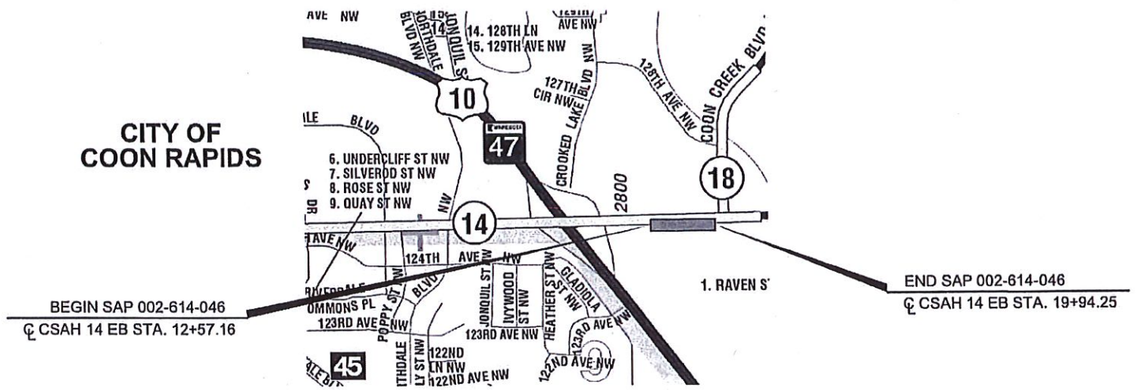
MINNESOTA DEPARTMENT OF TRANSPORTATION
ANOKA COUNTY

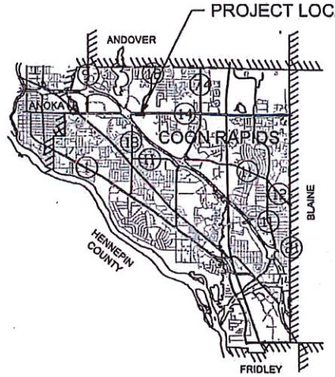
CONSTRUCTION PLAN FOR SHOULDER REPAIR, GEOGRID INSTALLATION, GRADING, AGGREGATE BASE, CURB AND GUTTER, BITUMINOUS SURFACING, STORM SEWER AND CONCRETE WALK.

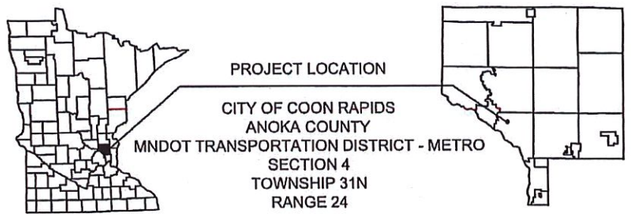
LOCATED ON CSAH 14 (MAIN STREET) BETWEEN 700' EAST OF HWY 10 OFF RAMP AND CSAH 18 (COON CREEK BLVD)

STATE AID PROJ. NO. 002-614-046
CSAH 14

GROSS LENGTH	737.09 FEET	0.139 MILES
BRIDGES-LENGTH	0.00 FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	737.09 FEET	0.139 MILES







UTILITY QUALITY LEVEL NOTE

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

DESIGN DESIGNATION (CSAH 14)

$ESAL_{20}$	3,014,100
R VALUE	60
ADT (2019)	36,448
PROJ. ADT (2039)	36,448
PROJ. HCADT (2039)	2150
SOIL FACTOR	NA

9 TON DESIGN

FUNCTIONAL CLASSIFICATION: PRINCIPAL ARTERIAL
NO. OF TRAFFIC LANES: 6 NO. OF PARKING LANES: 0
SPEED LIMIT: 55
BASED ON STOPPING SIGHT DISTANCE:
HEIGHT OF EYE: 3.5' HEIGHT OF OBJECT: 2.0'
DESIGN SPEED NOT ACHIEVED AT:
STA. NA TO STA. NA MPH NA

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

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

INDEX

THIS PLAN CONTAINS 39 SHEETS

APPROVED _____ ANOKA COUNTY ENGINEER — DATE 8/29/19

APPROVED _____ CITY OF COON RAPIDS ENGINEER — DATE 9/4/19

_____ DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY — DATE 9/5/19

For _____ STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING — DATE 9/5/19

PLAN SYMBOLS

COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
SLOPE EASEMENT
EXISTING RIGHT OF WAY
PROPERTY LINE
CORPORATE OR CITY LIMITS
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY
RIVER OR CREEK
DRAINAGE DITCH
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
WOOD FENCE
STONE WALL OR FENCE
HEDGE
LOWLAND
TIMBER
ORCHARD
BRUSH
NURSERY
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) 1-S-F
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO
RAILROAD CROSSING BELL
RAILROAD CROSSING GATE
MANHOLE
CATCH BASIN
FIRE HYDRANT
CAST IRON MONUMENT
IRON PIN
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY

UTILITY SYMBOLS

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

SCALES

PLAN 0' 100'
PROFILE HORIZONTAL 0' 100'
VERTICAL 0' 10'
X-SECTIONS HORIZONTAL 0' 20'
VERTICAL 0' 20'
INDEX MAP 0' 1500'

NO	DATE	BY	CKD	APPR	REVISION
1	8/22/2019	JCF	EJM		ADDED DISTANCE TO LOCATION.

NAME: P:\002-614-046\Plan\002614046_TSH.dgn 08/29/2019 7:50:32 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JOSEPH J. MACPHERSON
SIGNATURE: _____
DATE: 8-29-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

TITLE SHEET

Sheet 1 of 39 Sheets

STATEMENT OF ESTIMATED QUANTITIES
SAP 002-614-046

TAB	NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	PARTICIPATING-STATE AID FUNDS ANOKA COUNTY 002-614-046 ROADWAY QUANTITIES ESTIMATED
		2021.501	MOBILIZATION	LUMP SUM	1
B	[1]	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	1
I		2104.502	REMOVE SIGN TYPE C	EACH	5
A		2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	18
A		2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	749
B	[1]	2104.503	REMOVE PIPE SEWERS	LIN FT	8
A	[1] [14]	2104.503	REMOVE CURB AND GUTTER	LIN FT	714
A	[1]	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	846
A	[1] [6]	2104.518	REMOVE CONCRETE WALK	SQ FT	5407
M	[2] [13] [15]	2105.507	COMMON EXCAVATION (EV) (P)	CU YD	619
C	[3]	2105.604	SOIL STABILIZATION GEOGRID	SQ YD	233
	[4]	2130.523	WATER	MGAL	1
C	[3] [15]	2211.507	AGGREGATE BASE (CV) CLASS 5 (P)	CU YD	39
A	[14]	2232.504	MILL BITUMINOUS SURFACE	SQ YD	127
A	[14]	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	881
D		2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	70
D	[12]	2360.509	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	TON	30
D		2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (4,B)	TON	35
D		2360.509	TYPE SP 12.5 WEARING COURSE MIX (4,C)	TON	162
G	[5]	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	1
G		2506.502	CASTING ASSEMBLY	EACH	1
G	[5]	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	LIN FT	4.2
E	[6]	2521.518	4" CONCRETE WALK	SQ FT	4181
E	[7]	2521.518	6" CONCRETE WALK	SQ FT	244
E	[14]	2531.503	CONCRETE CURB AND GUTTER DESIGN B424	LIN FT	715
E	[7]	2531.618	TRUNCATED DOMES	SQ FT	40
		2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
J	[14]	2563.601	TRAFFIC CONTROL	LUMP SUM	1
J		2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH	80
J	[8]	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	30
K		2564.518	SIGN PANELS TYPE C	SQ FT	52.45
F	[9]	2573.502	STORM DRAIN INLET PROTECTION	EACH	5
F	[9]	2573.503	SILT FENCE TYPE MS	LIN FT	730
M		2574.507	COMMON TOPSOIL BORROW	CU YD	48
F		2574.508	FERTILIZER TYPE 3	POUND	169
F	[10]	2575.504	EROSION CONTROL BLANKETS CATEGORY 0	SQ YD	1887
F	[11]	2575.505	SEEDING	ACRE	0.48
F		2575.508	SEED MIXTURE 25-121	POUND	29
D		2580.503	INTERIM PAVEMENT MARKING	LIN FT	105
J		2581.503	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	LIN FT	3500
J		2581.603	REMOVABLE PREFORMED PLASTIC MASK (BLACK)	LIN FT	170
L		2582.503	4" SOLID LINE MULTI COMP	LIN FT	4695
L		2582.503	4" BROKEN LINE MULTI COMP	LIN FT	330
L		2582.503	8" DOTTED LINE MULTI COMP	LIN FT	392
L		2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	62
L		2582.518	CROSSWALK PREF THERMO	SQ FT	54
L		2582.603	PAVEMENT MARKING SPECIAL	LIN FT	21

BASIS OF QUANTITIES

SPEC NO	DESCRIPTION	RATE
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD / LIFT
2360.509	TYPE SP12.5 WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2360.509	TYPE SP12.5 NON-WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2575.502	SEED MIXTURE 25-121	61 LBS / ACRE
2575.532	FERTILIZER TYPE 3	350 LBS / ACRE

INDEX OF TABULATION CHARTS

THE FOLLOWING STANDARD PLATES APPROVED BY THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

STANDARD PLATES

PLATE NO.	DESCRIPTION
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B and DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
8000J	CHANNELIZERS

NOTES:

[1] ALL REMOVAL ITEMS SHALL BE DISPOSED OFF-SITE. NO DISPOSAL SHALL BE ALLOWED WITHIN THE ROADWAY RIGHT-OF-WAY OR EASEMENTS.

[2] EXCESS UNSUITABLE MATERIAL SHALL BE DISPOSED OF OUTSIDE THE ROADWAY RIGHT-OF-WAY.

[3] GEOGRID TO BE PLACED IN CENTER OF CLASS 5. GEOGRID TO EXTEND 1.0' BEHIND BACK OF CURB.

[4] WATER TO BE USED ONLY FOR DUST CONTROL AS DIRECTED BY THE ENGINEER IN FIELD. WATER USED FOR COMPACTION AND TURF ESTABLISHMENT SHALL BE INCIDENTAL.

[5] NEW CATCH BASIN INSTALLED IN NEW CURB LINE OVER EXISTING STORM SEWER PIPE.

[6] SIDEWALK. ANY DAMAGE TO CITY OF COON RAPIDS SPRINKLER SYSTEM ALONG WALK SHALL BE REPAIRED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTORS RESPONSIBILITY FOR ANY COSTS TO REPAIR ANY DAMAGE DURING REMOVALS AND CONSTRUCTION. IN THE EVENT MODIFICATIONS TO THE LOCATION OF SPRINKLER HEADS WITHIN THE COUNTYS R/W ARE DEEMED NECESSARY THE CONTRACTOR SHALL CONTACT THE CITY OF COON RAPIDS WHO SHALL BE RESPONSIBLE FOR RELOCATING HEAD(S).

[7] PEDESTRIAN RAMPS. RAMPS MUST MEET ALL ADA REQUIREMENTS.

[8] 1 SIGN INSTALLED 10 DAYS PRIOR TO CONSTRUCTION AND REMAINS INPLACE DURING CONSTRUCTION.

[9] INSTALLED PRIOR TO ANY CONSTRUCTION, MAINTAINED THROUGHOUT PROJECT AND REMOVED AFTER PROJECT COMPLETION ONCE VEGITATION TAKES HOLD, AT THE DIRECTION OF ENGINEER.

[10] INSTALLED ON SLOPES FROM SOUTH EDGE OF NEW WALK TO TOUCHDOWN.

[11] INCLUDES PLACEMENT OF INPLACE TOPSOIL. EXCESS TOPSOIL SHALL BE DISPOSED OF OUTSIDE THE ROADWAY RIGHT-OF-WAY.

[12] PATCHING BETWEEN SAWCUT AND NEW LIP OF CURB, 1.5' WIDE X 5" DEPTH, 2 LIFTS, TO ALL FOR 2" BITUMINOUS WEAR TO BE PLACED OVER THE TOP OF MILLED SURFACE AND BIT PAT

[13] REMOVAL OF EXCESS SLOPE MATERIAL FROM SOUTH EDGE NEW WALK TO SLOPE TOUCHDOWN.

[14] COMMERCIAL ENTRANCE MUST REMAIN OPEN DURING CONSTRUCTION.

[15] (P) = PAID FOR AS PLANNED QUANTITY.

NO	DATE	BY	CKD	APPR	REVISION
1	8/21/2019	JCF	NJD		CHANGED MIX DESIGNS TO TRAFFIC LEVEL 4
2	8/22/2019	JCF	EJM		REMOVED ITEM "INSTALL" SIGN TYPE C.
3	8/22/2019	JCF	EJM		ADDED NOTE " 15 " P - QUANTITY
4	8/22/2019	JCF	EJM		ADDED STANDARD PLATE 8000J.

NAME: P:\002-614-046\Plan\002614046_SEQ.dgn 09/04/2019 1:07:23 PM

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PRINT NAME: JOSEPH J. MACPHERSON
SIGNATURE:
DATE: 9-4-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

STATEMENT OF ESTIMATED QUANTITIES

REMOVALS, SAWING AND MILLING — A

ALIGNMENT	STATION TO STATION	REMOVE (SPEC. 2104)			SAWING (SPEC. 2104)		MILLING (SPEC. 2232)		
		CURB & GUTTER	BITUMINOUS PAVEMENT	CONCRETE WALK	BITUMINOUS PAVEMENT	CONCRETE PAVEMENT	BITUMINOUS SURFACE	BITUMINOUS SURFACE (2")	
		(LIN FT)	(SQ YD)	(SQ FT)	(LIN FT)	(LIN FT)	(SQ YD)	(SQ YD)	
14 EB	12+57					6			
14 EB	12+57 - 13+58			919	101				
14 EB	13+20 - 14+07	97	38						
14 EB	13+20 - 15+50							441	
14 EB	13+40 - 14+24								
14 EB	13+80					6	127		
14 EB	14+19 - 19+94			4488					
14 EB	14+24 - 19+94	617	807		648				
14 EB	17+00 - 19+94							440	
14 EB	19+94					6			
	PROJECT TOTAL	714	846	5407	749	18	127	881	

REMOVE EXISTING STORM SEWER — B

ALIGNMENT	STATION	REMOVE (SPEC 2104)		
		DRAINAGE STRUCTURE	STORM SEWER PIPE	
		(EACH)	(LIN FT)	
14 EB	16+37	1	8	
	PROJECT TOTAL	1	8	

AGGREGATE — C

ALIGNMENT	STATION TO STATION	DESCRIPTION	AGGREGATE BASE CLASS 5 CV	SOIL STABILIZATION GEOGRID	
			(CU YD)	(SQ YD)	
14 EB	15+50 - 17+00	MAINLINE	39	233	
	PROJECT TOTAL		39	233	

BITUMINOUS SUMMARY — D

ALIGNMENT	STATION TO STATION	BITUMINOUS					
		2357 BIT. TACK COAT	2360 TYPE SP 12.5 BIT MIXURE FOR PATCHING	2360 TYPE SP 12.5 WEAR (4,C)	2360 TYPE SP 12.5 NON-WEAR (4,B)	INTERIM PAVEMENT MARKINGS	
		(GAL)	(TON)	(TON)	(TON)	(LIN FT)	
14 EB	13+20 - 14+07		5				
14 EB	13+20 - 15+50	28		65			
14 EB	13+20 - 19+94					105	
14 EB	14+24 - 19+94		25				
14 EB	15+50 - 17+00	20		46	35		
14 EB	17+00 - 19+94	22		51			
	PROJECT TOTAL	70	30	162	35	105	

CONCRETE & TRUNCATED DOMES — E

ALIGNMENT	STATION TO STATION	4" CONCRETE WALK	6" CONCRETE WALK	CURB & GUTTER B424	TRUNCATED DOMES	
		(SQ FT)	(SQ FT)	(LIN FT)	(SQ FT)	
14 EB	12+57 - 13+58	603				
14 EB	13+20 - 14+07			98		
14 EB	13+58 - 13+83		195			
14 EB	13+65 - 13+77				28	
14 EB	13+80 - 14+05	120				
14 EB	14+10 - 14+19		49			
14 EB	14+14 - 14+16				12	
14 EB	14+19 - 19+94	3458				
14 EB	14+24 - 19+94			617		
	PROJECT TOTAL	4181	244	715	40	

EROSION CONTROL AND TURF ESTABLISHMENT — F

ALIGNMENT	LOCATION			SILT FENCE TYPE MACHINE SLICED	SEEDING	SEED MIXTURE 25-121	FERTILIZER TYPE 3	STORM DRAIN INLET PROTECTION	EROSION CONTROL BLANKETS CAT. 0	
	STATION	TO	STATION	(LIN FT)	(ACRE)	(POUND)	(POUND)	(EACH)	(SQ YD)	
14 EB	12+57		13+58		0.02	1	7			
14 EB	12+57		13+99	154	0.03	2	11		145	
14 EB	12+94							1		
14 EB	14+15		19+94	576	0.36	22	126		1742	
14 EB	14+16		19+94		0.07	4	25			
14 EB	14+17							1		
14 EB	16+38							1		
14 EB	19+96							1		
14 EB	20+03							1		
	PROJECT TOTAL			730	0.48	29	169	5	1887	

DRAINAGE TABULATION — G

ALIGN.	CENTER OF CASTING LOCATION		DRAINAGE STRUCTURE / CASTING									
	STATION	OFFSET	TYPE	DESIGN	PAY HEIGHT (G)	CONNECT TO EXISTING	CASTING R-3250-EVSP	GRATE TYPE	STEPS REQ'D	TOP OF CASTING ELEV	INV. ELEV	
					(LIN FT)	(EACH)	(EACH)					
14 EB	16+38.33	13.0 RT	CB	G	4.2	1	1	V	NO	860.80	856.60	
			PROJECT TOTAL		4.2	1	1					

UTILITY CONTACTS — H

ANOKA COUNTY
CONTACT: MARK LEKSON
E-MAIL: MARK.LEKSON@CO.ANOKA.MN.US
PHONE: 763-324-3139

CITY OF COON RAPIDS
CONTACT: MARK HANSEN
E-MAIL: MHANSEN@COONRAPIDSMN.GOV
PHONE: 763-767-6465

CENTERPOINT ENERGY
CONTACT: TRAVIS DENZEL
E-MAIL: TRAVIS.DENZEL@CENTERPOINTENERGY.COM
PHONE: 612-321-5207

TERRA TECCHNOLOGIES
CONTACT: CHUCK DAHER
E-MAIL: CDAHER@TERRATECHLLC.NET
PHONE: 612-298-2825

CONNEXUS ENERGY
CONTACT: MAT RAUSCHENDORFER
E-MAIL: MAT.RAUSCHENDORFER@CONNEXUSENERGY.COM
PHONE: 763-218-4655

COMCAST CABLE
CONTACT: SCOTT RUPPERT
E-MAIL: SCOTT_RUPPERT@COMCAST.COM
PHONE: 651-755-2580

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_SEQ.dgn 08/23/2019 1:06:07 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JOSEPH J. MACPHERSON
SIGNATURE:
DATE: 8-27-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

TABULATIONS AND UTILITY CONTACTS

Sheet 3 of 39 Sheets

EARTHWORK TABULATION (CSAH 14)			M
STATION	EXCAVATION TOTALS (EV)	EMBANKMENT TOTALS (CV)	
	COMMON (CU YD)	TOPSOIL (CU YD)	GRANULAR BACKFILL (CU YD)
12+50.00			
13+00.00	13	9	18
13+21.00	5	3	7
13+50.00	8	5	10
14+00.00	8	6	9
14+50.00	16	10	6
15+00.00	18	15	16
15+50.00	33	17	19
16+00.00	47	20	22
16+50.00	27	14	24
17+00.00	49	16	19
17+50.00	72	22	14
18+00.00	82	22	10
18+50.00	87	23	12
19+00.00	96	23	8
19+50.00	58	11	1
20+00.00			
TOTAL	**619**	**216**	**195**

EARTHWORK BALANCE

EXCAVATION (CU YD)			EMBANKMENT (CU YD)	EXCESS / BORROW (CU YD)
	TOPSOIL **215** (EV)	1327 / 1.20 = **179** (CV)	**TOPSOIL** **216** (CV)	**TOPSOIL** (216 - 179) * 1.30 = **48** (BORROW) (LV)
COMMON EXCAVATION **619** (EV)	**SUITABLE** **404** (EV)	404 / 1.20 = **337** (CV)	**GRANULAR BACKFILL** **195** (CV)	**GRANULAR** (337 - 195) * 1.30 = **185** (EXCESS) (LV)

EARTHWORK BALANCE NOTES:

GRANULAR MATERIAL MEETING THE REQUIREMENTS OF MN/DOT SPEC. 3149.2B1 SHALL BE USED TO BACKFILL COMMON EXCAVATION AREAS.

120% SHRINKAGE FACTOR USED FROM EXCAVATED VOLUME (EV) TO COMPACTED VOLUME (CV). 130% SWELL FACTOR USED FROM COMPACTED VOLUME (CV) TO LOOSE VOLUME (LV).

SHRINKAGE FACTORS ARE ASSUMED VALUES, USED ONLY FOR THE PURPOSE OF ESTIMATED QUANTITIES. IT SHALL BE UNDERSTOOD THAT NO WARRANTY IS MADE OR IMPLIED AS TO THE ACCURACY, SUFFICIENCY, OR RELIABILITY OF SHRINKAGE FACTORS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_SEQ.dgn 08/23/2019 1:06:10 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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ANOKA COUNTY
HIGHWAY DEPT.

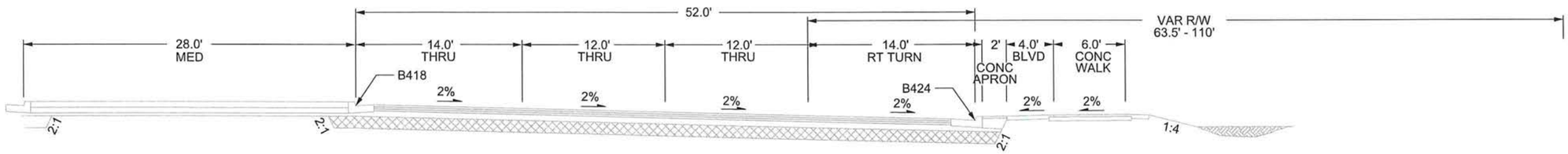
SAP 002-614-046

EARTHWORK TABULATIONS

Sheet 4 of 39 Sheets

EXISTING
LEB CSAH 14 STA 13+20.11 -14+00.00

ALIGNMENT LEB 14
℄



EXISTING
LEB CSAH 14 STA 14+00.00 -19+94.25

ALIGNMENT LEB 14
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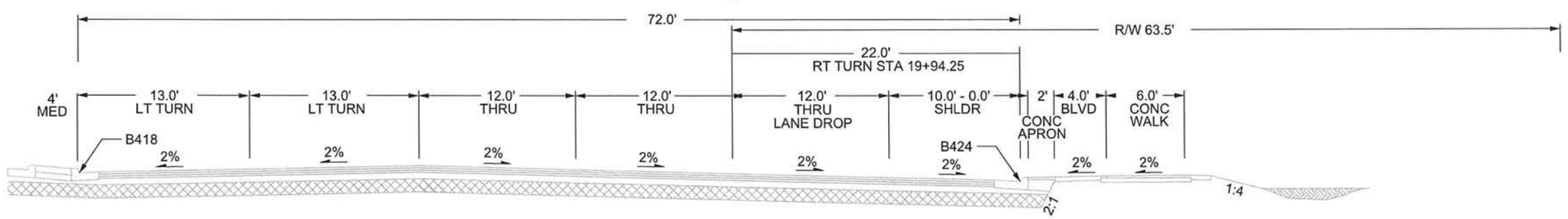


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_TYP.dgn 08/23/2019 1:06:25 PM

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

PRINT NAME: JOSEPH J. MACPHERSON

SIGNATURE:

DATE: 8-27-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19

DESIGN BY EJM DATE 08/02/19

CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

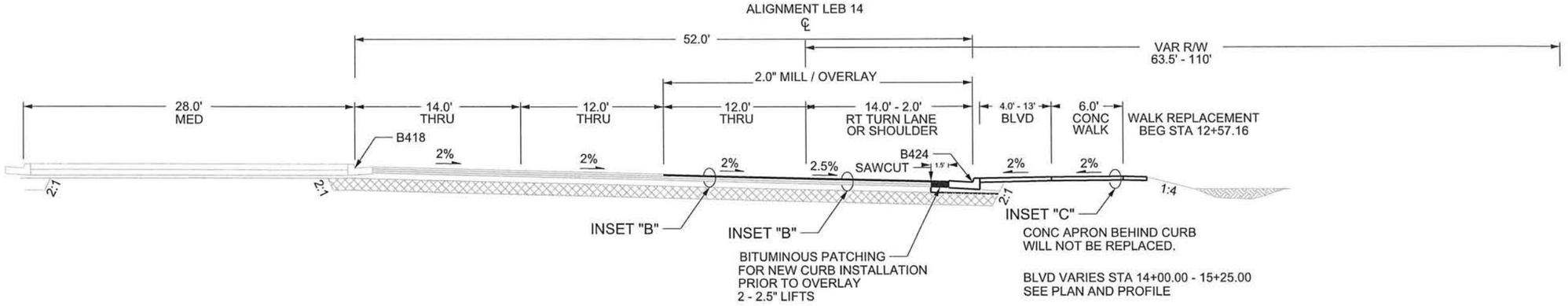
SAP 002-614-046

TYPICAL SECTIONS

STA 13+20.11 TO 19+94.25

Sheet 5 of 39 Sheets

PROPOSED
LEB CSAH 14 STA 13+20.11 -15+50.00



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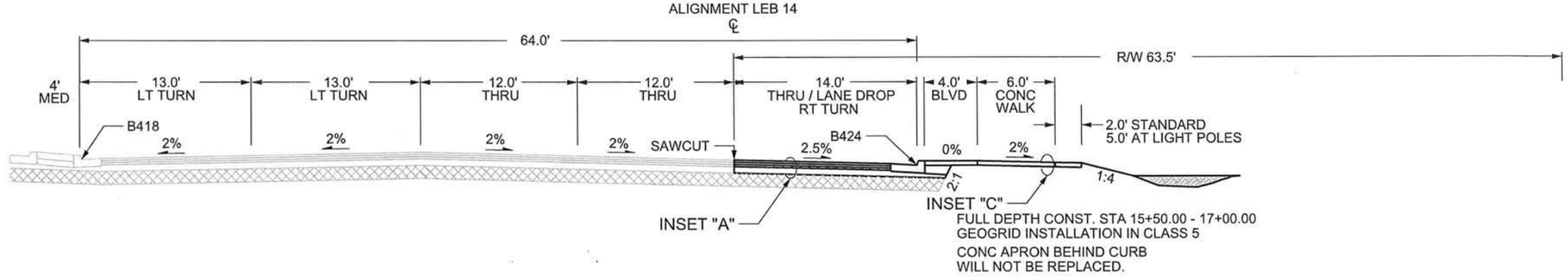

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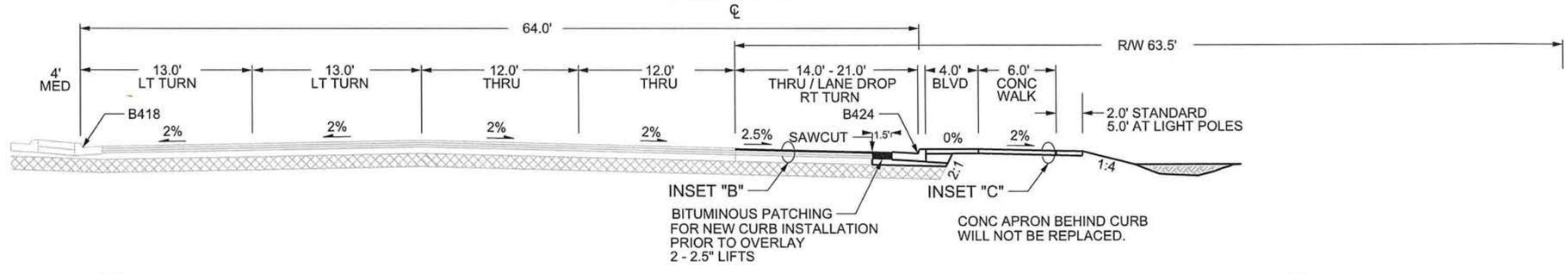

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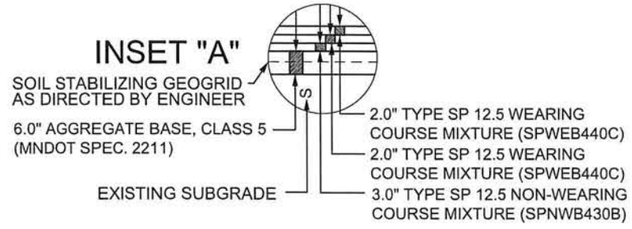

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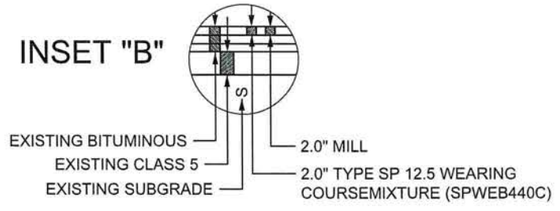

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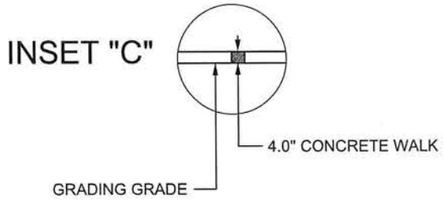

NO	DATE	BY	CKD	APPR	REVISION
1	8/21/2019	JCF	EJM		CHANGED MIX DESIGNS TO TRAFFIC LEVEL 4
2	8/22/2019	JCF	EJM		CHANGED VARIBLE WIDTH BLVD TO DISTANCE.

NAME: P:\002-614-046\Plan\002614046_TYP.dgn 08/23/2019 1:06:27 PM

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

PRINT NAME: JOSEPH J. MACPHERSON

SIGNATURE:

DATE: 8-27-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19

DESIGN BY EJM DATE 08/02/19

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ANOKA COUNTY

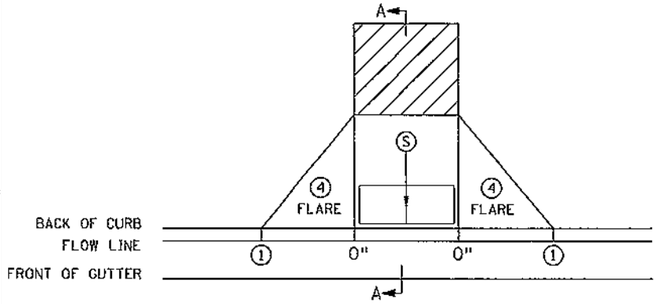
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

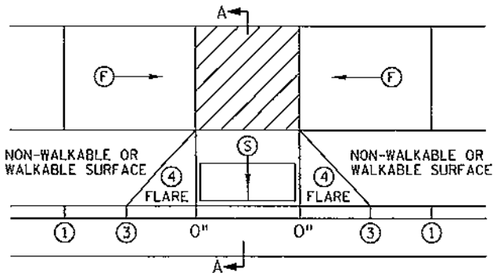
TYPICAL SECTIONS

STA 13+20.11 TO 19+94.25

Sheet 6 of 39 Sheets



PERPENDICULAR



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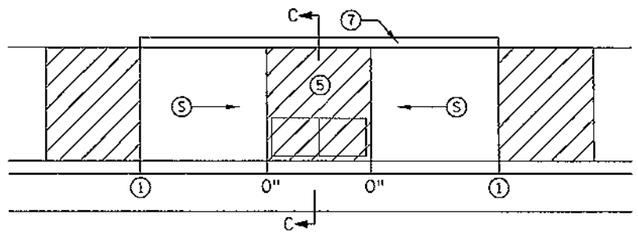
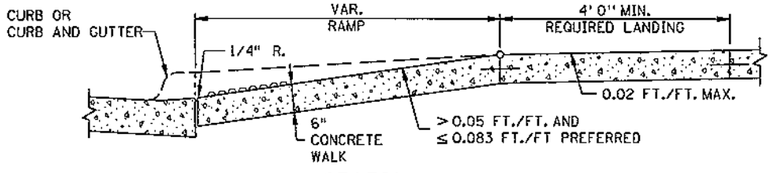
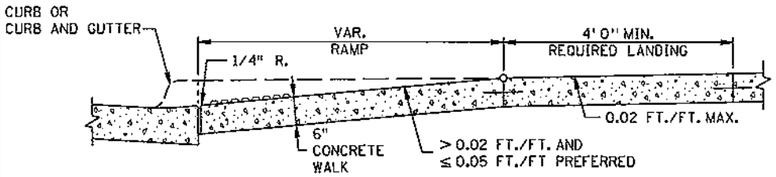


PARALLEL



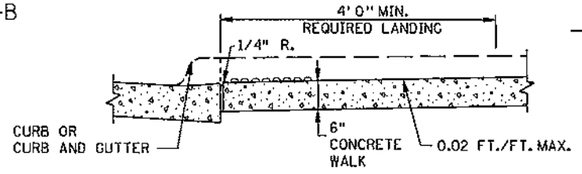
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



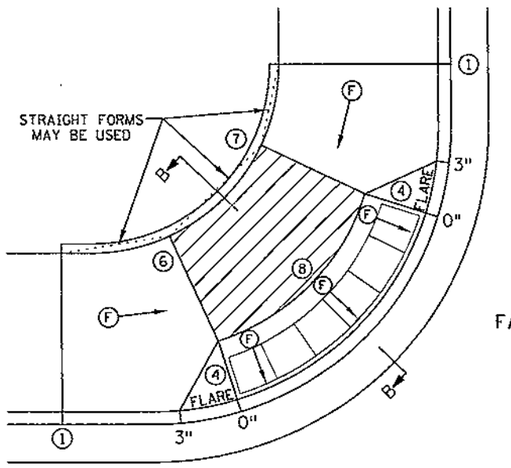
SECTION B-B

FAN

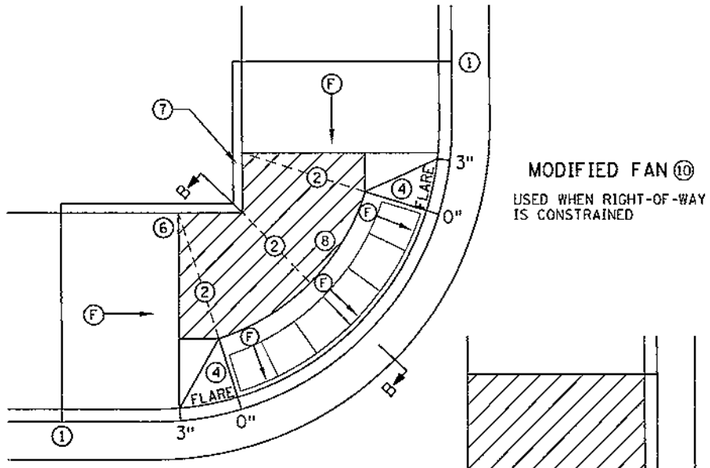


SECTION C-C

PARALLEL/DEPRESSED CORNER

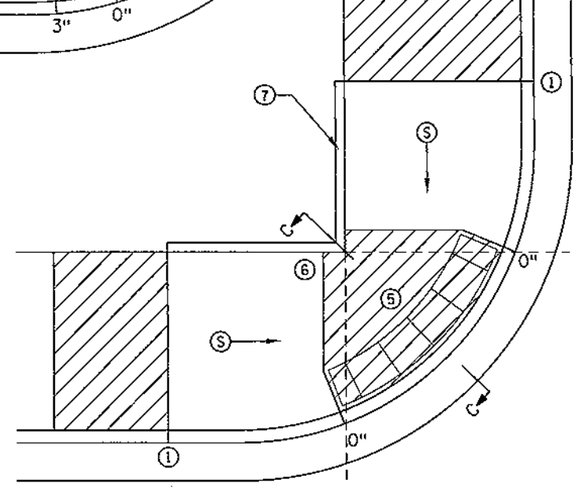


FAN⑩

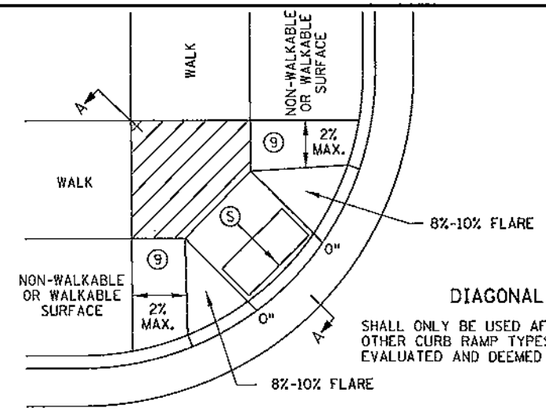


MODIFIED FAN⑩

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

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

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

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

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

① MATCH FULL HEIGHT CURB.
② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
⑧ A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
⑨ PAVE FULL WALK WIDTH.
⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

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%.

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.

X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 1 OF 6

APPROVED: 1-23-2017

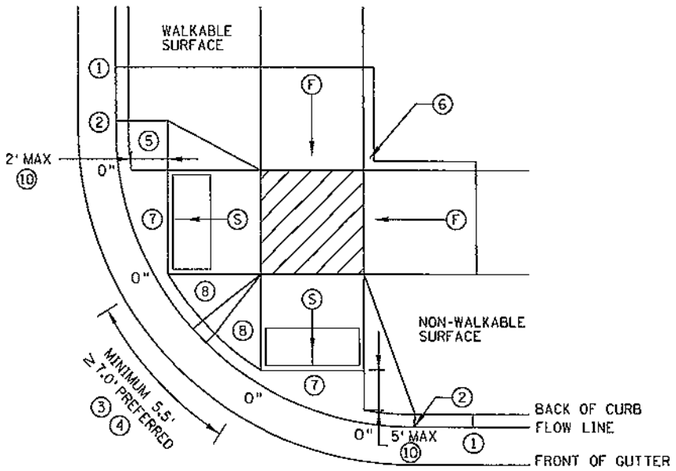
REVISED:

STATE DESIGN ENGINEER

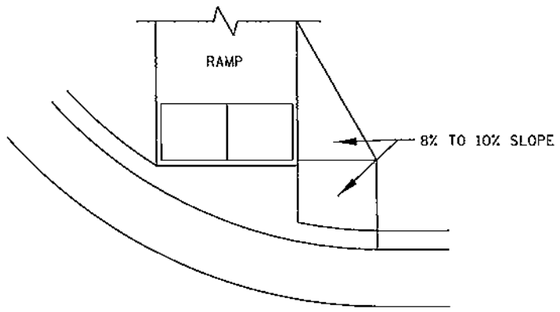
PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (T.H.)

SHEET NO. 7 OF 39 SHEETS



COMBINED DIRECTIONAL ⑨



DIRECTIONAL RAMP WALKABLE FLARE

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

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

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

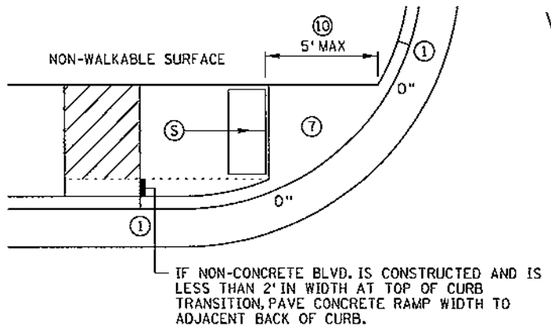
⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

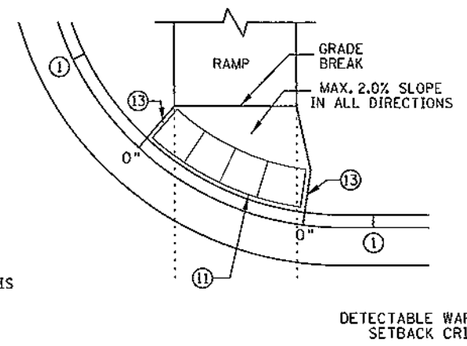
⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

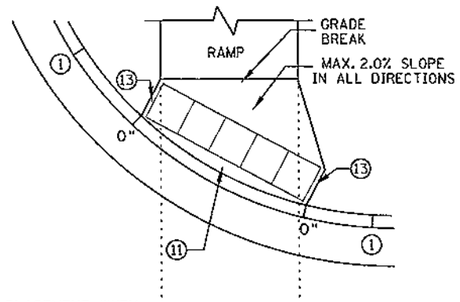
⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

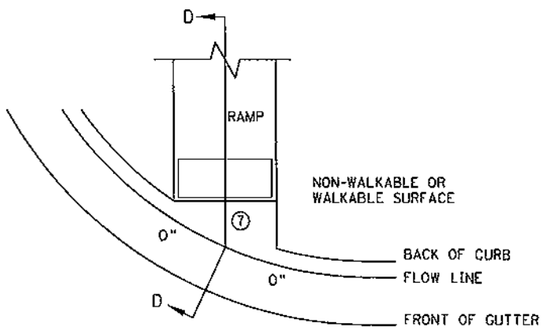


STANDARD ONE-WAY DIRECTIONAL ⑨

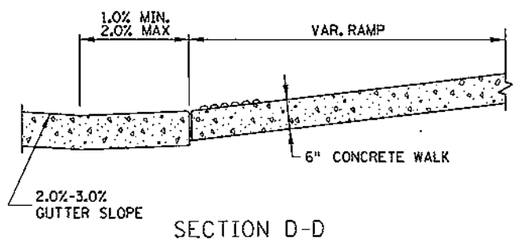


ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

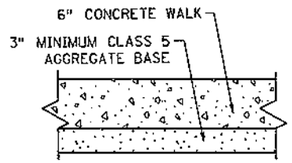




CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

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%.
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.
X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

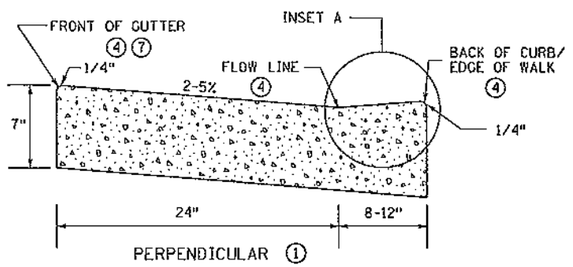
STANDARD PLAN 5-297.250 | 2 OF 6

APPROVED: 1-23-2017
REVISED:

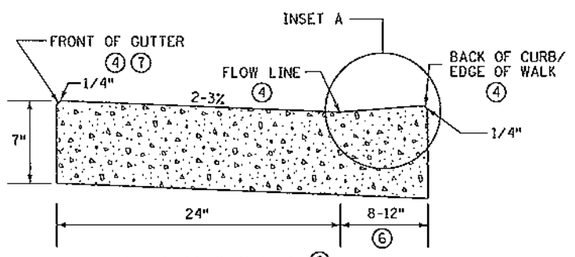
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (T.H.) SHEET NO. 8 OF 39 SHEETS

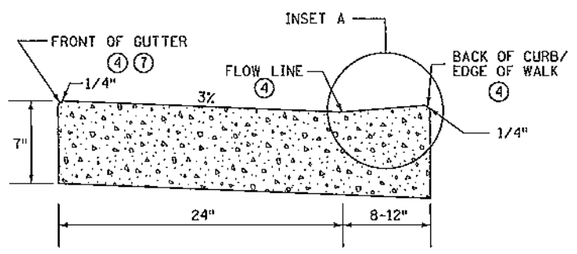


PERPENDICULAR ①

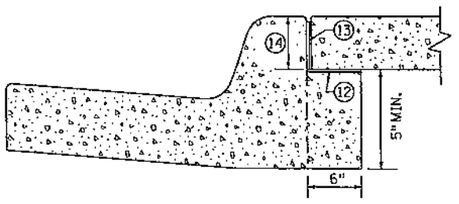


NON PERPENDICULAR ②

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

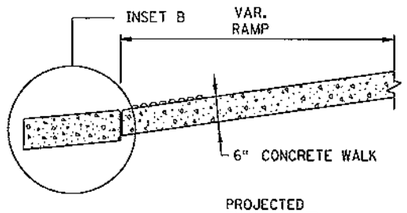


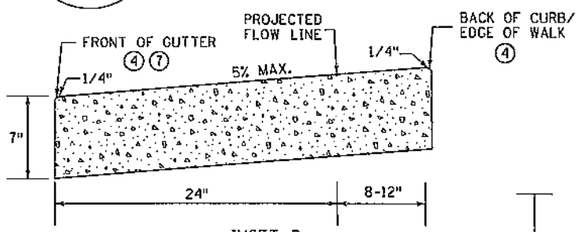
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)



OPTIONAL SILL CURB WHEN SIDEWALK
IS AT BACK OF CURB

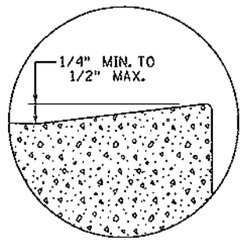
CONCRETE SILL TO BE USED ONLY WHEN
SPECIFIED IN THE PLAN.



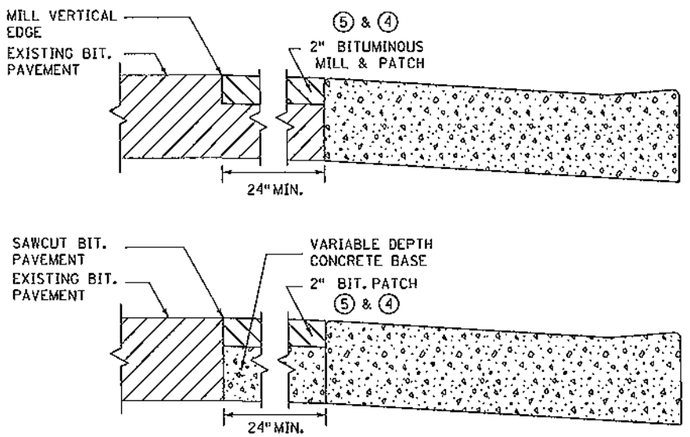


INSET B

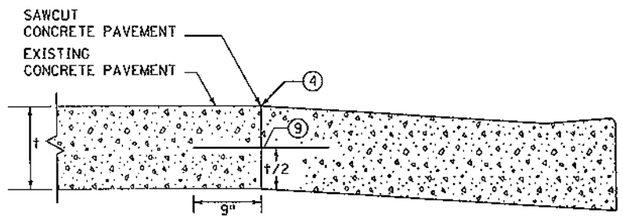
OUTFLOW GUTTER ⑧



INSET A

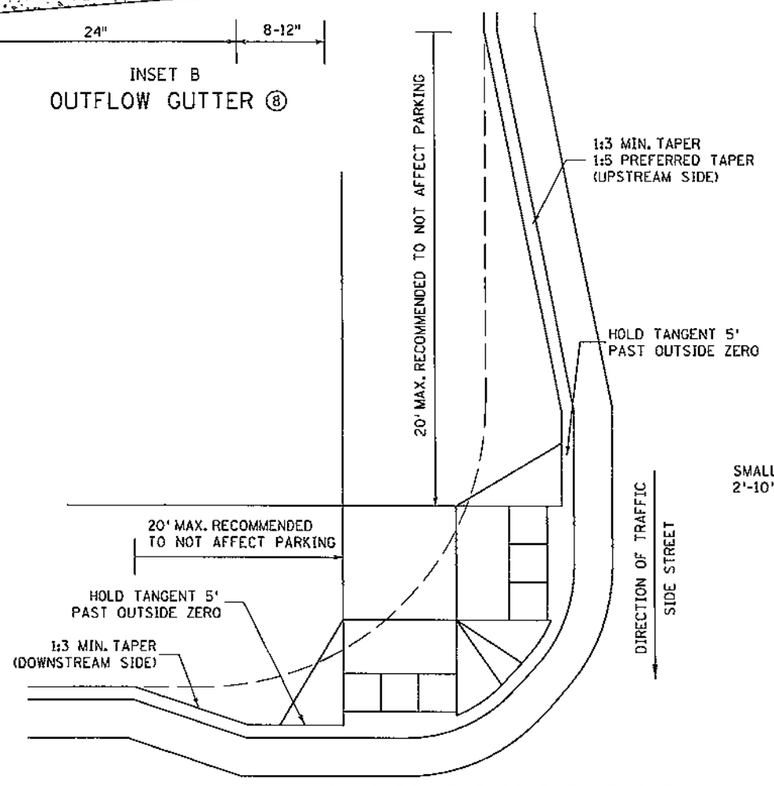


ONLY ALLOWED PER ENGINEER'S APPROVAL

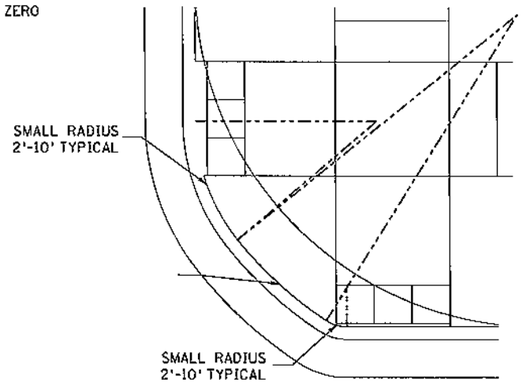


PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪



COMBINED DIRECTIONAL ⑩
(COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.

③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.

④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.

⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.

⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.

⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.

⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

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STANDARD PLAN 5-297.250 | 3 OF 6

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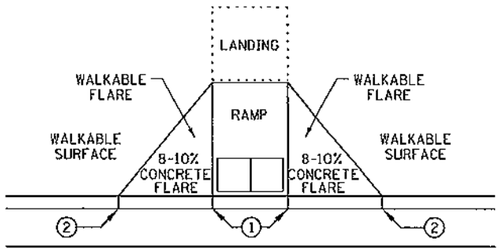
REVISED:

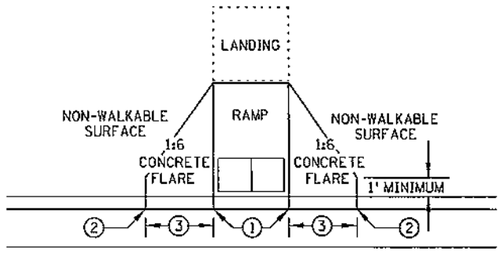
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

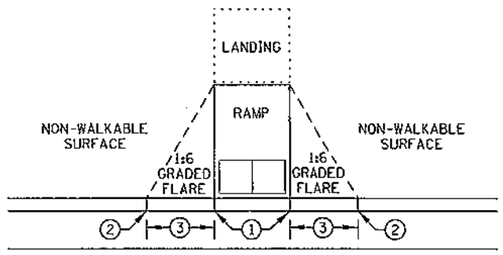
STATE PROJ. NO. (T.H.) SHEET NO. 9 OF 39 SHEETS



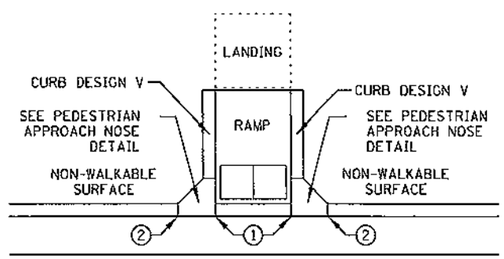
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

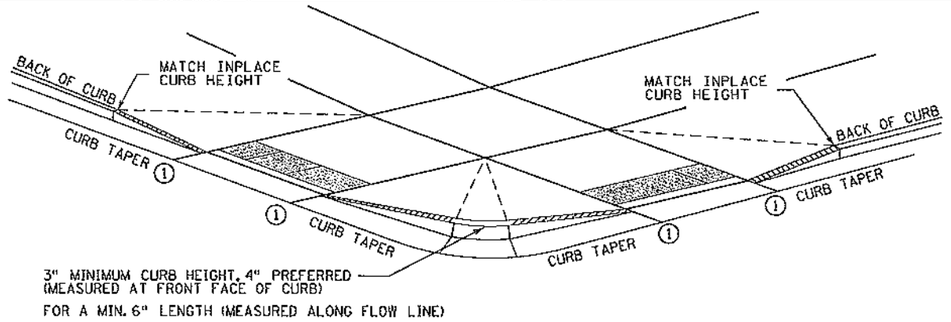


GRADED FLARES

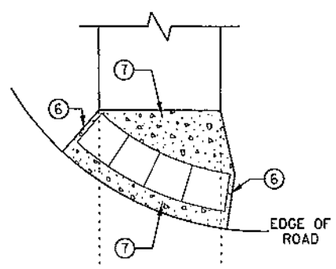


RETURNED CURB ⑤

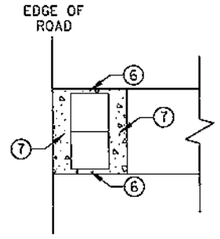
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

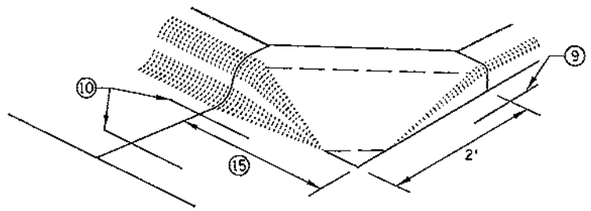


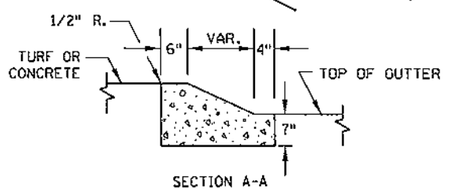
RADIAL DETECTABLE WARNING



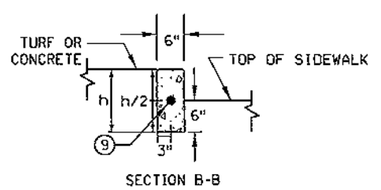
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

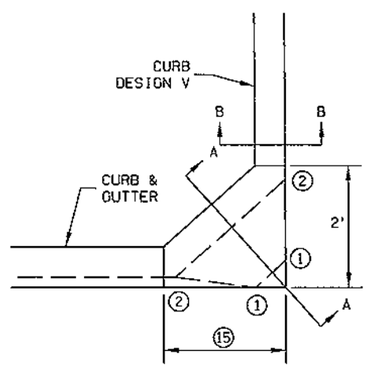




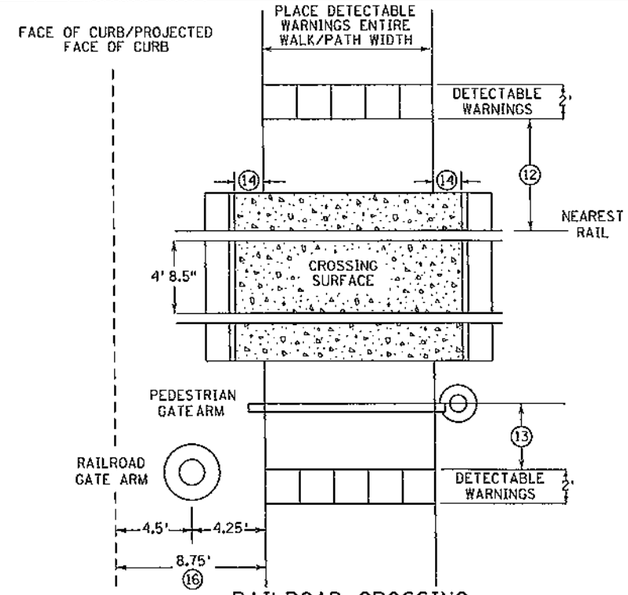
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

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

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

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8'LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 2'FOR 4" HIGH CURB AND 3'FOR 6" HIGH CURB.

④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6'LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.

⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12'MINIMUM TO 15'MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2'FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA COVERNS OVER NOTE ⑫.

⑭ CROSSING SURFACE SHALL EXTEND 2'MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑮ 3'FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2'ON FREE RIGHT ISLANDS.

⑯ SIDEWALK TO BE PLACED 8.75'MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

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STANDARD PLAN 5-297.250 | 4 OF 6

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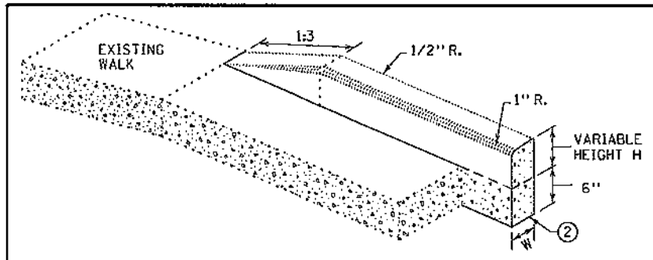
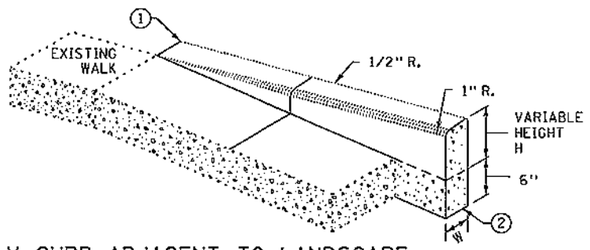
PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (T.H.) SHEET NO. 10 OF 39 SHEETS



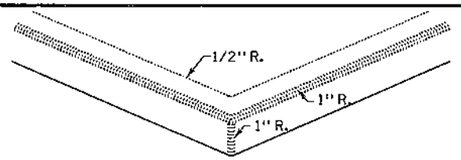
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

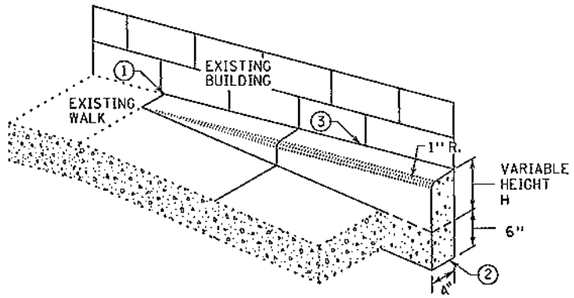


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

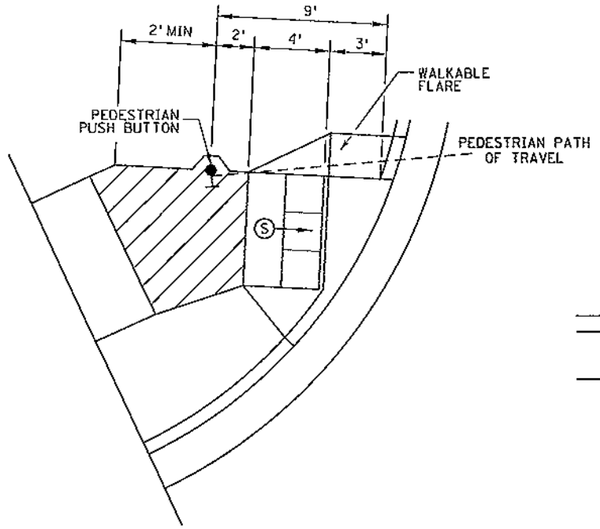


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

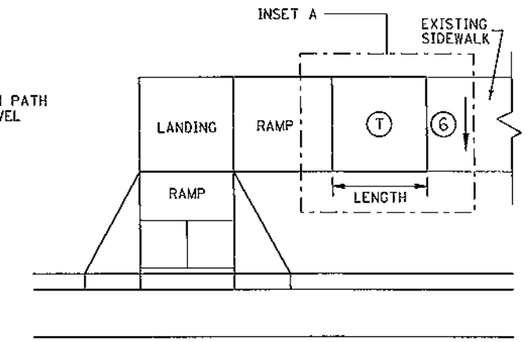
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"

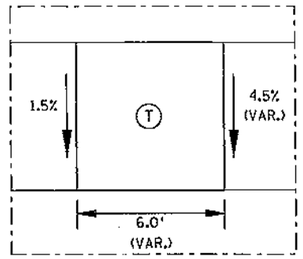


SEMI-DIRECTIONAL RAMP (3,4,9)

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

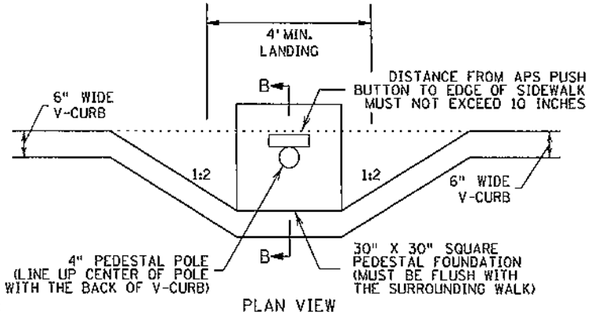
PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)



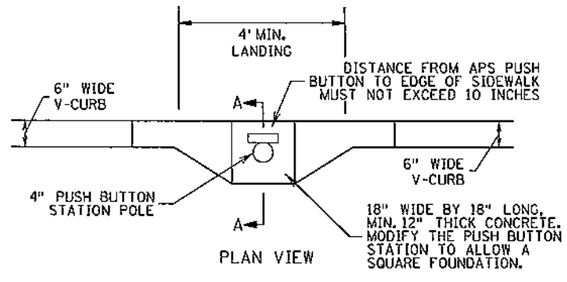


INSET A

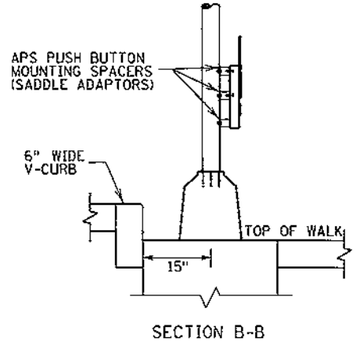
TRANSITION PANEL ④⑤



PLAN VIEW

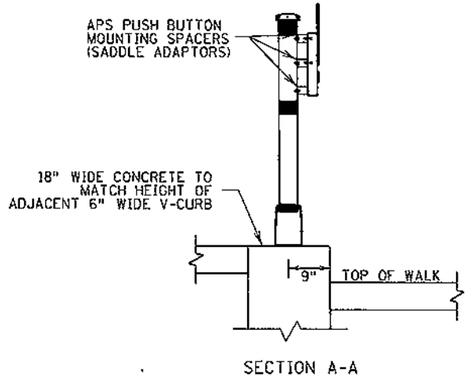


PLAN VIEW



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 EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

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

Ⓢ 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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STANDARD PLAN 5-297.250 | 5 OF 6

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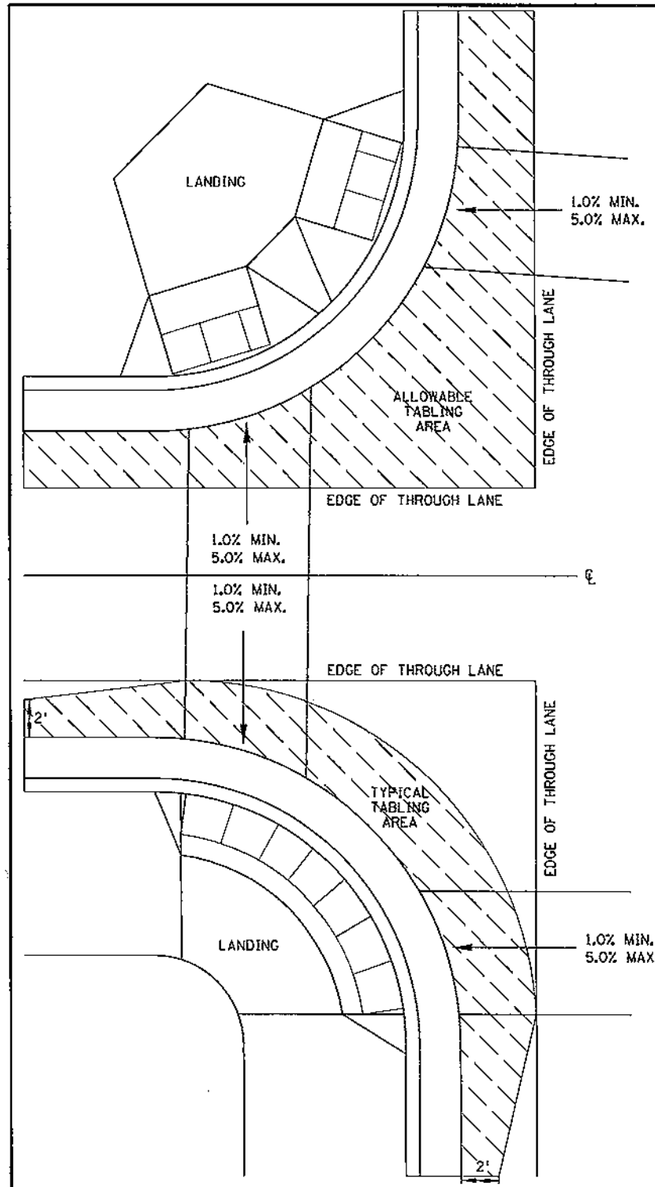
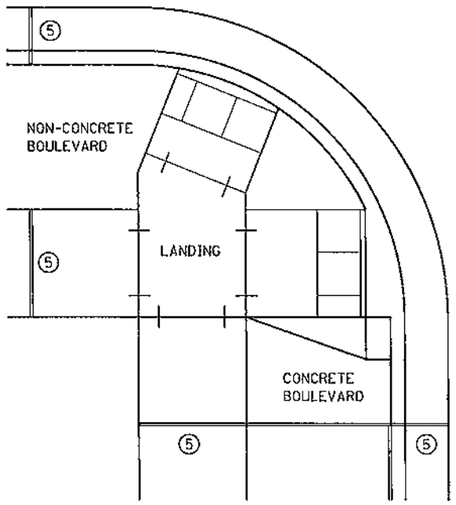
PEDESTRIAN CURB RAMP DETAILS

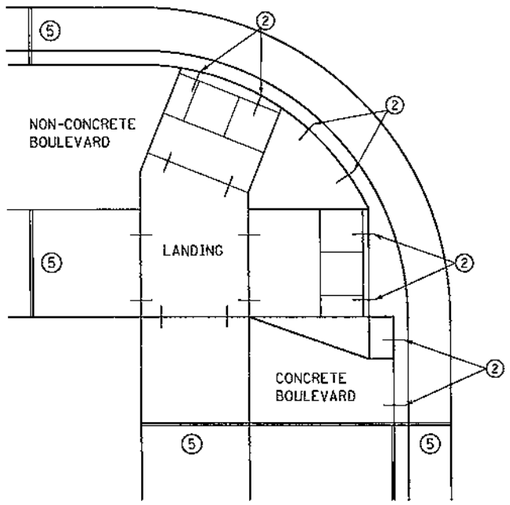
STATE PROJ. NO. (T.H.)



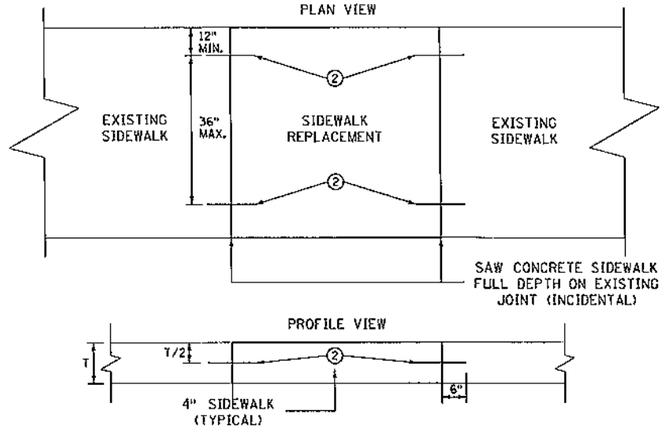
CURB LINE AND ROAD CROSSING ADJUSTMENTS



EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS

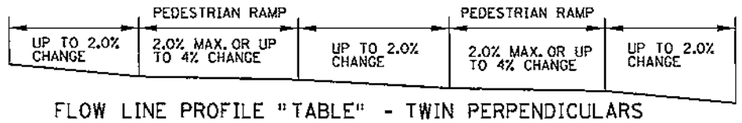


OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS ④

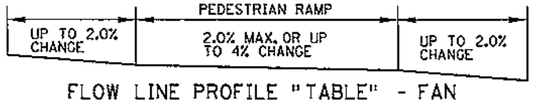


OPTIONAL SIDEWALK REINFORCEMENT

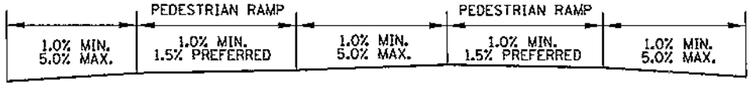
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS

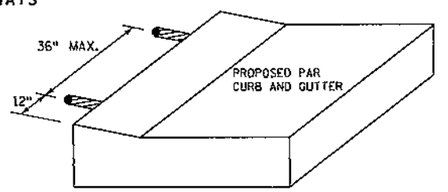


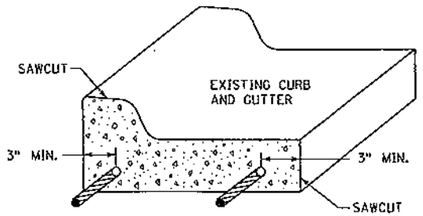
FLOW LINE PROFILE "TABLE" - FAN



FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

FLOW LINE PROFILE RAISE - FAN

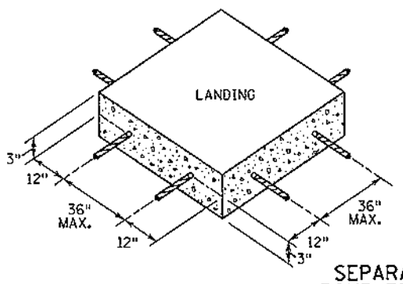


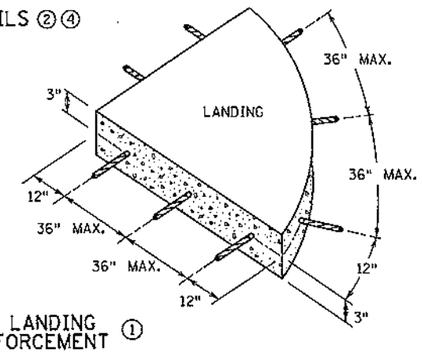


FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER REINFORCEMENT ③

OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④





SEPARATE LANDING POUR REINFORCEMENT ①

"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 AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.

③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.

④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.

⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.250 | 6 OF 6

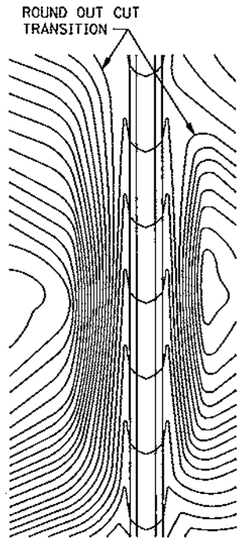
APPROVED: 1-23-2017

REVISED:

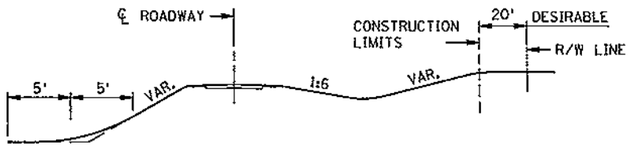
PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. (T.H.)

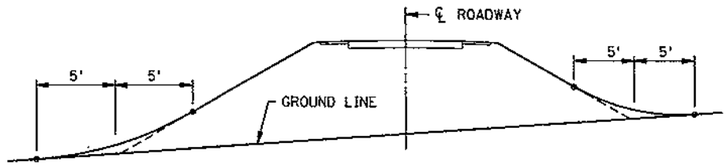
SHEET NO. 12 OF 39 SHEETS



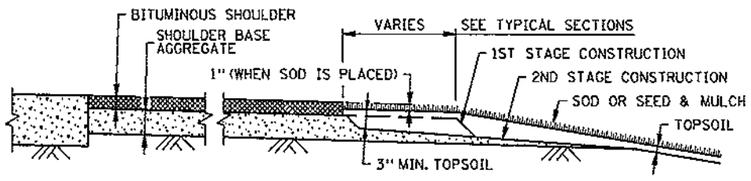
CONTOURING ROAD CUTS



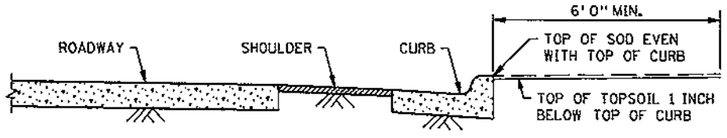
ROUNDING SHOULDERS AND BACKSLOPES



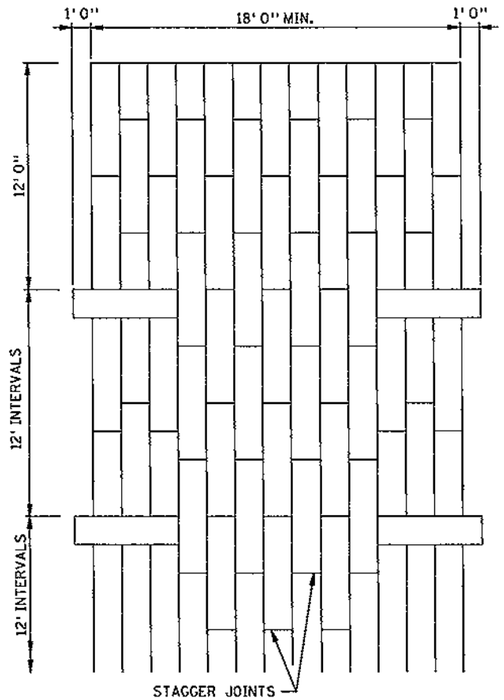
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



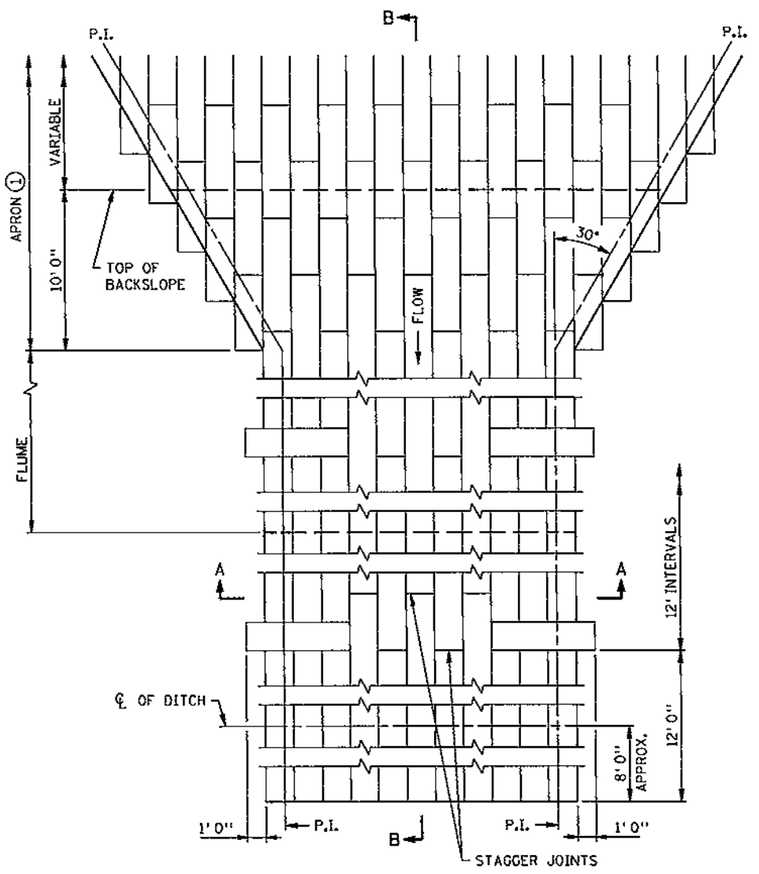
SHAPING AND TOPSOILING INSLOPES



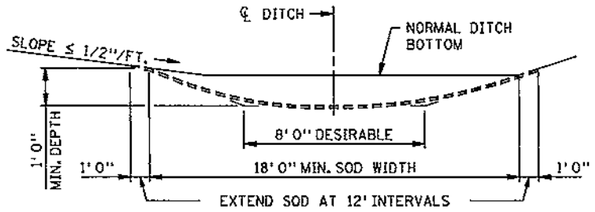
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



PLAN VIEW

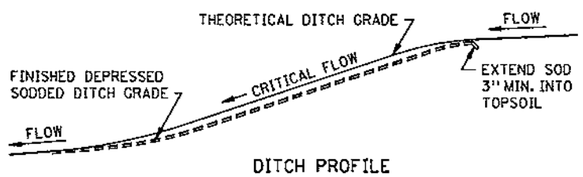


PLAN VIEW



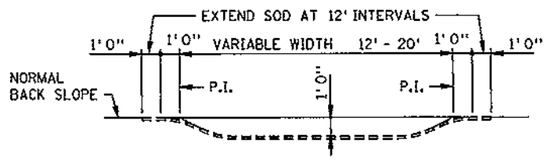
SODDED DITCH CROSS SECTION

WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

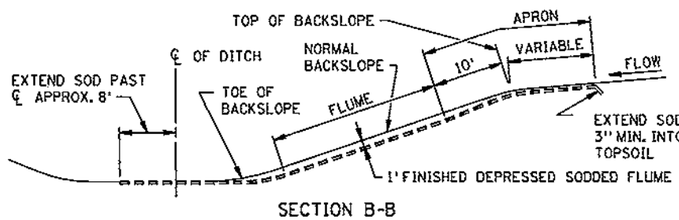


DITCH PROFILE

SODDED DITCH DETAILS



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
(1) CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

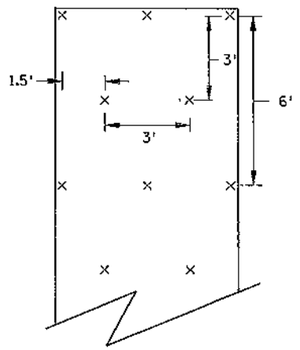
REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER

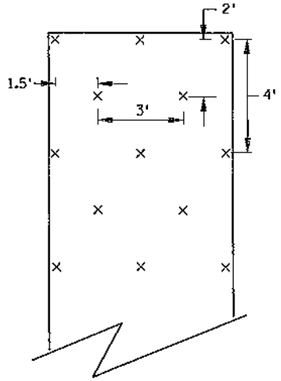
STANDARD PLAN 5-297.404 | 1 OF 3
APPROVED: 2-28-2017
REVISED:

PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES

STATE PROJ. NO. (T.H.) SHEET NO. 13 OF 39 SHEETS

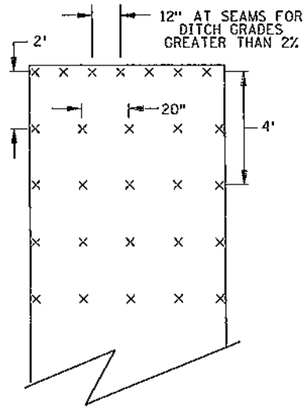


SLOPES FLATTER THAN 1:2
(120 STAPLES PER 100 SQ YD)

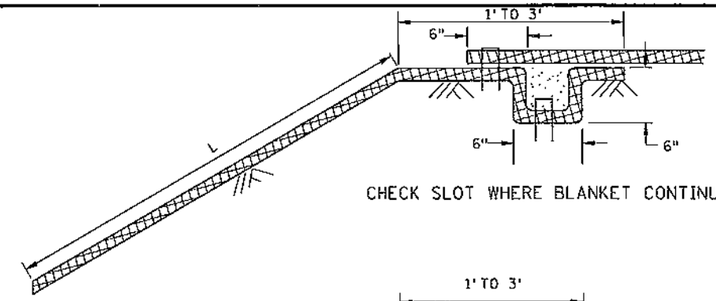


SLOPES 1:2 TO 1:1
(170 STAPLES PER 100 SQ YD)

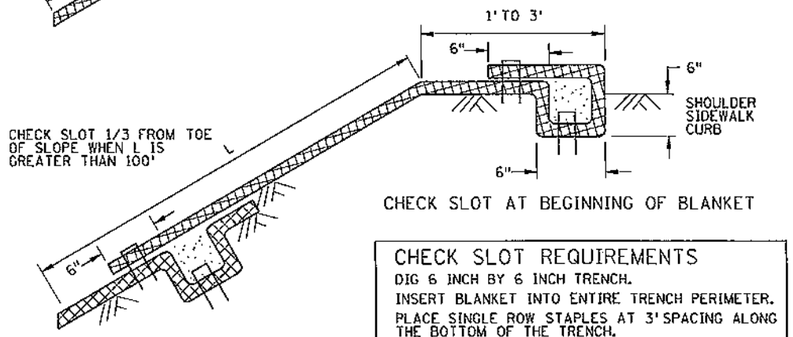
BLANKET STAPLE PATTERN



CHANNEL AND DITCH APPLICATIONS
(350 STAPLES PER 100 SQ YD)



CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

CHECK SLOT REQUIREMENTS

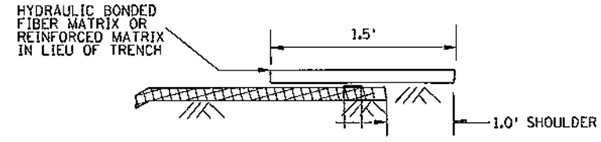
DIG 6 INCH BY 6 INCH TRENCH.

INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.

PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.

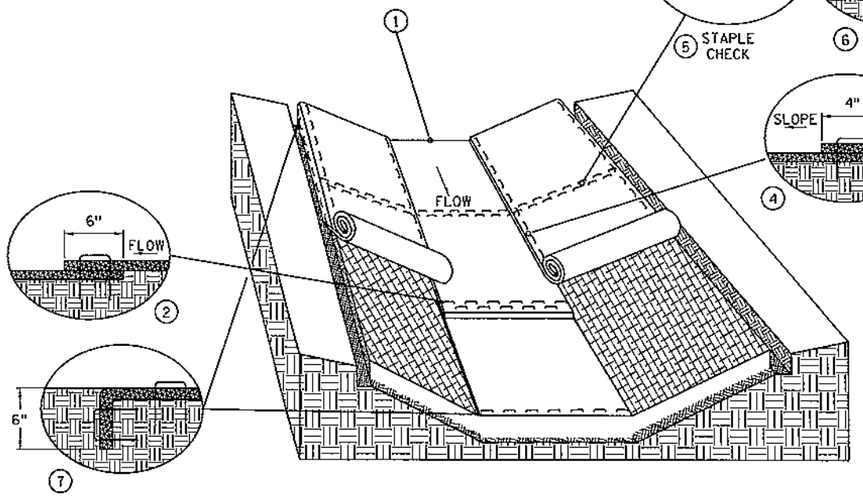
BACKFILL TRENCH WITH SOIL AND TAMP.

PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

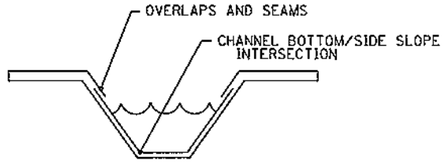


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

CHECK SLOT DETAILS



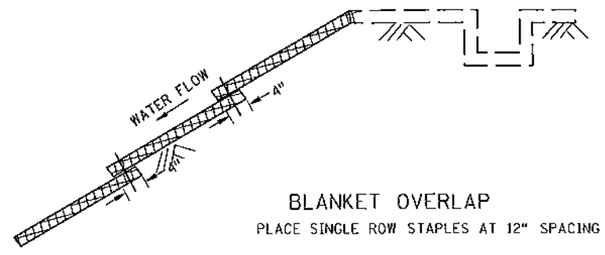
DITCH BLANKET STAPLE DETAIL



DITCH BLANKET CRITICAL POINTS (7)

DITCH BLANKET STAPLE DETAIL NOTES

1. USE CHECK SLOT DETAIL (NO ALTERNATES).
2. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
3. USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
4. PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
5. USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5% GRADE AT 100 FOOT INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
6. USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:
   2.5%-3% 100 FT INTERVALS
   3%-5% 50 FT INTERVALS
   5%-7% 25 FT INTERVALS
7. CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.



BLANKET OVERLAP
PLACE SINGLE ROW STAPLES AT 12" SPACING

GENERAL BLANKET INSTALLATION REQUIREMENTS

PREPARE SOIL AS PER SPECIFICATION 2574.

LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4 INCHES.

OVERLAP BLANKET 6" (MIN.) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.

THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT 1/3 FROM THE BOTTOM OF THE SLOPE.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

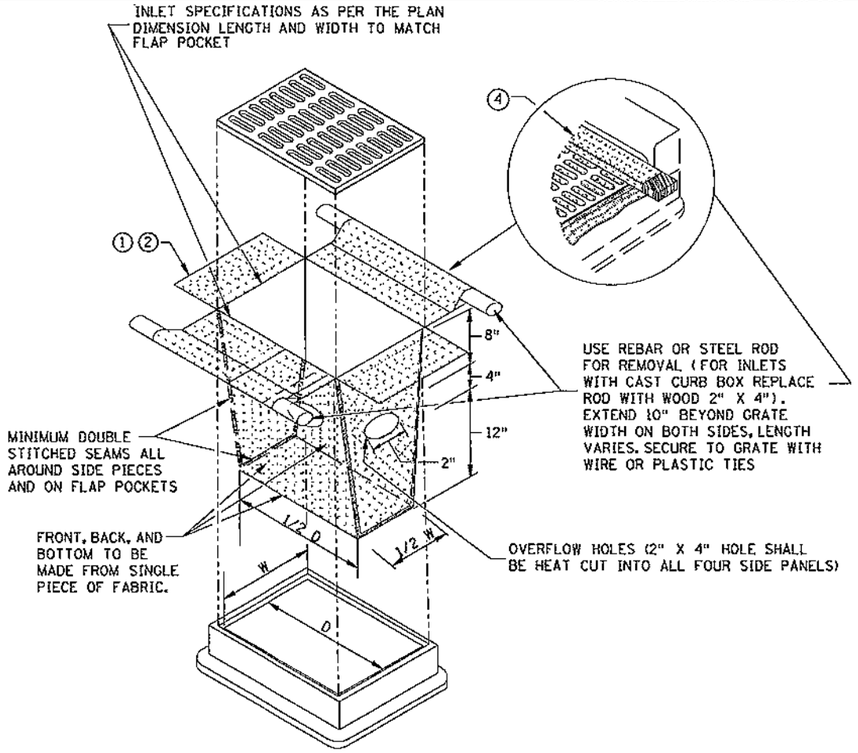
STANDARD PLAN 5-297.404 | 3 OF 3

APPROVED: 2-28-2017
REVISED:

PERMANENT EROSION CONTROL

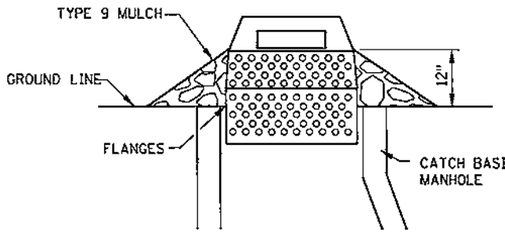
BLANKET STAPLE PATTERN FOR SLOPES

STATE PROJ. NO. (T.H.) SHEET NO. 14 OF 39 SHEETS



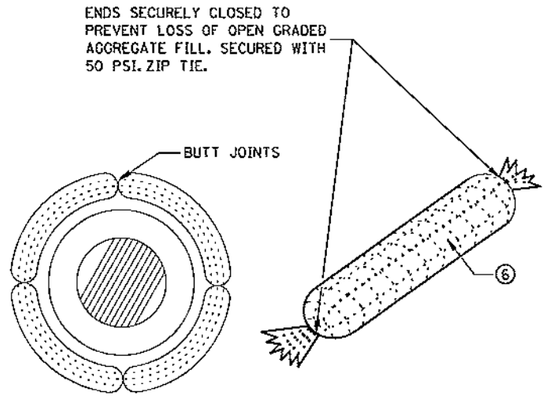
FILTER BAG INSERT ③

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

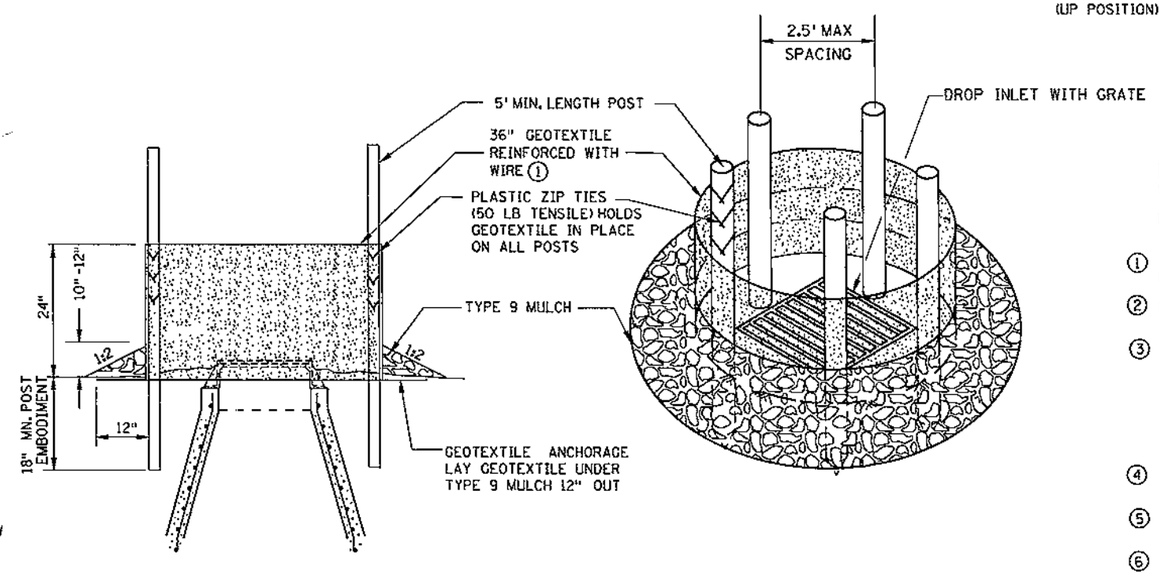


SEDIMENT CONTROL INLET HAT

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

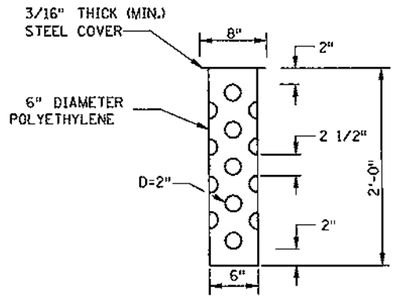


ROCK LOG/COMPOST LOG

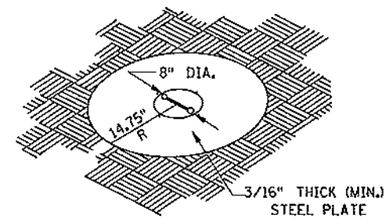


SILT FENCE RING AND ROCK FILTER BERM

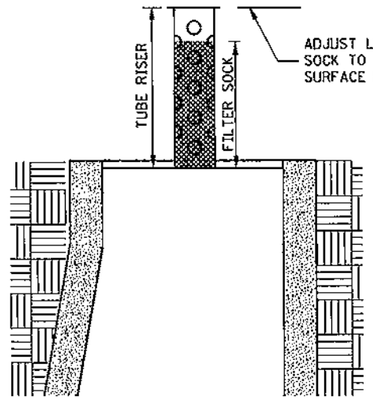
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS



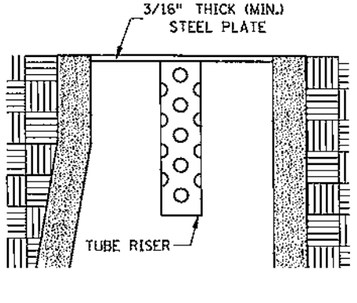
TUBE RISER



PERSPECTIVE VIEW



SECTION
(UP POSITION)



SECTION
(DOWN POSITION)

POP-UP HEAD

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

(1) ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

(2) FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

(3) INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

(4) FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

(5) SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

(6) GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER, SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 4 OF 8

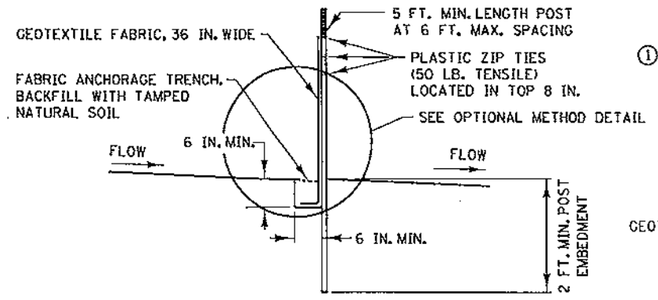
APPROVED: 2-28-2017
REVISED:

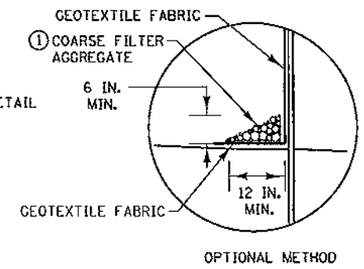
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

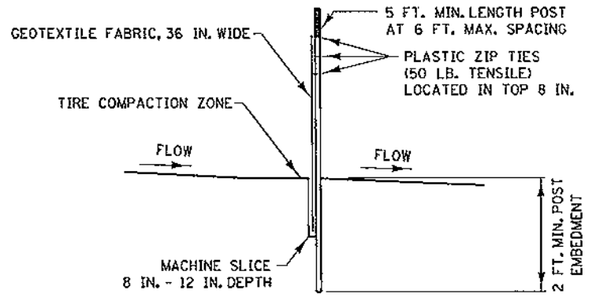
STORM DRAIN INLET PROTECTION

STATE PROJ. NO. (T.H.) SHEET NO. 15 OF 39 SHEETS

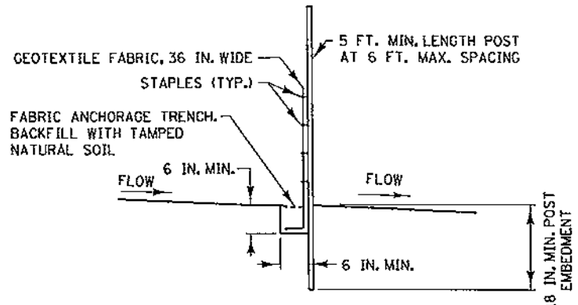




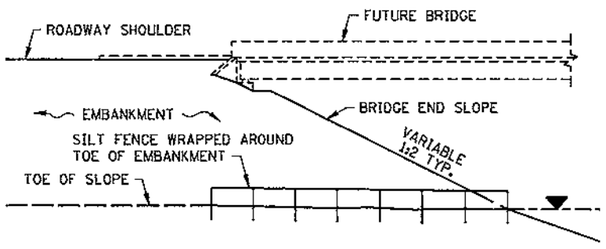
SILT FENCE TYPE HI ②
(HAND INSTALLED)



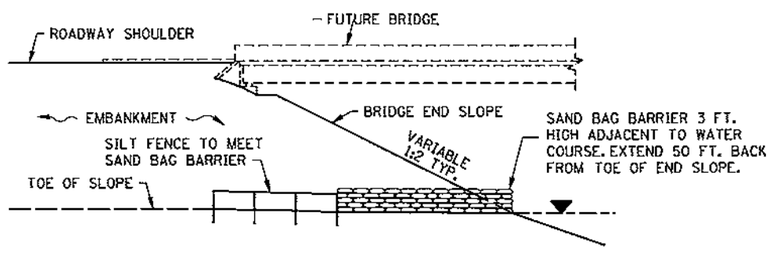
SILT FENCE TYPE MS ②
(MACHINE SLICED)



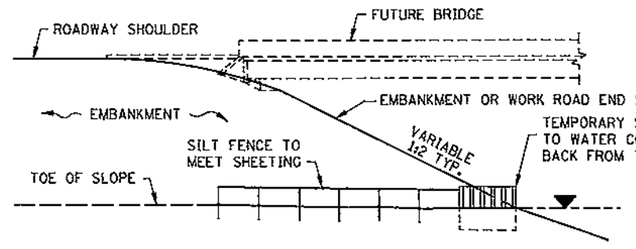
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

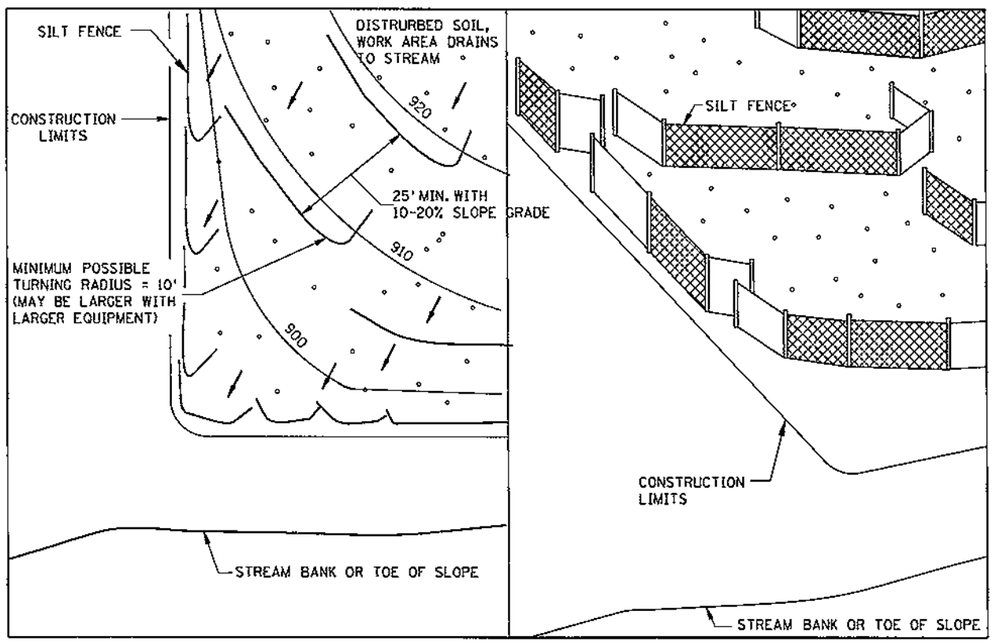


SILT FENCE WITH SAND BAGS ⑤



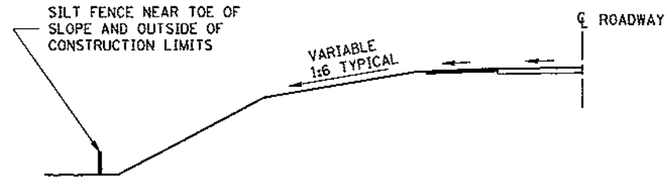
SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING.
CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8

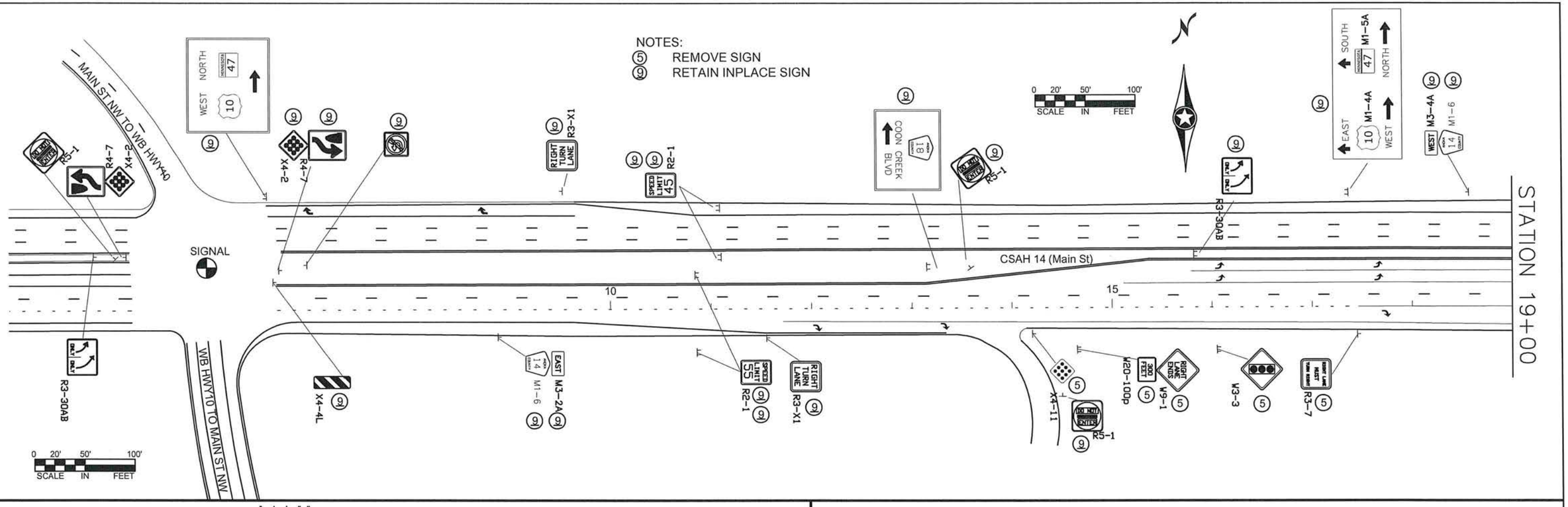
APPROVED: 2-28-2017
REVISED:

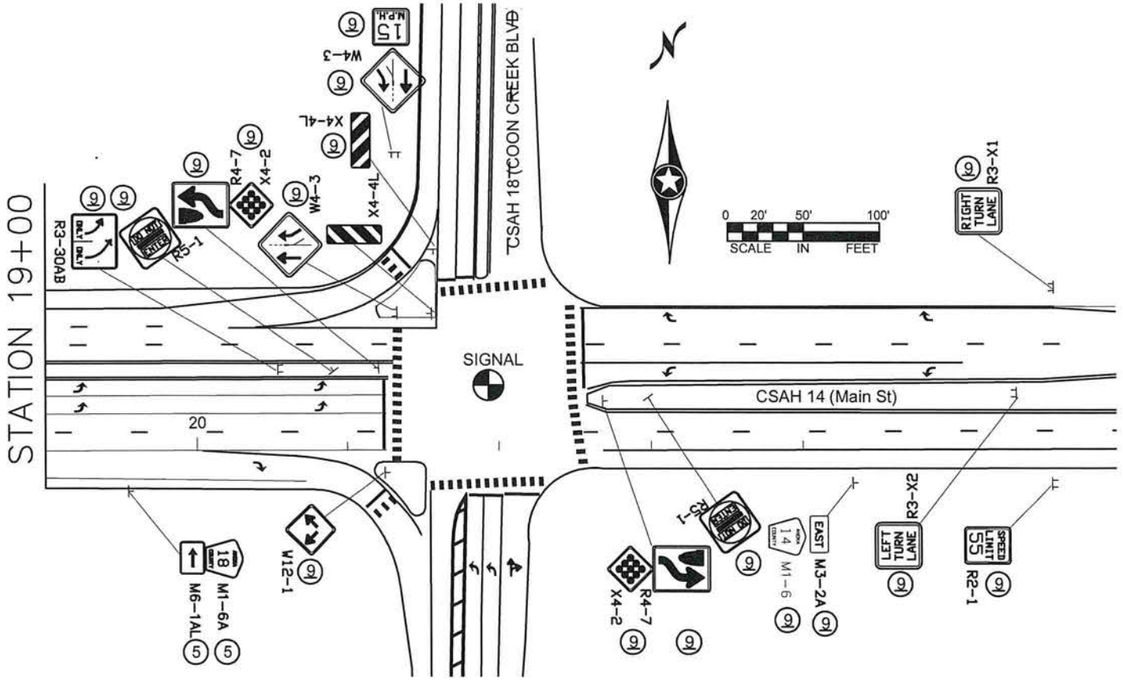
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SILT FENCE

STATE PROJ. NO. (T.H.) SHEET NO. 16 OF 39 SHEETS

NOTES:
⑤ REMOVE SIGN
⑨ RETAIN INPLACE SIGN





EXISTING SIGN TAB

STATION	ADDRESS/ DESCRIPTION (NOTES)	REMOVE SIGN TYPE C	SIGN NUMBER	SIGN LEGEND
		EACH		
14+20	Rt	1	X4-11	9 Button Marker
14+20	Rt	1	W9-1	Rt Ln Ends
			W20-100p	300 Feet
16+00	Rt	1	W3-3	Signal Ahead
17+50	Rt	1	R3-7	Rt Ln Must Turn Rt
19+50	Rt	1	M1-6A	18 Route Mkr
			M6-1AL	Left Arrow
	TOTAL	5		

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Base\Traffic\Existing.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: DOUGLAS W. FISCHER
SIGNATURE:
DATE: 6/28/19 LICENSE NO. 20235

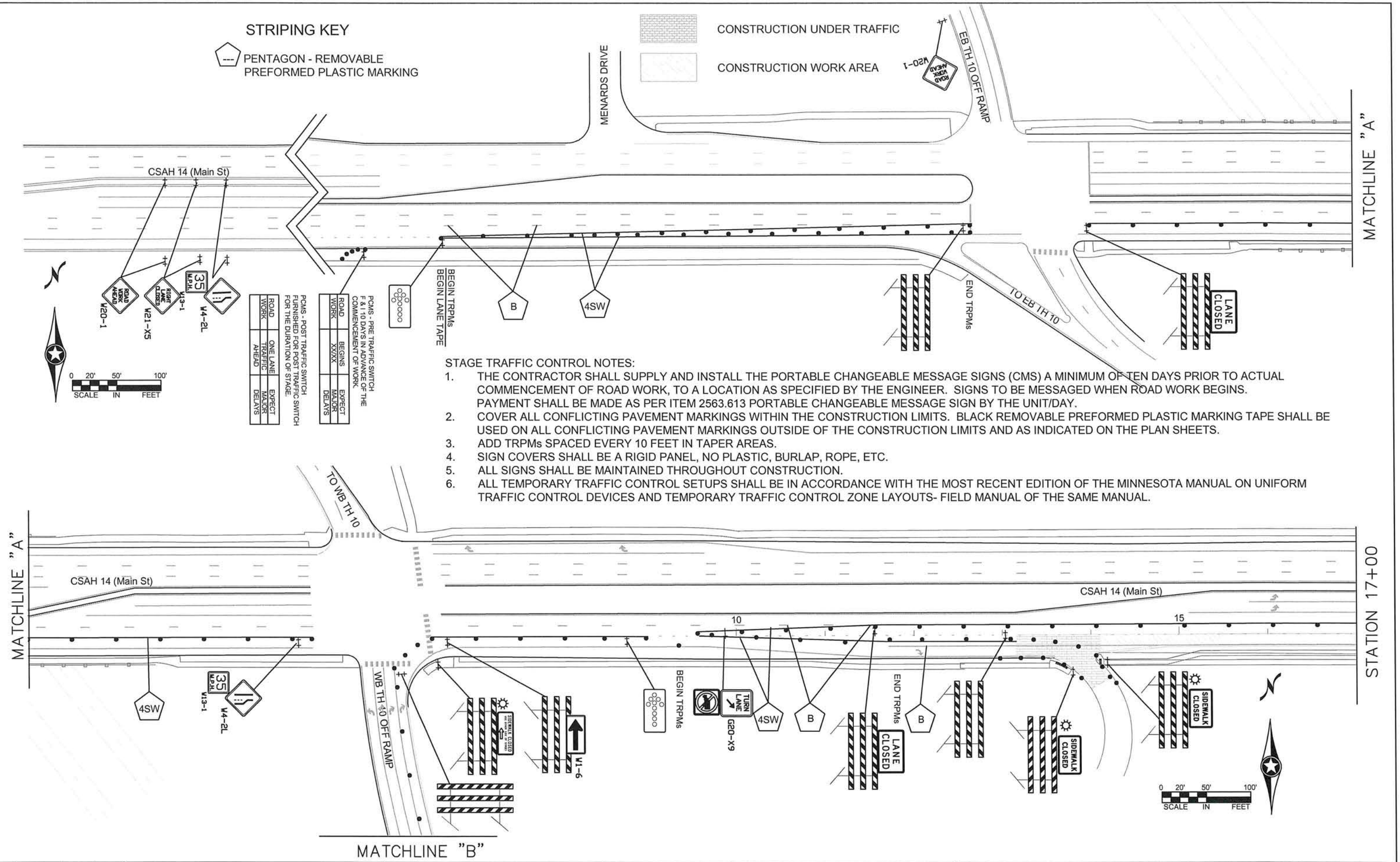
DRAWN BY TMV DATE 06/28/19
DESIGN BY DATE
CHECKED BY DATE

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

EXISTING SIGNING AND STRIPING

Sheet 17 of 39 Sheets



STAGE TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGNS (CMS) A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE MESSAGED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
2. COVER ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
3. ADD TRPMs SPACED EVERY 10 FEET IN TAPER AREAS.
4. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
5. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
6. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Base\Traffic\Stage 1.dwg

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

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 8/29/19 LICENSE NO. 20235

DRAWN BY TMV DATE 08/02/19

DESIGN BY DATE

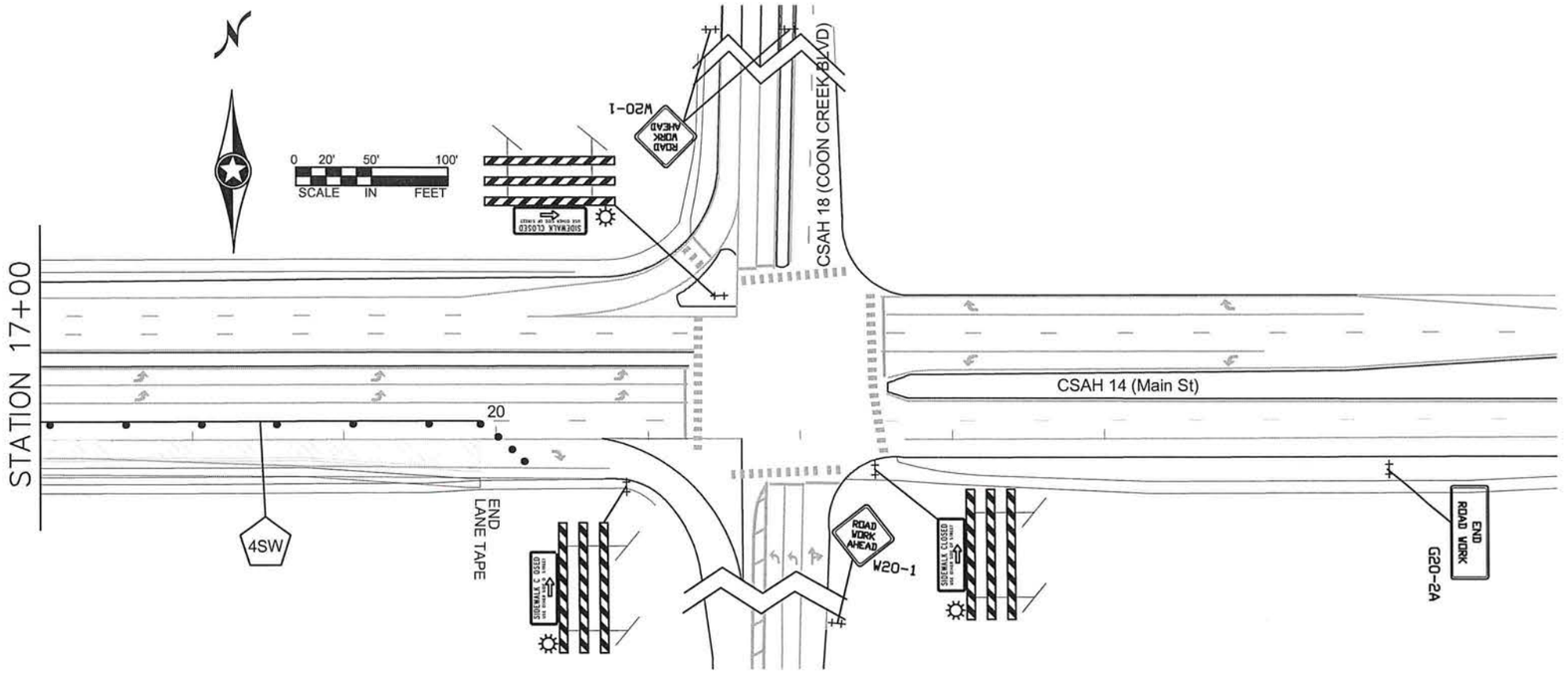
CHECKED BY DATE

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

TRAFFIC CONTROL STAGING PLAN

Sheet 18 of 39 Sheets

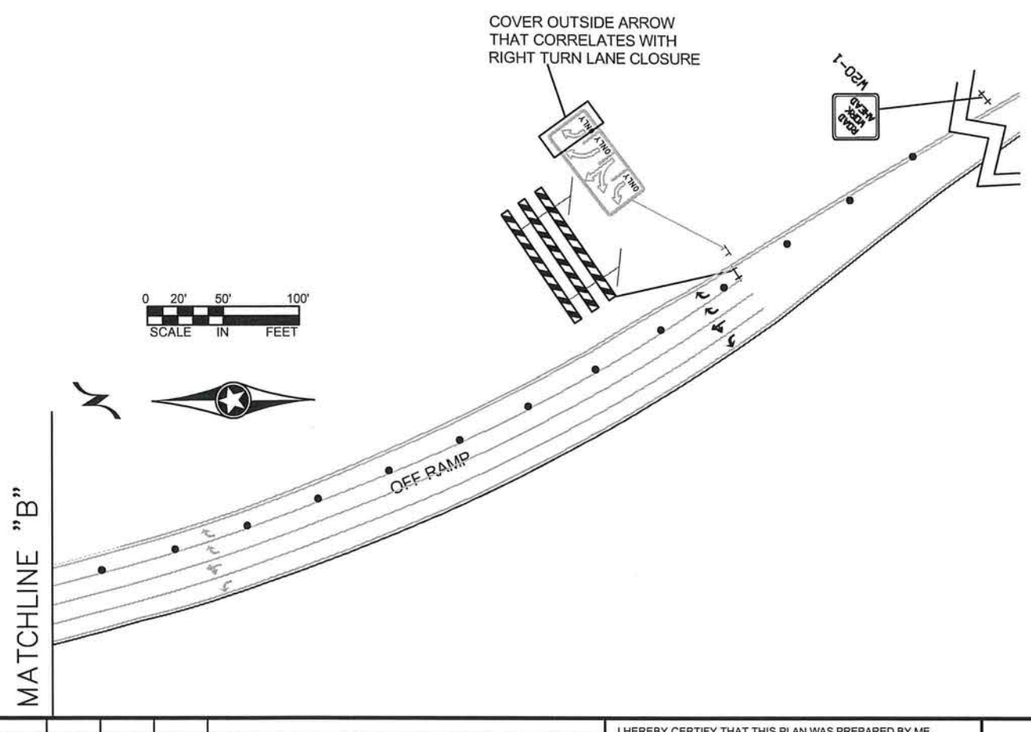


STRIPING KEY

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

CONSTRUCTION UNDER TRAFFIC

CONSTRUCTION WORK AREA



STAGE TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGNS (CMS) A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE MESSAGED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
2. COVER ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
3. ADD TRPMs SPACED EVERY 10 FEET IN TAPER AREAS.
4. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
5. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
6. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- FIELD MANUAL OF THE SAME MANUAL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Base\Traffic\Stage 1.dwg

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

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 8/20/19 LICENSE NO. 20235

DRAWN BY TMV DATE 08/02/19

DESIGN BY DATE

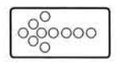
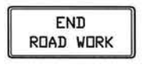
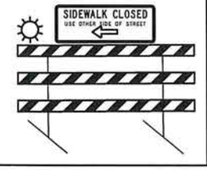
CHECKED BY DATE

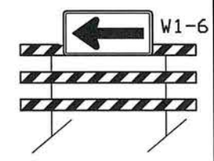
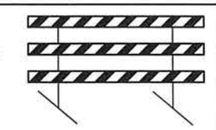
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

TRAFFIC CONTROL STAGING PLAN

Sheet 19 of 39 Sheets

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
W4-2L	48" x 48"		2
W13-1	30" x 30"		2
W20-1	48" x 48"		7
W21-X5	48" x 48"		2
G20-X9	30" x 36"		1
R5-2	24" x 24"		1
ARROWBOARD			2
G20-2A	48" x 24"		1
R11	48" x 30"		2
TYPE III			2
R11	48" x 30"		2
TYPE III	8 FOOT		2
FLASHER			

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
R11	48" x 30"		2
TYPE III	8 FOOT		2
FLASHER			
R9-11	48" x 24"		2
TYPE III	8 FOOT		2
FLASHER			
W1-6	48" x 24"		1
TYPE III	8 FOOT		1
TYPE III	8 FOOT		4
REFLECTORIZED REBOUNDABLE DRUM			114
CMS sign to be installed a minimum of ten days prior to actual commencement of road work. Message to be changed when road work begins and remain in place through duration of project.			1 30 DAYS

J	TEMPORARY PAVEMENT MARKING TABULATION		
RAISED PAVEMENT MARKER TEMPORARY		EACH	80
REMOVABLE PREFORMED PLASTIC MASK (BLACK)		LIN FT	170
REMOVABLE PREFORMED PAVEMENT MARKING (4")		LIN FT	3500
PORTABLE CHANGEABLE MESSAGE SIGN		UDAY	30

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Base\Traffic\Stage 1.dwg

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

PRINT NAME: DOUGLAS W. FISCHER

SIGNATURE:

DATE: 8/21/19 LICENSE NO. 20235

DRAWN BY TMV DATE 08/02/19

DESIGN BY DATE

CHECKED BY DATE

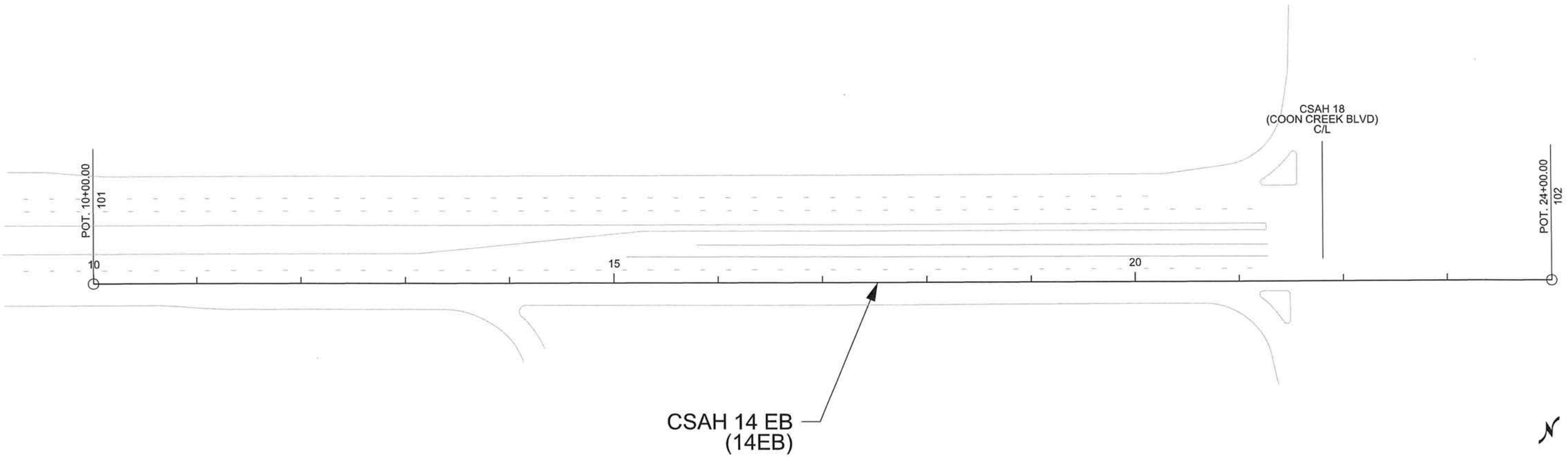
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

STAGING QUANTITIES

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 14 EASTBOUND <14EB>										
101	POT	10+00.000						481,811.8804	159,143.2203	
102	POT	24+00.000						483,211.8735	159,147.6145	



N

SCALE 0 100 IN FEET

1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_AL_P1.dgn 08/23/2019 1:05:09 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

PRINT NAME: JOSEPH J. MACPHERSON

SIGNATURE:

DATE: 8-27-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19

DESIGN BY EJM DATE 08/02/19

CHECKED BY NJD DATE 08/09/19

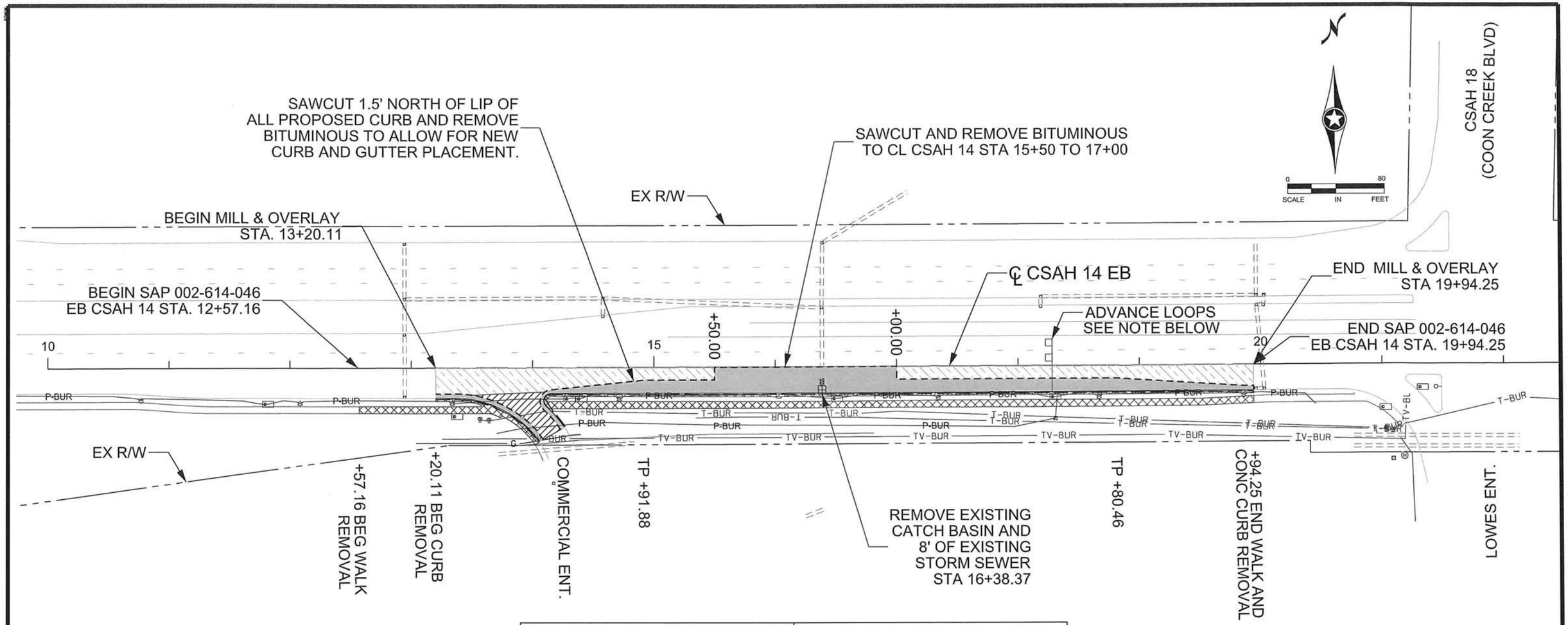
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

ALIGNMENT PLAN AND TABULATION

Sheet 21 of 39 Sheets



CAUTION, IRRIGATION SPRINKLER HEADS ALONG WALK IN WEST RAD. SEE NOTE [6] OF THE SEQ.

COMMERCIAL ENTRANCE MUST REMAIN OPEN DURING CONSTRUCTION.

REMOVALS LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	2" MILL AND OVERLAY BITUMINOUS PAVEMENT
	MILL BITUMINOUS SURFACE (VAR. 2" - 4")
	REMOVE CONCRETE WALK / CURB APRON
	REMOVE CURB AND GUTTER
- - - - -	SAWCUT
	REMOVE CATCH BASIN & 8' EXISTING STORM PIPE

EXISTING UTILITY LEGEND	
	EXISTING SIGNAL LOOPS
	EXISTING STORM SEWER
	EXISTING CATCH BASINS
— G —	GAS
– P-BUR –	POWER
– T-BUR –	TELEPHONE
–TV-BUR–	TV
	MANHOLE ELEC.
	COMM. SLPICE BOX
	SPLICE BOX ELEC.
	LIGHT POLE

CARE SHOULD BE TAKEN AS TO NOT DISTURB LOOPS AND WIRING FOR SIGNAL. LOOPS FALL OUTSIDE OF THE PROPOSED CONSTRUCTION AREA, HOWEVER WIRING TO HAND HOLE CROSSES THE MILLED AREA AND MUST BE MAINTAINED.

SIGNAL INTERCONNECT REMAINS INPLACE AND IS NOT TO BE DISTURBED.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_RM1.dgn 09/04/2019 1:05:06 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JOSEPH J. MACPHERSON
SIGNATURE:
DATE: 8-4-19 LICENSE NO. 46732

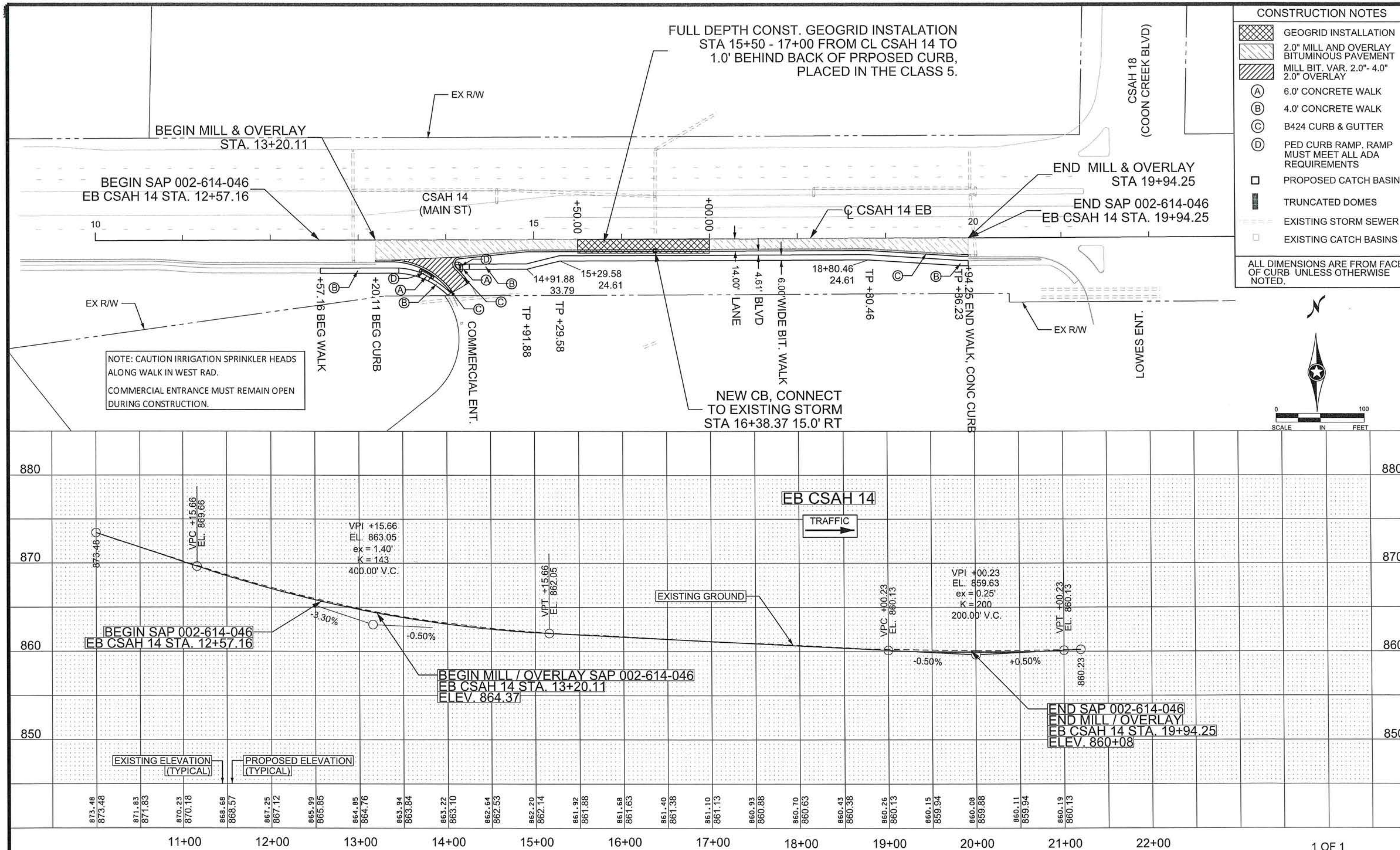
DRAWN BY JCF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

REMOVAL PLAN AND EXISTING UTILITIES
STA 12+57.16 TO 19+94.25

Sheet 22 of 39 Sheets



Existing	Proposed
873.48	873.48
871.83	871.83
870.23	870.18
868.68	868.57
867.25	867.12
865.99	865.85
864.85	864.76
863.94	863.84
863.22	863.10
862.64	862.53
862.20	862.14
861.92	861.88
861.68	861.63
861.40	861.38
861.10	861.13
860.93	860.88
860.70	860.63
860.43	860.38
860.26	860.13
860.15	859.94
860.08	859.88
860.11	859.94
860.19	860.13

1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_PP1.dgn 08/23/2019 1:05:56 PM

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

PRINT NAME: JOSEPH J. MACPHERSON

SIGNATURE:

DATE: 8-27-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

CONSTRUCTION PLAN AND PROFILE

STA 12+57.16 TO 19+94.25

WEST RAD. CURB AND GUTTER STATION / OFFSETS ARE FROM 14_EB											
GRID LAYOUT		NOTE	RAD. POINT LOC.		OFFSET 3' B/C		B424 CURB			
AREA	DESC.		STATION	OFFSET	STATION	OFFSET	*BIT @ LIP*	HUB ELEV.	TOP OF CURB	C / F
"W"	83.82' RAD. F/C		13+36.85	108.66						
W1	BEG. RAD				13+40.83	28.55	*863.44*		**863.63**	
W2	1/4 PT				13+58.83	31.52	*862.70*		**862.89**	
W3	MID PT	IN LANDING			13+75.70	38.49	*861.98*		**862.17**	
W4	3/4 PT				13+90.55	49.08	*861.39*		**861.58**	
W5	END RAD				14+02.63	62.76	*860.63*		**860.82**	

WEST RAD. WALK CONTROL POINTS				
POINT NO.	DESCRIPTION	STA	OFFSET	FINISHED ELEV.
"A"	FLOWLINE BOTTOM OF RAMP	13+74.09	33.56	862.06
1	S. EDGE WALK	13+40.37	37.91	863.45
2	S. EDGE WALK	13+46.28	37.91	863.21
3	S. EDGE WALK	13+56.67	39.12	892.80
4	S. EDGE WALK, LANDING COR.	13+69.53	42.51	862.20
5	S. EDGE WALK	13+72.79	43.73	862.12
6	S. EDGE WALK, LANDING COR.	13+79.62	46.81	861.96
7	S. EDGE WALK	13+88.12	51.77	861.56
8	S. EDGE WALK, MATCH PT	14+01.61	62.94	860.82
9	LANDING COR.	13+71.99	37.66	862.20
10	LANDING COR.	13+81.89	43.48	861.96

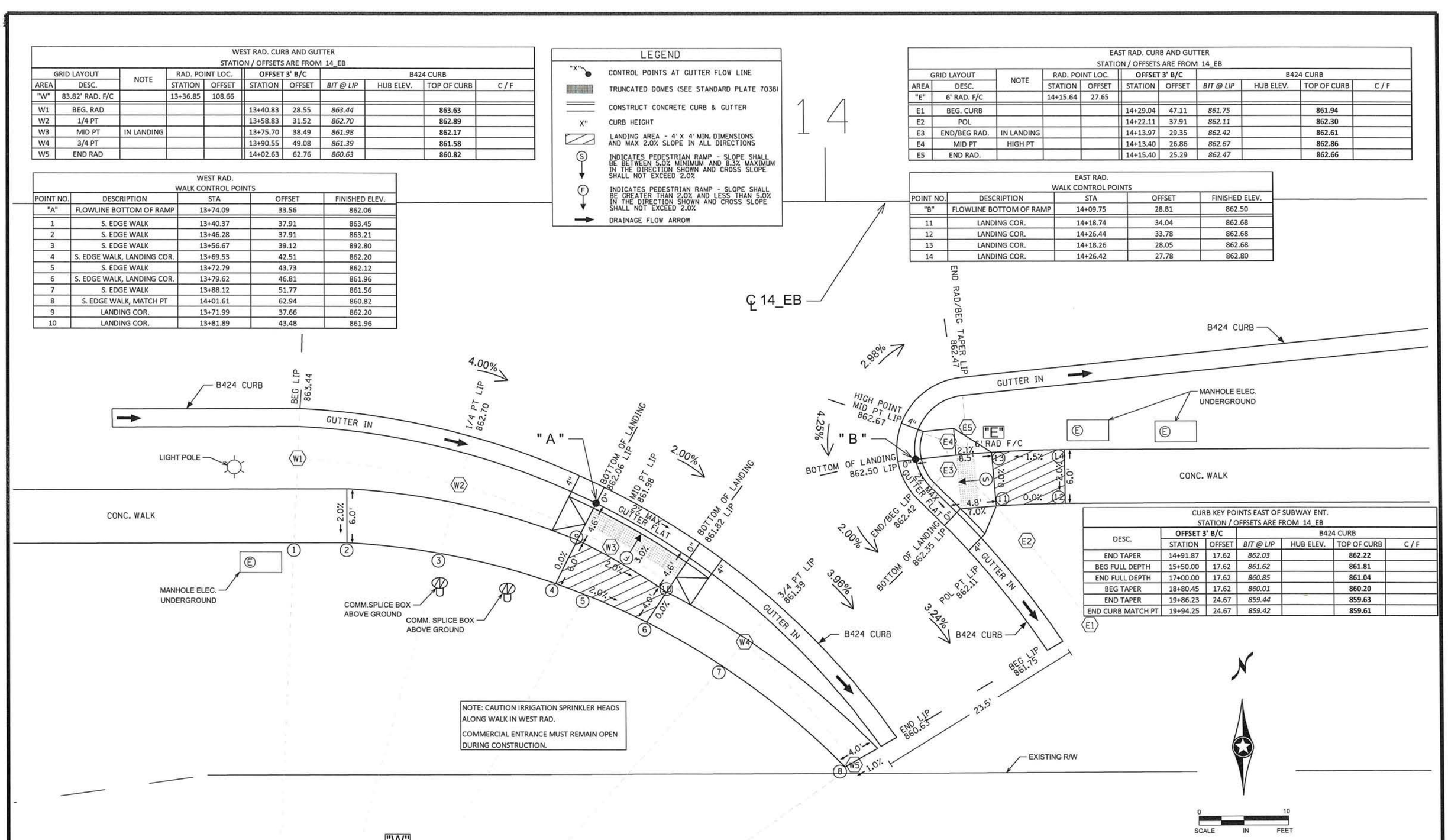
LEGEND

- "X" — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- X" — CURB HEIGHT
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (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%
- DRAINAGE FLOW ARROW

14

EAST RAD. CURB AND GUTTER STATION / OFFSETS ARE FROM 14_EB											
GRID LAYOUT		NOTE	RAD. POINT LOC.		OFFSET 3' B/C		B424 CURB			
AREA	DESC.		STATION	OFFSET	STATION	OFFSET	*BIT @ LIP*	HUB ELEV.	TOP OF CURB	C / F
"E"	6' RAD. F/C		14+15.64	27.65						
E1	BEG. CURB				14+29.04	47.11	*861.75*		**861.94**	
E2	POL				14+22.11	37.91	*862.11*		**862.30**	
E3	END/BEG RAD.	IN LANDING			14+13.97	29.35	*862.42*		**862.61**	
E4	MID PT	HIGH PT			14+13.40	26.86	*862.67*		**862.86**	
E5	END RAD.				14+15.40	25.29	*862.47*		**862.66**	

EAST RAD. WALK CONTROL POINTS				
POINT NO.	DESCRIPTION	STA	OFFSET	FINISHED ELEV.
"B"	FLOWLINE BOTTOM OF RAMP	14+09.75	28.81	862.50
11	LANDING COR.	14+18.74	34.04	862.68
12	LANDING COR.	14+26.44	33.78	862.68
13	LANDING COR.	14+18.26	28.05	862.68
14	LANDING COR.	14+26.42	27.78	862.80



CURB KEY POINTS EAST OF SUBWAY ENT. STATION / OFFSETS ARE FROM 14_EB						
DESC.	OFFSET 3' B/C		B424 CURB			
	STATION	OFFSET	*BIT @ LIP*	HUB ELEV.	TOP OF CURB	C / F
END TAPER	14+91.87	17.62	*862.03*		**862.22**	
BEG FULL DEPTH	15+50.00	17.62	*861.62*		**861.81**	
END FULL DEPTH	17+00.00	17.62	*860.85*		**861.04**	
BEG TAPER	18+80.45	17.62	*860.01*		**860.20**	
END TAPER	19+86.23	24.67	*859.44*		**859.63**	
END CURB MATCH PT	19+94.25	24.67	*859.42*		**859.61**	

1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_ID.dgn 08/23/2019 1:05:52 PM

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

PRINT NAME: JOSEPH J. MACPHERSON

SIGNATURE:

DATE: 8-27-19 LICENSE NO. 46732

DRAWN BY JCF DATE 08/02/19

DESIGN BY EJM DATE 08/02/19

CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

INTERSECTION DETAIL & PEDESTRIAN RAMPS

Sheet 24 of 39 Sheets

SEED MIXTURE 25-131
FERT. TYPE 3 [22-5-10], MULCH TYPE 1

EROSION CONTROL BLANKET TYPE 0

MS — SILT FENCE, TYPE MACHINE SLICED

STORM DRIAN INLET PROTECTION

CATCH BASIN

EX R/W

CSAH 18
(COON CREEK BLVD)

BEGIN SAP 002-614-046
EB CSAH 14 STA. 12+57.16

CSAH 14
(MAIN ST)

℄ CSAH 14 EB

END SAP 002-614-046
EB CSAH 14 STA. 19+94.25

10 15 20

EX R/W

EX R/W

11+65.57
86.34
R/W P.O.L.

13+30.59
63.72
R/W COR.

COMMERCIAL ENT.

14+40.67
63.65
R/W P.O.L.

16+05.88
63.54
R/W P.O.L.

18+01.05
63.41
R/W P.O.L.

20+40.59
63.26
R/W COR.

LOWES ENT.

NOTE: CAUTION IRRIGATION SPRINKLER HEADS ALONG WALK IN WEST RAD.

COMMERCIAL ENTRANCE MUST REMAIN OPEN DURING CONSTRUCTION.

0 100
SCALE IN FEET

1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Plan\002614046_ERO.dgn 08/23/2019 1:05:46 PM

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ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-046

TURF ESTABLISHMENT
AND
EROSION CONTROL
STA 12+57.16 TO 19+94.25

Sheet 25 of 39 Sheets

PERMANENT PAVEMENT MARKING PLAN
NOTES AND GUIDELINES

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

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

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

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

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

A MULTI COMP LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE . GLASS BEADS SHALL BE APPLIED AT A MINIMUM RATE OF 25LBS POUNDS PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

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

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

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

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

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

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

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

L — PAVEMENT MARKING TABULATION

	ITEM	UNIT	TOTAL QUANTITY
	4" SOLID LINE WHITE - MULTI COMP	LIN FT	3245
1	4" BROKEN LINE WHITE - MULTI COMP	LIN FT	330
2	8" DOTTED LINE WHITE - MULTI COMP	LIN FT	392
	4" SOLID LINE YELLOW - MULTI COMP	LIN FT	1450
	24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (PMS*)	LIN FT	21
	CROSSWALK PREFORMED THERMOPLASTIC (3'x6')	SQ FT	54
	PAVEMENT MESSAGE PREFORMED THERMOPLASTIC (RIGHT ARROW)	SQ FT	62

1 10' STRIPE, 40' GAP

2 3' STRIPE, 12' GAP

* PAVEMENT MARKING SPECIAL

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK WHITE-POLY PREFORM

PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

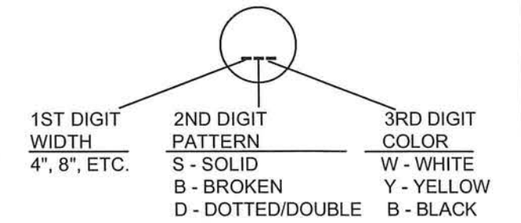
STRIPING KEY

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM THERMOPLASTIC

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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

NO	DATE	BY	CKD	APPR	REVISION
NAME:					

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PRINT NAME: DOUGLAS W. FISCHER, P.E.
SIGNATURE:
DATE: 8/29/19 REG. NO 20235

DRAWN BY TMV DATE 08/08/19
DESIGN BY ____ DATE ____
CHECKED BY ____ DATE ____

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

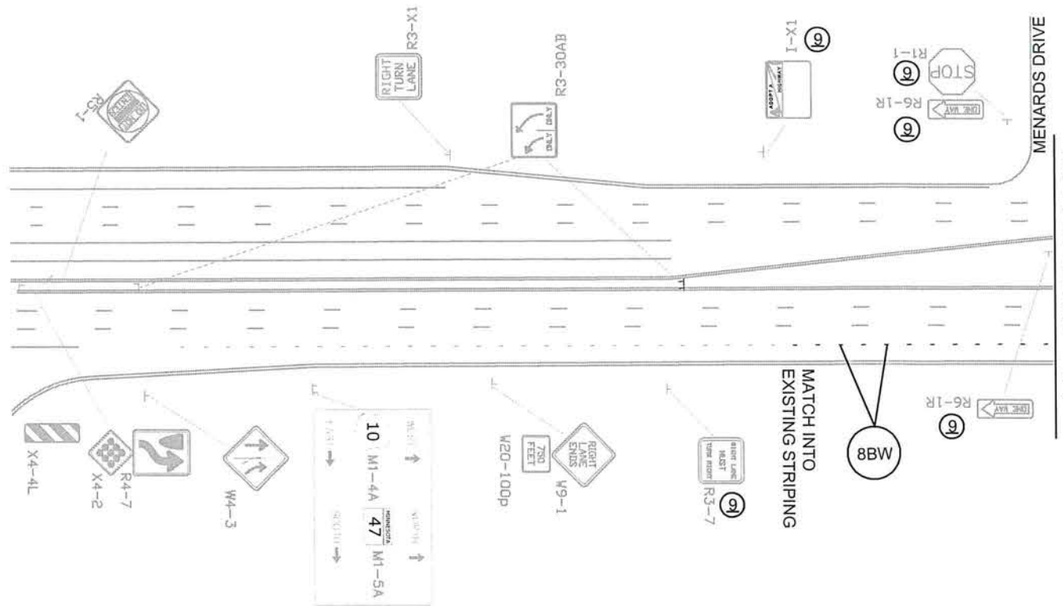
PERMANENT MARKING TABULATION

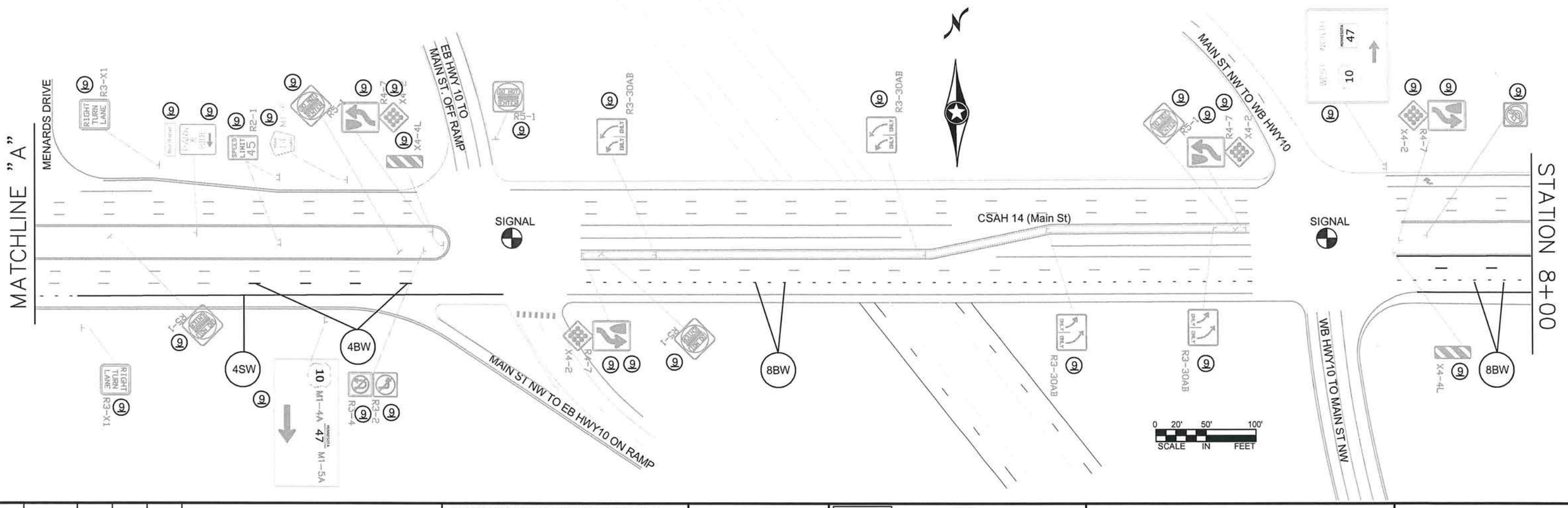
STRIPING KEY

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

NOTES:
1. FURNISH & INSTALL SIGN
9. INPLACE SIGN





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Base\Traffic\Existing.dwg

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SIGNATURE:

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DRAWN BY TMV DATE 07/18/19

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CHECKED BY ____ DATE ____

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

PERMANENT SIGNING AND STRIPING

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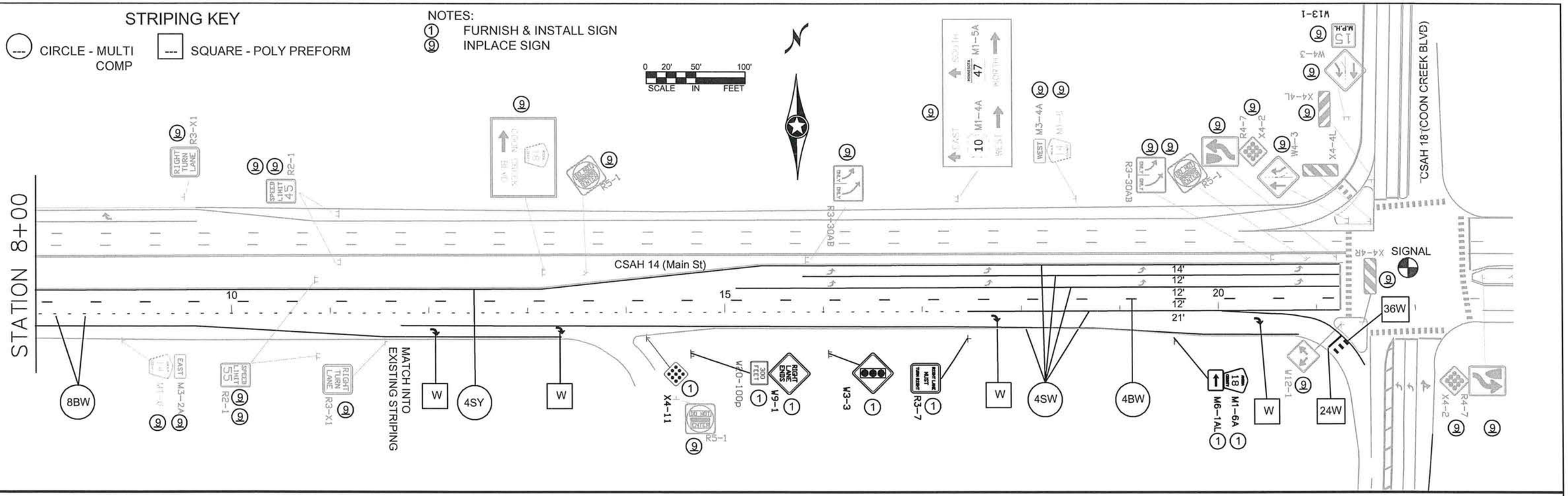
STRIPING KEY

(---) CIRCLE - MULTI COMP

[---] SQUARE - POLY PREFORM

NOTES:
① FURNISH & INSTALL SIGN
⑨ INPLACE SIGN



K — SIGN PANELS

M.U.T.C.D. CODE	SIZE		QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R3-7	36" x 36"		1	9.00	9.00	1	7.0'
R3-7	48" x 48"		1	16.00	16.00	2	7.0'
W9-1	48" x 48"		1	16.00	16.00	2	7.0'
W20-100p	24" x 18"		1	3.00	3.00		
M1-6A	24" x 24"		1	4.00	4.00	1	7.0'
M6-1AL	21" x 15"		1	2.20	2.20		
X4-11	18" x 18"		1	2.25	2.25	1	4.0'
PROJECT TOTAL			7		52.45		

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-046\Base\Traffic\Existing.dwg

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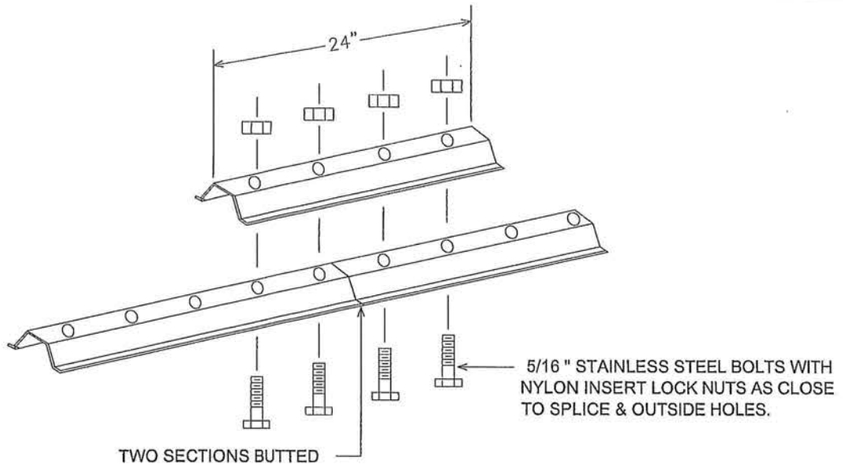
DESIGN BY DATE
CHECKED BY DATE

ANOKA COUNTY HIGHWAY DEPT.

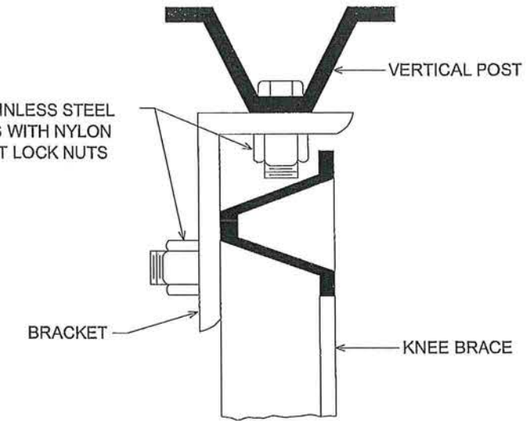
SAP 002-614-046

PERMANENT SIGNING AND STRIPING

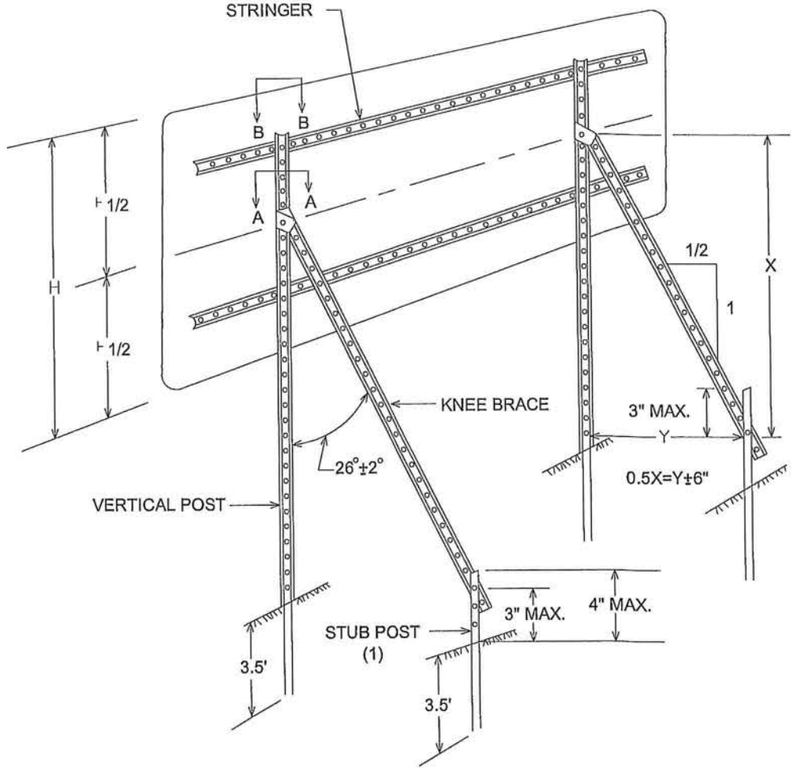
Sheet 28 of 39 Sheets



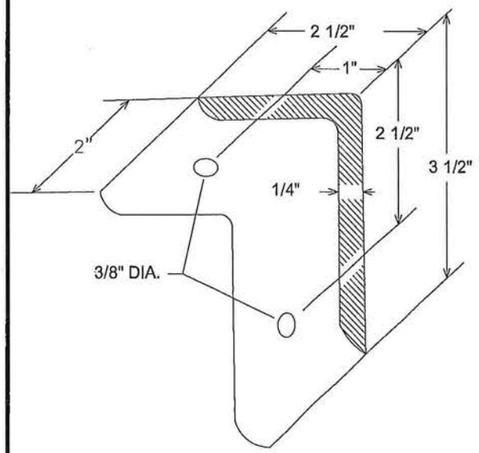
LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

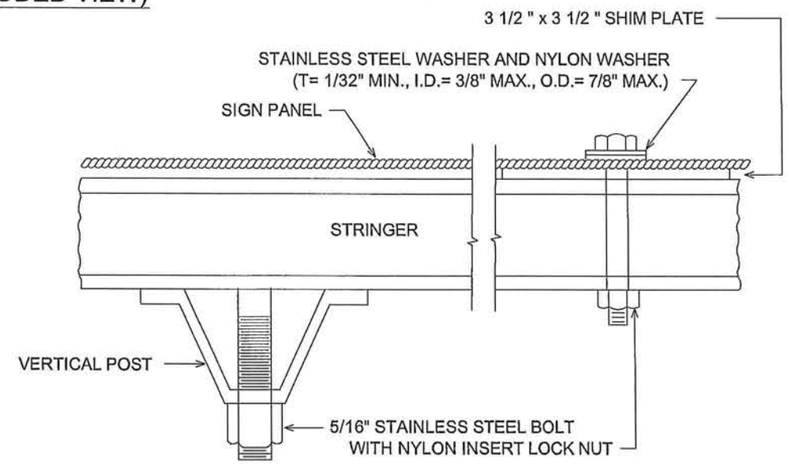


TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

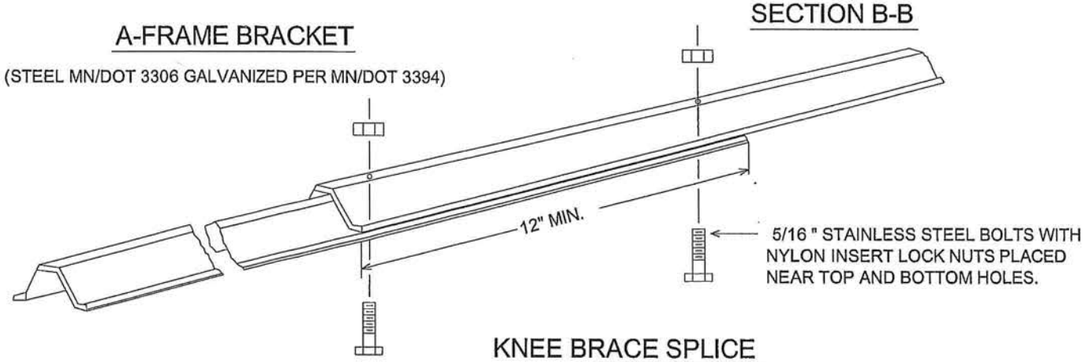


A-FRAME BRACKET

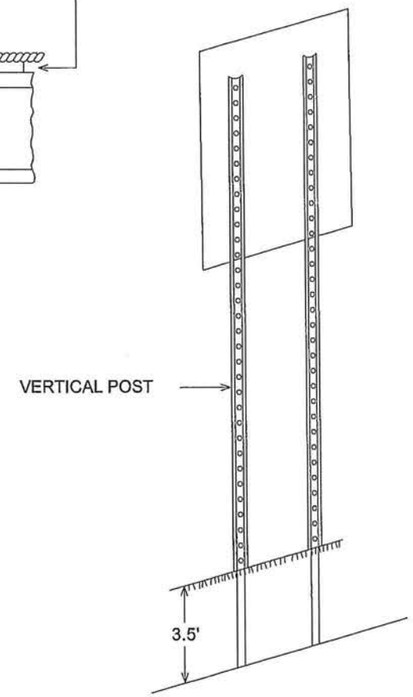
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



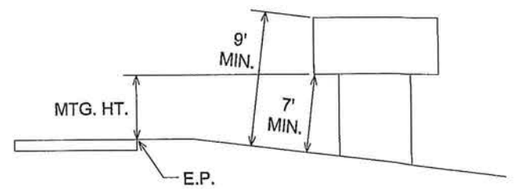
SECTION B-B



KNEE BRACE SPLICE



TYPICAL INSTALLATION 36" AND LARGER
TYPE "C" SIGNS



TYPICAL MOUNTING

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

TYPE C & D SIGN STRUCTURAL DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME:

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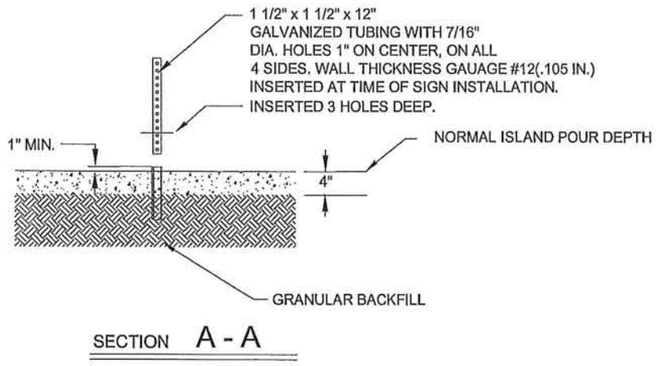
ANOKA COUNTY
HIGHWAY DEPT.

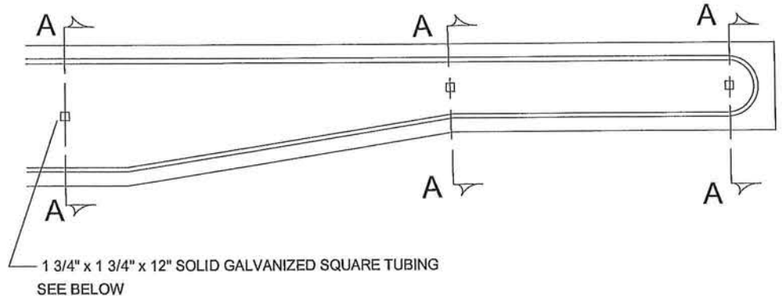
SAP 002-614-046

SIGNING & STRIPING DETAILS

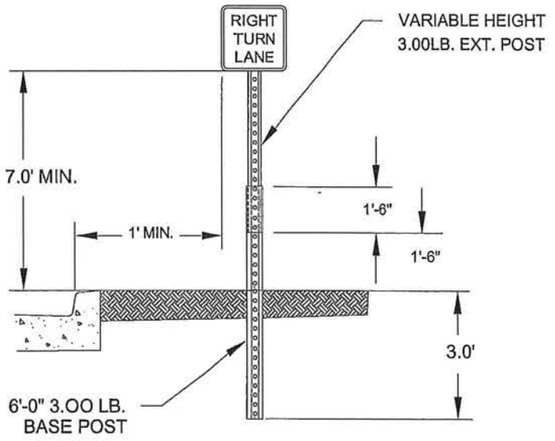
Sheet 29 of 39 Sheets



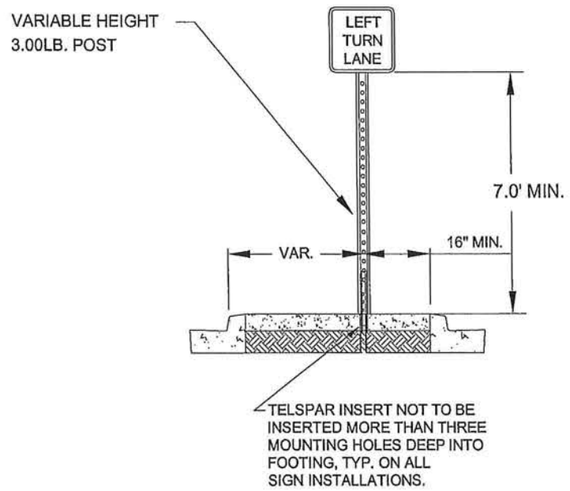
SECTION A - A



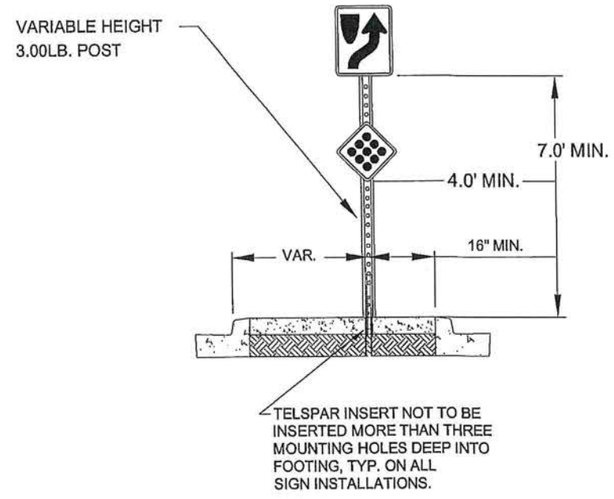
GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



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



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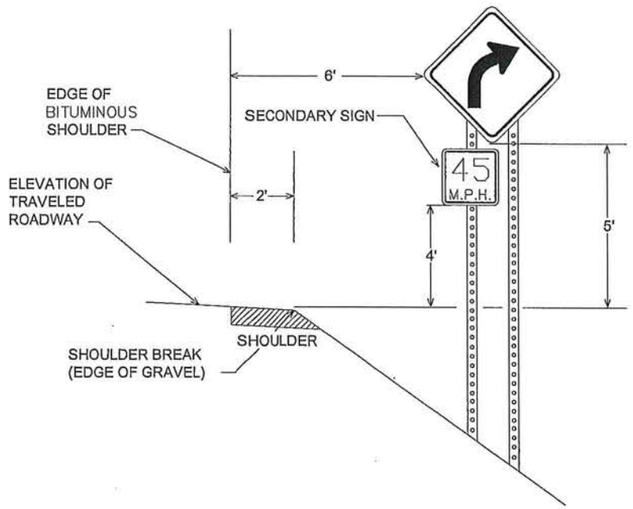
SAP 002-614-046

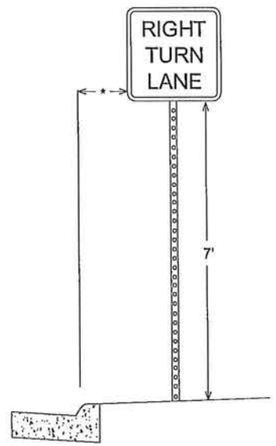
SIGNING & STRIPING
DETAILS

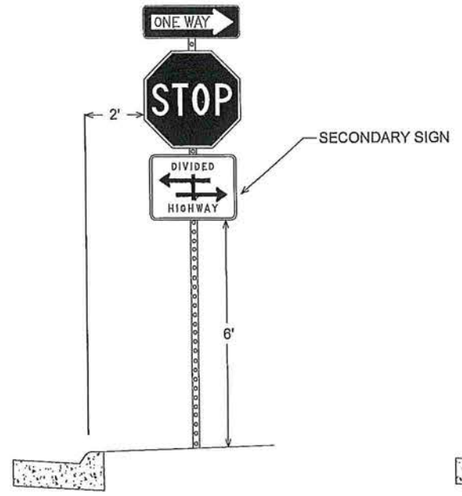
Sheet 30 of 39 Sheets

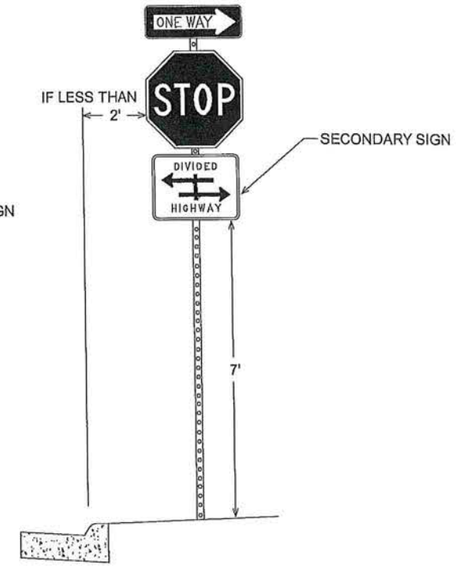
TYPICAL SIGN PLACEMENT
(RURAL)



TYPICAL SIGN PLACEMENT
(URBAN)



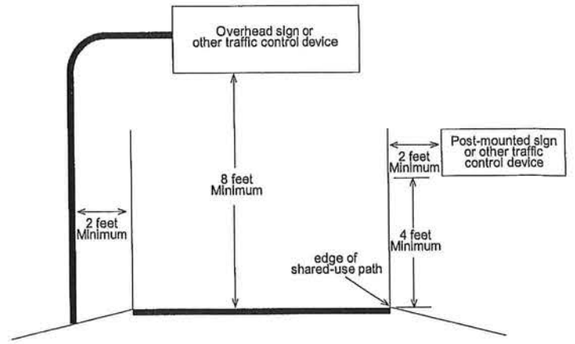




* 2' - NARROW BOULEVARD (< 8' WIDE)
6' - WIDE BOULEVARD

NOTES:

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



TYPICAL SIGN PLACEMENT
SHARED-USE PATH

NO	DATE	BY	CKD	APPR	REVISION

NAME:

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ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-046

SIGNING & STRIPING DETAILS

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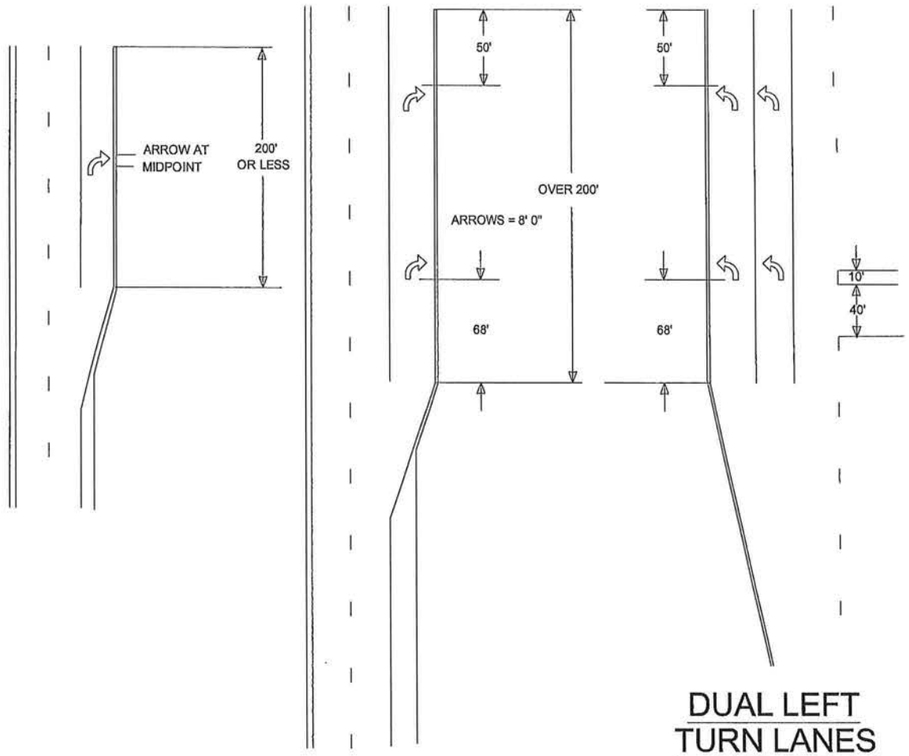
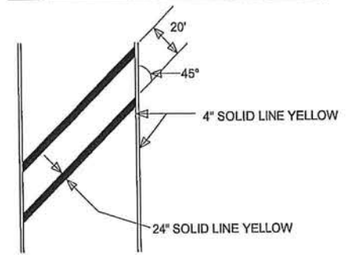
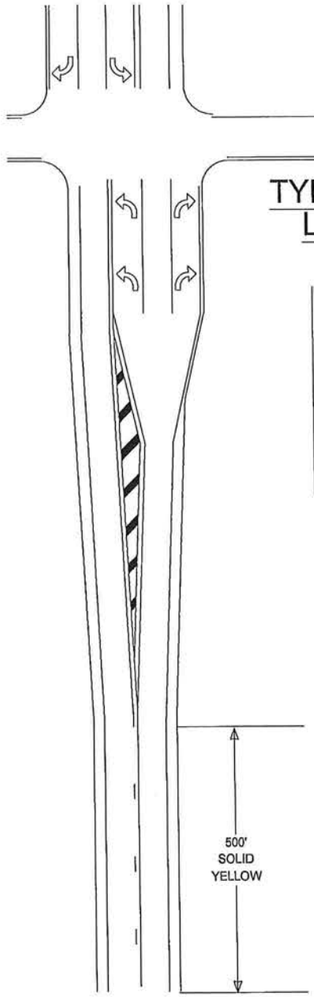
TYPICAL MESSAGE PLACEMENT FOR TURN LANES



DUAL LEFT TURN LANES

TYPICAL MARKINGS FOR LEFT TURN ISLANDS





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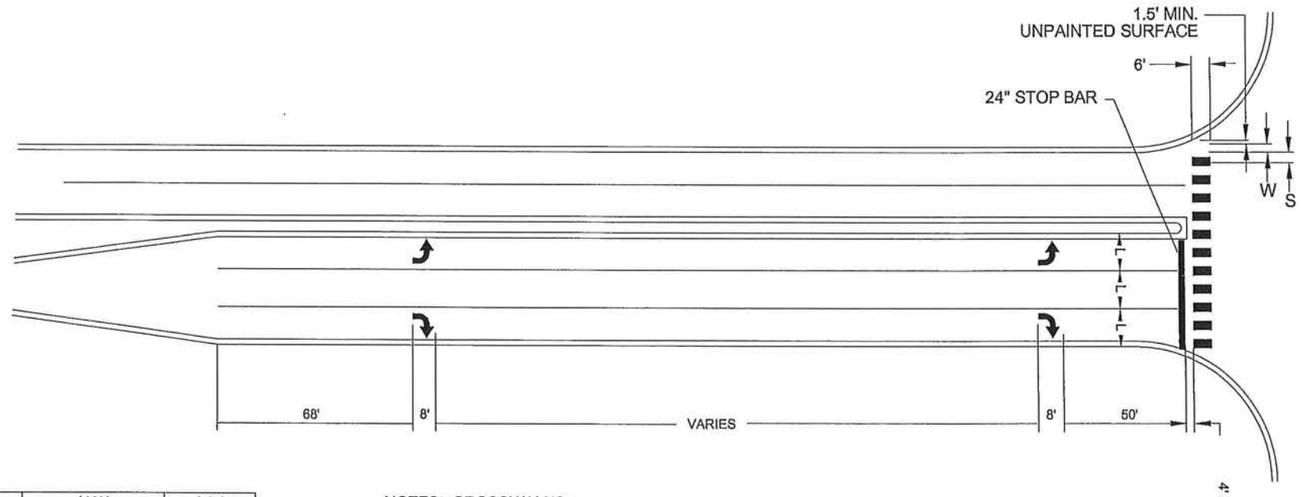
ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-046

SIGNING & STRIPING DETAILS

Sheet 32 of 39 Sheets

MARKINGS FOR PEDESTRIAN CROSSWALKS



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

NOTES: CROSSWALKS:

1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.

2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERFIED DURING CONSTRUCTION BY THE FIELD ENGR.

3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES. EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.

4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.

5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

NO	DATE	BY	CKD	APPR	REVISION

NAME:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: DOUGLAS W. FISCHER, P.E.
SIGNATURE:
DATE: LICENSE NO. 20235

DRAWN BY TMV DATE 08/08/19
DESIGN BY ____ DATE ____
CHECKED BY ____ DATE ____

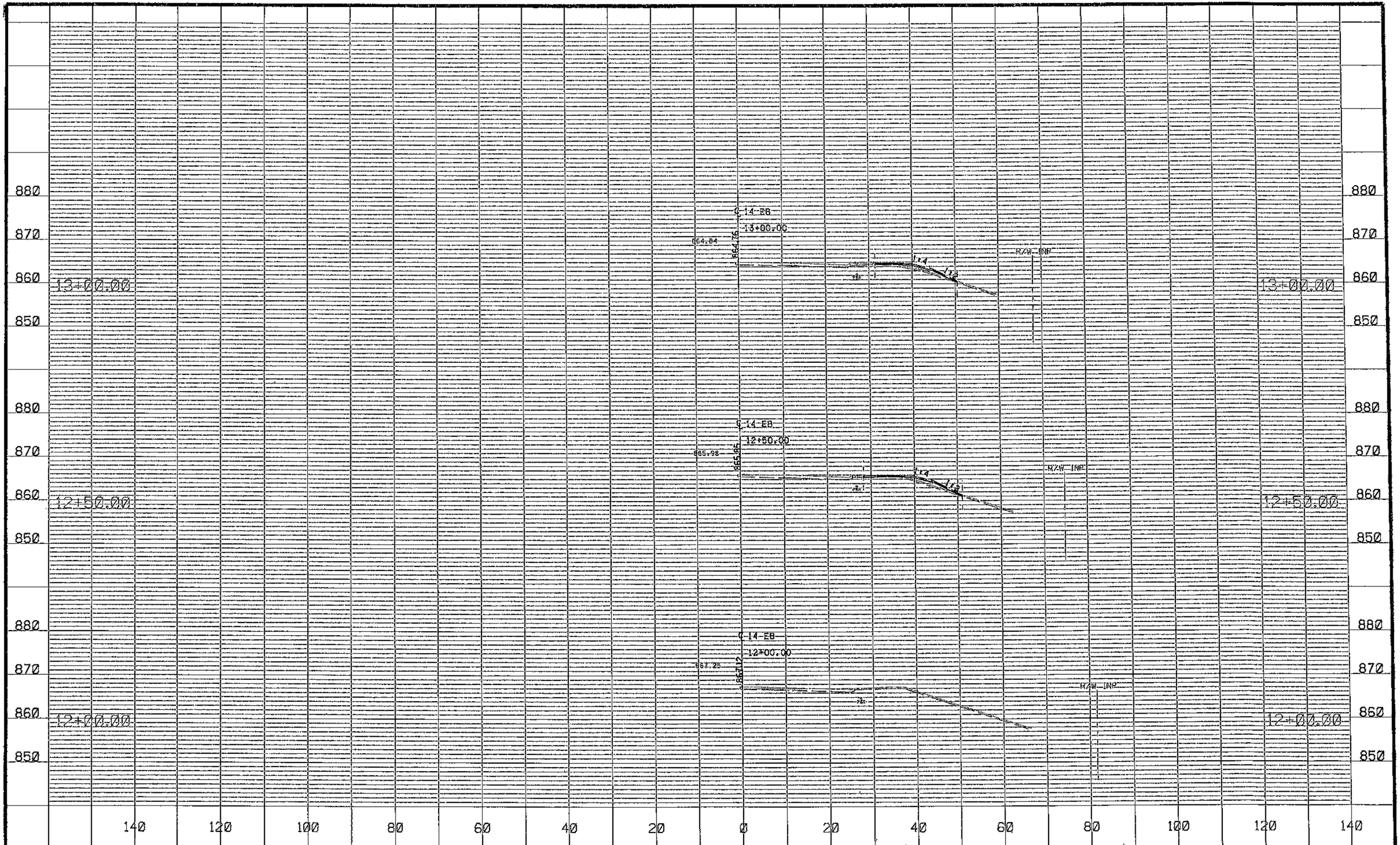
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

SIGNING & STRIPING DETAILS

Sheet 33 of 39 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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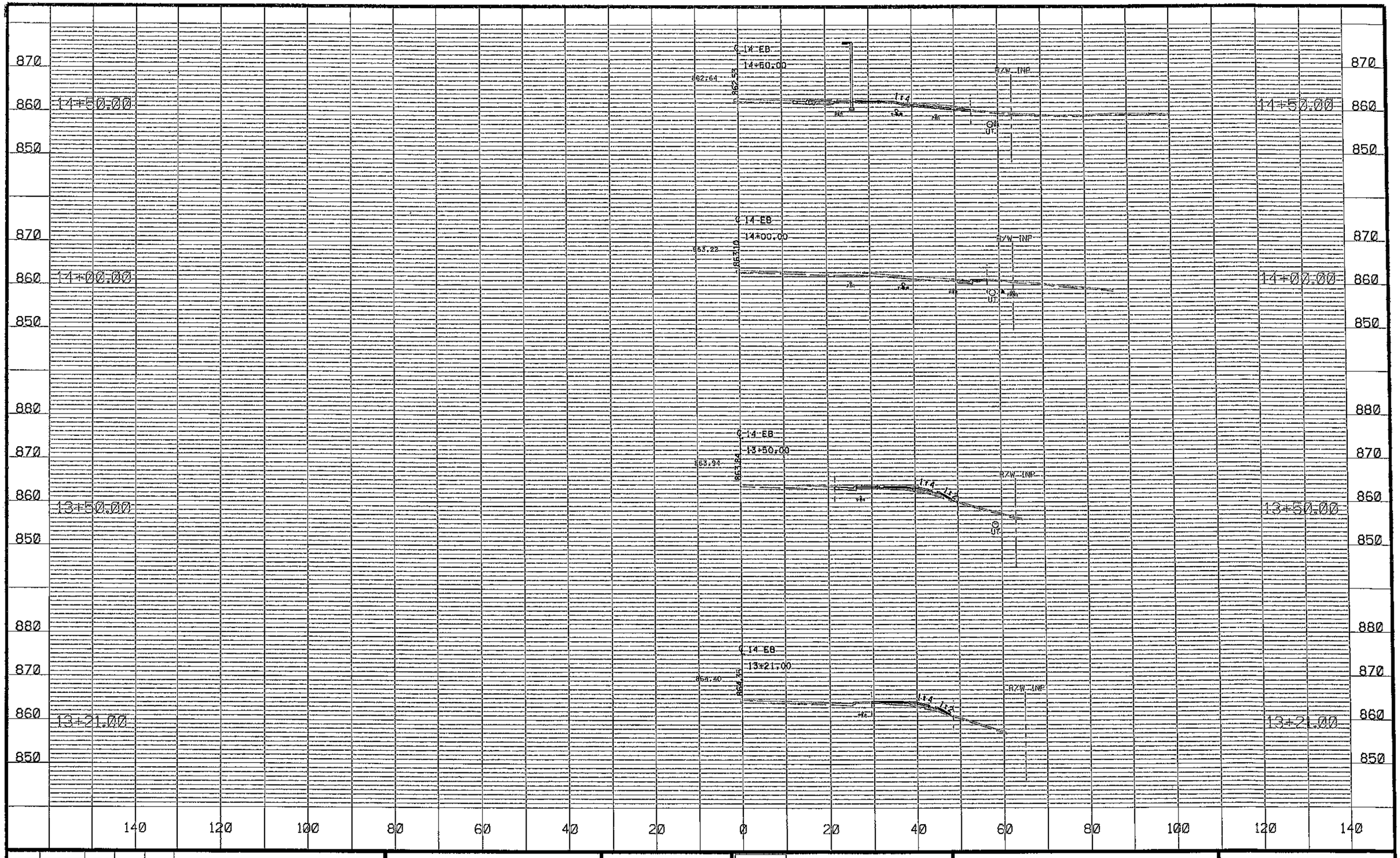
DRAWN BY JCF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-046

CROSS SECTIONS
STA 12+00.00 TO 13+00.00
Sheet 34 of 39 Sheets



NO	DATE	BY	CKO	APPR	REVISION

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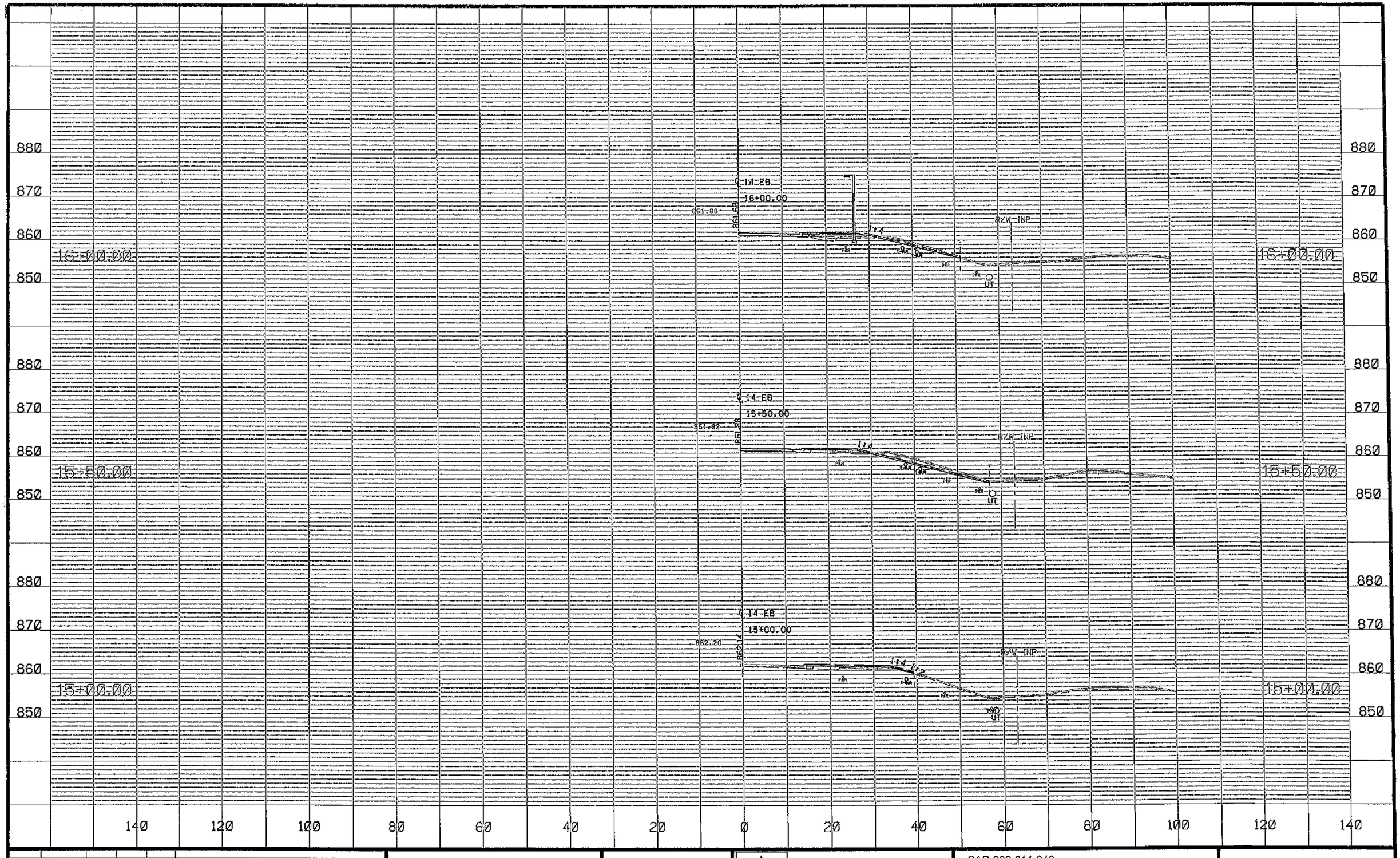
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

CROSS SECTIONS
STA 13+21.00 TO 14+50.00
Sheet 35 of 39 Sheets



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DESIGN BY EJM DATE 08/02/19

CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

CROSS SECTIONS

STA 15+00.00 TO 16+00.00

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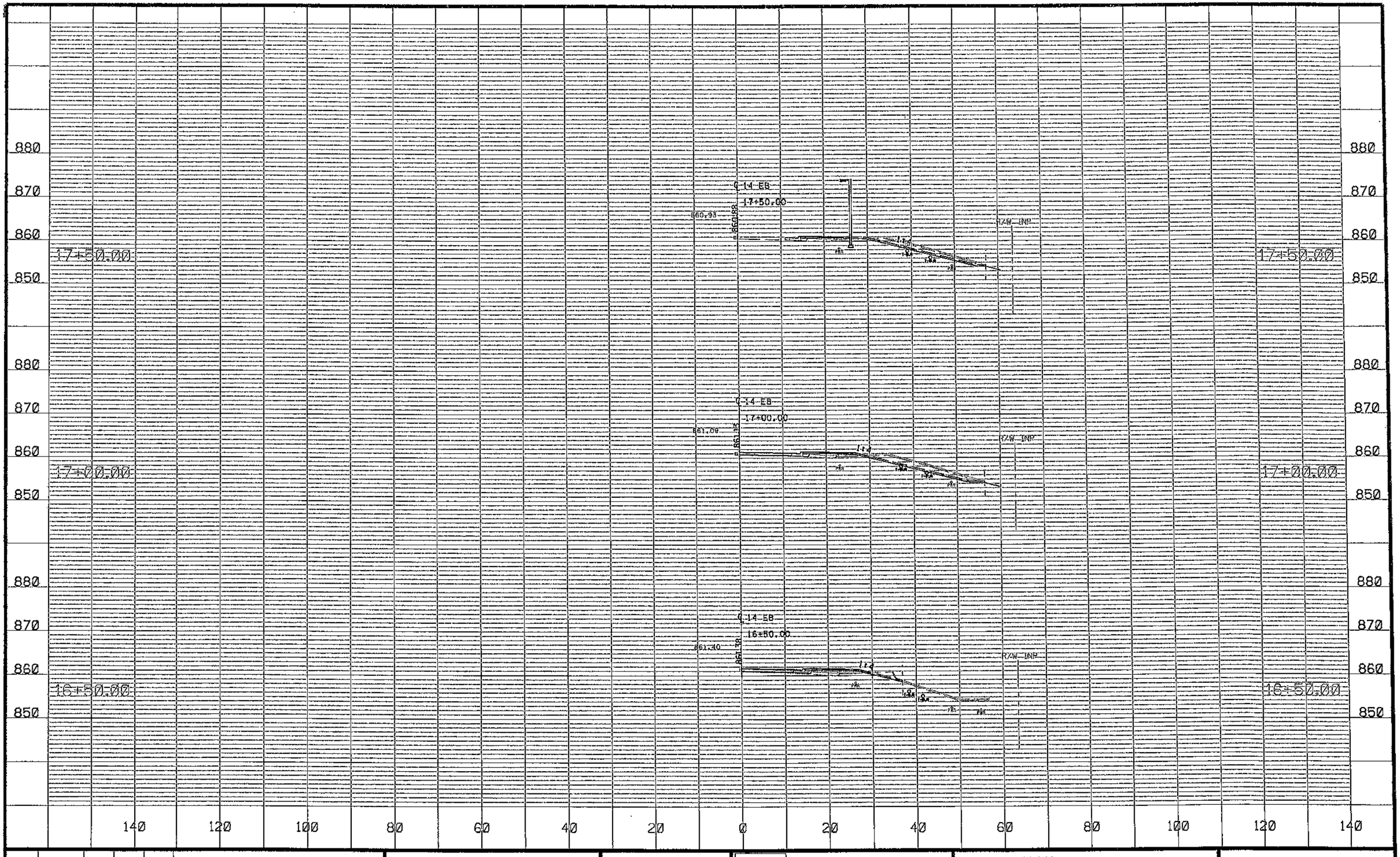

NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY JCF DATE 08/02/19

DESIGN BY EJM DATE 08/02/19

CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

CROSS SECTIONS

STA 16+50.00 TO 17+50.00

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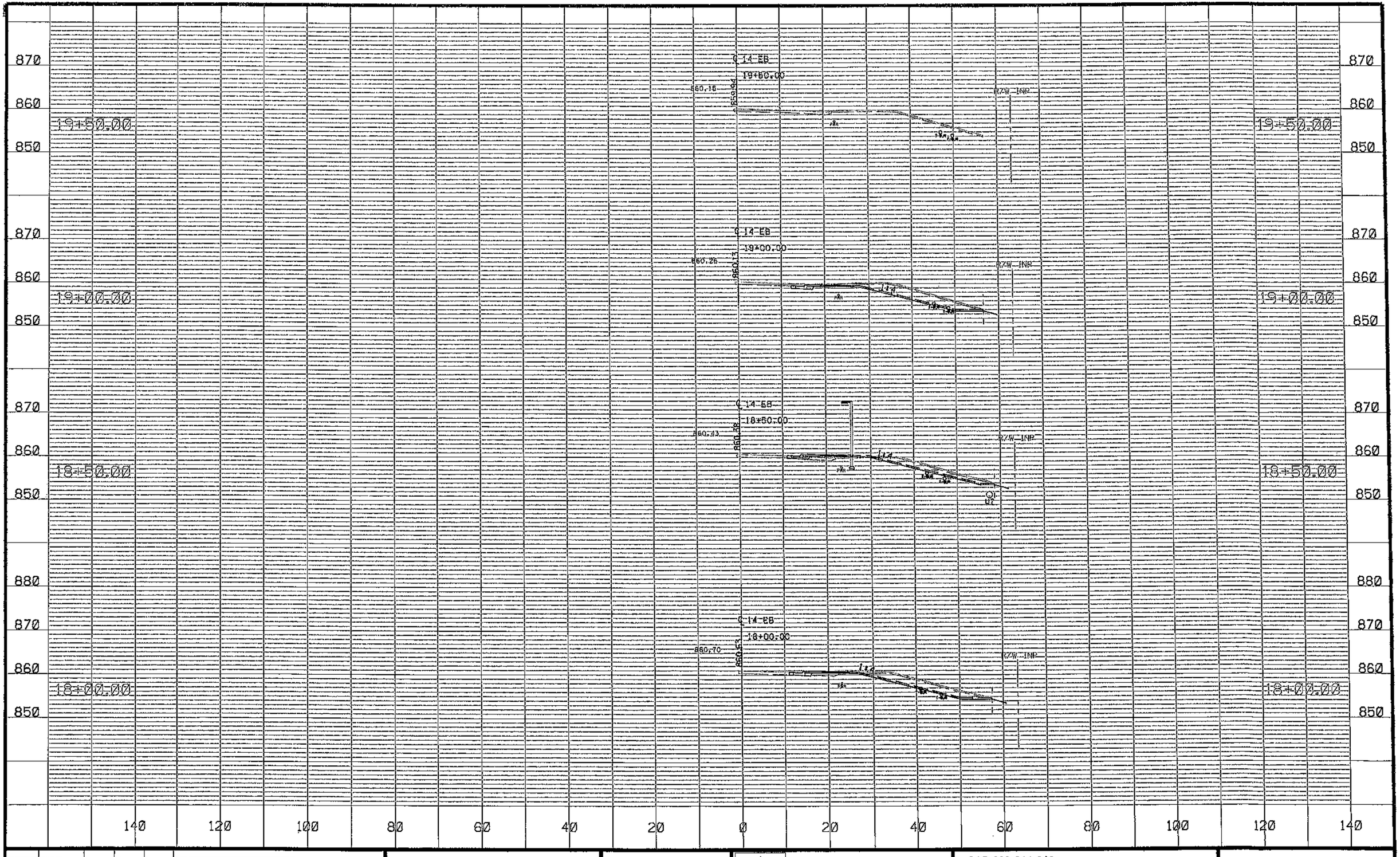

NO	DATE	BY	CKD	APPR	REVISION

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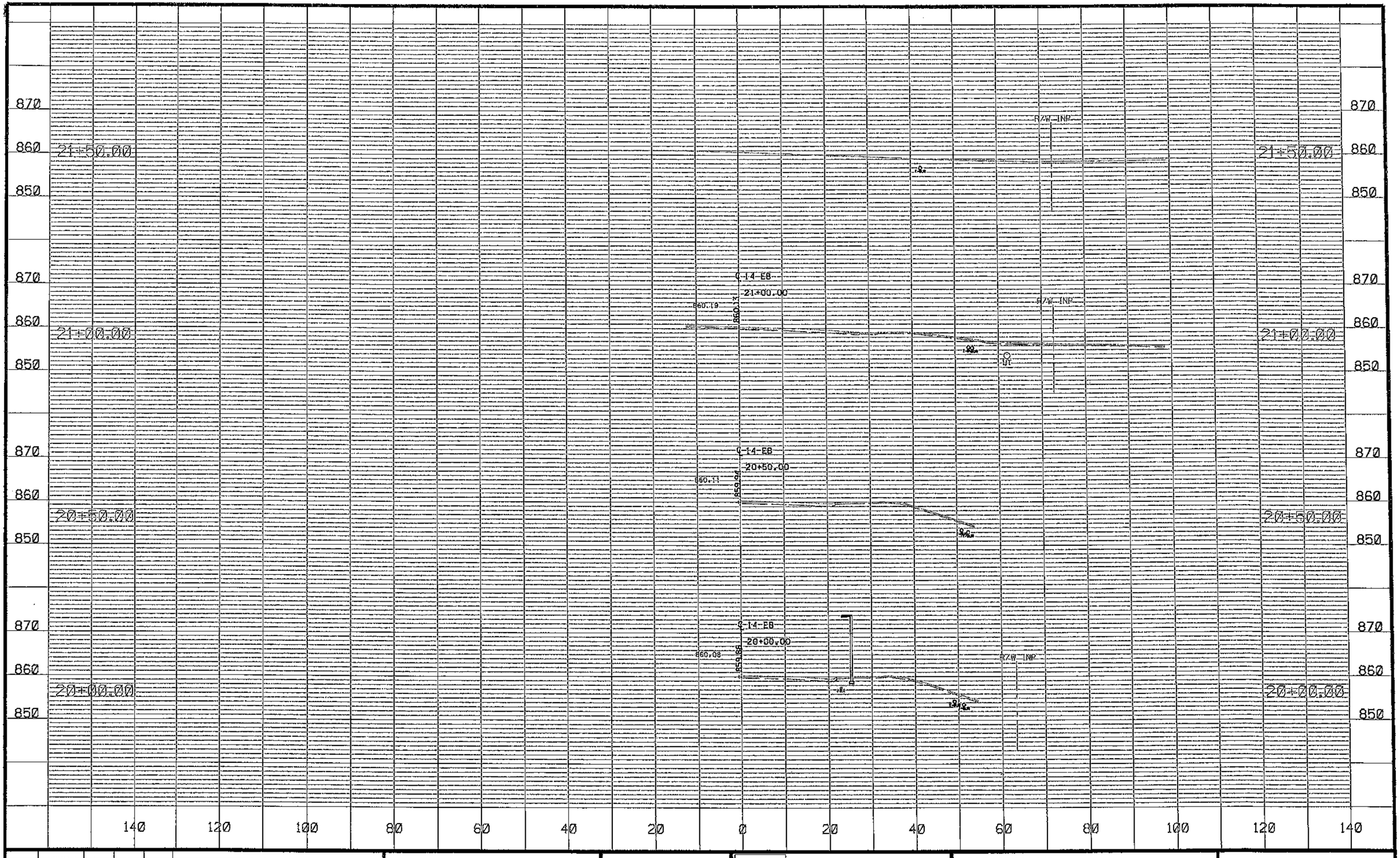
DRAWN BY JDF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-046

CROSS SECTIONS
STA 18+00.00 TO 19+50.00
Sheet 38 of 39 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY JCF DATE 08/02/19
DESIGN BY EJM DATE 08/02/19
CHECKED BY NJD DATE 08/09/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-046

CROSS SECTIONS
STA 20+00.00 TO 21+50.00
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