

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY

CONSTRUCTION PLAN FOR BITUMINOUS RECLAMATION, BITUMINOUS SURFACING

LOCATED ON CR 15 BETWEEN CSAH 22 AND CR 74

### GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

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

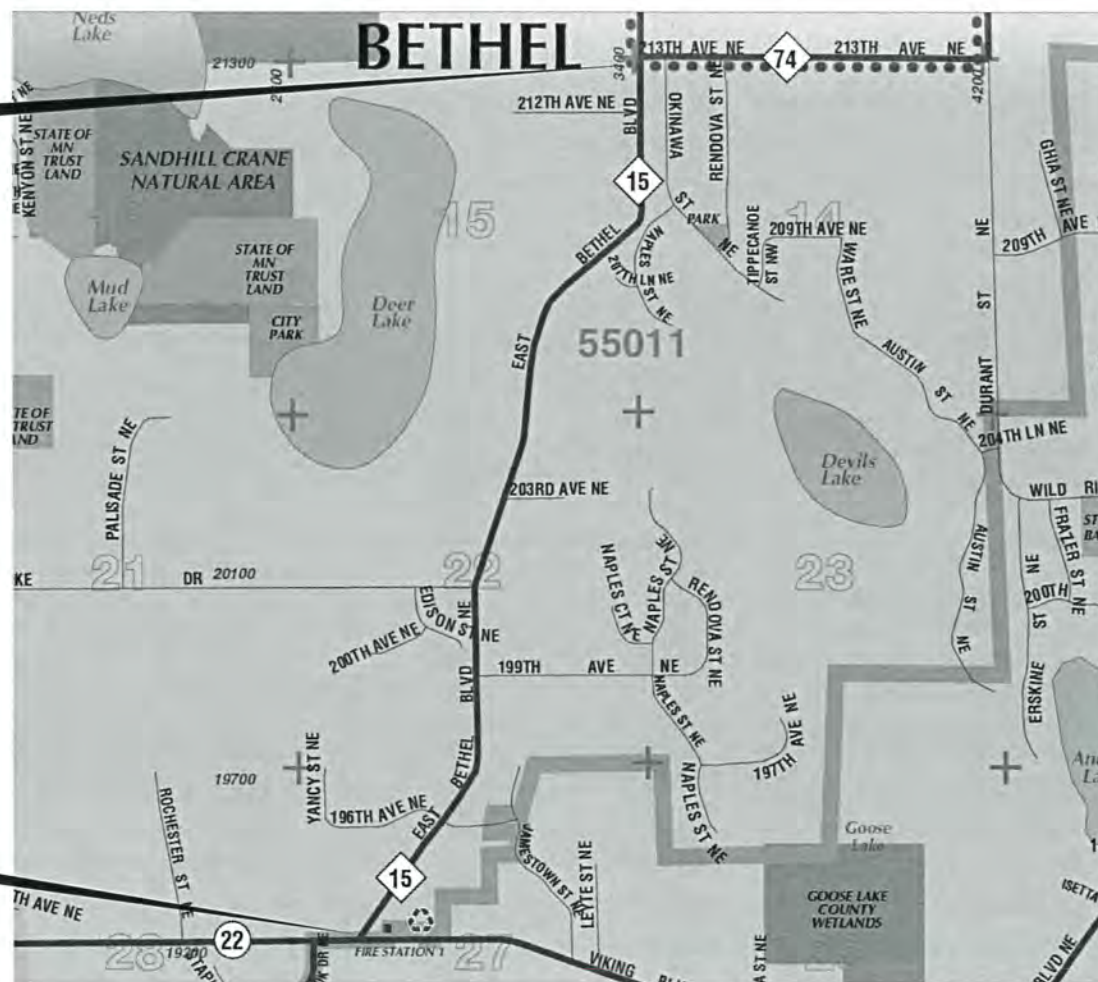
THIS PLAN CONTAINS 21 SHEETS

### INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3-4	TYPICAL SECTIONS
5-6	DETAILS
7-12	CONSTRUCTION PLAN
13	PERMANENT MARKING TABULATION
14-20	TEMPORARY SIGNING, PERMANENT SIGNING AND STRIPING
21	ORIGINAL SIGNAL PLANS

END CP 17-30-15  
CR 15 STA: 157+60

BEGIN CP 17-30-15  
CR 15 STA: 10+77



### PROJECT LOCATION



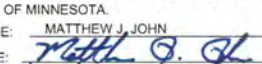
CR 15	
GROSS LENGTH	14683 FEET = 2.78 MILES
EXCEPTIONS-LENGTH	0.00 FEET = 0.000 MILES
NET LENGTH	14683 FEET = 2.78 MILES
DESIGN SPEED	55 MPH
CURRENT ADT	1992

CITY OF EAST BETHEL  
ANOKA COUNTY  
MN/DOT TRANSPORTATION DISTRICT - METRO  
SECTIONS 14, 15, 22 & 27  
TOWNSHIP 33 NORTHWEST  
RANGE 23 WEST

Approved:  4/7/2017  
ANOKA COUNTY ENGINEER

NO	DATE	BY	CKD	APPR	REVISION	
	03/20/2017					10:37:43 AM

NAME: P:\17-01-00\CR\_15 (CSAH22-CR74)\Base\PROPOSED\PLAN.dgn

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: MATTHEW J. JOHN  
SIGNATURE:   
DATE: 3/20/2017 LICENSE NO. 51639

DRAWN BY: CSO DATE: 2/8/2017  
DESIGN BY: CSO DATE: 2/8/2017  
CHECKED BY: MJJ DATE: 3/16/2017



ANOKA COUNTY  
HIGHWAY DEPT.

COUNTY PROJECT 17-30-15

TITLE SHEET

Sheet 1 of 21 Sheets

**STATEMENT OF ESTIMATED QUANTITIES**

ITEM NUMBER	ITEM DESCRIPTION	NOTES	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED
2021.501	MOBILIZATION		LUMP SUM	1
2104.503	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	4	SQ YD	732
2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT	4	SQ YD	30
2104.505	REMOVE BITUMINOUS PAVEMENT		SQ YD	901
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LIN FT	22
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	608
2104.523	SALVAGE SIGN TYPE C		EACH	3
2105.602	CONSTRUCT TURN LANE (P)	14	EACH	1
2123.503	MOTOR GRADER		HOUR	10
2123.509	DOZER	15	HOUR	5
2130.501	WATER		MGAL	20
2211.501	AGGREGATE BASE CLASS 5	1	TON	240
2215.501	FULL DEPTH RECLAMATION		SQ YD	40104
2215.502	HAUL FULL DEPTH RECLAMATION (LV)	10	CU YDS	59
2221.501	SHOULDER BASE AGGREGATE CLASS 5	2	TON	1291
2232.501	MILL BITUMINOUS SURFACE (2.0")	3	SQ YD	114
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GAL	4123
2360.501	TYPE 12.5 WEARING COARSE MIX (4,C)		TON	9586
2360.501	TYPE 12.5 WEARING COARSE MIX (3,B)	4, 11	TON	292
2531.507	6" CONCRETE DRIVEWAY PAVEMENT	4	SQ YD	30
2540.602	MAIL BOX SUPPORT	5	EACH	14
2563.601	TRAFFIC CONTROL	6, 8	LUMP SUM	1
2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	7	UNIT DAY	14
2564.531	SIGN PANELS TYPE C		SQ FT	6.25
2564.537	INSTALL SIGN TYPE C		EACH	3
2574.609	COMMON TOPSOIL BORROW (LV)	12	CU YD	100
2575.523	EROSION CONTROL BLANKET CATEGORY 0	12, 13	SQ YD	950
2581.501	REMOVABLE PREFORMED PAVEMENT MARKING TAPE	8	LIN FT	1174
2582.502	4" SOLID LINE EPOXY	9	LIN FT	36270
2582.502	4" BROKEN LINE EPOXY	9	LIN FT	2220
2582.502	4" DOUBLE SOLID LINE EPOXY	9	LIN FT	3680

**CONSTRUCTION NOTES**

1	GRAVEL BASE FOR CONCRETE DRIVEWAYS, BITUMINOUS DRIVEWAYS, BITUMINOUS STREET APPROACHES AND SUPER ELEVATION CORRECTION.
2	ITEM INCLUDES 10 TONS FOR EACH GRAVEL ENTRANCE AND GRAVEL STREET APPROACH.
3	ITEM INCLUDES 2" DEEP MILL AT BEGINNING AND END OF PROJECT.
4	CONTRACTOR IS RESPONSIBLE FOR CONTACTING PROPERTY OWNER 48 HOURS BEFORE STARTING OPERATION.
5	MAILBOXES SHALL BE INSTALLED AT THE EXISTING MAILBOX LOCATION OR AS DIRECTED BY THE LOCAL POSTAL AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE LOCAL POSTAL AUTHORITY. MAILBOX REMOVAL AND ALL MATERIALS NECESSARY FOR INSTALLATION ARE INCIDENTAL TO THIS ITEM.
6	ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." DO NOT PASS, PASS WITH CARE, NO CENTER STRIPE, AND STOP HERE ON RED SIGNS MUST BE INPLACE WHENEVER PERMANENT PAVEMENT MARKINGS ARE NOT PRESENT.
7	2 MESSAGE BOARDS, ONE ON THE EACH END OF PROJECT, WILL BE INSTALLED 7 DAYS PRIOR TO ANY CONSTRUCTION; REFERENCE STRIPING PLAN FOR DETAILS.
8	SKIPS MUST BE INPLACE BEFORE THE CONTRACTOR LEAVES FOR THE DAY. CONTRACTOR SHALL REMOVE SKIPS PRIOR TO FINAL PAINT STRIPING.
9	FINAL STRIPING SHALL BE INSTALLED WITHIN 72 HOURS OF COMPLETION OF MAINLINE WEAR COURSE PAVING.
10	MATERIAL SHALL BE HAULED TO AND USED FOR PROFILE AND SUPERELEVATION CORRECTION AREAS. ITEM INCLUDES PLACEMENT, SHAPING, COMPACTION, AND MAINTENANCE OF MATERIAL. EXCESS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.
11	ITEM FOR BITUMINOUS DRIVEWAYS AND STREET APPROACHES.
12	ITEM USED AT THE ENGINEERS DISCRETION FOR THE RESTORATION ALONG DRIVEWAYS, STREET APPROACHES, AND THE TURN LANE CONSTRUCTION AREA.
13	TYPE 1 FERTILIZER AND TYPE 25-121 SEED ARE INCIDENTAL TO THIS ITEM.
14	ITEMS INCLUDED IN THE TURN LANE BY THE EACH ARE: COMMON EXCAVATION, SELECT GRANULAR BORROW, AGGREGATE BASE CL-5, AND TOPSOIL BORROW.
15	ITEM USED TO GRADE DITCH LINE ADJACENT TO CONSTRUCTED TURN LANE, AS NECESSARY, AS DETERMINED BY THE ENGINEER.

**BASIS OF PLANNED QUANTITIES**

2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD
2211	AGGREGATE BASE CLASS 5	1.8 TONS / CU YD
2360	ALL BITUMINOUS PAVEMENT	115 LBS / SQ YD / IN THICKNESS
2581	REMOVABLE PREFORM PAVEMENT MARKING TAPE	2' AT 50' INTERVALS

**MNDOT STANDARD PLATES**

PLATE NUMBER	DESCRIPTION
8000J	CHANNELIZERS (3 SHEETS)
9350A	MAILBOX SUPPORTS (SWING-AWAY TYPE)

**ESTIMATED QUANTITIES FOR RIGHT TURN LANES BY THE EACH**

STREET	STATION RANGE	RTL / BYPASS	COMMON EXCAVATION (CU YDS)	GRANULAR BORROW (CV) (CU YDS)	TOPSOIL BORROW (LV) (CU YDS)	CLASS 5 (TON)
CR 74	151+72 TO 156+52	RTL	107	406	37	23
<b>TOTALS:</b>			<b>107</b>	<b>406</b>	<b>37</b>	<b>23</b>

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DRAWN BY: CSO DATE: 2/9/2017  
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 CHECKED BY: MJJ DATE: 3/15/2017



**ANOKA COUNTY  
HIGHWAY DEPT.**

COUNTY PROJECT 17-30-15

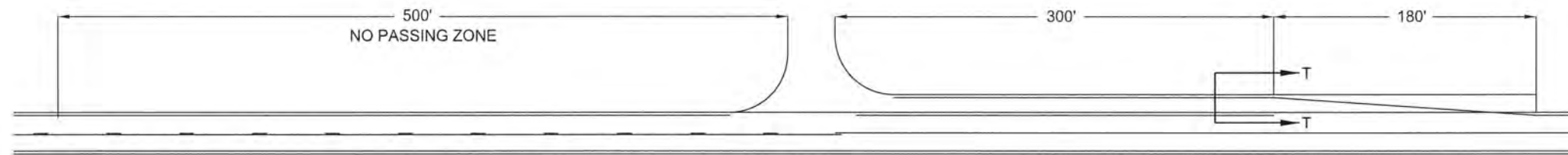
STATEMENT OF ESTIMATED QUANTITIES

Sheet 2 of 21 Sheets



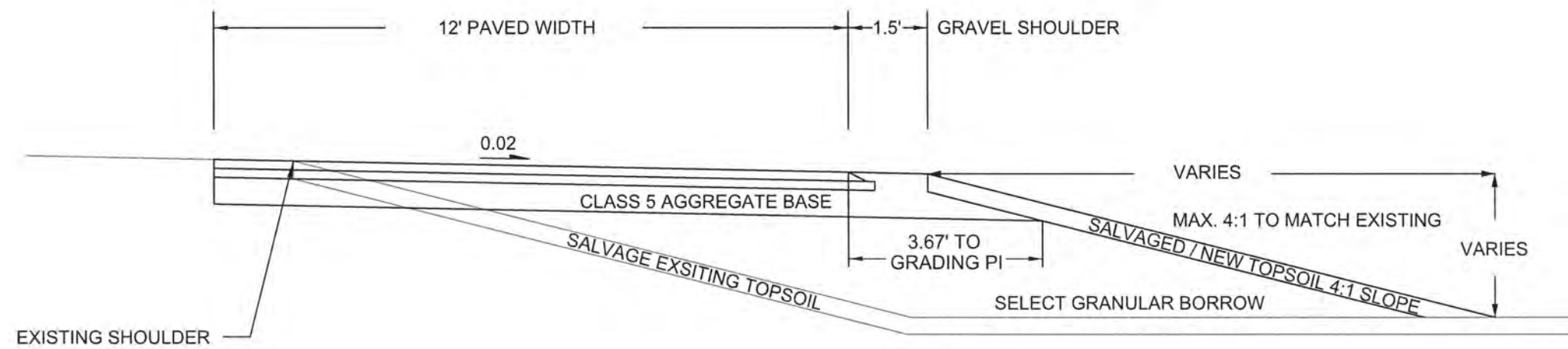
### RIGHT TURN LANE

GENERAL LAYOUT  
PLAN VIEW



### RIGHT TURN LANE

SECTION T - T

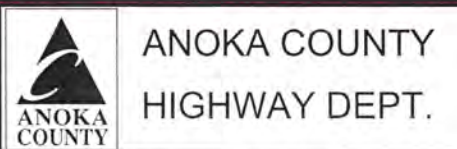


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 CHECKED BY MJJ DATE 3/16/2017



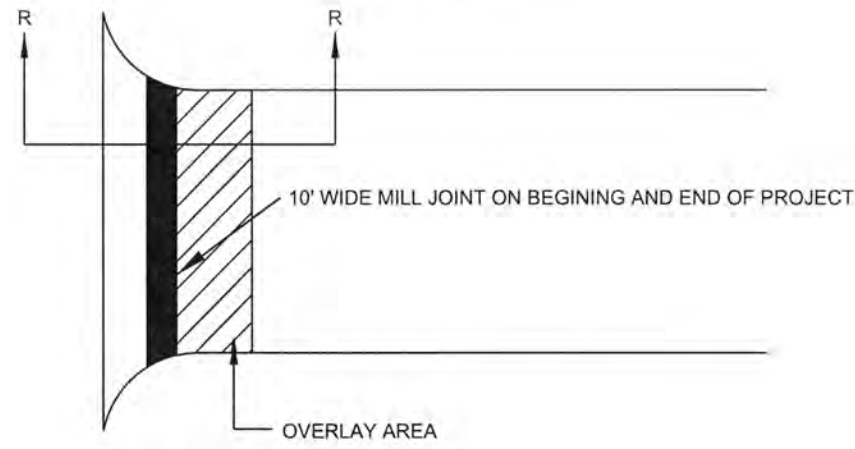
COUNTY PROJECT 17-30-15

TYPICAL SECTIONS  
 Sheet 4 of 21 Sheets

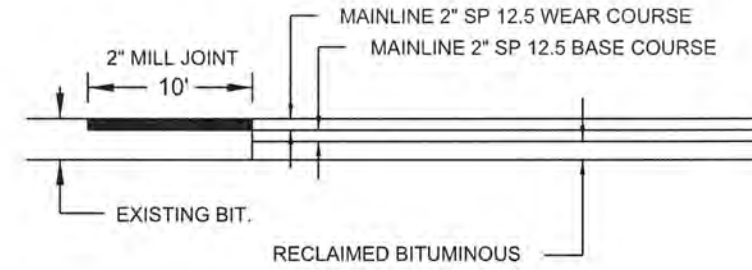
M. John

### MAINLINE JOINT DETAIL (RECLAIM)

PLAN VIEW



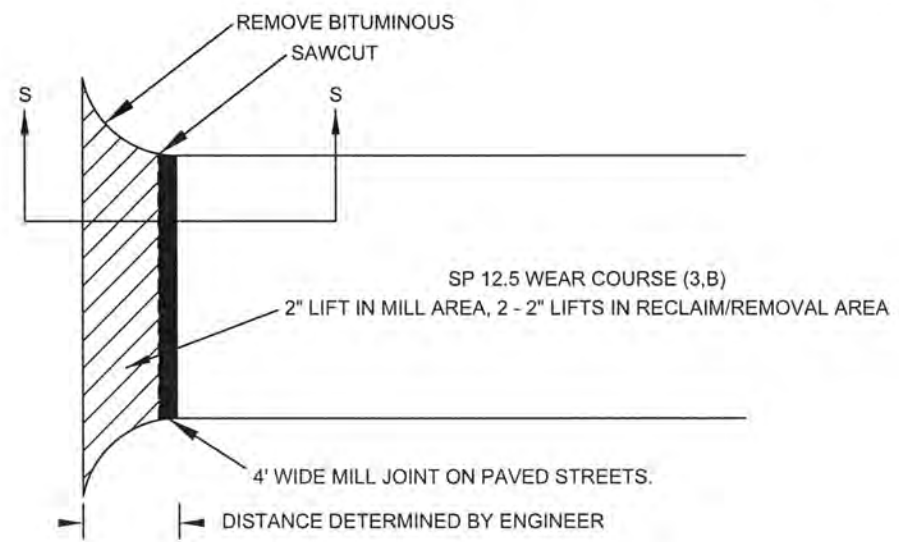
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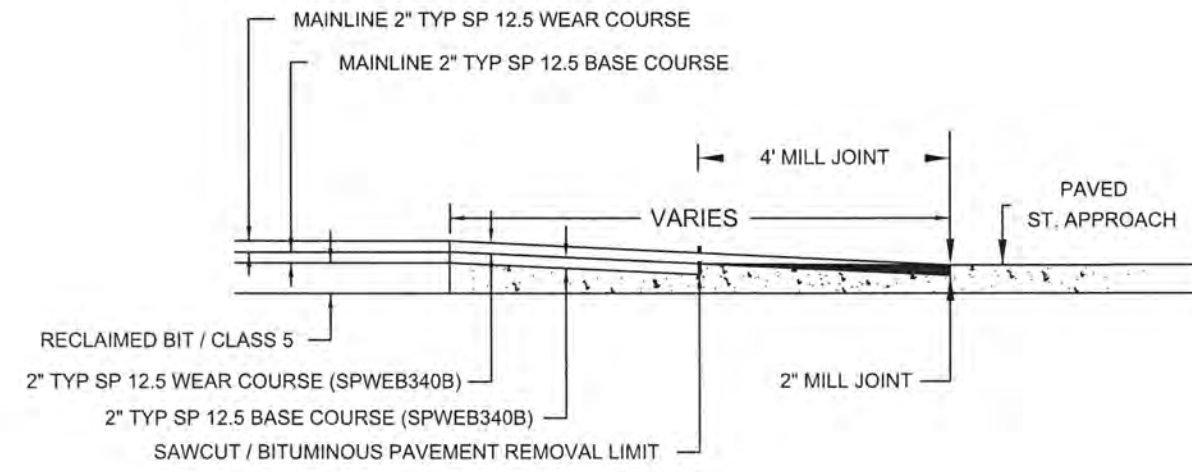
### STREET APPROACH DETAIL

BITUMINOUS STREET

PLAN VIEW



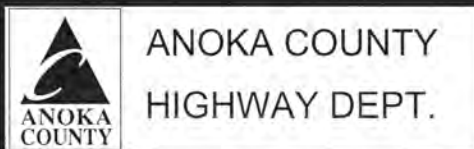
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ANOKA COUNTY  
 HIGHWAY DEPT.  
 COUNTY PROJECT 17-30-15

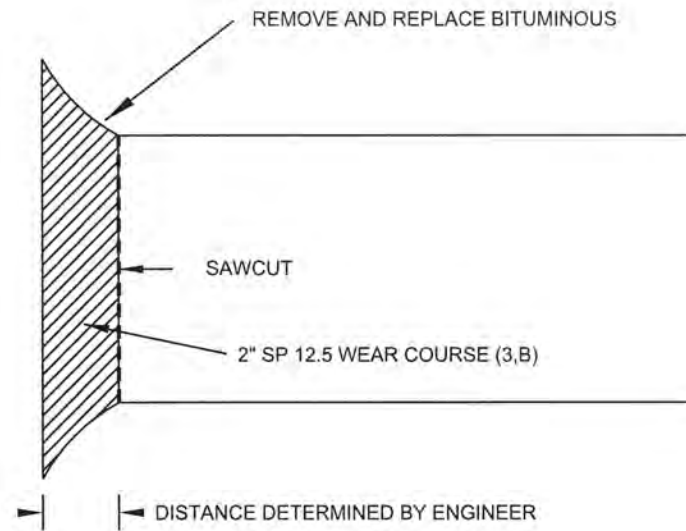
DETAILS  
 Sheet 5 of 21 Sheets

M. John

### RECLAIM AREA - DRIVEWAY DETAIL

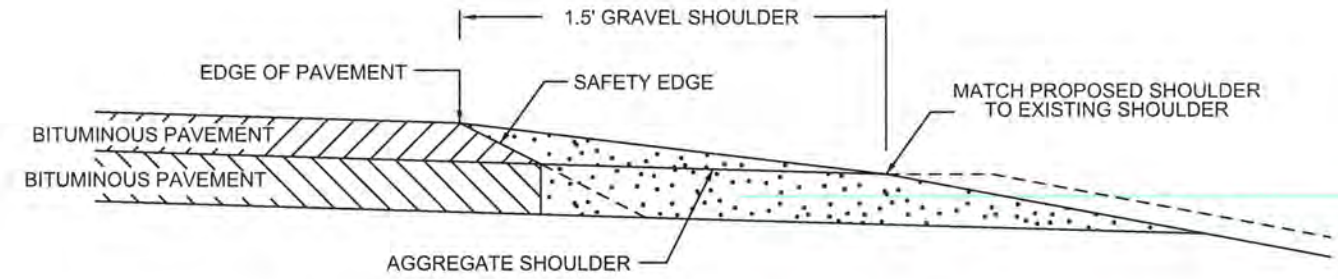
BITUMINOUS

PLAN VIEW



### SHOULDER DETAIL

BITUMINOUS SAFETY EDGE  
GRAVEL SHOULDER

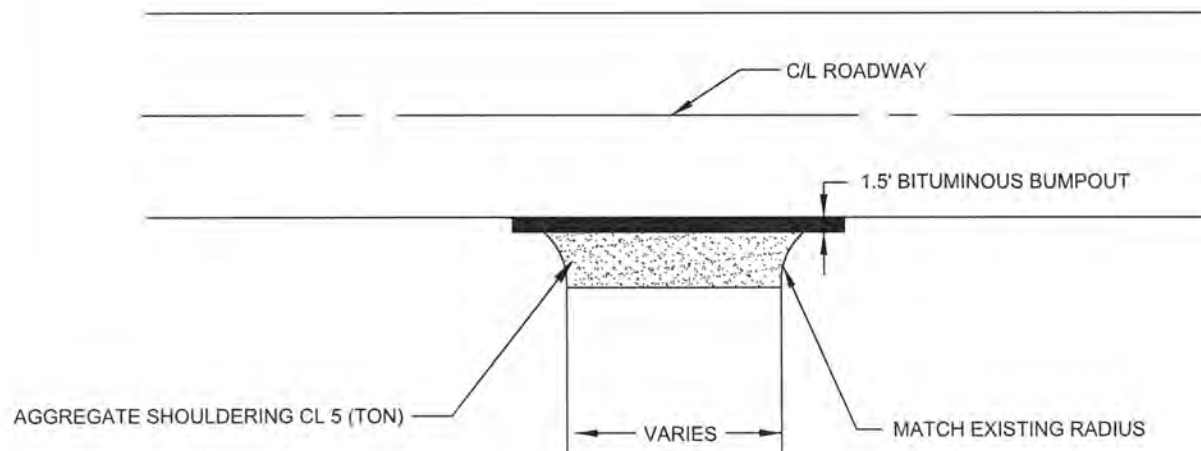


SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER.

OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS.

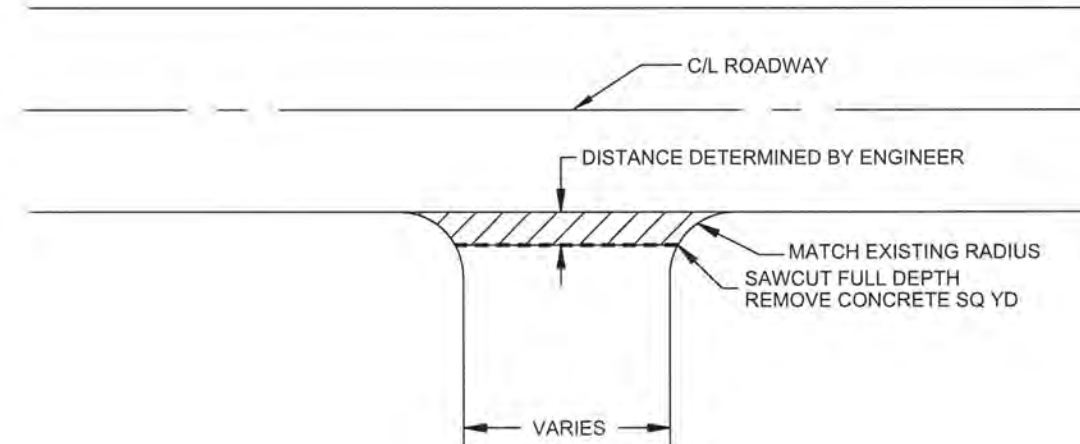
### DRIVEWAY DETAIL

GRAVEL / FIELD ENTRANCE



### DRIVEWAY DETAIL

CONCRETE DRIVEWAY



NO	DATE	BY	CKD	APPR	REVISION	03/20/2017	10:38:08 AM
NAME: P:\17-01-00\CR_15_(CSAH22-CR74)\Base\PROPOSED\PLAN.dgn							

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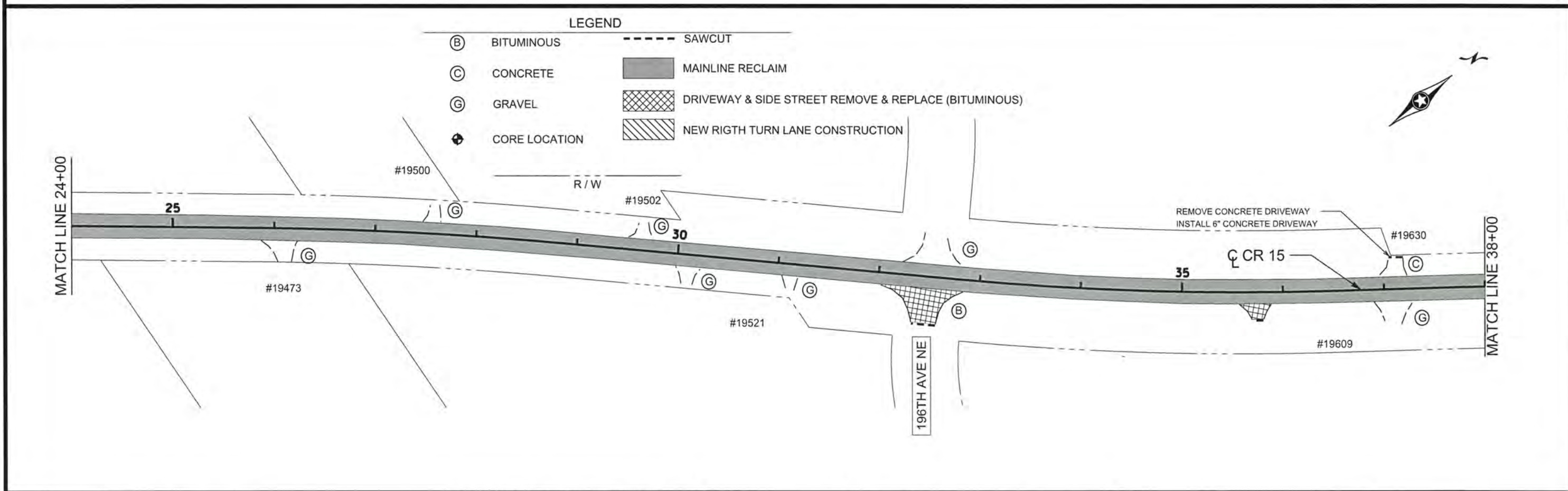
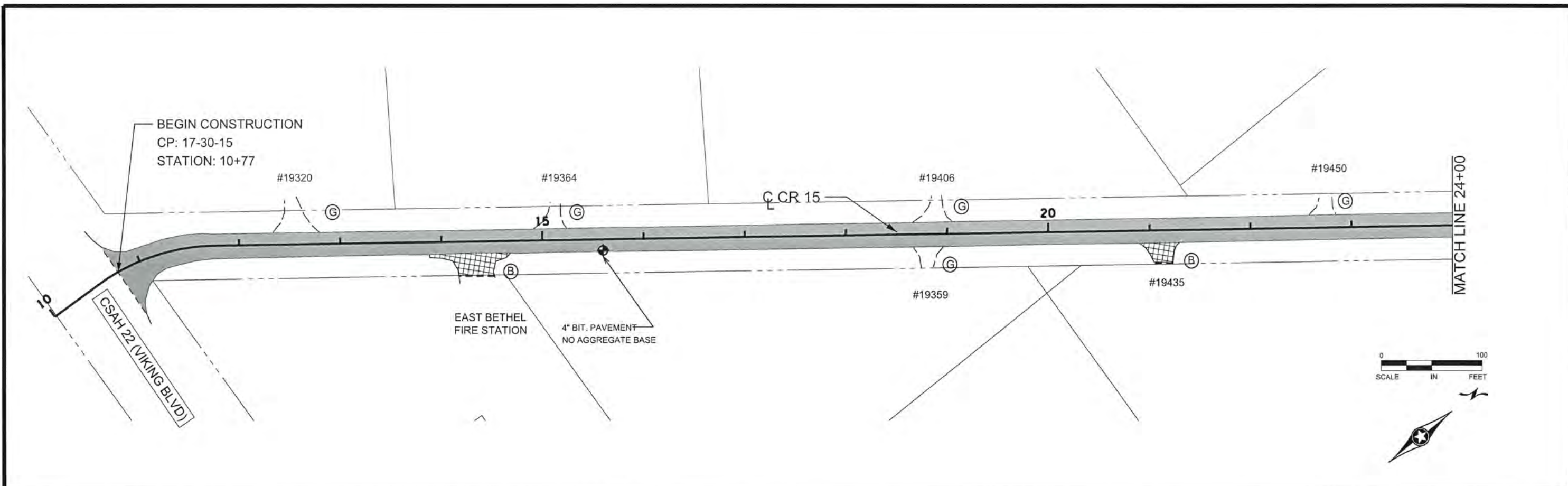


ANOKA COUNTY  
HIGHWAY DEPT.

COUNTY PROJECT 17-30-15

DETAILS  
Sheet 6 of 21 Sheets

M. John



LEGEND

- (B) BITUMINOUS
- (C) CONCRETE
- (G) GRAVEL
- ⊕ CORE LOCATION
- SAWCUT
- █ MAINLINE RECLAIM
- ▨ DRIVEWAY & SIDE STREET REMOVE & REPLACE (BITUMINOUS)
- ▩ NEW RIGH TURN LANE CONSTRUCTION

NO	DATE	BY	CKD	APPR	REVISION	TIME

NAME: P:\17-01-00\CR\_15\_CSAH22-CR74\Bases\PROPOSED\PLAN.dgn

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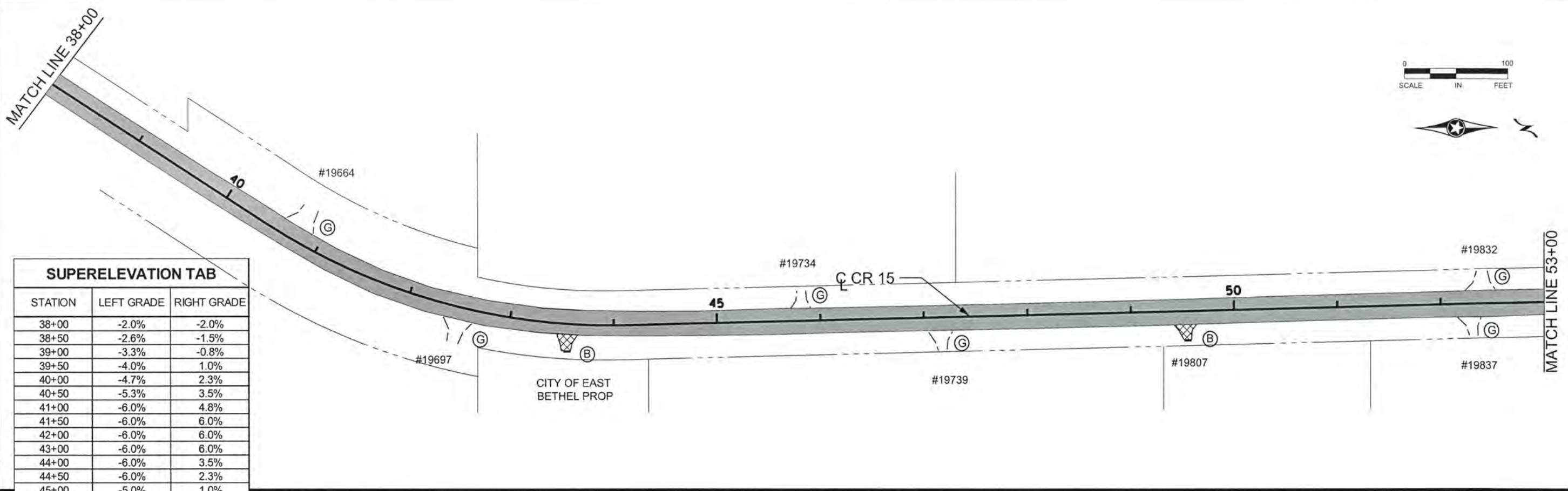
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ANOKA COUNTY  
HIGHWAY DEPT.

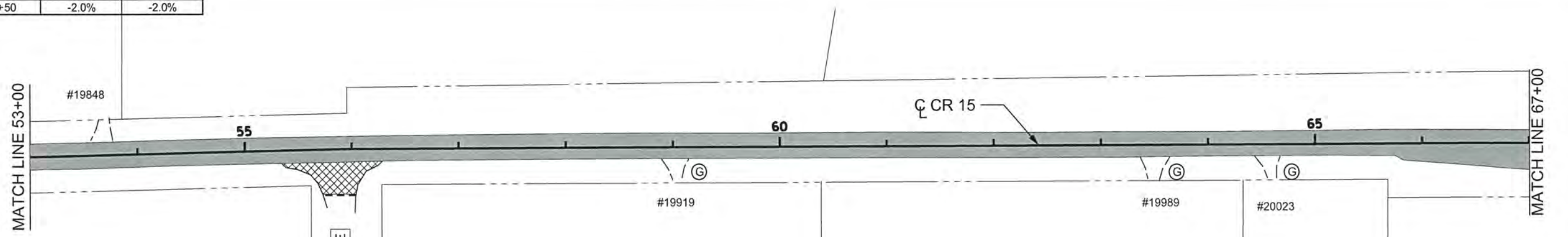
COUNTY PROJECT 17-30-15

CONSTRUCTION PLAN  
STA 10+77 TO 38+00  
Sheet 7 of 21 Sheets

M.John



SUPERELEVATION TAB		
STATION	LEFT GRADE	RIGHT GRADE
38+00	-2.0%	-2.0%
38+50	-2.6%	-1.5%
39+00	-3.3%	-0.8%
39+50	-4.0%	1.0%
40+00	-4.7%	2.3%
40+50	-5.3%	3.5%
41+00	-6.0%	4.8%
41+50	-6.0%	6.0%
42+00	-6.0%	6.0%
43+00	-6.0%	6.0%
44+00	-6.0%	3.5%
44+50	-6.0%	2.3%
45+00	-5.0%	1.0%
45+50	-4.0%	-0.3%
46+00	-3.0%	-1.5%
46+50	-2.0%	-2.0%



- LEGEND**
- (B) BITUMINOUS
  - (C) CONCRETE
  - (G) GRAVEL
  - ⊕ CORE LOCATION
  - SAWCUT
  - █ MAINLINE RECLAIM
  - ▨ DRIVEWAY & SIDE STREET REMOVE & REPLACE (BITUMINOUS)
  - ▩ NEW RIGTH TURN LANE CONSTRUCTION

R / W



NO	DATE	BY	CKD	APPR	REVISION	

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**ANOKA COUNTY  
HIGHWAY DEPT.**

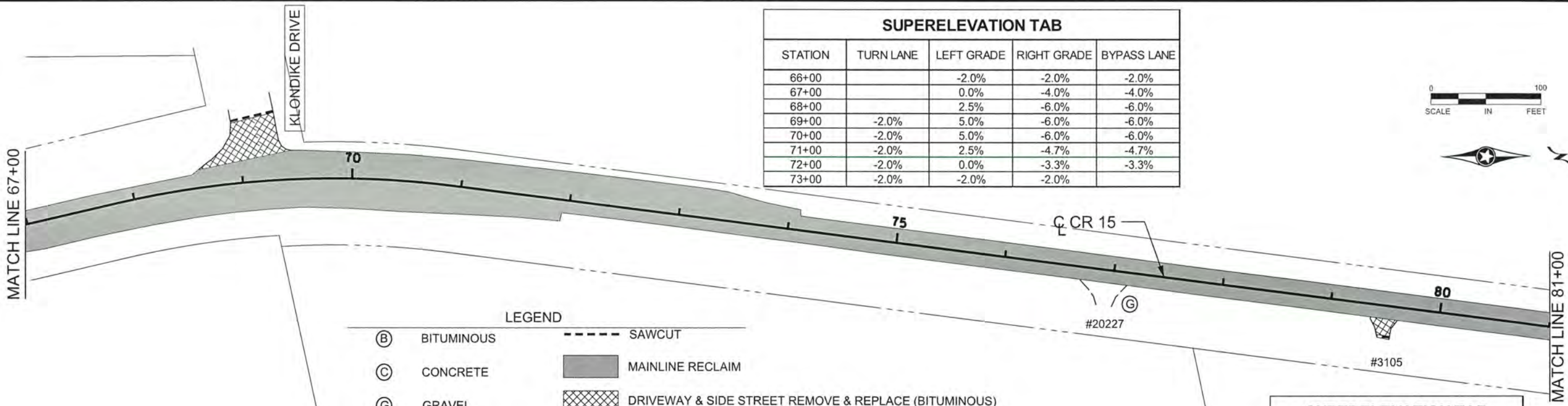
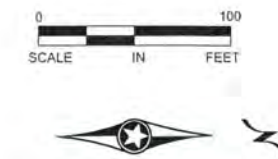
COUNTY PROJECT 17-30-15

CONSTRUCTION PLAN  
 STA 38+00 TO 67+00  
 Sheet 8 of 21 Sheets



M. John

SUPERELEVATION TAB				
STATION	TURN LANE	LEFT GRADE	RIGHT GRADE	BYPASS LANE
66+00		-2.0%	-2.0%	-2.0%
67+00		0.0%	-4.0%	-4.0%
68+00		2.5%	-6.0%	-6.0%
69+00	-2.0%	5.0%	-6.0%	-6.0%
70+00	-2.0%	5.0%	-6.0%	-6.0%
71+00	-2.0%	2.5%	-4.7%	-4.7%
72+00	-2.0%	0.0%	-3.3%	-3.3%
73+00	-2.0%	-2.0%	-2.0%	

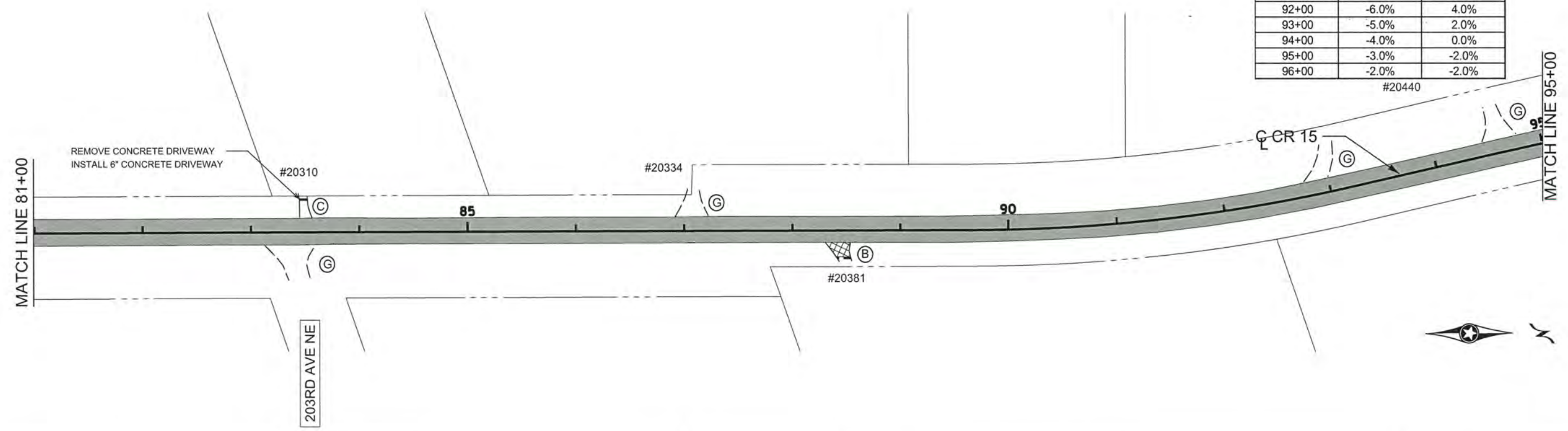


**LEGEND**

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- █ MAINLINE RECLAIM
- ▨ DRIVEWAY & SIDE STREET REMOVE & REPLACE (BITUMINOUS)
- ▩ NEW RIGH TH TURN LANE CONSTRUCTION

— R / W —

SUPERELEVATION TAB		
STATION	LEFT GRADE	RIGHT GRADE
84+50	-2.0%	-2.0%
85+00	-2.0%	-2.0%
85+50	-2.0%	-2.0%
86+00	-2.0%	-2.0%
87+00	-2.0%	-2.0%
88+00	-3.0%	-2.0%
89+00	-4.5%	0.0%
90+00	-6.0%	2.0%
91+00	-6.0%	4.0%
92+00	-6.0%	4.0%
93+00	-5.0%	2.0%
94+00	-4.0%	0.0%
95+00	-3.0%	-2.0%
96+00	-2.0%	-2.0%



NO	DATE	BY	CKD	APPR	REVISION
	03/20/2017				10:38:26 AM

NAME: P:\17-01-00\CR\_15\_(CSAH22-CR74)\Base\PROPOSED\PLAN.dgn

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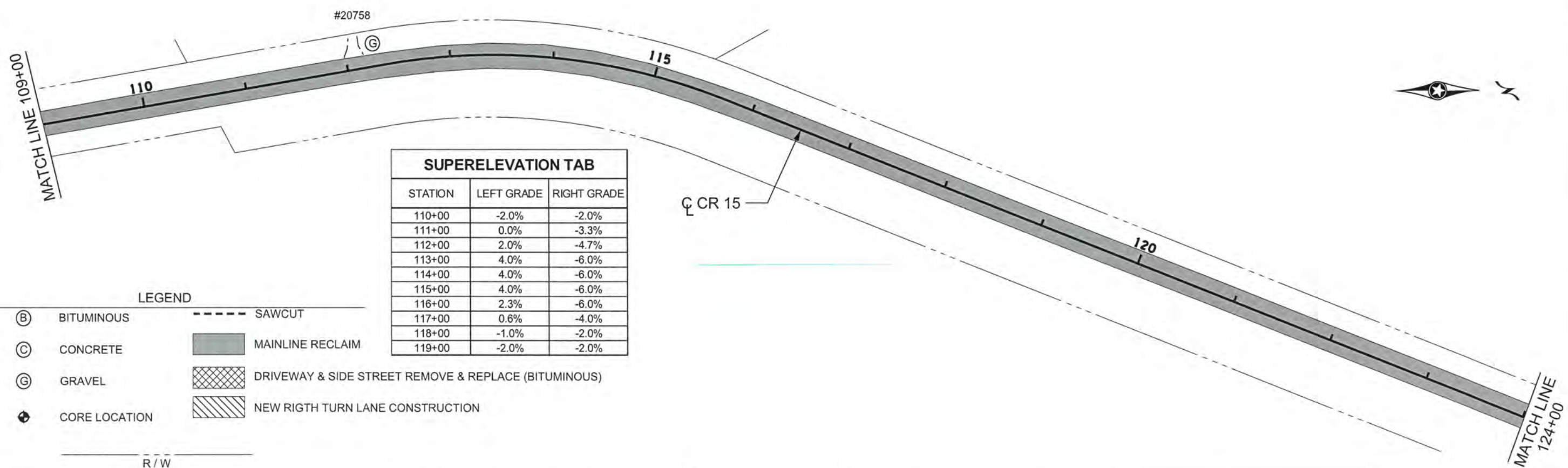
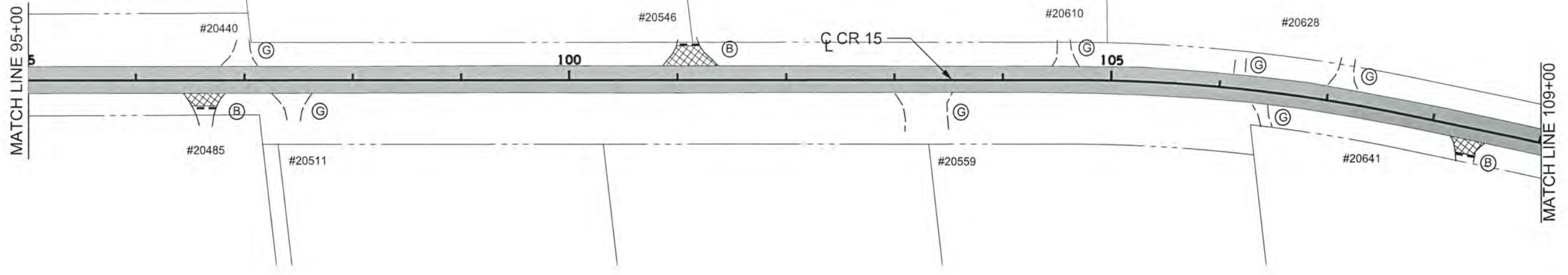
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**ANOKA COUNTY HIGHWAY DEPT.**

COUNTY PROJECT 17-30-15

CONSTRUCTION PLAN  
 STA 67+00 TO 95+00  
 Sheet 9 of 21 Sheets

M. John



SUPERELEVATION TAB		
STATION	LEFT GRADE	RIGHT GRADE
110+00	-2.0%	-2.0%
111+00	0.0%	-3.3%
112+00	2.0%	-4.7%
113+00	4.0%	-6.0%
114+00	4.0%	-6.0%
115+00	4.0%	-6.0%
116+00	2.3%	-6.0%
117+00	0.6%	-4.0%
118+00	-1.0%	-2.0%
119+00	-2.0%	-2.0%

LEGEND

- (B) BITUMINOUS
- (C) CONCRETE
- (G) GRAVEL
- ⊕ CORE LOCATION
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R / W

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**HIGHWAY DEPT.**

COUNTY PROJECT 17-30-15

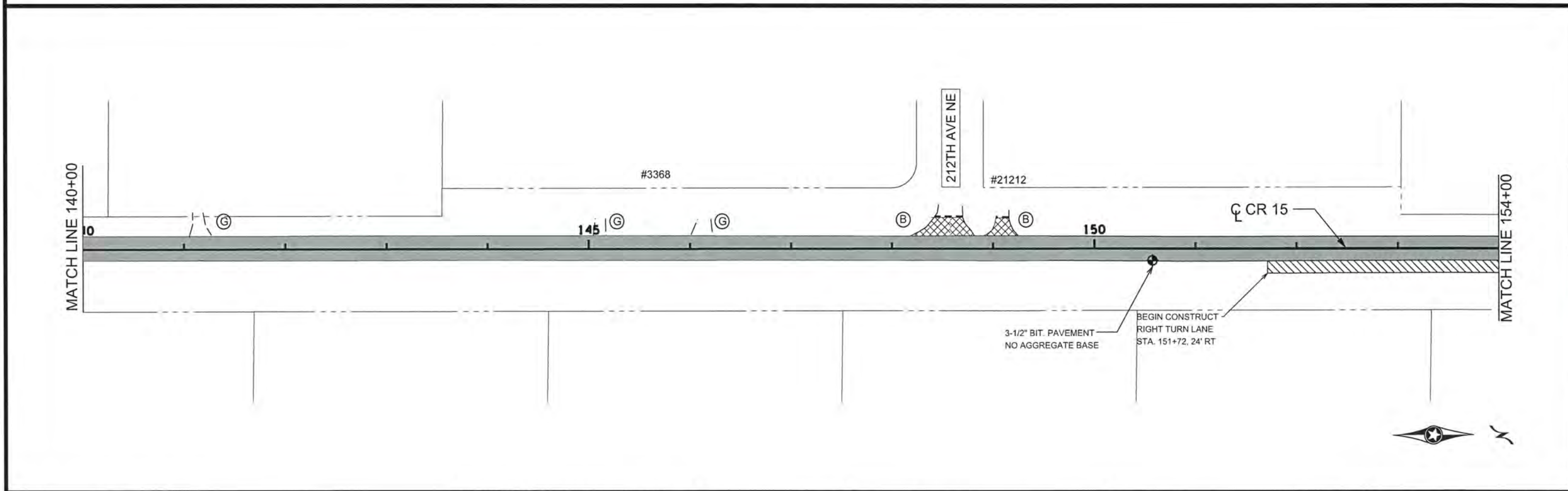
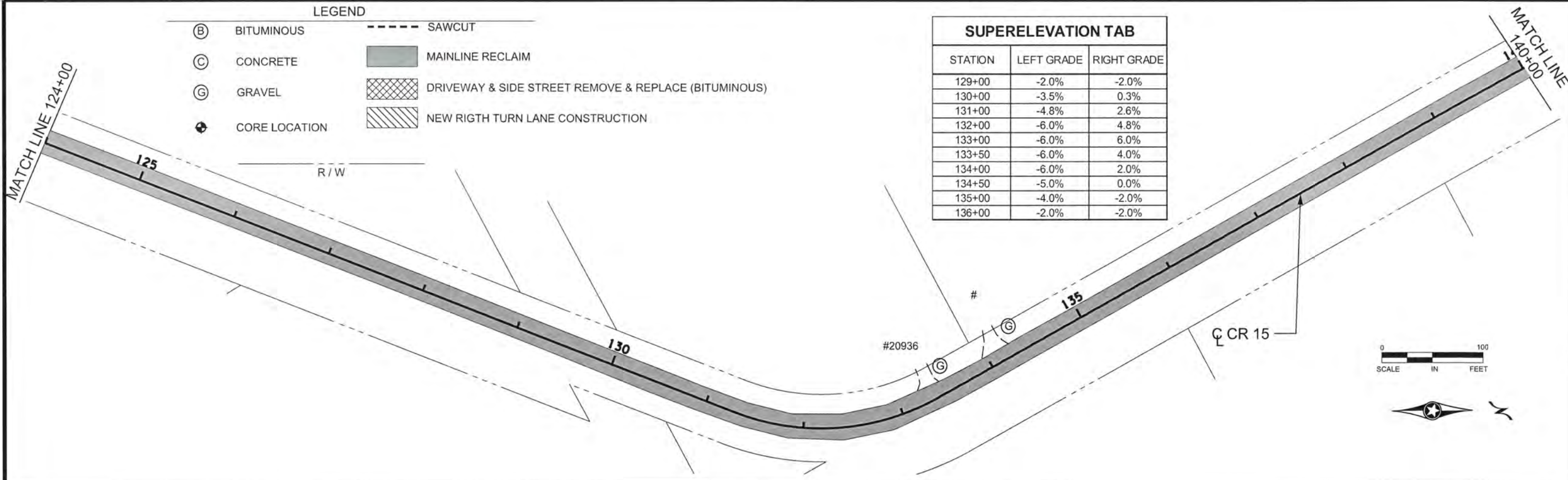
CONSTRUCTION PLAN  
 STA 95+00 TO 124+00  
 Sheet 10 of 21 Sheets

M. John

LEGEND

- (B) BITUMINOUS
- (C) CONCRETE
- (G) GRAVEL
- ⊕ CORE LOCATION
- SAWCUT
- █ MAINLINE RECLAIM
- ▨ DRIVEWAY & SIDE STREET REMOVE & REPLACE (BITUMINOUS)
- ▧ NEW RIGH T TURN LANE CONSTRUCTION

SUPERELEVATION TAB		
STATION	LEFT GRADE	RIGHT GRADE
129+00	-2.0%	-2.0%
130+00	-3.5%	0.3%
131+00	-4.8%	2.6%
132+00	-6.0%	4.8%
133+00	-6.0%	6.0%
133+50	-6.0%	4.0%
134+00	-6.0%	2.0%
134+50	-5.0%	0.0%
135+00	-4.0%	-2.0%
136+00	-2.0%	-2.0%



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.

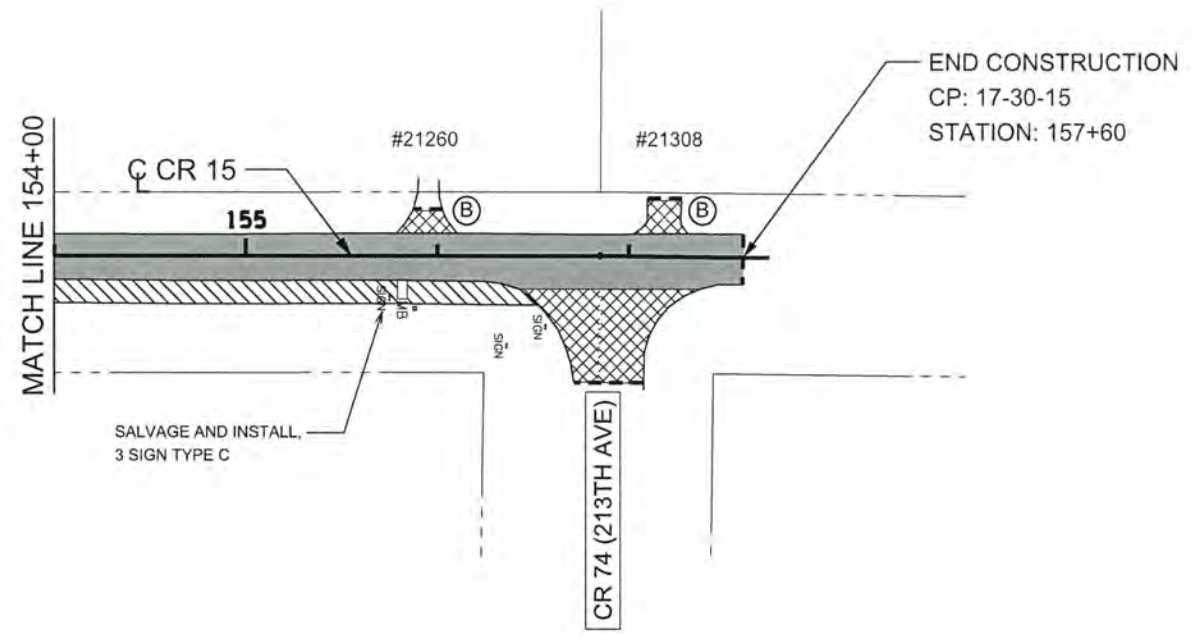
PRINT NAME: MATTHEW J. JOHN  
 SIGNATURE: *[Signature]*  
 DATE: 3/20/2017 LICENSE NO. 51639

DRAWN BY: CSO DATE: 2/8/2017  
 DESIGN BY: CSO DATE: 2/6/2017  
 CHECKED BY: MJJ DATE: 3/16/2017

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

COUNTY PROJECT 17-30-15

CONSTRUCTION PLAN  
 STA 124+00 TO 154+00  
 Sheet 11 of 21 Sheets



LEGEND

- ⓑ BITUMINOUS      - - - - SAWCUT
  - ⓒ CONCRETE      [Solid Grey] MAINLINE RECLAIM
  - ⓐ GRAVEL      [Cross-hatch] DRIVEWAY & SIDE STREET REMOVE & REPLACE (BITUMINOUS)
  - ⊕ CORE LOCATION      [Diagonal Hatch] NEW RIGTH TURN LANE CONSTRUCTION
- R / W -----

NO	DATE	BY	CKD	APPR	REVISION	
	03/20/2017					10:38:51 AM

NAME: P:\17-01-00\CR\_15\_(CSAH22-GR74)\Base\PROPOSED\PLAN.dgn

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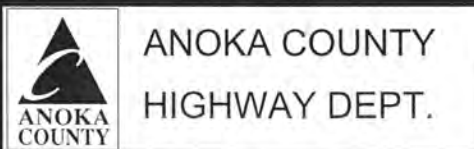
SIGNATURE: *Matthew J. John*

DATE: 3/20/2017 LICENSE NO. 51639

DRAWN BY CSO DATE 2/6/2017

DESIGN BY CSO DATE 2/6/2017

CHECKED BY MJJ DATE 3/16/2017



ANOKA COUNTY  
HIGHWAY DEPT.

COUNTY PROJECT 17-30-15

CONSTRUCTION PLAN

STA 154+00 TO 157+46

Sheet 12 of 21 Sheets

**PERMANENT PAVEMENT MARKING PLAN**  
NOTES AND GUIDELINES

**GENERAL INFORMATION:**

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

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

A TOLERANCE OF 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 BEADS 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 FILM 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.

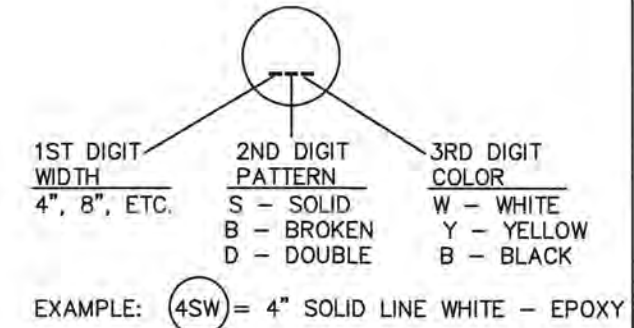
PERMANENT MARKING QUANTITIES		
ITEM	UNIT	TOTAL QUANTITY
4" SOLID LINE WHITE - EPOXY PAINT	LIN FT	29480
4" BROKEN LINE WHITE - EPOXY PAINT	LIN FT	40
4" SOLID LINE YELLOW - EPOXY PAINT	LIN FT	6790
4" BROKEN LINE YELLOW - EPOXY PAINT	LIN FT	2180
4" DOUBLE SOLID LINE YELLOW - EPOXY PAINT	LIN FT	3680

**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



NO	DATE	BY	CKD	APPR	REVISION

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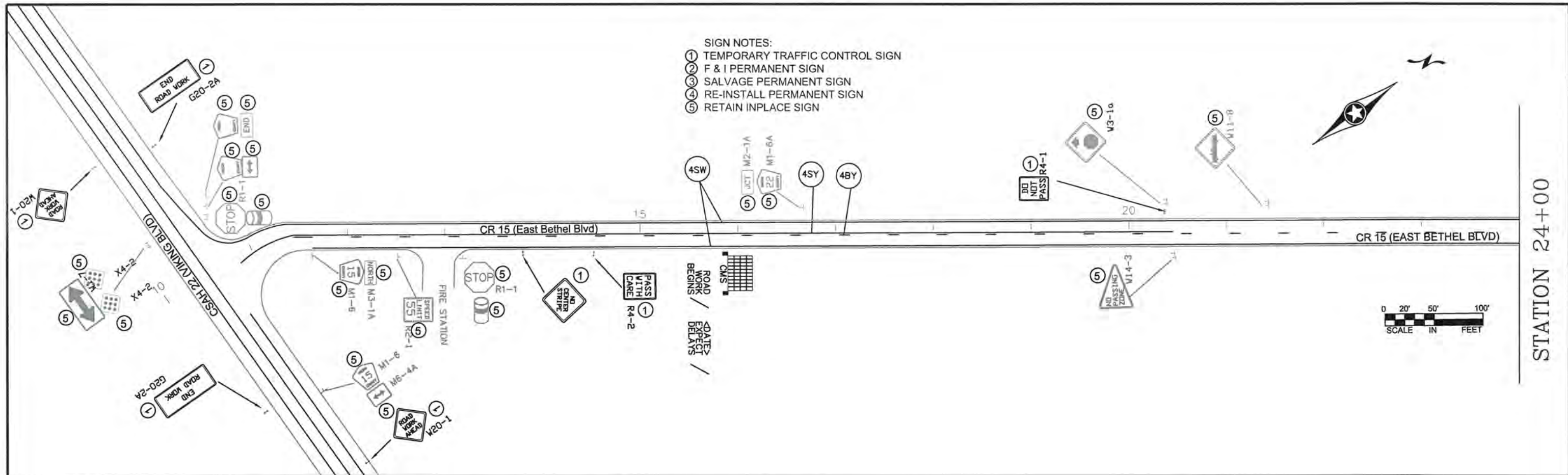
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 DESIGN BY: RLB DATE: 1/30/17  
 CHECKED BY: JR DATE: 1/30/17



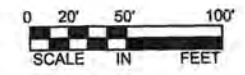
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
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 COUNTY PROJECT NO. 17-30-15

PERMANENT MARKING TABULATION  
 Sheet 13 of 21 Sheets

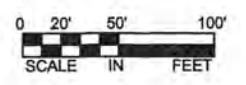
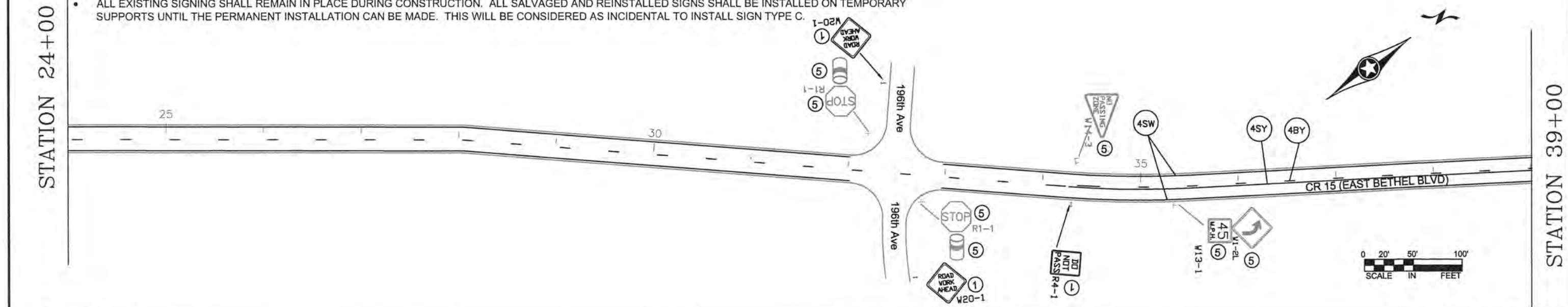


- SIGN NOTES:
- ① TEMPORARY TRAFFIC CONTROL SIGN
  - ② F & I PERMANENT SIGN
  - ③ SALVAGE PERMANENT SIGN
  - ④ RE-INSTALL PERMANENT SIGN
  - ⑤ RETAIN INPLACE SIGN



STATION 24+00

- 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.
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  - 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.

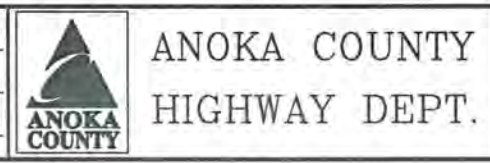


STATION 39+00

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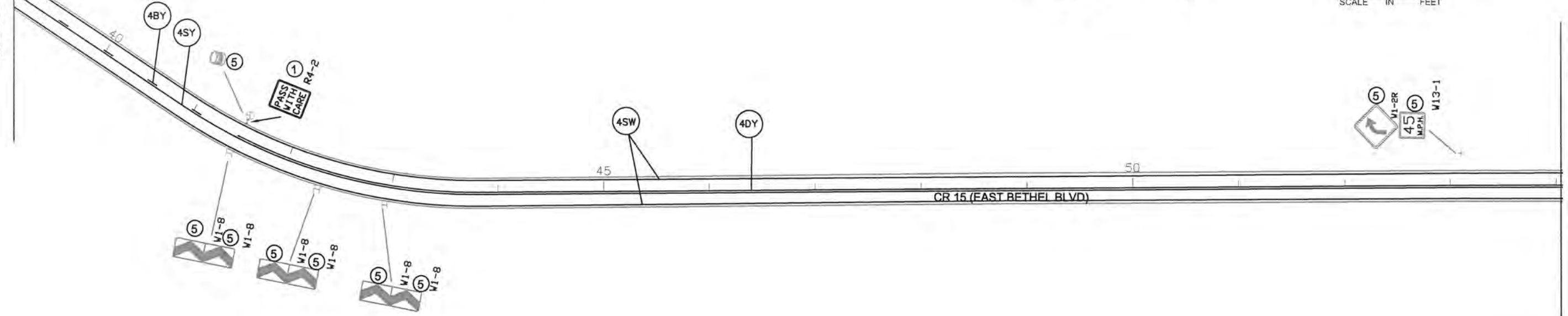
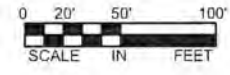


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 COUNTY PROJECT NO. 17-30-15

TEMPORARY SIGNING,  
 PERMANENT SIGNING  
 AND STRIPING  
 Sheet 14 of 21 Sheets

STATION 39+00

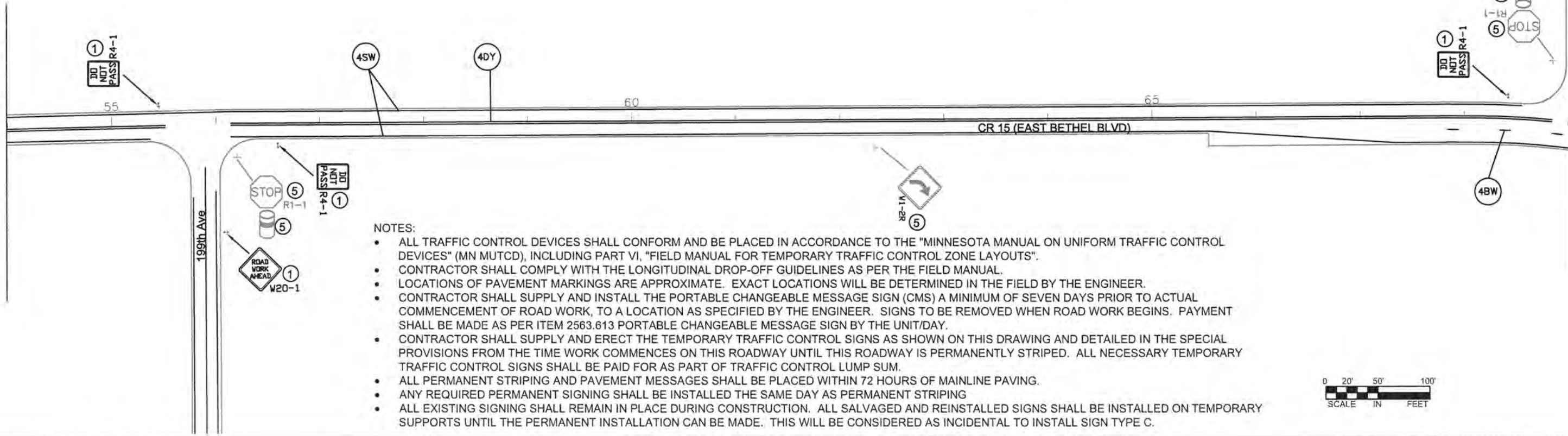
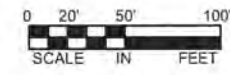
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STATION 54+00

STATION 54+00

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STATION 69+00

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ANOKA COUNTY  
 HIGHWAY DEPT.

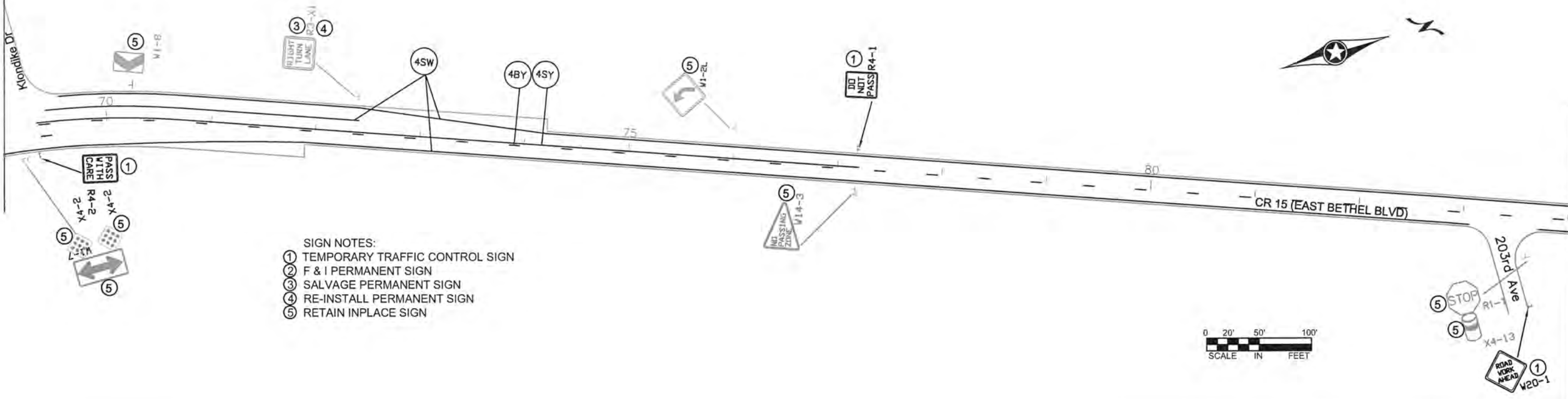
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 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-30-15

TEMPORARY SIGNING,  
 PERMANENT SIGNING  
 AND STRIPING  
 Sheet 15 of 21 Sheets

NO	DATE	BY	CKD	APPR	REVISION

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STATION 69+00



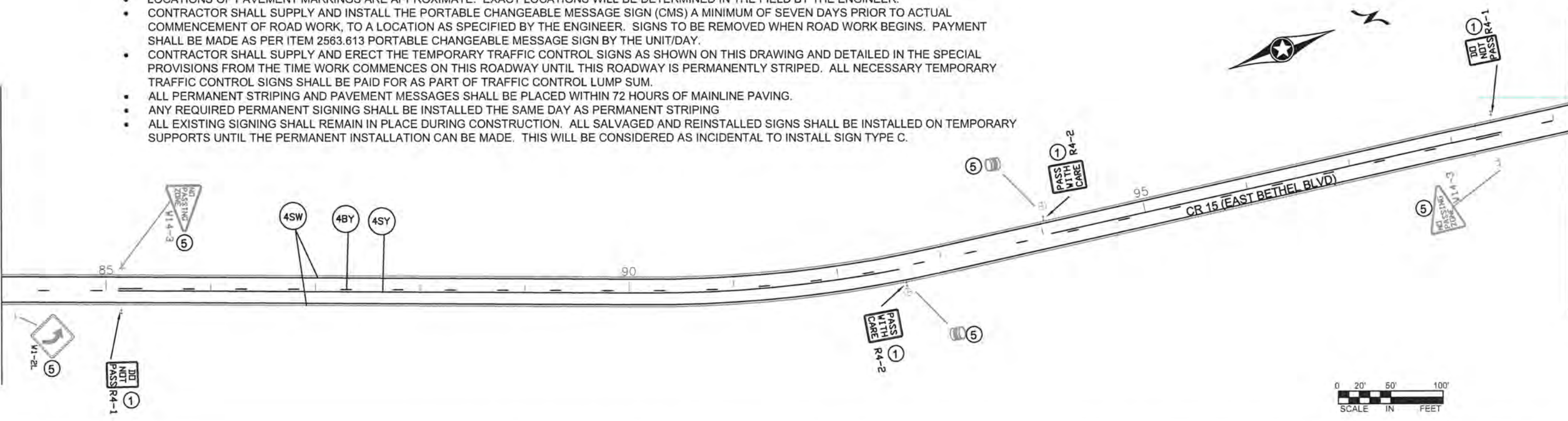
- SIGN NOTES:
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STATION 84+00

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STATION 84+00



STATION 99+00

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**ANOKA COUNTY**  
HIGHWAY DEPT.

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

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

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

COUNTY PROJECT NO. 17-30-15

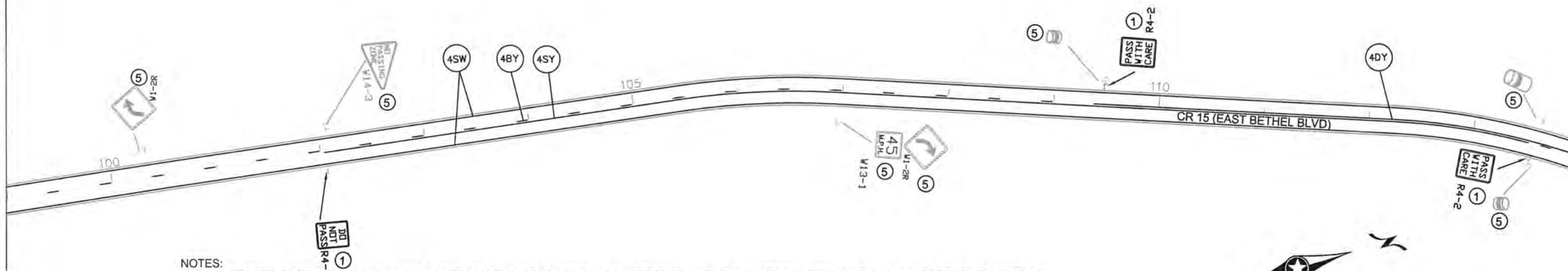
TEMPORARY SIGNING,  
PERMANENT SIGNING  
AND STRIPING

Sheet 16 of 21 Sheets



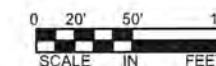
STATION 99+00

STATION 114+00



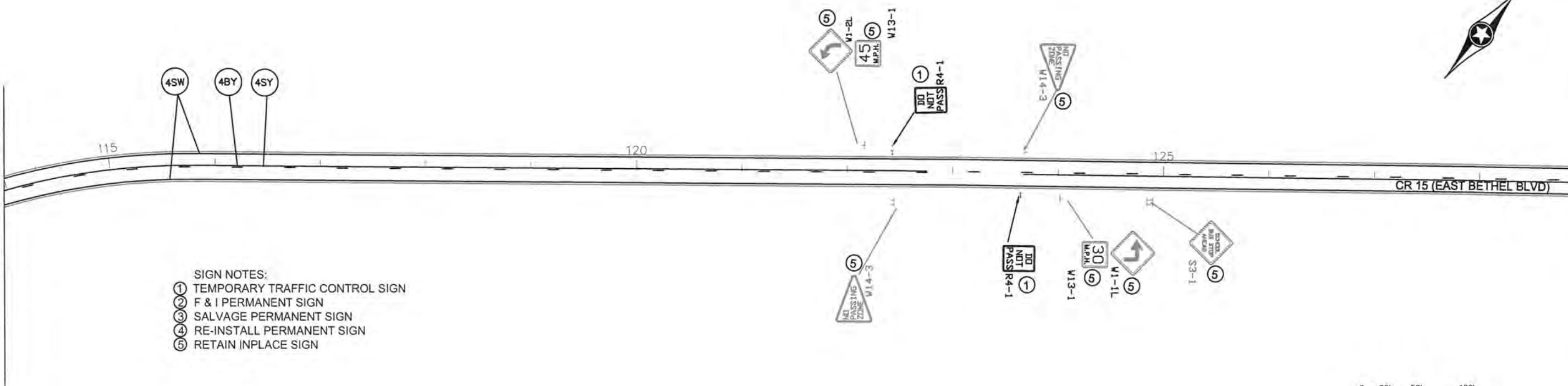
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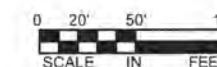
STATION 114+00

STATION 129+00



SIGN NOTES:

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- ② F & I PERMANENT SIGN
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ANOKA COUNTY  
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 COUNTY PROJECT NO. 17-30-15

TEMPORARY SIGNING,  
 PERMANENT SIGNING  
 AND STRIPING

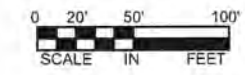
Sheet 17 of 21 Sheets

STATION 129+00

STATION 145+00

NOTES:

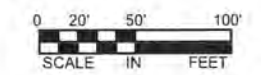
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- CONTRACTOR SHALL COMPLY WITH THE LONGITUDINAL DROP-OFF GUIDELINES AS PER THE FIELD MANUAL.
- LOCATIONS OF PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 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.



STATION 145+00

SIGN NOTES:

- ① TEMPORARY TRAFFIC CONTROL SIGN
- ② F & I PERMANENT SIGN
- ③ SALVAGE PERMANENT SIGN
- ④ RE-INSTALL PERMANENT SIGN
- ⑤ RETAIN INPLACE SIGN



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\16-01-00\CR 60\base\Traffic\Signing\_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: MATTHEW J. JOHN

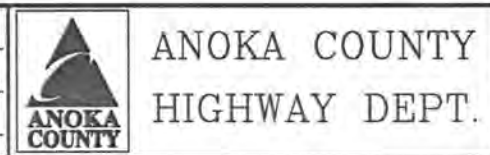
SIGNATURE: *[Signature]*

DATE: 2/20/2017 REG. NO. 51639

DRAWN BY: RLB DATE: 1/25/17

DESIGN BY: RLB DATE: 1/25/17

CHECKED BY: JR DATE: 1/25/17



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

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

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

COUNTY PROJECT NO. 17-30-15

TEMPORARY SIGNING,  
PERMANENT SIGNING  
AND STRIPING

Sheet 18 of 21 Sheets

TEMPORARY TRAFFIC CONTROL SIGNS						
M.U.T.C.D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY	No. POST	MOUNTING HEIGHT TO PAVEMENT EDGE FT.
W8-12	48" x 48"	16.00		2	2	7.0'
R4-1	24" x 30"	5.00		13	1	7.0'
R4-2	24" x 30"	5.00		10	1	7.0'
G20-2A	48" x 24"	8.00		4	2	7.0'
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-1A	48" x 48"	16.00		AS NEEDED		
W8-8	48" x 48"	16.00		AS NEEDED		
W8-9	48" x 48"	16.00		AS NEEDED		
	48" x 48"	16.00		AS NEEDED		
W8-11	48" x 48"	16.00		AS NEEDED		
W20-1	48" x 48"	16.00		AS NEEDED (ESTIMATED 10)		
CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.				2		

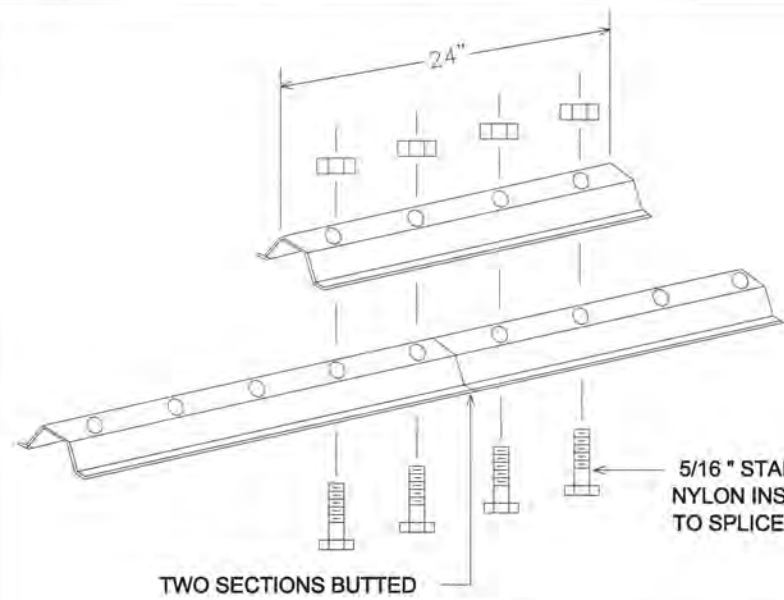
SIGN PANELS TYPE C							E
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R3-X1	30" x 30"		1	6.25	6.25	1	7.0'

- 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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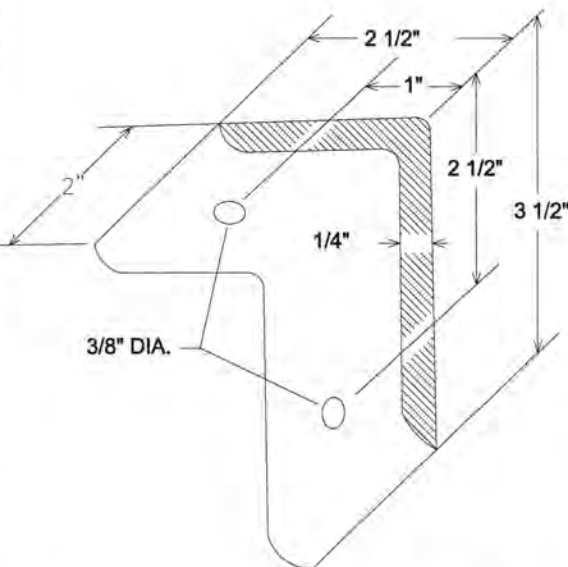
CHANGEABLE MESSAGE BOARD - MESSAGE SEQUENCE LAYOUT

		R	O	A	D		
		W	O	R	K		
		B	E	G	I	N	S
		<	D	A	T	E	>
		E	X	P	E	C	T
		D	E	L	A	Y	S

CMS sign to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.

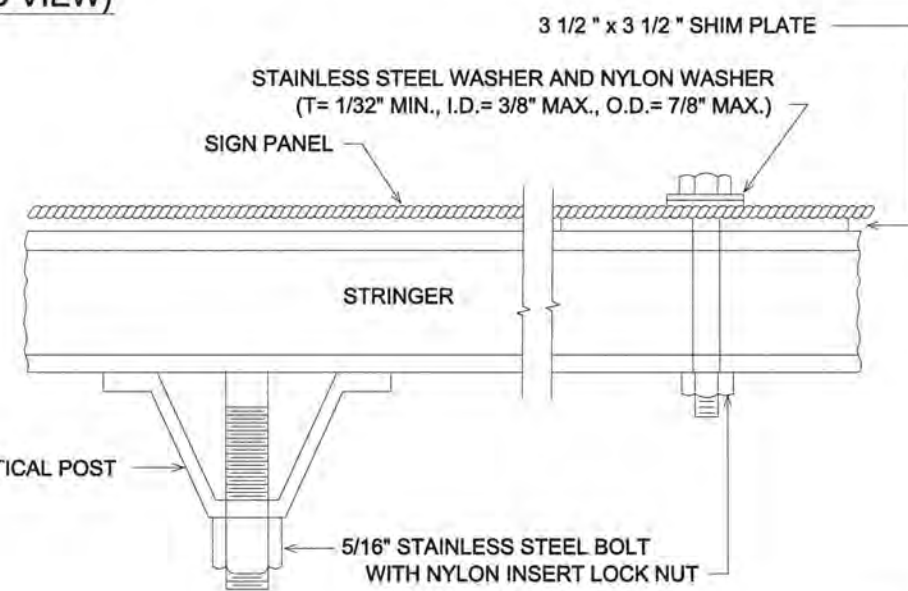


LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)

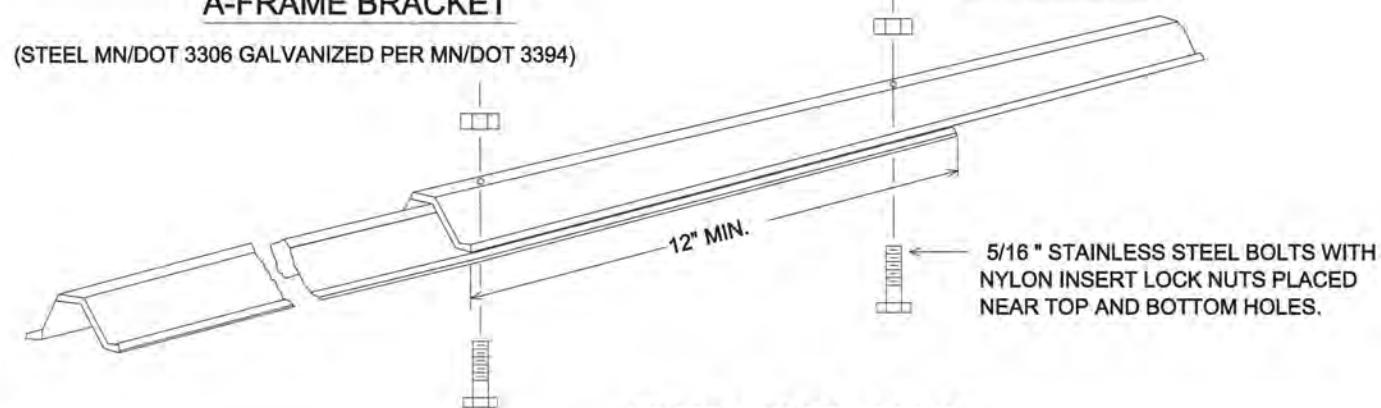


A-FRAME BRACKET

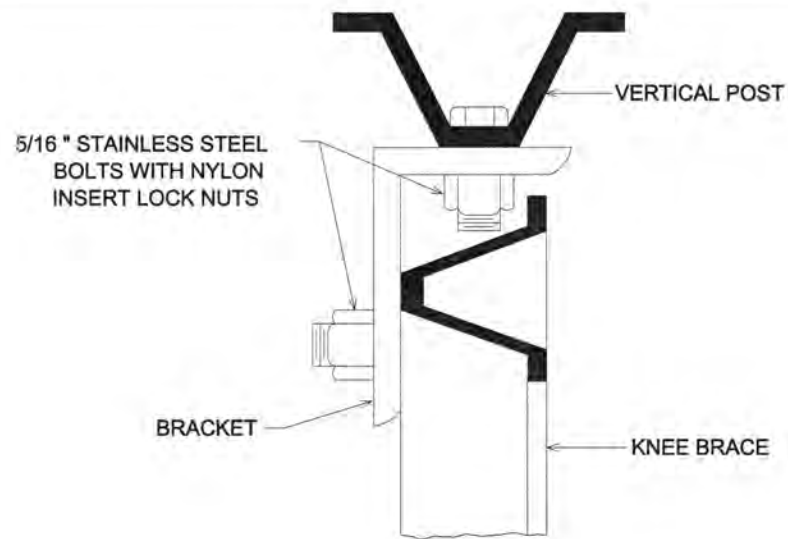
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



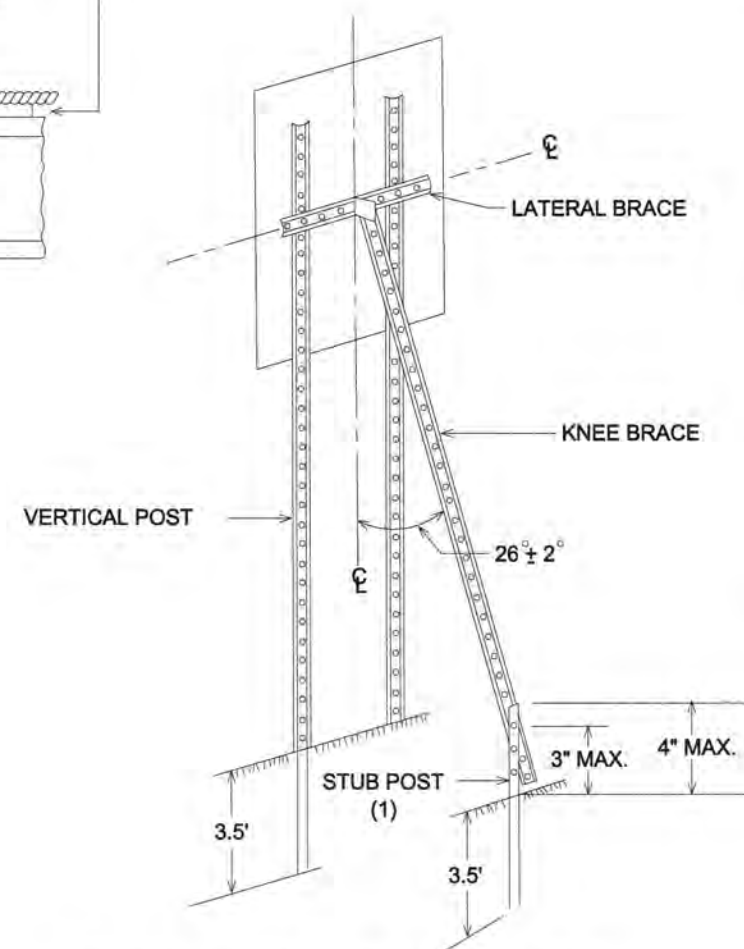
SECTION B-B



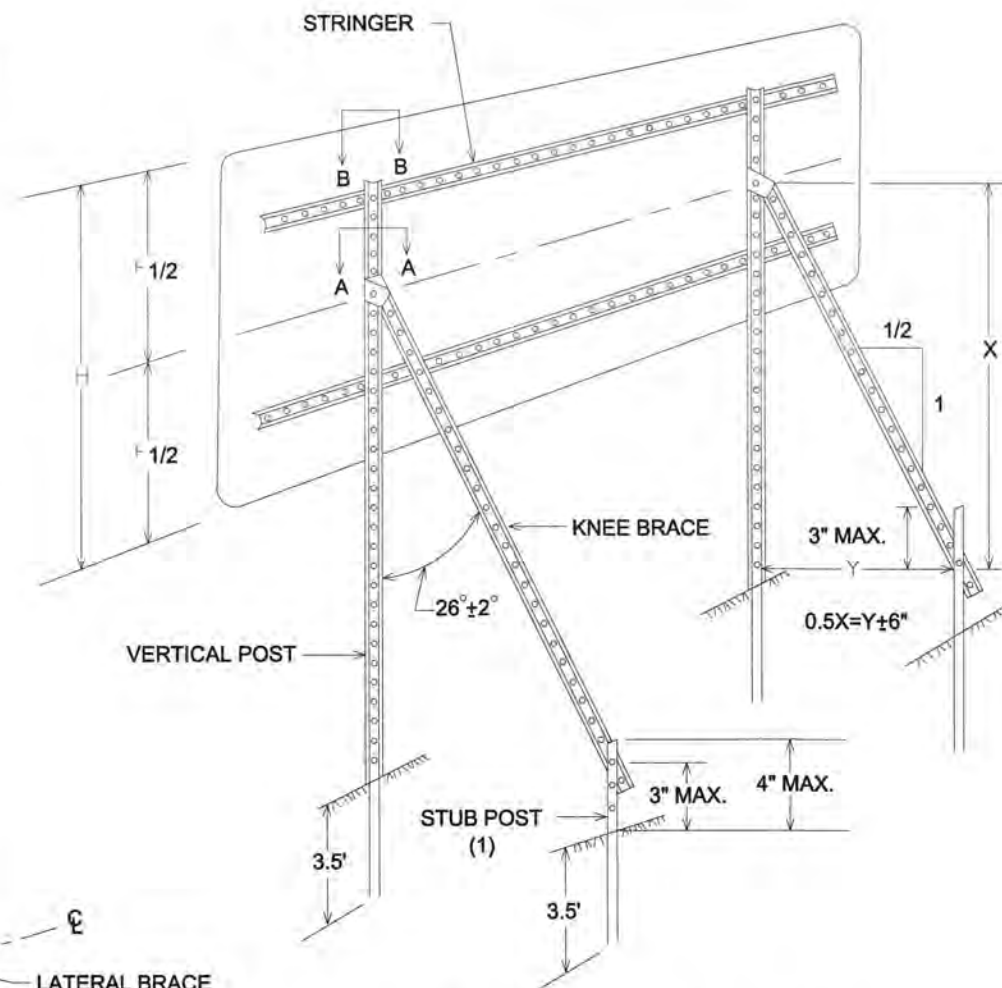
KNEE BRACE SPLICE



SECTION A-A



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



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



TYPICAL MOUNTING

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

TYPE C & D SIGN  
STRUCTURAL DETAILS

NO	DATE	BY	CKD	APPR	REVISION

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: MATTHEW J. JOHN  
 SIGNATURE: *[Signature]*  
 DATE: 3/10/2017 REG. NO. 51639

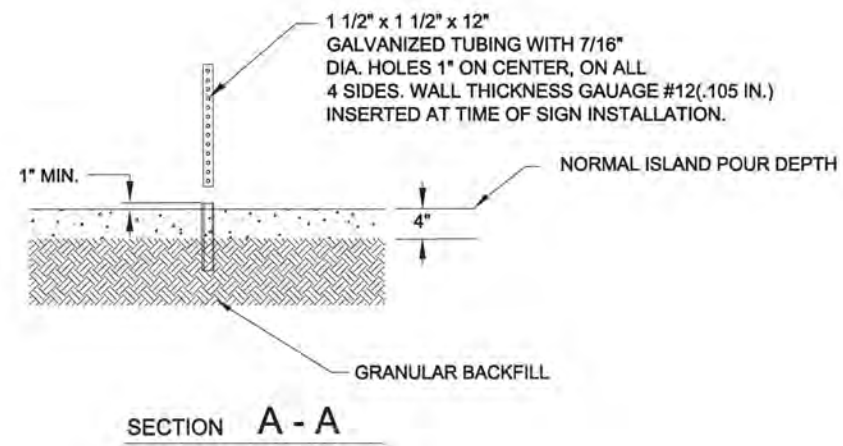
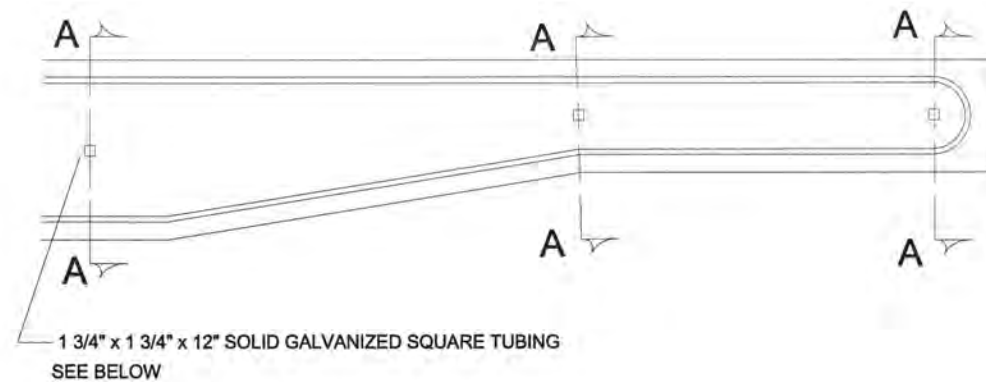
DRAWN BY: RLB DATE: 2/28/17  
 DESIGN BY: RLB DATE: 2/28/17  
 CHECKED BY: JR DATE: 2/28/17



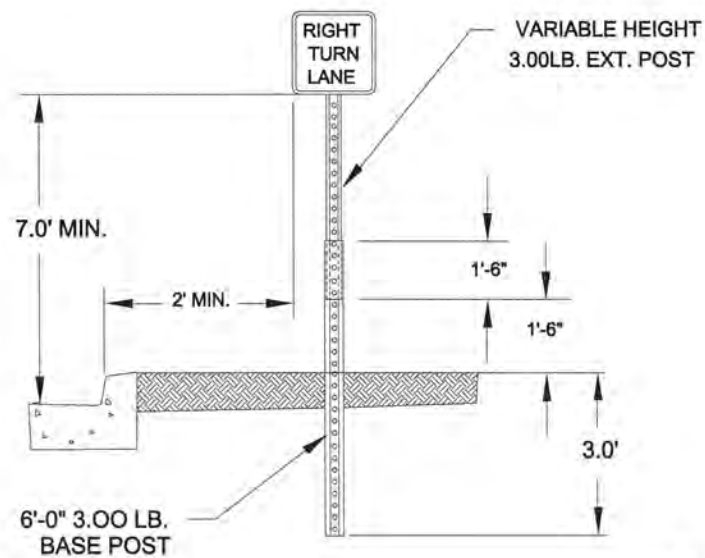
ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. 17-30-15

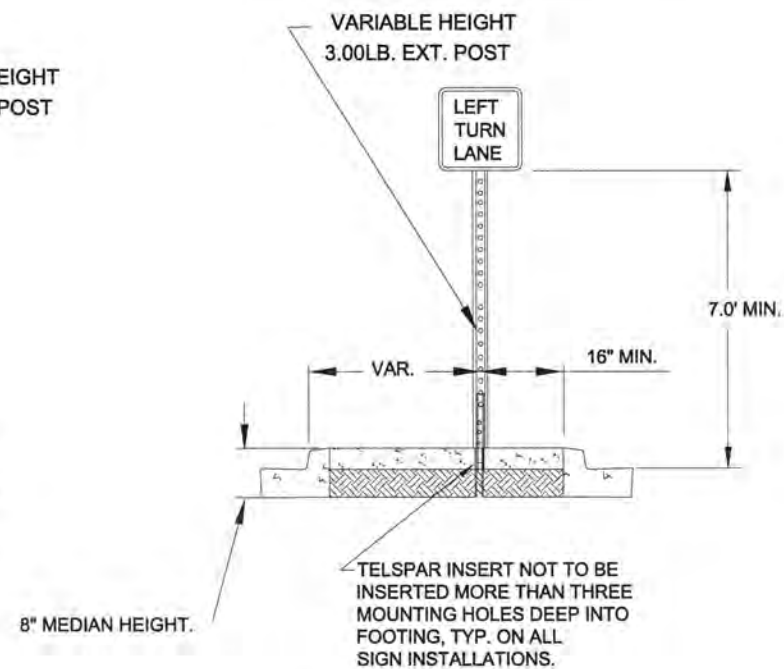
SIGNING & STRIPING  
DETAILS



GROUND POST MOUNT SIGN  
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN  
INSTALLATION TYPICAL



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ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. \_\_\_\_\_  
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 COUNTY PROJECT NO. 17-30-15

SIGNING & STRIPING  
DETAILS

NO	DATE	BY	CKD	APPR	REVISION