

MINNESOTA DEPARTMENT OF TRANSPORTATION
 WATONWAN COUNTY
 CONSTRUCTION PLAN FOR CONCRETE OVERLAY AND SAFETY ENHANCEMENTS

MN PROJECT NO. HSIP 8314(075)

GOVERNING SPECIFICATIONS

THE 2014 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" AND THE 2014 EDITION OF THE "MATERIALS LAB SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

- SHEET NO. 1 TITLE SHEET
- 2 ESTIMATED QUANTITIES
- 3 TYPICAL SECTIONS
- 4 BIT, DETAILS AND CONCRETE SAFETY EDGE
- 5 RUMBLE STRIP AND JOINT PANEL DETAILS
- 6 TRAFFIC CONTROL PLAN AND SIGN DETAILS-CSAH 5
- 7 TRAFFIC CONTROL PLAN AND SIGN DETAILS-CSAH 8

THIS PLAN CONTAINS 7 SHEETS

DESIGN DESIGNATION

DESIGN STANDARD 8820.9920

ΣN18(20) 212,000 (CSAH 5); 95,863 (CSAH 8)

R Value 10

ADT (2014) = 520 (CSAH 5); 245 (CSAH 8)

Proj. ADT (2034) = 520 (CSAH 5); 245 (CSAH 8)

10 Ton Design

Shoulder Width 5.0' (CSAH 5); 4.25' (CSAH 8)

Design Speed 50 (CSAH 5); 55 (CSAH 8) MPH

Based on Stopping Sight Distance

Height of Eye 3.5' Height of object 2.0'

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.

SIGNATURE Roger Risser
 PRINTED NAME ROGER RISSER
 DATE 4/4/2014 LICENSE NO. 25020
 COUNTY WATONWAN

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

APPROVED FOR STATE AND FEDERAL AID FUNDING--
 STATE AID ENGINEER Steve P. Dahl DATE 4/25/2014

PLAN SYMBOLS

- STATE LINE - - - - -
- COUNTY LINE - - - - -
- TOWNSHIP LINE - - - - -
- SECTION LINE - - - - -
- QUARTER LINE - - - - -
- SIXTEENTH LINE - - - - -
- SLOPE EASEMENT - - - - -
- RIGHT OF WAY - - - - -
- PRESENT R/W - - - - -
- CONTROLLED ACCESS 0-0-0
- CORP. OR CITY LIMITS |||||
- PROP. LINE - - - - -
- TEMPORARY EAS. - - - - -
- RAILROAD R/W -RR-RR
- ROADWAY CL. - - - - -

- RAILROAD - - - - -
- RIVER OR CREEK - - - - -
- DRAINAGE DITCH - - - - -
- BRIDGE - - - - -
- CULVERT - - - - -
- DRAIN TILE - - - - -
- CAST IRON MON. O
- CONC. OR STONE MON. □
- MARSH OR SWAMP |||||

- WOODS OR BRUSH - - - - -
- DECIDUOUS TREE - - - - -
- EVERGREEN TREE - - - - -
- BARBED WIRE FENCE -x-x-
- CHAIN LINK FENCE -xc-xc-
- GUARDRAIL -o-o-o-
- RETAINING WALL - - - - -
- CATCH BASIN □ CB
- MANHOLE o MH

- UTILITY SYMBOLS
- POWER POLE -o-
- BURIED ELEC. CABLE -P-BUR-
- GAS MAIN -G-G-
- GAS VALVE IXI
- SANITARY SEWER ->18" SAN-
- STORM SEWER ->18" ST.-
- WATER MAIN -|---|---
- BURIED TEL. CABLE -T-BUR-
- WATER VALVE IXI
- STREET LIGHT ⊙
- FIRE HYDRANT ⊠

STATE AID PROJECT NO. 083-605-039
 AND STATE PROJECT NO. 083-070-006
 LOCATED ON CSAH NO. 5

FROM: MARTIN CO. LINE TO T.H. 60
 FROM: SE COR 34-105-33 TO 1200' NW
 OF THE NORTH 1/4 COR 34-106-33

GROSS LENGTH: 40,656' 7.70 MILES
 EXCEPTIONS: NONE
 NET LENGTH: 40,656' 7.70 MILES

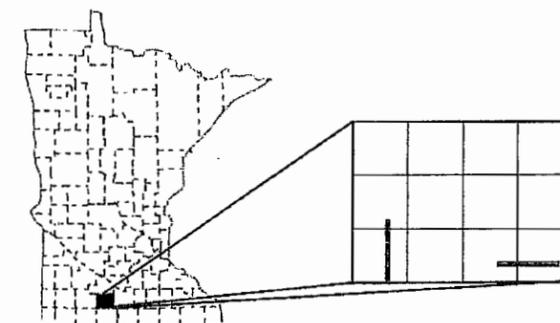
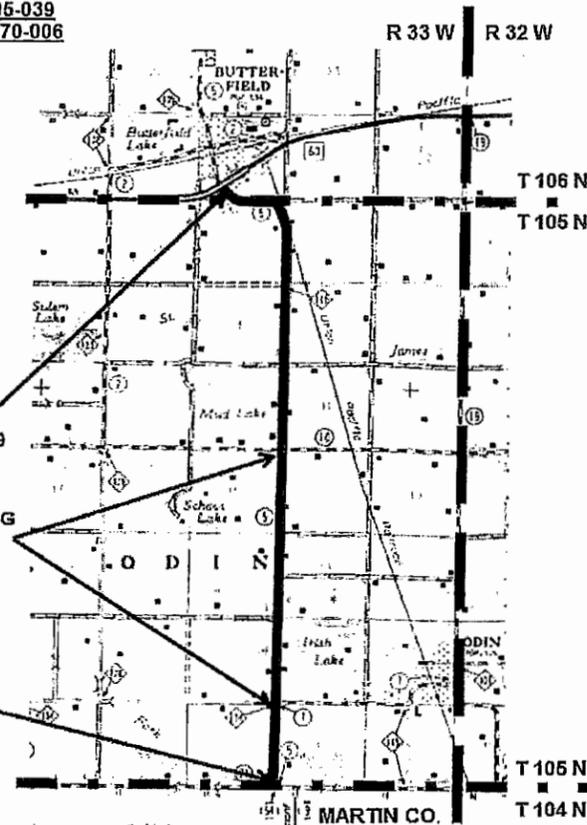
RESURFACING GROSS LENGTH:
 15,833' 3.00 MILES
 EXCEPTIONS: NONE



END PROJECT
 S.A.P. 083-605-039
 S.P. 083-070-006
 STA. 360+10

RESURFACING
 STA. 0+26 TO
 STA. 168+68

BEGIN PROJECT
 S.A.P. 083-605-039
 S.P. 083-070-006
 STA. -52+80

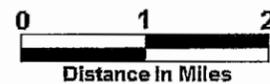


STATE AID PROJECT NO. 083-608-019
 and STATE PROJECT NO. 083-070-006
 LOCATED ON CSAH NO. 8

FROM: CSAH 12 TO TH 15
 FROM: SW COR. 22-105-31 TO SE COR. 21-105-30

RESURFACING GROSS LENGTH:
 31,570' 5.98 MILES

EXCEPTIONS: NONE
 NET LENGTH: 31,570' 5.98 MILES

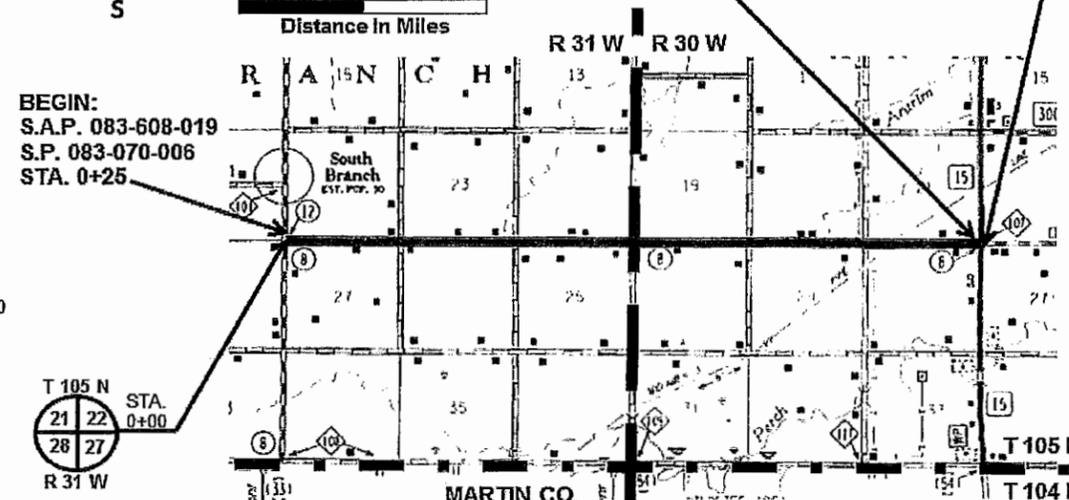


BEGIN:
 S.A.P. 083-608-019
 S.P. 083-070-006
 STA. 0+25

END:
 S.A.P. 083-608-019
 S.P. 083-070-006
 STA. 315+95

T 105 N
 21 22
 26 27
 R 31 W

T 105 N
 21 22
 26 27
 R 30 W



S.P. 083-070-006

S.A.P. 083-605-039
 S.A.P. 083-608-019

NOTES	ITEM NO.	ITEM	UNIT	S.A.P. 083-605-039	S.A.P. 083-608-019	S.P. 083-070-006	TOTAL
20	2021.501/00010	MOBILIZATION	LUMP SUM	0.29	0.54	0.17	1.00
1	2221.501/00050	AGG. SHOULDERING CL.5	TON	3,170.00	6,600.00	0.00	9,770.00
2	2301.529/00011	EPOXY COATED RE-BAR	POUND	8,346.00	17,351.00	49,725.00	75,422.00
	2301.603/00007	CONCRETE SAFETY EDGE	LIN FT	0.00	0.00	92,330.00	92,330.00
3	2301.604/01050	CONCRETE PAVEMENT 5.0"	SY	38,914.00	80,187.00	19,850.00	138,951.00
3	2301.604/01060	CONCRETE PAVEMENT 6.0"	SY	1,072.00	2,933.00	667.00	4,672.00
4	2357.502/00010	BIT. MAT'L. FOR TACK COAT	GAL	890.00	1,060.00	0.00	1,950.00
5,6	2360.501/22200	SP12.5 WE MIX (2,B)	TON	770.00	1,161.00	0.00	1,931.00
7	2401.602/00002	DOWEL BAR ASSEMBLY (EPOXY)	EACH	66.00	184.00	0.00	250.00
	2461.501/03121	CONCRETE MIX NO. 3A21A	CY	5,679.00	11,821.00	3,420.00	20,920.00
8	2563.601/00010	TRAFFIC CONTROL	LUMP SUM	1.00	1.00	0.00	2.00
9	2563.602/00010	RUMBLE STRIPS	EACH	0.00	0.00	2,454.00	2,454.00
10	2564.602/00078	FURNISH SIGN SUPPORT	EACH	0.00	0.00	26.00	26.00
11	2564.602/00403	FURNISH TYPE C SIGN	EACH	0.00	0.00	52.00	52.00
12	2564.602/00452	FURNISH 2.75 LB SIGN POST	EACH	0.00	0.00	26.00	26.00
13	2564.602/00453	FURNISH 3 LB SIGN POST	EACH	0.00	0.00	26.00	26.00
14	2580.603/00010	INTERM LANE MARKING	LIN FT	634.00	1,263.00	0.00	1,897.00
15,18	2582.502/11104	6" SOLID LINE WHITE PAINT	LIN FT	0.00	0.00	144,670.00	144,670.00
15,18	2582.502/12106	6" SOLID LINE YELLOW PAINT	LIN FT	0.00	0.00	27,251.00	27,251.00
16,18	2582.502/12206	6" BROKEN LINE YELLOW PT.	LIN FT	0.00	0.00	13,543.00	13,543.00
19	2582.602/08006	6" GROOVE FOR PAINT STRIPE	LIN FT	0.00	0.00	184,006.00	184,006.00

NOTES:

1. AGG. SHLDS = L x W x D x 1.85 TONS PER CY.
2. 0.668 LB/FT.
3. CONCRETE SAW CUTS INCIDENTAL TO CONCRETE PAVEMENT.
4. TACK COAT = L x W x 0.1 GAL PER SQ YD (2 LIFTS).
5. INCLUDES ENTRANCES & APPROACHES.
6. BIT MIX = 110# PER SQ YD PER INCH OF DEPTH.
7. FINAL QUANTITY TO BE DETERMINED BY FINAL FIELD LAYOUT.
8. SEE DETAILS ON SHEET 6 OF 7 AND SHEET 7 OF 7.
9. TOTAL INCLUDES DEDUCTIONS FOR DRIVEWAYS AND ROAD APPROACHES.
10. M & R SIGNS CAB2 CHEVRON BRACKET SET OF TWO FOR 18" X 24" SIGNS OR EQUIVALENT.
11. W1-8 (18" X 24" CHEVRON-DG3).
12. 8 FT 2.75 LB BLACKSTEEL SIGN POSTS OR EQUIVALENT.
13. 8 FT 3.0 LB BLACKSTEEL SIGN POSTS OR EQUIVALENT.
14. INTERM LANE MARKING = 2 x 50 SKIP.
15. 6" SOLID WHITE LINE = (PROJ LENGTH x 2) - 150 LF ROAD APPROACHES.
16. 6" SOLID YELLOW LINE = FIELD MEASURE.
17. 6" BROKEN YELLOW = 10 x 40 SKIP.
18. PAINT MEASUREMENTS FROM MARTIN CO. LINE TO T.H. 60.
19. 6" PAINT GROOVES SHALL BE USED FOR 6" CENTER LINES AND 6" EDGE LINES.
20. SURVEYING AND STAKING AS NEEDED FOR CONCRETE PAVING WILL BE CONSIDERED INCIDENTAL TO MOBILIZATION.

STANDARD PLATES AS APPROVED BY F.H.W.A.

8000I STANDARD BARRICADES
1103K DOWEL BAR ASSEMBLY


PROFESSIONAL ENGINEER

5/19/2014
LISC. 25020

TYPICAL SECTION NOTES:

GENERAL

A. TYPICAL SECTIONS NOT DRAWN TO SCALE.

083-605-039

B. NO EXISTING BIT. FROM 23+85.68 TO STA. 27+86.68. SURFACE IS 12" CL. 5 AGG.

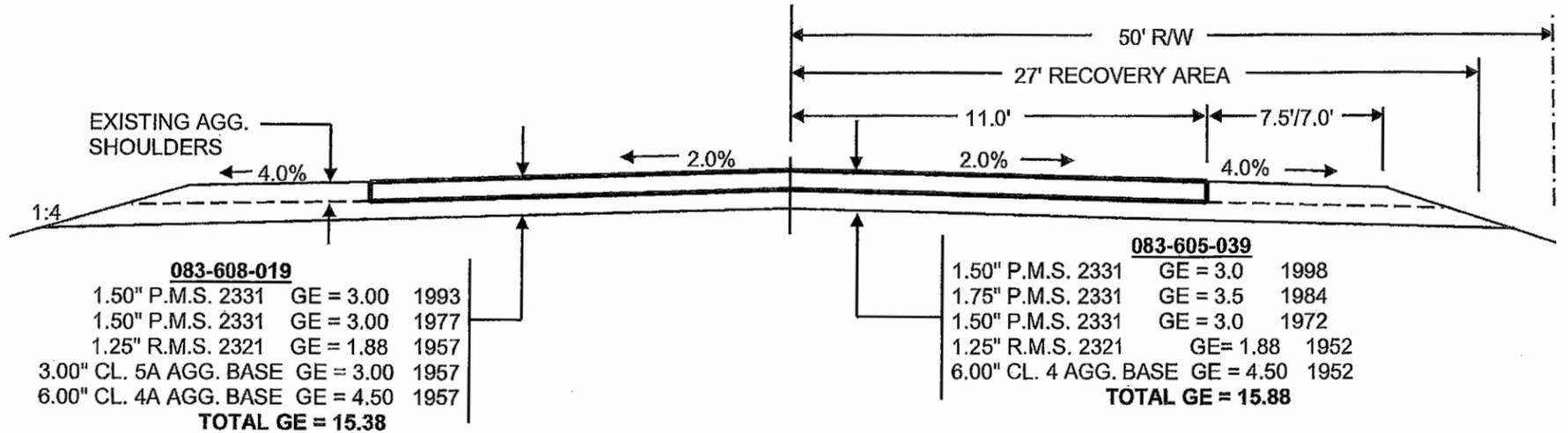
C. EXISTING AGG. SHOULDERS ARE 7.5' WIDE.

083-608-019

D. NO EXISTING BIT. FROM 116+00 TO STA. 127+00. SURFACE IS 12" CL. 5 AGG.

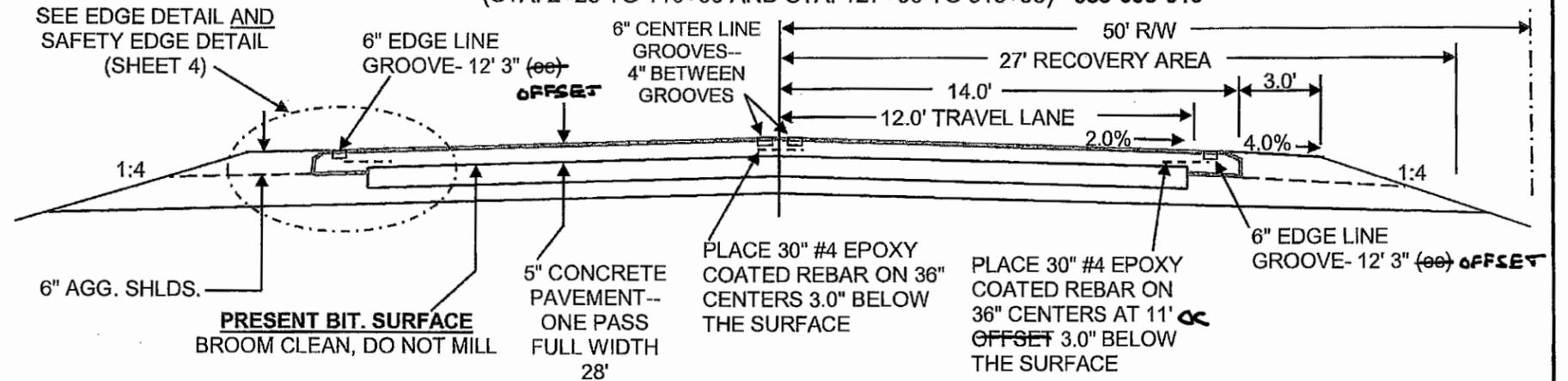
E. EXISTING AGG. SHOULDERS ARE 7.0' WIDE.

PRESENT TYPICAL SECTION



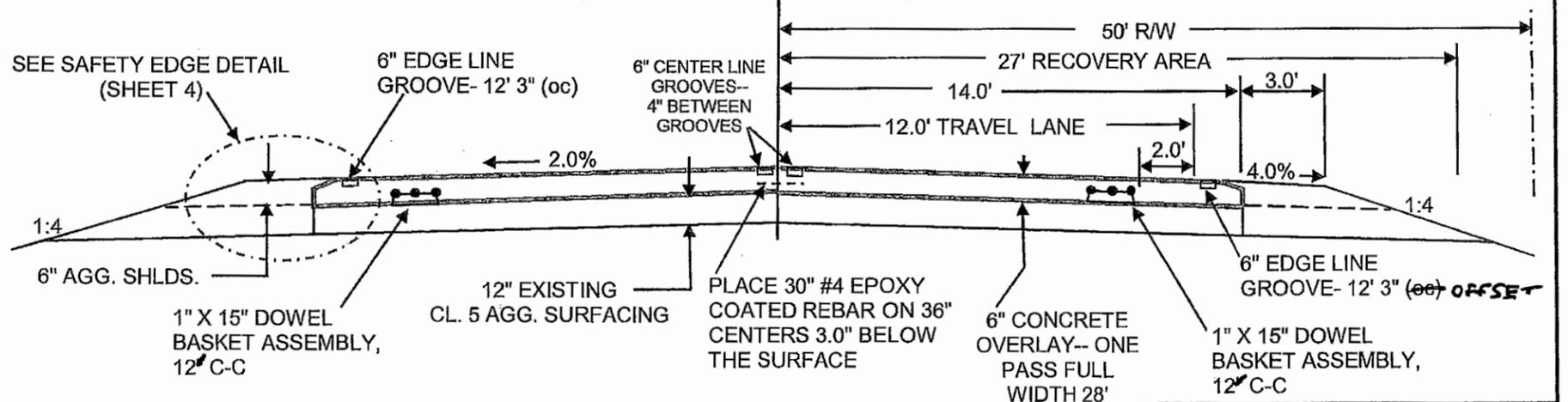
PROPOSED TYPICAL CONCRETE OVERLAY SECTION

(STA. 2+25 TO 23+86 AND STA. 27+87 TO 156+58) - 083-605-039
 (STA. 2+25 TO 116+00 AND STA. 127+00 TO 313+95) - 083-608-019

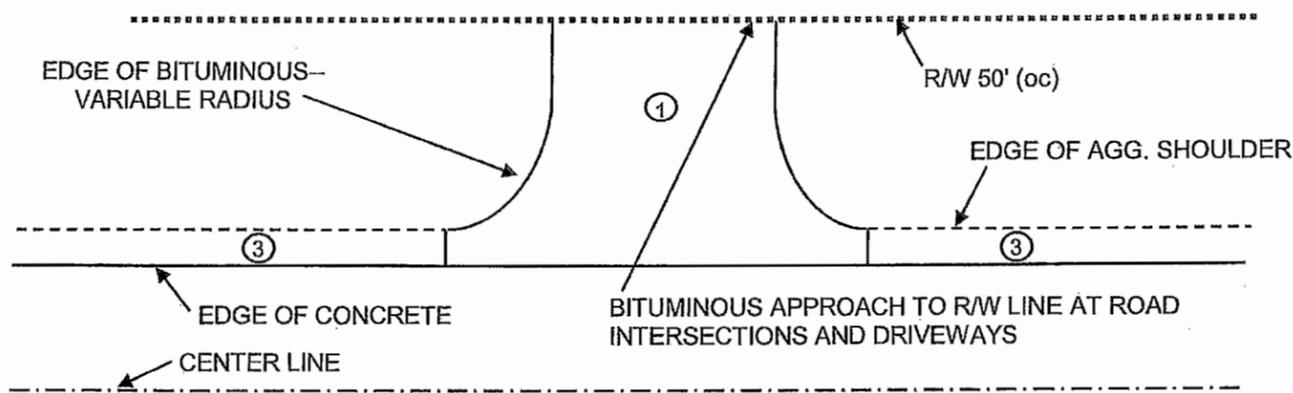


PROPOSED TYPICAL FULL DEPTH CONCRETE SECTION

(STA. 23+86 TO STA. 27+87) - 083-605-039
 (STA. 116+00 TO STA. 127+00) - 083-608-019



APPROACHES TO DRIVEWAYS, COUNTY ROADS, AND TOWNSHIP ROADS
(NOT TO SCALE)

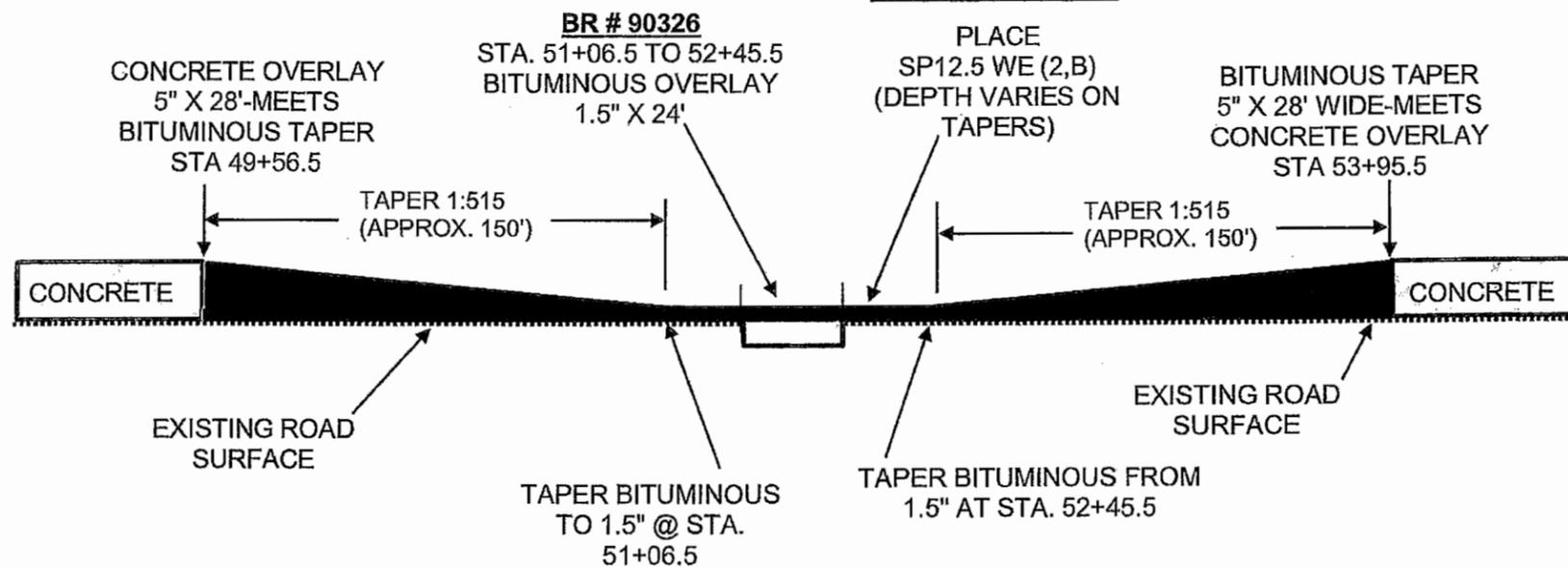


RURAL ENT. TYPE	TYPICAL AREA (SQ YD)	ENT. 083-605-039	ENT. 083-608-019	TOTAL ENT.
DRIVEWAY ①	96	11	12	23
FIELD ENT. ②	22	12	26	38
TWP ROAD APPR. ①	195	3	6	9
COUNTY RD. APPR. ①③	328	0	4	4

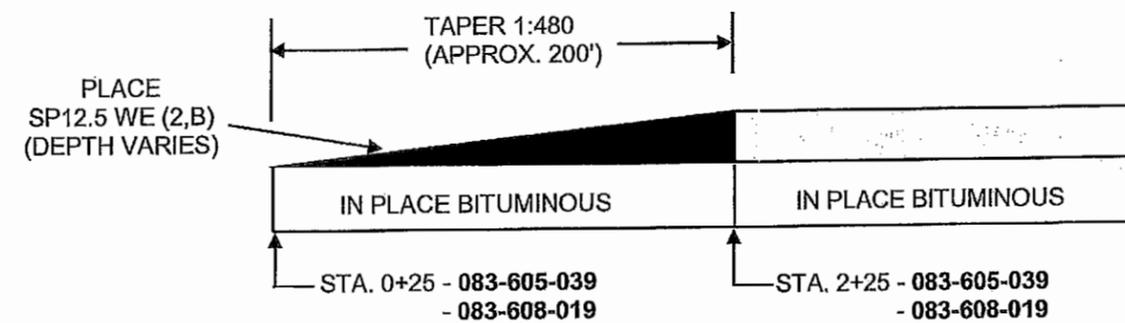
APPROACH NOTES:

- ① TAPER DRIVEWAYS AND ROAD APPROACHES FROM 6" AT CONCRETE TO 1.5" AT R/W.
- ② FIELD ENT. BITUMINOUS DEPTH OF 6"; PAVE WIDTH OF SHOULDER
- ③ PAVE 4' SHOULDERS 150' FROM END OF RADIUS ON COUNTY ROADS 109 AND 117 (ON 083-608-019 ONLY) TO A DEPTH OF 6"

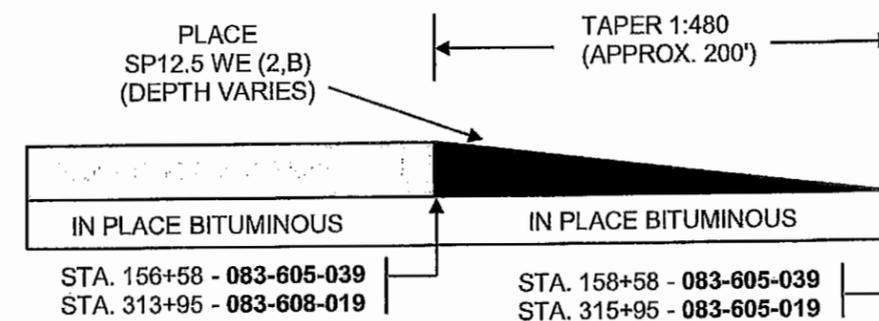
BITUMINOUS TAPERS AND OVERLAY FOR BRIDGE# 90326 - 083-605-039



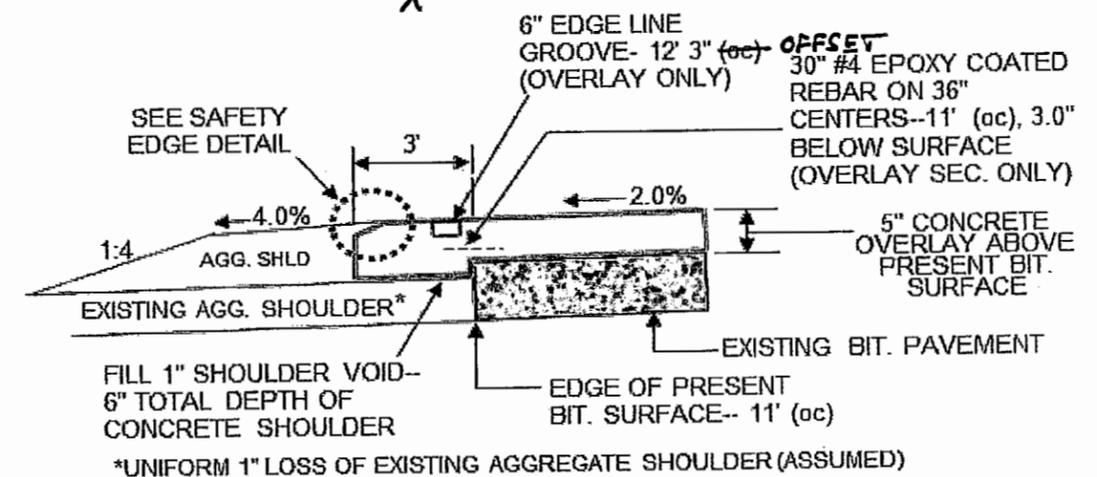
BITUMINOUS TAPER AT BEGINNING OF PAVEMENT SECTIONS



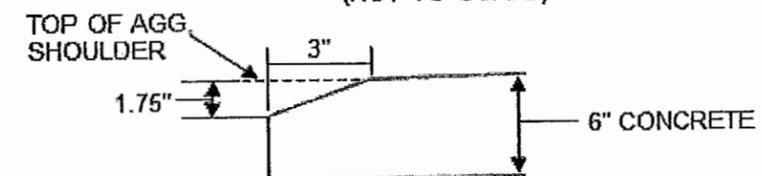
BITUMINOUS TAPER AT END OF PAVEMENT SECTIONS



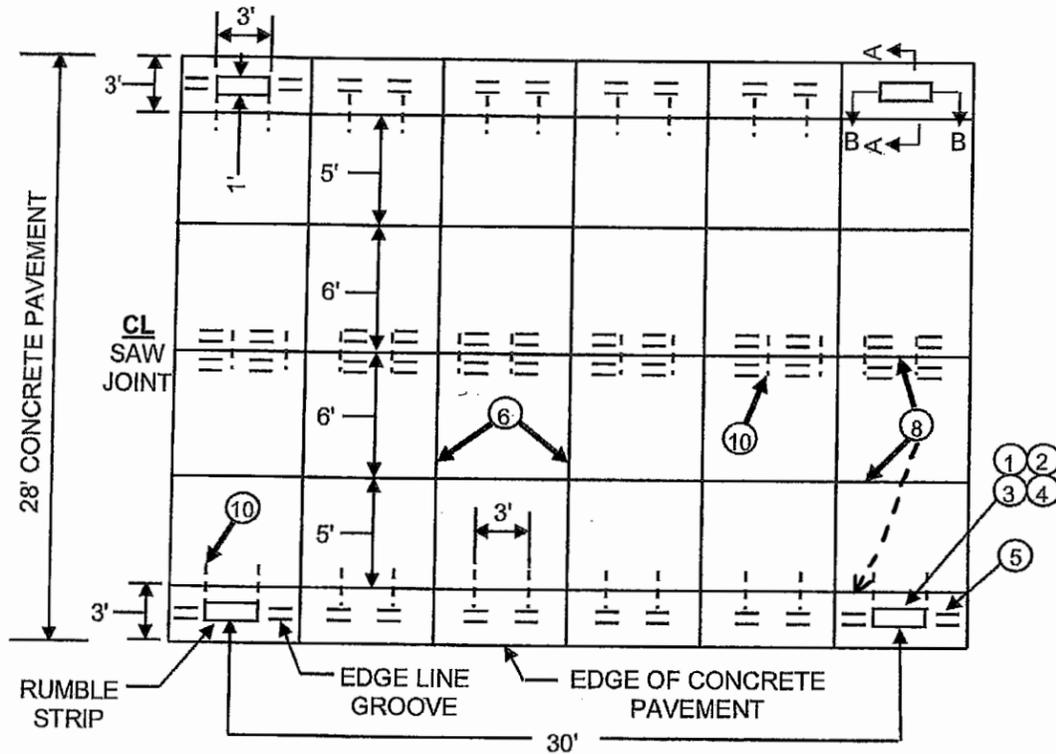
EDGE DETAIL (OVERLAY AND FULL DEPTH PAVEMENT SECTIONS)



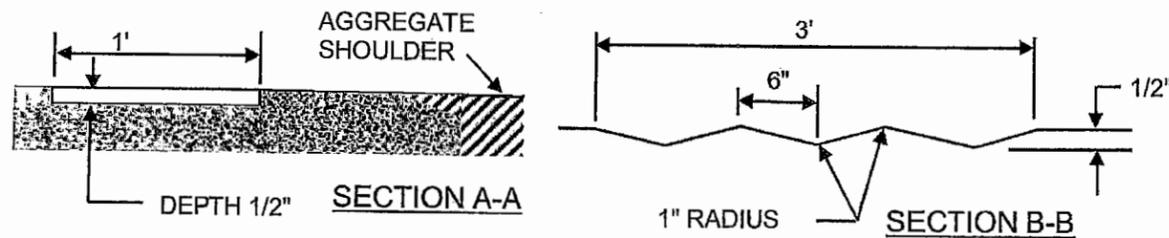
SAFETY EDGE DETAIL (NOT TO SCALE)



PANEL JOINT LAYOUT DETAIL (TYPICAL) AND RUMBLE STRIP DETAIL
CONCRETE OVERLAY SECTION-5" THICKNESS



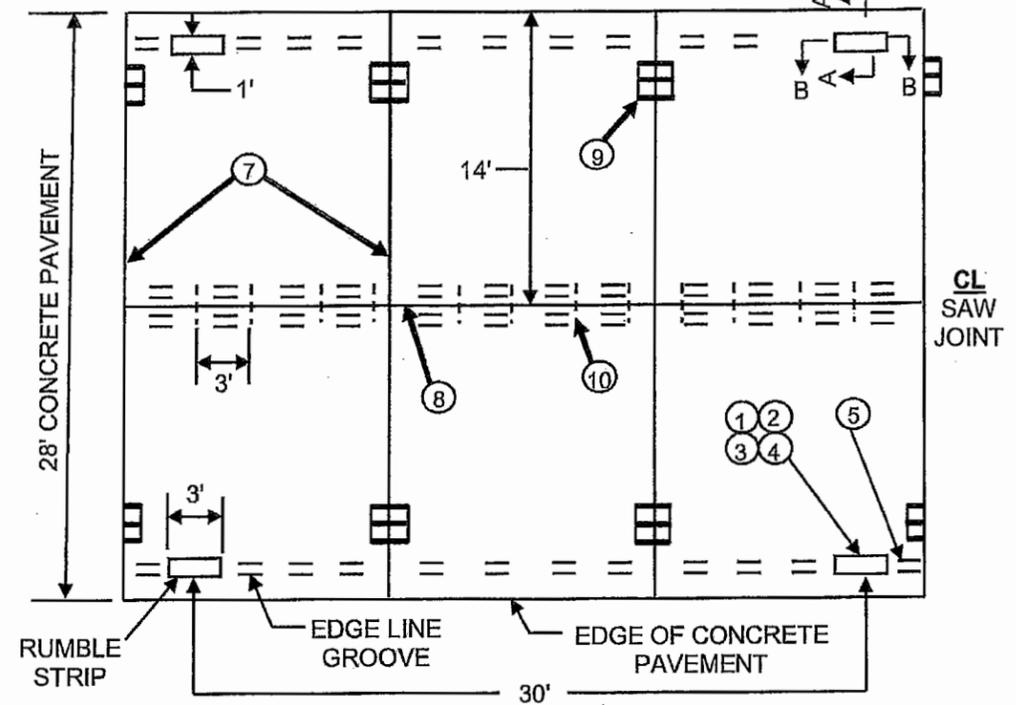
RUMBLE STRIP-SECTION VIEW



DRAWING FOOTNOTES:

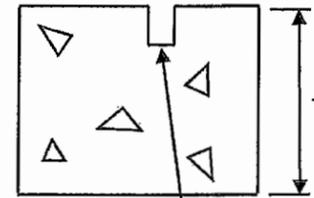
- ① 12' 0" DISTANCE FROM CENTERLINE SAW JOINT TO THE INSIDE EDGE OF THE RUMBLE STRIP.
- ② RUMBLE STRIPS SHALL BE OMITTED ON **BOTH** SIDES OF THE ROADWAY APPROXIMATELY 200' ON EACH SIDE OF RESIDENTIAL ENTRANCES.
- ③ RUMBLE STRIPS SHALL BE OMITTED AT ALL COUNTY AND TOWNSHIP ROAD APPROACHES 100' FROM CENTERLINE OF THE APPROACHING COUNTY OR TOWNSHIP ROAD.
- ④ RUMBLE STRIPS SHALL BE FORMED INTO THE PAVEMENT AT 30' INTERVALS, **BUT NOT PLACED ON ANY SAWED TRANSVERSE JOINTS.**
- ⑤ INSIDE EDGE OF THE EDGE LINE GROOVE SHALL BE AT 12' 3" FROM THE CENTERLINE CUT.
- ⑥ TRANSVERSE SAW JOINTS ON 6' PANELS (TYPICAL).
- ⑦ TRANSVERSE SAW JOINTS ON 12' PANELS (TYPICAL).
- ⑧ LONGITUDINAL SAW JOINTS.
- ⑨ 1" X 15" DOWEL BASKET ASSEMBLY, 12" C-C.
- ⑩ 30" #4 EPOXY COATED REBAR ON 36" CENTERS-3.0" BELOW THE SURFACE

PANEL JOINT LAYOUT DETAIL (TYPICAL)
FULL DEPTH CONCRETE PAVEMENT SECTION-6" THICKNESS
(STA. 23+86 TO 27+87 - 083-605-039)
(STA. 116+00 TO 127+00 - 083-608-019)

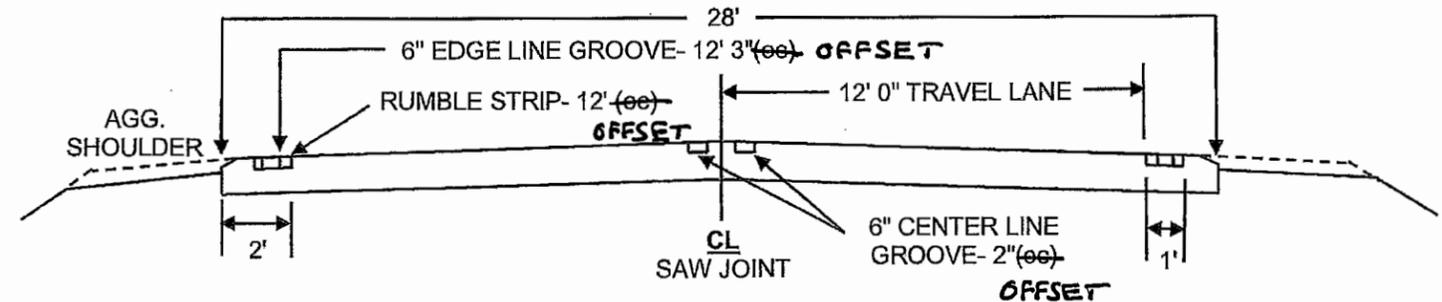


RUMBLE STRIP DETAIL-PLAN VIEW

SAW JOINT DETAIL

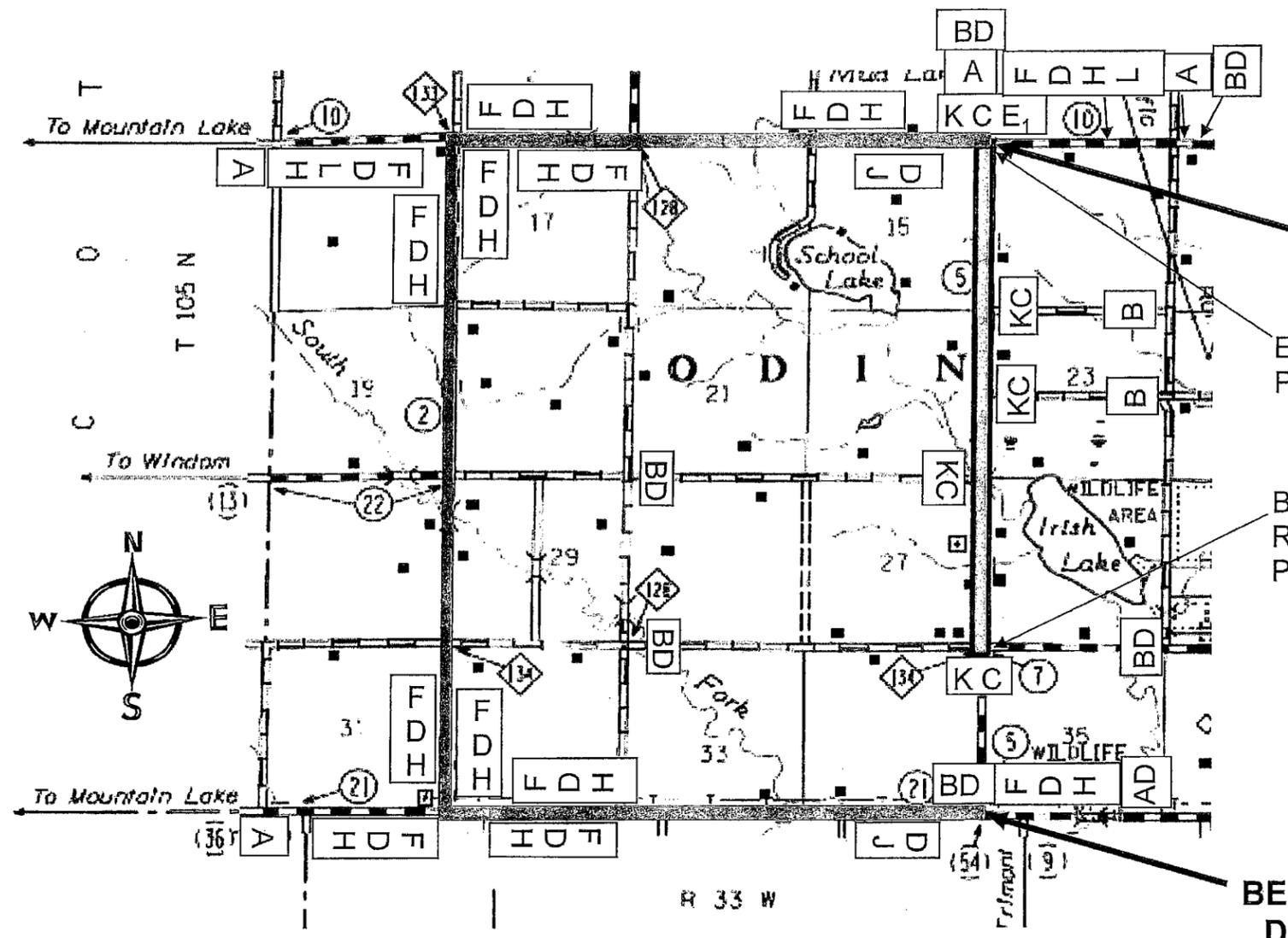


LONGITUDINAL AND TRANSVERSE SAW JOINTS
DEPTH = T/3
OVERLAY SAW JOINTS = 1-2/3"
FULL DEPTH JOINTS = 2"
WIDTH = 1/8"



EDGE LINE AND CENTER LINE GROOVE NOTES:

- A. GROOVED PAINT AREA SHALL BE A MINIMUM OF 0.10" TO A MAXIMUM OF 0.20" IN DEPTH.
- B. CONTRACTOR HAS THE OPTION OF GRINDING THE CONCRETE SURFACE OR FORMING A GROOVE IN THE FINISHING OPERATIONS. ALL CURING COMPOUND MUST BE REMOVED BEFORE PAINT STRIPE PLACEMENT.
- C. THE CONTRACTOR SHALL BE REQUIRED TO SUSPEND OPERATIONS AND MAKE ADJUSTMENTS WHEN THE GROOVE DEPTH MEASURES GREATER THAN THE MAXIMUM TOLERANCE OF 0.20."
- D. IF CONTRACTOR CHOOSES TO INSTALL A FORMED GROOVE, GROOVES SHALLOWER THAN 0.10" SHALL BE GROUND TO AN ACCEPABLE DEPTH. DEPTH MEASUREMENT OF GROOVES FOR ACCEPTANCE SHALL BE MADE AFTER CONCRETE PAVEMENT HAS CURED.
- E. STRIPING GROOVES INSTALLED OUTSIDE OF THE SPECIFIED HORIZONTAL TOLERANCE SHALL BE CORRECTED BY GRINDING. THE CONTRACTOR SHALL SUSPEND OPERATIONS AND MAKE ADJUSTMENTS IF NOT ABLE TO STAY WITHIN HORIZONTAL TOLERANCE.
- F. PERMANENT PAVEMENT MARKINGS SHALL BE CENTERED IN GROOVES.



SIGN QUANTITIES

A		5
B		8
C		6
D		22
E ₁		1 (E ₁)
F		13
H		13
J		2
K		6
L		2

BEGIN/END DETOUR

END RESURFACE PROJECT

BEGIN RESURFACE PROJECT

BEGIN/END DETOUR

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

THE EXACT LOCATION OF TRAFFIC CONTROL DEVICES WILL BE DETERMINED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

ALL TRAFFIC CONTROL DEVICES SHOWN, UNLESS OTHERWISE INDICATED, SHALL BE FURNISHED, INSTALLED, MAINTAINED, REMOVED BY, AND REMAIN PROPERTY OF THE CONTRACTOR.

ALL SIGNS SHALL CONFORM TO THE HEIGHT REQUIREMENTS OF THE FIRST PARAGRAPH OF SECTION 2A-23 OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

TRAFFIC CONTROL SIGNS MAY BE INSTALLED ON PORTABLE STANDS IN LOCATIONS APPROVED BY THE ENGINEER.

ALL WARNING SIGNS SHALL HAVE BLACK LETTERS ON ORANGE COLORED, DIAMOND GRADE, RETRO REFLECTIVE SHEETING.

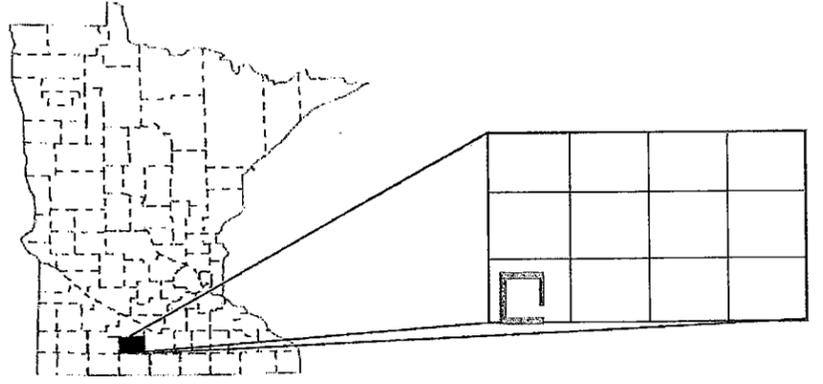
REGULATORY SIGNS SHALL CONFORM IN LETTER SIZE AND COLOR TO THE REQUIREMENTS SPECIFIED IN THE MINNESOTA STANDARD SIGNS MANUAL, INCLUDING THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, FIELD MANUAL.

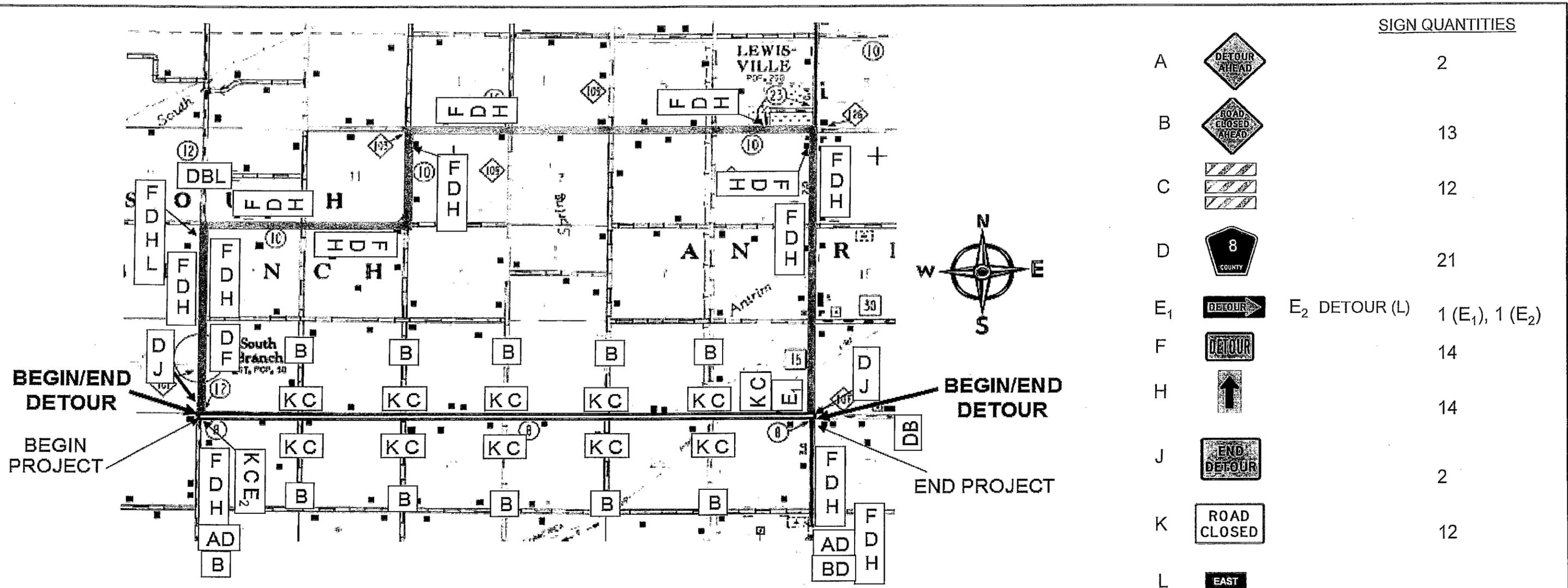
CONSTRUCTION ZONE SIGNING IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR. SIGNS REQUIRED INCLUDE BUT ARE NOT LIMITED TO ROAD CLOSED AHEAD, AND DETOUR. NUMBER OF SIGNS AND LOCATION DETERMINED BY THE CONTRACTOR'S OPERATION. ALL SIGNS SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

ANY EXISTING SIGNS THAT ARE CONFLICTING IN THE CONSTRUCTION ZONE AND ARE NOT REMOVED DUE TO CONSTRUCTION, SHALL BE COVERED (INCIDENTAL). SIGN COVERS SHALL BE CONSTRUCTED OF ALUMINUM PANELS INSTALLED WITH NYLON WASHERS BETWEEN THE SIGN & THE COVER. THE COVERS SHALL CAUSE NO DAMAGE TO THE SIGN PANEL THEY COVER.

ALL FLASHERS SHOULD BE ON THE ROAD SIDE OF THE SIGN.

THE SIGNING AND CHANNELIZATION DEVICE TABULATION SHOWN IS FOR INFORMATIONAL PURPOSES. ADDITIONAL SIGNS AND DEVICES SHALL BE PROVIDED AS REQUIRED WITH NO ADJUSTMENT IN THE UNIT PRICE BID FOR ITEM "TRAFFIC CONTROL," LUMP SUM.





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