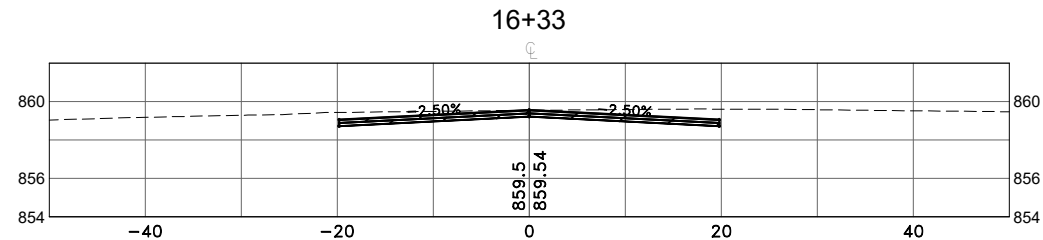
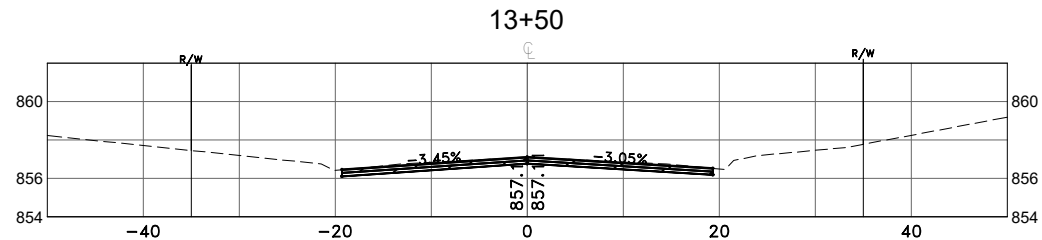
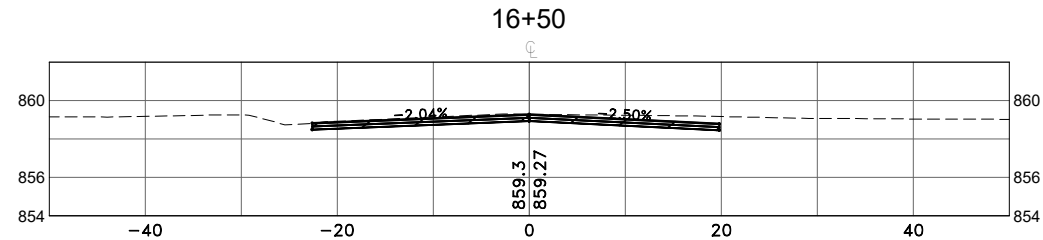
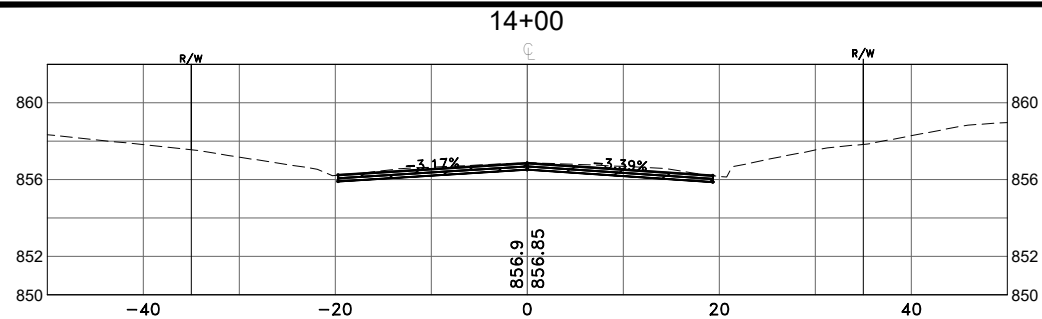
**CROSS SECTIONS**  
**XKIMO STREET**  
**CITY OF RAMSEY, MINNESOTA**

S.A.P. 199-117-002

SHEET  
**X3**  
OF  
**X9**  
SHEETS

RA3188

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IMPROVEMENT PROJECT**

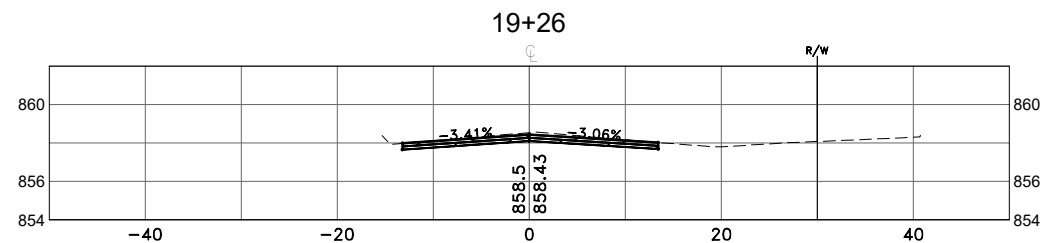
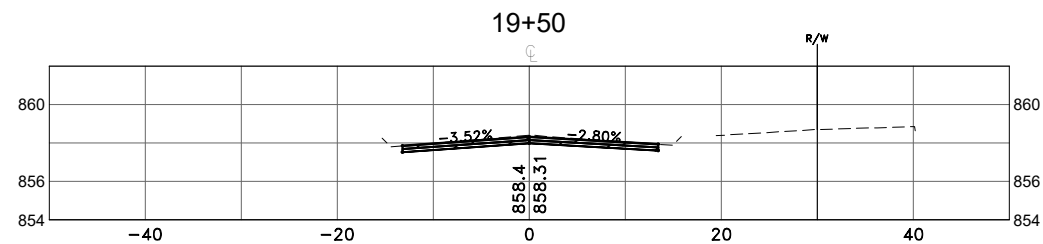
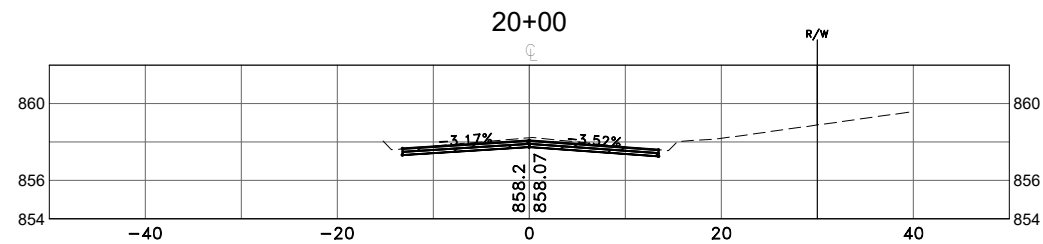
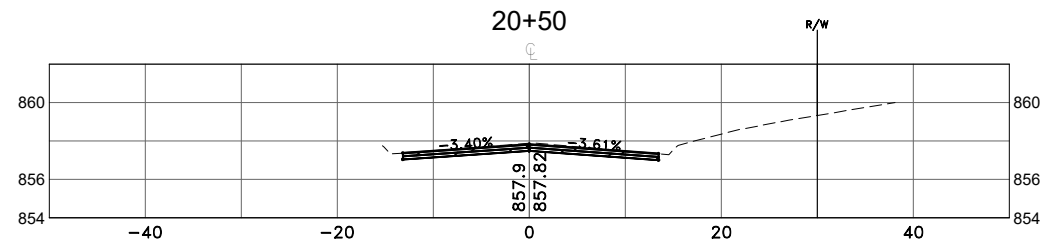
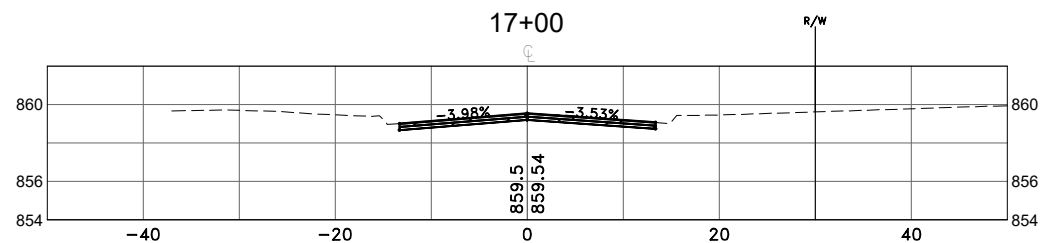
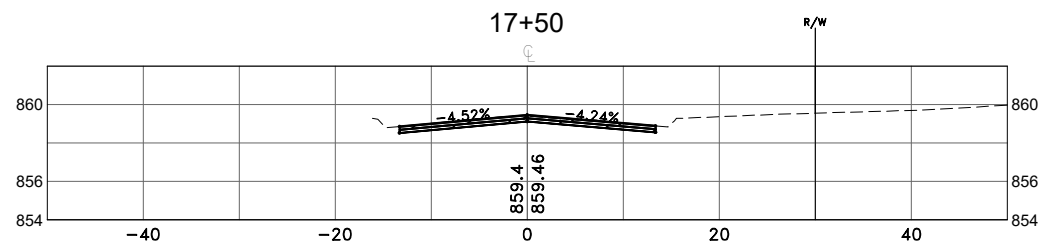
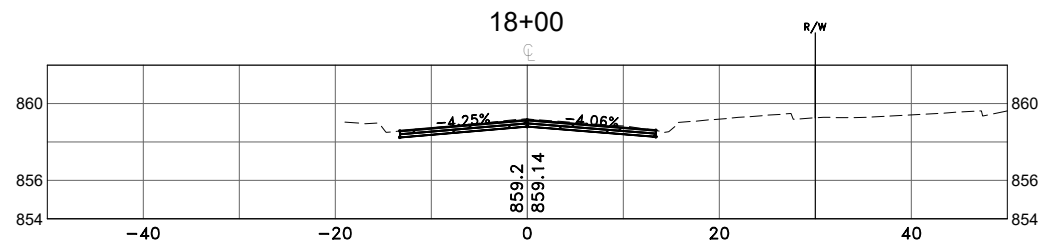
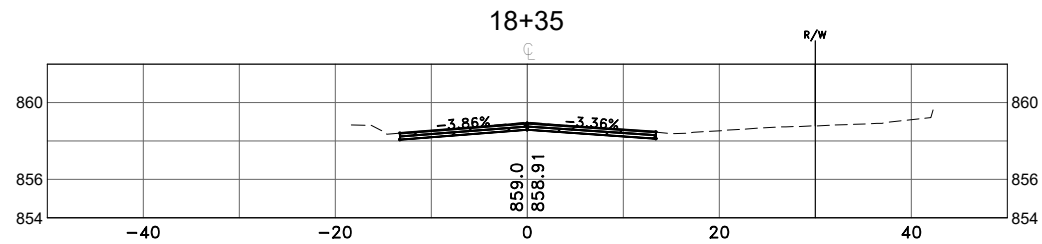
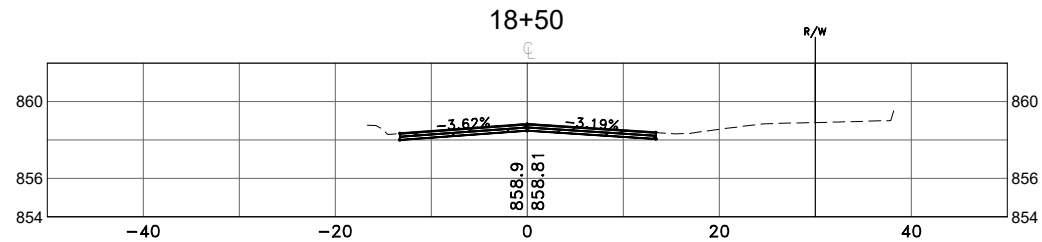
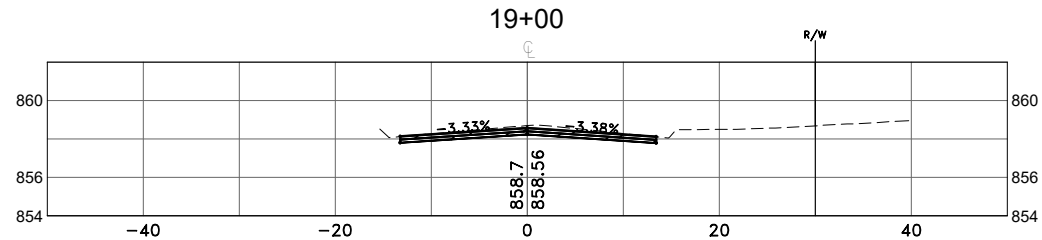
**CROSS SECTIONS**  
**XKIMO STREET**  
**CITY OF RAMSEY, MINNESOTA**

SHEET  
**X4**  
OF  
**X9**  
SHEETS

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IMPROVEMENT PROJECT**

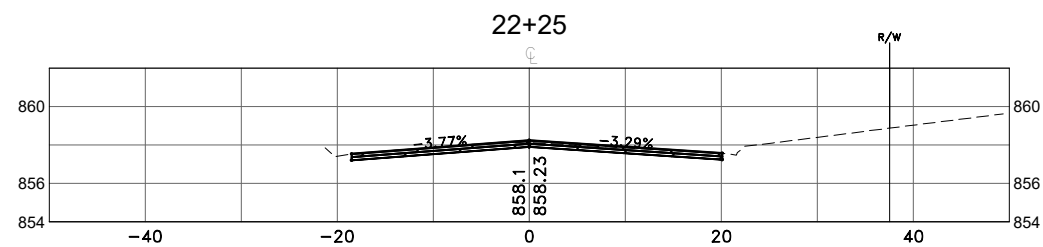
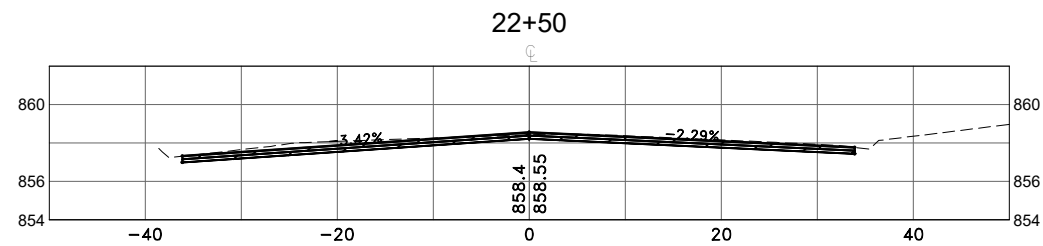
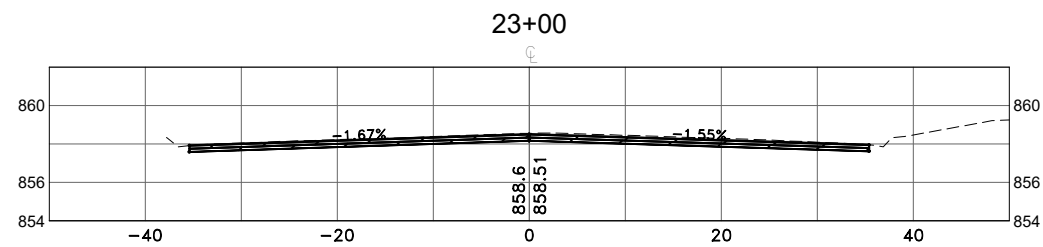
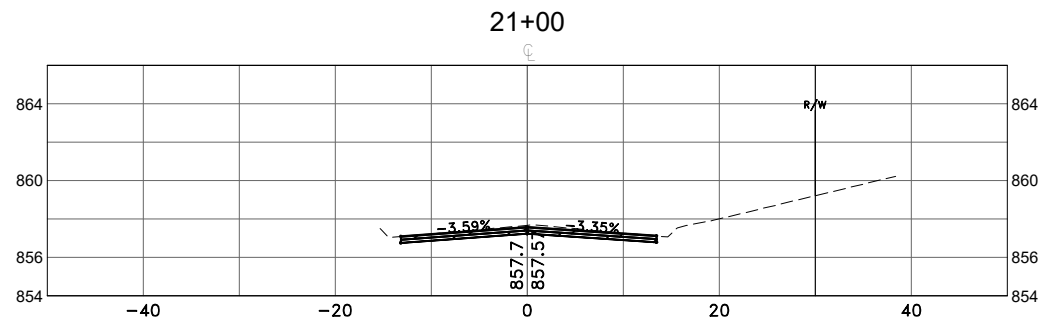
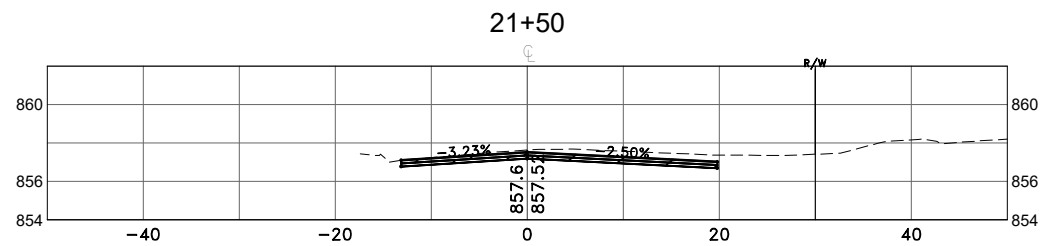
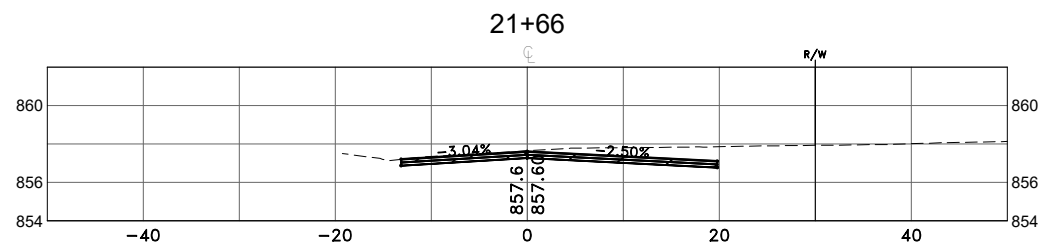
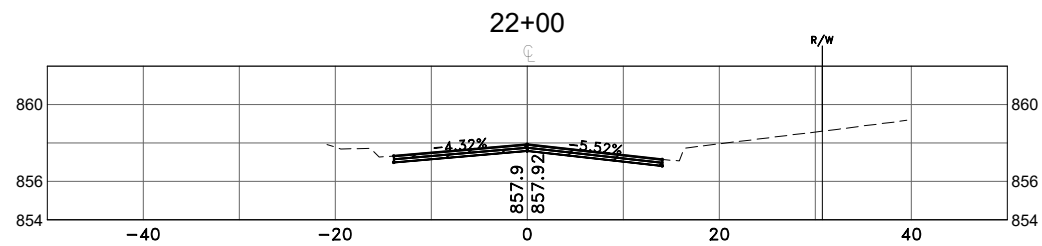
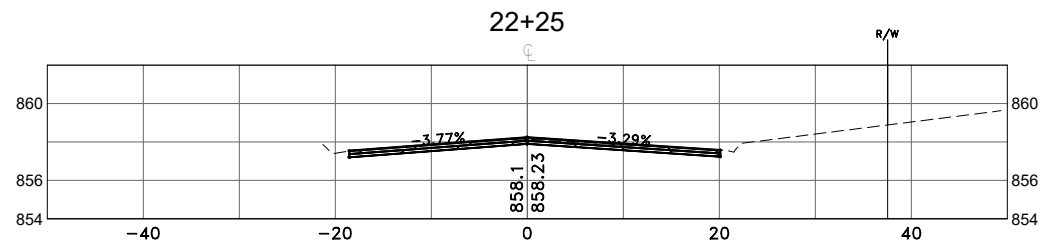
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**XKIMO STREET**  
**CITY OF RAMSEY, MINNESOTA**

SHEET  
**X5**  
OF  
**X9**  
SHEETS

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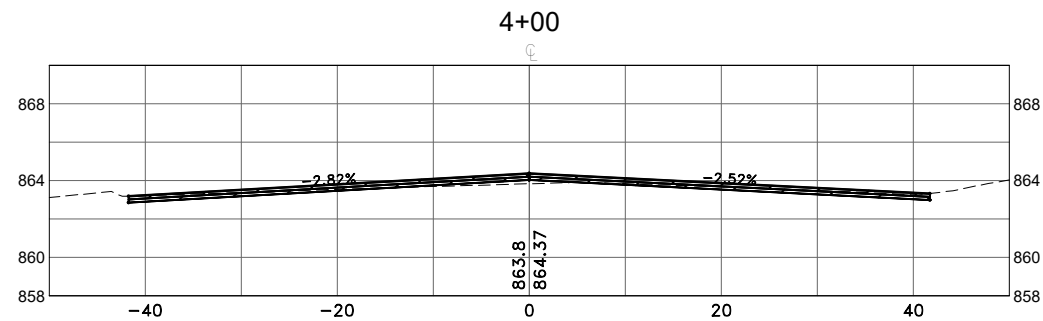
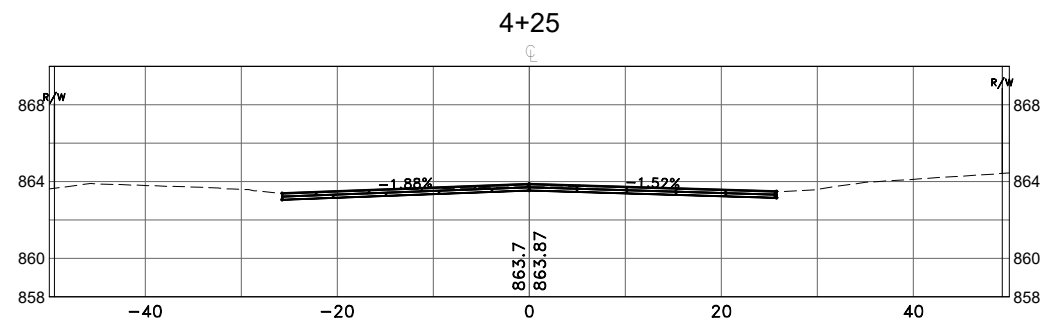
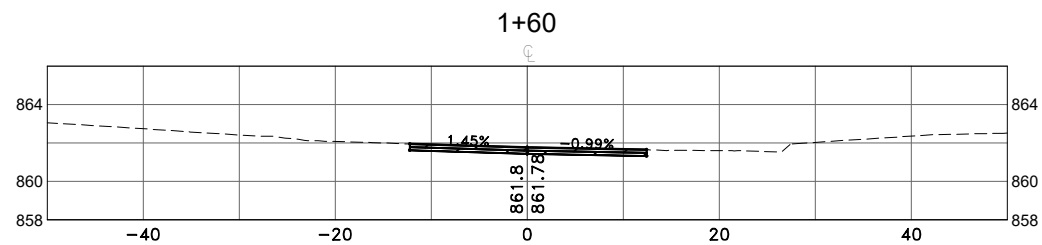
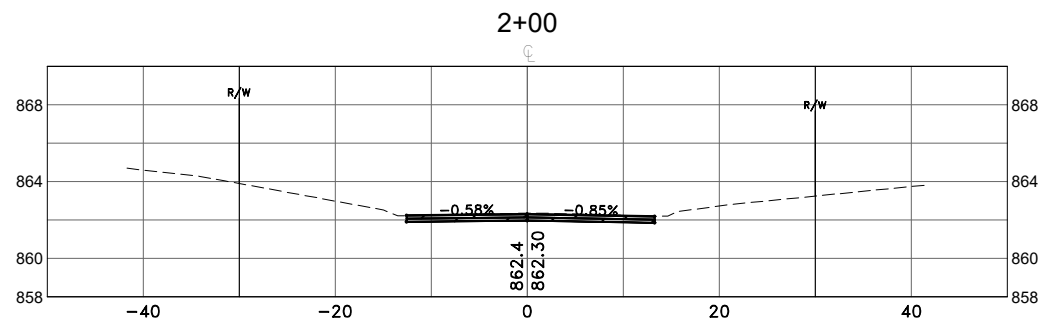
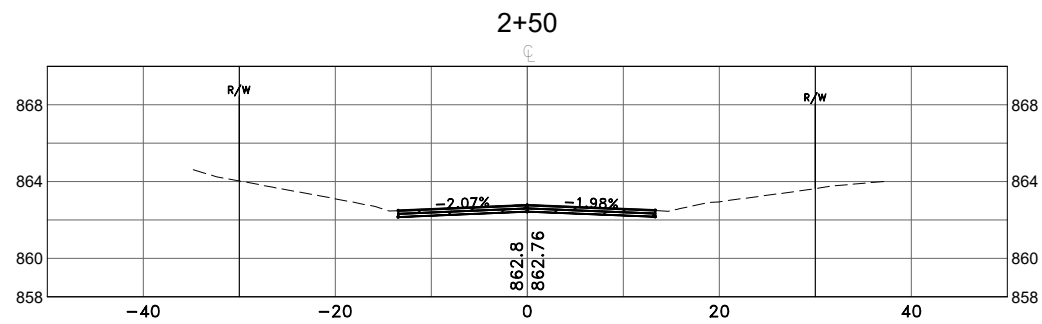
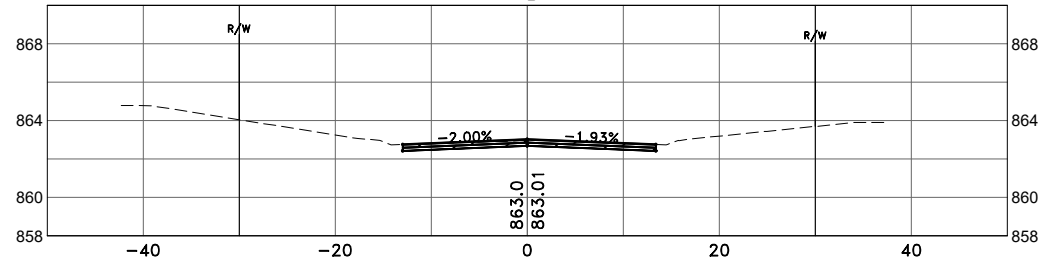
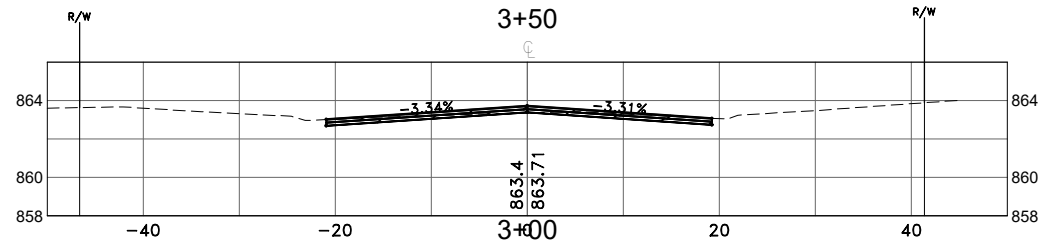
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IMPROVEMENT PROJECT**

**CROSS SECTIONS**  
**XKIMO STREET**  
**CITY OF RAMSEY, MINNESOTA**

SHEET  
**X6**  
OF  
**X9**  
SHEETS  
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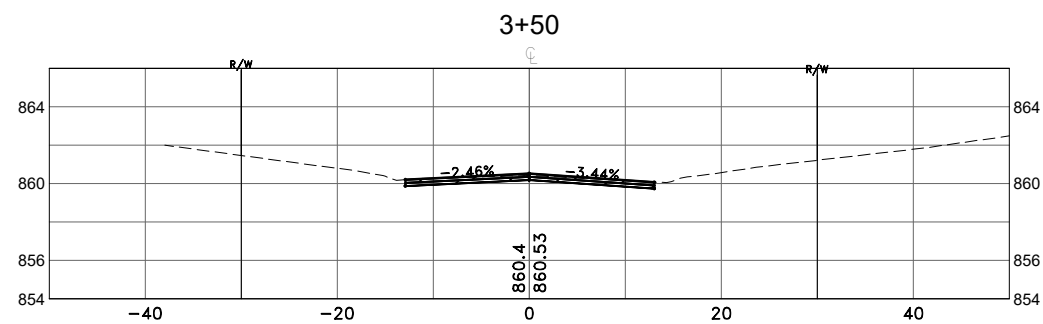
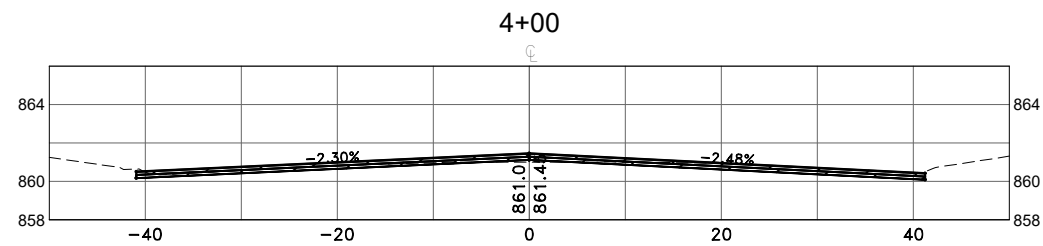
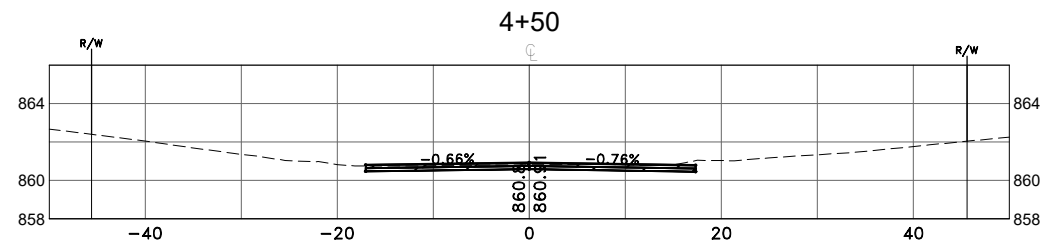
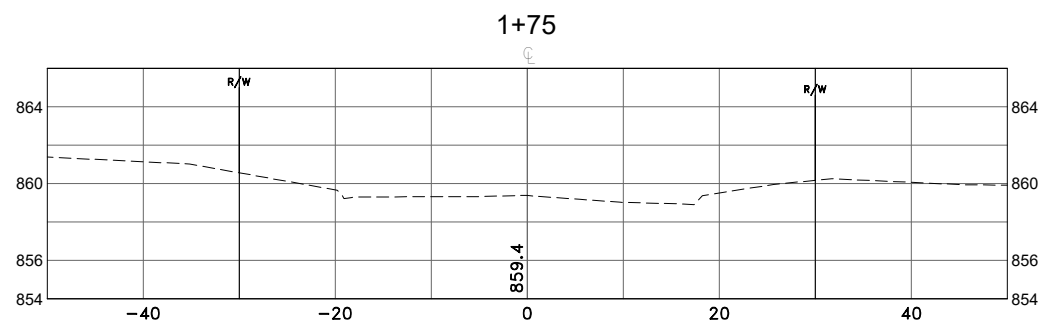
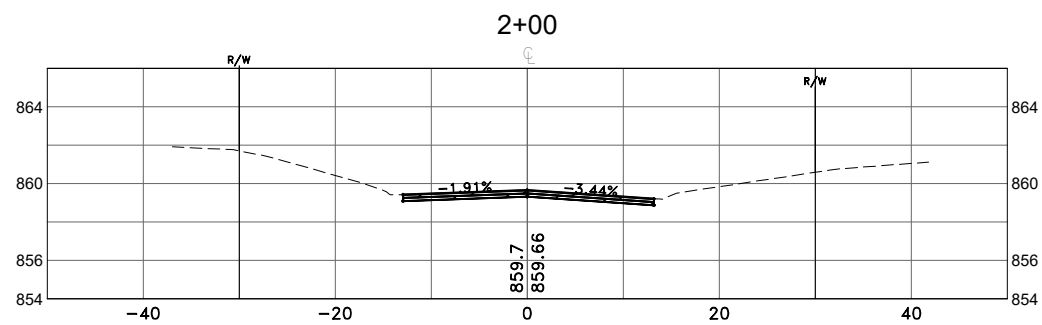
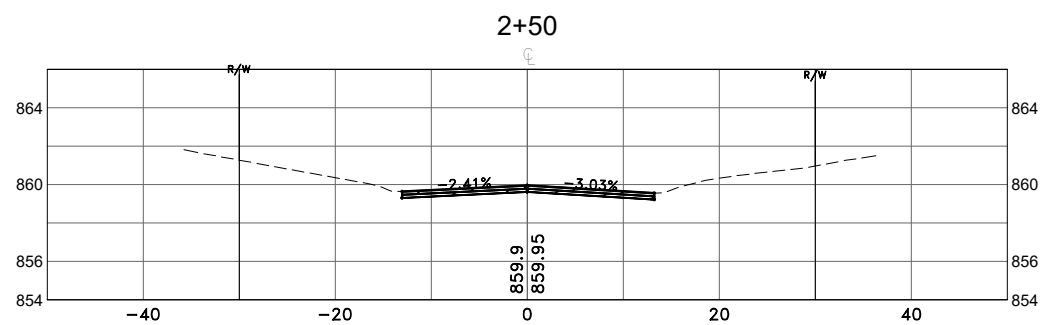
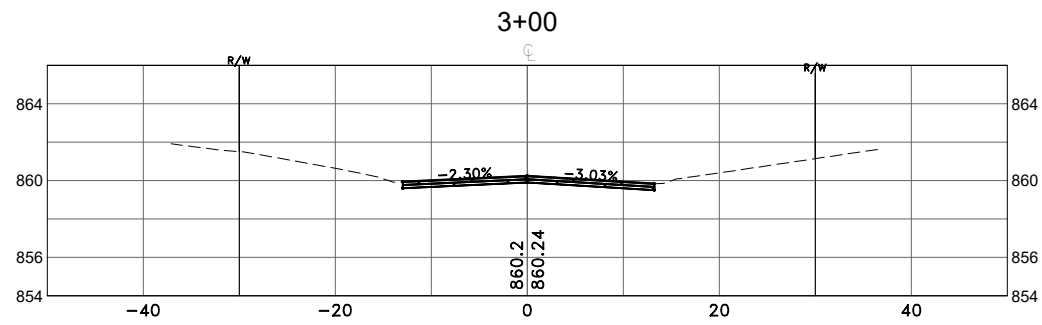
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**XKIMO STREET SURFACE  
IMPROVEMENT PROJECT**

**CROSS SECTIONS**  
**XKIMO COURT**  
**CITY OF RAMSEY, MINNESOTA**

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SHEET X7  
OF X9  
SHEETS  
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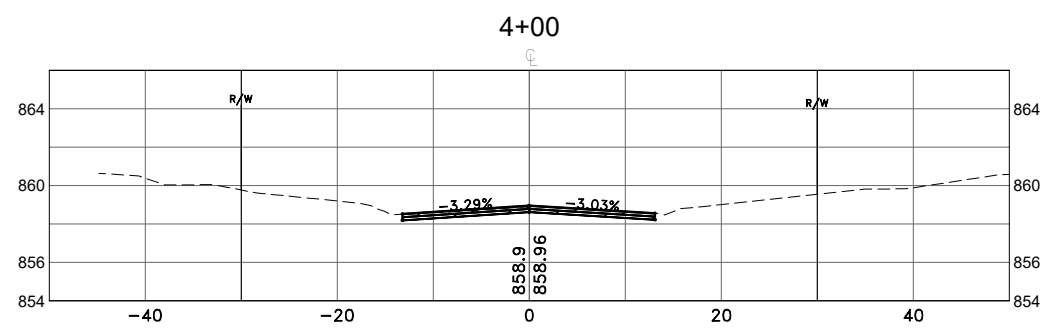
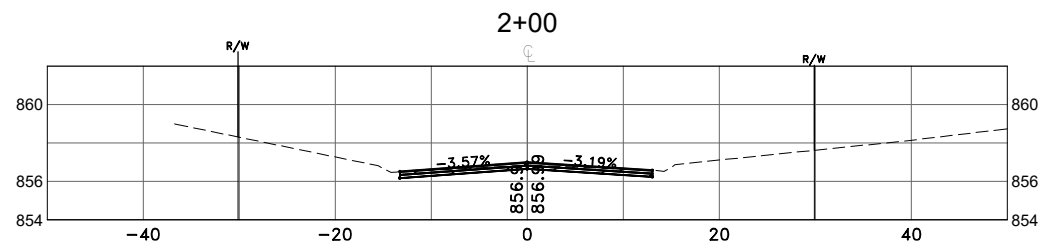
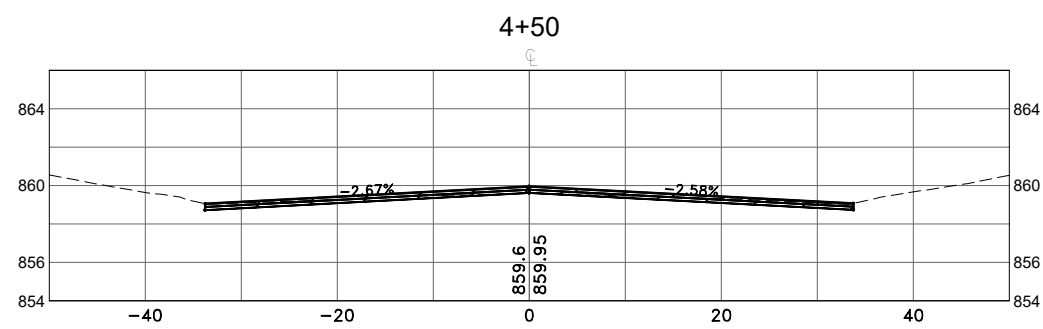
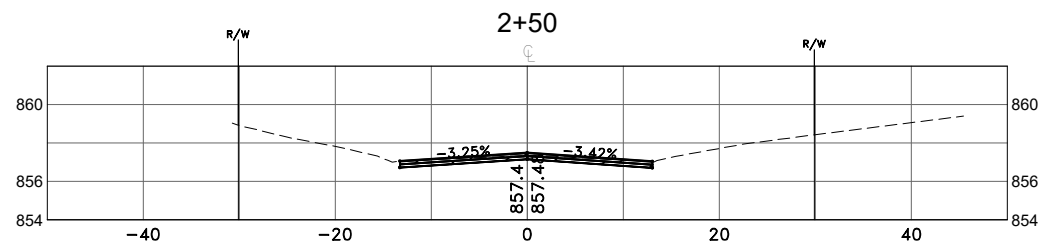
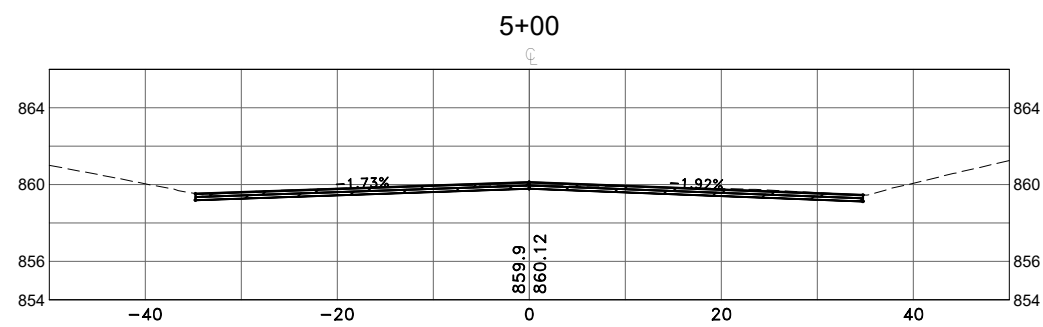
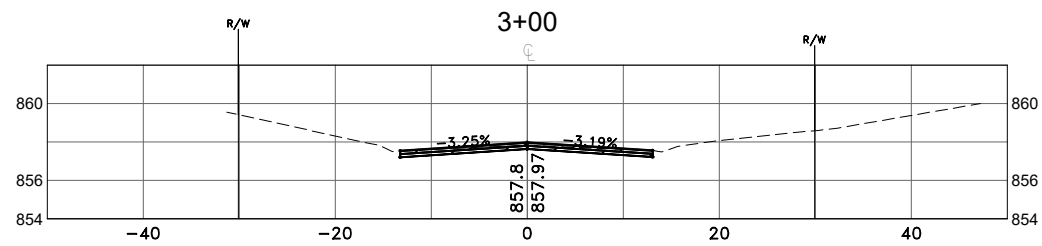
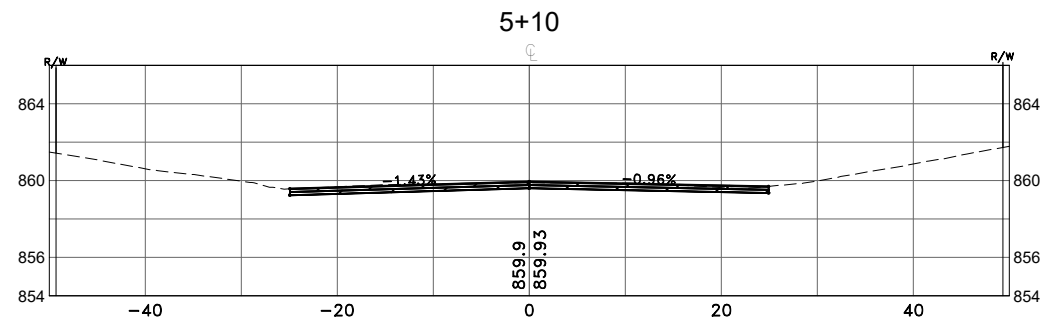
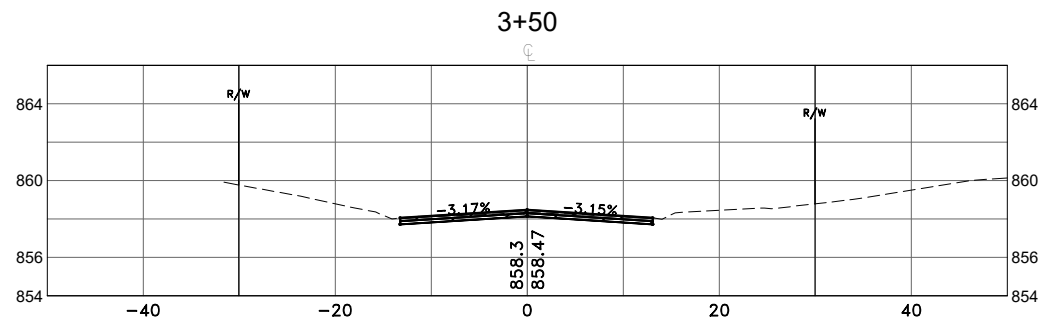
**XKIMO STREET SURFACE  
IMPROVEMENT PROJECT**

**CROSS SECTIONS**  
  
143RD LANE  
CITY OF RAMSEY, MINNESOTA

SHEET  
X8  
OF  
X9  
SHEETS

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**CROSS SECTIONS**  
**143RD AVENUE**  
**CITY OF RAMSEY, MINNESOTA**

SHEET  
**X9**  
OF  
**X9**  
SHEETS  
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