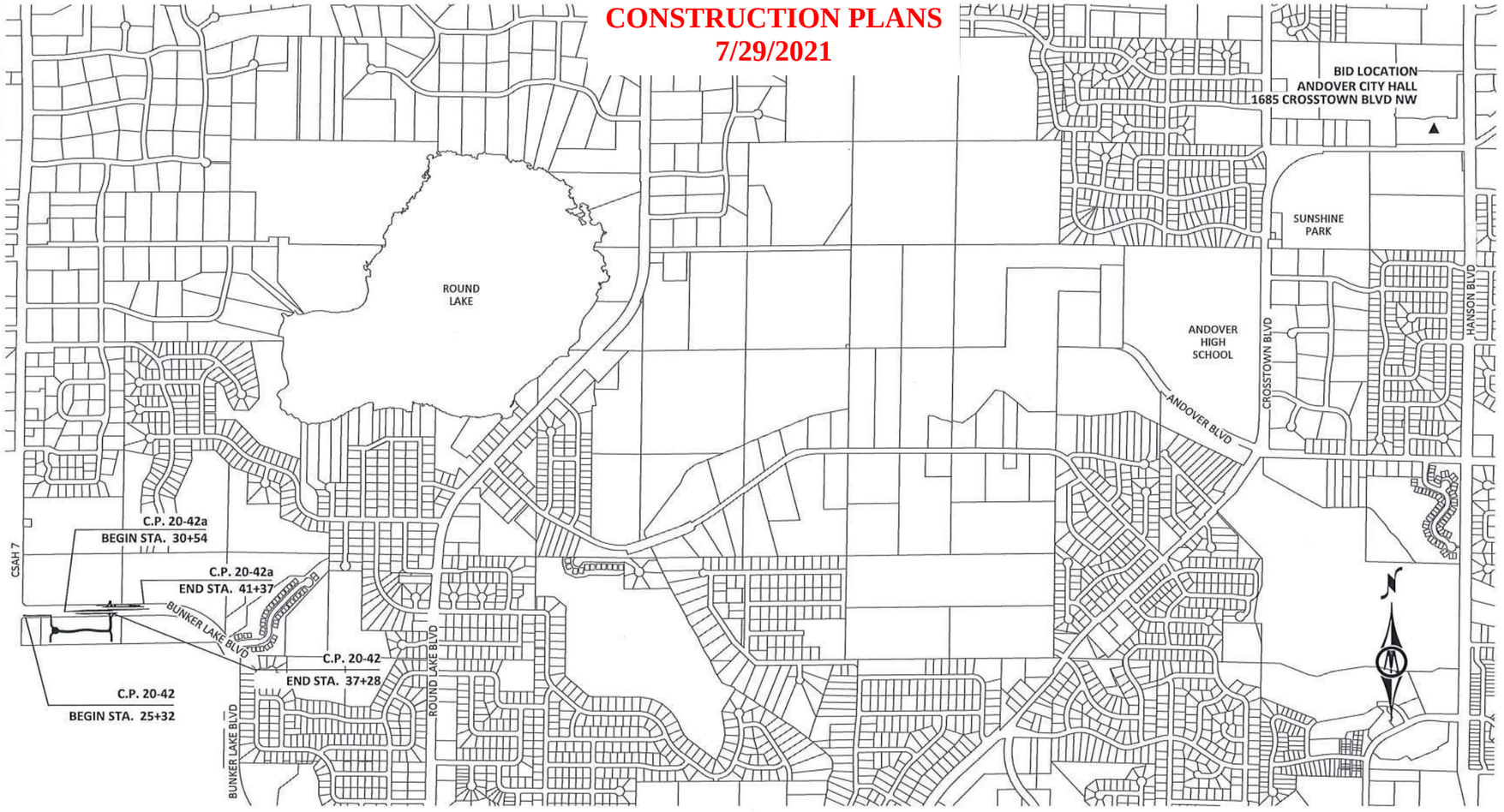
CITY OF ANDOVER

1685 Crosstown Boulevard, Andover, Minnesota 55304

CITY PROJECT NO: 20-42 / 20-42a
ANDOVER VILLLAGE

CONSTRUCTION PLANS FOR:
SANITARY SEWER, WATERMAIN, STORM SEWER, STREET IMPROVEMENTS, AND TRAIL IMPROVEMENTS

CONSTRUCTION PLANS
7/29/2021



VICINITY MAP

GOVERNING SPECIFICATIONS

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

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL" FOR TEMPORARY TRAFFIC CONTROL DEVICES.

CITY OF ANDOVER PROJECT MANUAL SHALL APPLY.

APPROVED:

Joe MacPherson — Digitally signed by Joe MacPherson Date: 2021.07.30 10:32:45 -05'00'

ANOKA COUNTY ENGINEER — DATE 7/30/2021

APPROVED:

ANDOVER DIRECTOR OF PUBLIC WORKS/CITY ENGINEER — DATE 7/8/21

NO.	DATE	BY	DESCRIPTION OF REVISION

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

Kevin P. Kielb, P.E.

DATE 7/8/2021 REG. NO. 23211

BOLTON & MENK

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY 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."

CITY PROJECT NO. 20-42 / 20-42a

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TITLE SHEET | SHEET NO. 1 OF 43 SHEETS

EXISTING TOPOGRAPHIC SYMBOLS

- ACCESS GRATE
- AIR CONDITION UNIT
- ANTENNA
- AUTO SPRINKLER CONNECTION
- BARRICADE PERMANENT
- BASKETBALL POST
- BENCH
- BIRD FEEDER
- BOLLARD
- BUSH
- CATCH BASIN RECTANGULAR CASTING
- CATCH BASIN CIRCULAR CASTING
- CURB STOP
- CLEAN OUT
- CULVERT END
- DRINKING FOUNTAIN
- DOWN SPOUT
- FILL PIPE
- FIRE HYDRANT
- FLAG POLE
- FLARED END / APRON
- FUEL PUMP
- GRILL
- GUY WIRE ANCHOR
- HANDHOLE
- HANDICAP SPACE
- IRRIGATION SPRINKLER HEAD
- IRRIGATION VALVE BOX
- LIFT STATION CONTROL PANEL
- LIFT STATION
- LIGHT ON POLE
- LIGHT-GROUND
- MAILBOX
- MANHOLE-COMMUNICATION
- MANHOLE-ELECTRIC
- MANHOLE-GAS
- MANHOLE-HEAT
- MANHOLE-SANITARY SEWER
- MANHOLE-STORM SEWER
- MANHOLE-UTILITY
- MANHOLE-WATER
- METER
- ORDER MICROPHONE
- PARKING METER
- PAVEMENT MARKING
- PEDESTAL-COMMUNICATION
- PEDESTAL-ELECTRIC
- PEDESTRIAN PUSH BUTTON
- PICNIC TABLE
- POLE-UTILITY
- POLE-BRACE
- POST
- RAILROAD SIGNAL POLE
- REGULATION STATION GAS
- SATELLITE DISH
- SIGN NON TRAFFIC
- SIGN TRAFFIC
- SIGNAL CONTROL CABINET
- SOIL BORING
- SIREN
- TELEPHONE BOOTH
- TILE INLET
- TILE OUTLET
- TILE RISER
- TRANSFORMER-ELECTRIC
- TREE-CONIFEROUS
- TREE-DEAD
- TREE-DECIDUOUS
- TREE STUMP
- TRAFFIC ARM BARRIER
- TRAFFIC SIGNAL
- TRASH CAN
- UTILITY MARKER
- VALVE
- VALVE POST INDICATOR
- VALVE VAULT
- VAULT
- VENT PIPE
- WATER SPIGOT
- WELL
- WETLAND DELINEATED MARKER
- WETLAND
- WET WELL
- YARD HYDRANT

PROPOSED TOPOGRAPHIC SYMBOLS

- CLEANOUT
- MANHOLE
- LIFT STATION
- STORM SEWER CIRCULAR CASTING
- STORM SEWER RECTANGULAR CASTING
- STORM SEWER FLARED END / APRON
- STORM SEWER OUTLET STRUCTURE
- STORM SEWER OVERFLOW STRUCTURE
- CURB BOX
- FIRE HYDRANT
- WATER VALVE
- WATER REDUCER
- WATER BEND
- WATER TEE
- WATER CROSS
- WATER SLEEVE
- WATER CAP / PLUG
- RIP RAP
- DRAINAGE FLOW
- TRAFFIC SIGNS

SURVEY SYMBOLS

- BENCHMARK LOCATION
- CONTROL POINT
- MONUMENT FOUND
- CAST IRON MONUMENT
- STONE MONUMENT

EXISTING TOPOGRAPHIC LINES

- RETAINING WALL
- FENCE
- FENCE-DECORATIVE
- GUARD RAIL
- TREE LINE
- BUSH LINE

SURVEY LINES

- CONTROLLED ACCESS
- BOUNDARY
- CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- SETBACK LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- TEMPORARY EASEMENT

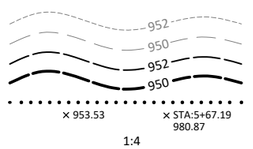
EXISTING UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE

PROPOSED UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE
- PIPE CASING

GRADING INFORMATION



- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED GRADING LIMITS / SLOPE LIMITS
- PROPOSED SPOT ELEVATION
- RISE:RUN (SLOPE)

HATCH PATTERNS

- BITUMINOUS
- CONCRETE
- GRAVEL

EXISTING PRIVATE UTILITY LINES

NOTE:
EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY 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"

- UNDERGROUND FIBER OPTIC
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND COMMUNICATION
- OVERHEAD ELECTRIC
- OVERHEAD COMMUNICATION
- OVERHEAD UTILITY

UTILITIES IDENTIFIED WITH A QUALITY LEVEL :

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL
EXAMPLE: G-A G-A UNDERGROUND GAS, QUALITY LEVEL A
UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-02.

UTILITY QUALITY LEVELS:

QUALITY LEVEL D: PROVIDES THE MOST BASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. RECORDS MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES, CONSTRUCTION PLANS, ETC.

QUALITY LEVEL C: INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. INCLUDES QUALITY LEVEL D ACTIVITIES.

QUALITY LEVEL B: INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND COLLECTING THE INFORMATION THROUGH A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL A: PROVIDES THE HIGHEST LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN QUALITY LEVELS B, C, AND D. THE LOCATED FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND PROFILE INFORMATION.

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT
ADJ	ADJUST	GU	GUTTER	RT	RIGHT
ALT	ALTERNATE	GV	GATE VALVE	SAN	SANITARY SEWER
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BIT	BITUMINOUS	HH	HANDHOLE	SERV	SERVICE
BLDG	BUILDING	HP	HIGH POINT	SHLD	SHOULDER
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STA	STATION
BR	BEGIN RADIUS	HYD	HYDRANT	STD	STANDARD
BV	BUTTERFLY VALVE	I	INVERT	STM	STORM SEWER
CB	CATCH BASIN	K	CURVE COEFFICIENT	TC	TOP OF CURB
C&G	CURB AND GUTTER	L	LENGTH	TE	TEMPORARY EASEMENT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TEMP	TEMPORARY
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	TNH	TOP NUT HYDRANT
CL	CENTER LINE	LT	LEFT	TP	TOP OF PIPE
CL.	CLASS	MAX	MAXIMUM	TYP	TYPICAL
CLVT	CULVERT	MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VERT	VERTICAL
C.O.	CHANGE ORDER	MR	MID RADIUS	VPC	VERTICAL POINT OF CURVE
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	VPI	VERTICAL POINT OF INTERSECTION
CON	CONCRETE	NMC	NON-METALLIC CONDUIT	VPT	VERTICAL POINT OF TANGENT
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE	WM	WATERMAIN
DIA	DIAMETER	NWL	NORMAL WATER LEVEL		
DIP	DUCTILE IRON PIPE	OHW	ORDINARY HIGH WATER LEVEL		
DWY	DRIVEWAY	PC	POINT OF CURVE	AC	ACRES
E	EXTERNAL CURVE DISTANCE	PCC	POINT OF COMPOUND CURVE	CF	CUBIC FEET
ELEC	ELECTRIC	PE	PERMANENT EASEMENT	CV	COMPACTED VOLUME
ELEV	ELEVATION	PED	PEDESTRIAN, PEDESTAL	CY	CUBIC YARD
EOF	EMERGENCY OVERFLOW	PERF	PERFORATED PIPE	EA	EACH
ER	END RADIUS	PERM	PERMANENT	EV	EXCAVATED VOLUME
ESMT	EASEMENT	PI	POINT OF INTERSECTION	LB	POUND
EX	EXISTING	PL	PROPERTY LINE	LF	LINEAR FEET
FES	FLARED END SECTION	PRC	POINT OF REVERSE CURVE	LS	LUMP SUM
F-F	FACE TO FACE	PT	POINT OF TANGENT	LV	LOOSE VOLUME
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE PIPE	SF	SQUARE FEET
F&I	FURNISH AND INSTALL	PVMT	PAVEMENT	SV	STOCKPILE VOLUME
FM	FORCEMAIN	R	RADIUS	SY	SQUARE YARD
FO	FIBER OPTIC	R/W	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RCP	REINFORCED CONCRETE PIPE		
GRAN	GRANULAR	RET	RETAINING		

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

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

Kevin P. Kielb P.E. REG. NO. 23211

DATE 7/23/2021

BOLTON & MENK
CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	MNDOT SPEC.	ITEMS	UNIT	ANDOVER VILLAGE	BUNKER LAKE BOULEVARD	TOTAL QUANTITY
1	2021.501	MOBILIZATION	LS	0.80	0.20	1
2	2102.503	PAVEMENT MARKING REMOVAL	LF		85	85
3	2104.502	REMOVE HYDRANT	EA	1		1
4	2104.502	REMOVE CATCH BASIN	EA		2	2
5	2104.502	SALVAGE CASTING	EA		1	1
6	2104.503	REMOVE CURB & GUTTER	LF		1,180	1,180
7	2104.504	REMOVE BITUMINOUS PAVEMENT	SY		500	500
8	2104.504	REMOVE CONCRETE PAVEMENT	SY		820	820
9	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF		1,170	1,170
10	2105.507	COMMON EXCAVATION (P) (EV)	CY	85	775	860
11	2105.507	SUBGRADE EXCAVATION (EV)	CY		50	50
12	2105.507	GRANULAR BORROW (LV)	CY		50	50
13	2105.601	DEWATERING	LS	1		1
14	2112.519	SUBGRADE PREPARATION (P)	RDST	10	6	16
15	2130.523	WATER	MGAL	80	20	100
16	2211.507	AGGREGATE BASE CLASS 5	TON	865	700	1,565
17	2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,C) (ROADWAY)	TON	390		390
18	2360.509	TYPE SP 12.5 WEARING COURSE MIX (2,C) (ROADWAY)	TON	390		390
19	2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,B) (TRAIL)	TON	65		65
20	2360.509	TYPE SP 12.5 WEARING COURSE MIX (3,F) (ROADWAY)	TON		275	275
21	2360.509	TYPE SP 12.5 NON-WEARING COURSE MIX (3,B) (ROADWAY)	TON		140	140
22	2501.502	12" RC PIPE APRON	EA	1		1
23	2501.502	15" RC PIPE APRON	EA	3		3
24	2501.502	18" RC PIPE APRON	EA	2		2
25	2501.502	24" RC PIPE APRON	EA	1		1
26	2503.503	12" RC PIPE SEWER DES 3006 CL V	LF	250		250
27	2503.503	15" RC PIPE SEWER DES 3006 CL V	LF	310	88	398
28	2503.503	18" RC PIPE SEWER DES 3006 CL V	LF	455		455
29	2503.503	21" RC PIPE SEWER DES 3006 CL III	LF	165		165
30	2503.503	24" RC PIPE SEWER DES 3006 CL III	LF	250		250
31	2503.602	CONNCT TO EXISTING STORM SEWER	EA		3	3
32	2503.602	CONNECT TO EXISTING SANITARY SEWER STRUCTURE	EA	1		1
33	2503.602	8"X4" PVC WYE	EA	49		49
34	2503.602	8" PVC PLUG	EA	1		1
35	2503.602	4" SEWER SERVICE CLEANOUT	EA	49		49
36	2503.603	4" PVC PIPE SEWER, SHEDULE 40	LF	1,890		1,890
37	2503.603	8" PVC SANITARY SEWER, SDR 35	LF	1,475		1,475
38	2506.603	CONSTRUCT SANITARY SEWER MANHOLE - TYPE 301	LF	155		155
39	2503.603	JET CLEAN AND TELEVISE SANITARY SEWER MAIN	LF	1,475		1,475
40	2503.603	JET CLEAN AND TELEVISE STORM SEWER	LF	1,430		1,430
41	2504.602	CONNECT TO EXISTING 8" DIP WATERMAIN	EA	1		1
42	2504.602	6" GATE VALVE AND BOX	EA	9		9
43	2504.602	8" GATE VALVE AND BOX	EA	6		6
44	2504.602	HYDRANT	EA	7		7
45	2504.602	1" CORPORATION STOP	EA	49		49
46	2504.602	1" CURB STOP AND BOX	EA	49		49
47	2504.602	2" CORPORATION STOP	EA	2		2
48	2504.603	6" WATERMAIN, DUCTILE IRON CL 52	LF	345		345
49	2504.603	8" WATERMAIN, DUCTILE IRON CL 52	LF	1,305		1,305
50	2504.603	8" ID HDPE DR 11 WATERMAIN	LF	134		134

1

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	MNDOT SPEC.	ITEMS	UNIT	ANDOVER VILLAGE	BUNKER LAKE BOULEVARD	TOTAL QUANTITY
51	2504.603	1" TYPE K COPPER PIPE	LF	1,500		1,500
52	2504.603	2" TYPE K COPPER PIPE	LF	50		50
53	2504.604	4" POLYSTYRENE INSULATION	SF	450		450
54	2503.608	DUCTILE IRON FITTINGS	LB	1,580		1,580
55	2506.502	ADJUST FRAME & RING CASTING	EA		1	1
56	2506.516	CASTING ASSEMBLY (SANITARY)	EA	13		13
57	2506.516	CASTING ASSEMBLY (STORM)	EA	15	5	20
58	2506.503	CONSTRUCT DRAINAGE STRUCTURE DES 48-4020	LF		4	4
59	2506.503	CONSTRUCT DRAINAGE STRUCTURE DES G	LF		14	14
60	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 401	LF	7		7
61	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 409 - 48"	LF	21		21
62	2506.603	CONSTRUCT DRAINAGE STRUCTURE CATCH BASIN, TYPE 420	LF	12		12
63	2506.603	CONSTRUCT DRAINAGE STRUCTURE CATCH BASIN, TYPE 421-48"	LF	25		25
64	2506.603	CONSTRUCT DRAINAGE STRUCTURE CATCH BASIN, TYPE 421-60"	LF	9		9
65	2506.602	POND SKIMMER STRUCTURE	EA	2		2
66	2511.507	RANDOM RIPRAP CLASS III	CY	95		95
67	2521.518	4" CONCRETE WALK	SF		2,250	2,250
68	2531.503	CONCRETE CURB & GUTTER DESIGN B418	LF		830	830
69	2531.503	CONCRETE CURB & GUTTER DESIGN B424	LF		440	440
70	2531.503	CONCRETE CURB & GUTTER DESIGN SURMOUNTABLE	LF	2,000		2,000
71	2563.601	TRAFFIC CONTROL	LS		1	1
72	2573.503	SILT FENCE, TYPE PA	LF	200		200
73	2573.502	STORM DRAIN INLET PROTECTION	EA	11	20	31
74	2573.533	SEDIMENT CONTROL LOG, TYPE WOOD CHIP	LF	300		300
75	2573.535	STABILIZED CONSTRUCTION EXIT	EA	2		2
76	2574.507	COMMON TOPSOIL BORROW (LV)	CY	980	80	1,060
77	2574.508	FERTILIZER, TYPE 20-10-10	LB	600		600
78	2575.508	SEED MIXTURE, TYPE 25-151	LB	263		263
79	2575.507	MULCH MATERIAL TYPE 6	LB	4,225		4,225
80	2575.504	EROSION CONTROL BLANKET, CATEGORY 3N	SY	2,150	700	2,850
81	2575.505	SEEDING	ACRE	1.5	0.2	1.7
82	2582.503	4" SOLID LINE MULTI COMP	LF		2,050	2,050
~~83~~	~~2582.503~~	~~12" SOLID LINE PAINT MULTI COMP~~	~~LF~~		~~100~~	~~100~~
~~84~~	~~2582.503~~	~~4" BROKEN LINE MULTI COMP~~	~~LF~~		~~700~~	~~700~~
~~85~~	~~2582.518~~	~~PAVEMENT MESSAGE MULTI COMP~~	~~SF~~		~~90~~	~~90~~

BASIS OF ESTIMATED QUANTITIES

ITEM	BASIS
BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL/SY
TYPE SP 12.5 WEARING COURSE	112 LBS/SY-IN
TYPE SP 9.5 WEARING COURSE	112 LBS/SY-IN
BITUMINOUS PATCH SPECIAL	112 LBS/SY-IN
AGGREGATE BASE (CV) CLASS 5	1.8 TONS/CY
FERTILIZER TYPE 20-10-10	400 LBS/AC
MULCH MATERIAL TYPE 6	4000 LBS/AC
SEED MIXTURE TYPE 25-151	175 LBS/AC

STANDARD PLATES

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

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGN G & H
4020J	MANHOLE OR CATCH BASIN FOR USE WITH OR WITHOUT TRAFFIC LOADS (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER - 3' x 2' OPENING - FOR USE WITH OR WITHOUT TRAFFIC LOADS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715 & 716
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 806
4132G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 805
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS) - CASTING NO 825
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7113A	CONCRETE APPROACH NOSE DETAIL
8000J	CHANNELIZERS (3 SHEETS)

NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	7/19/21	ZL	C.R. CASING REMOVED
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

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Kevin P. Kielb P.E. | REG. NO. 23211

DATE 7/23/2021

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CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

PROPOSED STORM SEWER

NO.	ALIGNMENT	STATION	OFFSET		NEW STRUCTURE TYPE AND BUILD									CASTING ASSEMBLY	RIM ELEVATION	OUTLET ELEVATION	DRAINS TO			12" RCP CL V	15" RCP CL V	18" RCP CL V	21" RCP CL III	24" RCP CL III	12" RC PIPE APRON	15" RC PIPE APRON	18" RC PIPE APRON	24" RC PIPE APRON	NOTES
			LT	RT	DRAINAGE STRUCTURE TYPE 401J	DRAINAGE STRUCTURE 409C - 48"	POND SKIMMER STRUCTURE TYP 418E	DRAINAGE STRUCTURE TYPE 420F	DRAINAGE STRUCTURE TYPE 421F - 48" W/ SUMP	DRAINAGE STRUCTURE TYPE 421F - 48"	DRAINAGE STRUCTURE TYPE 421F - 60"	DRAINAGE STRUCTURE 48-4020	DRAINAGE STRUCTURE DES G				STRUCT NO.	GRADE	INLET										
			LIN FT		LIN FT	LIN FT	EA	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH						LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	
ANDOVER VILLAGE																													
100	141st Lane NW	2+25.3	343.1				1							SKIMMER GRATE	868.60	866.05	100A	0.26%	866.00			19							
100A	141st Lane NW	2+24.1	359													866.00											1		
100B	141st Lane NW	2+27.2	328.3													864.25	100	-8.30%	866.00		21					1			
101	Driveway 1	1+52.6	144.5													866.05												1	
102	Driveway 1	1+59.6		9.9		5.98								R-1642-8	873.36	867.38	101	0.86%	866.05					152					
103	Driveway 1	0+64.8		8.5		6.09								R-1642-8	875.65	869.56	102 / 250			144				93					
105	Driveway 1	2+74.8	15.80						8.33					R-3501-TB	874.62	870.29	103	0.71%	870.47				46						
106	141st Lane NW	2+75		15.8		4.16								R-3501-TB	874.62	870.46	103	0.71%					32						
107	141st Lane NW	3+65.9		16.2							4.26			R-3501-TB	875.12	870.86	106	0.48%	870.46				84						
108	141st Lane NW	6+10.3		16.2							4.27			R-3501-TB	876.50	872.23	107	0.53%	870.86			246							
109	141st Lane NW	7+77.9		15.7						4.17				R-3501-TB	877.34	873.17	108	0.40%	872.23			166							
110	141st Lane NW	7+91.6	15.5					4.00						R-3501-TB	877.40	873.40	109	0.69%	873.17	34									
121	Driveway 1	1+61.2		72.3	4.00									R-2535-A	873.00	869.00	102	0.75%	868.52		65								
131	141st Lane NW	3+77.9	15.5					4.00						R-3501-TB	875.20	871.20	107	0.98%	870.86	34									
141	141st Lane NW	6+26.8	15.5					4.00						R-3501-TB	876.58	872.58	108	0.98%	872.23	36									
200	Driveway 1	2+49.0	193.9				1							SKIMMER GRATE	870.50	866.55	200A	2.11%	866.05			24							
200A	Driveway 1	2+51.7	212.6													866.05											1		
200B	Driveway 1	2+43.8	195													866.00	200	-7.41%	868.00		27					1			
201	141st Lane NW	1+10.2	150.8													869.50										1			
202	141st Lane NW	1+05.0	127.1			3.85								R-1642-8	873.50	869.65	201	0.60%	869.50		24								
203	141st Lane NW	1+04.9	16.2						7.87					R-3501-TB	874.57	870.70	202	0.63%	870.00		111								
204	141st Lane NW	1+05.5		15.7						3.64				R-3501-TB	874.50	870.86	203	0.50%	870.70		32								
205	141st Lane NW	1+17.6		41.2	3.00									R-2535-A	874.00	871.00	204	0.50%	870.86		28								
250	Driveway 1	0+75.7	134.3													869.00									1				
ANDOVER VILLAGE SUBTOTAL					7.0	20.1	2	12.0	16.2	7.8	8.5									248	308	455	162	245	1	3	2	1	
BUNKER LAKE BOULEVARD																													
301-A	EB Bunker Lake Blvd	32+99		25.1									3.30	B-9	875.63	872.33	302	0.59%	872.10		12								Connect to Existing
305	EB Bunker Lake Blvd	35+99.4		25.1								3.34		B-17	874.09	870.75	307				11								Connect to Existing
305-A	EB Bunker Lake Blvd	36+21.0		38.7									2.86	B-17	873.68	870.82	305	0.28%	870.75		25								
305-B	EB Bunker Lake Blvd	35+91.7		24.8									3.41	B-17	874.18	870.77	305	0.28%	870.75		8								
311	WB Bunker Lake Blvd	38+59.7		14.4										A-7															Replace Casting
311-A	WB Bunker Lake Blvd	38+90.3		25.1									3.75	B-9	873.23	869.48	311	0.30%	869.38		32								Connect to Existing
BUNKER LAKE BOULEVARD SUBTOTAL												3.3	13.3								88								
CONSTRUCTION TOTAL					7.0	20.1	2	12.0	16.2	7.8	8.5	3.3	13.3							248	396	455	162	245	1	3	2	1	

GENERAL NOTES:
1. PIPE TIES ARE INCIDENTAL AND SHALL BE REQUIRED FOR FINAL THREE JOINTS FROM APRON UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. OFFSETS ARE TO CENTER OF STRUCTURE
3. SEE SKIMMER STRUCTURE DETAILS FOR WIER INFORMATION

NO.	DATE	BY	DESCRIPTION OF REVISIONS
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

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

Kevin P. Kielb P.E. REG. NO. 23211

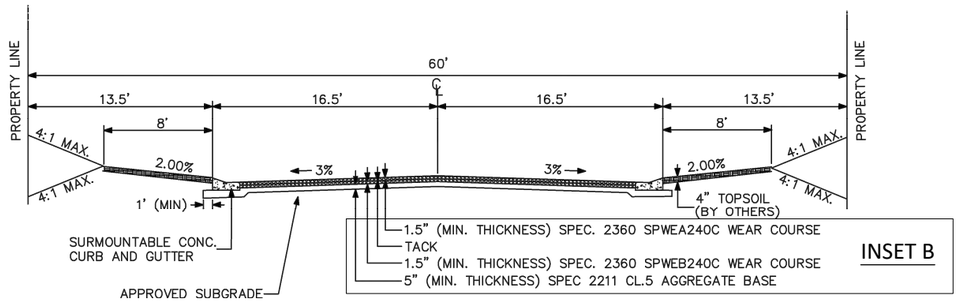
DATE 7/23/2021

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA



NOTE:
B618 CONC. CURB & GUTTER TO BE USED AT ALL RADII

NOTES:
1. PRIOR TO EXCAVATION, UTILITY CONTRACTOR SHALL STRIP ALL EXISTING TOPSOIL FROM CONSTRUCTION LIMITS. TOPSOIL SHALL BE SALVAGED, AND REPLACED IN DISTURBED, NON-PAVED AREAS.

2. BOULEVARD SHALL BE ROUGH GRADED TO ALLOW FOR INSTALLATION OF THE PRIVATE UTILITIES. THE BOULEVARD GRADING SHALL ALLOW FOR THE ADDITION OF FOUR INCHES OF TOPSOIL AND SEEDING. AFTER THE INSTALLATION OF THE PRIVATE UTILITIES, THE CONTRACTOR SHALL REGRADE THE BOULEVARDS, THEN SEED WITH MN DOT MIXTURE No. 900, FERTILIZER AND MULCH.

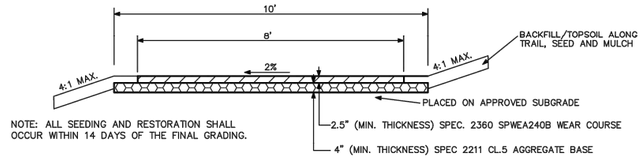
TYPICAL URBAN STREET SECTION

2/12/15

CITY OF ANDOVER

STANDARD DRAWING NO.

507I



NOTE: ALL SEEDING AND RESTORATION SHALL OCCUR WITHIN 14 DAYS OF THE FINAL GRADING.

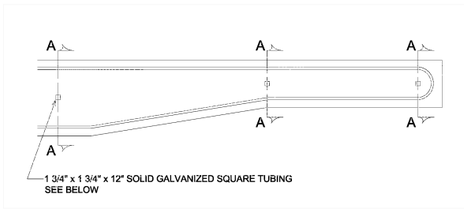
8' TYPICAL TRAIL SECTION

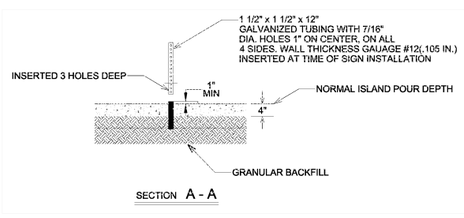
4/02/12

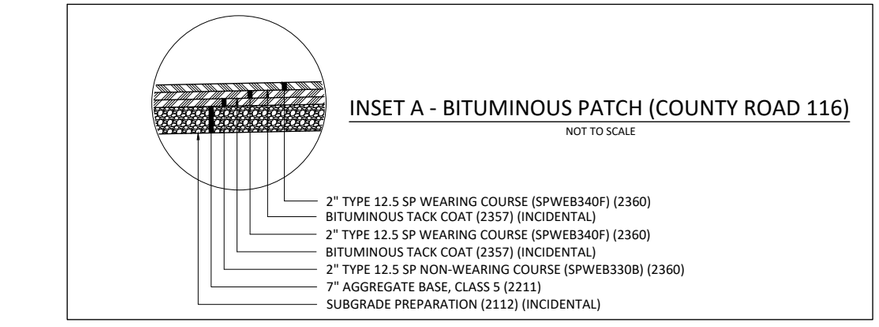
CITY OF ANDOVER

STANDARD DRAWING NO.

714B

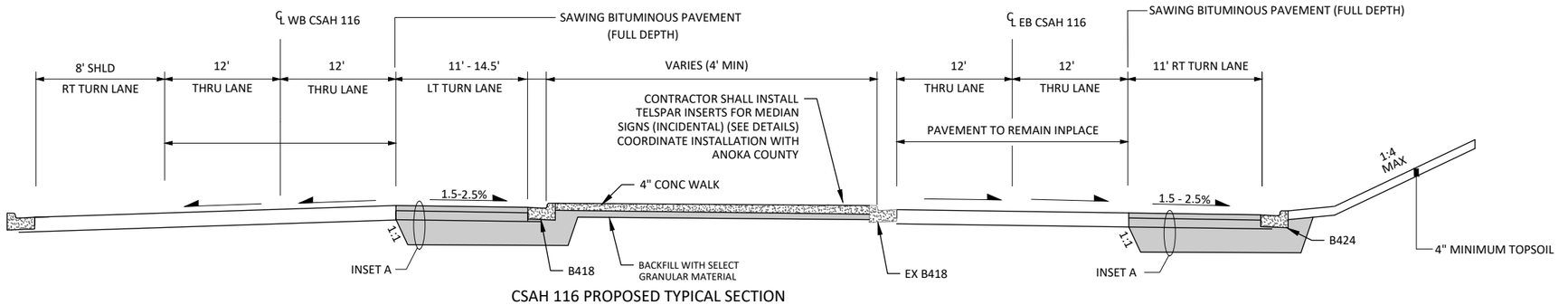






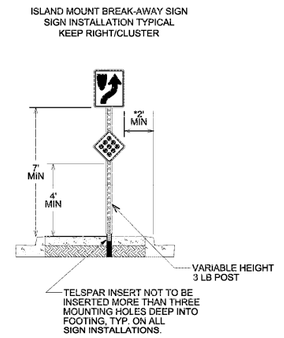
INSET A - BITUMINOUS PATCH (COUNTY ROAD 116)

NOT TO SCALE



CSAH 116 PROPOSED TYPICAL SECTION

NOT TO SCALE



CONCRETE MEDIAN SIGN INSTALLATION

NOT TO SCALE

NO.	DATE	BY	DESCRIPTION OF REVISIONS
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL
DRAWN ZFL
CHECKED KPK

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DATE 7/23/2021

BOLTON & MENK
CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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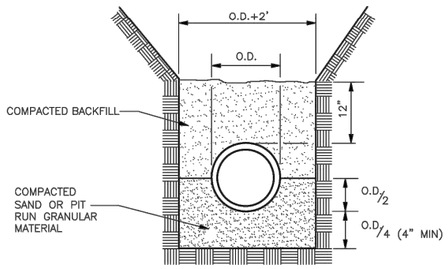
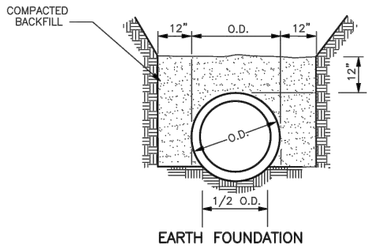


GRANULAR MATERIAL BEDDING



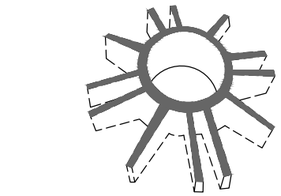
EARTH FOUNDATION

PVC PIPE INSTALLATION

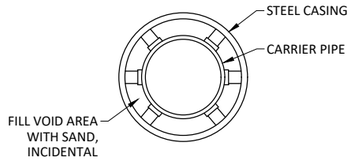
5/22/06

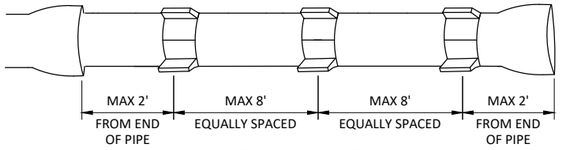
CITY OF ANDOVER

STANDARD DRAWING NO. 101B



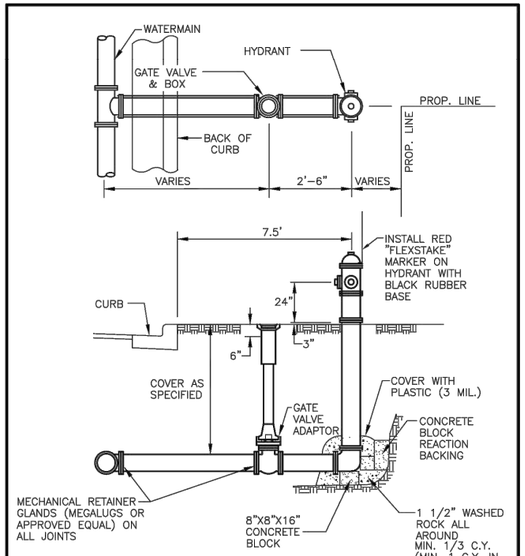
PHOENIX PLASTIC CASING SPACER OR APPROVED EQUAL





WATERMAIN PIPE SUPPORT IN CASING, PLASTIC SPACERS

NOT TO SCALE

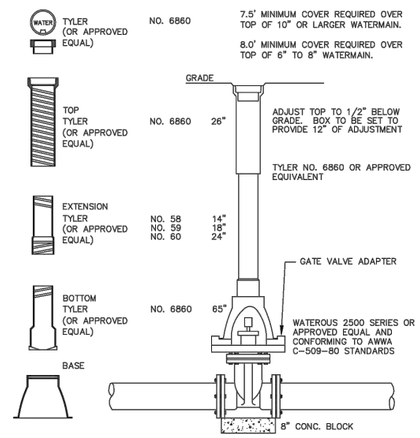


TYPICAL HYDRANT LAYOUT
(VALVE IN BOULEVARD)

7/28/14

CITY OF ANDOVER

STANDARD DRAWING NO. 201D

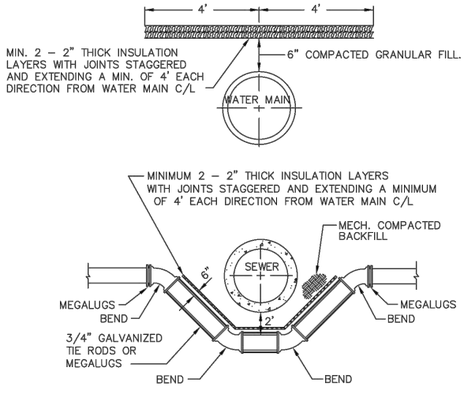


GATE VALVE AND BOX

6/19/12

CITY OF ANDOVER

STANDARD DRAWING NO. 202A



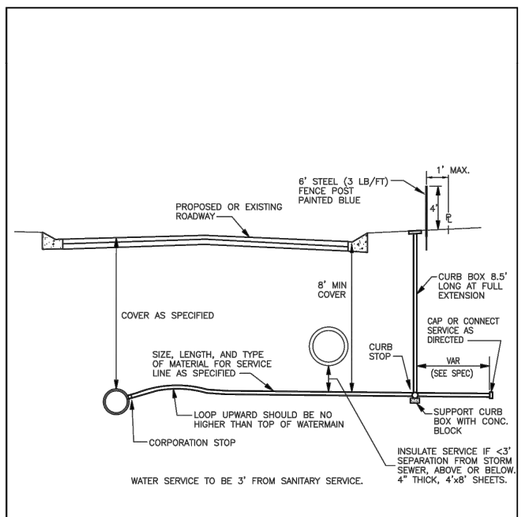
WATER MAIN INSULATION

NOTE: INSULATE 4' WIDE ON CENTER FOR SERVICES

5/22/06

CITY OF ANDOVER

STANDARD DRAWING NO. 203A

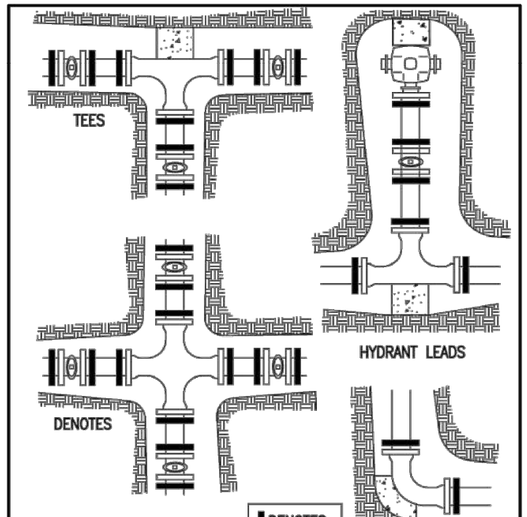


WATER SERVICE DETAIL

2/27/17

CITY OF ANDOVER

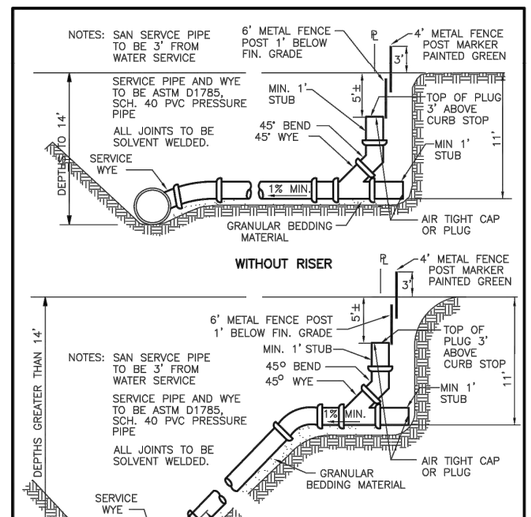
STANDARD DRAWING NO. 208B



3/6/08

CITY OF ANDOVER

STANDARD DRAWING NO. 210



5/22/06

CITY OF ANDOVER

STANDARD DRAWING NO. 312B

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED ZFL
DRAWN ZFL
CHECKED KPK

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

Kevin P. Kielb P.E. REG. NO. 23211

DATE 7/23/2021

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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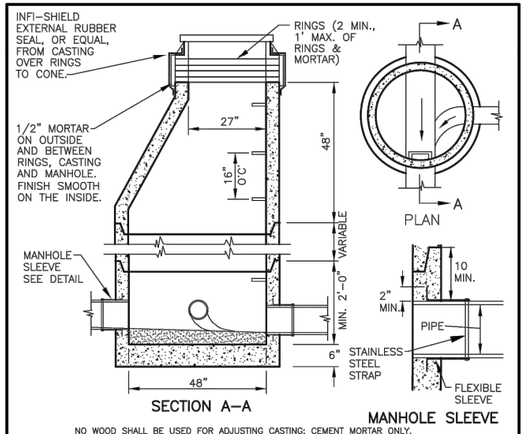


NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.

CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS (1642 B).

MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM, OR STEEL REINFORCED PLASTIC, PER ASTM C478, LOCATED OVER DOWNSTREAM PIPE.

PRECAST REINFORCED CONCRETE MANHOLE SECTIONS PER ASTM C478, FURNISHED WITH O-RING GASKETS & LUBRICANT EXCEPT AS OTHERWISE SPECIFIED. LIFT HOLES NOT PERMITTED IN MANHOLE SECTIONS. A 12" OR 16" BARREL SECTION SHALL BE INSTALLED UNDER THE CONE WHENEVER POSSIBLE.

PIPE CONNECTIONS TO MANHOLE SHALL BE MADE WATER TIGHT BY CAST INPLACE RUBBER SLEEVE & CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH.

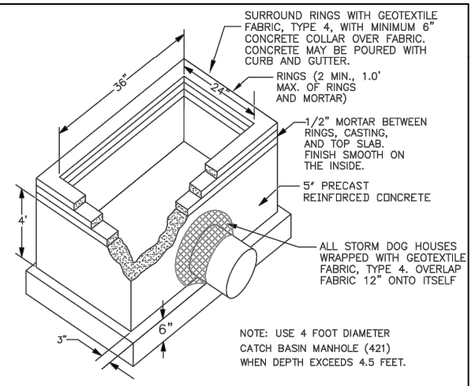
PLACE "RAM-NECK" OUTSIDE OF O-RING GASKET ON ALL MANHOLE JOINTS BELOW WATER TABLE.

ALL MORTAR SHALL CONFORM TO ASTM C270 AND MEET THE REQUIREMENTS OF MNDOT 2506.2B.

SANITARY SEWER MANHOLE, TYPE 301
(PIPES 27" OR LESS)

5/22/06

CITY OF ANDOVER | STANDARD DRAWING NO. 301B



NOTES: NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.

IN NEW DEVELOPMENTS CAST IRON FRAME AND GRATE CASTINGS TYPE R-3501-TB SHALL BE USED. CAST IRON FRAME AND GRATE CASTINGS TYPE R-3067-V (ON A GRADE) OR R-3067-VB (LOW POINTS) SHALL BE USED IN RECONSTRUCTION AREAS OR AS CALLED OUT IN PLANS.

PRECAST REINFORCED CONCRETE BASE SLAB PER ASTM C478.

FILL OPENING BETWEEN PIPE AND MANHOLE WALL WITH CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH. WRAP OUTSIDE OF DOGHOUSE WITH GEOTEXTILE FABRIC, TYPE 4, OVERLAP FABRIC 12" ONTO ITSELF.

ALL MORTAR SHALL CONFORM TO ASTM C270 AND MEET THE REQUIREMENTS OF MNDOT 2506.2B.

DOGHOUSE SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE.

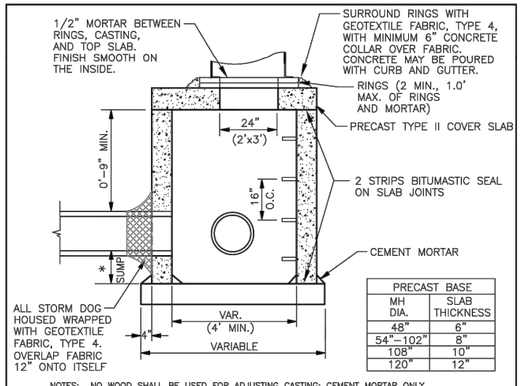
MAXIMUM DIAMETER RCP STORM SEWER PIPE IS 15" ON THE SHORT SIDE AND 18" ON THE LONG SIDE OF CATCH BASIN.

GROUT SUMP TO PIPE INVERT UNLESS A SUMP IS CALLED OUT IN PLANS.

CATCH BASIN, TYPE 420

2/22/16

CITY OF ANDOVER | STANDARD DRAWING NO. 420F



PRECAST BASE	
MH DIA.	SLAB THICKNESS
48"	6"
54"-102"	8"
108"	10"
120"	12"

NOTES: NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.

IN NEW DEVELOPMENTS CAST IRON FRAME AND GRATE CASTINGS TYPE R-3501-TB SHALL BE USED. CAST IRON FRAME AND GRATE CASTINGS TYPE R-3067-V (ON A GRADE) OR R-3067-VB (LOW POINTS) SHALL BE USED IN RECONSTRUCTION AREAS OR AS CALLED OUT IN PLANS.

MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM, OR STEEL REINFORCED PLASTIC PER ASTM C478. LOCATION SHALL BE EASILY ACCESSIBLE.

PRECAST REINFORCED CONCRETE BASE SLAB & COVER SLAB PER ASTM C478.

PRECAST REINFORCED CONCRETE MANHOLE SECTIONS PER ASTM C478, FURNISHED WITH O-RING GASKETS & LUBRICANT.

FILL OPENING BETWEEN PIPE AND MANHOLE WALL WITH CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH. WRAP OUTSIDE OF DOGHOUSE WITH GEOTEXTILE FABRIC, TYPE 4, OVERLAP FABRIC 12" ONTO ITSELF.

ALL MORTAR SHALL CONFORM TO ASTM C270 AND MEET THE REQUIREMENTS OF MNDOT 2506.2B.

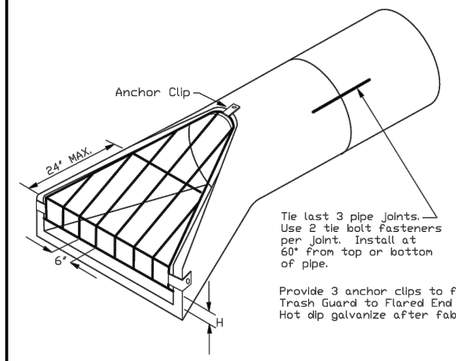
* REFER TO PLANS FOR SUMP DEPTH, IF ANY.

CATCH BASIN/MANHOLE WITH SUMP, TYPE 421

2/22/16

CITY OF ANDOVER | STANDARD DRAWING NO. 421F

See City Plate No. 411A for Riprap placement.

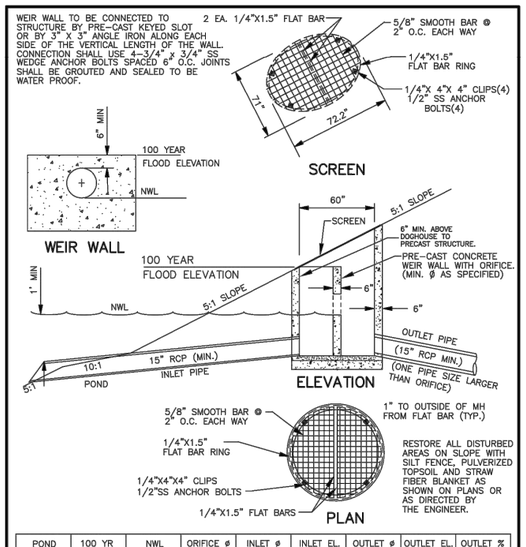


ISOMETRIC

FLARED END SECTION

3/4/10

CITY OF ANDOVER | STANDARD DRAWING NO. 419A



POND	100 YR	NWL	ORIFICE ϕ	INLET ϕ	INLET EL.	OUTLET ϕ	OUTLET EL.	OUTLET %
100P	868.50	866.05	6"	15"	866.05	18"	866.05	0.19%
200P	870.40	869.00		15"	869.00	18"	*866.13	0.52%

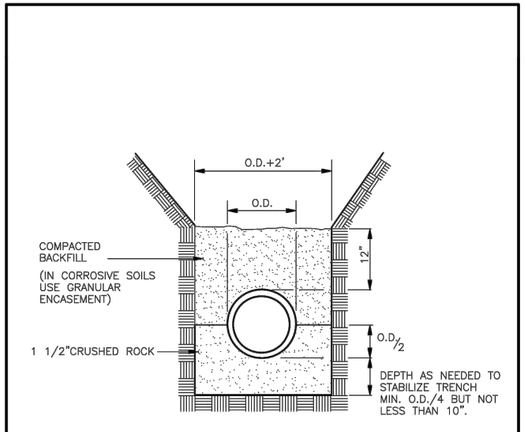
STRUCTURE TABLE

*TOP OF WEIR = 870.00

POND SKIMMER STRUCTURE WITH WEIR WALL

5/22/06

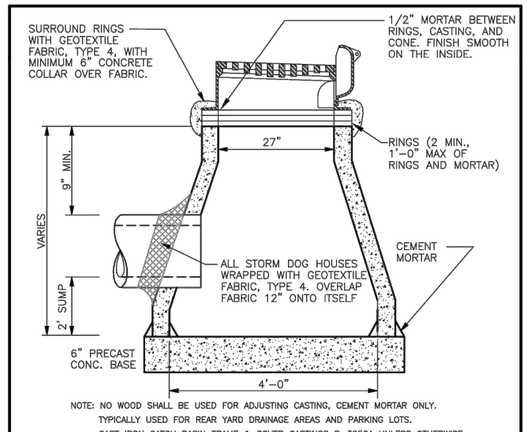
CITY OF ANDOVER | STANDARD DRAWING NO. 418E



SPECIAL FOUNDATION FOR STABILIZING OR DEWATERING OF TRENCH

5/22/06

CITY OF ANDOVER | STANDARD DRAWING NO. 105A



NOTE: NO WOOD SHALL BE USED FOR ADJUSTING CASTING, CEMENT MORTAR ONLY.

TYPICALLY USED FOR REAR YARD DRAINAGE AREAS AND PARKING LOTS.

CAST IRON CATCH BASIN FRAME & COVER CASTINGS R-3250A UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

CAST IRON CATCH BASIN FRAME & COVER CASTINGS R-3508C SHALL BE USED WHEN NEEDED IN A DRIVEWAY OR SURMOUNTABLE CURB. CAST IRON CATCH BASIN FRAME & COVER CASTING R-3508B SHALL BE USED WHEN NEEDED IN A COMMERCIAL DRIVEWAY OR VALLEY GUTTER.

CAST IRON CATCH BASIN FRAME AND COVER CASTING R-2561A OR R-2535-A SHALL BE USED WHEN NEEDED IN A GREEN SPACE OR BACKYARD DRAINAGE AREA.

PRECAST REINFORCED CONCRETE CONE SECTION AND PRECAST BASE PER ASTM C478.

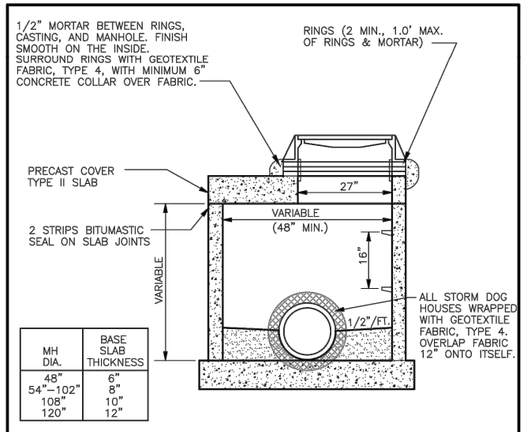
FILL OPENING BETWEEN PIPE AND MANHOLE WALL WITH CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH. WRAP OUTSIDE OF DOGHOUSE WITH GEOTEXTILE FABRIC, TYPE 4, OVERLAP FABRIC 12" ONTO ITSELF.

ALL MORTAR SHALL CONFORM TO ASTM C270 AND MEET THE REQUIREMENTS OF MNDOT 2506.2B.

CATCH BASIN, TYPE 401
(WITH SUMP)

3/03/15

CITY OF ANDOVER | STANDARD DRAWING NO. 401J



MH DIA.	BASE SLAB THICKNESS
48"	6"
54"-102"	8"
108"	10"
120"	12"

NOTE: NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.

CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS (1642 B).

STEPS SHALL BE CAST IRON, ALUMINUM OR STEEL REINFORCED PLASTIC, LOCATION AS SHOWN.

PRECAST REINFORCED CONCRETE MANHOLE SECTIONS PER ASTM C478.

FILL OPENING BETWEEN PIPE AND MANHOLE WALL WITH CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH. WRAP OUTSIDE OF DOGHOUSE WITH GEOTEXTILE FABRIC, TYPE 4, OVERLAP FABRIC 12" ONTO ITSELF.

ALL MORTAR SHALL CONFORM TO ASTM C270 AND MEET THE REQUIREMENTS OF MNDOT 2506.2B.

SHALLOW STORM SEWER MANHOLE

3/03/15

CITY OF ANDOVER | STANDARD DRAWING NO. 409C

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

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

Kevin P. Kielb P.E. | REG. NO. 23211

DATE 7/23/2021

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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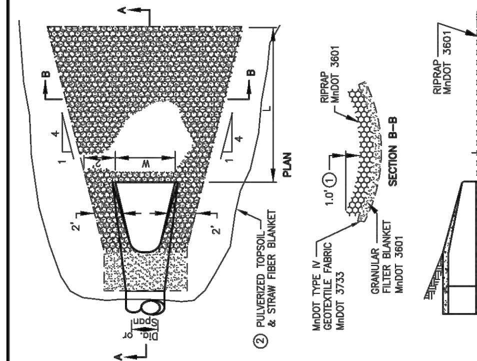
TABLE OF QUANITIES
RIPRAP AT RCP OUTLETS

Dia. Round Pipe (In.)	L (Ft.)	CLASS II d_{50}=6" 24" Depth Riprap (Cu. Yd.)	CLASS II d_{50}=6" 6" Depth Granular Filter (Cu. Yd.)	CLASS III d_{50}=9" 36" Depth Riprap (Cu. Yd.)	CLASS III d_{50}=9" 9" Depth Granular Filter (Cu. Yd.)	CLASS IV d_{50}=12" 48" Depth Riprap (Cu. Yd.)	CLASS IV d_{50}=12" 12" Depth Granular Filter (Cu. Yd.)
12	12	8.8	2.6	13.2	3.9	17.6	5.2
15	12	9.4	2.7	14.1	4.1	18.8	5.5
18	15	13.0	3.6	19.5	5.5	26.0	7.3
21	15	14.0	3.8	21.0	5.7	27.9	7.7
24	18	18.5	4.9	27.8	7.4	37.1	9.8
27	18	19.6	5.1	29.4	7.7	39.2	10.3
30	21	24.8	6.4	37.1	9.6	49.5	12.8
36	24	31.8	8.3	47.6	12.5	63.5	16.6
42	27	38.0	9.9	57.0	14.9	76.0	19.8
48	30	45.3	11.7	68.0	17.5	90.7	23.3

TABLE OF QUANITIES
RIPRAP AT RCP–A OUTLETS or BOXES OF EQUIVALENT SPAN WIDTH

Span Pipe Arch (In.)	L (Ft.)	Class II d50=6" 18" Depth Riprap (Cu. Yd.)	Class II d50=6" 4.5" Depth GRANULAR Filter (Cu. Yd.)	Class III d50=9" 30" Depth Riprap (Cu. Yd.)	Class III d50=9" 7.5" Depth GRANULAR Filter (Cu. Yd.)	Class IV d 50=12" 36" Depth Riprap (Cu. Yd.)	Class IV d 50=12" 9" Depth GRANULAR Filter (Cu. Yd.)
22	15	9.7	2.7	16.2	4.5	19.5	5.4
28	18	13.8	3.7	22.9	6.1	27.5	7.3
36	21	18.4	5.0	30.7	8.3	36.8	9.9
43	24	23.7	6.2	39.5	10.4	47.4	12.4
51	27	28.4	7.4	47.3	12.3	56.8	14.8
58	30	33.5	8.7	55.8	14.5	66.9	17.4

Note: Requirements for riprap size and thickness and filter blanket will be designated in the plans.



① FOR PIPES 48" & LARGER, USE 2.0'.

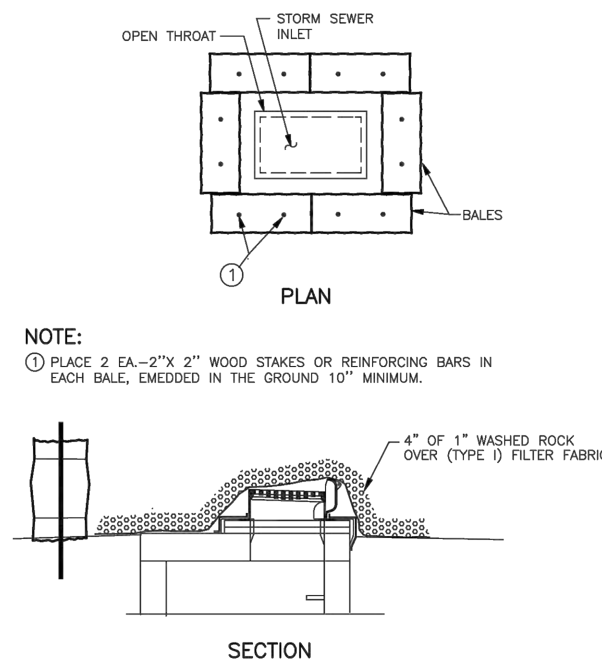
② THE CONTRACTOR SHALL PLACE RIPRAP, PULVERIZED TOPSOIL, SEED, AND STRAW FIBER BLANKET IMMEDIATELY AFTER PIPE IS INSTALLED, EXTEND AREA TO MATCH UNDISTURBED SOIL.

③ SILT FENCE SHALL BE PLACED AROUND EACH APRON AS DIRECTED BY THE ENGINEER (+40LF).

5/22/06

RIPRAP AT RCP OUTLETS

CITY OF ANDOVER | STANDARD DRAWING NO. 411A

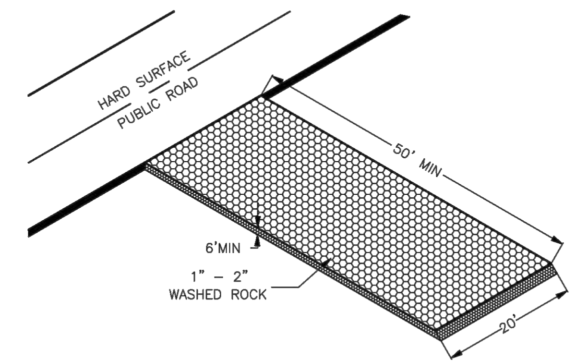


NOTE:
① PLACE 2 EA.–2"X 2" WOOD STAKES OR REINFORCING BARS IN EACH BALE, EMEDDED IN THE GROUND 10" MINIMUM.

BALE CHECK FOR STORM SEWER INLET
NO SCALE

12/26/00

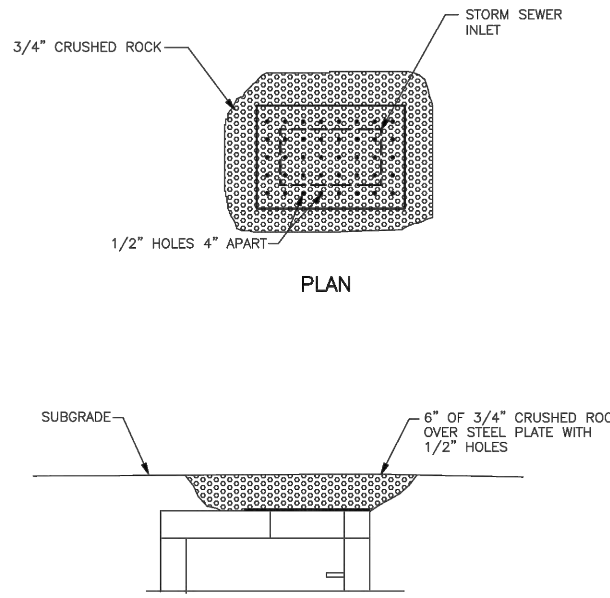
CITY OF ANDOVER | STANDARD DRAWING NO. 604



ROCK CONSTRUCTION ENTRANCE

12/26/00

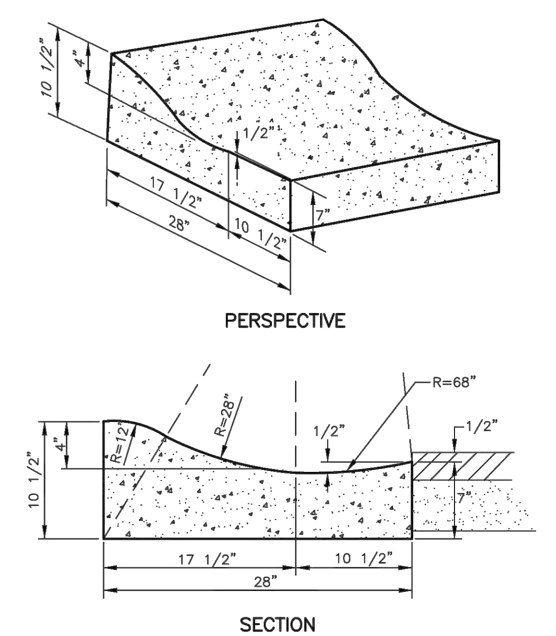
CITY OF ANDOVER | STANDARD DRAWING NO. 605



ROCK FILTER FOR STORM SEWER INLET
NO SCALE

2/19/09

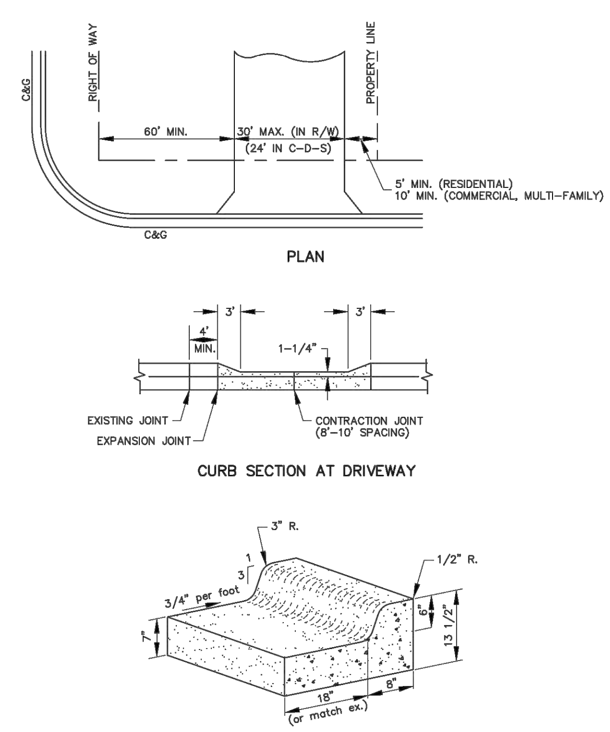
CITY OF ANDOVER | STANDARD DRAWING NO. 619



SURMOUNTABLE CONCRETE CURB & GUTTER

12/26/00

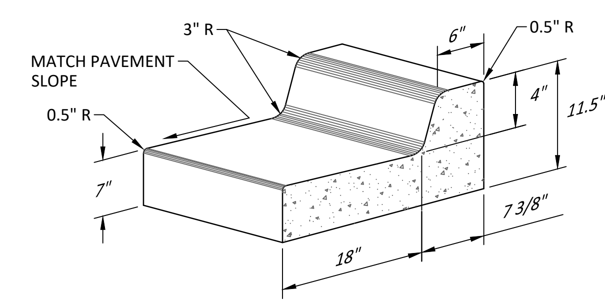
CITY OF ANDOVER | STANDARD DRAWING NO. 501



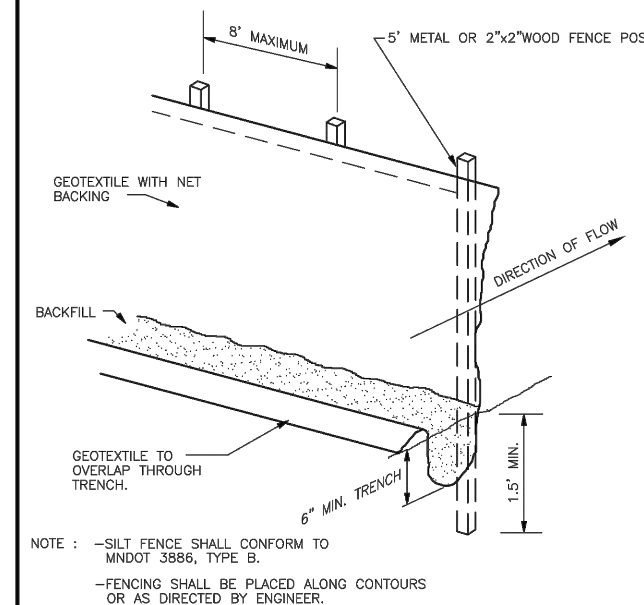
1/10/19

CURB CUT CONSTRUCTION

CITY OF ANDOVER | STANDARD DRAWING NO. 518A



CONCRETE CURB & GUTTER
DESIGN B418, GUTTER OUT
NOT TO SCALE



NOTE : –SILT FENCE SHALL CONFORM TO MNDOT 3886, TYPE B.

–FENCING SHALL BE PLACED ALONG CONTOURS OR AS DIRECTED BY ENGINEER.

SILT FENCE

12/26/00

CITY OF ANDOVER | STANDARD DRAWING NO. 601

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

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

Kevin P. Kielb P.E.

DATE 7/23/2021 REG. NO. 23211

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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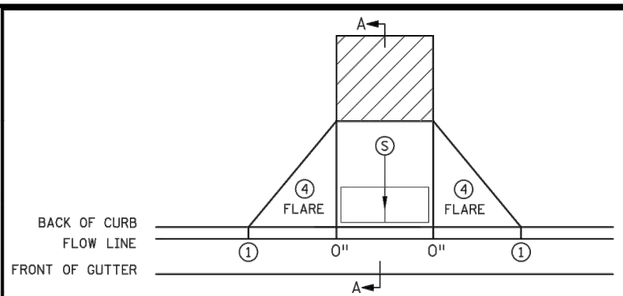
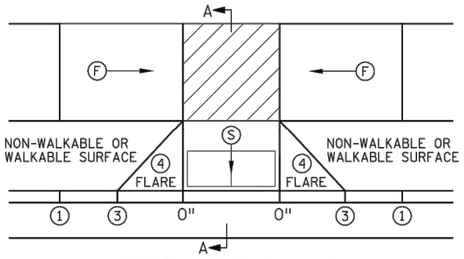
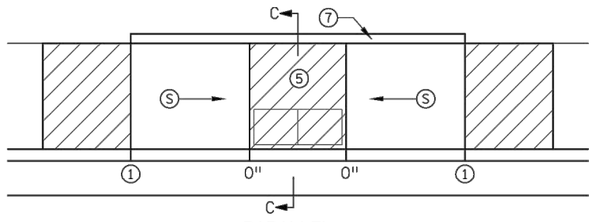
CONSTRUCTION DETAILS



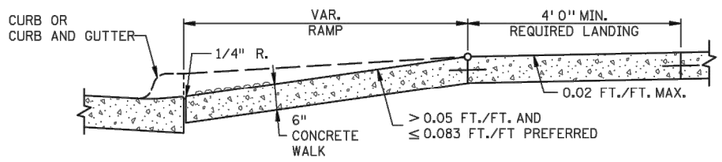
PERPENDICULAR



TIERED PERPENDICULAR

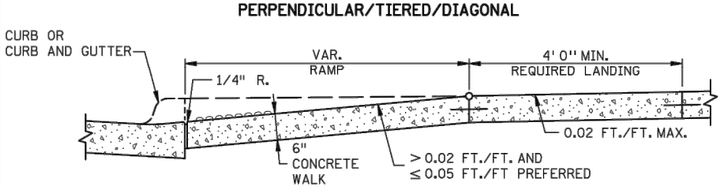


PARALLEL



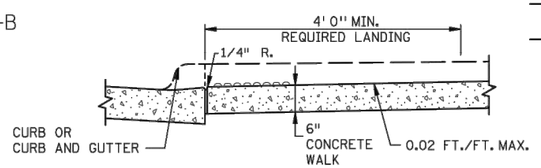
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



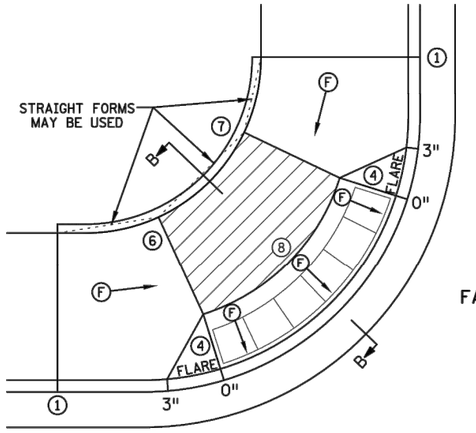
SECTION B-B

FAN

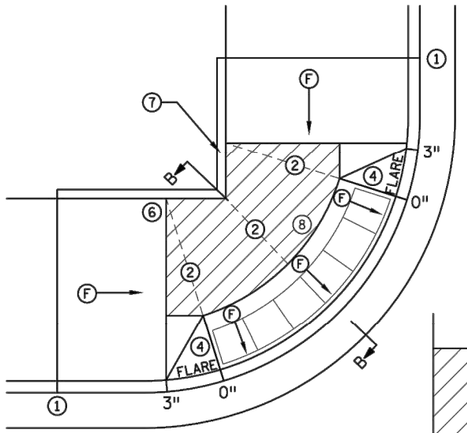


SECTION C-C

PARALLEL/DEPRESSED CORNER

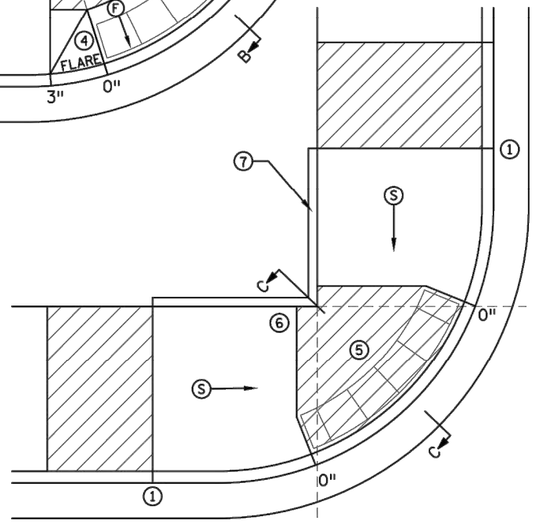


FAN⑩

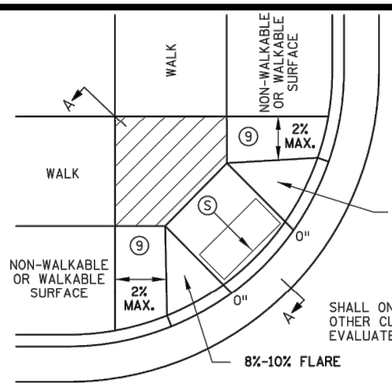


MODIFIED FAN ⑩

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

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

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

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

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

LEGEND

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. OF SHEETS

NO.	DESCRIPTION OF REVISIONS	BY	DATE

DESIGNED ZFL DRAWN ZFL CHECKED KPK

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

PLOTTED/REVISED: 4-APR-2018

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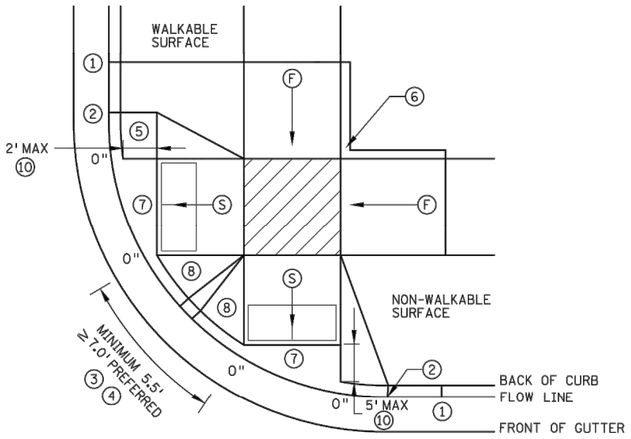
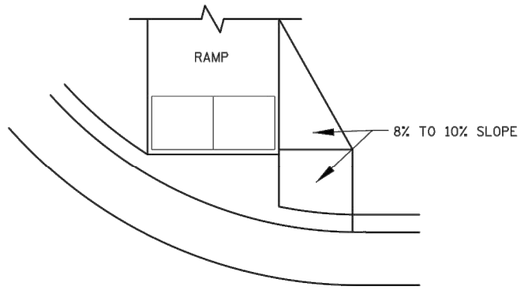
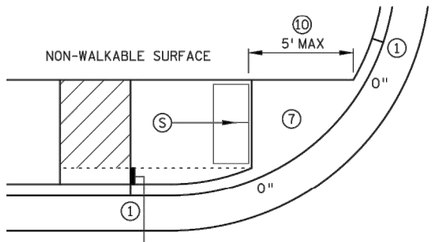


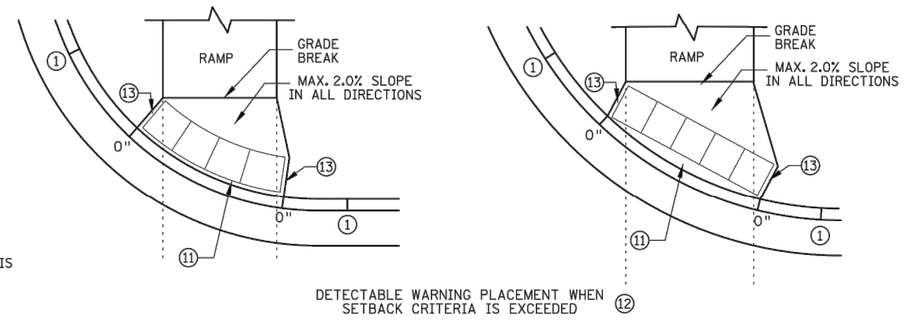
COMBINED DIRECTIONAL ⑨



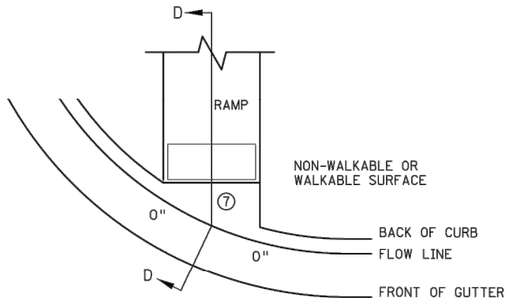
DIRECTIONAL RAMP WALKABLE FLARE



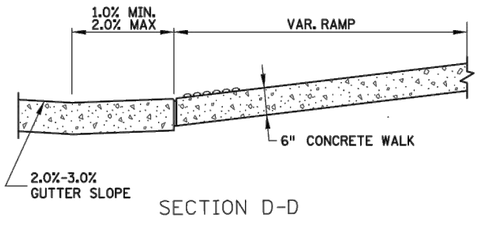
STANDARD ONE-WAY DIRECTIONAL ⑨



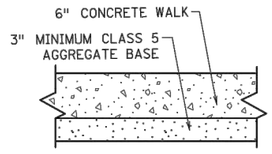
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

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

① MATCH FULL CURB HEIGHT.

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

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

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

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

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

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

⑧ 8% TO 10% WALKABLE FLARE.

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

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

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

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

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

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

LEGEND
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
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

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.250 | 2 OF 6

APPROVED: 1-23-2017
REVISED:

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

PEDESTRIAN CURB RAMP DETAILS

NO.	DESCRIPTION OF REVISIONS	BY	DATE

DESIGNED ZFL
DRAWN ZFL
CHECKED KPK

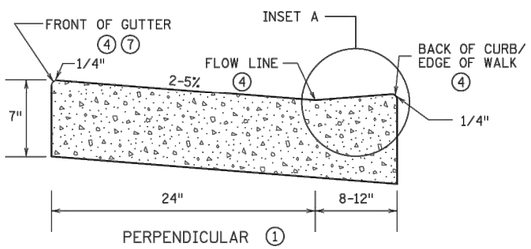
BOLTON & MENK
CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

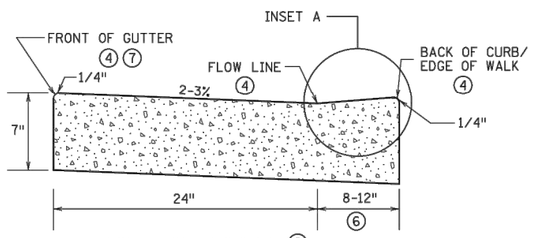
CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

PLOTTED/REVISED: 4-APR-2018

IPLOT NAME: s250_2_spn
PATH & FILENAME: OTS\DesignStandards\Development\New Border\200_Series\s250_2_spn.dgn

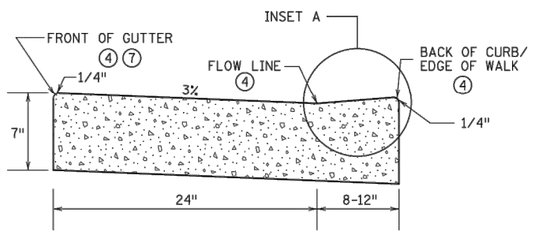


PERPENDICULAR ①

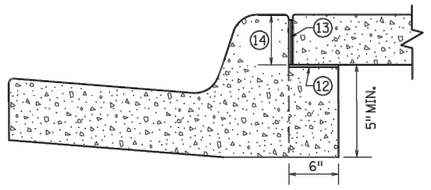


NON PERPENDICULAR ②

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

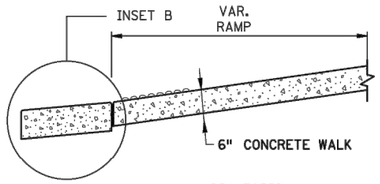


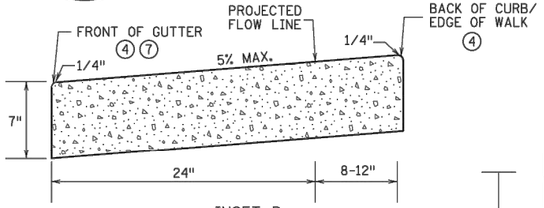
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)



OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

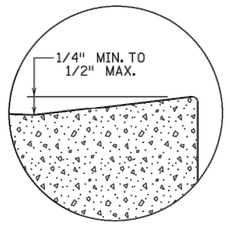
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



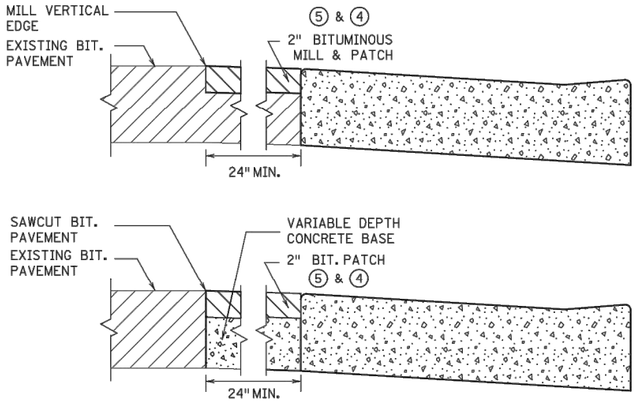


INSET B

OUTFLOW GUTTER ⑧



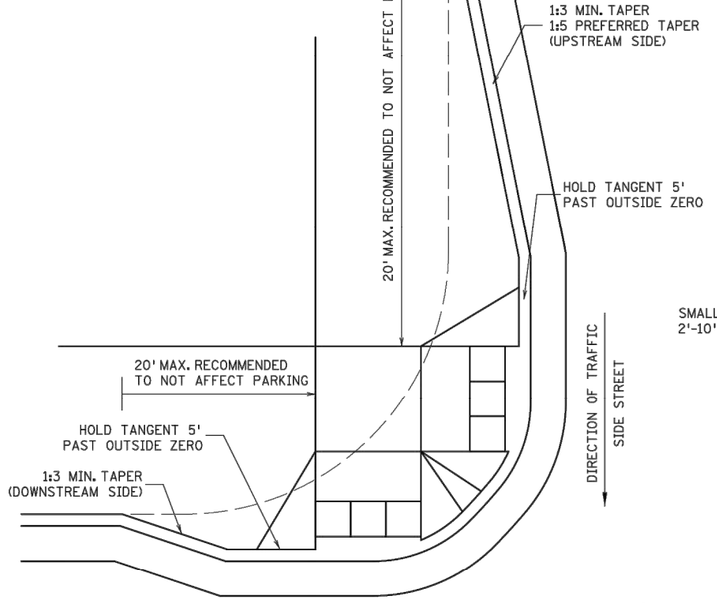
INSET A



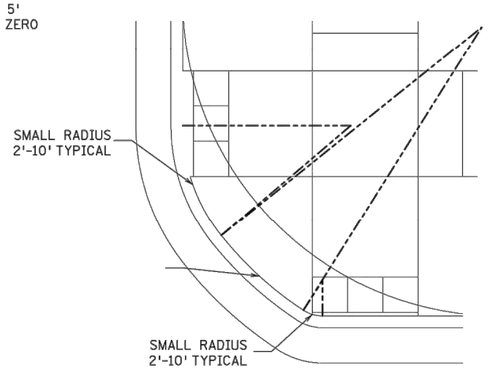
ONLY ALLOWED PER ENGINEER'S APPROVAL

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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APPROVED: 1-23-2017
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PEDESTRIAN CURB RAMP DETAILS

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

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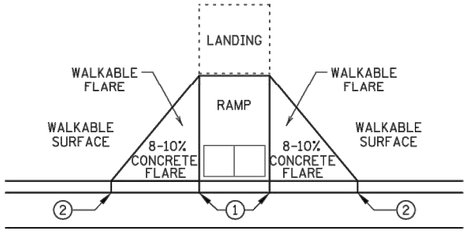
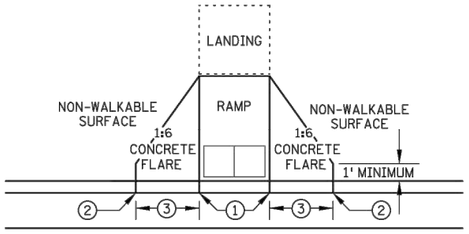
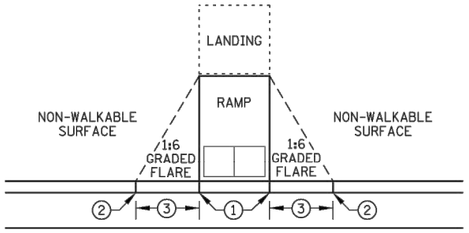


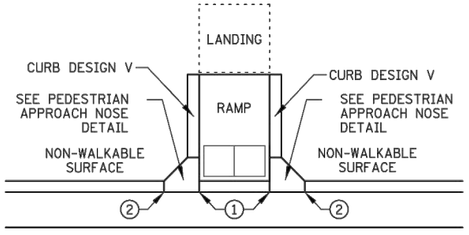
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

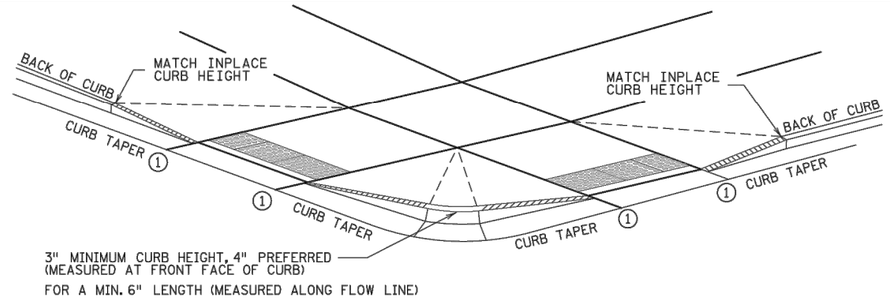


GRADED FLARES

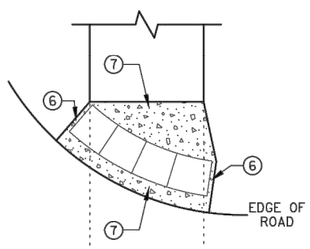


RETURNED CURB ⑤

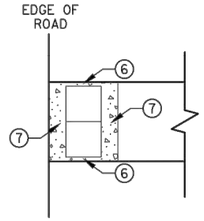
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧ CURB AND GUTTER

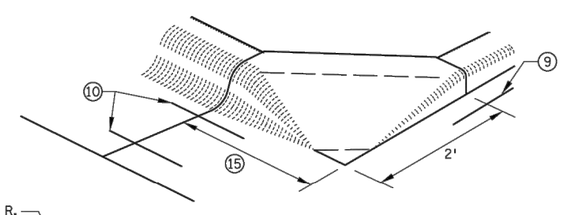


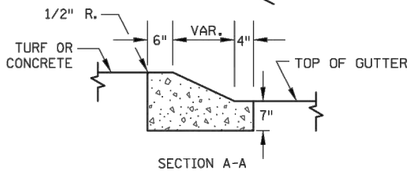
RADIAL DETECTABLE WARNING



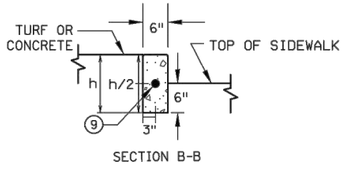
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

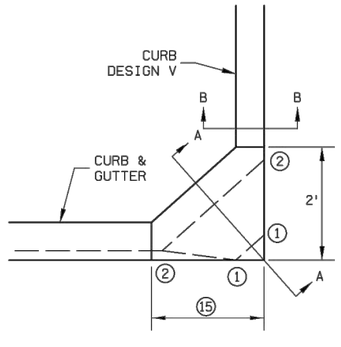




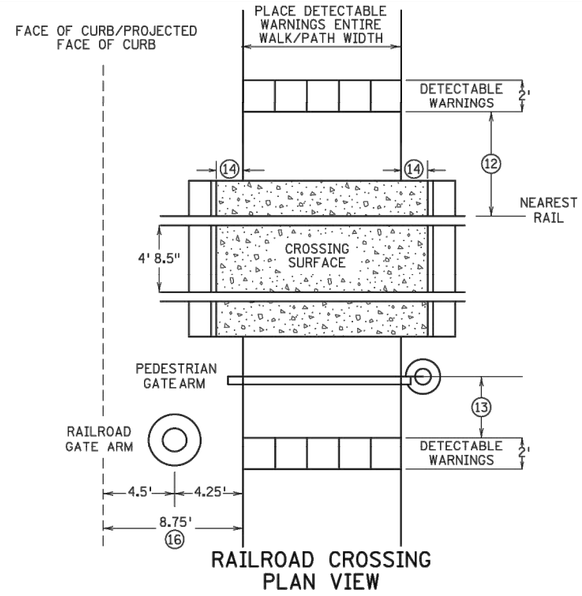
SECTION A-A



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 GOVERNS OVER NOTE ⑫.

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

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

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

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PEDESTRIAN CURB RAMP DETAILS

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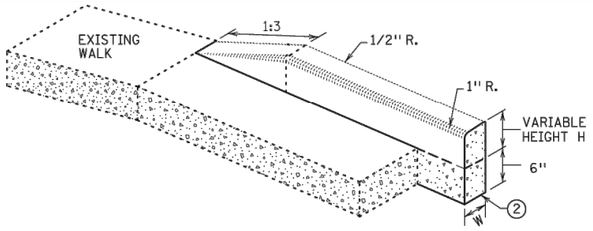
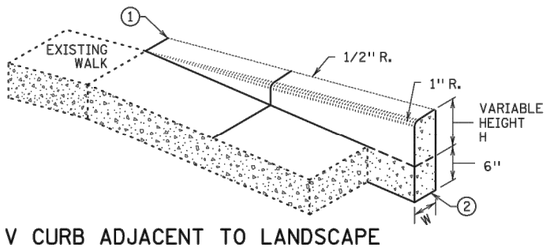


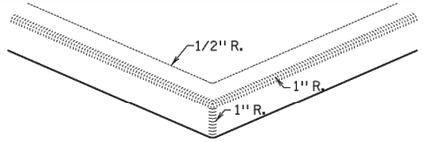
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

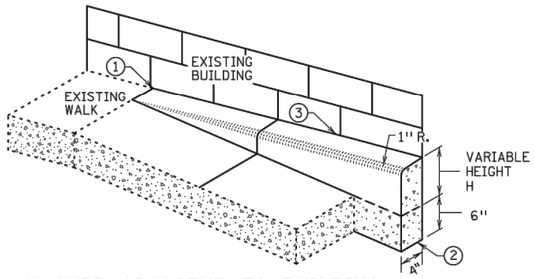


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

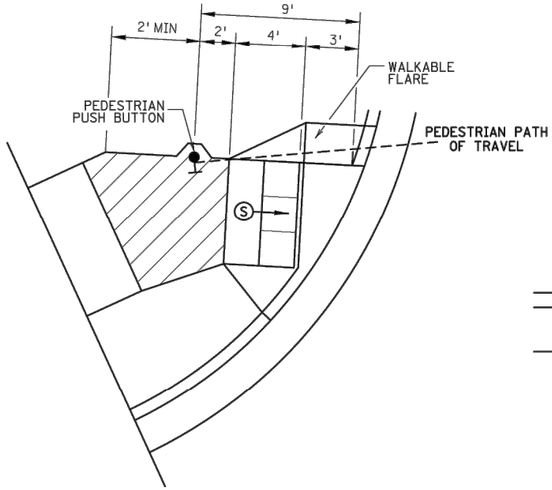


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

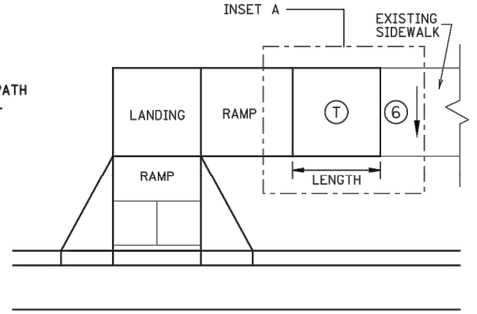
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"

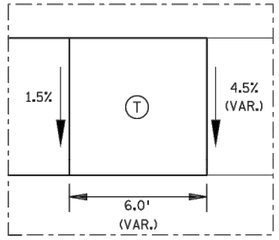


SEMI-DIRECTIONAL RAMP (3,4,9)

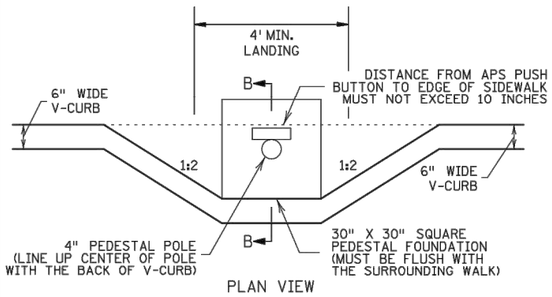
3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

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

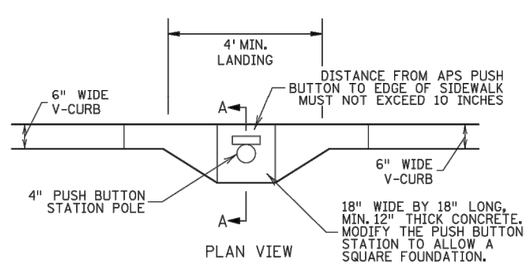




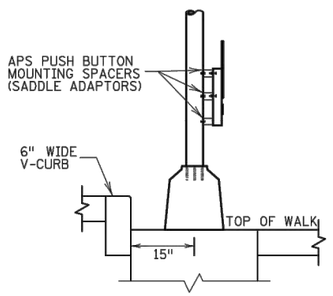
TRANSITION PANEL ④⑤



PLAN VIEW

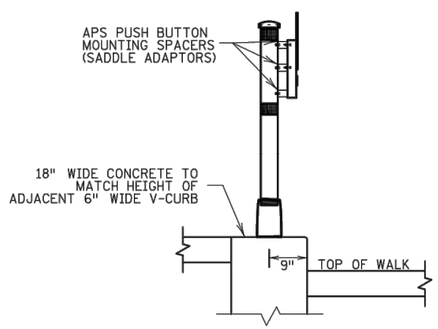


PLAN VIEW



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.

- (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%.
- 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.
- (T) TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.250	5 OF 6
APPROVED: 1-23-2017	
REVISED:	

PEDESTRIAN CURB RAMP DETAILS

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

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED ZFL DRAWN ZFL CHECKED KPK

BOLTON & MENK

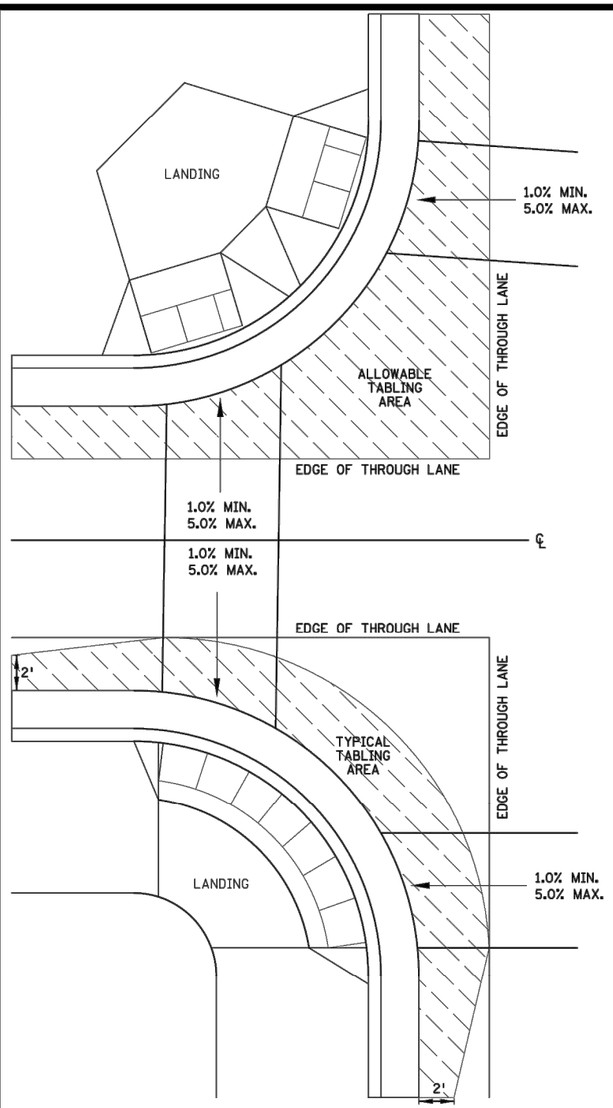
CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

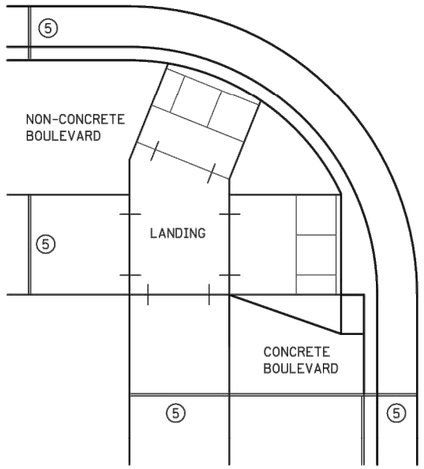
CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

PLOTTED/REVISED: 4-APR-2018

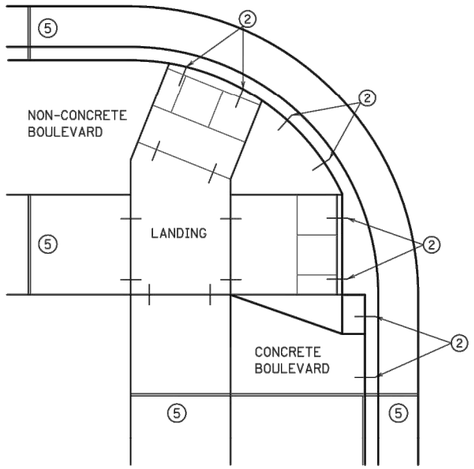
IPLOT NAME: s250_5_spn
PATH & FILENAME: OT\Design Standards\Development\New Border\200_Series\s250_5_spn.dgn



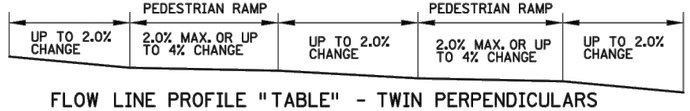
CURB LINE AND ROAD CROSSING ADJUSTMENTS



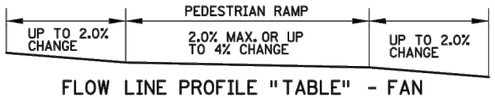
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS ④



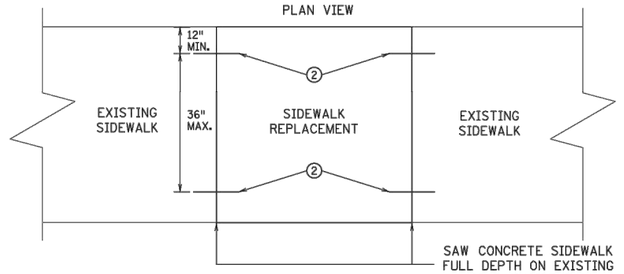
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



FLOW LINE PROFILE "TABLE" - FAN

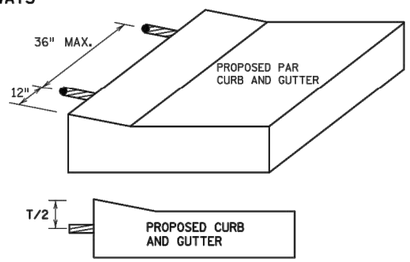
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

FLOW LINE PROFILE RAISE - FAN

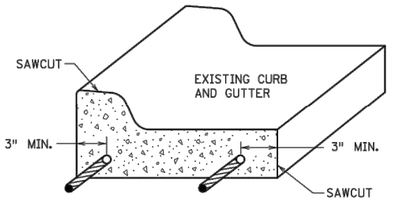


OPTIONAL SIDEWALK REINFORCEMENT

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

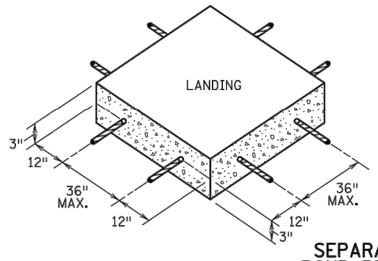


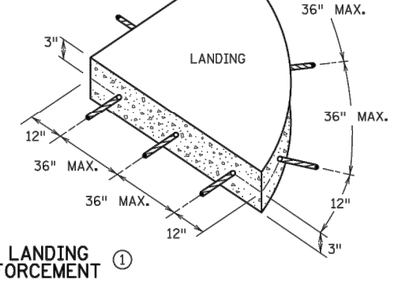
OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④



FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER REINFORCEMENT ③





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

STANDARD PLAN 5-297.250 | 6 OF 6

APPROVED: 1-23-2017

REVISED:

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

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

NO.	DESCRIPTION OF REVISIONS	BY	DATE

DESIGNED ZFL DRAWN ZFL CHECKED KPK

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

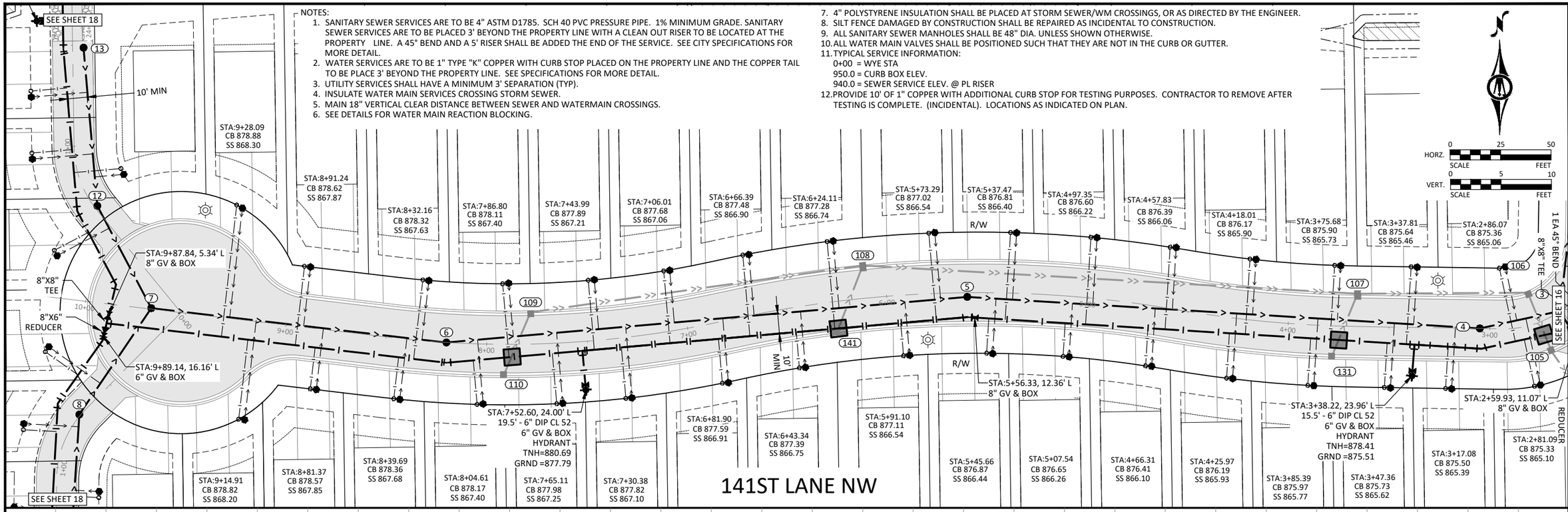
CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

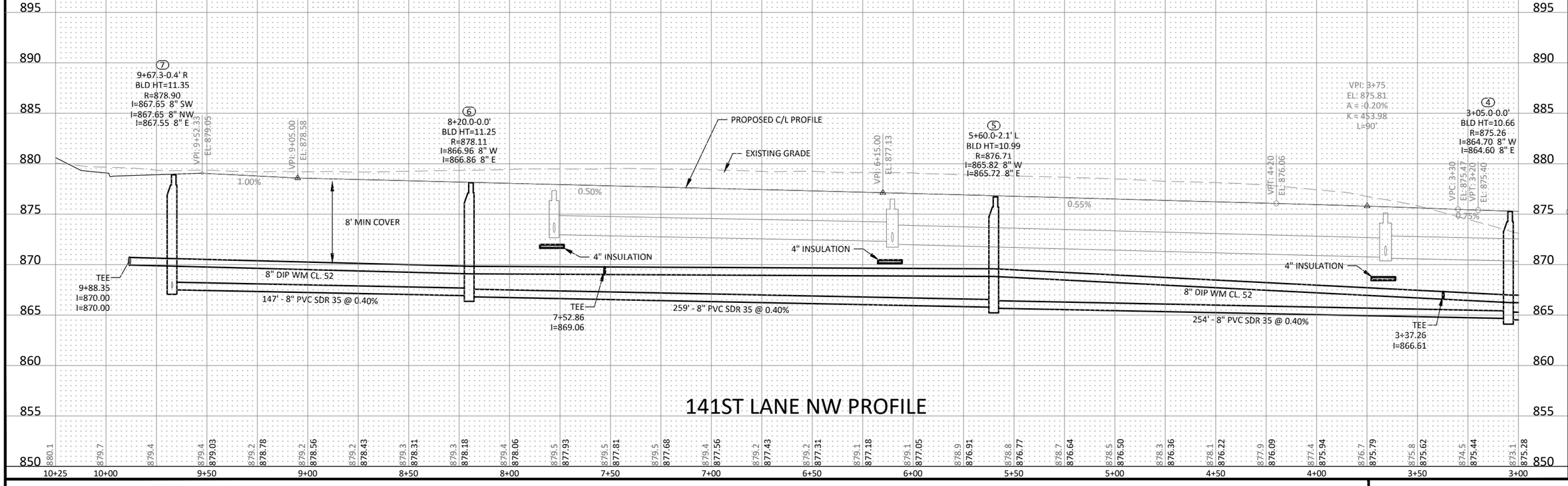
PLOTTED/REVISED: 4-APR-2018

IPLOT NAME: s250_6_spn
PATH & FILENAME: OT\SDesignStandards\Development\New Border\200_Series\s250_6_spn.dgn

NOTES:

1. SANITARY SEWER SERVICES ARE TO BE 4" ASTM D1785. SCH 40 PVC PRESSURE PIPE. 1% MINIMUM GRADE. SANITARY SEWER SERVICES ARE TO BE PLACED 3' BEYOND THE PROPERTY LINE WITH A CLEAN OUT RISER TO BE LOCATED AT THE PROPERTY LINE. A 45° BEND AND A 5' RISER SHALL BE ADDED THE END OF THE SERVICE. SEE CITY SPECIFICATIONS FOR MORE DETAIL.
2. WATER SERVICES ARE TO BE 1" TYPE "K" COPPER WITH CURB STOP PLACED ON THE PROPERTY LINE AND THE COPPER TAIL TO BE PLACE 3' BEYOND THE PROPERTY LINE. SEE SPECIFICATIONS FOR MORE DETAIL.
3. UTILITY SERVICES SHALL HAVE A MINIMUM 3' SEPARATION (TYP).
4. INSULATE WATER MAIN SERVICES CROSSING STORM SEWER.
5. MAIN 18" VERTICAL CLEAR DISTANCE BETWEEN SEWER AND WATERMAIN CROSSINGS.
6. SEE DETAILS FOR WATER MAIN REACTION BLOCKING.
7. 4" POLYSTYRENE INSULATION SHALL BE PLACED AT STORM SEWER/WM CROSSINGS, OR AS DIRECTED BY THE ENGINEER.
8. SILT FENCE DAMAGED BY CONSTRUCTION SHALL BE REPAIRED AS INCIDENTAL TO CONSTRUCTION.
9. ALL SANITARY SEWER MANHOLES SHALL BE 48" DIA. UNLESS SHOWN OTHERWISE.
10. ALL WATER MAIN VALVES SHALL BE POSITIONED SUCH THAT THEY ARE NOT IN THE CURB OR GUTTER.
11. TYPICAL SERVICE INFORMATION:
    0+00 = WYE STA
    950.0 = CURB BOX ELEV.
    940.0 = SEWER SERVICE ELEV. @ PL RISER
12. PROVIDE 10' OF 1" COPPER WITH ADDITIONAL CURB STOP FOR TESTING PURPOSES. CONTRACTOR TO REMOVE AFTER TESTING IS COMPLETE. (INCIDENTAL). LOCATIONS AS INDICATED ON PLAN.





NO.	DATE	BY	DESCRIPTION OF REVISIONS
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

HORZ. SCALE 0 25 50 FEET
VERT. SCALE 0 5 10 FEET

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

Kevin P. Kielb P.E. — REG. NO. 23211
DATE 7/23/2021

BOLTON & MENK — CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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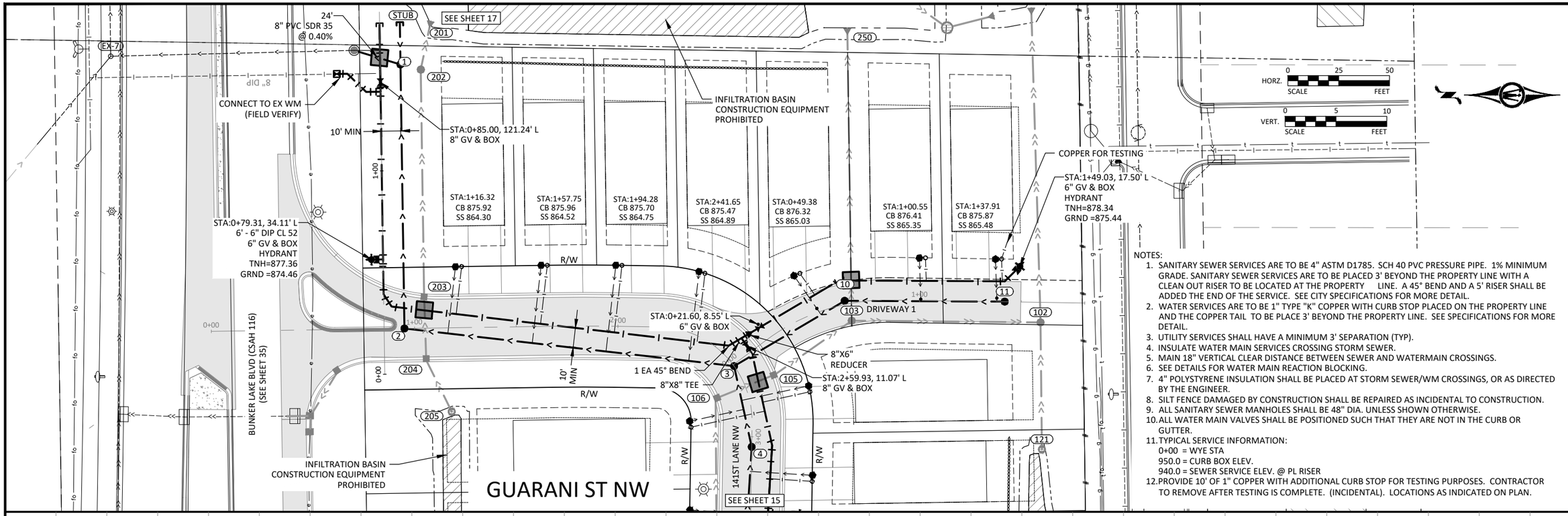
SANITARY SEWER - WATERMAIN PLAN & PROFILE



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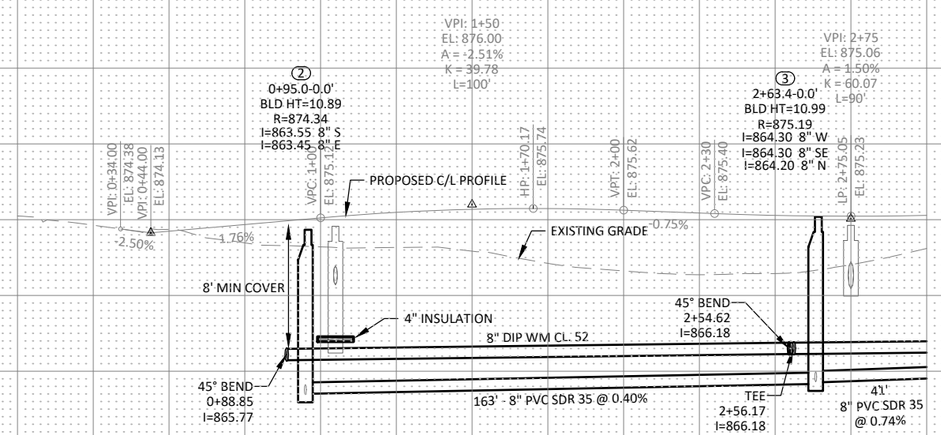

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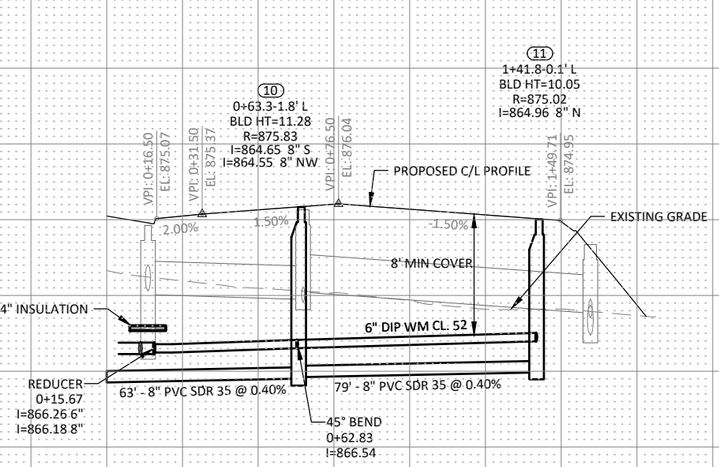

DRIVEWAY 1 PROFILE

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

Kevin P. Kielb P.E. REG. NO. 23211

DATE 7/23/2021

NO.	DATE	BY	DESCRIPTION OF REVISIONS
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL DRAWN ZFL CHECKED KPK

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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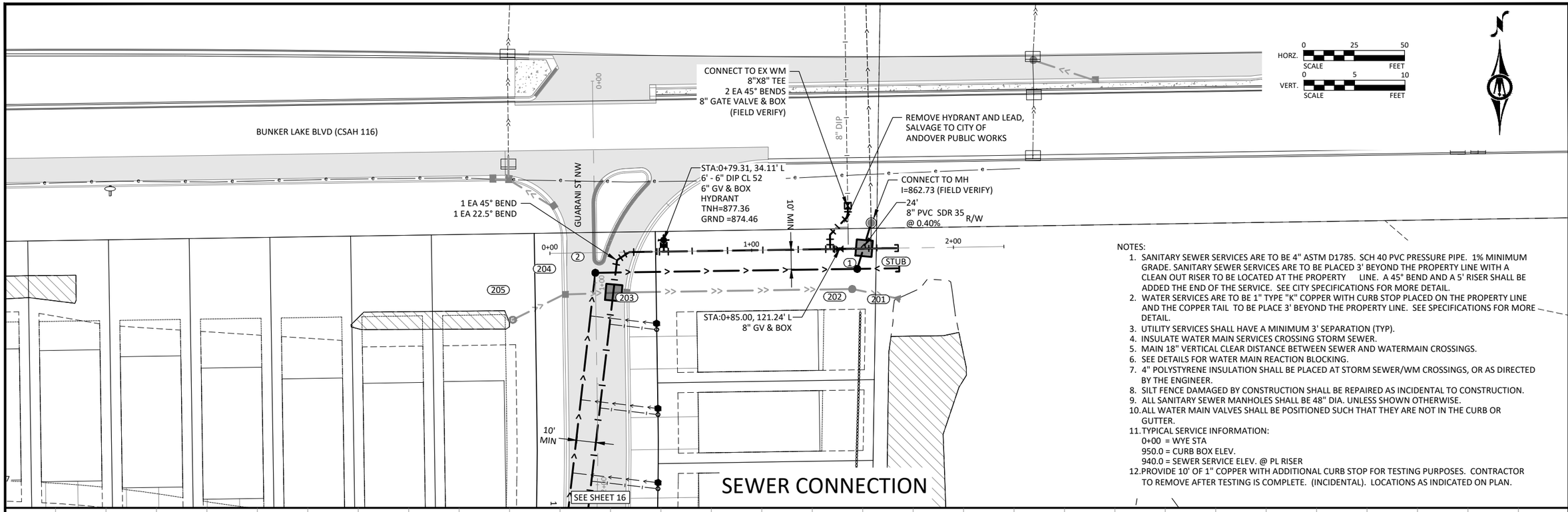
SANITARY SEWER - WATERMAIN PLAN & PROFILE



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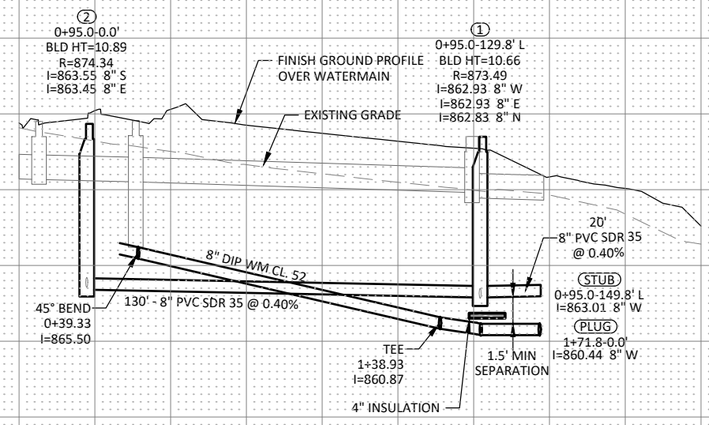

SEWER CONNECTION PROFILE

NO.	DATE	BY	DESCRIPTION OF REVISIONS
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

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Kevin P. Kielb P.E. REG. NO. 23211

DATE 7/23/2021

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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SANITARY SEWER - WATERMAIN PLAN & PROFILE

HORZ. 0 25 50 SCALE FEET

VERT. 0 5 10 SCALE FEET

NOTES:
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4. INSULATE WATER MAIN SERVICES CROSSING STORM SEWER.
5. MAIN 18" VERTICAL CLEAR DISTANCE BETWEEN SEWER AND WATERMAIN CROSSINGS.
6. SEE DETAILS FOR WATER MAIN REACTION BLOCKING.
7. 4" POLYSTYRENE INSULATION SHALL BE PLACED AT STORM SEWER/WM CROSSINGS, OR AS DIRECTED BY THE ENGINEER.
8. SILT FENCE DAMAGED BY CONSTRUCTION SHALL BE REPAIRED AS INCIDENTAL TO CONSTRUCTION.
9. ALL SANITARY SEWER MANHOLES SHALL BE 48" DIA. UNLESS SHOWN OTHERWISE.
10. ALL WATER MAIN VALVES SHALL BE POSITIONED SUCH THAT THEY ARE NOT IN THE CURB OR GUTTER.
11. TYPICAL SERVICE INFORMATION:
    0+00 = WYE STA
    950.0 = CURB BOX ELEV.
    940.0 = SEWER SERVICE ELEV. @ PL RISER
12. PROVIDE 10' OF 1" COPPER WITH ADDITIONAL CURB STOP FOR TESTING PURPOSES. CONTRACTOR TO REMOVE AFTER TESTING IS COMPLETE. (INCIDENTAL). LOCATIONS AS INDICATED ON PLAN.

NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	7/19/21	ZL	C.R. CASING REMOVED
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL
DRAWN ZFL
CHECKED KPK

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Kevin P. Kielb P.E. REG. NO. 23211

DATE 7/23/2021

BOLTON & MENK
CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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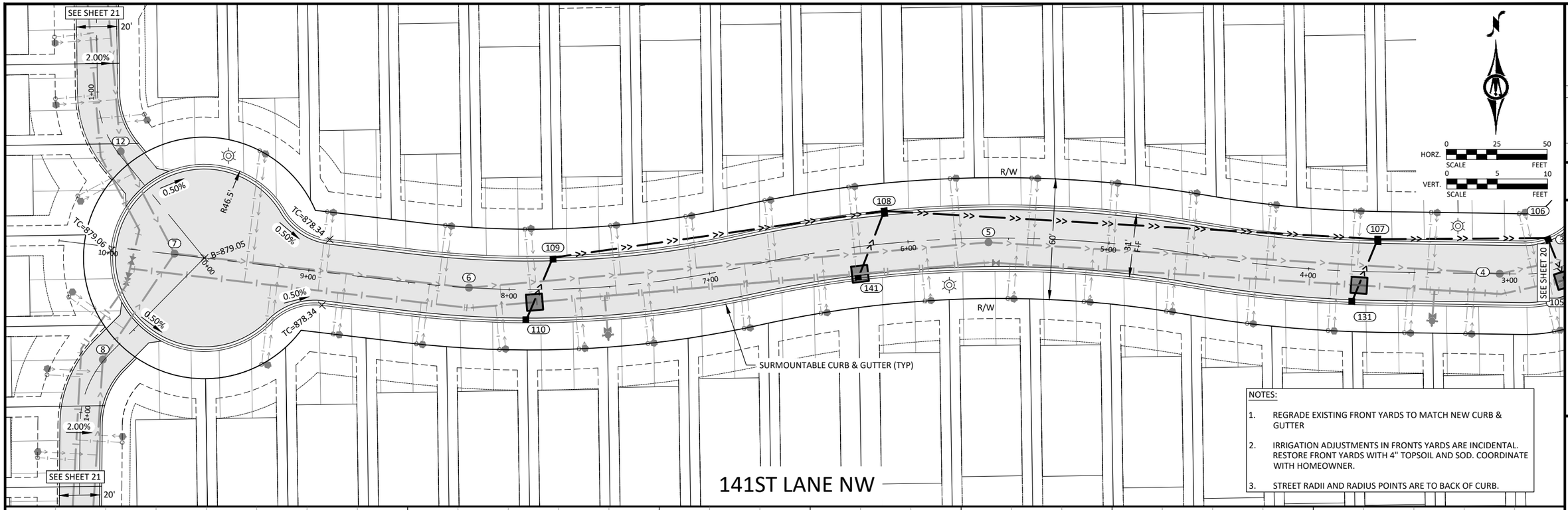
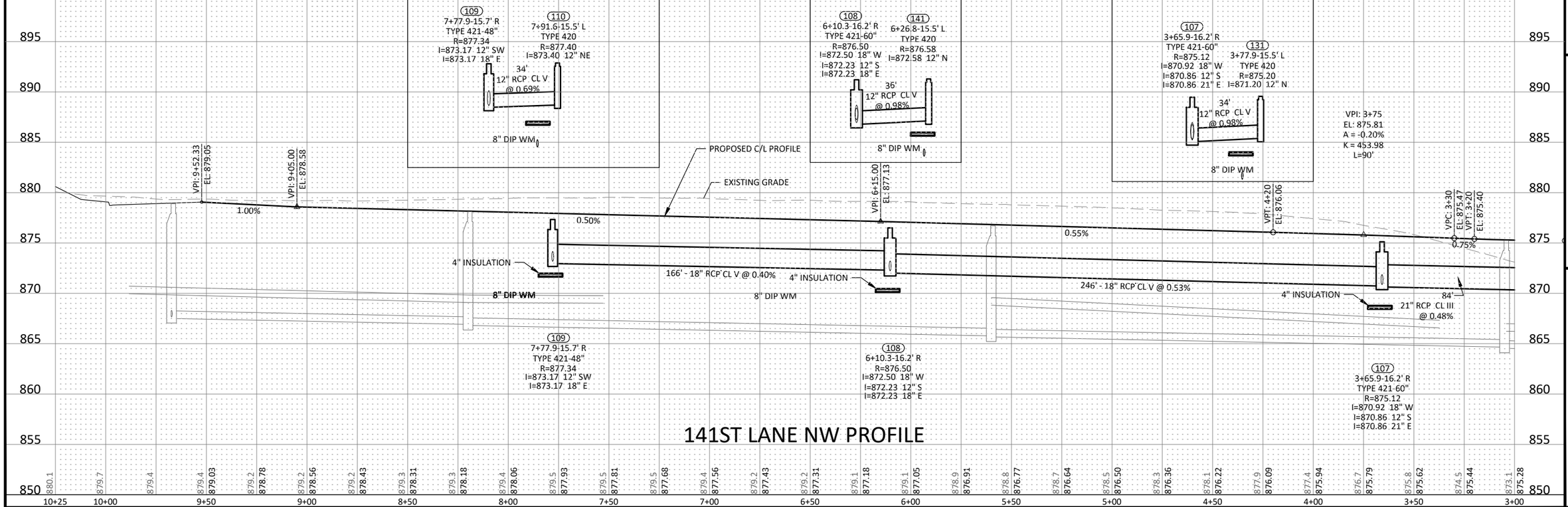
SANITARY SEWER - WATERMAIN PLAN & PROFILE

SHEET NO. 18 OF 43 SHEETS



NOTES:

1. REGRADE EXISTING FRONT YARDS TO MATCH NEW CURB & GUTTER
2. IRRIGATION ADJUSTMENTS IN FRONTS YARDS ARE INCIDENTAL. RESTORE FRONT YARDS WITH 4" TOPSOIL AND SOD. COORDINATE WITH HOMEOWNER.
3. STREET RADII AND RADIUS POINTS ARE TO BACK OF CURB.



141ST LANE NW PROFILE

DESIGNED ZFL DRAWN ZFL CHECKED KPK

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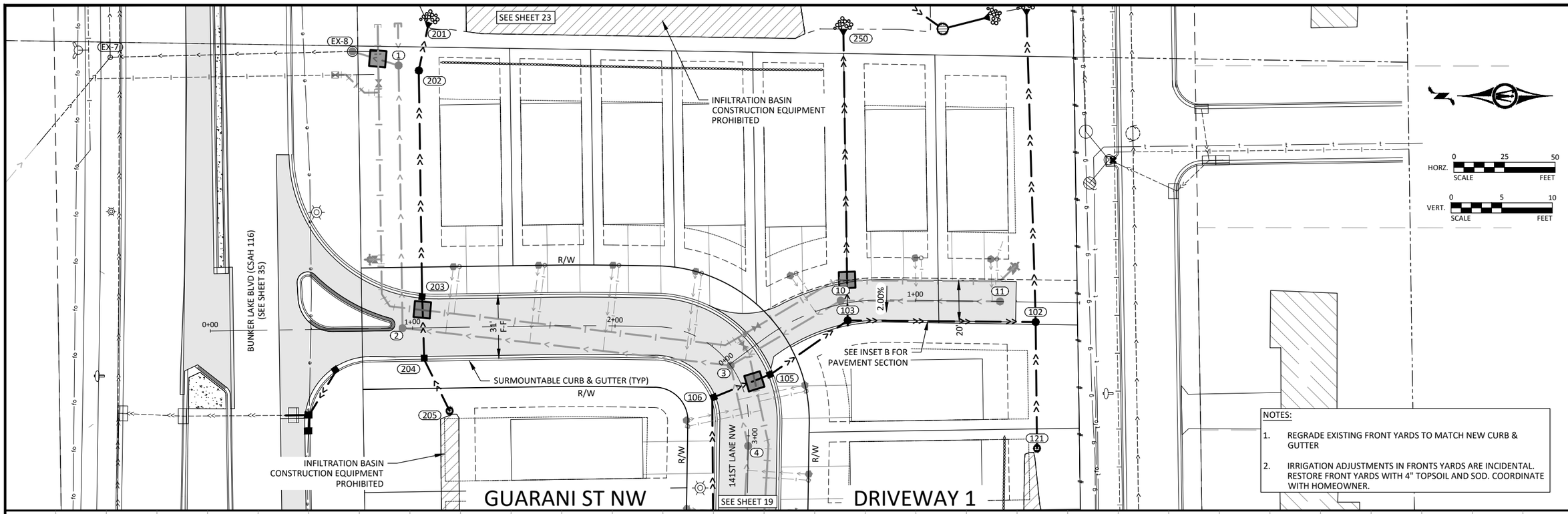

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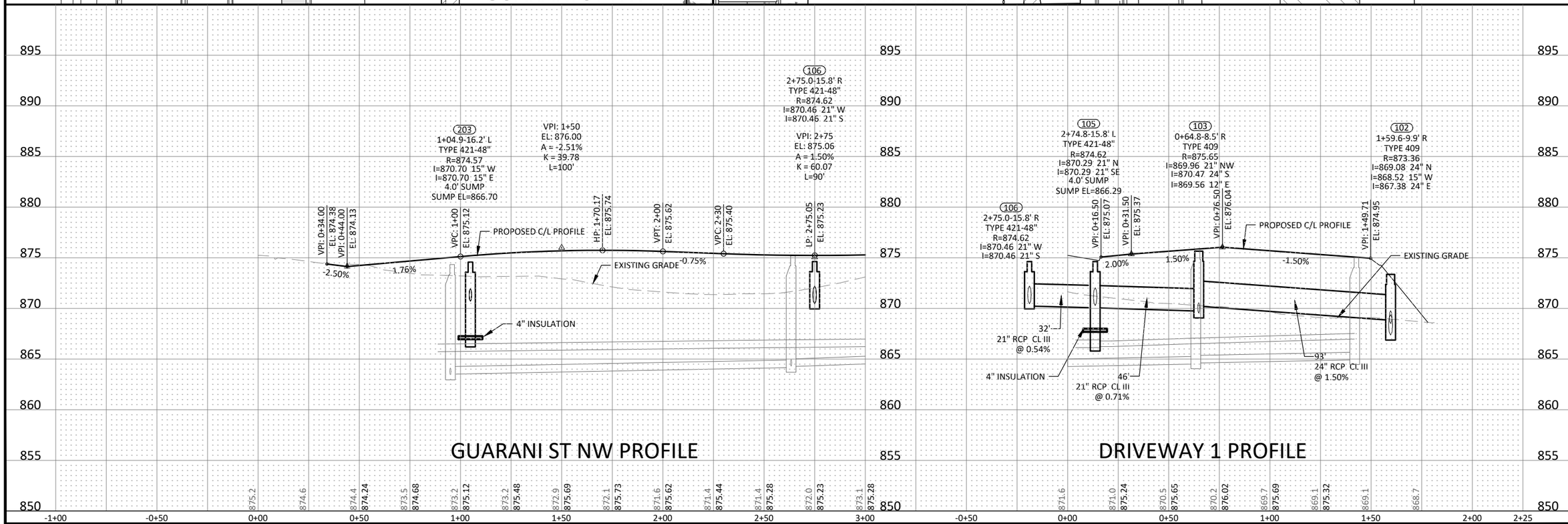

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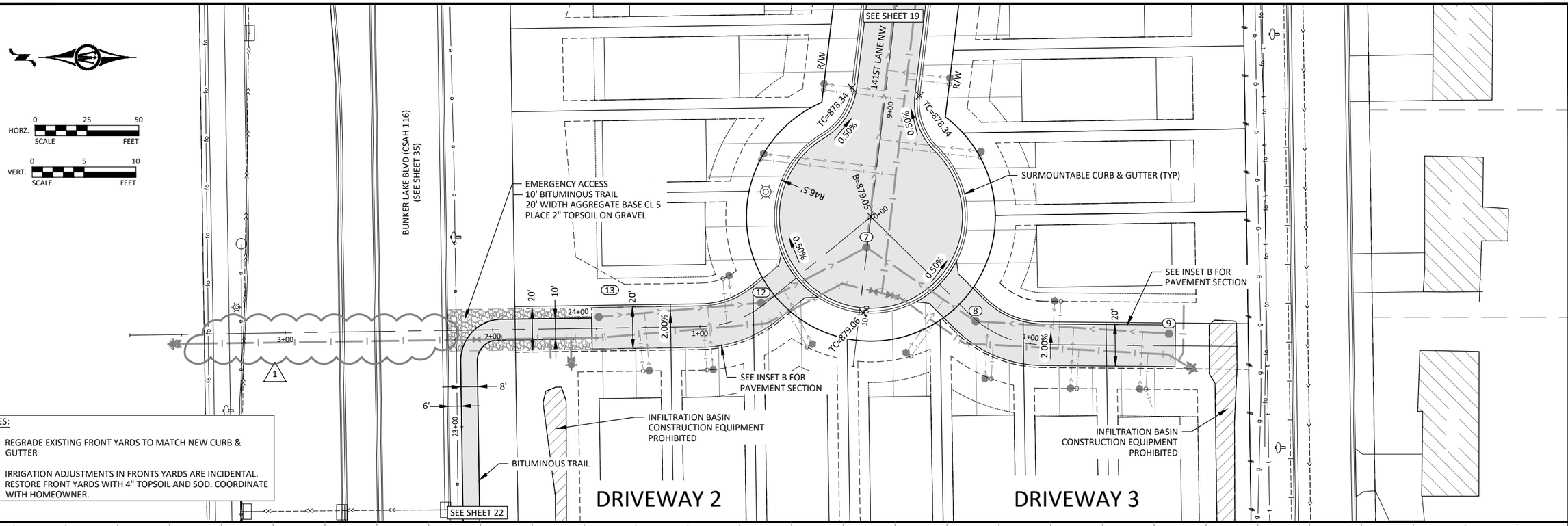

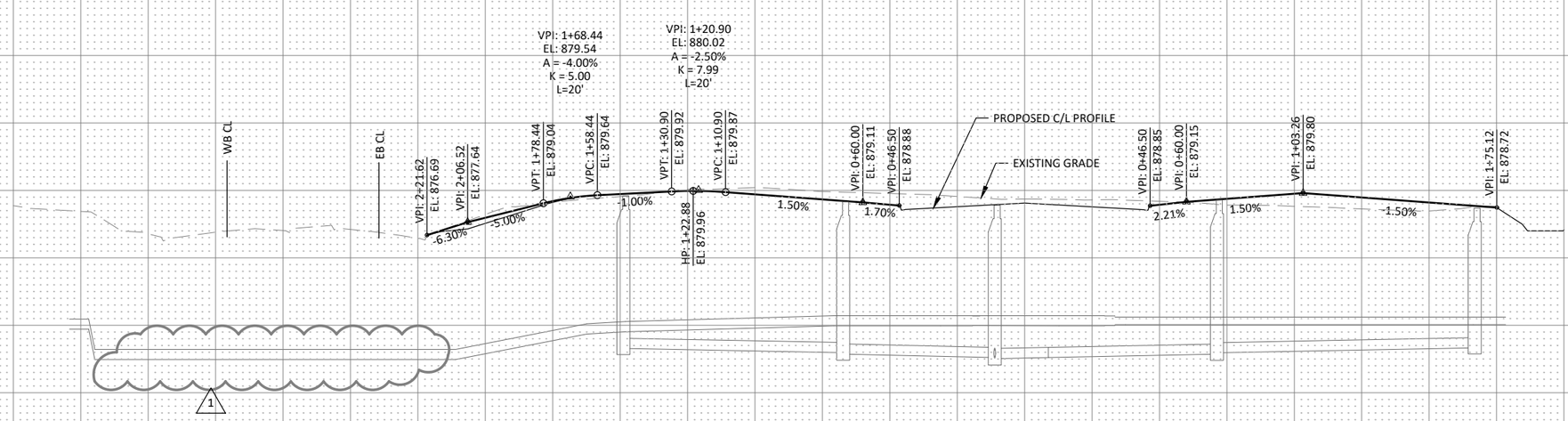

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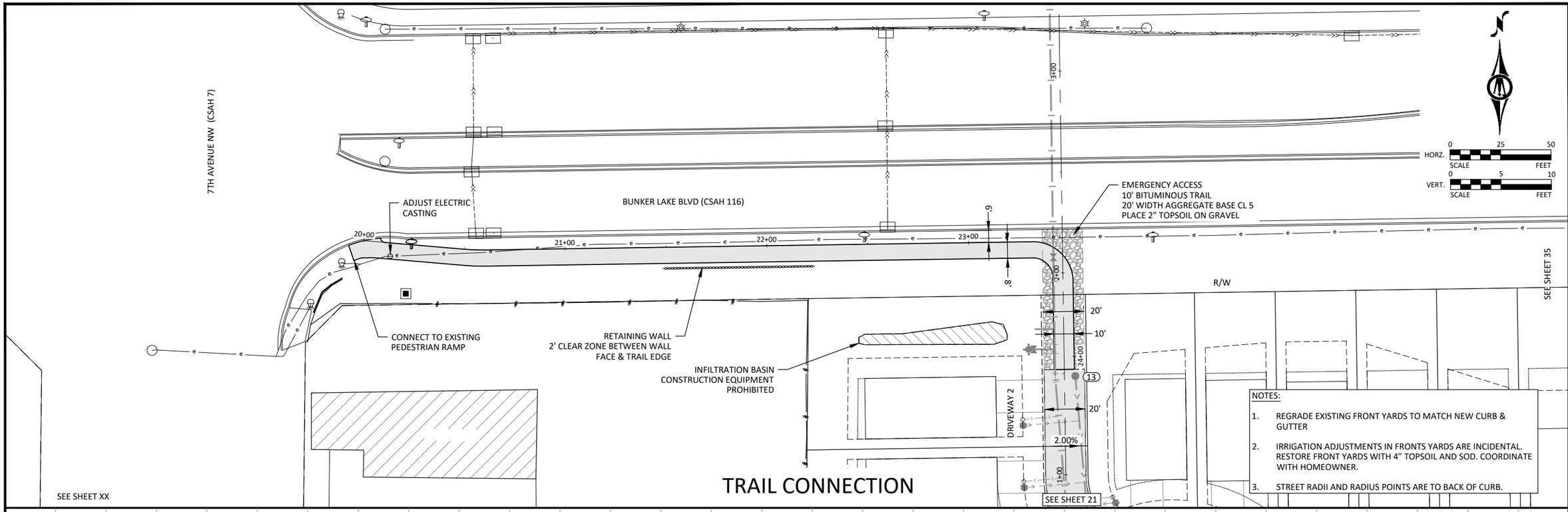
STREET - STORM PLAN & PROFILE



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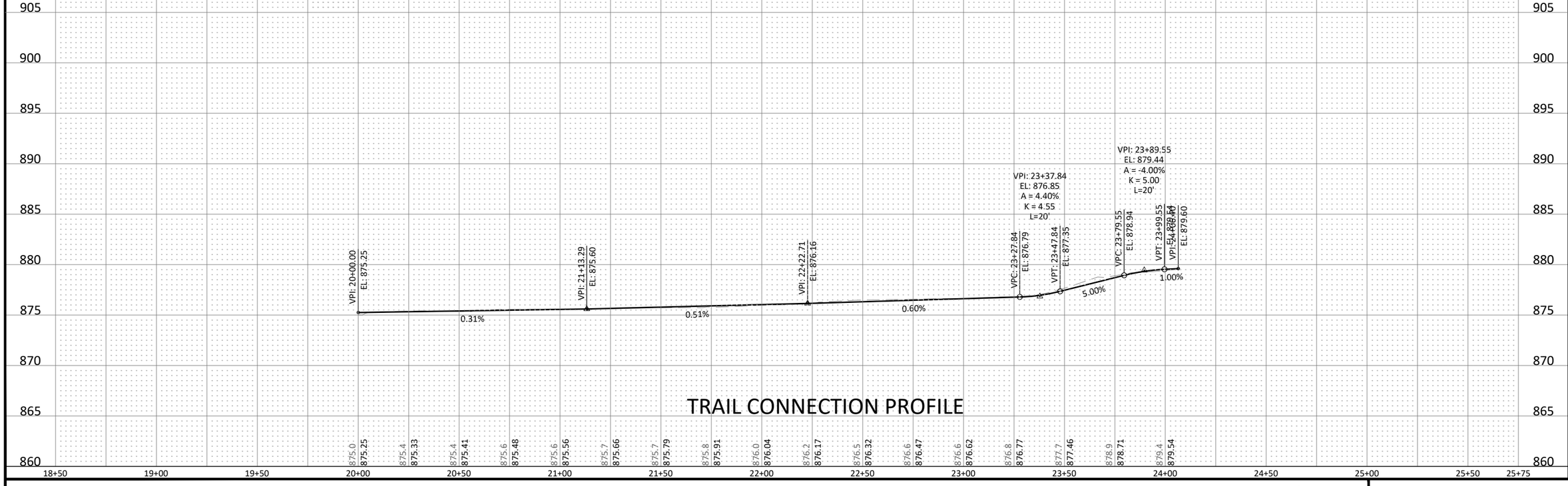
3. STREET RADII AND RADIUS POINTS ARE TO BACK OF CURB.

TRAIL CONNECTION



TRAIL CONNECTION PROFILE

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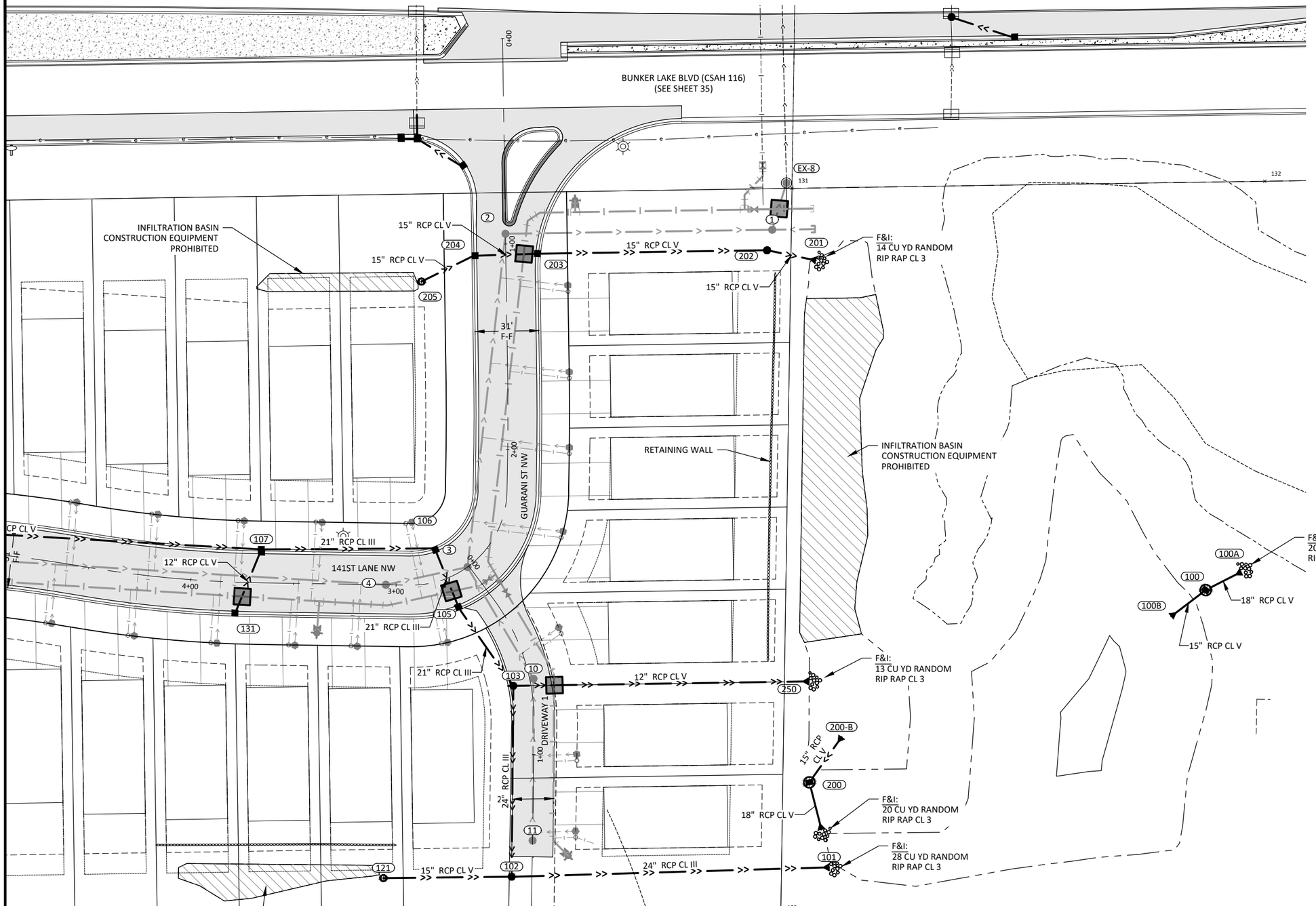
STREET - STORM PLAN & PROFILE



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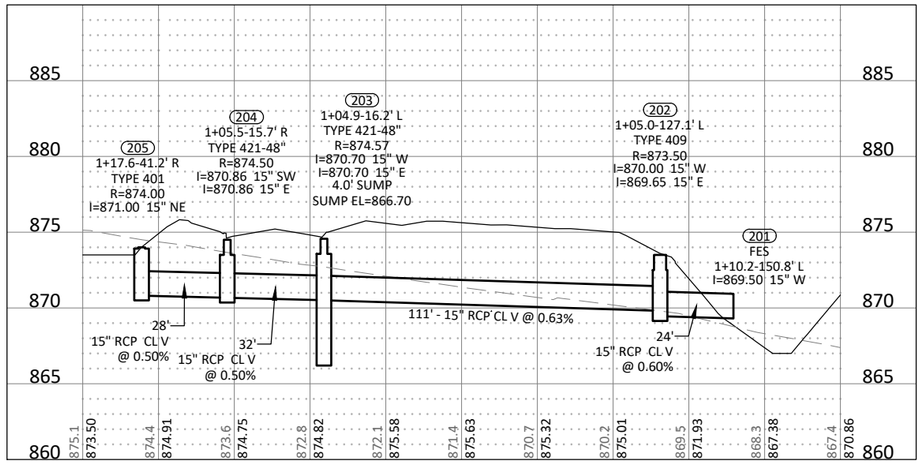
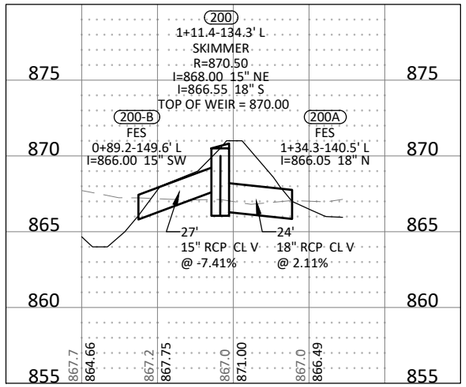
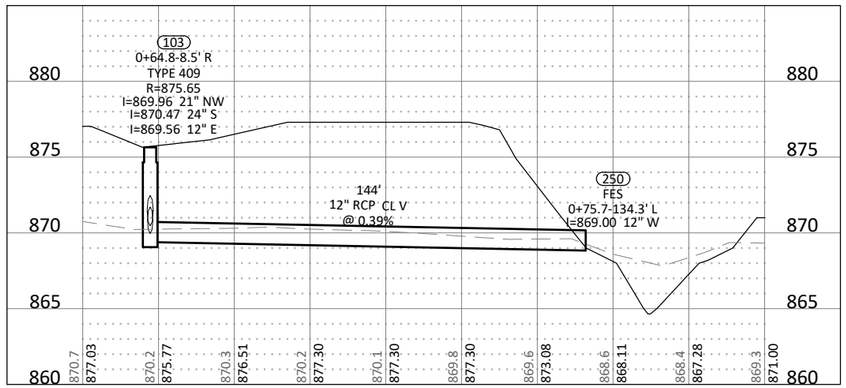
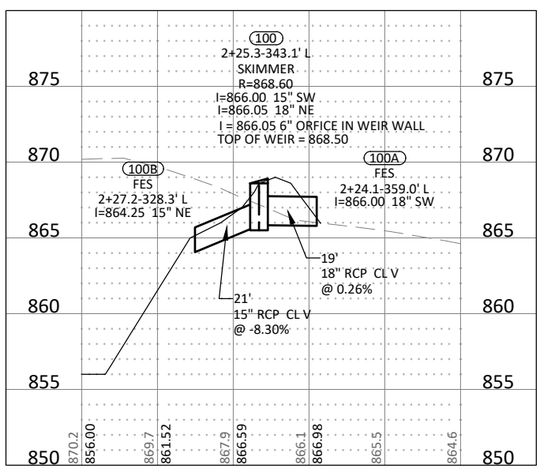
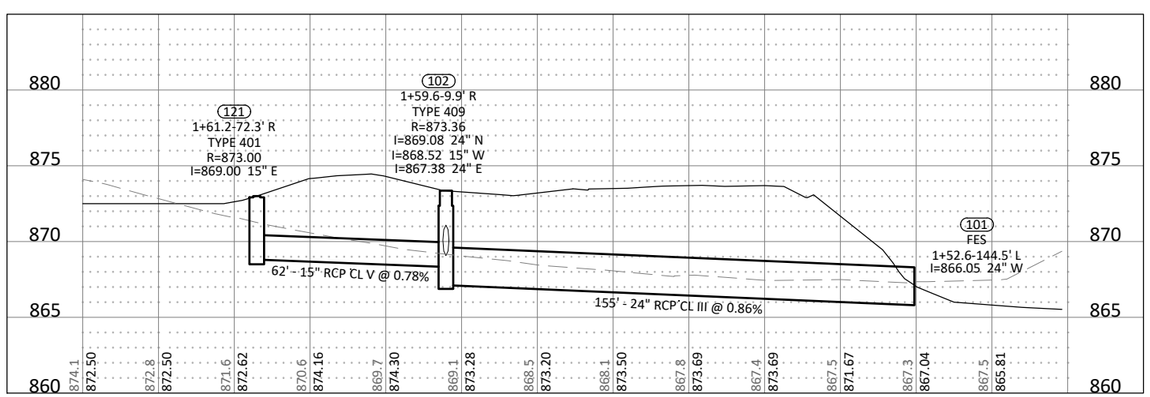
POND STORM SEWER PLAN

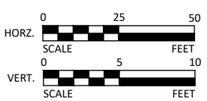












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POND STORM SEWER PROFILES

LEGEND:

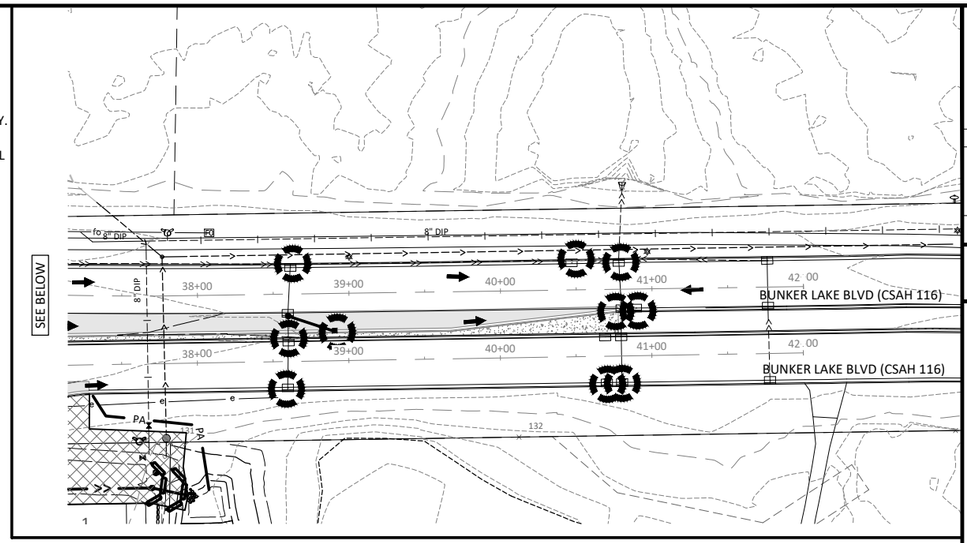
- SEED MIX - TYPE 25-151 WITH FERTILIZER 20-10-10 AND CATEGORY 3N EROSION CONTROL BLANKET.
- SEED MIX - TYPE 25-151 @ 175 lbs/Acre FERTILIZER 20-10-10 @ 400 lbs/Acre DISK ANCHOR WITH MULCH (TYPE 6)
- STABILIZED CONSTRUCTION EXIT
- SEDIMENT CONTROL LOG
- DRAINAGE DIRECTION
- SILT FENCE (PA)
- INLET PROTECTION

EROSION CONTROL NOTES:

1) CONFORM TO NPDES PERMIT OBTAINED FROM SITE GRADING CONTRACT.
2) STABILIZE DISTURBED SOILS & STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY.
3) CLEAN ROAD SURFACES WHERE SEDIMENT IS TRANSPORTED BY THE END OF EACH DAY.
4) REPAIR AND MAINTAIN ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES.
5) CONSTRUCTION SCHEDULE:
   a) INSTALL EROSION CONTROL MEASURES PRIOR TO BEGINNING REMOVAL OPERATIONS
   b) INSTALL SANITARY SEWER
   c) INSTALL WATERMAIN
   d) INSTALL STORM SEWER
   e) CONSTRUCT CURB AND STREET IMPROVEMENTS
   f) ENSURE FINAL STABILIZATION MEASURES ARE COMPLETE
   g) REMOVE TEMPORARY EROSION CONTROL MEASURES

N

0 50 100
SCALE FEET



EROSION CONTROL BLANKET (TYP)

MULCH TYPE 6 (TYP)

INFILTRATION BASIN CONSTRUCTION EQUIPMENT PROHIBITED (TYP)

BUNKER LAKE BLVD (CSAH 116)

141ST LANE NW

GUARANI ST NW

SEDIMENT CONTROL LOG (TYP)

EROSION CONTROL BLANKET (TYP)

SEE ABOVE

CITY OF ANDOVER MUNICIPAL

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EROSION CONTROL & TURF ESTABLISHMENT PLAN

STAGING AND TRAFFIC CONTROL NOTES

GENERAL INFORMATION

1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES AT ALL TIMES DURING CONSTRUCTION. (NOT SHOWN IN THE PLANS)
2. THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN THE DEVICES IN THIS STAGING AND TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED. IN PLACE SIGNING MUST ALSO BE MAINTAINED OR TEMPORARILY RELOCATED DUE TO CONSTRUCTION ACTIVITIES AS SPECIFIED IN 1710.6 OF MNDOT'S STANDARD SPECIFICATIONS FOR CONSTRUCTION. REGULATORY SIGNS ARE CONSIDERED CRITICAL AND MUST BE TEMPORARILY RELOCATED. (THIS ACTION APPLIES FOR WORK FROM ONE STAGE TO ANOTHER. THIS IS NOT FINAL SIGN PLACEMENT WORK).
3. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
4. ALL DISTANCES ARE APPROXIMATE.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MNMUTCD.
6. PRIOR TO EACH ROADWAY OPENING TO TRAFFIC, THE CONTRACTOR SHALL PLACE THE FINAL SIGNING AND PAVEMENT MARKINGS REQUIRED TO SAFELY OPEN THAT ROAD TO TRAFFIC, UNLESS OTHERWISE IDENTIFIED IN THESE PLANS. THIS WORK SHALL BE COMPLETED ON OR BEFORE THE DATE OF OPENING AS APPROVED BY THE ENGINEER.
7. SIGN PLACEMENTS SHALL NOT OBSTRUCT EXISTING SIGNS.
8. SOME CONSTRUCTION MAY REQUIRE TEMPORARY LANE CLOSURES NOT SHOWN IN THE PLANS. REFER TO THE MNDOT TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL FOR STANDARD LANE CLOSURE SIGNAGE. TRAFFIC CONTROL PLANS AND ITEMS FOR TEMPORARY CLOSURES ARE INCIDENTAL.
9. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OR MANNER OTHER THAN SHOWN IN THIS STAGING AND TRAFFIC CONTROL PLAN, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE COUNTY FOR REVISED PLAN PRIOR TO IMPLEMENTATION.
10. ALL TRAFFIC CONTROL DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE MN MUTCD.
11. THE REMOVAL OF TEMPORARY TRAFFIC CONTROL SHALL BE INCIDENTAL TO TRAFFIC CONTROL.
12. ALL PLAN SHEETS ARE TO SCALE UNLESS OTHERWISE NOTED WITH DISTANCES SPECIFIED.
13. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."
14. THE ITEM "TRAFFIC CONTROL" COVERS ALL DEVICES SHOWN ON THE PLAN SHEETS AND OTHER SETUPS REQUIRED BY THE CONTRACTOR'S OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES NEEDED FOR THE PROJECT. THE ITEM FOR "TRAFFIC CONTROL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, INSTALLING, MAINTAINING, RELOCATING, AND REMOVING TEMPORARY TRAFFIC CONTROL SIGNS, BARRICADES, CHANNELIZERS, FLASHING WARNING LIGHTS, TEMPORARY STRIPING, TEMPORARY RAISED PAVEMENT MARKINGS, PORTABLE CONCRETE BARRIERS, PORTABLE CONCRETE BARRIER DELINEATORS, IMPACT ATTENUATORS, AND ALL OTHER DEVICES REQUIRED.

PAVEMENT MARKING:

1. COVER ANY CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
2. PAINT, POLYMER LANE TAPE AND/OR TRPM'S ARE ACCEPTABLE TEMPORARY STRIPING ALTERNATIVES ACCORDING TO ACTUAL CONDITIONS ENCOUNTERED AS DIRECTED BY THE ENGINEER. GENERALLY, ONLY PAINT WILL BE USED BEFORE MAY 1ST OR WHEN THE OTHER MANUFACTURER'S SPECIFICATIONS CAN NOT BE MET.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND INSTALLATION OF TEMPORARY AND FINAL STRIPING, COUNTY TRAFFIC PERSONNEL MAY ASSIST IN THE SPOTTING OF TRANSITION AREAS, GORES AND TAPERS.

SIGNING

1. ALL TRAFFIC CONTROL DEVICES ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED, OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE INSTALLED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS DETAILED IN THE TEMP SIGN FRAMING AND INSTALLATION DETAILS IN THE PLAN. IF THIS IS NOT POSSIBLE, THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER. THIS SHALL BE INCIDENTAL TO THE TRAFFIC CONTROL BID ITEM.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MNDOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS."
5. BARRICADES SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MNDOT APPROVED PRODUCT LIST FOR BARRICADE SHEETING. NOTE THAT ASTM TYPE VII SHEETING IS NOT ALLOWED ON BARRICADES AFTER JANUARY 1, 2010.
6. THE CONTRACTOR SHALL COORDINATE THE PLACEMENT OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE PLACED PRIOR TO OPENING ALL LANES, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS PLACED.
7. THE CONTRACTOR SHALL COVER, CHANGE, OR REMOVE INPLACE SIGNS, THAT CONFLICT WITH THE TRAFFIC PATTERNS AS DIRECTED BY THE ENGINEER. ALL SIGNS ALTERED BY THE CONTRACTOR SHALL BE RETURNED TO THEIR ORIGINAL STATUS WHEN NORMAL PATTERNS ARE RESTORED. ALL SIGNS COVERED WITH OTHER SIGN PANELS OR BLANKS SHALL HAVE NYLON WASHERS SPACED BETWEEN THE SIGN AND THE PANEL.
8. REFER TO TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL DISTANCE CHARTS FOR EXACT SIGN SPACING BASED ON POSTED SPEED LIMITS.

CONSTRUCTION INFORMATION SIGNING

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN AND WHICH ARE TO BE USED AS FOLLOWS: CONSTRUCTION INFORMATION SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR THE ENGINEER
2. THE CONTRACTOR SHALL PLACE "ROAD WORK AHEAD" SIGNS ON ALL ROADS THAT INTERSECT C.S.A.H. 116 WITHIN 1 MILE OF CONSTRUCTION AREA. SIGN PLACEMENT SHALL CONFORM TO THE MNMUTCD. ALL OF THESE SIGNS ARE NOT SHOWN IN THE PLAN.
3. PLACE "END ROAD WORK" SIGNS PER PLAN. THESE SIGNS SHALL BE PLACED AT THE BEGINNING OF CONSTRUCTION AND SHOULD STAY INPLACE UNTIL ALL WORK HAS BEEN COMPLETED.
4. THE CONTRACTOR SHALL PROVIDE FOUR (4) G20-X2 SIGNS FOR THE DURATION OF THE PROJECT. THE SIGNS SHOULD BE PLACED AT THE FOLLOWING LOCATIONS UNLESS OTHERWISE DIRECTED BY THE ENGINEER, ONE WEEK PRIOR TO PROJECT START:
   - -NORTHBOUND C.S.A.H. 7
   - -SOUTHBOUND C.S.A.H. 7
   - -EASTBOUND C.S.A.H. 116, WEST OF C.S.A.H. 7
   - -WESTBOUND C.S.A.H. 116

STAGING NOTES

1. ALL SIGNING, STRIPING AND TRAFFIC CONTROL DEVICES FOR EACH STAGE SHALL BE APPROVED BY THE ENGINEER PRIOR TO STARTING CONSTRUCTION.
2. ANY WORK AREAS NOT SHOWN IN THE STAGING AND TRAFFIC CONTROL PLAN SHALL BE COMPLETED USING SHORT TERM CLOSURE OF THE RIGHT OR LEFT LANE. THE CONTRACTOR SHALL FOLLOW LAYOUTS IN THE MNDOT TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL FOR STANDARD RIGHT LANE AND LEFT LANE CLOSURE SIGNAGE. TWO LANES OF TRAFFIC FOR BOTH NORTH AND SOUTHBOUND MUST BE MAINTAINED FOR BOTH A.M. AND P.M. PEAK HOURS, MONDAY THROUGH FRIDAY, 5 A.M. TO 9 A.M. AND 3 P.M. TO 7 P.M.
3. CONTRACTOR TO MAINTAIN 11' WIDTH TRAVEL LANES.
4. ALL WORK ASSOCIATED WITH THE TRANSITIONS BETWEEN STAGES SHALL BE INCIDENTAL TO THE TRAFFIC CONTROL BID ITEM.
5. ONCE WORK BEGINS WITHIN ANOKA COUNTY ROW, SUBSTANTIAL COMPLETION SHALL BE REACHED WITHIN 4 WEEKS.

STAGE 1:

1. STAGE 1 WORK CONSISTS OF CONSTRUCTION OF LEFT TURN LANES (MEDIAN WORK) ON C.S.AH. 116
2. CONTRACTOR IS REQUIRED TO MAINTAIN TWO LANES OF TRAVEL FOR EACH DIRECTION OF C.S.A.H. 116 UNLESS APPROVED BY ANOKA COUNTY.

STAGE 2:

1. STAGE 2 WORK CONSISTS OF CONSTRUCTION OF THE EASTBOUND RIGHT TURN LANE ON C.S.A.H. 116.
2. CONTRACTOR IS REQUIRED TO MAINTAIN TWO LANES OF TRAVEL FOR EACH DIRECTION OF C.S.A.H. 116 EXCEPT UNDER STAGE 2B
3. THE WESTBOUND RIGHT TURN LANE ON C.S.A.H. 116 WILL BE CONSTRUCTED AT A FUTURE DATE.

DAILY TRAFFIC CONTROL STAGING NOTES:

1) DAILY INTERIOR LANE CLOSURES MAY OCCUR FOR THE DURATION OF THE PROJECT.
2) AFTER SEPTEMBER 7, 2021 DAILY INTERIOR LANE CLOSURES SHALL BE LIMITED TO 8 AM - 2 PM.
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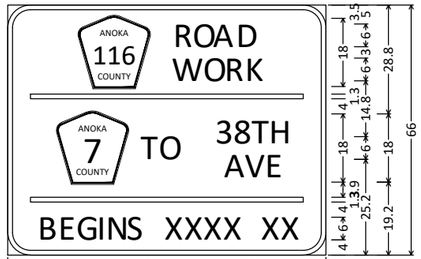


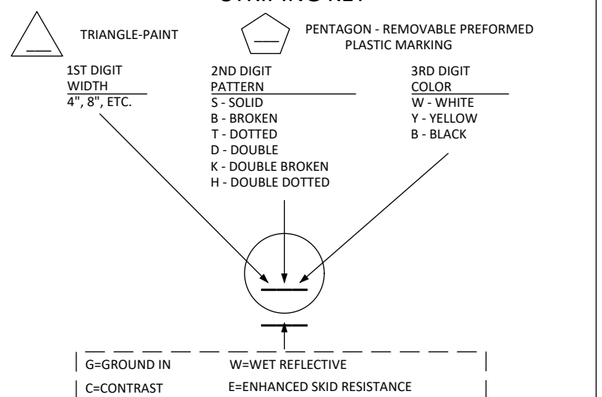
6.0" Radius, 1.3" Border, Black on Orange;
Rounded Rectangle 1.0" Radius White; [ROAD] D;
[WORK] D;
Rounded Rectangle 1.0" Radius White; [TO] D;
Rounded Rectangle 1.0" Radius White;
[BEGINS] D; [XXXX XX] D;
Table of letter and object lefts.

□ 19.2	R 43.7	O 48.8	A 54.2	D 60.3
W 43.2	O 49.6	R 55.2	K 60.7	
— 6.0				
□ 13.5	T 37.5	O 42.3	□ 52.5	
— 6.0				
B 7.9	E 13.4	G 18.1	I 23.6	N 25.9	S 31.4
X 41.4	X 46.5	X 51.7	X 56.9	X 66.9	X 72.1

TRAFFIC CONTROL SYMBOLS

- ● RETROREFLECTIVE DRUM, TYPE 1 OR TYPE II BARRICADE, VERTICAL PANEL, SPACING IN ACCORDANCE WITH MNMUTCD
- ⊢ SIGN POST (SHOWN FACING LEFT)
- ⊢ TYPE III BARRICADE
- ▨ CONSTRUCTION DURING PHASE

STRIPING KEY



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DESIGNED ZFL | DRAWN ZFL | CHECKED KPK

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Kevin P. Kielb P.E. REG. NO. 23211

DATE 7/23/2021

BOLTON & MENK — CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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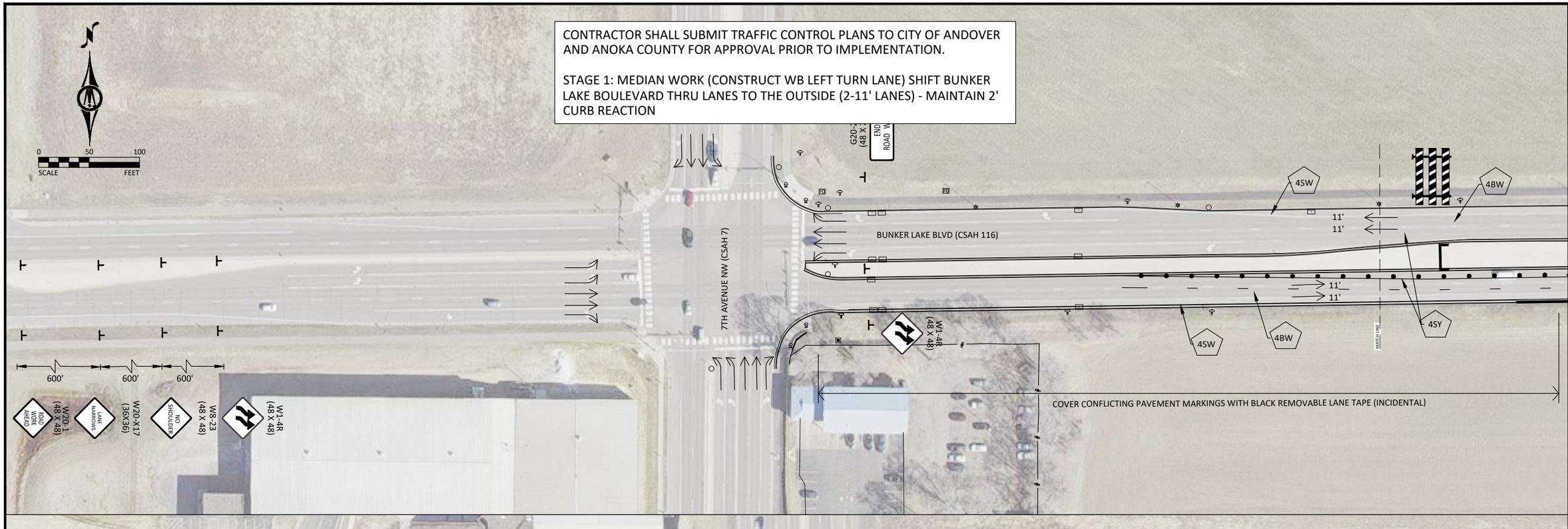
CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLANS TO CITY OF ANDOVER AND ANOKA COUNTY FOR APPROVAL PRIOR TO IMPLEMENTATION.

STAGE 1: MEDIAN WORK (CONSTRUCT WB LEFT TURN LANE) SHIFT BUNKER LAKE BOULEVARD THRU LANES TO THE OUTSIDE (2-11' LANES) - MAINTAIN 2' CURB REACTION



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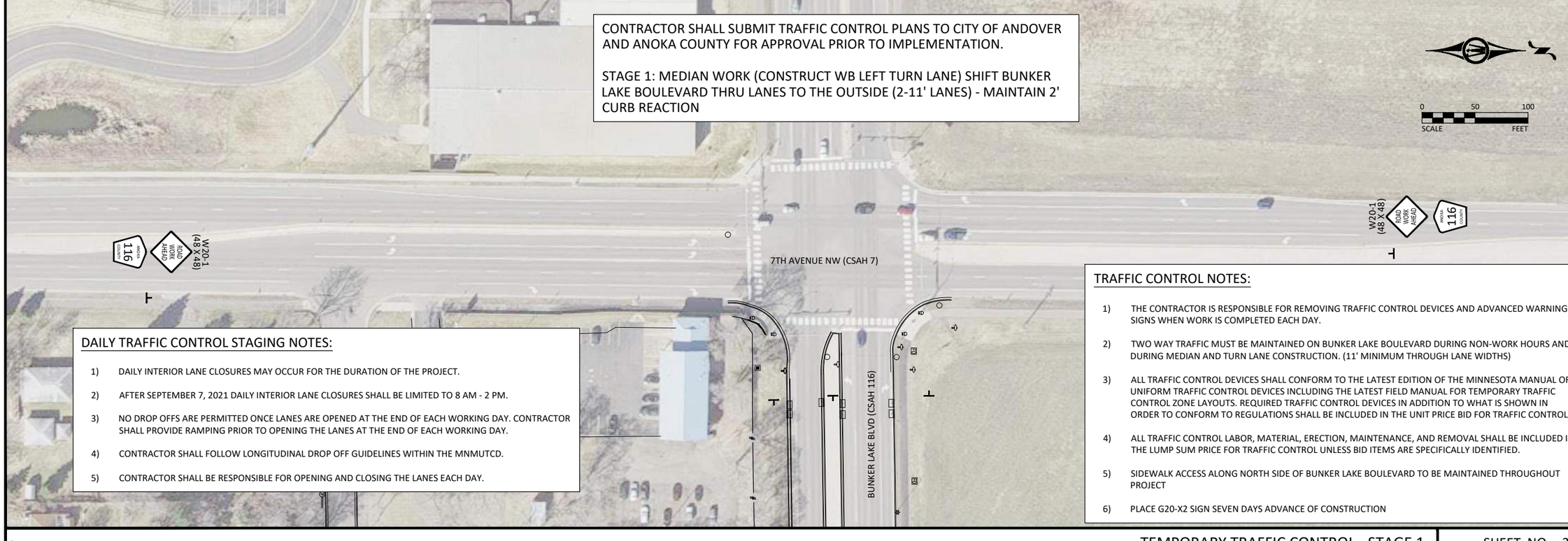

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TEMPORARY TRAFFIC CONTROL - STAGE 1

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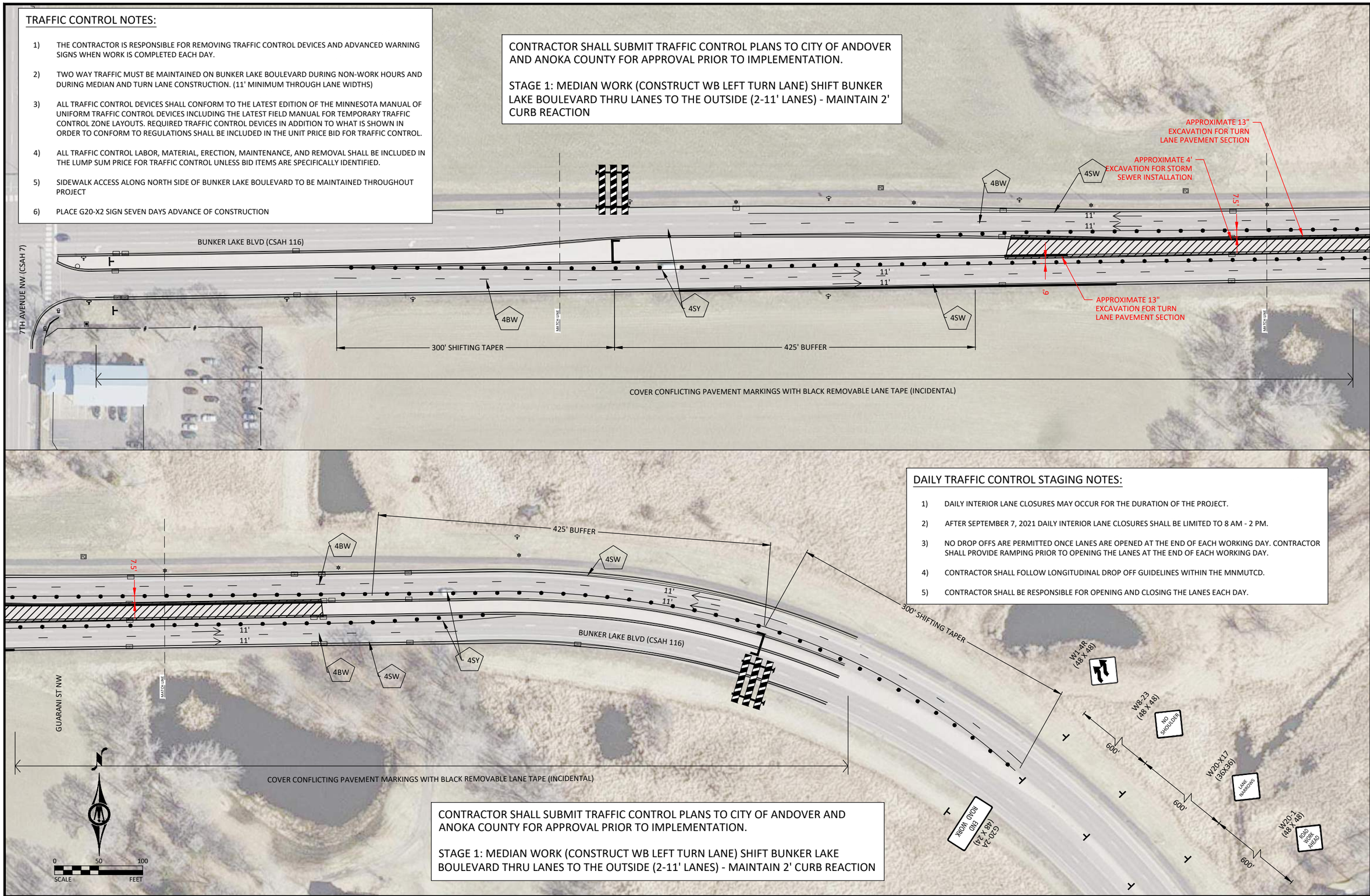

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TEMPORARY TRAFFIC CONTROL - STAGE 1

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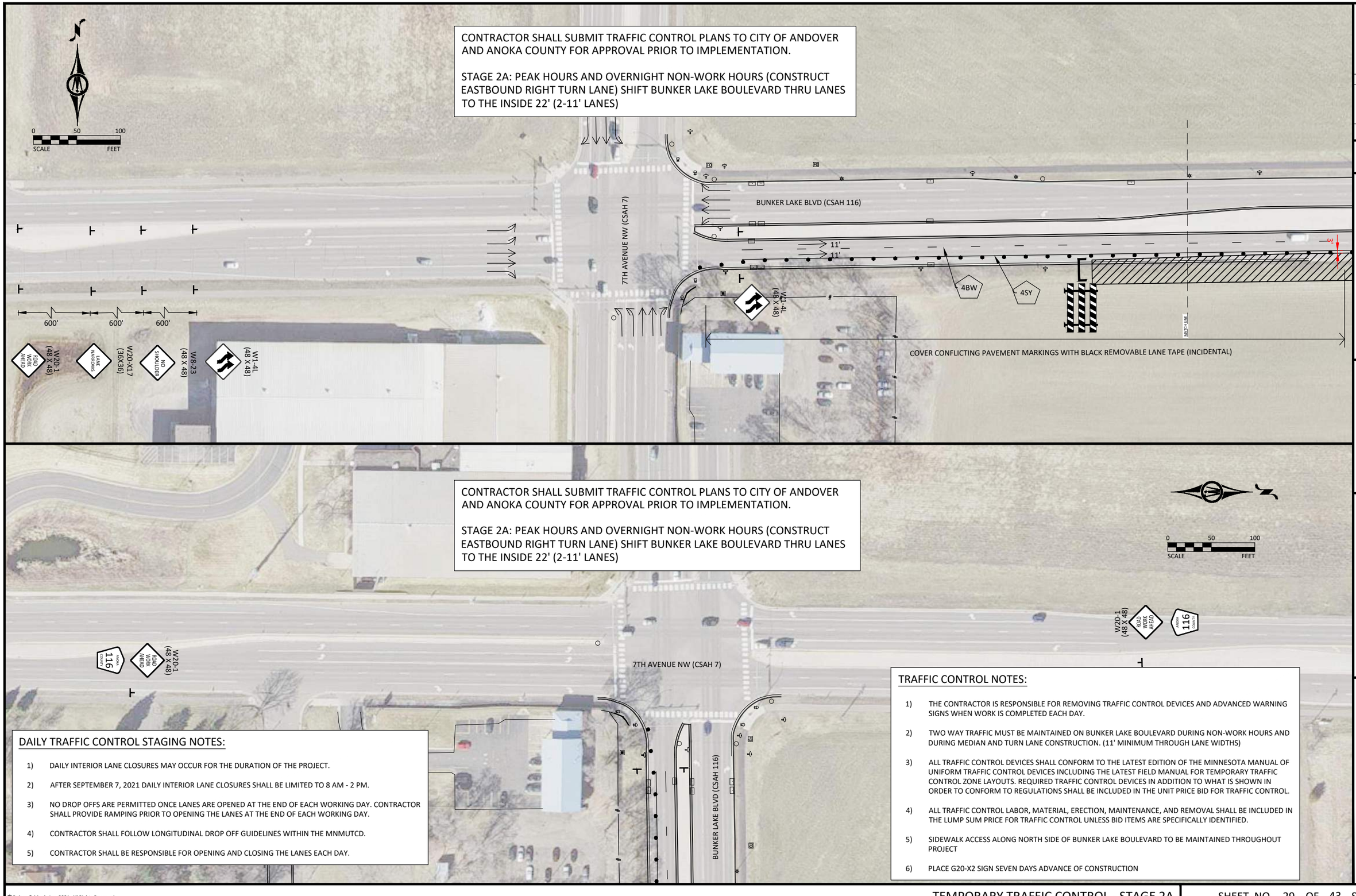
STAGE 2A: PEAK HOURS AND OVERNIGHT NON-WORK HOURS (CONSTRUCT EASTBOUND RIGHT TURN LANE) SHIFT BUNKER LAKE BOULEVARD THRU LANES TO THE INSIDE 22' (2-11' LANES)



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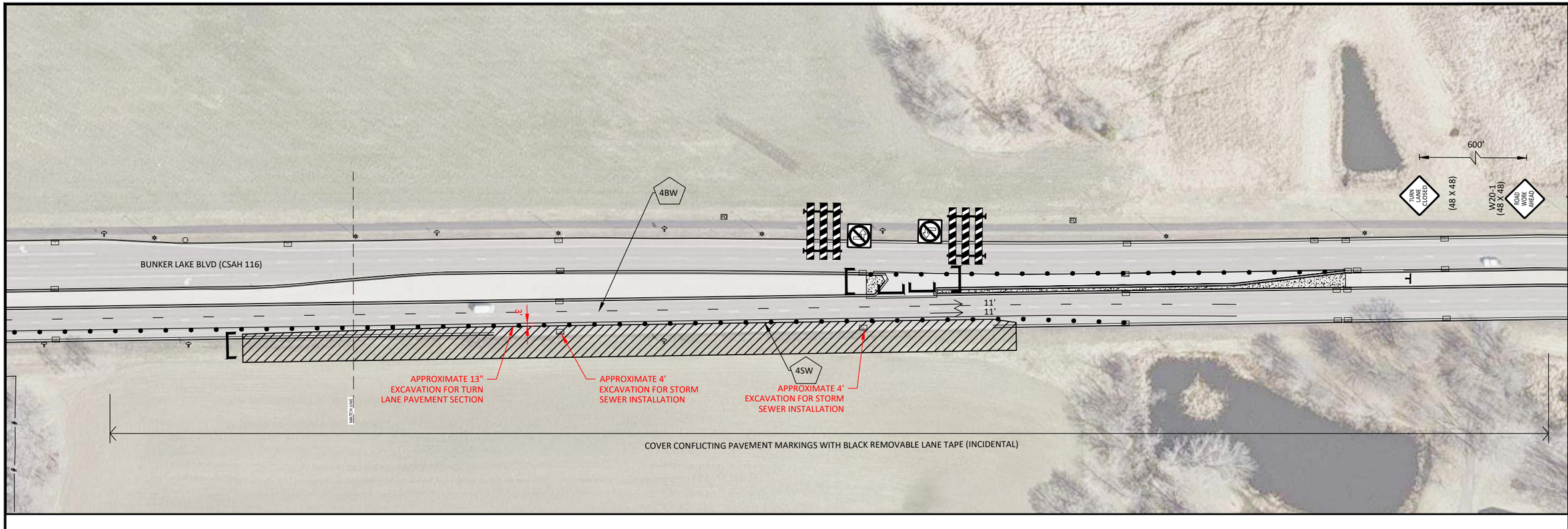
TEMPORARY TRAFFIC CONTROL - STAGE 2A



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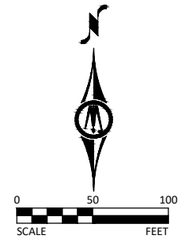

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STAGE 2B: NON-PEAK WORK HOURS (CONSTRUCT EASTBOUND RIGHT TURN LANE) RIGHT LANE CLOSURE AS NEEDED

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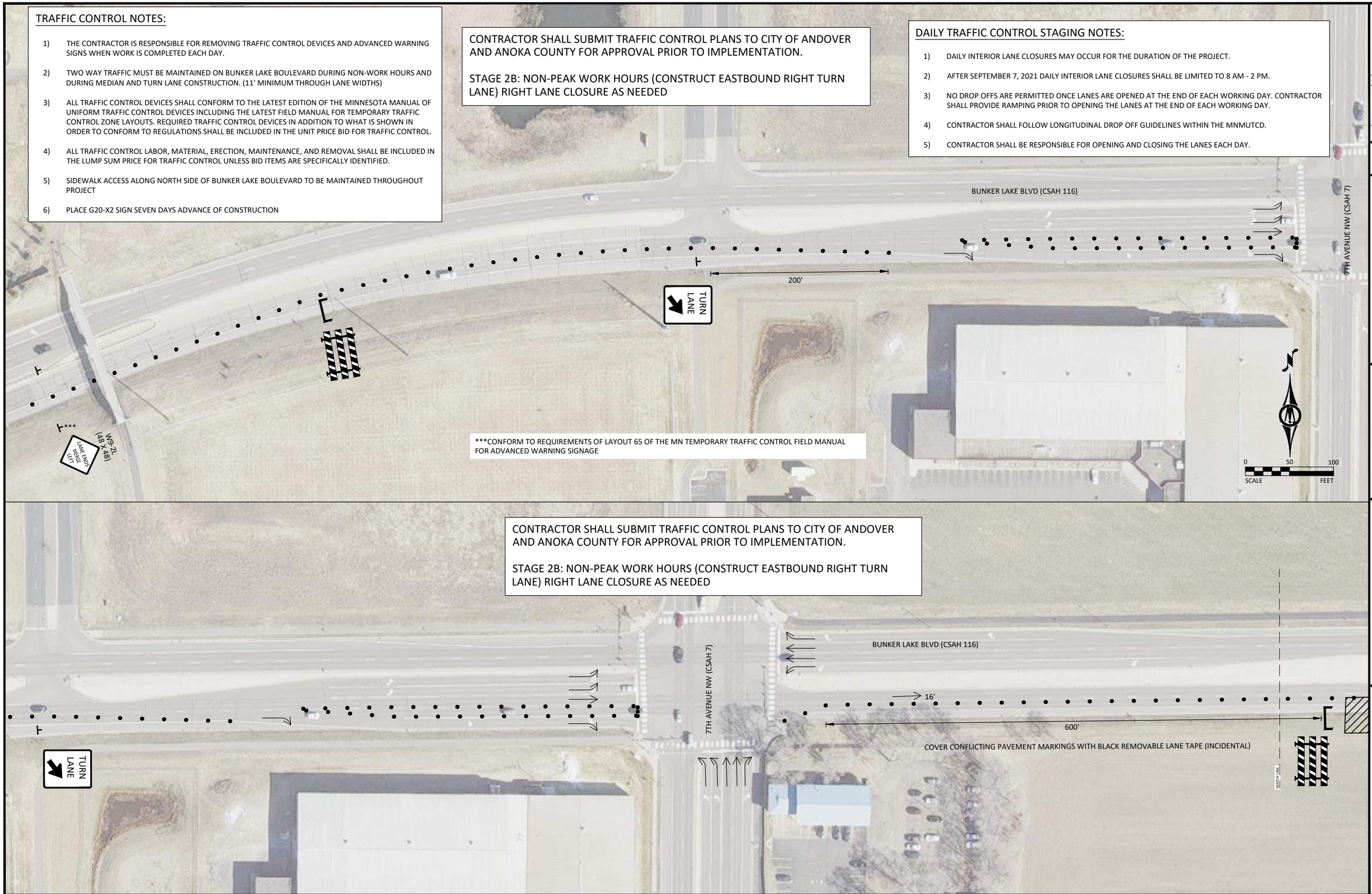

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TEMPORARY TRAFFIC CONTROL - STAGE 2B

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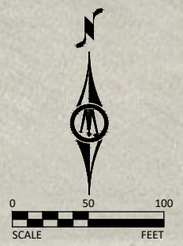
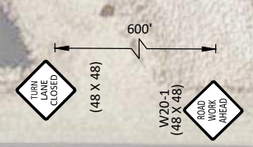
STAGE 2B: NON-PEAK WORK HOURS (CONSTRUCT EASTBOUND RIGHT TURN LANE)
RIGHT LANE CLOSURE AS NEEDED



BUNKER LAKE BLVD (CSAH 116)



16'

16'

COVER CONFLICTING PAVEMENT MARKINGS WITH BLACK REMOVABLE LANE TAPE (INCIDENTAL)

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STAGE 2B: NON-PEAK WORK HOURS (CONSTRUCT EASTBOUND RIGHT TURN LANE)
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7TH AVENUE NW (CSAH 7)

BUNKER LAKE BLVD (CSAH 116)

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TEMPORARY TRAFFIC CONTROL - STAGE 2B

REMOVAL NOTES

1. CONTRACTOR SHALL CALL GOPHER STATE ONE CALL. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
3. CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER PRIOR TO SAWCUTTING, INCLUDING TREE REMOVALS.
4. COORDINATE COUNTY ROAD SIGN REMOVALS WITH ANOKA COUNTY
5. ONCE CONSTRUCTION BEGINS WITHIN ANOKA COUNTY ROW, SUBSTANTIAL COMPLETION SHALL BE REACHED WITHIN 4 WEEKS.

Ⓐ THRU LANE PAVEMENT IN EACH DIRECTION SHALL REMAIN INPLACE, MINIMUM WIDTH FROM CENTERLINE TO SAWCUT = 12'

HORZ. SCALE 0 25 50 FEET

7TH AVENUE NW (CSAH 7)

BUNKER LAKE BLVD (CSAH 116)

R=875.28 I=871.28 (S-E-N)
R=875.30 I=871.90 (W)
R=876.18 I=872.38 (N-S)
R=875.54 I=871.84 (S) I=869.94 (E-W)
R=876.77 I=869.17 (E-W)
21" RCP
15" RCP
15" RCP
R=875.49 I=871.49 (N-S)
R=874.70 I=871.5 (E-N)
R=874.70 I=871.70 (W)
R=875.67 I=872.27 (N)
30+00
31+00
32+00

SALVAGE COUNTY ROAD SIGN, BY COUNTY (TYP)

SALVAGE SPEED LIMIT SIGN

REMOVE FOG LINE REQUIRED FOR TURN LANE CONSTRUCTION

MATCH LINE 32+00

LEGEND

- REMOVE CURB & GUTTER
- SAWCUT PAVEMENT (FULL DEPTH)
- REMOVE CASTING / TOP SLAP
- REMOVE CATCH BASIN
- REMOVE STORM SEWER
- SALVAGE SIGN (BY ANOKA COUNTY)
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE PAVEMENT

R=875.59 I=871.59 (S) I=868.29 (E-W)
24" RCP
R=874.15 I=867.35(E)
24" RCP
R=873.61
R=872.80 I=868.80(E)
32+00
33+00
34+00
35+00
36+00
37+00
38+00
39+00

SAWCUT BITUMINOUS PAVEMENT, FULL DEPTH (TYP)

12' Ⓐ R=873.58 I=869.38 (S-N)

R=874.88 I=870.28 (S) I=870.18 (N)

R=876.24 I=871.94 (S-N)
15" RCP
R=876.40 I=872.10 (S-N)
R=875.60 I=872.30 (N)
R=874.12 I=870.72 (N)
R=873.68 I=869.38 (S-N)
R=872.92 I=869.52 (N)

12' Ⓐ

SAWCUT BITUMINOUS PAVEMENT, FULL DEPTH (TYP)

REMOVE CATCH BASIN

SALVAGE CURVE WARNING SIGN

ANOKA COUNTY INTERCONNECTED SIGNAL SYSTEM COORDINATE RELOCATION/PROTECTION WITH ANOKA COUNTY

REMOVE CATCH BASIN

GUARANI ST NW

REMOVE HYDRANT AND LEAD, SALVAGE TO CITY OF ANDOVER PUBLIC WORKS

MATCH LINE 39+00

NO.	DATE	BY	DESCRIPTION OF REVISIONS
2	7/23/21	ZL	TURN LANES REVISED

DESIGNED ZFL
DRAWN ZFL
CHECKED KPK

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Kevin P. Kielb P.E. REG. NO. 23211

DATE 7/23/2021

BOLTON & MENK
CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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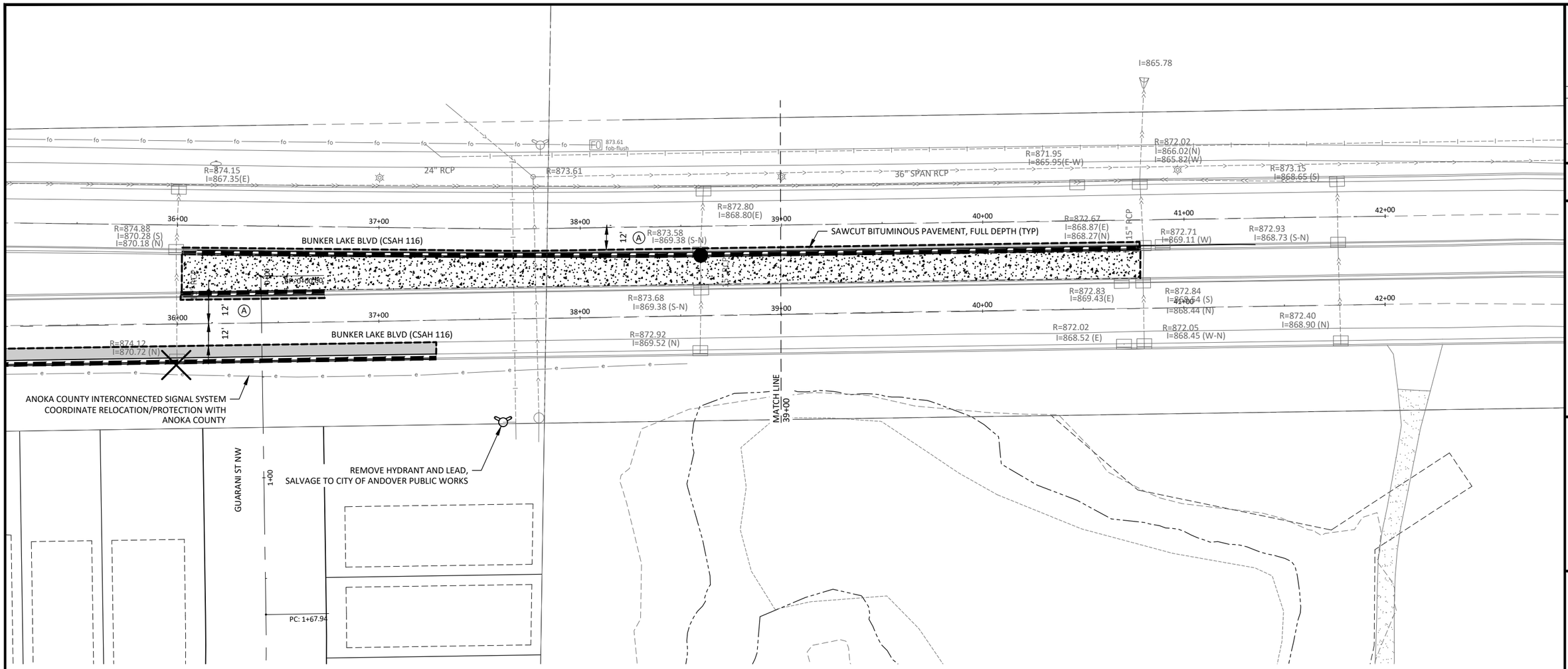
BUNKER LAKE BOULEVARD REMOVAL PLAN



REMOVAL NOTES

1. CONTRACTOR SHALL CALL GOPHER STATE ONE CALL. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
3. CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER PRIOR TO SAWCUTTING, INCLUDING TREE REMOVALS.

Ⓐ THRU LANE PAVEMENT IN EACH DIRECTION SHALL REMAIN INPLACE, WIDTH FROM CENTERLINE TO SAWCUT = 12'

LEGEND

- REMOVE CURB & GUTTER
- SAWCUT PAVEMENT (FULL DEPTH)
- REMOVE CASTING / TOP SLAP
- REMOVE CATCH BASIN
- REMOVE STORM SEWER
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE PAVEMENT

HORZ. SCALE 0 25 50 FEET

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ANDOVER, MINNESOTA

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BUNKER LAKE BOULEVARD REMOVAL PLAN

SCALE 0 25 50 FEET

BUNKER LAKE BLVD (CSAH 116)

CONTRACTOR SHALL INSTALL TELSPAR INSERTS FOR MEDIAN SIGNS (INCIDENTAL) (SEE DETAILS) COORDINATE INSTALLATION WITH ANOKA COUNTY

ANOKA COUNTY INTERCONNECTED SIGNAL SYSTEM COORDINATE RELOCATION/PROTECTION WITH ANOKA COUNTY

INFILTRATION BASIN CONSTRUCTION EQUIPMENT PROHIBITED

GUARANI ST NW

13' X 300'

12.5' X 295'

1:15 1:10

0.50% 1.00% 0.46% 0.40% 1.50% 1.90%

304 303 302 301-A 305-B 305 305-A 204 203 202 201 308 307 312 311 311-A 310 318 319 205

875.41 875.29 875.48 874.68 876.55 876.09 874.59 874.11 874.94 874.99 874.27 874.04 873.32 872.96

31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00

12' 14' 8'

1664

CONTRACTOR SHALL INSTALL TELSPAR INSERTS FOR MEDIAN SIGNS (INCIDENTAL) (SEE DETAILS) COORDINATE INSTALLATION WITH ANOKA COUNTY

LEGEND

2.0% SURFACE FLOW DIRECTION

XXX.XX SURFACE SPOT ELEVATION

NOTES:

1. ONCE CONSTRUCTION BEGINS WITHIN ANOKA COUNTY ROW, SUBSTANTIAL COMPLETION SHALL BE REACHED WITHIN 4 WEEKS.
2. MATCH PROPOSED GUTTER WITH EXISTING GUTTER
3. STREET RADII AND RADIUS POINTS ARE TO BACK OF CURB
4. SPOT ELEVATIONS ARE TO TOP BACK OF CURB UNLESS OTHERWISE NOTED

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ANDOVER, MINNESOTA

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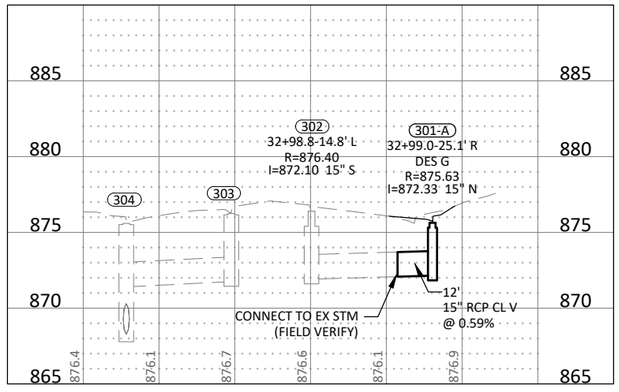

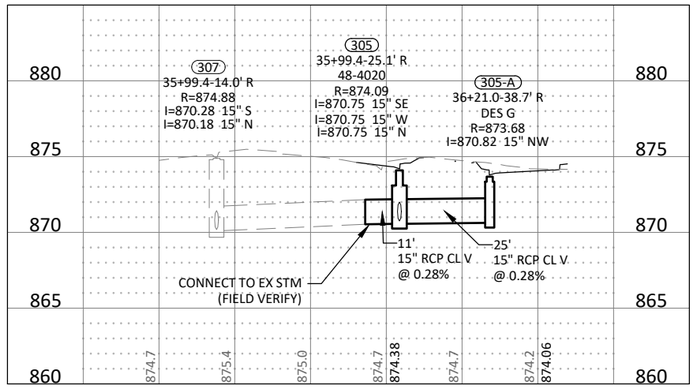

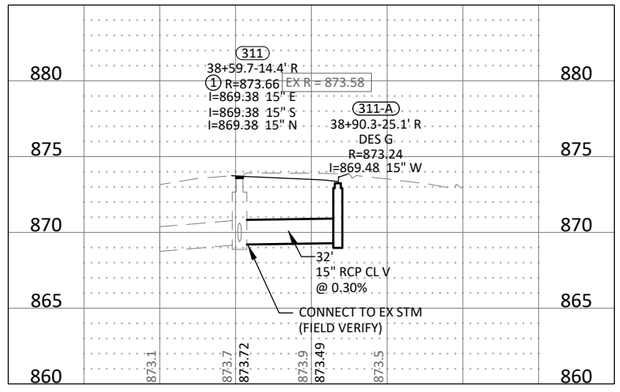

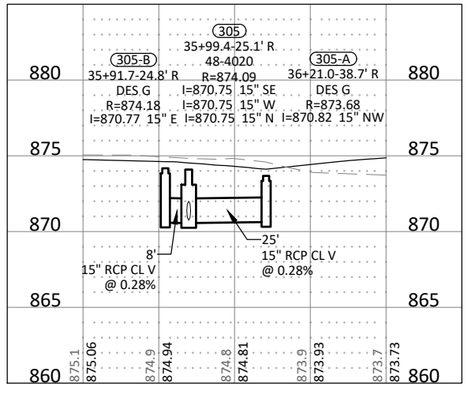

NOTES

1. REMOVE AND REPLACE CATCH BASIN CASTING WITH A-7 MANHOLE CASTING ASSEMBLY AND ADJUST CASTING.

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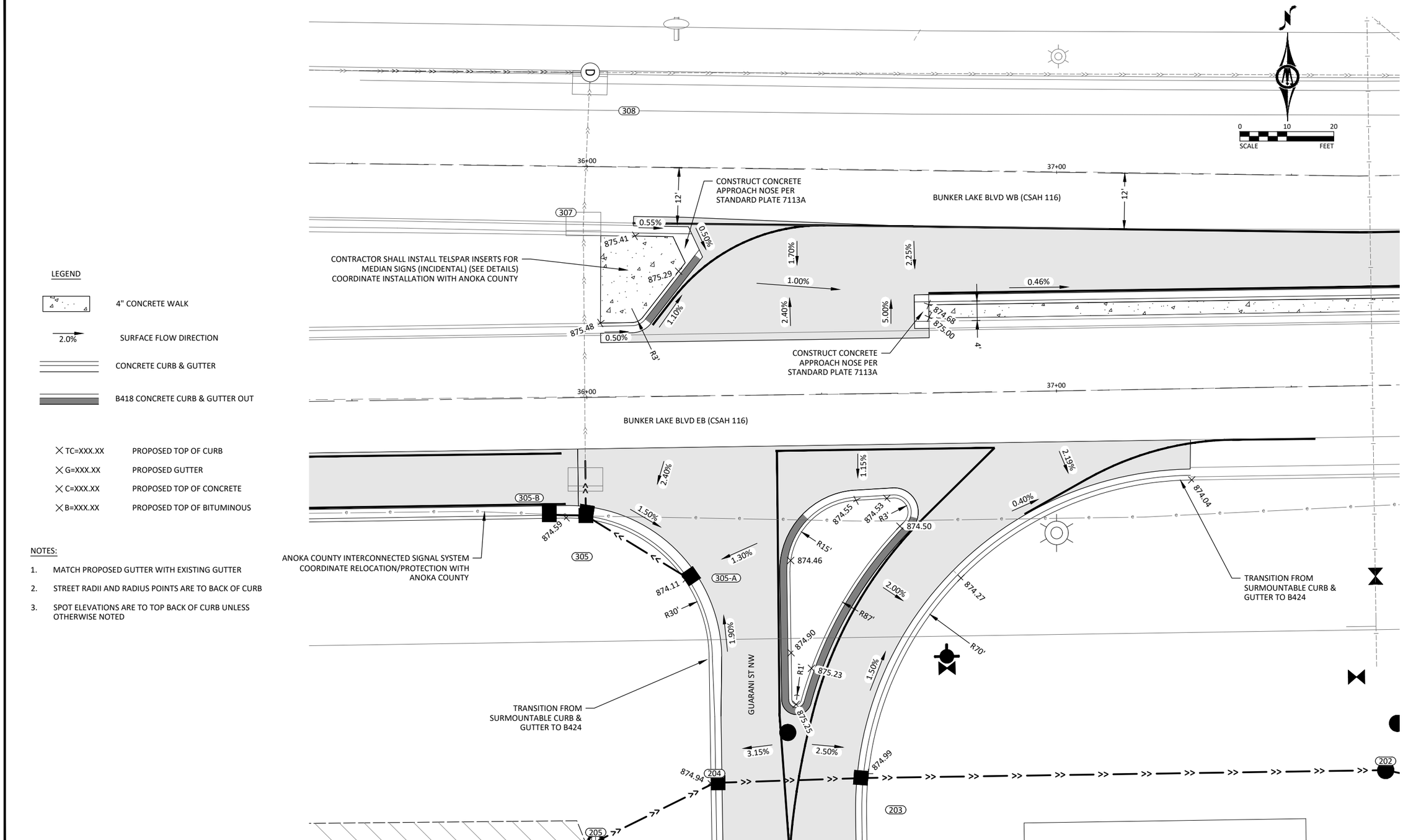

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LEGEND

REINSTALL SIGN

FURNISH & INSTALL NEW SIGN

1ST DIGIT(S) WIDTH	2ND DIGIT PATTERN	3RD DIGIT COLOR
4", 8", ETC.	S - SOLID B - BROKEN (10' STRIPE, 40' GAP) D - DOTTED/DOUBLE	W - WHITE Y - YELLOW B - BLACK

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

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING TRAFFIC CONTROL SIGNS AND DEVICES COMPLY WITH THE REQUIREMENTS OF THE MNMUTCD AT ALL TIMES DURING CONSTRUCTION
2. ANOKA COUNTY SHALL FURNISH & INSTALL ALL PERMANENT BUNKER LAKE BOULEVARD SIGNS AND REINSTALL EXISTING SIGNS. EXISTING SIGNS SHALL BE MAINTAINED WITH TEMPORARY SUPPORTS DURING CONSTRUCTION.
3. CITY OF ANDOVER SHALL FURNISH & INSTALL PERMANENT SIGNS WITHIN ANDOVER ROW.
4. COORDINATE CONCRETE MEDIAN CONSTRUCTION AND MEDIAN SIGN INSTALLATION WITH ANOKA COUNTY
5. THE CONTRACTOR SHALL PROVIDE 2 WEEKS NOTICE TO ANOKA COUNTY PRIOR TO THE PERMANENT SIGNS BEING REQUIRED TO BE INSTALLED/REINSTALLED
6. ONCE WORK BEGINS WITHIN ANOKA COUNTY ROW, SUBSTANTIAL COMPLETION SHALL BE REACHED WITHIN 4 WEEKS

7TH AVENUE NW (CSAH 7)

BUNKER LAKE BLVD (CSAH 116)

REINSTALL COUNTY ROAD SIGN

REINSTALL SPEED LIMIT SIGN

MATCH LINE 32+00

30+00 31+00 32+00

HORZ. SCALE 0 25 50 FEET

CONTRACTOR SHALL INSTALL TELSPAR INSERTS FOR MEDIAN SIGNS (INCIDENTAL) (SEE DETAILS) COORDINATE INSTALLATION WITH ANOKA COUNTY

4SW 4SY

12.5' X 295'

13' X 300'

1:15

32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00

8' 12' 14'

R3-X1 (30 X 30) RIGHT TURN LANE

REINSTALL CURVE WARNING SIGN

GUARANI ST NW

R4-7 (24 X 30)

OM1-1 (18 X 18)

R6-1R (36 X 12) ONE WAY

R1-1 (30 X 30) STOP

R3-2 (24 X 24)

MATCH LINE 39+00

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CONTRACTOR SHALL INSTALL TELSPAR INSERTS FOR MEDIAN SIGNS (INCIDENTAL) (SEE DETAILS) COORDINATE INSTALLATION WITH ANOKA COUNTY

873.61 fob-flush

12' 14' 12' 12' 8'

36+00 37+00 38+00 39+00 40+00 41+00 42+00

4SY

4SW

12.5' X 295'

1:10

LEFT TURN LANE

R3-X2 (30 X 30)

BUNKER LAKE BLVD (CSAH 116)

13' X 300'

MATCH LINE 39+00

GUARANI ST NW

LEGEND

REINSTALL SIGN

FURNISH & INSTALL NEW SIGN

1ST DIGIT(S) WIDTH
4", 8", ETC.

2ND DIGIT PATTERN
S - SOLID
B - BROKEN (10' STRIPE, 40' GAP)
D - DOTTED/DOUBLE

3RD DIGIT COLOR
W - WHITE
Y - YELLOW
B - BLACK

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

CONTRACTOR SHALL INSTALL TELSPAR INSERTS FOR MEDIAN SIGNS (INCIDENTAL) (SEE DETAILS) COORDINATE INSTALLATION WITH ANOKA COUNTY

R3-4 (24 X 24)

R4-7 (24 X 30)

OM1-1 (18 X 18)

R5-1 (30 X 30) DO NOT ENTER

R6-1R (36 X 12) ONE WAY

OM1-1 (18 X 18)

R4-7 (24 X 30)

OM1-1 (18 X 18)

R4-7 (24 X 30)

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING TRAFFIC CONTROL SIGNS AND DEVICES COMPLY WITH THE REQUIREMENTS OF THE MNMUTCD AT ALL TIMES DURING CONSTRUCTION
2. ANOKA COUNTY SHALL FURNISH & INSTALL ALL PERMANENT BUNKER LAKE BOULEVARD SIGNS AND REINSTALL EXISTING SIGNS. EXISTING SIGNS SHALL BE MAINTAINED WITH TEMPORARY SUPPORTS DURING CONSTRUCTION.
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HORZ. SCALE 0 25 50 FEET

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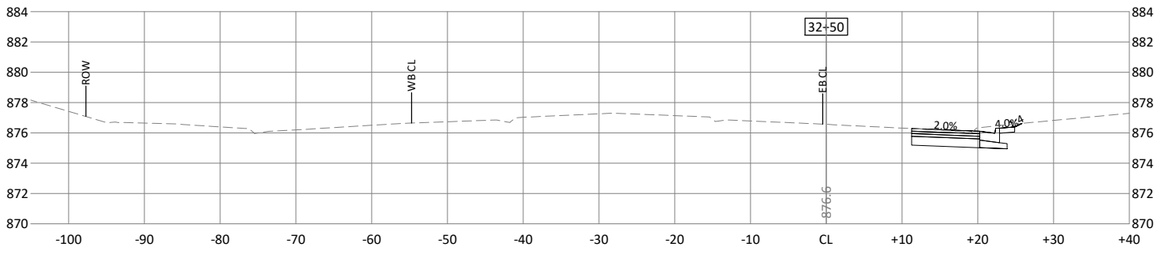
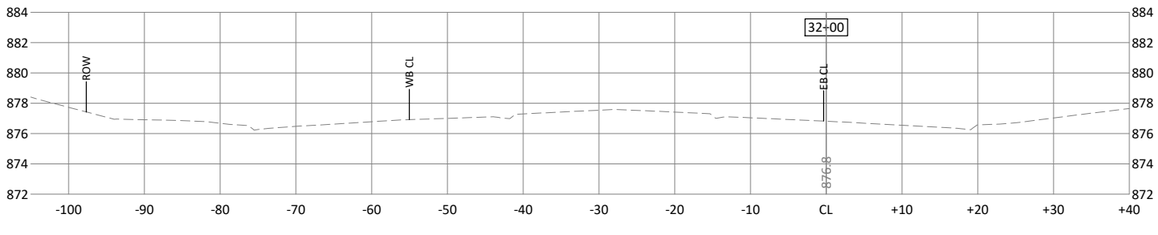
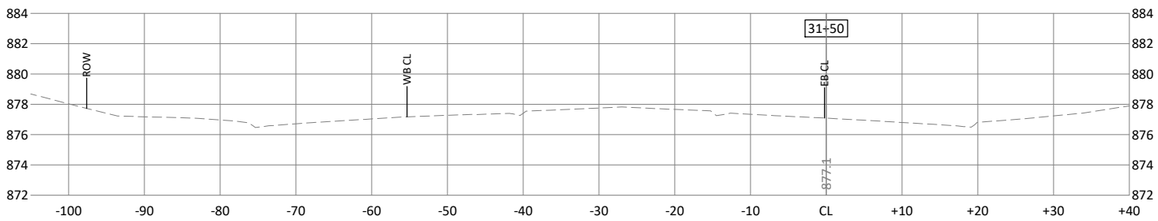
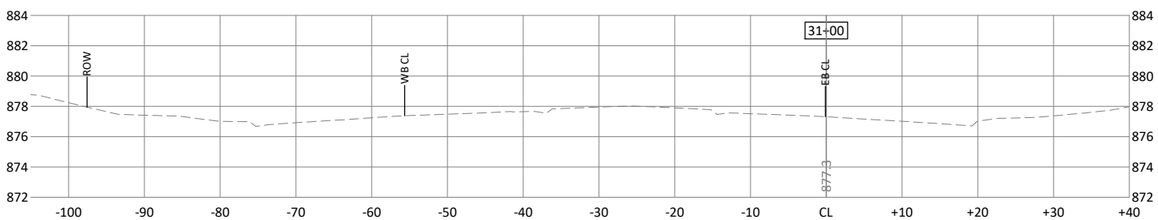
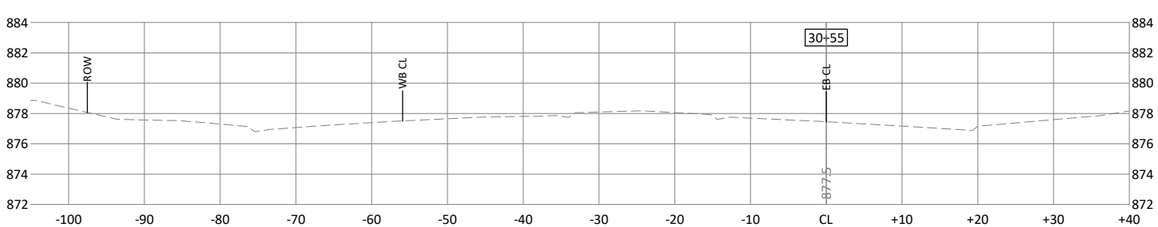
ANDOVER, MINNESOTA

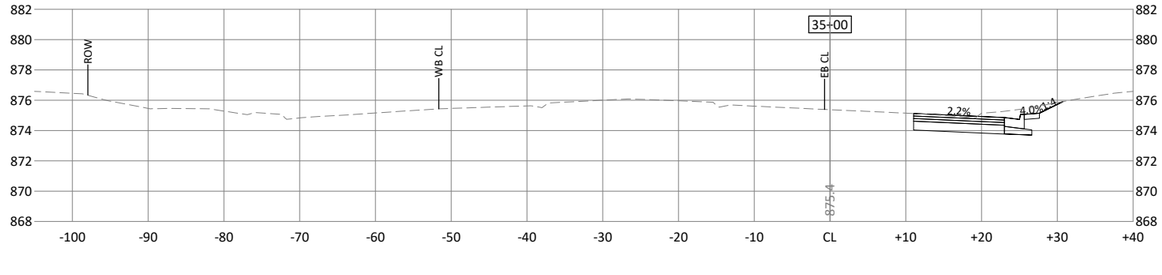


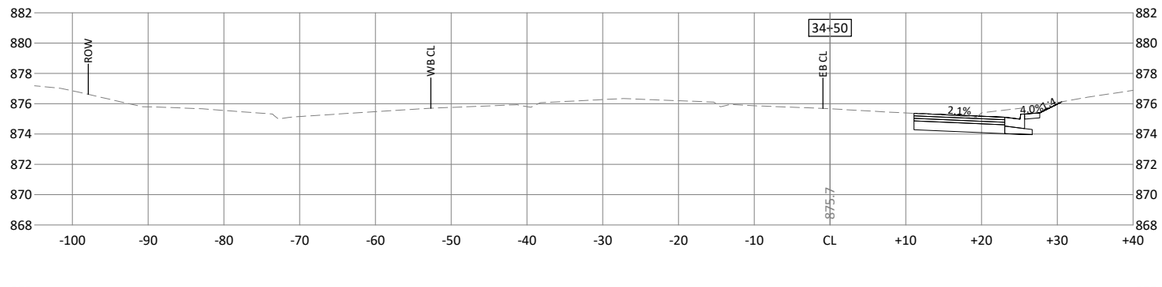


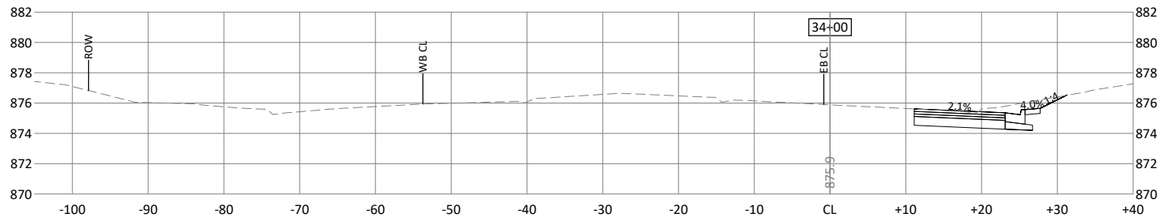


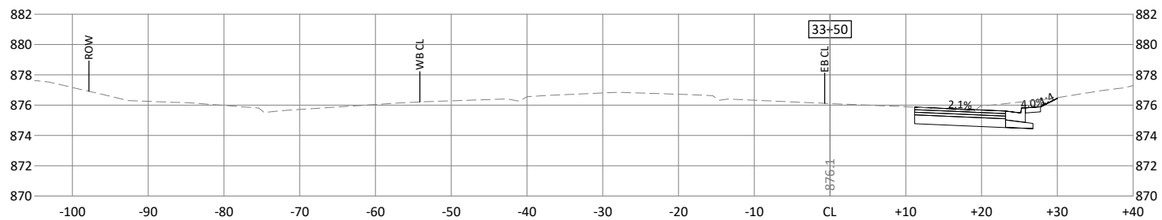


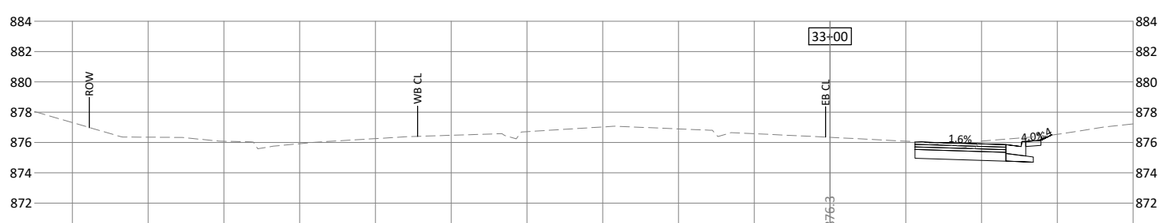












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DRAWN ZFL
CHECKED KPK

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ANDOVER, MINNESOTA

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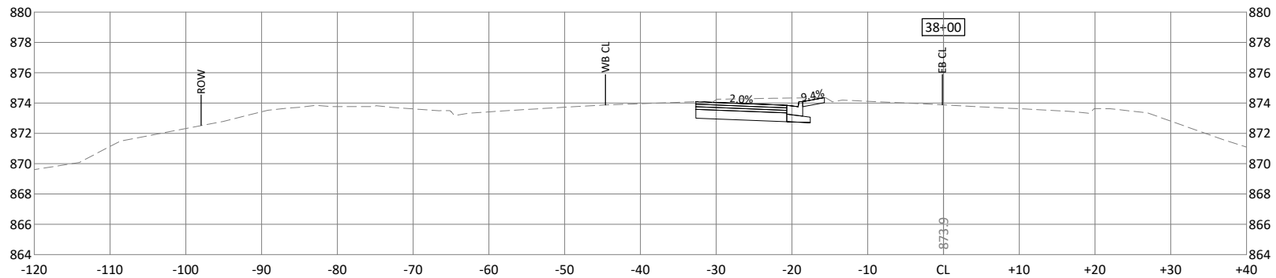
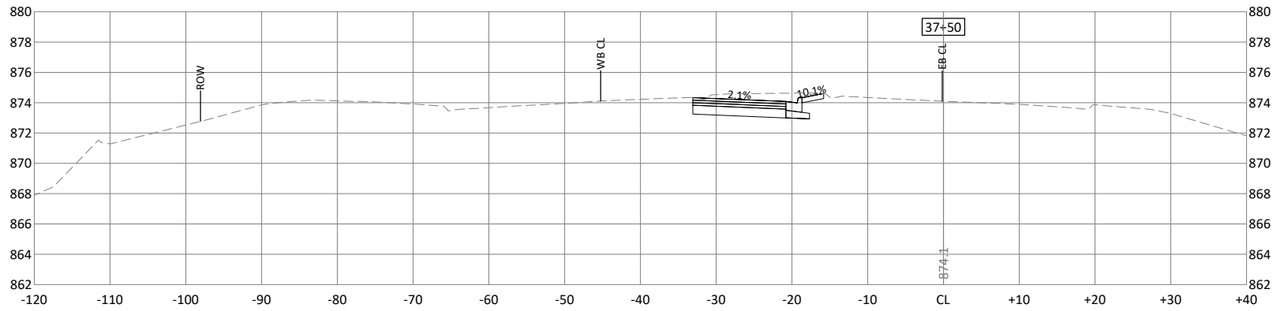
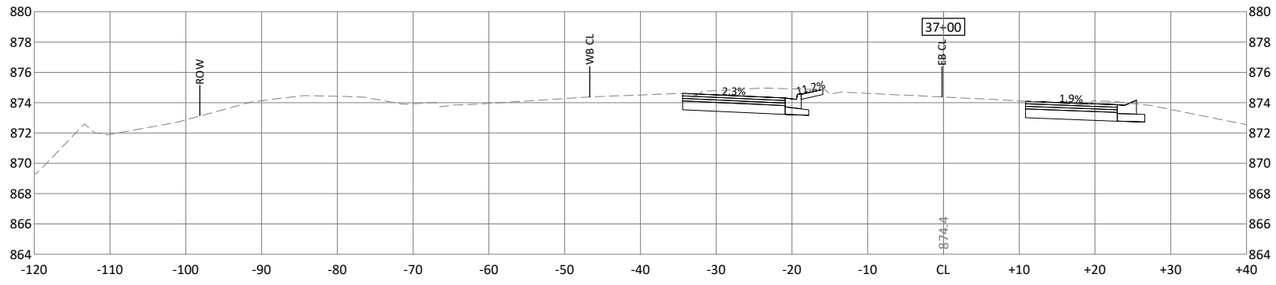
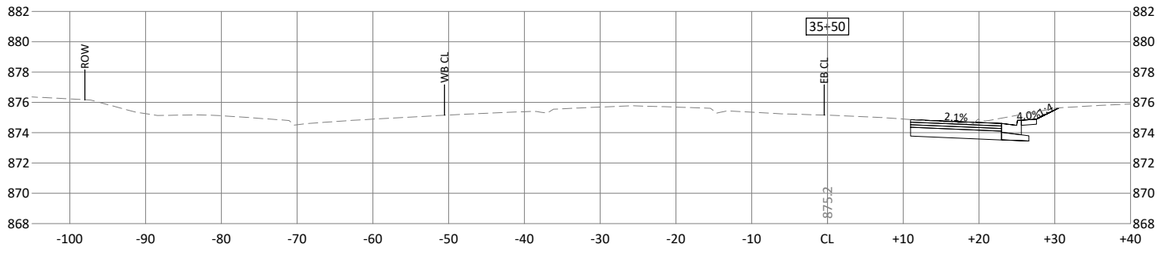
BUNKER LAKE BOULEVARD CROSS SECTIONS









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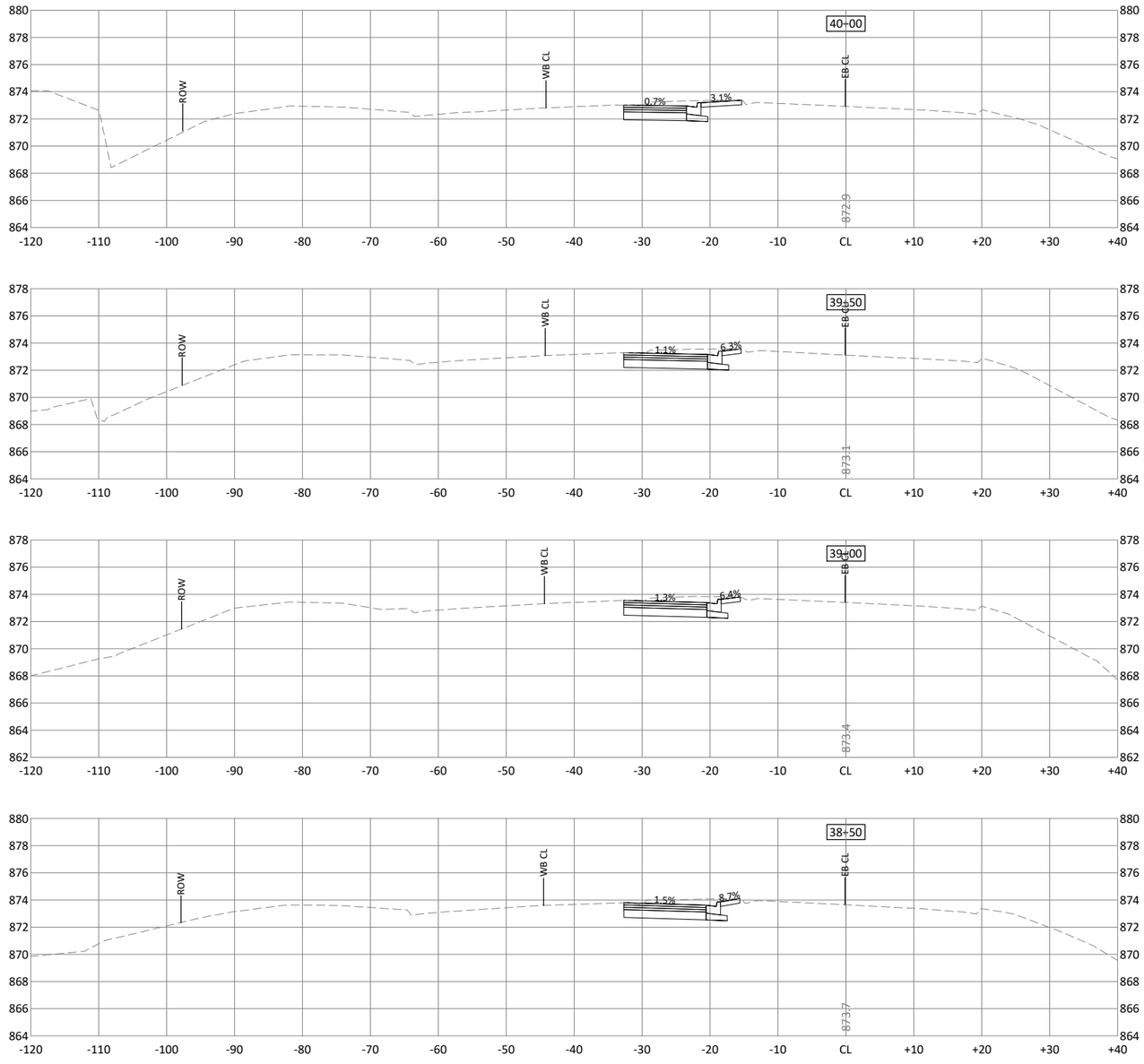
BUNKER LAKE BOULEVARD CROSS SECTIONS



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DRAWN				
ZFL				
CHECKED				
KPK				

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

Kevin P. Kielb P.E.

DATE 7/23/2021 REG. NO. 23211

BOLTON & MENK

CLIENT PROJ. NO. 20-42 / 20-42a

CITY OF ANDOVER

CITY PROJECT NO. 20-42 / 20-42a
ANDOVER VILLAGE
ANDOVER, MINNESOTA

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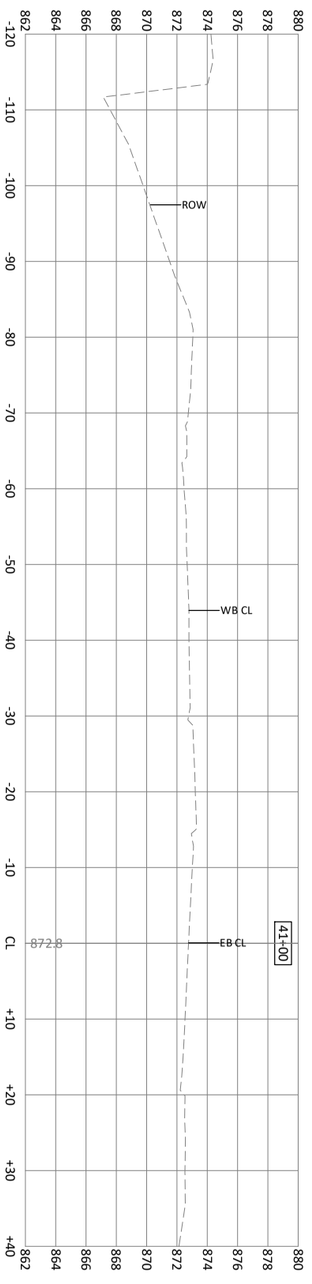
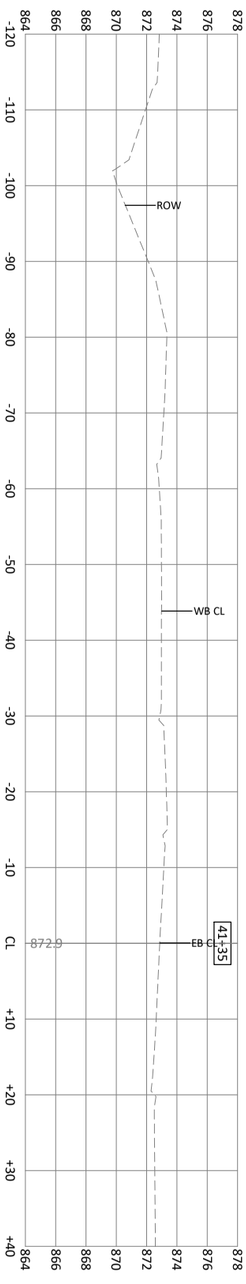
BUNKER LAKE BOULEVARD CROSS SECTIONS





BUNKER LAKE BOULEVARD CROSS SECTIONS

SHEET NO. 43 OF 43 SHEETS

CITY PROJECT NO. 20-42 / 20-42a
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Kevin P. Kielb P.E.

DATE 7/23/2021 REG. NO. 23211

DESIGNED	NO.	DATE	BY	DESCRIPTION OF REVISIONS
ZFL	2	7/23/21	ZL	TURN LANES REVISED
DRAWN				
ZFL				
CHECKED				
KPK				