



PLAN SYMBOLS

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

- LOWLAND \_\_\_\_\_
- TIMBER \_\_\_\_\_
- ORCHARD \_\_\_\_\_
- BRUSH \_\_\_\_\_
- NURSERY \_\_\_\_\_

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

- BUILDING (One Story Frame) \_\_\_\_\_
- F-FRAME C-CONCRETE \_\_\_\_\_
- S-STONE T-TILE \_\_\_\_\_
- B-BRICK ST-STUCCO \_\_\_\_\_

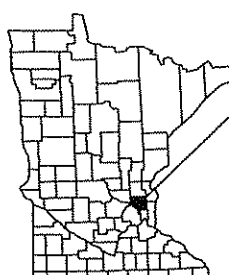
- RAILROAD CROSSING BELL \_\_\_\_\_
- RAILROAD CROSSING GATE \_\_\_\_\_
- MANHOLE \_\_\_\_\_
- CATCH BASIN \_\_\_\_\_
- FIRE HYDRANT \_\_\_\_\_
- CAST IRON MONUMENT \_\_\_\_\_
- IRON PIN \_\_\_\_\_
- GRAVEL PIT \_\_\_\_\_
- SAND PIT \_\_\_\_\_
- BORROW PIT \_\_\_\_\_
- ROCK QUARRY \_\_\_\_\_

UTILITY SYMBOLS

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

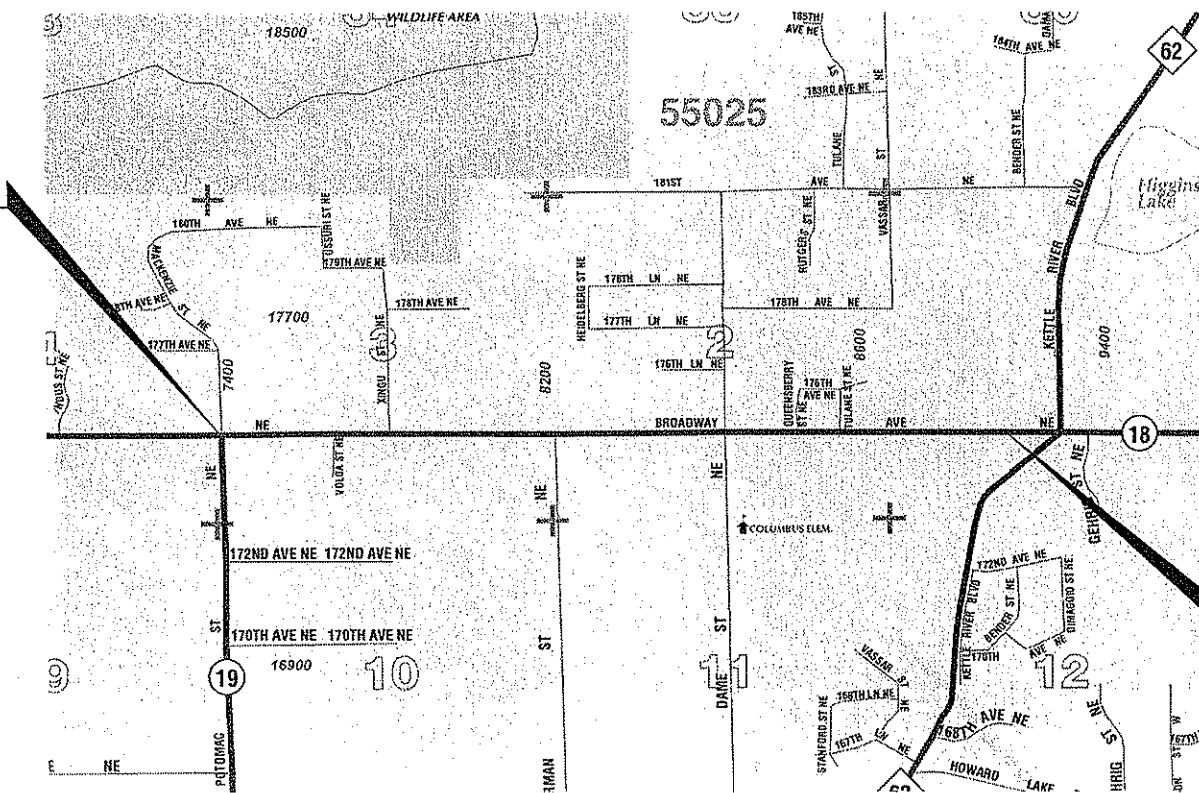
SCALES

- PLAN \_\_\_\_\_
- PROFILE \_\_\_\_\_
- HORIZONTAL \_\_\_\_\_
- VERTICAL \_\_\_\_\_
- X-SECTIONS \_\_\_\_\_
- HORIZONTAL \_\_\_\_\_
- VERTICAL \_\_\_\_\_



PROJECT LOCATION

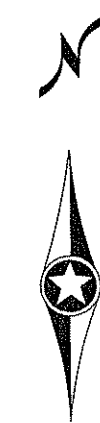
CITY OF COLUMBUS  
 ANOKA COUNTY  
 MN/DOT TRANSPORTATION DISTRICT - METRO  
 SECTION 2  
 TOWNSHIP 32 NORTH  
 RANGE 22 WEST



CONSTRUCTION PLAN FOR BITUMINOUS RECLAMATION, BITUMINOUS SURFACING, CONSTRUCT RIGHT TURN AND BYPASS LANES  
 LOCATED ON C.S.A.H. 18 BETWEEN POTOMAC ST AND 900' WEST OF KETTLE RIVER BLVD  
 COUNTY PROJ. NO. C.P. 13-15-18  
 C.S.A.H. 18

GROSS LENGTH	12762 FEET	2.417 MILES
BRIDGES-LENGTH	0.00 FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	12762 FEET	2.417 MILES

CITY OF COLUMBUS



GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	CALCULATIONS FOR RIGHT TURN AND BYPASS LANES
4-7	TYPICAL SECTIONS
8-11	MISCELLANEOUS DETAILS
12-16	CONSTRUCTION PLAN
17	DETOUR PLAN
18	DETOUR QUANTITIES
19	PERMANENT MARKING TABULATION
20-25	TEMP. SIGNING, PERM STRIPING, AND PAVE. MESSAGES
26-28	SIGNING & STRIPING PLAN DETAILS

THIS PLAN CONTAINS 28 SHEETS  
 DESIGN DESIGNATION

ESAL 20	
R VALUE	
ADT (2011) =	2550
Proj. ADT (2031) =	3550
Proj. HCADT (2031) =	NA
Soil Factor	NA
9 TON DESIGN	

Functional Classification MAJOR COLLECTOR  
 No. of Traffic Lanes 2 No. of Parking Lanes 0  
 Design Speed 55 MPH N/A  
 Based on Stopping Sight Distance  
 Height of eye 3.5' Height of object 2.0'  
 Design Speed not achieved at:  
 STA. \_\_\_\_\_ TO STA. \_\_\_\_\_ MPH \_\_\_\_\_

Approved: 3/14/2013  
 ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_(CR19-CSAH62)\Plan\title.dgn 02/27/2013 10:27:54 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: DATE: 3/13/13 LICENSE NO. 42757

DRAWN BY: KPR DATE: 2/25/13  
 DESIGN BY: KPR DATE: 2/25/13  
 CHECKED BY: DFF DATE: \_\_\_\_\_

ANOKA COUNTY HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

TITLE SHEET  
 Sheet 1 of 28 Sheets

CSAH 18		STATEMENT OF ESTIMATED QUANTITIES		
ITEM NO.	ITEM	NOTE NO.	UNIT	TOTAL EST. QUANT.
2021.501	MOBILIZATION		LUMP SUM	1
2104.501	REMOVE PIPE SEWERS		LIN FT	380
2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ YD	31
2104.505	REMOVE BITUMINOUS PAVEMENT		SQ YD	608
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	1	LIN FT	14
2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	1	LIN FT	265
2104.523	SALVAGE SIGN TYPE C		EACH	4
2105.522	SELECT GRANULAR BORROW (LV)	15	CU YD	75
2105.525	TOPSOIL BORROW (LV)	1	CU YD	1086
2105.602	CONSTRUCT TURN LANE (POTOMAC) (P)	6	EACH	1
2105.602	CONSTRUCT TURN LANE (XINGU) (P)	6	EACH	1
2105.602	CONSTRUCT TURN LANE (FURMAN) (P)	6	EACH	1
2105.602	CONSTRUCT TURN LANE (NORTE DAME) (P)	6	EACH	1
2105.602	CONSTRUCT TURN LANE (COLUMBUS TOWN) (P)	6	EACH	1
2105.602	CONSTRUCT TURN LANE (TULANE) (P)	6	EACH	1
2105.602	CONSTRUCT BYPASS LANE (XINGU) (P)	6	EACH	1
2105.602	CONSTRUCT BYPASS LANE (FURMAN) (P)	6	EACH	1
2105.602	CONSTRUCT BYPASS LANE (QUEENSBERRY) (P)	6	EACH	1
2123.503	MOTOR GRADER	11	hour	10
2130.501	WATER	14	M-GAL	240
2211.501	AGGREGATE BASE CLASS 5	3	TON	361
2221.501	AGGREGATE SHOULDERING CLASS 5	4	TON	1417
2232.501	MILL BITUMINOUS SURFACE (2") (JOINTS)		SQ YD	148
2331.604	BITUMINOUS PAVEMENT RECLAMATION		SQ YD	41396
2331.607	HAUL BIT PAVEMENT RECLAMATION (LV)	1	CU YD	90
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	2227
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,B)	2,5	TON	199
2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,E)		TON	10079
2451.509	AGGREGATE BEDDING (LV)	15	CU YD	24
2501.511	18" CS PIPE CULVERT		LIN FT	494
2501.511	36" RC PIPE CULVERT CLASS V		LIN FT	56
2501.513	36" RC PIPE APRON		EACH	2
2501.569	18" GS SAFETY APRON		EACH	18
2531.507	6" CONCRETE DRIVEWAY PAVEMENT	2	SQ YD	31
2540.602	INSTALL MAIL BOX SUPPORT	10	EACH	43
2540.602	RELOCATE MAIL BOX SUPPORT	16	EACH	7
2563.601	TRAFFIC CONTROL	8,17	LUMP SUM	1
2563.613	PORTABLE MESSAGE SIGN	13	UNIT DAY	14
2564.531	SIGN PANEL TYPE C		SQ FT	43.25
2564.536	INSTALL SIGN PANEL TYPE C		EACH	4
2573.502	SILT FENCE, TYPE MACHINE SLICED		LIN FT	5313
2573.602	CULVERT PROTECTION	1	EACH	20
2575.523	EROSION CONTROL BLANKET CATEGORY 00	1,12	SQ YD	2310
2575.601	RAPID STABILIZATION METHOD 3	1,12	M-GAL	12
2581.501	REMOVABLE PREFORMED PLASTIC MARKING	7	LIN FT	1021
2582.502	4" SOLID LINE WHITE - EPOXY	9	LIN FT	27259
2582.502	4" BROKEN LINE WHITE-EPOXY	9	LIN FT	120
2582.502	4" SOLID LINE YELLOW-EPOXY	9	LIN FT	3401
2582.502	4" BROKEN LINE YELLOW-EPOXY	9	LIN FT	2340
2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	9	LIN FT	1335
2582.603	24" SOLID LINE WHITE PREFORMED THERMOPLASTIC	9	LIN FT	48
2582.618	3 X 6 ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	9	SQ YD	126

NOTES:

- 1 LOCATION TO BE DETERMINED BY ENGINEER.
- 2 CONTRACTORS RESPONSIBILITY TO CONTACT OWNER 48 HOURS BEFORE STARTING OPERATION.
- 3 GRAVEL BASE FOR CONCRETE DRIVEWAYS, BITUMINOUS DRIVEWAYS AND CLASS 5 OVER NEW CULVERT.
- 4 MATERIAL FOR FINISHED GRAVEL SHOULDERS AND GRAVEL ENTRANCES.
- 5 ITEM USED FOR PAVING DRIVEWAYS AND STREET APPROACHES.
- 6 INCLUDES ALL TIME AND MATERIAL TO CONSTRUCT ITEM AS SHOWN IN PLAN AND AS DIRECTED BY ENGINEER. COMMON EXCAVATION, TOPSOIL, SELECT GRANULAR, AND AGGREGATE BASE CLASS 5.
- 7 YELLOW CENTERLINE SKIPS TO BE APPLIED AS SOON AS POSSIBLE ON EACH LIFT (MUST BE APPLIED BEFORE THE CONTRACTOR LEAVES FOR THE DAY). CONTRACTOR TO REMOVE PRIOR TO FINAL PAINT STRIPING.
- 8 "ALL TRAFFIC CONTROL METHODS SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." DO NOT PASS, PASS WITH CARE, AND NO CENTER STRIPE.
- 9 SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
- 10 MAILBOXES TO BE INSTALLED AT THE EXISTING MAILBOX LOCATION. MAILBOX REMOVAL / INSTALLATION, INCIDENTAL TO ITEM. CONTRACTOR RESPONSIBLE TO COORDINATE WITH THE LOCAL POSTAL AUTHORITY.
- 11 USED TO REMOVE EXCESS RECLAIM FROM ENDS OF PROJECT TO THE BITUMINOUS BASE COURSE INTO EXISTING BITUMINOUS.
- 12 ITEM INCLUDES SEEDING, FERTILIZER, AND SEED.
- 13 2 - MESSAGE BOARDS, ONE ON EACH END OF PROJECT WILL BE INSTALLED 7-DAYS PRIOR TO ANY CONSTRUCTION. REFERENCE "TEMPORARY SIGNING, PERMANENT SIGNING, STRIPING AND PAVEMENT MESSAGES" SECTION OF THIS PLAN FOR DETAILS.
- 14 TO BE USED FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.
- 15 SHALL BE USED AT CULVERT IF EXISTING MATERIAL IS NOT SUITABLE FOR BACKFILL.
- 16 TO BE USED IN TURN LANE AND BYPASS AREAS.
- 17 THE DETOUR IS PAID UNDER THE TRAFFIC CONTROL ITEM LUMP SUM.

BASIS OF PLANNED QUANTITIES

2211.501	AGGREGATE BASE CLASS 5	CU YDS (CV) * 1.8 = TONS
2221.501	AGGREGATE SHOULDERING CLASS 5	CU YDS (CV) * 1.8 = TONS
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL / SQ YD
2360.501	TYPE SP 12.5 WEARING COURSE (SPWEB440E)	115 LBS/SQYD/IN THICKNESS
2575.601	RAPID STABILIZATION METHOD 3	6 MGAL / ACRE
2581.501	REMOVABLE PREFORM PLASTIC MARKINGS	2' AT 50' INTERVALS FOR SKIPS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_(R19-CSAH52)\Plan\seq.dgn 02/27/2013 10:29:20 AM

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ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
STATE AID PROJECT NO. \_\_\_\_\_  
CITY PROJECT NO. \_\_\_\_\_  
COUNTY PROJECT NO. 13-15-18

STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 28 Sheets

ESTIMATED AVERAGE DEPTH FOR RIGHT TURN LANES USING ELEVATION AT EDGE OF MAT, SHOULDER PI, AND DITCH BOTTOM.																	
POTOMAC RT TURN LANE			XINGU RT TURN LANE			FURMAN RT TURN LANE			NORTE DAME RT TURN LANE			COLUMBUS TOWN RT TURN LANE			TULANE RT TURN LANE		
EM	SH PI	BOTTOM	EM	SH PI	BOTTOM	EM	SH PI	BOTTOM	EM	SH PI	BOTTOM	EM	SH PI	BOTTOM	EM	SH PI	BOTTOM
905.92	905.92	902.63	906.93	906.51	903.90	909.42	909.24	905.16	912.09	911.75	906.24	914.52	914.34	911.64	908.03	907.73	904.28
905.90	905.80	902.47	907.39	907.10	904.44	909.50	909.39	905.98	912.48	912.15	905.35	914.70	914.52	911.61	907.03	906.88	903.68
905.36	905.02	901.68	907.77	907.54	904.61	909.80	909.55	906.18	913.18	912.99	906.28	914.39	914.13	910.97	905.15	905.89	902.41
905.32	905.26	901.48	907.98	907.79	905.06	909.90	909.63	906.56	914.16	914.16	910.94	914.01	913.77	910.67	905.24	904.94	901.90
905.13	905.05	901.64	908.18	908.00	905.90	910.17	909.98	906.92	914.21	914.25	911.73	913.81	913.56	910.31	904.30	904.30	900.96
4527.63	4527.05	4509.90	4538.25	4536.94	4523.91	4548.79	4547.80	4530.80	4566.12	4565.31	4540.54	4571.43	4570.32	4555.40	4530.75	4529.74	4513.23
905.53	905.41	901.98	907.65	907.39	904.78	909.76	909.56	906.16	913.22	913.06	908.11	914.29	914.06	911.08	906.15	905.95	902.65
AVERAGE DEPTH		3.55	AVERAGE DEPTH		2.87	AVERAGE DEPTH		3.60	AVERAGE DEPTH		5.12	AVERAGE DEPTH		3.21	AVERAGE DEPTH		3.50
minus 0.5'		3.05	minus 0.5'		2.37	minus 0.5'		3.10	minus 0.5'		4.62	minus 0.5'		2.71	minus 0.5'		3.00

ESTIMATED AVERAGE DEPTH FOR BYPASSES USING ELEVATION AT EDGE OF MAT, SHOULDER PI, AND DITCH BOTTOM.											
XINGU BYPASS			FURMAN BYPASS			QUEENSBERRY BYPASS					
EM	SH PI	BOTTOM	EM	SH PI	BOTTOM	EM	SH PI	BOTTOM			
906.37	906.26	903.34	909.58	909.43	906.74	912.84	912.66	910.46			
906.55	906.35	903.39	909.73	909.62	906.74	912.28	912.06	908.89			
906.56	906.53	903.77	910.34	910.05	907.66	912.52	912.36	908.96			
907.06	906.89	904.43	911.84	911.09	909.27	913.16	912.96	911.98			
907.71	907.67	904.69	912.48	912.10	909.43	913.43	913.20	913.35			
4534.25	4533.70	4519.62	4553.77	4552.29	4539.84	4564.23	4563.24	4553.64			
906.85	906.74	903.92	910.75	910.46	907.97	912.85	912.65	910.73			
AVERAGE DEPTH		2.93	AVERAGE DEPTH		2.79	AVERAGE DEPTH		2.12			
minus 0.5'		2.43	minus 0.5'		2.29	minus 0.5'		1.62			

NEW RTL / BYPASS LOCATIONS BY THE EACH									
STREET	STA.	DIR	RTL OR BYPASS	WIDTH	LENGTH	COMMON EXCAVATION 2105.501 (CU YD)	TOPSOIL BORROW (LV) 2105.525 (CU YD)	SELECT GRANULAR BORROW (CV) 2105.522 (CU YD)	AGG BASE CLASS 5 (CV) 2211.501 (TON)
POTOMAC	11+38 - 16+18	WB	RTL	12	480	233	83	868	223
XINGU	37+41 - 42+21	WB	RTL	12	480	209	67	674	223
FURMAN	58+42 - 63+22	EB	RTL	12	480	235	84	882	223
NORTE DAME	84+85 - 89+65	EB	RTL	12	480	289	120	1314	223
COLUMBUS TOWN	89+93 - 94+73	WB	RTL	12	480	220	75	771	223
TULANE	97+65 - 102+45	WB	RTL	12	480	231	82	853	223
XINGU	33+60 - 39+80	EB	BYPASS	12	620	272	89	893	290
FURMAN	60+82 - 67+02	WB	BYPASS	12	620	266	85	841	290
QUEENSBERRY	108+87 - 115+07	EB	BYPASS	12	620	235	64	595	290

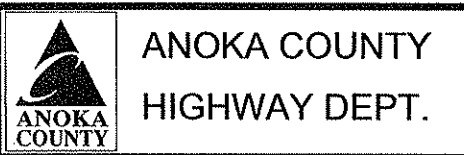
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/7/13 LICENSE NO. 42757

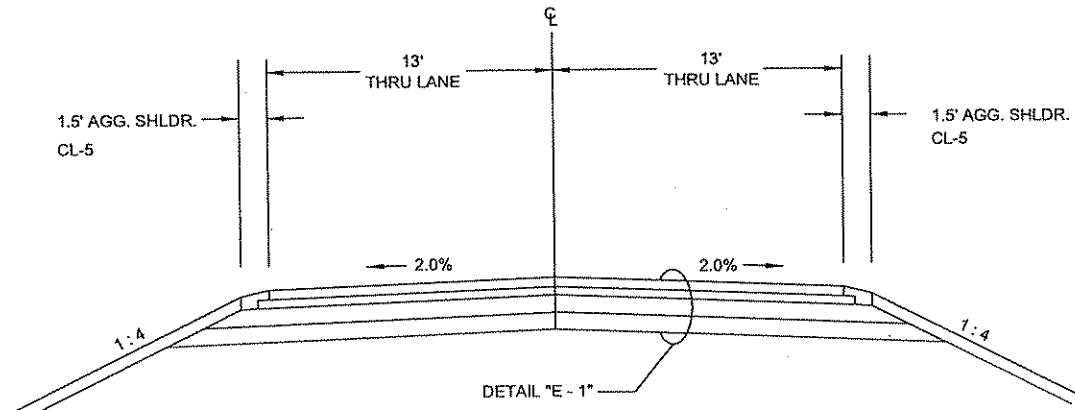
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STATE PROJECT NO. \_\_\_\_\_  
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 COUNTY PROJECT NO. 13-15-18

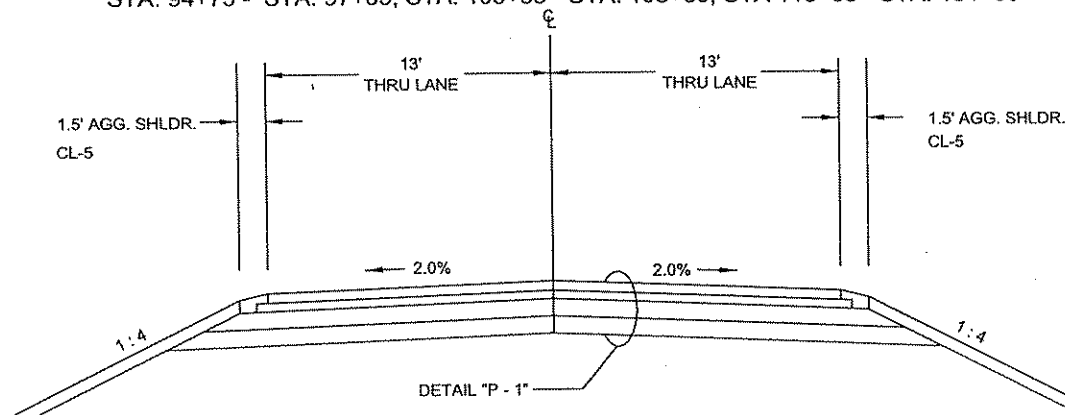
**EXISTING TYPICAL SECTION**

STA. 11+38 - STA 133+97

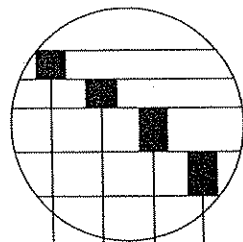


**PROPOSED TYPICAL SECTION**

STA. 16+18 - STA. 33+60, STA. 42+20 - STA. 58+45, STA. 66+05 - STA. 84+85,  
STA. 94+75 - STA. 97+65, STA. 103+85 - STA. 108+80, STA 113+65 - STA. 134+00

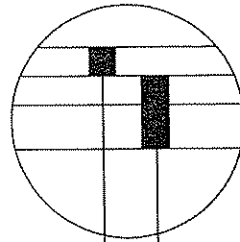


DETAIL "E - 1"



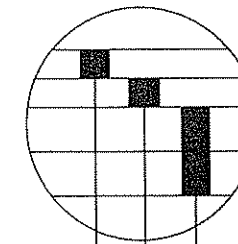
1.5" 2341 WEAR COURSE  
2.0" 2331 BINDER COURSE  
EXISTING AGG. BASE  
EXISTING GRADING MATERIAL

DETAIL "E - 2"



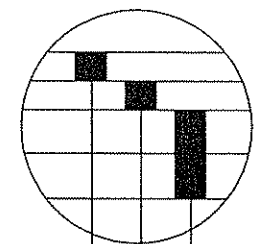
1.5" 2331 SHOULDER COURSE  
EXISTING BASE MATERIAL

DETAIL "P - 1"



2" TYPE SP 12.5 WEARING COURSE (SPWEB440E)  
2" TYPE SP 12.5 NON WEARING COURSE (SPNWB440E)  
RECLAIMED / AGG. BASE

DETAIL "S - 1"



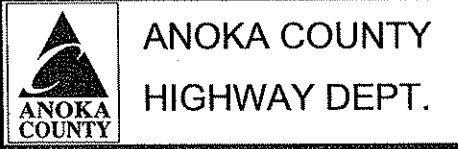
2" TYPE SP 12.5 WEARING COURSE (SPWEB440E)  
2" TYPE SP 12.5 WEARING COURSE (SPWEB440E)  
RECLAIMED BIT / AGGREGATE BASE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\113-01-00\CSAH\_18\_(CR18-CSAH82)\Plan\typ.dgn 02/27/2013 10:35:30 AM

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PRINT NAME: ANDREW WITTER  
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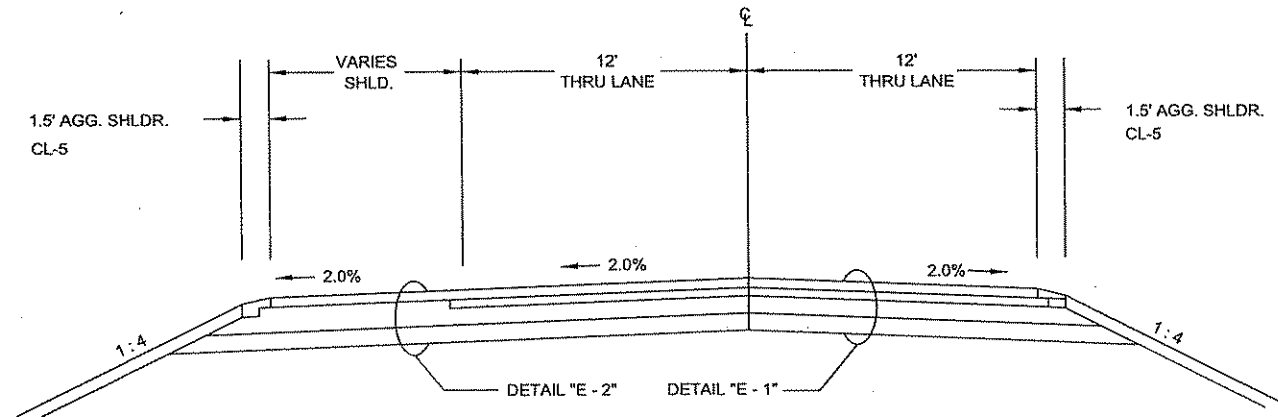
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CITY PROJECT NO. \_\_\_\_\_  
COUNTY PROJECT NO. 13-15-18

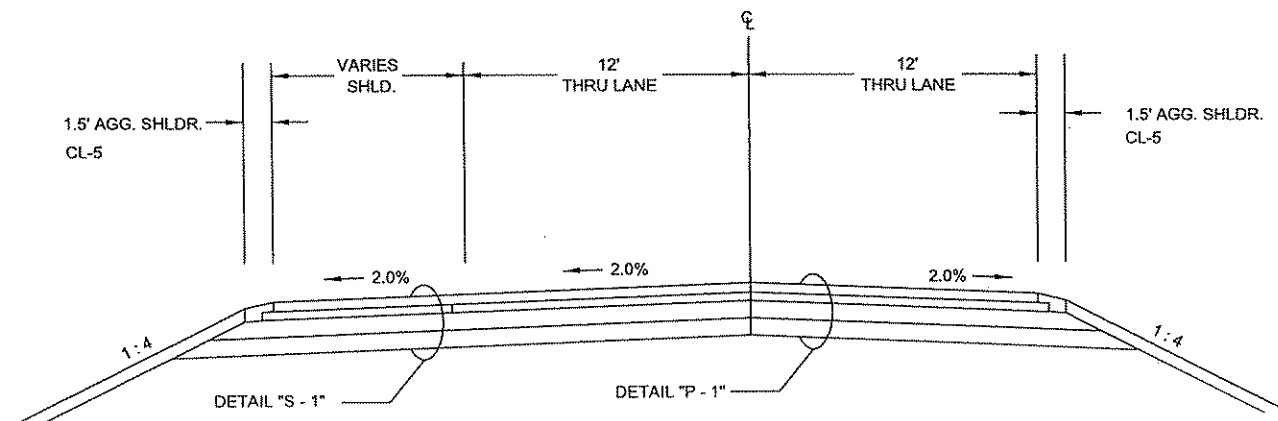
**EXISTING TYPICAL SECTION (BITUMINOUS SHOULDER)**

STA. 133+97 - STA 136+56



**PROPOSED TYPICAL SECTION (BITUMINOUS SHOULDER)**

STA. 133+97 - STA 136+56



NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_(CR19-CSAH62)\Plan\typ.dgn      02/27/2013      10:35:57 AM

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

PRINT NAME: ANDREW MITTER  
 SIGNATURE: *[Signature]*  
 DATE: 2/13/13      LICENSE NO. 42757

DRAWN BY: KPR      DATE: 2/25/13  
 DESIGN BY: KPR      DATE: 2/25/13  
 CHECKED BY: DFF      DATE: \_\_\_\_\_

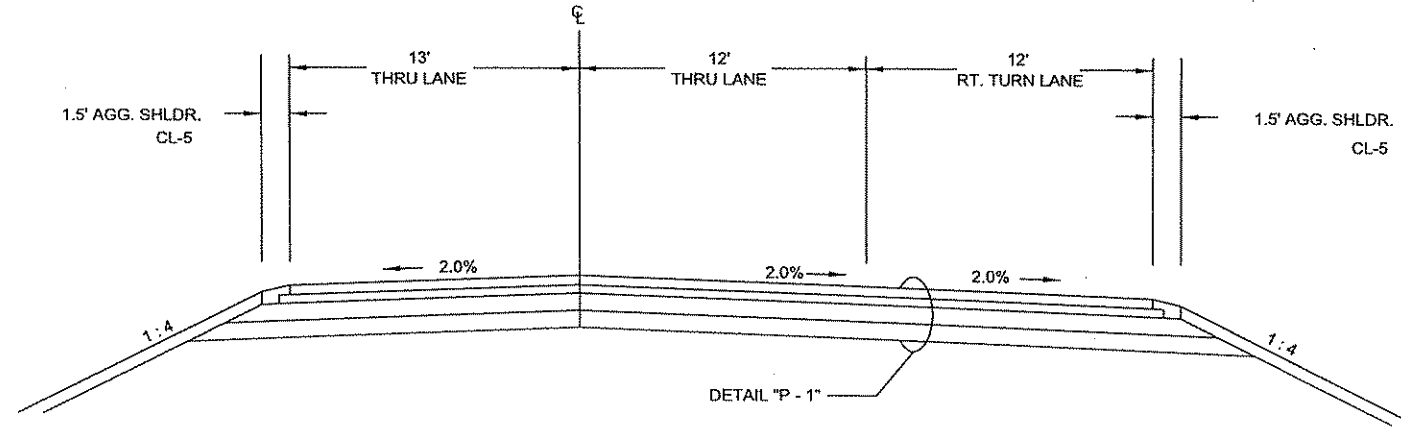


**ANOKA COUNTY  
 HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

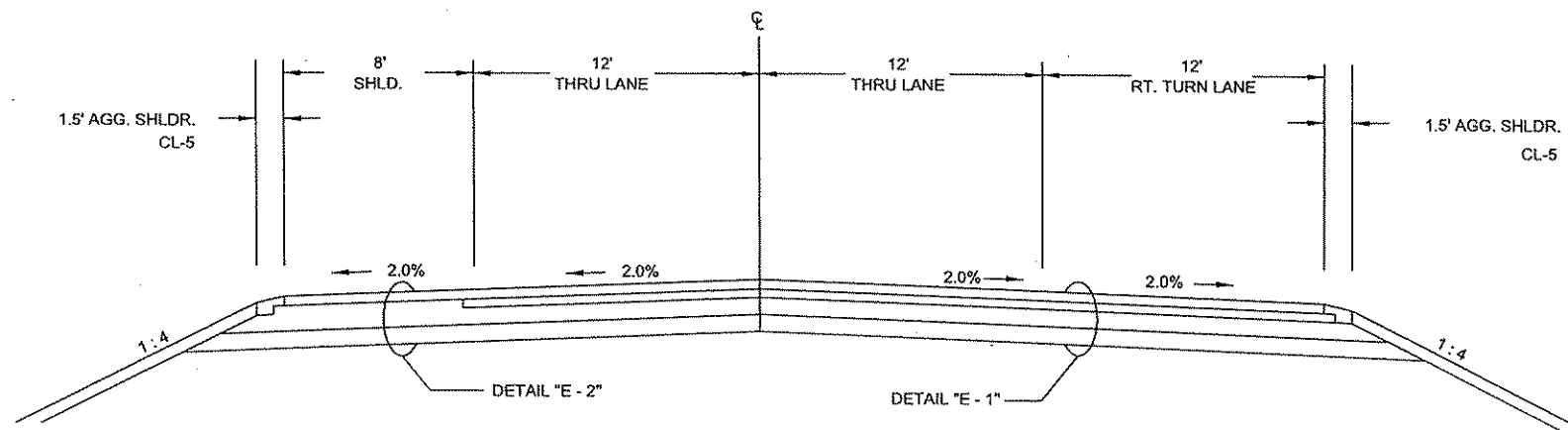
PROPOSED TYPICAL SECTION (RT. TURN LANE)

STA. 11+38 - 16+18, STA. 39+80 - STA. 42+20, STA. 58+45 - STA. 60+80,  
STA. 84+85 - STA. 94+75, STA. 108+85 - STA. 113+65



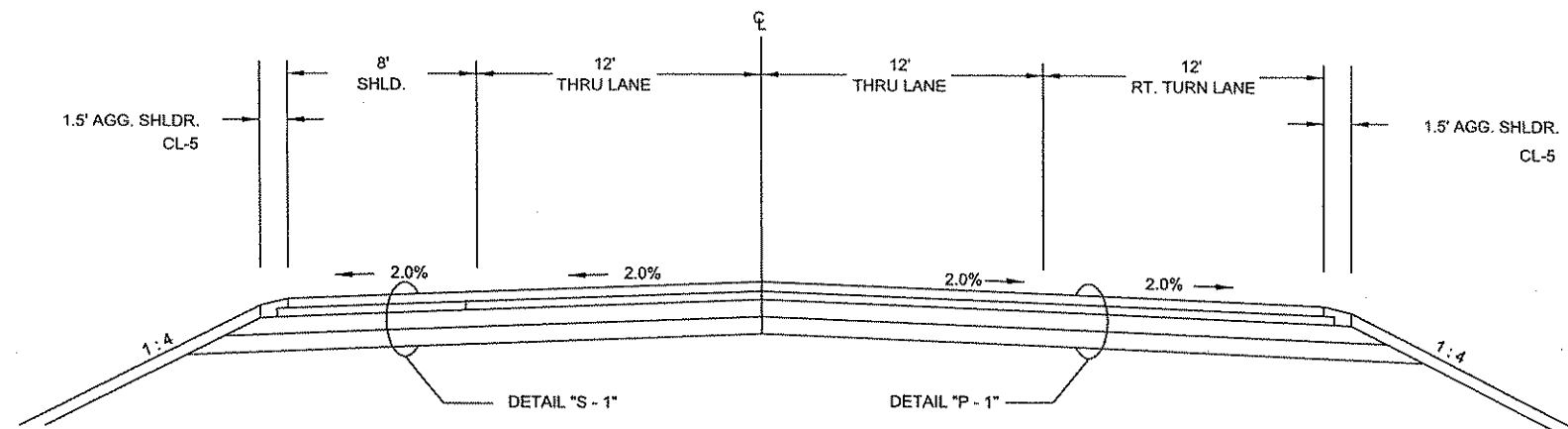
EXISTING TYPICAL SECTION (BITUMINOUS SHLD. AND RT. TURN LANE)

STA. 136+56 - 139+00



PROPOSED TYPICAL SECTION (BITUMINOUS SHLD. AND RT. TURN LANE)

STA. 136+56 - 139+00



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\13-01-00\CSAH_18_(CR19-CSAH62)\Plan\typ.dgn					
02/27/2013 10:36:15 AM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/1/13 LICENSE NO. 42757

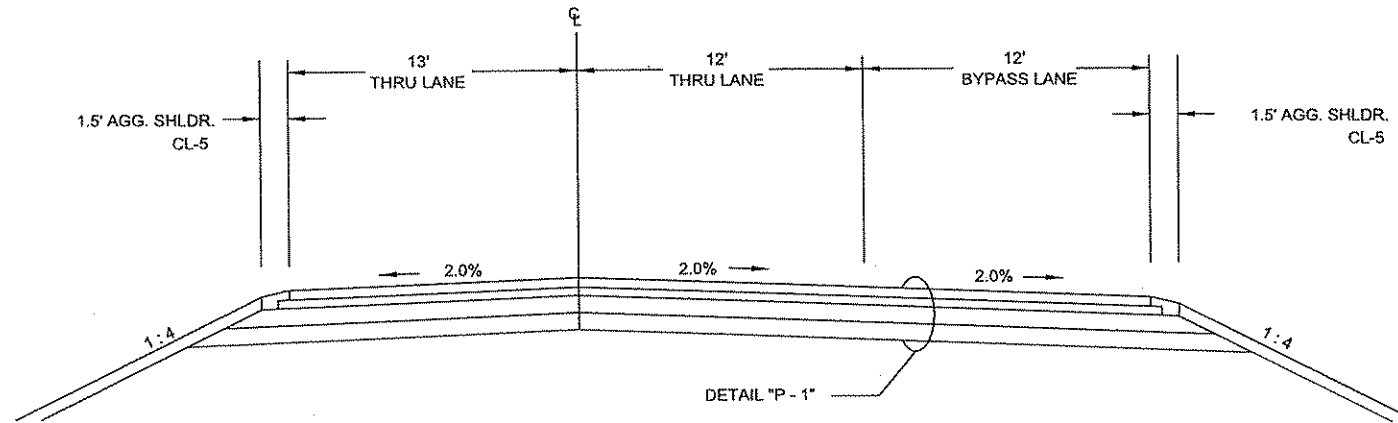
DRAWN BY: KPR DATE: 2/25/13  
 DESIGN BY: KPR DATE: 2/25/13  
 CHECKED BY: DFF DATE:

**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

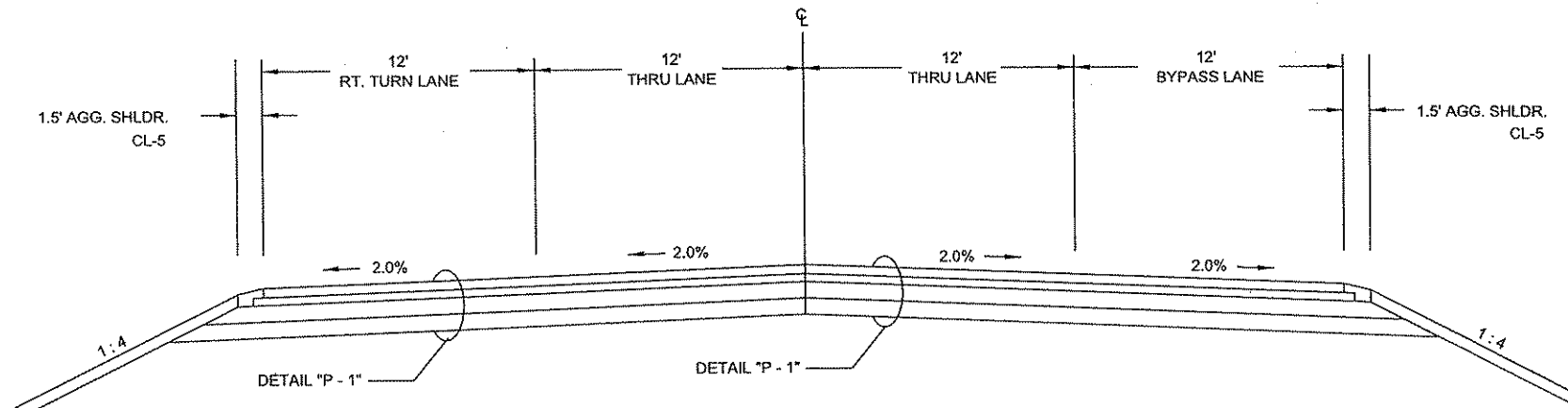
PROPOSED TYPICAL SECTION (BYPASS LANE)

STA. 33+60 - STA. 37+40, STA. 63+25 - STA. 66+05, STA. 97+65 - STA. 103+85



PROPOSED TYPICAL SECTION (BYPASS LANE AND RT. TURN LANE)

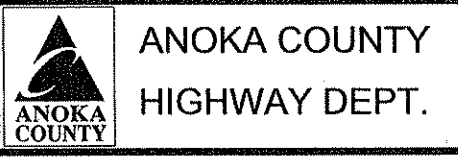
STA. 37+40 - STA. 39+80, STA. 60+80 - STA. 63+25



NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *[Signature]*  
 DATE: 3/7/13 LICENSE NO. 42757

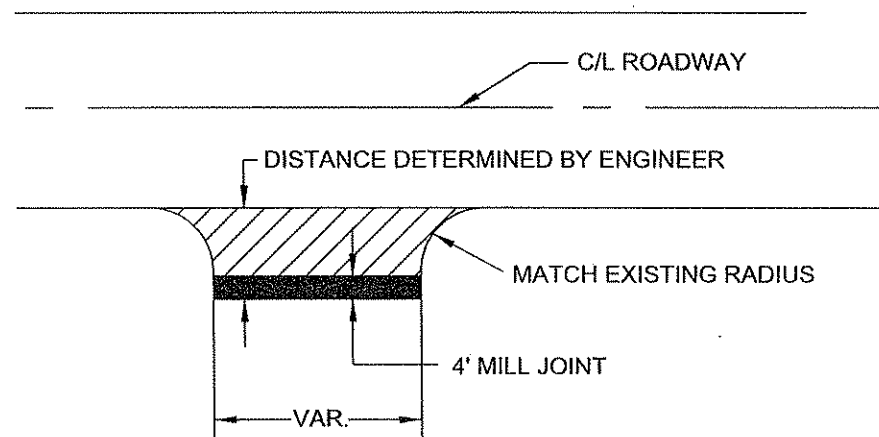
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 CHECKED BY: DFF DATE:  



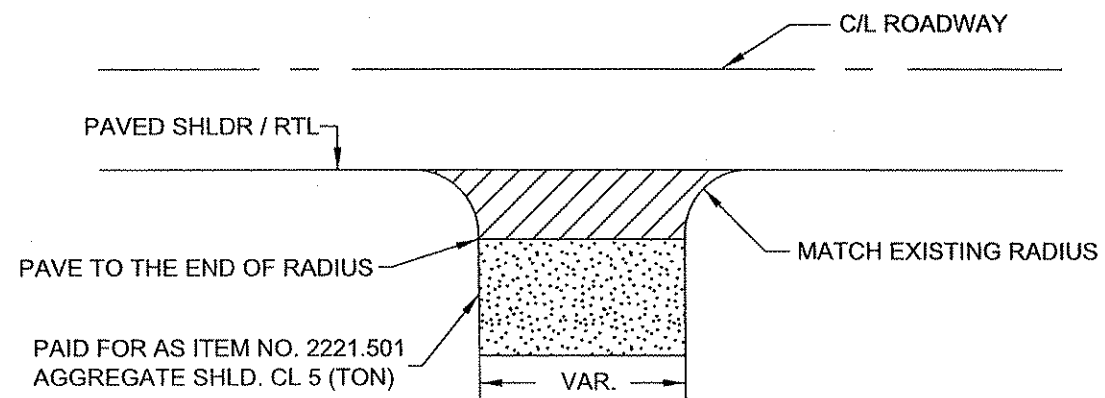
STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18



PAVED STREET APPROACHES



UN-PAVED STREET APPROACHES



UNPAVED STREET APPROCHES, PAVED SEPARATE FROM MAINLINE,  
PAID AS STREET APPROACHES.

NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\13-01-00\CSAH_18_(CR19-CSAH62)\Plan\del.dgn					
02/28/2013 9:03:57 AM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREY WITTER  
 SIGNATURE: *[Signature]*  
 DATE: 3/13 LICENSE NO. 42757

DRAWN BY KPR DATE 2/25/13  
 DESIGN BY KPR DATE 2/25/13  
 CHECKED BY DFF DATE



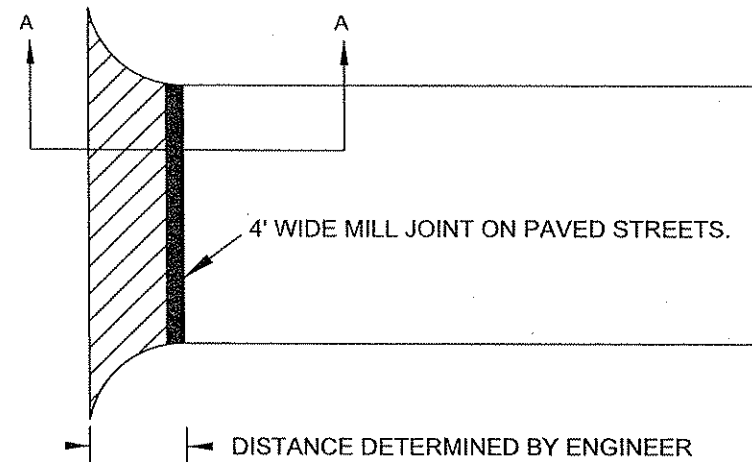
ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

MISCELLANEOUS DETAILS  
 Sheet 8 of 28 Sheets

PAVED STREET APPROACHES

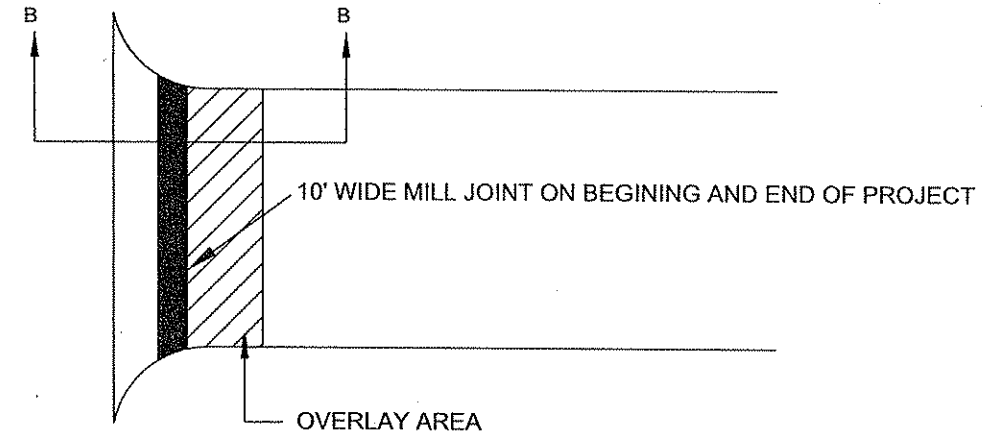
JOINT DETAILS



DRIVEWAYS BUMPED OUT TO BE PAVED WITH MAINLINE, PAID AS MAINLINE.  
 DRIVEWAYS PAVED IN DIFFERENT OPERATION FROM MAINLINE PAVING PAID AS ST./DR. APPROACH.  
 STREET APPROACHES PAID AS ST./DR. APPROACH.

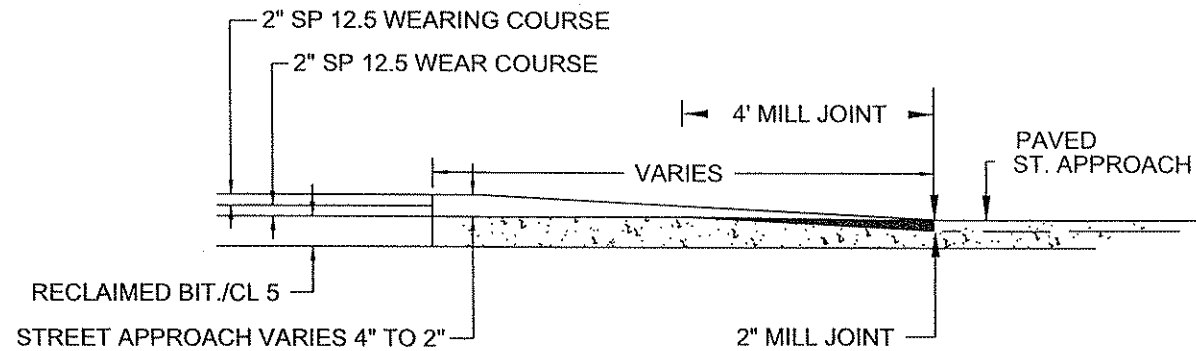
MAINLINE

JOINT DETAILS

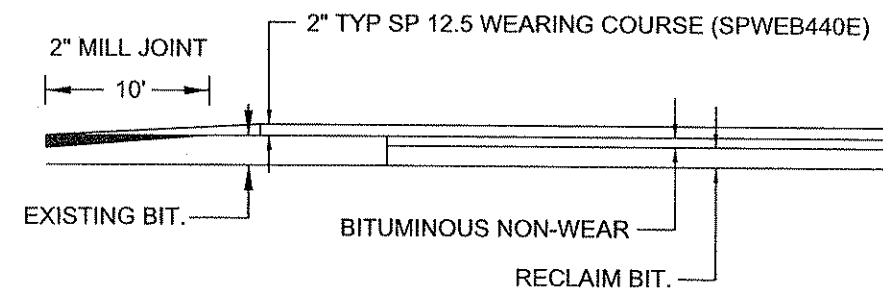


GRADING NEEDED TO TIE NONWEAR INTO EXISTING PAVING. TO BE PAID UNDER 2123.503 MOTOR GRADER HOURS

PAVED STREET APPROACH JOINT DETAILS A - A



JOINT DETAILS B - B



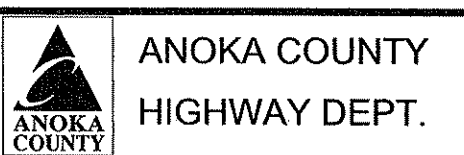
NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_(CR19-CSAH62)\Plan\dot.dgn 02/27/2013 10:40:35 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/13/13 LICENSE NO. 42757

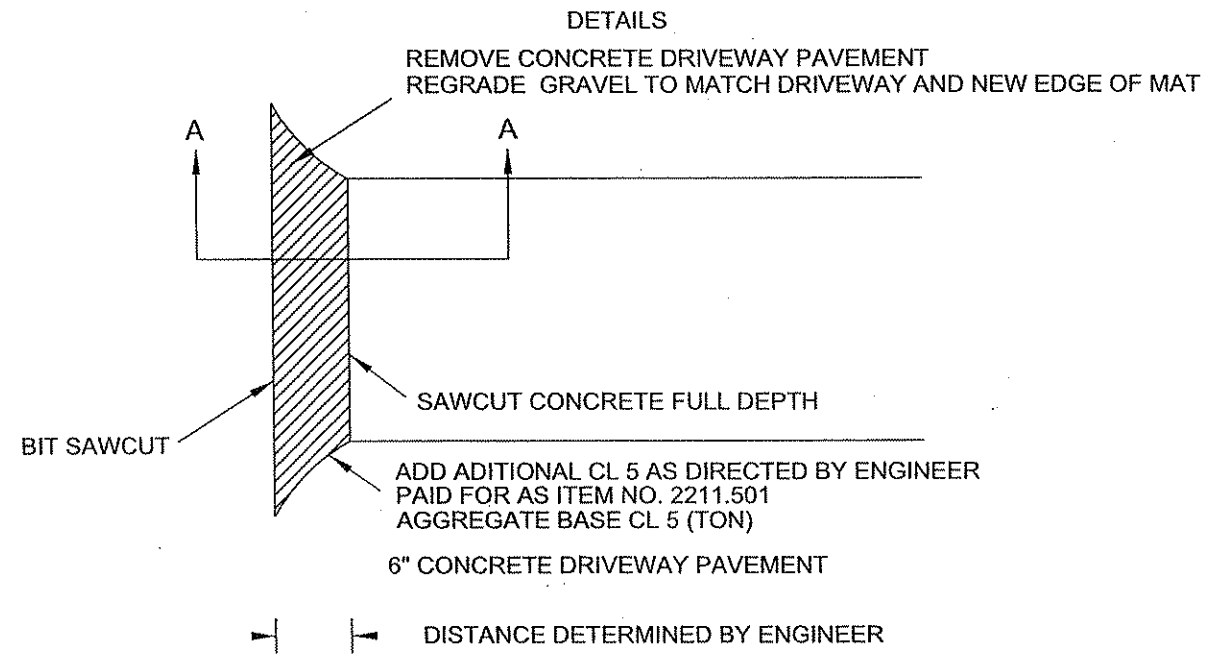
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 CHECKED BY: DFF DATE:  



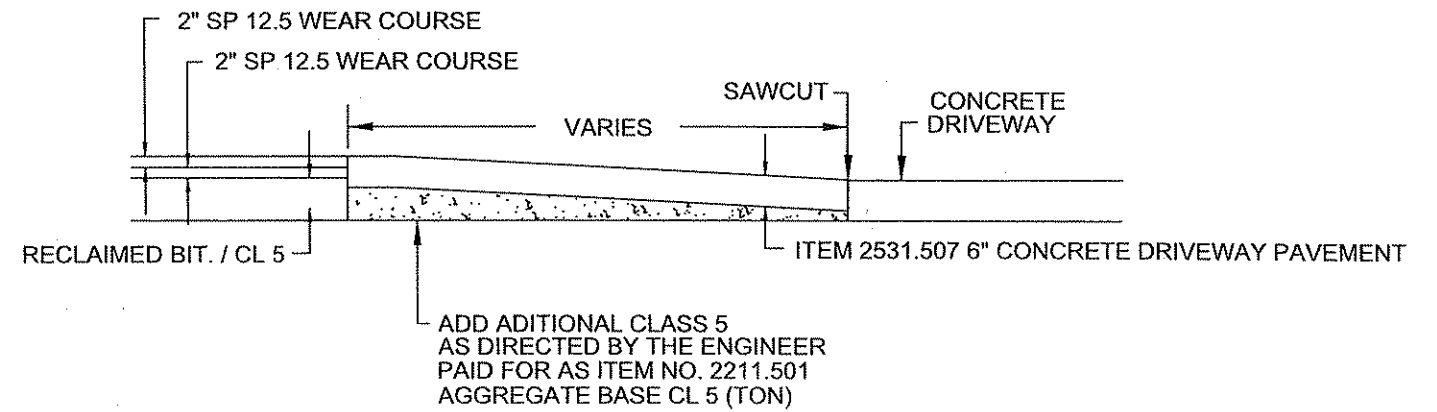
STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

MISCELLANEOUS DETAILS  
 Sheet 9 of 28 Sheets

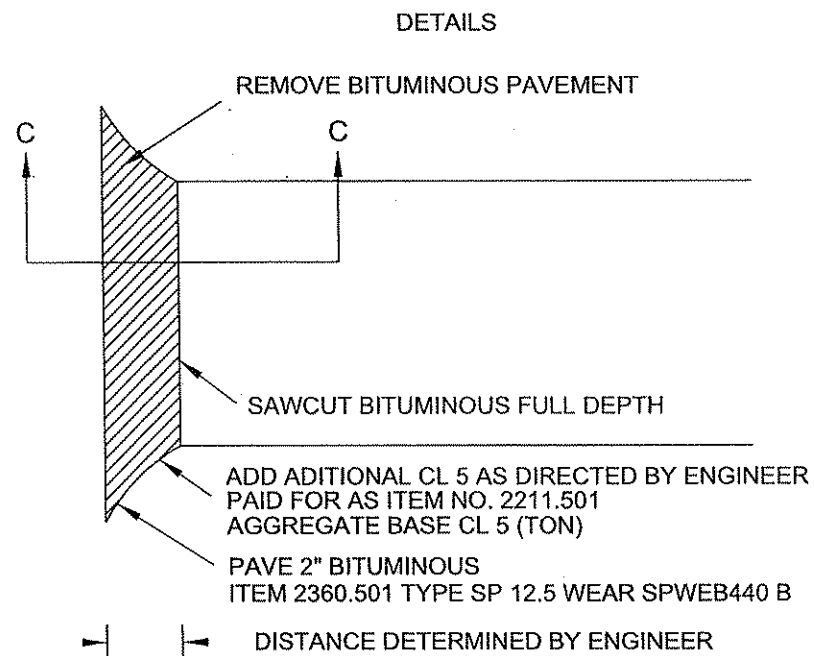
CONCRETE DRIVEWAYS



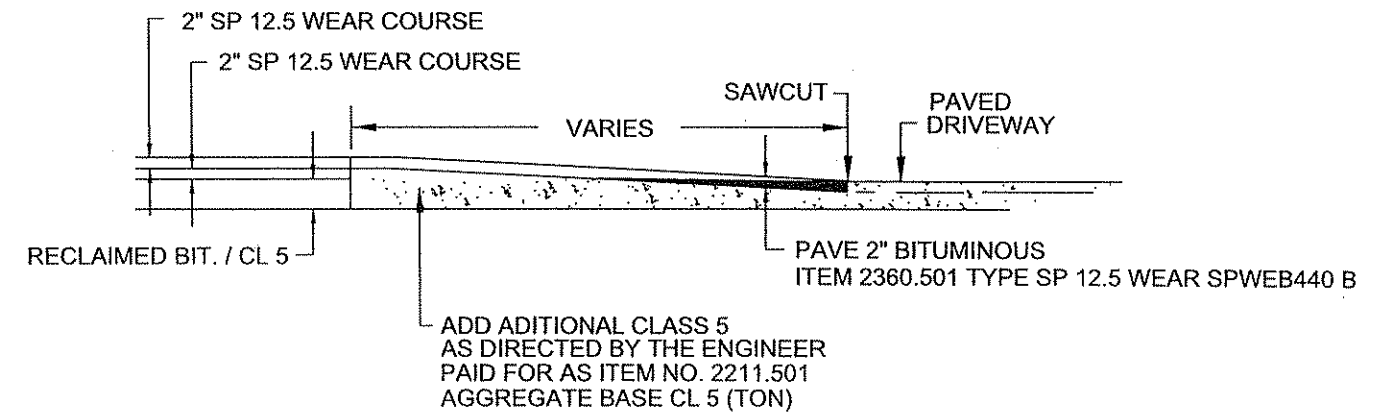
CONCRETE DRIVEWAY DETAILS A - A



PAVED DRIVEWAYS



PAVED DRIVEWAY DETAILS C - C



NOT TO SCALE

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:113-01-00CSAH\_18\_(CR18-CSAH62)Plan1.dwg 02/28/2013 8:45:59 AM

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

PRINT NAME: ANDREW WITTER

SIGNATURE: *[Signature]*

DATE: 3/1/13 LICENSE NO. 42757

DRAWN BY: KPR DATE: 2/25/13

DESIGN BY: KPR DATE: 2/25/13

CHECKED BY: DFF DATE: \_\_\_\_\_

**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_

STATE AID PROJECT NO. \_\_\_\_\_

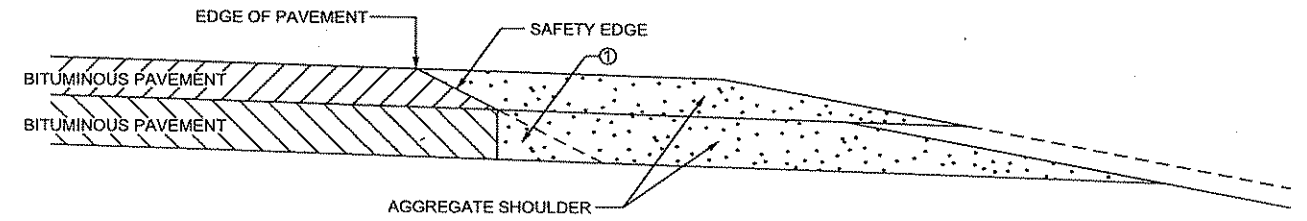
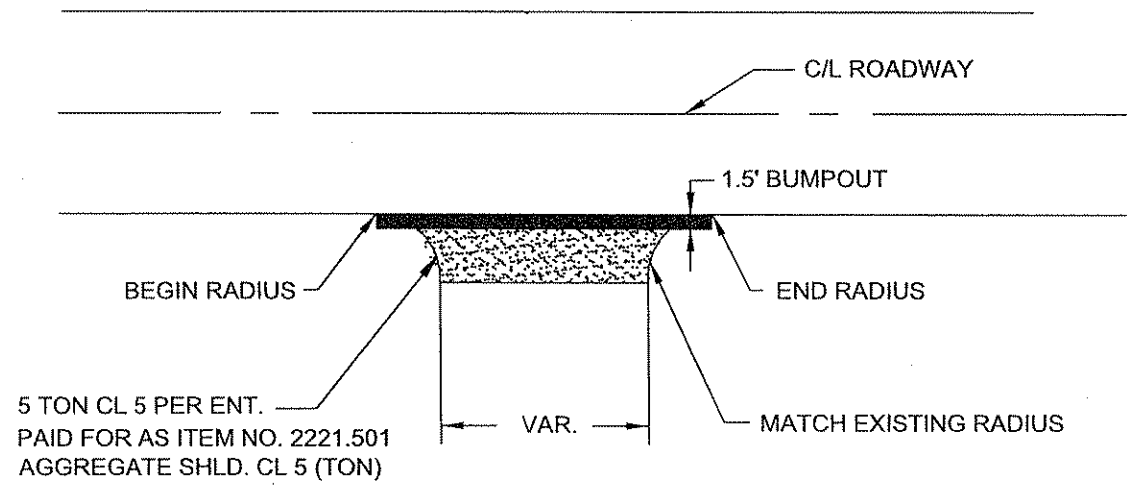
CITY PROJECT NO. \_\_\_\_\_

COUNTY PROJECT NO. 13-15-18

MISCELLANEOUS DETAILS

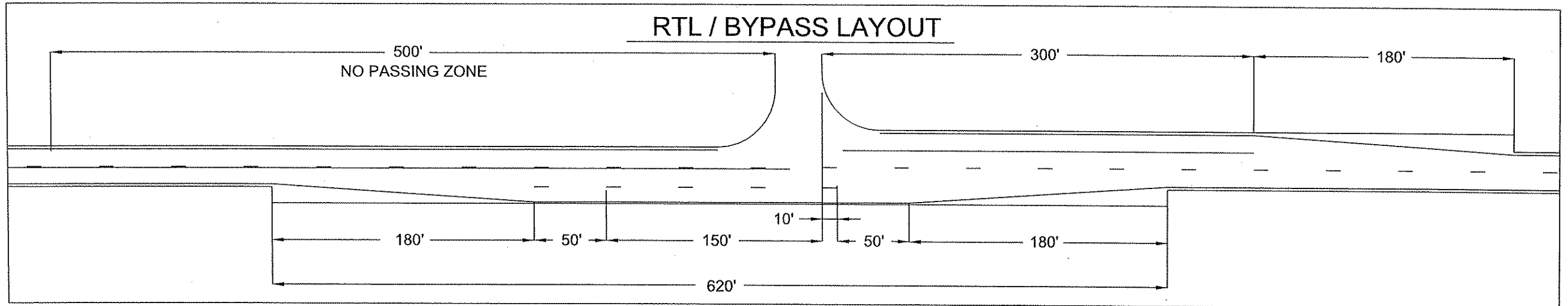
Sheet 10 of 28 Sheets

GRAVEL DRIVEWAYS AND FIELD ENTRANCES



**FIGURE B**  
**BITUMINOUS PAVEMENT**  
 SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.  
 ① OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS.

RTL / BYPASS LAYOUT



NOT TO SCALE

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\13-01-00\CSAH_18_(CR19-CSAH62)\Plan\det.dgn					
02/27/2013 10:41:29 AM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *[Signature]*  
 DATE: 3/13/13 LICENSE NO. 42757

DRAWN BY KPR DATE 2/25/13  
 DESIGN BY KPR DATE 2/25/13  
 CHECKED BY DFF DATE

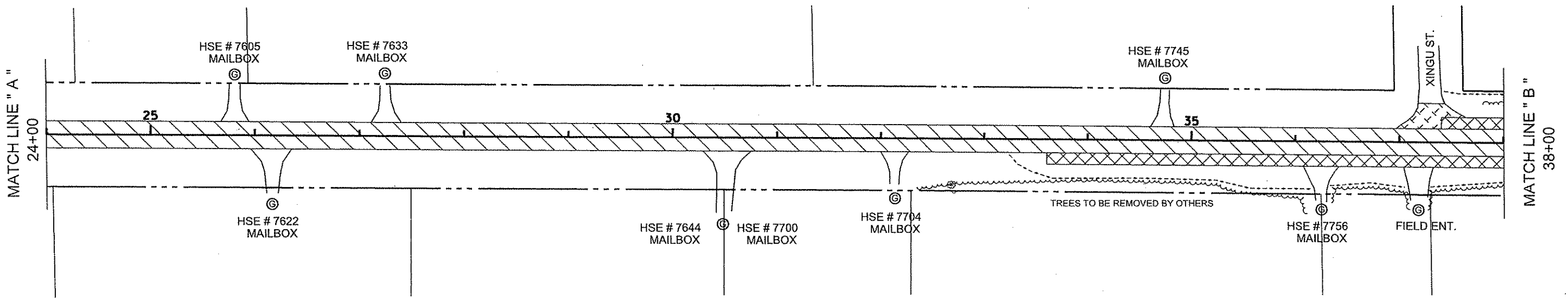
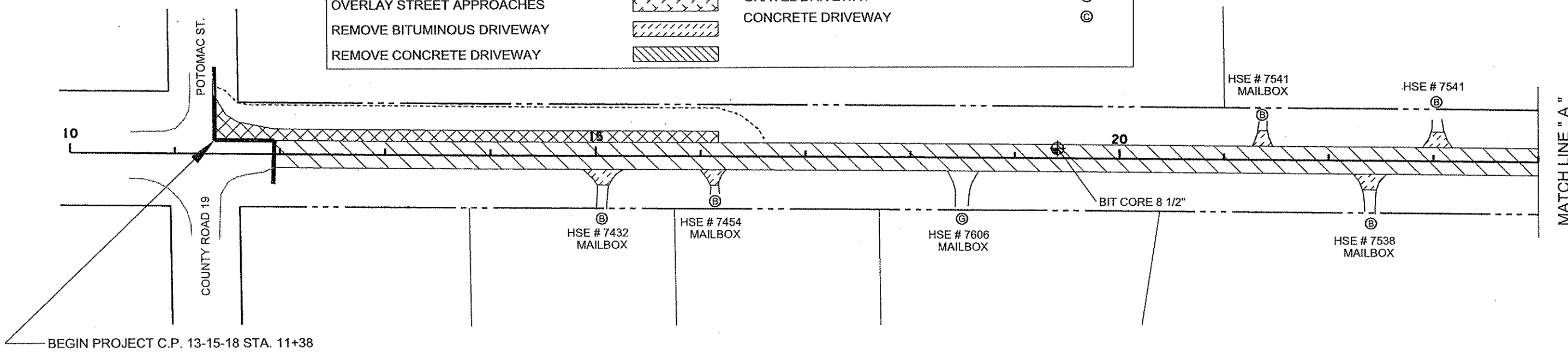


**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

MISCELLANEOUS DETAILS  
 Sheet 11 of 28 Sheets

RECLAIM AREA		SILT FENCE	
CONSTRUCT TURN LANE OR BYPASS		BITUMINOUS DRIVEWAY	ⓑ
OVERLAY STREET APPROACHES		GRAVEL DRIVEWAY	ⓒ
REMOVE BITUMINOUS DRIVEWAY		CONCRETE DRIVEWAY	ⓒ
REMOVE CONCRETE DRIVEWAY			



1 OF 5

NO	DATE	BY	CHKD	APPR	REVISION

NAME: PA13-01-001CSAH\_18 (CR19-CSAH62)Planplan 1.dgn      02/27/2013      10:59:52 AM

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

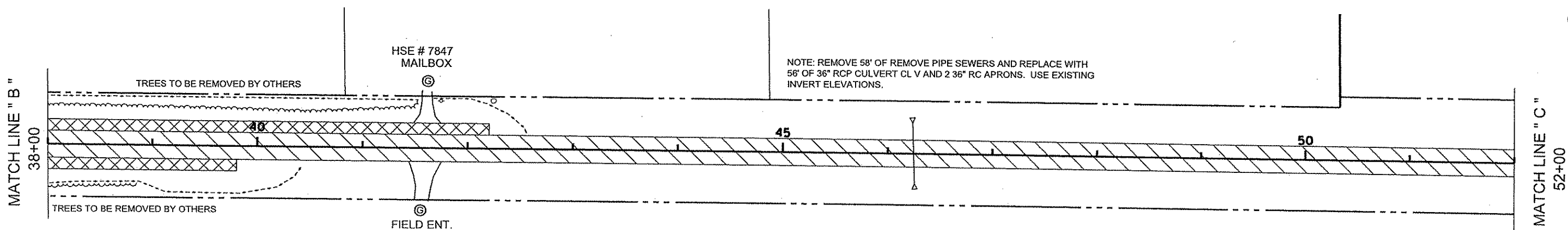
PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 5/1/13 LICENSE NO. 42757

DRAWN BY: KPR DATE: 2/25/2013  
 DESIGN BY: KPR DATE: 2/25/2013  
 CHECKED BY: DFF DATE: \_\_\_\_\_

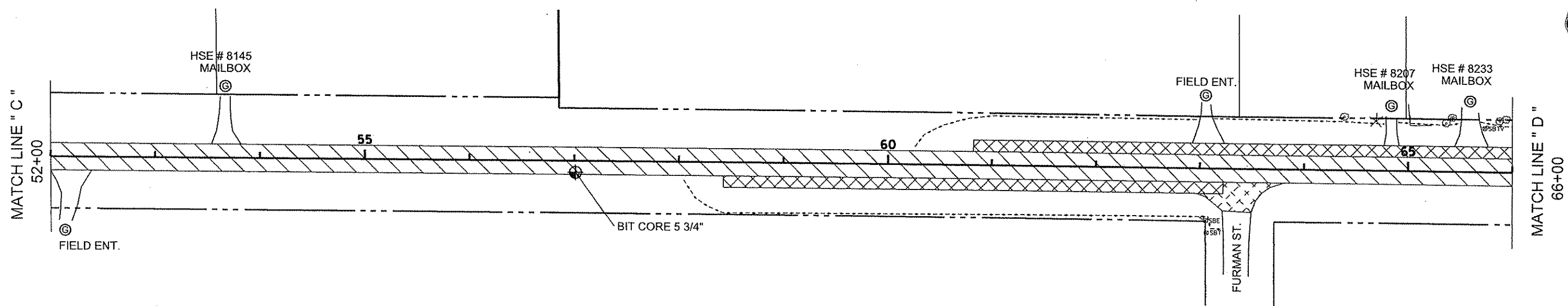


STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

CONSTRUCTION PLAN  
 STA 11+38 TO 38+00  
 Sheet 12 of 28 Sheets



RECLAIM AREA		SILT FENCE	
CONSTRUCT TURN LANE OR BYPASS		BITUMINOUS DRIVEWAY	ⓑ
OVERLAY STREET APPROACHES		GRAVEL DRIVEWAY	ⓒ
REMOVE BITUMINOUS DRIVEWAY		CONCRETE DRIVEWAY	ⓐ
REMOVE CONCRETE DRIVEWAY			



2 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_(CR19-CSAH62)\Plan\plan 2.dgn 02/27/2013 11:00:44 AM

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

PRINT NAME: ANDREW WILTER  
 SIGNATURE: *[Signature]*  
 DATE: 3/13/13 LICENSE NO. 42757

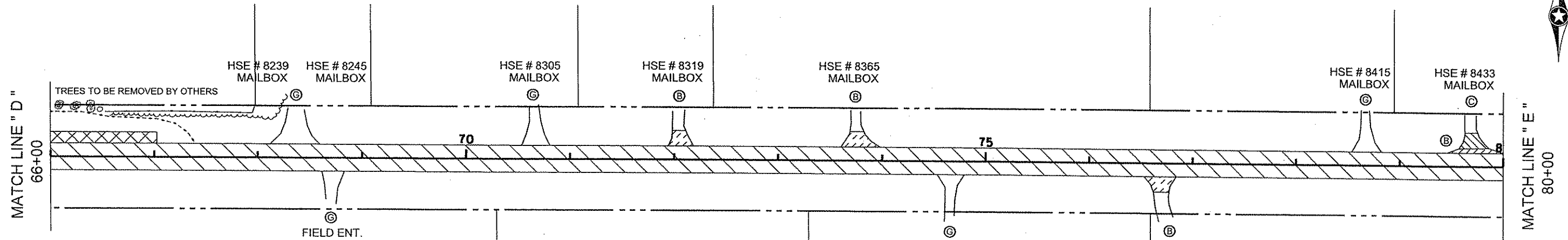
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 CHECKED BY DFF DATE



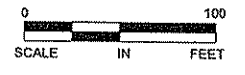
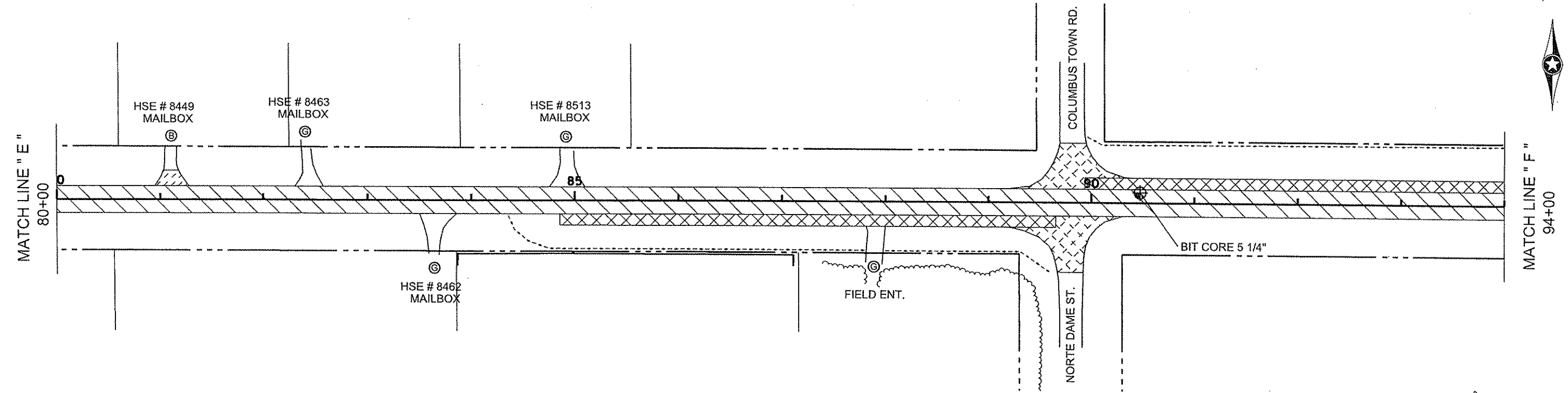
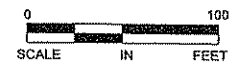
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

**CONSTRUCTION PLAN**  
 STA 38+00 TO 66+00  
 Sheet 13 of 28 Sheets



RECLAIM AREA		SILT FENCE	
CONSTRUCT TURN LANE OR BYPASS		BITUMINOUS DRIVEWAY	ⓑ
OVERLAY STREET APPROACHES		GRAVEL DRIVEWAY	ⓒ
REMOVE BITUMINOUS DRIVEWAY		CONCRETE DRIVEWAY	ⓒ
REMOVE CONCRETE DRIVEWAY			



3 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_CR19-CSAH62\Plan\plan 3.dgn 02/27/2013 11:01:26 AM

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

PRINT NAME: ANDREW WITTER

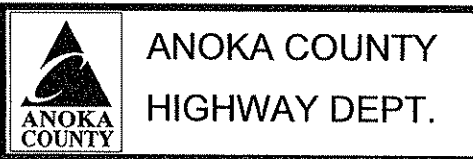
SIGNATURE:

DATE: 2/27/2013 LICENSE NO. 42757

DRAWN BY: KPR DATE: 2/25/2013

DESIGN BY: KPR DATE: 2/25/2013

CHECKED BY: DFF DATE:  



STATE PROJECT NO. \_\_\_\_\_

STATE AID PROJECT NO. \_\_\_\_\_

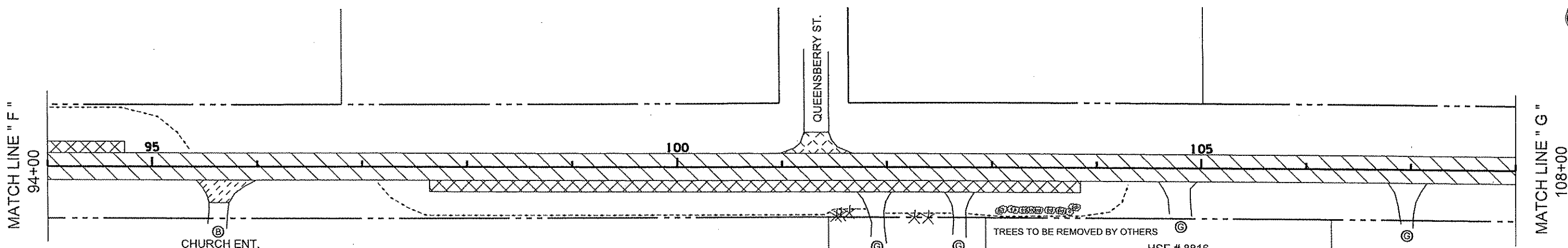
CITY PROJECT NO. \_\_\_\_\_

COUNTY PROJECT NO. 13-15-18

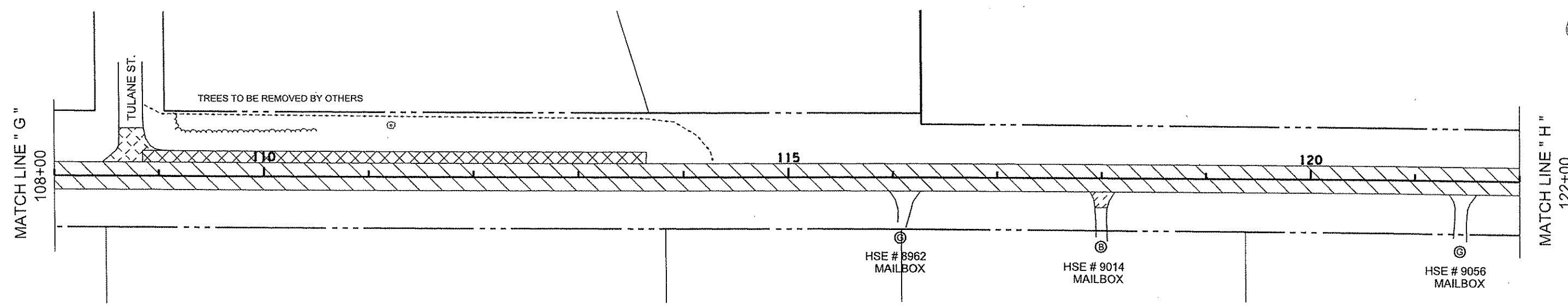
CONSTRUCTION PLAN

STA 66+00 TO 94+00

Sheet 14 of 28 Sheets



RECLAIM AREA		SILT FENCE	
CONSTRUCT TURN LANE OR BYPASS		BITUMINOUS DRIVEWAY	ⓑ
OVERLAY STREET APPROACHES		GRAVEL DRIVEWAY	ⓒ
REMOVE BITUMINOUS DRIVEWAY		CONCRETE DRIVEWAY	ⓐ
REMOVE CONCRETE DRIVEWAY			



4 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_(CR19-CSAH62)\Plan\plan 4.dgn      02/27/2013      11:02:12 AM

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

PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/7/13      LICENSE NO. 42757

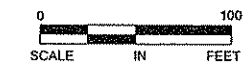
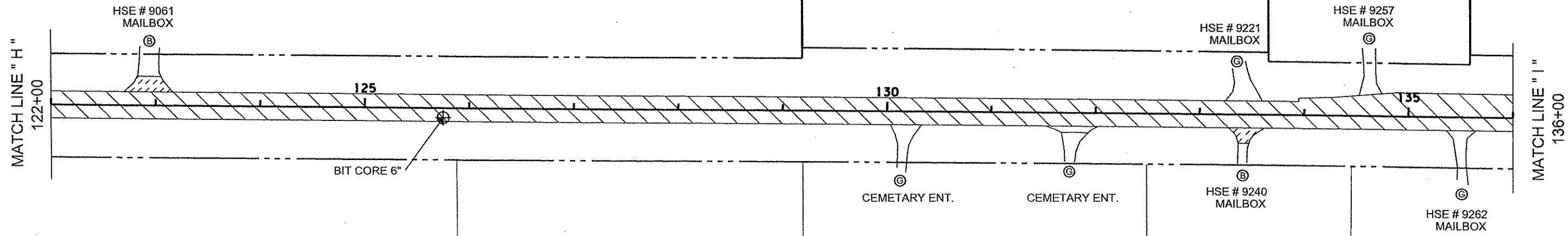
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 DESIGN BY: KPR      DATE: 2/25/2013  
 CHECKED BY: DFF      DATE: \_\_\_\_\_



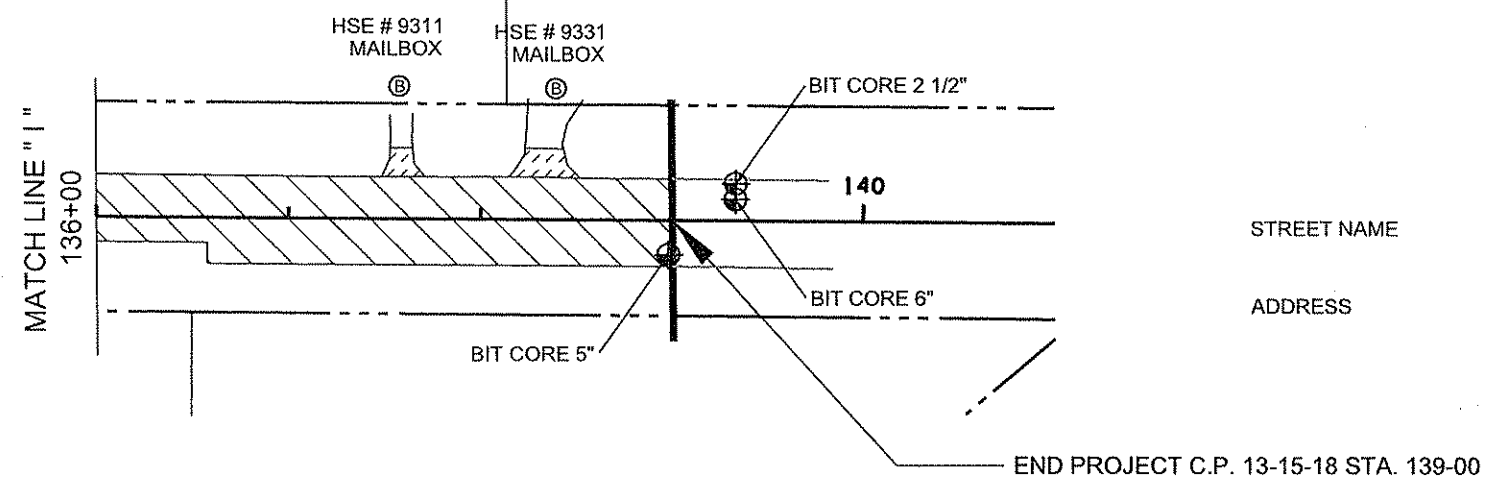
STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

CONSTRUCTION PLAN  
 STA 94+00 TO 122+00  
 Sheet 15 of 28 Sheets





RECLAIM AREA		SILT FENCE	
CONSTRUCT TURN LANE OR BYPASS		BITUMINOUS DRIVEWAY	Ⓟ
OVERLAY STREET APPROACHES		GRAVEL DRIVEWAY	Ⓞ
REMOVE BITUMINOUS DRIVEWAY		CONCRETE DRIVEWAY	Ⓢ
REMOVE CONCRETE DRIVEWAY			



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\13-01-00\CSAH\_18\_(CR19-CSAH62)\Plan\plan 5.dgn 02/27/2013 11:03:08 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/1/13 LICENSE NO. 42757

DRAWN BY: KPR DATE: 2/25/2013  
 DESIGN BY: KPR DATE: 2/25/2013  
 CHECKED BY: DFF DATE: \_\_\_\_\_



STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

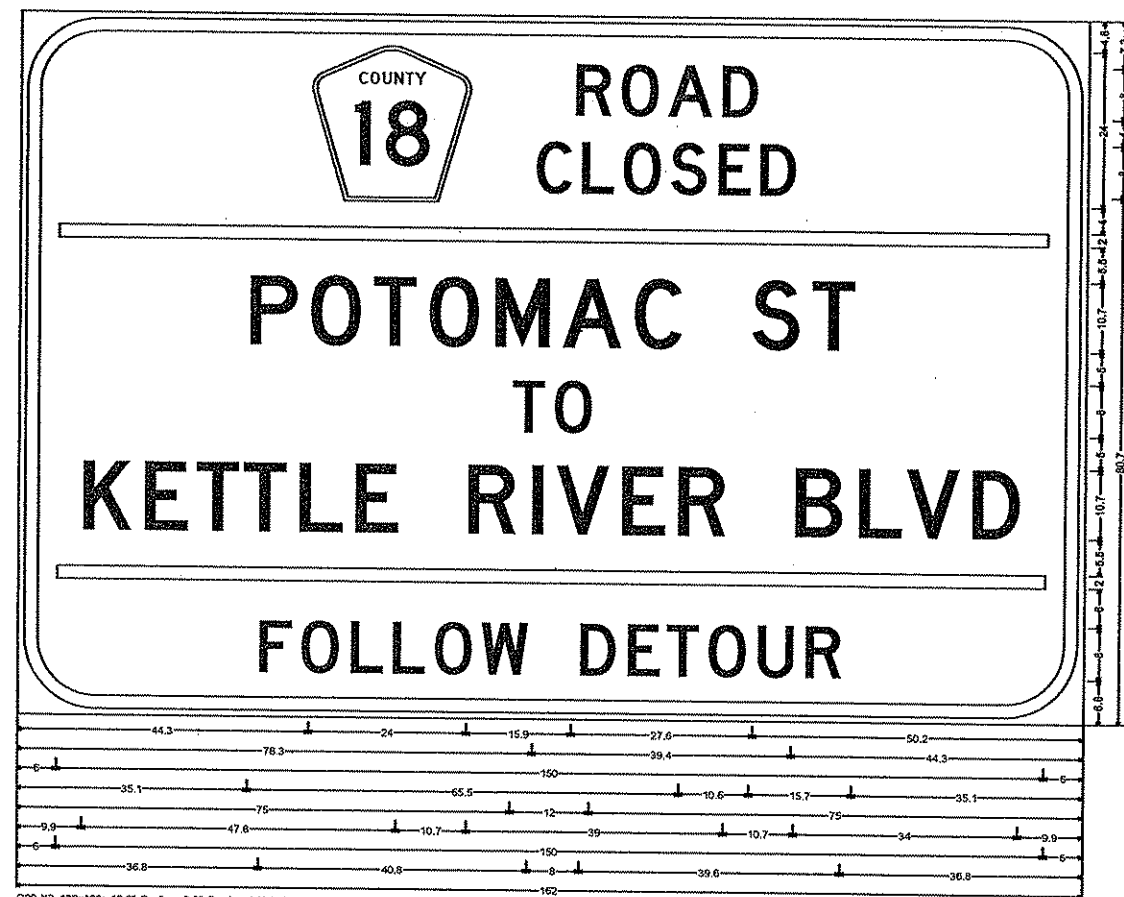
CONSTRUCTION PLAN  
 STA 122+00 TO 139+00  
 Sheet 16 of 28 Sheets



M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY	M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY
W20-1	48' x 48'		2	TYPE III	8 FOOT		2
M1-6A	24' x 24'		2	TYPE III	8 FOOT		2
W20-2	48' x 48'		2	G20-X2	162' x 108'		2
W20-3	48' x 48'		6	G20-X2	114' x 20'		2
W20-100P	24' x 18'		2	M4-8A	24' x 12'		0
W20-100P	24' x 18'		2	M3-4A	24' x 12'		0
M4-10R	48' x 18'		SEE NOTE 2	M1-6A	24' x 24'		2
TYPE III	8 FOOT		1		21' x 15'		2
M4-10L	48' x 18'		SEE NOTE 2				2
TYPE III	8 FOOT		1				4
R11-2	48' x 30'		SEE NOTE 2	M4-8A	24' x 12'		1
TYPE III	8 FOOT		2	M3-2A	24' x 12'		1
R11-3	48' x 30'		SEE NOTE 2	M1-6A	24' x 24'		1
TYPE III	8 FOOT		1		21' x 15'		1
R11-3	48' x 30'		SEE NOTE 2				1
TYPE III	8 FOOT		1				4
				G20-X1	60' x 48'		2
							2

G20-X1 SIGN TO BE INSTALLED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGNS TO BE REMOVED AT TIME OF DETOUR INSTALLATION.

THE NUMBER OF DAYS BE LIMITED FOR THE ROAD CLOSURE TO 8 DAYS MAXIMUM.



G20-X2\_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange; [ROAD] D; [CLOSED] D; [POTOMAC ST] D; [TO] D; [KETTLE RIVER BLVD] D; [FOLLOW DETOUR] D;

INSTALL G20-X2 SIGNS 7 DAYS PRIOR WITH "BEGIN/DATE" PLATE; REMOVE PLATE AT START DATE OF CONSTRUCTION SO SIGN READS "FOLLOW DETOUR".

STANDARD TRAFFIC CONTROL NOTES:

- 1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE, EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) ALL BARRICADES AND SIGNS SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
- 3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
- 4) ALL BARRICADES MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- 5) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- 6) ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: P:\13-01-00\CSAH 18CBroadway\18Base\TRAFFIC\Detour.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE:   
 DATE: 2/14/13 LICENSE NO. 42757

DRAWN BY: RLB DATE: 2/14/13  
 DESIGN BY: RLB DATE: 2/14/13  
 CHECKED BY: JR DATE: 2/14/13



ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

**PERMANENT PAVEMENT MARKING PLAN**  
NOTES AND GUIDELINES

**GENERAL INFORMATION:**

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

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

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

**EPOXY:**

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

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEANS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4" WIDE AND 15 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

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

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

**PREFORMED THERMOPLASTIC:**

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

**PAINT:**

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

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

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

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

**SYMBOLS & MATERIALS LEGEND**

■ CROSSWALK BLOCK WHITE PREFORMED THERMOPLASTIC

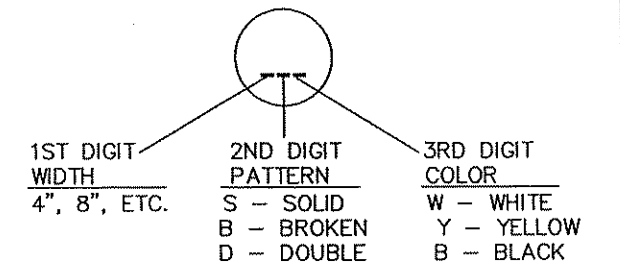
← PAVEMENT MESSAGE (LEFT ARROW) PREFORMED THERMOPLASTIC

**STRIPING KEY**

○ CIRCLE - EPOXY      □ SQUARE PREFORMED THERMOPLASTIC

△ TRIANGLE - PAINT

⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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

**PAVEMENT MARKING QUANTITIES**

Item	Quantity	Units
4" Solid Line White - Epoxy	27259	Lin Ft
4" Broken Line White - Epoxy (10 ft stripe / 40 ft gap)	120	Lin Ft
4" Solid Line Yellow - Epoxy	3401	Lin Ft
4" Broken Line Yellow - Epoxy (10 ft stripe / 40 ft gap)	2340	Lin Ft
4" Double Solid Line Yellow - Epoxy	1335	Lin Ft
24" Solid Line White - Pref Thermoplastic	48	Lin Ft
3'x6' Zebra Crosswalk - Pref Thermoplastic	126	SQ FT

NO	DATE	BY	CKD	APPR	REVISION

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 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *[Signature]*  
 DATE: 3/15/13 LICENSE NO. 42757

DRAWN BY: MTH DATE: 2-15-13  
 DESIGN BY: MTH DATE: 2-15-13  
 CHECKED BY: JR DATE: 2-25-13



**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

**PERMANENT MARKING**  
**TABULATION**  
 Sheet 19 of 28 Sheets

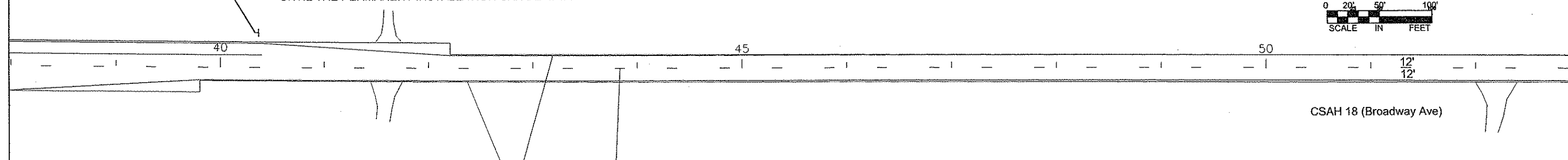


NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
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- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING
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STATION 38+00

②  
RIGHT TURN LANE R3-X1



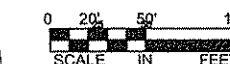
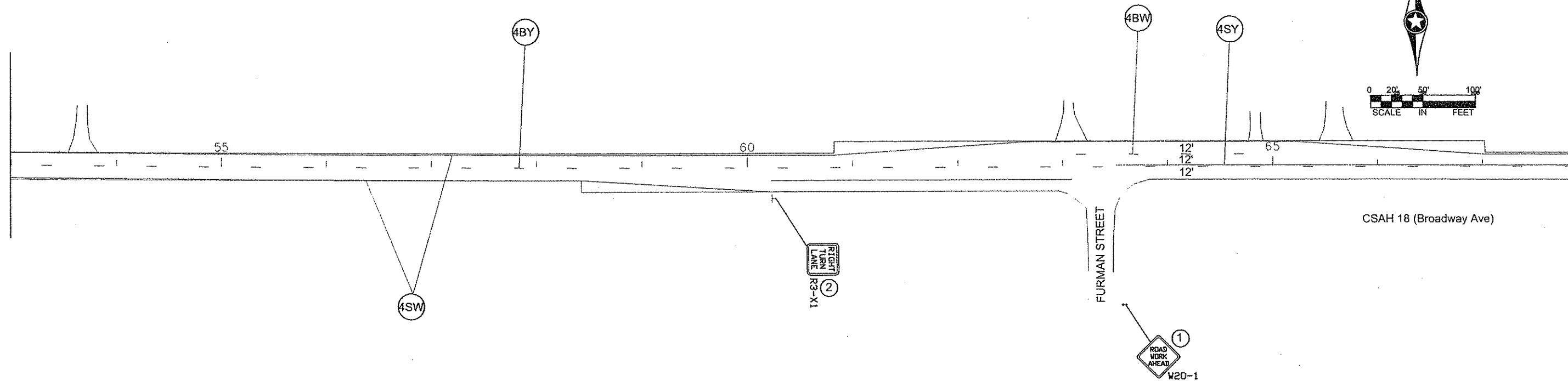
STATION 53+00

CSAH 18 (Broadway Ave)

SIGNING NOTES:

- ① TEMPORARY TRAFFIC CONTROL SIGN
- ② F & I PERMANENT SIGN

STATION 53+00



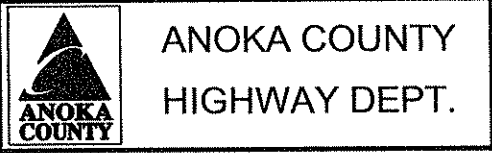
STATION 68+00

CSAH 18 (Broadway Ave)

NO	DATE	BY	CKD	APPR	REVISION

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 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/13/13 REG. NO. 42757

DRAWN BY: MTH DATE 2/15/2013  
 DESIGN BY: MTH DATE 2/15/2013  
 CHECKED BY: JR DATE 2/XX/2013

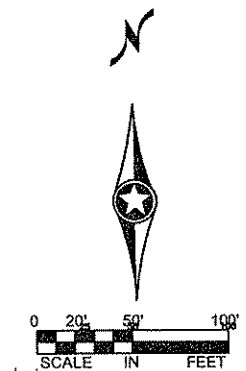


STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

TEMPORARY SIGNING  
 PERMANENT SIGNING, STRIPING  
 AND PAVEMENT MESSAGES  
 Sheet 21 of 28 Sheets

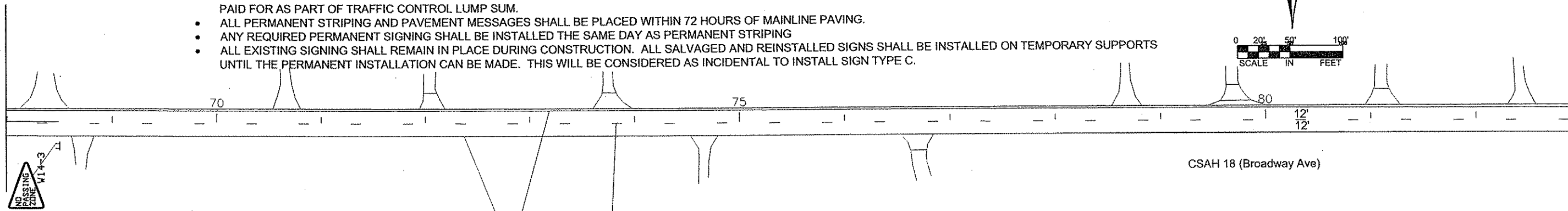
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STATION 68+00

STATION 83+00



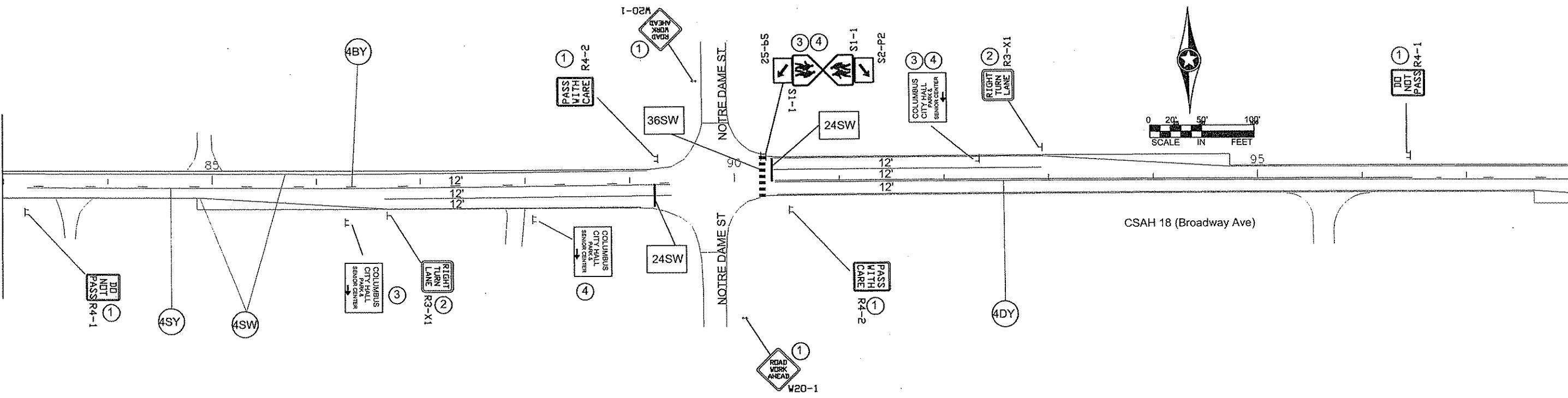
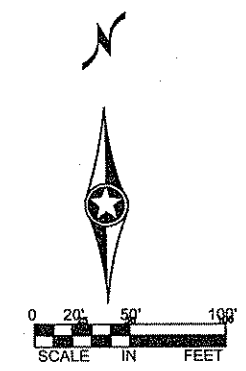
SIGNING NOTES:

- ① TEMPORARY TRAFFIC CONTROL SIGN
- ② F & I PERMANENT SIGN
- ③ SALVAGE PERMANENT SIGN
- ④ RE-INSTALL PERMANENT SIGN

CSAH 18 (Broadway Ave)

STATION 83+00

STATION 98+00

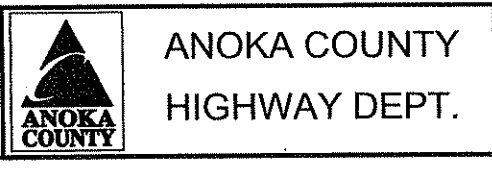


CSAH 18 (Broadway Ave)

NO	DATE	BY	CHKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTEK  
 SIGNATURE: *Andrew Wittek*  
 DATE: 3/7/13 REG. NO. 42757

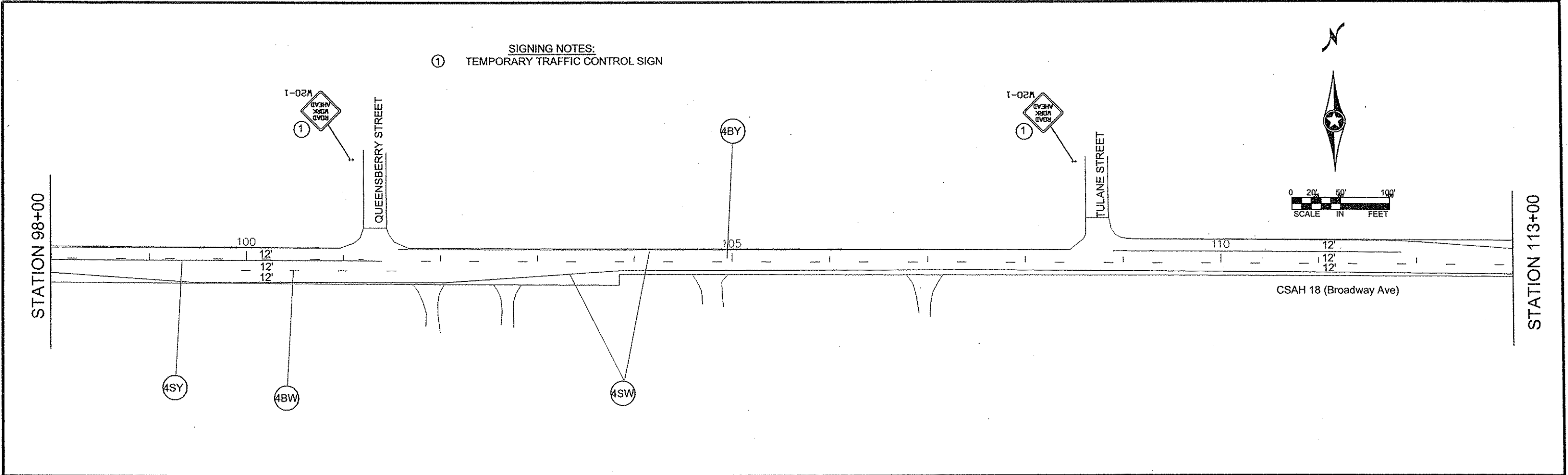
DRAWN BY: MTH DATE 2/15/2013  
 DESIGN BY: MTH DATE 2/15/2013  
 CHECKED BY: JR DATE 2/XX/2013



STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

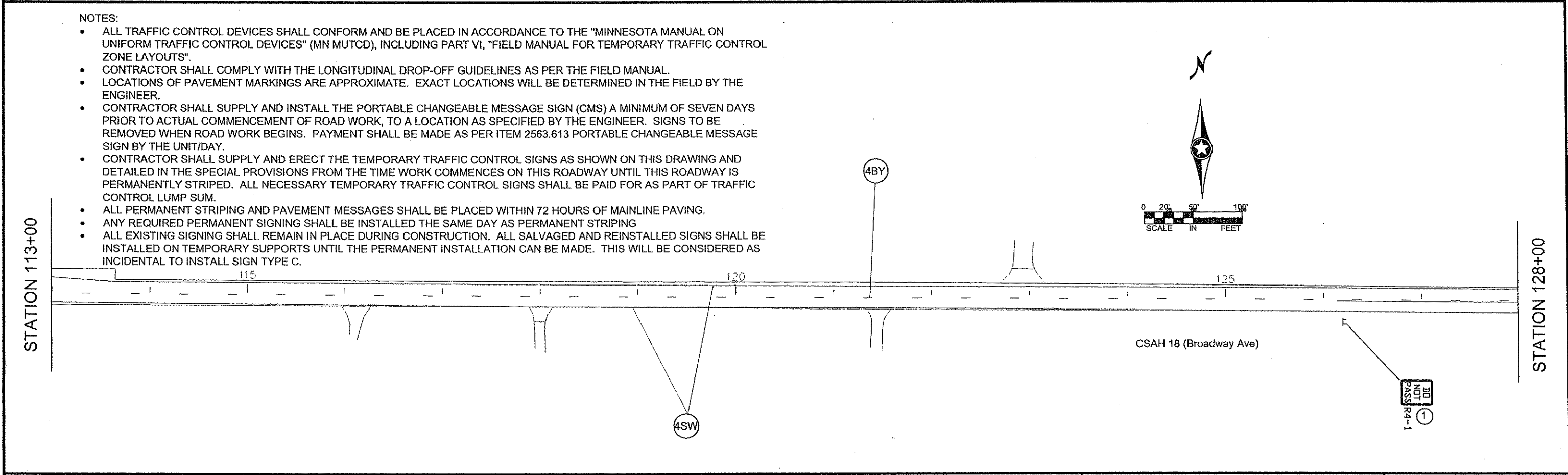
TEMPORARY SIGNING  
 PERMANENT SIGNING, STRIPING  
 AND PAVEMENT MESSAGES  
 Sheet 22 of 28 Sheets





NOTES:

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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:113-01-00\CSAH 18\base\PROPOSED\SIGNING AND STRIPING.DWG

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

PRINT NAME: ANDREW WITTER  
SIGNATURE: *Andrew Witter*  
DATE: 3/13/13 REG. NO. 42757

DRAWN BY: MTH DATE: 2/15/2013  
DESIGN BY: MTH DATE: 2/15/2013  
CHECKED BY: JR DATE: 2/XX/2013



ANOKA COUNTY  
HIGHWAY DEPT.

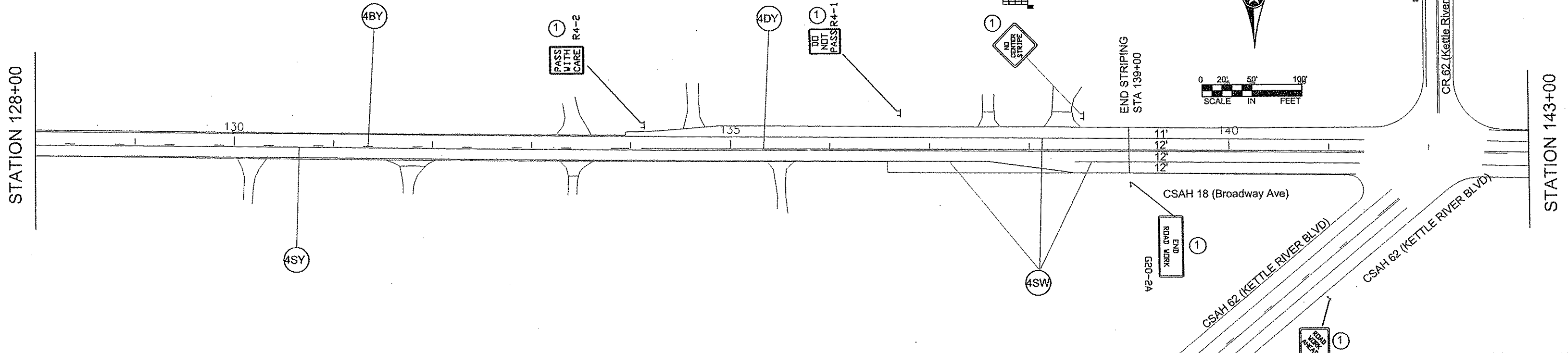
STATE PROJECT NO. \_\_\_\_\_  
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COUNTY PROJECT NO. 13-15-18

TEMPORARY SIGNING  
PERMANENT SIGNING, STRIPING  
AND PAVEMENT MESSAGES  
Sheet 23 of 28 Sheets



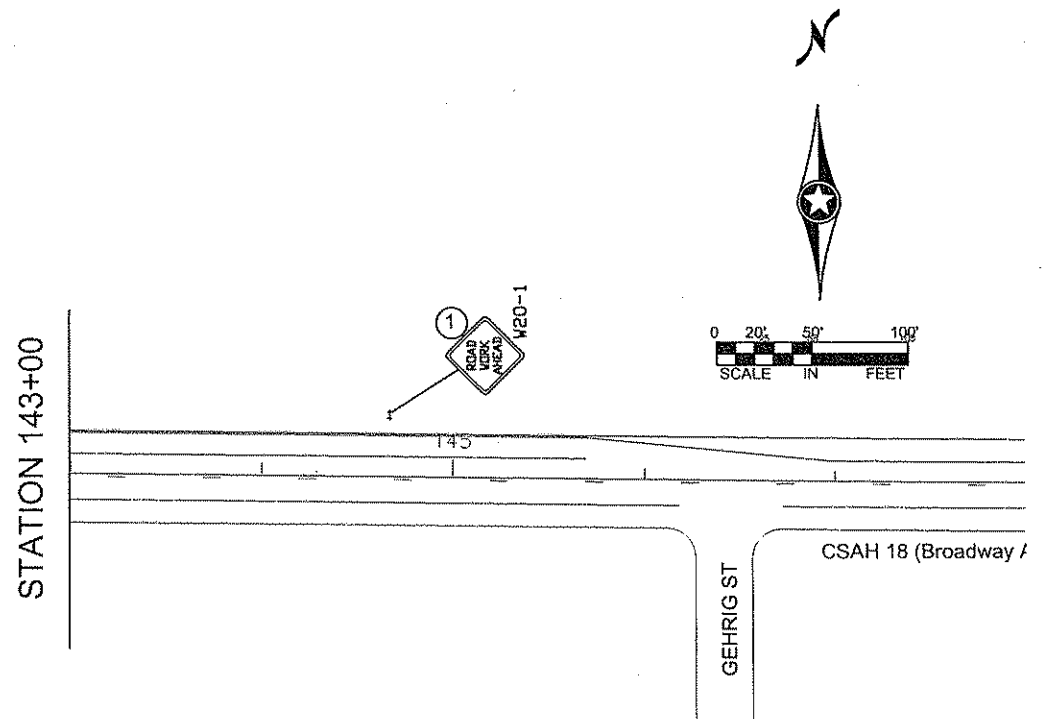
① SIGNING NOTES:  
TEMPORARY TRAFFIC CONTROL SIGN

SIGN TO BE INSTALLED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS



NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
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NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/13/13 REG. NO. 42757



DRAWN BY: MTH DATE 2/15/2013  
 DESIGN BY: MTH DATE 2/15/2013  
 CHECKED BY: JR DATE 2/XX/2013



ANOKA COUNTY  
HIGHWAY DEPT.














STATE PROJECT NO. \_\_\_\_\_  
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 COUNTY PROJECT NO. 13-15-18

TEMPORARY SIGNING  
 PERMANENT SIGNING, STRIPING  
 AND PAVEMENT MESSAGES  
 Sheet 24 of 28 Sheets

F & I PERMANENT SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT TO CENTER POST FT.
R3-X1	30" x 30"	6.25	 R3-X1	5	1	7.0'
W14-3	48" x 36"	6.00	 W14-3	2	2	7.0'

Item	Quantity	Units
SALVAGE SIGN TYPE C	4	EACH
SIGN PANEL TYPE C	43.25	SQ FT
INSTALL SIGN TYPE C	4	EACH

SALVAGE & REINSTALL SIGN TYPE C				
STATION		SALVAGE SIGN TYPE C	INSTALL SIGN TYPE C	SIGN NUMBER
		EACH	EACH	
11+60	Lt	1	1	M1-6 M6-1AL
86+20	Rt	1		Columbus
88+00	Rt		1	
90+30	Lt	1	1	S1-1 S2-P2 S1-1 S2-P2
92+50	Lt	1	1	Columbus
TOTAL		4	4	

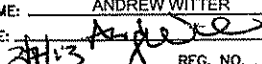
TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT TO CENTER POST FT.
W8-12	48" x 48"	16.00	 W8-12	2	2	7.0'
R4-1	24" x 30"	5.00	 R4-1	5	1	7.0'
R4-2	24" x 30"	5.00	 R4-2	4	1	7.0'
R8-10	24" x 36"	6.00	 R8-10	0	1	7.0'
W8-1A	48" x 48"	16.00	 W8-1A	AS NEEDED		
W8-1A	48" x 48"	16.00	 W8-1A	AS NEEDED		
W8-8	48" x 48"	16.00	 W8-8	AS NEEDED		
W8-9	48" x 48"	16.00	 W8-9	AS NEEDED		
	48" x 48"	16.00	 W8-8	AS NEEDED		
W8-11	48" x 48"	16.00	 W8-11	AS NEEDED		
W20-1	48" x 48"	16.00	 W20-1	AS NEEDED (ESTIMATED 13)		
			 CMS	2		
			 G20-2A	2		

NOTES:

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- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGN (CMS) A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
- CONTRACTOR SHALL SUPPLY AND ERECT THE TEMPORARY TRAFFIC CONTROL SIGNS AS SHOWN ON THIS DRAWING AND DETAILED IN THE SPECIAL PROVISIONS FROM THE TIME WORK COMMENCES ON THIS ROADWAY UNTIL THIS ROADWAY IS PERMANENTLY STRIPED. ALL NECESSARY TEMPORARY TRAFFIC CONTROL SIGNS SHALL BE PAID FOR AS PART OF TRAFFIC CONTROL LUMP SUM.
- ALL PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ANY REQUIRED PERMANENT SIGNING SHALL BE INSTALLED THE SAME DAY AS PERMANENT STRIPING
- ALL EXISTING SIGNING SHALL REMAIN IN PLACE DURING CONSTRUCTION. ALL SALVAGED AND REINSTALLED SIGNS SHALL BE INSTALLED ON TEMPORARY SUPPORTS UNTIL THE PERMANENT INSTALLATION CAN BE MADE. THIS WILL BE CONSIDERED AS INCIDENTAL TO INSTALL SIGN TYPE C.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\113-01-00\CSAH 18\base\PROPOSED\SIGNING AND STRIPING.DWG

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE:   
 DATE: 2/13/13 REG. NO. 42757

DRAWN BY: MTH DATE 2/15/2013  
 DESIGN BY: MTH DATE 2/15/2013  
 CHECKED BY: JR DATE 2/XX/2013



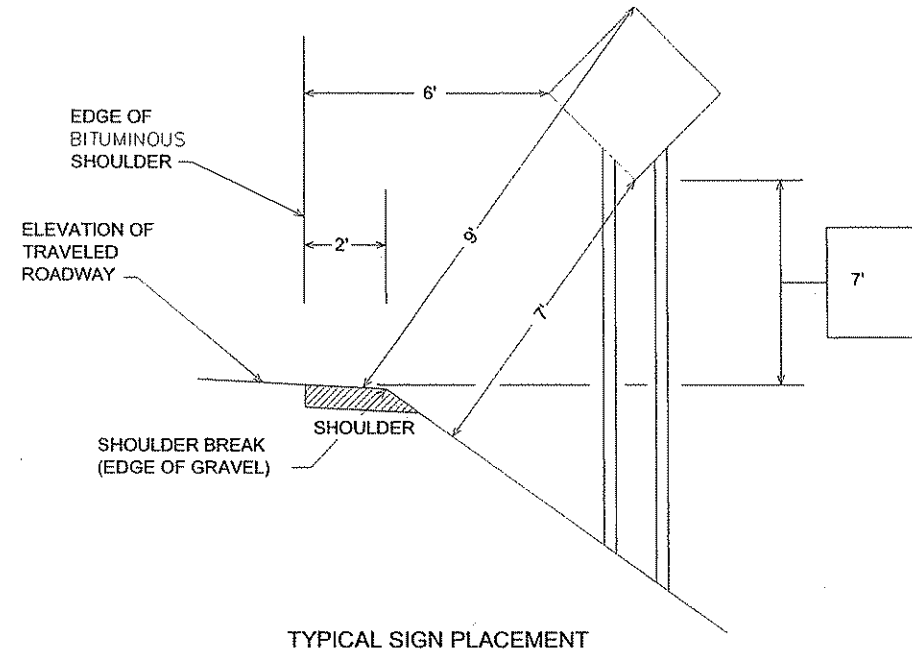
ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
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 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

TEMPORARY SIGNING  
 PERMANENT SIGNING, STRIPING  
 AND PAVEMENT MESSAGES  
 Sheet 25 of 28 Sheets



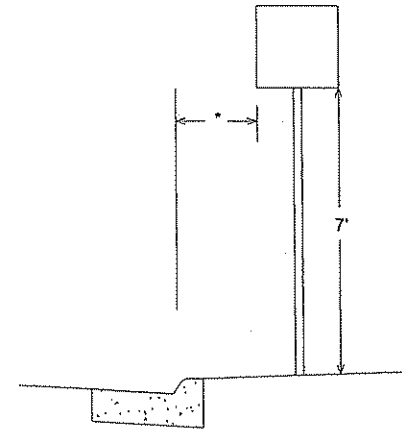
RURAL



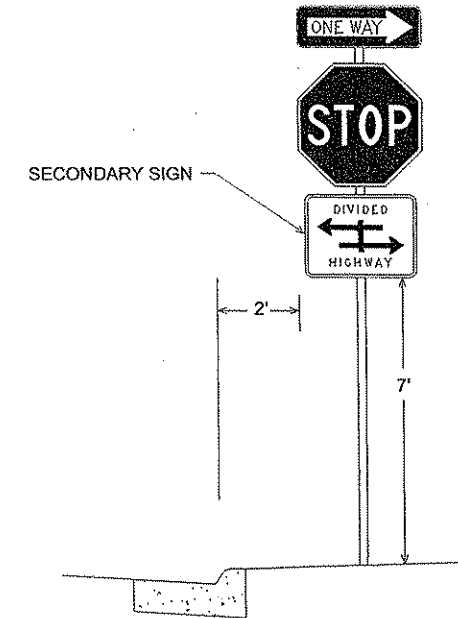
TYPICAL SIGN PLACEMENT

URBAN

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



TYPICAL SIGN PLACEMENT



NOTE:

- ALL DIMENSIONS ARE MINIMUMS
- MAINTAIN 2' CLEAR FROM SIGNS TO BITUMINOUS TRAIL

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: ANDREW WITTER  
 SIGNATURE: *Andrew Witter*  
 DATE: 3/13/13 LICENSE NO. 42757

DRAWN BY MTH DATE 2-15-13  
 DESIGN BY MTH DATE 2-15-13  
 CHECKED BY JR DATE 2-XX-13

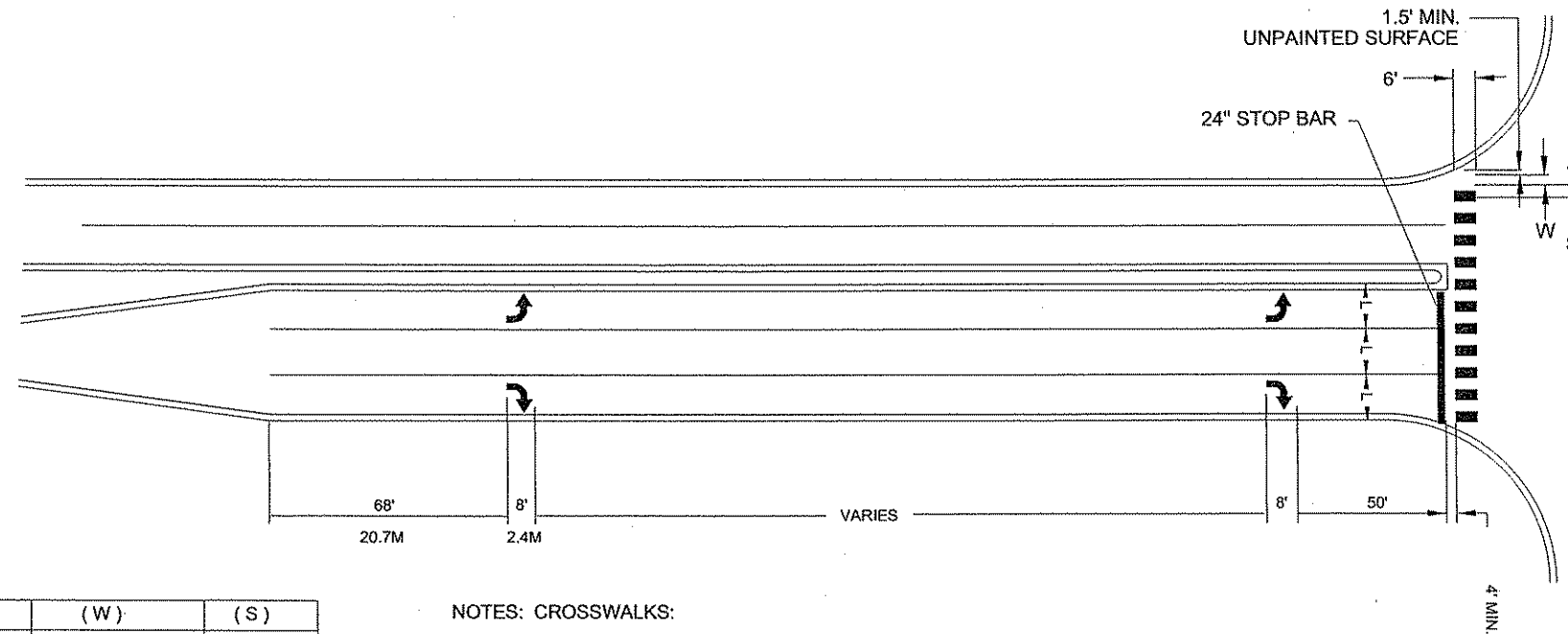


ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
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 STATE PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

SIGNING & STRIPING DETAILS  
 Sheet 27 of 28 Sheets

# MARKINGS FOR PEDESTRIAN CROSSWALKS



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

**NOTES: CROSSWALKS:**

- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
- 2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGR.
- 3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES, EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.
- 4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.
- 5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

NO	DATE	BY	CHKD	APPR	REVISION

NAME: T:\Traffic\Dwg\CSAH 18 (Crosstown Blvd)\Sign&Stripe\_Details.dwg

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

PRINT NAME: ANDREW WITTER  
 SIGNATURE: *[Signature]*  
 DATE: 3/1/13 LICENSE NO. 42757

DRAWN BY MTH DATE 2-15-13  
 DESIGN BY MTH DATE 2-15-13  
 CHECKED BY JR DATE 2-XX-13



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE PROJECT NO. \_\_\_\_\_  
 STATE PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 13-15-18

**SIGNING & STRIPING DETAILS**

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