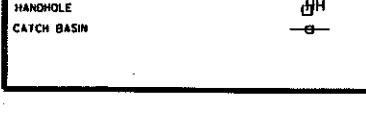
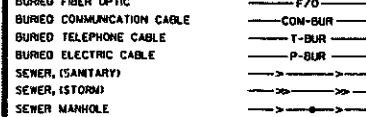
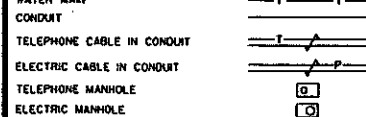
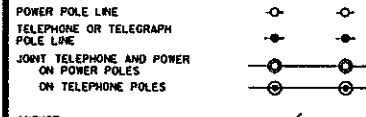
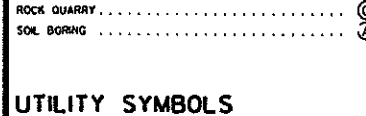
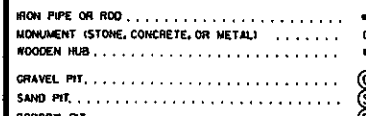
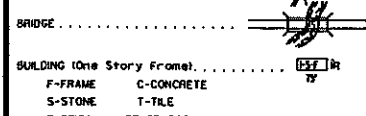
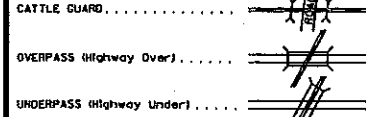
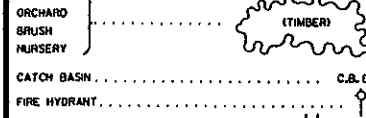
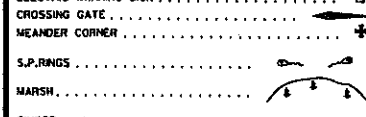
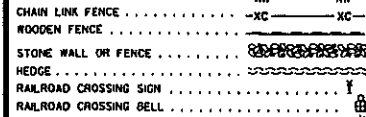
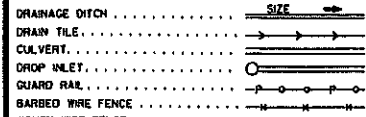
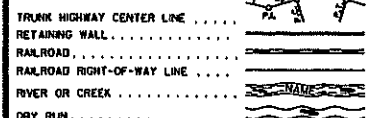
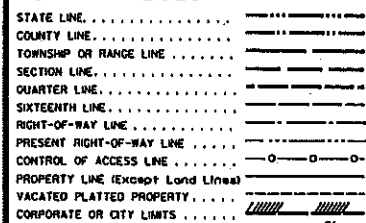


PLAN SYMBOLS



MINNESOTA DEPARTMENT OF TRANSPORTATION



RAMSEY COUNTY DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLAN FOR GRADING, BASE, BITUMINOUS PAVING, CONCRETE CURB & GUTTER, BR. NO. 62631, BR. NO. 62632, BR. NO. 62633, TRAFFIC SIGNALS, STORM SEWER, SANITARY SEWER, WATERMAIN & MISC. CONSTRUCTION

LOCATED ON RICE STREET (CSAH 49) FROM 680' SOUTH OF CO. RD. B TO 555' NORTH OF CO. RD. B2 LOCATED ON T.H. 36 FROM 2370' WEST OF RICE STREET (CSAH 49) TO 2305' EAST OF RICE STREET (CSAH 49) REF. POINT 003+00.815 TO REF. POINT 004+00.706

LEGAL DESCRIPTION RICE STREET

BEGINNING APPROXIMATELY 663' SOUTH AND 17' EAST OF THE NW CORNER OF SECTION 18, TWP 29N, RANGE 22W, AND ENDING APPROXIMATELY 2081' SOUTH AND 20' EAST OF THE NW CORNER OF SECTION 7, TWP 29N, RANGE 22W.

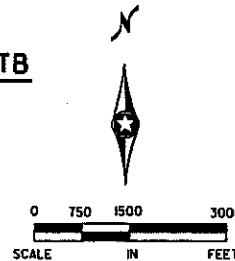
LEGAL DESCRIPTION TH 36

BEGINNING APPROXIMATELY 740' NORTH AND 2300' WEST OF THE NW CORNER OF SECTION 18, TWP 29N, RANGE 22W, AND ENDING APPROXIMATELY 870' NORTH AND 2280' EAST OF THE NW CORNER OF SECTION 18, TWP 29N, RANGE 22W.

END S.P. NO. 62-649-27 CTB

NB RICE STA. 49+85.16

BRIDGE NO. 62633



AGREEMENT NUMBER 96292
RAMSEY COUNTY
S.P. 6212-165 (TH 136 = 118)
STATE FUNDS
METRO DISTRICT

PROJECT LOCATION

BEGIN S.P. NO. 6212-165
EB TH36 STA. 385+90.50

BRIDGE NO. 62632

BEGIN S.P. NO. 62-649-27 CTB
NB RICE STA. 11+29.00

S.P. NO. 6212-165
TH 36

S.P. NO. 62-649-27 CTB
RICE STREET (CSAH 49)

FUNCTIONAL CLASSIFICATION:	PRINCIPAL ARTERIAL
NO. OF TRAFFIC LANES:	4
NO. OF PARKING LANES:	0
STRUCTURAL DESIGN:	10 TON
R VALUE:	40
ADT (Current Year) (2010):	83,000
ADT (Future Year) (2030):	96,300
HCAOT (Future Year) (2030):	7.1%
ESALS = 20 YEAR CUMULATIVE	17,326,000

GROSS LENGTH	5129.18 FT	0.971 MI
BRIDGE LENGTH	0 FT	0 MI
EXCEPTION LENGTH	0 FT	0 MI
NET LENGTH	5129.18 FT	0.971 MI

DESIGN SPEED:	65 MPH
BASED ON:	STOPPING SIGHT DISTANCE
HEIGHT OF EYE:	3.5 FT. HEIGHT OF OBJECT: 2.0 FT

FUNCTIONAL CLASSIFICATION:	MINOR RELIEVER
NO. OF TRAFFIC LANES:	4
NO. OF PARKING LANES:	0
STRUCTURAL DESIGN:	10 TON
R VALUE:	40
ADT (Current Year) (2010):	20,200
ADT (Future Year) (2030):	26,900
HCAOT (Future Year) (2030):	7.1%
ESALS = 20 YEAR CUMULATIVE	3,250,000

GROSS LENGTH	3853.90 FT	0.730 MI
BRIDGE LENGTH	163.0 FT	0.031 MI
EXCEPTION LENGTH	0 FT	0 MI
NET LENGTH	3853.90 FT	0.730 MI

DESIGN SPEED:	40 MPH
BASED ON:	STOPPING SIGHT DISTANCE
HEIGHT OF EYE:	3.5 FT. HEIGHT OF OBJECT: 2.0 FT

NOTE: THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C1/ASCE 38-.2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA.

THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, PIPELINES, ELECTRIC, AND CABLE TV ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL BEFORE COMMENTING EXCAVATION.

GOPHER STATE ONE CALL... 1 800-252-1166

PROJECT LOCATION
COUNTY: RAMSEY
DISTRICT: METRO

S.P. NO. 62-649-27 CTB,
S.P. NO. 6212-165 (T.H. 36 = 118),
S.P. NO. 160-223-05, S.P. NO. 160-020-21,
S.P. NO. 200-113-03, S.P. NO. 200-108-03, S.P. NO. 138-020-39

MINN. PROJ. NO. STPX 6210(244)

GOVERNING SPECIFICATIONS

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

SHEET NO.	DESCRIPTION	INDEX
1	TITLE SHEET	
2	GENERAL LAYOUT (GL1)	
3-10	STATEMENTS OF ESTIMATED QUANTITIES (EQ1 - EQ8)	
12	STANDARD PLATES, TABULATION INDEX, & SOIL AND CONSTRUCTION NOTES (SP1)	
13-17	EARTHWORK SUMMARY, BALANCE, AND TABULATIONS (EW1 - EW5)	
18-26	TABULATIONS (TB1 - TB9)	
27-41	INPLACE UTILITY TABULATIONS (UT1 - UT15)	
42-57	TYPICAL SECTIONS (TS1 - TS16)	
58-62	MISCELLANEOUS DETAILS (MD1 - MD5)	
63-88	STAGING AND TRAFFIC CONTROL PLAN (TC1 - TC26)	
89-102	ALIGNMENT PLAN (AL1 - AL14)	
103-113	INPLACE TOPOGRAPHY AND UTILITY PLAN (TP1 - TP11)	
114-124	REMOVAL PLAN (RM1 - RM11)	
125-127	BUILDING DEMOLITION PLAN (BD1 - BD3)	
128-168	CONSTRUCTION AND DRAINAGE PLAN (CD1 - CD4)	
171	TEMPORARY CONSTRUCTION PLAN AND PROFILE (TCP1)	
172-178	STORM SEWER PROFILES (SSP1 - SSP7)	
179-185	WATERMAIN PLAN (SSW1 - SSW7)	
186	SANITARY PLAN (SAN1)	
187-191	INTERSECTION DETAILS (ID1 - ID5)	
192-198E	GUARDRAIL PLAN (GR1 - GR12)	
199	FENCING PLAN (FE1)	
200-203	POND CONTOUR AND GRADING PLAN (PO1 - PO4)	
204-220B	TURF ESTABLISHMENT AND EROSION CONTROL PLAN (TE1 - TE17B)	
221-222	STORM WATER POLLUTION PREVENTION PLAN (SWP1 - SWP2)	
223-227	LANDSCAPING PLAN (LP1 - LP5)	
228-280	SIGNING AND STRIPING PLAN (SSI - SS53)	
281-332	SIGNAL PLAN (SG1 - SG52)	
333-343	LIGHTING PLAN (LT1 - LT11)	
344-374	TRAFFIC MANAGEMENT PLAN (TMI - TM31)	
375-379	NOISE WALL PLAN (NWI - NW5)	
380-404	RETAINING WALL PLAN (RW1 - RW25)	
405-534	CROSS SECTIONS (XS1 - XS130)	

SHEETS NO. 11, 169, AND 170 HAVE BEEN DELETED, THIS PLAN CONTAINS 538 SHEETS

SEH Kimley-Horn and Associates, Inc.
PHONE: 651-490-2000
3535 VANDERBILT CENTER DR.
ST. PAUL, MN 55110
2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114
TEL. NO. 651-645-4197
FAX. NO. 651-645-5116

APPROVED	<i>[Signature]</i>	CITY OF ROSEVILLE ENGINEER	3/03 2010
APPROVED	<i>[Signature]</i>	CITY OF MAPLEWOOD ENGINEER	3/4 2010
APPROVED	<i>[Signature]</i>	CITY OF LITTLE CANADA ENGINEER	3/4 2010
APPROVED	<i>[Signature]</i>	RAMSEY COUNTY ENGINEER	3/4 2010
RECOMMENDED FOR APPROVAL	<i>[Signature]</i>	DISTRICT TRANSPORTATION ENGINEER	3/29 2010
RECOMMENDED FOR APPROVAL	<i>[Signature]</i>	DISTRICT MATERIALS ENGINEER	3/26 2010
RECOMMENDED FOR APPROVAL	<i>[Signature]</i>	DISTRICT WATER RESOURCES/HYDRAULICS ENGINEER	3/29 2010
RECOMMENDED FOR APPROVAL	<i>[Signature]</i>	DISTRICT TRAFFIC ENGINEER	3/30 2010
RECOMMENDED FOR APPROVAL	<i>[Signature]</i>	FOR STATE BRIDGE ENGINEER	3/30 2010
RECOMMENDED FOR APPROVAL	<i>[Signature]</i>	STATE PRE-LETTING ENGINEER	4/28 2010
OFFICE OF LAND MANAGEMENT APPROVAL	<i>[Signature]</i>	FOR DIRECTOR OF LAND MANAGEMENT	4/28 2010
APPROVED	<i>[Signature]</i>	STATE DESIGN ENGINEER	3/25 2010
APPROVED	<i>[Signature]</i>	DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID AND FEDERAL AID RULES/POLICY	3/25 2010
APPROVED FOR STATE AID AND FEDERAL AID FUNDING	<i>[Signature]</i>	STATE AID ENGINEER	3/25 2010
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.	<i>[Signature]</i>	BRET W. JOHNSON	3/03/10
LICENSED ENGINEER	BRET W. JOHNSON	REG. NO. 25097	DATE 3/03/10

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Title Sheet

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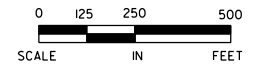
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LEGEND

- EXISTING PAVEMENT
- ==== NEW CONSTRUCTION
- TPXX INPLACE TOPOGRAPHY & UTILITY PLAN SHEET NO.
- RMX REMOVAL PLAN SHEET NO.
- CDXX CONSTRUCTION & DRAINAGE PLAN SHEET NO.
- TEXX TURF ESTABLISHMENT & EROSION CONTROL PLAN SHEET NO.
- SSXX SIGNING & STRIPING PLAN SHEET NO.

END CONSTRUCTION
S.P. NO. 62-649-27
STA. 49+85.16

E 574000
N 182000



E 568000
N 180000

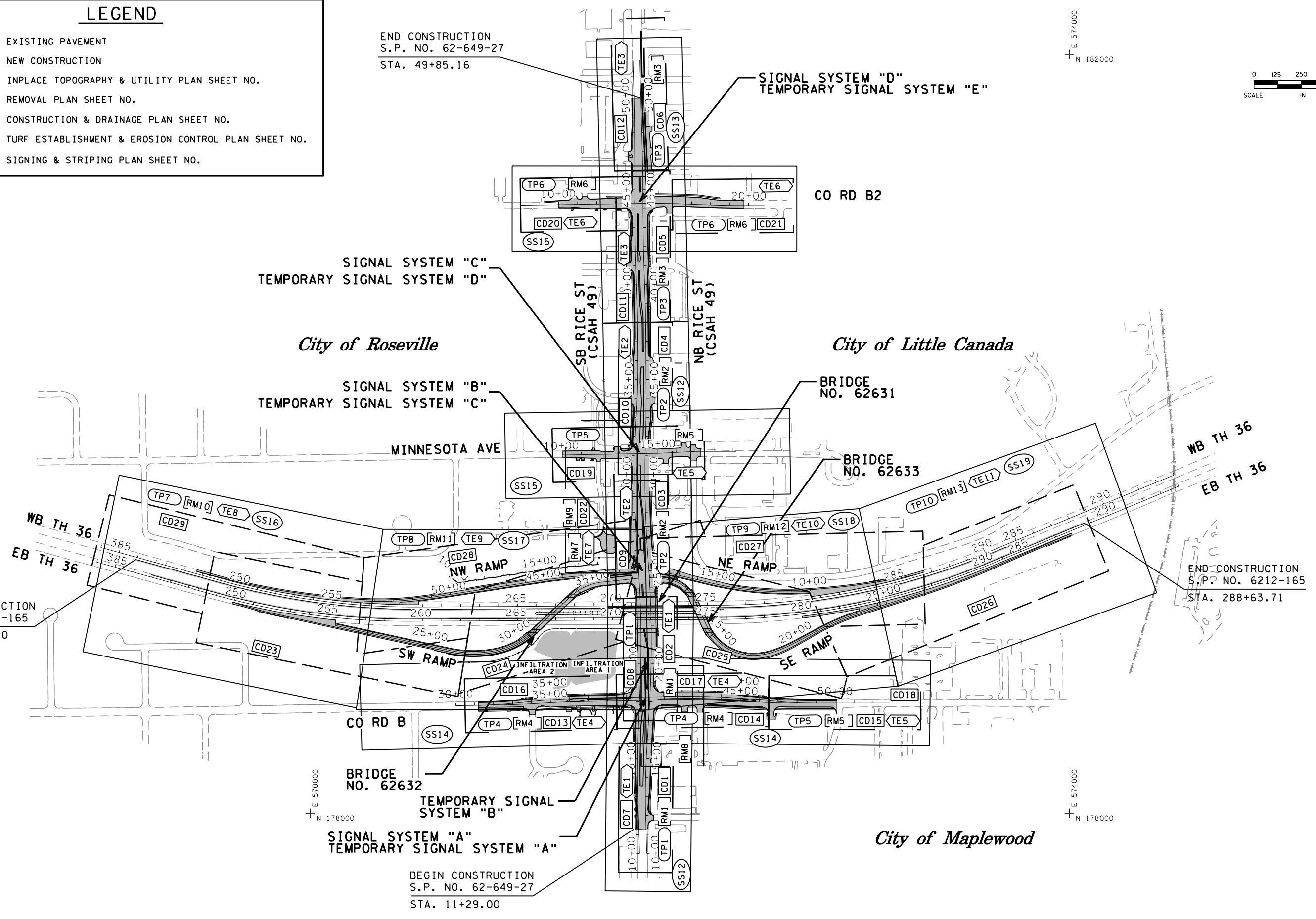
E 568000
N 178000

E 570000
N 178000

E 574000
N 178000

BEGIN CONSTRUCTION
S.P. NO. 6212-165
STA. 385+90.50

END CONSTRUCTION
S.P. NO. 6212-165
STA. 288+63.71



DESIGN TEAM				
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010

SEH PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

Kinley-Horn and Associates, Inc.
2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

GENERAL LAYOUT

FILE NO.
RAMSPIO8790

GL 1
OF GLI

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534

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5/27/2010

kerlickson

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STATEMENT OF ESTIMATED QUANTITIES

Table with columns: TAB, NOTES, ITEM NO., ITEM DESCRIPTION, UNIT, TOTAL ESTIMATED QUANTITIES, S.P. NO. 6212-165 INTERCHANGE, RICE ST. NORTH & SOUTH OF INTERCHANGE, STORM SEWER, NON-PARTICIPATING CITY OF ROSEVILLE, NON-PARTICIPATING CITY OF LITTLE CANADA. Includes items like MOBILIZATION, CLEARING, PAVEMENT MARKING REMOVAL, BUILDING REMOVAL, etc.

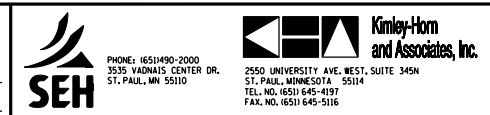
NOTES:

- 1. DYNAMIC COMPACTION FROM STA. 14+50 TO 19+50 ON SE RAMP. SEE DYNAMIC COMPACTION DETAIL.
2. TO BE USED AS DIRECTED BY THE ENGINEER.
3. FOR TEMPORARY DRAINAGE. SEE POND CONTOUR AND GRADING PLAN - PO3.
...
23. SEE RETAINING WALL MISCELLANEOUS DETAILS SHEET 397 AND BRIDGE APPROACH TREATMENT SHEETS 167 & 168 FOR PAY LIMITS.

BASIS OF ESTIMATED QUANTITIES table with columns: ITEM NO., ITEM, BASIS. Lists items like TYPE SP 12.5 WEARING COURSE, SEED MIXTURE, etc.

DESIGN TEAM table with columns: NO., BY, DATE, REVISIONS. Includes entries for KLE, 5/26/10, DELETED NOTE 24.

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.
Certified By: [Signature] Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STATEMENT OF ESTIMATED QUANTITIES

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES	S.P. NO. 62-649-27 CTB			NON-PARTICIPATING CITY OF ROSEVILLE	NON-PARTICIPATING CITY OF LITTLE CANADA
						S.P. NO. 6212-165	RICE ST. NORTH & SOUTH OF INTERCHANGE	STORM SEWER		
						INTERCHANGE	ESTIMATED QUANTITY	ESTIMATED QUANTITY		
W		2104.523	SALVAGE SIGN TYPE C	EACH	122	15	107			
W		2104.523	SALVAGE SIGN TYPE D	EACH	9	5	4			
W		2104.523	SALVAGE SIGN TYPE SPECIAL	EACH	7	1	6			
X		2104.523	SALVAGE SIGN PANEL TYPE OH	EACH	2	2				
AA		2104.523	SALVAGE RAMP CONTROL SIGNAL	EACH	4	4				
AA		2104.523	SALVAGE FIBER OPTIC VAULT	EACH	1	1				
AA		2104.523	SALVAGE CABINET	EACH	1	1				
AA		2104.523	SALVAGE CCTV HARDWARE	EACH	1	1				
AA		2104.523	SALVAGE SPLICE CABINET	EACH	1	1				
J		2104.523	SALVAGE ANCHORAGE ASSEMBLY-PL BEAM	EACH	1	1				
J	33	2104.523	SALVAGE ENERGY ABSORBING TERMINAL	EACH	4	4				
AA		2104.601	REMOVE CABLES	LUMP SUM	1	1				
AA	34	2104.601	HAUL SALVAGED MATERIAL	LUMP SUM	1	1				
	11	2104.601	REMOVE REGULATED WASTE MATERIAL A	LUMP SUM	1		1			
	12	2104.601	REMOVE REGULATED WASTE MATERIAL B	LUMP SUM	1	1				
	13	2104.601	REMOVE REGULATED WASTE MATERIAL C	LUMP SUM	1	1				
D		2104.603	ABANDON PIPE SEWER	LN FT	200		200			
R		2104.603	ABANDON WATER MAIN	LN FT	3,077	330	2,382	365		
B		2105.501	COMMON EXCAVATION (P)	CU YD	156,197	15,181	141,016			
B		2105.505	MUCK EXCAVATION (P)	CU YD	21,785	21,785				
B		2105.507	SUBGRADE EXCAVATION (P)	CU YD	7,662	7,662				
B		2105.522	SELECT GRANULAR BORROW (CV) (P)	CU YD	53,102	23,340	29,762			
B	23	2105.522	SELECT GRANULAR BORROW MOD 10% (CV) (P)	CU YD	9,569	9,569				
B		2105.526	SELECT TOPSOIL BORROW (CV) (P)	CU YD	2,716	129	2,587			
		2105.609	HAUL AND DISPOSE OF CONTAMINATED MATERIAL	TON	22,100	22,100				
	1	2112.604	SUBGRADE PREPARATION	SQ YD	5,567	5,567				
	2	2123.610	DISK HARROW	HOUR	30	15	15			
	2	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	170	50	120			
	26	2123.610	TRACTOR MOUNTED BACKHOE	HOUR	20	10	10			
	2	2130.501	WATER	MGALLONS	200	100	100			
H		2211.503	AGGREGATE BASE (CV) CLASS 6 (P)	CU YD	19,966	8,403	11,563			
	25	2231.501	BITUMINOUS PATCHING MIXTURE	TON	100	100				
F		2232.501	MILL BITUMINOUS SURFACE (2.0")	SQ YD	840	165	675			
		2301.513	STRUCTURAL CONCRETE HE	CU YD	26		26			
		2301.553	BRIDGE APPROACH PANELS (P)	SQ YD	1,134	1,134				
G		2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	TON	4,518		4,518			
G		2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (4,F)	TON	15,471	9,652	5,819			
G		2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	3,161		3,161			
G		2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (4,B)	TON	10,253	5,880	4,373			
G	15	2360.503	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) 2.0" THICK	SQ YD	2,965		2,965			
G	14	2360.503	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) 2.5" THICK	SQ YD	1,553	202	1,351			
AC		2401.501	STRUCTURAL CONCRETE (1A43) (P)	CU YD	351	351				
AC		2401.501	STRUCTURAL CONCRETE (3Y43) (P)	CU YD	402	402				
AC		2401.513	TYPE MOD F (TL-4) RAILING CONCRETE (3Y46) (P)	LN FT	369	369				
AC		2401.541	REINFORCEMENT BARS (P)	POUND	31,732	31,732				
AC		2401.541	REINFORCEMENT BARS (EPOXY COATED) (P)	POUND	51,454	51,454				

NOTES:

- DYNAMIC COMPACTION FROM STA. 14+50 TO 19+50 ON SE RAMP. SEE DYNAMIC COMPACTION DETAIL.
- TO BE USED AS DIRECTED BY THE ENGINEER.
- FOR TEMPORARY DRAINAGE. SEE POND CONTOUR AND GRADING PLAN - P03.
- DRY-CAST WALLS.
- WET-CAST WALLS.
- TENSION CABLE GUARDRAIL MODIFICATIONS IN T.H.36 MEDIAN. INCLUDES SHORTENING OF EXISTING CABLE GUARDRAIL, REMOVAL OF EXISTING ANCHORAGE, RETENSIONING, AND INSTALLATION OF NEW ANCHORAGE. ALL LABOR AND MATERIAL ARE INCLUDED.
- MODIFIED (FOR TREE PLANTINGS)
- CONTRACTOR SHALL PLACE GEOTEXTILE FABRIC TYPE III BENEATH MULCH MATERIAL TYPE 9. GEOTEXTILE FABRIC IS INCIDENTAL.
- COMMERCIAL FERTILIZER ANALYSIS 10-20-20 AT 450 LBS/ACRE IS INCIDENTAL.
- TO BE APPROVED BY THE ENGINEER.
- SINCLAIR REMOVAL.
- FORTUNE HOUSE REMOVAL.
- APARTMENT BUILDING REMOVAL.
- FOR BITUMINOUS DRIVEWAY PATCHING.
- FOR TEMPORARY ROADWAY & SIDEWALK PAVEMENT.
- PROTECTIVE RAILING.
- INTEGRALLY COLORED & STAMPED BOULEVARD.
- INTEGRALLY COLORED & STAMPED MEDIAN.
- PIPE JACKING UNDER TH 36 AT STA. 270+33.
- STA. 26+11 - 30+65 RT ON SW RAMP.
- TRUNCATED DOMES SHALL BE REPLACED WITH CAST IRON DETECTABLE WARNING PLATES.
- MONUMENTS LOCATED AT RICE ST. & COUNTY RD B AND RICE ST. & COUNTY RD B2 INTERSECTIONS.
- SEE RETAINING WALL MISCELLANEOUS DETAILS SHEET 397 AND BRIDGE APPROACH TREATMENT SHEETS 167 & 168 FOR PAY LIMITS.
- DELETED
- USE TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB440F).
- FOR MINOR GRADING.
- SEE MISCELLANEOUS DETAILS SHEET 61.
- SEE MISCELLANEOUS DETAILS SHEET 58.
- SEE LIGHTING DETAILS SHEET 342.
- SEE SERVICE CABINET (SPECIAL) SHEET 353.
- VARIABLE DEPTH 5' OR LESS.
- TYPE BEAT-BP.
- TYPE ET 2000.
- 100% STATE FUNDS.
- FOR BUILDING REMOVALS A, B, & C.

ITEM NO.	ITEM	BASIS
2360	TYPE SP 12.5 WEARING COURSE	113 LBS/SY/INCH
2360	TYPE SP 12.5 NON-WEARING COURSE	113 LBS/SY/INCH
2575	SEED MIXTURE 190	60 LBS/ACRE
2575	SEED MIXTURE 250	70 LBS/ACRE
2575	SEED MIXTURE 310	82 LBS/ACRE
2575	SEED MIXTURE 330	85 LBS/ACRE
2575	HYDRAULIC SOIL STABILIZER	2100 LBS/ACRE

NO.	BY	DATE	REVISIONS
1	KLE	5/26/10	DELETED REGULATED WASTE EVALUATION A
2	KLE	5/26/10	ADDED REMOVE REGULATED WASTE MATERIAL A
3	KLE	5/26/10	DELETED EXCAVATION SPECIAL
4	KLE	5/26/10	REVISED 2105.609 QUANTITY
5	KLE	5/26/10	DELETED NOTE 24
6	KLE	6/17/10	REVISED 2105.501 & 2360.503 QUANTITIES

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STATEMENT OF ESTIMATED QUANTITIES

\$FILES \$MODEL\$ \$USERS \$DATES \$TIME\$

STATEMENT OF ESTIMATED QUANTITIES

Table with columns: TAB, NOTES, ITEM NO., ITEM DESCRIPTION, UNIT, TOTAL ESTIMATED QUANTITIES, S.P. NO. 6212-165 INTERCHANGE, RICE ST. NORTH & SOUTH OF INTERCHANGE, STORM SEWER, NON-PARTICIPATING CITY OF ROSEVILLE, NON-PARTICIPATING CITY OF LITTLE CANADA. Includes items like ORNAMENTAL METAL RAILING, MODULAR BLOCK RETAINING WALL, CONCRETE POSTS, etc.

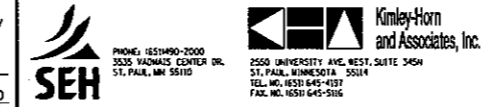
NOTES:

- 1. DYNAMIC COMPACTION FROM STA. 14+50 TO 19+50 ON SE RAMP. SEE DYNAMIC COMPACTION DETAIL.
2. TO BE USED AS DIRECTED BY THE ENGINEER.
3. FOR TEMPORARY DRAINAGE. SEE POND CONTOUR AND GRADING PLAN - P03.
...
23. SEE RETAINING WALL MISCELLANEOUS DETAILS SHEET 397 AND BRIDGE APPROACH TREATMENT SHEETS 167 & 168 FOR PAY LIMITS.

BASIS OF ESTIMATED QUANTITIES table with columns: ITEM NO., ITEM, BASIS. Includes rows for TYPE SP 12.5 WEARING COURSE, SEED MIXTURE, HYDRAULIC SOIL STABILIZER.

Table with columns: DESIGN TEAM, DRAWN BY, DESIGNER, CHECKED BY, NO., BY, DATE, REVISIONS. Includes entries for MTT, SRH, HLR, KLE.

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STATEMENT OF ESTIMATED QUANTITIES
FILE NO. RAMSP108790
EQ3 OF EQ9
534

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8/5/2010

Kerickson

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STATEMENT OF ESTIMATED QUANTITIES

Table with columns: TAB, NOTES, ITEM NO., ITEM DESCRIPTION, UNIT, TOTAL ESTIMATED QUANTITIES, S.P. NO. 6212-165 INTERCHANGE, RICE ST. NORTH & SOUTH OF INTERCHANGE, STORM SEWER, NON-PARTICIPATING CITY OF ROSEVILLE, NON-PARTICIPATING CITY OF LITTLE CANADA.

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4. DRY-CAST WALLS.
5. WET-CAST WALLS.
6. TENSION CABLE GUARDRAIL MODIFICATIONS IN T.H.36 MEDIAN. INCLUDES SHORTENING OF EXISTING CABLE GUARDRAIL, REMOVAL OF EXISTING ANCHORAGE, RETENSIONING, AND INSTALLATION OF NEW ANCHORAGE. ALL LABOR AND MATERIAL ARE INCLUDED.
7. MODIFIED (FOR TREE PLANTINGS)
8. CONTRACTOR SHALL PLACE GEOTEXTILE FABRIC TYPE III BENEATH MULCH MATERIAL TYPE 9. GEOTEXTILE FABRIC IS INCIDENTAL.
9. COMMERCIAL FERTILIZER ANALYSIS 10-20-20 AT 450 LBS/ACRE IS INCIDENTAL.
10. TO BE APPROVED BY THE ENGINEER.
11. SINCLAIR REMOVAL.
12. FORTUNE HOUSE REMOVAL.
13. APARTMENT BUILDING REMOVAL.
14. FOR BITUMINOUS DRIVEWAY PATCHING.
15. FOR TEMPORARY ROADWAY & SIDEWALK PAVEMENT.
16. PROTECTIVE RAILING.
17. INTEGRALLY COLORED & STAMPED BOULEVARD.
18. INTEGRALLY COLORED & STAMPED MEDIAN.
19. PIPE JACKING UNDER TH 36 AT STA. 270+33.
20. STA. 26+11 - 30+65 RT ON SW RAMP.
21. TRUNCATED DOMES SHALL BE REPLACED WITH CAST IRON DETECTABLE WARNING PLATES.
22. MONUMENTS LOCATED AT RICE ST. & COUNTY RD B AND RICE ST. & COUNTY RD B2 INTERSECTIONS.
23. SEE RETAINING WALL MISCELLANEOUS DETAILS SHEET 397 AND BRIDGE APPROACH TREATMENT SHEETS 167 & 168 FOR PAY LIMITS.
24. DELETED
25. USE TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB440F).
26. FOR MINOR GRADING.
27. SEE MISCELLANEOUS DETAILS SHEET 61.
28. SEE MISCELLANEOUS DETAILS SHEET 58.
29. SEE LIGHTING DETAILS SHEET 342.
30. SEE SERVICE CABINET (SPECIAL) SHEET 353.
31. VARIABLE DEPTH 5' OR LESS.
32. TYPE BEAT-BP.
33. TYPE ET 2000.
34. 100% STATE FUNDS.
35. FOR BUILDING REMOVALS A, B, & C.

BASIS OF ESTIMATED QUANTITIES table with columns: ITEM NO., ITEM, BASIS. Includes items like TYPE SP 12.5 WEARING COURSE, SEED MIXTURE, HYDRAULIC SOIL STABILIZER.

DESIGN TEAM table with columns: NO., BY, DATE, REVISIONS. Includes entries for DELETED NOTE 24, CR B2 W ALIGNMENT & MINOR RAMP, MODIFICATIONS 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.
Certified By: [Signature] Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010

Logos for SEH and Kinley-Horn and Associates, Inc. with contact information.

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STATEMENT OF ESTIMATED QUANTITIES
FILE NO. RAMSP108790
EQ4 OF EQ9
6
534

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5/27/2010

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STATEMENT OF ESTIMATED QUANTITIES

Table with columns: TAB, NOTES, ITEM NO., ITEM DESCRIPTION, UNIT, TOTAL ESTIMATED QUANTITIES, S.P. NO. 62-649-27 CTB (S.P. NO. 6212-165 INTERCHANGE, RICE ST. NORTH & SOUTH OF INTERCHANGE, STORM SEWER), NON-PARTICIPATING CITY OF ROSEVILLE, NON-PARTICIPATING CITY OF LITTLE CANADA. Rows include items like BITUMINOUS CURB, MAIL BOX SUPPORT, LIGHTING UNIT TYPE 6B-40, etc.

NOTES:

- 1. DYNAMIC COMPACTION FROM STA. 14+50 TO 19+50 ON SE RAMP. SEE DYNAMIC COMPACTION DETAIL.
2. TO BE USED AS DIRECTED BY THE ENGINEER.
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DESIGN TEAM table with columns: NO., BY, DATE, REVISIONS. Row 1: 1, KLE, 5/26/10, DELETED NOTE 24

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Certified By: [Signature] Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010

SEH logo and contact information for Kimley-Horn and Associates, Inc. including address: 2550 UNIVERSITY AVE. WEST, SUITE 345N, ST. PAUL, MINNESOTA 55114.

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STATEMENT OF ESTIMATED QUANTITIES

FILE NO. RAMSP108790
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EQ5 OF E09
534

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seq 6

STATEMENT OF ESTIMATED QUANTITIES

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Logos for SEH and Kinley-Horn and Associates, Inc. with contact information for St. Paul, MN.

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STATEMENT OF ESTIMATED QUANTITIES

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5/27/2010

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STATEMENT OF ESTIMATED QUANTITIES

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NOTES:

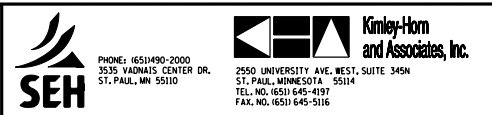
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

Table with columns: FILE NO., STATEMENT OF ESTIMATED QUANTITIES, OF EQ9, 9, 534.

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES	S.P. NO. 62-649-27 CTB			NON-PARTICIPATING CITY OF ROSEVILLE	NON-PARTICIPATING CITY OF LITTLE CANADA	
						S.P. NO. 6212-165	RICE ST. NORTH & SOUTH OF INTERCHANGE	STORM SEWER			
						INTERCHANGE					
						ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	
T,W		2582.502	4" SOLID LINE YELLOW-EPOXY	LIN FT	17,285			16,735	550		
W		2582.502	24" SOLID LINE YELLOW-EPOXY	LIN FT	550				550		
W		2582.502	4" BROKEN LINE YELLOW-EPOXY	LIN FT	100				100		
W		2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	5,300				5,300		
W		2582.503	CROSSWALK MARKING-POLY PREFORM	SQ FT	522			522			
W		2582.503	CROSSWALK MARKING-EPOXY	SQ FT	2,325				2,325		

NOTES:

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- FOR BUILDING REMOVALS A, B, & C.

BASIS OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	BASIS
2360	TYPE SP 12.5 WEARING COURSE	113 LBS/SY/INCH
2360	TYPE SP 12.5 NON-WEARING COURSE	113 LBS/SY/INCH
2575	SEED MIXTURE 190	60 LBS/ACRE
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2575	SEED MIXTURE 310	82 LBS/ACRE
2575	SEED MIXTURE 330	85 LBS/ACRE
2575	HYDRAULIC SOIL STABILIZER	2100 LBS/ACRE

DESIGN TEAM	1	KLE	5/26/10	DELETED NOTE 24
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STATEMENT OF ESTIMATED QUANTITIES

FILE NO.	10
RAMSPIO8790	
EQ8	
OF EQ9	534

The following standard plates, approved by the Federal Highway Administration shall apply on this project.

STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE
3006G	GASKET JOINT FOR R.C. PIPE
3007D	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3022C	PRECAST CONCRETE SAFETY APRON
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3131C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133C	RIPRAP AT PRECAST CONCRETE END SECTIONS
3145F	CONCRETE PIPE TIES
4006L	MANHOLE OR CATCH BASIN (DESIGN G OR H)
4007C	PRECAST MECHANICAL JOINT SEWER MANHOLE
4010H	CONCRETE SHORT CONE AND ADJUSTING RING
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN COVER FOR USE WITH OR WITHOUT TRAFFIC LOADS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS & MANHOLES
4101F	COVER CASTING FOR MANHOLE
4129G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 802A
4132F	CATCH BASIN FRAME CASTING-CASTING NO. 805
4143E	STOOL GRATE & CONCRETE FRAME - (MEDIAN DRAINS) - CASTING NO. 731
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4160D	CURB BOX CASTING FOR CATCH BASIN - CASTING NO 823A & 833A
4180J	MANHOLE OR CATCH BASIN STEP
7036F	PEDESTRIAN CURB RAMP FOR THE HANDICAPPED
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS
7113A	CONCRETE APPROACH NOSE DETAIL
8000I	STANDARD BARRICADES
8106B	EQUIPMENT PAD B (CAST-IN-PLACE OR PRECAST)
8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
8112F	PEDESTAL FOUNDATION
8114A	P.V.C. HAND HOLE/PULL BOX (NO VEHICLE LOAD)
8118D	SERVICE EQUIPMENT & POLE TRAFFIC CONTROL SIGNALS
8119C	GROUND MOUNTED CABINET FOUNDATION
8120N	POLE FOUNDATION (PA85)
8121F	TRANSFORMER BASE & POLE BASE PLATE (PA85M, PA90 & PA100)
8122E	PEDESTAL AND PEDESTAL BASE
8123F	POLE & MAST ARM - LUMINARIES & TRAFFIC LIGHTS ASSEMBLY
8126I	POLE FOUNDATION (PA90 & PA100)
8127B	LIGHT BASE - DESIGN E (40' POLE OR LESS)
8132A	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR
8150C	INSTALLATION OF CULVERT MARKERS
8308A	REINFORCED CONCRETE MEDIAN BARRIER TYPE F (NON-GLARE SCREEN TYPE)
8318C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S
8337B	TEMPORARY PORTABLE PRECAST CONCRETE
8338C	W-BEAM GUARDRAIL & END ANCHORAGES (INSTALLATION WITH STEEL POSTS)
9000D	APPROACHES AND ENTRANCES
9102D	TURF ESTABLISHMENT AREAS
9322K	CHAIN LINK FENCE
9350A	MAILBOX SUPPORT

TABULATION INDEX		
TAB	SHEET	DESCRIPTION
A	13-16	EARTHWORK TABULATION
B	17	EARTHWORK SUMMARY
C	18	CLEARING & GRUBBING
D	18	MISC. REMOVALS
E	19	PAVEMENT SAWING
F	19	MILL BITUMINOUS SURFACE
G	19	BITUMINOUS PAVEMENT
H	20	AGGREGATE BASE
I	20	CONCRETE ITEMS
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SOIL AND CONSTRUCTION NOTES

UTILITY COMPANIES WILL RELOCATE THEIR FACILITIES IN ADVANCE OF, OR CONCURRENTLY WITH THE CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. CONTRACTOR SHALL SCHEDULE CONSTRUCTION IN COOPERATION WITH UTILITY RELOCATION.

CONTRACTOR SHALL MINIMIZE INTERRUPTION OF WATER SERVICE TO ADJACENT PROPERTIES.

CONTRACTOR SHALL NOTIFY THE CITY OF ROSEVILLE WATER DEPARTMENT 24 HOURS IN ADVANCE OF DISRUPTION TO WATER SERVICE. DISRUPTION OF SERVICE SHALL BE DURING THE TIME OF DAY WHEN THE LEAST INCONVENIENCE WILL BE CAUSED TO THE CUSTOMER.

WATER SERVICE LOCATIONS ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR WITH THE CITY PRIOR TO CONSTRUCTION. SERVICE LOCATIONS MAY BE ADJUSTED AS REQUESTED BY THE CITY AND AS APPROVED BY THE ENGINEER.

ANY USE OF TRENCH BOX, SHEETING, SHORING OR OTHER METHODS OR MEANS OF CONSTRUCTION NECESSARY TO COMPLETE CONSTRUCTION WITHIN THE CONSTRUCTION LIMITS OR SLOPE EASEMENTS SHOWN WILL BE CONSIDERED TO BE INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFORE.

ANY MATERIAL NOT UTILIZED ON THIS PROJECT SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3 AND 2105.3D.

SODDING QUANTITIES ALONG ROADWAY SLOPES ARE BASED ON SODDING LIMITS FROM THE BACK OF THE CURB TO THE CONSTRUCTION LIMITS.

COMPACTION OF GRADING EMBANKMENT PORTIONS AND AGGREGATE BASE SHALL BE ACCOMPLISHED BY THE "QUALITY COMPACTION METHOD" AS PER MN/DOT SPEC. 2105.3F2, EXCEPT FOR THE TH 36 RAMPS WHICH SHALL BE BY THE "MODIFIED PENETRATION INDEX METHOD".

WHEN CONNECTION TO EXISTING BITUMINOUS PAVEMENT IS REQUIRED, THE EDGE OF EXISTING PAVEMENT SHALL BE SAWCUT TO A NEAT LINE PRIOR TO CONSTRUCTING ASPHALT SURFACING.

CONSTRUCT TRANSITION BETWEEN DIFFERENT CURB TYPES NEAR RADII POINT IN DRIVEWAY. AT INTERSECTIONS SEE GUTTER TRANSITION DETAIL.

THE TOP OF THE "GRADING GRADE" IS DEFINED AS THE BOTTOM OF THE AGGREGATE BASE OR THE TOP OF THE SELECTED GRADING SOIL, THE GRANULAR MATERIAL (SPEC 3149.2B1) OR THE SELECT GRANULAR MATERIAL (SPEC 3149.2B2) AS IS APPROPRIATE.

UNSUITABLE MATERIALS ARE TOPSOILS, DEBRIS, PEAT, MUCK AND ORGANIC, OR OTHER UNSTABLE SOILS.

SUITABLE MATERIALS SHALL BE ALL OTHER MINERAL SOILS ENCOUNTERED ON THE PROJECT OR FROM BORROW, NOT PREVIOUSLY DEFINED AS BEING UNSUITABLE.

STRIP SOD AND TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF TOPSOIL AVAILABLE IS CONSIDERED TO BE 0.5 FEET IN ALL AREAS.

ALL TOPSOIL STRIPPING WILL BE PAID AS COMMON EXCAVATION.

PROVIDE FOR THE REMOVAL AND DISPOSAL OF ANY INPLACE SURFACING, GUARDRAIL, OTHER STRUCTURES, OR DEBRIS THAT WOULD INTERFERE WITH CONSTRUCTION. ALL SUCH MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED OR DISPOSED OF OFF THE PROJECT LIMITS IN ACCORDANCE WITH SPEC 2104.3C3.

THE ASSUMED EXISTING PAVEMENT THICKNESSES ARE LOCATED IN THE FOLLOWING TABLES. ALL INPLACE PAVEMENT REMOVAL ON THE PROJECT IS PAID FOR AS "REMOVE PAVEMENT" AND IS NOT INCLUDED IN THE EARTHWORK QUANTITIES.

EXISTING PAVEMENT SECTIONS		
LOCATION	THICKNESS	
RICE STREET		
11+20	13+00	13"
13+00	16+00	5.5'
16+00	18+00	6" Bit.
		6" Con.
18+00	21+75	5.75'
SO. APPROACH		4" Bit.
PANEL		9" Con.
NO. APPROACH		2.75" Bit.
PANEL		9" Con.
23+60	29+00	5.5'
29+00	31+00	5'
31+00	33+00	5.5'
33+00	35+00	3"
35+00	37+00	5'
37+00	41+00	6"
41+00	44+00	8.25'
44+00	46+00	11"
46+00	48+00	8.25" Bit.
		6" Con.
48+00	51+80	18.75'

EXISTING PAVEMENT SECTIONS		
LOCATION	THICKNESS	
COUNTY RD. B		
30+00	34+00	12.25'
34+00	39+00	6"
41+00	43+00	9"
43+00	45+00	8.5'
45+00	47+00	7"
47+00	50+10	5.5'
MINNESOTA AVE.		
10+00	12+00	5.75'
12+00	14+00	7"
15+00	17+30	4.5'
COUNTY RD. B2		
10+00	12+00	11.75'
12+00	14+00	12.5'
15+00	18+00	12"
18+00	19+75	6"
RAMPS		
		8"
TH 36		3" Bit.
		9" Con.

COMMON EXCAVATION SHALL BECOME PROPERTY OF THE CONTRACTOR. THE COST FOR DISPOSAL SHALL BE AT THE CONTRACTOR'S EXPENSE. NO ADDITIONAL COMPENSATION WILL BE MADE BEYOND PAYMENT FOR COMMON EXCAVATION.

PROVIDE FOR SUBGRADE CORRECTIONS AND SUBCUTS FOR UNIFORMITY AND COMPACTION AND EMBANKMENT CONSTRUCTION DETAILS AS INDICATED IN THE TYPICAL SECTIONS. SELECTED GRADING SOILS FROM THE ROADBED OR ADJACENT CUTS SHALL BE USED IN THE LOWER PORTION OF THE NEW CONSTRUCTION AND THE GRANULAR MATERIAL AND/OR SELECT GRANULAR MATERIAL SHALL BE USED IN THE UPPER PORTION.

THE BOTTOM OF ALL SUBCUTS SHALL BE SHAPED AND COMPACTED BY THE "QUALITY COMPACTION METHOD"

WHERE WIDENING ADJACENT TO EXISTING PAVEMENT, EXCAVATIONS SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING OF THE EXISTING PAVEMENT. CUT VERTICALLY TO THE BOTTOM OF THE EXISTING OR PROPOSED SURFACING, WHICHEVER IS DEEPER, THEN 2V:1H TO THE BOTTOM OF THE RECOMMENDED SUBGRADE TREATMENT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT EXISTING PAVEMENT DESIGNATED TO REMAIN INPLACE IS NOT UNDERMINED BY ADJACENT EXCAVATION OR CONSTRUCTION ACTIVITY. ANY SUCH EXISTING PAVEMENT UNDERMINED OR OTHERWISE DAMAGED BY CONSTRUCTION ACTIVITY SHALL BE REMOVED AND REPLACED TO THE SATISFACTION OF THE ENGINEER, AT NO COST TO THE COUNTY OR STATE.

UNLESS OTHERWISE REQUIRED, WHERE GRANULAR EMBANKMENTS OR BACKFILL JOIN NON-GRANULAR SOIL EMBANKMENTS OR BACKFILL, PROVIDE A 1(V):20(H) TRANSITION TAPER BETWEEN THE CHANGES IN MATERIAL TO PREVENT AN ABRUPT SOILS DIFFERENTIAL. THE 1(V):20(H) TAPER SHALL BE CONSTRUCTED SO THAT THE GRANULAR BACKFILL MATERIAL OVERLAYS THE ADJACENT NON-GRANULAR SOIL BACKFILL.

WHERE MATCHING NEW SURFACING, AT CROSSROADS OR PROJECT TERMINI, TO EXISTING PAVEMENTS, CUT VERTICALLY TO THE BOTTOM OF THE EXISTING OR PROPOSED SURFACING, WHICHEVER IS DEEPER, THEN 1V:20H TO THE BOTTOM OF THE RECOMMENDED SUBGRADE TREATMENT.

DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS, AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.

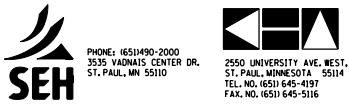
PLACE A MINIMUM OF 6 INCHES OF TOPSOIL ON ALL AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT.

NO WORK, INCLUDING THE STOCKPILING OF BITUMINOUS PAVEMENT, CONCRETE PAVEMENT, OF UNSUITABLE SOILS REMOVED FROM THE SITE SHALL EXTEND BEYOND THE RIGHT-OF-WAY OR TEMPORARY EASEMENT UNLESS THE CONTRACTOR HAS PROVIDED THE COUNTY WITH A COPY OF THE LANDOWNER'S PERMISSION FOR SUCH WORK. THIS MUST ALSO BE APPROVED BY THE ENGINEER.

3/28/13 PM
5/6/2010
kerlickson
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DESIGN TEAM				
DRAWN BY: MIT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
	NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**STANDARD PLATES,
 CONSTRUCTION/SOIL
 NOTES AND DETAILS**

FILE NO. RAMSP108790	12
SP1 OF SPI	534

RICE STREET (CSAH 49)
(SOUTH OF BRIDGE)

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
11+00.01						
11+29.05	0.05	258.10	0.03	138.78	0.03	138.78
11+50.00	0.06	273.96	0.04	206.42	0.07	345.20
11+86.39		333.32	0.04	409.27	0.11	754.47
11+96.55		328.62		124.46	0.11	878.93
12+00.00		329.56		42.10	0.11	921.03
12+33.83		337.56		417.96	0.11	1338.98
12+50.00	0.34	343.17	0.10	203.82	0.21	1542.81
13+00.00		369.31	0.32	659.71	0.53	2202.51
13+03.48		369.92		47.62	0.53	2250.13
13+50.00	9.33	369.51	8.04	637.02	8.57	2887.15
14+00.00	11.86	336.61	19.62	653.82	28.19	3540.97
14+29.74	2.67	321.79	8.00	362.62	36.19	3903.59
14+50.00	28.40	315.20	11.66	238.98	47.84	4142.57
14+90.70	23.82	340.27	39.36	494.00	87.20	4636.57
15+00.00	20.29	355.23	7.60	119.82	94.80	4756.39
15+16.22	4.96	326.85	7.58	204.86	102.39	4961.24
15+50.00	35.13	307.59	25.08	396.90	127.47	5358.14
16+00.00	6.29	397.57	38.35	652.92	165.82	6011.06
16+50.00	7.16	482.00	12.45	814.41	178.27	6825.48
17+00.00	0.65	556.87	7.23	961.91	185.51	7787.39
17+50.00		446.32	0.61	928.88	186.11	8716.27
18+00.00		355.38		742.31	186.11	9458.58
18+05.88		346.93		76.45	186.11	9535.03
18+50.00	0.05	290.75	0.04	521.03	186.15	10056.06
19+00.00	31.10	331.91	28.84	576.54	215.00	10632.60
19+50.00	47.52	333.27	72.80	615.91	287.79	11248.51
20+00.00	104.11	219.89	140.39	512.18	428.19	11760.69
20+50.00	326.10	38.85	398.34	239.57	826.53	12000.26
21+00.00	1231.91	0.88	1442.61	36.79	2269.14	12037.05
21+42.23	1714.75	0.01	2304.34	0.69	4573.48	12037.74
21+44.63	1757.73	0.01	154.17		4727.65	12037.74
21+50.00	1822.74		356.29		5083.94	12037.74
21+84.31	3045.11		3092.84		8176.78	12037.74

RICE STREET (CSAH 49)
(NORTH OF BRIDGE)

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
23+54.30	2443.01	0.07				
23+75.00	1329.91	0.20	1446.03	0.10	1446.03	0.10
23+92.94	692.07	2.09	671.74	0.76	2117.77	0.86
23+98.20	614.62	2.89	127.17	0.48	2244.94	1.35
24+50.00	182.24	33.75	764.46	35.15	3009.40	36.49
24+54.62	195.20	30.29	32.30	5.48	3041.70	41.98
24+91.37	181.29	51.51	256.24	55.68	3297.95	97.65
25+00.00	177.13	59.92	57.25	17.80	3355.19	115.45
25+50.00	177.35	120.97	328.22	167.49	3683.41	282.94
26+00.00	96.68	219.88	253.73	315.60	3937.14	598.53
26+50.00	3.30	333.97	92.57	512.82	4029.72	1111.35
27+00.00	5.25	541.56	7.91	810.67	4037.63	1922.02
27+50.00	1.62	545.30	6.36	1006.35	4043.99	2928.37
28+00.00	0.72	545.44	2.17	1009.94	4046.16	3938.31
28+50.00	0.84	475.98	1.44	945.76	4047.60	4884.07
29+00.00	4.81	384.76	5.23	796.98	4052.83	5681.05
29+50.00	11.91	1112.92	15.49	1386.74	4068.31	7067.79
30+00.00	13.30	986.98	23.35	1944.35	4091.67	9012.14
30+50.00	1.65	474.11	13.85	1352.86	4105.52	10365.00
31+00.00		297.08	1.53	714.07	4107.05	11079.07
31+09.21		305.14		102.75	4107.05	11181.82
31+50.00	0.52	381.23	0.40	518.42	4107.44	11700.25
32+00.00	77.18	432.04	71.95	753.03	4179.39	12453.27
32+50.00	81.63	400.24	147.05	770.62	4326.44	13223.90
33+00.00	52.68	412.86	124.35	752.87	4450.79	13976.76
33+50.00	28.01	350.67	74.71	706.98	4525.51	14683.74
33+91.09		496.15	21.32	644.42	4546.82	15328.16
34+00.00		472.95		159.85	4546.82	15488.00
34+50.00		489.89		891.52	4546.82	16379.53
35+00.00		522.66		937.54	4546.82	17317.07
35+50.00		569.63		1011.38	4546.82	18328.45
36+00.00		582.64		1066.92	4546.83	19395.36
36+04.60	0.43	585.03	0.04	99.44	4546.86	19494.80
36+50.00		591.74	0.36	989.39	4547.22	20484.19
37+00.00		577.50		1082.63	4547.22	21566.82

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
37+50.00	0.30	582.07	0.28	1073.67	4547.50	22640.49
38+00.00	37.04	498.68	34.58	1000.69	4582.08	23641.18
38+50.00	100.44	469.39	127.30	896.36	4709.38	24537.54
39+00.00	93.38	443.97	179.46	845.70	4888.84	25383.24
39+50.00	90.50	408.27	170.26	789.11	5059.10	26172.35
40+00.00	60.70	404.08	140.00	752.18	5199.10	26924.53
40+50.00	42.52	355.31	95.57	703.14	5294.67	27627.67
41+00.00	57.49	404.42	92.60	703.45	5387.27	28331.12
41+50.00	44.26	344.61	94.21	693.54	5481.48	29024.66
42+00.00	39.56	299.22	77.61	596.14	5559.09	29620.80
42+50.00	40.15	233.23	73.80	493.01	5632.89	30113.81
43+00.00	29.36	207.63	64.36	408.20	5697.26	30522.01
43+50.00	43.58	226.83	67.53	402.28	5764.79	30924.29
44+00.00		213.78	40.35	407.97	5805.14	31332.26
44+27.48		222.19		221.84	5805.14	31554.10
44+50.00		220.41		184.61	5805.14	31738.71
45+00.00	6.39	271.67	5.92	455.63	5811.06	32194.34
45+50.00	0.33	293.72	6.22	523.51	5817.28	32717.85
46+00.00	0.71	291.74	0.97	542.09	5818.25	33259.94
46+50.00	0.01	319.49	0.67	565.96	5818.92	33825.90
46+83.13	1.43	312.17	0.88	387.53	5819.80	34213.43
47+00.00		335.03	0.45	202.19	5820.25	34415.63
47+50.00	0.23	372.01	0.21	654.67	5820.46	35070.29
48+00.00		356.35	0.21	674.41	5820.67	35744.70
48+50.00	0.03	305.82	0.03	613.12	5820.70	36357.82
49+00.00		291.02	0.03	552.62	5820.73	36910.44
49+50.00	0.03	285.50	0.03	533.81	5820.75	37444.25
49+82.46	0.14	276.33	0.10	337.68	5820.86	37781.93
50+00.00			0.05	89.78	5820.90	37871.71

NOTE:
EARTHWORK TABULATION VOLUMES INCLUDE INPLACE PAVEMENT.

K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN_RICE_ERW01.DWG PLOT DATE: Thursday, August 20, 2009 9:26:03 AM

DESIGN TEAM				
DRAWN BY: RJC				
DESIGNER: RJC				
CHECKED BY: BAE				
NO.	BY	DATE	REVISIONS	

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.
Certified By: *Beth A Engum* License No. 44785
Printed Name: BETH A. ENGUM Date: 4/22/2010

 **Kimley-Horn and Associates, Inc.**
2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EARTHWORK SUMMARY, BALANCE AND TABULATION

FILE NO. 160599001
13
EW1 OF EWS
534

COUNTY ROAD B WEST

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
31+00.00						
31+19.35		117.13		41.98		41.98
31+50.00		107.71		127.60		169.58
31+61.08	0.01	112.10		45.11		214.70
32+00.00		119.78	0.01	167.11	0.01	381.81
32+50.00		133.46		234.48	0.01	616.29
32+80.56		146.76		158.58	0.01	774.87
33+00.00		135.37		101.57	0.01	876.44
33+44.01		143.96		227.66	0.01	1104.10
33+50.00	0.01	144.68		32.01	0.01	1136.11
34+00.00	94.14	177.22	87.18	298.05	87.18	1434.16
34+02.06	98.09	176.73	7.32	13.48	94.51	1447.64
34+50.00	216.92	83.36	279.68	230.92	374.18	1678.56
35+00.00	297.17	57.85	476.01	130.75	850.19	1809.31
35+50.00	158.34	19.74	421.77	71.84	1271.97	1881.15
35+95.23	59.30	11.32	182.30	26.02	1454.27	1907.17
36+00.00	64.88	10.50	10.97	1.93	1465.24	1909.09
36+47.16	111.02	7.06	153.63	15.33	1618.87	1924.43
36+50.00	113.53	6.69	11.80	0.72	1630.66	1925.15
37+00.00	145.97	0.08	240.27	6.27	1870.94	1931.42

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
37+26.39	123.56	2.99	131.74	1.50	2002.67	1932.93
37+50.00	135.61	0.04	113.29	1.32	2115.97	1934.25
38+00.00	87.94	5.79	206.99	5.40	2322.96	1939.65
38+37.89	28.97	40.63	82.03	32.57	2404.99	1972.22
38+50.00	39.09	37.09	15.27	17.43	2420.25	1989.65
38+67.14	17.42	60.14	17.94	30.87	2438.19	2020.52
39+00.00	18.42	85.69	21.81	88.73	2460.00	2109.25
39+49.19		215.69	16.78	274.57	2476.79	2383.81
39+69.17				79.78	2476.79	2463.60
40+22.94					2476.79	2463.60
40+45.00		262.42		107.20	2476.79	2570.80
40+50.00	0.01	312.13		53.20	2476.79	2624.00
41+00.00	0.03	242.16	0.04	513.23	2476.83	3137.23
41+50.00		349.94	0.03	548.24	2476.86	3685.47
42+00.00	0.03	369.46	0.03	666.11	2476.89	4351.58
42+50.00	0.06	349.54	0.08	665.74	2476.97	5017.33
42+86.88		476.62	0.04	564.24	2477.00	5581.57
43+00.00	0.28	522.97	0.07	242.86	2477.07	5824.43
43+50.00	0.49	575.06	0.71	1016.70	2477.78	6841.12
44+00.00	0.17	521.28	0.61	1015.13	2478.39	7856.25

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
44+50.00		362.04	0.16	817.89	2478.55	8674.14
45+00.00	0.18	211.52	0.17	531.07	2478.71	9205.22
45+50.00	34.85	141.83	32.44	327.18	2511.15	9532.39
46+00.00	5.36	126.41	37.23	248.37	2548.38	9780.76
46+50.00		128.23	4.97	235.77	2553.35	10016.54
46+70.00	0.07	168.42	0.03	109.87	2553.37	10126.40
47+00.00	0.03	98.04	0.06	148.03	2553.43	10274.43
47+50.00	0.28	124.49	0.29	206.05	2553.72	10480.48
48+00.00	0.12	142.20	0.37	246.94	2554.09	10727.42
48+50.00	0.01	135.64	0.12	257.26	2554.21	10984.69
49+00.00	0.09	137.90	0.09	253.28	2554.30	11237.97
49+50.00	0.41	126.75	0.45	245.05	2554.75	11483.02
50+00.00	1.11	112.22	1.41	221.27	2556.16	11704.29
50+09.44	1.26	118.91	0.41	40.40	2556.57	11744.69
50+50.00			0.94	89.31	2557.52	11834.01

MINNESOTA AVENUE

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
9+50.00						
10+00.00	2.82	85.95	2.61	79.59	2.61	79.59
10+27.05	9.56	95.72	6.20	90.99	8.81	170.58
10+50.00	12.13	100.14	9.22	83.26	18.04	253.83
10+83.36		103.30	7.50	125.68	25.53	379.51
11+00.00	0.35	117.10	0.11	67.91	25.64	447.42
11+07.68		107.42	0.05	31.95	25.69	479.37
11+50.00	0.19	120.27	0.15	178.42	25.84	657.80
11+60.00		138.76	0.04	47.97	25.88	705.77
11+65.93		141.15		30.73	25.88	736.50
11+96.81		164.27		174.68	25.88	911.18
12+00.00		164.77		19.42	25.88	930.60
12+50.00		204.76		342.15	25.88	1272.75
12+90.32		251.86		340.95	25.88	1613.70
13+00.00		264.84		92.62	25.88	1706.32
13+50.00		430.49		643.83	25.88	2350.15
13+65.25		639.61		302.20	25.88	2652.35
13+83.22				212.83	25.88	2865.18
14+37.26					25.88	2865.18
14+58.05	5.33	205.55	2.05	79.14	27.93	2944.32
15+00.00	5.17	87.60	8.16	227.74	36.10	3172.07
15+42.68	0.78	73.36	4.73	127.81	40.83	3299.88
15+50.00	0.33	76.22	0.15	20.29	40.98	3320.17
16+00.00	3.45	71.99	3.50	137.24	44.48	3457.41
16+43.18	3.02	91.67	5.17	130.87	49.65	3588.28
16+50.00	3.17	90.55	0.78	23.01	50.43	3611.29
17+00.00		125.83	2.89	200.07	53.32	3811.36
17+30.31		84.26		116.95	53.33	3928.31
17+50.00				30.54	53.33	3958.85

COUNTY ROAD B2 WEST

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
9+00.00						
9+50.00		22.42		20.76		20.76
10+00.00	0.07	101.25	0.06	114.51	0.06	135.27
10+50.00	0.54	116.07	0.56	201.23	0.62	336.50
10+70.17		125.91	0.20	90.38	0.82	426.88
10+81.64	0.41	128.47	0.09	54.04	0.91	480.92
11+00.00	0.05	142.21	0.15	92.03	1.06	572.95
11+38.99		154.54	0.03	214.23	1.09	787.18
11+50.00		156.86		63.52	1.10	850.70
12+00.00		153.27		287.16	1.10	1137.86
12+43.69		144.89		241.23	1.10	1379.09
12+50.00	0.01	140.90		33.40	1.10	1412.49
13+00.00	0.02	140.43	0.03	260.49	1.13	1672.98
13+16.41		146.85	0.01	87.30	1.14	1760.27
13+50.00	1.11	128.12	0.69	171.04	1.83	1931.32
13+81.89	7.82	196.37	5.27	191.64	7.09	2122.95
14+01.94			2.90	72.89	10.00	2195.84
14+43.94					10.00	2195.84
14+66.80	6.42	230.65	2.72	97.66	12.72	2293.50
15+00.00	4.91	101.21	6.97	204.03	19.68	2497.53
15+50.00	6.85	100.04	10.89	186.35	30.57	2683.88
15+85.00		151.83	4.44	163.25	35.02	2847.13
16+00.00		196.99		96.89	35.02	2944.02
16+50.00	0.41	161.68	0.38	332.10	35.40	3276.12
17+00.00	0.11	167.17	0.48	304.49	35.87	3580.61

A EARTHWORK TABULATION						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
17+50.00	0.12	150.89	0.21	294.51	36.08	3875.12
18+00.00	0.70	125.83	0.75	256.22	36.84	4131.34
18+50.00	0.13	116.24	0.77	224.14	37.60	4355.47
19+00.00		113.75	0.12	212.95	37.72	4568.43
19+50.00		114.91		211.72	37.72	4780.15
19+75.82		115.84		110.33	37.72	4890.48
20+00.00				51.88	37.72	4942.35

NOTE:
EARTHWORK TABULATION VOLUMES INCLUDE INPLACE PAVEMENT.

K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN\RISE_ERWD2.DWG PLOT DATE: Thursday, January 28, 2010 6:46:29 AM

DESIGN TEAM	1	TLG	6/17/10	REVISED MINNESOTA AVENUE EARTHWORK TABULATION
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE			
NO.	BY	DATE	REVISIONS	

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.
Certified By: *Beth A. Engum* 44785
Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
2550 UNIVERSITY AVE. WEST, SUITE 349N
ST. PAUL, MINNESOTA 55114
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EARTHWORK SUMMARY, BALANCE, AND TABULATIONS

FILE NO. 160599001
EW2 OF EWS
14
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A EARTHWORK TABULATION

Table with columns: STATION TO STATION, COMMON, SUBGRADE, TOPSOIL, MUCK, SUITABLE GRADING, SELECT GRANULAR, TOPSOIL. Includes sections for SW RAMP, SE RAMP, NE RAMP, and Bridge No. 62632/62633.

A EARTHWORK TABULATION

Table with columns: STATION TO STATION, COMMON, SUBGRADE, TOPSOIL, MUCK, SUITABLE GRADING, SELECT GRANULAR, TOPSOIL. Includes sections for NW RAMP, TH36EB, and TH 36 MEDIAN.

A EARTHWORK TABULATION

Table with columns: STATION TO STATION, COMMON, SUBGRADE, TOPSOIL, MUCK, SUITABLE GRADING, SELECT GRANULAR, TOPSOIL. Includes sections for TH36EB CONT. and TH 36 MEDIAN.

DESIGN TEAM table with columns: NO., BY, DATE, REVISIONS.

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.

Logos for SEH and Kinley-Horn and Associates, Inc. with contact information.

RAMSEY COUNTY, MINNESOTA TH 36 / RICE STREET (CSAH 49) SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EARTHWORK SUMMARY, BALANCE, AND TABULATIONS

FILE NO. RAMSP106790 15 EW3 OF EW5 534

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5/6/2010

kerlickson

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ew2.tbl

A EARTHWORK TABULATION

STATION TO STATION	EXCAVATION				EMBANKMENT		
	COMMON	SUBGRADE	TOPSOIL	MUCK	SUITABLE GRADING	SELECT GRANULAR	TOPSOIL
	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD
TH36WB							
248+00.00 TO 248+50.00	165	41	66			41	66
248+50.00 TO 249+00.00	81	41	40		1	41	41
249+00.00 TO 249+50.00	46	41	24		2	41	24
249+50.00 TO 250+00.00	50	43	25		1	43	25
250+00.00 TO 250+50.00	47	46	26		1	46	26
250+50.00 TO 251+00.00	42	49	28		2	49	26
251+00.00 TO 251+50.00	45	53	29		1	53	27
251+50.00 TO 252+00.00	40	57	29		2	57	26
252+00.00 TO 252+50.00	33	60	29		5	60	25
252+50.00 TO 253+00.00	25	63	30		21	64	25
253+00.00 TO 253+50.00	26	65	31		20	67	26
253+50.00 TO 254+00.00	48	68	38		19	71	32
254+00.00 TO 254+50.00	89	73	47		11	75	40
254+50.00 TO 255+00.00	107	78	47		6	78	40
255+00.00 TO 255+50.00	72	81	40		8	82	31
255+50.00 TO 256+00.00	35	82	35		14	85	25
256+00.00 TO 256+50.00	29	85	35		18	89	25
256+50.00 TO 257+00.00	39	86	37		22	93	27
257+00.00 TO 257+50.00	55	90	43		20	98	31
257+50.00 TO 258+00.00	105	96	50		18	105	37
258+00.00 TO 258+50.00	217	107	58		14	116	43
258+50.00 TO 259+00.00	333	119	66		5	130	49
259+00.00 TO 259+50.00	428	131	75		2	147	55
259+50.00 TO 260+00.00	238	69	40			78	28
260+00.00 TO 260+50.00	5		2				5
260+50.00 TO 261+00.00	15		5		1		13
261+00.00 TO 261+50.00	25		8		1		17
261+50.00 TO 262+00.00	33		11		1		20
262+00.00 TO 262+50.00	45		13		1		23
262+50.00 TO 263+00.00	63		14		1		25
263+00.00 TO 263+50.00	77		15		1		27
263+50.00 TO 264+00.00	91		14		1		28
264+00.00 TO 264+50.00	105		10		1		29
264+50.00 TO 265+00.00	137		9				29
265+00.00 TO 265+50.00	177		13				29
265+50.00 TO 266+00.00	193		20				28
266+00.00 TO 266+50.00	172		25				28
266+50.00 TO 267+00.00	108		21				21
267+00.00 TO 267+50.00	34		8				8
267+50.00 TO 268+00.00			2		1		2
268+00.00 TO 268+50.00			2		1		2
268+50.00 TO 269+00.00							
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275+50.00 TO 276+00.00							
276+00.00 TO 276+50.00							
276+50.00 TO 277+00.00							
277+00.00 TO 277+50.00	1		3				3
277+50.00 TO 278+00.00	3		6				6
278+00.00 TO 278+50.00	5		6				6
278+50.00 TO 279+00.00	4		6				7
279+00.00 TO 279+50.00	1		3				7
279+50.00 TO 280+00.00							4
280+00.00 TO 280+50.00							
280+50.00 TO 281+00.00	28	76	14		6	77	10
281+00.00 TO 281+50.00	59	148	21		8	149	13
281+50.00 TO 282+00.00	65	137	11		2	137	5
282+00.00 TO 282+50.00	65	125	7			125	4
282+50.00 TO 283+00.00	60	112	5			112	4
283+00.00 TO 283+50.00	52	98	4			98	2
283+50.00 TO 284+00.00	44	85	4			85	2
284+00.00 TO 284+50.00	40	75	4			75	2
284+50.00 TO 285+00.00	36	63	3			63	2
Subtotals							

A EARTHWORK TABULATION

STATION TO STATION	EXCAVATION				EMBANKMENT		
	COMMON	SUBGRADE	TOPSOIL	MUCK	SUITABLE GRADING	SELECT GRANULAR	TOPSOIL
	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD
TH36WB CONT.							
285+00.00 TO 285+50.00	47	52	8		1	52	10
285+50.00 TO 286+00.00	48	45	16		3	45	20
286+00.00 TO 286+50.00	49	43	21		2	43	25
286+50.00 TO 287+00.00	30	21	12			21	14
287+00.00 TO 287+50.00							
287+50.00 TO 288+00.00							
Subtotals							


A EARTHWORK TABULATION

STATION TO STATION	EXCAVATION				EMBANKMENT		
	COMMON	SUBGRADE	TOPSOIL	MUCK	SUITABLE GRADING	SELECT GRANULAR	TOPSOIL
	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD	CU YD
TEMP SW RAMP							
0+03.26 TO 0+50.00	113		18				31
0+50.00 TO 1+00.00	139		18				30
1+00.00 TO 1+50.00	167		21				32
1+50.00 TO 2+00.00	183		26				33
2+00.00 TO 2+50.00	194		34		2		35
2+50.00 TO 3+00.00	210		42		7		40
3+00.00 TO 3+50.00	320		97		128		48
3+50.00 TO 4+00.00	408		108		272		59
4+00.00 TO 4+50.00	375		72		271		70
4+50.00 TO 5+00.00	271		75		135		74
5+00.00 TO 5+50.00	149		59		14		59
5+50.00 TO 5+84.00	48		23				23
Subtotals							
	2577		593		829		534
TEMP SE RAMP							
0+00.00 TO 0+50.00	317		43				46
0+50.00 TO 1+00.00	417		74		23		73
1+00.00 TO 1+50.00	300		80		302		73
1+50.00 TO 2+00.00	198		106		645		88
2+00.00 TO 2+50.00	83		91		529		72
2+50.00 TO 3+00.00	54		70		192		52
3+00.00 TO 3+50.00	57		58		37		47
3+50.00 TO 4+00.00	129		56		12		49
4+00.00 TO 4+50.00	235		51		7		48
4+50.00 TO 5+00.00	268		37		2		43
5+00.00 TO 5+50.00	236		25				38
5+50.00 TO 5+84.00	130		12				23
Subtotals							
	2424		703		1749		652
TEMP NE RAMP							
0+00.00 TO 0+50.00	5		9				
0+50.00 TO 1+00.00	3		12		9		3
1+00.00 TO 1+50.00	1		16		18		7
1+50.00 TO 2+00.00	1		20		32		13
2+00.00 TO 2+50.00	1		27		55		21
2+50.00 TO 3+00.00	1		34		86		28
3+00.00 TO 3+50.00	1		42		129		37
3+50.00 TO 4+00.00	1		48		134		44
4+00.00 TO 4+50.00	3		32		60		30
4+50.00 TO 5+00.00	10		16				14
Subtotals							
	27		256		523		197
TEMP NW RAMP							
1+19.00 TO 1+50.00	1		1				1
1+50.00 TO 2+00.00	1		4				2
2+00.00 TO 2+50.00	2		6				2
2+50.00 TO 3+00.00	3		8				2
3+00.00 TO 3+50.00	2		35		73		28
3+50.00 TO 4+00.00	1		61		126		52
4+00.00 TO 4+50.00	1		58		90		49
4+50.00 TO 5+00.00	1		37		40		28
5+00.00 TO 5+50.00	1		15		4		7
5+50.00 TO 6+00.00	1		9		1		3
Subtotals							
	14		234		334		174


DESIGN TEAM				
DRAWN BY: MIT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110



2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EARTHWORK SUMMARY, BALANCE, AND TABULATIONS

FILE NO.	16
RAMSP108790	
EW4	
OF EW5	534

B EARTHWORK SUMMARY									
ALIGNMENT / LOCATION	COST PART.	EXCAVATION			EMBANKMENT				
		COMMON ⑥ ⑦	SUBGRADE	MUCK	SUITABLE GRADING	SELECT GRANULAR	SELECT GRANULAR MOD. 10%	TOPSOIL ⑧	SELECT TOPSOIL BORROW
		CUYD	CUYD	CUYD	CUYD	CUYD	CUYD	CUYD	CUYD
Rice Street - Sta. 11+29 - 19+00	C	9,419			103	4,644			196
Rice Street - Sta. 19+00 - 30+00	B	4,704			3,395	1,994	5,590		129
Rice Street - Sta. 30+00 - 50+63	C	33,751			5,821	16,956			803
County Road B West	C	1,354			2,484	2,057			515
County Road B East	C	8,266			81	2,486			435
Minnesota Avenue West	C	2,431			26	764			69
Minnesota Avenue East	C	1,047			27	703			74
County Road B2 West	C	1,460			7	948			71
County Road B2 East	C	2,004			31	1,204			165
Capitol View Avenue	C	264			2,883				259
SW Ramp	B	3,598	174		54,742	5,897	2,244	2,246	
SE Ramp	B	4,699	1,022	1,874	17,880	4,866	1,735	1,543	
NE Ramp	B	526	240		2,060	1,539		378	
NW Ramp	B	7,243	558	19,911	27,688	2,744		1,652	
TH36EB	B	7,885	2,864		1,241	3,110		2,122	
TH36WB	B	2,628	2,804		255	2,891		1,280	
TH36 Median	B	898			1,636				
Infiltration Basin 1	C	75,148			32				
Infiltration Basin 2	C	5,872							
Noise Wall	B					299			
Apartment Building - Basement Fill	B				450				
PROJECT TOTALS		173,197	7,662	21,785	120,842	53,102	9,569	9,221	2,716
		- 17,000							
		156,197							

B TEMP. RAMP EARTHWORK SUMMARY ③				
ALIGNMENT	EXCAVATION		EMBANKMENT	
	COMMON	SUITABLE GRADING	TOPSOIL	
	CUYD	CUYD	CUYD	CUYD
Temp. SW Ramp	3,170	829	534	
Temp. SE Ramp	3,127	1,749	652	
Temp. NE Ramp	283	523	197	
Temp. NW Ramp	248	334	174	
TEMP RAMP TOTALS	6,828	3,435	1,557	

EARTHWORK BALANCE

COST PARTICIPATION:

- A = DELETED
- B = RAMPS & RICE ST. STA. 19+00 - 30+00
- C = REMAINDER OF PROJECT :
RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
INFILTRATION BASINS
- D = STORM SEWER
- E = NON-PARTICIPATING CITY OF ROSEVILLE
- F = NON-PARTICIPATING CITY OF LITTLE CANADA

NOTES:

- ① MUCK AND TOPSOIL MAY BE USED AS EMBANKMENT MATERIAL, BUT ONLY AT A THICKNESS NO GREATER THAN 18" ON THE SURFACE OF THE SLOPES.
- ② DELETED
- ③ TEMPORARY RAMP CONSTRUCTION EARTHWORK IS FOR INFORMATIONAL PURPOSES ONLY. CONSTRUCTION AND REMOVAL OF TEMPORARY RAMPS ARE INCIDENTAL TO THE CONSTRUCTION OF THE FINAL PROJECT. PORTIONS OF THE TEMPORARY RAMPS ARE NOT PART OF THE FINAL PROJECT.
- ④ 14,167 CY (CV) = 17,000 CY (EV) = 22,100 T : THIS IS THE ESTIMATED VOLUME OF CONTAMINATED SOIL AND IS PAID AS HAUL AND DISPOSE OF CONTAMINATED MATERIAL. EXCAVATION OF THE CONTAMINATED MATERIAL IS INCLUDED IN THIS PAY ITEM.
- ⑤ SOILS TO BE REMOVED FROM THE PROJECT SHALL BE UNSUITABLE GRADING MATERIALS (INCLUDING ORGANIC MUCK) FIRST BEFORE ANY SUITABLE GRADING MATERIALS.
- ⑥ TOPSOIL STRIPPING IS INCLUDED UNDER COMMON EXCAVATION.
- ⑦ SUBGRADE EXCAVATION IS INCLUDED UNDER COMMON EXCAVATION FOR RICE ST, COUNTY RD B, MINNESOTA AVE, AND COUNTY RD B2.
- ⑧ PLACEMENT OF TOPSOIL IS INCIDENTAL.

COMMON	156,197 CY EV	② ④ ⑥
EXCAVATION (CU YD - EV)	202,644	
SUBGRADE	7,662 CY EV	
MUCK	21,785 CY EV	①
SUITABLE GRADING MATERIAL	120,842 CY CV	
SELECT GRANULAR BORROW	53,102 CY CV	
EMBANKMENT (CU YD - CV)	183,165	
SELECT GRANULAR BORROW MOD.10%	9,569 CY CV	
TOPSOIL	9,221 CY CV	⑧
SELECT TOPSOIL BORROW	2,716 CY CV	
GRADING MATERIAL	156,197 / 1.20 + 7,662 / 1.20 + 21,785 / 1.4 = 152,110 CY CV	
	152,110 - 120,842 - 9,221 = 22,047 CY CV	⑤
SELECT GRANULAR BORROW	53,102 CY CV	BORROW
BALANCE (CU YD - CV)		
SELECT GRANULAR BORROW MODIFIED	0 CY CV	BORROW
SELECT TOPSOIL BORROW	2,716 CY CV	BORROW


COMPACTION FACTOR NOTES:

1. COMMON, SUBGRADE & TOPSOIL EXCAVATION MATERIALS ARE ESTIMATED TO HAVE A COMPACTION FACTOR OF 1.20.
2. MUCK EXCAVATION IS ESTIMATED TO HAVE A COMPACTION FACTOR OF 1.40.


\$TIMES \$DATES \$USERS \$MODELS \$FILES

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DESIGNED BY: MTT	1	KLE	5/26/10	DELETED NOTE 2
DRAWN BY: MTT	2	KLE	5/26/10	REVISED NOTE 4
DESIGNER: SRH,HLR	3	KLE	6/17/10	REVISED COMMON EXCAVATION QUANTITY
CHECKED BY: KLE				

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110



Kimley-Horn
 and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**EARTHWORK SUMMARY, BALANCE,
 AND TABULATIONS**

C CLEARING AND GRUBBING

STATION	LOCATION	COST PART	CLEARING		GRUBBING	
			ACRE	EACH	ACRE	EACH
RICE ST.						
Sta. 11+29.00 - 19+00.00	LT & RT	C		31		31
Sta. 19+00.00 - 30+00.00	LT & RT	B		8		8
Sta. 30+00.00 - 50+62.82	LT & RT	C		54		54
COUNTY RD. B EAST						
Sta. 31+19.35 - 38+92.55	LT & RT	C		2		2
MINNESOTA AVE. WEST						
Sta. 10+00.00 - 13+23.61	LT & RT	C		2		2
MINNESOTA AVE. EAST						
Sta. 14+96.32 - 17+29.82	LT & RT	C		8		8
COUNTY RD. B2 WEST						
Sta. 9+25.82 - 13+40.96	LT & RT	C		1		1
CAPITOL VIEW AVE.						
	LT & RT	C		7		7
SW RAMP						
Sta. 20+00 - 36+34.17	LT & RT	B	1.45	23	1.45	23
SE RAMP						
Sta. 10+76.32 - 26+86.03	LT & RT	B	1.10	18	1.10	18
NE RAMP						
Sta. 10+00.00 - 17+78.05	LT & RT	B	0.05	3	0.05	3
NW RAMP						
Sta. 41+03.62 - 54+56.39	LT & RT	B	1.05	16	1.05	16
TH36EB						
Sta. 249+92.13 - 255+42.44	RT	B	0.15	1	0.15	1
Sta. 286+31.74 - 287+83.57	RT	B		3		3
Sta. 269+00.00 - 272+50.00	RT	B		20		20
TH36WB						
Sta. 247+66.44 - 256+68.24	LT	B	0.20		0.20	
Sta. 270+75.00	LT	B		2		2
Sta. 280+48.38 - 281+00.00	LT	B	0.05		0.05	
PROJECT TOTALS			4.1	199	4.1	199

COST PARTICIPATION:

- A = DELETED
- B = RAMPS & RICE ST. STA. 19+00 - 30+00
- C = REMAINDER OF PROJECT :
RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
INFILTRATION BASINS
- D = STORM SEWER
- E = NON-PARTICIPATING CITY OF ROSEVILLE
- F = NON-PARTICIPATING CITY OF LITTLE CANADA

D MISCELLANEOUS REMOVALS

STATION	LOCATION	COST PART	REMOVE PIPE CULVERTS	REMOVE WATER MAIN	REMOVE MANHOLES OR CATCH BASINS	REMOVE SEWER PIPE (STORM)	REMOVE SEWER PIPE (SANITARY)	REMOVE CURB & GUTTER	REMOVE FENCE	REMOVE GUARDRAIL	REMOVE BITUMINOUS WALK	REMOVE CONCRETE SIDEWALK	REMOVE CONCRETE DRWY PVMT	REMOVE BITUMINOUS DRWY PVMT	REMOVE PAVEMENT	REMOVE BIT. PAVEMENT	REMOVE GATE VALVE	REMOVE HYDRANT	REMOVE CONCRETE APPROACH PANEL	REMOVE RETAINING WALL	ABANDON PIPE SEWER	
			LIN FT	LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT	SQ FT	SQ FT	SQ FT	SQ YD	SQ YD	EACH	EACH	SQ FT	SQ FT	LIN FT
RICE ST.																						
Sta. 11+29.00 - 19+00.00	LT & RT	C		9	7	190		1,925			3,125	645	1,110	625		6,290		2				
Sta. 19+00.00 - 30+00.00	LT & RT	B		77	10	550		2,025		625		4,250		3,200	7,300	1	1	1,925	690			
Sta. 30+00.00 - 50+62.82	LT & RT	C		120	22	1,560		5,678				9,605	5,990	10,675		14,375	2	6				
COUNTY RD. B WEST																						
Sta. 31+19.35 - 38+92.55	LT & RT	C,E		49				1,625	646			4,025	975	750		4,095		2				
COUNTY RD. B EAST																						
Sta. 40+85.19 - 50+09.43	LT & RT	C			2	95		1,990	581							6,025						
MINNESOTA AVE. WEST																						
Sta. 10+00.00 - 13+23.61	LT & RT	C						750				875	690	1,450		1,375						
MINNESOTA AVE. EAST																						
Sta. 14+96.32 - 17+29.82	LT & RT	C						550					1,050			1,825					200	
COUNTY RD. B2 WEST																						
Sta. 9+25.82 - 13+40.96	LT & RT	C						825				1,310		595		2,650				1,040		
COUNTY RD. B2 EAST																						
Sta. 15+30.87 - 19+75.87	LT & RT	C			1	50		900				2,315	300	15								
CAPITOL VIEW AVE.																						
	LT & RT	C																				
SW RAMP																						
Sta. 20+00 - 36+34.17	LT & RT	B	81		5	368			867													
SE RAMP																						
Sta. 10+76.32 - 26+86.03	LT & RT	B	24		3	75																
NE RAMP																						
Sta. 10+00.00 - 17+78.05	LT & RT	B			3	71																
NW RAMP																						
Sta. 41+03.62 - 54+56.39	LT & RT	B	153		3	202	326	20	363													
TH36EB																						
Sta. 386+96.31 - 288+63.72	LT	B														2,275						
Sta. 249+92.13 - 255+42.14	RT	B														628						
Sta. 258+50.00 - 271+25.00	RT	B														2,706						
Sta. 258+64.73 - 287+83.57	RT	B																				
Sta. 267+50.00 - 272+20.00	RT	B			7	702																
Sta. 271+75.00 - 287.83.57	RT	B								149						3,977						
TH36WB																						
Sta. 385+90.50 - 291+35.5	RT	B			1											2,071						
Sta. 247+66.44 - 256+68.24	LT	B				6										1,089						
Sta. 256+68.24 - 270+50.00	LT	B														2,319						
Sta. 272+75.00 - 280+50.90	LT	B														1,927						
Sta. 264+92.13 - 275+83.93	RT	B																				
Sta. 280+48.38 - 286+62.06	LT	B				6										1,048						
PROJECT TOTALS				258	255	64	3,875	326	16,288	2,457	774	3,125	23,025	10,115	14,110	3,200	64,040	3	11	1,925	1,730	200


NOTES:

- ① LENGTH INCLUDES APRONS.
- ② CONCRETE PAVEMENT REMOVAL UNDER RICE ST. SEE CONSTRUCTION NOTES FOR APPROXIMATE LOCATIONS.


**CLEARING AND GRUBBING
MISCELLANEOUS REMOVALS**

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO. RAMSPIO8790	18
TB1 OF TB 9	534

\$FILES \$MODEL\$ \$USERS \$DATES \$TIME\$

E PAVEMENT SAWING			
STATION	LOCATION	COST PART.	SAWING BIT. PAVEMENT (FULL DEPTH)
			LIN FT
RICE ST.			
Sta. 11+29.00 - 19+00.00	LT & RT	C	195
Sta. 19+00.00 - 30+00.00	LT & RT	B	
Sta. 30+00.00 - 50+62.82	LT & RT	C	1,225
COUNTY RD. B WEST			
Sta. 31+19.35 - 38+92.55	LT & RT	C	75
COUNTY RD. B EAST			
Sta. 40+85.19 - 50+09.43	LT & RT	C	260
MINNESOTA AVE. WEST			
Sta. 10+00.00 - 13+23.61	LT & RT	C	165
MINNESOTA AVE. EAST			
Sta. 14+96.32 - 17+29.82	LT & RT	C	165
COUNTY RD. B2 WEST			
Sta. 9+25.82 - 13+40.96	LT & RT	C	240
COUNTY RD. B2 EAST			
Sta. 15+30.87 - 19+75.87	LT & RT	C	75
CAPITOL VIEW AVE.			
	LT & RT	C	100
TH36EB			
Sta. 386+96.31 - 288+63.72	LT	B	5,118
249+92.13 - 255+42.36	RT	B	573
258+25.78 - 263+70.44	RT	B	545
277+68.89 - 287+83.57	RT	B	1,743
TH36WB			
Sta. 385+90.50 - 291+35.5	RT	B	4,660
247+66.44 - 264+69.87	LT	B	1,705
279+13.83 - 286+62.06	LT	B	766
PROJECT TOTALS			17,610

F MILL BITUMINOUS SURFACE			
STATION	LOCATION	COST PART.	MILL BITUMINOUS SURFACE (2")
			SQ YD
RICE ST.			
Sta. 11+29.00 - 19+00.00	LT & RT	C	103
Sta. 19+00.00 - 30+00.00	LT & RT	B	165
Sta. 30+00.00 - 50+62.82	LT & RT	C	230
COUNTY RD. B WEST			
Sta. 31+19.35 - 38+92.55	LT & RT	C	94
COUNTY RD. B EAST			
Sta. 40+85.19 - 50+09.43	LT & RT	C	127
MINNESOTA AVE. WEST			
Sta. 10+00.00 - 13+23.61	LT & RT	C	28
MINNESOTA AVE. EAST			
Sta. 14+96.32 - 17+29.82	LT & RT	C	20
COUNTY RD. B2 WEST			
Sta. 9+25.82 - 13+40.96	LT & RT	C	31
COUNTY RD. B2 EAST			
Sta. 15+30.87 - 19+75.87	LT & RT	C	42
PROJECT TOTALS			840

G BITUMINOUS PAVEMENT											①	②
STATION	LOCATION	DESCRIPTION	COST PART.	TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB330C)	TYPE SP 12.5 NON WEARING COURSE MIXTURE (SPWEB330B)	TYPE SP 12.5 WEARING COURSE MIXTURE (SPWEB440F)	TYPE SP 12.5 NON WEARING COURSE MIXTURE (SPWEB430B)	TYPE SP 12.5 WEARING COURSE MIX (SPWEB330C)	TYPE SP 12.5 WEARING COURSE MIX (SPWEB330C)	3" BITUMINOUS WALK	BITUMINOUS CURB	
				TON	TON	TON	TON	SQ YD	SQ YD	SQ FT	LIN FT	
RICE ST.												
Sta. 11+29.00 - 19+00.00	LT & RT	THRU LANES & SHOULDERS	C			1,929	1,448	50				
Sta. 19+00.00 - 30+00.00	LT & RT	THRU LANES & SHOULDERS	B			2,629	1,969		202		110	
Sta. 30+00.00 - 50+62.82	LT & RT	THRU LANES & SHOULDERS	C			3,890	2,925	349	1,351		900	
COUNTY RD. B WEST												
Sta. 31+19.35 - 38+92.55	LT & RT	THRU LANES & SHOULDERS	C	1,032	776			1,952				
COUNTY RD. B EAST												
Sta. 40+85.19 - 50+09.43	LT & RT	THRU LANES & SHOULDERS	C	1,428	1,073					6,615		
MINNESOTA AVE. WEST												
Sta. 10+00.00 - 13+23.61	LT & RT	THRU LANES & SHOULDERS	C	333	253			366				
MINNESOTA AVE. EAST												
Sta. 14+96.32 - 17+29.82	LT & RT	THRU LANES & SHOULDERS	C	360	270							
COUNTY RD. B2 WEST												
Sta. 9+25.82 - 13+40.96	LT & RT	THRU LANES & SHOULDERS	C	497	374			248				
COUNTY RD. B2 EAST												
Sta. 15+30.87 - 19+75.87	LT & RT	THRU LANES & SHOULDERS	C	638	239							
CAPITOL VIEW AVE.												
	LT & RT	THRU LANES & SHOULDERS	C	230	176							
SW RAMP												
Sta. 20+00 - 36+34.17	LT & RT	THRU LANES & SHOULDERS	B			935	485					
SE RAMP												
Sta. 10+76.32 - 23+50.87	LT & RT	THRU LANES & SHOULDERS	B			683	358					
NE RAMP												
Sta. 10+00.00 - 17+78.05	LT & RT	THRU LANES & SHOULDERS	B			542	281					
NW RAMP												
Sta. 41+03.62 - 51+69.78	LT & RT	THRU LANES & SHOULDERS	B			876	455					
TH36EB												
Sta. 386+96.31 - 288+63.72	LT	4' SHOULDER	B			514	289					
Sta. 249+92.13 - 255+42.44	RT	RAMP TIE-IN	B			394	239					
Sta. 280+00.00 - 287+83.57	RT	RAMP TIE-IN	B			827	501					
TH36WB												
Sta. 385+90.50 - 291+35.50	RT	4' SHOULDER	B			468	263					
Sta. 247+66.44 - 259+57.24	LT	RAMP TIE-IN	B			720	438					
Sta. 280+48.38 - 286+62.06	LT	RAMP TIE-IN	B			451	275					
SW TEMP. RAMP												
Sta. 0+00.00 - 5+81.83	LT & RT	TEMPORARY RAMP	B			209	111					
SE TEMP RAMP												
Sta. 0+00.00 - 5+96.32	LT & RT	TEMPORARY RAMP	B			221	118					
NE TEMP RAMP												
Sta. 0+00.00 - 5+24.42	LT	TEMPORARY WIDENING	B			95	50					
NW TEMP RAMP												
Sta. 1+18.52 - 6+82.76	RT	TEMPORARY WIDENING	B			88	48					
PROJECT TOTALS				4,518	3,161	15,471	10,253	2,965	1,553	6,615	1,010	

COST PARTICIPATION:

A = DELETED
 B = RAMPS & RICE ST. STA. 19+00 - 30+00
 C = REMAINDER OF PROJECT :
 RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
 COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
 INFILTRATION BASINS
 D = STORM SEWER
 E = NON-PARTICIPATING CITY OF ROSEVILLE
 F = NON-PARTICIPATING CITY OF LITTLE CANADA

NOTES:

① INCLUDES 6" EXTRA WIDTH LT & RT FOR NON WEAR COURSE.
 ② FOR TEMPORARY USE TO MAINTAIN TRAFFIC DURING PHASE I ALONG WEST SIDE OF RICE STREET.

PAVEMENT SAWING
 MILL BITUMINOUS SURFACE
 BITUMINOUS PAVEMENT

DESIGN TEAM	1	KLE	6/17/10	REVISED 2360.503 QUANTITIES
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO.	19
RAMSPIO8790	
TB2	534
OF TB 9	

3/28/25 PM

5/6/2010

kerickson

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H AGGREGATE BASE					
STATION	LOCATION	DESCRIPTION	COST PART.	AGGREGATE BASE (CV) CLASS 6 CU YD	
RICE ST.					
Sta. 11+29.00 - 19+00.00	LT & RT	THRU LANES & SHOULDERS	C	1,328	
Sta. 19+00.00 - 30+00.00	LT & RT	THRU LANES & SHOULDERS	B	3,036	
Sta. 30+00.00 - 50+62.82	LT & RT	THRU LANES & SHOULDERS	C	4,475	
COUNTY RD. B WEST					
Sta. 31+19.35 - 38+92.55	LT & RT	THRU LANES & SHOULDERS	C	1,222	
COUNTY RD. B EAST					
Sta. 40+85.19 - 50+09.43	LT & RT	THRU LANES & SHOULDERS	C	1,751	
MINNESOTA AVE. WEST					
Sta. 10+00.00 - 13+23.61	LT & RT	THRU LANES & SHOULDERS	C	370	
MINNESOTA AVE. EAST					
Sta. 14+96.32 - 17+29.82	LT & RT	THRU LANES & SHOULDERS	C	363	
COUNTY RD. B2 WEST					
Sta. 9+25.82 - 13+40.96	LT & RT	THRU LANES & SHOULDERS	C	794	
COUNTY RD. B2 EAST					
Sta. 15+30.87 - 19+75.87	LT & RT	THRU LANES & SHOULDERS	C	1,029	
CAPITOL VIEW AVE.					
Sta. 20+00 - 36+34.17	LT & RT	THRU LANES & SHOULDERS	B	828	
SW RAMP					
Sta. 10+76.32 - 23+50.87	LT & RT	THRU LANES & SHOULDERS	B	645	
NE RAMP					
Sta. 10+00.00 - 17+78.05	LT & RT	THRU LANES & SHOULDERS	B	488	
NW RAMP					
Sta. 41+03.62 - 51+69.78	LT & RT	THRU LANES & SHOULDERS	B	791	
TH36EB					
Sta. 249+92.13 - 255+42.44	RT	RAMP TIE-IN	B	261	
Sta. 280+00.00 - 287+83.57	RT	RAMP TIE-IN	B	858	
TH36WB					
Sta. 247+66.44 - 259+57.24	LT	RAMP TIE-IN	B	755	
Sta. 280+48.38 - 286+62.06	LT	RAMP TIE-IN	B	298	
SW TEMP. RAMP					
Sta. 0+00.00 - 5+81.83	LT & RT	TEMPORARY RAMP	B	151	
SE TEMP RAMP					
Sta. 0+00.00 - 5+96.32	LT & RT	TEMPORARY RAMP	B	159	
NE TEMP RAMP					
Sta. 0+00.00 - 5+24.42	LT	TEMPORARY WIDENING	B	68	
NW TEMP RAMP					
Sta. 1+18.52 - 6+82.76	RT	TEMPORARY WIDENING	B	65	
PROJECT TOTALS				19,966	

NOTES: ① TRUNCATED DOMES SHALL BE REPLACED WITH CAST IRON DETECTABLE WARNING PLATES.
 ② INCLUDES QUANTITIES FOR PEDESTRIAN CURB RAMPS. RAMPS SHALL BE CONSTRUCTED OF 6" CONCRETE WALK AND PAID FOR UNDER 4" CONCRETE WALK.
 ③ TENSION CABLE GUARDRAIL MODIFICATIONS IN TH36 MEDIAN. INCLUDES SHORTENING OF EXISTING CABLE GUARDRAIL, REMOVAL OF EXISTING ANCHORAGE, RETENSIONING, AND INSTALLATION OF NEW ANCHORAGE.
 ④ SALVAGED TERMINALS ARE TYPE ET 2000.
 ⑤ TYPE BEAT-BP.
 ⑥ CONTRACTOR SHALL SALVAGE ALL STEEL POST BEAM SECTIONS, TERMINALS & ANCHORAGES. ANY MATERIAL NOT REUSED ON PROJECT SHALL BECOME THE PROPERTY OF MN/DOT.

COST PARTICIPATION:

A = DELETED
 B = RAMPS & RICE ST. STA. 19+00 - 30+00
 C = REMAINDER OF PROJECT :
 RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
 COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2 INFILTRATION BASINS
 D = STORM SEWER
 E = NON-PARTICIPATING CITY OF ROSEVILLE
 F = NON-PARTICIPATING CITY OF LITTLE CANADA

I CONCRETE ITEMS																	
STATION	LOCATION	COST PART.	6"	8"	4"	4"	CONCRETE	CONCRETE	CONCRETE	CONCRETE	CONCRETE	CONCRETE	CONCRETE	TRUNCATED	8"	CONCRETE	
			CONCRETE DRIVEWAY PAVEMENT	CONCRETE DRIVEWAY PAVEMENT	CONCRETE WALK ②	CONCRETE WALK SPECIAL	C & G DESIGN B612	C & G DESIGN B618	C & G DESIGN B624	CURB DESIGN SPECIAL	C&G DESIGN B612-MOD	C&G DESIGN B624-MOD	MEDIAN	DOMES ①	CONCRETE VALLEY GUTTER	MEDIAN (DESIGN SPECIAL)	
			SQ YD	SQ YD	SQ FT	SQ FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ YD	SQ FT	SQ YD	SQ YD	
RICE ST.																	
Sta. 11+29.00 - 19+00.00	LT & RT	C	90		8,449	2,160	325			100			1,000	1,200	88		490
Sta. 19+00.00 - 30+00.00	LT & RT	B			8,828	3,302	225			150			2,400	1,150	39		450
Sta. 30+00.00 - 50+62.82	LT & RT	C		357	25,306	6,664	350			100	203		2,500	3,900	187	208	1,185
COUNTY RD. B WEST																	
Sta. 31+19.35 - 38+92.55	LT & RT	C	95		3,137		780			1,460					98	16	
COUNTY RD. B EAST																	
Sta. 40+85.19 - 50+09.43	LT & RT	C					1,525			1,475			580				
MINNESOTA AVE. WEST																	
Sta. 10+00.00 - 13+23.61	LT & RT	C	45	151	558				620						16		
MINNESOTA AVE. EAST																	
Sta. 14+96.32 - 17+29.82	LT & RT	C		464			310	480									
COUNTY RD. B2 WEST																	
Sta. 9+25.82 - 13+40.96	LT & RT	C		30	761		220			530							
COUNTY RD. B2 EAST																	
Sta. 15+30.87 - 19+75.87	LT & RT	C			2,092		345			650							
CAPITOL VIEW AVE.																	
Sta. 20+00 - 36+34.17	LT & RT	C			840				370					8	8		
SW RAMP																	
Sta. 33+77.35 - 36+34.17	RT	B								137						71	
Sta. 35+87.02 - 36+34.63	LT	B								48							
SE RAMP																	
Sta. 10+76.32 - 11+38.96	LT	B								65							
Sta. 10+76.32 - 11+86.99	RT	B								100							
NE RAMP																	
Sta. 17+77.46 - 17+04.75	LT	B			670					67							
NW RAMP																	
Sta. 41+03.62 - 41+56.22	LT	B			435					48							
MARION ST.																	
Sta. 20+00 - 36+34.17	LT & RT	C					20										
PROJECT TOTALS			230	1,002	51,076	12,126	4,100	1,470	4,930	203	5,900	6,830	324	400	79	2,125	

J GUARDRAIL															
STATION	LOCATION	COST PART.	⑥	⑤	⑥	④⑥	TRAFFIC	TRAFFIC	TRAFFIC	ANCHORAGE	T-BARRIER	INSTALL	INSTALL	INSTALL	GUARDRAIL
			SALVAGE GUARD RAIL PLATE BEAM	SALVAGE GUARD RAIL BOX BEAM	SALVAGE ANCHORAGE ASSEMBLY-PL BEAM	SALVAGE ENERGY ABSORBING TERMINAL	BARRIER DESIGN B8338	BARRIER DESIGN SPECIAL	BARRIER BULLNOSE	ASSEMBLY-PLATE BEAM	BRIDGE CONN DESIGN 8318	TRAFFIC BARRIER B8338	ANCHOR ASSEMBLY PLATE BEAM	ENERGY ABSORBING TERMINAL	MOD. ③
			LIN FT	LIN FT	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	LIN FT	EACH	EACH	LUMP SUM
SW RAMP															
25+36.2 - 26+11.2	RT	B						25							1
34+94.6 - 37+06.4	RT	B					204	25		1					
SE RAMP															
10+46.7 - 11+87.0	RT	B					101	50							
TH36EB															
251+27.0 - 253+00.0	RT	B					125				1			1	
258+64.6 - 273+57.9	LT & RT	B	425	350	1	4									1
264+92.1 - 265+43.4	LT	B													
265+93.2 - 275+49.8	LT	B					1300		175			425			1
275+34.1 - 275+85.7	LT	B							137.5						1
286+33.6 - 287+83.6	RT	B													
TH36WB															
283+68.0 - 285+43.0	LT	B					125			1					1
PROJECT TOTALS			425	350	1	4	1,992.5	100	175	1	1	425	1	4	2

AGGREGATE BASE CONCRETE ITEMS GUARDRAIL

DESIGN TEAM				
DRAWN BY: MIT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

Kinley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TABULATIONS

FILE NO. **20**
 RAMSP108790
 TB3
 OF TB 9
534

3:28:27 PM

5/6/2010

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tabulations

K FENCE

STATION	LOCATION	COST PART.	WIRE FENCE	VEHICULAR
			DESIGN 60V-9322 LIN FT	GATE - DOUBLE EACH
RICE ST.				
Sta. 18+40.56 - 21+37.41	LT	B	395	
COUNTY RD. B WEST				
Sta. 33+45.96 - 38+75.61	LT	C	531	
COUNTY RD. B EAST				
Sta. 40+85.97 - 46+38.50	LT	C	557	
SW RAMP				
Sta. 26+04.00 - 31+77.38	RT	B	835	
NW RAMP				
Sta. 40+65.15 - 43+23.25	RT	B	790	
Sta. 49+48.16 - 49+63.97	RT	B		1
TH36EB				
Sta. 266+93.45 - 270+71.43	RT	B	531	
PROJECT TOTALS			3,639	1

L EROSION CONTROL

STATION	LOCATION	COST PART.	②		②		STORM DRAIN INLET PROTECTION	RAPID STABIL. METHOD 3	RAPID STABIL. METHOD 4	SEEDING ①	SEED MIXTURE 190 ①	HYDRAULIC SOIL STABILIZER TYPE 6	TEMPORARY FENCE	FILTER LOG TYPE WOOD FIBER BIOROLL	FILTER LOG TYPE COMPOST LOG
			SILT FENCE, TYPE MACHINE SLICED LIN FT	SILT FENCE, TYPE SUPER DUTY LIN FT	FLOTATION SILT CURTAIN TYPE STILL WATER LIN FT	TEMPORARY DITCH CHECK TYPE 3 LIN FT									
RICE ST.															
Sta. 11+29.00 - 19+00.00	LT & RT	C					19						500	300	300
Sta. 19+00.00 - 30+00.00	LT & RT	B	2,220				22	4		2.20	72	2,520	1,000	700	700
Sta. 30+00.00 - 50+62.82	LT & RT	C	166				42								
COUNTY RD. B WEST															
Sta. 31+19.35 - 38+92.55	LT & RT	C					13								
COUNTY RD. B EAST															
Sta. 40+85.19 - 50+09.43	LT & RT	C					10	15		5.00	300	10,500	500		
MINNESOTA AVE. WEST															
Sta. 10+00.00 - 13+23.61	LT & RT	C	386												
MINNESOTA AVE. EAST															
Sta. 14+96.32 - 17+29.82	LT & RT	C					3								
COUNTY RD. B2 WEST															
Sta. 9+25.82 - 13+40.96	LT & RT	C					2								
COUNTY RD. B2 EAST															
Sta. 15+30.87 - 19+75.87	LT & RT	C					6								
CAPITOL VIEW AVE.															
	LT & RT	C	660				3	3		1.00	60	2,100			
SW RAMP															
Sta. 20+00 - 31+75.00	RT	B	2,272					8	934	2.52	151	5,292			
Sta. 20+00 - 31+75.00	LT	B		200			5	11	1,778	3.74	224	7,854			
Sta. 33+00 - 36+34.17	RT	B	806				4	3	666	1.12	67	2,352			
SE RAMP															
Sta. 10+76.32 - 13+50.00	RT	B	232				3	2	356	0.58	35	1,218			
Sta. 13+50.00 - 26+86.03	RT	B	1,856			141	2	12	666	3.96	238	8,316			
Sta. 13+50.00 - 26+86.03	LT	B					3	11	1,422	3.64	218	7,644			
NE RAMP															
Sta. 10+00.00 - 17+78.05	RT	B	3,294				140	2	1,056	0.50	30	1,050			
Sta. 10+00.00 - 17+78.05	LT	B	538					4	1,110	1.40	84	2,940			
NW RAMP															
Sta. 41+03.62 - 54+56.39	RT	B					240	2	18	2,556	5.94	356	12,474		
Sta. 41+03.62 - 54+56.39	LT	B					300	1	8	1,512	2.62	157	5,502		
TH36EB															
Sta. 249+92.13 - 267+00.00	LT & RT	B	1,182				60	3	778	0.94	56	1,974			
Sta. 267+00 - 274+50.00	LT & RT	B						7	1,776	2.36	142	4,956			
Sta. 275+00.00 - 287+83.57	LT & RT	B	1,668						720						
TH36WB															
Sta. 245+63.44 - 256+68.24	LT	B				496		11	2,556	3.74	224	7,854			
Sta. 280+48.38 - 286+62.06	LT	B	1,236					1	1,056	0.30	18	630			
INFILTRATION BASIN															
		C	2,656					6		2.00	120	4,200			
TH 36 MEDIAN															
		B					10	15		4.90	294	10,290			
PROJECT TOTALS			19,172	200	141	2,016	156	144	18,942	48.5	2,846	99,666	2,000	1,000	1,000

NOTES:

- ① SEEDING AND SEED MIXTURE 190 SHALL BE USED TO ESTABLISH TEMPORARY COVER. FOR FINAL STABILIZATION SEE TURF ESTABLISHMENT TABULATION AND PLAN SHEETS.
- ② QUANTITIES FOR SILT FENCE MACHINED SLICED AND TEMPORARY DITCH CHECK TYPE 3 HAVE BEEN DOUBLED FROM THE ACTUAL QUANTITY SHOWN ON THE PLANS. ADDITIONAL QUANTITIES OF EACH ITEM SHALL BE USED IN AREAS IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION.

COST PARTICIPATION:

A = DELETED
 B = RAMPS & RICE ST. STA. 19+00 - 30+00
 C = REMAINDER OF PROJECT :
 RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
 COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
 INFILTRATION BASINS
 D = STORM SEWER
 E = NON-PARTICIPATING CITY OF ROSEVILLE
 F = NON-PARTICIPATING CITY OF LITTLE CANADA

FENCE EROSION CONTROL

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TABLATIONS

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M TURF ESTABLISHMENT											
STATION	LOCATION	COST PART.	SEED MIXTURE	SEED MIXTURE	SEED MIXTURE	SODDING	MULCH MATERIAL	MULCH MATERIAL	EROSION CONTROL	HYDROSEEDING	COMPOST, GRADE 2
			250 POUND	310 POUND	350 POUND	TYPE LAWN SQ YD	TYPE 6 CU YD	TYPE 9 CU YD	BLANKET CAT. 4 ① SQ YD		
RICE ST.											
Sta. 11+29.00 - 19+00.00	LT & RT	C				971	12				
Sta. 19+00.00 - 30+00.00	LT & RT	B				1,086	3		1,452	4	
Sta. 30+00.00 - 50+62.82	LT & RT	C				4,767	13				
COUNTY RD. B WEST											
Sta. 31+19.35 - 38+92.55	LT & RT	C				1,351					
COUNTY RD. B EAST											
Sta. 40+85.19 - 50+09.43	LT & RT	C				1,392			6,098	15	
MINNESOTA AVE. WEST											
Sta. 10+00.00 - 13+23.61	LT & RT	C				743					
MINNESOTA AVE. EAST											
Sta. 14+96.32 - 17+29.82	LT & RT	C				641					
COUNTY RD. B2 WEST											
Sta. 9+25.82 - 13+40.96	LT & RT	C				601					
COUNTY RD. B2 EAST											
Sta. 15+30.87 - 19+75.87	LT & RT	C				1,145					
CAPITOL VIEW AVE.											
	LT & RT	C							1,285	3	
SW RAMP											
Sta. 20+00 - 31+75.00	RT	B			106				6,091	8	
Sta. 20+00 - 31+75.00	LT	B	131						9,044	11	
Sta. 33+00 - 36+34.17	RT	B	39		47				2,716	3	
SE RAMP											
Sta. 10+76.32 - 13+50.00	RT	B	20						1,398	2	
Sta. 13+50.00 - 26+86.03	RT	B			167				9,604	12	
Sta. 13+50.00 - 26+86.03	LT	B	127		154				8,820	11	
NE RAMP											
Sta. 10+00.00 - 17+78.05	RT	B	18		21				1,204	2	
Sta. 10+00.00 - 17+78.05	LT	B	49						3,399	4	
NW RAMP											
Sta. 41+03.62 - 54+56.39	RT	B	156	15	47				13,488	18	
Sta. 41+03.62 - 54+56.39	LT	B	92						6,331	8	
TH36EB											
Sta. 249+92.13 - 255+42.44	RT	B			40				2,253	3	
Sta. 267+00.00 - 271+20.00	RT	B			100				5,717	7	
TH36WB											
Sta. 245+63.44 - 256+68.24	LT	B	131						9,067	11	
Sta. 280+48.38 - 286+62.06	LT	B	11						710	1	
TH36B MEDIAN											
		B	70					125	4,843	6	
INFILTRATION BASIN											
		C		138	65				3,697	15	537
PROJECT TOTALS			844	153	747	12,697	28	125	97,217	144	537

NOTES:

① CATEGORY 4 BLANKET SHALL BE STRAW-COCONUT (2S) WITH NATURAL NETTING AND STITCHING MATERIAL.

COST PARTICIPATION:

- A = DELETED
- B = RAMPS & RICE ST. STA. 19+00 - 30+00
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RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
INFILTRATION BASINS
- D = STORM SEWER
- E = NON-PARTICIPATING CITY OF ROSEVILLE
- F = NON-PARTICIPATING CITY OF LITTLE CANADA

TURF ESTABLISHMENT

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TABULATIONS

FILE NO. RAMSP108790	22
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O CASTING ASSEMBLY SUMMARY						
ASSEMBLY	B-9	A-7D		M-11	①③ SPECIAL	② SPECIAL 2
		STORM	SAN			
TOTAL	52	43	3	17	1	8
COST PART.	D	D	B	D	D	D

CASTING NOTES:

- ① SEE MISCELLANEOUS DETAILS SHEET 4 (MD4) FOR CASTING "SPECIAL".
- ② SEE MISCELLANEOUS DETAILS SHEET 1 (MD1) FOR CASTING "SPECIAL 2".
- ③ PAID FOR UNDER CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL.

P CULVERT TABULATION															
ALIGNMENT	STRUCTURE	STATION	OFFSET	TO	STRUCTURE	STATION	OFFSET	18" RC	24" RC	18" RC	24" RC	RANDOM	GEOTEXTILE	CONNECT TO	COST PART.
								PIPE CL III LIN FT	PIPE CL IV LIN FT	PIPE APRON EACH	PIPE APRON EACH	RIPRAP CL III CU YD	FILTER FABRIC TYPE IV SQ YD	EXISTING STORM SEWER EACH	
E.B. T.H. 36	100	253+63.4	77.6 RT	TO	EX PIPE	253+60.3	55.8 RT		16		1	8	17	1	D
W.B. T.H. 36	101	253+24	44.5 LT	TO	EX PIPE	253+26.6	28.7 LT		8		1			1	D
SWRAMP	200	28+43.0	107.4 RT	TO	201	25+50.8	95.2 RT	96		2		6	12		D
TOTAL								96	24	2	2	14	29	2	

CULVERT NOTES:

- 1. PIPE LENGTHS DO NOT INCLUDE APRON LENGTHS.
- 2. CONTRACTOR SHALL FIELD VERIFY EXISTING CULVERT TYPES FOR COMPATIBILITY TO THE PROPOSED CULVERT TYPES. ADDITIONAL COMPENSATION WILL NOT BE PROVIDED FOR ANY VARIANCE TO PROPOSED CULVERT TYPES.
- 3. CLASS B PIPE BEDDING IS REQUIRED FOR ALL PIPES. GRANULAR MATERIAL FOUND ON SITE CAN BE USED AS GRANULAR BEDDING IF APPROVED BY THE ENGINEER IN THE FIELD. PIPE BEDDING IS CONSIDERED INCIDENTAL TO THE PIPE.

Q MISCELLANEOUS RIPRAP TABULATION							
ALIGNMENT	STATION	OFFSET	RANDOM RIPRAP	RANDOM RIPRAP	GEOTEXTILE	DESCRIPTION	COST PART.
			CL II CU YD	CL III CU YD	FILTER FABRIC TYPE IV SQ YD		
E.B. TH36	267+80	276' RT	70		135	INFILTRATION BASIN OVERFLOW	D
E.B. TH36	268+20	106' RT	23		46	PRETREATMENT BASIN OVERFLOW	D
NWRAMP	47+50	130' RT	65		90	PRETREATMENT BASIN OVERFLOW	D
NWRAMP	49+00	122' RT		19	45	PRETREATMENT BASIN	D
NWRAMP	47+77.6	114' RT	2		4	SPECIAL 1 - STRUCTURE 606	D
TOTAL			160	19	320		

AD SANITARY SEWER (LITTLE CANADA)					
STATION	LOCATION	COST PART.	CONNECT TO	6"x 6"	6" PVC
			EXISTING SAN. SEWER EACH	PVC WYE EACH	SANITARY SERVICE PIPE LIN FT
RICE ST.					
Sta. 19+00.00 - 30+00.00	LT & RT	F	1	1	140
PROJECT TOTALS			1	1	140

RANDOM RIPRAP NOTES:

- 1. PLACE GEOTEXTILE FILTER FABRIC TYPE IV UNDER ALL RANDOM RIPRAP LOCATIONS UNLESS OTHERWISE NOTED.

R WATERMAIN																		
STATION	LOCATION	COST PART.	SALVAGE	ABANDON	6" GATE	8" GATE	CONNECT TO	HYDRANT	1"	1" TYPE K	6" WATERMAIN	6" PVC	8" PVC	12" PVC	WATERMAIN	4"	GATE VALVE	
			HYDRANT EACH	WATERMAIN EACH	VALVE AND BOX EACH	VALVE AND BOX EACH	EXISTING WATERMAIN EACH		CORPORATION STOP EACH	COPPER PIPE LIN FT	DUCTILE IRON CL 52 LIN FT	WATERMAIN LIN FT	WATERMAIN LIN FT	WATERMAIN LIN FT	FITTINGS POUND	INSULATION SQ YD	SPECIAL EACH	
RICE ST.																		
Sta. 11+29.00 - 19+00.00	LT & RT	C			1		1	1			9							
Sta. 19+00.00 - 30+00.00	LT & RT	B	1	330	3		1	2	2	60	32	7	397		272	45		
Sta. 30+00.00 - 50+62.82	LT & RT	C	4	1,975	14	9	10	10	7	140	36	304	1998	27	900			
COUNTY RD. B WEST																		
Sta. 31+19.35 - 38+92.55	LT & RT	C, E		772	6	1	2	3	7	210		859			302		1	
PROJECT TOTALS			5	3,077	24	10	14	16	16	410	77	1,170	2,395	27	1,474	45	1	

NOTES:

- ① CUT IN 6" GATE VALVE.

COST PARTICIPATION:

- A = DELETED
- B = RAMPS & RICE ST. STA. 19+00 - 30+00
- C = REMAINDER OF PROJECT :
RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
INFILTRATION BASINS
- D = STORM SEWER
- E = NON-PARTICIPATING CITY OF ROSEVILLE
- F = NON-PARTICIPATING CITY OF LITTLE CANADA

CASTING ASSEMBLY SUMMARY
CULVERTS
RIPRAP
SANITARY SEWER
WATERMAIN

DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION.
DRAWN BY:	MTT			
DESIGNER:	SRH_HLR			
CHECKED BY:	KLE			
	NO.	BY	DATE	REVISIONS

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.
Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRETT W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TABULATIONS

FILE NO.	26
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S POWER (BURIED)							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
TH36EB							
247+72 - 249+54	37' RT - 31' RT	P-BUR	Mn/DOT		X		①
249+54	31' RT	L	Mn/DOT		X		①
249+54 - 251+83	31' RT - 30' RT	P-BUR	Mn/DOT		X		①
251+83	30' RT	L	Mn/DOT		X		①
251+83 - 254+11	30' RT	P-BUR	Mn/DOT		X		①
254+11	30' RT	L	Mn/DOT		X		①
254+11 - 256+50	30' RT - 31' RT	P-BUR	Mn/DOT		X		①
256+50	31' RT	L	Mn/DOT		X		①
256+50 - 258+98	31' RT	P-BUR	Mn/DOT		X		①
258+98	31' RT	L	Mn/DOT		X		①
259+77 - 261+14	32' RT - 43' RT	P-BUR	Mn/DOT		X		①
260+05	113' LT - 34' RT	P-BUR	Mn/DOT		X		①
260+05 - 261+14	34' RT - 43' RT	P-BUR	Mn/DOT		X		①
261+14	43' RT	L	Mn/DOT		X		①
261+14 - 263+46	43' RT - 59' RT	P-BUR	Mn/DOT		X		①
263+46	59' RT	L	Mn/DOT		X		①
263+46 - 265+13	59' RT - 70' RT	P-BUR	Mn/DOT		X		①
265+13	70' RT	L	Mn/DOT		X		①
265+13 - 265+62	70' RT - 31' RT	P-BUR	Mn/DOT		X		①
265+62	31' RT	L	Mn/DOT		X		①
265+62 - 267+97	31' RT	P-BUR	Mn/DOT		X		①
267+97	31' RT	L	Mn/DOT		X		①
267+97 - 270+31	31' RT	P-BUR	Mn/DOT		X		①
270+31	31' RT	L	Mn/DOT		X		①
270+31 - 270+77	31' RT	P-BUR	Mn/DOT		X		①
272+34	31' RT	L	Mn/DOT		X		①
272+34 - 274+37	31' RT	P-BUR	Mn/DOT		X		①
274+37	31' RT	L	Mn/DOT		X		①
274+37 - 276+49	31' RT	P-BUR	Mn/DOT		X		①
276+49	31' RT	L	Mn/DOT		X		①
276+49 - 278+59	31' RT - 46' RT	P-BUR	Mn/DOT		X		①
278+59	46' RT	L	Mn/DOT		X		①
278+59 - 280+81	46' RT - 41' RT	P-BUR	Mn/DOT		X		①
280+81	41' RT	L	Mn/DOT		X		①
280+81 - 282+44	41' RT - 36' RT	P-BUR	Mn/DOT		X		①
282+39 - 282+44	110' LT - 36' RT	P-BUR	Mn/DOT		X		①
282+44 - 282+78	36' RT	P-BUR	Mn/DOT		X		①
282+78	36' RT	L	Mn/DOT		X		①
282+78 - 285+07	36' RT - 32' RT	P-BUR	Mn/DOT		X		①
285+07	32' RT	L	Mn/DOT		X		①
285+07 - 287+37	32' RT	P-BUR	Mn/DOT		X		①
287+37	32' RT	L	Mn/DOT		X		①
287+37 - 289+67	32' RT	P-BUR	Mn/DOT		X		①
289+67	32' RT	L	Mn/DOT		X		①
289+67 - 284+95	32' RT	P-BUR	Mn/DOT		X		①
284+95	32' RT	L	Mn/DOT		X		①
284+95 - 287+26	32' RT	P-BUR	Mn/DOT		X		①
287+26	32' RT	L	Mn/DOT		X		①
287+26 - 289+58	32' RT	P-BUR	Mn/DOT		X		①
289+58	32' RT	L	Mn/DOT		X		①
289+58 - 291+90	32' RT	P-BUR	Mn/DOT		X		①
291+90	32' RT	L	Mn/DOT		X		①
TH36WB							
245+63	33' LT	L	Mn/DOT			X	
245+63 - 248+34	33' LT - 31' LT	P-BUR	Mn/DOT		X		①
248+34	31' LT	L	Mn/DOT		X		①
248+34 - 250+45	31' LT - 30' LT	P-BUR	Mn/DOT		X		①
250+45	30' LT	L	Mn/DOT		X		①
250+45 - 252+55	30' LT - 31' LT	P-BUR	Mn/DOT		X		①
252+55	31' LT	L	Mn/DOT		X		①
252+55 - 254+81	31' LT - 30' LT	P-BUR	Mn/DOT		X		①
254+81	30' LT	L	Mn/DOT		X		①
254+81 - 257+13	30' LT - 34' LT	P-BUR	Mn/DOT		X		①

S UTILITY CONTACTS	
THE FOLLOWING LIST SHOWS UTILITY COMPANIES INVOLVED ON THIS PROJECT	
ACCESS COMMUNICATIONS, INCORPORATED 5005 CHESHIRE PARKWAY NORTH, SUITE 1 PLYMOUTH, MN 55446-3719 TELEPHONE: 763-545-9998 CONTACT PERSON: MIKE DAHLE	QWEST CORPORATION 390 COMMERCE DRIVE WOODBURY, MN 55125 TELEPHONE: 651-714-7523 CONTACT PERSON: PAT FLYNN
CITY OF LITTLE CANADA 515 LITTLE CANADA ROAD LITTLE CANADA, MN 55117 TELEPHONE: 651-766-4049 CONTACT PERSON: BILL DIRCKS	RAMSEY COUNTY PUBLIC WORKS 1425 PAUL KIRKWOLD DRIVE ARDEN HILLS, MN 55112 TELEPHONE: 651-266-7145 CONTACT PERSON: TERRY LEMKE
CITY OF MAPLEWOOD 1902 COUNTY ROAD B EAST MAPLEWOOD, MN 55109 TELEPHONE: 651-249-2413 CONTACT PERSON: SCOTT JACOBSON	ST. JUDE MEDICAL ONE ST. JUDE MEDICAL DRIVE ST. PAUL, MN 55117 TELEPHONE: 651-765-2080 CONTACT PERSON: MARK LESTER
CITY OF ROSEVILLE 2660 CIVIC CENTER DRIVE ROSEVILLE, MN 55113 TELEPHONE: 651-792-7044 CONTACT PERSON: DUANE SCHWARTZ	VERIZON BUSINESS 2400 NORTH GLENVILLE RICHARDSON, TX 75082 TELEPHONE: 612-919-1751 CONTACT PERSON: ANDY FRETTE
COMCAST CABLE COMMUNICATIONS, INC. 2611 FAIRVIEW AVENUE NORTH ROSEVILLE, MN 55113 TELEPHONE: 651-493-5535 CONTACT PERSON: KEITH GESINGER	XCEL ENERGY - ELECTRIC 1700 EAST COUNTY ROAD E WHITE BEAR LAKE, MN 55110-4658 TELEPHONE: 651-229-2475 CONTACT PERSON: PAO VANG
MN/DOT 1500 W. CO. RD. B2 ROSEVILLE, MN 55113 TELEPHONE: 651-234-7849 CONTACT PERSON: JOHN PEDERSON	XCEL ENERGY - GAS 825 RICE STREET ST. PAUL, MN 55117 TELEPHONE: 651-229-2317 CONTACT PERSON: NICK BOOSALIS TELEPHONE: 651-229-2389 CONTACT PERSON: JAMES ZAKERSKI

NOTE:

- ① UTILITY WORK SHALL BE DONE BY THE CONTRACTOR. SEE LIGHTING PLANS.

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY OTHERS UNLESS NOTED.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE, CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.

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

UTILITY			
CB	=	CATCH BASIN	
F/O	=	FIBER OPTIC	
GAS	=	GASLINE	
HH	=	HAND HOLE	
HYD	=	HYDRANT	
L	=	LIGHTPOLE	
MH	=	MANHOLE	
PP	=	POWER POLE	
P-BUR	=	BURIED POWER	
P-OH	=	OVERHEAD POWER	
PED	=	PEDESTAL	
SAN	=	SANITARY SEWER	
SIG-BUR	=	BURIED SIGNAL POWER	
SS	=	STORM SEWER	
T-BUR	=	BURIED TELEPHONE	
T-PED	=	TELEPHONE PEDESTAL	
T-PED	=	TELEPHONE PEDESTAL	
TEL-OH	=	OVERHEAD TELEVISION	
TV-BUR	=	BURIED TELEVISION	
TV-OH	=	OVERHEAD TELE LINE	
WM	=	WATERMAIN	

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO. RAMSP108790	27
UT1 OF UT15	534

S POWER (BURIED)							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
257+13	34' LT	L	Mn/DOT		X		⓪
257+13 - 259+45	34' LT - 37' LT	P-BUR	Mn/DOT		X		⓪
259+45	37' LT	L	Mn/DOT		X		⓪
260+06 - 261+88	38' LT - 41' LT	P-BUR	Mn/DOT		X		⓪
261+88	41' LT	L	Mn/DOT		X		⓪
261+88 - 264+00	41' LT - 49' LT	P-BUR	Mn/DOT		X		⓪
264+00	49' LT	L	Mn/DOT		X		⓪
266+32	31' LT	L	Mn/DOT		X		⓪
266+32 - 268+54	31' LT	P-BUR	Mn/DOT		X		⓪
268+54	31' LT	L	Mn/DOT		X		⓪
268+54 - 270+58	31' LT	P-BUR	Mn/DOT		X		⓪
270+58	31' LT	L	Mn/DOT		X		⓪
270+58 - 270+74	31' LT	P-BUR	Mn/DOT		X		⓪
271+79 - 272+64	31' LT	P-BUR	Mn/DOT		X		⓪
272+64	31' LT	L	Mn/DOT		X		⓪
272+64 - 274+92	31' LT	P-BUR	Mn/DOT		X		⓪
274+92	31' LT	L	Mn/DOT		X		⓪
274+92 - 277+24	31' LT	P-BUR	Mn/DOT		X		⓪
277+24	31' LT	L	Mn/DOT		X		⓪
277+24 - 277+76	31' LT - 69' LT	P-BUR	Mn/DOT		X		⓪
277+76	69' LT	L	Mn/DOT		X		⓪
277+76 - 279+60	69' LT - 56' LT	P-BUR	Mn/DOT		X		⓪
279+60	56' LT	L	Mn/DOT		X		⓪
279+60 - 281+90	56' LT - 41' LT	P-BUR	Mn/DOT		X		⓪
281+90	41' LT	L	Mn/DOT		X		⓪
281+90 - 284+22	41' LT - 29' LT	P-BUR	Mn/DOT		X		⓪
284+22	29' LT	L	Mn/DOT		X		⓪
284+22 - 286+52	29' LT	P-BUR	Mn/DOT		X		⓪
286+52	30' LT	L	Mn/DOT		X		⓪
286+52 - 288+84	30' LT - 31' LT	P-BUR	Mn/DOT		X		⓪
288+84	31' LT	L	Mn/DOT		X		⓪
NWRAMP							
48+45 - 49+32	682' RT - 246' RT	P-BUR	XCEL ENERGY			X	
49+32	246' RT	PP	XCEL ENERGY			X	
49+32 - 50+34	246' RT - 211' RT	P-BUR	XCEL ENERGY			X	
50+34	211' RT	L	XCEL ENERGY			X	
50+34 - 52+29	211' RT - 221' RT	P-BUR	XCEL ENERGY			X	
52+29	221' RT	L	XCEL ENERGY			X	
NERAMP							
10+00 - 18+42	111' RT - 175' RT	P-BUR	XCEL ENERGY			X	
NB-RICE							
10+17 - 11+35	65' LT	P-BUR	XCEL ENERGY			X	
11+35 - 11+62	65' LT - 85' RT	P-BUR	XCEL ENERGY	X			
11+35 - 17+48	65' LT - 90' LT	P-BUR	XCEL ENERGY	X			
17+48 - 24+16	90' LT - 122' LT	P-BUR	XCEL ENERGY	X			
23+43 - 24+93	142' LT - 118' LT	P-BUR	Mn/DOT		X		⓪
23+35 - 25+19	64' RT - 15' RT	P-BUR	Mn/DOT		X		⓪
24+16 - 26+42	122' LT - 87' LT	P-BUR	XCEL ENERGY	X			
25+25 - 25+19	84' LT - 15' RT	P-BUR	Mn/DOT		X		⓪
25+60 - 26+61	26' RT - 49' RT	P-BUR	XCEL ENERGY	X			
26+22 - 26+72	85' LT - 193' LT	P-BUR	XCEL ENERGY	X			
26+42 - 26+61	87' LT - 49' RT	P-BUR	XCEL ENERGY	X			
26+42 - 29+13	87' LT - 63' LT	P-BUR	XCEL ENERGY	X			
29+13 - 29+11	63' LT - 93' LT	P-BUR	XCEL ENERGY	X			
29+13 - 34+18	63' LT - 67' LT	P-BUR	XCEL ENERGY	X			
31+47 - 31+40	69' LT - 219' LT	P-BUR	XCEL ENERGY	X			
31+47 - 32+33	69' LT - 71' LT	P-BUR	XCEL ENERGY	X			
34+18	67' LT - 162' LT	P-BUR	XCEL ENERGY	X			
34+18 - 38+36	67' LT - 72' LT	P-BUR	XCEL ENERGY	X			
36+89 - 37+30	27' RT - 30' RT	P-BUR	XCEL ENERGY	X			
38+36	72' LT - 120' LT	P-BUR	XCEL ENERGY	X			
38+36 - 41+25	72' LT - 62' LT	P-BUR	XCEL ENERGY	X			

S POWER (BURIED)							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
39+98 - 39+72	62' LT - 331' LT	P-BUR	XCEL ENERGY	X			
41+25 - 41+26	62' LT - 166' LT	P-BUR	XCEL ENERGY	X			
41+25 - 42+64	62' LT - 59' LT	P-BUR	XCEL ENERGY	X			
42+64 - 42+78	59' LT - 125' LT	P-BUR	XCEL ENERGY	X			
42+64 - 46+80	59' LT - 58' LT	P-BUR	XCEL ENERGY	X			
46+80 - 46+81	58' LT - 121' LT	P-BUR	XCEL ENERGY	X			
46+80 - 48+44	58' LT - 54' LT	P-BUR	XCEL ENERGY	X			
48+44 - 47+91	54' LT - 132' LT	P-BUR	XCEL ENERGY	X			
48+44 - 48+60	54' LT - 53' LT	P-BUR	XCEL ENERGY	X			
48+60 - 48+77	53' LT - 95' RT	P-BUR	XCEL ENERGY	X			
48+60 - 51+29	53' LT - 52' LT	P-BUR	XCEL ENERGY	X			
EBCRB							
30+00 - 50+85	32' RT - 54' RT	P-BUR	XCEL ENERGY	X			
34+17 - 34+98	151' RT - 42' RT	P-BUR	XCEL ENERGY	X			
34+29 - 34+70	151' RT - 84' RT	P-BUR	XCEL ENERGY			X	
35+88 - 36+31	73' RT - 51' RT	P-BUR	XCEL ENERGY			X	
50+45 - 50+58	18' LT - 32' RT	P-BUR	XCEL ENERGY			X	
MINNAVE							
10+00 - 15+21	24' RT - 27' RT	P-BUR	XCEL ENERGY	X			
10+19 - 10+28	18' LT - 26' RT	P-BUR	XCEL ENERGY	X			
11+74 - 11+79	135' RT - 26' LT	P-BUR	XCEL ENERGY	X			
15+25 - 15+90	20' RT - 75' RT	P-BUR	XCEL ENERGY	X			
16+40 - 16+38	31' RT - 86' RT	P-BUR	XCEL ENERGY	X			
16+40 - 17+35	31' RT - 35' RT	P-BUR	XCEL ENERGY	X			
17+17 - 17+15	19' LT - 132' LT	P-BUR	XCEL ENERGY			X	
17+17 - 17+98	19' LT	P-BUR	XCEL ENERGY			X	
CRB2							
8+00 - 20+27	21' RT - 40' RT	P-BUR	XCEL ENERGY	X			
19+86 - 19+87	46' LT - 90' LT	P-BUR	XCEL ENERGY			X	
19+87 - 20+86	46' LT	P-BUR	XCEL ENERGY			X	

NOTE:

- ⓪ UTILITY WORK SHALL BE DONE BY THE CONTRACTOR. SEE LIGHTING PLANS.

GENERAL NOTES:

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UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**INPLACE UTILITY
 TABULATIONS**

FILE NO.
 RAMSP08790
 UT2
 OF UT15

28
534

3/26/35 PM

5/6/2010

kerickson

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S POWER (OVER HEAD)							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
NWRAMP							
48+40	691' RT	PP	XCEL ENERGY			X	
48+40 - 48+78	691' RT - 477' RT	P-OH	XCEL ENERGY			X	
48+78	477' RT	PP	XCEL ENERGY			X	
48+78 - 49+32	477' RT - 246' RT	P-OH	XCEL ENERGY			X	
NERAMP							
10+00 - 10+57	103' RT	P-OH	XCEL ENERGY			X	
10+57	103' RT	PP	XCEL ENERGY			X	
10+57 - 11+94	103' RT - 102' RT	P-OH	XCEL ENERGY			X	
11+94	102' RT	PP	XCEL ENERGY			X	
11+94 - 13+32	102' RT - 98' RT	P-OH	XCEL ENERGY			X	
13+32	98' RT	PP	XCEL ENERGY			X	
13+32 - 14+81	98' RT - 80' RT	P-OH	XCEL ENERGY			X	
14+81	80' RT	PP	XCEL ENERGY			X	
14+81 - 16+50	80' RT - 74' RT	P-OH	XCEL ENERGY			X	
16+50	74' RT	PP	XCEL ENERGY			X	
16+50 - 17+29	74' RT - 131' RT	P-OH	XCEL ENERGY			X	
17+29	131' RT	PP	XCEL ENERGY			X	
17+29 - 18+43	131' RT - 153' RT	P-OH	XCEL ENERGY	X			
NB-RICE							
10+19	64' LT	PP	XCEL ENERGY			X	
10+19 - 11+48	6' LT - 61' LT	P-OH	XCEL ENERGY	X			
11+48	61' LT	PP	XCEL ENERGY	X			
11+48 - 11+65	61' LT - 36' RT	P-OH	XCEL ENERGY	X			
11+65	36' RT	PP	XCEL ENERGY	X			
11+48 - 13+16	61' LT	P-OH	XCEL ENERGY	X			
13+16	61' LT	PP	XCEL ENERGY	X			
13+16 - 14+60	61' LT - 65' LT	P-OH	XCEL ENERGY		X		
14+60	65' LT	PP	XCEL ENERGY		X		
14+60 - 16+03	65' LT - 76' LT	P-OH	XCEL ENERGY		X		
16+03	76' LT	PP	XCEL ENERGY		X		
16+03 - 17+52	76' LT - 87' LT	P-OH	XCEL ENERGY		X		
17+52	87' LT	PP	XCEL ENERGY		X		
17+52 - 18+54	87' LT - 105' LT	P-OH	XCEL ENERGY	X			
18+54	105' LT	PP	XCEL ENERGY	X			
17+52 - 19+35	87' LT - 107' LT	P-OH	XCEL ENERGY	X			
19+35	107' LT	PP	XCEL ENERGY	X			
19+35 - 19+82	107' LT - 212' LT	P-OH	XCEL ENERGY	X			
19+35 - 21+16	107' LT - 118' LT	P-OH	XCEL ENERGY	X			
21+16	118' LT	PP	XCEL ENERGY	X			
21+16 - 24+26	118' LT - 116' LT	P-OH	XCEL ENERGY		X		
24+26	116' LT	PP	XCEL ENERGY		X		
24+26 - 25+34	116' LT - 102' LT	P-OH	XCEL ENERGY		X		
25+34	102' LT	PP	XCEL ENERGY		X		
25+34	111' LT	PP	XCEL ENERGY		X		
25+34 - 26+22	102' LT - 85' LT	P-OH	XCEL ENERGY		X		
26+22	85' LT	PP	XCEL ENERGY		X		
25+60	26' RT	PP	XCEL ENERGY		X		
25+60 - 26+39	26' RT - 44' RT	P-OH	XCEL ENERGY		X		
26+39	44' RT	PP	XCEL ENERGY		X		
26+22 - 26+77	84' LT - 320' LT	P-OH	XCEL ENERGY		X		
26+77	320' LT	PP	XCEL ENERGY		X		
26+39	44' RT	PP	XCEL ENERGY		X		
26+22 - 26+39	85' LT - 44' RT	P-OH	XCEL ENERGY		X		
26+22 - 27+71	85' LT - 75' LT	P-OH	XCEL ENERGY		X		
27+71	75' LT	PP	XCEL ENERGY		X		
27+71 - 26+91	75' LT - 107' RT	P-OH	XCEL ENERGY		X		
27+71 - 28+40	75' LT	P-OH	XCEL ENERGY		X		
28+40	75' LT	PP	XCEL ENERGY		X		
28+40 - 29+11	75' LT - 57' LT	P-OH	XCEL ENERGY		X		
29+11	57' LT	PP	XCEL ENERGY		X		
27+71 - 29+11	75' LT - 57' LT	P-OH	XCEL ENERGY		X		
29+11 - 29+14	57' LT - 29' RT	P-OH	XCEL ENERGY		X		
29+14	29' RT	PP	XCEL ENERGY		X		

S POWER (OVER HEAD)							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
29+11 - 30+86	57' LT - 53' LT	P-OH	XCEL ENERGY			X	
30+86	53' LT	PP	XCEL ENERGY			X	
30+86 - 32+36	53' LT - 59' LT	P-OH	XCEL ENERGY			X	
32+36	59' LT	PP	XCEL ENERGY			X	
32+36 - 34+19	59' LT - 62' LT	P-OH	XCEL ENERGY			X	
34+19	62' LT	PP	XCEL ENERGY			X	
34+19 - 35+39	62' LT - 63' LT	P-OH	XCEL ENERGY			X	
35+39	63' LT	PP	XCEL ENERGY			X	
35+39 - 36+87	63' LT - 62' LT	P-OH	XCEL ENERGY			X	
36+87	62' LT	PP	XCEL ENERGY			X	
36+87 - 36+86	62' LT - 28' RT	P-OH	XCEL ENERGY			X	
36+86	28' RT	PP	XCEL ENERGY			X	
36+87 - 38+32	62' LT - 66' LT	P-OH	XCEL ENERGY			X	
38+32	66' LT	PP	XCEL ENERGY			X	
38+32 - 39+94	66' LT - 62' LT	P-OH	XCEL ENERGY			X	
39+94	62' LT	PP	XCEL ENERGY			X	
39+94 - 41+33	62' LT - 55' LT	P-OH	XCEL ENERGY			X	
41+33	55' LT	PP	XCEL ENERGY			X	
41+33 - 42+64	55' LT - 53' LT	P-OH	XCEL ENERGY			X	
42+64	53' LT	PP	XCEL ENERGY			X	
42+60 - 43+85	53' LT - 59' LT	P-OH	XCEL ENERGY			X	
43+85	59' LT	PP	XCEL ENERGY			X	
43+85 - 45+16	59' LT - 54' LT	P-OH	XCEL ENERGY			X	
45+16	54' LT	PP	XCEL ENERGY			X	
45+16 - 46+74	54' LT - 52' LT	P-OH	XCEL ENERGY			X	
46+74	52' LT	PP	XCEL ENERGY			X	
46+74 - 48+35	52' LT - 49' LT	P-OH	XCEL ENERGY			X	
48+35	49' LT	PP	XCEL ENERGY			X	
48+35 - 48+72	49' LT - 111' RT	P-OH	XCEL ENERGY			X	
48+72	111' RT	PP	XCEL ENERGY			X	
48+35 - 49+97	49' LT - 47' LT	P-OH	XCEL ENERGY			X	
49+97	47' LT	PP	XCEL ENERGY			X	
49+97 - 51+23	47' LT - 46' LT	P-OH	XCEL ENERGY			X	
51+23	46' LT	PP	XCEL ENERGY			X	
EBCRB							
30+00 - 31+11	34' RT	P-OH	XCEL ENERGY			X	
31+11	34' RT	PP	XCEL ENERGY			X	
31+11 - 32+48	34' RT - 33' RT	P-OH	XCEL ENERGY	X			
32+48	33' RT	PP	XCEL ENERGY	X			
32+48 - 33+68	33' RT - 35' RT	P-OH	XCEL ENERGY	X			
33+68	35' RT	PP	XCEL ENERGY	X			
33+68 - 34+98	35' RT - 42' RT	P-OH	XCEL ENERGY	X			
34+98	42' RT	PP	XCEL ENERGY	X			

GENERAL NOTES:

THE OVERHEAD POWER BETWEEN COUNTY RD B & COUNTY RD B2 ON THE WEST SIDE OF RICE ST. WILL BE BURIED BY OTHERS DURING STAGE 1 OF RICE ST. CONSTRUCTION.

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY OTHERS UNLESS NOTED.

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

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO.	29
RAMSP108790	
UT3	
OF UT15	534

3/26/37 PM

5/6/2010

kerickson

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Utl - ut13

POWER (OVER HEAD)							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
34+98 - 36+36	42' RT - 46' RT	P-OH	XCEL ENERGY	X			
36+36	46' RT	PP	XCEL ENERGY	X			
36+36 - 37+82	46' RT - 48' RT	P-OH	XCEL ENERGY	X			
37+82	48' RT	PP	XCEL ENERGY	X			
37+82 - 39+05	48' RT - 44' RT	P-OH	XCEL ENERGY	X			
39+05	44' RT	PP	XCEL ENERGY	X			
39+05 - 39+33	44' RT - 48' RT	P-OH	XCEL ENERGY		X		
39+33 - 40+22	48' RT - 44' RT	P-OH	XCEL ENERGY		X		
40+22	44' RT	PP	XCEL ENERGY		X		
40+22 - 41+67	44' RT - 47' RT	P-OH	XCEL ENERGY		X		
41+67	47' RT	PP	XCEL ENERGY	X			
41+67 - 43+27	47' RT - 46' RT	P-OH	XCEL ENERGY	X			
43+27	46' RT	PP	XCEL ENERGY	X			
43+27 - 44+78	46' RT - 38' RT	P-OH	XCEL ENERGY		X		
44+78	38' RT	PP	XCEL ENERGY		X		
44+78 - 46+40	38' RT - 31' RT	P-OH	XCEL ENERGY		X		
46+40	31' RT	PP	XCEL ENERGY		X		
46+40 - 47+93	31' RT - 28' RT	P-OH	XCEL ENERGY		X		
47+93	28' RT	PP	XCEL ENERGY		X		
47+93 - 49+42	28' RT	P-OH	XCEL ENERGY		X		
49+42	28' RT	PP	XCEL ENERGY		X		
49+42 - 50+88	28' RT	P-OH	XCEL ENERGY	X			
50+88	28' RT	PP	XCEL ENERGY			X	
MINNAVE							
10+00	30' LT	PP	XCEL ENERGY	X			
10+00 - 10+18	30' LT - 22' RT	P-OH	XCEL ENERGY	X			
10+18	22' RT	PP	XCEL ENERGY	X			
10+00 - 10+18	22' RT	P-OH	XCEL ENERGY	X			
10+18 - 10+30	22' RT - 80' RT	P-OH	XCEL ENERGY	X			
10+18 - 11+77	22' RT	P-OH	XCEL ENERGY		X		
11+77	22' RT	PP	XCEL ENERGY		X		
11+47 - 11+77	55' RT - 22' RT	P-OH	XCEL ENERGY		X		
11+74 - 11+77	30' LT - 22' RT	P-OH	XCEL ENERGY		X		
11+77 - 12+72	22' RT - 25' RT	P-OH	XCEL ENERGY		X		
12+72	25' RT	PP	XCEL ENERGY		X		
12+72 - 13+03	25' RT - 77' RT	P-OH	XCEL ENERGY		X		
12+72 - 13+35	25' RT - 24' RT	P-OH	XCEL ENERGY		X		
13+35	24' RT	PP	XCEL ENERGY		X		
13+35 - 13+83	24' RT - 22' RT	P-OH	XCEL ENERGY		X		
13+83 - 15+25	22' RT	P-OH	XCEL ENERGY		X		
14+70	44' LT	PP	XCEL ENERGY		X		
14+70 - 15+25	44' LT - 22' RT	P-OH	XCEL ENERGY	X			
15+25	22' RT	PP	XCEL ENERGY		X		
15+25 - 16+56	22' RT - 29' RT	P-OH	XCEL ENERGY	X			
16+56	29' RT	PP	XCEL ENERGY	X			
16+56 - 18+02	29' RT - 33' RT	P-OH	XCEL ENERGY	X			
CRB2							
8+00 - 9+11	28' RT	P-OH	XCEL ENERGY			X	
9+11	28' RT	PP	XCEL ENERGY			X	
9+11 - 10+45	28' RT - 27' RT	P-OH	XCEL ENERGY	X			
10+43 - 10+45	51' RT - 27' RT	P-OH	XCEL ENERGY	X			
10+45	27' RT	PP	XCEL ENERGY	X			
10+45 - 11+60	27' RT - 29' RT	P-OH	XCEL ENERGY		X		
11+60	29' RT	PP	XCEL ENERGY		X		
11+60 - 12+55	29' RT	P-OH	XCEL ENERGY		X		
12+55	29' RT	PP	XCEL ENERGY		X		
12+55 - 13+85	29' RT - 42' RT	P-OH	XCEL ENERGY		X		
13+85 - 15+06	42' RT - 32' RT	P-OH	XCEL ENERGY		X		
14+97	36' RT	PP	XCEL ENERGY		X		
15+06	32' RT	PP	XCEL ENERGY		X		
15+06 - 16+36	32' RT - 29' RT	P-OH	XCEL ENERGY	X			
16+21 - 17+20	67' LT - 29' LT	P-OH	XCEL ENERGY	X			
17+20	30' LT	PP	XCEL ENERGY		X		

POWER (OVER HEAD)							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
16+36	29' RT	PP	XCEL ENERGY			X	
16+36 - 17+20	29' RT - 25' RT	P-OH	XCEL ENERGY			X	
17+20	25' RT	PP	XCEL ENERGY			X	
17+20	30' LT - 25' RT	P-OH	XCEL ENERGY	X			
17+20 - 18+54	25' RT - 20' RT	P-OH	XCEL ENERGY	X			
18+54	20' RT	PP	XCEL ENERGY	X			
18+52	33' RT	PP	XCEL ENERGY			X	
18+52 - 18+54	33' RT - 20' RT	P-OH	XCEL ENERGY			X	
18+54 - 20+35	20' RT - 18' RT	P-OH	XCEL ENERGY			X	
20+35	18' RT	PP	XCEL ENERGY			X	
20+35 - 20+37	18' RT - 44' LT	P-OH	XCEL ENERGY			X	
20+37	44' LT	PP	XCEL ENERGY			X	
19+86 - 20+37	90' LT - 44' LT	P-OH	XCEL ENERGY			X	
20+37 - 20+86	44' LT - 42' LT	P-OH	XCEL ENERGY			X	

SIGNAL / LIGHTS							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
TH36EB							
266+69	71' RT	SIG-HH	Mn/DOT		X		②
266+69 - 266+97	71' RT - 27' RT	SIG-BUR	Mn/DOT		X		②
266+97	27' RT	SIG-HH	Mn/DOT		X		②
266+97 - 266+98	27' RT - 19' LT	SIG-BUR	Mn/DOT		X		②
266+98	19' LT	SIG-HH	Mn/DOT		X		②
266+98 - 267+00	19' LT - 55' LT	SIG-BUR	Mn/DOT		X		②
266+97 - 269+50	27' RT - 78' RT	SIG-BUR	Mn/DOT		X		②
269+50	78' RT	SIG-HH	Mn/DOT		X		②
269+50 - 271+11	78' RT - 165' RT	SIG-BUR	Mn/DOT		X		②
271+11	165' RT	SIG-HH	Mn/DOT		X		②
272+04	164' RT	SIG-HH	Mn/DOT		X		②
272+04 - 272+82	164' RT - 152' RT	SIG-BUR	Mn/DOT		X		②
272+82	152' RT	SIG-HH	Mn/DOT		X		②
272+82 - 274+05	152' RT - 113' RT	SIG-BUR	Mn/DOT		X		②
274+05	113' RT	SIG-HH	Mn/DOT		X		②
274+05 - 275+09	113' RT - 83' RT	SIG-BUR	Mn/DOT		X		②
275+09	83' RT	SIG-HH	Mn/DOT		X		②
275+09 - 275+31	83' RT - 76' RT	SIG-BUR	Mn/DOT		X		②
275+31	76' RT	SIG-L	Mn/DOT		X		②

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UTILITY			
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HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO. **30**
 RAMSP108790
 UT4
 OF UT15 **534**

3/26/38 PM

5/6/2010

kerickson

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u1 - ut13

S SIGNAL / LIGHTS							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
275+09 - 275+18	83' RT - 110' RT	SIG-BUR	Mn/DOT		X		②
275+18	110' RT	SIG-HH	Mn/DOT		X		②
275+18 - 275+40	110' RT - 103' RT	SIG-BUR	Mn/DOT		X		②
275+40	103' RT	SIG-L	Mn/DOT		X		②
275+09	83' RT - 27' RT	SIG-BUR	Mn/DOT		X		②
275+09	27' RT	SIG-HH	Mn/DOT		X		②
275+09 - 275+07	27' RT - 21' LT	SIG-BUR	Mn/DOT		X		②
275+07	21' LT	SIG-HH	Mn/DOT		X		②
275+07	21' LT - 56' LT	SIG-BUR	Mn/DOT		X		②
TH36WB							
266+97	92' LT	SIG LT	Mn/DOT		X		②
266+97 - 267+21	92' LT - 97' LT	SIG-BUR	Mn/DOT		X		②
267+21	97' LT	SIG HH	Mn/DOT		X		②
267+21 - 267+27	97' LT - 70' LT	SIG-BUR	Mn/DOT		X		②
267+27	70' LT	SIG HH	Mn/DOT		X		②
267+03	65' LT	SIG LT	Mn/DOT		X		②
267+03 - 267+27	65' LT - 70' LT	SIG-BUR	Mn/DOT		X		②
267+03 - 270+60	65' LT - 136' LT	SIG-BUR	Mn/DOT		X		②
270+60	136' LT	SIG HH	Mn/DOT		X		②
267+00	25' LT	SIG HH	Mn/DOT		X		②
267+00 - 267+27	25' LT - 70' LT	SIG-BUR	Mn/DOT		X		②
267+00	19' RT	SIG HH	Mn/DOT		X		②
267+00	19' RT - 25' LT	SIG-BUR	Mn/DOT		X		②
275+07	19' RT	SIG-HH	Mn/DOT		X		②
275+07 - 275+06	19' RT - 25' LT	SIG-BUR	Mn/DOT		X		②
275+06	25' LT	SIG-HH	Mn/DOT		X		②
275+06 - 275+23	25' LT - 83' LT	SIG-BUR	Mn/DOT		X		②
275+23	83' LT	SIG HH	Mn/DOT		X		②
NWRAMP							
44+25 - 42+65	51' RT - 33' RT	SIG-BUR	RAMSEY COUNTY		X		③
42+65	33' RT	SIG-HH	RAMSEY COUNTY		X		③
42+65 - 41+27	33' RT - 15' RT	SIG-BUR	RAMSEY COUNTY		X		③
41+27	15' RT	SIG-HH	RAMSEY COUNTY		X		③
41+27 - 40+35	15' RT - 34' LT	SIG-BUR	RAMSEY COUNTY		X		③
40+35	34' LT	SIG-HH	RAMSEY COUNTY		X		③
40+35	34' LT - 24' LT	SIG-BUR	RAMSEY COUNTY		X		③
40+35	24' LT	SIG-L	RAMSEY COUNTY		X		③
40+31	37' RT	SIG-HH	RAMSEY COUNTY		X		③
40+31 - 40+23	37' RT - 45' RT	SIG-BUR	RAMSEY COUNTY		X		③
40+23	45' RT	SIG-L	RAMSEY COUNTY		X		③
NBRICE							
14+95	8' RT	SIG-HH	RAMSEY COUNTY		X		③
14+95 - 16+01	8' RT - 1' RT	SIG-BUR	RAMSEY COUNTY		X		③
16+01	1' RT	SIG-HH	RAMSEY COUNTY		X		③
16+01 - 17+44	1' RT - 5' LT	SIG-BUR	RAMSEY COUNTY		X		③
18+57 - 18+70	96' LT - 75' LT	SIG-BUR	RAMSEY COUNTY		X		③
18+70	75' LT	SIG-HH	RAMSEY COUNTY		X		③
18+70 - 19+43	75' LT - 77' LT	SIG-BUR	RAMSEY COUNTY		X		③
19+00	13' RT	SIG-HH	RAMSEY COUNTY		X		③
19+00 - 20+02	13' RT - 4' RT	SIG-BUR	RAMSEY COUNTY		X		③
20+02	4' RT	SIG-HH	RAMSEY COUNTY		X		③
19+43	77' LT	SIG-HH	RAMSEY COUNTY		X		③
19+43 - 19+85	77' LT - 96' LT	SIG-BUR	RAMSEY COUNTY		X		③
19+85	96' LT	SIG-HH	RAMSEY COUNTY		X		③
19+85 - 19+75	96' LT - 85' LT	SIG-BUR	RAMSEY COUNTY		X		③
19+75	85' LT	SIG-L	RAMSEY COUNTY		X		③
19+85 - 20+54	96' LT - 99' LT	SIG-BUR	RAMSEY COUNTY		X		③
20+02 - 19+88	4' RT - 10' LT	SIG-BUR	RAMSEY COUNTY		X		③
20+02 - 20+68	4' RT - 1' RT	SIG-BUR	RAMSEY COUNTY		X		③
19+88	10' LT	SIG-L	RAMSEY COUNTY		X		③
20+54	99' LT	SIG-HH	RAMSEY COUNTY		X		③
20+54	87' LT	SIG-L	RAMSEY COUNTY		X		③

S SIGNAL / LIGHTS							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
20+54 - 20+63	99' LT - 178' LT	SIG-BUR	RAMSEY COUNTY		X		③
20+63 - 20+78	178' LT - 235' LT	SIG-BUR	RAMSEY COUNTY		X		③
20+68 - 20+62	1' RT - 16' LT	SIG-BUR	RAMSEY COUNTY		X		③
20+62	16' LT	SIG-L	RAMSEY COUNTY		X		③
20+78	235' LT	SIG-HH	RAMSEY COUNTY		X		③
20+78 - 20+96	235' LT - 293' LT	SIG-BUR	RAMSEY COUNTY		X		③
20+96	293' LT	SIG-HH	RAMSEY COUNTY		X		③
20+54	99' LT	SIG HH	Mn/DOT		X		③
20+54 - 20+66	99' LT - 113' LT	SIG-BUR	Mn/DOT		X		③
20+66	113' LT	SIG BOX	Mn/DOT		X		③
20+66 - 21+02	113' LT - 114' LT	SIG-BUR	Mn/DOT		X		③
21+02	114' LT	SIG HH	Mn/DOT		X		③
21+02 - 21+16	114' LT - 118' LT	SIG-BUR	Mn/DOT		X		③
20+71 - 21+02	100' LT - 114' LT	SIG-BUR	Mn/DOT		X		③
20+71	100' LT	SIG BOX	Mn/DOT		X		③
20+54 - 20+71	100' LT - 99' LT	SIG-BUR	Mn/DOT		X		③
20+66 - 21+15	113' LT - 91' LT	SIG-BUR	Mn/DOT		X		③
21+15	91' LT	SIG-L	Mn/DOT		X		③
20+66	86' LT - 113' LT	SIG-BUR	Mn/DOT		X		③
20+66	86' LT	SIG-HH	Mn/DOT		X		③
20+66 - 20+57	86' LT - 8' LT	SIG-BUR	Mn/DOT		X		③
20+57	8' LT	SIG-HH	Mn/DOT		X		③
20+57 - 20+67	8' LT - 1' RT	SIG-BUR	Mn/DOT		X		③
20+67 - 20+74	1' RT - 88' LT	SIG-BUR	Mn/DOT		X		③
20+74	88' LT	SIG-HH	Mn/DOT		X		③
20+74 - 20+87	88' LT - 86' LT	SIG-BUR	Mn/DOT		X		③
20+87	86' LT	SIG-HH	Mn/DOT		X		③
20+87 - 20+96	86' LT	SIG-BUR	Mn/DOT		X		③
20+96	86' LT	SIG-L	Mn/DOT		X		③
20+68 - 21+94	1' RT - 28' LT	SIG-BUR	RAMSEY COUNTY		X		③
21+94	28' LT	SIG-HH	RAMSEY COUNTY		X		③
21+94 - 22+73	28' LT - 27' LT	SIG-BUR	RAMSEY COUNTY		X		③
22+73	27' LT	SIG-HH	RAMSEY COUNTY		X		③
22+73 - 23+35	27' LT - 25' LT	SIG-BUR	RAMSEY COUNTY		X		③
23+35	25' LT	SIG-HH	RAMSEY COUNTY		X		③
23+35 - 24+51	25' LT - 4' LT	SIG-BUR	RAMSEY COUNTY		X		③
24+51	4' LT	SIG-HH	RAMSEY COUNTY		X		③
24+51 - 24+34	4' LT - 20' LT	SIG-BUR	RAMSEY COUNTY		X		③
24+34	20' LT	SIG-HH	RAMSEY COUNTY		X		③
24+51 - 24+45	4' LT - 15' LT	SIG-BUR	RAMSEY COUNTY		X		③
24+45	15' LT	SIG-L	RAMSEY COUNTY		X		③
24+51 - 24+54	4' LT - 84' LT	SIG-BUR	RAMSEY COUNTY		X		③
24+51 - 24+99	4' LT - 3' RT	SIG-BUR	RAMSEY COUNTY		X		③
24+99	3' RT	SIG-HH	RAMSEY COUNTY		X		③

NOTES:

- ② UTILITY WORK SHALL BE DONE BY THE CONTRACTOR. SEE TRAFFIC MANAGEMENT PLANS.
- ③ UTILITY WORK SHALL BE DONE BY THE CONTRACTOR. SEE SIGNAL PLANS.

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P-BUR	=	BURIED POWER	TV-OH	=	OVERHEAD TELE LINE
P-OH	=	OVERHEAD POWER	WM	=	WATERMAIN
PED	=	PEDESTAL			

DESIGN TEAM				REVISIONS			
DRAWN BY:	MTT			NO.	BY	DATE	
DESIGNER:	SRH,HLR						
CHECKED BY:	KLE						

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TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

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31
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ut1 - ut13

S SIGNAL / LIGHTS							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
24+99 - 24+74	3' RT - 60' RT	SIG-BUR	RAMSEY COUNTY		X		③
24+74	60' RT	SIG-HH	RAMSEY COUNTY		X		③
24+74 - 24+44	60' RT - 175' RT	SIG-BUR	RAMSEY COUNTY		X		③
24+44	175' RT	SIG-HH	RAMSEY COUNTY		X		③
24+99 - 25+22	3' RT - 11' LT	SIG-BUR	RAMSEY COUNTY		X		③
25+22	11' LT	SIG-HH	RAMSEY COUNTY		X		③
25+22 - 25+17	11' LT	SIG-BUR	RAMSEY COUNTY		X		③
25+17	11' LT	SIG-L	RAMSEY COUNTY		X		③
25+17 - 25+27	11' LT - 2' LT	SIG-BUR	RAMSEY COUNTY		X		③
25+27	2' LT	SIG-HH	RAMSEY COUNTY		X		③
25+26 - 25+62	90' LT - 76' LT	SIG-BUR	RAMSEY COUNTY		X		③
25+62	76' LT	SIG-HH	RAMSEY COUNTY		X		③
25+27 - 25+26	2' LT - 10' RT	SIG-BUR	RAMSEY COUNTY		X		③
25+26	10' RT	SIG-BOX	RAMSEY COUNTY		X		③
24+99 - 25+14	3' RT - 18' RT	SIG-BUR	RAMSEY COUNTY		X		③
25+14	18' RT	SIG-BOX	RAMSEY COUNTY		X		③
25+14 - 25+22	18' RT - 11' LT	SIG-BUR	RAMSEY COUNTY		X		③
25+22 - 25+26	11' LT - 90' LT	SIG-BUR	RAMSEY COUNTY		X		③
25+14 - 25+51	18' RT - 23' RT	SIG-BUR	RAMSEY COUNTY		X		③
25+51	23' RT	SIG-HH	RAMSEY COUNTY		X		③
25+26 - 25+62	10' RT - 12' LT	SIG-BUR	RAMSEY COUNTY		X		③
25+62	12' LT	SIG-HH	RAMSEY COUNTY		X		③
25+62 - 27+02	12' LT - 3' LT	SIG-BUR	RAMSEY COUNTY		X		③
27+02	3' LT	SIG-HH	RAMSEY COUNTY		X		③
27+02 - 28+59	3' LT - 16' RT	SIG-BUR	RAMSEY COUNTY		X		③
25+62 - 27+48	76' LT - 72' LT	SIG-BUR	RAMSEY COUNTY		X		③
27+48	72' LT	SIG-HH	RAMSEY COUNTY		X		③
28+59	16' RT	SIG-HH	RAMSEY COUNTY		X		③
28+59 - 30+71	16' RT - 20' RT	SIG-BUR	RAMSEY COUNTY		X		③
30+71	20' RT	SIG-HH	RAMSEY COUNTY		X		③
30+71 - 31+61	20' RT - 7' LT	SIG-BUR	RAMSEY COUNTY		X		③
31+67 - 31+89	20' RT - 7' RT	SIG-BUR	RAMSEY COUNTY		X		③
31+89	7' RT	SIG-HH	RAMSEY COUNTY		X		③
31+89 - 32+88	7' RT - 5' RT	SIG-BUR	RAMSEY COUNTY		X		③
32+88	5' RT	SIG-HH	RAMSEY COUNTY		X		③
32+88 - 34+64	5' RT	SIG-BUR	RAMSEY COUNTY		X		③
31+56 - 32+93	48' LT - 53' LT	SIG-BUR	RAMSEY COUNTY		X		③
32+93	53' LT	SIG-HH	RAMSEY COUNTY		X		③
32+93 - 33+58	53' LT - 56' LT	SIG-BUR	RAMSEY COUNTY		X		③
33+58	56' LT	SIG-HH	RAMSEY COUNTY		X		③
EBCRB							
37+95	37' RT	SIG-HH	RAMSEY COUNTY		X		③
37+95 - 39+01	37' RT	SIG-BUR	RAMSEY COUNTY		X		③
39+01	37' RT	SIG-HH	RAMSEY COUNTY		X		③
39+01 - 39+20	37' RT - 43' RT	SIG-BUR	RAMSEY COUNTY		X		③
39+20	43' RT	SIG-HH	RAMSEY COUNTY		X		③
39+20 - 39+41	43' RT - 59' RT	SIG-BUR	RAMSEY COUNTY		X		③
39+41	59' RT	SIG-L	RAMSEY COUNTY		X		③
39+20 - 39+27	43' RT - 35' LT	SIG-BUR	RAMSEY COUNTY		X		③
39+27	35' LT	SIG-HH	RAMSEY COUNTY		X		③
39+27 - 39+52	35' LT - 54' LT	SIG-BUR	RAMSEY COUNTY		X		③
39+27 - 39+24	35' LT - 25' LT	SIG-BUR	RAMSEY COUNTY		X		③
39+34	25' LT	SIG-L	RAMSEY COUNTY		X		③
39+27 - 39+30	35' LT - 56' LT	SIG-BUR	RAMSEY COUNTY		X		③
39+30	56' LT	SIG BOX	RAMSEY COUNTY		X		③
39+30 - 39+52	56' LT - 54' LT	SIG-BUR	RAMSEY COUNTY		X		③
39+52	54' LT	SIG-HH	RAMSEY COUNTY		X		③
39+52 - 40+18	54' LT - 67' LT	SIG-BUR	RAMSEY COUNTY		X		③
40+18	67' LT	SIG-HH	RAMSEY COUNTY		X		③
40+18 - 40+29	67' LT - 45' LT	SIG-BUR	RAMSEY COUNTY		X		③
40+29	45' LT	SIG-HH	RAMSEY COUNTY		X		③
40+29 - 40+28	45' LT - 51' LT	SIG-BUR	RAMSEY COUNTY		X		③
40+28	51' LT	SIG-L	RAMSEY COUNTY		X		③
40+29 - 41+54	45' LT - 30' LT	SIG-BUR	RAMSEY COUNTY		X		③

S SIGNAL / LIGHTS							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
41+54	30' LT	SIG-HH	RAMSEY COUNTY		X		③
40+29 - 40+39	45' LT - 39' RT	SIG-BUR	RAMSEY COUNTY		X		③
40+39	39' RT	SIG-HH	RAMSEY COUNTY		X		③
40+39 - 40+28	39' RT - 43' RT	SIG-BUR	RAMSEY COUNTY		X		③
40+28	43' RT	SIG-L	RAMSEY COUNTY		X		③
40+39 - 40+13	39' RT - 64' RT	SIG-BUR	RAMSEY COUNTY		X		③
40+13	64' RT	SIG-HH	RAMSEY COUNTY		X		③
MINNAVE							
12+51	14' RT	SIG-HH	RAMSEY COUNTY		X		③
12+51 - 13+72	14' RT - 15' RT	SIG-BUR	RAMSEY COUNTY		X		③
13+72	15' RT	SIG-HH	RAMSEY COUNTY		X		③
13+72 - 13+83	15' RT - 20' RT	SIG-BUR	RAMSEY COUNTY		X		③
13+83	20' RT	SIG-HH	RAMSEY COUNTY		X		③
13+83 - 13+89	20' RT - 36' RT	SIG-BUR	RAMSEY COUNTY		X		③
13+89	36' RT	SIG-L	RAMSEY COUNTY		X		③
13+83 - 1391	20' RT - 49' LT	SIG-BUR	RAMSEY COUNTY		X		③
13+91	49' LT	SIG-HH	RAMSEY COUNTY		X		③
13+91 - 13+81	35' LT - 49' LT	SIG-BUR	RAMSEY COUNTY		X		③
13+81	35' LT	SIG-L	RAMSEY COUNTY		X		③
13+81 - 14+46	35' LT - 52' LT	SIG-BUR	RAMSEY COUNTY		X		③
14+46	52' LT	SIG-HH	RAMSEY COUNTY		X		③
14+46 - 14+70	52' LT - 39' LT	SIG-BUR	RAMSEY COUNTY		X		③
14+70	39' LT	SIG-HH	RAMSEY COUNTY		X		③
14+70 - 14+49	39' LT - 49' LT	SIG-BUR	RAMSEY COUNTY		X		③
14+49	49' LT	SIG-L	RAMSEY COUNTY		X		③
14+70 - 14+59	39' LT - 54' LT	SIG-BUR	RAMSEY COUNTY		X		③
14+59	54' LT	SIG-BOX	RAMSEY COUNTY		X		③
14+59 - 14+64	54' LT - 31' LT	SIG-BUR	RAMSEY COUNTY		X		③
14+64	31' LT	SIG-HH	RAMSEY COUNTY		X		③
14+64 - 15+87	31' LT - 26' LT	SIG-BUR	RAMSEY COUNTY		X		③
15+87	26' LT	SIG-HH	RAMSEY COUNTY		X		③
14+64 - 14+71	31' LT - 24' RT	SIG-BUR	RAMSEY COUNTY		X		③
14+71	24' RT	SIG-HH	RAMSEY COUNTY		X		③
14+71 - 14+67	24' RT - 30' RT	SIG-BUR	RAMSEY COUNTY		X		③
14+67	30' RT	SIG-L	RAMSEY COUNTY		X		③

NOTE:

③ UTILITY WORK SHALL BE DONE BY THE CONTRACTOR. SEE SIGNAL PLANS.

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY OTHERS UNLESS NOTED.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE, CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.

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

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO. **32**
 RAMSP108790
 UT6 OF UT15
534

3/28/41 PM

5/6/2010

kerickson

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ut1 - ut13

S FIBER							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
TH36EB							
247+70 - 255+40	75' RT - 83' RT	F/O-BUR	Mn/DOT			X	
255+40 - 259+12	83' RT - 123' RT	F/O-BUR	Mn/DOT	X			②
259+12 - 261+62	123' RT - 78' RT	F/O-BUR	Mn/DOT	X			②
261+62 - 264+57	78' RT - 93' RT	F/O-BUR	Mn/DOT	X			②
264+57 - 269+75	93' RT - 223' RT	F/O-BUR	Mn/DOT	X			②
269+75 - 272+38	223' RT - 225' RT	F/O-BUR	Mn/DOT	X			②
272+38 - 283+49	225' RT - 77' RT	F/O-BUR	Mn/DOT	X			②
283+49 - 285+94	77' RT - 79' RT	F/O-BUR	Mn/DOT	X			②
285+94 - 288+16	79' RT - 174' LT	F/O-BUR	Mn/DOT	X			②
TH36WB							
245+63 - 255+60	55' LT - 41' LT	F/O-BUR	Mn/DOT			X	ABANDON
255+60 - 264+43	41' LT - 54' LT	F/O-BUR	Mn/DOT			X	ABANDON
264+43 - 271+17	54' LT - 98' LT	F/O-BUR	Mn/DOT			X	ABANDON
271+17 - 278+29	98' LT - 35' LT	F/O-BUR	Mn/DOT			X	ABANDON
278+29 - 284+03	35' LT - 44' LT	F/O-BUR	Mn/DOT			X	ABANDON
284+03 - 291+53	44' LT - 55' LT	F/O-BUR	Mn/DOT			X	ABANDON
288+16 - 291+63	110' LT - 116' LT	F/O-BUR	Mn/DOT			X	ABANDON
NB-RICE							
10+00 - 10+19	64' LT	F/O-OH	VERIZON	X			
10+19 - 11+48	64' LT - 62' LT	F/O-OH	VERIZON	X			
11+48 - 13+16	62' LT - 61' LT	F/O-OH	VERIZON	X			
13+16 - 14+60	61' LT - 65' LT	F/O-OH	VERIZON	X			
14+60 - 16+03	65' LT - 76' LT	F/O-OH	VERIZON	X			
16+03 - 17+52	76' LT - 87' LT	F/O-OH	VERIZON	X			
17+52 - 19+35	87' LT - 107' LT	F/O-OH	VERIZON	X			
19+35 - 21+15	107' LT - 117' LT	F/O-OH	VERIZON	X			
21+15 - 24+26	117' LT - 116' LT	F/O-OH	VERIZON	X			
24+26 - 25+33	116' LT - 102' LT	F/O-OH	VERIZON	X			
25+33 - 26+22	102' LT - 84' LT	F/O-OH	VERIZON	X			
26+22 - 27+71	84' LT - 75' LT	F/O-OH	VERIZON	X			
27+71 - 29+11	75' LT - 57' LT	F/O-OH	VERIZON	X			
29+11 - 30+84	57' LT - 59' LT	F/O-OH	VERIZON	X			
30+84 - 32+36	59' LT - 59' LT	F/O-OH	VERIZON	X			
32+36 - 34+19	59' LT - 62' LT	F/O-OH	VERIZON	X			
34+19 - 35+39	62' LT - 63' LT	F/O-OH	VERIZON	X			
35+39 - 36+87	63' LT - 62' LT	F/O-OH	VERIZON	X			
36+87 - 38+32	62' LT - 66' LT	F/O-OH	VERIZON	X			
38+32 - 39+94	66' LT - 62' LT	F/O-OH	VERIZON	X			
38+32 - 39+94	66' LT - 62' LT	F/O-OH	COMCAST	X			
39+94 - 41+33	62' LT - 55' LT	F/O-OH	VERIZON	X			
39+94 - 41+33	62' LT - 55' LT	F/O-OH	COMCAST	X			
41+33 - 42+60	55' LT - 53' LT	F/O-OH	VERIZON	X			
41+33 - 42+60	55' LT - 53' LT	F/O-OH	COMCAST	X			
42+60 - 43+85	53' LT - 59' LT	F/O-OH	VERIZON	X			
42+60 - 43+85	53' LT - 59' LT	F/O-OH	COMCAST	X			
43+85 - 45+16	59' LT - 54' LT	F/O-OH	VERIZON	X			
43+85 - 45+16	59' LT - 54' LT	F/O-OH	COMCAST	X			
45+16 - 46+74	54' LT - 52' LT	F/O-OH	VERIZON	X			
45+16 - 46+74	54' LT - 52' LT	F/O-OH	COMCAST	X			
46+74 - 48+35	52' LT - 49' LT	F/O-OH	VERIZON	X			
46+74 - 48+35	52' LT - 49' LT	F/O-OH	COMCAST	X			
48+35 - 49+97	49' LT - 47' LT	F/O-OH	VERIZON	X			
48+35 - 49+97	49' LT - 47' LT	F/O-OH	COMCAST	X			
49+97 - 51+23	47' RT - 46' LT	F/O-OH	VERIZON	X			
49+97 - 51+23	47' LT - 46' LT	F/O-OH	COMCAST	X			

S FIBER							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
EBCRB							
30+00 - 31+11	34' RT	F/O-OH	COMCAST	X			
31+11 - 32+48	34' RT	F/O-OH	COMCAST	X			
32+48 - 33+68	34' RT - 35' RT	F/O-OH	COMCAST	X			
33+68 - 34+98	35' RT - 42' RT	F/O-OH	COMCAST	X			
34+98 - 36+35	42' RT - 47' RT	F/O-OH	COMCAST	X			
36+35 - 37+81	47' RT - 49' RT	F/O-OH	COMCAST	X			
37+81 - 39+05	49' RT - 44' RT	F/O-OH	COMCAST	X			
39+05 - 39+32	44' RT - 49' RT	F/O-OH	COMCAST	X			
39+32 - 40+22	49' RT - 45' RT	F/O-OH	COMCAST	X			
40+22 - 41+67	45' RT - 48' RT	F/O-OH	COMCAST	X			
41+67 - 43+27	48' RT - 47' RT	F/O-OH	COMCAST	X			
43+27 - 44+78	47' RT - 37' RT	F/O-OH	COMCAST	X			
44+78 - 46+40	37' RT - 31' RT	F/O-OH	COMCAST	X			
46+40 - 47+93	31' RT - 28' RT	F/O-OH	COMCAST	X			
47+93 - 49+42	28' RT	F/O-OH	COMCAST	X			
49+42 - 50+85	28' RT - 26' RT	F/O-OH	COMCAST	X			
CRB2							
8+00 - 19+82	20' RT - 17' RT	F/O-BUR	ACCESS COMMUNICATIONS	X			
13+84 - 14+97	38' RT - 32' RT	F/O-OH	COMCAST	X			
14+97 - 16+40	32' RT - 29' RT	F/O-OH	COMCAST	X			
16+40 - 17+20	29' RT - 25' RT	F/O-OH	COMCAST	X			
17+20 - 18+49	25' RT - 20' RT	F/O-OH	COMCAST	X			
18+49 - 20+32	20' RT	F/O-OH	COMCAST	X			
19+82 - 19+80	17' RT - 32' LT	F/O-BUR	ACCESS COMMUNICATIONS			X	
19+80 - 20+86	32' LT - 34' LT	F/O-BUR	ACCESS COMMUNICATIONS			X	

NOTE:

- ② UTILITY WORK SHALL BE DONE BY THE CONTRACTOR. SEE TRAFFIC MANAGEMENT PLANS.

GENERAL NOTES:

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

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO. **33**
 RAMSP108790
 UT7
 OF UT15 **534**

3/28/42 PM

5/6/2010

kerickson

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ut1 - ut13

S GAS							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
NWRAMP							
41+97 - 47+30	230' RT - 280' RT	GAS	XCEL ENERGY			X	
NERAMP							
10+00 - 18+60	60' RT - 214' RT	GAS	XCEL ENERGY	X			
14+20 - 18+60	28' RT - 200' RT	GAS	XCEL ENERGY	X			
NB-RICE							
10+00 - 17+60	27' RT - 5' RT	GAS	XCEL ENERGY	X			
10+00 - 16+18	47' LT - 56' LT	GAS	XCEL ENERGY	X			
10+00 - 15+97	62' LT - 65' LT	GAS	XCEL ENERGY	X			
11+09 - 11+10	56' LT - 115' LT	GAS	XCEL ENERGY	X			
11+57 - 11+58	54' LT - 101' LT	GAS	XCEL ENERGY	X			
11+63 - 11+60	54' LT - 82' RT	GAS	XCEL ENERGY	X			
12+84	52' LT - 98' LT	GAS	XCEL ENERGY	X			
13+54	53' LT - 104' LT	GAS	XCEL ENERGY	X			
14+18 - 14+16	55' LT - 99' LT	GAS	XCEL ENERGY	X			
15+86 - 15+82	64' LT - 116' LT	GAS	XCEL ENERGY	X			
15+97 - 18+09	65' LT - 145' LT	GAS	XCEL ENERGY	X			
15+97 - 16+06	65' LT - 77' RT	GAS	XCEL ENERGY	X			
16+18 - 17+72	56' LT - 88' LT	GAS	XCEL ENERGY	X			
17+21	86' LT	GAS MH	XCEL ENERGY	X			
17+21 - 17+25	86' LT - 14' LT	GAS	XCEL ENERGY	X			
17+25 - 17+66	14' LT - 17' LT	GAS	XCEL ENERGY	X			
17+60 - 18+72	5' RT - 29' RT	GAS	XCEL ENERGY	X			
17+72 - 19+58	88' LT - 82' LT	GAS	XCEL ENERGY		X		
18+72 - 18+68	29' RT - 77' LT	GAS	XCEL ENERGY	X			
19+58 - 25+04	82' LT - 96' LT	GAS	XCEL ENERGY		X		
25+04 - 25+66	96' LT - 55' LT	GAS	XCEL ENERGY		X		
25+60 - 31+33	56' LT - 43' LT	GAS	XCEL ENERGY		X		
26+60 - 27+02	132' RT - 14' RT	GAS	XCEL ENERGY	X			
27+02 - 30+32	14' RT - 21' RT	GAS	XCEL ENERGY	X			
28+85 - 29+02	45' LT - 110' LT	GAS	XCEL ENERGY	X			
31+33 - 35+77	43' LT - 47' LT	GAS	XCEL ENERGY		X		
31+45 - 36+62	62' RT - 57' RT	GAS	XCEL ENERGY	X			
31+66	50' LT	GAS VALVE	XCEL ENERGY	X			
31+66 - 31+74	50' LT - 15' RT	GAS	XCEL ENERGY	X			
31+74 - 31+47	15' RT - 16' RT	GAS	XCEL ENERGY	X			
35+77 - 50+81	47' LT - 37' LT	GAS	XCEL ENERGY		X		
40+78 - 40+80	43' LT - 186' LT	GAS	XCEL ENERGY	X			
42+19 - 42+62	43' LT - 152' LT	GAS	XCEL ENERGY	X			
43+00	44' LT - 25' LT	GAS	XCEL ENERGY	X			
43+00	25' LT	GAS VALVE	XCEL ENERGY	X			
43+00	25' LT - 5' LT	GAS	XCEL ENERGY	X			
43+00	5' LT	GAS VALVE	XCEL ENERGY	X			
43+00 - 42+98	5' LT - 162' RT	GAS	XCEL ENERGY	X			
43+43 - 43+49	44' LT - 166' LT	GAS	XCEL ENERGY	X			
44+57 - 45+71	24' RT - 38' RT	GAS	XCEL ENERGY	X			
49+02	41' LT - 71' LT	GAS	XCEL ENERGY	X			
49+24 - 49+20	40' LT - 155' RT	GAS	XCEL ENERGY	X			
EBCRB							
30+80 - 39+3	17' RT - 29' RT	GAS	XCEL ENERGY	X			
30+80 - 38+79	24' LT - 12' LT	GAS	XCEL ENERGY	X			
31+16 - 31+04	24' LT - 61' RT	GAS	XCEL ENERGY	X			
32+94	23' LT - 66' RT	GAS	XCEL ENERGY	X			
34+13 - 34+04	20' LT - 220' RT	GAS	XCEL ENERGY	X			
34+11 - 36+17	37' RT - 51' RT	GAS	XCEL ENERGY	X			
34+09 - 34+48	72' RT - 74' RT	GAS	XCEL ENERGY			X	
36+56	13' LT - 76' RT	GAS	XCEL ENERGY	X			
37+59	12' LT - 69' RT	GAS	XCEL ENERGY	X			
37+92	12' LT - 70' RT	GAS	XCEL ENERGY	X			
40+03 - 50+85	40' RT - 18' RT	GAS	XCEL ENERGY	X			
40+53 - 50+80	44' RT - 28' RT	GAS	XCEL ENERGY	X			
MINNAVE							
10+00 - 13+89	14' RT - 12' RT	GAS	XCEL ENERGY	X			

S GAS							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
13+89							
10+10 - 10+12	12' RT	GAS VALVE	XCEL ENERGY	X			
10+70 - 10+69	14' RT - 63' LT	GAS	XCEL ENERGY	X			
10+94	13' RT - 58' RT	GAS	XCEL ENERGY	X			
11+74 - 11+72	13' RT - 66' RT	GAS	XCEL ENERGY	X			
11+76 - 11+55	13' RT - 139' RT	GAS	XCEL ENERGY	X			
12+08 - 12+20	13' RT - 105' LT	GAS	XCEL ENERGY	X			
12+59	13' RT - 144' LT	GAS	XCEL ENERGY	X			
12+95 - 12+96	13' RT - 90' RT	GAS	XCEL ENERGY	X			
14+54 - 18+54	12' RT - 129' RT	GAS	XCEL ENERGY	X			
14+92 - 14+56	35' LT - 12' LT	GAS	XCEL ENERGY	X			
16+30 - 16+24	35' LT - 78' RT	GAS	XCEL ENERGY	X			
16+75 - 16+42	28' LT - 85' RT	GAS	XCEL ENERGY	X			
17+15 - 17+12	26' LT - 190' LT	GAS	XCEL ENERGY			X	
17+85 - 17+86	21' LT - 181' LT	GAS	XCEL ENERGY			X	
17' LT - 158' RT	17' LT - 158' RT	GAS	XCEL ENERGY			X	
CRB2							
8+09 - 12+56	15' LT - 27' LT	GAS	XCEL ENERGY	X			
12+56	27' LT - 18' RT	GAS	XCEL ENERGY	X			
12+56 - 13+69	18' RT - 19' RT	GAS	XCEL ENERGY	X			
13+69	19' RT	GAS VALVE	XCEL ENERGY	X			
13+69 - 14+01	19' RT	GAS	XCEL ENERGY	X			
12+31 - 20+86	31' LT - 40' LT	GAS	XCEL ENERGY	X			
8+97 - 8+96	19' LT - 49' RT	GAS	XCEL ENERGY	X			
10+04 - 10+02	23' LT - 61' RT	GAS	XCEL ENERGY	X			
10+18 - 10+17	23' LT - 60' RT	GAS	XCEL ENERGY	X			
10+27 - 10+30	24' LT - 138' LT	GAS	XCEL ENERGY	X			
11+68	27' LT - 175' LT	GAS	XCEL ENERGY	X			
11+93 - 11+95	27' LT - 68' RT	GAS	XCEL ENERGY	X			
18+92	39' LT - 85' LT	GAS	XCEL ENERGY			X	
20+22	40' LT - 48' LT	GAS	XCEL ENERGY			X	
20+22	48' LT	GAS VALVE	XCEL ENERGY			X	
20+22 - 20+21	48' LT - 145' LT	GAS	XCEL ENERGY			X	

S TELEVISION							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
NBRICE							
10+00 - 10+19	64' LT	TEL-OH	COMCAST	X			
10+19 - 11+48	64' LT - 61' LT	TEL-OH	COMCAST	X			
11+48 - 13+16	61' LT	TEL-OH	COMCAST	X			
13+16 - 14+60	61' LT - 65' LT	TEL-OH	COMCAST	X			
14+60 - 16+03	65' LT - 76' LT	TEL-OH	COMCAST	X			
16+03 - 17+52	76' LT - 87' LT	TEL-OH	COMCAST	X			
22+71 - 29+11	75' LT - 57' LT	TEL-OH	COMCAST	X			
29+11 - 30+86	57' LT - 53' LT	TEL-OH	COMCAST	X			
30+86 - 32+36	53' LT - 59' LT	TEL-OH	COMCAST	X			

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY OTHERS UNLESS NOTED.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE, CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.

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

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO. **34**
 RAMSP08790
 UT8
 OF UT15 **534**

3/28/43 PM

5/6/2010

kerickson

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UT1 - ut13

S TELEVISION							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
34+16 - 34+19	162' LT - 62' LT	TEL-OH	COMCAST	X			
32+36 - 34+19	53' LT - 62' LT	TEL-OH	COMCAST	X			
34+19 - 35+39	62' LT - 63' LT	TEL-OH	COMCAST	X			
35+39 - 36+87	63' LT - 62' LT	TEL-OH	COMCAST	X			
38+37 - 38+32	119' LT - 66' LT	TEL-OH	COMCAST	X			
36+87 - 38+32	62' LT - 66' LT	TEL-OH	COMCAST	X			
38+32 - 39+94	66' LT - 62' LT	TEL-OH	COMCAST	X			
39+94 - 41+32	62' LT - 55' LT	TEL-OH	COMCAST	X			
41+20	166' LT	POLE	COMCAST			X	
41+20 - 41+32	166' LT - 55' LT	TEL-OH	COMCAST	X			
41+32 - 42+60	55' LT - 53' LT	TEL-OH	COMCAST	X			
42+60 - 43+85	53' LT - 59' LT	TEL-OH	COMCAST	X			
43+85 - 45+16	59' LT - 54' LT	TEL-OH	COMCAST	X			
45+16 - 46+74	54' LT - 52' LT	TEL-OH	COMCAST	X			
46+74 - 48+35	52' LT - 49' LT	TEL-OH	COMCAST	X			
47+20 - 47+18	360' LT - 66' LT	TEL-OH	COMCAST	X			
47+18 - 51+07	66' LT - 65' LT	TEL-OH	COMCAST	X			
48+35 - 49+97	49' LT - 47' LT	TEL-OH	COMCAST	X			
49+97	140' LT - 47' LT	TEL-OH	COMCAST	X			
49+97 - 51+23	47' LT - 46' LT	TEL-OH	COMCAST			X	
EBCRB							
30+00 - 31+11	36' RT - 34' RT	TEL-OH	COMCAST	X			
31+11 - 32+48	34' RT	TEL-OH	COMCAST	X			
32+48 - 33+68	34' RT - 35' RT	TEL-OH	COMCAST	X			
33+68 - 34+98	35' RT - 42' RT	TEL-OH	COMCAST	X			
34+98 - 34+22	42' RT - 152' RT	TEL-OH	COMCAST	X			
34+98 - 36+36	42' RT - 46' RT	TEL-OH	COMCAST	X			
36+36 - 37+82	46' RT - 48' RT	TEL-OH	COMCAST	X			
37+8 - 39+05	48' RT - 44' RT	TEL-OH	COMCAST	X			
39+05 - 39+32	44' RT - 49' RT	TEL-OH	COMCAST	X			
40+22 - 41+67	45' RT - 47' RT	TEL-OH	COMCAST	X			
41+67 - 43+27	47' RT	TEL-OH	COMCAST	X			
43+27 - 44+77	47' RT - 37' RT	TEL-OH	COMCAST	X			
44+77 - 46+40	37' RT - 31' RT	TEL-OH	COMCAST	X			
46+40 - 47+93	31' RT - 28' RT	TEL-OH	COMCAST	X			
47+93 - 49+42	28' RT	TEL-OH	COMCAST	X			
49+42 - 50+85	28' RT - 30' RT	TEL-OH	COMCAST	X			
MINNAVE							
10+00 - 10+18	22' RT	TEL-OH	COMCAST	X			
10+18 - 11+77	22' RT - 22' RT	TEL-OH	COMCAST	X			
11+77 - 12+65	22' RT - 25' RT	TEL-OH	COMCAST	X			
12+65 - 13+35	25' RT - 24' RT	TEL-OH	COMCAST	X			
13+35 - 13+77	24' RT - 23' RT	TEL-OH	COMCAST	X			
13+77 - 15+25	23' RT - 22' RT	TEL-OH	COMCAST	X			
15+25 - 16+56	22' RT - 29' RT	TEL-OH	COMCAST	X			
16+56 - 16+62	29' RT - 129' RT	TEL-OH	COMCAST	X			
16+56 - 18+03	27' RT - 31' RT	TEL-OH	COMCAST	X			
CRB2							
9+10 - 10+45	28' RT	TEL-OH	COMCAST	X			
10+45 - 11+60	28' RT - 29' RT	TEL-OH	COMCAST	X			
11+60 - 12+55	29' RT	TEL-OH	COMCAST	X			
12+55 - 13+85	25' RT - 42' RT	TEL-OH	COMCAST	X			
13+85 - 14+97	42' RT - 36' RT	TEL-OH	COMCAST	X			
14+97 - 16+35	36' RT - 29' RT	TEL-OH	COMCAST	X			
16+35 - 17+21	29' RT - 24' RT	TEL-OH	COMCAST	X			
17+21 - 18+49	24' RT - 20' RT	TEL-OH	COMCAST	X			
18+49 - 20+34	20' RT - 19' RT	TEL-OH	COMCAST			X	
20+34 - 20+39	20' RT - 45' LT	TEL-OH	COMCAST			X	
20+39 - 19+91	45' LT - 81' LT	TEL-OH	COMCAST			X	

S TELEPHONE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
NERAMP							
10+00 - 16+85	98' RT - 155' RT	T-BUR	QWEST			X	
10+00 - 18+60	103' RT - 218' RT	T-BUR	QWEST			X	
16+85 - 17+07	155' RT - 306' RT	T-BUR	QWEST			X	
NBRICE							
10+00 - 11+28	5' RT - 21' RT	T-BUR	QWEST	X			
10+00 - 11+28	9' RT - 15' RT	T-BUR	QWEST	X			
10+00 - 11+28	13' RT - 18' RT	T-BUR	QWEST	X			
11+28	15' RT	MH/VAULT	QWEST	X			
11+28	18' RT - 160' RT	T-BUR	QWEST	X			
11+28 - 12+23	9' RT - 32' RT	T-BUR	QWEST	X			
11+28 - 12+23	15' RT - 32' RT	T-BUR	QWEST	X			
11+28 - 12+23	18' RT - 32' RT	T-BUR	QWEST	X			
12+23	32' RT	MH/VAULT	QWEST	X			
12+23 - 17+52	32' RT - 12' LT	T-BUR	QWEST	X			
12+23 - 21+18	32' RT - 7' LT	T-BUR	QWEST	X			
17+52	12' LT	MH/VAULT	QWEST	X			
17+52 - 21+44	12' LT - 22' LT	T-BUR	QWEST	X			
17+52 - 21+44	12' LT - 17' LT	T-BUR	QWEST	X			
21+18 - 27+61	7' LT - 59' RT	T-BUR	QWEST	X			
21+44 - 27+56	22' LT - 30' RT	T-BUR	QWEST	X			
21+44 - 27+56	17' LT - 30' RT	T-BUR	QWEST	X			
26+87 - 27+10	100' RT - 13' RT	T-BUR	QWEST	X			
27+10 - 30+77	13' RT - 28' RT	T-BUR	QWEST	X			
27+23 - 27+56	159' LT - 30' RT	T-BUR	QWEST	X			
27+56	30' RT	MH/VAULT	QWEST	X			
27+56 - 27+61	30' RT - 59' RT	T-BUR	QWEST	X			
27+56 - 29+85	30' RT	T-BUR	QWEST	X			
27+61	59' RT	CABINET	QWEST	X			
27+61 - 29+82	59' RT - 34' RT	T-BUR	QWEST	X			
29+82 - 31+42	34' RT - 70' RT	T-BUR	QWEST	X			
29+85 - 30+73	30' RT - 68' RT	T-BUR	QWEST	X			
30+73 - 31+66	68' RT - 10' RT	T-BUR	QWEST	X			
31+42 - 31+80	70' RT - 13' RT	T-BUR	QWEST	X			
31+66	10' RT	MH/VAULT	QWEST	X			
31+66 - 37+70	10' RT - 14' RT	T-BUR	QWEST	X			
31+80 - 36+97	13' RT - 19' RT	T-BUR	QWEST	X			
36+97	19' RT	MH/VAULT	QWEST	X			
36+97 - 43+46	19' RT - 25' RT	T-BUR	QWEST	X			
37+70	14' RT	MH/VAULT	QWEST	X			
37+70 - 40+76	14' RT - 19' RT	T-BUR	QWEST	X			
37+70 - 44+90	14' RT - 16' RT	T-BUR	QWEST	X			
39+16 - 40+54	28' RT - 33' RT	T-BUR	QWEST	X			

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

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DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO.	35
RAMSP108790	
UT9	
OF UT15	534

3/28/45 PM

5/6/2010

kerickson

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ut1 - ut13

S TELEPHONE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
40+54 - 40+50	33' RT - 135' RT	T-BUR	QWEST	X			
40+70	36' RT	T-PED	QWEST	X			
40+73 - 40+70	187' LT - 36' RT	T-BUR	QWEST	X			
40+77 - 40+70	187' LT - 36' RT	T-BUR	QWEST	X			
40+70 - 43+46	36' RT - 25' RT	T-BUR	QWEST	X			
40+70 - 43+46	36' RT - 25' RT	T-BUR	QWEST	X			
42+44 - 43+98	63' LT - 85' LT	T-BUR	QWEST	X			
43+46	25' RT	MH/VAULT	QWEST	X			
43+46 - 51+82	25' RT - 18' RT	T-BUR	QWEST	X			
44+90	16' RT	MH/VAULT	QWEST	X			
44+90 - 51+82	16' RT	T-BUR	QWEST	X			
46+90	13' RT - 217' RT	T-BUR	QWEST	X			
46+90 - 50+53	13' RT - 47' RT	T-BUR	QWEST	X			
47+29 - 47+25	45' RT - 214' RT	T-BUR	QWEST	X			
48+06 - 48+01	45' RT - 215' RT	T-BUR	QWEST	X			
48+80 - 48+77	23' LT - 157' RT	T-BUR	QWEST	X			
50+14 - 50+10	47' RT - 170' RT	T-BUR	QWEST	X			
EBCRB							
30+00 - 38+93	31' RT - 42' RT	T-BUR	QWEST	X			
34+98 - 34+20	42' RT - 152' RT	T-BUR	QWEST	X			
38+93 - 38+74	42' RT - 90' RT	T-BUR	QWEST	X			
40+07 - 50+60	54' RT - 22' RT	T-BUR	QWEST	X			
40+07 - 50+60	54' RT - 25' RT	T-BUR	QWEST	X			
40+07 - 50+60	54' RT - 28' RT	T-BUR	QWEST	X			
40+07 - 50+60	54' RT - 31' RT	T-BUR	QWEST	X			
MINNAVE							
10+00 - 10+69	27' LT - 29' LT	T-BUR	QWEST	X			
10+00 - 13+92	31' LT	T-BUR	QWEST	X			
10+00 - 10+69	30' RT	T-BUR	QWEST	X			
10+69 - 12+65	30' LT - 25' RT	T-PED	QWEST	X			
10+69 - 10+78	29' LT - 79' LT	T-BUR	QWEST	X			
11+75	26' RT	T-PED	QWEST	X			
11+75 - 11+73	26' RT - 138' RT	T-BUR	QWEST	X			
12+65	25' RT	T-PED	QWEST	X			
12+65 - 13+82	25' RT - 32' RT	T-BUR	QWEST	X			
12+65 - 12+65	25' RT - 162' RT	T-BUR	QWEST	X			
12+65 - 17+22	25' RT - 35' RT	T-BUR	QWEST	X			
13+92							
14+49 - 15+02	56' LT - 23' RT	T-BUR	QWEST	X			
14+49 - 15+01	56' LT - 26' RT	T-BUR	QWEST	X			
14+49 - 14+99	56' LT - 28' RT	T-BUR	QWEST	X			
14+64 - 17+22	33' RT - 35' RT	T-BUR	QWEST	X			
14+99 - 16+65	56' LT - 70' RT	T-BUR	QWEST	X			
15+01 - 16+69	26' RT - 65' RT	T-BUR	QWEST	X			
16+65 - 17+22	70' RT - 35' RT	T-BUR	QWEST	X			
16+69 - 16+95	65' RT - 56' LT	T-BUR	QWEST	X			
15+02 - 17+03	23' RT - 50' RT	T-BUR	QWEST	X			
16+50 - 16+86	48' RT - 75' RT	T-BUR	QWEST	X			
16+86 - 16+91	75' RT - 65' LT	T-BUR	QWEST	X			
16+86 - 17+03	75' RT - 50' RT	T-BUR	QWEST	X			
17+03	50' RT	T-HH	QWEST	X			
17+20 - 17+22	114' RT - 35' RT	T-BUR	QWEST	X			
17+22	35' RT	T-PED	QWEST	X			
17+22 - 17+94	35' RT - 40' RT	T-BUR	QWEST	X			
17+22 - 17+91	35' RT - 288' RT	T-BUR	QWEST	X			
CRB2							
8+00 - 10+54	28' LT - 29' LT	T-BUR	QWEST	X			
8+00 - 9+40	27' RT	T-BUR	QWEST	X			
9+40	27' RT	T-PED	QWEST	X			
9+40 - 13+58	27' RT - 29' RT	T-BUR	QWEST	X			
10+50	29' LT	T-PED	QWEST	X			

S TELEPHONE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
10+54	29' LT - 144' LT	T-BUR	QWEST	X			
10+54 - 10+56	29' LT - 144' LT	T-BUR	QWEST	X			
12+54 - 12+32	29' RT - 77' RT	T-BUR	QWEST	X			
14+59 - 17+48	62' LT - 31' LT	T-BUR	QWEST	X			
14+59 - 17+84	62' LT - 28' LT	T-BUR	QWEST	X			
17+84 - 20+43	28' LT - 68' LT	T-BUR	QWEST	X			
17+48 - 20+43	31' LT - 68' LT	T-BUR	QWEST	X			
14+72	75' RT - 37' RT	T-BUR	QWEST	X			
14+72 - 20+86	37' RT - 23' RT	T-BUR	QWEST	X			
17+42 - 17+50	103' LT - 33' LT	T-BUR	QWEST	X			
17+50 - 20+43	33' LT - 68' LT	T-BUR	QWEST	X			
17+49 - 17+59	52' RT - 31' RT	T-BUR	QWEST	X			
17+59 - 20+24	31' RT - 25' RT	T-BUR	QWEST	X			
17+80 - 17+77	90' RT - 29' LT	T-BUR	QWEST	X			
17+77 - 20+43	29' LT - 68' LT	T-BUR	QWEST	X			
20+24 - 20+43	25' RT - 68' LT	T-BUR	QWEST	X			
20+43	68' LT	T-PED	QWEST	X			
20+43 - 20+68	68' LT - 22' RT	T-BUR	QWEST	X			
20+68 - 20+86	22' RT	T-BUR	QWEST	X			

S WATERMAIN							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
NWRAMP							
41+97 - 42+79	189' RT - 194' RT	WM	CITY OF ROSEVILLE				X
42+79	194' RT	VALVE	CITY OF ROSEVILLE				X
42+79 - 43+44	194' RT - 198' RT	WM	CITY OF ROSEVILLE				X
43+44	198' RT	VALVE	CITY OF ROSEVILLE				X
43+44 - 43+43	198' RT - 211' RT	WM	CITY OF ROSEVILLE				X
43+43	211' RT	HYD	CITY OF ROSEVILLE				X
43+44 - 44+33	198' RT - 208' RT	WM	CITY OF ROSEVILLE				X
44+33	208' RT	VALVE	CITY OF ROSEVILLE				X
44+33 - 45+44	208' RT - 246' RT	WM	CITY OF ROSEVILLE				X
45+44	246' RT	HYD	CITY OF ROSEVILLE				X
45+44 - 49+27	246' RT - 287' RT	WM	CITY OF ROSEVILLE				X
46+60 - 46+66	262' RT - 441' RT	WM	CITY OF ROSEVILLE				X
46+66	441' RT	HYD	CITY OF ROSEVILLE				X
49+27	287' RT	VALVE	CITY OF ROSEVILLE				X
49+27 - 54+56	287' RT - 247' RT	WM	CITY OF ROSEVILLE				X
NERAMP							
10+00 - 14+78	94' RT - 59' RT	WM	CITY OF LITTLE CANADA				X
14+78	59' RT	HYD	CITY OF LITTLE CANADA				X
14+78 - 18+60	59' RT - 211' RT	WM	CITY OF LITTLE CANADA				X

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY OTHERS UNLESS NOTED.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE, CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.

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

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO. **36**
 RAMSP108790
 UT10
 OF UT15 **534**

3:28:46 PM

5/6/2010

kerickson

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ut1 - ut13

S WATERMAIN							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
NBRICE							
10+00 - 10+45	60' LT	WM	CITY OF ROSEVILLE			X	
10+00 - 17+41	50' LT - 68' LT	WM	CITY OF ROSEVILLE			X	④
10+47	63' LT	HYD	CITY OF ROSEVILLE			X	
10+47 - 13+61	63' LT - 59' LT	WM	CITY OF ROSEVILLE	X			
13+61	59' LT	HYD	CITY OF ROSEVILLE		X		⑤
13+61 - 17+52	59' LT - 80' LT	WM	CITY OF ROSEVILLE	X			
17+52	80' LT	HYD	CITY OF ROSEVILLE		X		⑤
17+52 - 18+09	80' LT - 103' LT	WM	CITY OF ROSEVILLE	X			
26+54 - 26+66	59' LT	WM	CITY OF ROSEVILLE	X			
26+60	87' LT	HYD	CITY OF ROSEVILLE		X		⑤
26+66	59' LT	VALVE	CITY OF ROSEVILLE	X			
26+66 - 31+07	59' LT - 55' LT	WM	CITY OF ROSEVILLE	X			
26+73 - 26+74	59' LT - 65' LT	WM	CITY OF ROSEVILLE	X			
26+74	65' LT	VALVE	CITY OF ROSEVILLE	X			
26+74 - 26+68	65' LT - 86' LT	WM	CITY OF ROSEVILLE	X			
26+68	86' LT - 106' LT	WM	CITY OF ROSEVILLE	X			
26+68	106' LT	VALVE	CITY OF ROSEVILLE	X			
26+68 - 26+74	106' LT - 254' LT	WM	CITY OF ROSEVILLE	X			
26+74 - 28+21	254' LT - 248' LT	WM	CITY OF ROSEVILLE	X			
27+10	7' RT	HYD	CITY OF LITTLE CANADA		X		⑤
27+10 - 27+22	7' RT - 8' RT	WM	CITY OF LITTLE CANADA	X			
27+22	8' RT	VALVE	CITY OF LITTLE CANADA	X			
27+22 - 30+79	8' RT - 15' RT	WM	CITY OF LITTLE CANADA	X			
28+21	248' LT	VALVE	CITY OF ROSEVILLE			X	
28+21 - 28+34	248' LT	WM	CITY OF ROSEVILLE			X	
28+34	248' LT	HYD	CITY OF ROSEVILLE			X	
30+79	15' RT	VALVE	CITY OF LITTLE CANADA	X			
31+07	55' LT	VALVE	CITY OF ROSEVILLE	X			
31+07 - 33+56	55' LT - 64' LT	WM	CITY OF ROSEVILLE	X			
30+79 - 31+32	15' RT - 16' RT	WM	CITY OF LITTLE CANADA	X			
31+32	16' RT	VALVE	CITY OF LITTLE CANADA	X			
31+32 - 32+14	16' RT - 18' RT	WM	CITY OF LITTLE CANADA	X			
32+14	18' RT	VALVE	CITY OF LITTLE CANADA	X			
32+14	18' RT - 87' RT	WM	CITY OF LITTLE CANADA	X			
33+56	64' LT	HYD	CITY OF ROSEVILLE	X			
33+56 - 36+27	64' LT - 68' LT	WM	CITY OF ROSEVILLE	X			
32+14 - 34+36	18' RT - 25' RT	WM	CITY OF LITTLE CANADA	X			
34+36	25' RT	HYD	CITY OF LITTLE CANADA		X		⑤
36+27	68' LT	VALVE	CITY OF ROSEVILLE	X			
36+27 - 37+42	68' LT	WM	CITY OF ROSEVILLE	X			
36+40	78' LT	VALVE	CITY OF ROSEVILLE	X			
36+40	68' LT - 240' LT	WM	CITY OF ROSEVILLE			X	
37+42	68' LT	VALVE	CITY OF ROSEVILLE	X			
37+42 - 37+60	68' LT	WM	CITY OF ROSEVILLE	X			
34+36 - 37+57	25' RT - 18' RT	WM	CITY OF LITTLE CANADA	X			
37+57	18' RT	HYD	CITY OF LITTLE CANADA	X			
37+60	68' LT	VALVE	CITY OF ROSEVILLE	X			
37+60 - 37+80	72' LT	WM	CITY OF ROSEVILLE	X			
37+80	72' LT	HYD	CITY OF ROSEVILLE		X		⑤
37+80 - 41+08	72' LT - 65' LT	WM	CITY OF ROSEVILLE	X			
41+08	65' LT	VALVE	CITY OF ROSEVILLE	X			
37+57 - 41+17	18' RT - 36' RT	WM	CITY OF LITTLE CANADA	X			
41+17	36' RT	HYD	CITY OF LITTLE CANADA	X			
41+08 - 43+89	65' LT - 64' LT	WM	CITY OF ROSEVILLE	X			
41+27	65' LT	HYD	CITY OF ROSEVILLE		X		⑤
41+08	65' LT - 255' LT	WM	CITY OF ROSEVILLE			X	
41+17 - 43+20	36' RT - 54' RT	WM	CITY OF LITTLE CANADA	X			
43+20	54' RT - 160' RT	WM	CITY OF LITTLE CANADA	X			
43+20 - 43+76	65' RT	WM	CITY OF LITTLE CANADA	X			
43+76	65' RT	HYD	CITY OF LITTLE CANADA	X			
43+89	64' LT	VALVE	CITY OF ROSEVILLE	X			
43+89 - 44+62	64' LT - 48' LT	WM	CITY OF ROSEVILLE	X			
43+76 - 43+88	65' RT - 53' RT	WM	CITY OF LITTLE CANADA	X			
43+88	53' RT	VALVE	CITY OF LITTLE CANADA	X			
44+62	48' LT	VALVE	CITY OF ROSEVILLE	X			
44+62 - 44+68	48' LT	WM	CITY OF ROSEVILLE	X			
43+88 - 44+60	53' RT - 30' RT	WM	CITY OF LITTLE CANADA	X			
44+60	30' RT	VALVE	CITY OF LITTLE CANADA	X			
44+68	48' LT	HYD	CITY OF ROSEVILLE		X		⑤
44+68 - 48+17	48' LT - 61' LT	WM	CITY OF ROSEVILLE	X			

S WATERMAIN							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
48+17	61' LT	HYD	CITY OF ROSEVILLE			X	
48+17 - 50+81	61' LT - 41' LT	WM	CITY OF ROSEVILLE	X			
44+60 - 49+08	30' RT - 45' RT	WM	CITY OF LITTLE CANADA	X			
49+08	45' RT	HYD	CITY OF LITTLE CANADA			X	
49+08 - 51+41	45' RT - 29' RT	WM	CITY OF LITTLE CANADA			X	
MINNAVE							
10+00 - 13+73	1' RT	WM	CITY OF ROSEVILLE	X			
13+73	1' RT	VALVE	CITY OF ROSEVILLE	X			
13+73	27' RT	HYD	CITY OF ROSEVILLE		X		⑤
14+51 - 14+75	9' RT - 10' RT	WM	CITY OF LITTLE CANADA	X			
14+75	10' RT	VALVE	CITY OF LITTLE CANADA	X			
14+75 - 15+05	10' RT - 11' RT	WM	CITY OF LITTLE CANADA	X			
15+05	11' RT	HYD	CITY OF LITTLE CANADA		X		⑤
15+05 - 18+14	11' RT - 22' RT	WM	CITY OF LITTLE CANADA	X			
18+14	22' RT	VALVE	CITY OF LITTLE CANADA			X	
18+14 - 18+77	22' RT	WM	CITY OF LITTLE CANADA			X	
18+23	22' RT - 48' LT	WM	CITY OF LITTLE CANADA			X	
18+23	14' RT	VALVE	CITY OF LITTLE CANADA			X	
18+33	22' RT - 63' RT	WM	CITY OF LITTLE CANADA			X	
18+33	63' RT	VALVE	CITY OF LITTLE CANADA			X	
18+77	22' RT	VALVE	CITY OF LITTLE CANADA			X	
18+77 - 18+86	22' RT	WM	CITY OF LITTLE CANADA			X	
18+86	22' RT	HYD	CITY OF LITTLE CANADA			X	
18+86 - 19+16	22' RT	WM	CITY OF LITTLE CANADA			X	
CRB2							
8+00 - 10+06	22' RT	WM	CITY OF ROSEVILLE	X			
10+06	22' RT	HYD	CITY OF ROSEVILLE	X			
10+06 - 12+52	22' RT	WM	CITY OF ROSEVILLE	X			
12+52	51' LT - 22' RT	WM	CITY OF ROSEVILLE	X			
12+52 - 13+68	22' RT - 27' RT	WM	CITY OF ROSEVILLE	X			
13+68	27' RT	VALVE	CITY OF ROSEVILLE	X			
20+43 - 20+48	63' LT - 49' LT	WM	CITY OF LITTLE CANADA			X	
20+48	49' LT	HYD	CITY OF LITTLE CANADA			X	
20+48 - 22+00	49' LT - 63' LT	WM	CITY OF LITTLE CANADA			X	
EB CRB							
30+80 - 31+71	17' LT - 27' LT	WM	CITY OF ROSEVILLE	X			
31+71	27' LT	HYD	CITY OF ROSEVILLE		X		⑤
31+71 - 34+11	27' LT - 14' LT	WM	CITY OF ROSEVILLE	X			
34+11	14' LT	VALVE	CITY OF ROSEVILLE	X			
34+11 - 35+85	14' LT - 22' LT	WM	CITY OF ROSEVILLE	X			
35+85	22' LT	HYD	CITY OF ROSEVILLE		X		⑤
35+85 - 38+67	22' LT - 8' LT	WM	CITY OF ROSEVILLE	X			
38+67	8' LT	VALVE	CITY OF ROSEVILLE	X			

NOTES:

④ ABANDONED

⑤ RELOCATE ENTIRELY OUTSIDE OF SIDEWALK

UTILITY	
CB	= CATCH BASIN
F/O	= FIBER OPTIC
GAS	= GASLINE
HH	= HAND HOLE
HYD	= HYDRANT
L	= LIGHTPOLE
MH	= MANHOLE
PP	= POWER POLE
P-BUR	= BURIED POWER
P-OH	= OVERHEAD POWER
PED	= PEDESTAL
SAN	= SANITARY SEWER
SIG-BUR	= BURIED SIGNAL POWER
SS	= STORM SEWER
T-BUR	= BURIED TELEPHONE
T-PED	= TELEPHONE PEDESTAL
L	= TELEPHONE PEDESTAL
TEL-OH	= OVERHEAD TELEVISION
TV-BUR	= BURIED TELEVISION
TV-OH	= OVERHEAD TELE LINE
WM	= WATERMAIN

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY THE CONTRACTOR PER THE PLANS.

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

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY
TABULATIONS

FILE NO.
RAMSP108790
UT11
OF UT15

37
534

3/28/17 PM

5/6/2010

kerickson

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SANITARY SEWER									
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	COST PART.	REMARKS	PAY ITEMS		PROPOSED ELEVATION	
						LEAVE AS IS	ADJUST FRAME & RING CASTING EACH		
TH36WB									
245+00 - 248+75	136' LT	SAN	CITY OF ROSEVILLE		X				
248+75	136' LT	SAN MH	CITY OF ROSEVILLE		X				
248+75 - 251+64	136' LT - 208' LT	SAN	CITY OF ROSEVILLE		X				
251+64	208' LT	SAN MH	CITY OF ROSEVILLE		X				
251+64 - 254+47	208' LT - 257' LT	SAN	CITY OF ROSEVILLE		X				
254+47	257' LT	SAN MH	CITY OF ROSEVILLE		X				
254+47 - 255+10	257' LT - 265' LT	SAN	CITY OF ROSEVILLE		X				
255+10	265' LT	SAN MH	CITY OF ROSEVILLE		X				
255+10 - 254+88	265' LT - 464' LT	SAN	CITY OF ROSEVILLE		X				
254+88 - 259+49	265' LT - 294' LT	SAN	CITY OF ROSEVILLE		X				
259+49	294' LT	SAN MH	CITY OF ROSEVILLE		X				
NWRAMP									
41+66	204' RT	SAN MH	CITY OF ROSEVILLE	B		1			
41+66 - 43+80	204' RT - 216' RT	SAN	CITY OF ROSEVILLE		X				
43+80	216' RT	SAN MH	CITY OF ROSEVILLE		X				
43+80 - 46+08	216' RT - 244' RT	SAN	CITY OF ROSEVILLE		X				
46+08	244' RT	SAN MH	CITY OF ROSEVILLE		X				
46+08 - 47+66	244' RT - 266' RT	SAN	CITY OF ROSEVILLE		X				
47+66	266' RT	SAN MH	CITY OF ROSEVILLE		X				
47+66 - 47+94	266' RT - 77' RT	SAN	CITY OF ROSEVILLE		X				
47+94	77' RT	SAN MH	CITY OF ROSEVILLE		X				
47+94 - 49+84	77' RT - 104' RT	SAN	CITY OF ROSEVILLE		X				
49+84	104' RT	SAN MH	CITY OF ROSEVILLE		X				
49+84 - 49+66	104' RT - 227' RT	SAN	CITY OF ROSEVILLE		X				
49+66	227' RT	SAN MH	CITY OF ROSEVILLE		X				
49+66 - 49+13	227' RT - 368' RT	SAN	CITY OF ROSEVILLE		X				
49+13	368' RT	SAN MH	CITY OF ROSEVILLE		X				
49+66 - 51+45	227' RT - 250' RT	SAN	CITY OF ROSEVILLE		X				
NERAMP									
10+00 - 12+09	83' RT	SAN	CITY OF LITTLE CANADA		X				
12+09	83' RT	SAN MH	CITY OF LITTLE CANADA		X				
12+09 - 14+96	83' RT - 44' RT	SAN	CITY OF LITTLE CANADA		X				
14+96	44' RT	SAN MH	CITY OF LITTLE CANADA		X				
14+96 - 15+07	44' RT - 91' RT	SAN	CITY OF LITTLE CANADA		X				
NB-RICE									
10+00 - 10+63	18' RT	SAN	CITY OF MAPLEWOOD		X				
10+63	18' RT	SAN MH	CITY OF MAPLEWOOD		X				
10+63 - 11+89	18' RT - 23' RT	SAN	CITY OF MAPLEWOOD		X				
11+89	23' RT	SAN MH	CITY OF MAPLEWOOD	C		1		923.36	
11+89 - 14+88	23' RT - 18' RT	SAN	CITY OF MAPLEWOOD		X				
11+89 - 11+96	23' RT - 280' RT	SAN	CITY OF MAPLEWOOD		X				
14+89	18' RT	SAN MH	CITY OF MAPLEWOOD	C		1		933.84	
14+89 - 17+36	18' RT - 4' RT	SAN	CITY OF MAPLEWOOD		X				
17+36	4' RT	SAN MH	CITY OF MAPLEWOOD				1.25	937.78	
17+36 - 17+89	4' RT - 39' RT	SAN	CITY OF MAPLEWOOD		X				
17+89	39' RT	SAN MH	CITY OF MAPLEWOOD	C		1		938.01	
29+09	26' RT	SAN MH	CITY OF LITTLE CANADA	C		1		955.58	
29+09 - 31+10	26' RT - 29' LT	SAN	CITY OF LITTLE CANADA		X				
31+10	29' RT	SAN MH	CITY OF LITTLE CANADA	C		1		959.60	
38+76	56' LT	SAN MH	CITY OF ROSEVILLE				1.59	970.50	
38+76 - 40+92	56' LT - 49' LT	SAN	CITY OF ROSEVILLE		X				
40+92	49' LT	SAN MH	CITY OF ROSEVILLE	C		1		971.55	
41+02 - 40+92	258' LT - 49' LT	SAN	CITY OF ROSEVILLE		X				
40+92 - 43+46	49' LT - 46' LT	SAN	CITY OF ROSEVILLE		X				
43+46	46' LT	SAN MH	CITY OF ROSEVILLE	C		1		972.28	
43+46 - 43+66	46' LT - 53' LT	SAN	CITY OF ROSEVILLE		X				
43+66	53' LT	SAN MH	CITY OF ROSEVILLE	C		1		972.02	
43+66 - 43+81	53' LT - 67' LT	SAN	CITY OF ROSEVILLE		X				
43+81 - 44+47	67' LT - 128' LT	SAN	CITY OF ROSEVILLE		X				
44+47	128' LT	SAN MH	CITY OF ROSEVILLE	C		1		970.04	
46+61	64' LT	SAN MH	CITY OF ROSEVILLE	C		1			

SANITARY SEWER									
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	COST PART.	REMARKS	PAY ITEMS		PROPOSED ELEVATION	
						LEAVE AS IS	ADJUST FRAME & RING CASTING EACH		
46+61 - 48+32	64' LT - 57' LT	SAN	CITY OF ROSEVILLE		X				
48+32	57' LT	SAN MH	CITY OF ROSEVILLE	C		1			
48+32 - 50+93	57' LT - 58' LT	SAN	CITY OF ROSEVILLE		X				
50+93	58' LT	SAN MH	CITY OF ROSEVILLE		X				
EBCRB									
30+00 - 33+75	22' RT - 24' RT	SAN	RAMSEY COUNTY		X				
33+75	24' RT	SAN MH	RAMSEY COUNTY	C		1		912.97	
33+75	24' RT - 100' RT	SAN	RAMSEY COUNTY		X				
33+75 - 34+06	24' RT - 25' RT	SAN	RAMSEY COUNTY		X				
34+06	25' RT	SAN MH	RAMSEY COUNTY	C		1		914.03	
34+06 - 37+66	25' RT - 35' RT	SAN	RAMSEY COUNTY		X				
37+66	35' RT	SAN MH	RAMSEY COUNTY	C			2.67	933.05	
33+66 - 38+81	35' RT - 32' RT	SAN	RAMSEY COUNTY		X				
38+81	32' RT	SAN MH	RAMSEY COUNTY	C			1.72	937.24	
MINNAVE									
14+62 - 16+71	3' LT - 8' RT	SAN	CITY OF LITTLE CANADA		X				
16+71	8' RT	SAN MH	CITY OF LITTLE CANADA	C		1		949.62	
16+71 - 18+45	8' RT - 2' RT	SAN	CITY OF LITTLE CANADA		X				
16+71 - 16+81	8' RT - 200' LT	SAN	CITY OF LITTLE CANADA		X				
18+47	2' RT	SAN MH	CITY OF LITTLE CANADA		X				
CRB2									
8+00	21' LT	SAN MH	CITY OF ROSEVILLE		X				
8+00 - 10+39	21' LT	SAN	CITY OF ROSEVILLE		X				
10+39 - 13+17	21' LT	SAN	CITY OF ROSEVILLE		X				
13+76 - 14+70	46' RT - 63' RT	SAN	CITY OF ROSEVILLE		X				
14+70	63' RT	SAN MH	CITY OF LITTLE CANADA	C		1		971.57	
14+70 - 16+12	63' RT - 95' RT	SAN	CITY OF LITTLE CANADA		X				
						16	7.23		

COST PARTICIPATION:

- B = RAMPS & RICE ST. STA. 19+00 - 30+00
- C = REMAINDER OF PROJECT :
RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
INFILTRATION BASINS
- D = STORM SEWER
- E = NON-PARTICIPATING CITY OF ROSEVILLE
- F = NON-PARTICIPATING CITY OF LITTLE CANADA

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY THE CONTRACTOR PER THE PLANS.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE, CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.

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

ADJUST SHALL BE PAID FOR BY 2506 "ADJUST FRAME AND RING CASTING". RECONSTRUCT SHALL BE PAID FOR BY 2506 "RECONSTRUCT DRAINAGE STRUCTURE".

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE UTILITY TABULATIONS

FILE NO.	38
RAMSP08790	
UT12	
OF UT15	534

3/28/14 PM

5/6/2010

kerickson

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INPLACE DRAINAGE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
NERAMP							
10+00 - 11+79	59' RT - 61' RT	SS	CITY OF LITTLE CANADA			X	
11+79	61' RT	CB	CITY OF LITTLE CANADA			X	
11+79 - 13+94	61' RT - 40' RT	SS	CITY OF LITTLE CANADA			X	
12+08 - 12+42	35' RT - 94' RT	SS	CITY OF LITTLE CANADA			X	
12+42	94' RT	MH	CITY OF LITTLE CANADA			X	
13+94	40' RT	CB	CITY OF LITTLE CANADA			X	
13+94 - 12+03	40' RT - 152' RT	SS	CITY OF LITTLE CANADA			X	
12+03	152' RT	CB	CITY OF LITTLE CANADA			X	
12+03 - 12+34	152' RT - 134' RT	SS	CITY OF LITTLE CANADA			X	
12+34	134' RT	CB	CITY OF LITTLE CANADA			X	
12+29	8' LT	CB	Mn/DOT		X		
12+29 - 12+30	8' LT - 12' RT	SS	Mn/DOT		X		
12+62 - 12+64	11' RT - 8' LT	SS	Mn/DOT		X		
12+64	8' LT	CB	Mn/DOT		X		
13+93 - 14+20	6' RT - 10' LT	SS	Mn/DOT		X		
14+20	10' LT	CB	Mn/DOT		X		
13+94 - 14+00	40' RT - 71' RT	SS	CITY OF LITTLE CANADA			X	
14+00	71' RT	CB	CITY OF LITTLE CANADA			X	
13+94 - 15+28	40' RT - 33' RT	SS	CITY OF LITTLE CANADA			X	
15+28	33' RT	CB	CITY OF LITTLE CANADA			X	
15+28 - 16+41	33' RT - 104' RT	SS	CITY OF LITTLE CANADA			X	
16+41	104' RT	CB	CITY OF LITTLE CANADA			X	
16+41 - 16+15	104' RT - 124' RT	SS	CITY OF LITTLE CANADA			X	
16+15	124' RT	CB	CITY OF LITTLE CANADA			X	
NWRAMP							
44+90	62' LT	CB	Mn/DOT		X		
44+90 - 44+96	62' LT - 8' LT	SS	Mn/DOT		X		
46+41	69' LT	CB	Mn/DOT		X		
46+41 - 46+42	69' LT - 16' LT	SS	Mn/DOT		X		
46+90 - 46+91	22' LT - 68' LT	SS	Mn/DOT		X		
46+91	68' LT	CB	Mn/DOT		X		
47+00	274' RT	CB	PRIVATE			X	
47+00 - 47+19	274' RT - 153' RT	SS	PRIVATE		X		
49+57 - 49+88	238' RT - 24' RT	SS	CITY OF ROSEVILLE		X		
49+57	238' RT	MH	CITY OF ROSEVILLE			X	
49+57 - 49+70	238' RT - 253' RT	SS	CITY OF ROSEVILLE			X	
49+70	253' RT	CB	CITY OF ROSEVILLE			X	
49+70 - 51+04	253' RT - 262' RT	SS	CITY OF ROSEVILLE			X	
51+04	262' RT	CB	CITY OF ROSEVILLE			X	
49+70 - 49+87	253' RT - 272' RT	SS	CITY OF ROSEVILLE			X	
49+87	272' RT	CB	CITY OF ROSEVILLE			X	
49+87 - 49+36	272' RT - 352' RT	SS	CITY OF ROSEVILLE			X	
49+36	352' RT	MH	CITY OF ROSEVILLE			X	
49+36 - 49+30	352' RT	SS	CITY OF ROSEVILLE			X	
49+30	352' RT	CB	CITY OF ROSEVILLE			X	
49+30 - 49+04	352' RT - 348' RT	SS	CITY OF ROSEVILLE			X	
49+04	348' RT	CB	CITY OF ROSEVILLE			X	
NBRICE							
10+00 - 10+35	18' RT - 35' RT	SS	CITY OF MAPLEWOOD			X	
10+00 - 13+40	2' RT - 6' RT	SS	CITY OF MAPLEWOOD		X		
10+35	35' RT	MH	CITY OF MAPLEWOOD			X	
13+40	6' RT	MH	CITY OF MAPLEWOOD		X		
13+40 - 14+11	6' RT - 4' RT	SS	CITY OF MAPLEWOOD		X		
14+10	47' LT	CB	CITY OF MAPLEWOOD		X		
14+11	4' RT	MH	CITY OF MAPLEWOOD		X		
14+11 - 14+10	4' RT - 47' LT	SS	CITY OF MAPLEWOOD		X		
14+11 - 14+12	4' RT - 24' RT	SS	CITY OF MAPLEWOOD		X		
14+12	24' RT	CB	CITY OF MAPLEWOOD		X		
20+93	27' LT	CB	CITY OF ROSEVILLE		X		
20+93	27' LT - 77' LT	SS	CITY OF ROSEVILLE		X		
20+93	77' LT	CB	CITY OF ROSEVILLE		X		
20+93 - 21+44	77' LT	SS	CITY OF ROSEVILLE		X		

INPLACE DRAINAGE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
21+44	77' LT	CB	CITY OF ROSEVILLE			X	
21+44	77' LT - 31' LT	SS	CITY OF ROSEVILLE			X	
21+44	31' LT	CB	CITY OF ROSEVILLE			X	
21+44 - 21+92	77' LT - 127' LT	SS	CITY OF ROSEVILLE			X	
25+34 - 25+36	23' RT - 17' LT	SS	CITY OF ROSEVILLE			X	
25+36	17' LT	CB	CITY OF ROSEVILLE			X	
25+30 - 25+39	97' LT - 78' LT	SS	CITY OF ROSEVILLE			X	
25+39	78' LT	CB	CITY OF ROSEVILLE			X	
25+39 - 25+41	78' LT - 64' LT	SS	CITY OF ROSEVILLE			X	
25+41	64' LT	MH	CITY OF ROSEVILLE			X	
25+41 - 27+48	64' LT - 43' LT	SS	CITY OF ROSEVILLE			X	
27+48	43' LT	MH	CITY OF ROSEVILLE			X	
27+48 - 27+51	43' LT - 66' LT	SS	CITY OF ROSEVILLE			X	
27+51	66' LT	CB	CITY OF ROSEVILLE			X	
27+48 - 27+46	43' LT - 4' LT	SS	CITY OF LITTLE CANADA			X	
27+46	4' LT	CB	CITY OF LITTLE CANADA			X	
27+46 - 27+87	4' LT - 1' RT	SS	CITY OF LITTLE CANADA			X	
27+87	1' RT	CB	CITY OF LITTLE CANADA			X	
30+61	40' LT	CB	CITY OF ROSEVILLE			X	
30+61 - 31+56	40' LT - 43' LT	SS	CITY OF ROSEVILLE			X	
31+56	43' LT	CB	CITY OF ROSEVILLE			X	
31+56 - 31+58	43' LT - 4' RT	SS	CITY OF ROSEVILLE			X	
31+58	4' RT	CB	CITY OF ROSEVILLE			X	
31+58 - 31+41	4' RT - 30' RT	SS	CITY OF LITTLE CANADA		X		
31+41	30' RT	MH	CITY OF LITTLE CANADA		X		
31+41 - 31+67	30' RT - 28' RT	SS	CITY OF LITTLE CANADA		X		
31+56 - 31+55	43' LT - 66' LT	SS	CITY OF ROSEVILLE			X	
31+55	66' LT	MH	CITY OF ROSEVILLE			X	
31+55 - 32+13	66' LT - 81' LT	SS	CITY OF ROSEVILLE			X	
32+13	81' LT	MH	CITY OF ROSEVILLE			X	
33+65 - 33+64	243' LT - 67' LT	SS	CITY OF ROSEVILLE			X	
33+64	67' LT	MH	CITY OF ROSEVILLE			X	
33+64 - 34+16	67' LT - 66' LT	SS	CITY OF ROSEVILLE			X	
33+67 - 34+58	20' RT - 1' LT	SS	CITY OF ROSEVILLE			X	
34+58	1' LT	CB	CITY OF ROSEVILLE			X	
40+83	77' LT	CB	CITY OF ROSEVILLE			X	
40+83 - 41+15	77' LT - 76' LT	SS	CITY OF ROSEVILLE			X	
41+15	76' LT	CB	CITY OF ROSEVILLE			X	
41+15 - 41+14	76' LT - 50' LT	SS	CITY OF ROSEVILLE			X	
41+14	50' LT	MH	CITY OF ROSEVILLE			X	
41+14	50' LT	SS	CITY OF ROSEVILLE			X	
41+48	50' LT	CB	CITY OF ROSEVILLE			X	
41+48 - 43+62	50' LT - 48' LT	SS	CITY OF ROSEVILLE			X	
43+62	48' LT	CB	CITY OF ROSEVILLE			X	
43+62	48' LT - 38' LT	SS	CITY OF ROSEVILLE			X	
43+62	38' LT	MH	CITY OF ROSEVILLE			X	
43+62	38' LT - 21' RT	SS	CITY OF ROSEVILLE			X	
43+62	21' RT	CB	CITY OF ROSEVILLE			X	
43+62 - 42+32	20' RT	SS	CITY OF ROSEVILLE			X	
42+32	20' RT	CB	CITY OF ROSEVILLE			X	

UTILITY			
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F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
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DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO.	39
RAMSP08790	
UT13	
OF UT15	534

3/28/50 PM

5/6/2010

kerickson

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UT1 - UT13

INPLACE DRAINAGE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
42+32 - 39+07	20' RT - 5' RT	SS	CITY OF ROSEVILLE		X		
39+07	5' RT	MH	CITY OF ROSEVILLE		X		
39+07 - 39+06	5' RT - 33' RT	SS	CITY OF ROSEVILLE		X		
EBCRB							
30+00 - 30+07	31' LT - 32' LT	SS	RAMSEY COUNTY			X	
30+07	32' LT	MH	RAMSEY COUNTY			X	
30+07 - 30+39	32' LT - 50' LT	SS	RAMSEY COUNTY			X	
31+35 - 31+99	86' LT - 21' LT	SS	RAMSEY COUNTY	X			
31+99	21' LT	CB	RAMSEY COUNTY	X			
31+99 - 32+01	21' LT - 24' RT	SS	RAMSEY COUNTY	X			
32+01	24' RT	CB	RAMSEY COUNTY	X			
32+01 - 31+96	24' RT	SS	RAMSEY COUNTY	X			
31+96	24' RT	CB	RAMSEY COUNTY	X			
31+99 - 33+95	21' LT - 24' LT	SS	RAMSEY COUNTY	X			
33+95	24' LT	MH	RAMSEY COUNTY	X			
33+95 - 35+57	24' LT - 15' LT	SS	RAMSEY COUNTY	X			
33+99 - 34+00	83' LT - 37' RT	SS	RAMSEY COUNTY	X			
34+00	37' RT	MH	RAMSEY COUNTY	X			
34+00 - 33+93	37' RT - 220' RT	SS	RAMSEY COUNTY			X	
34+00 - 33+64	37' RT - 47' RT	SS	RAMSEY COUNTY			X	
33+64	47' RT	MH	RAMSEY COUNTY			X	
34+00 - 33+86	37' RT - 61' RT	SS	RAMSEY COUNTY			X	
33+86	61' RT	CB	RAMSEY COUNTY			X	
34+00 - 34+16	37' RT - 63' RT	SS	RAMSEY COUNTY			X	
34+16	63' RT	CB	RAMSEY COUNTY			X	
35+57	15' LT	CB	RAMSEY COUNTY	X			
35+57 - 35+53	15' LT - 32' RT	SS	RAMSEY COUNTY	X			
35+53	32' RT	CB	RAMSEY COUNTY	X			
35+53 - 36+65	32' RT - 53' RT	SS	RAMSEY COUNTY	X			
36+65	53' RT	CB	RAMSEY COUNTY	X			
36+65 - 37+50	53' RT - 52' RT	SS	RAMSEY COUNTY	X			
37+50	52' RT	CB	RAMSEY COUNTY	X			
40+48	37' RT	CB	CITY OF MAPLEWOOD		X		
40+48 - 40+72	37' RT - 31' LT	SS	CITY OF MAPLEWOOD		X		
40+72	31' LT	CB	CITY OF MAPLEWOOD		X		
40+72 - 46+04	31' LT - 25' LT	SS	CITY OF MAPLEWOOD		X		
46+04	25' LT	CB	CITY OF MAPLEWOOD		X		
46+04 - 46+07	25' LT - 22' RT	SS	CITY OF MAPLEWOOD		X		
46+07	22' RT	CB	CITY OF MAPLEWOOD		X		
46+04 - 50+65	25' LT - 24' LT	SS	CITY OF MAPLEWOOD		X		
50+06	45' RT	CB	CITY OF MAPLEWOOD	X			
50+06 - 50+35	45' RT - 44' RT	SS	CITY OF MAPLEWOOD	X			
50+35	44' RT	CB	CITY OF MAPLEWOOD			X	
50+35 - 50+65	44' RT - 22' RT	SS	CITY OF MAPLEWOOD			X	
50+65	22' RT	CB	CITY OF MAPLEWOOD			X	
50+65	24' LT	CB	CITY OF MAPLEWOOD			X	
EBTH36							
385+89	198' LT	CB	CITY OF ROSEVILLE			X	
385+89 - 386+29	198' LT - 192' LT	SS	CITY OF ROSEVILLE			X	
386+10	242' LT	CB	CITY OF ROSEVILLE			X	
386+10 - 386+29	242' LT - 192' LT	SS	CITY OF ROSEVILLE			X	
386+29	192' LT	CB	CITY OF ROSEVILLE			X	
386+29 - 386+35	192' LT - 142' LT	SS	CITY OF ROSEVILLE	X			
249+89	251' LT	CB	CITY OF ROSEVILLE			X	
249+89 - 249+96	251' LT - 225' LT	SS	CITY OF ROSEVILLE			X	
249+96	225' LT	CB	CITY OF ROSEVILLE			X	
249+96 - 250+14	225' LT - 158' LT	SS	CITY OF ROSEVILLE	X			
250+14	158' LT	MH	CITY OF ROSEVILLE	X			
250+14 - 250+21	158' LT - 135' LT	SS	CITY OF ROSEVILLE	X			
253+35 - 253+61	114' LT - 62' RT	CULVERT	Mn/DOT		X		
254+97 - 255+18	542' LT - 351' LT	SS	CITY OF ROSEVILLE			X	
255+18	351' LT	MH	CITY OF ROSEVILLE			X	
255+18 - 255+19	351' LT - 345' LT	SS	CITY OF ROSEVILLE			X	

INPLACE DRAINAGE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
255+19	345' LT	CB	CITY OF ROSEVILLE			X	
255+19 - 255+23	345' LT - 319' LT	SS	CITY OF ROSEVILLE			X	
255+23	319' LT	CB	CITY OF ROSEVILLE			X	
255+23	319' LT - 313' LT	SS	CITY OF ROSEVILLE			X	
255+23	313' LT	MH	CITY OF ROSEVILLE			X	
255+23 - 256+36	313' LT - 147' LT	SS	CITY OF ROSEVILLE	X			
257+17	24' LT - 34' RT	CULVERT	Mn/DOT		X		
262+92 - 263+73	173' RT - 180' RT	CULVERT	Mn/DOT		X		
264+44 - 264+49	121' RT - 57' RT	SS	Mn/DOT		X		
264+49	57' RT	CB	Mn/DOT		X		
264+98	131' RT - 183' LT	CULVERT	Mn/DOT		X		
265+08 - 265+23	126' RT - 64' RT	SS	Mn/DOT		X		
265+23	64' RT	CB	Mn/DOT		X		
266+48 - 266+53	170' RT - 89' RT	SS	Mn/DOT		X		
266+53	89' RT	CB	Mn/DOT		X		
266+85 - 267+51	176' RT - 41' RT	SS	Mn/DOT	X			
267+51	41' RT	CB	Mn/DOT	X			
267+51 - 267+52	41' RT - 37' LT	SS	Mn/DOT	X			
267+52	37' LT	CB	Mn/DOT	X			
267+52	37' LT - 108' LT	SS	Mn/DOT	X			
267+52	108' LT	CB	Mn/DOT	X			
267+51 - 270+76	41' RT	SS	Mn/DOT		X		
270+76	41' RT	CB	Mn/DOT		X		
270+76 - 272+22	41' RT	SS	Mn/DOT		X		
272+22	41' RT	CB	Mn/DOT		X		
272+22	41' RT - 37' LT	SS	Mn/DOT	X			
272+22	37' LT	CB	Mn/DOT		X		
272+22	37' LT - 109' LT	SS	Mn/DOT	X			
272+22	109' LT	CB	Mn/DOT		X		
274+50 - 274+65	60' RT - 104' RT	SS	Mn/DOT		X		
274+65	104' RT	CB	Mn/DOT		X		
275+77	87' RT	CB	Mn/DOT		X		
275+77 - 275+80	87' RT - 100' RT	SS	Mn/DOT		X		
276+37	70' RT	CB	Mn/DOT		X		
276+37 - 276+41	70' RT - 84' RT	SS	Mn/DOT		X		
280+75 - 280+77	79' RT - 122' LT	CULVERT	Mn/DOT		X		
280+63 - 280+76	172' LT - 171' LT	SS	CITY OF LITTLE CANADA			X	
280+76	171' LT	CB	CITY OF LITTLE CANADA			X	
280+76 - 280+80	171' LT - 201' LT	SS	CITY OF LITTLE CANADA			X	
280+80	201' LT	CB	CITY OF LITTLE CANADA			X	
280+76 - 280+93	171' LT - 168' LT	SS	CITY OF LITTLE CANADA			X	
280+89 - 280+93	141' LT - 168' LT	SS	CITY OF LITTLE CANADA			X	
280+93	168' LT	CB	CITY OF LITTLE CANADA			X	
280+93 - 280+99	168' LT - 206' LT	SS	CITY OF LITTLE CANADA			X	
280+99	206' LT	CB	CITY OF LITTLE CANADA			X	
280+93 - 282+72	168' LT - 150' LT	SS	CITY OF LITTLE CANADA			X	
282+72	150' LT	CB	CITY OF LITTLE CANADA			X	
282+72 - 282+73	150' LT - 181' LT	SS	CITY OF LITTLE CANADA			X	
282+73	181' LT	CB	CITY OF LITTLE CANADA			X	
289+30 - 289+24	279' LT - 31' LT	SS	Mn/DOT			X	

UTILITY			
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DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO.	40
RAMSP08790	
UT14	
OF UT15	534

INPLACE DRAINAGE							
STATION TO STATION	OFFSET FROM BASELINE	ITEM IN PLACE	OWNERSHIP	REMARKS			REMARKS/NOTES
				ADJUST AS NEEDED	RELOCATE	LEAVE AS IS	
289+24 - 289+32	31' LT - 74' RT	SS	Mn/DOT			X	
MINNAVE							
11+83	96' LT	CB	CITY OF ROSEVILLE			X	
11+83 - 13+09	96' LT - 45' LT	SS	CITY OF ROSEVILLE			X	
13+09	45' LT	CB	CITY OF ROSEVILLE	X			
13+09 - 13+72	45' LT - 48' LT	SS	CITY OF ROSEVILLE		X		
14+68 - 16+83	30' LT - 21' LT	SS	CITY OF LITTLE CANADA			X	
16+83	21' LT	MH	CITY OF LITTLE CANADA	X			
16+83 - 18+68	21' LT - 5' LT	SS	CITY OF LITTLE CANADA			X	
18+68	5' LT	CB	CITY OF LITTLE CANADA			X	
18+68 - 18+69	5' LT - 6' RT	SS	CITY OF LITTLE CANADA			X	
18+69	6' RT	MH	CITY OF LITTLE CANADA			X	
16+59	101' RT	CB	CITY OF LITTLE CANADA			X	
16+59 - 16+61	101' RT - 79' RT	SS	CITY OF LITTLE CANADA			X	
16+61	79' RT	CB	CITY OF LITTLE CANADA			X	
16+61 - 16+73	79' RT - 48' RT	SS	CITY OF LITTLE CANADA			X	
16+73	48' RT	CB	CITY OF LITTLE CANADA			X	
16+73 - 17+04	48' RT - 50' RT	SS	CITY OF LITTLE CANADA			X	
17+04	50' RT	CB	CITY OF LITTLE CANADA			X	
17+04 - 17+21	50' RT - 44' RT	SS	CITY OF LITTLE CANADA			X	
17+21	44' RT	MH	CITY OF LITTLE CANADA			X	
17+21 - 18+61	44' RT - 40' RT	SS	CITY OF LITTLE CANADA			X	
18+61	40' RT	CB	CITY OF LITTLE CANADA			X	
18+45 - 18+61	68' RT - 40' RT	SS	CITY OF LITTLE CANADA			X	
18+61 - 18+69	40' RT - 28' RT	SS	CITY OF LITTLE CANADA			X	
18+69	28' RT	CB	CITY OF LITTLE CANADA			X	
18+69	28' RT - 6' RT	SS	CITY OF LITTLE CANADA			X	
18+69 - 19+16	6' RT	SS	CITY OF LITTLE CANADA			X	
CRB2							
17+69	21' LT	CB	CITY OF LITTLE CANADA		X		
17+69 - 17+71	21' LT - 17' RT	SS	CITY OF LITTLE CANADA		X		
17+71	17' RT	CB	CITY OF LITTLE CANADA	X			
17+71 - 20+36	17' RT - 13' RT	SS	CITY OF LITTLE CANADA	X			
19+92	45' LT	CB	CITY OF LITTLE CANADA			X	
19+92 - 20+17	45' LT	SS	CITY OF LITTLE CANADA			X	
20+17	45' LT	CB	CITY OF LITTLE CANADA			X	
20+17 - 20+36	45' LT - 26' LT	SS	CITY OF LITTLE CANADA			X	
20+36	26' LT	CB	CITY OF LITTLE CANADA			X	
20+36	26' LT - 13' RT	SS	CITY OF LITTLE CANADA			X	
20+36	13' RT	CB	CITY OF LITTLE CANADA			X	
20+36 - 20+86	13' RT	SS	CITY OF LITTLE CANADA			X	

UTILITY			
CB	= CATCH BASIN	SAN	= SANITARY SEWER
F/O	= FIBER OPTIC	SIG-BUR	= BURIED SIGNAL POWER
GAS	= GASLINE	SS	= STORM SEWER
HH	= HAND HOLE	T-BUR	= BURIED TELEPHONE
HYD	= HYDRANT	T-PED	= TELEPHONE PEDESTAL
L	= LIGHTPOLE	T-PED	= TELEPHONE PEDESTAL
MH	= MANHOLE	TEL-OH	= OVERHEAD TELEVISION
PP	= POWER POLE	TV-BUR	= BURIED TELEVISION
P-BUR	= BURIED POWER	TV-OH	= OVERHEAD TELE LINE
P-OH	= OVERHEAD POWER	WM	= WATERMAIN
PED	= PEDESTAL		

GENERAL NOTES:

ALL UTILITY WORK SHOWN ON THIS SHEET SHALL BE DONE BY THE CONTRACTOR PER THE PLANS.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE GOPHER STATE ONE CALL EXCAVATION NOTICE SYSTEM REQUIRED BY MINNESOTA STATUTE, CHAPTER 216D FOR ALL UNDERGROUND UTILITY LOCATIONS.

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

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010



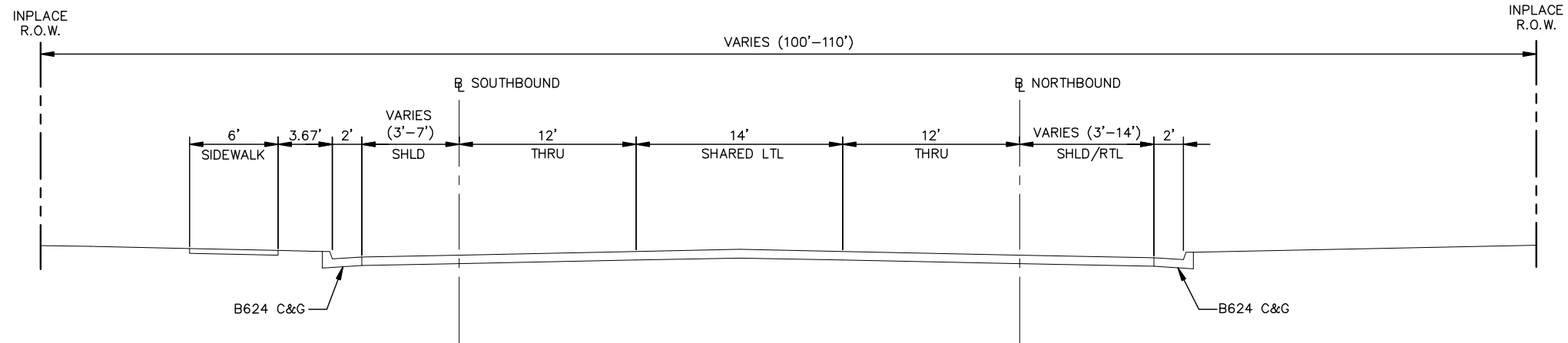
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**INPLACE UTILITY
 TABULATIONS**

FILE NO. RAMSP108790	41
UT15 OF UT15	

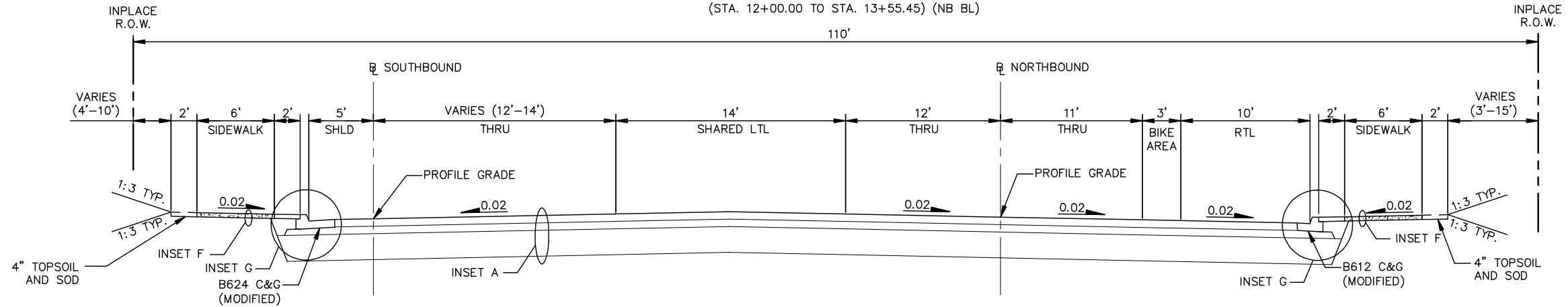
534

INPLACE TYPICAL SECTION RICE STREET



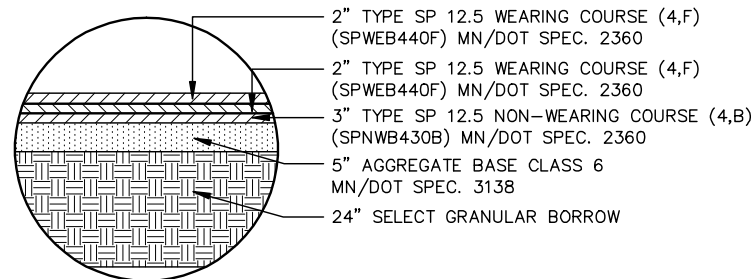
TYPICAL SECTION RICE STREET

(STA. 12+00.00 TO STA. 13+55.45) (NB BL)

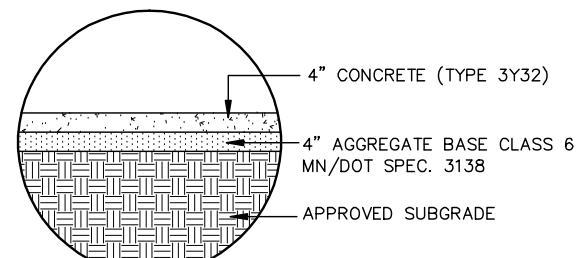


GENERAL NOTES:

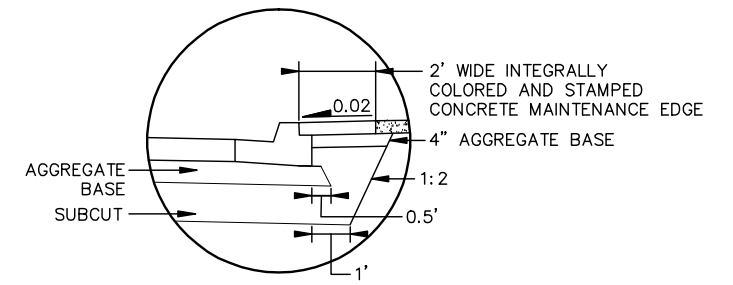
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8. INTEGRALLY COLORED AND STAMPED CONCRETE SHALL BE PRISM PIGMENT P5084 SPEC. BROWN OR EQUAL WITH 4"x8" BRICK RUNNING BOND PATTERN.



INSET A



INSET F



INSET G

DESIGN TEAM					
DRAWN BY:	RJG				
DESIGNER:	RJG				
CHECKED BY:	BAE				
	NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

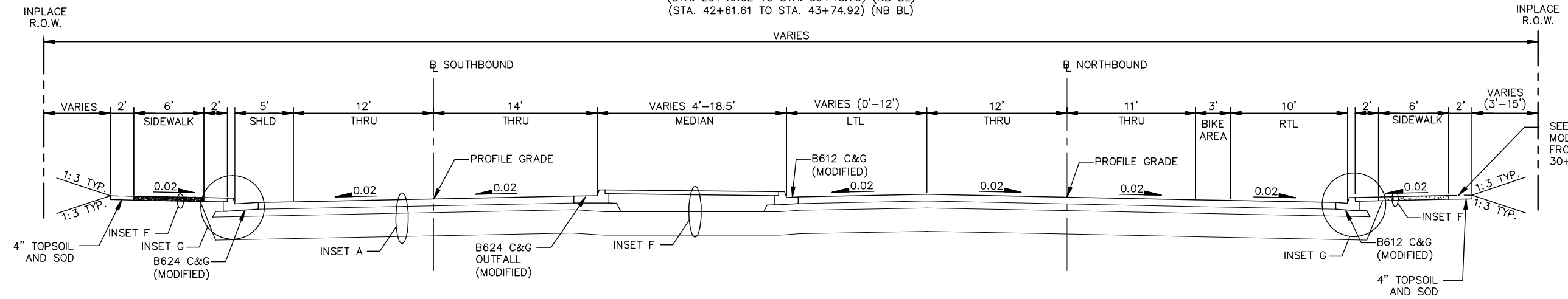
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS RICE STREET	FILE NO. 160599001	42
	TS1 OF TS16	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RIE_TYP01.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

TYPICAL SECTION RICE STREET

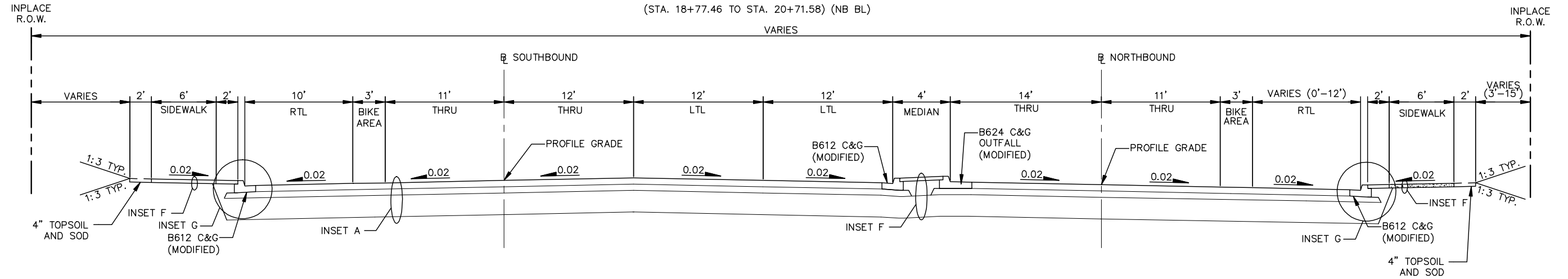
(STA. 13+55.45 TO STA. 17+53.70) (NB BL)
 (STA. 29+49.02 TO STA. 30+48.75) (NB BL)
 (STA. 42+61.61 TO STA. 43+74.92) (NB BL)



SEE PLANS FOR DRY CAST MODULAR BLOCK WALL FROM STA. 29+55 TO STA. 30+20.

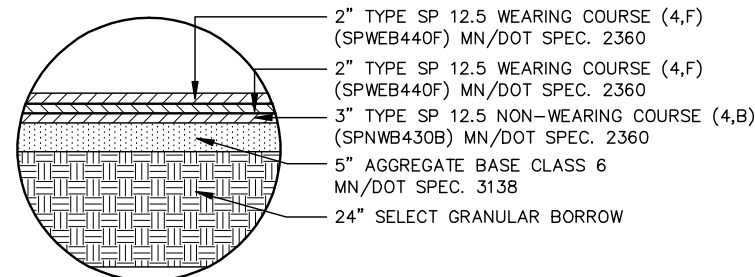
TYPICAL SECTION RICE STREET

(STA. 18+77.46 TO STA. 20+71.58) (NB BL)

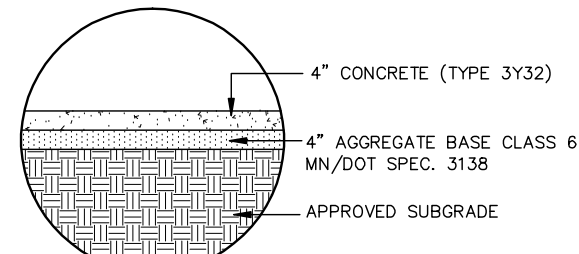


GENERAL NOTES:

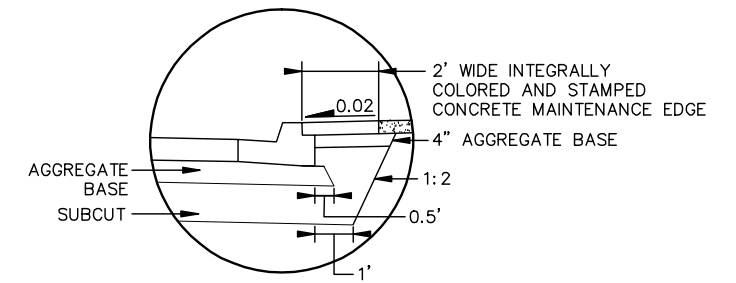
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INSET A



INSET F



INSET G

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN_RICE_TYPO2.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM				
DRAWN BY: RJG				
DESIGNER: RJG				
CHECKED BY: BAE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

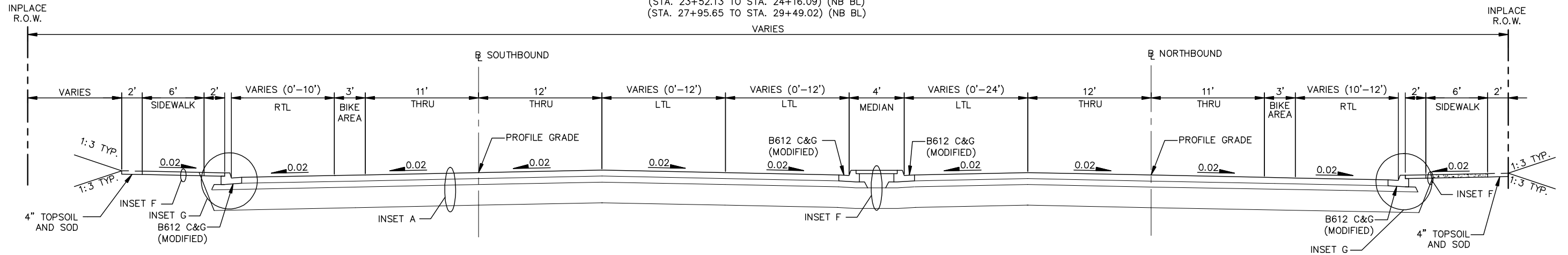
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS RICE STREET		FILE NO. 160599001	43
		TS2 OF TS16	
			534

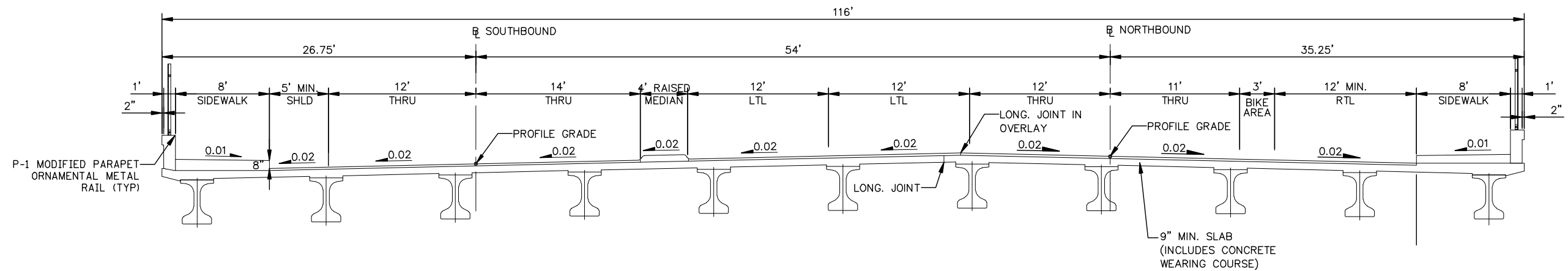
TYPICAL SECTION RICE STREET

(STA. 20+71.58 TO STA. 21+88.06) (NB BL)
 (STA. 23+52.13 TO STA. 24+16.09) (NB BL)
 (STA. 27+95.65 TO STA. 29+49.02) (NB BL)



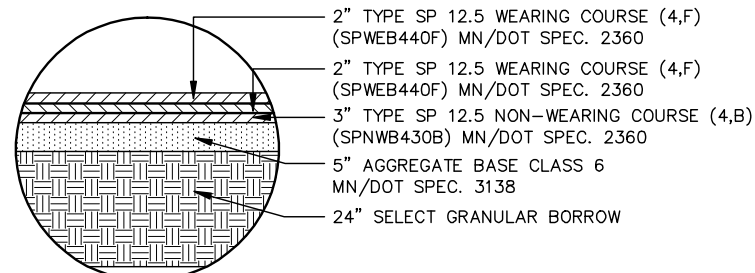
TYPICAL BRIDGE SECTION RICE STREET

(STA. 21+88.06 TO STA. 23+52.13) (NB BL)

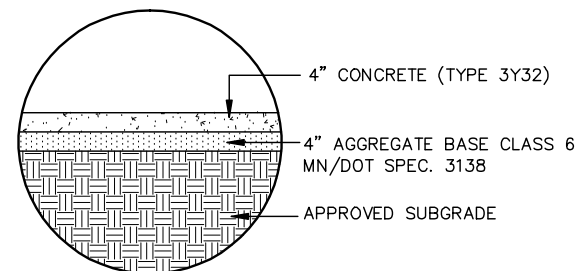


GENERAL NOTES:

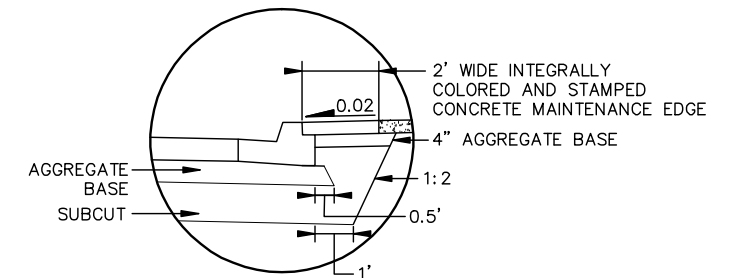
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INSET A



INSET F



INSET G

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RISE_TYPO3.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

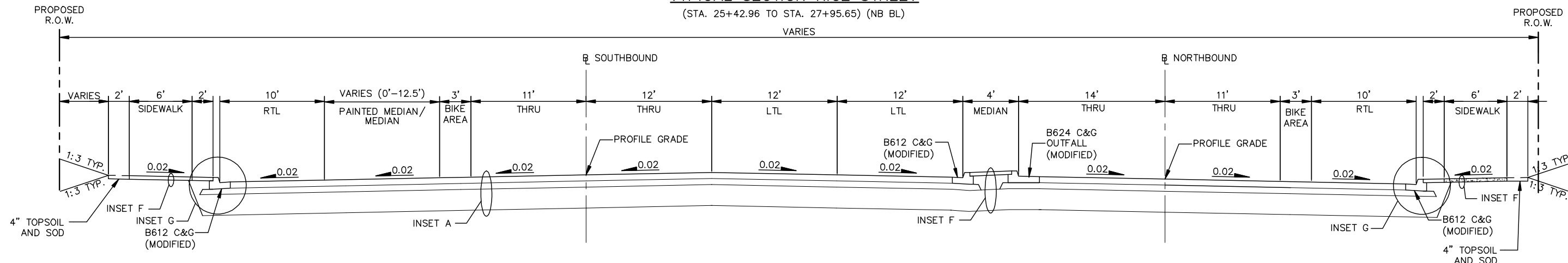
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS RICE STREET		FILE NO.	44
		160599001	
		TS3	
		OF TS16	534

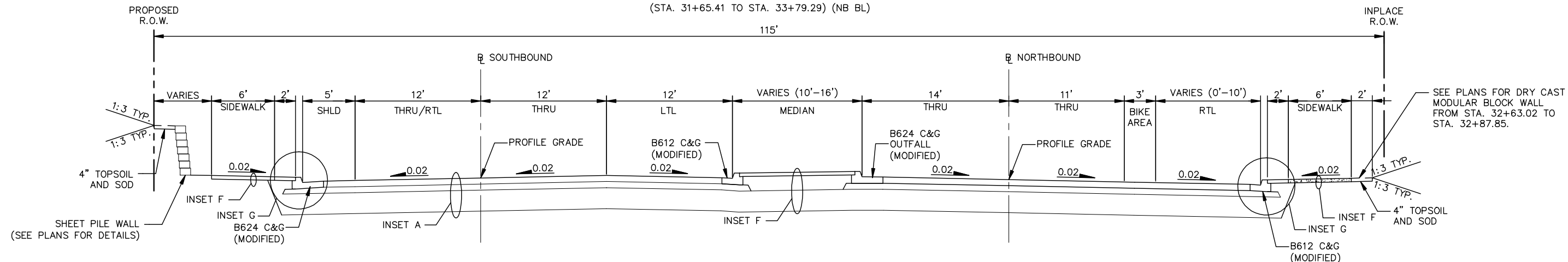
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(STA. 25+42.96 TO STA. 27+95.65) (NB BL)



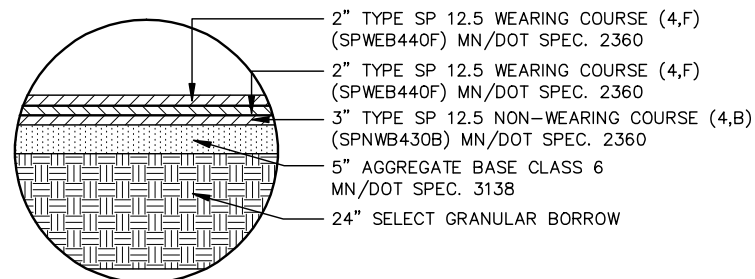
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(STA. 31+65.41 TO STA. 33+79.29) (NB BL)

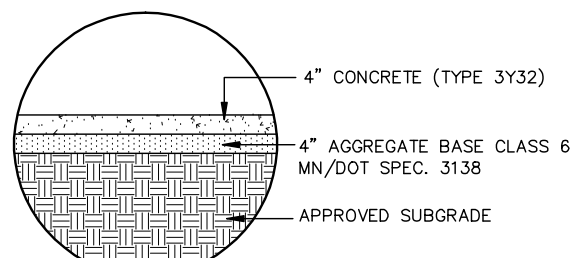


GENERAL NOTES:

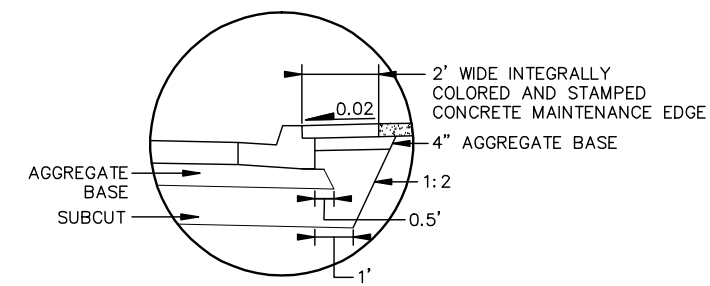
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INSET A



INSET F



INSET G

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

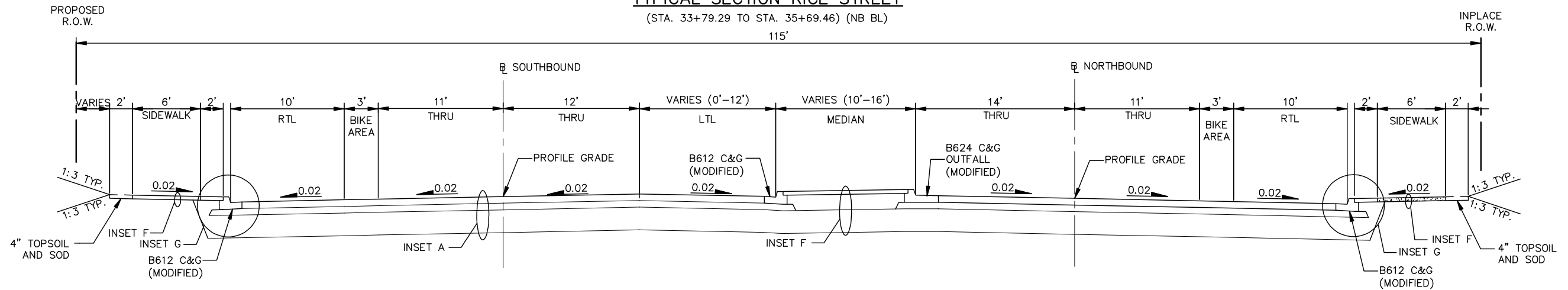
TYPICAL SECTIONS RICE STREET		FILE NO.	45
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		TS4	
		OF TS16	534

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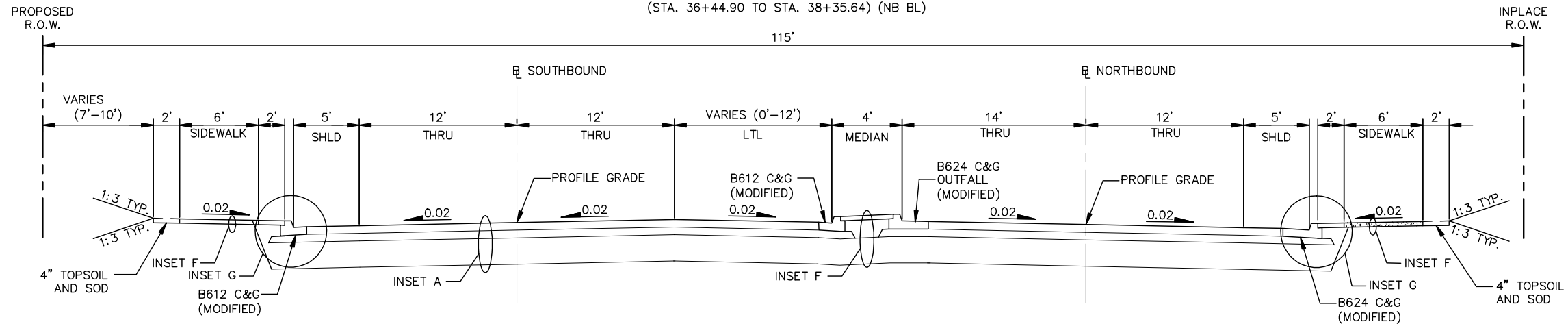
TYPICAL SECTION RICE STREET

(STA. 33+79.29 TO STA. 35+69.46) (NB BL)



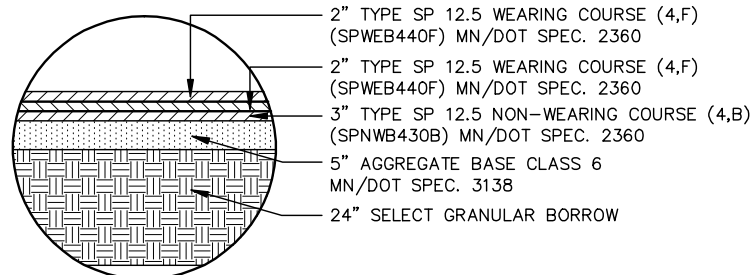
TYPICAL SECTION RICE STREET

(STA. 36+44.90 TO STA. 38+35.64) (NB BL)

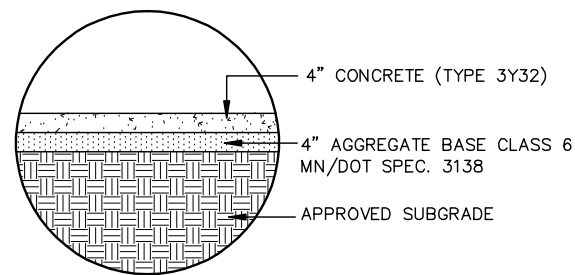


GENERAL NOTES:

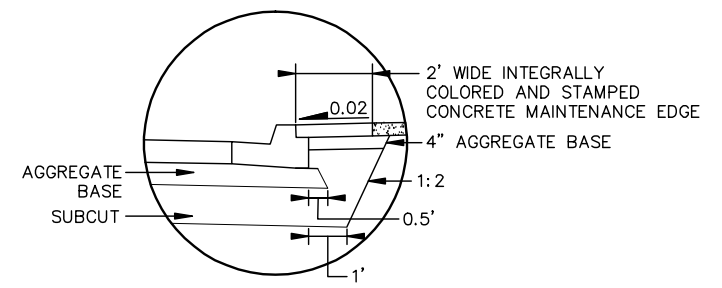
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INSET A



INSET F



INSET G

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

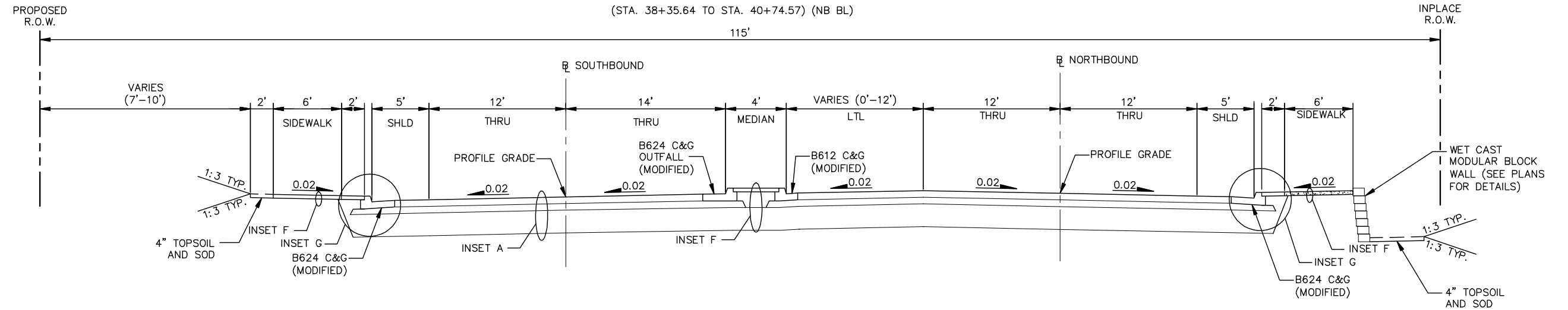
Kimley-Horn and Associates, Inc.
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS RICE STREET		FILE NO.	46
		160599001	
		TS5	
		OF TS16	534

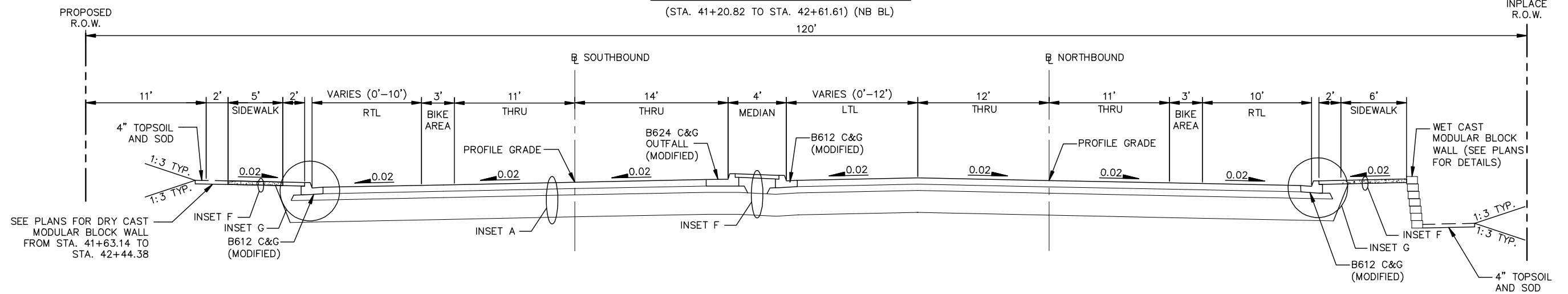
TYPICAL SECTION RICE STREET

(STA. 38+35.64 TO STA. 40+74.57) (NB BL)



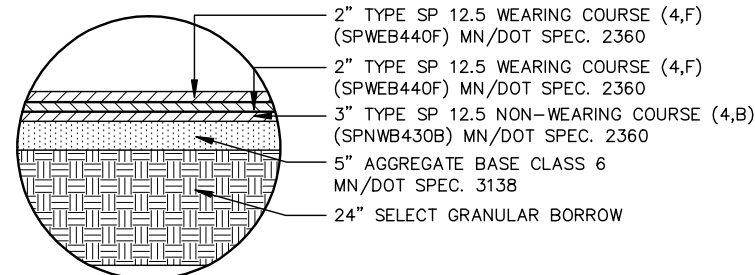
TYPICAL SECTION RICE STREET

(STA. 41+20.82 TO STA. 42+61.61) (NB BL)

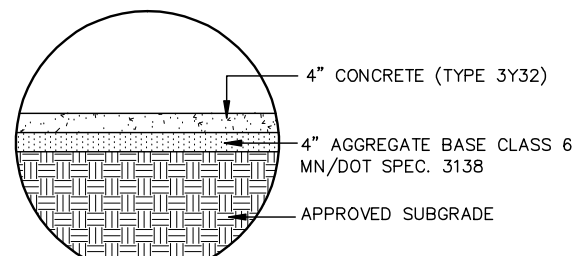


GENERAL NOTES:

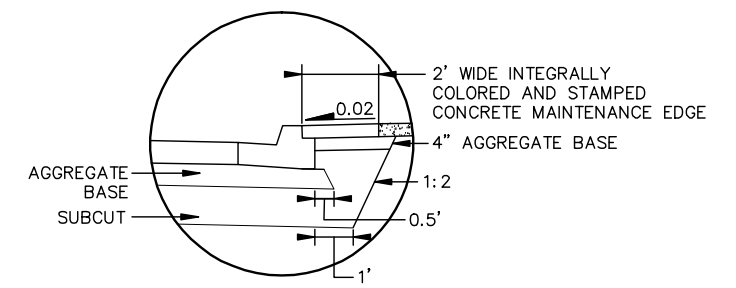
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5. TACK COAT TO BE APPLIED BETWEEN BITUMINOUS PAVEMENTS LIFTS.(INCIDENTAL)
6. THE CONTRACTOR WILL USE CLASS 7 THAT MEETS THE GRADATION OF CLASS 6.
7. SOME MEDIANS WILL HAVE TREES AND INTEGRALLY COLORED AND STAMPED CONCRETE. SEE CONSTRUCTION AND LANDSCAPE PLANS FOR LOCATIONS AND DETAILS.
8. INTEGRALLY COLORED AND STAMPED CONCRETE SHALL BE PRISM PIGMENT P5084 SPEC. BROWN OR EQUAL WITH 4"x8" BRICK RUNNING BOND PATTERN.



INSET A



INSET F



INSET G

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RIE_TYPO6.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM				
DRAWN BY: RJG				
DESIGNER: RJG				
CHECKED BY: BAE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

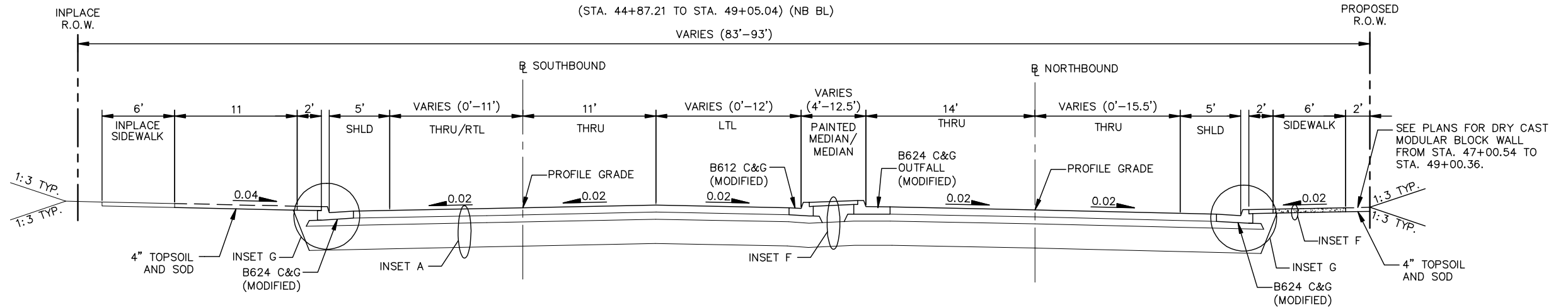
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS RICE STREET		FILE NO. 160599001	47
		TS6 OF TS16	534

TYPICAL SECTION RICE STREET

(STA. 44+87.21 TO STA. 49+05.04) (NB BL)

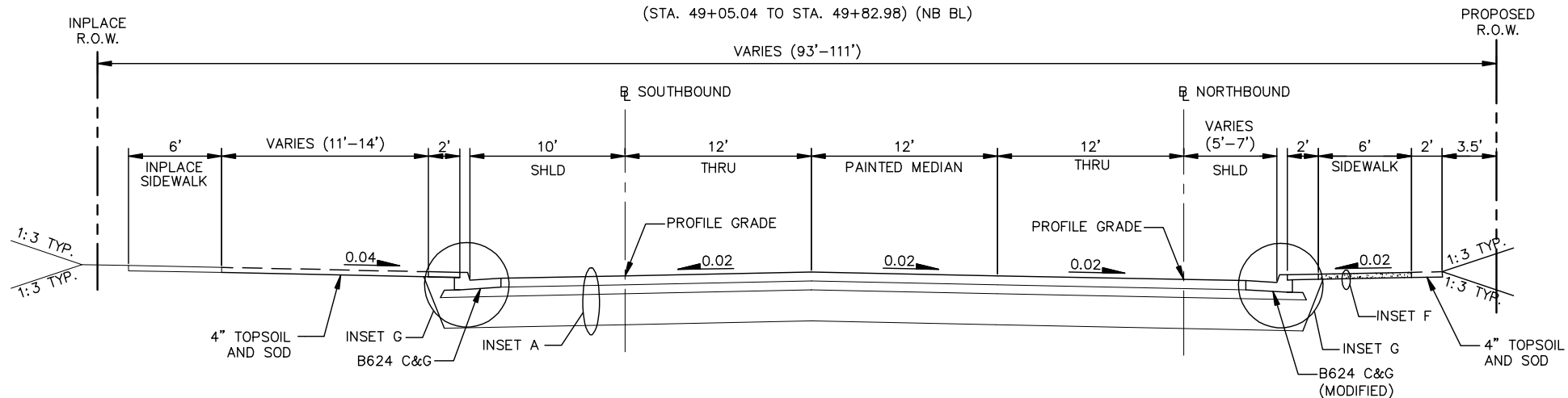
VARIES (83'-93')



TYPICAL SECTION RICE STREET

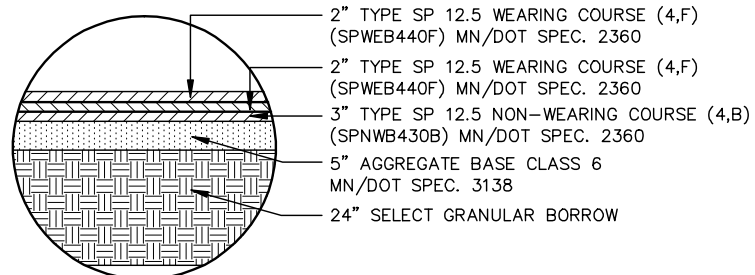
(STA. 49+05.04 TO STA. 49+82.98) (NB BL)

VARIES (93'-111')

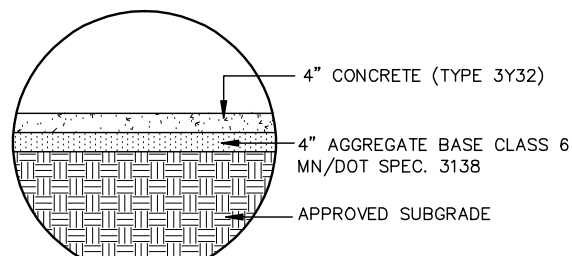


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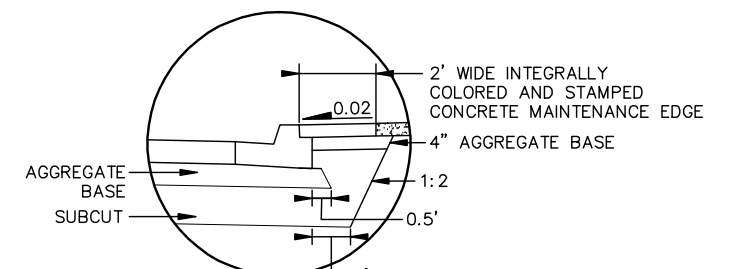
1. BL INDICATES BASELINE.
2. NORMAL CROSS SLOPES ARE SHOWN (FT/FT). FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN.
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INSET A



INSET F



INSET G

DESIGN TEAM				
DRAWN BY: R/JG				
DESIGNER: R/JG				
CHECKED BY: B/AE				
NO.	BY	DATE	REVISIONS	

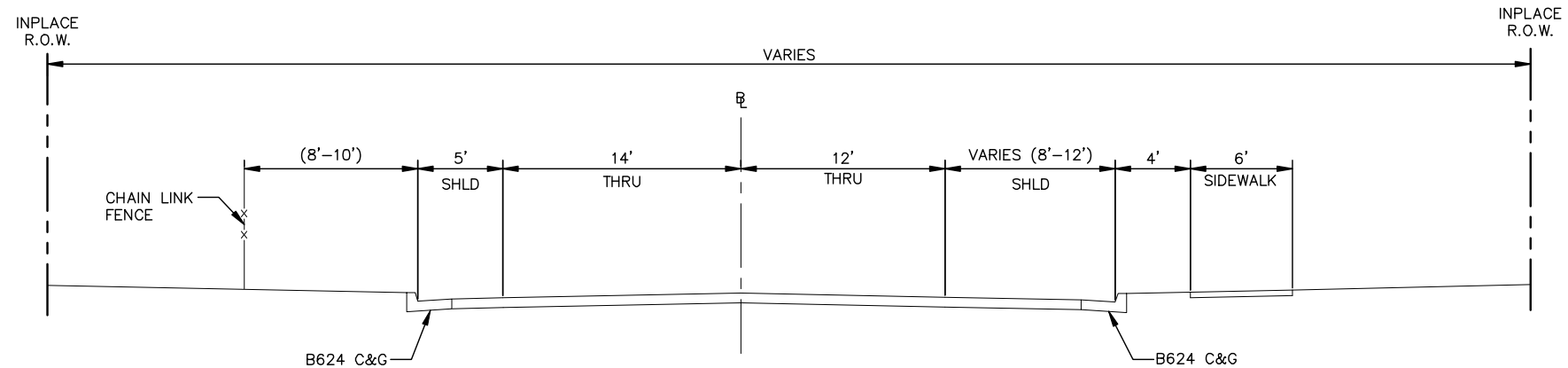
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 Licensed Professional Engineer
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

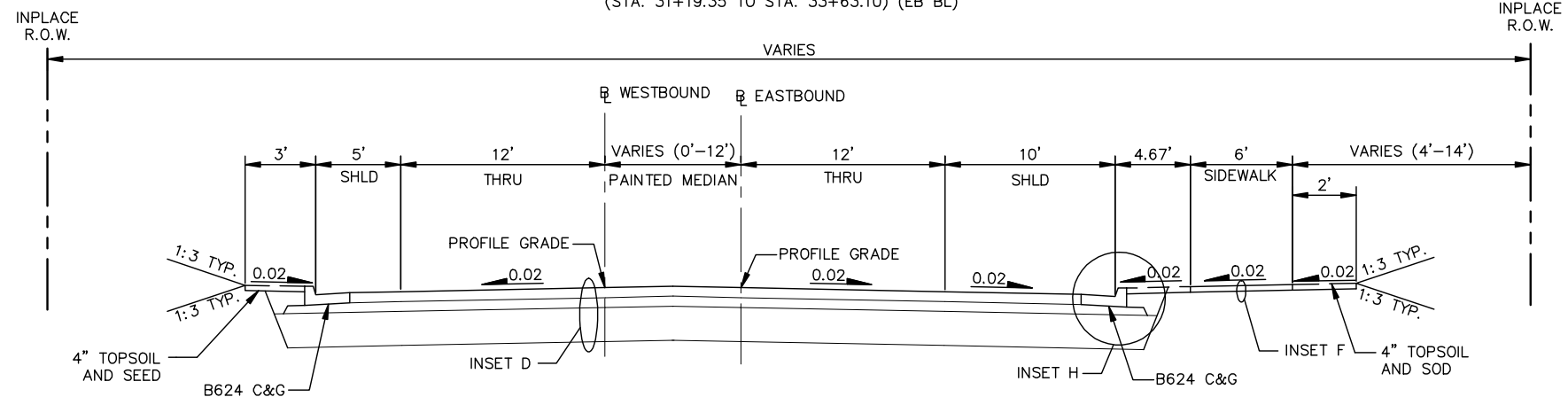
TYPICAL SECTIONS RICE STREET	FILE NO. 160599001	48
	TS7 OF TS16	534

INPLACE TYPICAL SECTION COUNTY ROAD B WEST



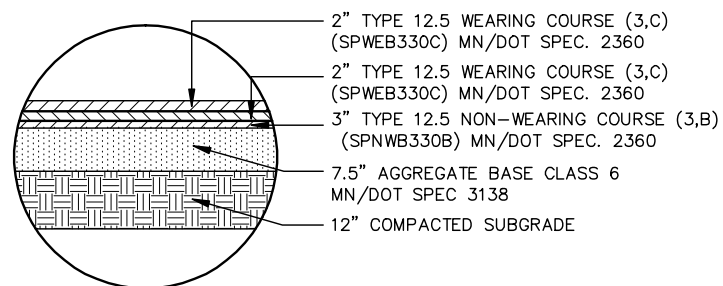
TYPICAL SECTION COUNTY ROAD B WEST

(STA. 31+19.35 TO STA. 33+63.10) (EB BL)

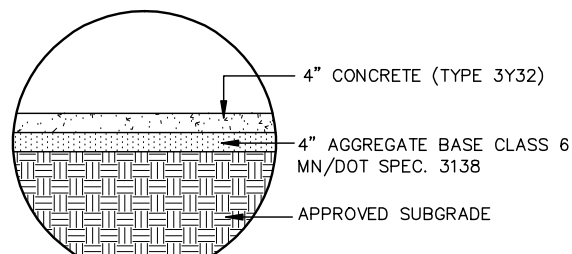


GENERAL NOTES:

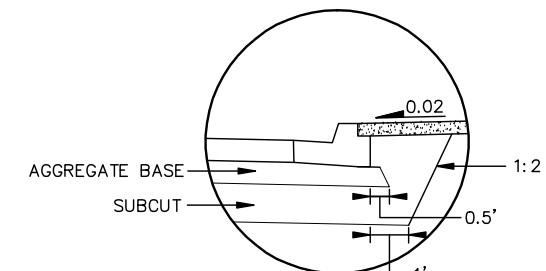
1. BL INDICATES BASELINE.
2. NORMAL CROSS SLOPES ARE SHOWN (FT/FT). FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN.
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INSET D



INSET F



INSET H

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RISE_TYPO8.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM				
DRAWN BY: RJG				
DESIGNER: RJG				
CHECKED BY: BAE				
NO.	BY	DATE	REVISIONS	

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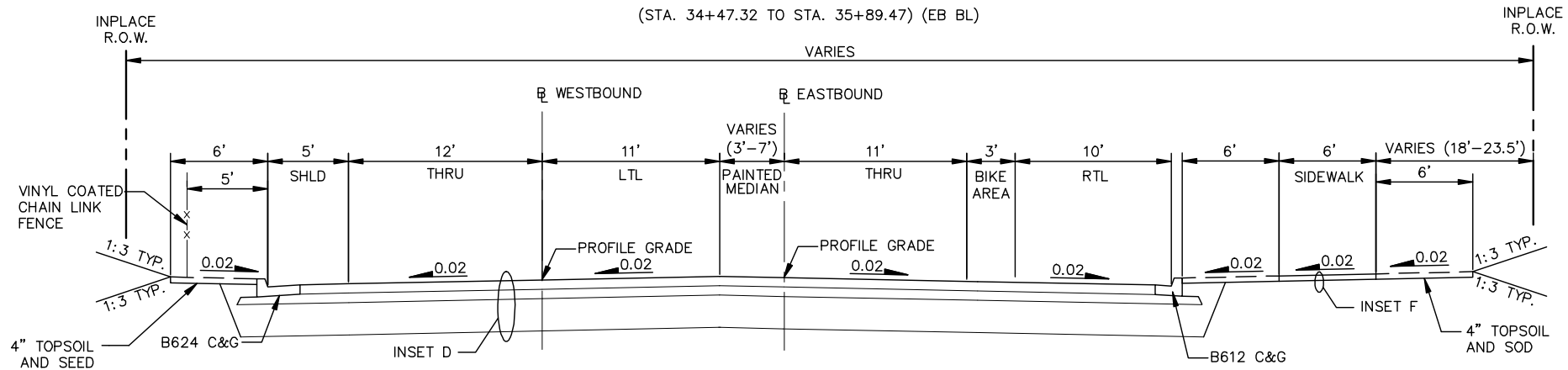
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS COUNTY ROAD B WEST	FILE NO. 160599001	49
	TS8 OF TS16	534

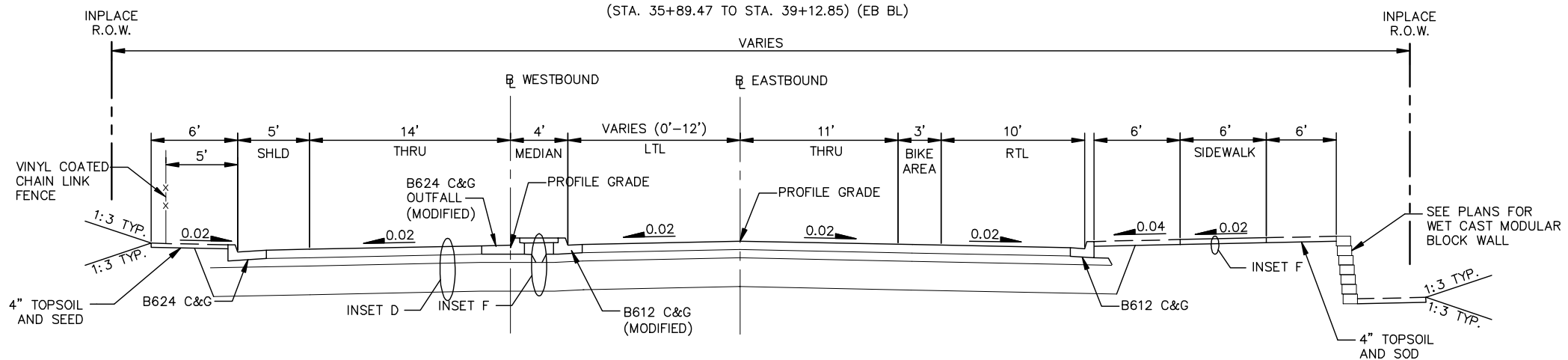
TYPICAL SECTION COUNTY ROAD B WEST

(STA. 34+47.32 TO STA. 35+89.47) (EB BL)



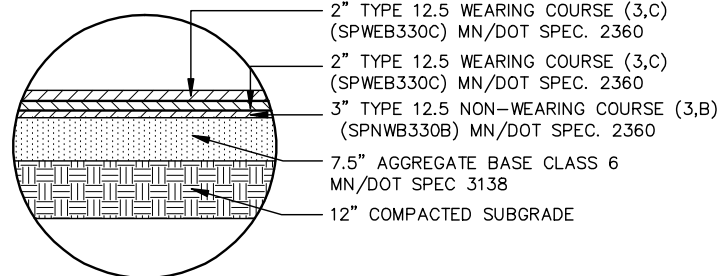
TYPICAL SECTION COUNTY ROAD B WEST

(STA. 35+89.47 TO STA. 39+12.85) (EB BL)

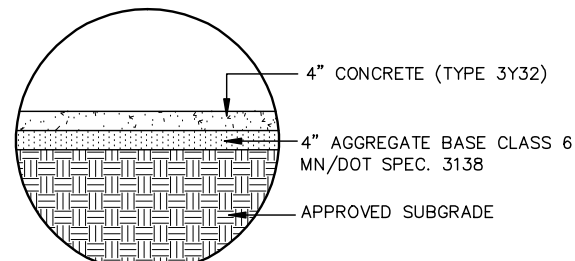


GENERAL NOTES:

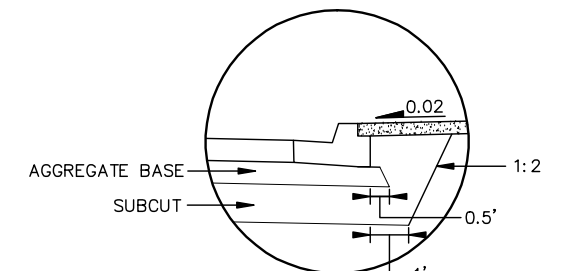
1. BL INDICATES BASELINE.
2. NORMAL CROSS SLOPES ARE SHOWN (FT/FT). FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN.
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INSET D



INSET F



INSET H

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
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 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

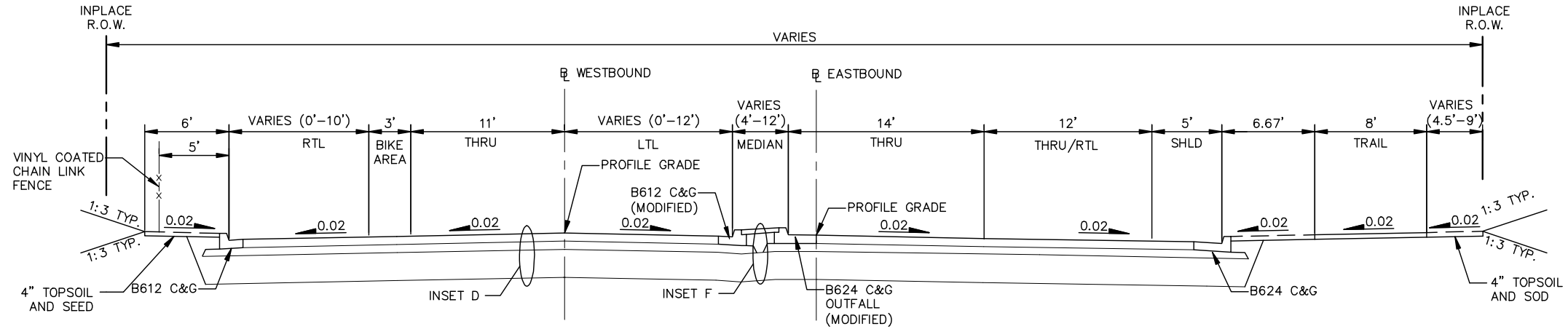
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS COUNTY ROAD B WEST		FILE NO.	50
		160599001	
		TS9	
		OF TS16	534

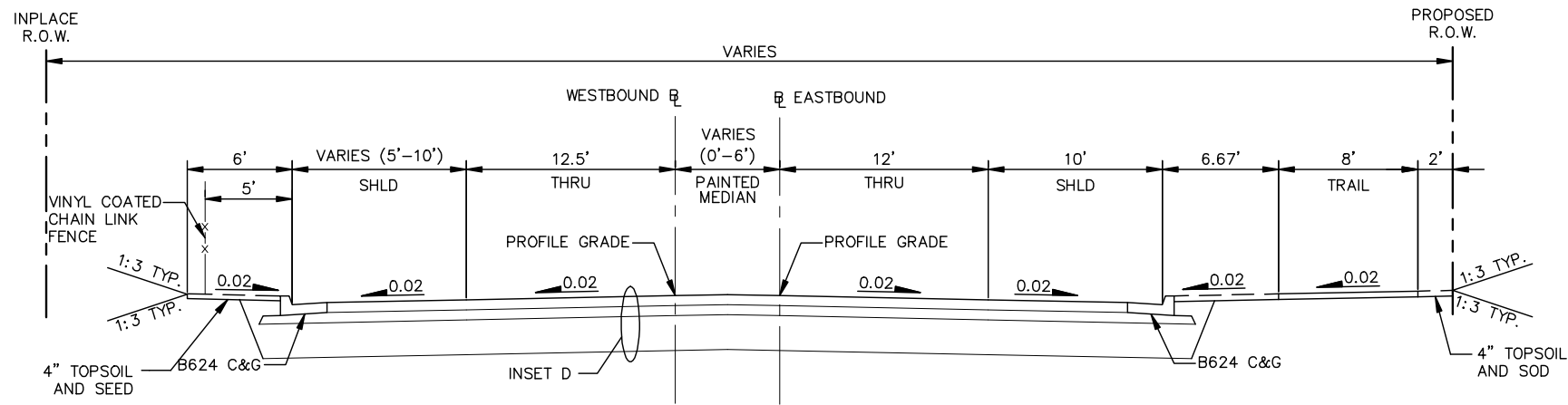
TYPICAL SECTION COUNTY ROAD B WEST

(STA. 40+75.48 TO STA. 45+78.90) (EB BL)



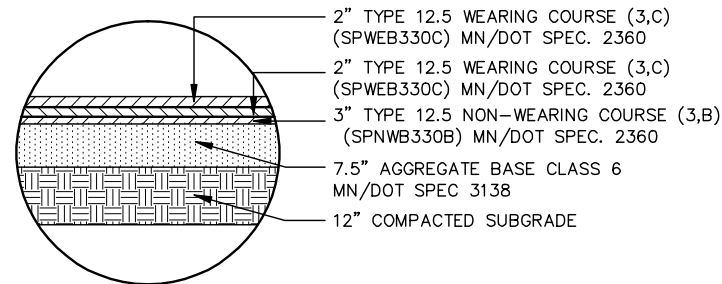
TYPICAL SECTION COUNTY ROAD B WEST

(STA. 47+00.00 TO STA. 50+09.44) (EB BL)

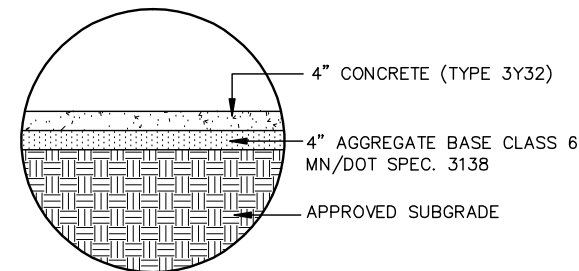


GENERAL NOTES:

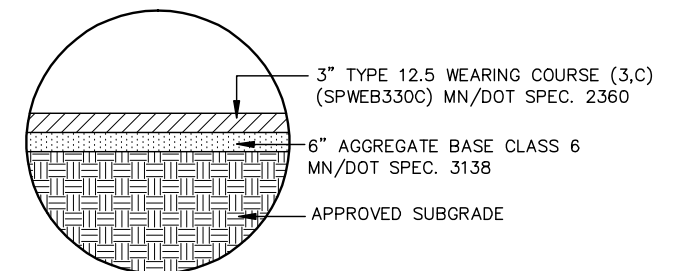
1. BL INDICATES BASELINE.
2. NORMAL CROSS SLOPES ARE SHOWN (FT/FT). FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN.
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INSET D



INSET F



BITUMINOUS TRAIL SECTION

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RIE_TYP10.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM				
DRAWN BY: RJG				
DESIGNER: RJG				
CHECKED BY: BAE				
NO.	BY	DATE	REVISIONS	

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 Licensed Professional Engineer
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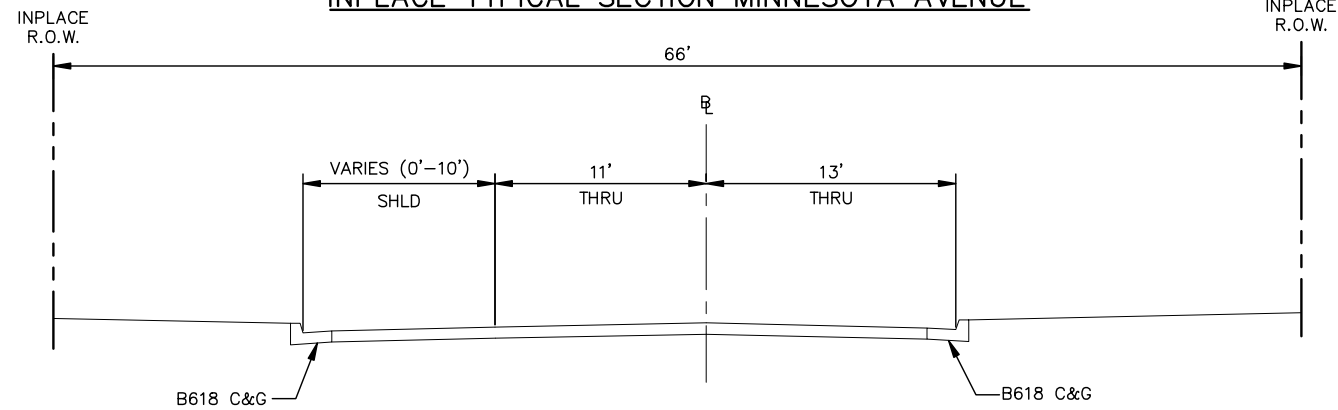
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS COUNTY ROAD B WEST	FILE NO. 160599001	51
	TS10 OF TS16	534

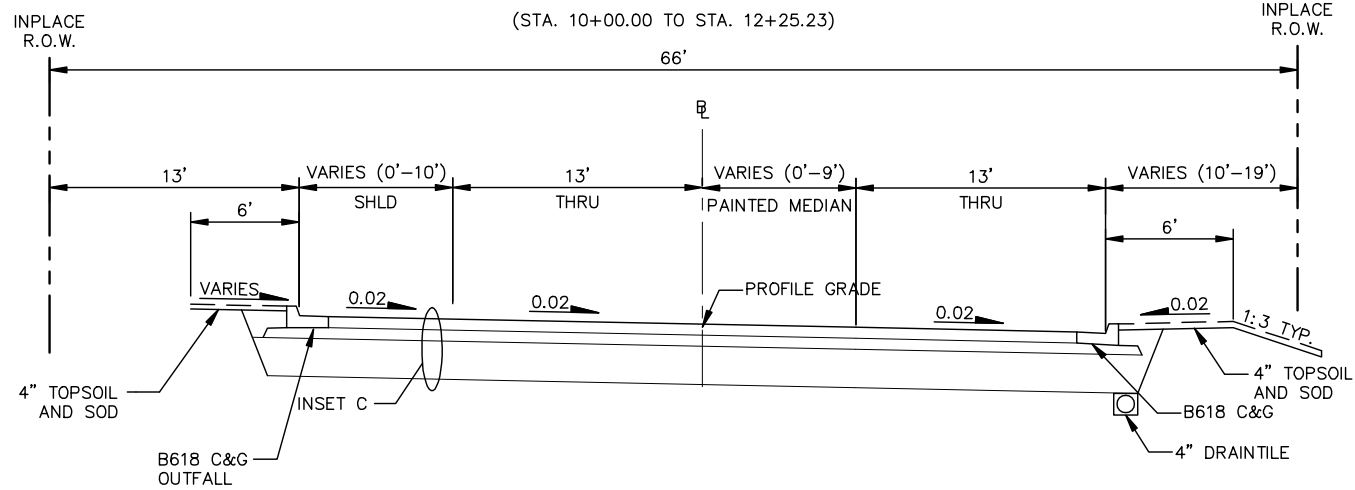
K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN\RIE_TYP11.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

INPLACE TYPICAL SECTION MINNESOTA AVENUE



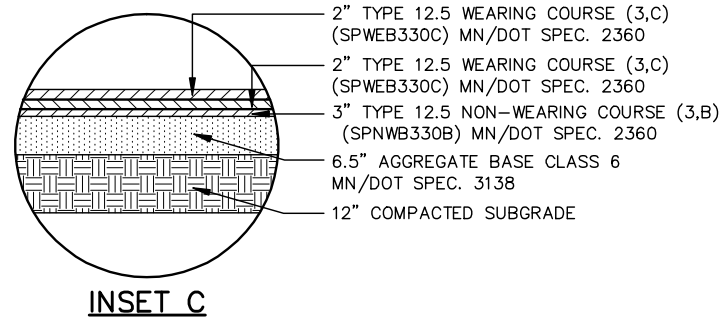
TYPICAL SECTION MINNESOTA AVENUE

(STA. 10+00.00 TO STA. 12+25.23)



GENERAL NOTES:

1. BL INDICATES BASELINE.
2. NORMAL CROSS SLOPES ARE SHOWN (FT/FT). FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN.
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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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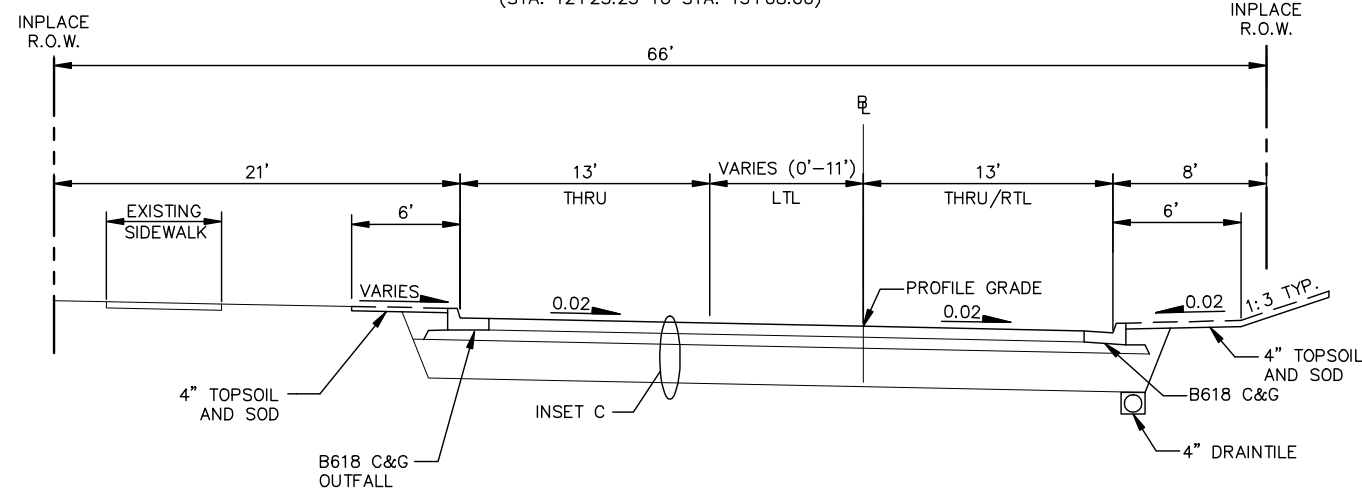
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS MINNESOTA AVENUE	
FILE NO. 160599001	52
TS11 OF TS16	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RISE_TYP12.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

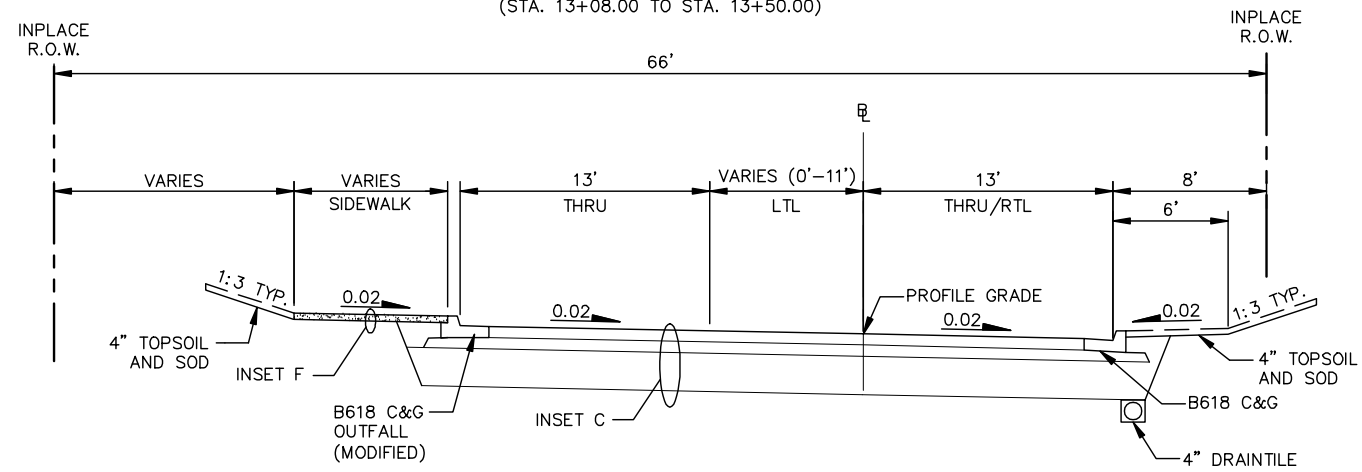
TYPICAL SECTION MINNESOTA AVENUE

(STA. 12+25.23 TO STA. 13+08.00)



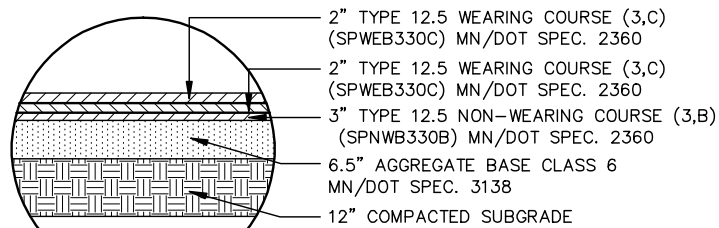
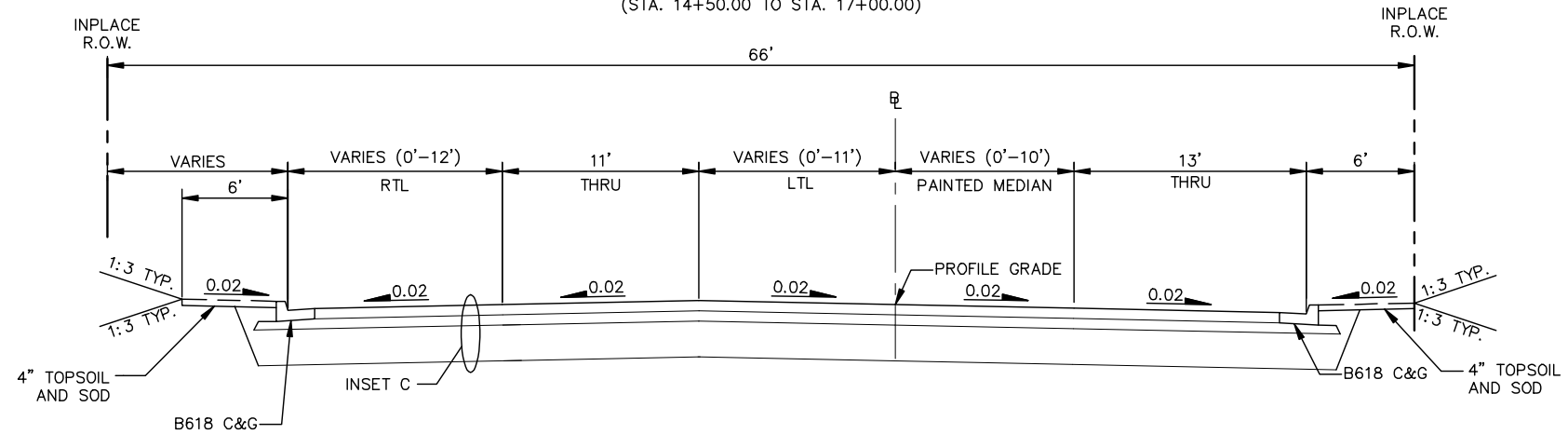
TYPICAL SECTION MINNESOTA AVENUE

(STA. 13+08.00 TO STA. 13+50.00)



TYPICAL SECTION MINNESOTA AVENUE

(STA. 14+50.00 TO STA. 17+00.00)



INSET C

GENERAL NOTES:

1. BL INDICATES BASELINE.
2. NORMAL CROSS SLOPES ARE SHOWN (FT/FT). FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN.
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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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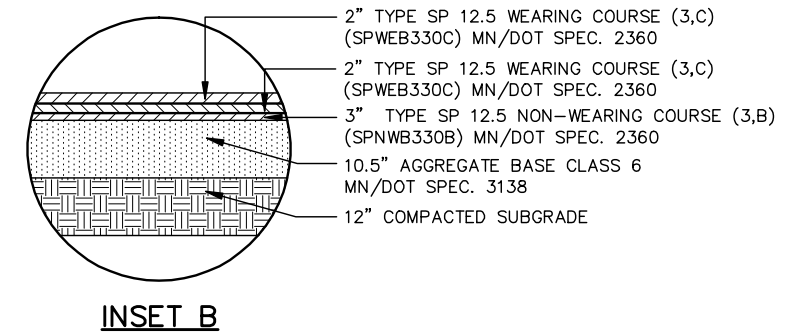
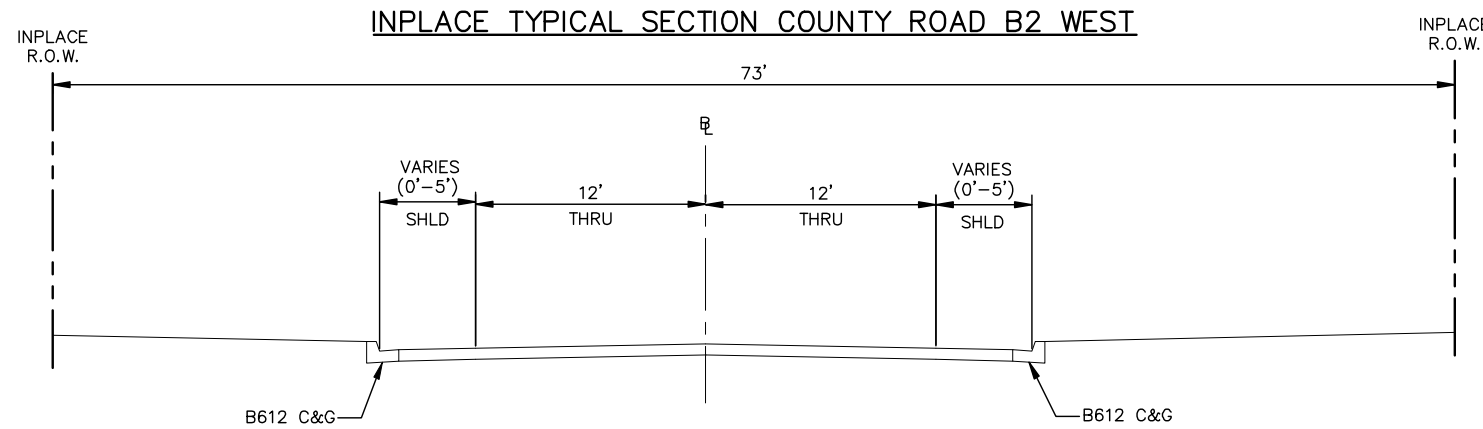
Kimley-Horn and Associates, Inc.
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 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

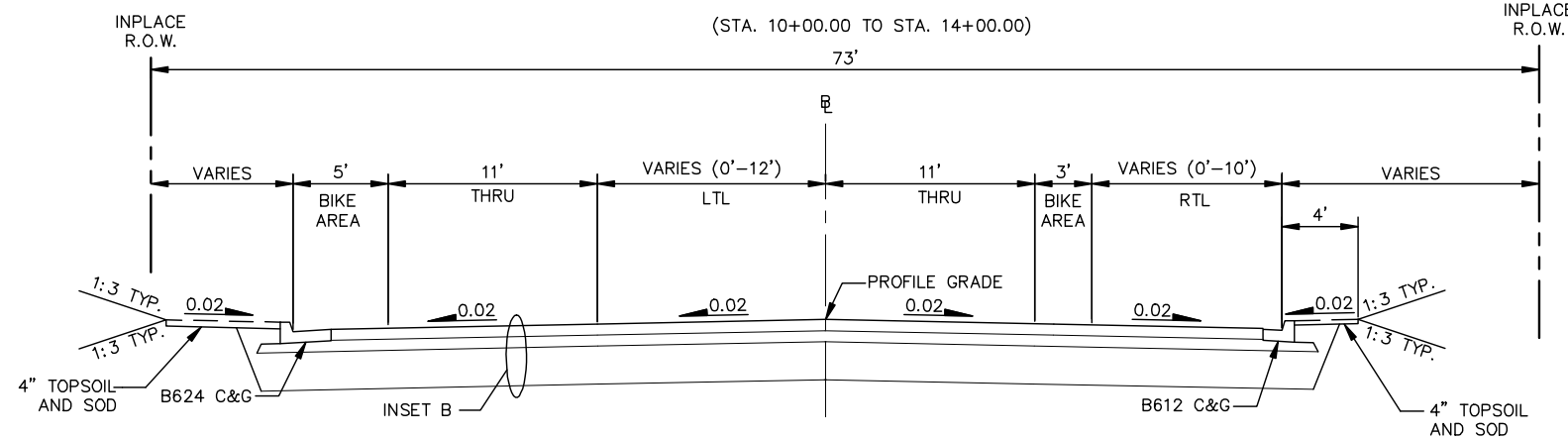
TYPICAL SECTIONS MINNESOTA AVENUE	
FILE NO.	53
160599001	
TS12	
OF TS16	534

GENERAL NOTES:

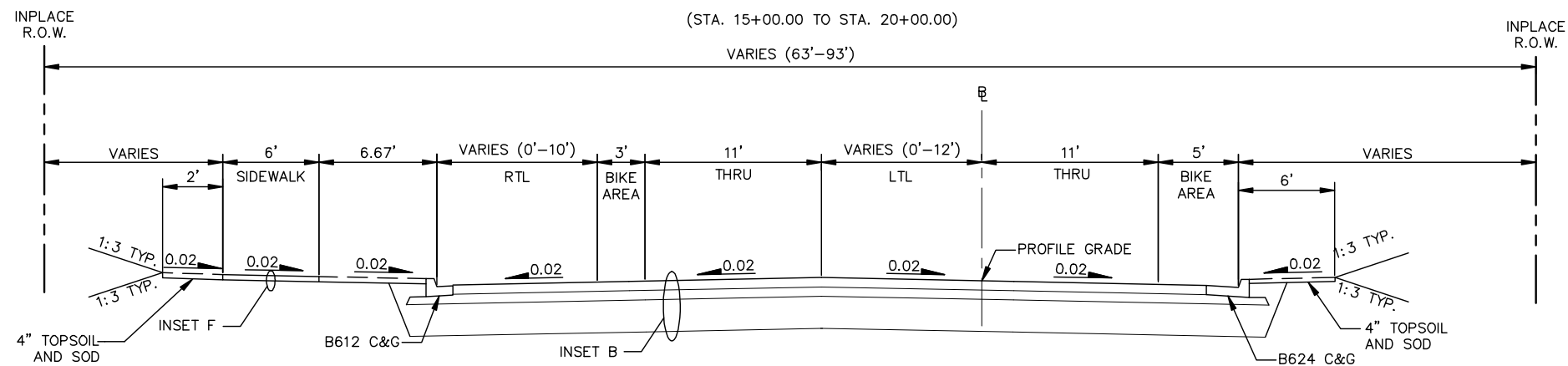
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TYPICAL SECTION COUNTY ROAD B2 WEST



TYPICAL SECTION COUNTY ROAD B2 WEST



K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN\RIE_TYP13.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM				
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE			
NO.	BY	DATE	REVISIONS	

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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS COUNTY ROAD B2 WEST	FILE NO. 160599001	54
	TS13 OF TS16	534

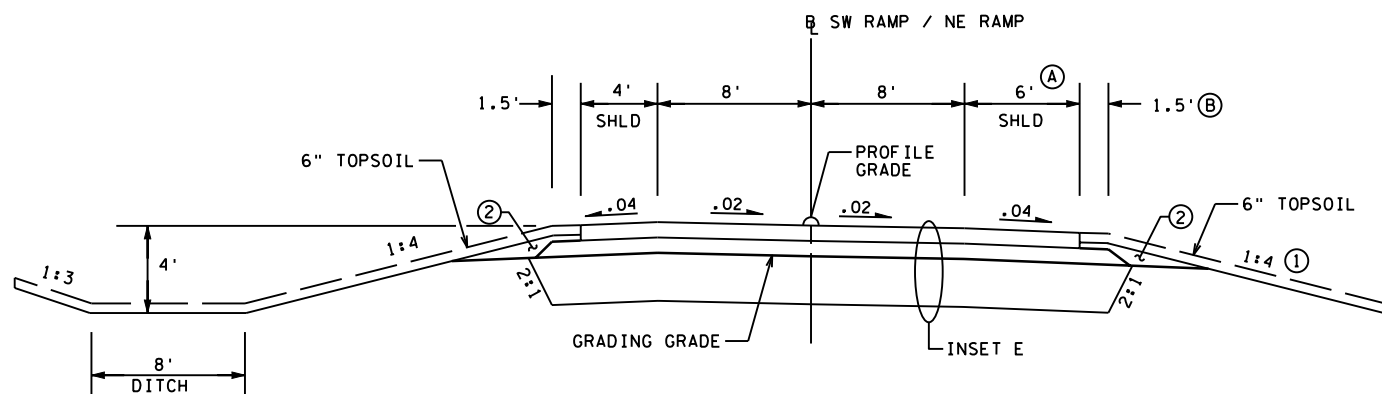
3/28/14 PM

5/6/2010

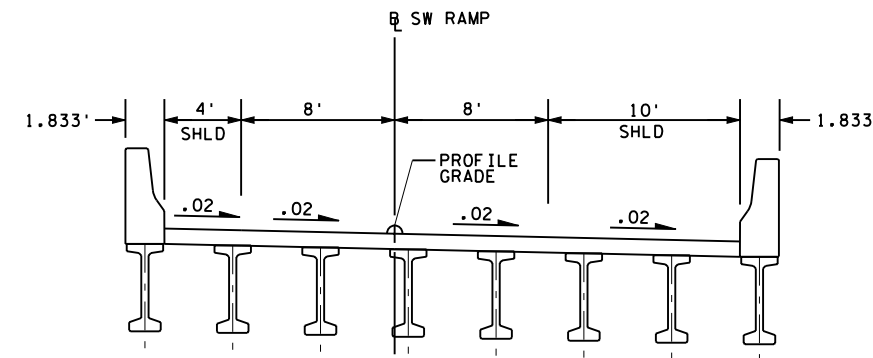
kerickson

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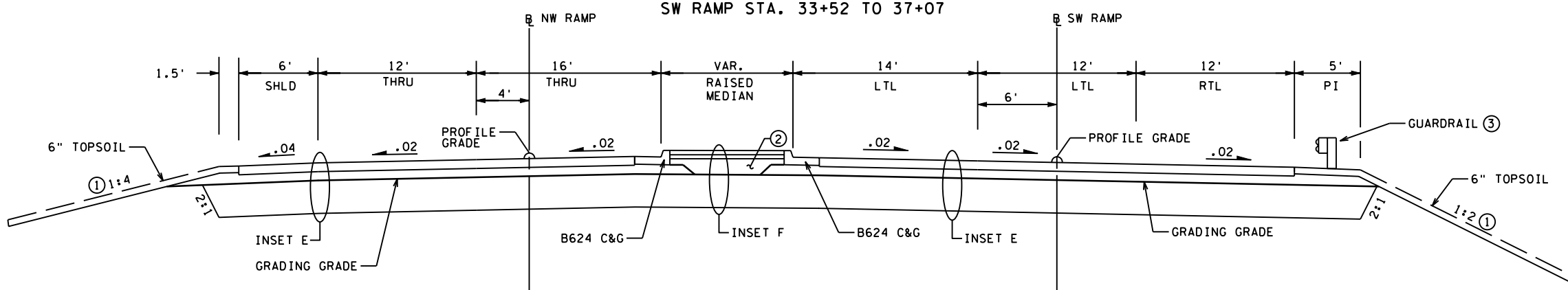
SW RAMP/NE RAMP
 SW RAMP STA. 20+00 TO 31+12
 NE RAMP STA. 10+00 TO 17+05



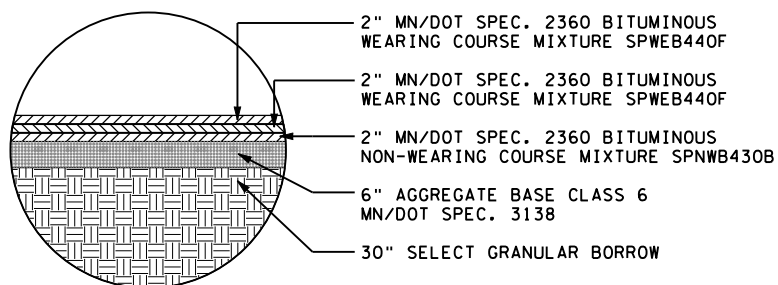
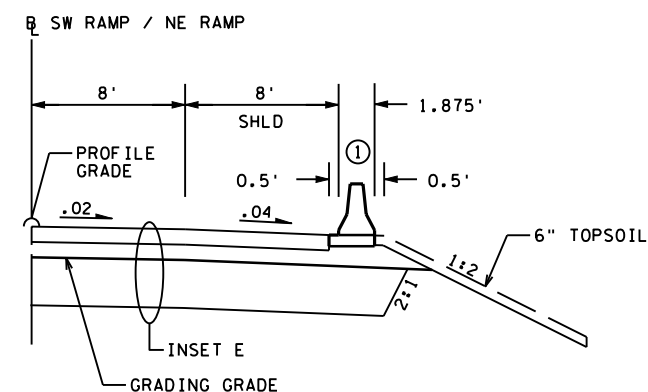
SW RAMP BRIDGE
 (SEE BRIDGE PLAN)
 SW RAMP STA. 31+12 TO 33+52



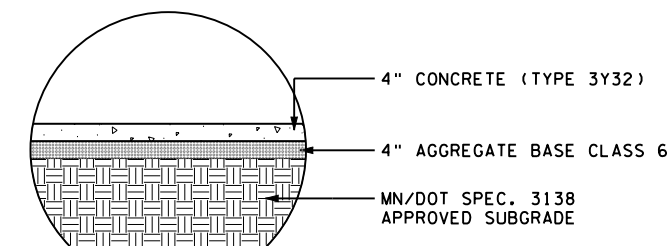
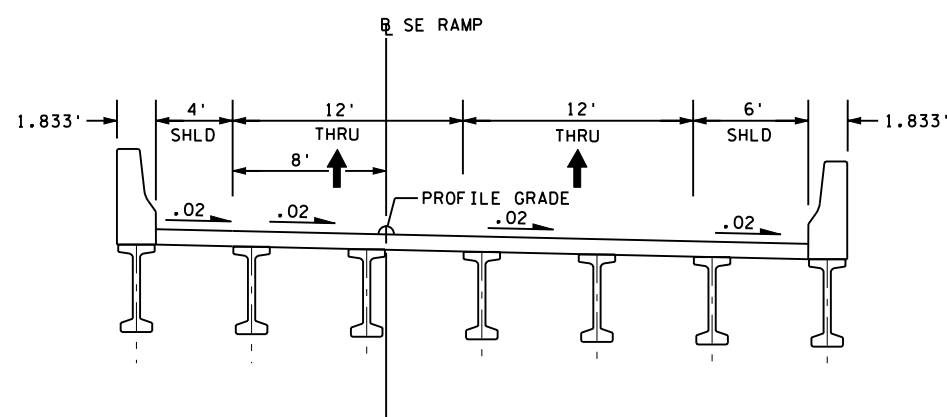
NW RAMP/SW RAMP
 NW RAMP STA. 40+37 TO 41+56
 SW RAMP STA. 33+52 TO 37+07



SW RAMP
 SW RAMP STA. 26+11 TO 30+55
 ① GUARDRAIL FROM STA. 25+36 TO 26+11



SE RAMP BRIDGE
 (SEE BRIDGE PLAN)
 SE RAMP STA. 12+66 TO 14+46



GENERAL NOTES:

1. NORMAL CROSS SLOPES ARE SHOWN (FT/FT) - FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN
2. UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE
3. SEE CROSS SECTIONS FOR VARIATIONS
4. TACK COAT TO BE APPLIED BETWEEN BITUMINOUS PAVEMENT LIFTS (INCIDENTAL)
5. B INDICATES BASELINE

SPECIFIC NOTES:

- ① SEE CROSS SECTIONS FOR VARIATIONS.
- ② BACKFILL WITH SUITABLE GRADING MATERIAL.
- ③ SEE CONSTRUCTION PLAN FOR GUARDRAIL LOCATION.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

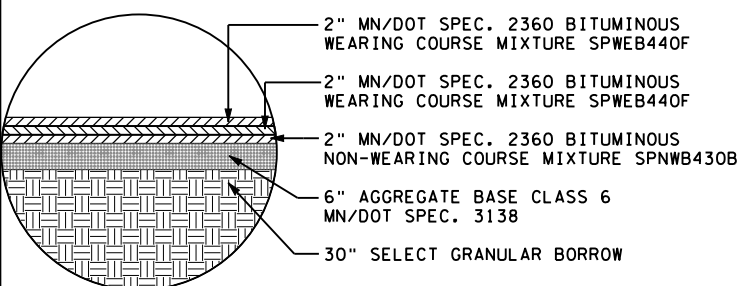
FILE NO.	55
RAMSP108790	
TS14	
OF TS16	534

3/28/55 PM

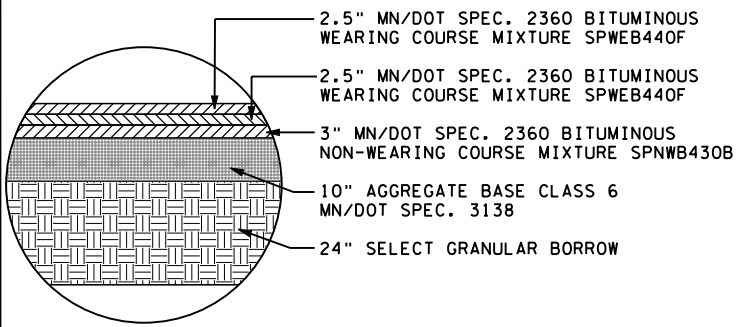
5/6/2010

kerickson

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Default

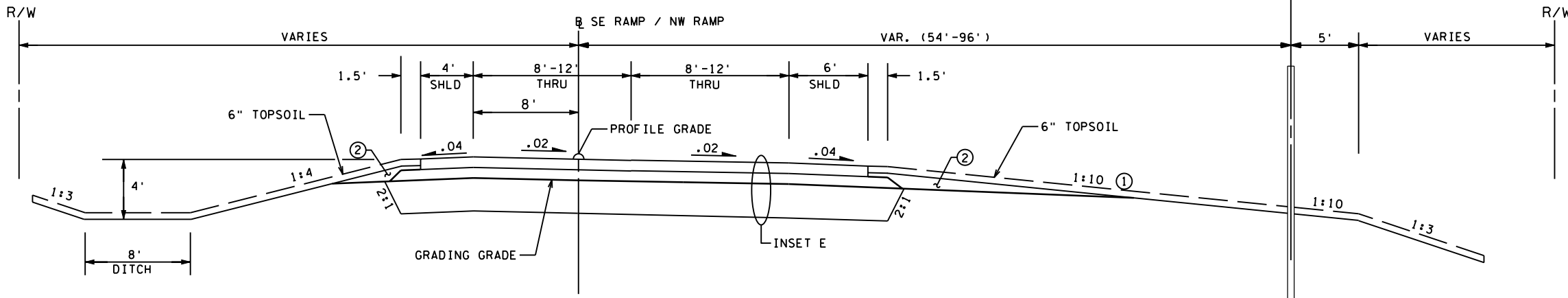


INSET E

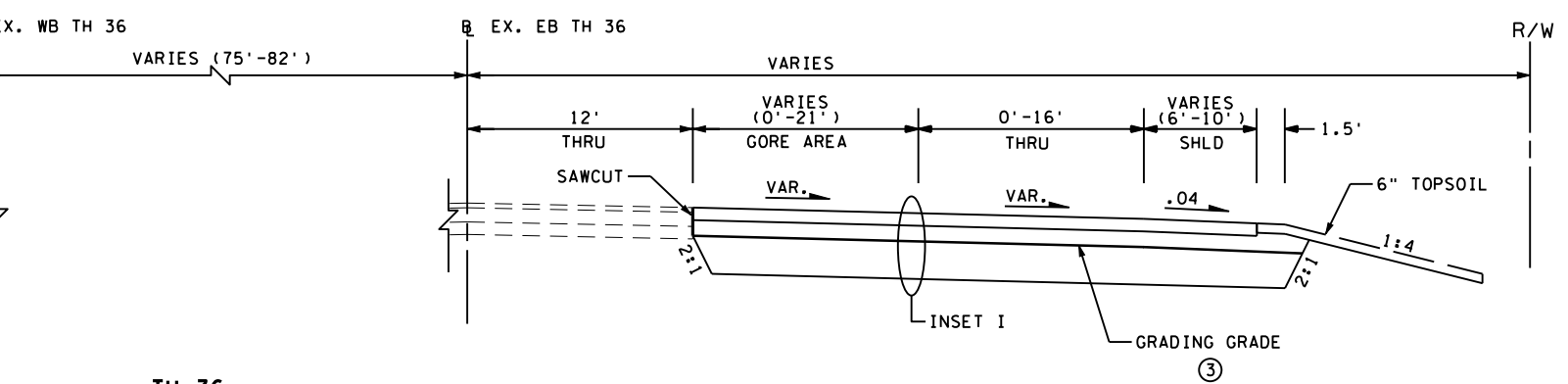
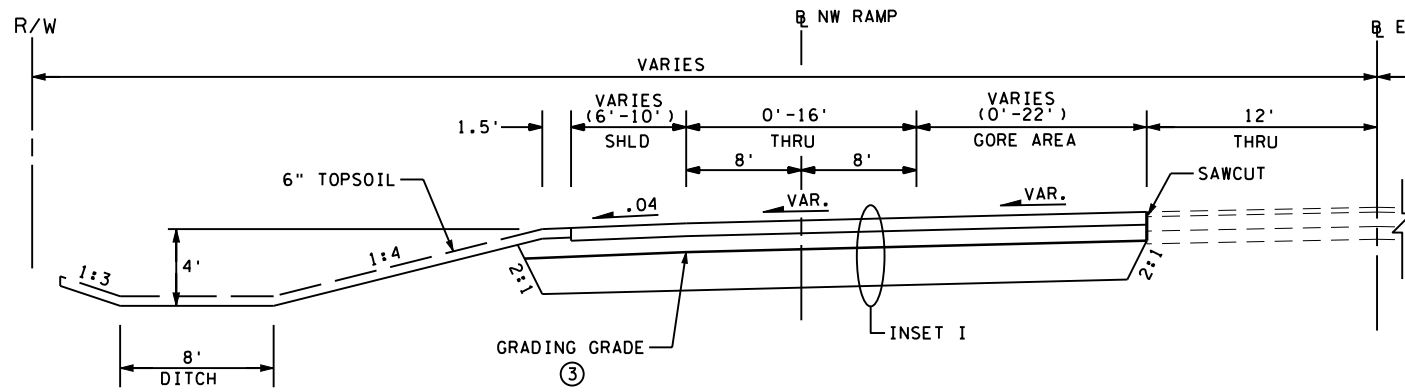


INSET I

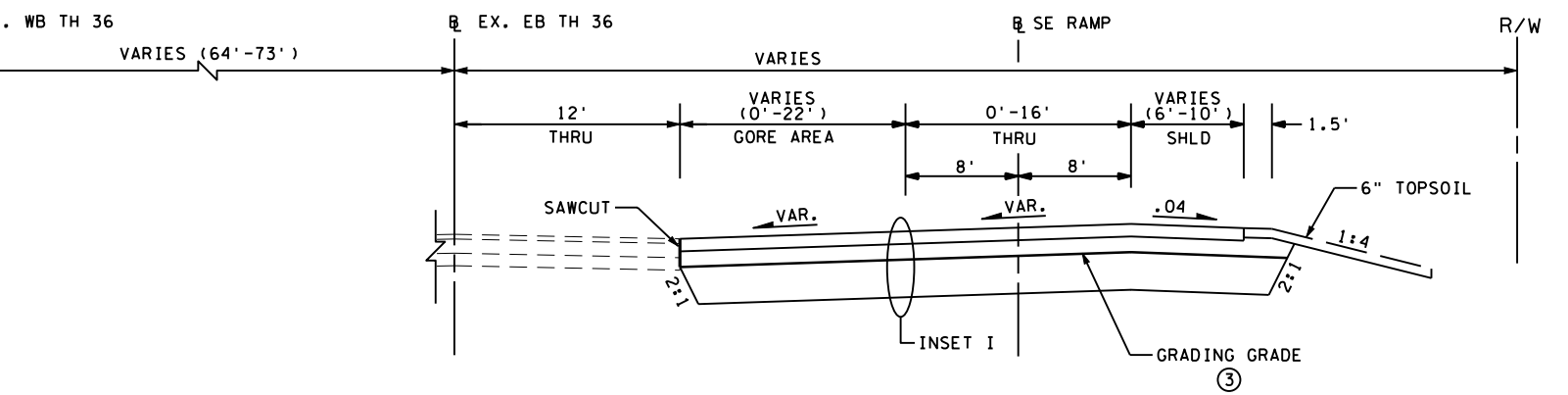
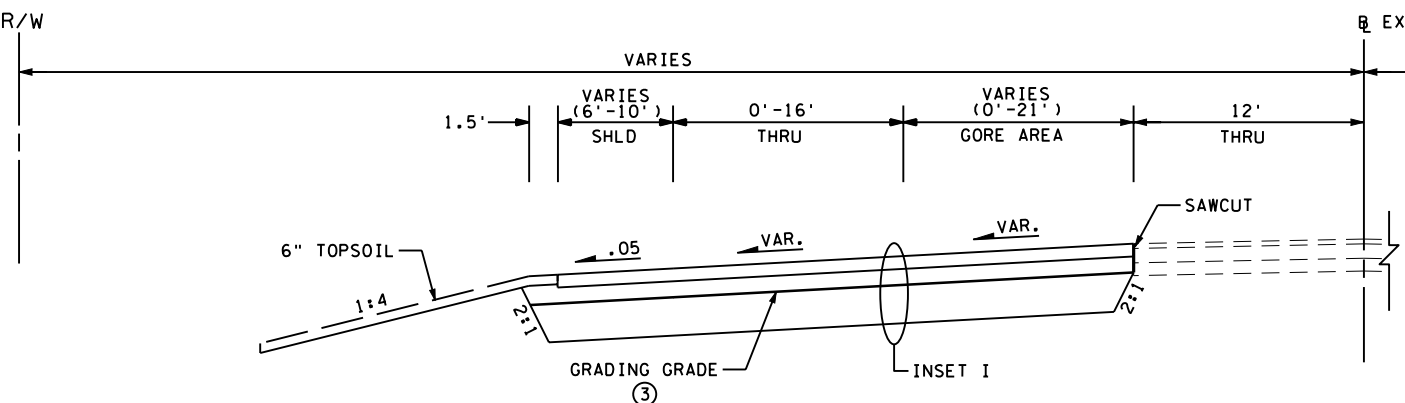
SE RAMP/NW RAMP
SE RAMP STA. 11+44 TO 12+66, 14+46 TO 26+85
NW RAMP STA 41+56 TO 54+56



TH 36
TH 36 WB STA. 247+66 TO 259+57
TH 36 EB STA. 249+92 TO 255+42



TH 36
TH 36 WB STA. 280+48 TO 286+62
TH 36 EB STA. 280+00 TO 287+83



GENERAL NOTES:

1. NORMAL CROSS SLOPES ARE SHOWN (FT/FT) - FOR SUPERELEVATION TRANSITIONS SEE CONSTRUCTION PLAN
2. UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE
3. SEE CROSS SECTIONS FOR VARIATIONS
4. TACK COAT TO BE APPLIED BETWEEN BITUMINOUS PAVEMENT LIFTS (INCIDENTAL)
5. @ INDICATES BASELINE

SPECIFIC NOTES:

- ① SEE CROSS SECTIONS FOR VARIATIONS.
- ② BACKFILL WITH SUITABLE GRADING MATERIAL.
- ③ TAPER GRADING GRADE AT A 1:40 IN TH 36 / RAMP TRANSITION AREAS.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

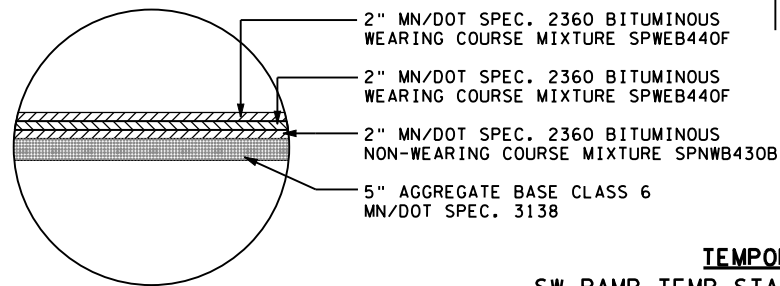
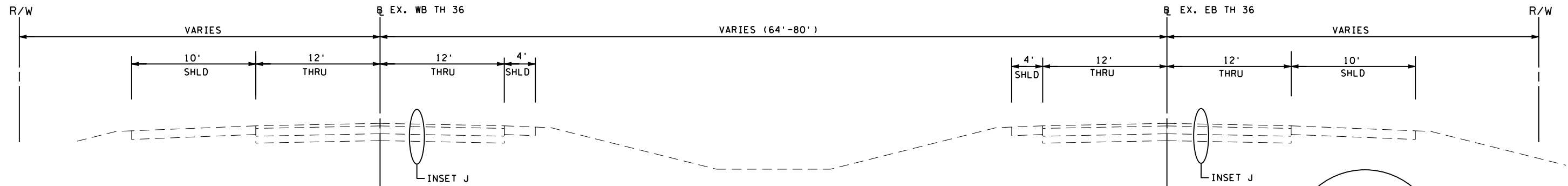


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

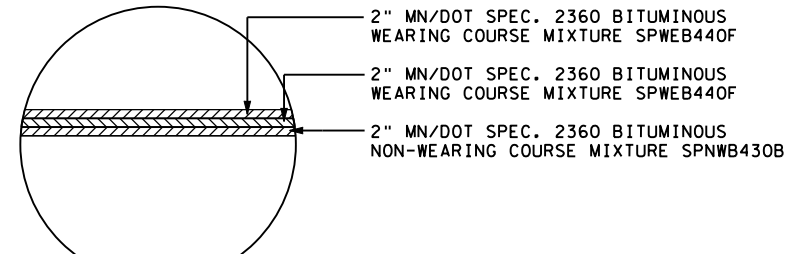
TYPICAL SECTIONS

FILE NO. RAMSP108790	56
TS15 OF TS16	534

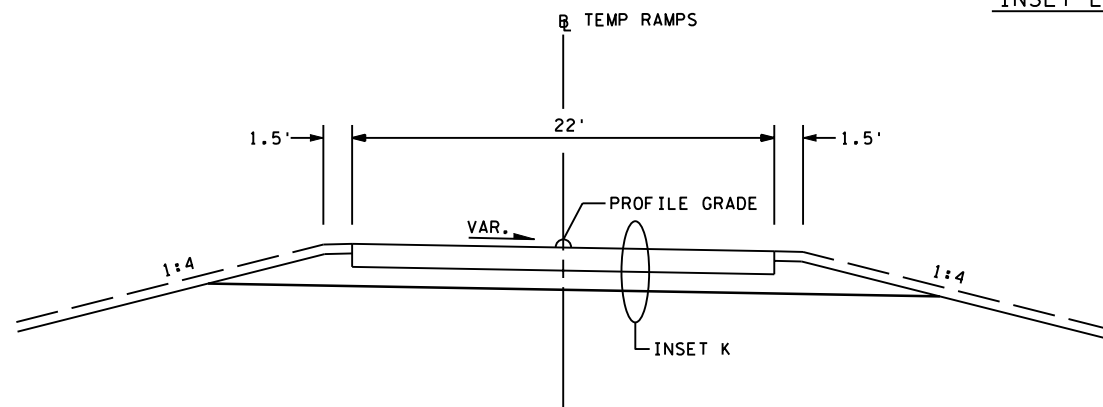
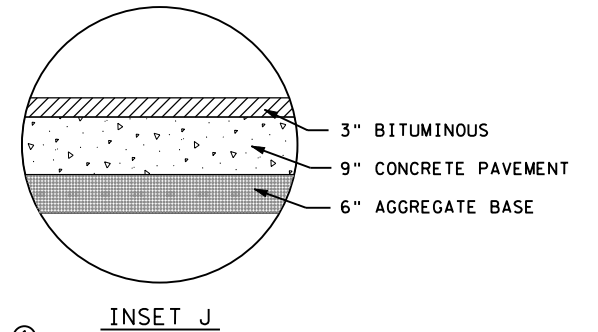
EXISTING TH 36



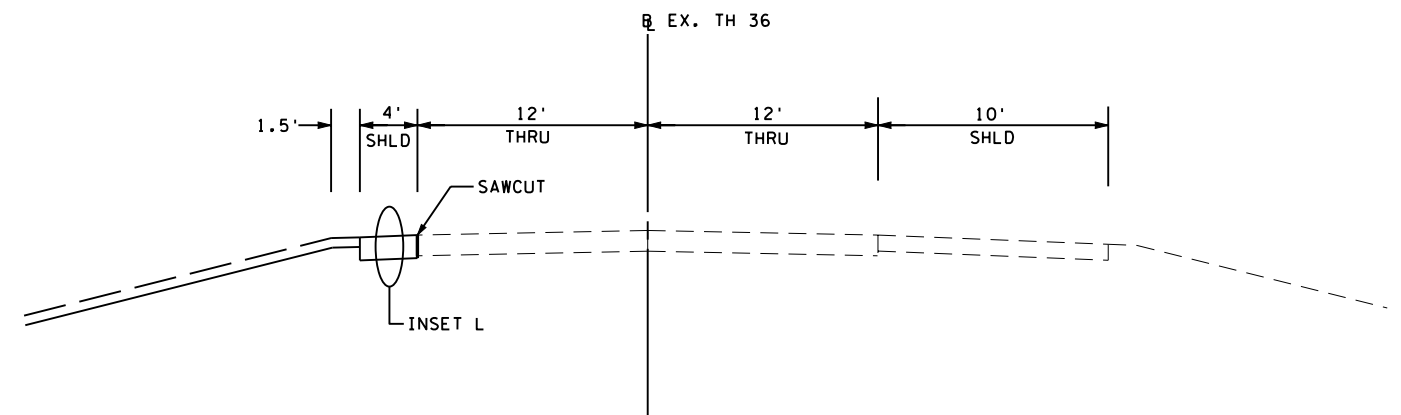
TEMPORARY RAMPS
 SW RAMP TEMP STA. 3+42.84 TO 5+81.83
 SE RAMP TEMP STA. 0+00.00 TO 2+76.92



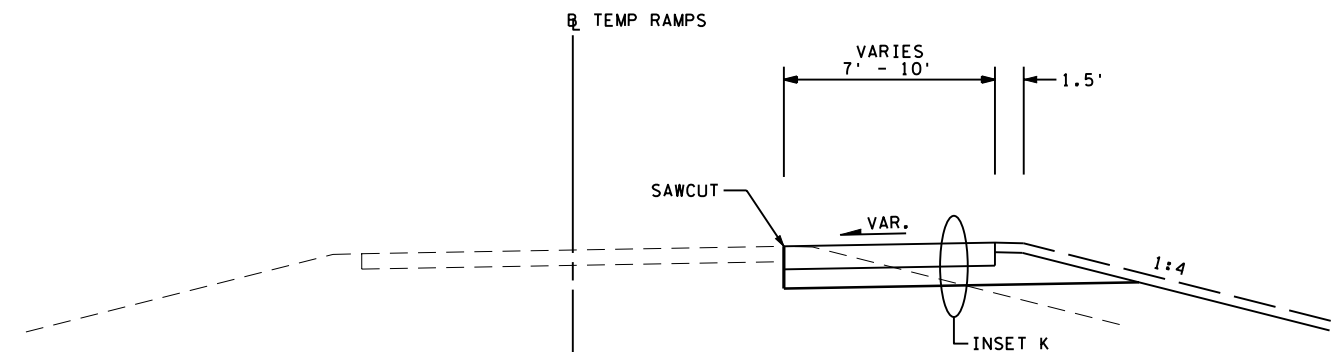
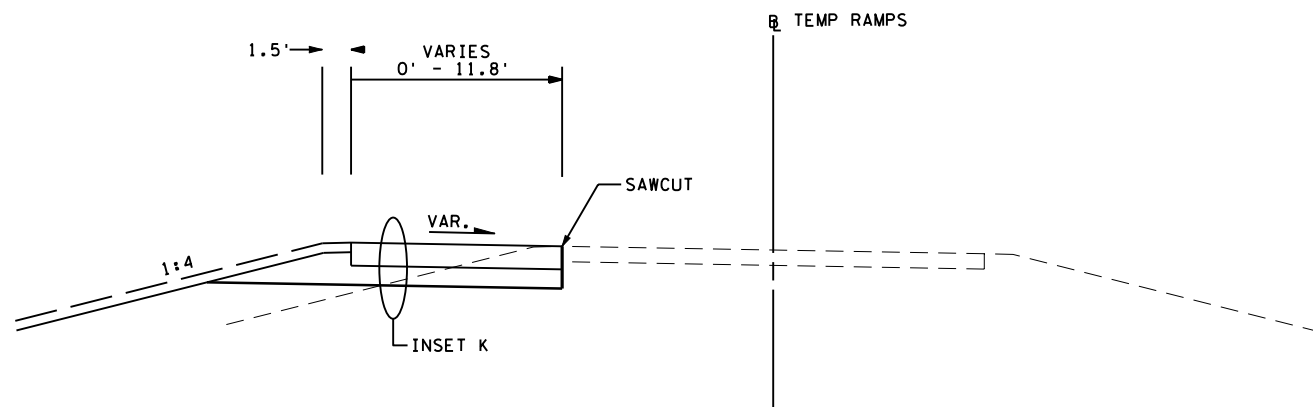
TH 36 SHOULDER RECONSTRUCTION ①
 EB TH 36 STA. 386+96.31 TO 288+63.72
 WB TH 36 STA. 385+90.50 TO 291+35.50



TEMPORARY RAMPS
 NE RAMP TEMP STA. 0+00.00 TO 5+24.42
 NW RAMP TEMP STA. 1+18.52 TO 6+82.76



TEMPORARY RAMPS
 SW RAMP TEMP STA. 0+00.00 TO 3+42.84
 SE RAMP TEMP STA. 2+76.92 TO 5+96.32



SPECIFIC NOTES:
 ① TO BE CONSTRUCTED PRIOR TO THE TH 36 LANE SHIFT. COMPACT EXISTING GRAVEL PRIOR TO CONSTRUCTION. COMPACTION WORK IS INCIDENTAL.

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



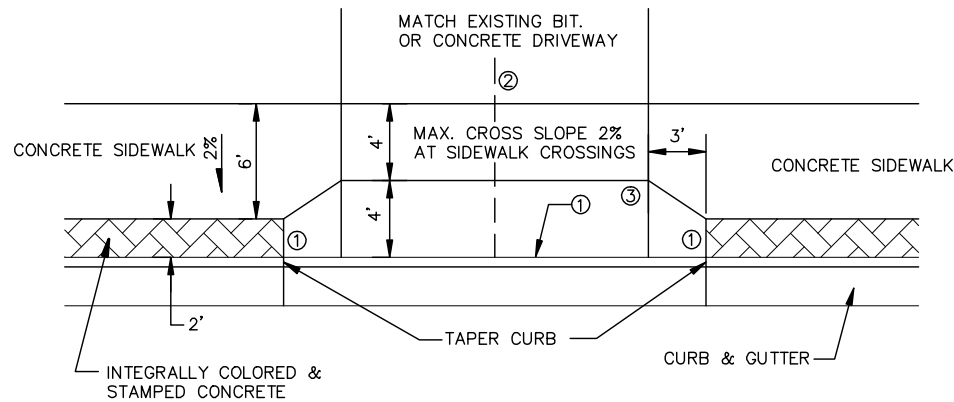
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPICAL SECTIONS

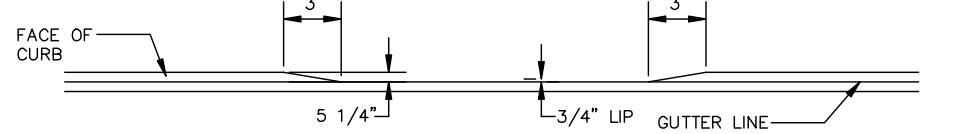
FILE NO. **57**
 RAMSP08790
 TS16
 OF TS16 **534**

3/28/10 5/6/2010 kerickson S:\PT\VR\Remsp\108790\p1nshfts\vr\ampsp108790_ts.dgn

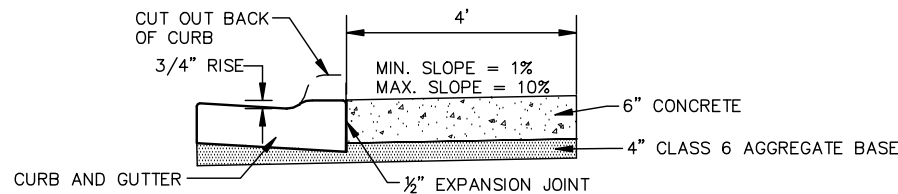
K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONSTR\CONSTR_PLAN\RIE_DTL02.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



PLAN

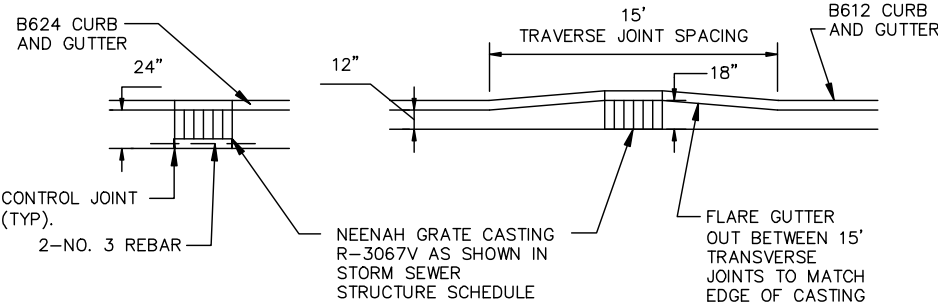
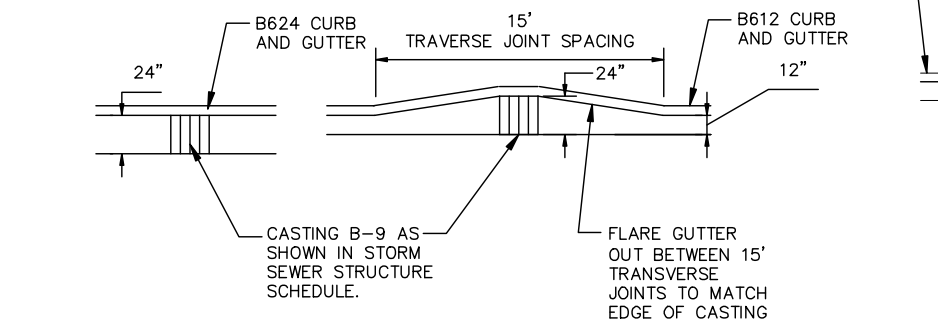


ELEVATION



SECTION

RESIDENTIAL DRIVEWAY APRON

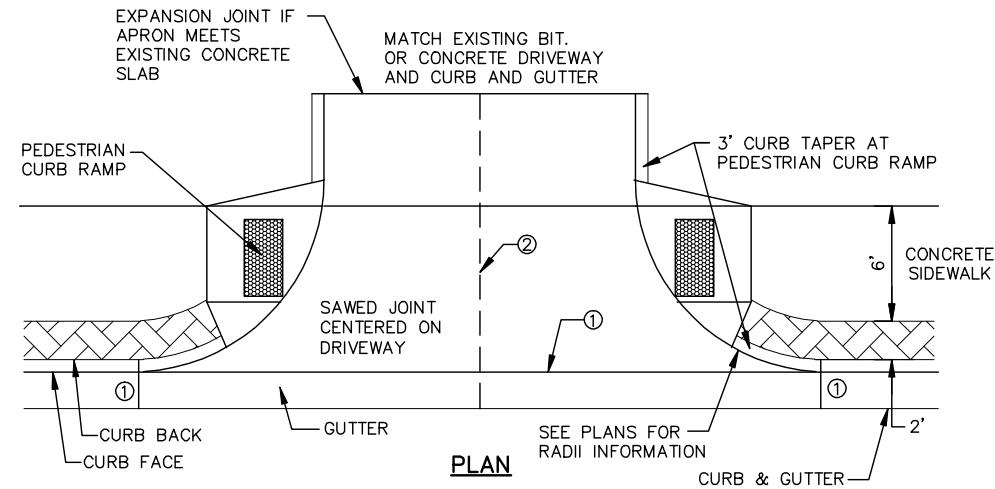


GUTTER TRANSITION AT CATCH BASINS

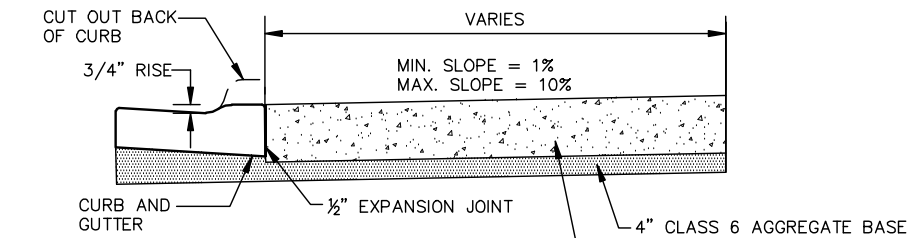
- ① EXPANSION MATERIAL AT JOINT.
- ② CONTRACTION JOINTS TO BE CUT TO TROWEL DEPTH ALONG ALL CONCRETE SECTIONS.
- ③ WHEN DRIVEWAY GRADE IS NEGATIVE, THE TOP BACK OF APRON SHALL BE 0.1' BELOW FINISHED CENTERLINE OF THE DRIVEWAY.

NOTES:

- 1. EXPANSION MATERIAL REQUIRED AT JOINTS WHEN CONCRETE DRIVES PLACED IN HALVES.
- 2. CUT ALL CURB AND GUTTER JOINTS TO MATCH ALL EXISTING DRIVEWAYS.
- 3. MINIMUM DISTANCE BETWEEN CONTRACTION JOINTS IS 6'.
- 4. CONTINUE DRIVEWAY SECTION THROUGH SIDEWALK AT DRIVEWAY LOCATIONS.
- 5. CONTRACTOR SHALL INSTALL HIGH EARLY STRENGTH CONCRETE WHERE DIRECTED BY THE ENGINEER.

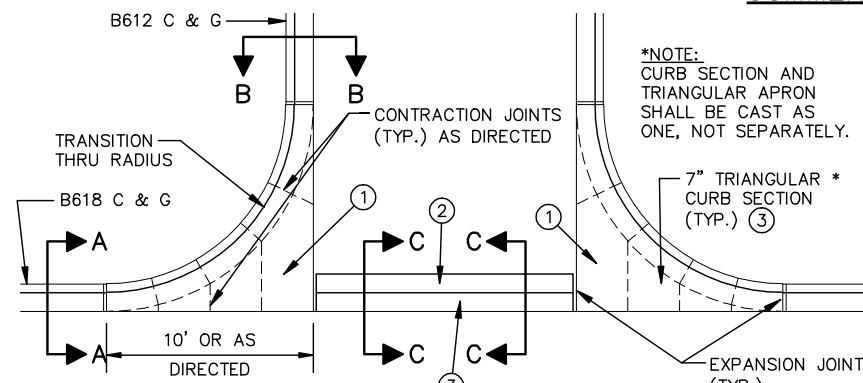


PLAN



SECTION

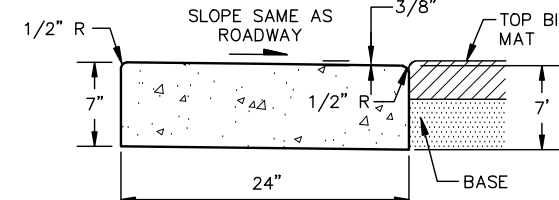
COMMERCIAL DRIVEWAY APRON



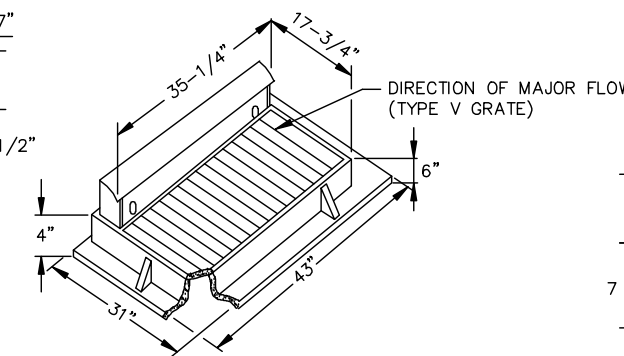
SECTION A-A SECTION B-B SECTION C-C

- ① PAID FOR AS 7" CONCRETE DRIVEWAY PAVEMENT
- ② PAID FOR AS CONCRETE VALLEY GUTTER
- ③ PLACE ON MIN. 10" CLASS 5 AGGREGATE BASE

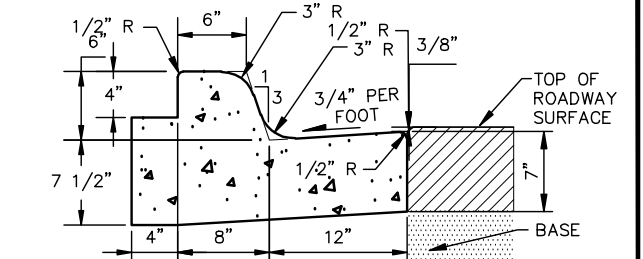
CONCRETE VALLEY GUTTER



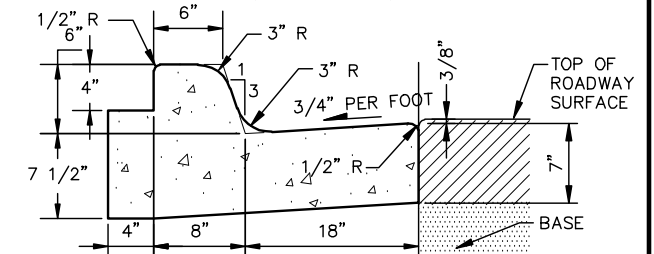
CONCRETE CURB DESIGN SPECIAL (TERRACE HEIGHTS)



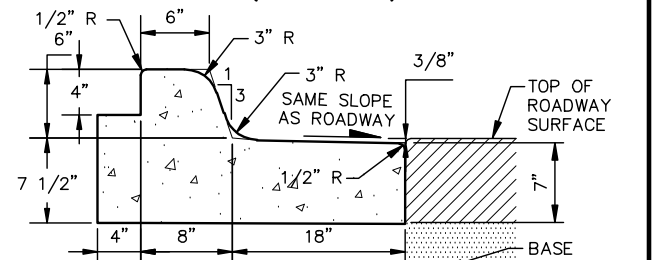
SPECIAL CASTING 2



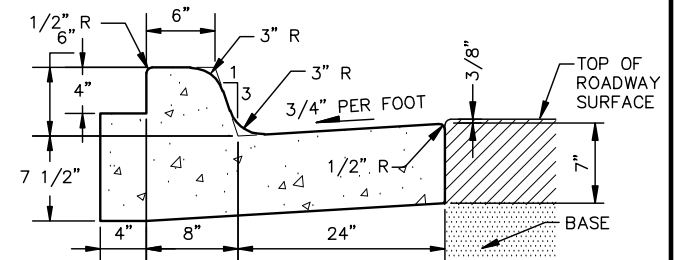
B612 CURB & GUTTER (MODIFIED)



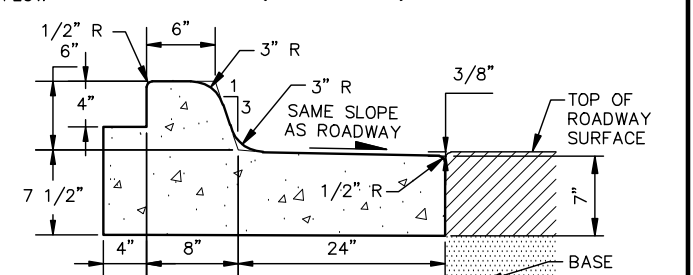
B618 CURB & GUTTER (MODIFIED)



B618 CURB & GUTTER (MODIFIED OUTFALL)



B624 CURB & GUTTER (MODIFIED)



B624 CURB & GUTTER (MODIFIED OUTFALL)

NOTE: MODIFIED CURB SHALL BE PAID FOR AS REGULAR CURB.

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.
 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

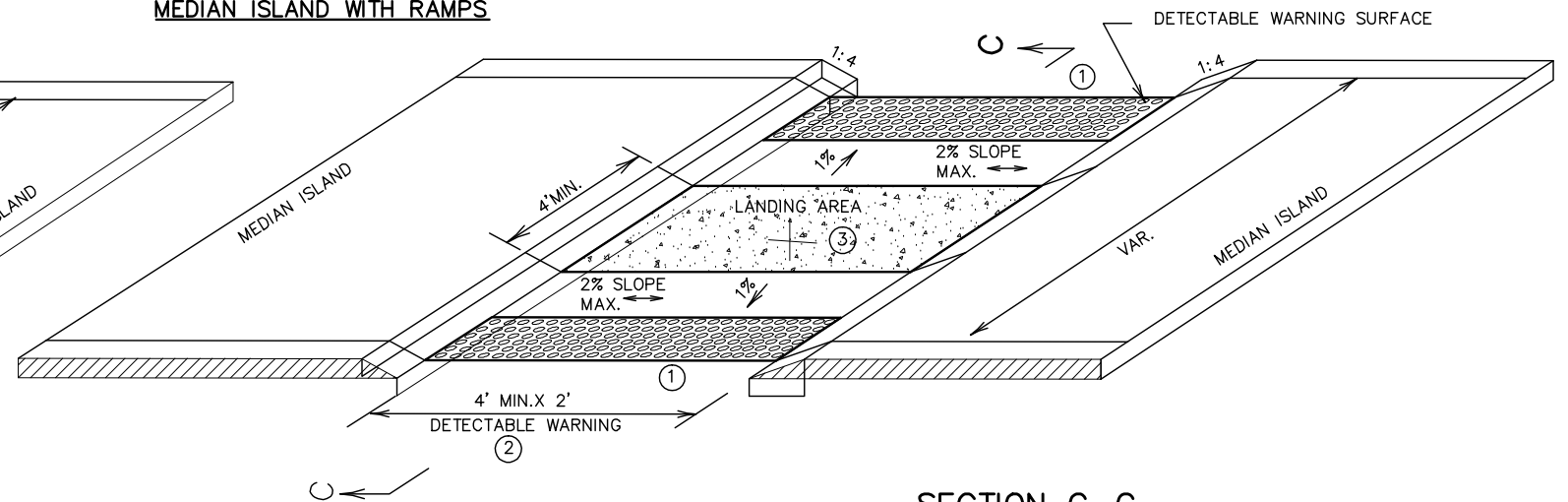
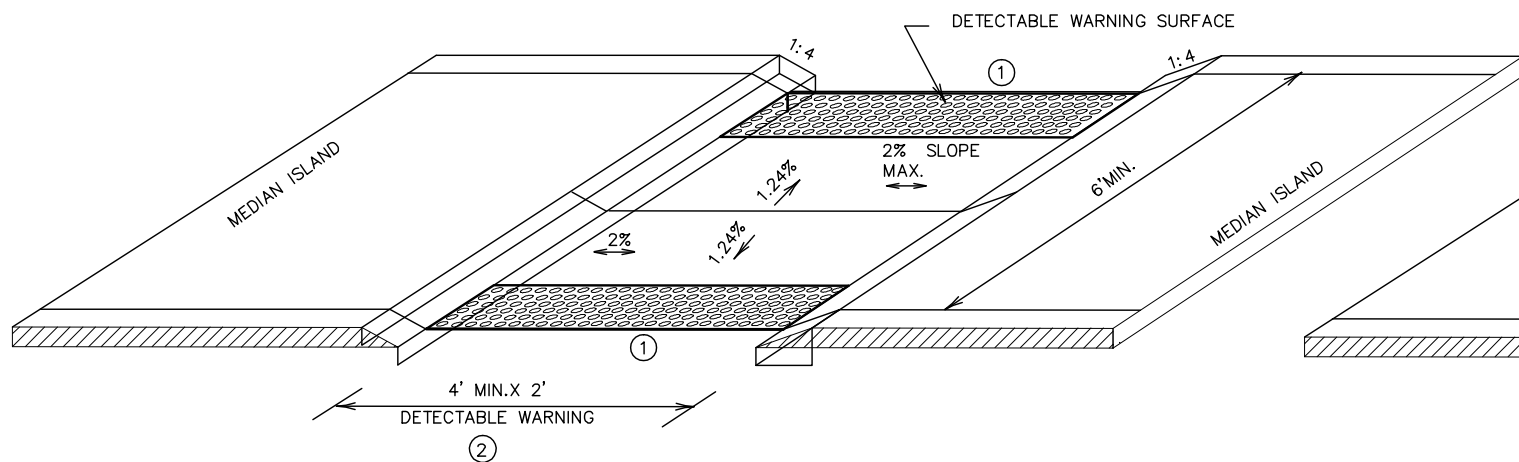
MISCELLANEOUS DETAILS

FILE NO. 58
 160599001
 MD1
 OF MD5
 534

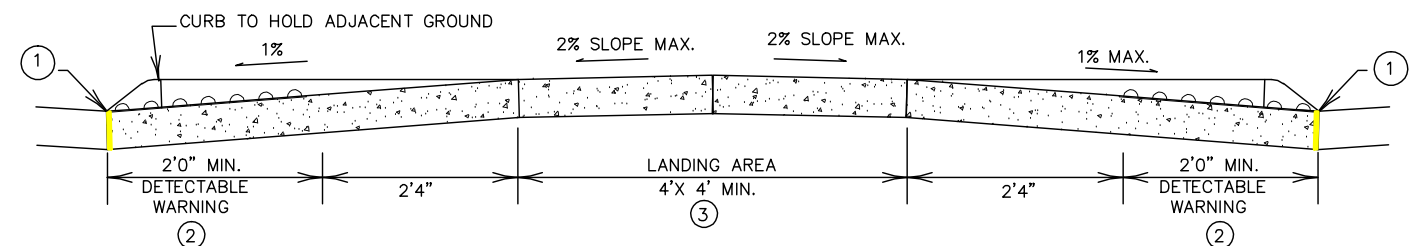
DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: RJG				
DESIGNER: RJG				
CHECKED BY: BAE				

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\TH36_RICE_STREET.dwg PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

MEDIAN ISLAND WITH RAMPS



SECTION C-C



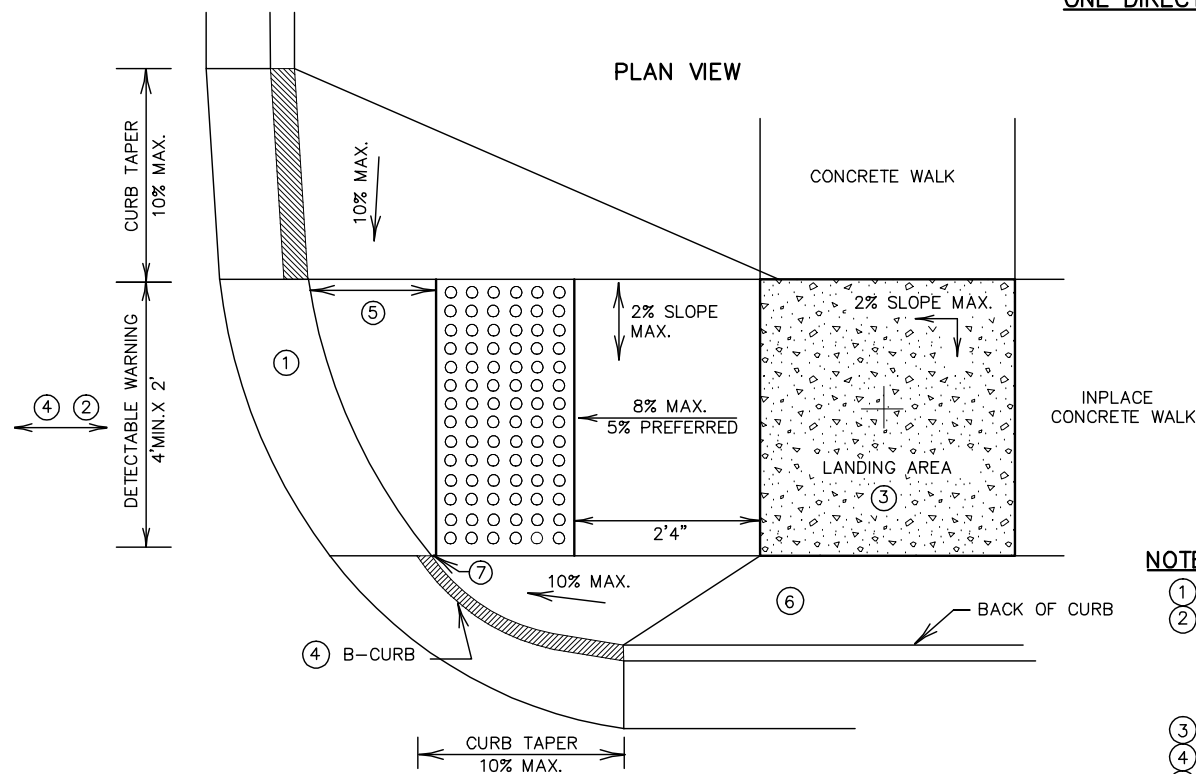
GENERAL NOTES:

- SEE STANDARD PLATE 7036 FOR DETAILS ON DETECTABLE WARNING.
- DETECTABLE WARNING AREA SHALL BE CAST IRON.
- PAINTING OF CURB IS INCIDENTAL.
- DON'T PAINT CURB IN FRONT OF TRUNCATED DOME.
- PEDESTRIAN CURB RAMPS SHALL BE 6" CONCRETE.

NOTES:

- ① 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M213
- ② ADA REQUIRED DETECTABLE WARNING AREA SHALL BE 2'0" MIN. IN DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH (4'0" TYPICAL 6'0" PREFERRED) OF THE CURB RAMP. THIS 2'0" BY 4'0" WIDTH (TYPICAL 6'0" PREFERRED) DETECTABLE WARNING AREA SHALL CONTRAST VISUALLY WITH THE ADJACENT WALKING SURFACE. THE ENTIRE TRUNCATED DOME AREA SHALL BE CAST IRON.
- ③ 4'0" MIN. FOR NEW CONSTRUCTION, 6'0" PREFERRED.

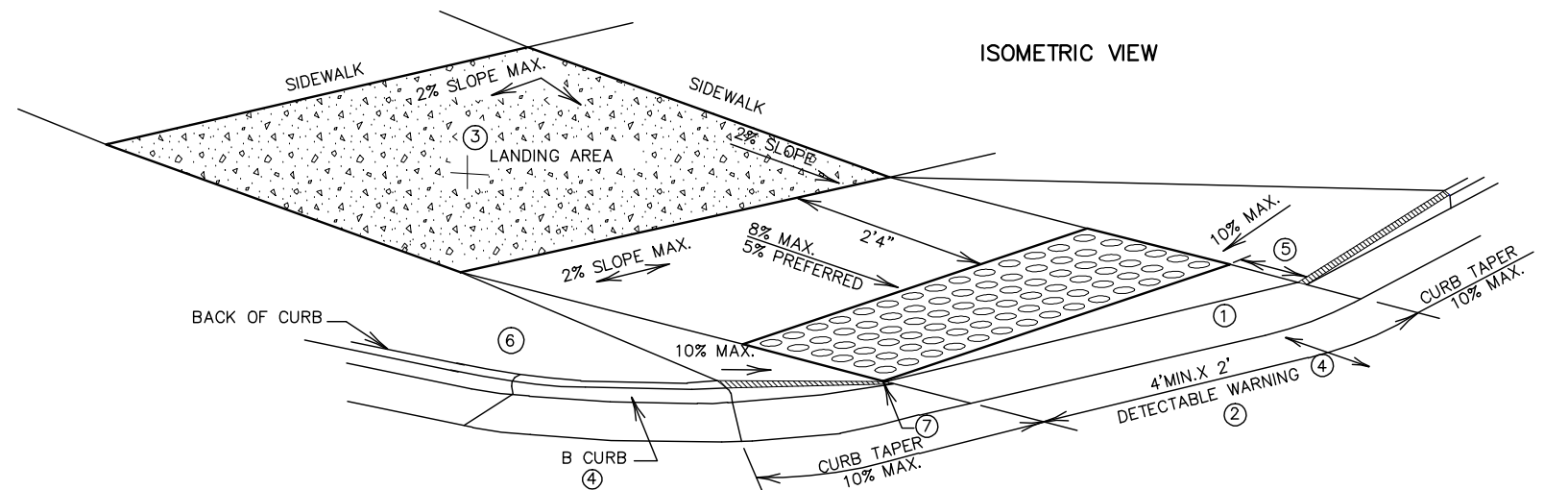
ONE DIRECTION CROSSING AT RADIUS



NOTES:

- ① 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M213
- ② ADA REQUIRED DETECTABLE WARNING AREA SHALL BE 2'0" MIN. IN DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH (4'0" TYPICAL 6'0" PREFERRED) OF THE CURB RAMP. THIS 2'0" BY 4'0" WIDTH (TYPICAL 6'0" PREFERRED) DETECTABLE WARNING AREA SHALL CONTRAST VISUALLY WITH THE ADJACENT WALKING SURFACE. THE ENTIRE TRUNCATED DOME AREA SHALL BE CAST IRON.
- ③ 5'X 5' MIN. FOR NEW CONSTRUCTION, 6' PREFERRED.
- ④ HEIGHT OF CURB DEPENDS ON CURB RADIUS (MINIMUM IS 4" CURB).
- ⑤ DISTANCE SHALL BE LESS THAN 5'. IF MORE THAN 5' THEN DETECTABLE WARNING NEEDS TO BE AT CURB EDGE.
- ⑥ INTEGRALLY COLORED AND STAMPED CONCRETE MAINTENANCE EDGE.
- ⑦ DISTANCE SHALL BE 3" MIN. FROM BACK OF CURB.

ISOMETRIC VIEW



GENERAL NOTES:

- SEE STANDARD PLATE 7036 FOR DETAILS ON DETECTABLE WARNING.
- DETECTABLE WARNING AREA SHALL BE CAST IRON.
- PAINTING OF CURB IS INCIDENTAL.
- DON'T PAINT CURB IN FRONT OF TRUNCATED DOME.
- FLARED SIDES WITH A SLOPE OF 10% MAX. MEASURED ALONG THE CURB LINE. SHALL BE PROVIDED WHERE A CIRCULATION PATH CROSSES THE SIDEWALK RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE EDGES OF A SIDEWALK RAMP ARE PROTECTED BY LANDSCAPING OR OTHER BARRIERS TO TRAVEL BY WHEELCHAIR USERS OR PEDESTRIANS ACROSS THE EDGE OF THE SIDEWALK RAMP.
- PEDESTRIAN CURB RAMPS SHALL BE 6" CONCRETE.

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

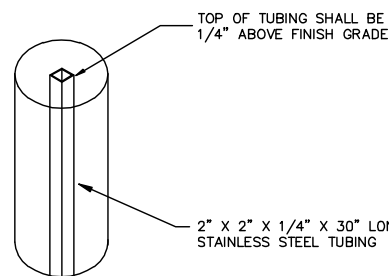
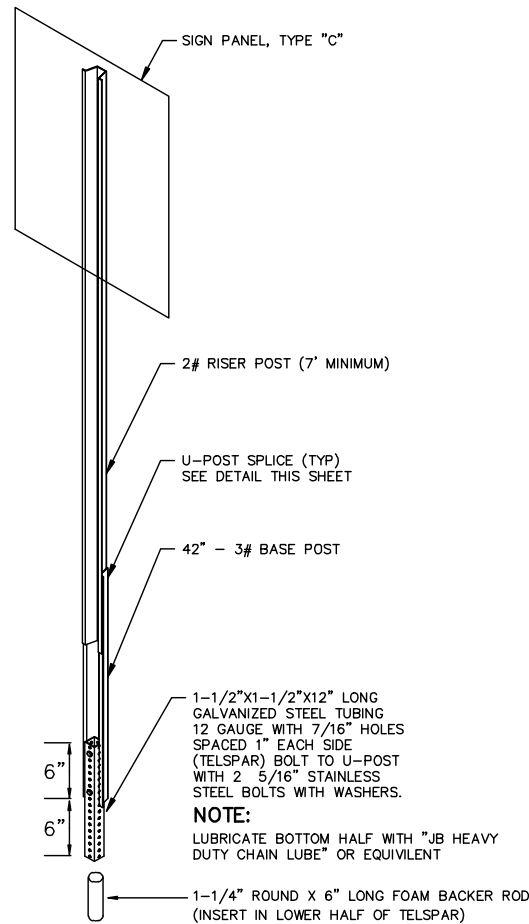
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

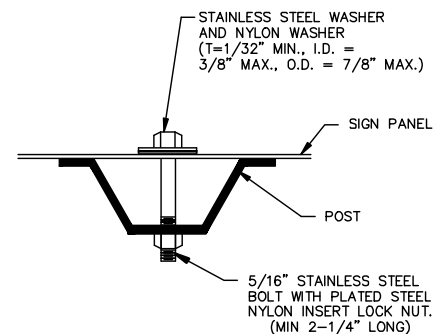
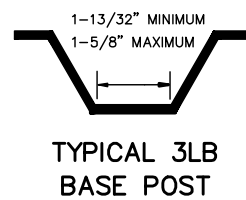
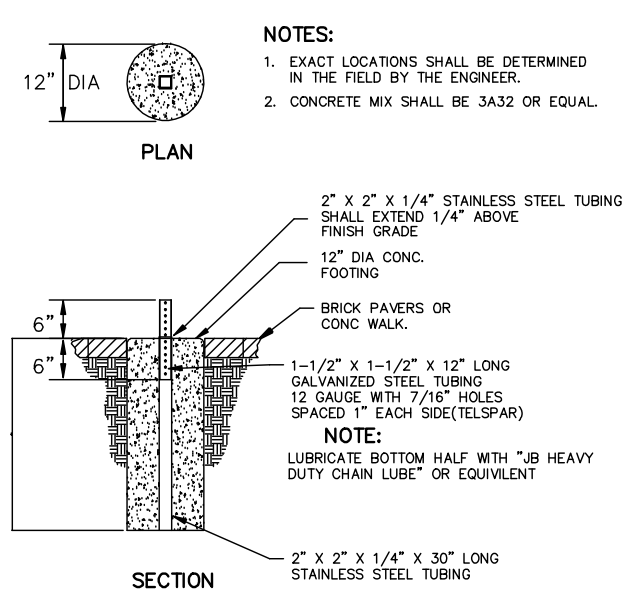
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

MISCELLANEOUS DETAILS	
FILE NO.	59
160599001	
MD2	
OF MD5	534

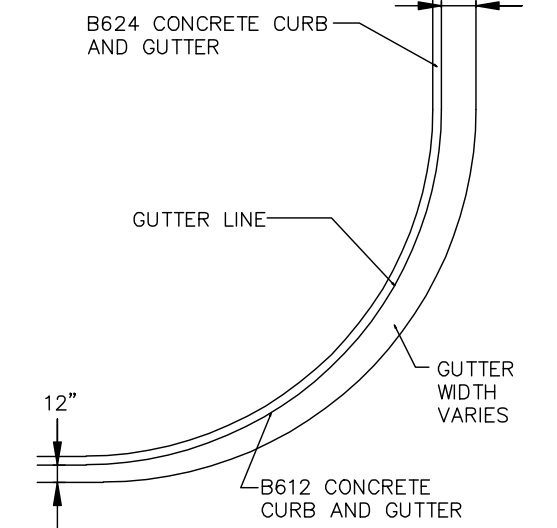
**BREAKAWAY SIGN POST
(FOR TYPE "C" SIGNS INSTALLED IN CONCRETE)**



**BREAKAWAY SIGN POST FOUNDATION
(FOR TYPE "C" SIGNS INSTALLED IN CONCRETE)**

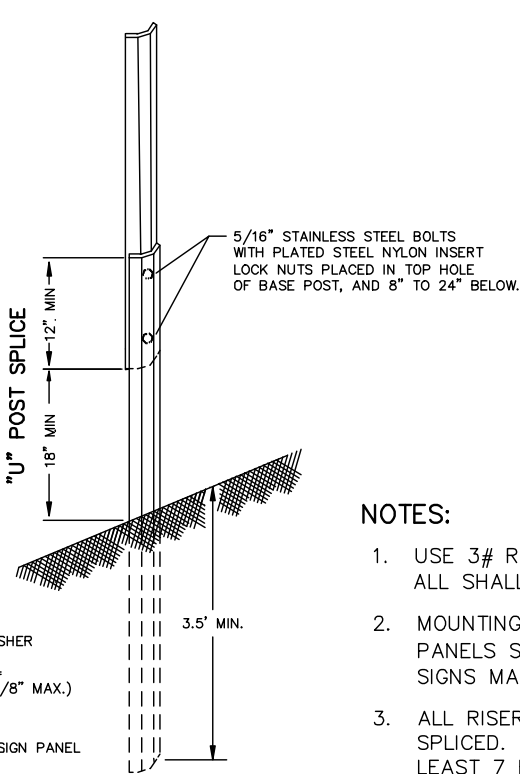


**"U" POST MOUNTING
TYPE "C" SIGNS**



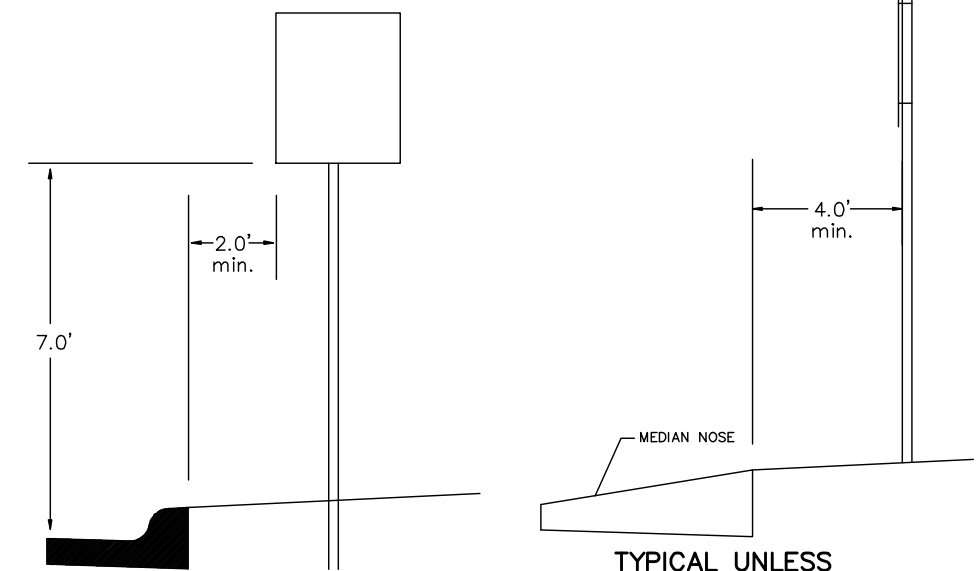
GUTTER TRANSITIONS AT INTERSECTIONS

**TYPE "C" POST
(GROUND INSTALLATION)**



NOTES:

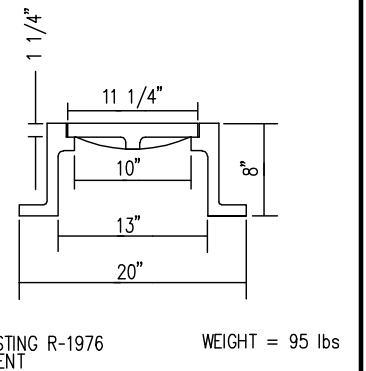
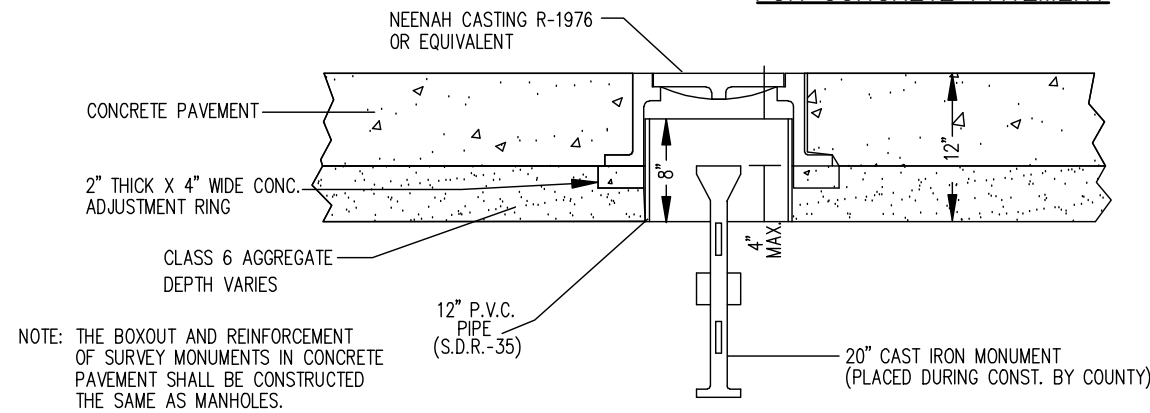
1. USE 3# RISER STUB POSTS, WITH 2# RISER POSTS, ALL SHALL CONFORM TO MN/DOT SPECIFICATION 3401.
2. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
3. ALL RISER (VERTICAL) "U" POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7 FEET LONG.
4. USE STAINLESS STEEL 5/16" BOLTS AND WASHERS WITH PLATED STEEL NYLON INSERT LOCK NUTS AS SHOWN.



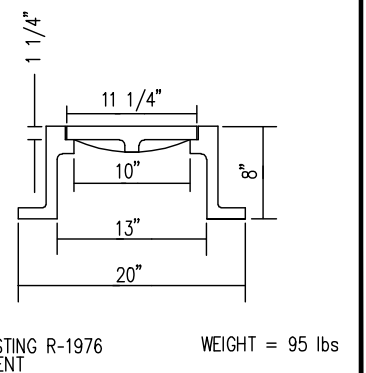
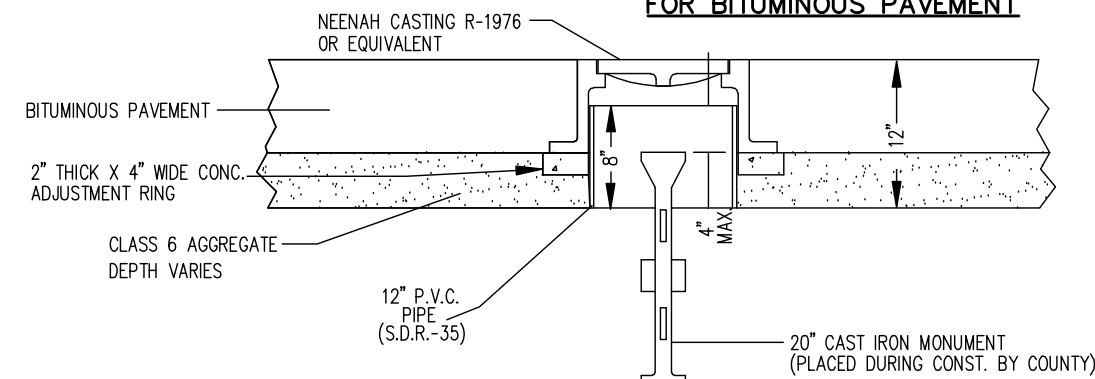
**TYPICAL UNLESS
OTHERWISE NOTED**

5. STAINLESS STEEL WASHER WITH THE SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
6. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - JANUARY 2004 OR NEWER.
7. ALL TRAFFIC CONTROL DEVICES SHALL HAVE DIAMOND GRADE CUBED RETROREFLECTIVE SHEETING.

**CONTROL STRUCTURE SURVEY MONUMENT MANHOLE
FOR CONCRETE PAVEMENT**



**CONTROL STRUCTURE SURVEY MONUMENT MANHOLE
FOR BITUMINOUS PAVEMENT**



K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RISE_DTL08.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum*
 Licensed Professional Engineer, License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

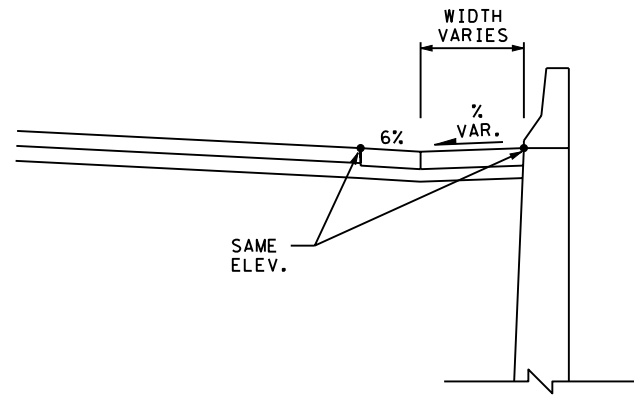
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FILE NO.	60
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MD3	
OF MD5	534

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5/27/2010

kerickson

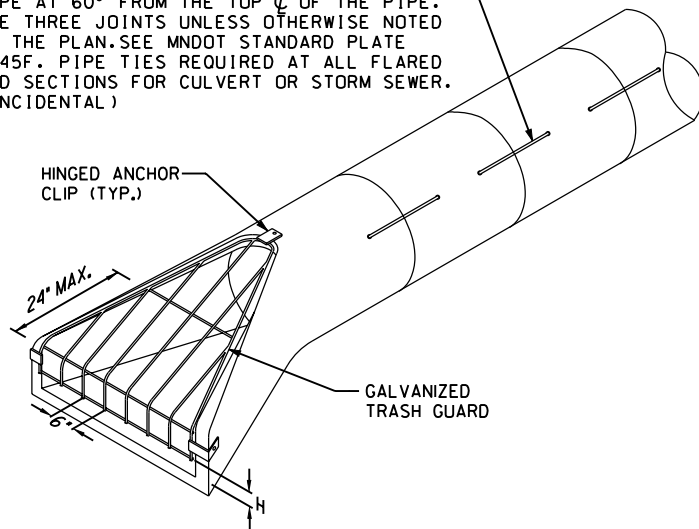
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**MODIFIED VALLEY GUTTER
SW RAMP**

STA 33+77.56 - STA 34+94.56

GALVANIZED "U" BOLT FASTENERS - 2 PER JOINT LOCATED ON EACH SIDE OF THE PIPE AT 60° FROM THE TOP ϕ OF THE PIPE. TIE THREE JOINTS UNLESS OTHERWISE NOTED ON THE PLAN. SEE MNDOT STANDARD PLATE 3145F. PIPE TIES REQUIRED AT ALL FLARED END SECTIONS FOR CULVERT OR STORM SEWER. (INCIDENTAL)



PROVIDE 3 ANCHOR CLIPS TO FASTEN TRASH GUARD TO FLARED END SECTION. HOT DIP GALVANIZE AFTER FABRICATION.

TRASH GUARD SIZING

PIPE SIZE	BAR	"H"	BOLTS
12"-18"	3/4" ϕ	4"	5/8"
21"-42"	1" ϕ	6"	3/4"
48"-72"	1 1/4" ϕ	12"	1"

"U" BOLT REQUIREMENTS

PIPE SIZE	BOLT DIA.	LENGTH
21" & LESS	1/2"	24"
24" TO 36"	5/8"	24"
42" TO 54"	3/4"	24"
60" & GREATER	1"	24"

1.7 CY RANDOM RIPRAP CLASS II OVER GEOTEXTILE TYPE IV

OUTLET STRUCTURE GRATE TWO-PIECE, HOT-DIPPED GALVANIZED

48" PRECAST BARREL

#16 SMOOTH BARS @ 4" O.C. EACH WAY (PROVIDES 3 1/4"x3 1/4" OPENINGS)

OUTSIDE MANHOLE WALL TO FLAT BAR = 1"

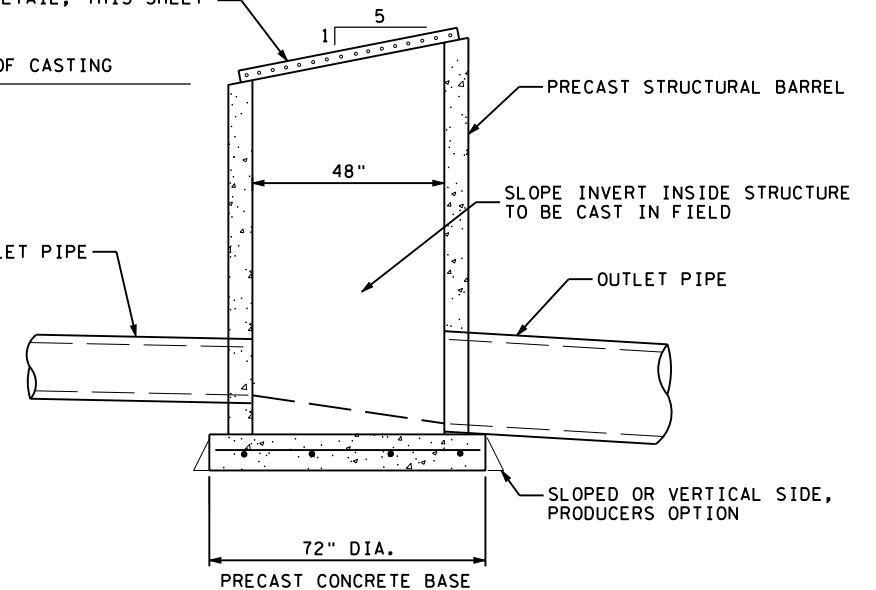
TYPICAL SKIMMER MANHOLE GRATE AND RIPRAP DETAIL

(2506) CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL

GALVANIZED GRATE SEE DETAIL, THIS SHEET

TOP OF CASTING

INLET PIPE



NOTE: PRECAST BARREL AND BASE SLAB SHALL CONFORM TO MNDOT STD. PL. 4020.

TYPICAL SECTION SKIMMER MANHOLE STRUCTURE 606

DESIGN TEAM	NO.	BY	DATE	REVISIONS
1	KLE	5/26/10	DELETED REUSE OF CONTAMINATED SOIL DETAIL	
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				

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 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010



PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

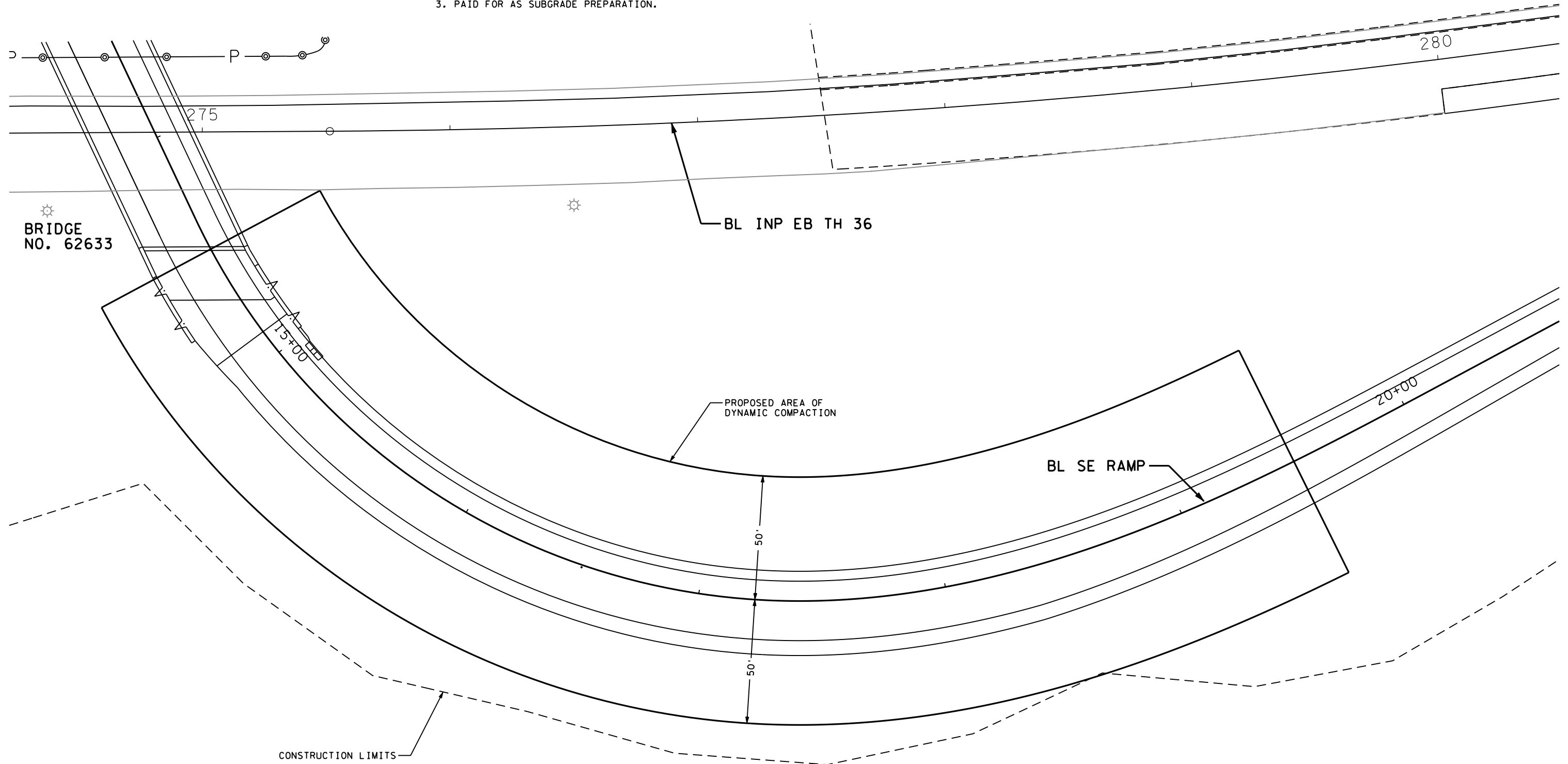
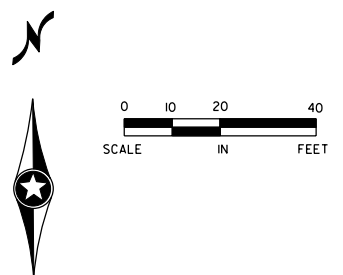
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

MISCELLANEOUS DETAILS

FILE NO.
 RAMSP108790
 MD4
 OF MD5

61
 534

- NOTES:
1. IMPROVE SUBGRADE BY DYNAMIC COMPACTION FROM STA 14+50 TO STA 19+50 AND TO 50 FEET ON BOTH LEFT AND RIGHT OF SE RAMP CENTERLINE.
 2. SEE SPECIAL PROVISION FOR DYNAMIC COMPACTION CRITERIA.
 3. PAID FOR AS SUBGRADE PREPARATION.



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5/6/2010
kerickson
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DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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 Licensed Professional Engineer
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

MISCELLANEOUS DETAILS
 DYNAMIC COMPACTION DETAIL

FILE NO. RAMSP08790	62
MD5 OF MD5	534

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STAGE 1
JUNE - OCTOBER 2010

STAGE 2
NOV. 2010 - JULY 2011

STAGE 3
AUGUST - NOV. 2011

NOTE: THIS SHEET IS FOR REFERENCE ONLY. SEE PROJECT MANUAL FOR MAINTENANCE OF TRAFFIC AND TRAFFIC CONTROL SPECIAL PROVISIONS FOR RICE STREET.

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 3/3/2010

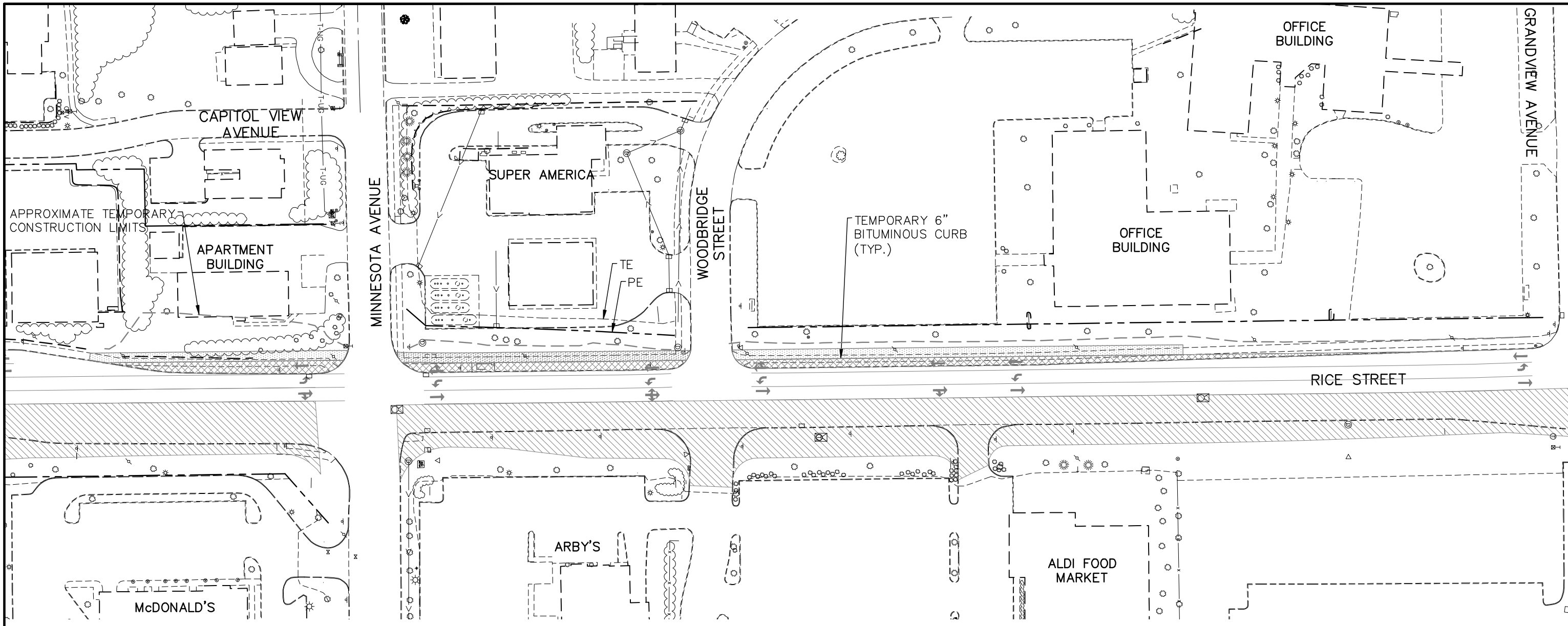
 **Kimley-Horn and Associates, Inc.**
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
RICE STREET

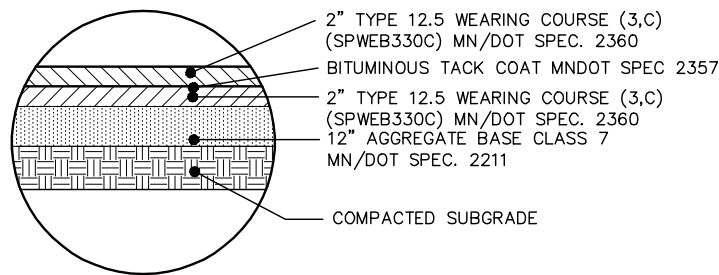
FILE NO.	63
160599001	
TC1	
OF TC26	534

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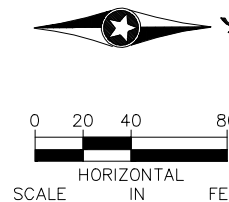


TEMPORARY CONSTRUCTION NOTES:

1. THIS PLAN IS FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONFORMANCE WITH THE MAINTENANCE OF TRAFFIC AND TRAFFIC CONTROL SPECIFICATIONS IN THE PROJECT MANUAL.
2. EXISTING UTILITIES ARE NOT SHOWN FOR PLAN READABILITY. SEE INPLACE TOPOGRAPHY AND UTILITY PLAN FOR EXISTING UTILITIES.
3. TEMPORARY BITUMINOUS PAVEMENT AND WALK SHALL BE MEASURED AND PAID FOR UNDER PAY ITEM 2360 TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) 2.0" THICK BY THE SQUARE YARD AND SHALL INCLUDE REMOVAL.
4. TEMPORARY BITUMINOUS CURB SHALL BE MEASURED AND PAID FOR UNDER PAY ITEM 2535 BY THE LINEAR FOOT AND SHALL INCLUDE REMOVAL.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE IN THE TEMPORARY PAVEMENT AREA.
6. MAINTAIN 4' CLEAR PASSING WIDTH ON AT LEAST ONE SIDE OF INPLACE UTILITY POLE. THE UTILITY POLES WILL REMAIN INPLACE UNTIL NOVEMBER 2010 UPON COMPLETION OF BURIAL OF OVERHEAD UTILITIES. SEE INSET FOR TYPICAL LAYOUT/SPACING OF EXISTING OVERHEAD UTILITIES TO BE BURIED.
7. COORDINATION WITH PRIVATE UTILITY COMPANIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING COORDINATION OF OVERHEAD UTILITY BURIAL ALONG THE WEST SIDE OF RICE STREET.



TEMPORARY BITUMINOUS PAVEMENT/WALK



LEGEND

- STAGE 1 WORK ZONE (JUNE – OCT. 2010)
- TEMPORARY BITUMINOUS PAVEMENT
- TEMPORARY BITUMINOUS WALK
- TRAFFIC FLOW DURING PHASE 1

DESIGN TEAM	1	TLG	6/17/10	REVISED WEARING COURSE MIXTURE
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE			
	NO.	BY	DATE	REVISIONS

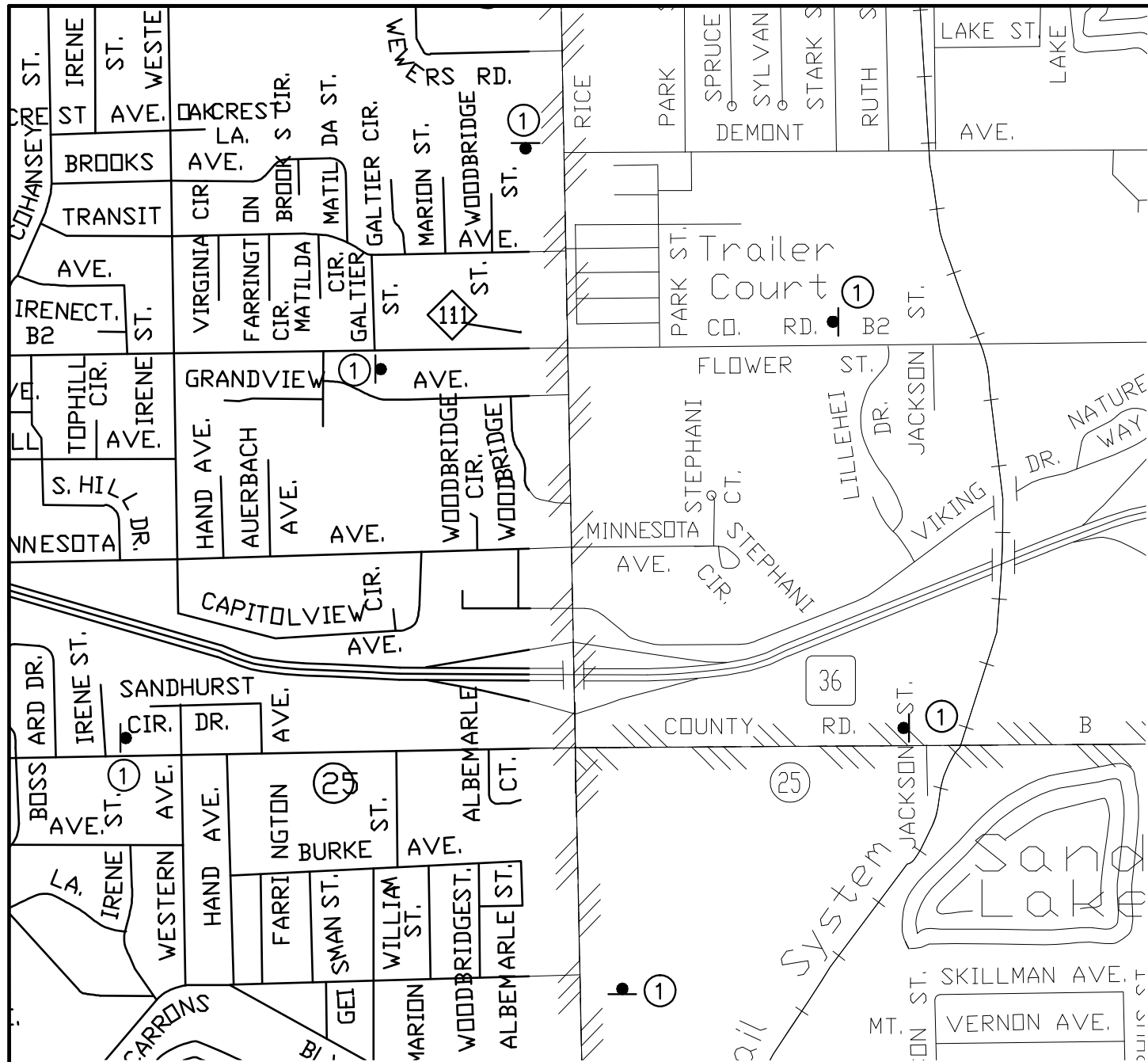
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Beth A. Engum* 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING & TRAFFIC CONTROL PLAN	FILE NO.	64
RICE STREET – STAGE 1	160599001	
	TC2	534
	OF TC26	

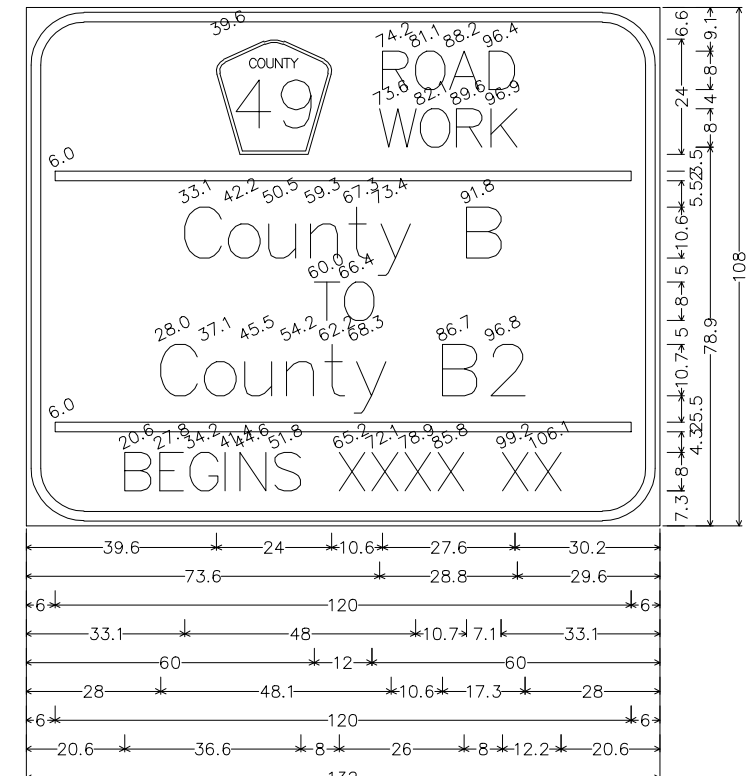
K:\TWC_CIVIL\COUNTY\RAMSEY\RICE_TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN\RICE_THRF02.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



PLACE 14 DAYS PRIOR TO JOB STARTING

PLACE AFTER JOB BEGINS

①



G20-X2_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange; [ROAD] D; [WORK] D; [County B] D; [TO] D; [County B2] D; [BEGINS] D; [XXXX XX] D;

SIGN PANEL LAYOUT

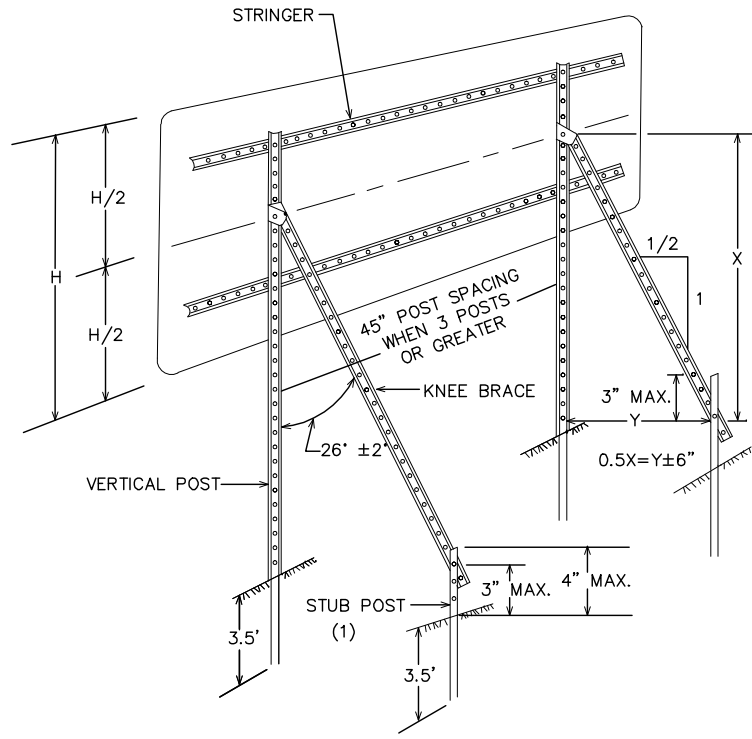
25.9 32.3 39.6 46.4
59.8 66.7 73.6 80.4
93.8 100.7
ENDS XXXX XX

CONSTRUCTION INFORMATION SIGNING:

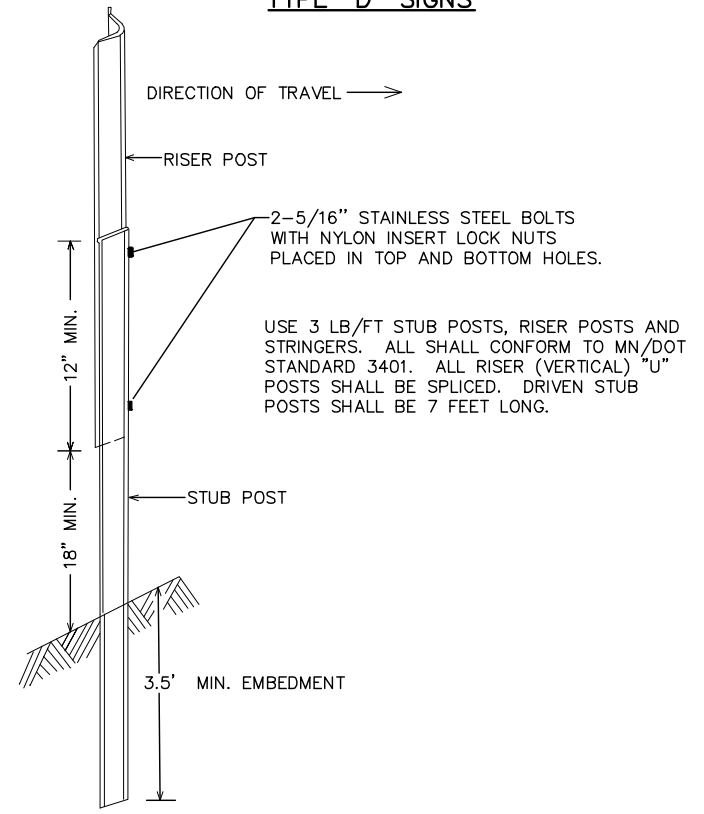
- THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN AND WHICH ARE TO BE USED AS FOLLOWS:
 G20-X2 WORK ZONE ADVANCE NOTICE SIGNS WITH THE CORRECT STARTING DATE DISPLAYED BEFORE WORK BEGINS. ONCE WORK BEGINS, THE START DATE LEGEND SHALL BE COVERED BY THE SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SUGGESTED OR IF DIRECTED BY THE PROJECT ENGINEER, THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON SHALL BE DISPLAYED. THESE SIGNS WILL NOT BE MEASURED SEPARATELY AND SHALL BE INCIDENTAL TO THE TRAFFIC CONTROL.
 G20-X2 SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE AS DIRECTED BY THE PLAN OR PROJECT ENGINEER.

DESIGN TEAM				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. Certified By: <i>Beth A. Engum</i> License No. 44785 Printed Name: BETH A. ENGUM Date: 4/22/2010	 2550 UNIVERSITY AVE. WEST, SUITE 349N ST. PAUL, MINNESOTA 55114 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116	RAMSEY COUNTY, MINNESOTA		STAGING AND TRAFFIC CONTROL PLAN		FILE NO.	65
DRAWN BY:	RJG					TH 36 / RICE STREET (CSAH 49)		CONSTRUCTION SIGNING		160599001	
CHECKED BY:	BAE					SP NO. 62-649-27 CTB, 6212-165 (TH 36)				TC3	
NO.	BY	DATE	REVISIONS					OF TC26	534		

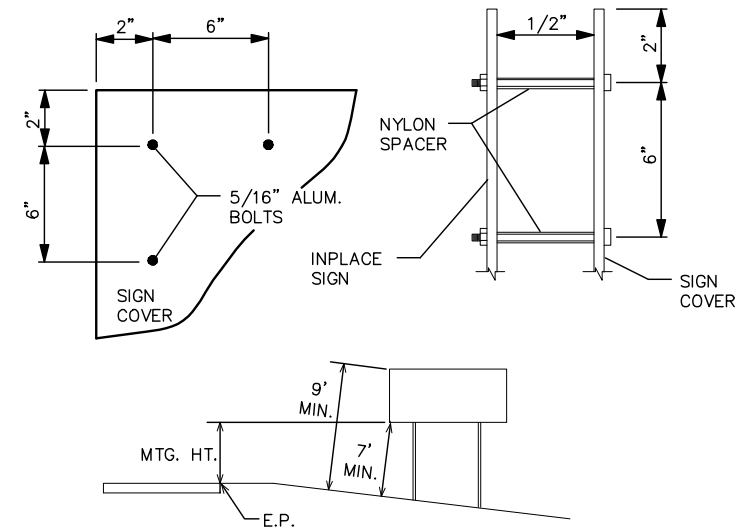
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TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS



"U" POST SPLICE



TYPICAL MOUNTING

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

TYPICAL TEMPORARY SIGN FRAMING AND INSTALLATION DETAILS

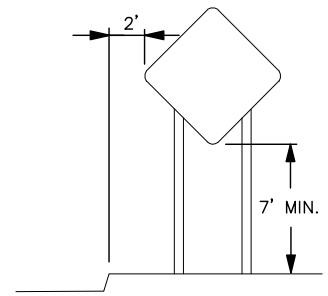
SIGN DATA

SIGNS TO BE INSTALLED ON DRIVEN U-POSTS SHALL BE INSTALLED IN ACCORDANCE WITH TABLE 1 OR TABLE 2 BELOW. SIGN PANELS SHALL BE INSTALLED ON SIGN STRUCTURES TO MEET THE MINIMUM 5 FEET DEPICTED ON THE TYPICAL RURAL DESIGN DETAIL, THE 7 FEET DEPICTED ON THE TYPICAL URBAN DESIGN DETAIL, OR MINIMUM 7 AND 9 FEET DEPICTED ON THE TYPICAL MOUNTING DETAIL ON THIS SHEET.

TABLE 1

STANDARD CONSTRUCTION SIGNS IN MN/DOT STANDARD SIGNS MANUAL

PANEL SIZE (IN.)	POSTS			
	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
24 x 24	2-U	18	0	13
30 x 24	2-U	18	0	13
36 x 30	2-U	24	0	13
36 x 36	2-U	18	0	14
42 x 36	2-U	30	0	14
48 x 48	2-U	30	0	15
60 x 60	2-U	42	1	16
72 x 72	2-U	42	2	17
96 x 54	2-U	54	2	16
168 x 132	4-U	48	4	20



TYPICAL URBAN DESIGN

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE STANDARD SIGNS MANUAL FOR PUNCHING HOLES.

TABLE 2

SPECIAL DESIGN CONSTRUCTION SIGNS

PANEL SIZE		POSTS			
LENGTH (IN.)	HEIGHT (IN.)	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
132	108	3-U	45	3	20

NOTES:

FOR TEMPORARY CONSTRUCTION SIGN FRAMING, THE CONTRACTOR MAY USE GRADE 5 ZINC PLATED BOLTS FOR ALL BOLTED CONNECTIONS, EXCEPT FOR THE KNEE BRACE CONNECTION TO THE REAR STUB POST, WHICH SHALL UTILIZE A 5/16 INCH STAINLESS STEEL BOLT AND NYLON INSERT LOCK NUT. ADDITIONAL SIGN FRAMING DETAILS CAN BE FOUND IN THE TRAFFIC ENGINEERING MANUAL PART 6.

IF THE CONTRACTOR ELECTS TO USE SOME OTHER TYPE OF SIGN SUPPORT (OTHER THAN U-CHANNEL SIGN POSTS) FOR MOUNTING CONSTRUCTION SIGNS, DETAILS OF THE PROPOSED SIGN STRUCTURE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE SIGN STRUCTURE COMPONENTS. ANY SIGN STRUCTURE TO BE SUBMITTED TO THE ENGINEER SHALL BE AN FHWA ACCEPTED BREAKAWAY SIGN SUPPORT. SIGN STRUCTURE SHALL ALSO BE APPROVED FOR 90 MPH WIND LOAD.

SIGNS SHOWN TO BE COVERED SHALL BE COVERED WITH THE SAME COLOR AS THE SIGN BACKGROUND. THE CONTRACTOR SHALL INSTALL COVERS OR ADDITIONAL SIGNS USING A MINIMUM 1/2" NYLON SPACER BETWEEN THE INPLACE SIGN AND THE COVERING MATERIAL. HOLES WILL BE DRILLED IN THE COVER AND THE INPLACE SIGN AND SHALL BE INSTALLED IN ACCORDANCE TO THE SIGN PANEL DETAIL. SPACERS ARE REQUIRED. MID-PANEL SPACING SHALL BE NO GREATER THAN 24".

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
CONSTRUCTION SIGN DETAILS

NOTES & GUIDELINES

GENERAL INFORMATION:

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MNMUTCD.
5. AN ANNUAL FALL REVIEW OF ALL TRAFFIC CONTROLS WILL BE MADE TO PREPARE FOR WINTER MAINTENANCE OF THE PROJECT. THIS MAY INCLUDE ADJUSTMENTS OR EXCHANGE OF ONE TRAFFIC CONTROL DEVICE FOR ANOTHER. READJUSTMENTS MAY AGAIN BE REQUIRED IN THE SPRING.
6. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.

SIGNING:

1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTANT WITH TRAFFIC OPERATION SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE INSTALLED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS DETAILED IN THE MNMUTCD. IF THIS IS NOT POSSIBLE THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MN/DOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS".

BARRICADES SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MN/DOT APPROVED PRODUCT LIST FOR BARRICADE SHEETING. NOTE THAT ASTM TYPE VII SHEETING IS NOT ALLOWED ON BARRICADES AFTER JANUARY 1, 2010.

5. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
6. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ASSURE THAT THE FINAL SIGNS ARE INSTALLED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS INSTALLED.

PAVEMENT MARKING:

1. OBLITERATE ANY CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
2. PAINT, POLYMER LANE TAPE AND/OR TRPM'S ARE ACCEPTABLE TEMPORARY STRIPING ALTERNATIVES ACCORDING TO ACTUAL CONDITIONS ENCOUNTERED AS DIRECTED BY THE ENGINEER. GENERALLY, ONLY PAINT WILL BE USED BEFORE MAY 1ST OR WHEN THE OTHER MANUFACTURERS' SPECIFICATIONS CAN NOT BE MET.
3. TRPM'S (TEMPORARY RAISED PAVEMENT MARKERS) SHOULD BE USED TO SUPPLEMENT THE LONG TERM (MORE THAN 3 DAYS) EDGELINES ON ALL TRANSITION AREAS WHEN THE CONDITIONS ARE WITHIN THE MANUFACTURERS' SPECIFICATIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND INSTALLATION OF TEMPORARY AND FINAL STRIPING. MN/DOT TRAFFIC PERSONNEL WILL ASSIST IN THE SPOTTING OF TRANSITION AREAS, GORES AND TAPERS.

BARRIER & DELINEATION:

1. TOP MOUNTED BARRIER DELINEATORS WILL HAVE A MINIMUM OF 24 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 30' SPACES ON TOP OF THE BARRIER WHEN THE BARRIER IS WITHIN 10' OF TRAFFIC UNLESS OTHERWISE NOTED OR AS DIRECTED BY THE ENGINEER. IF THE TRAFFIC ENGINEER REQUIRES SIDE MOUNTED BARRIER DELINEATORS, THEY WILL HAVE A MINIMUM OF 12 SQ. IN. OF REFLECTIVE SURFACE AREA AND BE PLACED AT 30' SPACES. IF A SMALLER APPROVED BARRIER DELINEATOR IS USED IT SHALL BE AT ONE HALF THE SPACING AND ONE HALF THE BID PRICE.

CONSTRUCTION INFORMATION SIGNING:

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN AND WHICH ARE TO BE USED AS FOLLOWS:
 G20-X1 CLOSURE NOTICE SIGNS PAIRED WITH G20-X3 WORK ENDS SIGNS TO DISPLAY THE CORRECT START DATE AND AN ESTIMATED FINISH DATE AS APPROVED BY THE PROJECT ENGINEER.
 G20-X2 WORK ZONE ADVANCE NOTICE SIGNS WITH THE CORRECT STARTING DATE DISPLAYED BEFORE WORK BEGINS. ONCE WORK BEGINS, THE START DATE LEGEND SHALL BE COVERED BY THE SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SUGGESTED OR IF DIRECTED BY THE PROJECT ENGINEER, THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON SHALL BE DISPLAYED.
 CONSTRUCTION INFORMATION SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR PROJECT ENGINEER.

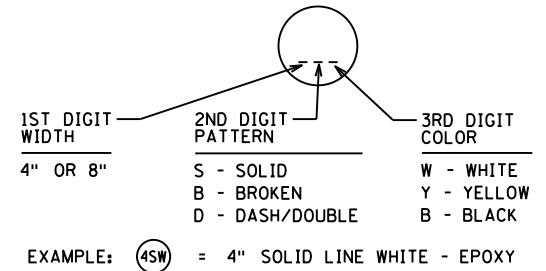
ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	AREA CLOSED TO TRAFFIC / WORK AREA
	TEMPORARY CONSTRUCTION AREA
	TRAFFIC CONTROL SIGN
	TYPE III BARRICADE =
	PORTABLE CHANGEABLE MESSAGE SIGN =
	DRUM-LIKE CHANNELIZER = (50' SPACING UNLESS OTHERWISE NOTED).
	TYPE A FLASHING WARNING LIGHT
	FLASHING ARROW BOARD TYPE C = (4' x 8' UNLESS OTHERWISE NOTED).
	SOLID LINE PAVEMENT MARKING WITH TEMPORARY RAISED PAVEMENT MARKERS AT 10' SPACES
	CONCRETE BARRIER WITH DELINEATORS AT 30' SPACES
	IMPACT ATTENUATOR
	EXISTING SIGN

STRIPING KEY

	CIRCLE - EPOXY		SQUARE - POLY PREFORM
	TRIANGLE - PAINT		
	PENTAGON - REMOVEABLE PREFORMED PLASTIC MARKING		



T TRAFFIC CONTROL - QUANTITIES SUMMARY (PAY ITEMS)						
ITEM	UNIT	TH 36 RAMP CONSTRUCTION	TH 36 BRIDGE ABUTMENT CONSTRUCTION	TH 36 BRIDGE MEDIAN PIER CONSTRUCTION	BRIDGE REMOVAL DETOUR	TOTAL
PAVEMENT MARKING REMOVAL	LIN FT		520	22,090 (3)		22,610
PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337	LIN FT	4,900	1,815	655		7,370
RELOCATE PORT PRECAST CONC BARRIER DESIGN 8337	LIN FT		60	1,815		1,875
IMPACT ATTENUATOR BARREL	EACH	56	56	25		137
RELOCATE IMPACT ATTENUATOR BARREL	EACH		14	14		28
PORTABLE CONCRETE BARRIER DELINEATOR	EACH	165	61	22		248
POLICE OFFICER	HOUR				200	200
PORTABLE CHANGEABLE MESSAGE SIGN	UDAY				27	27
REMOVABLE PREFORMED PLASTIC MASK (BLACK)	LIN FT	12,700				12,700
RAISED PAVEMENT MARKER TEMPORARY (WHITE)	EACH	100				100
RAISED PAVEMENT MARKER TEMPORARY (YELLOW)	EACH	100				100
(1) 4" SOLID LINE WHITE-REM POLY PREFORM	LIN FT	10,475	2,970			13,445
(1)(2) 8" SOLID LINE WHITE-REM POLY PREFORM	LIN FT	1,000				1,000
(1) 4" BROKEN LINE WHITE-REM POLY PREFORM	LIN FT	2,070				2,070
(1) 4" SOLID LINE YELLOW-REM POLY PREFORM	LIN FT	10,775	960			11,735
(3) 4" SOLID LINE WHITE-EPOXY	LIN FT	10,475	2,970			13,445
(3) 8" SOLID LINE WHITE-EPOXY	LIN FT	1,000				1,000
(3) 4" BROKEN LINE WHITE-EPOXY	LIN FT	2,070				2,070
(3) 4" SOLID LINE YELLOW-EPOXY	LIN FT	10,775	960			11,735

- SPECIFIC NOTES:**
- (1) TO BE PAID FOR UNDER 2581 REMOVABLE PREFORMED PLASTIC MARKING.
 - (2) PAY QUANTITY COMPUTED AT 2 TIMES LINEAR FOOT.
 - (3) SHOULD CONSTRUCTION EXTEND INTO THE WINTER MONTHS, EPOXY PAVEMENT MARKINGS SHALL BE USED INSTEAD OF REM POLY PREFORM. REMOVAL QUANTITY ASSUMES THAT EXISTING PAVEMENT MARKINGS ARE REMOVED AND TEMPORARY PAINT PAVEMENT MARKINGS ARE REMOVED AFTER CONSTRUCTION.

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5/6/2010
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DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>MPM</u>				
CHECKED BY: <u>BWJ</u>				

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.
 Certified By: Michael P. McCurdy Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC CONTROL
 TITLE SHEET & PAY ITEMS

FILE NO. RAMSP108790	67
TC5 OF TC26	534

3/23/06 PM

5/6/2010

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TRAFFIC CONTROL SIGNS / DEVICES (INCIDENTAL)				ESTIMATED QUANTITY BY STAGE					NOTES
SIGN OR DEVICE	CODE NO.	COLOR	SIZE	TH 36 RAMP CONSTRUCTION	TH 36 BRIDGE ABUTMENT CONST.	TH 36 BRIDGE MEDIAN PIER CONST.	OVERNIGHT BRIDGE REMOVAL	BRIDGE REMOVAL DETOUR	
	R3-3	BLACK ON WHITE	48" x 30"				2		
	R11-2	BLACK ON WHITE	48" x 30"				2	2	
	R3-7R	BLACK ON WHITE	30" x 30"	1	1	1			
	W1-4R	BLACK ON YELLOW	30" x 30"		1	1			
	W1-4bL	BLACK ON ORANGE	60" x 60"	4	4	4			
	W1-4bR	BLACK ON ORANGE	60" x 60"	4	4	4			
	W1-6	BLACK ON ORANGE	72" x 36"				2		
	W3-3	B, G, & R ON YELLOW	48" x 48"						
	W3-4	BLACK ON ORANGE	48" x 48"				2		
	W4-1R	BLACK ON YELLOW	48" x 48"		1	1			
	W4-2R	BLACK ON ORANGE	48" x 48"				2		
	W13-1	BLACK ON YELLOW	36" x 36"	8	9	9			
	W16-7pL	BLACK ON ORANGE	30" x 24"				6		
	W20-1	BLACK ON ORANGE	48" x 48"	5	4	2	5		
	W20-2	BLACK ON ORANGE	48" x 48"					2	
	W20-3	BLACK ON ORANGE	48" x 48"					3	
	W20-7a	BLACK ON ORANGE	48" x 48"				2		
	W20-100M	BLACK ON YELLOW	24" x 18"					1	
	W20-X3L	BLACK ON ORANGE	48" x 48"				2		
	W20-X17	BLACK ON ORANGE	48" x 48"	4	4	2			
	W20-X18	BLACK ON ORANGE	48" x 48"				2		
	W21-X1	BLACK ON YELLOW	48" x 48"	2	2	2			
	W21-X5L	BLACK ON ORANGE	48" x 48"				4		

XX - TO BE DETERMINED. 2 SIGNS TO BE USED WITH W1-4R

TRAFFIC CONTROL SIGNS / DEVICES (INCIDENTAL)				ESTIMATED QUANTITY BY STAGE					NOTES
SIGN OR DEVICE	CODE NO.	COLOR	SIZE	TH 36 RAMP CONSTRUCTION	TH 36 BRIDGE ABUTMENT CONST.	TH 36 BRIDGE MEDIAN PIER CONST.	OVERNIGHT BRIDGE REMOVAL	BRIDGE REMOVAL DETOUR	
	M1-5a	WHITE AND GOLD ON BLUE	36" x 36"					5	
	M3-1m	BLACK ON WHITE	24" x 12"					2	
	M3-3m	BLACK ON WHITE	24" x 12"					2	
	M3-4ma	WHITE ON BLUE	30" x 15"					5	
	M4-8	BLACK ON ORANGE	30" x 15"					4	
	M4-8a	BLACK ON ORANGE	24" x 18"					2	
	M4-9mL	BLACK ON ORANGE	30" x 24"					5	
	M4-9mR	BLACK ON ORANGE	30" x 24"					5	
	M4-9mT	BLACK ON ORANGE	30" x 24"					13	
	M6-2aR	WHITE ON BLUE	30" x 24"					3	
	M6-3a	WHITE ON BLUE	30" x 24"					1	
	G20-X1	BLACK ON ORANGE	54" x 48"					1	PLACE MIN. 7 DAYS PRIOR TO CLOSURE
	G20-X1	BLACK ON ORANGE	54" x 48"					2	PLACE MIN. 7 DAYS PRIOR TO CLOSURE
	G20-X7	BLACK ON ORANGE	48" x 48"	1	2	2			
	DT-1	BLACK ON ORANGE	30" x 12"					23	
	X4-4R	BLACK ON FLUORESCENT YELLOW	18" x 36"	4	8	5			
	X4-6	BLACK ON WHITE	8" x 24"		4	4			
	X4-6	BLACK ON YELLOW	8" x 24"		8	8			
	TYPE C	-	4' x 8'				2		
	TYPE "A" FLASHER	-	-		4	4	12	15	
	REFLECTORIZED DRUM	WHITE ON ORANGE	18" x 36" (MIN.)	108	61	62	65		
	TYPE III	WHITE ON ORANGE	8'		6	4	16	12	

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

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: MPM				
CHECKED BY: BWJ				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VAONAS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC CONTROL
 TABULATION

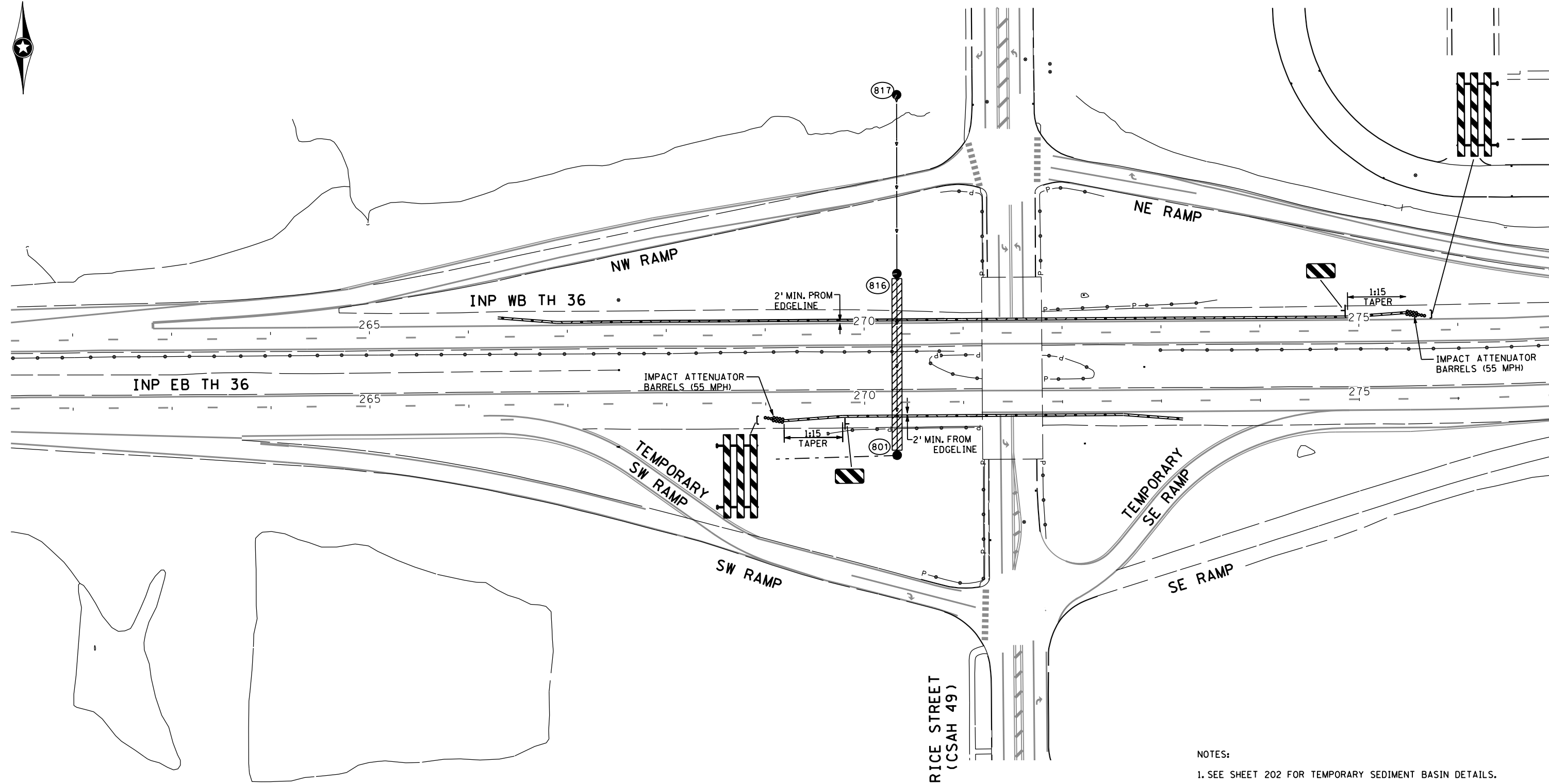
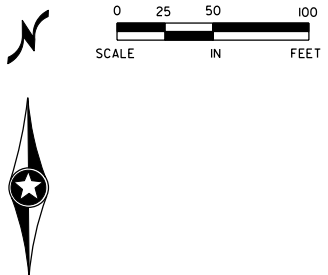
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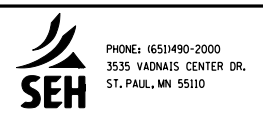


- NOTES:
1. SEE SHEET 202 FOR TEMPORARY SEDIMENT BASIN DETAILS.
 2. COORDINATE STORM SEWER INSTALLATION FOR TEMPORARY SEDIMENT BASIN WITH CONSTRUCTION OF TEMPORARY SW RAMP. SEE SHEET 70-73 FOR TEMPORARY RAMP CONSTRUCTION PLANS.
 3. BARRIER LAYOUT SHOWN IS FOR BRIDGE ABUTMENT CONSTRUCTION. BARRIER MUST BE INPLACE PRIOR TO PIPE JACKING AND SHALL REMAIN INPLACE UNTIL BRIDGE ABUTMENT WORK IS COMPLETED.

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

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 PIPE JACKING

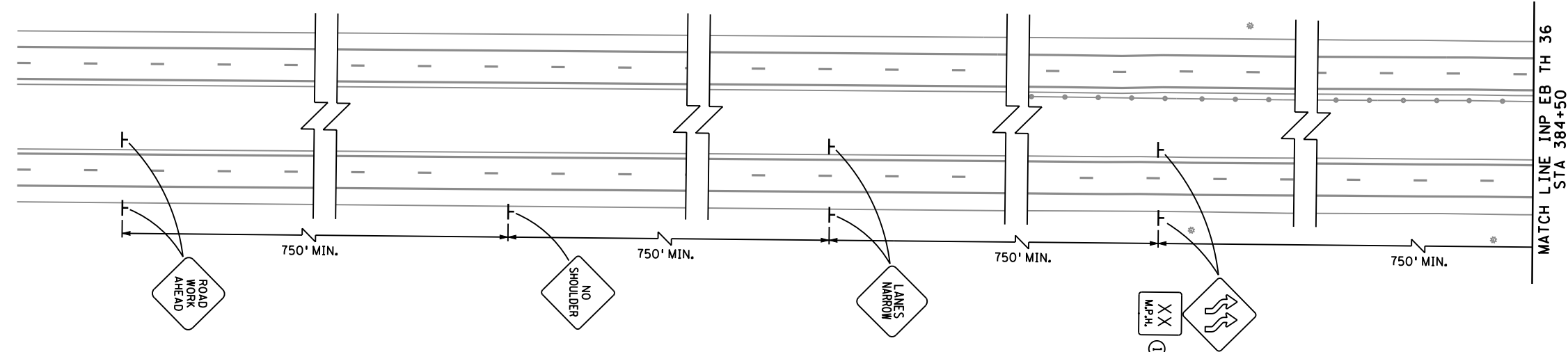
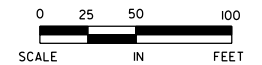
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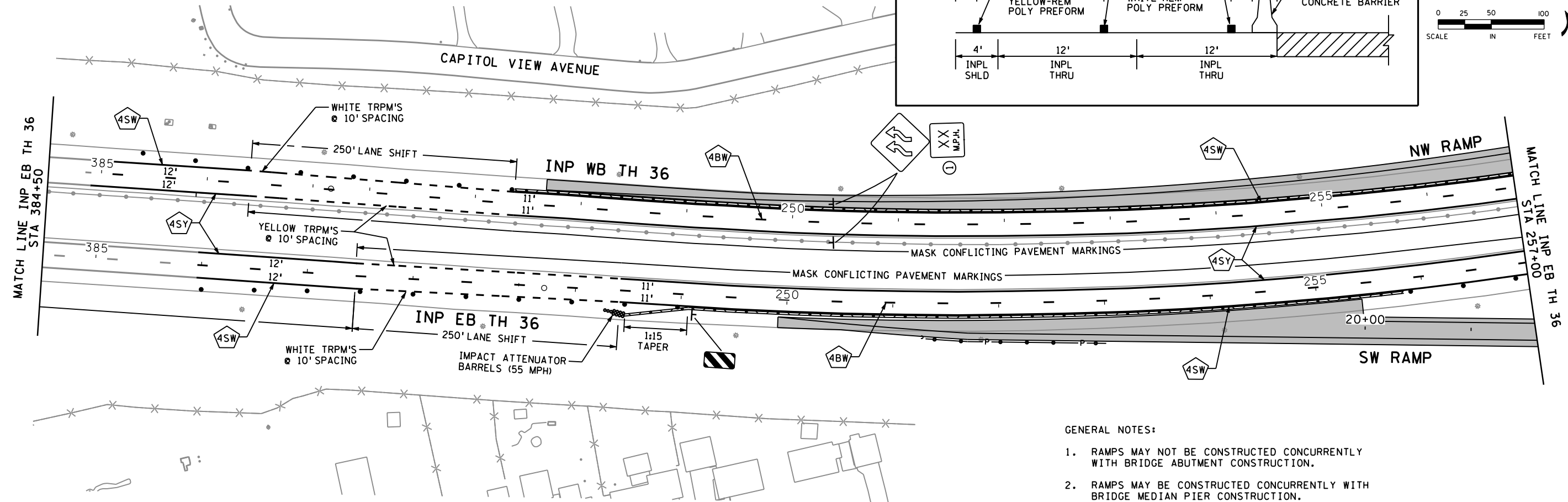
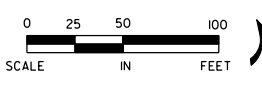
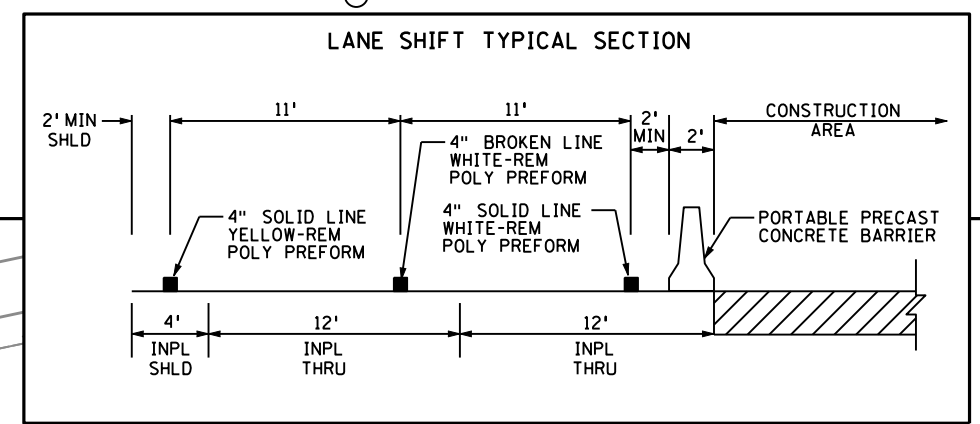
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ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

SPECIFIC NOTE:
 ① IF NEEDED, TO BE DETERMINED IN FIELD BY ENGINEER.



- GENERAL NOTES:
1. RAMPS MAY NOT BE CONSTRUCTED CONCURRENTLY WITH BRIDGE ABUTMENT CONSTRUCTION.
 2. RAMPS MAY BE CONSTRUCTED CONCURRENTLY WITH BRIDGE MEDIAN PIER CONSTRUCTION.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 RAMP CONSTRUCTION

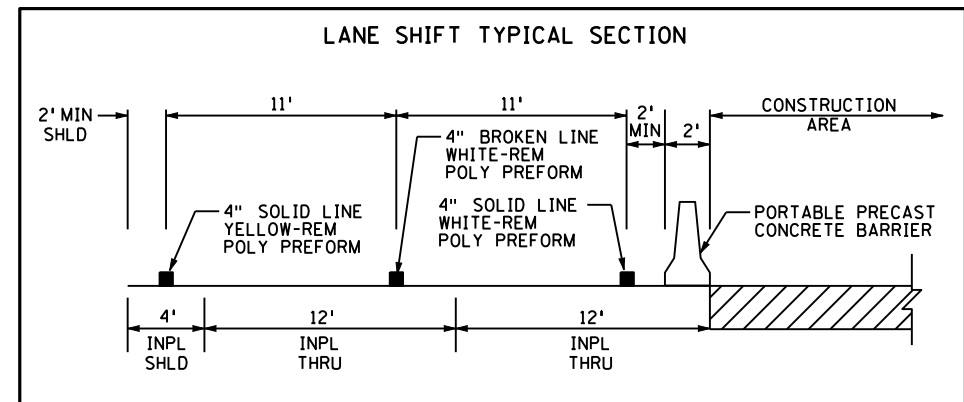
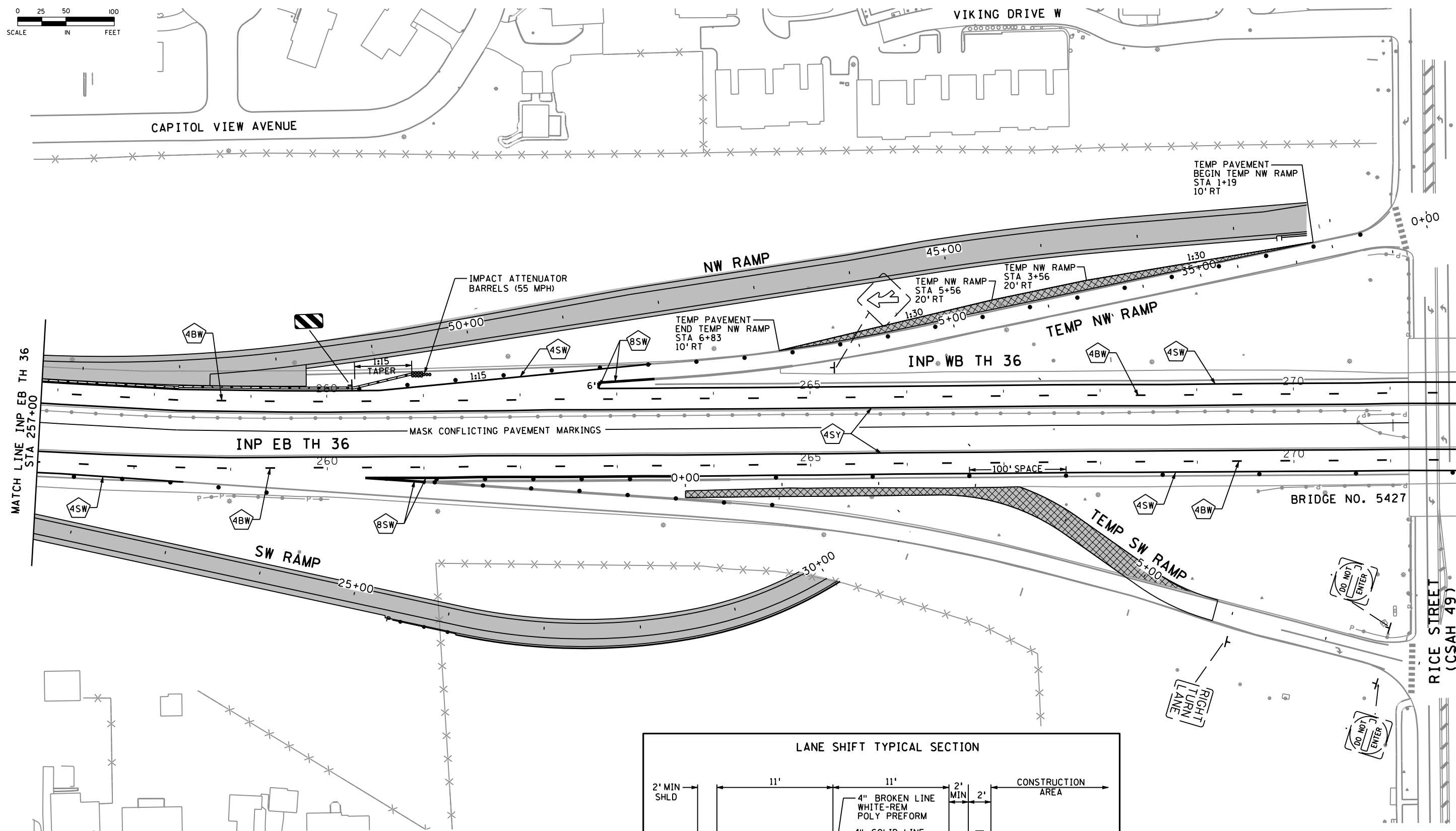
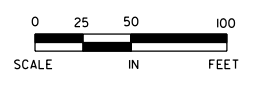
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- GENERAL NOTES:
1. RAMPS MAY NOT BE CONSTRUCTED CONCURRENTLY WITH BRIDGE ABUTMENT CONSTRUCTION.
 2. RAMPS MAY BE CONSTRUCTED CONCURRENTLY WITH BRIDGE MEDIAN PIER CONSTRUCTION.

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

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>MPM</u>				
CHECKED BY: <u>BWJ</u>				

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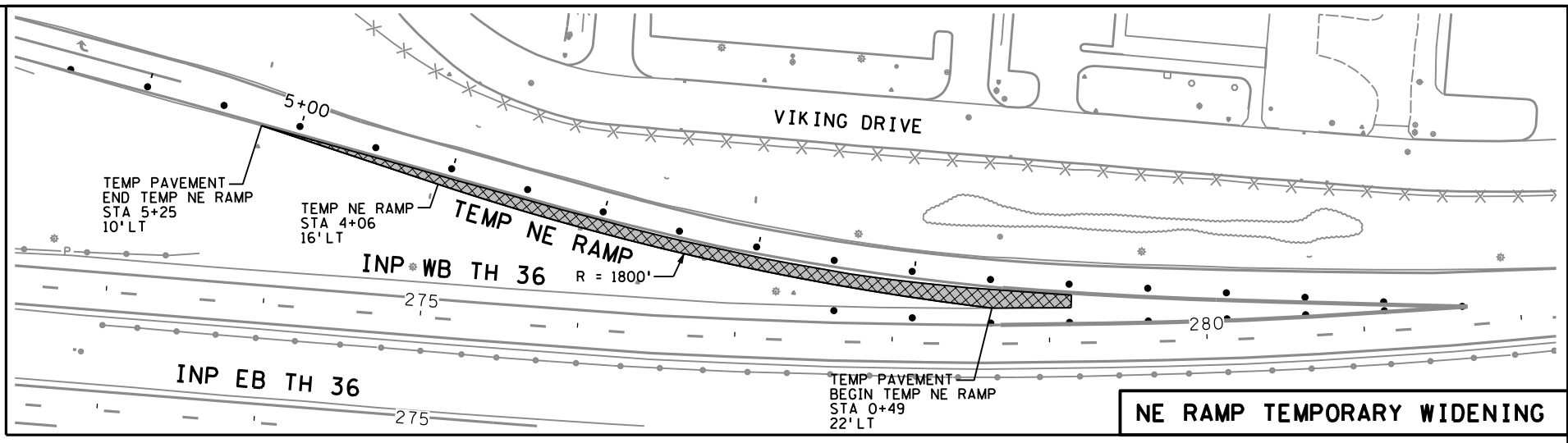
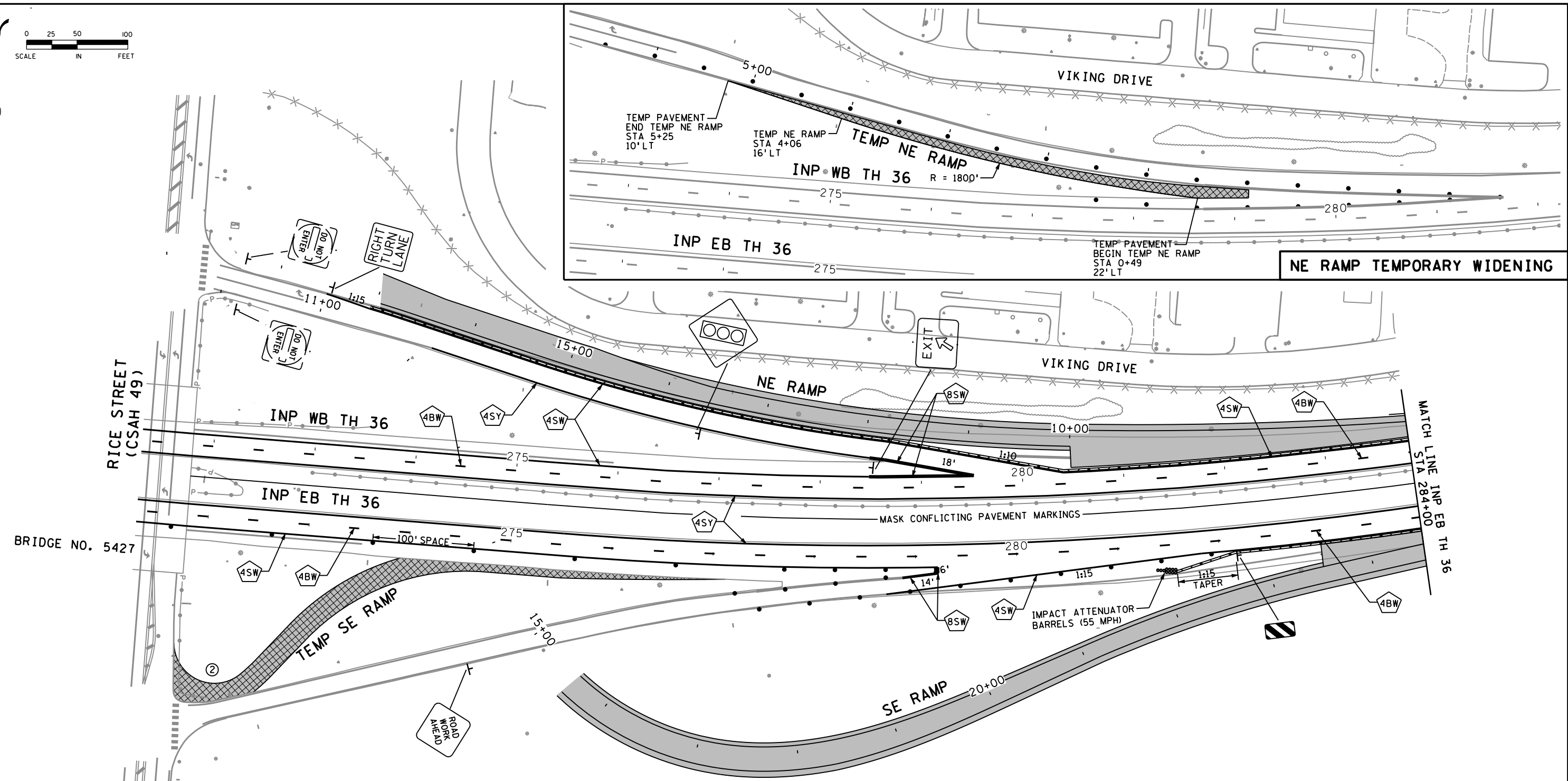
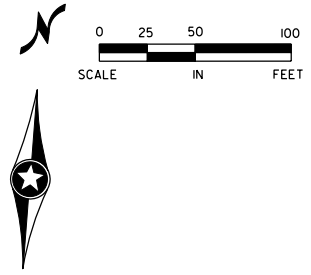


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 RAMP CONSTRUCTION

FILE NO. **71**
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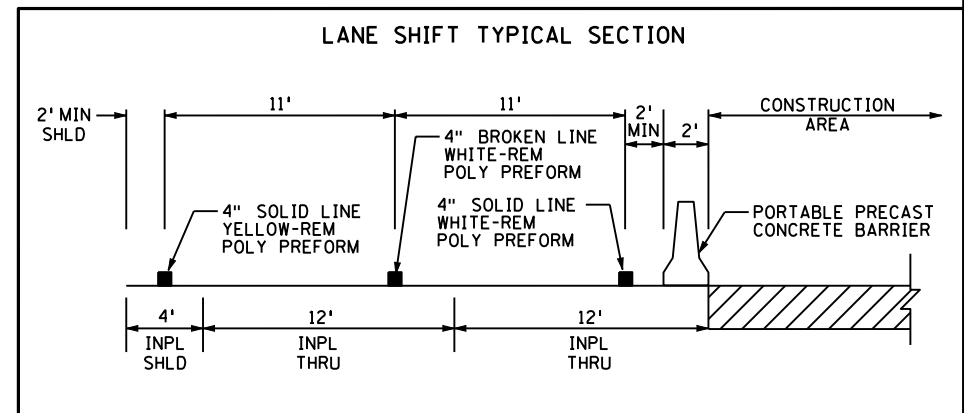


SPECIFIC NOTE:

② COORDINATE TEMPORARY SE RAMP CONSTRUCTION WITH RICE STREET STAGING/TRAFFIC CONTROL.

GENERAL NOTES:

- RAMPS MAY NOT BE CONSTRUCTED CONCURRENTLY WITH BRIDGE ABUTMENT CONSTRUCTION.
- RAMPS MAY BE CONSTRUCTED CONCURRENTLY WITH BRIDGE MEDIAN PIER CONSTRUCTION.



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

DESIGN TEAM				REVISIONS			
NO.	BY	DATE	DESCRIPTION	NO.	BY	DATE	DESCRIPTION

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 RAMP CONSTRUCTION

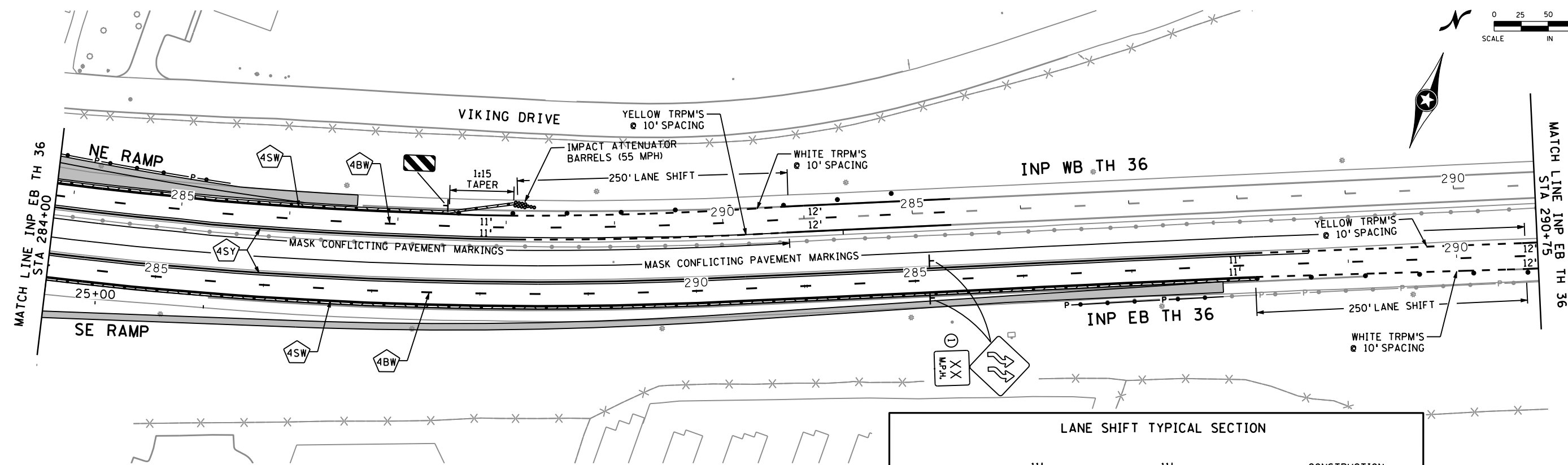
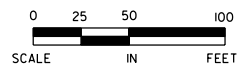
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 OF TC26
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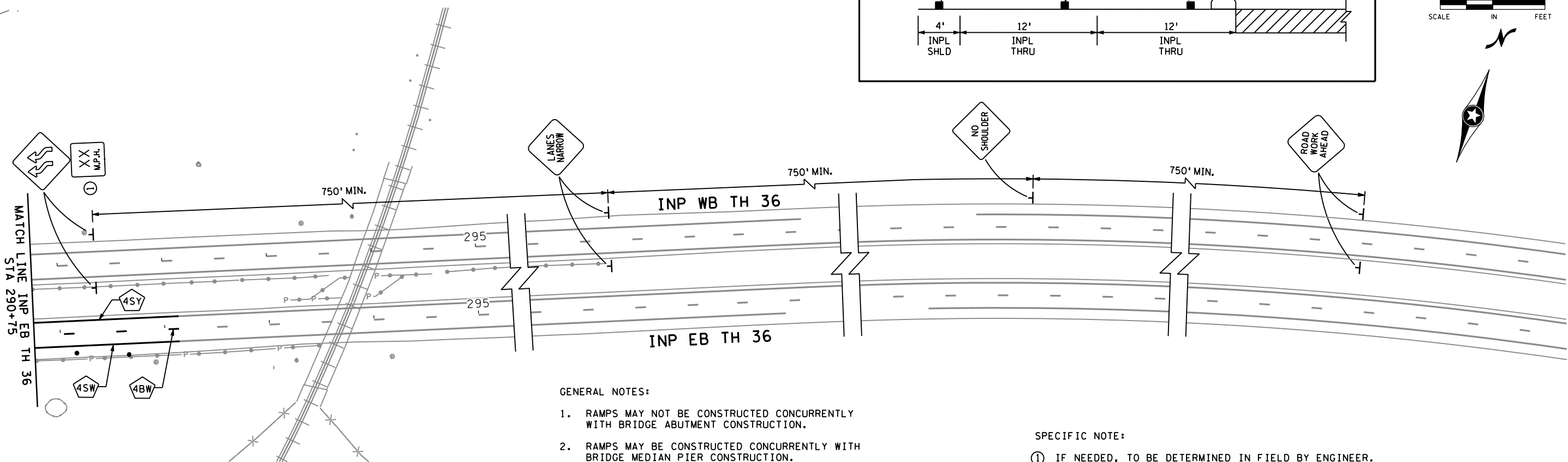
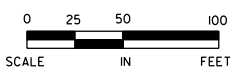
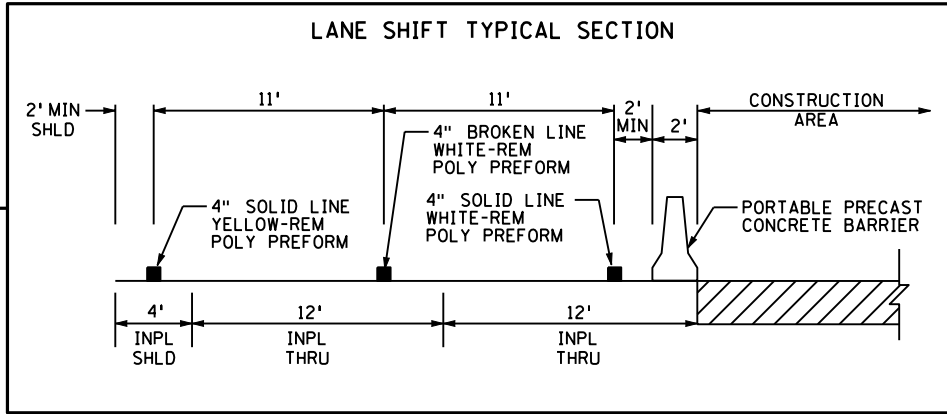
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ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".



GENERAL NOTES:

1. RAMPS MAY NOT BE CONSTRUCTED CONCURRENTLY WITH BRIDGE ABUTMENT CONSTRUCTION.
2. RAMPS MAY BE CONSTRUCTED CONCURRENTLY WITH BRIDGE MEDIAN PIER CONSTRUCTION.

SPECIFIC NOTE:

① IF NEEDED, TO BE DETERMINED IN FIELD BY ENGINEER.

DESIGN TEAM					
DRAWN BY: MTT					
DESIGNER: MPM					
CHECKED BY: BWJ					
NO.	BY	DATE	REVISIONS		

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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 RAMP CONSTRUCTION

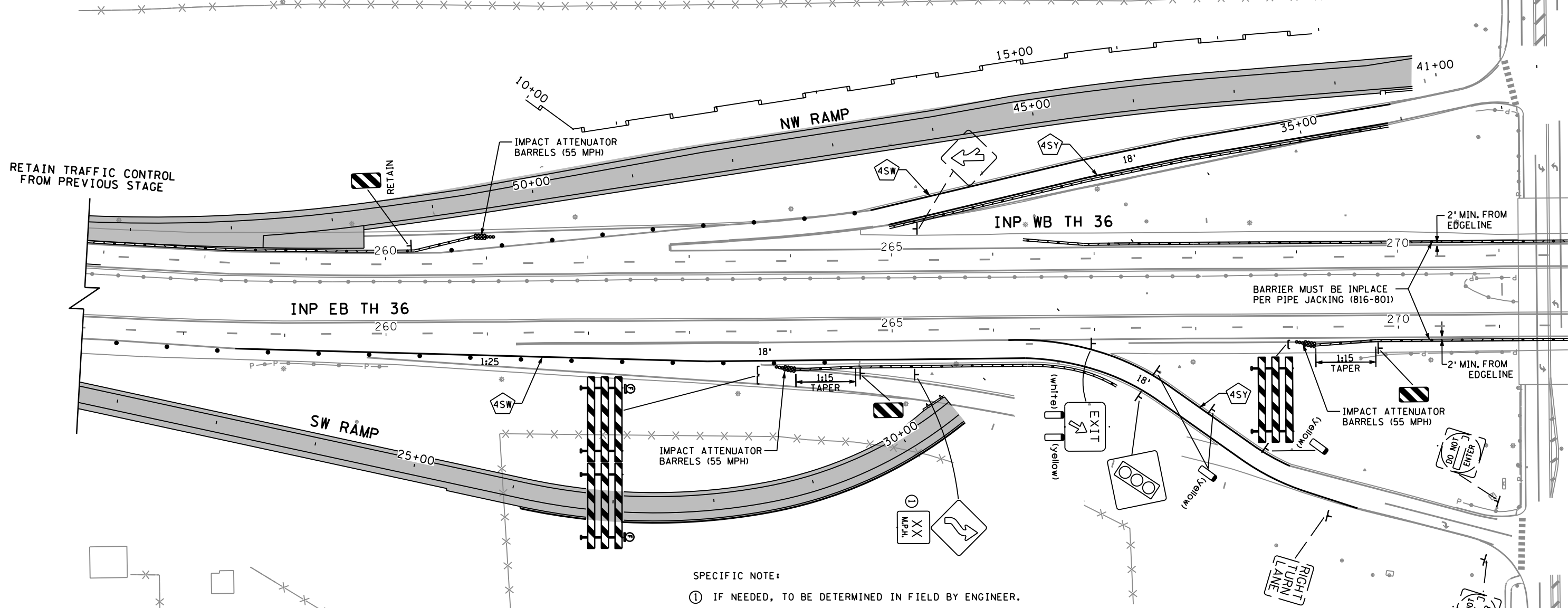
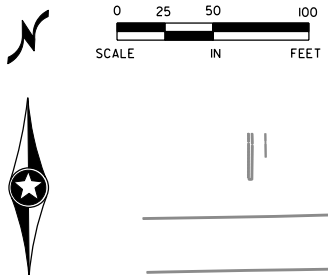
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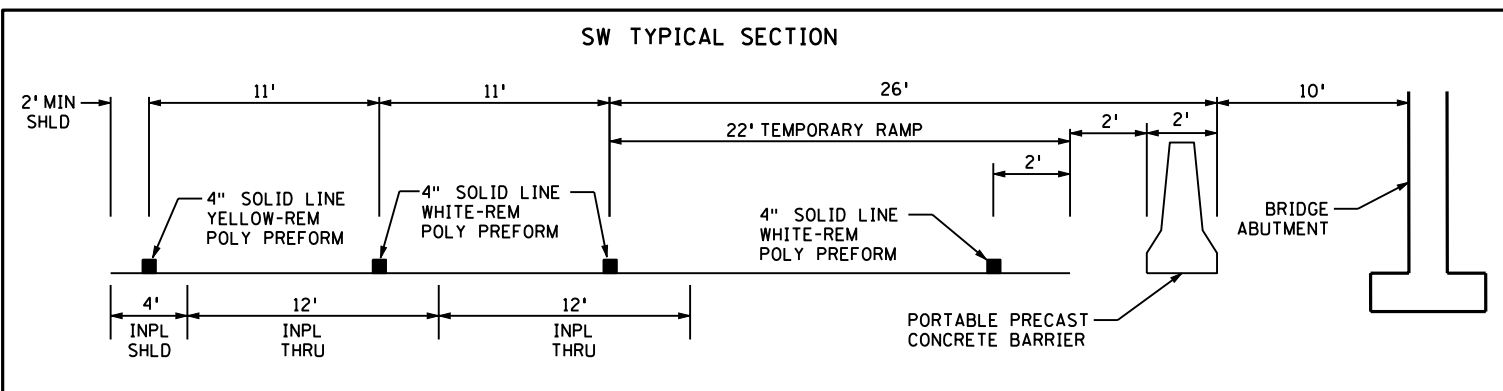
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SPECIFIC NOTE:
 ① IF NEEDED, TO BE DETERMINED IN FIELD BY ENGINEER.



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

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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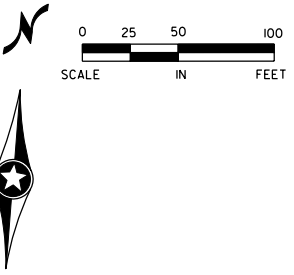


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

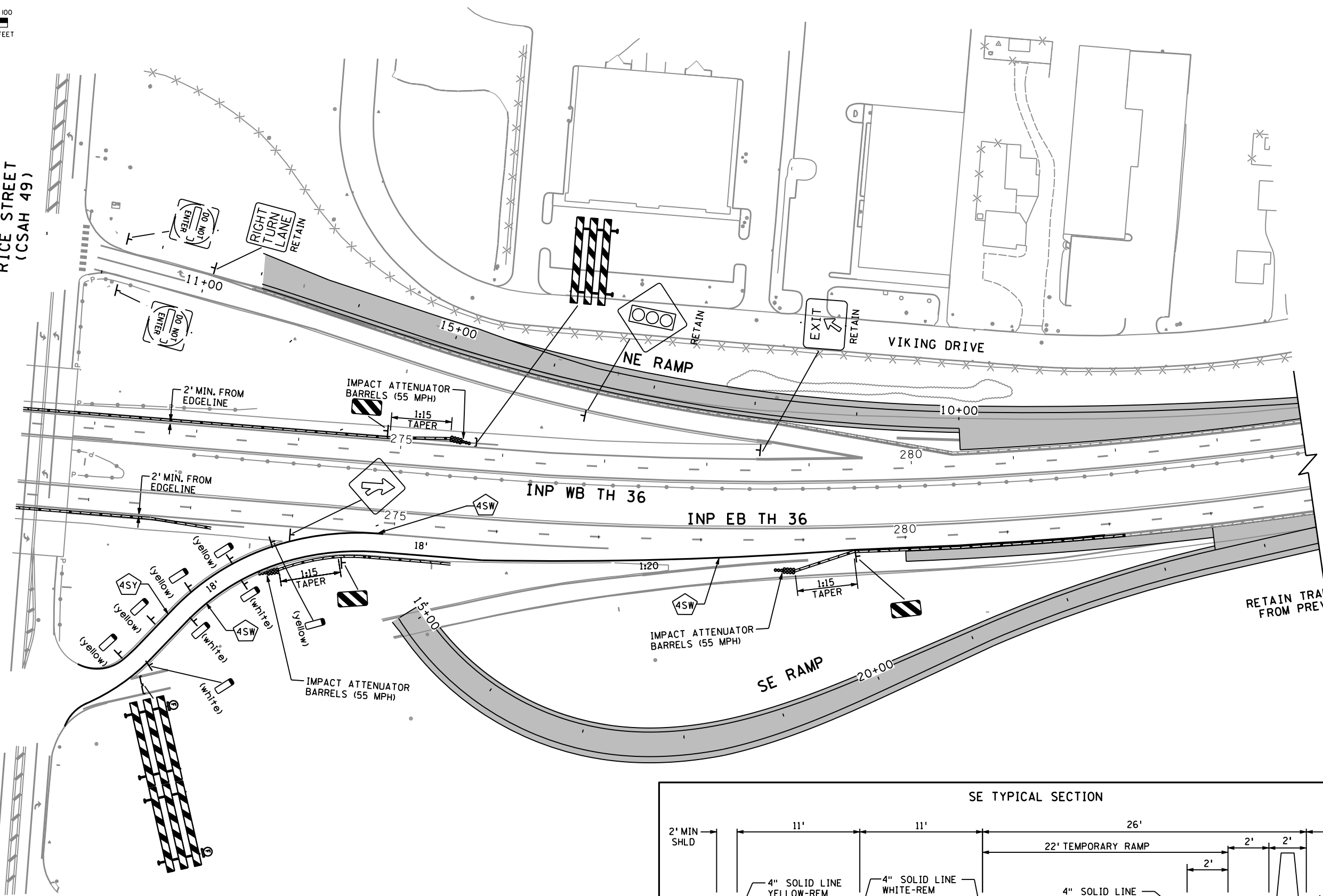
STAGING AND TRAFFIC CONTROL PLAN
 BRIDGE ABUTMENT CONSTRUCTION

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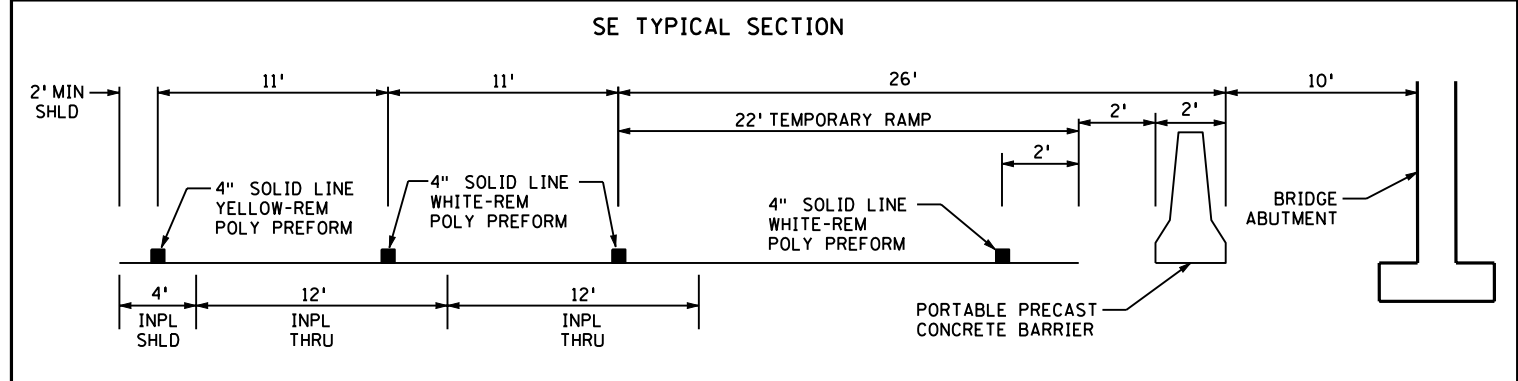


RICE STREET
(CSAH 49)



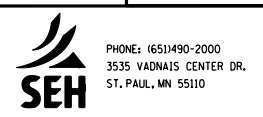
RETAIN TRAFFIC CONTROL FROM PREVIOUS STAGE

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



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 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 BRIDGE ABUTMENT CONSTRUCTION

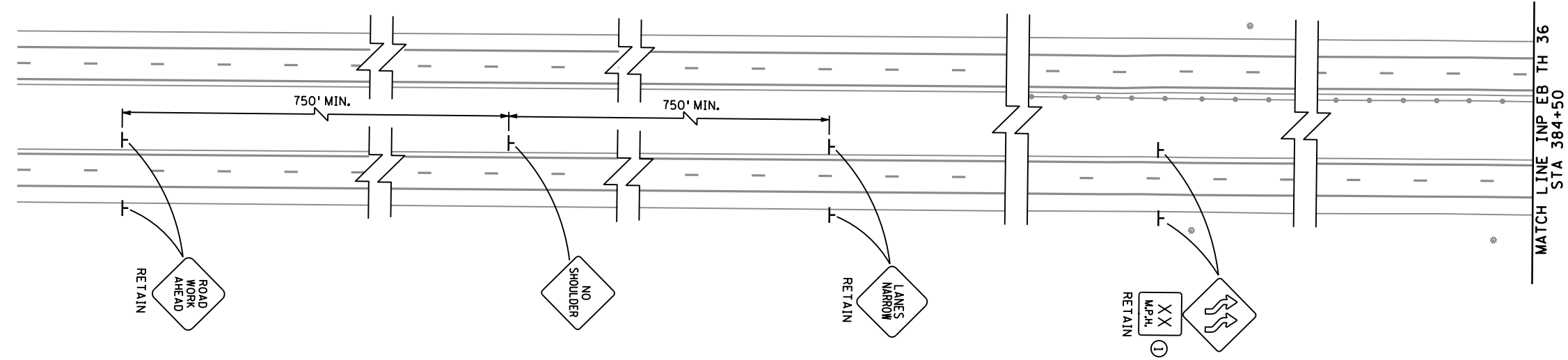
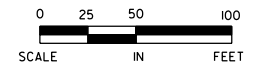
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TC13 OF TC26	534

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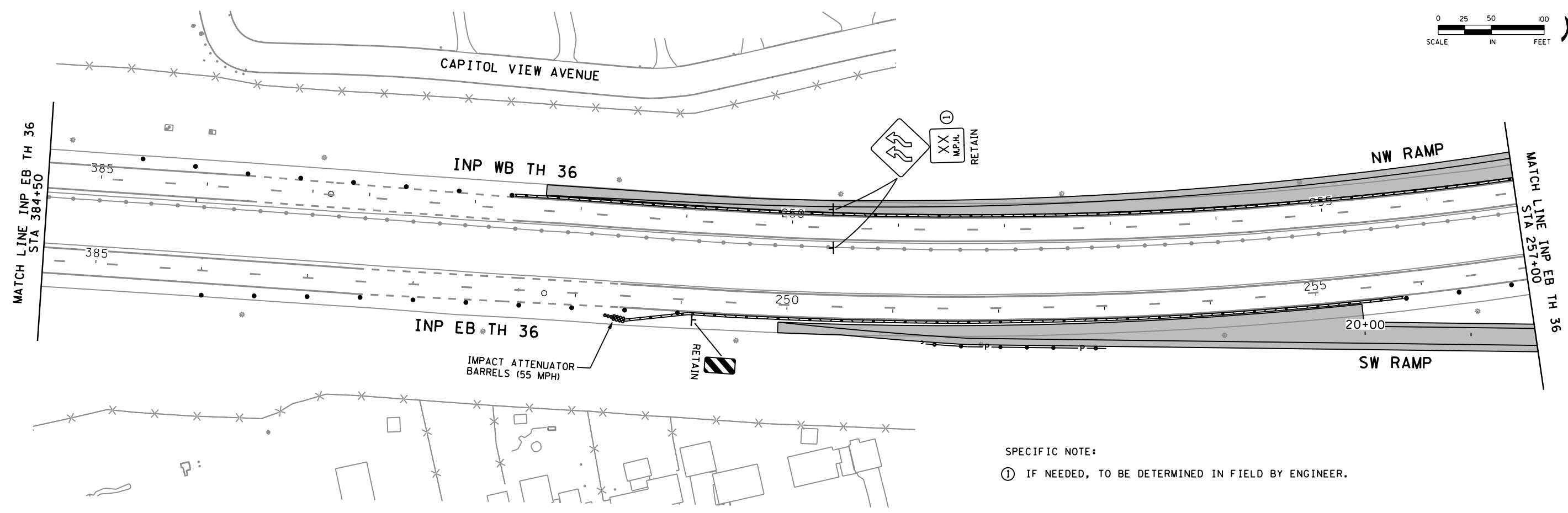
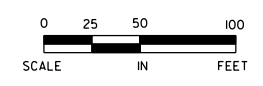
5/6/2010

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



SPECIFIC NOTE:
 ① IF NEEDED, TO BE DETERMINED IN FIELD BY ENGINEER.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 BRIDGE MEDIAN PIER CONSTRUCTION

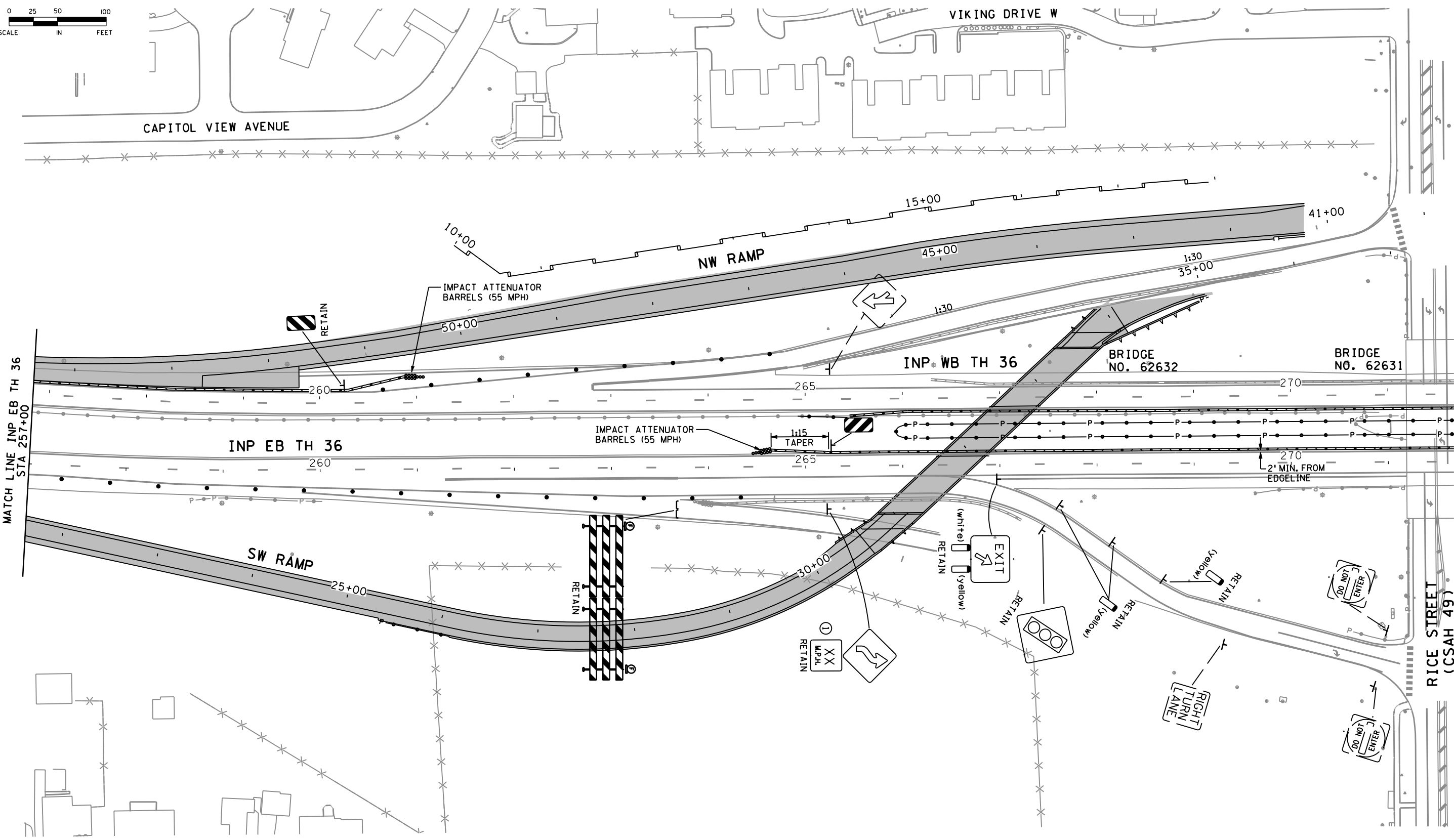
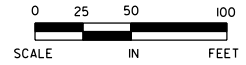
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 RAMSP108790
 TC14 OF TC26
534

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DESIGNER: <u>MPM</u>				
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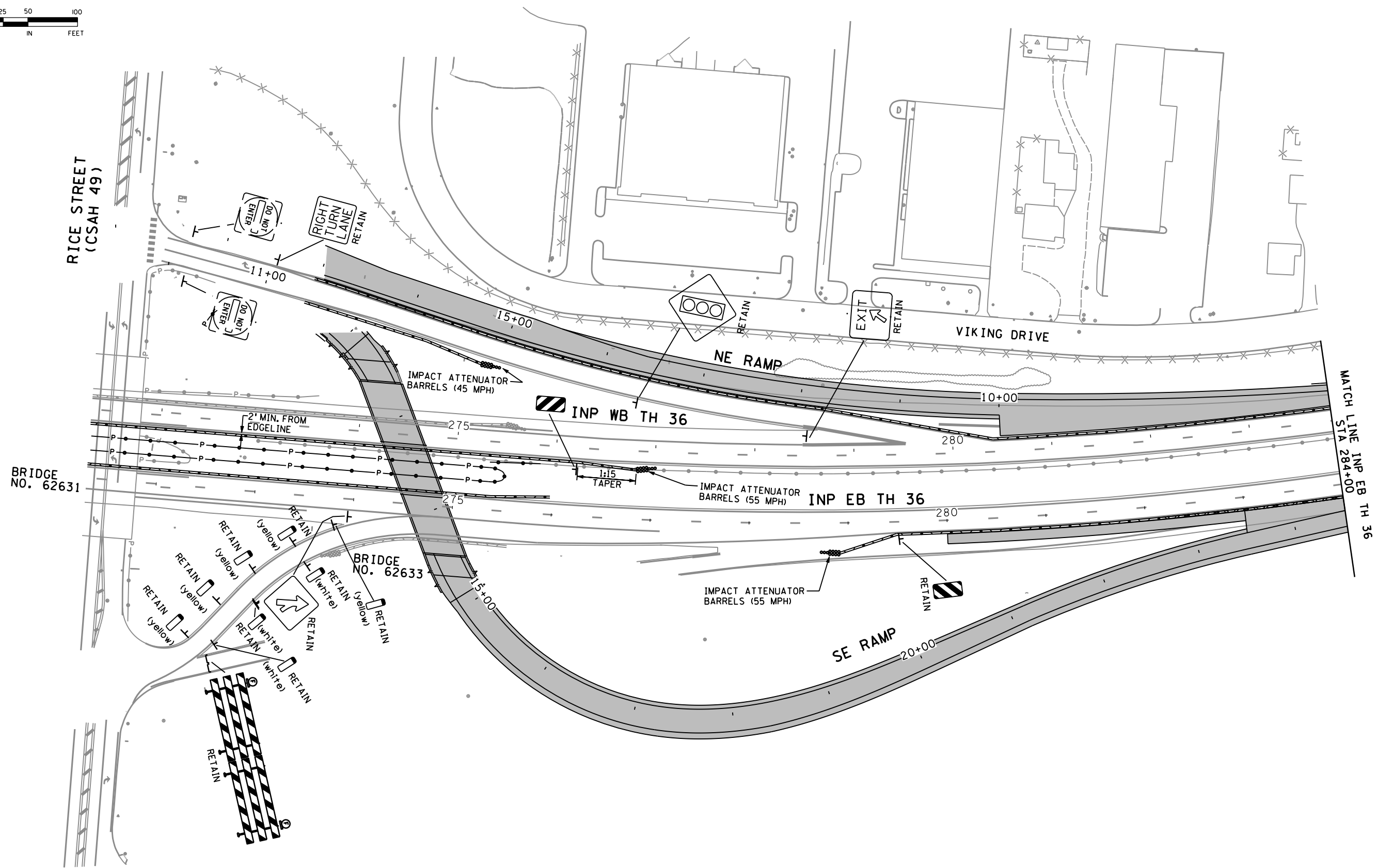
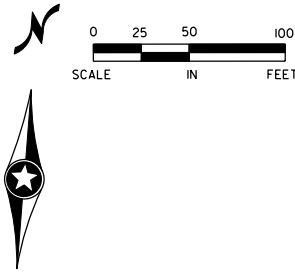


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 BRIDGE MEDIAN PIER CONSTRUCTION

FILE NO. **77**
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 TC15 OF TC26
534

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5/6/2010
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DESIGNER:	MPM		
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 BRIDGE MEDIAN PIER CONSTRUCTION

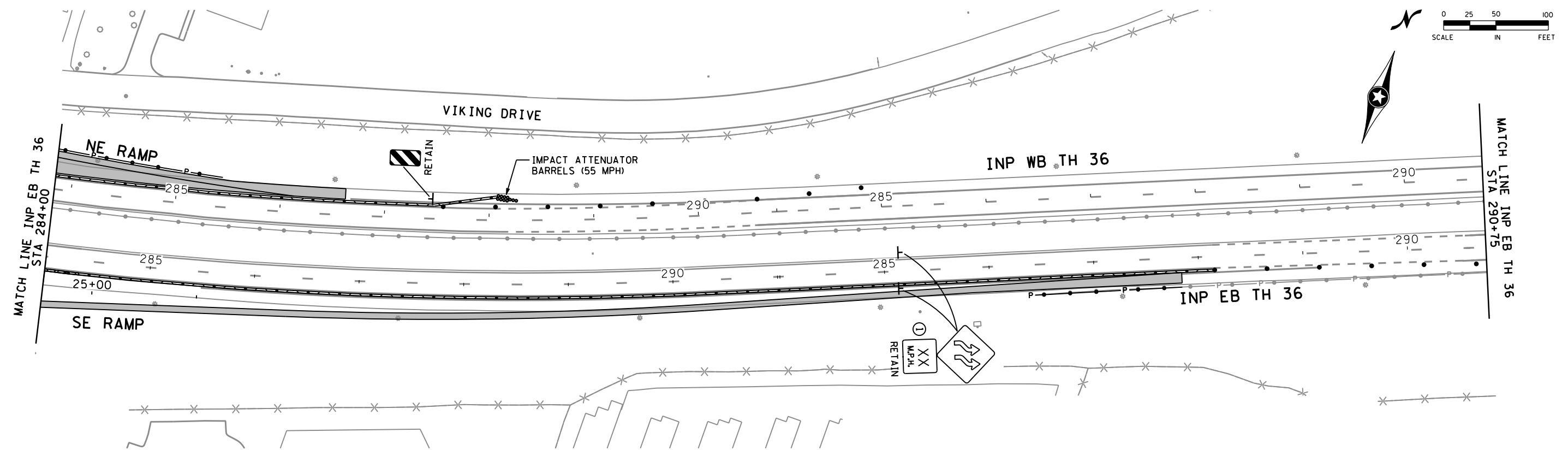
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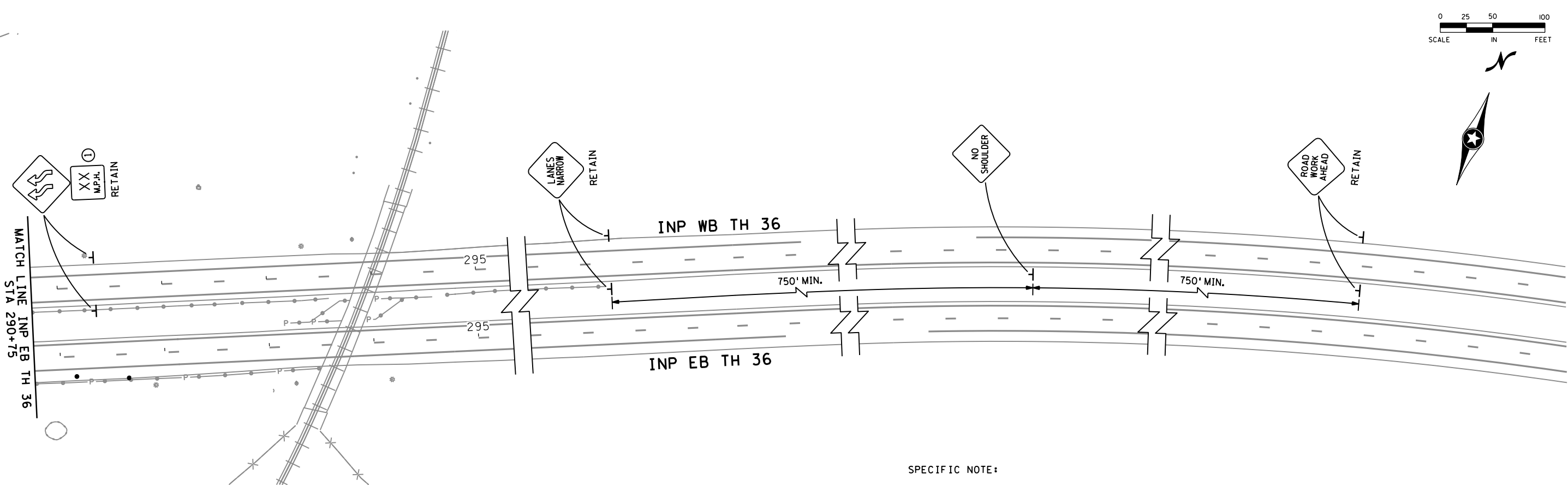
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TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STAGING AND TRAFFIC CONTROL PLAN
 BRIDGE MEDIAN PIER CONSTRUCTION

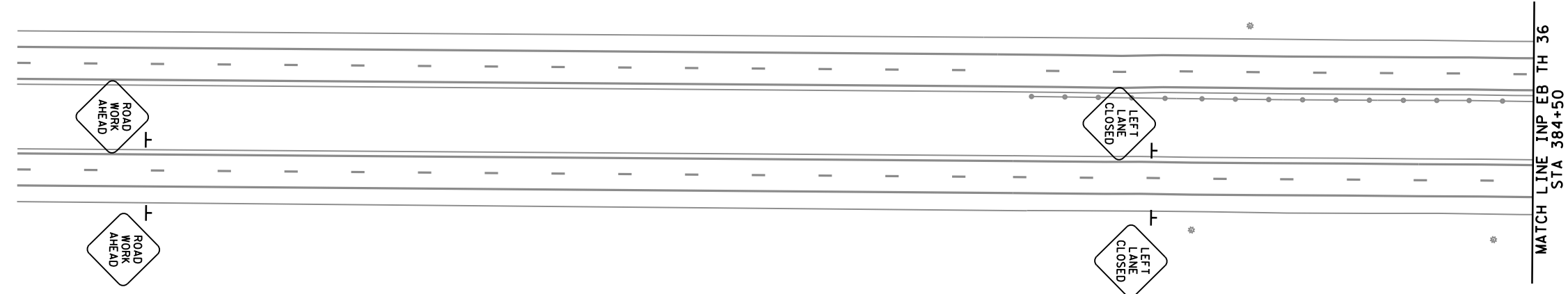
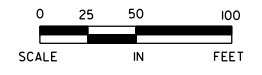
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TC17 OF TC25	534

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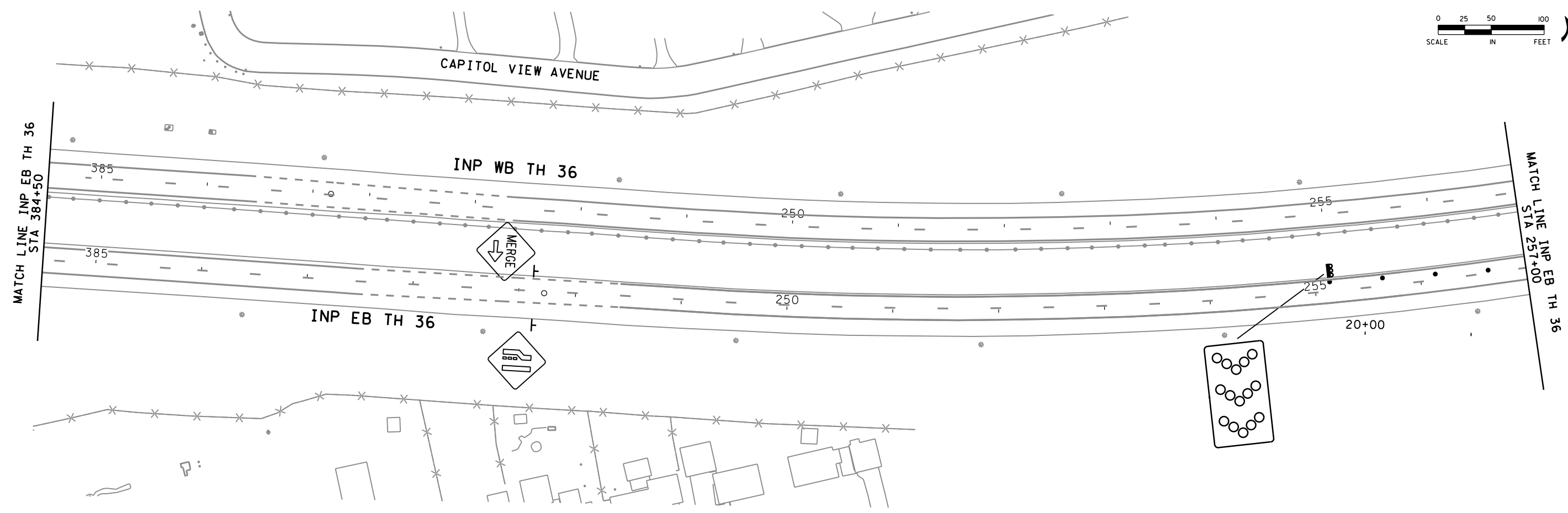
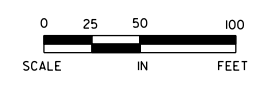
5/6/2010

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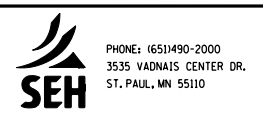
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DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLF		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

OVERNIGHT TRAFFIC CONTROL PLAN
 BRIDGE REMOVAL

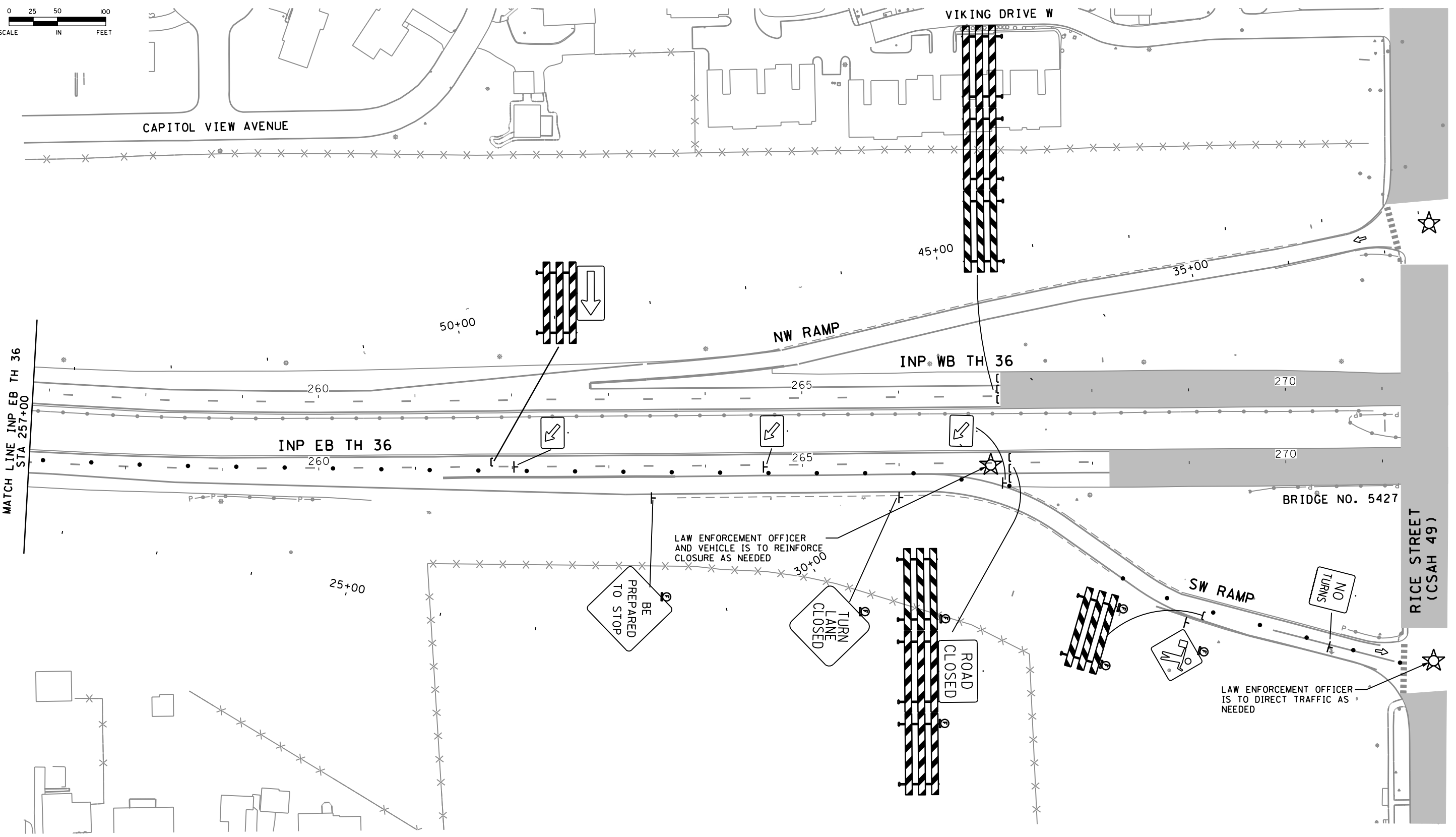
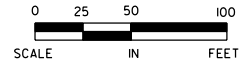
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TC18 OF TC26	534

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

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>SRH,HLR</u>				
CHECKED BY: <u>KLE</u>				

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 Certified By: Bret W. Johnson Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

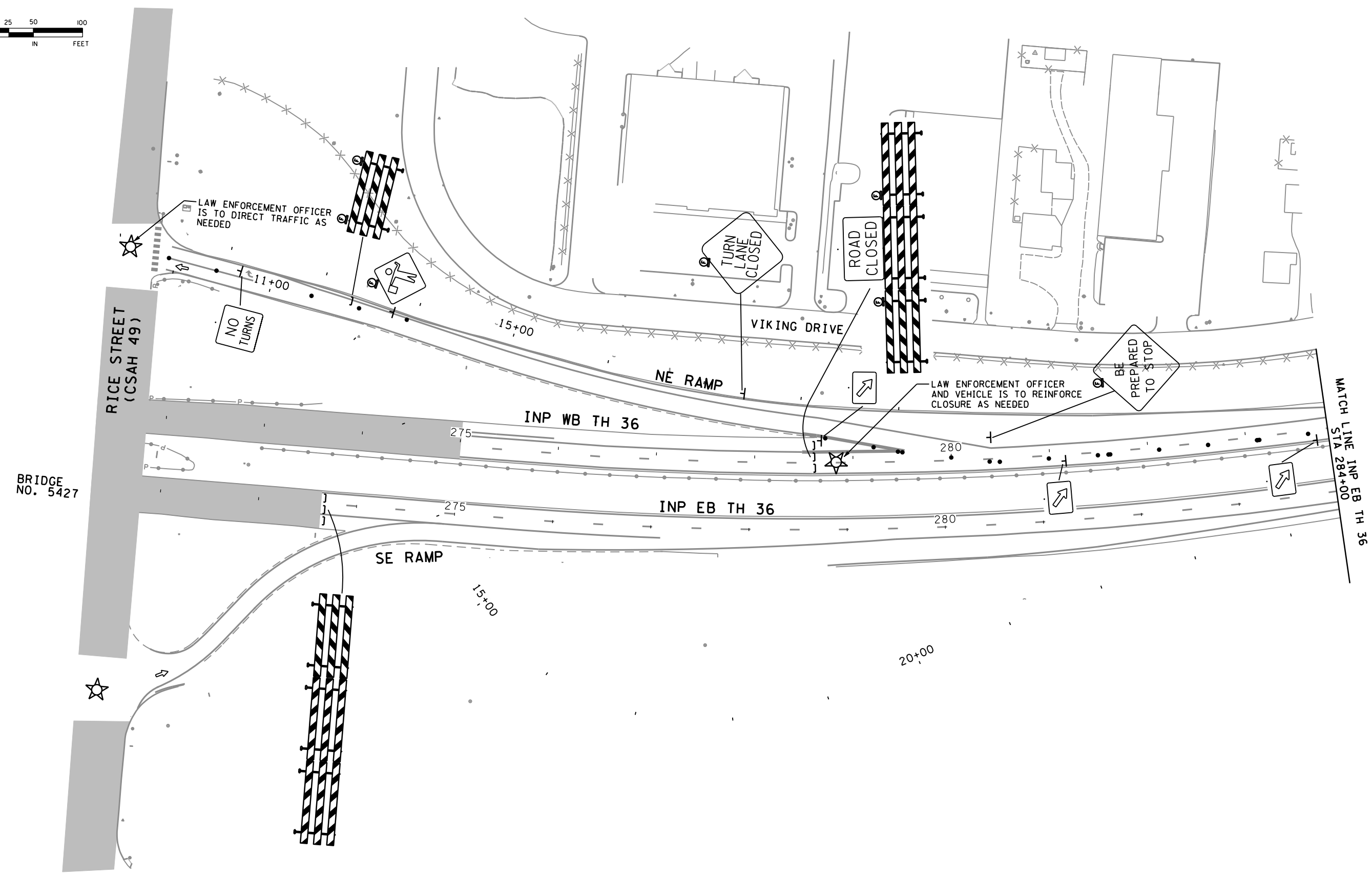
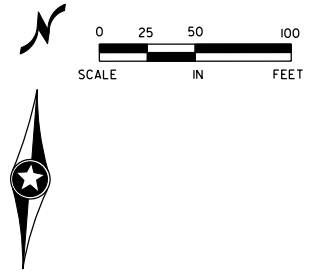


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

OVERNIGHT TRAFFIC CONTROL PLAN
 BRIDGE REMOVAL

FILE NO. RAMSP108790	81
TC19 OF TC26	534

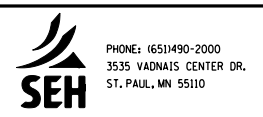
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DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

OVERNIGHT TRAFFIC CONTROL PLAN
 BRIDGE REMOVAL

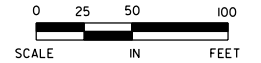
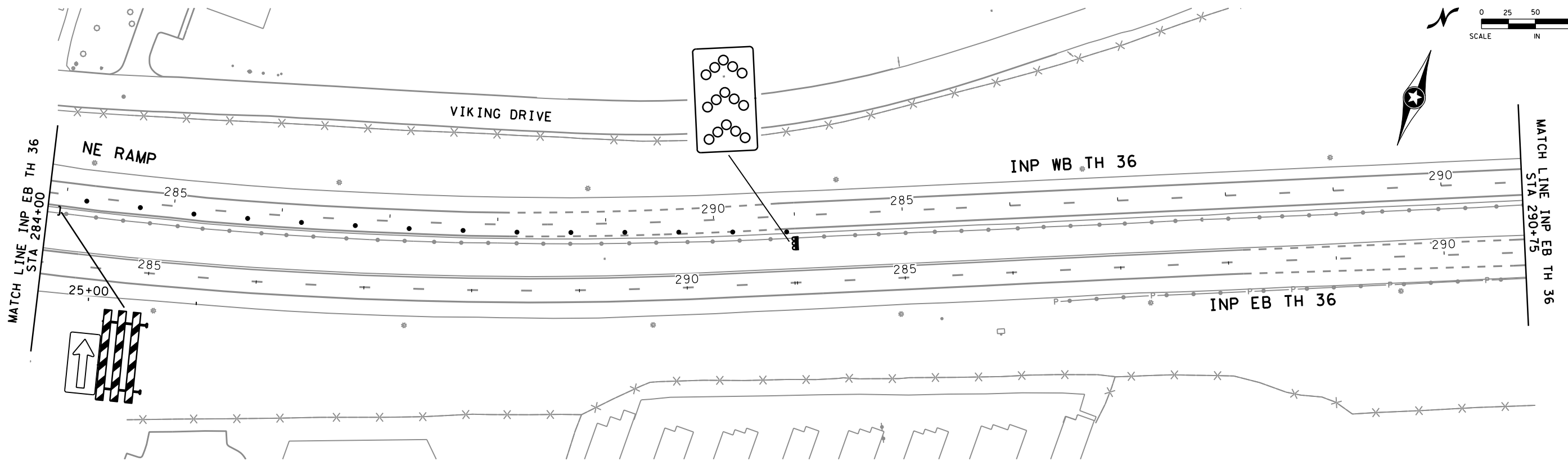
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TC20 OF TC26	534

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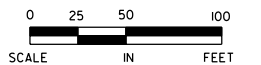
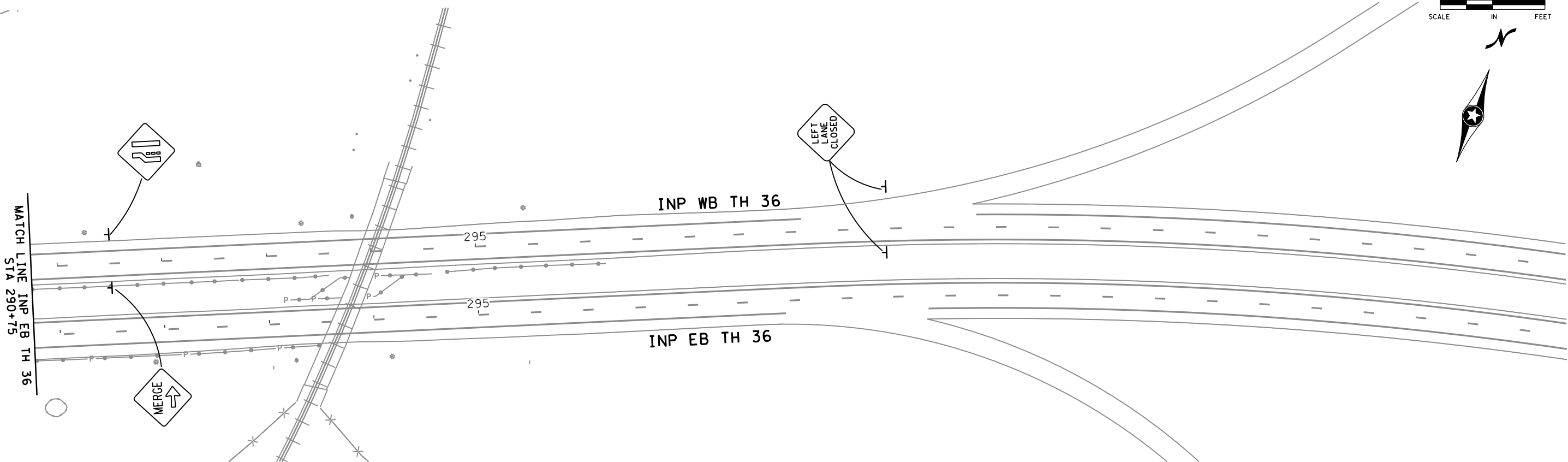
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DESIGN TEAM				REVISIONS			
DRAWN BY:	MTT			NO.	BY	DATE	
DESIGNER:	SRH,HLR						
CHECKED BY:	KLE						

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Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

PHONE: 651490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

OVERNIGHT TRAFFIC CONTROL PLAN
 BRIDGE REMOVAL

FILE NO. **83**
 RAMSP108790
 TC21
 OF TC26

534

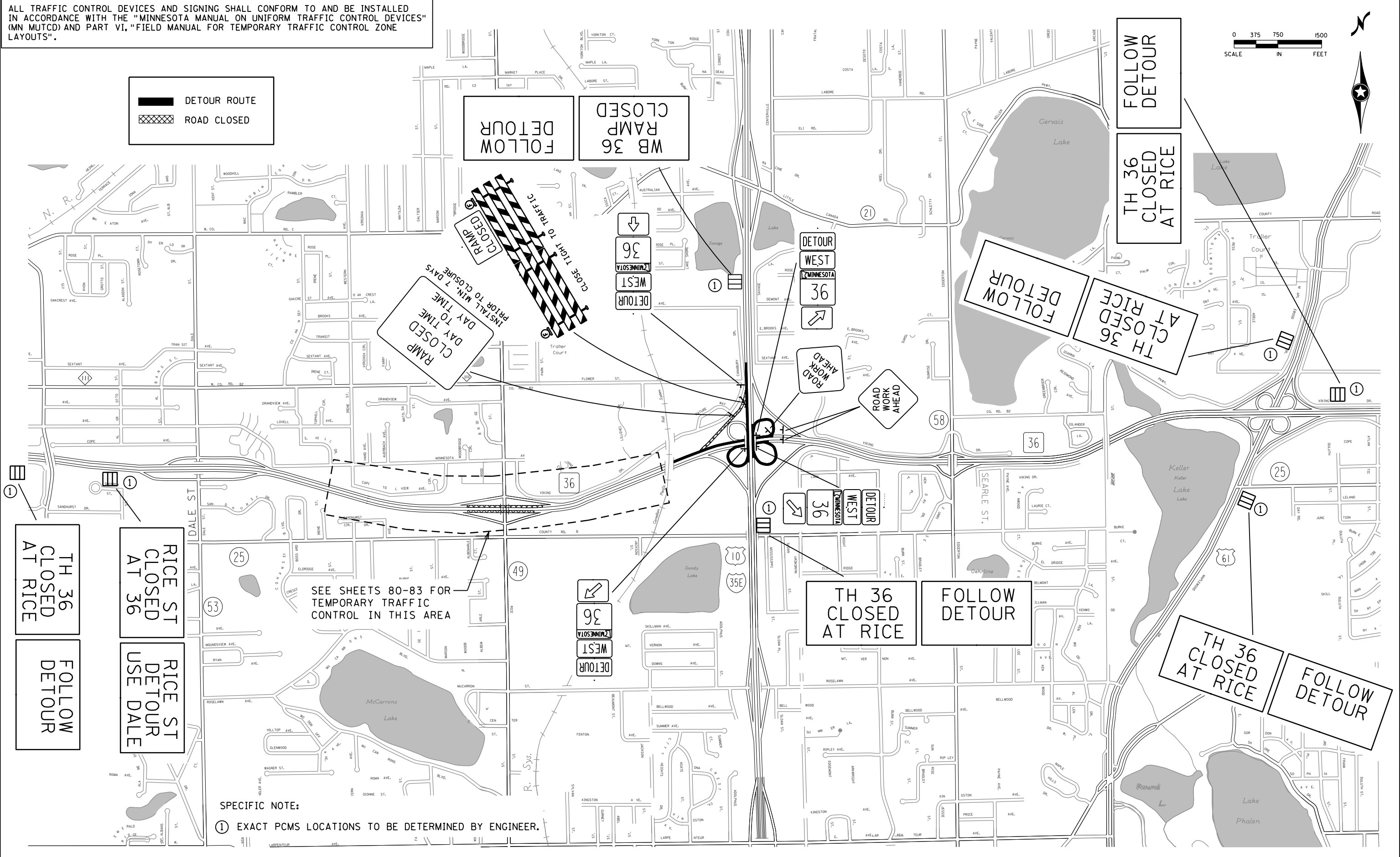
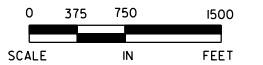
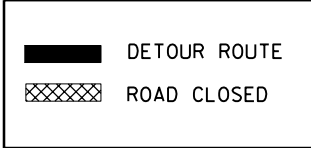
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SEE SHEETS 80-83 FOR TEMPORARY TRAFFIC CONTROL IN THIS AREA

SPECIFIC NOTE:
① EXACT PCMS LOCATIONS TO BE DETERMINED BY ENGINEER.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**BRIDGE REMOVAL
DETOUR PLAN**

FILE NO.	84
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TC22 OF TC25	534

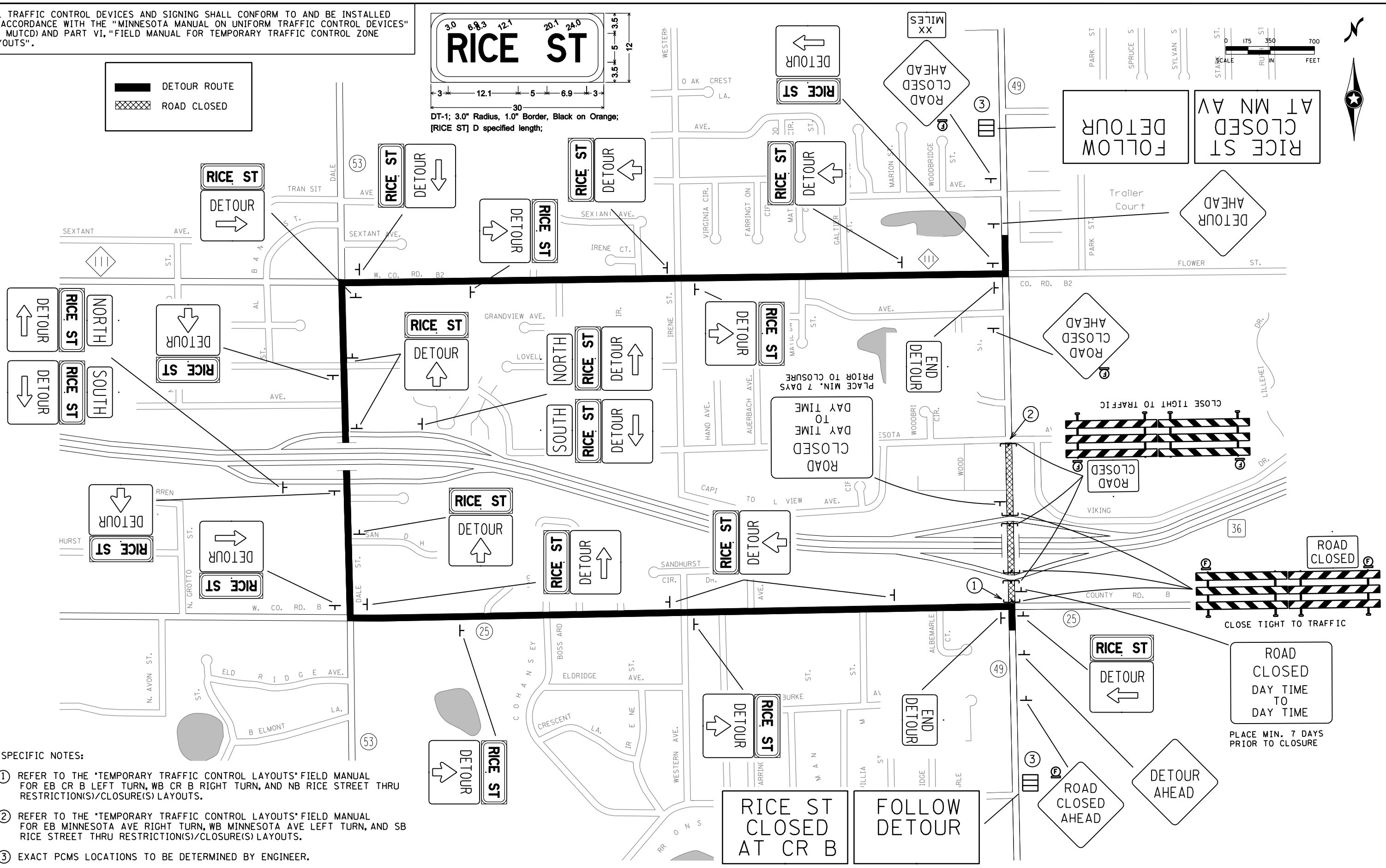
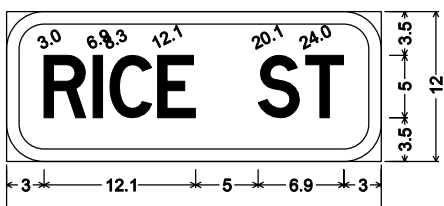
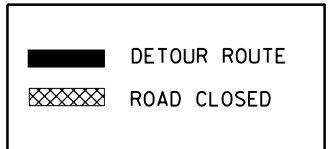
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SPECIFIC NOTES:

- ① REFER TO THE "TEMPORARY TRAFFIC CONTROL LAYOUTS" FIELD MANUAL FOR EB CR B LEFT TURN, WB CR B RIGHT TURN, AND NB RICE STREET THRU RESTRICTION(S)/CLOSURE(S) LAYOUTS.
- ② REFER TO THE "TEMPORARY TRAFFIC CONTROL LAYOUTS" FIELD MANUAL FOR EB MINNESOTA AVE RIGHT TURN, WB MINNESOTA AVE LEFT TURN, AND SB RICE STREET THRU RESTRICTION(S)/CLOSURE(S) LAYOUTS.
- ③ EXACT PCMS LOCATIONS TO BE DETERMINED BY ENGINEER.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

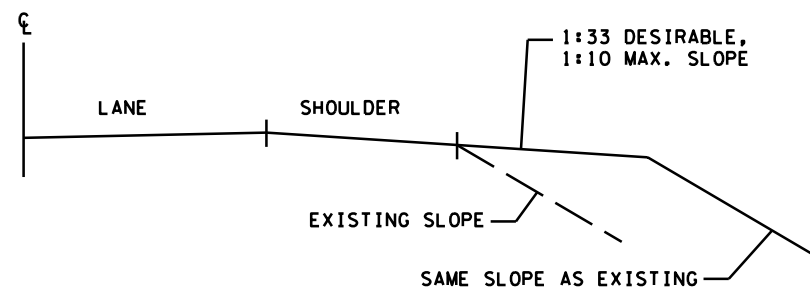
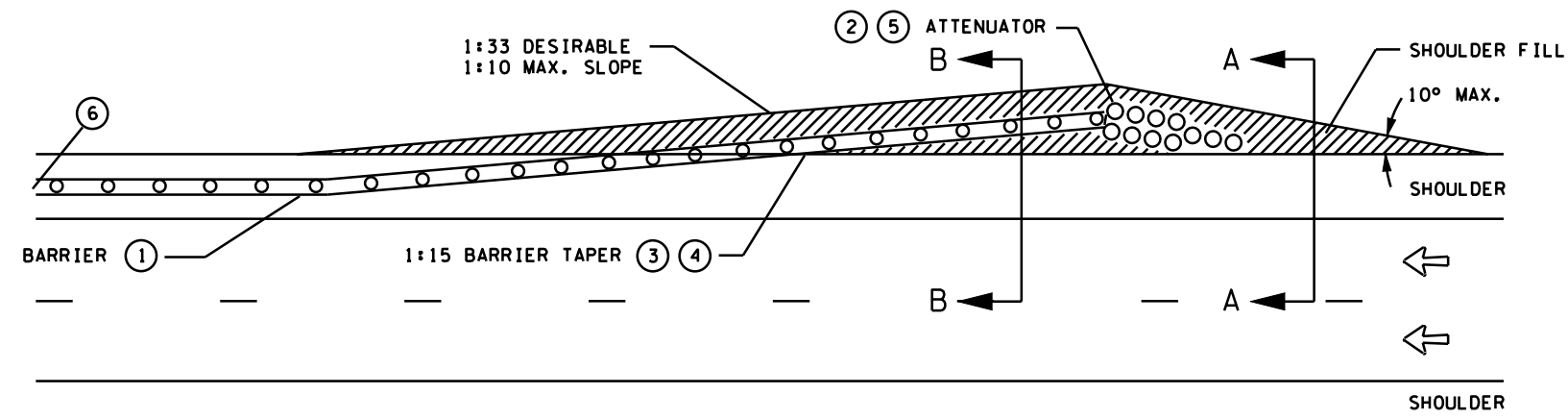
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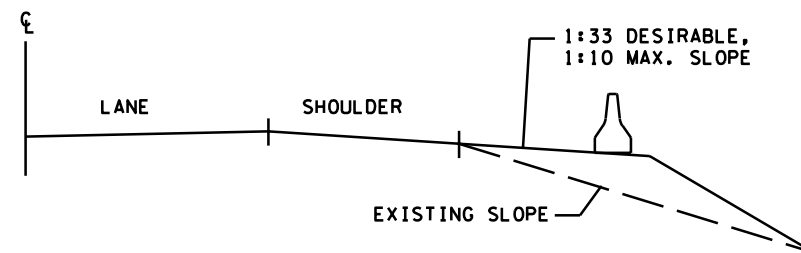
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**BRIDGE REMOVAL
 DETOUR PLAN**

FILE NO. RAMSP08790	85
TC23 OF TC26	534



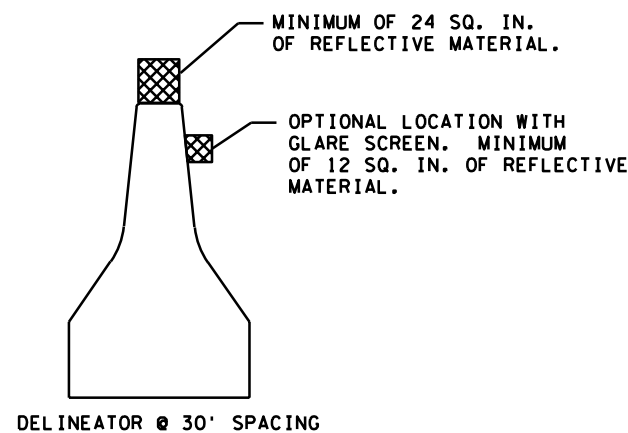
SECTION A-A



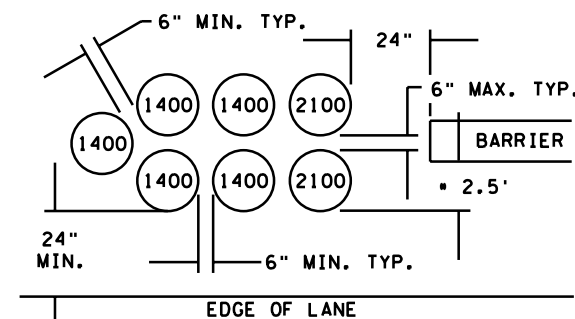
SECTION B-B

- ① IT IS DESIRABLE TO MAINTAIN FULL SHOULDER WIDTH WHENEVER POSSIBLE. IF NOT POSSIBLE, MINIMUM DESIRABLE LATERAL OFFSETS ARE BASED ON THE FOLLOWING POSTED SPEEDS:
70 MPH - 12.0 FEET
60 MPH - 8.0 FEET
50 MPH - 6.5 FEET
40 MPH - 5.0 FEET
FOR RESTRICTED CONDITIONS, LESSER OFFSETS MAY BE USED. THE OFFSETS SHOULD BE A MINIMUM OF 2 FEET UNLESS THE CONDITIONS ARE EXTREME. LATERAL OFFSETS ARE MEASURED TO THE BOTTOM OF THE BARRIER. BARRIER OFFSET FROM EDGE OF THRU LANE SHOULD NOT EXCEED 15 FEET.
- ② DESIRABLE TREATMENTS FOR EXPOSED BARRIER ENDS ARE; A CONNECTION TO EXISTING BARRIER; IMPACT ATTENUATOR; TAPER AWAY TO THE EDGE OF THE CLEAR ZONE; AND EXTENDING THROUGH A PLATE BEAM GUARDRAIL BY REMOVING A PANEL.
- ③ A 1:10 TAPER MAY BE USED WHEN POSTED SPEED LIMIT IS 35 MPH OR LESS.
- ④ IF THE BARRIER IS TO BE EXTENDED BEYOND THE SHOULDER, ADDITIONAL FILL WILL BE NEEDED IN ORDER TO PROVIDE A FLAT (1:33) APPROACH AREA TO THE BARRIER. FILL WILL BE INCIDENTAL TO BARRIER AND/OR IMPACT ATTENUATOR.
- ⑤ THE IMPACT ATTENUATOR SHOULD BE OFFSET A MINIMUM OF 2 FT. FROM THE EDGE OF THE THRU LANE (SEE SAND BARREL OFFSET DETAIL). THE IMPACT ATTENUATOR SHOULD BE ORIENTED TO ACCOMMODATE THE PROBABLE IMPACT ANGLE OF AN ENCROACHING VEHICLE. FOR MOST ROADSIDE CONDITIONS, AN ANGLE APPROXIMATELY 10 DEGREES, AS MEASURED BETWEEN THE HIGHWAY AND THE IMPACT ATTENUATOR LONGITUDINAL CENTERLINE, IS CONSIDERED APPROPRIATE.
- ⑥ FOR TWO LANE, TWO WAY TRAFFIC BOTH ENDS OF THE BARRIER SHOULD BE TREATED IN THE SAME MANNER AS DESCRIBED IN ②.

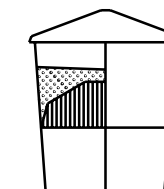
NOTE:
AT THE DIRECTION OF THE ENGINEER, OTHER APPROVED IMPACT ATTENUATORS CAN BE SUBSTITUTED IN LIEU OF THE SAND BARRELS ESPECIALLY WHERE REDIRECTION IS DESIRED OR AT WIDTH RESTRICTED AREAS.



SAND FILLED BARREL OFFSET



NOTE:
DISTANCE MAY BE REDUCED TO MINIMUM OF 15 IN. THIS IS ACCEPTABLE ONLY WHERE A GREATER OFFSET WOULD CAUSE UNACCEPTABLE INTERFERENCE WITH TRAFFIC.



SEE MANUFACTURER INFORMATION FOR PROPER PROCEDURE TO FILL BARRELS WITH SAND.

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SIGN DATA

SIGNS TO BE INSTALLED ON DRIVEN U-POSTS SHALL BE INSTALLED IN ACCORDANCE WITH TABLE 1 OR TABLE 2 BELOW. SIGN PANELS SHALL BE INSTALLED ON SIGN STRUCTURES TO MEET THE MINIMUM 5 FEET DEPICTED ON THE TYPICAL RURAL DESIGN DETAIL, THE 7 FEET DEPICTED ON THE TYPICAL URBAN DESIGN DETAIL, OR MINIMUM 7 AND 9 FEET DEPICTED ON THE TYPICAL MOUNTING DETAIL ON THIS SHEET.

TABLE 1

STANDARD CONSTRUCTION SIGNS IN MN/DOT STANDARD SIGNS MANUAL

PANEL SIZE (IN.)	POSTS			
	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
24 x 24	2-U	18		13
30 x 24	2-U	18		13
36 x 30	2-U	24		13
36 x 36	2-U	18		14
42 x 36	2-U	30		14
48 x 48	2-U	30		15
60 x 60	2-U	42	1	16
72 x 72	2-U	42	2	17
96 x 54	2-U	54	2	16
168 x 132	4-U	48	4	20

GENERAL NOTES:

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE STANDARD SIGNS MANUAL FOR PUNCHING HOLES.

TABLE 2

SPECIAL DESIGN CONSTRUCTION SIGNS

PANEL SIZE		POSTS			
LENGTH (IN.)	HEIGHT (IN.)	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
54 - 96	78	2-U	42	2	20
102 - 138	78	3-U	45	3	20
144 - 180	78	4-U	45	4	20

DESIGNER NOTE:

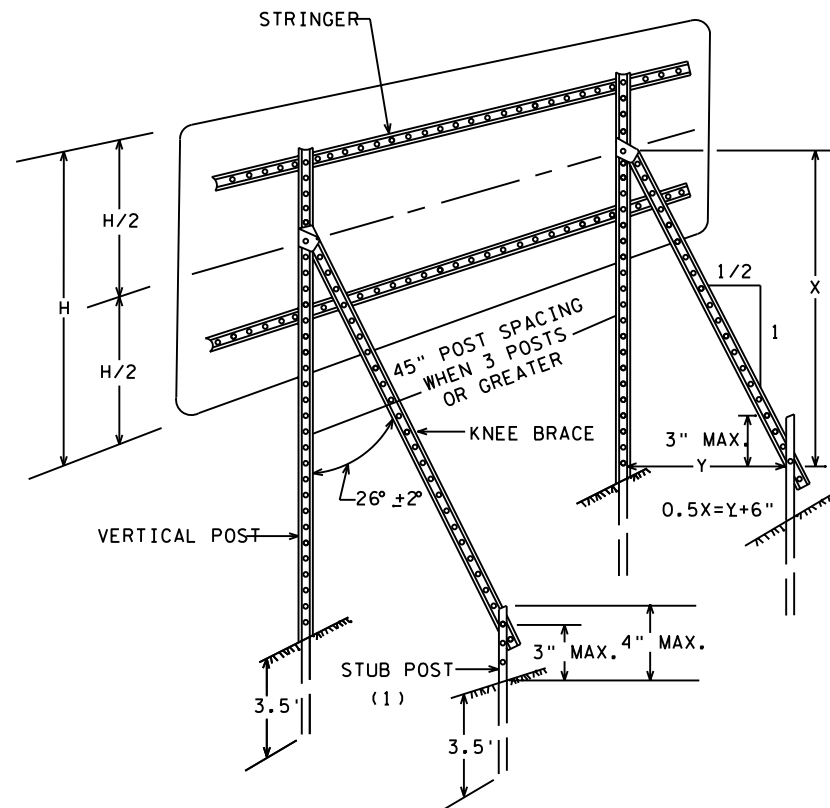
INCLUDE SPECIAL SIGN DETAILS IN THE TRAFFIC CONTROL PLAN IN TABLE TWO.

NOTES:

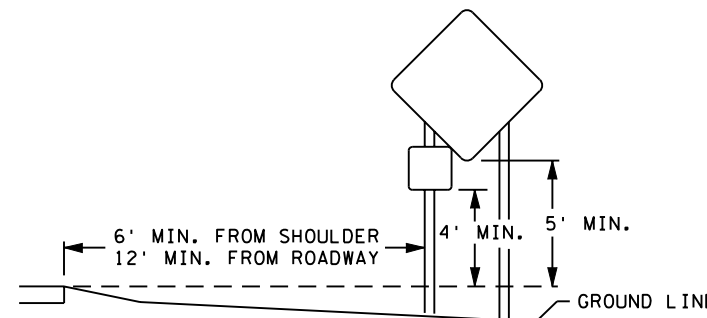
FOR TEMPORARY CONSTRUCTION SIGN FRAMING, THE CONTRACTOR MAY USE GRADE 5 ZINC PLATED BOLTS FOR ALL BOLTED CONNECTIONS, EXCEPT FOR THE KNEE BRACE CONNECTION TO THE REAR STUB POST, WHICH SHALL UTILIZE A 5/16 INCH STAINLESS STEEL BOLT AND NYLON INSERT LOCK NUT. ADDITIONAL SIGN FRAMING DETAILS CAN BE FOUND IN THE TRAFFIC ENGINEERING MANUAL PART 6.

IF THE CONTRACTOR ELECTS TO USE SOME OTHER TYPE OF SIGN SUPPORT (OTHER THAN U-CHANNEL SIGN POSTS) FOR MOUNTING CONSTRUCTION SIGNS, DETAILS OF THE PROPOSED SIGN STRUCTURE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE SIGN STRUCTURE COMPONENTS. ANY SIGN STRUCTURE TO BE SUBMITTED TO THE ENGINEER SHALL BE AN FHWA ACCEPTED BREAKAWAY SIGN SUPPORT. SIGN STRUCTURE SHALL ALSO BE APPROVED FOR 90 MPH WIND LOAD.

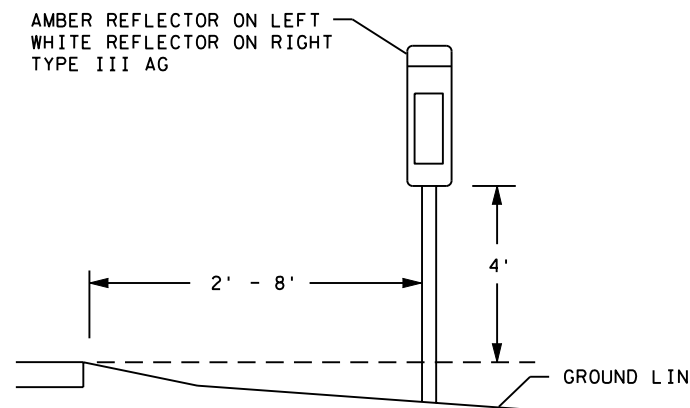
SIGNS SHOWN TO BE COVERED SHALL BE COVERED WITH THE SAME COLOR AS THE SIGN BACKGROUND. THE CONTRACTOR SHALL INSTALL COVERS OR ADDITIONAL SIGNS USING A MINIMUM 1/2" NYLON SPACER BETWEEN THE INPLACE SIGN AND THE COVERING MATERIAL. HOLES WILL BE DRILLED IN THE COVER AND THE INPLACE SIGN AND SHALL BE INSTALLED IN ACCORDANCE TO THE SIGN PANEL DETAIL. SPACERS ARE REQUIRED. MID-PANEL SPACING SHALL BE NO GREATER THAN 24".



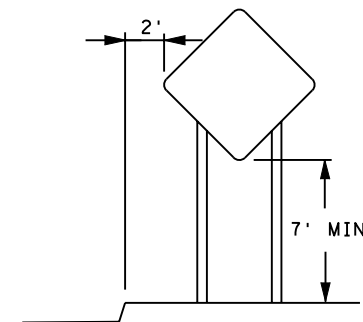
TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS



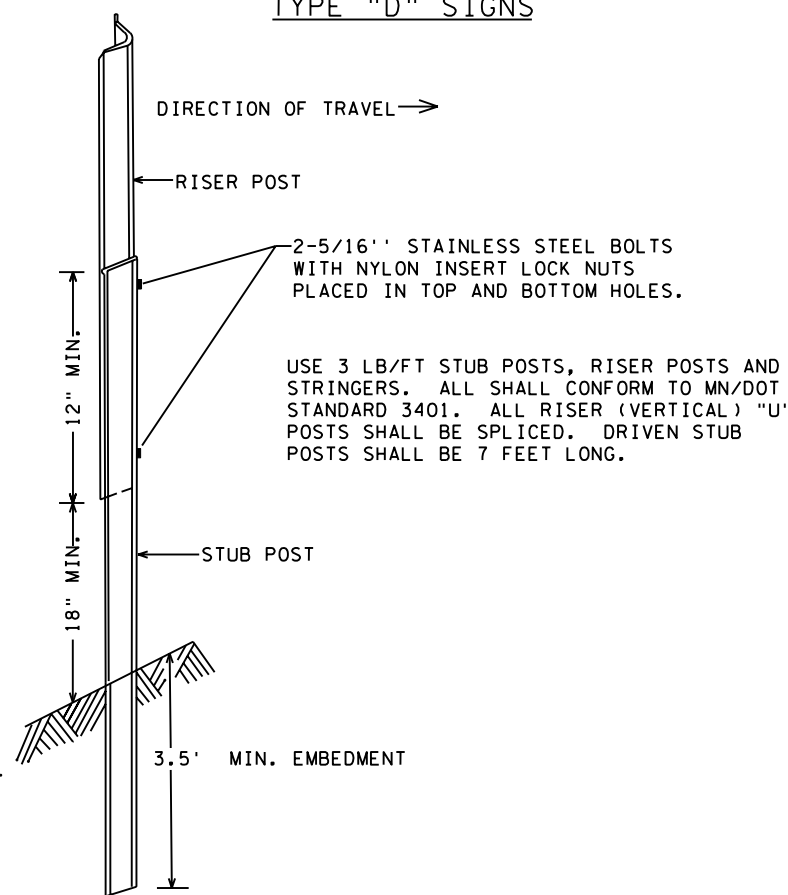
TYPICAL RURAL DESIGN



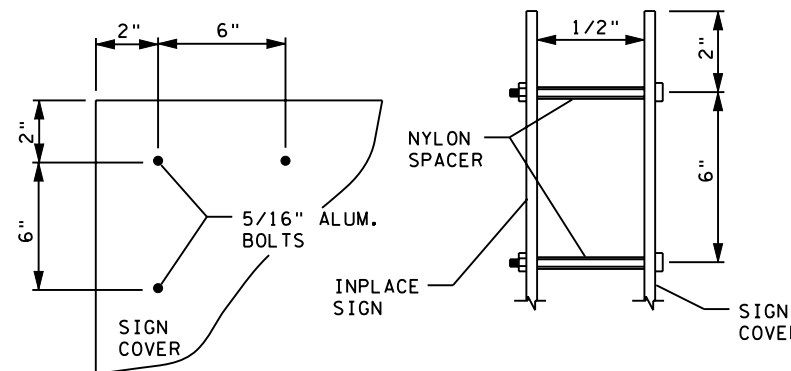
DELINEATION MOUNTING



TYPICAL URBAN DESIGN



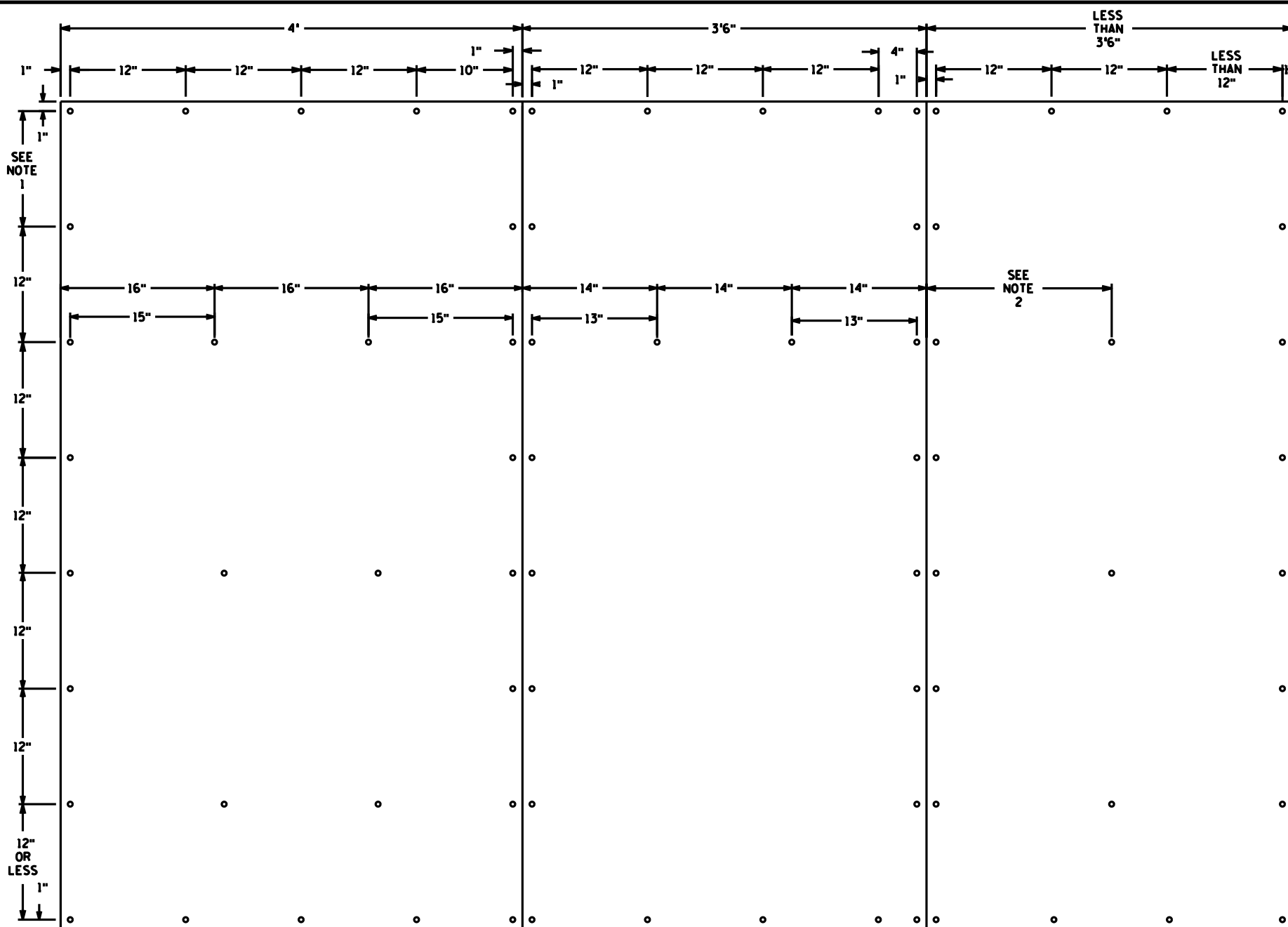
"U" POST SPLICE



TYPICAL MOUNTING

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

TYPICAL TEMPORARY SIGN FRAMING AND INSTALLATION DETAILS



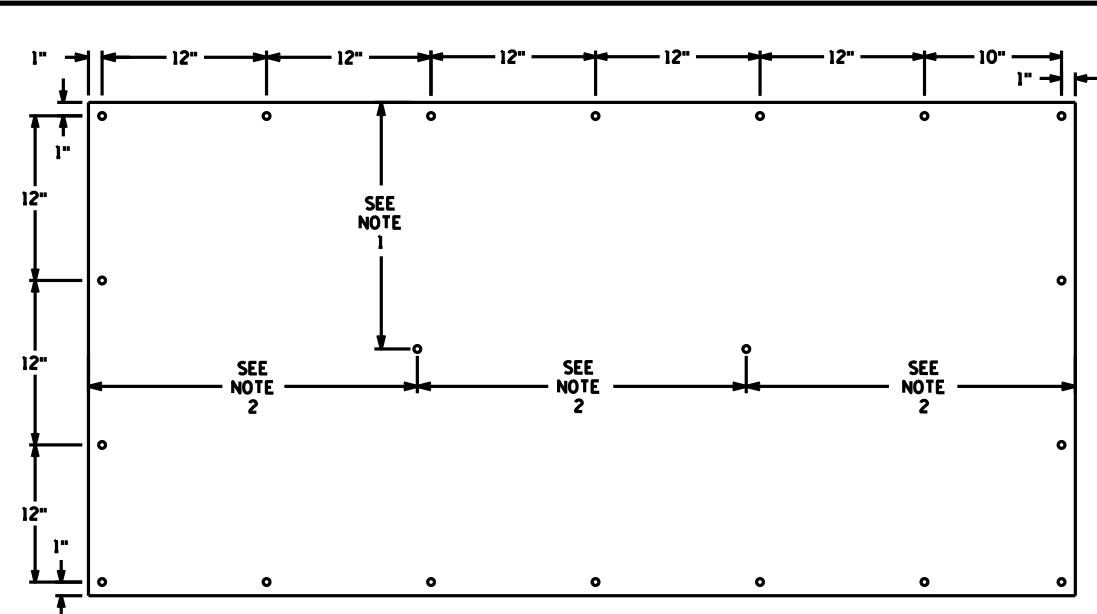
TEMPORARY CONSTRUCTION SIGN PANEL OVERLAY COVERING A COMPLETE SIGN PANEL

OVERLAY ASSEMBLY STEPS:

1. DRILL 13/64" HOLES ON THE SHEET ALUMINUM OVERLAYS IN ACCORDANCE WITH HOLE SPACING ON DIAGRAM. OUTSIDE HOLES SHALL NOT BE SPACED MORE THAN 12" APART.
2. ATTACH ONE PLASTIC WASHER (1/8" THICK, 3/8" I.D. AND 7/8" O.D.), WITH DOUBLE FACED TAPE, CENTERED BEHIND EACH DRILLED HOLE.
3. POSITION THE FAR LEFT SHEET ALUMINUM OVERLAY PANEL WITH THE BOTTOM FLUSH WITH THE INPLACE SIGN PANEL AND THE LOWER LEFT EDGE OF THE OVERLAY PANEL LINED UP WITH THE LOWER LEFT EDGE OF THE BOTTOM INPLACE PANEL SECTION.
4. DRILL ALL OUTSIDE HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH OVERLAY PANEL WITH 3/16" POP RIVETS MEETING THE REQUIREMENTS ON Mn/DOT 3352.A7a
5. DRILL THE INNER HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH WITH RIVETS AS SPECIFIED IN STEP 4.
6. ABUT THE NEXT OVERLAY PANEL TO THE FIRST ATTACHED OVERLAY PANEL AND PERFORM THE SAME WORK AS SPECIFIED IN STEPS 4 AND 5.
7. INSTALL EACH ADDITIONAL OVERLAY PANEL AS SPECIFIED IN STEP 6.

NOTES:

1. IF TOP PANEL IS 6" HIGH, THIS VERTICAL SPACE IS 6"; IF TOP PANEL IS 12" HIGH, THIS VERTICAL SPACE IS 12".
2. SHEET ALUMINUM PANEL RIVET SPACING SHALL BE 1/2 THE PANEL'S WIDTH.



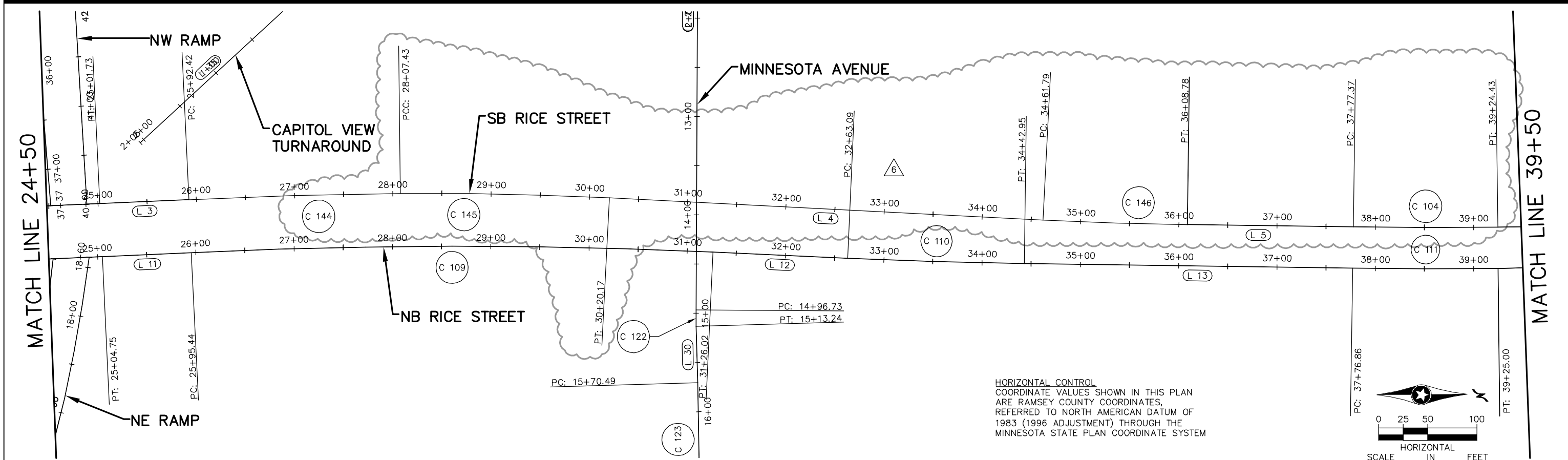
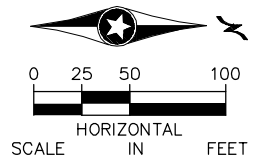
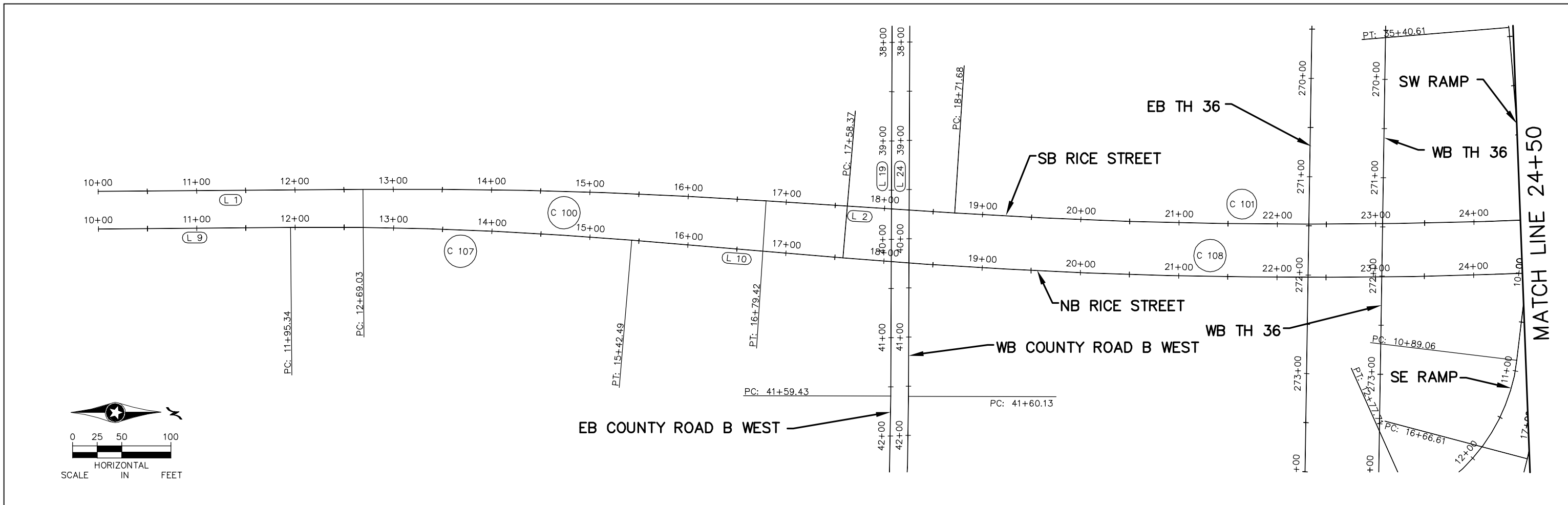
TEMPORARY CONSTRUCTION SIGN PANEL OVERLAY COVERING A PORTION OF A SIGN PANEL

OVERLAY ASSEMBLY STEPS:

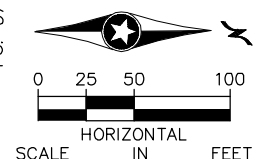
1. DRILL 13/64" HOLES ON THE SHEET ALUMINUM OVERLAYS IN ACCORDANCE WITH HOLE SPACING ON DIAGRAM. OUTSIDE HOLES SHALL NOT BE SPACED MORE THAN 12" APART.
2. ATTACH ONE PLASTIC WASHER (1/8" THICK, 3/8" I.D., AND 7/8" O.D.), WITH DOUBLE FACED TAPE, CENTERED BEHIND EACH DRILLED HOLE.
3. POSITION THE OVERLAY PANEL, ON THE INPLACE SIGN PANEL, MAKING SURE THE MOUNTING HOLES ON THE OVERLAY PANEL DO NOT LINE UP WITH ANY HORIZONTAL ALUMINUM PANEL JOINTS.
4. DRILL ALL OUTSIDE HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH OVERLAY PANEL WITH 3/16" POP RIVETS MEETING THE REQUIREMENTS ON Mn/DOT 3352.A7a.
5. DRILL THE INNER HOLES THROUGH THE INPLACE SIGN PANEL AND ATTACH WITH THE SAME RIVETS AS SPECIFIED IN STEP 4.

NOTES:

1. VERTICAL SPACING FOR INNER MOUNTING HOLES IS 1/2 THE PANEL HEIGHT. IF THE PANEL IS LESS THAN 24" HIGH, THERE SHALL BE NO INNER HOLES.
2. HORIZONTAL SPACING FOR INNER MOUNTING HOLES SHALL NOT BE LESS THAN 15", NOR MORE THAN 24".



HORIZONTAL CONTROL
 COORDINATE VALUES SHOWN IN THIS PLAN
 ARE RAMSEY COUNTY COORDINATES,
 REFERRED TO NORTH AMERICAN DATUM OF
 1983 (1996 ADJUSTMENT) THROUGH THE
 MINNESOTA STATE PLAN COORDINATE SYSTEM



DESIGN TEAM				
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE			
NO.	BY	DATE	REVISIONS	
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL 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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 3/3/2010

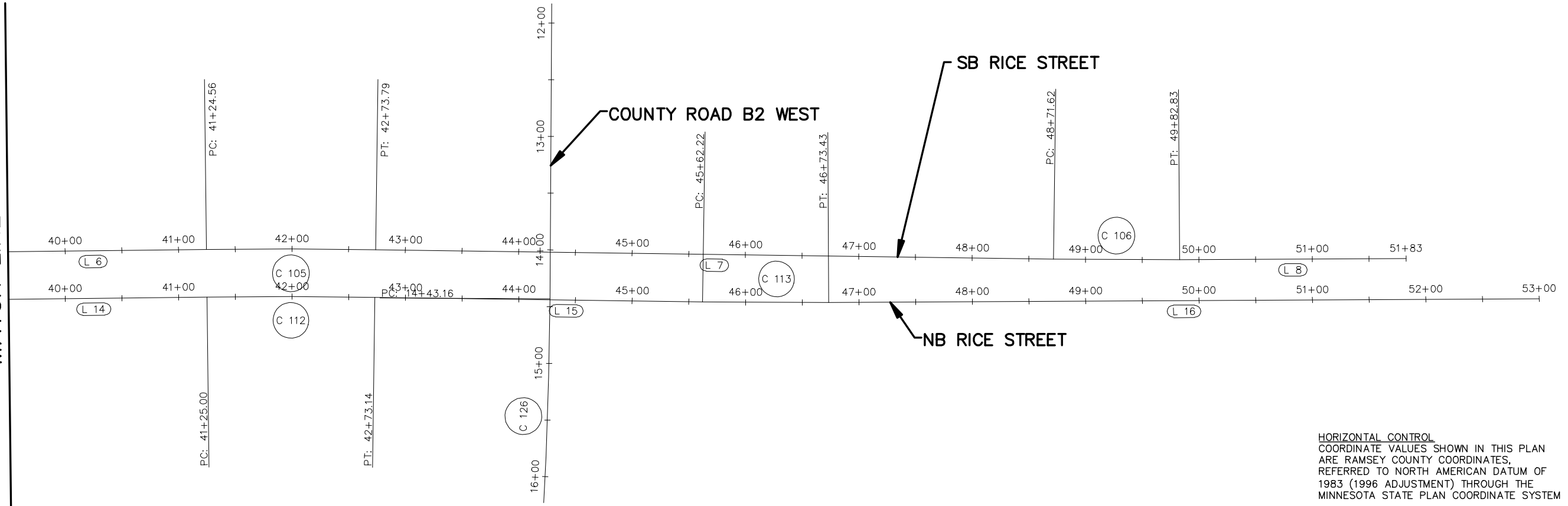
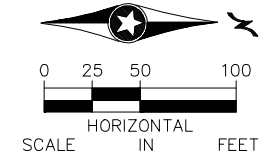
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

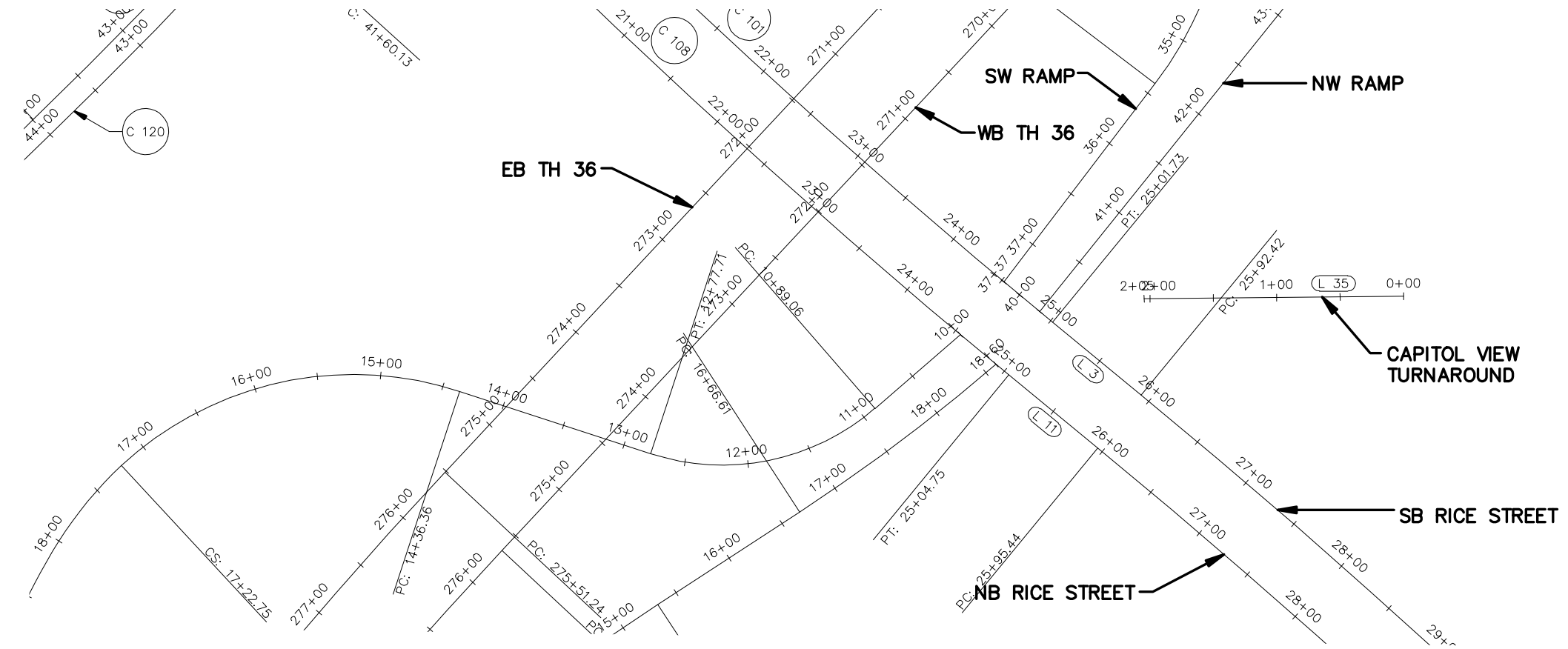
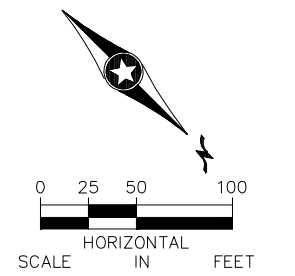
ALIGNMENT PLAN
RICE STREET
 STA. 10+00 TO STA. 39+50

FILE NO.	89
160599001	
AL1	
OF AL14	534

MATCH LINE 39+50



HORIZONTAL CONTROL
 COORDINATE VALUES SHOWN IN THIS PLAN
 ARE RAMSEY COUNTY COORDINATES,
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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

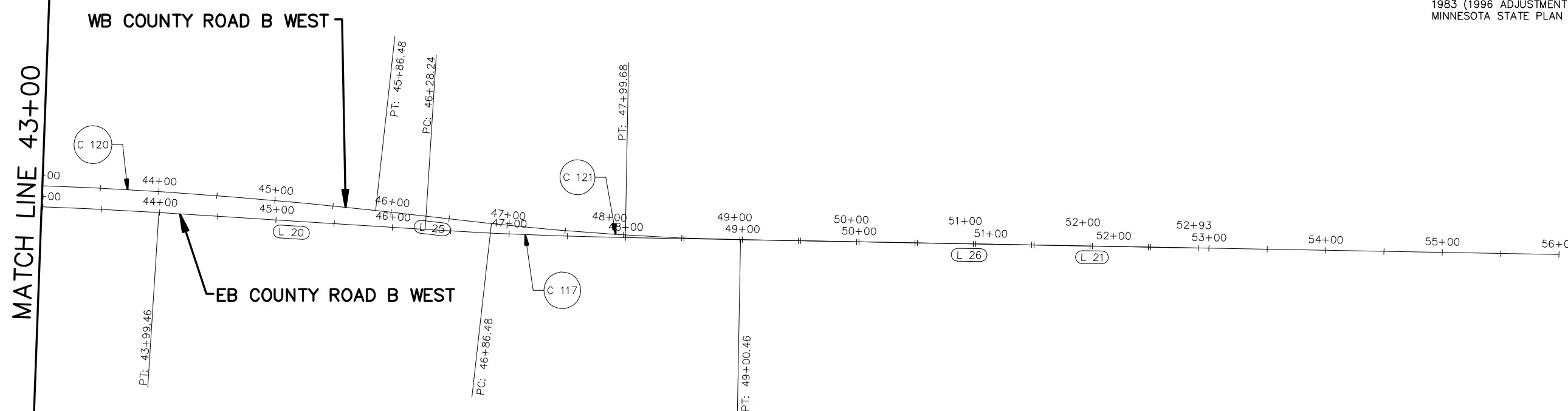
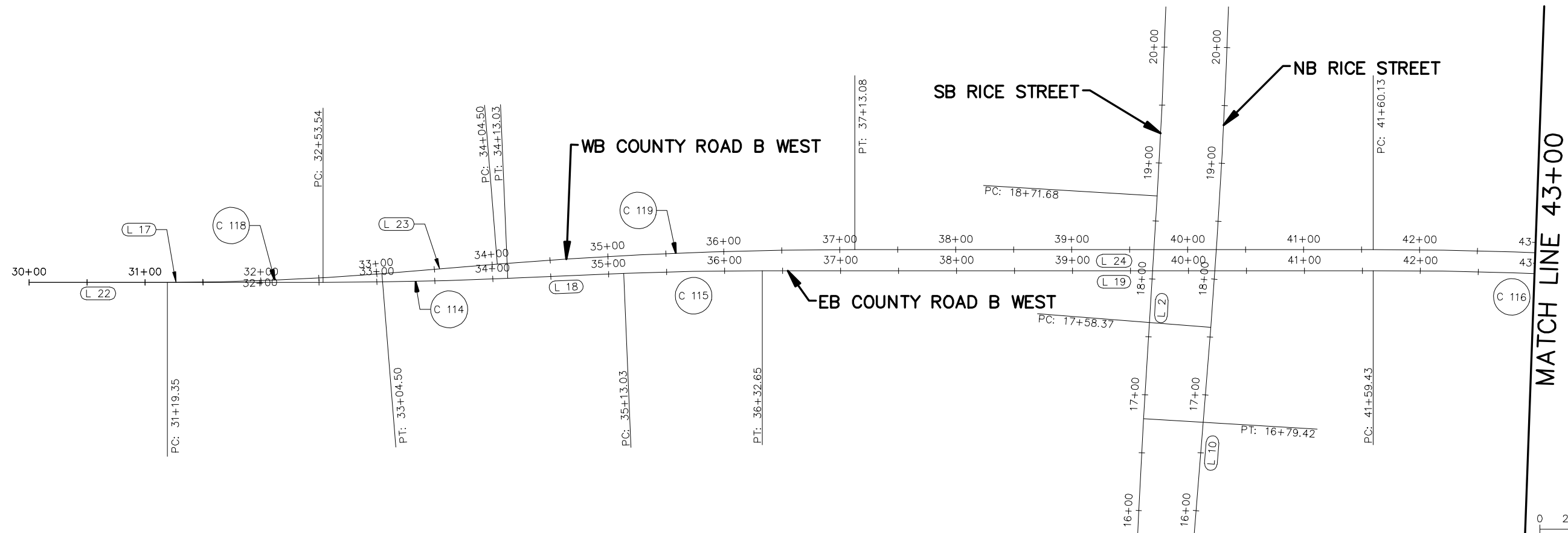
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT PLAN
RICE STREET
STA. 39+50 TO STA. 53+00
 CAPITOL VIEW TURNAROUND STA. 0+00 TO STA. 1+50

FILE NO. 160599001
AL2
 OF AL14
90
534



HORIZONTAL CONTROL
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 MINNESOTA STATE PLAN COORDINATE SYSTEM

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

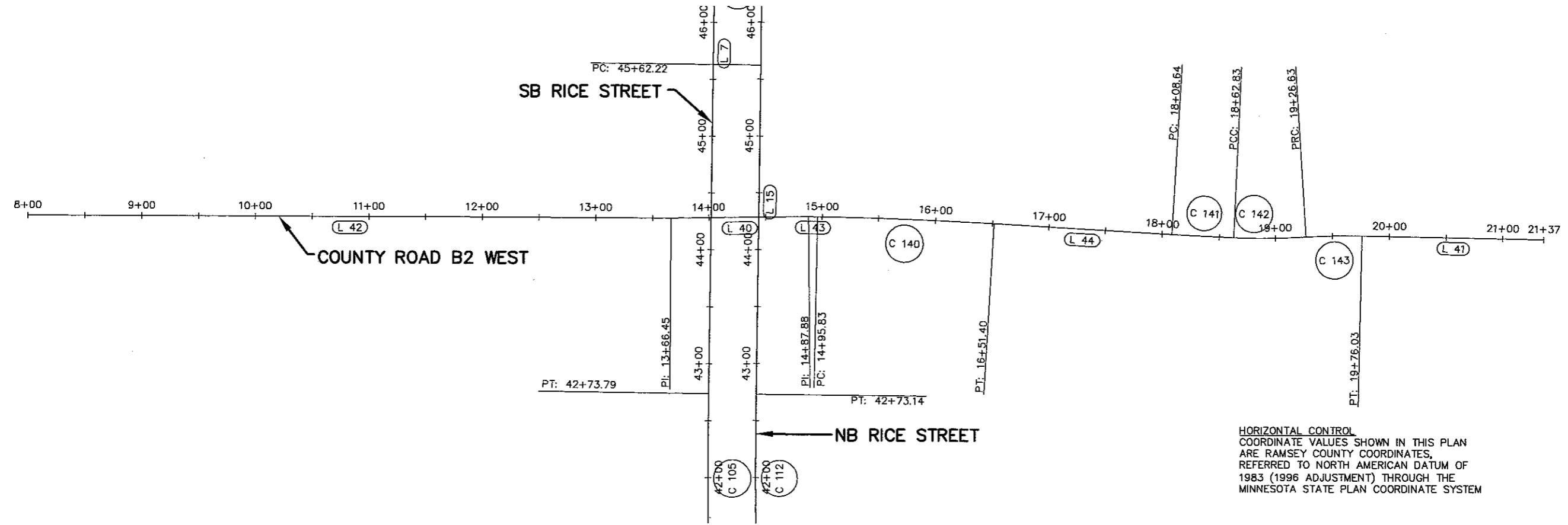
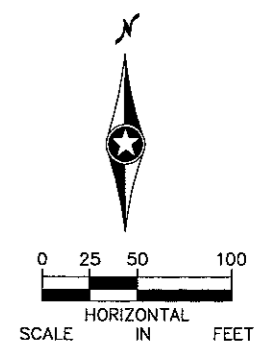
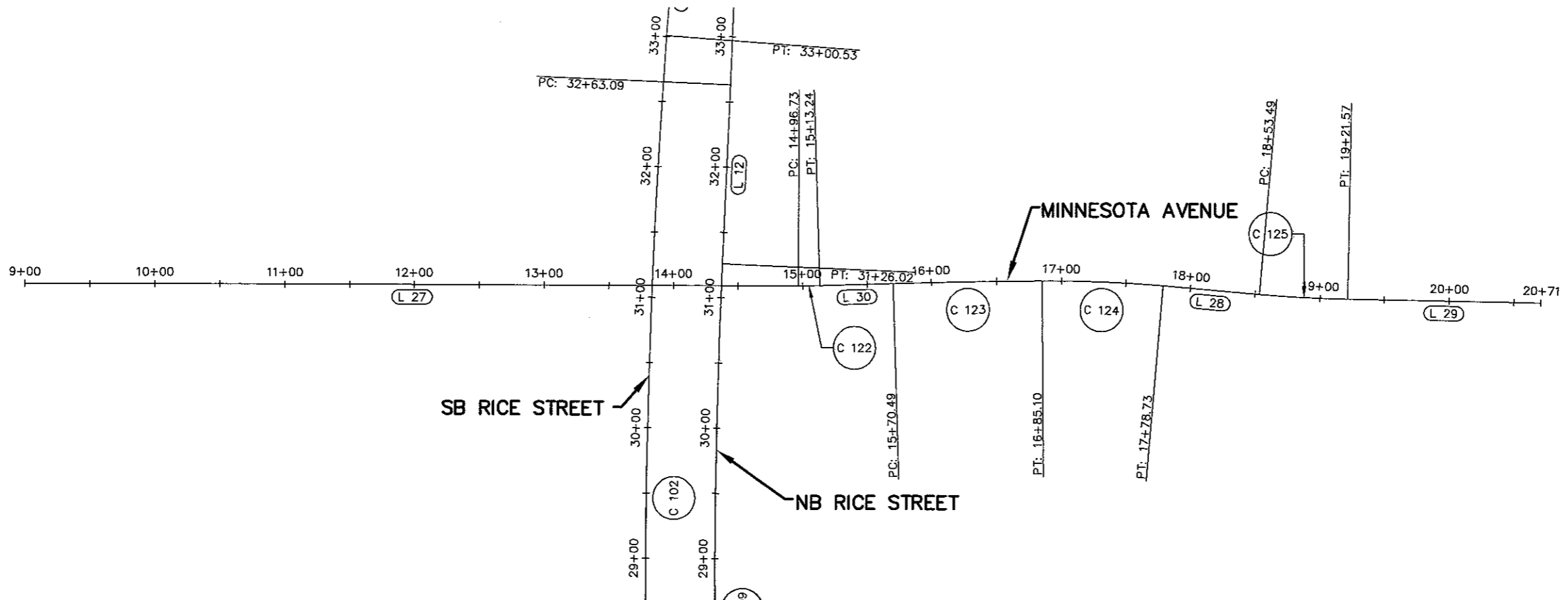
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Beth A. Engum*
 Licensed Professional Engineer, No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
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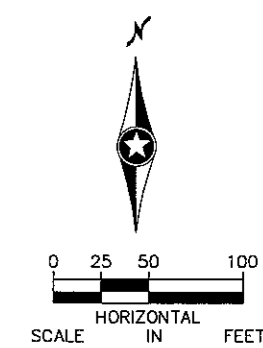
RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT PLAN
 COUNTY ROAD B WEST
 STA. 30+00 TO STA. 56+00

FILE NO. 91
 160599001
 AL3
 OF AL14
 534



HORIZONTAL CONTROL
 COORDINATE VALUES SHOWN IN THIS PLAN
 ARE RAMSEY COUNTY COORDINATES,
 REFERRED TO NORTH AMERICAN DATUM OF
 1983 (1996 ADJUSTMENT) THROUGH THE
 MINNESOTA STATE PLAN COORDINATE SYSTEM



DESIGN TEAM				
DRAWN BY: RJS				
DESIGNER: RJS				
CHECKED BY: BAE	2	BAE	8/09/2010	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION
	NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
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 ST. PAUL, MINNESOTA 55114
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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT PLAN
 MINNESOTA AVENUE STA. 9+00 TO STA. 20+71
 COUNTY ROAD B2 WEST
 STA. 8+00 TO STA. 22+00

FILE NO. 160599001
 AL4 OF AL14
 92
 534

ALIGNMENT TABULATION
NB RICE STREET

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	DELTA	NOTES	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATE NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATE NORTHING	ENDING COORDINATE EASTING	AZIMUTH
L 9	10+00.0000	11+95.3375							195.3375	177789.0162	571773.0237	177984.2686	571767.2610	358°18'34.09"
C 107	11+95.3375	15+42.4850	13+69.0308	5°12'24.59"		1°29'59.60"	3820.0000	173.6933	347.1476	177984.2686	571767.2610	178331.2527	571772.7899	358°18'34.09" 3°30'58.68"
L 10	15+42.4850	17+58.3696							215.8846	178331.2527	571772.7899	178546.7309	571786.0307	3°30'58.68"
C 108	17+58.3696	25+04.7503	21+32.0885	7°27'47.73"		0°59'59.73"	5730.0000	373.7189	746.3807	178546.7309	571786.0307	179292.5787	571783.2276	3°30'58.68" 356°03'10.95"
L 11	25+04.7503	25+95.4402							90.6899	179292.5787	571783.2276	179383.0535	571776.9851	356°03'10.95"
C 109	25+95.4402	31+26.0229	28+60.9213	5°18'19.57"		0°59'59.73"	5730.0000	265.4811	530.5827	179383.0535	571776.9851	179913.3114	571765.0053	356°03'10.95" 1°21'30.52"
L 12	31+26.0229	32+63.0941							137.0712	179913.3114	571765.0053	180050.3441	571768.2549	1°21'30.52"
C 110	32+63.0941	34+42.9500	33+53.0294	1°47'54.33"		0°59'59.73"	5730.0000	89.9353	179.8559	180050.3441	571768.2549	180230.1868	571769.6965	1°21'30.52" 359°33'36.19"
L 13	34+42.9500	37+76.8590							333.9090	180230.1868	571769.6965	180564.0860	571767.1326	359°33'36.19"
C 111	37+76.8590	39+25.0012	38+50.9342	1°28'52.72"		0°59'59.73"	5730.0000	74.0752	148.1421	180564.0860	571767.1326	180712.1925	571764.0804	359°33'36.19" 358°04'43.47"
L 14	39+25.0012	41+25.0012							200.0000	180712.1925	571764.0804	180912.0801	571757.3752	358°04'43.47"
C 112	41+25.0012	42+73.1433	41+99.0764	1°28'52.72"		0°59'59.73"	5730.0000	74.0752	148.1421	180912.0801	571757.3752	181060.1867	571754.3229	358°04'43.47" 359°33'36.19"
L 15	42+73.1433	45+62.2173							289.0740	181060.1867	571754.3229	181349.2522	571752.1033	359°33'36.19"
C 113	45+62.2173	46+73.4277	46+17.8242	1°06'43.28"		0°59'59.73"	5730.0000	55.6069	111.2104	181349.2522	571752.1033	181460.4440	571750.1703	359°33'36.19" 358°26'52.91"
L 16	46+73.4277	53+00.0000							626.5723	181460.4440	571750.1703	182086.7865	571733.2004	358°26'52.91"

ALIGNMENT TABULATION
SB RICE STREET

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	DELTA	NOTES	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATE NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATE NORTHING	ENDING COORDINATE EASTING	AZIMUTH
L 1	10+00.0000	12+69.0332							269.0332	177787.8952	571735.0402	178056.8113	571727.1034	358°18'34.09"
C 100	12+69.0332	16+79.4188	14+74.3138	4°06'12.79"		0°59'59.73"	5730.0000	205.2806	410.3856	178056.8113	571727.1034	178467.1010	571729.6903	358°18'34.09" 2°24'46.88"
L 2	16+79.4188	18+71.6791							192.2602	178467.1010	571729.6903	178659.1908	571737.7850	2°24'46.88"
C 101	18+71.6791	25+01.7299	21+87.0283	6°21'35.93"		1°00'33.98"	5676.0000	315.3493	630.0508	178659.1908	571737.7850	179288.8617	571729.3557	2°24'46.88" 356°03'10.95"
L 3	25+01.7299	25+92.4198							90.6899	179288.8617	571729.3557	179379.3365	571723.1132	356°03'10.95"
C 144	25+92.4198	28+07.4339	26+99.9392	2°07'47.68"		0°59'26.13"	5784.0000	107.5194	215.0141	179379.3365	571723.1132	179594.0663	571712.3031	356°03'10.95" 358°10'58.63"
C 145	28+07.4339	30+20.1655	29+13.8324	3°28'56.87"		1°38'13.28"	3500.0000	106.3986	212.7317	179594.0663	571712.3031	179806.7651	571712.0217	358°10'58.63" 1°39'55.50"
L 4	30+20.1655	34+61.7931							441.6276	179806.7651	571712.0217	180248.2061	571724.8566	1°39'55.50"
C 146	34+61.7931	36+08.7753	35+35.2925	2°06'19.31"		1°25'56.62"	4000.0000	73.4994	146.9822	180248.2061	571724.8566	180395.1716	571726.4284	1°39'55.50" 359°33'36.19"
L 5	36+08.7753	37+77.3721							168.5968	180395.1716	571726.4284	180563.7635	571725.1338	359°33'36.19"
C 104	37+77.3721	39+24.4284	38+50.9044	1°28'52.72"		1°00'26.32"	5688.0000	73.5322	147.0563	180563.7635	571725.1338	180710.7845	571722.1040	359°33'36.19" 358°04'43.47"
L 6	39+24.4284	41+24.4284							200.0000	180710.7845	571722.1040	180910.6720	571715.3988	358°04'43.47"
C 105	41+24.4284	42+73.6564	41+99.0466	1°28'52.72"		0°59'33.54"	5772.0000	74.6182	149.2280	180910.6720	571715.3988	181059.8642	571712.3242	358°04'43.47" 359°33'36.19"
L 7	42+73.6564	48+71.4860							597.8296	181059.8642	571712.3242	181657.6762	571707.7338	359°33'36.19"
C 106	48+71.4860	49+82.6964	49+27.0930	1°06'43.28"		0°59'59.73"	5730.0000	55.6069	111.2104	181657.6762	571707.7338	181768.8680	571705.8007	359°33'36.19" 358°26'52.91"
L 8	49+82.6964	51+82.4780							199.7816	181768.8680	571705.8007	181968.5763	571700.3899	358°26'52.91"

HORIZONTAL CONTROL COORDINATE VALUES SHOWN IN THIS PLAN ARE RAMSEY COUNTY COORDINATES, REFERRED TO NORTH AMERICAN DATUM OF 1983 (1996 ADJUSTMENT) THROUGH THE MINNESOTA STATE PLAN COORDINATE SYSTEM

DESIGN TEAM				
DRAWN BY: R/JG				
DESIGNER: R/JG				
CHECKED BY: BAE	6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION
	NO.	BY	DATE	REVISIONS

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Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT TABULATION RICE STREET	FILE NO. 160599001	93
	AL5 OF AL14	534

ALIGNMENT TABULATION
EB COUNTY ROAD B WEST

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	COORDINATES NORTHING	COORDINATES EASTING	AZIMUTH
L 17	30+00.00	32+53.54							253.54	178567.08	570766.41	88°57'21"
C 114	32+53.54	34+13.03	33+33.30		2°23'32"	1°29'59.60"	3820.00	79.76	159.50	178571.70	571019.91	88°57'21" 86°33'48"
L 18	34+13.03	35+13.03							100.00	178577.93	571179.27	86°33'48"
C 115	35+13.03	36+32.65	35+72.85		2°23'32"	2°00'00.00"	2864.79	59.82	119.61	178583.93	571279.09	86°33'48" 88°57'21"
L 19	36+32.65	41+59.43							526.79	178588.60	571398.60	88°57'21"
C 116	41+59.43	43+99.46	42+79.48		3°37'02"	1°30'25.17"	3802.00	120.05	240.02	178598.20	571925.30	88°57'21" 92°34'22"
L 20	43+99.46	46+28.24							228.78	178595.00	572165.26	92°34'22"
C 117	46+28.24	47+99.68	47+13.97		2°34'17"	1°29'59.60"	3820.00	85.74	171.44	178584.73	572393.81	92°34'22" 90°00'05"
L 21	47+99.68	56+00.00							800.32	178580.88	572565.20	90°00'05"

ALIGNMENT TABULATION
WB COUNTY ROAD B WEST

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	COORDINATES NORTHING	COORDINATES EASTING	AZIMUTH
L 22	30+00.00	31+19.35							119.35	178567.08	570766.41	88°57'21"
C 118	31+19.35	33+04.50	32+11.98		4°37'42"	2°29'59.34"	2292.00	92.62	185.15	178569.25	570885.75	88°57'21" 84°19'38"
L 23	33+04.50	34+04.50							100.00	178580.09	571070.53	84°19'38"
C 119	34+04.50	37+13.08	35+58.88		4°37'42"	1°29'59.60"	3820.00	154.37	308.58	178589.98	571170.04	84°19'38" 88°57'21"
L 24	37+13.08	41+60.13							447.05	178608.05	571478.00	88°57'21"
C 120	41+60.13	45+86.48	43+73.53		6°23'41"	1°29'59.60"	3820.00	213.40	426.35	178616.20	571924.97	88°57'21" 95°21'02"
L 25	45+86.48	46+86.48							100.00	178600.19	572350.80	95°21'02"
C 121	46+86.48	49+00.46	47+93.55		5°20'57"	2°29'59.34"	2292.00	107.07	213.98	178590.87	572450.37	95°21'02" 90°00'05"
L 26	49+00.46	52+92.83							392.37	178580.88	572664.04	90°00'05"

ALIGNMENT TABULATION
MINNESOTA AVENUE

SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	COORDINATES NORTHING	COORDINATES EASTING	AZIMUTH
L 27	9+00.00	14+96.73							596.73	179887.40	571227.45	89°01'44"
C 122	14+96.73	15+13.24	15+04.99		1°53'29"	11°27'32.96"	500.00	8.25	16.51	179897.51	571824.10	89°01'44" 87°08'15"
L 30	15+13.24	15+70.49							57.25	179898.07	571840.59	87°08'15"
C 123	15+70.49	16+85.10	16+27.80		1°18'38"	1°08'36.24"	5011.00	57.31	114.61	179900.93	571897.77	87°08'15" 88°26'53"
C 124	16+85.10	17+78.73	17+31.95		5°21'53"	5°43'46.48"	1000.00	46.85	93.63	179905.34	572012.29	88°26'53" 93°48'46"
L 28	17+78.73	18+53.49							74.76	179903.49	572105.88	93°48'46"
C 125	18+53.49	19+21.57	18+87.54		3°54'02"	5°43'46.48"	1000.00	34.05	68.08	179898.52	572180.47	93°48'46" 89°54'44"
L 29	19+21.57	20+70.63							149.06	179896.31	572248.50	89°54'44"

HORIZONTAL CONTROL
COORDINATE VALUES SHOWN IN THIS PLAN
ARE RAMSEY COUNTY COORDINATES,
REFERRED TO NORTH AMERICAN DATUM OF
1983 (1996 ADJUSTMENT) THROUGH THE
MINNESOTA STATE PLAN COORDINATE SYSTEM

DESIGN TEAM				
DRAWN BY: RJG				
DESIGNER: RJG				
CHECKED BY: BAE				
NO.	BY	DATE	REVISIONS	

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.
Certified By: *Beth A. Engum* License No. 44785
Printed Name: BETH A. ENGUM Date: 3/3/2010

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT TABULATION
COUNTY ROAD B WEST
MINNESOTA AVENUE

FILE NO. 160599001
AL6 OF AL14
94
534

ALIGNMENT TABULATION
CAPITOL VIEW CUL DE SAC

SEGMENT NUMBER	BEGINING STATION	ENDING STATION	PI STATION	DELTA	NOTES	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINING COORDINATE NORTHING	BEGINING COORDINATES EASTING	ENDING COORDINATE NORTHING	ENDING COORDINATE EASTING	AZIMUTH
L 35	0+00.0000	2+04.5750							204.5750	179476.1366	571524.3863	179328.8595	571666.3735	136°02'51.62"

ALIGNMENT TABULATION
COUNTY ROAD B2 WEST

SEGMENT NUMBER	BEGINING STATION	ENDING STATION	PI STATION	DELTA	NOTES	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINING COORDINATE NORTHING	BEGINING COORDINATES EASTING	ENDING COORDINATE NORTHING	ENDING COORDINATE EASTING	AZIMUTH
L 42	8+00.0000	13+66.4503							566.4503	181204.3529	571109.2814	181213.2937	571675.6612	89°05'44.20"
L 40	13+66.4503	14+87.8844							121.4341	181213.2937	571675.6612	181216.9555	571797.0401	88°16'19.25"
L 43	14+87.8844	14+95.8278							7.9434	181216.9555	571797.0401	181216.9714	571804.9834	89°53'06.14"
C 140	14+95.8278	16+51.3956	15+73.6225	2°19'55.64"		1°29'56.78"	3822.0000	77.7946	155.5678	181216.9714	571804.9834	181214.1178	571960.5143	89°53'06.14" 92°13'01.78"
L 44	16+51.3956	18+08.6413							157.2457	181214.1178	571960.5143	181208.0342	572117.6423	92°13'02.14"
C 141	18+08.6413	18+62.8337	18+35.7379	0°45'11.42"		1°23'23.32"	4122.5556	27.0966	54.1924	181208.0342	572117.6423	181206.3281	572171.8074	92°10'50.53" 91°25'39.11"
C 142	18+62.8337	19+26.6292	18+94.7615	6°05'31.29"		9°32'57.47"	600.0000	31.9278	63.7955	181206.3281	572171.8074	181208.1291	572235.5475	91°25'39.11" 85°20'07.83"
C 143	19+26.6292	19+76.0309	19+51.3440	4°43'03.05"		9°32'57.46"	600.0001	24.7148	49.4017	181208.1291	572235.5475	181210.1160	572284.8952	85°20'07.83" 90°03'10.88"
L 41	19+76.0309	21+36.7087							160.6778	181210.1160	572284.8952	181210.2010	572445.5730	89°58'10.94"

HORIZONTAL CONTROL
COORDINATE VALUES SHOWN IN THIS PLAN
ARE RAMSEY COUNTY COORDINATES,
REFERRED TO NORTH AMERICAN DATUM OF
1983 (1996 ADJUSTMENT) THROUGH THE
MINNESOTA STATE PLAN COORDINATE SYSTEM

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
2	BAE	8/09/2010	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS 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.
Certified By: *Beth Engum* Lic. No. 44785
Printed Name: BETH A. ENGUM Date: 3/3/2010

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT TABULATION
CAPITOL VIEW TURNAROUND
COUNTY ROAD B2 WEST

FILE NO. 95
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AL7
OF AL14
534

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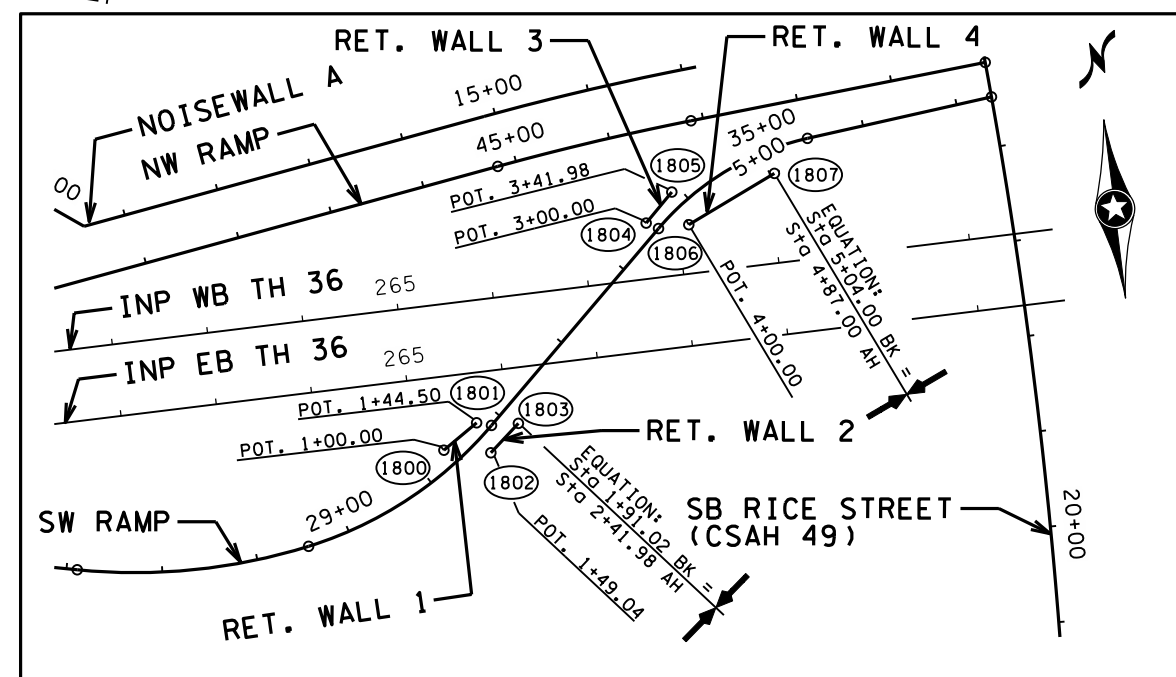
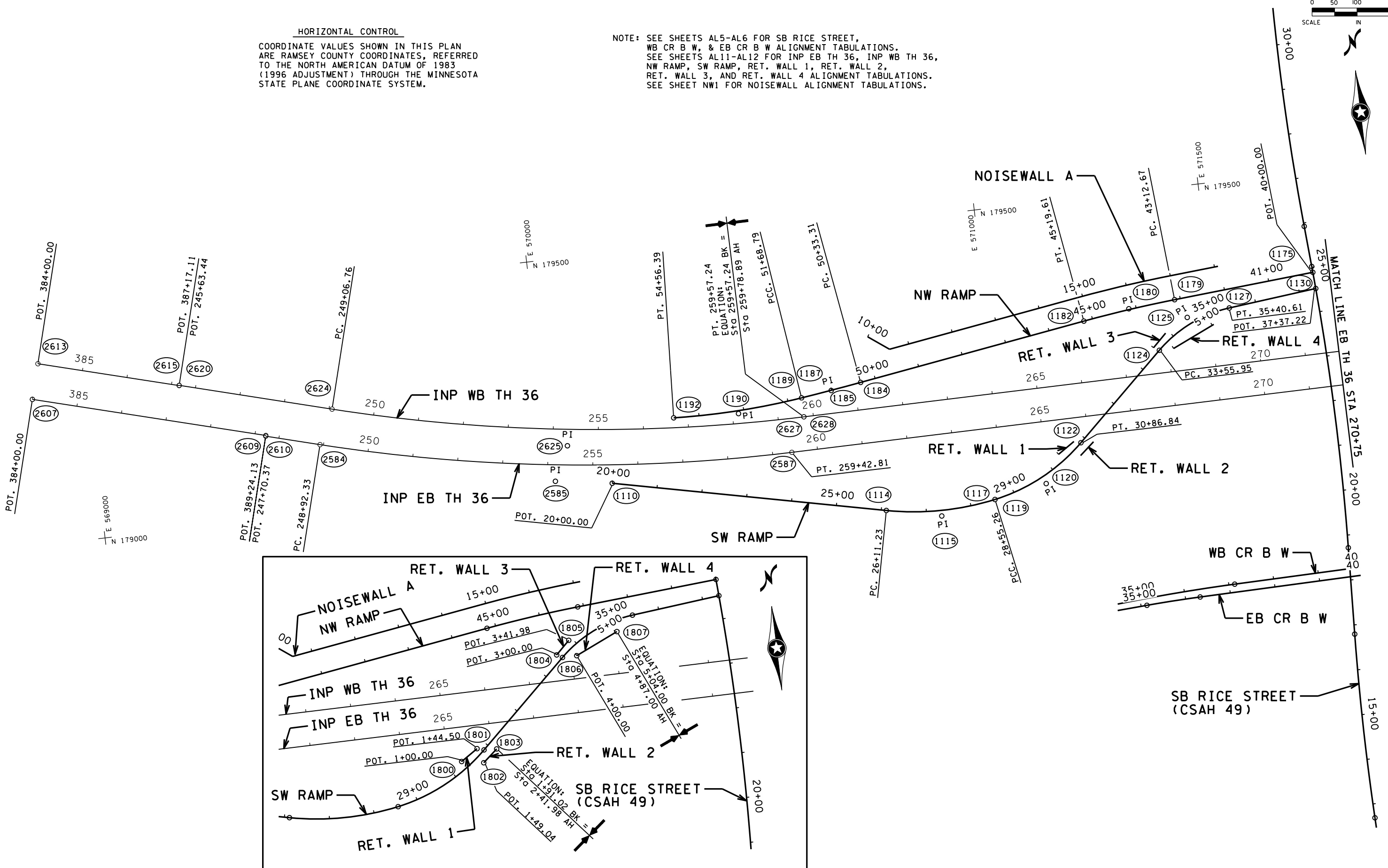
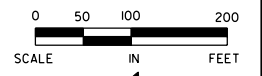
5/6/2010

kerickson

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1 - NW SW RAMPS

HORIZONTAL CONTROL
 COORDINATE VALUES SHOWN IN THIS PLAN ARE RAMSEY COUNTY COORDINATES, REFERRED TO THE NORTH AMERICAN DATUM OF 1983 (1996 ADJUSTMENT) THROUGH THE MINNESOTA STATE PLANE COORDINATE SYSTEM.

NOTE: SEE SHEETS AL5-AL6 FOR SB RICE STREET, WB CR B W, & EB CR B W ALIGNMENT TABULATIONS. SEE SHEETS AL11-AL12 FOR INP EB TH 36, INP WB TH 36, NW RAMP, SW RAMP, RET. WALL 1, RET. WALL 2, RET. WALL 3, AND RET. WALL 4 ALIGNMENT TABULATIONS. SEE SHEET NW1 FOR NOISEWALL ALIGNMENT TABULATIONS.



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLF		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT PLAN
 INP EB TH 36, INP WB TH 36, NW RAMP, SW RAMP, RET. WALL 1, RET. WALL 2, RET. WALL 3, & RET. WALL 4

FILE NO.	96
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AL 8	
OF AL14	534

HORIZONTAL CONTROL

COORDINATE VALUES SHOWN IN THIS PLAN ARE RAMSEY COUNTY COORDINATES, REFERRED TO THE NORTH AMERICAN DATUM OF 1983 (1996 ADJUSTMENT) THROUGH THE MINNESOTA STATE PLANE COORDINATE SYSTEM.

NOTE: SEE SHEETS AL5-AL6 FOR NB RICE STREET, WB CR B W, & EB CR B W ALIGNMENT TABULATIONS. SEE SHEETS AL11-AL12 FOR INP EB TH 36, INP WB TH 36, NE RAMP, SE RAMP, RET. WALL 5, RET. WALL 6, RET. WALL 7, AND RET. WALL 8 ALIGNMENT TABULATIONS.

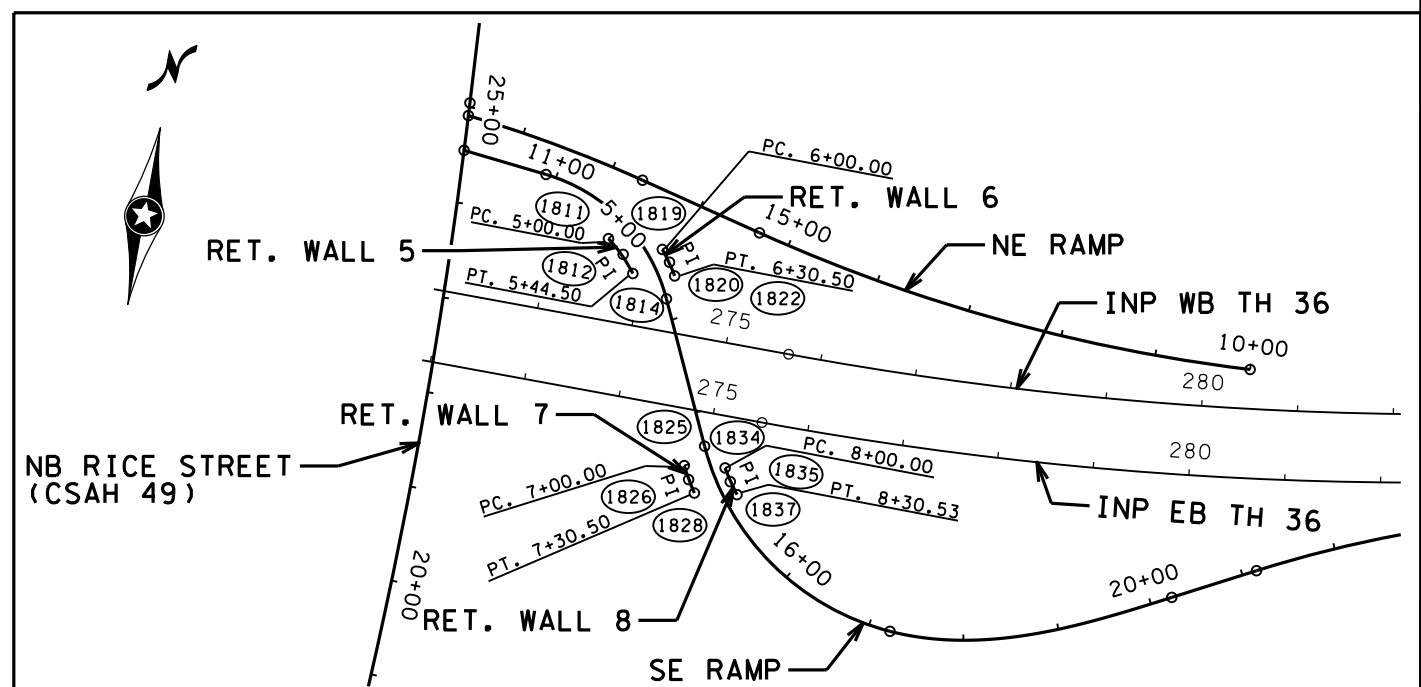
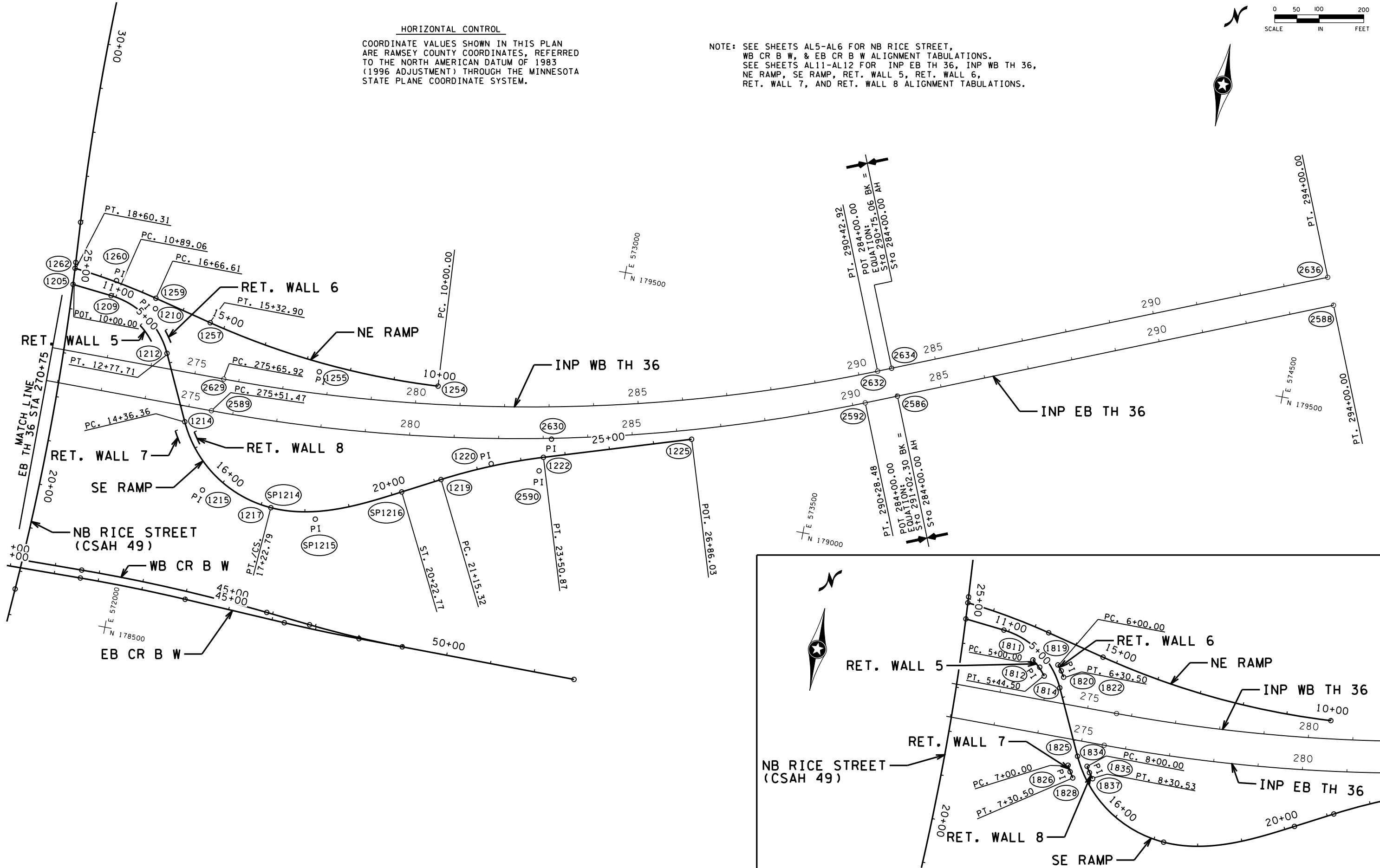


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2 NE SE RAMPS



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLF		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010

PHONE: 651-490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT PLAN
 INP EB TH 36, INP WB TH 36, NE RAMP,
 SE RAMP, RET. WALL 5, RET. WALL 6,
 RET. WALL 7, & RET. WALL 8

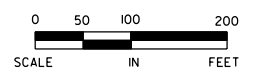
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AL9	
OF AL14	534

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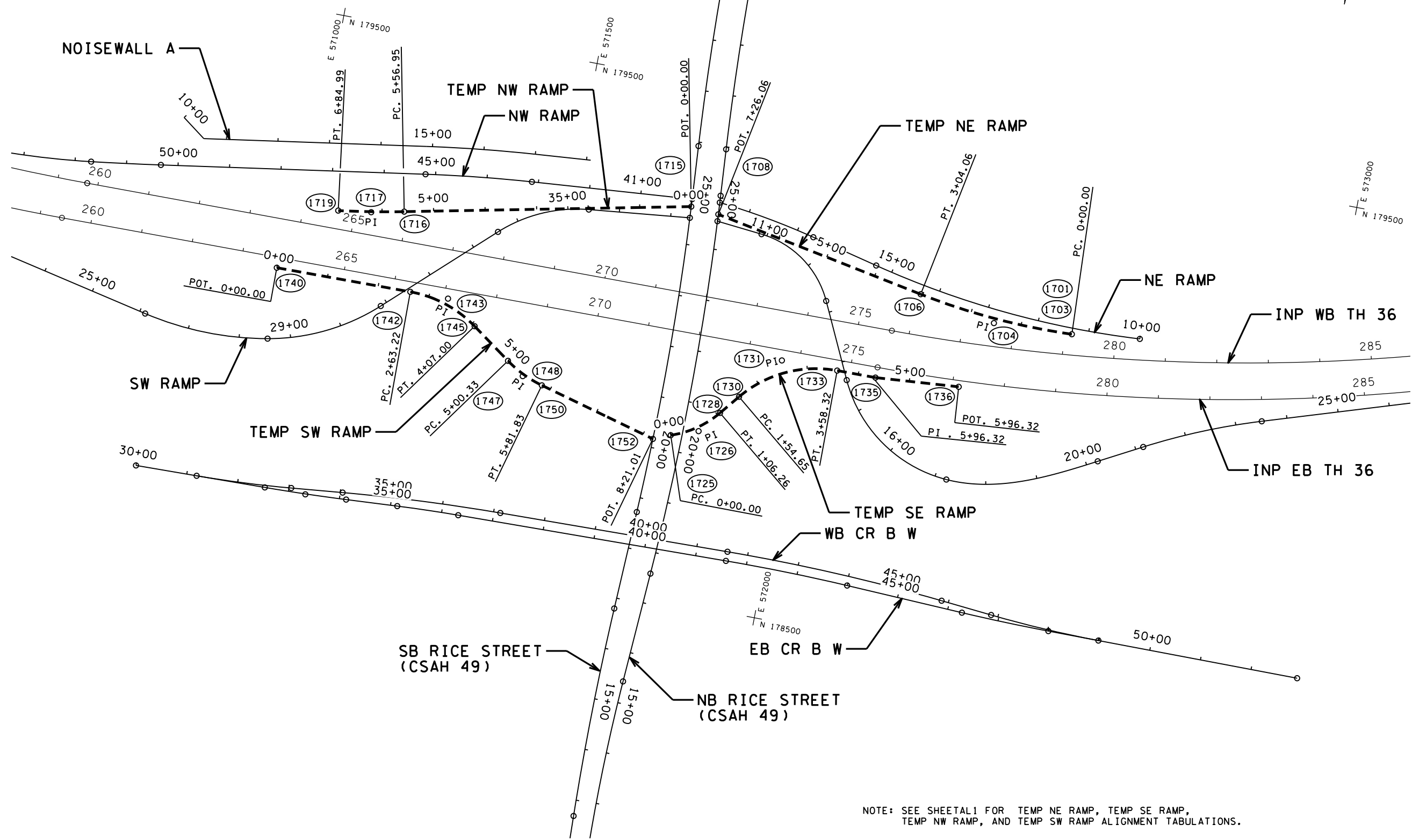
5/6/2010

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3 TEMP RAMPS



HORIZONTAL CONTROL
 COORDINATE VALUES SHOWN IN THIS PLAN
 ARE RAMSEY COUNTY COORDINATES, REFERRED
 TO THE NORTH AMERICAN DATUM OF 1983
 (1996 ADJUSTMENT) THROUGH THE MINNESOTA
 STATE PLANE COORDINATE SYSTEM.



NOTE: SEE SHEET A1 FOR TEMP NE RAMP, TEMP SE RAMP,
 TEMP NW RAMP, AND TEMP SW RAMP ALIGNMENT TABULATIONS.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLF		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT PLAN
 TEMP NE RAMP, TEMP NW RAMP,
 TEMP SE RAMP, & TEMP SW RAMP

FILE NO. RAMSP108790	98
AL10 OF AL14	534

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5/6/2010

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4 - ALIGNMENT TABS

ALIGNMENT TABULATION

Table with columns: POINT NUMBER, POINT, STATION, CIRCULAR CURVE DATA (DELTA, DEGREE, RADIUS, TANGENT, LENGTH), COORDINATES (EASTING, NORTHING), AZIMUTH. Includes sections for INP EB TH 36 (EB36), INP EB TH 36 (TH36EB), INP WB TH 36 (WB36), and INP WB TH 36 (TH36WB).

ALIGNMENT TABULATION

Table with columns: POINT NUMBER, POINT, STATION, CIRCULAR CURVE DATA (DELTA, DEGREE, RADIUS, TANGENT, LENGTH), COORDINATES (EASTING, NORTHING), AZIMUTH. Includes sections for NE RAMP (NERAMP), NW RAMP (NWRAMP), SW RAMP (SWRAMP), and SE RAMP (SERAMP).

DESIGN TEAM table with columns: NO., BY, DATE, REVISIONS. Includes fields for DRAWN BY, DESIGNER, and CHECKED BY.

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. Certified By: [Signature] Lic. No. 25087 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT TABULATION
INP EB TH 36, INP WB TH 36,
NE RAMP, SE RAMP, NW RAMP, & SW RAMP

FILE NO. 99
RAMSP108790
AL 11 OF AL14
534

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5/6/2010

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ALIGNMENT TABULATION

Table with columns: POINT NUMBER, POINT, STATION, CIRCULAR CURVE DATA (DELTA, DEGREE, RADIUS, TANGENT, LENGTH), COORDINATES (EASTING, NORTHING), AZIMUTH. Includes sections for Retaining Wall 1-8.

ALIGNMENT TABULATION

Table with columns: POINT NUMBER, POINT, STATION, CIRCULAR CURVE DATA (DELTA, DEGREE, RADIUS, TANGENT, LENGTH), COORDINATES (EASTING, NORTHING), AZIMUTH. Includes sections for Temp NE Ramp, Temp NW Ramp, Temp SE Ramp, Temp SW Ramp.

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5 - ALIGNMENT TABS

DESIGN TEAM table with columns: NO., BY, DATE, REVISIONS. Includes fields for DRAWN BY, DESIGNER, CHECKED BY.

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Certified By: [Signature] Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



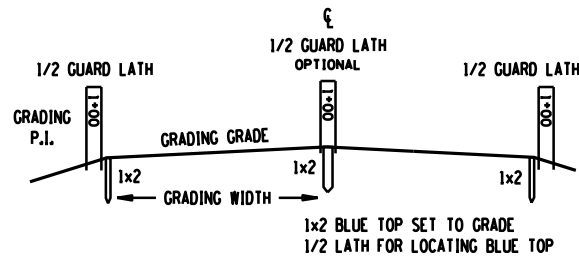
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ALIGNMENT TABULATION
RET. WALL 1 TO RET. WALL 8,
TEMP NE RAMP, TEMP NW RAMP,
TEMP SE RAMP, AND TEMP SW RAMP

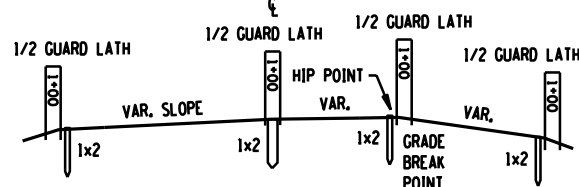
FILE NO. 100
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AL 12 OF AL14
534

BLUE TOPS

NORMAL SECTION

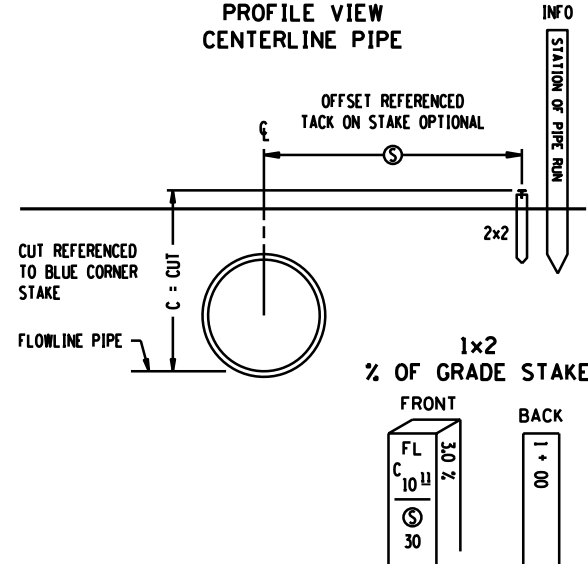


TRANSITION SECTION



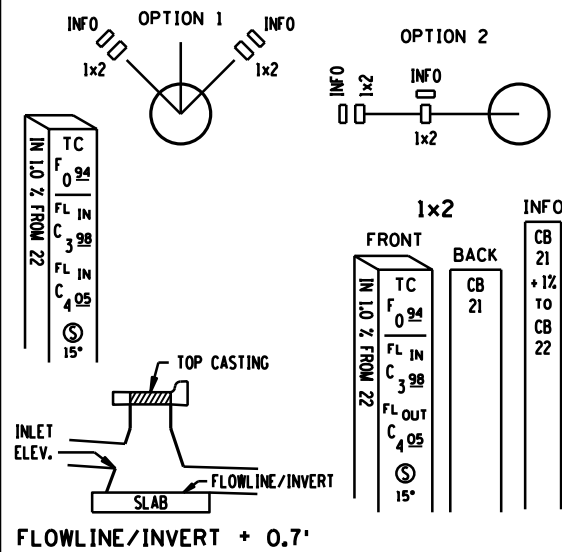
PIPE STAKING

PROFILE VIEW CENTERLINE PIPE



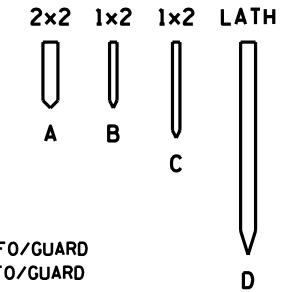
CATCH BASIN OR MANHOLE (CB/MH)

TOP VIEWS



STANDARD STAKES

TYPES:
 REFERENCE (REF)
 INFORMATIONAL (INFO)
 VISIBILITY (VIS)
 GUARD (GUARD)



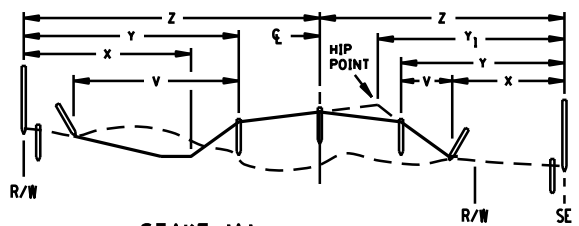
SIZES:
 A = 2" X 2" X VAR. REF/INFO/GUARD
 B = 1" X 2" X VAR. REF/INFO/GUARD
 C = 1" X 2" X VAR. REF
 D = LATH INFO/VIS/GUARD
 1x2 OR LATH = INFO STAKES

ABBREVIATIONS

BBL = BARREL (PIPE)
 B.C. = BACK CURB
 C & G = CURB & GUTTER
 C = CUT
 CAP = CORR. ALUM. PIPE
 CB = CATCH BASIN
 CL = CENTERLINE
 CL & GR = CLEAR & GRUB
 CMP = CORR. METAL PIPE
 COR = CORNER
 CR = CROWN
 CSP = CORR. STEEL PIPE
 Q = DITCH CUT
 D.E. = DRAINAGE EASEMENT
 DI = DROP INLET
 EB = EASTBOUND
 E.M. = EDGE BITUMINOUS MAT
 E.S. = EDGE CONCRETE SLAB
 F = FILL
 FF = FRONT FACE
 FL = FLOW LINE
 FL IN = FLOWLINE INLET
 FL OUT = FLOWLINE OUTLET
 GR = GRADE
 GW = GRADING WIDTH
 HH = HANDHOLE
 HP = HIP POINT
 LT = LEFT
 MH = MANHOLE
 NB = NORTHBOUND
 O = OFFSET
 PAR = PARCEL
 % = PERCENT GRADE
 P.E. = PERM. EASEMENT
 RAD = RADIUS POINT
 RCP = REINF. CONC. PIPE
 RP = REFERENCE POINT
 RSC = REINF. SECT. CONC.
 RT = RIGHT
 R/W = RIGHT OF WAY
 SB = SOUTHBOUND
 SCP = SECT. CONC. PIPE
 SH = SHOULDER
 TC = TOP CASTING
 OR TOP CURB
 T.E. = TEMP. EASEMENT
 3 : 1 = SLOPE (EXAMPLE)
 WB = WESTBOUND
 WP = WORKING POINTS

SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'A'



STAKE 'A'

FULL LATH AND HUB-STATION
 DIST. TO CL WITH CUT/FILL TO CL (Z)
 DIST. TO SHLD. WITH CUT/FILL TO SHLD. (Y) (Y1)
 DIST. TO TOE OF SLOPE, CUT/FILL FROM HUB (X)
 OFFSET TO SAFETY SLOPE
 OFFSET TO HIP POINT

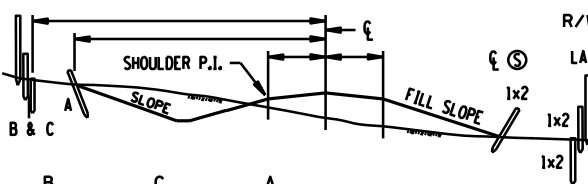
STAKE 'B'

FULL LATH
 DITCH CUT/SHLD. FILL
 SLOPE RATED
 DISTANCE TO INSLOPE
 TOE (V1) OR SHOULDER
 (AS APPLIES) (V)

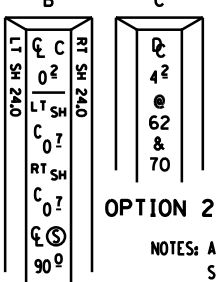
NOTE:
 BLUE TOPS REQUIRED ON CL AND BOTH SHOULDERS AT MINIMUM
 ALL CULVERTS TO BE STAKED
 MINIMUM DATA TO BE PROVIDED
 STAKE TO BOTTOM OF TOPSOIL

SLOPE STAKES

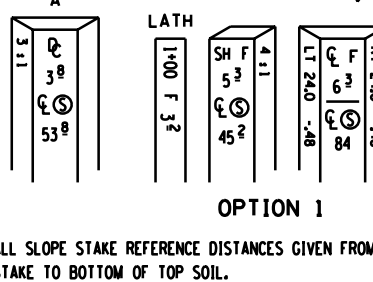
SINGLE ROADWAY - EXAMPLE 'B'



OPTION 2

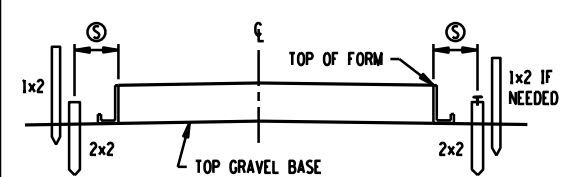


OPTION 1

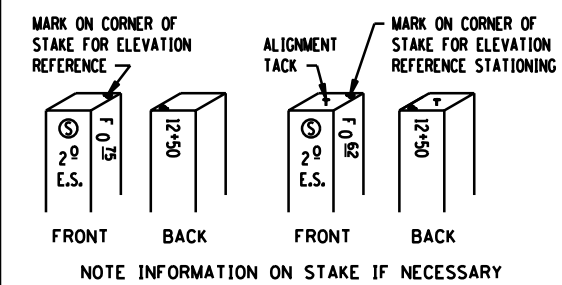


NOTES: ALL SLOPE STAKE REFERENCE DISTANCES GIVEN FROM CL.
 STAKE TO BOTTOM OF TOP SOIL.
KEY STAKES: BLUE TOP SET AT R/W BOUNDARY LT. & RT.
 MAY BE EXCEPTIONS TO SETTING STAKE ON R/W.

CONCRETE PAVING STATIONARY FORM



OFFSET TO CONTRACTOR'S OPTION



RECOMMENDED STAKING INTERVALS

FIGURE A

	SLOPE STAKES	SUB GRADE B.T.	CLASS MATERIAL B.T.	CONC PAVT	CL & GR LIMITS	MUCK EXC.	R/W	TEMP. EASE.
TANGENT	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS
HORIZ. CURVE								
0 - 3'	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS
OVER 3' -	100	50	50	25	25	ALL CORNERS	100	ALL CORNERS
VERT. CURVE								
M' 100'								
0 - .25	100	100	100	50	50			
M' OVER .25	100	50	50	25	25			
TRAN.		50	50					

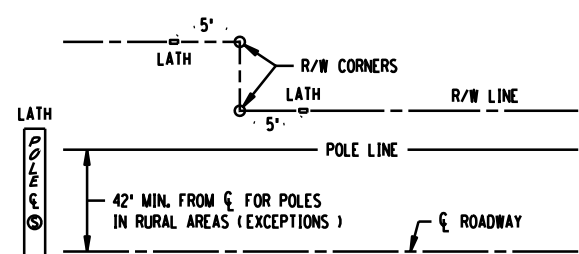
STAKING TOLERANCES (FEET)

	HORIZONTAL	VERTICAL
CONSTRUCTION LIMITS	± 1.5	
CLEARING & GRUBBING	2.0	
SLOPES STAKES	2.0	± 0.2
KEY STAKES	0.2	0.03
DRAINAGE STAKES	0.05	0.05
CURB & GUTTER	0.07	0.03
PAVING	0.05	0.03
ALIGNMENT	0.07	
UTILITY	0.10	0.05
STRUCTURAL	0.02	0.02
GUARD RAIL	0.5	
BUILDINGS	0.04	
O.H. SIGNS	0.05	0.05
MUCK EXCAVATION LIMITS	2.0	
R/W B-POINTS	0.10	
NOISE WALLS	1.0	0.5

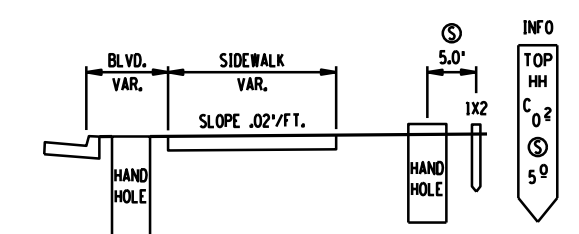
THE TOLERANCES ARE RELATIVE TO PROJECT DATUM

UTILITY (UTIL)

STAKE POLES MINIMUM OF 5 FT. FROM ANY R/W CORNER
 EXAMPLE: POLE LINE = R/W LINE

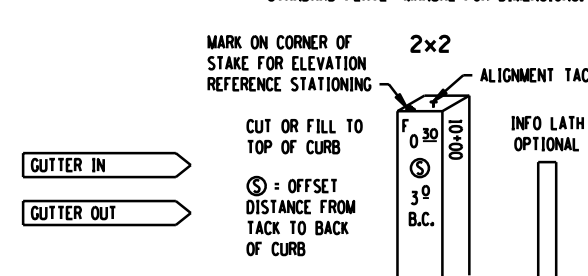
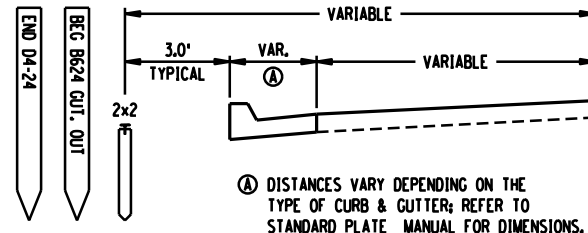


PULL BOX OR HAND HOLE



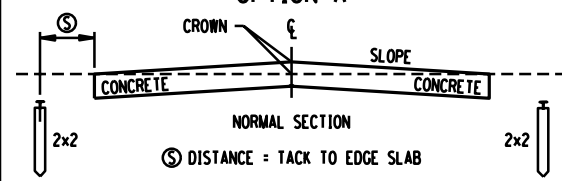
CURB & GUTTER (CURB)

OPTIONAL LATH WHEN NEEDED TO MARK TYPE OF CURB & GUTTER IF THERE IS A CHANGE

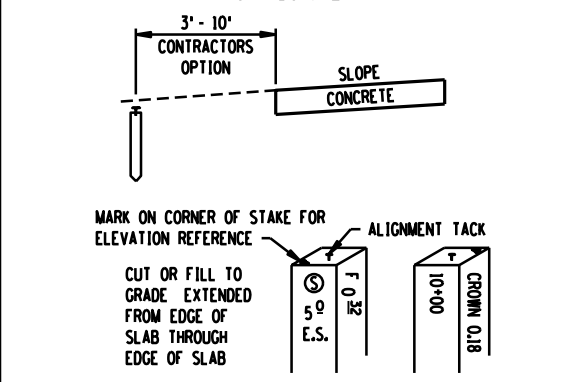


CONCRETE PAVING - SLIP FORM

OPTION A



OPTION B



DISCLAIMER

THESE STAKING INFORMATION SHEETS ARE FOR INFORMATION PURPOSES ONLY.
 STAKING PROCEDURES VARY AND MAY BE SUBJECT TO CHANGE DURING CONSTRUCTION BY CIRCUMSTANCES AND/OR AGREEMENTS BETWEEN SURVEY CREW AND CONTRACTOR.

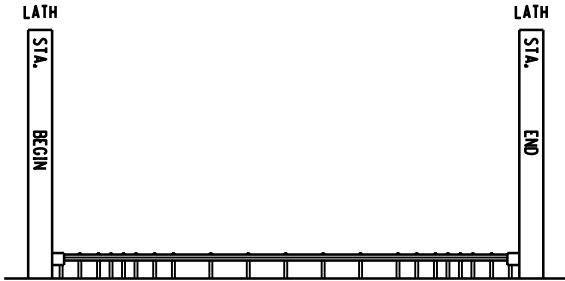
STANDARD SHEET NO.
 5-297.115 (1 OF 2)
 STANDARD APPROVED:
 DECEMBER 21, 1994

STAKING INFORMATION SHEET

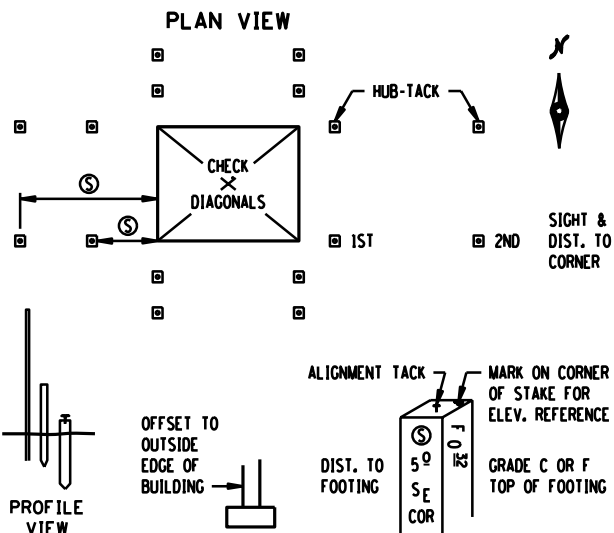
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 101 OF 534 SHEETS

AL 13
 OF AL14

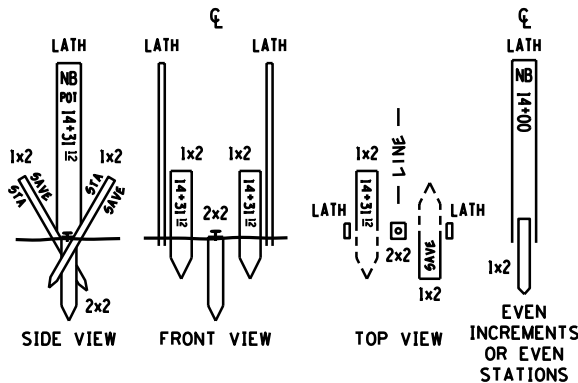
GUARDRAIL (GUARD)



BUILDING (BUILD) FOUNDATION / FOOTING



ALIGNMENT POINTS (ALIGN)



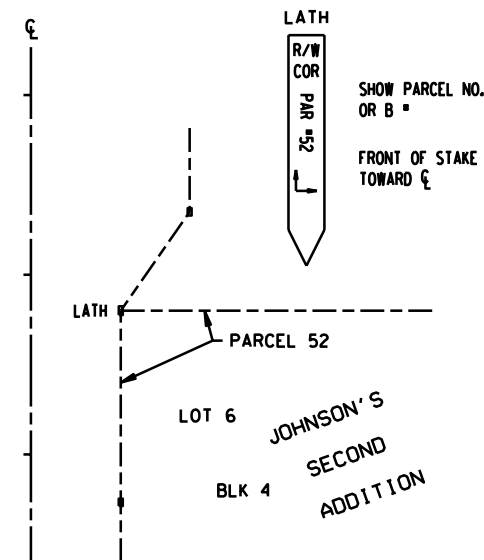
STAKE C = 2" x 2" HUB (LENGTH MAY VARY) SET AS TEMPORARY STAKE. MAY BE REPLACED BY M^hDOT MARKER AFTER CONSTRUCTION IS COMPLETED.

SET AT GROUND LEVEL (TEMPORARY CONSTRUCTION STAKE).

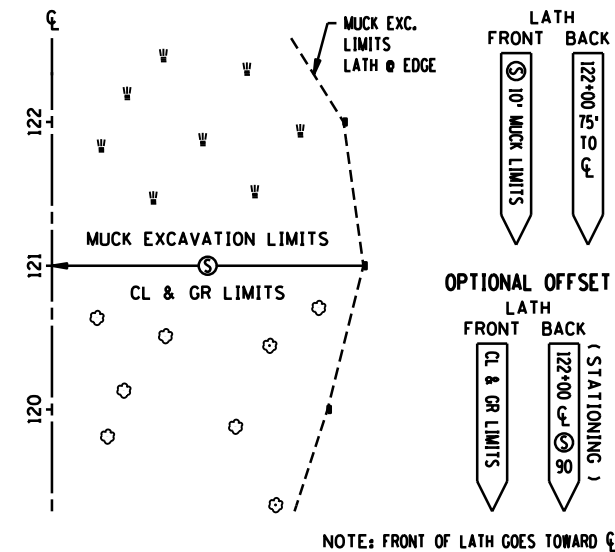
TACK SET AT ALIGNMENT POINTS.

STAKE A = GUARD STAKES SET AT ANGLE IN GROUND 6" EACH SIDE OF STAKE D, WITH STATIONING READ WHEN LOOKING UP STATION.

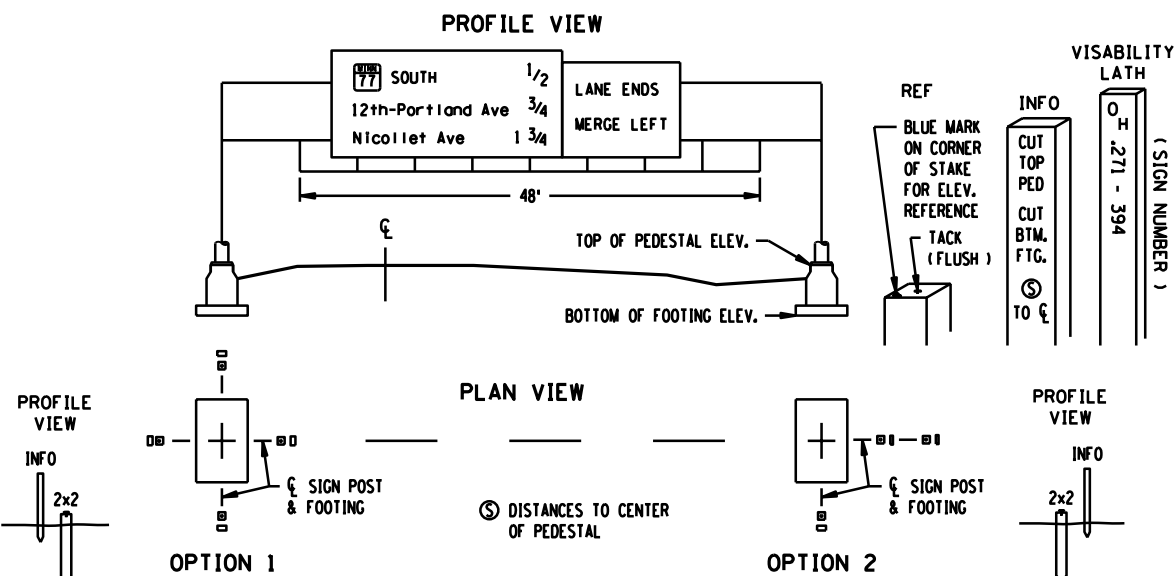
R/W & TEMP. EASEMENT (R/W)



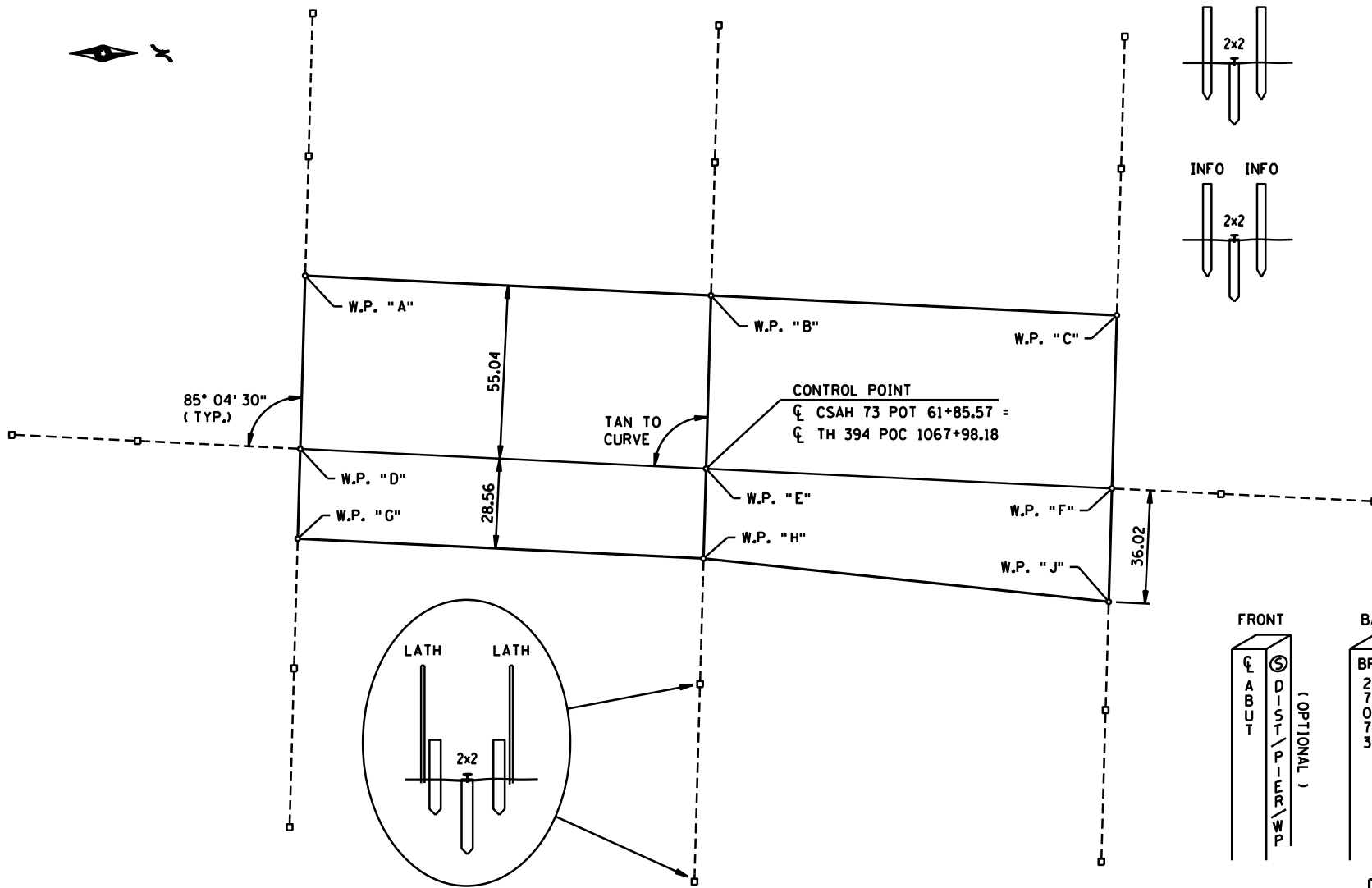
CLEAR & GRUBBING LIMITS (CLEAR) OR MUCK EXCAVATION LIMITS (MUCK)



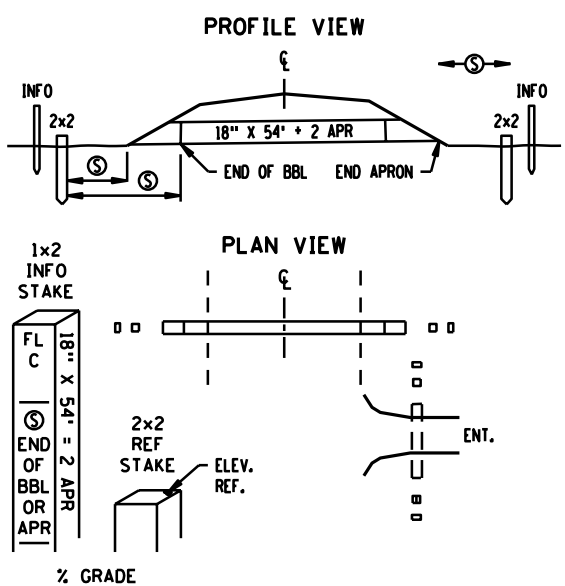
OVERHEAD SIGNS (SIGN)



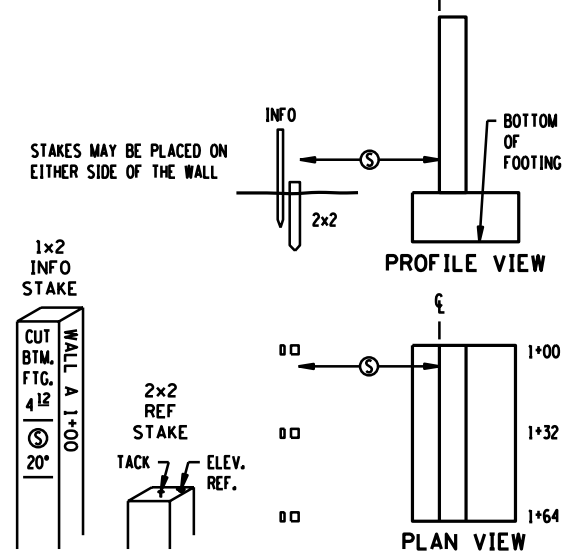
BRIDGESTAKING (BRIDGE) WORKING POINTS LAYOUT



CULVERT



WALL

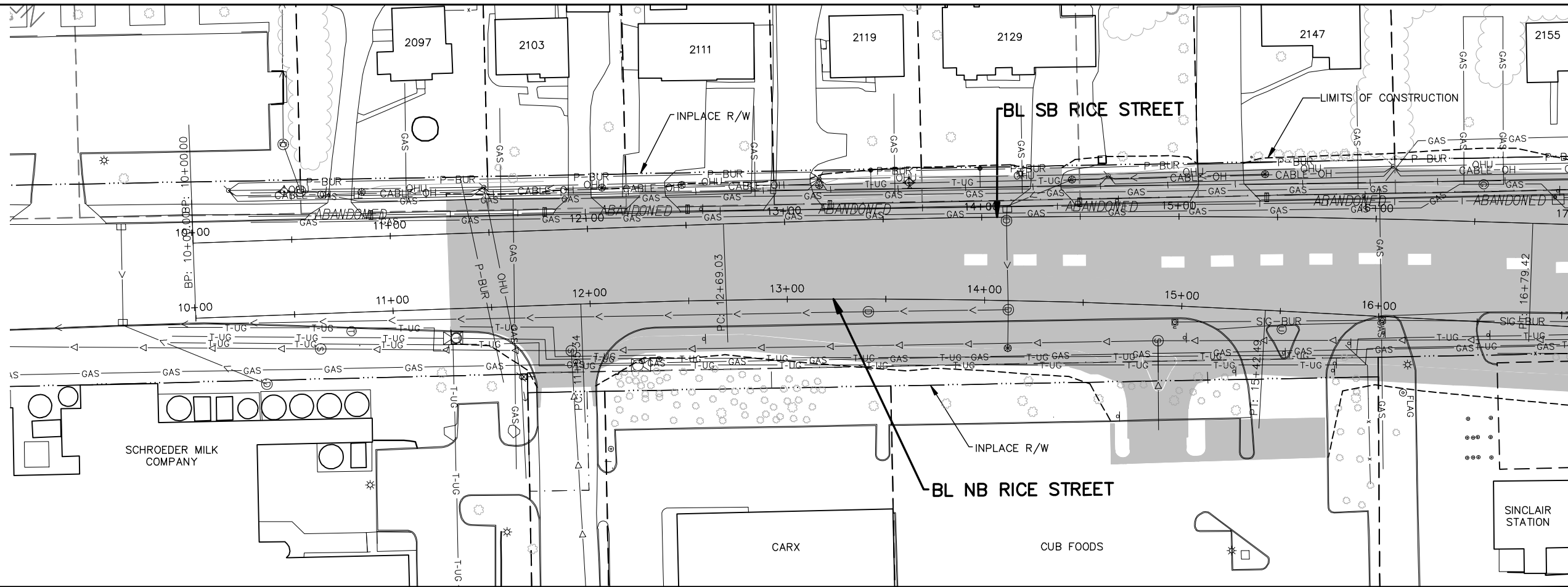


STANDARD SHEET NO. 5-297.115 (2 OF 2)

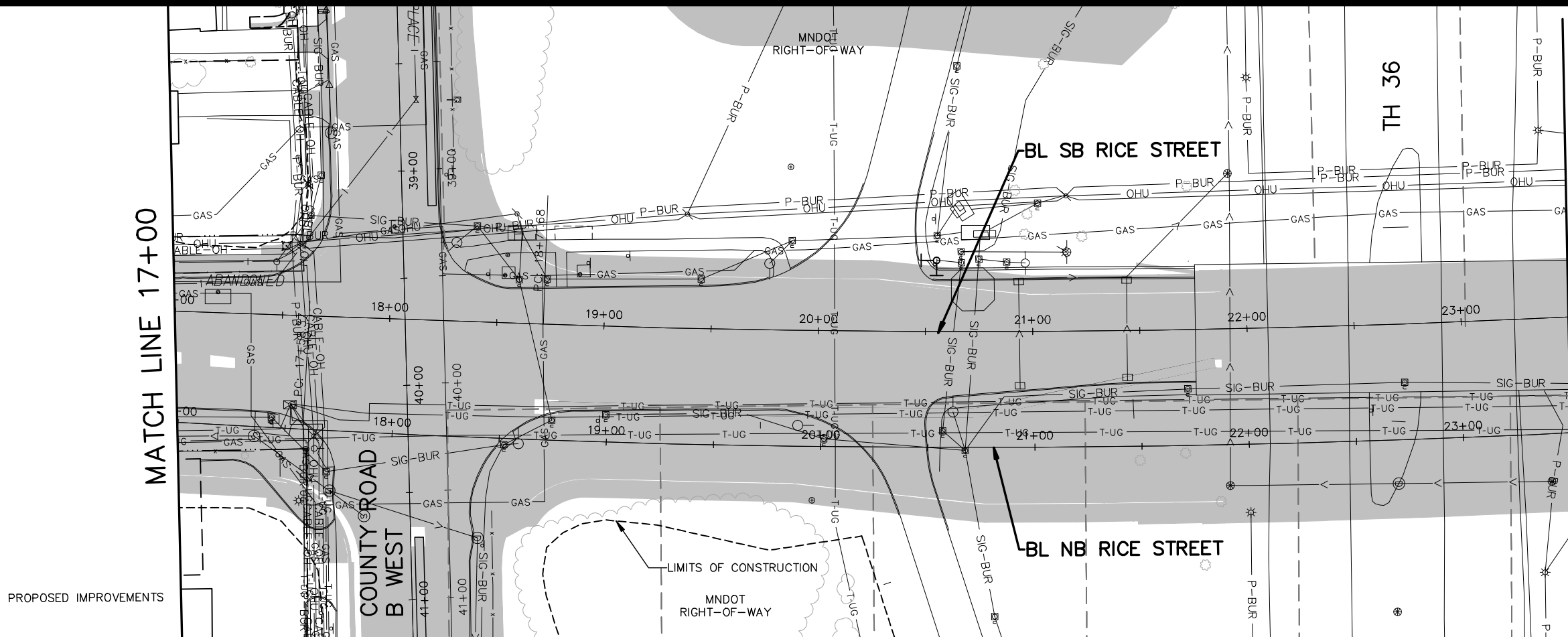
STANDARD APPROVED: DECEMBER 21, 1994

STAKING INFORMATION SHEET

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MATCH LINE 17+00



MATCH LINE 17+00

MATCH LINE 23+50

LEGEND
 PROPOSED IMPROVEMENTS

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

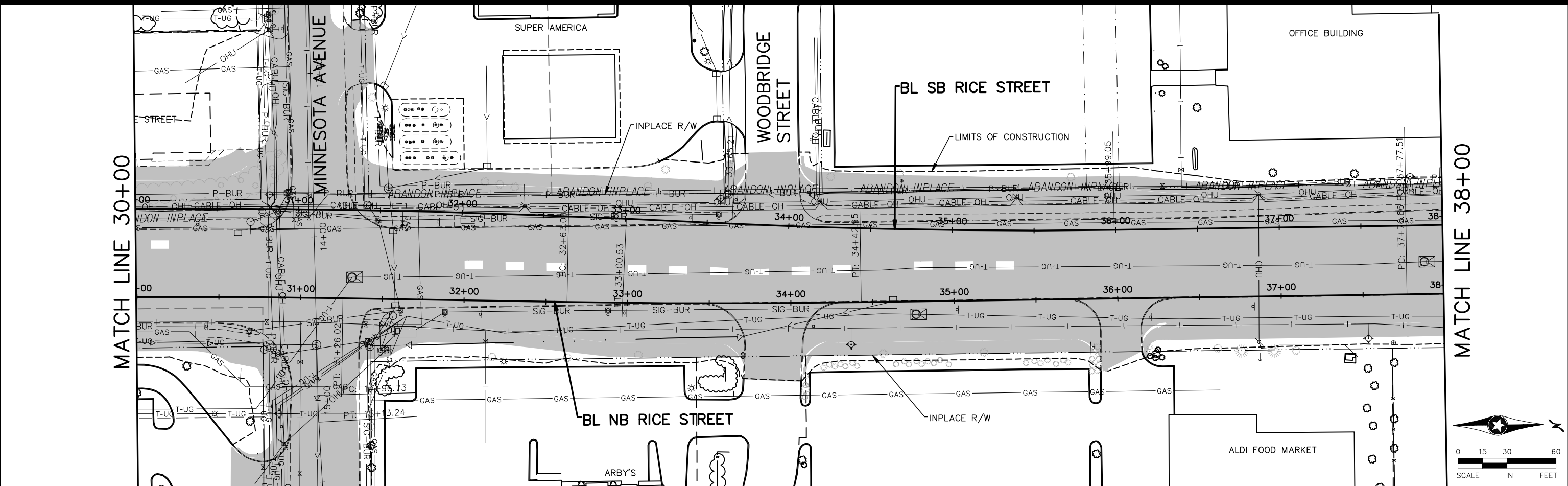
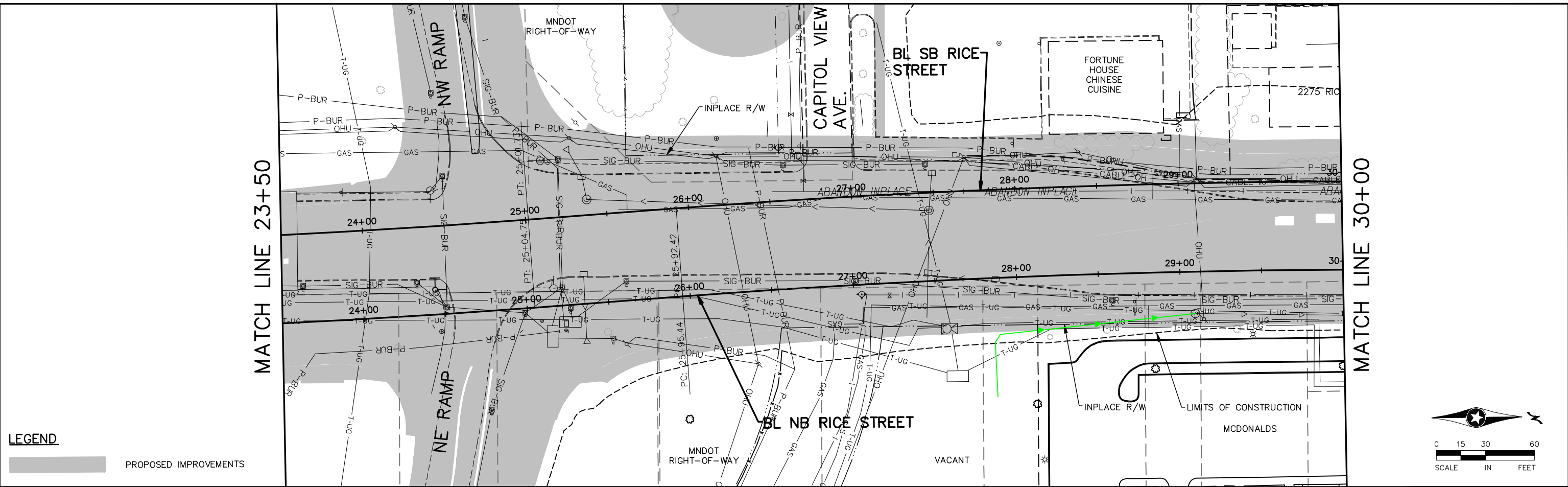
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY & UTILITY PLAN
RICE STREET
 STA. 10+00 TO STA. 23+50

FILE NO.	160599001	103
TP1		534
OF TP11		

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN_RICE_EX002.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



LEGEND

PROPOSED IMPROVEMENTS

SCALE IN FEET

SCALE IN FEET

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY & UTILITY PLAN
 RICE STREET
 STA. 23+50 TO STA. 38+00

FILE NO.	104
160599001	
TP2	
OF TP11	534

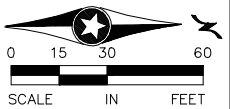
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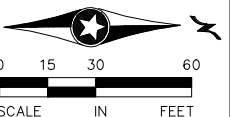
MATCH LINE 46+00

LEGEND

PROPOSED IMPROVEMENTS



MATCH LINE 46+00



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

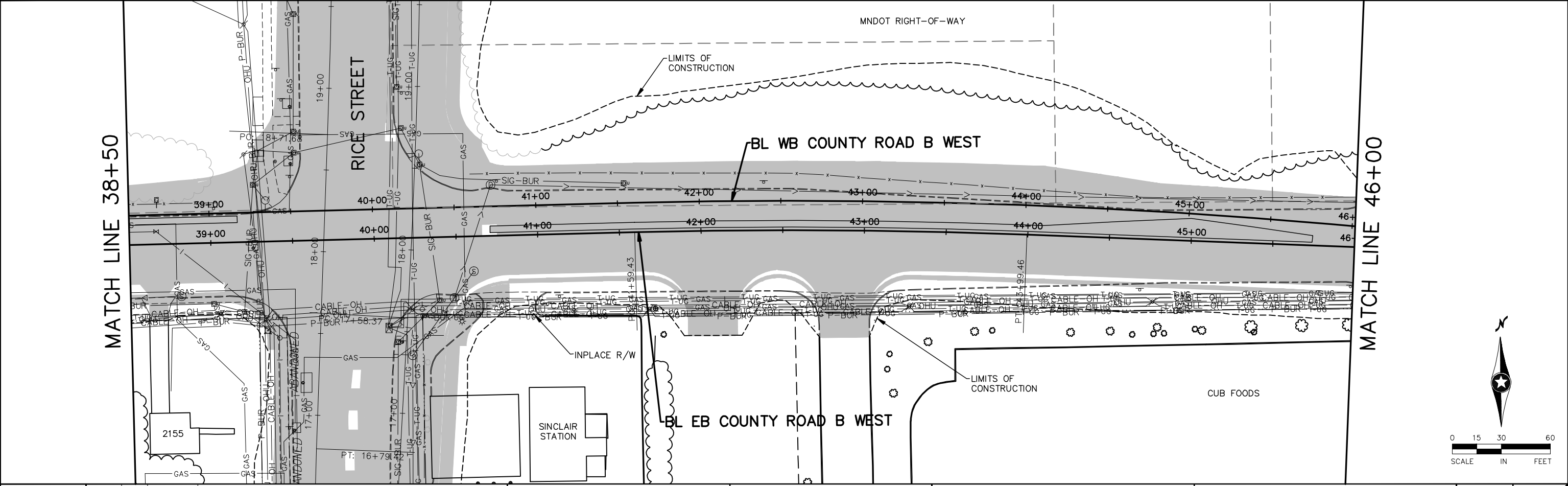
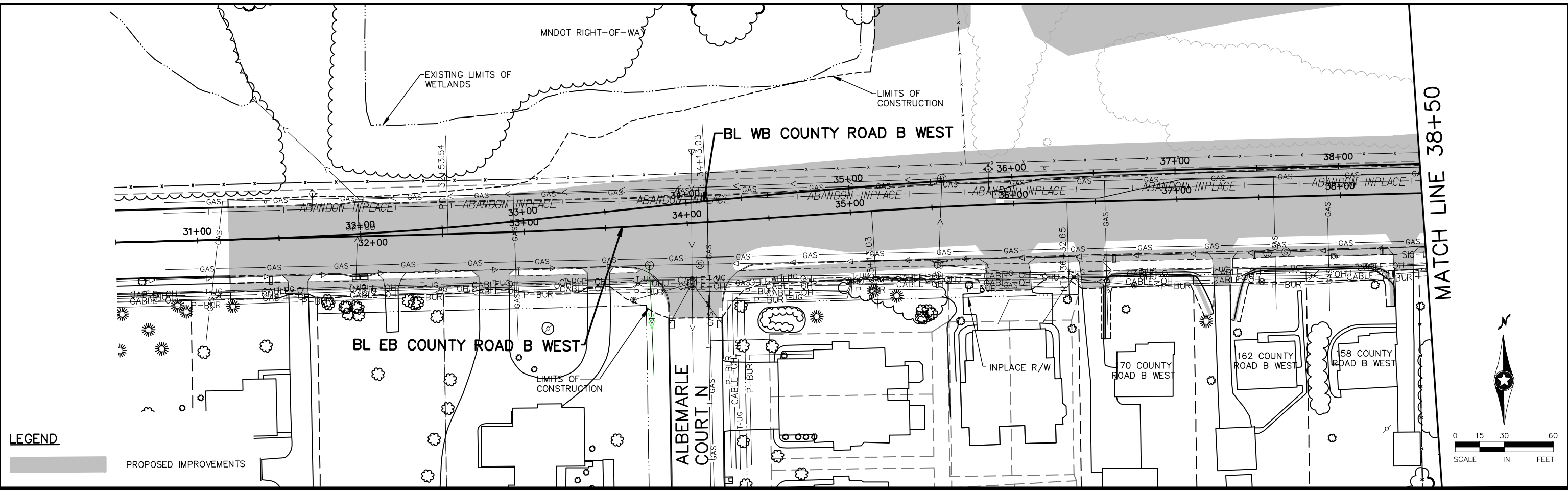
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY & UTILITY PLAN
RICE STREET
 STA. 38+00 TO STA. 53+00

FILE NO.	105
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TP3	
OF TP11	534

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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

NO.	BY	DATE	REVISIONS
-----	----	------	-----------

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.
 Certified By: *Beth A Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

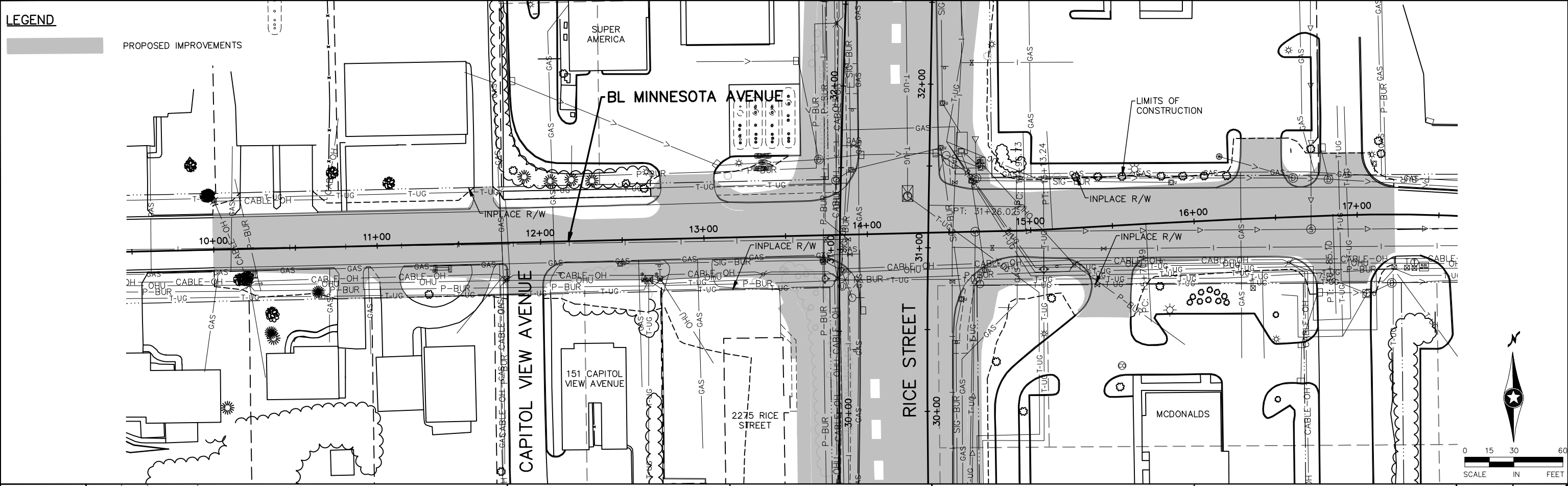
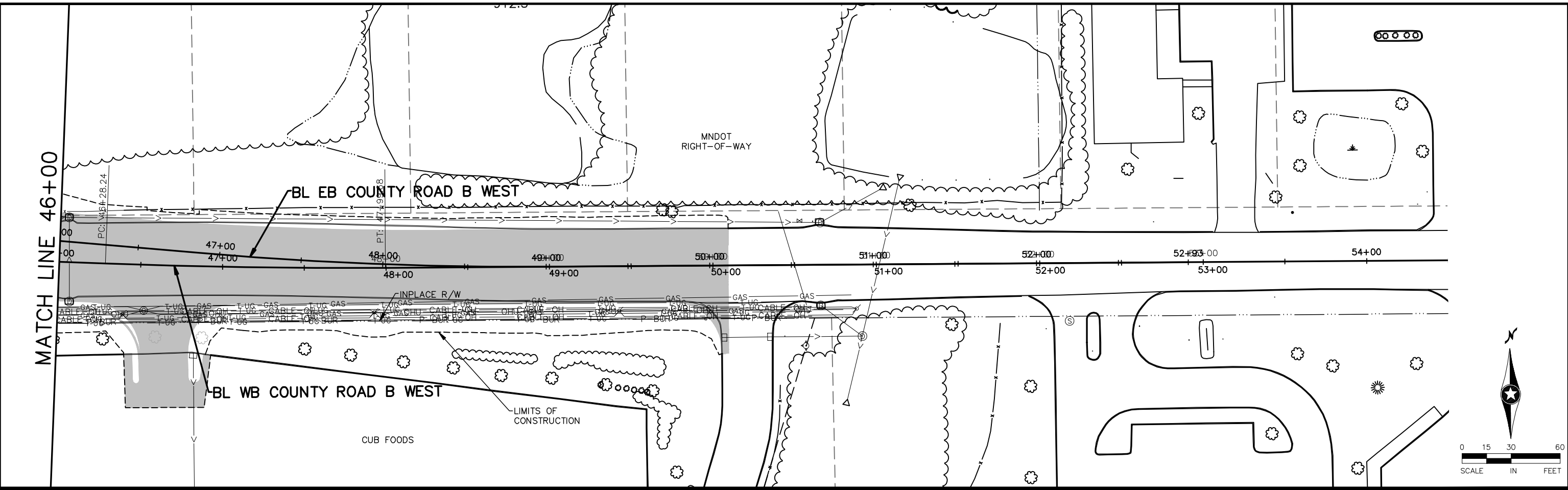
RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY &
 UTILITY PLAN
 COUNTY ROAD B WEST
 STA. 30+50 TO STA. 46+00

FILE NO. 160599001
 TP4
 OF TP11
106
534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN_RICE_EX006.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

MATCH LINE 46+00



LEGEND



PROPOSED IMPROVEMENTS

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

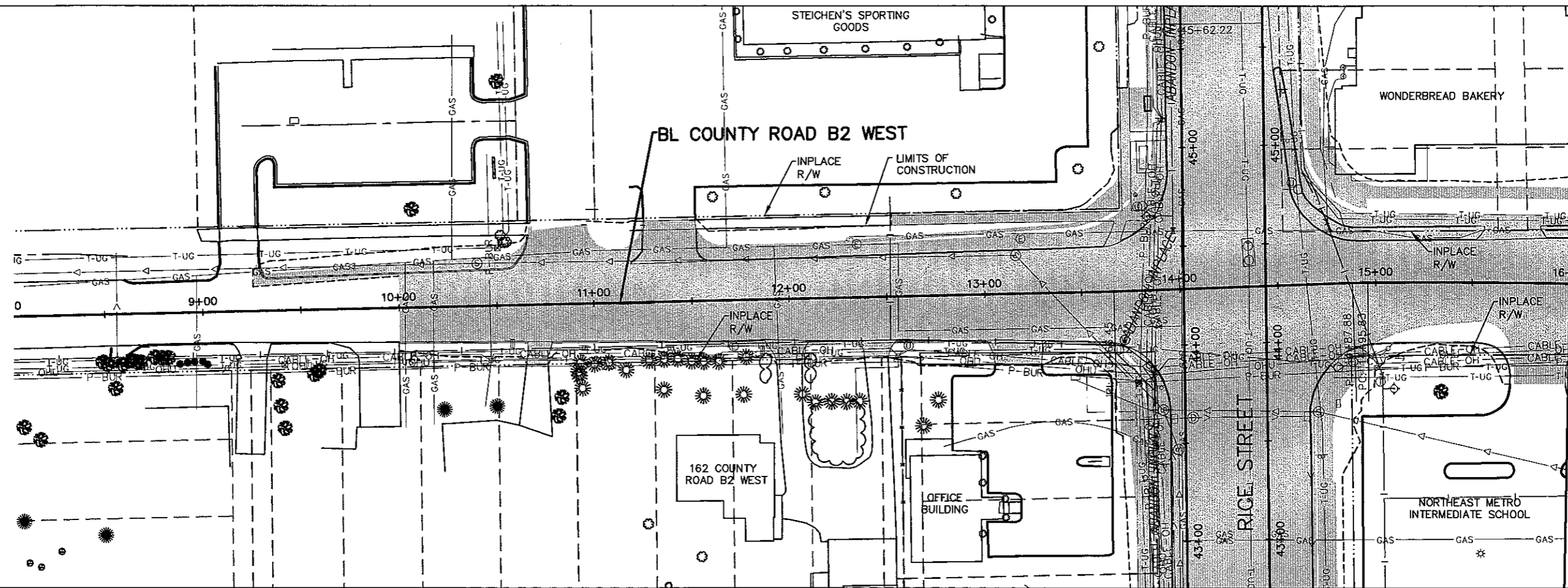
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

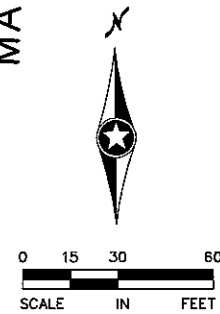
INPLACE TOPOGRAPHY & UTILITY PLAN
 COUNTY ROAD B WEST STA. 46+00 TO STA. 54+00
 MINNESOTA AVENUE STA. 9+50 TO 17+50

FILE NO.	107
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TP5	
OF TP11	534

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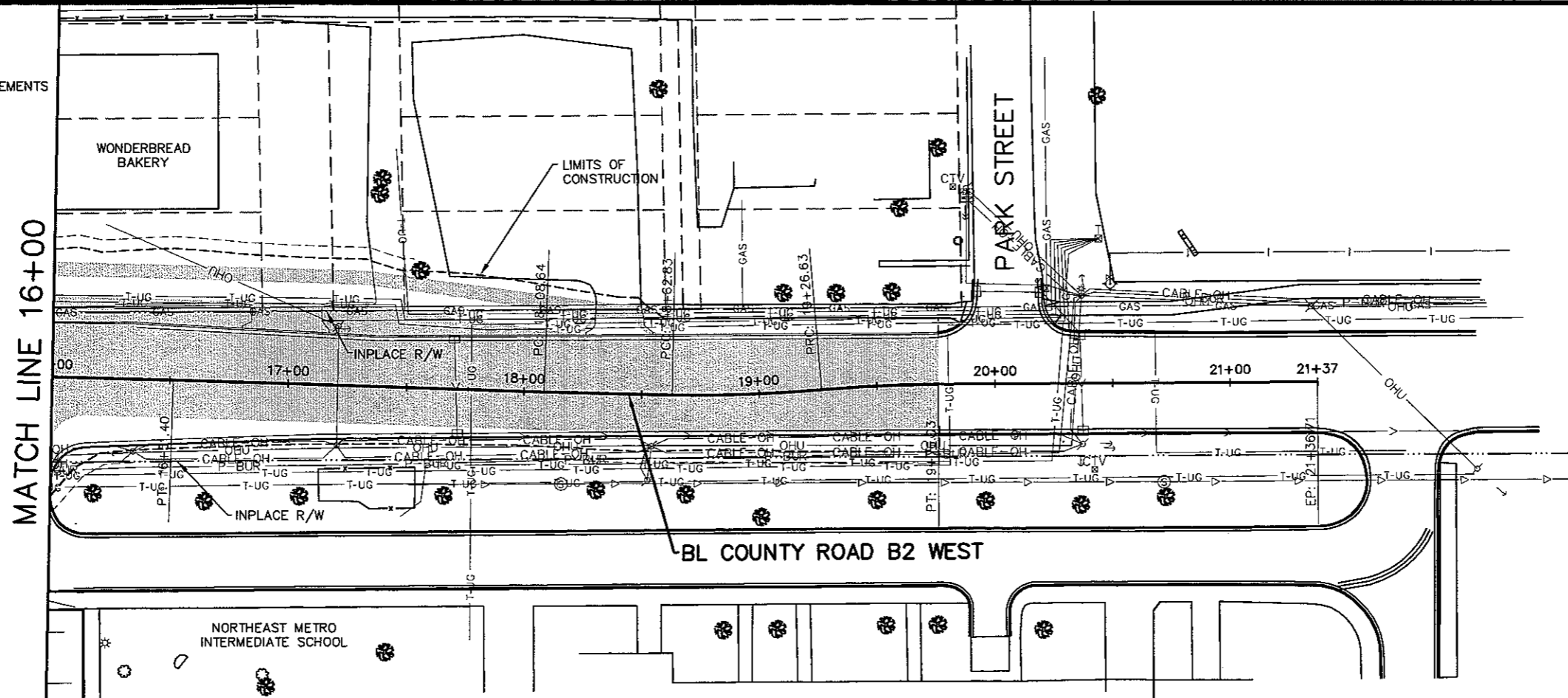


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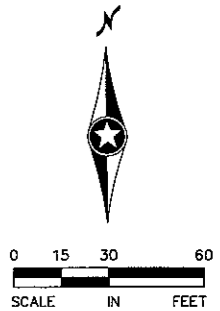


LEGEND

PROPOSED IMPROVEMENTS



MATCH LINE 16+00



DESIGN TEAM				
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE			
NO.	BY	DATE	REVISIONS	
2	BAE	8/09/2010	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS 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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

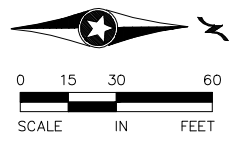
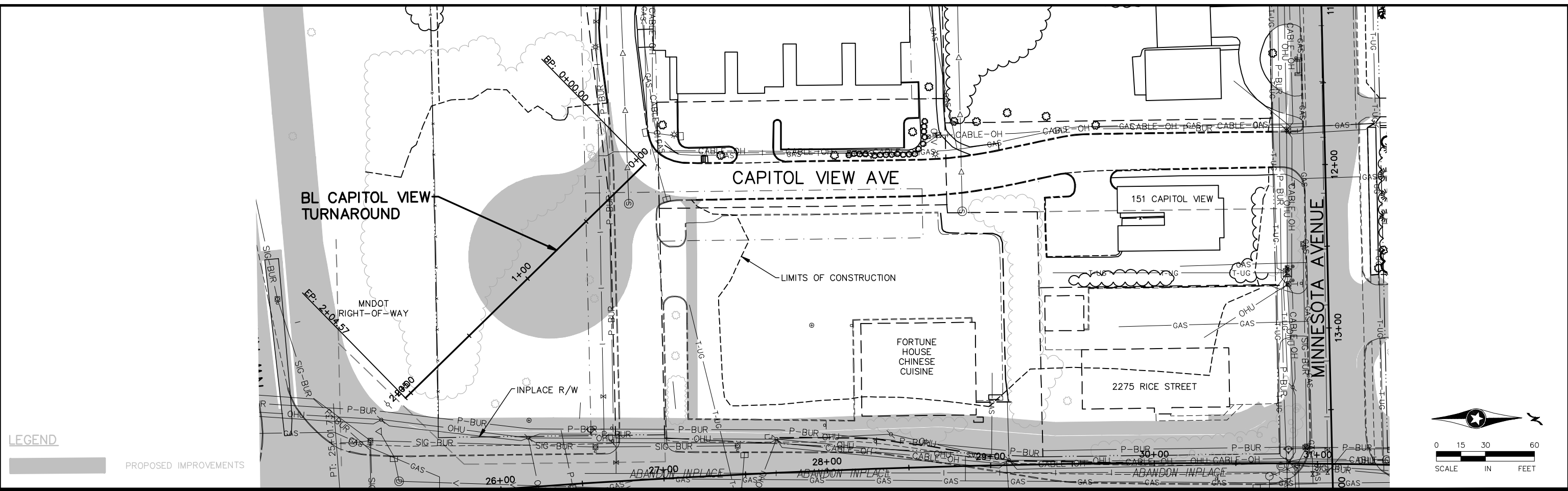
Kimley-Horn and Associates, Inc.
 2200 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4187
 FAX NO. (651) 645-5118

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY &
 UTILITY PLAN
 COUNTY ROAD B2 WEST
 STA. 8+00 TO STA. 22+00

FILE NO.	108
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TP6	
OF TP11	534

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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
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 Licensed Professional Engineer, No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY & UTILITY PLAN
 CAPITOL VIEW AVENUE
 STA. 0+00 TO STA. 1+50

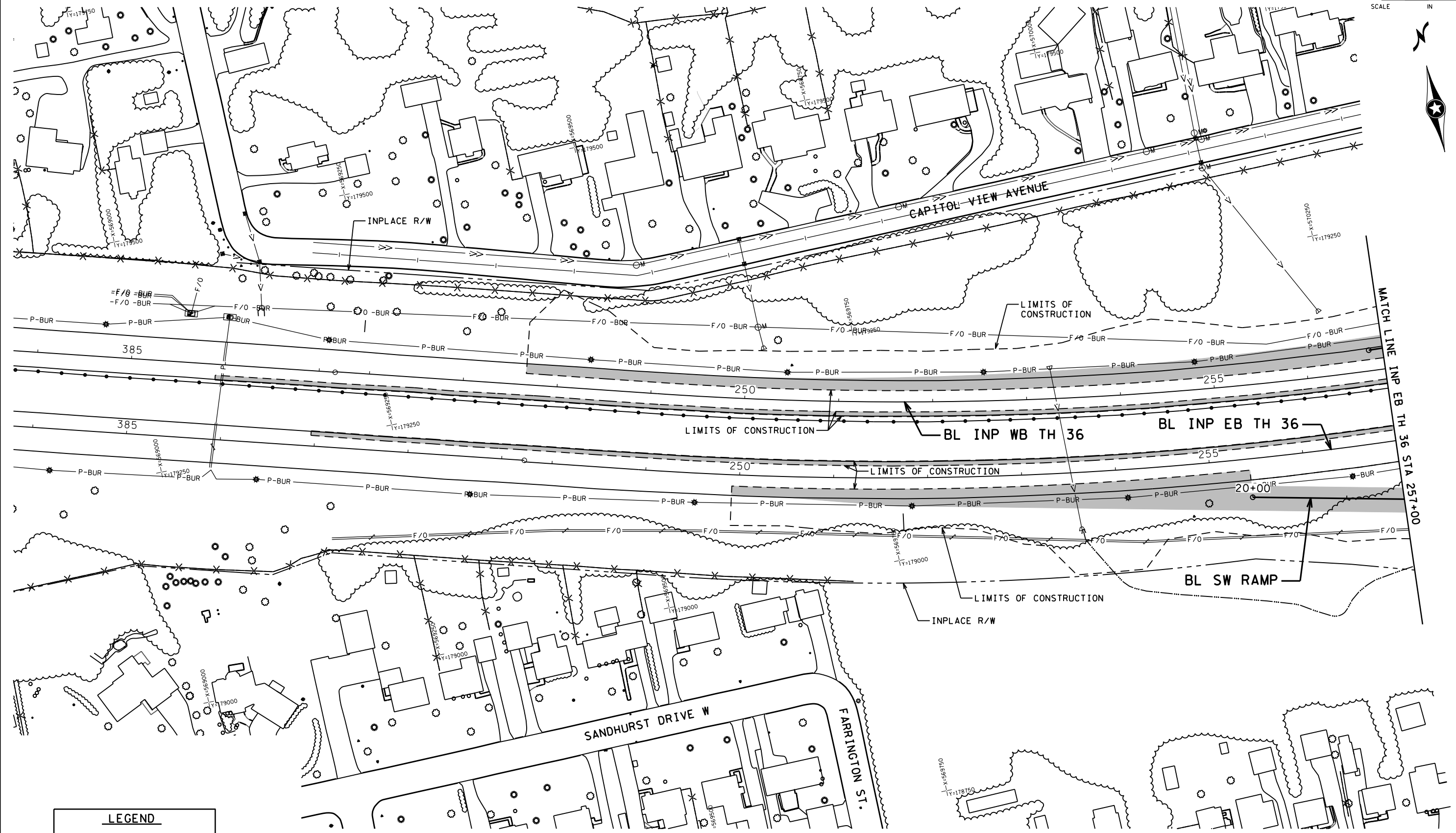
FILE NO. 160599001
 TP7 OF TP11
109
534

3:30:48 PM

5/6/2010

kerickson

S:\PT\RAMSP\108790\p1nsh\tr\ramsp108790_tp.dgn



LEGEND	
	PROPOSED IMPROVEMENTS

DESIGN TEAM				REVISIONS			
DRAWN BY:	MTT			NO.	BY	DATE	
DESIGNER:	SRH,HLR						
CHECKED BY:	KLE						

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY & UTILITY PLAN
 INP EB TH 36 STA 384+00 TO 257+00

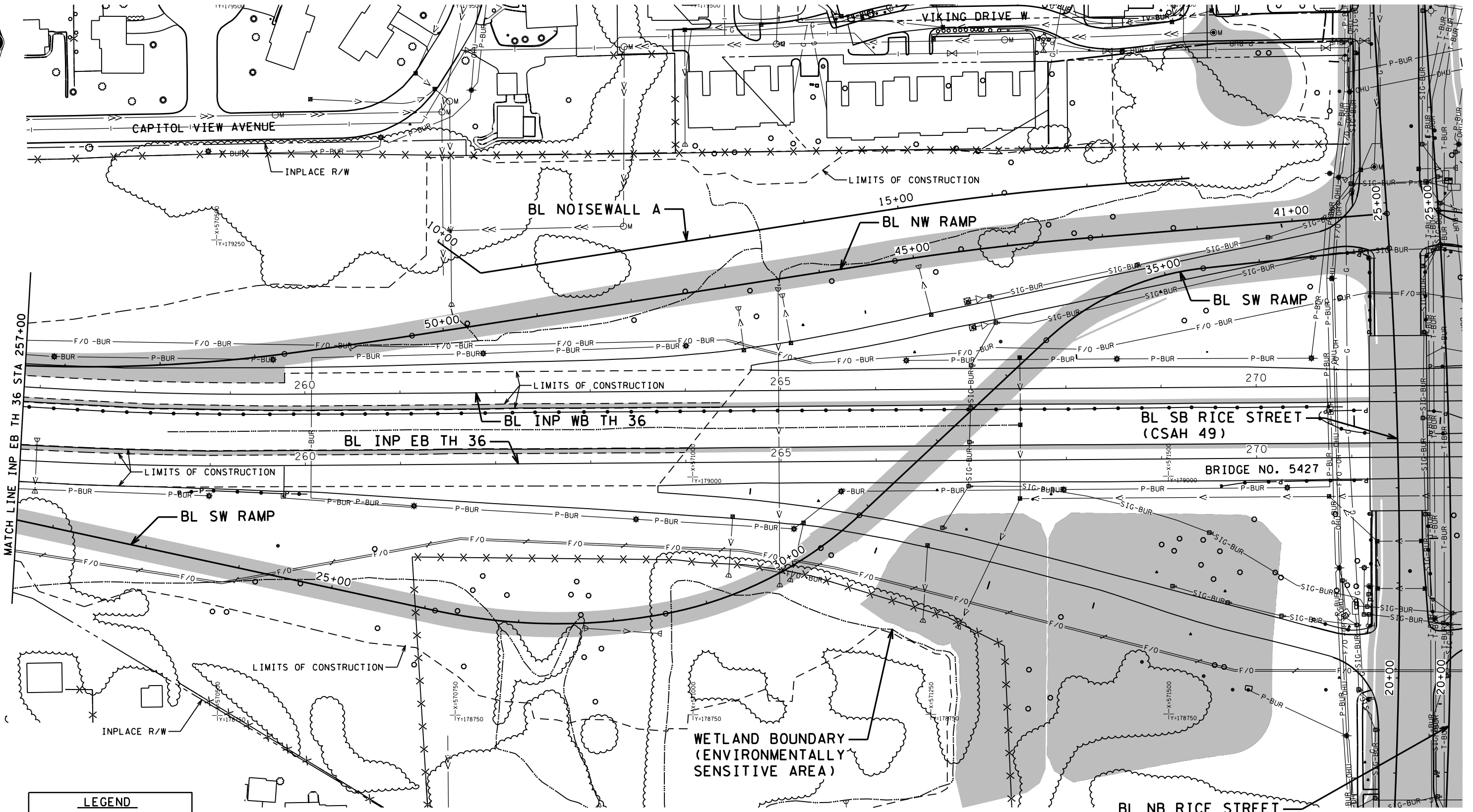
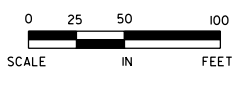
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TP8 OF TPII	534

3/30/52 PM

5/6/2010

kerickson

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LEGEND

■ PROPOSED IMPROVEMENTS

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY & UTILITY PLAN
 INP EB TH 36 STA 257+00 TO 272+00

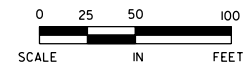
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TP9	
OF TPII	534

3/30/56 PM

5/6/2010

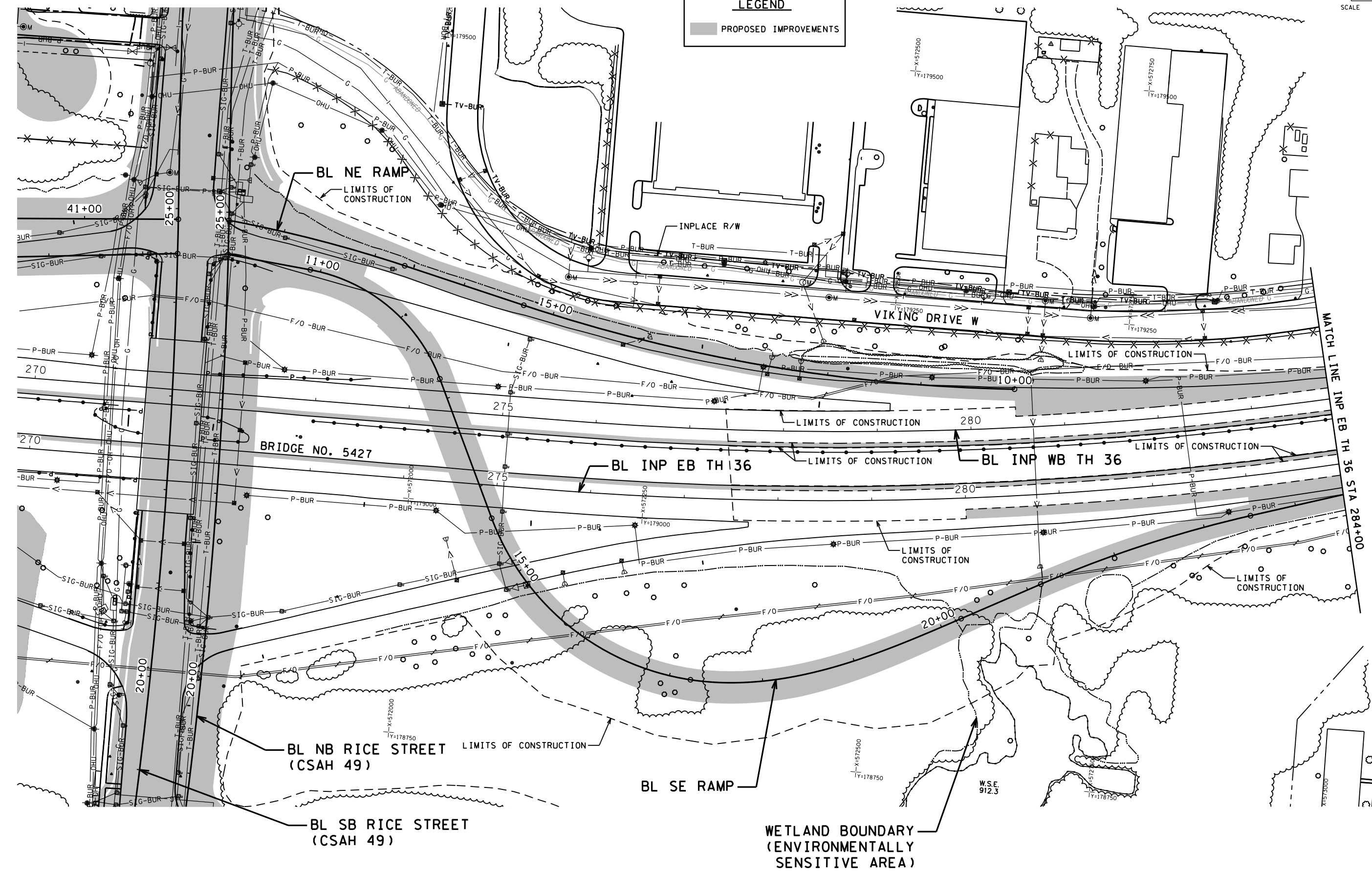
kerickson

S:\PT\RAMSP\108790\plans\topo\ramsp108790_top.dgn



LEGEND

■ PROPOSED IMPROVEMENTS



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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PHONE: 651-490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE TOPOGRAPHY & UTILITY PLAN
 INP EB TH 36 STA 272+00 TO 284+00

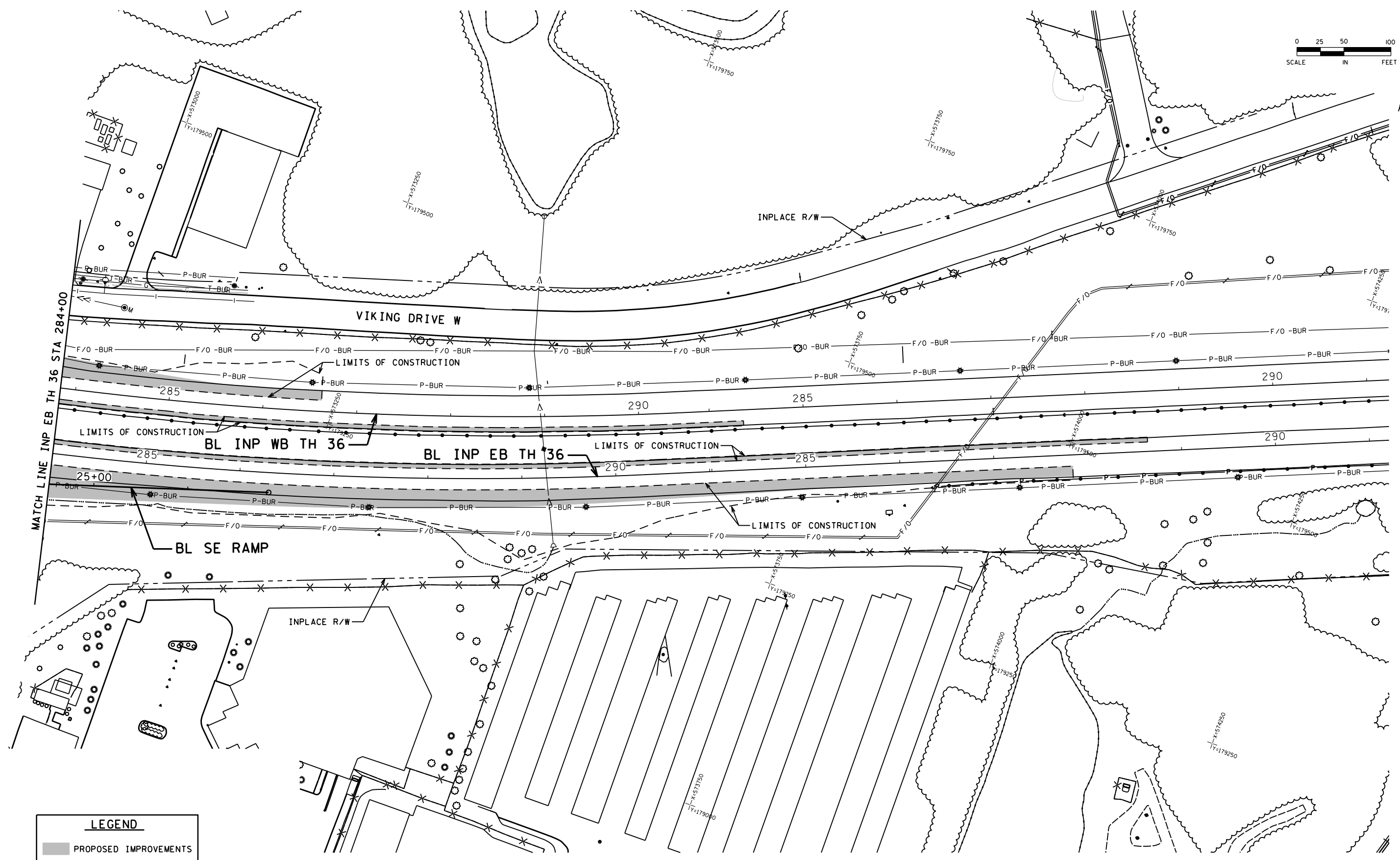
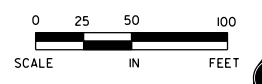
FILE NO. RAMSP108790	112
TP10 OF TPII	534

3:30:59 PM

5/6/2010

kerickson

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4 TP



LEGEND	
	PROPOSED IMPROVEMENTS

DESIGN TEAM				
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>SRH,HLR</u>				
CHECKED BY: <u>KLE</u>				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: Bret W. Johnson Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

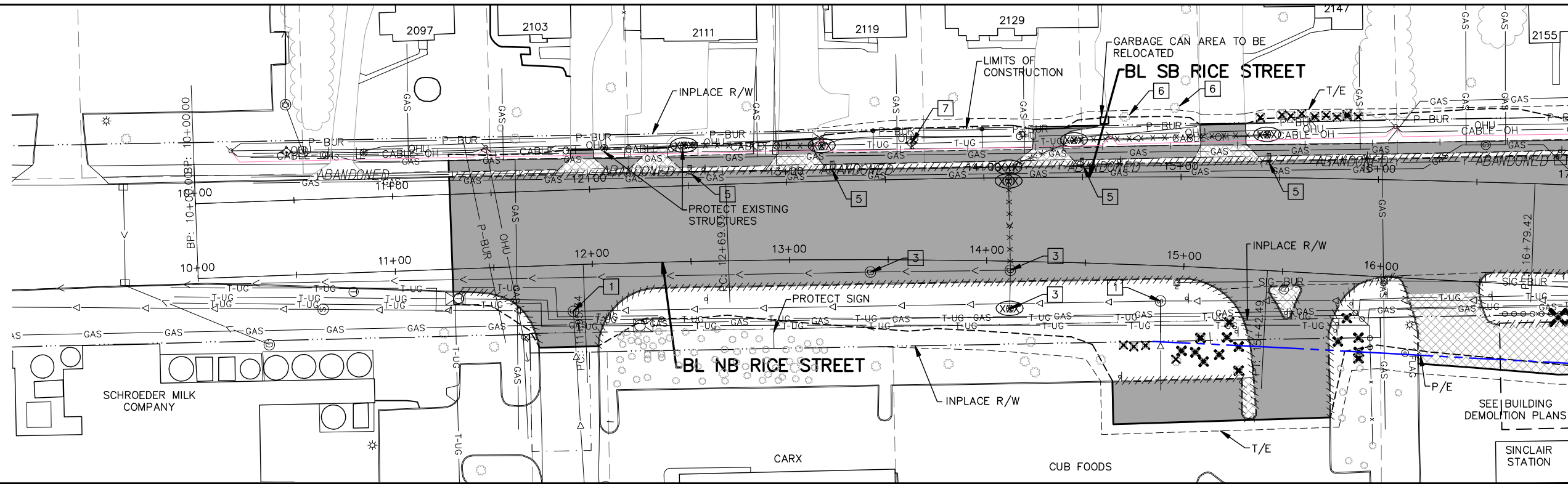
PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

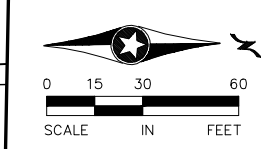
INPLACE TOPOGRAPHY & UTILITY PLAN
 INP EB TH 36 STA 284+00 TO 291+00

FILE NO. RAMSP08790	113
TP11 OF TPII	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN_RICE_REMO1.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



MATCH LINE 17+00



GENERAL REMOVAL NOTES:

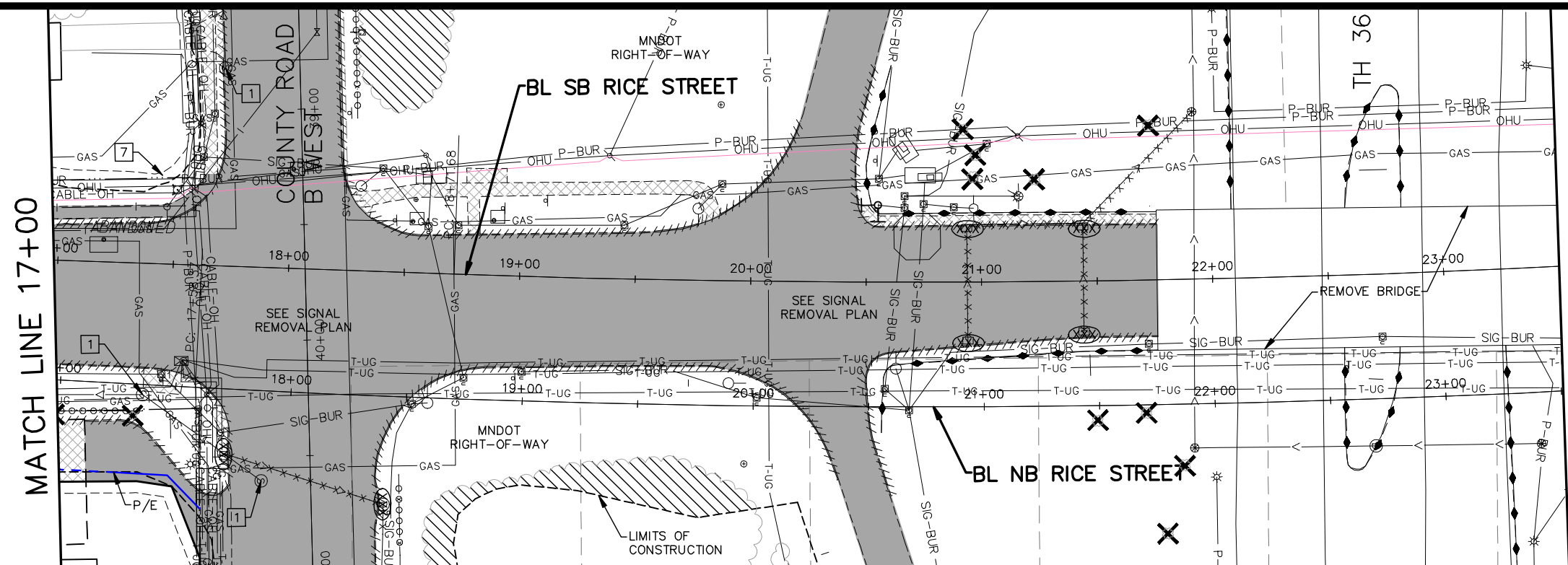
- CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
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- REMOVE/RELOCATE MAILBOX.
- PROTECT TREE.
- REMOVE HYDRANT. CAP TEE.

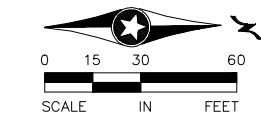
LEGEND

- | | | | |
|--|-------------------------|--|----------------------------|
| | REMOVE PAVEMENT | | CLEARING & GRUBBING (ACRE) |
| | REMOVE CONCRETE SURFACE | | CLEARING & GRUBBING (TREE) |
| | REMOVE STRUCTURE | | REMOVE PIPE |
| | SAWCUT PAVEMENT | | REMOVE FENCE |
| | LIMITS OF CONSTRUCTION | | REMOVE CURB & GUTTER |
| | | | REMOVE/SALVAGE GUARDRAIL |



MATCH LINE 17+00

MATCH LINE 23+50



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

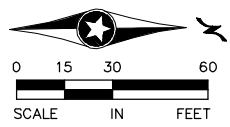
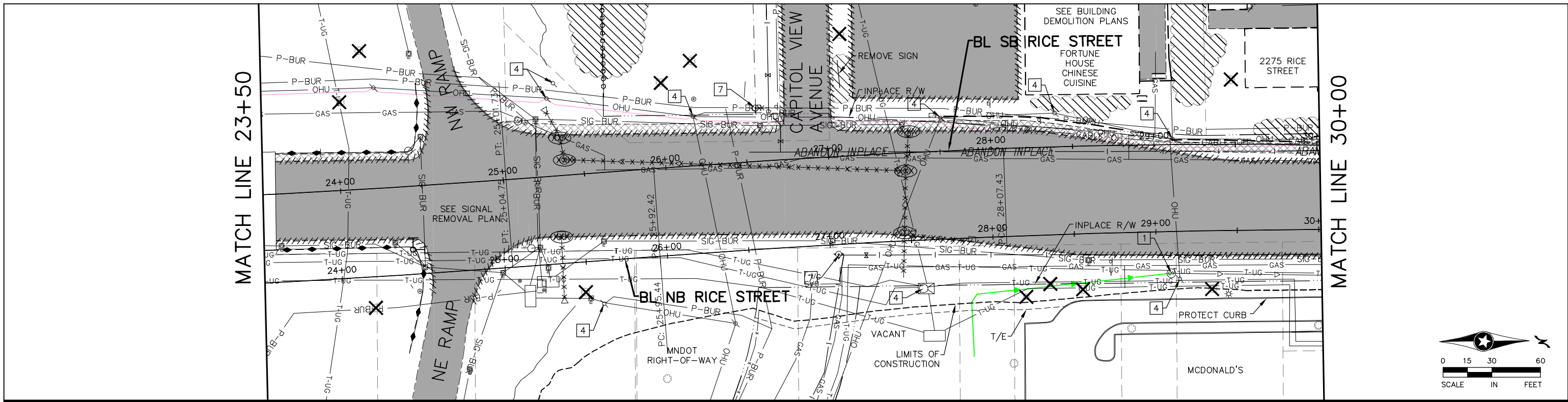
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
RICE STREET
 STA. 10+00 TO STA. 23+50

FILE NO.	114
160599001	
RM1	
OF RM11	534

K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\RICE_REMO2.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



GENERAL REMOVAL NOTES:

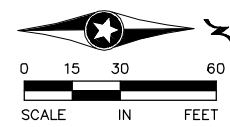
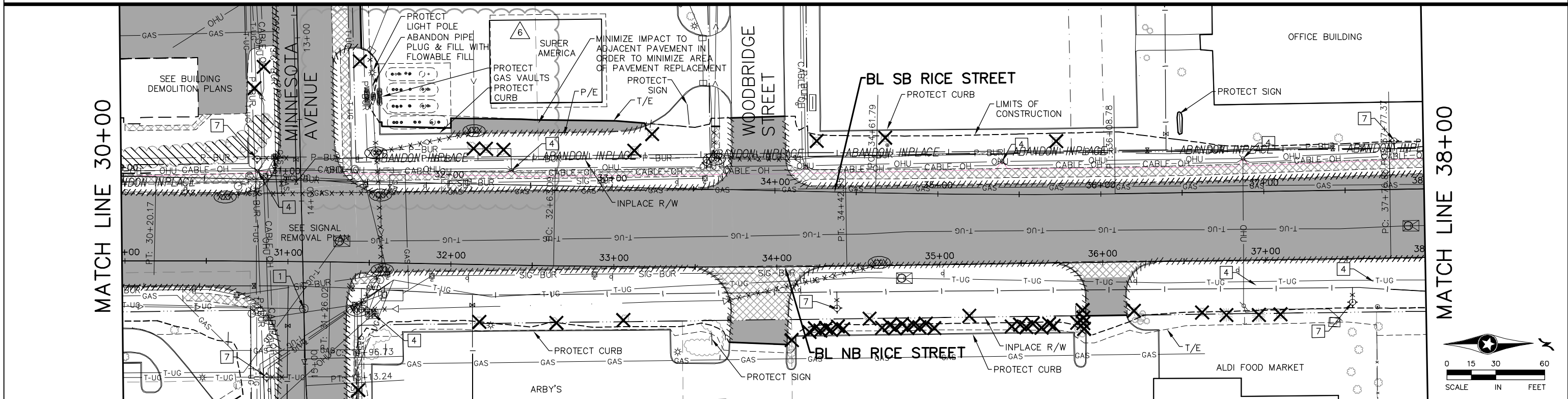
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- PROTECT TREE.
- REMOVE HYDRANT. CAP TEE.

LEGEND

- | | | | |
|--|-------------------------|--|----------------------------|
| | REMOVE PAVEMENT | | CLEARING & GRUBBING (ACRE) |
| | REMOVE CONCRETE SURFACE | | CLEARING & GRUBBING (TREE) |
| | REMOVE STRUCTURE | | REMOVE PIPE |
| | SAWCUT PAVEMENT | | REMOVE FENCE |
| | LIMITS OF CONSTRUCTION | | REMOVE CURB & GUTTER |
| | | | REMOVE/SALVAGE GUARDRAIL |



DESIGN TEAM				
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE			

REVISIONS				
NO.	BY	DATE	REVISIONS	
6	BAE	4/21/2011	SOUTHBOUND RICE ST REALIGNMENT / SA WALL REVISION	

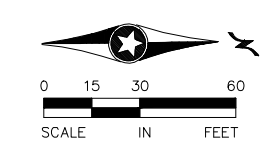
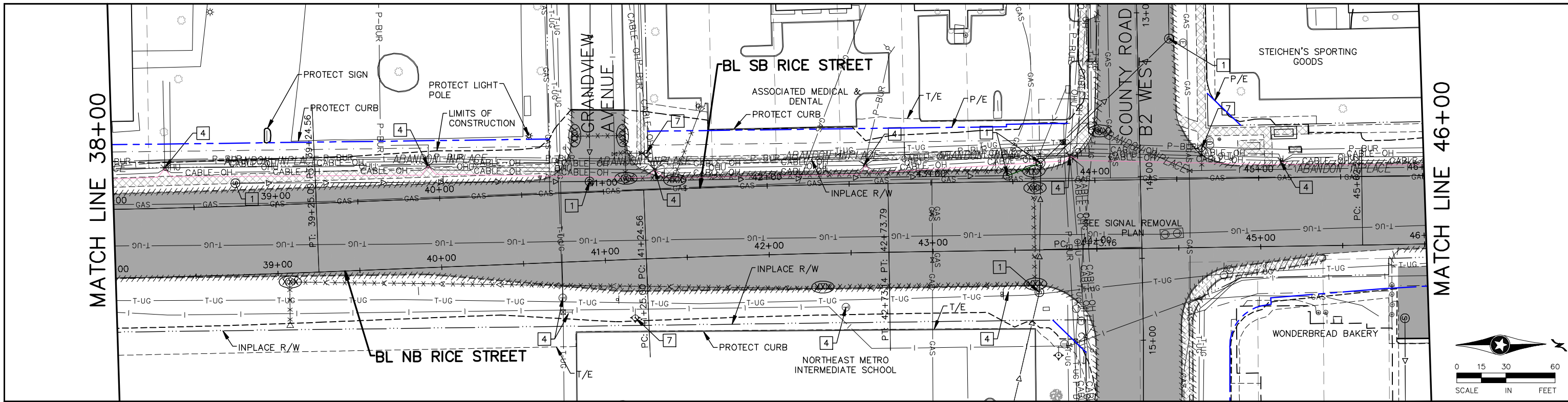
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: BETH A. ENGUM Lic. No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN		FILE NO.	115
RICE STREET		160599001	
STA. 23+50 TO STA. 38+00		RM2	
		OF RM11	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN_RICE_REMO3.DWG PLOT DATE: Tuesday, February 24, 2009 8:16:09 AM



GENERAL REMOVAL NOTES:

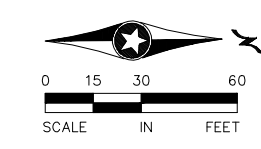
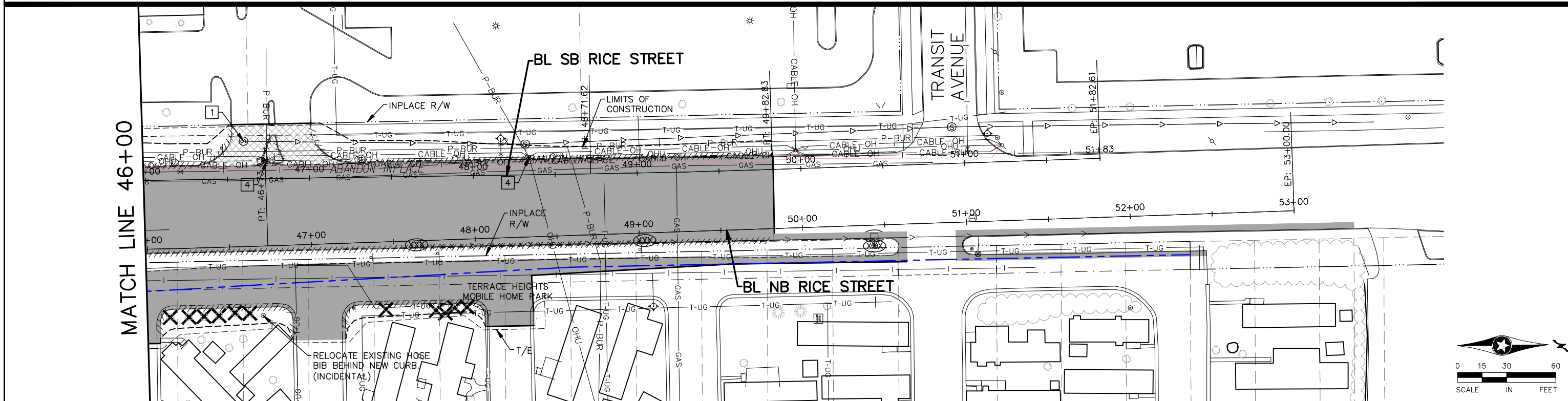
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- 6 PROTECT TREE.
- 7 REMOVE HYDRANT. CAP TEE.

LEGEND

- | | | | |
|--|-------------------------|--|----------------------------|
| | REMOVE PAVEMENT | | CLEARING & GRUBBING (ACRE) |
| | REMOVE CONCRETE SURFACE | | CLEARING & GRUBBING (TREE) |
| | REMOVE STRUCTURE | | REMOVE PIPE |
| | SAWCUT PAVEMENT | | REMOVE FENCE |
| | LIMITS OF CONSTRUCTION | | REMOVE CURB & GUTTER |
| | | | REMOVE/SALVAGE GUARDRAIL |



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

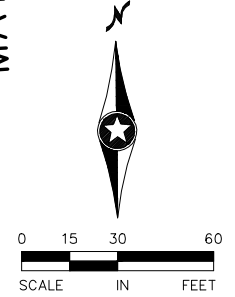
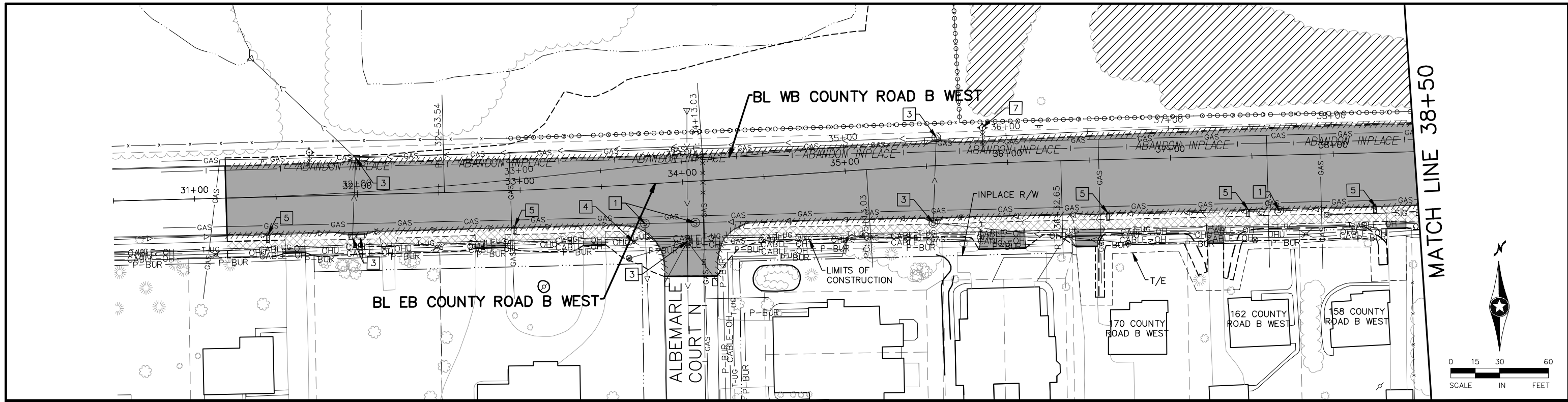
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Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN		FILE NO.	116
RICE STREET		160599001	
STA. 38+00 TO STA. 53+00		RM3	
		OF RM11	534

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GENERAL REMOVAL NOTES:

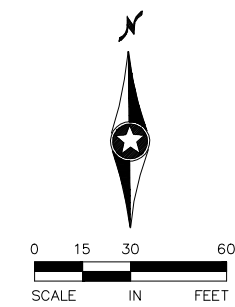
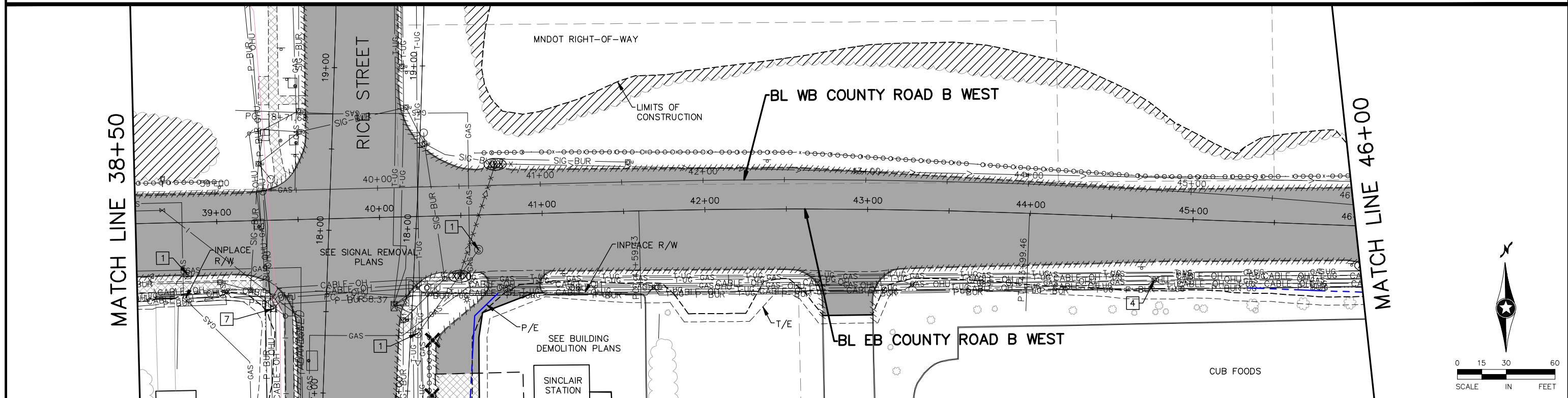
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LEGEND

- REMOVE PAVEMENT
- REMOVE CONCRETE SURFACE
- REMOVE STRUCTURE
- SAWCUT PAVEMENT
- LIMITS OF CONSTRUCTION
- CLEARING & GRUBBING (ACRE)
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- REMOVE PIPE
- REMOVE FENCE
- REMOVE CURB & GUTTER
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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
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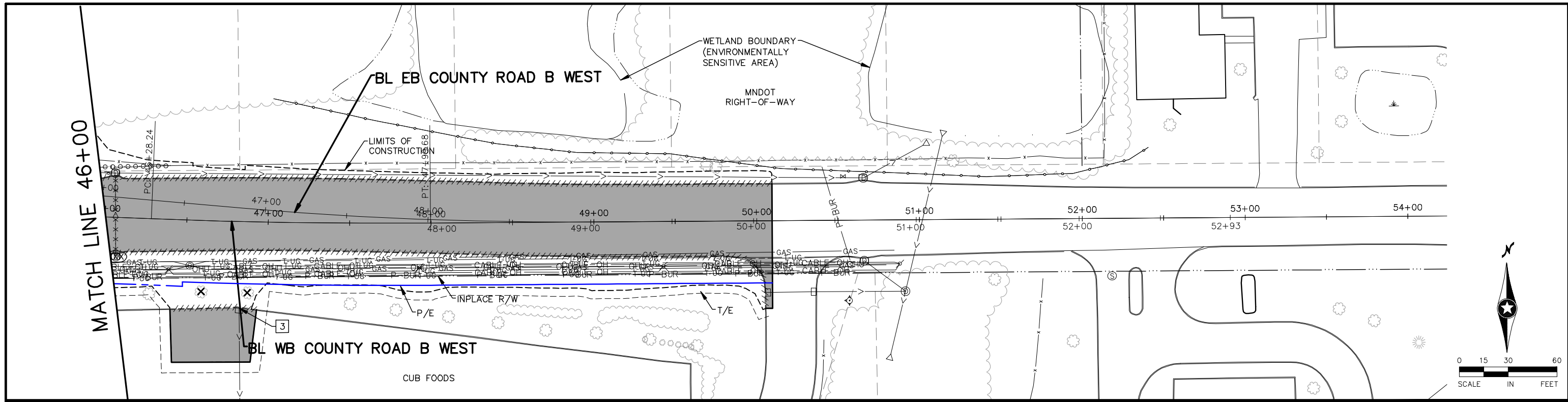
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
 COUNTY ROAD B WEST
 STA. 30+50 TO STA. 46+00

FILE NO. 117
 160599001
 RM4
 OF RM11
534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN\TH36_REMO5.DWG PLOT DATE: Tuesday, February 24, 2009 8:16:09 AM



GENERAL REMOVAL NOTES:

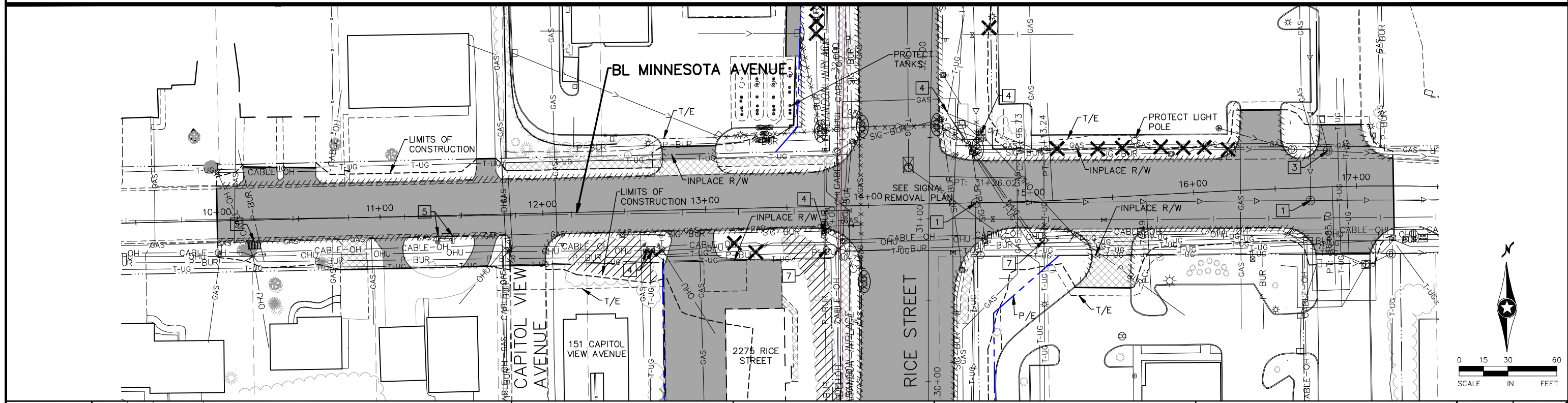
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LEGEND

- | | | | |
|--|-------------------------|--|----------------------------|
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| | | | REMOVE/SALVAGE GUARDRAIL |



DESIGN TEAM		REVISIONS	
DRAWN BY:	RJG	NO.	DATE
DESIGNER:	RJG		
CHECKED BY:	BAE		

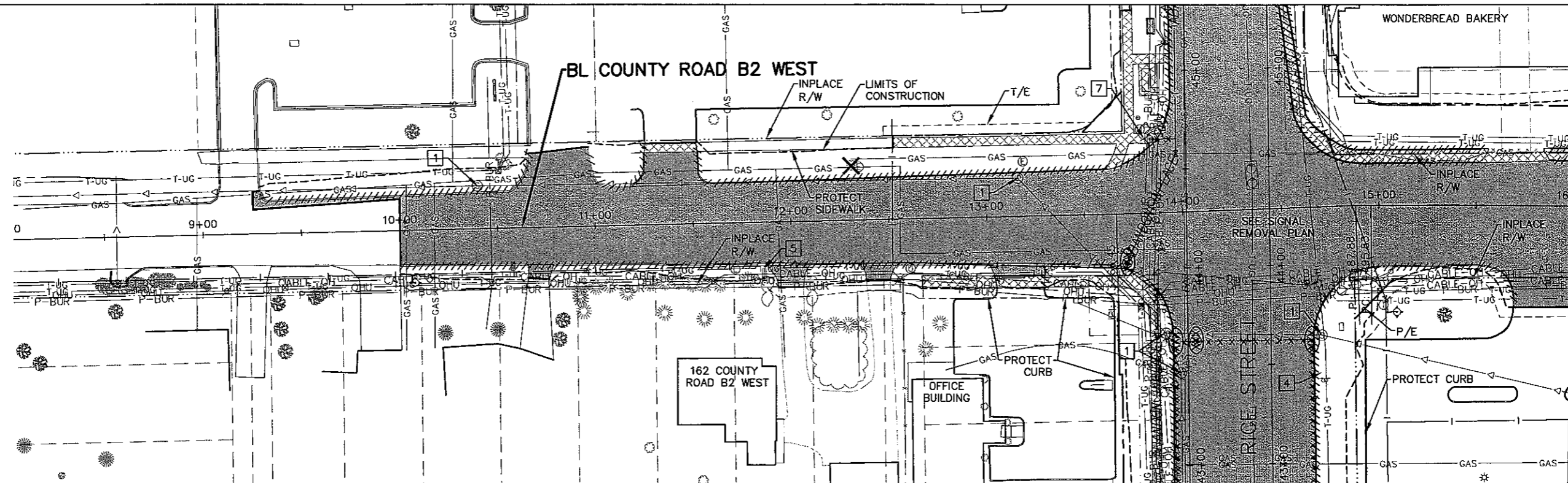
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
 COUNTY ROAD B WEST
 STA. 46+00 TO STA. 54+00
 MINNESOTA AVENUE STA. 9+50 TO STA. 17+50

FILE NO.	118
160599001	
RM5	
OF RM11	534



MATCH LINE 16+00

GENERAL REMOVAL NOTES:

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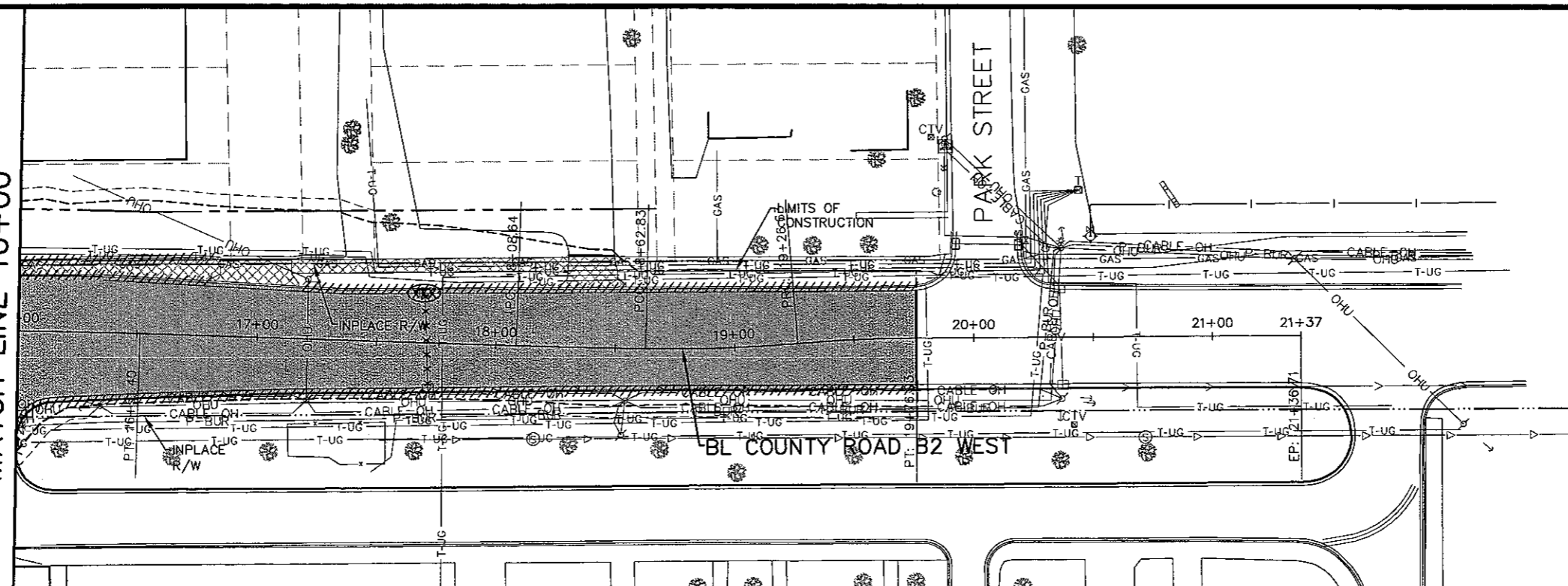
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LEGEND

- | | | | |
|--|-------------------------|--|----------------------------|
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| | | | REMOVE/SALVAGE GUARDRAIL |

MATCH LINE 16+00



MATCH LINE 16+00

K:\TWC\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN_RICE_REMD7.DWG PLOT DATE: Tuesday, February 24, 2009 8:16:09 AM

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
2	BAE	8/09/2010	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS 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.
 Certified By: *Beth A. Englum* Lic. No. 44785
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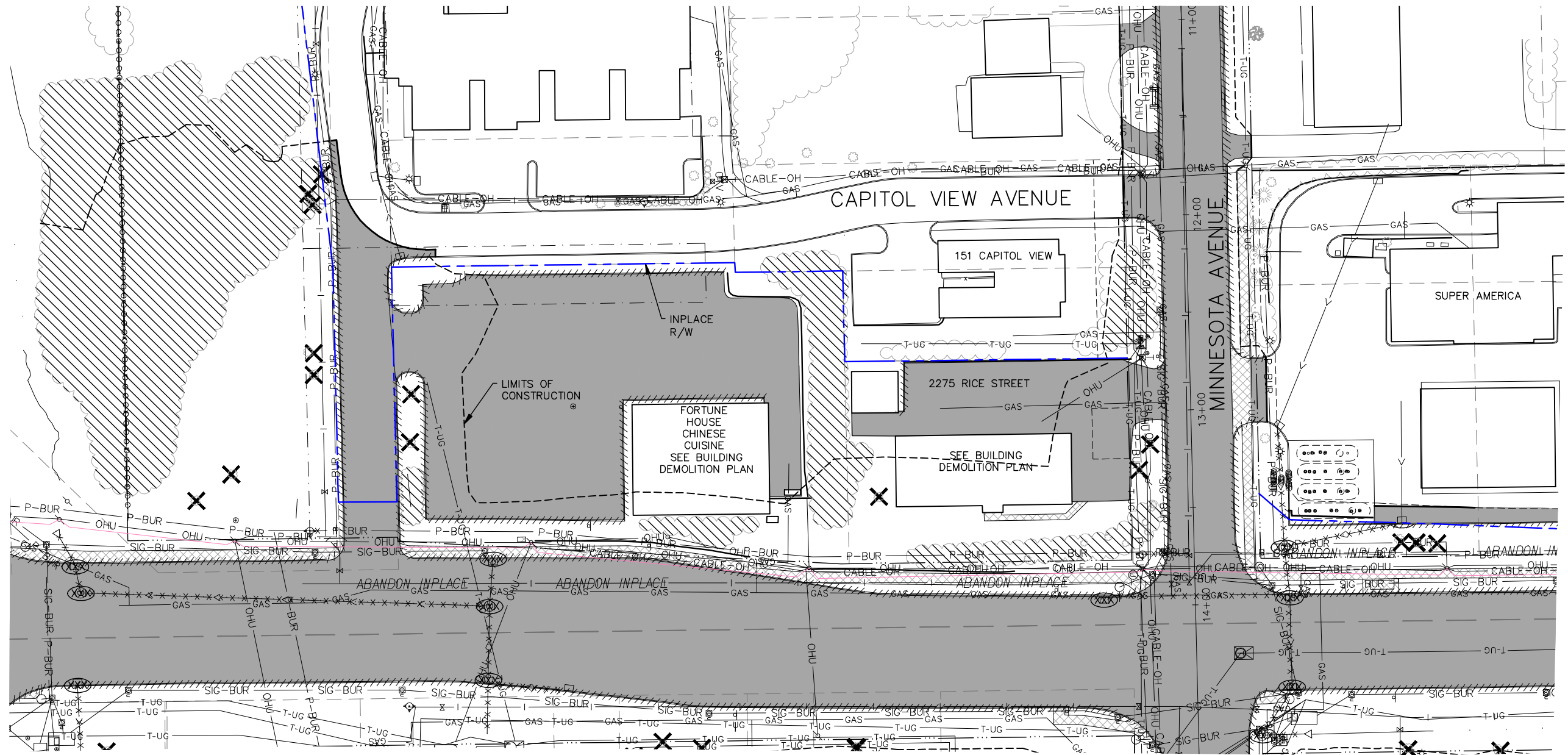
Kimley-Horn and Associates, Inc.
 2030 UNIVERSITY AVE. WEST, SUITE 340N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4187
 FAX. NO. (651) 645-3116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
 COUNTY ROAD B2 WEST
 STA. 8+00 TO STA. 22+00

FILE NO.	119
160599001	
RM6	
OF RM11	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\RICE_REMO6.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



GENERAL REMOVAL NOTES:

- CONTRACTOR SHALL CALL GOPHER STATE ONE CALL AT 651-454-0002. ALL UTILITIES MUST BE LOCATED PRIOR TO THE START OF CONSTRUCTION.
- CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER, INCLUDING TREE REMOVALS.
- CONTRACTOR SHALL PROTECT ALL EXISTING UTILITY STRUCTURES THAT ARE NOT BEING REMOVED OR RELOCATED.
- IRRIGATION SYSTEMS SHALL BE REINSTALLED AS DIRECTED BY CITY (THE CONTRACTOR SHALL TAKE CARE TO PROTECT OR SALVAGE IRRIGATION COMPONENTS WITHIN THE CONSTRUCTION LIMITS).
- TRENCH BOXES OR OTHER TRENCH STABILIZATION METHODS MAY BE REQUIRED DURING CONSTRUCTION TO MINIMIZE REMOVAL LIMITS.

UTILITY NOTES:

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- RECONSTRUCT/ADJUST INPLACE SANITARY MANHOLE. SEE SANITARY SEWER TABULATION.
- ADJUST INPLACE GATE VALVE/CURB BOX. SEE WATER MAIN TABULATION.
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- EXISTING UTILITY TO BE REMOVED/RELOCATED (BY OTHERS).
- REMOVE/RELOCATE MAILBOX.
- PROTECT TREE.
- REMOVE HYDRANT. CAP TEE.

LEGEND

- | | | | |
|--|-------------------------|--|----------------------------|
| | REMOVE PAVEMENT | | CLEARING & GRUBBING (ACRE) |
| | REMOVE CONCRETE SURFACE | | CLEARING & GRUBBING (TREE) |
| | REMOVE STRUCTURE | | REMOVE PIPE |
| | SAWCUT PAVEMENT | | REMOVE FENCE |
| | LIMITS OF CONSTRUCTION | | REMOVE CURB & GUTTER |
| | | | REMOVE/SALVAGE GUARDRAIL |

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN CAPITOL VIEW AVENUE	FILE NO. 160599001	120
	RM7 OF RM11	534

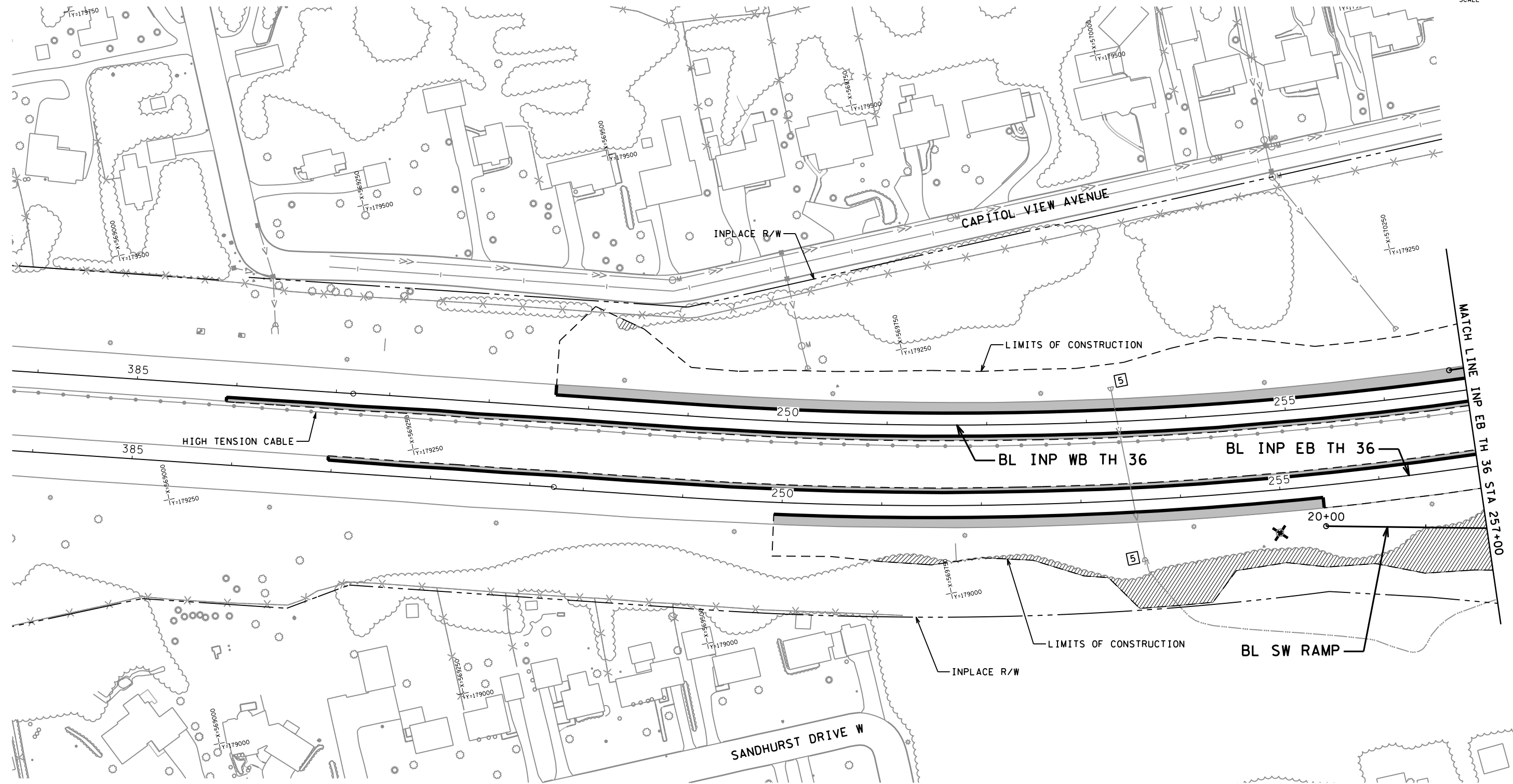
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5/6/2010

kerickson

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0 25 50 100
SCALE IN FEET



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- 5 REMOVE/RELOCATE MAILBOX.
- 6 PROTECT TREE.
- 7 REMOVE HYDRANT.

LEGEND

- REMOVE PAVEMENT
- REMOVE CONCRETE SURFACE
- REMOVE STRUCTURE
- SAWCUT PAVEMENT
- LIMITS OF CONSTRUCTION
- CLEARING & GRUBBING (ACRE)
- CLEARING & GRUBBING (TREE)
- REMOVE PIPE
- REMOVE FENCE
- REMOVE CURB & GUTTER
- REMOVE / SALVAGE GUARDRAIL

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLF		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

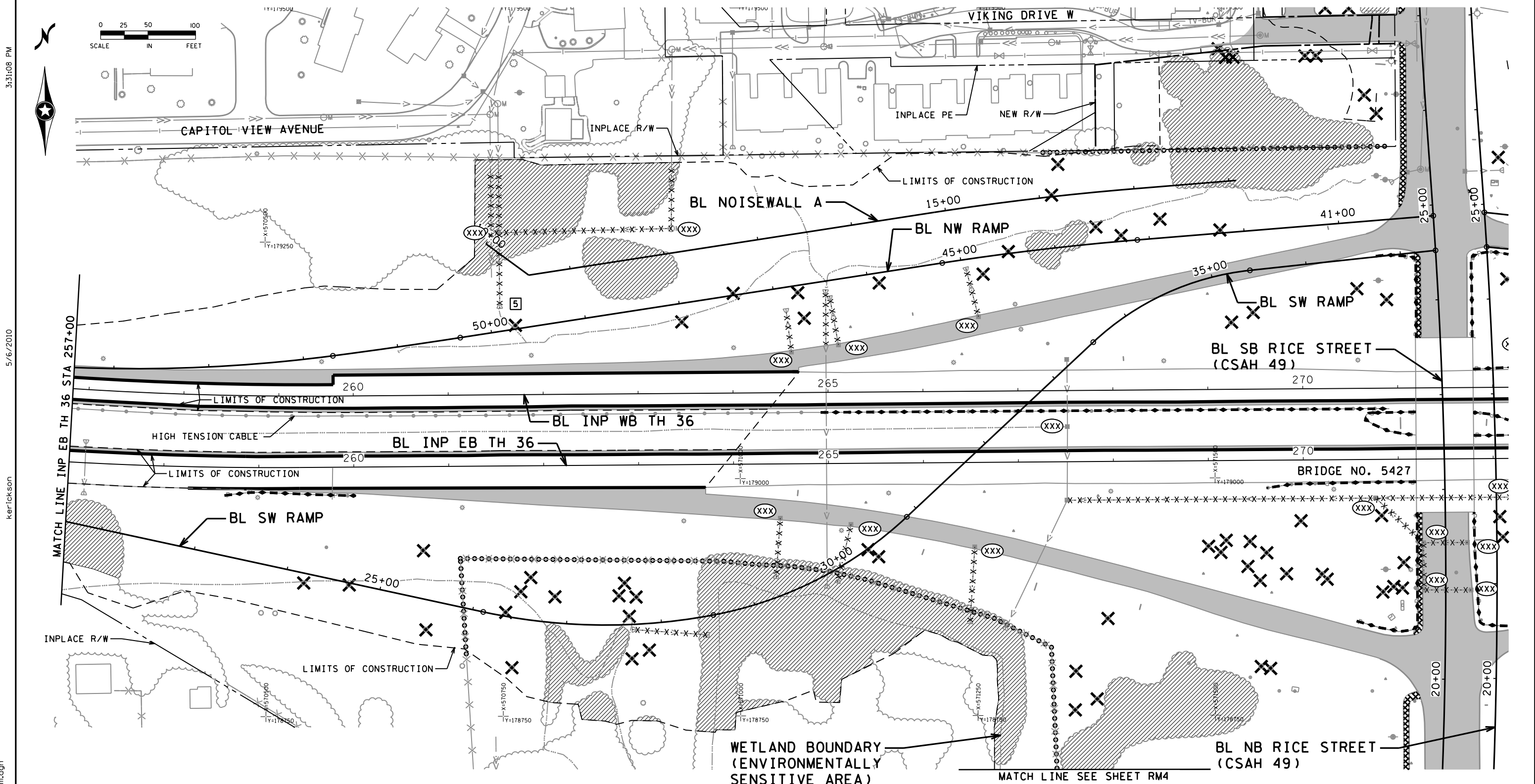


PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
 INP EB TH 36 STA 384+00 TO 257+00

FILE NO.
 RAMSP108790
RM8
 OF RMI
121
534



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 - PROTECT TREE.
 - REMOVE HYDRANT.

- LEGEND**
- | | | | |
|--|----------------------------|--|----------------------------|
| | REMOVE PAVEMENT | | CLEARING & GRUBBING (ACRE) |
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| | REMOVE STRUCTURE | | REMOVE PIPE |
| | LIMITS OF CONSTRUCTION | | REMOVE FENCE |
| | SAWCUT PAVEMENT | | REMOVE CURB & GUTTER |
| | REMOVE / SALVAGE GUARDRAIL | | |

DESIGN TEAM			
DRAWN BY: MTT			
DESIGNER: SRH,HLR			
CHECKED BY: KLE			
NO.	BY	DATE	REVISIONS

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 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

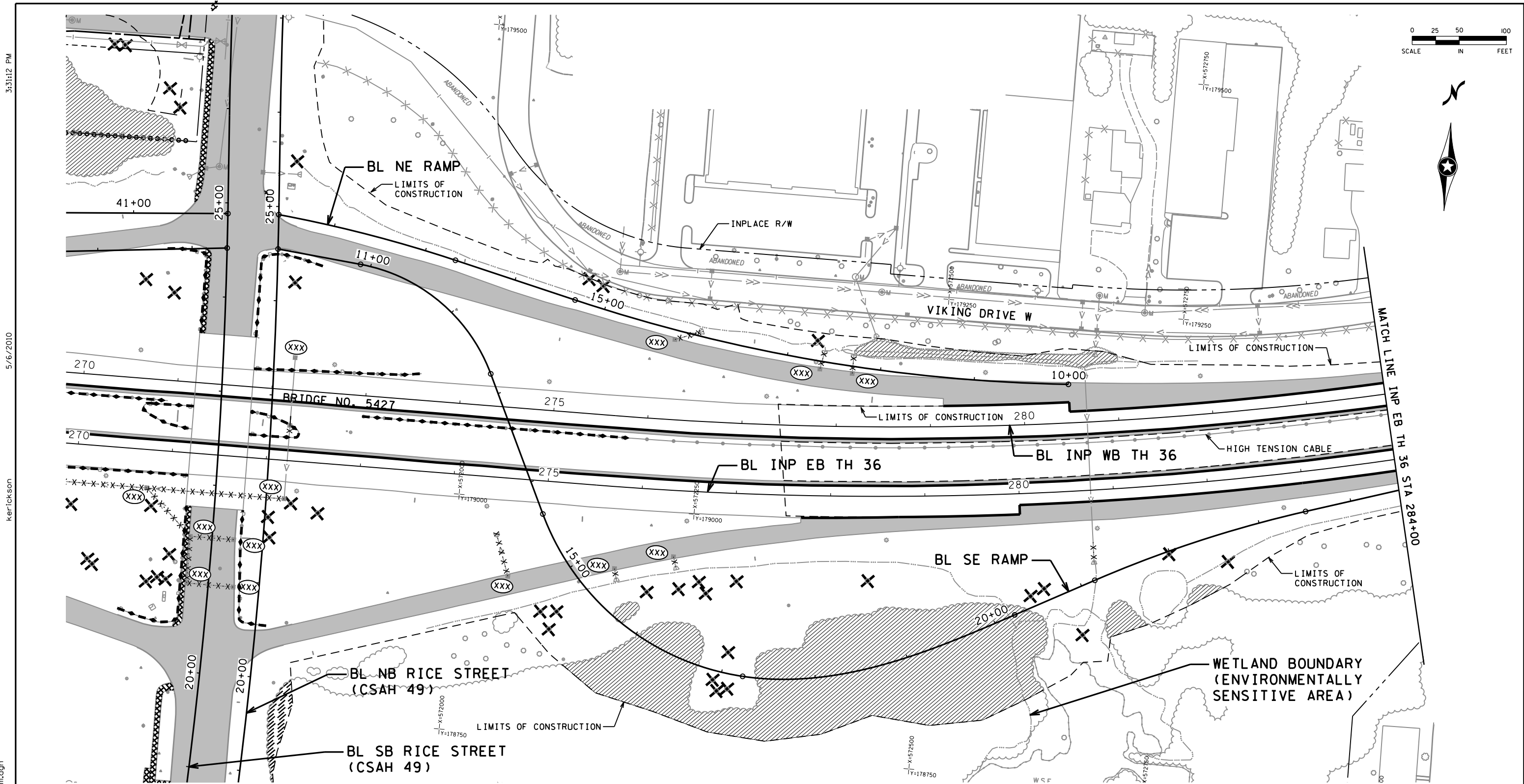


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
 INP EB TH 36 STA 257+00 TO 272+00

FILE NO. RAMSP108790	122
RM9 OF RM11	534

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5/6/2010

kerickson

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- 5 REMOVE/RELOCATE MAILBOX.
- 6 PROTECT TREE.
- 7 REMOVE HYDRANT.

LEGEND

- | | | | |
|--|-------------------------|--|----------------------------|
| | REMOVE PAVEMENT | | CLEARING & GRUBBING (ACRE) |
| | REMOVE CONCRETE SURFACE | | CLEARING & GRUBBING (TREE) |
| | REMOVE STRUCTURE | | REMOVE PIPE |
| | SAWCUT PAVEMENT | | REMOVE FENCE |
| | LIMITS OF CONSTRUCTION | | REMOVE CURB & GUTTER |
| | | | REMOVE / SALVAGE GUARDRAIL |

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
 INP EB TH 36 STA 272+00 TO 284+00

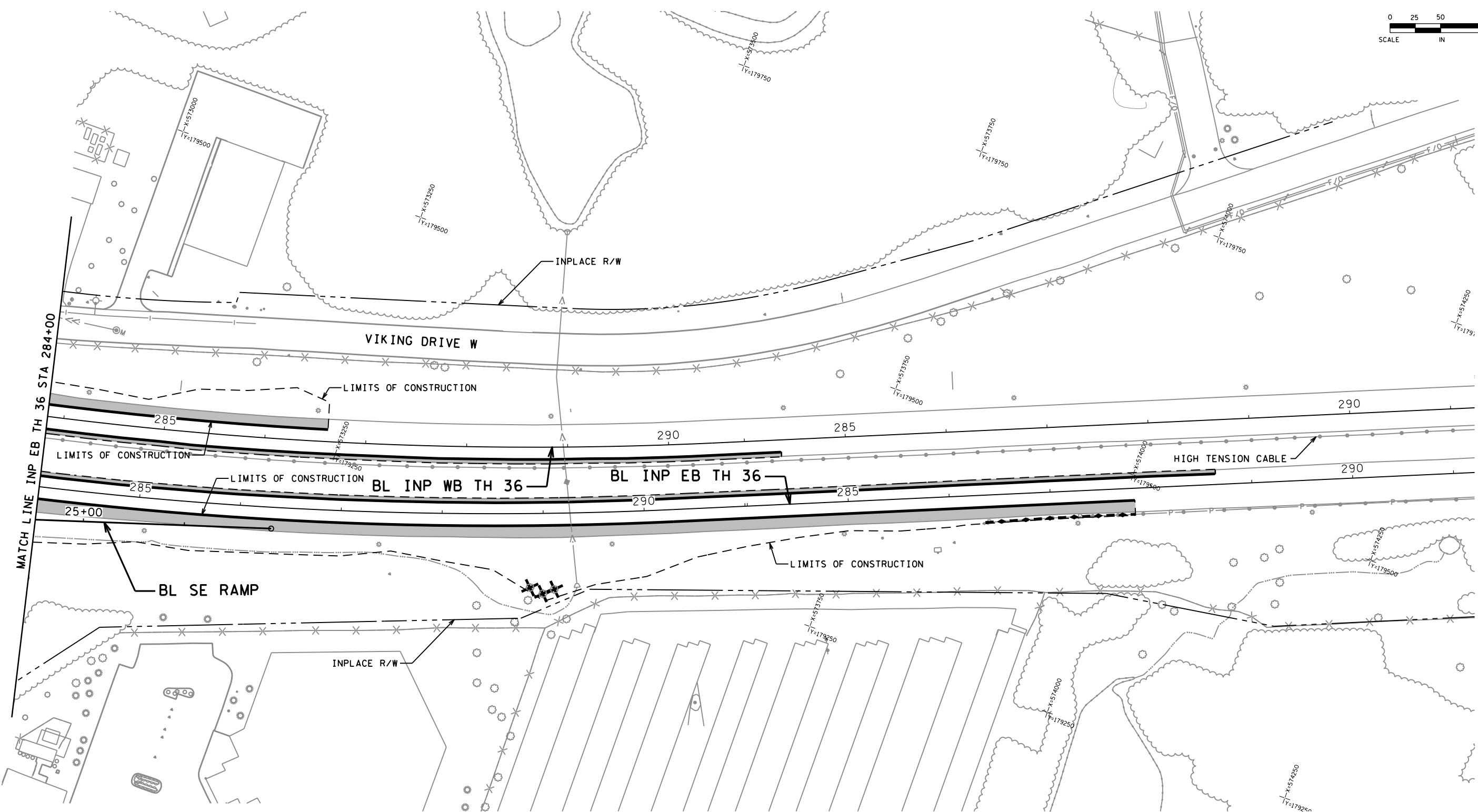
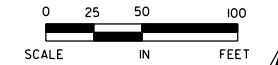
FILE NO. RAMSP08790	123
RM10 OF RM11	534

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5/6/2010

kerickson

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 - 5 REMOVE/RELOCATE MAILBOX.
 - 6 PROTECT TREE.
 - 7 REMOVE HYDRANT.

- LEGEND**
- | | | | |
|--|-------------------------|-----------|----------------------------|
| | REMOVE PAVEMENT | | CLEARING & GRUBBING (TREE) |
| | REMOVE CONCRETE SURFACE | X-X-X-X-X | REMOVE PIPE |
| | REMOVE STRUCTURE | o-o-o-o-o | REMOVE FENCE |
| | SAWCUT PAVEMENT | ////// | REMOVE CURB & GUTTER |
| | LIMITS OF CONSTRUCTION | | REMOVE / SALVAGE GUARDRAIL |

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

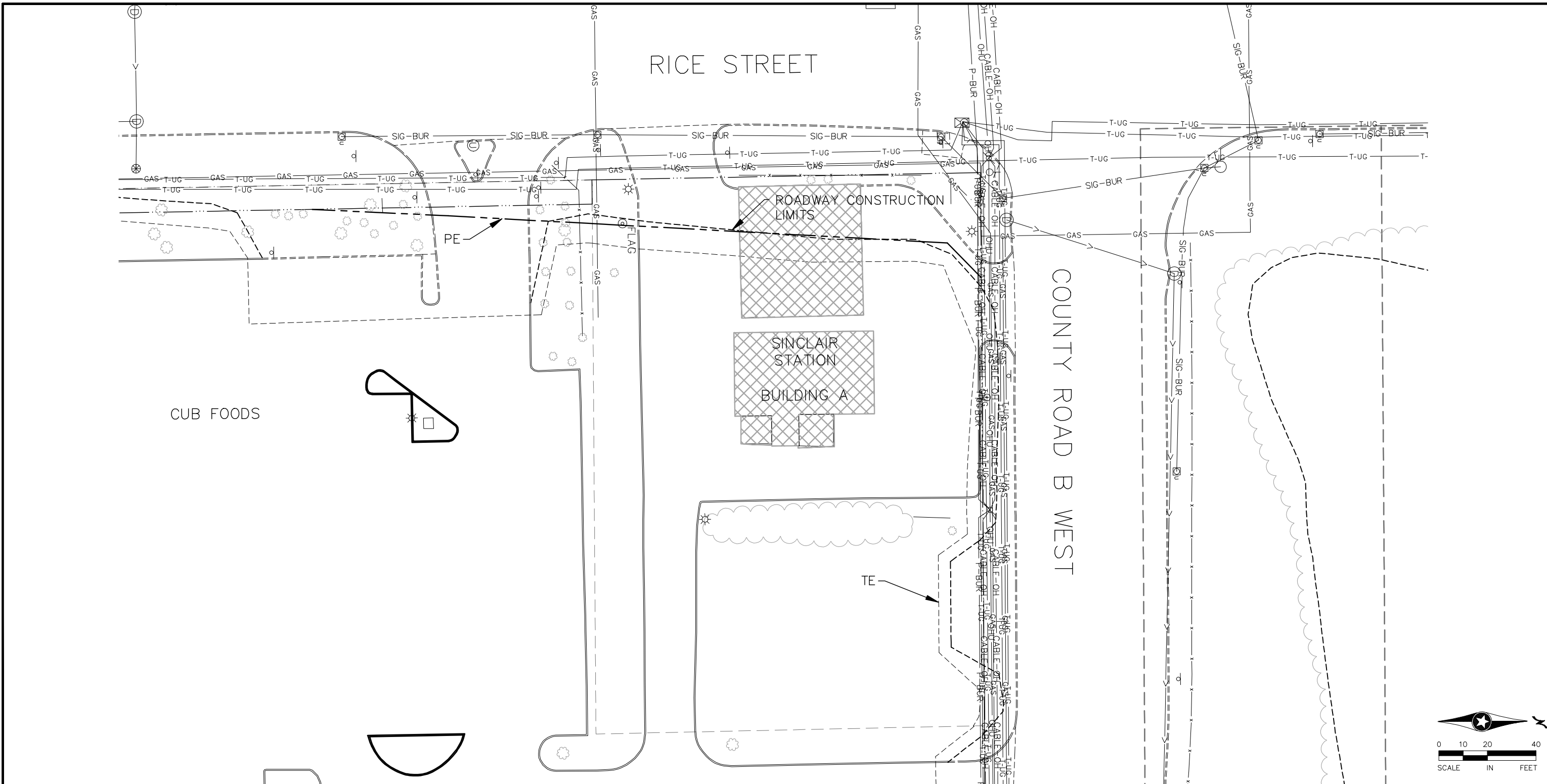


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

REMOVAL PLAN
 INP EB TH 36 STA 284+00 TO 291+00

FILE NO. RAMSP08790	124
RM11 OF RM11	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\RICE_REMO.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



GENERAL DEMOLITION NOTES:

1. INFORMATION PROVIDED ON THIS SHEET IS FOR REFERENCE ONLY. REFER TO PROJECT SPECIFICATION FOR MORE INFORMATION RELATING TO DEMOLITION OF THE BUILDING.
2. THE REMOVAL OF ALL UNDERGROUND PIPING IS CONSIDERED INCIDENTAL.
3. THE CONTRACTOR IS RESPONSIBLE TO INSPECT THE BUILDING TO BE DEMOLISHED TO UNDERSTAND BUILDING MATERIALS AND CONSTRUCTION.
4. ANY SOIL RETENTION SYSTEM REQUIRED TO MINIMIZE REMOVAL LIMITS SHALL BE CONSIDERED INCIDENTAL.
5. THE BUILDINGS MAY CONTAIN ASBESTOS OR OTHER REGULATED WASTE WHICH REQUIRE ABATEMENT. THE CONTRACTOR SHOULD REFER TO THE BUILDING ASSESSMENT REPORTS PROVIDED WITH THESE DOCUMENTS.
6. ALL ROOF DRAINS AND CONNECTIONS TO THE SANITARY AND STORM SEWERS MUST BE REMOVED AND CAPPED AT THE MAINS.

7. CONTRACTOR TO REMOVE MISCELLANEOUS DEBRIS IN AND AROUND BUILDING. COST SHALL BE CONSIDERED INCIDENTAL.
8. EXCAVATION AND BACKFILL OF BUILDING FOOTINGS AND FOUNDATION SHALL BE CONSIDERED TO BE INCIDENTAL.
9. THE DEMOLITION OF THE BUILDING INCLUDES BUT IS NOT LIMITED TO: BUILDING ROOF, WALLS, FOOTINGS, FOUNDATIONS, INTERIOR WALLS, CHIMNEY, STAIRS, AND STORAGE TANKS.
10. THIS AREA IS A SITE PLAN REQUIREMENT AREA PER SECTION 1717 OF THE MNDOT STANDARD SPECIFICATIONS AND PROJECT SPECIAL PROVISIONS. THE CONTRACTOR SHALL SUBMIT A SITE PLAN DETAILING PROPOSED EROSION CONTROL AND SEDIMENT CONTROL MEASURES AND A SCHEDULE INDICATING STARTING AND COMPLETION TIMES FOR CONSTRUCTION OPERATIONS.

LEGEND

REMOVE BUILDING

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

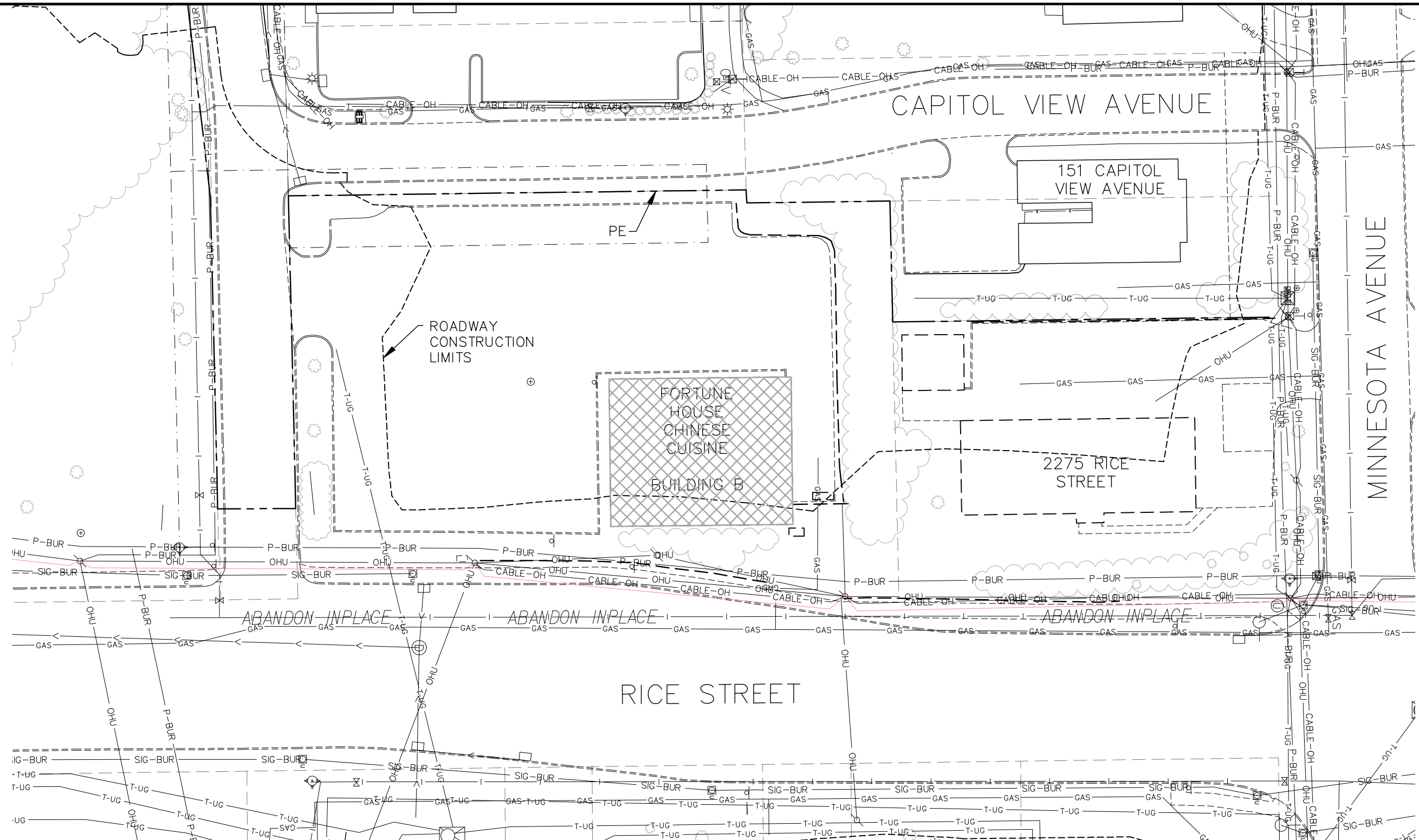
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

BUILDING DEMOLITION PLAN		FILE NO.
SINCLAIR STATION BUILDING A		125
		160599001
		BD1
		OF BD3
		534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN\RICE_REMOB.DWG PLOT DATE: Tuesday, February 24, 2009 8:16:09 AM



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LEGEND

 REMOVE BUILDING

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
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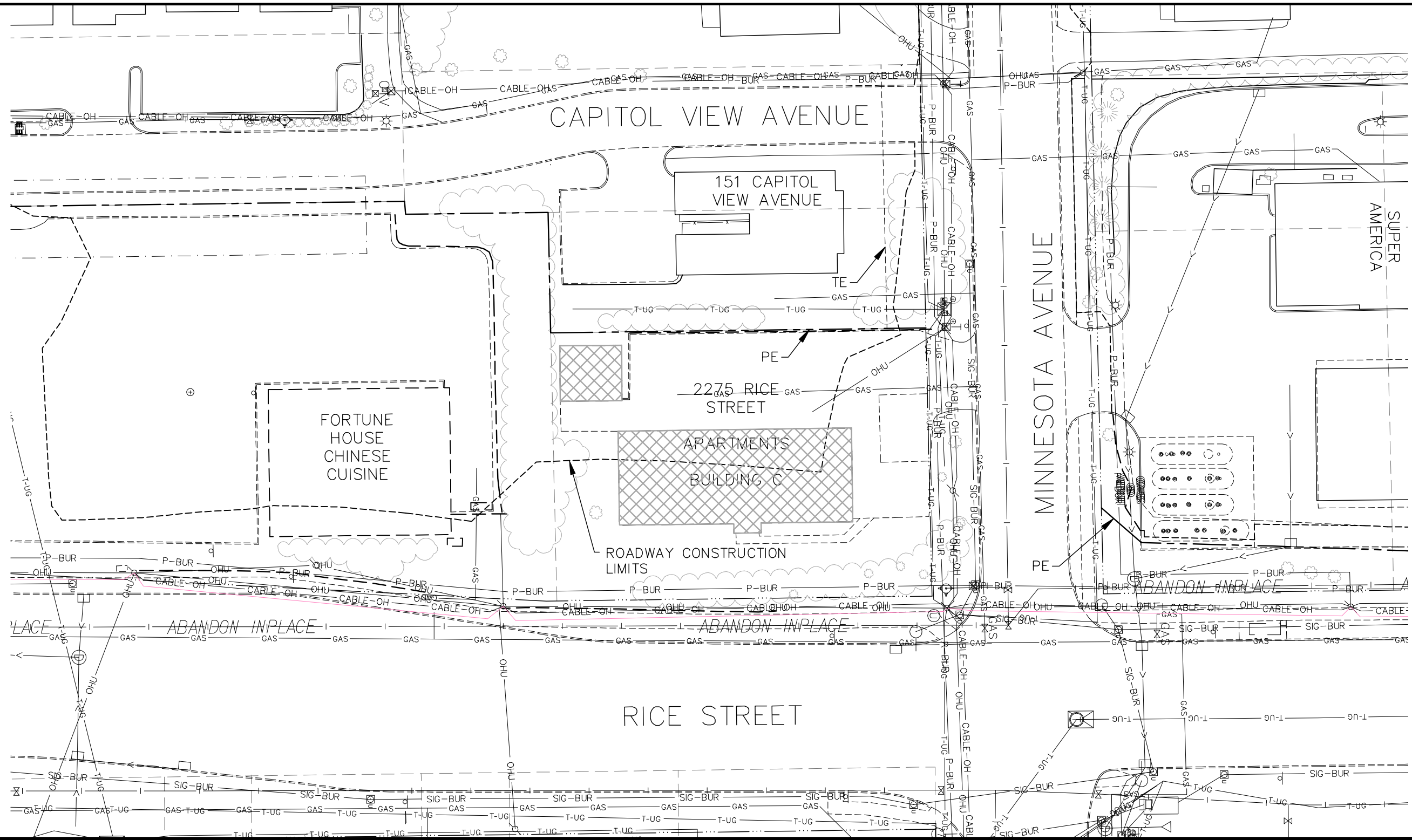
 **Kimley-Horn and Associates, Inc.**
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

BUILDING DEMOLITION PLAN
FORTUNE HOUSE CHINESE CUISINE
BUILDING B

FILE NO. **126**
 160599001
BD2
 OF BD3 **534**

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN_RICE_REMOB.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



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LEGEND

 REMOVE BUILDING

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
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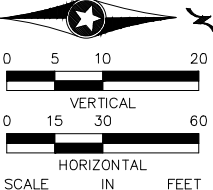
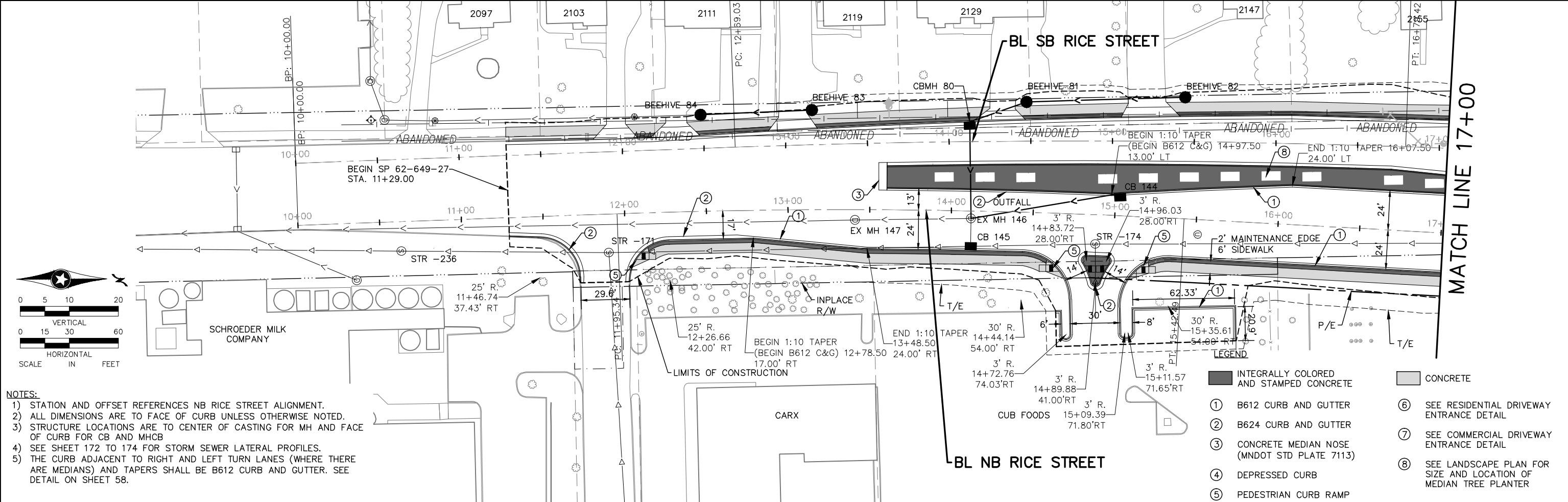
 **Kimley-Horn and Associates, Inc.**
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

BUILDING DEMOLITION PLAN
 APARTMENT BUILDING
 BUILDING C

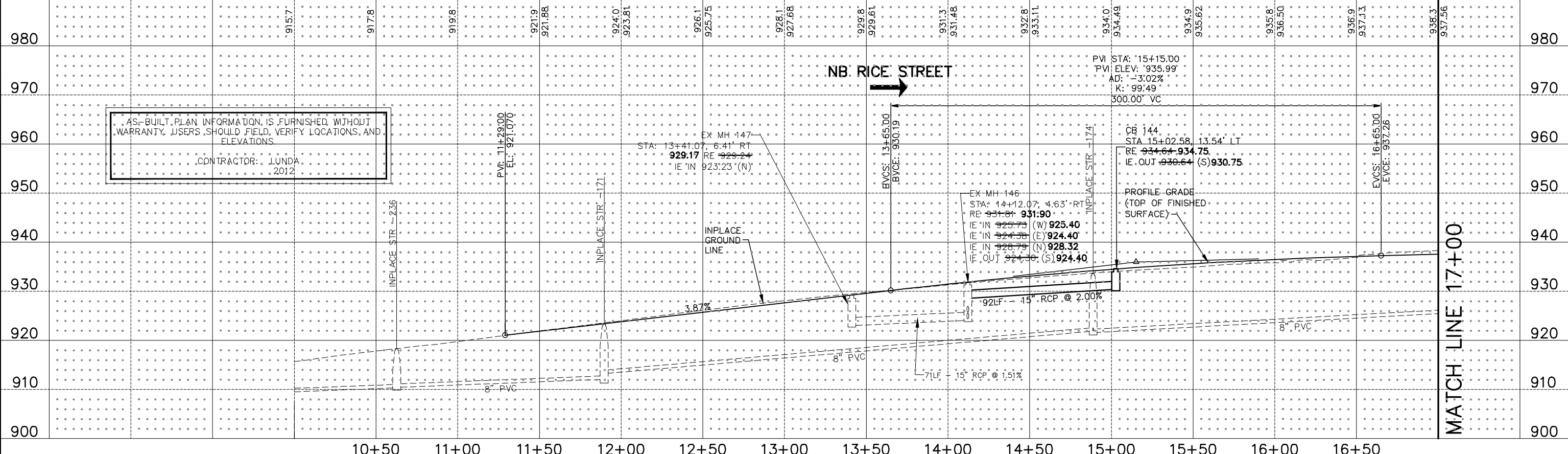
FILE NO.	127
160599001	
BD3	
OF BD3	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN_RICE_PPF01.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



- NOTES:**
- 1) STATION AND OFFSET REFERENCES NB RICE STREET ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 - 4) SEE SHEET 172 TO 174 FOR STORM SEWER LATERAL PROFILES.
 - 5) THE CURB ADJACENT TO RIGHT AND LEFT TURN LANES (WHERE THERE ARE MEDIANS) AND TAPERS SHALL BE B612 CURB AND GUTTER. SEE DETAIL ON SHEET 58.

- LEGEND**
- INTEGRALLY COLORED AND STAMPED CONCRETE
 - CONCRETE
 - ① B612 CURB AND GUTTER
 - ② B624 CURB AND GUTTER
 - ③ CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - ④ DEPRESSED CURB
 - ⑤ PEDESTRIAN CURB RAMP
 - ⑥ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



NO.	BY	DATE	REVISIONS

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.

Certified By: *Beth A. Engum* Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

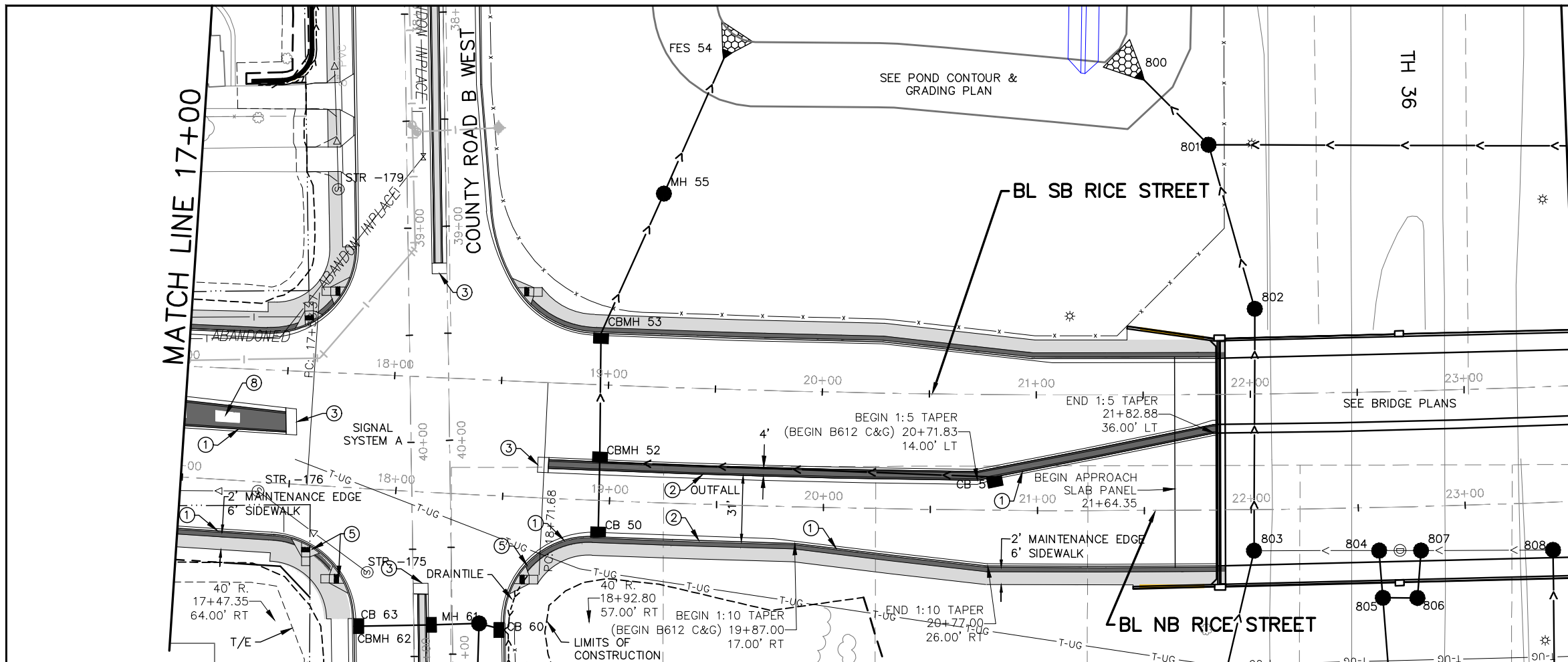
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 3450
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 NORTHBOUND RICE STREET
 STA. 10+00 TO STA. 17+00

FILE NO. 160599001	128
CD1 OF CD43	534

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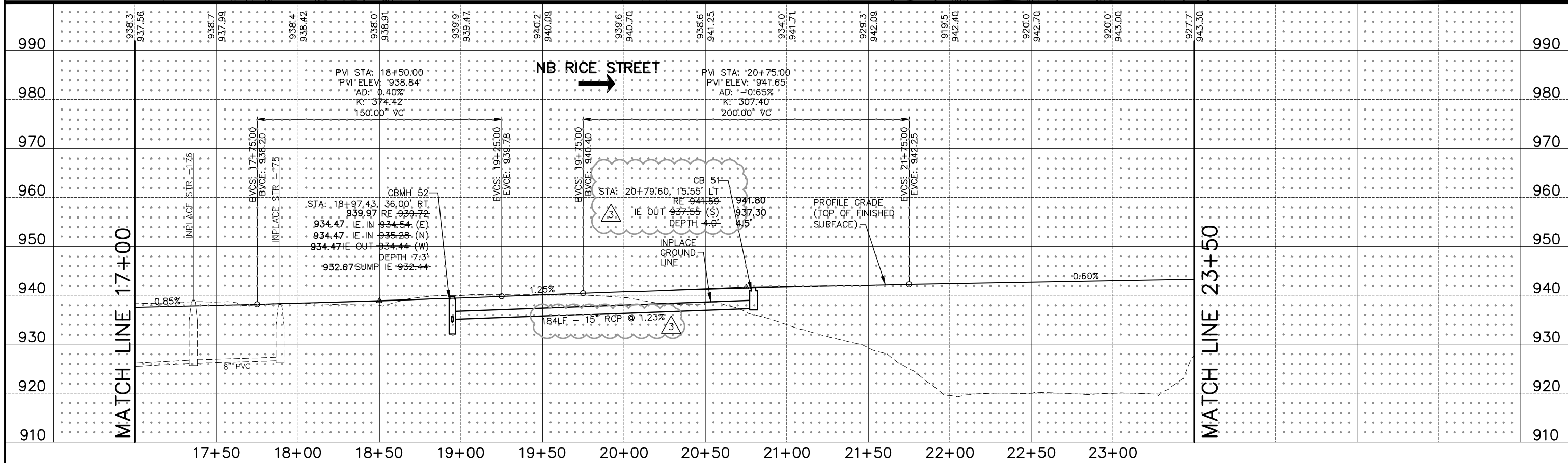
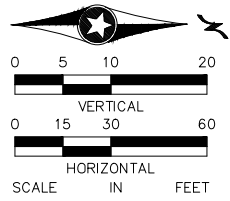


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- LEGEND**
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 - CONCRETE
 - ① B612 CURB AND GUTTER
 - ② B624 CURB AND GUTTER
 - ③ CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - ④ DEPRESSED CURB
 - ⑤ PEDESTRIAN CURB RAMP
 - ⑥ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER

AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.

CONTRACTOR: LUNDA 2012



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		

NO.	BY	DATE	REVISIONS
3	BAE	8/26/2010	MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION

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.

Certified By: *Beth A. Engum* Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.

2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114

TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

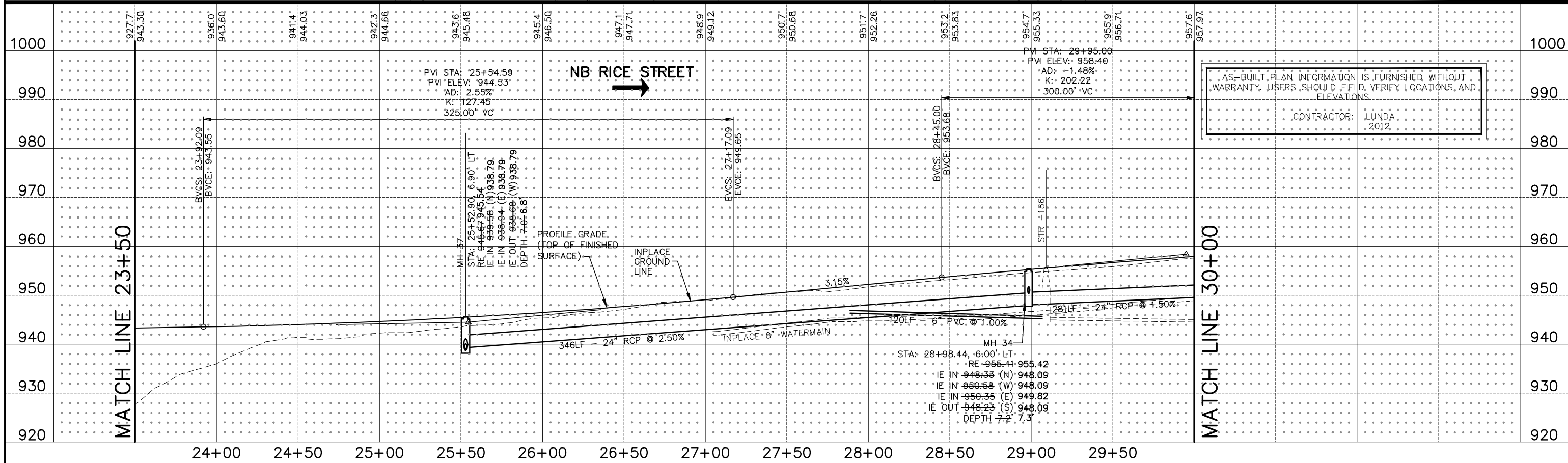
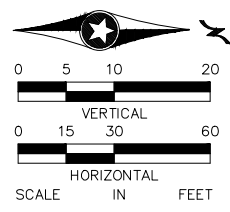
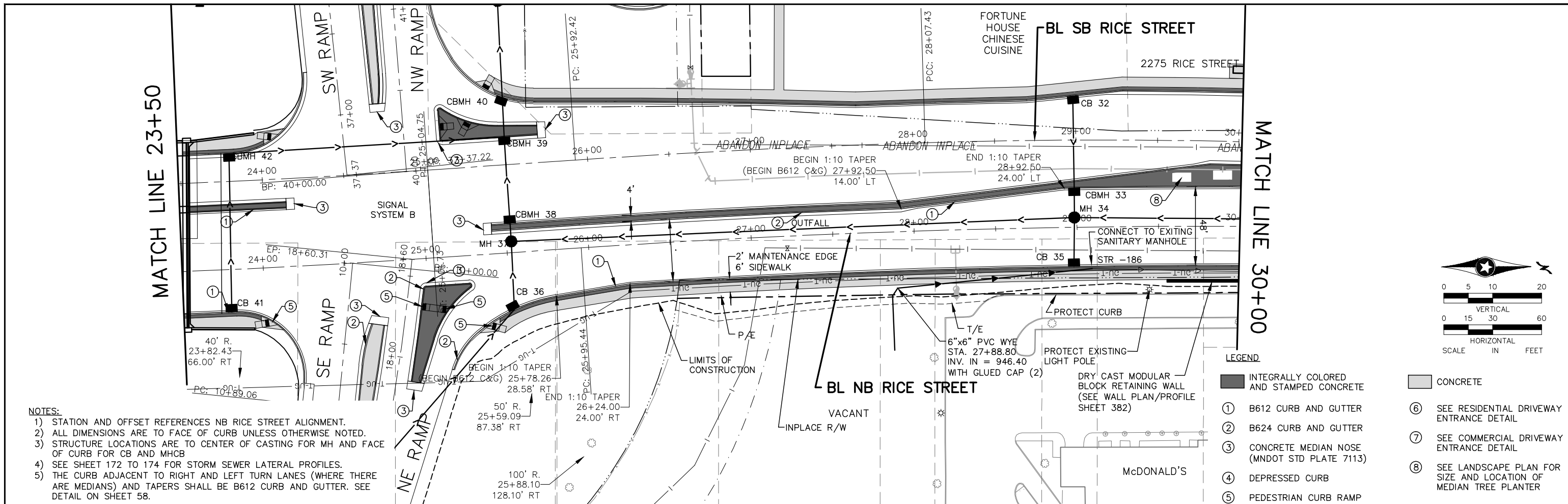
CONSTRUCTION & DRAINAGE PLAN
 NORTHBOUND RICE STREET

FILE NO. 160599001
CD2
 OF CD43

129
534

STA. 17+00 TO STA. 23+50

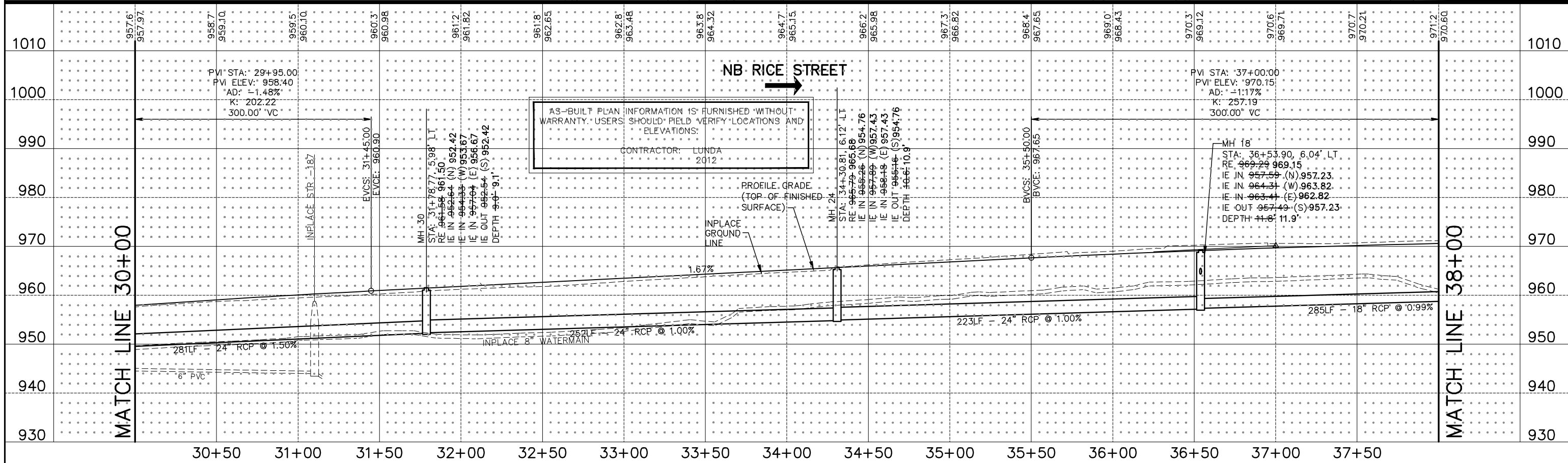
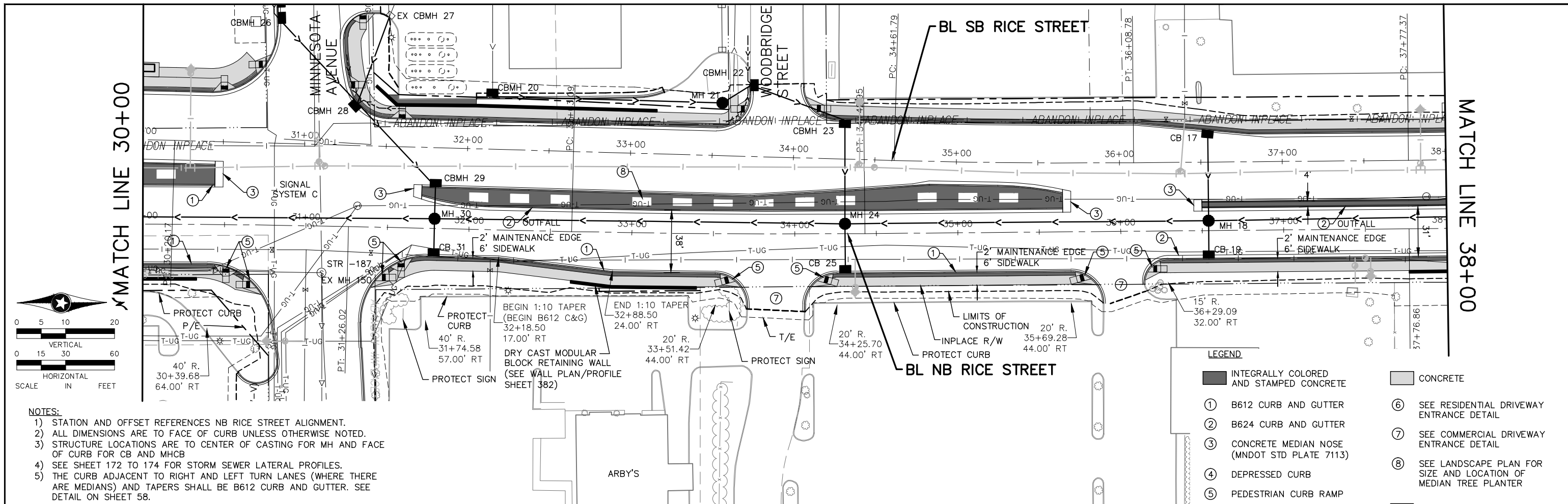
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AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

DESIGN TEAM				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.				Kimley-Horn and Associates, Inc. 2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116		RAMSEY COUNTY, MINNESOTA		CONSTRUCTION & DRAINAGE PLAN		FILE NO. 130	
DRAWN BY: RJG	CHECKED BY: BAE	DATE: 4/21/2011	PROJECT: SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION	Certified By: <i>Beth A. Engum</i> Licensed Professional Engineer No. 44785 Printed Name: BETH A. ENGUM Date: 4/22/2010						TH 36 / RICE STREET (CSAH 49)		NORTHBOUND RICE STREET		160599001	
NO. BY DATE				REVISIONS				SP NO. 62-649-27 CTB, 6212-165 (TH 36)		STA. 23+50 TO STA. 30+00		CD3 OF CD43		534	

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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL 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.

Certified By: *Beth A. Engum* Lic. No. 44785

Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.

2550 UNIVERSITY AVE. WEST, SUITE 3450
ST. PAUL, MINNESOTA 55114

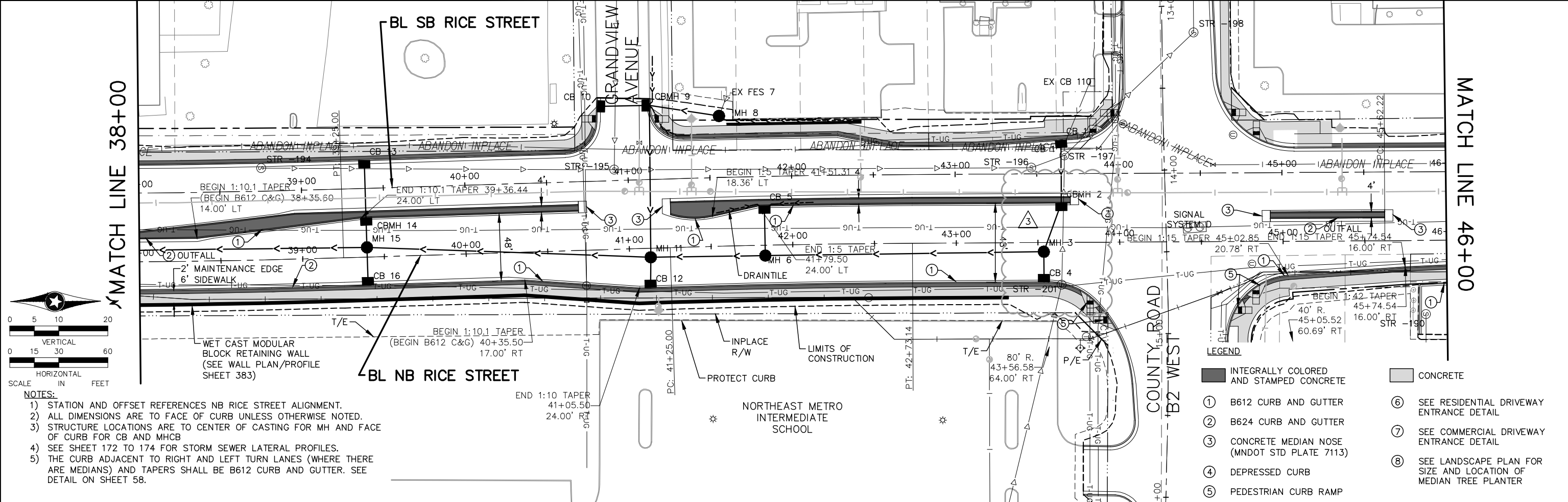
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
NORTHBOUND RICE STREET
STA. 30+00 TO STA. 38+00

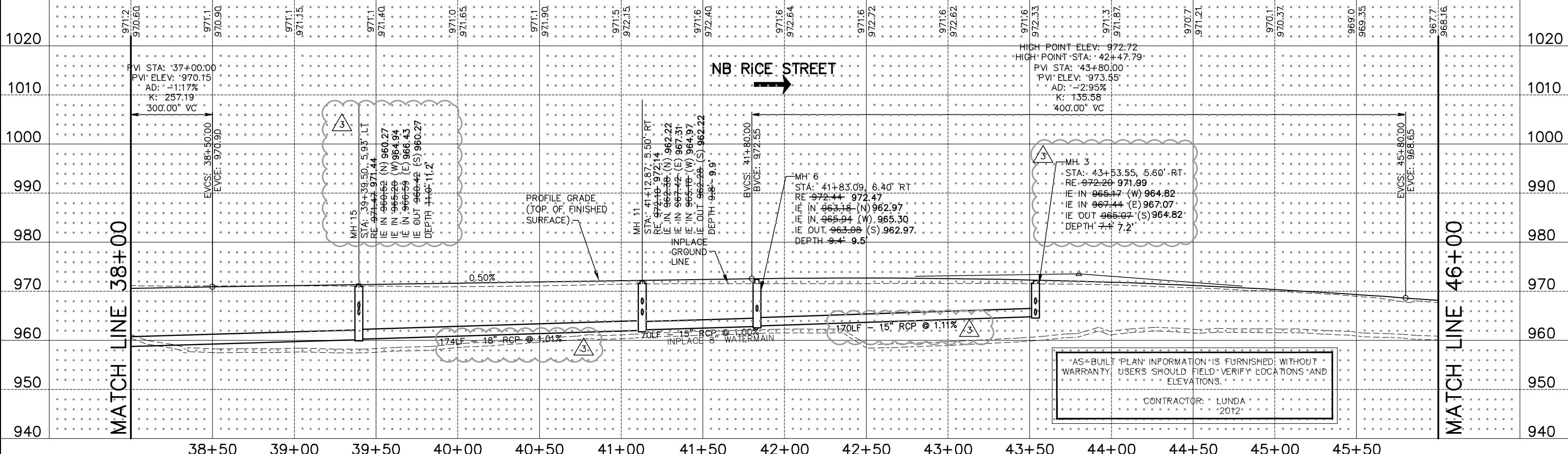
FILE NO.	131
160599001	
CD4	
OF CD43	534

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- LEGEND**
- ① B612 CURB AND GUTTER
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 - ④ DEPRESSED CURB
 - ⑤ PEDESTRIAN CURB RAMP
 - ⑥ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
3	BAE	8/26/2010	MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION

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.
 Certified By: *Beth A Engum* Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 3450
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

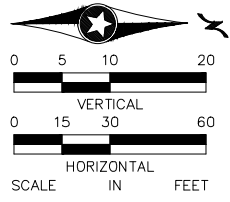
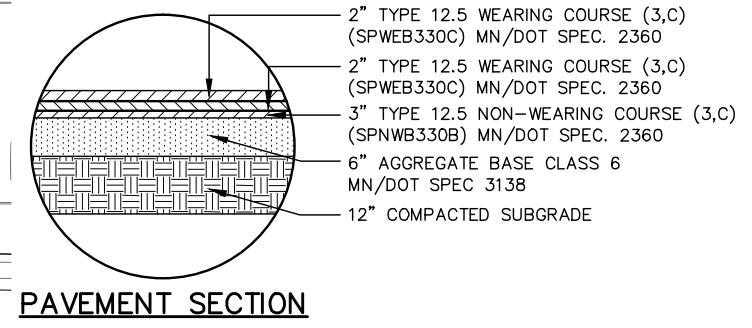
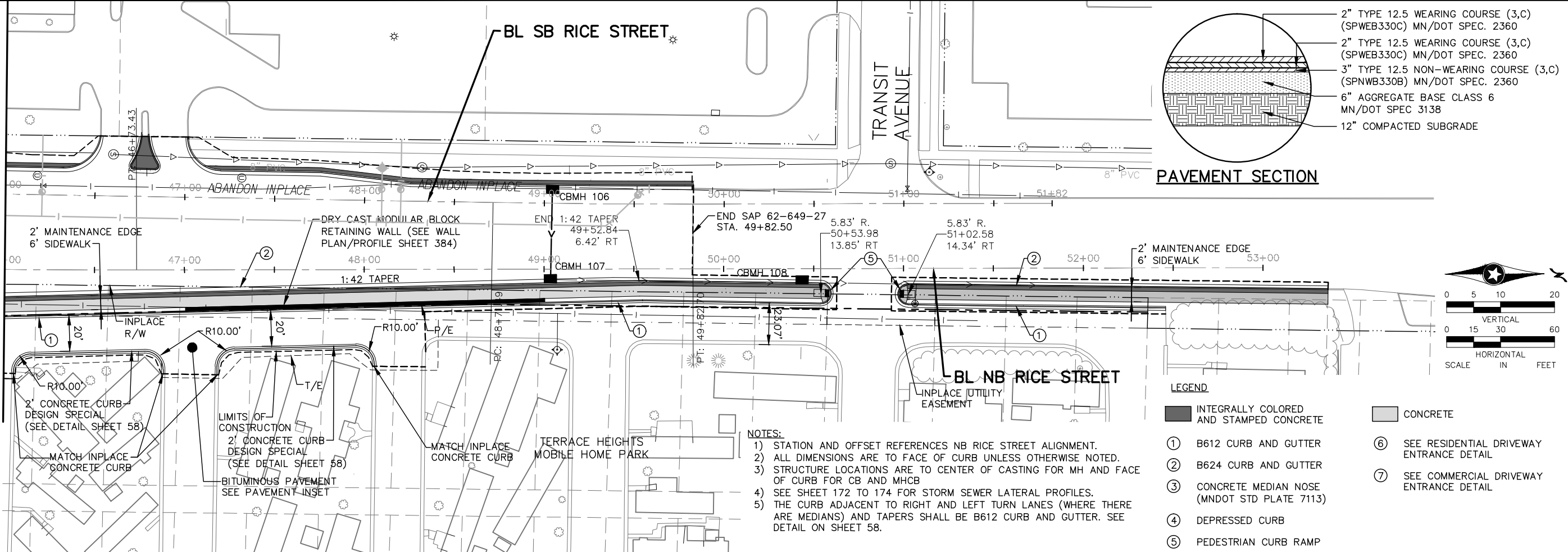
CONSTRUCTION & DRAINAGE PLAN
 NORTHBOUND RICE STREET
 STA. 38+00 TO STA. 46+00

FILE NO.	132
160599001	
CD5	
OF CD43	534

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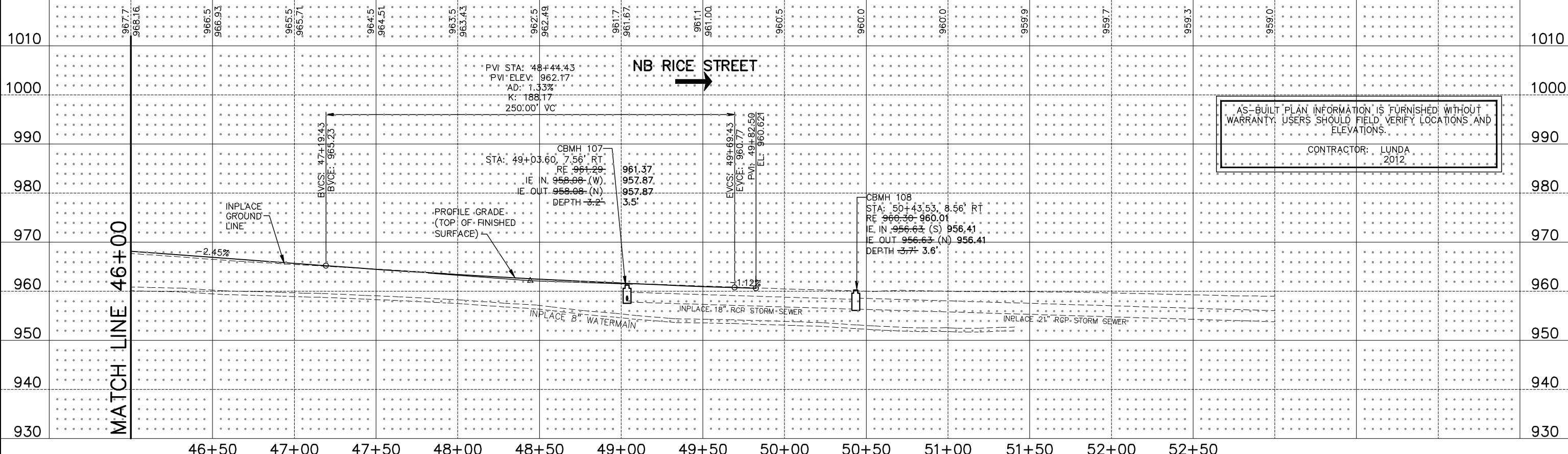
MATCH LINE 46+00

MATCH LINE 46+00



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- LEGEND**
- INTEGRALLY COLORED AND STAMPED CONCRETE
 - CONCRETE
 - ① B612 CURB AND GUTTER
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 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL



AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

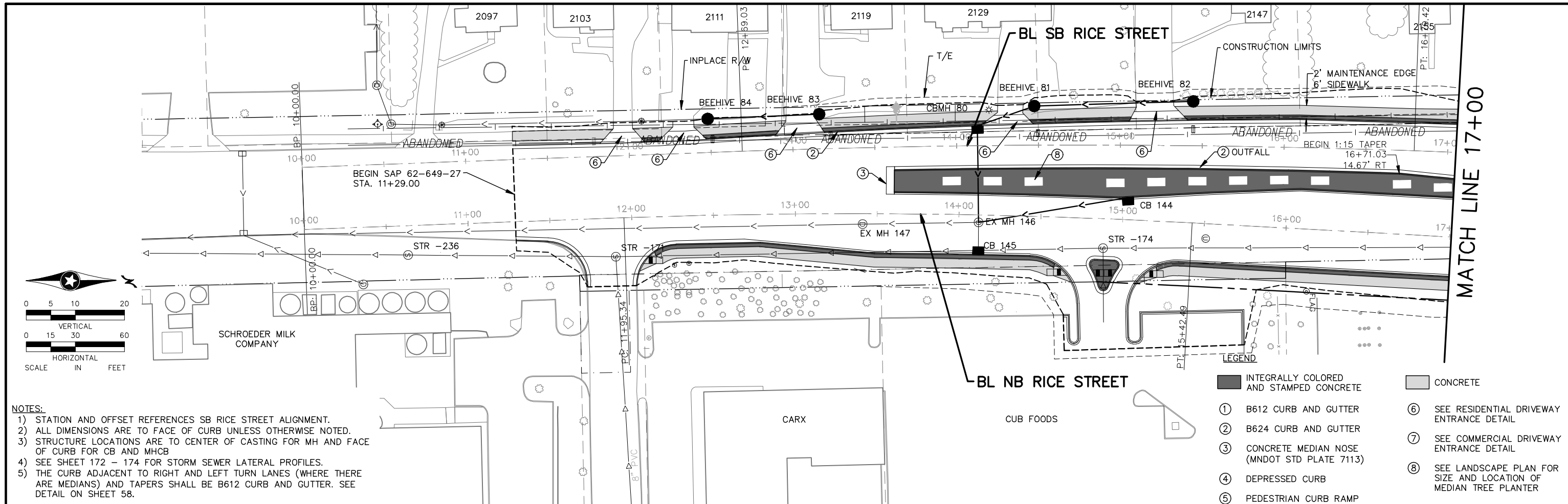
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 3450
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 NORTHBOUND RICE STREET
 STA. 46+00 TO STA. 53+00

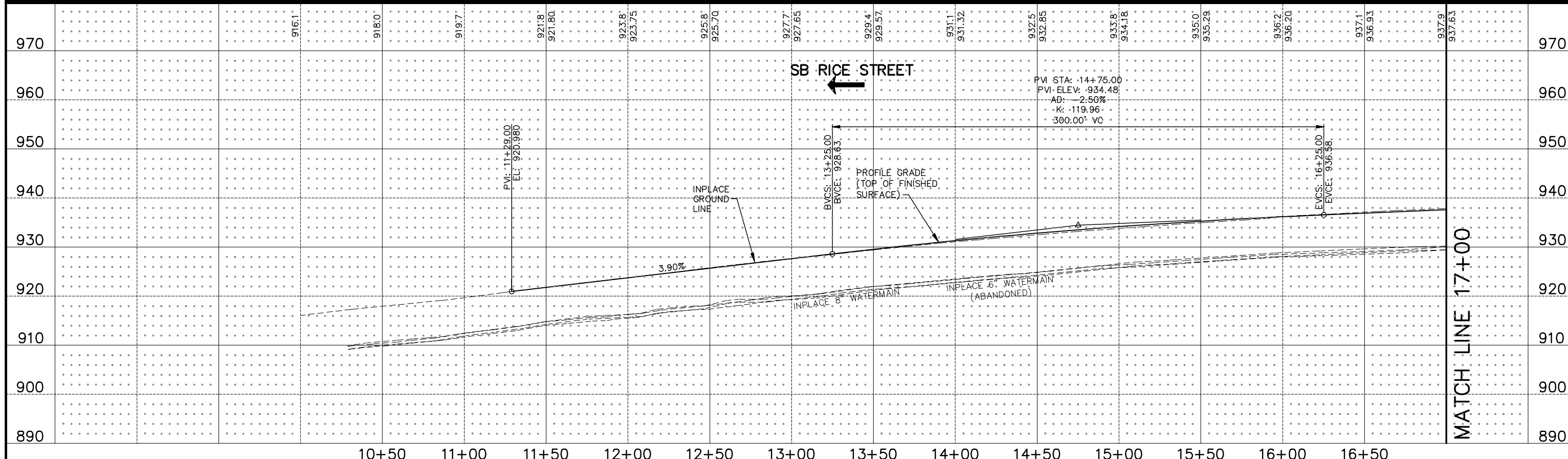
FILE NO.	133
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CD6	
OF CD43	534

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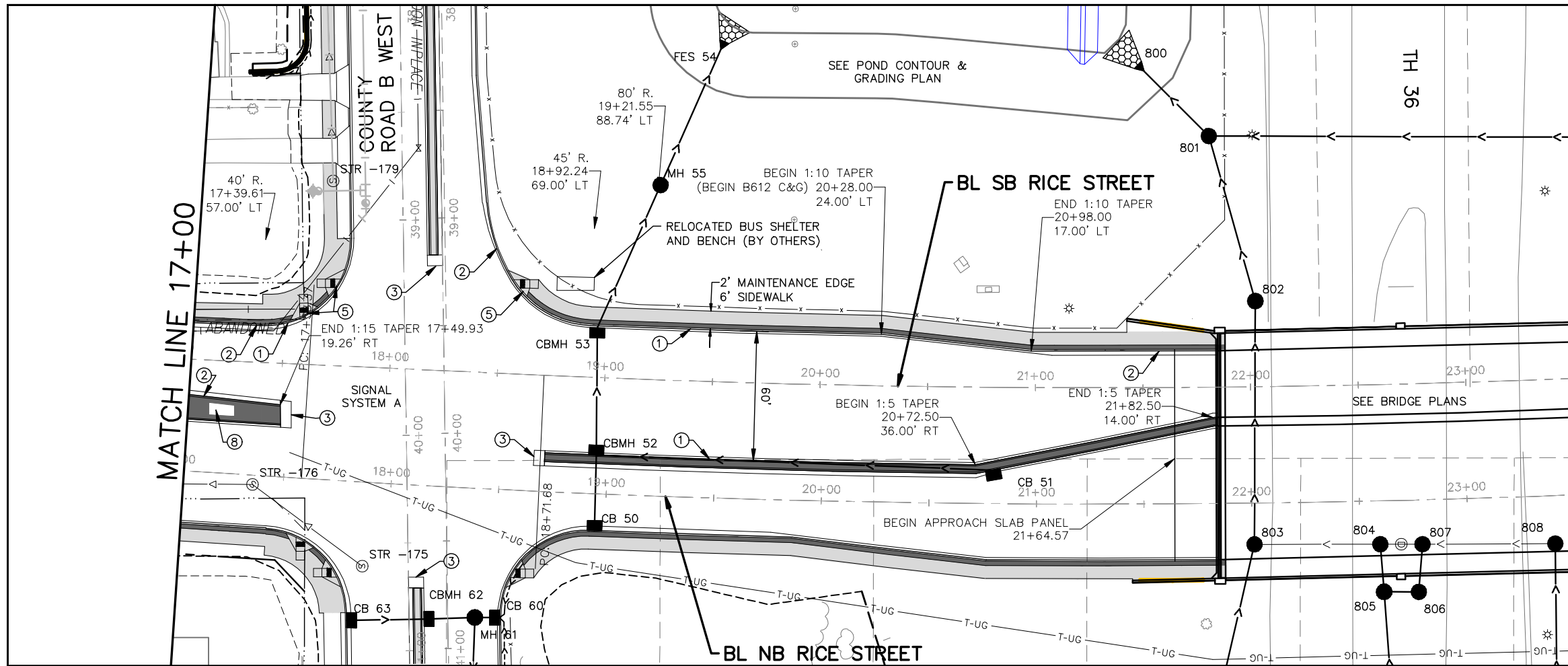
- NOTES:**
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- LEGEND**
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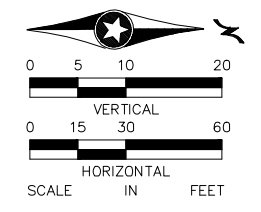


DESIGN TEAM		I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.			RAMSEY COUNTY, MINNESOTA		CONSTRUCTION & DRAINAGE PLAN		FILE NO.	134	
DRAWN BY:	RJG	Certified By: <i>Beth A. Engum</i> Lic. No. 44785			TH 36 / RICE STREET (CSAH 49)		SOUTHBOUND RICE STREET		160599001		
DESIGNER:	RJG	Printed Name: BETH A. ENGUM Date: 4/22/2010		2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114		SP NO. 62-649-27 CTB, 6212-165 (TH 36)		STA. 10+00 TO STA. 17+00		CD7	
CHECKED BY:	BAE			TEL NO. (651) 645-4197 FAX NO. (651) 645-5116						OF CD43	534
NO.	BY	DATE	REVISIONS								

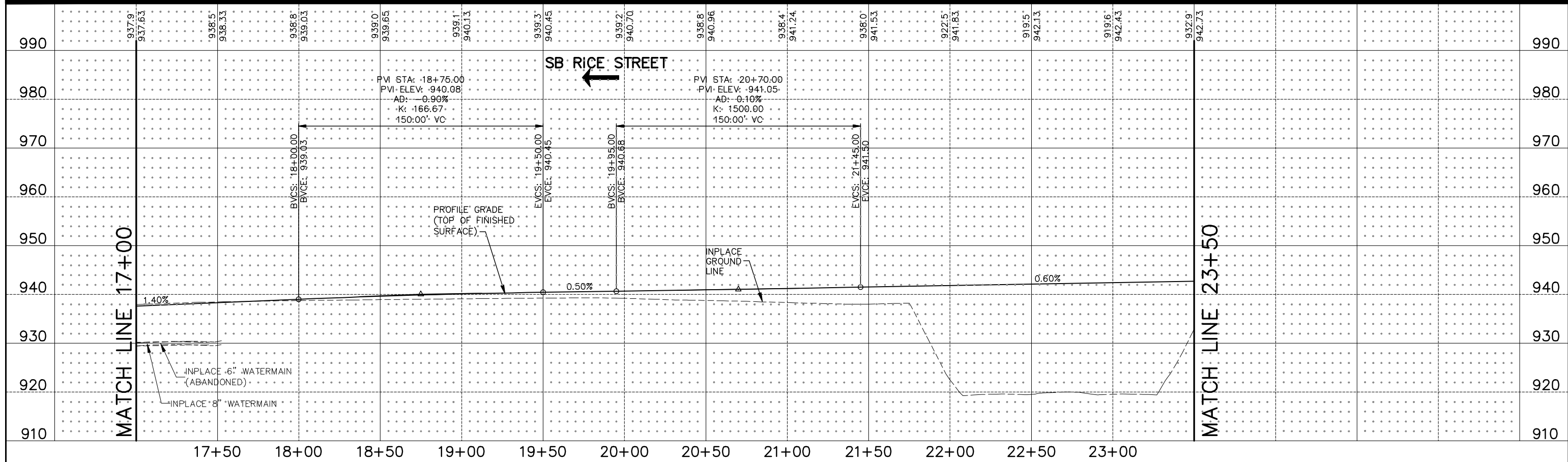
K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN_RICE_PPF08.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



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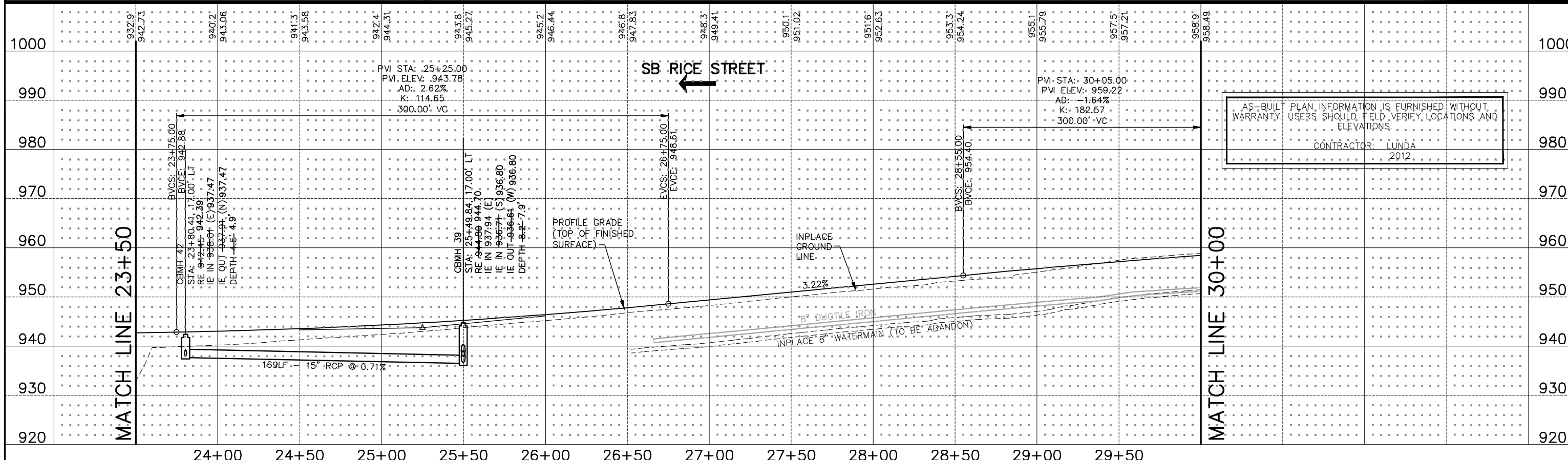
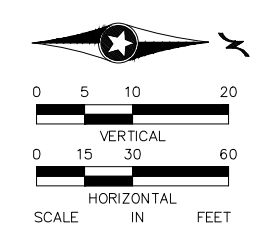
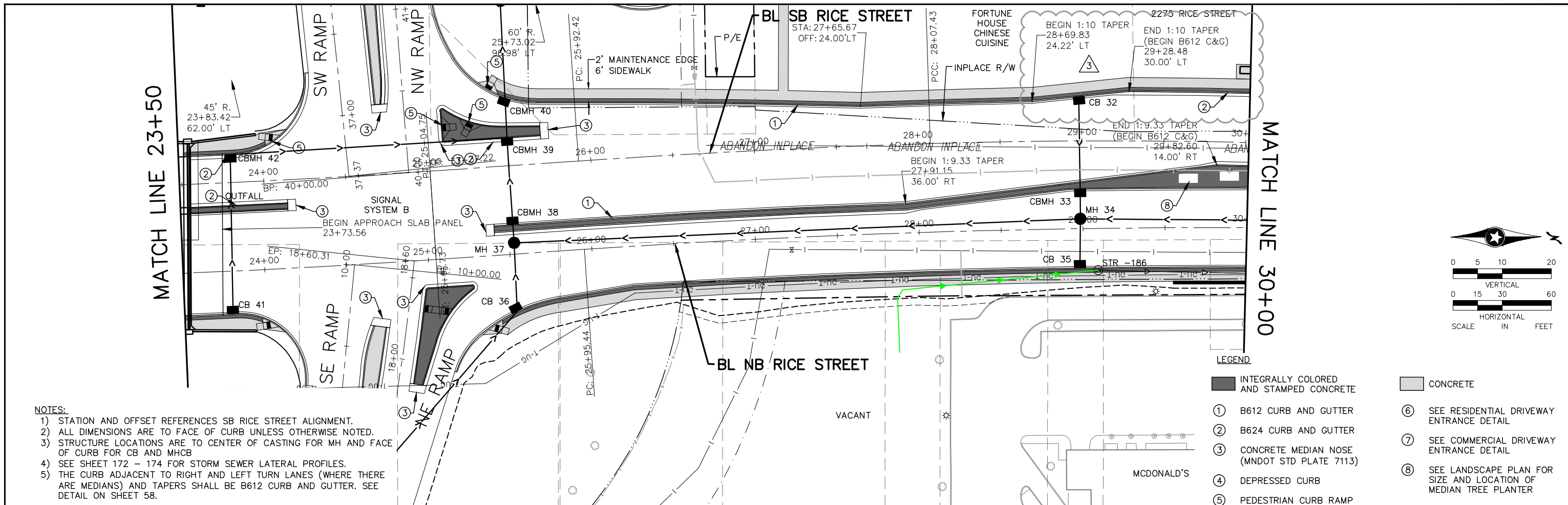


- LEGEND**
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DESIGN TEAM		I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Certified By: <i>Beth A. Engum</i> License No. 44785 Printed Name: BETH A. ENGUM Date: 4/22/2010		RAMSEY COUNTY, MINNESOTA		CONSTRUCTION & DRAINAGE PLAN		FILE NO.	135
DRAWN BY:	RJG			TH 36 / RICE STREET (CSAH 49)		SOUTHBOUND RICE STREET		160599001	
DESIGNER:	RJG			SP NO. 62-649-27 CTB, 6212-165 (TH 36)		STA. 17+00 TO STA. 23+50		CD8	
CHECKED BY:	BAE					OF CD43	534		
NO.	BY	DATE	REVISIONS						

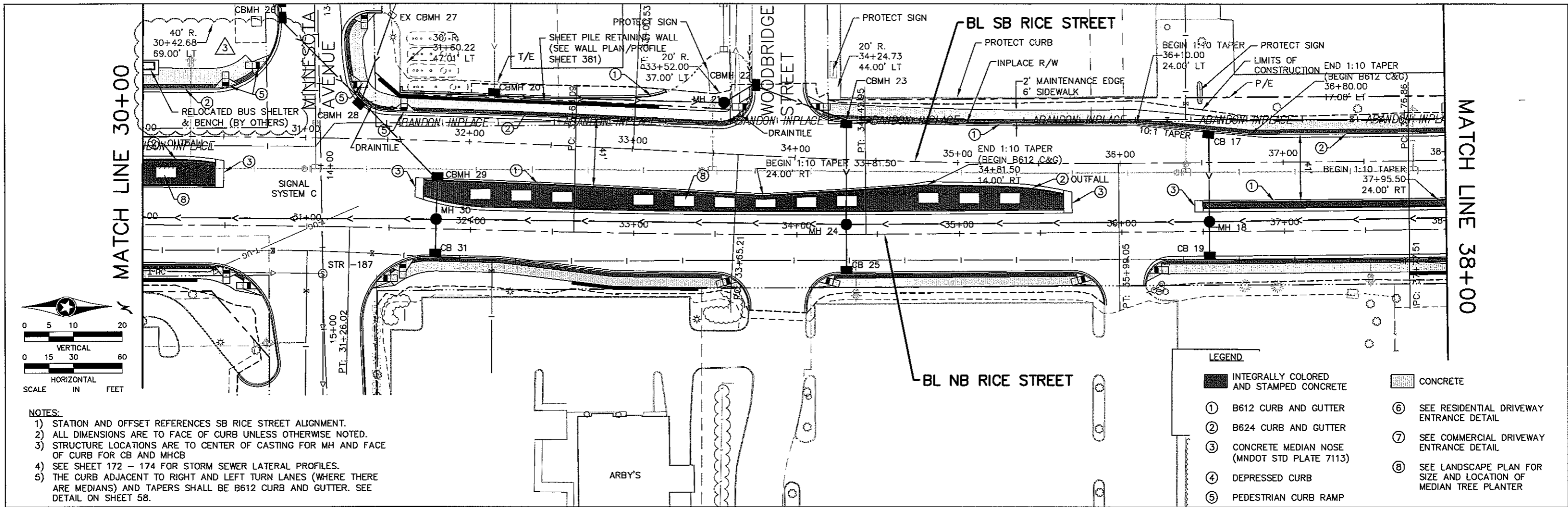
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CONTRACTOR: LUNDA 2012

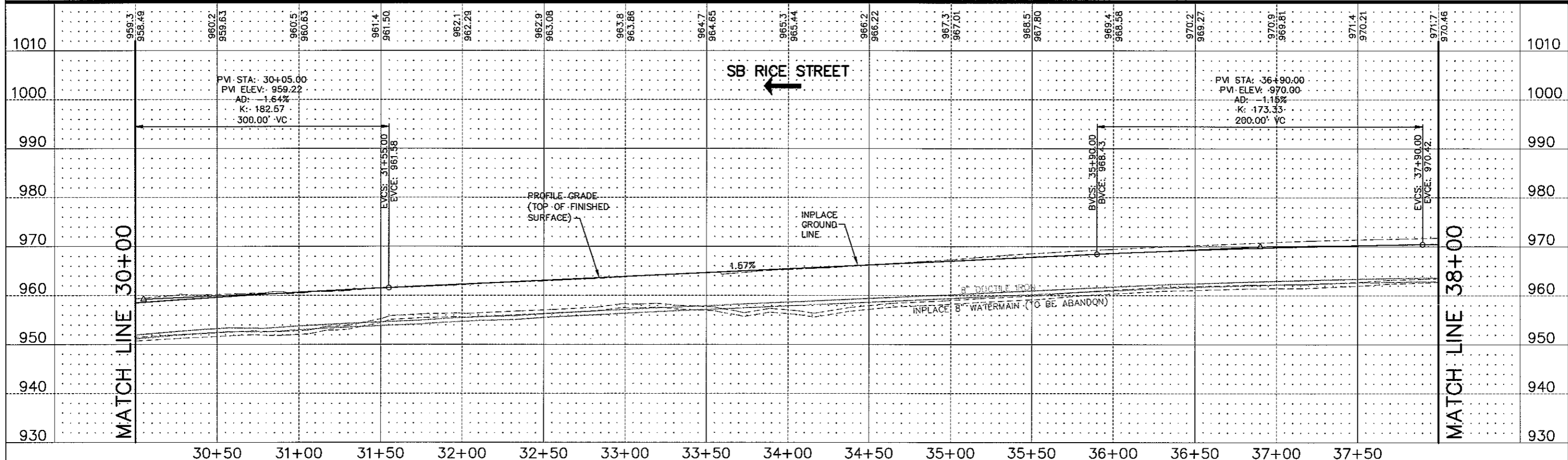
DESIGN TEAM				I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.				Kimley-Horn and Associates, Inc.				RAMSEY COUNTY, MINNESOTA				CONSTRUCTION & DRAINAGE PLAN				FILE NO. 136	
DRAWN BY: RJG				Certified By: Beth A. Engum, Lic. No. 44785				2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114				TH 36 / RICE STREET (CSAH 49)				SOUTHBOUND RICE STREET				160599001	
DESIGNER: RJG				Printed Name: BETH A. ENGUM Date: 4/22/2010				TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116				SP NO. 62-649-27 CTB, 6212-165 (TH 36)				STA. 23+50 TO STA. 30+00				CD9	
CHECKED BY: BAE																OF CD43				534	
NO.	BY	DATE	REVISIONS																		
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION																		
3	BAE	8/26/2010	MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION																		

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONSTR_PLAN\TH36_RICE_PFT0.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



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 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



DESIGN TEAM			
DRAWN BY: R/JG			
DESIGNER: R/JG			
CHECKED BY: BAE	3	BAE	8/26/2010
	NO.	BY	DATE
			MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION
			REVISIONS

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.

Certified By: *Beth Engum* Lic. No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.

2500 UNIVERSITY AVE. WEST, SUITE 345H
ST. PAUL, MINNESOTA 55114

RAMSEY COUNTY, MINNESOTA

TH 36 / RICE STREET (CSAH 49)

SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN

SOUTHBOUND RICE STREET

STA. 30+00 TO STA. 38+00

FILE NO. 137

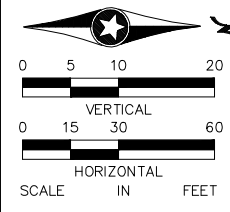
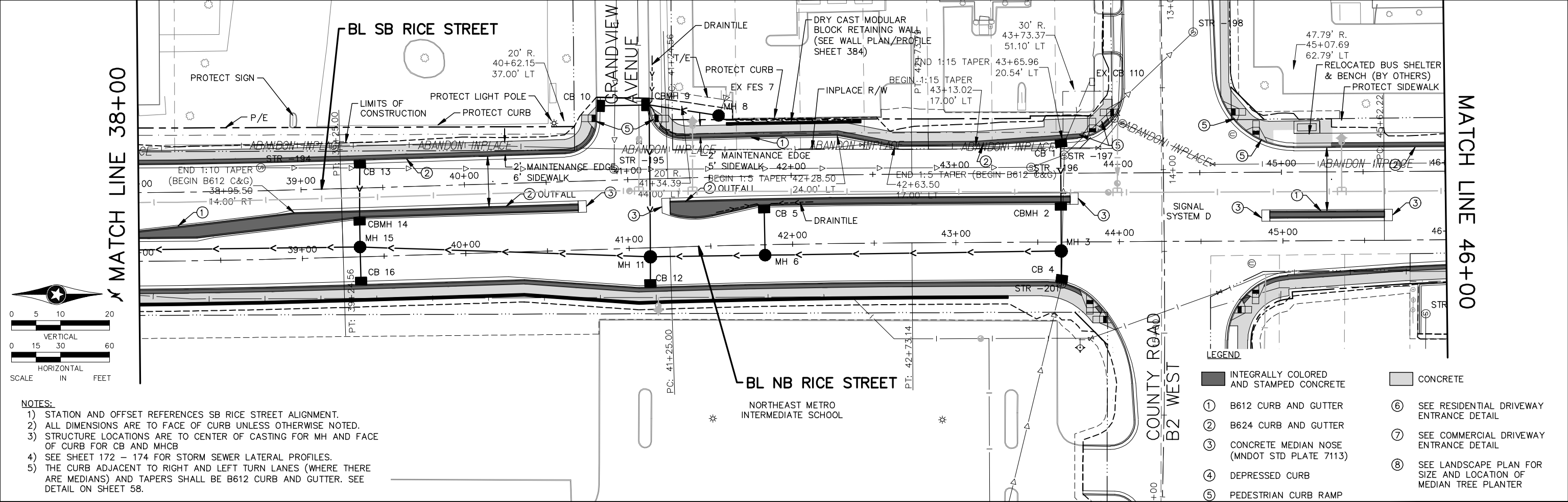
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CD10

OF CD43

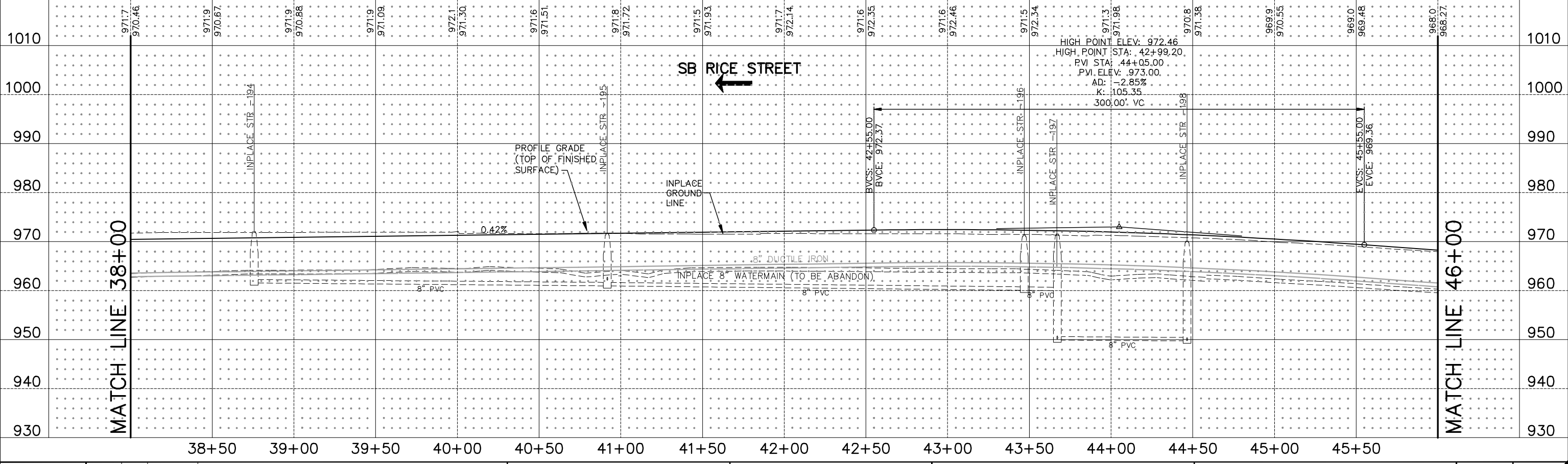
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K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN_RICE_TH36_PPF11.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



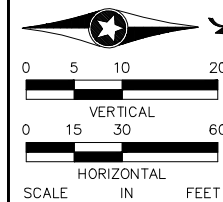
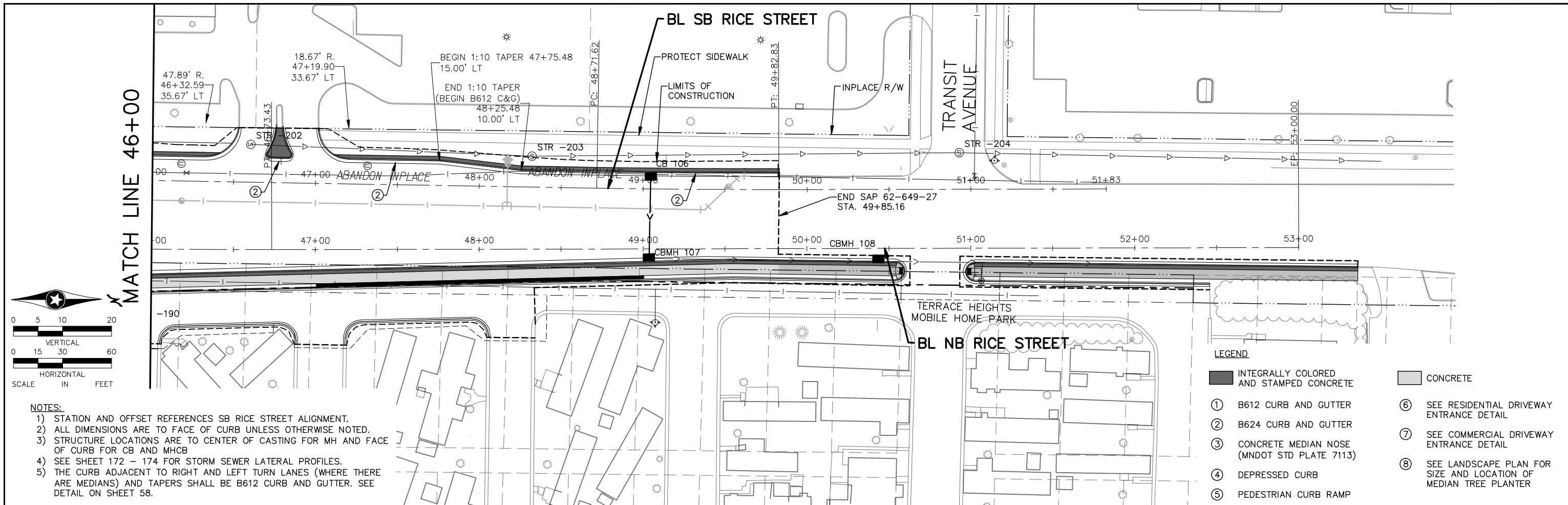
- NOTES:**
- 1) STATION AND OFFSET REFERENCES SB RICE STREET ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 - 4) SEE SHEET 172 - 174 FOR STORM SEWER LATERAL PROFILES.
 - 5) THE CURB ADJACENT TO RIGHT AND LEFT TURN LANES (WHERE THERE ARE MEDIANS) AND TAPERS SHALL BE B612 CURB AND GUTTER. SEE DETAIL ON SHEET 58.

- LEGEND**
- INTEGRALLY COLORED AND STAMPED CONCRETE
 - CONCRETE
 - ① B612 CURB AND GUTTER
 - ② B624 CURB AND GUTTER
 - ③ CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - ④ DEPRESSED CURB
 - ⑤ PEDESTRIAN CURB RAMP
 - ⑥ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



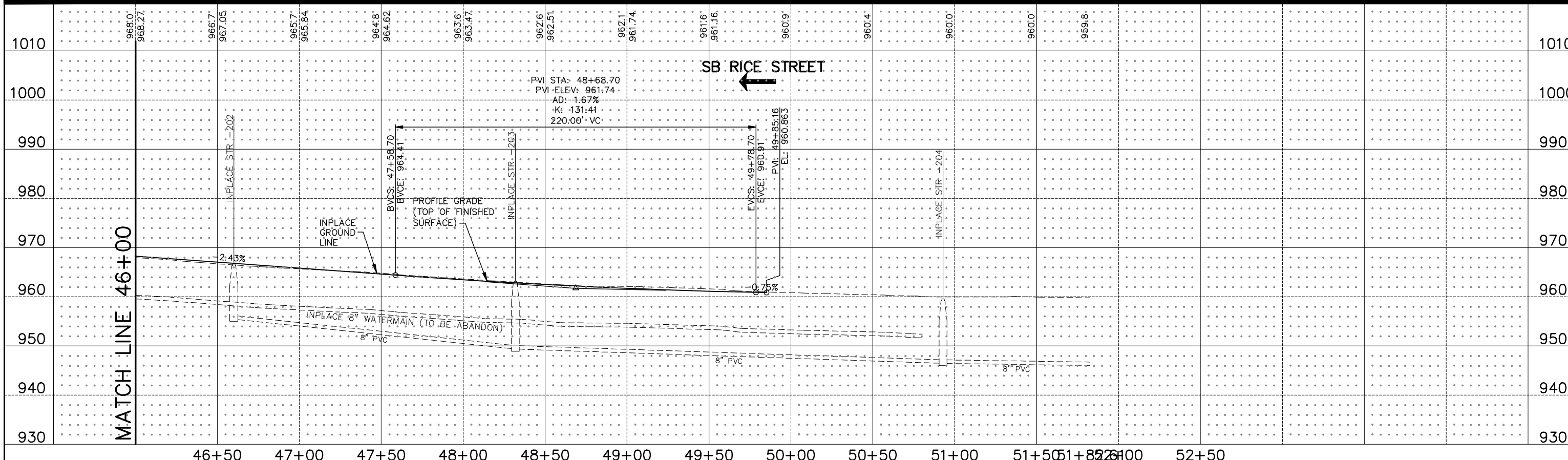
DESIGN TEAM		I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. <i>Beth A Engum</i> Certified By: <i>Beth A Engum</i> License No. 44785 Printed Name: <u>BETH A. ENGUM</u> Date: <u>4/22/2010</u>	Kimley-Horn and Associates, Inc. 2550 UNIVERSITY AVE. WEST, SUITE 349N ST. PAUL, MINNESOTA 55114 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116	RAMSEY COUNTY, MINNESOTA		CONSTRUCTION & DRAINAGE PLAN		FILE NO.	138
DRAWN BY: R/JG				TH 36 / RICE STREET (CSAH 49)		SOUTHBOUND RICE STREET		160599001	
DESIGNER: R/JG				SP NO. 62-649-27 CTB, 6212-165 (TH 36)		STA. 38+00 TO STA. 46+00		CD11	
CHECKED BY: BAE						OF CD43	534		

K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN_RICE_PPF12.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



- NOTES:**
- 1) STATION AND OFFSET REFERENCES SB RICE STREET ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
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- LEGEND**
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 - ① B612 CURB AND GUTTER
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 - ③ CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - ④ DEPRESSED CURB
 - ⑤ PEDESTRIAN CURB RAMP
 - ⑥ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Beth A Engum*
Licensed Professional Engineer, License No. 44785

Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.

2550 UNIVERSITY AVE. WEST, SUITE 349N
ST. PAUL, MINNESOTA 55114

TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA

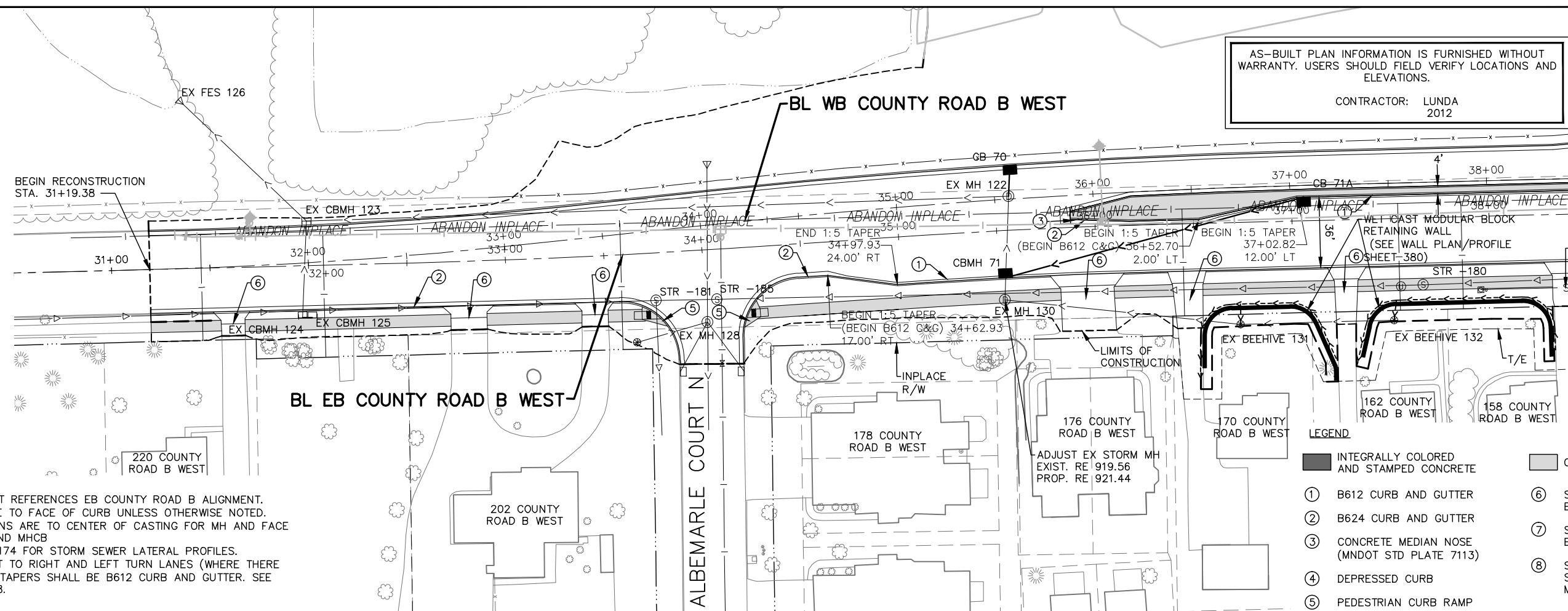
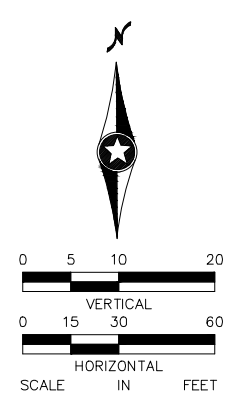
TH 36 / RICE STREET (CSAH 49)

SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN		FILE NO.	139
SOUTHBOUND RICE STREET		160599001	
STA. 46+00 TO STA. 53+00		CD12	
		OF CD43	534

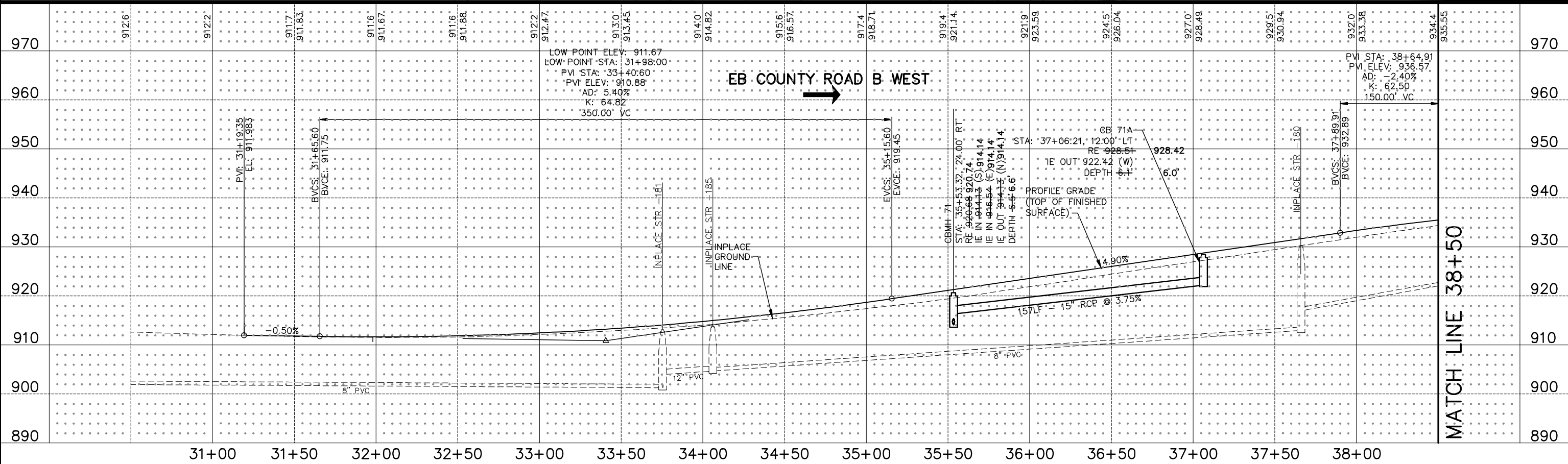
AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

MATCH LINE 38+50



- NOTES:**
- 1) STATION AND OFFSET REFERENCES EB COUNTY ROAD B ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
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 - 5) THE CURB ADJACENT TO RIGHT AND LEFT TURN LANES (WHERE THERE ARE MEDIANS) AND TAPERS SHALL BE B612 CURB AND GUTTER. SEE DETAIL ON SHEET 58.

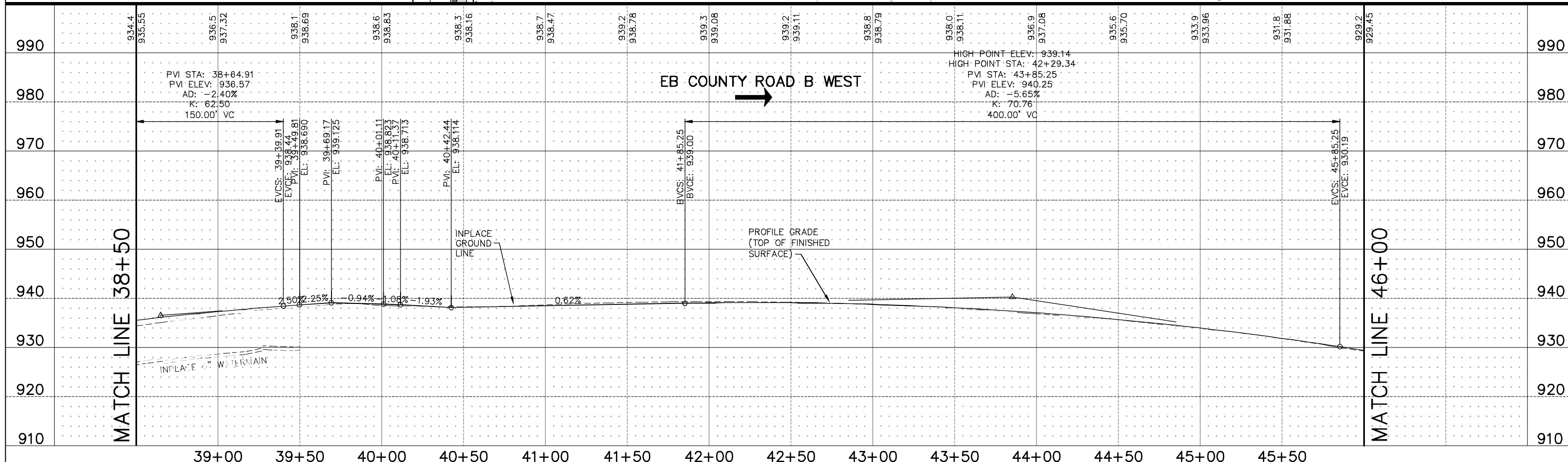
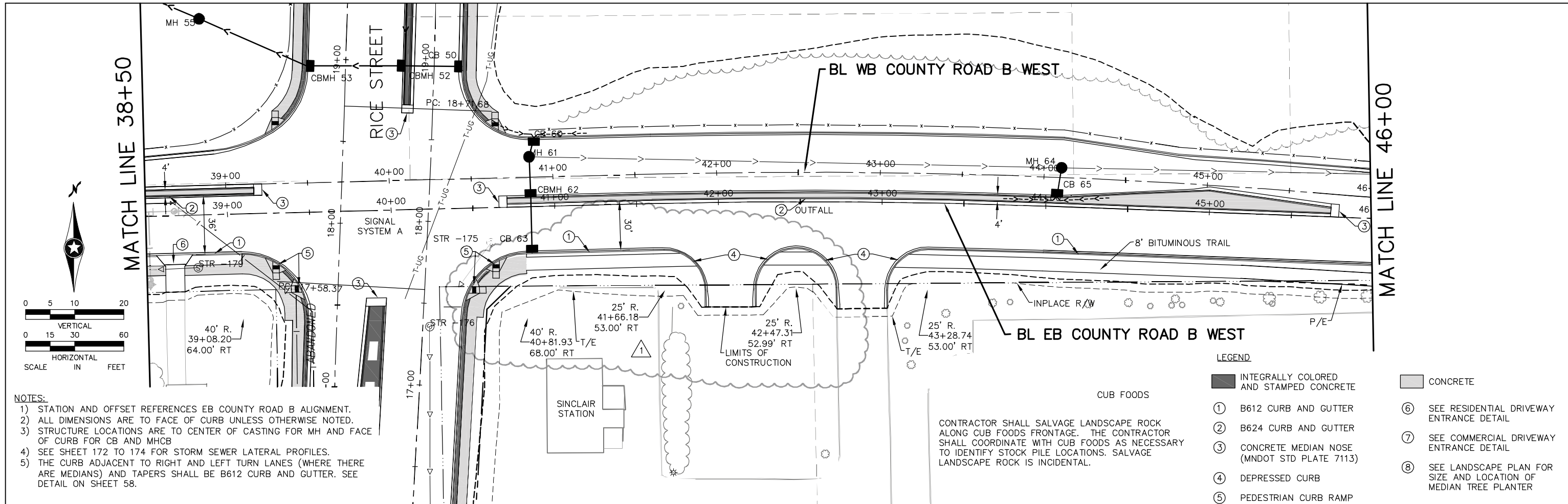
- LEGEND**
- ① INTEGRALLY COLORED AND STAMPED CONCRETE
 - ② CONCRETE
 - ③ B612 CURB AND GUTTER
 - ④ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑤ B624 CURB AND GUTTER
 - ⑥ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER
 - ⑨ DEPRESSED CURB
 - ⑩ PEDESTRIAN CURB RAMP



DRAWN BY: RJG CHECKED BY: BAE	NO. 4 BY BAE DATE 3/29/11 COUNTY ROAD B PROFILE	REVISIONS	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. Certified By: <i>Beth A. Engum</i> Lic. No. 44785 Printed Name: BETH A. ENGUM Date: 4/22/2010	2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116	RAMSEY COUNTY, MINNESOTA TH 36 / RICE STREET (CSAH 49) SP NO. 62-649-27 CTB, 6212-165 (TH 36)	CONSTRUCTION & DRAINAGE PLAN EASTBOUND COUNTY ROAD B WEST STA. 30+50 TO STA. 38+50	FILE NO. 140 160599001 CD13 OF CD43	534
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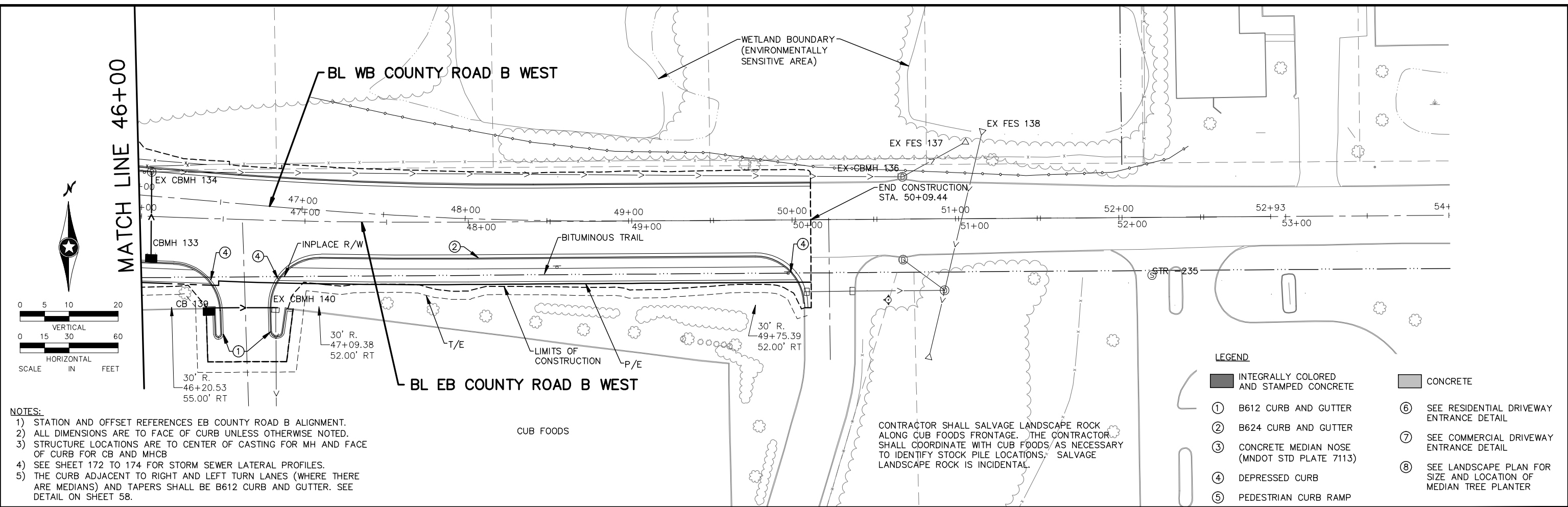
DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: RJG	4	BAE	3/29/11	COUNTY ROAD B PROFILE
DESIGNER: RJG	1	BAE	7/28/2010	COUNTY ROAD B CURB LINE
CHECKED BY: BAE				

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.	
Certified By: <i>Beth A. Engum</i>	Lic. No. 44785
Printed Name: BETH A. ENGUM	Date: 4/22/2010

Kimley-Horn and Associates, Inc.	2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114	TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116
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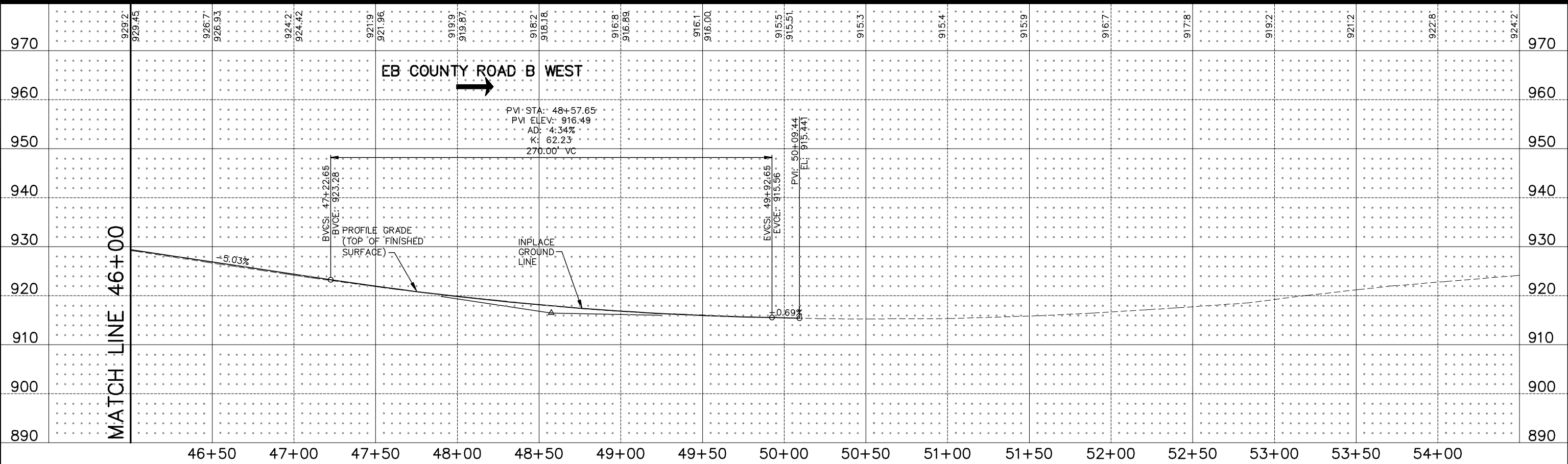
RAMSEY COUNTY, MINNESOTA	CONSTRUCTION & DRAINAGE PLAN	FILE NO. 141
TH 36 / RICE STREET (CSAH 49)	EASTBOUND COUNTY ROAD B WEST	160599001
SP NO. 62-649-27 CTB, 6212-165 (TH 36)	STA. 38+50 TO STA. 46+00	CD14 OF CD43

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONSTR_PLAN\RISE_PPT15.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



- NOTES:**
- 1) STATION AND OFFSET REFERENCES EB COUNTY ROAD B ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 - 4) SEE SHEET 172 TO 174 FOR STORM SEWER LATERAL PROFILES.
 - 5) THE CURB ADJACENT TO RIGHT AND LEFT TURN LANES (WHERE THERE ARE MEDIANS) AND TAPERS SHALL BE B612 CURB AND GUTTER. SEE DETAIL ON SHEET 58.

- LEGEND**
- | | | | |
|---|---|---|---|
| | INTEGRALLY COLORED AND STAMPED CONCRETE | | CONCRETE |
| ① | B612 CURB AND GUTTER | ⑥ | SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL |
| ② | B624 CURB AND GUTTER | ⑦ | SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL |
| ③ | CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113) | ⑧ | SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER |
| ④ | DEPRESSED CURB | | |
| ⑤ | PEDESTRIAN CURB RAMP | | |



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

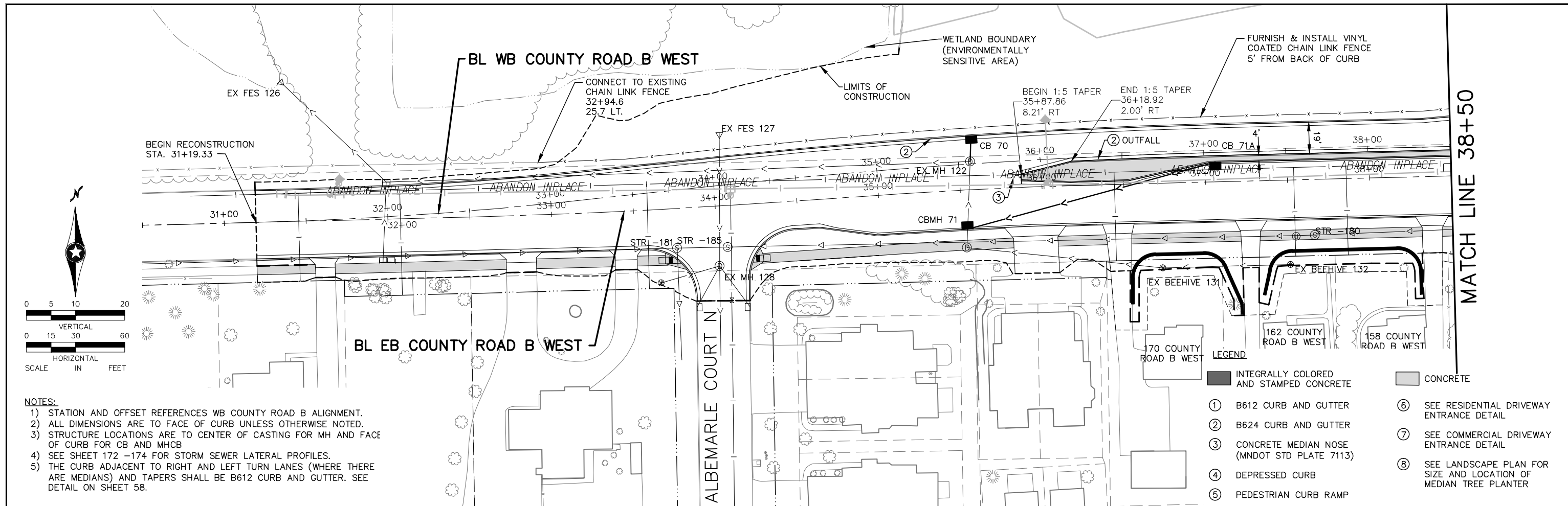
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 EASTBOUND COUNTY ROAD B WEST
 STA. 46+00 TO STA. 54+00

FILE NO. 160599001	142
CD15 OF CD43	
534	

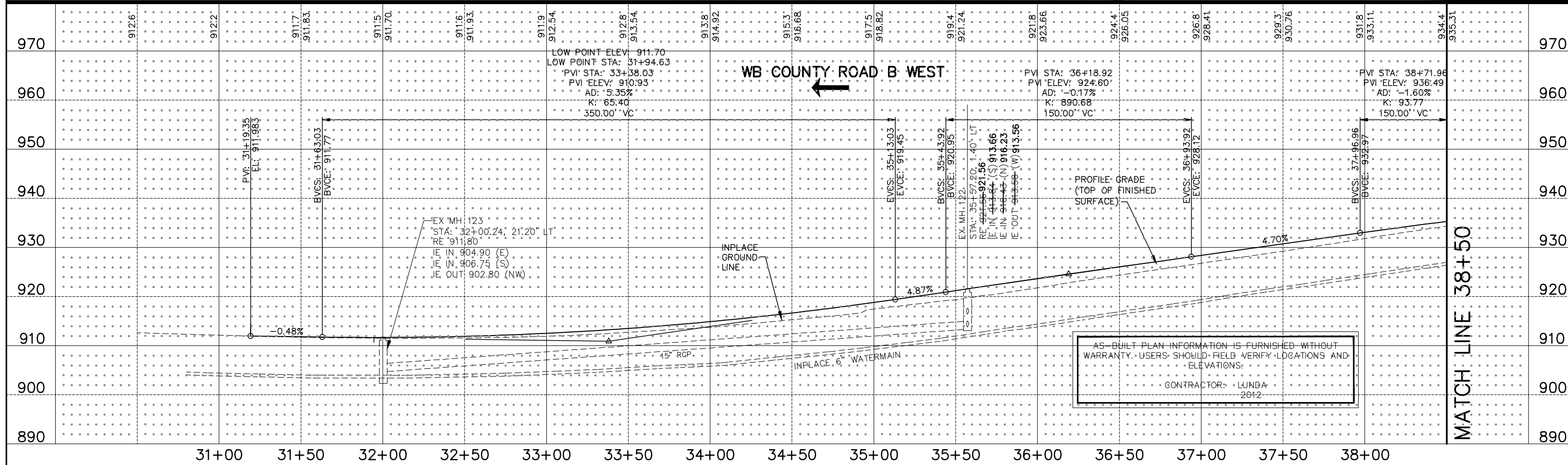
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NOTES:

- 1) STATION AND OFFSET REFERENCES WB COUNTY ROAD B ALIGNMENT.
- 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHC.
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 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
4	BAE	3/29/11	COUNTY ROAD B PROFILE

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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

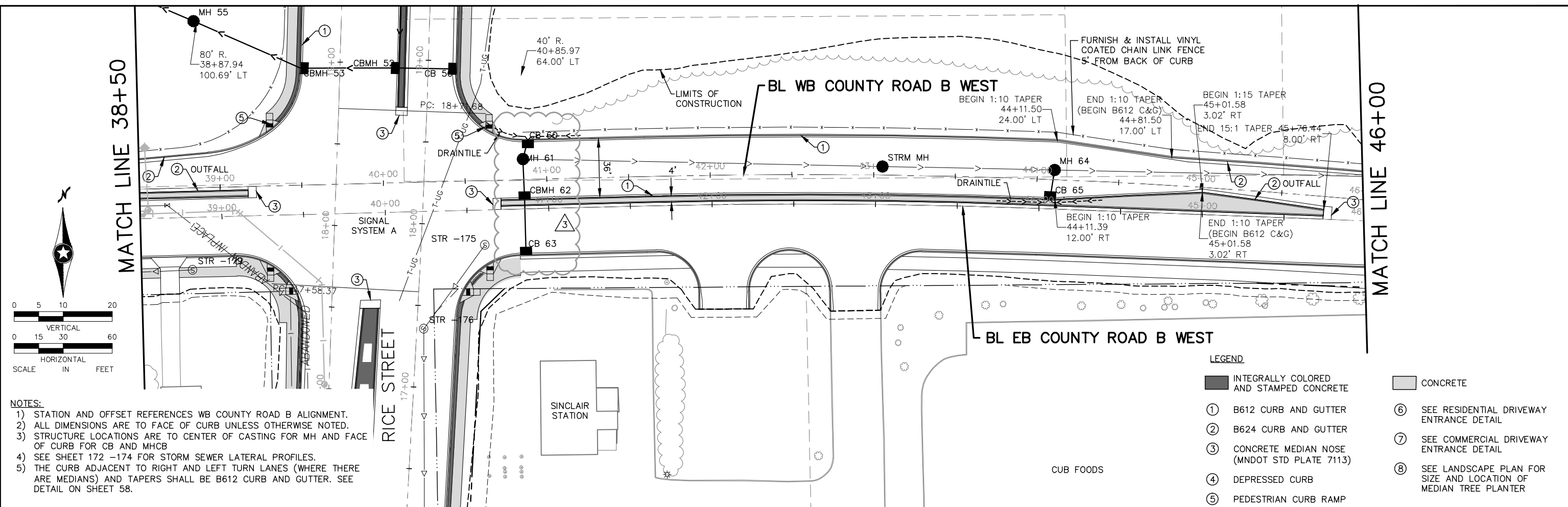
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 3400
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 WESTBOUND COUNTY ROAD B WEST
 STA. 30+50 TO STA. 38+50

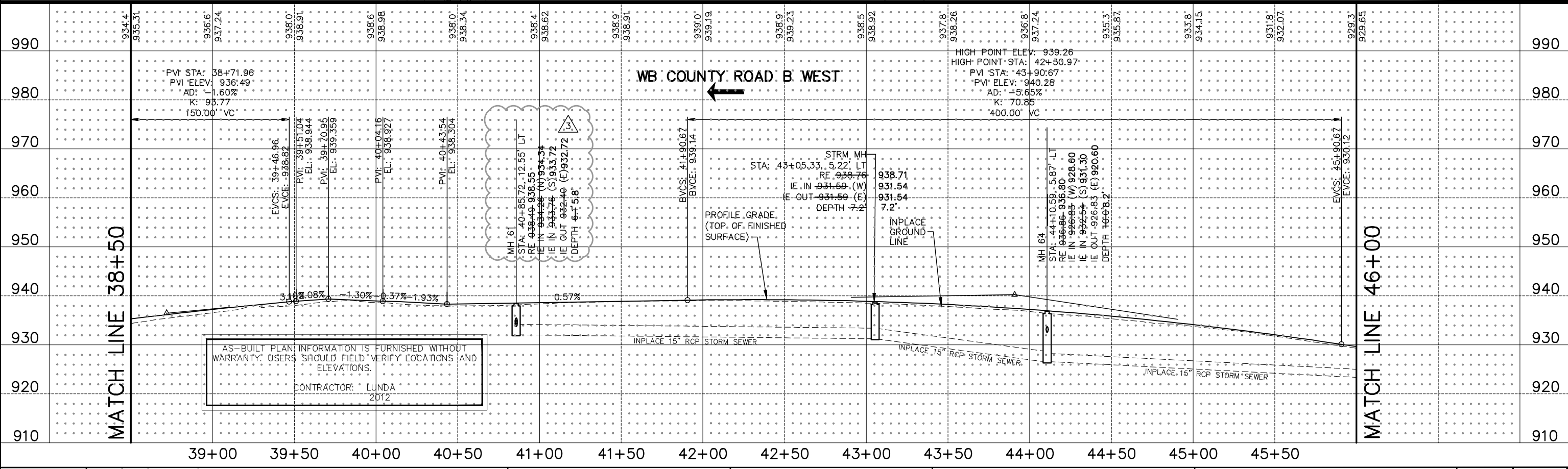
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OF CD43	534

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- NOTES:**
- 1) STATION AND OFFSET REFERENCES WB COUNTY ROAD B ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
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 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

DRAWN BY:	RJG	NO.	BY	DATE	REVISIONS
CHECKED BY:	BAE	4	BAE	3/29/11	COUNTY ROAD B PROFILE
	RJG	3	BAE	8/26/2010	MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION

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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

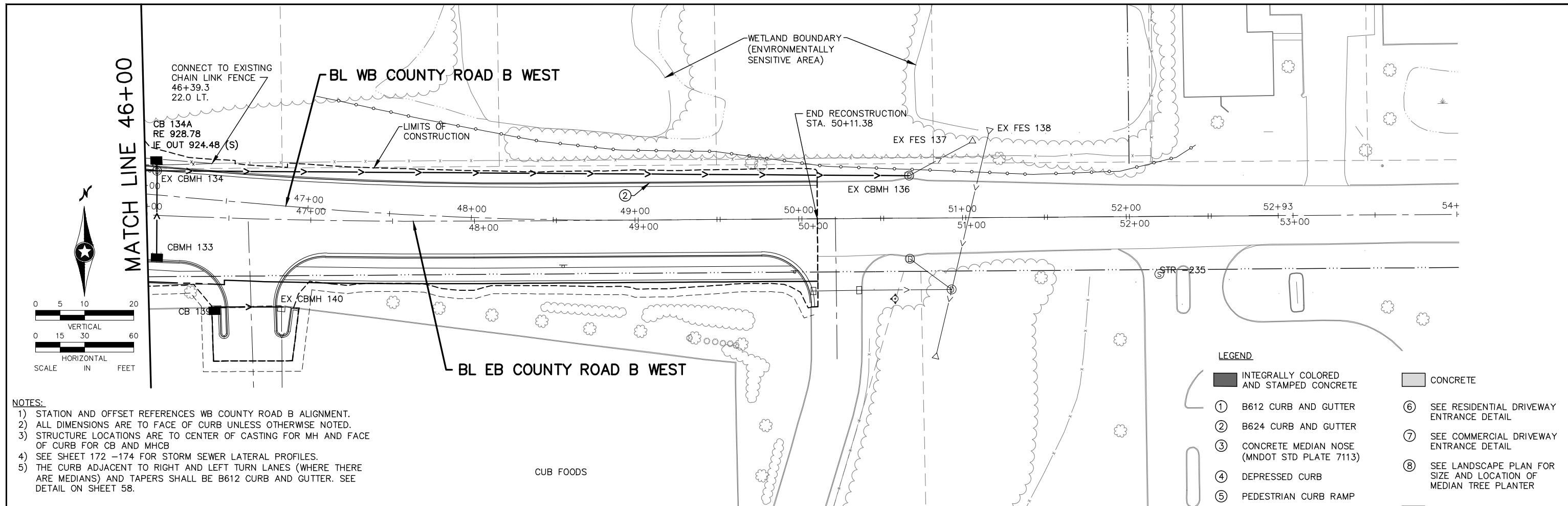
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 3450 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 WESTBOUND COUNTY ROAD B WEST
 STA. 38+50 TO STA. 46+00

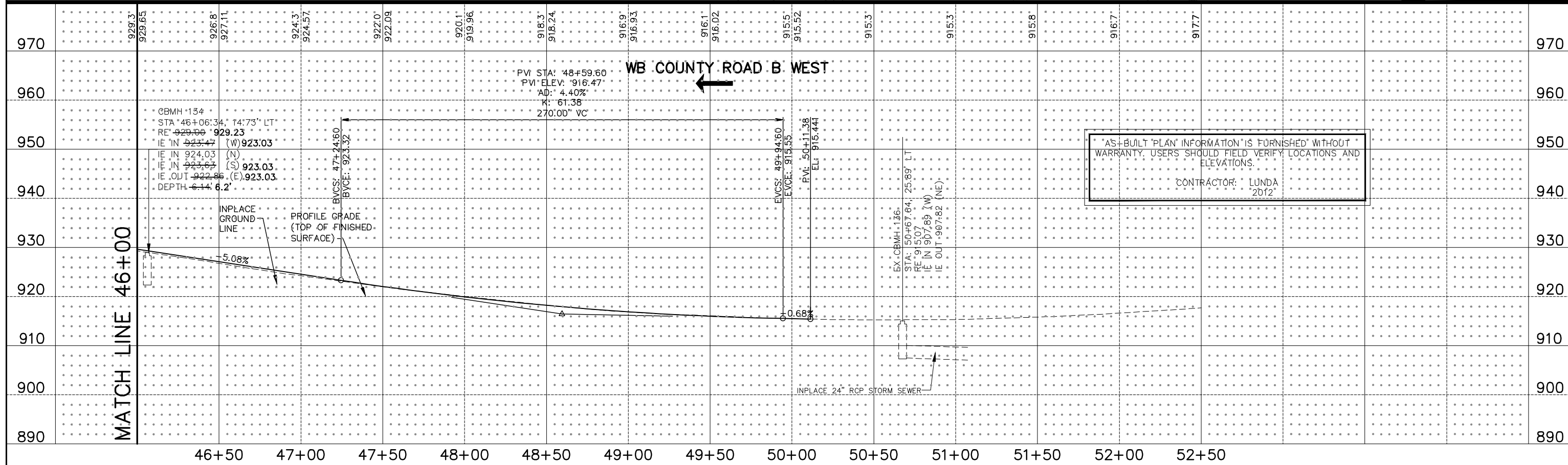
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OF CD43	534

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NOTES:

- 1) STATION AND OFFSET REFERENCES WB COUNTY ROAD B ALIGNMENT.
- 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
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DRAWN BY:	RJG				
CHECKED BY:	BAE				
NO.	BY	DATE	REVISIONS		

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Licensed Professional Engineer
Printed Name: BETH A. ENGUM Date: 3/3/2010

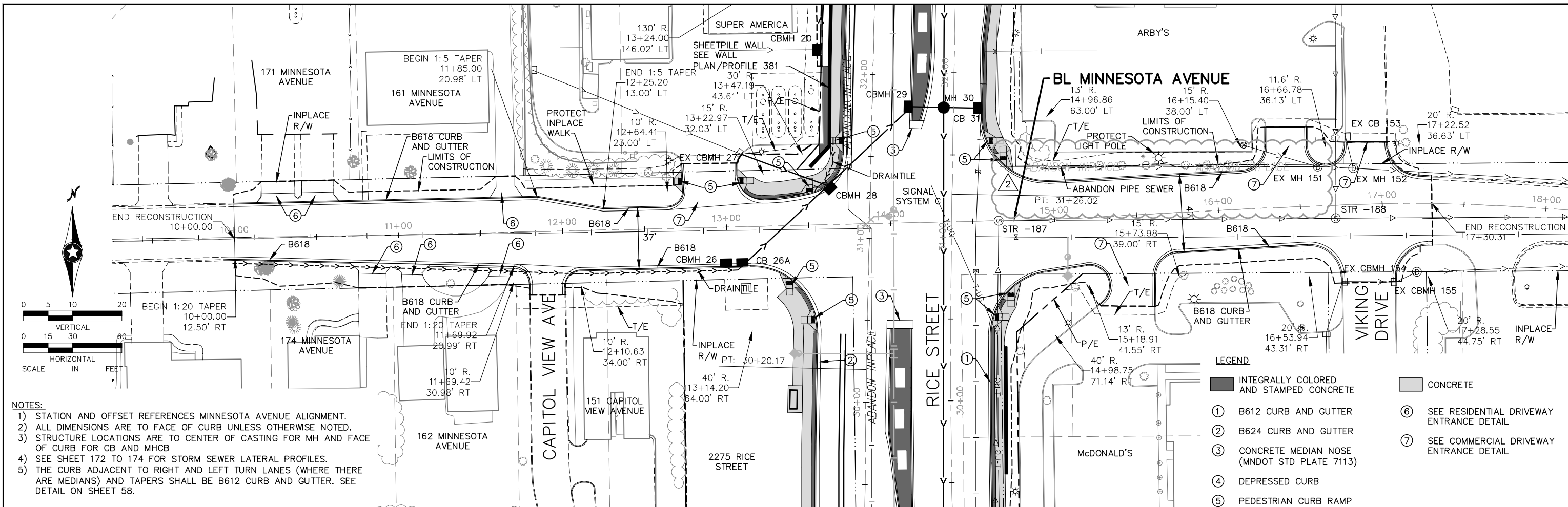
Kimley-Horn and Associates, Inc.
2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
WESTBOUND COUNTY ROAD B WEST
STA. 46+00 TO STA. 54+00

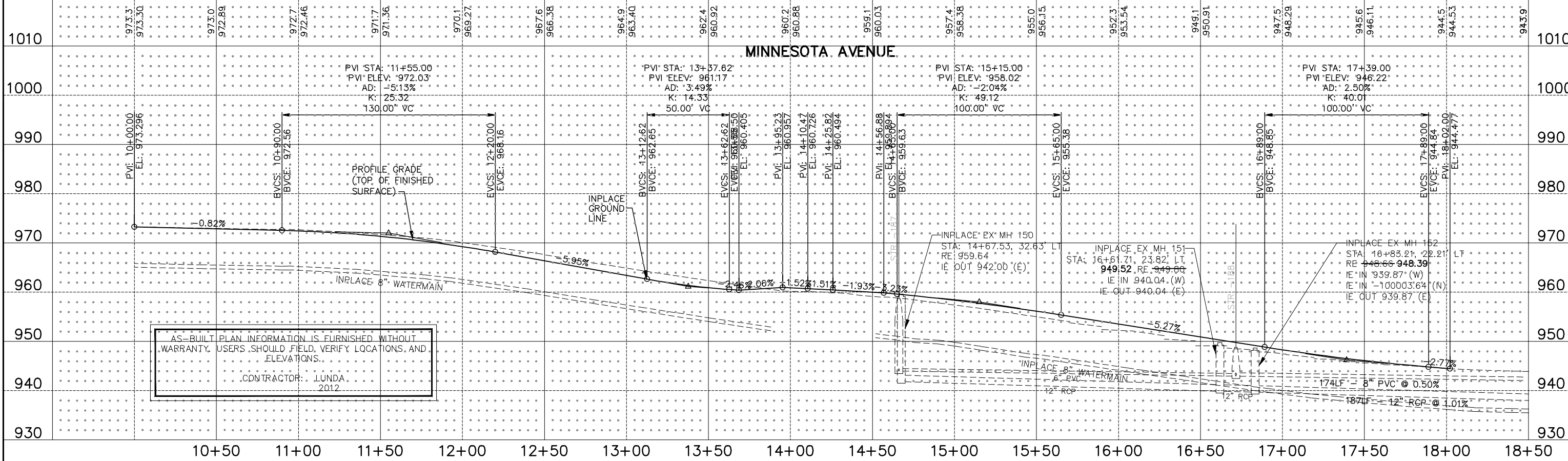
FILE NO. 145
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CD18 OF CD43
534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN_RICE_PPF19.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



- NOTES:**
- 1) STATION AND OFFSET REFERENCES MINNESOTA AVENUE ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MCHB
 - 4) SEE SHEET 172 TO 174 FOR STORM SEWER LATERAL PROFILES.
 - 5) THE CURB ADJACENT TO RIGHT AND LEFT TURN LANES (WHERE THERE ARE MEDIANS) AND TAPERS SHALL BE B612 CURB AND GUTTER. SEE DETAIL ON SHEET 58.

- LEGEND**
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 - CONCRETE
 - B612 CURB AND GUTTER
 - B624 CURB AND GUTTER
 - CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - DEPRESSED CURB
 - PEDESTRIAN CURB RAMP
 - SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL



AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
	6	BAE	4/19/2011
	2	BAE	8/09/2010
	NO.	BY	DATE

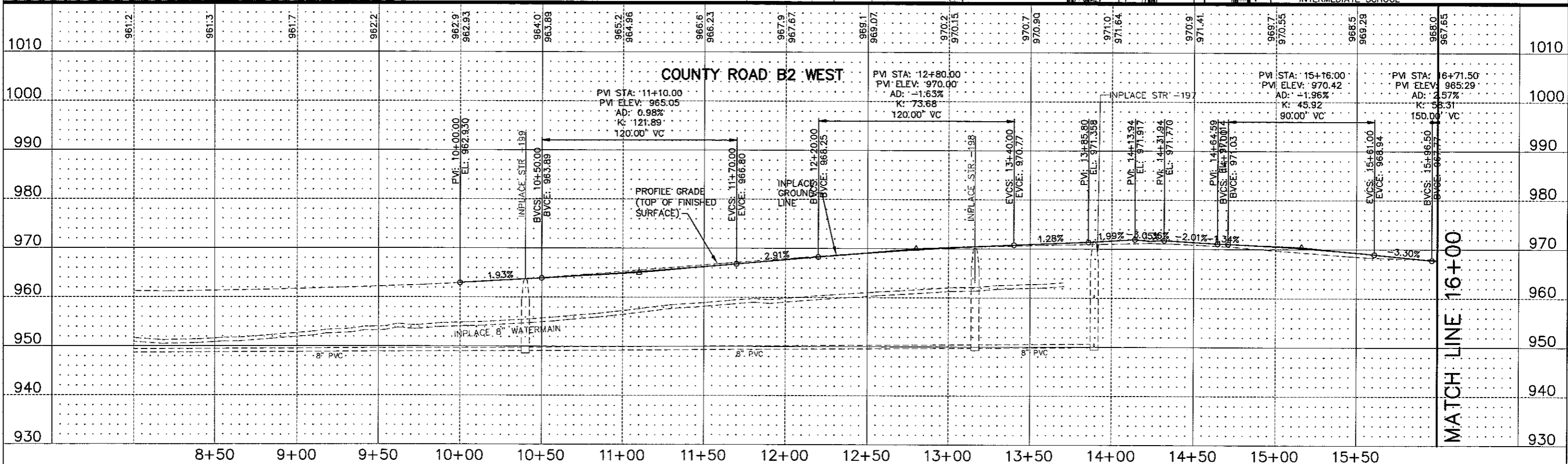
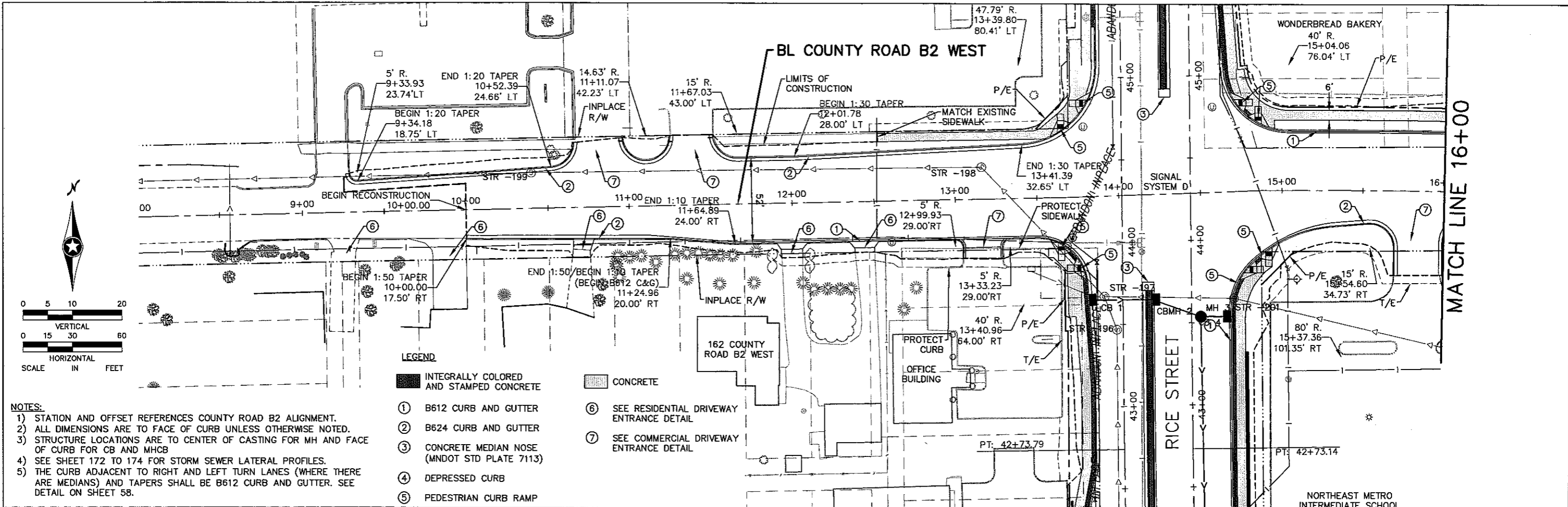
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: Beth A. Engum Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN		FILE NO.
MINNESOTA AVENUE		146
STA. 10+00 TO STA. 17+50		CD19
		OF CD43
		534

K:\TWC\CIVIL\COUNTY\RAMSEY\ICE_TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\ICE_PPFD20.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



NO.	BY	DATE	REVISIONS
2	BAE	8/09/2010	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS 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.
 Certified By: *Beth Englum* License No. 44785
 Printed Name: BETH A. ENGLUM Date: 4/22/2010

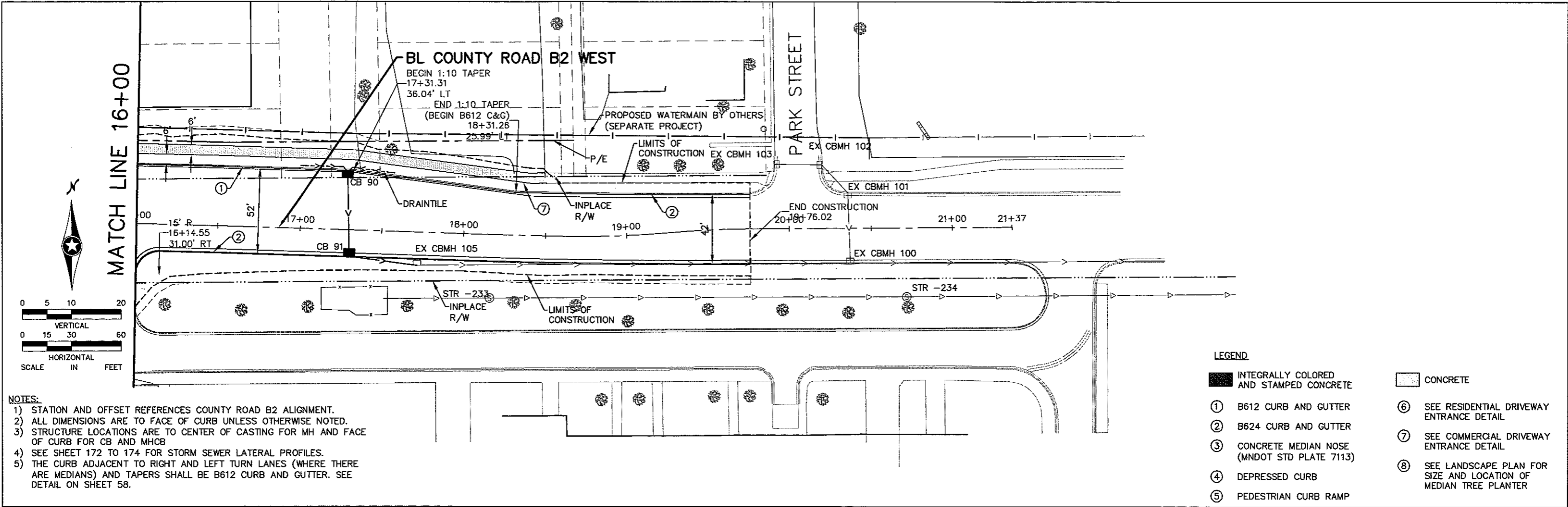
Kimley-Horn and Associates, Inc.
 2500 UNIVERSITY AVE. WEST, SUITE 345H
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX NO. (651) 645-5118

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 COUNTY ROAD B2 WEST
 STA. 8+00 TO STA. 16+00

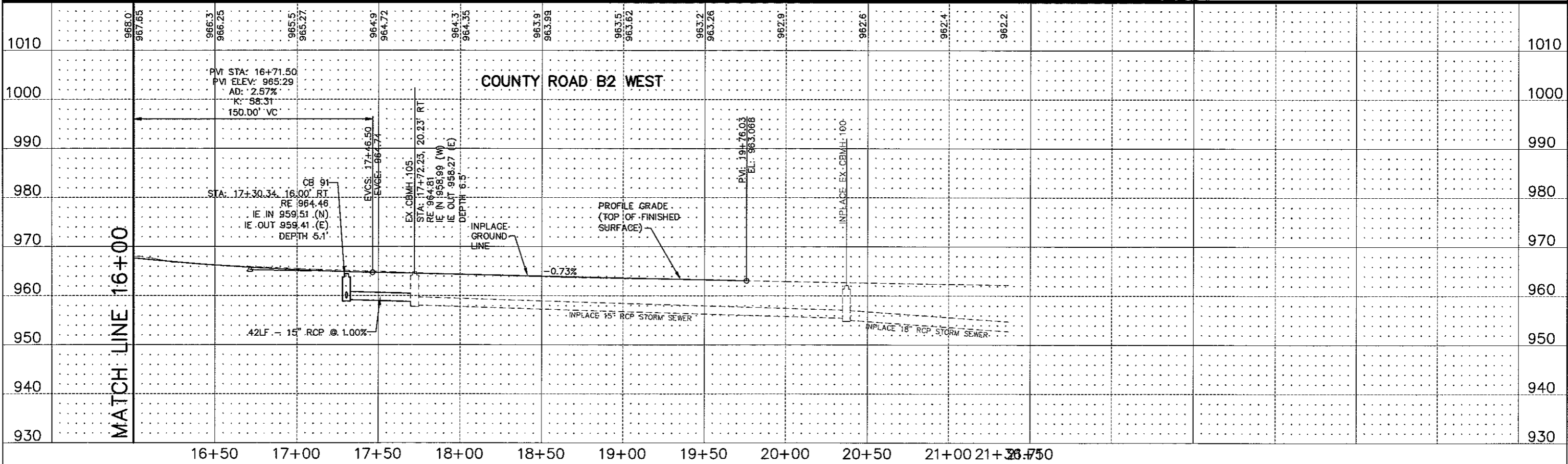
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CD20
 OF CD43
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534

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- NOTES:**
- 1) STATION AND OFFSET REFERENCES COUNTY ROAD B2 ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB
 - 4) SEE SHEET 172 TO 174 FOR STORM SEWER LATERAL PROFILES.
 - 5) THE CURB ADJACENT TO RIGHT AND LEFT TURN LANES (WHERE THERE ARE MEDIANS) AND TAPERS SHALL BE B612 CURB AND GUTTER. SEE DETAIL ON SHEET 58.

- LEGEND**
- INTEGRALLY COLORED AND STAMPED CONCRETE
 - CONCRETE
 - ① B612 CURB AND GUTTER
 - ② B624 CURB AND GUTTER
 - ③ CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - ④ DEPRESSED CURB
 - ⑤ PEDESTRIAN CURB RAMP
 - ⑥ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: RJG	2	BAE	8/09/2010	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION
DESIGNER: RJG				
CHECKED BY: BAE				

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.
 Certified By: *Beth A. Englum* Lic. No. 44785
 Printed Name: BETH A. ENGLUM Date: 4/22/2010

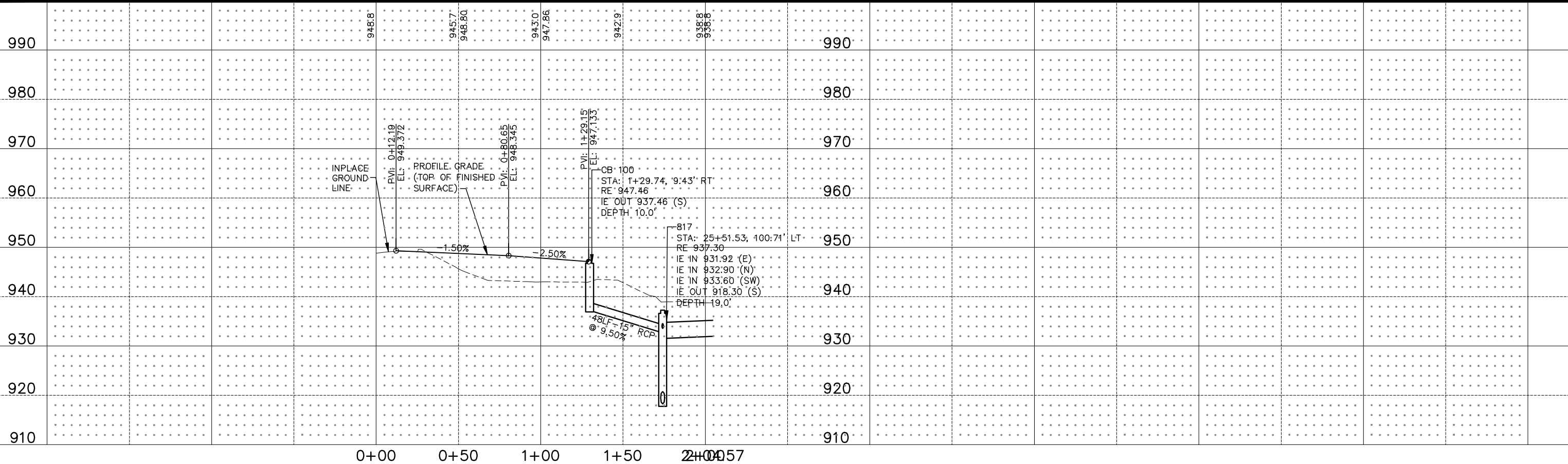
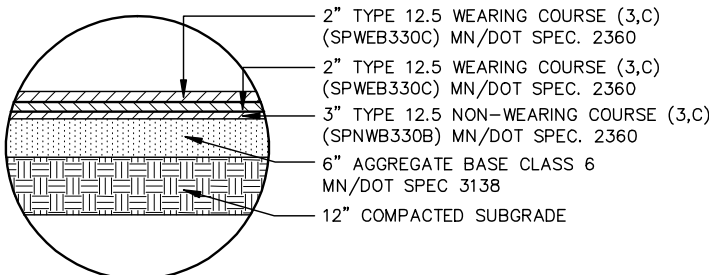
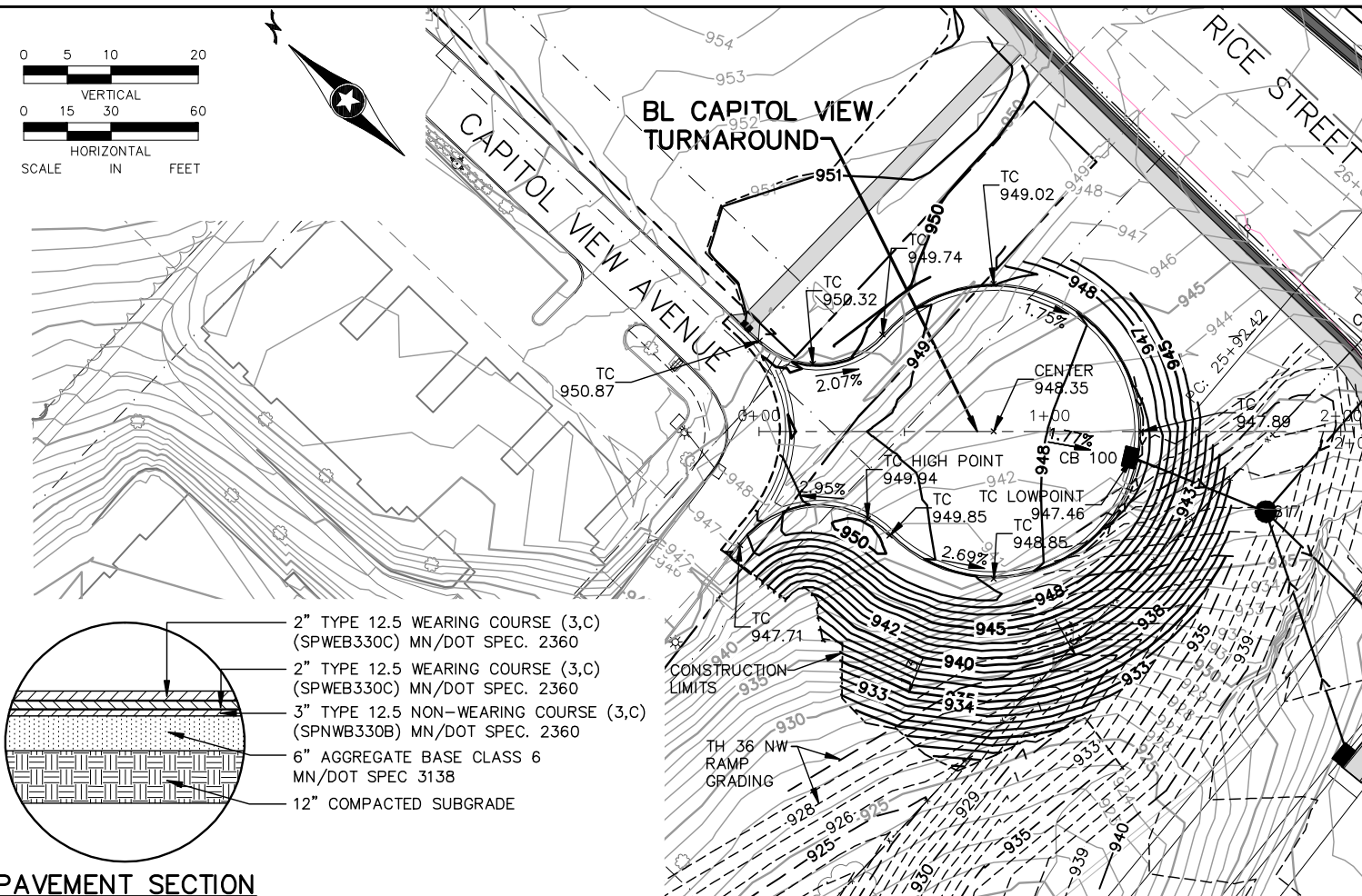
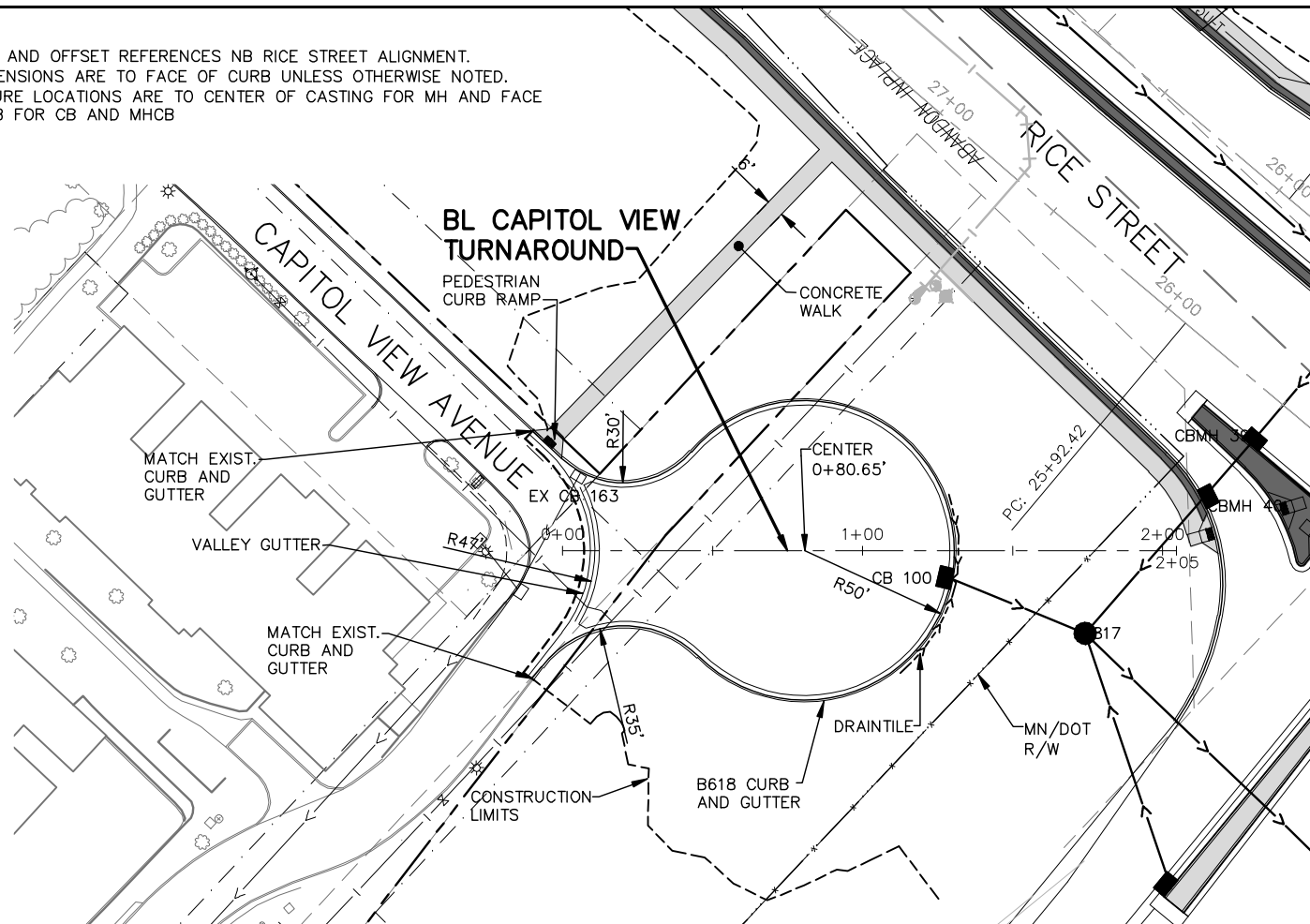
Kimley-Horn and Associates, Inc.
 2250 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4187
 FAX. NO. (651) 645-3116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 COUNTY ROAD B2 WEST
 STA. 16+00 TO STA. 22+00

FILE NO. 160599001
 CD21 OF CD43
 148
 534

- NOTES:
- 1) STATION AND OFFSET REFERENCES NB RICE STREET ALIGNMENT.
 - 2) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 - 3) STRUCTURE LOCATIONS ARE TO CENTER OF CASTING FOR MH AND FACE OF CURB FOR CB AND MHCB



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

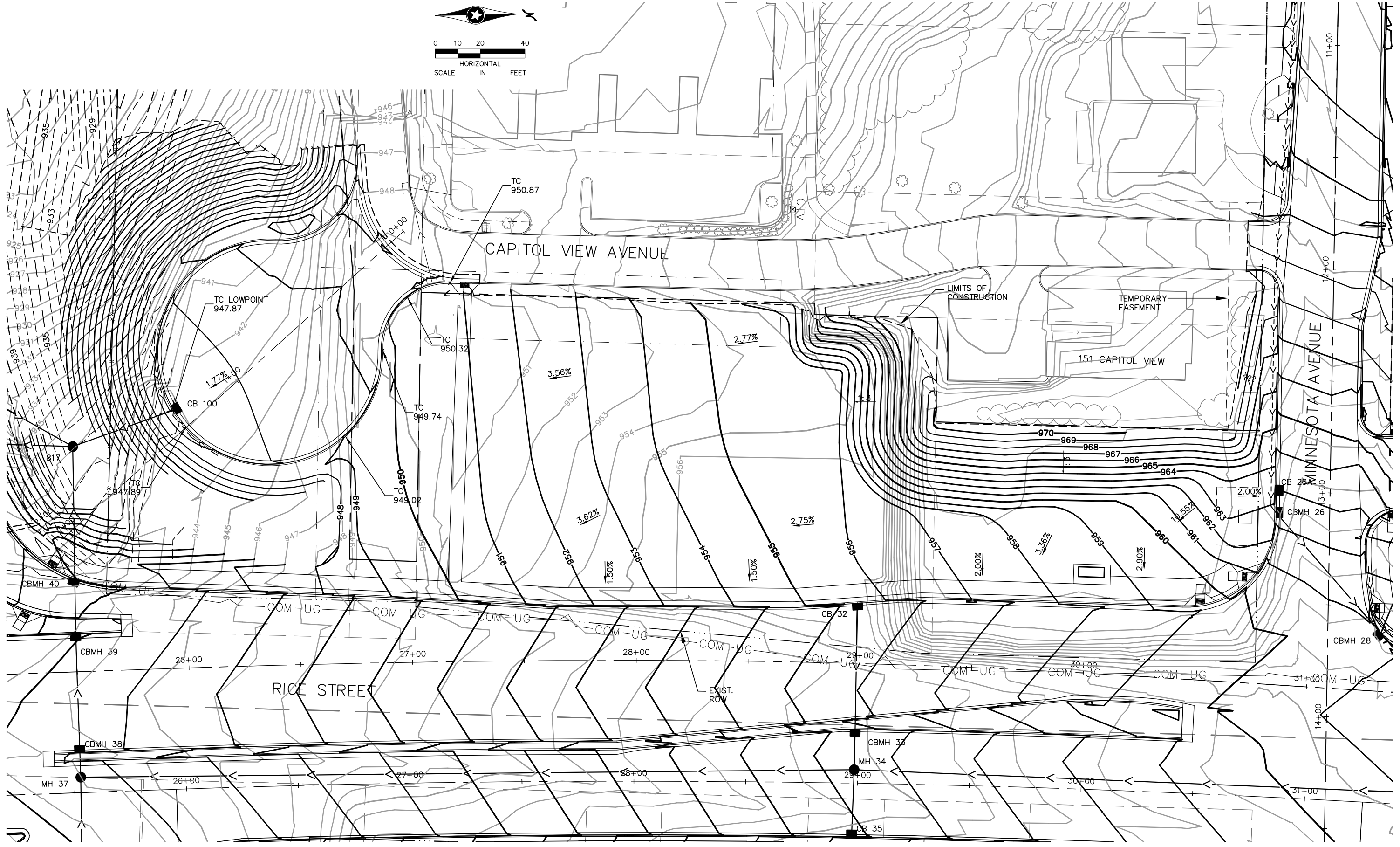
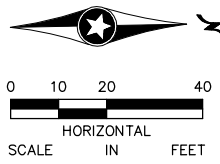
RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 CAPITOL VIEW AVENUE

FILE NO.	149
160599001	
CD22	
OF CD43	534

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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
7	BAE	8/24/2011	REVISED GRADING PLAN
6	BAE	4/19/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL 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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 8/26/2010

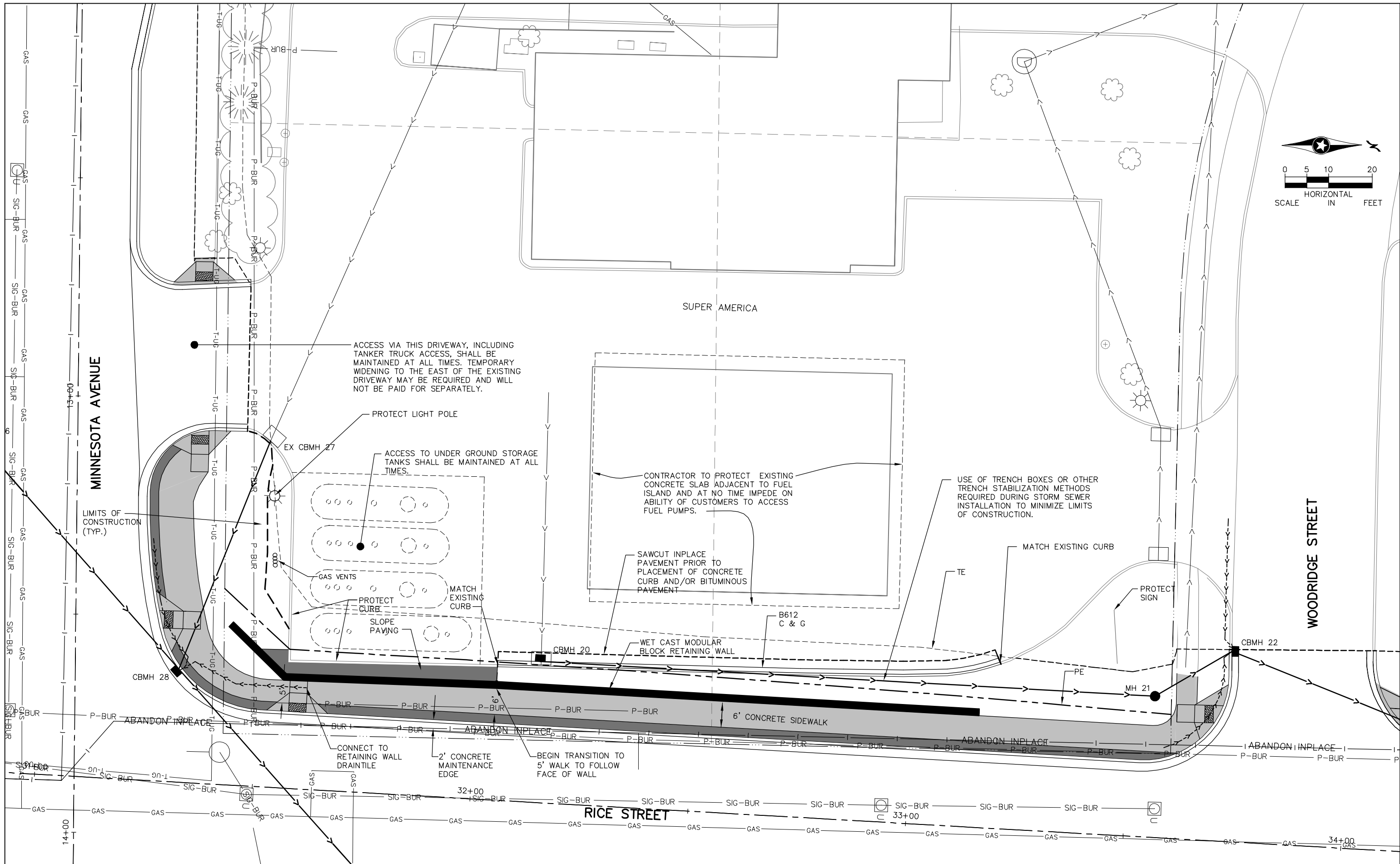
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 RESTAURANT/APARTMENT
 SITE GRADING

FILE NO. 149A
 160599001
 CD22A
 OF CD43
534

K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\RICE_SITE-SUPER.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



DESIGN TEAM				
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE			
NO.	BY	DATE	REVISIONS	
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL 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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
SUPER AMERICA
 SITE PLAN

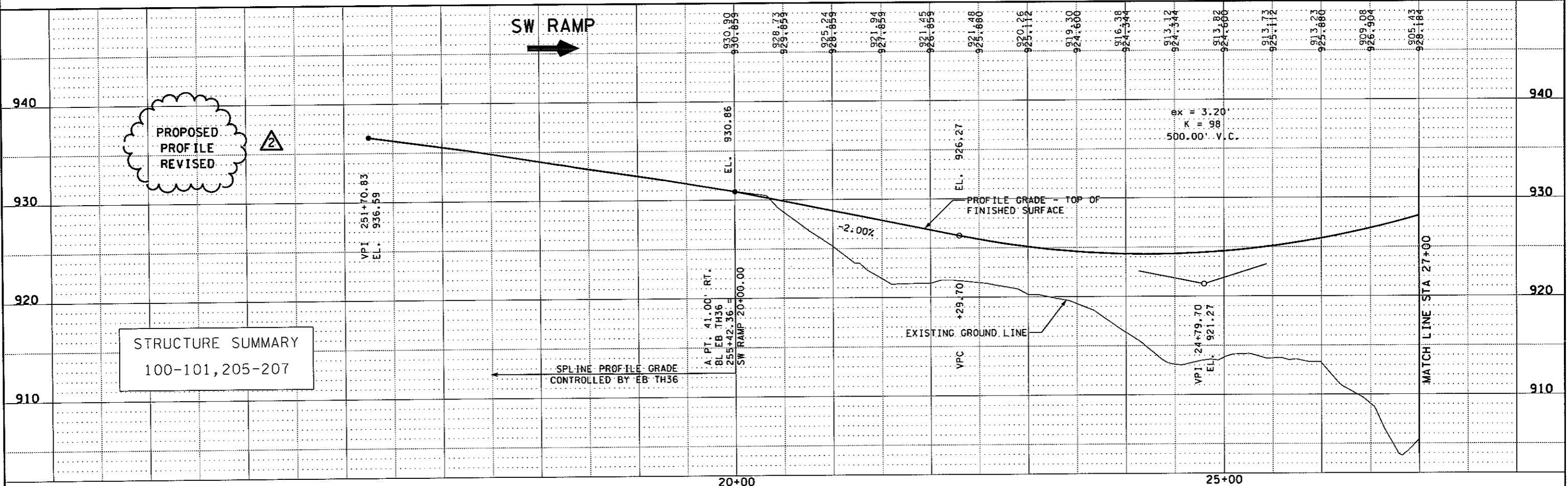
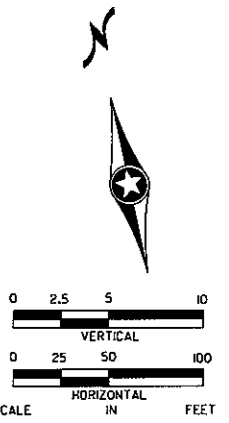
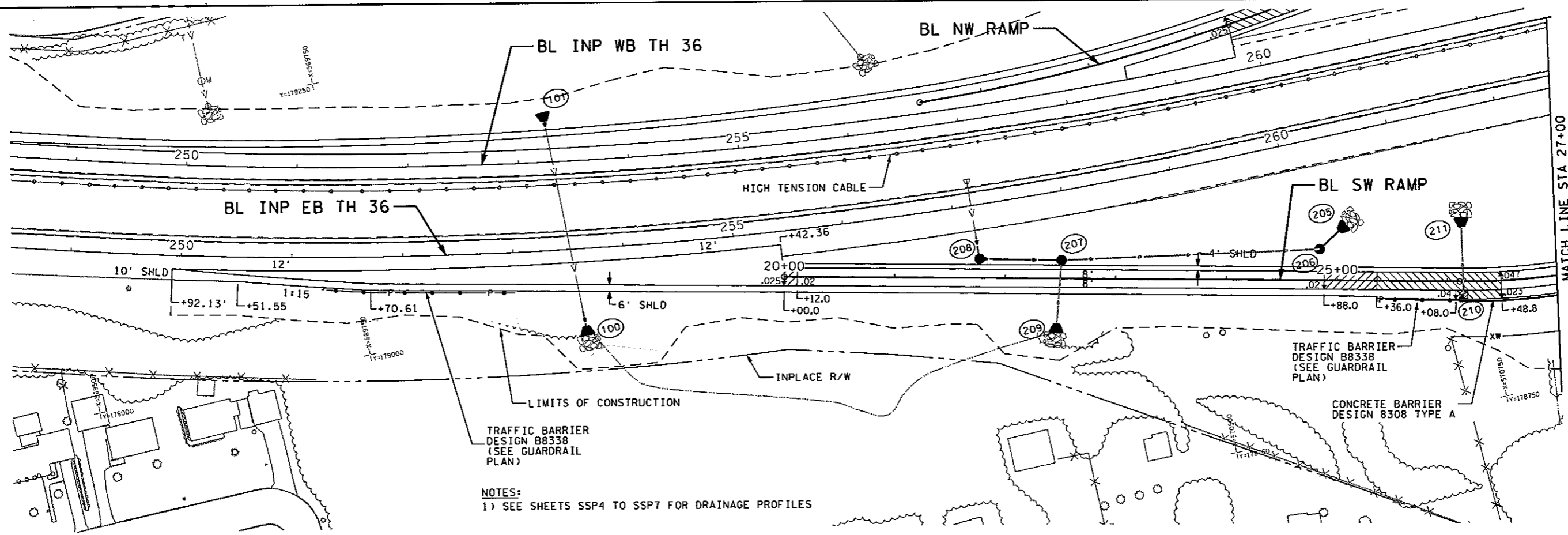
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OF CD43	
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8/5/2010

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DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION.
DRAWN BY:	MTT			
DESIGNER:	SRH,HLF			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

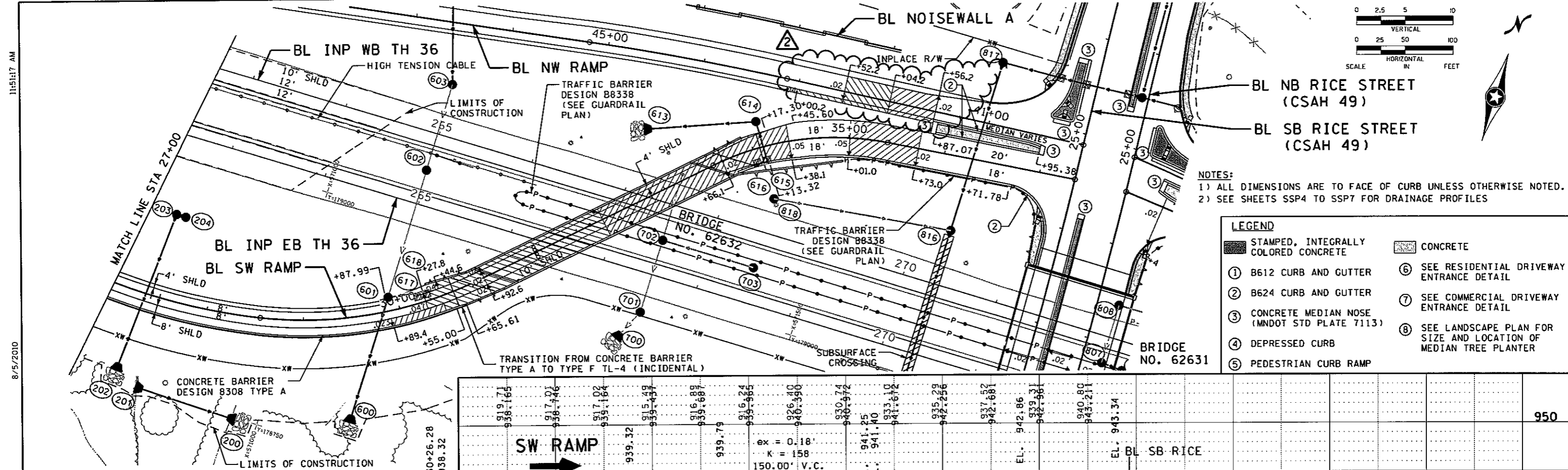
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

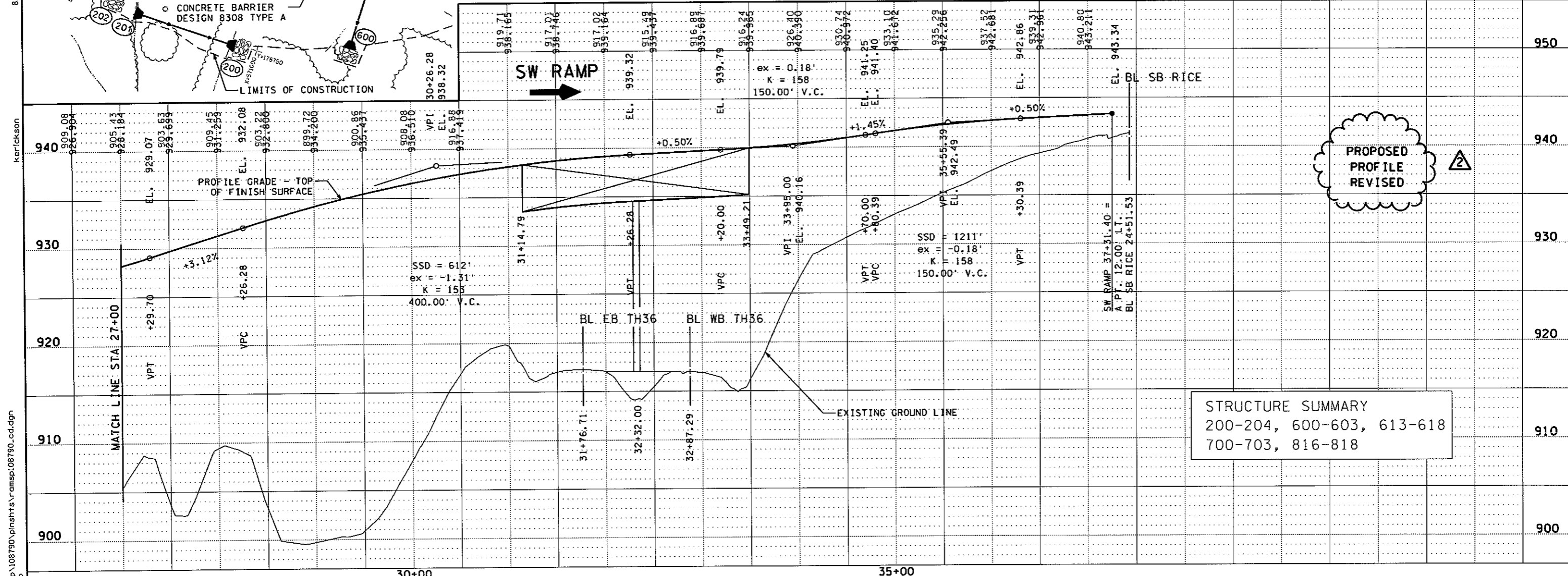
CONSTRUCTION & DRAINAGE PLAN
 SW RAMP STA 20+00 TO 27+00

FILE NO. 151
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 CD24 OF CD43
 534



NOTES:
 1) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2) SEE SHEETS SSP4 TO SSP7 FOR DRAINAGE PROFILES

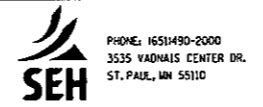
LEGEND	
	STAMPED, INTEGRALLY COLORED CONCRETE
	CONCRETE
①	B612 CURB AND GUTTER
②	B624 CURB AND GUTTER
③	CONCRETE MEDIAN NOSE (MNDOT STD. PLATE 7113)
④	DEPRESSED CURB
⑤	PEDESTRIAN CURB RAMP
⑥	SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
⑦	SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
⑧	SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER



STRUCTURE SUMMARY
 200-204, 600-603, 613-618
 700-703, 816-818

DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION.
DRAWN BY:	MTJ			
DESIGNER:	SRH, HLP			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 SW RAMP STA 27+00 TO 37+30

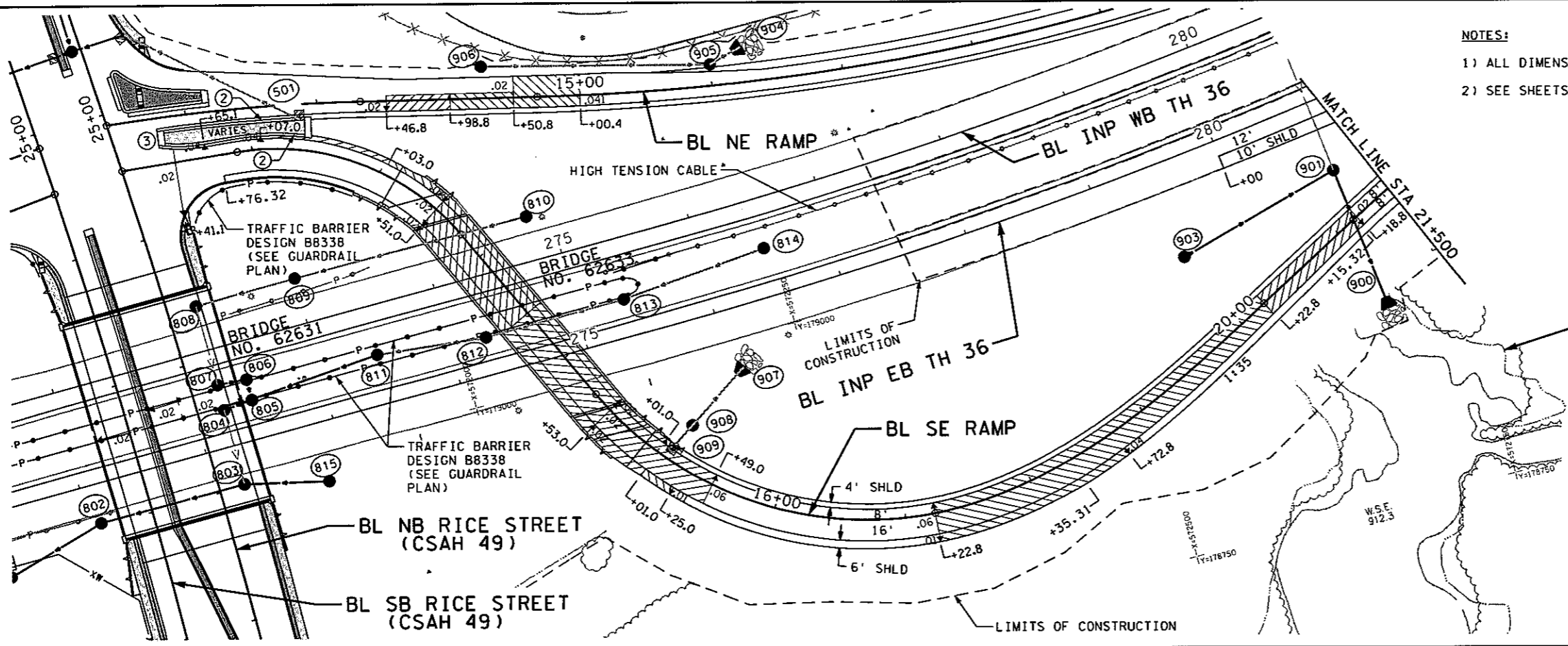
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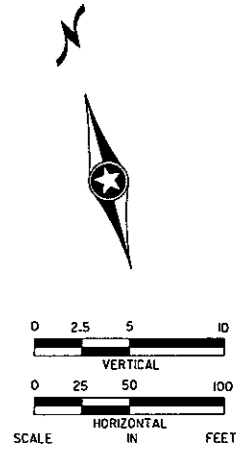
8/5/2010

kerfickson

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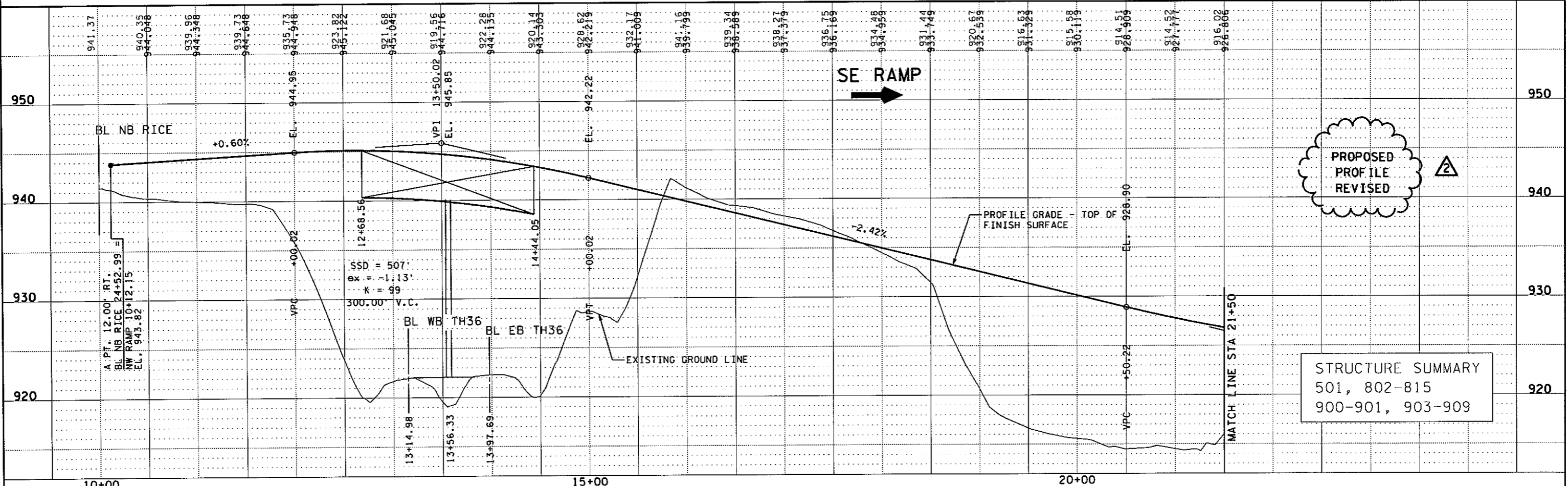


NOTES:
 1) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
 2) SEE SHEETS SSP4 TO SSP7 FOR DRAINAGE PROFILES.



LEGEND

	STAMPED, INTEGRALLY COLORED CONCRETE		CONCRETE
①	B612 CURB AND GUTTER	⑥	SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
②	B624 CURB AND GUTTER	⑦	SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
③	CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)	⑧	SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER
④	DEPRESSED CURB		
⑤	PEDESTRIAN CURB RAMP		



DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION.
DRAWN BY:	MTT			
DESIGNER:	SRH,HLF			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 SE RAMP STA 10+00 TO 21+50

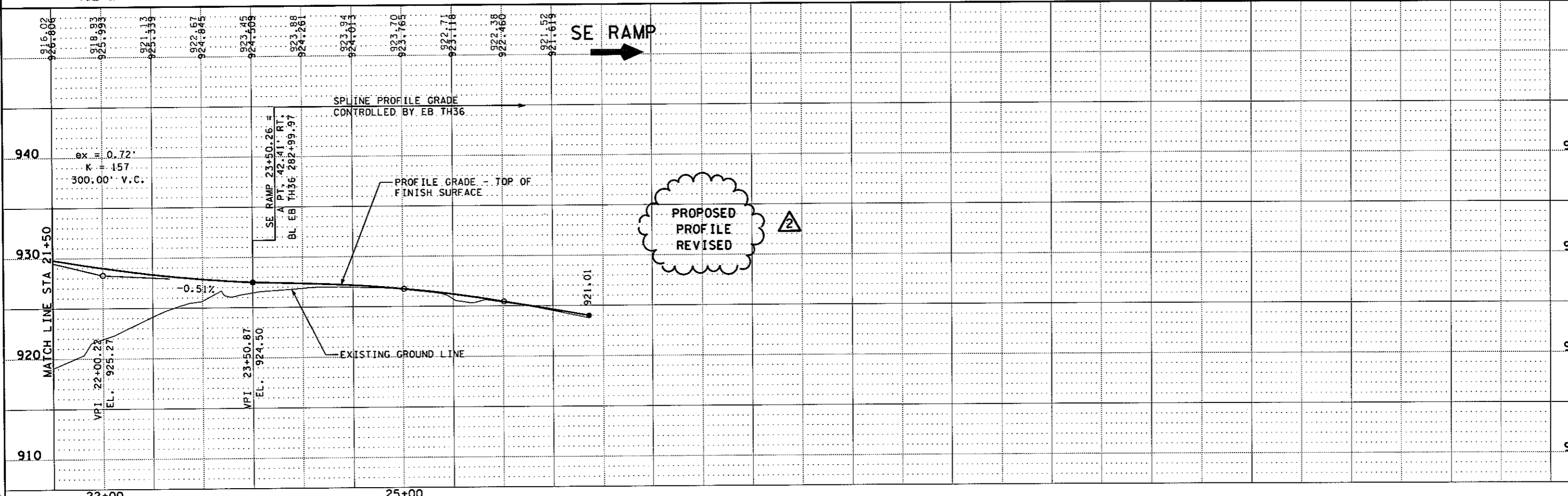
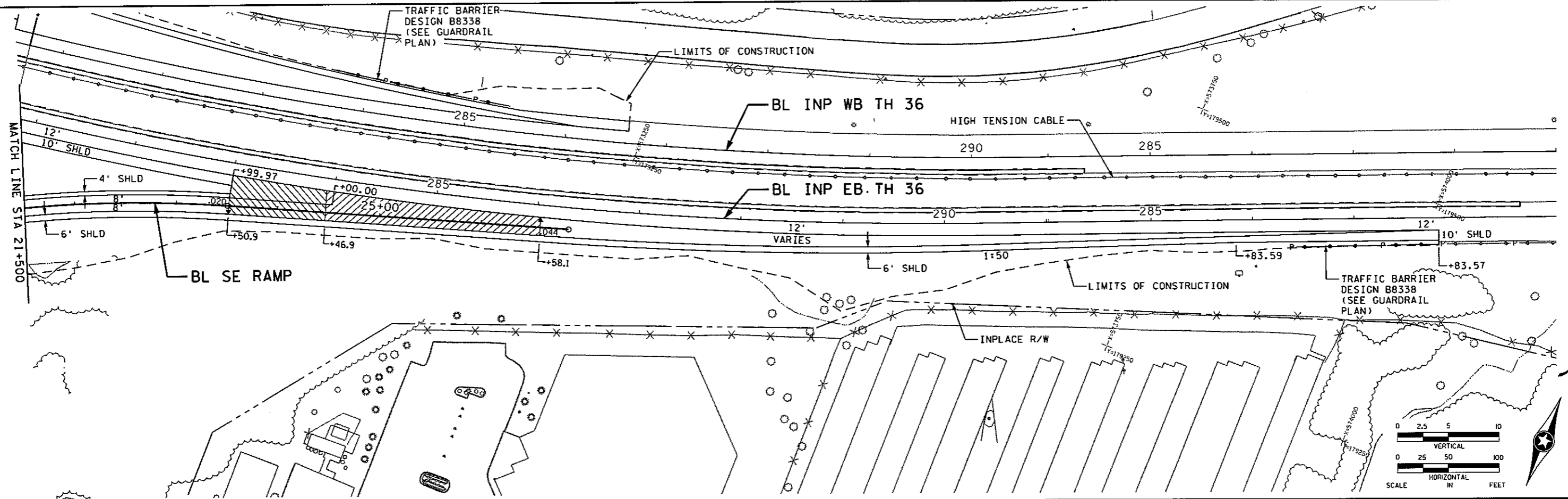
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OF CD43	

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8/5/2010

kerickson

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4 se ramp cd



DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION.
DRAWN BY:	MIT			
DESIGNER:	SRH_HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
SE RAMP STA 21+50 TO 26+50

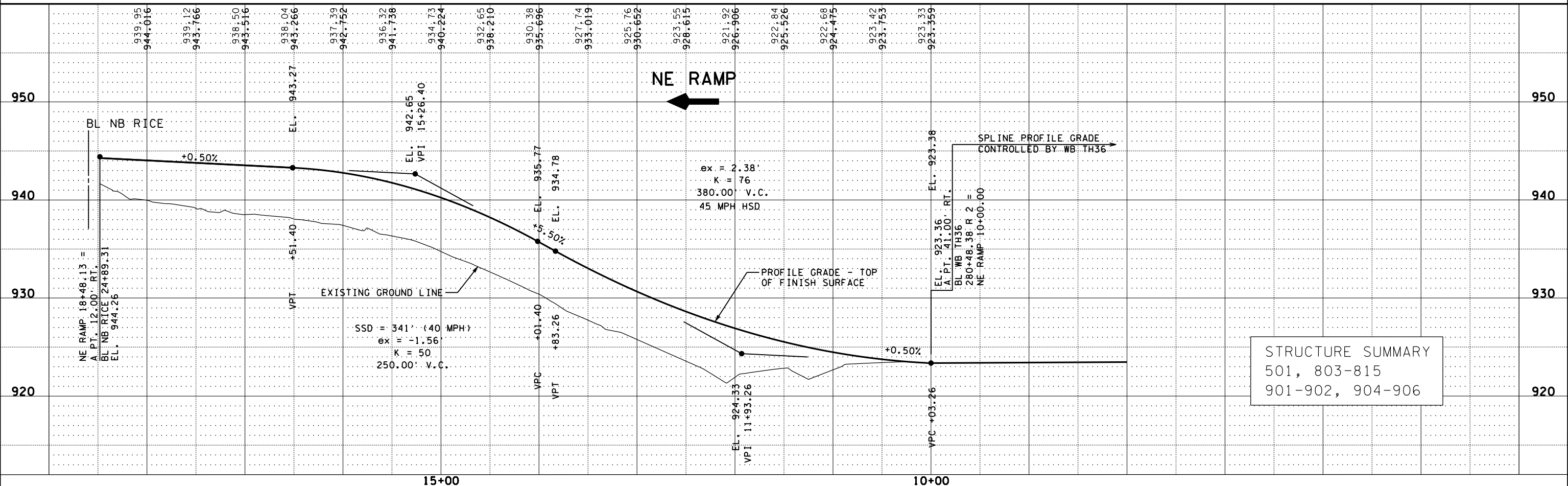
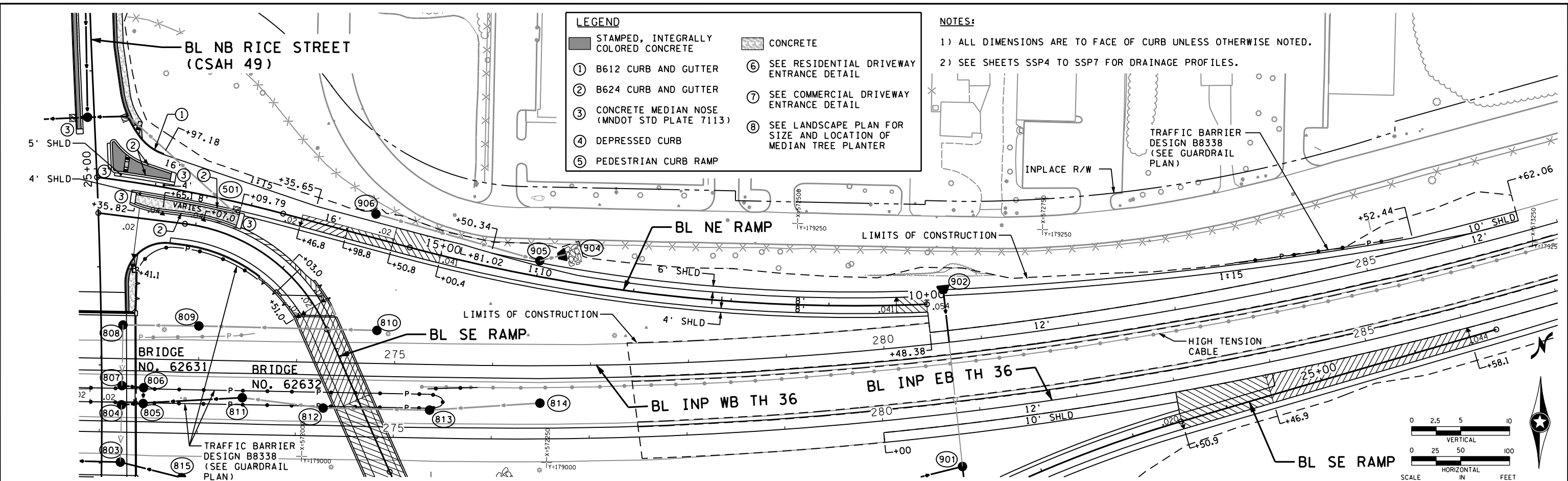
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3:31:53 PM

5/6/2010

kerickson

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5 ne ramp cd



STRUCTURE SUMMARY
501, 803-815
901-902, 904-906

DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
NE RAMP STA 10+00 TO 18+50

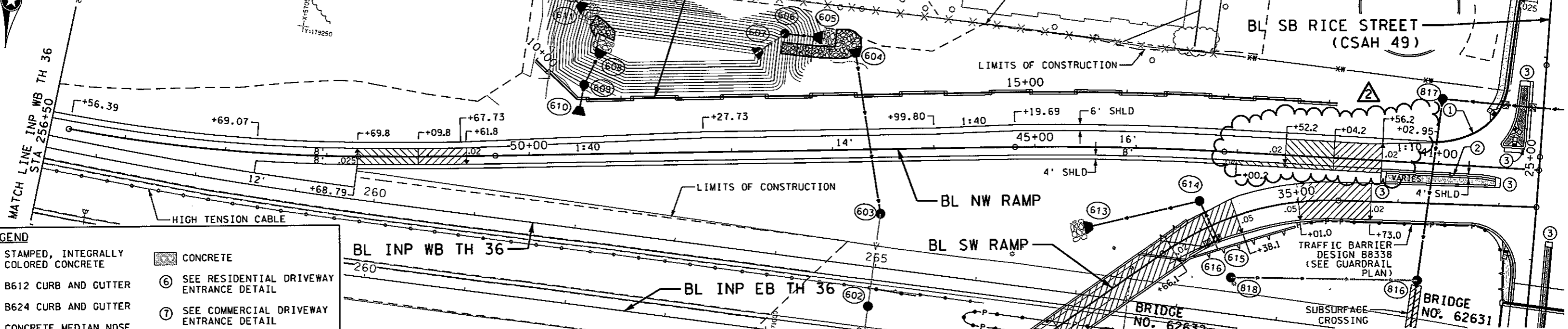
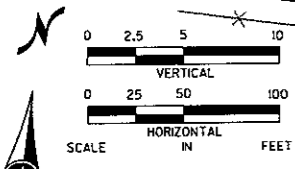
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534

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8/5/2010

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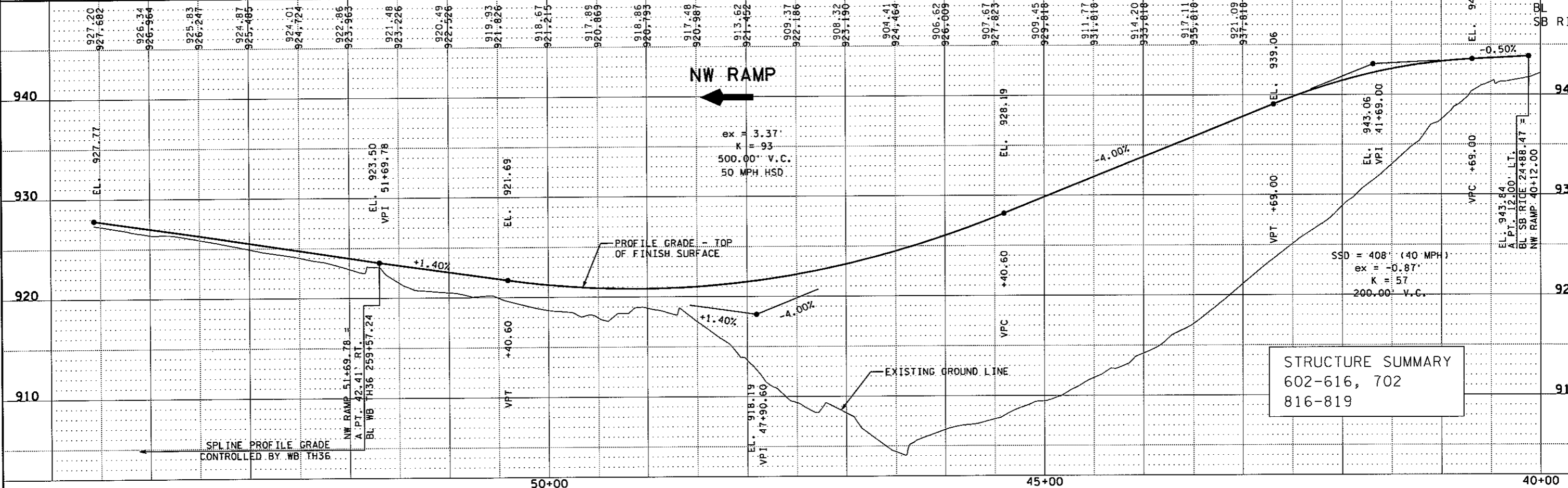
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6 nw ramp cd



- LEGEND**
- ① STAMPED, INTEGRALLY COLORED CONCRETE
 - ② B612 CURB AND GUTTER
 - ③ B624 CURB AND GUTTER
 - ④ CONCRETE MEDIAN NOSE (MNDOT STD PLATE 7113)
 - ⑤ DEPRESSED CURB
 - ⑥ PEDESTRIAN CURB RAMP
 - ⑥ CONCRETE
 - ⑦ SEE RESIDENTIAL DRIVEWAY ENTRANCE DETAIL
 - ⑦ SEE COMMERCIAL DRIVEWAY ENTRANCE DETAIL
 - ⑧ SEE LANDSCAPE PLAN FOR SIZE AND LOCATION OF MEDIAN TREE PLANTER

NOTES:

- 1) ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- 2) SEE SHEETS SSP4 TO SSP7 FOR DRAINAGE PROFILES.



DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION
DRAWN BY:	MTT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.
Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
NW RAMP STA 40+00 TO 54+00

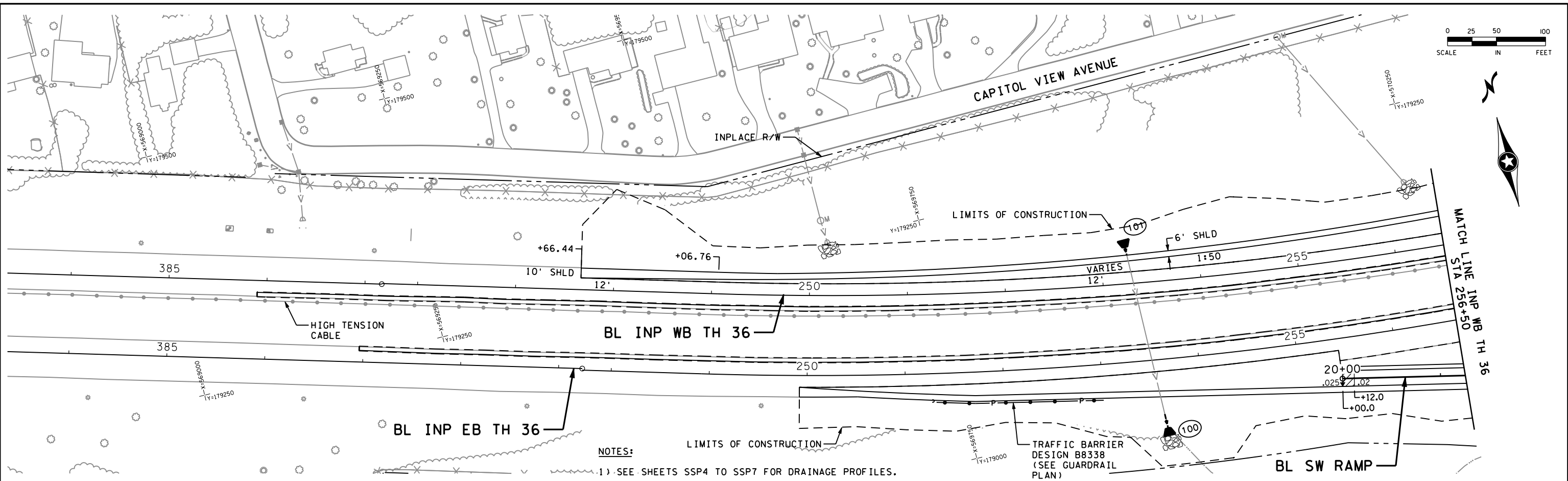
FILE NO. 156
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CD29 OF CD43
534

3/31/07 PM

5/6/2010

kerickson

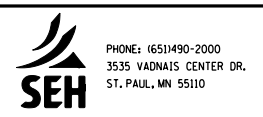
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STRUCTURE SUMMARY
100-101

DESIGN TEAM				REVISIONS
DRAWN BY:	MTT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE		

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

CONSTRUCTION & DRAINAGE PLAN
 NW RAMP

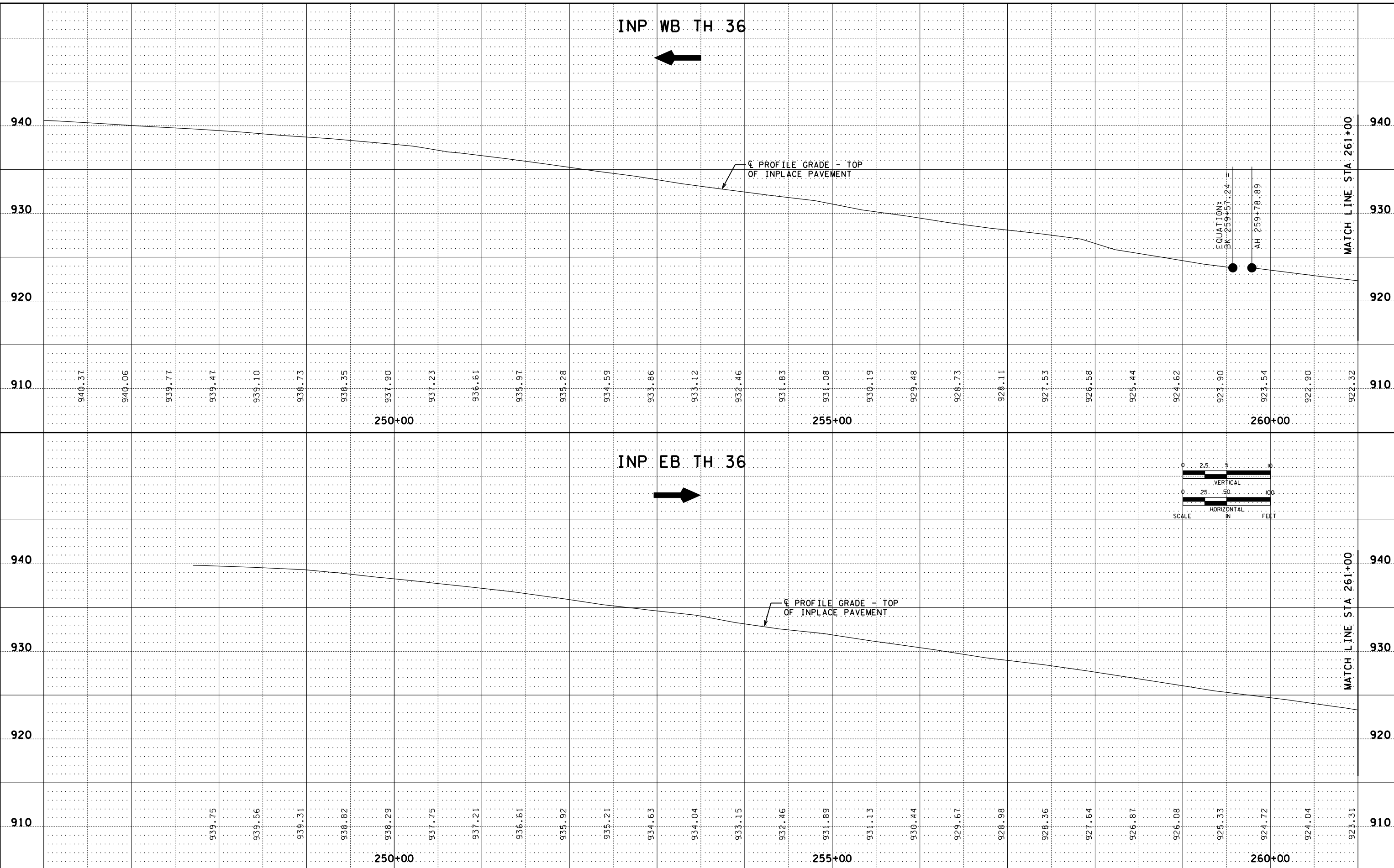
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CD30 OF CD43	534

3:32:09 PM

5/6/2010

kerickson

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1 ex th 36



DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ADDITIONAL PROFILES
 INP TH 36 STA 246+00 TO 261+00

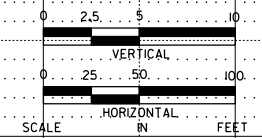
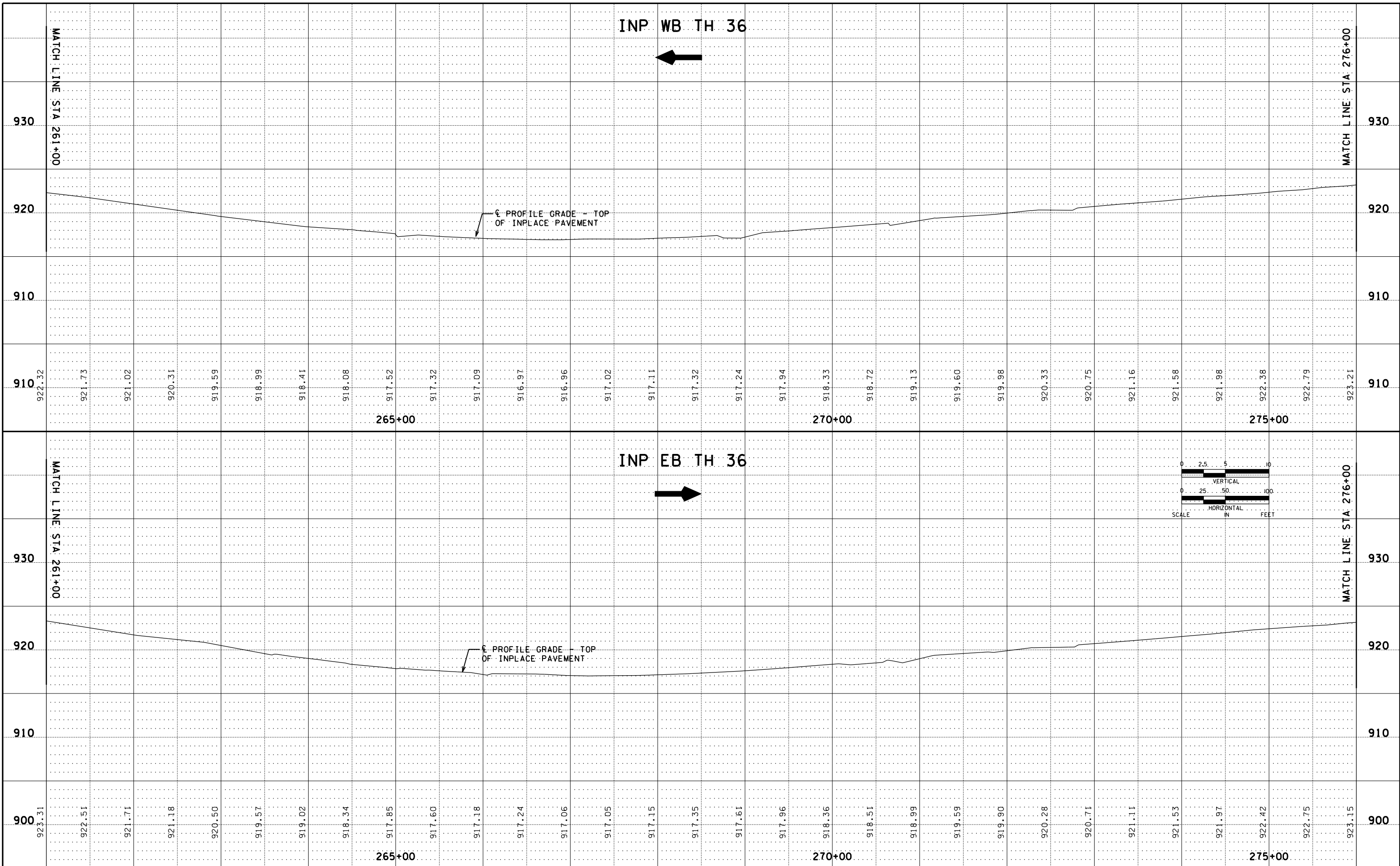
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5/6/2010

kerickson

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2 ex th 36



DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

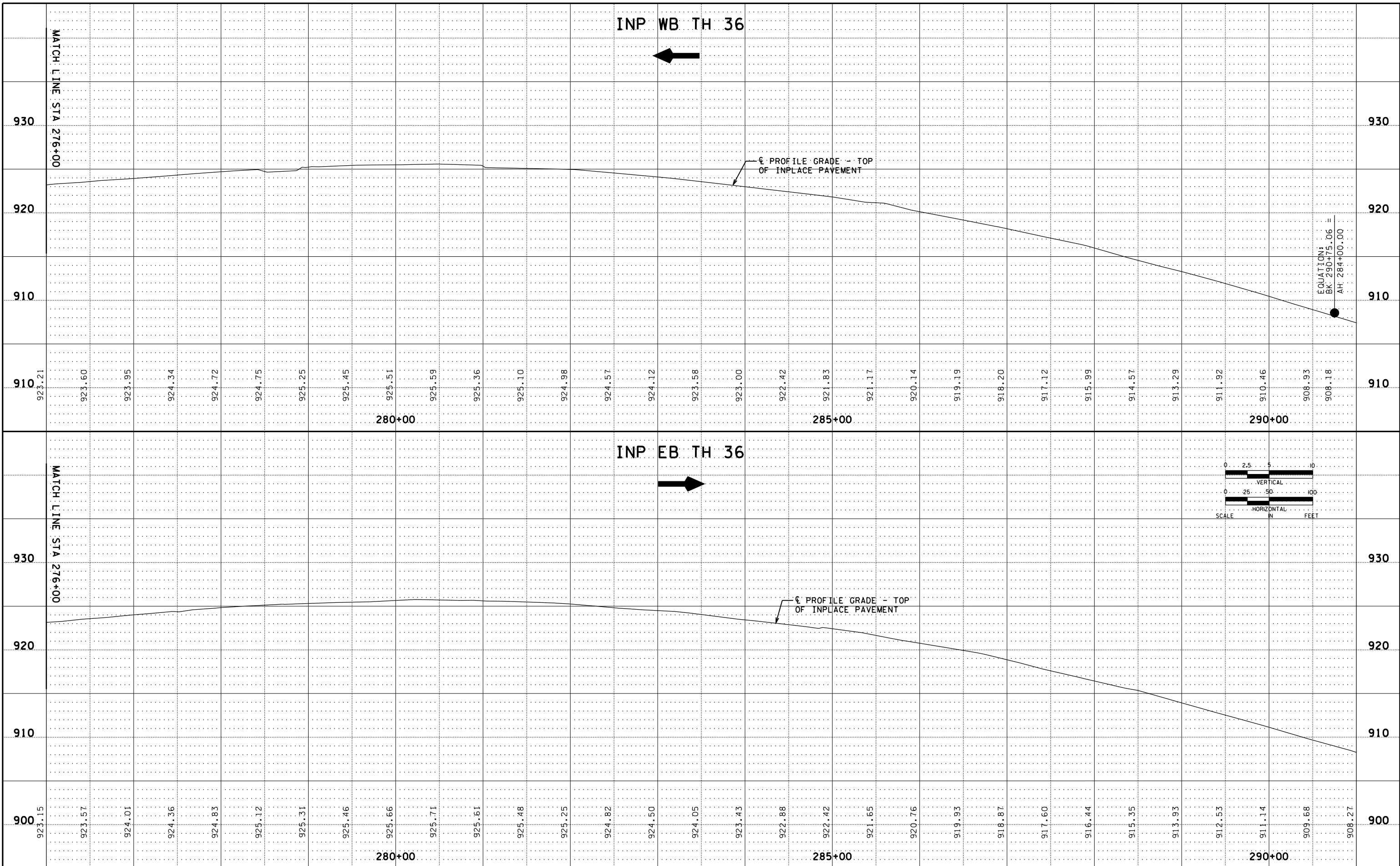
Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ADDITIONAL PROFILES
 INP TH 36 STA 261+00 TO 276+00

FILE NO. RAMSP108790	159
CD32 OF CD43	
534	



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

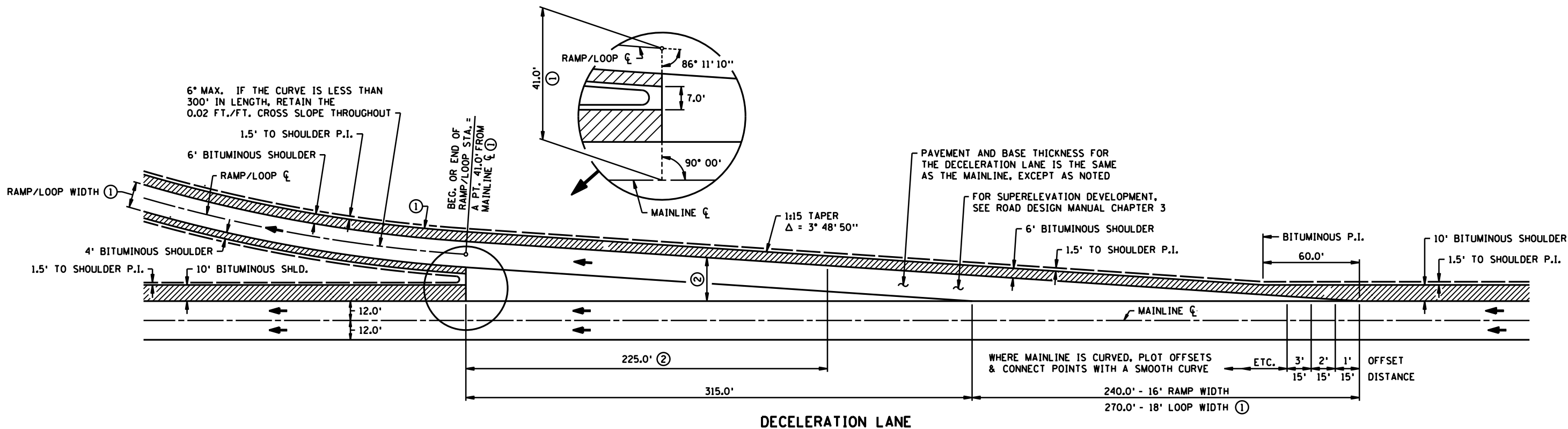
Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



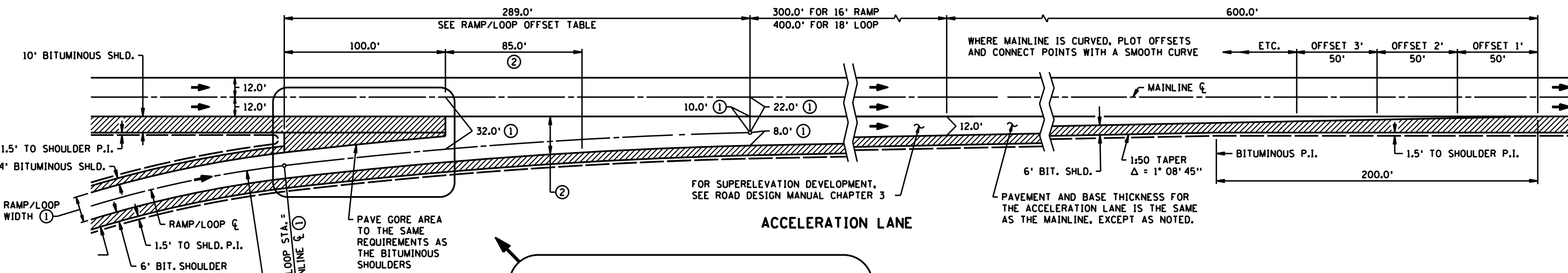
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

ADDITIONAL PROFILES
 INP TH 36 STA 276+00 TO 280+75.06

FILE NO. RAMSP108790	160
CD33 OF CD43	
	534



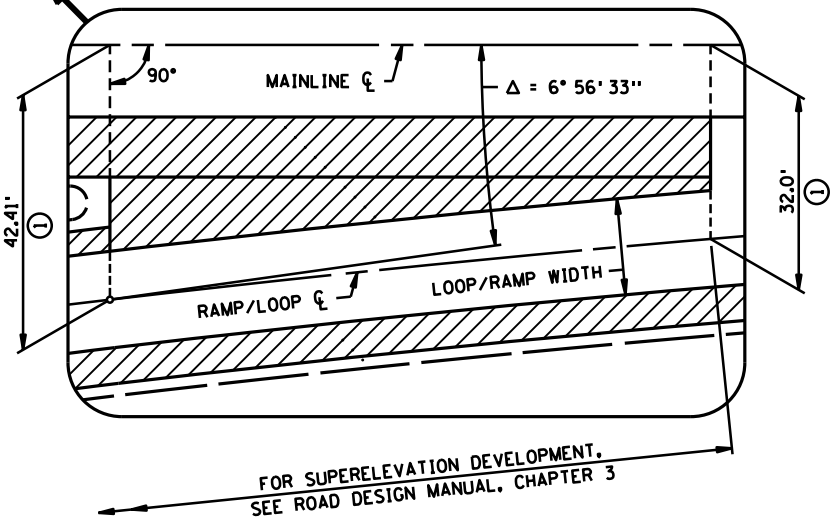
DECELERATION LANE



ACCELERATION LANE

16 FT. RAMP/LOOP OFFSET TABLE FOR APPROX. 2° CURVE (1)
OFFSET FROM MAINLINE CL TO RAMP/LOOP CL

DISTANCE	0'	20'	40'	60'	80'	100'	120'	140'	160'
OFFSET	22.00'	22.47'	23.08'	23.83'	24.72'	25.75'	26.91'	28.22'	29.67'
DISTANCE	180'	189'	200'	220'	240'	260'	280'	289'	
OFFSET	31.26'	32.00'	32.99'	34.86'	36.87'	39.02'	41.32'	42.41'	



- NOTES:**
- (1) WHEN IT IS NECESSARY FOR RAMPS/LOOPS TO BE WIDER, SEE ROAD DESIGN MANUAL CHAPTER 6. WIDENING SHALL BE DONE ON THE OUTSIDE AND THE TAPER LENGTH INCREASED ACCORDINGLY.
 - (2) THE AREA SHOWN SHALL BE GRADED FOR MAINLINE DEPTH. THE RAMP PAVEMENT THICKNESS WILL BE USED WITH ADDITIONAL DEPTH CORRECTED IN THE AGGREGATE BASE, OR GRADING MATERIAL, DEPENDING ON THE SURFACING TYPE.

CD34
OF CD43

STANDARD SHEET NO. 5-297.106	STANDARD ACCELERATION AND DECELERATION LANES (RURAL) BITUMINOUS PAVEMENT
STANDARD APPROVED: JULY 30, 1991	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 161 OF 534 SHEETS	

REVISION DATE
3-20-2001

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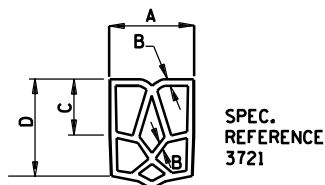
5/6/2010

kerfickson

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Default

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	1 1/16"
A	0.69" + 0.13" - 0.05"
B	0.08" ± 0.02"
C	0.25" MIN.
D	0.63" MIN.

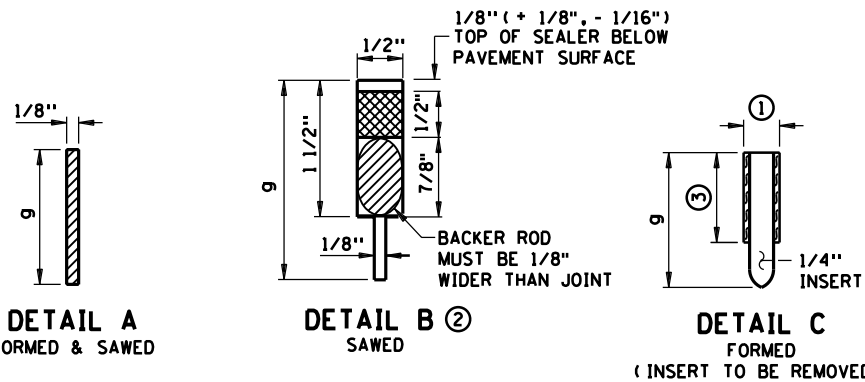


TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

CONTRACTION JOINT SEALER
PERFORMED ELASTIC TYPE

NOTES:
 "A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PERFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 1/8 IN., NOR MORE THAN 5/16 IN. BELOW THE PAVEMENT SURFACE.
 SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

SPEC. REFERENCE 3721



CONTRACTION JOINT CLASS DESIGNATION, DETAIL & SEALER SPEC. TABLE

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1A	C1A-D	A	UNSEALED
C2A	C2A-D	A	3725
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	3722

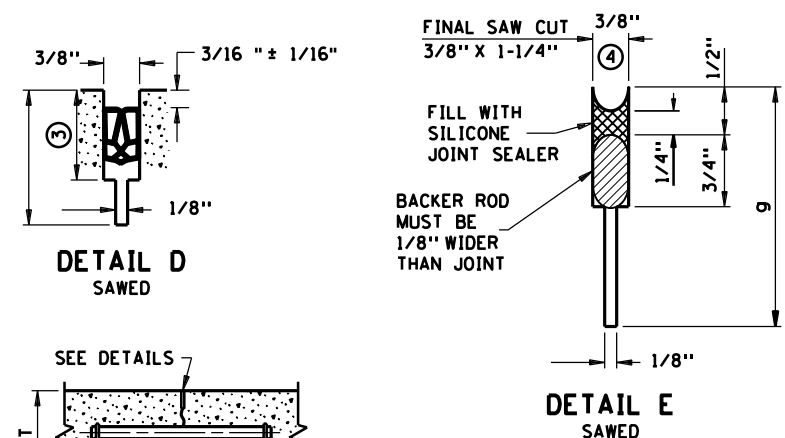
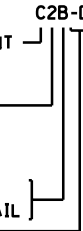
DOWEL BAR DIAMETER TABLE

PAVEMENT THICKNESS T	DOWEL BAR DIAMETER
6" - 6 1/2"	1"
7" - 10"	1 1/4"
10 1/2" - 14"	1 1/2"

LEGEND

C = CONTRACTION JOINT
 NO. = SEALANT TYPE
 1 = UNSEALED
 2 = 3725
 3 = 3721
 4 = 3722
 LETTER = DETAIL
 X = MORE THAN 1 DETAIL
 -D = DOWEL BARS

EXAMPLE C2B-D

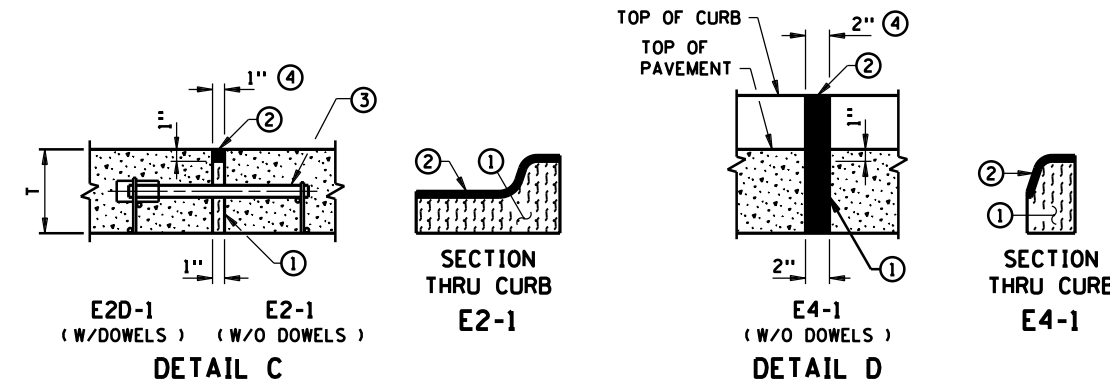
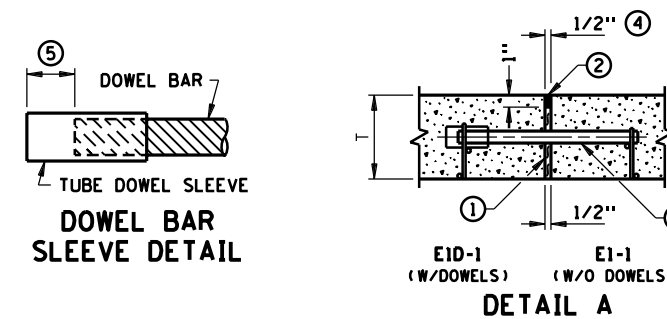


SECTION AT JOINT

GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY.
 SEE STANDARD PLATE 1150, CONSTRUCTION OF HEADER JOINTS. SEE STANDARD PLANS 5-297.217 AND 5-297.219, CONCRETE MAINLINE/RAMP PAVEMENT.
 SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.
 FOR UNBONDED OVERLAYS, THE JOINT DEPTH "g" SHALL BE T/3.
 FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE T/4.

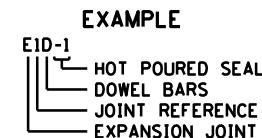
CONTRACTION JOINTS
DESIGN C



EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D-1	E1-1	A	3723
E2D-1	E2-1	C	3723
	E4-1	D	3723
	E4D-1	E	3723
	E8S-1	⑥	3725

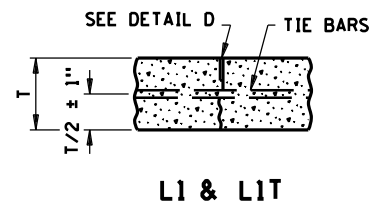
LEGEND
 E = EXPANSION JOINT
 NO. = JOINT REFERENCE
 D = DOWEL BARS
 S = CONCRETE SILL
 -1 = HOT POURED SEAL



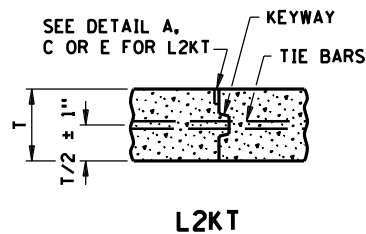
NOTES:
 ① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
 ② JOINT SEALER SPEC. 3723. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE ± 1/8".
 ③ DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.
 ④ THE FIRST NUMBER IN THE JOINT DESIGNATION IS EQUAL TO HALF OF THE JOINT NUMBER IN 1/2" INTERVALS (I.E. E1 = 1/2", E2 = 1", E4 = 2", AND E8 = 4").
 ⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.
 ⑥ SEE STANDARD PLAN 5-297.223 FOR E8S JOINT DETAIL.

EXPANSION JOINTS
DESIGN E

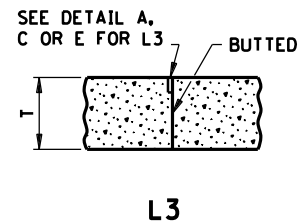
CD35
OF CD43



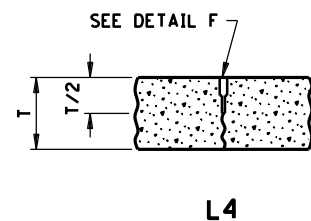
L1 & L1T



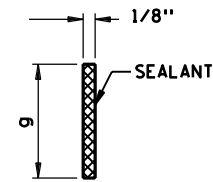
L2KT



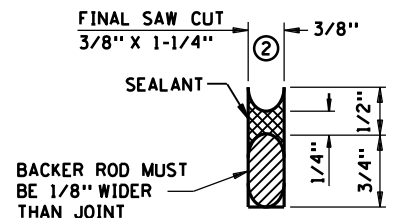
L3



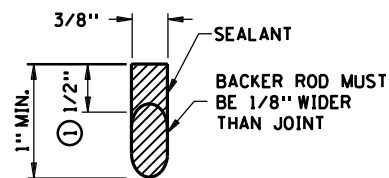
L4



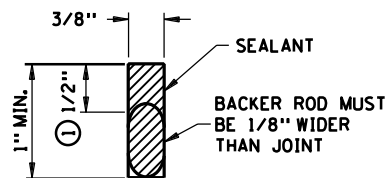
DETAIL B
(SAWED & SEALED WITH SPEC. 3723)



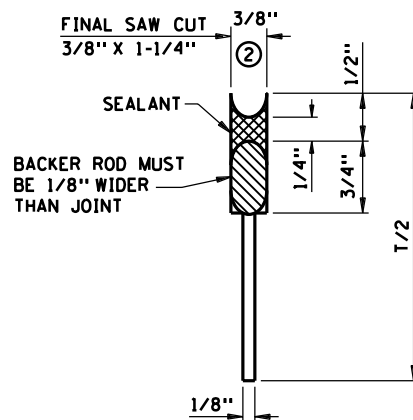
DETAIL C
(SAWED AND SEALED WITH SPEC. 3722)



DETAIL D
(FORMED & SEALED WITH SPEC. 3723)



DETAIL E
(SAWED & SEALED WITH SPEC. 3723)



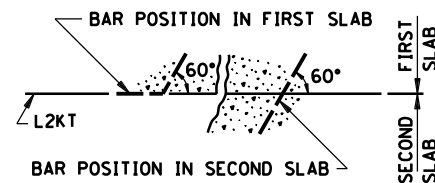
DETAIL F
(SAWED AND SEALED WITH SPEC. 3722)

LONGITUDINAL JOINT CLASS DESIGNATION, DETAIL & SEALER SPECIFICATION TABLE

CLASS DESIGNATION			JOINT DETAIL	JOINT SEALER SPECIFICATION
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS		
L1H	L1TH		B	3723
		L2KTH	D OR E	3723
		L2KTS	C	3722
			L3H	D OR E
			L3S	C
L4S			F	3722

LEGEND
 L = LONGITUDINAL JOINT
 NO. = JOINT REFERENCE
 K = KEYWAY
 T = TIE BARS
 U = UNSEALED
 H = HOT POUR (SEALANT)
 S = SILICONE (SEALANT)

JOINT REFERENCE NUMBERS
 1 = SAWED TO A DEPTH OF T/3
 2 = KEYED CONSTRUCTION JOINT
 3 = BUTTED CONSTRUCTION JOINT
 4 = SAWED TO A DEPTH OF T/2



TIE BAR BENDING DETAIL

LONGITUDINAL JOINT NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

THE TIE BAR SPACING FOR ALL L2KT JOINTS SHALL BE 2' - 6" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 13 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

FOR CONCRETE PAVEMENT THE JOINT DEPTH "g" SHALL BE T/3 INCHES.

SPEC. 3723 SEALER - TOP OF SEALER FLUSH TO - 3/16 IN. BELOW TOP OF PAVEMENT SURFACE.

- ① THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F, WITH A DIAMETER 1/8 IN. LARGER THAN THE JOINT OPENING, MAY BE PLACED 1/2 IN. BELOW THE TOP OF THE PAVEMENT.
- ② THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2 IN. DIAMETER CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2 IN. BELOW THE SURFACE OF THE PAVEMENT. NON-SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4 IN.

GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY. SEE STANDARD PLATE 1141, PAVEMENT KEYWAY. SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED & SPECIAL REINFORCEMENT REQUIRED.

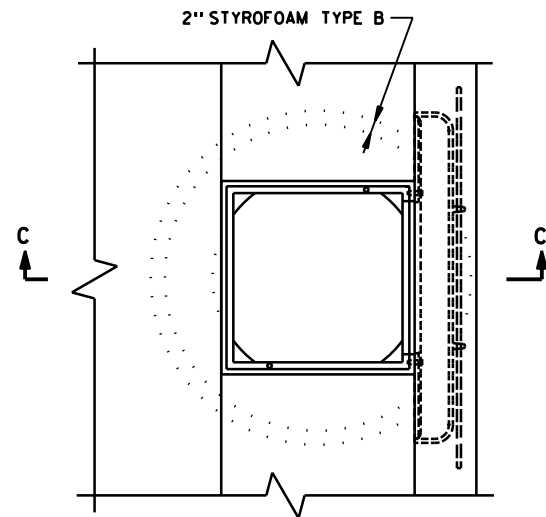
CD36
OF CD43

STANDARD SHEET NO.
5-297.221 (2 OF 2)
STANDARD APPROVED:
JUNE 6, 2005

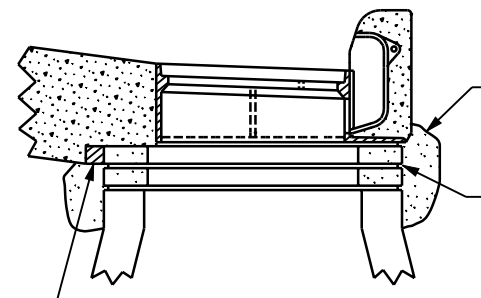
TITLE:
PAVEMENT JOINTS
LONGITUDINAL (DESIGN L)

**SUMMARY OF QUANTITIES FOR
BRIDGE APPROACH PANEL**

CONCRETE MIX NO. 3X42	CU. YD.
REINFORCEMENT BARS	LBS.
CURB DESIGN B4 INTEGRANT	LIN. FT.
CURB DESIGN B424	LIN. FT.



PLAN VIEW OF C. B. CASTING

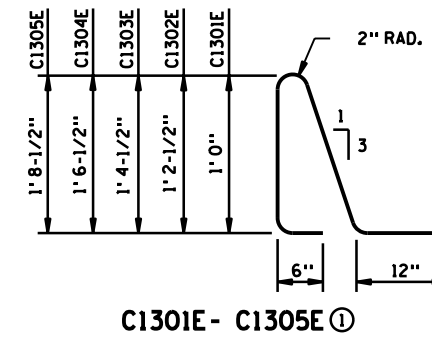


**SECTION C-C
(GRATE NOT SHOWN)**

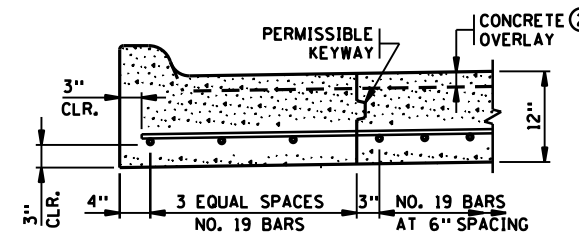
CONCRETE COLLAR TO ENCASE CASTING AND RINGS. CONCRETE CURB AND GUTTER MIX, OR MORTAR MIX, (SPEC. 2506.2B) SHALL BE USED FOR COLLAR

MORTAR BETWEEN CASTING, RINGS AND STRUCTURE EXCEPT AS SHOWN

2" THICK STYROFOAM TO SEPERATE CONCRETE ADJUSTING RINGS FROM APPROACH SLAB, TO PREVENT MOVEMENT OF MANHOLE.



C1301E - C1305E ①



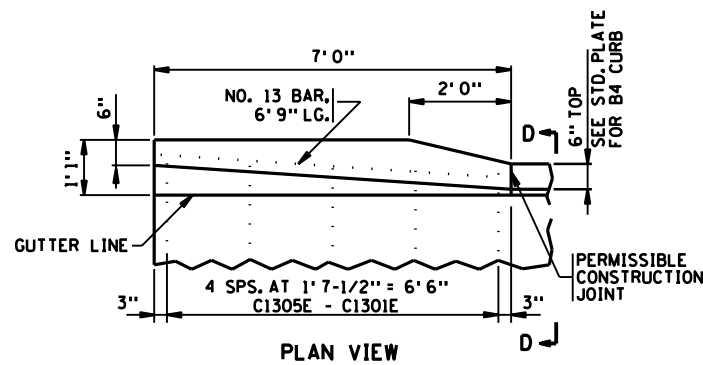
CURB DETAIL ①

(B4 INTEGRANT CURB OR B424 MODIFIED CURB AND GUTTER)

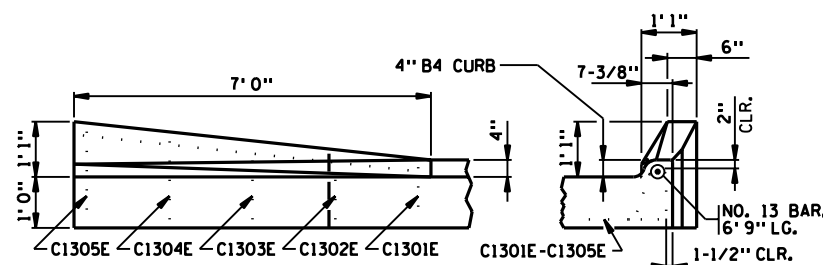
NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

- ① ALL REINFORCEMENT IN APPROACH PANEL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.
- ② APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. SEE BRIDGE PLANS FOR REQUIREMENTS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.
- ③ 2" NOMINAL DIA. THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. FURNISHING AND INSTALLING DRAIN SYSTEM SHALL BE INCIDENTAL, WITH NO DIRECT PAYMENT. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8" PER 12" MINIMUM SLOPE.
- ④ BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0-3% PASSING A NO. 200 SIEVE.



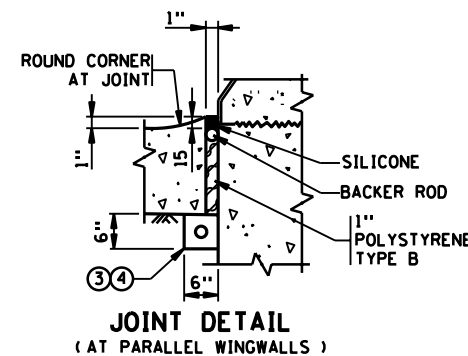
PLAN VIEW



INSIDE ELEVATION

SECTION D-D

CURB TRANSITION DETAILS ①

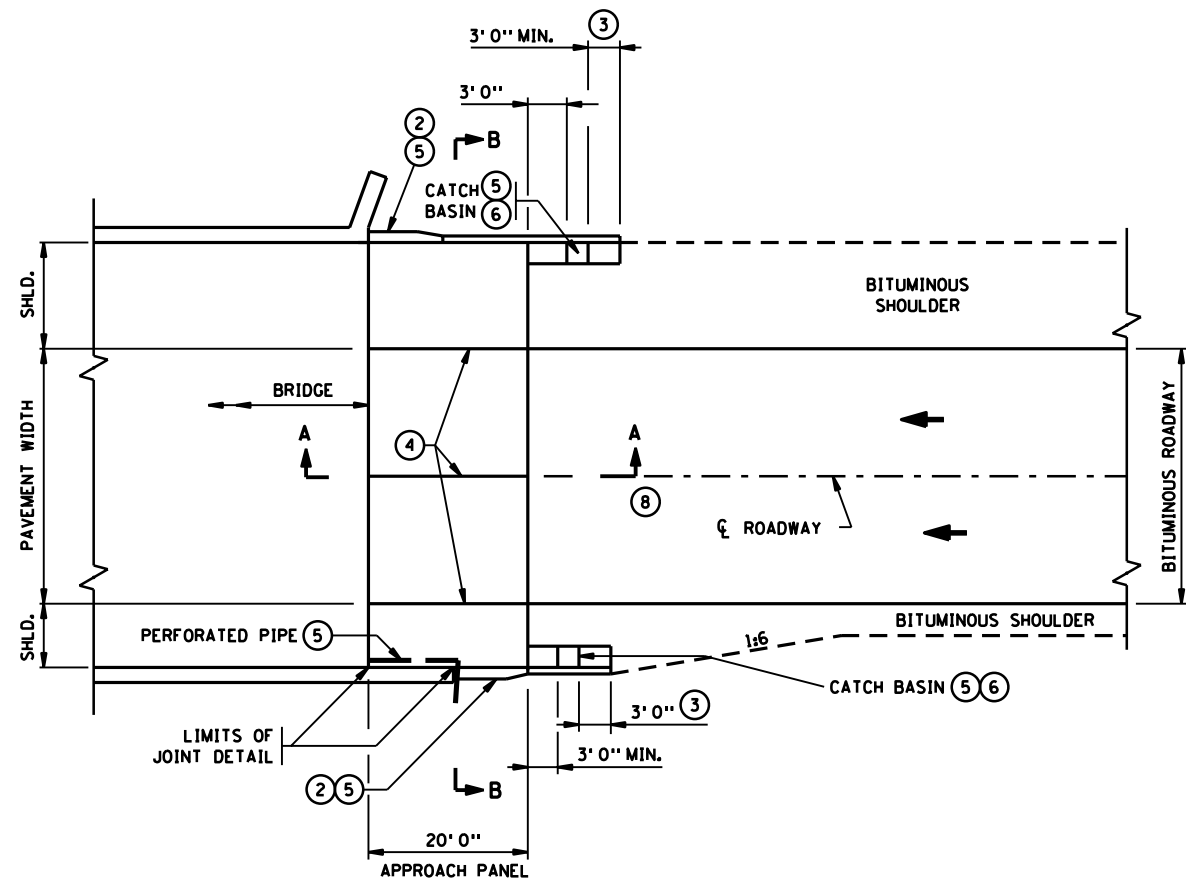


**JOINT DETAIL
(AT PARALLEL WINGWALLS)**

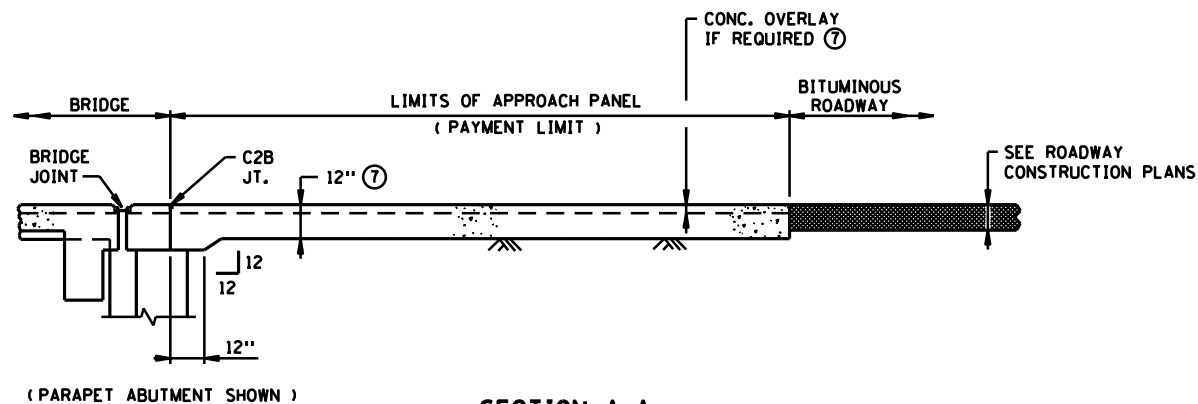
CD37
OF CD43

STANDARD SHEET NO. 5-297.224	TITLE: BRIDGE APPROACH PANEL BITUMINOUS MAINLINE ROADWAY (MISCELLANEOUS DETAILS)
STANDARD APPROVED: NOVEMBER 9, 1999	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 164 OF 534 SHEETS	

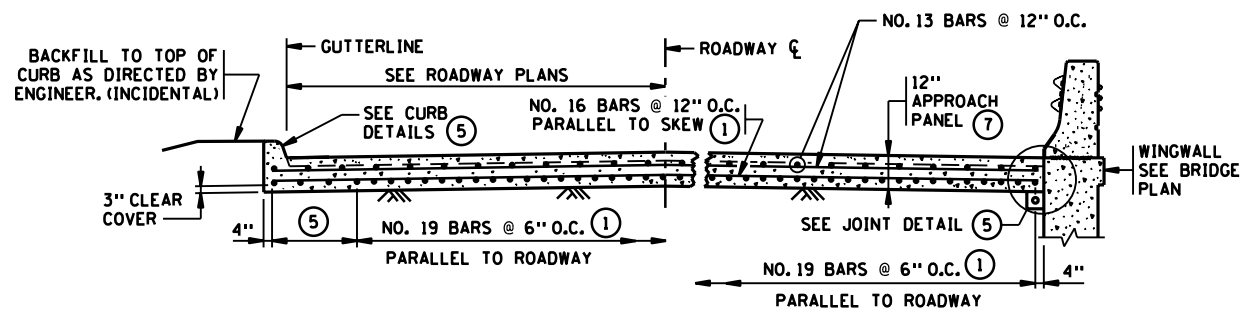
REVISION DATE
2-7-2000



DIVIDED-URBAN ROADWAY PLAN
PARALLEL & NONPARALLEL WINGWALLS



SECTION A-A
(REINFORCEMENT NOT SHOWN)



SECTION B-B
(SEE ROADWAY PLAN VIEW)

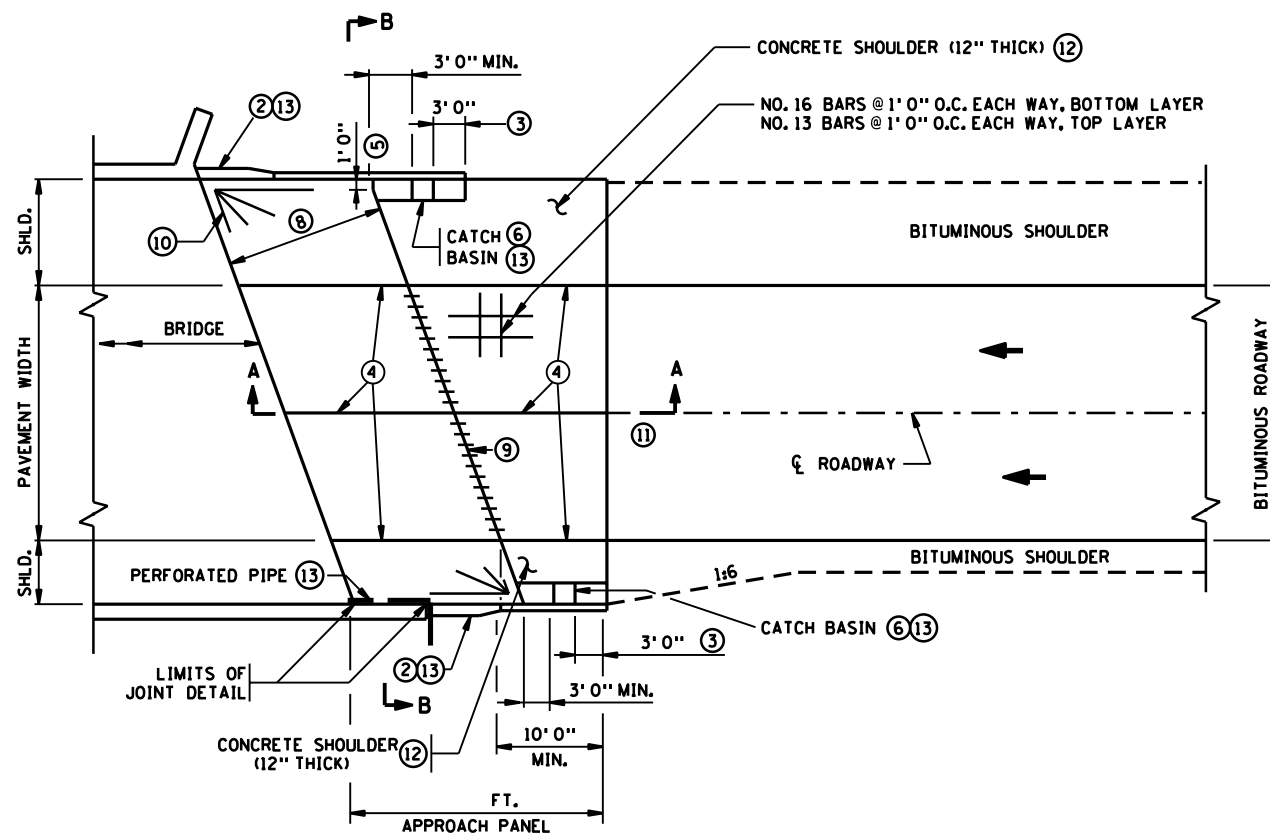
NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

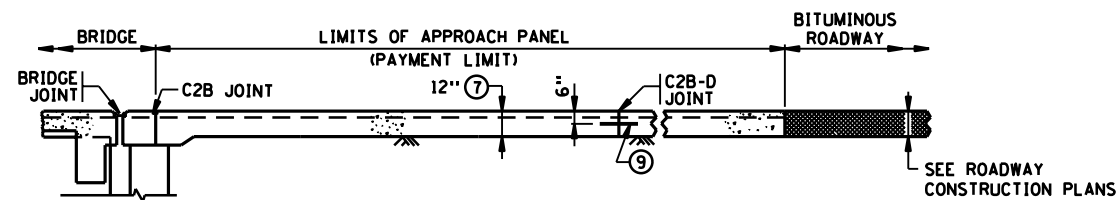
- ① ALL REINFORCEMENT IN APPROACH PANEL, SILL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.
- ② TRANSITION FACE OF 4" CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAILS.
- ③ TRANSITION APPROACH PANEL CURB HEIGHT 4" TO 0" WHERE THERE IS NO ROADWAY CURB.
- ④ L2KT OR L1T LONGITUDINAL JOINT IS REQUIRED. SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.
- ⑤ SEE PLAN SHEET FOR REQUIRED MISCELLANEOUS DETAILS.
- ⑥ LOCATE BETWEEN GUARD RAIL POSTS OR AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL CHAPTER 7 FOR CATCH BASIN INFORMATION.
- ⑦ APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. SEE BRIDGE PLANS FOR REQUIREMENTS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.
- ⑧ SEE PLAN SHEET .. FOR BRIDGE APPROACH ROADWAY INFORMATION.

CD38
OF CD43

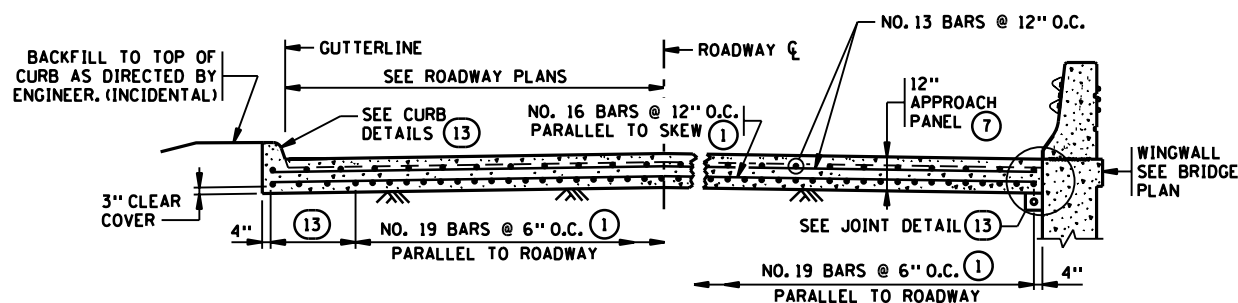
STANDARD SHEET NO. 5-297.229	TITLE: BRIDGE APPROACH PANEL BITUMINOUS MAINLINE - JOINT AT ABUTMENT SQUARE TO 10° SKEWS
STANDARD APPROVED: MAY 7, 2002	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 165 OF 534 SHEETS	



DIVIDED-URBAN ROADWAY PLAN
PARALLEL & NONPARALLEL WINGWALLS



SECTION A-A
(REINFORCEMENT NOT SHOWN)



SECTION B-B
(SEE ROADWAY PLAN VIEW)

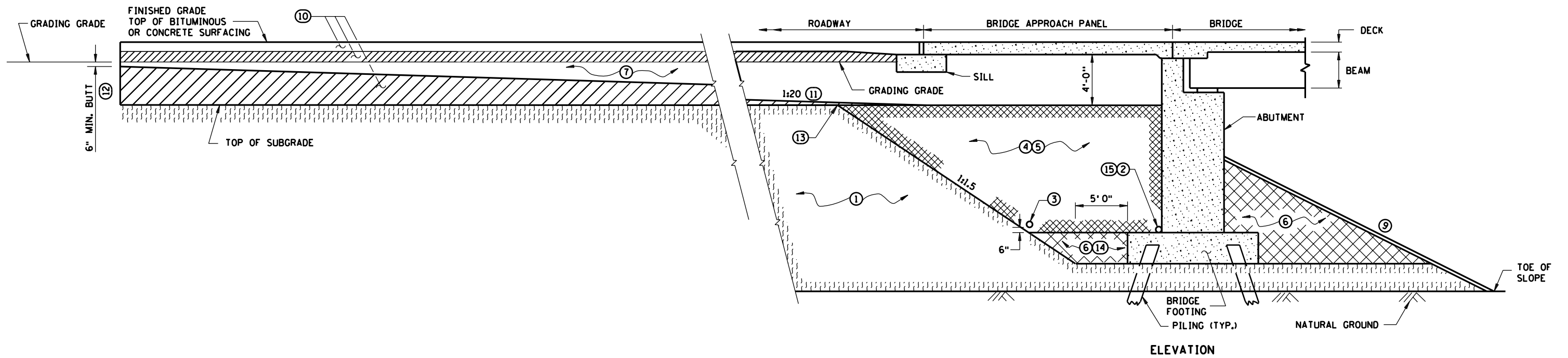
NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

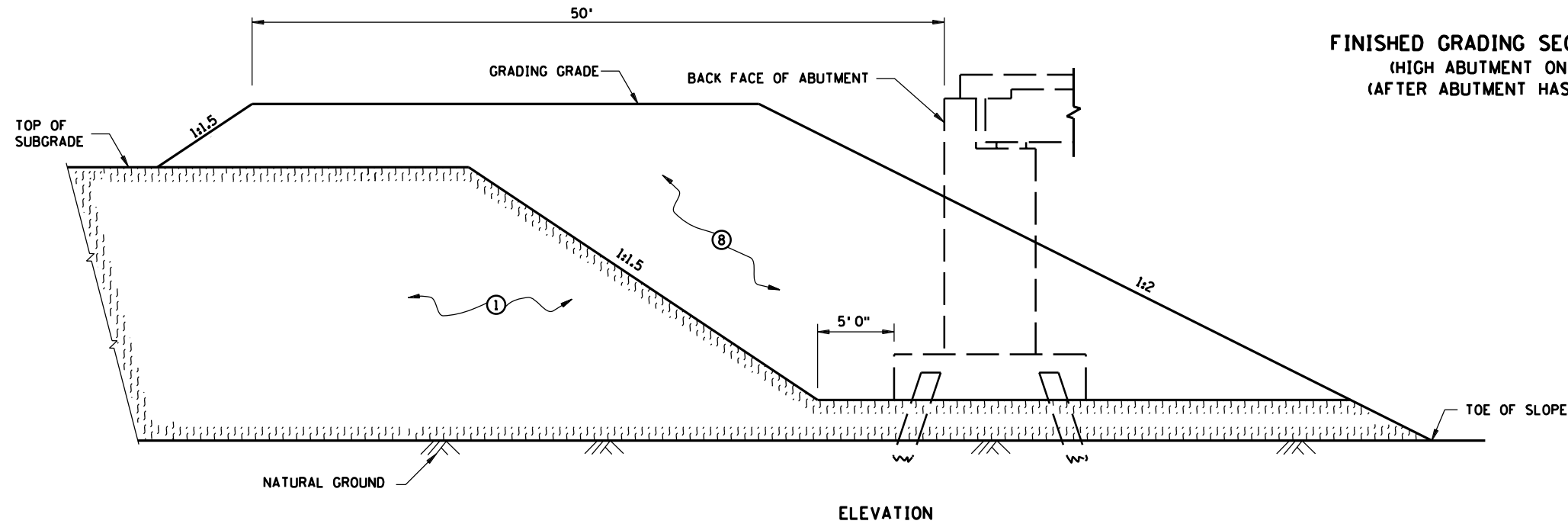
- ① ALL REINFORCEMENT IN APPROACH PANEL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.
- ② TRANSITION FACE OF 4" CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAILS.
- ③ TRANSITION APPROACH PANEL CURB HEIGHT 4" TO 0" WHERE THERE IS NO ROADWAY CURB.
- ④ L2KT OR L1T LONGITUDINAL JOINT IS REQUIRED. SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.
- ⑤ EDGE OF PANEL PERPENDICULAR TO GUTTER FOR SKEWS OVER 45°.
- ⑥ LOCATION MAY BE ON OR OFF THE APPROACH PANEL AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL CHAPTER 7 FOR CATCH BASIN INFORMATION.
- ⑦ APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. SEE BRIDGE PLANS FOR REQUIREMENTS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.
- ⑧ 20 FEET TO 40° SKEWS, 15 FEET OVER 40° SKEWS.
- ⑨ CONTRACTION JOINT C2B-D WITH 1-1/2" DIA. X 1'6" LG. EPOXY COATED DOWEL BARS AT 12" SPACING PARALLEL TO ϕ OF ROADWAY. CAGES NOT REQUIRED.
- ⑩ FAN 4 - NO.16 BARS 8'0" LONG AS SHOWN FOR SKEWS OVER 45°.
- ⑪ SEE PLAN SHEET .. FOR BRIDGE APPROACH ROADWAY INFORMATION.
- ⑫ CONCRETE SHOULDERS INCLUDED IN PAYMENT FOR APPROACH PANEL QUANTITY.
- ⑬ SEE SHEET .. FOR REQUIRED MISCELLANEOUS DETAILS NOT SHOWN.

CD39
OF CD43

STANDARD SHEET NO. 5-297.230	TITLE: BRIDGE APPROACH PANEL BITUMINOUS MAINLINE - JOINT AT ABUTMENT OVER 10° - 60° SKEWS
STANDARD APPROVED: MAY 7, 2002	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 166 OF 534 SHEETS	



ELEVATION
FINISHED GRADING SECTION AT ABUTMENT
 (HIGH ABUTMENT ON PILING SHOWN)
 (AFTER ABUTMENT HAS BEEN CONSTRUCTED)



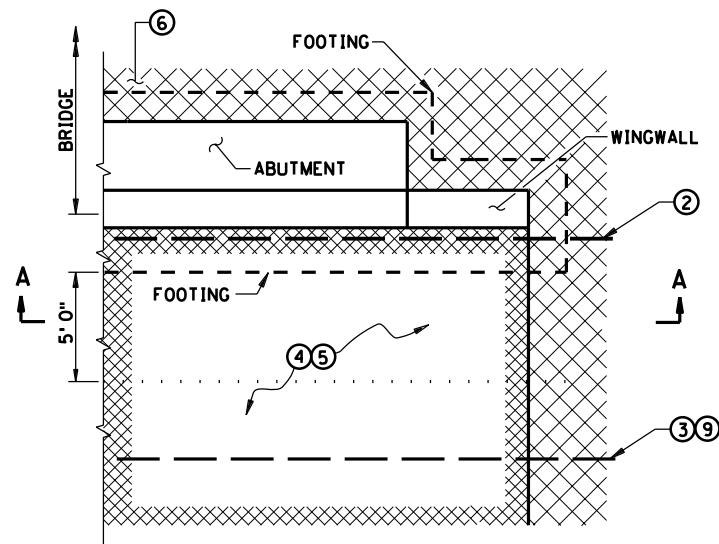
ELEVATION
ROUGH GRADING SECTION AT ABUTMENT
 (PRIOR TO ABUTMENT CONSTRUCTION)

NOTES:

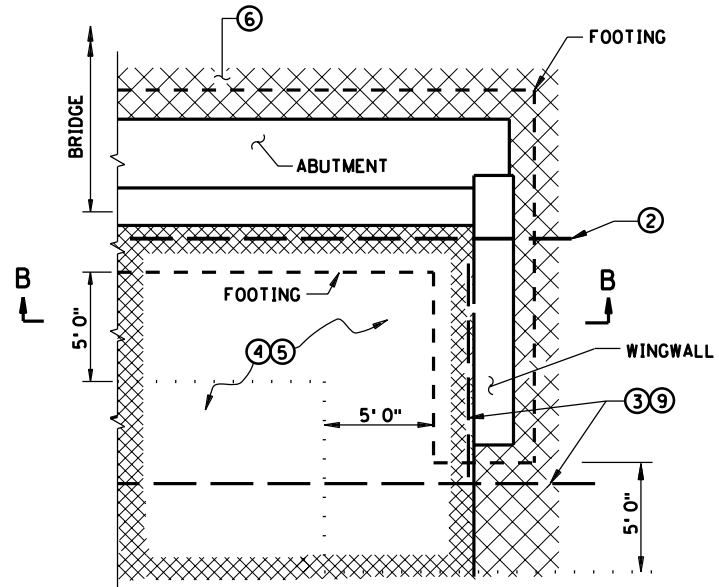
- ① NATURAL GROUND OR SUITABLE GRADING MATERIAL.
- ② SUBSURFACE PIPE DRAIN. SEE BRIDGE PLAN FOR STANDARD DETAIL B910 FOR DETAILS.
- ③ SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
- ④ SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE.
- ⑤ QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN AND PAYMENT IS BASED ON THIS QUANTITY. SEE GRADING PLAN FOR QUANTITY. Mn/DOT SPEC. 1903 SHALL NOT APPLY IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS AND ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
- ⑥ SUITABLE GRADING MATERIAL.
- ⑦ BACKFILL MATERIAL SHALL COMPLY WITH SPEC. 3149.2B2 (SELECT GRANULAR BORROW).
- ⑧ SURCHARGE MATERIAL SHALL BE PLACED DURING ROADWAY EMBANKMENT CONSTRUCTION. THIS SAME MATERIAL TO BE REMOVED AS STRUCTURE EXCAVATION JUST PRIOR TO THE ABUTMENT CONSTRUCTION (SEE BRIDGE PLAN FOR METHOD OF PAYMENT AND QUANTITIES). EXCAVATION LIMITS ARE SHOWN.
- ⑨ SEE BRIDGE PLANS FOR SLOPE AND SLOPE PROTECTION.
- ⑩ SEE GRADING PLANS FOR TYPE OF MATERIAL.
- ⑪ START 1:20 TAPER AT END OF APPROACH PANEL. 1:20 VARIES WHEN APPROACH PANEL IS SKEWED.
- ⑫ GRADING TO BE SQUARED OFF ON SKEWED BRIDGES.
- ⑬ TOP OF 1:1.5 SLOPE (FORMS A LINE PARALLEL TO END OF BRIDGE).
- ⑭ MATERIAL SHALL HAVE SUITABLE MOISTURE CONTENT DURING PLACEMENT AND SHALL BE COMPACTED PER SPEC. 2105. SELECT GRANULAR MATERIAL MODIFIED 10% MAY BE USED IN LIEU OF SUITABLE GRADING MATERIAL.
- ⑮ FURNISH AND INSTALL AT TOP OF BRIDGE FOOTING IF BRIDGE DETAIL B910 IS INCLUDED ON BRIDGE PLAN.

STANDARD SHEET NO. 5-297.233 (1 OF 2)	TITLE: BRIDGE APPROACH TREATMENT FOR ABUTMENT ON FOOTING
STANDARD APPROVED: APRIL 11, 2008	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 167 OF 534 SHEETS	

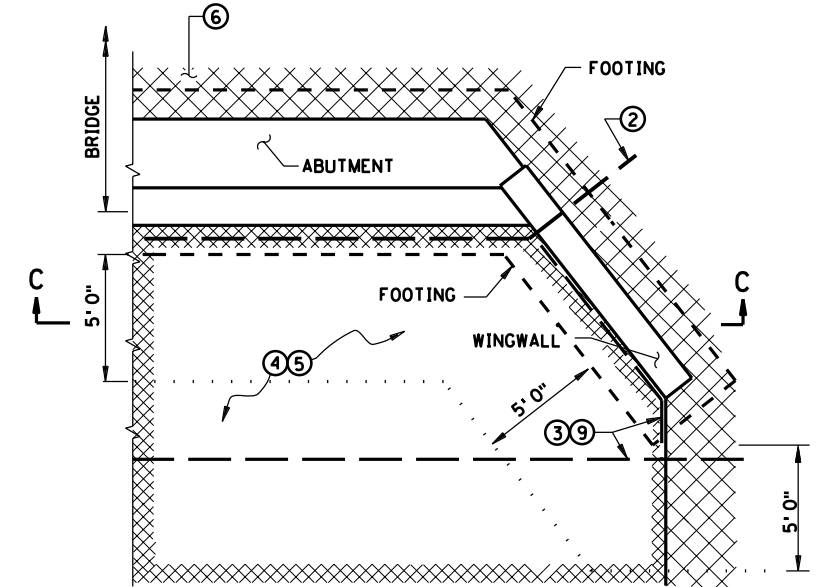
CD40
OF CD43



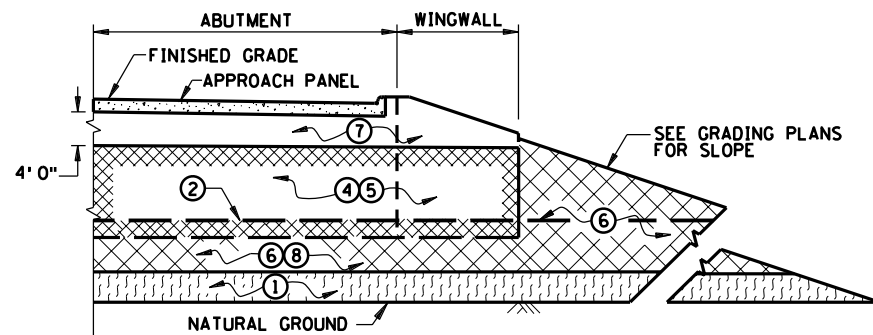
**PARTIAL PLAN VIEW AT ABUTMENT
(WINGWALL AT 180°) (FINISHED GRADING)**



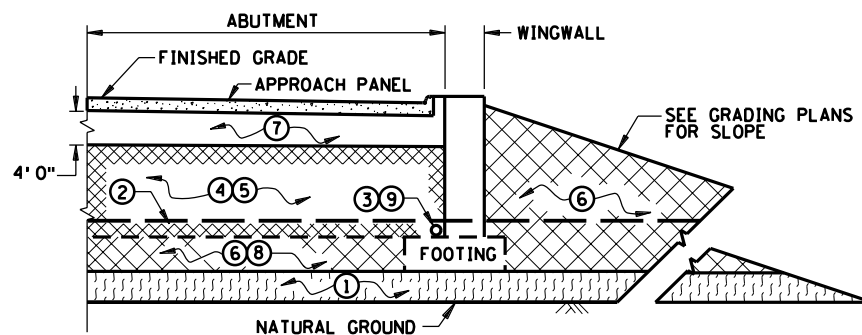
**PARTIAL PLAN VIEW AT ABUTMENT
(WINGWALL AT 90°) (FINISHED GRADING)**



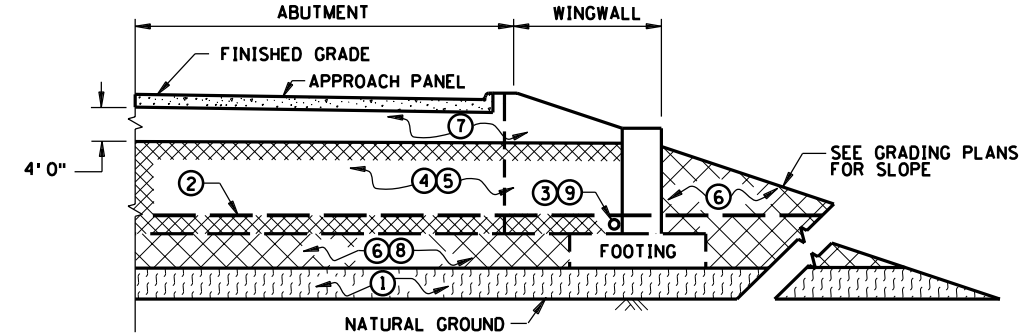
**PARTIAL PLAN VIEW AT ABUTMENT
(WINGWALL AT ANY OTHER ANGLE) (FINISHED GRADING)**



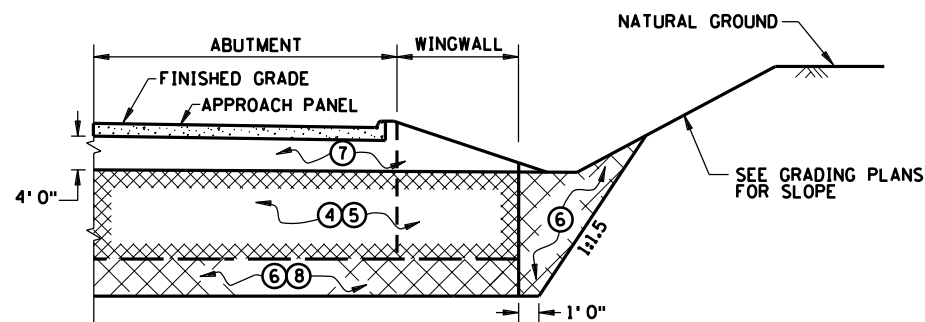
**FINISHED GRADING SECTION A-A
(FILL SECTION)
(BRIDGE DETAIL B910 DRAIN NOT SHOWN)**



**FINISHED GRADING SECTION B-B
(FILL SECTION)
(BRIDGE DETAIL B910 DRAIN NOT SHOWN)**



**FINISHED GRADING SECTION C-C
(FILL SECTION)
(BRIDGE DETAIL B910 DRAIN NOT SHOWN)**



**FINISHED GRADING SECTION A-A
(CUT SECTION)
(BRIDGE DETAIL B910 DRAIN NOT SHOWN)**

NOTES:

- ① NATURAL GROUND OR SUITABLE GRADING MATERIAL.
- ② SUBSURFACE PIPE DRAIN, SEE BRIDGE PLAN FOR STANDARD DETAIL B910 FOR DETAILS.
- ③ SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
- ④ SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE.
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- ⑥ SUITABLE GRADING MATERIAL.
- ⑦ BACKFILL MATERIAL SHALL COMPLY WITH SPEC. 3149.2B2 (SELECT GRANULAR BORROW).
- ⑧ MATERIAL SHALL HAVE SUITABLE MOISTURE CONTENT DURING PLACEMENT AND SHALL BE COMPACTED PER SPEC. 2105. SELECT GRANULAR MATERIAL MODIFIED 10% MAY BE USED IN LIEU OF SUTIBLE GRADING MATERIAL.
- ⑨ FURNISH AND INSTALL AT TOP OF BRIDGE FOOTING IF BRIDGE DETAIL B910 IS INCLUDED ON BRIDGE PLAN.

STANDARD SHEET NO. 5-297.233 (2 OF 2)	TITLE: BRIDGE APPROACH TREATMENT FOR ABUTMENT ON FOOTING
STANDARD APPROVED: APRIL 11, 2008	

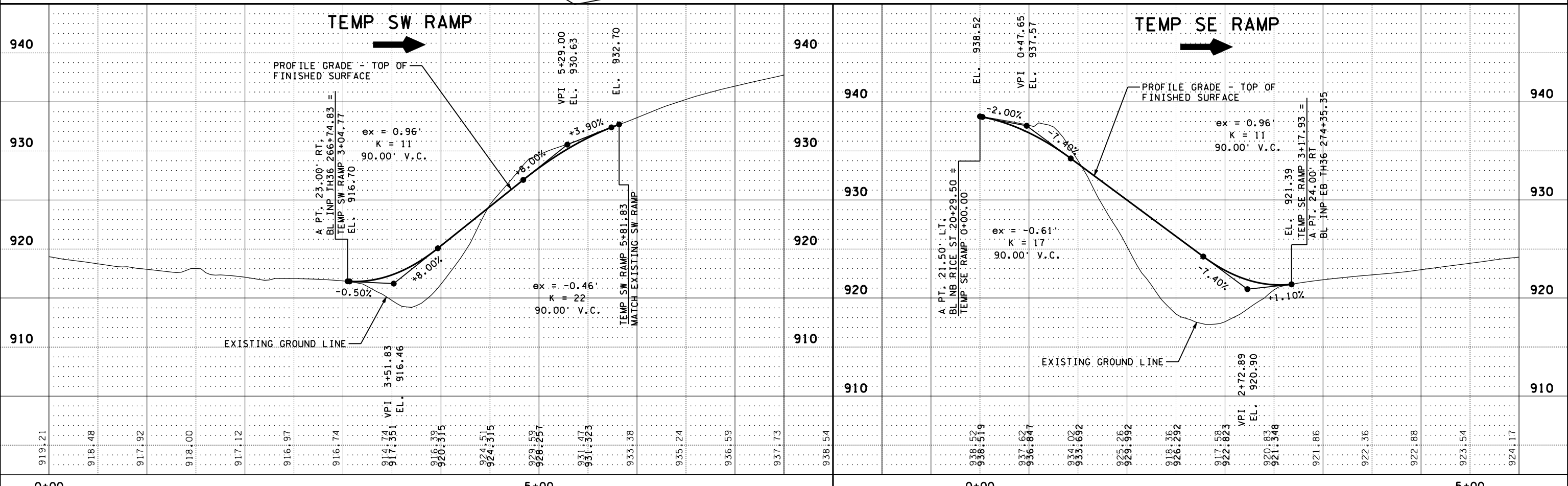
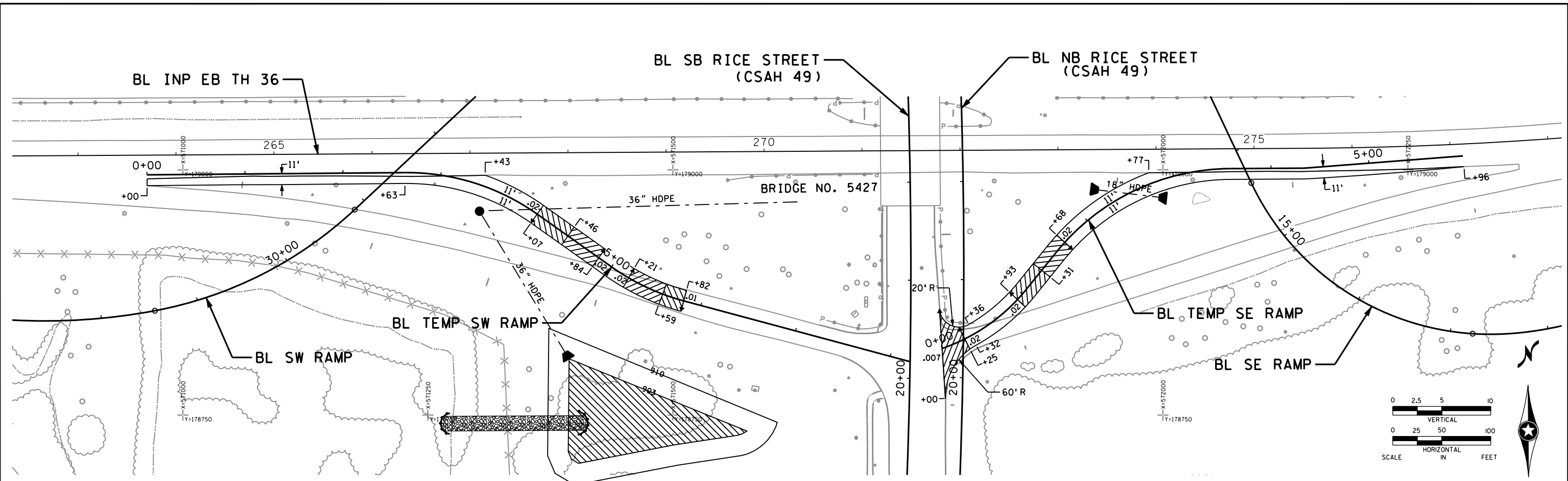
CD41 OF CD43
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 168 OF 534 SHEETS

3:32:38 PM

5/6/2010

kerickson

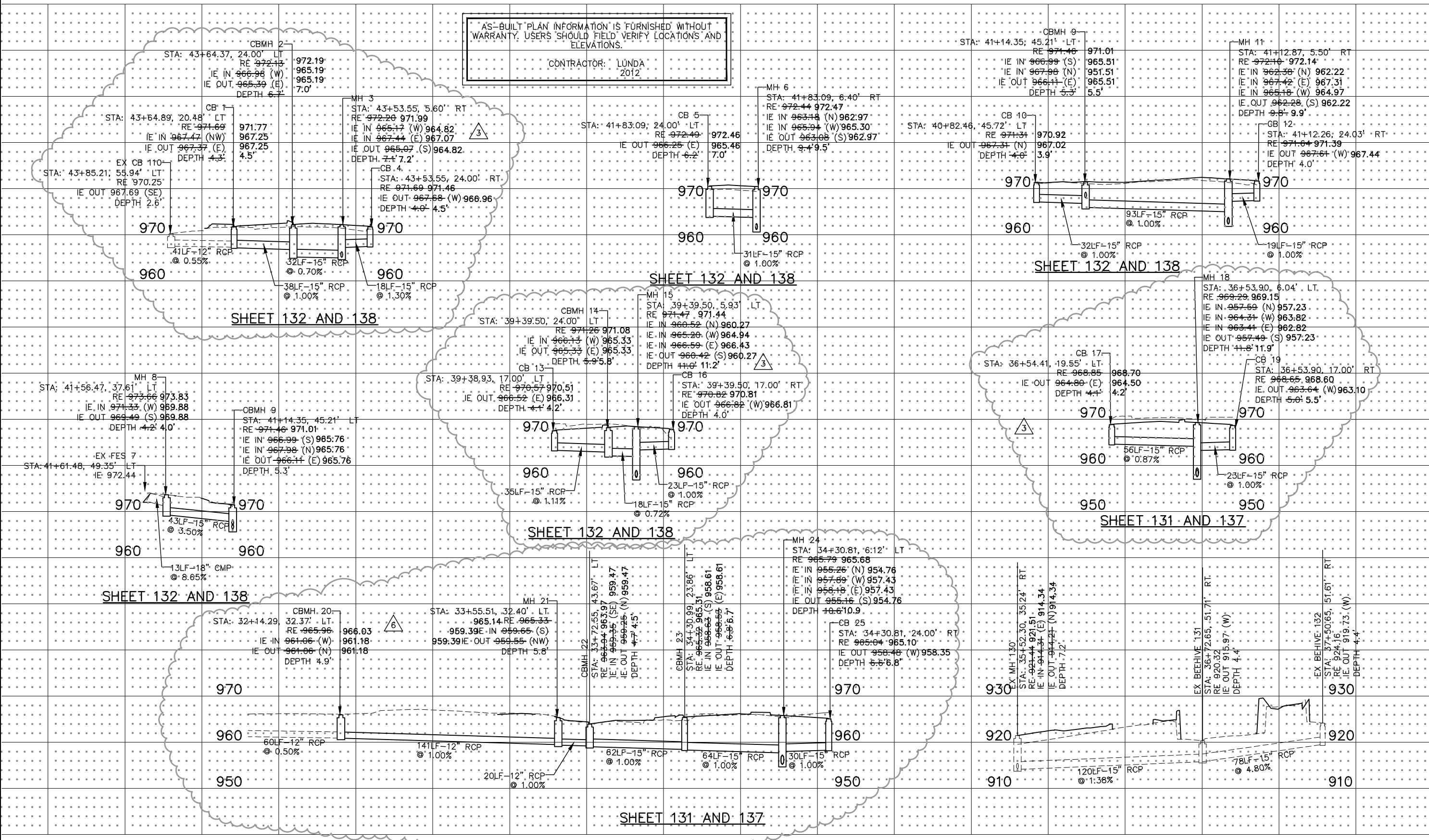
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DESIGN TEAM				I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.				RAMSEY COUNTY, MINNESOTA				FILE NO. 171			
DRAWN BY: MTT				Certified By: <i>Bret W. Johnson</i> Lic. No. 25087				TH 36 / RICE STREET (CSAH 49)				RAMSP08790			
DESIGNER: SRH,HLR				Printed Name: BRET W. JOHNSON Date: 3/3/2010				SP NO. 62-649-27 CTB, 6212-165 (TH 36)				TCP1			
CHECKED BY: KLE								TEMPORARY CONSTRUCTION PLAN & PROFILE				OF TCPI			
NO. BY DATE REVISIONS								TEMP SW RAMP & TEMP SE RAMP				534			

K:\TWC_CIVIL\COUNTY\RAMSEY\ICE_TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\ICE_PFL01.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		

NO.	BY	DATE	REVISIONS
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION
3	BAE	8/26/2010	MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

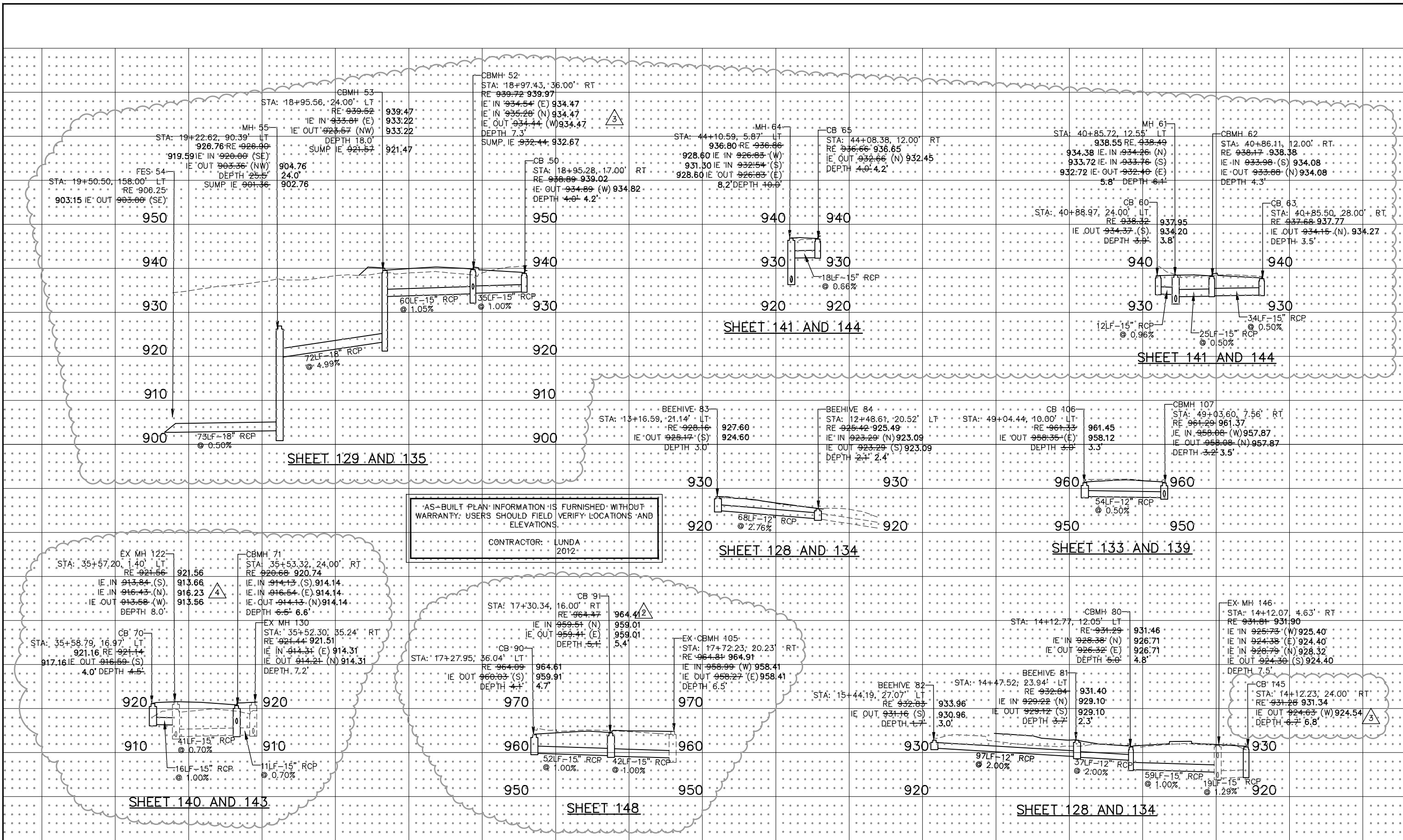
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 3450
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STORM SEWER PROFILES
 FILE NO. 160599001
 SSP1 OF SSP7

172
 534

K:\TWC_CIVIL\COUNTY\RAMSEY\PROJECTS\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN\RIE_PLO2.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



*AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

DESIGN TEAM			
DRAWN BY:	RJG	4	BAE 3/29/11
DESIGNER:	RJG	3	BAE 8/26/2010
CHECKED BY:	BAE	2	BAE 8/09/2010
		NO.	BY DATE
REVISIONS			

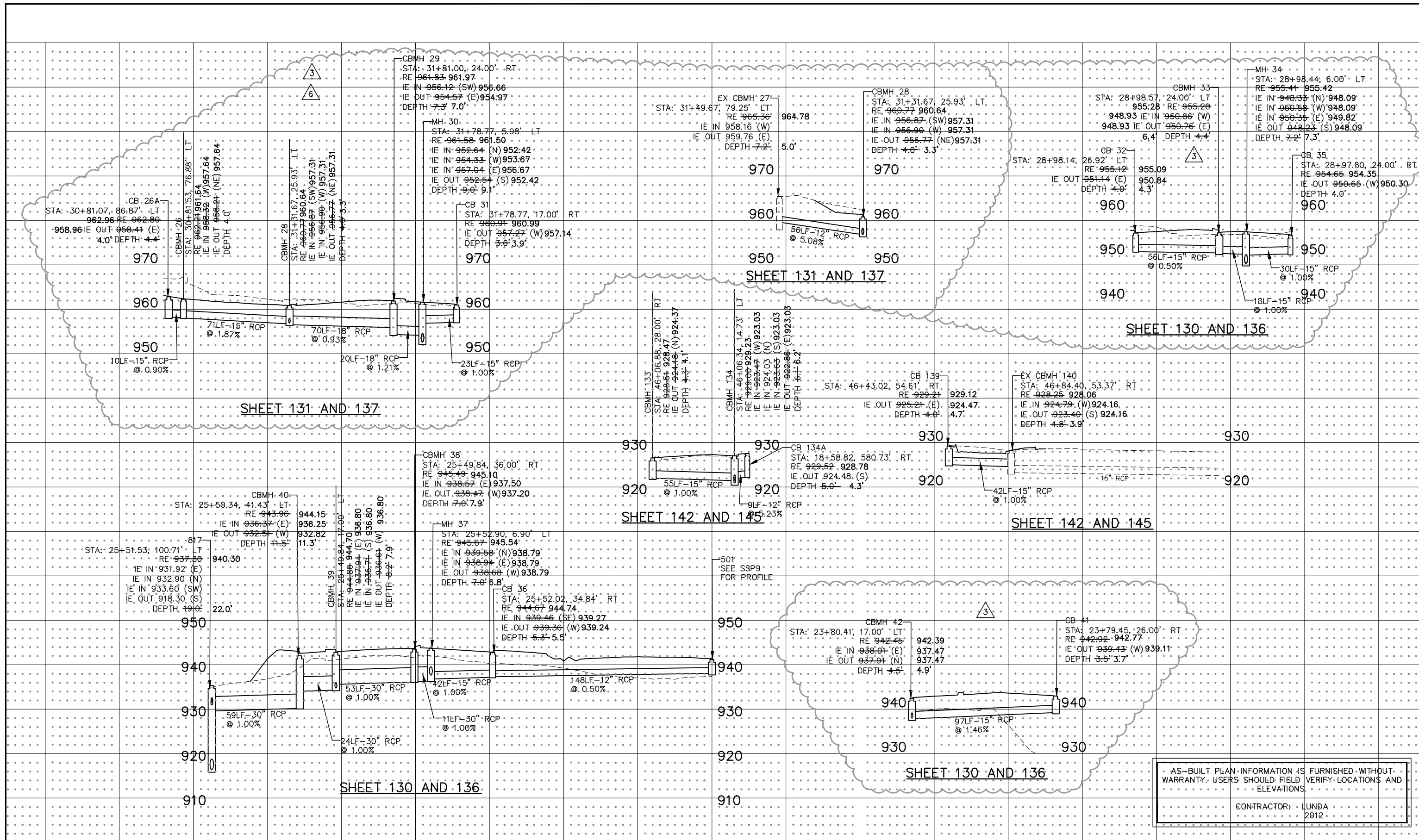
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010


Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 3450
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STORM SEWER PROFILES		FILE NO.
		173
		160599001
		SSP2
		OF SSP7
		534

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AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.

CONTRACTOR: LUNDA 2012

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION
3	BAE	8/26/2010	MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION

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Certified By: *Beth A. Engum* Lic. No. 44785

Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.

2550 UNIVERSITY AVE. WEST, SUITE 3450
ST. PAUL, MINNESOTA 55114

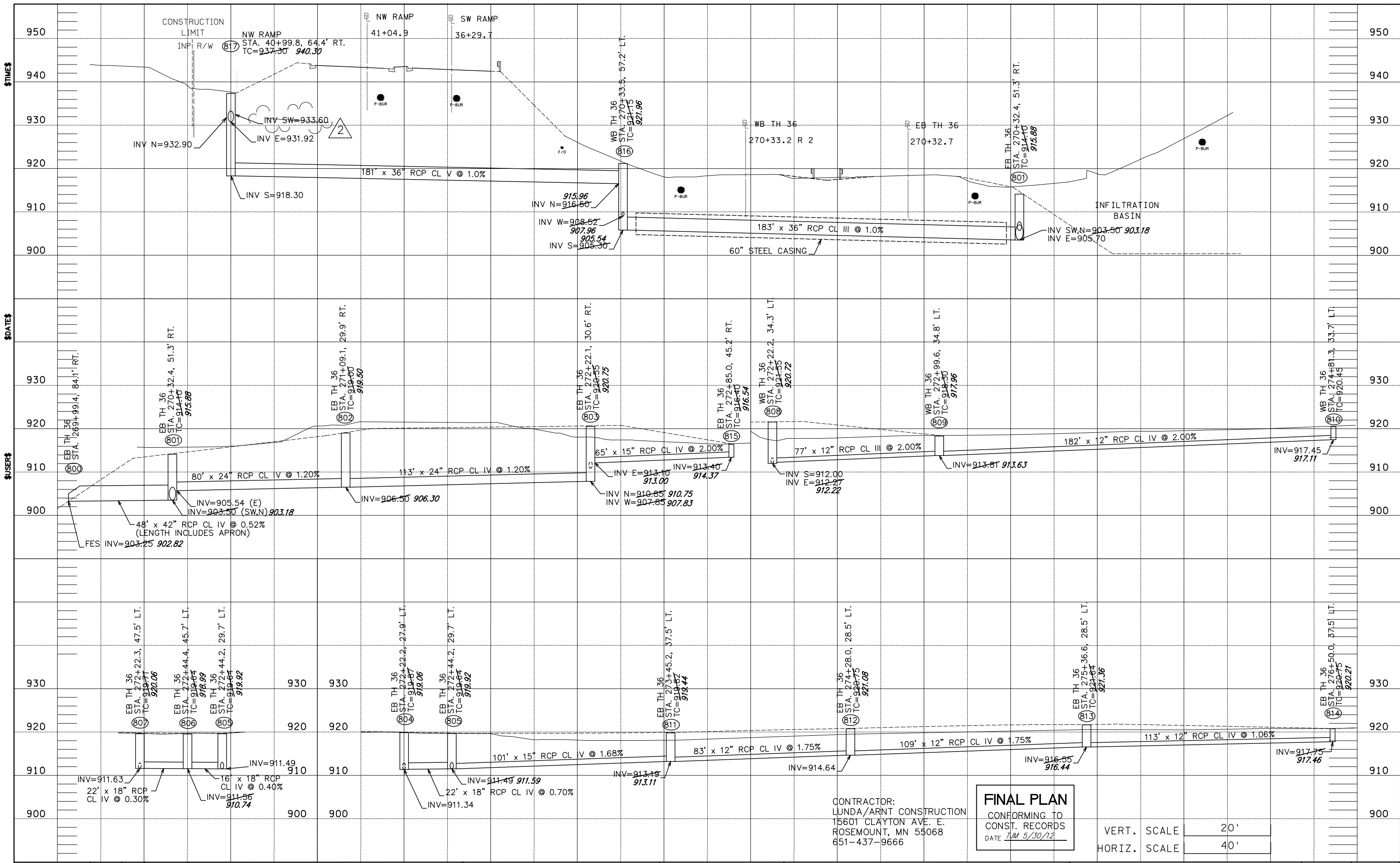
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA

TH 36 / RICE STREET (CSAH 49)

SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STORM SEWER PROFILES		FILE NO.
		174
		SSP3 OF SSP7
		534



CONTRACTOR:
LUNDA/ARNT CONSTRUCTION
15601 CLAYTON AVE. E.
ROSEMOUNT, MN 55068
651-437-9666

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE JUN 5/30/12

VERT. SCALE 20'
HORIZ. SCALE 40'

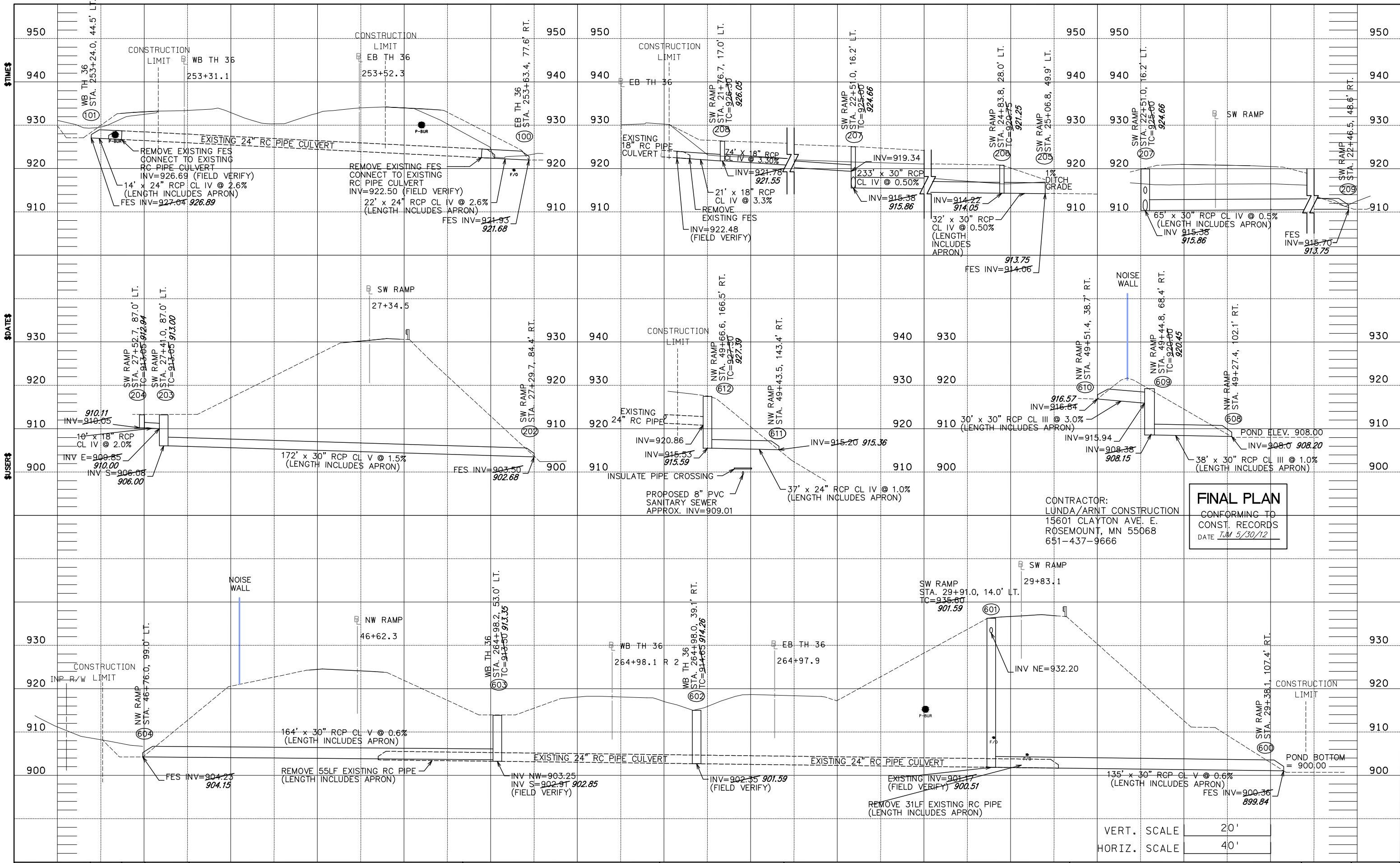
DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION.
DRAWN BY:	MTT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.
Certified By: Bret W. Johnson Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO. 175
RAMSPIOB790
SSP4
OFSSP7
534



FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE JUN 5/30/12

CONTRACTOR:
 LUNDA/ARNT CONSTRUCTION
 15601 CLAYTON AVE. E.
 ROSEMOUNT, MN 55068
 651-437-9666

VERT. SCALE 20'
 HORIZ. SCALE 40'

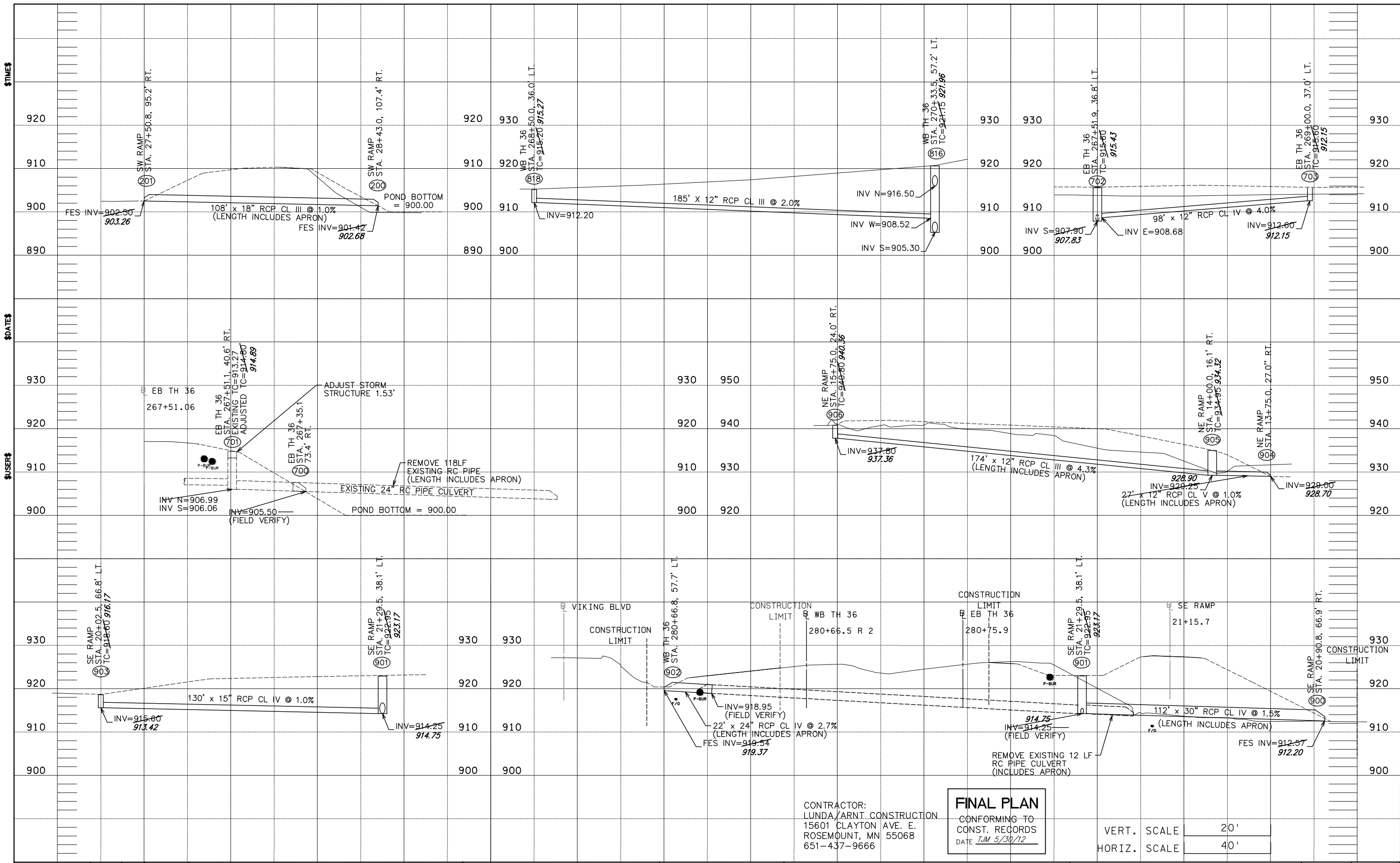
DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO. 176
 RAMSPIOB790
 SSP5 OFSSP7
 534



CONTRACTOR:
LUNDA/ARNT CONSTRUCTION
15601 CLAYTON AVE. E.
ROSEMOUNT, MN 55068
651-437-9666

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

VERT. SCALE 20'
HORIZ. SCALE 40'

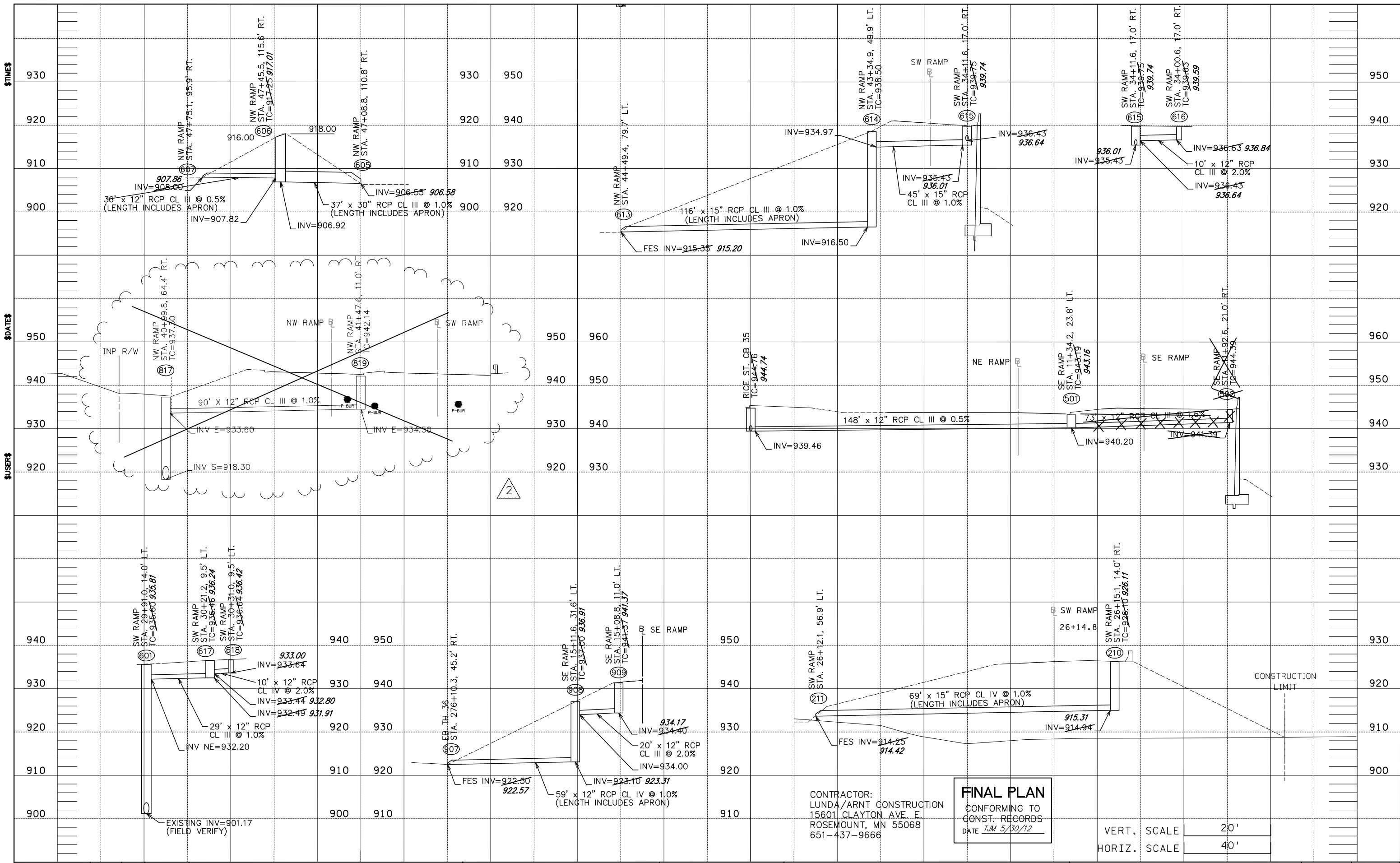
DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
Certified By: Bret W. Johnson Lic. No. 25087
Printed Name: BRETT W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO. 177
RAMSPIOB790
SSP6 OF SSP7
534



CONTRACTOR:
LUNDA/ARNT CONSTRUCTION
15601 CLAYTON AVE. E.
ROSEMOUNT, MN 55068
651-437-9666

FINAL PLAN
CONFORMING TO
CONSTR. RECORDS
DATE TJM 5/30/12

VERT. SCALE 20'
HORIZ. SCALE 40'

CONSTRUCTION
LIMIT

DESIGN TEAM	2	KLE	8/9/10	CR B2 W ALIGNMENT & MINOR RAMP MODIFICATIONS REVISION.
DRAWN BY:	MTT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

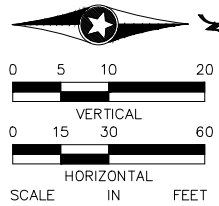
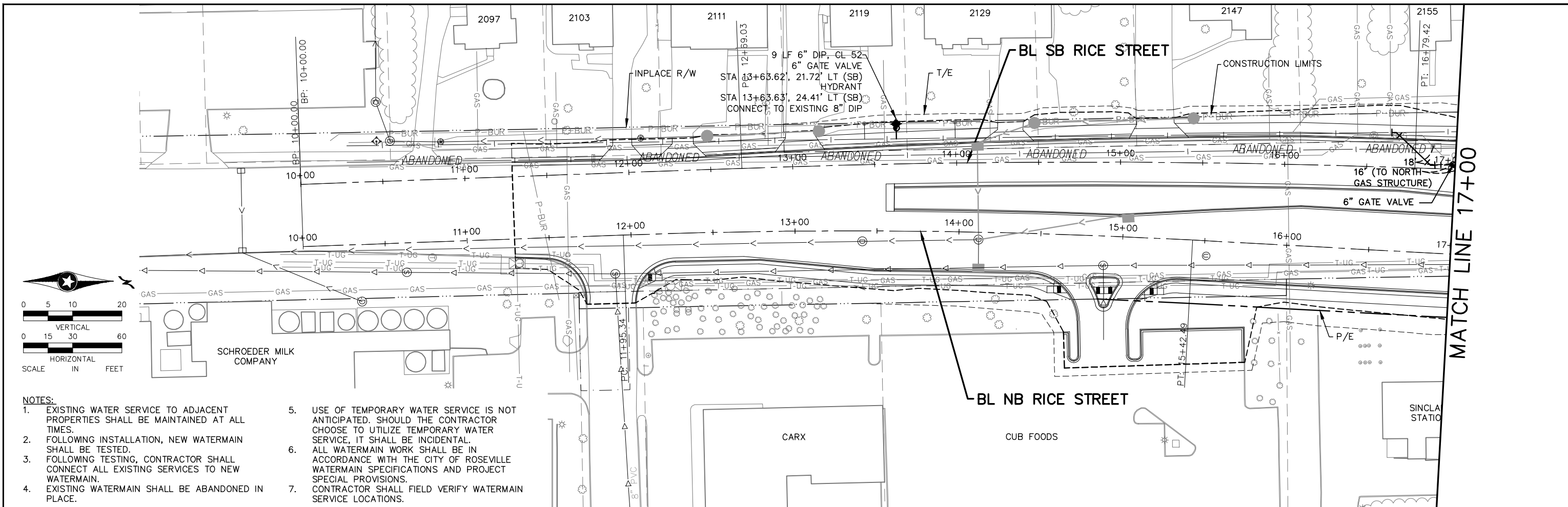
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Certified By: Bret W. Johnson Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



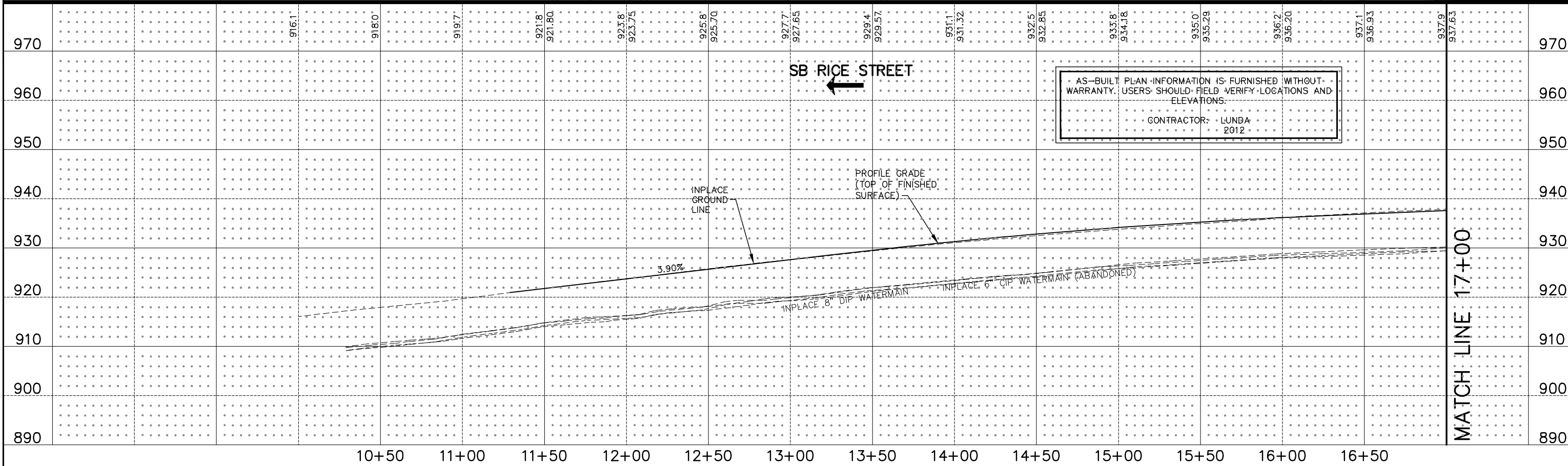
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FILE NO. 178
RAMSPIOB790
SSP7 OF SSP7
534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN_RICE_PPU01.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



- NOTES:**
- EXISTING WATER SERVICE TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
 - FOLLOWING INSTALLATION, NEW WATERMAIN SHALL BE TESTED.
 - FOLLOWING TESTING, CONTRACTOR SHALL CONNECT ALL EXISTING SERVICES TO NEW WATERMAIN.
 - EXISTING WATERMAIN SHALL BE ABANDONED IN PLACE.
 - USE OF TEMPORARY WATER SERVICE IS NOT ANTICIPATED. SHOULD THE CONTRACTOR CHOOSE TO UTILIZE TEMPORARY WATER SERVICE, IT SHALL BE INCIDENTAL.
 - ALL WATERMAIN WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROSEVILLE WATERMAIN SPECIFICATIONS AND PROJECT SPECIAL PROVISIONS.
 - CONTRACTOR SHALL FIELD VERIFY WATERMAIN SERVICE LOCATIONS.



AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
CONTRACTOR: LUNDA 2012

DESIGN TEAM			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. <i>Beth A. Engum</i> Certified By: _____ Lic. No. 44785 Printed Name: BETH A. ENGUM Date: 3/3/2010	 2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116	RAMSEY COUNTY, MINNESOTA		WATERMAIN RICE STREET		FILE NO.	179
DRAWN BY:	RJG				TH 36 / RICE STREET (CSAH 49)		STA. 10+00 TO STA. 17+00		WM1	
DESIGNER:	RJG				SP NO. 62-649-27 CTB, 6212-165 (TH 36)				OF WM7	534
CHECKED BY:	BAE									
NO.	BY	DATE	REVISIONS							

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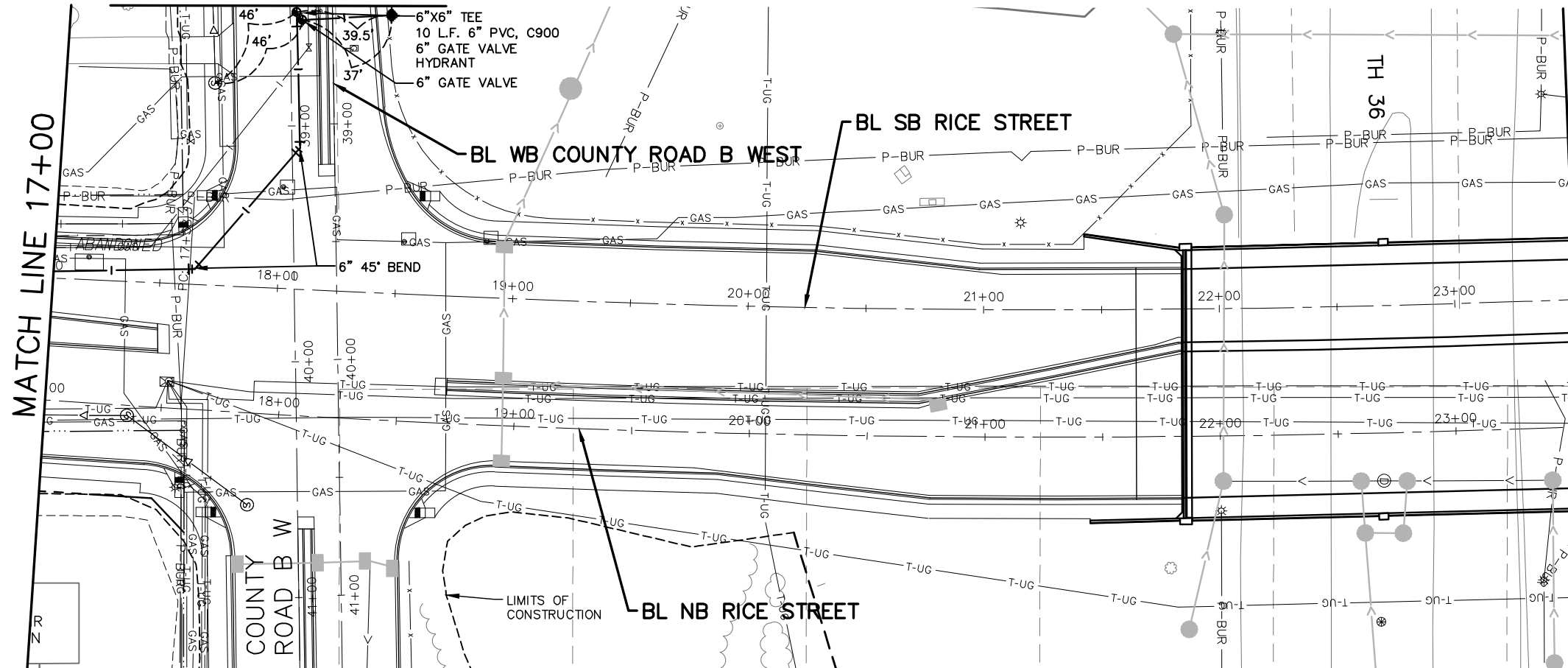
MATCH LINE 38+50

MATCH LINE 17+00

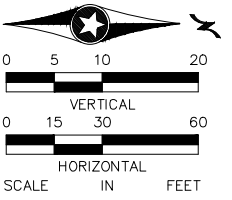
MATCH LINE 23+50

MATCH LINE 17+00

MATCH LINE 23+50

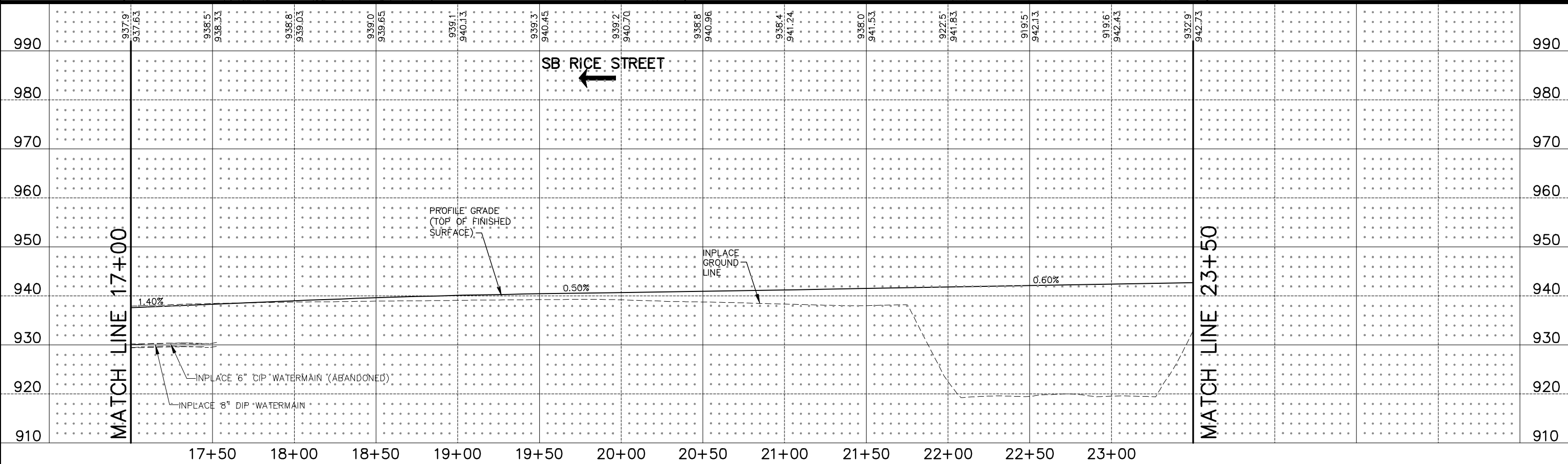


- NOTES:
- EXISTING WATER SERVICE TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
 - FOLLOWING INSTALLATION, NEW WATERMAIN SHALL BE TESTED.
 - FOLLOWING TESTING, CONTRACTOR SHALL CONNECT ALL EXISTING SERVICES TO NEW WATERMAIN.
 - EXISTING WATERMAIN SHALL BE ABANDONED IN PLACE.
 - USE OF TEMPORARY WATER SERVICE IS NOT ANTICIPATED. SHOULD THE CONTRACTOR CHOOSE TO UTILIZE TEMPORARY WATER SERVICE, IT SHALL BE INCIDENTAL.
 - ALL WATERMAIN WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROSEVILLE WATERMAIN SPECIFICATIONS AND PROJECT SPECIAL PROVISIONS.
 - CONTRACTOR SHALL FIELD VERIFY WATERMAIN SERVICE LOCATIONS.



AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.

CONTRACTOR: LUNDA 2012



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
5	BAE	4/11/11	RELOCATE WATERMAIN

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.

Certified By: *Beth A. Engum* Lic. No. 44785

Printed Name: BETH A. ENGUM Date: 4/22/2010

Kimley-Horn and Associates, Inc.

2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114

TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

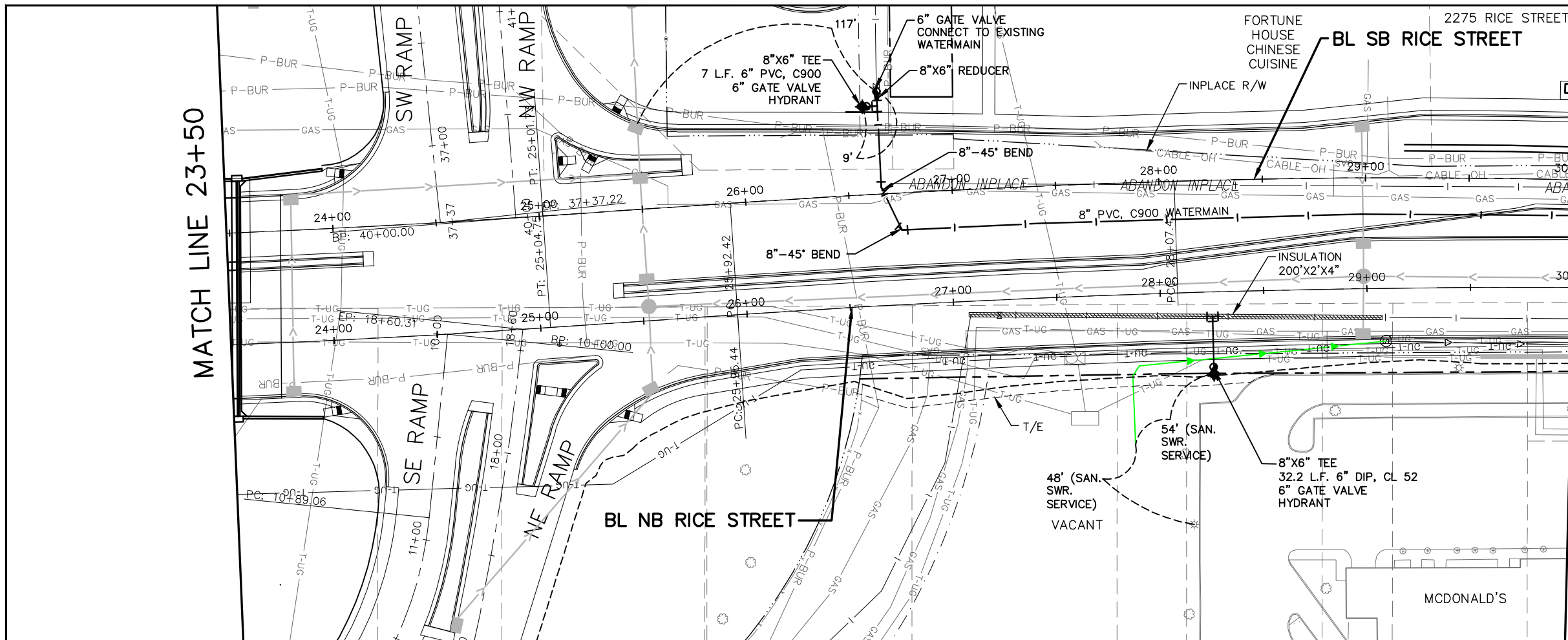
RAMSEY COUNTY, MINNESOTA

TH 36 / RICE STREET (CSAH 49)

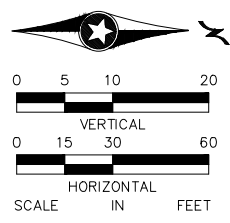
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

WATERMAIN RICE STREET		FILE NO.	180
STA. 17+00 TO STA. 23+50		160599001	
		WM2	534
		OF WM7	

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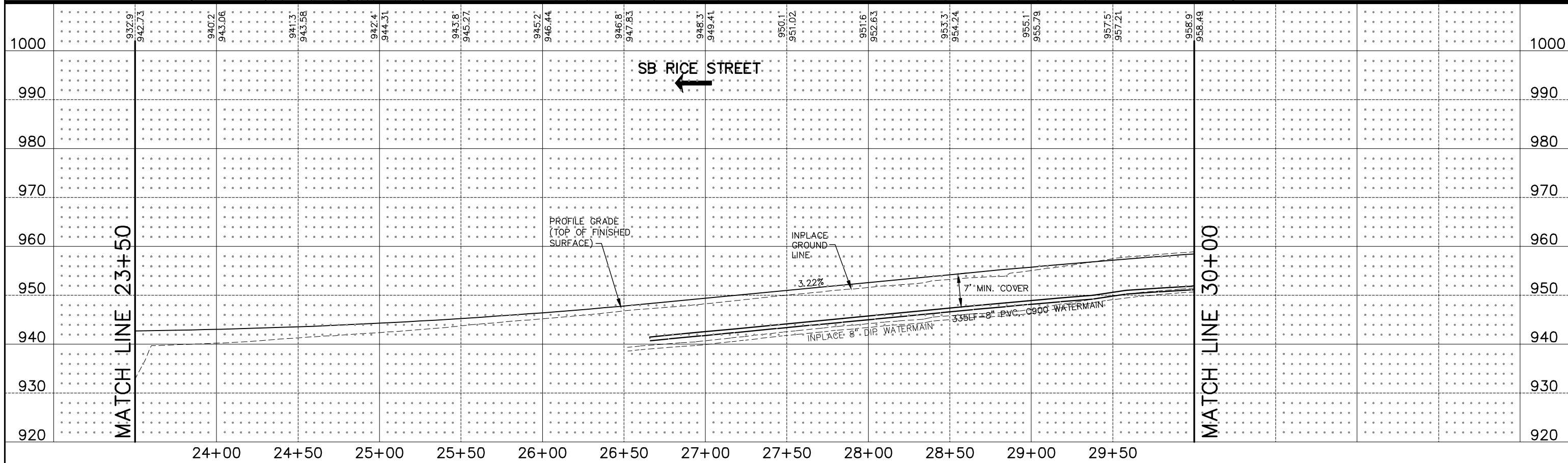


- NOTES:**
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 - USE OF TEMPORARY WATER SERVICE IS NOT ANTICIPATED. SHOULD THE CONTRACTOR CHOOSE TO UTILIZE TEMPORARY WATER SERVICE, IT SHALL BE INCIDENTAL.
 - ALL WATERMAIN WORK SHALL BE IN ACCORDANCE WITH THE CITY OF ROSEVILLE WATERMAIN SPECIFICATIONS AND PROJECT SPECIAL PROVISIONS.
 - CONTRACTOR SHALL FIELD VERIFY WATERMAIN SERVICE LOCATIONS.



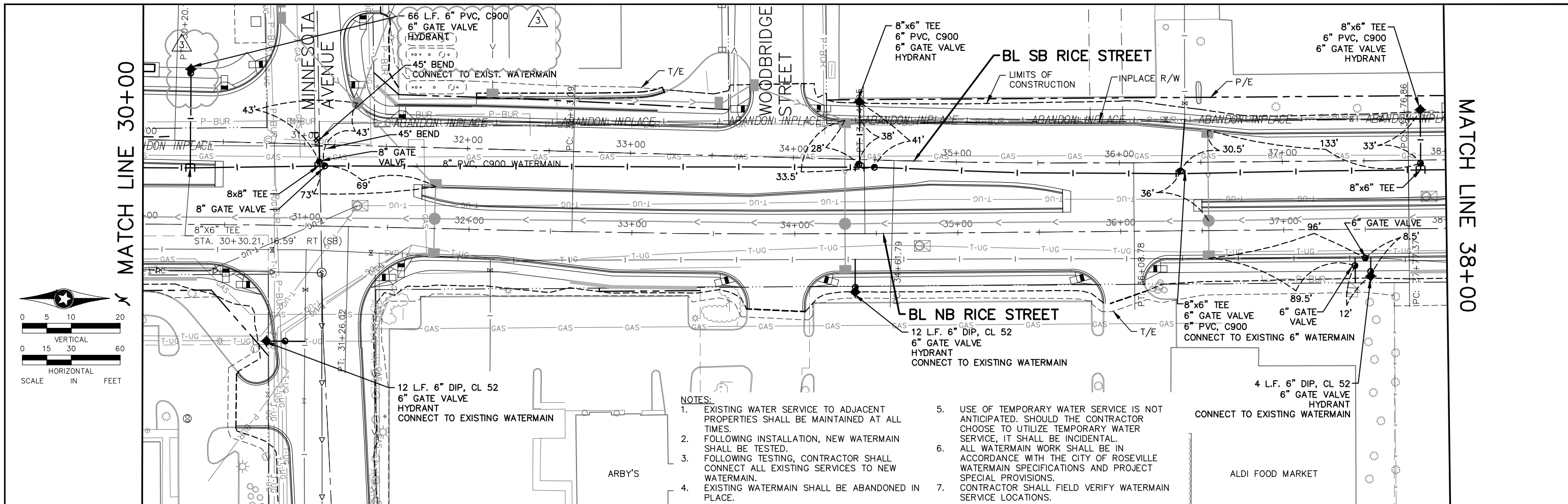
AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.

CONTRACTOR: LUNDA 2012



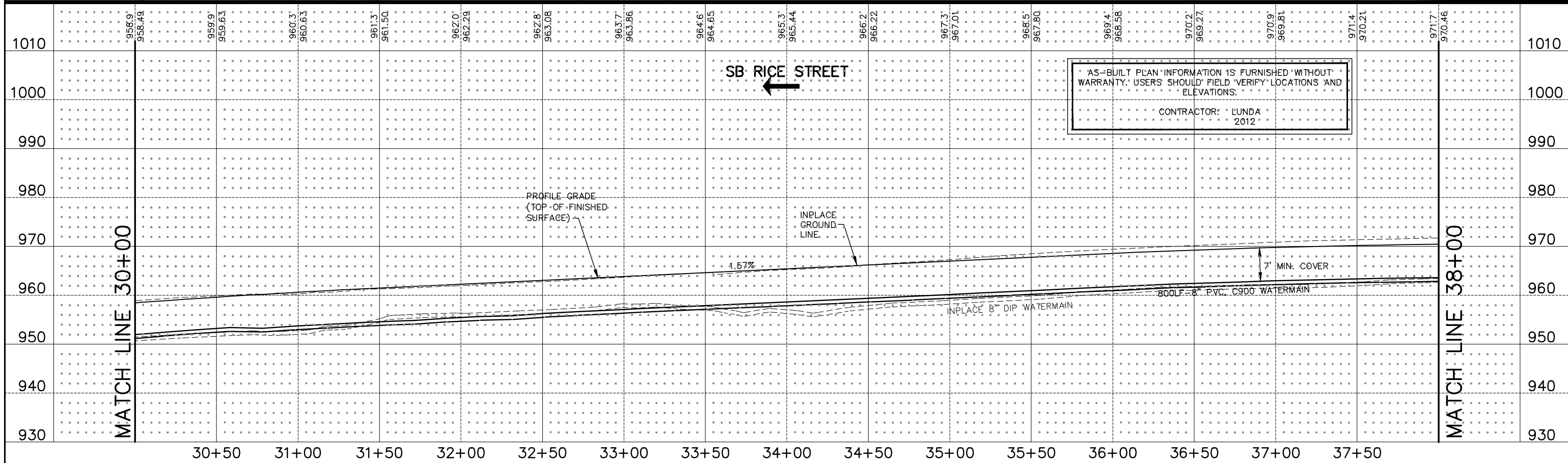
DESIGN TEAM		I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Certified By: <i>Beth A. Engum</i> Lic. No. 44785 Printed Name: BETH A. ENGUM Date: 3/3/2010	Kimley-Horn and Associates, Inc. 2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116	RAMSEY COUNTY, MINNESOTA		WATERMAIN RICE STREET STA. 23+50 TO STA. 30+00	FILE NO.	181
DRAWN BY:	RJG			TH 36 / RICE STREET (CSAH 49)			160599001	
DESIGNER:	RJG			SP NO. 62-649-27 CTB, 6212-165 (TH 36)			WM3	
CHECKED BY:	BAE					OF WM7	534	
NO.	BY	DATE	REVISIONS					

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST_PLAN_RICE_PPU04.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



NOTES:

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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
6	BAE	4/19/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION
3	BAE	8/26/2010	MISCELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION

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 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 3/3/2010

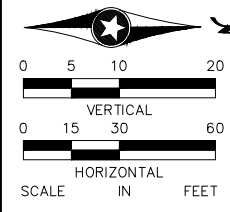
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

WATERMAIN RICE STREET
 STA. 30+00 TO STA. 38+00

FILE NO.	182
160599001	
WM4	
OF WM7	534

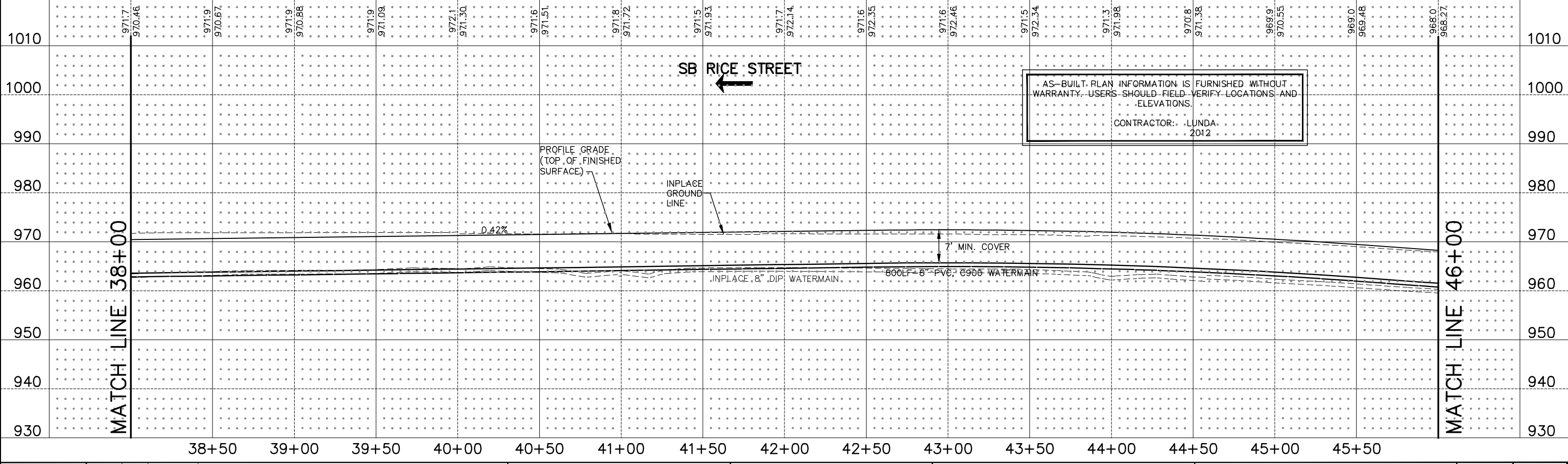
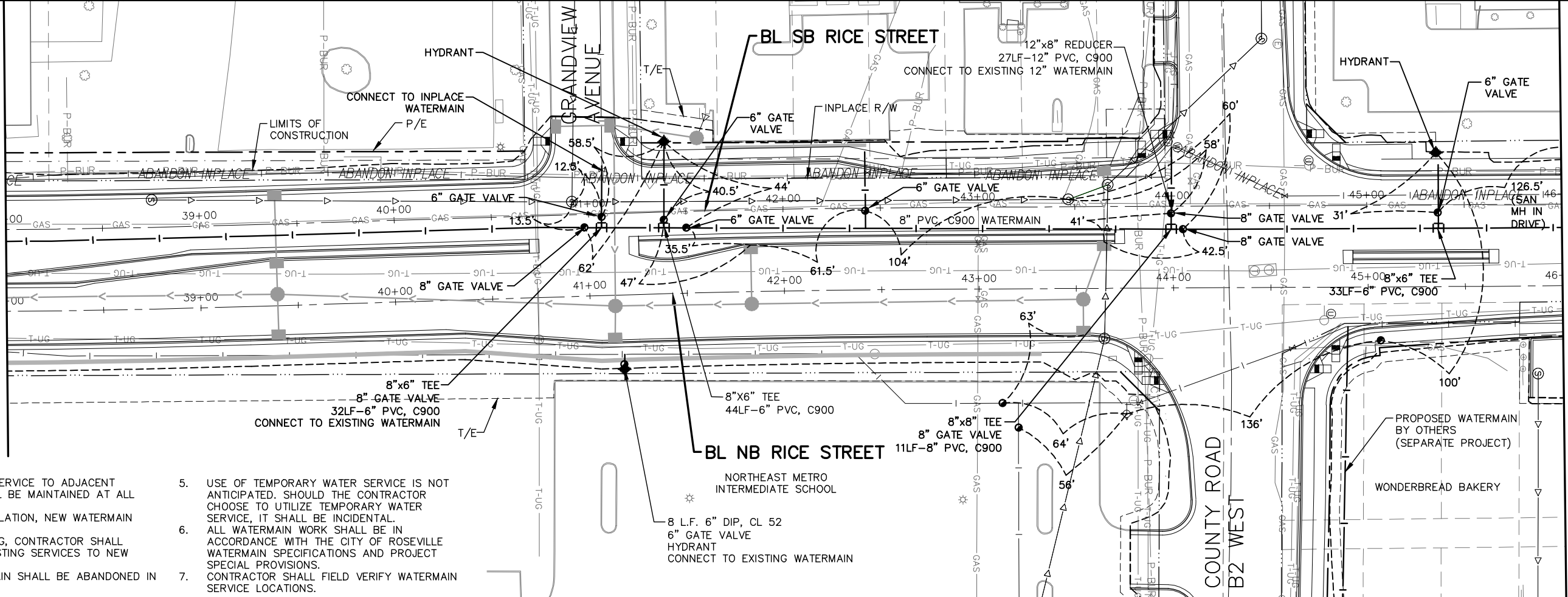
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 - CONTRACTOR SHALL FIELD VERIFY WATERMAIN SERVICE LOCATIONS.

MATCH LINE 38+00

MATCH LINE 46+00



AS-BUILT PLAN INFORMATION IS FURNISHED WITHOUT WARRANTY. USERS SHOULD FIELD VERIFY LOCATIONS AND ELEVATIONS.
 CONTRACTOR: LUNDA 2012

NO.	BY	DATE	REVISIONS

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 FAX. NO. (651) 645-5116

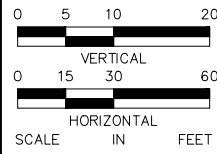
RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

WATERMAIN RICE STREET
 STA. 38+00 TO STA. 46+00

FILE NO.	183
160599001	
WM5	
OF WM7	534

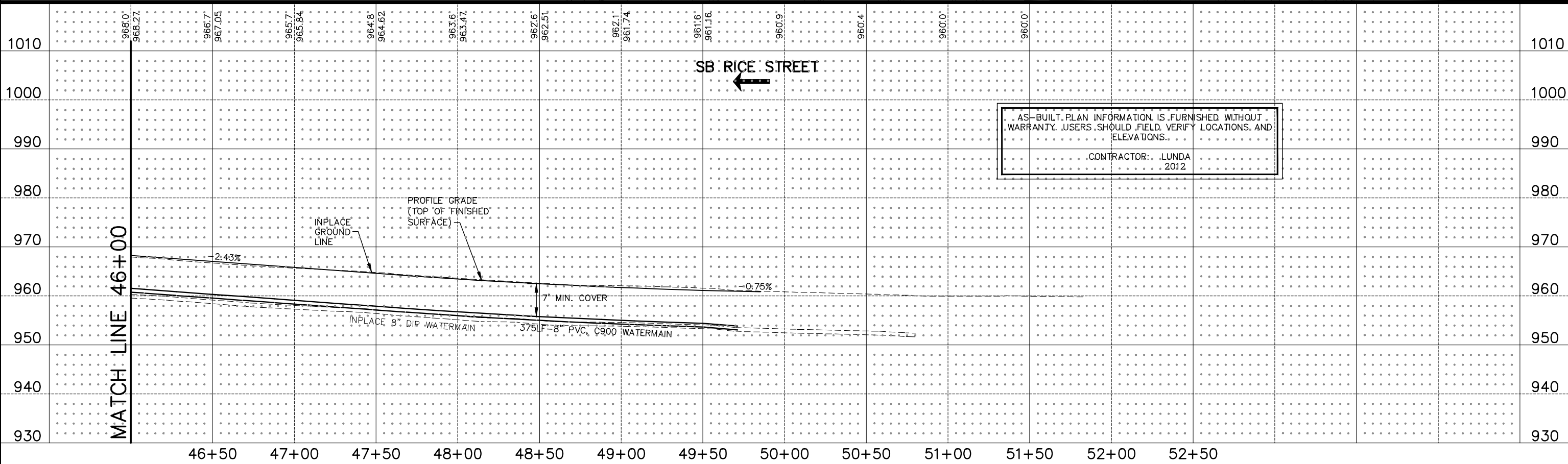
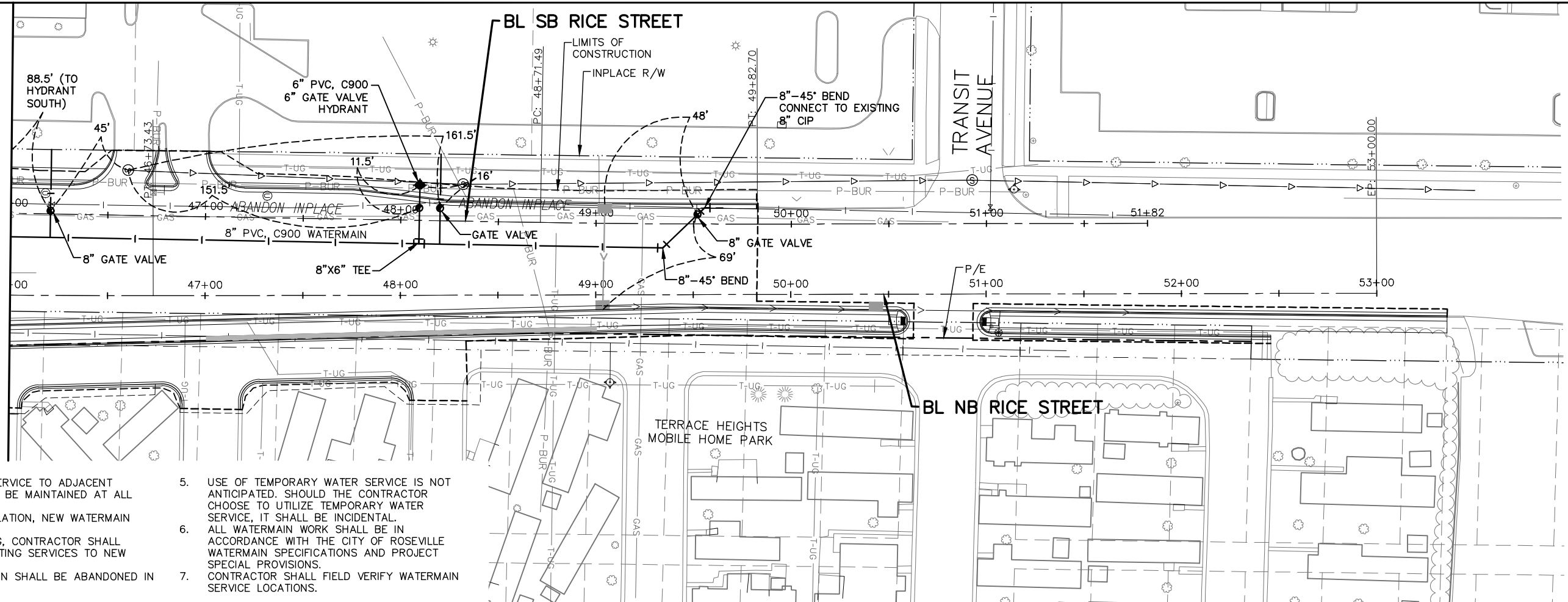
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MATCH LINE 46+00



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 CONTRACTOR: LUNDA 2012

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

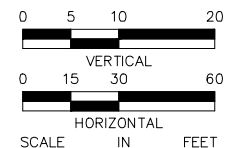
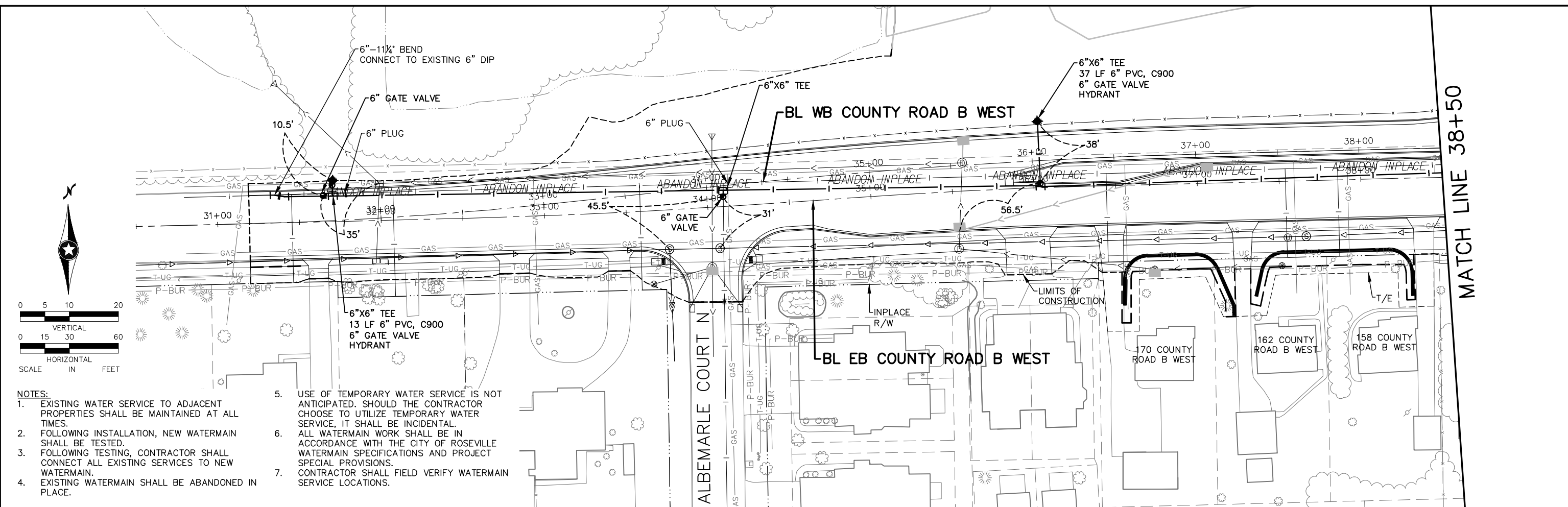
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 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 3/3/2010

2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

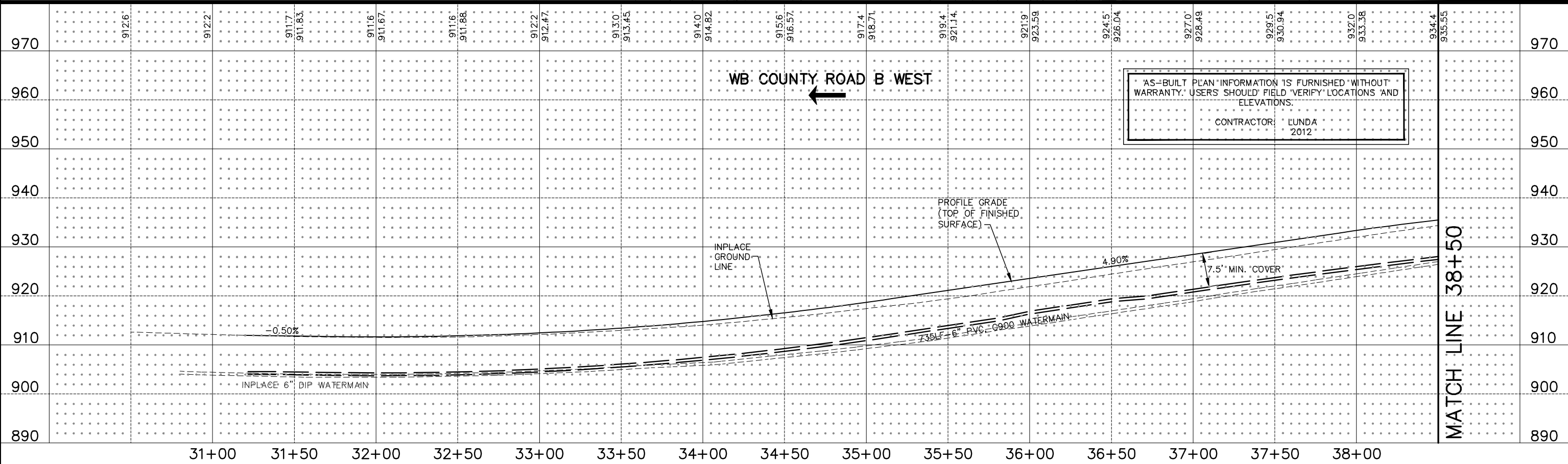
WATERMAIN RICE STREET		FILE NO. 160599001	184
STA. 46+00 TO STA. 53+00		WM6 OF WM7	534

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DRAWN BY:	RJG			
CHECKED BY:	BAE	5	4/11/11	RELOCATE WATERMAIN
		NO.	DATE	REVISIONS

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Certified By: *Beth A. Engum* Lic. No. 44785

Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.

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ST. PAUL, MINNESOTA 55114

TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA

TH 36 / RICE STREET (CSAH 49)

SP NO. 62-649-27 CTB, 6212-165 (TH 36)

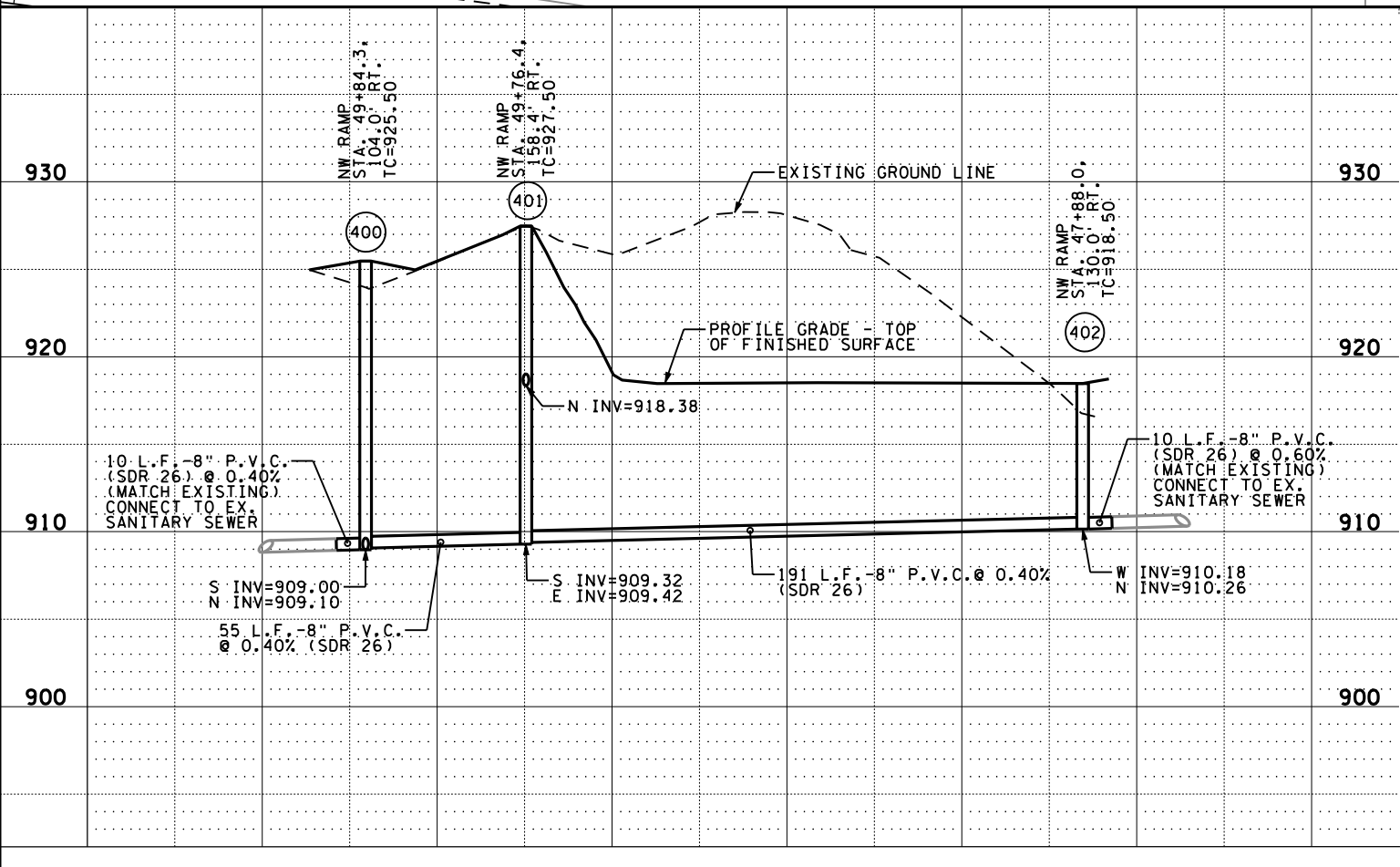
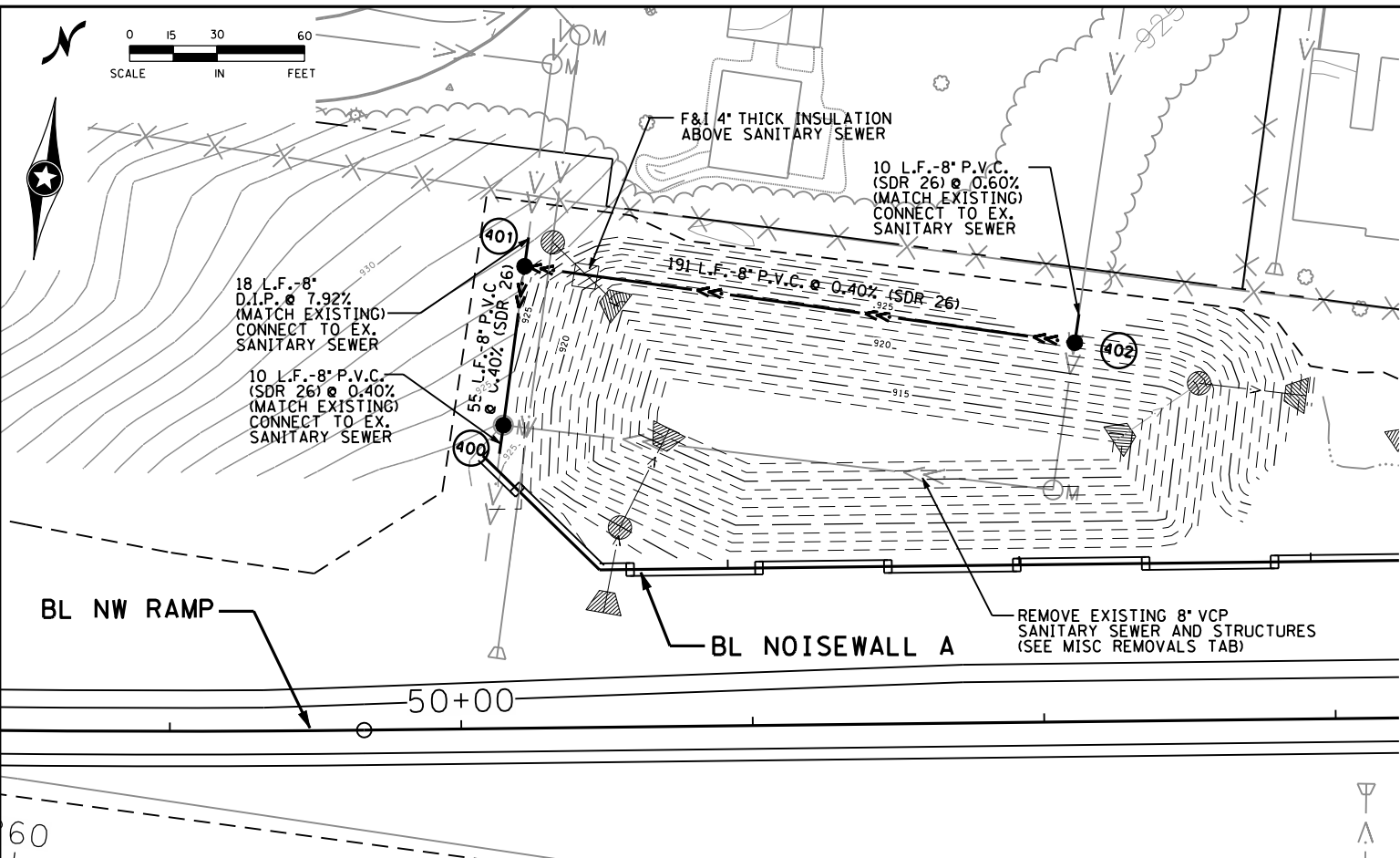
WATERMAIN		FILE NO.	185
COUNTY ROAD B WEST		160599001	
STA. 30+00 TO STA. 38+50		WM7	534
		OF WM7	

3/31/25 PM

5/6/2010

kerickson

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DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

U SANITARY SEWER

STRUCT. NUMBER	TYPE	ALIGN.	STATION	LOCATION (RT)	COST PART.	PROPOSED CASTING	MANHOLE INVERT	DRAIN. STR. DES. 4007	DROP MH DESIGN 4007	PIPE GRADE %	FLOWS TO	MANHOLE INLET	8" PVC SDR 26	8" DIP CL. 53	CONNECT TO EXISTING SAN. SEWER	4" INSULATION	NOTES
						ELEV.	ELEV.	LIN FT	LIN FT			ELEV.	LIN FT	LIN FT	EACH	SO YD	
400	SSMH	NWRAMP	49+84.3	104.0	B	925.50	909.00	16.50		EX	EX	EX	10		1		
401	SSMH	NWRAMP	49+76.4	158.4	B	927.50	909.32		18.18	0.40	400	909.10	55				①
402	SSMH	NWRAMP	47+88.0	130.0	B	918.50	910.18	8.32		0.40	401	909.42	191			4	
EX PIPE	PIPE	NWRAMP								0.60	402	910.26	10		1		
EX PIPE	PIPE	NWRAMP								7.92	401	918.38		18	1		
TOTAL													266	18	3	4	

SPECIFIC NOTE:

- ① INTERNAL DROP MANHOLE

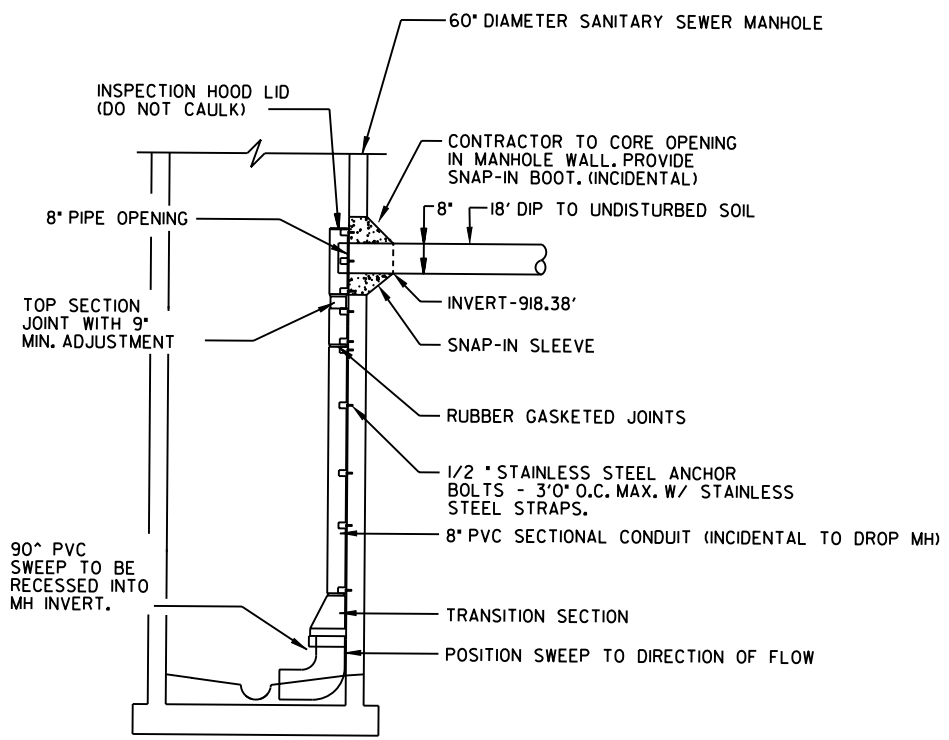
GENERAL NOTES:

- CONTRACTOR SHALL VERIFY EXISTING INVERT ELEVATIONS AT CONNECTION POINTS PRIOR TO CONSTRUCTION (INCIDENTAL). ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER SO THAT ANY NECESSARY ADJUSTMENTS CAN BE MADE.
- A DOUBLE BANDED FERNCO OR APPROVED ADAPTER WITH STAINLESS STEEL SHEAR RING SHALL BE PROVIDED TO CONNECT TO THE EXISTING SANITARY SEWER. ALL NECESSARY WORK AND MATERIALS SHALL BE PAID FOR UNDER BID ITEM "CONNECT TO EXISTING SANITARY SEWER" FOR EACH CONNECTION MADE TO THE EXISTING SEWER.
- CLASS B BEDDING SHALL BE PROVIDED FOR PIPE INSTALLATION. GRANULAR MATERIAL FOUND ONSITE MAY BE USED IF APPROVED BY THE ENGINEER IN THE FIELD. GRANULAR BEDDING IS CONSIDERED INCIDENTAL.
- SANITARY MANHOLE CASTINGS SHALL BE MNDOT A-7D. CASTING SHALL DENOTE "SANITARY SEWER" ON THE COVER.
- SANITARY MANHOLES SHALL CONFORM TO MNDOT STANDARD SPECIFICATIONS AND STANDARD PLATE 4007 UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL FURNISH AND INSTALL 4" THICK INSULATION (4'X 8') AS SHOWN ON THE PLANS. INSULATION SHALL BE A LOCATED WITHIN 12 INCHES OF THE CROWN OF THE SANITARY PIPE.

COST PARTICIPATION:

- A = DELETED
- B = RAMPS & RICE ST. STA. 19+00 - 30+00
- C = REMAINDER OF PROJECT :
- RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00, COUNTY RD B, MINNESOTA AVE, COUNTY RD B2, & INFILTRATION BASINS
- D = STORM SEWER
- E = NON-PARTICIPATING CITY OF ROSEVILLE
- F = NON-PARTICIPATING CITY OF LITTLE CANADA

INTERNAL DROP MANHOLE



NOTES:

- DO NOT DRILL WITHIN 8' ABOVE OR BELOW THE MANHOLE JOINT.
- LOW PROFILE INSIDE DROP SYSTEM TO BE INSTALLED PER MANUFACTURERS' RECOMMENDATIONS.
- INTERNAL DROP MANHOLE STRUCTURE SHALL BE PAID FOR BY THE LINEAR FOOT UNDER BID ITEM "CONSTRUCT DROP MANHOLE DESIGN 4007". THIS INCLUDES, BUT IS NOT LIMITED TO ALL MATERIALS, ADJUSTMENTS, EXCAVATION, AND WORK NECESSARY.
- FURNISH AND INSTALL AN EXTERNAL MANHOLE SEALING SYSTEM, CREATING A PERMANENT SEAL FROM THE CASTING TO THE STRUCTURE. THE SEAL SHALL BE A EPDM RUBBER WITH A MASTIC SEALING COMPOUND. (INCIDENTAL)



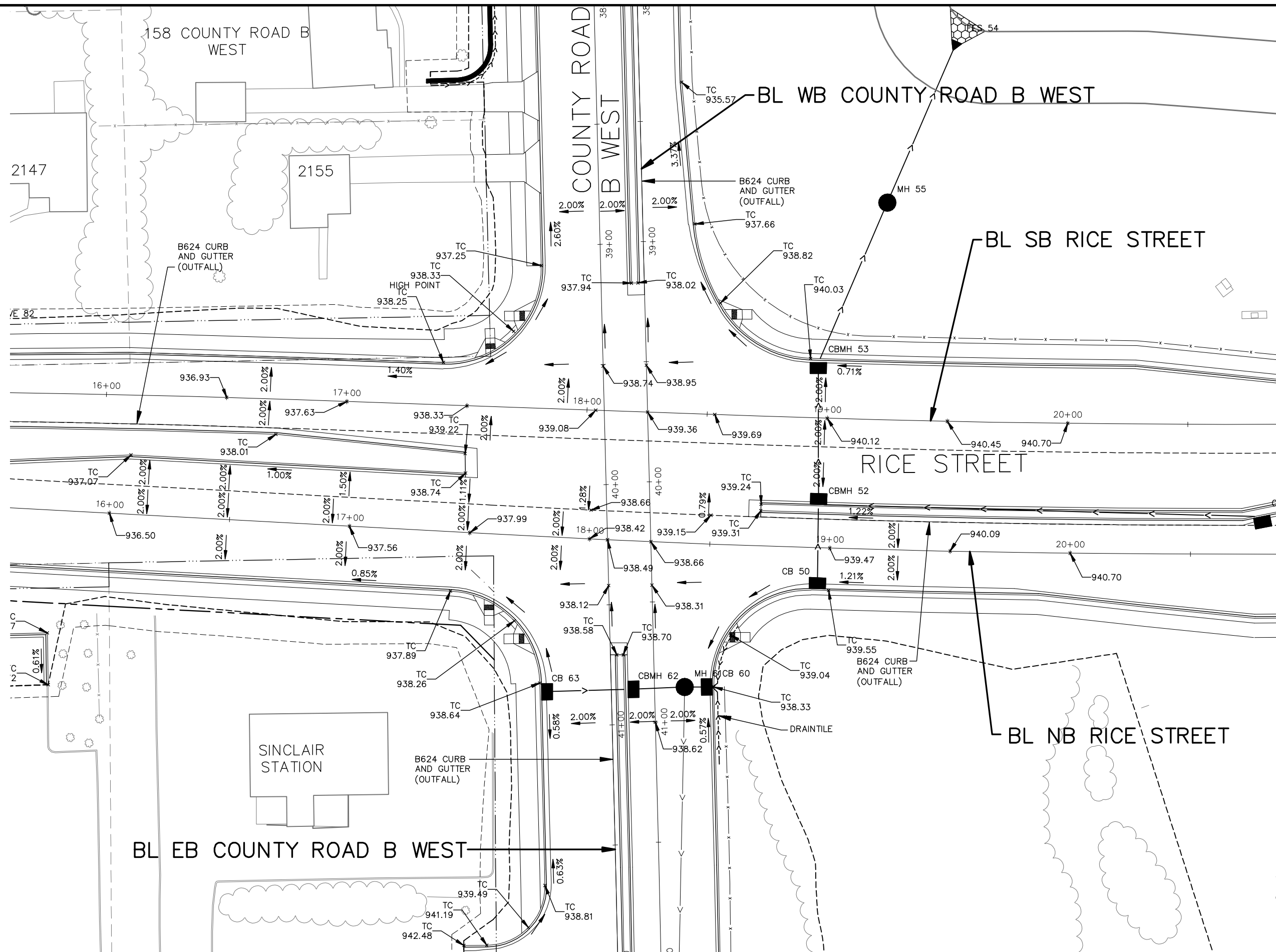
PHONE: (651)490-2000
 3535 VAONAS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

SANITARY SEWER
PLAN & PROFILE
 NW RAMP

FILE NO. **186**
 RAMSP108790
 SAN1 OF SANI **534**

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DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

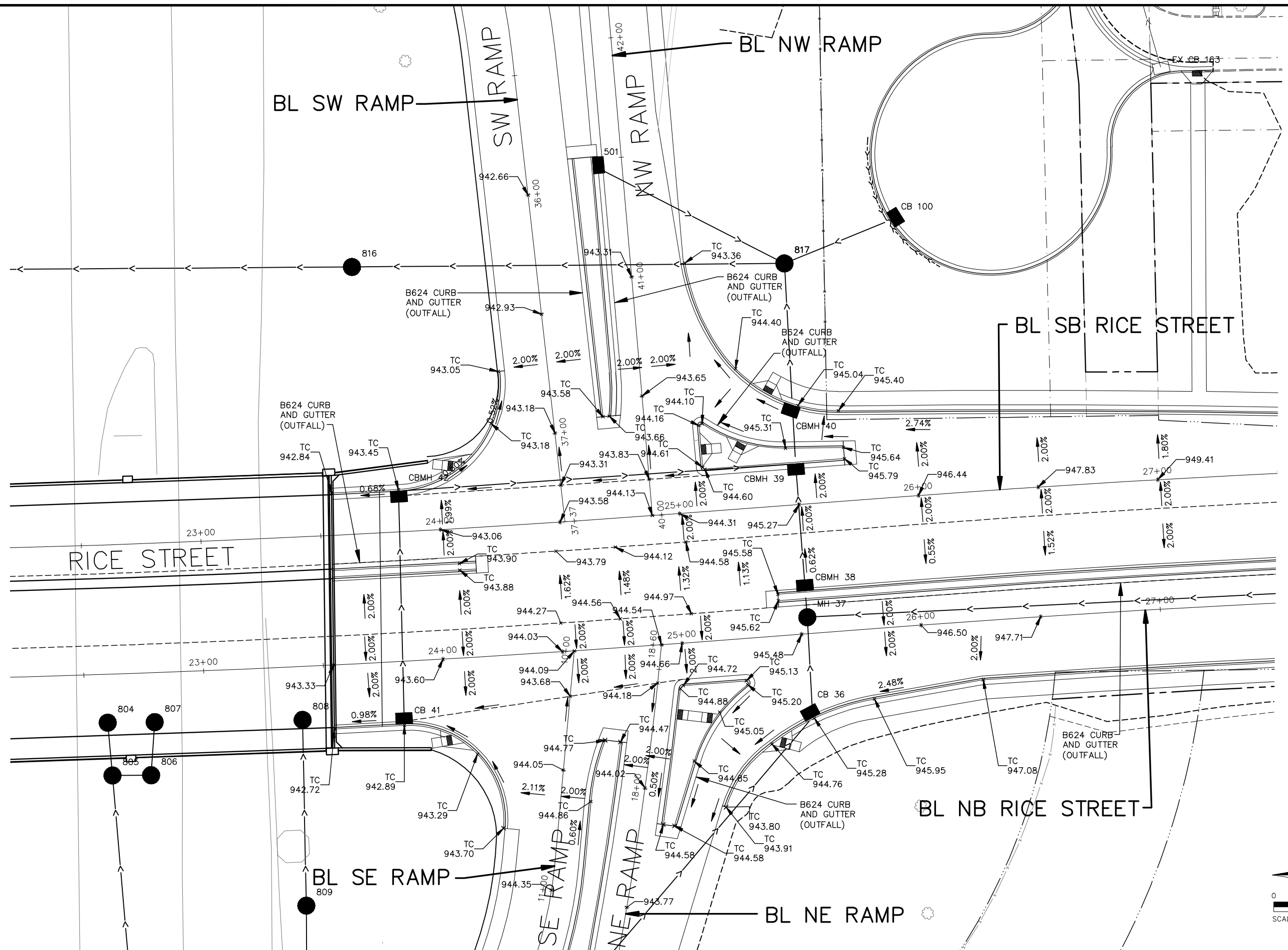
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INTERSECTION DETAIL
 RICE STREET AND
 COUNTY ROAD B WEST

FILE NO. 160599001
187
 ID1
 OF ID5 **534**

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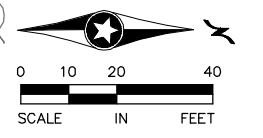
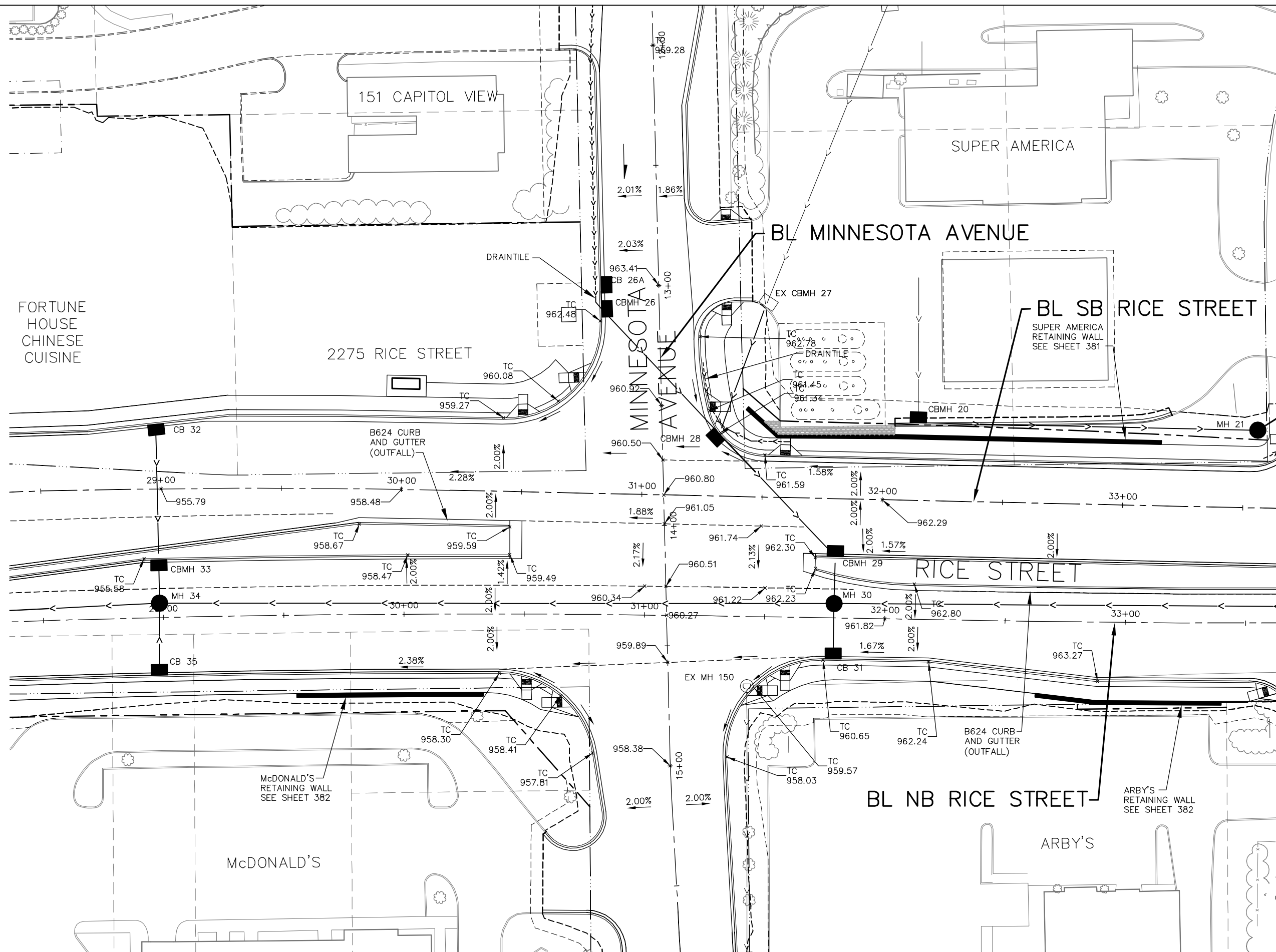
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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INTERSECTION DETAIL
 RICE STREET AND
 TH 36 RAMPS

FILE NO. 160599001
 ID2 OF ID5
 188
 534

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DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION
3	BAE	8/26/2010	MICELLANEOUS DRAINAGE MODIFICATIONS & BUS LANE ADDITION

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 ST. PAUL, MINNESOTA 55114
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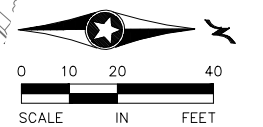
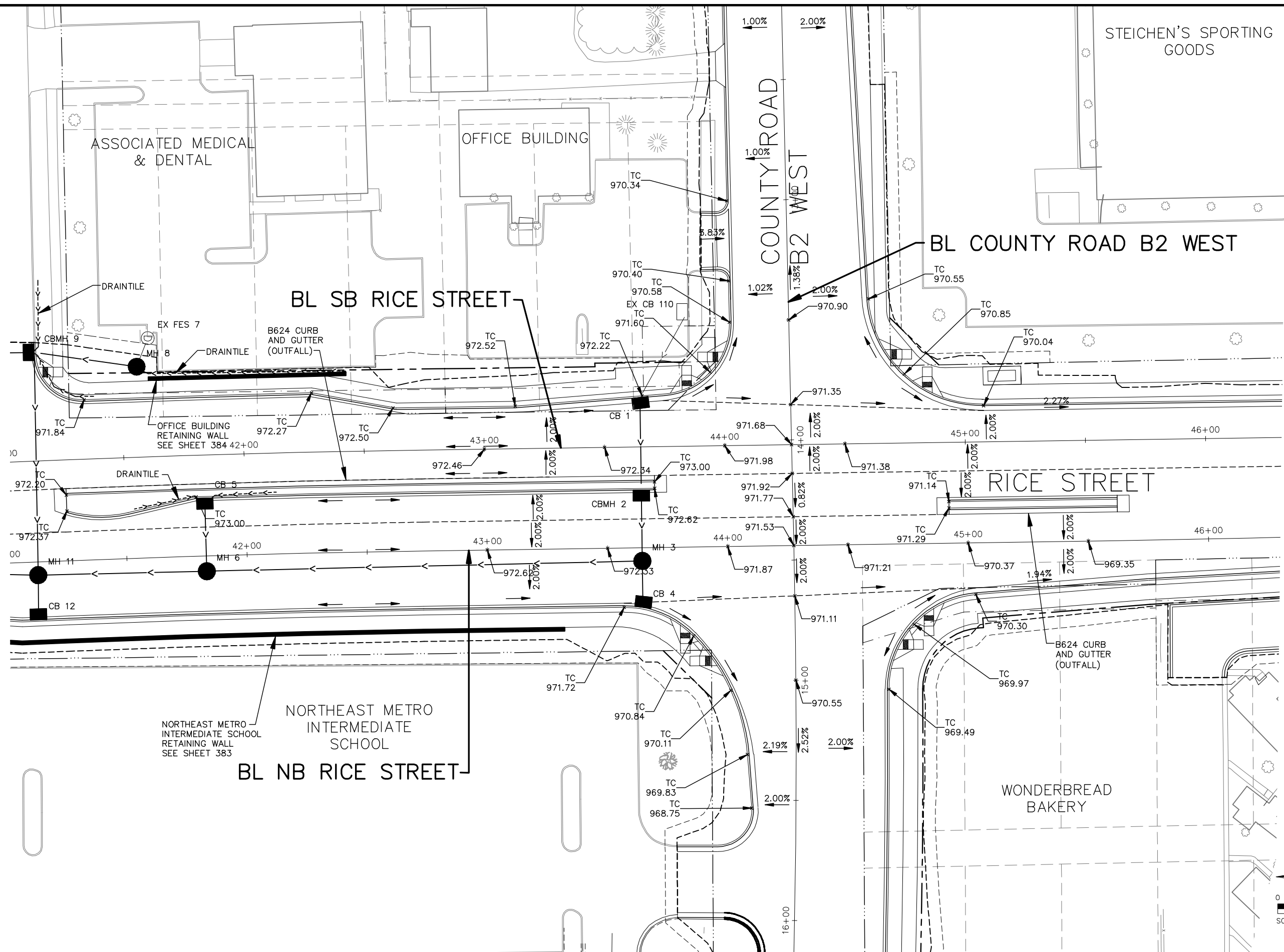
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INTERSECTION DETAIL
 RICE STREET AND
 MINNESOTA AVENUE

FILE NO. 160599001
ID3
 OF ID5

189
534

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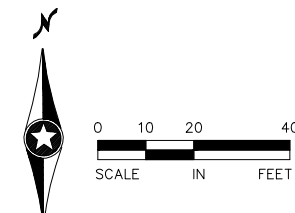
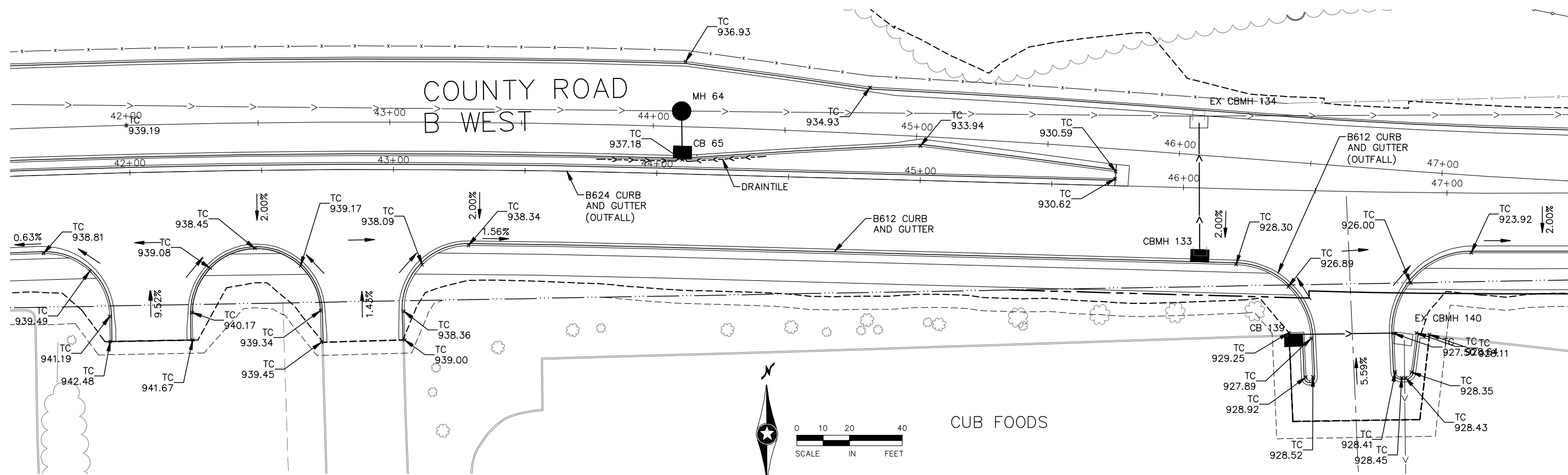
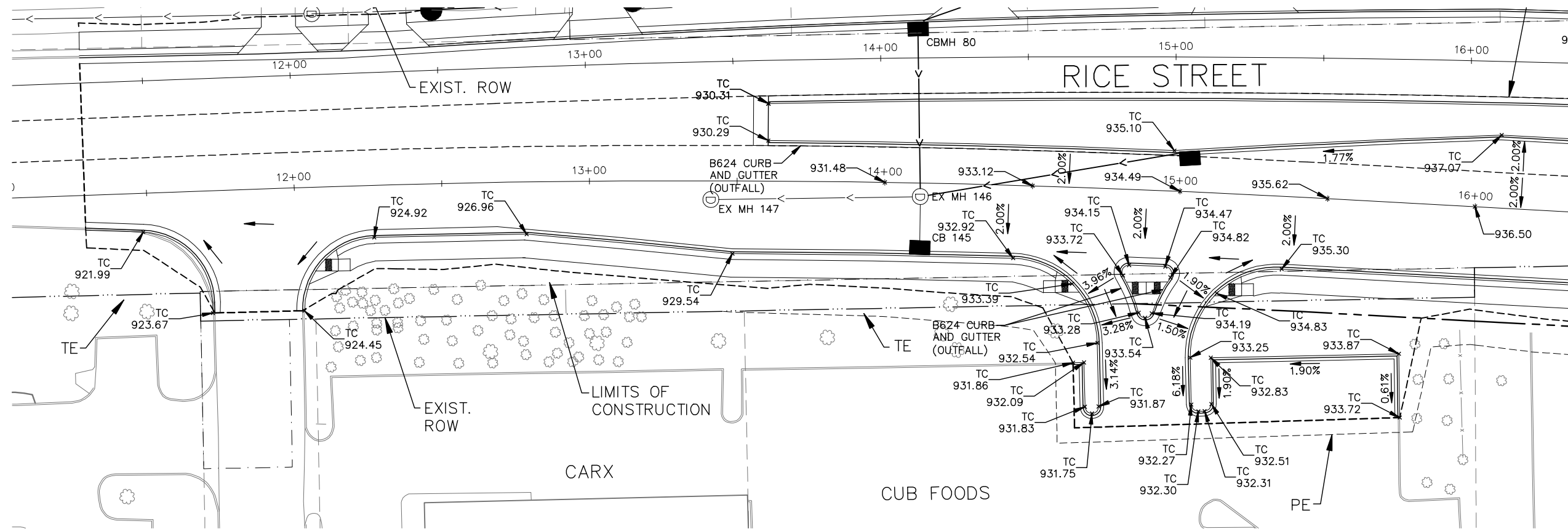
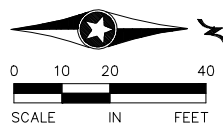
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INTERSECTION DETAIL
 RICE STREET AND
 COUNTY ROAD B2 WEST

FILE NO.	190
160599001	
ID4	
OF ID5	534

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INTERSECTION DETAIL
 CUB ENTRANCES
 RICE STREET AND
 COUNTY ROAD B WEST

FILE NO. 160599001
ID5
 OF ID5

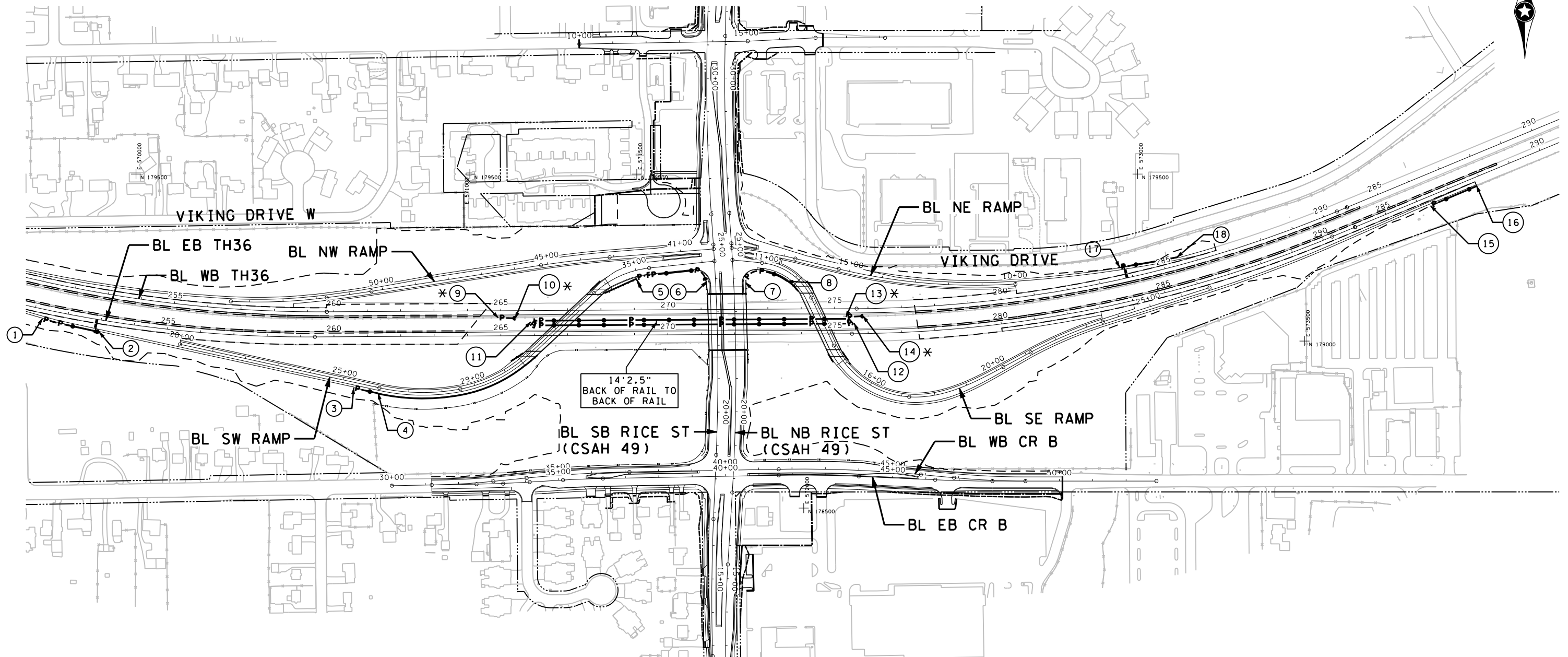
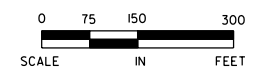
191
534

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kerickson

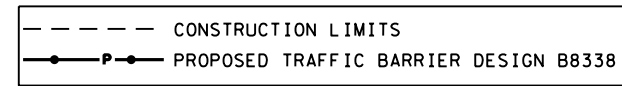
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- ① BEGIN GUARDRAIL, EB TH36 - STA 251+27, 29' RT
- ② END GUARDRAIL, EB TH36 - STA 253+00, 36' RT
- ③ BEGIN GUARDRAIL, SW RAMP - STA 25+36, 17' RT
- ④ END GUARDRAIL, SW RAMP - STA 26+11, 17' RT
- ⑤ BEGIN GUARDRAIL, SW RAMP - STA 34+95, 21' RT
- ⑥ END GUARDRAIL, SW RAMP - STA 37+06, 56' RT
- ⑦ BEGIN GUARDRAIL, SE RAMP - STA 10+47, 64' RT
- ⑧ END GUARDRAIL, SE RAMP - STA 11+87, 25' RT
- ⑨ CONNECT TO EXISTING TENSION CABLE GUARDRAIL, EB TH36 - STA 264+92, 54' LT

- ⑩ TENSION CABLE GUARDRAIL ANCHOR, EB TH36 - STA 265+43, 52' LT
- ⑪ END GUARDRAIL BULLNOSE, EB TH36 - STA 265+93, 37' LT
- ⑫ END GUARDRAIL BULLNOSE, EB TH36 - STA 275+50, 37' LT
- ⑬ TENSION CABLE GUARDRAIL ANCHOR, EB TH36 - STA 275+34, 50' LT
- ⑭ CONNECT TO EXISTING TENSION CABLE GUARDRAIL, EB TH36 - STA 275+86, 52' LT
- ⑮ BEGIN GUARDRAIL, EB TH36 - STA 286+34, 27' RT
- ⑯ CONNECT TO EXISTING GUARDRAIL EB TH 36 - STA 287+84, 26' RT
- ⑰ BEGIN GUARDRAIL, WB TH36 - STA 283+68, 36' LT
- ⑱ END GUARDRAIL, WB TH36 - STA 285+43, 25' LT

NOTE:
* TENSION CABLE GUARDRAIL ANCHOR



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

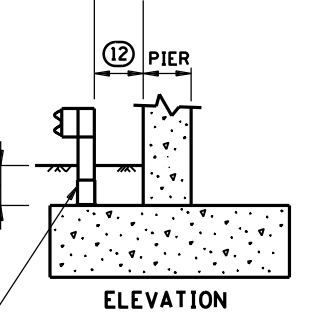
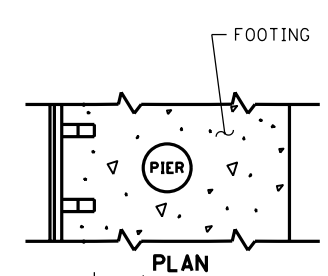
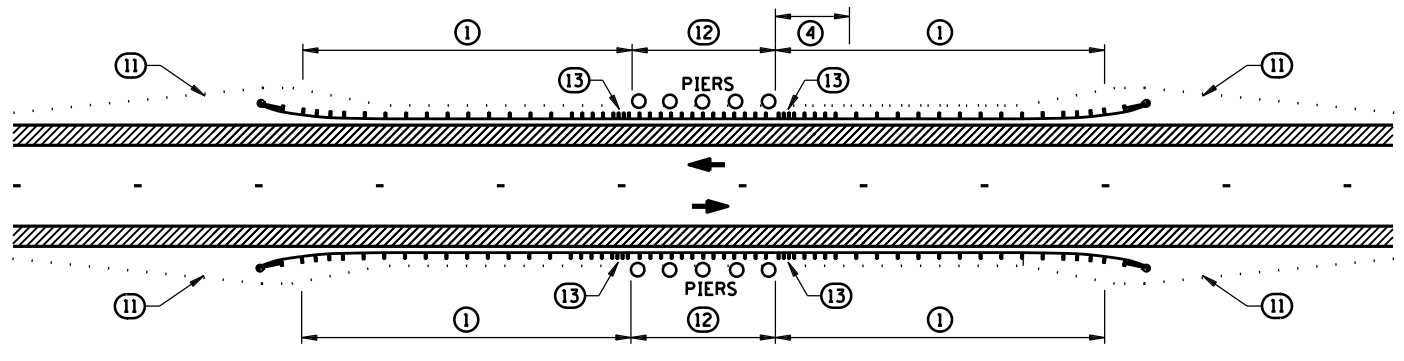
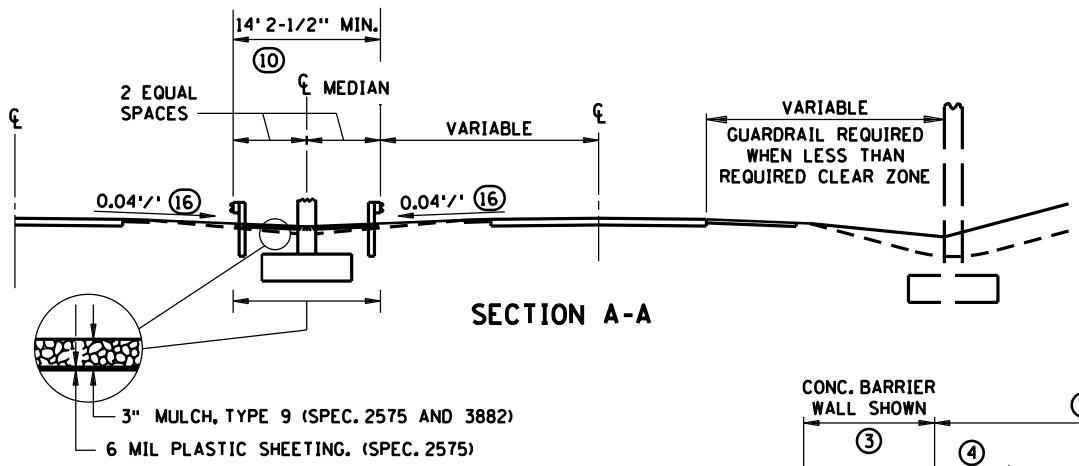
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Certified By: *Bret W. Johnson* Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

GUARDRAIL PLAN
INP EB TH 36 STA 251+27 TO STA 287+84

FILE NO. RAMSP108790	192
GR1 OF GR12	534

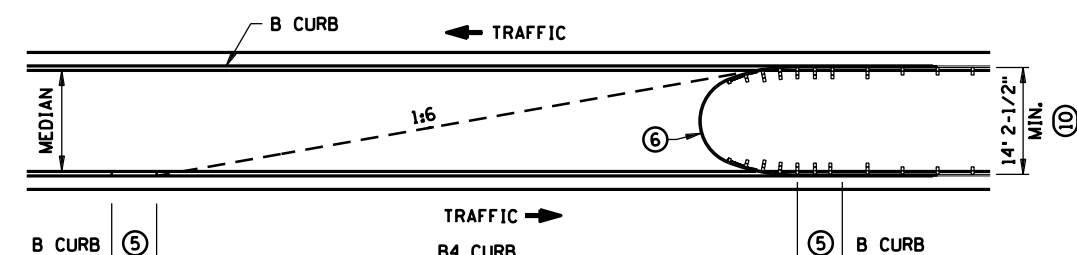
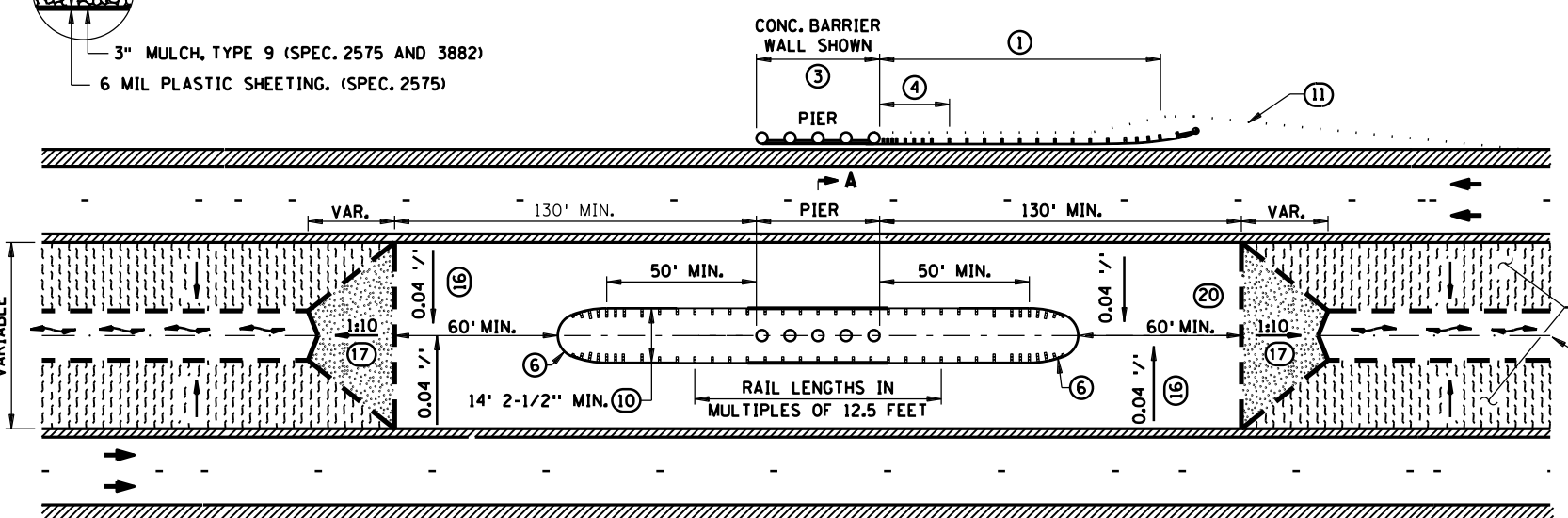


POST REQUIREMENTS AT PIERS

ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL

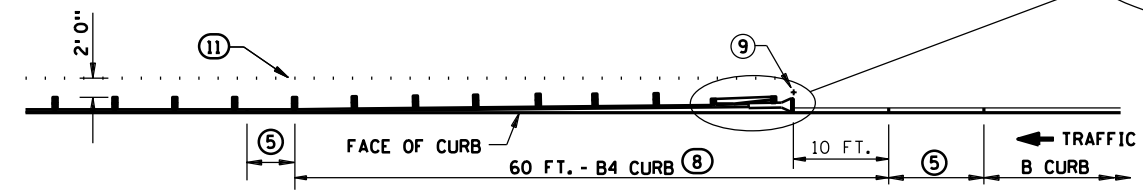
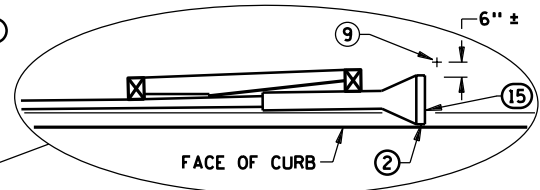
6' 3" POST SPACING	3' 0"
6' 3" POST SPACING WITH DOUBLE NESTED RAIL	2' 8"
MODIFIED 3'-1-1/2" POST SPACING	2' 3"
MODIFIED POST SPACING WITH DOUBLE NESTED RAIL	2' 0"

POST SEAT SEE STANDARD PLATE 8316 IF REQUIRED

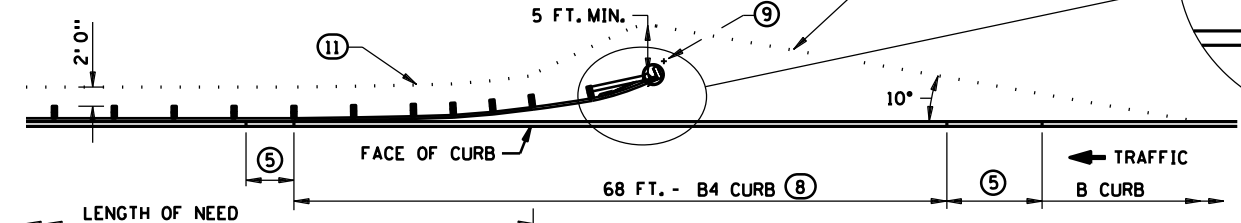
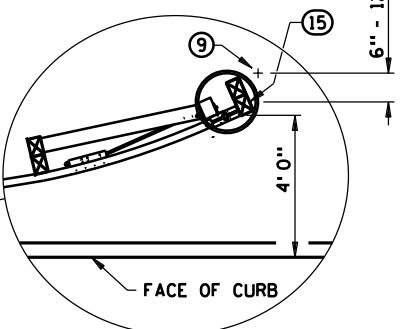


MODIFIED CURB AT RAISED MEDIAN

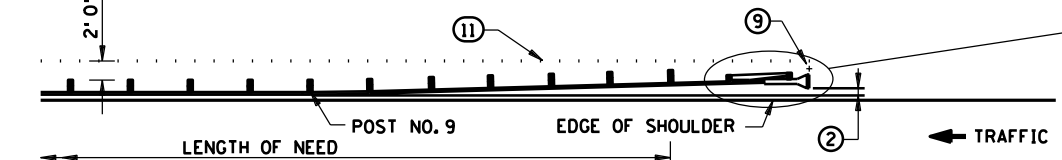
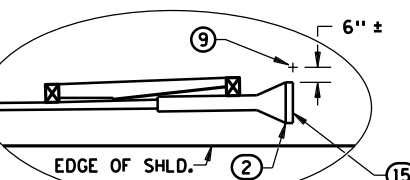
UNDERPASS-DEPRESSED MEDIAN (19)



PLAN VIEW MODIFIED CURB (18)



PLAN VIEW MODIFIED CURB AND SLOPE (18)



PLAN VIEW NO CURB (18)

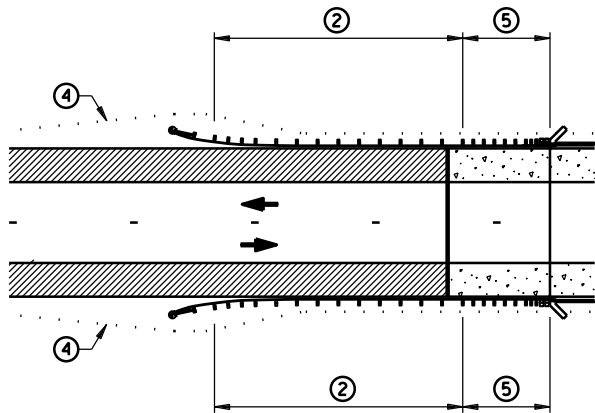
NOTES:

- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.
- (1) FOR REQUIRED LENGTH OF INSTALLATION SEE ROAD DESIGN MANUAL CHAPTER 10.
- (2) THE LAST 50 FT. OF TANGENT TERMINALS MAY BE FLARED AT 1:50 TAPER.
- (3) CONC. BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED, STD. PLAN 5-297.610. SEE SHEET NO. ... FOR WALL DETAILS. CONNECT GUARDRAIL TO BARRIER WALL ANCHORAGE PLATE, SEE SHEET NO. ... FOR DETAILS.
- (4) AN APPROVED TRANSITION MUST BE USED.
- (5) 10 FT. CURB TRANSITION, USE IF ADJACENT CURB IS GREATER THAN 4 INCHES.
- (6) THRIE BEAM BULLNOSE. SEE SHEET NO. ... FOR DETAILS.
- (7) IF EMBEDMENT IS GREATER THAN 3 FT. 0 IN., OR IF EMBEDMENT IS 2 FT. 6 IN. TO 3 FT. 0 IN. AND ADJACENT POSTS ARE EMBEDDED 3 FT. 0 IN. OR MORE, POST SEAT IS NOT REQUIRED.
- (8) FOR CURB 6 IN. OR HIGHER, MILL TO 3 IN. HEIGHT.
- (9) SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
- (10) MEASUREMENT IS FROM BACK OF RAIL TO BACK OF RAIL.
- (11) 1:10 OR FLATTER SLOPE P.I..
- (12) SEE ESTIMATED DESIGN DEFLECTION TABLE FOR DESIGN B W-BEAM GUARDRAIL.
- (13) WHEN CLOSE POST SPACING OR DOUBLE NESTED RAIL IS USED, THIS POST SPACING SHOULD EXTEND A MINIMUM OF 12 FT. IN THE DIRECTION OF APPROACHING TRAFFIC.
- (14) THE ANCHOR ASSEMBLY MUST BE LOCATED DOWNSTREAM OF THE HAZARD.
- (15) MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING) STRIPES SLOPED DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.
- (16) 0.04 FT./FT. CROSS SLOPE TYPICAL. 0.10 FT./FT. CROSS SLOPE MAXIMUM.
- (17) 1:10 SLOPE OR FLATTER.
- (18) USE ONLY FOR RETROFITS WITH SITE RESTRICTIONS. FOR RETROFITS WITHOUT SITE RESTRICTIONS AND NEW CONSTRUCTION, SEE SHEET 3.
- (19) MEDIAN GRADING DETAIL SHOWN APPLIES TO THRIE-BEAM BULLNOSE ONLY.
- (20) DRAINAGE DETAILS SHOWN ON GRADING PLAN.

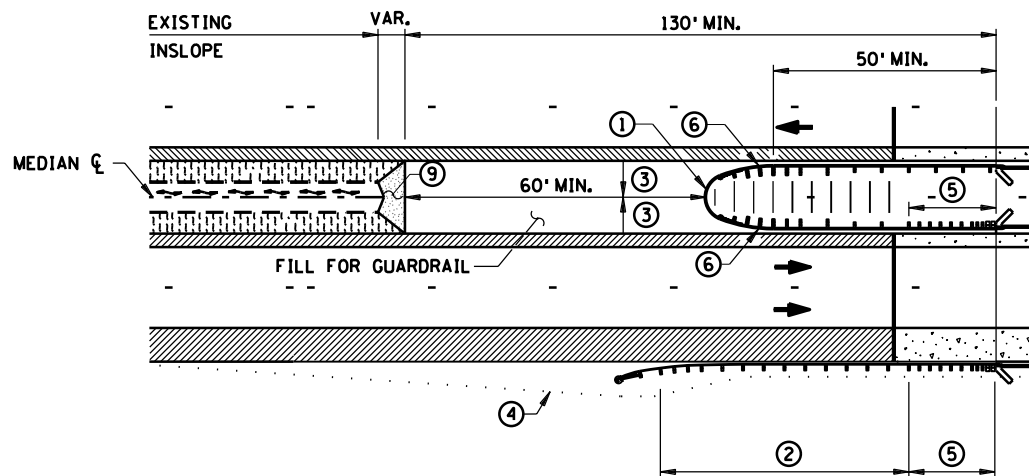
STANDARD SHEET NO. 5-297.601 (1 OF 3)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: AUGUST 17, 2005	

GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS

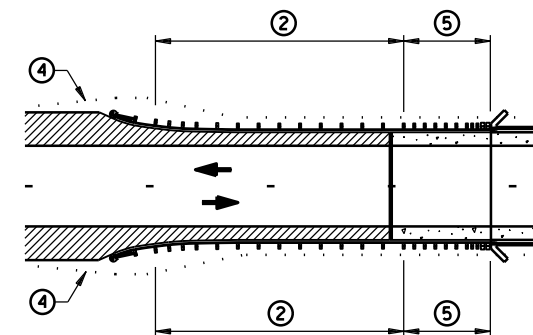
GR2 OF GR12



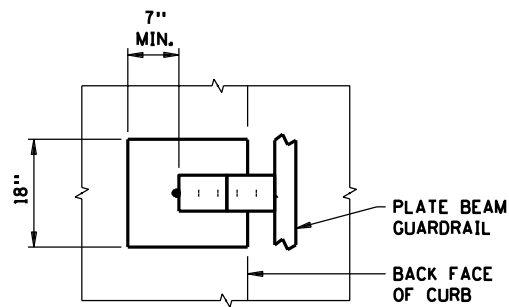
TWO - WAY BRIDGE WITH FULL SHOULDERS



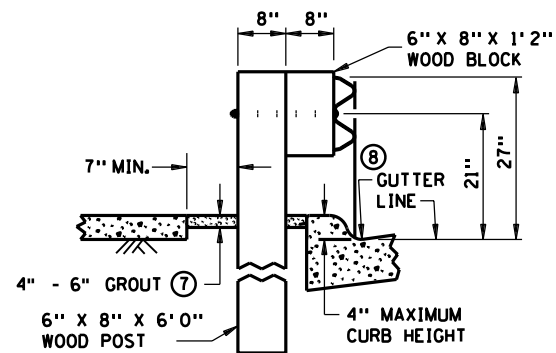
ONE - WAY BRIDGE WITH FULL RIGHT SHOULDER (FOR 14' 2-1/2" THRIE BEAM BULLNOSE)



TWO - WAY BRIDGE WITHOUT FULL SHOULDERS

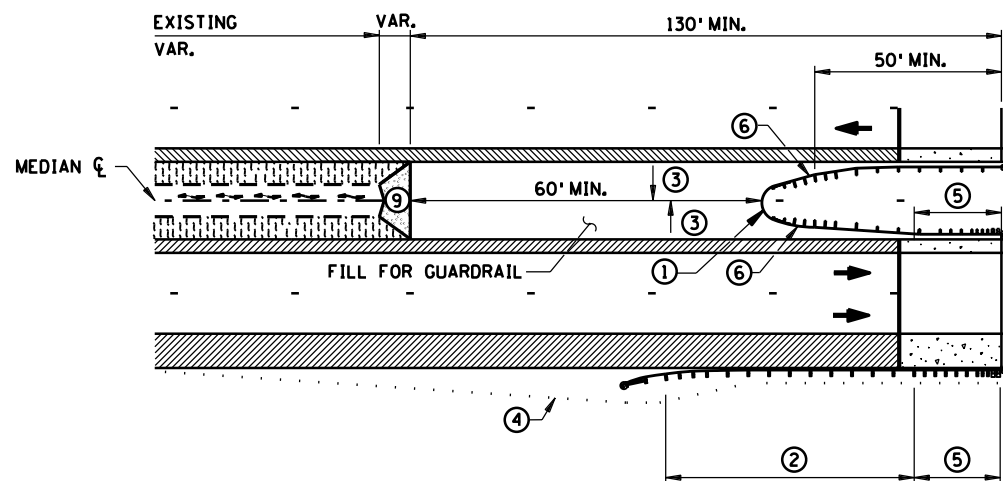


PLAN VIEW



ELEVATION

TYPICAL SECTION AT POST SET IN CONCRETE



ONE - WAY BRIDGE WITH FULL RIGHT SHOULDER (FOR MEDIANS WIDER THAN 14' 2-1/2" THRIE BEAM BULLNOSE)

NOTES:

- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.
- ① THRIE BEAM BULLNOSE, SEE SHEET NO. ... FOR DETAILS.
- ② FOR THE REQUIRED LENGTH SEE ROAD DESIGN MANUAL CHAPTER 10.
- ③ 0.04 FT./FT. CROSS SLOPE TYPICAL, 0.10 FT./FT. CROSS SLOPE MAXIMUM.
- ④ 1:10 OR FLATTER SLOPE P.I.. APPROACH GRADING VARIES WITH TERMINAL TYPE.
- ⑤ PLATE BEAM GUARDRAIL ATTACHMENTS TO FIXED OBJECTS REQUIRE AN APPROVED TRANSITION SECTION.
- ⑥ FOR MEDIANS WIDER THAN THE 14 FT. 2-1/2 IN., BEFORE TAPERING THE APPROACH SIDE TAPER THE OPPOSING SIDE AS SHOWN ON THE BULLNOSE DESIGN DETAIL. APPROACH TAPER SHOULD NOT EXCEED 1:25 IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 IF IT IS OUTSIDE.
- ⑦ TWO-SACK GROUT MIX (BY VOLUME: 1 PART CEMENT, 14 PARTS SAND, 5 PARTS WATER).
- ⑧ PLACE FRONT FACE OF W-BEAM DIRECTLY ABOVE FRONT FACE OF CURB.
- ⑨ 1:10 SLOPE OR FLATTER.

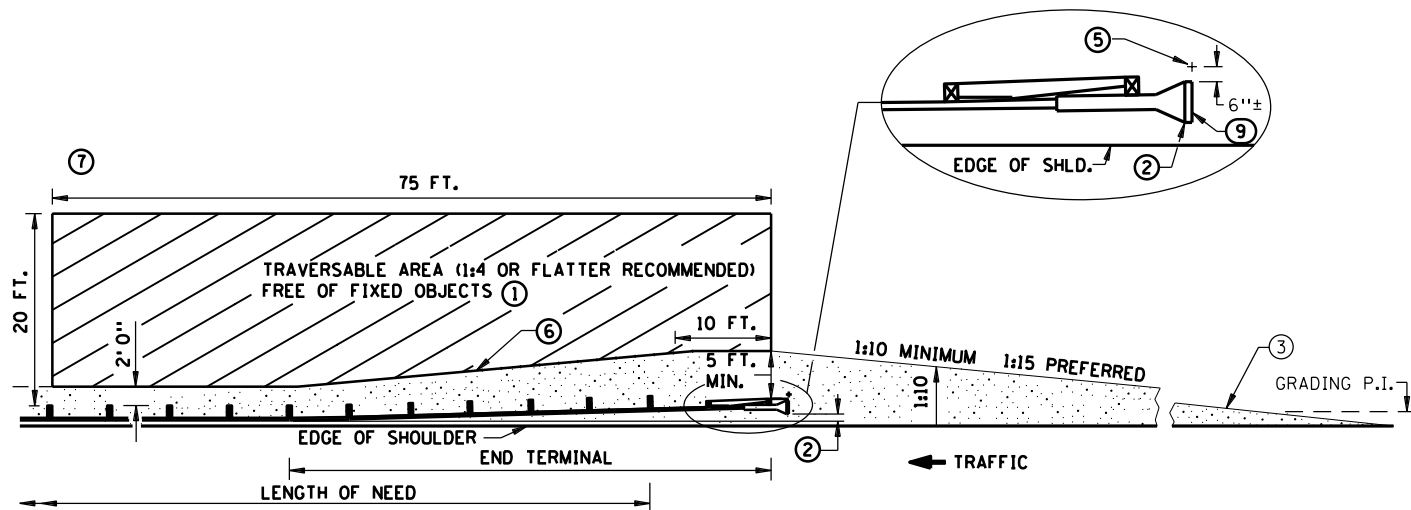
GR3 OF GR12

STANDARD SHEET NO.
5-297.601 (2 OF 3)

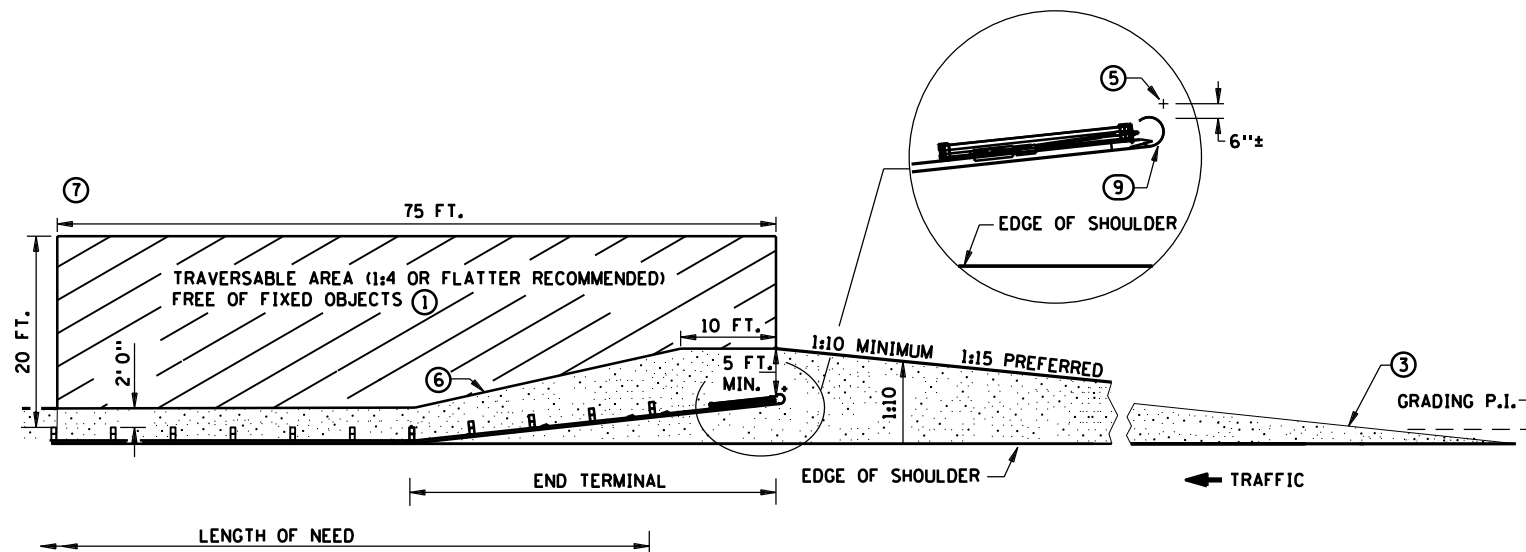
STANDARD APPROVED:
AUGUST 17, 2005

TITLE:
GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS

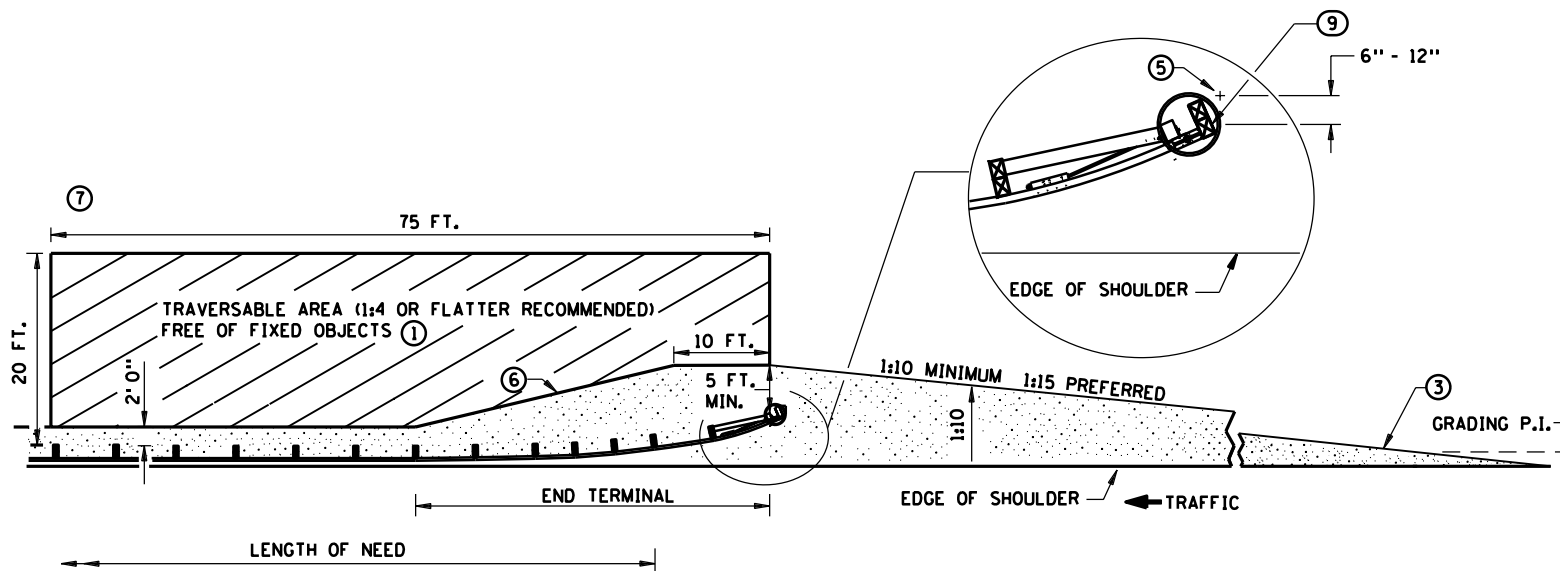
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 194 OF 534 SHEETS



PLAN VIEW
(PROPRIETARY TANGENT TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ⑧
(PROPRIETARY FLARED TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ④ ⑧
(ELT)

NOTES:

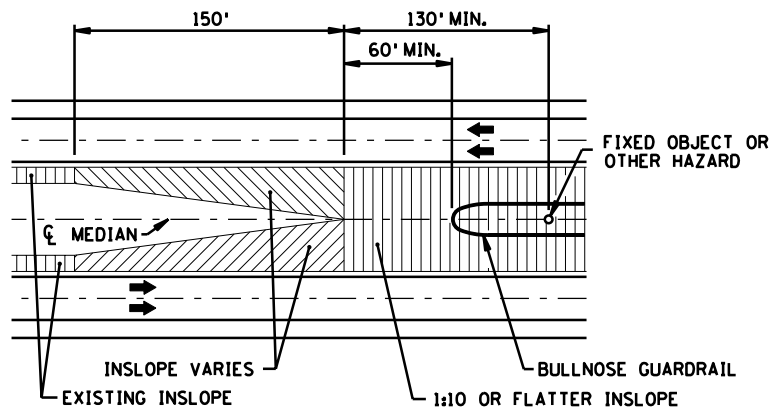
- ALL CROSS SLOPES ARE IN FOOT/FOOT UNLESS OTHERWISE NOTED.
- ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.
- CHANGES (TO SUBJECTS COVERED BY THIS SHEET) INDICATED IN THE PLANS OR ON PLATES WITH MORE RECENT APPROVAL DATES SHALL APPLY.
- GRADING AND DRAINAGE HARDWARE ARE NOT INCIDENTAL TO GUARDRAIL INSTALLATION.
- ① SLOPES BETWEEN 1:3 AND 1:4 PERMITTED WHEN 1:4 OR FLATTER IS NOT POSSIBLE. FOR SLOPES STEEPER THAN 1:3 THE AREA IMMEDIATELY BEHIND AND BEYOND THE END TERMINAL SHOULD, AT LEAST, BE SIMILAR IN CROSS SECTION TO THE UNSHIELDED ROADSIDE AREA UPSTREAM OF THE END TERMINAL.
- ② THE LAST 50 FT. OF TANGENT TERMINALS CAN BE FLARED AT 1:50 TAPER.
- ③ WHEN GRADING PLATFORMS ARE BUILT, THEY MUST BE SMOOTHLY TRANSITIONED TO EXISTING SIDE SLOPE SO THE ENTIRE ROADSIDE APPROACH TO THE BARRIER REMAINS TRAVERSABLE, AS WELL AS THE AREA IMMEDIATELY BEHIND IT.

- ④ SEE STANDARD PLATE 8329.
- ⑤ SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. MARK BOTH THE BEGINNING AND END OF PLATE BEAM GUARDRAIL INSTALLATION.
- ⑥ 1:10 OR FLATTER SLOPE P.I..
- ⑦ GRADUALLY BLEND SLOPE FROM TRAVERSABLE AREA TO STEEP EXISTING SLOPE (WHEN SLOPE IS STEEPER THAN 1:6).
- ⑧ IF THE TERRAIN BEYOND THE TERMINAL END AND IMMEDIATELY BEHIND THE BARRIER IS NOT SAFELY TRAVERSABLE, A TANGENT (ENERGY- ABSORBING) TERMINAL SHALL BE USED.

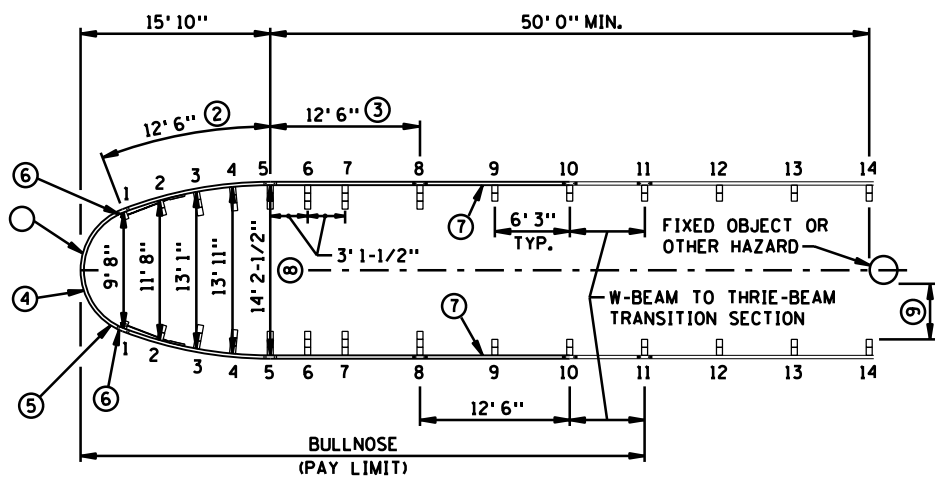
- ⑨ MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING). STRIPES SHALL SLOPE DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.

STANDARD SHEET NO. 5-297.601 (3 OF 3)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS & END TREATMENTS
STANDARD APPROVED: AUGUST 17, 2005	(FOR NEW CONSTRUCTION AND RETROFITS WITHOUT SITE RESTRICTIONS)
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 195 OF 534 SHEETS	

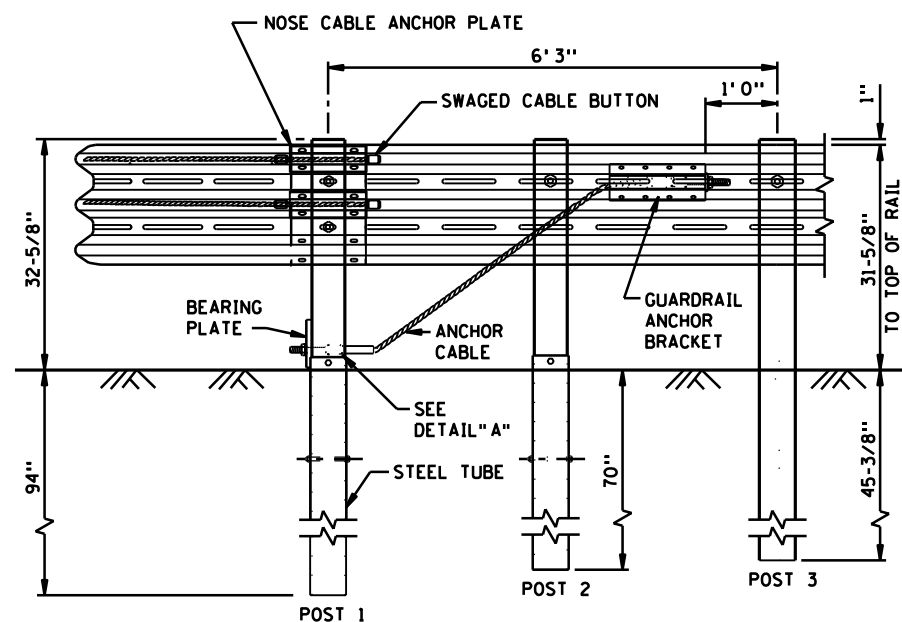
GR4
OF GR12



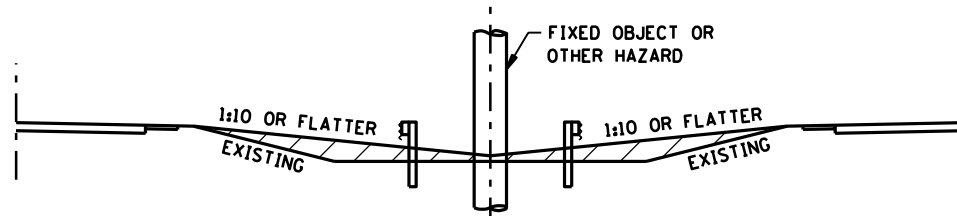
GRADING AT BULLNOSE (DEPRESSED MEDIAN)



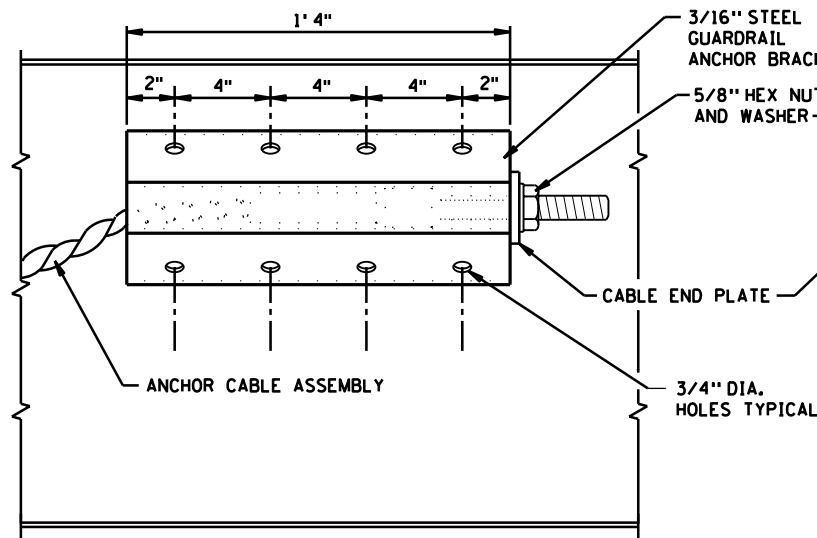
PLAN VIEW DETAILS OF BULLNOSE



ELEVATION BULL NOSE ASSEMBLY

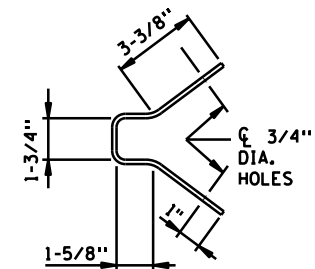


MEDIAN GRADING SECTION (AT FIXED OBJECT)



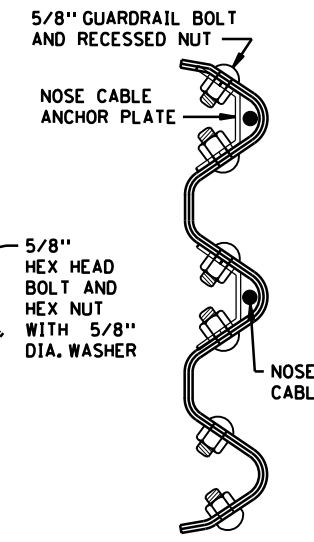
FRONT VIEW

GUARDRAIL ANCHOR BRACKET DETAILS



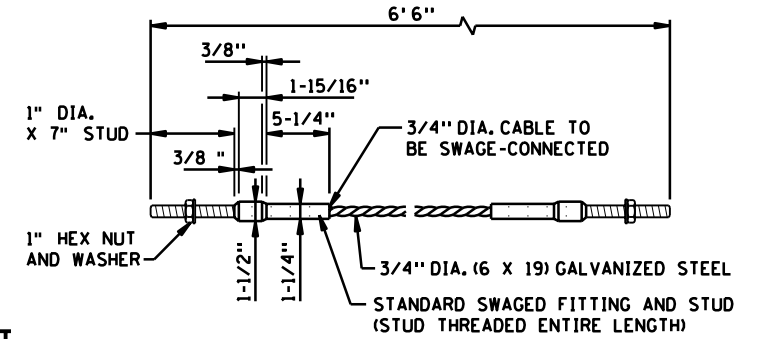
END VIEW

GUARDRAIL ANCHOR BRACKET

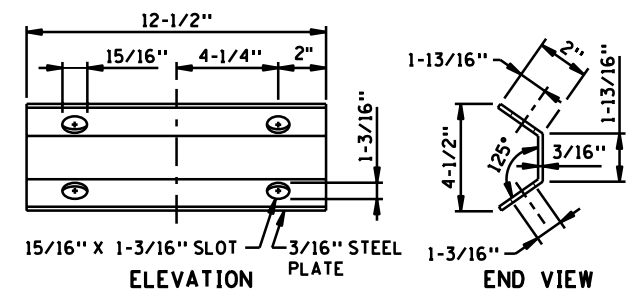


ASSEMBLY END VIEW

NOSE CABLE ANCHOR PLATE DETAILS



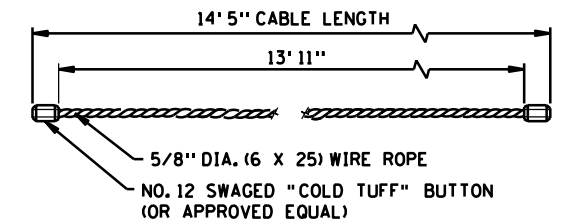
ANCHOR CABLE ASSEMBLY DETAILS



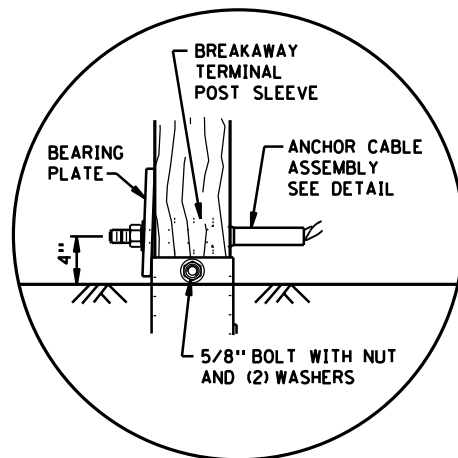
ELEVATION

END VIEW

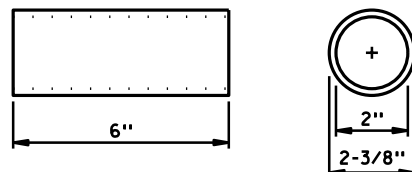
NOSE CABLE ANCHOR PLATE



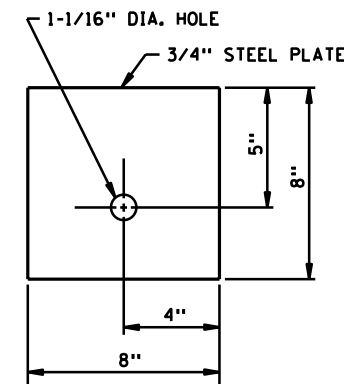
NOSE CABLE



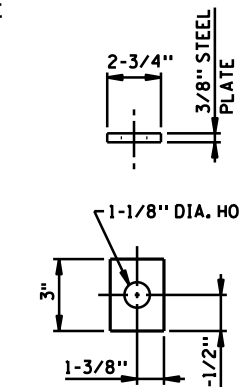
DETAIL "A"



BREAKAWAY TERMINAL POST SLEEVE



BEARING PLATE



CABLE END PLATE

NOTES:

OTHER ANCHOR CABLE ASSEMBLIES HAVING 40,000 LBS. MIN. BREAKING STRENGTH MAY BE USED.

ALTERNATE HARDWARE DESIGNS WILL BE CONSIDERED FOR APPROVAL PROVIDED THEIR CONNECTION DETAILS, FOR THE PURPOSE OF MAINTENANCE SUBSTITUTIONS, ARE COMPATIBLE WITH THE DETAILS OF THIS STANDARD AND THEIR OPERATING CHARACTERISTICS ARE SIMILAR TO THOSE OF THE HARDWARE SHOWN IN THIS STANDARD.

BOLTS AND ALL NECESSARY HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

SEE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE" FOR ADDITIONAL HARDWARE INFORMATION. THE MN/DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SHALL GOVERN.

- ① SLOTTED RAIL NO. 1, 12' 6", SHOP BEND TO R=5' 3"
- ② SLOTTED RAIL NO. 2, 12' 6", SHOP BEND TO R=34' 2"
- ③ SLOTTED RAIL NO. 3, 12' 6", TANGENT
- ④ U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
- ⑤ NOSE CABLE W/SWAGED END BUTTONS
- ⑥ NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
- ⑦ THRIE-BEAM GUARDRAIL, 12' 6".
- ⑧ MEASUREMENTS ARE FROM BACK OF RAIL TO BACK OF RAIL. FOR GUARDRAIL LAPPING DETAIL, SEE SHEET 2 OF 2.
- ⑨ MINIMUM DESIGN DEFLECTION FOR BARRIER USED.

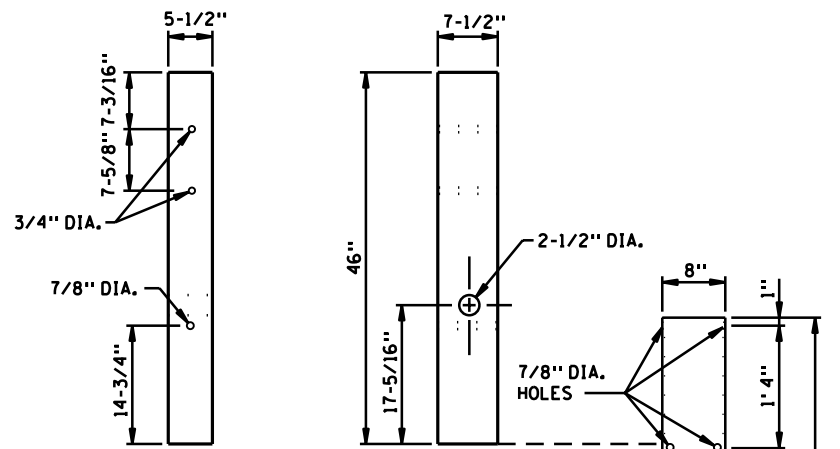
GR5 OF GR12

STANDARD SHEET NO. 5-297,611 (1 OF 3)
STANDARD APPROVED: AUGUST 20, 2001

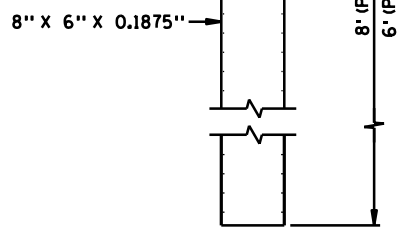
THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS (14' 2-1/2" WIDTH)

REVISION DATE 7-11-02

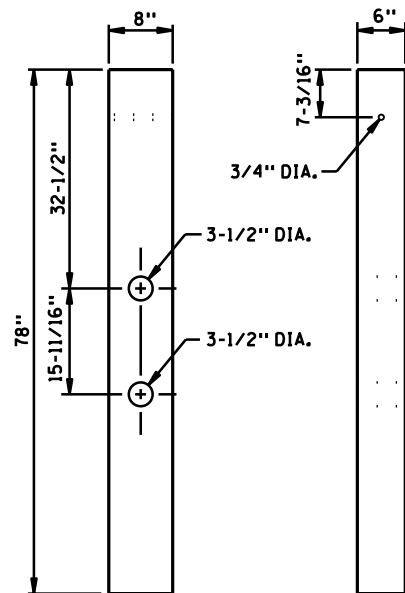
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 196 OF 534 SHEETS



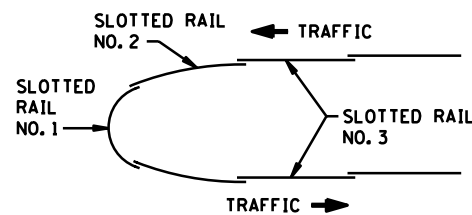
THRIE-BEAM BCT ANCHOR POSTS



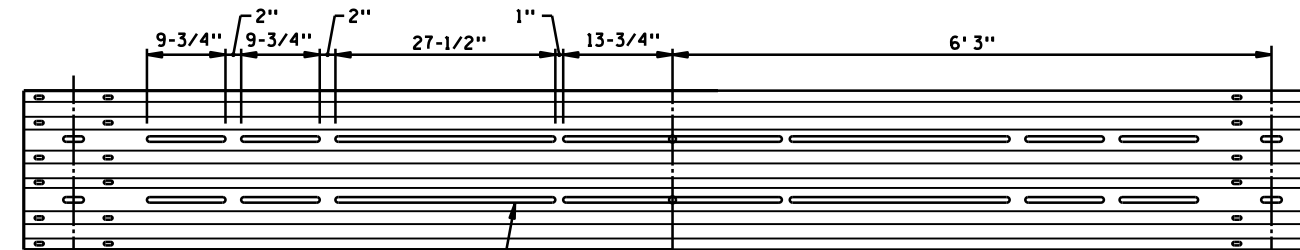
STEEL TUBE



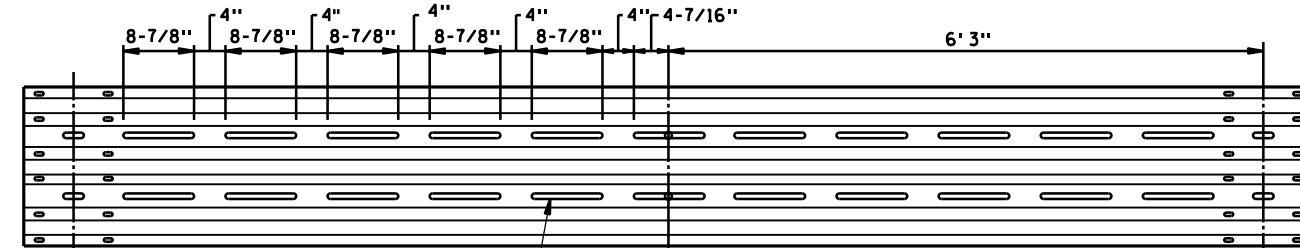
THRIE-BEAM CRT POSTS



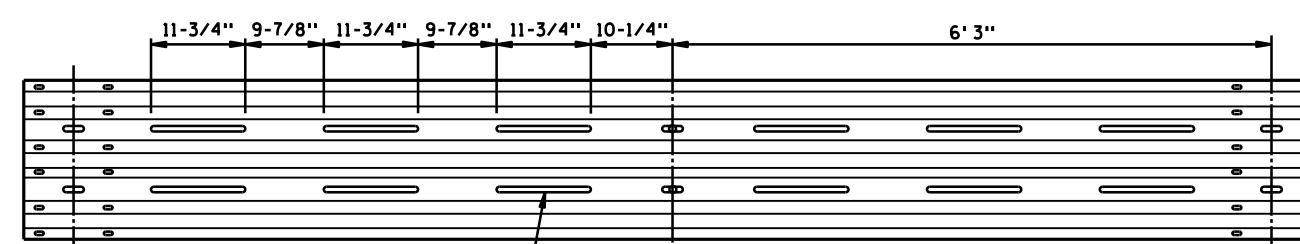
GUARDRAIL OVERLAPPING DETAIL



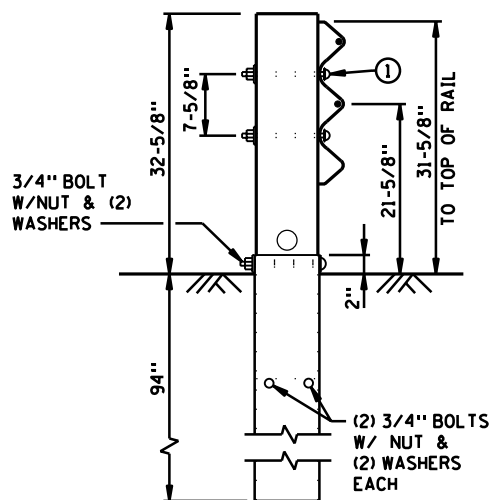
SLOTTED RAIL NO. 1



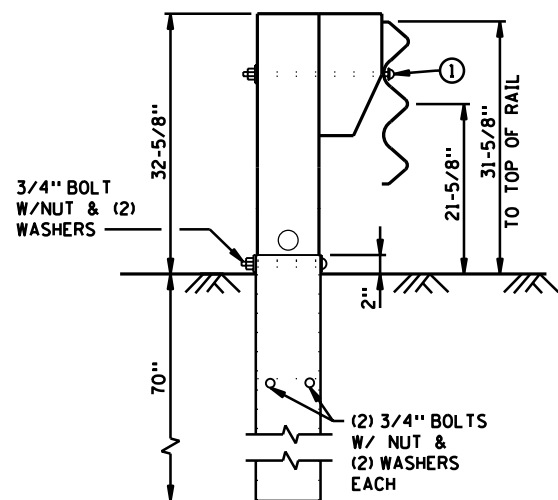
SLOTTED RAIL NO. 2



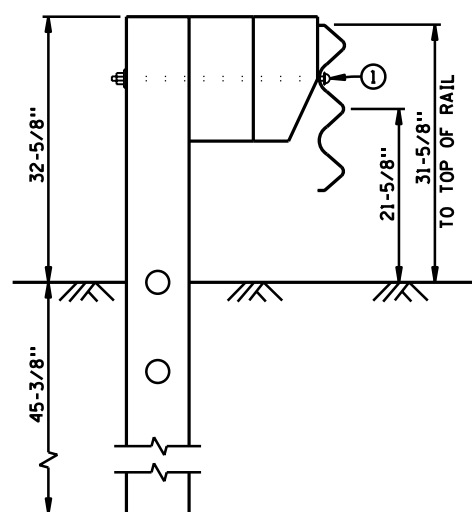
SLOTTED RAIL NO. 3



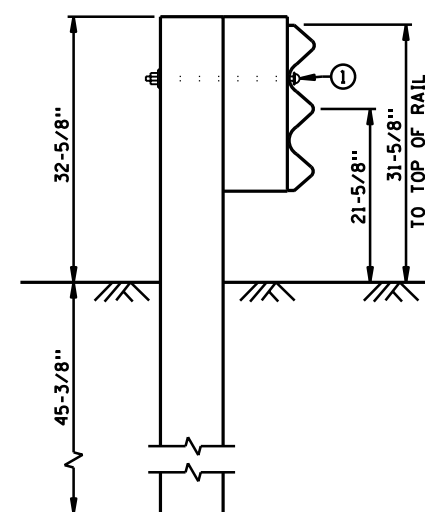
THRIE-BEAM BCT POST (WITH 96" STEEL TUBE) POST NO. 1



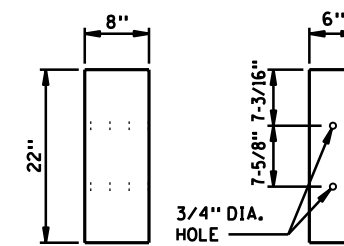
THRIE-BEAM BCT POST (WITH 72" STEEL TUBE AND 14" TAPERED BLOCK) POST NO. 2



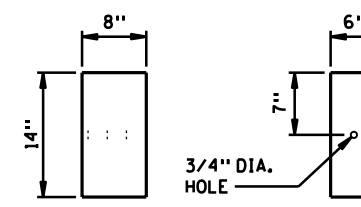
THRIE-BEAM CRT POST (78" LONG WITH 14" BLOCK AND 14" TAPERED BLOCK) POST NO. 3, 4, 5, 6, 7, & 8



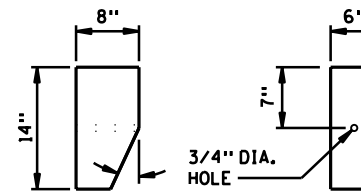
THRIE-BEAM POST (6" X 8" X 78" LONG POST WITH 6" X 8" X 22" BLOCK) POST NO. 9 & 10



STANDARD 22" LONG BLOCK



STANDARD BLOCK



TAPERED BLOCK

NOTES: ① 5/8" DIA. BUTTON HEAD BOLT X LENGTH AS REQUIRED, SECURED WITH WASHER AND HEX NUT.

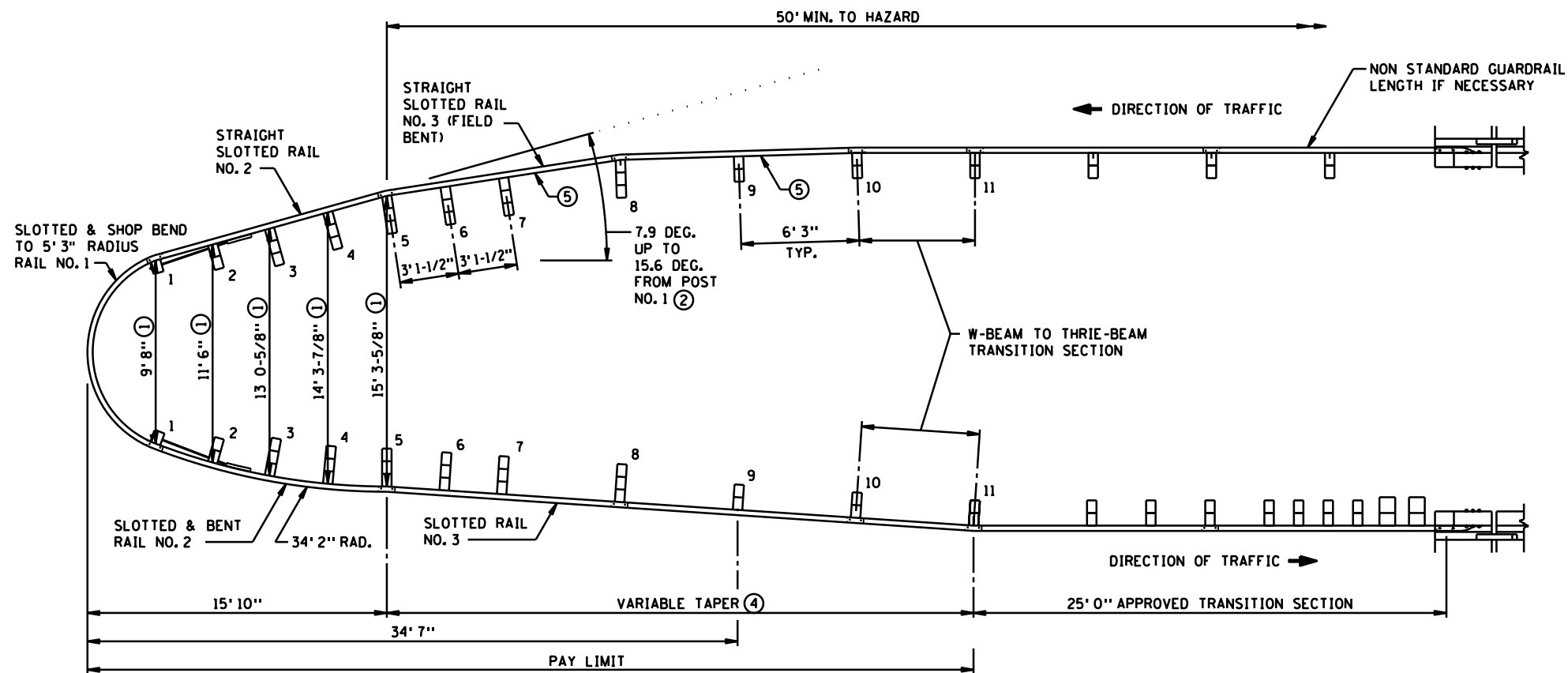
GR6 OF GR12

STANDARD SHEET NO. 5-297.611 (2 OF 3) STANDARD APPROVED: AUGUST 20, 2001

TITLE: THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS (14' 2-1/2" WIDTH)

REVISION DATE 7-11-2002

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 197 OF 534 SHEETS



PLAN VIEW
WIDENED BULLNOSE DESIGN ③

NOTES:

- ① POST SPACINGS ACROSS THE BARRIER ARE MEASURED AS PERPENDICULAR DISTANCE ACROSS THE BARRIER FROM THE CENTER OF POST.
- ② TAPER BEGINNING AT POST NO. 1 MUST CONTINUE TO POST NO. 5. PAST POST NO. 5, TAPER MAY END OR BE EXTENDED UP TO 15.6 DEGREES TO FIT VARIABLE MEDIAN WIDTHS.
- ③ THRIE BEAM BULLNOSE, SEE SHEET NO. ... FOR DETAILS.
- ④ FOR MEDIANS WIDER THAN 14' 2 1/2", BEFORE TAPERING THE APPROACH SIDE, TAPER THE OPPOSING SIDE AS SHOWN ON THE BULLNOSE DESIGN DETAIL. APPROACH TAPER SHOULD NOT EXCEED 1:25 IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 IF IT IS OUTSIDE.
- ⑤ THRIE BEAM MAY BE FIELD BENT UP TO 18" IN A 12' 6" LENGTH (APPROX. 6.9 DEG.). ADJUST BENDS TO FIT BULLNOSE TO SITE. SLOTTED RAIL NO. 2 ON OPPOSING SIDE MAY BE USED STRAIGHT OR NORMAL (SHOP BEND TO 34' 2" RAD.). SLOTTED RAIL NO. 3 ON OPPOSING SIDE DOES NOT HAVE TO BE SHOP BENT (BEND IN FIELD).

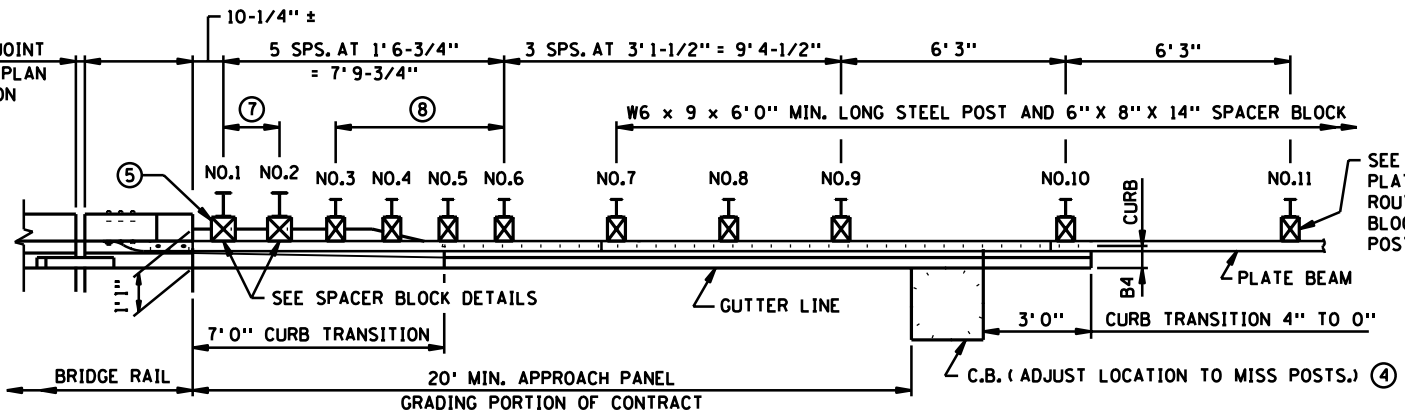
GR7
OF GR12

STANDARD PLAN SHEET NO.
5-297.611 (3 OF 3)
 STANDARD APPROVED:
 MAY 30, 2002

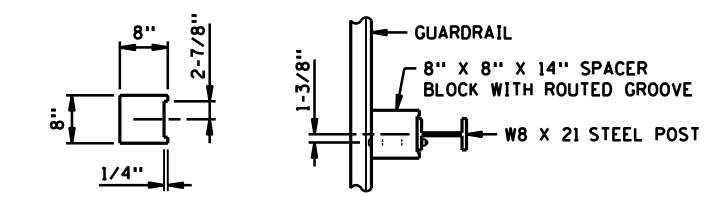
**THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS
 (WIDER THAN 14' 2-1/2")**

REVISION DATE
 7-11-02

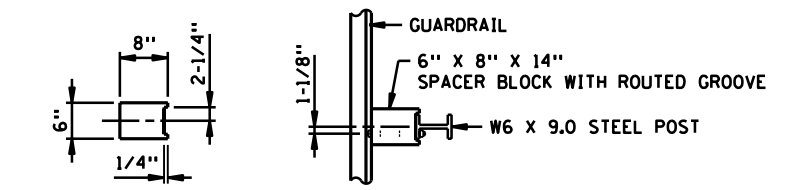
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 198 OF 534 SHEETS



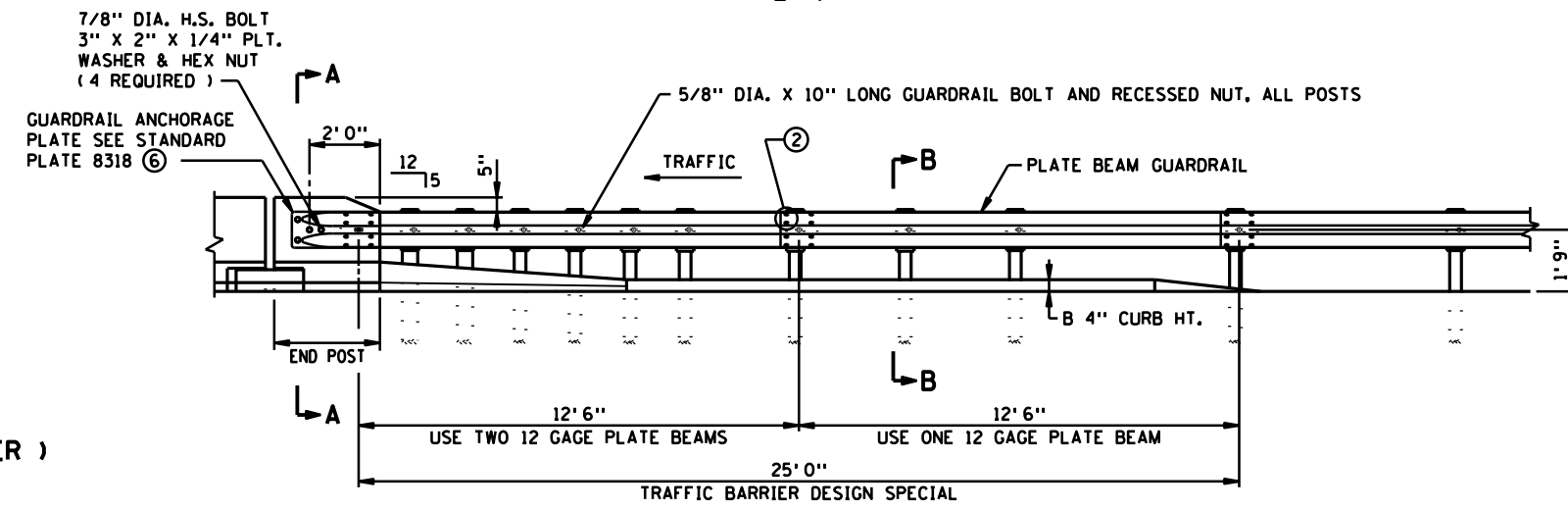
PLAN



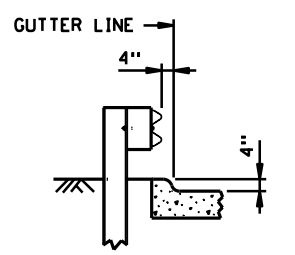
ROUTED GROOVE DETAIL TOP VIEW POSTS 1 AND 2



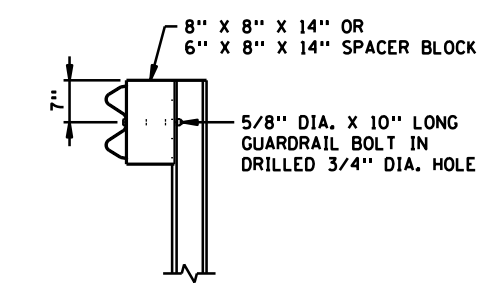
ROUTED GROOVE DETAIL TOP VIEW POSTS 3 - 11



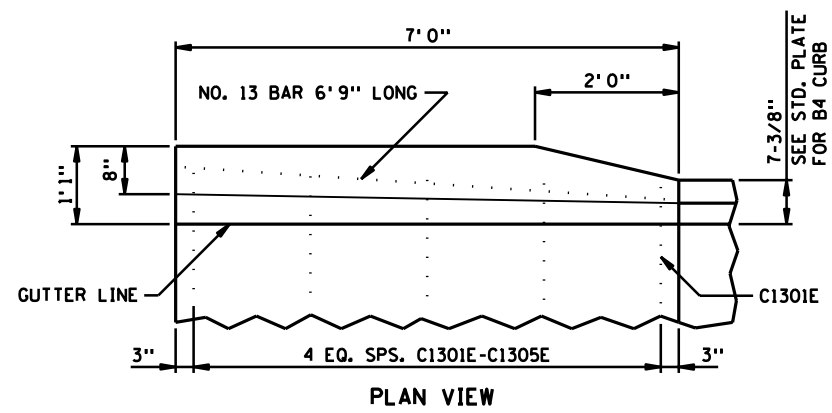
ELEVATION



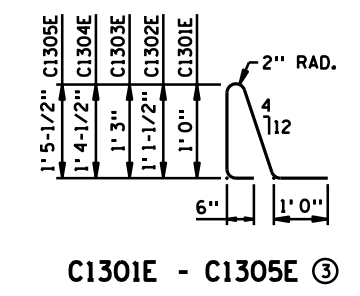
SECTION B-B THE TRANSITION SECTION HAS BEEN TESTED AND APPROVED WITH THE CURB PLACED AS SHOWN



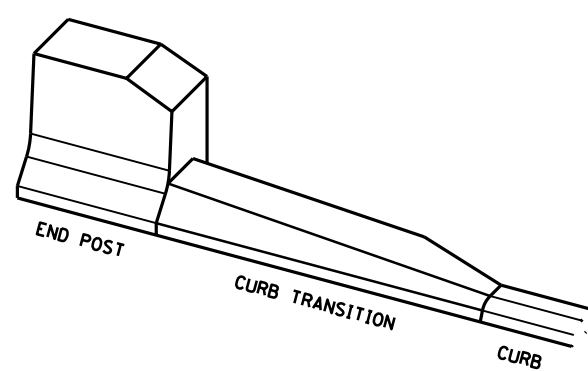
SECTION A - A
F SHAPE RAIL (F BARRIER)
(PARALLEL WINGWALL SHOWN)



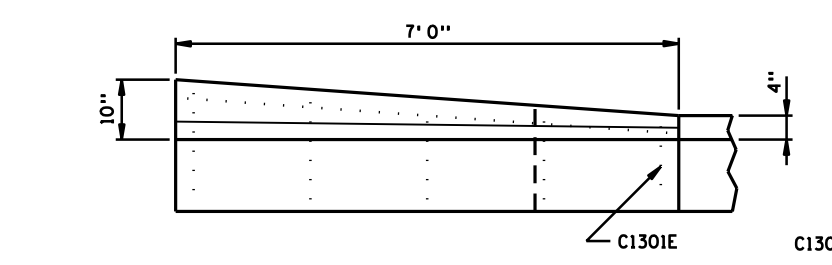
PLAN VIEW



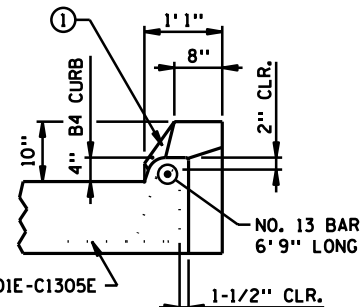
C1301E - C1305E ③



ISOMETRIC VIEW



INSIDE ELEVATION



END VIEW

NOTES:

- ① END OF TRANSITION TO MATCH BRIDGE RAIL SURFACE.
- ② 5/8" DIA. x 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
- ③ REINFORCEMENT TO BE EPOXY COATED AS PER SPEC. 3301.
- ④ SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
- ⑤ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.
- ⑥ SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.
- ⑦ POSTS 1 AND 2 TO BE W8 x 21 x 8'0" MINIMUM LONG STEEL POST AND 8" x 8" x 14" SPACER BLOCK.
- ⑧ POSTS 3, 4, 5, AND 6 TO BE W6 x 9 x 6'0" MIN. LONG STEEL POST AND 6" x 8" x 14" SPACER BLOCK.

TRAFFIC BARRIER DESIGN SPECIAL

GR8 OF GR12

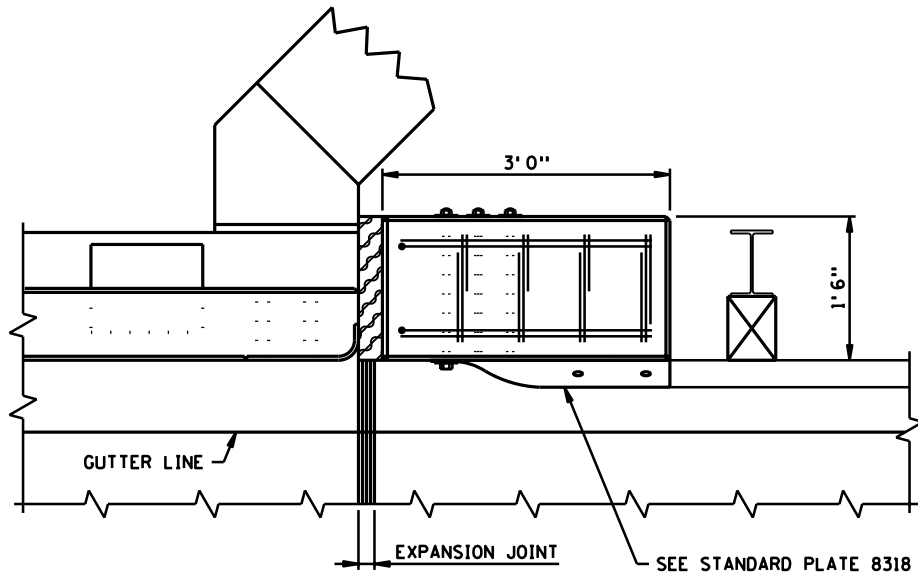
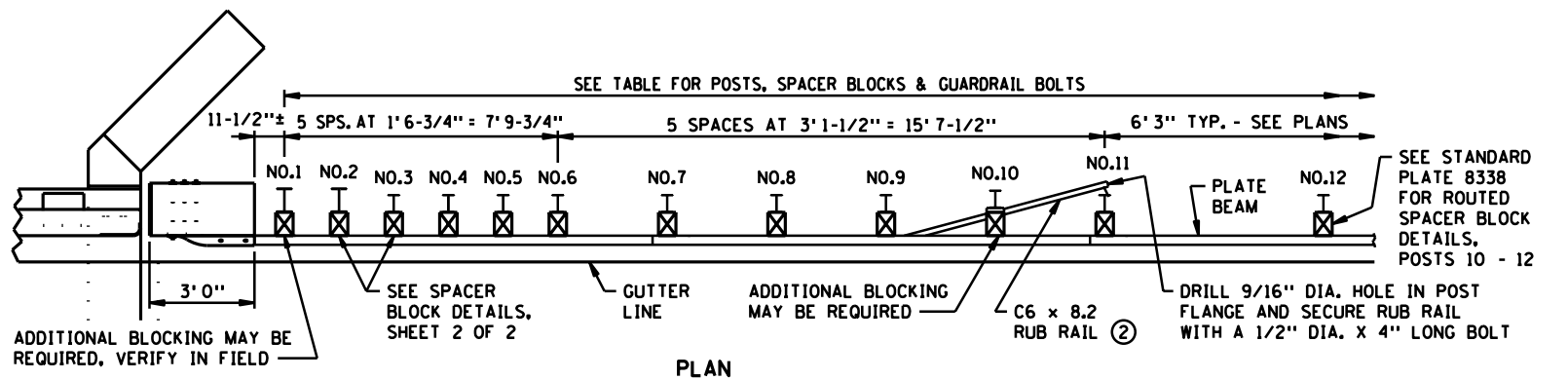
STANDARD SHEET NO. 5-297.603
STANDARD APPROVED: DECEMBER 20, 2001

TITLE: NEW W-BEAM TRANSITION TO CONCRETE F-SHAPE SAFETY RAIL WITH APPROACH CURB (STEEL POST)

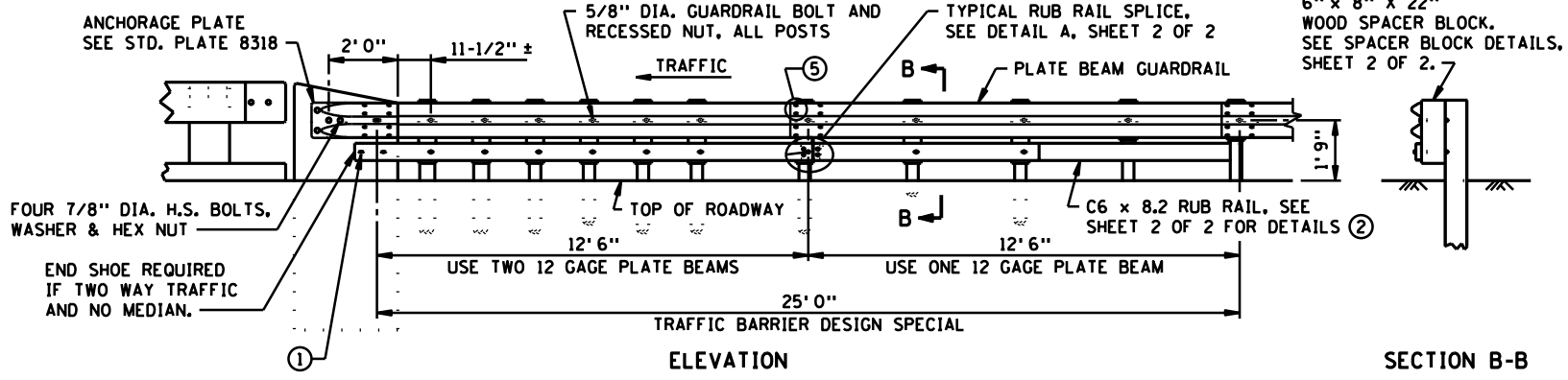
REVISION DATE 01-21-2006

POST, SPACER BLOCK & BOLT TABLE

DESCRIPTION	POST NO.	SIZE
POST	1 & 2	W8 X 21 X 8' 0" MIN. LONG
	3 - 12	W6 X 9 X 6' 0" MIN. LONG
SPACER BLOCK	1 - 9	6" X 8" X 22"
	10 - 12	6" X 8" X 14"
GUARDRAIL BOLT & RECESSED NUT	1 - 12	5/8" DIA. X 10" - GUARDRAIL
	1 - 9	5/8" DIA. X 12" - RUB RAIL

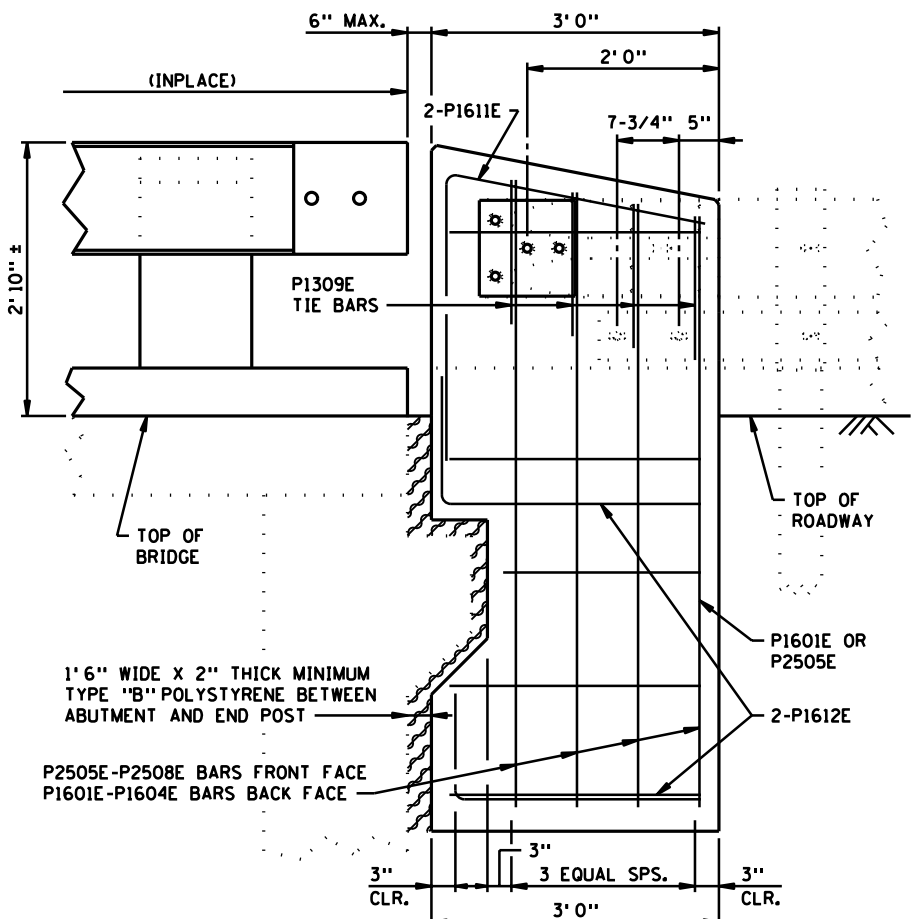


PLAN VIEW (45° WINGWALL SHOWN)

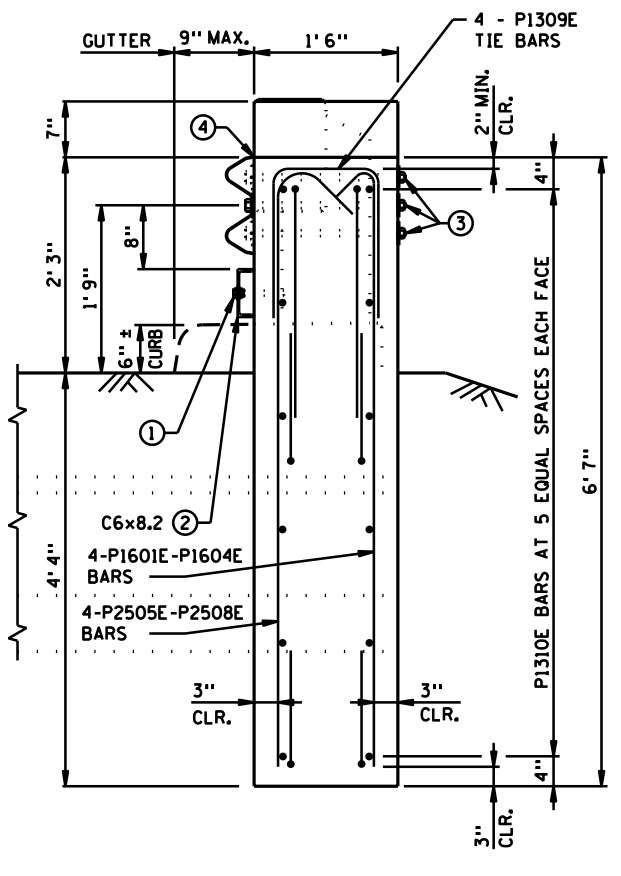


ELEVATION GENERAL ASSEMBLY DETAILS

SECTION B-B

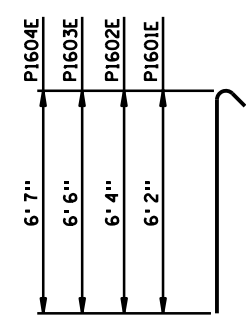


END POST DETAILS

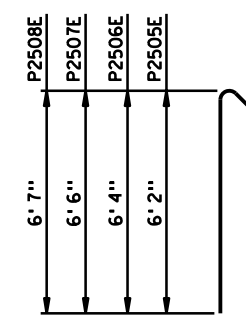


END VIEW

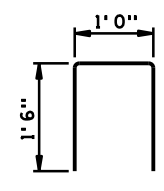
END POST REINFORCEMENT				
BAR	NO.	LENGTH	SHAPE	LOCATION
P1601E	1	6' 8"	BENT	VERTICAL - OUTSIDE FACE
P1602E	1	6' 9"	BENT	VERTICAL - OUTSIDE FACE
P1603E	1	6' 11"	BENT	VERTICAL - OUTSIDE FACE
P1604E	1	7' 0"	BENT	VERTICAL - OUTSIDE FACE
P2505E	1	7' 1"	BENT	VERTICAL - INSIDE FACE
P2506E	1	7' 2"	BENT	VERTICAL - INSIDE FACE
P2507E	1	7' 4"	BENT	VERTICAL - INSIDE FACE
P2508E	1	7' 5"	BENT	VERTICAL - INSIDE FACE
P1309E	4	4' 0"	BENT	TOP - TIE BAR
P1310E	12	2' 8"	STRAIGHT	HORIZONTAL
P1611E	2	5' 7"	BENT	TOP
P1612E	4	4' 0"	BENT	BOTTOM & MIDDLE



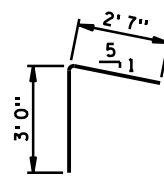
P1601E - P1604E



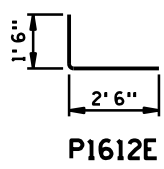
P2505E - P2508E



P1309E

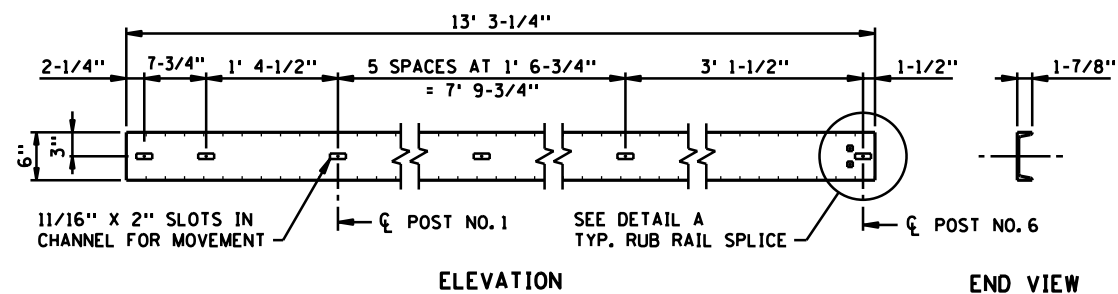


P1611E

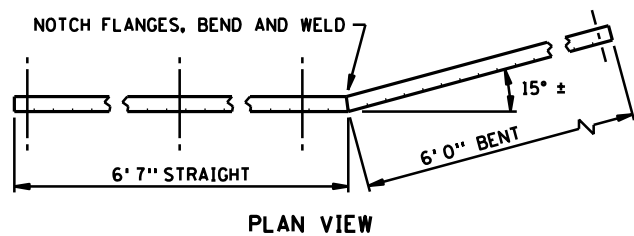


P1612E

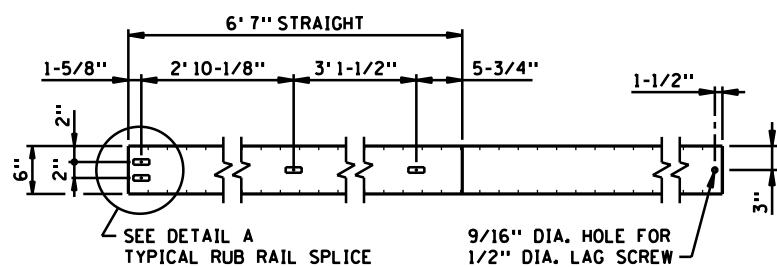
- NOTES:**
 ALL REBARS ARE IN METRIC DESIGNATIONS
 CONSTRUCT AS PER SPEC. 2401.
 REINFORCEMENT TO BE SPEC. 3301, GRADE 60 AND SHALL BE EPOXY COATED.
 C.I.P. CONCRETE SHALL BE 3X46.
 SOIL COMPACTION AT END POST AS PER SPEC. 2451.
 GUARDRAIL CONNECTION SHALL BE THE SAME AS REQUIRED ON BRIDGE RAILINGS, SEE BRIDGE DETAILS MANUAL FOR ADDITIONAL INFORMATION.
- 5/8" DIA. BOLTS WITH APPROVED CONCRETE ANCHORS EMBEDDED 5" IN END POST. LOCATE CONCRETE ANCHORS TO MISS BRIDGE REINFORCEMENT
 - RUB RAIL SHALL BE USED WHEN THERE IS NO CURBING ON APPROACH PANEL.
 - 7/8" DIA. H.S. BOLT OR EQUAL THREADED ROD, 3" X 2" X 1/4" PLATE WASHER AND HEX NUT (4 REQUIRED).
 - TIMBER BLOCKING MAY BE REQUIRED BEHIND GUARDRAIL CONNECTION AND RUB RAIL DEPENDING ON CURB WIDTH.
 - 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.
 - CUT IN FIELD AS NECESSARY.



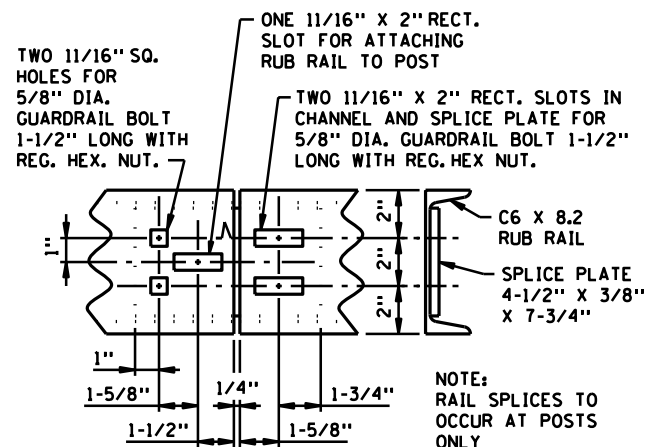
RUB RAIL STRAIGHT SECTION
NON-STANDARD RUB RAIL LENGTH



PLAN VIEW

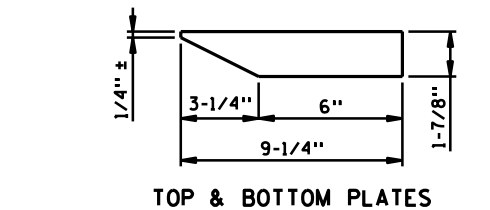


RUB RAIL BENT SECTION
NON-STANDARD RUB RAIL LENGTH

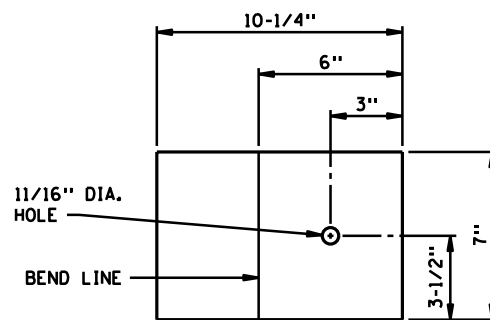


DETAIL A
TYPICAL RUB RAIL SPLICE

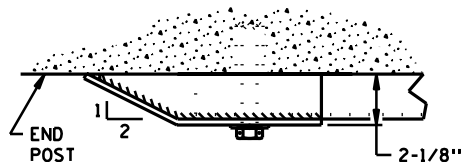
NOTE:
RAIL SPLICES TO
OCCUR AT POSTS
ONLY



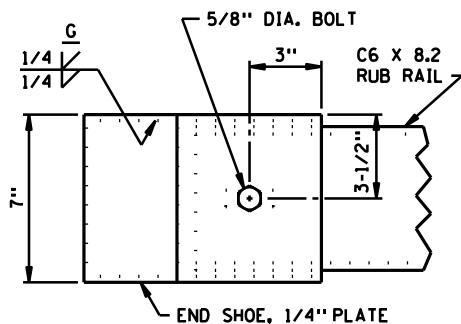
TOP & BOTTOM PLATES



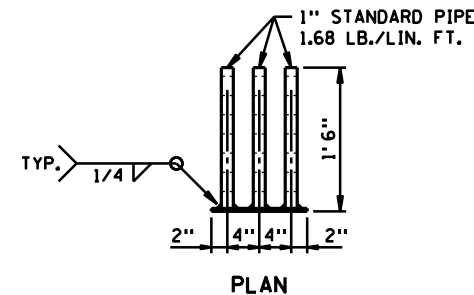
FRONT PLATE
END SHOE PLATE DETAILS
(1/4" PLATE)



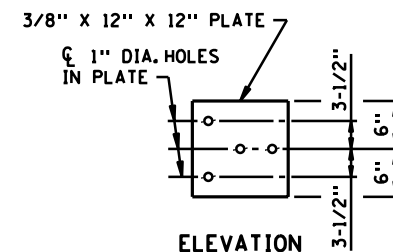
PLAN VIEW



RUB RAIL END SHOE ASSEMBLY
(USE IF TWO WAY TRAFFIC WITH NO MEDIAN)

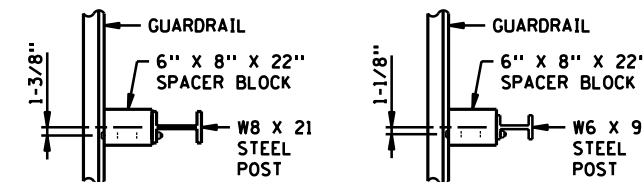


PLAN



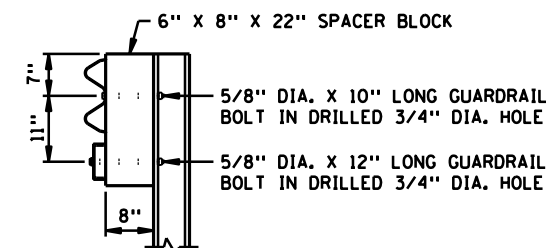
ELEVATION

GUARDRAIL CONNECTION DETAIL



TOP VIEW
POSTS 1 & 2

TOP VIEW
POSTS 3 - 9



END VIEW

SPACER BLOCK DETAILS
POSTS 1 - 9

- NOTES:**
- GALVANIZE ALL HARDWARE PER SPEC. 3392.
 - USE END SHOE ON RUB RAIL IF TWO WAY TRAFFIC WITH NO MEDIAN.
 - RUB RAIL IS C6 X 8.2
 - STRUCTURAL STEEL PER SPEC. 3306 UNLESS OTHERWISE NOTED.
 - ALL SLOTTED HOLES ARE 11/16" X 2".
 - ALL SQUARE HOLES ARE 11/16".
 - GALVANIZE STRUCTURAL SHAPES PER SPEC. 3394 AFTER FABRICATION UNLESS OTHERWISE NOTED.
 - ① VERIFY DIMENSION IN FIELD.

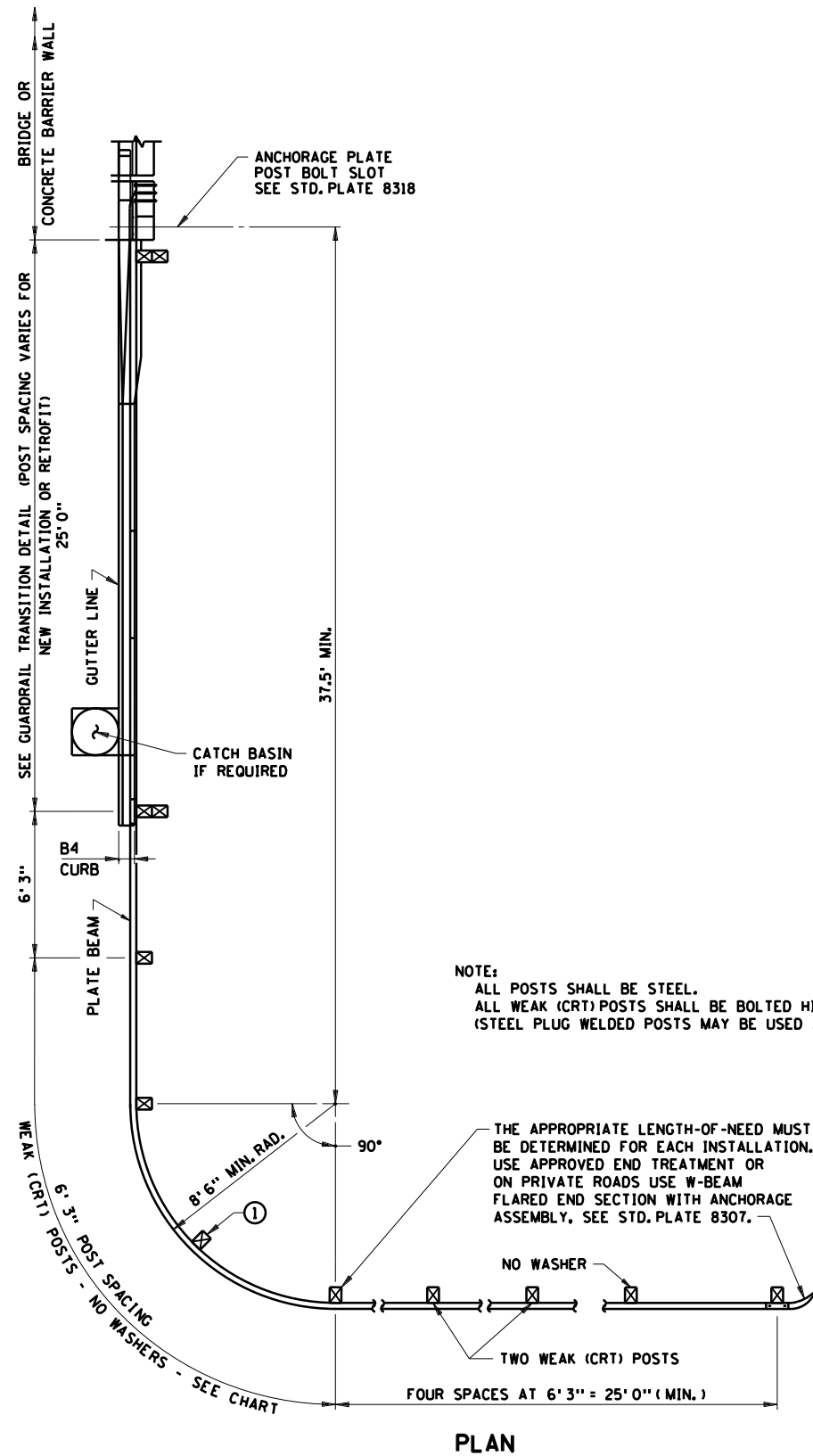
TRAFFIC BARRIER DESIGN SPECIAL

GR10
OF GR12

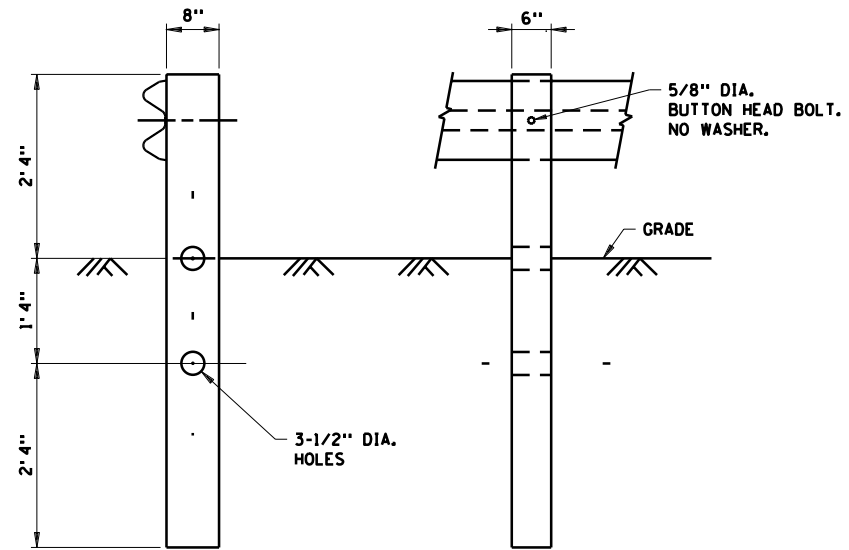
STANDARD SHEET NO.
5-297.619 (2 OF 2)
STANDARD APPROVED:
MAY 8, 2002

NEW W-BEAM TRANSITION TO ONE LINE RAIL BRIDGES
WITH NEW END POST & WITH OR WITHOUT APPROACH CURB
(STEEL POST)

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 198C OF 534 SHEETS



PLAN



CONTROLLED RELEASING TERMINAL WEAK (CRT) POST

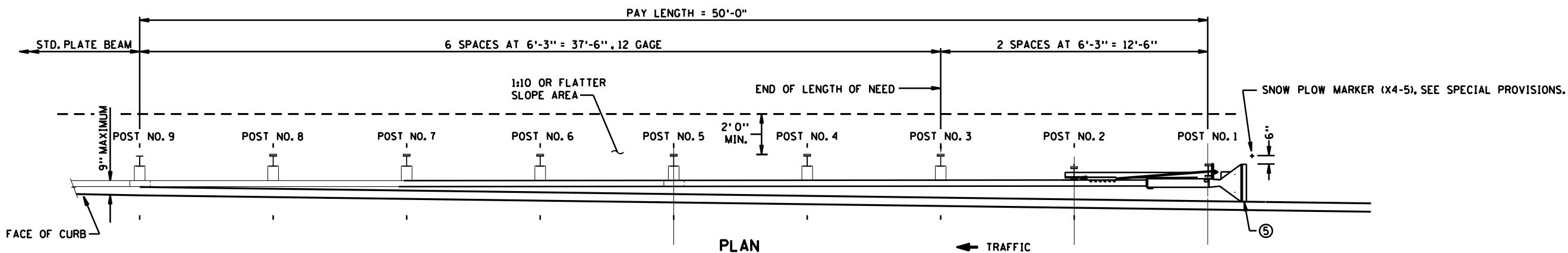
NUMBER OF WEAK (CRT) POSTS AND GUARDRAIL RADIUS

NO. OF POSTS	APPROXIMATE RADIUS
4	8'-6" (1)
5	12'-0"
6	16'-0"
7	20'-0"
8	24'-0"
9	28'-0"

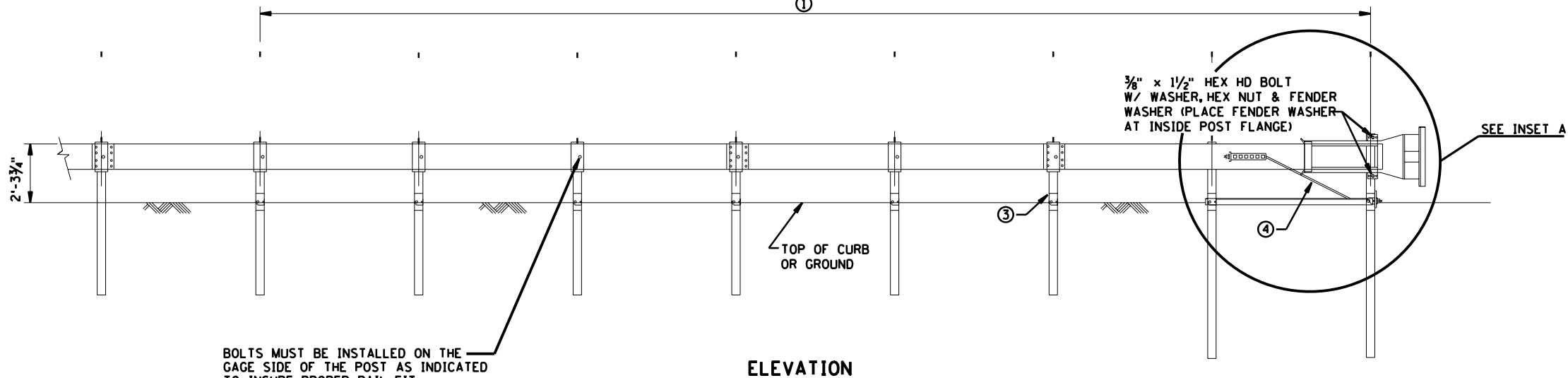
(1) NO BOLT ON CENTER POST.

NOTE: SEE SPEC. 2554.

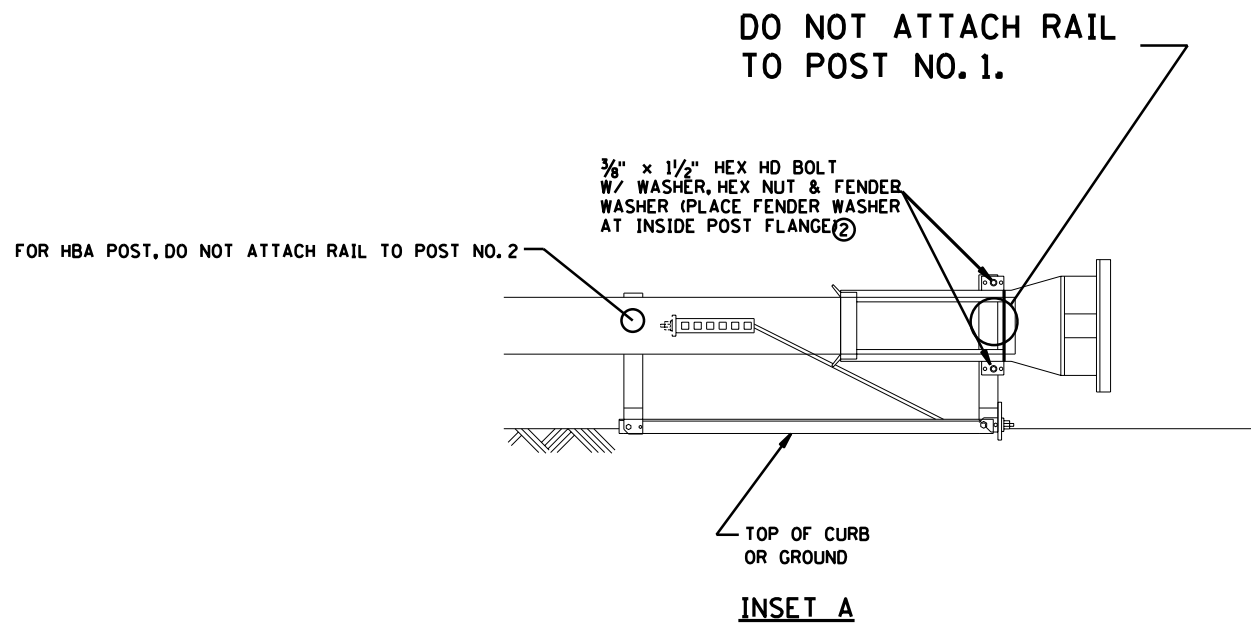
NOT NCHRP 350 APPROVED



PLAN



ELEVATION



INSET A

NOTES:

THIS DRAWING IS FOR INFORMATION ONLY. CONTACT THE MANUFACTURER FOR INSTALLATION INSTRUCTIONS DURING THE CONSTRUCTION PHASE.

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

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NOTES:

- ① USE STEEL HINGED BREAKAWAY (HBA) POSTS OPTIONS ONLY ON POSTS 1-8 WITH THE ET-2000 PLUS.
- ② ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
- ③ THE NON-BREAKAWAY SECTION OF THE HBA OR SYT POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE THE FINISHED GROUND LINE.
- ④ THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT UPON COMPLETION OF INSTALLATION. PREVENT CABLE FROM TWISTING DURING INSTALLATION.
- ⑤ EXTRUDER HEAD OFFSETS UP TO 2' MAX. ARE ALLOWABLE USING A STRAIGHT TAPER BETWEEN POSTS 1 AND 9. SET EXTRUDER HEAD A MAX. OF 9" BEHIND FACE OF CURB.

GR12
OF GR12

ET-2000 PLUS END TREATMENT (STEEL HBA POSTS OPTION)
(ENGLISH)

METRO DESIGN DETAIL
REVISED DATE: 10-15-09

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 198E OF 534 SHEETS

3:33:54 PM

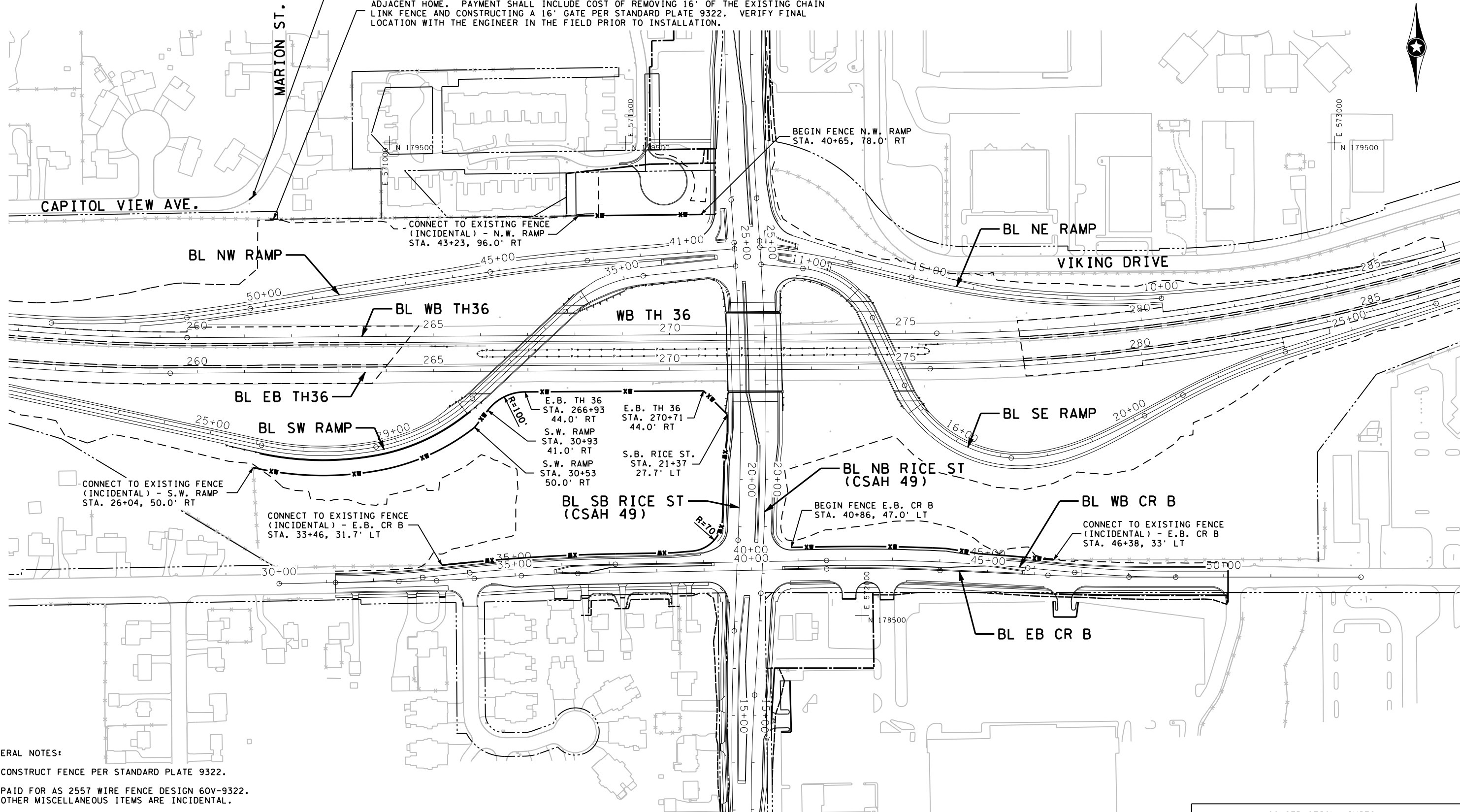
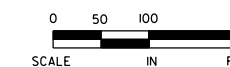
5/6/2010

kerickson

S:\PT\RAMSP\108790\dmshts\ramsp108790_fe.dgn

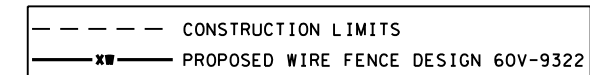
REMOVE 20' OF EXISTING CURB AND GUTTER (SAW CUTS INCIDENTAL) PLACE 20' OF B612 WITH A MINIMUM 12' CURB CUT TO PROVIDE VEHICULAR ACCESS TO THE GATE. VERIFY LOCATION WITH THE ENGINEER IN THE FIELD PRIOR TO INSTALLATION.

FURNISH AND INSTALL VEHICULAR GATE-DOUBLE, CENTERED 50' WEST OF SW CORNER OF ADJACENT HOME. PAYMENT SHALL INCLUDE COST OF REMOVING 16' OF THE EXISTING CHAIN LINK FENCE AND CONSTRUCTING A 16' GATE PER STANDARD PLATE 9322. VERIFY FINAL LOCATION WITH THE ENGINEER IN THE FIELD PRIOR TO INSTALLATION.



GENERAL NOTES:

- 1. CONSTRUCT FENCE PER STANDARD PLATE 9322.
- 2. PAID FOR AS 2557 WIRE FENCE DESIGN 60V-9322. OTHER MISCELLANEOUS ITEMS ARE INCIDENTAL.
- 3. USE 5.0' BLACK VINYL COATED FENCE.
- 4. FENCE SHALL BE PLACED 1.0' ON THE INSIDE (ROADWAY SIDE) OF THE RIGHT OF WAY LINE.



DESIGN TEAM				REVISIONS			
DRAWN BY:	MTT			NO.	BY	DATE	
DESIGNER:	SRH,HLR						
CHECKED BY:	KLE						

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010

PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

FENCING PLAN
 INP EB TH 36 STA 256+00 TO STA 287+00

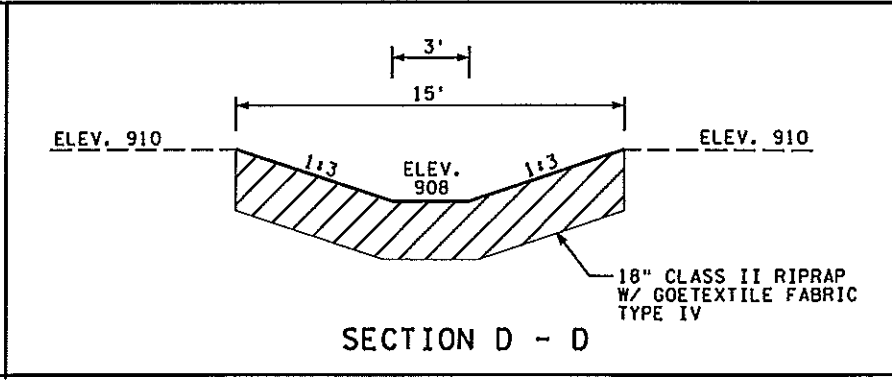
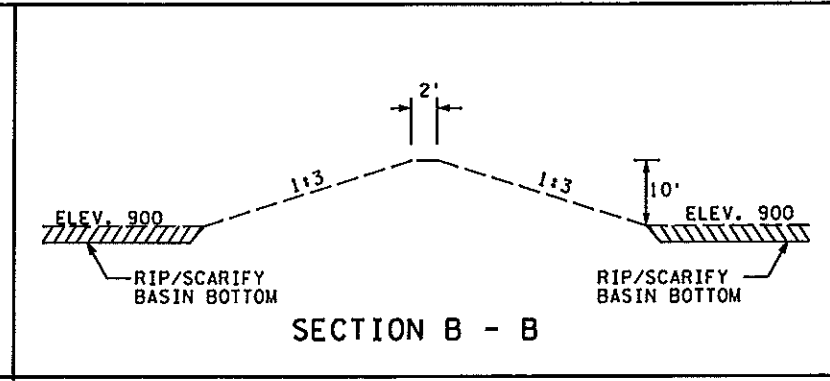
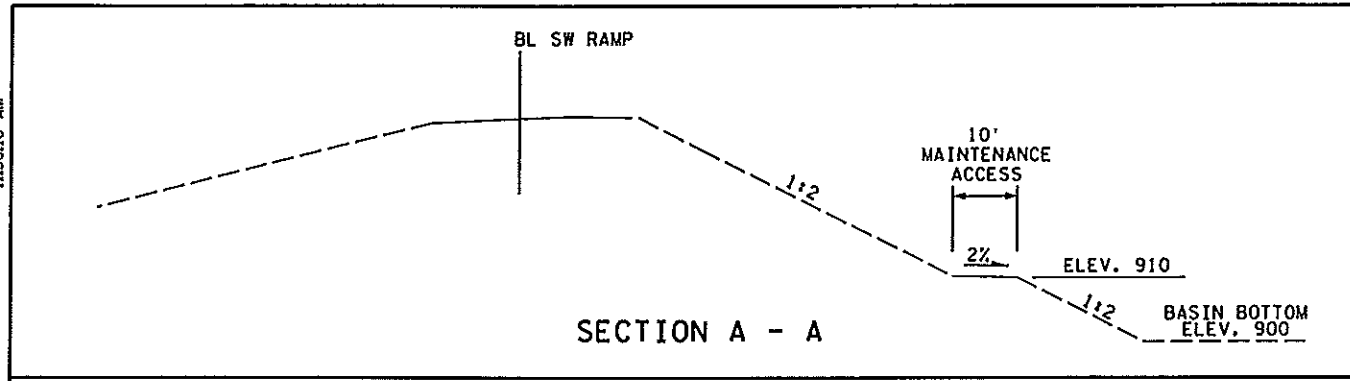
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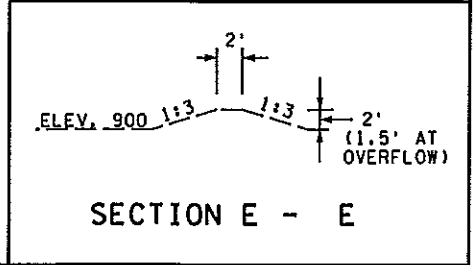
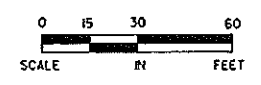
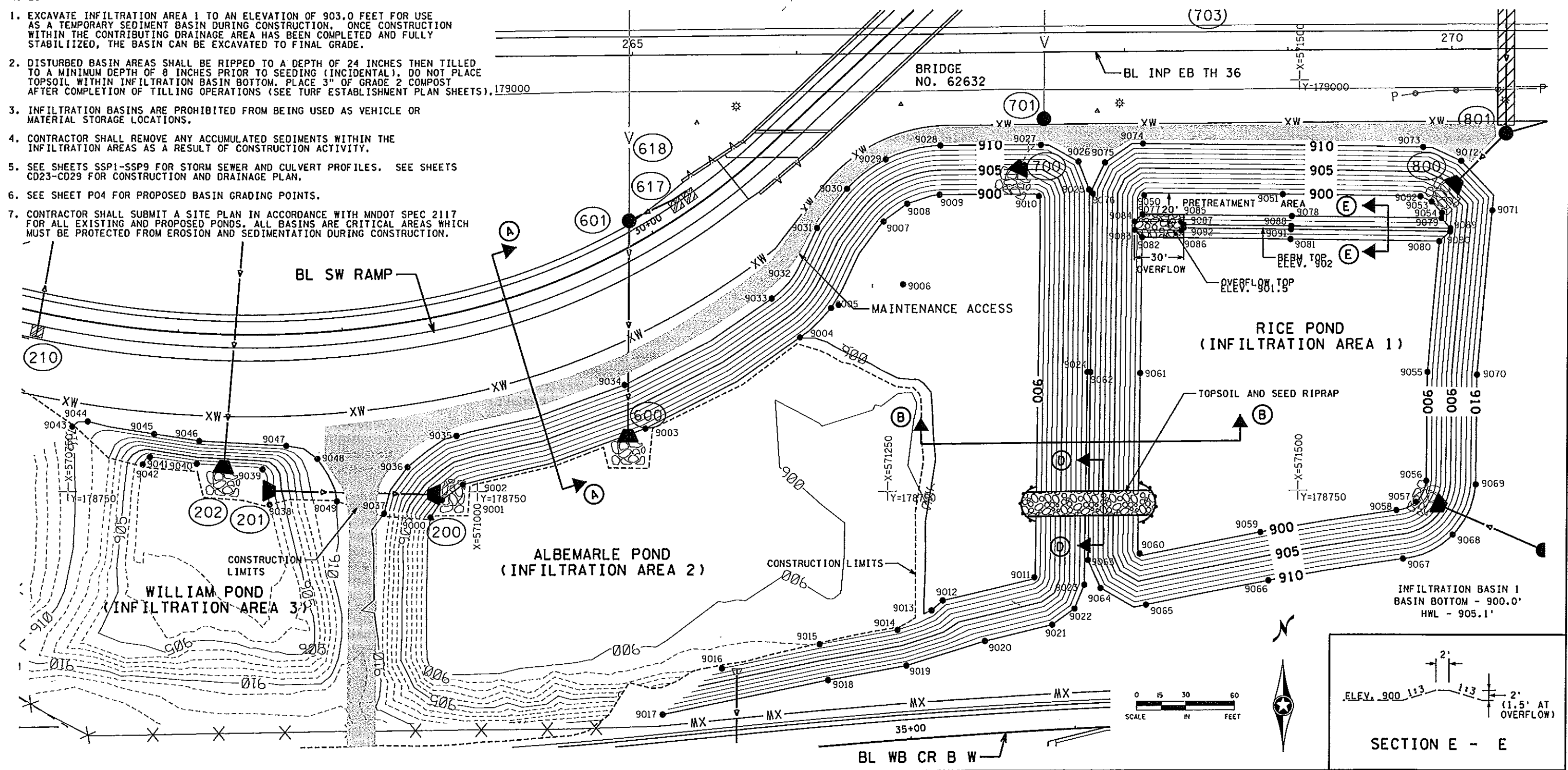
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- NOTES:**
- EXCAVATE INFILTRATION AREA 1 TO AN ELEVATION OF 903.0 FEET FOR USE AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION. ONCE CONSTRUCTION WITHIN THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETED AND FULLY STABILIZED, THE BASIN CAN BE EXCAVATED TO FINAL GRADE.
 - DISTURBED BASIN AREAS SHALL BE RIPPED TO A DEPTH OF 24 INCHES THEN TILLED TO A MINIMUM DEPTH OF 8 INCHES PRIOR TO SEEDING (INCIDENTAL). DO NOT PLACE TOPSOIL WITHIN INFILTRATION BASIN BOTTOM. PLACE 3" OF GRADE 2 COMPOST AFTER COMPLETION OF TILLING OPERATIONS (SEE TURF ESTABLISHMENT PLAN SHEETS).
 - INFILTRATION BASINS ARE PROHIBITED FROM BEING USED AS VEHICLE OR MATERIAL STORAGE LOCATIONS.
 - CONTRACTOR SHALL REMOVE ANY ACCUMULATED SEDIMENTS WITHIN THE INFILTRATION AREAS AS A RESULT OF CONSTRUCTION ACTIVITY.
 - SEE SHEETS SSP1-SSP9 FOR STORM SEWER AND CULVERT PROFILES. SEE SHEETS CD23-CD29 FOR CONSTRUCTION AND DRAINAGE PLAN.
 - SEE SHEET P04 FOR PROPOSED BASIN GRADING POINTS.
 - CONTRACTOR SHALL SUBMIT A SITE PLAN IN ACCORDANCE WITH MNDOT SPEC 2117 FOR ALL EXISTING AND PROPOSED PONDS. ALL BASINS ARE CRITICAL AREAS WHICH MUST BE PROTECTED FROM EROSION AND SEDIMENTATION DURING CONSTRUCTION.



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	JTK		
CHECKED BY:	JJM		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Jeremy Walgrave* Lic. No. 43131
 Licensed Professional Engineer
 Printed Name: JEREMY J. WALGRAVE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

POND CONTOUR AND GRADING PLAN
 INFILTRATION AREAS 1 & 2

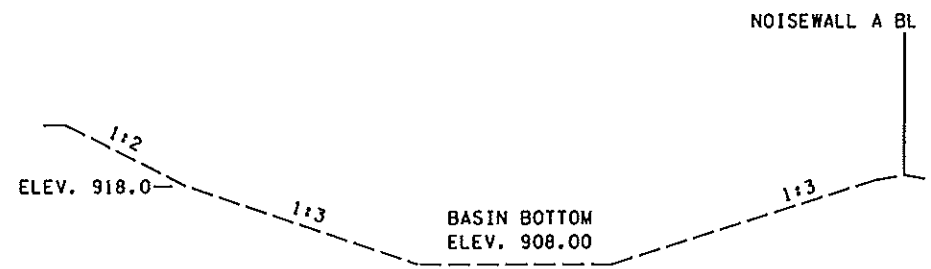
FILE NO. RAMSP08790
 P01 OF P04
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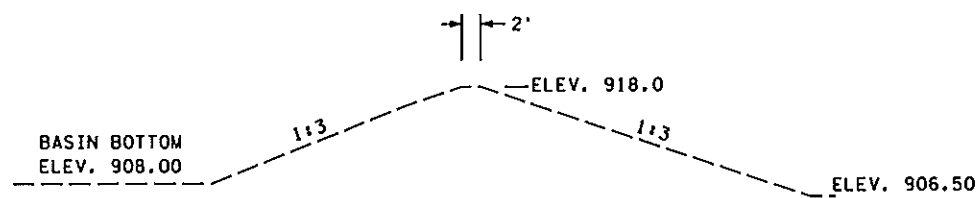
4/27/2010

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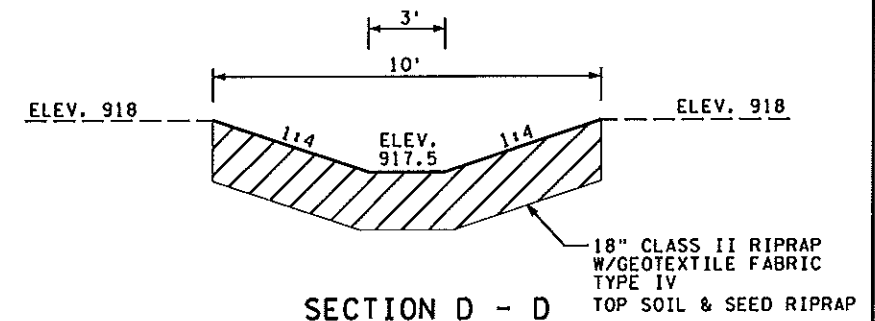
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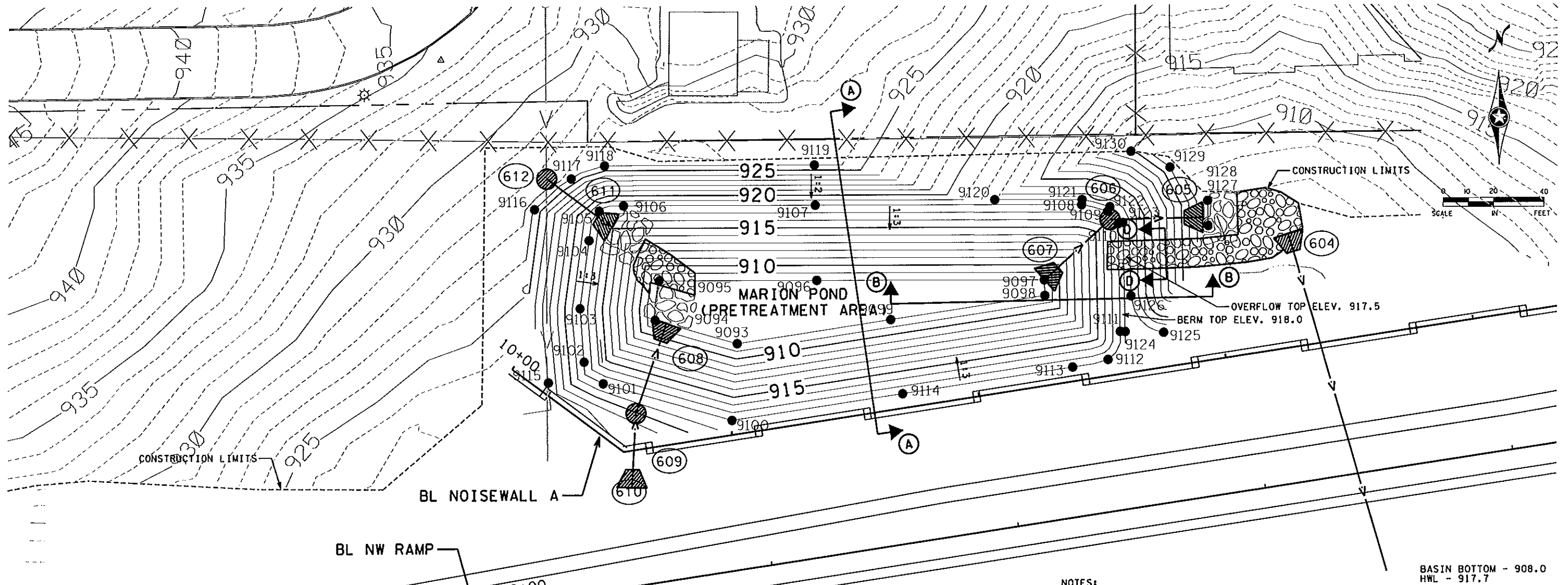
SECTION A - A



SECTION B - B



SECTION D - D



NOTES:

1. HYDROSEED, PLACE RIPRAP AND EROSION CONTROL BLANKET UPON COMPLETION OF GRADING WORK.
2. PROTECT SANITARY SEWER DURING GRADING WORK. ANY DAMAGE TO EXISTING OR PROPOSED SANITARY SEWER DURING CONSTRUCTION SHALL BE REPAIRED AS DIRECTED BY ENGINEER WITH NO ADDITIONAL COMPENSATION MADE TO CONTRACTOR FOR WORK PERFORMED.
3. PROTECT FENCE DURING CONSTRUCTION. ANY DAMAGE TO FENCE DURING CONSTRUCTION SHALL BE REPAIRED BY CONTRACTOR WITH NO ADDITIONAL COMPENSATION. (INCIDENTAL)
4. SEE SHEET M04 FOR STRUCTURE 606 DETAIL. STRUCTURE PAID FOR BY THE EACH UNDER BID ITEM "CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL".
5. SEE SHEET P04 FOR PRETREATMENT BASIN GRADING POINTS.
6. CONTRACTOR SHALL SUBMIT A SITE PLAN IN ACCORDANCE WITH MNDOT SPEC 1717 FOR ALL EXISTING AND PROPOSED PONDS.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	JTK		
CHECKED BY:	JJW		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Jeremy J. Walgrave*
 Licensed Professional Engineer, Lic. No. 43131
 Printed Name: JEREMY J. WALGRAVE Date: 3/3/2010



PHONE: (651)490-2000
 3535 VANDERBILT CENTER DR.
 ST. PAUL, MN 55110

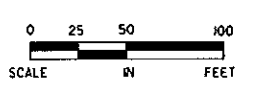
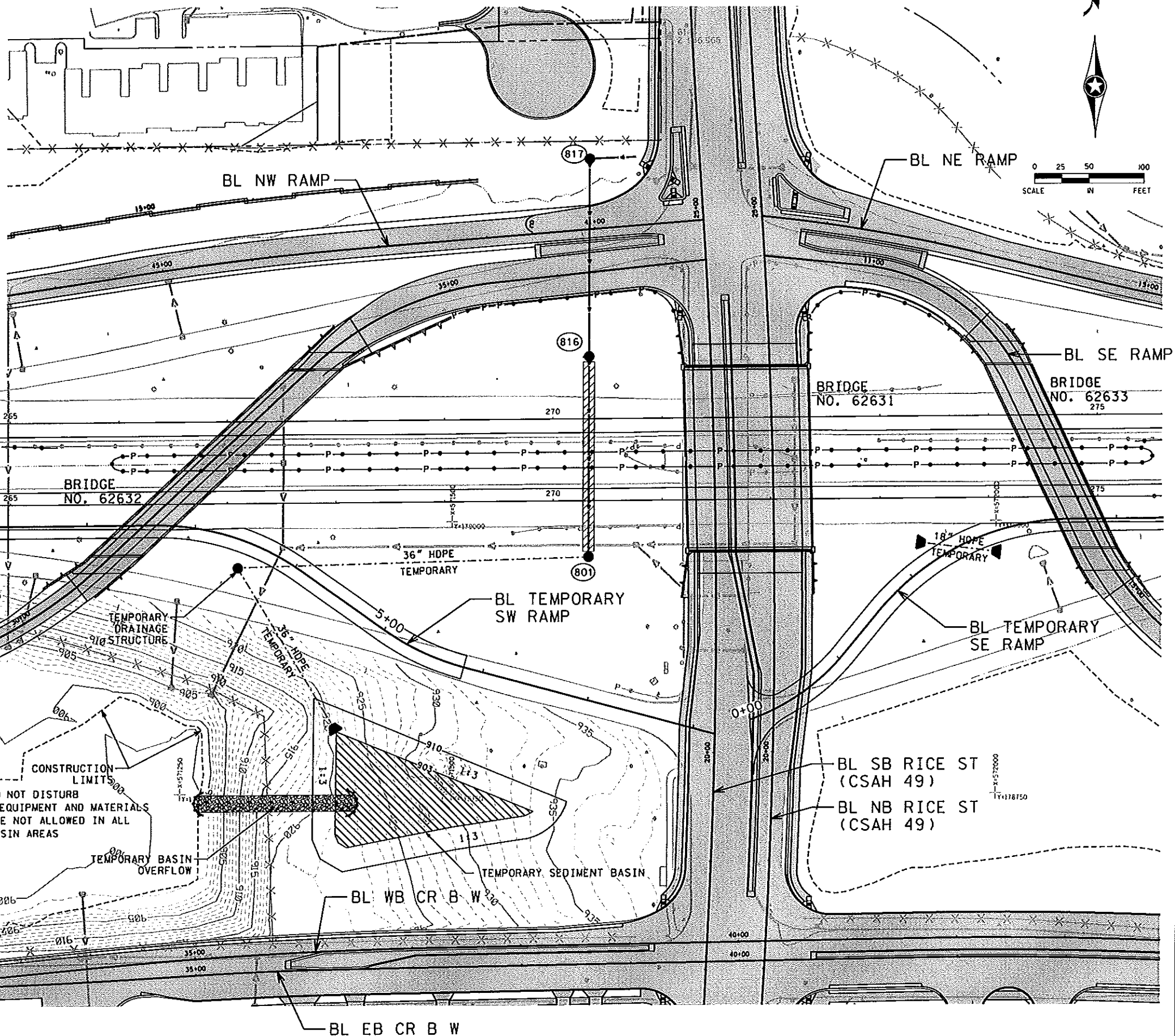
RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

BASIN CONTOUR AND
 GRADING PLAN
 PRETREATMENT BASIN

FILE NO. RAMSP108790	201
P02 OF P04	534

NOTES:

1. CONTRACTOR SHALL CONSTRUCT AND STABILIZE THE TEMPORARY SEDIMENT BASIN PRIOR TO DISCHARGING STORMWATER INTO THE BASIN. THIS INCLUDES HYDROSEEDING (SEED MIXTURE 150), PLACING EROSION CONTROL BLANKET AND PROVIDING A STABILIZED EMERGENCY OVERFLOW INTO THE EXISTING BASIN.
2. TEMPORARY SEDIMENT BASIN SHALL BE EXCAVATED TO AN ELEVATION OF 903'. ALL BASIN SIDE SLOPES SHALL BE 1:3.
3. STORM SEWER NEEDED TO PROVIDE TEMPORARY DRAINAGE FOR THE PROJECT WILL BE PAID FOR BY THE LUMP UNDER BID ITEM "DRAINAGE SYSTEM TYPE SPECIAL". THIS INCLUDES ALL TEMPORARY STORM SEWER SHOWN AND REQUIRED TO MAINTAIN DRAINAGE AND SAFE ROADWAYS THROUGHOUT THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO: PIPE, STRUCTURES, FITTINGS, LABOR, ENERGY DISSIPATION, EXCAVATION & ETC.
4. THE TEMPORARY PIPE SIZES SHOWN ARE MINIMUM PIPE SIZES. ALL TEMPORARY PIPE SHALL BE HDPE UNLESS APPROVED OTHERWISE BY THE ENGINEER IN THE FIELD.
5. THE TEMPORARY 36" HDPE PIPE SHALL BE CONSTRUCTED WITH POSITIVE DRAINAGE WITH AN OUTLET ELEVATION OF 903 FEET INTO THE TEMPORARY SEDIMENT BASIN.
6. CONSTRUCT TEMPORARY OVERFLOW FROM THE TEMPORARY SEDIMENT BASIN INTO THE EXISTING BASIN. INCIDENTAL TO "DRAINAGE SYSTEM TYPE SPECIAL" BID ITEM.
7. SEE POND SHEET P01 & P04 FOR SURVEY GRADING POINTS FOR TEMPORARY SEDIMENT BASIN CONSTRUCTION.
8. ACCESS TO SWAMP MUST BE MAINTAINED AT ALL TIMES. SEE TRAFFIC CONTROL MANAGEMENT PLAN SHEETS (TMI-TM30) FOR WORK RESTRICTIONS.
9. ALL NECESSARY TRAFFIC CONTROL MEASURES MUST BE IN PLACE PRIOR TO WORK COMMENCING FOR THE 60" STEEL CASING JACKING OPERATION. 60" CASING SHALL BE CONSTRUCTED DURING THE INITIAL PHASE OF THE PROJECT TO PROVIDE DRAINAGE FOR THE RICE STREET STORM SEWER.



10/24/28 AM

4/27/2010

kerickson

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P03

DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	JTK		
CHECKED BY:	JJW		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Jeremy Walgrave* Lic. No. 43131
 Licensed Professional Engineer
 Printed Name: JEREMY J. WALGRAVE Date: 3/3/2010

PHONE: 651/490-2000
 3535 VADRAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY BASIN CONTOUR AND GRADING PLAN
 TEMPORARY SEDIMENT BASIN

FILE NO. RAMSP108790	202
P03 OF P04	534

WILLIAM POND - INFILTRATION AREA 3 CONTOUR POINTS - SEE SHEET P01			
PT #	X	Y	ELEV
9038	570872.95	178742.27	903.00
9039	570868.55	178763.88	903.00
9040	570828.49	178767.12	903.00
9041	570800.14	178771.23	903.00
9042	570795.82	178766.68	903.00
9043	570752.25	178789.72	910.00
9044	570761.71	178792.88	910.00
9045	570802.60	178785.31	910.00
9046	570829.94	178781.06	910.00
9047	570882.69	178778.25	910.00
9048	570901.96	178770.29	910.00
9049	570914.14	178744.34	910.00

POND BOTTOM EL. = 903.0'

ALBEMARLE POND - INFILTRATION AREA 2 CONTOUR POINTS - SEE SHEET P01			
PT #	X	Y	ELEV
9000	570971.27	178734.33	900.00
9001	570978.25	178745.05	900.00
9002	570990.70	178754.33	900.00
9003	571102.02	178788.35	900.00
9004	571195.81	178843.94	900.00
9005	571214.88	178861.88	900.00
9006	571231.97	178895.12	900.00
9007	571246.78	178914.48	900.00
9008	571261.03	178925.23	900.00
9009	571280.82	178930.66	900.00
9010	571341.35	178929.61	900.00
9011	571339.55	178696.95	900.00
9012	571283.83	178682.96	900.00
9013	571277.10	178676.89	900.00
9014	571256.44	178664.99	901.00
9015	571208.92	178656.38	901.00
9016	571149.26	178641.55	902.00
9017	571113.49	178613.40	910.00
9018	571214.15	178634.47	910.00
9019	571261.84	178643.11	910.00
9020	571309.60	178658.15	910.00
9021	571350.63	178667.90	910.00
9022	571364.16	178677.76	910.00
9023	571370.05	178692.35	910.00
9024	571371.43	178822.39	910.00
9025	571372.04	178933.43	910.00
9026	571365.42	178950.53	910.00
9027	571342.46	178960.71	910.00
9028	571281.20	178960.64	910.00
9029	571247.92	178952.30	910.00
9030	571224.37	178934.42	910.00
9031	571206.10	178910.60	910.00
9032	571192.69	178882.76	910.00
9033	571178.41	178867.65	910.00
9034	571089.18	178815.02	910.00
9035	570986.63	178784.16	910.00
9036	570957.17	178765.22	910.00
9037	570942.94	178736.77	910.00

POND BOTTOM EL. = 900.0'

RICE POND - INFILTRATION AREA 1 CONTOUR POINTS - SEE SHEET P01			
PT #	X	Y	ELEV
9050	571405.24	178929.92	900.00
9051	571490.14	178930.41	900.00
9052	571574.10	178929.00	900.00
9053	571580.91	178925.88	900.00
9054	571587.33	178919.08	900.00
9055	571578.90	178822.07	900.00
9056	571578.50	178755.65	900.00
9057	571572.48	178742.77	900.00
9058	571560.22	178737.61	900.00
9059	571477.36	178724.40	900.00
9060	571403.35	178711.36	900.00
9061	571403.29	178821.63	900.00
9062	571373.29	178822.28	910.00
9063	571372.25	178707.39	910.00
9064	571379.91	178690.31	910.00
9065	571407.42	178680.04	910.00
9066	571482.27	178694.79	910.00
9067	571564.35	178707.90	910.00
9068	571594.89	178722.77	910.00
9069	571608.48	178753.50	910.00
9070	571608.87	178820.54	910.00
9071	571617.61	178920.70	910.00
9072	571598.71	178950.72	910.00
9073	571575.60	178958.97	910.00
9074	571404.40	178961.38	910.00
9075	571381.52	178949.91	910.00
9076	571374.28	178930.93	910.00
9077	571404.17	178918.39	900.00
9078	571495.60	178917.10	900.00
9079	571587.03	178915.81	900.00
9080	571585.76	178901.83	900.00
9081	571494.90	178903.11	900.00
9082	571404.04	178904.39	900.00
9083	571399.58	178908.95	901.50
9084	571399.63	178913.95	901.50
9085	571428.14	178913.55	901.50
9086	571428.07	178908.55	901.50
9087	571429.62	178912.03	902.00
9088	571495.27	178911.11	902.00
9089	571592.56	178909.74	902.00
9090	571592.37	178907.74	902.00
9091	571495.14	178909.11	902.00
9092	571429.59	178910.03	902.00

POND BOTTOM EL. = 900.0'

HWL100 = 905.1'

MARION POND - PRETREATMENT BASIN CONTOUR POINTS - SEE SHEET P02			
PT #	X	Y	ELEV
9093	570822.94	179257.90	908.00
9094	570790.00	179267.28	908.00
9095	570791.61	179283.10	908.00
9096	570854.64	179283.07	908.00
9097	570946.01	179282.94	908.00
9098	570946.16	179276.73	908.00
9099	570884.55	179267.32	908.00
9100	570821.01	179227.26	918.00
9101	570769.03	179242.06	918.00
9102	570761.24	179250.69	918.00
9103	570759.52	179272.03	918.00
9104	570763.09	179299.17	918.00
9105	570767.14	179310.89	918.00
9106	570777.03	179313.01	918.00
9107	570853.91	179313.07	918.00
9108	570960.79	179312.89	918.00
9109	570971.26	179310.20	918.00
9110	570975.50	179305.17	918.00
9111	570976.51	179262.28	918.00
9112	570971.67	179251.11	918.00
9113	570957.43	179248.10	918.00
9114	570889.47	179237.72	918.00
9115	570746.90	179242.42	923.00
9116	570741.09	179311.57	926.00
9117	570755.77	179323.81	926.00
9118	570769.26	179328.95	926.00
9119	570853.51	179329.07	926.00
9120	570925.98	179315.01	918.00
9121	570960.98	179314.89	918.00
9122	570972.16	179312.02	918.00
9123	570977.49	179305.69	918.00
9124	570978.51	179262.21	918.00
9125	570993.88	179261.89	917.00
9126	570980.81	179276.46	917.00
9127	571011.49	179304.44	906.50
9128	571011.18	179314.48	906.50
9129	570996.16	179327.78	909.00
9130	570980.62	179334.11	910.00

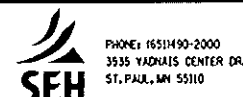
POND BOTTOM EL. = 908.0'

HWL100 = 917.7'

DESIGN TEAM				REVISIONS			
NO.	BY	DATE		NO.	BY	DATE	
1	MTI						
2	JTK						
3	JWJ						

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.

Certified By: Jeremy Walgrave, No. 43131
 Licensed Professional Engineer
 Printed Name: JEREMY J. WALGRAVE Date: 3/3/2010

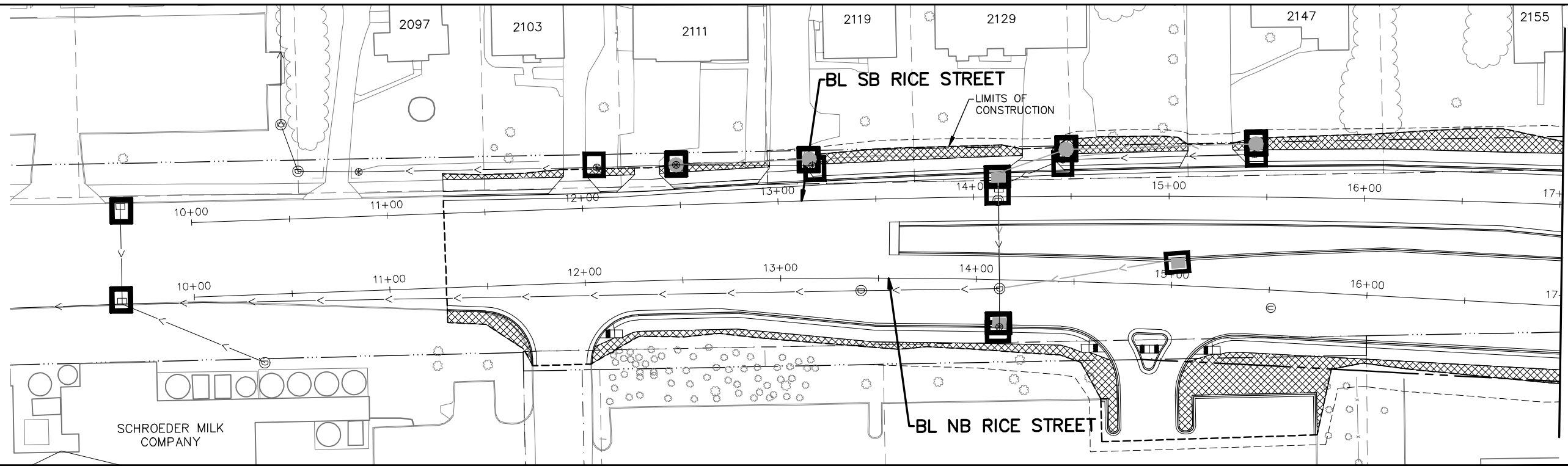


RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

POND CONTOUR
 POINT TABULATION

FILE NO.	203
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P04	
OF P04	534

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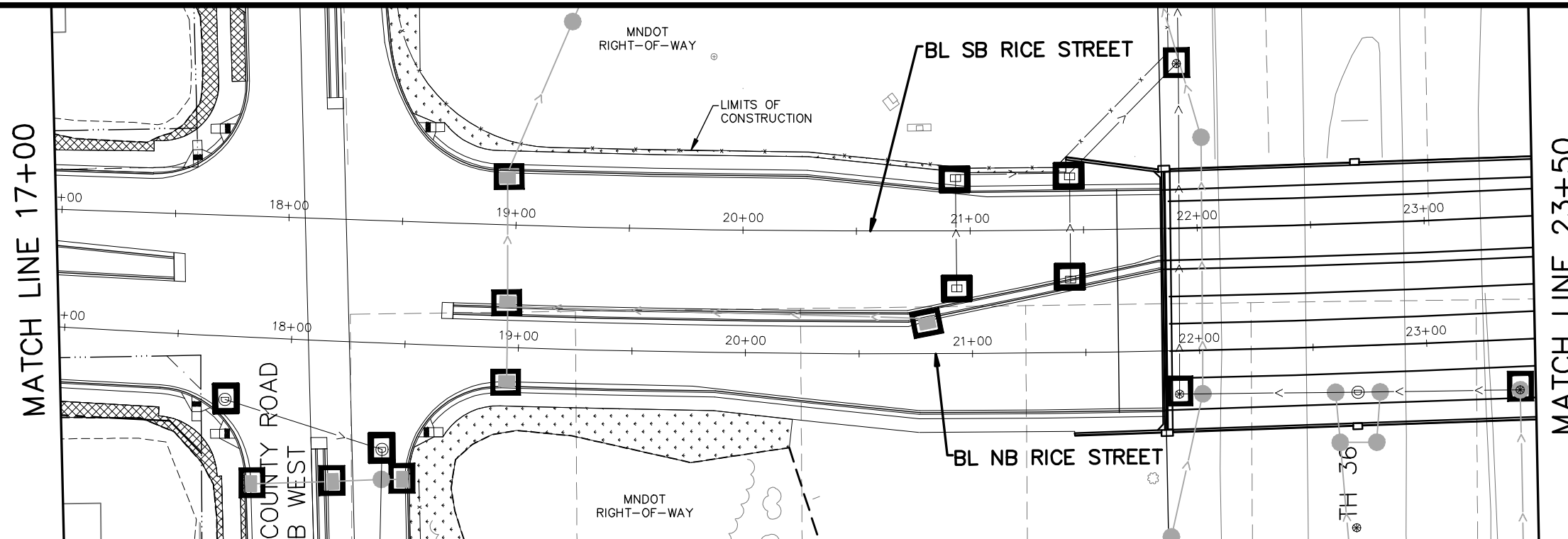
MATCH LINE 17+00

LEGEND

- | | | | | | |
|--|------------------------------|--|--------------------|--|---|
| | HYDROSEED MIXTURE 350 | | SODDING TYPE LAWN | | TYPE 9 MULCH MATERIAL |
| | HYDROSEED MIXTURE 310 | | DRAINAGE DIRECTION | | LANDSCAPE ROCK |
| | SILT FENCE | | RIPRAP | | TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK |
| | STORM DRAIN INLET PROTECTION | | | | |

TURF ESTABLISHMENT NOTES:

1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDDED UNLESS SHOWN OTHERWISE.
3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3.



MATCH LINE 17+00

MATCH LINE 23+50

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

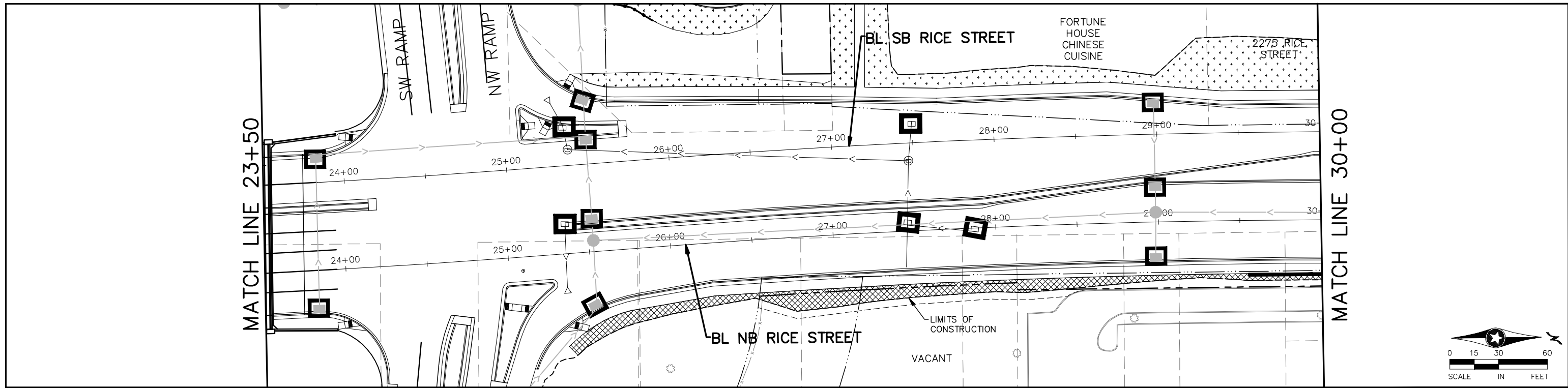
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 RICE STREET
 STA. 10+00 TO STA. 23+50

FILE NO.	204
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TE1	
OF TE17	534

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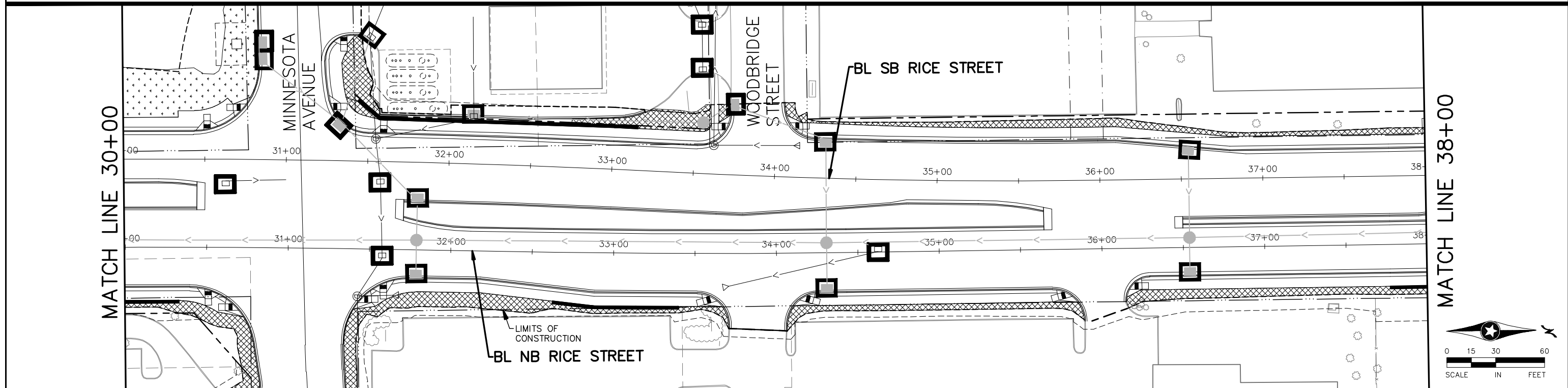


LEGEND

- | | | | | | |
|--|------------------------------|--|--------------------|--|---|
| | HYDROSEED MIXTURE 350 | | SODDING TYPE LAWN | | TYPE 9 MULCH MATERIAL |
| | HYDROSEED MIXTURE 310 | | DRAINAGE DIRECTION | | LANDSCAPE ROCK |
| | SILT FENCE | | RIPRAP | | TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK |
| | STORM DRAIN INLET PROTECTION | | | | |

TURF ESTABLISHMENT NOTES:

1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDDED UNLESS SHOWN OTHERWISE.
3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3.



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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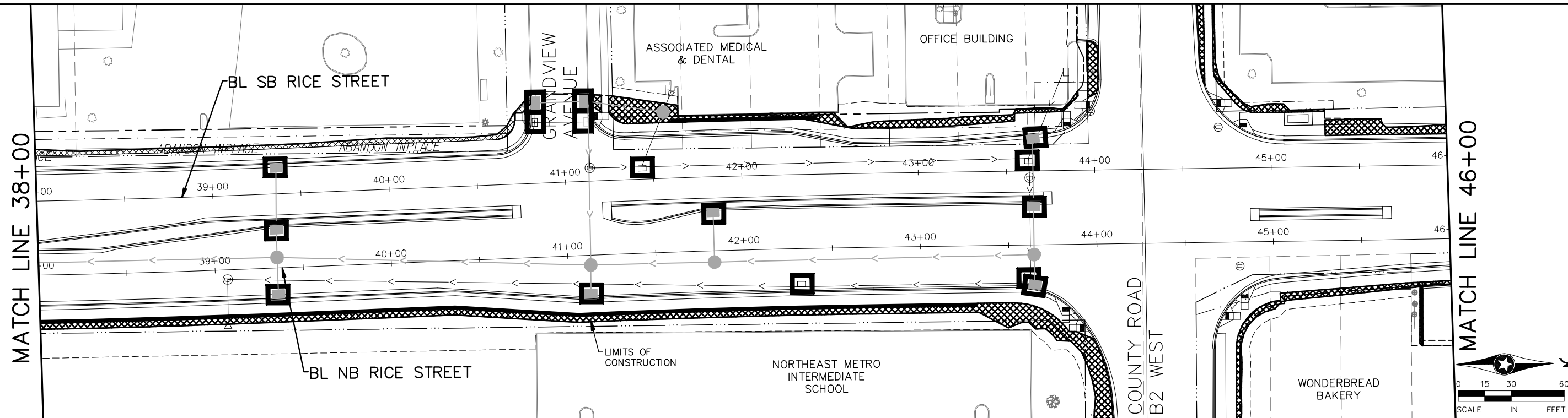
Kimley-Horn and Associates, Inc.
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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 RICE STREET
 STA. 23+50 TO STA. 38+00

FILE NO.	205
160599001	
TE2	
OF TE17	534

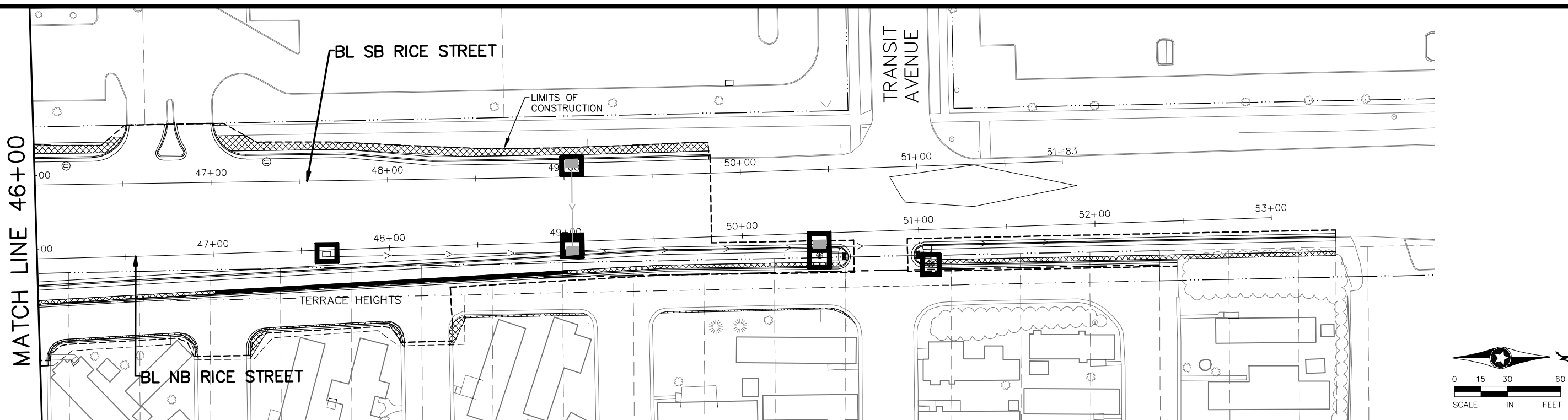
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LEGEND

- | | | | | | |
|--|------------------------------|--|--------------------|--|---|
| | HYDROSEED MIXTURE 350 | | SODDING TYPE LAWN | | TYPE 9 MULCH MATERIAL |
| | HYDROSEED MIXTURE 310 | | DRAINAGE DIRECTION | | LANDSCAPE ROCK |
| | SILT FENCE | | RIPRAP | | TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK |
| | STORM DRAIN INLET PROTECTION | | | | |

- TURF ESTABLISHMENT NOTES:**
1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
 2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDED UNLESS SHOWN OTHERWISE.
 3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3.



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

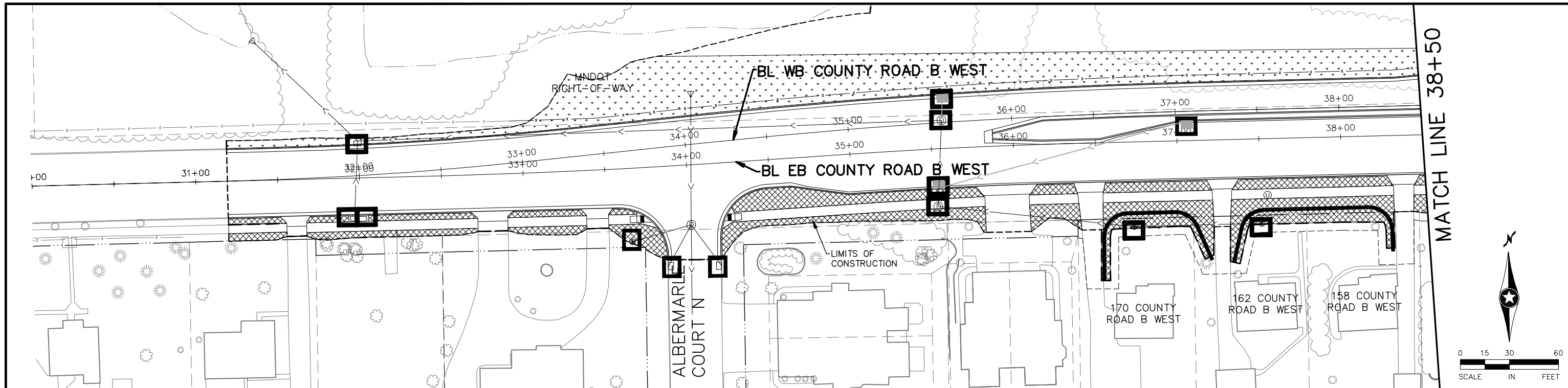
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 RICE STREET
 STA. 38+00 TO STA. 53+00

FILE NO.	206
160599001	
TE3	
OF TE17	534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN_RICE_TH36_TH36_PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

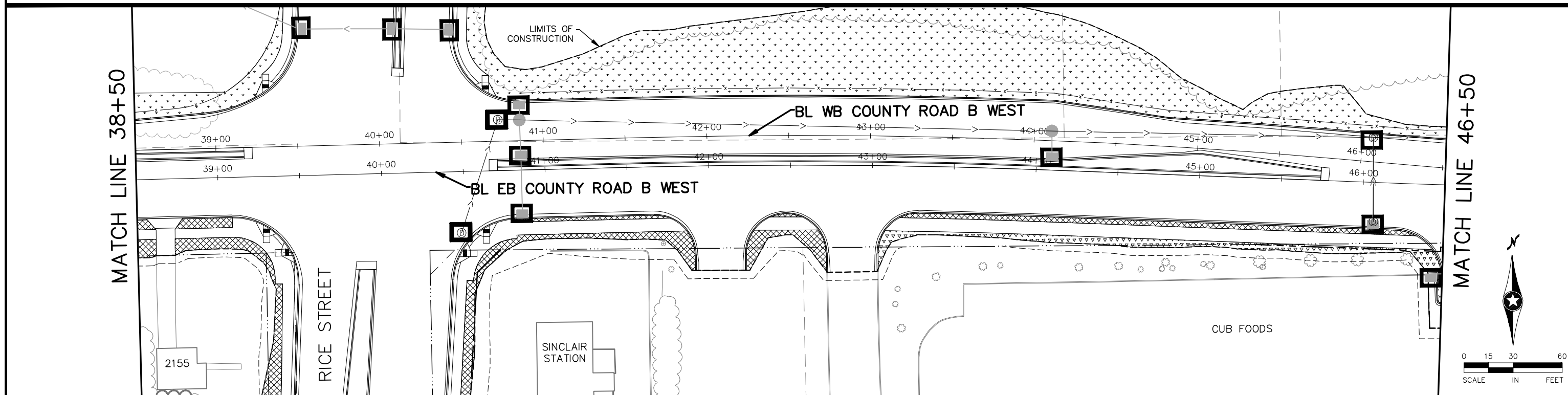


LEGEND

- | | | | | | |
|--|------------------------------|--|--------------------|--|---|
| | HYDROSEED MIXTURE 350 | | SODDING TYPE LAWN | | TYPE 9 MULCH MATERIAL |
| | HYDROSEED MIXTURE 310 | | DRAINAGE DIRECTION | | LANDSCAPE ROCK |
| | SILT FENCE | | RIPRAP | | TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK |
| | STORM DRAIN INLET PROTECTION | | | | |

TURF ESTABLISHMENT NOTES:

1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDED UNLESS SHOWN OTHERWISE.
3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3.



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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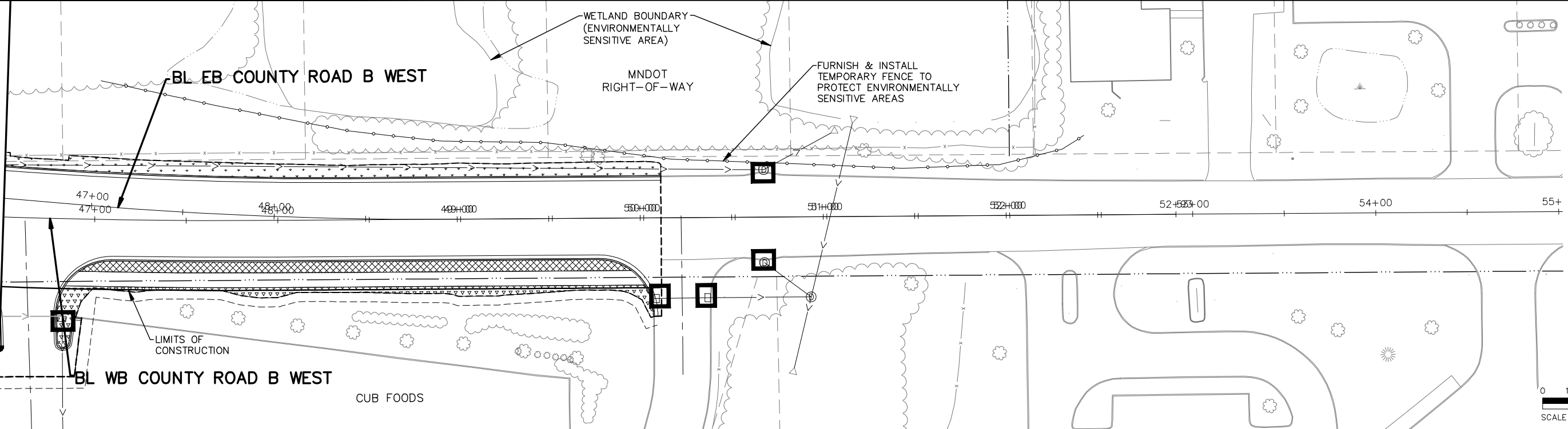
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 COUNTY ROAD B WEST
 STA. 30+00 TO STA. 46+50

FILE NO.	207
160599001	
TE4	
OF TE17	534

MATCH LINE 46+50

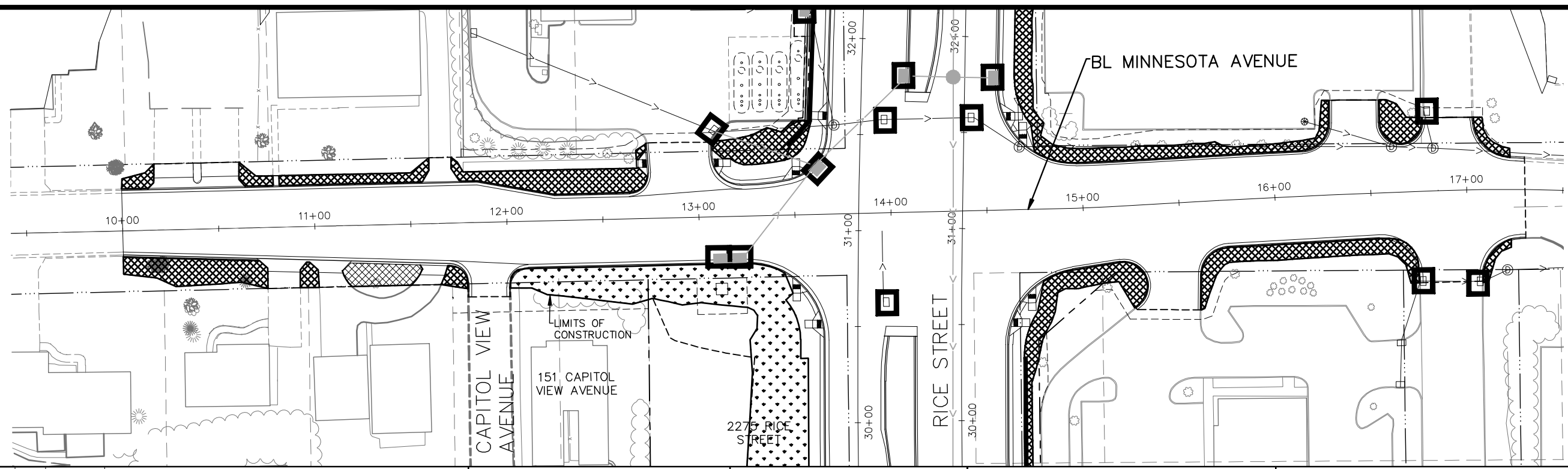


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|--|------------------------------|--|--------------------|--|---|
| | HYDROSEED MIXTURE 350 | | SODDING TYPE LAWN | | TYPE 9 MULCH MATERIAL |
| | HYDROSEED MIXTURE 310 | | DRAINAGE DIRECTION | | LANDSCAPE ROCK |
| | SILT FENCE | | RIPRAP | | TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK |
| | STORM DRAIN INLET PROTECTION | | | | |

TURF ESTABLISHMENT NOTES:

1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDDED UNLESS SHOWN OTHERWISE.
3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3.



K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\RISE_TF06.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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 Certified By: *Beth A. Engum* License No. 44785
 Licensed Professional Engineer
 Printed Name: BETH A. ENGUM Date: 3/3/2010

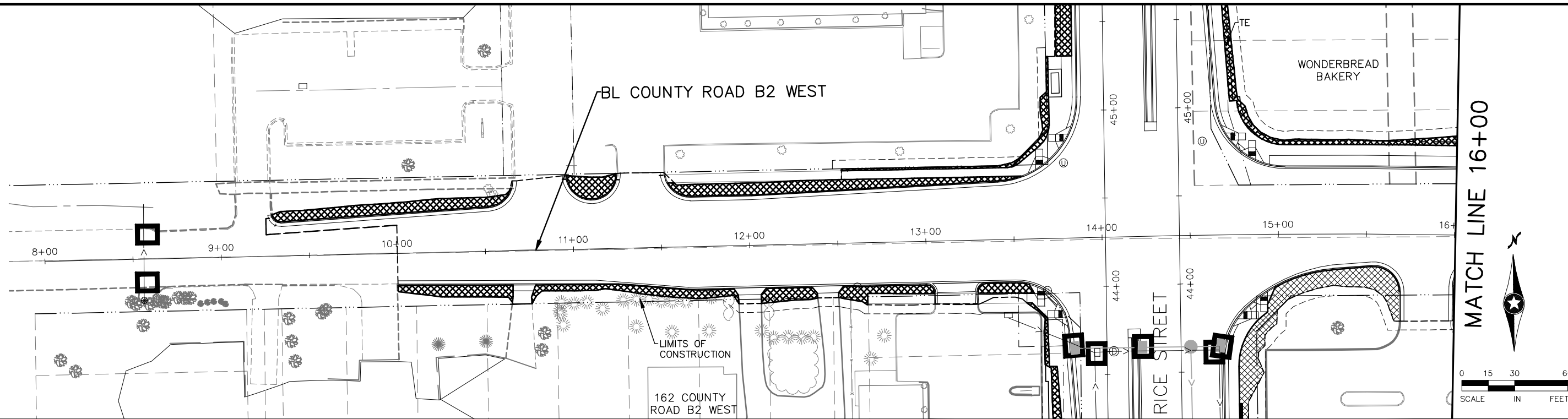
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 COUNTY ROAD B W STA. 46+50 TO STA. 55+00
 MINNESOTA AVENUE STA. 10+00 TO STA. 17+25

FILE NO.	208
160599001	
TE5	
OF TE17	534

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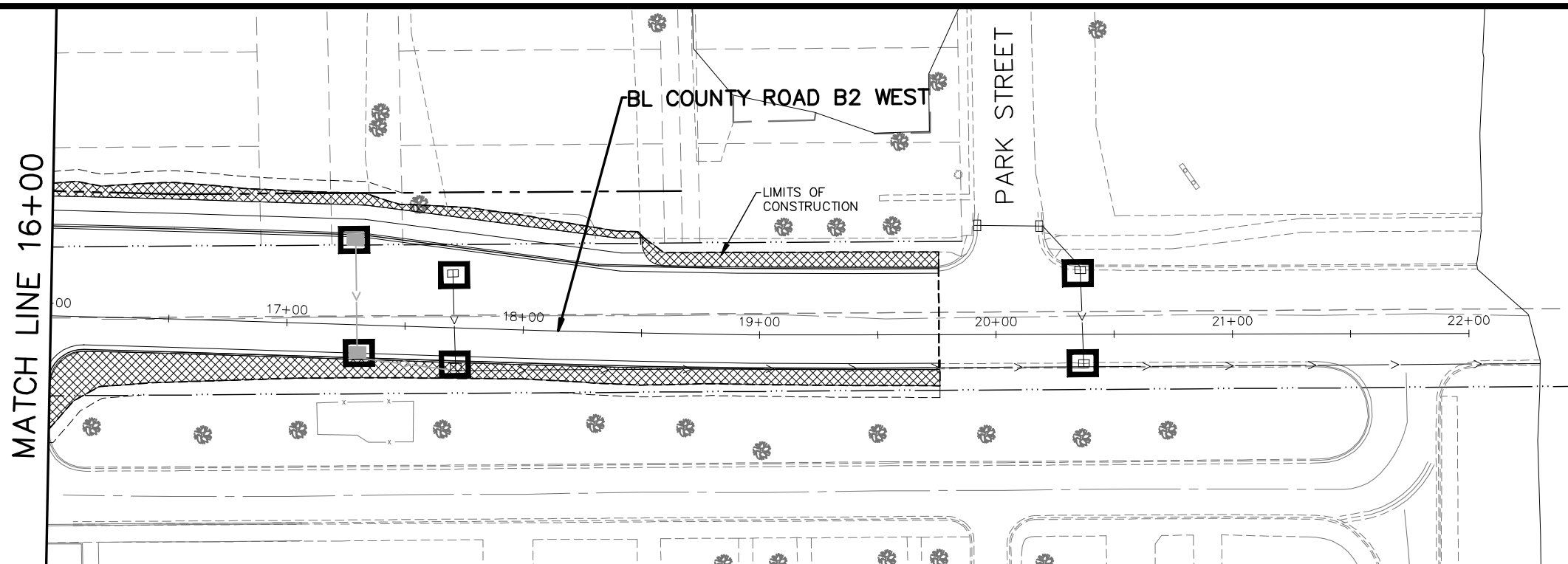


LEGEND

- | | | | | | |
|--|------------------------------|--|--------------------|--|---|
| | HYDROSEED MIXTURE 350 | | SODDING TYPE LAWN | | TYPE 9 MULCH MATERIAL |
| | HYDROSEED MIXTURE 310 | | DRAINAGE DIRECTION | | LANDSCAPE ROCK |
| | SILT FENCE | | RIPRAP | | TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK |
| | STORM DRAIN INLET PROTECTION | | | | |

TURF ESTABLISHMENT NOTES:

1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDED UNLESS SHOWN OTHERWISE.
3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3.



DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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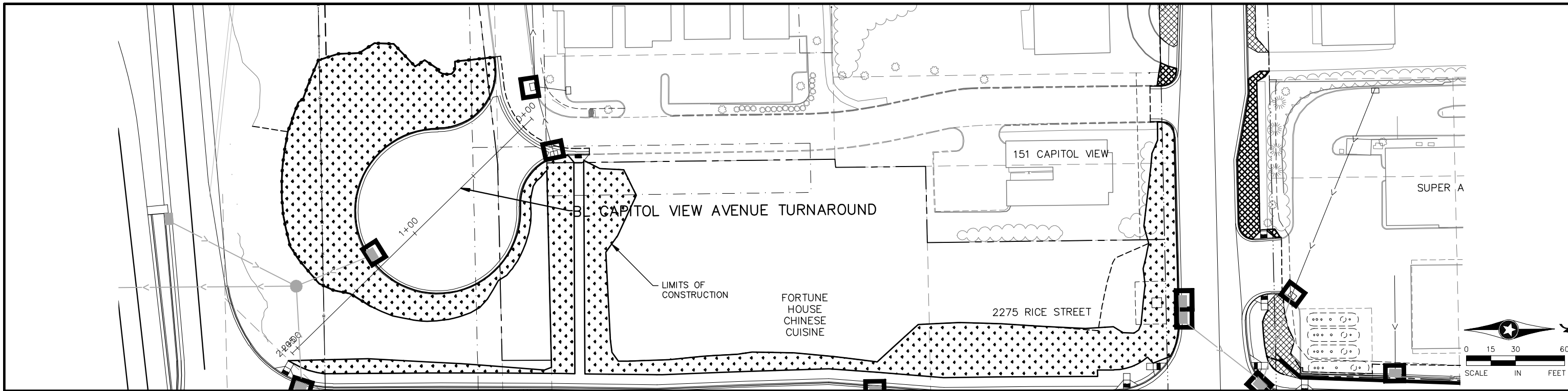
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)











TURF ESTABLISHMENT & EROSION CONTROL PLAN
 COUNTY ROAD B2 WEST
 STA. 8+00 TO STA. 22+00

FILE NO.	209
160599001	
TE6	
OF TE17	534

K:\TWC_CIVIL\COUNTY\RAMSEY\RICE_TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN\RICE_TH36.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



LEGEND

- | | | | | | |
|---|------------------------------|--|--------------------|---|---|
|  | HYDROSEED MIXTURE 350 |  | SODDING TYPE LAWN |  | TYPE 9 MULCH MATERIAL |
|  | HYDROSEED MIXTURE 310 |  | DRAINAGE DIRECTION |  | LANDSCAPE ROCK |
|  | SILT FENCE |  | RIPRAP |  | TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK |
|  | STORM DRAIN INLET PROTECTION | | | | |

TURF ESTABLISHMENT NOTES:

1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDDED UNLESS SHOWN OTHERWISE.
3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3.

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

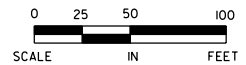
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 CAPITOL VIEW AVENUE TURNAROUND
 STA. 0+00 TO STA. 5+00

FILE NO.	210
160599001	
TE7	
OF TE17	534

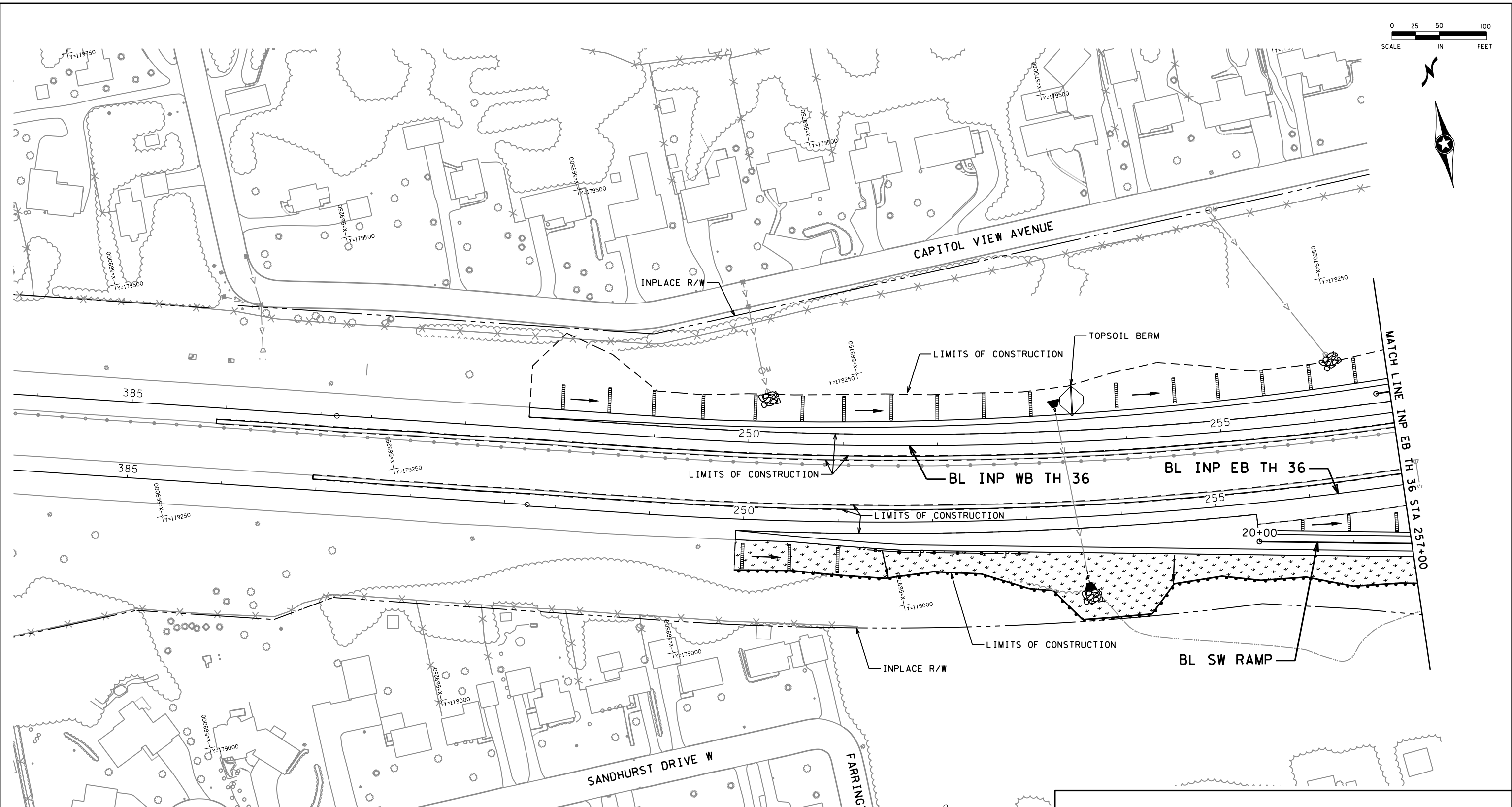


3/31/18 PM

5/6/2010

kerickson

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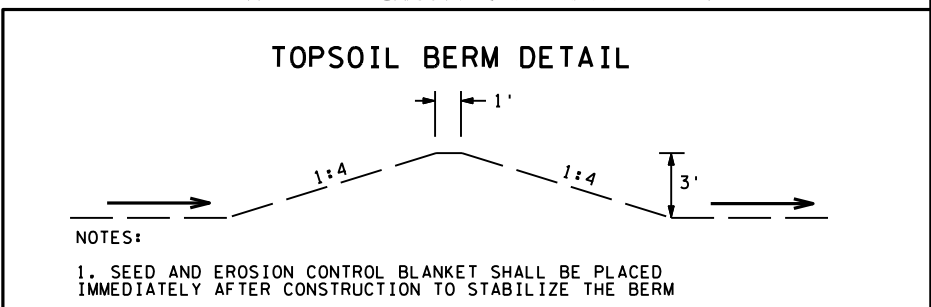
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	HYDROSEED MIXTURE 310		RANDOM RIPRAP
	SILT FENCE		TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK
	STORM DRAIN INLET PROTECTION		TYPE 9 MULCH MATERIAL

TURF ESTABLISHMENT NOTES:

- HYDROSEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
- PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDED UNLESS SHOWN OTHERWISE.

TEMPORARY EROSION CONTROL NOTES:

- ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3 AND/OR METHOD 4.



DESIGN TEAM				REVISIONS			
DRAWN BY:	MTT			NO.	BY	DATE	
DESIGNER:	SRH,HLR						
CHECKED BY:	KLE						

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 INP EB TH 36 STA 384+00 TO 257+00

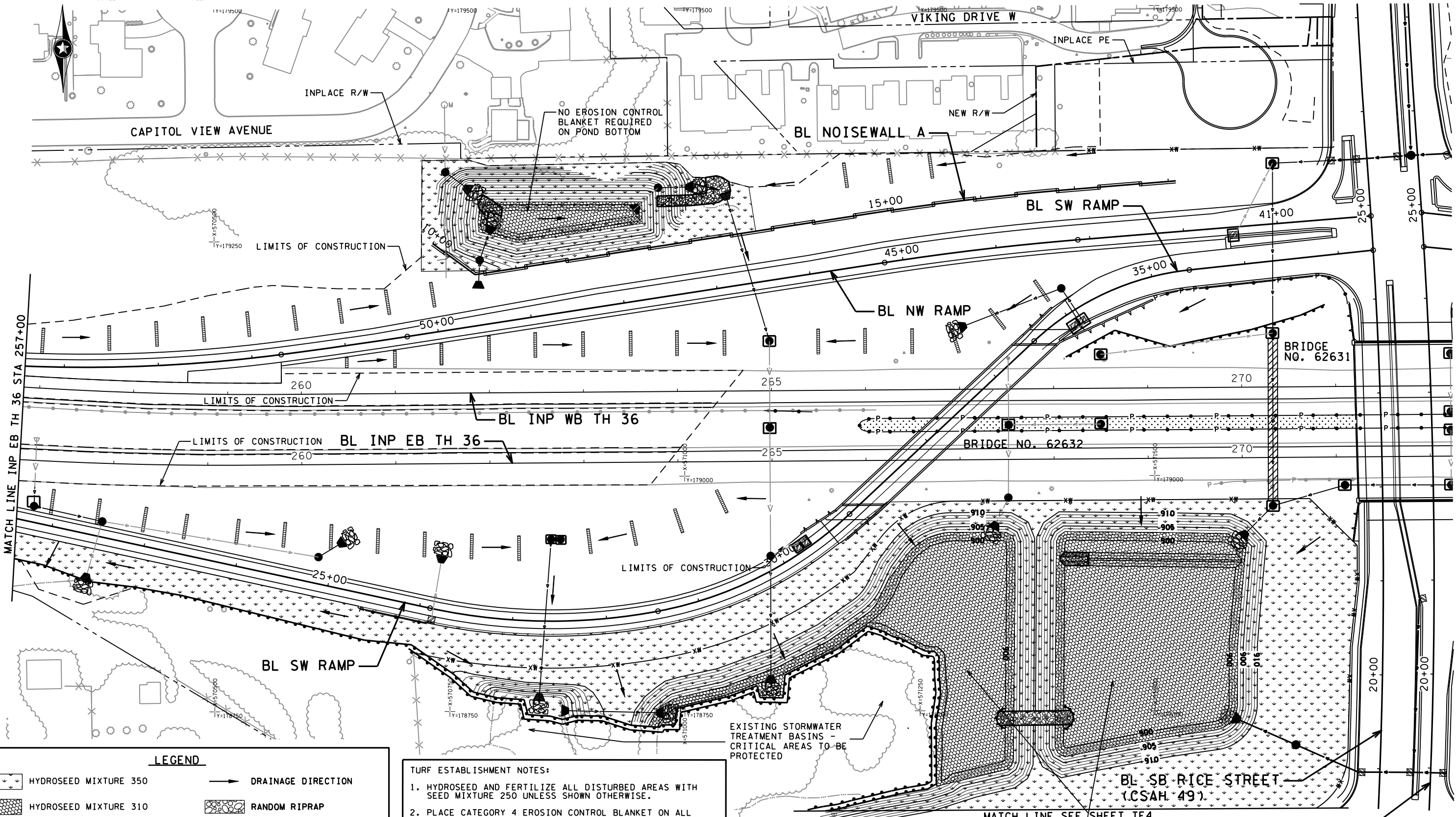
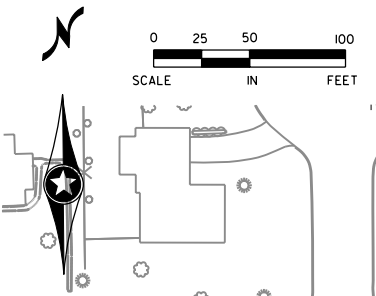
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TE8	534
OF TEIT	

3/31/28 PM

5/6/2010

kerickson

S:\PT\RAMSP\108790\p1nsh\ts\ramsp108790_te.dgn



LEGEND

- HYDROSEED MIXTURE 350
- HYDROSEED MIXTURE 310
- SILT FENCE
- STORM DRAIN INLET PROTECTION
- DRAINAGE DIRECTION
- RANDOM RIPRAP
- TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK
- TYPE 9 MULCH MATERIAL

- TURF ESTABLISHMENT NOTES:**
- HYDROSEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
 - PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDDED UNLESS SHOWN OTHERWISE.
- TEMPORARY EROSION CONTROL NOTES:**
- ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3 AND/OR METHOD 4.

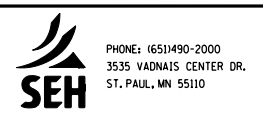
EXISTING STORMWATER TREATMENT BASINS - CRITICAL AREAS TO BE PROTECTED

DO NOT PLACE TOPSOIL OR EROSION CONTROL BLANKET ON BASIN BOTTOM. PLACE 3" OF GRADE 2 COMPOST ON BASIN BOTTOM.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 INP EB TH 36 STA 257+00 TO 272+00

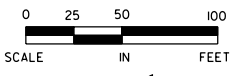
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534

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5/6/2010

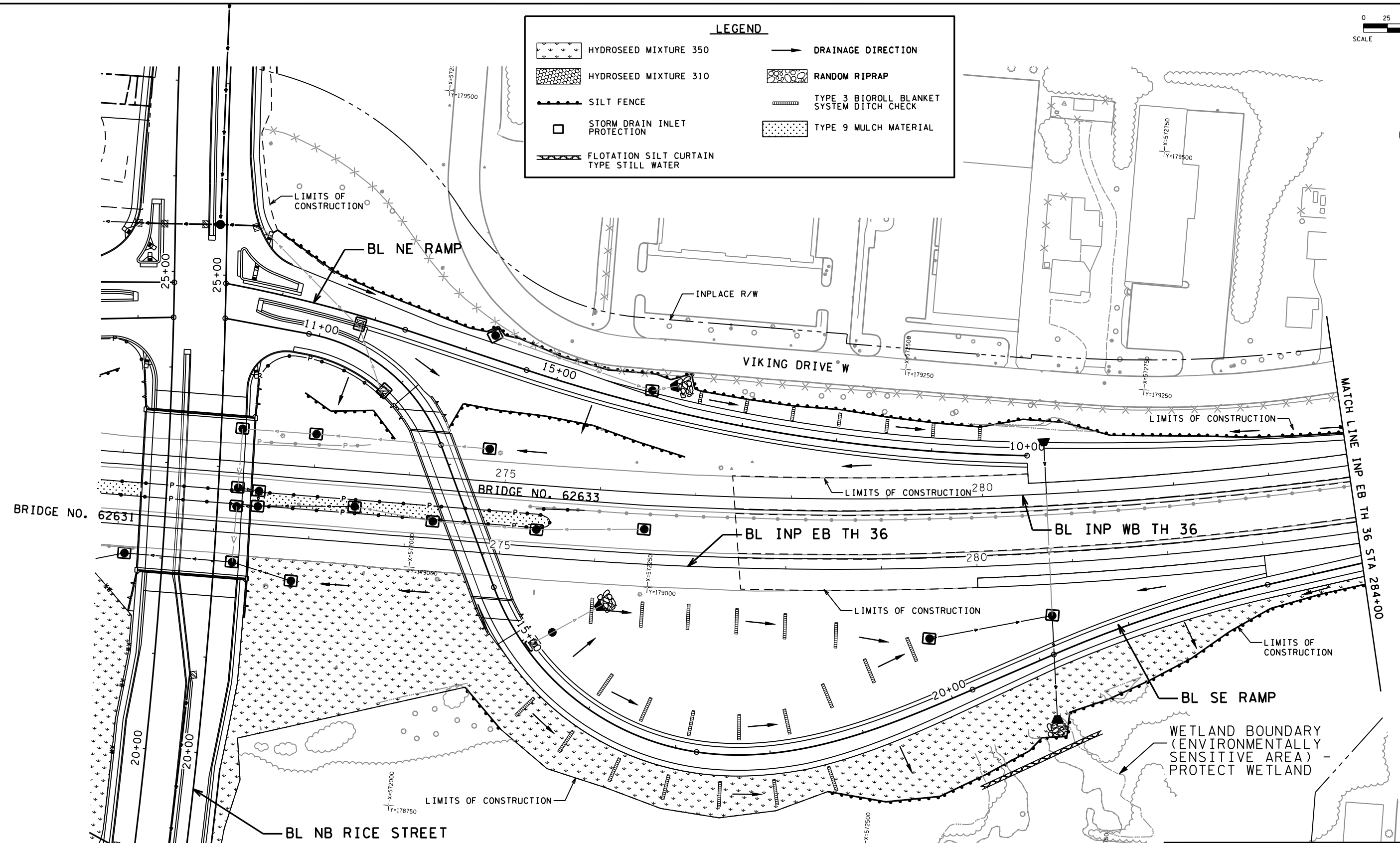
kerickson

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LEGEND

	HYDROSEED MIXTURE 350		DRAINAGE DIRECTION
	HYDROSEED MIXTURE 310		RANDOM RIPRAP
	SILT FENCE		TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK
	STORM DRAIN INLET PROTECTION		TYPE 9 MULCH MATERIAL
	FLOTATION SILT CURTAIN TYPE STILL WATER		



- TURF ESTABLISHMENT NOTES:**
1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
 2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDED UNLESS SHOWN OTHERWISE.
 3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3 AND/OR METHOD 4.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 INP EB TH 36 STA 272+00 TO 284+00

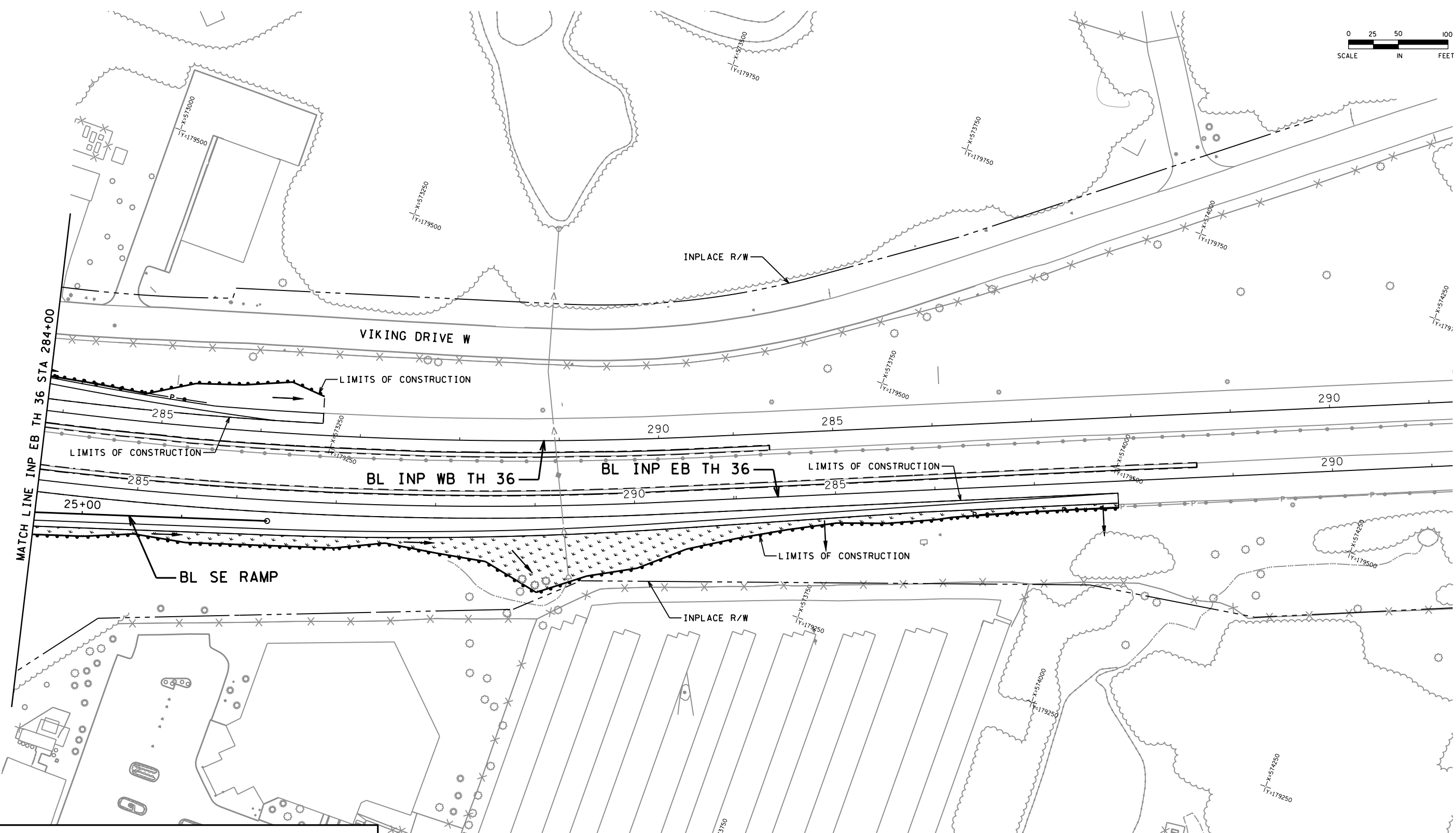
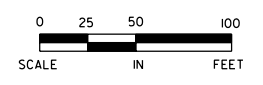
FILE NO.	213
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TE10	534
OF TE17	

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5/6/2010

kerickson

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LEGEND

- HYDROSEED MIXTURE 350
- HYDROSEED MIXTURE 310
- SILT FENCE
- STORM DRAIN INLET PROTECTION
- DRAINAGE DIRECTION
- RANDOM RIPRAP
- TYPE 3 BIOROLL BLANKET SYSTEM DITCH CHECK
- TYPE 9 MULCH MATERIAL

- TURF ESTABLISHMENT NOTES:**
1. SEED AND FERTILIZE ALL DISTURBED AREAS WITH SEED MIXTURE 250 UNLESS SHOWN OTHERWISE.
 2. PLACE CATEGORY 4 EROSION CONTROL BLANKET ON ALL DISTURBED AREAS TO BE SEEDED UNLESS SHOWN OTHERWISE.
 3. ALL AREAS NOT BEING ACTIVELY WORKED ON SHALL USE RAPID STABILIZATION METHOD 3 AND/OR METHOD 4.

DESIGN TEAM			
DRAWN BY: <u>MTT</u>			
DESIGNER: <u>SRH,HLR</u>			
CHECKED BY: <u>KLE</u>			
NO.	BY	DATE	REVISIONS

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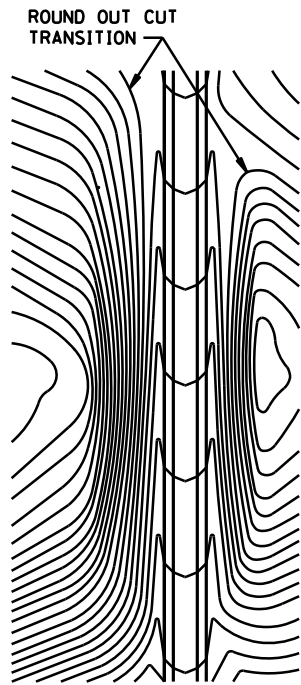
Certified By: Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



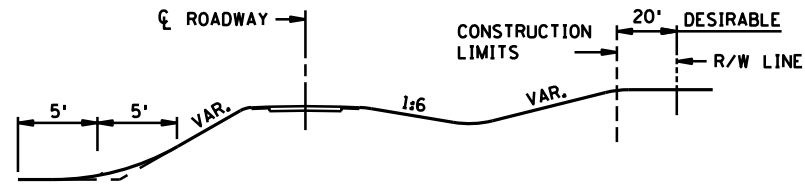
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TURF ESTABLISHMENT & EROSION CONTROL PLAN
 INP EB TH 36 STA 284+00 TO 291+00

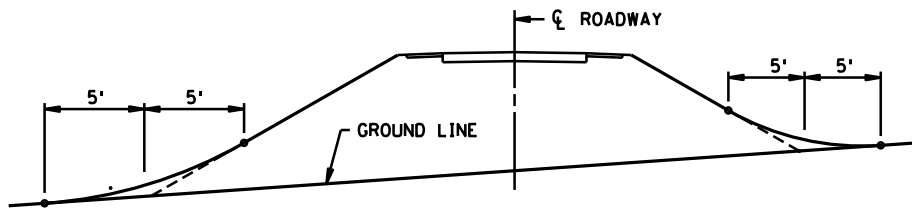
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TE11 OF TE17	534



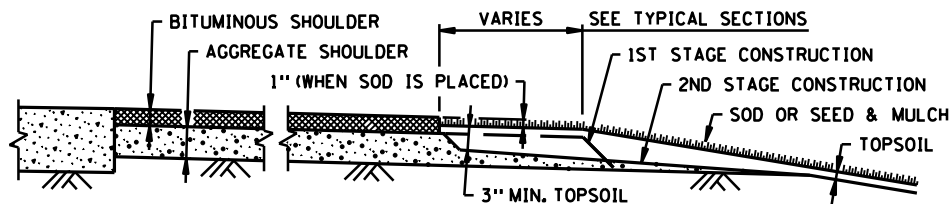
CONTOURING ROAD CUTS



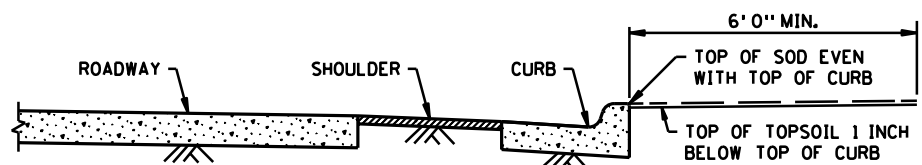
ROUNDING SHOULDERS AND BACKSLOPES



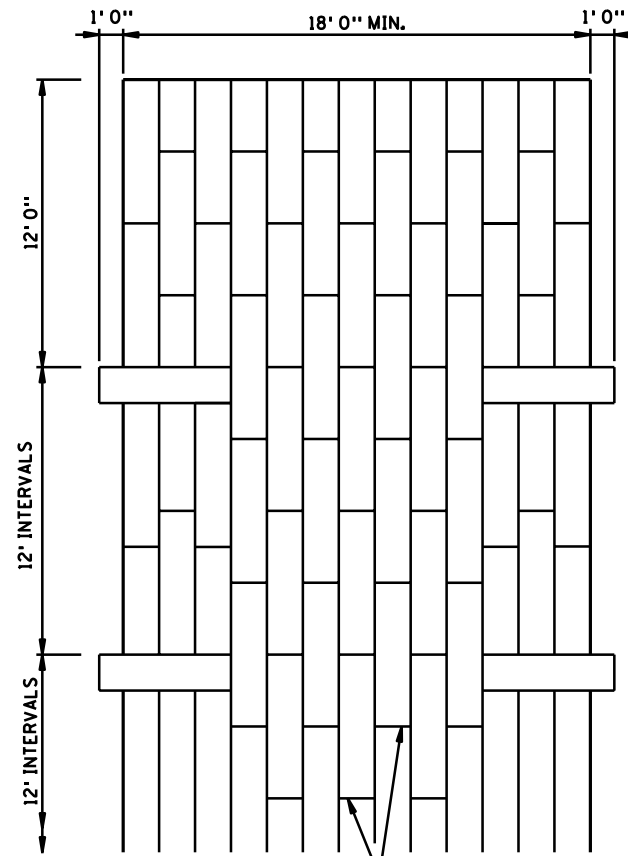
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



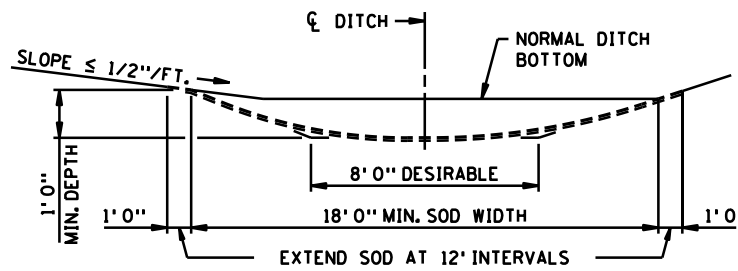
SHAPING AND TOPSOILING INSLOPES



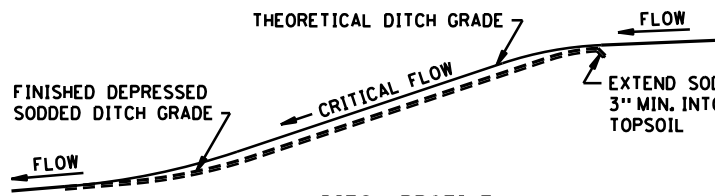
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



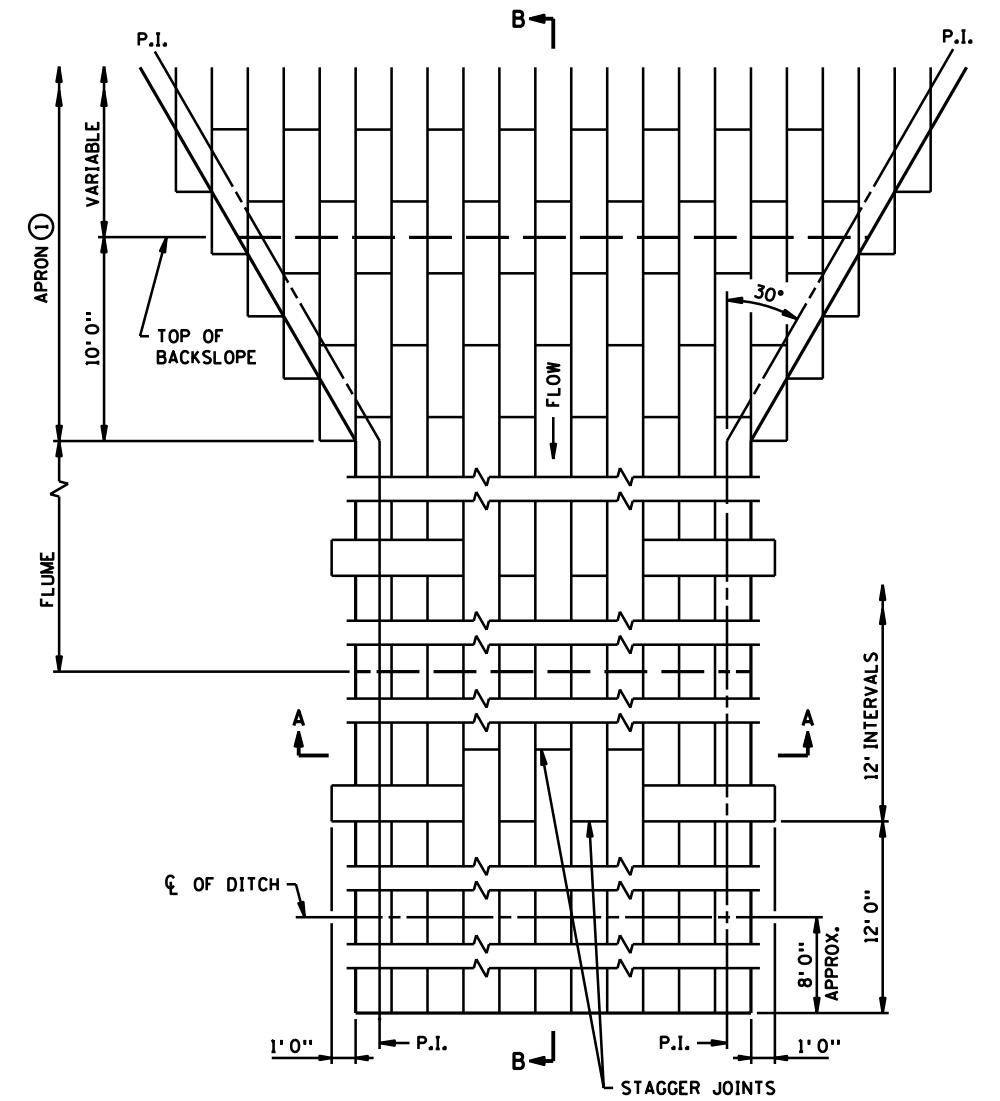
STAGGER JOINTS
PLAN VIEW



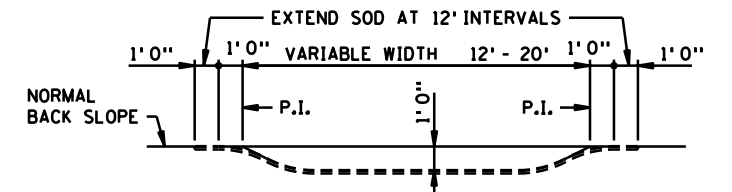
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



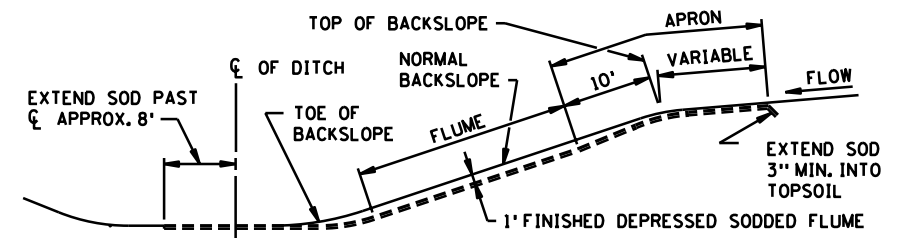
DITCH PROFILE
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



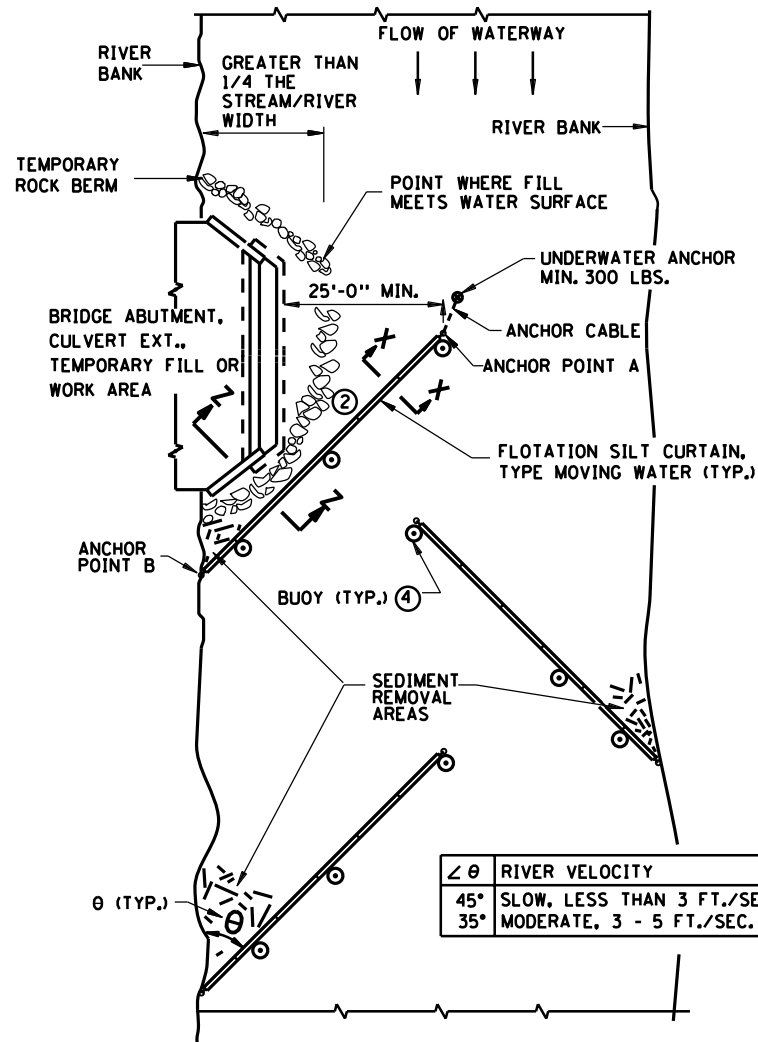
SECTION B-B
SODDED FLUME DETAILS

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

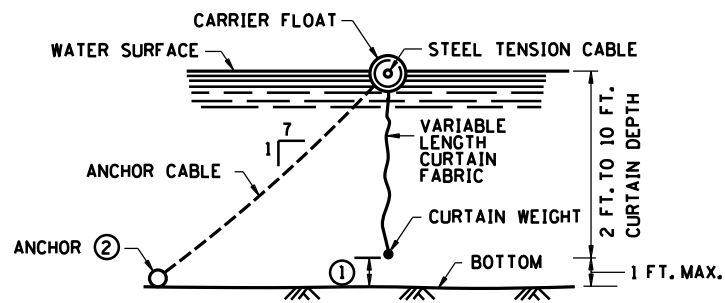
STANDARD SHEET NO. 5-297.404	TITLE:
STANDARD APPROVED: NOVEMBER 20, 2002	

PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES

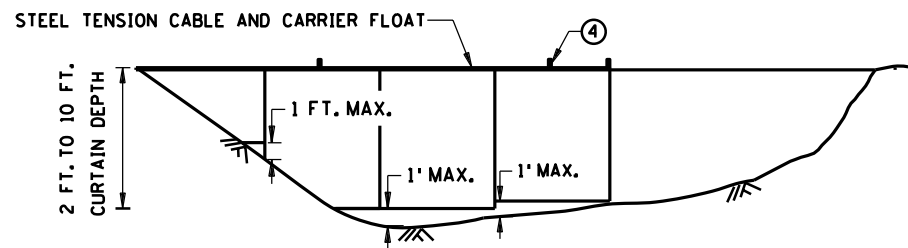
TE12
OF TE17



PLAN VIEW (TYPE: MOVING WATER)

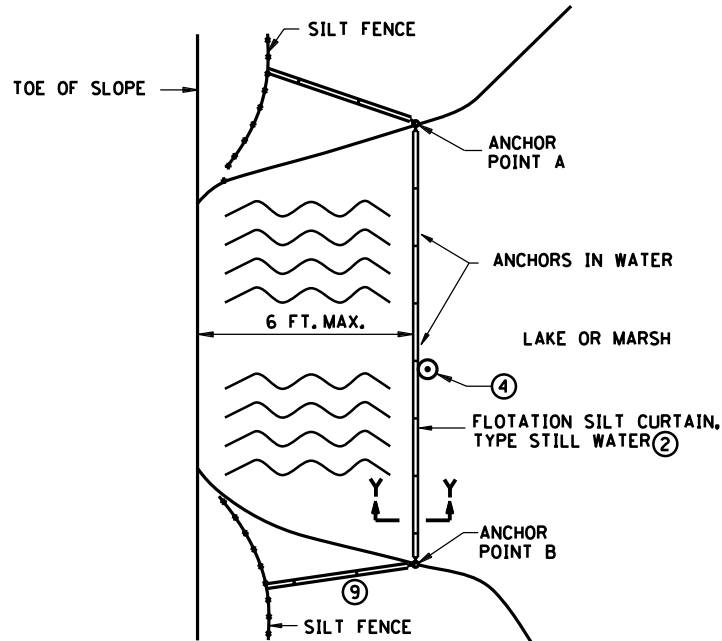


SECTION X-X

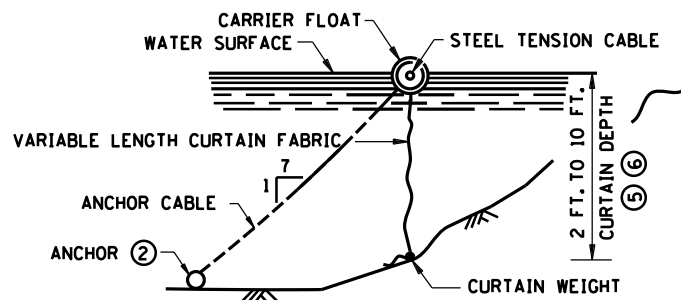


FLOTATION SILT CURTAIN - TYPE: MOVING WATER (5)

USE FOR SMALLER RIVERS WITH SLOW AND MODERATE VELOCITIES



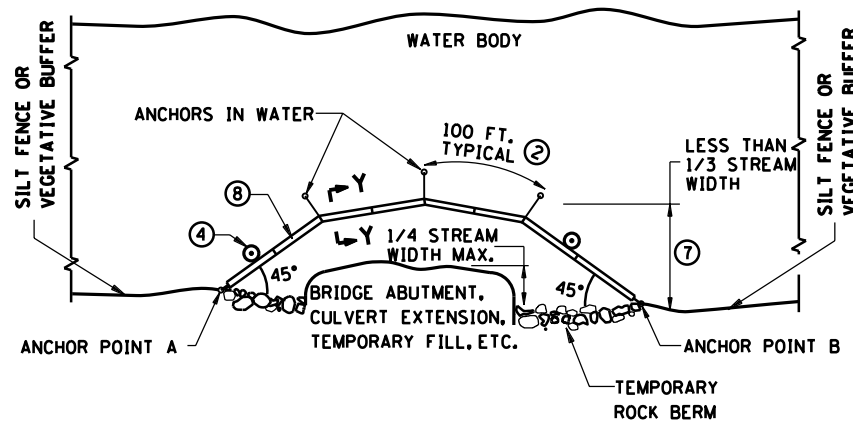
PLAN VIEW (TYPE: STILL WATER)



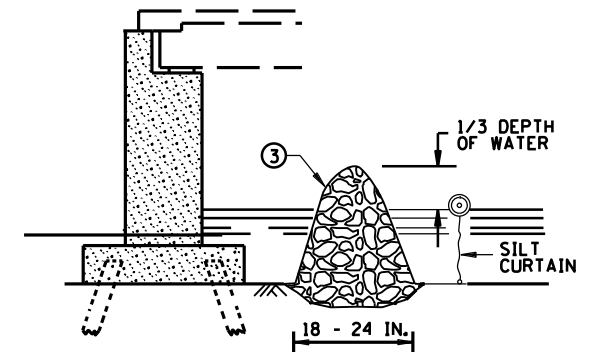
SECTION Y-Y

FLOTATION SILT CURTAIN - TYPE: WORK AREA AND STILL WATER (5)

FOR CONTAINING OVERFLOWS FROM WEIRS, STANDPIPES, SETTLING PONDS



PLAN VIEW (TYPE: WORK AREA)



SECTION Z-Z TEMPORARY ROCK BERM FOR SEDIMENT CONTROL

DESIGN GUIDELINES: MOVING WATER
 WHEN TEMPORARY FILL ENCLOSES MORE THAN 1/4 BUT LESS THAN 1/3 WIDTH OF THE STREAM.
 MINIMUM WATER DEPTH: 3 FT. (1) (6)
 MAXIMUM WATER DEPTH: 11 FT.
 MAXIMUM WATER VELOCITY: 5 FT./SEC.

DESIGN GUIDELINES: WORK AREA
 WHEN TEMPORARY FILL ENCLOSES LESS THAN 1/4 OF THE WIDTH OF STREAM.
 MAXIMUM WATER DEPTH: 10 FT.
 MAXIMUM WATER VELOCITY: 5 FT./SEC.

DESIGN GUIDELINES: STILL WATER (6)
 MINIMUM WATER DEPTH: 0 FT.
 MAXIMUM WATER DEPTH: 10 FT.

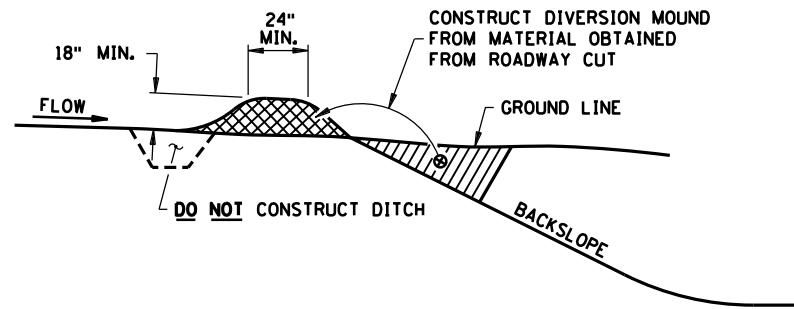
NOTES:

- SEE SPECS. 2573 & 3887.
- (1) CURTAIN EXTENDS TO 1 FT. MAXIMUM FROM BOTTOM OF WATER BODY.
- (2) FOR ANCHOR AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- (3) IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT THE BRIDGE, A TEMPORARY ROCK BERM WILL BE USED TO PROVIDE ADDITIONAL PROTECTION. THE TEMPORARY ROCK BERM IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
- (4) ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- (5) WATER DEPTH CAN BE 0 TO 10 FEET, 0 TO 11 FEET FOR TYPE MOVING WATER.
- (6) SILT CURTAIN HEIGHT INCLUDES MAXIMUM WAVE HEIGHT FOR WATER BODY.
- (7) KEEP AS CLOSE TO WORK AREA AS POSSIBLE.
- (8) SILT CURTAIN, ROCK BERM OR SHEET PILE AS REQUIRED TO CONTROL THE INFILTRATION OF SILT.
- (9) IF 6 INCHES OR LESS OF WATER, USE BALE BARRIERS, SEE SHEET 2.

STANDARD SHEET NO.
5-297.405 (1 OF 4)
 STANDARD APPROVED:
 SEPTEMBER 27, 2006

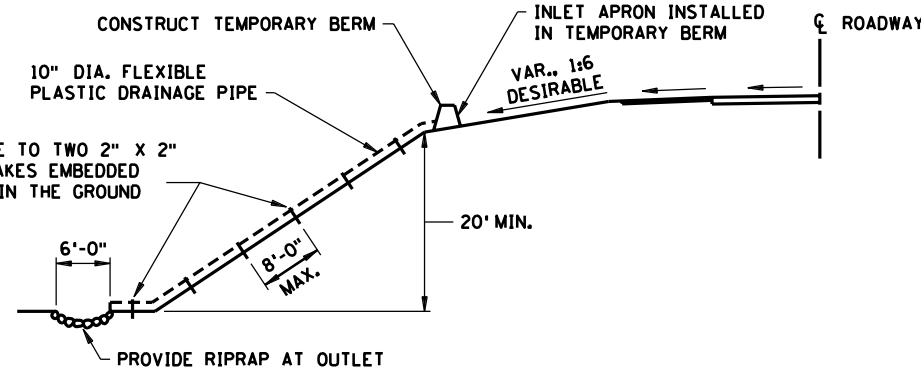
TITLE:
**TEMPORARY SEDIMENT CONTROL
 SILT CURTAIN**

TE13 OF TE17



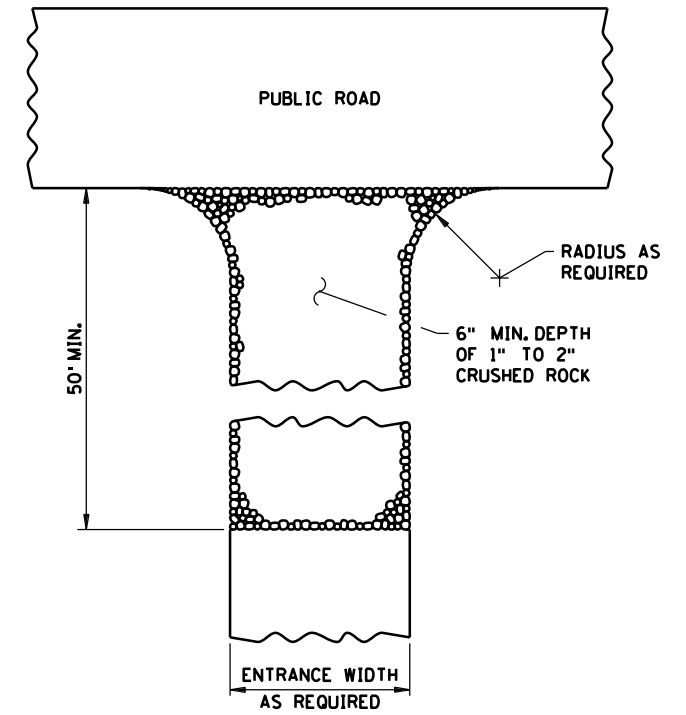
DIVERSION MOUND

DESIGN GUIDELINES:
 STORM FREQUENCY: 10 YEAR - 24 HOUR
 MAXIMUM DRAINAGE AREA: 5 ACRES
 MAXIMUM DIVERSION: GRADE 5%

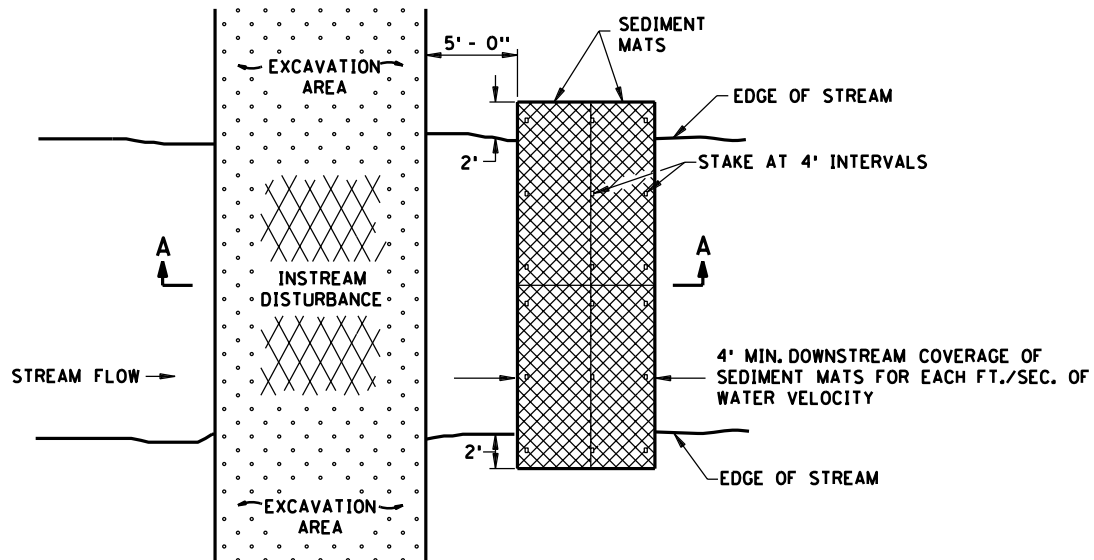


TEMPORARY DOWN DRAIN ON FILL SLOPE

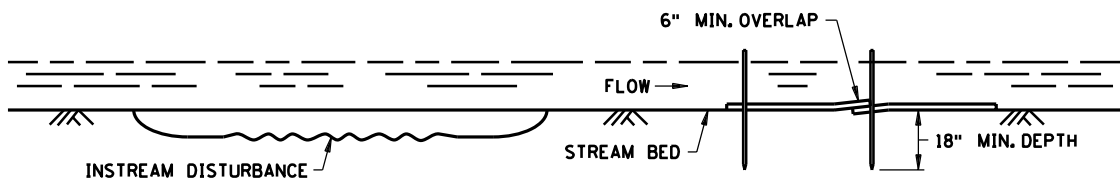
DESIGN GUIDELINES:
 STORM FREQUENCY: 2 YEAR - 24 HOUR
 MAXIMUM DRAINAGE AREA: 3 ACRES



ROCK CONSTRUCTION ENTRANCE ①



PLAN VIEW

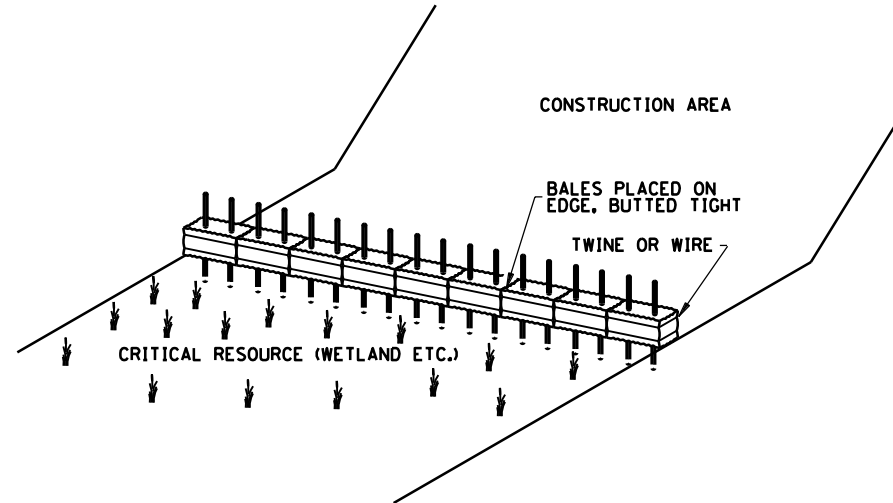


SECTION A-A

SEDIMENT MAT ⑥

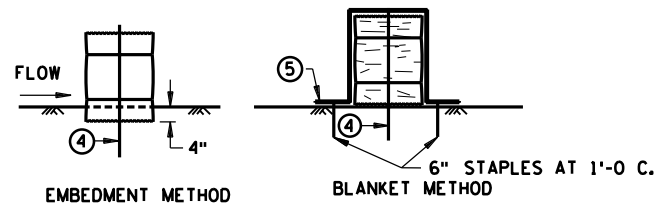
TYPICAL STREAM BED INSTALLATION

DESIGN GUIDELINES:
 MAXIMUM FLOW VELOCITY: 5 FT./SEC.
 MAXIMUM FLOW DEPTH: 2 FT.



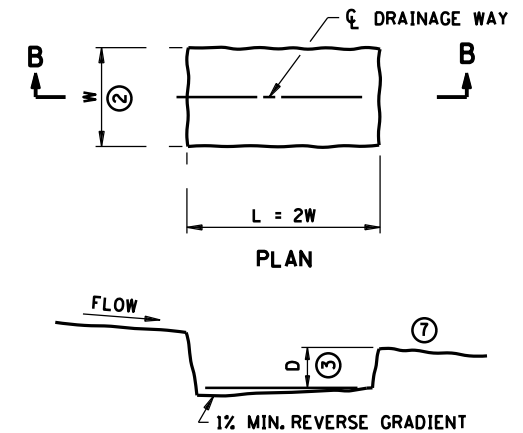
BALE BARRIERS

TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS



BALE BARRIER DETAIL

APPROX. BALE SIZE: 14" X 18" X 36" LONG



**SECTION B-B
SEDIMENT TRAP DETAIL**

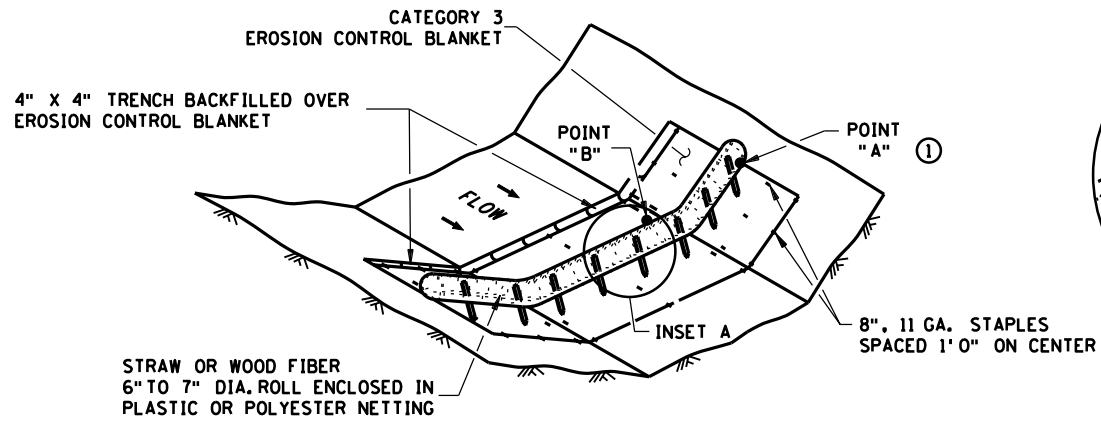
NOTES:

SEE SPECS. 2573, 3892, & 3894.

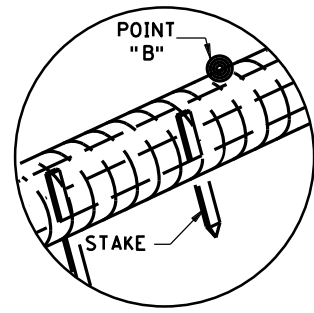
- ① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE TRUCKS ENTER MAIN ROAD. KEEPING MUD OFF THE ROAD WILL PREVENT AUTO DAMAGE AND KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS. GEOTEXTILE MAY BE PLACED UNDER THE ROCK TO KEEP ROCKS SEPARATE FROM SOIL.
- ② W = 10 FT. MIN., 20 FT. MAX.
- ③ D = 2 FT.
- ④ TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE EMBEDDED 10 INCHES MINIMUM IN THE GROUND.
- ⑤ PLACE A CATEGORY 3 EROSION CONTROL BLANKET, 6 FT. WIDE MINIMUM, OVER THE BALE INSTEAD OF TRENCHING.
- ⑥ THIS DETAIL MAY NOT BE ACCEPTABLE FOR WORK ON PUBLIC WATERS, SEE GENERAL PUBLIC WATERS PERMIT (GP) 2004-0001.
- ⑦ LOCATION OF DOWNSTREAM TEMPORARY SEDIMENT CONTROL DEVICE.

STANDARD SHEET NO. 5-297.405 (2 of 4)	TITLE:
STANDARD APPROVED: SEPTEMBER 27, 2006	

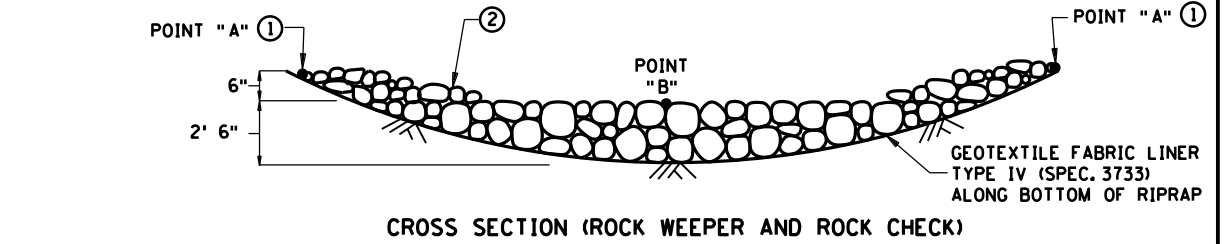
**TEMPORARY SEDIMENT CONTROL
MISCELLANEOUS DETAILS**



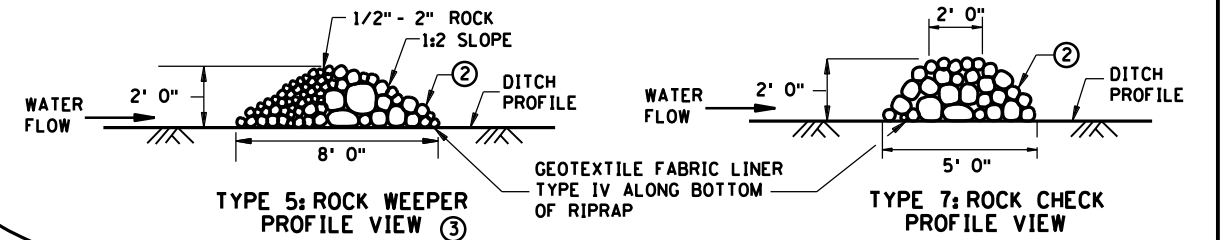
TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK



INSET A

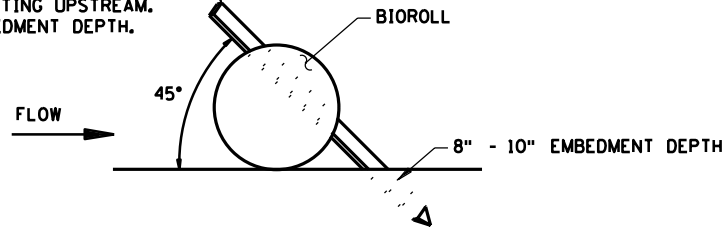


CROSS SECTION (ROCK WEEPER AND ROCK CHECK)

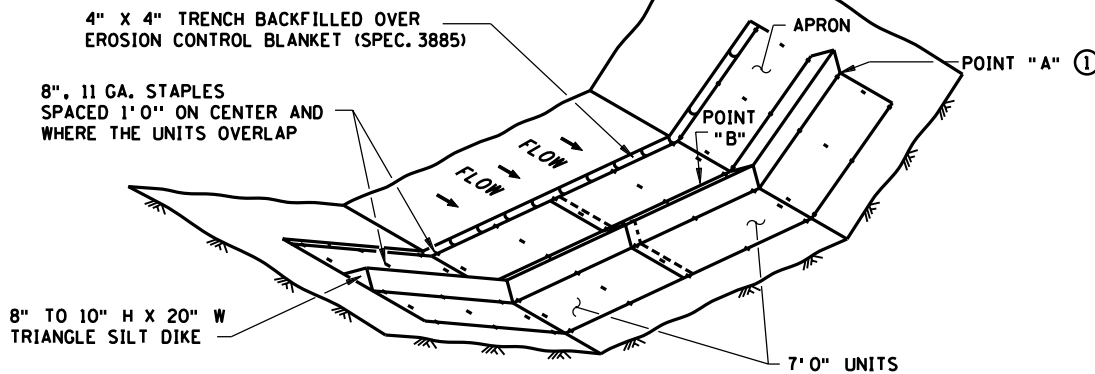


TYPE 5: ROCK WEEPER AND TYPE 7: ROCK CHECK DITCH CHECKS
USE ON ROUGH GRADED AREAS

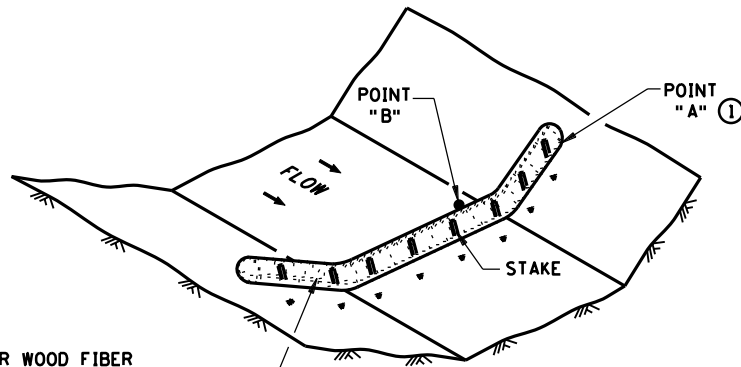
1" X 2" X 18" LONG WOODEN STAKES AT 1' 0" SPACING MAXIMUM. STAKES SHALL BE DRIVEN THROUGH THE BACK HALF OF THE BIOROLL AT AN ANGLE OF 45 DEGREES WITH THE TOP OF THE STAKE POINTING UPSTREAM. PROVIDE 8" TO 10" OF EMBEDMENT DEPTH.



BIOROLL STAKING DETAIL



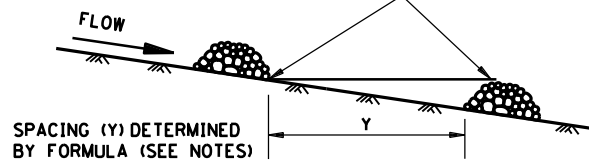
TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK



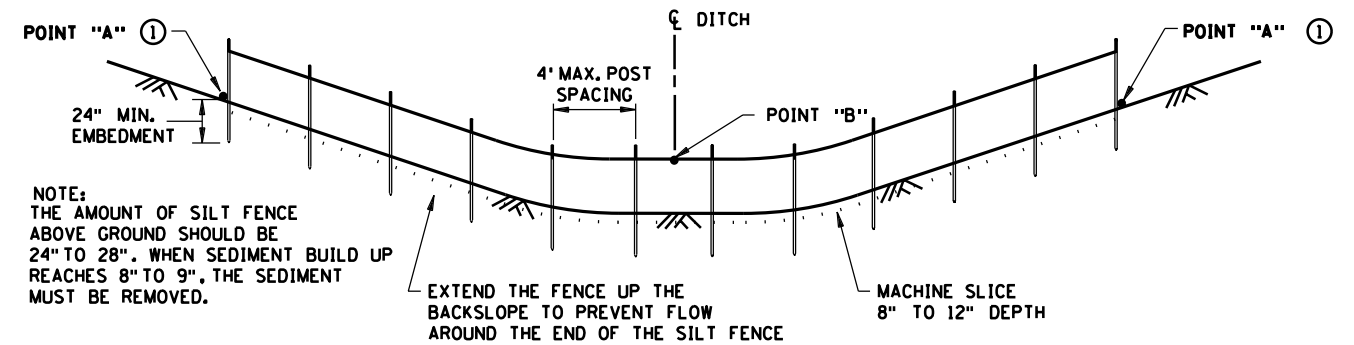
STRAW OR WOOD FIBER 6" TO 7" DIA. ROLL ENCLOSED IN PLASTIC OR POLYESTER NETTING

TYPE 2: BIOROLL DITCH CHECK
USE ON ROUGH GRADED AREAS

BOTTOM OF UPPER CHECK SHOULD BE SAME ELEVATION AS THE TOP OF THE LOWER CHECK TO PROVIDE FOR POOLING.



DITCH CHECK SPACING ④



NOTE: THE AMOUNT OF SILT FENCE ABOVE GROUND SHOULD BE 24" TO 28". WHEN SEDIMENT BUILD UP REACHES 8" TO 9", THE SEDIMENT MUST BE REMOVED.

TYPE 1: SLICED IN SILT FENCE DITCH CHECK

NOTES:

- SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.
- APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\% \text{ CHANNEL SLOPE}} \times 100$$
- ① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② CLASS I - IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE IV (SPEC. 3733).
- ③ THE ROCK WEEPER FILTERS SEDIMENT OUT OF THE WATER BETTER THAN THE OTHER DITCH CHECKS. THE ROCK WEEPER COULD BE USED AS A PERMANENT WATER FILTERING FEATURE.
- ④ PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE WILL NEED TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

GENERAL DESIGN GUIDELINES						
DITCH CHECK TYPE	SILT FENCE	BIOROLL	BIOROLL BLANKET	TRIANGULAR DIKE	ROCK WEEPER	ROCK CHECK
STORM FREQUENCY:	2 YR. - 24 HR.	2 YR. - 24 HR.	2 YR. - 24 HR.	2 YR. - 24 HR.	5 YR. - 24 HR.	5 YR. - 24 HR.
MAX. FLOW VELOCITY:	< 1 FT./SECOND	1.5 FT./SECOND	4.5 FT./SECOND	1.5 FT./SECOND	12 FT./SECOND	12 FT./SECOND
MAX. DITCH GRADE:	0% - 0.5%	1.5% - 3%	1.5% - 3%	1.5% - 2.0%	3% - 5%	3% - 5%
MAX. DRAINAGE AREA:	1 ACRE	2 ACRE	2 ACRE	4 ACRE	4+ ACRE	4+ ACRE

STANDARD SHEET NO. 5-297.405 (3 OF 4)	TEMPORARY SEDIMENT CONTROL DITCH CHECK/BARRIER
STANDARD APPROVED: SEPTEMBER 27, 2006	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 218 OF 534 SHEETS	

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OF TE17

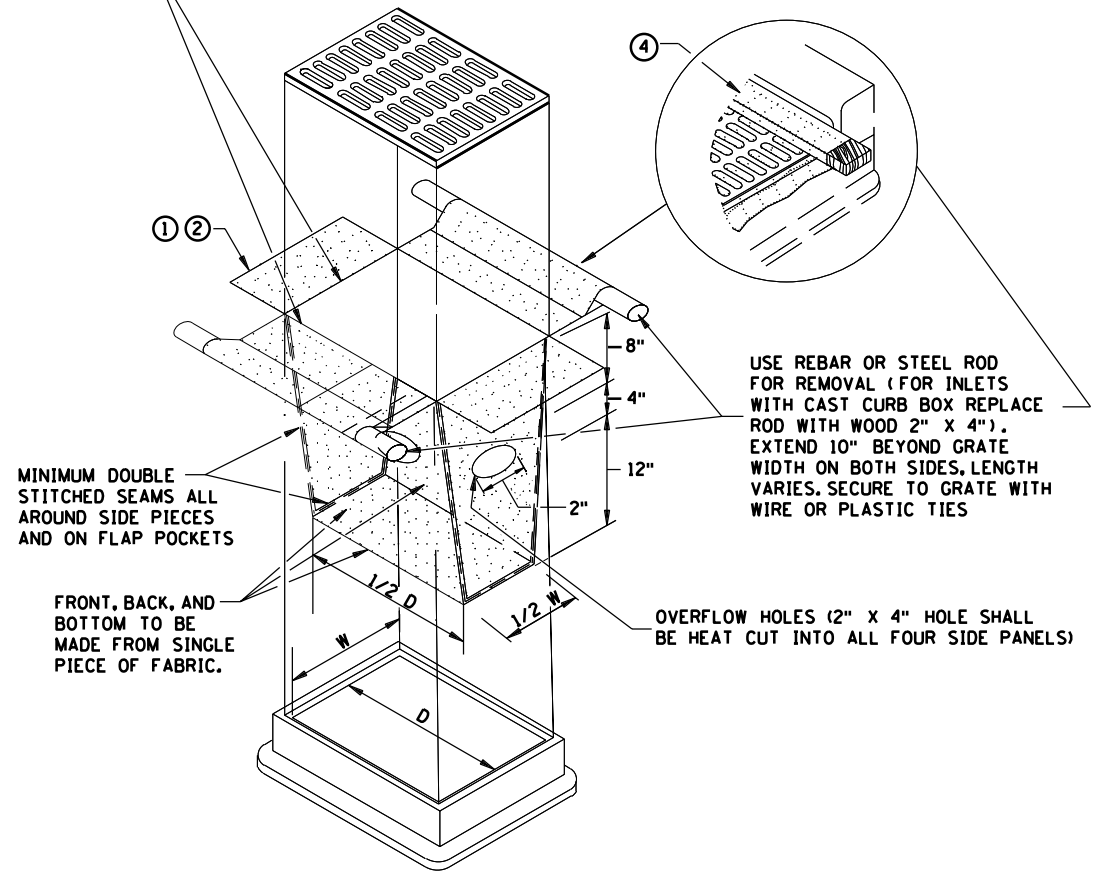
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kerfickson

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Default

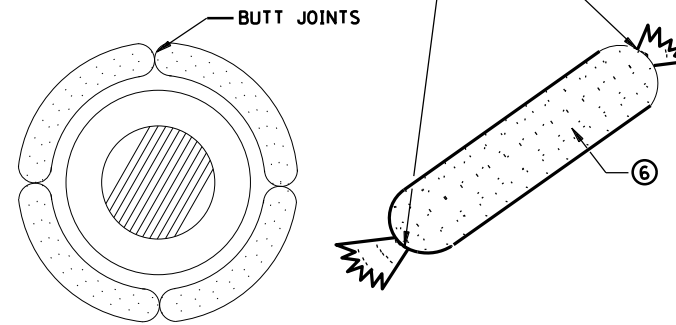
INLET SPECIFICATIONS AS PER THE PLAN
DIMENSION LENGTH AND WIDTH TO MATCH
FLAP POCKET



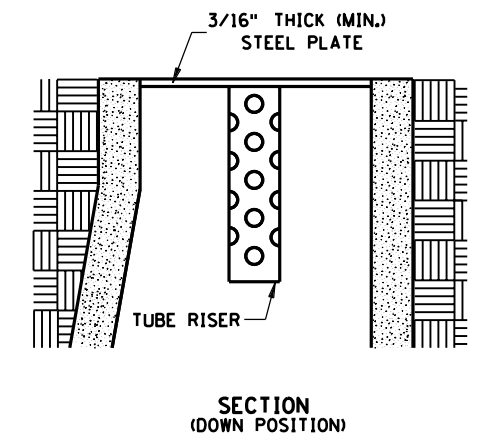
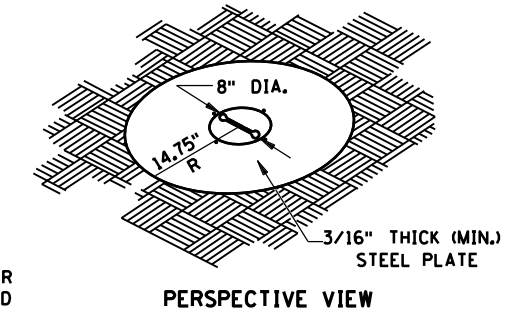
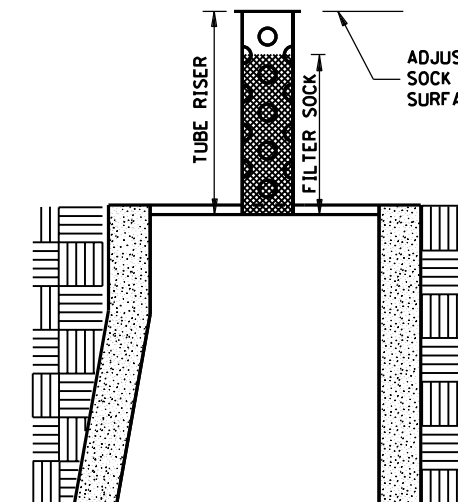
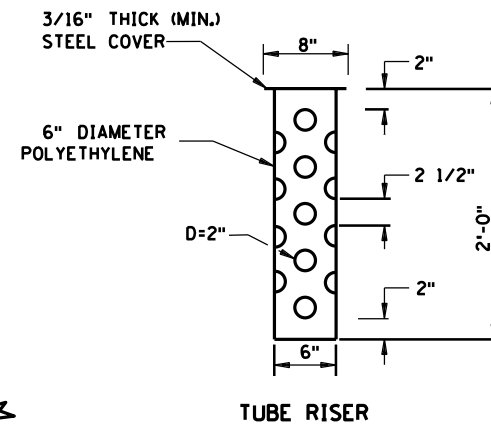
FILTER BAG INSERT ③

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

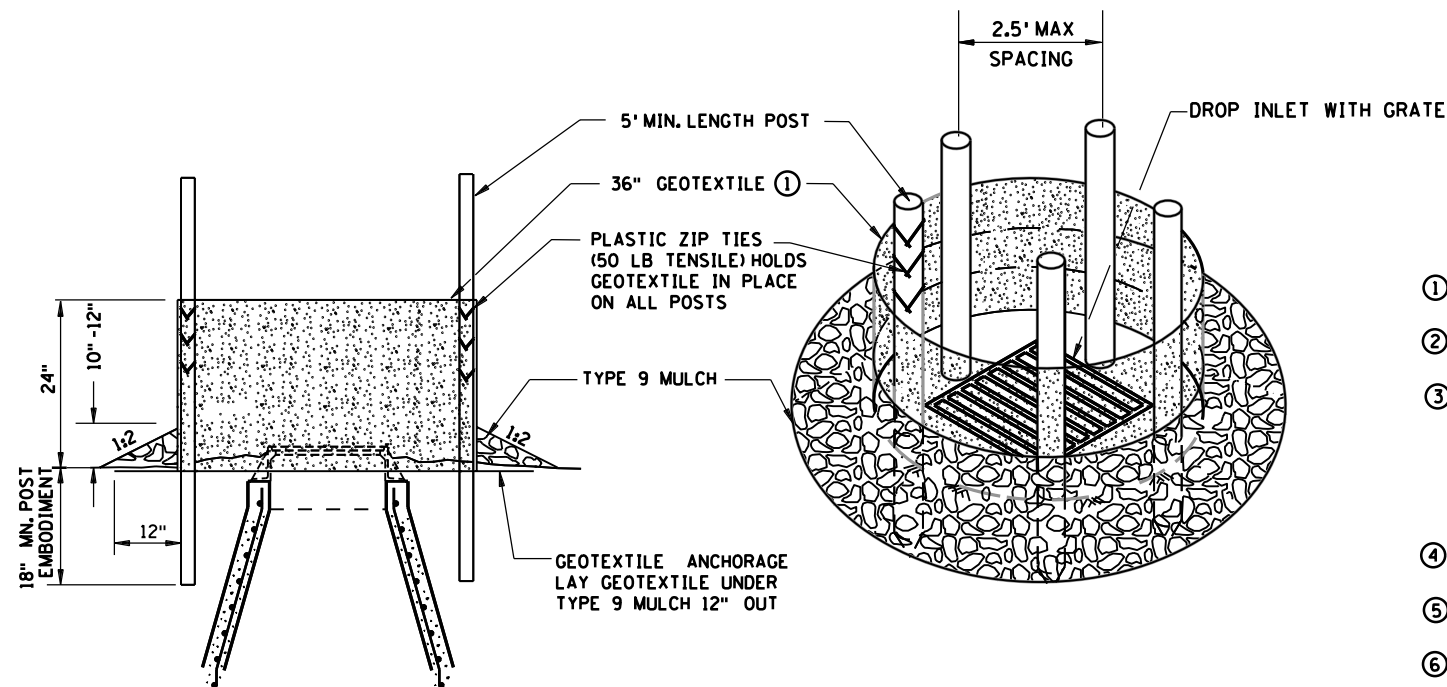
ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL. SECURED WITH 50 PSI. ZIP TIE.



ROCK LOG/COMPOST LOG

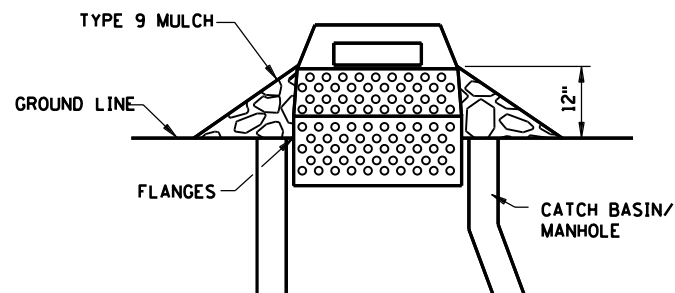


POP-UP HEAD



SILT FENCE RING AND ROCK FILTER BERM

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



SEDIMENT CONTROL INLET HAT

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

NOTES:

SEE SPECS. 2573, 3137, 3886 & 3891.

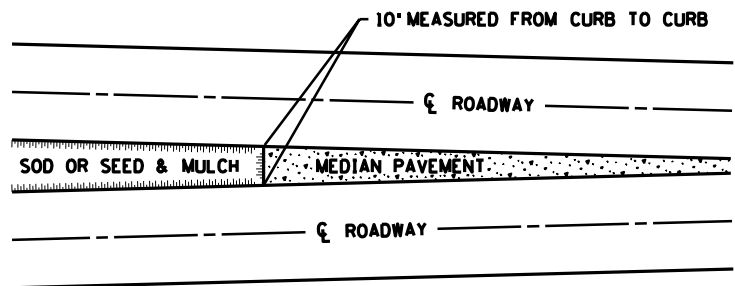
MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:
DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

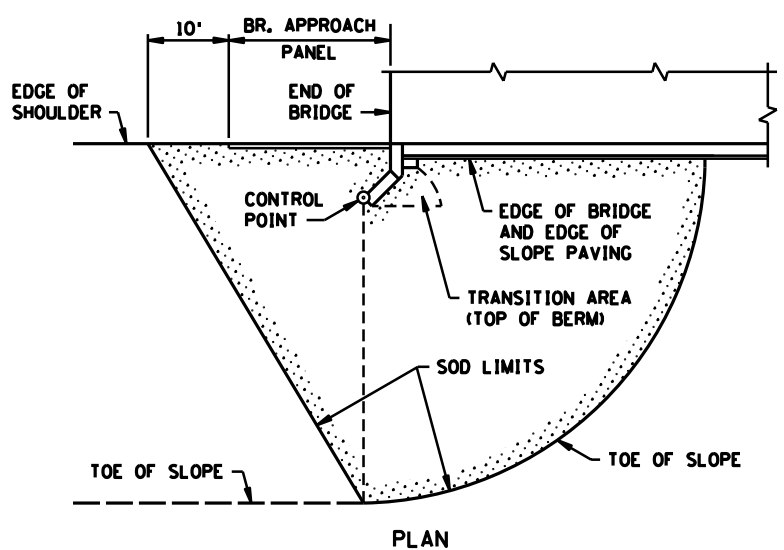
TE16
OF TE17

STANDARD SHEET NO. 297.405 (4 OF 4)
STANDARD APPROVED: SEPTEMBER 27, 2006

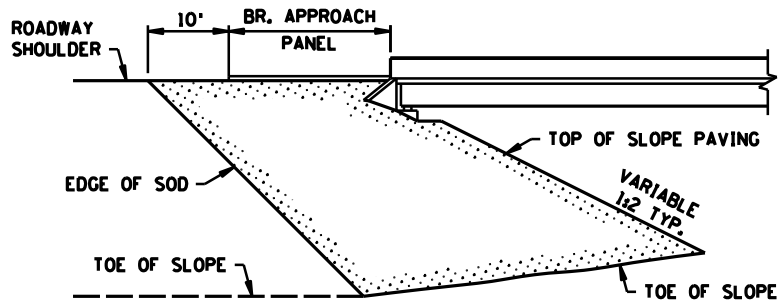
TITLE: TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION
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SODDING LIMITS AT GORE AREA

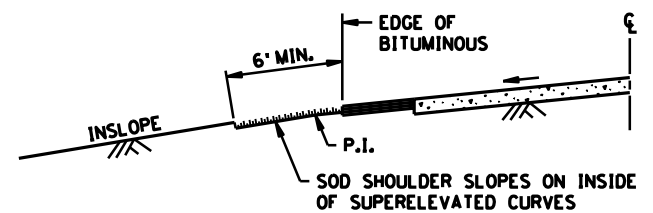


PLAN

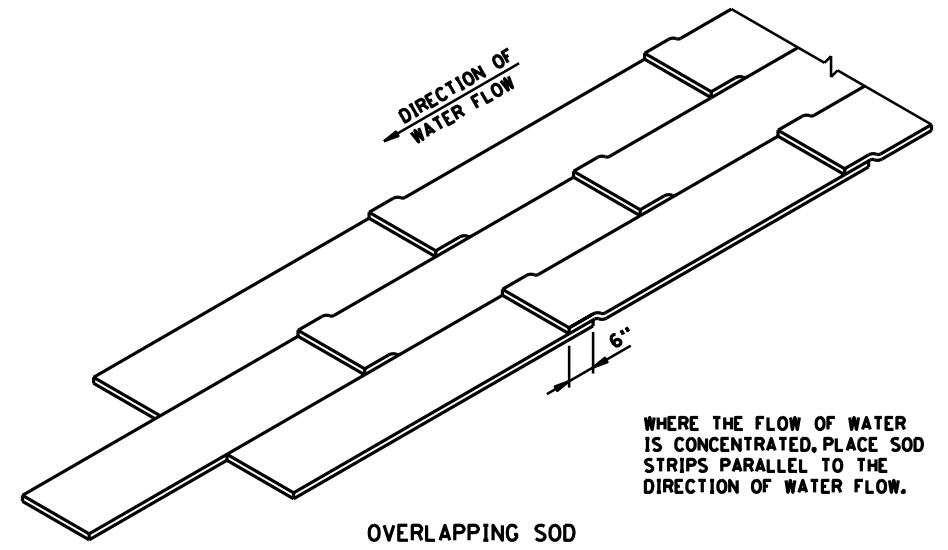


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

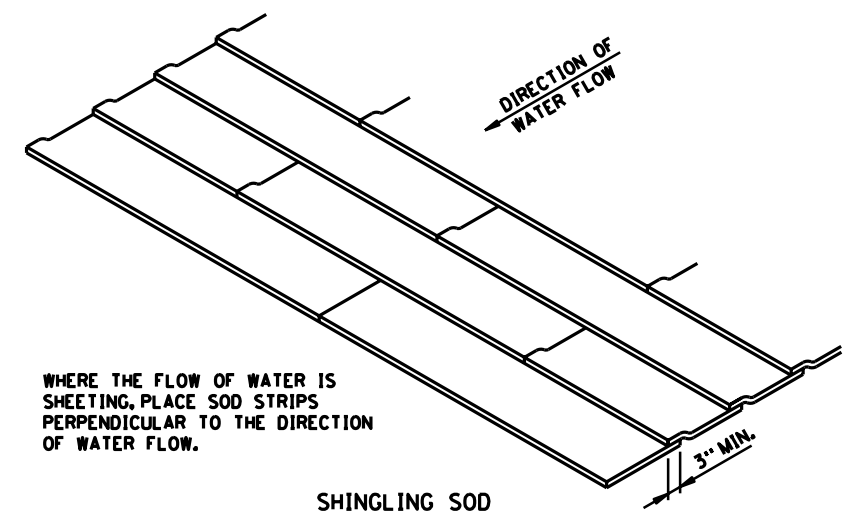


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

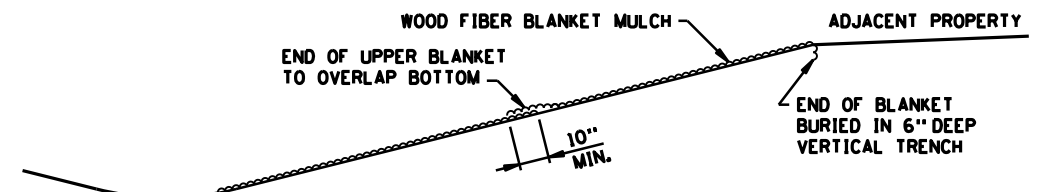
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



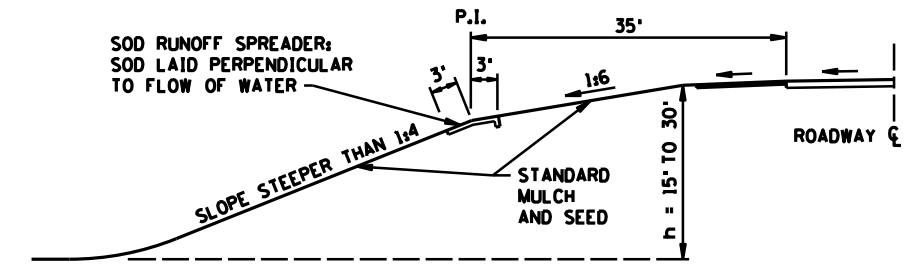
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

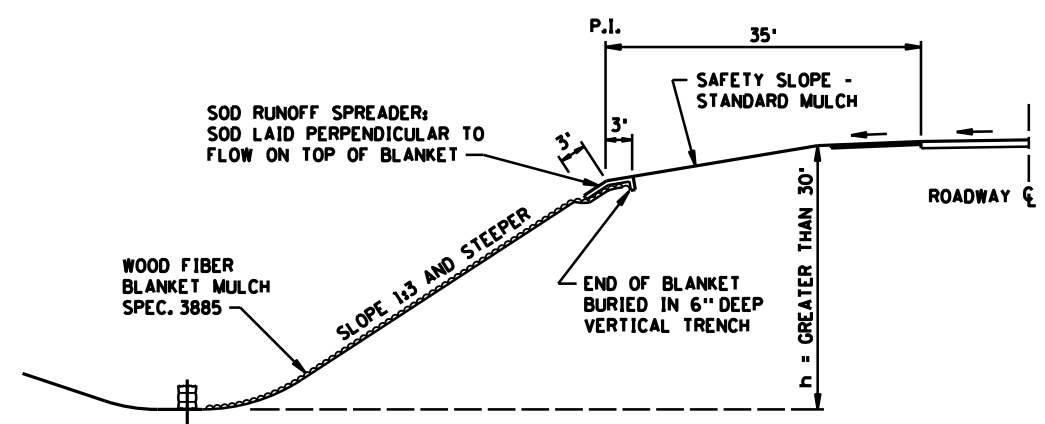
SPECIAL SOD PLACEMENT TECHNIQUES



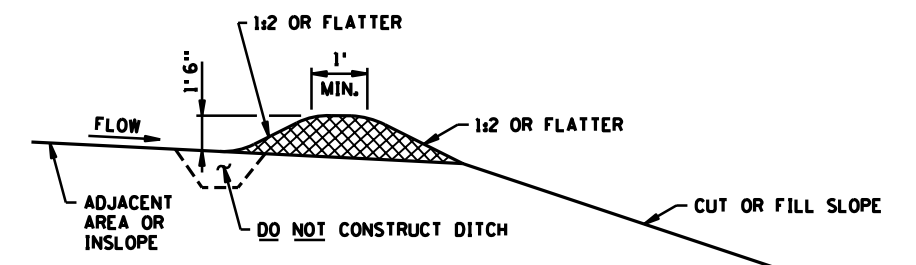
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



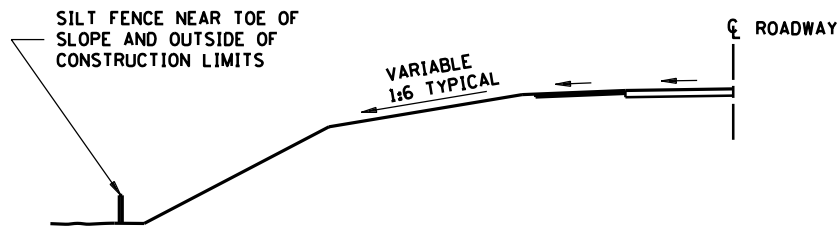
WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)



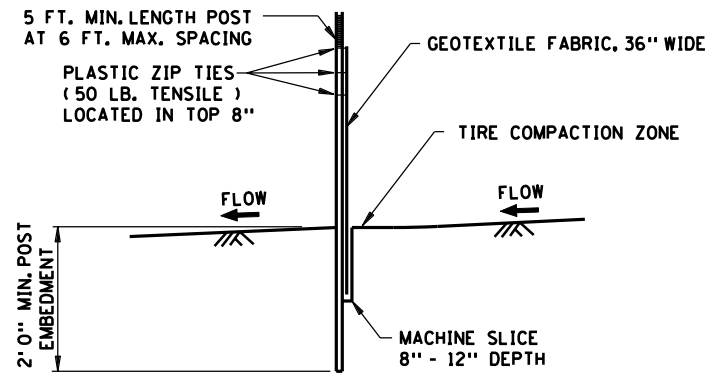
PERMANENT SLOPE PROTECTION DIKE

STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STANDARD APPROVED: JANUARY 31, 1985	
REVISION DATE 10-26-2000	STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 220 OF 534 SHEETS

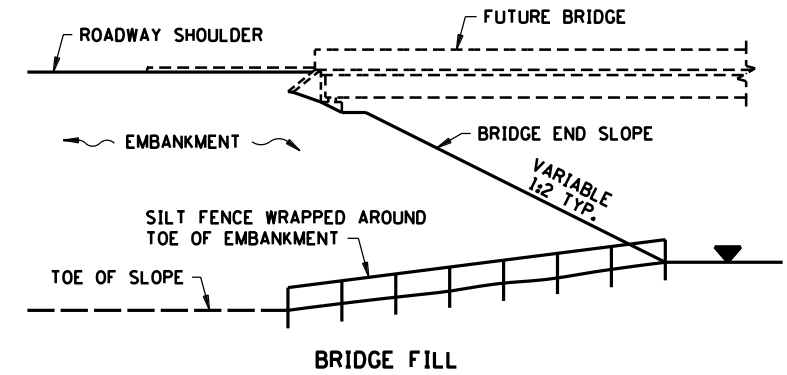
TE17
OF TE17



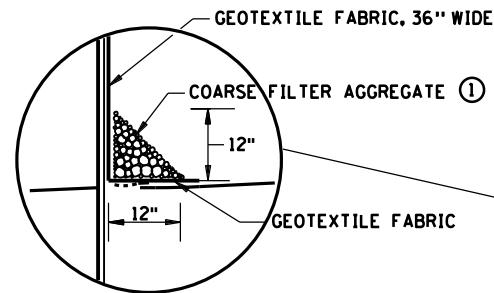
LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



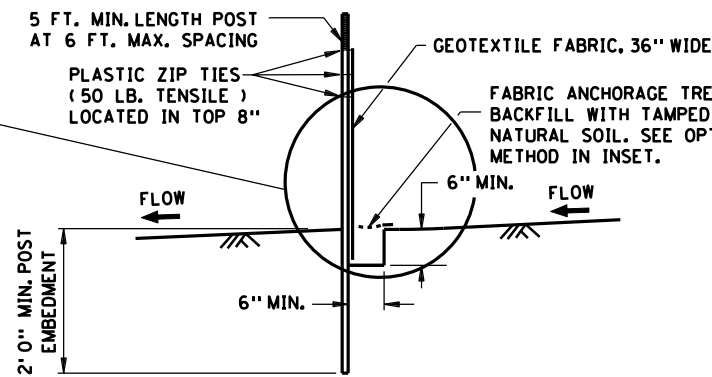
SILT FENCE, MACHINE SLICED
DESIGN GUIDELINES:
 TO PROTECT AREAS FROM SHEET FLOW.
 MAXIMUM CONTRIBUTING AREA: 1 ACRE.



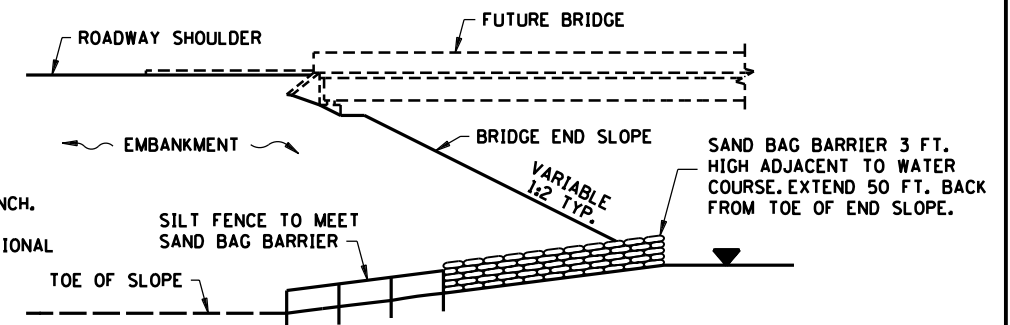
DESIGN GUIDELINES:
 WATER COURSE FLOW VELOCITY: STAGNANT
 CONTRIBUTING SLOPE AREA: 1/2 ACRE



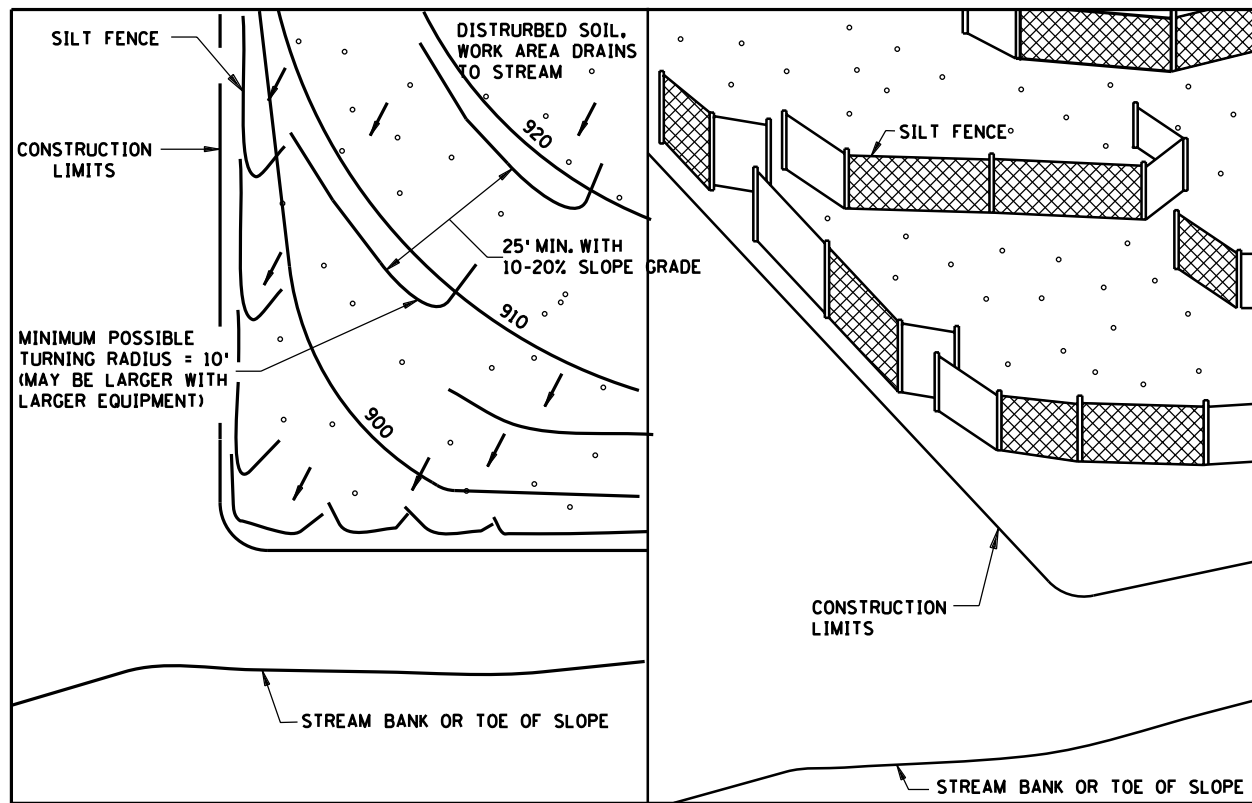
OPTIONAL METHOD FOR SILT FENCE, HEAVY DUTY



SILT FENCE, HEAVY DUTY (HAND INSTALLED)
DESIGN GUIDELINES:
 TO PROTECT AREAS FROM SHEET FLOW.
 MAXIMUM CONTRIBUTING AREA: 1 ACRE.



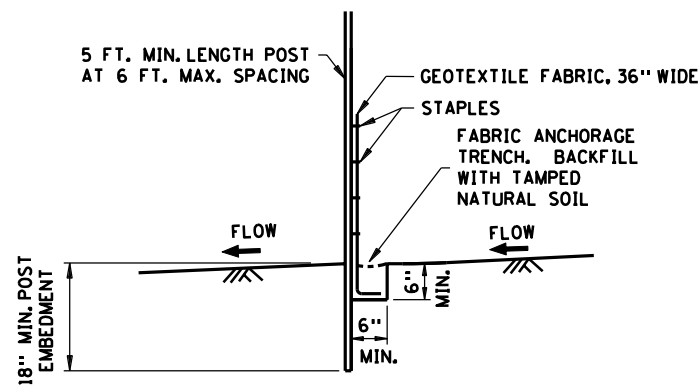
DESIGN GUIDELINES:
 WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
 CONTRIBUTING SLOPE AREA: 1 ACRE



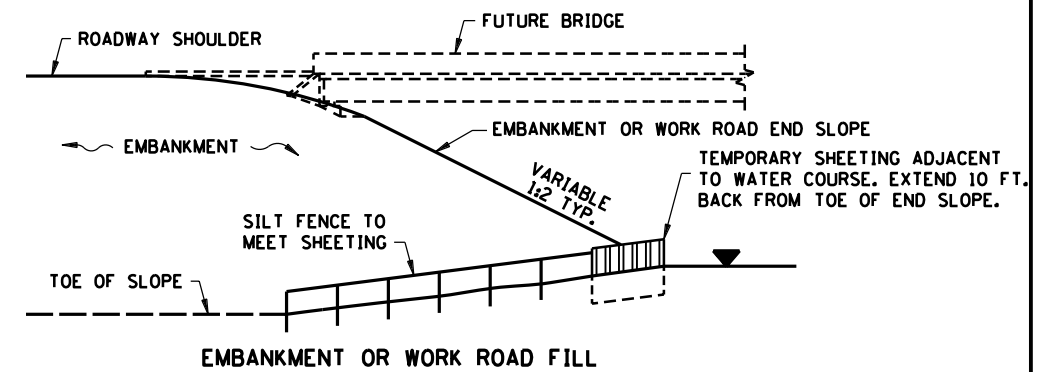
PLAN VIEW

SIDE VIEW

SILT FENCE, J-HOOK INSTALLATION



SILT FENCE, PREASSEMBLED
DESIGN GUIDELINES:
 TO PROTECT AREAS FROM SHEET FLOW.
 MAXIMUM CONTRIBUTING AREA: 1 ACRE.



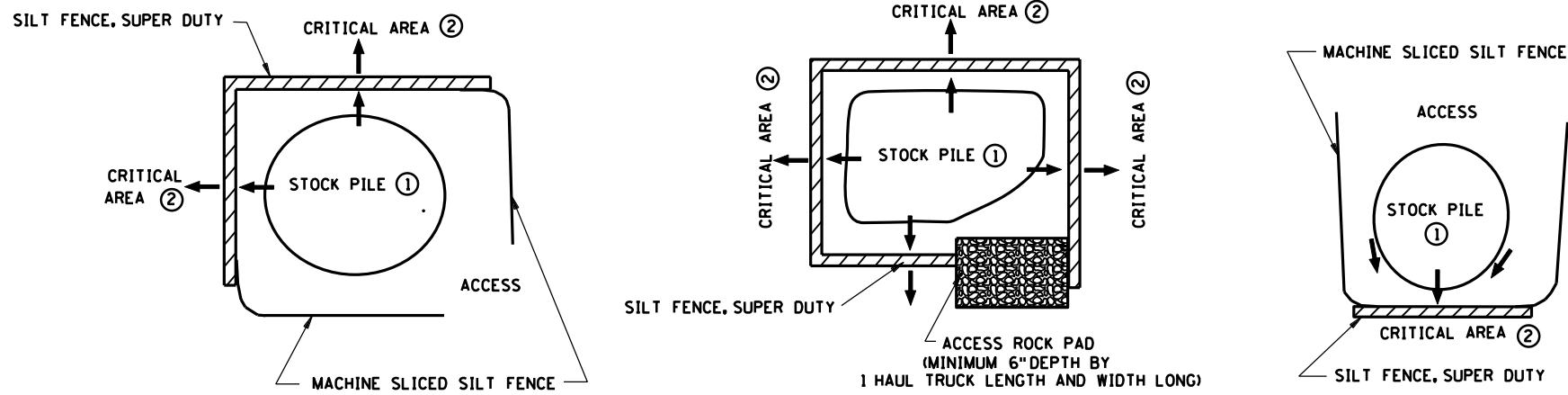
DESIGN GUIDELINES:
 WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
 CONTRIBUTING SLOPE AREA: 3 ACRES

SILT FENCE AT BRIDGE EMBANKMENT ADJACENT TO WATER

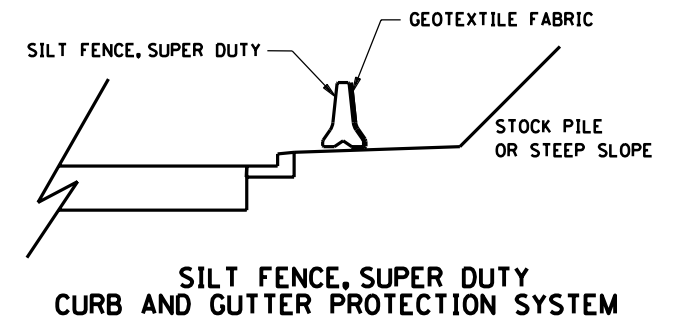
NOTES:
 SEE SPECS. 2573, 3149 & 3886.
 ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

TE17A
OF TE17

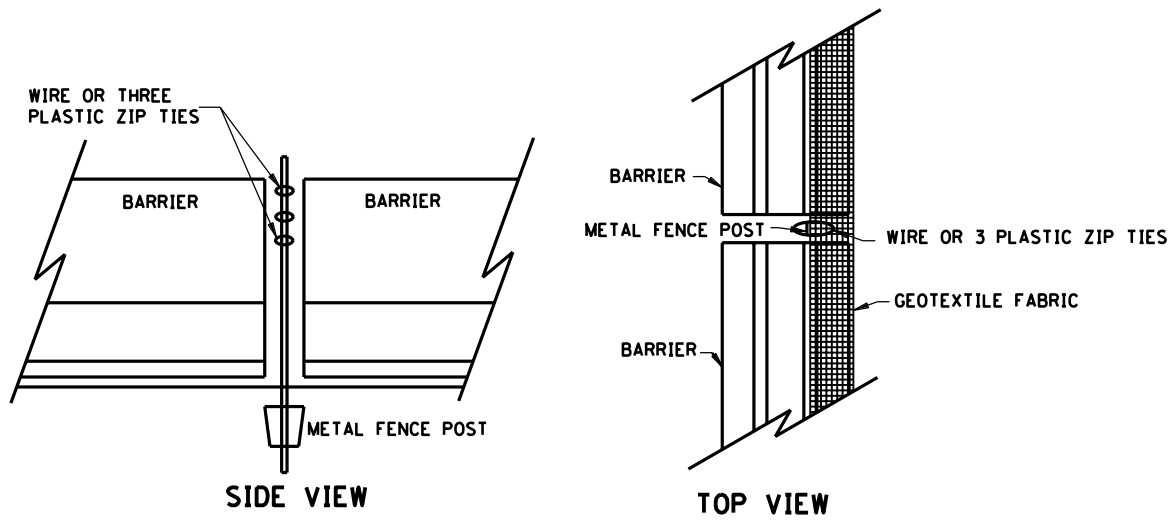
STANDARD SHEET NO. 5-297.408 (1 OF 2)	TITLE: TEMPORARY SEDIMENT CONTROL SILT FENCE
STANDARD APPROVED: SEPTEMBER 27, 2006	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 220A OF 534 SHEETS	



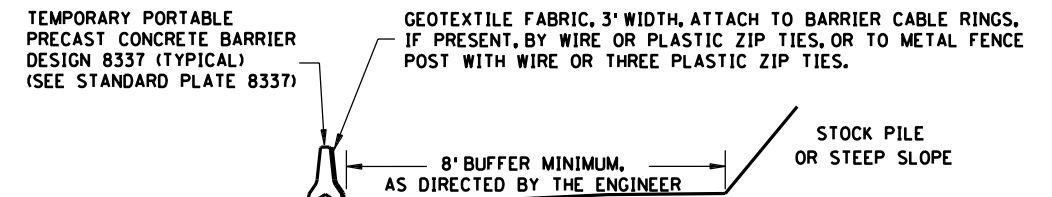
SILT FENCE, SUPER DUTY STOCK PILE CONTAINMENT



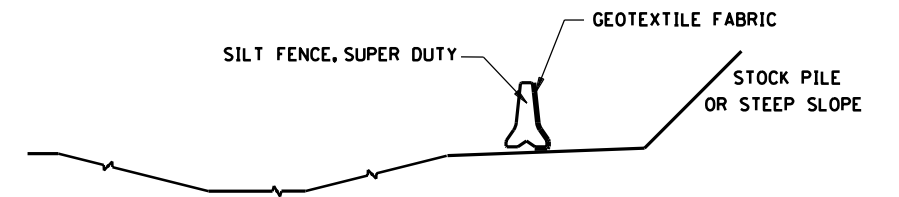
SILT FENCE, SUPER DUTY CURB AND GUTTER PROTECTION SYSTEM



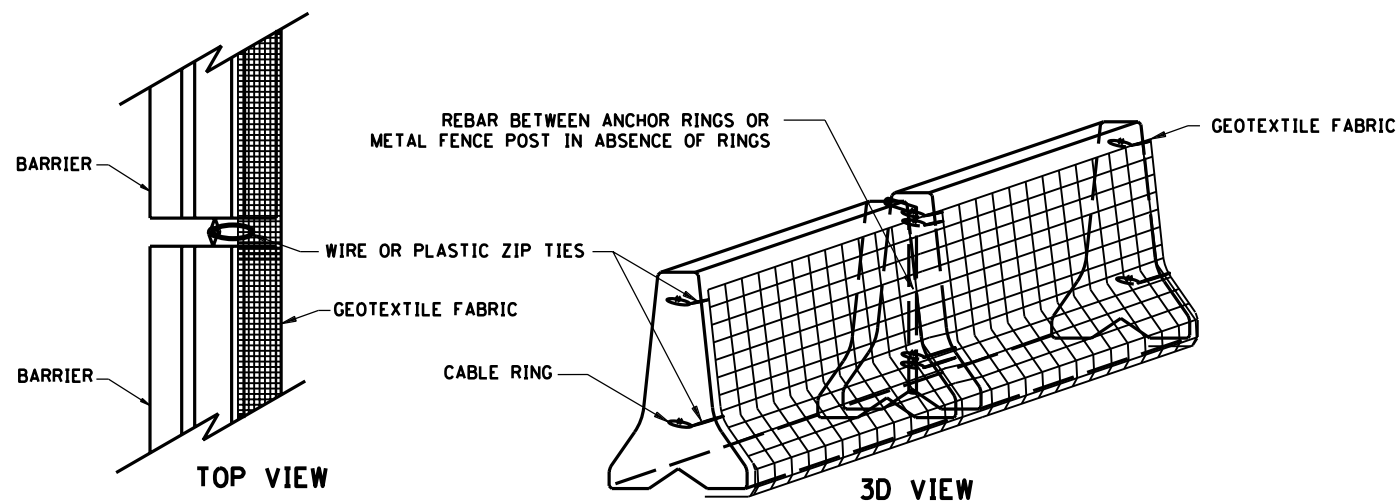
BARRIER WITHOUT CABLE RINGS



SILT FENCE, SUPER DUTY STOCKPILE SEDIMENT CONTROL



SILT FENCE, SUPER DUTY DITCH PROTECTION SYSTEM



BARRIER WITH CABLE RINGS SILT FENCE, SUPER DUTY

NOTES:

- SEE SPECS. 2533, 2573 & 3886.
- PLACE SUPER DUTY SILT FENCE ALONG A CONSTANT ELEVATION. SUPER DUTY SILT FENCE CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.
- ① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, THE SUPER DUTY SILT FENCE IS TO BE USED AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- ② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

TE17B
OF TE17

STANDARD SHEET NO.
5-297.408 (2 of 2)
STANDARD APPROVED:
SEPTEMBER 27, 2006

TITLE:
TEMPORARY SEDIMENT CONTROL
SUPER DUTY SILT FENCE

Stormwater Pollution Prevention Plan (SWPPP)

To comply with the General Stormwater Permit for Construction Activity

Construction Activity Information

Project Name: T.H. 36 and Rice Street Interchange Improvements
 Project Location:
 Address or describe area: Rice Street (CSAH 49) from 680' S. of County Rd B. to 555' N. of County Rd. B2
 City or Township: Roseville, Maplewood & Little Canada State: MN Zip Code:
 Latitude/Longitude: -93.1060, 45.0082
 All cities where construction will occur: Roseville, Maplewood & Little Canada
 All counties where construction will occur: Ramsey
 All townships where construction will occur: N/A
 Project size (number of acres to be disturbed): 55.7 acres
 Project type: Residential Commercial/Industrial Road Construction Other:

Cumulative impervious surface:
 Existing area of impervious surface: 13.5 acres
 Post construction area of impervious surface: 20.5 acres
 Receiving waters:

Waterbody ID	Name of water body	Type (ditch, pond, wetland, lake, stream, river)	Special water?	Impaired Water?
---	Unnamed	wetland	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
DNR - 62005400	McCarrons Lake	lake	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Dates of construction:
 Construction start date: May 2010 Estimated completion date: June 2012

Contact Information

Owner of the Site
 Business or firm name: Ramsey County
 Owner name: Ramsey County Title: _____
 Mailing address: 1425 Paul Kirkwood Drive
 City: Arden Hills State: MN Zip code: 55112
 E-mail address: _____ Telephone: _____
 Contact name: James Tolaas Title: Project Manager
 Mailing address: 1425 Paul Kirkwood Drive
 City: Arden Hills State: MN Zip code: 55112
 E-mail address: James.Tolaas@co.ramsey.mn.us Telephone: 651-266-7100

Contractor
 Business or firm name: To Be Determined
 Owner name: _____ Title: _____
 Mailing address: _____
 City: _____ State: _____ Zip code: _____
 E-mail address: _____ Telephone: _____
 Contact name: _____ Title: _____
 Mailing address: _____
 City: _____ State: _____ Zip code: _____
 E-mail address: _____ Telephone: _____

Party responsible for long-term operation and maintenance of the permanent Stormwater Management System
 Business or firm name: Ramsey County
 Owner name: Ramsey County Title: _____
 Mailing address: 1425 Paul Kirkwood Drive
 City: Arden Hills State: MN Zip code: 55112
 E-mail address: _____ Telephone: _____
 Contact name: James Tolaas Title: Project Manager
 Mailing address: 1425 Paul Kirkwood Drive
 City: Arden Hills State: MN Zip code: 55112
 E-mail address: James.Tolaas@co.ramsey.mn.us Telephone: 651-266-7100

General Construction Project Information

Describe the construction activity: The project will reconstruct Rice Street and the approach ramps for T.H. 36. Work includes: grading, bituminous pavement, drainage improvements, curb & gutter, signing, striping, traffic signal, bridge & ramp reconstruction, utilities and storm water treatment.
 Describe soil types found at the project: Typical soils encountered on the project are well draining sandy soils, sandy clay loam and sandy loam soils that have been previously disturbed.

General Site Information (III.A)

- Describe the location and type of all temporary and permanent erosion prevention and sediment control Best Management Practices (BMPs). Include the timing for installation and procedures used to establish additional temporary BMPs as necessary (III.A.4.a). See Turf Establishment and Erosion Control Sheets for locations of all temporary and permanent erosion control measures throughout the project. Silt fence will be placed down gradient of disturbed areas prior to work commencing in that area. A temporary sediment basin will be constructed. The temporary sediment basin shall only be excavated to final basin grade as shown on Sheet P01 once final stabilization of the contributing drainage area has been completed. Rapid Stabilization Method 3 will be used during construction to stabilize areas that are not being actively worked. Ditch checks and inlet protection will be utilized during the applicable phase of the project. Erosion control blanket, riprap, sod and hydroseeding will be used as permanent erosion control measures. The contractor is required to install all temporary and permanent erosion control measures during the appropriate phase of the project.
 The areas listed below are identified as Site Plan Requirement Areas which are required to have a site plan developed in accordance with MnDOT Specification 1717.
 - All building demolition sites (Building A, B, and C) - Plan Sheets BD1-BD3
 - Bridge demolition - See Bridge Plan Set
 - Existing and Proposed Ponds (William, Abernethy, Rice and Marion) - Plan Sheets P01-P02
 - Temporary Sediment Basin - Plan Sheet P03
- Attach to this SWPPP a table with the anticipated quantities for the life of the project for all erosion prevention and sediment control BMPs (III.A.4.b). See Statement of Estimated Quantities (SEQ) and Tabulations sheets for all quantities.
- Attach to this SWPPP a site map that includes the following features (III.A.3 b-f):
 - Existing and final grades, including dividing lines and directions of flow for all pre- and post-construction stormwater runoff drainage areas located within the project limits.
 - Locations of impervious surfaces and soil types.
 - Locations of areas not to be disturbed.
 - Location of areas of phased construction
 - All surface waters and existing wetlands within one mile from the project boundaries that will receive stormwater runoff from the site. Where surface waters receiving runoff associated with construction activity will not fit on the plan sheet, they must be identified with an arrow, indication both direction and distance to the surface water.
 - Methods to be used for final stabilization of all exposed soil areas.
- Were stormwater mitigation measures required as the result of an environmental, archaeological, or other required local, state, or federal review of the project? Yes No
 If yes, describe how these measures were addressed in the SWPPP (III.A.6). N/A
- Is the project located in a karst area such that additional measures would be necessary to protect drinking water supply management areas as described in Minn. R. chapters 7050 and 7060? Yes No
 If yes, describe the additional measures to be used (III.A.7). N/A
- Does the site discharge to a calcareous fen listed in Minn. R. 7050.0180, subp. 6 b.? Yes No
 If yes, a letter of approval from the Minnesota Department of Natural Resources must be obtained prior to application for this permit (Part I B.6 and Part III.A.8).

- Does the site discharge to a water that is listed as impaired for the following pollutant(s) or stressor(s): phosphorus, turbidity, dissolved oxygen or biotic impairment? Yes No
 If no, skip to Training.
 Does the impaired water have an approved Total Maximum Daily Load (TMDL) with an approved Waste Load Allocation for construction activity? Yes No
 If yes,
 - List the receiving water, the areas of the site discharging to it, and the pollutant(s) identified in the TMDL. N/A
 - List the BMPs and any other specific construction stormwater related implementation activities identified in the TMDL. N/A

Training (III.A)

Training is required for all permitted projects after February 1, 2010. It must be provided by entities with expertise in erosion prevention, sediment control or permanent stormwater management. Training must be focused on the individual's job duties as they relate to the permit requirements (III.A.2). Attach to this SWPPP names of the personnel trained, dates of training, name of instructor(s) and entity providing the training, and content of the training course or workshop including number of hours of training. Justin Klabo, SEH Inc., August 12-13, 2009, University of Minnesota, Erosion and Sediment Control Certification Program. The Project Manual includes signature blocks for onsite personnel as required by the Permit.

Selection of a Permanent Stormwater Management System (III.C)

- Will the project create a new cumulative impervious surface greater than or equal to one acre? Yes No
 If yes, a water quality volume of one-half inch of runoff from this area must be treated before leaving the site or entering surface waters (one inch if discharging to special or impaired waters).
- Describe which method (i.e. wet sedimentation basin, infiltration filtration, regional ponds) will be used to treat runoff from the new impervious surfaces created by the project (III.C). Include all calculations and design information for method selected. See Part III.C of the permit for specific requirements associated with each method. Pretreatment basins and a regional infiltration basin will be constructed to meet the MPCA and watershed district requirements. The infiltration basin was designed to treat a minimum of 0.5" of runoff over the entire drainage area to the basin. Complete design calculations for the infiltration basin are available upon request. In accordance with the Capital Region Watershed District and Ramsey-Washington Metro Watershed District the project must provide infiltration in the amount of 1 inch over the impervious surface. The proposed infiltration basin exceeds the watershed district volume reduction therefore infiltration credits are available for future projects within the watershed districts. Contact names and phone numbers are provided below for each watershed district.
CRWWD - Forrest Kelley, Permit Program Coordinator (651.644.8888)
RWMWWD - Tina Carstens, Permit Program Coordinator 651.792.7960)

Erosion Prevention Practices (IV.B)

- Describe construction phasing, vegetative buffer strips, horizontal slope grading, and other construction practices to minimize erosion. Delineate areas not to be disturbed (e.g. with flags, stakes, signs, silt fence, etc.) before work begins. Areas will be delineated not to be disturbed through the use of silt fence and construction staking. The contractor shall utilize grass buffer strips where practicable to prevent erosion and sediment transport throughout the project. All slopes shall be graded to minimize the potential for erosion.
- Describe temporary erosion protection of permanent cover used for exposed soil. All exposed soil areas must be stabilized as soon as possible but in no case later than 14 days after the construction activity in the portion of the site has temporarily or permanently ceased (IV.B.2).

All exposed soil areas shall be stabilized within 14 days after the construction activity in the portion of the site has temporarily or permanently ceased. Hydraulic soil stabilizer Type 6, seed mixture 190 shall be used to provide temporary cover to exposed soils during construction except in areas that need to be stabilized within 24 hours as stated in the NPDES Permit and identified as critical by the County Engineer. See NPDES Permit for areas that need to be stabilized within 24 hours. Rapid Stabilization Method 3 shall be used in areas identified as critical stabilization areas. The wetted perimeter of all drainage

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DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MIT				
DESIGNER: JTK				
CHECKED BY: JJW				

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.
 Certified By: Jeremy J. Walgrave Lic. No. 43131
 Printed Name: JEREMY J. WALGRAVE Date: 3/3/2010

SEH
 PHONE: 651.490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

Kinley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. 651.645-4197
 FAX. NO. 651.645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STORM WATER POLLUTION PREVENTION PLAN
 WATER RESOURCES NOTES

FILE NO. **221**
 RAMSP108790
 SWP1 OF SWP2
534

ditches shall be stabilized within 24 hours with erosion control blanket and biotrolls unless it is being used as a sediment containment area. If it is being utilized as a sediment containment area, it must be stabilized within 24 hours after removing the sediment containment BMPs. The contractor shall stabilize all exposed soils during winter work with the appropriate BMPs.

- For drainage or diversion ditches, describe practices to stabilize the normal wetted perimeter within 200 lineal feet of the property edge or point of discharge to surface waters. The remaining portions of the temporary or permanent ditch or swale must be stabilized within 14 days after connecting to surface waters and construction in that portion of the ditch has temporarily or permanently ceased. Drainage ditched not being utilized as sediment containment areas shall be stabilized within 24 hours through the use of hydroseed, biotrolls and erosion control blanket.
- Describe other erosion prevention practices (list and describe). Building demolition areas shall utilize compost logs to provide perimeter protection for paved areas. Biologs, silt fence, and other suitable BMPs shall be utilized for unpaved areas. A rock construction entrance shall be construction entrance shall be provided at each demolition site. Wash pads shall be installed by the contractor as directed by the County Engineer. Wash pads are considered incidental to the project. All erosion and sediment control measures shall be identified by the Contractor in the Site Plan developed for each demolition site.

Sediment Control Practices (IV.C)

Describe sediment control practices used to minimize sediments from entering surface waters, including curb and gutter systems and storm drain inlets. At a minimum, these sediment control practices must include:

- Sediment controls for temporary or permanent drainage ditches and sediment basins that are designed as part of a treatment system
- Installation of check dams or other grade control practice to ensure sheet flow and prevent rills (for slope lengths greater than 75 ft with a grade of 3:1 or steeper)
- Sediment control practices on all down gradient perimeters prior to land disturbing activities
- Storm drain inlet protection for all inlets
- Silt fencing or other sediment control surrounding temporary soil stockpiles
- Minimize vehicle tracking of sediment
- Street sweeping of tracked sediment
- Temporary sedimentation basins (see Part III.B).

Storm drain inlet protection shall be installed on all inlets down gradient of the construction project. Contractor shall install rock construction entrances as determined by the Contractor's work sequence. Contractor must clean streets on a daily basis during construction hours unless otherwise directed by the engineer. Additional street cleaning may be required as directed by the engineer and shall be performed within 4 hours. Temporary stockpiles on site shall be temporary seeded and silt fence placed around the stockpile. Contractor shall hydroseed and place erosion control blanket on basin sideslopes after grading is completed. Any sediment that has accumulated within the infiltration basins shall be removed prior to final stabilization. Topsoil berms shall be stabilized immediately upon construction with seed and erosion control blanket.

Dewatering and Basin Draining (IV.D)

- Will the project include dewatering or basin draining? Yes No
If yes, describe BMPs used so the discharge does not adversely affect the receiving water or downstream landowners. Minor dewatering is anticipated for the project. Sediment laden water shall not be discharged to a surface water or storm sewer system and shall not be discharged in a manner that will cause nuisance conditions. If significant dewatering is needed the contractor shall develop a dewatering plan approved by the Engineer and in accordance with MPCA regulation.

Additional BMPs for Special Waters and Discharges to Wetlands (Appendix A, Parts C and D)

- Special Waters. Does your project discharge to special waters? Yes No
If proximity to bedrock or road projects where the lack of right of way precludes the installation of any of the permanent stormwater management practices, then

- other treatments such as grassed swales, smaller ponds, or grit chambers is required prior to discharge to surface waters. Describe what other treatment will be provided.
- Describe erosion and sediment controls for exposed soil areas with a continuous positive slope to a special water, and temporary sediment basins for areas that drain five or more acres disturbed at one time.
- Describe the undisturbed buffer zone to be used (not less than 100 linear feet from special waters).
- Describe how the permanent stormwater management system will ensure that the pre- and post-construction runoff rate and volume from the 1- and 2-year, 24-hour precipitation events remains the same.
- Describe how the permanent stormwater management system will minimize any increase in the temperature of trout stream receiving waters resulting from the 1- and 2-year, 24-hour precipitation events.
- Wetlands. Does your project discharge stormwater with the potential for significant adverse impacts to a wetland (e.g., conversion of a natural wetland to a stormwater pond)? Yes No
If yes, describe the wetland mitigation sequence that will be followed in accordance with Part D of Appendix A.

Inspections and Maintenance (IV.E)

Describe procedures to routinely inspect the construction site:

- Once every seven days during active construction
- Within 24 hours after a rainfall event greater than 0.5 inches in 24 hours and within 7 days after that.

Inspections must include stabilized areas, erosion prevention and sediment control BMPs, and infiltration areas.

The construction site will be observed at least once every 7 days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours and 7 days after that. When sediment is observed up to approximately one-third of the height of the silt fence, sediment will be removed. Silt fence will be repaired, replaced, or supplemented if it becomes non-functional. When non-functional BMPs are found they must be repaired, replaced or supplemented with functional BMPs within 24 hours after discovery or as soon as field conditions allow access.

Pollution Prevention Management Measures (IV.F)

- Describe practices to properly manage and dispose of solid waste, including trash (IV.F.1). Collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes must be disposed of properly and must comply with MPCA disposal requirements.
- Describe practices to properly manage hazardous materials (IV.F.2). Oil, gasoline, paint, and any hazardous substances must be properly stored, including secondary containment, to prevent spills, leaks or other discharges. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA regulations.
- Describe practices for external washing of trucks and other construction vehicles (IV.F.3). External washing of trucks and other construction vehicles must be limited to a defined area of the site. Runoff must be contained and waste properly disposed of. No engine degreasing is allowed on site.
- Describe how you are going to provide a safe, leak proof, concrete washout on site (IV.F.4). All liquid and solid waste generated by concrete washout operations must be contained in a leak-proof containment facility or impermeable liner. A compacted clay liner that does not allow washout liquids to enter the ground water is considered an impermeable liner. The liquid and solid wastes must not contact the ground, and there must not be runoff from the concrete washout operations or areas. Liquid and solid waste must be disposed of properly and in compliance with MPCA regulations. A sign must be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.
- Describe your spill prevention plan. Any spills of hazardous materials and/or a minimum of 5-gallons petroleum shall be immediately reported to the MPCA (State Duty Officer: 1-800-422-0798 or 651-297-8610). Any spills above the reportable quantities limits in The Code of Federal Regulations (CFR) Title 40, Part 302 shall be reported to the EPA National Response Center (1-800-424-8802). In order to reduce the risk of hazardous materials coming into contact with storm water, the following practices will be followed: a) an effort will be made to store only enough products required to do the work, b) all materials stored

to do the work, b) all materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and if possible, under cover, c) products will be kept in their original containers with the original manufacturer's label unless the original container cannot be resealed in which case the original label and material safety data shall be retained, d) substances will not be mixed with one another unless recommended by the manufacturer, e) whenever possible all of a product will be used before disposing of the container, f) the manufacturer's recommendations for proper use and disposal will be followed, and g) the operator will inspect daily to ensure proper use and disposal of materials onsite. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.

- Describe measures to address sanitary and septic waste. All sanitary waste will be collected by temporary sanitary facilities provided at the site by the Contractor throughout the construction phase. All construction personnel shall utilize temporary sanitary facilities which shall be regularly serviced by a commercial operator. Temporary sanitary facilities shall be placed in a location where accidental spillage of the facility shall not discharge to the storm sewer system.

Final Stabilization (IV.G)

Describe how you will achieve final stabilization of the site (IV.G).

Disturbed areas shall be permanently restored as shown on the Turf Establishment Plan Sheets. The project will utilize sod, hydroseeding and blanket to achieve final stabilization. There no areas on the site where significant long-term erosion control problems are anticipated. The permittee will submit a Notice of Termination (NOT) within 30 days after final stabilization.

Records Retention (III.D)

Describe your record retention procedures (must be kept at the site) (III.D). Records must include:

- Copy of SWPPP and any changes
- Training documentation
- Inspection and maintenance records
- Permanent operation and maintenance agreements
- Calculations for the design of temporary and permanent stormwater management systems.

This SWPPP will be amended as needed and/or as required by provisions of the Permit. The contractor will record changes to the SWPPP and maintain documentation of these changes on site at all times. A summary maintenance/construction observation report will be recorded after each site inspection/observation. The contractor will be responsible to maintain and repair the erosion and sediment control BMPs until final stabilization is complete and a Notice of Termination is submitted.

Additional information has been provided in the Project Manual to supplement the SWPPP

Amendments to SWPPP

By Date

-
-
-
-
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-
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-

DESIGN TEAM				
DRAWN BY: MIT				
DESIGNER: JTK				
CHECKED BY: JJW				
	NO.	BY	DATE	REVISIONS

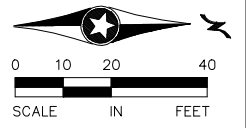
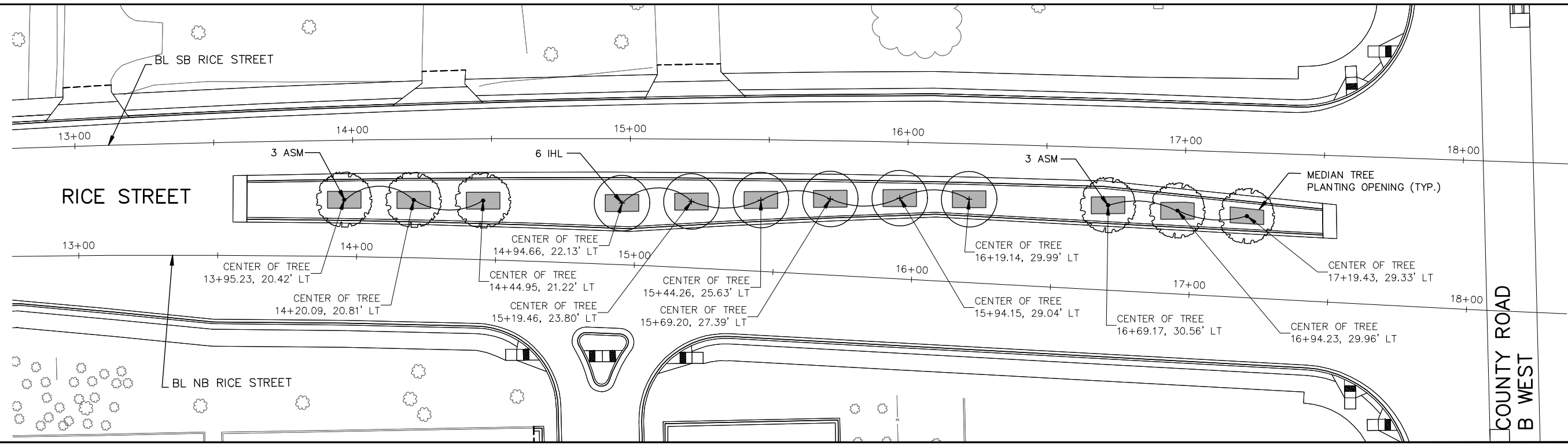
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: Jeremy J. Walgrave Lic. No. 43131
 Printed Name: JEREMY J. WALGRAVE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STORM WATER POLLUTION PREVENTION PLAN
 WATER RESOURCES NOTES

FILE NO. **222**
 RAMSP108790
 SWP2 OF SWP2
534

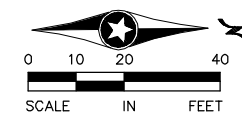
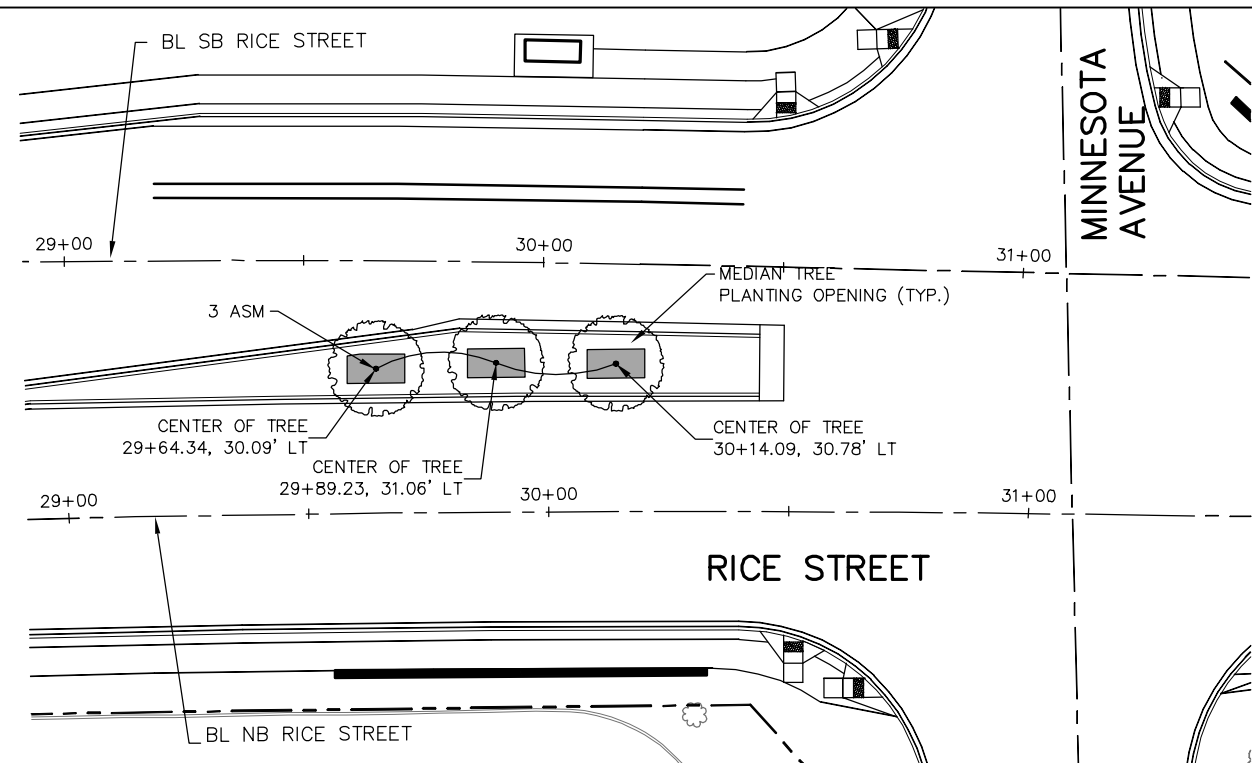


V PLANT SCHEDULE							
DECIDUOUS TREES							
QTY	SYM	COMMON NAME	BOTANICAL NAME	SIZE	ROOT	SPACING	REMARKS
15	ASM	AUTUMN SPIRE RED MAPLE	ACER RUBRUM 'AUTUMN SPIRE'	2.5" CAL.	B&B	PER PLANS	SINGLE STEM, SPECIMEN
12	IHL	IMPERIAL HONEYLOCUST	GLEDITSIA TRIA. VAR. INERMIS 'IMPCOLE'	2.5" CAL.	B&B	PER PLANS	SINGLE STEM, SPECIMEN

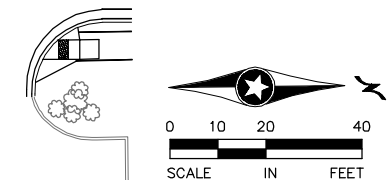
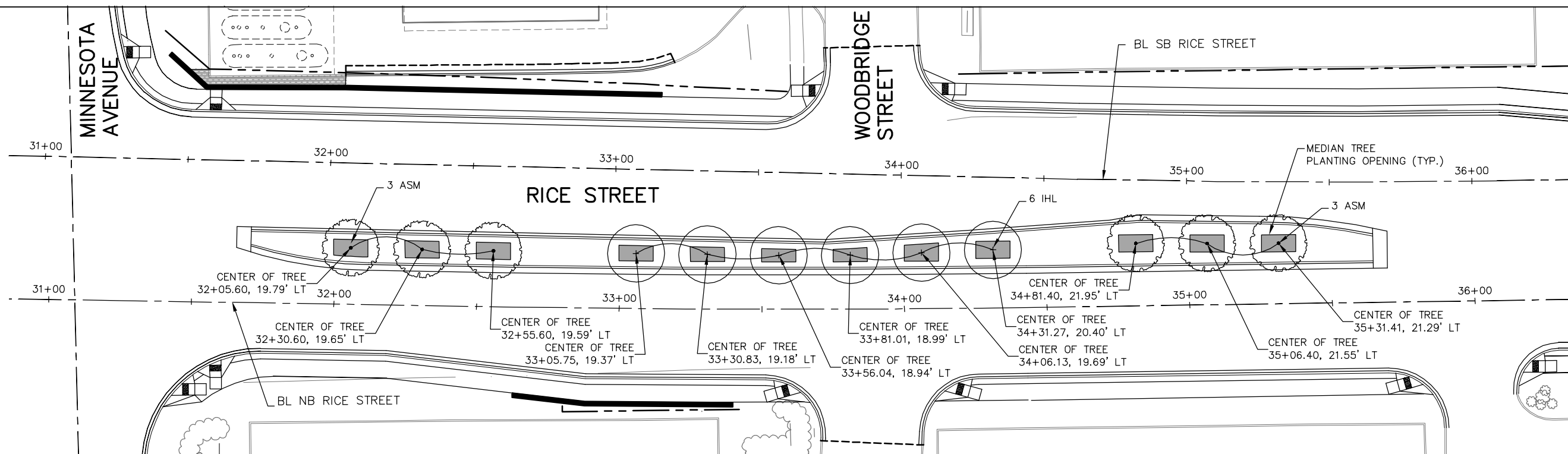
NOTE:
 1. STATION OFFSETS ARE FROM NORTHBOUND (NB) BASELINE OF RICE STREET
 2. SEE MEDIAN TREE PLANTING DETAILS (SHEET 225)

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DESIGN TEAM DRAWN BY: RJG DESIGNER: RJG CHECKED BY: BAE	I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota. Certified By: <i>Thomas R. Harrington</i> Licensed Landscape Architect No. 20349 Printed Name: THOMAS R. HARRINGTON, RLA Date: 3/3/2010	 Kimley-Horn and Associates, Inc. <small>2550 UNIVERSITY AVE. WEST, SUITE 349N ST. PAUL, MINNESOTA 55114</small>	RAMSEY COUNTY, MINNESOTA TH 36 / RICE STREET (CSAH 49) <small>SP NO. 62-649-27 CTB, 6212-165 (TH 36)</small>	LANDSCAPE PLAN & DETAILS RICE STREET <small>STA. 13+00 TO STA. 18+00</small>	FILE NO. <small>160599001</small> 223 LP1 <small>OF LP5</small> 534
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- NOTE:
 1. STATION OFFSETS ARE FROM NORTHBOUND (NB) BASELINE OF RICE STREET
 2. SEE MEDIAN TREE PLANTING DETAILS (SHEET 225)



K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN SHEETS\CONST\PLAN_RICE_LAND02.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota.
 Certified By: *Thomas R. Harrington* Lic. No. 20349
 Printed Name: THOMAS R. HARRINGTON, RLA Date: 3/3/2010

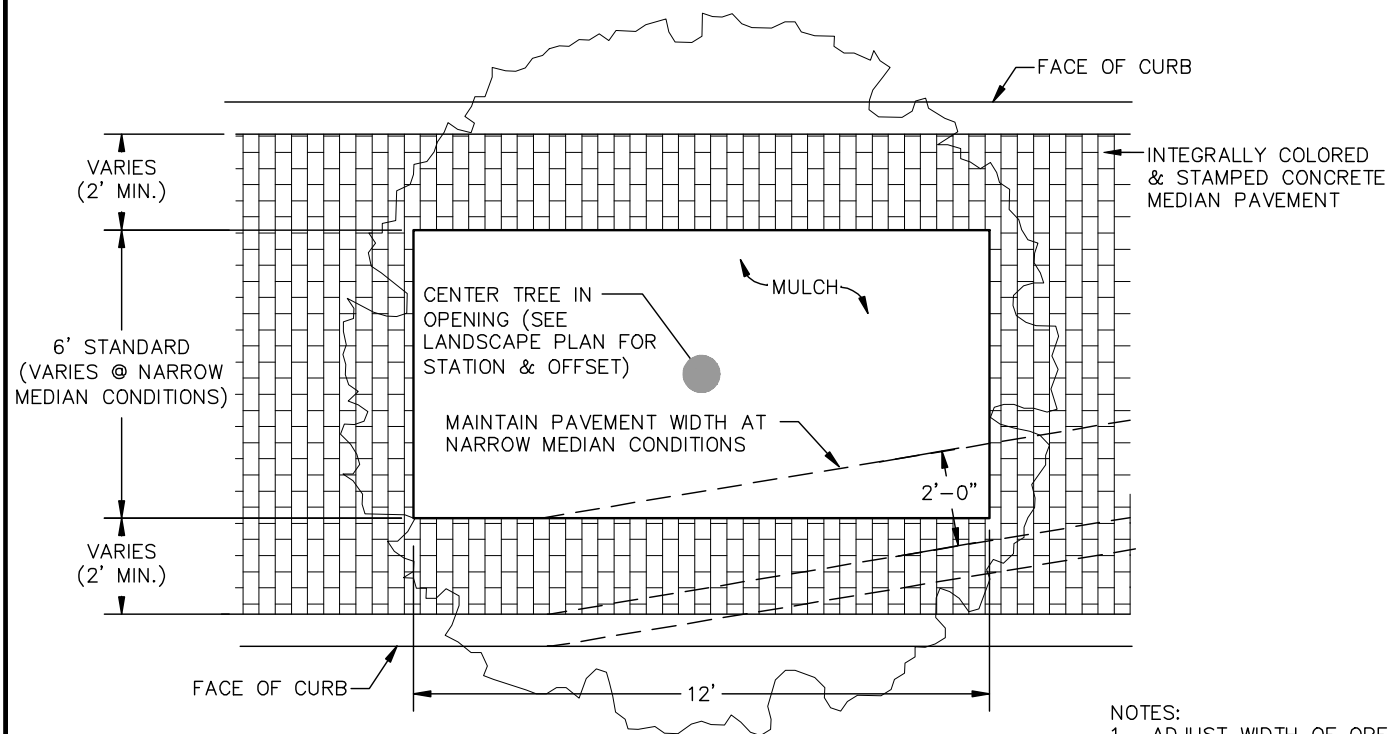
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LANDSCAPE PLAN & DETAILS
RICE STREET
 STA. 29+00 TO STA. 36+00

FILE NO. 160599001
224
 LP2 OF LP5
534

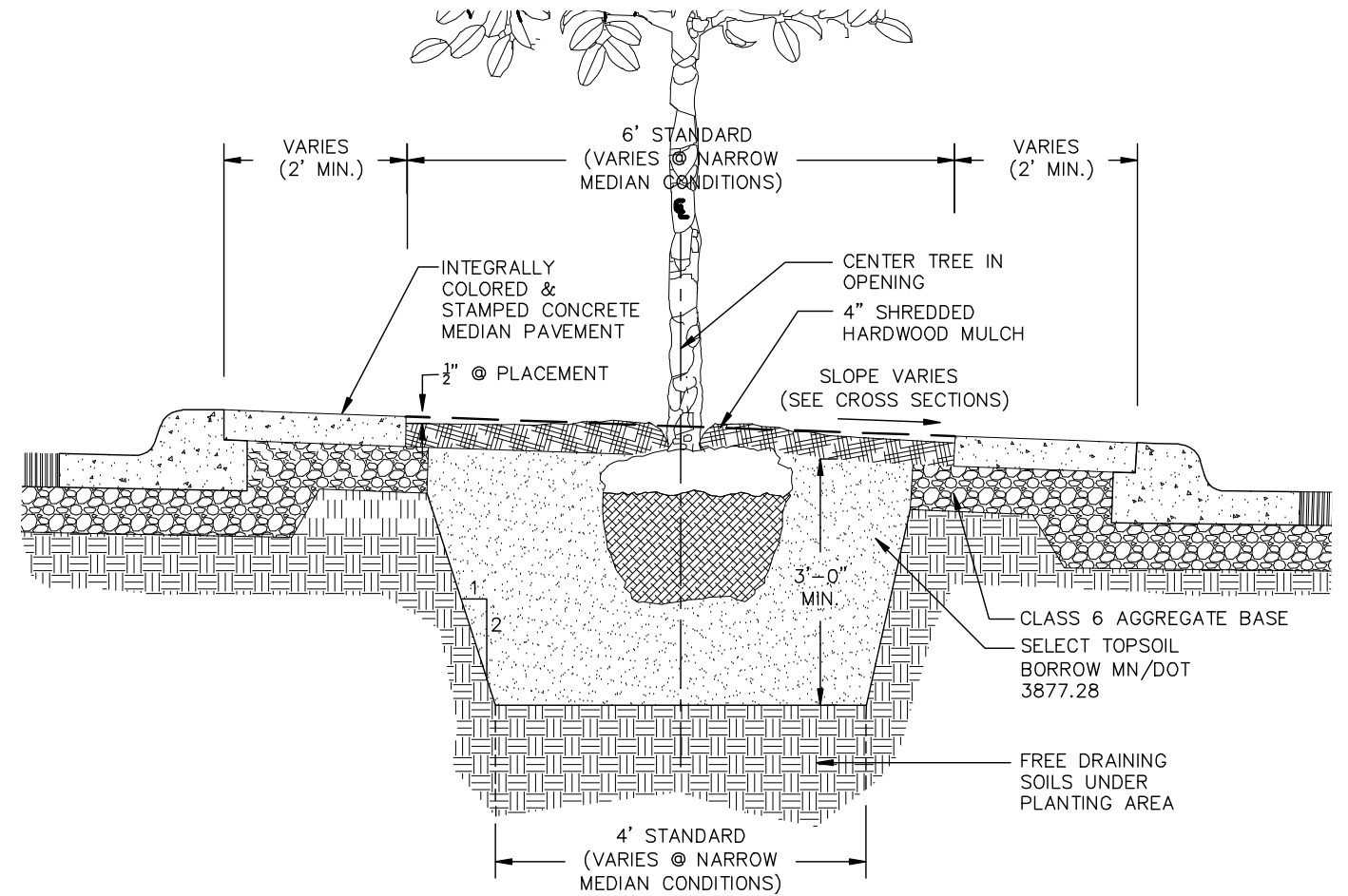
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MEDIAN TREE PLANTING & PAVEMENT PLAN
(NTS)

NOTES:

1. ADJUST WIDTH OF OPENING TO MAINTAIN 2'-0" MIN. PAVEMENT WIDTH @ NARROW MEDIAN CONDITIONS
2. OPENINGS SHOULD NOT EXCEED 6'-0" IN WIDTH
3. ALL OPENINGS ARE 12'-0" IN LENGTH
4. MEDIAN PAVEMENT PATTERN: 4"x8" BRICK, RUNNING BOND
5. MEDIAN PAVEMENT COLOR: PRISM PIGMENT P5084 SPEC. BROWN OR EQUAL



MEDIAN TREE PLANTING PIT SECTION
(NTS)

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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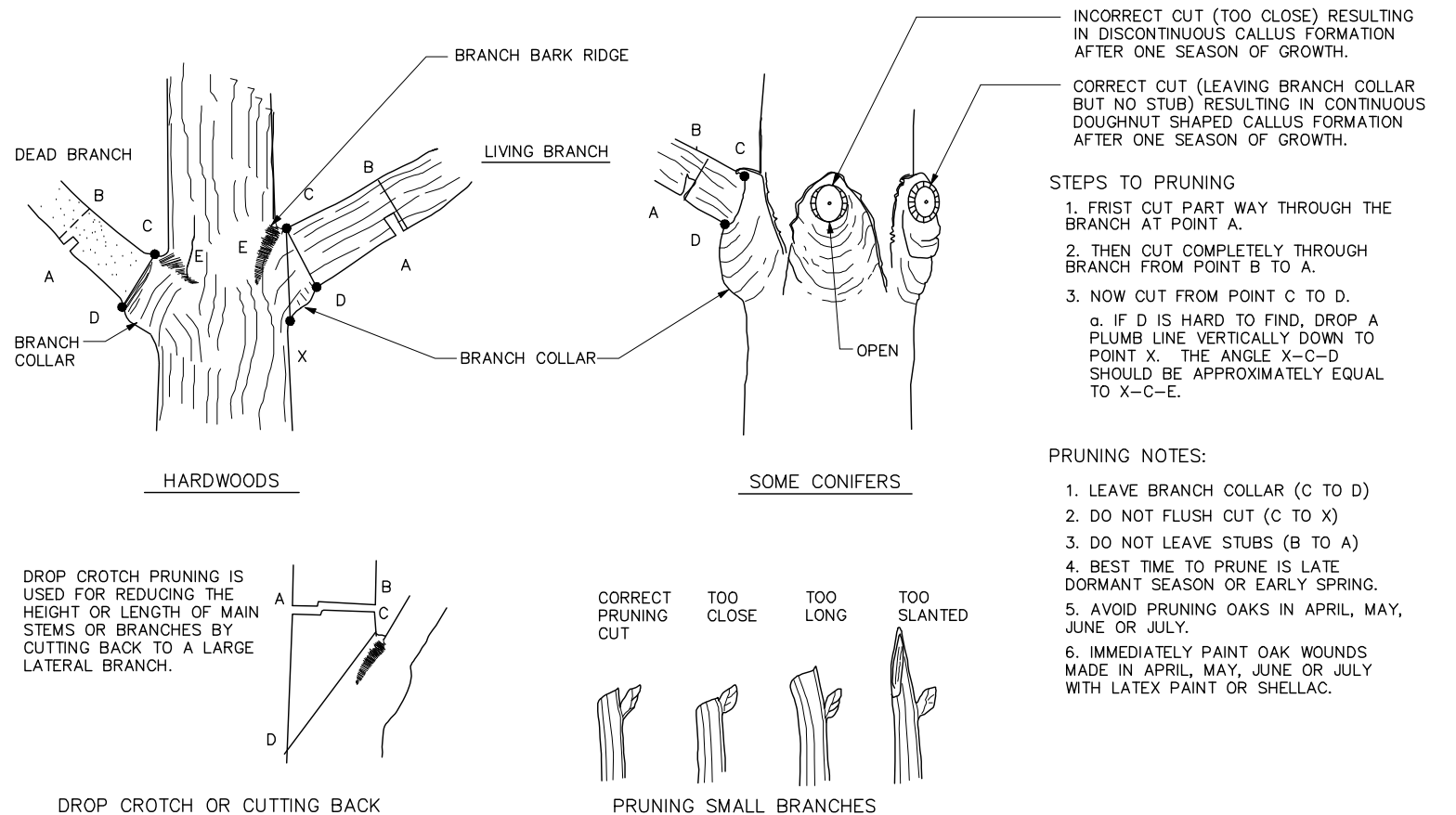
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RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LANDSCAPE PLAN & DETAILS	
FILE NO.	225
160599001	
LP3	
OF LP5	534

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GENERAL NOTES	
SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS	
PLANTING HOLE AND BED CULTIVATION	LOOSEN ALL ISOLATED TREE PLANTING LOCATIONS AND PLANTING BEDS TO A MINIMUM DEPTH OF 12". SOIL AMENDMENTS (COMPOST & FERTILIZER) SHALL BE APPLIED DURING CULTIVATION.
BACKFILL SOIL	USE CULTIVATED AND AMENDED SOIL EXCAVATED FROM PLANTING HOLES. REMOVE ALL DEBRIS INCLUDING ROCKS LARGER THAN 3" DIAMETER.
FERTILIZER	____NONE _X_MN/DOT 3881 - SEE SPECIFICATIONS
COMPOST	____NONE _X_Mn/DOT 3890 - SEE SPECIFICATIONS
MULCH MATERIAL	Mn/DOT 3882 TYPE 6 MODIFIED - SEE SPECIFICATIONS
MASS PLANTING	MASS PREPARE PLANT SPACING OF 4' OR LESS. PLANT IN STAGGERED ROWS ON THE PERIMETER FIRST, THEN UNIFORMLY FILL IN WITH REMAINING QUANTITY. USE TRIANGULAR SPACING, UNLESS SPECIFIED OTHERWISE. PROVIDE 5' RADIUS CLEAR OF SHRUBS AROUND EACH DECIDUOUS TREE AND 8' RADIUS AROUND EACH EVERGREEN TREE. THIS RADIUS (CLEARANCE) SHALL BE MEASURED FROM THE CENTER OF THE TREE TO THE CENTER OF THE SHRUB. NOTIFY ENGINEER OF GROSS PLANT QUANTITY SURPLUS OR DEFICIENCY IMMEDIATELY. MASS MULCH PLANT SPACINGS OF 4' OR LESS.
TREE WRAPPING	WRAP ALL MAPLES AND LOCUSTS WITH COMMERCIAL GRADE ASPHALTIC TAPE PER SPECIAL PROVISIONS. WRAP TREE CIRCUMFERENCE FROM GROUND LINE TO FIRST MAJOR BRANCH
PLANTING PLAN	RESPECT STATED DIMENSIONS BEFORE SCALING FROM PLAN.
WATERING GUIDELINES	PLANT TYPE
	AVERAGE AMOUNT OF WATER PER APPLICATION IN GALLONS
	BALLED & BURLAPPED TREES
BARE ROOT OR CONTAINER SHRUBS	7
IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR AND MAINTAIN SOIL MOISTURE AT ADEQUATE BUT NOT EXCESSIVE LEVELS. THE ABOVE LISTED APPLICATION AMOUNTS ARE GUIDELINES, NOT REQUIREMENTS.	



INCORRECT CUT (TOO CLOSE) RESULTING IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

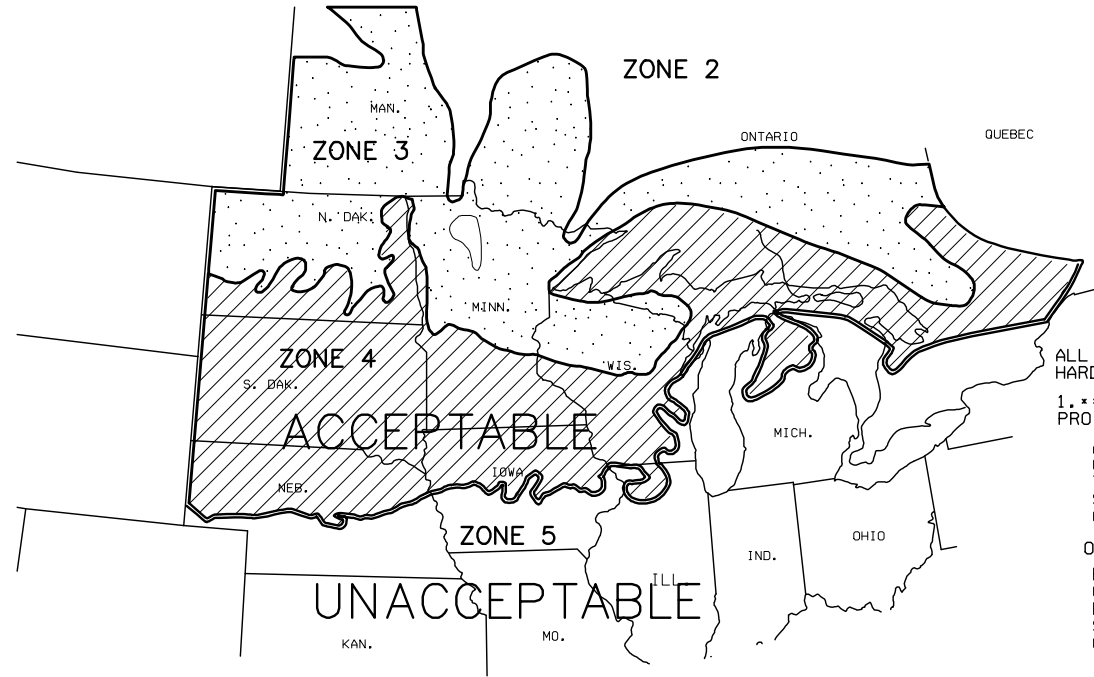
CORRECT CUT (LEAVING BRANCH COLLAR BUT NO STUB) RESULTING IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

- STEPS TO PRUNING
- FRIST CUT PART WAY THROUGH THE BRANCH AT POINT A.
 - THEN CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
 - NOW CUT FROM POINT C TO D.
 - IF D IS HARD TO FIND, DROP A PLUMB LINE VERTICALLY DOWN TO POINT X. THE ANGLE X-C-D SHOULD BE APPROXIMATELY EQUAL TO X-C-E.

- PRUNING NOTES:
- LEAVE BRANCH COLLAR (C TO D)
 - DO NOT FLUSH CUT (C TO X)
 - DO NOT LEAVE STUBS (B TO A)
 - BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
 - AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
 - IMMEDIATELY PAINT OAK WOUNDS MADE IN APRIL, MAY, JUNE OR JULY WITH LATEX PAINT OR SHELLAC.

BRANCHES SMALLER THEN 2" IN DIAMETER SHOULD BE CUT JUST BEYOND A LATERAL BUD OR ANOTHER SMALL LATERAL BRANCH. THE IDEAL CUT SHOULD BE SHARP, CLEAN, AND MADE ON A SLIGHT ANGLE.

PRUNING DETAILS (Shigo Method)



Key	ZONE MAP
Zone 1	BELOW -50 F
Zone 2	-50 TO -40
Zone 3	-40 TO -30
Zone 4	-30 TO -20

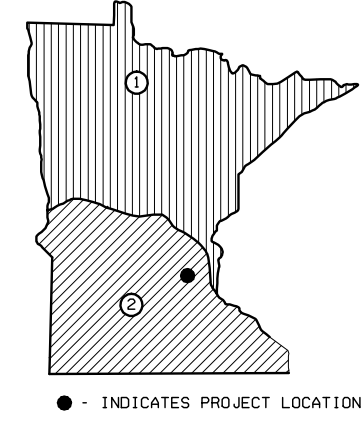
ALL PLANT STOCK SHALL BE DEEMED ACCEPTABLE FOR HARDINESS:

1. **IF IT IS HARDY TO THE MINNESOTA ZONE WHERE THE PROJECT SITE IS LOCATED AND:

A. PLANT STOCK CAN BE DOCUMENTED AS CONTINUOUSLY GROWN FOR AT LEAST THE LAST TWO YEARS WITHIN THE ACCEPTABLE LIMITS SHOWN ON THE ACCEPTABLE PLANT STOCK GROWING RANGE LIMITS.

OR

B. PLANT STOCK, IF GROWN OUTSIDE THE ACCEPTABLE GROWING RANGE LIMITS, CAN BE DOCUMENTED AS HAVING THE SEED SOURCE AND ROOT AND GRAFT STOCK ORIGINATING FROM WITHIN THE ACCEPTABLE GROWING RANGE LIMITS.



- NOTES:
- BARE ROOT PERENNIALS MUST BE INSTALLED IN THE SPRING BY JUNE 1ST. IF PLANTING IN FALL, FOLLOW FALL DECIDUOUS PLANTING DATES.
 - ACTUAL DATES MAY CHANGE DEPENDING UPON SEASONAL CONDITIONS, AS DETERMINED BY THE ENGINEER.
 - FALL PLANTING MAY NOT BE RECOMMENDED OR ALLOWED. SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS. THE FOLLOWING BARE ROOT PLANTS ARE NOT RECOMMENDED FOR FALL INSTALLATION: HAWTHORN, RUSSIAN OLIVE, DOGWOOD, POPLAR, HACKBERRY, LINDEN, IRONWOOD, HONEYLOCUST, BIRCH, MOUNTAIN ASH, MAPLE, WILLOW, CRABAPPLE, PLUM/CHERRY, OAKS, AND SUMAC.

KEY	SPRING				FALL	
	PERENNIALS	CONIFEROUS	DECIDUOUS	SEEDLINGS	DECIDUOUS	CONIFEROUS
1	MAY 1 TO JUNE 15	APRIL 21 TO JUNE 1	APRIL 21 TO JUNE 1	APRIL 21 TO JUNE 1	OCT. 1 TO NOV. 1	AUG. 25 TO SEPT. 15
2	MAY 1 TO JUNE 15	APRIL 7 TO MAY 17	APRIL 7 TO JUNE 1	APRIL 7 TO MAY 17	OCT. 10 TO NOV. 15	AUG. 25 TO SEPT. 15

OPTIMUM PLANTING DATE ZONES IN MINNESOTA

ACCEPTABLE PLANT STOCK GROWING RANGE LIMITS
SOURCE: U.S.D.A. PLANT HARDINESS ZONE MAP

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

I hereby certify that this work was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota. No. 20349

Certified By: *Thomas R. Harington*

Licensed Landscape Architect
Printed Name: THOMAS R. HARINGTON, RLA Date: 3/3/2010

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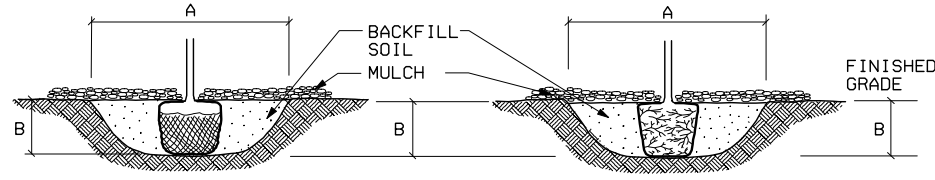
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LANDSCAPE PLAN & DETAILS

FILE NO. 226
160599001
LP4
OF LP5 534

GENERAL NOTES:

ALL PLANT STOCK MUST BE ACCEPTABLE WITHIN ACCORDANCE OF Mn/DOT 3861 PRIOR TO FOLLOWING THE STANDARD PLANTING DETAILS. BACKFILL SOIL IS A COMBINATION OF EXISTING SOIL AND COMPOST MIX.



BALLED & BURLAPPED STOCK

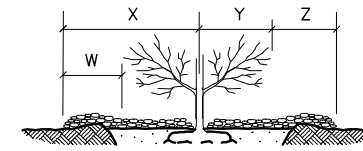
1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY THE ENGINEER.
3. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED BACKFILL SOIL. INSTALL PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
4. PLACE PLANT IN PLANTING HOLE WITH BURLAP AND WIRE BASKET, (IF USED), INTACT. BACKFILL TO WITHIN APPROXIMATELY 12" OF THE TOP OF THE ROOTBALL, THEN WATER PLANT. REMOVE THE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS WHICHEVER IS GREATER. ALSO REMOVE ALL BURLAP AND NAILS FROM THE TOP 1/3 OF THE BALL. REMOVE ALL TWINE.
5. PLUMB AND BACKFILL WITH THE BACKFILL SOIL.
6. WATER TO SETTLE PLANTS AND FILL VOIDS.
7. WATER THOROUGHLY WITHIN 2 HOURS.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.
9. STAKE AND GUY TO PROVIDE ADDITIONAL SUPPORT BETWEEN THE STEM AND ROOT BALL AS NECESSARY.

CONTAINER STOCK

1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING AS DIRECTED BY THE ENGINEER.
3. REMOVE CONTAINER AND SCORE OUTSIDE OF SOIL MASS TO REDIRECT AND PREVENT CIRCLING FIBROUS ROOTS, AS NECESSARY.
4. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED BACKFILL SOIL. INSTALL PLANT SO THE TOP OF THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
5. WATER TO SETTLE PLANTS AND FILL VOIDS.
6. WATER THOROUGHLY WITHIN 2 HOURS.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

**PLANTING HOLE DIMENSIONS
(MINIMUM WIDTH DOES NOT APPLY IN MASS PLANTING BEDS)
ALL VALUES ARE AS FOLLOWS:**

PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH (1)
DECIDUOUS & ORNAMENTAL TREES	(6") SEEDLING	(15")	(14")
	(12") SEEDLING	(23")	(16")
	(18") SEEDLING	(30")	(16")
	(2") SEEDLING	(36")	(18")
	(2.5") SEEDLING	(40")	(18")
	(3") B.R.	(46")	(13")
	(4") B.R.	(46")	(14")
	(7") B.R.	(48")	(14")
	(5") B.R.	(54")	(15")
	(6") B.R.	(60")	(16")
	(8") B.R.	(66")	(19")
	(0.75") B.R.	(48")	(12")
	(1") B.R.	(54")	(14")
	(1.25") B.R.	(60")	(14")
	(1.5") B.R.	(66")	(15")
	(1.75") B.R.	(72")	(16")
	(2") B.R.	(84")	(19")
	(2") B.B.	(72")	(16")
	(2.5") B.B.	(84")	(19")
	(3") B.B.	(96")	(20")
(3.5") B.B.	(114")	(23")	
(4") B.B.	(126")	(25")	
CONTAINER GROWN PLANTS	CELLPACKS	(6")	(2.5")
	(2.25") CONT.	(7")	(3")
	(3.5") CONT.	(10")	(3")
	(4") CONT.	(11")	(4")
	(4.5") CONT.	(13")	(4")
	(1 QT.) CONT.	(15")	(5.5")
	(#1) CONT.	(18")	(6")
	(#2) CONT.	(23")	(7.5")
	(#3) CONT.	(29")	(8.5")
	(#5) CONT.	(30")	(11")
	(#7) CONT.	(37")	(11")
	(#15) CONT.	(44")	(14")
	(#10) CONT.	(45")	(15")
	(#20) CONT.	(60")	(17")
	(#25) CONT.	(72")	(16")



SUBSIDING OR DETERIORATING MULCH SHALL BE ACCEPTABLE THROUGHOUT THE CONTRACT PROVIDED THE MULCH DEPTH IS MAINTAINED AT A MINIMUM 3" DEPTH AT ALL TIMES AND UPON FINAL ACCEPTANCE. REPLACEMENT MULCH SHALL BE REQUIRED TO PROVIDE THE MINIMUM DEPTH SPECIFIED WHEN SUBSIDENCE OR LOSS IS EXCESSIVE OR WHEN THE CONTRACTOR'S OPERATIONS HAVE CONTAMINATED THE MULCH WITH SOIL.

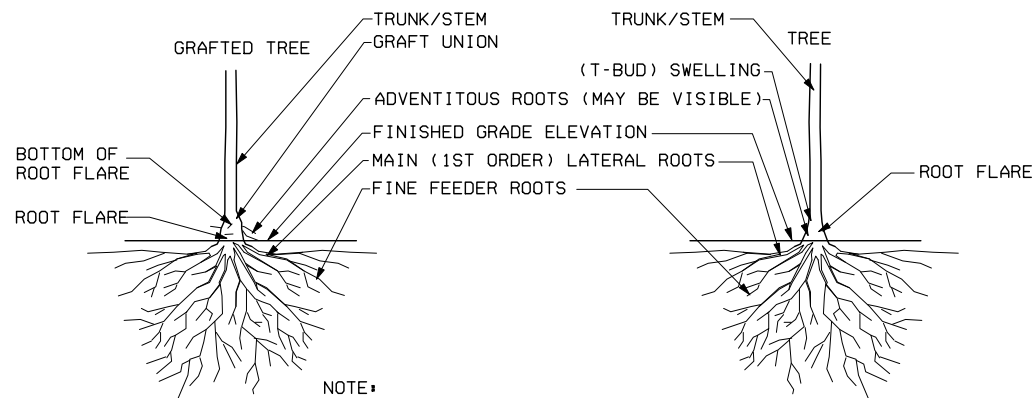
NOTE:

1. REMOVE MULCH PLACED TO A DEPTH GREATER THAN THAT SPECIFIED WHEN DIRECTED BY THE ENGINEER.
2. PULL MULCH BACK NO LESS THAN 3" AND NO MORE THAN 6" FROM THE TRUNK

TYPE OF PLANT	W CENTER OF PLANT TO MULCH LINE	X EDGE OF BRANCHING TO MULCH LINE	Y DEPTH OF MULCH	Z DEPTH OF MULCH
CONIFEROUS TREES	VARIES	3' MIN.	4" - 6"	4" - 6"
DECIDUOUS TREES	3' MIN.	N/A	4" - 6"	4" - 6"
CONIFEROUS SHRUBS	VARIES	3' MIN.	3" - 4"	4" - 6"
DECIDUOUS SHRUBS	3' MIN.	N/A	4" - 6"	4" - 6"
VINES	2' MIN.	N/A	4" - 6"	4" - 6"
PERENNIALS	VARIES	2' MIN.	2" - 4"	2" - 4"
MACHINE-TRANSPLANTED TREES	12" BEYOND EDGE OF HOLE		4" - 6"	4" - 6"

MULCH PLACEMENT DETAIL

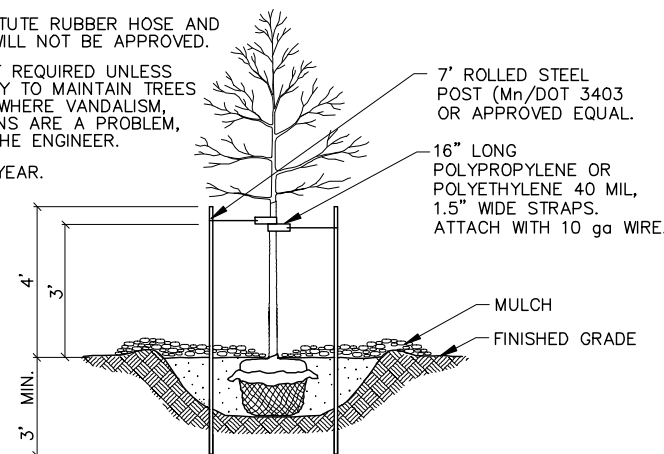
PLANTING DETAILS FOR ISOLATED PLANTING LOCATIONS



PLANTING DEPTH DETAIL

NOTES:

1. STEEL POSTS TO BE NOTCHED OR DRILLED TO RETAIN GUY WIRES. PLACE OUTSIDE OF ROOT BALL. DRIVE PLUMB REGARDLESS OF GROUND SLOPE.
2. REQUESTS TO SUBSTITUTE RUBBER HOSE AND WIRE GUYING SYSTEMS WILL NOT BE APPROVED.
3. TREE STAKING IS NOT REQUIRED UNLESS SPECIFIED OR NECESSARY TO MAINTAIN TREES IN A PLUMB CONDITION WHERE VANDALISM, SOIL, OR WIND CONDITIONS ARE A PROBLEM, OR AS REQUESTED BY THE ENGINEER.
4. REMOVE AFTER ONE YEAR.



STAKING / GUYING DETAIL

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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LANDSCAPE PLAN & DETAILS		FILE NO.
		227
		160599001
		LP5
		OF LP5
		534

PERMANENT PAVEMENT MARKING PLAN

NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR 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 TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 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.

FOR 15 MIL APPLICATIONS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

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

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



POLY PREFORM INLAY APPLICATION:

MAT TEMPERATURE SHALL BE CHECKED USING A THERMOMETER TO MAKE SURE THE INLAY IS BEING DONE IN THE PROPER TEMPERATURE RANGE. THE TEMPERATURE SHOULD MEASURE BETWEEN 150° F (ASPHALT FIRM ENOUGH TO WALK ON) AND 120° F. APPLICATION BELOW 120° F MAY NOT GET A PROPER INLAY. INLAYS ARE NOT RECOMMENDED AFTER SEPTEMBER 15th AS THE ASPHALT COOLS TOO FAST AT THIS TIME OF THE YEAR.





NO PRIMERS ARE USED FOR INLAY APPLICATION. DO NOT INSTALL LANE LINES ON AN ASPHALT SEAM. ROLLING OF ALL THE MARKINGS SHOULD BE LENGTHWISE IN THE DIRECTION THEY WERE LAID. FOR CROSSWALKS AND STOP BARS, INITIAL TAMPING WITH THE TAMPING CART IS RECOMMENDED USING ONLY 100 LBS. OF WEIGHT.

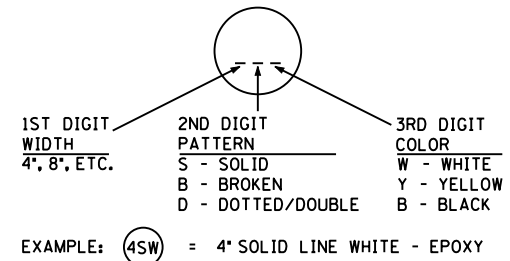
USE COMPACTION ROLLER TO EMBED (INLAY) MARKINGS INTO PAVEMENT SURFACE. USE MINIMUM SPEED AND WATER ON ROLLER. DO NOT USE VIBRATOR. IF MARKING BUCKLES OR DISTORTS SEVERELY IN FRONT OF ROLLER, MAT TEMPERATURE OR ROLLER SPEED MAY BE TOO HIGH.

SYMBOLS & MATERIALS LEGEND

-  CROSSWALK BLOCK WHITE-POLY PREFORM
-  PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

STRIPING KEY

-  CIRCLE - EPOXY
-  SQUARE - POLY PREFORM
-  TRIANGLE - PAINT
-  PENTAGON - REMOVEABLE PREFORMED PLASTIC MARKING



PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
PAVEMENT MESSAGE (LEFT ARROW) - POLY PREFORM	EACH	17
PAVEMENT MESSAGE (RIGHT ARROW) - POLY PREFORM	EACH	11
PAVEMENT MESSAGE (LEFT ARROW) - EPOXY	EACH	19
PAVEMENT MESSAGE (RIGHT ARROW) - EPOXY	EACH	20
PAVEMENT MESSAGE (LEFT-THRU ARROW) - EPOXY	EACH	4
4" SOLID LINE WHITE - POLY PREFORM	LIN FT	1,020
8" SOLID LINE WHITE - POLY PREFORM	LIN FT	2,250
4" BROKEN LINE WHITE - POLY PREFORM	LIN FT	300
4" SOLID LINE WHITE - EPOXY	LIN FT	28,250
12" SOLID LINE WHITE - EPOXY	LIN FT	600
4" BROKEN LINE WHITE - EPOXY	LIN FT	1,400
4" SOLID LINE YELLOW - EPOXY	LIN FT	5,550
24" SOLID LINE YELLOW - EPOXY	LIN FT	550
4" BROKEN LINE YELLOW - EPOXY	LIN FT	100
4" DOUBLE SOLID LINE YELLOW - EPOXY	LIN FT	5,300
CROSSWALK MARKING - POLY PREFORM	SQ FT	522
CROSSWALK MARKING - EPOXY	SQ FT	2,325

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5/6/2010
kerickson
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DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>MPM</u>				
CHECKED BY: <u>BJJ</u>				

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.
 Certified By: Michael P. McCurdy Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**PAVEMENT MARKING
 TABULATION**

FILE NO. RAMSP108790	228
SS1 OF 553	534

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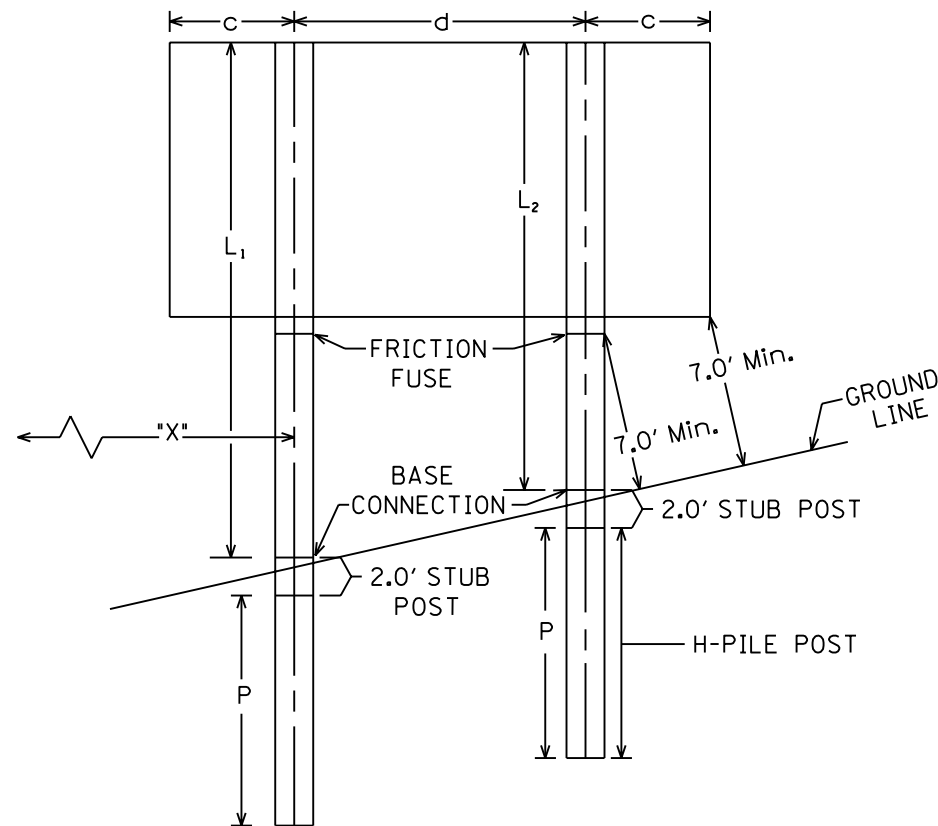
5/6/2010

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REMOVE SIGN TYPE A								
SIGN NO.	QUANT.	LOCATION	PANEL SIZE (IN.)		POSTS			
			EXTRUDED TYPE	FLAT SHEET	SIZE		L1 (FT.)	L2 (FT.)
					BREAKAWAY	NON-BREAKAWAY		
A-100	1	284+90 WB TH 36	120 x 126		W6 X 20		23.0	19.5
TOTAL	1							

SIGN TYPE A (H PILE FOOTINGS)																
SIGN NO.	LOCATION	PANEL		POST						PILE		TOTAL WEIGHT STRUCTURAL STEEL (LBS.)	"X" (FT.)	"H" (FT.)		
		SIZE (IN.)	AREA (SQ. FT.)	SIZE	QUANT.	L1 (FT.)	L2 (FT.)	ADDITIONAL STEEL PER POST (LBS.)	WEIGHT (LBS.)	c (IN.)	d (IN.)				P (FT.)	WEIGHT (LBS.)
A-1	270+88 EB TH 36	210 x 96	140.00	W6 X 20	2	16.0	17.0	104	868	43	124	12	480	1348	22.0	7.0
TOTAL			140.00											1348		



POST QUANTITIES			
POST SIZE	QUANTITY (1)	POST SIZE	QUANTITY (1)
W4X13	59+13 LBS/FT	W8X28	143+28 LBS/FT
W5X16	67+16 LBS/FT	W8X31	173+31 LBS/FT
W6X20	104+20 LBS/FT	W10X39	195+39 LBS/FT
W8X24	118+24 LBS/FT		

GENERAL NOTES:

1. PILE SHALL BE THE SAME SIZE AS THE SIGN POST AND IS TO BE DRIVEN TO A 12 TO 14 TON BEARING CAPACITY.
2. SEE SHEETS 266 AND 267 FOR STRUCTURAL DETAILS, TYPE A SIGNS (BREAKAWAY).
3. POST LENGTHS ARE APPROXIMATE.
4. "X" IS THE DISTANCE FROM THE EDGE OF THE THRU LANE TO THE FIRST POST.
5. "H" IS THE HEIGHT ABOVE THE PAVEMENT EDGE TO THE BOTTOM EDGE OF PANEL.
6. P IS THE LENGTH OF H-PILE POST.
7. SEE SHEET 278 FOR CROSS SECTION.
8. SEE SHEET 252 FOR SIGN PANEL.

SPECIFIC NOTES:

- (1) CONSTANT INCLUDES STUB POST WEIGHT.

BREAKAWAY POSTS-H-PILE FOOTING

(L₁ IS POST NEAREST ROADWAY)

TYPE A SIGNS

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

A SIGN DATA SHEET

FILE NO. **229**
 RAMSP108790
 SS2
 OF 553 **534**

SIGN PANELS TYPE C										
SIGN NO.	TOTAL QUANT.	POSTS			MTG. HT. (FT) (1)	PANELS			CODE NO.	PANEL LEGEND
		NO. & TYPE	KNEE BRACES QUANT.	LENGTH (FT)		SIZE (IN.)	AREA (SQ FT)	TOTAL AREA (SQ FT)		
C-1	12	1-U	-	15.0	7	30 x 30	6.25	75.00	R1-1	STOP
C-2	9	2-U	-	15.0	7	36 x 30	3.90	35.10	R4-4	BEGIN RIGHT TURN LANE YIELD TO BIKES
C-3	14	1-U	-	15.0	7	30 x 30	6.25	87.50	R3-7	RIGHT LANE MUST TURN RIGHT
(2) C-4	20	1-U	-	15.0	7	24 x 30	5.00	100.00	R4-7	KEEP RIGHT (SYMBOL)
(2) C-5	7	1-U	-	15.0	7	30 x 30	6.25	43.75	R3-7	LEFT LANE MUST TURN LEFT
C-6	5	1-U	-	15.0	7	24 x 30	5.00	25.00	R2-1	SPEED LIMIT 40
C-7	2	1-U	-	15.5	7	24 x 36	6.00	12.00	R3-9b	TWO-WAY LEFT TURN ONLY
C-8	2	2-U	1	17.5	7	36 x 36	9.00	18.00	W9-2L	LANE ENDS MERGE LEFT
						24 x 24	3.90	7.80	M1-6	RAMSEY COUNTY 49
(3) C-9	1	-	-	-	7	36 x 30	7.50	7.50	R4-4	BEGIN RIGHT TURN LANE YIELD TO BIKES
(2) C-10	3	1-U	-	15.0	7	36 x 30	7.50	22.50	R3-30AB	LANE DESIGNATION (LEFT, LEFT)
(6)(17) C-11	1	1-0	-	-	-	30 x 30	6.25	6.25	R3-7	RIGHT LANE MUST TURN RIGHT
(14) C-12	1	-	-	15.0	7	30 x 30	6.25	6.25	R3-7	RIGHT LANE MUST TURN RIGHT
(17) C-13	2	2-U	1	16.5	7	48 x 48	16.00	32.00	W9-2L	LANE ENDS MERGE LEFT
C-14	8	1-U	-	14.0	7	18 x 18	2.25	18.00		BUS STOP
(5)(17) C-15	2	1-ST	-	15.0	7	24 x 30	5.00	10.00	R4-7	KEEP RIGHT (SYMBOL)
C-16	1	2-U	-	17.0	7	66 x 30	13.75	13.75	R3-30ACCA	LANE DESIGNATION (LEFT, THRU, THRU, RIGHT)
						24 x 24	3.90	3.90	M1-6	RAMSEY COUNTY 49
C-17	2	2-U	-	17.0	7	36 x 30	7.50	15.00	R4-4	BEGIN RIGHT TURN LANE YIELD TO BIKES
						24 x 24	3.90	7.80	M1-6	RAMSEY COUNTY 49
C-18	2	1-U	-	13.5	7	36 x 12	3.90	7.80	R6-1	ONE WAY RIGHT
C-19	4	2-U	1	12.5	7	36 P	6.75	27.00	S1-1	SCHOOL CROSSING (SYMBOL)
C-20	1	2-U	1	15.0	7	48 x 30	10.00	10.00	R3-30ACD	LANE DESIGNATION (LEFT, THRU, THRU/RIGHT)
C-21	3	2-U	1	15.0	7	54 x 30	11.25	33.75	R3-30AELA	LANE DESIGNATION (LEFT, LEFT/THRU, RIGHT)
C-22	3	1-U	-	15.0	7	24 x 30	5.00	15.00	R2-1	SPEED LIMIT 35
C-23	2	2-U	1	15.5	7	36 x 36	9.00	18.00	W6-1	DIVIDED HIGHWAY (SYMBOL)
C-24	2	2-U	1	15.5	7	36 x 36	9.00	18.00	W6-3	TWO WAY TRAFFIC (SYMBOL)
C-25	2	2-U	1	15.5	7	36 x 36	9.00	18.00	W6-2	DIVIDED HIGHWAY ENDS (SYMBOL)
C-26	1	2-U	-	17.0	7	30 x 30	6.25	6.25	R3-7	RIGHT LANE MUST TURN RIGHT
						24 x 24	3.90	3.90	M1-6	RAMSEY COUNTY 25
C-27	1	1-U	-	14.5	7	24 x 24	4.00	4.00	M1-6	RAMSEY COUNTY 25
C-28	1	2-U	1	15.0	7	54 x 30	11.25	11.25	R3-30ACA	LANE DESIGNATION (LEFT, THRU, RIGHT)
C-29	1	1-U	-	14.5	7	24 x 24	4.00	4.00	W14-1	DEAD END
(17) C-30	2	2-U	1	16.5	7	48 x 48	16.00	32.00	W3-3	SIGNAL AHEAD (SYMBOL)
(17) C-31	1	2-U	1	15.0	7	36 x 30	7.50	7.50	R3-30AA	LANE DESIGNATION (LEFT, RIGHT)
(5)(17) C-32	1	1-ST	-	9.0	5	30 x 30	6.25	6.25	W12-1	DOUBLE ARROW
(17) C-33	3	1-U	-	12.5	4	30 x 36	7.50	22.50	W1-8	CHEVRON (SYMBOL)
(17) C-34	1	1-U	-	14.5	7	18 x 24	3.00	3.00	R5-10d	NON-MOTORIZED TRAFFIC PROHIBITED
(17) C-35	3	2-U	-	15.0	7	42 x 30	8.75	26.25	R5-1a	WRONG WAY
(17) C-36	1	2-U	1	12.5	7	36x36x36	3.90	3.90	R1-2	YIELD
(17) C-37	1	2-U	-	15.0	7	36 x 30	7.50	7.50	R3-30AB	LANE DESIGNATION (LEFT, LEFT)
(17) C-38	1	2-U	1	19.0	7	48 x 48	16.00	16.00	R1-2L	CURVE WARNING LEFT
						30 x 30	3.90	3.90	W13-1	ADVISORY SPEED PLAQUE 35 MPH
C-39	1	2-U	1	15.0	7	36 x 30	7.50	7.50	R3-30AD	LANE DESIGNATION (LEFT, THRU/RIGHT)
(6)(17) C-40	1	1-0	-	-	-	54 x 30	11.25	11.25	R3-30ABLA	LANE DESIGNATION (LEFT, LEFT, RIGHT)
(5)(17) C-41	3	1-ST	1	12.0	7	48 x 48	16.00	48.00	R5-1	DO NOT ENTER
(17) C-42	1	2-U	1	16.5	7	48 x 48	16.00	16.00	R5-1	DO NOT ENTER
TOTAL								935.60		

SALVAGE AND INSTALL SIGN TYPE C							
SIGN NO.	TOTAL QUANT.	POSTS			MTG. HT. (FT) (1)	PANEL SIZE (IN.)	PANEL LEGEND
		NO. & TYPE	KNEE BRACES QUANT.	LENGTH (FT)			
C-100	2	1-U	-	15.0	7	24 x 30	LITTLE CANADA WINTER PARKING BAN
C-101	4	1-U	-	15.5	7	36 x 36	STOP
						12 x 6	4-WAY
C-102	1	1-U	-	15.0	7	30 x 30	ROAD SUBJECT TO FLOODING
(17) C-103	1	2-U	1	16.8	7	30 x 15	WEST
						36 x 36	MINNESOTA TRUNK HIGHWAY 36
(17) C-104	2	1-U	-	14.5	7	18 x 24	NON-MOTORIZED TRAFFIC PROHIBITED
(17) C-105	1	2-U	1	16.5	7	36 x 48	SPEED LIMIT 55
(17) C-106	1	2-U	1	15.5	7	60 x 36	ADOPT A HIGHWAY (JOE'S SPORTING GOODS)
(17) C-107	2	2-U	-	15.0	7	30 x 30	EMERGENCY STOPPING ONLY
(17) C-108	2	2-U	1	16.5	7	42 x 48	SHOULDER AUTHORIZED BUSES ONLY
(17) C-109	2	1-U	-	15.0	7	24 x 30	FORM 2 LANES WHEN METERED
(17) C-110	2	2-U	1	15.5	7	30 x 36	WATCH FOR BUSES ON SHOULDER
(17) C-111	2	2-U	1	16.5	7	48 x 48	MERGE (SYMBOL)
TOTAL	22						

SALVAGE SIGN TYPE C (7)	
TYPE C	TOTAL QUANTITY
TOTAL	100

REMOVE SIGN TYPE C	
TYPE C	TOTAL QUANTITY
TOTAL	12

SEE SHEET 232 FOR NOTES

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer

Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

C SIGN DATA SHEET

FILE NO. **230**
 RAMSP108790
 SS3
 OF 553

SIGN PANELS TYPE D (16)											
SIGN NO.	TOTAL QUANT.	POSTS				MTG. HT. (FT) (1)	PANEL			PANEL LEGEND	
		NO. & TYPE	KNEE BRACES QUANT.	LENGTH (FT)	SPACING (IN.)		SIZE (IN.)	AREA (SQ FT)	TOTAL AREA (SQ FT)		
(17)	D-1	2	2-U	2	17	30	7	42 x 54	15.75	31.50	
(17)	D-2	1	2-U	2	21	54	-	96 x 66	44.00	44.00	
	D-3	2	2-U	2	16	36	7	60 x 36	15.00	30.00	
	D-4	2	2-U	2	16	36	7	60 x 36	15.00	30.00	
(15)	D-5	2	-	-	-	-	-	60 x 24	10.00	20.00	
TOTAL										135.50	

SALVAGE & INSTALL SIGN TYPE D										
SIGN NO.	TOTAL QUANT.	POSTS				MTG. HT. (FT) (1)	PANEL SIZE (IN.)	PANEL LEGEND		
		NO. & TYPE	KNEE BRACES QUANT.	LENGTH (FT)	SPACING (IN.)					
	D-100	1	2-U	-	15	30	7	48 x 24		
(17)	D-101	1	2-U	2	16	78	7	138 x 36		
(17)	D-102	1	2-U	2	16	54	7	96 x 36		
	D-103	1	2-U	2	15	42	7	72 x 24		
TOTAL										4

SALVAGE SIGN TYPE D					
SIGN NO.	TOTAL QUANT.	POSTS		PANEL SIZE (IN.)	PANEL LEGEND
		NO. & TYPE	KNEE BRACES QUANT.		
D-201	1	2-U	1	60 x 36	
D-202	1	2-U	1	42 x 54	
D-203	1	2-U	-	48 x 24	
D-204	2	2-U	1	60 x 36	
TOTAL		5			

SEE SHEET 232 FOR NOTES

DESIGN TEAM				
DRAWN BY:	MTT			
DESIGNER:	MPM			
CHECKED BY:	BWJ			
	NO.	BY	DATE	REVISIONS

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
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 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

D SIGN DATA SHEET

FILE NO. RAMSP108790	231
SS4 OF SS53	534

[W] SALVAGE & INSTALL SIGN TYPE SPECIAL			
SIGN NO.	TOTAL QUANTITY	POST NO. & TYPE	PANEL LEGEND
S-100	1	1-0	RICE STREET MINNESOTA AV
S-101	1	1-0	RICE STREET WOODBRIIDGE ST
S-102	1	1-0	RICE STREET GRANDVIEW AV
S-103	1	1-0	MINNESOTA AV VIKING DR
S-104	1	1-0	COUNTY B ALBEMARLE CT
S-105	1	1-0	MINNESOTA AV CAPITOL VIEW AV
TOTAL	6		

[W] REFERENCE POST MARKER (10)			
CODE NO.	TOTAL QUANTITY	SIZE (IN.)	LEGEND
D10-1	1	12 x 24	4

[W] MARKERS		
TYPE	TOTAL QUANTITY	LOCATION
X4-2	1	MEDIAN STA. 25+28 (8)(11)(12)
X4-2	22	MEDIAN, BELOW SIGN C-4 (8)(11)
X4-4R	1	MEDIAN STA. 25+00 (9)(12)
X4-4L	1	MEDIAN STA. 41+41 (9)(12)
X4-4R	2	RAMP BRIDGE RAIL (9)(12)
X4-4L	2	RAMP BRIDGE RAIL (9)(12)

[W] SALVAGE SIGN TYPE SPECIAL (7)			
SIGN NO.	TOTAL QUANTITY	POST NO. & TYPE	PANEL LEGEND
S-200	1	1-0	RICE STREET CAPITOL VIEW AV
TOTAL	1		

[W] DELINEATORS		
TYPE	TOTAL QUANTITY	LOCATION
X4-6 YELLOW	9	RAMP GORE - SEE SHEET 249 (14)
X4-6 WHITE	9	RAMP GORE - SEE SHEET 249 (14)

[W] REMOVE MARKER	
TYPE C	TOTAL QUANTITY
TOTAL	6

GENERAL NOTES:

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE MN/DOT STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGNS.
3. SEE SHEET 259 FOR STRUCTURAL DETAILS.
4. SEE STANDARD SIGNS MANUAL FOR TYPE "D" STRINGER AND PANEL JOINT DETAILS.
5. SEE SHEET 261 FOR DELINEATOR AND MARKER PLACEMENT.
SEE ROADWAY LAYOUTS FOR DELINEATOR AND MARKER LOCATIONS.

[W] REMOVE DELINEATOR	
TYPE C	TOTAL QUANTITY
TOTAL	10

SPECIFIC NOTES:

- (1) MOUNTING HEIGHT IS MINIMUM. SEE SHEET 255 FOR TYPICAL MOUNTING.
- (2) MOUNT IN CONCRETE. SEE SHEET 259.
- (3) MOUNT BELOW SIGN D-2.
- (4) MOUNT BELOW SIGN D-3.
- (5) MOUNT IN CONCRETE. SEE MN/DOT DETAIL ON SHEET 260.
- (6) MOUNT ON BRIDGE RAIL. SEE SHEET 276.
- (7) NOT FOR RE-USE UNDER THIS CONTRACT.
- (8) SEE STANDARD SIGNS MANUAL FOR HAZARD MARKER (X4-2).
- (9) SEE STANDARD SIGNS MANUAL FOR CLEARANCE MARKER (X4-4).
- (10) SEE STANDARD SIGNS MANUAL FOR REFERENCE POST MARKER (D10-1).
- (11) FLUORESCENT YELLOW ON NON-REFLECTORIZED BLACK.
- (12) F&I ON 3 LB/FT POST (MN/DOT 3401).
- (13) MOUNT BELOW SIGN C-114, ON LEFT POST.
- (14) SEE STANDARD SIGNS MANUAL FOR GUIDE DELINEATOR PLATE (X4-6).
- (15) BRIDGE MOUNTED. SEE SHEET 277.
- (16) SEE SHEET 251 FOR TYPE D SIGN PANELS.
- (17) MN/DOT SIGN. SEE SHEETS 256 TO 258 FOR STRUCTURAL DETAILS.

[W] SALVAGE MARKER	
TYPE C	TOTAL QUANTITY
TOTAL	10

DESIGN TEAM			
NO.	BY	DATE	REVISIONS

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 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

MISC. SIGN DATA SHEET

FILE NO.
RAMSP108790
SS5
OF SS53

232
534

SIGN PANELS TYPE OH (1)								
SIGN NO.	LOCATION	PANEL		PANEL		PANEL		TOTAL AREA (SQ. FT.)
		SIZE (IN.)	AREA (SQ. FT.)	SIZE (IN.)	AREA (SQ. FT.)	SIZE (IN.)	AREA (SQ. FT.)	
OH 60-36	283+80 WB 36	126 x 84	73.50	150 x 84	87.50			161.00
(3) OH 61-36	27+47 SB RICE	48 x 66	22.00					22.00
(3) OH 62-36	28+22 SB RICE	48 x 66	22.00					22.00
TOTAL								205.00

SIGN PANEL OVERLAY TYPE OH (2)								
SIGN NO.	LOCATION	PANEL		PANEL		PANEL		TOTAL AREA (SQ. FT.)
		SIZE (IN.)	AREA (SQ. FT.)	SIZE (IN.)	AREA (SQ. FT.)	SIZE (IN.)	AREA (SQ. FT.)	
OH 59-36	252+90 EB 36	132 x 84	77.00	150 x 84	87.50			164.50
TOTAL								164.50

SALVAGE SIGN PANELS TYPE OH					
SIGN NO.	LOCATION	PANEL		TOTAL PANELS	
		SIZE (IN.)	SIZE (IN.)		
OH 20-36	259+80 EB 36	132 x 84	168 x 84	2	
TOTAL				2	

INSTALL SIGN PANELS TYPE OH					
SIGN NO.	LOCATION	PANEL		TOTAL PANELS	
		SIZE (IN.)	SIZE (IN.)		
OH 59-36	283+80 EB 36	132 x 84	150 x 84	2	
TOTAL				2	

REMOVE SIGN TYPE OH				
SIGN NO.	LOCATION	TYPE	SPAN (FT.)	TOTAL
OH 20-36	259+80 EB 36	CANTILEVER	32.0	1
OH 21-36	BR. 5427	BRIDGE MOUNTED	17.0	1
OH 22-36	BR. 5427	BRIDGE MOUNTED	11.0	1
TOTAL				3

OVERHEAD SIGN IDENTIFICATION PLATE		
SIGN NO.	LOCATION	IDENTIFICATION PLATE NO.
(4) OH 59-36	252+90 EB 36	59-36
(4) OH 60-36	283+80 WB 36	60-36
(5) OH 61-36	27+47 SB RICE ST	61-36
(5) OH 62-36	28+22 SB RICE ST	62-36

SAW SIGN PANEL TYPE OH				
SIGN NO.	LOCATION	PANEL SIZE (IN.)		LENGTH OF CUT (FT.)
		EXISTING	MODIFIED	
OH 20-36	259+80 EB 36	168 x 84	150 x 84	7.00
TOTAL				7.00

SPECIFIC NOTES:

- (1) SEE SHEET 252 FOR SIGN PANELS.
- (2) SEE SHEET 253 FOR SIGN PANEL OVERLAYS.
- (3) SHEET ALUMINUM PANEL.
- (4) PAID FOR UNDER STR. STEEL - POSTS FOR OH SIGNS.
- (5) PAID FOR UNDER SIGN SUPPORT CANTILEVER.

DESIGN TEAM				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

OH DATA SHEET

FILE NO.
 RAMSP108790
 SS6
 OF SS53

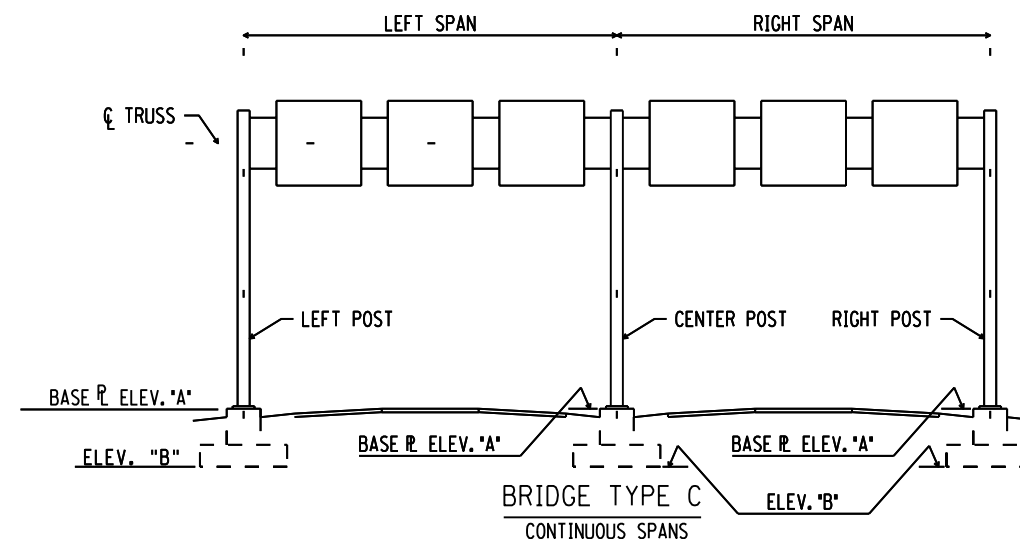
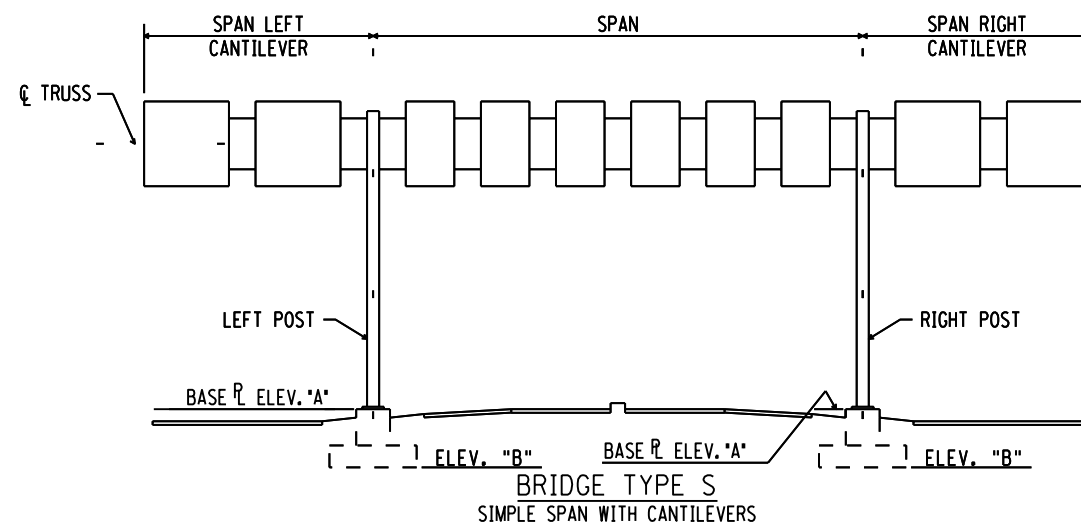
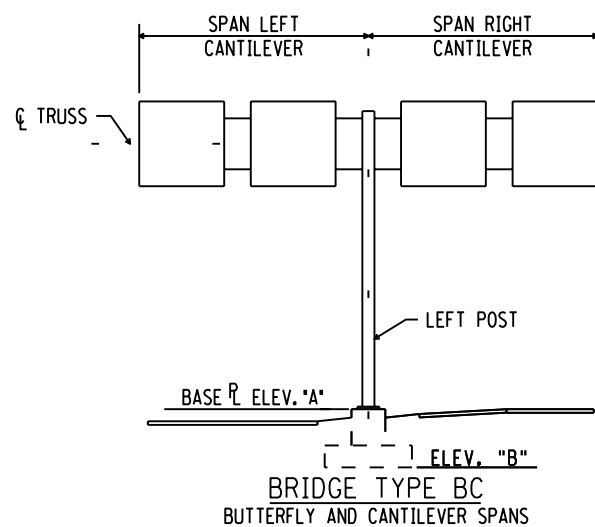
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OVERHEAD SIGN STRUCTURES

SIGN NO.	STATION	BRIDGE TYPE	TRUSS TYPE	SPAN LENGTHS				LOW STEEL ELEVATION SEE ST-1	LEFT POST		CENTER POST		RIGHT POST				
				LEFT CANT.	RIGHT CANT.	SPAN OR LEFT SPAN	RIGHT SPAN		ELEVATION		TYPE	ELEVATION		TYPE	ELEVATION		
									A	B		A	B		A	B	
(1) OH 59-36	252+90 EB 36	BC	A	41'-0"				953.75	934.21	925.78	5E						
(2) OH 60-36	283+80 WB 36	BC	A	40'-6"				941.91	924.69	916.06	5E						

GENERAL NOTES:

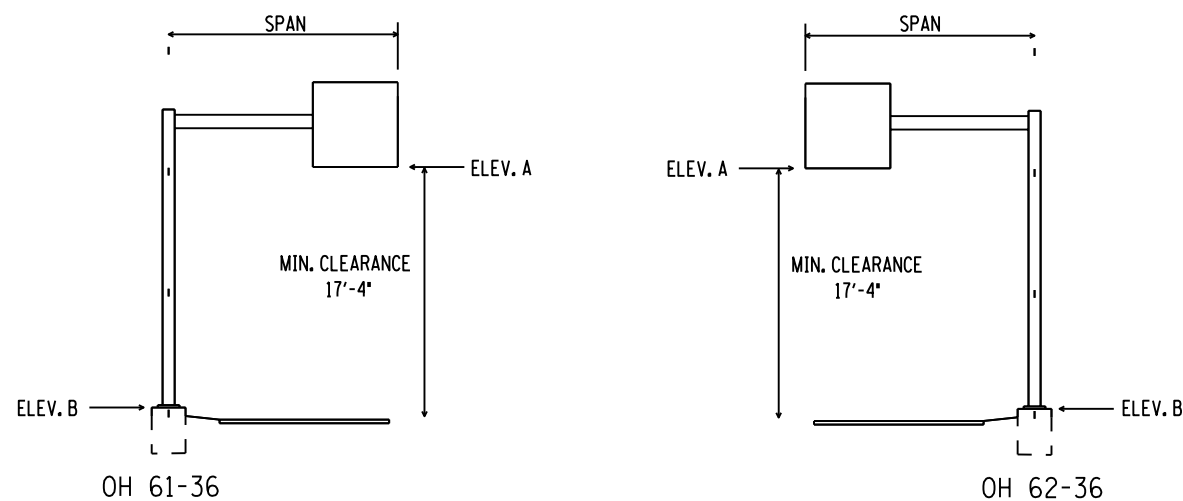
1. THE SUBSCRIPT E ON THE POST TYPE DENOTES THE POST WHICH HAS THE HAND HOLE AND PROVISIONS FOR GROUNDING, I.E. POST TYPE 3E.
2. TABULATED ELEVATIONS AND DIMENSIONS ARE APPROXIMATE ONLY. FABRICATION DEPENDENT ON THESE ELEVATIONS AND DIMENSIONS SHALL NOT BE STARTED UNTIL THE ENGINEER HAS MADE FINAL DETERMINATION OF THEM IN THE FIELD.
3. LEFT AND RIGHT DESIGNATIONS ARE SHOWN LOOKING IN DIRECTION OF TRAFFIC FLOW.
4. SEE SHEET 252 FOR OH SIGN PANEL DESIGN.
5. SEE SHEETS 268 TO 274 FOR DETAILS.
6. SEE SHEET 279 FOR CROSS SECTION.

SPECIFIC NOTE:

- (1) CENTER LINE ELEVATION = 934.74
- (2) CENTER LINE ELEVATION = 923.23

TABULATION OF OVERHEAD SIGN STRUCTURE QUANTITIES

SIGN NO.		OH 59-36	OH 60-36	TOTAL
STRUCT. STEEL POSTS	LBS.	5493	5170	10663
STRUCT. STEEL TRUSSES	LBS.	5043	4982	10025
STRUCT. STEEL PANEL MTG. POSTS	LBS.	370	370	740
CONCRETE FOOTINGS (SPREAD)	CU. YD.	19.4	19.4	38.8



CANTILEVER SIGN SUPPORT

SIGN NO.	LOCATION	SPAN	PANEL ELEV. A	POST ELEV. B	QUANT.
OH 61-36	27+47 SB RICE	15'-6"	968.24	951.86	1
OH 62-36	28+22 SB RICE	23'-0"	970.33	955.66	1
TOTAL					2

GENERAL NOTES:

1. ELEVATIONS A AND B ARE SUBJECT TO FIELD ADJUSTMENT BY THE ENGINEER.
2. SEE SHEET 275 FOR STRUCTURAL DETAILS.
3. MINIMUM CLEARANCE SHALL BE MEASURED FROM THE HIGHEST ELEVATION OF PAVEMENT, SHOULDER OR CURB TO THE BOTTOM EDGE OF THE TALLEST SIGN PANEL.
4. SEE SHEET 280 FOR CROSS SECTION.

SIGN SUPPORT

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MTT				
DESIGNER: MPM				
CHECKED BY: BWJ				

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

OH DATA SHEET

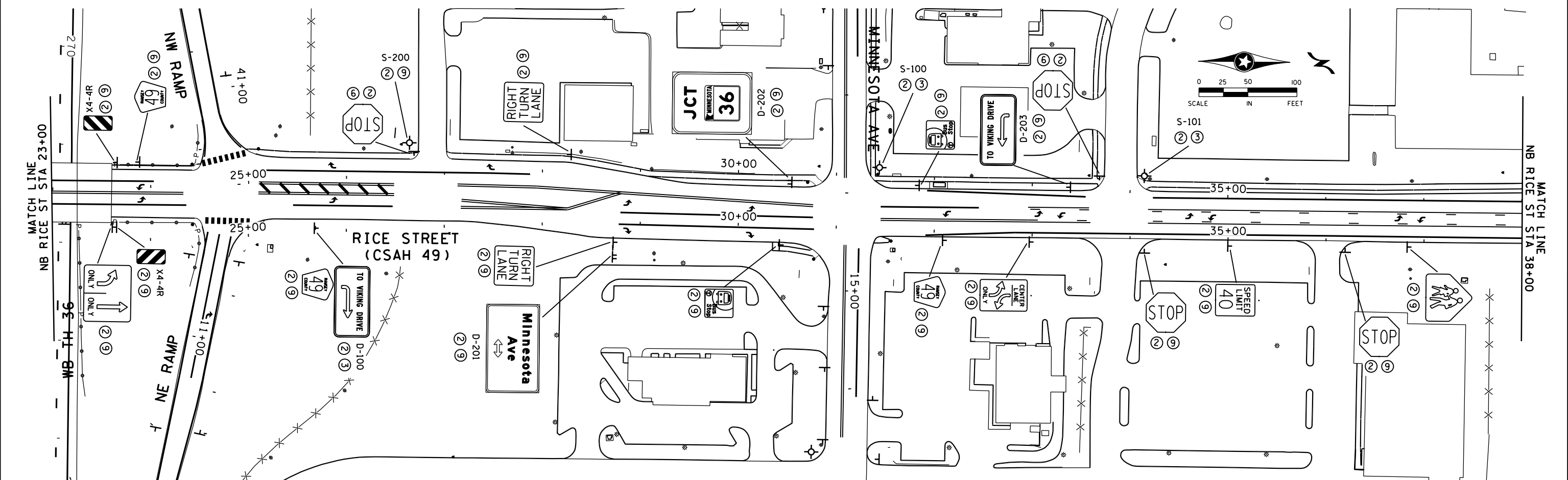
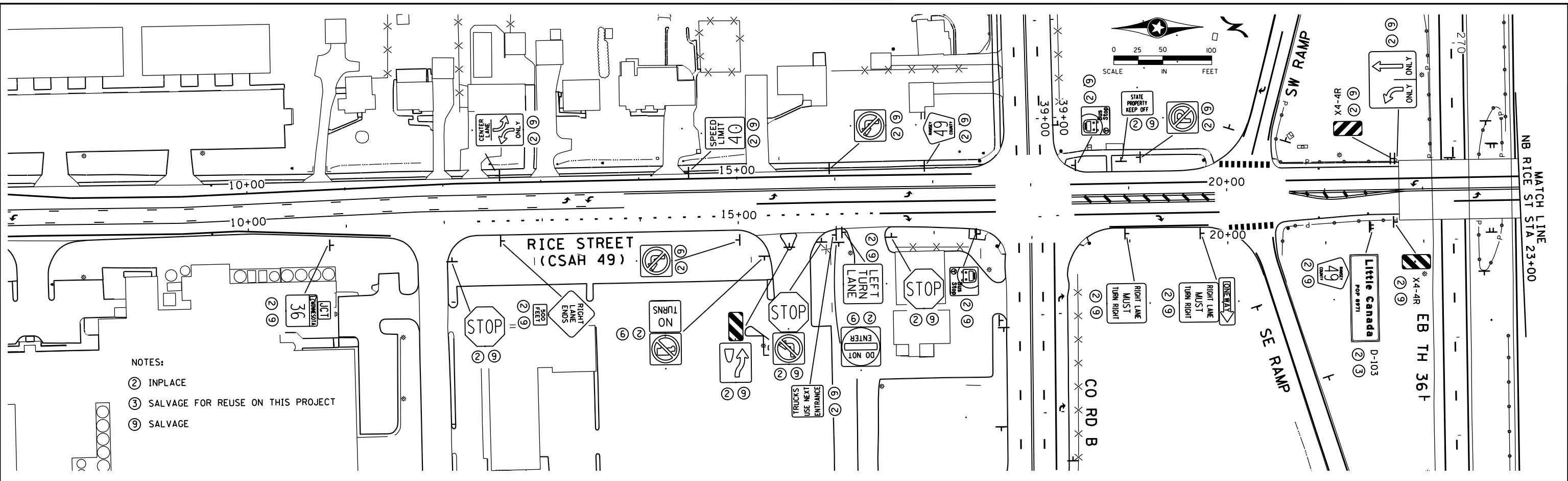
FILE NO. **234**
 RAMSP108790
 SS7
 OF SS53 **534**

3:35:48 PM

5/6/2010

kerlickson

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DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

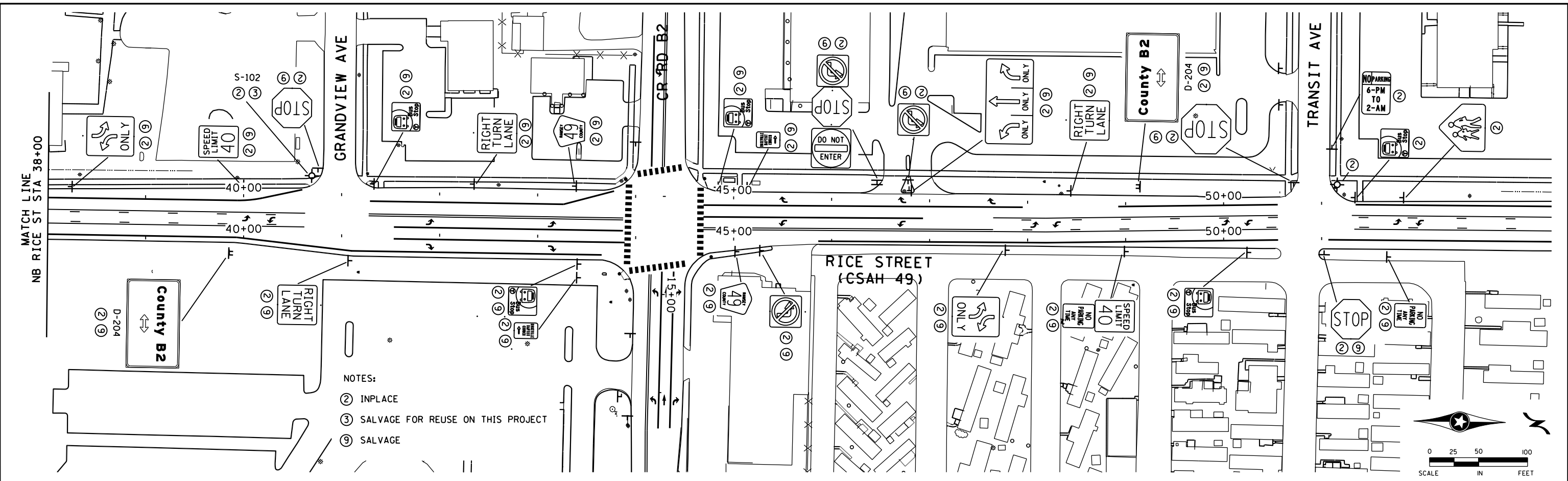
SEH PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

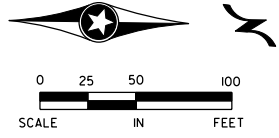
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 RICE ST (CSAH 49) STA 10+00 TO 3+00

FILE NO. RAMSP108790	235
SS8 OF SS53	534



- NOTES:
- ② INPLACE
 - ③ SALVAGE FOR REUSE ON THIS PROJECT
 - ④ SALVAGE



DESIGN TEAM				
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Michael J. Jorgensen* Lic. No. 493087
 Licensed Professional Engineer

Printed Name: **MICHAEL J. JORGENSEN** Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

Kimley-Horn
 and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 RICE ST (CSAH 49) STA 38+00 TO 51+00

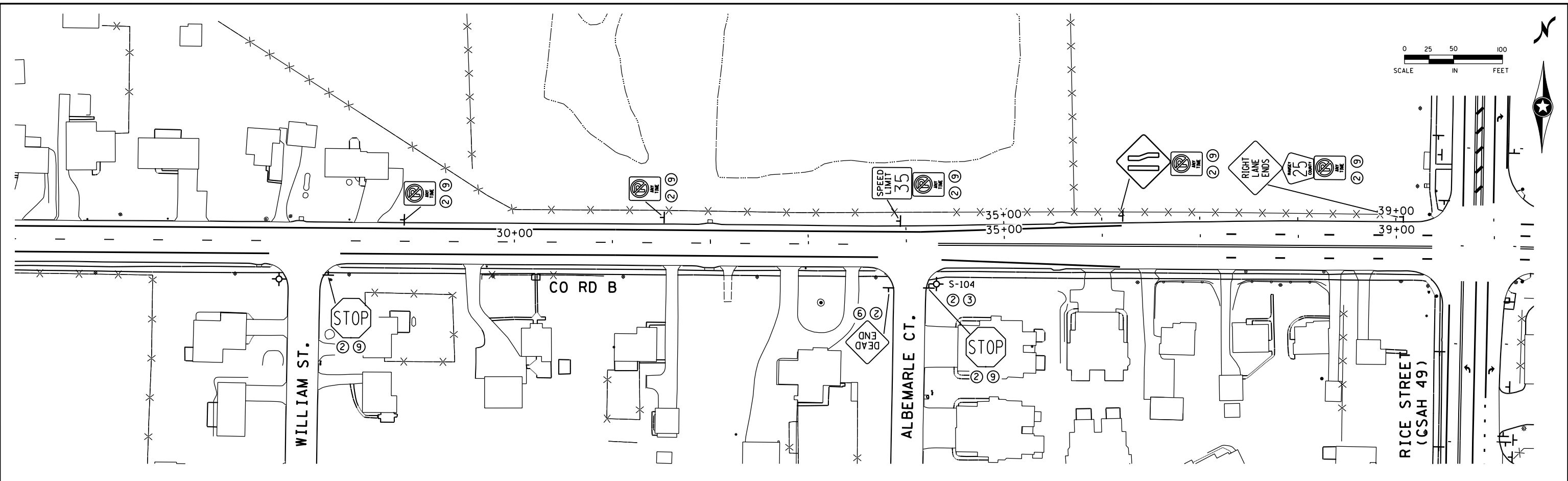
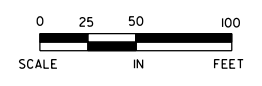
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SS9 OF SS53	534

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5/6/2010

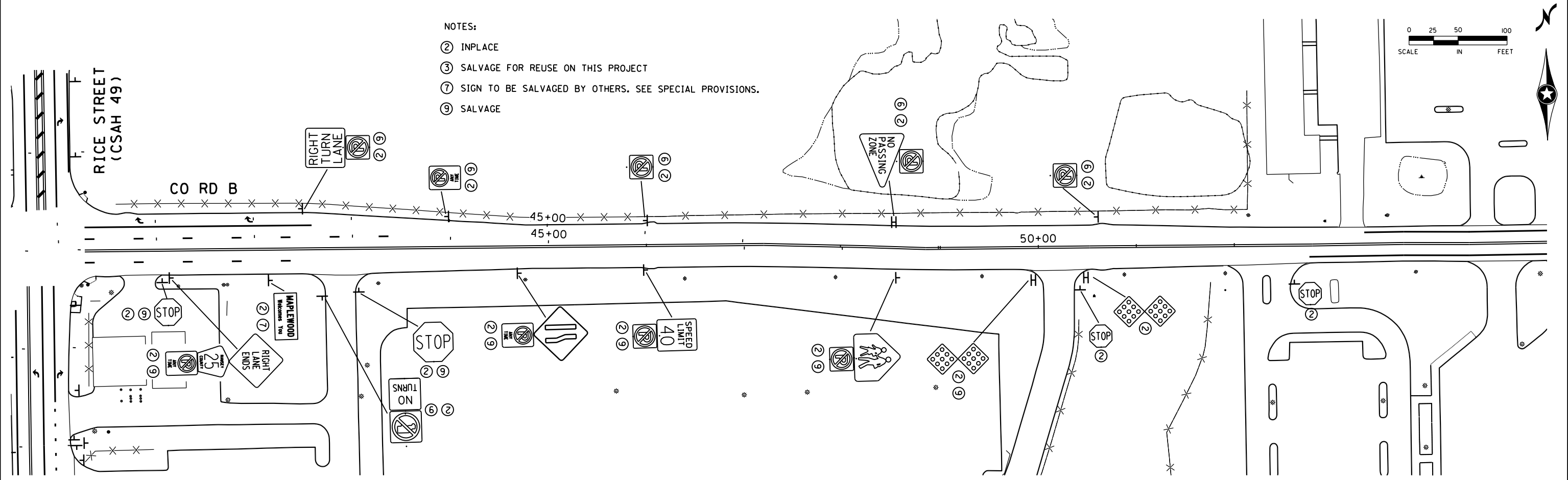
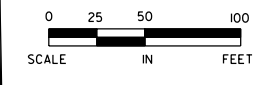
kerickson

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NOTES:

- ② INPLACE
- ③ SALVAGE FOR REUSE ON THIS PROJECT
- ⑦ SIGN TO BE SALVAGED BY OTHERS. SEE SPECIAL PROVISIONS.
- ⑨ SALVAGE



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BJW		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 CO RD B

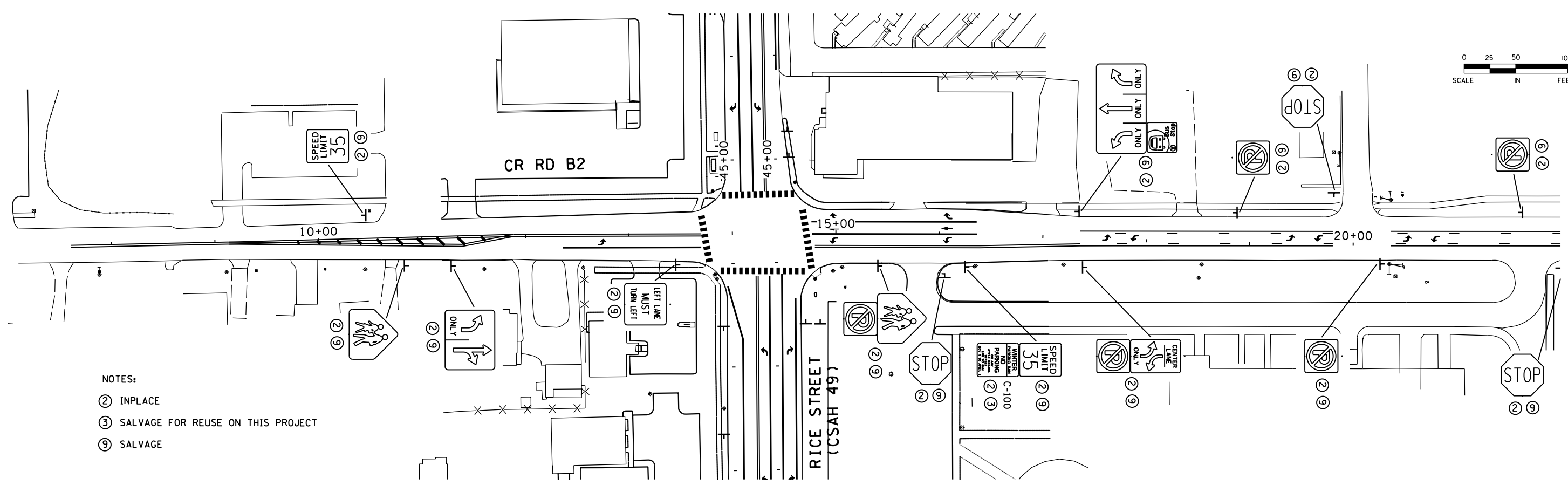
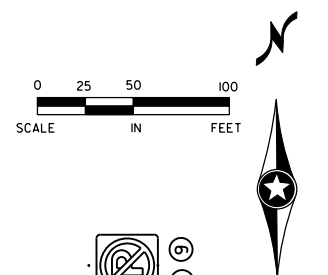
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SS10 OF SS53	534

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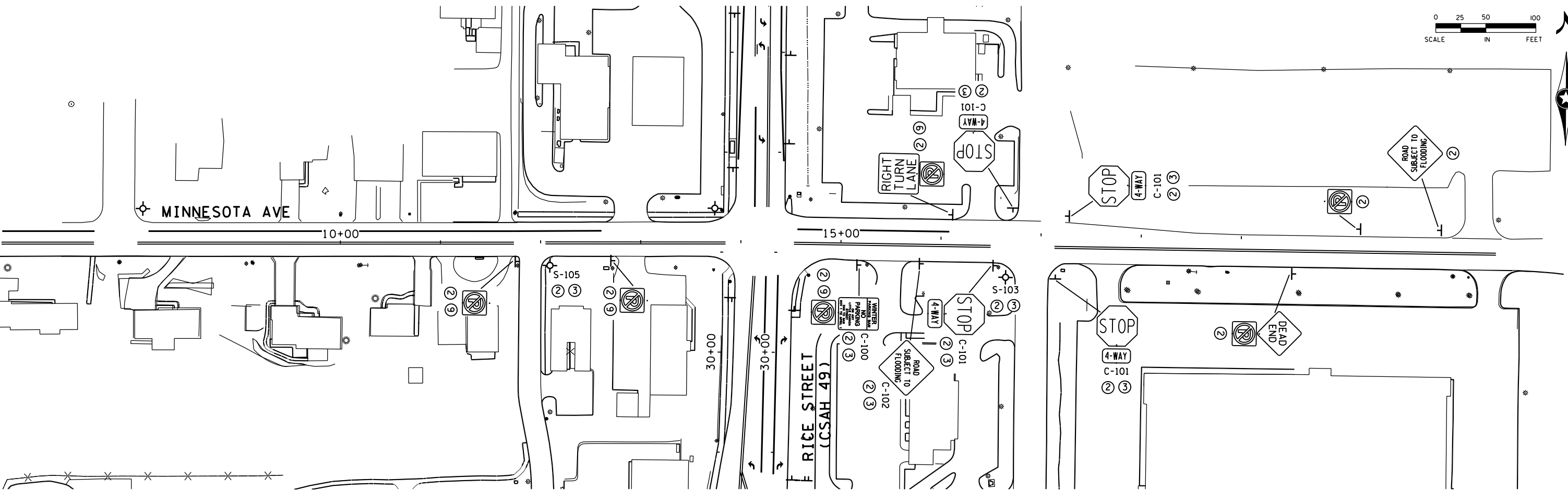
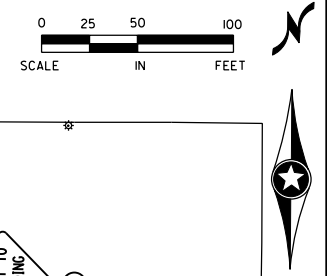
5/6/2010

kerickson

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4 es



- NOTES:
- ② INPLACE
 - ③ SALVAGE FOR REUSE ON THIS PROJECT
 - ⑨ SALVAGE



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 CR RD B2 AND MINNESOTA AVENUE

FILE NO. RAMSP108790	238
SS11 OF SS53	534

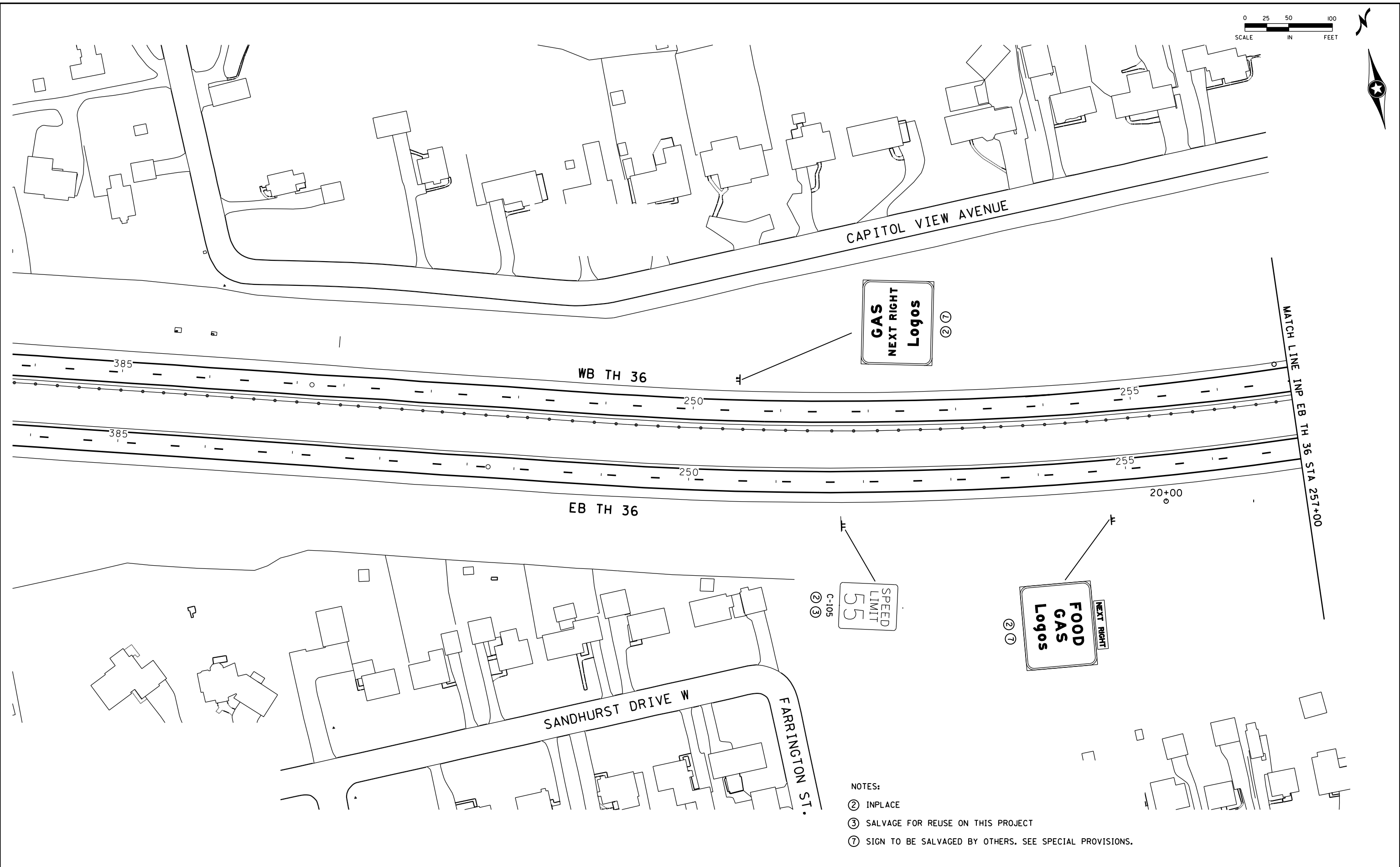


3:36:08 PM

5/6/2010

kerlickson

S:\PT\RAMSP\108790\p\shfts\ramsp108790_es.dgn
5 es



- NOTES:
- ② INPLACE
 - ③ SALVAGE FOR REUSE ON THIS PROJECT
 - ⑦ SIGN TO BE SALVAGED BY OTHERS. SEE SPECIAL PROVISIONS.

DESIGN TEAM				
DRAWN BY:				
DESIGNER:				
CHECKED BY:				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

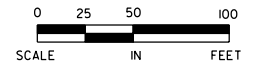
SEH
PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

Kimley-Horn
and Associates, Inc.
2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 INP EB TH 36 STA 384+00 TO 257+00

FILE NO. RAMSP108790	239
SS12 OF SS53	534

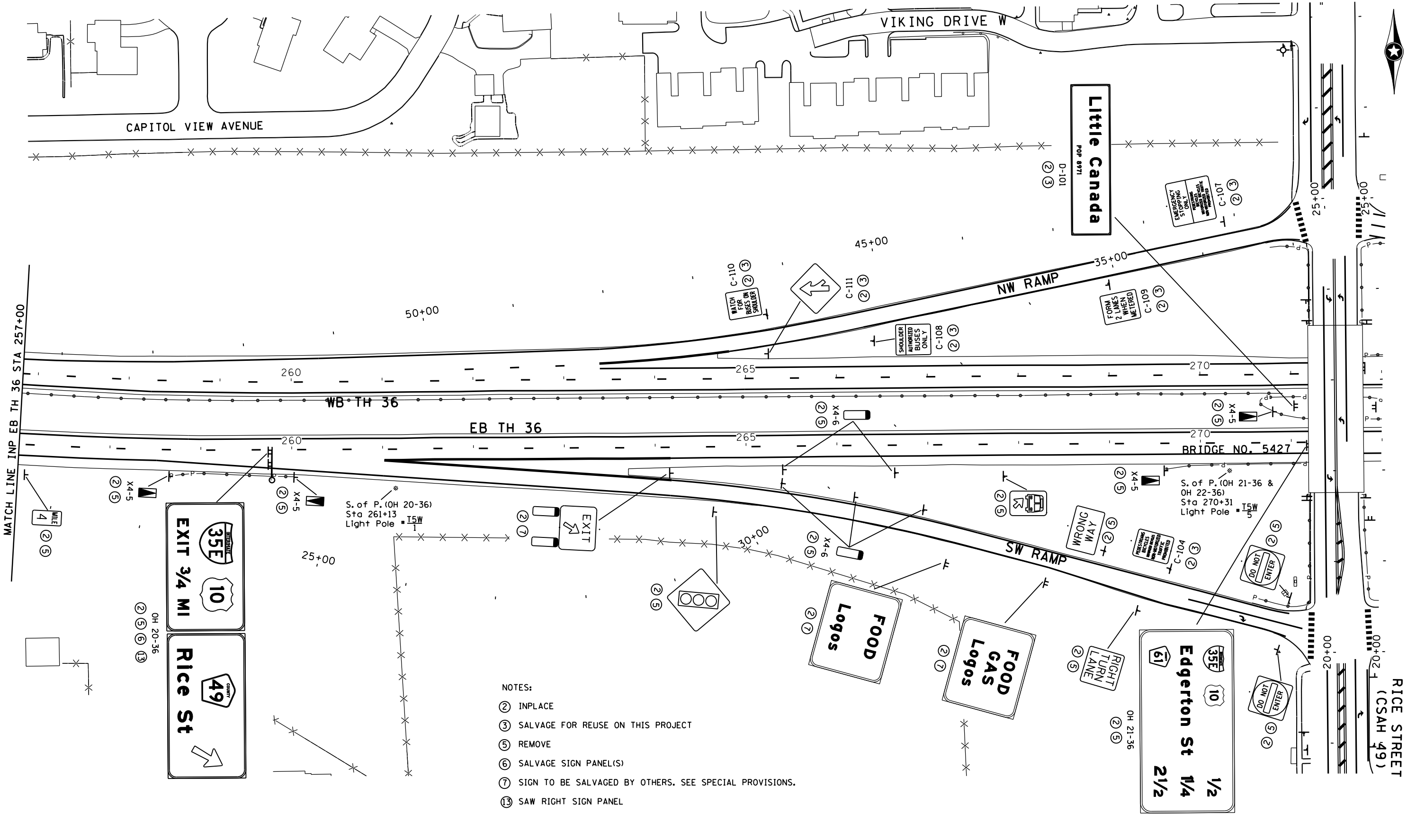


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5/6/2010

kerlickson

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6 es



- NOTES:
- ② INPLACE
 - ③ SALVAGE FOR REUSE ON THIS PROJECT
 - ⑤ REMOVE
 - ⑥ SALVAGE SIGN PANEL(S)
 - ⑦ SIGN TO BE SALVAGED BY OTHERS. SEE SPECIAL PROVISIONS.
 - ⑬ SAW RIGHT SIGN PANEL

DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

SEH
 PHONE: 651-490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

Kimley-Horn
 and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. 651-645-4197
 FAX. NO. 651-645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 INP EB TH 36 STA 257+00 TO 272+00

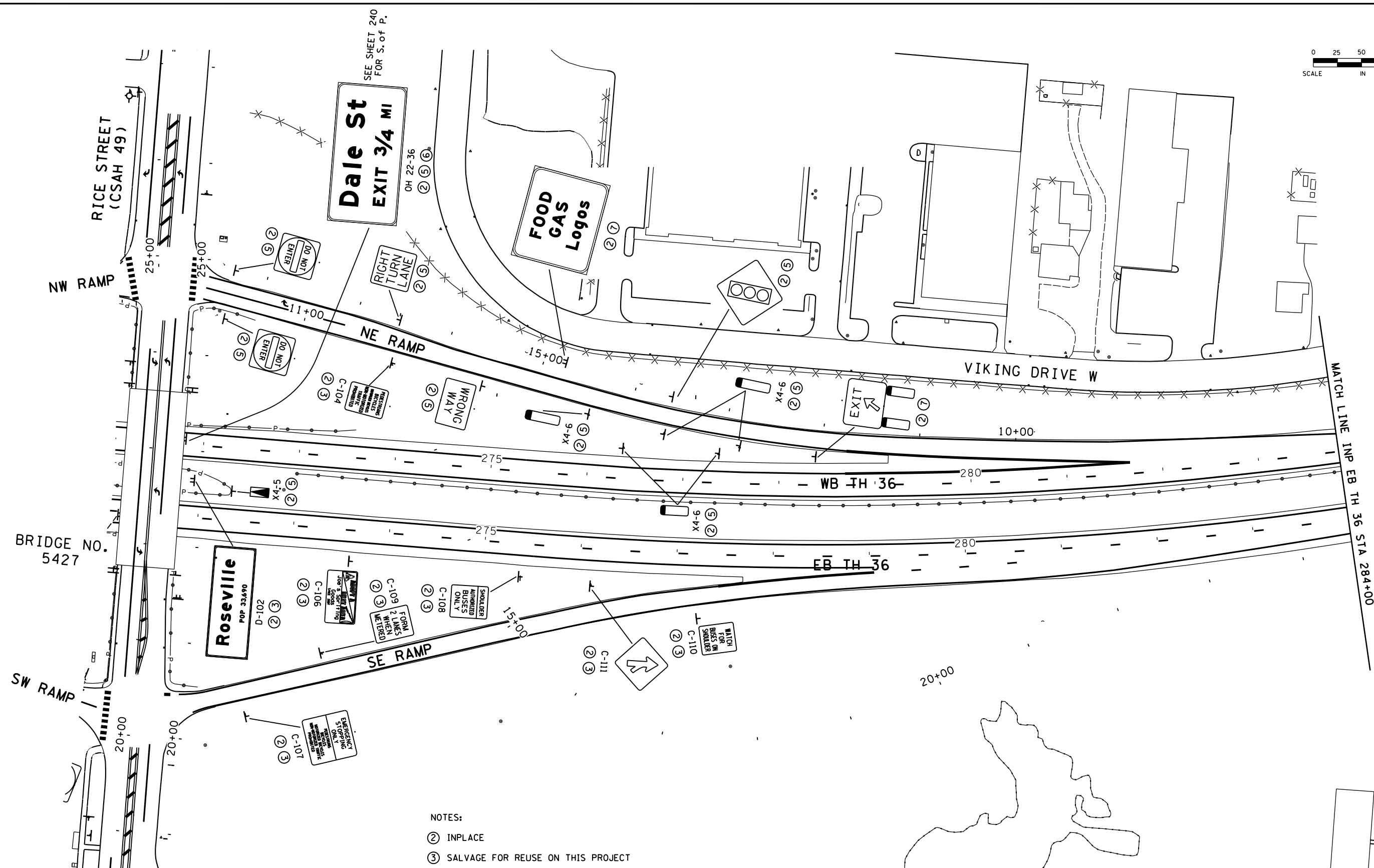
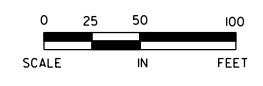
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SS13 OF SS53	534

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5/6/2010

kerlickson

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- NOTES:
- ② INPLACE
 - ③ SALVAGE FOR REUSE ON THIS PROJECT
 - ⑤ REMOVE
 - ⑥ SALVAGE SIGN PANEL
 - ⑦ SIGN TO BE SALVAGED BY OTHERS. SEE SPECIAL PROVISIONS.

DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 INP EB TH 36 STA 272+00 TO 284+00

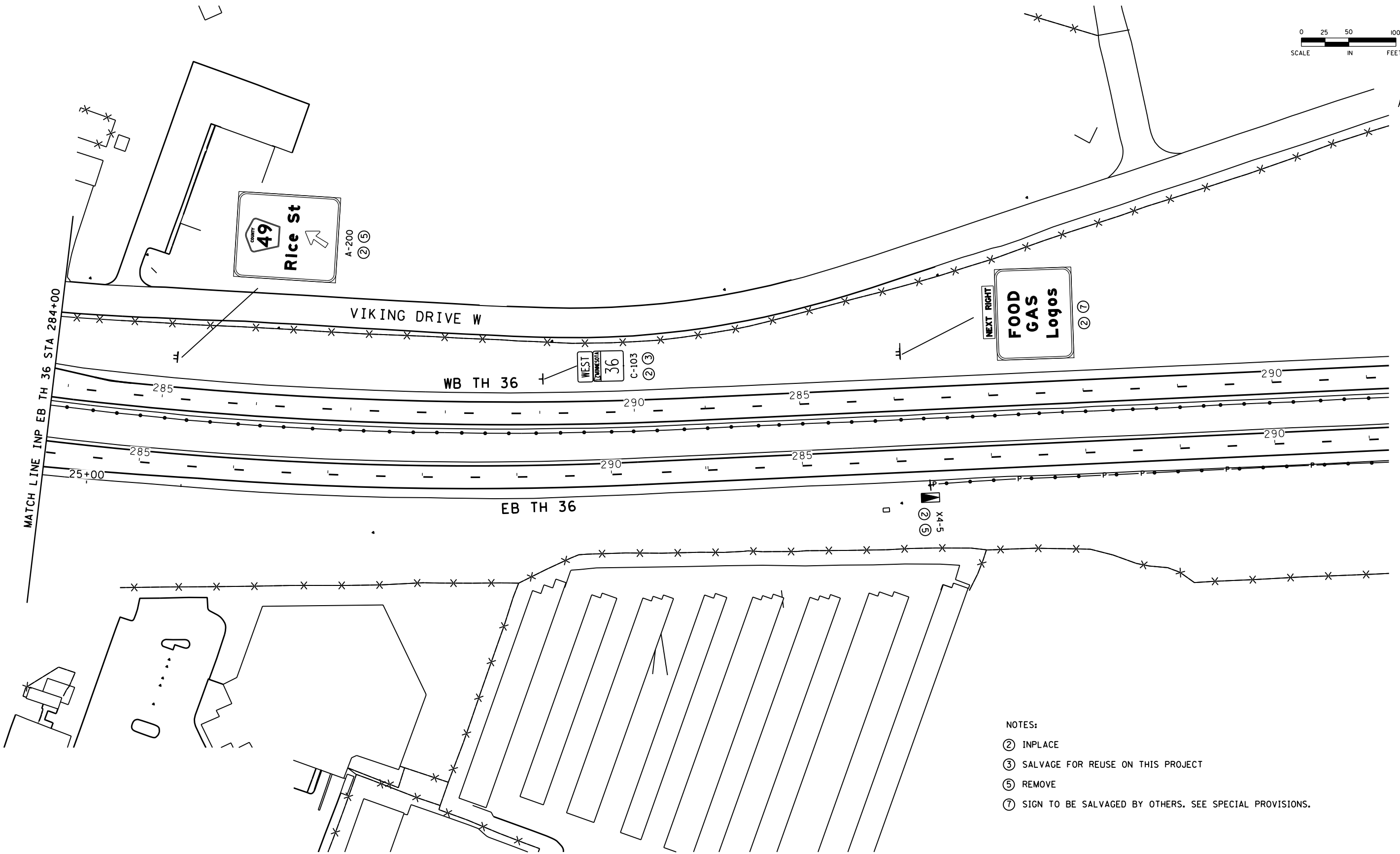
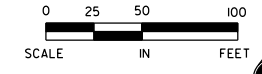
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SS14 OF SS53	534

3:36:17 PM

5/6/2010

kerlickson

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- NOTES:
- ② INPLACE
 - ③ SALVAGE FOR REUSE ON THIS PROJECT
 - ⑤ REMOVE
 - ⑦ SIGN TO BE SALVAGED BY OTHERS. SEE SPECIAL PROVISIONS.

DESIGN TEAM			
DRAWN BY:	MIT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

Kimley-Horn
 and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

EXISTING SIGNING & STRIPING PLAN
 INP EB TH 36 STA 284+00 TO 291+00

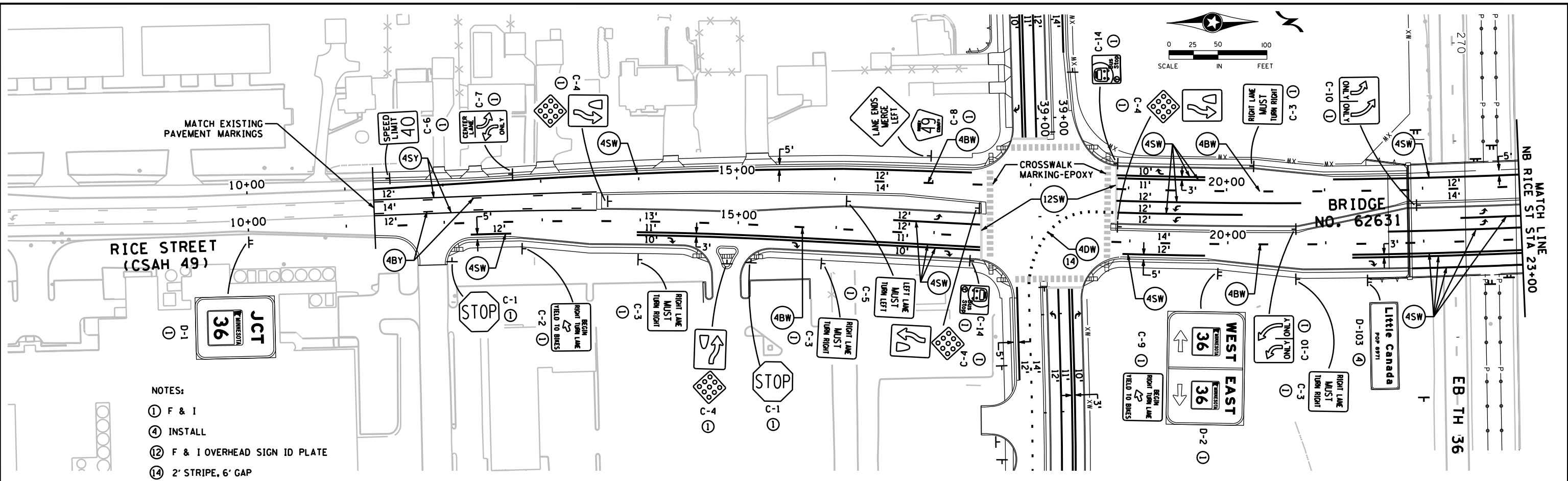
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SS15 OF SS53	534

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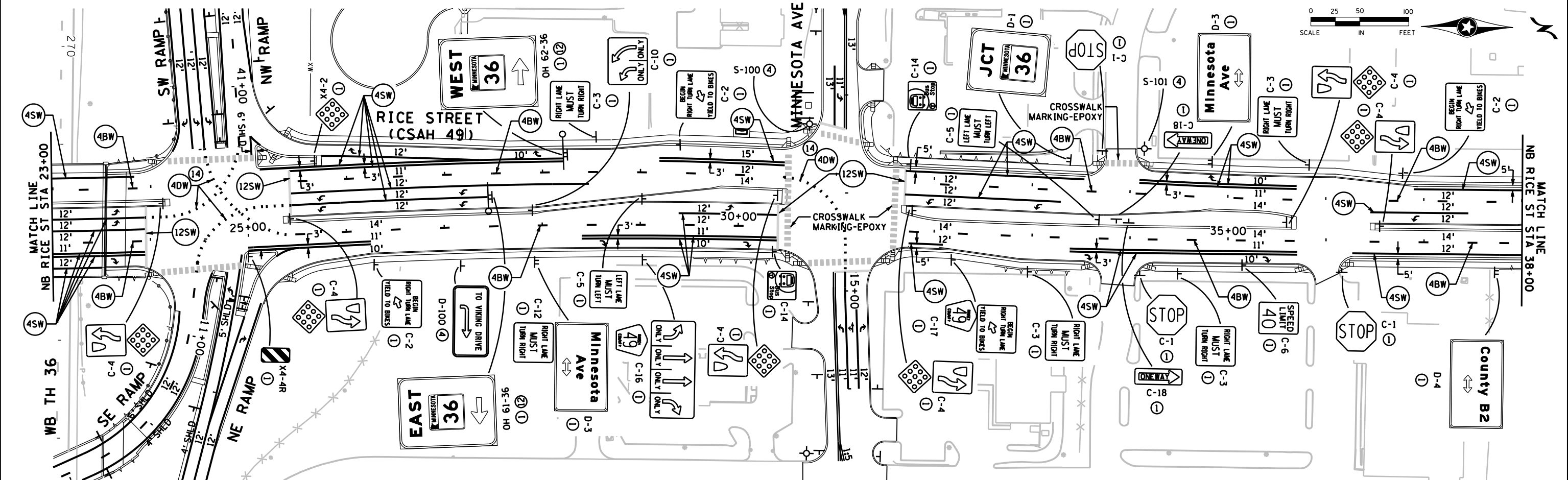
9/26/2011

mtr:cn

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- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑫ F & I OVERHEAD SIGN ID PLATE
 - ⑭ 2' STRIPE, 6' GAP



DESIGN TEAM	9	MPM	9/21/11	CAT TRACKS @ DUAL LEFTS @ RAMPS AND CR B
DRAWN BY:	MIT			X-WALK ON NORTH SIDE OF RICE/CR B INT.
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

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 and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
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 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 RICE ST (CSAH 49) STA 10+00 TO 3+00

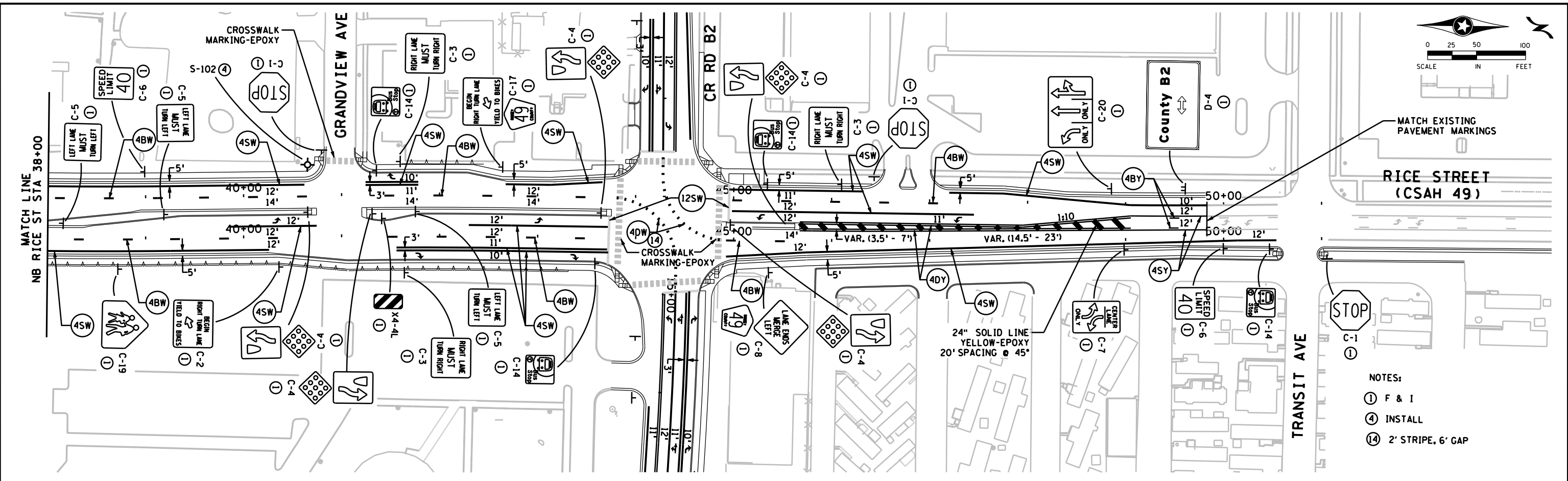
FILE NO. **243**
 RAMSP108790
 SS16
 OF 553
534

3:46:57 PM

9/26/2011

mtrcon

S:\PT\RAMSP\108790\p1nshfts\ramsp108790_ss.dgn



- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑭ 2' STRIPE, 6' GAP

DESIGN TEAM				
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.

Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

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 and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 RICE ST (CSAH 49) STA 38+00 TO 51+00

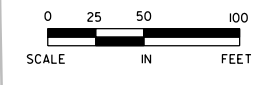
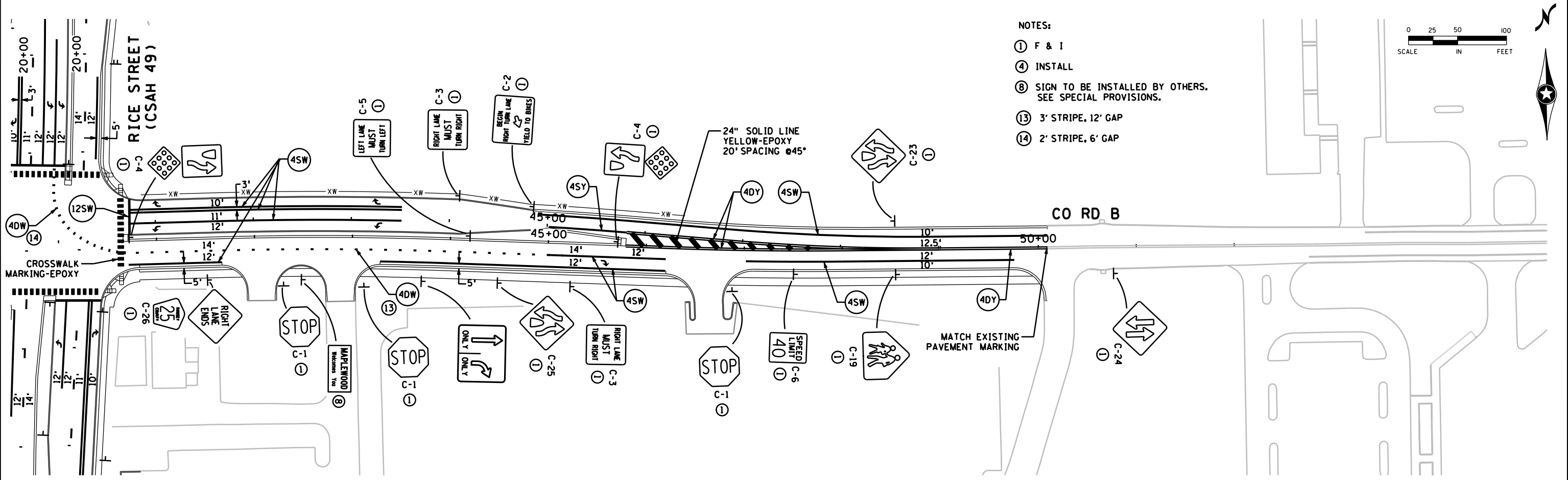
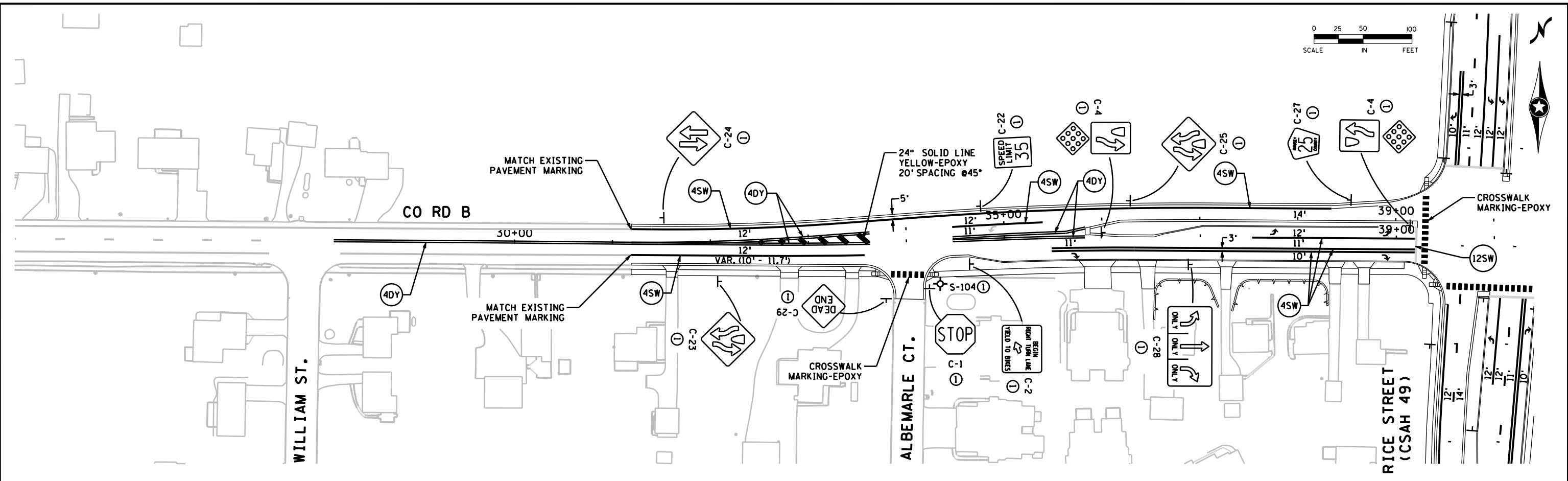
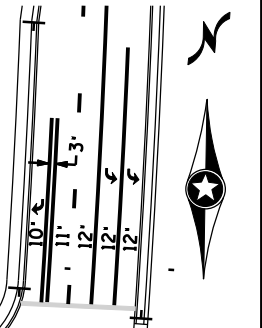
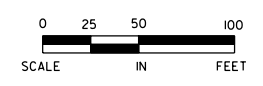
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SS17	534
OF SS53	

3:47:06 PM

9/26/2011

mitron

S:\PT\VR\Ramsp\108790\plans\tr\ramsp108790_sss.dgn



- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑧ SIGN TO BE INSTALLED BY OTHERS. SEE SPECIAL PROVISIONS.
 - ⑬ 3' STRIPE, 12' GAP
 - ⑭ 2' STRIPE, 6' GAP

DESIGN TEAM	8	MPM	9/21/11	PER THE NEED FOR TWO EB CR B RECEIVING LANES EAST OF RICE ST
DRAWN BY:	MTT			
DESIGNER:	MPM			
CHECKED BY:	BWJ			
NO.	BY	DATE	REVISIONS	

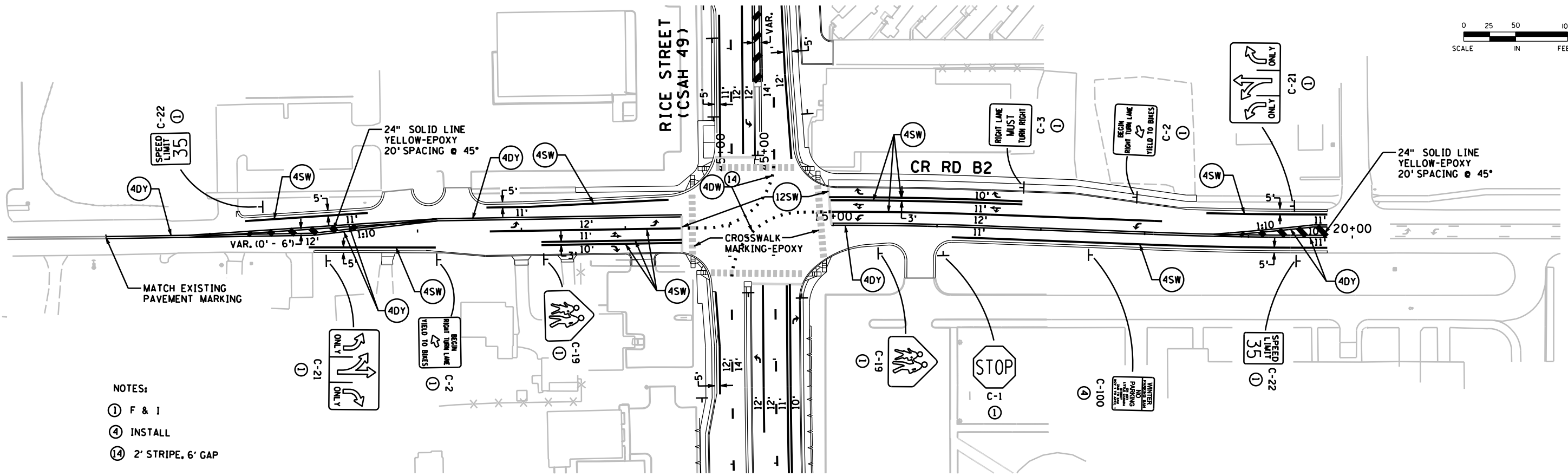
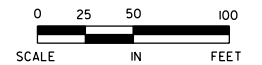
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010

PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

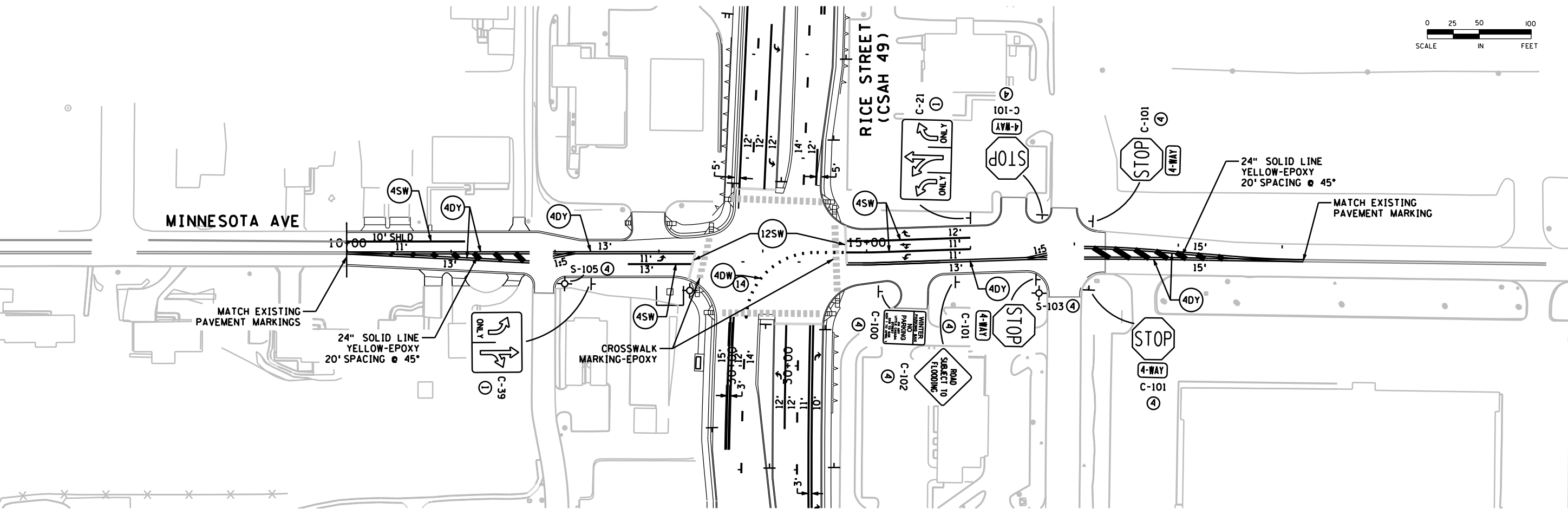
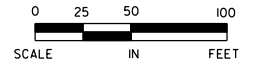
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 CO RD B

FILE NO.	245
RAMSP08790	
SS18	
OF SS53	534



- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑭ 2' STRIPE, 6' GAP



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 CR RD B2 AND MINNESOTA AVENUE

FILE NO.	246
RAMSP08790	
SS19	534
OF SS53	

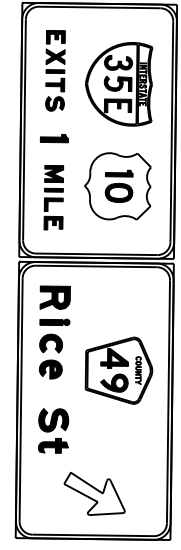
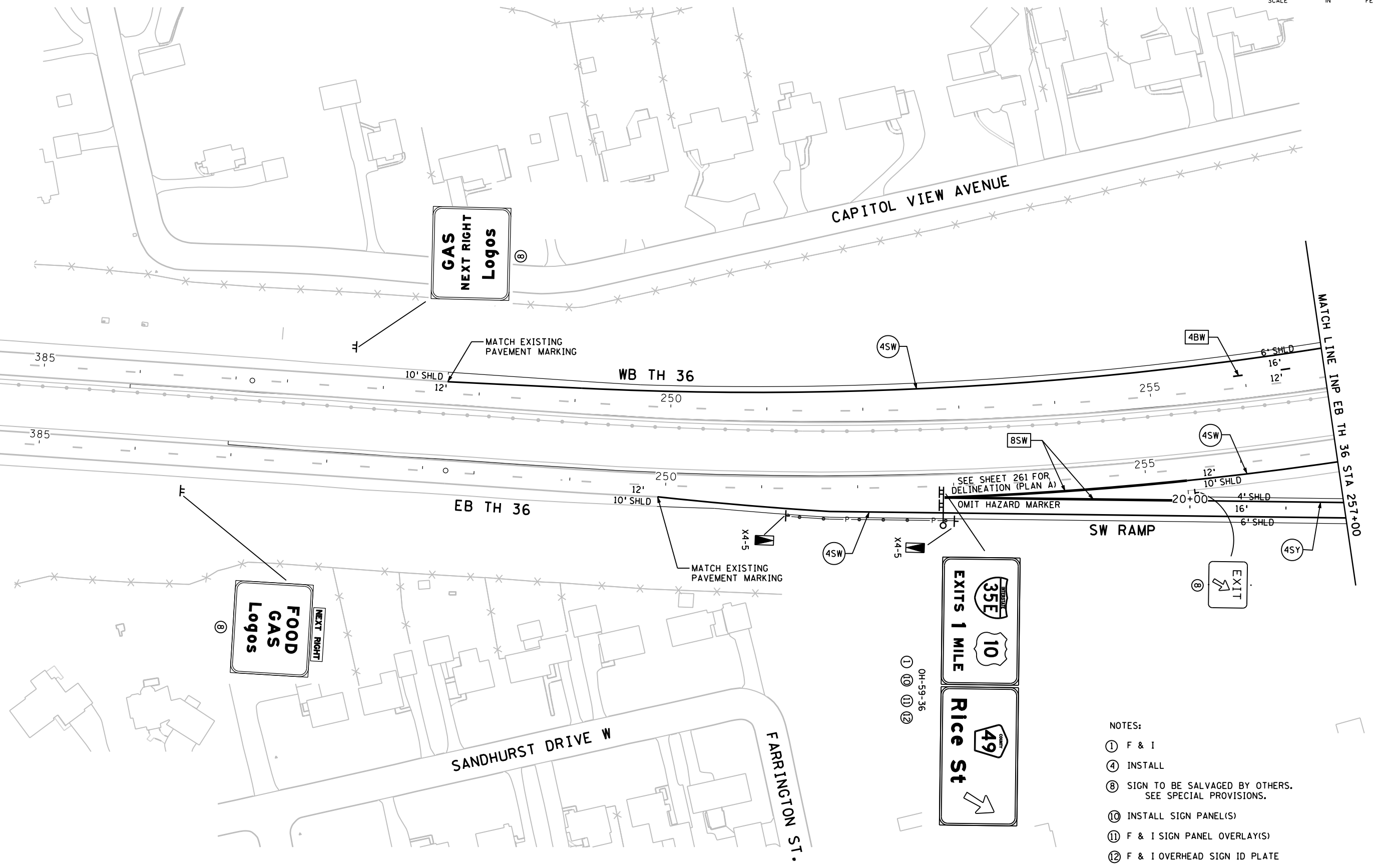


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5/6/2010

kerlickson

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5 - ss



- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑧ SIGN TO BE SALVAGED BY OTHERS. SEE SPECIAL PROVISIONS.
 - ⑩ INSTALL SIGN PANEL(S)
 - ⑪ F & I SIGN PANEL OVERLAY(S)
 - ⑫ F & I OVERHEAD SIGN ID PLATE

DESIGN TEAM				
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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 Certified By: *Michael P. McCurdy* Lic. No. 45902
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SEH
PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

Kimley-Horn
and Associates, Inc.
2550 UNIVERSITY AVE. WEST, SUITE 345N
ST. PAUL, MINNESOTA 55114
TEL. NO. (651) 645-4197
FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 INP EB TH 36 STA 384+00 TO 257+00

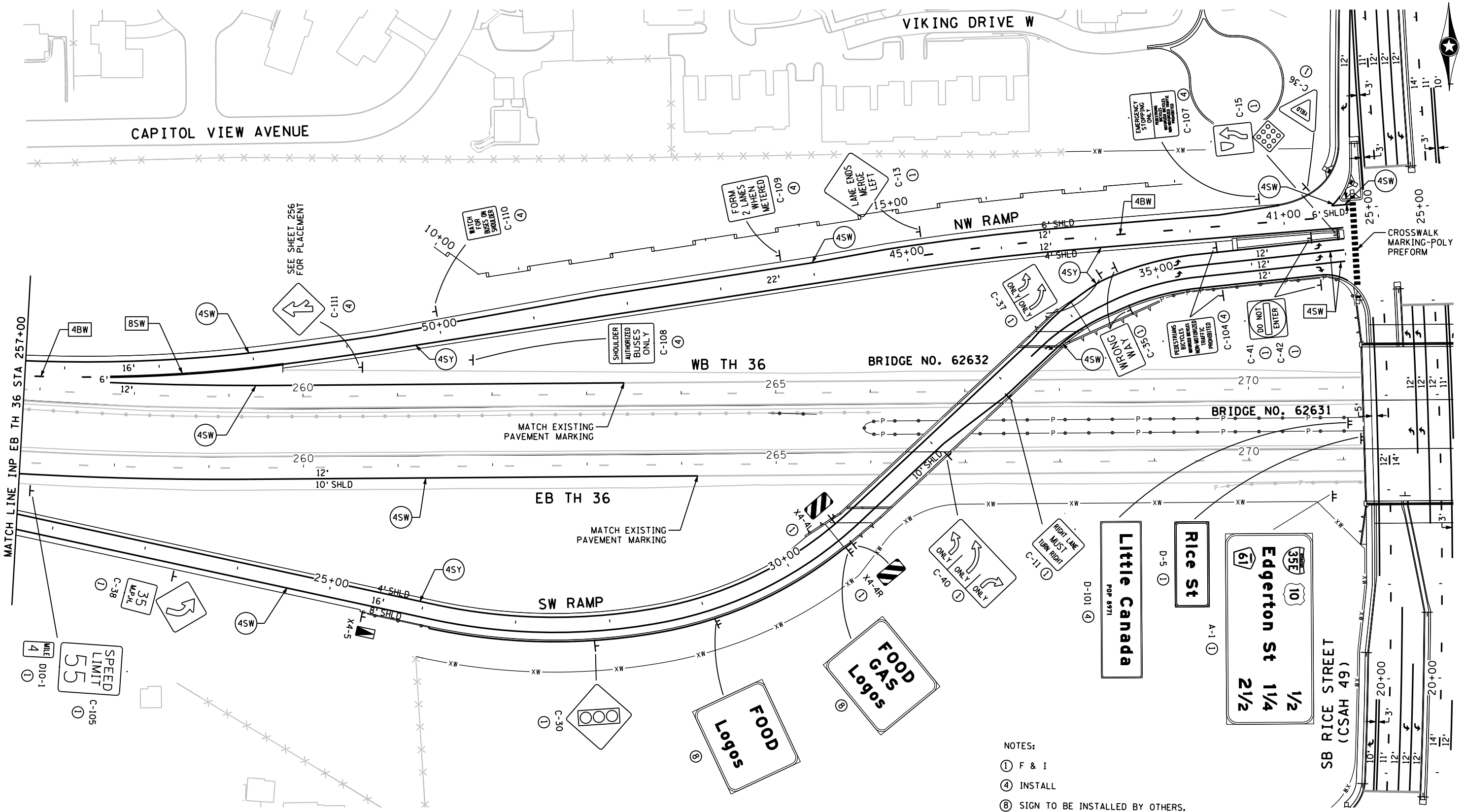
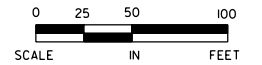
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SS20 OF SS53	534

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5/6/2010

kerlickson

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6 SS



- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑧ SIGN TO BE INSTALLED BY OTHERS. SEE SPECIAL PROVISIONS.

DESIGN TEAM				
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 INP EB TH 36 STA 257+00 TO 272+00

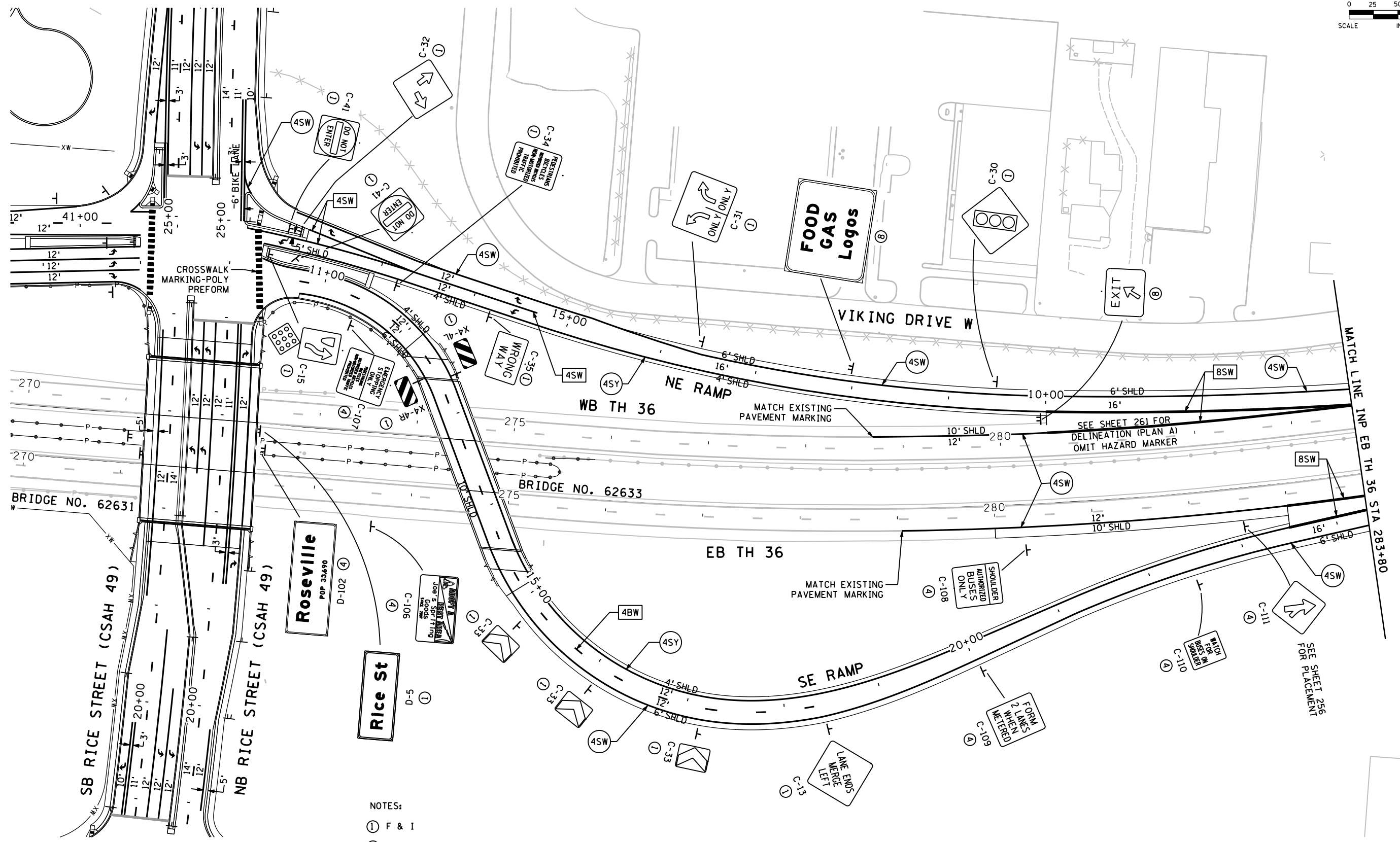
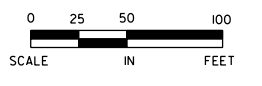
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SS21 OF SS53	534

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5/6/2010

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7 ss



- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑧ SIGN TO BE INSTALLED BY OTHERS. SEE SPECIAL PROVISIONS.

DESIGN TEAM				
DRAWN BY:	MIT			
DESIGNER:	SRH,HLR			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 INP EB TH 36 STA 272+00 TO 284+00

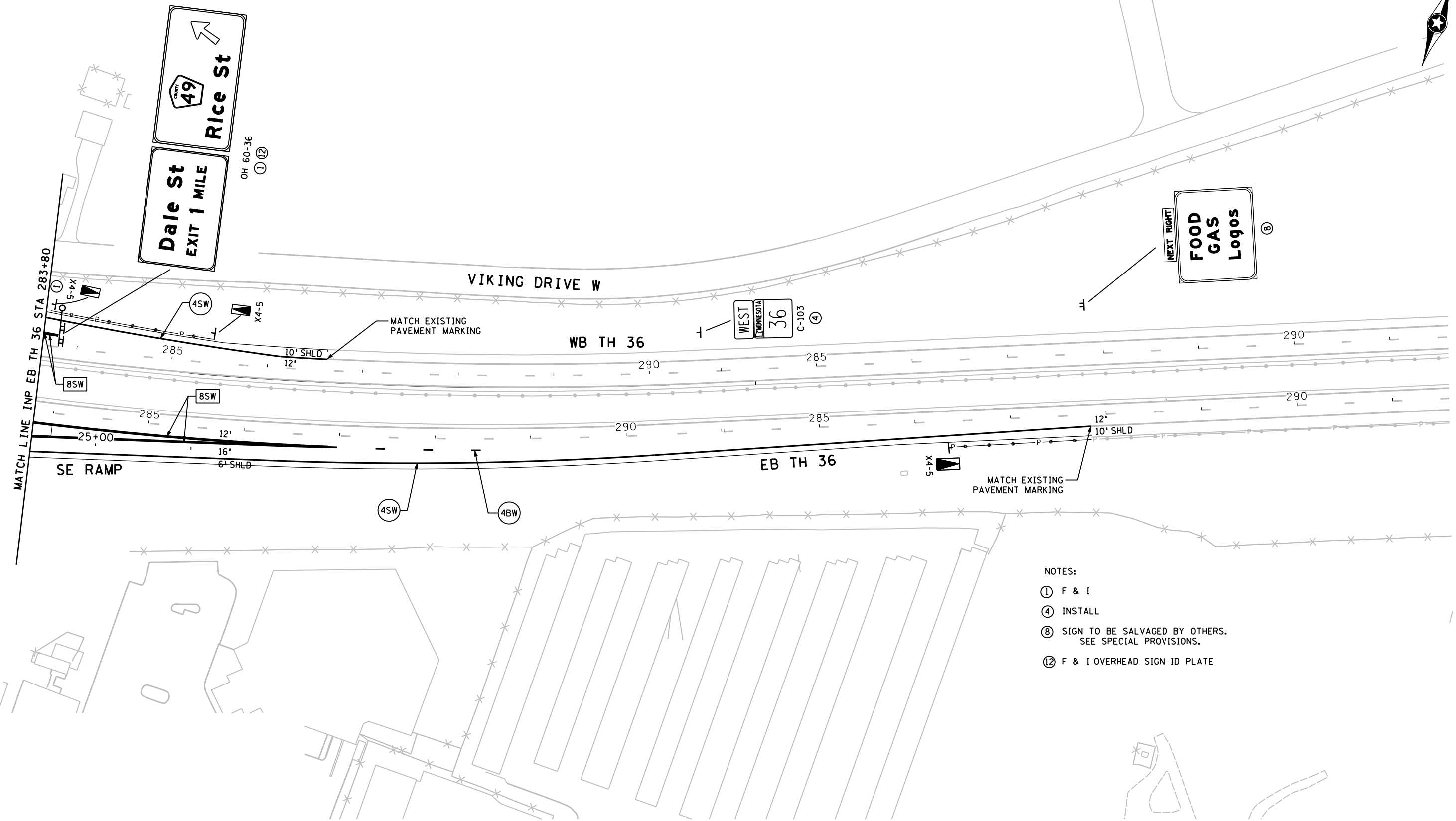
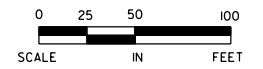
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SS22 OF SS53	534

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5/6/2010

kerlickson

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- NOTES:
- ① F & I
 - ④ INSTALL
 - ⑧ SIGN TO BE SALVAGED BY OTHERS. SEE SPECIAL PROVISIONS.
 - ⑫ F & I OVERHEAD SIGN ID PLATE

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				

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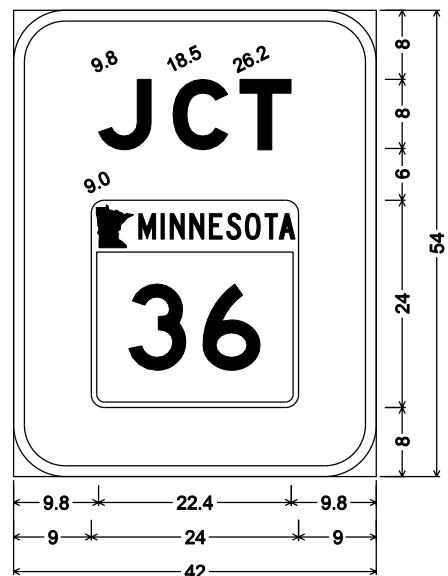
SEH
 PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

Kinley-Horn
 and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
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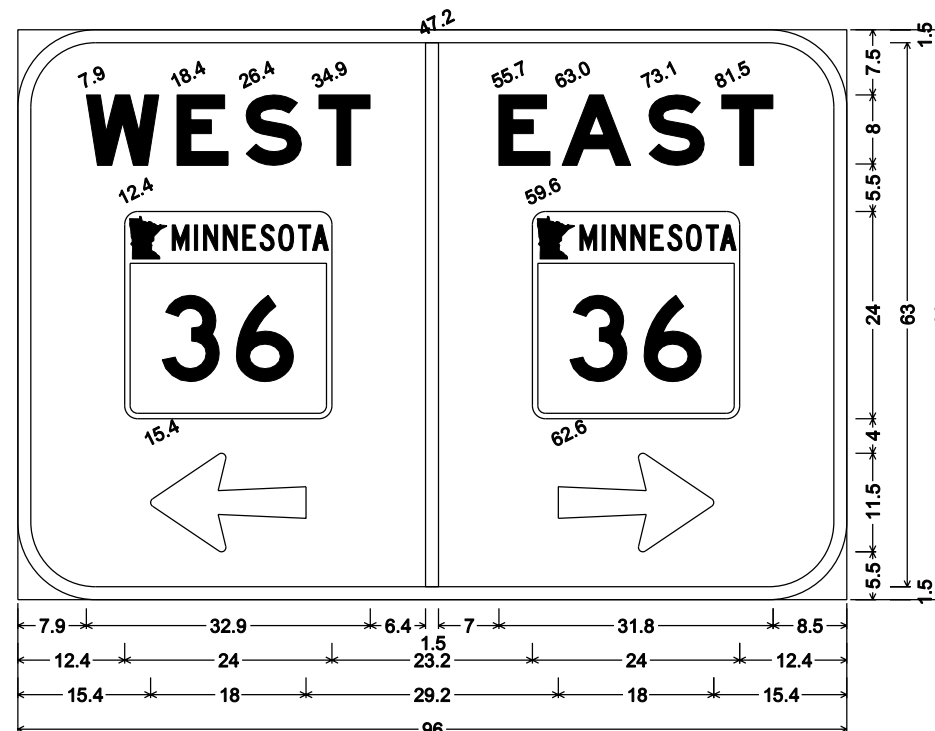
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PROPOSED SIGNING & STRIPING PLAN
 INP EB TH 36 STA 284+00 TO 291+00

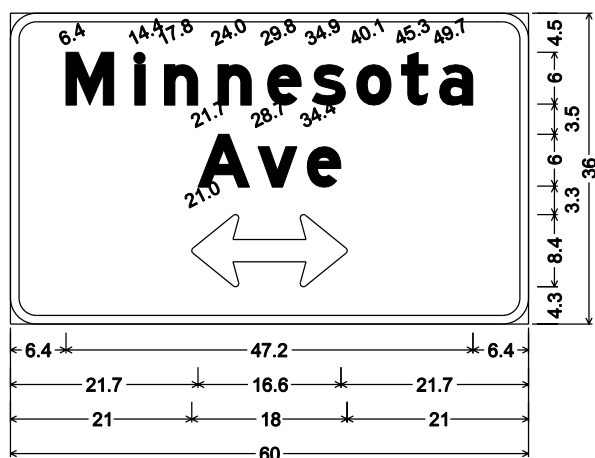
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SS23 OF SS53	534



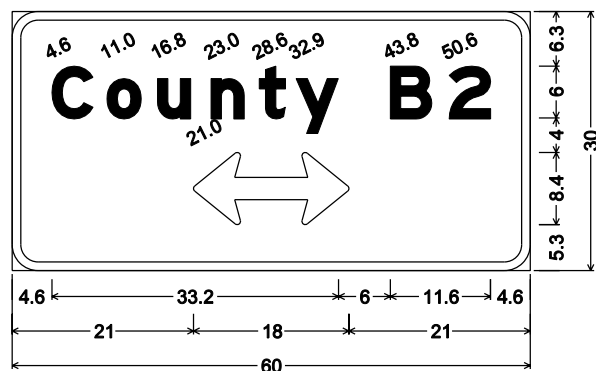
D-1;
6.0" Radius, 1.3" Border, White on Green;
[JCT] E Mod;



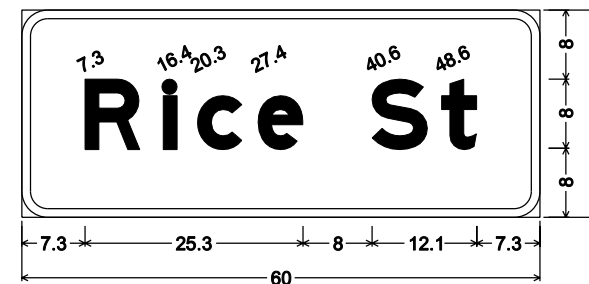
D-2; 9.0" Radius, 1.5" Border, White on Green;
[WEST] E Mod; [EAST] E Mod; Arrow 14 - 18.0" 180°; Arrow 14 - 18.0" 0°;



D-3; 3.0" Radius, 1.0" Border, White on Green;
[Minnesota] E Mod; [Ave] E Mod;
Double Headed Arrow 3 - 18.0" 0°;



D-4; 3.0" Radius, 1.0" Border, White on Green;
[County B2] E Mod;
Double Headed Arrow 3 - 18.0" 0°;



D-5; 3.0" Radius, 1.0" Border, White on Green;
[Rice St] E Mod;

NOTES:

1. CORNERS OF TYPE "D" SIGN PANELS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMED.
2. SEE STANDARD SIGNS MANUAL FOR ARROW, OVERLAY AND STRUCTURAL DETAILS.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPE D SIGN PANELS

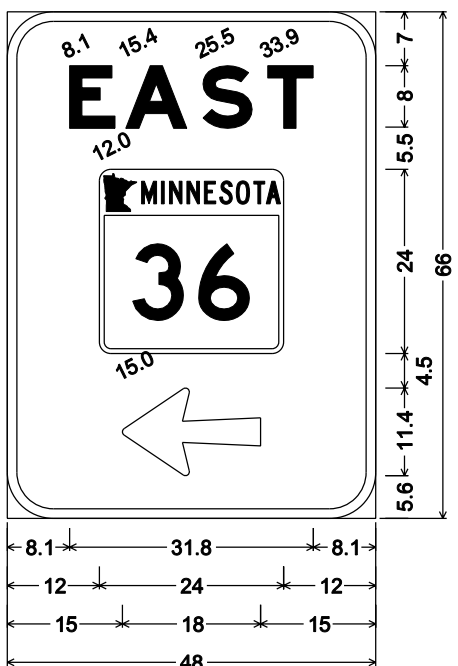
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SS24 OF SS53	534

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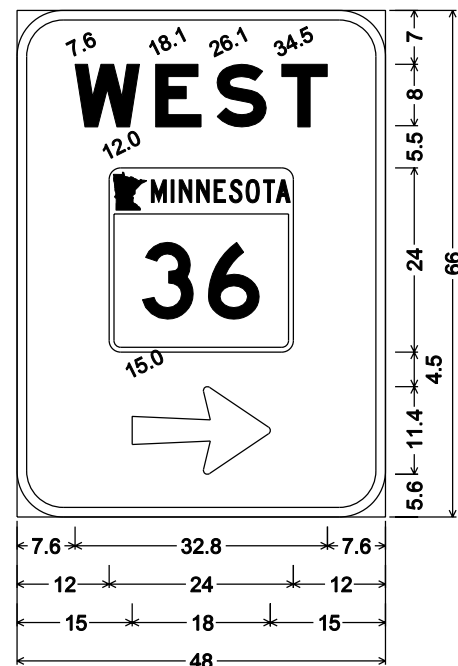
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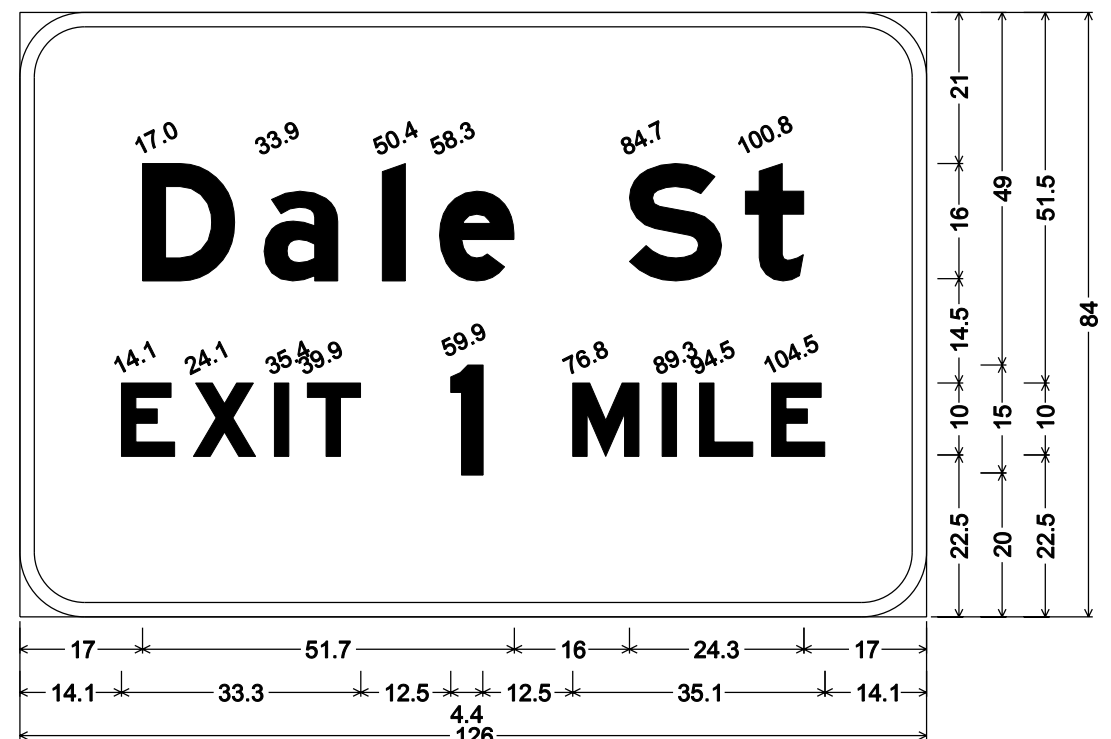
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2 OH SIGNS



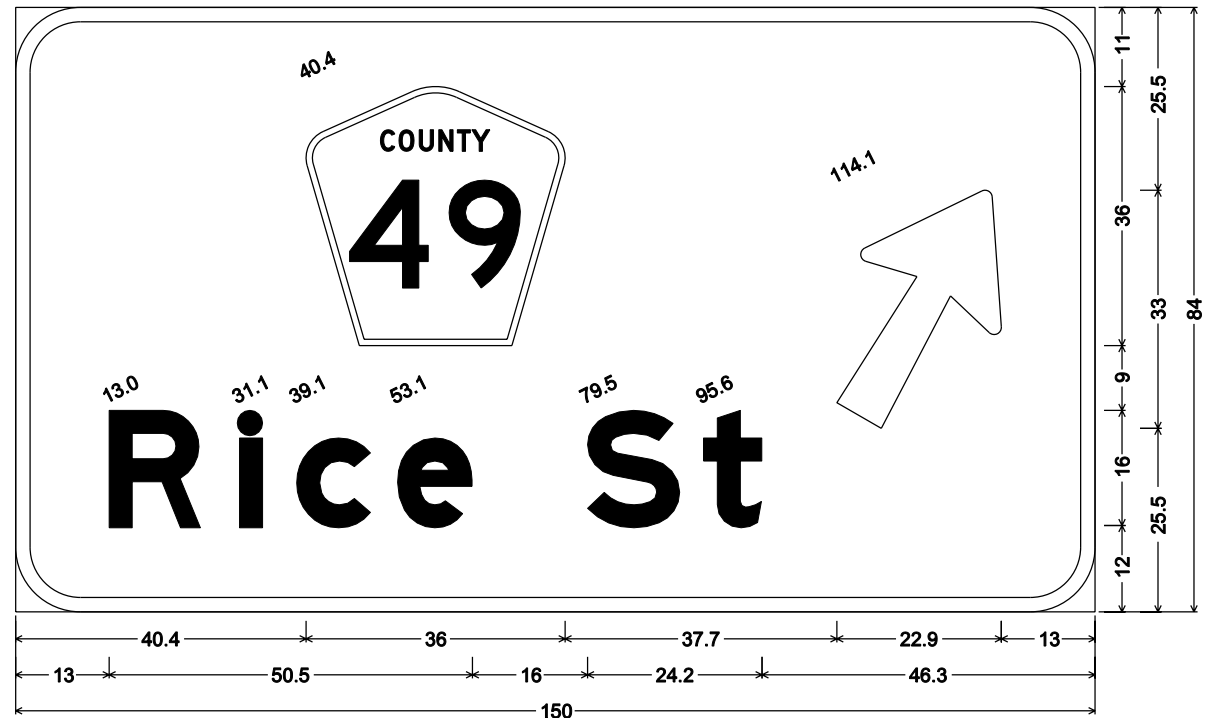
OH 61-36;
6.0" Radius, 1.3" Border, White on Green;
[EAST] E Mod;
Arrow 14 - 18.0" 180°;



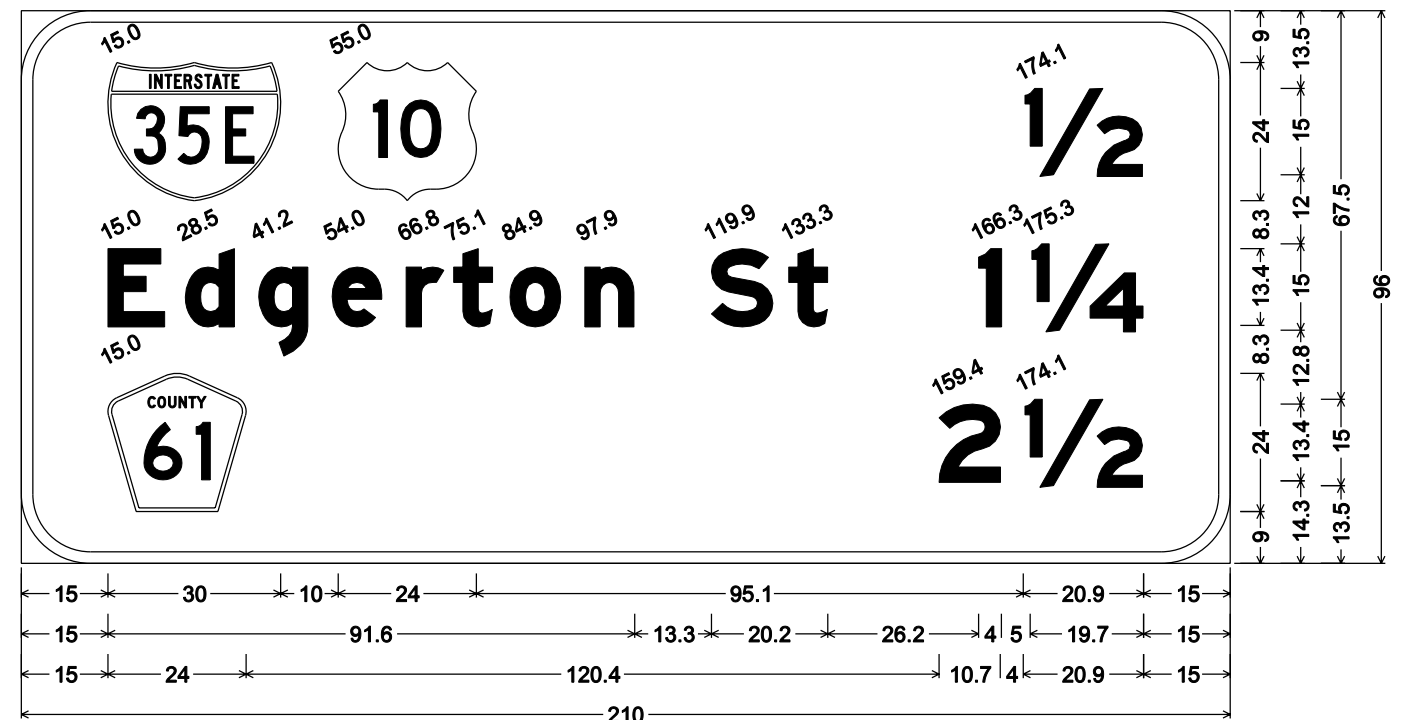
OH 62-36;
6.0" Radius, 1.3" Border, White on Green;
[WEST] E Mod;
Arrow 14 - 18.0" 0°;



OH 60-36 (L); 9.0" Radius, 2.0" Border, White on Green;
[Dale St] E Mod; [EXIT 1 MILE] E Mod;



OH 60-36 (R); 9.0" Radius, 2.0" Border, White on Green;
[Rice St] E Mod; Arrow 17 - 36.0" 60°;



A-1; 12.0" Radius, 2.0" Border, White on Green;
[1/2] E Mod; [Edgerton St] E Mod; [1 1/4] E Mod; [2 1/2] E Mod;

- NOTES:
- CORNERS OF THE SIGN PANELS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMED.
 - SEE STANDARD SIGNS MANUAL FOR ARROW, FRACTION AND OVERLAY DETAILS.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

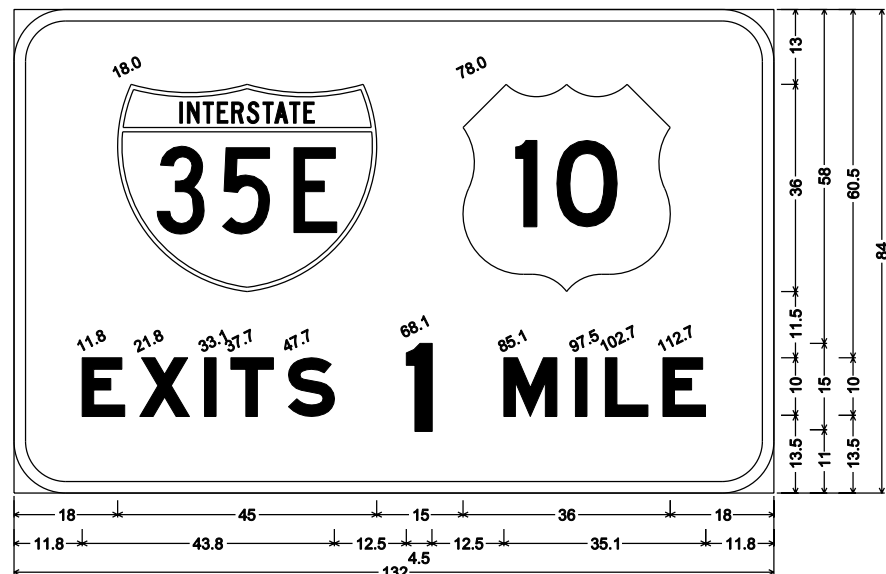
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Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



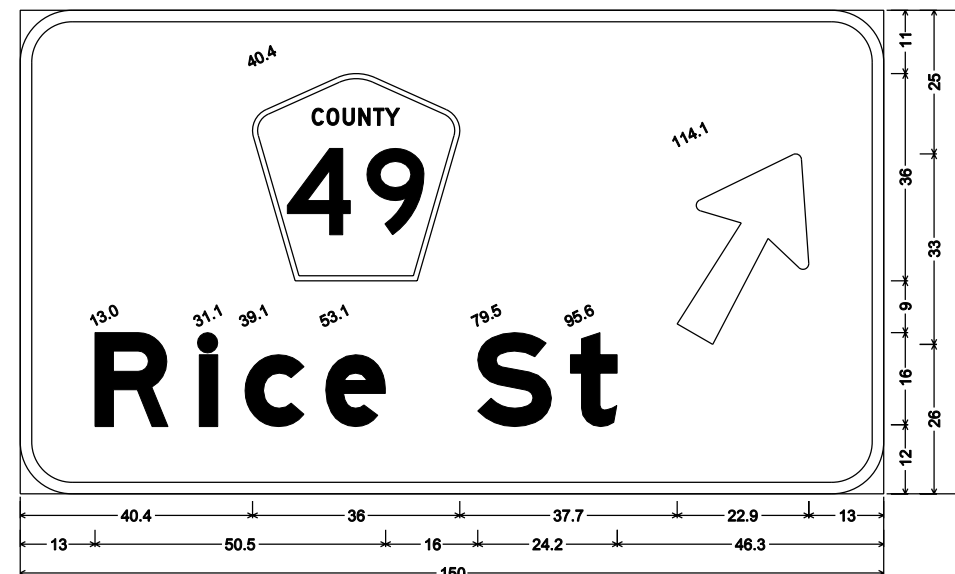
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TYPE A & OH SIGN PANELS

FILE NO. 252
RAMSP08790
SS25 OF SS53
534



OH 59-36 (L); 9.0" Radius, 2.0" Border, White on Green;
[EXITS 1 MILE] E Mod;



OH 59-36 (R); 9.0" Radius, 2.0" Border, White on Green;
[Rice St] E Mod; Arrow 17 - 36.0" 60";

NOTES:

1. CORNERS OF THE SIGN PANEL OVERLAYS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMED.
2. SEE STANDARD SIGNS MANUAL FOR ARROW, FRACTION AND OVERLAY DETAILS.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



PHONE: 651-490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

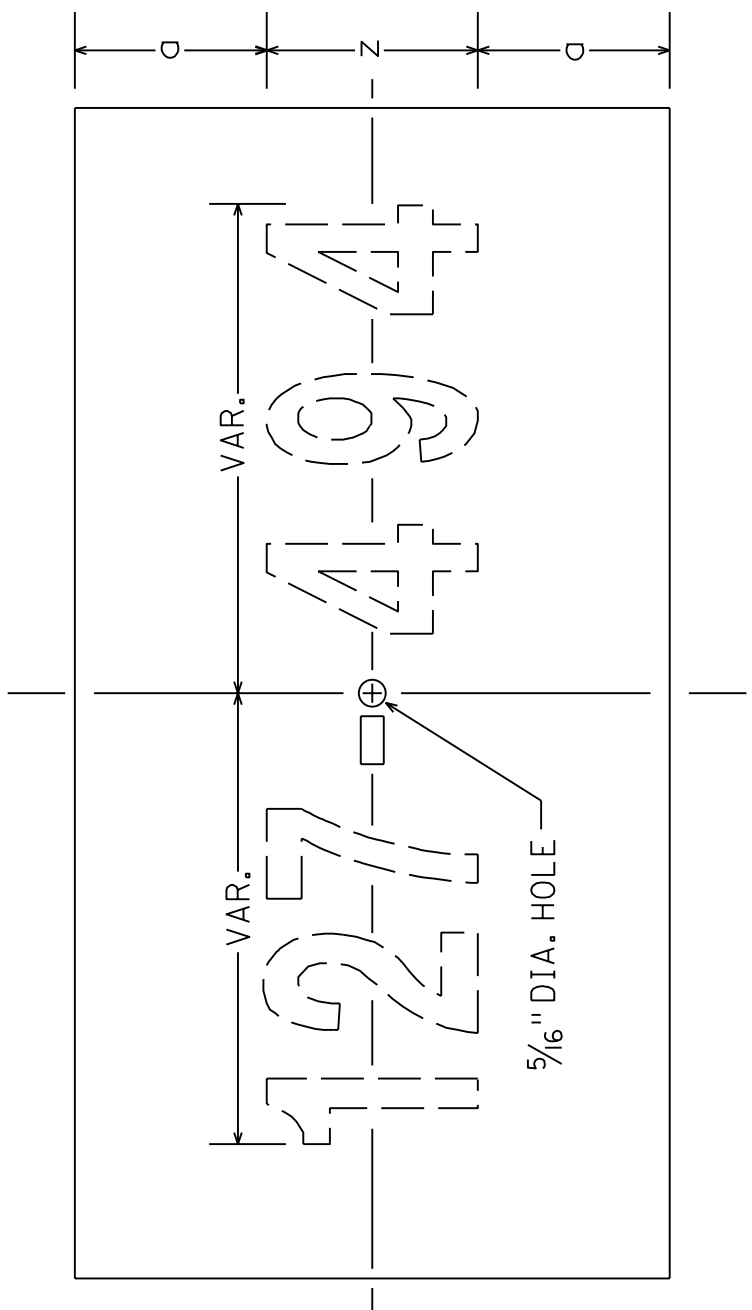
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**TYPE OH
 SIGN PANEL OVERLAYS**

FILE NO.
 RAMSP108790
 SS26
 OF SS53

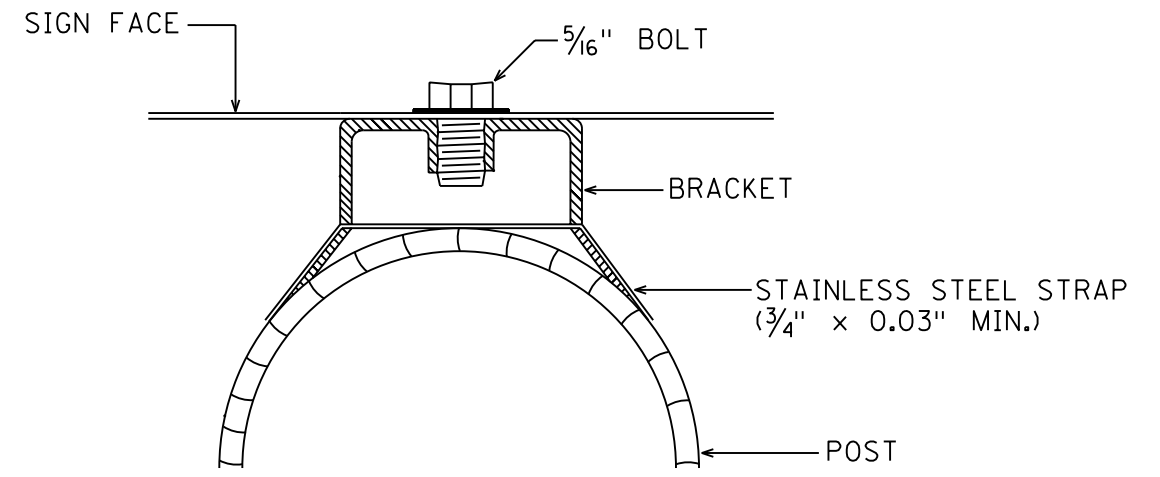
253
534

SIZE DIMENSION	12x6
RADIUS	
MARGIN	
BORDER	2
a	
b	
c	
d	
e	
f	
g	
h	
i	
j	
k	
l	
m	
n	
o	
p	
q	
r	
s	
t	
u	
v	
w	
x	
y	
z	
PUNCH CODE	2-C



NOTES: 1) ALL DIMENSIONS AND SIZES SHOWN ARE IN INCHES.
 2) USE APPROPRIATE NUMERALS.
 3) PLATE MATERIAL - (MN/DOT 3352.2A1b).
 4) GREEN BACKGROUND - (MN/DOT 3352.2A2b).
 5) WHITE NUMERALS OR LETTERS - (MN/DOT 3352.2A2b).

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 STANDARD SIGN DRAWING
 OH SIGN IDENTIFICATION
 PLATE



GALVANIZED OR STAINLESS
 STEEL BRACKET, BOLT AND
 WASHER.

STRAP MOUNTING DETAIL

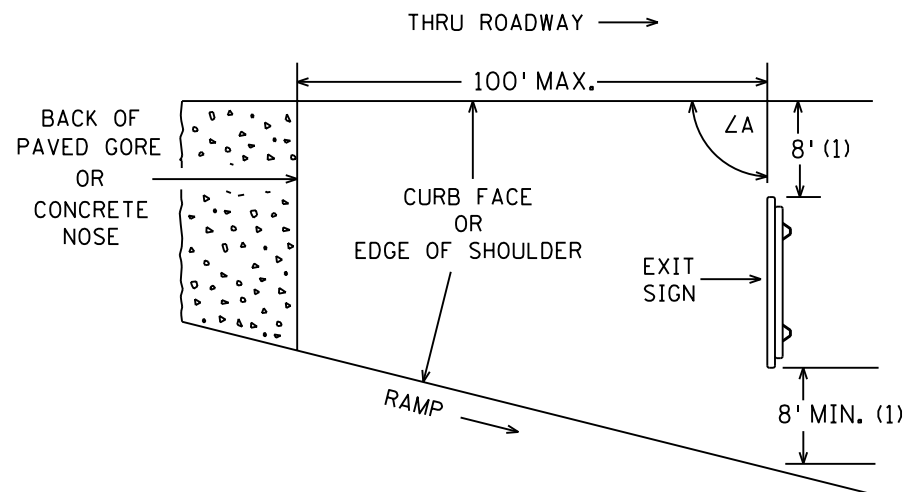
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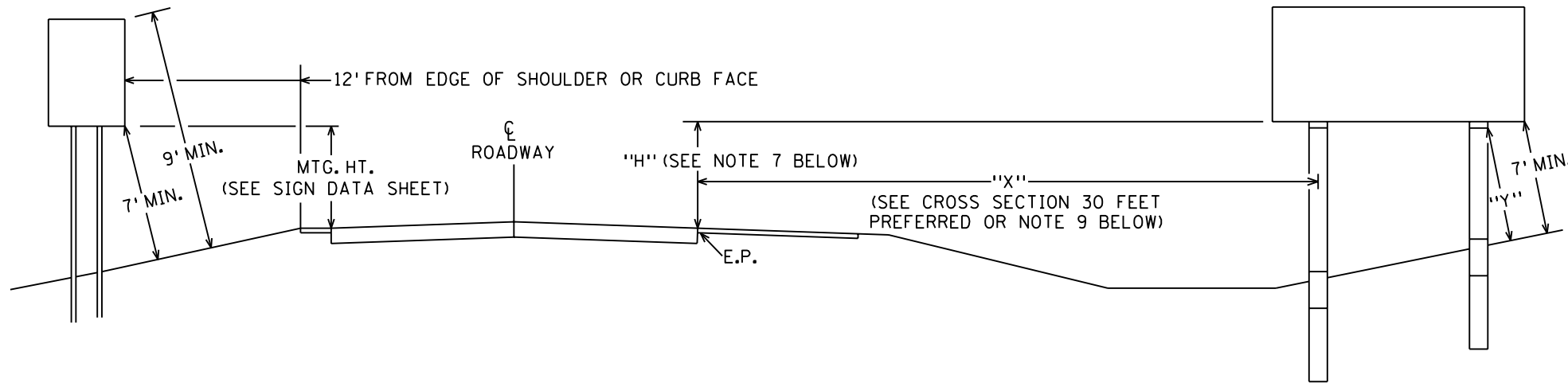
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GORE PLACEMENT

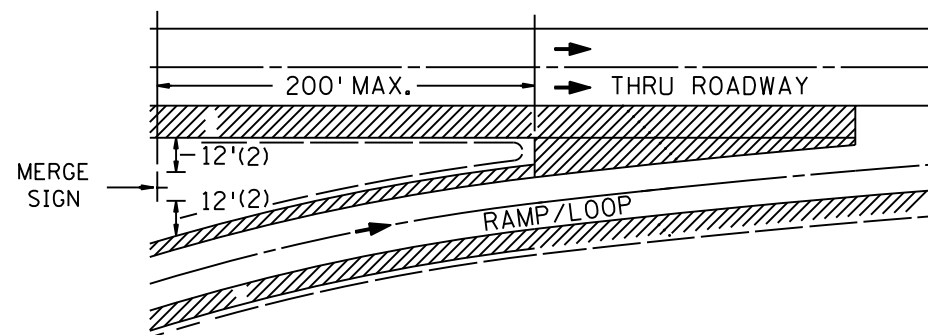


ROADSIDE PLACEMENT



ROUTE MARKER, REGULATORY & WARNING SIGNS - TYPE C
MINOR GUIDE SIGNS - TYPE D

MAJOR GUIDE SIGN - TYPE A



SPECIFIC NOTES:

(1) EXIT SIGNS

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER WHO WILL CONSULT WITH THE STATE SIGNING ENGINEER.

(2) MERGE SIGNS

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER WHO WILL CONSULT WITH THE STATE SIGNING ENGINEER.

NOTES:

1. IF A SECONDARY SIGN IS MOUNTED BELOW A MAJOR SIGN, THE MAJOR SIGN SHALL BE AT LEAST 8' ABOVE THE PAVEMENT EDGE AND THE SECONDARY SIGN AT LEAST 5'.
2. ALL ROUTE MARKERS, WARNING AND REGULATORY SIGNS SHALL BE AT LEAST 7' ABOVE PAVEMENT EDGE.
3. SIGN FACES SHALL BE VERTICAL.
4. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
5. TO AVOID SPECULAR GLARE, $\angle A$ SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF PAVEMENT AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF PAVEMENT. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
6. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
7. WHERE "X" IS LESS THAN 30', "H" SHALL BE $7' \pm 6''$. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
8. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
9. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 4 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

SIGN PLACEMENT

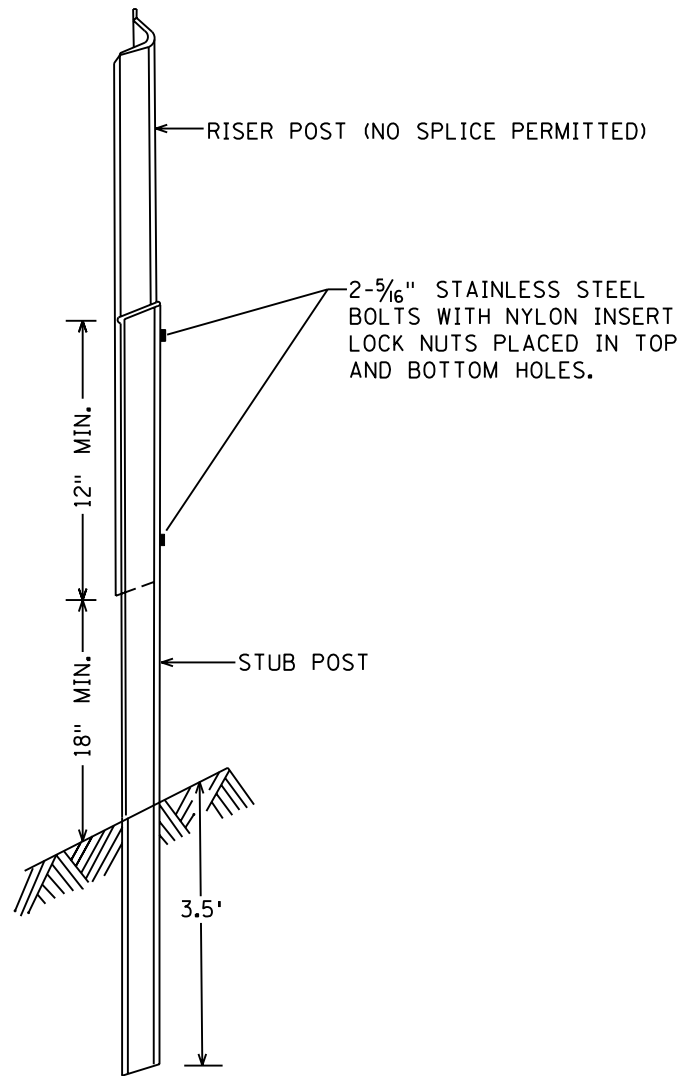
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5/6/2010

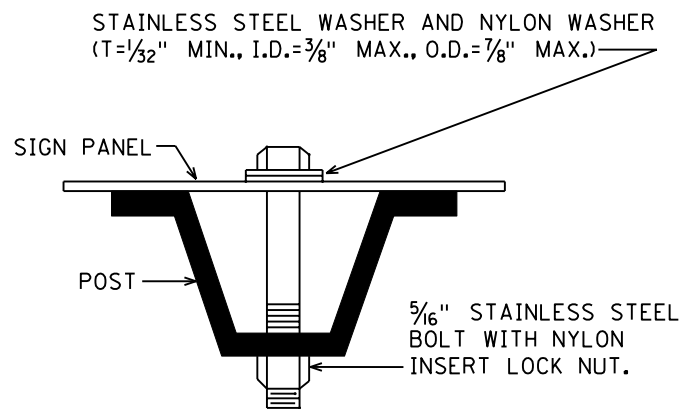
kerlickson

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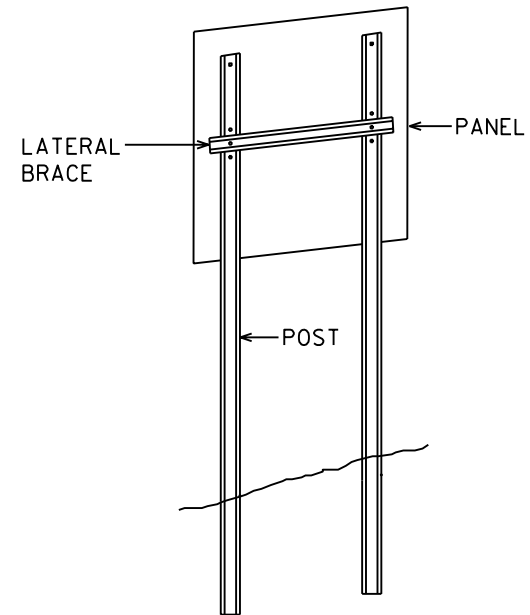
TYPE C & D POST



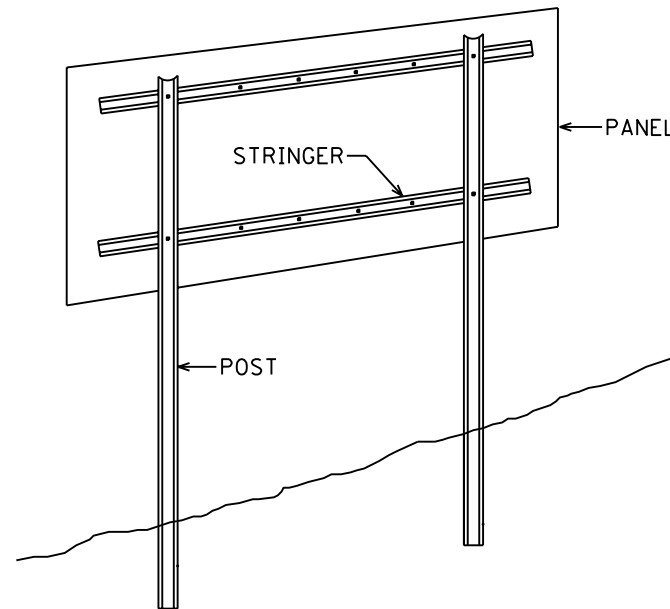
U POST SPLICE



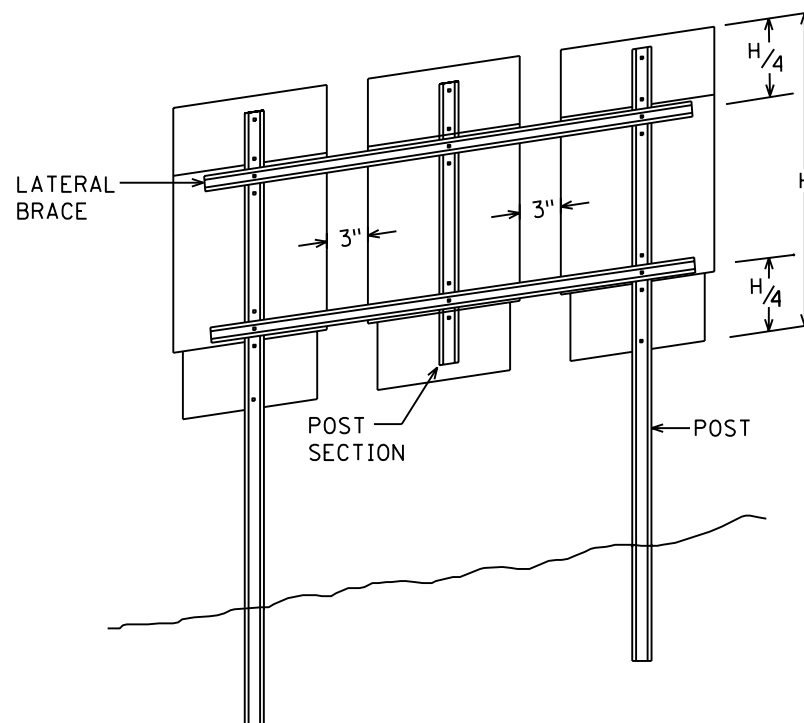
U POST MOUNTING TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

1. USE 3 LB/FT STUB POSTS, RISER POSTS, STRINGERS, KNEE BRACES, LATERAL BRACES AND KNEE BRACE STUB POSTS. ALL SHALL CONFORM TO MN/DOT 3401.
2. FOR TYPE D SIGN POSTS LENGTHS AND SPACINGS, SEE SIGN DATA SHEET.
3. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
4. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
5. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
6. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
7. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
8. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 3/2'.
9. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MN/DOT 3306 AND GALVANIZED IN ACCORDANCE WITH MN/DOT 3394.
10. COLLARS SHALL BE USED TO SHIM OVERLAYS AND DEMOUNTABLE LEGEND AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MN/DOT 3352.2A5.
11. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
12. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
13. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

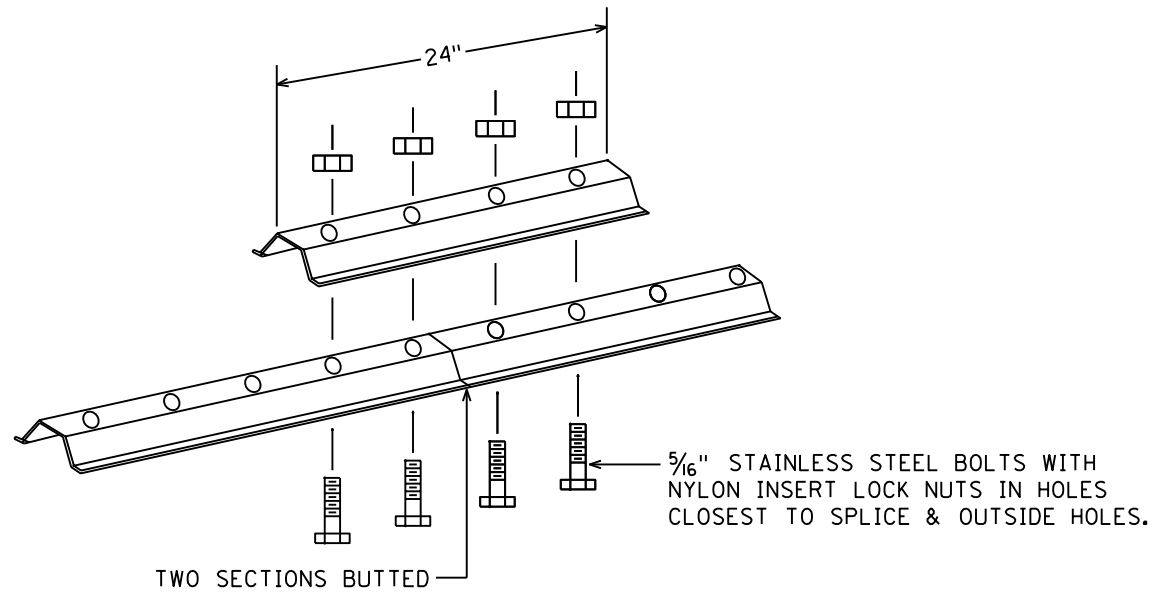
TYPE C & D SIGN STRUCTURAL DETAILS

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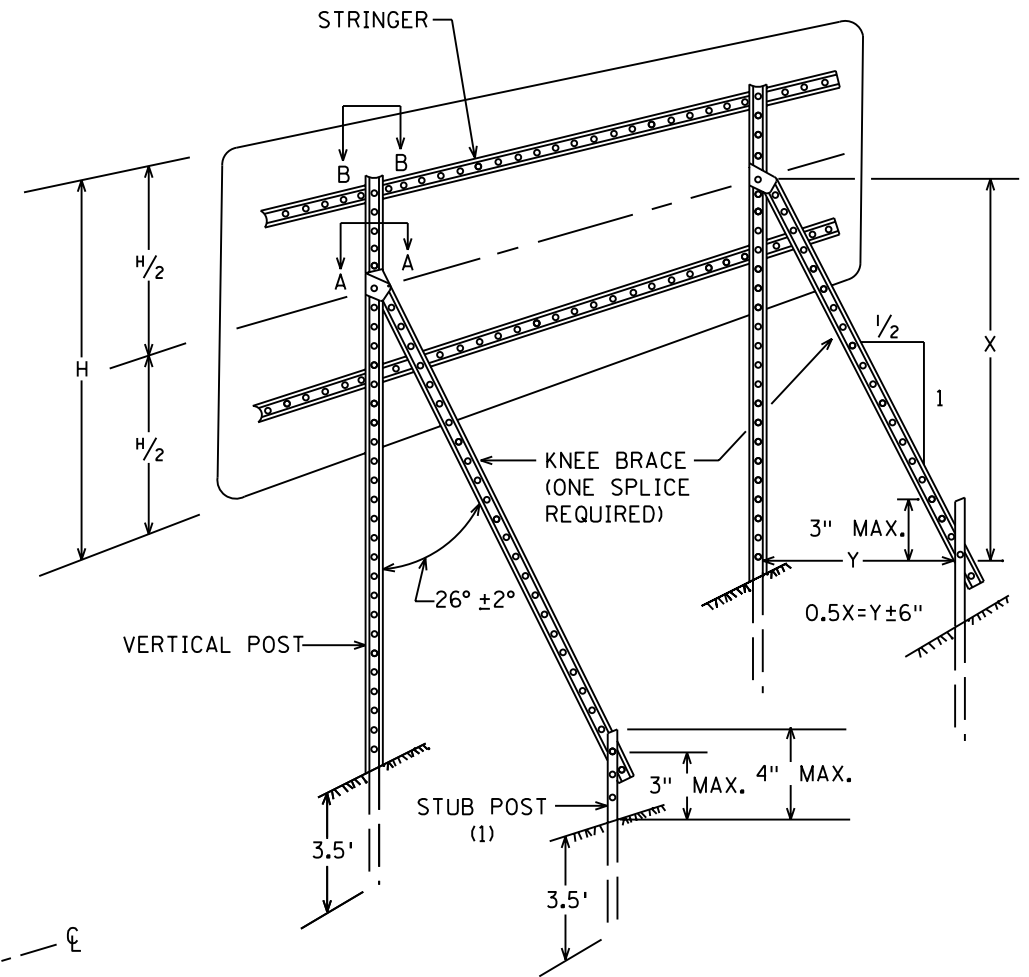
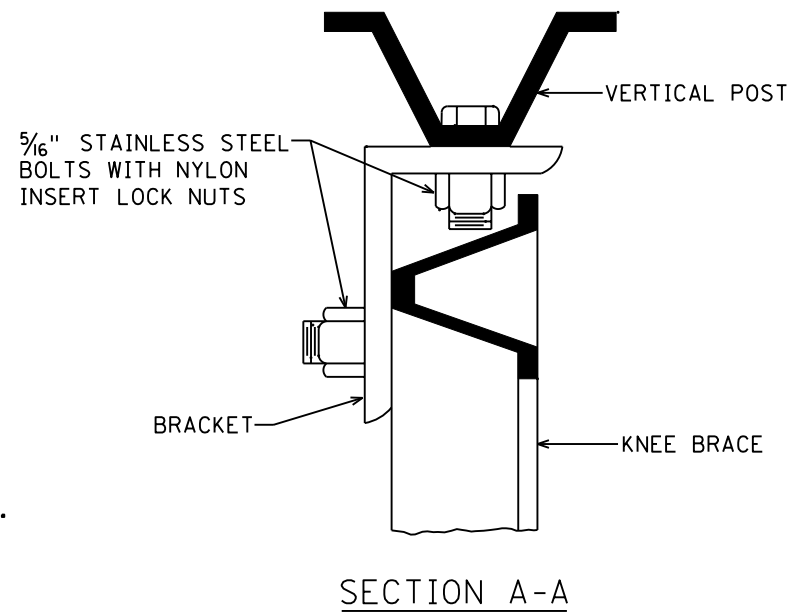
5/6/2010

kerickson

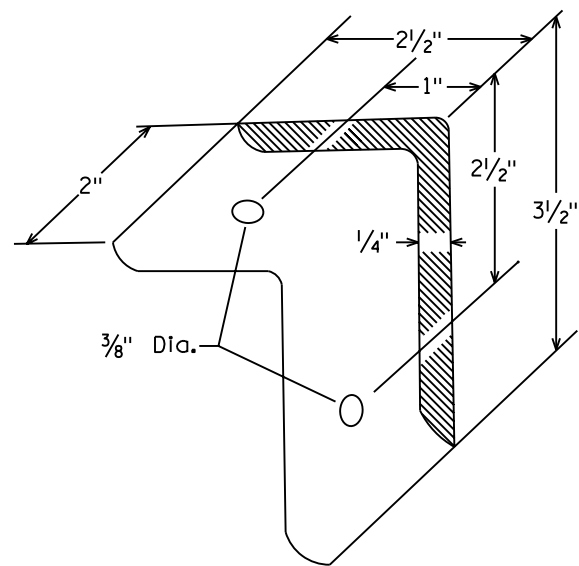
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LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)

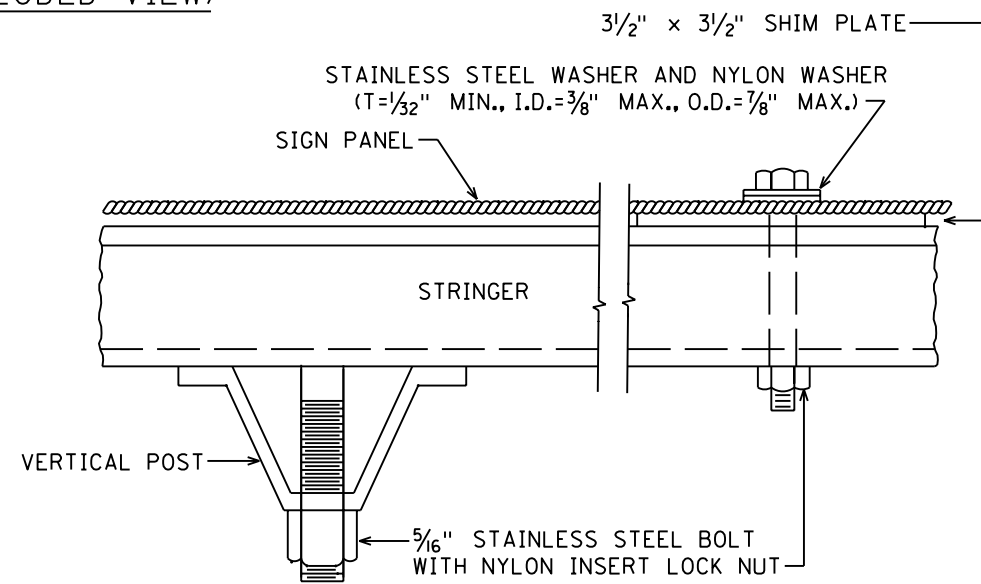


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

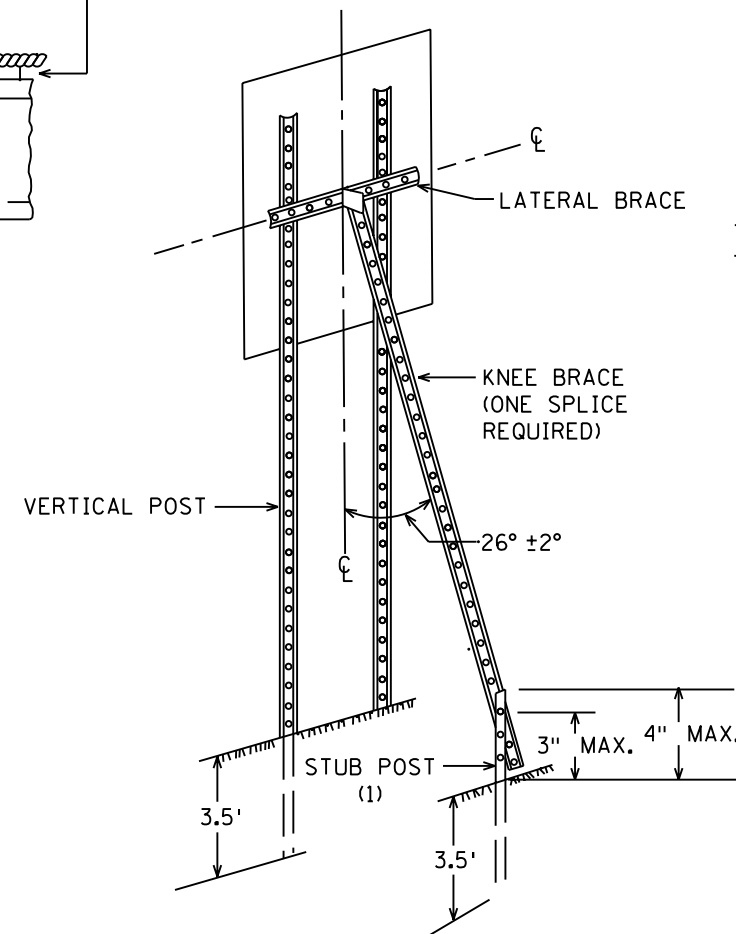


A-FRAME BRACKET

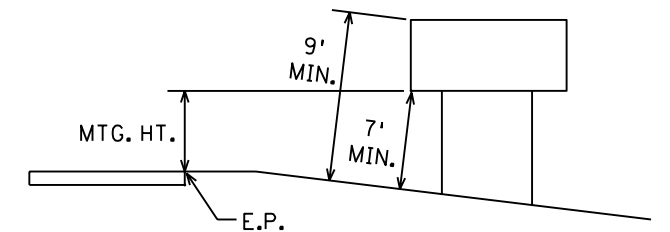
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



SECTION B-B



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



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.

TYPE C & D SIGN STRUCTURAL DETAILS

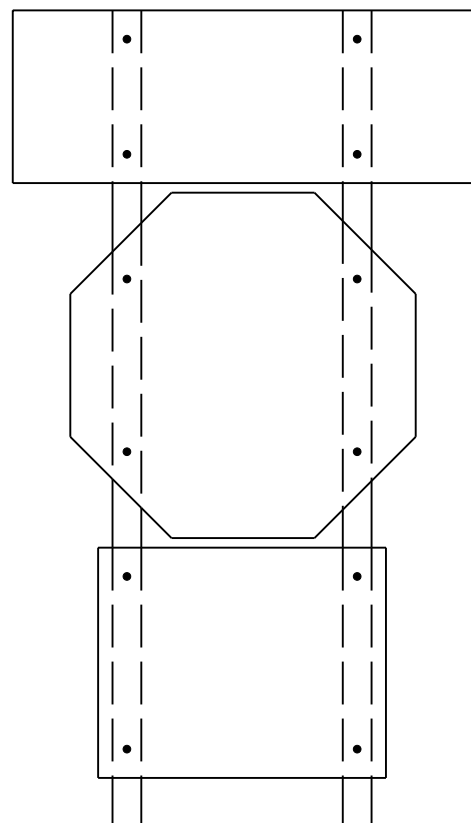
Sheet 2 of 3

SS30 OF SS53

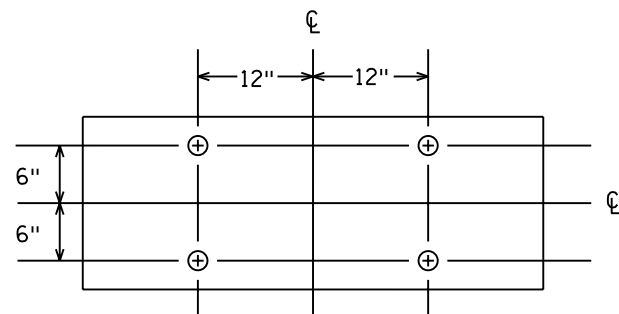
REVISED: 1-7-08

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36)

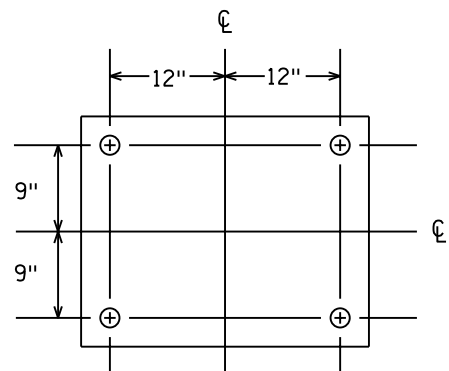
SHEET NO. 257 OF 534 SHEETS



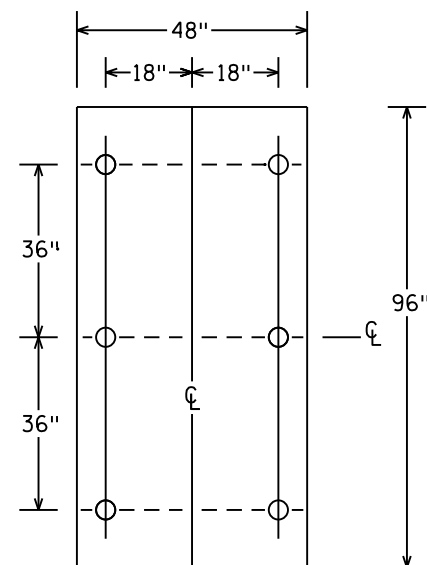
R6-1, R1-1 & (R6-3 OR R6-3a) MOUNTING



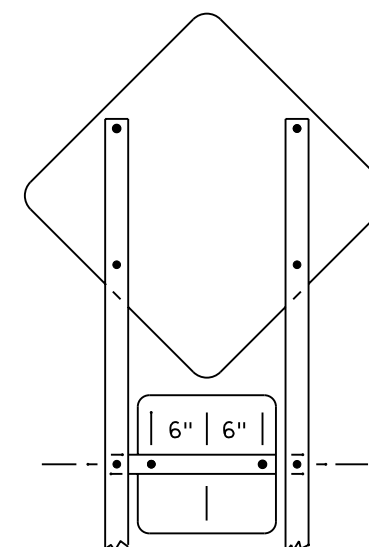
PUNCHING FOR R6-1(48" x 18")



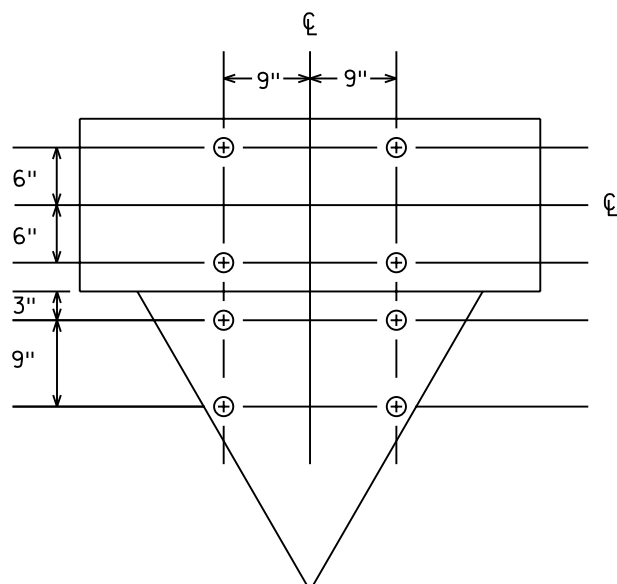
PUNCHING FOR R6-3 OR R6-3a(30" x 24")



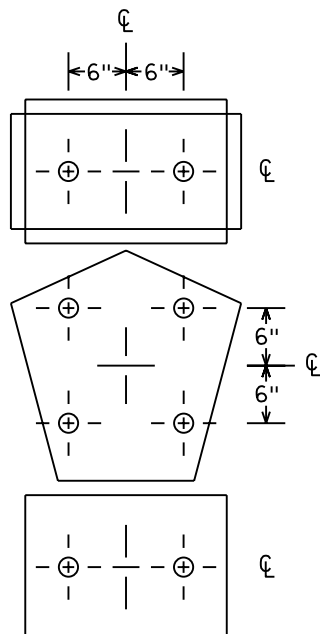
PUNCHING FOR R2-4b SPEED LIMIT



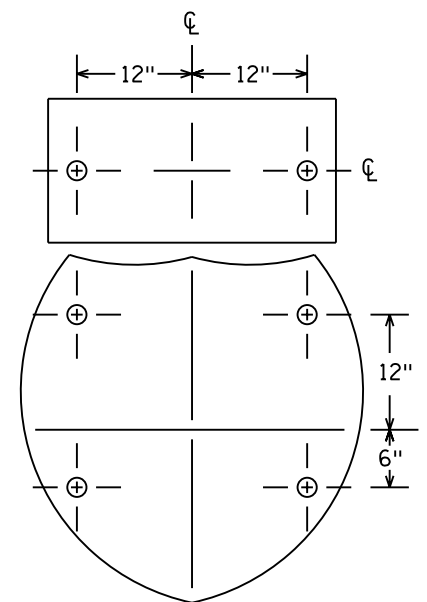
(W1-1, W1-2, W1-3, W1-4 OR W1-5) & W13-1 MOUNTING



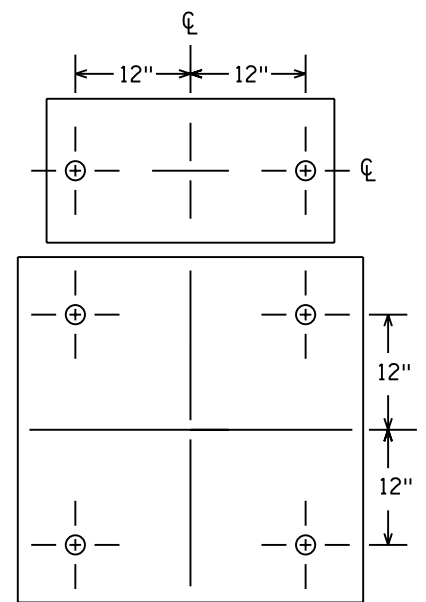
PUNCHING FOR R6-1(48" x 18") & R1-2(36" x 36")



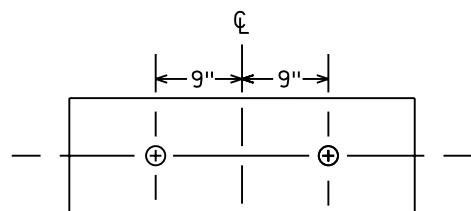
M2-1A [21" x 15"] OR (M3-1A, M3-2A, M3-3A OR M3-4A) [24" x 12"] AND M1-6 [24" x 24"] AND (M5-1A, M5-2A, M6-1A, M6-2A, M6-3A M6-4A, M6-5A OR M6-6A) [21" x 15"] PUNCHING



(M3-1A, M3-2A, M3-3A OR M3-4A) [30" x 15"] AND M1-1 [45" x 36" OR 36" x 36"] PUNCHING



(M3-1, M3-1A, M3-2, M3-2A, M3-3, M3-3A M3-4 OR M3-4A) [30" x 15"] AND (M1-4 OR M1-5A) [36" x 36"] PUNCHING



PUNCHING FOR R6-1(36" x 12")

TYPE C & D SIGN STRUCTURAL DETAILS

Sheet 3 of 3

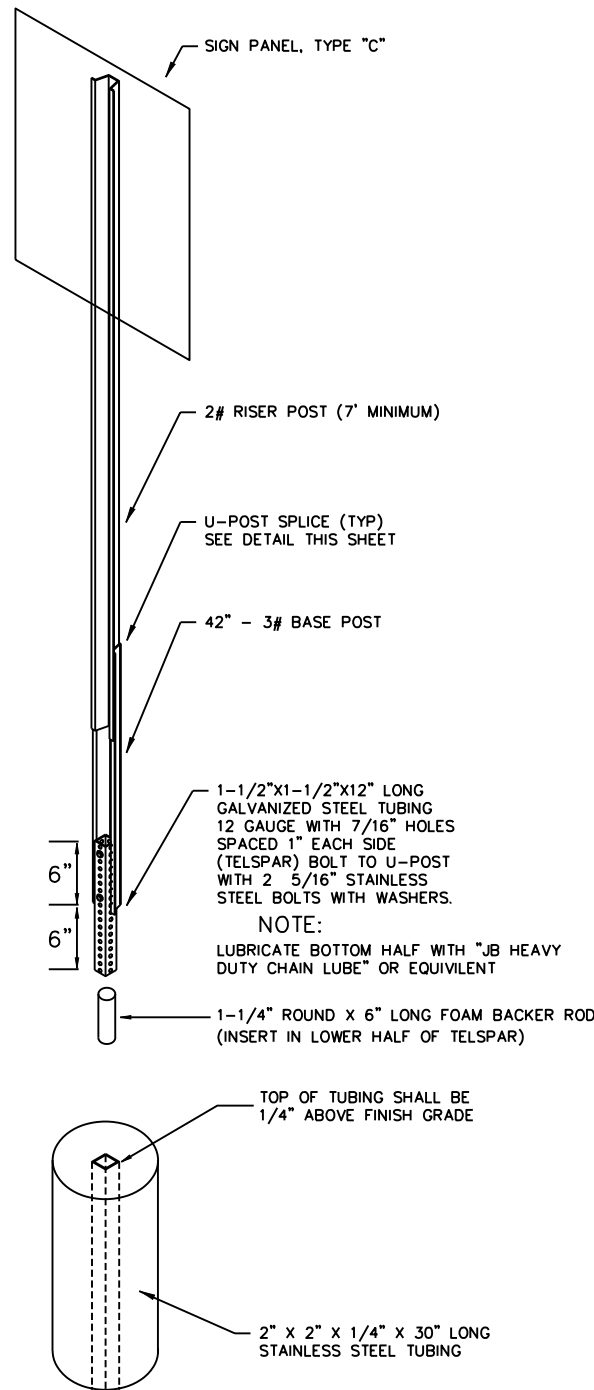
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5/6/2010

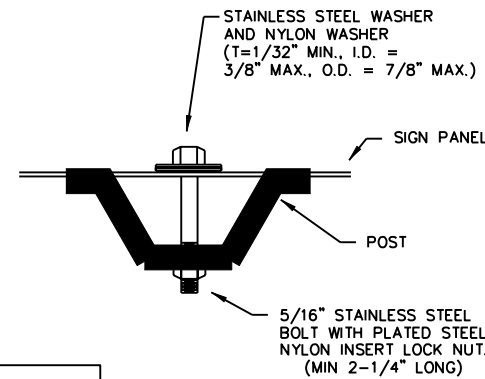
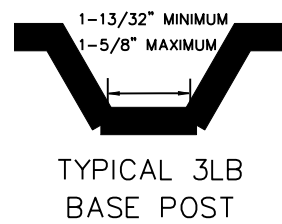
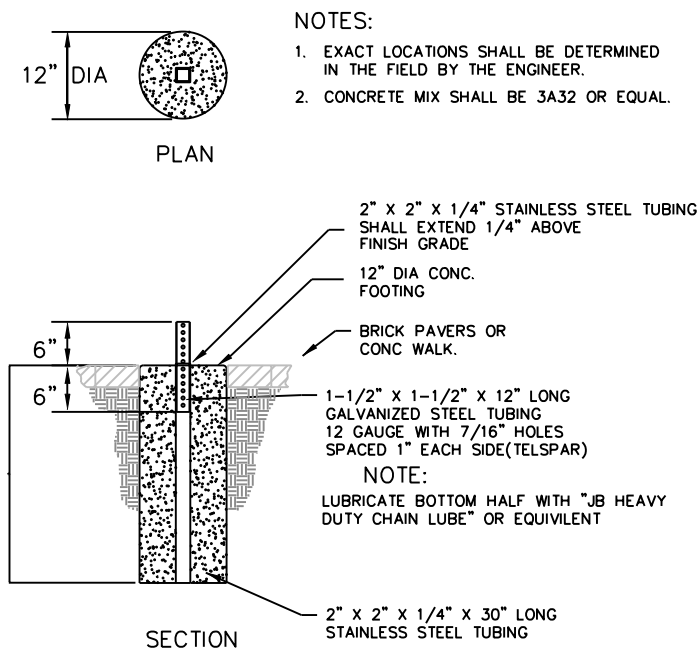
kerickson

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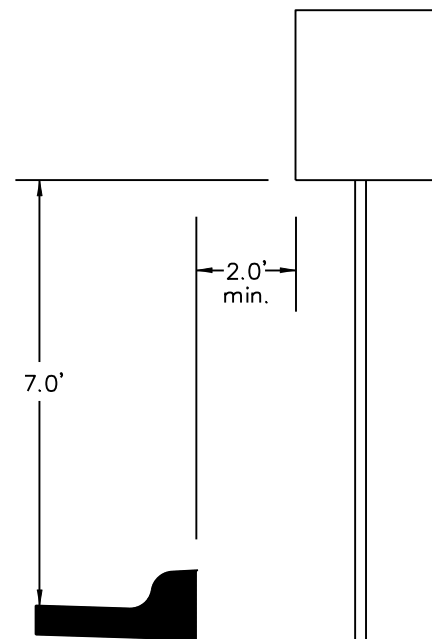
BREAKAWAY SIGN POST (FOR TYPE "C" SIGNS INSTALLED IN CONCRETE)



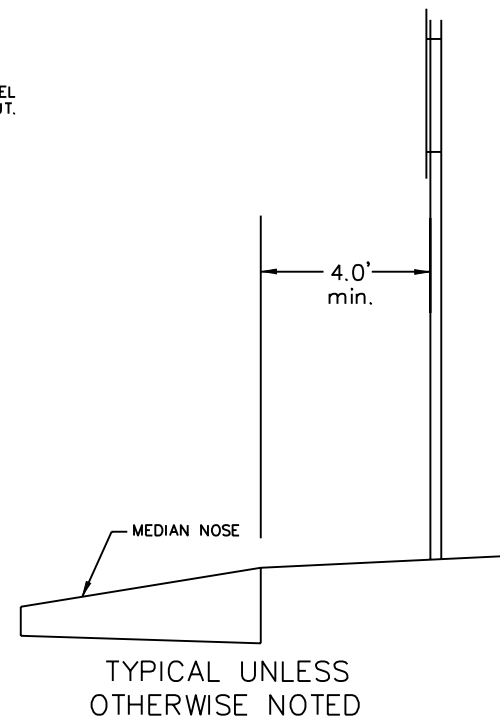
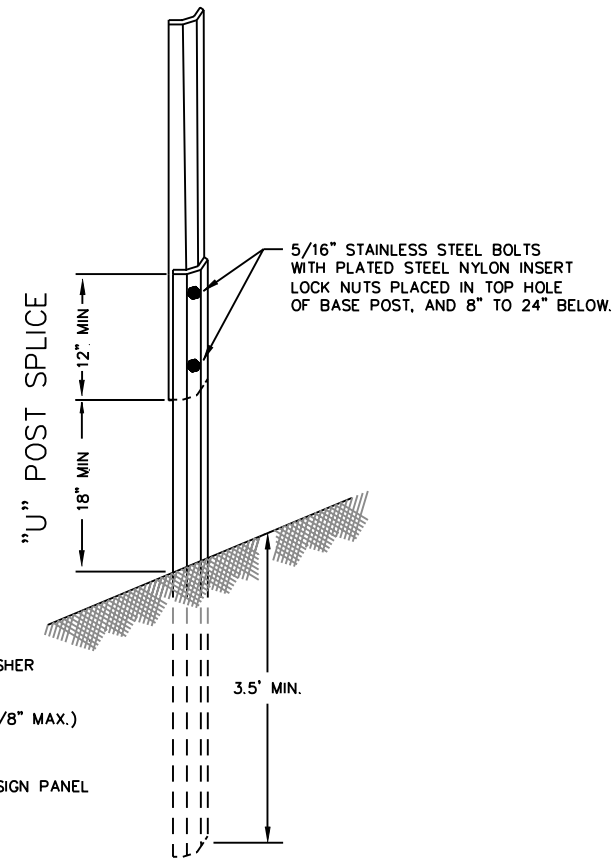
BREAKAWAY SIGN POST FOUNDATION (FOR TYPE "C" SIGNS INSTALLED IN CONCRETE)



"U" POST MOUNTING TYPE "C" SIGNS



TYPE "C" POST (GROUND INSTALLATION)



NOTES:

1. USE 3# RISER STUB POSTS, WITH 2# RISER POSTS, ALL SHALL CONFORM TO MN/DOT SPECIFICATION 3401.
2. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
3. ALL RISER (VERTICAL) "U" POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7 FEET LONG.
4. USE STAINLESS STEEL 5/16" BOLTS AND WASHERS WITH PLATED STEEL NYLON INSERT LOCK NUTS AS SHOWN.
5. STAINLESS STEEL WASHER WITH THE SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
6. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - JANUARY 2004 OR NEWER.

DESIGN TEAM				
DR	MPM			
DESIGNER:	MPM			
CHECKED BY:	BWJ			
NO.	BY	DATE	REVISIONS	

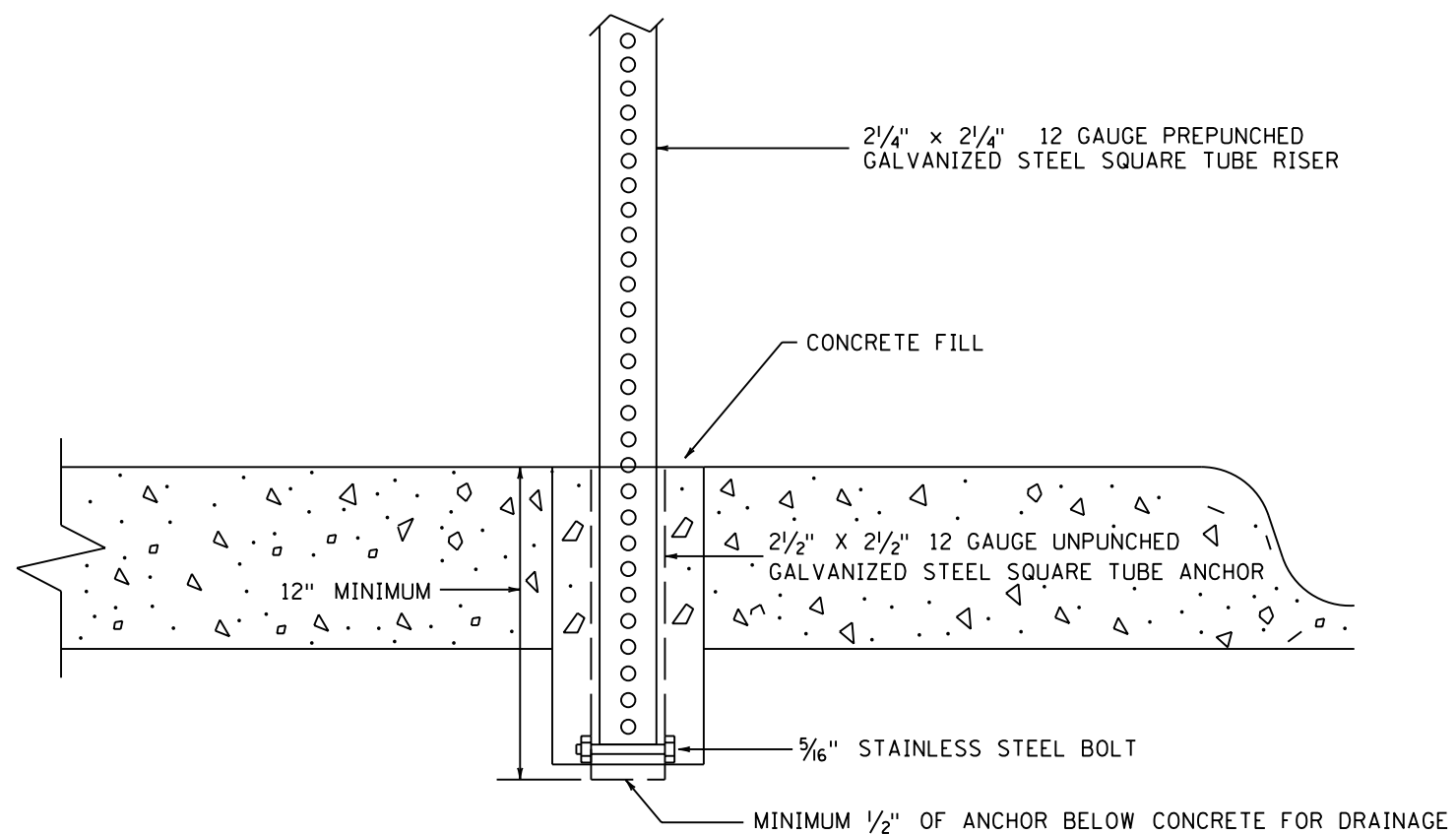
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RAMSEY COUNTY
 SIGNING DETAILS

FILE NO.
 RAMSP108790
 SS32
 OF SS53
 259
 534



NOTES:

1. DRILL AN 8" DIAMETER HOLE THE FULL DEPTH OF THE ANCHOR.
2. DRILL 3/8" HOLES ON OPPOSITE SIDES OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR APPROX. 1" FROM THE BOTTOM OF THE ANCHOR. INSERT A 5/16" STAINLESS STEEL BOLT THROUGH THE HOLES AND SECURE WITH A STAINLESS STEEL LOCK NUT WITH NYLON INSERT. THE PREPUNCHED GALVANIZED STEEL SQUARE TUBE RISER (TO BE INSERTED INSIDE THE UNPUNCHED GALVANIZED SQUARE TUBE ANCHOR) WILL REST ON BOLT.
3. INSERT THE ANCHOR IN THE HOLE.
4. AFTER INSTALLATION OF THE UNPUNCHED GALVANIZED STEEL SQUARE TUBE ANCHOR, FILL THE HOLE WITH A CONCRETE MIX APPROVED BY THE ENGINEER AND LEVEL OFF THE TOP OF CONCRETE.

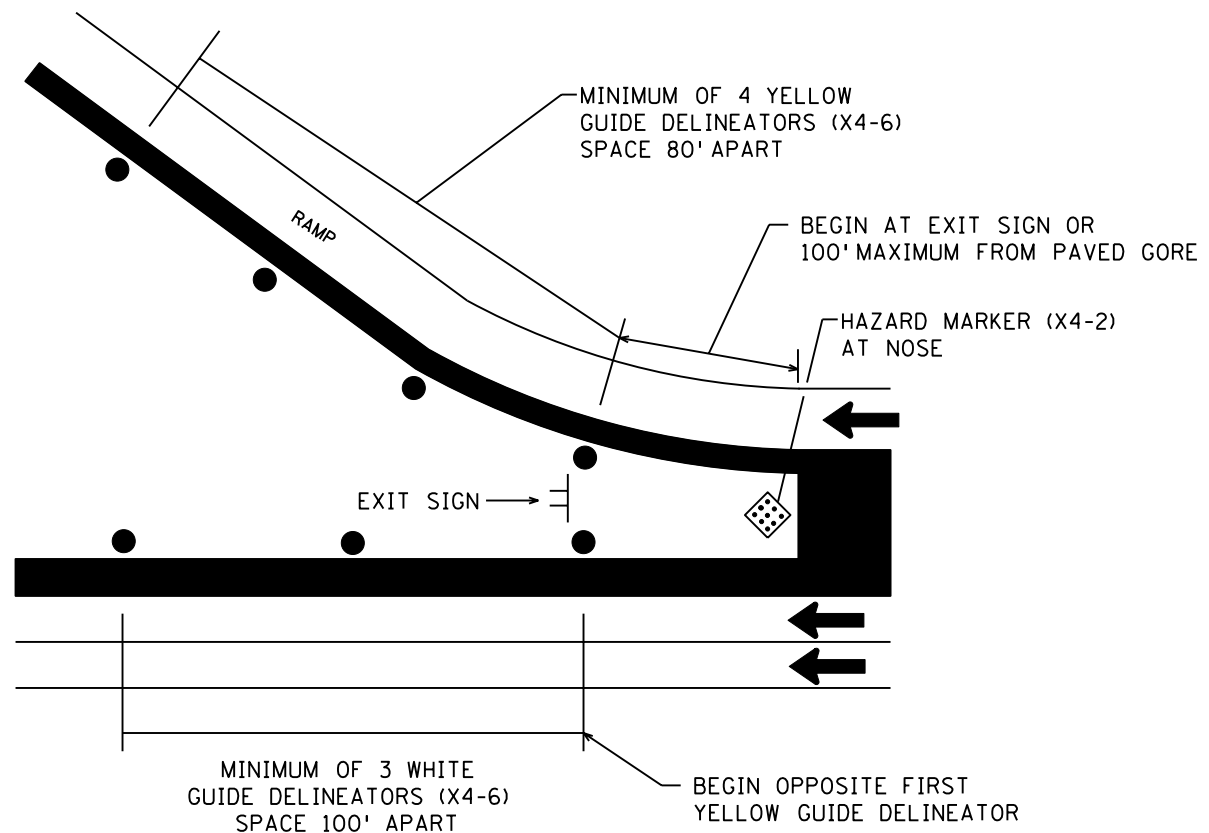
TYPE C SIGNS, DELINEATORS &
MARKERS IN CONCRETE

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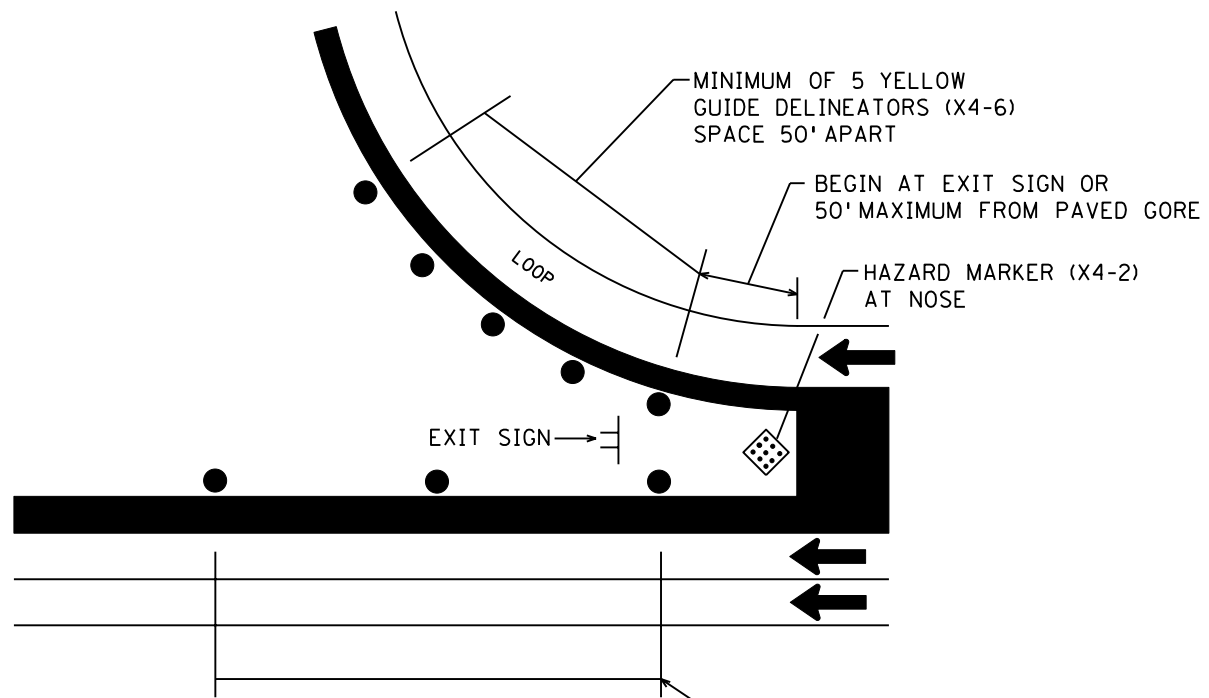
5/6/2010

kerlickson

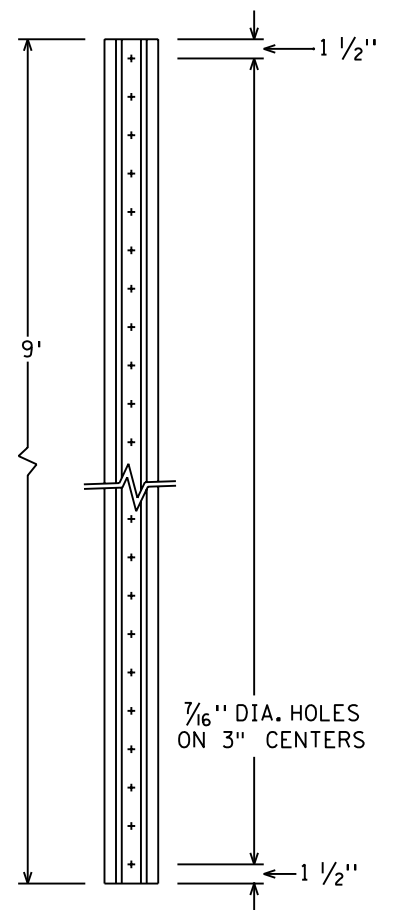
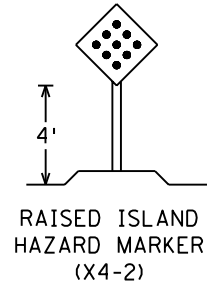
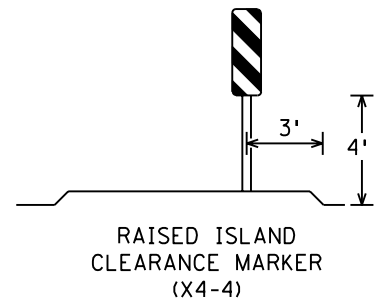
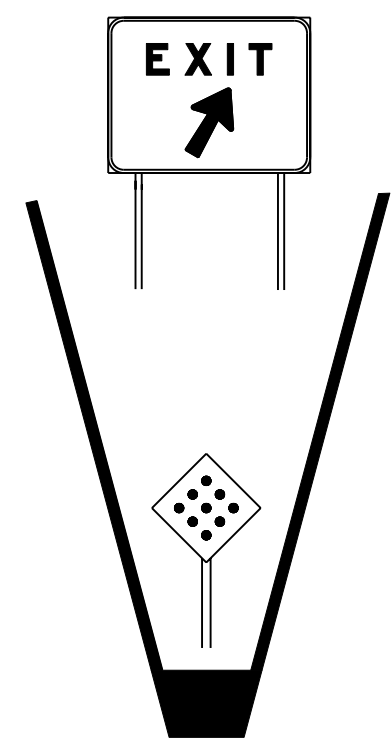
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PLAN A
RAMP DELINEATION

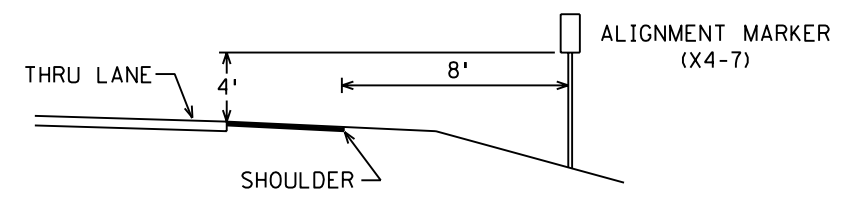
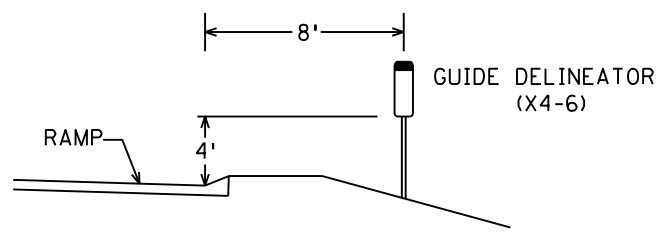
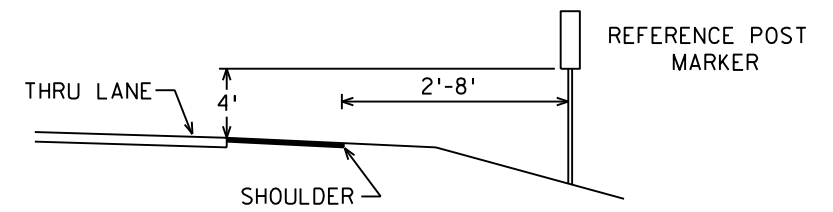
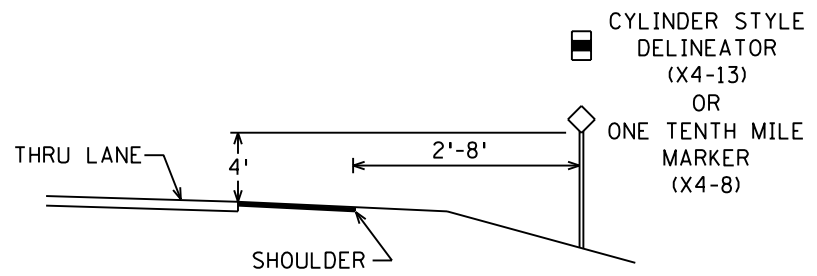


PLAN B
LOOP DELINEATION



MN/DOT 3401
NORMAL WEIGHT = 2 LB./FT.

DELINEATOR POST



TYPICAL PLACEMENT

DELINEATORS AND MARKERS

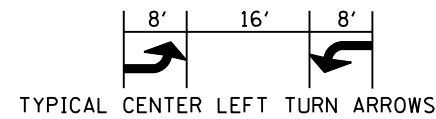
REVISED: 1-21-09

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36)

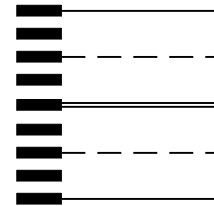
SS34 OF SS53
SHEET NO. 261 OF 534 SHEETS

STRIPING DETAILS

- 4" SKIP CYCLE (10' LINE with 30' SPACE - 40' OVERALL)
- 8" SKIP CYCLE (3' LINE with 12' SPACE - 15' OVERALL)



- CROSSWALK BLOCKS ARE CENTERED ON AND BETWEEN LANE LINES (DISTANCE BETWEEN IS VARIABLE)

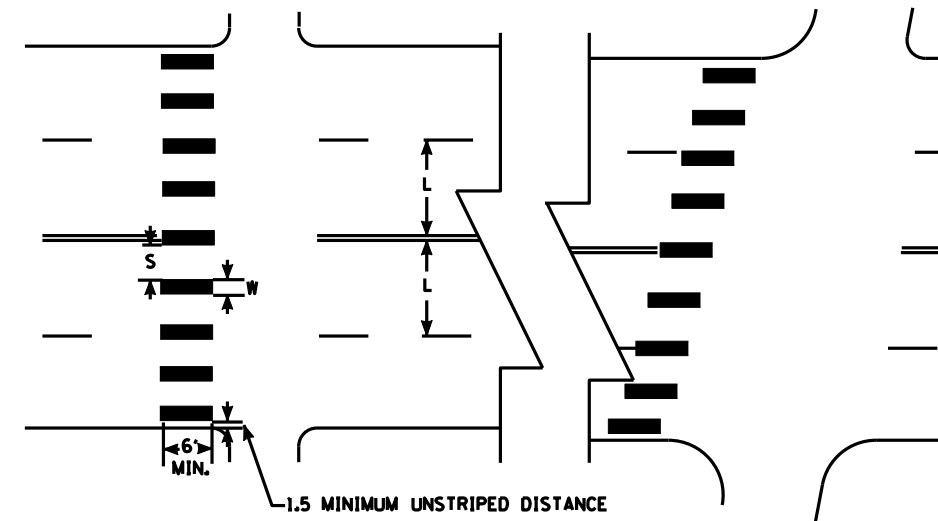


- CROSSWALK BLOCKS ARE
 - 2.5' WIDE
 - 6' LONG AT CONTROLLED INTERSECTIONS
 - 8' LONG AT MIDBLOCK LOCATIONS
 - 8' LONG AT UN-CONTROLLED INTERSECTIONS

RAMSEY COUNTY PAVEMENT MARKING TYPICALS
(NOT FOR USE WITHIN MN/DOT RIGHT OF WAY AND/OR TH 36 RAMPS)

MARKINGS FOR PEDESTRIAN CROSSWALKS

(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) 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:

1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
2. A MINIMUM OF 1.5 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
3. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
5. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.

MN/DOT PAVEMENT MARKING TYPICALS
(FOR USE WITHIN MN/DOT RIGHT OF WAY AND/OR TH 36 RAMPS)

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>MPM</u>				
CHECKED BY: <u>BWJ</u>				

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.
 Certified By: Michael P. McCurdy Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

PAVEMENT MARKING TYPICALS

FILE NO.
RAMSP08790
SS35
OF SS53

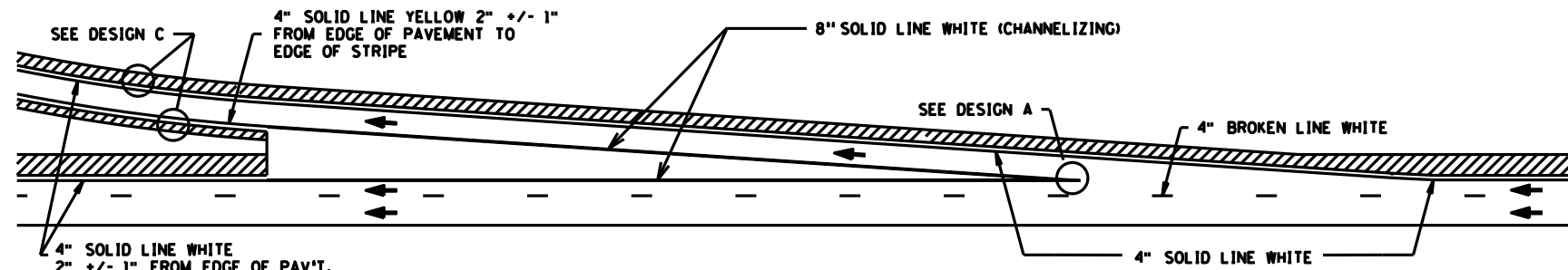
262
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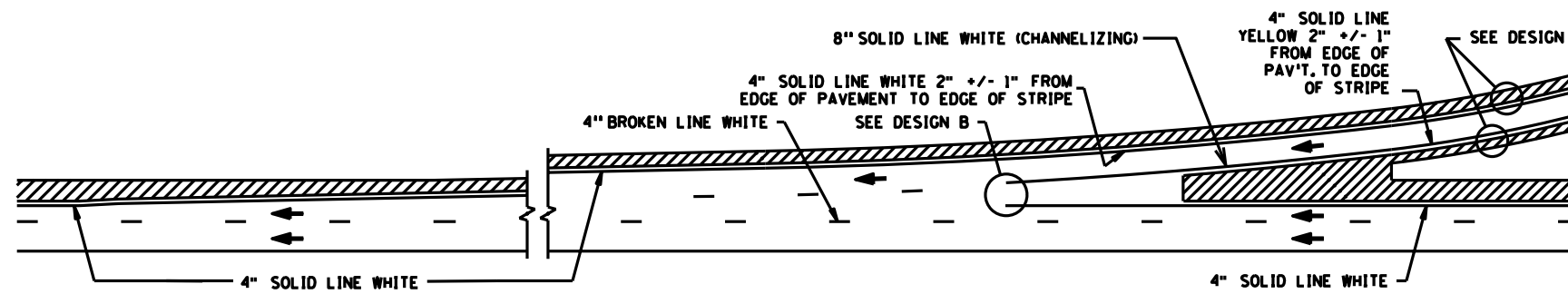
5/6/2010

kerlickson

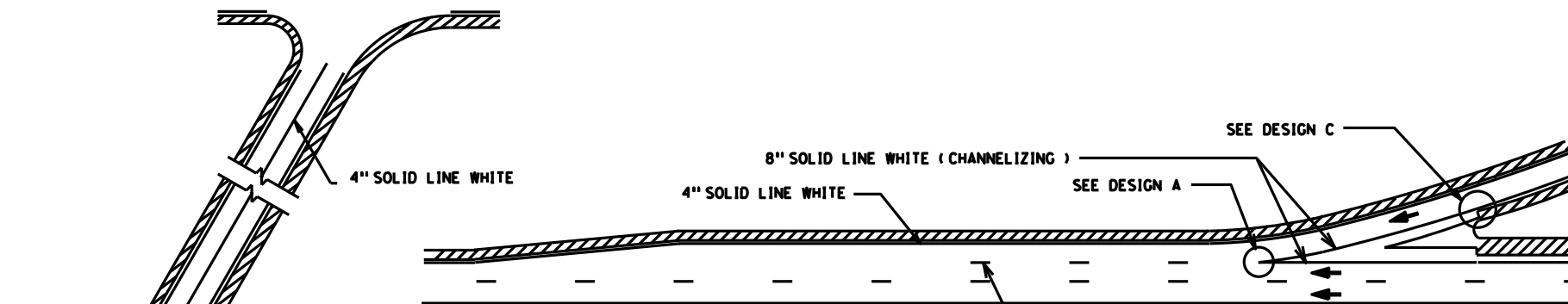
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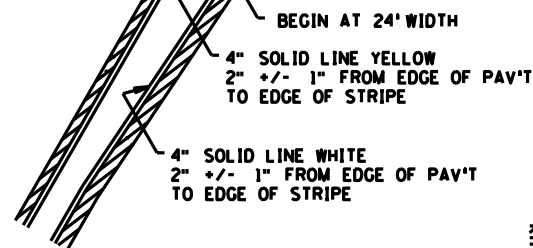
EXIT RAMP MARKINGS



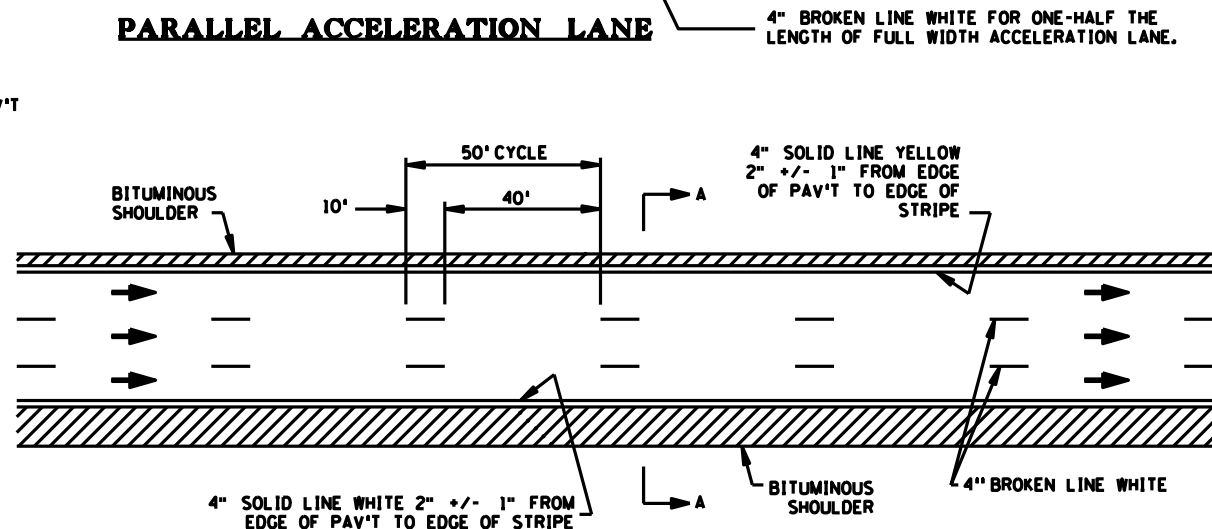
TAPERED ACCELERATION LANE



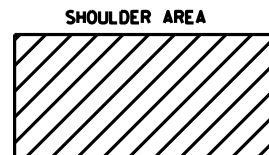
PARALLEL ACCELERATION LANE



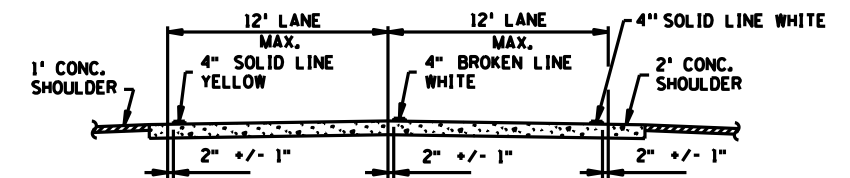
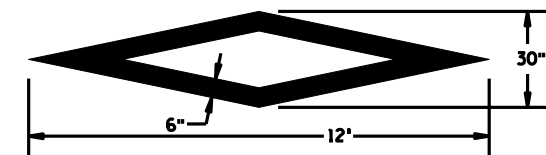
RAMP MARKINGS



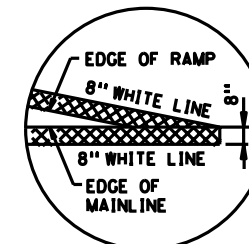
THROUGH LANE MARKINGS



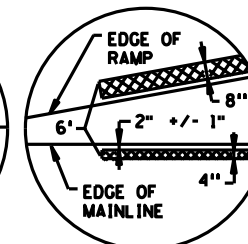
WHITE HOV PAVEMENT MARKER



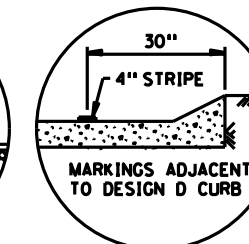
SECTION A-A (TWO LANES)



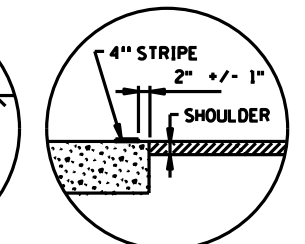
DESIGN A



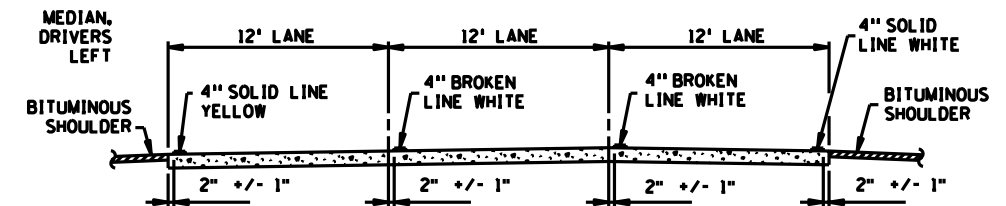
DESIGN B



DESIGN C URBAN



DESIGN C RURAL



SECTION A-A (THREE LANES)

SS36 OF SS53

PAVEMENT MARKING TYPICALS

REVISED: 02-JAN-2004

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36)

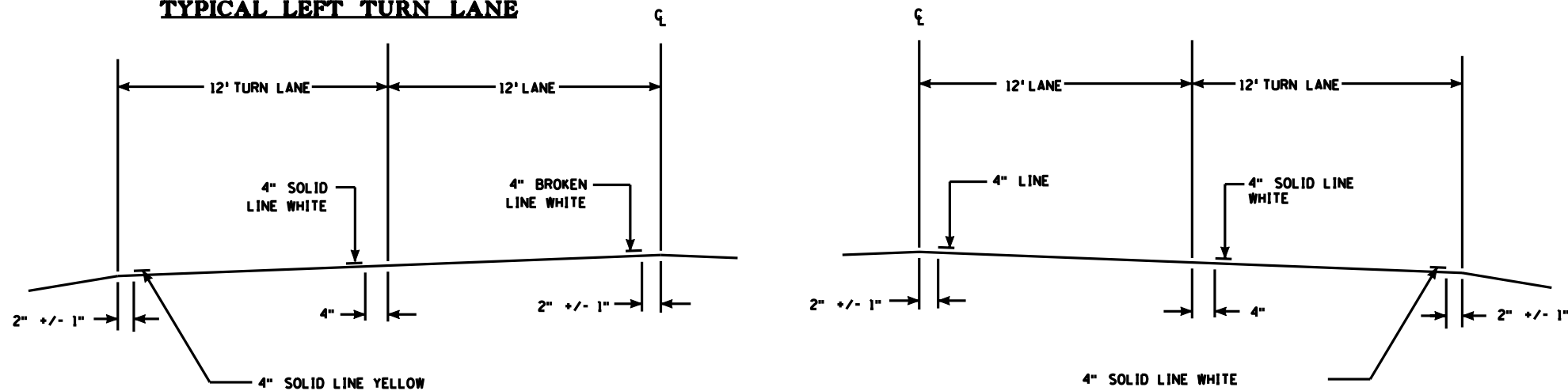
SHEET NO. 263 OF 534 SHEETS

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5/6/2010

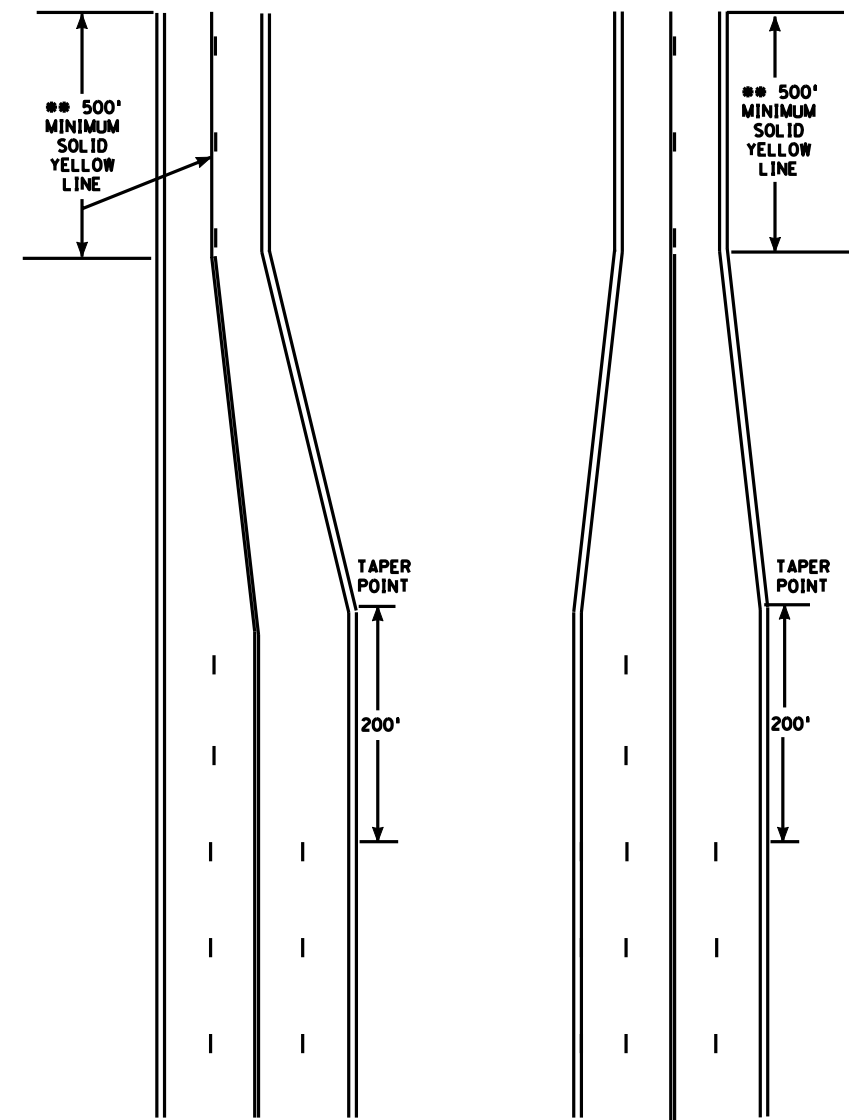
kerlickson

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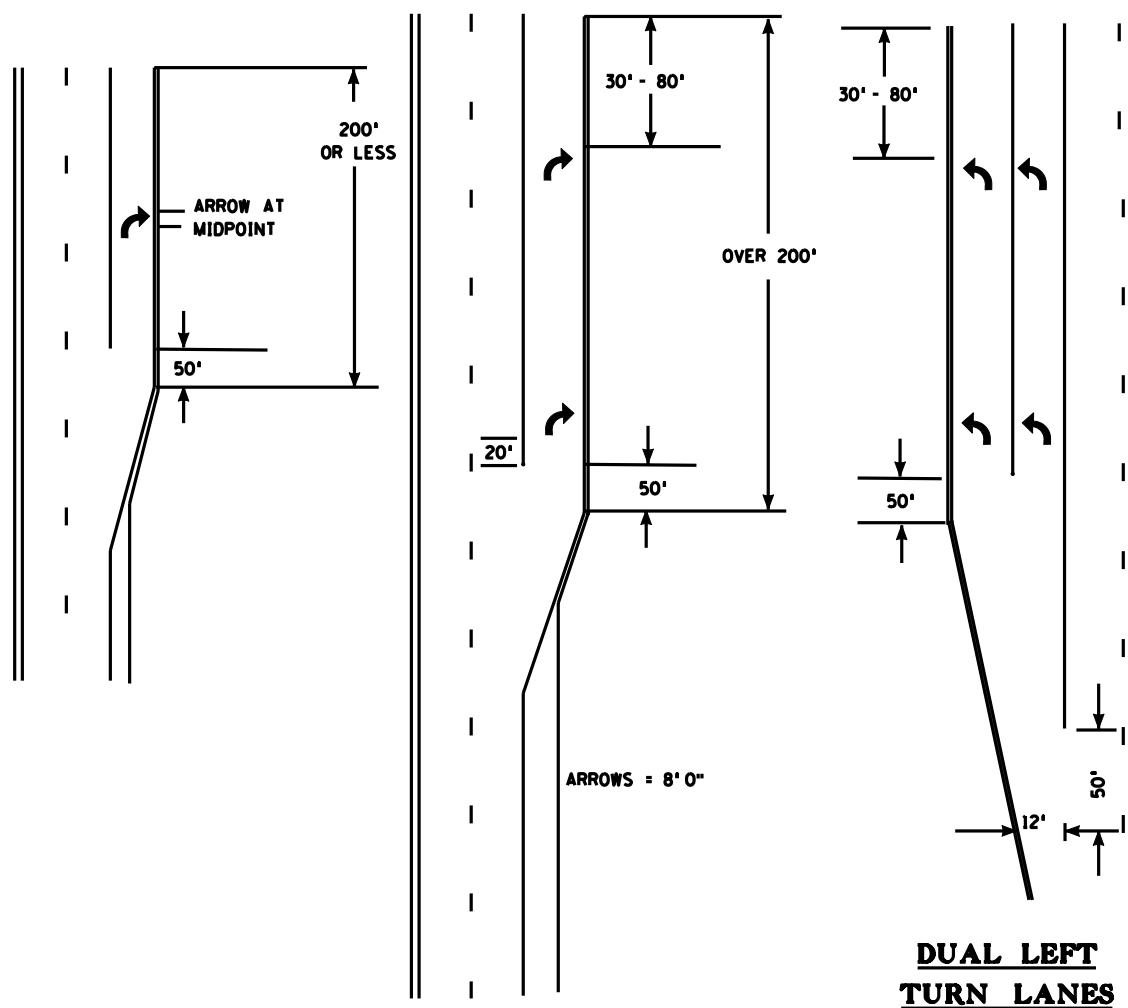
TYPICAL LEFT TURN LANE



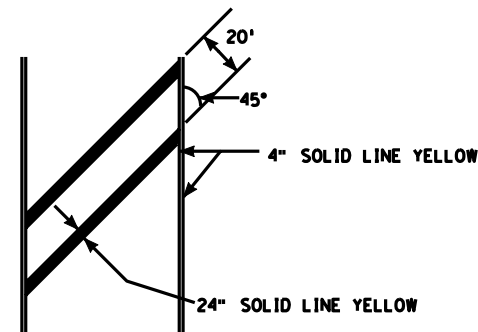
TYPICAL LANE REDUCTION TRANSITION



TYPICAL MESSAGE PLACEMENT FOR TURN LANES



TYPICAL MARKINGS FOR LEFT TURN ISLANDS



AT SPEEDS LESS THAN 40 MPH THE WIDTH OF THE CROSSHATCH LINE MAY BE REDUCED TO 12\".

AT SPEEDS 40 MPH AND OVER THE SPACING MAY BE INCREASED TO 30' BETWEEN CROSSHATCH LINES.

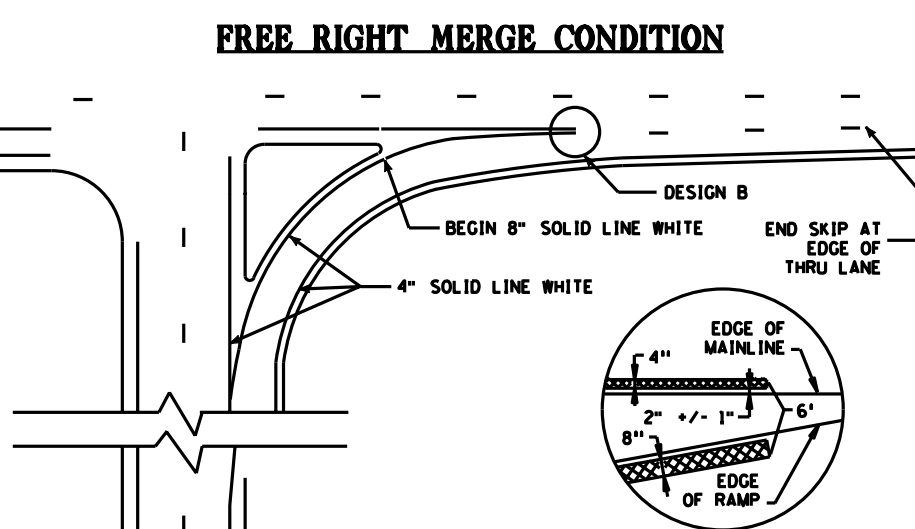
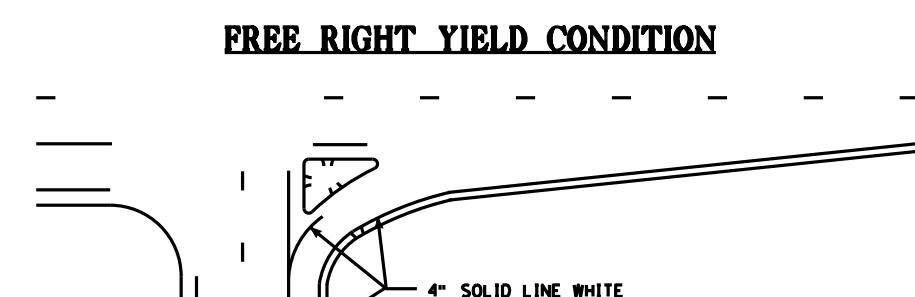
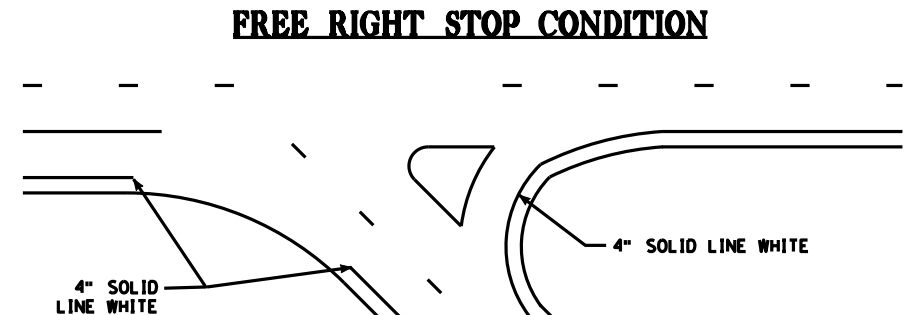
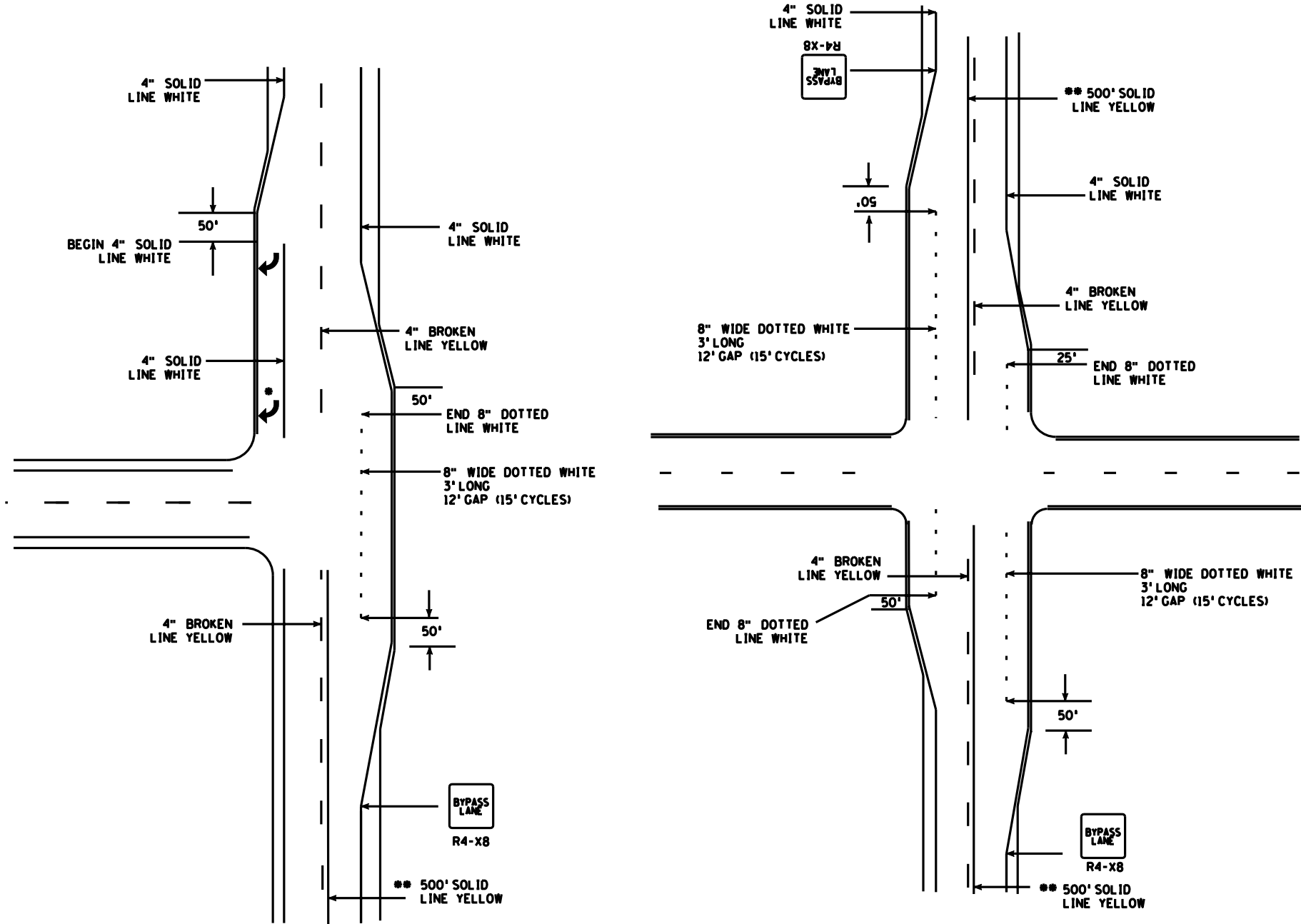
* SEE "TYPICAL MESSAGE PLACEMENT FOR TURN LANES" FOR NUMBER OF ARROWS.

** IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN THE CHART BELOW FROM THE END OF A PRECEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.

35 MPH SPEED LIMIT OR LESS.....	500'
40-50 MPH SPEED LIMIT.....	650'
55 MPH SPEED LIMIT.....	800'

500' SOLID YELLOW

MARKINGS FOR BYPASS LANES



* SEE "TYPICAL MESSAGE PLACEMENT FOR TURN LANES" FOR NUMBER OF ARROWS.

** THE 500' NO PASSING ZONE APPROACHING THE BYPASS LANE AS SHOWN IS A MN/DOT METRO DISTRICT STANDARD. IF THE DISTANCE BETWEEN THE BEGINNING OF THE SOLID LINE YELLOW IS LESS THAN THE DISTANCES IN THE CHART BELOW FROM THE END OF A PRECEDING SOLID LINE YELLOW IN THE SAME LANE, THE SOLID LINE SHALL BE EXTENDED BETWEEN THEM.

35 MPH SPEED LIMIT OR LESS.....	500'
40-50 MPH SPEED LIMIT.....	650'
55 MPH SPEED LIMIT.....	800'

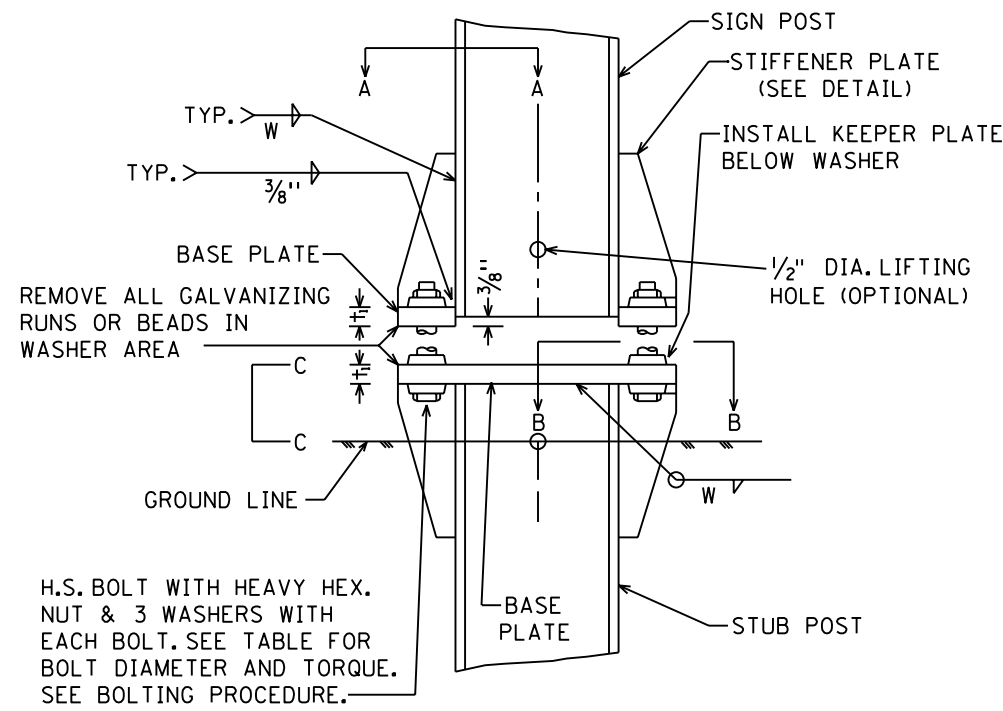
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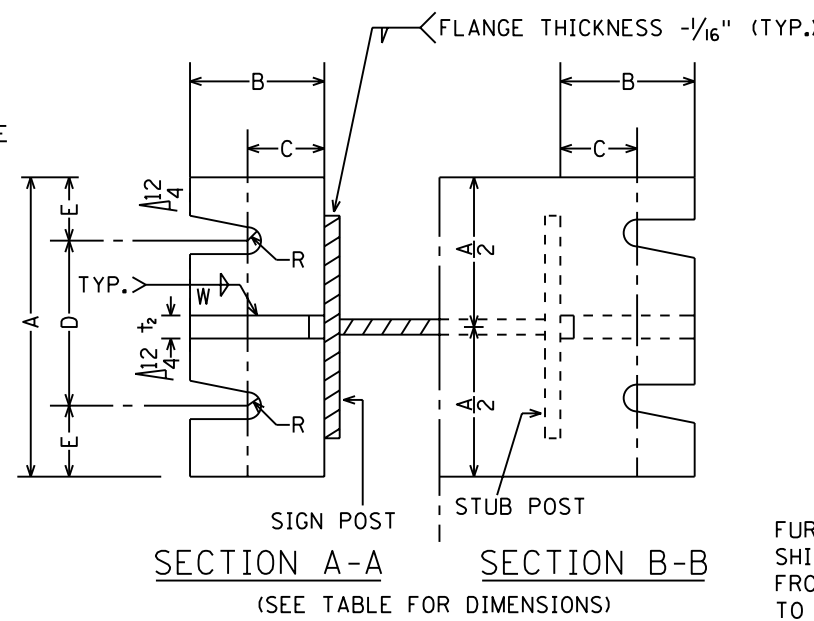
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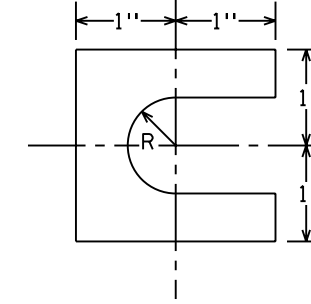
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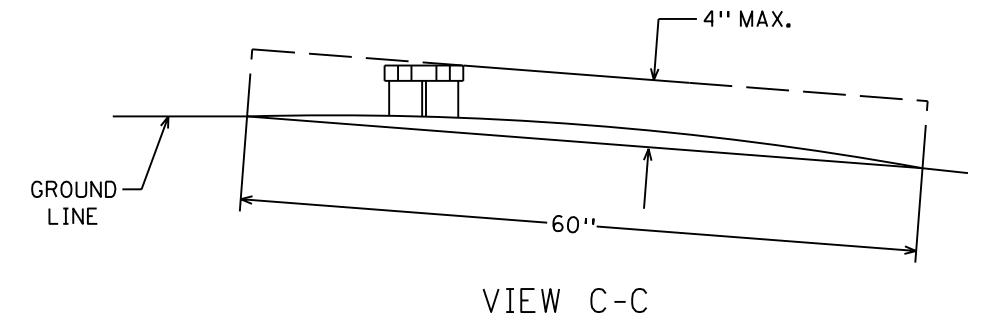
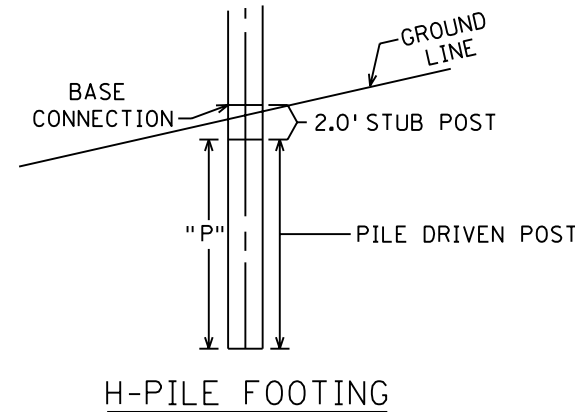
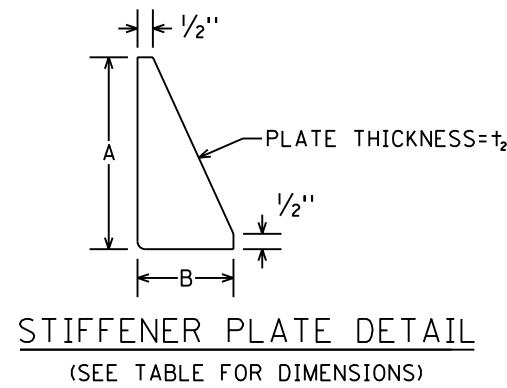
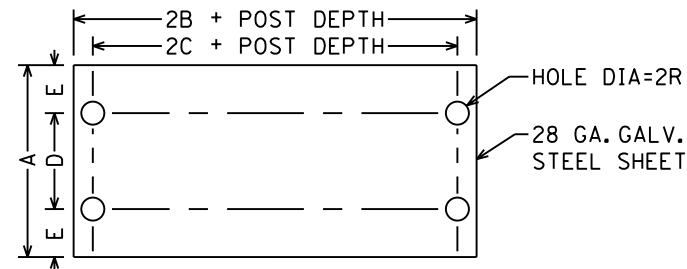
SIGN POST AND STUB POST ELEVATION



SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FROM THAT SHOWN FOR INSTALLATIONS ON LEFT SHOULDER.



FURNISH TWO-.012"± THICK AND TWO-.032"± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B36.



MAXIMUM PROJECTION OF STUB POST SHALL NOT EXTEND BEYOND A LINE, ABOVE AND 4" PARALLEL TO ANY CHORD, WHICH IS PERPENDICULAR TO (OR ALIGNED RADIALLY TO) THE CENTERLINE OF THE HIGHWAY AND HAS ITS (THE CHORD'S) END POINTS ON THE GROUND SURFACE ON OPPOSITE SIDES OF THE STUB POST.

DIMENSION POST SIZE	BASE CONNECTION DATA	FUUSE AND HINGE PLATE DATA										FOOTING DATA										
		BOLT SIZE AND TORQUE	A	B	C	D	E	t ₁	t ₂	W	R	G	H	J	K	L	M	d ₁	d ₂	t ₃	BOLT DIA.	STUB POST LENGTH ①
W4X13	3/4" DIA. x 3-1/2" TORQUE=600"*	6"	2 1/2"	1 1/2"	3 1/2"	1 1/4"	1"	1/2"	1/4"	13/32"	2"	1 1/4"	4"	2 1/4"	7/8"	1"	1 1/16"	3/4"	3/8"	5/8"	2'	12'
W5X16	TORQUE=600"*	6"	2 1/2"	1 1/2"	3 1/2"	1 1/4"	1"	1/2"	1/4"	13/32"	2 1/2"	1 1/4"	5"	2 3/4"	1 1/8"	1 1/8"	1 3/16"	7/8"	3/8"	3/4"	2'	12'
W6X20	7/8" DIA. x 4-1/4" TORQUE=800"*	8"	3"	1 3/4"	4"	2"	1 1/4"	1/2"	1/4"	15/32"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	1 3/8"	1 3/16"	1 1/8"	3/8"	3/4"	2'	12'
W8X24	TORQUE=800"*	8"	3"	2"	4"	2"	1 1/2"	3/4"	5/16"	17/32"	2 1/2"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	1 1/2"	1 5/16"	1 1/4"	1/2"	7/8"	2'	12'
W8X28	1" DIA. x 5" TORQUE=1000"*	8"	3"	2"	4"	2"	1 1/2"	3/4"	5/16"	17/32"	2 1/2"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	1 5/8"	1 1/16"	1 1/8"	1/2"	1"	2'	12'
W8X31	1-1/8" DIA. x 5" TORQUE=1200"*	9"	3 1/2"	2"	5"	2"	1 1/2"	3/4"	5/16"	19/32"	3"	1 3/4"	8"	5 1/2"	1 1/4"	2"	1 1/16"	1 1/2"	1/2"	1"	2'	12'
② W10X39	TORQUE=1200"*	9"	3 1/2"	2"	5"	2"	1 1/2"	3/4"	5/16"	19/32"	3"	1 3/4"	8"	5 1/2"	1 1/4"	1 7/8"	1 3/16"	1 3/8"	1/2"	1 1/8"	2'	12'

SPECIFIC NOTES:

- ① MEASURED FROM TOP OF BASE PLATE
- ② OLD BEAM DEPTH = 10". NEW REVISED BEAM DEPTH = 9-7/8". KEEPER PLATES MUST BE FABRICATED ACCORDINGLY

TYPE A SIGN STRUCTURAL DETAILS

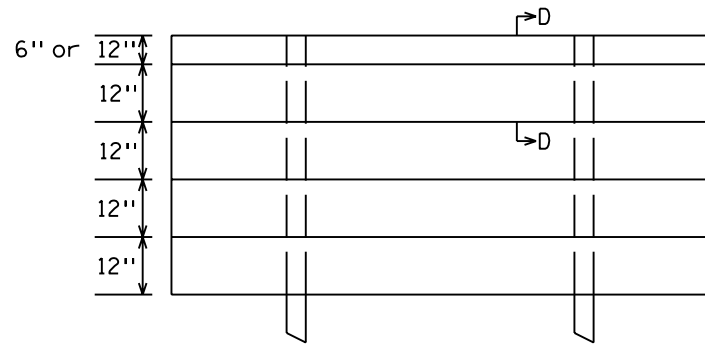
H-PILE FOOTING
 SHEET 1 OF 2

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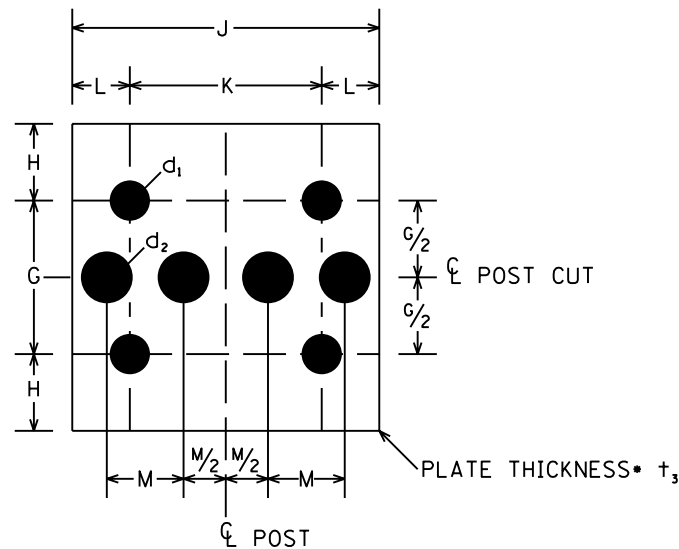
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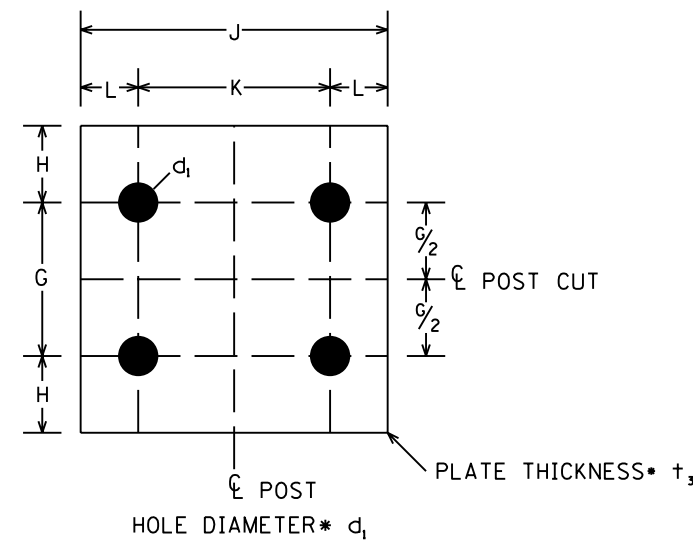


TYPICAL PANEL MOUNTING



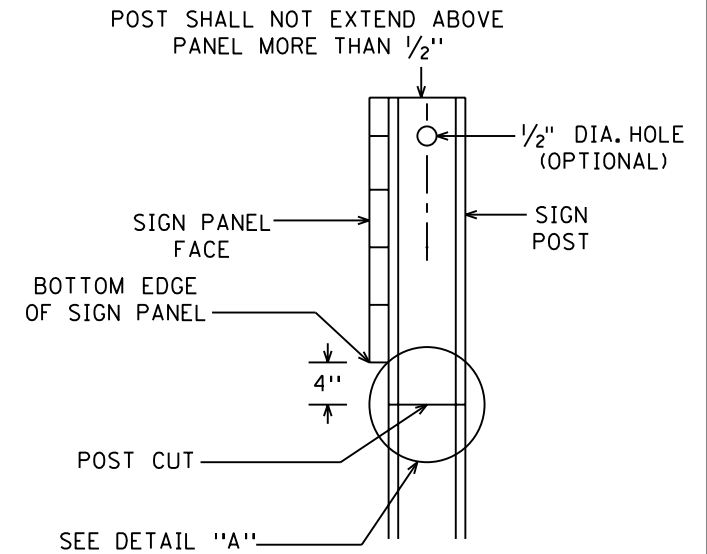
FRICTION FUSE PLATE DETAIL

(SEE TABLE ON SHEET 1 OF 2 FOR DIMENSIONS)



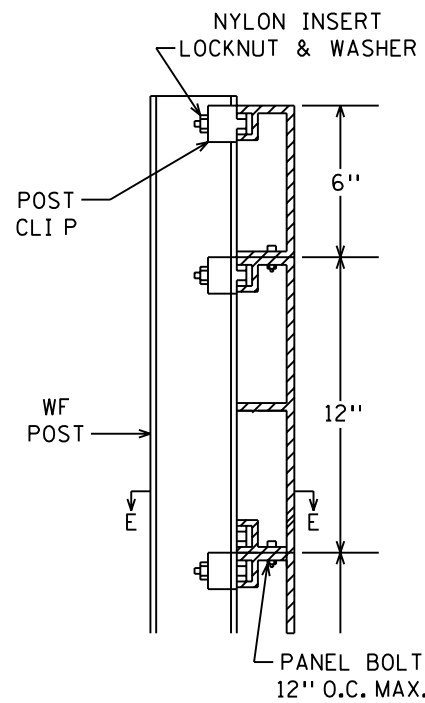
HINGE PLATE DETAIL

(SEE TABLE ON SHEET 1 OF 2 FOR DIMENSIONS)

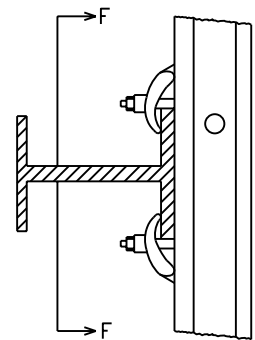


FRICTION FUSE

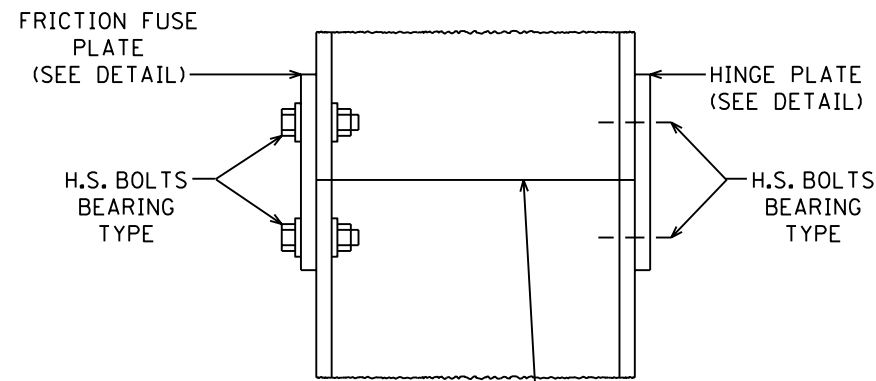
SIDE VIEW



SECTION D-D



SECTION E-E



POST SHALL BE SAW CUT BEFORE GALVANIZING. USE H.S. BOLTS WITH HEX. HD., HEX. NUT, AND TWO FLAT WASHERS.

DETAIL 'A' FRICTION FUSE

CONTRACTOR NOTE: ALL FRICTION FUSE BOLTS SHALL BE TORQUE WRENCH TIGHTENED IN THE FIELD IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE. NUTS SHALL HAVE BEEN RETAPPED AND BOLT THREADS SHALL HAVE BEEN CLEANED WITH A 1/64" OVERSIZED RETHREADING DIE AFTER GALVANIZING. BEFORE TIGHTENING MAY BEGIN, THE TORQUE WRENCH SHALL BE CALIBRATED WITH A BOLT-TENSION-CALIBRATOR USING TYPICAL BOLT-NUT-WASHER ASSEMBLIES OF EACH SIZE AND LOT TO BE USED SO AS TO SHOW THE TORQUE NECESSARY TO OBTAIN THE FOLLOWING MINIMUM RESIDUAL TENSION IN EACH BOLT.

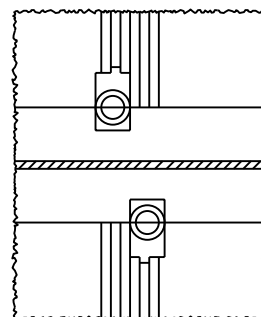
BOLT SIZE	MIN. RESIDUAL, BOLT TENSION
1/2" DIA.	12,050*
5/8" DIA.	19,200*
3/4" DIA.	28,400*
7/8" DIA.	39,250*
1" DIA.	51,500*
1-1/8" DIA.	56,450*

GENERAL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO MN/DOT 3308. REINFORCING BARS SHALL CONFORM TO MN/DOT 3301. SPIRALS SHALL CONFORM TO MN/DOT 3305-NO SPLICES. HIGH STRENGTH BOLTS SHALL CONFORM TO A.S.T.M.-A325.
2. FORMS WILL BE REQUIRED FOR THE EXPOSED VERTICAL SURFACES OF THE FOOTINGS.
3. REFER TO "SIGN DATA" SHEET FOR SPECIFIC DATA ON EACH INDIVIDUAL SIGN INSTALLATION.
4. FRICTION FUSE PLATE SHALL BE INSTALLED ON SIDE OF POST FACING TRAFFIC.
5. ALL POST CUTS SHALL BE SAW CUTS. PLATES MAY BE SHEARED OR FLAME CUT USING A MECHANICALLY GUIDED CUTTING TORCH. EDGE PREPARATION SHALL BE IN ACCORDANCE WITH MN/DOT 2471.3C4 AND MN/DOT 2471.3d4.

NOTE: POST CLIPS SHALL BE INSTALLED ON BOTH SIDES OF EACH POST AT EACH PANEL JOINT AS INDICATED.

SECTION F-F



TYPE A SIGN STRUCTURAL DETAILS

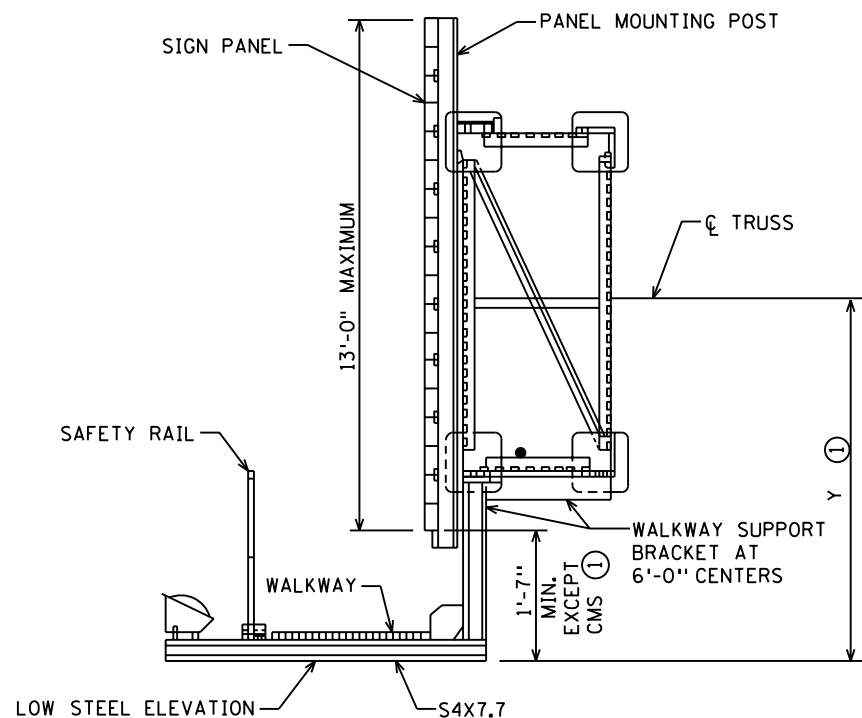
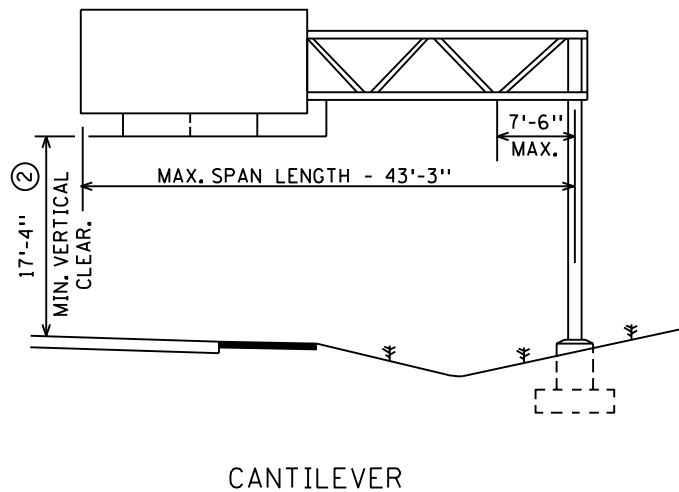
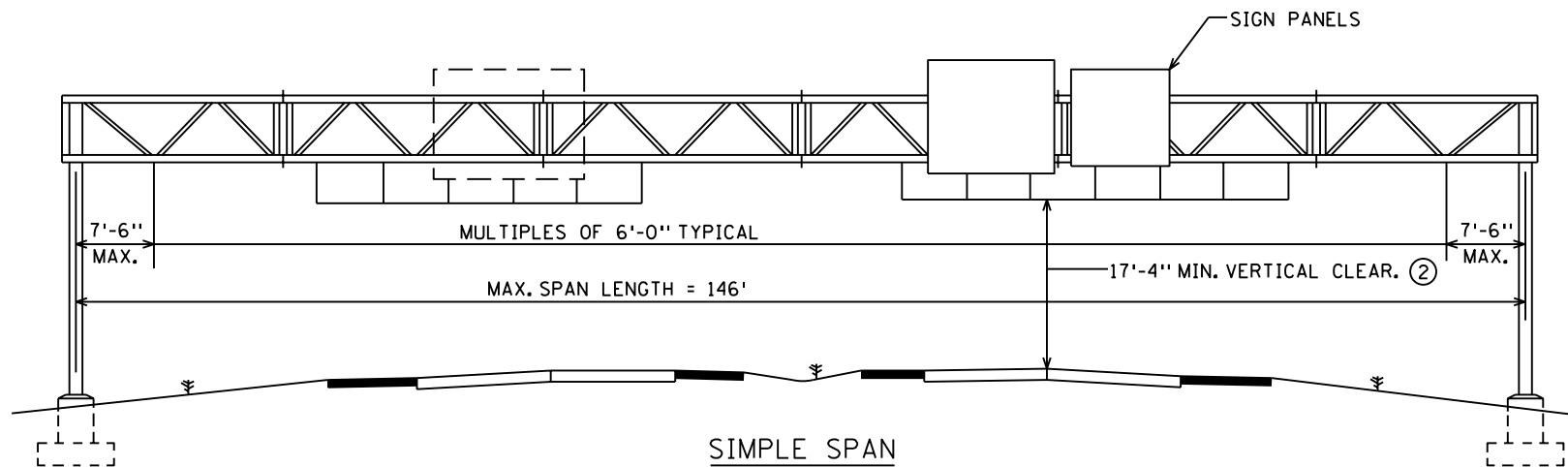
SHEET 2 OF 2

SS40 OF SS53

REVISED: 10-14-98

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36)

SHEET NO. 267 OF 534 SHEETS



SPECIFIC NOTES:

- ① DIMENSION Y IS CONSTANT AND BASED ON THE DEEPEST SIGN PANEL ABOVE THAT WALKWAY. WHEN STANDARD SIGN PANEL(S) AND CMS ARE MOUNTED ON THE SAME SPAN, DIMENSION Y SHALL BE GOVERNED BY THE CMS.
- ② MINIMUM CLEARANCE WILL BE MEASURED FROM THE HIGHEST ELEVATION OF PAVEMENT, SHOULDERS, AND MOUNTABLE CURBS, OR IF INSURMOUNTABLE CURBS ARE USED, THE HIGHEST ELEVATION BETWEEN CURB LINES.

GENERAL NOTES:

DESIGN SPECIFICATIONS:

TRUSS, POST, & HARDWARE:
AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS DATED 1999.

LOADING:

WIND LOAD 90 M.P.H. NORMAL TO SIGN FACE IN COMBINATION WITH OTHER LOADS OUTLINED IN THE DESIGN SPECIFICATIONS.

UNIT STRESSES:

CONCRETE----- F_c = 1,600 PSI
REINFORCEMENT STEEL----- F_s = 24,000 PSI
FOOTING SOIL PRESSURE----- 1-1/4 TONS PER SQ. FT.

MATERIALS:

STRUCTURAL STEEL (EXCEPT POST, TUBES)- Mn/DOT 3306
POST STEEL----- VARIES
HIGH STRENGTH BOLTS----- Mn/DOT 3391.2B
ANCHOR RODS----- Mn/DOT 3385
CASTINGS----- Mn/DOT 3322
REINFORCEMENT
BARS----- Mn/DOT 3301
SPIRAL----- Mn/DOT 3305 NO SPLICES
WALKWAY GRATING----- FEDERAL SPECIFICATIONS RR-G-661b, TYPE 1, STEEL
CONCRETE----- Mn/DOT 2461 (MIX 3Y43)

FINISH:

ALL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION EXCEPT REINFORCEMENT BARS, LOWER PORTION OF ANCHOR RODS, ALUMINUM, AND OTHER NON FERROUS INCIDENTALS. GALVANIZING SHALL CONFORM TO Mn/DOT 3392 OR Mn/DOT 3394 AS APPLICABLE. BEARING SURFACES MUST BE SMOOTH.

FABRICATION:

FABRICATION OF STRUCTURAL METALS SHALL BE IN ACCORDANCE WITH Mn/DOT 2471, Mn/DOT 2564 AND THE APPLICABLE SPECIAL PROVISIONS. ALL WELDING TO BE CONTINUOUS. ALL CONTACT SURFACES MUST BE COMPLETELY SEALED.

INSPECTION:

INSPECTION BEFORE AND AFTER GALVANIZING PER Mn/DOT 1511 AND Mn/DOT 2471.

INDEX OF STANDARD SIGN DRAWINGS

DRAWING	TITLE
ST-1	GENERAL ELEVATION AND NOTES
ST-2	CAMBER, POST IDENTIFICATION AND ESTIMATED QUANTITIES
ST-3	FOUNDATIONS AND ANCHOR RODS
ST-4	TRUSS/POST CONNECTION & BASEPLATE
ST-5	SIGN TRUSS DETAILS - TYPE A
ST-6	SIGN TRUSS DETAILS - TYPE B
ST-7	SIGN TRUSS DETAILS - TYPE C
ST-8	WALKWAY DETAILS
ST-9	FOLDING HANDRAIL
ST-10	SIGN PANEL AND PANEL MOUNTING POST DETAILS
ST-11	ELECTRICAL DETAILS
ST-12	ELECTRICAL DETAILS
ST-13	ELECTRICAL DETAILS (CMS SIGNS)

SECTION

SIGN HEIGHT	Y ①	
6'-6"	4'-4"	CMS (NEW LED)
7'-0"	4'-7"	
7'-6"	4'-10"	
8'-0"	5'-1"	CMS (LED)
8'-6"	5'-4"	
9'-0"	5'-7"	CMS (DRUM)
9'-6"	5'-10"	
10'-0"	6'-1"	
10'-6"	6'-4"	
11'-0"	6'-7"	
11'-6"	6'-10"	
12'-0"	7'-1"	
12'-6"	7'-4"	
13'-0"	7'-7"	

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

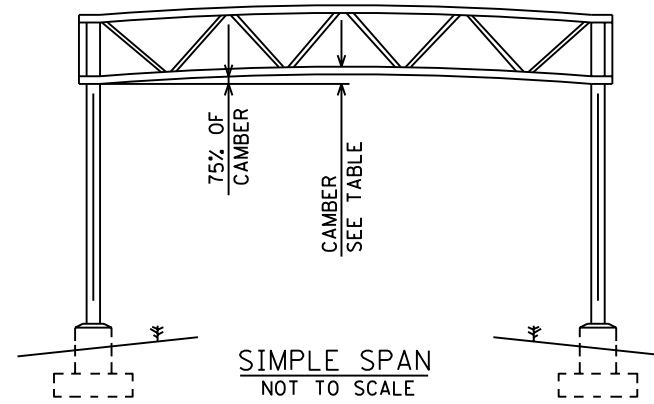
GENERAL ELEVATIONS
AND NOTES

DRAWING ST-1

SIMPLE SPAN

SIMPLE SPAN TRUSS CAMBER												
SPAN	40	50	60	70	80	90	100	110	120	130	140	150
CAMBER	1/4	3/16	5/8	13/16	1 1/16	1 3/8	1 11/16	2	2 3/8	2 13/16	3 1/4	3 3/4
DL DEFLECTION	0	1/16	1/16	1/8	1/4	3/8	9/16	13/16	1 1/8	1 1/2	2 1/16	2 11/16
RESIDUAL CAMBER	1/4	3/8	9/16	1 1/16	1 3/16	1	1 1/8	1 3/16	1 1/4	1 5/16	1 3/16	1 1/16

NOTE:
CAMBER AND DEFLECTIONS SHOWN ARE AT Q SPAN.
THE DEFLECTIONS AND CAMBER AT THE QUARTER
POINTS SHALL BE APPROXIMATELY 75% OF THESE
VALUES.



SIMPLE SPAN
NOT TO SCALE

TRUSS QUANTITIES		
USE LENGTH FROM Q POST WHEN CALCULATING TOTAL WEIGHTS.		
TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE C
123 LBS./FT.	168 LBS./FT.	196 LBS./FT.

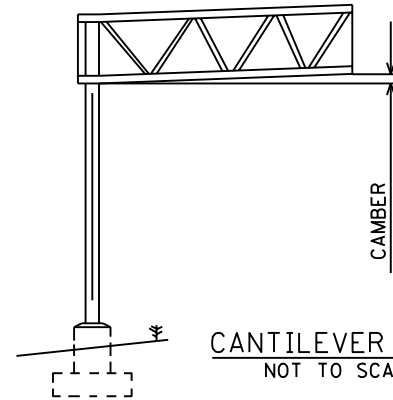
PANEL MOUNTING POST QUANTITIES INCLUDES MOUNTING ANGLES	
PANEL HEIGHT	WEIGHT/POST
6'-6"	70
7'-0"	74
7'-6"	78
8'-0"	82
8'-6"	86
9'-0"	90
9'-6"	93
10'-0"	97
10'-6"	101
11'-0"	105
11'-6"	160
12'-0"	166
12'-6"	172
13'-0"	178

CANTILEVER SPAN

CANTILEVER SPAN TRUSS CAMBER					
SPAN	15'	20'	30'	40'	45'
CAMBER	1/8	1/4	5/8	1 1/16	1 1/4
DL DEFLECTION	0	0	1/16	3/16	1/4
RESIDUAL CAMBER	1/8	1/4	9/16	7/8	1

NOTE:
CAMBER AND DEFLECTIONS SHOWN ARE SHOWN AT
END OF CANTILEVER.

WHEN ERECTING CANTILEVER TRUSSES, THE POSTS
SHALL BE SET 1/8" PER FOOT OUT OF PLUMB TO
COMPENSATE FOR THE BENDING OF THE POSTS.



CANTILEVER SPAN
NOT TO SCALE

WALKWAY SUPPORT QUANTITIES			
USE MAXIMUM PANEL HEIGHT ON SPAN TO CALCULATE QUANTITIES. WHEN CONVENTIONAL SIGN PANEL(S) AND CMS ARE MOUNTED ON THE SAME SPAN, QUANTITIES SHALL BE GOVERNED BY THE CMS.			
PANEL HEIGHT	TRUSS TYPE (WEIGHT/SUPPORT)		
	A	B	C
6'-6"	99	105	113
7'-0"	101	107	115
7'-6"	103	109	117
8'-0"	105	111	119
8'-6"	107	113	121
9'-0"	109	115	123
9'-6"	111	117	125
10'-0"	113	119	127
10'-6"	115	121	129
11'-0"	135	142	151
11'-6"	138	144	153
12'-0"	141	147	156
12'-6"	143	150	159
13'-0"	146	153	162

CMS(NEW LED)

CMS (LED)

CMS (DRUM)

FOR FOUNDATION QUANTITIES SEE DRAWING ST-3

WALKWAY WEIGHTS:

1. USE 3'-4 3/4" WIDE GRATING @ 44 LBS/FT.
2. WEIGHT INCLUDES HANDRAIL (12 LBS/FT.) AND FIXTURE MOUNTING CHANNELS (4 LBS/FT.).

TABLE 1 - POST IDENTIFICATION					
POST IDENTIFICATION NUMBER	BASEPLATE DESIGN	PERMISSIBLE PIPE SECTIONS			
		MIN. YIELD=35 KSI		MIN. YIELD=42 KSI	
		OUTSIDE DIAMETER (INCH)	WALL THICKNESS (INCH)	OUTSIDE DIAMETER (INCH)	WALL THICKNESS (INCH)
1	A	N.A.	N.A.	18	0.250
2	A	18	0.375	18	0.312
3	A	18	0.500	18	0.375
4	A	18	0.562	18	0.500
5	B	18	0.938	18	0.750
6	B	20	0.594	20	0.500
7	B	N.A.	N.A.	20	0.812

WALL THICKNESS IS MINIMUM, THINNER WALLS WILL NOT BE APPROVED

POST IDENTIFICATION NOTES:

POST MATERIAL SHALL CONFORM TO ONE OF THE FOLLOWING SPECIFICATIONS:
ASTM A709, GRADE 36
ASTM A53, GRADE B
API 5L, GRADES B, X42, X46, X52, X56, X60, X65

CONTRACTOR SHALL DEMONSTRATE THAT THE POST MATERIAL MEETS THE REQUIREMENTS OF ONE OF THE ABOVE CITED SPECIFICATIONS AND THE MINIMUM YIELD STRENGTH.

NO SPLICES OF ANY KIND WILL BE PERMITTED IN POSTS INTENDED FOR USE IN CANTILEVER TYPE STRUCTURES (BRIDGE TYPE BC).

ONE OF TWO POSTS FOR SIMPLE SPAN STRUCTURES (BRIDGE TYPE S) MAY INCORPORATE ONE WELDED CIRCUMFERENTIAL BUTT SPLICE CONFORMING TO AWS D1.1 DETAIL B-U2 IN THE UPPER 1/3 OF ITS LENGTH. BACK UP RINGS FOR THESE WELDED SPLICES SHALL BE COMMERCIAL PRODUCTS. BUTT WELDS REQUIRE RADIOGRAPHIC INSPECTION (Mn/DOT 2471.3).

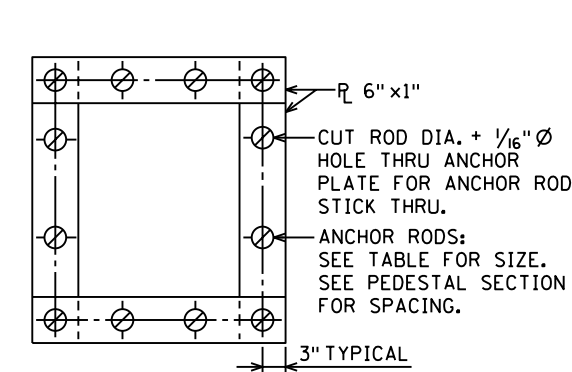
ALL RADIOGRAPHIC INSPECTIONS AND MAGNETIC PARTICLE TESTING REPORTS AND RADIOGRAPHIC FILMS SHALL BECOME THE PROPERTY OF THE DEPARTMENT.

SEE DRAWING ST-4 FOR BASEPLATE DETAILS.

POST QUANTITIES					
QUANTITIES INCLUDE ANCHORAGE ASSEMBLY AND TRUSS CONNECTION PLATES. PAY LENGTH OF POSTS IS FROM THE BOTTOM OF THE BASE PLATE (ELEV. A) TO THE TOP OF THE TRUSS. POST QUANTITIES ARE BASED ON GRADE 42 STEEL. NO ADJUSTMENTS WILL BE MADE IN THE QUANTITIES FOR THE USE OF GRADE 35 STEEL POSTS.					
POST TYPE	CANTILEVER		SIMPLE SPAN		
	TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE C
1	1880+47 LBS/FT	2470+47 LBS/FT	1870+47 LBS/FT	1890+47 LBS/FT	1915+47 LBS/FT
2	1880+59 LBS/FT	2470+59 LBS/FT	1870+59 LBS/FT	1890+59 LBS/FT	1915+59 LBS/FT
3	1880+71 LBS/FT	2470+71 LBS/FT	1870+71 LBS/FT	1890+71 LBS/FT	1915+71 LBS/FT
4	1880+94 LBS/FT	2470+94 LBS/FT	1870+94 LBS/FT	1890+94 LBS/FT	1915+94 LBS/FT
5	1910+138 LBS/FT	2500+138 LBS/FT	2460+138 LBS/FT	2480+138 LBS/FT	2505+138 LBS/FT
6	N/A	2500+104 LBS/FT	N/A	2545+104 LBS/FT	2570+104 LBS/FT
7	N/A	2500+167 LBS/FT	N/A	2545+167 LBS/FT	2570+167 LBS/FT

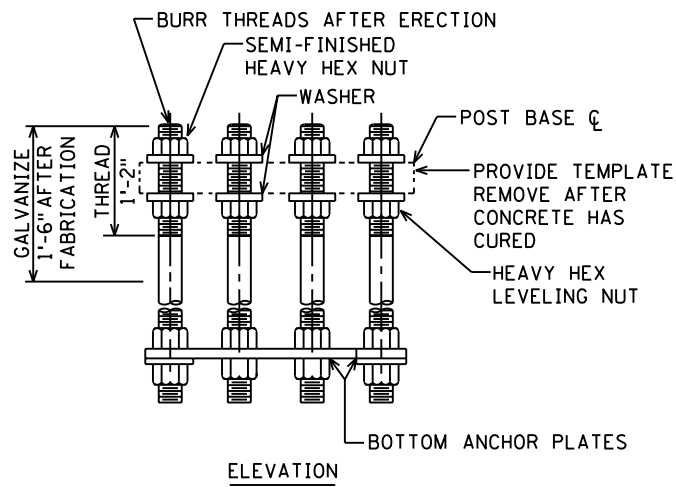
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

CAMBER, POST IDENTIFICATION
AND ESTIMATED QUANTITIES

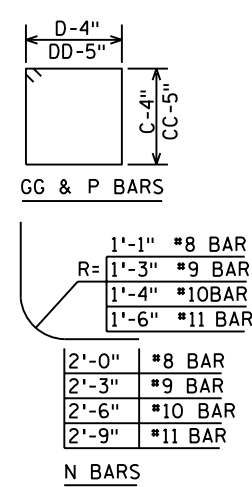


NOTE: ANCHOR PLATES SHOWN TYPICAL FOR ALL ANCHOR ROD SPACING.

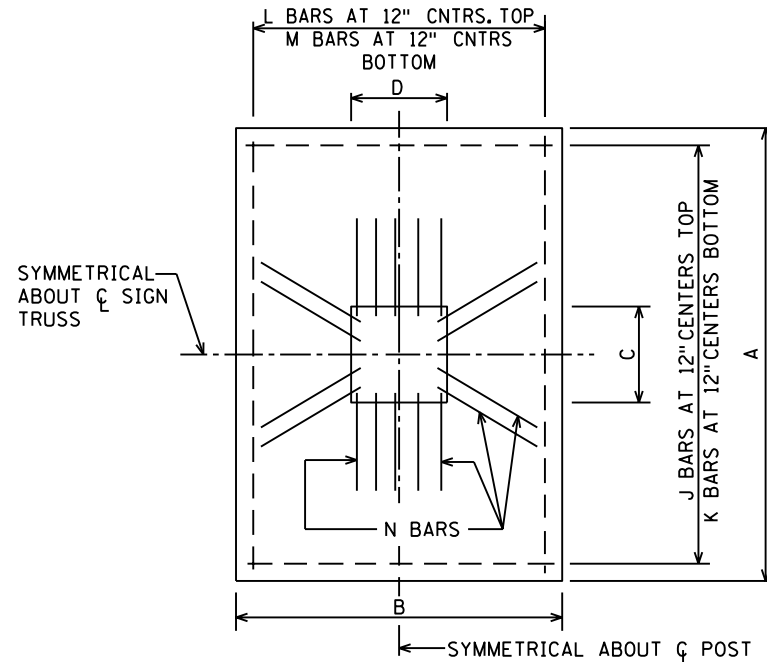
ANCHOR PLATE PLAN



ANCHOR ROD DETAILS

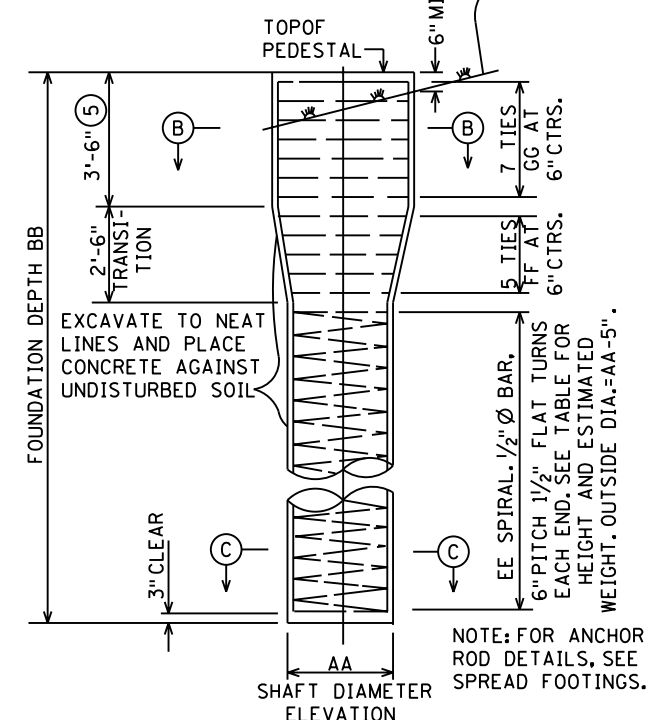


J, K, L, M, FF AND HH ARE STRAIGHT BARS
BAR BENDING DIAGRAMS

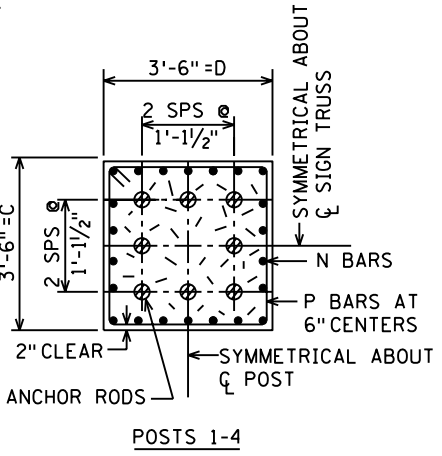
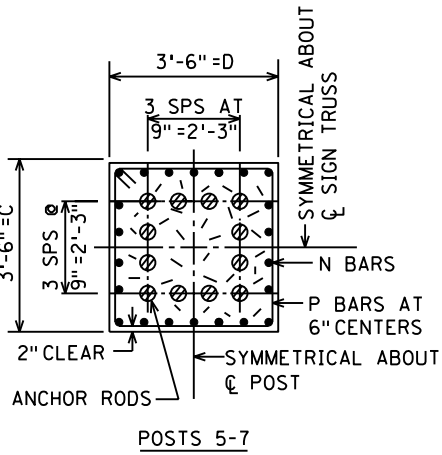
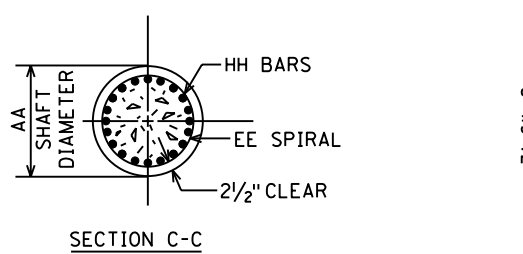
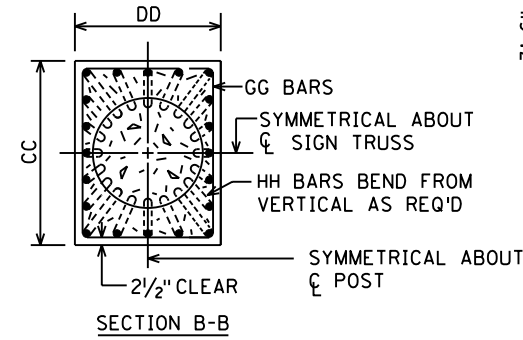


PLAN

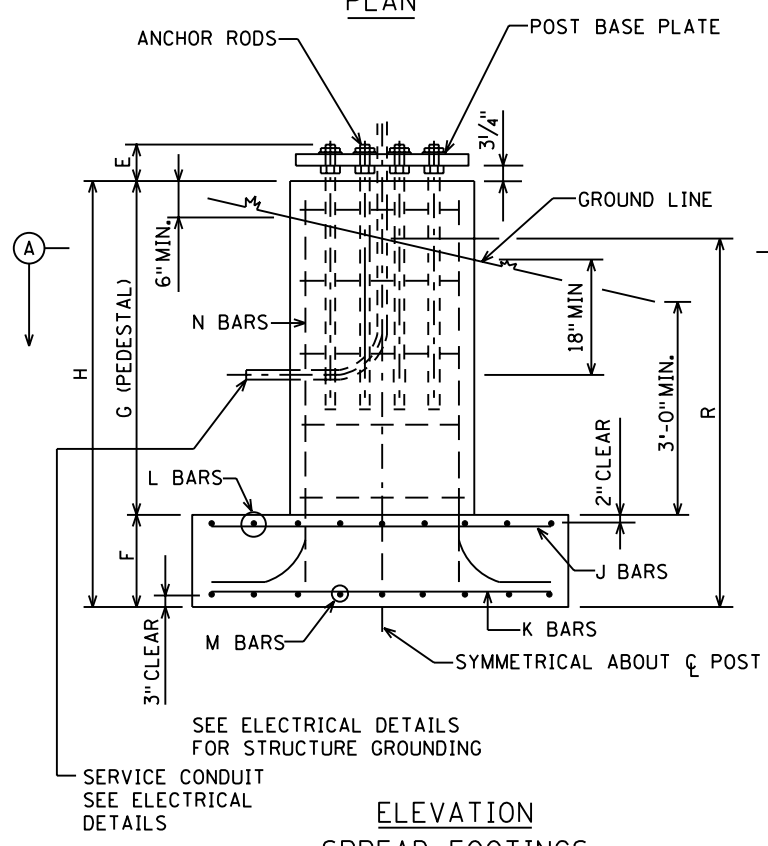
NOTE (5): MUST BE FORMED A MINIMUM OF 6" BELOW THE GROUND SURFACE. THE EXCAVATED AREA FOR FORMING SHALL BE BACKFILLED AND TAMPED WITH EQUIVALENT TO SURROUNDING MATERIAL.



DRILLED SHAFT



PEDESTAL CROSS SECTIONS A-A



ELEVATION
SPREAD FOOTINGS

SPECIFIC NOTES:

- G IS IN FEET, ROUND UP TO WHOLE NUMBER. E.G. G=4.10/2G=8.2 NO. REQ'D=9.
- G AND R ARE IN FEET.
- BEND AS REQUIRED TO FORM A CLOSED LOOP.
- FOR STRUCTURE STEEL SEE SPREAD FOOTING.
- MUST BE FORMED A MIN. OF 6" BELOW THE GROUND SURFACE. THE SOIL EXCAVATED FOR FORMING SHALL BE BACKFILLED AND TAMPED TO EQUIVALENT COMPACTION AS SURROUNDING MATERIAL.
- SPECIAL LARGE RADIUS BENDS ARE REQUIRED. SEE "BAR BENDING DIAGRAMS" FOR SIZES OF RADII.

GENERAL NOTES:

- SEE THE FORMAT SHEET FOR FOOTING LOCATIONS, POST DESIGNATIONS, TOP OF PEDESTAL ELEVATIONS AND BOTTOM OF FOOTING ELEVATIONS.
- ALL CONCRETE SHALL CONFORM TO CONCRETE MIX 3Y43 (MN/DOT 2461).
- ALL BAR DIMENSIONS ARE OUT TO OUT OF BARS.
- ALL SPREAD FOOTINGS HAVE AN ALLOWABLE DESIGN BEARING PRESSURE OF 1 1/4 T PER SQUARE FOOT.
- DRILLED SHAFTS SHALL BE USED ONLY WHEN SPECIFIED IN THE CONTRACT PLANS.
- THE DRILLED SHAFTS HAVE AN ALLOWABLE DESIGN LATERAL BEARING PRESSURE OF 250 LBS. PER SQ. FT. PER FOOT OF DEPTH.
- UNLESS OTHERWISE NOTED, ALL REINFORCEMENT BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH MN/DOT 3301. SPIRAL BARS AND J, K, L, & M BARS NEED NOT BE EPOXY COATED.
- THE FOLLOWING TORQUE VALUES SHALL BE USED WHEN INSTALLING ALL ANCHOR NUTS FOR OVERHEAD SIGN STRUCTURES:

BOLT DIAMETER	TORQUE (FT./LBS.)
2 1/4"	375
2 1/2"	450

THE CONTRACTOR SHALL BURR THE THREADS OF THE ANCHOR BOLTS IN ACCORDANCE WITH MN/DOT 2402.3H AFTER TORQUING NUTS.

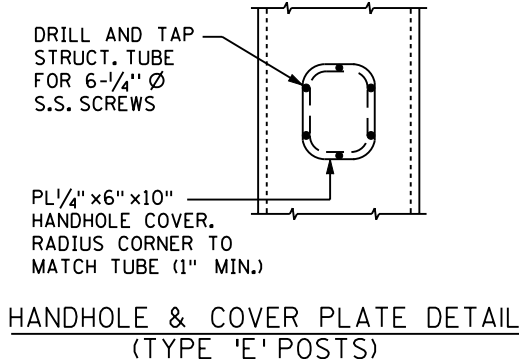
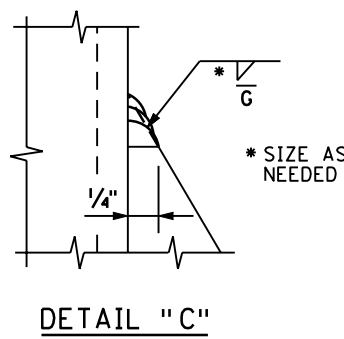
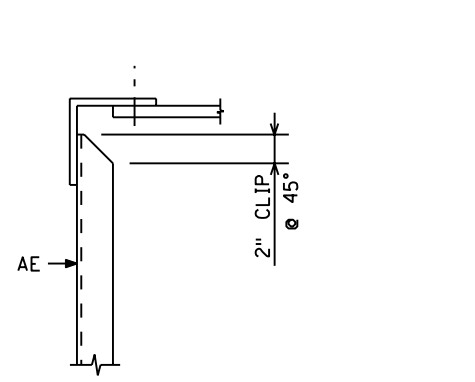
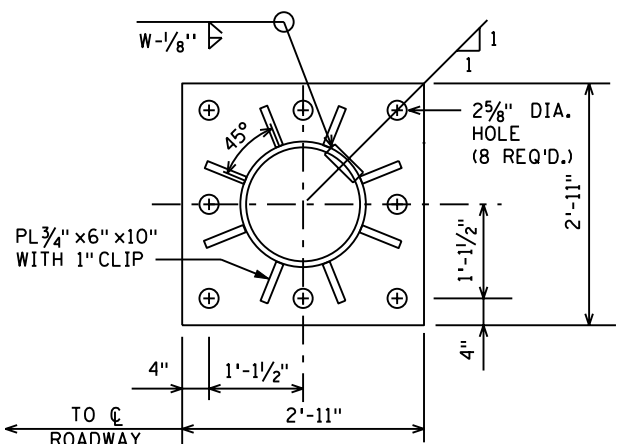
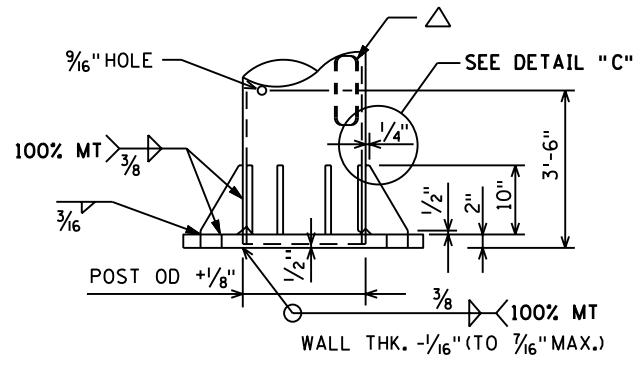
POST NO.	DIMENSIONS				REINFORCING BARS				ESTIMATED QUANTITIES (4)		SUMMARY OF ESTIMATED QUANTITIES			
	AA	BB	CC	DD	EE	FF (3)	GG	HH	CONCRETE CY	REIN STEEL LBS.	CONCRETE CY (2)	REIN. STEEL LBS. (2)	ANCH. ASSM. LBS	ST. EXC. C.Y. (2)
1-4	3'-0"	23'-0"	3'-6"	3'-6"	16'-6" x 197 LBS.	5 #5 x 14'-1"	7 #5 x 14'-1"	20 #9 x 22'-7"	6.9	1910	9.3 + 0.46 G	945 + 98G	781	7.4 R
5-7	4'-0"	29'-0"	4'-0"	4'-0"	22'-6" x 362 LBS.	5 #5 x 16'-1"	7 #5 x 16'-1"	24 #10 x 28'-7"	14.1	3490	16.7 + 0.46 G	2333 + 133G	1320	12.1 R

POST NO.	SPREAD FOOTINGS												
	A	B	C	D	E	F	ANCHOR RODS	J REIN. BARS	K REIN. BARS	L REIN. BARS	M REIN. BARS	(6) N REIN. BARS	P REIN. BARS (1)
1-4	14'-0"	9'-0"	3'-6"	3'-6"	8 1/2"	2'-0"	8 2 1/4" 3'-10 1/2"	14 #4 8'-6"	14 #6 8'-6"	10 #5 13'-6"	10 #7 13'-6"	20 #9 H + 2'-6"	2G #5 14'-3"
5-7	18'-0"	12'-6"	3'-6"	3'-6"	9"	2'-0"	12 2 1/2" 4'-0"	19 #4 12'-0"	19 #6 12'-0"	13 #6 17'-6"	13 #10 17'-6"	24 #10 H + 2'-9"	2G #5 14'-3"

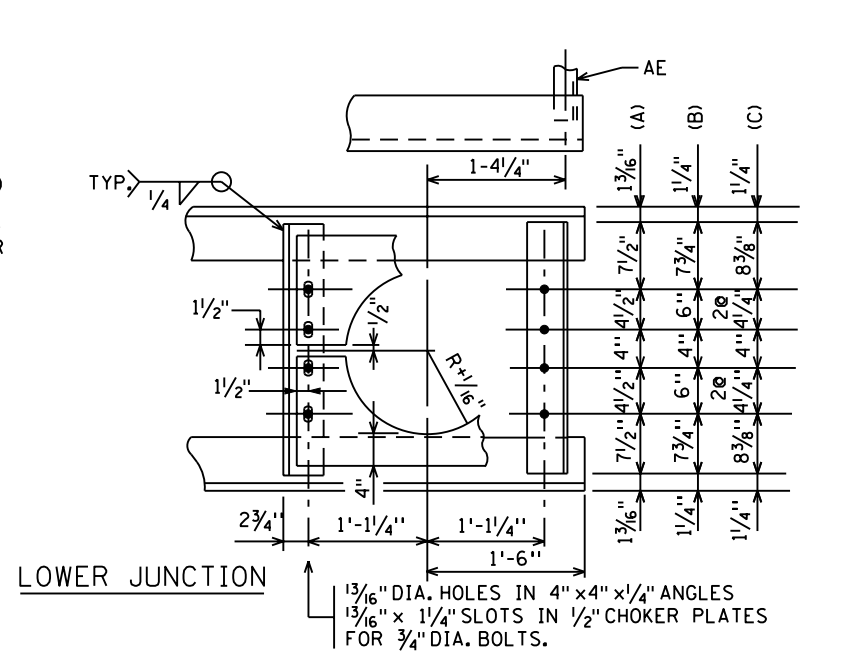
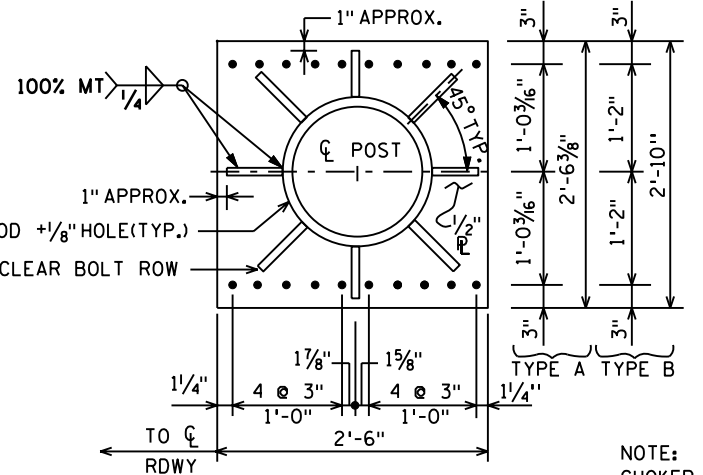
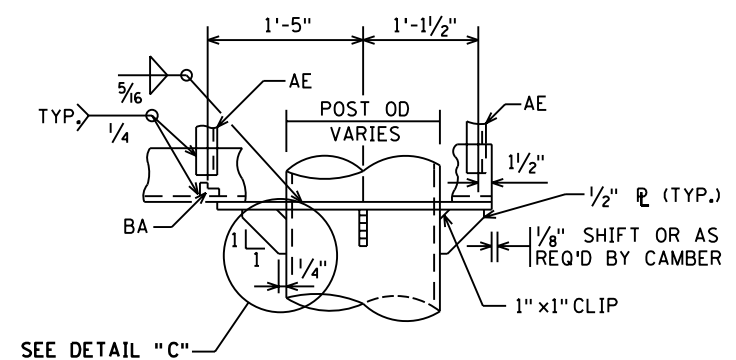
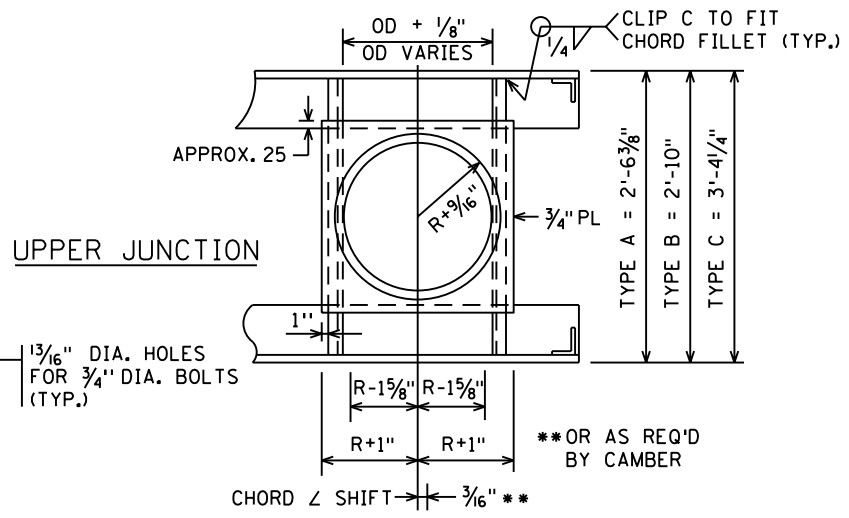
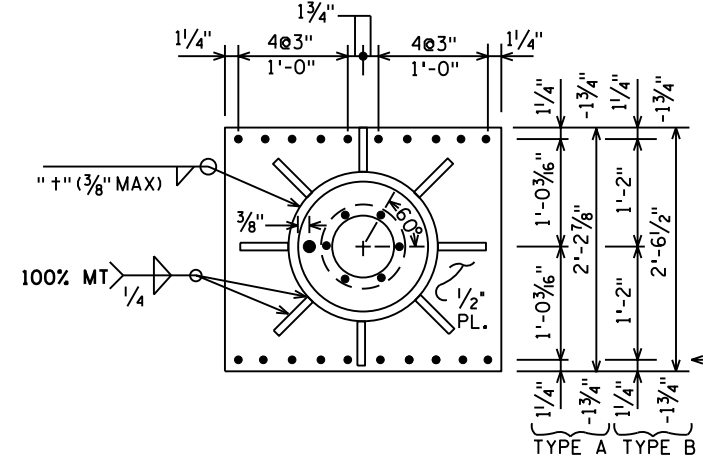
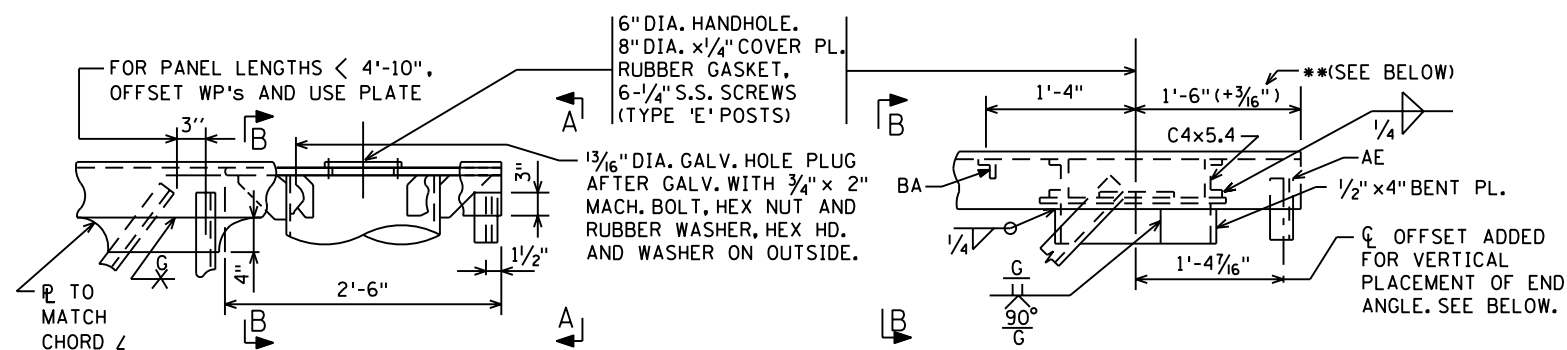
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

FOUNDATIONS AND
ANCHOR RODS

DRAWING ST-3



△ = FOR TYPE 'E' POST ONLY: LOCATE 45° AWAY FROM TRAFFIC. 10" x 6" x 1/2" x 0'-2" STRUCTURAL TUBE OR EQUAL W/1/4" RUBBER GASKET.



NOTE: CHOKER PLATES AND HANDHOLE COVERS SHALL BE GALVANIZED SEPARATELY.

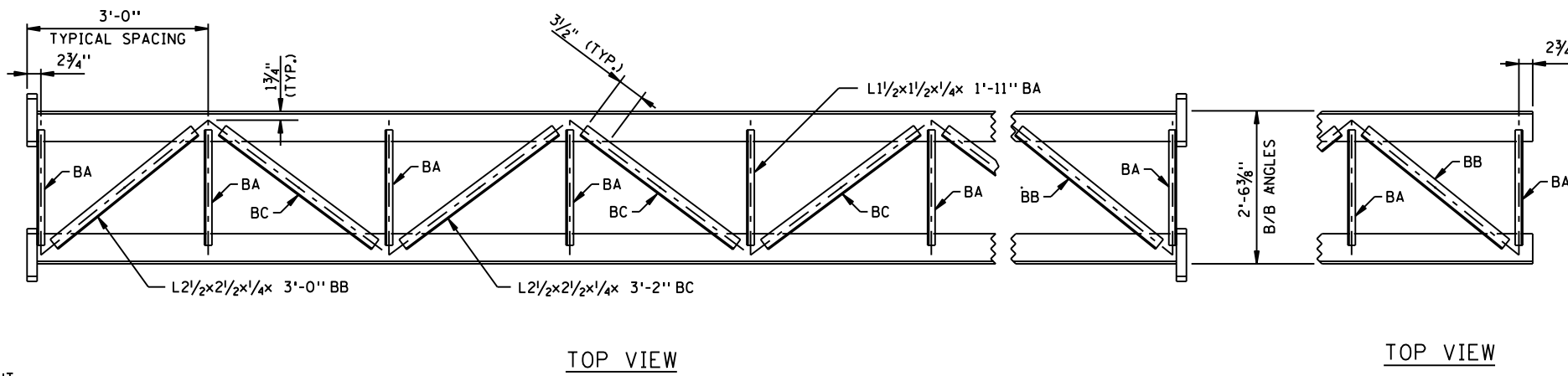
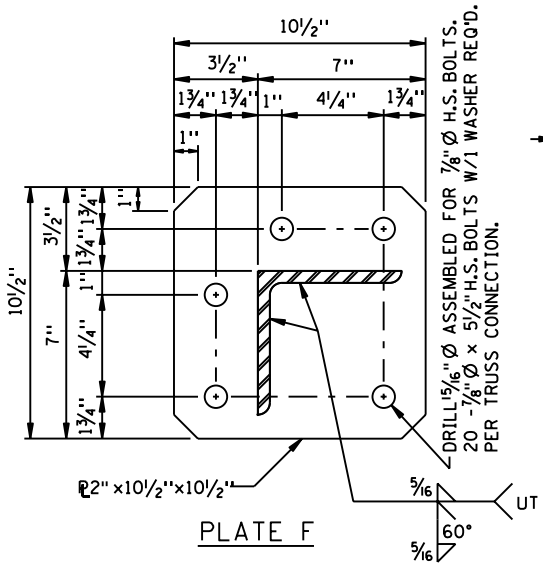
STANDARD OVERHEAD SIGN SUPPORTS INTERIM DESIGN B
TRUSS/POST CONNECTION & BASEPLATES
DRAWING ST-4

3:37:27 PM

5/16/2010

kerickson

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Default



TOP VIEW

NOTES:

TRUSS SECTIONS SHALL BE MADE IN MULTIPLES OF 6'-0", EXCEPT THAT THE BRACING PANEL NEAREST EACH POST MAY VARY TO MAKE UP THE NEEDED SECTION LENGTH. WELDED CHORD SPLICES ARE NOT PERMITTED EXCEPT IN CANTILEVER TRUSSES AS NOTED BELOW.

CANTILEVER TRUSSES SHALL BE SUPPLIED AS A SINGLE UNIT WHENEVER POSSIBLE. WHEN CANTILEVER TRUSS LENGTH EXCEEDS 40'-0" CHORDS MAY BE SPLICED, AS SHOWN, IN THE END BRACING PANEL ONLY. CHORD SPLICE WELD SHALL BE COMPLETE PENETRATION, WITH 100% UT AND MT TESTING PER 2471.3M.

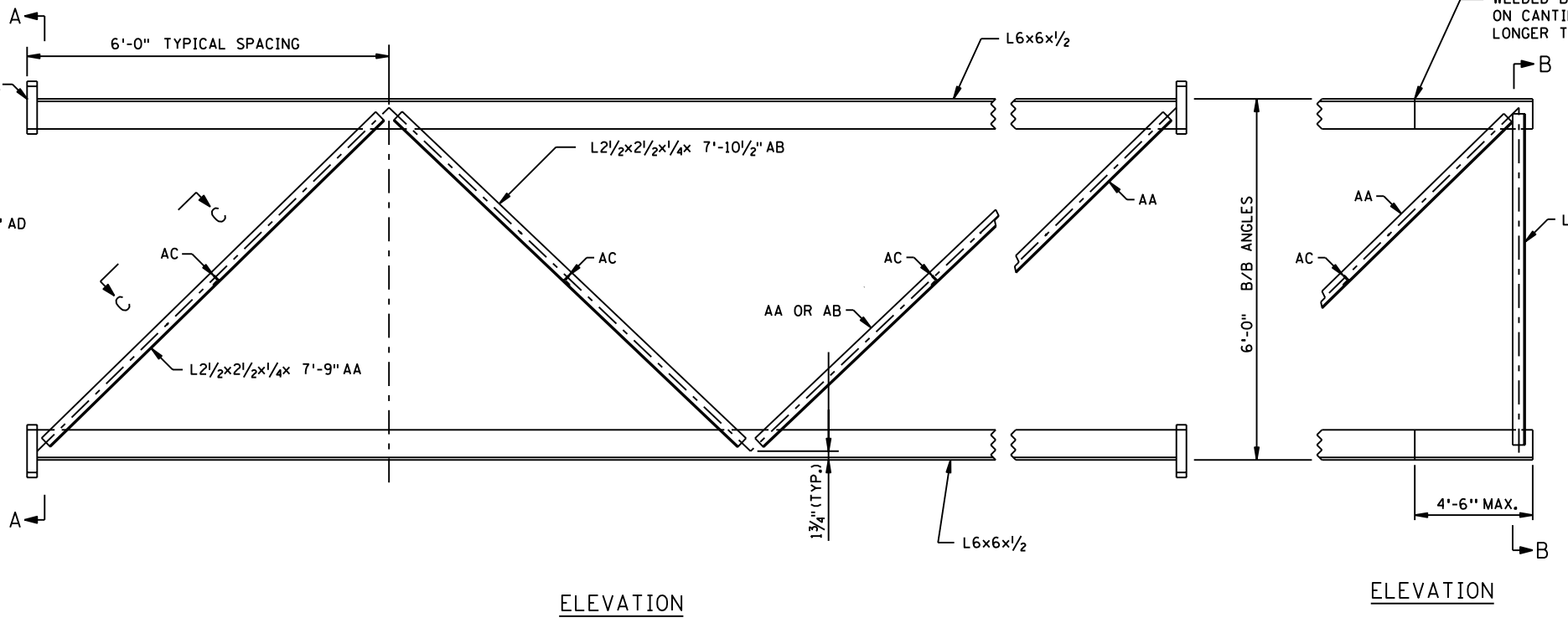
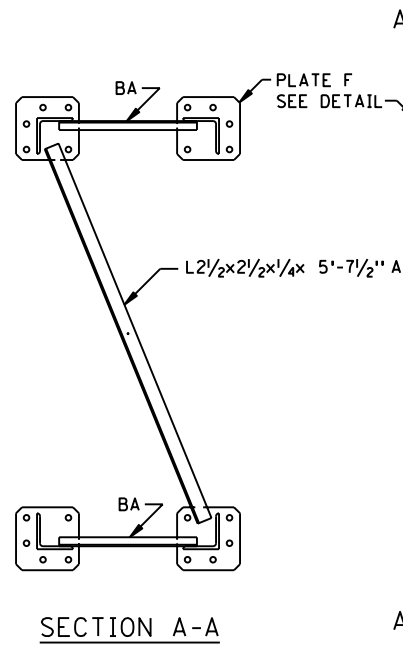
UNLESS OTHERWISE SHOWN, ALL WELDS SHALL BE 1/4" FILLET WELDS ALL AROUND. BOLTED SPLICES SHALL NOT BE LOCATED BEHIND CMS SIGNS.

PROVIDE 2- 1/16" BRASS, STAINLESS STEEL OR GALVANIZED STEEL SHIMS AT EACH FLANGE TO BRING TRUSS INTO CORRECT CAMBER AND ALIGNMENT.

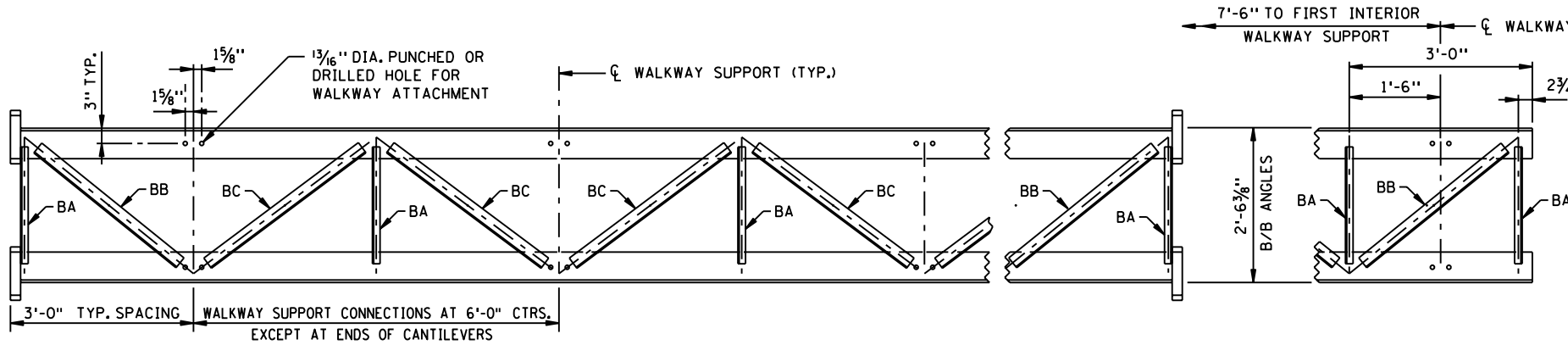
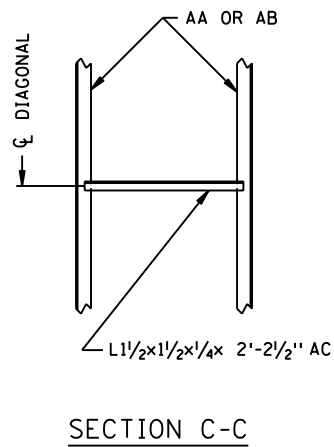
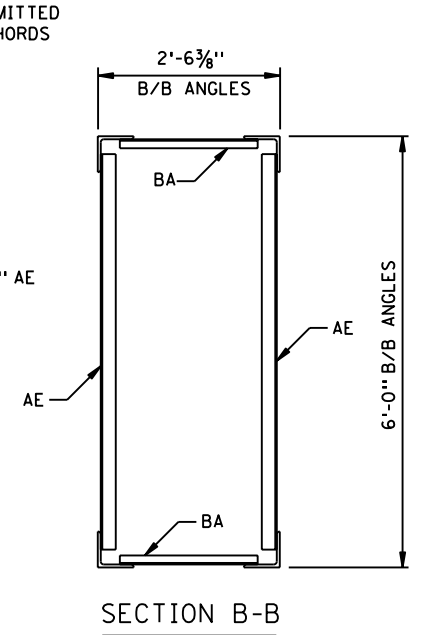
TRUSSES SHALL BE SHOP ASSEMBLED AND MATCH MARKED.

ALL VIEWS OF THE TRUSSES ARE DRAWN FROM THE INSIDE OF THE TRUSS LOOKING OUT.

SEE DRAWING ST-4 FOR POST CONNECTION DETAILS.



ELEVATION



BOTTOM VIEW
CANTILEVER END

NOTE:
THE BOTTOM VIEW IS DETAILED TO PROVIDE FOR WALKWAY ATTACHMENT. WHERE THE WALKWAY IS OMITTED, PROVIDE STRUT BA AS INDICATED IN THE TOP VIEW.

BOTTOM VIEW
SIMPLE SPAN

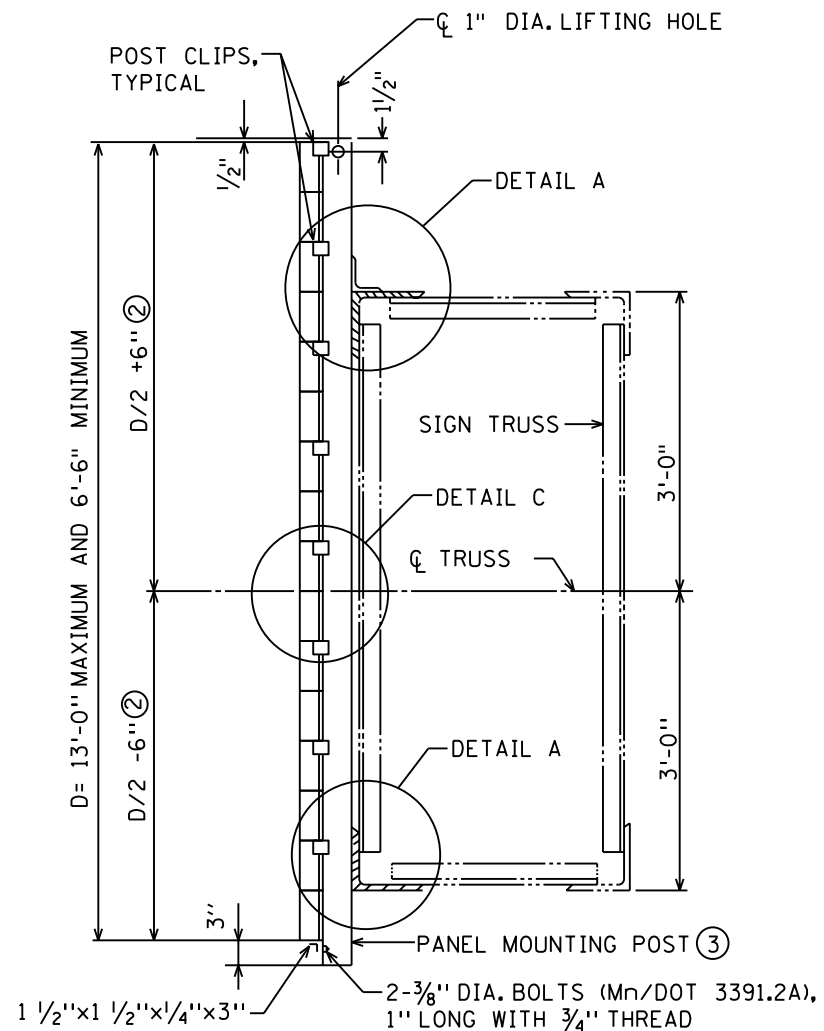
DETAILS SHOWN ARE FOR THE FREE ENDS OF THE CANTILEVER SPANS. ALL OTHER DETAILS FOR CANTILEVER TRUSSES SHALL BE AS SHOWN FOR THE SIMPLE SPANS.

SS45 OF SS53

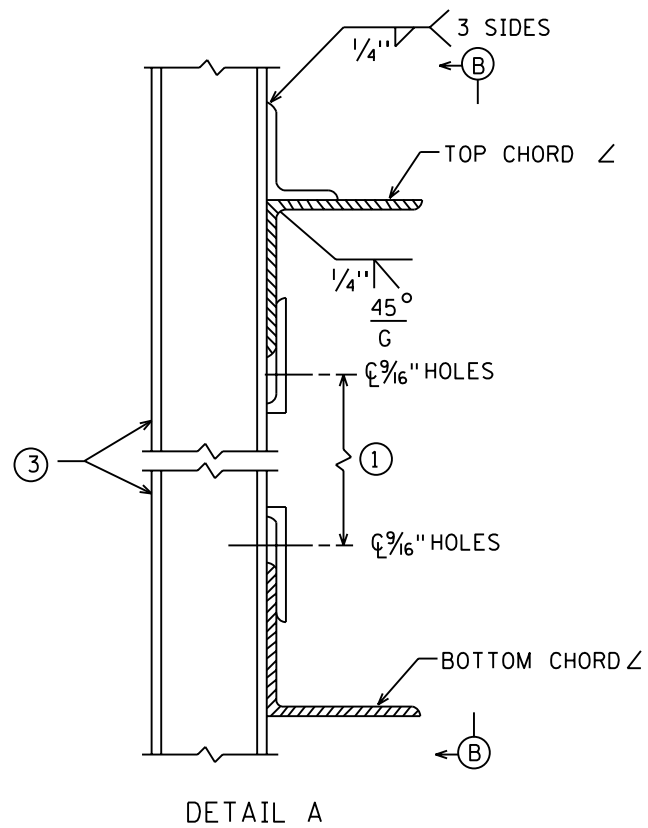
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

SIGN TRUSS DETAILS
TRUSS TYPE A

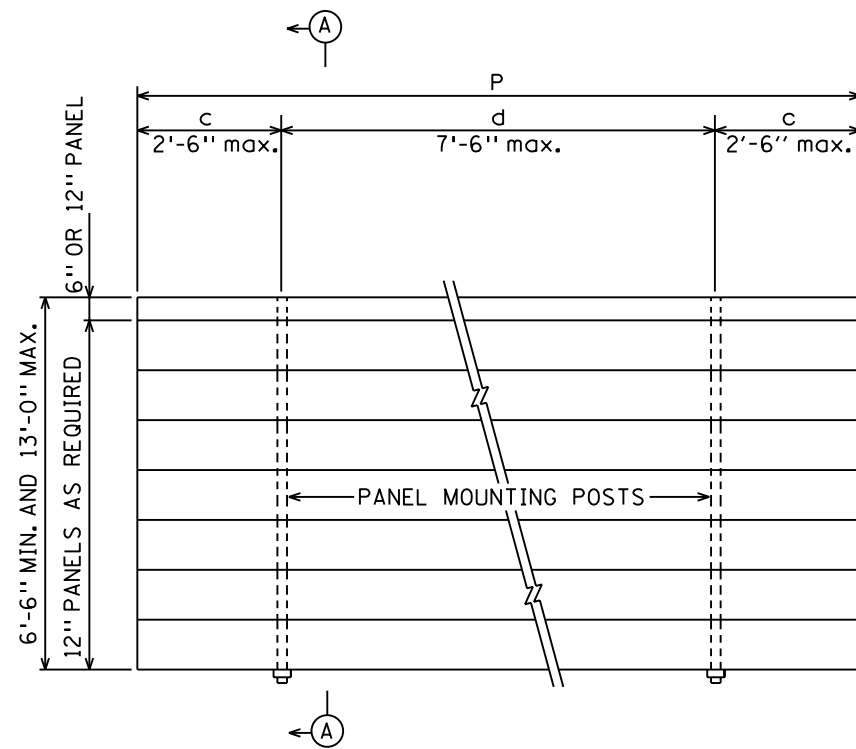
DRAWING ST-5



SECTION A-A



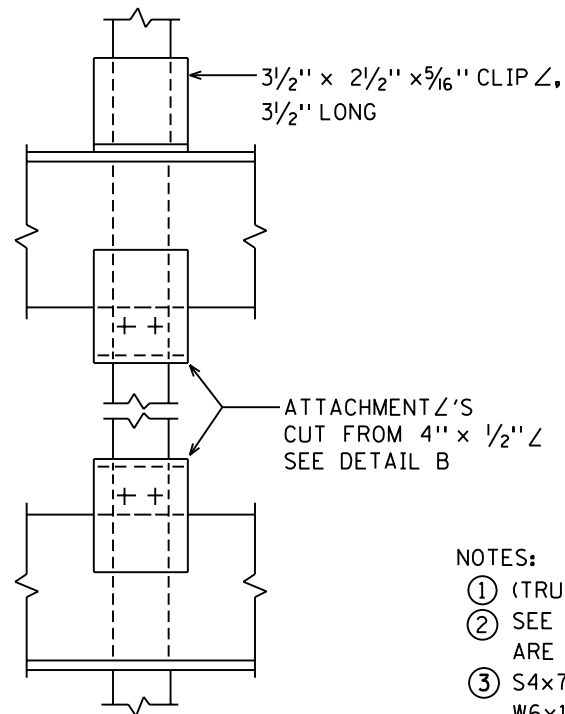
DETAIL A



SIGN PANEL ELEVATION

PANEL MOUNTING POST	
NO. OF POSTS	
2	P=144" OR LESS, c=.207P, d=.586P
3	P=150" THRU 204", c=.145P, d=.355P
4	P=210" THRU 276", c=.107P, d=.262P
5	P=282" THRU 348", c=.084P, d=.208P
6	P=354" THRU 420", c=.070P, d=.172P
7	P=426" THRU 492", c=.059P, d=.147P

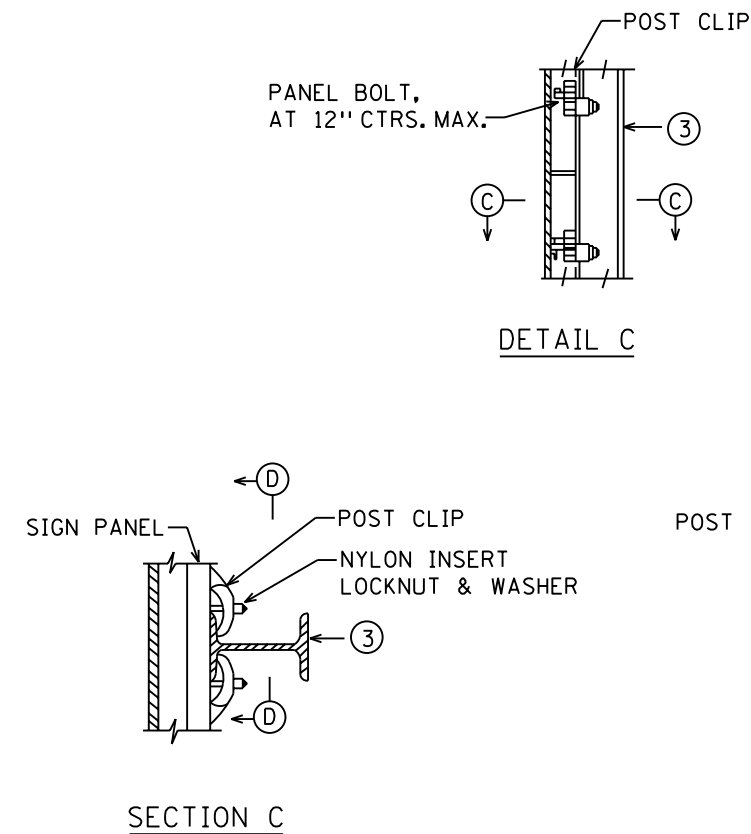
POST SPACING MAY BE ADJUSTED AS REQUIRED IF CONFLICT WITH TRUSS DETAILS IS ENCOUNTERED.



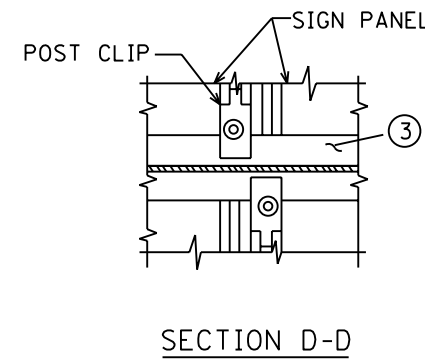
VIEW B-B

NOTES:

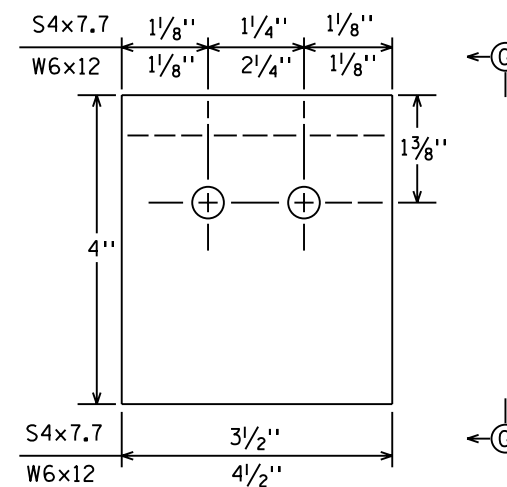
- ① (TRUSS DEPTH)-(TOP & BOTTOM CHORD Z LEGS)-1/4"
- ② SEE NOTE 1 ON ST-1 WHEN STANDARD PANELS AND CMS ARE MOUNTED ON THE SAME SPAN
- ③ S4x7.7 FOR SIGN HEIGHTS ≤ 11'-0"
W6x12 FOR SIGN HEIGHTS OVER 11'-0"



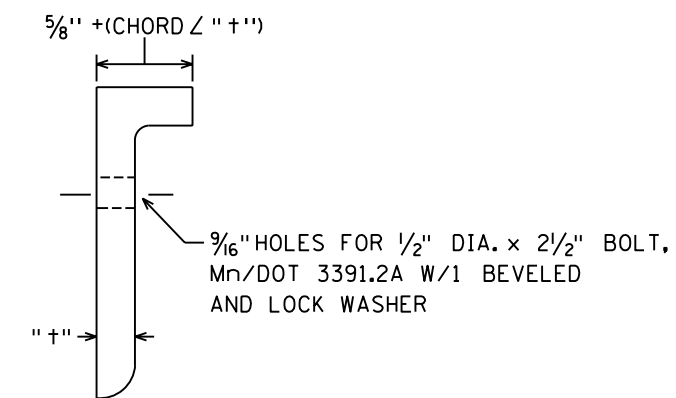
SECTION C



SECTION D-D



DETAIL B



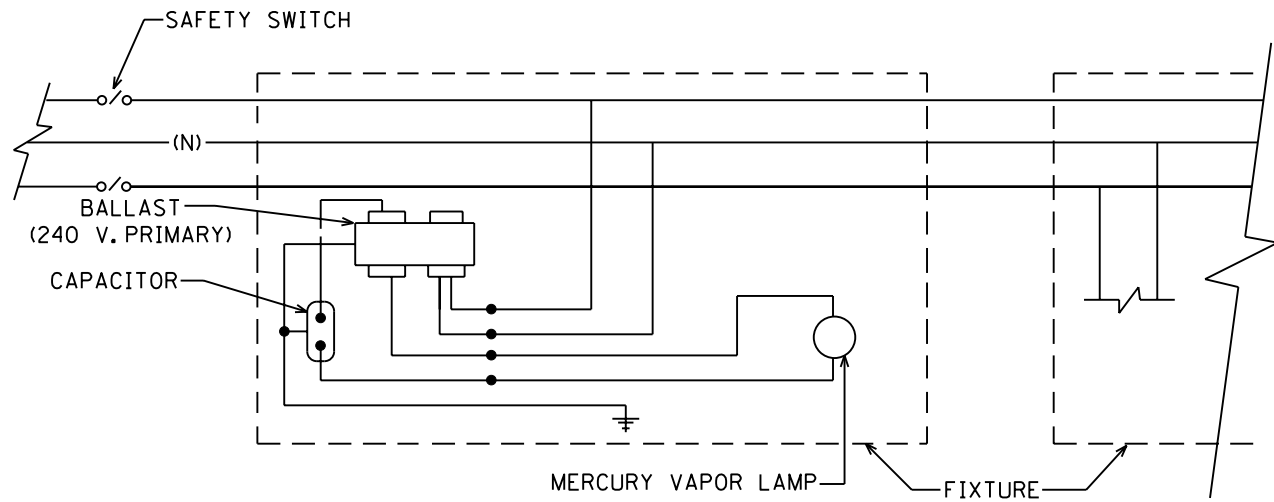
VIEW G-G

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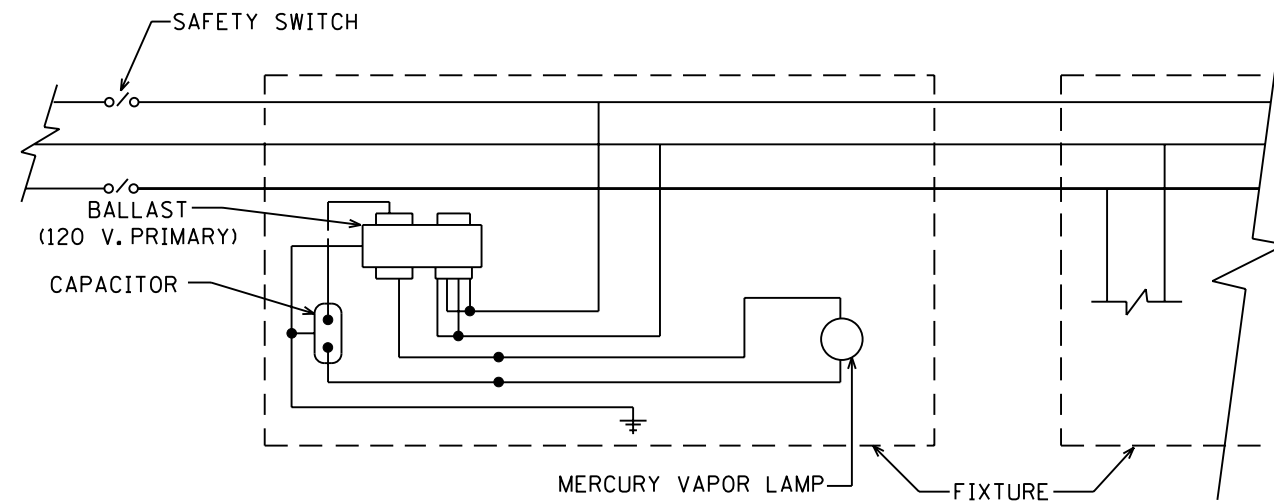
5/6/2010

kerickson

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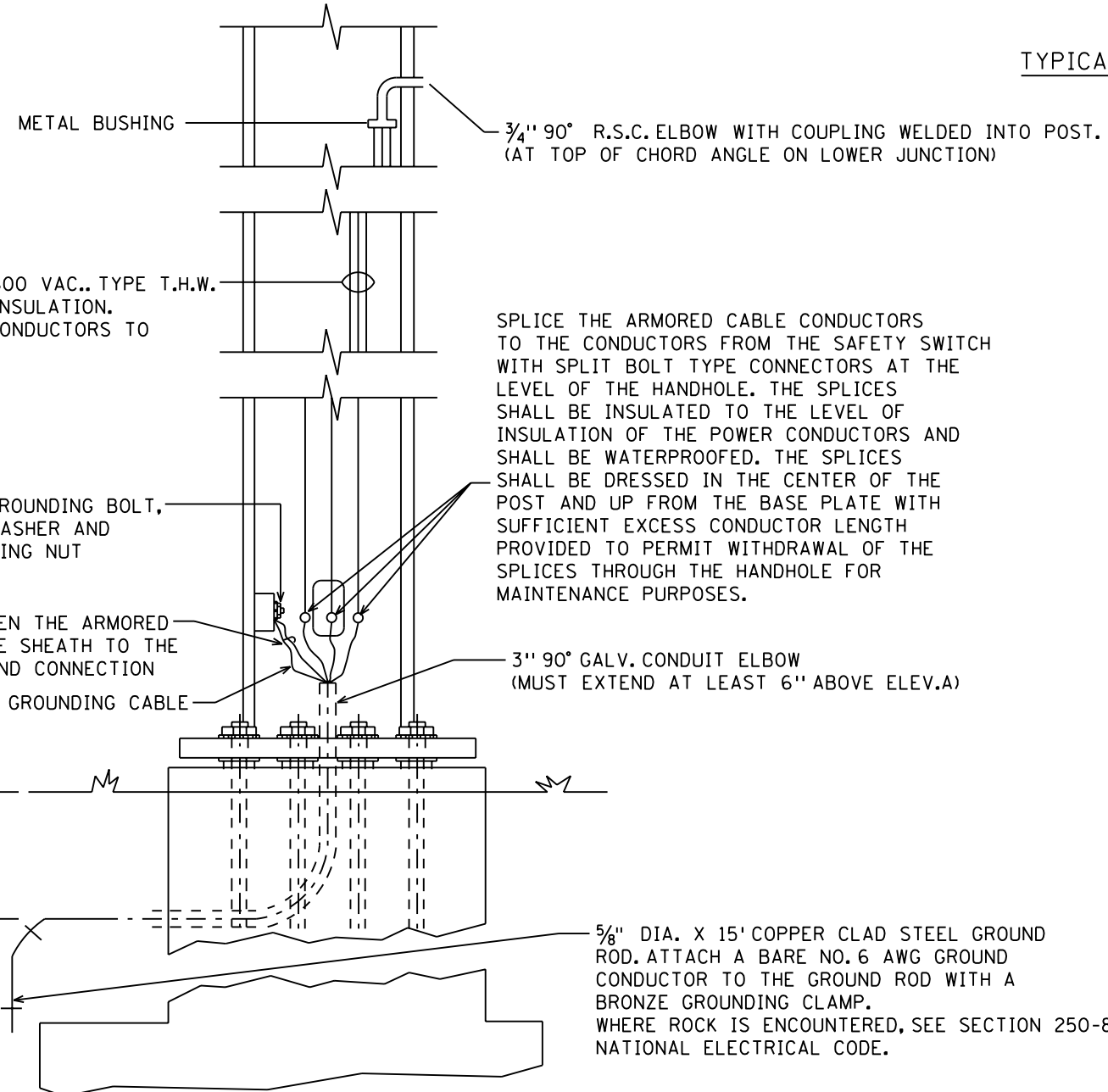


240/480 V. CIRCUIT



120/240 V. CIRCUIT

TYPICAL CIRCUIT DIAGRAMS



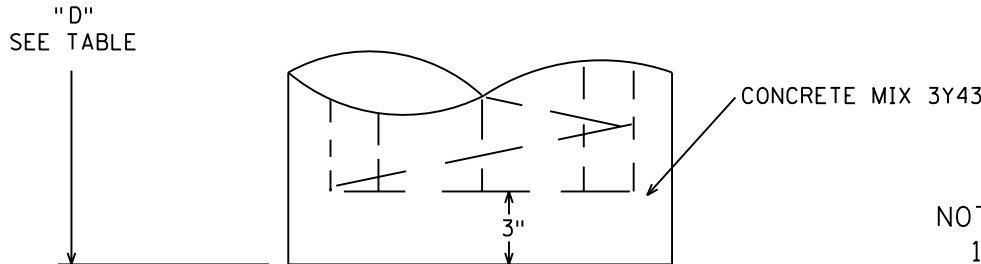
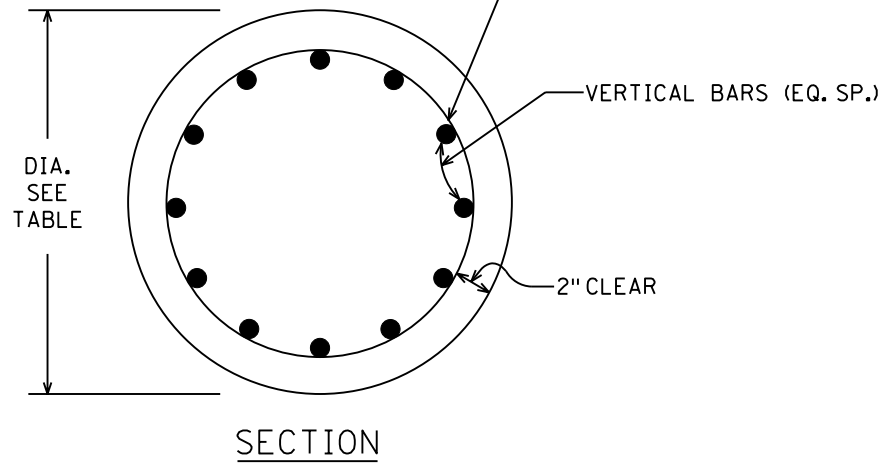
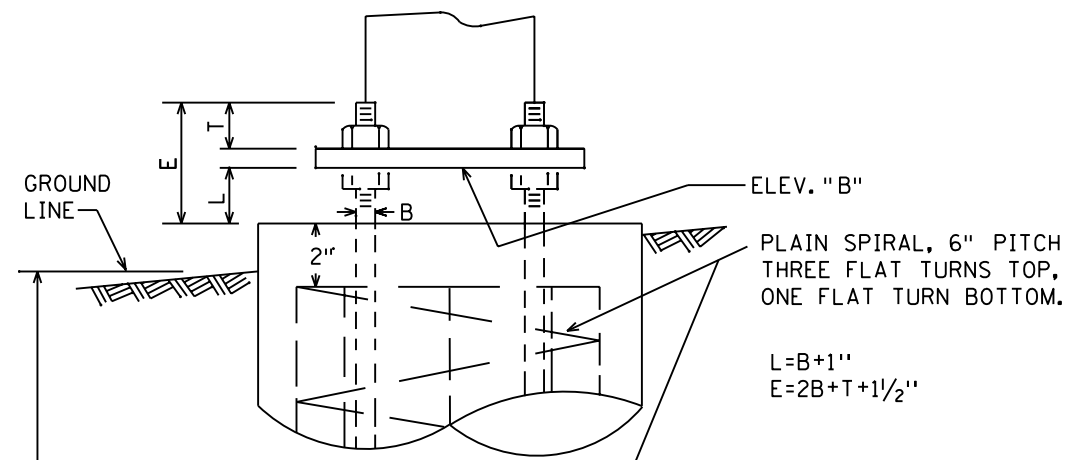
SIGN BASE DETAIL

ELECTRICAL NOTES:

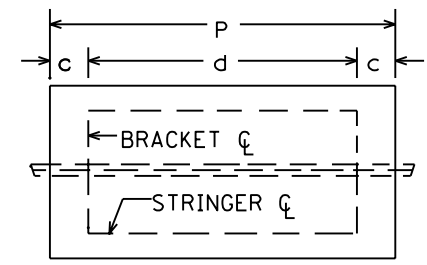
1. WHEN SIGN LIGHTING SYSTEMS HAVE BEEN COMPLETED, THE CONTRACTOR SHALL, WITHOUT FURTHER COMPENSATION, CONDUCT BURNING AND RESISTANCE TESTS FOR FINAL ACCEPTANCE. THE RESISTANCE TO GROUND OF EACH UNGROUNDED CONDUCTOR SHALL BE NOT LESS THAN 8 MEGOHMS.
2. ALL FITTINGS, HUBS, UNIONS, BUSHINGS, ETC. SHALL BE SUPPLIED AS PART OF CONDUIT, CONDUIT ENTERING SIGN POSTS SHALL HAVE INSULATED GROUNDING BUSHINGS INSTALLED BEFORE PULLING WIRE.
3. CONDUIT ON STRUCTURE SHALL BE SURFACED MOUNTED, STRAPPED AT EVERY ANGLE BRACE WITH U-BOLT TYPE CLAMPS.
4. SUCCESSIVE LIGHTING FIXTURES SHALL BE CONNECTED ON ALTERNATE SIDES OF THE 3-WIRE CIRCUIT.
5. THE CABLE SHEATH SHALL EXTEND AT LEAST 4" ABOVE THE TOP OF THE CONDUIT END AND THE TAPE ARMOR OF ARMORED CABLE SHALL BE CONNECTED TO THE GROUNDING BOLT IN THE SIGN POSTS.
6. WIRING FROM THE SAFETY SWITCH TO LIGHTING FIXTURES SHALL BE 1/C NO.12 AWG AND SHALL BE RUN IN 3/4" R.S.C. ALL SPLICING SHALL BE ACCOMPLISHED WITH A WIRE NUT AND WATERPROOF COATING. ALL CONDUIT CONNECTIONS SHALL BE RAIN TIGHT.

STANDARD OVERHEAD SIGN SUPPORTS INTERIM DESIGN B	
ELECTRICAL DETAILS	
DRAWING	ST-12

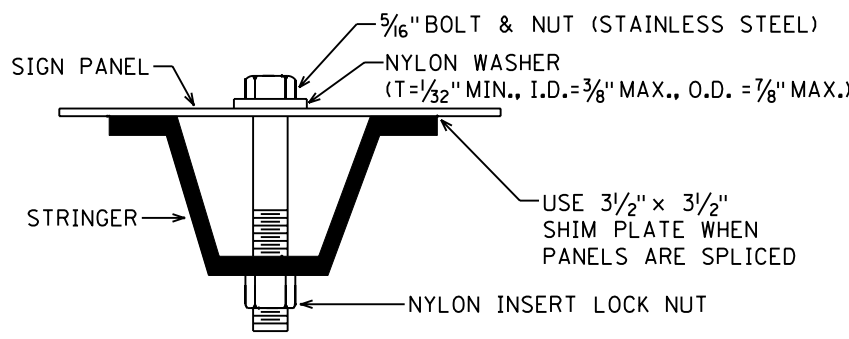
SS47 OF SS53



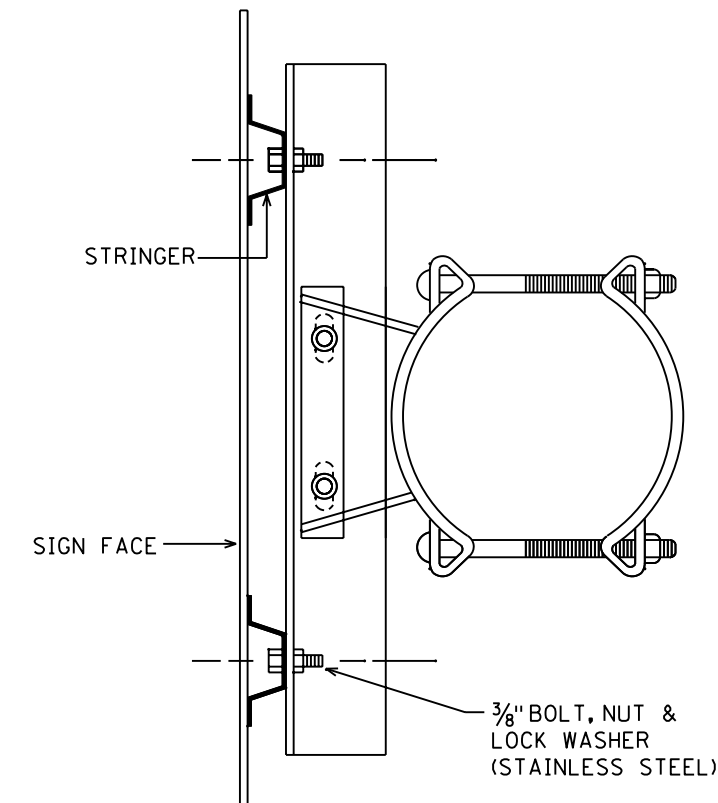
FOOTING DETAIL



P=96" OR LESS, c=.207P, d=.586P
 P=102" THRU 168", c=.145P, d=.355P
 P=174" THRU 228", c=.107P, d=.262P
 P=234" THRU 288", c=.084P, d=.208P



STRINGER AND PANEL ASSEMBLY



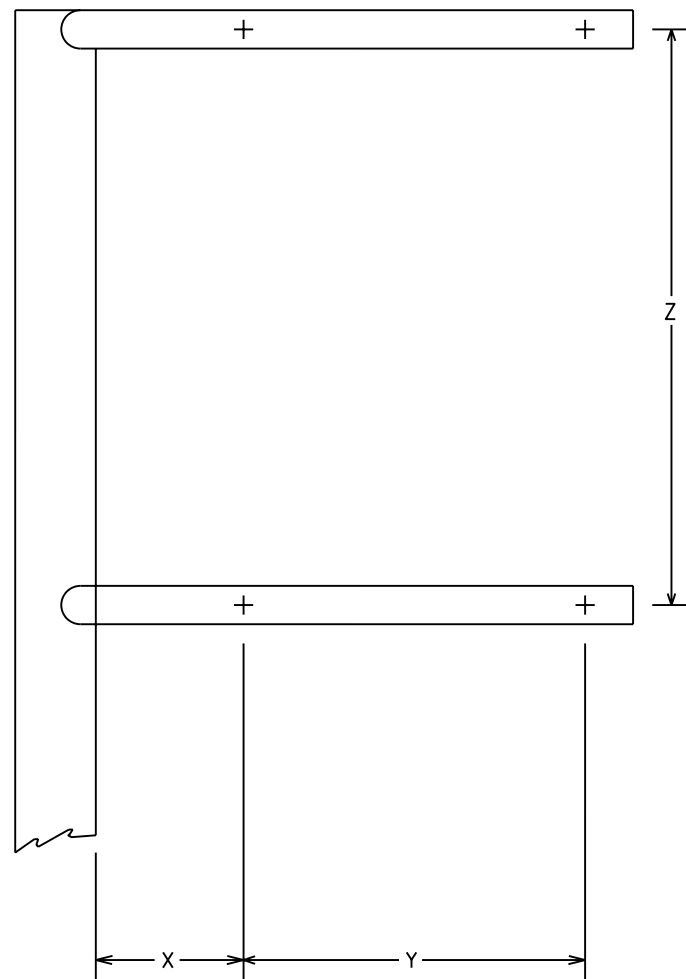
TYPICAL SIGN BRACKET ASSEMBLY

NOTES:

1. STRUCTURES SHALL BE FABRICATED FROM STEEL AND SHALL BE DESIGNED FOR A 90 MPH WIND SPEED IN ACCORDANCE WITH THE CURRENT AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS". FABRICATION SHALL BE IN ACCORDANCE WITH MN/DOT 2471.3.
2. THE POSTS MAY BE SET UP TO 1/8" PER FOOT OUT OF PLUMB TO COMPENSATE FOR THE BENDING OF THE POST SUCH THAT, WITH ALL LOADS ATTACHED THE CENTER OF THE POST AT THE CROSSBEAM OR TRUSS ATTACHMENT LEVEL SHALL BE VERTICALLY ABOVE THE CENTER OF THE POSTS AT THE BASE PLATE LEVEL. THE CROSSBEAM OR TRUSS WITH ALL LOADS ATTACHED SHALL HAVE AT LEAST A RESIDUAL CAMBER OF THE SPAN/1000.
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR APPROVAL. THE SHOP DRAWINGS AND CALCULATIONS SHALL INCLUDE ANCHOR RODS, SPIRAL AND VERTICAL REINFORCEMENT, BASE PLATE, POST, CROSSBEAM OR TRUSS, POST CONNECTIONS AND SIGN BRACKET ASSEMBLY. SUBMITTAL SHALL INCLUDE FOOTING DIAMETER TO BE USED.
4. WELDING OF STRUCTURAL STEEL SHALL CONFORM TO MN/DOT 2471.3F.
5. INSPECTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH MN/DOT 2471.3M.
6. ALL STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH MN/DOT 3394.
7. SIGN BRACKET ASSEMBLIES SHALL BE SO DESIGNED THAT THE SIGN PANELS AND BRACKET ASSEMBLIES CAN BE ADJUSTED LATERALLY ON THE CROSSBEAM OR TRUSS.
8. STRINGERS SHALL CONFORM TO MN/DOT 3401 FOR 4* POSTS.
9. SEE STANDARD SIGNS MANUAL TYPE D STRINGER AND PANEL JOINT DETAIL FOR STRINGER SPACING AND PANEL JOINTS.

SIGN NO.	* FOOTING DEPTH (D) MIN.			
	24" DIA.	30" DIA.	36" DIA.	48" DIA.
OH 61-36	8.0'			
OH 61-36	8.0'			

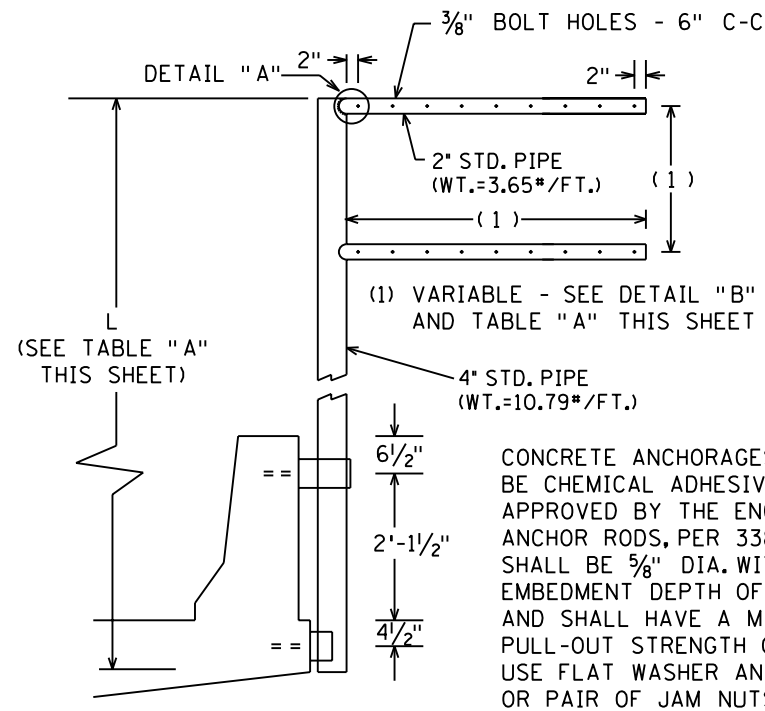
* FOOTING DEPTH IS DEPENDENT ON THE ANCHOR BOLT LENGTH AND THE MINIMUM COVER AS DETAILED ABOVE.



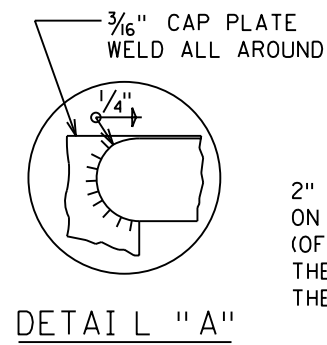
DETAIL "B"

SIGN NO.	X (IN.)	Y (IN.)	Z (IN.)	L (FT.)
C-11	8	24	24	9.0
C-40	8	42	24	9.0

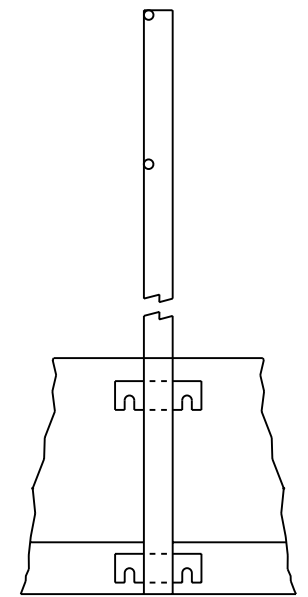
TABLE "A"



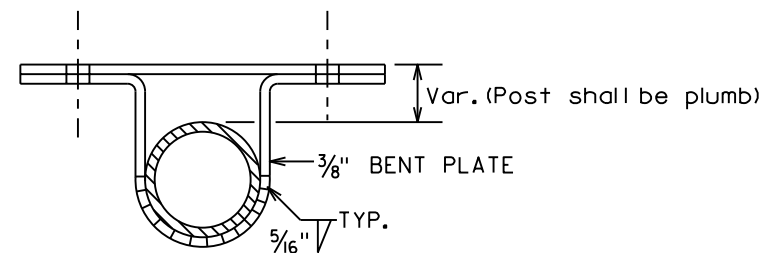
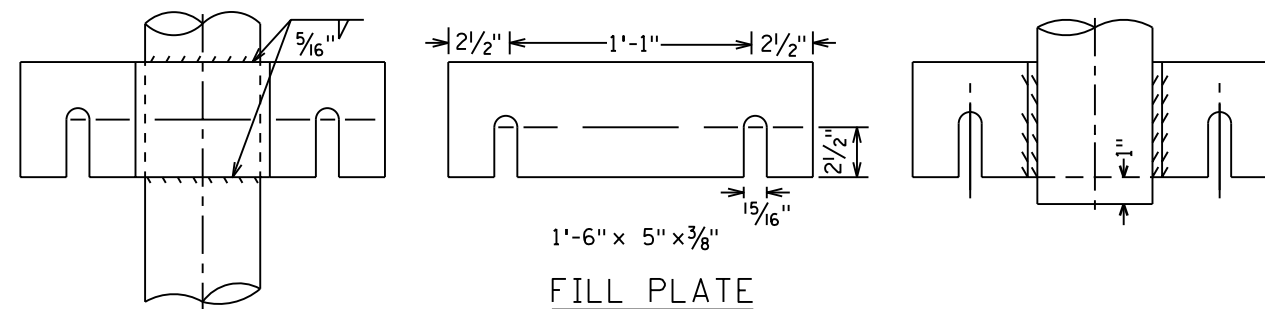
ELEVATION



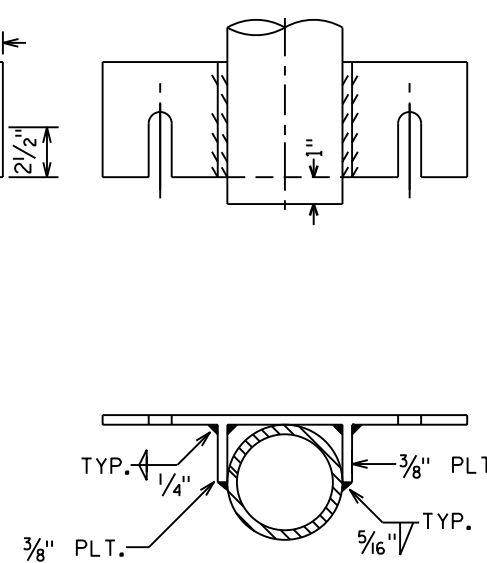
2" PIPE OFFSET ON 4" PIPE (OFFSET SHALL BE IN THE SAME DIRECTION AS THE SIGN IS FACING)



END VIEW



UPPER CONNECTION

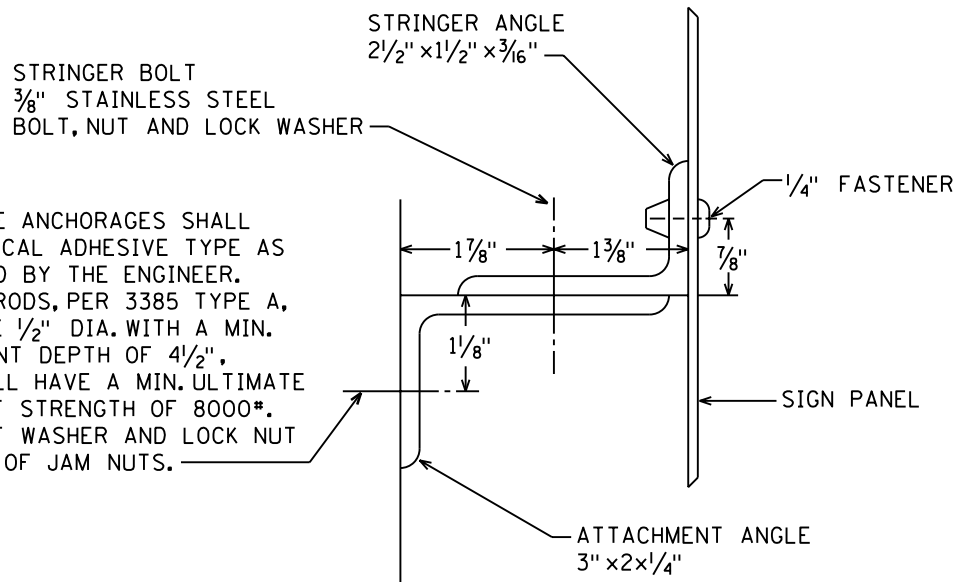


LOWER CONNECTION

NOTES:

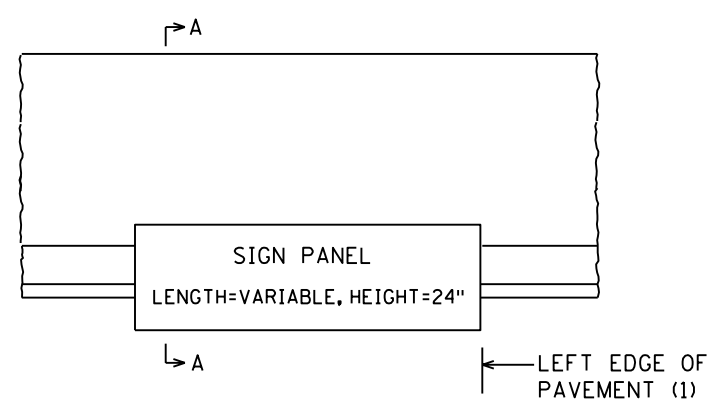
1. ALL PIPE MATERIAL SHALL CONFORM TO ASTM DESIGNATION A53, GRADE B, SCHEDULE 40.
2. ALL STEEL FOR STRUCTURAL ITEMS SHALL CONFORM TO MN/DOT 3306 (STRUCTURAL STEEL) UNLESS OTHERWISE NOTED.
3. FOR NOTES AND DETAILS NOT SHOWN, SEE TYPE C AND D SIGN DETAILS.

TYPE C & D SIGNS
MOUNTED ON BRIDGE RAIL



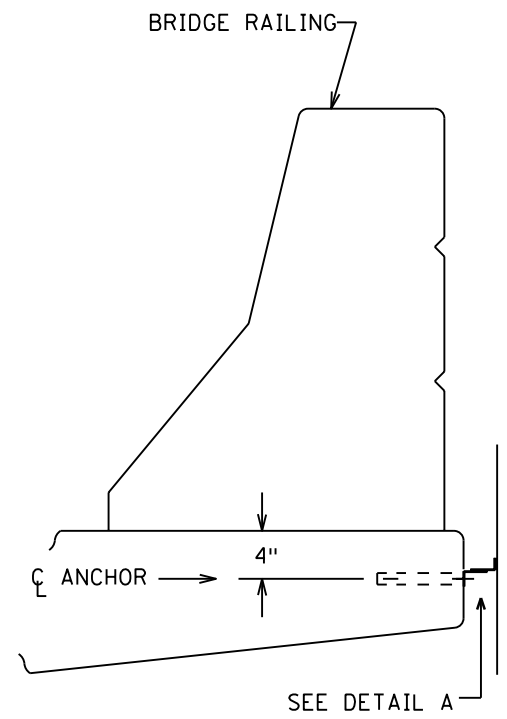
CONCRETE ANCHORAGES SHALL BE CHEMICAL ADHESIVE TYPE AS APPROVED BY THE ENGINEER. ANCHOR RODS, PER 3385 TYPE A, SHALL BE 1/2" DIA. WITH A MIN. EMBEDMENT DEPTH OF 4 1/2", AND SHALL HAVE A MIN. ULTIMATE PULL-OUT STRENGTH OF 8000#. USE FLAT WASHER AND LOCK NUT OR PAIR OF JAM NUTS.

DETAIL A



(1) SIGN PANEL MAY BE SHIFTED LATERALLY IF NECESSARY

ELEVATION

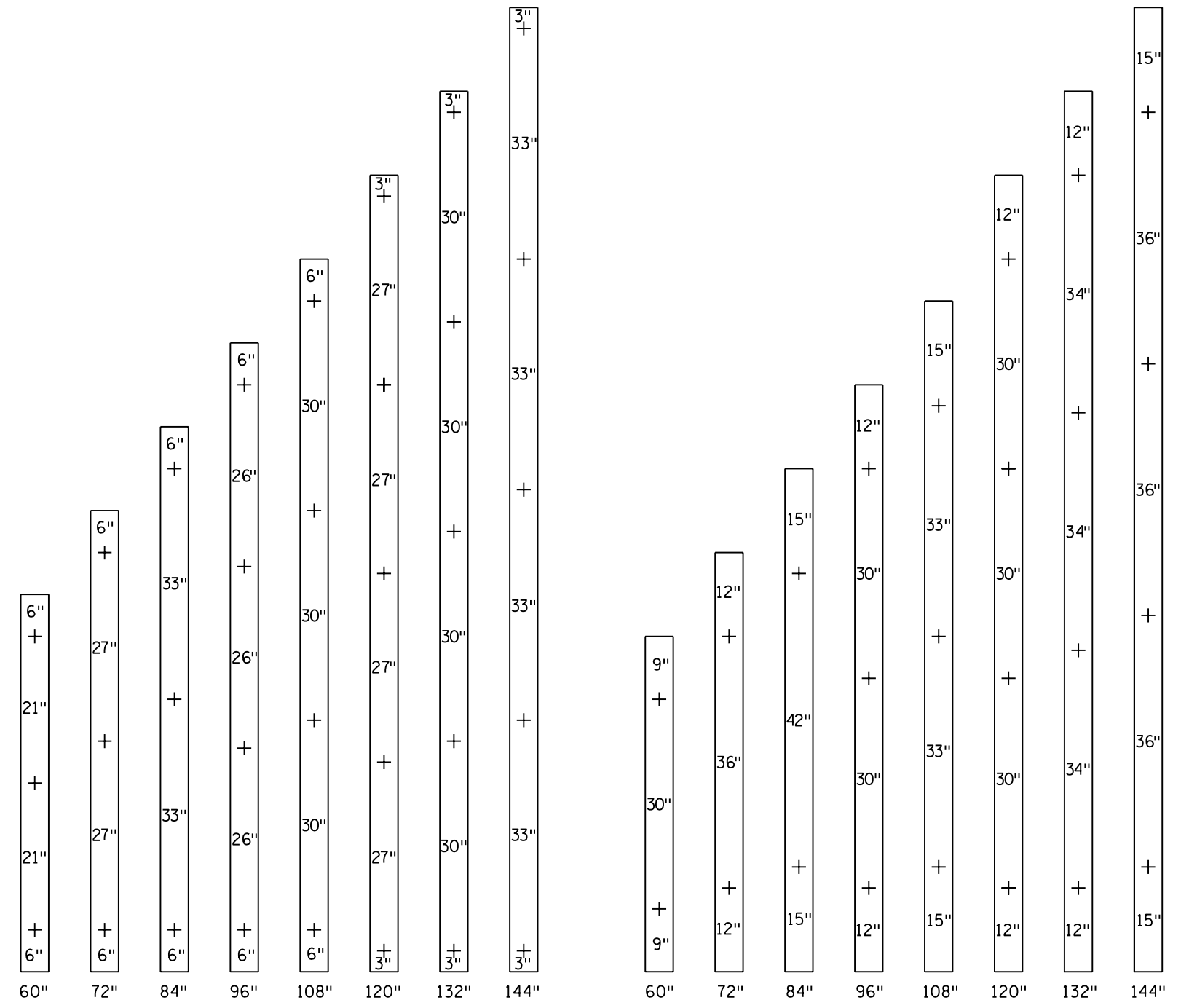


SECTION A-A

PANEL LENGTH	STRINGER ANGLE LENGTH	ATTACHMENT ANGLE LENGTH
60"	54"	48"
72"	66"	60"
84"	78"	72"
96"	90"	84"
108"	102"	96"
120"	114"	108"
132"	126"	120"
144"	138"	132"

NOTES:

- STRUCTURAL STEEL SHALL CONFORM TO MN/DOT 3306 AND SHALL BE GALVANIZED PER MN/DOT 3394.
- SIGN PANEL SHALL BE FASTENED TO STRINGER AT 12" INTERVALS BEGINNING 6" FROM SIGN PANEL EDGE.



SIGN PANEL LENGTH
PUNCHING FOR STRINGER BOLT

SIGN PANEL LENGTH
PUNCHING FOR CONCRETE ANCHOR

STRUCTURAL DETAILS
BRIDGE MOUNTED TYPE D SIGNS
DESIGN A2

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5/6/2010

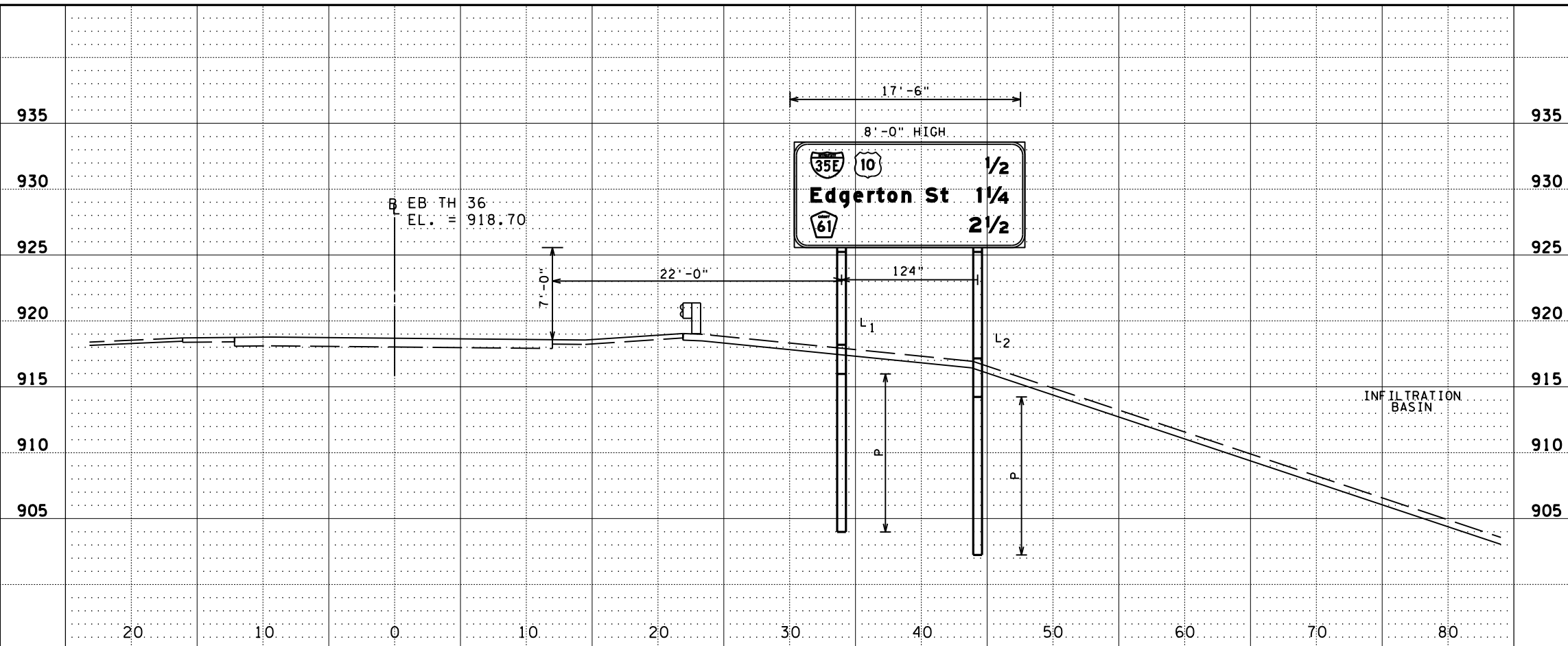
kerickson

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A SIGN_TH36

SIGN A-1

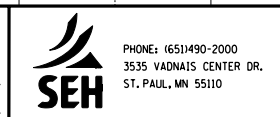
EB T.H. 36
STA. 270+88

POST TYPE	W6X20
POST LENGTH L ₁	16.0 FT.
POST LENGTH L ₂	17.0 FT.
PILE FOOTING P	12.0 FT.



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

T.H. 36 A SIGN

FILE NO. RAMSP108790	278
SS51 OF SS53	534

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5/6/2010

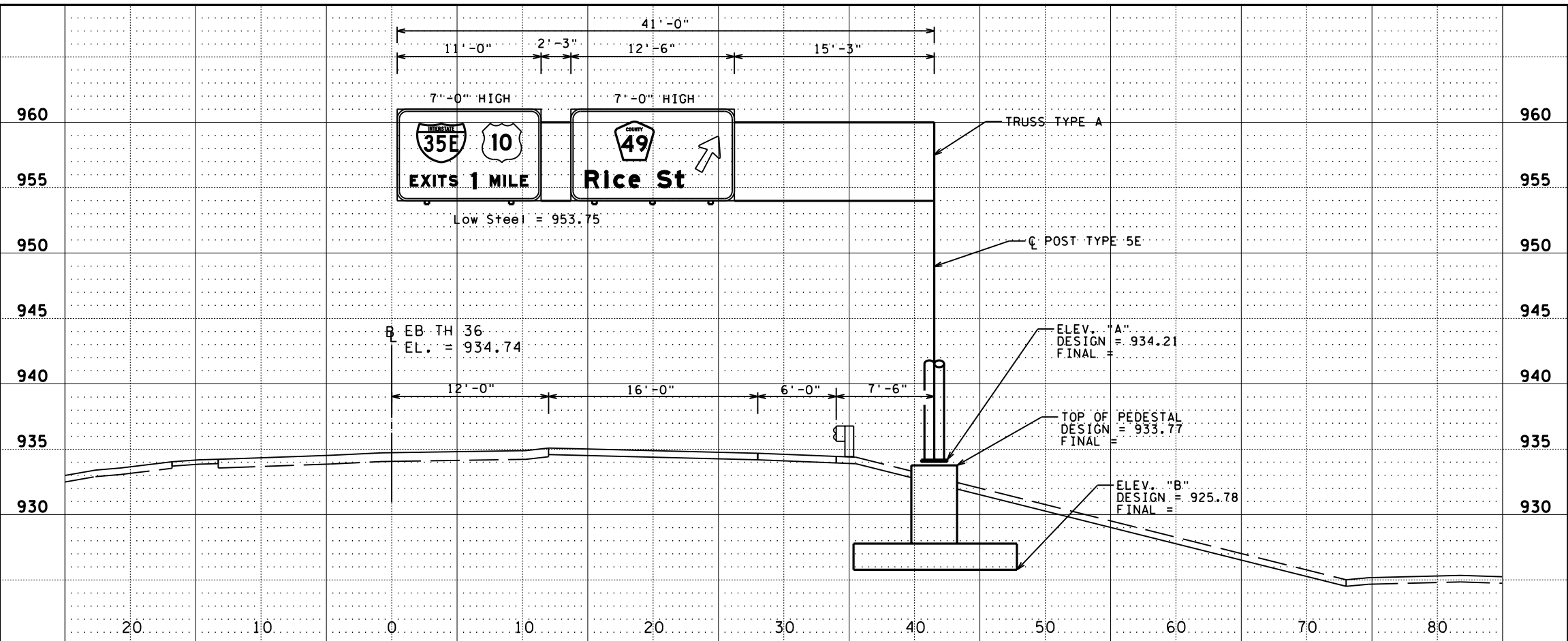
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OH_SIGN_TH36

OH 59-36
E.B. T.H. 36
STA. 252+90
QUANTITIES

	DESIGN	FINAL
POST STEEL	5493 LBS	_____
TRUSS STEEL	5043 LBS	_____
WALKWAY SUPPORT STEEL	- LBS	_____
WALKWAY GRATING STEEL	- LBS	_____
PANEL MOUNTING POST STEEL	370 LBS	_____
CONCRETE (SPREAD) FOOTING	19.4 CU YDS	_____

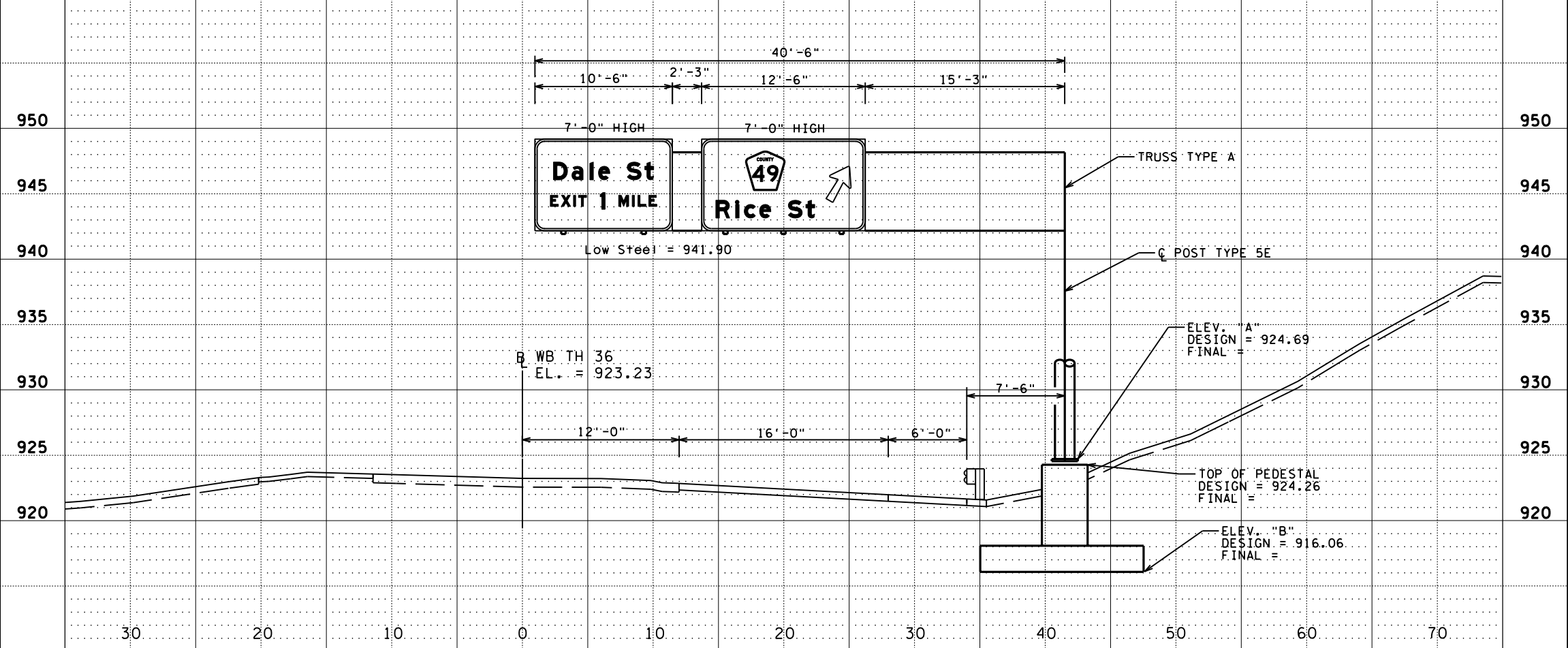
- NOTES:
1. LOW STEEL IS BOTTOM OF PANEL MOUNTING POSTS ON THE TALLEST PANEL.
 2. STRUCTURE IS DESIGNED FOR FUTURE WALKWAY.



OH 60-36
W.B. T.H. 36
STA. 283+80
QUANTITIES

	DESIGN	FINAL
POST STEEL	5170 LBS	_____
TRUSS STEEL	4982 LBS	_____
WALKWAY SUPPORT STEEL	- LBS	_____
WALKWAY GRATING STEEL	- LBS	_____
PANEL MOUNTING POST STEEL	370 LBS	_____
CONCRETE (SPREAD) FOOTING	19.4 CU YDS	_____

- NOTES:
1. LOW STEEL IS BOTTOM OF PANEL MOUNTING POSTS ON THE TALLEST PANEL.
 2. STRUCTURE IS DESIGNED FOR FUTURE WALKWAY.



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

T.H. 36 OH SIGNS

FILE NO. RAMSP108790	279
SS52 OF SS53	534

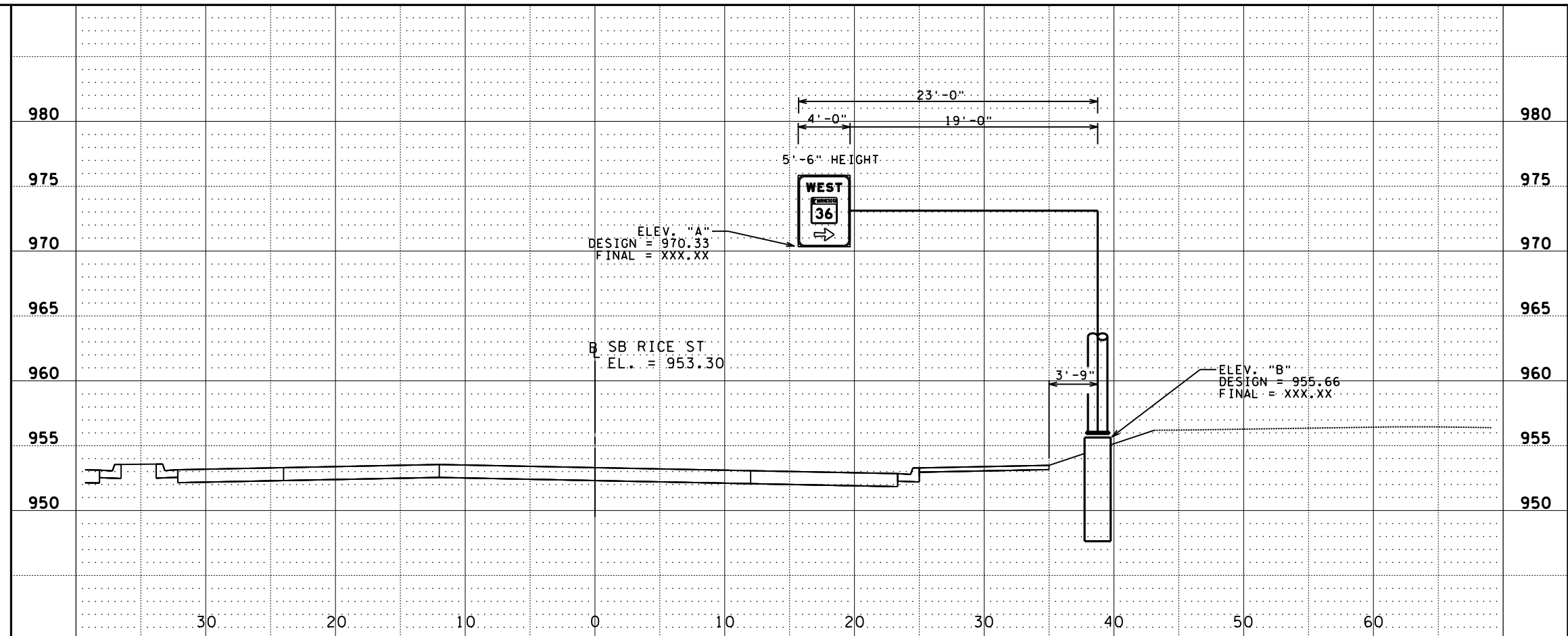
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5/6/2010

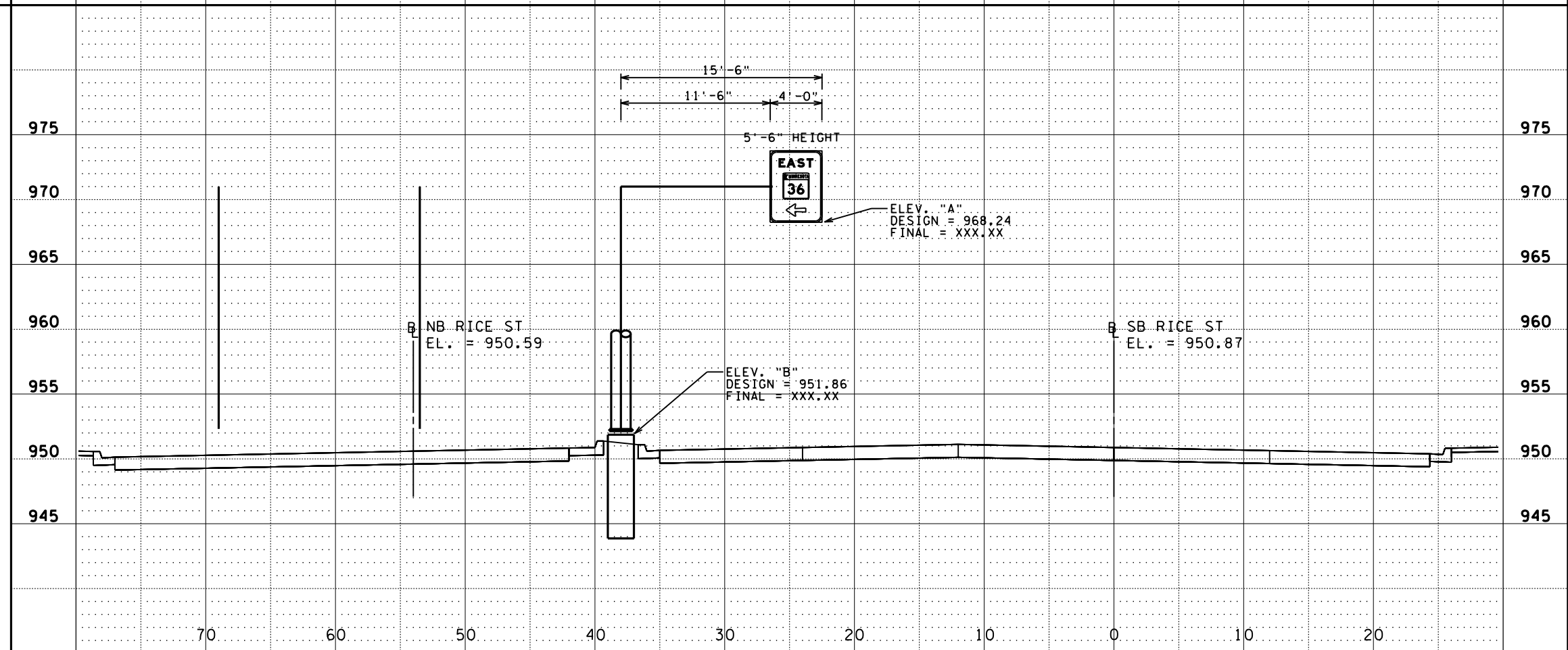
kerickson

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OH_SIGN_RICE_ST

OH 62-36
S.B. RICE STREET
STA. 28+22



OH 61-36
S.B. RICE STREET
STA. 27+47



DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	MPM		
CHECKED BY:	BWJ		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Michael P. McCurdy* Lic. No. 45902
 Licensed Professional Engineer
 Printed Name: MICHAEL P. MCCURDY Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RICE ST OH SIGNS

FILE NO. **280**
 RAMSP108790
 SS53
 OF SS53
534

ABBREVIATIONS	
AWF	ADVANCED WARNING FLASHER
APS	ACCESSIBLE PEDESTRIAN SIGNAL
BL	BLUE
BL/BLK	BLUE WITH BLACK TRACER
BLK	BLACK
BLK/R	BLACK WITH RED TRACER
BLK/WH	BLACK WITH WHITE TRACER
CDT	COUNTDOWN TIMER
CH. SW.	CHECK SWITCH
CLR	CLEAR
D2-1 (e.g.)	DETECTOR (PHASE 2, NO. 1)
DBL	DOUBLE
DWK	DON'T WALK
EQ.G	EQUIPMENT GROUND
EVP	EMERGENCY VEHICLE PRE-EMPTION
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
G	GREEN
G/BLK	GREEN WITH BLACK TRACER
GLTA	GREEN LEFT TURN ARROW
GRN	GREEN
GR. RD.	GROUND ROD
GRTA	GREEN RIGHT TURN ARROW
GTHA	GREEN THRU ARROW
HH	HANDHOLE
HPS	HIGH PRESURE SODIUM
IMC	INTERMEDIATE METAL CONDUIT
INP	INPLACE
INS. GR.	INSULATED GROUND
JB	JUNCTION BOX
LED	LIGHT EMITTING DIODE
LHT	LIGHT
LUM	LUMINAIRE
NEU	NEUTRAL
O	ORANGE
O/BLK	ORANGE WITH BLACK TRACER
P1-1 (e.g.)	PEDESTRIAN INDICATION (PHASE 1, NO. 1)
PB	PUSH BUTTON
PB2-1 (e.g.)	PUSH BUTTON (PHASE 2, NO. 1)
PEC	PHOTOELECTRIC CELL
PED	PEDESTRIAN
PVC	POLYVINYL CHLORIDE CONDUIT
R	RED
R&S	REMOVE AND SALVAGE
R/BLK	RED WITH BLACK TRACER
RLTA	RED LEFT TURN ARROW
RSC	RIGID STEEL CONDUIT
S & I	SALVAGE AND INSTALL
SOP	SOURCE OF POWER
SPR	SPARE
ST LHT	STREET LIGHT
STA	STATION
SW	SWITCH
SWD	SWITCHED
TDW	TELEPHONE DROP WIRE
WH	WHITE
WH/BLK	WHITE WITH BLACK TRACER
WH/R	WHITE WITH RED TRACER
WLK	WALK
YEL	YELLOW
YLTA	YELLOW LEFT TURN ARROW
YRTA	YELLOW RIGHT TURN ARROW

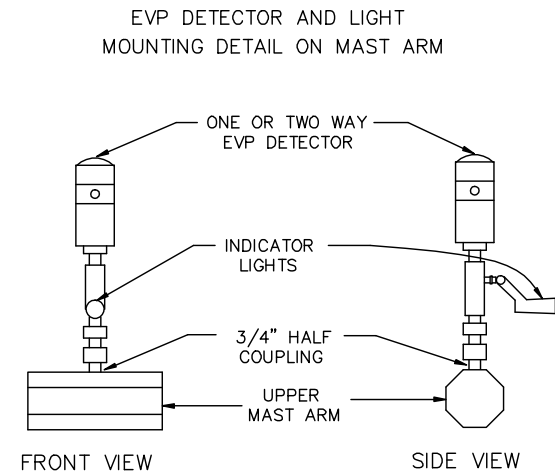
SYMBOLS	
	EQ. G CONNECTION
	EVP DETECTOR W/LIGHT
	LUMINAIRE NO.
	SIGNAL BASE NO.
	SIGNAL FACE NO./FLASHER FACE NO.
	SPLICE
	VIDEO DETECTION
	MICROWAVE DETECTION
	SONIC DETECTION

FOR PLANS AND UTILITIES SYMBOLS
SEE TECHNICAL MANUAL

TABULATION OF SIGNAL QUANTITIES			
ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY
2564	SIGN PANELS TYPE D (SIGNALS)	SQ. FT.	256
2565	TRAFFIC CONTROL SIGNAL SYSTEM "A"	SIG. SYS.	1
2565	TRAFFIC CONTROL SIGNAL SYSTEM "B"	SIG. SYS.	1
2565	TRAFFIC CONTROL SIGNAL SYSTEM "C"	SIG. SYS.	1
2565	TRAFFIC CONTROL SIGNAL SYSTEM "D"	SIG. SYS.	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "A"	LUMP SUM	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "B"	LUMP SUM	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "C"	LUMP SUM	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "D"	LUMP SUM	1
2565	TRAFFIC CONTROL INTERCONNECTION "A"	LUMP SUM	1
2565	TRAFFIC CONTROL INTERCONNECTION "B"	LUMP SUM	1
2565	TEMPORARY SIGNAL SYSTEM "A"	SYSTEM	1
2565	TEMPORARY SIGNAL SYSTEM "B"	SYSTEM	1
2565	TEMPORARY SIGNAL SYSTEM "C"	SYSTEM	1
2565	TEMPORARY SIGNAL SYSTEM "D"	SYSTEM	1
2565	TEMPORARY SIGNAL SYSTEM "E"	SYSTEM	1

CONDUCTOR COLOR CODE (14 GAUGE)			
TO SIGNAL CABINET		TO DEVICE	
1/C#6 G	R	R	RED 4 & 5
6PR#19	O	BL	YEL SECTION
	BL	WH	GRN SIGNAL
	WH	BLK/R	NEU INDICATION
	BLK/R	BLK	YLTA GLTA
	BLK		
3-1/C#2	INPUT POWER		
	BLK		
	WH		
3-1/C#6	SIGNAL SERVICE		
	BLK		
	WH		
	IG		
	R		
	O	4/C#14 BLK/R	RED/DWK 3 SECTION
	BL	BLK	YEL/WLK & PED
	WH	WH	GRN/SPR INDICATION
	BLK		
	R/BLK	3/C#14 BLK	
	O/BLK	IG	
	BL/BLK	WH	
	WH/BLK		
12/C#14		3/C#14 BLK	EVP LIGHT
		IG	LUM/FLASHER
		WH	
		WH OR CLR	
		R OR O	
		WH OR YEL	
		BLK OR BL	PED PUSH BUTTON (If Required)

NOTE:
ALL TERMINATIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



SIGNAL SYSTEMS PLAN INDEX

SHEET NO.	DESCRIPTION
SG1	DETAILS AND STANDARD PLATES
SG2 - SG9	TRAFFIC SIGNAL DETAILS
SG10 - SG14	TRAFFIC SIGNAL SYSTEM "A"
SG15 - SG18	TRAFFIC SIGNAL SYSTEM "B"
SG19 - SG21	TRAFFIC SIGNAL SYSTEM "C"
SG22	TRAFFIC CONTROL INTERCONNECTION
SG23 - SG26	TRAFFIC SIGNAL SYSTEM "D"
SG27	TEMPORARY SIGNAL DETAILS
SG28 - SG30	TEMPORARY SIGNAL SYSTEM "A"
SG31 - SG33	TEMPORARY SIGNAL SYSTEM "B"
SG33 - SG36	TEMPORARY SIGNAL SYSTEM "C"
SG37 - SG39	TEMPORARY SIGNAL SYSTEM "D"
SG40 - SG42	TEMPORARY SIGNAL SYSTEM "E"
SG43 - SG52	INPLACE SIGNAL SYSTEMS ("FOR INFORMATION ONLY")

STANDARD PLATES - SIGNAL SYSTEMS			
THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT			
PLATE NO.	DESCRIPTION	PLATE NO.	DESCRIPTION
▶ 8000	STANDARD BARRICADES	8122	PEDESTAL AND PEDESTAL BASE
▶ 8110	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED	▶ 8123	POLE AND MAST ARM
8111	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED	▶ 8126	POLE FOUNDATION (PA90 AND PA100)
8112	PEDESTAL FOUNDATION	8130	SAW CUT LOOP DETECTORS
▶ 8114	PVC HANDHOLE/PULLBOX	▶ 8132	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR
▶ 8118	SERVICE EQUIPMENT AND POLE-TRAFFIC SIGNALS		
▶ 8119	GROUND MOUNTED CABINET FOUNDATION		
8120	POLE FOUNDATION (PA-85)		
▶ 8121	TRANSFORMER BASE AND POLE BASE PLATE		

▶ STANDARD PLATES APPLICABLE TO THIS PROJECT

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DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				

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.

Certified By: Lic. No. 22457
Printed Name: John M. Gray, PE Date: 03/04/2010

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEMS "A-D"
DETAILS AND STANDARD PLATES
CSAH 49 (RICE STREET) SIGNAL SYSTEMS

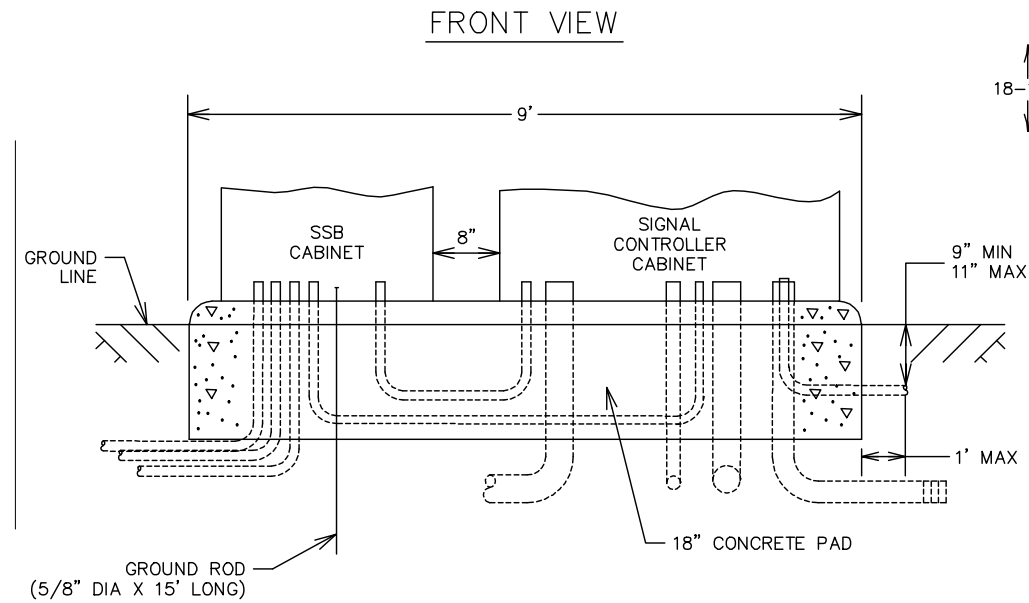
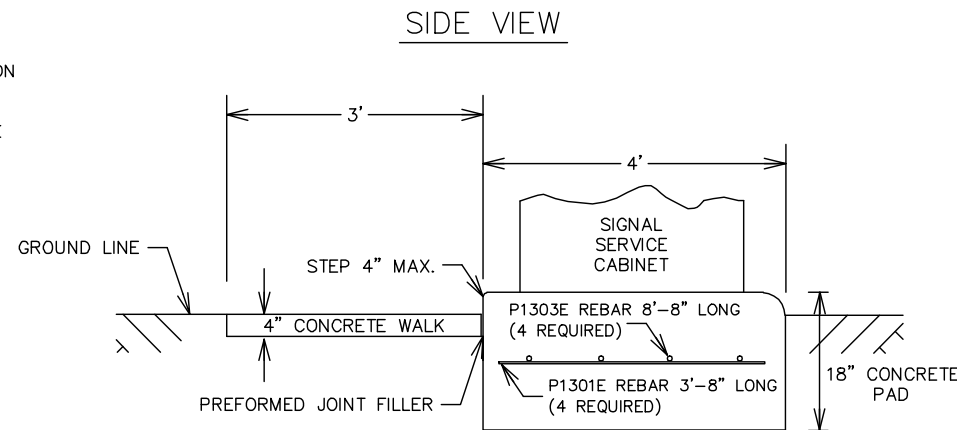
FILE NO. RAMSP108790	281
SG1 OF SG52	534

NOTES:

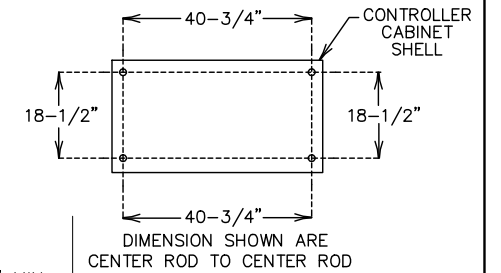
1. THE ANCHOR RODS, NUTS, WASHERS, AND RUBBER GASKET FOR EACH CONTRACTOR FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. THE OUTER EDGE OF THE ENTIRE EQUIPMENT PAD AND CONCRETE WALK SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. CORRECT PLACEMENT OF CONDUIT TO THE LEFT OF THE CABINET DIVIDER IS CRITICAL.
9. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
10. CABINETS TO BE CENTERED (LEFT & RIGHT) ON THE PAD.
11. BRUSH ON ANTI-SEIZE LUBRICANT MUST BE APPLIED TO ALL ANCHOR ROD THREADS PROTRUDING ABOVE THE CONCRETE PAD BEFORE THE CABINET IS SET.

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

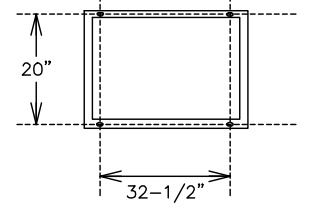
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)



CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN

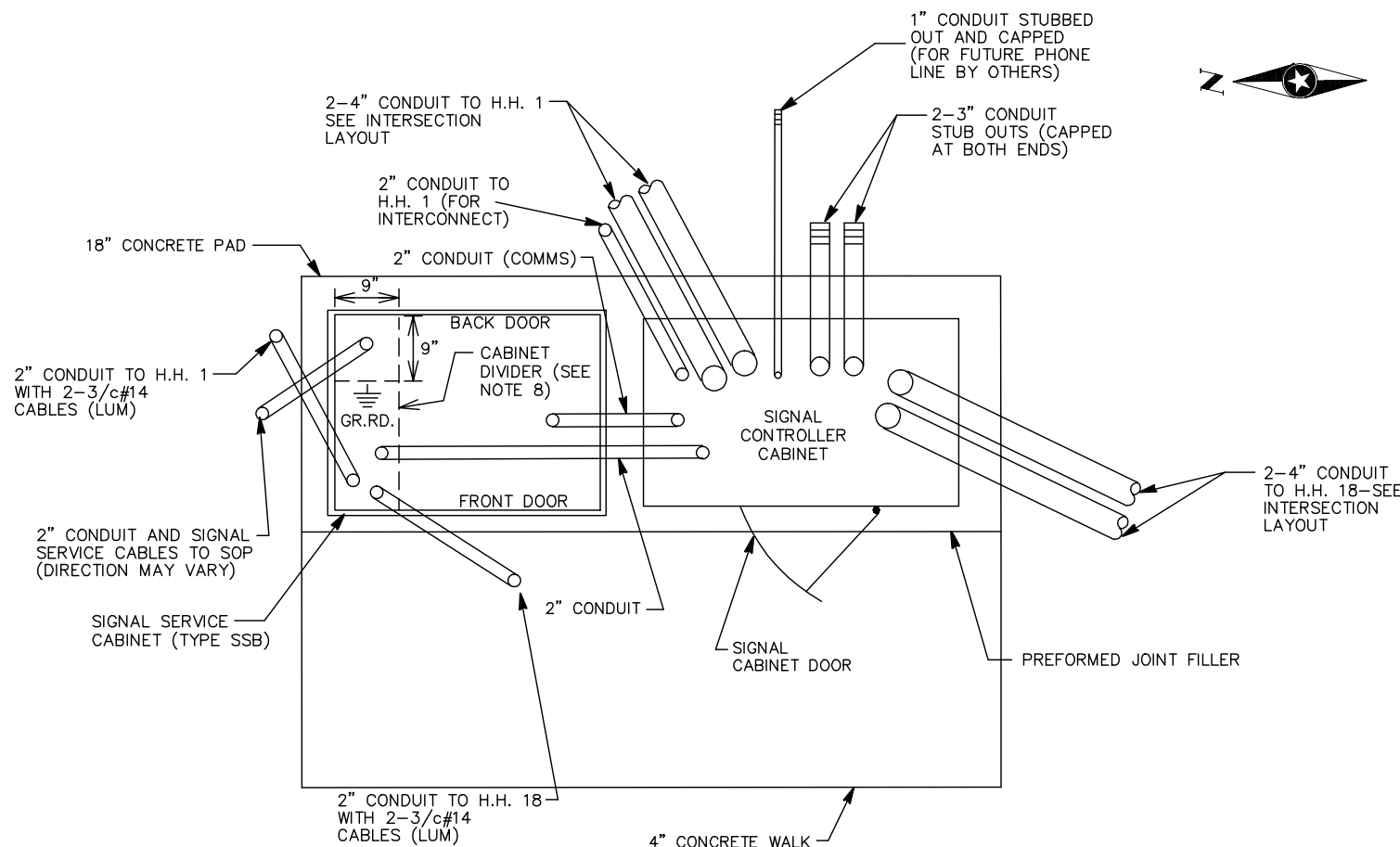


S.S.B. SERVICE CABINET BOLT PATTERN



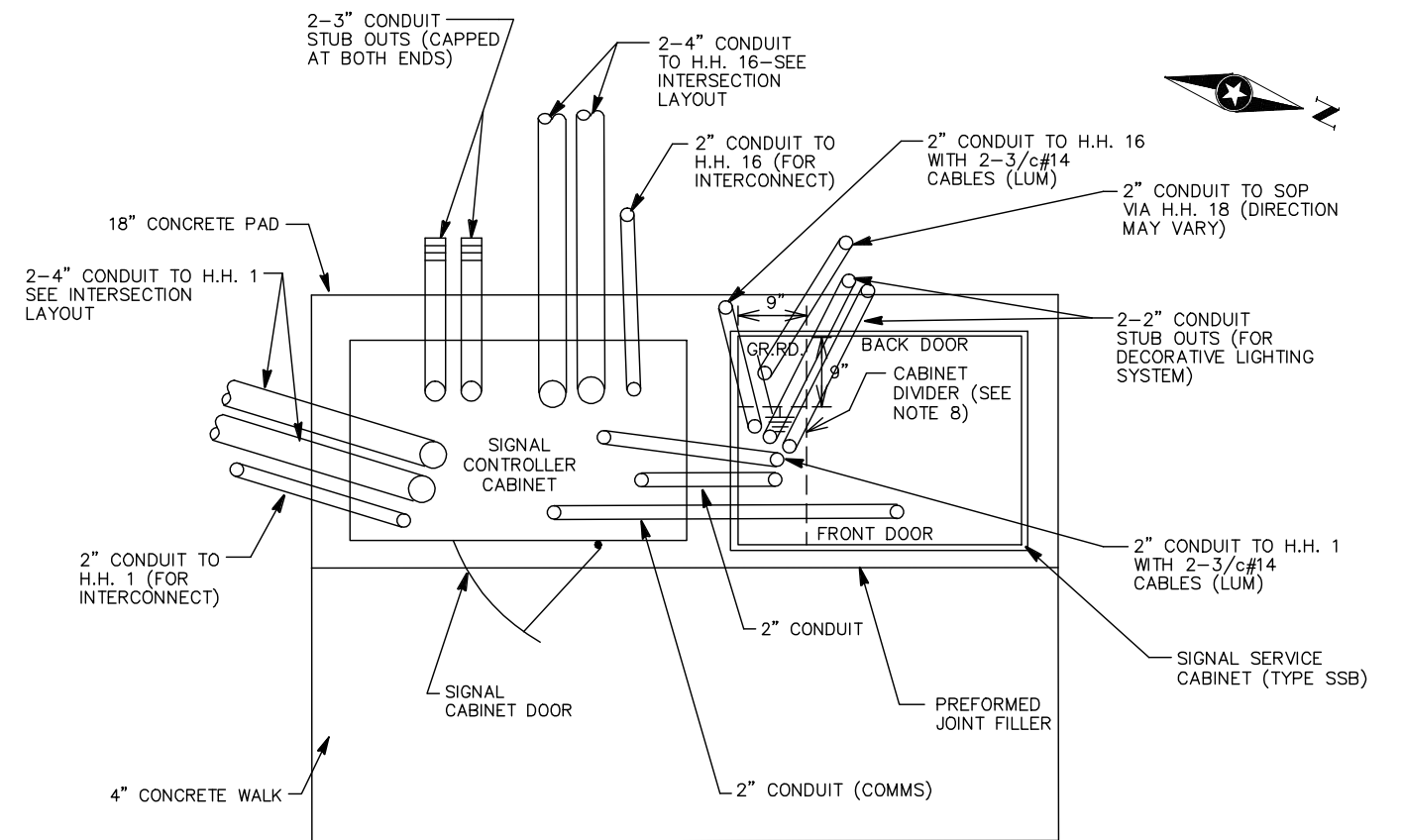
PLAN VIEW—SYSTEM "A"

RICE STREET (CSAH 49) AT COUNTY ROAD B (CSAH 25)



PLAN VIEW—SYSTEM "B"

RICE STREET (CSAH 49) AT TRUNK HIGHWAY 36 RAMPS



MN/DOT SYS ID NO. 39223

S:\PTA\RAMSP\108790\PLNSHETS\3RICE-SIGDET1.DWG

DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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.

Certified By: *John M. Gray* Lic. No. 22457
 Printed Name: John M. Gray, PE Date: 03/04/2010

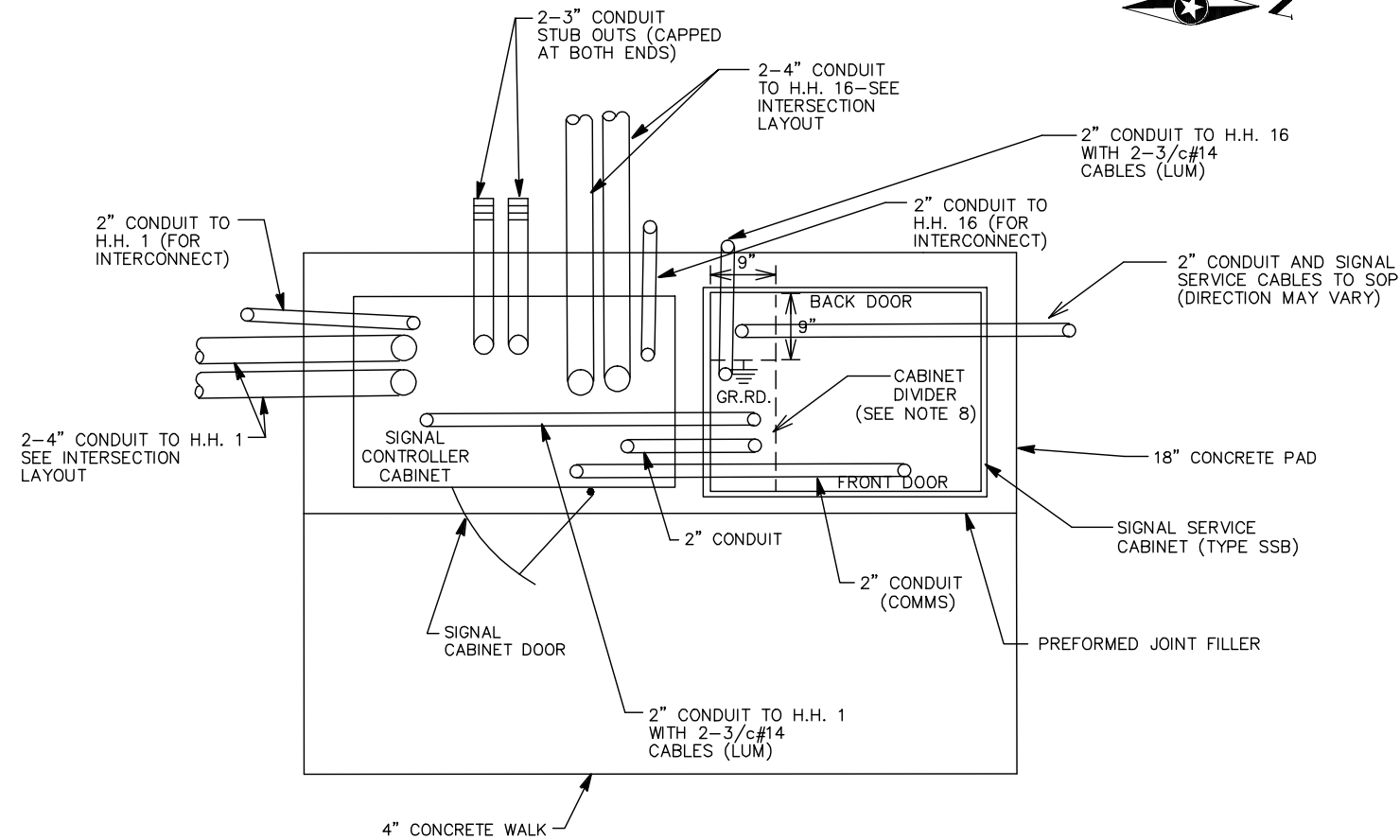
PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

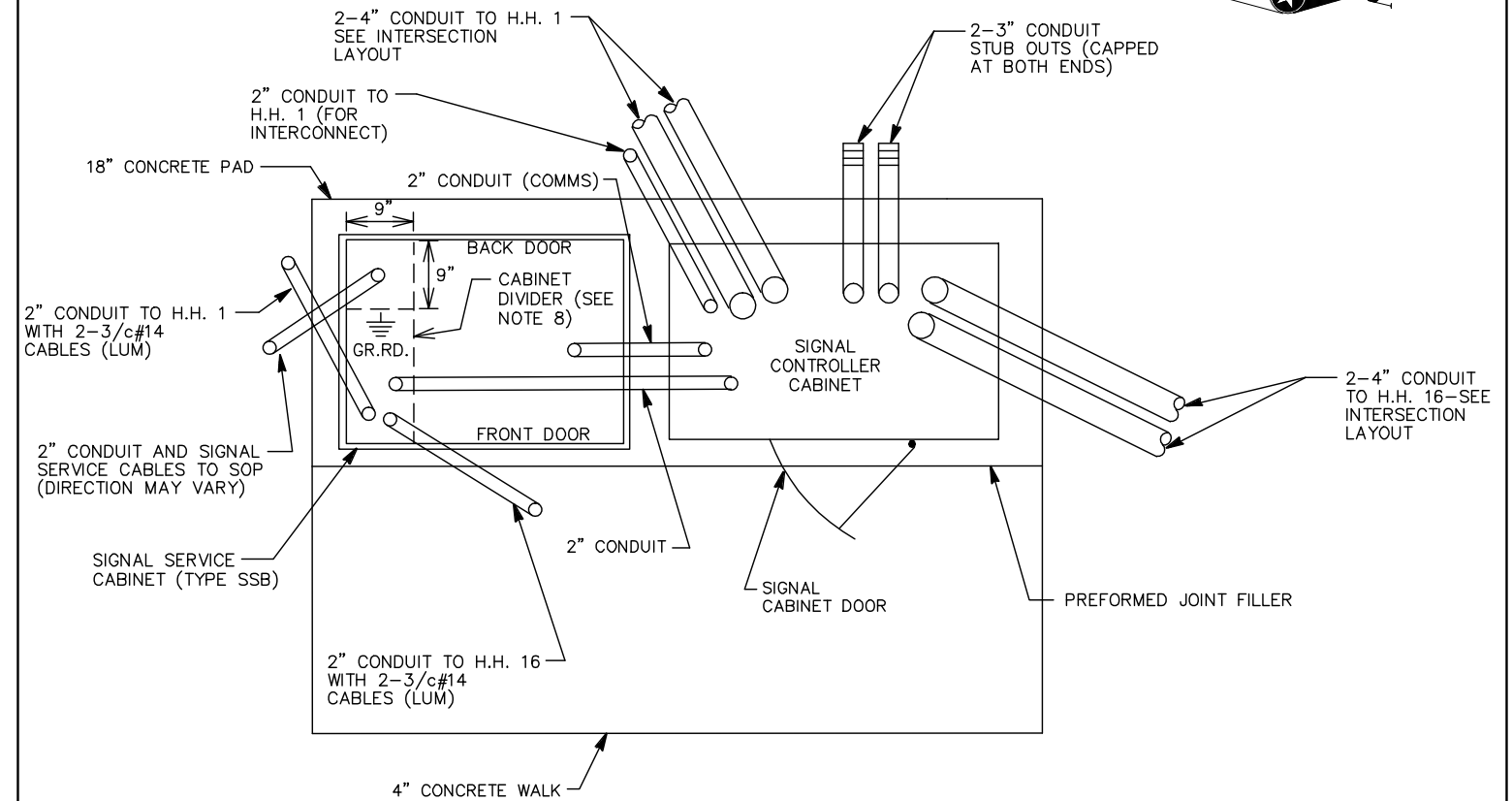
TRAFFIC SIGNAL SYSTEMS "A-D"
 EQUIPMENT PAD DETAILS
 (TYPE SSB SERVICE CABINET)
 CSAH 49 (RICE STREET) SIGNAL SYSTEMS

FILE NO. RAMSP108790	282
SG2 OF SG52	534

PLAN VIEW—SYSTEM "C"
RICE STREET (CSAH 49) AT MINNESOTA AVENUE



PLAN VIEW—SYSTEM "D"
RICE STREET (CSAH 49) AT COUNTY ROAD B2



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DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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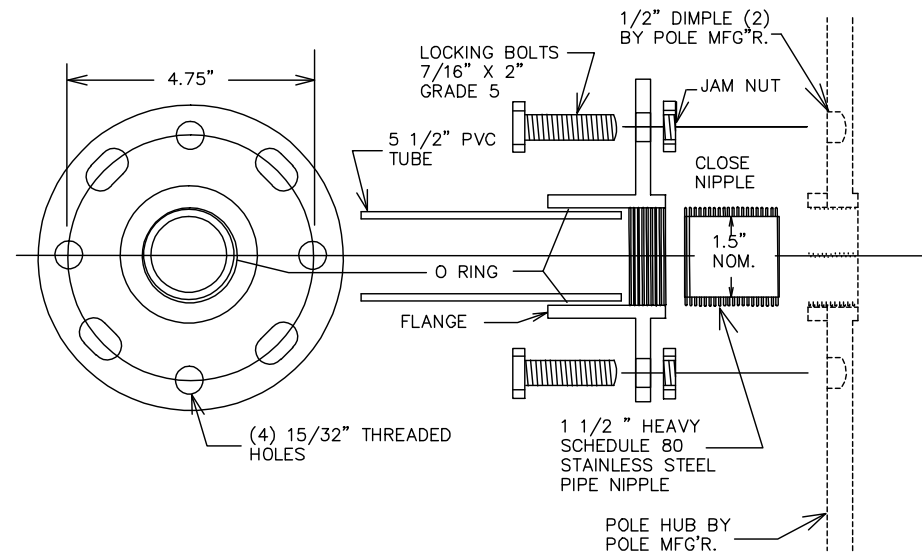
Certified By: *John M. Gray* Lic. No. 22457
Printed Name: John M. Gray, PE Date: 03/04/2010

PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

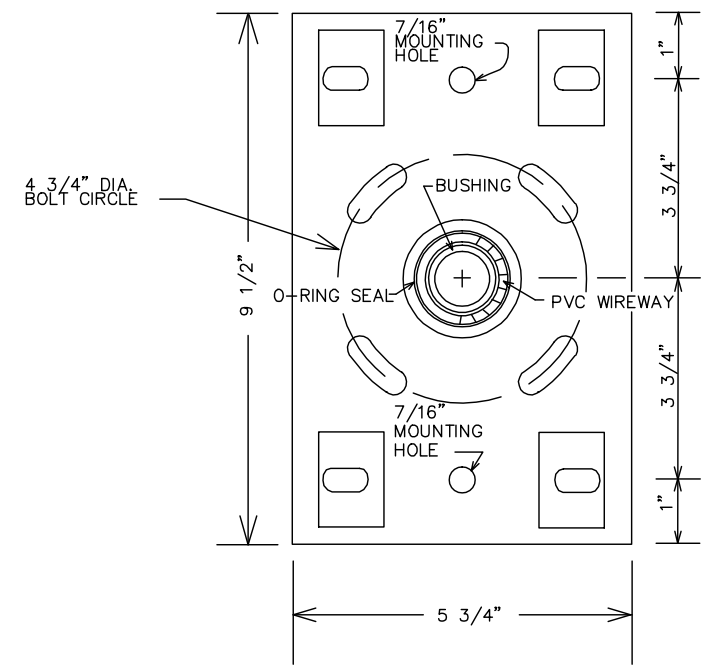
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEMS "A-D"
EQUIPMENT PAD DETAILS
(TYPE SSB SERVICE CABINET)
CSAH 49 (RICE STREET) SIGNAL SYSTEMS

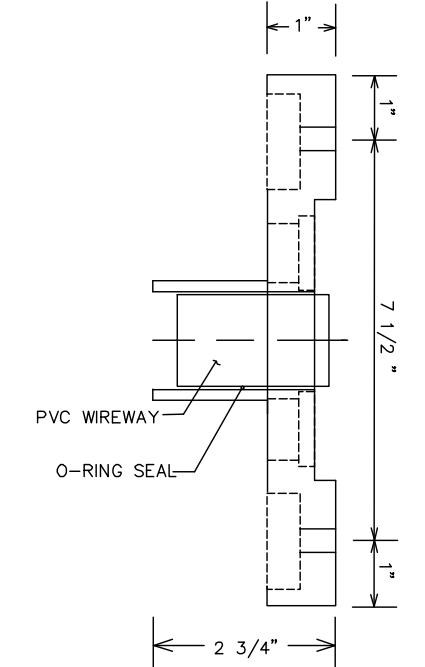
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SG3 OF SG52	534



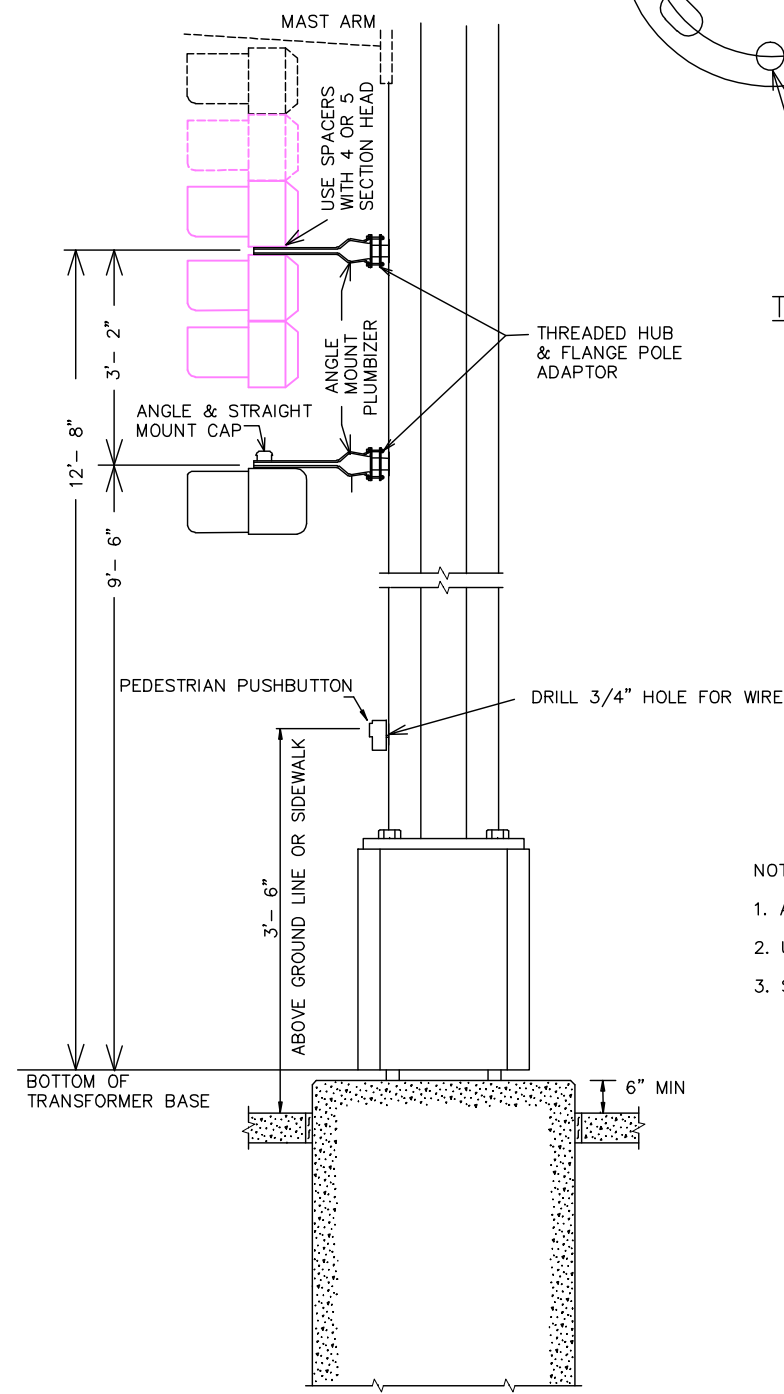
THREADED HUB AND FLANGE POLE ADAPTOR



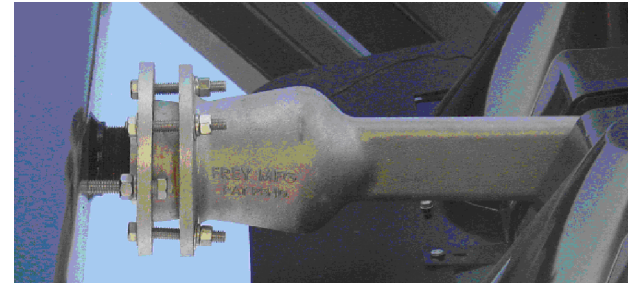
BOLT ON HUB & FLANGE



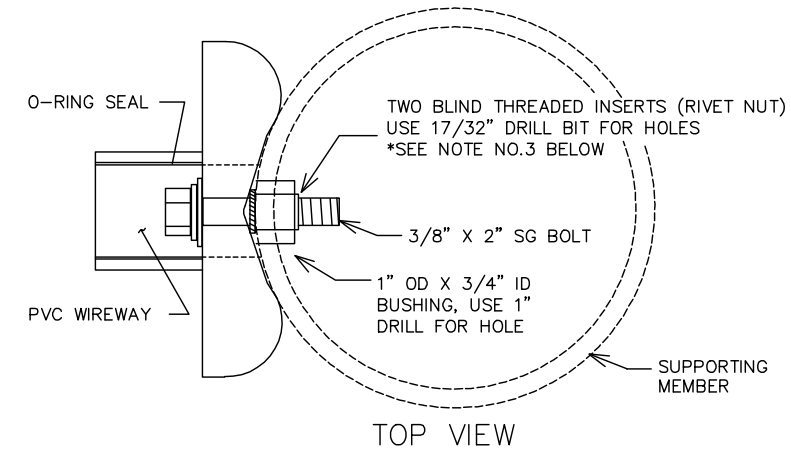
SIDE VIEW



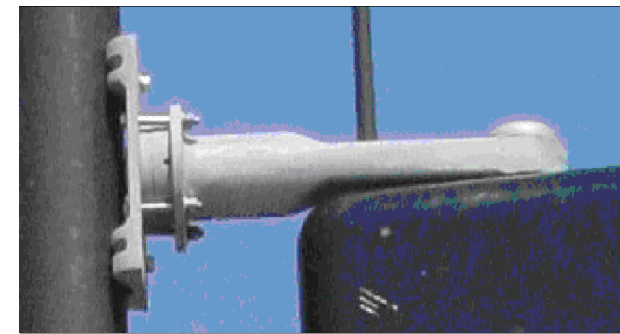
TYPICAL SIGNAL POLE MOUNTING
NOT TO SCALE



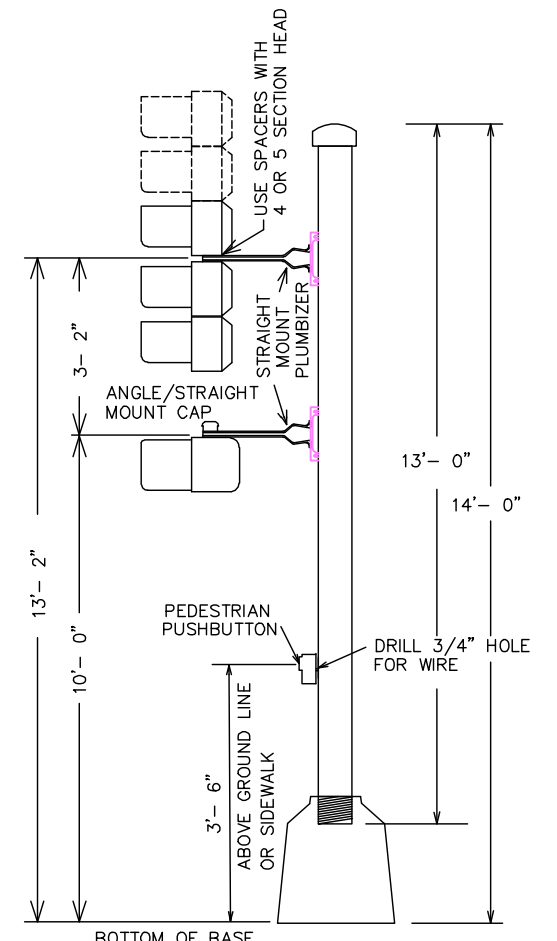
- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
 3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.



TOP VIEW



- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
 3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSTALLED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
 4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



TYPICAL PEDESTAL MOUNTING
NOT TO SCALE

S:\PTA\RAMSP\108790\PLNSHTS\3BRICE-SIGDET1.DWG

DESIGN TEAM				
DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
NO.	BY	DATE	REVISIONS	

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

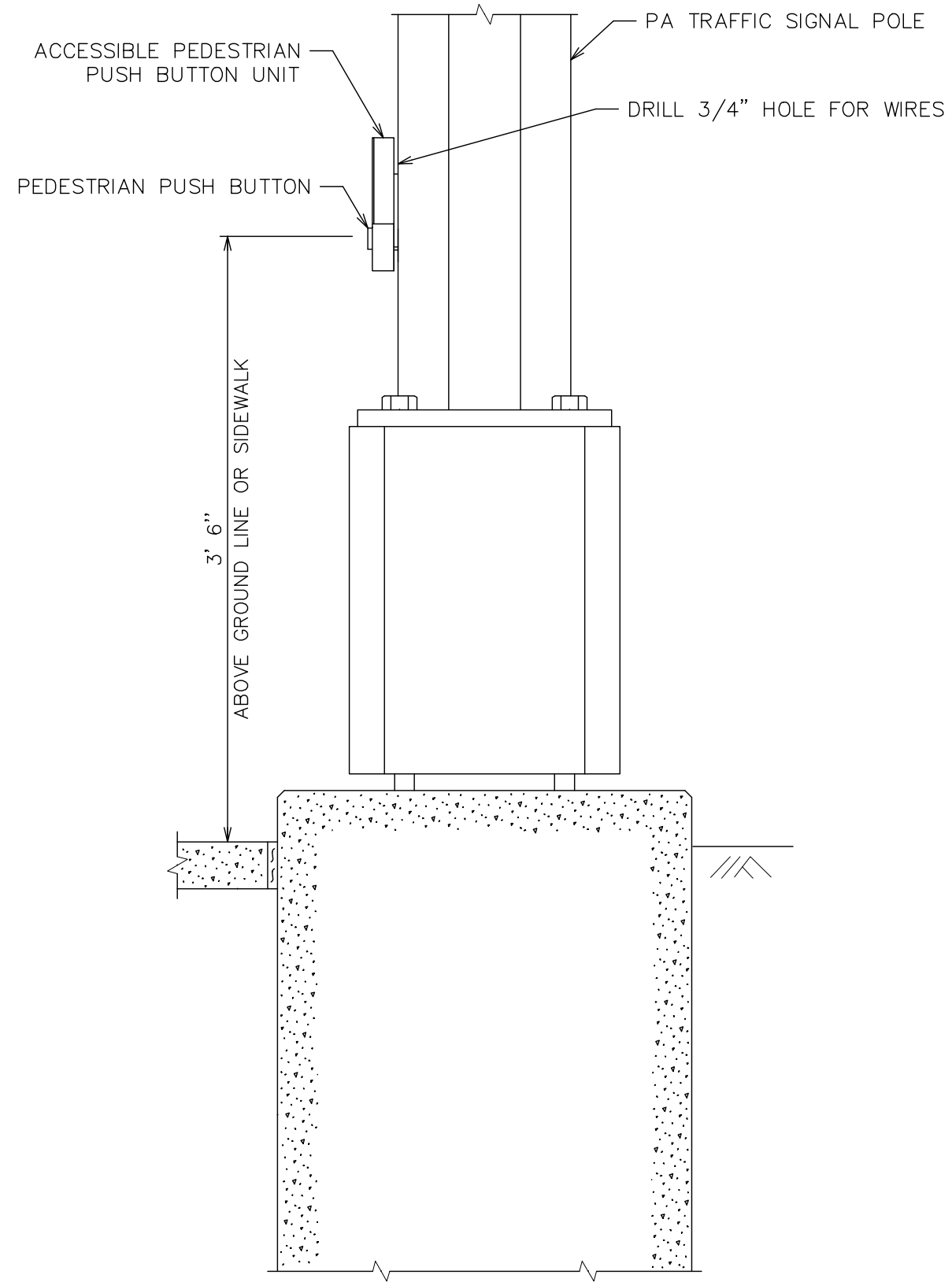
TRAFFIC SIGNAL SYSTEMS 'A-D'
ONE WAY POLE MOUNT DETAILS
 CSAH 49 (RICE STREET) SIGNAL SYSTEMS

FILE NO. RAMSP108790	284
SG4 OF SG52	534

NOTE: THIS PLAN SHEET HAS BEEN REPLACED BY
 MN/DOT STANDARD PLATE NO. 8132 (PERFORMED
 RIGID PVC CONDUIT LOOP DETECTOR).

S:\PTA\RAMSP\108790\PLNSHTS\3RICE-SIGETS1.DWG

DESIGN TEAM				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. Certified By:  Lic. No. 22457 Printed Name: John M. Gray, PE Date: 03/04/2010	 PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	RAMSEY COUNTY, MINNESOTA TH 36 / RICE STREET (CSAH 49) SP NO. 62-649-27 CTB, 6212-165 (TH 36)	TRAFFIC SIGNAL SYSTEMS "A-D" NMC LOOP DETECTOR DETAILS CSAH 49 (RICE STREET) SIGNAL SYSTEMS	FILE NO.	285
DRAWN BY: JMG		RAMSP108790							
DESIGNER: JMG		SG5							
CHECKED BY: JMG		OF SG52	534						
	NO.	BY	DATE	REVISIONS					



PEDESTRIAN MAST ARM POLE STATION
NOT TO SCALE

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DESIGN TEAM				
DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
	NO.	BY	DATE	REVISIONS

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 Certified By: *John M. Gray* Lic. No. 22457
 Printed Name: John M. Gray, PE Date: 03/04/2010

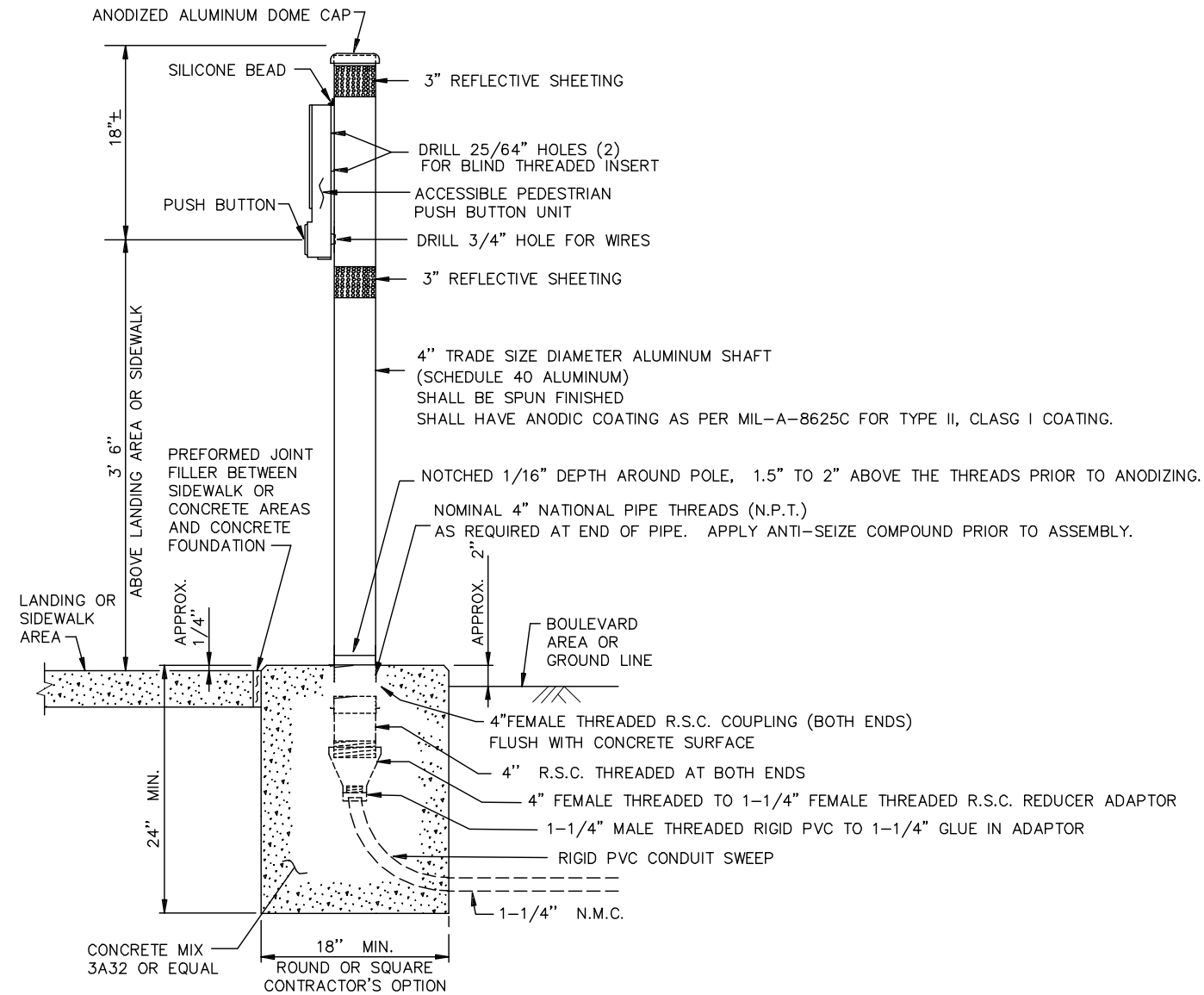
SEH
 PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEMS "A-D"
APS INSTALLATION DETAILS
 CSAH 49 (RICE STREET) SIGNAL SYSTEMS

FILE NO. RAMSP108790	286
SG6 OF SG52	534

PEDESTRIAN PUSH BUTTON STATION



NOTES:

1. PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. THE BUTTON ARROW DIRECTION MUST POINT TO THE DIRECTION OF THE APPROPRIATE CROSSING. SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
2. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSTALLED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
3. BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4 - 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF .337". APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE MN/DOT QUALIFIED PRODUCTS LIST.
4. MOUNTING BOLTS SHALL BE 1/4 - 20 STAINLESS STEEL. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
5. APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" POST.
6. THE REFLECTIVE SHEETING SHALL BE WHITE AT INTERSECTION CORNERS AND SHALL BE YELLOW WHEN USED IN CENTER MEDIANS. SEE MN/DOT SIGNING QUALIFIED PRODUCTS LIST (QPL) FOR APPROVED SIGN SHEETING.
7. ANTI-SEIZE COMPOUND MUST BE USED ON THE MOUNTING BOLTS WHEN THE PEDESTRIAN SIGN IS INSTALLED.

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DESIGN TEAM				
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DESIGNER: JMG				
CHECKED BY: JMG				
	NO.	BY	DATE	REVISIONS

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 Printed Name: John M. Gray, PE Date: 03/04/2010



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 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEMS 'A-D'
APS PUSH BUTTON STATION DETAILS
 CSAH 49 (RICE STREET) SIGNAL SYSTEMS

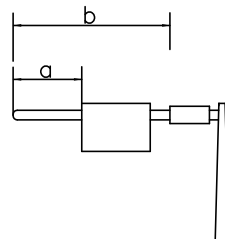
FILE NO. RAMSP108790	287
SG7 OF SG52	534

SIGNS FOR TRAFFIC SIGNAL SYSTEMS										
SIGN PANELS - TYPE D (SIGNALS)										
SIGNAL SYSTEM	SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET		AREA/SIGN (SQ. FT.)	NO. REQ.	PANEL LEGEND
						QUANTITY	SPACING (1)			
A	D-1	1	-	16'	60 x 24	3	----	10.00	1	Rice St
A	D-2	2	28'	-	72 x 24	3	----	12.00	1	County B
A	D-3	3	-	16'	60 x 24	3	----	10.00	1	Rice St
A	D-4	5	34'	-	72 x 24	3	----	12.00	1	County B
B	D-5	1	4'	-	48 x 66	2	----	22.00	1	WEST TH 36 with left arrow
B	D-6	1	-	34'	48 x 66	2	----	22.00	1	EAST TH 36 with right arrow
B	D-7	2	16'	-	60 x 24	3	----	10.00	1	Rice St
B	D-8	3	4'	-	48 x 66	2	----	22.00	1	EAST TH 36 with left arrow
B	D-9	3	-	34'	48 x 66	2	----	22.00	1	WEST TH 36 with right arrow
B	D-10	4	8'	-	60 x 24	3	----	10.00	1	Rice St
C	D-11	1	-	28'	108 x 24	4	----	18.00	1	Minnesota Ave
C	D-12	3	8'	-	60 x 24	3	----	10.00	1	Rice St
C	D-13	5	-	28'	108 x 24	4	----	18.00	1	Minnesota Ave
C	D-14	7	16'	-	60 x 24	3	----	10.00	1	Rice St
D	D-15	1	16'	-	60 x 24	3	----	10.00	1	Rice St
D	D-16	3	-	28'	84 x 24	3	----	14.00	1	County B2
D	D-17	5	16'	-	60 x 24	3	----	10.00	1	Rice St
D	D-18	7	-	28'	84 x 24	3	----	14.00	1	County B2
TOTAL QUANTITIES								256.00	18	

(1) = SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE 7/06/2007) FOR BRACKET SPACING REQUIREMENTS.

SIGNS FOR TRAFFIC SIGNAL SYSTEM										
SIGN PANELS - TYPE C										
SIGNAL SYSTEM	SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET		AREA/SIGN (SQ. FT.)	NO. REQ.	PANEL LEGEND
						QUANTITY	SPACING (1)			
A	R3-4	5	1'	-	24 x 24	2	----	4.00	1	NO U TURN
B	R3-4	1,3	1'	-	24 x 24	2	----	4.00	2	NO U TURN
B	R9-3a	1,2,3,4	-	-	18 x 18	①	----	2.25	4	NO PEDESTRIAN CROSSING
A	R10-12	1,3	1'	-	36 x 48	2	----	12.00	2	LEFT TURN YIELD ON GREEN
C	R10-12	1,5	1'	-	36 x 48	2	----	12.00	2	LEFT TURN YIELD ON GREEN
D	R10-12	3,7	1'	-	36 x 48	2	----	12.00	2	LEFT TURN YIELD ON GREEN
TOTAL QUANTITIES								93.00	13	

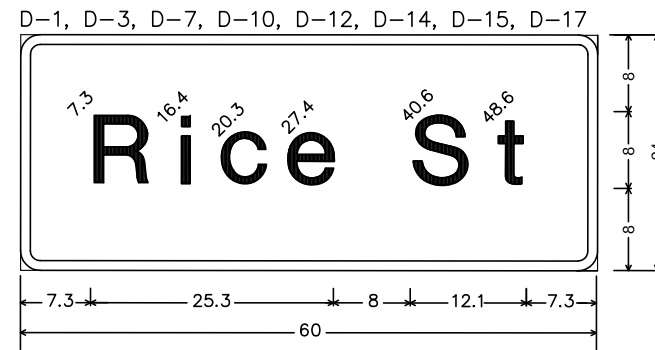
OVERLAYS				
CODE NO.	QUANTITY	SIZE (in.)	LEGEND	SQ.FT. PER OVERLAY
M1-5B	4	24x24	MN. HWY 36	4.00



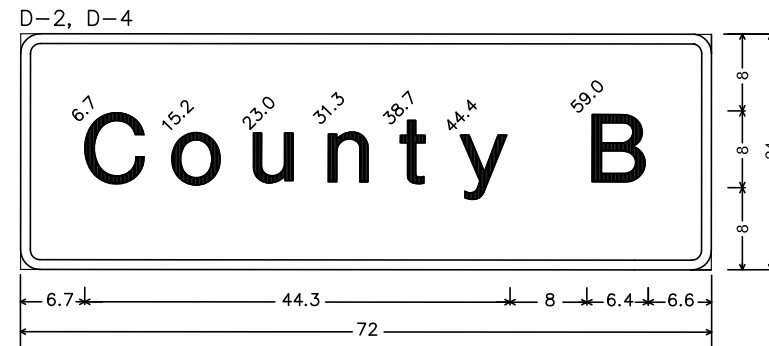
NOTES:

- CORNERS OF STANDARDS SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
- SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS.
- FURNISHING AND INSTALLING TYPE C SIGNS SHALL BE INCLUDED AS PART OF PAY ITEM FOR EACH "TRAFFIC CONTROL SIGNAL SYSTEM" (ITEM NO. 2565), WITH NO DIRECT COMPENSATION BEING MADE THEREFORE.
- FURNISHING AND INSTALLING TYPE D SIGNS SHALL BE MEASURED AND PAID FOR SEPARATELY FROM EACH "TRAFFIC CONTROL SIGNAL SYSTEM". SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- ALL NEW TYPE C AND D SIGN PANELS SHALL BE FABRICATED USING DG3 SHEETING. SEE SPECIAL PROVISIONS.
- ① = FURNISH AND INSTALL SIGN PANEL ON TRAFFIC SIGNAL MAST ARM POLE.
- SEE STANDARD SIGNS MANUAL FOR ARROW AND OVERLAY DETAILS. (ALL ARROWS SHALL BE SOLID FILLED-IN ARROWS).
- EXISTING TYPE D SIGNS CURRENTLY MOUNTED ON TRAFFIC SIGNAL MAST ARMS AT ALL FIVE (5) IN-PLACE SIGNAL SYSTEMS SHALL BE SALVAGED FROM MAST ARMS AND INSTALLED ON POSTS OR BARRICADES FOR USE DURING TEMPORARY SIGNAL SYSTEM OPERATIONS (TO INFORM PUBLIC OF STREET NAMES AT EACH TEMPORARY SIGNAL SYSTEM) (INCLUDED IN PAY ITEM FOR EACH TEMPORARY SIGNAL SYSTEM).

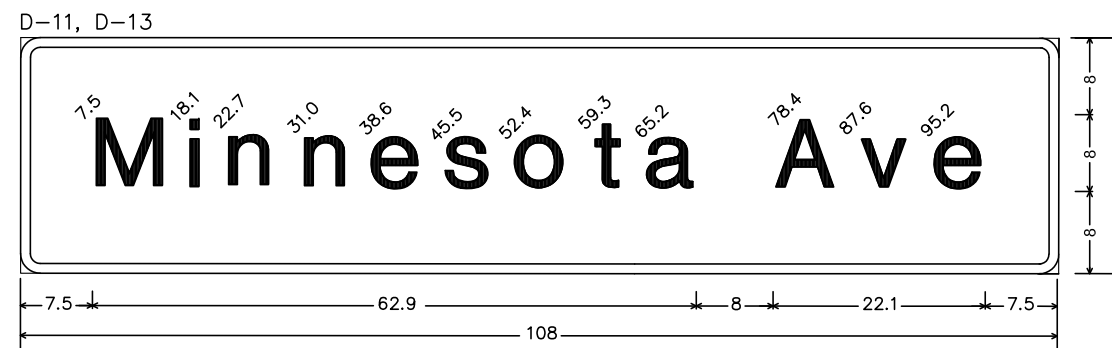
FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12



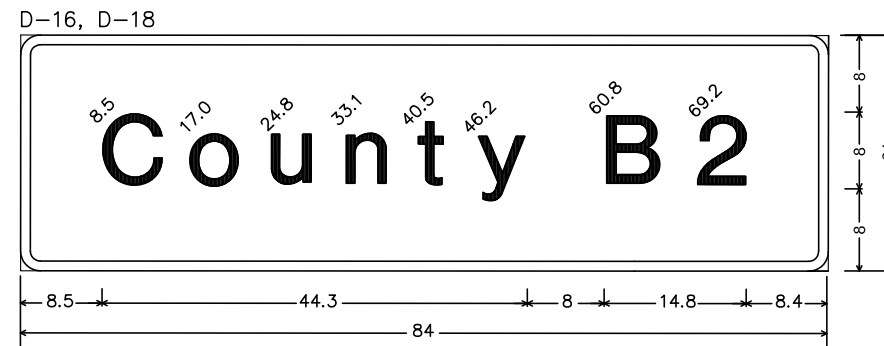
3.0" Radius, 1.0" Border, White on Green (Rice St) E Mod.



3.0" Radius, 1.0" Border, White on Green (County B) E Mod.



3.0" Radius, 1.0" Border, White on Green (Minnesota Ave) E Mod.



3.0" Radius, 1.0" Border, White on Green (County B2) E Mod.

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DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	JMG			
DESIGNER:	JMG			
CHECKED BY:	JMG			
	NO.	BY	DATE	REVISIONS

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.
 Certified By: John M. Gray, PE Lic. No. 22457
 Printed Name: John M. Gray, PE Date: 04/27/2010

SEH
 PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

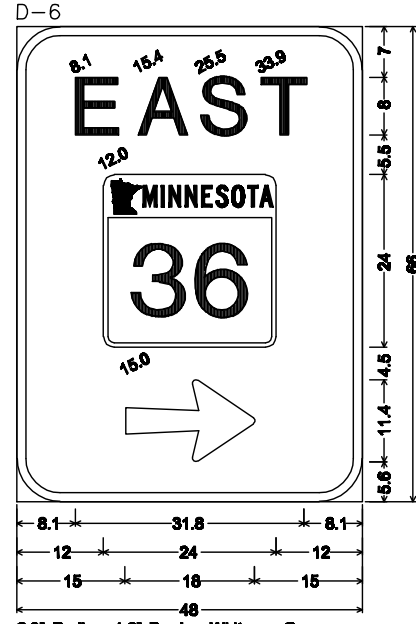
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEMS "A-D"
TRAFFIC SIGNAL SIGNING
CSAH 49 (RICE STREET) SIGNAL SYSTEMS

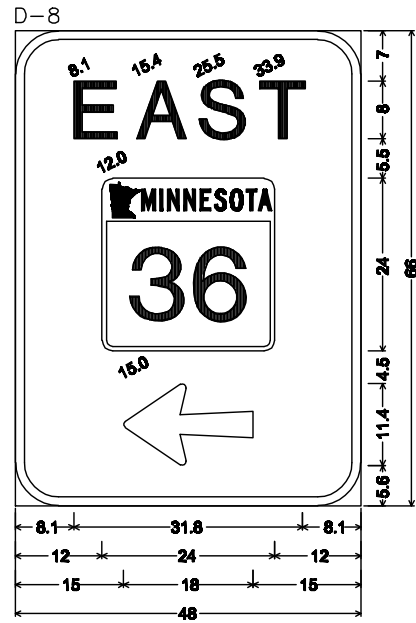
FILE NO. **288**
 RAMSP108790
 SG8 OF SG52
534



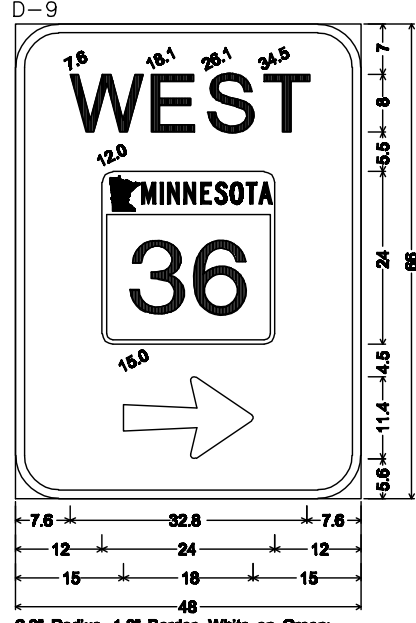
6.0" Radius, 1.3" Border, White on Green;
[WEST] E Mod; Arrow 14 - 18.0" 0"



6.0" Radius, 1.3" Border, White on Green;
[EAST] E Mod; Arrow 14 - 18.0" 0"

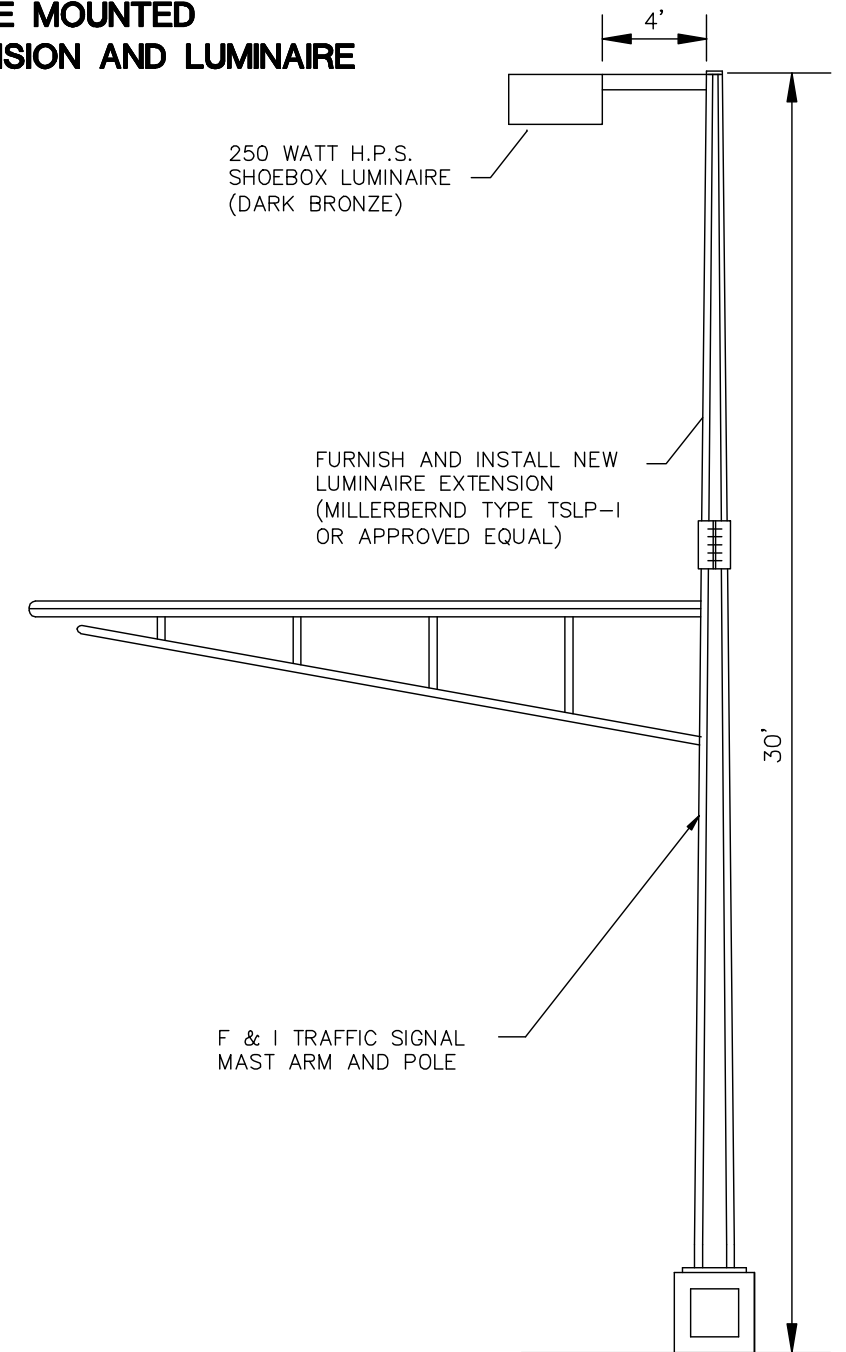


6.0" Radius, 1.3" Border, White on Green;
[EAST] E Mod; Arrow 14 - 18.0" 0"



6.0" Radius, 1.3" Border, White on Green;
[WEST] E Mod; Arrow 14 - 18.0" 0"

SIGNAL POLE MOUNTED STREET LIGHT EXTENSION AND LUMINAIRE



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DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

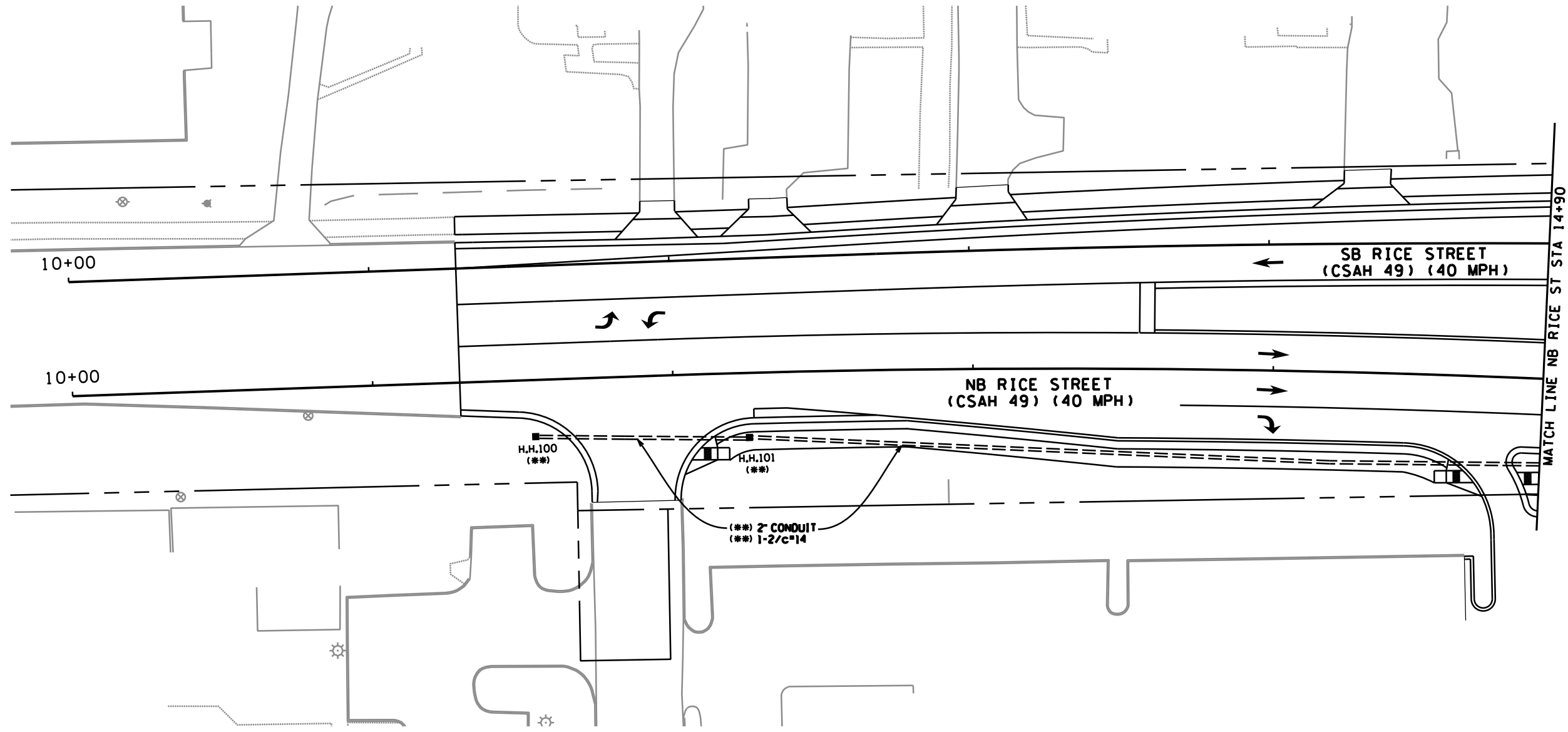
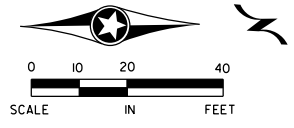
TRAFFIC SIGNAL SYSTEMS "A-D"
SIGNAL SIGNING AND LIGHTING
 CSAH 49 (RICE STREET) SIGNAL SYSTEMS

FILE NO. RAMSP108790	289
SG9 OF SG52	534

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6/7/2012

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Interconnect_1A



NOTE:

1) ITEMS DENOTED WITH AN (***) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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 Licensed Professional Engineer
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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

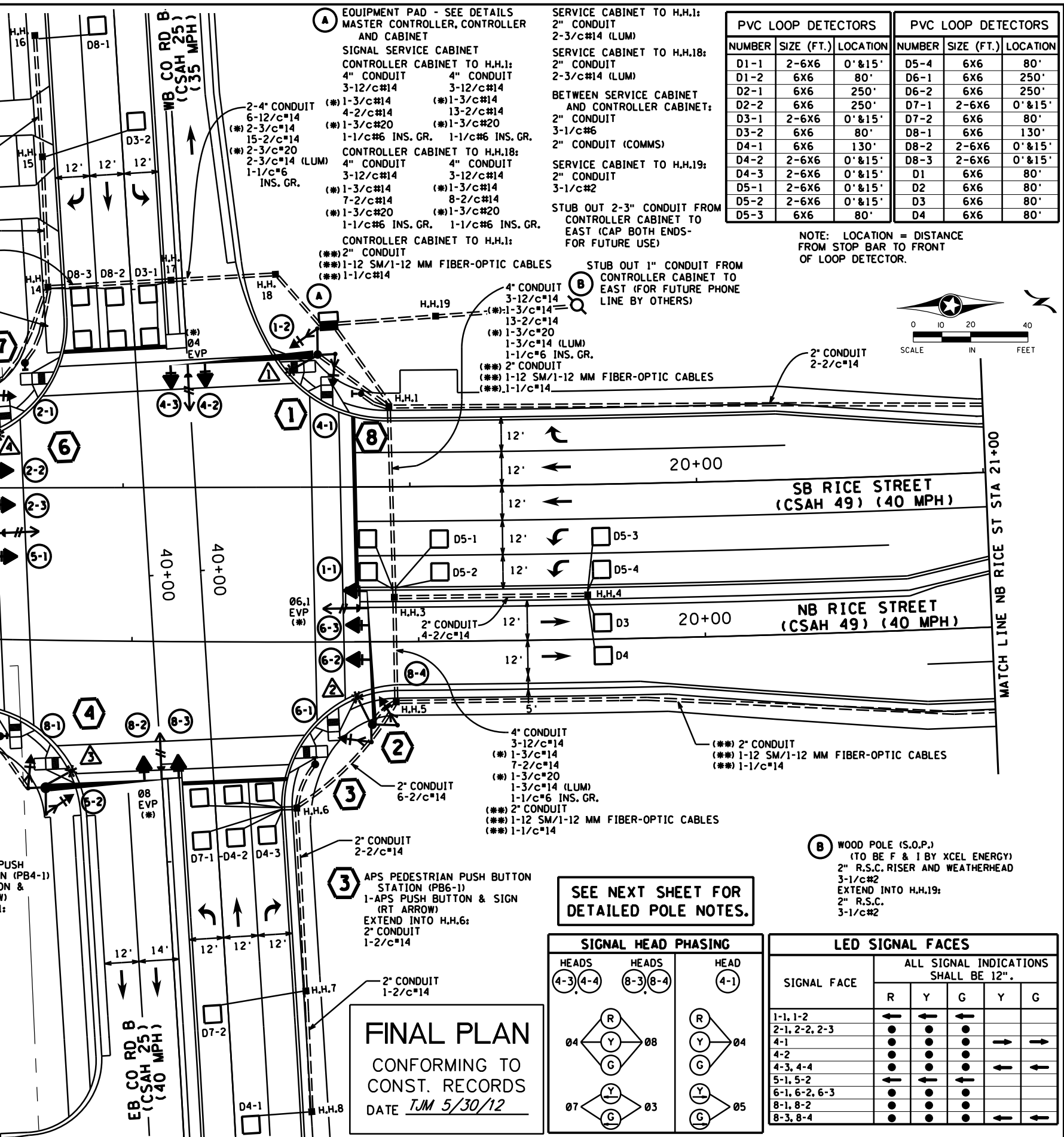
TRAFFIC SIGNAL SYSTEM "A"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 SOUTH OF COUNTY ROAD B (CSAH 25)

FILE NO. RAMSP08790	290
SG10 OF SG52	534

6/12/10 PM
6/7/2012
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SignalSystem A

- NOTES:**
- THE EXACT LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING PEDESTRIAN INDICATIONS, GALVANIZED POLES, AND ACCESSIBLE PEDESTRIAN SIGNALS (APS).
 - EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
 - ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
 - ALL LOOP DETECTORS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR IN NON-METALLIC CONDUIT. SEE SPECIAL PROVISIONS AND DETAILS.
 - A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EVP EQUIPMENT SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF THE MAST ARM ON EACH POLE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER FOR THE NEW PERMANENT SIGNAL SYSTEM.
 - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, & GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER EXISTING ROADWAYS WILL REQUIRE BORING.
 - ALL NEW CONDUIT SHALL BE PVC SCHEDULE 80 OR HDPE SCHEDULE 80 (EXCEPT AS OTHERWISE NOTED) AND CARRY 1/c#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN PLANS.
 - CONTRACTOR SHALL COORDINATE ALL SIGNAL INSTALLATION WORK WITH ROAD WORK TO BE COMPLETED BY OTHERS AS PART OF THE ENTIRE PROJECT. SEE SPECIAL PROVISIONS.
 - ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "A" PAY ITEM.
 - ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.
 - CONTRACTOR SHALL REMOVE THE EXISTING SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION (INCLUDED IN THE TRAFFIC CONTROL SIGNAL SYSTEM "A" PAY ITEM).
 - SEE DETAILS FOR POLE MOUNTED SIGNALS, APS, EQUIPMENT PAD LAYOUT, NMC LOOP DETECTORS, AND TRAFFIC SIGNAL SIGNING.

- CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAKING OPERATIONAL THE TRAFFIC SIGNAL CONTROLLER CABINET. SEE SPECIAL PROVISIONS.
- CONTRACTOR SHALL VERIFY GROUNDWATER LEVELS WHEN INSTALLING POLE FOUNDATIONS AND SHALL DE-WATER AS NECESSARY DURING FOUNDATION INSTALLATION (INCIDENTAL).
- ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE FABRICATED WITH BLACK POLYCARBONATE MATERIALS (INCLUDING BACKGROUND SHIELDS AND VISORS). SEE SPECIAL PROVISIONS.
- SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION REGARDING SALVAGING AND REINSTALLATION OF "RED LIGHT RUNNING" LIGHTS AND EQUIPMENT ONTO NEW POLES 2 AND 6.



PVC LOOP DETECTORS			PVC LOOP DETECTORS		
NUMBER	SIZE (FT.)	LOCATION	NUMBER	SIZE (FT.)	LOCATION
D1-1	2-6X6	0' & 15'	D5-4	6X6	80'
D1-2	6X6	80'	D6-1	6X6	250'
D2-1	6X6	250'	D6-2	6X6	250'
D2-2	6X6	250'	D7-1	2-6X6	0' & 15'
D3-1	2-6X6	0' & 15'	D7-2	6X6	80'
D3-2	6X6	80'	D8-1	6X6	130'
D4-1	6X6	130'	D8-2	2-6X6	0' & 15'
D4-2	2-6X6	0' & 15'	D8-3	2-6X6	0' & 15'
D4-3	2-6X6	0' & 15'	D1	6X6	80'
D5-1	2-6X6	0' & 15'	D2	6X6	80'
D5-2	2-6X6	0' & 15'	D3	6X6	80'
D5-3	6X6	80'	D4	6X6	80'

NOTE: LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

Ramsey County Intersection ID # = TRF 631
Meter Address = 2136 Rice Street

SIGNING:

- F & I OVERHEAD TYPE "D" SIGNS ON MAST ARMS 1, 2, 4, AND 6 (SEPARATE PAY ITEM).
- PEDESTRIAN PUSH BUTTON SIGNS ARE INCLUDED AS PART OF APS PUSH BUTTON INSTALLATIONS.
- ALL SIGNING SHALL BE INCIDENTAL WORK UNLESS SPECIFIC PAY ITEM IS INDICATED.

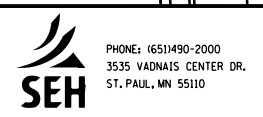
SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES, PHASES 3 AND 7 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES, AND PHASE 5 ALSO BEING PROTECTED/PERMISSIVE RIGHT TURN PHASE FOR WESTBOUND TRAFFIC.
- PHASES 2 AND 6 SHALL BE LOCK DETECTION.
- PHASES 1, 3, 4, 5, 7 AND 8 SHALL BE NON-LOCK DETECTION.
- VEHICLE PHASES 2 AND 6 SHALL OPERATE ON RECALL.

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE JUN 5/30/12

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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Certified By: JOHN M. GRAY, PE Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "A"
INTERSECTION LAYOUT
RICE STREET (CSAH 49)
AT COUNTY ROAD B (CSAH 25)

FILE NO. **291**
RAMSP108790
SG11
OF SC52

1 PA100 POLE FOUNDATION
 TYPE PA100-A-50-X30-4
 LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED
 AT 90 DEG. & 180 DEG.
 1-APS PUSH BUTTON & SIGN (LT ARROW) (PB2-2)
 R10-12 SIGN PANEL-ADJACENT TO 4-3
 1-TYPE D SIGN PANEL-OVERHEAD (D-1)
 (*) ONE WAY EVP DETECTOR AND LIGHT (Ø4)
 EXTEND INTO H.H.1:
 3" CONDUIT
 3-12/c#14
 (*) 1-3/c#14
 1-2/c#14
 (*) 1-3/c#20
 1-3/c#14 (LUM)
 2-1/c#6 INS. GR.

2 PA100 POLE FOUNDATION
 TYPE PA100-A-45-X30-4
 LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' AND 23'
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED
 AT 90 DEG. & 180 DEG.
 1-APS PUSH BUTTON & SIGN (LT ARROW) (PB4-2)
 1-TYPE D SIGN PANEL-OVERHEAD (D-2)
 (*) ONE WAY EVP DETECTOR AND LIGHT (Ø6,1)
 "RED LIGHT RUNNING" ENFORCEMENT LIGHT, GLOBE, AND MOUNTING
 HARDWARE - INPLACE (SALVAGE FROM INPLACE SIGNAL SYSTEM
 AND INSTALL ON 90° SIDE OF POLE-FACING SB TRAFFIC)-
 PROVIDE ALL ADDITIONAL MATERIALS NEEDED TO MOUNT
 ENFORCEMENT LIGHT EQUIPMENT AND MAKE OPERATIONAL.
 EXTEND INTO H.H.5:
 3" CONDUIT
 3-12/c#14
 (*) 1-3/c#14
 1-2/c#14
 (*) 1-3/c#20
 1-3/c#14 (LUM)
 1-1/c#6 INS. GR.

4 PA100 POLE FOUNDATION
 TYPE PA100-A-45-X30-4
 LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED
 AT 90 DEG & 180 DEG.
 1-APS PUSH BUTTON & SIGN (LT ARROW) (PB6-2)
 R10-12 SIGN PANEL-ADJACENT TO 8-3
 1-TYPE D SIGN PANEL-OVERHEAD (D-3)
 (*) ONE WAY EVP DETECTOR AND LIGHT (Ø8)
 EXTEND INTO H.H.9:
 3" CONDUIT
 3-12/c#14
 (*) 1-3/c#14
 1-2/c#14
 (*) 1-3/c#20
 1-3/c#14 (LUM)
 1-1/c#6 INS. GR.

6 PA100 POLE FOUNDATION
 TYPE PA100-A-50-X30-4
 LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 17' AND 29'
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED
 AT 90 DEG & 180 DEG.
 1-APS PUSH BUTTON & SIGN (LT ARROW) (PB8-2)
 R3-4 SIGN PANEL-ADJACENT TO 5-1
 1-TYPE D SIGN PANEL-OVERHEAD (D-4)
 (*) ONE WAY EVP DETECTOR AND LIGHT (Ø2,5)
 "RED LIGHT RUNNING" ENFORCEMENT LIGHT, GLOBE, AND MOUNTING
 HARDWARE-INPLACE (SALVAGE FROM INPLACE SIGNAL SYSTEM
 AND INSTALL ON 90° SIDE OF POLE-FACING NB TRAFFIC)-
 PROVIDE ALL ADDITIONAL MATERIALS NEEDED TO MOUNT
 ENFORCEMENT LIGHT EQUIPMENT AND MAKE OPERATIONAL.
 EXTEND INTO H.H.13:
 3" CONDUIT
 3-12/c#14
 (*) 1-3/c#14
 1-2/c#14
 (*) 1-3/c#20
 1-3/c#14 (LUM)
 2-1/c#6 INS. GR.

FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

Ramsey County Intersection ID # = TRF 631
 Meter Address = 2136 Rice Street

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>JMG</u>				
CHECKED BY: <u>JMG</u>				
	NO.	BY	DATE	REVISIONS

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.
 Certified By: _____ Lic. No. 22457
 Licensed Professional Engineer
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "A"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B (CSAH 25)

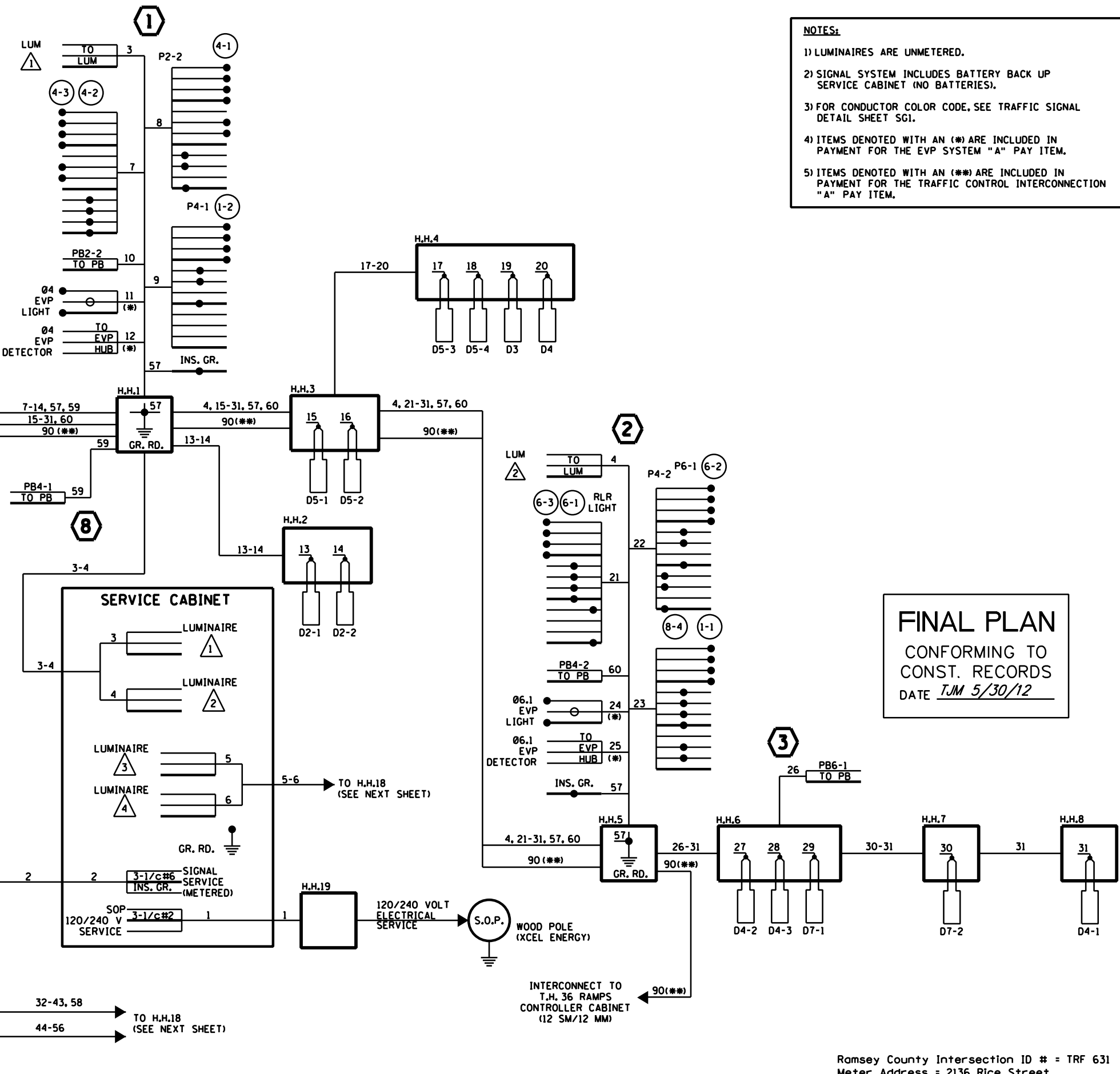
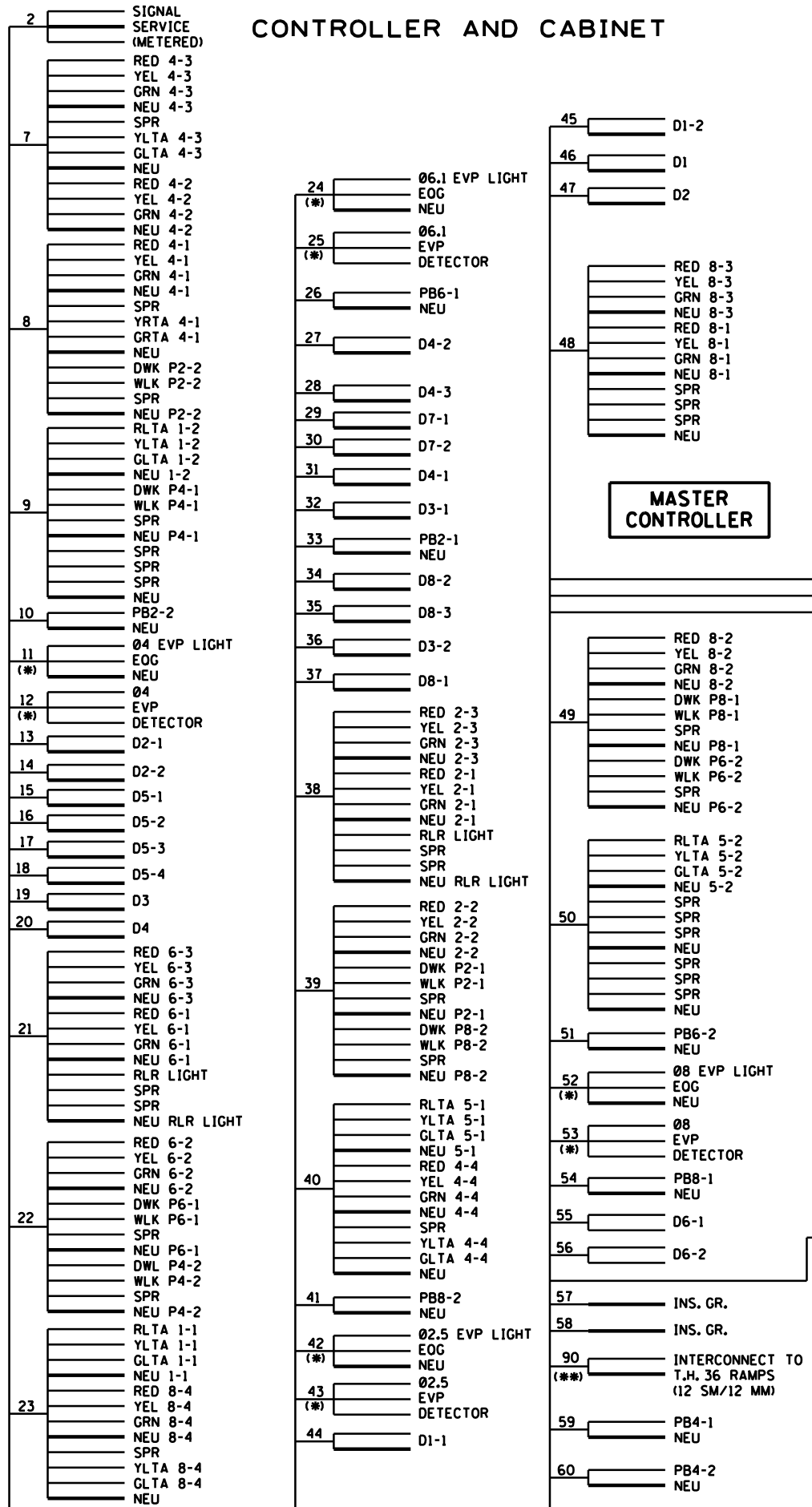
FILE NO. RAMSP108790	292
SG12 OF 652	534

6/12/13 PM

6/7/2012

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CONTROLLER AND CABINET



- NOTES:**
- 1) LUMINAIRES ARE UNMETERED.
 - 2) SIGNAL SYSTEM INCLUDES BATTERY BACK UP SERVICE CABINET (NO BATTERIES).
 - 3) FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL DETAIL SHEET SGI.
 - 4) ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "A" PAY ITEM.
 - 5) ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.

FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

Ramsey County Intersection ID # = TRF 631
 Meter Address = 2136 Rice Street

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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 Certified By: JOHN M. GRAY, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010

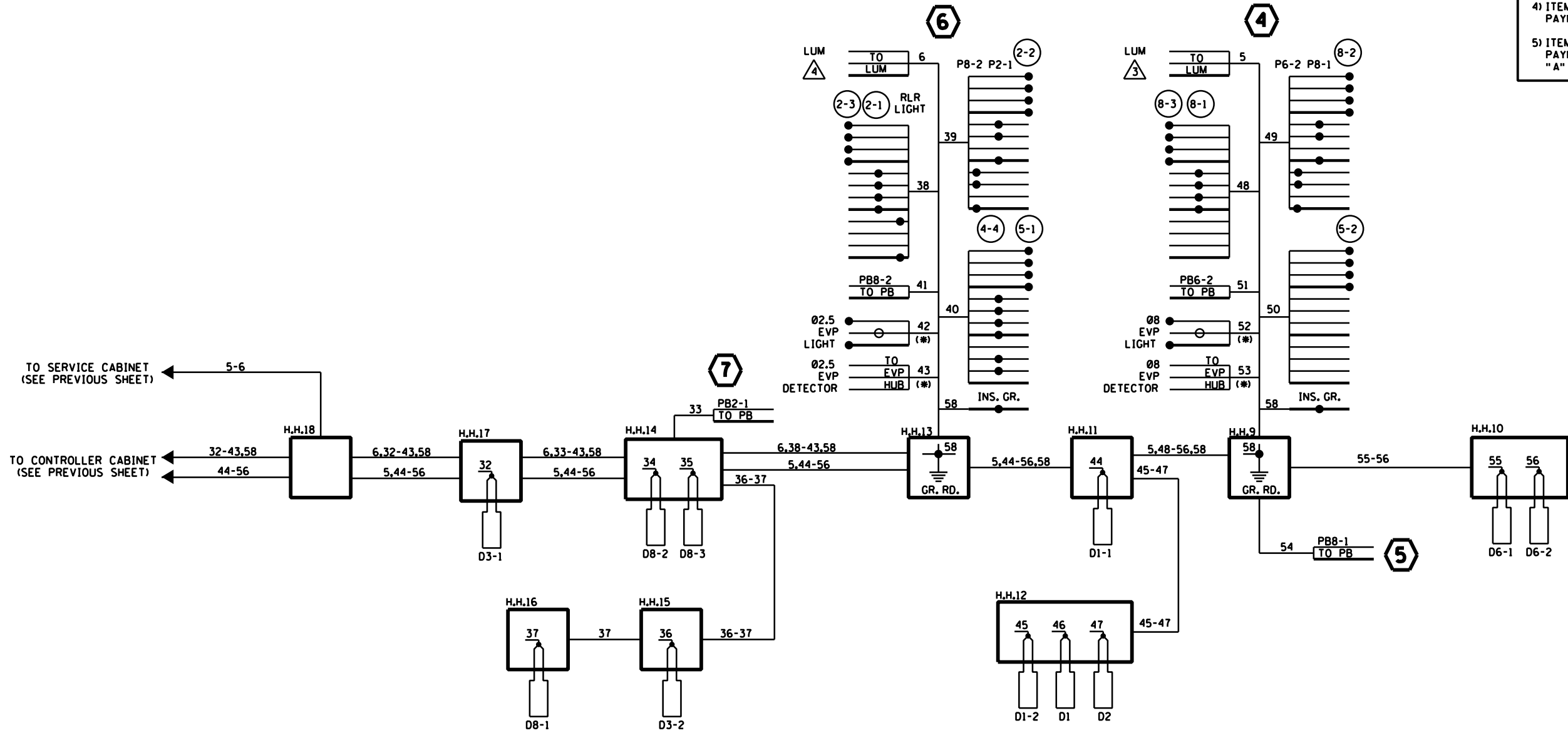


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "A"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B (CSAH 25)

FILE NO. **293**
 RAMSP108790
 SGI3
 OF 562
534

- NOTES:**
- 1) LUMINAIRES ARE UNMETERED.
 - 2) SIGNAL SYSTEM INCLUDES BATTERY BACK UP SERVICE CABINET (NO BATTERIES).
 - 3) FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL DETAIL SHEET SGI.
 - 4) ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "A" PAY ITEM.
 - 5) ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.



FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

Ramsey County Intersection ID # = TRF 631
 Meter Address = 2136 Rice Street

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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 Licensed Professional Engineer
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "A"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B (CSAH 25)

FILE NO. RAMSP108790	294
SG14 OF SC52	534

6/13/02 PM
6/7/2012
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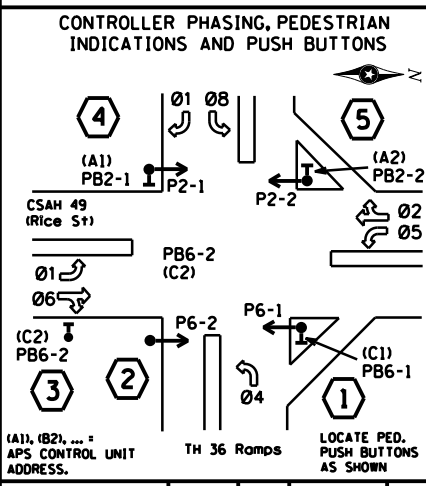
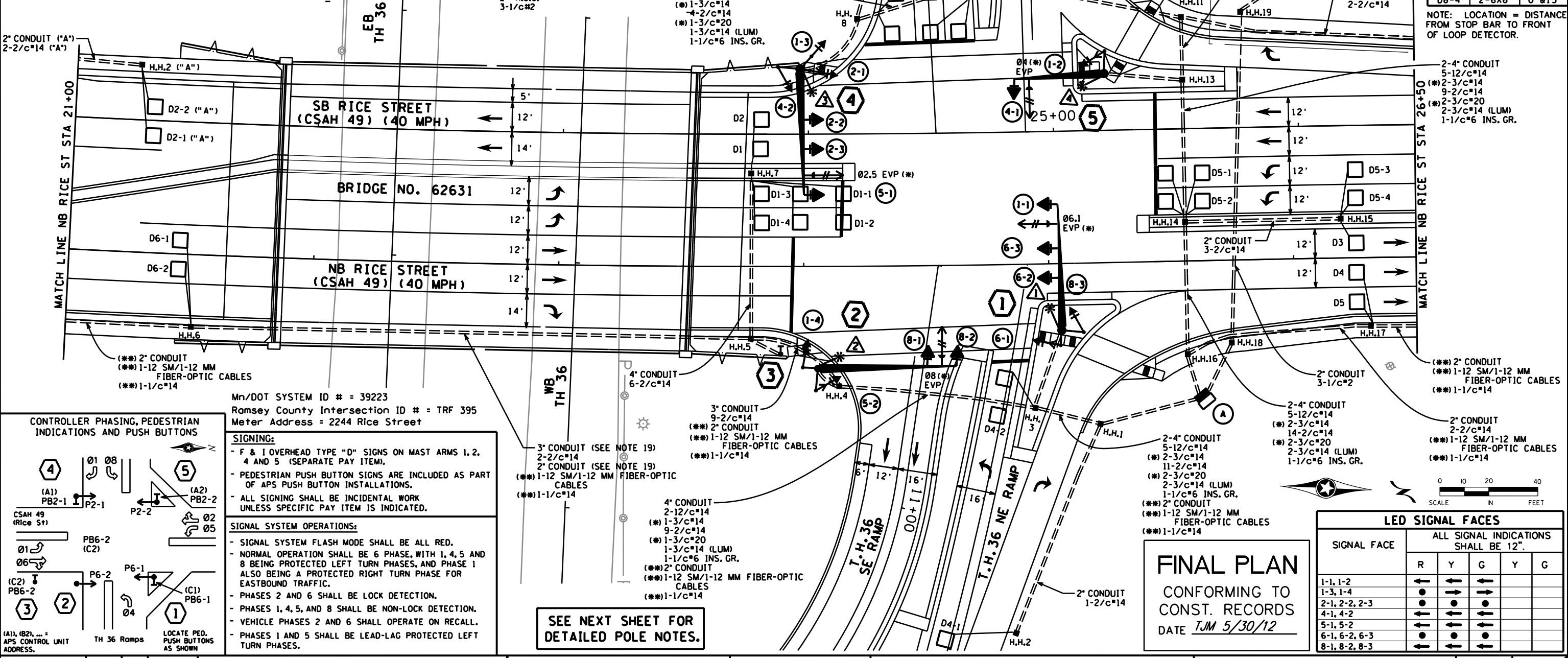
- NOTES:**
- THE EXACT LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING PEDESTRIAN INDICATIONS, GALVANIZED POLES, AND ACCESSIBLE PEDESTRIAN SIGNALS (APS).
 - EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
 - ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
 - ALL LOOP DETECTORS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR IN NON-METALLIC CONDUIT. SEE SPECIAL PROVISIONS AND DETAILS.
 - A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EVP EQUIPMENT SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF THE MAST ARM ON EACH POLE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER FOR THE NEW PERMANENT SIGNAL SYSTEM.
 - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, & GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER EXISTING ROADWAYS WILL REQUIRE BORING.
 - ALL NEW CONDUIT SHALL BE PVC SCHEDULE 80 OR HDPE SCHEDULE 80 (EXCEPT AS OTHERWISE NOTED) AND CARRY 1/c#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN PLANS.
 - CONTRACTOR SHALL COORDINATE ALL SIGNAL INSTALLATION WORK WITH ROAD WORK TO BE COMPLETED BY OTHERS AS PART OF THE ENTIRE PROJECT. SEE SPECIAL PROVISIONS.

- ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "B" PAY ITEM.
- ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.
- CONTRACTOR SHALL REMOVE TWO (2) EXISTING SIGNAL SYSTEMS (ONE EACH AT THE TH 36 RAMPS). SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION. (INCLUDED IN THE TRAFFIC CONTROL SIGNAL SYSTEM "B" PAY ITEM).
- SEE DETAILS FOR POLE MOUNTED SIGNALS, APS, EQUIPMENT PAD LAYOUT, NMC LOOP DETECTORS, AND TRAFFIC SIGNAL SIGNING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING AND MAKING OPERATIONAL THE TRAFFIC SIGNAL CONTROLLER CABINET. SEE SPECIAL PROVISIONS.
- CONTRACTOR SHALL VERIFY GROUNDWATER LEVELS WHEN INSTALLING POLE FOUNDATIONS AND SHALL DE-WATER AS NECESSARY DURING FOUNDATION INSTALLATION (INCIDENTAL).
- ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE FABRICATED WITH BLACK POLYCARBONATE MATERIALS (INCLUDING BACKGROUND SHIELDS AND VISORS). SEE SPECIAL PROVISIONS.
- CONDUIT ACROSS BRIDGE 62631 SHALL BE MEASURED AND PAID FOR SEPARATELY. SEE BRIDGE PLANS AND STATEMENT OF ESTIMATED QUANTITIES.

- SERVICE CABINET TO H.H.1:**
2" CONDUIT
2-3/c#14 (LUM)
- SERVICE CABINET TO H.H.16:**
2" CONDUIT
2-3/c#14 (LUM)
- BETWEEN SERVICE CABINET AND CONTROLLER CABINET:**
2" CONDUIT
3-1/c#6
2" CONDUIT (COMMS)
- SERVICE CABINET TO H.H.18:**
2" CONDUIT
3-1/c#2
- STUB OUT 2-3" CONDUIT FROM CONTROLLER CABINET TO EAST (CAP BOTH ENDS- FOR FUTURE USE)**
- STUB OUT 2-2" CONDUIT FROM SERVICE CABINET (FOR DECORATIVE BRIDGE LIGHTING BY OTHERS)**
- EQUIPMENT PAD - SEE DETAILS CONTROLLER AND CABINET SIGNAL SERVICE CABINET**
- CONTROLLER CABINET TO H.H.1:**
4" CONDUIT
2-12/c#14
3-12/c#14
(*) 1-3/c#14
9-2/c#14
3-2/c#14
(*) 1-3/c#20
(*) 1-3/c#14
1-1/c#6 INS. GR.
- CONTROLLER CABINET TO H.H.16:**
4" CONDUIT
2-12/c#14
(*) 1-3/c#14
(*) 1-3/c#14
8-2/c#14
(*) 1-3/c#20
(*) 1-3/c#14
1-1/c#6 INS. GR.
- CONTROLLER CABINET TO H.H.1 AND H.H.16:**
(**) 2" CONDUIT
(**) 1-12 SM/1-12 MM FIBER OPTIC CABLES
(**) 1-1/c#14
- CONTROLLER CABINET TO H.H.18:**
4" CONDUIT
3-12/c#14
6-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.
- CONTROLLER CABINET TO H.H.19:**
4" CONDUIT
3-12/c#14
(*) 1-3/c#14
8-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.
- CONTROLLER CABINET TO H.H.1:**
4" CONDUIT
2-12/c#14
(*) 1-3/c#14
9-2/c#14
3-2/c#14
(*) 1-3/c#20
(*) 1-3/c#14
1-1/c#6 INS. GR.

PVC LOOP DETECTORS		
NUMBER	SIZE (FT.)	LOCATION
D1-1	6X6	0'
D1-2	6X6	0'
D1-3	2-6X6	10' & 30'
D1-4	2-6X6	10' & 30'
D1-5	2-6X6	0' & 15'
D2-1	6X6	250'
D2-2	6X6	250'
D4-1	6X6	130'
D4-2	2-6X6	0' & 15'
D5-1	2-6X6	0' & 15'
D5-2	2-6X6	0' & 15'
D5-3	6X6	80'
D5-4	6X6	80'
D6-1	6X6	250'
D6-2	6X6	250'
D1	6X6	30'
D2	6X6	30'
D3	6X6	80'
D4	6X6	80'
D5	6X6	80'
D8-1	6X6	130'
D8-2	6X6	130'
D8-3	2-6X6	0' & 15'
D8-4	2-6X6	0' & 15'

NOTE: LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



Mn/DOT SYSTEM ID # = 39223
Ramsey County Intersection ID # = TRF 395
Meter Address = 2244 Rice Street

SIGNING:

- F & I OVERHEAD TYPE "D" SIGNS ON MAST ARMS 1, 2, 4 AND 5 (SEPARATE PAY ITEM).
- PEDESTRIAN PUSH BUTTON SIGNS ARE INCLUDED AS PART OF APS PUSH BUTTON INSTALLATIONS.
- ALL SIGNING SHALL BE INCIDENTAL WORK UNLESS SPECIFIC PAY ITEM IS INDICATED.

SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH 1, 4, 5 AND 8 BEING PROTECTED LEFT TURN PHASES, AND PHASE 1 ALSO BEING A PROTECTED RIGHT TURN PHASE FOR EASTBOUND TRAFFIC.
- PHASES 2 AND 6 SHALL BE LOCK DETECTION.
- PHASES 1, 4, 5, AND 8 SHALL BE NON-LOCK DETECTION.
- VEHICLE PHASES 2 AND 6 SHALL OPERATE ON RECALL.
- PHASES 1 AND 5 SHALL BE LEAD-LAG PROTECTED LEFT TURN PHASES.

SEE NEXT SHEET FOR DETAILED POLE NOTES.

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

LED SIGNAL FACES

SIGNAL FACE ALL SIGNAL INDICATIONS SHALL BE 12".

SIGNAL FACE	R	Y	G	Y	G
1-1, 1-2	←	←	←		
1-3, 1-4	←	←	←		
2-1, 2-2, 2-3	←	←	←		
4-1, 4-2	←	←	←		
5-1, 5-2	←	←	←		
6-1, 6-2, 6-3	←	←	←		
8-1, 8-2, 8-3	←	←	←		

DESIGN TEAM	NO.	BY	DATE	REVISIONS
1	JMG	11/11		RECORD DRAWING
DRAWN BY: MTT				
DESIGNER: JMG				
CHECKED BY: JMG				

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Certified By: JOHN M. GRAY, PE Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "B"
INTERSECTION LAYOUT
T.H. 36 AT RICE STREET (CSAH 49) RAMPS

FILE NO. **295**
RAMSP108790
SG15
OF SG52
534

6/13/03 PM

6/7/2012

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Interconnect 1 Revised

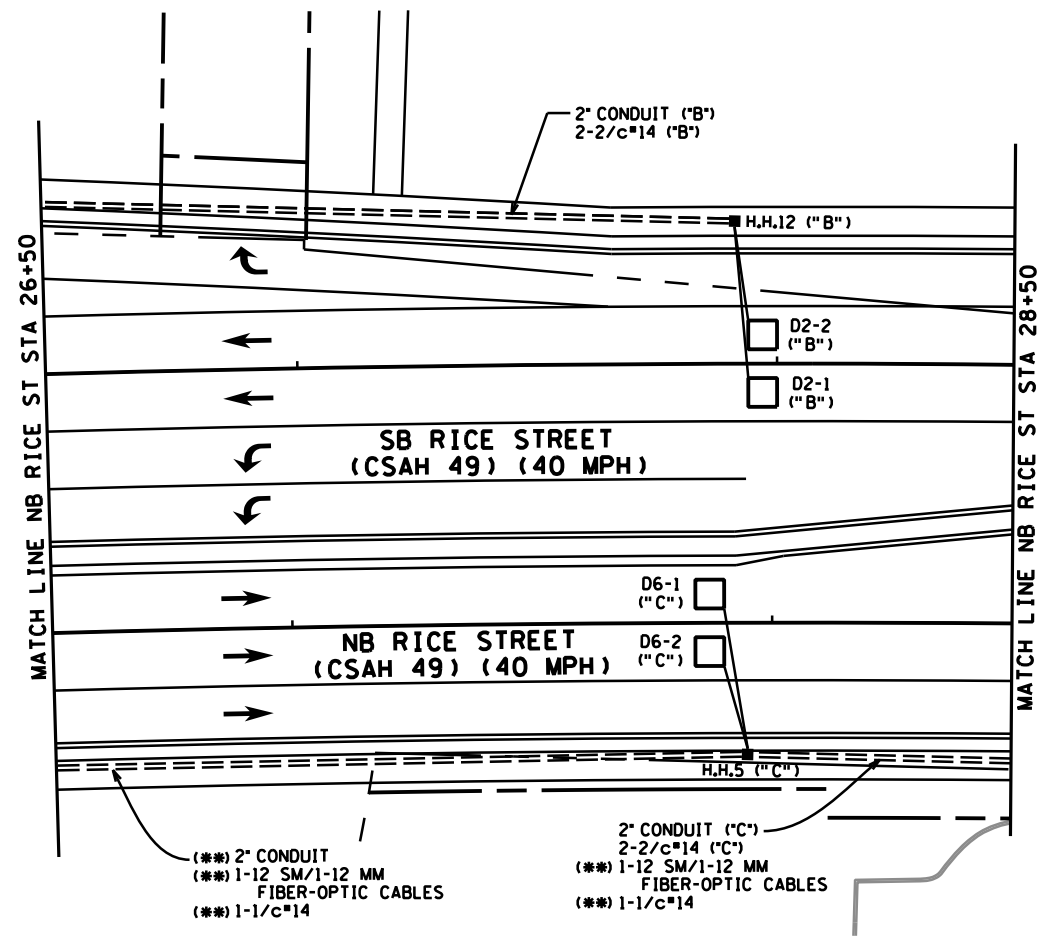
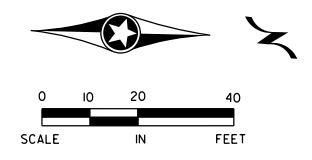
- ① PA100 POLE FOUNDATION
TYPE PA100-A-50-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("B") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 17' AND 29'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG. & 180 DEG.
1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED AT 180 DEG.
1-APS PUSH BUTTON & SIGN (LT ARROW) (PB6-1)
1-R9-3a SIGN PANEL-FACING POLE 4
R3-4 SIGN PANEL-ADJACENT TO 1-1
2-TYPE D SIGN PANELS-OVERHEAD (D-5, D-6)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø6,1)
EXTEND INTO H.H.3:
3" CONDUIT
3-12/c#14
(*) 1-3/c#14
1-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
2-1/c#6 INS. GR.

- ② PA100 POLE FOUNDATION
TYPE PA100-A-55-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("B") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG. & 180 DEG.
1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED AT 90 DEG.
1-R9-3a SIGN PANEL-FACING POLE 3
1-TYPE D SIGN PANEL-OVERHEAD (D-7)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø8)
EXTEND INTO H.H.4:
3" CONDUIT
2-12/c#14
(*) 1-3/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.

- ③ APS PEDESTRIAN PUSH BUTTON STATION (PB6-2)
1-APS PUSH BUTTON & SIGN (LT ARROW)
EXTEND INTO H.H.5:
2" CONDUIT
1-2/c#14

- ④ PA100 POLE FOUNDATION
TYPE PA100-A-50-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("B") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 17' AND 29'
3-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG., 180 DEG., & 270 DEG.
1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED AT 270 DEG.
1-APS PUSH BUTTON & SIGN (RT ARROW) (PB2-1)
1-R9-3a SIGN PANEL-FACING POLE 2
R3-4 SIGN PANEL-ADJACENT TO 5-1
2-TYPE D SIGN PANELS-OVERHEAD (D-8, D-9)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø2,5)
EXTEND INTO H.H.8:
3" CONDUIT
3-12/c#14
(*) 1-3/c#14
1-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.

- ⑤ PA100 POLE FOUNDATION
TYPE PA100-A-35-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("B") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-ANGLE MOUNT SIGNAL-POLE MOUNTED 90 DEG.
1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED AT 90 DEG.
1-APS PUSH BUTTON & SIGN (RT ARROW) (PB2-2)
1-R9-3a SIGN PANEL-FACING POLE 1
1-TYPE D SIGN PANEL-OVERHEAD (D-10)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø4)
EXTEND INTO H.H.13:
3" CONDUIT
2-12/c#14
(*) 1-3/c#14
1-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
2-1/c#6 INS. GR.



- ① PA100 POLE FOUNDATION
TYPE PA100-A-45-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("C") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' AND 23'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG. & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG. & 180 DEG.
1-APS PUSH BUTTON & SIGN (LT ARROW) (PB4-2)
R10-12 SIGN PANEL-ADJACENT TO 6-4
1-TYPE D SIGN PANEL-OVERHEAD (D-11)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø6)
EXTEND INTO H.H.16:
3" CONDUIT
3-12/c#14
(*) 1-3/c#14
1-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
2-1/c#6 INS. GR.

- ③ PA100 POLE FOUNDATION
TYPE PA100-A-40-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("C") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG. & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG. & 180 DEG.
1-APS PUSH BUTTON SIGN (RT ARROW) (PB3-1)
1-TYPE D SIGN PANEL-OVERHEAD (D-12)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø3)
EXTEND INTO H.H.3:
3" CONDUIT
2-12/c#14
(*) 1-3/c#14
1-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
2-1/c#6 INS. GR.

- ⑤ PA100 POLE FOUNDATION
TYPE PA100-A-55-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("C") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 13' AND 25'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG. & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG. & 180 DEG.
1-APS PUSH BUTTON & SIGN (LT ARROW) (PB3-2)
R10-12 SIGN PANEL-ADJACENT TO 2-4
1-TYPE D SIGN PANEL-OVERHEAD (D-13)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø2)
EXTEND INTO H.H.8:
3" CONDUIT
3-12/c#14
(*) 1-3/c#14
1-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.

- ⑦ PA100 POLE FOUNDATION
TYPE PA100-A-35-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
("C") 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG. & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG. & 180 DEG.
1-APS PUSH BUTTON & SIGN (LT ARROW) (PB2-2)
1-TYPE D SIGN PANEL-OVERHEAD (D-14)
(*) ONE WAY EVP DETECTOR AND LIGHT (Ø4)
EXTEND INTO H.H.11:
3" CONDUIT
3-12/c#14
(*) 1-3/c#14
1-2/c#14
(*) 1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

DESIGN TEAM	5	JMG	4/5/2011
DRAWN BY:	MTT	JMG	11/11
DESIGNER:	JMG		
CHECKED BY:	JMG		

REVISED POLE 5 -SYSTEM "C"	
RECORD DRAWING	
NO.	BY DATE

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Certified By: JOHN M. GRAY, PE Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010

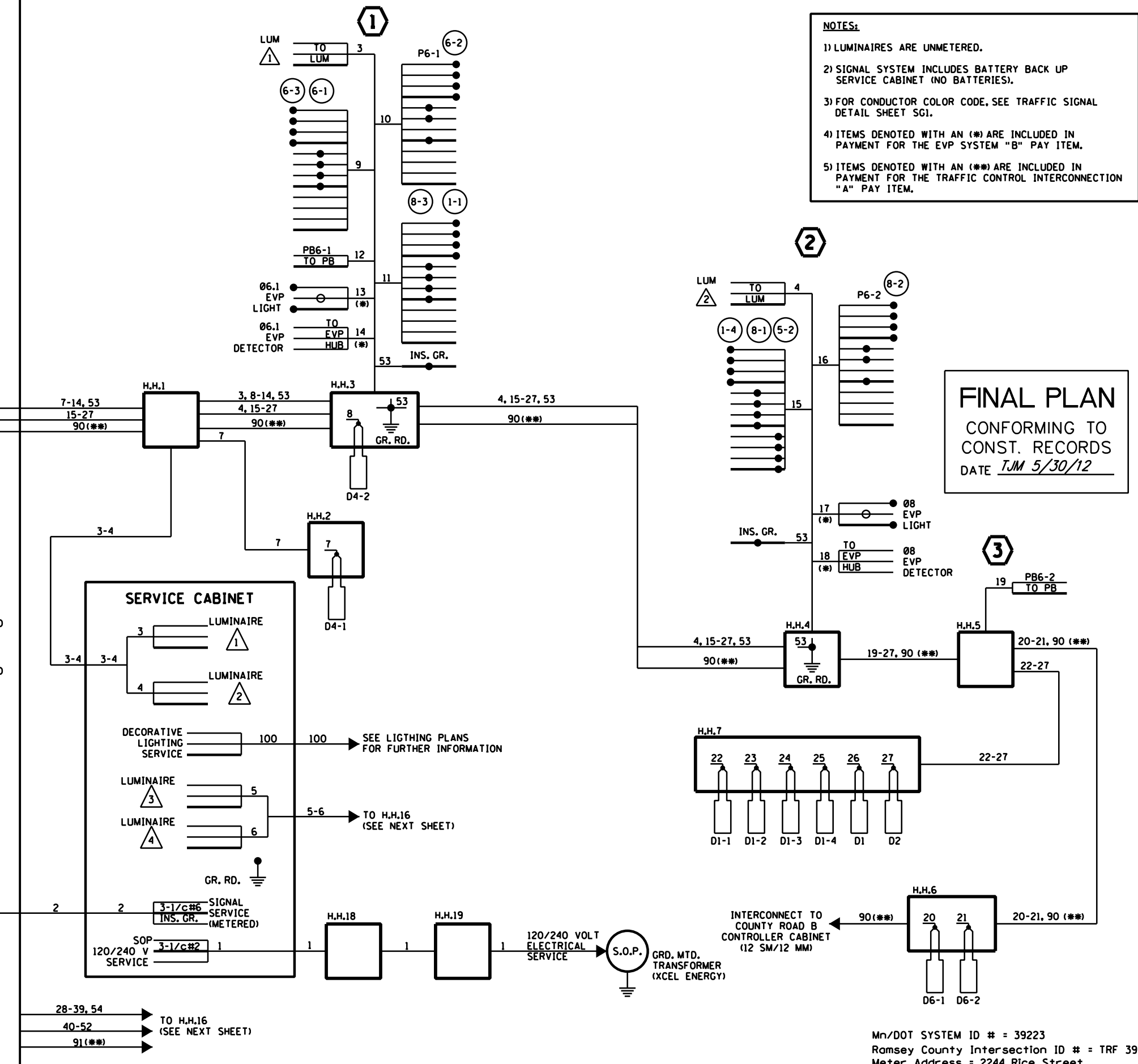
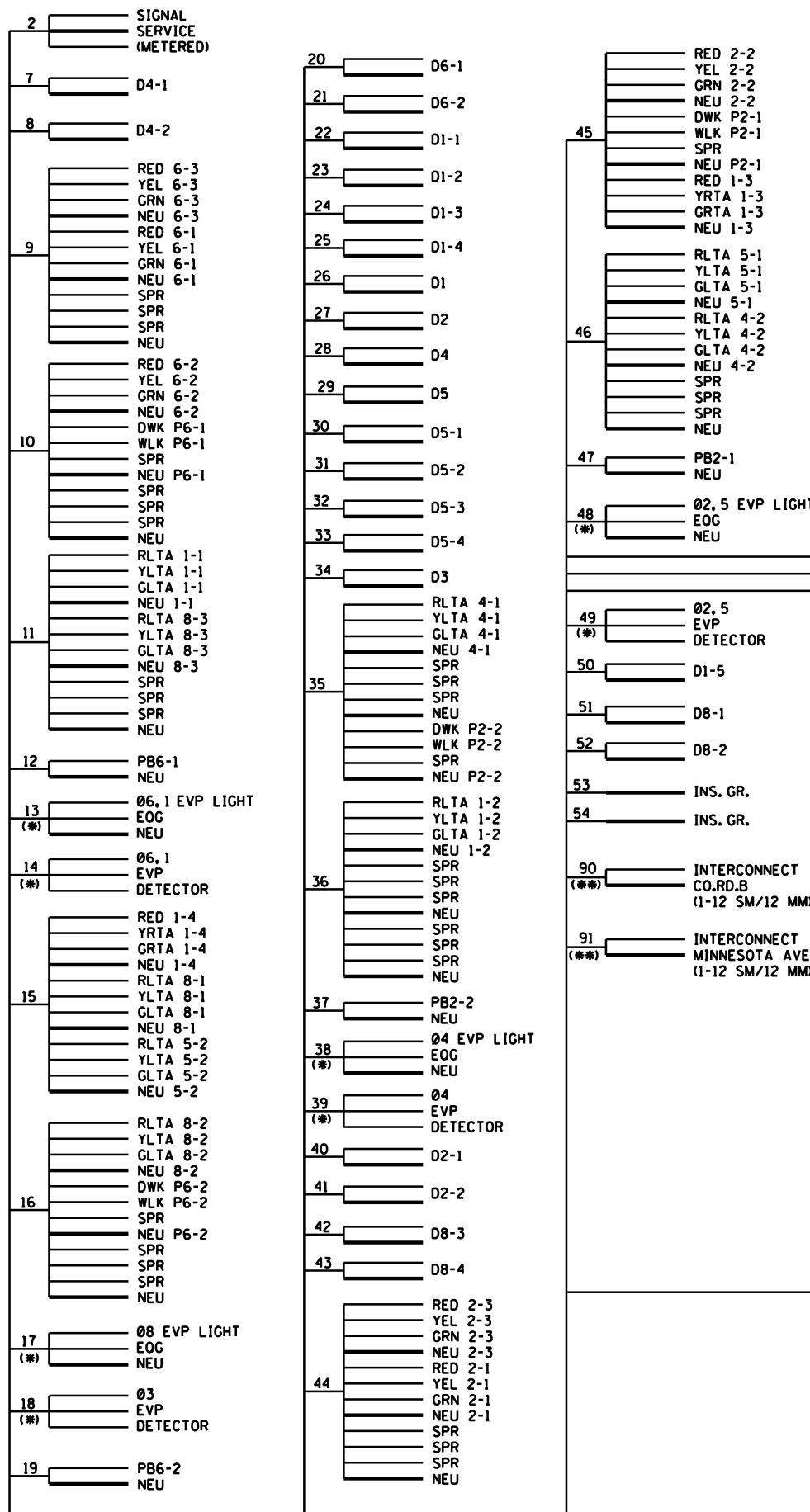


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEMS "B-C"
INTERSECTION LAYOUT
RICE STREET (CSAH 49)
BETWEEN T.H.36 AND MINNESOTA AVENUE

FILE NO.	296A
RAMSP108790	
SG16A	
OF 5652	534

CONTROLLER AND CABINET



6/13/05 PM
6/7/2012
S:\PTV\Ramsp\108790\SignalAs-Built\Worksheets\Projects\36 & Rice St\dgn\plansheets\ramsp108790_sow.dgn
SignalB WD 1

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	_MTT_			
DESIGNER:	_JMG_			
CHECKED BY:	_JMG_			
NO.	BY	DATE	REVISIONS	

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.
Certified By: JOHN M. GRAY, PE Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

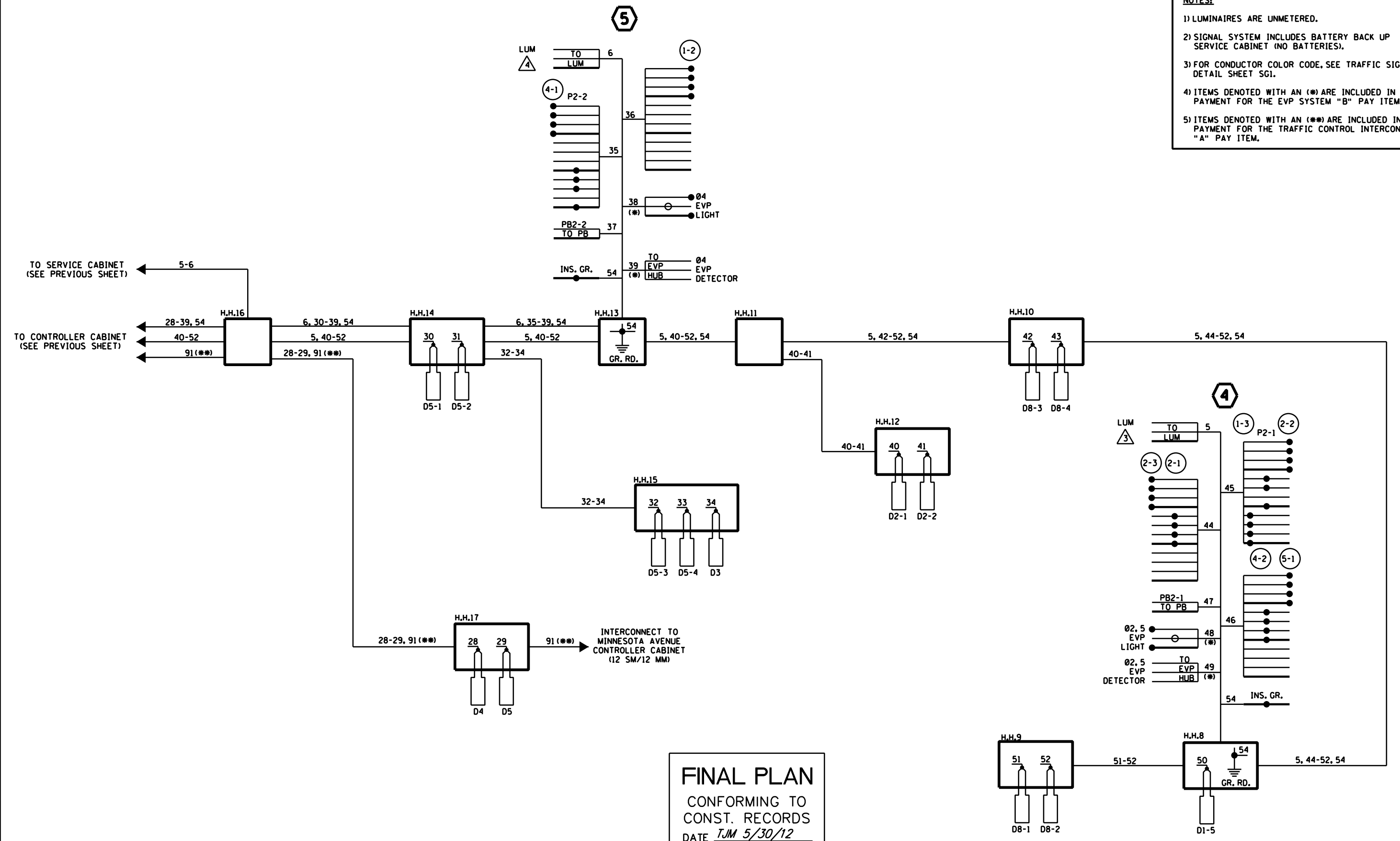
TRAFFIC SIGNAL SYSTEM "B"
FIELD WIRING DIAGRAM
T.H. 36 AT RICE STREET (CSAH 49) RAMPS

FILE NO. **297**
RAMSP108790
SG17
OF SC52
534

Mn/DOT SYSTEM ID # = 39223
Ramsey County Intersection ID # = TRF 395
Meter Address = 2244 Rice Street

S:\PT\RAMSP\108790\SignalAs-Builts\Workspace\Projects\36 & Rice St\dm\plansheets\ramsp108790_sow.dgn 6/7/2012 6:13:06 PM

- NOTES:**
- 1) LUMINAIRES ARE UNMETERED.
 - 2) SIGNAL SYSTEM INCLUDES BATTERY BACK UP SERVICE CABINET (NO BATTERIES).
 - 3) FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL DETAIL SHEET SGI.
 - 4) ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "B" PAY ITEM.
 - 5) ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.



FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

Mn/DOT SYSTEM ID # = 39223
Ramsey County Intersection ID # = TRF 395
Meter Address = 2244 Rice Street

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>	1	JMG	11/11	RECORD DRAWING
DESIGNER: <u>JMG</u>				
CHECKED BY: <u>JMG</u>				

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.
Certified By: JOHN M. GRAY, PE Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "B"
FIELD WIRING DIAGRAM
T.H. 36 AT RICE STREET (CSAH 49) RAMPS

FILE NO. RAMSP108790	298
SG18 OF SC52	534

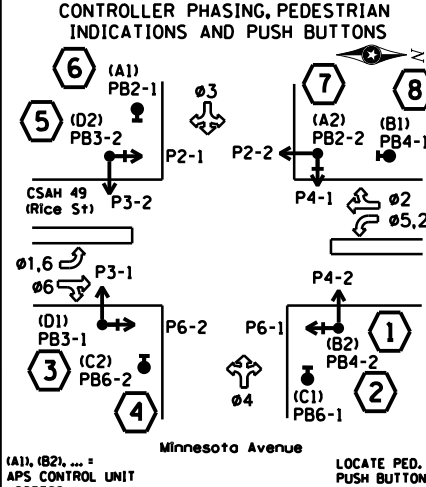
6/13/11 PM
6/7/2012
S:\PT\Ramsp\108790\SigalAs-Built\Worksheets\ramsp108790_sga.dgn
SignalSystem - C- Revised
mtr:cn

- NOTES:**
- THE EXACT LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING PEDESTRIAN INDICATIONS, GALVANIZED POLES, AND ACCESSIBLE PEDESTRIAN SIGNALS (APS).
 - EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
 - ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
 - ALL LOOP DETECTORS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR IN NON-METALLIC CONDUIT. SEE SPECIAL PROVISIONS AND DETAILS.
 - A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EVP EQUIPMENT SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF THE MAST ARM ON EACH POLE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER FOR THE NEW PERMANENT SIGNAL SYSTEM.
 - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, & GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER EXISTING ROADWAYS WILL REQUIRE BORING.
 - ALL NEW CONDUIT SHALL BE PVC SCHEDULE 80 OR HDPE SCHEDULE 80 (EXCEPT AS OTHERWISE NOTED) AND CARRY 1/c#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN PLANS.
 - CONTRACTOR SHALL COORDINATE ALL SIGNAL INSTALLATION WORK WITH ROAD WORK TO BE COMPLETED BY OTHERS AS PART OF THE ENTIRE PROJECT. SEE SPECIAL PROVISIONS.

- ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "C" PAY ITEM.
- ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.
- CONTRACTOR SHALL REMOVE THE EXISTING SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION (INCLUDED IN THE TRAFFIC CONTROL SIGNAL SYSTEM "C" PAY ITEM).
- SEE DETAILS FOR POLE MOUNTED SIGNALS, APS, EQUIPMENT PAD LAYOUT, NMC LOOP DETECTORS, AND TRAFFIC SIGNAL SIGNING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING AND MAKING OPERATIONAL THE TRAFFIC SIGNAL CONTROLLER CABINET. SEE SPECIAL PROVISIONS.
- CONTRACTOR SHALL VERIFY GROUNDWATER LEVELS WHEN INSTALLING POLE FOUNDATIONS AND SHALL DE-WATER AS NECESSARY DURING FOUNDATION INSTALLATION (INCIDENTAL).
- ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE FABRICATED WITH BLACK POLYCARBONATE MATERIALS (INCLUDING BACKGROUND SHIELDS AND VISORS). SEE SPECIAL PROVISIONS.

6 APS PEDESTRIAN PUSH BUTTON STATION (PB2-1)
1-APS PUSH BUTTON & SIGN (RT ARROW)
EXTEND INTO H.H.9;
2" CONDUIT
1-2/c#14

4 APS PEDESTRIAN PUSH BUTTON STATION (PB6-2)
1-APS PUSH BUTTON & SIGN (LT ARROW)
EXTEND INTO H.H.3;
2" CONDUIT
1-2/c#14



Ramsey County Intersection ID # = TRF 636
Meter Address = 2290 Rice Street

- SIGNING:**
- F & I OVERHEAD TYPE "D" SIGNS ON MAST ARMS 1, 3, 5, AND 7 (SEPARATE PAY ITEM).
 - PEDESTRIAN PUSH BUTTON SIGNS ARE INCLUDED AS PART OF APS PUSH BUTTON INSTALLATIONS.
 - ALL SIGNING SHALL BE INCIDENTAL WORK UNLESS SPECIFIC PAY ITEM IS INDICATED.

- SIGNAL SYSTEM OPERATIONS:**
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
 - NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES, AND PHASES 3 AND 4 BEING SPLIT PHASES.
 - PHASES 2 AND 6 SHALL BE LOCK DETECTION.
 - PHASES 1, 3, 4, AND 5 SHALL BE NON-LOCK DETECTION.
 - VEHICLE PHASES 2 AND 6 SHALL OPERATE ON RECALL.

DESIGN TEAM	5	JMG	4/5/2011	REVISED GEOMETRICS AND SIGNALS ON NW, SW QUADRANTS
DRAWN BY:	6	JMG	11/11	RECORD DRAWING
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

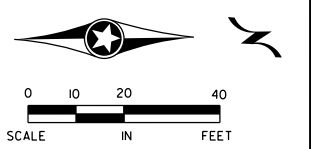
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Certified By: John M. Gray, PE Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "C"
INTERSECTION LAYOUT
RICE STREET (CSAH 49)
AT MINNESOTA AVENUE

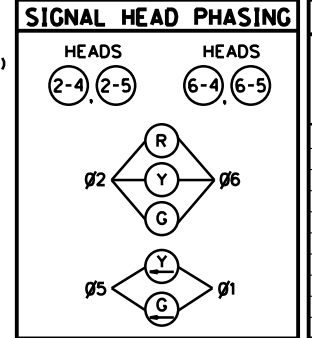
FILE NO. **299A**
RAMSP108790
SG19A
OF SC52
534



PVC LOOP DETECTORS		
NUMBER	SIZE (FT.)	LOCATION
D1-1	2-6X6	0' & 15'
D1-2	6X6	80'
D2-1	6X6	250'
D2-2	6X6	250'
D3-1	6X6	130'
D3-2	6X6	130'
D3-3	2-6X6	0' & 15'
D3-4	2-6X6	0' & 15'
D4-1	6X6	130'
D4-2	6X6	130'
D4-3	2-6X6	0' & 15'
D4-4	2-6X6	0' & 15'
D4-5	2-6X6	0' & 15'
D5-1	2-6X6	0' & 15'
D5-2	6X6	80'
D6-1	6X6	250'
D6-2	6X6	250'
D1	6X6	80'
D2	6X6	80'
D3	6X6	80'
D4	6X6	80'

NOTE: LOCATION = DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12



SIGNAL FACE	ALL SIGNAL INDICATIONS SHALL BE 12"				
	R	Y	G	Y	G
2-1, 2-2, 2-3	●	●	●		
2-4, 2-5	●	●	●	←	←
3-1	●	●	●		
3-2	●	●	●		
3-3	●	●	●		
4-1	●	●	●		
4-2	●	●	●		
4-3, 4-4	●	●	●	←	←
6-1, 6-2, 6-3	●	●	●		
6-4, 6-5	●	●	●	←	←

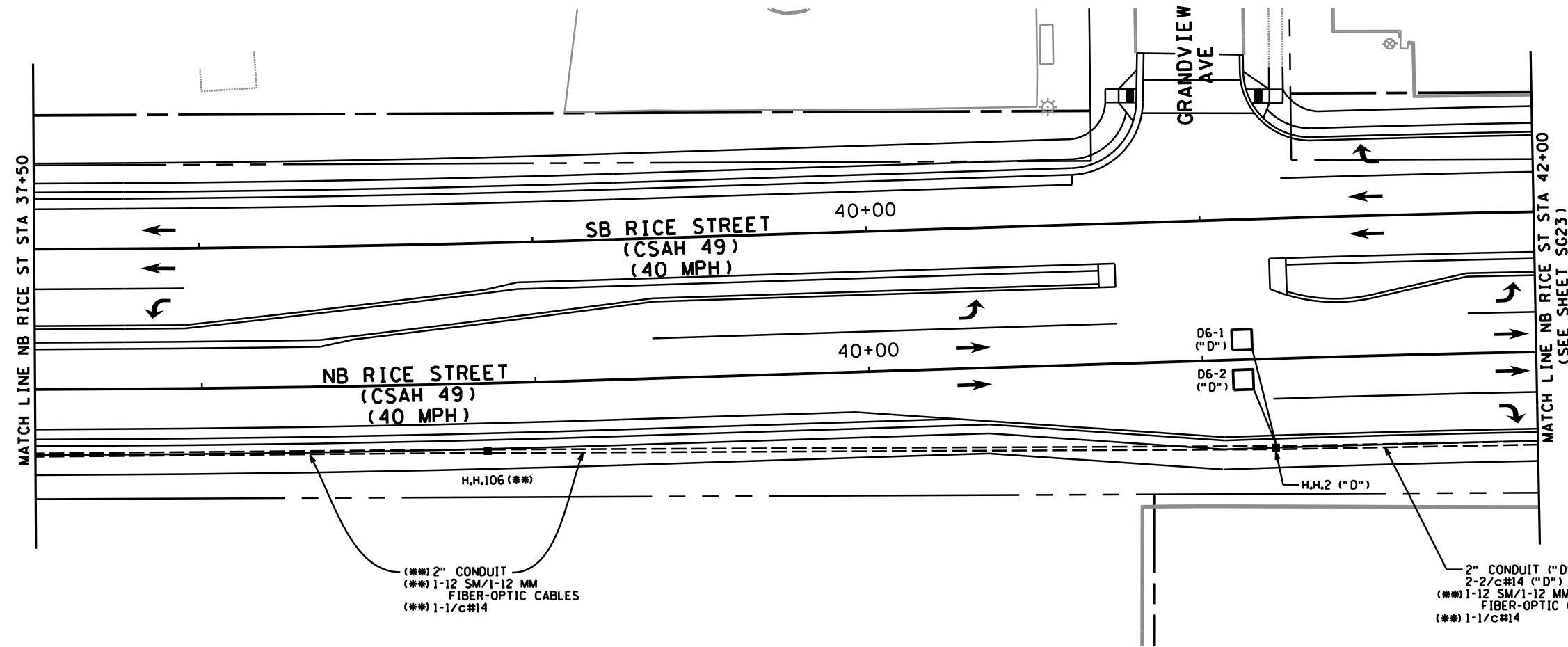
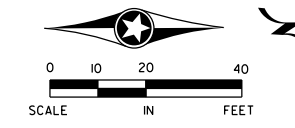
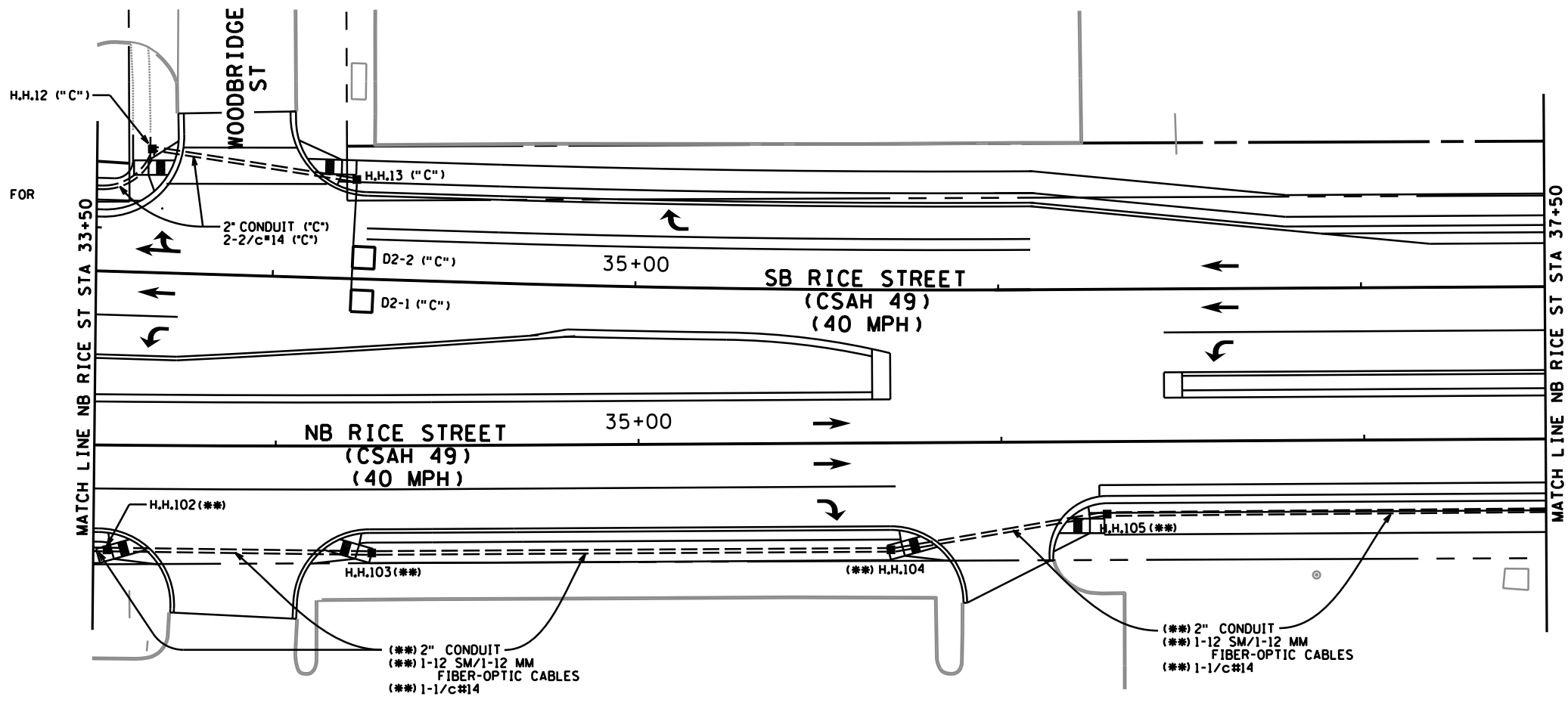
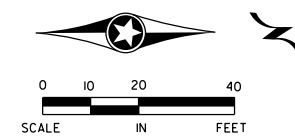
SEE SHEET SG16 FOR DETAILED POLE NOTES.

6/13/16 PM

6/7/2012

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Interconnect_2

NOTE:
1) ITEMS DENOTED WITH AN (***) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.



FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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Certified By: John M. Gray, PE Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010

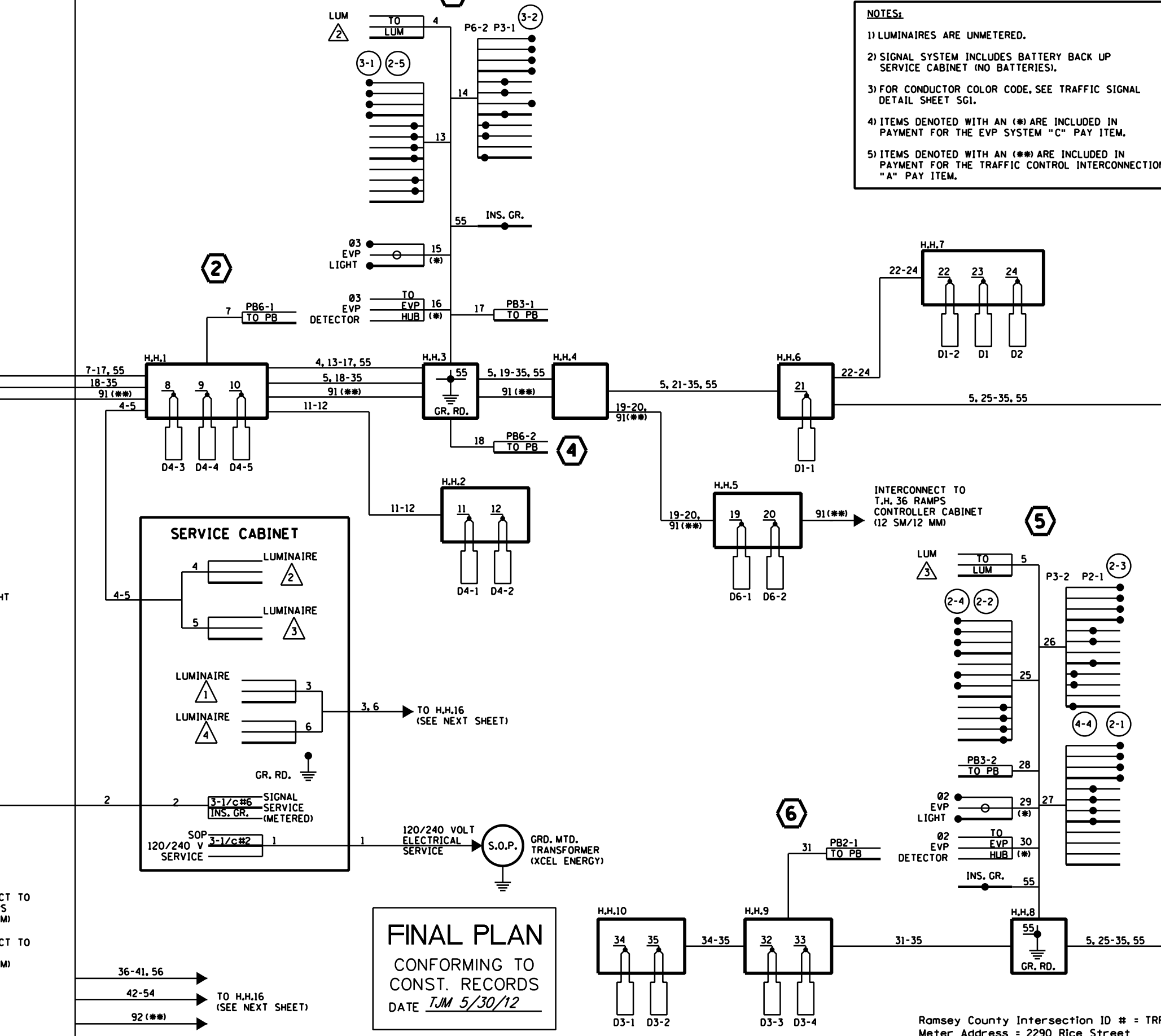
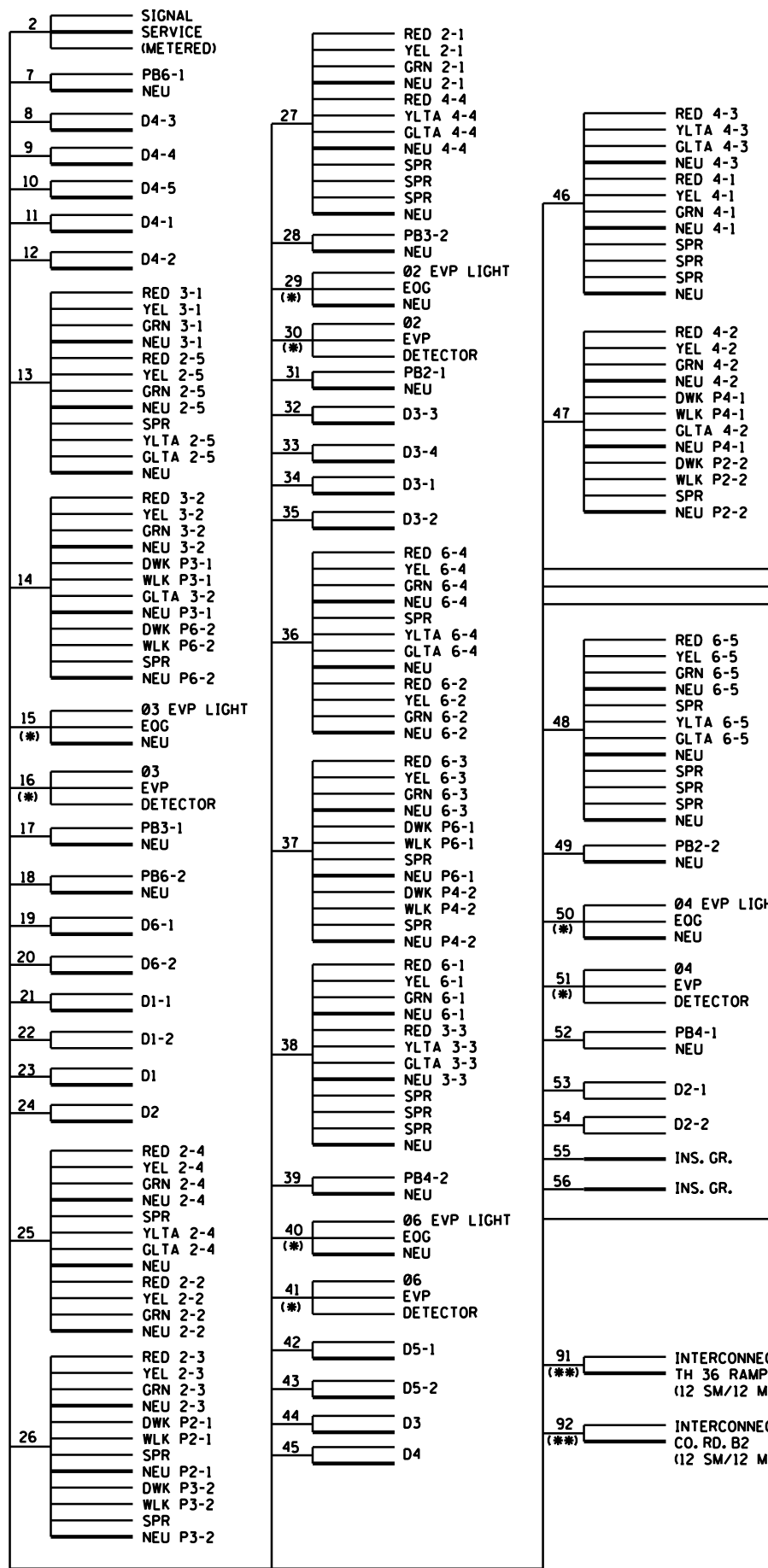


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEMS "C-D"
INTERSECTION LAYOUT
RICE STREET (CSAH 49)
BETWEEN MINNESOTA AVENUE AND COUNTY ROAD B2

FILE NO. **300**
RAMSP108790
SG20
OF SG52

CONTROLLER AND CABINET



NOTES:

- 1) LUMINAIRES ARE UNMETERED.
- 2) SIGNAL SYSTEM INCLUDES BATTERY BACK UP SERVICE CABINET (NO BATTERIES).
- 3) FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL DETAIL SHEET SGI.
- 4) ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "C" PAY ITEM.
- 5) ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.

6/13/17 PM

6/7/2012

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DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "C"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT MINNESOTA AVENUE

FILE NO.	301
RAMSP108790	
SG21	
OF 652	
534	

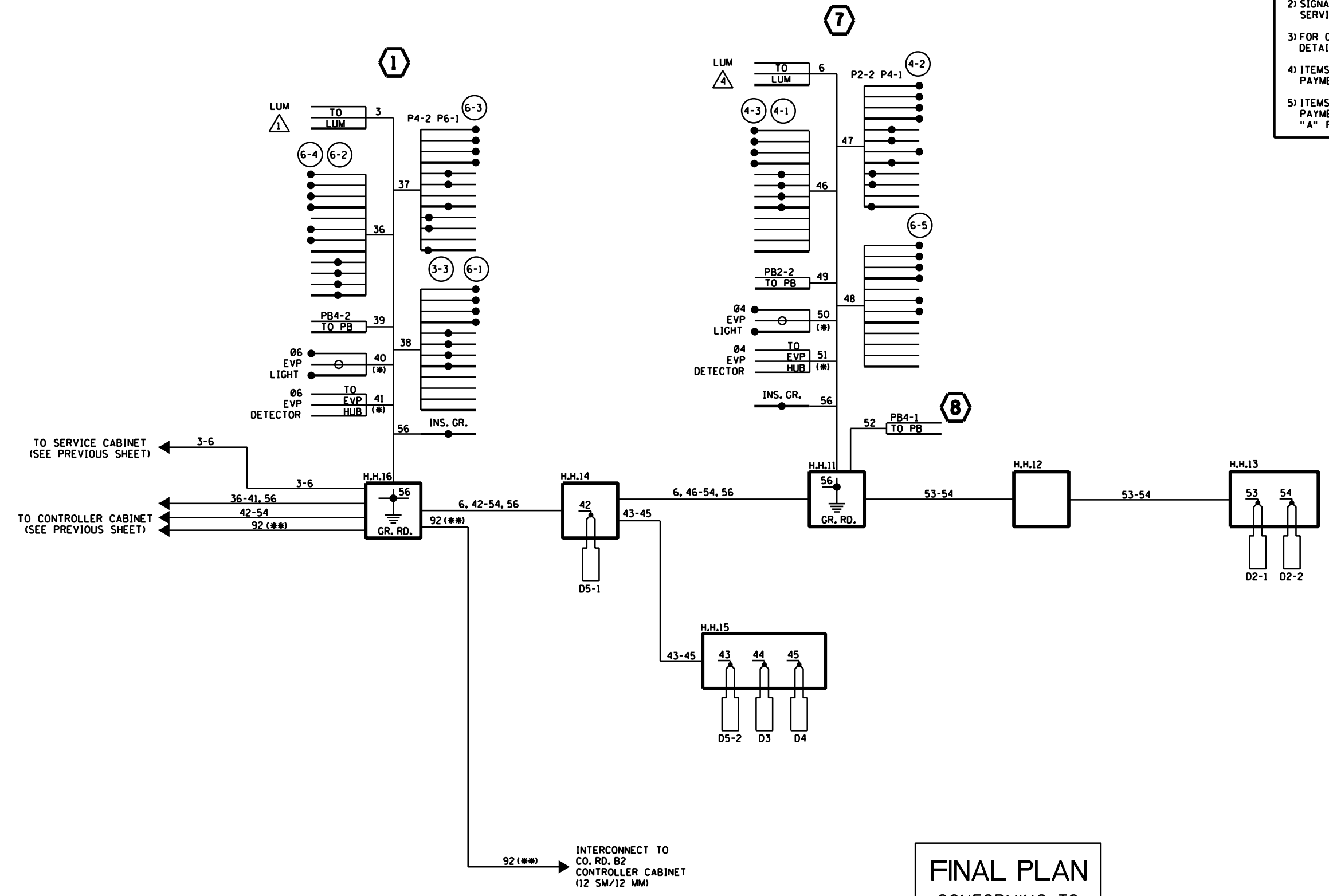
Ramsey County Intersection ID # = TRF 636
 Meter Address = 2290 Rice Street

6/13/18 PM

6/7/2012

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SignalC_WD_2

- NOTES:**
- 1) LUMINAIRES ARE UNMETERED.
 - 2) SIGNAL SYSTEM INCLUDES BATTERY BACK UP SERVICE CABINET (NO BATTERIES).
 - 3) FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL DETAIL SHEET SG1.
 - 4) ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "C" PAY ITEM.
 - 5) ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.



FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

Ramsey County Intersection ID # = TRF 636
 Meter Address = 2290 Rice Street

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "C"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT MINNESOTA AVENUE

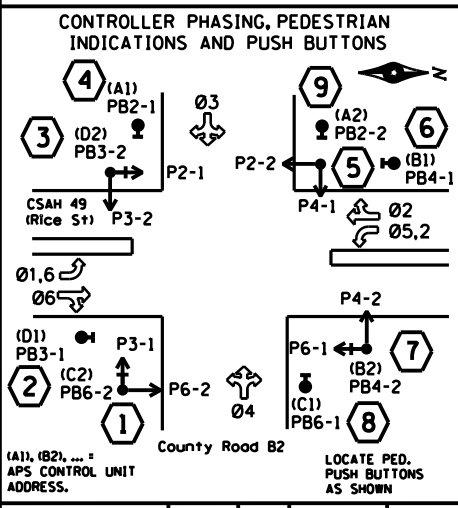
FILE NO. RAMSP108790	302
SG22 OF SG52	534

6/13/10 PM
 6/7/2012
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 mtr.cn

- NOTES:**
- THE EXACT LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING PEDESTRIAN INDICATIONS, GALVANIZED POLES, AND ACCESSIBLE PEDESTRIAN SIGNALS (APS).
 - EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
 - ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
 - ALL LOOP DETECTORS SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR IN NON-METALLIC CONDUIT. SEE SPECIAL PROVISIONS AND DETAILS.
 - A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EVP EQUIPMENT SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF THE MAST ARM ON EACH POLE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER FOR THE NEW PERMANENT SIGNAL SYSTEM.
 - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, & GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER EXISTING ROADWAYS WILL REQUIRE BORING.
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 - ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "D" PAY ITEM.
 - ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.
 - CONTRACTOR SHALL REMOVE THE EXISTING SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION (INCLUDED IN THE TRAFFIC CONTROL SIGNAL SYSTEM "D" PAY ITEM).
 - SEE DETAILS FOR POLE MOUNTED SIGNALS, APS, EQUIPMENT PAD LAYOUT, NMC LOOP DETECTORS, AND TRAFFIC SIGNAL SIGNING.

- CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING AND MAKING OPERATIONAL THE TRAFFIC SIGNAL CONTROLLER CABINET SEE SPECIAL PROVISIONS.
- CONTRACTOR SHALL VERIFY GROUNDWATER LEVELS WHEN INSTALLING POLE FOUNDATIONS AND SHALL DE-WATER AS NECESSARY DURING FOUNDATION INSTALLATION (INCIDENTAL).
- ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE FABRICATED WITH BLACK POLYCARBONATE MATERIALS (INCLUDING BACKGROUND SHIELDS AND VISORS). SEE SPECIAL PROVISIONS.

- INPLACE WOOD POLE (TO BE RELOCATED BY XCEL ENERGY) 2" R.S.C. RISER AND WEATHERHEAD 3-1/c#2 EXTEND INTO SERVICE CABINET; 2" R.S.C. 3-1/c#2



Ramsey County Intersection ID # = TRF 632
 Meter Address = 2400 RICE STREET

SIGNING:

- F & I OVERHEAD TYPE "D" SIGNS ON MAST ARMS 1, 3, 5 AND 7 (SEPARATE PAY ITEM).
- PEDESTRIAN PUSH BUTTON SIGNS ARE INCLUDED AS PART OF APS PUSH BUTTON INSTALLATIONS.
- ALL SIGNING SHALL BE INCIDENTAL WORK UNLESS SPECIFIC PAY ITEM IS INDICATED.

SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES, AND PHASES 3 AND 4 BEING SPLIT PHASES.
- PHASES 2 AND 6 SHALL BE LOCK DETECTION.
- PHASES 1, 3, 4, AND 5 SHALL BE NON-LOCK DETECTION.
- VEHICLE PHASES 2 AND 6 SHALL OPERATE ON RECALL.

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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.

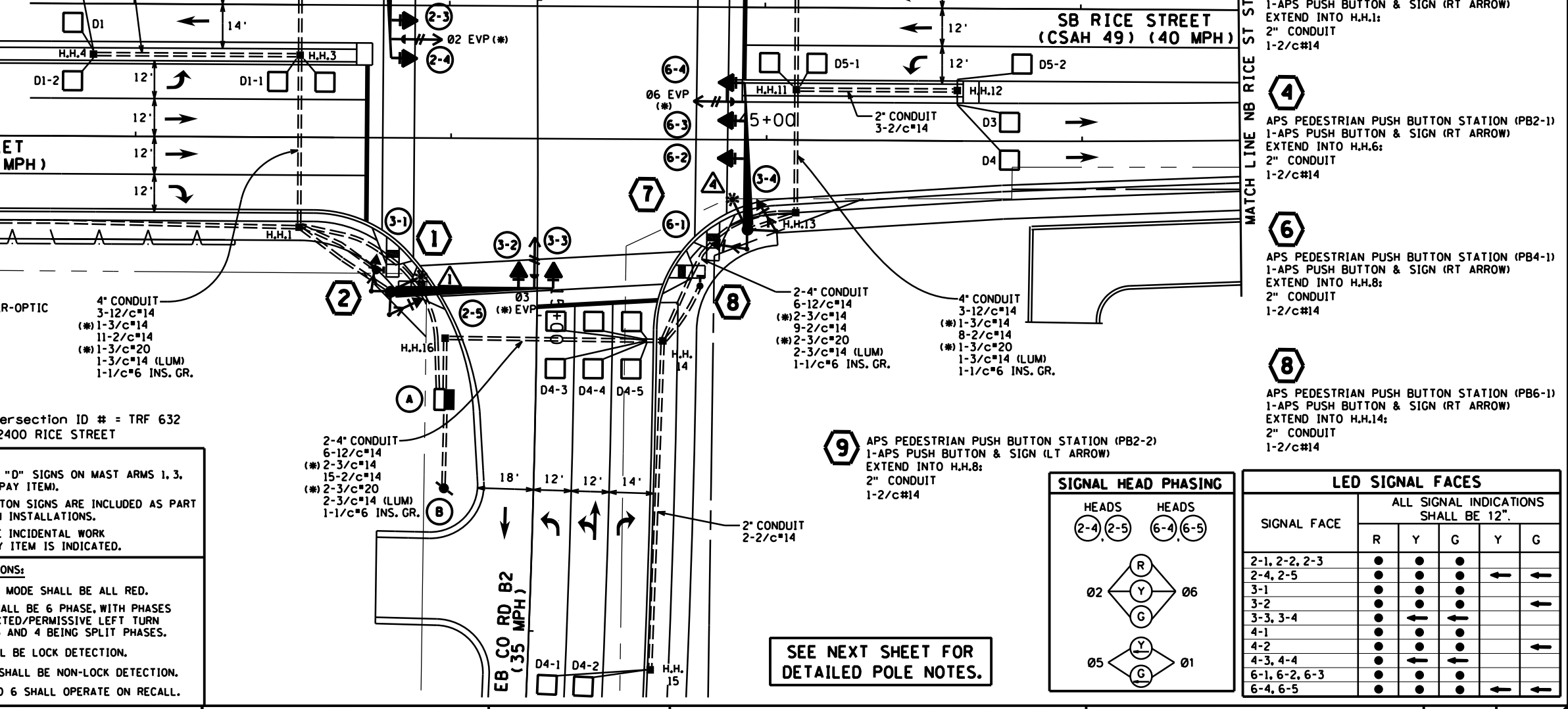
Certified By: JOHN M. GRAY, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

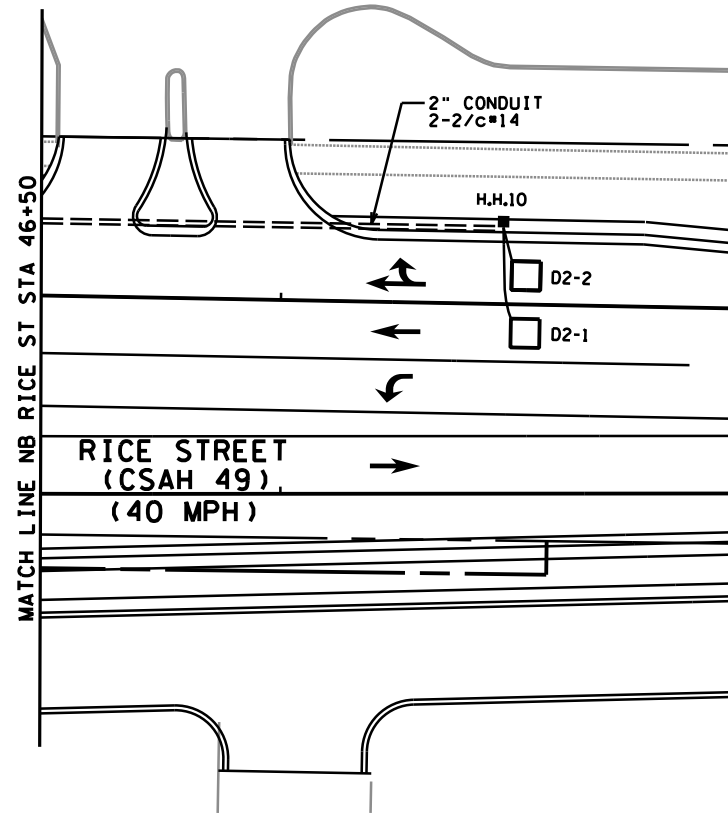
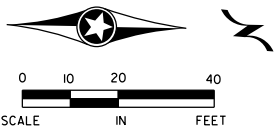
TRAFFIC SIGNAL SYSTEM "D"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B2

FILE NO. **303**
 RAMSP108790
SG23
 OF SG52
534



6/13/12 PM

6/7/2012



- 1** PA100 POLE FOUNDATION
TYPE PA100-A-50-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG & 180 DEG.
1-APS PUSH BUTTON & SIGN (LT ARROW) (PB6-2)
1-TYPE D SIGN PANEL-OVERHEAD (D-15)
(*ONE WAY EVP DETECTOR AND LIGHT (03)
EXTEND INTO H.H.1:
3" CONDUIT
3-12/c#14
(*1-3/c#14
1-2/c#14
(*1-3/c#20
1-3/c#14 (LUM)
2-1/c#6 INS. GR.

- 5** PA100 POLE FOUNDATION
TYPE PA100-A-45-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG & 180 DEG.
1-TYPE D SIGN PANEL-OVERHEAD (D-17)
(*ONE WAY EVP DETECTOR AND LIGHT (04)
EXTEND INTO H.H.8:
3" CONDUIT
3-12/c#14
(*1-3/c#14
(*1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.

- 3** PA100 POLE FOUNDATION
TYPE PA100-A-45-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' AND 23'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG & 180 DEG.
1-APS PUSH BUTTON & SIGN (LT ARROW) (PB3-2)
RIO-12 SIGN PANEL-ADJACENT TO 2-4
1-TYPE D SIGN PANEL-OVERHEAD (D-16)
(*ONE WAY EVP DETECTOR AND LIGHT (02)
EXTEND INTO H.H.5:
3" CONDUIT
3-12/c#14
(*1-3/c#14
1-2/c#14
(*1-3/c#20
1-3/c#14 (LUM)
1-1/c#6 INS. GR.

- 7** PA100 POLE FOUNDATION
TYPE PA100-A-45-X30-4
LUMINAIRE-250 W HPS AT 0 DEG. (SHOEBOX)
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' AND 23'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG.
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED AT 90 DEG & 180 DEG.
1-APS PUSH BUTTON & SIGN (LT ARROW) (PB4-2)
RIO-12 SIGN PANEL-ADJACENT TO 6-4
1-TYPE D SIGN PANEL-OVERHEAD (D-18)
(*ONE WAY EVP DETECTOR AND LIGHT (06)
EXTEND INTO H.H.13:
3" CONDUIT
3-12/c#14
(*1-3/c#14
1-2/c#14
(*1-3/c#20
1-3/c#14 (LUM)
2-1/c#6 INS. GR.

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

Ramsey County Intersection ID # = TRF 632
Meter Address = 2400 RICE STREET

S:\PT\Ramsey\108790\SignalAs-Builds\Workspace\Projects\36 & Rice St\dgn\plansheets\ramsp108790_s.dgn mtr on Interconnect_3

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
	NO.	BY	DATE	REVISIONS

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.
Certified By: _____ Lic. No. 22457
Printed Name: JOHN M. GRAY, PE Date: 3/3/2010

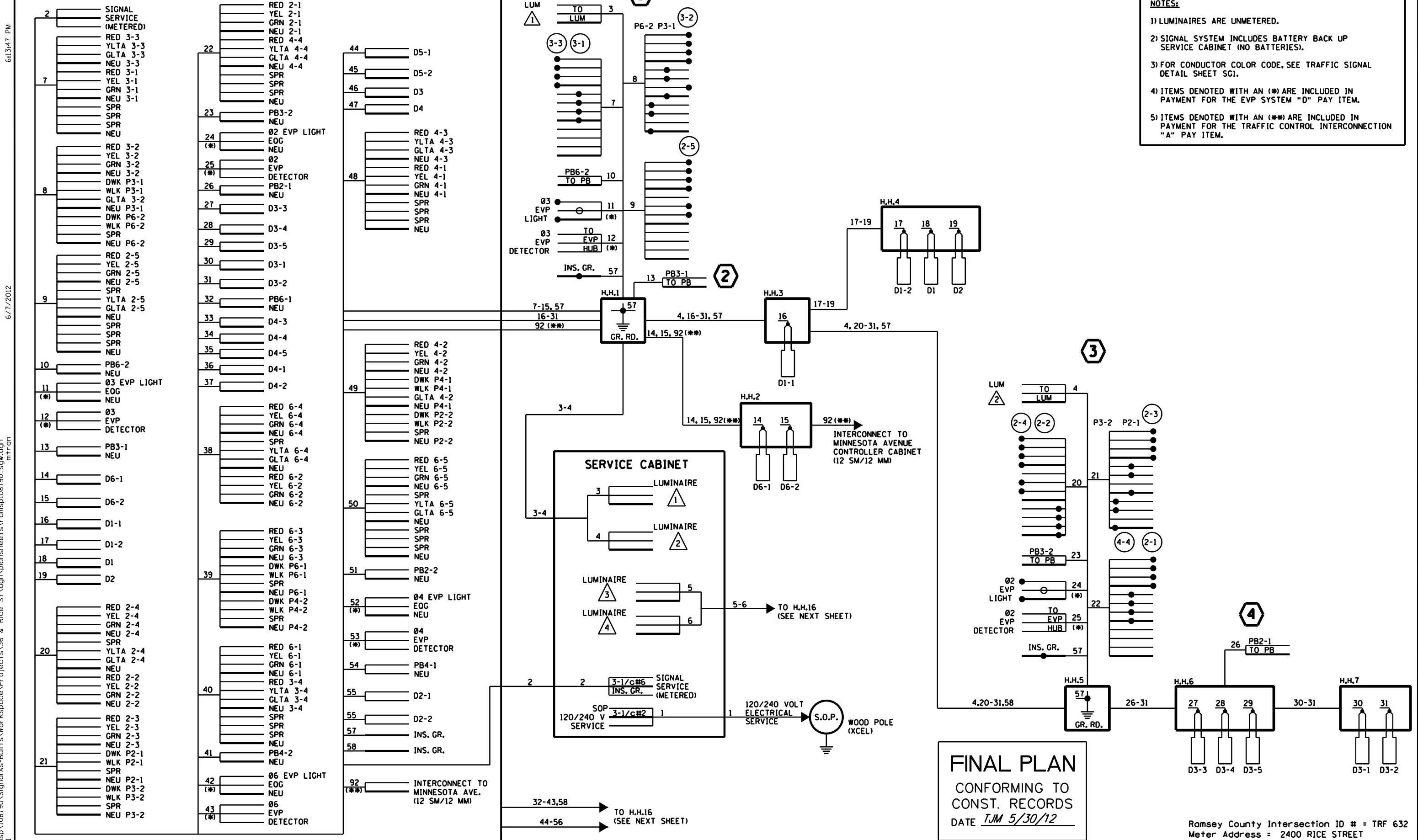


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "D"
INTERSECTION LAYOUT
RICE STREET (CSAH 49)
AT COUNTY ROAD B2

FILE NO.	304
RAMSP108790	
SG24	534
OF 5652	

CONTROLLER AND CABINET



- NOTES:**
- 1) LUMINAIRES ARE UNMETERED.
 - 2) SIGNAL SYSTEM INCLUDES BATTERY BACK UP SERVICE CABINET (NO BATTERIES).
 - 3) FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL DETAIL SHEET SGI.
 - 4) ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "D" PAY ITEM.
 - 5) ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.

FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

Ramsey County Intersection ID # = TRF 632
 Meter Address = 2400 RICE STREET

6/13/14 7 PM
 6/7/2012
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 mtr.con

DESIGN TEAM	1	JMG	11/11	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	JMG			
CHECKED BY:	JMG			
NO.	BY	DATE	REVISIONS	

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "D"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B2

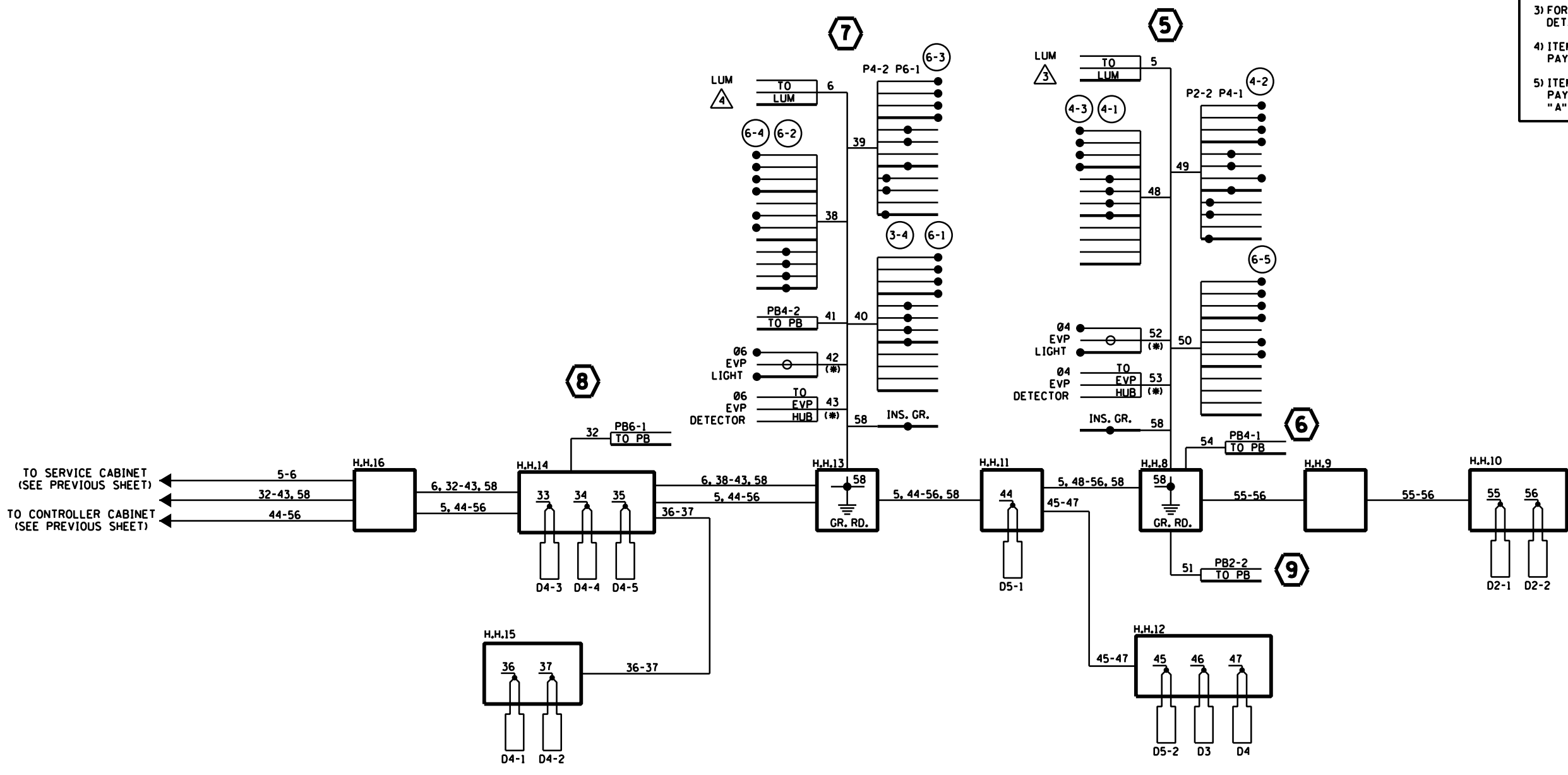
FILE NO.	305
RAMSP08790	
SG25	
OF 652	534

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6/7/2012

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Signal ID: WD_2

- NOTES:**
- 1) LUMINAIRES ARE UNMETERED.
 - 2) SIGNAL SYSTEM INCLUDES BATTERY BACK UP SERVICE CABINET (NO BATTERIES).
 - 3) FOR CONDUCTOR COLOR CODE, SEE TRAFFIC SIGNAL DETAIL SHEET SG1.
 - 4) ITEMS DENOTED WITH AN (*) ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM "D" PAY ITEM.
 - 5) ITEMS DENOTED WITH AN (**) ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION "A" PAY ITEM.



FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

Ramsey County Intersection ID # = TRF 632
 Meter Address = 2400 RICE STREET

DESIGN TEAM	NO.	BY	DATE	REVISIONS
1	JMG	11/11		RECORD DRAWING
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>JMG</u>				
CHECKED BY: <u>JMG</u>				

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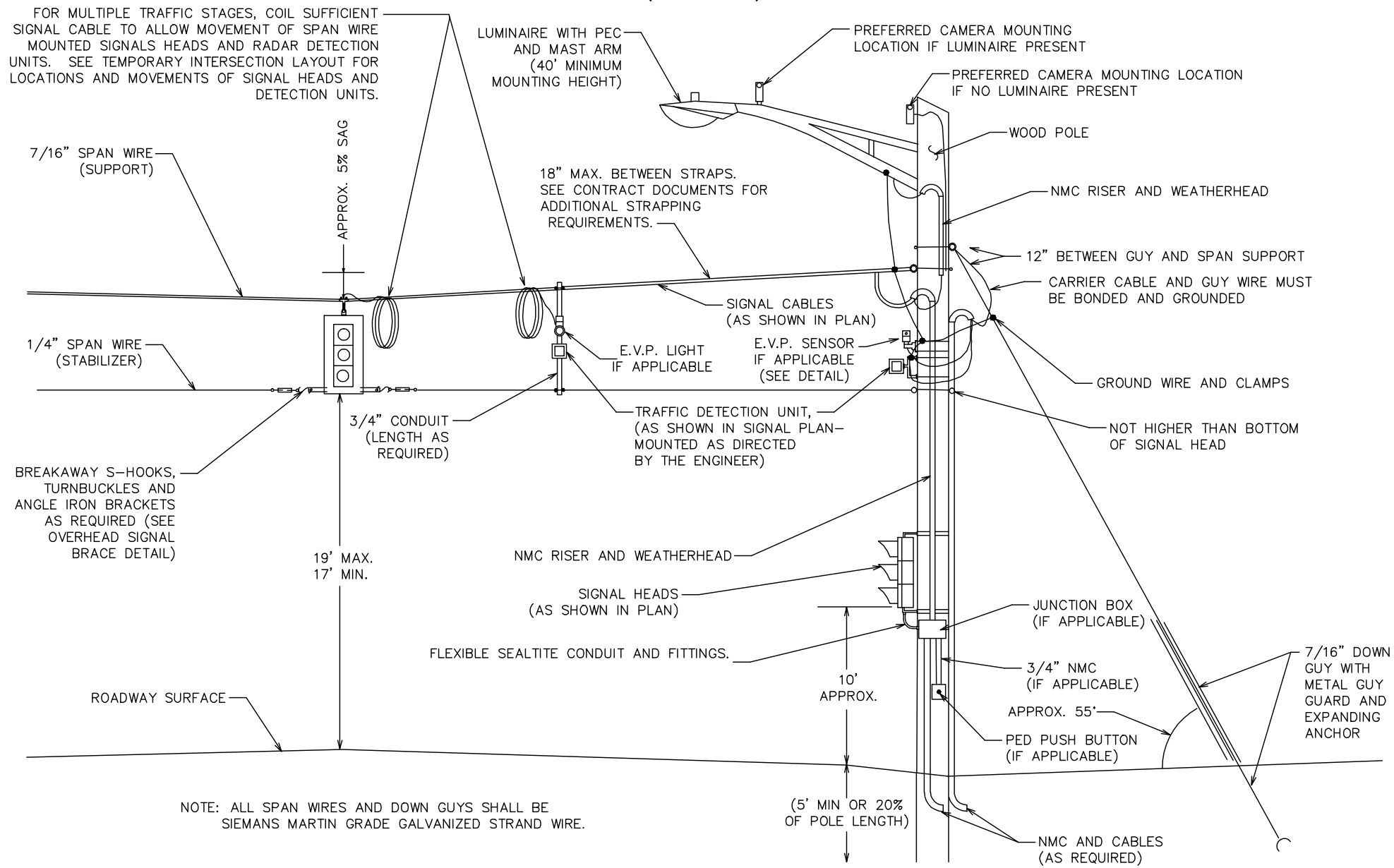
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TRAFFIC SIGNAL SYSTEM "D"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B2

FILE NO. RAMSP108790	306
SG26 OF SG52	534

TYPICAL WOOD POLE AND SPAN WIRE MOUNTED TRAFFIC SIGNALS

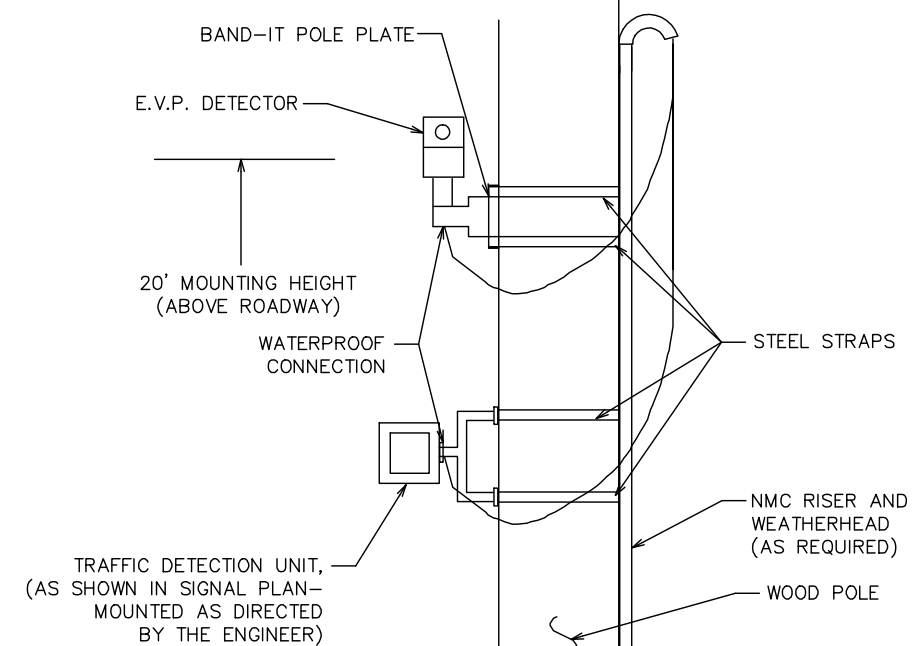
(NOT TO SCALE)



NOTE: ALL SPAN WIRES AND DOWN GUYS SHALL BE SIEMANS MARTIN GRADE GALVANIZED STRAND WIRE.

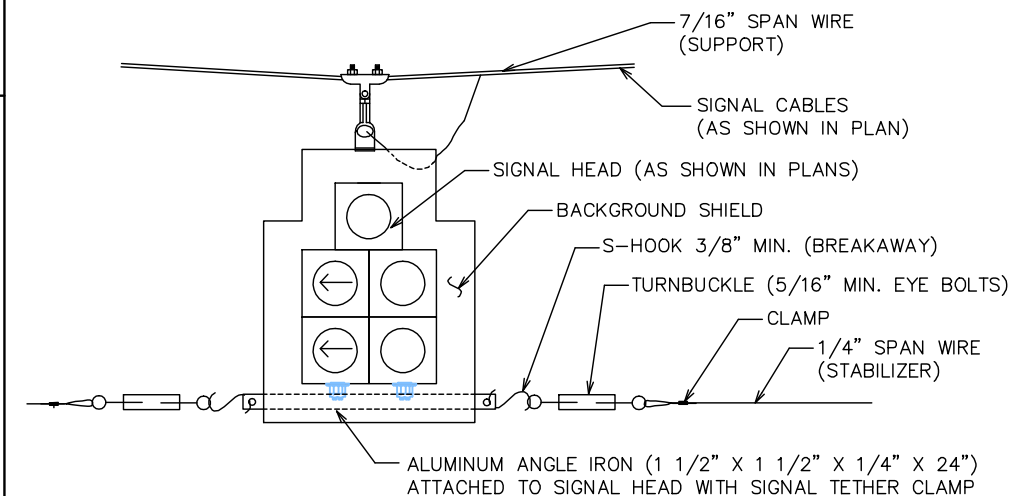
E.V.P. OR TRAFFIC DETECTOR WOOD POLE MOUNT

(NOT TO SCALE)



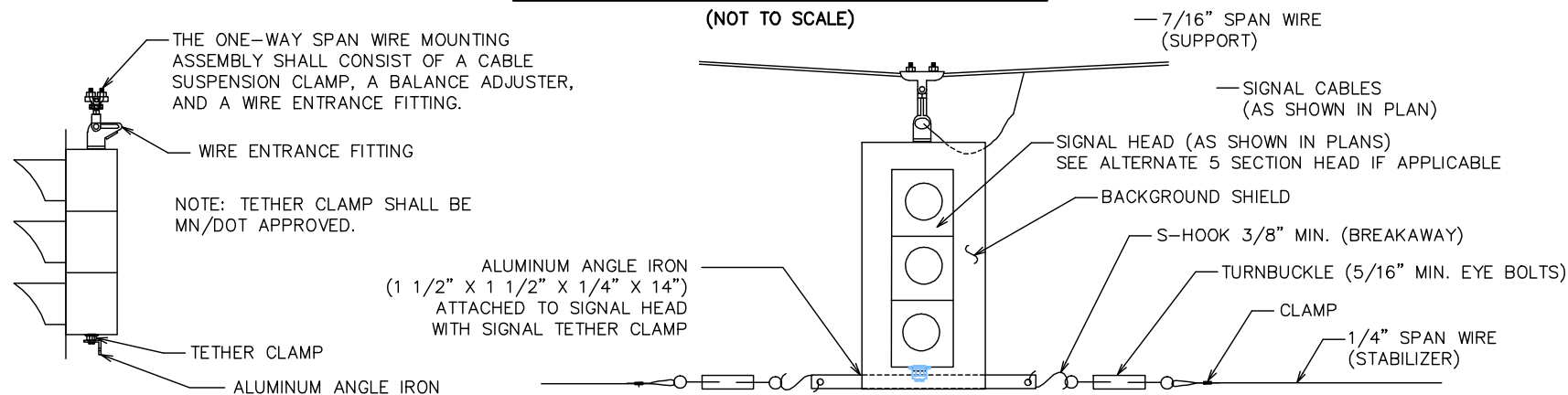
5 SECTION HEAD OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



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DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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Certified By: *John M. Gray* Lic. No. 22457
 Printed Name: John M. Gray, PE Date: 03/04/2010

SEH
 PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEMS 'A-E'
 TEMPORARY SIGNAL DETAILS
 CSAH 49 (RICE STREET) SIGNAL SYSTEMS

FILE NO. RAMSP108790	307
SG27 OF SG52	534

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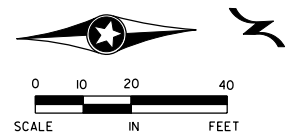
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SignalSystem_A

NOTES:

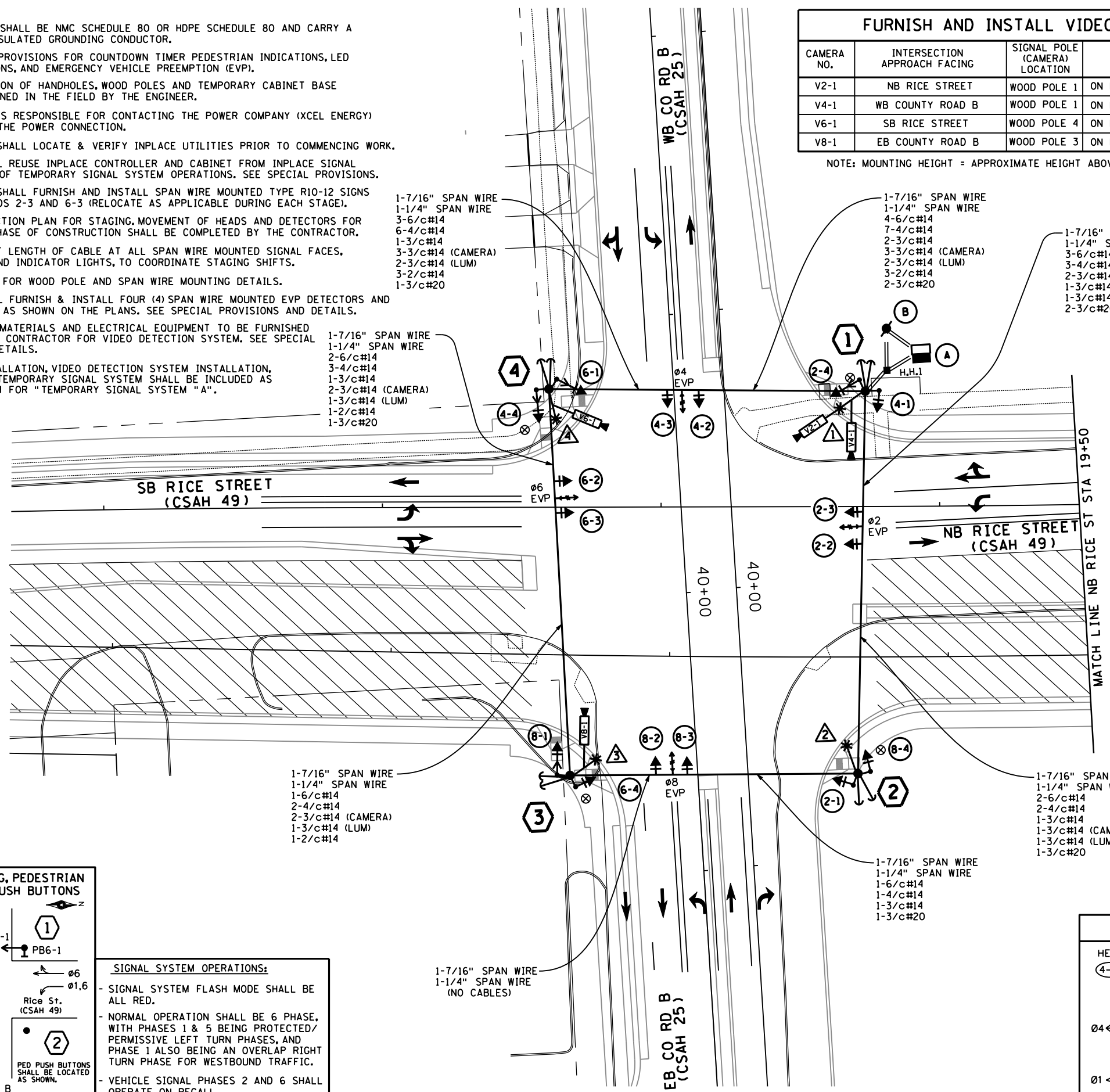
1. ALL NEW CONDUIT SHALL BE NMC SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY A 1-1/4" #6 GREEN INSULATED GROUNDING CONDUCTOR.
2. SEE THE SPECIAL PROVISIONS FOR COUNTDOWN TIMER PEDESTRIAN INDICATIONS, LED VEHICLE INDICATIONS, AND EMERGENCY VEHICLE PREEMPTION (EVP).
3. THE EXACT LOCATION OF HANDHOLES, WOOD POLES AND TEMPORARY CABINET BASE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.
5. THE CONTRACTOR SHALL LOCATE & VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
6. CONTRACTOR SHALL REUSE INPLACE CONTROLLER AND CABINET FROM INPLACE SIGNAL SYSTEM AS PART OF TEMPORARY SIGNAL SYSTEM OPERATIONS. SEE SPECIAL PROVISIONS.
7. THE CONTRACTOR SHALL FURNISH AND INSTALL SPAN WIRE MOUNTED TYPE R10-12 SIGNS ADJACENT TO HEADS 2-3 AND 6-3 (RELOCATE AS APPLICABLE DURING EACH STAGE).
8. SEE THE CONSTRUCTION PLAN FOR STAGING, MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR.
9. COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES, EVP DETECTORS AND INDICATOR LIGHTS, TO COORDINATE STAGING SHIFTS.
10. SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
11. CONTRACTOR SHALL FURNISH & INSTALL FOUR (4) SPAN WIRE MOUNTED EVP DETECTORS AND INDICATOR LIGHTS AS SHOWN ON THE PLANS. SEE SPECIAL PROVISIONS AND DETAILS.
12. (CAMERA) DENOTES MATERIALS AND ELECTRICAL EQUIPMENT TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR VIDEO DETECTION SYSTEM. SEE SPECIAL PROVISIONS AND DETAILS.
13. EVP SYSTEM INSTALLATION, VIDEO DETECTION SYSTEM INSTALLATION, AND REMOVAL OF TEMPORARY SIGNAL SYSTEM SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM 'A'".

FURNISH AND INSTALL VIDEO DETECTORS				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2-1	NB RICE STREET	WOOD POLE 1	ON LUMINAIRE EXTENSION	40'
V4-1	WB COUNTY ROAD B	WOOD POLE 1	ON LUMINAIRE EXTENSION	40'
V6-1	SB RICE STREET	WOOD POLE 4	ON LUMINAIRE EXTENSION	40'
V8-1	EB COUNTY ROAD B	WOOD POLE 3	ON LUMINAIRE EXTENSION	40'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.



NOTE: THIS PLAN IS INTENDED TO SHOW WOOD POLE LOCATION AND EQUIPMENT THAT IS TO BE USED AS PART OF THE TEMPORARY SIGNAL SYSTEM INSTALLATION. SPECIFIC ROADWAY ELEMENTS MAY OR MAY NOT BE INPLACE AT THE TIME THE TEMPORARY SIGNAL IS IN OPERATION. THE LOCATION OF OVERHEAD SIGNALS AND DETECTORS FOR EACH STAGE OR PHASE WILL NEED TO BE ADJUSTED ACCORDINGLY.

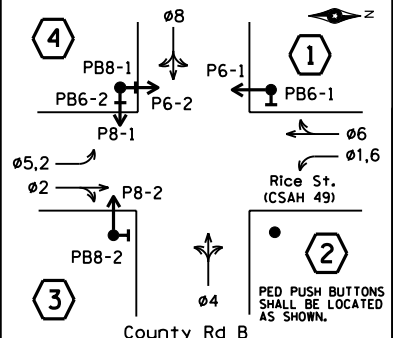


- (A)** TEMPORARY SIGNAL CABINET BASE
 INPLACE CONTROLLER & CABINET (SALVAGE FROM INPLACE SIGNAL SYSTEM AND INSTALL ON TEMPORARY CABINET BASE)
 VIDEO PROCESSOR, INTERFACE PANEL, AND MONITOR (CAMERA) (FURNISH AND INSTALL WITHIN INPLACE CONTROLLER CABINET)
 CONTROLLER CABINET TO H.H.1:
 4" CONDUIT 4" CONDUIT
 4-6/c#14 5-6/c#14
 7-4/c#14 4-4/c#14
 2-3/c#14 2-3/c#14
 3-3/c#14 (CAMERA) 3-3/c#14 (CAMERA)
 3-2/c#14 1-2/c#14
 2-3/c#20 2-3/c#20

- (B)** 25' WOOD POLE-CLASS 2
 SERVICE EQUIPMENT AND DISCONNECT- WOOD POLE MOUNTED
 2" CONDUIT RISER AND WEATHERHEAD ABOVE METER (SERVICE BY XCEL ENERGY)
 DISCONNECT TO H.H.1:
 2" CONDUIT
 4-3/c#14 (LUM)
 DISCONNECT TO CONTROLLER CABINET:
 2" CONDUIT
 3-1/c#6

SEE NEXT SHEET FOR POLE NOTES.

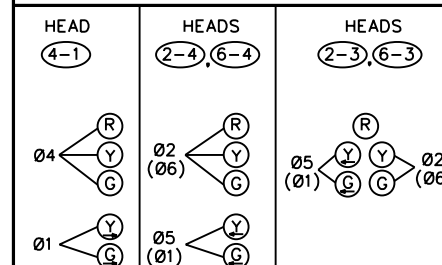
CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING PROTECTED/ PERMISSIVE LEFT TURN PHASES, AND PHASE 1 ALSO BEING AN OVERLAP RIGHT TURN PHASE FOR WESTBOUND TRAFFIC.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SIGNAL HEAD PHASING



LED SIGNAL FACES

SIGNAL FACES	R	Y	G	R	Y	G
2-1, 2-2	●	●	●			
2-3, 2-4	●	●	●	←	←	
4-1	●	●	●	→	→	
4-2, 4-3, 4-4	●	●	●			
6-1, 6-2	●	●	●			
6-3, 6-4	●	●	●	←	←	
8-1, 8-2	●	●	●			
8-3, 8-4	●	●	●			

-ALL SIGNAL INDICATIONS SHALL BE 12" LED.
 -ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELD.
 -ALL SIGNAL INDICATIONS SHALL BE FABRICATED WITH POLYCARBONATE MATERIALS.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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 Certified By: John M. Gray, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "A"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B (CSAH 25)

FILE NO.	308
RAMSP108790	
SG28	
OF SG52	534

1 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 1-TYPE 10A-WOOD POLE MOUNTED AT 180°
 1-TYPE 10B-WOOD POLE MOUNTED AT 90°
 1-PEDESTRIAN PUSH BUTTON, R10-4b SIGN,
 AND RISER
 1-R9-3a SIGN PANEL-FACING POLE 2
 2-VIDEO CAMERAS-LUMINAIRE MAST ARM MOUNTED (FACING
 NORTHBOUND AND WESTBOUND TRAFFIC) (V2-1 AND V4-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2-4" CONDUIT RISER AND WEATHERHEAD FROM H.H.1 TO SPAN WIRES WITH:
 4-6/c#14 3-6/c#14
 7-4/c#14 3-4/c#14
 2-3/c#14 2-3/c#14
 3-3/c#14 (CAMERA) 3-3/c#14 (CAMERA)
 2-3/c#14 (LUM) 2-3/c#14 (LUM)
 3-2/c#14 2-3/c#20
 2-3/c#20
 2" CONDUIT BELOW JUNCTION BOX TO H.H.1 WITH:
 2-6/c#14
 1-4/c#14
 1-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

2 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10A-WOOD POLE MOUNTED AT 90° AND 180°
 2-R9-3a SIGN PANELS-FACING POLES 1 AND 3
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR NORTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 1-4/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

3 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 1-TYPE 10A-WOOD POLE MOUNTED AT 90°
 1-TYPE 10B-WOOD POLE MOUNTED AT 180°
 1-PEDESTRIAN PUSH BUTTON, R10-4b SIGN,
 AND RISER
 1-R9-3a SIGN PANEL-FACING POLE 2
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 EASTBOUND TRAFFIC) (V8-1) (CAMERA)
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR SOUTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 2-4/c#14
 1-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

4 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 SOUTHBOUND TRAFFIC) (V6-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>JMG</u>				
CHECKED BY: <u>JMG</u>				

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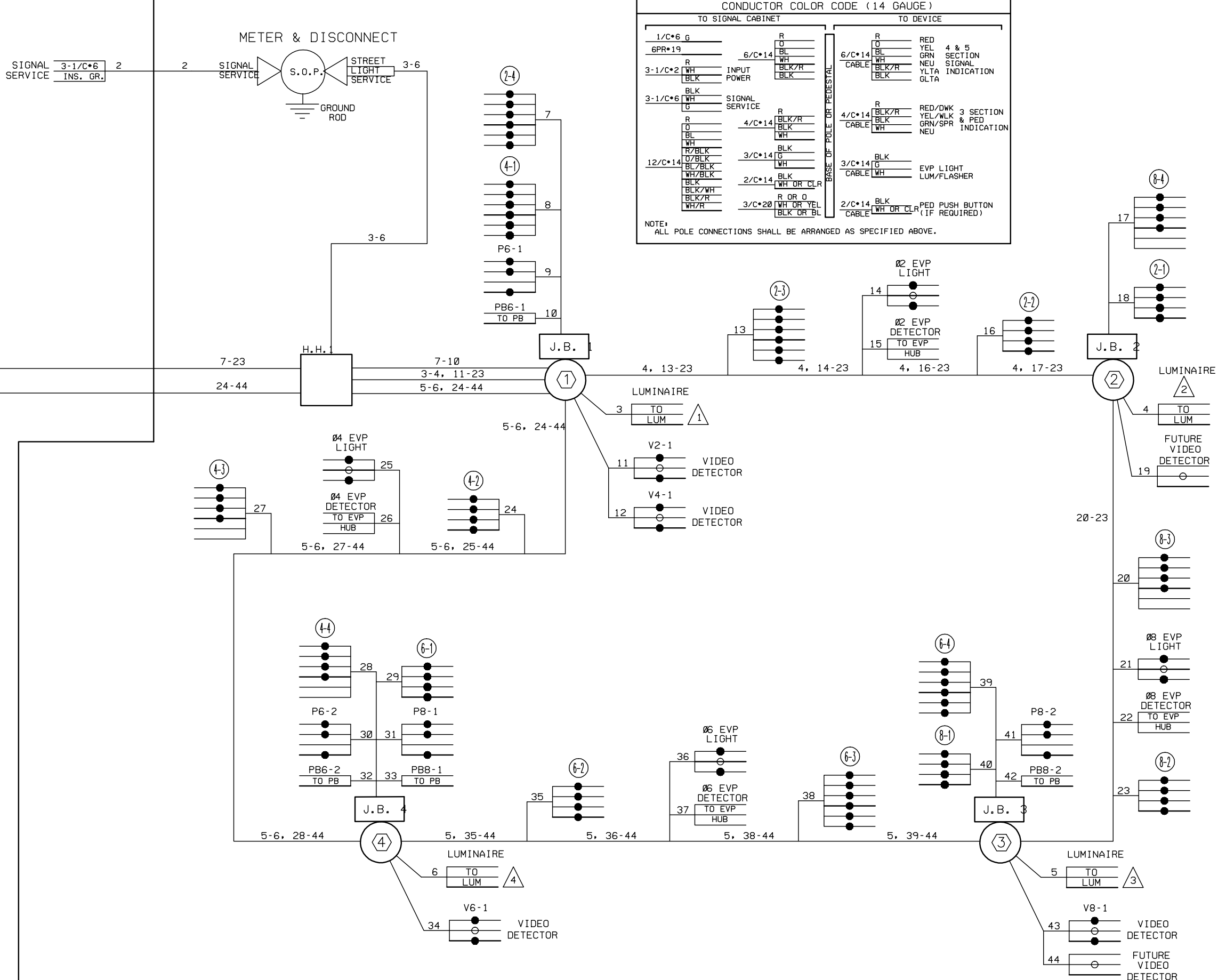
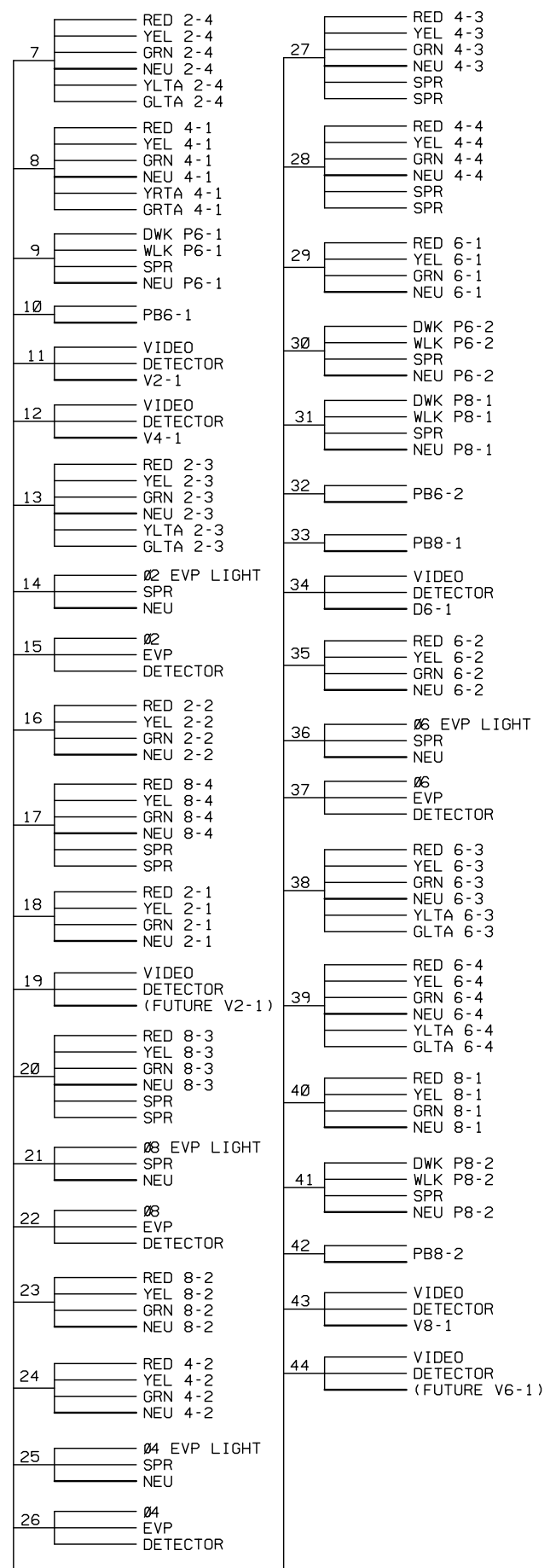


PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "A"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B (CSAH 25)

FILE NO. RAMSP108790	309
SG29 OF SG52	534



DESIGN TEAM				
DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
NO.	BY	DATE	REVISIONS	

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "A"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B (CSAH 25)

FILE NO. RAMSP108790	310
SG30 OF SG52	534

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5/6/2010

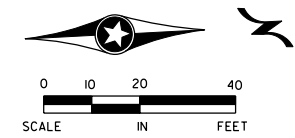
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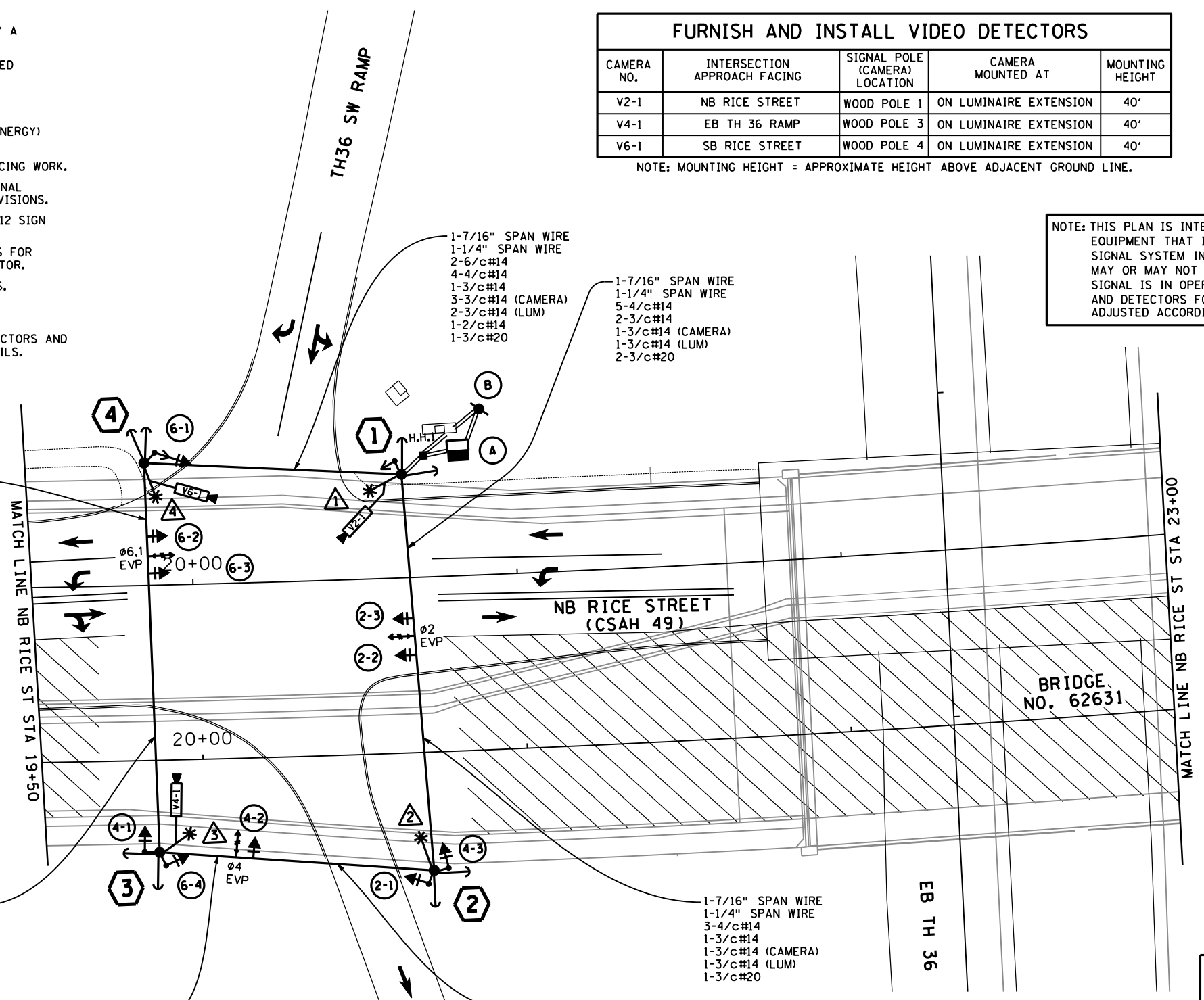
- NOTES:
1. ALL NEW CONDUIT SHALL BE NMC SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY A 1-1/2" #6 GREEN INSULATED GROUNDING CONDUCTOR.
 2. SEE THE SPECIAL PROVISIONS FOR COUNTDOWN TIMER PEDESTRIAN INDICATIONS, LED VEHICLE INDICATIONS, AND EMERGENCY VEHICLE PREEMPTION (EVP).
 3. THE EXACT LOCATION OF HANDHOLES, WOOD POLES AND TEMPORARY CABINET BASE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 4. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.
 5. THE CONTRACTOR SHALL LOCATE & VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
 6. CONTRACTOR SHALL REUSE INPLACE CONTROLLER AND CABINET FROM INPLACE SIGNAL SYSTEM AS PART OF TEMPORARY SIGNAL SYSTEM OPERATIONS. SEE SPECIAL PROVISIONS.
 7. THE CONTRACTOR SHALL FURNISH AND INSTALL A SPAN WIRE MOUNTED TYPE R10-12 SIGN ADJACENT TO HEAD 6-3 (RELOCATE AS APPLICABLE DURING EACH STAGE).
 8. SEE THE CONSTRUCTION PLAN FOR STAGING, MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR.
 9. COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES, EVP DETECTORS AND INDICATOR LIGHTS, TO COORDINATE STAGING SHIFTS.
 10. SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
 11. CONTRACTOR SHALL FURNISH & INSTALL THREE (3) SPAN WIRE MOUNTED EVP DETECTORS AND INDICATOR LIGHTS AS SHOWN ON THE PLANS. SEE SPECIAL PROVISIONS AND DETAILS.
 12. (CAMERA) DENOTES MATERIALS AND ELECTRICAL EQUIPMENT TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR VIDEO DETECTION SYSTEM. SEE SPECIAL PROVISIONS AND DETAILS.
 13. EVP SYSTEM INSTALLATION, VIDEO DETECTION SYSTEM INSTALLATION, AND REMOVAL OF TEMPORARY SIGNAL SYSTEM SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM "B".

FURNISH AND INSTALL VIDEO DETECTORS				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2-1	NB RICE STREET	WOOD POLE 1	ON LUMINAIRE EXTENSION	40'
V4-1	EB TH 36 RAMP	WOOD POLE 3	ON LUMINAIRE EXTENSION	40'
V6-1	SB RICE STREET	WOOD POLE 4	ON LUMINAIRE EXTENSION	40'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.



NOTE: THIS PLAN IS INTENDED TO SHOW WOOD POLE LOCATION AND EQUIPMENT THAT IS TO BE USED AS PART OF THE TEMPORARY SIGNAL SYSTEM INSTALLATION. SPECIFIC ROADWAY ELEMENTS MAY OR MAY NOT BE INPLACE AT THE TIME THE TEMPORARY SIGNAL IS IN OPERATION. THE LOCATION OF OVERHEAD SIGNALS AND DETECTORS FOR EACH STAGE OR PHASE WILL NEED TO BE ADJUSTED ACCORDINGLY.



- (A) TEMPORARY SIGNAL CABINET BASE**
 INPLACE CONTROLLER & CABINET (SALVAGE FROM INPLACE SIGNAL SYSTEM AND INSTALL ON TEMPORARY CABINET BASE)
 VIDEO PROCESSOR, INTERFACE PANEL, AND MONITOR (CAMERA) (FURNISH AND INSTALL WITHIN INPLACE CONTROLLER CABINET)
 CONTROLLER CABINET TO H.H.1:
 4" CONDUIT 4" CONDUIT
 2-6/c#14 6-4/c#14
 4-4/c#14 2-3/c#14
 1-3/c#14 2-3/c#14 (CAMERA)
 3-3/c#14 (CAMERA) 1-2/c#14
 1-2/c#14 2-3/c#20
 1-3/c#20

- 1-7/16" SPAN WIRE
 1-1/4" SPAN WIRE
 2-6/c#14
 2-4/c#14
 1-3/c#14
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)
 1-3/c#20

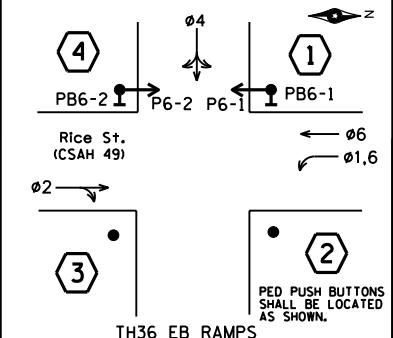
- 1-7/16" SPAN WIRE
 1-1/4" SPAN WIRE
 1-6/c#14
 1-4/c#14
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

- 1-7/16" SPAN WIRE
 1-1/4" SPAN WIRE
 3-4/c#14
 1-3/c#14
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)
 1-3/c#20

- 1-7/16" SPAN WIRE
 1-1/4" SPAN WIRE
 (NO CABLES)

- 1-7/16" SPAN WIRE
 1-1/4" SPAN WIRE
 1-4/c#14
 1-3/c#14
 1-3/c#20

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

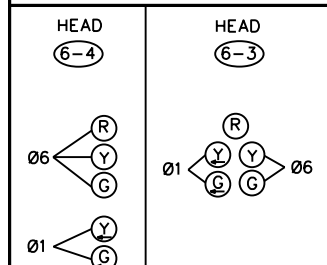


- SIGNAL SYSTEM OPERATIONS:**
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
 - NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASE 1 BEING A PROTECTED/ PERMISSIVE LEFT TURN PHASE.
 - VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

- (B) 25' WOOD POLE-CLASS 2**
 SERVICE EQUIPMENT AND DISCONNECT- WOOD POLE MOUNTED
 2" CONDUIT RISER AND WEATHERHEAD ABOVE METER (SERVICE BY XCEL ENERGY) DISCONNECT TO H.H.1:
 2" CONDUIT
 4-3/c#14 (LUM)
 DISCONNECT TO CONTROLLER CABINET:
 2" CONDUIT
 3-1/c#6

SEE NEXT SHEET FOR POLE NOTES.

SIGNAL HEAD PHASING



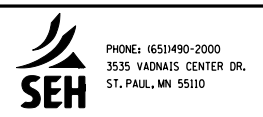
LED SIGNAL FACES

SIGNAL FACES	R	Y	G	R	Y	G
2-1, 2-2, 2-3	●	●	●			
4-1, 4-2, 4-3	●	●	●			
6-1, 6-2	●	●	●			
6-3, 6-4	●	●	●	←	←	

-ALL SIGNAL INDICATIONS SHALL BE 12" LED.
 -ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELD.
 -ALL SIGNAL INDICATIONS SHALL BE FABRICATED WITH POLYCARBONATE MATERIALS.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MTT				
DESIGNER: JMG				
CHECKED BY: JMG				

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.
 Certified By: JOHN M. GRAY, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "B"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT T.H.36 SOUTH RAMPS

FILE NO. RAMSP108790	311
SG31 OF SG52	534

① 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 1-TYPE 30A-WOOD POLE MOUNTED AT 90°
 1-PEDESTRIAN PUSH BUTTON, R10-4b SIGN,
 AND RISER
 1-R9-3a SIGN PANEL-FACING POLE 2
 1-VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 NORTHBOUND TRAFFIC) (V2-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2-4" CONDUIT RISER AND WEATHERHEAD FROM H.H.1 TO SPAN WIRES WITH:
 2-6/c#14 5-4/c#14
 4-4/c#14 2-3/c#14
 1-3/c#14 2-3/c#14 (CAMERA)
 3-3/c#14 (CAMERA) 2-3/c#14 (LUM)
 2-3/c#14 (LUM) 2-3/c#20
 1-2/c#14
 1-3/c#20
 2" CONDUIT BELOW JUNCTION BOX TO H.H.1 WITH:
 1-4/c#14
 1-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

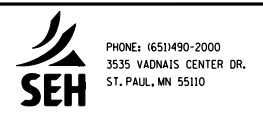
② 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10A-WOOD POLE MOUNTED AT 90° AND 180°
 2-R9-3a SIGN PANELS-FACING POLES 1 AND 3
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR NORTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 2-4/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

③ 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10A-WOOD POLE MOUNTED AT 90° AND 180°
 2-R9-3a SIGN PANELS-FACING POLES 2 AND 4
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 EASTBOUND TRAFFIC) (V4-1) (CAMERA)
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR SOUTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 1-4/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

④ 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 1-TYPE 10B-WOOD POLE MOUNTED AT 180°
 1-PEDESTRIAN PUSH BUTTON, R10-4b SIGN,
 AND RISER
 1-R9-3a SIGN PANEL-FACING POLE 3
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 SOUTHBOUND TRAFFIC) (V6-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 2-4/c#14
 1-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

DESIGN TEAM		NO.	BY	DATE	REVISIONS
DRAWN BY:	<u>MTT</u>				
DESIGNER:	<u>JMG</u>				
CHECKED BY:	<u>JMG</u>				

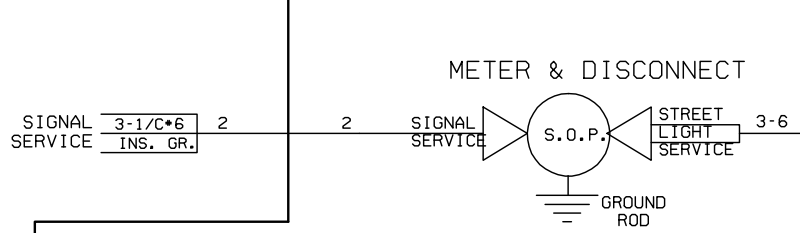
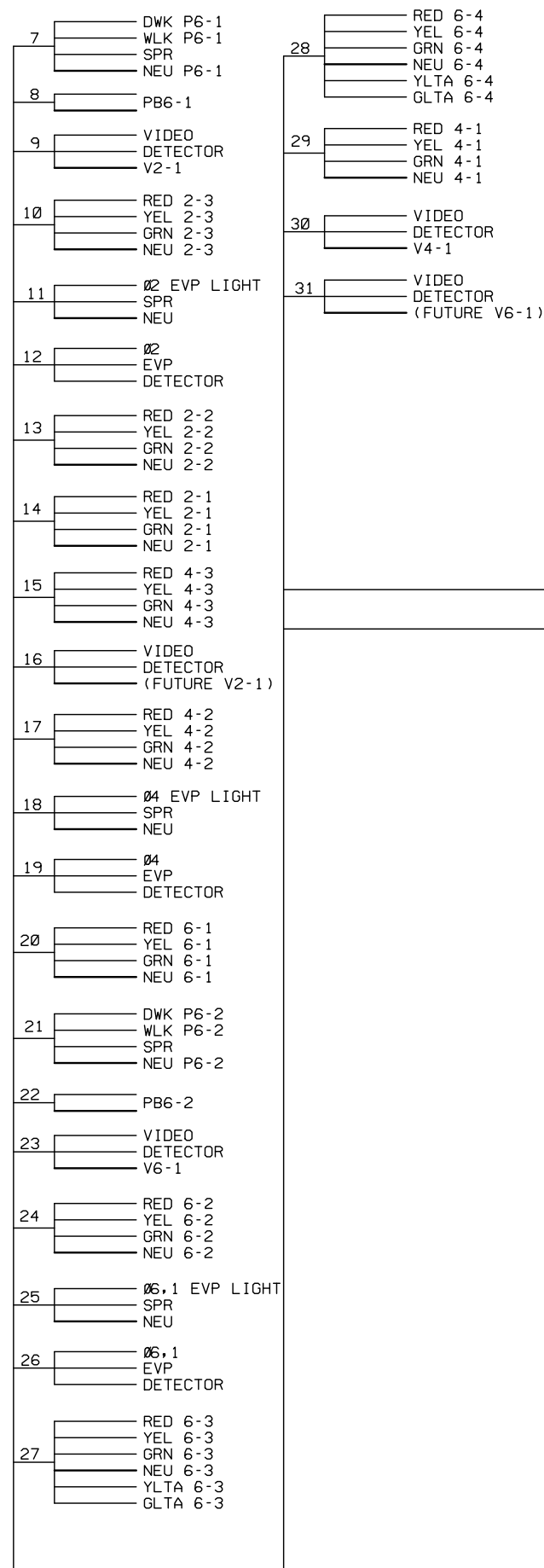
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: JOHN M. GRAY, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "B"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT T.H.36 SOUTH RAMPS

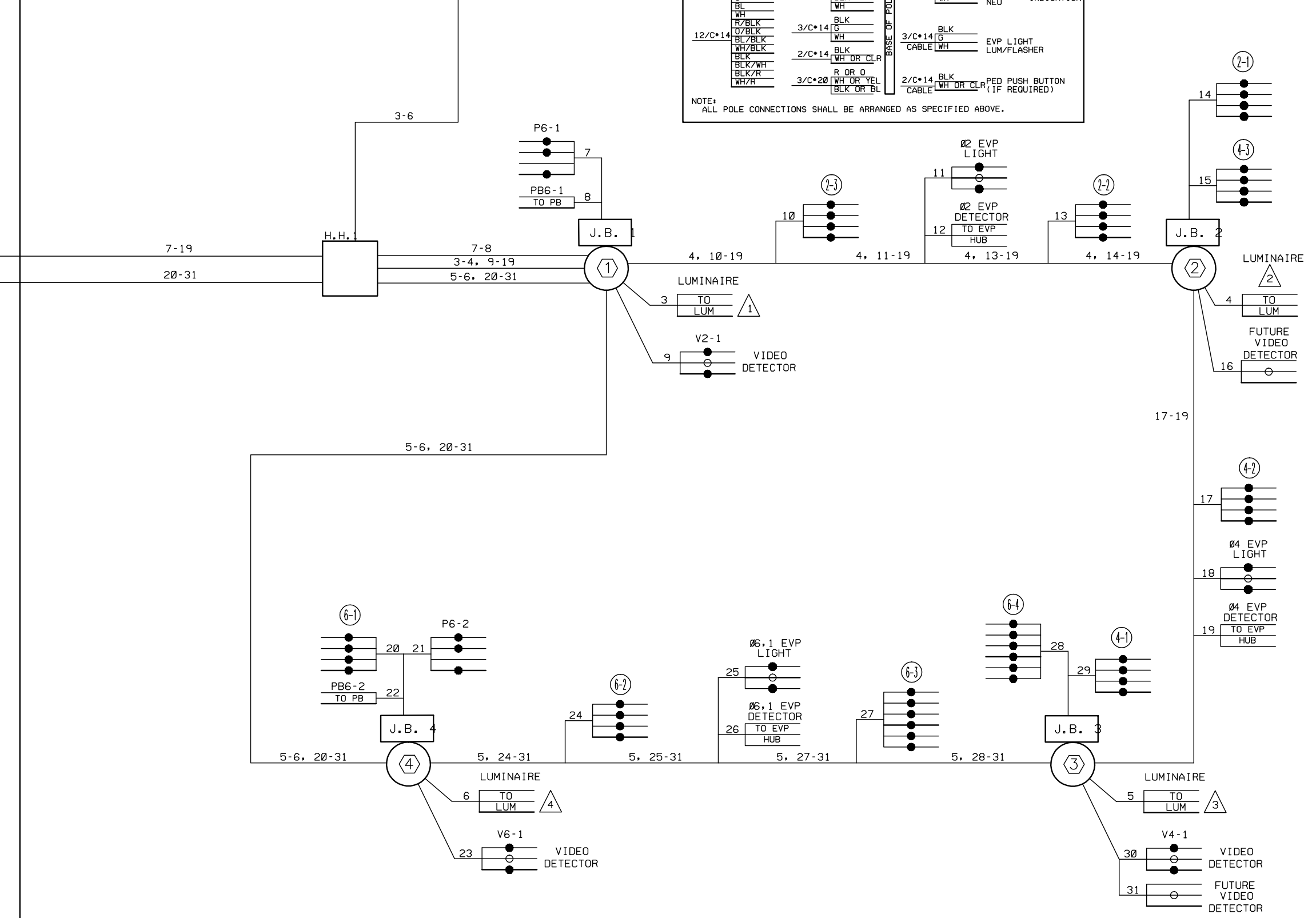
FILE NO.	312
RAMSP108790	
SG32	
OF SG52	534



CONDUCTOR COLOR CODE (14 GAUGE)

TO SIGNAL CABINET		TO DEVICE	
1/C*6 G	R	R	RED 4 & 5 SECTION
6PR*19	W	Y	YEL SIGNAL
	BLK	BLK	YLTA INDICATION
3-1/C*2	WH	BLK/R	RED/DWK 3 SECTION
	BLK	BLK	YEL/WLK & PED INDICATION
		WH	GRN/SPR NEU
3-1/C*6	BLK	BLK	EVP LIGHT LUM/FLASHER
	WH	WH	
	G	WH	
	R	BLK/R	
	O	BLK	
	BL	WH	
	WH	BLK	
	R/BLK	G	
	O/BLK	WH	
	BL/BLK	BLK	
	WH/BLK	WH OR CLR	
	BLK	R OR O	
	BLK/WH	WH OR YEL	
	BLK/R	BLK OR BL	
	WH/R		

NOTE: ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



DESIGN TEAM				
DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *John M. Gray* Lic. No. 22457
 Printed Name: John M. Gray, PE Date: 03/04/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM 'B'
 FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT TH36 SOUTH RAMPS

FILE NO. RAMSP108790	313
SG33 OF SG52	534

3/30/12 PM

5/6/2010

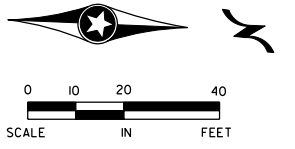
kerickson

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Signal System C

- NOTES:
1. ALL NEW CONDUIT SHALL BE NMC SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY A 1-1/c#6 GREEN INSULATED GROUNDING CONDUCTOR.
 2. SEE THE SPECIAL PROVISIONS FOR COUNTDOWN TIMER PEDESTRIAN INDICATIONS, LED VEHICLE INDICATIONS, AND EMERGENCY VEHICLE PREEMPTION (EVP).
 3. THE EXACT LOCATION OF HANDHOLES, WOOD POLES AND TEMPORARY CABINET BASE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 4. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.
 5. THE CONTRACTOR SHALL LOCATE & VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
 6. CONTRACTOR SHALL REUSE INPLACE CONTROLLER AND CABINET FROM INPLACE SIGNAL SYSTEM AS PART OF TEMPORARY SIGNAL SYSTEM OPERATIONS. SEE SPECIAL PROVISIONS.
 7. THE CONTRACTOR SHALL FURNISH AND INSTALL A SPAN WIRE MOUNTED TYPE R10-12 SIGN ADJACENT TO HEAD 2-3 (RELOCATE AS APPLICABLE DURING EACH STAGE).
 8. SEE THE CONSTRUCTION PLAN FOR STAGING, MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR.
 9. COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES, EVP DETECTORS AND INDICATOR LIGHTS, TO COORDINATE STAGING SHIFTS.
 10. SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
 11. CONTRACTOR SHALL FURNISH & INSTALL THREE (3) SPAN WIRE MOUNTED EVP DETECTORS AND INDICATOR LIGHTS AS SHOWN ON THE PLANS. SEE SPECIAL PROVISIONS AND DETAILS.
 12. (CAMERA) DENOTES MATERIALS AND ELECTRICAL EQUIPMENT TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR VIDEO DETECTION SYSTEM. SEE SPECIAL PROVISIONS AND DETAILS.
 13. EVP SYSTEM INSTALLATION, VIDEO DETECTION SYSTEM INSTALLATION, AND REMOVAL OF TEMPORARY SIGNAL SYSTEM SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM "C".

FURNISH AND INSTALL VIDEO DETECTORS				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2-1	NB RICE STREET	WOOD POLE 4	ON LUMINAIRE EXTENSION	40'
V4-1	WB TH 36 RAMP	WOOD POLE 4	ON LUMINAIRE EXTENSION	40'
V6-1	SB RICE STREET	WOOD POLE 3	ON LUMINAIRE EXTENSION	40'

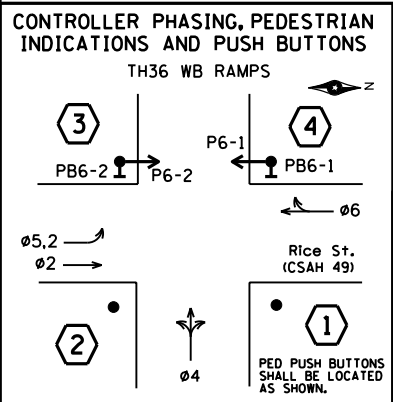
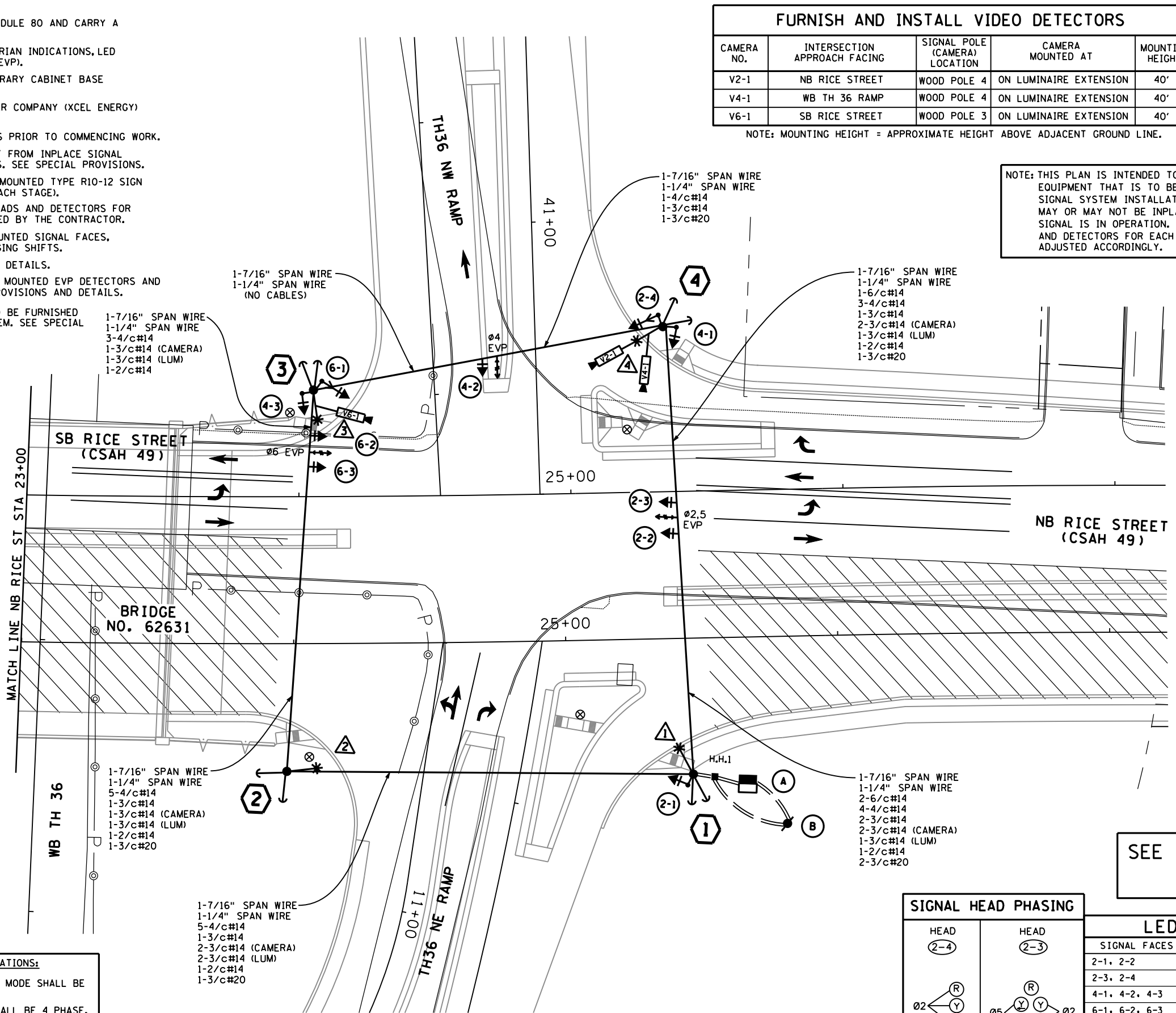
NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.



NOTE: THIS PLAN IS INTENDED TO SHOW WOOD POLE LOCATION AND EQUIPMENT THAT IS TO BE USED AS PART OF THE TEMPORARY SIGNAL SYSTEM INSTALLATION. SPECIFIC ROADWAY ELEMENTS MAY OR MAY NOT BE IN PLACE AT THE TIME THE TEMPORARY SIGNAL IS IN OPERATION. THE LOCATION OF OVERHEAD SIGNALS AND DETECTORS FOR EACH STAGE OR PHASE WILL NEED TO BE ADJUSTED ACCORDINGLY.

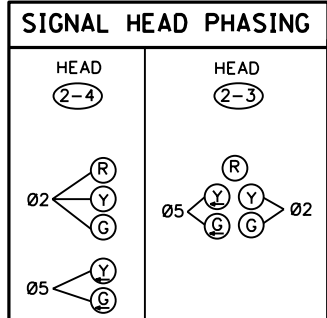
- (A) TEMPORARY SIGNAL CABINET BASE**
 INPLACE CONTROLLER & CABINET (SALVAGE FROM INPLACE SIGNAL SYSTEM AND INSTALL ON TEMPORARY CABINET BASE)
 VIDEO PROCESSOR, INTERFACE PANEL, AND MONITOR (CAMERA) (FURNISH AND INSTALL WITHIN INPLACE CONTROLLER CABINET)
 CONTROLLER CABINET TO H.H.1:
 4" CONDUIT 4" CONDUIT
 5-4/c#14 2-6/c#14
 1-3/c#14 5-4/c#14
 2-3/c#14 (CAMERA) 2-3/c#14
 1-2/c#14 3-3/c#14 (CAMERA)
 1-3/c#20 1-2/c#14
 2-3/c#20

- (B) 25' WOOD POLE-CLASS 2**
 SERVICE EQUIPMENT AND DISCONNECT- WOOD POLE MOUNTED
 2" CONDUIT RISER AND WEATHERHEAD ABOVE METER (SERVICE BY XCEL ENERGY)
 DISCONNECT TO H.H.1:
 2" CONDUIT
 4-3/c#14 (LUM)
 DISCONNECT TO CONTROLLER CABINET:
 2" CONDUIT
 3-1/c#6



- SIGNAL SYSTEM OPERATIONS:**
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
 - NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASE 5 BEING A PROTECTED/ PERMISSIVE LEFT TURN PHASE.
 - VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SEE NEXT SHEET FOR POLE NOTES.



LED SIGNAL FACES

SIGNAL FACES	R	Y	G	R	Y	G
2-1, 2-2	●	●	●			
2-3, 2-4	●	●	●	←	←	
4-1, 4-2, 4-3	●	●	●			
6-1, 6-2, 6-3	●	●	●			

-ALL SIGNAL INDICATIONS SHALL BE 12" LED.
 -ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELD.
 -ALL SIGNAL INDICATIONS SHALL BE FABRICATED WITH POLYCARBONATE MATERIALS.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MTT				
DESIGNER: JMG				
CHECKED BY: JMG				

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.
 Certified By: JOHN M. GRAY, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "C"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT T.H.36 NORTH RAMPS

FILE NO. RAMSP108790	314
SG34 OF SG52	534

1 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 1-TYPE 10A-WOOD POLE MOUNTED AT 180°
 2-R9-3a SIGN PANELS-FACING POLES 2 AND 4
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR NORTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2-4" CONDUIT RISER AND WEATHERHEAD FROM H.H.1 TO SPAN WIRES WITH:
 2-6/c#14 5-4/c#14
 4-4/c#14 1-3/c#14
 2-3/c#14 2-3/c#14 (CAMERA)
 3-3/c#14 (CAMERA) 2-3/c#14 (LUM)
 2-3/c#14 (LUM) 1-2/c#14
 1-2/c#14 1-3/c#20
 2-3/c#20
 2" CONDUIT BELOW JUNCTION BOX TO H.H.1 WITH:
 1-4/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

2 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-R9-3a SIGN PANELS-FACING POLES 1 AND 3
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR SOUTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES
 (no cables)
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

3 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 1-TYPE 10A-WOOD POLE MOUNTED AT 90°
 1-TYPE 10B-WOOD POLE MOUNTED AT 180°
 1-PEDESTRIAN PUSH BUTTON, R10-4b SIGN,
 AND RISER
 1-R9-3a SIGN PANEL-FACING POLE 2
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 SOUTHBOUND TRAFFIC) (V6-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 3-4/c#14
 1-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

4 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 1-TYPE 10A-WOOD POLE MOUNTED AT 180°
 1-TYPE 10B-WOOD POLE MOUNTED AT 90°
 1-PEDESTRIAN PUSH BUTTON, R10-4b SIGN,
 AND RISER
 1-R9-3a SIGN PANEL-FACING POLE 1
 2-VIDEO CAMERAS-LUMINAIRE MAST ARM MOUNTED (FACING
 NORTHBOUND AND WESTBOUND TRAFFIC) (V2-1 AND V4-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 2-4/c#14
 1-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

DESIGN TEAM				
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>JMG</u>				
CHECKED BY: <u>JMG</u>				
NO.	BY	DATE	REVISIONS	

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
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 Certified By: _____ Lic. No. 22457
 Licensed Professional Engineer
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010

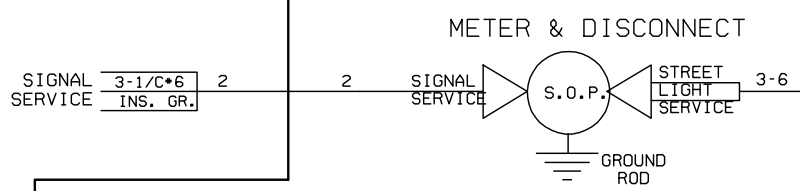


RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "C"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT T.H.36 NORTH RAMPS

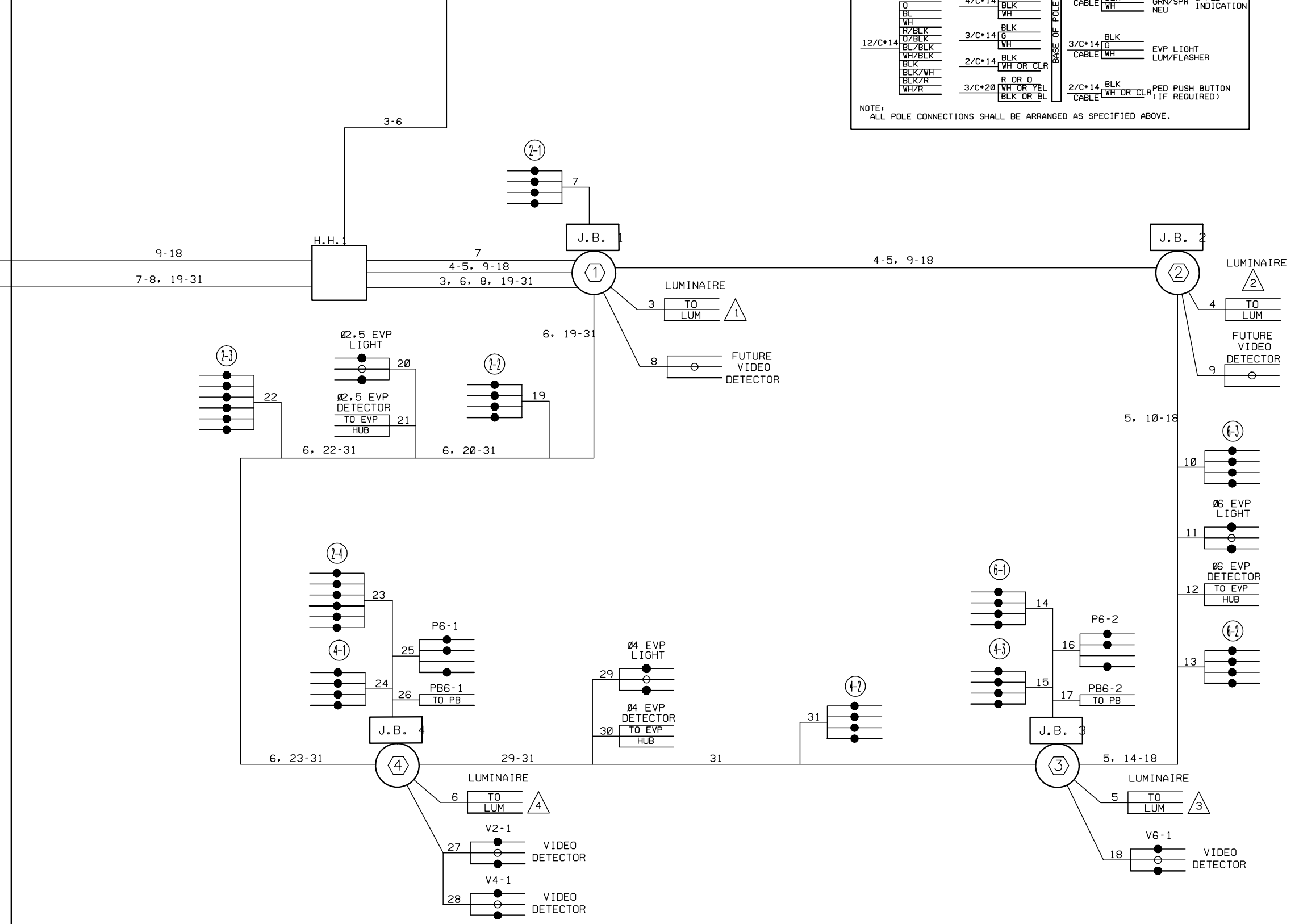
FILE NO. RAMSP108790	315
SG35 OF SG52	534

- 7 RED 2-1
YEL 2-1
GRN 2-1
NEU 2-1
- 8 VIDEO DETECTOR (FUTURE V2-1)
- 9 VIDEO DETECTOR (FUTURE V6-1)
- 10 RED 6-3
YEL 6-3
GRN 6-3
NEU 6-3
- 11 Ø6 EVP LIGHT SPR
NEU
- 12 Ø6 EVP DETECTOR
- 13 RED 6-2
YEL 6-2
GRN 6-2
NEU 6-2
- 14 RED 6-1
YEL 6-1
GRN 6-1
NEU 6-1
- 15 RED 4-3
YEL 4-3
GRN 4-3
NEU 4-3
- 16 DWK P6-2
WLK P6-2
SPR
NEU P6-2
- 17 PB6-2
- 18 VIDEO DETECTOR V6-1
- 19 RED 2-2
YEL 2-2
GRN 2-2
NEU 2-2
- 20 Ø2.5 EVP LIGHT SPR
NEU
- 21 Ø2.5 EVP DETECTOR
- 22 RED 2-3
YEL 2-3
GRN 2-3
NEU 2-3
YLTA 2-3
GLTA 2-3
- 23 RED 2-4
YEL 2-4
GRN 2-4
NEU 2-4
YLTA 2-4
GLTA 2-4
- 24 RED 4-1
YEL 4-1
GRN 4-1
NEU 4-1
- 25 DWK P6-1
WLK P6-1
SPR
NEU P6-1
- 26 PB6-1
- 27 VIDEO DETECTOR V2-1
- 28 VIDEO DETECTOR V4-1
- 29 Ø4 EVP LIGHT SPR
NEU
- 30 Ø4 EVP DETECTOR
- 31 RED 4-2
YEL 4-2
GRN 4-2
NEU 4-2



CONDUCTOR COLOR CODE (14 GAUGE)			
TO SIGNAL CABINET		TO DEVICE	
1/C*6 G	R	R	RED
6PR*19	0	BL	YEL 4 & 5
R	6/C*14	BL	GRN SECTION
3-1/C*2	WH	BLK/R	NEU SIGNAL
BLK	BLK	BLK	YLTA INDICATION
			GLTA
3-1/C*6	BLK	BLK	RED/DWK 3 SECTION
			YEL/WLK & PED
			GRN/SPR INDICATION
			NEU
R	4/C*14	BLK/R	Ø6 EVP LIGHT
0	BLK/R	BLK	LUM/FLASHER
BL	WH	WH	
WH	BLK		
R/BLK	3/C*14	G	3/C*14 G
O/BLK	WH		
BL/BLK			
WH/BLK	2/C*14	BLK	2/C*14 BLK
BLK	WH OR CLR		
BLK/WH	R OR 0		
BLK/R	3/C*20	WH OR YEL	2/C*14 WH OR CLR
WH/R	BLK OR BL		

NOTE: ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



DESIGN TEAM			
DRAWN BY: JMG			
DESIGNER: JMG			
CHECKED BY: JMG			
NO.	BY	DATE	REVISIONS

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.

Certified By: *John M. Gray* Lic. No. 22457
 Printed Name: John M. Gray, PE Date: 03/04/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "C"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT TH 36 NORTH RAMPS

FILE NO. RAMSP108790	316
SG36 OF S652	534

3:38:46 PM

5/6/2010

kerickson

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Signal System D

NOTES:

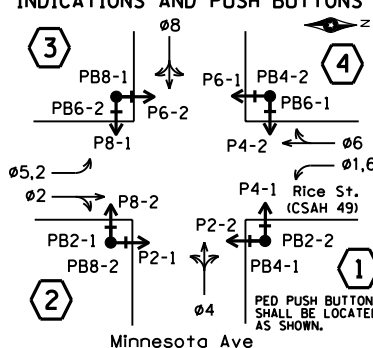
- ALL NEW CONDUIT SHALL BE NMC SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY A 1-1/2" #6 INSULATED GROUNDING CONDUCTOR AS SHOWN ON THE PLANS.
- SEE THE SPECIAL PROVISIONS FOR COUNTDOWN TIMER PEDESTRIAN INDICATIONS, LED VEHICLE INDICATIONS, AND EMERGENCY VEHICLE PREEMPTION (EVP).
- THE EXACT LOCATION OF HANDHOLES, WOOD POLES AND TEMPORARY CABINET BASE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.
- THE CONTRACTOR SHALL LOCATE & VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
- CONTRACTOR SHALL REUSE INPLACE CONTROLLER AND CABINET FROM INPLACE SIGNAL SYSTEM AS PART OF TEMPORARY SIGNAL SYSTEM OPERATIONS. SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL SPAN WIRE MOUNTED TYPE R10-12 SIGNS ADJACENT TO HEADS 2-3 AND 6-3 (RELOCATE AS APPLICABLE DURING EACH STAGE).
- SEE THE CONSTRUCTION PLAN FOR STAGING, MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR.
- COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES, EVP DETECTORS AND INDICATOR LIGHTS, TO COORDINATE STAGING SIGNALS.
- SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
- CONTRACTOR SHALL FURNISH & INSTALL FOUR (4) SPAN WIRE MOUNTED EVP DETECTORS AND INDICATOR LIGHTS AS SHOWN ON THE PLANS. SEE SPECIAL PROVISIONS AND DETAILS.
- (CAMERA) DENOTES MATERIALS AND ELECTRICAL EQUIPMENT TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR VIDEO DETECTION SYSTEM. SEE SPECIAL PROVISIONS AND DETAILS.
- EVP SYSTEM INSTALLATION, VIDEO DETECTION SYSTEM INSTALLATION, AND REMOVAL OF TEMPORARY SIGNAL SYSTEM SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM "D".

(A) TEMPORARY SIGNAL CABINET BASE
 INPLACE CONTROLLER & CABINET (SALVAGE FROM INPLACE SIGNAL SYSTEM AND INSTALL ON TEMPORARY CABINET BASE)
 VIDEO PROCESSOR, INTERFACE PANEL, AND MONITOR (CAMERA) (FURNISH AND INSTALL WITHIN INPLACE CONTROLLER CABINET)

- CONTROLLER CABINET TO H.H.1:
- | | |
|-------------------|-------------------|
| 4" CONDUIT | 4" CONDUIT |
| 4-6/c#14 | 4-6/c#14 |
| 7-4/c#14 | 7-4/c#14 |
| 2-3/c#14 | 2-3/c#14 |
| 3-3/c#14 (CAMERA) | 3-3/c#14 (CAMERA) |
| 4-2/c#14 | 4-2/c#14 |
| 2-3/c#20 | 2-3/c#20 |

(B) 25' WOOD POLE-CLASS 2
 SERVICE EQUIPMENT AND DISCONNECT- WOOD POLE MOUNTED
 2" CONDUIT RISER AND WEATHERHEAD ABOVE METER (SERVICE BY XCEL ENERGY)
 DISCONNECT TO H.H.1:
 2" CONDUIT
 4-3/c#14 (LUM)
 DISCONNECT TO CONTROLLER CABINET:
 2" CONDUIT
 3-1/c#6

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



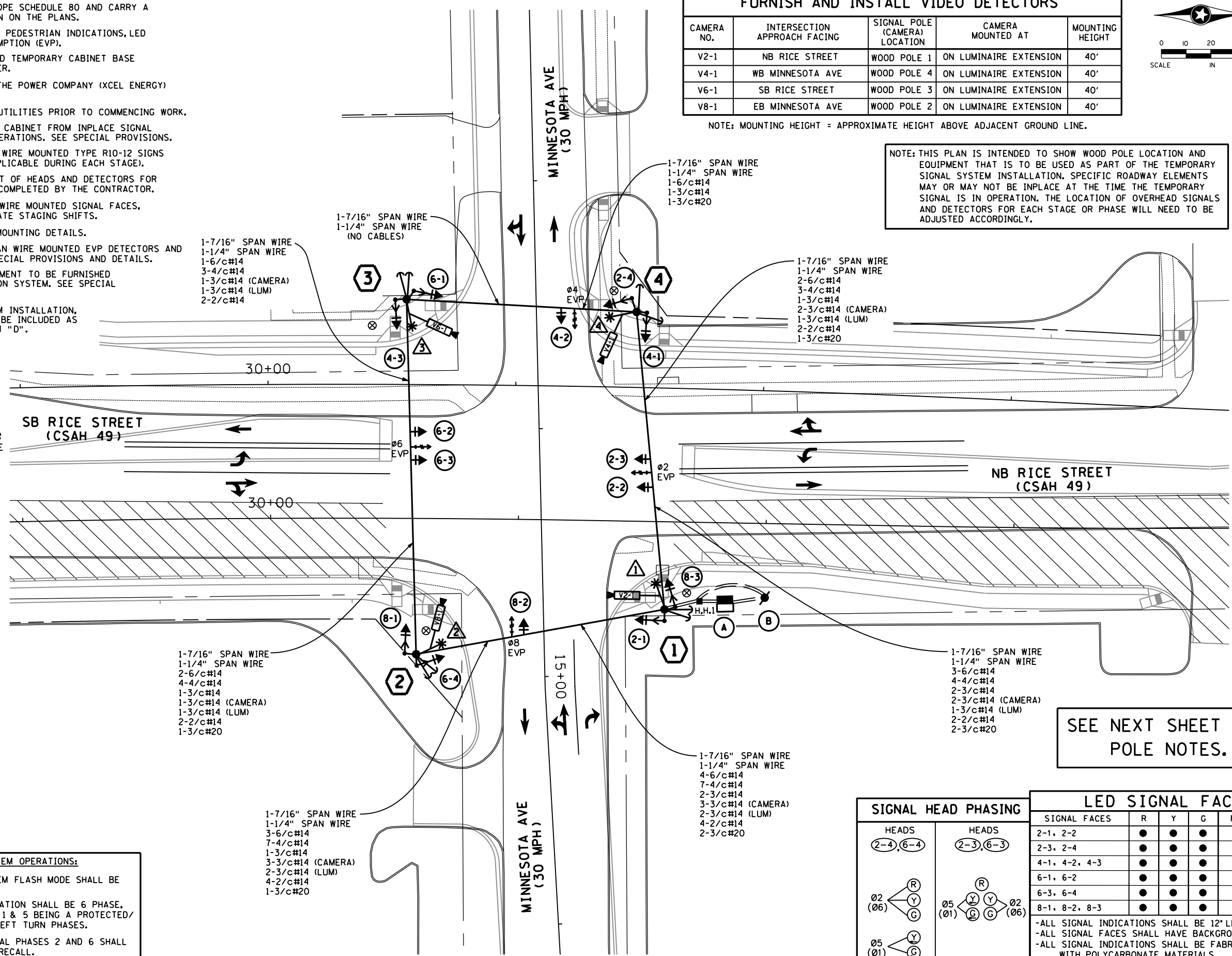
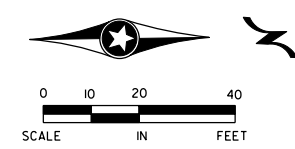
SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING A PROTECTED/ PERMISSIVE LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

FURNISH AND INSTALL VIDEO DETECTORS				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2-1	NB RICE STREET	WOOD POLE 1	ON LUMINAIRE EXTENSION	40'
V4-1	WB MINNESOTA AVE	WOOD POLE 4	ON LUMINAIRE EXTENSION	40'
V6-1	SB RICE STREET	WOOD POLE 3	ON LUMINAIRE EXTENSION	40'
V8-1	EB MINNESOTA AVE	WOOD POLE 2	ON LUMINAIRE EXTENSION	40'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

NOTE: THIS PLAN IS INTENDED TO SHOW WOOD POLE LOCATION AND EQUIPMENT THAT IS TO BE USED AS PART OF THE TEMPORARY SIGNAL SYSTEM INSTALLATION. SPECIFIC ROADWAY ELEMENTS MAY OR MAY NOT BE INPLACE AT THE TIME THE TEMPORARY SIGNAL IS IN OPERATION. THE LOCATION OF OVERHEAD SIGNALS AND DETECTORS FOR EACH STAGE OR PHASE WILL NEED TO BE ADJUSTED ACCORDINGLY.



SEE NEXT SHEET FOR POLE NOTES.

SIGNAL HEAD PHASING	
HEADS (2-4, 6-4)	HEADS (2-3, 6-3)

LED SIGNAL FACES						
SIGNAL FACES	R	Y	G	R	Y	G
2-1, 2-2	●	●	●			
2-3, 2-4	●	●	●	←	←	
4-1, 4-2, 4-3	●	●	●			
6-1, 6-2	●	●	●			
6-3, 6-4	●	●	●	←	←	
8-1, 8-2, 8-3	●	●	●			

-ALL SIGNAL INDICATIONS SHALL BE 12" LED.
 -ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELD.
 -ALL SIGNAL INDICATIONS SHALL BE FABRICATED WITH POLYCARBONATE MATERIALS.

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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.
 Certified By: John M. Gray, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "D"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT MINNESOTA AVENUE

FILE NO. RAMSP08790	317
SG37 OF SG52	534

1 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 1-VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 NORTHBOUND TRAFFIC) (V2-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2-4" CONDUIT RISER AND WEATHERHEAD FROM H.H.1 TO SPAN WIRES WITH:
 4-6/c#14 3-6/c#14
 7-4/c#14 4-4/c#14
 2-3/c#14 2-3/c#14
 3-3/c#14 (CAMERA) 3-3/c#14 (CAMERA)
 2-3/c#14 (LUM) 2-3/c#14 (LUM)
 4-2/c#14 2-2/c#14
 2-3/c#20 2-3/c#20
 2" CONDUIT BELOW JUNCTION BOX TO H.H.1 WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

2 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 EASTBOUND TRAFFIC) (V8-1) (CAMERA)
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR SOUTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

3 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 SOUTHBOUND TRAFFIC) (V6-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

4 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 WESTBOUND TRAFFIC) (V4-1) (CAMERA)
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR NORTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>JMG</u>				
CHECKED BY: <u>JMG</u>				

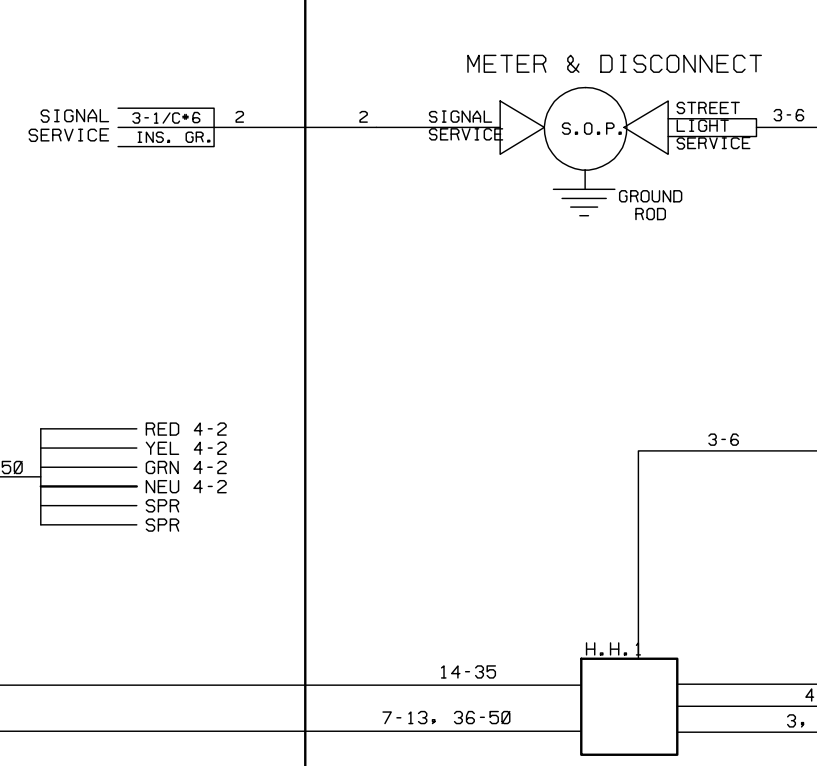
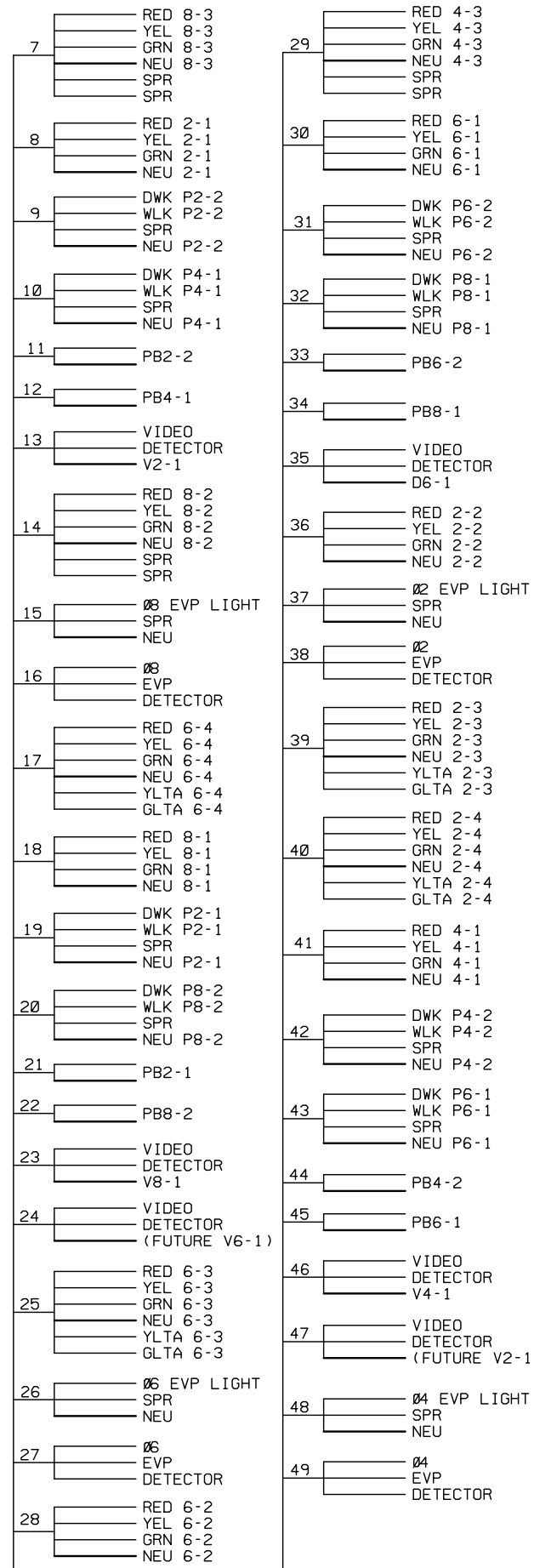
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: JOHN M. GRAY, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

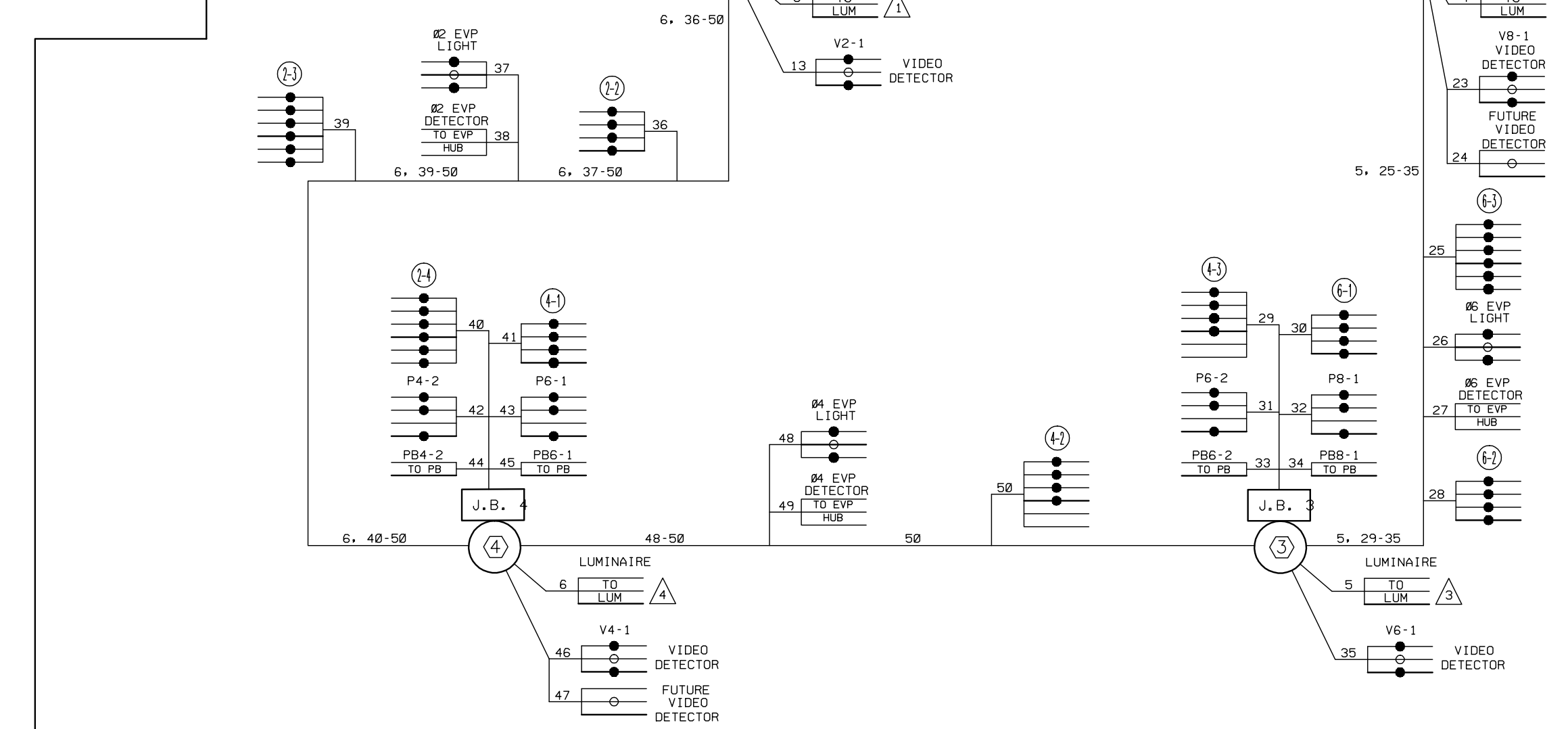
TEMPORARY SIGNAL SYSTEM "D"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT MINNESOTA AVENUE

FILE NO. RAMSP108790	318
SG38 OF SG52	534



CONDUCTOR COLOR CODE (14 GAUGE)			
TO SIGNAL CABINET		TO DEVICE	
1/C*6 G	R	R	RED
6PR*19	O	BL	YEL
	BL	GRN	GRN
	WH	BLK/R	NEU
	BLK	BLK	YLTA
		BLK	GLTA
3-1/C*2	WH	BLK	RED/DWK
	BLK	WH	YEL/WLK & PED
		BLK	GRN/SPR
		WH	NEU
3-1/C*6	G		
	R	4/C*14	BLK/R
	O		BLK
	BL		WH
	WH		BLK
	R/BLK	3/C*14	G
	O/BLK		WH
	BL/BLK		BLK
	WH/BLK	2/C*14	BLK
	BLK		WH OR CLR
	BLK/WH		R OR O
	BLK/R	3/C*20	WH OR YEL
	WH/R		BLK OR BL

NOTE: ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



DESIGN TEAM				
DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
NO.	BY	DATE	REVISIONS	

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.

Certified By: *John M. Gray* Lic. No. 22457
 Printed Name: John M. Gray, PE Date: 03/04/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

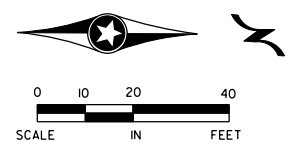
TEMPORARY SIGNAL SYSTEM "D"
FIELD WIRING DIAGRAM
 RICE STREET (CSAH 49)
 AT MINNESOTA AVENUE

FILE NO. RAMSP108790	319
SG39 OF SG52	534

3/3/2010 PM 5/6/2010 kerickson

- NOTES:**
1. ALL NEW CONDUIT SHALL BE NMC SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY A 1-1/2" #6 GREEN INSULATED GROUNDING CONDUCTOR.
 2. SEE THE SPECIAL PROVISIONS FOR COUNTDOWN TIMER PEDESTRIAN INDICATIONS, LED VEHICLE INDICATIONS, AND EMERGENCY VEHICLE PREEMPTION (EVP).
 3. THE EXACT LOCATION OF HANDHOLES, WOOD POLES AND TEMPORARY CABINET BASE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 4. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE POWER COMPANY (XCEL ENERGY) TO ARRANGE FOR THE POWER CONNECTION.
 5. THE CONTRACTOR SHALL LOCATE & VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
 6. CONTRACTOR SHALL REUSE INPLACE CONTROLLER AND CABINET FROM INPLACE SIGNAL SYSTEM AS PART OF TEMPORARY SIGNAL SYSTEM OPERATIONS. SEE SPECIAL PROVISIONS.
 7. THE CONTRACTOR SHALL FURNISH AND INSTALL SPAN WIRE MOUNTED TYPE R10-12 SIGNS ADJACENT TO HEADS 2-3, 4-3, 6-3, AND 8-3 (RELOCATE AS APPLICABLE DURING EACH STAGE).
 8. SEE THE CONSTRUCTION PLAN FOR STAGING, MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR.
 9. COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES, EVP DETECTORS AND INDICATOR LIGHTS, TO COORDINATE STAGING SHIFTS.
 10. SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
 11. CONTRACTOR SHALL FURNISH & INSTALL FOUR (4) SPAN WIRE MOUNTED EVP DETECTORS AND INDICATOR LIGHTS AS SHOWN ON THE PLANS. SEE SPECIAL PROVISIONS AND DETAILS.
 12. (CAMERA) DENOTES MATERIALS AND ELECTRICAL EQUIPMENT TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR VIDEO DETECTION SYSTEM. SEE SPECIAL PROVISIONS AND DETAILS.
 13. EVP SYSTEM INSTALLATION, VIDEO DETECTION SYSTEM INSTALLATION, AND REMOVAL OF TEMPORARY SIGNAL SYSTEM SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM "E".

FURNISH AND INSTALL VIDEO DETECTORS				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2-1	NB RICE STREET	WOOD POLE 3	ON LUMINAIRE EXTENSION	40'
V4-1	WB COUNTY ROAD B2	WOOD POLE 3	ON LUMINAIRE EXTENSION	40'
V6-1	SB RICE STREET	WOOD POLE 2	ON LUMINAIRE EXTENSION	40'
V8-1	EB COUNTY ROAD B2	WOOD POLE 1	ON LUMINAIRE EXTENSION	40'

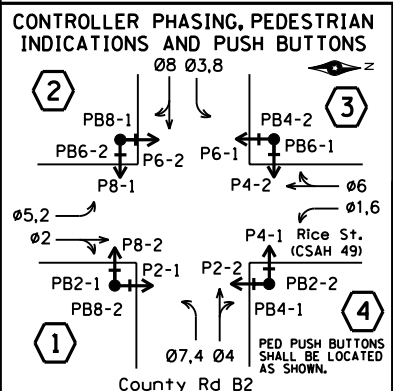
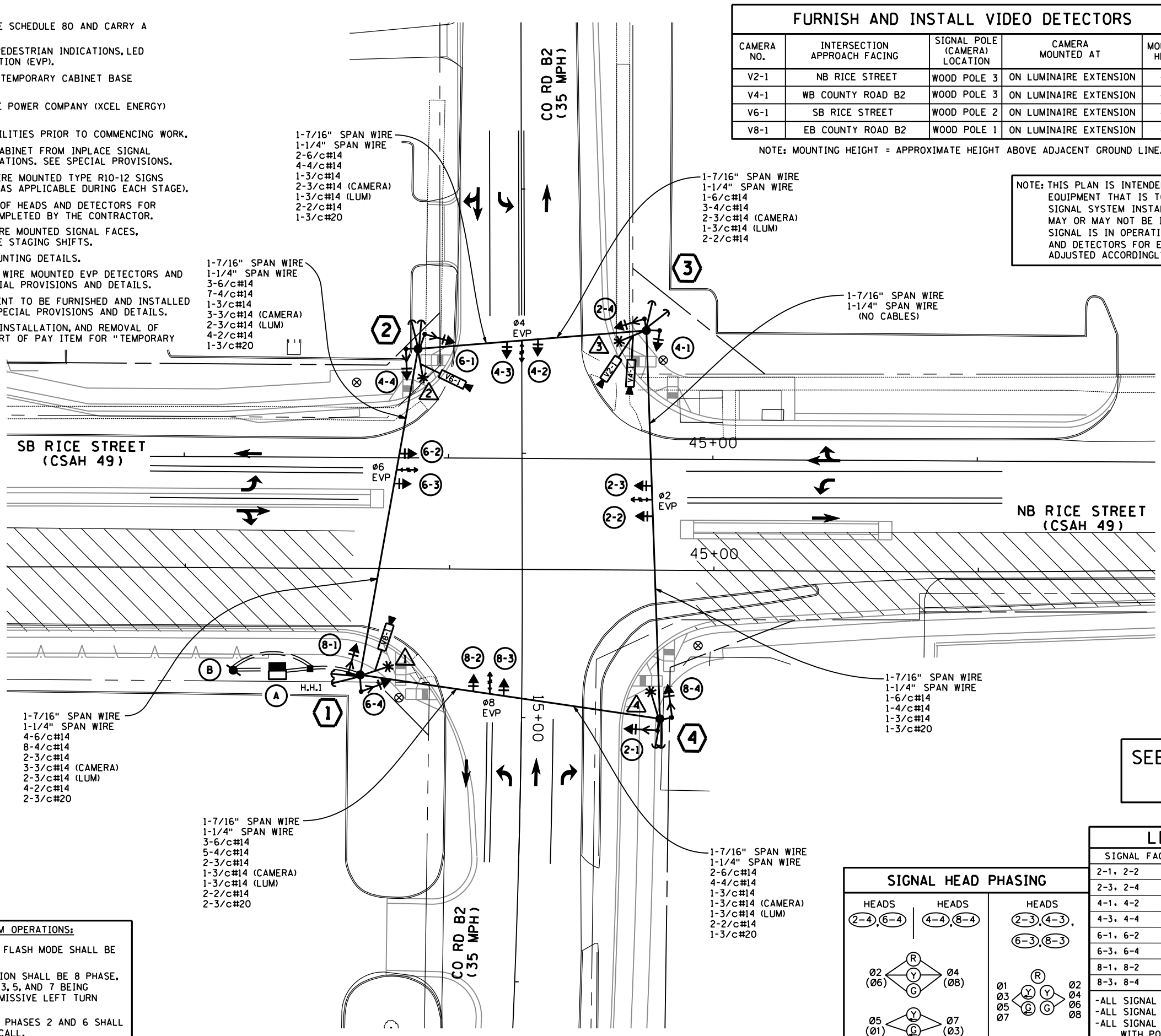


NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

NOTE: THIS PLAN IS INTENDED TO SHOW WOOD POLE LOCATION AND EQUIPMENT THAT IS TO BE USED AS PART OF THE TEMPORARY SIGNAL SYSTEM INSTALLATION. SPECIFIC ROADWAY ELEMENTS MAY OR MAY NOT BE INPLACE AT THE TIME THE TEMPORARY SIGNAL IS IN OPERATION. THE LOCATION OF OVERHEAD SIGNALS AND DETECTORS FOR EACH STAGE OR PHASE WILL NEED TO BE ADJUSTED ACCORDINGLY.

- (A) TEMPORARY SIGNAL CABINET BASE**
 INPLACE CONTROLLER & CABINET (SALVAGE FROM INPLACE SIGNAL SYSTEM AND INSTALL ON TEMPORARY CABINET BASE)
 VIDEO PROCESSOR, INTERFACE PANEL, AND MONITOR (CAMERA) (FURNISH AND INSTALL WITHIN INPLACE CONTROLLER CABINET)
- CONTROLLER CABINET TO H.H.1:
 4" CONDUIT 4" CONDUIT
 4-6/c#14 4-6/c#14
 8-4/c#14 8-4/c#14
 2-3/c#14 2-3/c#14
 3-3/c#14 (CAMERA) 3-3/c#14 (CAMERA)
 4-2/c#14 4-2/c#14
 2-3/c#20 2-3/c#20

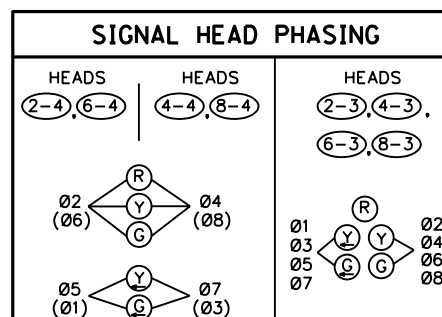
- (B) 25' WOOD POLE-CLASS 2**
 SERVICE EQUIPMENT AND DISCONNECT- WOOD POLE MOUNTED
 2" CONDUIT RISER AND WEATHERHEAD ABOVE METER (SERVICE BY XCEL ENERGY)
 DISCONNECT TO H.H.1:
 2" CONDUIT
 4-3/c#14 (LUM)
 DISCONNECT TO CONTROLLER CABINET:
 2" CONDUIT
 3-1/c#6



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING PROTECTED/PERMISSIVE LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SEE NEXT SHEET FOR POLE NOTES.



LED SIGNAL FACES						
SIGNAL FACES	R	Y	G	R	Y	G
2-1, 2-2	●	●	●			
2-3, 2-4	●	●	●	←	←	
4-1, 4-2	●	●	●			
4-3, 4-4	●	●	●	←	←	
6-1, 6-2	●	●	●			
6-3, 6-4	●	●	●	←	←	
8-1, 8-2	●	●	●			
8-3, 8-4	●	●	●	←	←	

- ALL SIGNAL INDICATIONS SHALL BE 12" LED.
 - ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELD.
 - ALL SIGNAL INDICATIONS SHALL BE FABRICATED WITH POLYCARBONATE MATERIALS.

DESIGN TEAM				
DRAWN BY: MTT				
DESIGNER: JMG				
CHECKED BY: JMG				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: JOHN M. GRAY, PE Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

TEMPORARY SIGNAL SYSTEM "E"
INTERSECTION LAYOUT
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B2

FILE NO.	320
RAMSP08790	
SG40	
OF 5652	534

① 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 1-VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 EASTBOUND TRAFFIC) (V8-1) (CAMERA)
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR SOUTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2-4" CONDUIT RISER AND WEATHERHEAD FROM H.H.1 TO SPAN WIRES WITH:
 4-6/c#14 3-6/c#14
 8-4/c#14 5-4/c#14
 2-3/c#14 2-3/c#14
 3-3/c#14 (CAMERA) 3-3/c#14 (CAMERA)
 2-3/c#14 (LUM) 2-3/c#14 (LUM)
 4-2/c#14 2-2/c#14
 2-3/c#20 2-3/c#20
 2" CONDUIT BELOW JUNCTION BOX TO H.H.1 WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

② 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 VIDEO CAMERA-LUMINAIRE MAST ARM MOUNTED (FACING
 SOUTHBOUND TRAFFIC) (V6-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

③ 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 2-VIDEO CAMERAS-LUMINAIRE MAST ARM MOUNTED (FACING
 NORTHBOUND AND WESTBOUND TRAFFIC) (V2-1 AND V4-1) (CAMERA)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 2-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

④ 55' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUARDS AND ANCHORS
 15' MAST ARM AND LUMINAIRE (250 W HPS) WITH PEC.
 2-TYPE 10B-WOOD POLE MOUNTED AT 90° AND 180°
 2-PEDESTRIAN PUSH BUTTONS, R10-4b SIGNS,
 AND RISERS
 HUB FOR ADDITIONAL CAMERA-LUMINAIRE MAST ARM
 MOUNTED (FOR NORTHBOUND TRAFFIC-CAMERA TO BE RELOCATED
 TO THIS LOCATION DURING OTHER STAGES OF CONSTRUCTION)
 METAL JUNCTION BOX WITH TERMINAL BLOCKS
 2" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
 1-6/c#14
 3-4/c#14
 2-2/c#14
 2" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
 1-3/c#14 (CAMERA)
 1-3/c#14 (LUM)

DESIGN TEAM				
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>JMG</u>				
CHECKED BY: <u>JMG</u>				
	NO.	BY	DATE	REVISIONS

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.
 Certified By: _____ Lic. No. 22457
 Licensed Professional Engineer
 Printed Name: JOHN M. GRAY, PE Date: 3/3/2010



PHONE: 651-490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**TEMPORARY SIGNAL SYSTEM "E"
 INTERSECTION LAYOUT**
 RICE STREET (CSAH 49)
 AT COUNTY ROAD B2

FILE NO.
 RAMSP108790
SG41
 OF SG52

321
534

LOOP DETECTORS

NUMBER	SIZE (FT)	FUNCTION	LOCATION
D1-1	6 X 6.6 X 20	2	5 & 35
D2-1	6 X 6	1	250
D2-2	6 X 6	1	250
D2-3	6 X 6	1	250
D4-1	6 X 6	1	125
D4-2	6 X 6	1	125
D4-3	6 X 6	2	125
D4-4	2 - 6 X 6	2	-
D4-5	2 - 6 X 6	2	-
D4-6	2 - 6 X 6	2	-
D5-1	6 X 6.6 X 20	2	5 & 35
D6-1	6 X 6	1	110
D6-2	6 X 6	1	110
D6-3	6 X 6	2	125
D6-4	6 X 6	1	125
D8-1	6 X 6	2	INPLACE
D8-2	6 X 6	2	INPLACE
D8-3	6 X 20	2	INPLACE
D8-4	6 X 20	2	INPLACE

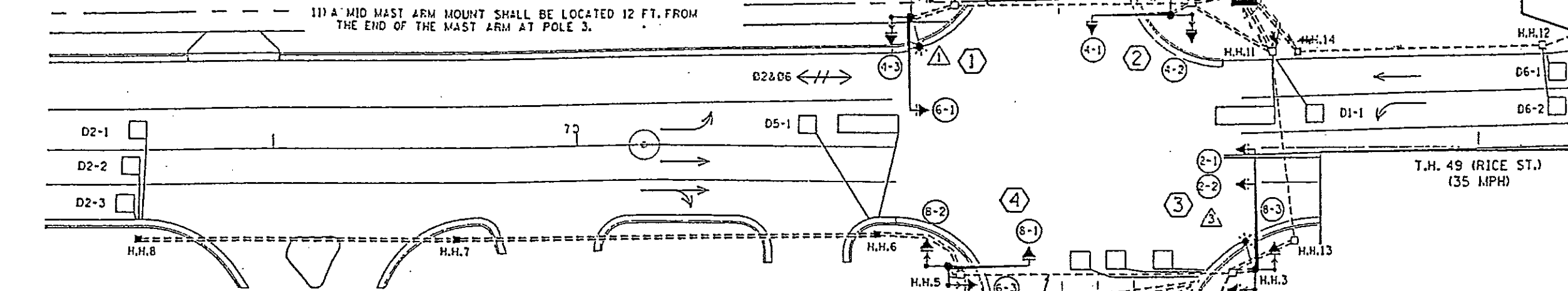
LOOP DETECTOR FUNCTIONS
 1 - CALL AND EXTEND
 2 - DELAYED CALL IMMEDIATE EXTEND
LOCATION = DISTANCE IN FEET FROM STOP LINE TO DETECTOR
 * SEE NOTE ON LAYOUT

NOTES:

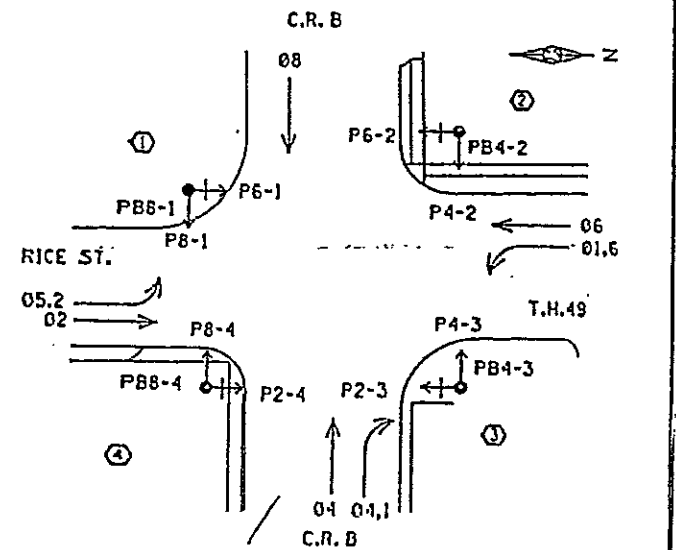
- SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
- EACH LUMINAIRE SHALL HAVE A PEC AND CHECK SWITCH.
- FOR SIGN DETAILS SEE SIGNING SHEETS.
- ALL PEDESTRIAN INDICATIONS SHALL BE 9 X 9 INCH.
- EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD. (SEE NOTE 4, STANDARD PLATE B10C)
- EACH SIGNAL FACE SHALL BE 12 INCH 3 SECTION R-Y-G EXCEPT FACE NO.'S 2-1, 2-4, AND 6-3 WHICH SHALL BE 12 INCH 5 SECTION R-Y-G-YLTA-GLTA AND FACE NO. 4-2 WHICH SHALL BE 12 INCH 5 SECTION R-Y-G-YRTA-GRTA. SIGNAL FACE 6-1 SHALL BE A SPECIAL SIGNAL FACE. (SEE SPECIAL PROVISIONS).
- ALL HANDHOLES SHALL BE PVC HANDHOLES WITH CONCRETE COVERS. (SEE SPECIAL PROVISIONS)
- EXACT LOCATIONS OF HANDHOLES, POLES, LOOP DETECTORS, AND CABINETS SHALL BE DETERMINED BY TRAFFIC OFFICE PERSONNEL
- A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROX. 4 FEET FROM THE END OF THE MAST ARM AT POLES 1 AND 2.
- REMOVE AND SALVAGE ALL ITEMS OF EXISTING WOOD POLE SIGNAL SYSTEM NOT USED AS PART OF NEW SIGNAL SYSTEM. (SEE SPECIAL PROVISIONS)
- A MID MAST ARM MOUNT SHALL BE LOCATED 12 FT. FROM THE END OF THE MAST ARM AT POLE 3.



CONDUIT AND HANDHOLES INPLACE. INSTALLED BY RAMSEY COUNTY SAP 62-625-19.



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

- (A) INSTALL CONTROLLER, MASTER CONTROLLER, AND CABINET**
 CABINET FOUNDATION
 CABINET TO H.H.11:
 4" R.S.C.
 4-12/C # 12
 4-3/C # 12
 2-3/C # 20
 4-2/C # 14
 CABINET TO H.H.11:
 4" R.S.C.
 4-12/C # 12
 2-3/C # 12
 11-2/C # 14
 CABINET TO H.H.14:
 3" R.S.C.
 2-2/C # 14
 1-25 PR. #19 INPLACE (COIL IN H.H. 12 AND REINSTALL IN NEW CONTROLLER CABINET)
 2" R.S.C. STUBOUT FOR PHONE LINE
 CABINET TO H.H.2:
 2-1/C # 6
 1-1/C # 6 BR.GR.
 3" R.S.C. STUBOUT
 THREAD AND CAP BOTH ENDS
- (B) WOOD POLE INPLACE SERVICE EQUIPMENT**
 2" R.S.C. RISER AND WEATHERHEAD
 3-1/C #2 ABOVE METER
 2" R.S.C. BELOW LOAD CENTER TO H.H.2:
 2-1/C #6
 1-1/C #6 BR.GR.
 4-1/C #10
- CONDUIT AND HANDHOLES INPLACE. INSTALLED BY RAMSEY COUNTY

SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE WITH PHASE 1 AND PHASE 5 BEING PROTECTED PERMISSIVE LEFT TURNS. PHASES 2 AND 6 WILL OPERATE REST IN WALK.

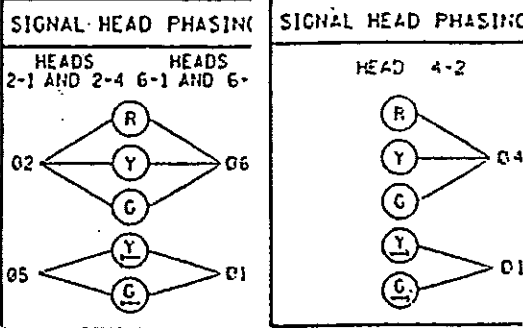
- (1) TYPE A100-A-30-D40-9IDAVIT AT 350'**
 A100 POLE FOUNDATION INPLACE. USE INPLACE LUMINAIRE - 200 WATT H.P.S.
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 ONE WAY SIGNAL OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 TWO WAY EYP DETECTOR AND LIGHTS
 R10-12 SIGN (36" X 48") ADJ. TO 6-1
 EXTEND INTO INPLACE H.H. 9:
 3" R.S.C.
 2-12/C # 12
 2-3/C # 12
 1-3/C # 20
 2-1/C # 10

- (2) TYPE P90-A-25 P90 POLE FOUNDATION**
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 ONE WAY SIGNAL OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 TWO WAY EYP DETECTOR AND LIGHTS
 EXTEND INTO INPLACE H.H. 1:
 3" R.S.C.
 2-12/C # 12
 2-3/C # 12
 1-3/C # 20;

- (4) TYPE P90-A-25 P90 POLE FOUNDATION**
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 ONE WAY SIGNAL OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 EXTEND INTO INPLACE H.H.5:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12

- (3) TYPE P100-A-40-D40-9IDAVIT AT 350'**
 P100 POLE FOUNDATION
 LUMINAIRE - 200 WATT H.P.S.
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 2-ONE WAY SIGNALS OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 R10-12 SIGN (36" X 48") ADJ. TO 2-1
 EXTEND INTO INPLACE H.H.3:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12
 2-1/C # 10

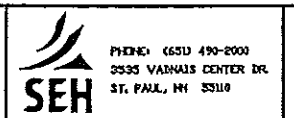
- H.H.14 TO H.H.12:
 2" R.S.C. INPLACE
 2-2/C # 14
 1-25 PR. # 19 INPLACE
- H.H.12 TO MATCH LINE B:
 2" R.S.C. INPLACE
 1-25 PR. # 19 INPLACE
- H.H.3 TO H.H.13:
 4" R.S.C.
 4-12/C # 12
 2-3/C # 12
 10-2/C # 14
 2-1/C # 10
- H.H.3 TO H.H.4:
 2" R.S.C. INPLACE
 3-2/C # 14
- H.H.3 TO H.H.5:
 4" R.S.C. INPLACE
 2-12/C # 12
 1-3/C # 12
 4-2/C # 14
- H.H.1 TO H.H.11:
 2" R.S.C.
 2-1/C # 10
- H.H.11 TO H.H.13:
 4" R.S.C. INPLACE
 4-12/C # 12
 2-3/C # 12
 10-2/C # 14
 2-1/C # 10
- H.H.1 TO H.H.5:
 4" R.S.C. INPLACE
 2-12/C # 12
 2-3/C # 12
 1-3/C # 20
 4-2/C # 14
 2-1/C # 10
- H.H.9 TO H.H.5A:
 2" R.S.C. INPLACE
 2-2/C # 14
- H.H.9A TO H.H.10:
 2" R.S.C. INPLACE
 2-2/C # 14



NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: JNG				
DESIGNER: JNG				
CHECKED BY: JNG				

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.
 Certified By: *[Signature]* Lic. No. 22457
 Printed Name: John K. Gault, PE Date: 02/04/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

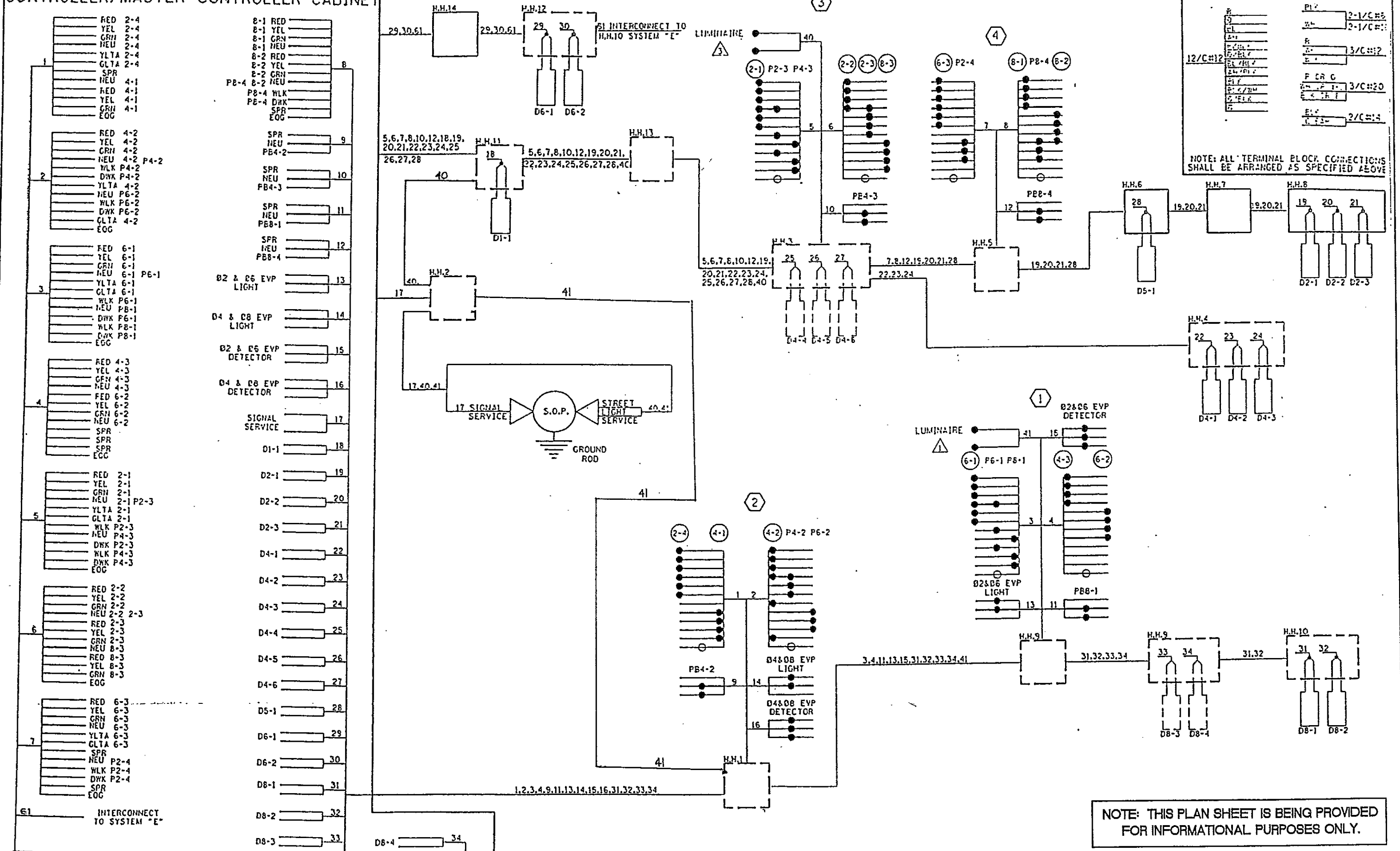
INPLACE SIGNAL SYSTEM 'A' 'FOR INFORMATION ONLY'	FILE NO. 323 RAMSPI08790
FILE NO. 534 SG43 DF 5652	

CONTROLLER/MASTER CONTROLLER CABINET

CONDUCTOR COLOR CODING

RED	2-1/C#5
YEL	2-1/C#1
GRN	3/C#12
NEU	3/C#20
BLK	3/C#14

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

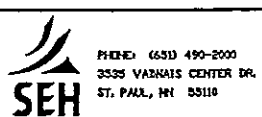


SOUTH DAKOTA REGISTERED ELECTRICAL ENGINEERS - REGISTERED

DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
REV.	BY	DATE	REVISIONS

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.

Certified By: *John R. Gray* Lic. No. 22457
 Printed Name: John R. Gray, PE Date: 02/04/2019



RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE SIGNAL SYSTEM 'A'
 'FOR INFORMATION ONLY'
 RICE STREET (CSAH 49) AT COUNTY ROAD B (CSAH 25)

FILE NO.	324
RAHSP108790	
SG44	
DF SG52	534

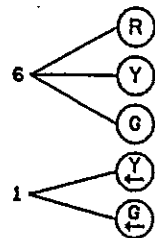
SIGNAL FACE CHART

FACE	R	Y	G	Y	G
2-1, 2-2	○	○	○		
4-1, 4-2, 4-3	○	○	○		
6-1, 6-3	○	○	○	◀	◀
6-2	○	○	○		

-ALL SIGNAL INDICATIONS SHALL BE 12"
 -ALL SIGNAL INDICATIONS SHALL BE LED
 -ALL SIGNAL FACES SHALL HAVE A
 BACKGROUND SHIELD
 -ALL SIGNAL HEADS SHALL BE BLACK
 POLYCARBONITE

SIGNAL HEAD PHASING

HEADS 6-1 & 6-3



H.H. 1 TO H.H. 2:
 2-1 1/4" R.S.C.
 1-2/C # 14
 2-2/C # 10
 1-25 PR # 19

H.H. 1 TO H.H. 3:
 1 1/4" R.S.C.
 1-2/C # 14

H.H. 1 TO H.H. 7:
 3" R.S.C.
 3-12/C # 12
 2-5/C # 12
 1-3/C # 12
 2-3/C # 20
 2-1/C # 10

H.H. 2 TO H.H. 7A:
 3" R.S.C.
 4-2/C # 14
 1-25 PR # 19

H.H. 7 TO H.H. 7A:
 3" R.S.C.
 4-2/C # 14
 1-25 PR # 19

H.H. 7 TO H.H. 8:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12
 1-3/C # 14
 1-3/C # 20
 2-1/C # 10

H.H. 8 TO H.H. 9:
 1 1/4" R.S.C.
 1-2/C # 14

H.H. 7 TO H.H. 11:
 3" R.S.C.
 2-2/C # 14
 1-25 PR # 19

H.H. 11 TO JB1/MATCH LINE C
 3" R.S.C.
 2-2/C # 14
 1-25 PR # 19

H.H. 7 TO H.H. 3RM:
 2" R.S.C.
 2-5/C # 12

H.H. 2 TO H.H. 10:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12
 1-2/C # 14
 1-3/C # 20
 2-1/C # 10
 1-25 PR # 19

H.H. 10 TO MATCH LINE "B"
 2" R.S.C.
 1-25 PR # 19

H.H. 2 TO H.H. 5:
 1 1/4" R.S.C.
 3-2/C # 14

H.H. 5 TO H.H. 5A:
 1 1/4" R.S.C.
 1-2/C # 14

H.H. 5A TO H.H. 6:
 1 1/4" R.S.C.
 1-2/C # 14

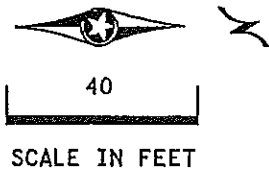
RAMP FROM T.H. 36 E.B.

(A) EQUIPMENT PAD
 SIGNAL SERVICE CABINET
 EXTEND INTO H.H. 2:
 3" R.S.C.
 4-1/C # 10
 EXTEND INTO H.H. 4:
 2" R.S.C.
 3-1/C # 6
 CONTROLLER AND CABINET
 EXTEND INTO H.H. 1:
 2-3" R.S.C.
 3-12/C # 12
 2-3/C # 12
 2-3/C # 20
 1-25 PR # 19
 EXTEND INTO H.H. 2:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12
 10-2/C # 14
 1-3/C # 20
 1-25 PR # 19

(B) WOOD POLE
 2" RISER AND WEATHERHEAD
 EXTEND INTO H.H. 4:
 2" R.S.C.
 3-3/C # 6

(2) TYPE 4A
 PEDESTAL POLE AND BASE
 PEDESTAL FOUNDATION
 EXTEND INTO H.H. 1:
 3" R.S.C.
 3-3/C # 12

(C) 334 CABINET (RAMP METERING)
 EXTEND INTO H.H. 2RM:
 3" R.S.C.
 2-5/C # 12
 H.H. 2RM TO H.H. 1:
 3" R.S.C.
 2-5/C # 12



LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION	TYPE
D-1	6x6	-80	NMC
D1-1	6x20	5	NMC
D1-1	6x6	35	NMC
D2-1	6x6	100	NMC
D4-1	2-6x6	135	NMC
D4-2	2-6x6	60	NMC
D4-3, D4-4	2-6x6	0	NMC
D6-1, D6-2	6x6	210	NMC

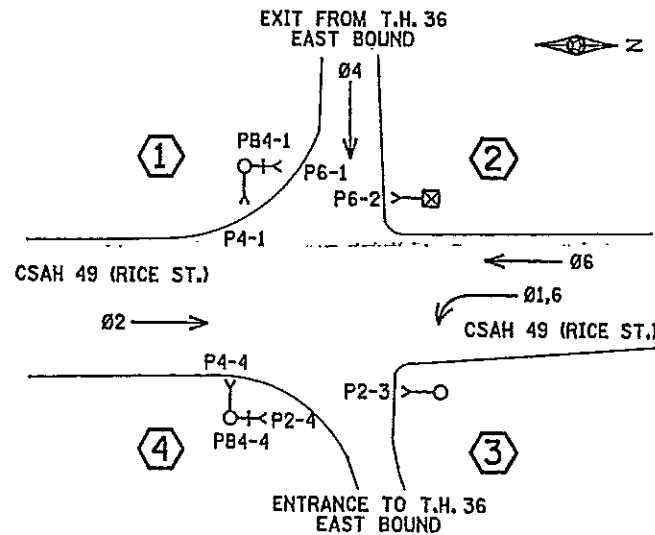
-ALL LOOP DETECTORS ARE NMC UNLESS NOTED OTHERWISE
 -LOCATION, DISTANCE FROM CROSSWALK /STOP BAR IN FEET

(1) TYPE A100-A-20-D40-12(DAVIT AT 350')
 A100 POLE FOUNDATION
 ONE WAY SIGNAL OVERHEAD
 TYPE 10C POLE MOUNTED 270°
 PEDESTRIAN PUSH BUTTON AND SIGN
 LUMINAIRE 250 WATT H.P.S.
 TWO WAY EVP DETECTOR AND LIGHT
 RIO-12 SIGN (36" X 48") ADJ. TO 6-1
 EXTEND INTO H.H. 10:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12
 1-3/C # 20
 2-1/C # 10

(4) TYPE A100-A-15
 A100 POLE FOUNDATION
 ONE WAY SIGNAL OVERHEAD
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 PEDESTRIAN PUSH BUTTON AND SIGN
 ONE WAY EVP DETECTOR AND LIGHT
 EXTEND INTO H.H. 8:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12
 1-3/C # 20

(3) TYPE A100-A-25-D40-12(DAVIT AT 350')
 A100 POLE FOUNDATION
 ONE WAY SIGNAL OVERHEAD
 TYPE 20B POLE MOUNTED 270°
 LUMINAIRE 250 WATT H.P.S.
 EXTEND INTO H.H. 7:
 3" R.S.C.
 3-12/C # 12
 2-3/C # 12
 1-3/C # 20
 2-1/C # 10

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASE 1 BEING A PROTECTED/PERMISSIVE LEFT TURN PHASE.
- PHASES 2 AND 6 WILL OPERATE REST IN WALK.

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				

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.
 Certified By: *[Signature]* Lic. No. 22457
 Printed Name: John K. Gray, PE Date: 03/04/2010

SEH
 PHONE (651) 490-2000
 3535 VANDERBILT CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE SIGNAL SYSTEM "B1"
 "FOR INFORMATION ONLY"
 RICE STREET (CSAH 49) AT TH 36 SOUTH RAMPS

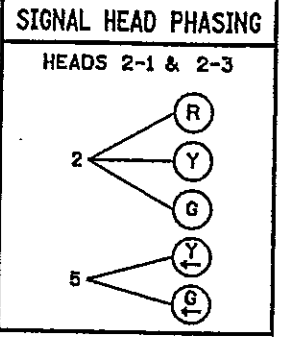
FILE NO. RAMSP108790	325
SG45 OF SG52	534

SYSTEM ID: 20631
 METER ADDRESS: 2175 RICE ST

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

SIGNAL FACE CHART					
FACE	R	Y	G	Y	G
2-1, 2-3	○	○	○	◀	◀
2-2	○	○	○		
4-1, 4-2, 4-3	○	○	○		
6-1, 6-2	○	○	○		

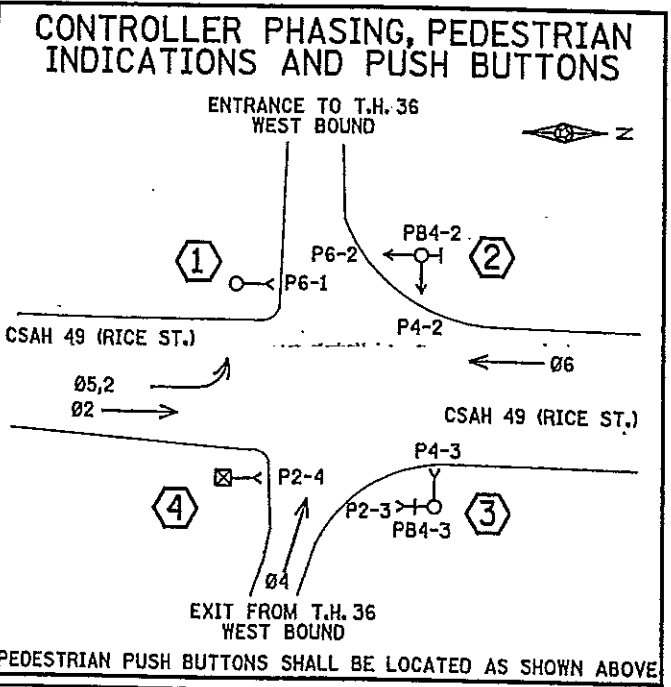
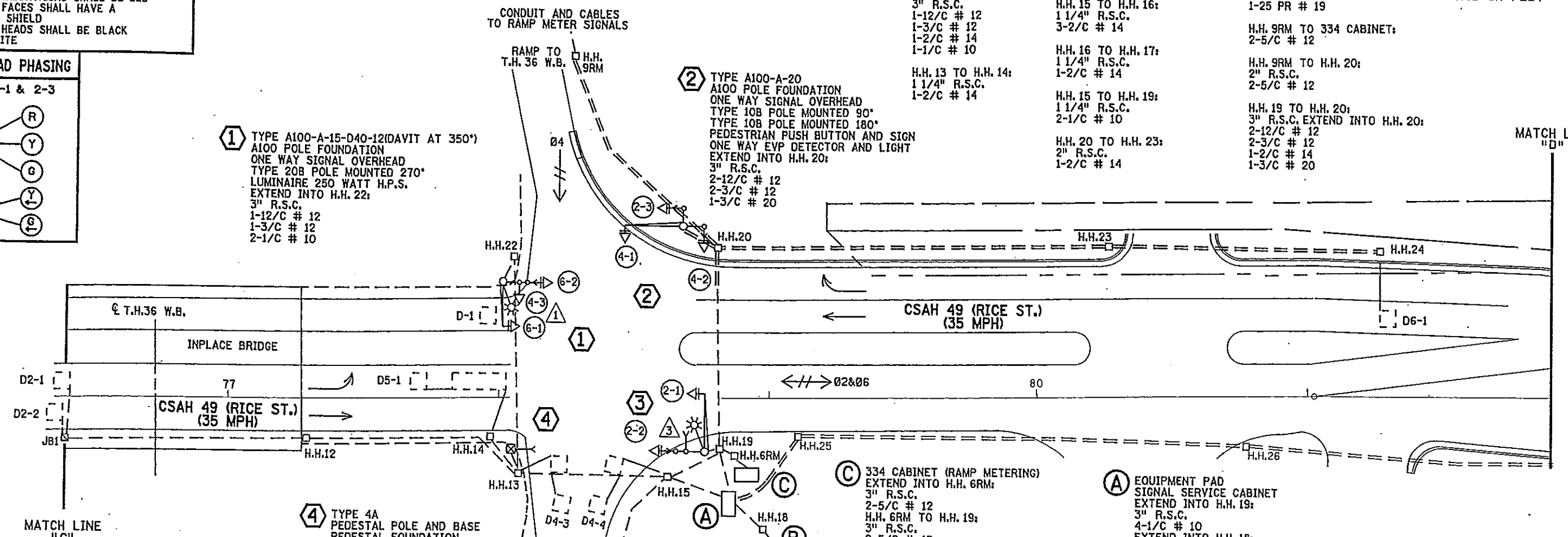
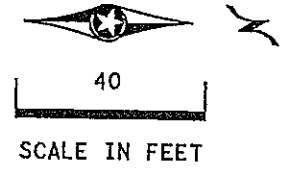
-ALL SIGNAL INDICATIONS SHALL BE 12"
 -ALL SIGNAL INDICATIONS SHALL BE LED
 -ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD
 -ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONITE



① TYPE A100-A-15-D40-12(DAVIT AT 350°)
 A100 POLE FOUNDATION
 ONE WAY SIGNAL OVERHEAD
 TYPE 20B POLE MOUNTED 270°
 LUMINAIRE 250 WATT H.P.S.
 EXTEND INTO H.H. 22:
 3" R.S.C.
 1-12/C # 12
 1-3/C # 12
 2-1/C # 10

② TYPE A100-A-20
 A100 POLE FOUNDATION
 ONE WAY SIGNAL OVERHEAD
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 PEDESTRIAN PUSH BUTTON AND SIGN
 ONE WAY EVP DETECTOR AND LIGHT
 EXTEND INTO H.H. 20:
 3" R.S.C.
 2-12/C # 12
 2-3/C # 12
 1-3/C # 20

- H.H. 15 TO H.H. 13:
3" R.S.C.
1-12/C # 12
1-5/C # 12
2-3/C # 12
4-2/C # 14
2-1/C # 10
1-25 PR # 19
- H.H. 13 TO H.H. 22:
3" R.S.C.
1-12/C # 12
1-3/C # 12
1-2/C # 14
1-1/C # 10
- H.H. 13 TO H.H. 14:
1 1/4" R.S.C.
1-2/C # 14
- H.H. 13 TO H.H. 12:
3" R.S.C.
2-2/C # 14
1-25 PR # 19
- H.H. 12 TO JB1/MATCH LINE
3" R.S.C.
2-2/C # 14
1-25 PR # 19
- H.H. 15 TO H.H. 16:
1 1/4" R.S.C.
3-2/C # 14
- H.H. 16 TO H.H. 17:
1 1/4" R.S.C.
1-2/C # 14
- H.H. 15 TO H.H. 19:
1 1/4" R.S.C.
2-1/C # 10
- H.H. 20 TO H.H. 23:
2" R.S.C.
1-2/C # 14
- H.H. 23 TO H.H. 24:
2" R.S.C.
1-2/C # 14
- H.H. 25 TO H.H. 26:
2" R.S.C.
1-25 PR # 19
- H.H. 26 TO MATCH LINE D
2" R.S.C.
1-25 PR # 19
- H.H. 9RM TO 334 CABINET:
2-5/C # 12
- H.H. 9RM TO H.H. 20:
2" R.S.C.
2-5/C # 12
- H.H. 19 TO H.H. 20:
3" R.S.C. EXTEND INTO H.H. 20:
2-12/C # 12
2-3/C # 12
1-2/C # 14
1-3/C # 20



④ TYPE 4A
 PEDESTAL POLE AND BASE
 PEDESTAL FOUNDATION
 EXTEND INTO H.H. 13:
 3" R.S.C.
 1-5/C # 12
 2-3/C # 12

③ TYPE A100-A-20-D40-12(DAVIT AT 350°)
 A100 POLE FOUNDATION
 ONE WAY SIGNAL OVERHEAD
 TYPE 10C POLE MOUNTED 270°
 PEDESTRIAN PUSH BUTTON AND SIGN
 LUMINAIRE 250 WATT H.P.S.
 TWO WAY EVP DETECTOR AND LIGHT
 R10-12 SIGN (36" X 48") ADJ. TO 2-1
 EXTEND INTO H.H. 19:
 3" R.S.C.
 1-12/C # 12
 4-3/C # 12
 1-3/C # 20
 2-1/C # 10

③ 334 CABINET (RAMP METERING)
 EXTEND INTO H.H. 6RM:
 3" R.S.C.
 2-5/C # 12
 H.H. 6RM TO H.H. 19:
 3" R.S.C.
 2-5/C # 12

① EQUIPMENT PAD
 SIGNAL SERVICE CABINET
 EXTEND INTO H.H. 19:
 3" R.S.C.
 4-1/C # 10
 EXTEND INTO H.H. 18:
 2" R.S.C.
 3-1/C # 6
 CONTROLLER AND CABINET
 EXTEND INTO H.H. 19:
 2-3" R.S.C.
 3-12/C # 12
 6-3/C # 12
 2-3/C # 20
 1-2/C # 14
 EXTEND INTO H.H. 15:
 3" R.S.C.
 1-12/C # 12
 1-5/C # 12
 1-3/C # 12
 9-2/C # 14
 1-25 PR # 19
 EXTEND INTO H.H. 25:
 2" R.S.C.
 1-25 PR # 19

② WOOD POLE
 2" RISER AND WEATHERHEAD
 EXTEND INTO H.H. 18:
 2" R.S.C.
 1-3/C # 6

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASE 5 BEING A PROTECTED/PERMISSIVE LEFT TURN PHASE.
- PHASES 2 AND 6 WILL OPERATE REST IN WALK.

SYSTEM ID: 20630
 METER ADDRESS: 2244 RICE ST

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

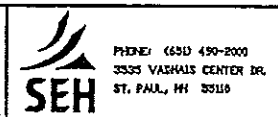
LOOP DETECTOR CHART			
NUMBER	SIZE (FT)	LOCATION	TYPE
D-1	6x6	-75	NMC
D2-1, D2-2	6x6	250	NMC
D4-1	2-6x6	160	NMC
D4-2	2-6x6	65	NMC
D4-3, D4-4	2-6x6	2 & 17	NMC
D5-1	6x20	5	NMC
D5-1	6x6	35	NMC
D6-1	6x6	250	NMC

-ALL LOOP DETECTORS ARE NMC UNLESS NOTED OTHERWISE
 -LOCATION: DISTANCE FROM CROSSWALK /STOP BAR IN FEET

DESIGN TEAM			
NO.	BY	DATE	REVISIONS
1	JMG		
2	JMG		
3	JMG		

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.

Certified By: *[Signature]* L.C. No. 22457
 Printed Name: John K. Gray, P.E. Date: 03/24/2010

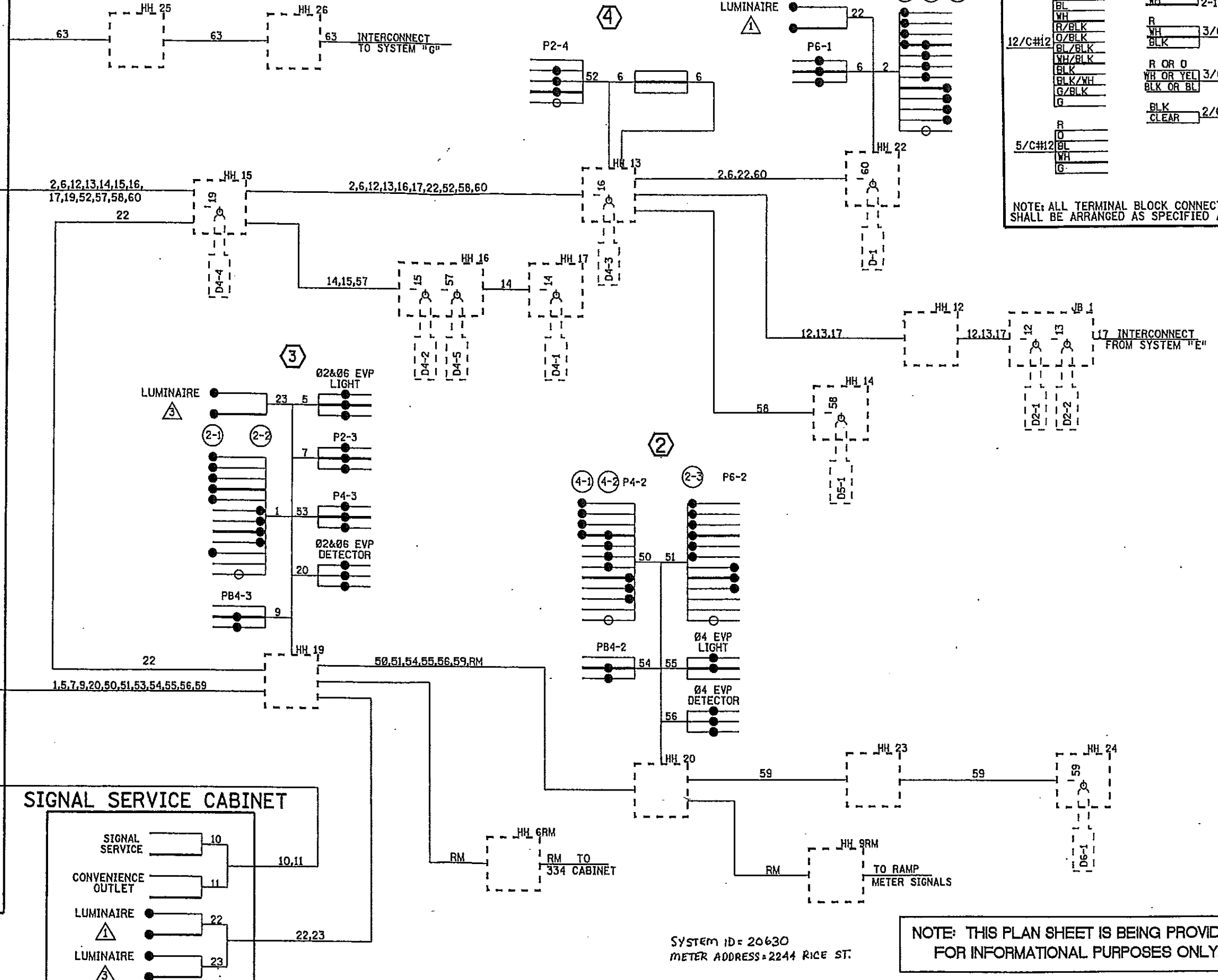
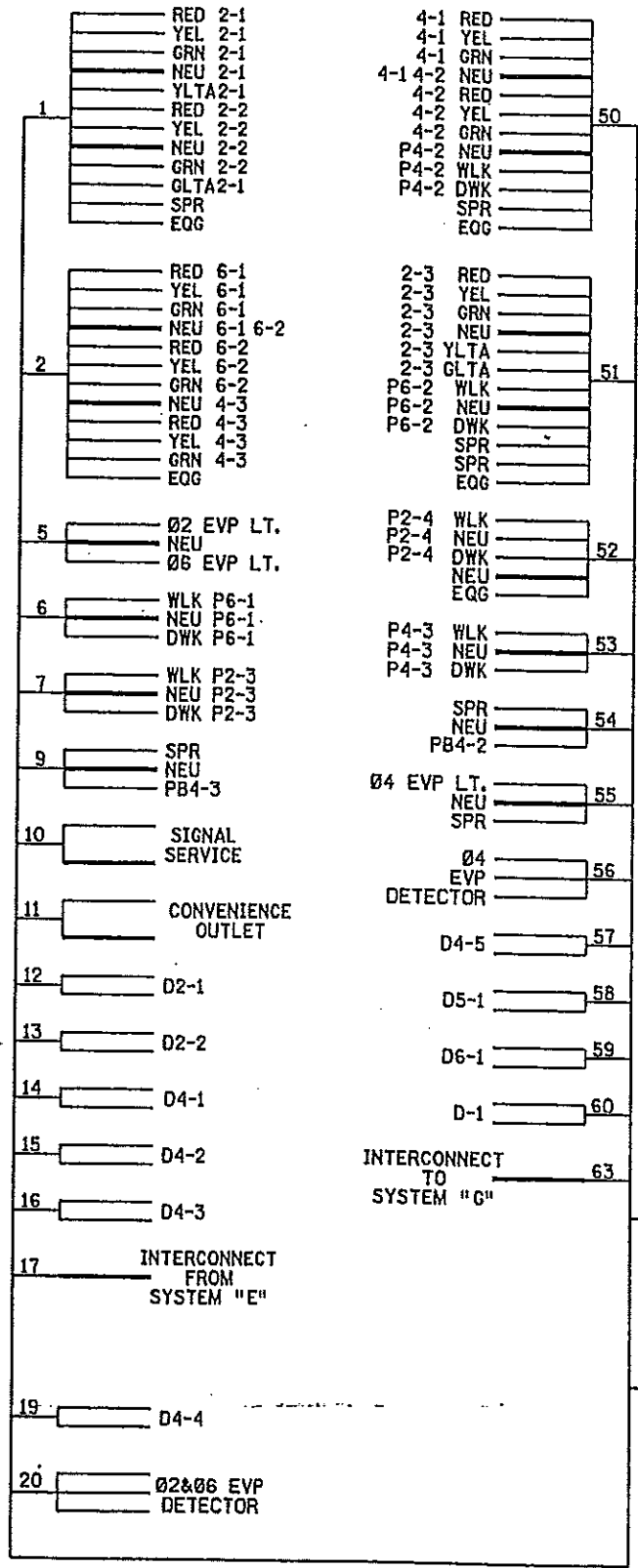


RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE SIGNAL SYSTEM 'B2'
 'FOR INFORMATION ONLY'
 RICE STREET (CSAH 49) AT TH 36 NORTH RAMP

FILE NO. RAHSP108790	327
SG47 DF SG52	534

CONTROLLER CABINET

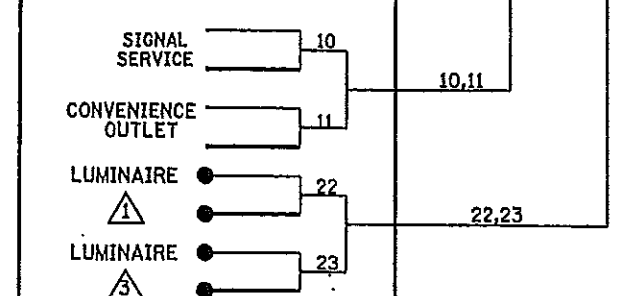


CONDUCTOR COLOR CODING

R	BLK	2-1/C#6
O	WH	2-1/C#10
BL	R	
WH	WH	3/C#12
R/BLK	BLK	
O/BLK	R OR O	3/C#20
BL/BLK	WH OR YEL	BLK OR BL
WH/BLK	BLK OR BL	
BLK	BLK	2/C#14
BLK/WH	CLEAR	
G/BLK		
G		
R		
O		
WH		
G		

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

SIGNAL SERVICE CABINET

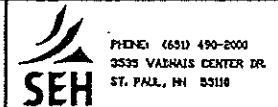


System ID = 20630
METER ADDRESS = 2244 RICE ST.

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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.
Certified By: *JMG* Lic. No. 22457
Printed Name: John M. Gray, P.E. Date: 02/04/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE SIGNAL SYSTEM 'B2'
'FOR INFORMATION ONLY'
RICE STREET (CSAH 49) AT TH 36 NORTH RAMP'S

FILE NO.	328
RAMSP108790	
SG48	
OF 3052	534

LOOP DETECTORS			
NUMBER	SIZE (FT)	FUNCTION	LOCATION
D1-1	6 X 6.6 X 20	2	5 & 35
D2-1	6 X 6	1	250
D2-2	6 X 6	1	250
D4-1	2-6 X 6	1	125
D4-2	2-6 X 6	2	5
D4-3	6 X 6.6 X 20	2	5
D5-1	6 X 6.6 X 20	2	5 & 35
D6-1	6 X 6	1	275
D6-2	6 X 6	1	275
D8-1	6 X 6	1	125
D8-2	2-6 X 6	1	5

LOOP DETECTOR FUNCTIONS
 1 - CALL AND EXTEND
 2 - DELAYED CALL IMMEDIATE EXTEND
LOCATION = DISTANCE IN FEET FROM STOP LINE TO DETECTOR

- NOTES:**
- SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
 - EACH LUMINAIRE SHALL HAVE A PEC AND CHECK SWITCH.
 - FOR SIGN DETAILS SEE SIGNING SHEETS.
 - ALL PEDESTRIAN INDICATIONS SHALL BE 9 X 9 INCH.
 - EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD. (SEE NOTE 4, STANDARD PLATE 8110C)
 - EACH SIGNAL FACE SHALL BE 12 INCH 3 SECTION R-Y-G EXCEPT FACE NO.'S 2-1, 2-3, 6-1, AND 6-3 WHICH SHALL BE 12 INCH 5 SECTION R-Y-G-YLTA-GLTA.
 - ALL HANDHOLES SHALL BE PVC HANDHOLES WITH CONCRETE COVERS. (SEE SPECIAL PROVISIONS)
 - EXACT LOCATIONS OF HANDHOLES, POLES, LOOP DETECTORS, AND CABINET SHALL BE DETERMINED BY TRAFFIC OFFICE PERSONNEL
 - A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROX. 4 FEET FROM THE END OF THE MAST ARM AT POLES 3 AND 4.
 - REMOVE AND SALVAGE EXISTING WOOD POLE / SPAN WIRE SIGNAL SYSTEM. (SEE SPECIAL PROVISIONS)

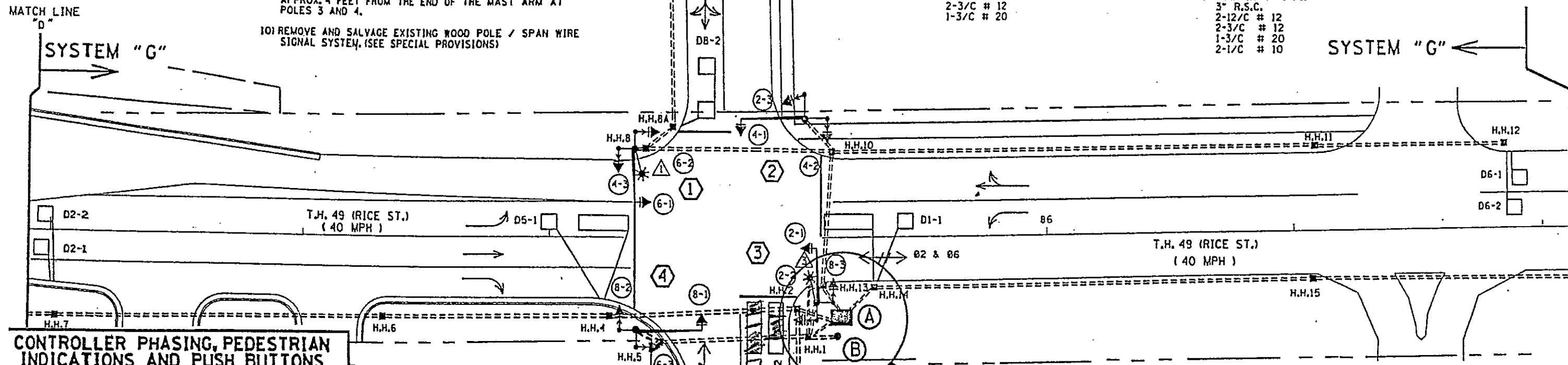
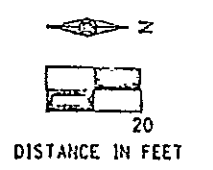
(B) INSTALL WOOD POLE SERVICE EQUIPMENT
 2" R.S.C. RISER AND WEATHERHEAD
 3-1/2" # 2 ABOVE METER
 2" R.S.C. BELOW LOAD CENTER TO H.H. 1:
 2-1/2" # 4
 1-1/2" # 6 BR.GR.
 4-1/2" # 10

(1) TYPE P90-A-20-D40-9(DAVIT AT 350')
 P90 POLE FOUNDATION
 LUMINAIRE - 200 WATT H.P.S.
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 ONE WAY SIGNAL OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 R10-12 SIGN (36" X 48") ADJ TO 6-1
 EXTEND INTO H.H. 8:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12
 2-1/C # 10

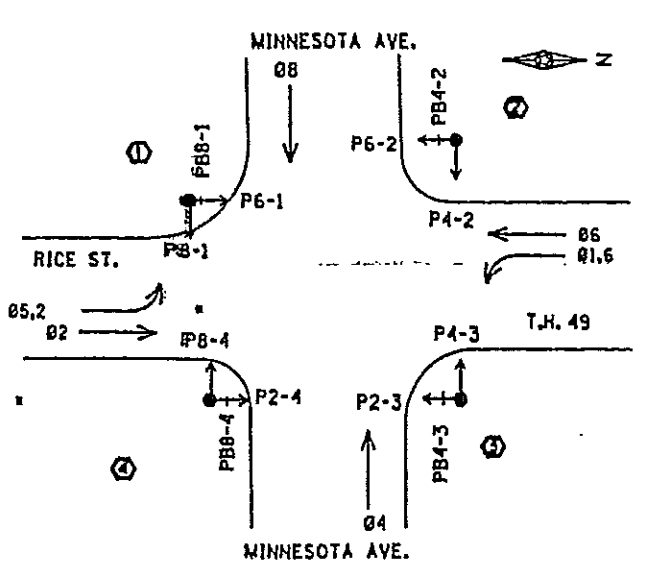
(2) TYPE P90-A-25
 P90 POLE FOUNDATION
 LUMINAIRE - 200 WATT H.P.S.
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 ONE WAY SIGNAL OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 EXTEND INTO H.H. 10:
 3" R.S.C.
 2-12/C # 12
 1-3/C # 12

(4) TYPE P90-A-25
 P90 POLE FOUNDATION
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 ONE WAY SIGNAL OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 TWO WAY EVP DETECTOR AND LIGHTS
 EXTEND INTO H.H. 5:
 3" R.S.C.
 2-12/C # 12
 2-3/C # 12
 1-3/C # 20

(3) TYPE P90-A-20-D40-9(DAVIT AT 350')
 P90 POLE FOUNDATION
 LUMINAIRE - 200 WATT H.P.S.
 TYPE 10B POLE MOUNTED 90°
 TYPE 10B POLE MOUNTED 180°
 ONE WAY SIGNAL OVERHEAD
 PEDESTRIAN PUSH BUTTON AND SIGN
 TWO WAY EVP DETECTOR AND LIGHTS
 R10-12 SIGN (36" X 48") ADJ TO 2-1
 EXTEND INTO H.H. 1:
 3" R.S.C.
 2-12/C # 12
 2-3/C # 12
 1-3/C # 20
 2-1/C # 10

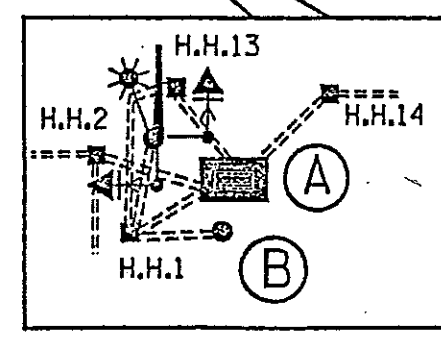


CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

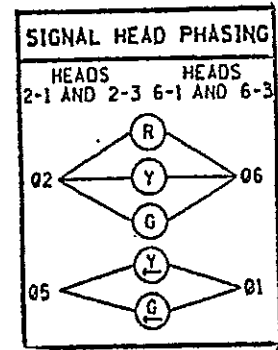


- (A) INSTALL CONTROLLER AND CABINET**
 CABINET FOUNDATION
 CABINET TO H.H. 1:
 4" R.S.C.
 2-1/2" # 4
 1-1/2" # 6 BR.GR.
 4-12/C # 12
 4-3/C # 12
 2-3/C # 20
 3-2/C # 14
 CABINET TO H.H. 13
 4" R.S.C.
 4-12/C # 12
 2-3/C # 12
 4-2/C # 14
 CABINET TO H.H. 14
 3" R.S.C.
 1-25 PR. # 19
 1-2/C # 14
 CABINET TO H.H. 2:
 3" R.S.C.
 3-2/C # 14
 1-25 PR. # 19
 3" R.S.C. STUB OUT - THREAD AND CAP BOTH ENDS

SIGNAL SYSTEM OPERATION
 - SIGNAL SYSTEM FLASH MODE IS ALL RED.
 - NORMAL OPERATION IS 6 PHASE WITH PHASE 1 AND PHASE 5 BEING PROTECTED/PERMISSIVE. LEFT TURNS. PHASES 2 AND 6 WILL OPERATE REST IN WALK.



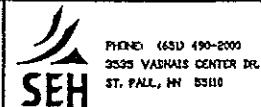
- H.H. 1 TO H.H. 13:**
 2" R.S.C.
 2-1/C # 10
- H.H. 1 TO H.H. 5:**
 4" R.S.C.
 2-12/C # 12
 2-3/C # 12
 1-3/C # 20
 1-2/C # 14
- H.H. 2 TO H.H. 4:**
 4" R.S.C.
 2-2/C # 14
 1-25 PR. # 19
- H.H. 2 TO H.H. 15:**
 2" R.S.C.
 1-25 PR. # 19
- H.H. 14 TO H.H. 15:**
 2" R.S.C.
 1-25 PR. # 19
- H.H. 15 TO MATCH LINE E:**
 2" R.S.C.
 1-25 PR. # 19
- H.H. 4 TO H.H. 6:**
 2" R.S.C.
 2-2/C # 14
 1-25 PR. # 19
- H.H. 6 TO H.H. 7:**
 2" R.S.C.
 2-2/C # 14
 1-25 PR. # 19
- H.H. 7 TO MATCH LINE D:**
 2" R.S.C.
 1-25 PR. # 19
- H.H. 13 TO H.H. 10:**
 4" R.S.C.
 4-12/C # 12
 2-3/C # 12
 4-2/C # 14
 2-1/C # 10
- H.H. 10 TO H.H. 8:**
 4" R.S.C.
 2-12/C # 12
 1-3/C # 12
 2-2/C # 14
 2-1/C # 10
- H.H. 8 TO H.H. 8A:**
 2" R.S.C.
 1-2/C # 14
- H.H. 8A TO H.H. 8:**
 2" R.S.C.
 2-2/C # 14
- H.H. 10 TO H.H. 11:**
 2" R.S.C.
 2-2/C # 14
- H.H. 11 TO H.H. 12:**
 2" R.S.C.
 2-2/C # 14



NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

DESIGN TEAM			
DRAWN BY: JMG			
DESIGNER: JMG			
CHECKED BY: JMG			
NO.	BY	DATE	REVISIONS

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.
 Certified By: *JMG* Lic. No. 22457
 Printed Name: John K. Gray, PE Date: 03/04/2010

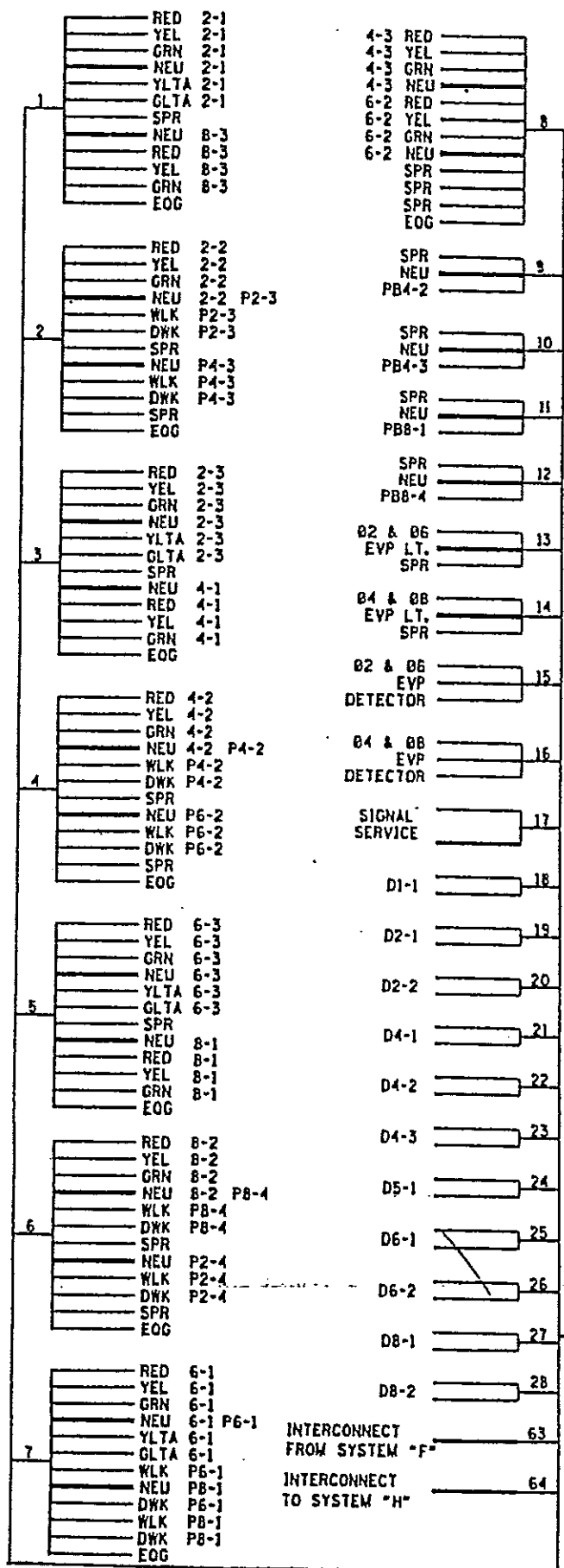


RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE SIGNAL SYSTEM 'C'
 'FOR INFORMATION ONLY'
 RICE STREET (CSAH 49) AT MINNESOTA AVENUE

FILE NO. RAHSP108790	329
SG49 OF SG52	534

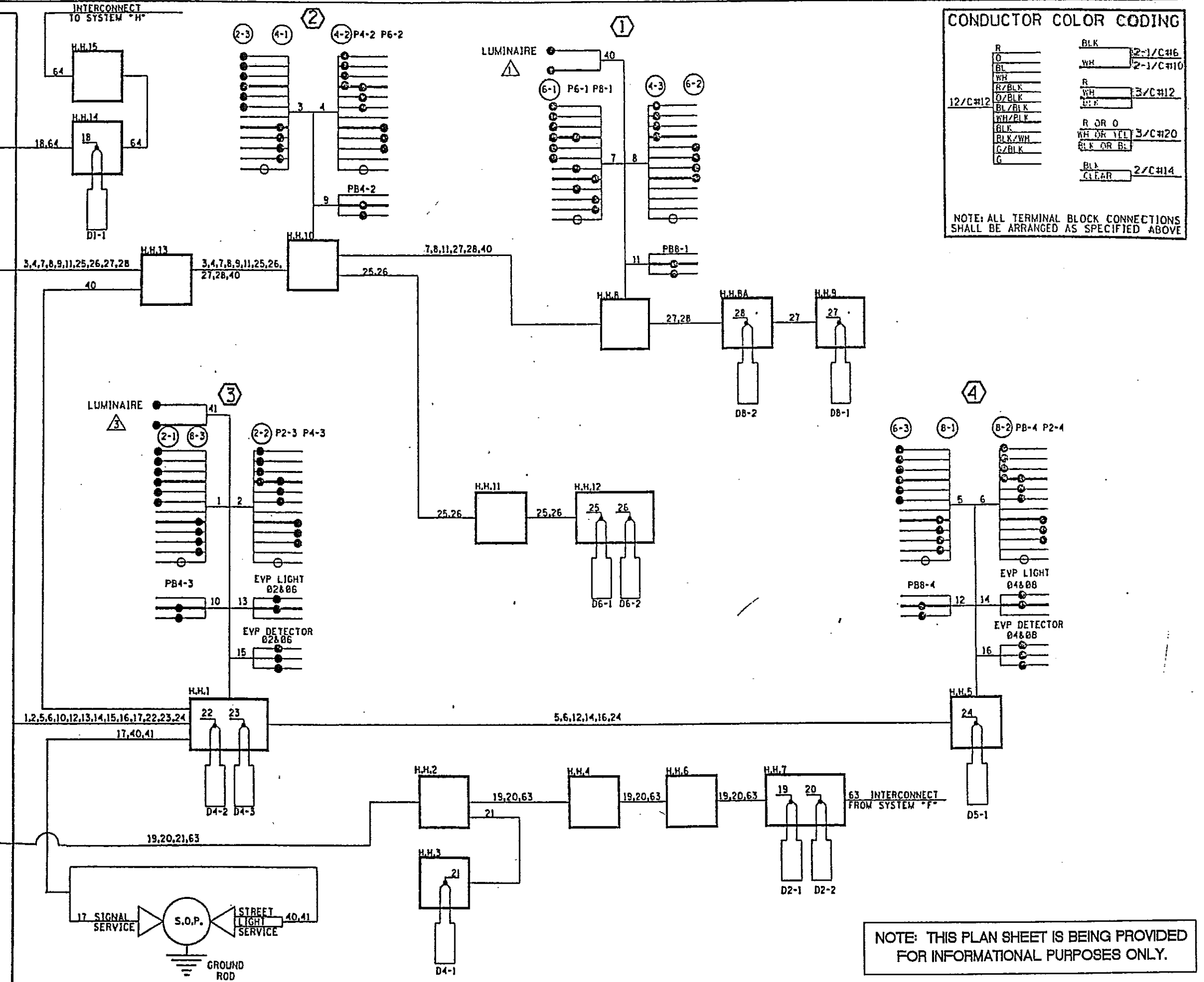
CONTROLLER CABINET



CONDUCTOR COLOR CODING

R	BLK	2-1/C#16
O	WH	2-1/C#10
BL	R	3/C#12
WH	WH	3/C#12
R/BLK	BL/BLK	R OR O
O/BLK	BL/WH	WH OR YEL
WH/BLK	BLK/WH	3/C#20
BLK/WH	G/BLK	BLK OR BL
G	BLK	2/C#14
	CLEAR	2/C#14

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

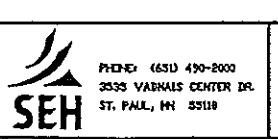


NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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.

Certified By: *[Signature]* Lic. No. 22457
 Printed Name: John R. Gray, PE Date: 02/24/2010



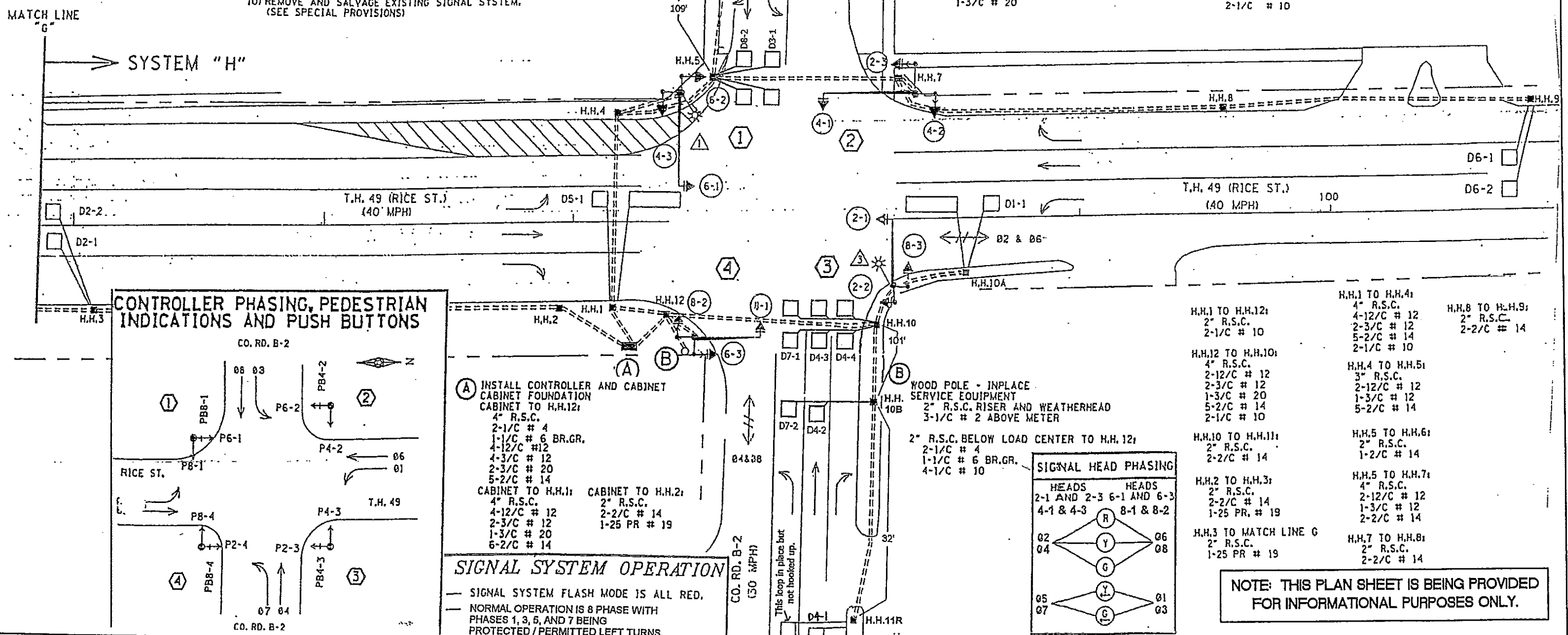
RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-648-27 CTB, 6212-165 (TH 36)

INPLACE SIGNAL SYSTEM 'C'
 'FOR INFORMATION ONLY'
 RICE STREET (CSAH 49) AT MINNESOTA AVENUE

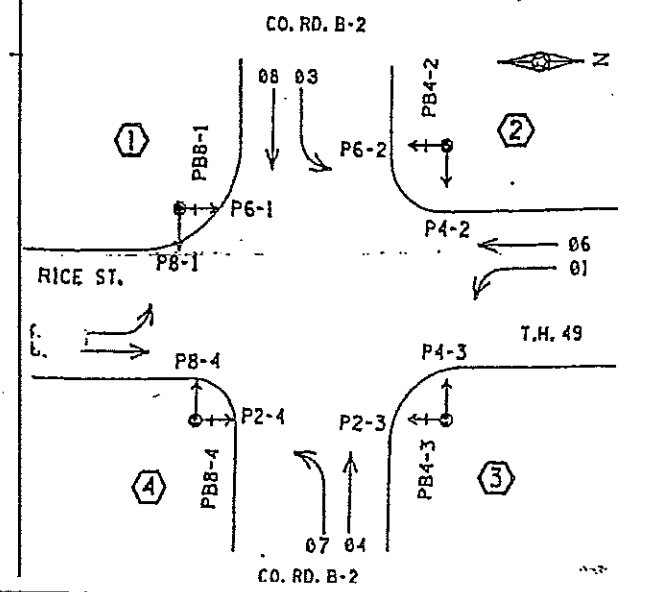
FILE NO.	330
RAMSP108790	
SG50	534
DF SG52	

LOOP DETECTORS			
NUMBER	SIZE (FT)	TYPE	LOCATION
D1-1	6 X 6.6 X 20	SAW CUT	5 & 35
D2-1	6 X 6	SAW CUT	250
D2-2	6 X 6	SAW CUT	250
D3-1	2-6 X 6	SAW CUT	0, 15
D3-2	6 X 6	SAW CUT	80
D4-1	6 X 6	NMC	125
D4-2	6 X 6	NMC	125
D4-3	2-6 X 6	NMC	5
D4-4	2-6 X 6	NMC	5
D5-1	6 X 6.6 X 20	SAW CUT	5 & 35
D6-1	6 X 6	SAW CUT	250
D6-2	6 X 6	SAW CUT	250
D7-1	2-6 X 6	NMC	0, 15
D7-2	6 X 6	NMC	80
D8-1	6 X 6	SAW CUT	125
D8-2	2-6 X 6	SAW CUT	5

- NOTES:**
- SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
 - EACH LUMINAIRE SHALL HAVE A PEC AND CHECK SWITCH.
 - FOR SIGN DETAILS SEE SIGNING SHEETS.
 - ALL PEDESTRIAN INDICATIONS SHALL BE 9 X 9 INCH.
 - EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD. (SEE NOTE 4, STANDARD PLATE 8110C)
 - EACH SIGNAL FACE SHALL BE 12 INCH 3 SECTION R-Y-G EXCEPT FACE NO.'S 2-1, 2-3, 6-1, AND 6-3 WHICH SHALL BE 12 INCH 5 SECTION R-Y-G-YLTA-GLTA.
 - ALL HANDHOLES SHALL BE PVC HANDHOLES WITH CONCRETE COVERS. (SEE SPECIAL PROVISIONS)
 - EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, AND CABINET SHALL BE DETERMINED BY TRAFFIC OFFICE PERSONNEL.
 - A 3/4 INCH HALF COUPLING, 3/4 INCH PIPE NIPPLE AND CONDUIT OUTLET BODY FOR EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED APPROX. 4 FEET FROM THE END OF THE MAST ARM AT POLES 3, AND 4.
 - REMOVE AND SALVAGE EXISTING SIGNAL SYSTEM. (SEE SPECIAL PROVISIONS)



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

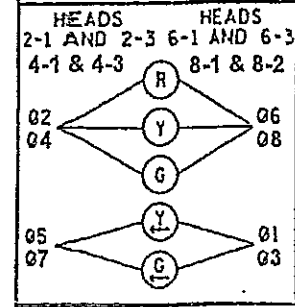


- (A) INSTALL CONTROLLER AND CABINET**
- CABINET FOUNDATION
 - CABINET TO H.H.12:
 - 4" R.S.C.
 - 2-1/C # 4
 - 1-1/C # 6 BR.GR.
 - 4-12/C # 12
 - 4-3/C # 12
 - 2-3/C # 20
 - 5-2/C # 14
 - CABINET TO H.H.1:
 - 4" R.S.C.
 - 4-12/C # 12
 - 2-3/C # 12
 - 1-3/C # 20
 - 6-2/C # 14
 - CABINET TO H.H.2:
 - 2" R.S.C.
 - 2-2/C # 14
 - 1-25 PR # 19

SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE WITH PHASES 1, 3, 5, AND 7 BEING PROTECTED / PERMITTED LEFT TURNS.

SIGNAL HEAD PHASING



- TYPE P90-A-35-D35-9 (DAVIT AT 350')
P90 POLE FOUNDATION
LUMINAIRE - 200 WATT H.P.S.
TYPE 10B POLE MOUNTED 90'
TYPE 10B POLE MOUNTED 90'
ONE WAY SIGNAL OVERHEAD
PEDESTRIAN PUSH BUTTON AND SIGN
R10-12 SIGN (36" X 48") ADJ TO 6-1
EXTEND INTO H.H. 4:
3" R.S.C.
2-12/C # 12
2-3/C # 12
2-1/C # 10
- TYPE P90-A-35-PLUS 5' EXTENSION
P90 POLE FOUNDATION
LUMINAIRE - 200 WATT H.P.S.
TYPE 10B POLE MOUNTED 90'
TYPE 10B POLE MOUNTED 180'
ONE WAY SIGNAL OVERHEAD
PEDESTRIAN PUSH BUTTON AND SIGN
EXTEND INTO H.H. 7:
3" R.S.C.
2-12/C # 12
2-3/C # 12
- TYPE P90-A-25-D35-9 (DAVIT AT 350')
P90 POLE FOUNDATION
LUMINAIRE - 200 WATT H.P.S.
TYPE 10B POLE MOUNTED 90'
TYPE 10B POLE MOUNTED 180'
ONE WAY SIGNAL OVERHEAD
PEDESTRIAN PUSH BUTTON AND SIGN
TWO WAY EYP DETECTOR AND LIGHTS
R10-12 SIGN (36" X 48") ADJ TO 2-1
EXTEND INTO H.H. 10:
3" R.S.C.
2-12/C # 12
2-3/C # 12
1-3/C # 20
2-1/C # 10
- TYPE P90-A-25-PLUS 5' EXTENSION
P90 POLE FOUNDATION
TYPE 10B POLE MOUNTED 90'
TYPE 10B POLE MOUNTED 180'
ONE WAY SIGNAL OVERHEAD
PEDESTRIAN PUSH BUTTON AND SIGN
TWO WAY EYP DETECTOR AND LIGHTS
EXTEND INTO H.H.12:
3" R.S.C.
2-12/C # 12
3-3/C # 12
1-3/C # 20

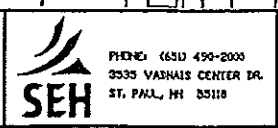
- H.H.1 TO H.H.12:
 - 2" R.S.C.
 - 2-1/C # 10
- H.H.12 TO H.H.10:
 - 4" R.S.C.
 - 2-12/C # 12
 - 2-3/C # 12
 - 1-3/C # 20
 - 5-2/C # 14
 - 2-1/C # 10
- H.H.10 TO H.H.11:
 - 2" R.S.C.
 - 2-2/C # 14
- H.H.2 TO H.H.3:
 - 2" R.S.C.
 - 2-2/C # 14
 - 1-25 PR # 19
- H.H.3 TO MATCH LINE G:
 - 2" R.S.C.
 - 1-25 PR # 19
- H.H.1 TO H.H.4:
 - 4" R.S.C.
 - 4-12/C # 12
 - 2-3/C # 12
 - 5-2/C # 14
 - 2-1/C # 10
- H.H.4 TO H.H.5:
 - 4" R.S.C.
 - 3" R.S.C.
 - 2-12/C # 12
 - 1-3/C # 20
 - 5-2/C # 14
- H.H.5 TO H.H.6:
 - 2" R.S.C.
 - 1-2/C # 14
- H.H.5 TO H.H.7:
 - 4" R.S.C.
 - 2-12/C # 12
 - 1-3/C # 12
 - 2-2/C # 14
- H.H.7 TO H.H.8:
 - 2" R.S.C.
 - 2-2/C # 14
- H.H.8 TO H.H.9:
 - 2" R.S.C.
 - 2-2/C # 14

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

DESIGN TEAM			
DRAWN BY: JMG			
DESIGNER: JMG			
CHECKED BY: JMG			
NO.	BY	DATE	REVISIONS

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.

Certified By: *[Signature]* Lic. No. 22457
 Printed Name: John K. Gray, P.E. Date: 02/04/2018



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

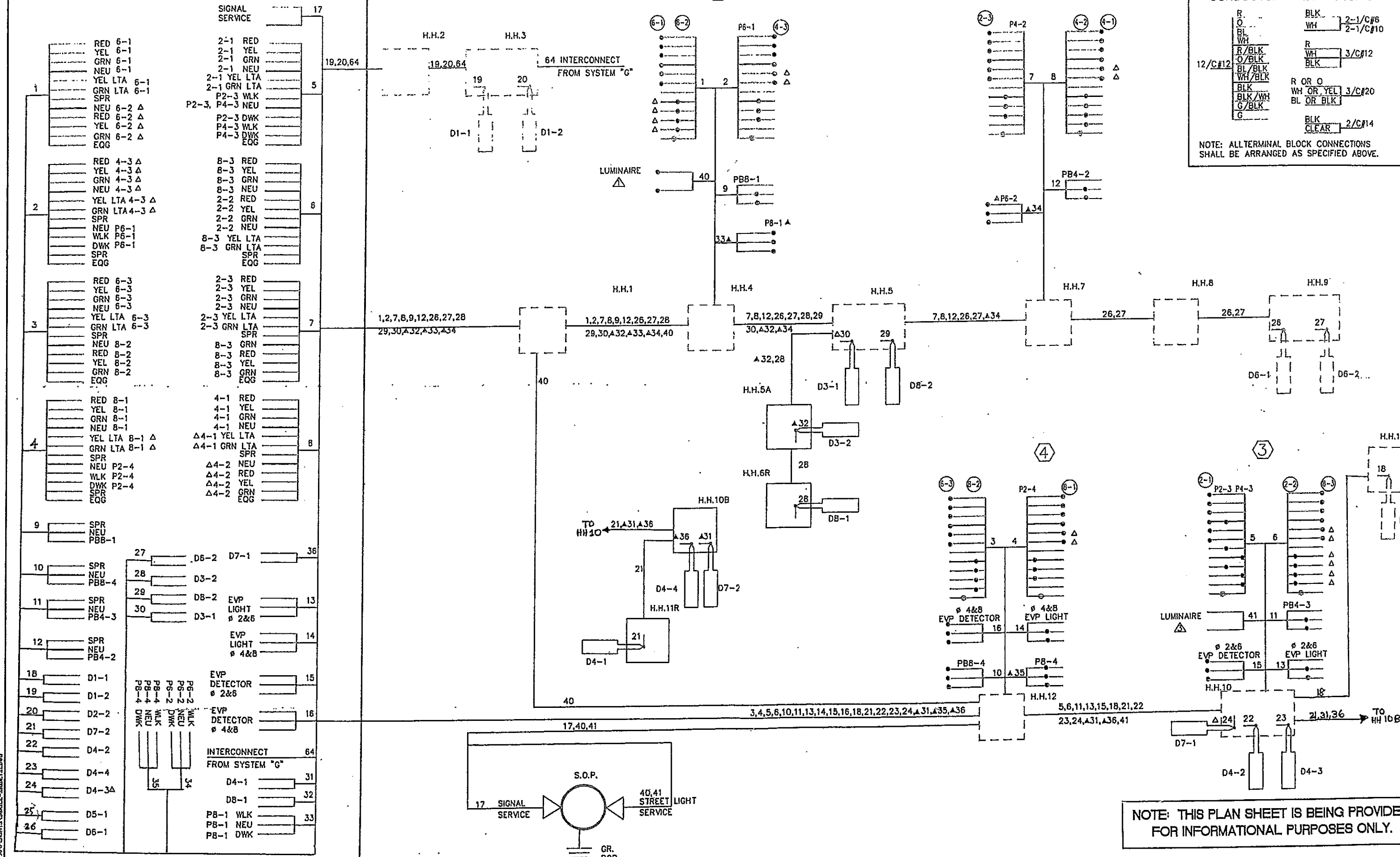
FILE NO. RAHSP108790	331
SG51 OF SG52	534

CONTROLLER CABINET

CONDUCTOR COLOR CODING

R	BLK	2-1/C#6
O	WH	2-1/C#10
BL	R	3/C#12
WH	WH	3/C#12
R/BLK	BLK	3/C#12
O/BLK	BLK	3/C#12
BL/BLK	BLK	3/C#12
WH/BLK	BLK	3/C#12
BLK	R OR O	3/C#20
BLK/WH	WH OR YEL	3/C#20
G/BLK	BL OR BLK	3/C#20
BLK	BLK	2/C#14
CLEAR	CLEAR	2/C#14

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

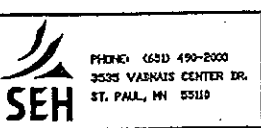


NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

DESIGN TEAM			
DRAWN BY:	JMG		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

INPLACE SIGNAL SYSTEM 'D'
 'FOR INFORMATION ONLY'
 RICE STREET (CSAH 49) AT COUNTY ROAD B2

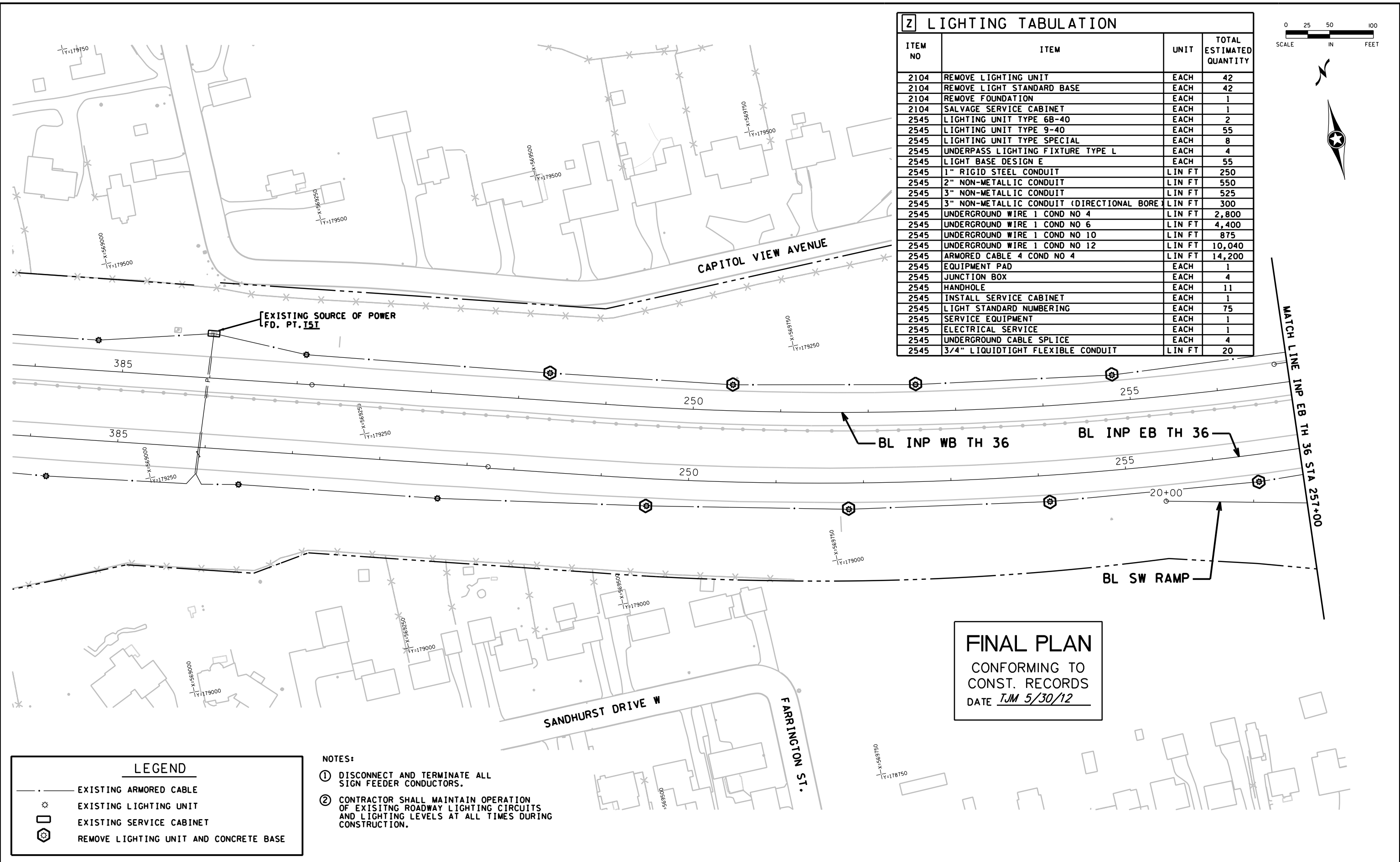
FILE NO. RAMSP108790	332
SG52 OF SG52	534

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6/7/2012

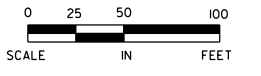
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2 LIGHTING TABULATION

ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY
2104	REMOVE LIGHTING UNIT	EACH	42
2104	REMOVE LIGHT STANDARD BASE	EACH	42
2104	REMOVE FOUNDATION	EACH	1
2104	SALVAGE SERVICE CABINET	EACH	1
2545	LIGHTING UNIT TYPE 6B-40	EACH	2
2545	LIGHTING UNIT TYPE 9-40	EACH	55
2545	LIGHTING UNIT TYPE SPECIAL	EACH	8
2545	UNDERPASS LIGHTING FIXTURE TYPE L	EACH	4
2545	LIGHT BASE DESIGN E	EACH	55
2545	1" RIGID STEEL CONDUIT	LIN FT	250
2545	2" NON-METALLIC CONDUIT	LIN FT	550
2545	3" NON-METALLIC CONDUIT	LIN FT	525
2545	3" NON-METALLIC CONDUIT (DIRECTIONAL BORE)	LIN FT	300
2545	UNDERGROUND WIRE 1 COND NO 4	LIN FT	2,800
2545	UNDERGROUND WIRE 1 COND NO 6	LIN FT	4,400
2545	UNDERGROUND WIRE 1 COND NO 10	LIN FT	875
2545	UNDERGROUND WIRE 1 COND NO 12	LIN FT	10,040
2545	ARMORED CABLE 4 COND NO 4	LIN FT	14,200
2545	EQUIPMENT PAD	EACH	1
2545	JUNCTION BOX	EACH	4
2545	HANDHOLE	EACH	11
2545	INSTALL SERVICE CABINET	EACH	1
2545	LIGHT STANDARD NUMBERING	EACH	75
2545	SERVICE EQUIPMENT	EACH	1
2545	ELECTRICAL SERVICE	EACH	1
2545	UNDERGROUND CABLE SPLICE	EACH	4
2545	3/4" LIQUIDTIGHT FLEXIBLE CONDUIT	LIN FT	20



EXISTING SOURCE OF POWER
FD. PT. 151

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE JUN 5/30/12

LEGEND

	EXISTING ARMORED CABLE
	EXISTING LIGHTING UNIT
	EXISTING SERVICE CABINET
	REMOVE LIGHTING UNIT AND CONCRETE BASE

- NOTES:**
- DISCONNECT AND TERMINATE ALL SIGN FEEDER CONDUCTORS.
 - CONTRACTOR SHALL MAINTAIN OPERATION OF EXISTING ROADWAY LIGHTING CIRCUITS AND LIGHTING LEVELS AT ALL TIMES DURING CONSTRUCTION.

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY: <u>MIT</u>				
DESIGNER: <u>SRH,HLF</u>				
CHECKED BY: <u>KLE</u>				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: Bret W. Johnson Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

SALVAGE AND REMOVE LIGHTING PLAN
 INP EB TH 36 STA 384+00 TO 257+00

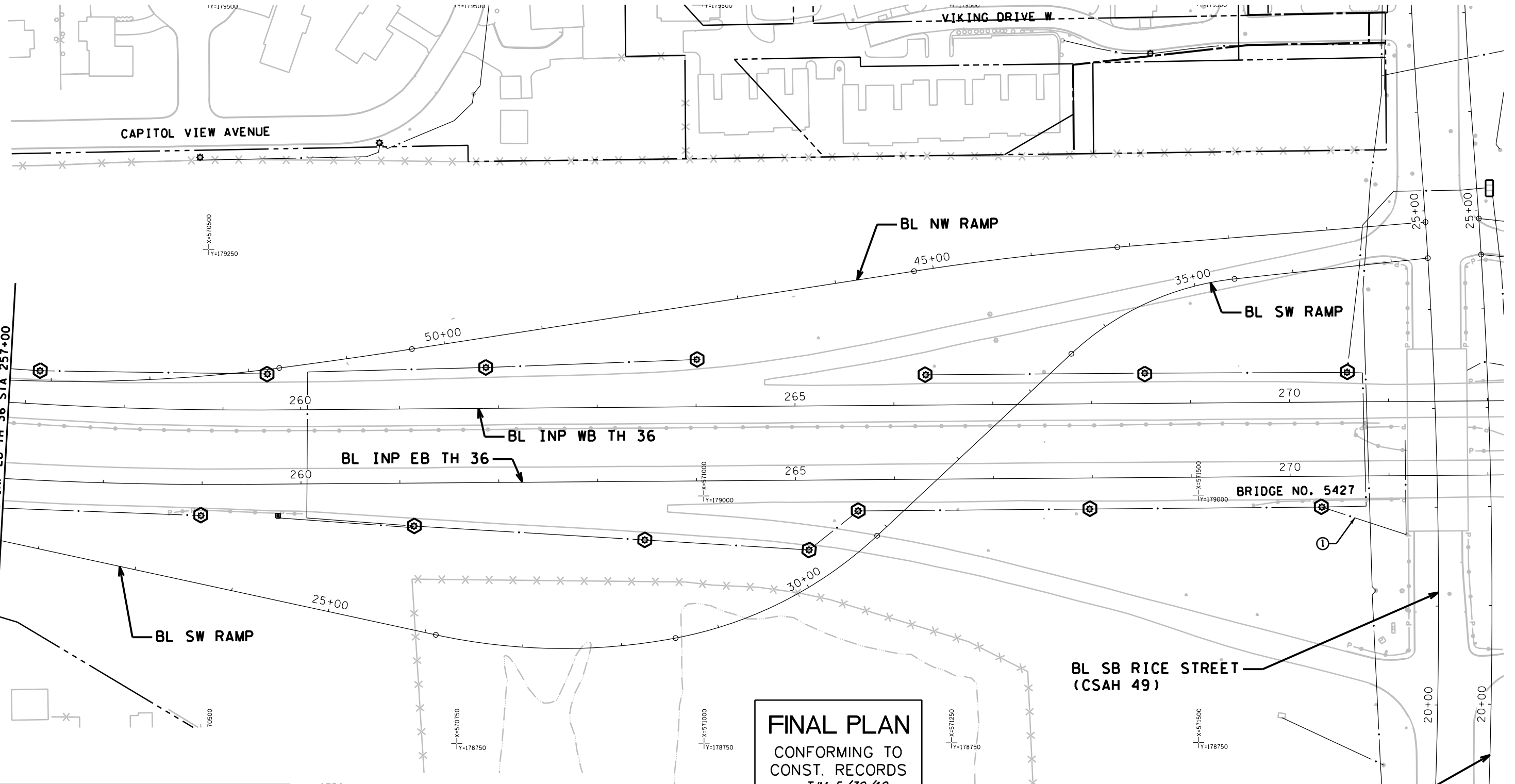
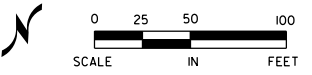
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 LT1 OF LTH
534

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2LT-ram



FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

LEGEND	
	EXISTING ARMORED CABLE
	EXISTING LIGHTING UNIT
	EXISTING SERVICE CABINET
	REMOVE LIGHTING UNIT AND CONCRETE BASE

- NOTES:**
- DISCONNECT AND TERMINATE ALL SIGN FEEDER CONDUCTORS.
 - CONTRACTOR SHALL MAINTAIN OPERATION OF EXISTING ROADWAY LIGHTING CIRCUITS AND LIGHTING LEVELS AT ALL TIMES DURING CONSTRUCTION.

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY:	MIT			
DESIGNER:	SRH,HLF			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.
 Certified By: Lic. No. 25087
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

SALVAGE AND REMOVAL LIGHTING PLAN
 INP EB TH 36 STA 257+00 TO 272+00

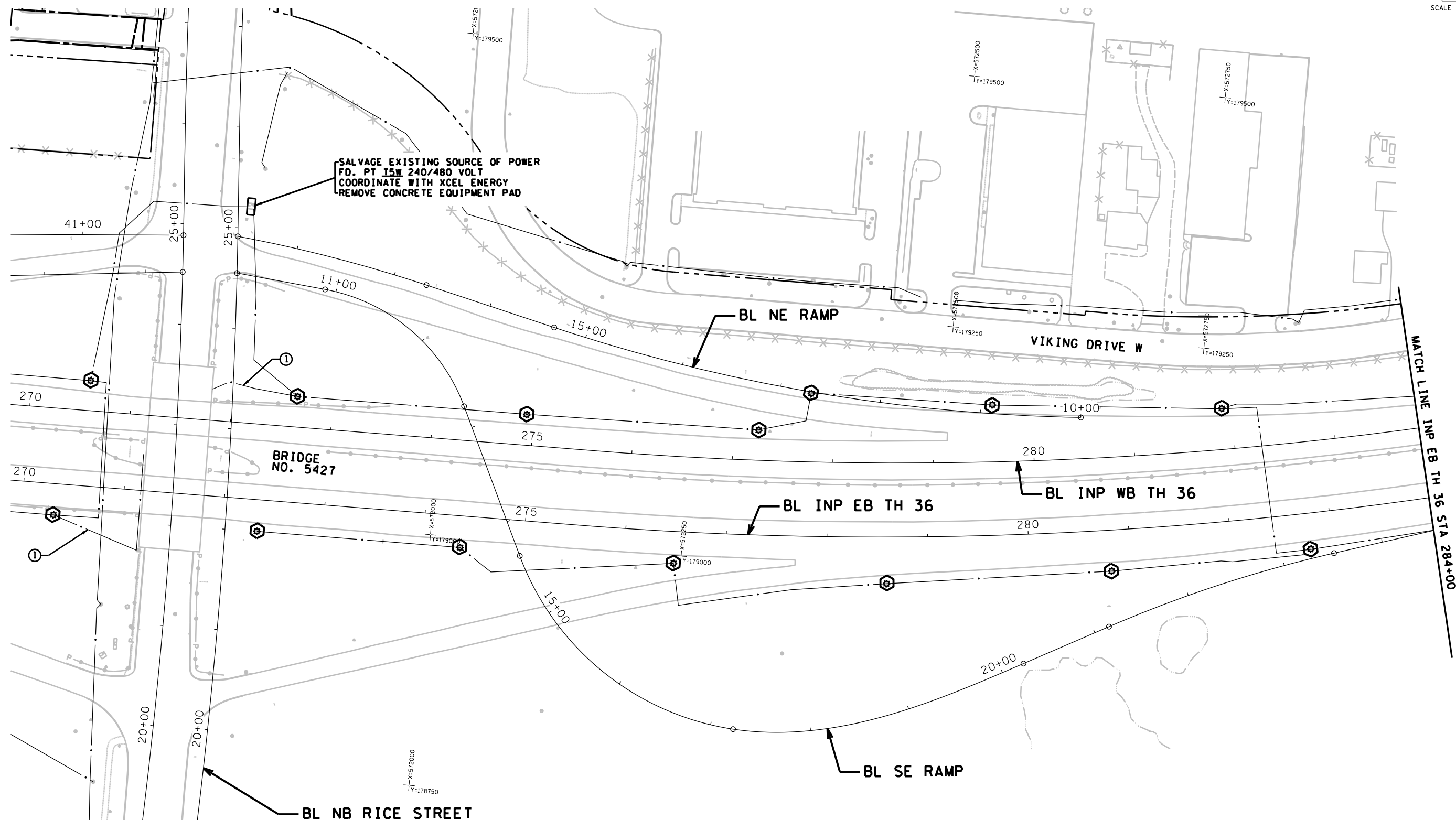
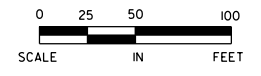
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LT2 OF LTH	534

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6/7/2012

mitron

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SALVAGE EXISTING SOURCE OF POWER
 FD. PT ISM 240/480 VOLT
 COORDINATE WITH XCEL ENERGY
 REMOVE CONCRETE EQUIPMENT PAD

FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

LEGEND	
—	EXISTING ARMORED CABLE
⊛	EXISTING LIGHTING UNIT
□	EXISTING SERVICE CABINET
⊛	REMOVE LIGHTING UNIT AND CONCRETE BASE

- NOTES:
- DISCONNECT AND TERMINATE ALL SIGN FEEDER CONDUCTORS.
 - CONTRACTOR SHALL MAINTAIN OPERATION OF EXISTING ROADWAY LIGHTING CIRCUITS AND LIGHTING LEVELS AT ALL TIMES DURING CONSTRUCTION.

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	SRH,HLF			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

SALVAGE AND REMOVAL LIGHTING PLAN
 INP EB TH 36 STA 272+00 TO 284+00

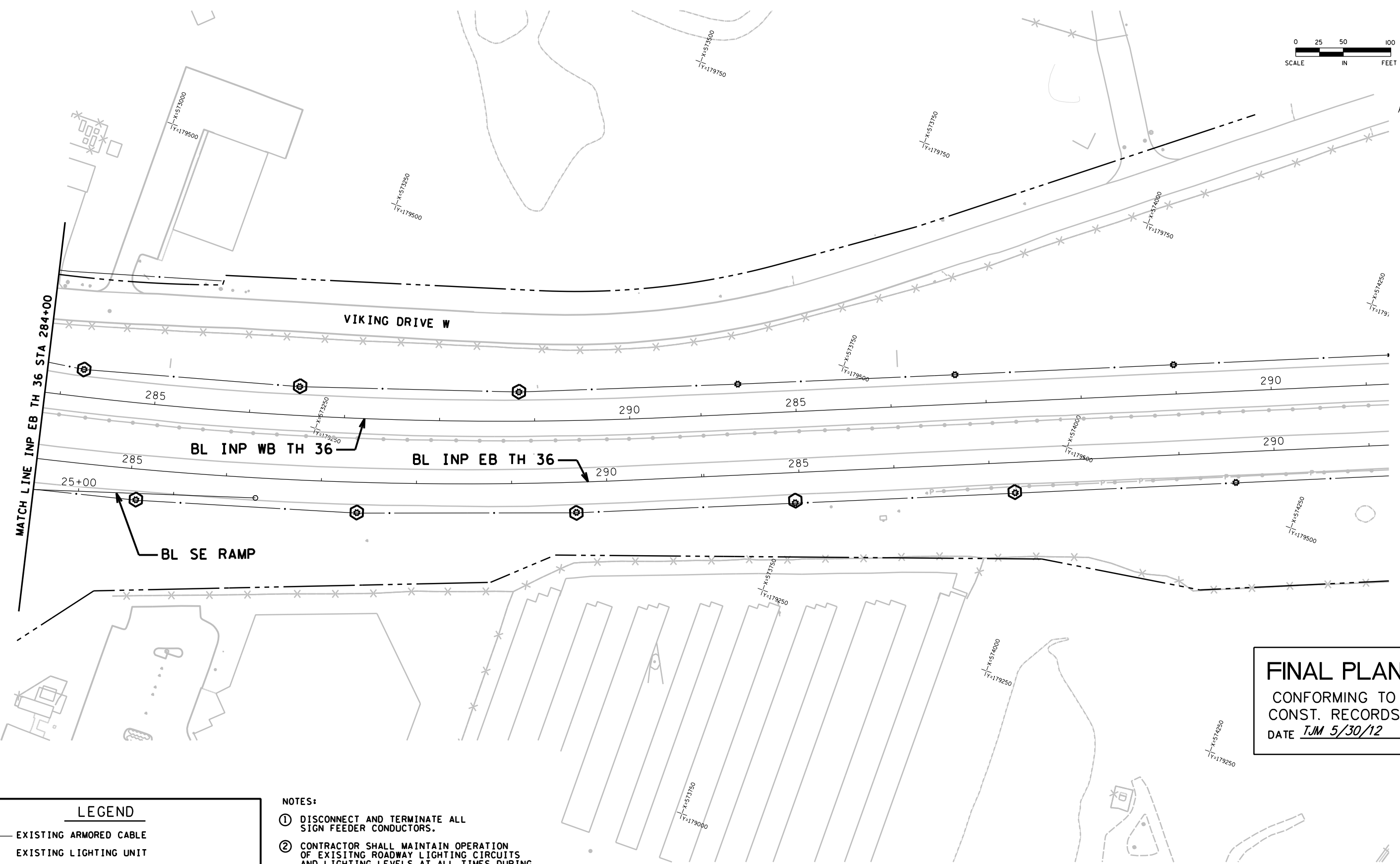
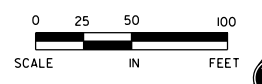
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LT3 OF LTH	534

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FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

LEGEND			
	EXISTING ARMORED CABLE		
	EXISTING LIGHTING UNIT		
	EXISTING SERVICE CABINET		
	REMOVE LIGHTING UNIT AND CONCRETE BASE		

- NOTES:**
- DISCONNECT AND TERMINATE ALL SIGN FEEDER CONDUCTORS.
 - CONTRACTOR SHALL MAINTAIN OPERATION OF EXISTING ROADWAY LIGHTING CIRCUITS AND LIGHTING LEVELS AT ALL TIMES DURING CONSTRUCTION.

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY: <u>MIT</u>				
DESIGNER: <u>SRH,HLF</u>				
CHECKED BY: <u>KLE</u>				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: Bret W. Johnson Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

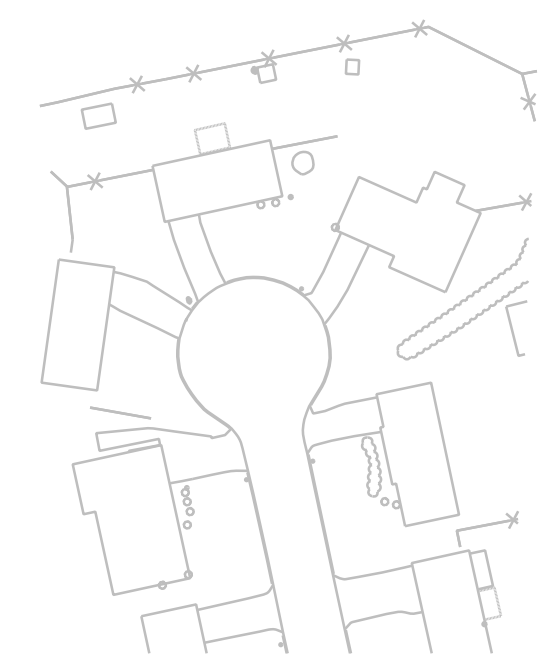
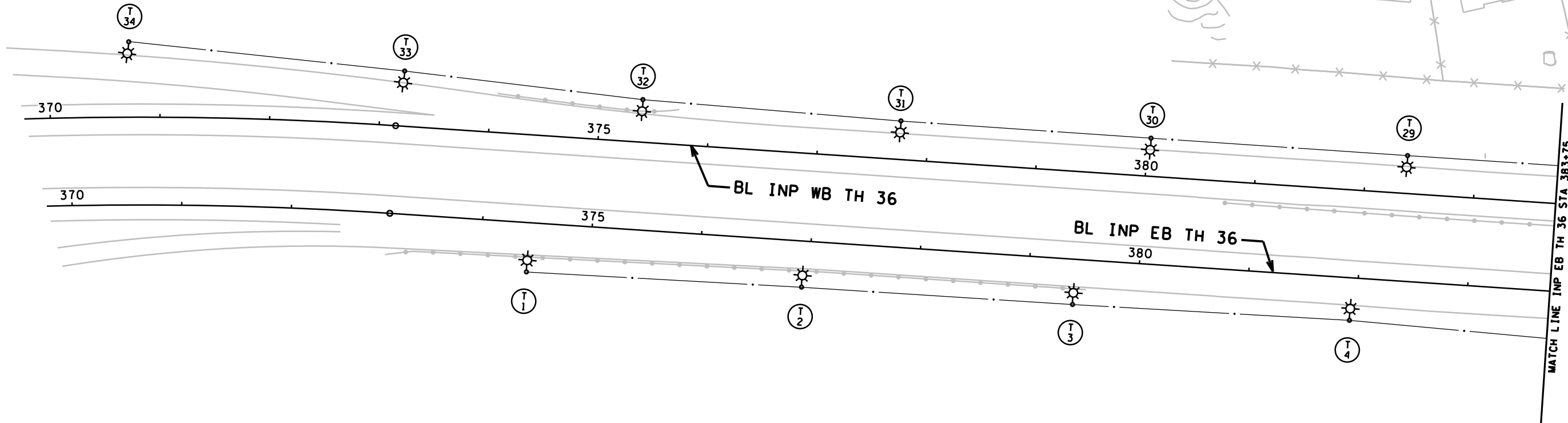
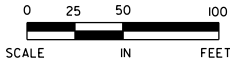
PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

SALVAGE AND REMOVAL LIGHTING PLAN
 INP EB TH 36 STA 284+00 TO 291+00

FILE NO. RAMSP108790	336
LT4 OF LTH	534

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FD. PT. T5T

LIGHTING STANDARDS AND BASES					
NO.	LOCATION	STATION	LT.	RT.	TYPE
T1	TH 36 EB	374+43	-	-	13-40
T2	TH 36 EB	376+94	-	-	13-40
T3	TH 36 EB	379+42	-	-	13-40
T4	TH 36 EB	381+95	-	-	13-40
T5	TH 36 EB	384+21	-	-	13-40
T6	TH 36 EB	386+41	-	-	13-40
T7	TH 36 EB	388+69	-	-	13-40
T27	TH 36 WB	387+09	-	-	13-40
T28	TH 36 WB	384+70	-	-	13-40
T29	TH 36 WB	382+37	-	-	13-40
T30	TH 36 WB	380+03	-	-	13-40
T31	TH 36 WB	377+74	-	-	13-40
T32	TH 36 WB	375+38	-	-	13-40
T33	TH 36 WB	373+20	-	-	13-40
T34	TH 36 WB	370+72	-	-	13-40

LEGEND

- EXISTING LIGHTING UNIT
- EXISTING SOURCE OF POWER
- DIRECT BURIED 4 CONDUCTOR NO.4 AWG ARMORED CABLE
- EXISTING ARMORED CABLE
- LIGHTING UNIT
- UNDERPASS LIGHTING UNIT
- GROUND ROD (25 OHM OR LESS)
- LIGHTING UNIT NUMBER
- 3" NMC SCH. 80 (DIRECT BORE)
- 2" CONDUIT
- PULL BOX

FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

DESIGN TEAM	1	KST	6/4/12
DRAWN BY: <u>MTT</u>			
DESIGNER: <u>SRH,HLF</u>			
CHECKED BY: <u>KLE</u>			

RECORD DRAWING	
REVISIONS	
NO.	BY DATE

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PHONE: (651)490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LIGHTING PLAN
 INP EB TH 36 STA 370+00 TO 383+75

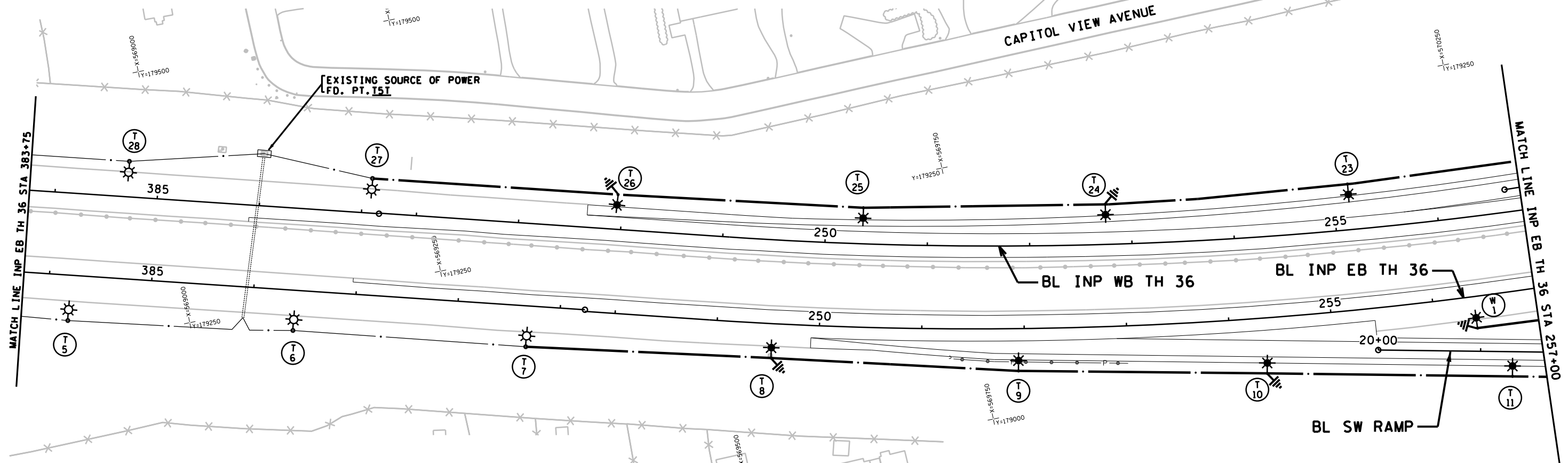
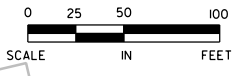
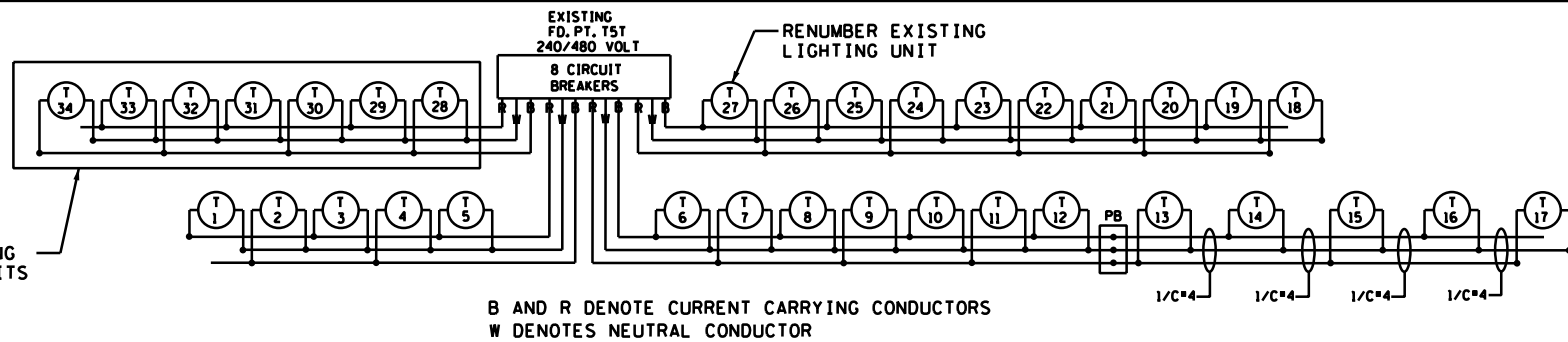
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LT5A	
OF LTI	534

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FD. PT. T5T

LIGHTING STANDARDS AND BASES					
NO.	LOCATION	STATION	LT.	RT.	TYPE
T8	TH 36 EB	249+54	-	-	9-40
T9	TH 36 EB	251+94	-	-	9-40
T10	TH 36 EB	254+34	-	-	9-40
T11	SW RAMP	21+31	-	-	9-40
T12	SW RAMP	23+71	-	-	9-40
T13	SW RAMP	26+11	-	-	6B-40
T14	SW RAMP	28+51	-	-	6B-40
T15	SW RAMP	30+58	-	-	6B-40
T16	SW RAMP	32+96	-	-	6B-40
T17	SW RAMP	35+46	-	-	9-40
T18	NW RAMP	43+98	-	-	9-40
T19	NW RAMP	46+38	-	-	9-40
T20	NW RAMP	48+78	-	-	9-40
T21	NW RAMP	51+18	-	-	9-40
T22	NW RAMP	53+58	-	-	9-40
T23	TH 36 WB	255+15	-	-	9-40
T24	TH 36 WB	252+75	-	-	9-40
T25	TH 36 WB	250+35	-	-	9-40
T26	TH 36 WB	247+94	-	-	9-40

LEGEND

- EXISTING LIGHTING UNIT
- EXISTING SOURCE OF POWER
- DIRECT BURIED 4 CONDUCTOR NO.4 AWG ARMORED CABLE
- EXISTING ARMORED CABLE
- LIGHTING UNIT
- UNDERPASS LIGHTING UNIT
- GROUND ROD (25 OHM OR LESS)
- LIGHTING UNIT NUMBER
- 3" NMC SCH. 80 (DIRECT BORE)
- 2" CONDUIT
- PULL BOX

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

DESIGN TEAM	1	KST	6/4/12
DRAWN BY:	MTT		
DESIGNER:	SRH,HLF		
CHECKED BY:	KLE		

NO.	BY	DATE	REVISIONS

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Printed Name: BRET W. JOHNSON Date: 3/3/2010

PHONE: (651)490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LIGHTING PLAN
INP EB TH 36 STA 383+75 TO 257+00

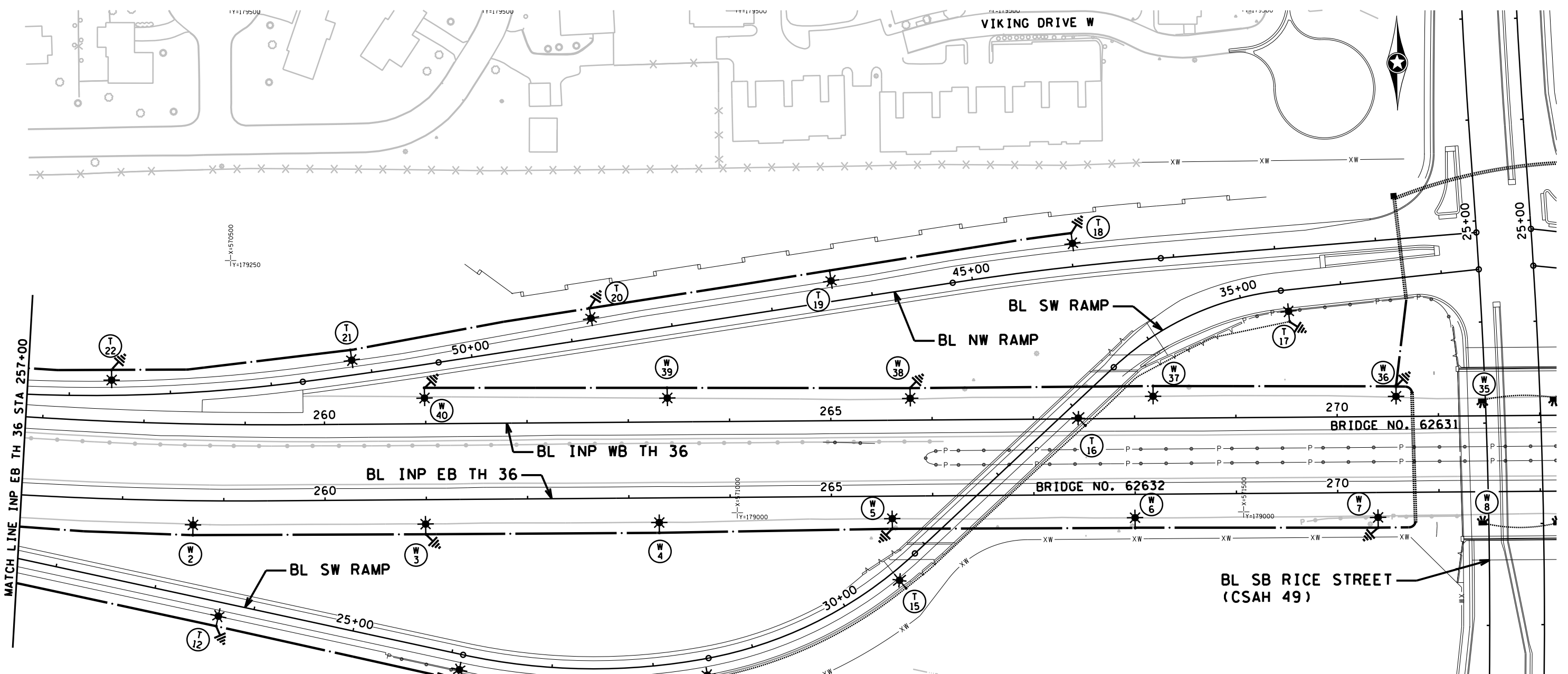
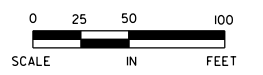
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RAMSP108790
LT5B
OF LTH **534**

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6/7/2012

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LEGEND

- EXISTING LIGHTING UNIT
- EXISTING SOURCE OF POWER
- DIRECT BURIED 4 CONDUCTOR NO. 4 AWG ARMORED CABLE
- EXISTING ARMORED CABLE
- LIGHTING UNIT
- UNDERPASS LIGHTING UNIT
- GROUND ROD (25 OHM OR LESS)
- LIGHTING UNIT NUMBER
- 3" NMC SCH. 80 (DIRECT BORE)
- 2" CONDUIT
- PULL BOX

FD. PT. T5W

LIGHTING STANDARDS AND BASES

NO.	LOCATION	STATION	LT.	RT.	TYPE
W1	INP TH 36 EB	256+40	-	-	9-40
W2	INP TH 36 EB	258+70	-	-	9-40
W3	INP TH 36 EB	261+00	-	-	9-40
W4	INP TH 36 EB	263+30	-	-	9-40
W5	INP TH 36 EB	265+60	-	-	9-40
W6	INP TH 36 EB	268+00	-	-	9-40
W7	INP TH 36 EB	270+40	-	-	9-40
W10	INP TH 36 EB	273+55	-	-	9-40
W11	INP TH 36 EB	276+30	-	-	9-40
W12	INP TH 36 EB	278+60	-	-	9-40
W13	INP TH 36 EB	280+90	-	-	9-40
W14	SE RAMP	23+58	-	-	9-40
W15	SE RAMP	25+88	-	-	9-40
W16	INP TH 36 EB	287+59	-	-	9-40
W17	INP TH 36 EB	289+84	-	-	9-40
W18	INP TH 36 EB	285+04	-	-	9-40
W19	INP TH 36 EB	287+29	-	-	9-40

FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE *TJM 5/30/12*

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY:	MIT			
DESIGNER:	SRH,HLF			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LIGHTING PLAN
 INP EB TH 36 STA 257+00 TO 272+00

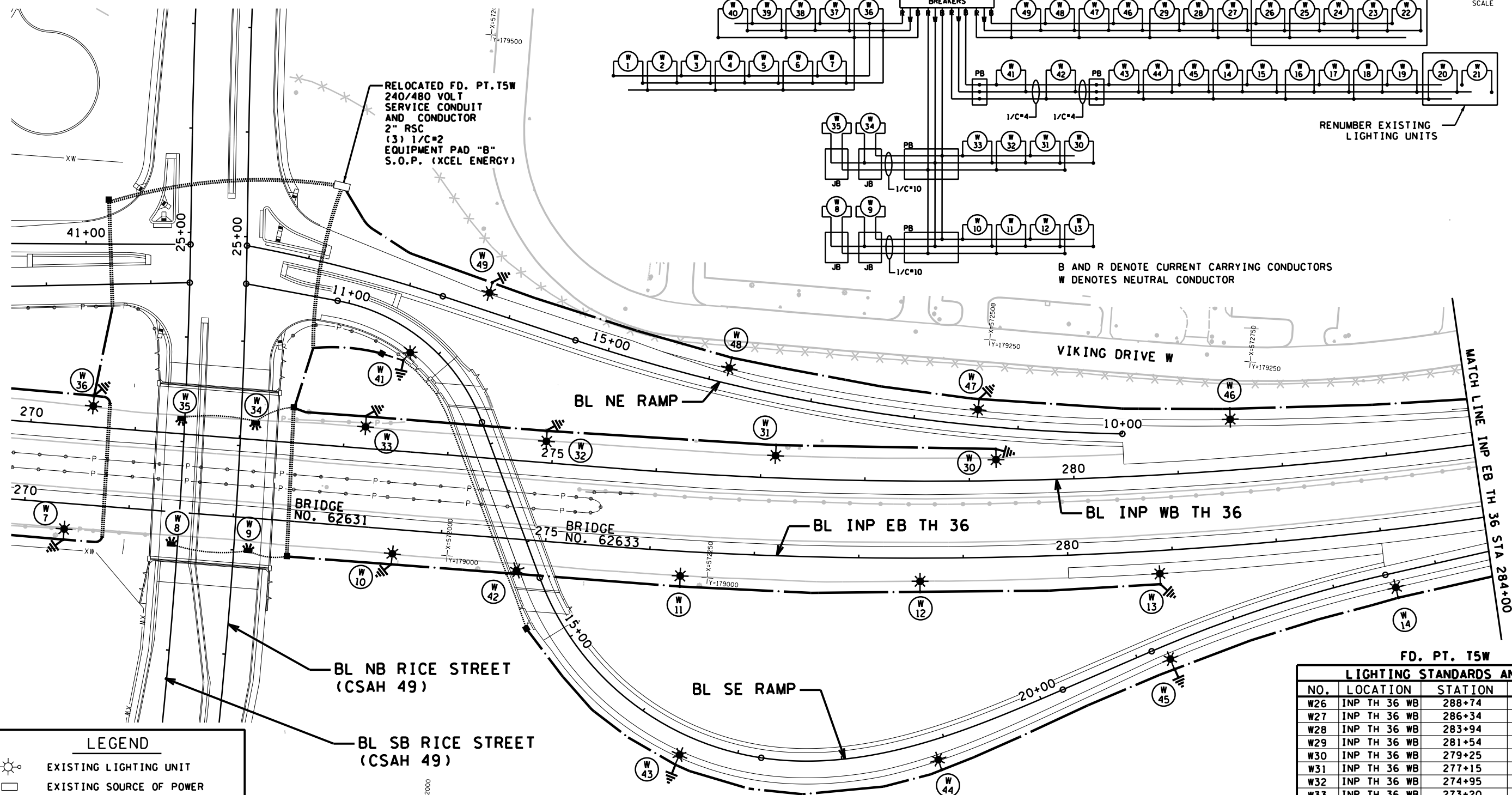
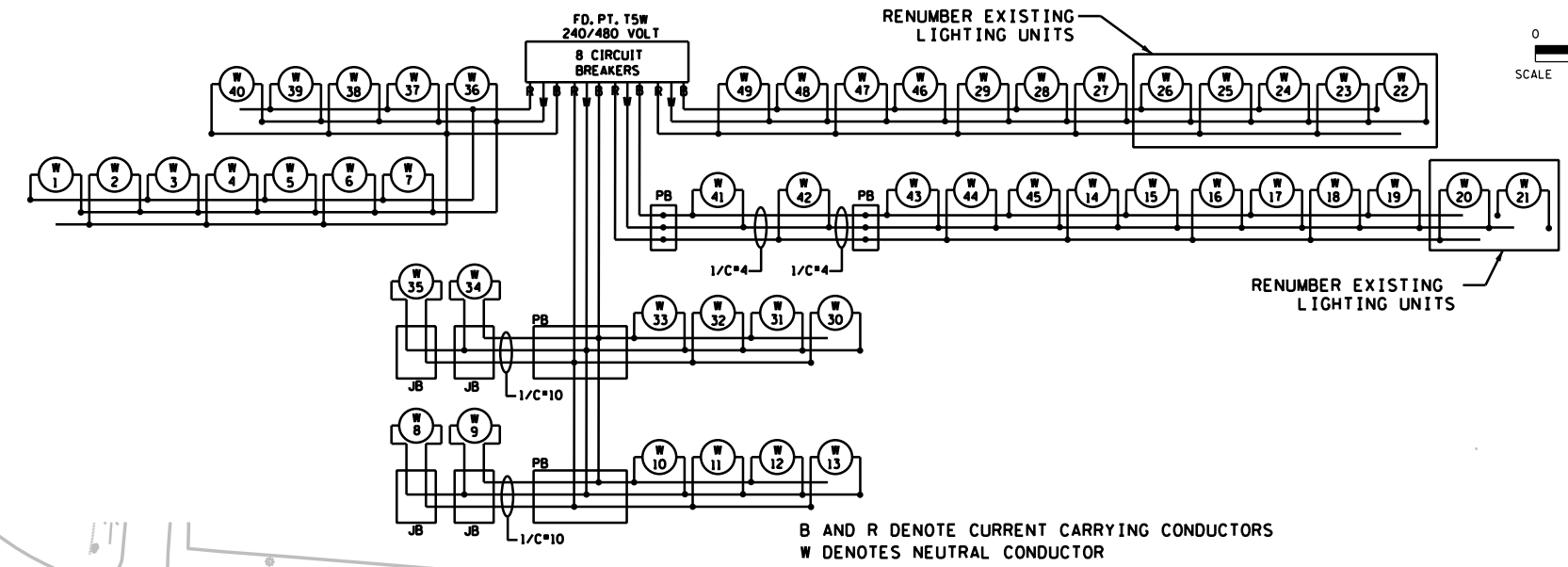
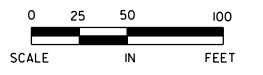
FILE NO. **338**
 RAMSP08790
 LT6 OF LTH
534

6/08/15 PM

6/7/2012

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LEGEND

- EXISTING LIGHTING UNIT
- EXISTING SOURCE OF POWER
- DIRECT BURIED 4 CONDUCTOR NO. 4 AWG ARMORED CABLE
- EXISTING ARMORED CABLE
- LIGHTING UNIT
- UNDERPASS LIGHTING UNIT
- GROUND ROD (25 OHM OR LESS)
- LIGHTING UNIT NUMBER
- 3" NMC SCH. 80 (DIRECT BORE)
- 2" CONDUIT
- PULL BOX

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

**FD. PT. T5W
LIGHTING STANDARDS AND BASES**

NO.	LOCATION	STATION	LT. RT.	TYPE
W26	INP TH 36 WB	288+74	-	9-40
W27	INP TH 36 WB	286+34	-	9-40
W28	INP TH 36 WB	283+94	-	9-40
W29	INP TH 36 WB	281+54	-	9-40
W30	INP TH 36 WB	279+25	-	9-40
W31	INP TH 36 WB	277+15	-	9-40
W32	INP TH 36 WB	274+95	-	9-40
W33	INP TH 36 WB	273+20	-	9-40
W36	INP TH 36 WB	270+58	-	9-40
W37	INP TH 36 WB	268+18	-	9-40
W38	INP TH 36 WB	265+78	-	9-40
W39	INP TH 36 WB	263+38	-	9-40
W40	INP TH 36 WB	260+98	-	9-40
W41	SE RAMP	11+77	-	9-40
W42	SE RAMP	14+22	-	6B-40
W43	SE RAMP	16+49	-	9-40
W44	SE RAMP	18+89	-	9-40
W45	SE RAMP	21+29	-	9-40
W46	NE RAMP	11+40	-	9-40
W47	NE RAMP	13+80	-	9-40
W48	NE RAMP	16+20	-	9-40

DESIGN TEAM	NO.	BY	DATE	REVISIONS
1	KST	6/4/12		RECORD DRAWING

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.

Certified By: Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LIGHTING PLAN
INP EB TH 36 STA 272+00 TO 284+00

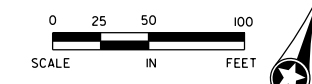
FILE NO. **339**
RAMSP108790
LT7 OF LTH
534

6/08:17 PM

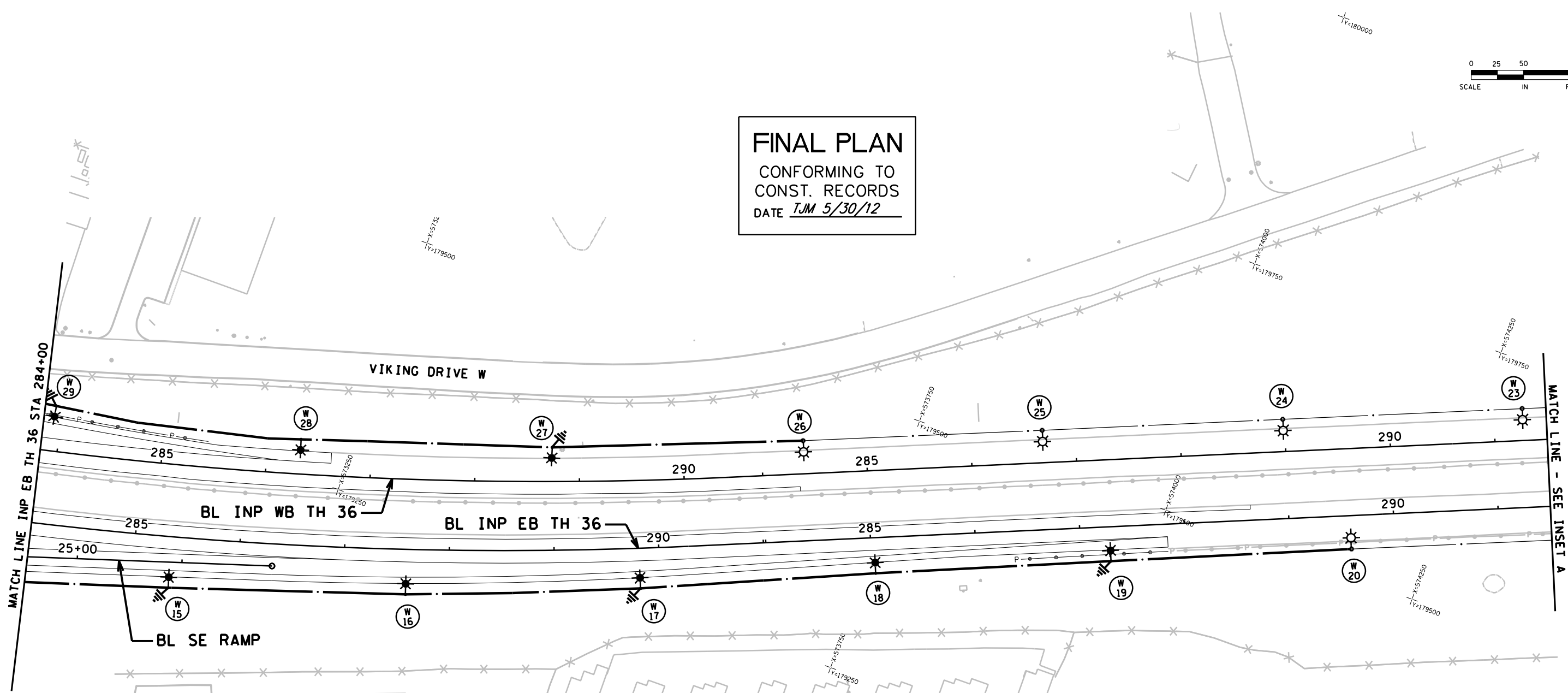
6/7/2012

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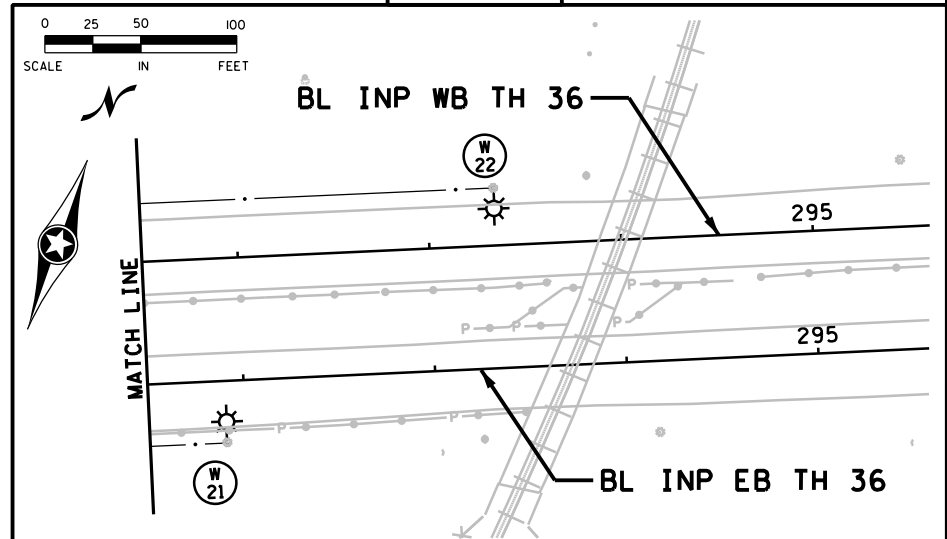
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4LT



FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12



INSET A



LEGEND

- EXISTING LIGHTING UNIT
- EXISTING SOURCE OF POWER
- DIRECT BURIED 4 CONDUCTOR NO.4 AWG ARMORED CABLE
- EXISTING ARMORED CABLE
- LIGHTING UNIT
- UNDERPASS LIGHTING UNIT
- GROUND ROD (25 OHM OR LESS)
- LIGHTING UNIT NUMBER
- 3" NMC SCH. 80 (DIRECT BORE)
- 2" CONDUIT
- PULL BOX

FD. PT. T5W

LIGHTING STANDARDS AND BASES				
NO.	LOCATION	STATION	LT.	RT. TYPE
W8	INP TH 36 EB	271+42	-	L
W9	INP TH 36 EB	272+15	-	L
W34	INP TH 36 WB	271+15	-	L
W35	INP TH 36 WB	271+42	-	L

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY: MTT				
DESIGNER: SRH,HLF				
CHECKED BY: KLE				
NO.	BY	DATE	REVISIONS	

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LIGHTING PLAN
 INP EB TH 36 STA 284+00 TO 291+00

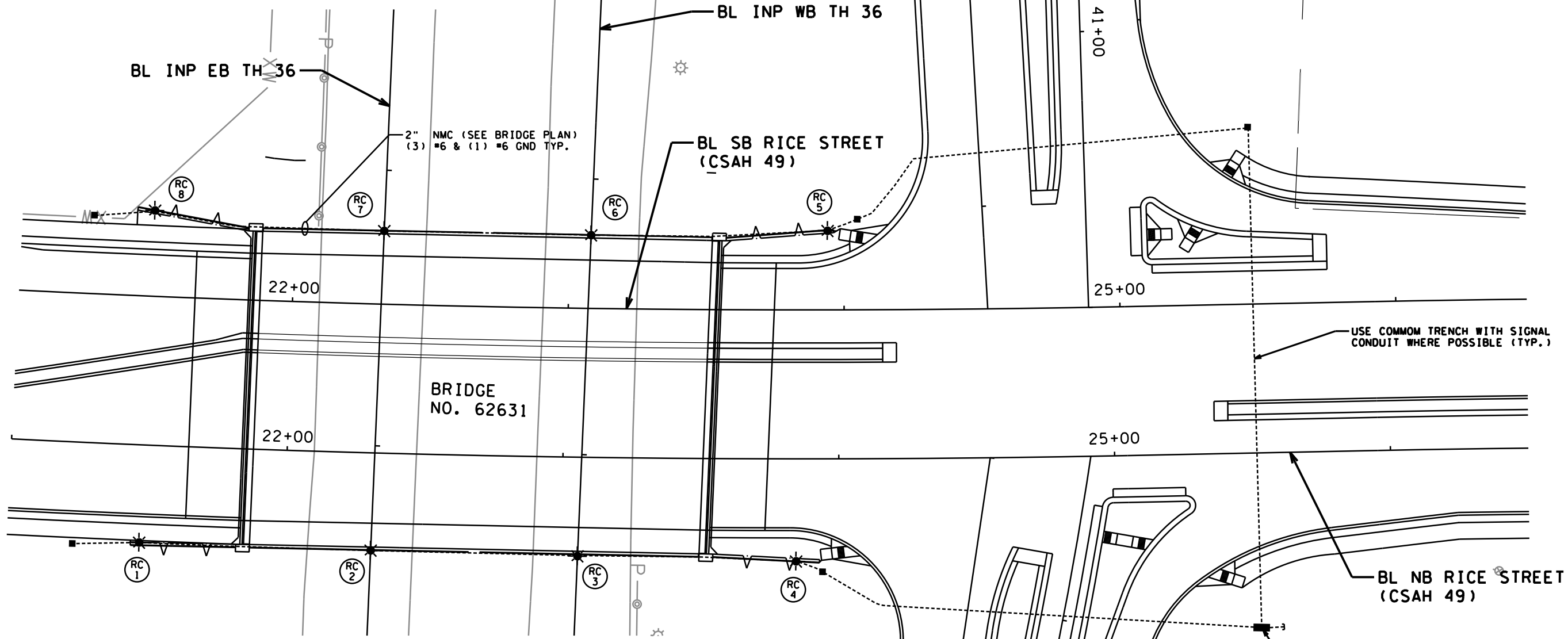
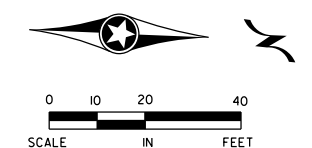
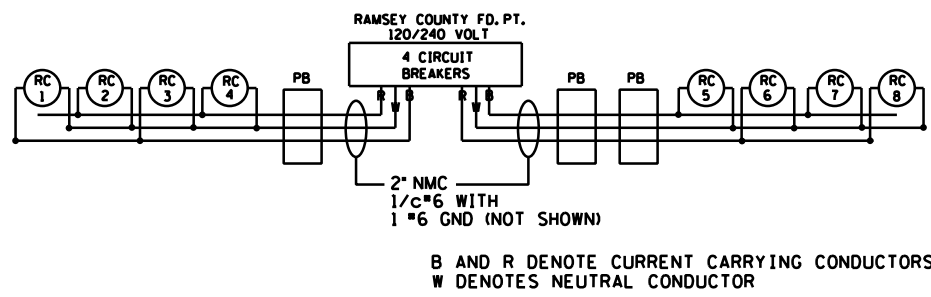
FILE NO. **340**
 RAMSP08790
 LT8 OF LTH **534**

6/08/18 PM

6/7/2012

mtron

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LEGEND

- LIGHTING UNIT TYPE SPECIAL
- 2" CONDUIT
- LIGHTING UNIT NUMBER
- PULL BOX

RAMSEY COUNTY FD. PT LIGHTING STANDARDS AND BASES

NO.	LOCATION	STATION	LT.	RT.	TYPE
RC1	NB RICE ST	21+48	-	-	SPECIAL
RC2	NB RICE ST	22+31	-	-	SPECIAL
RC3	NB RICE ST	23+06	-	-	SPECIAL
RC4	NB RICE ST	23+85	-	-	SPECIAL
RC5	SB RICE ST	23+94	-	-	SPECIAL
RC6	SB RICE ST	23+08	-	-	SPECIAL
RC7	SB RICE ST	22+33	-	-	SPECIAL
RC8	SB RICE ST	21+49	-	-	SPECIAL

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	SRH,HLF			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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.

Certified By: Lic. No. 25087
Licensed Professional Engineer

Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RICE STREET BRIDGE LIGHTING

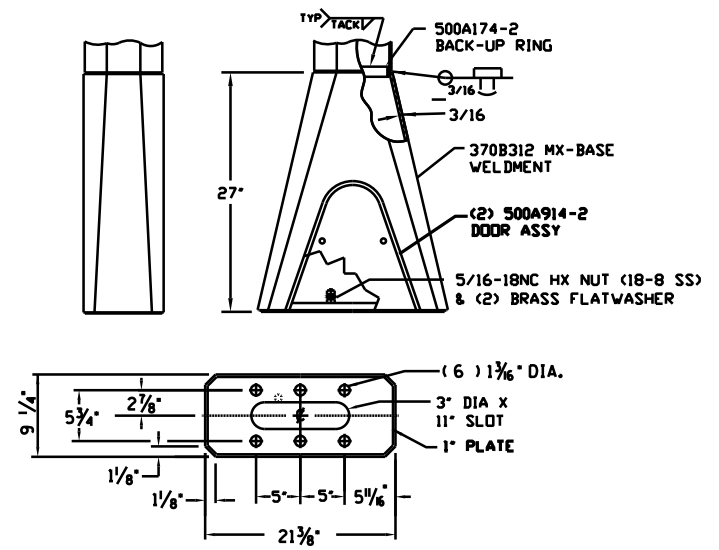
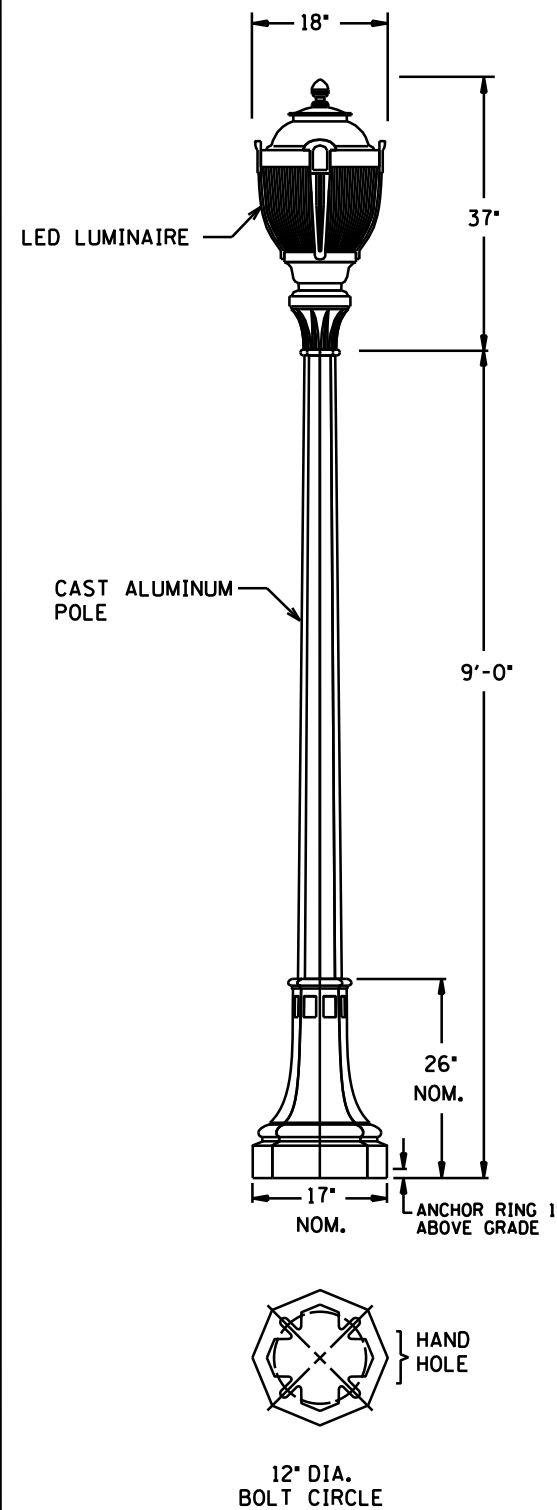
FILE NO. **341**
RAMSP08790
LT9 OF LTH
534

6/08/19 PM

6/7/2012

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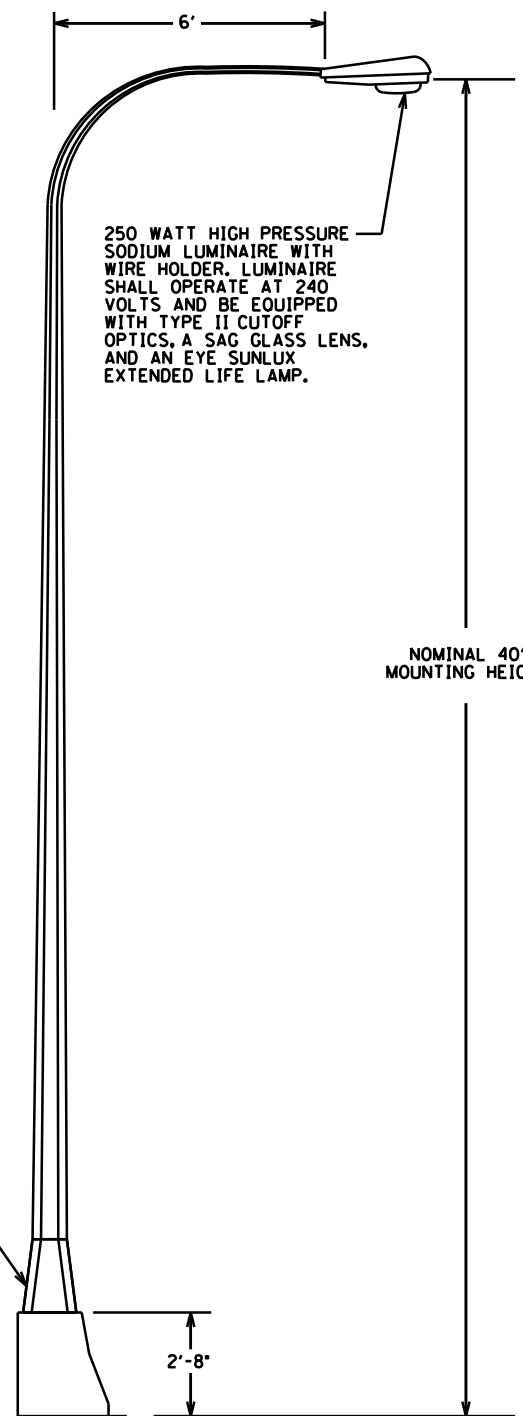
BASE PLATE DETAIL FOR BRIDGE POLES AND MEDIAN BARRIER POLES WITH 6 ANCHOR BOLTS

NOTES:

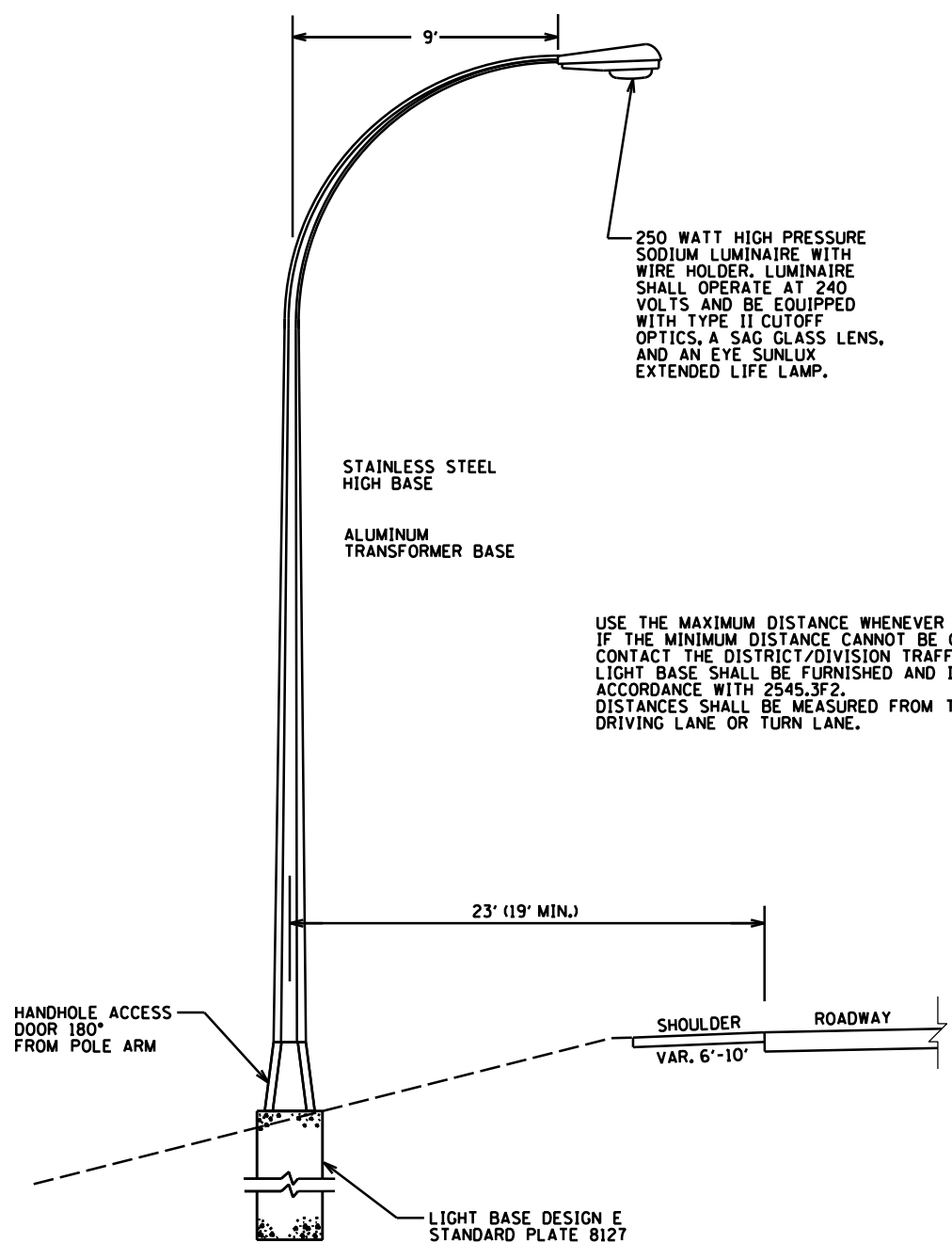
- SKIRT MATERIAL-HIGH STRENGTH LOW ALLOY STEEL 50,000 PSI MIN YIELD PER ASTM A607 (A606 IF SELF WEATHERING) BASE PLATE MATERIAL 36,000 PSI MIN YIELD PER ASTM A36 (A588 IF SELF WEATHERING)
- FINISH-TO MATCH POLE

(2 DOOR)

ITEM NO	PART NO	DESCRIPTION
1	370B312-1	SKIRT WELDMENT 3/16X9.6DAC (6 BOLT)
2	370B313-1	(2) SKIRT HALF 3/16X9.6DAC (WITH DOOR)
3	500A914-2	DOOR ASSY



LIGHTING UNIT TYPE 6B-40



LIGHTING UNIT TYPE 9-40 (BREAKAWAY)

FINAL PLAN
 CONFORMING TO
 CONST. RECORDS
 DATE TJM 5/30/12

LIGHTING UNIT TYPE SPECIAL

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY:	MTT			
DESIGNER:	SRH,HLF			
CHECKED BY:	KLE			
NO.	BY	DATE	REVISIONS	

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 Certified By: Bret W. Johnson Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LIGHTING DETAILS

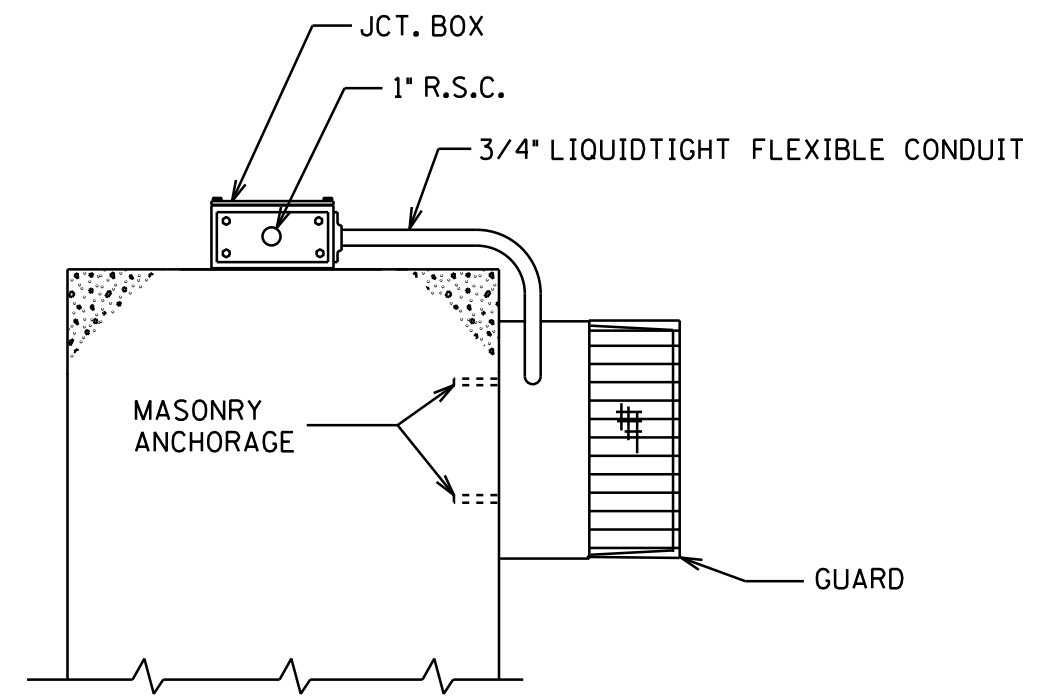
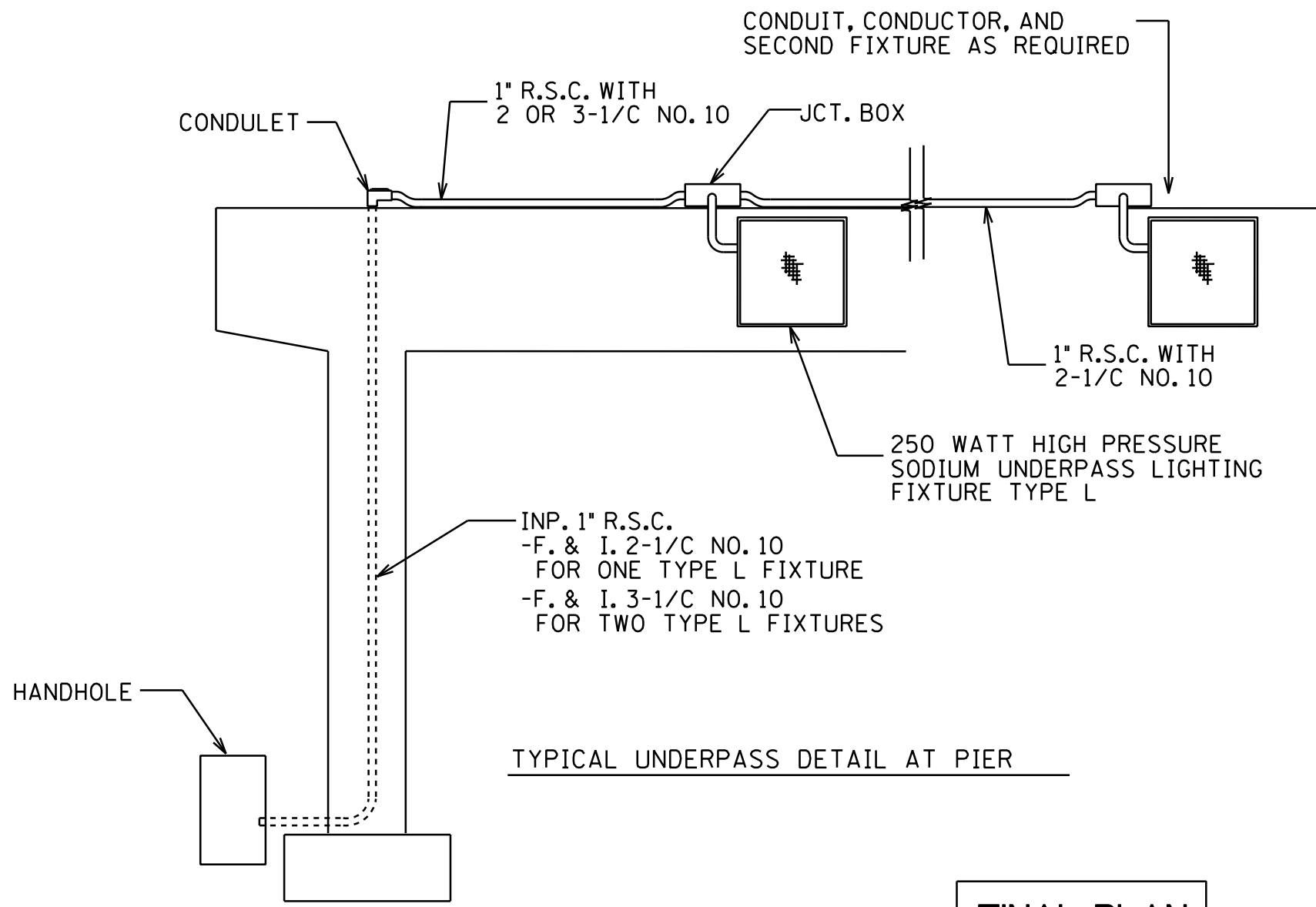
FILE NO. **342**
 RAMSP08790
 LT10
 OF LTH **534**

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2: it detail



UNDERPASS LIGHTING FIXTURE TYPE L
250 WATT HIGH PRESSURE SODIUM

1. THE JUNCTION BOXES SHALL BE 8-1/2"L. X 8-1/2"W. X 4"D. WITH REMOVABLE HUB PLATES AND MOUNTING LUGS .
2. FASTEN RIGID STEEL CONDUIT WITH CABLE CLAMPS ABOUT 5'-0" ON CENTER.
3. FASTEN CLAMPS AND JUNCTION BOXES TO CONCRETE WITH MASONRY ANCHORAGES OR POWER ACTIVATED STUDS.
4. LUMINAIRE SHALL OPERATE AT 240 VOLTS AND BE EQUIPPED WITH AN EYE SUNLUX EXTENDED LIFE LAMP.

FINAL PLAN
CONFORMING TO
CONST. RECORDS
DATE TJM 5/30/12

DESIGN TEAM	1	KST	6/4/12	RECORD DRAWING
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>SRH,HLF</u>				
CHECKED BY: <u>KLE</u>				
NO.	BY	DATE	REVISIONS	

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.
Certified By: Bret W. Johnson Lic. No. 25087
Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

LIGHTING DETAILS

FILE NO. **343**
RAMSP108790
LT11
OF LTH **534**

LEGEND OF SYMBOLS	
	CABLE TRAY
	CONDUIT - INPLACE
	CONDUIT - F&I
	CONDUIT FIBER ONLY - INPLACE
	CONDUIT FIBER ONLY - F&I
	DIRECT BURIED COMMUNICATION CABLE - INPLACE
	DIRECT BURIED COMMUNICATION CABLE - F&I
	DIRECT BURIED POWER CABLE - INPLACE
	DIRECT BURIED POWER CABLE - F&I
	LOOP DETECTOR- DESIGN (SPECIFY)
	FLASHER - INPLACE
	FLASHER - F&I
	FLASHING BEACON - F&I
	FOUNDATION INPLACE, GATE ARM - F&I
	FOUNDATION F&I, GATE ARM - F&I
	GATE ARM - INPLACE
	GUARDRAIL END TREATMENT (SPECIFY)
	GUARDRAIL (PLATE BEAM) - (SPECIFY)
	HANDHOLE - INPLACE
	HANDHOLE - F&I
	JUNCTION BOX OR CONDULET - INPLACE
	JUNCTION BOX OR CONDULET - F&I
	LANE ARROW
	OVERHEAD SIGN - INPLACE
	OVERHEAD SIGN - F&I
	CABINET (SPECIFY) - INPLACE
	CABINET (SPECIFY) - F&I
	PEDESTAL - INPLACE
	PEDESTAL - F&I

LEGEND OF SYMBOLS	
	RAMP CONTROL SIGNAL (DESIGN ONE-WAY) - INPLACE
	RAMP CONTROL SIGNAL (DESIGN ONE-WAY) - F&I
	RAMP CONTROL SIGNAL (DESIGN TWO-WAY) - INPLACE
	RAMP CONTROL SIGNAL (DESIGN TWO-WAY) - F&I
	RAMP CONTROL SIGNAL (DESIGN ONE-WAY)(SCREW IN BASE) - INPLACE
	RAMP CONTROL SIGNAL (DESIGN ONE-WAY)(SCREW IN BASE) - F&I
	RAMP CONTROL SIGNAL (DESIGN TWO-WAY)(SCREW IN BASE) - INPLACE
	RAMP CONTROL SIGNAL (DESIGN TWO-WAY)(SCREW IN BASE) - F&I
	SHELTER (TMS) - INPLACE
	SHELTER (TMS) - F&I
	SIGN (TYPE A OR D) - (SPECIFY)
	SIGN (TYPE C) - (SPECIFY)
	SIGN (TYPE DMS) - (SPECIFY)
	SIGNAL FACE - INPLACE
	SIGNAL FACE - F&I
	SPLICE CABINET - (SPECIFY)
	SPLICE VAULT (FIBER OPTIC) - (SPECIFY)
	TELEVISION CAMERA (CCTV) - (SPECIFY)
	WOOD POLE - F&I
	WOOD POLE - INPLACE
	WOOD POLE F&I, SERVICE INSTALLATION - F&I
	WOOD POLE INPLACE, SERVICE INSTALLATION - F&I
	WOOD POLE INPLACE, SERVICE INSTALLATION - INPLACE
	FIBER PATCHING SHELTER - F&I
	OUTDOOR FIBER SPLICE ENCLOSURE - F&I
	PULL VAULT
	ELECTRICAL SERVICE
	TRANSFORMER

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT	
PLATE NO.	DESCRIPTION
3131	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
8110	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED)
8112	PEDESTAL FOUNDATION
8119	GROUND MOUNTED CABINET FOUNDATION
8122	PEDESTAL AND PEDESTAL BASE
8150	INSTALLATION OF CULVERT MARKERS
8120	POLE FOUNDATION (PA 85)
9322	CHAIN LINK FENCE (GATES)

GENERAL NOTES:

TURF ESTABLISHMENT SHALL BE CONSIDERED INCIDENTAL, APPLIED TO ALL DISTURBED AREAS, IN ACCORDANCE WITH MN/DOT 2575.1, 2575.2 AND 2575.3

HEREBY CERTIFY THAT SHEETS 344 THROUGH 378 OF THIS PLAN WERE 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.

GEOFFREY M. PRELGO
DATE MARCH 31, 2010 LIC. NO. 26530
DESIGNER Tom Koob

TMS COMPONENTS TM 1
OF TM 31

REV. NO.	DATE: / /
REV. NO.	DATE: / /

AA	TABULATION OF ESTIMATED QUANTITIES			
ITEM NO.	ITEM	NOTES	UNIT	ESTIMATED QUANTITY
2104	REMOVE HANDHOLE		EACH	25
2104	REMOVE CCTV POLES	①	EACH	1
2104	REMOVE FOUNDATION	②	EACH	8
2104	REMOVE UTILITY VAULT	③	EACH	1
2104	SALVAGE RAMP CONTROL SIGNAL		EACH	4
2104	SALVAGE FIBER OPTIC VAULT	③	EACH	1
2104	SALVAGE CABINET		EACH	1
2104	SALVAGE CCTV HARDWARE	①	EACH	1
2104	SALVAGE SALVAGE SPLICE CABINET	⑤	EACH	1
2104	REMOVE CABLES		LUMP SUM	1
2104	HAUL SALVAGED MATERIAL		LUMP SUM	1
2550	PEDESTAL FOUNDATION	⑤ ⑥	EACH	1
2550	CABINET FOUNDATION		EACH	1
2550	CCTV FOUNDATION		EACH	1
2550	SERVICE FOUNDATION		EACH	1
2550	RAMP CONTROL SIGNAL FOUNDATION		EACH	4
2550	HANDHOLE TYPE-PVC METAL COVER		EACH	21
2550	FIBEROPTIC SPLICE VAULT		EACH	3
2550	OUTDOOR FIBER SPLICE ENCLOSURE		EACH	3
2550	BURIED CABLE SIGN		EACH	30
2550	1.5" NON-METALLIC CONDUIT		LIN FT	8400
2550	2" NON-METALLIC CONDUIT		LIN FT	1550
2550	3" NON-METALLIC CONDUIT		LIN FT	1300
2550	TELEPHONE CABLE 12 PR NO 19		LIN FT	4300
2550	POWER CABLE 1 CONDUCTOR NO 6		LIN FT	1000
2550	POWER CABLE 3 CONDUCTOR NO 8		LIN FT	650
2550	SIGNAL CONTROL CABLE 5 COND NO 12		LIN FT	4500
2550	LEAD-IN CABLE 2 CONDUCTOR NO 14		LIN FT	7000
2550	SERVICE CABINET		EACH	1
2550	FIBER OPTIC CABLE TESTING		LUMP SUM	1
2550	ELECTRICAL SERVICE		LUMP SUM	1
2550	FIBER OPTIC PIGTAIL TERMINATION		EACH	2
2550	FIBER OPTIC CABLE SPLICING		EACH	5
2550	INSTALL CABINET		EACH	1
2550	INSTALL RAMP CONTROL SIGNAL		EACH	4
2550	INSTALL FIBER OPTIC VAULT	③	EACH	1
2550	INSTALL CCTV HARDWARE		EACH	1
2550	INSTALL SPLICE CABINET	⑤	EACH	1
2550	SERVICE CABINET TYPE-SPECIAL		EACH	1
2550	LOOP DETECTOR DESIGN PREFORMED	④	EACH	6
2550	LOOP DETECTOR DESIGN SAWCUT		EACH	4
2550	1.5" BORED CONDUIT		LIN FT	850
2550	2" BORED CONDUIT		LIN FT	410
2550	3" BORED CONDUIT		LIN FT	700
2550	ARMORED FIBER OPTIC PIGTAIL CABLE 6SM		LIN FT	650
2550	REROUTE CABLE		LIN FT	290
2550	FIBER OPTIC TRUNK CABLE 36SM		LIN FT	4700
2550	FIBER OPTIC TRUNK CABLE 96SM		LIN FT	4600
2557	PEDESTRIAN GATE		EACH	1
2557	ELECTRIAL GROUND		EACH	2

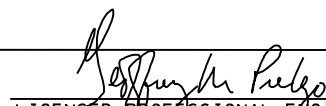
Detector No.	Loop Detector Preformed Name	HEAD SIZE	Location	Lane
2279	36/RiceEX	6' X 10'	36/Rice	EX
2331	36/RiceWP	6' X 18'	36/Rice	WP
4434	36/RiceWQ	6' X 18'	36/Rice	WQ
2328	36/RiceWX	6' X 10'	36/Rice	WX
4428	36/RiceEQ	6' X 18'	36/Rice	EQ
2282	36/RiceEP	6' X 14'	36/Rice	EP

- ① INCLUDES REMOVAL OF CAMERAS
- ② INCLUDES 4 RAMP CONTROL SIGNAL FOUNDATIONS, 1-334 SERIES FOUNDATION, 1-BD4 FOUNDATION AND 2-CCTV FOUNDATIONS
- ③ INCLUDES FO SPLICE VAULT & OUTDOOR FIBER SPLICE ENCLOSURE
- ④ SEE TABLE ON THIS SHEET FOR SIZES REQUIRED
- ⑤ BD4 SPLICE CABINET
- ⑥ INCLUDES 15' GROUND ROD

STATEMENT OF ESTIMATED QUANTITIES TM 2
OF TM 31

REV. NO.	DATE: / /
REV. NO.	DATE: / /

CERTIFIED BY


 LIC. NO. 26530
 LICENSED PROFESSIONAL ENGINEER

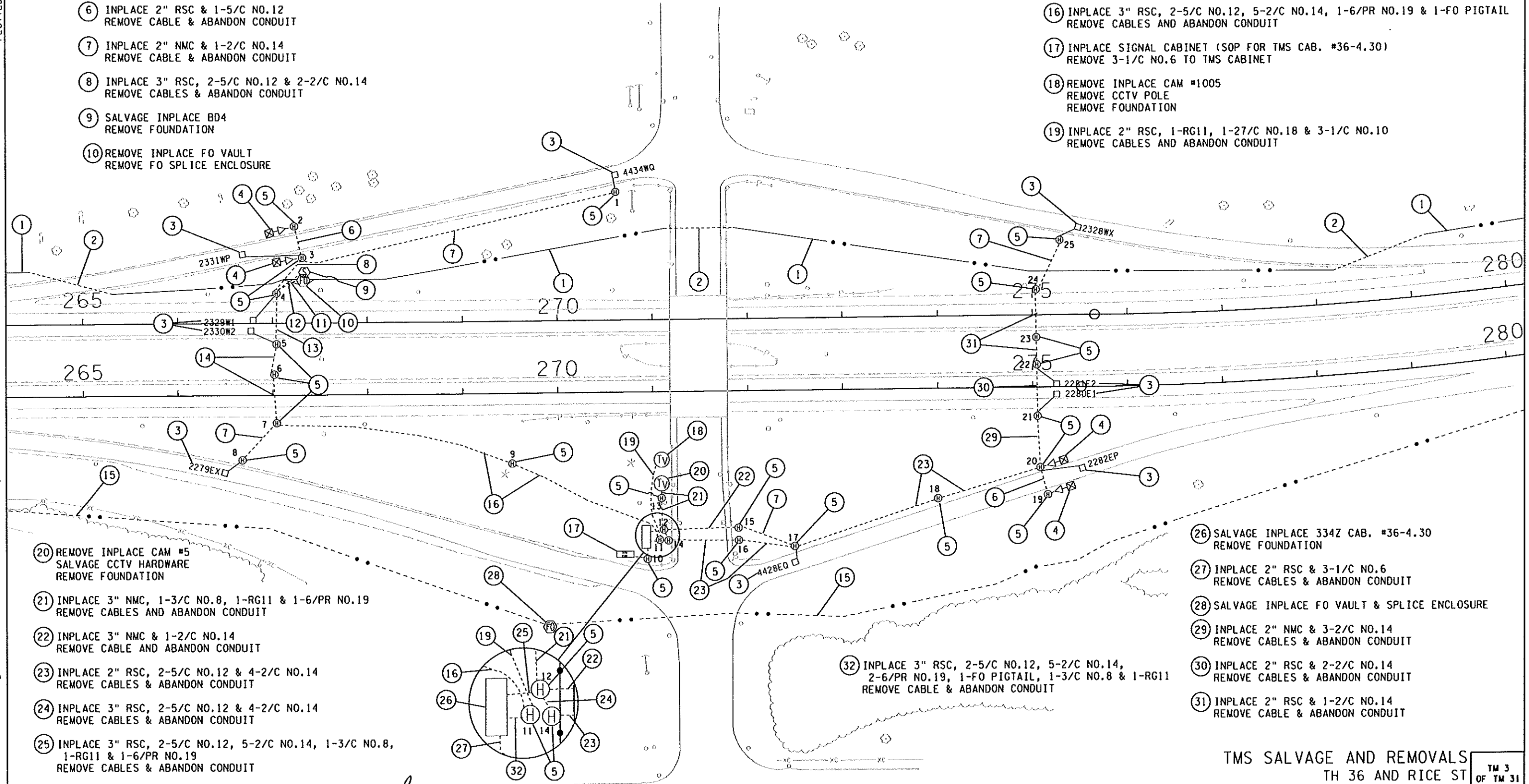
LIC. NO. 26530 MAR 31 2010

STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 345 OF 534 SHEETS

- ① ABANDON INPLACE 1-FO CABLE (12MM 36SM) & 1-12/PR NO.19
- ② ABANDON INPLACE 3" RSC, 1-FO CABLE (12MM 36SM) & 1-12/PR NO.19
- ③ ABANDON INPLACE LOOP DETECTOR
- ④ SALVAGE INPLACE RAMP CONTROL SIGNAL
 INPLACE 2" RSC & 1-5/C NO.12 TO NEAR HH
 REMOVE CABLE & ABANDON CONDUIT
 REMOVE FOUNDATION
- ⑤ REMOVE HH
- ⑥ INPLACE 2" RSC & 1-5/C NO.12
 REMOVE CABLE & ABANDON CONDUIT
- ⑦ INPLACE 2" NMC & 1-2/C NO.14
 REMOVE CABLE & ABANDON CONDUIT
- ⑧ INPLACE 3" RSC, 2-5/C NO.12 & 2-2/C NO.14
 REMOVE CABLES & ABANDON CONDUIT
- ⑨ SALVAGE INPLACE BD4
 REMOVE FOUNDATION
- ⑩ REMOVE INPLACE FO VAULT
 REMOVE FO SPLICE ENCLOSURE

- ⑪ INPLACE 2" NMC & 1-FO PIGTAIL
 REMOVE CABLE AND ABANDON CONDUIT
- ⑫ INPLACE 2" RSC & 1-6/PR NO.19
 REMOVE CABLE AND ABANDON CONDUIT
- ⑬ INPLACE 3" RSC, 2-5/C NO.12, 3-2/C NO.14, 1-6/PR NO.19 & 1-FO PIGTAIL
 REMOVE CABLES AND ABANDON CONDUIT
- ⑭ INPLACE 3" RSC, 2-5/C NO.12, 4-2/C NO.14, 1-6/PR NO.19 & 1-FO PIGTAIL
 REMOVE CABLES AND ABANDON CONDUIT
- ⑮ INPLACE 1.5" NMC & 1-FO CABLE (96SM)
- ⑯ INPLACE 3" RSC, 2-5/C NO.12, 5-2/C NO.14, 1-6/PR NO.19 & 1-FO PIGTAIL
 REMOVE CABLES AND ABANDON CONDUIT
- ⑰ INPLACE SIGNAL CABINET (SOP FOR TMS CAB. #36-4.30)
 REMOVE 3-1/C NO.6 TO TMS CABINET
- ⑱ REMOVE INPLACE CAM #1005
 REMOVE CCTV POLE
 REMOVE FOUNDATION
- ⑲ INPLACE 2" RSC, 1-RG11, 1-27/C NO.18 & 3-1/C NO.10
 REMOVE CABLES AND ABANDON CONDUIT

100'
 SCALE



- ⑳ REMOVE INPLACE CAM #5
 SALVAGE CCTV HARDWARE
 REMOVE FOUNDATION
- ㉑ INPLACE 3" NMC, 1-3/C NO.8, 1-RG11 & 1-6/PR NO.19
 REMOVE CABLES AND ABANDON CONDUIT
- ㉒ INPLACE 3" NMC & 1-2/C NO.14
 REMOVE CABLE AND ABANDON CONDUIT
- ㉓ INPLACE 2" RSC, 2-5/C NO.12 & 4-2/C NO.14
 REMOVE CABLES & ABANDON CONDUIT
- ㉔ INPLACE 3" RSC, 2-5/C NO.12 & 4-2/C NO.14
 REMOVE CABLES & ABANDON CONDUIT
- ㉕ INPLACE 3" RSC, 2-5/C NO.12, 5-2/C NO.14, 1-3/C NO.8,
 1-RG11 & 1-6/PR NO.19
 REMOVE CABLES & ABANDON CONDUIT

- ㉖ SALVAGE INPLACE 334Z CAB. #36-4.30
 REMOVE FOUNDATION
- ㉗ INPLACE 2" RSC & 3-1/C NO.6
 REMOVE CABLES & ABANDON CONDUIT
- ㉘ SALVAGE INPLACE FO VAULT & SPLICE ENCLOSURE
- ㉙ INPLACE 2" NMC & 3-2/C NO.14
 REMOVE CABLES & ABANDON CONDUIT
- ㉚ INPLACE 2" RSC & 2-2/C NO.14
 REMOVE CABLES & ABANDON CONDUIT
- ㉛ INPLACE 2" RSC & 1-2/C NO.14
 REMOVE CABLE & ABANDON CONDUIT

㉜ INPLACE 3" RSC, 2-5/C NO.12, 5-2/C NO.14,
 2-6/PR NO.19, 1-FO PIGTAIL, 1-3/C NO.8 & 1-RG11
 REMOVE CABLE & ABANDON CONDUIT

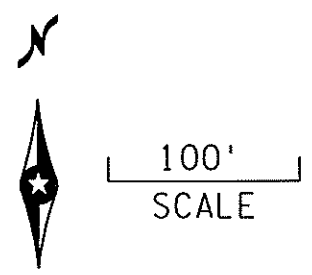
TMS SALVAGE AND REMOVALS
 TH 36 AND RICE ST

TM 3
 OF TM 31

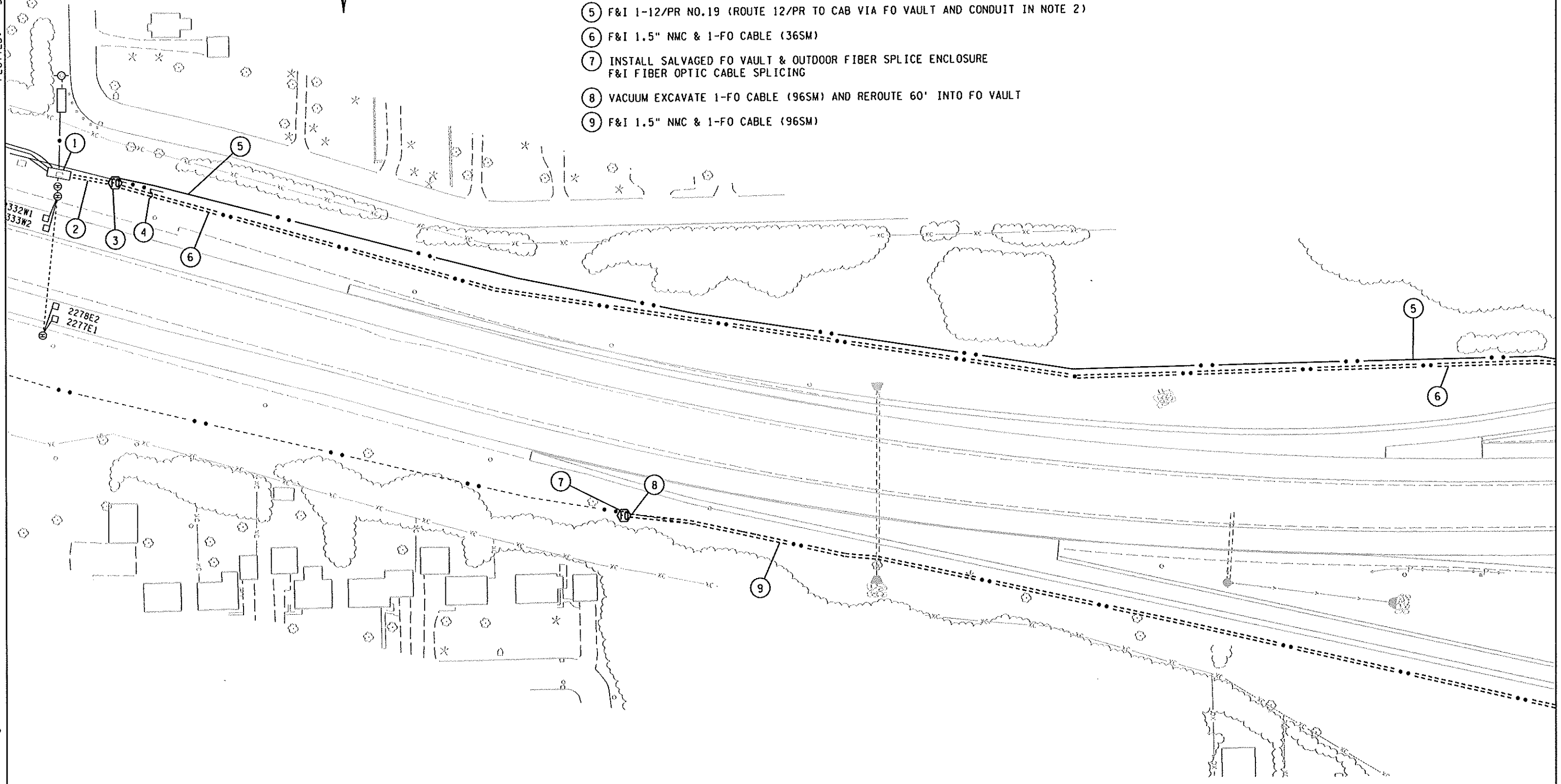
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STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 346 OF 534 SHEETS



- ① INPLACE 334 CAB #36-3.90
- ② F&I 2" NMC & 1-12/PR NO.19
(CONNECT NMC TO INPLACE STUB OUT FROM INPLACE 334 CABINET ORIGINALLY USED FOR INPLACE 1-12/PR NO.19)
- ③ F&I FO VAULT & OUTDOOR FIBER SPLICE ENCLOSURE
F&I FIBER OPTIC CABLE SPLICING
- ④ VACUUM EXCAVATE 1-FO CABLE (12MM 36SM) AND REROUTE 60' INTO FO VAULT
- ⑤ F&I 1-12/PR NO.19 (ROUTE 12/PR TO CAB VIA FO VAULT AND CONDUIT IN NOTE 2)
- ⑥ F&I 1.5" NMC & 1-FO CABLE (36SM)
- ⑦ INSTALL SALVAGED FO VAULT & OUTDOOR FIBER SPLICE ENCLOSURE
F&I FIBER OPTIC CABLE SPLICING
- ⑧ VACUUM EXCAVATE 1-FO CABLE (96SM) AND REROUTE 60' INTO FO VAULT
- ⑨ F&I 1.5" NMC & 1-FO CABLE (96SM)



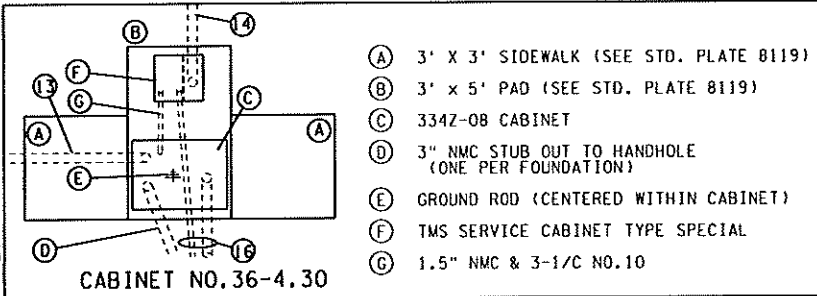
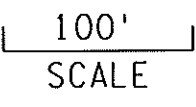
TMS CONSTRUCTION
 WEST SIDE OF TH 36 AND RICE ST TM 4
OF TM 31

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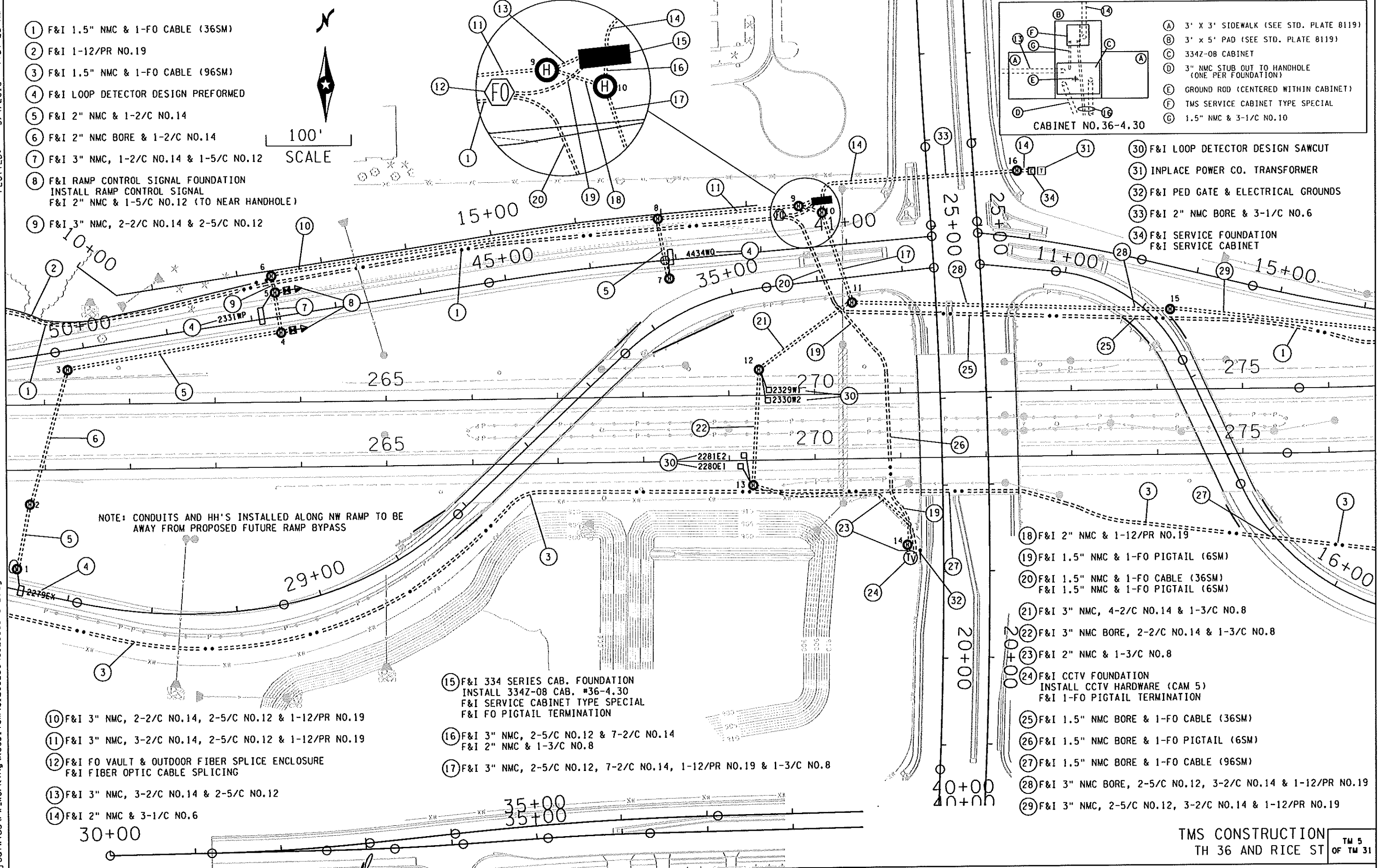
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STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 347 OF 534 SHEETS

- ① F&I 1.5" NMC & 1-FO CABLE (36SM)
- ② F&I 1-12/PR NO.19
- ③ F&I 1.5" NMC & 1-FO CABLE (96SM)
- ④ F&I LOOP DETECTOR DESIGN PREFORMED
- ⑤ F&I 2" NMC & 1-2/C NO.14
- ⑥ F&I 2" NMC BORE & 1-2/C NO.14
- ⑦ F&I 3" NMC, 1-2/C NO.14 & 1-5/C NO.12
- ⑧ F&I RAMP CONTROL SIGNAL FOUNDATION
 INSTALL RAMP CONTROL SIGNAL
 F&I 2" NMC & 1-5/C NO.12 (TO NEAR HANDHOLE)
- ⑨ F&I 3" NMC, 2-2/C NO.14 & 2-5/C NO.12



- ⑩ F&I 3" NMC, 2-2/C NO.14, 2-5/C NO.12 & 1-12/PR NO.19
- ⑪ F&I 3" NMC, 3-2/C NO.14, 2-5/C NO.12 & 1-12/PR NO.19
- ⑫ F&I FO VAULT & OUTDOOR FIBER SPLICE ENCLOSURE
 F&I FIBER OPTIC CABLE SPLICING
- ⑬ F&I 3" NMC, 3-2/C NO.14 & 2-5/C NO.12
- ⑭ F&I 2" NMC & 3-1/C NO.6
- ⑮ F&I 334 SERIES CAB. FOUNDATION
 INSTALL 3342-08 CAB. #36-4.30
 F&I SERVICE CABINET TYPE SPECIAL
 F&I FO PIGTAIL TERMINATION
- ⑯ F&I 3" NMC, 2-5/C NO.12 & 7-2/C NO.14
 F&I 2" NMC & 1-3/C NO.8
- ⑰ F&I 3" NMC, 2-5/C NO.12, 7-2/C NO.14, 1-12/PR NO.19 & 1-3/C NO.8
- ⑱ F&I 2" NMC & 1-12/PR NO.19
- ⑲ F&I 1.5" NMC & 1-FO PIGTAIL (6SM)
- ⑳ F&I 1.5" NMC & 1-FO CABLE (36SM)
 F&I 1.5" NMC & 1-FO PIGTAIL (6SM)
- ㉑ F&I 3" NMC, 4-2/C NO.14 & 1-3/C NO.8
- ㉒ F&I 3" NMC BORE, 2-2/C NO.14 & 1-3/C NO.8
- ㉓ F&I 2" NMC & 1-3/C NO.8
- ㉔ F&I CCTV FOUNDATION
 INSTALL CCTV HARDWARE (CAM 5)
 F&I 1-FO PIGTAIL TERMINATION
- ㉕ F&I 1.5" NMC BORE & 1-FO CABLE (36SM)
- ㉖ F&I 1.5" NMC BORE & 1-FO PIGTAIL (6SM)
- ㉗ F&I 1.5" NMC BORE & 1-FO CABLE (96SM)
- ㉘ F&I 3" NMC BORE, 2-5/C NO.12, 3-2/C NO.14 & 1-12/PR NO.19
- ㉙ F&I 3" NMC, 2-5/C NO.12, 3-2/C NO.14 & 1-12/PR NO.19
- ㉚ F&I LOOP DETECTOR DESIGN SAWCUT
- ㉛ INPLACE POWER CO. TRANSFORMER
- ㉜ F&I PED GATE & ELECTRICAL GROUNDS
- ㉝ F&I 2" NMC BORE & 3-1/C NO.6
- ㉞ F&I SERVICE FOUNDATION
 F&I SERVICE CABINET



NOTE: CONDUITS AND HH'S INSTALLED ALONG NW RAMP TO BE AWAY FROM PROPOSED FUTURE RAMP BYPASS

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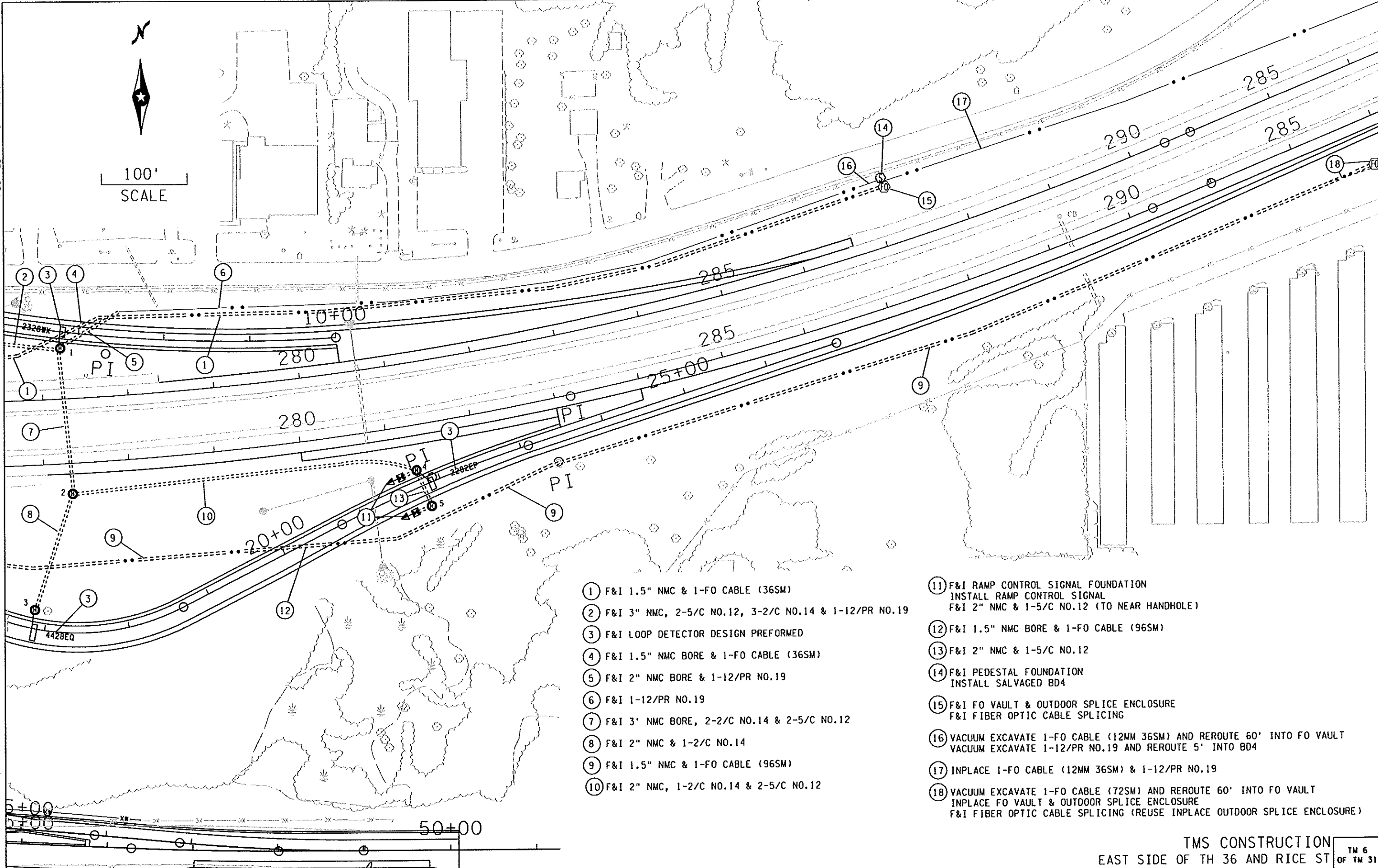
LIC. NO. 26530 MAR 31 2010

STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 348 OF 534 SHEETS

TMS CONSTRUCTION
 TH 36 AND RICE ST TM 5 OF TM 31



100'
 SCALE



- ① F&I 1.5" NMC & 1-FO CABLE (36SM)
- ② F&I 3" NMC, 2-5/C NO.12, 3-2/C NO.14 & 1-12/PR NO.19
- ③ F&I LOOP DETECTOR DESIGN PERFORMED
- ④ F&I 1.5" NMC BORE & 1-FO CABLE (36SM)
- ⑤ F&I 2" NMC BORE & 1-12/PR NO.19
- ⑥ F&I 1-12/PR NO.19
- ⑦ F&I 3' NMC BORE, 2-2/C NO.14 & 2-5/C NO.12
- ⑧ F&I 2" NMC & 1-2/C NO.14
- ⑨ F&I 1.5" NMC & 1-FO CABLE (96SM)
- ⑩ F&I 2" NMC, 1-2/C NO.14 & 2-5/C NO.12
- ⑪ F&I RAMP CONTROL SIGNAL FOUNDATION
 INSTALL RAMP CONTROL SIGNAL
 F&I 2" NMC & 1-5/C NO.12 (TO NEAR HANDHOLE)
- ⑫ F&I 1.5" NMC BORE & 1-FO CABLE (96SM)
- ⑬ F&I 2" NMC & 1-5/C NO.12
- ⑭ F&I PEDESTAL FOUNDATION
 INSTALL SALVAGED BD4
- ⑮ F&I FO VAULT & OUTDOOR SPLICE ENCLOSURE
 F&I FIBER OPTIC CABLE SPLICING
- ⑯ VACUUM EXCAVATE 1-FO CABLE (12MM 36SM) AND REROUTE 60' INTO FO VAULT
 VACUUM EXCAVATE 1-12/PR NO.19 AND REROUTE 5' INTO BD4
- ⑰ INPLACE 1-FO CABLE (12MM 36SM) & 1-12/PR NO.19
- ⑱ VACUUM EXCAVATE 1-FO CABLE (72SM) AND REROUTE 60' INTO FO VAULT
 INPLACE FO VAULT & OUTDOOR SPLICE ENCLOSURE
 F&I FIBER OPTIC CABLE SPLICING (REUSE INPLACE OUTDOOR SPLICE ENCLOSURE)

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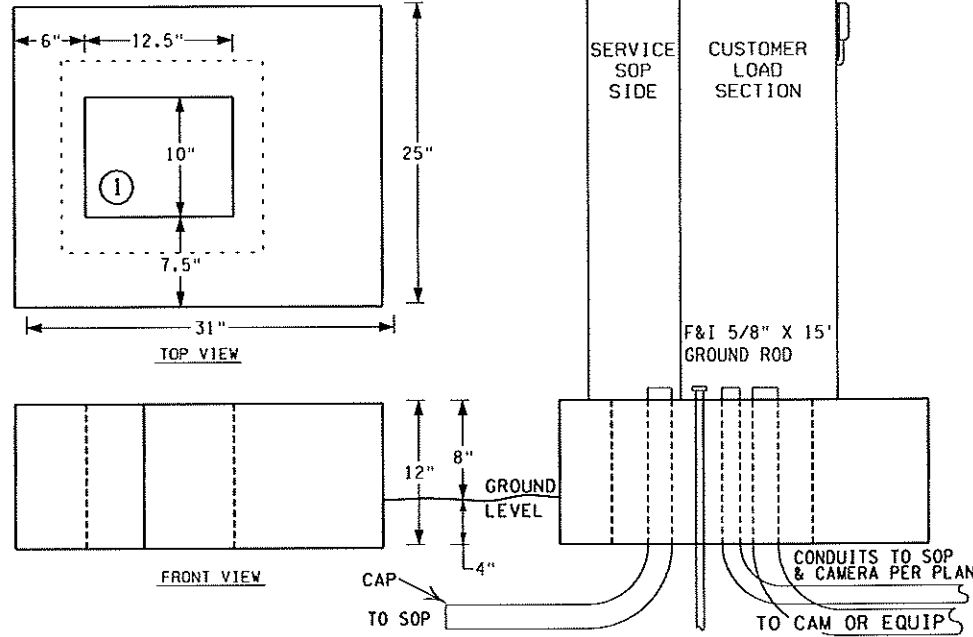
LIC.NO. 26530 MAR 31 2010

STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 349 OF 534 SHEETS

TMS CONSTRUCTION
 EAST SIDE OF TH 36 AND RICE ST
 TM 6 OF TM 31

STAND ALONE
 SERVICE FOUNDATION
 (SEE TMS SERVICE EQUIPMENT DETAIL)

① AFTER FOUNDATION AND CONDUITS ARE SET, FILL OPENING WITH SAND AND PLACE 1 INCH OF GROUT FLUSH WITH SURFACE OF FOUNDATION.



① AFTER FOUNDATION AND CONDUITS ARE SET, FILL OPENING WITH SAND AND PLACE 1 INCH OF GROUT FLUSH WITH SURFACE OF FOUNDATION. GROUT SERVICE OPENING SHUT IF NOT USED.

3'x5'x1'
 EQUIPMENT PAD
 (TYP.)

F&I 5/8" X 15'
 GROUND ROD. NOTE:
 PLACE GROUND ROD
 WITHIN 334 CAB
 IF SERVICE IS
 NOT PRESENT ON
 PAD.

3" SPACING
 TYP.

TOP VIEW
 NOT TO SCALE

FRONT VIEW
 NOT TO SCALE

4" SPACING
 (TYP.)

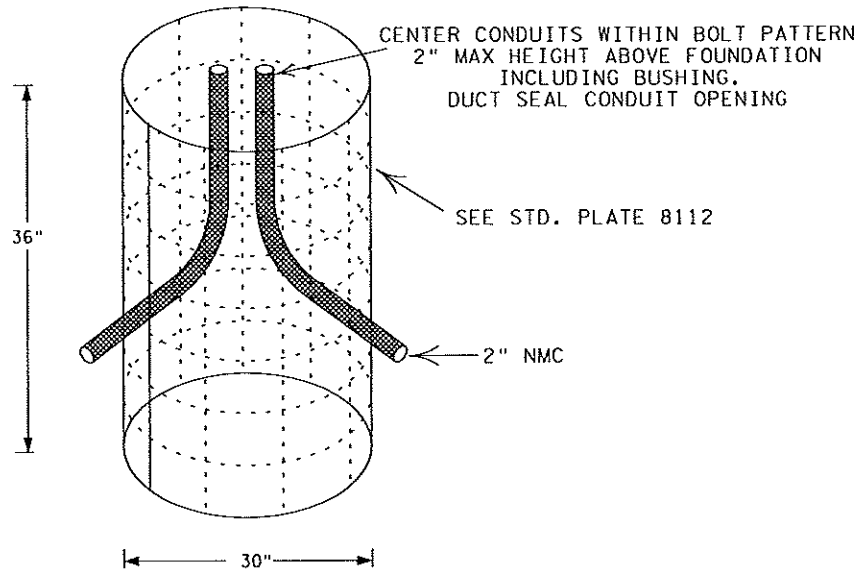
F&I 5/8" X 15'
 ROD IN LOAD SIDE
 OF SERVICE CABINET

(SEE CABINET
 INSTALLATION DETAIL)

TYPICAL 334 SERIES
 & DMS FOUNDATION
 WITH SERVICE CABINET

SEE STD. PLATE 8112 FOR
 ANCHOR BOLT REQUIREMENTS

NOTE: INSTALL SCREW-IN
 RCS FOUNDATION WITHIN
 CONCRETE AREAS AS
 DIRECTED IN PLANS



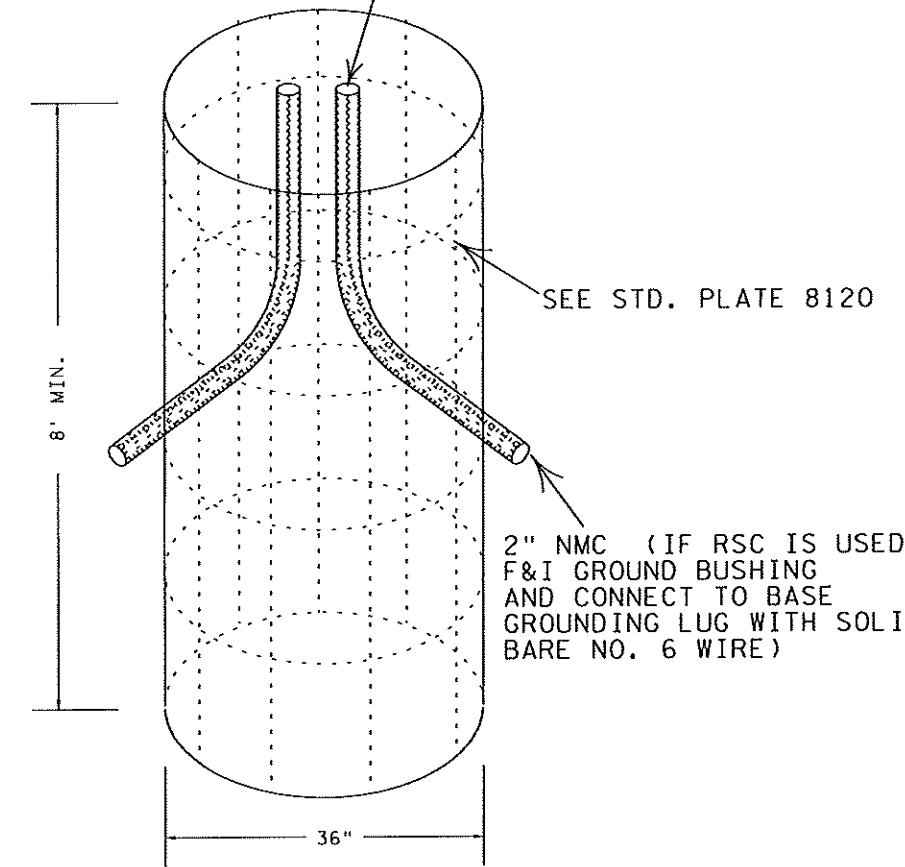
CONCRETE RAMP
 CONTROL SIGNAL FOUNDATION
 (SEE RAMP CONTROL SIGNAL DETAIL)

TMS SERVICE
 CABINET (TYP.)

TMS 334 CABINET
 (TYP.)

SIDEWALK

CENTER CONDUITS WITHIN BOLT PATTERN
 2" MAX HEIGHT ABOVE FOUNDATION
 INCLUDING BUSHING.



CCTV POLE FOUNDATION
 (SEE CCTV INSTALLATION DETAIL)

TYPICAL FOUNDATION DETAILS

TM 7
 OF TM 31

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STATE PROJ. NO. 6212-165 (TH 36)

SHEET NO. 350 OF 534 SHEETS

- ① F&I 3-1/C NO10 POWER CABLE - TERMINATE AT EACH END
- ② F&I 2/C NO14-
- ③ F&I 1-FO PIGTAIL-PLACE 1 LOOP (15') OF PIGTAIL CABLE WITHIN CABINET AGAINST SIDEWALL. CONNECT ARMOUR TO NORSCAN DEVICE-TERMINATE END & LAND IN PATCH PANEL
- ④ FIBER OPTIC PATCH CORDS (MNDOT PROVIDED & INSTALLED)
- ⑤ F&I 5/C NO12-TERMINATE EACH END PER RCS DETAIL
- ⑥ RS232 LINE (MNDOT PROVIDED & INSTALLED)
- ⑦ F&I 1-1/C NO6 BARE GROUND WIRE-COAT CONNECTION WITH ANTI-OXIDIZING AGENT
- ⑧ INSTALL NEOPRENE GASKET (SUPPLIED BY MNDOT)
- ⑨ DATA LINK (MNDOT PROVIDED & INSTALLED)
- ⑩ SHEATH GROUNDING UNIT (NORSCAN #2706)

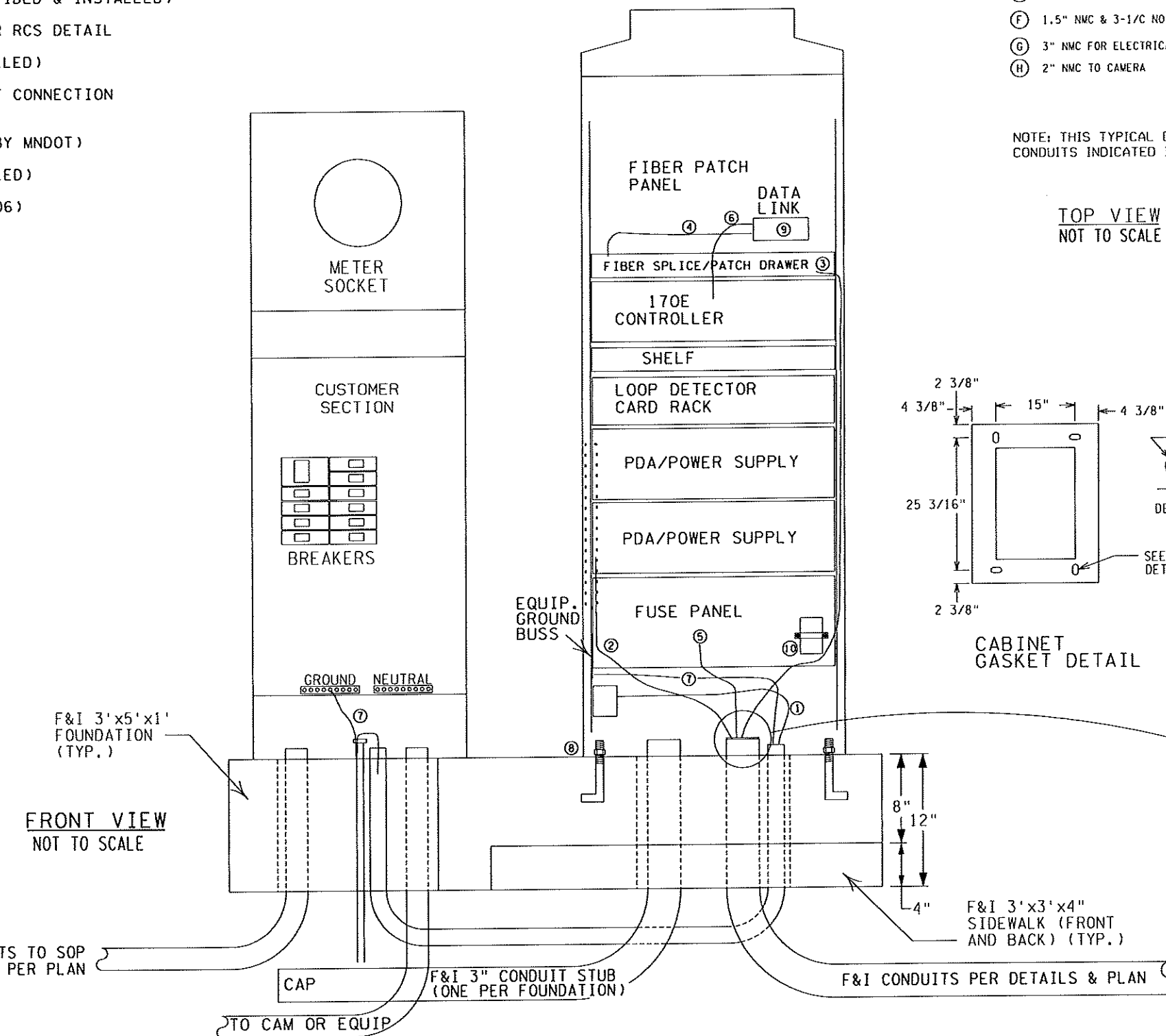
MNDOT PROVIDED

1. TMS 334Z CONTROL CABINET WITH:
 - A) 170 CONTROLLER
 - B) FIBER OPTIC PATCH PANEL
 - C) CB ENCL. & BREAKER INSIDE CABINET
 - D) NEOPRENE CAB. GASKET

MNDOT PROVIDED & INSTALLED

1. FIBER OPTIC PATCH CORDS
2. FO PIGTAIL & PATCH PANEL LABELS WITHIN DMS CABINET
3. DATA LINK

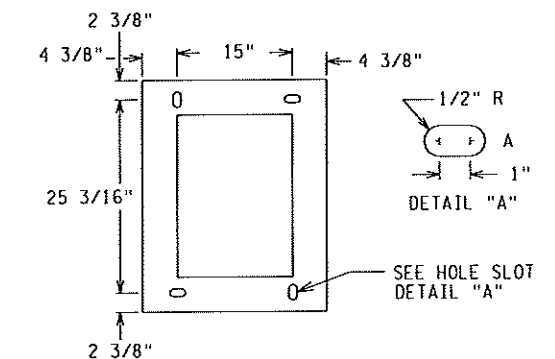
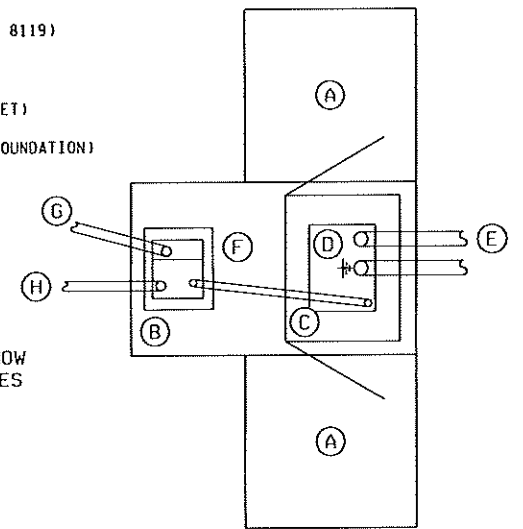
INSTALL 334 SERIES TMS CONTROL CABINET (MNDOT PROVIDED)



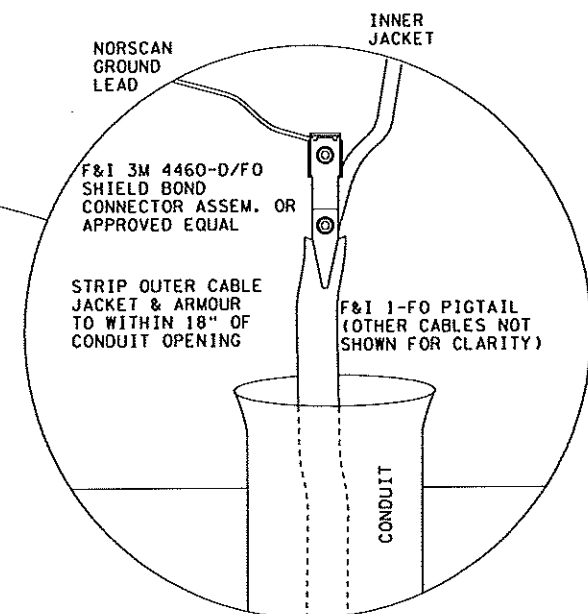
- (A) 3' X 3' SIDEWALK (SEE STD. PLATE 8119)
- (B) 3' X 5' CONC. PAD (SEE STD. PLATE 8119)
- (C) 334Z STYLE CABINET LOCATION
- (D) GROUND ROD (CENTERED WITHIN CABINET)
- (E) 3" NMC CAPPED STUB OUT (ONE PER FOUNDATION)
- (F) 1.5" NMC & 3-1/C NO.10
- (G) 3" NMC FOR ELECTRICAL SERVICE
- (H) 2" NMC TO CAMERA

NOTE: THIS TYPICAL DOES NOT SHOW CONDUITS INDICATED IN PLAN NOTES

TOP VIEW
 NOT TO SCALE



CABINET GASKET DETAIL



FO PIGTAIL GROUNDING

F&I 5/8" X 15' GROUND ROD. NOTE: PLACE GROUND ROD WITHIN 334 CAB IF SERVICE IS NOT PRESENT ON PAD.

TYPICAL 334 SERIES TMS CABINET INSTALLATION

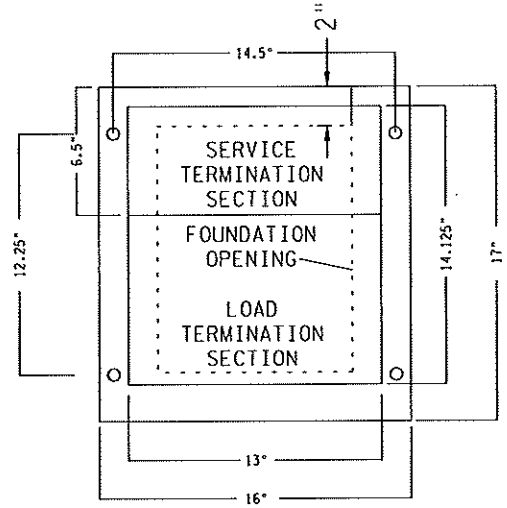
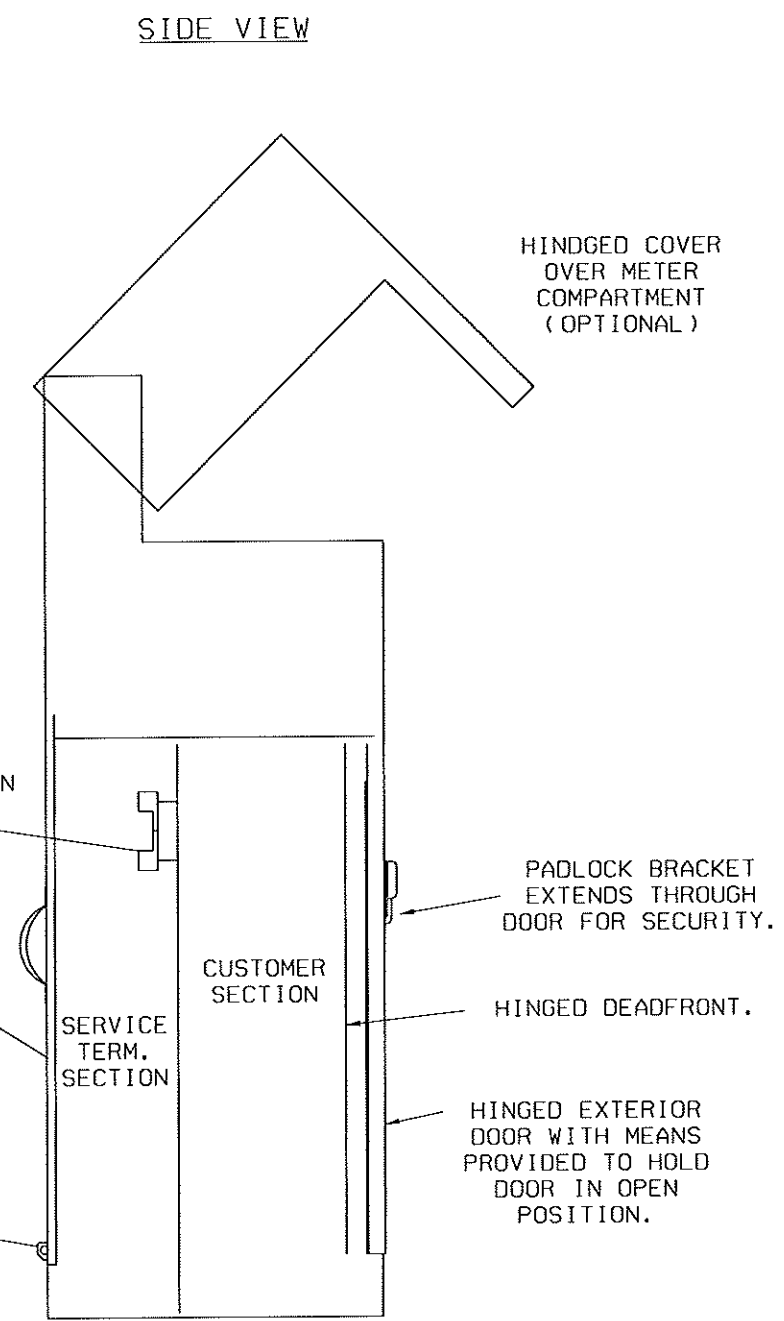
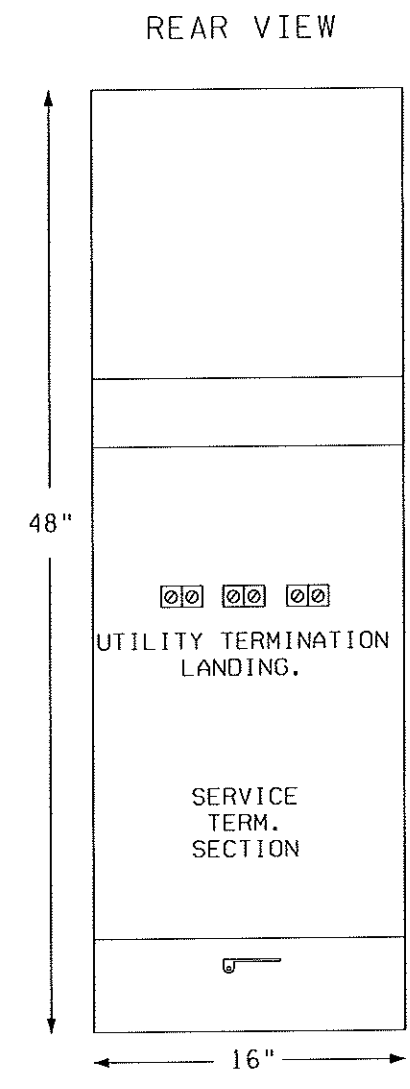
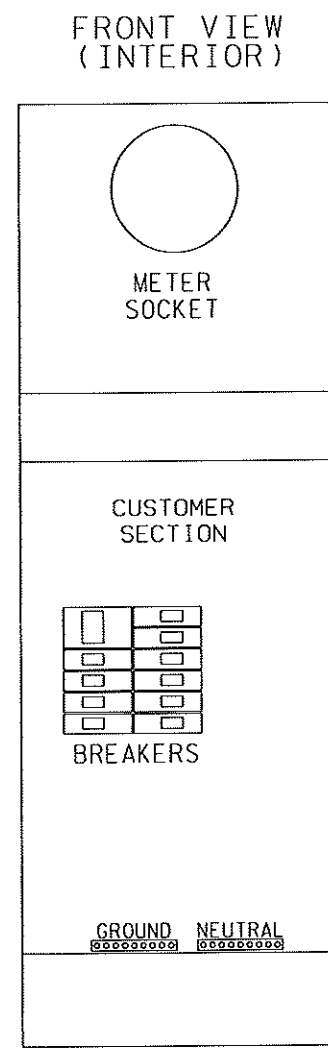
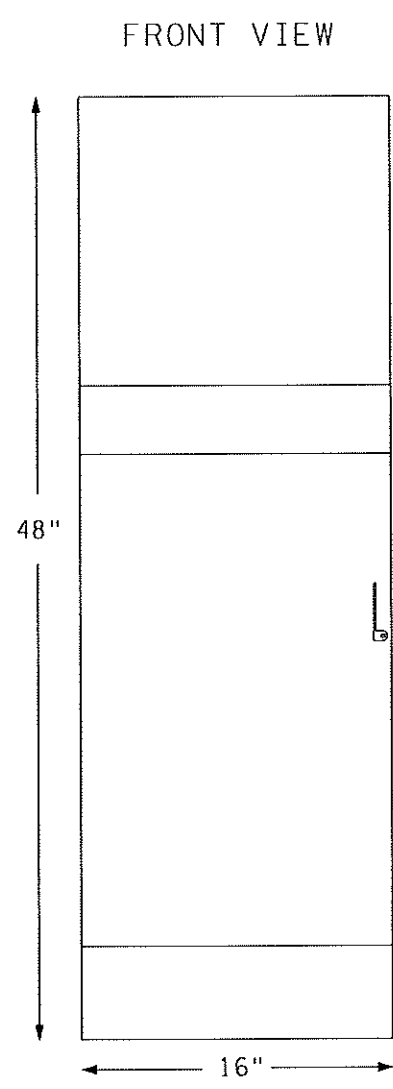
TYPICAL 334 CABINET INSTALLATION

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STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 351 OF 534 SHEETS



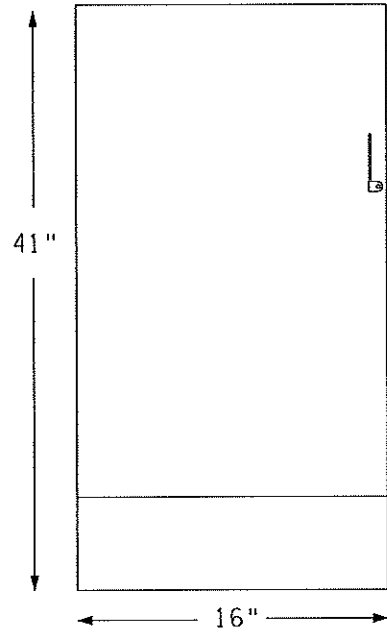
CABINET CONSTRUCTION:
 -NEMA3R
 -1/8" ALUMINUM 5052-H32
 -ANODIZED 1 HOUR CLEAR
 -NEOPRENE GASKETED DOORS
 -NON-CORRODING HARDWARE
 -ETL LISTED IN ACCORDANCE W/UL508A

STANDARD TMS SERVICE CABINET SHALL COME EQUIPPED WITH 60A 2-P MAIN BREAKER, 1-30A CB & 1-20A CB WITH OPENINGS FOR 12 CIRCUITS TOTAL, UNLESS MODIFIED AT INDIVIDUAL LOCATIONS AS NOTED IN THE PLANS.

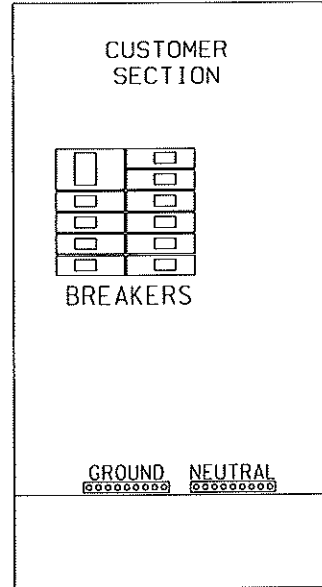
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 LICENSED PROFESSIONAL ENGINEER

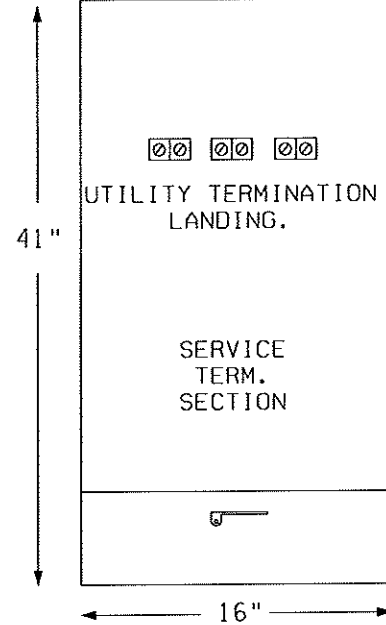
FRONT VIEW



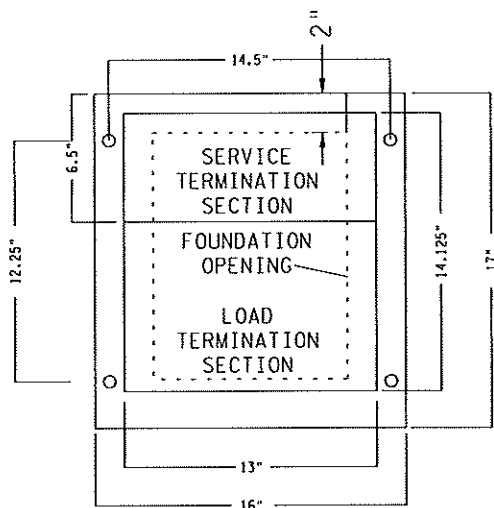
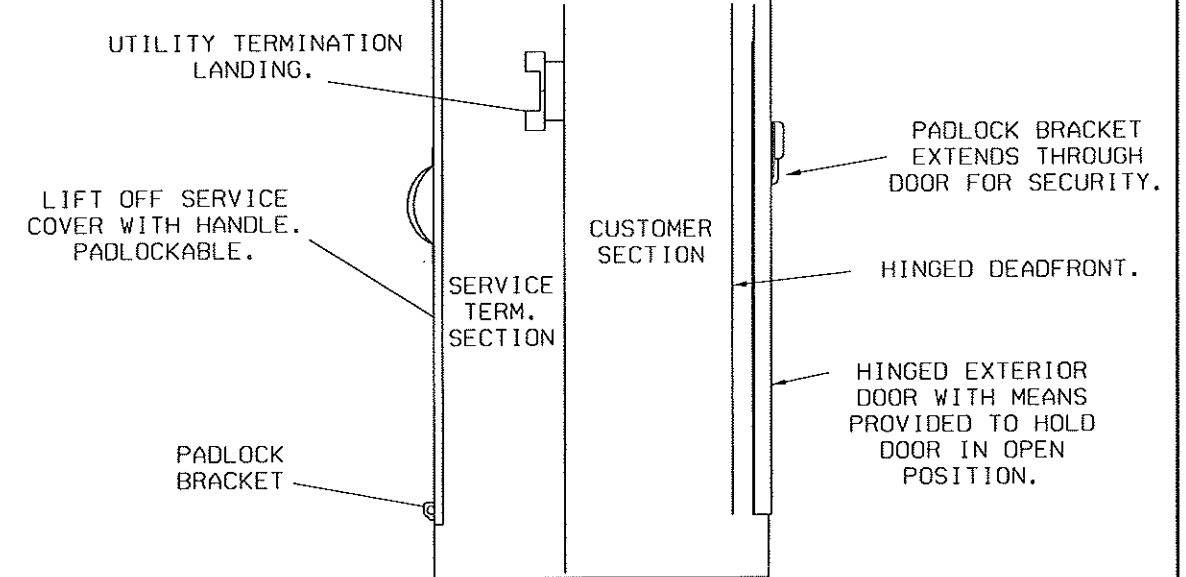
FRONT VIEW (INTERIOR)



REAR VIEW



SIDE VIEW



CABINET CONSTRUCTION:

- NEMA3R
- 1/8" ALUMINUM 5052-H32
- ANODIZED 1 HOUR CLEAR
- NEOPRENE GASKETED DOORS
- NON-CORRODING HARDWARE
- ETL LISTED IN ACCORDANCE W/UL508A

STANDARD TMS SERVICE CABINET SHALL COME EQUIPPED WITH 30A 2-P MAIN BREAKER, 1-30A CB & 1-20A CB WITH OPENINGS FOR 12 CIRCUITS TOTAL, UNLESS MODIFIED AT INDIVIDUAL LOCATIONS AS NOTED IN THE PLANS.

TMS SERVICE CABINET (SPECIAL)

TM 10
OF TM 31

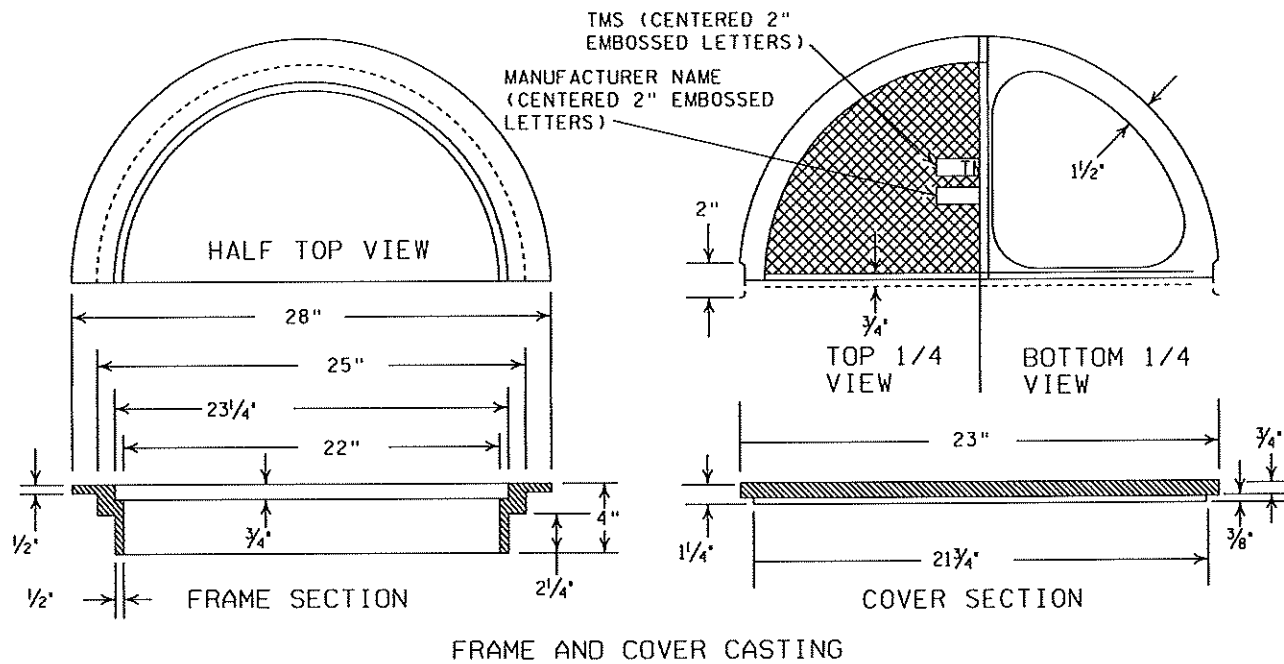
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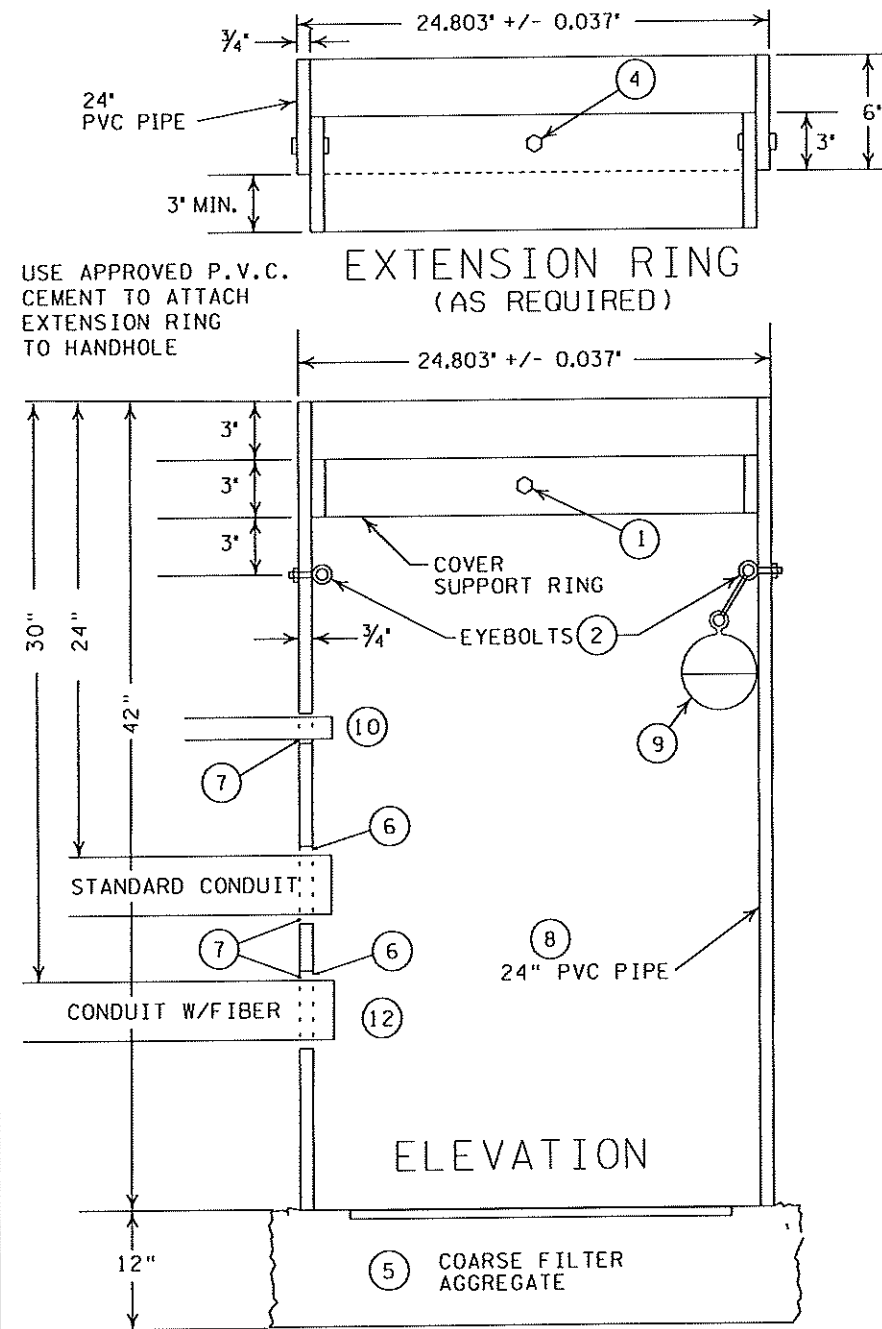
LIC.NO. 26530 MAR 31 2010

STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 353 OF 534 SHEETS

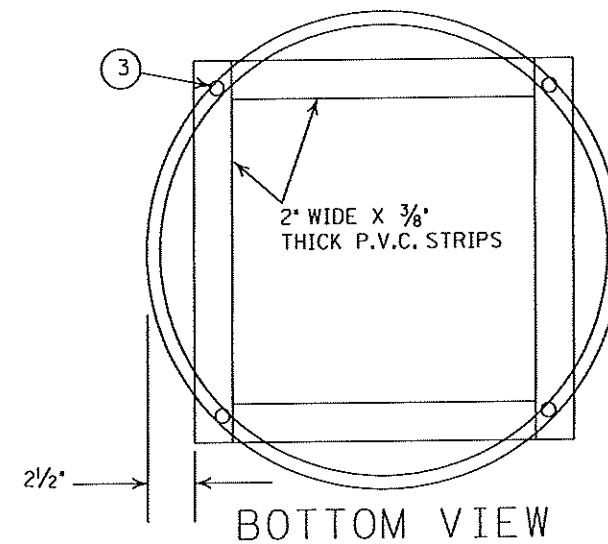


LIGHT DUTY METAL COVER

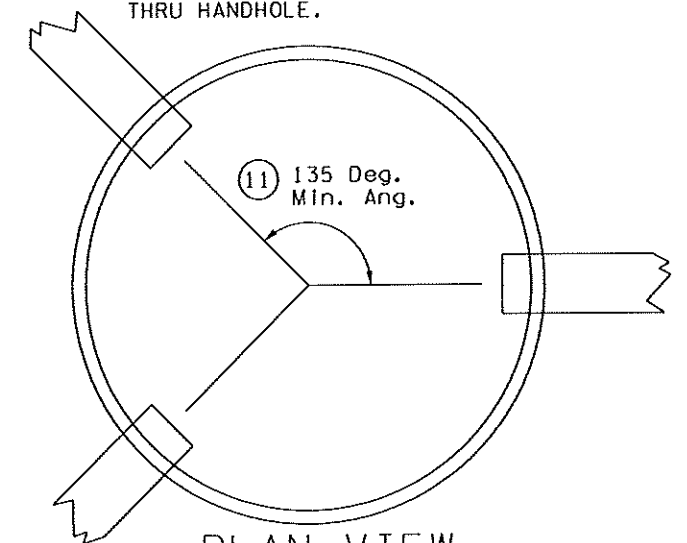
NOTE:
 ALL CASTINGS ARE GRAY IRON PER
 MN/DOT SPEC. 3321 CLASS 35B



ELEVATION



BOTTOM VIEW



PLAN VIEW

NOTES:

- ① ATTACH SPLIT 24" DIA. P.V.C. COVER SUPPORT RING WITH FOUR 3/8 " DIA. X 2" LONG BOLTS AND NUTS AT 90° APART.
- ② TWO TYPE 2 SHOULDER EYEBOLTS, 3/8 " DIA. X 1 1/4 " SHANK LENGTH, WITH HEX. NUTS AT 180° APART (FOR LIFTING HANDHOLES AND SUPPORTING ELECTRICAL CABLES).
- ③ FOUR 1/4 " X 1 1/4 " LONG GALVANIZED LAG SCREWS.
- ④ ATTACH SPLIT 24" DIA. PVC EXTENSION RING WITH FOUR 3/8 " DIA. X 2" LONG BOLTS AT 90° APART. THE BOLTS & NUTS COMPLY WITH MN/DOT 3391.2E, THE OTHER HARDWARE WITH 3392.
- ⑤ COMPACT COARSE FILTER AGGREGATE COMPLYING WITH MN/DOT 3149.2H TO A 12" DEPTH.
- ⑥ CONDUIT ENTRANCES IN THE BARREL ARE SIZED 1.0" LARGER THAN THE CONDUIT USED.
- ⑦ PLUG HANDHOLE AT CONDUIT INSTALLATION, PROVIDING A WATER TIGHT SEAL.
- ⑧ THE PVC PIPE COMPLIES WITH ASTM F 9T-1.
- ⑨ INSTALL ORANGE LOCATER BALL WITH TIE WRAP TO EYE BOLT
- ⑩ MINIMUM CONDUIT DEPTH FOR LOOP WIRES SHALL BE 1.5'.
- ⑪ F&I CONDUITS NO SHARPER THAN 135 DEG. FOR INSTALLATIONS OF CONDUIT WHERE FIBER WILL PASS THRU.
- ⑫ F&I CONDUITS WITH FIBER PASSING THRU AT 30" DEPTH THRU HANDHOLES. TRANSITION TO/FROM STANDARD 36" FIBER DEPTH OR PUSH DEPTH OUTSIDE HANDHOLES. NOTE: PROVIDE 36" CONDUIT STUB OUT FOR DIRECT BURIED FIBER PASSING THRU HANDHOLE.

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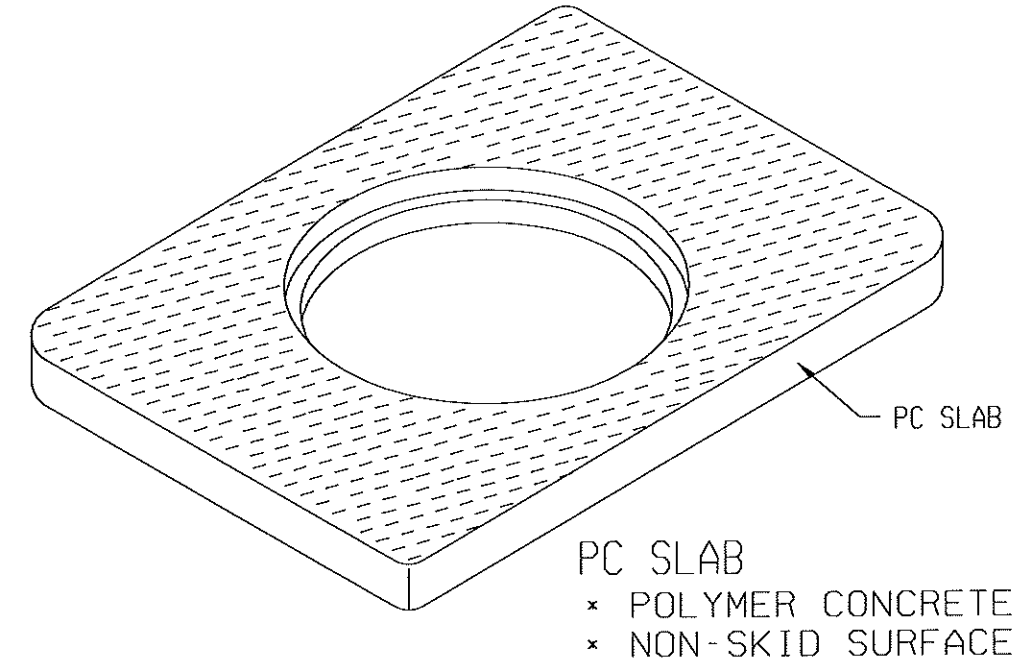
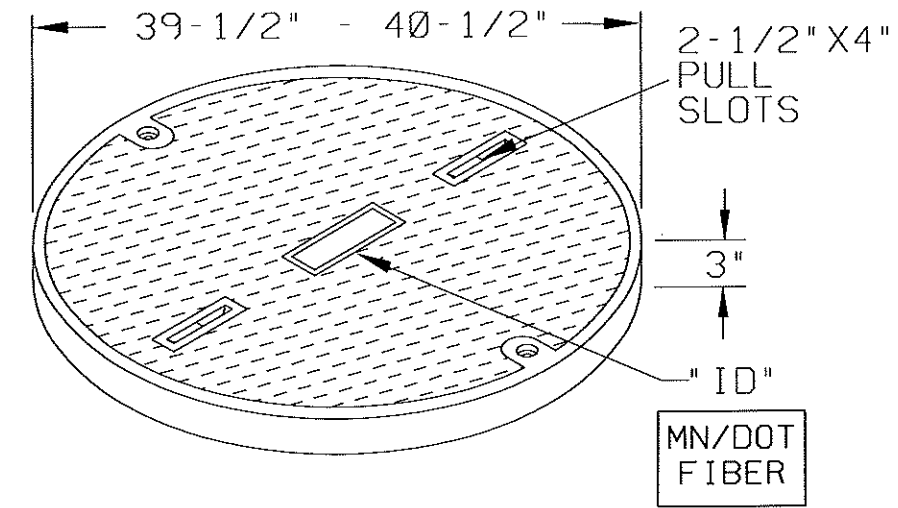
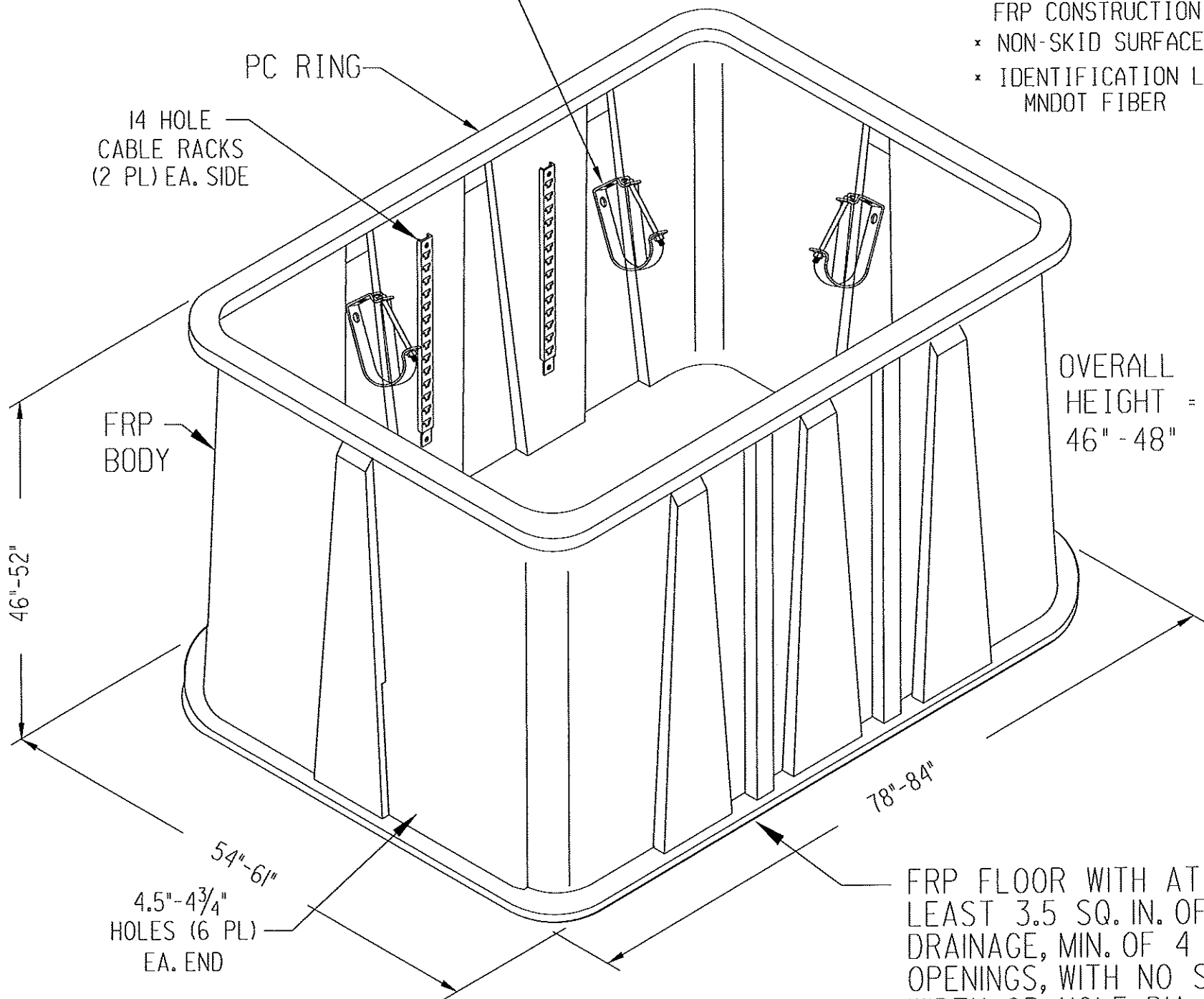
CERTIFIED BY *Joseph M. Puleo* LIC. NO. 26530 MAR 31 2010
 LICENSED PROFESSIONAL ENGINEER

STAINLESS STEEL COILING BRACKETS,
 SIZED FOR 4" PIPE
 & 8-3/8" IN HEIGHT (6 EACH).
 PLACE 12" BELOW TOP OF PC RING.
 FASTEN WITH SS HH BOLTS 5/8" X 4-1/2"
 LONG AND SS "NYLOCK" STYLE LOCKNUT

COVER FEATURES

- * (2) 3/8" -16 UNC X 3-1/2" LONG
 HEX HEAD STAINLESS STEEL BOLTS
 W/SELF ALIGNING REPLACEABLE
 STAINLESS STEEL NUTS POSITIONED
 IN HOLES TO ALLOW DRAINAGE OF
 SOIL & DEBRIS
- * POLYMER CONCRETE
 FRP CONSTRUCTION
- * NON-SKID SURFACE
- * IDENTIFICATION LOGO:
 MNDOT FIBER

ENTIRE ASSEMBLY SHALL BE RATED
 FORE MINIMUM DESIGN LOAD OF
 15,000 LB. AND TEST LOAD OF 20,000 LB.



FRP FLOOR WITH AT
 LEAST 3.5 SQ. IN. OF
 DRAINAGE, MIN. OF 4
 OPENINGS, WITH NO SLOT
 WIDTH OR HOLE DIA.
 LARGER THAN 1/2".

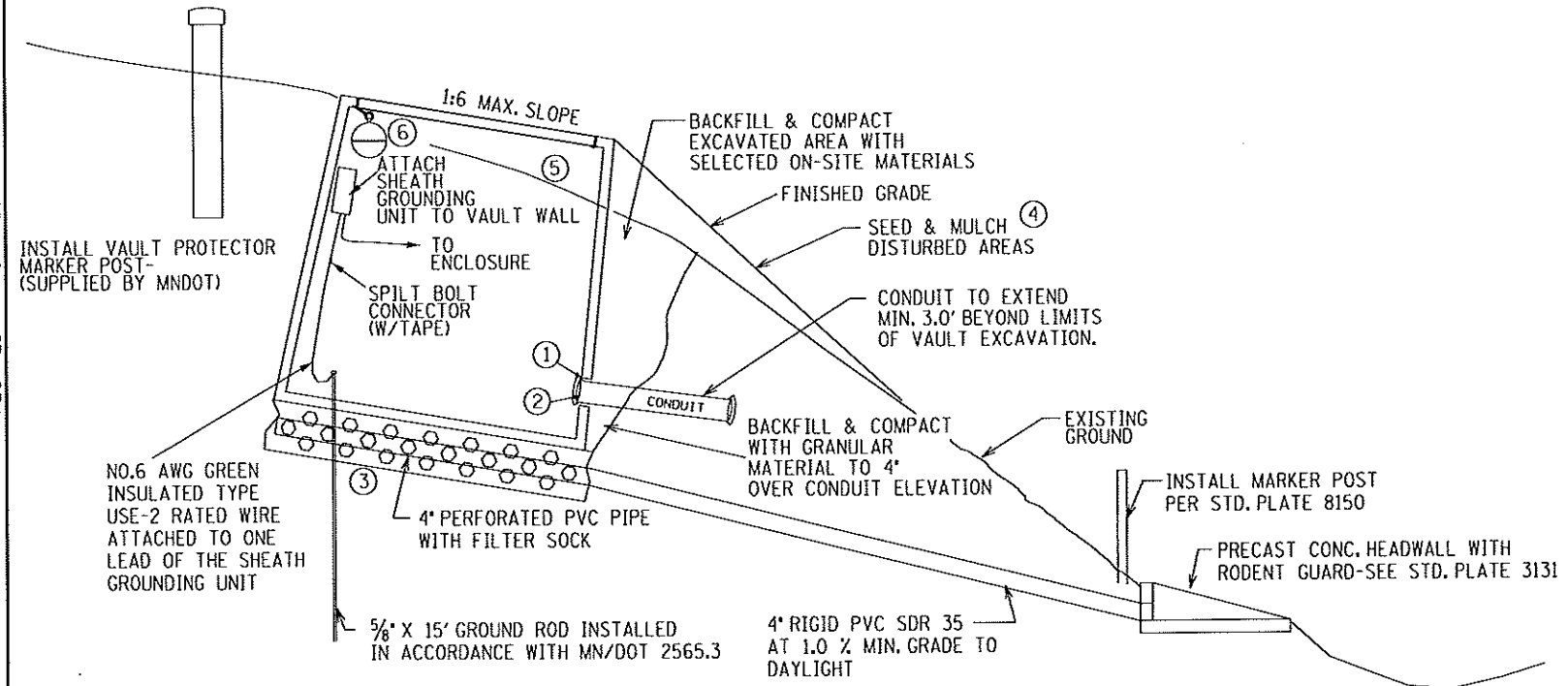
FRP VAULT FEATURES

- * FIBERGLASS REINFORCED POLYMER
 (FRP) CONSTRUCTION

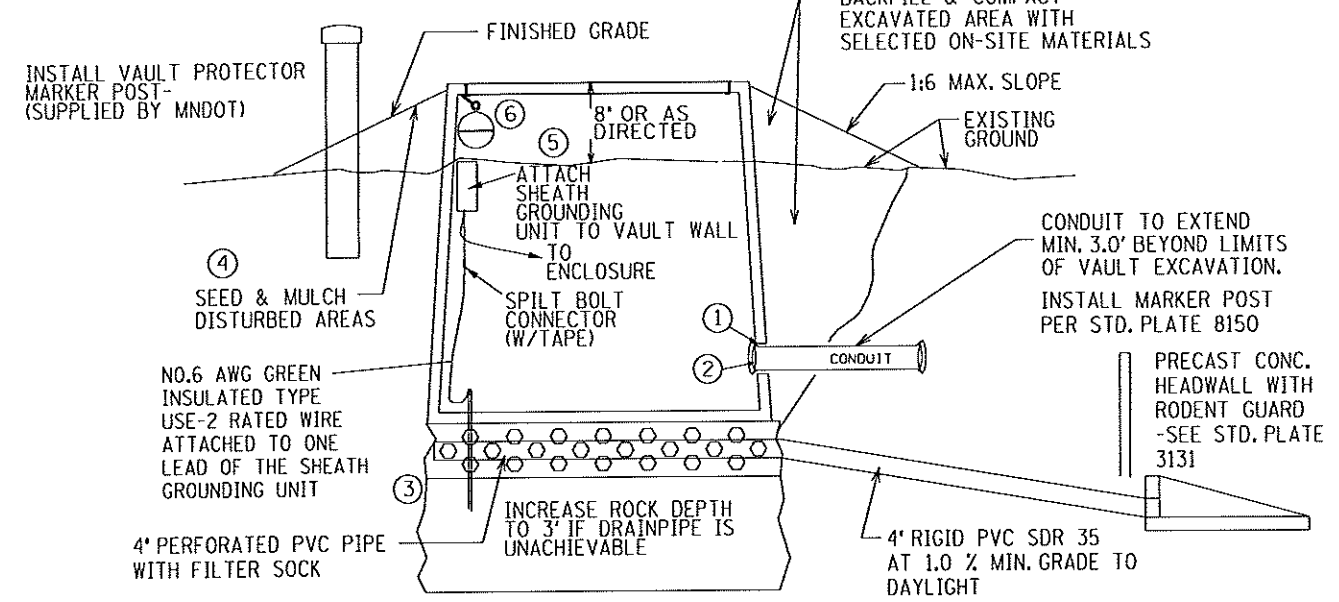
DRAWING NOT TO SCALE
 * ALL BOLTS STAINLESS STEEL

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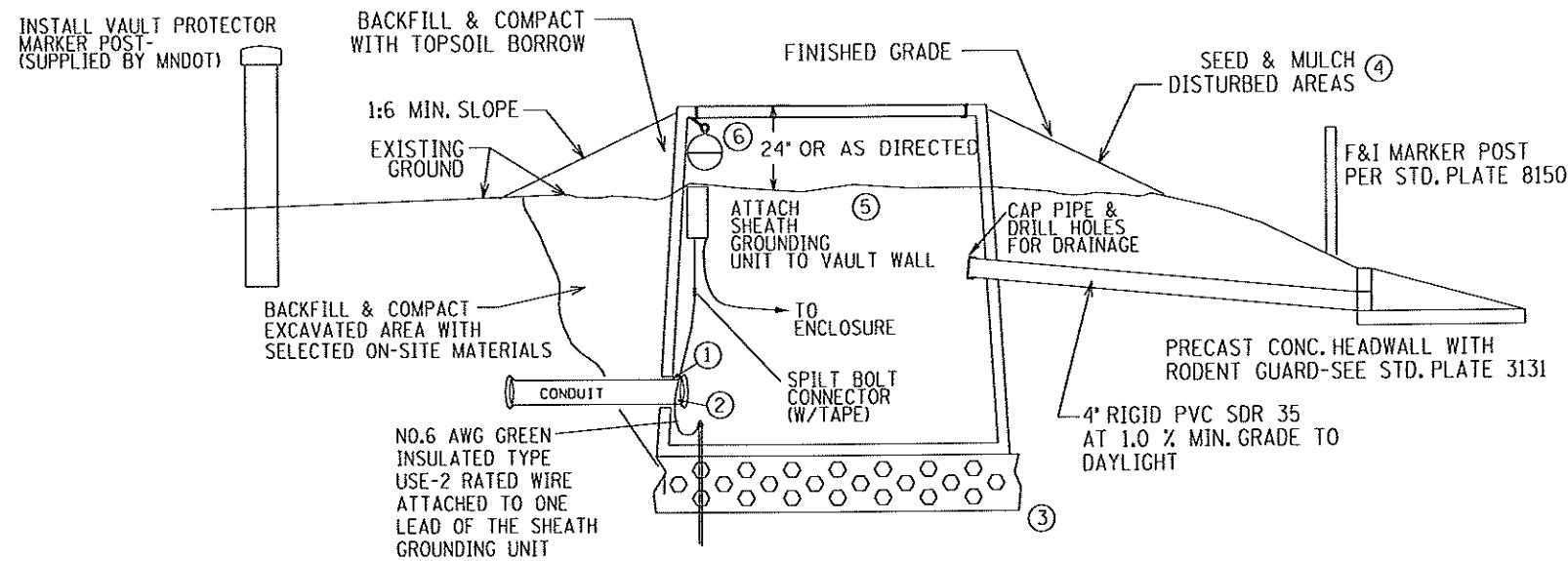
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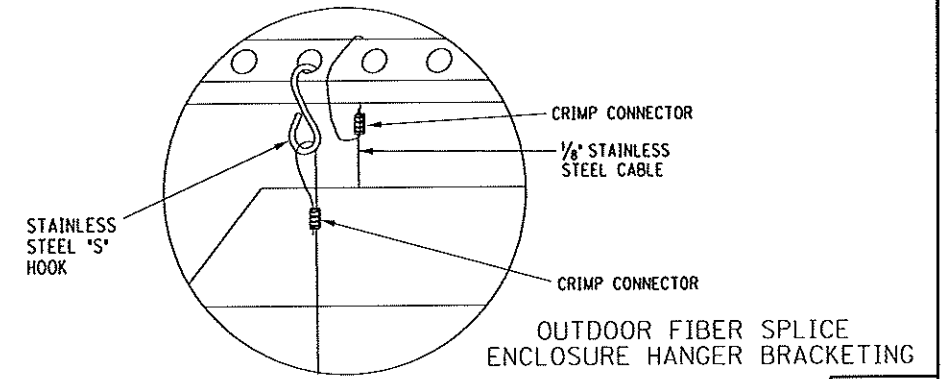
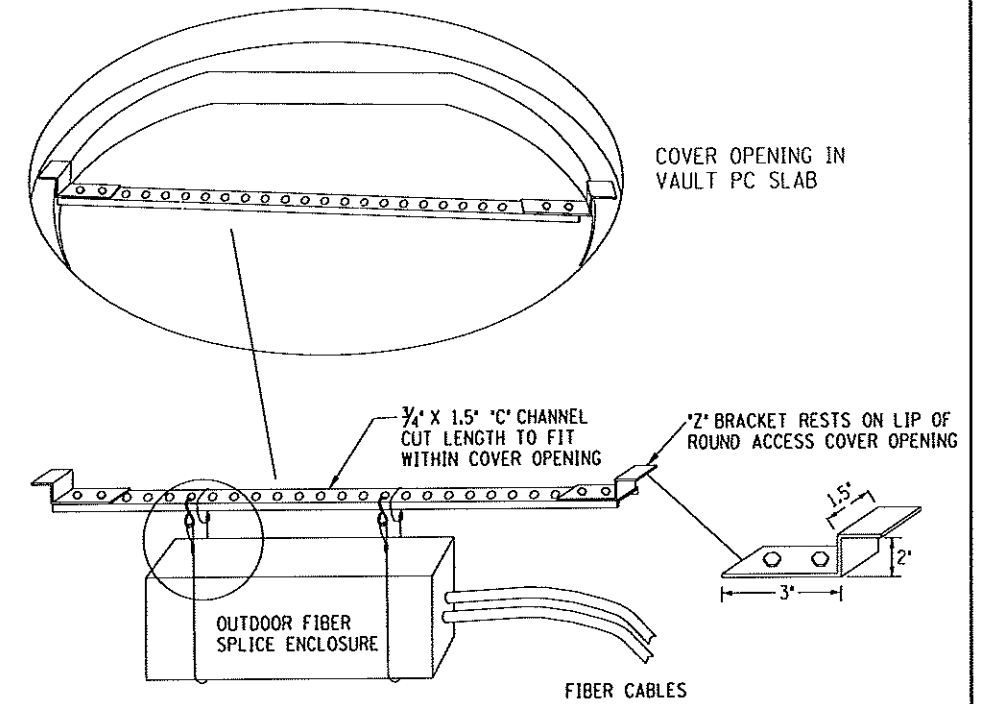
VAULT INSTALLATION & DRAINAGE SYSTEM (SLOPED AREAS)



VAULT INSTALLATION & DRAINAGE SYSTEM (LEVEL GROUND & ACHIEVABLE DRAINAGE AREAS)



VAULT INSTALLATION & DRAINAGE SYSTEM (LEVEL GROUND & MINIMUM ACHIEVABLE DRAINAGE AREAS)



FIBER OPTIC SPLICE VAULT INSTALLATION

- SPECIFIC NOTES**
- OPENINGS FOR CONDUIT SHALL BE SEALED WITH MATERIAL COMPATIBLE SEALANT. (INCIDENTAL)
 - PLUG CONDUIT OPENING WITH A DRAINABLE COMPOUND (INCIDENTAL)
 - F&I 1.0' COARSE FILTER AGGREGATE UNDER BASE COMPLYING WITH MN/DOT 3149.2H. F&I 4" PERFORATED PVC PIPE WITH FILTER SOCK TO PROVIDE DRAINAGE. (INCIDENTAL)
 - RESTORE DISTURBED AREAS WITH SEED MIXTURE 240 AND TYPE I MULCH PER MNDOT 2575.3
 - STRIP TOPSOIL FROM VAULT AND SLOPE AREAS PRIOR TO VAULT INSTALLATION (INCIDENTAL)
 - MOUNT LOCATOR BALL WITH TIE WRAP TO COVER LEDGE

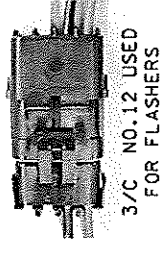
- GENERAL NOTES**
- GROUND CONNECTIONS SHALL BE COATED WITH OXIDATION PROHIBITING COMPOUND.
 - CABLE SHALL ENTER BELOW THE SUPPORT BRACKETS WITH 60" OF EXTRA CABLE FOR EACH CABLE COILED AROUND INSIDE OF SUPPORT BRACKETS. CABLES SHALL BE CUT TO THE SAME LENGTH
 - ALL HARDWARE SHALL BE STAINLESS STEEL WITH EXCEPTION OF THE "C" CHANNEL MOUNTING BAR.
 - THE FRAME AND LID OF THE VAULT SHALL BE IN ACCORDANCE WITH AASHTO LOAD RATING H-10

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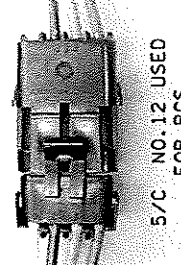
CERTIFIED BY *[Signature]* LIC. NO. 26530 MAR 31 2010

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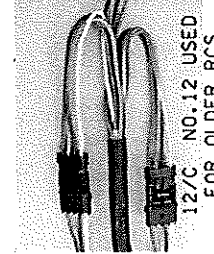
USE A, C & D ONLY



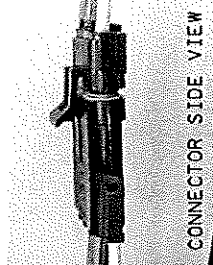
3/C NO.12 USED FOR FLASHERS



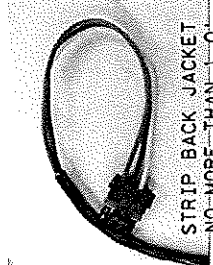
5/C NO.12 USED FOR RCS



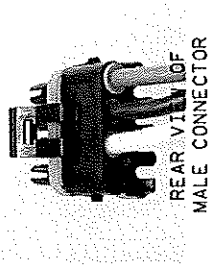
12/C NO.12 USED FOR OLDER RCS



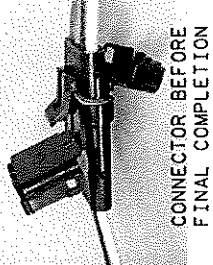
CONNECTOR SIDE VIEW



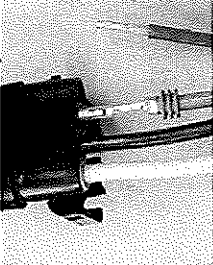
STRIP BACK JACKET NO-MORE THAN 1'-0"



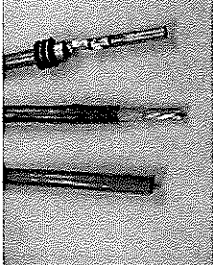
REAR VIEW OF MALE CONNECTOR



CONNECTOR BEFORE FINAL COMPLETION



STAGED 5/C NO.12



WIRE PREPARATION

CONNECTOR BODY		A	B	C	D
		RED	YELLOW/ ORANGE	BLACK/ BLUE	WHITE

ONE-WAY RAMP CONTROL SIGNAL DETAIL

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4-POSITION SLIPFITTER COLLAR

LAMP WATTAGES	
RED.....	116W
YELLOW....	69W
GREEN.....	116W

SEE STD. PLATE 8111



CLAMP SIGN TO PIPE

8.0" PLASTIC LENS

8.0" PLASTIC LENS

HOUSING

32"

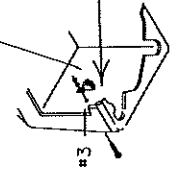
4.5" OD X 11' ALUMINUM PIPE

7.0"

ROUGHEN BACKSIDE OF BRACKET TO PROVIDE POSITIVE HOLDING SURFACE

MIN. 3/4" WIDE STAINLESS STEEL BANDS

2 LUG CONNECTORS ANGLED DOWN

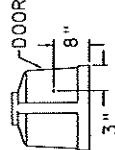


ATTACH 5/C NO. 12 GREEN GROUND WITH ADDITIONAL STRANDED GROUNDING WIRES TO ONE LUG CONNECTOR AND ALL SOLID GROUND WIRES TO THE OTHER CONNECTOR. USE 2-ILSCO SLU TO CONNECTORS OR APPROVED EQUAL--COAT CONNECTION WITH ANTI-OXIDATION COMPOUND

DRILL #3

SEE STD. PLATE 8122

GROUNDING LUG POSITION



ALUMINUM ACCESS DOOR

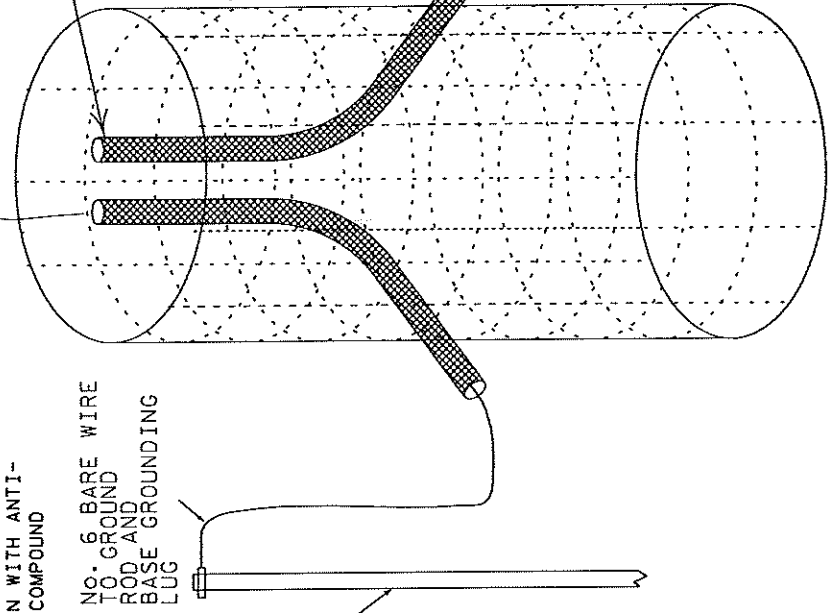
COAT CONNECTION WITH ANTI-OXIDATION COMPOUND

NO. 6 BARE WIRE TO GROUND ROD AND BASE GROUNDING LUG

5/8" X 15' GROUND ROD

CENTER CONDUITS WITHIN BOLT PATTERN 2" MAX HEIGHT ABOVE FOUNDATION INCLUDING BUSHING. DUCT SEAL CONDUIT OPENING

SEE STD. PLATE 8112

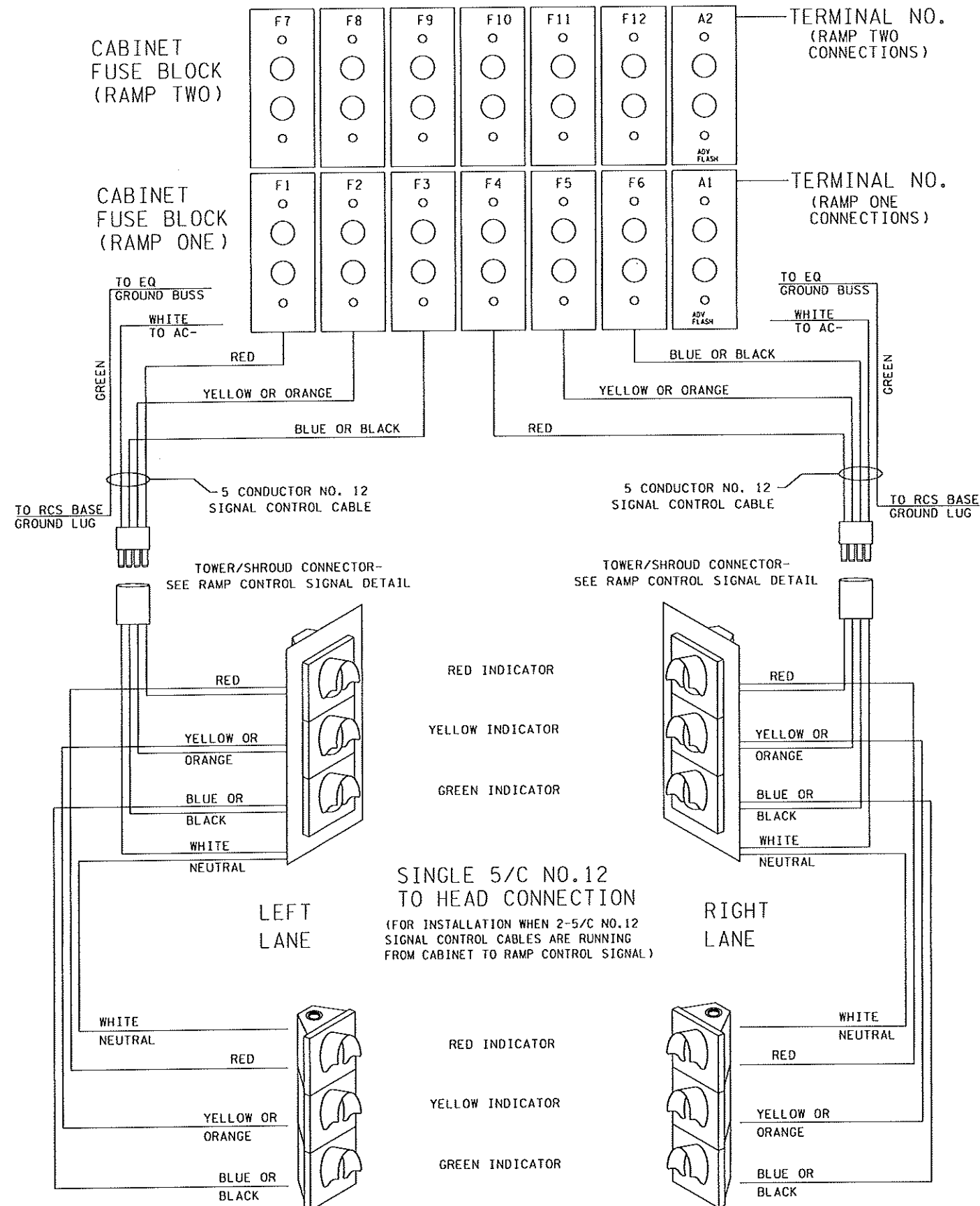


NOTE:

- ALL METAL FITTINGS SHALL BE ANODIZED ALUMINUM
- USE ANTI-SEIZE COMPOUND ON ALL THREADS PERMATEX (PASTE TYPE) PART NO. 133K IS AN APPROVED ANTI-SEIZE COMPOUND
- TURN BOTTOM SIGNAL HEAD AT A 45 DEGREE ANGLE TOWARD RAMP
- NO BACKGROUND SHIELD ON LOWER HEADS
- SIGNAL HEAD MOUNTING BRACKET PIPES SHALL BE 1.5" ALUMINUM. THREAD 2.0" MIN. ON EACH END
- PLACE RAMP METERS 5.0' BEHIND CURB OR DRIVING SURFACE
- F&I PEDESTAL BASE ACCESS DOOR TO DITCH SIDE OF ROADWAY
- DO NOT USE BARRIER STYLE TERMINALS IN RAMP CONTROL SIGNAL BASE
- TERMINATE 5/C NO.12 WIRING INTO SEALED CONNECTORS IN PEDESTAL BASE, USE FOLLOWING PART NUMBERS:
- SIGNAL HEADS SHALL BE YELLOW POLYCARBONATE WITH BLACK POLYCARBONATE BACKGROUND SHIELD
- DELPHI PACKARD WEATHER PACK NO. 38046 SHROUD WITH PIN 32038 (MALE PIN) AND NO. 38047 TOWER WITH PIN 32039 (FEMALE SOCKET) ALONG WITH NO. 39002 WIRE SEAL IS AN APPROVED SEALED CONNECTOR
- SIGNAL HARNESS FROM INDICATIONS SHALL BE TERMINATED WITH A SHROUD CONNECTOR
- SIGNAL WIRING FROM CABINET SHALL BE TERMINATED WITH A TOWER CONNECTOR
- IF SIGNAL HAS 1-5/C NO.12 FROM CABINET TO PEDESTAL BASE SIGNAL HEADS SHALL BE CONNECTED BY WIRING IN PARALLEL (DATSY CHAINING) BETWEEN SIGNAL HEAD TERMINALS AND RUNNING A SINGLE WIRE HARNESS TO THE PEDESTAL BASE.
- IF SIGNAL HAS 2-5/C NO.12 OR 1-12/C NO.12 FROM CABINET TO THE PEDESTAL BASE TWO WIRE HARNESSES SHALL BE RUN FROM THE SIGNAL HEADS TO THE BASE AND EACH HARNESS CONNECTED TO THE INDIVIDUAL WIRES USING THE ABOVE CONNECTORS

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NOTE: WIRING SHOWN APPLIES TO 334Z,
 334Z-94, 334Z-99 334Z-2000 & 334Z-2005
 STYLE CABINETS ONLY

CONNECTION NOTES:

RAMPS/LOOPS TO A SOUTHBOUND OR EASTBOUND DIRECTION OF TRAVEL SHALL BE CONNECTED AS RAMP ONE.-IF BOTH A SOUTHBOUND AND EASTBOUND RAMP & LOOP, OR A RAMP AND LOOP TO THE SAME DIRECTION OF TRAVEL CONNECT TO THE SAME CABINET, THE LOOP SHALL BE CONNECTED AS RAMP ONE

RAMPS/LOOPS TO A NORTHBOUND OR WESTBOUND DIRECTION OF TRAVEL SHALL BE CONNECTED AS RAMP TWO.-IF BOTH A NORTHBOUND AND WESTBOUND RAMP & LOOP, OR A RAMP AND LOOP TO THE SAME DIRECTION OF TRAVEL CONNECT TO THE SAME CABINET, THE LOOP SHALL BE CONNECTED AS RAMP ONE

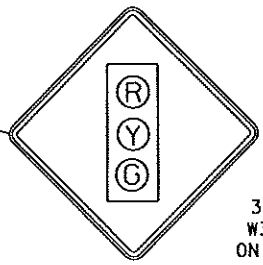
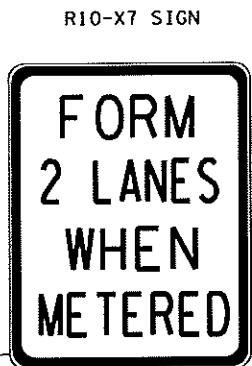
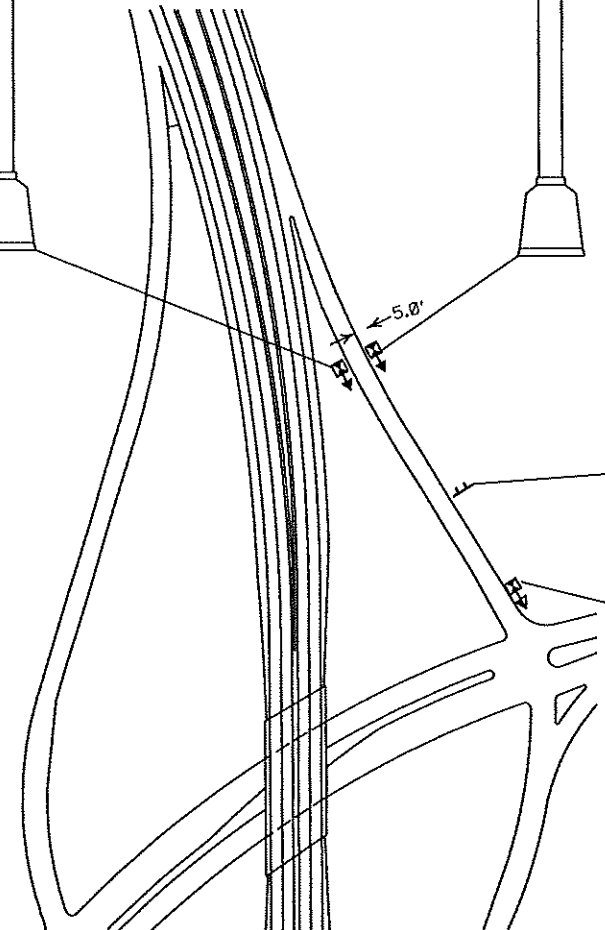
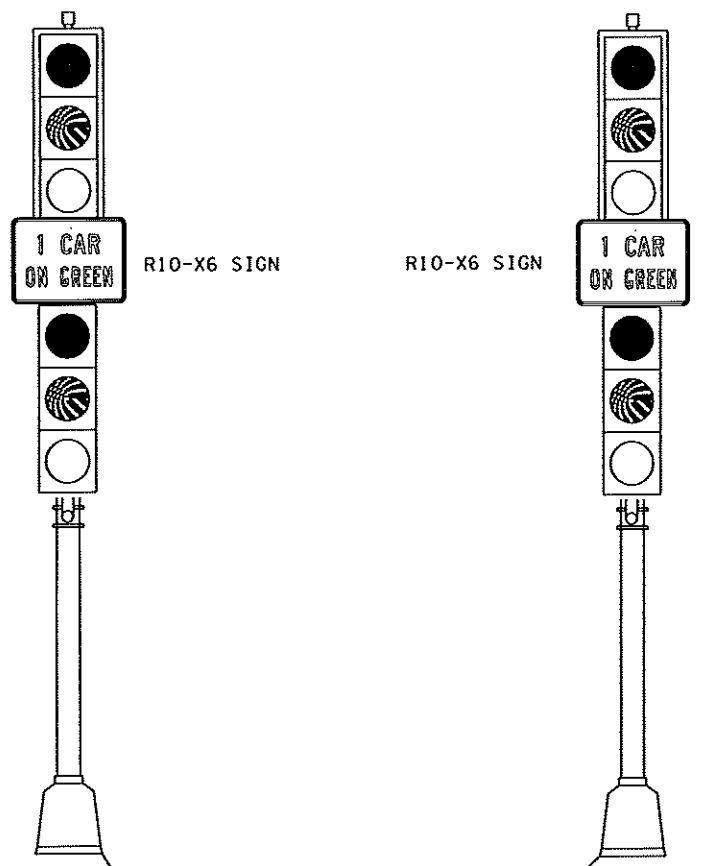
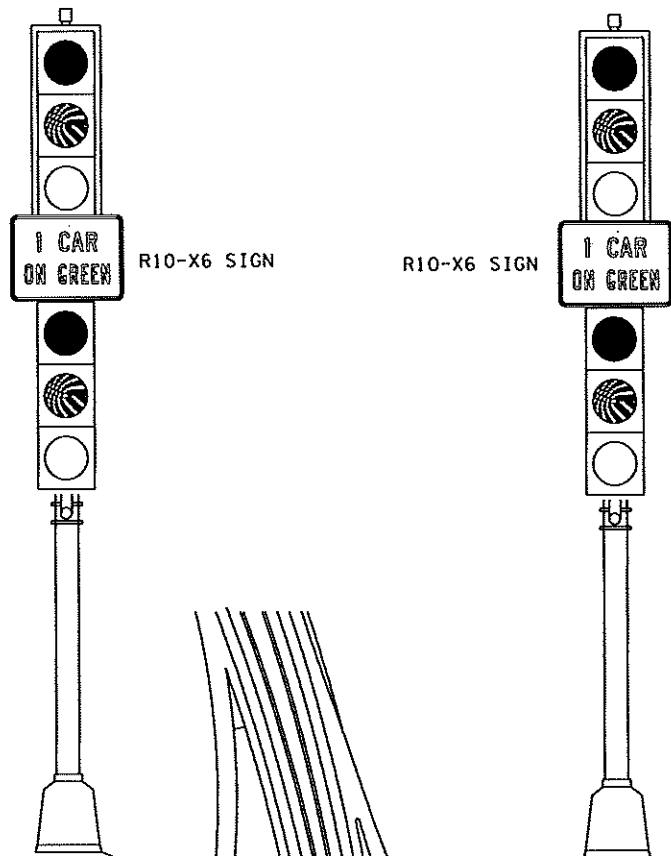
RAMP CONTROL SIGNAL
 CONTROL CABLE TERMINATION GUIDE TM 15
OF TM 31

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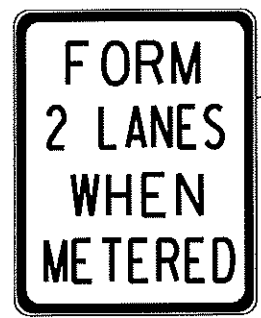
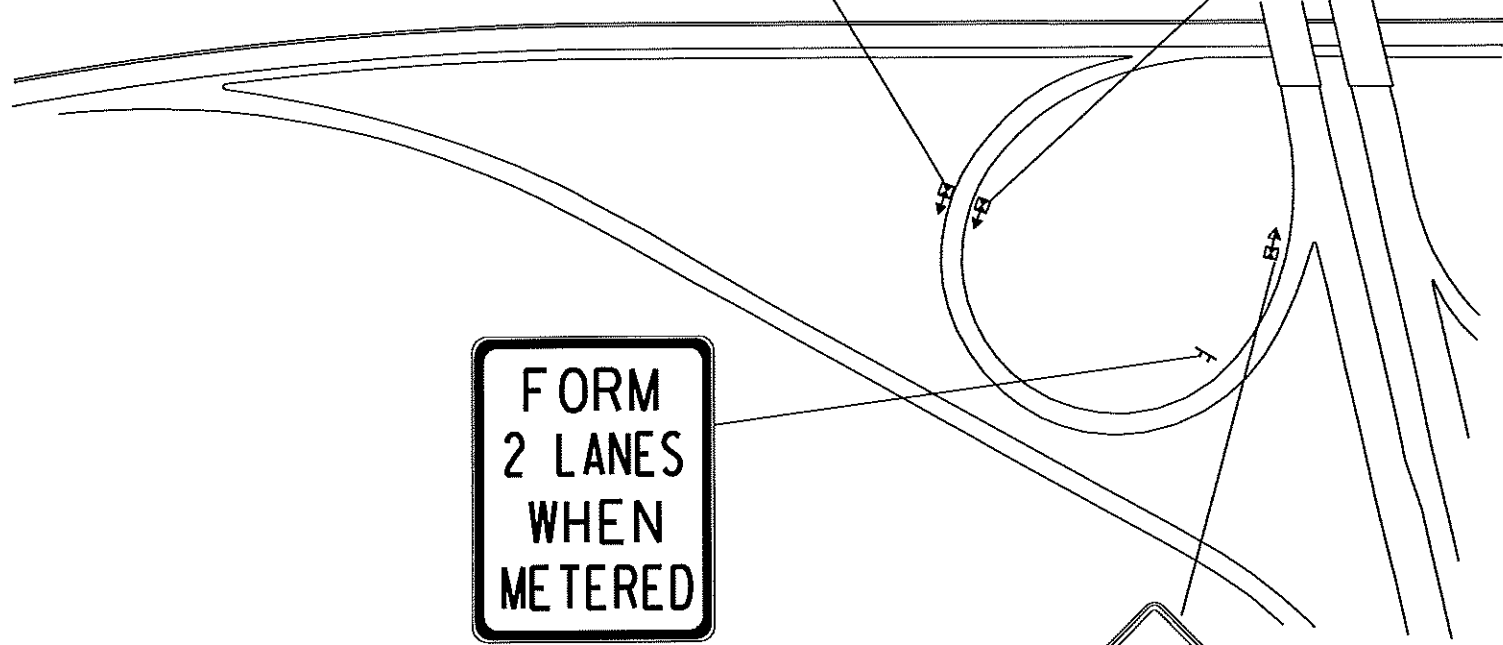
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TMS SIGN PANELS TYPE C								
SIGN	POSTS		MOUNT HT. (FT)	PANEL				PANEL LEGEND
	NO. & TYPE	LEN. (FT)		SIZE (INCHES)	AREA (SQ FT)	PROJECT QUANTITY	TOTAL AREA (SQ FT)	
R3-X3	2U	15.5		36 X 60	15	0	0	HOV RAMP
R10-X6	(1)			24 X 18	3	0	0	1 CAR ON GREEN
R10-X7	1U	15		24 X 30	5	0	0	FORM 2 LANES WHEN METERED
W3-3	1U	15		36 X 36	9	0	0	SIGNAL AHEAD R-Y-G
X4-2	(2)			18 X 18	2.25	0	0	HAZARD MARKER (4)
TOTAL AREA							0	

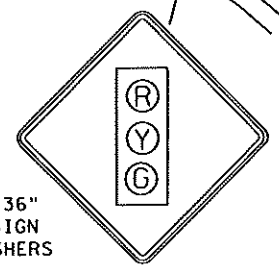
NOTE: (1) INSTALLED ON RAMP CONTROL SIGNAL POLE
 (2) INSTALLED ON R3-X3 HOV MOUNTING POSTS
 (3) POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DOES NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICING
 (4) BLACK BACKGROUND, FLUORESCENT YELLOW SHEETING



36" X 36"
 W3-3 SIGN
 ON FLASHERS



R10-X7 SIGN



36" X 36"
 W3-3 SIGN
 ON FLASHERS

SIGNING LAYOUT DETAIL (WITHOUT HOV)

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 OF TM 31

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 LICENSED PROFESSIONAL ENGINEER

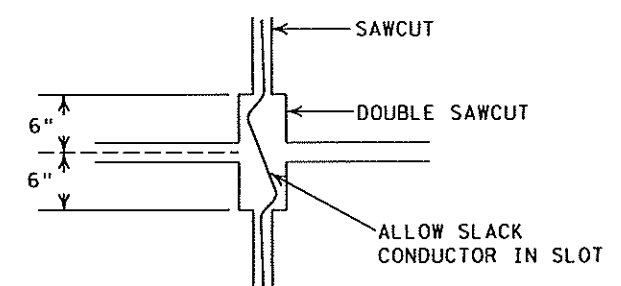
STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 359 OF 534 SHEETS

koob1Tom COROSTSOXD013 TMS
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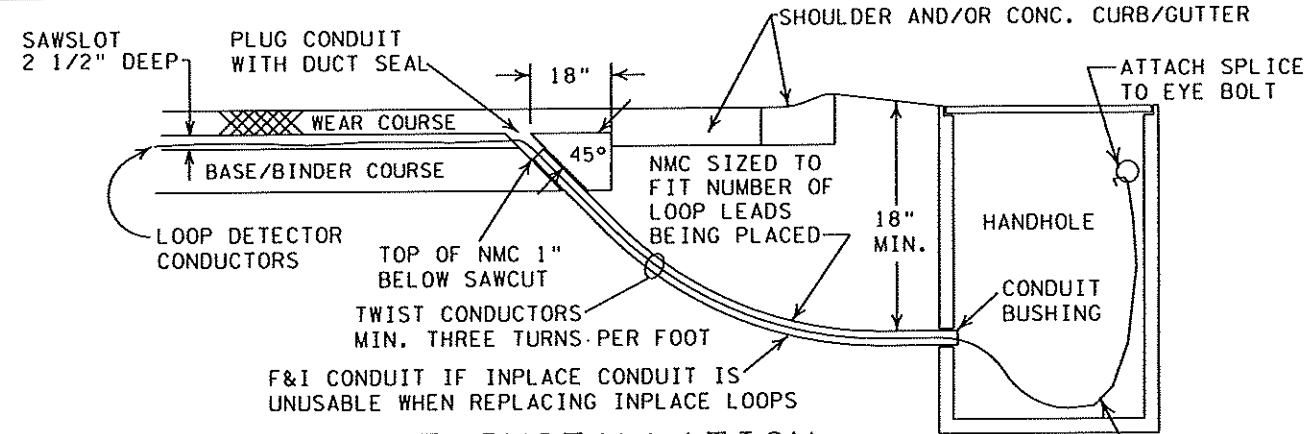
c:\Project\Ise\PW_Work\Ing\koob1Tom\205256\6212165cab_loop_misc.dtl.dgn

- SAWCUT DETECTORS IN RAMPS & LOOPS ARE VARIABLE SIZED, AND INSTALLED IN THE CENTER OF THE LANE.
 - THE LOOP DETECTOR CONDUCTOR IS 1/C NO.14 COPPER, XLPE OR XHHW INSULATED WIRE. THE WIRE IS CONTAINED IN A FLEXIBLE POLYETHYLENE TUBING.
 - USE A SEALANT MADE SPECIFICALLY TO SEAL LOOP DETECTOR SAWCUTS IN CONCRETE ROADWAYS. USE AN APPROVED SEALANT IN BITUMINOUS ROADWAYS AND CONCRETE ROADWAYS THAT ARE TO BE OVERLAYED WITH BITUMINOUS.
- METHOD**
- CLEAN ALL DEBRIS FROM THE ENTIRE LOOP DETECTOR AREA.
 - MARK THE LOOP SAWCUTS ON THE ROADWAY.
 - NOTE: LOCATE LOOPS IN PAVEMENT TO MINIMIZE THE CROSSING OF JOINTS AND CRACKS WITHIN THE PAVEMENT.
 - SAW THE CUT TO 2 1/2" +/- 1/4" DEEP BY 1/8" WIDER THAN THE "OD" OF THE CONDUCTOR. SMOOTH THE BOTTOM AND ANGLES TO PREVENT DAMAGE TO INSULATION.
 - REAM THE CONDUIT ENDS. PLUG THE CONDUIT IN THE ROADWAY TO PREVENT THE LOOP SEALANT FROM ENTERING THE CONDUIT.
 - DRILL THE CORNERS 1/4" DEEPER THAN THE SAW SLOT AND SMOOTH THE HOLE CORNERS.
 - CLEAN AND DRY THE ENTIRE LOOP DETECTOR AREA.
 - F&I BEAD OF LOOP DETECTOR SEALANT TO WITHIN 6" OF LOOP CONDUCTORS CONDUIT. INSTALL CLEAN, DRY LOOP CONDUCTOR STAYING TO THE OUTSIDE OF THE CORNERS. DO NOT INSTALL THE CONDUCTOR TIGHT, PUSH THE CONDUCTORS TO THE BOTTOM OF THE SAWCUT WITH A BLUNT TOOL.
 - PLACE 3/4" DIAMETER BY 2" FOAM BACKER ROD AT 2.0' INTERVALS TO HOLD THE CONDUCTOR AT THE BOTTOM OF THE SAWCUT. PLACE LOOP SEALANT.
 - F&I CONDUCTOR PER JOINT/CRACK DETAIL EACH TIME A JOINT OR PAVEMENT CRACK IS CROSSED.
 - TWIST THE CONDUCTORS 9 TURNS PER METER IN THE CONDUIT FROM THE ROADWAY TO THE SPLICE WITHIN THE HANDHOLE.
 - SOLDER THE LOOP CONDUCTOR TO LEAD-IN LEAVING THE JOINTS STAGGERED. ROUGHEN CABLE JACKET WITH SANDPAPER. PLACE IT INTO SPLICE ENCAPSULATOR WITH A PLASTIC TUBE AND END CAPS THAT FUNCTION AS SPOUTS. USE A TWO PART INSULATING RESIN, CONFINED IN A UNIPAK, THAT TURNS BLACK WHEN MIXED AND BECOMES HARD WHEN CURED. F&I BOTH LOOP CONDUCTORS AND LEAD-IN WIRE INTO THE SAME END OF THE TUBE AND ENCAPSULATE THE SPLICE.
 - SAWCUTS SHALL REMAIN 2.0' FROM OTHER SAWCUTS.
 - FILL SAW SLOT UNIFORMLY ACCORDING TO THE LOOP SEALANT MANUFACTURERS RECOMMENDED DEPTH. WIPE ALL EXCESS SEALANT MATERIAL FROM THE ROADWAY SURFACE.

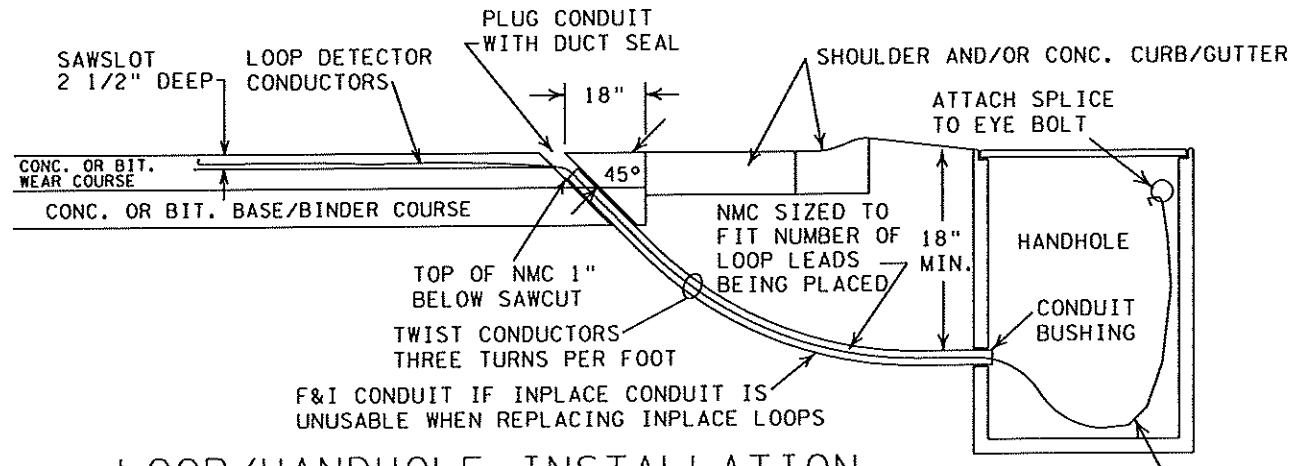
NOTE: ALL SAWCUT LOOP DETECTORS SHALL HAVE 4 TURNS



JOINT/CRACK INSTALLATION

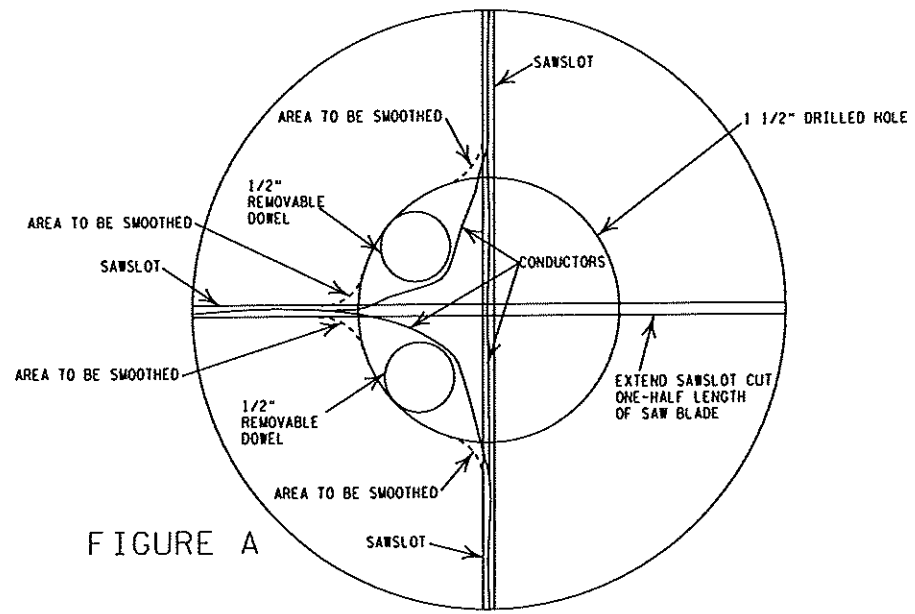


LOOP/HANDHOLE INSTALLATION (MILL & OVERLAY CONSTRUCTION)
* NOTE: SAWCUT LOOP DETECTOR BETWEEN BINDER AND WEAR COURSES

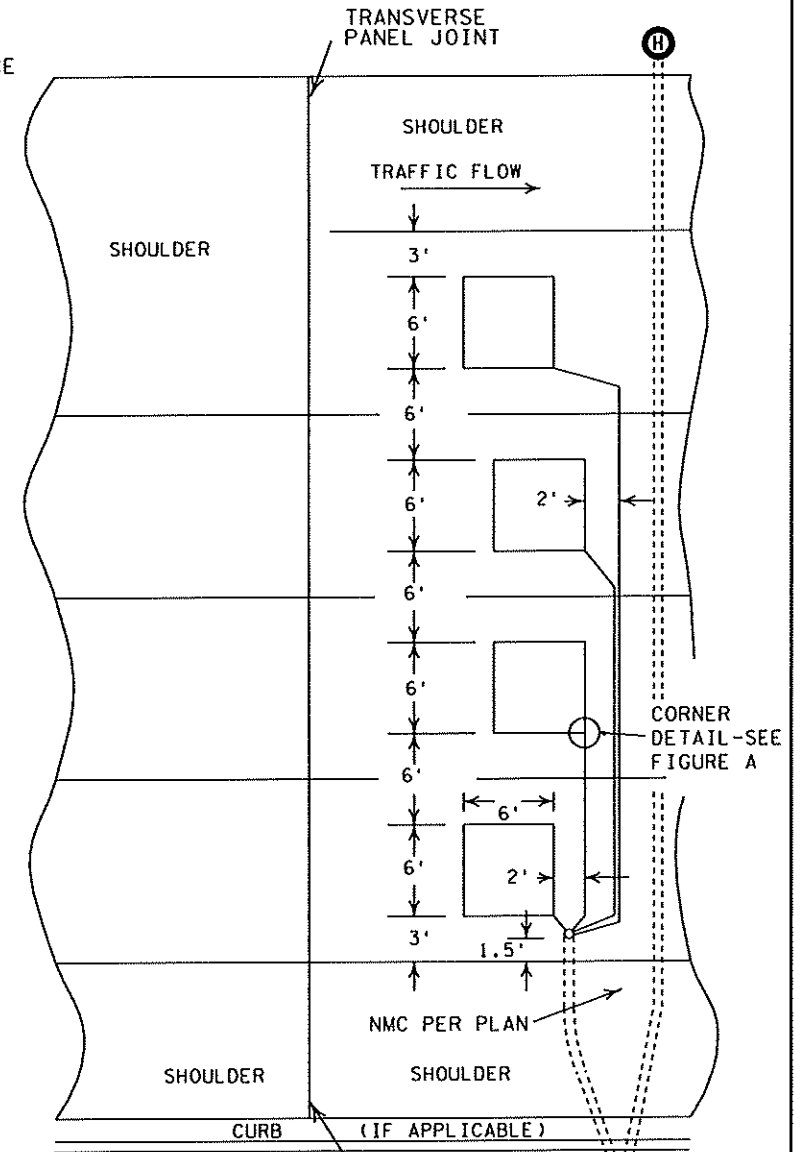


LOOP/HANDHOLE INSTALLATION (INPLACE ROADWAYS)
* NOTE: SAWCUT LOOP DETECTOR INTO WEAR COURSE OR CONC. SURFACE

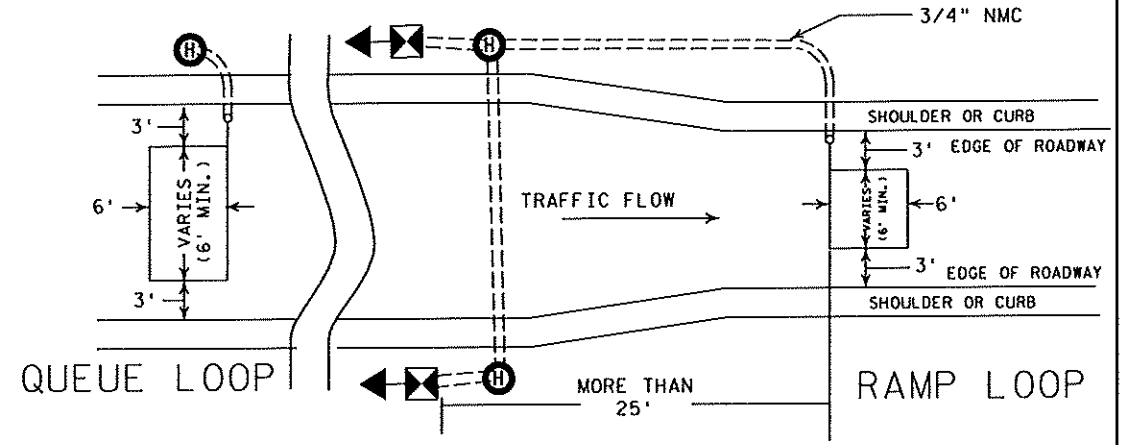
NOTE: LOOP LEADS SHALL NOT CROSS TRANSVERSE JOINTS IN CONCRETE PAVEMENT. MOVE A LOOP TO THE NEXT PANEL AND F&I A SEPARATE CONDUIT TO THE HH IF ALL LOOPS WILL NOT FIT ONE PANEL AND MAINTAIN SEPARATIONS SHOWN



DRILL SAWCUT CORNERS



MAINLINE DETECTORS



TMS SAWCUT LOOP DETECTOR TYPICAL-PART ONE

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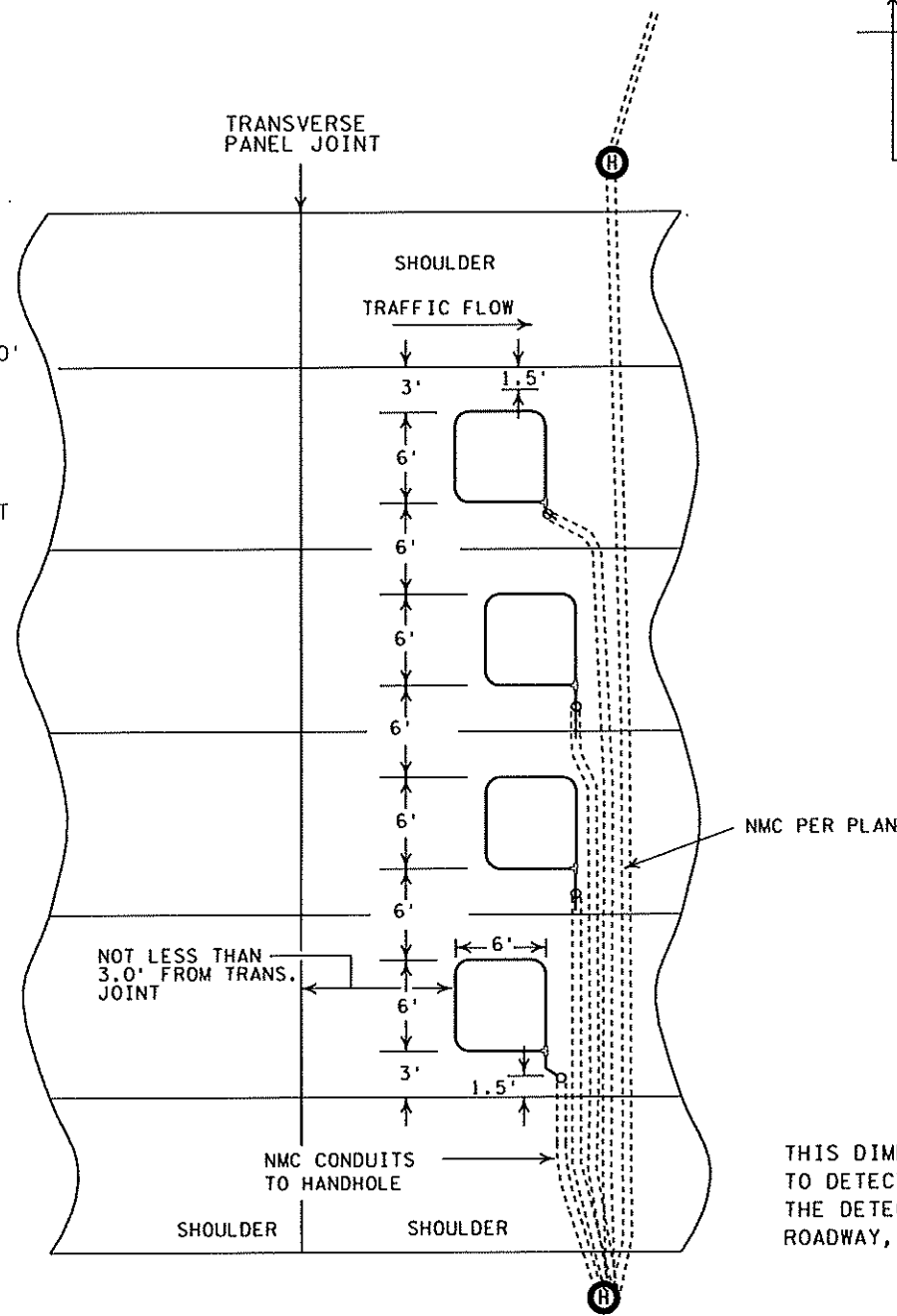
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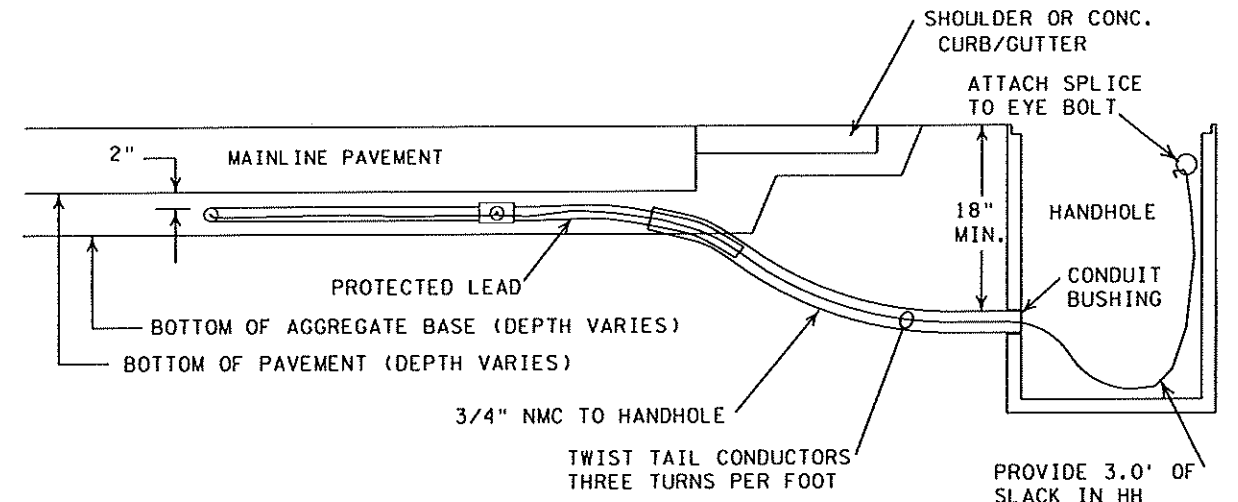
GENERAL NOTES:

1. SEE SPECIAL PROVISIONS FOR REQUIRED LOOP DETECTOR CONDUCTOR SPLICE KIT.
2. THE LOOP DETECTOR HEAD SHALL BE 5/8 " O.D. POLYPROPOLYENE CONDUIT AND SHALL BE INJECTED WITH HOT RUBBERIZED ASPHALT AFTER CONDUCTOR PLACEMENT TO ENCAPSULATE THE WIRE AND PROVIDE A MOISTURE BARRIER
3. PREFORMED LOOP DETECTORS ARE VARIABLE SIZED DEPENDING ON ROADWAY LOCATION AND SHALL BE INSTALLED IN THE CENTER OF THE LANE. PAVEMENT JOINTS FOR CONCRETE PAVING SHALL BE ESTABLISHED BEFORE LOOP PLACEMENT TO MAINTAIN A MIN. OF 3.0' FROM DOWEL BASKET PLACEMENT
4. THE LOOP DETECTOR CONDUCTOR IS 1/C NO. 16 STRANDED COPPER, WITH XHHW INSULATION.
5. THE PROTECTED LEAD PORTION OF LOOP SHALL EXTEND FROM THE TEE CONNECTOR, ENDING A MIN. OF 1.0' INSIDE THE NMC CONDUIT
6. THE LOOP DETECTOR CONDUCTORS SHALL BE TWISTED THREE TURNS PER FOOT FROM THE NMC TEE CONNECTOR TO THE HANDHOLE.
7. EACH LOOP DETECTOR CONDUIT TO THE HANDHOLE SHALL BE SLOPED TOWARDS THE HANDHOLE.
8. THE LOOP DETECTOR CONDUCTORS SHALL END IN THE HANDHOLE.
9. NO SPLICES ALLOWED IN LOOP CONDUCTOR EXCEPT AT HANDHOLE
10. SEE SPECIAL PROVISIONS FOR TESTING REQUIREMENTS OF LOOP DETECTORS
11. THE LOOP DETECTOR CONDUCTORS AND THE LOOP DETECTOR LEAD-IN CABLE CONDUCTORS SHALL BE PROPERLY PREPARED AND CLEANED BEFORE SPLICING. SOLDER THE LOOP CONDUCTOR TO LEAD-IN CONDUCTORS, THEN PLACE IT INTO THE SPLICE ENCAPSULATOR
12. INSTALL THE SPLICE IN A PLASTIC TUBE WITH END CAPS THAT FUNCTION AS SPOUTS. USE A TWO PART INSULATING RESIN, CONFINED IN A UNIPAK, THAT TURNS BLACK WHEN MIXED AND BECOMES HARD WHEN CURED. F&I BOTH LOOP CONDUCTORS AND LEAD-IN INTO THE SAME END OF THE TUBE AND ENCAPSULATE THE SPLICE.
13. THE LOOP INSULATION RESISTANCE READING MUST BE GREATER THAN 100 MEG OHM.
14. "NEVER FAIL LOOP SYSTEMS" DETECTOR-MODEL A WITH THE MNDOT PART NUMBER NOTED BELOW HAS MET THESE REQUIREMENTS

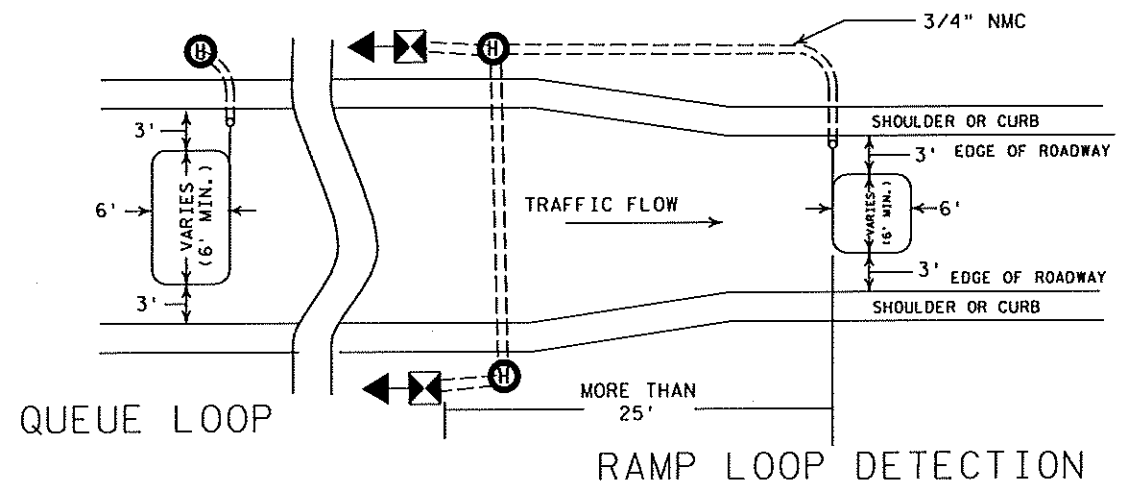


MAINLINE DETECTORS

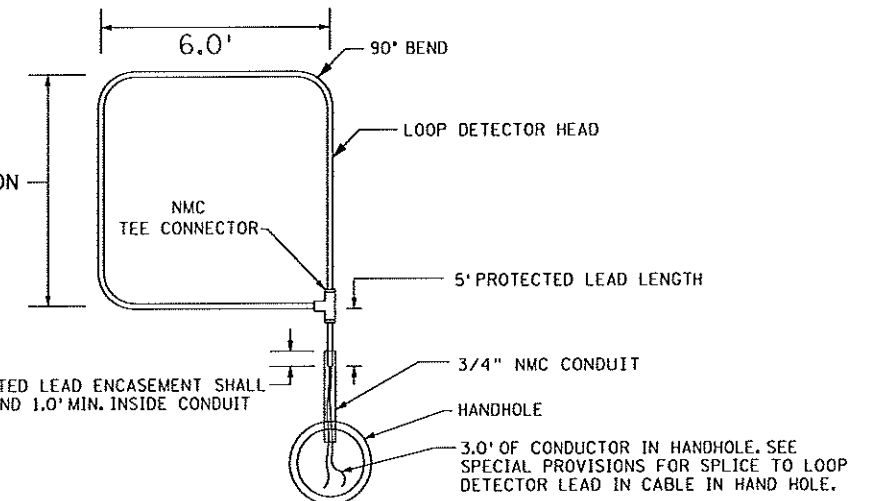
EXAMPLE
 WITH 2 LOOPS
 TO ONE HANDHOLE



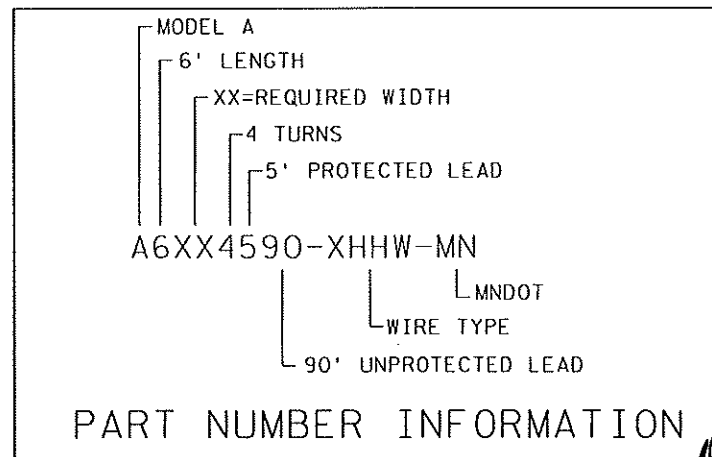
CONDUIT/HANDHOLE INSTALLATION



THIS DIMENSION VARIES ACCORDING TO DETECTOR SIZE & IS DEPENDENT UPON THE DETECTORS LOCATION WITHIN THE ROADWAY, RAMP, OR LOOP



TYPICAL PREFORMED LOOP DETECTOR DETAIL

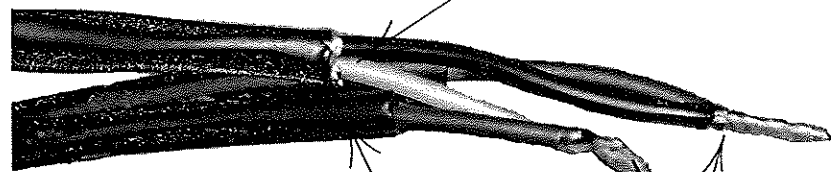


PART NUMBER INFORMATION

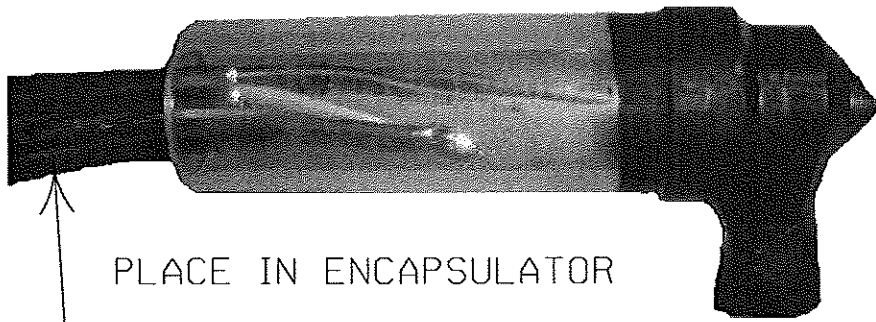
TMS "PREFORMED" LOOP DETECTOR-PART ONE

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 OF TM 31

CUT & REMOVE DRAIN WIRE

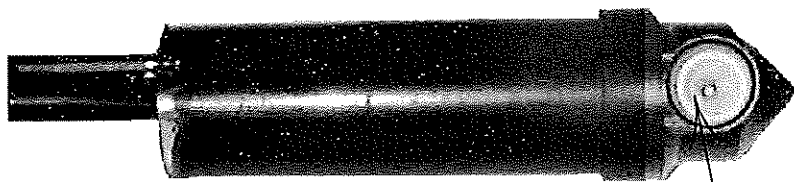


ROUGHEN CABLE JACKET WITH SANDPAPER
 STAGGER SOLDERED BUTT SPLICE

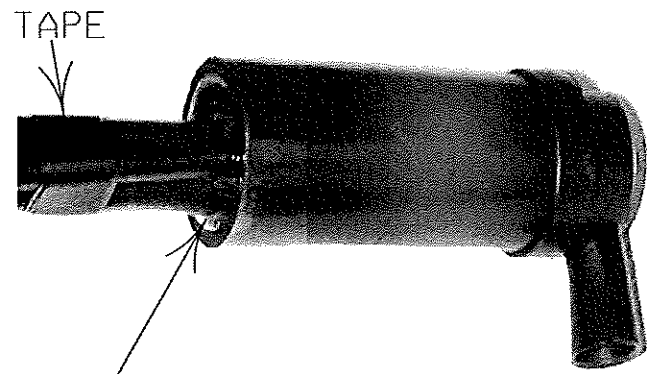


PLACE IN ENCAPSULATOR

TAPE WIRE TOGETHER BEFORE SPLICE

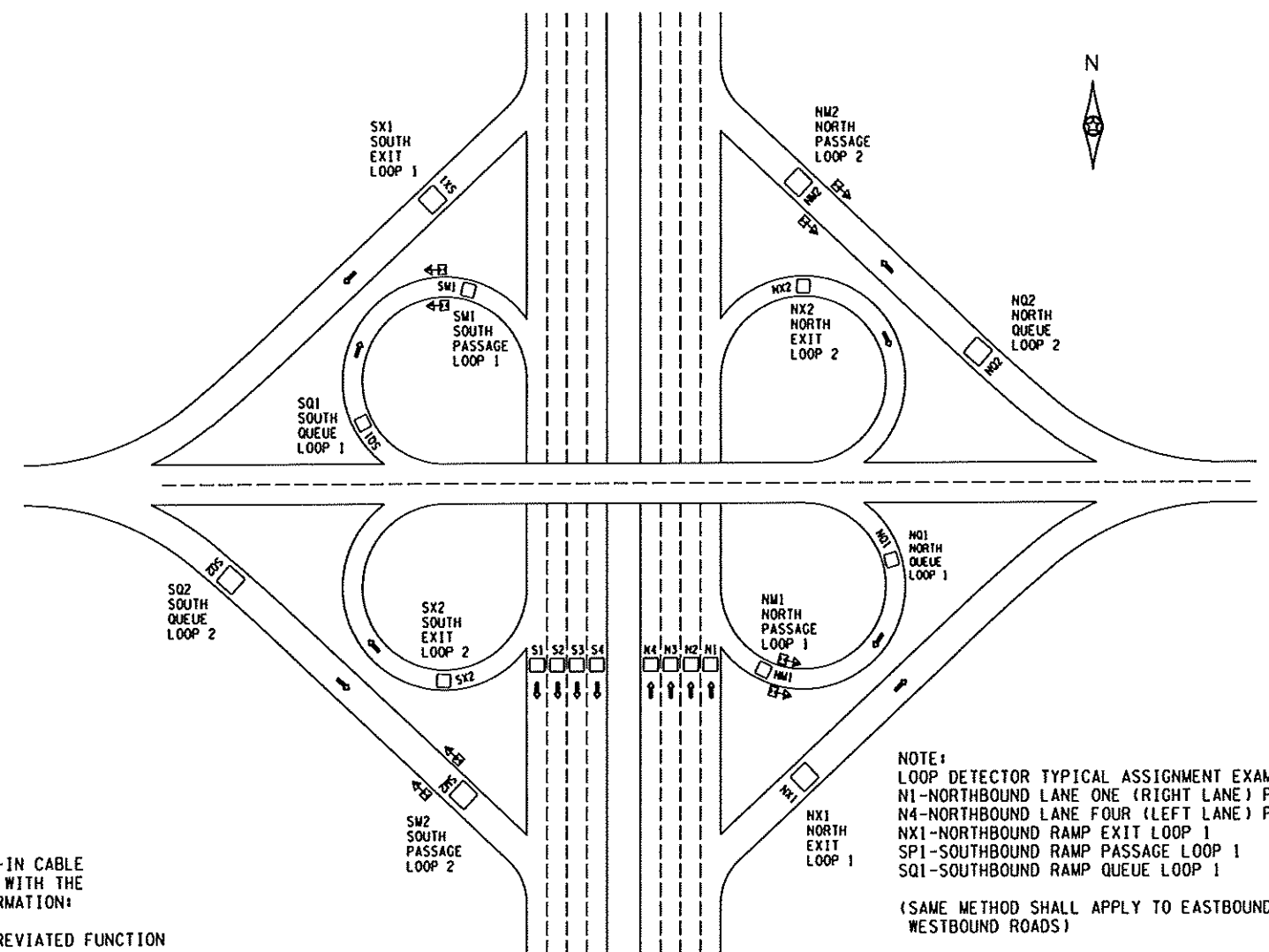


PLACE WIRE NUT IN ONE END TO BLOCK OPENING



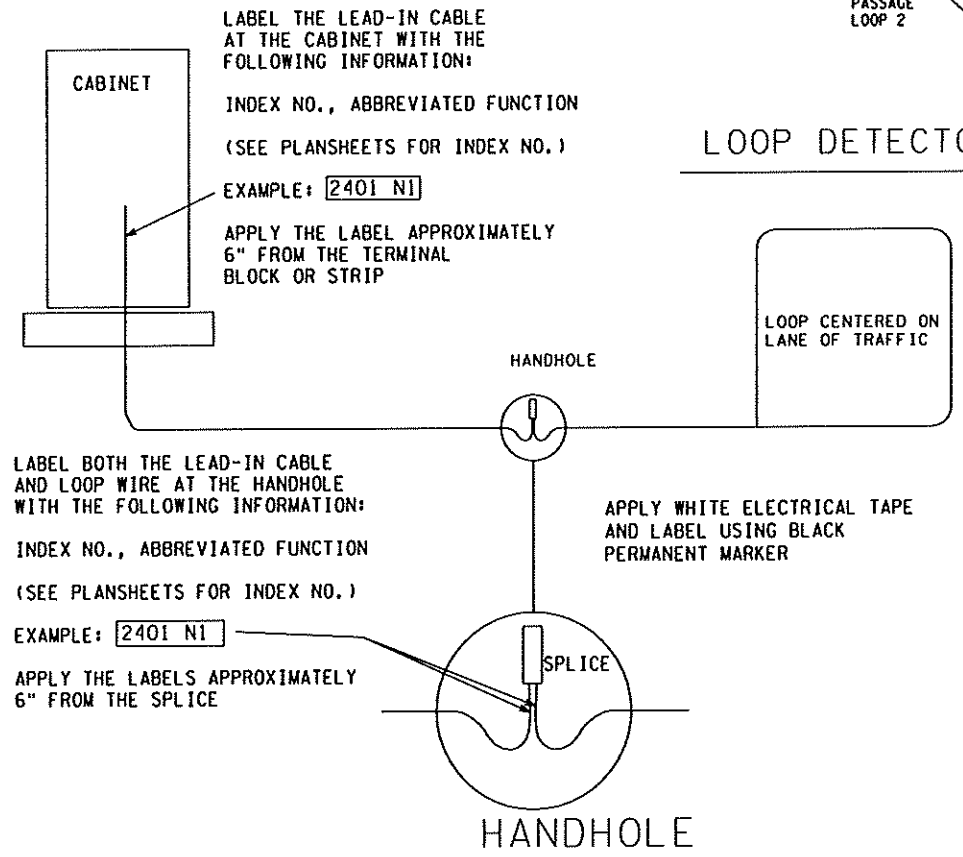
FILL ENCAPSULATOR COMPLETELY-ALLOW FINISHED SPLICE TO CURE SO EPOXY DOES NOT RUN OUT

LOOP DETECTOR SPLICE FOR SAWCUT AND PREFORMED LOOPS



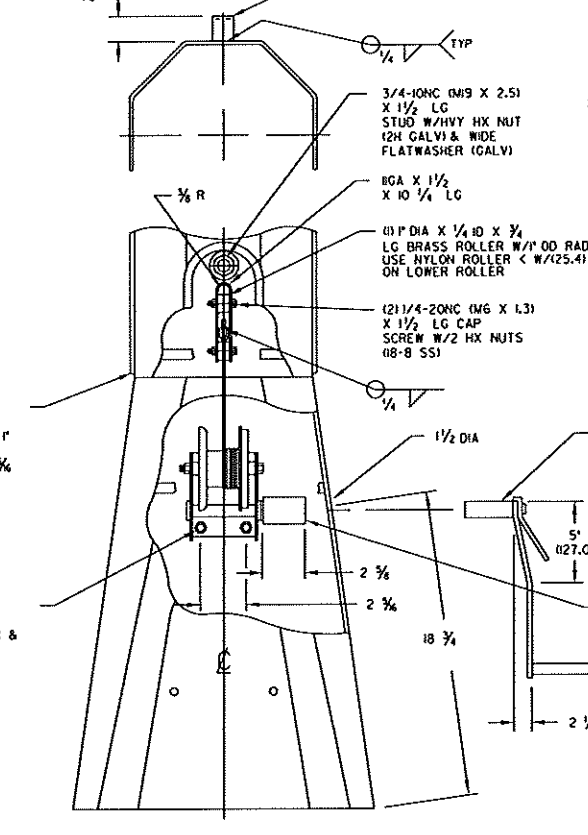
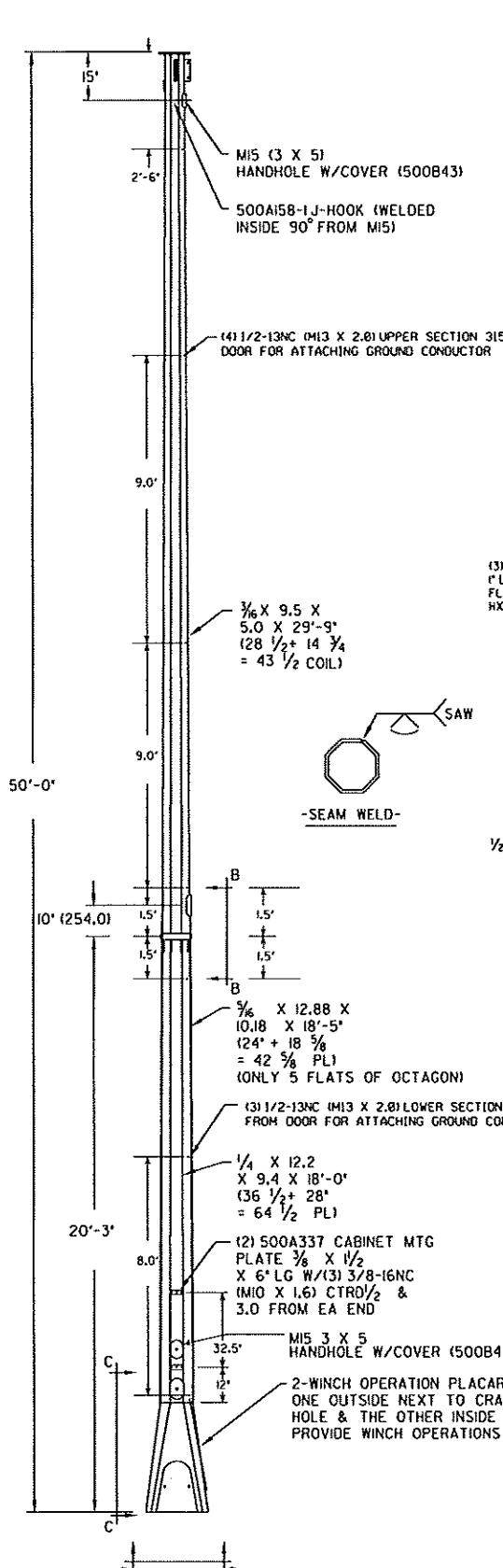
NOTE:
 LOOP DETECTOR TYPICAL ASSIGNMENT EXAMPLES
 N1-NORTHBOUND LANE ONE (RIGHT LANE) POSITION
 N4-NORTHBOUND LANE FOUR (LEFT LANE) POSITION
 NX1-NORTHBOUND RAMP EXIT LOOP 1
 SX1-SOUTHBOUND RAMP PASSAGE LOOP 1
 SQ1-SOUTHBOUND RAMP QUEUE LOOP 1
 (SAME METHOD SHALL APPLY TO EASTBOUND & WESTBOUND ROADS)

LOOP DETECTOR FUNCTION DESIGNATIONS

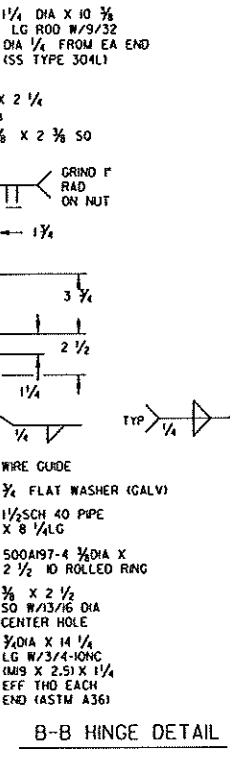
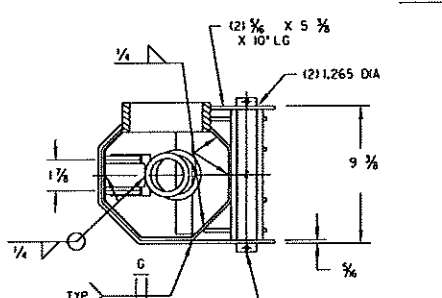
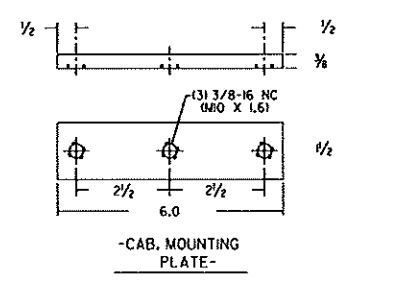


LOOP DETECTOR CABLE LABELING

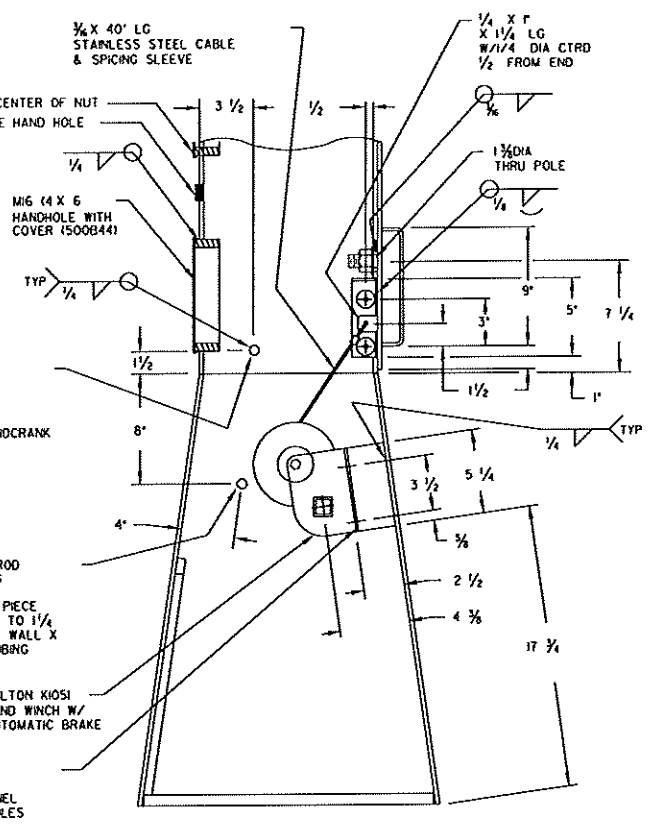
CCTV STANDARDS



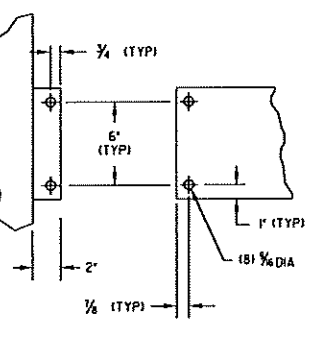
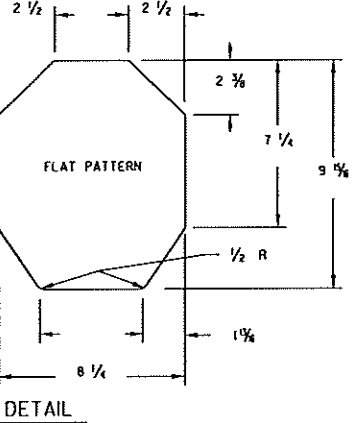
C-C WINCH DETAIL



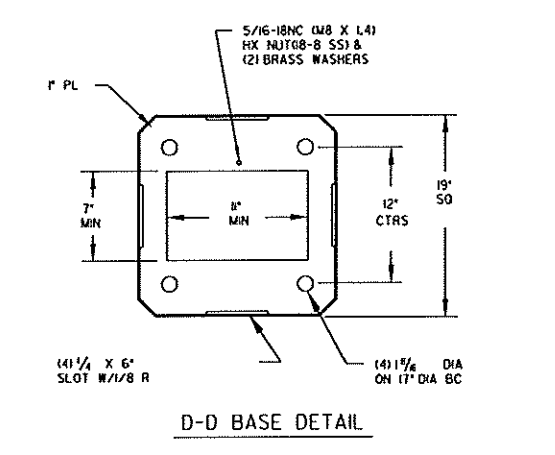
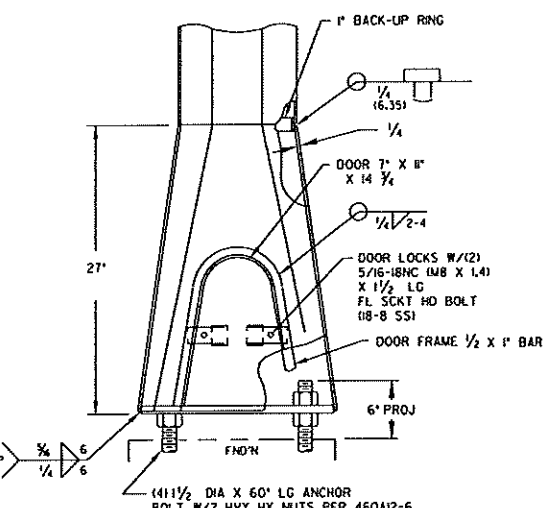
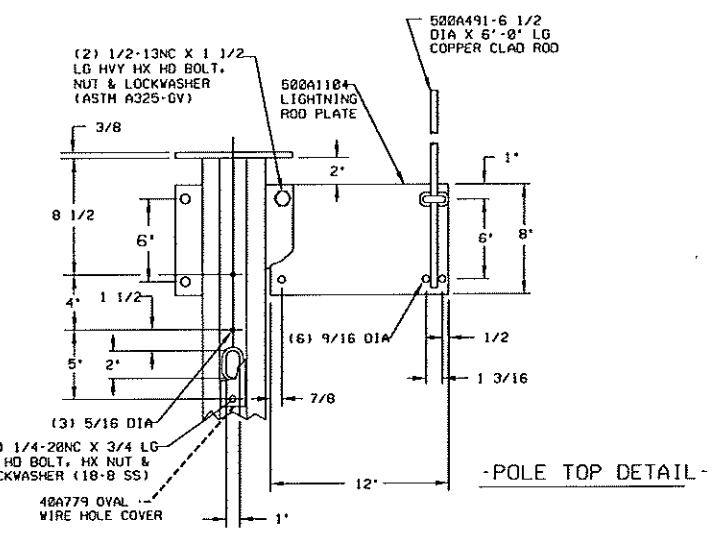
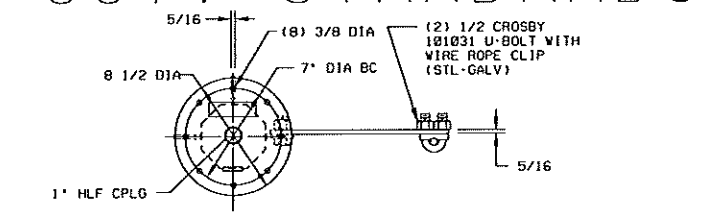
B-B HINGE DETAIL



WIRE GUIDE DETAIL



E-E LIGHTNING ROD MOUNTING DETAIL



D-D BASE DETAIL

CCTV POLE DETAIL

NOTE:
 1. MATERIAL - HIGH STRENGTH LOW ALLOY STEEL
 50,000 (334738 KPa) PSIMIN YIELD (ASTM A572
 OR E01) BASE PLATE MATERIAL TO BE 36,000
 (248218 KPa) PSIMIN YIELD (ASTM A36) WHEN
 PAINTED OR GALVANIZED
 2. FINISH- HOT DIP GALVANIZED (ASTM A123)

CAMERA INSTALLATION
 BY OTHERS

7/16" BRAIDED GROUND
 CONDUCTOR (32 STRAND,
 17 GA TINNED COPPER)

SECURE GROUND BRAID TO POLE
 AT ALL LOCATIONS WITH A
 PLATED PARALLEL CONNECTOR
 CASTING W/1/2" CLEARANCE HOLE
 (THOMPSON LIGHTNING PROTECTION
 INC. PART NO. 141T HAS MET
 SPECIFICATIONS)

USE ANTI-SEIZE COMPOUND ON
 ALL THREADS PERMATEX
 (PASTE TYPE) PART NO. 133K
 IS AN APPROVED ANTI-SEIZE
 COMPOUND

GREASE HINGE

MOUNT POLE CABINET TO POLE,
 CAULK POLE BOX OPENING AT POLE
 TO ELIMINATE WATER INTRUSION

EXOTHERMICALLY WELD OR
 PRESSURE CRIMP NO.6 AWG
 WIRE FROM POLE MOUNTED CAB.
 GROUND BUSS AND 7/16" GROUND
 CONDUCTOR TO GROUND ROD
 LOCATED NEXT TO FOUNDATION

6"

F&I 3.0' X 3.0' X 4"
 SIDEWALK UNDER POLE CABINET

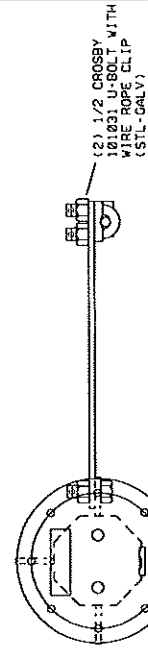
F&I 3.0' X 3.0' X 4"
 SIDEWALK UNDER CRANK OPENING

TOP OF GRADE

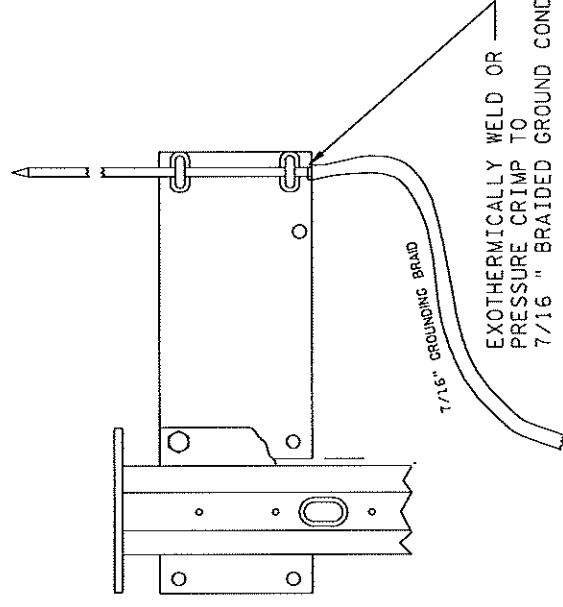
ONE-PIECE 15' GROUND ROD

POSITION SIDEWALKS 6" BELOW
 TOP OF CCTV FOUNDATION, BACK FILL
 AS NEEDED TO CREATE A SMOOTH
 TRANSITION FROM INPLACE GRADE
 TO SIDEWALKS

LIGHTNING ROD DETAIL



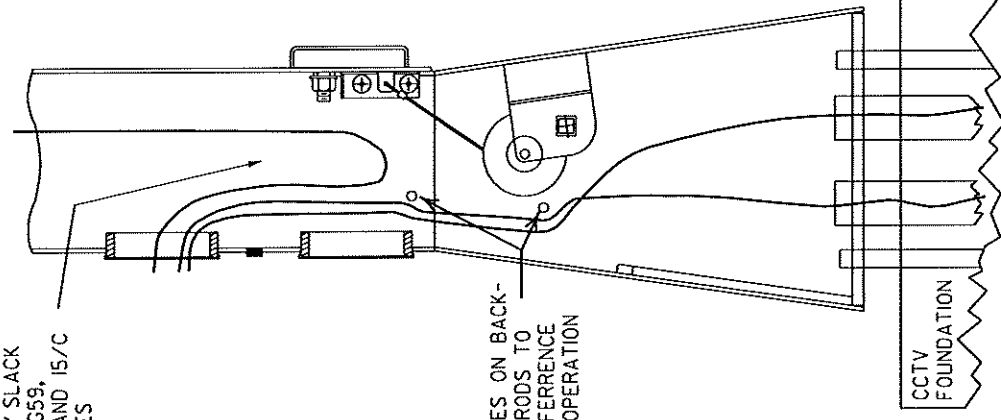
POSITION LIGHTNING ROD ASSEMBLY
 90 DEGREES AWAY FROM HIGHWAY CENTERLINE,
 AWAY FROM CAMERAS VIEW OF TRAFFIC



EXOTHERMICALLY WELD OR
 PRESSURE CRIMP TO
 7/16" BRAIDED GROUND COND.

CABLE ROUTING DETAIL

PROVIDE 1.0' SLACK
 LOOP ON RG58,
 3/C NO.12 AND 15/C
 NO.18 CABLES



ROUTE CABLES ON BACK-
 SIDE OF 1/2" RODS TO
 AVOID INTERFERENCE
 WITH WINCH OPERATION

CCTV
 FOUNDATION

CCTV POLE INSTALLATION DETAIL

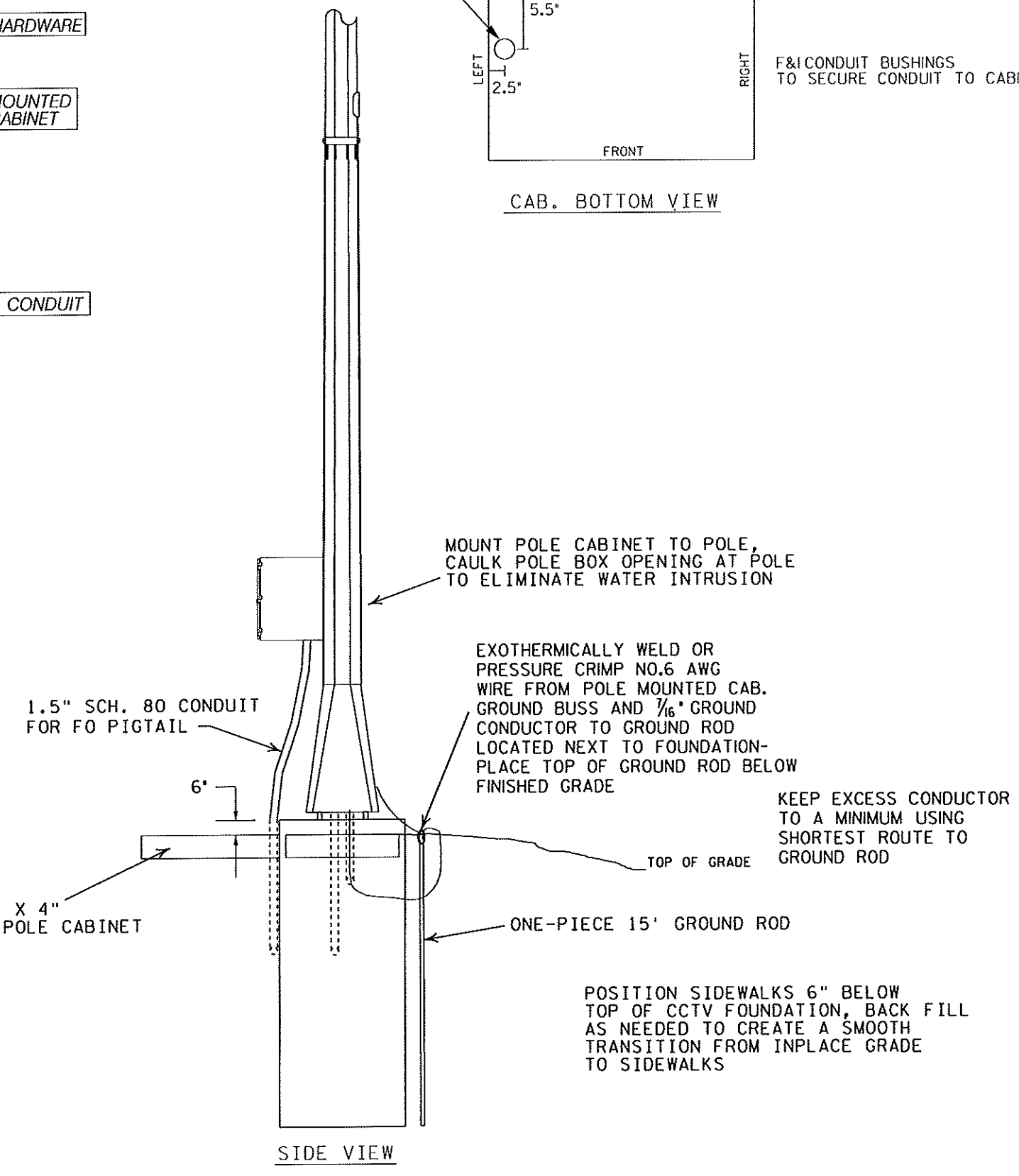
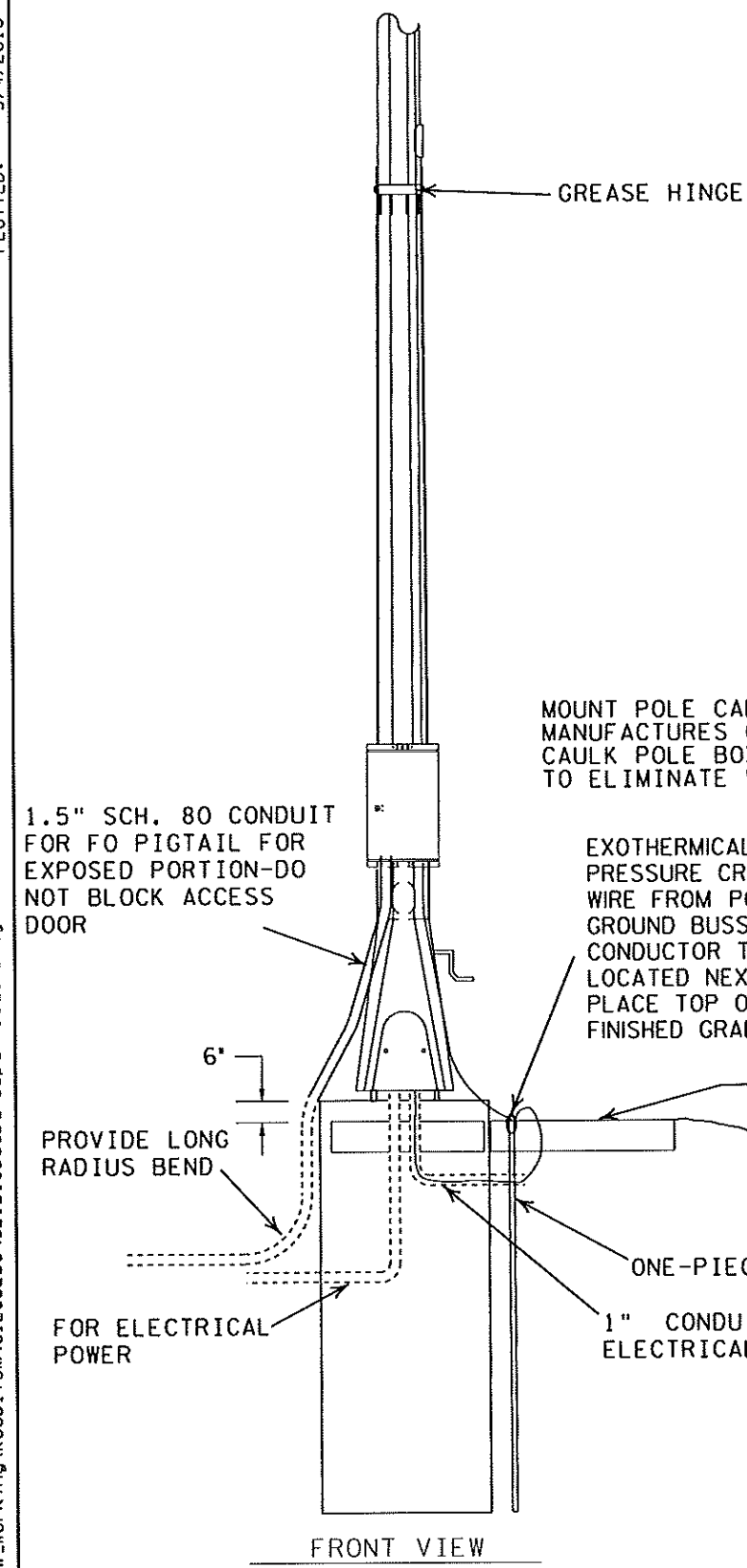
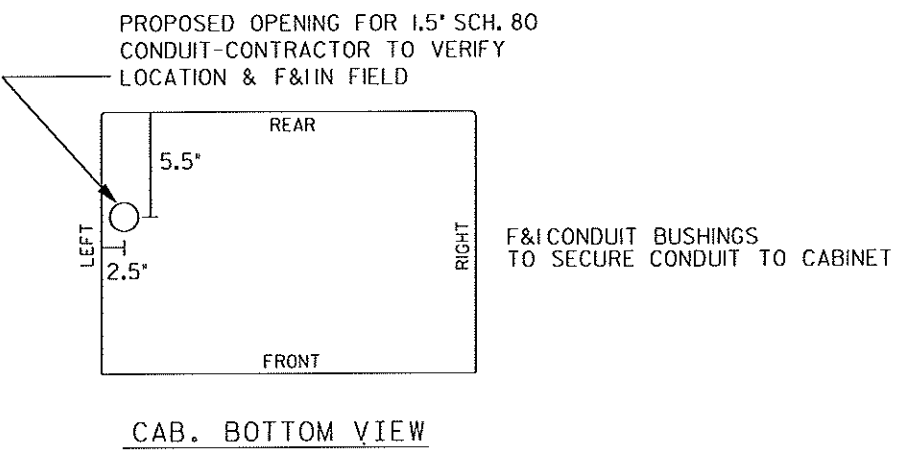
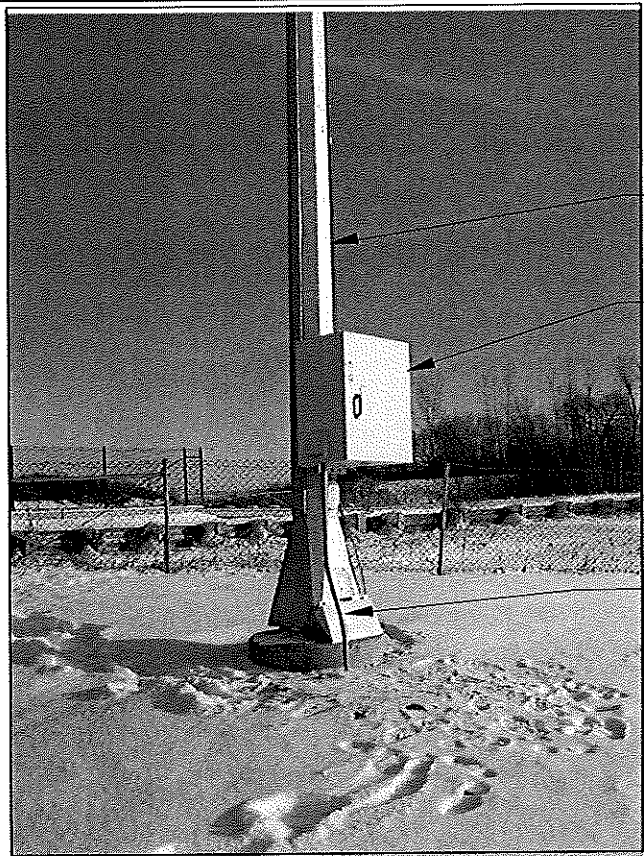
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REV. NO.	DATE:	/ /

CERTIFIED BY

Jeffrey M. Puleo
 LICENSED PROFESSIONAL ENGINEER

LIC.NO. 26530 MAR 31 2010

STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 364 OF 534 SHEETS



MOUNT POLE CABINET TO POLE, IF A MANUFACTURES GASKET IS NOT PROVIDED CAULK POLE BOX OPENING AT POLE TO ELIMINATE WATER INTRUSION

MOUNT POLE CABINET TO POLE, CAULK POLE BOX OPENING AT POLE TO ELIMINATE WATER INTRUSION

1.5" SCH. 80 CONDUIT FOR FO PIGTAIL FOR EXPOSED PORTION-DO NOT BLOCK ACCESS DOOR

EXOTHERMICALLY WELD OR PRESSURE CRIMP NO.6 AWG WIRE FROM POLE MOUNTED CAB. GROUND BUSS AND 7/16" GROUND CONDUCTOR TO GROUND ROD LOCATED NEXT TO FOUNDATION-PLACE TOP OF GROUND ROD BELOW FINISHED GRADE

KEEP EXCESS CONDUCTOR TO A MINIMUM USING SHORTEST ROUTE TO GROUND ROD

EXOTHERMICALLY WELD OR PRESSURE CRIMP NO.6 AWG WIRE FROM POLE MOUNTED CAB. GROUND BUSS AND 7/16" GROUND CONDUCTOR TO GROUND ROD LOCATED NEXT TO FOUNDATION-PLACE TOP OF GROUND ROD BELOW FINISHED GRADE

KEEP EXCESS CONDUCTOR TO A MINIMUM USING SHORTEST ROUTE TO GROUND ROD

PROVIDE LONG RADIUS BEND

FOR ELECTRICAL POWER

F&I 3.0' X 3.0' X 4" SIDEWALK UNDER CRANK OPENING

F&I 3.0' X 3.0' X 4" SIDEWALK UNDER POLE CABINET

POSITION SIDEWALKS 6" BELOW TOP OF CCTV FOUNDATION, BACK FILL AS NEEDED TO CREATE A SMOOTH TRANSITION FROM INPLACE GRADE TO SIDEWALKS

koob1Tom COROSTSOXD013 TMS
PLOTTED: 3/4/2010 6:38:54 AM

GENERAL NOTES

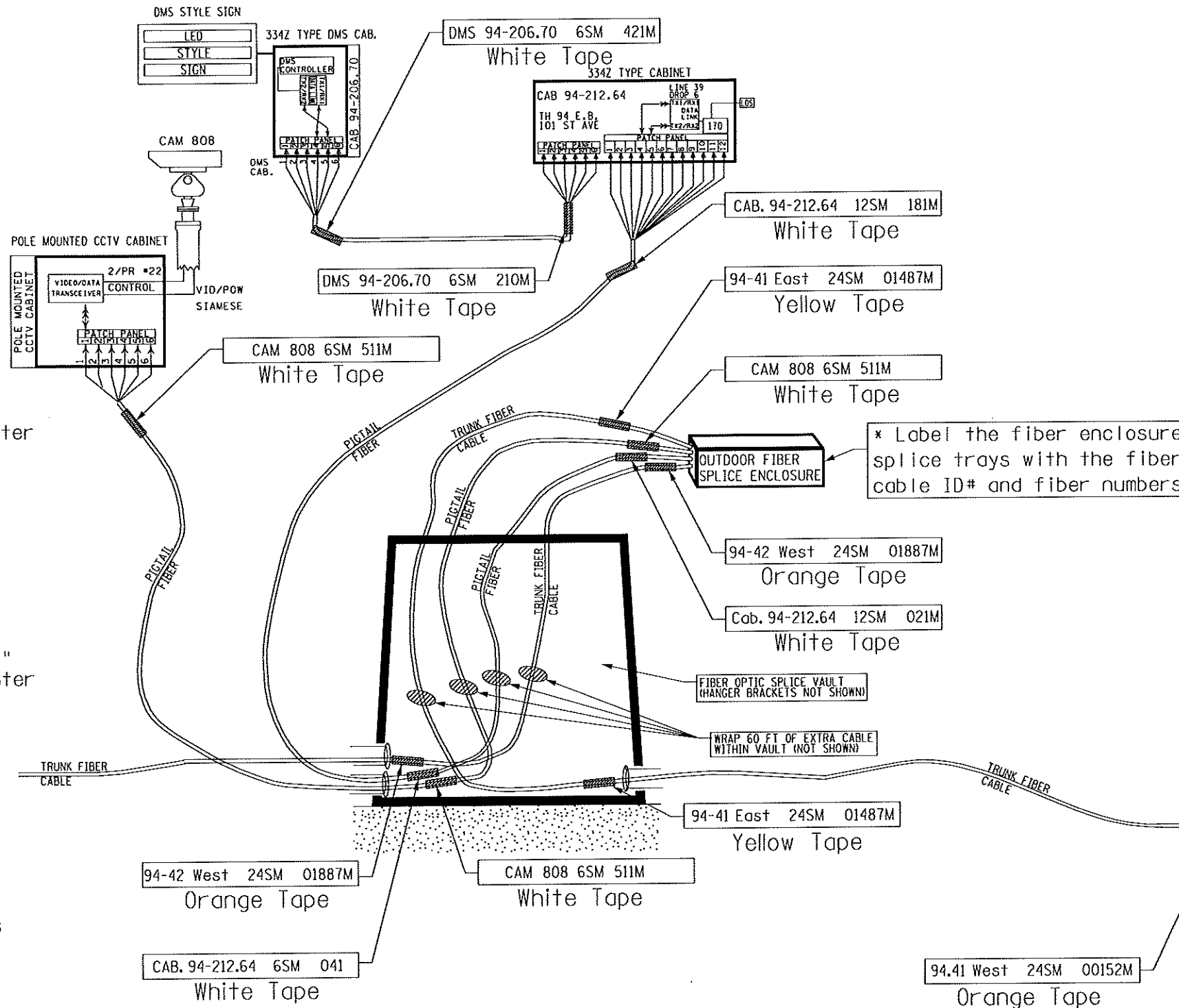
* Add cable identifiers to color coded electrical tape with a permanent marker as shown on this detail.

e.g.: 94.41 East 24SM 01467M.
94.41 = Cable ID#
East = Direction
24SM = Cable fiber count
01467 = Nearest cable length marking to where the tape is applied.

* Electrical tape colors:
NB (Blue)
SB (Green)
EB (Yellow)
WB (Orange)
Pigtails (White)

- * The electrical tape with the identifiers is added to:
 - 334Z-Type Cabinets to within 18" of the entrance conduit on the outer jacket of the fiber optic cable.
 - Pole Mounted CCTV Cabinet between the entrance point and the fiber termination panel.
 - FO Splice Vaults to within 18" of the splice enclosure and the entrance conduit.
 - TMS Shelter Cabinets to within 18" of the entrance conduit on the outer jacket of the fiber optic cable and again to within 18" of the splice panel on the inner jacket of the fiber optic cable.

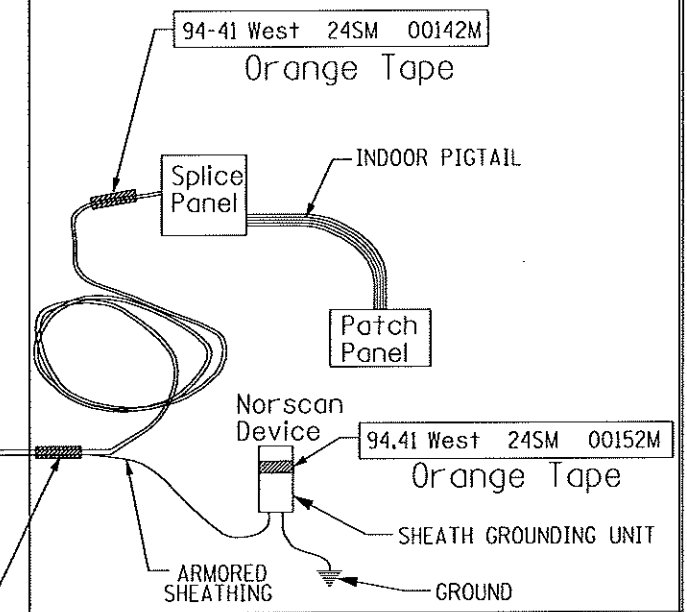
- * Neatly tape the fiber optic cables together as needed near the fiber enclosure then throughout the length of slack.
- * Neatly coil the fiber optic cables into the fiber optic hanger brackets inside the vault.
- * This drawing is not intended to show the fiber optic cables in their final position.



TMS SHELTER CABINET

SHELTER NOTES

- * Label the indoor pigtail six-paks on the outer jacket at both the splice tray/wheel and inside the patch panel to indicate the fiber cable ID # and which six fibers the six-paks are spliced to: (e.g. 94-12 SM7-12)
- * Label the front of the splice panels with the fiber cable ID#, direction, and fiber count.
- * Label splice trays/wheels with the fiber cable ID# and the fiber count.
- * Label the front of patch panels with the fiber cable ID#, direction and fiber count.
- * Label the sheath grounding unit with the fiber cable ID#, direction and fiber count.



PLEASE NOTE: OUTDOOR FIBER SPLICE ENCLOSURE IS SHOWN OUTSIDE OF THE SPLICE VAULT. THE ACTUAL PLACEMENT IS WITHIN THE VAULT HANGING ON BRACKETS (NOT SHOWN)

FIBER OPTIC CABLE LABELING DETAIL

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c:\Project\ise\pw_work\ing\koob1Tom\d1205256\6212165cab_loop_misc_dtl.dgn

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CAUTION

**BURIED
 FIBER OPTIC
 CABLE**
 BEFORE DIGGING
 CALL

GOPHER STATE ONE CALL
(651)454-0002



8" X 12" .75"R.

CAUTION

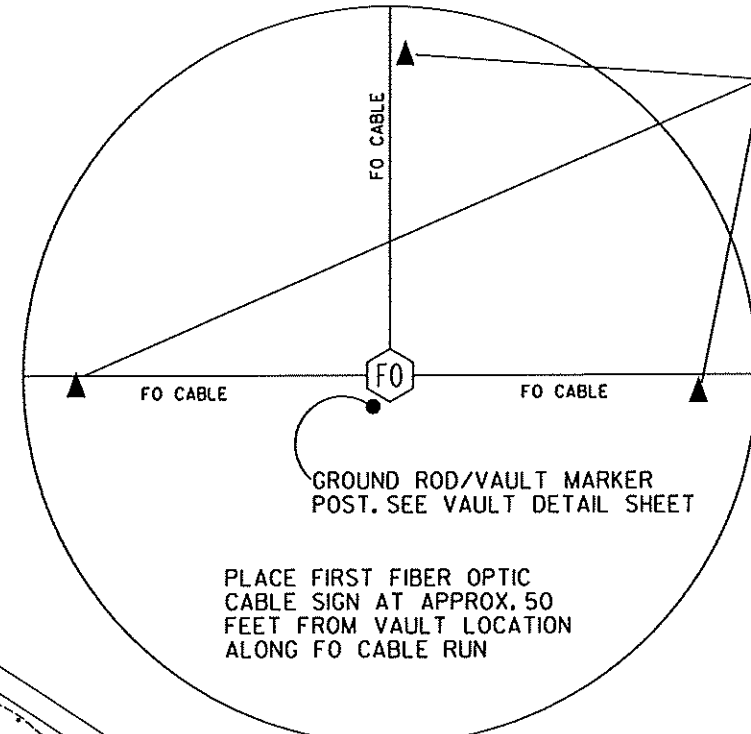
**BURIED
 FIBER OPTIC
 CABLE**
 BEFORE DIGGING
 CALL
 GOPHER STATE ONE CALL
(651)454-0002

8" X 12" .75"R.

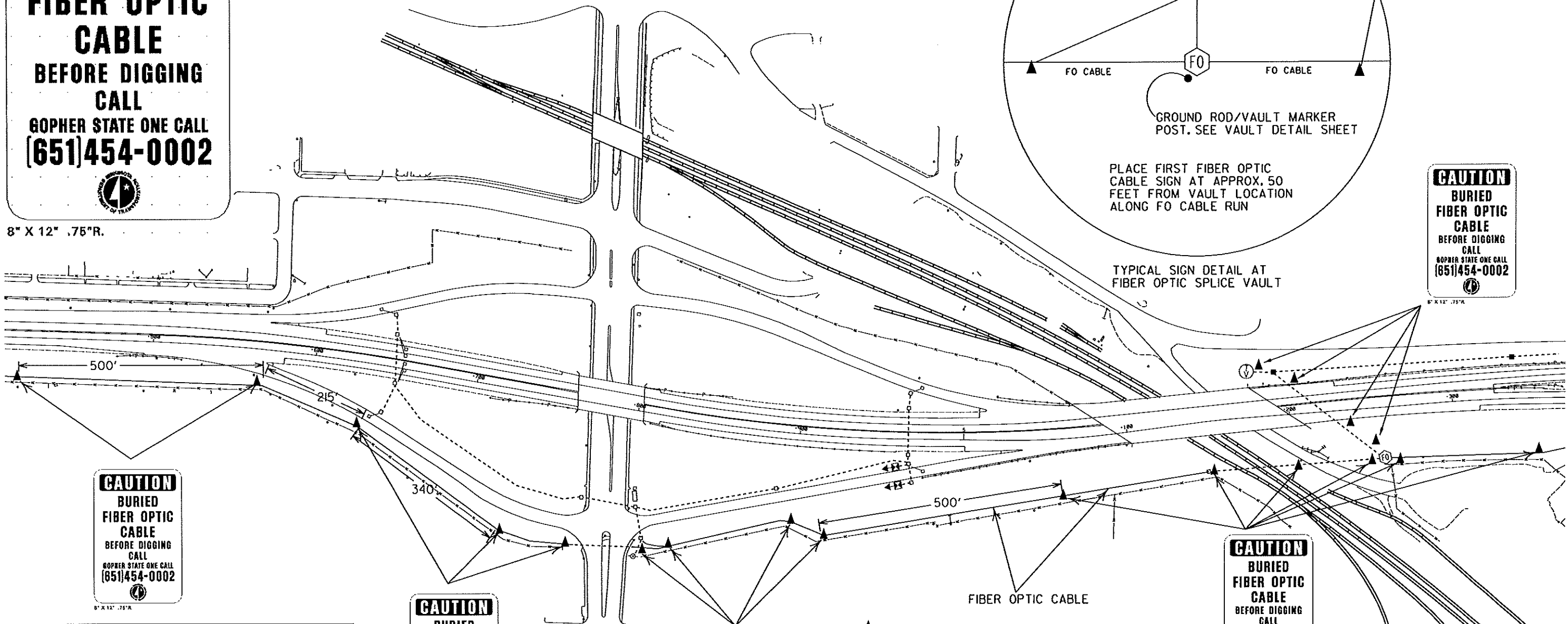
CAUTION

**BURIED
 FIBER OPTIC
 CABLE**
 BEFORE DIGGING
 CALL
 GOPHER STATE ONE CALL
(651)454-0002

8" X 12" .75"R.



TYPICAL SIGN DETAIL AT
 FIBER OPTIC SPLICE VULT



CAUTION

**BURIED
 FIBER OPTIC
 CABLE**
 BEFORE DIGGING
 CALL
 GOPHER STATE ONE CALL
(651)454-0002

8" X 12" .75"R.

CAUTION

**BURIED
 FIBER OPTIC
 CABLE**
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 GOPHER STATE ONE CALL
(651)454-0002

8" X 12" .75"R.

CAUTION

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8" X 12" .75"R.

CAUTION

**BURIED
 FIBER OPTIC
 CABLE**
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 CALL
 GOPHER STATE ONE CALL
(651)454-0002

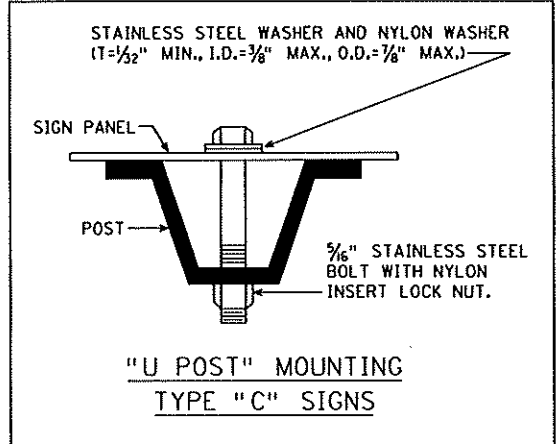
8" X 12" .75"R.

▲ = BURIED CABLE SIGN

- F&I BURIED CABLE SIGN A MAXIMUM OF 500 FEET APART.
- F&I ONE SIGN AT CHANGE IN CABLE DIRECTION TO INDICATE CHANGE POINT AND NEW DIRECTION.
- F&I BURIED CABLE SIGNS 16 FEET BEHIND CURB OR EDGE OF ROADWAY AT ROADWAY CROSSINGS.
- F&I BURIED CABLE SIGNS 25 FEET FROM RAILROAD OR AS DIRECTED IN CROSSING PERMIT.
- AT VULT LOCATIONS MARKER POST IS PER VULT DETAIL.
- F&I ADDITION BURIED CABLE SIGN IF UNABLE TO SEE FROM SIGN TO SIGN (THIS INCLUDES CHANGES IN ELEVATION).
- F&I BURIED CABLE SIGNS BETWEEN CABLE AND R/W FENCE, 3.0' FROM CABLE WITH SIGN PANEL PARALLEL TO BURIED CABLE

BURIED CABLE SIGN PLACEMENT TYPICAL

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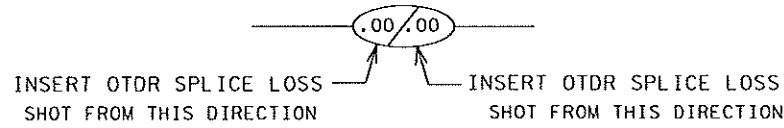
STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 367 OF 534 SHEETS

INDEX OF REFRACTION

PROVIDE CABLE MANUFACTURERS INDEX OF REFRACTION USED FOR TESTING ON PROJECT.

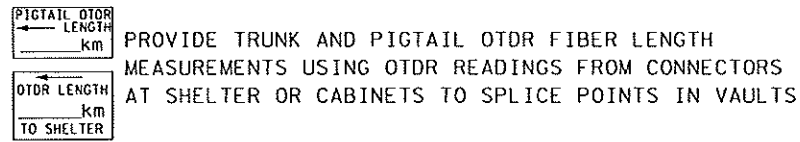
U = FURNISHED SPLICE NO SPLICE OTDR READING REQUIRED AT THIS LOCATION

(X.X) POWER METER TEST POINT
INSERT OPTICAL LINK LOSS IN dB
(TEST MULTI MODE FIBER AT 1300)
(TEST SINGLE MODE FIBER AT 1550)



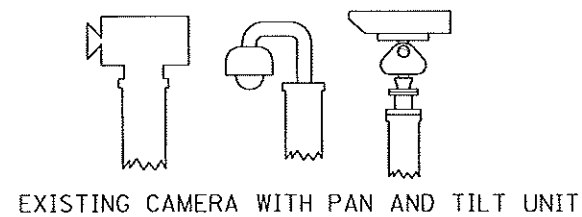
FO CABLE SPLICE POINT & OTDR TEST SPLICE READING

OTDR TEST SPLICE READING ON INPLACE CABLE

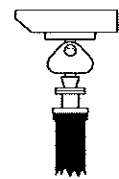


PIGTAIL ID#: PROVIDE PIGTAIL CABLE JACKET DISTANCE MARKINGS AT ENTRY TO CONTROL CABINET AND AT ENTRY TO OUTDOOR FIBER SPLICE ENCLOSURE

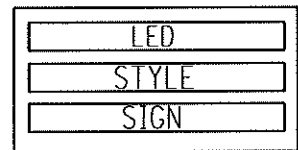
FIBER OPTIC CABLE MARKINGS @
SPLICE ENCLOSURE
VAULT ENTRY



EXISTING CAMERA WITH PAN AND TILT UNIT



F&I CAMERA WITH PAN AND TILT UNIT



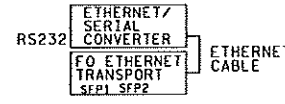
DYNAMIC MESSAGE SIGN



FIBER OPTIC PATCHCORD



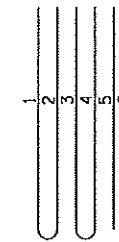
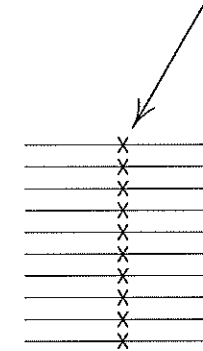
TWISTED PAIR INTERCONNECT



ETHERNET SWITCH

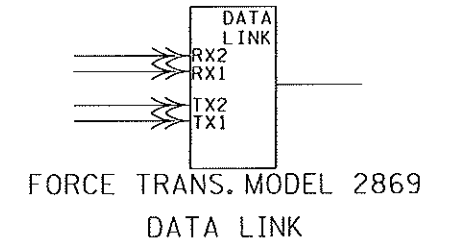
COMMON ETHERNET EQUIPMENT

EXISTING FO CABLE SPLICE POINT

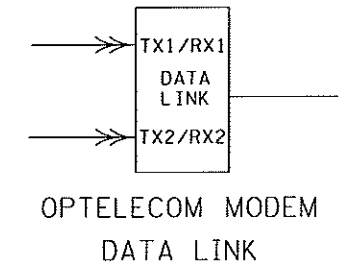


FIBER OPTIC PIGTAIL SPLICE DIAGRAM

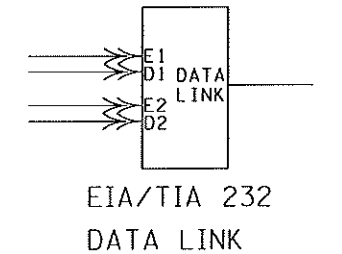
(SPLICE UNUSED FIBERS TOGETHER IN THE SPLICE VAULT SO THAT THE FIBERS CAN BE TESTED)



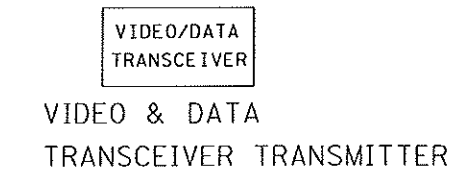
FORCE TRANS. MODEL 2869 DATA LINK



OPTELECOM MODEM DATA LINK

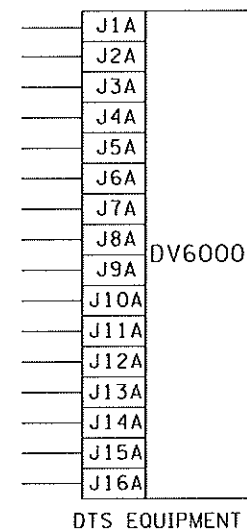


EIA/TIA 232 DATA LINK

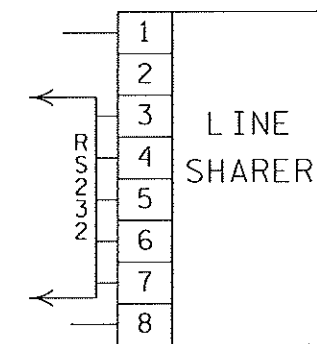


VIDEO & DATA TRANSCEIVER TRANSMITTER

- [170] 170 CONTROLLER
- [DMS] CHANGEABLE MESSAGE SIGN
- [FLS] FLASHER
- [RCS] RAMP CONTROL SIGNAL
- [LDS] LOOP DETECTOR STATION
- [LD] LOOP DETECTOR'S*
- [ILCS] INTELLIGENT LANE CONTROL SIGN



DTS EQUIPMENT



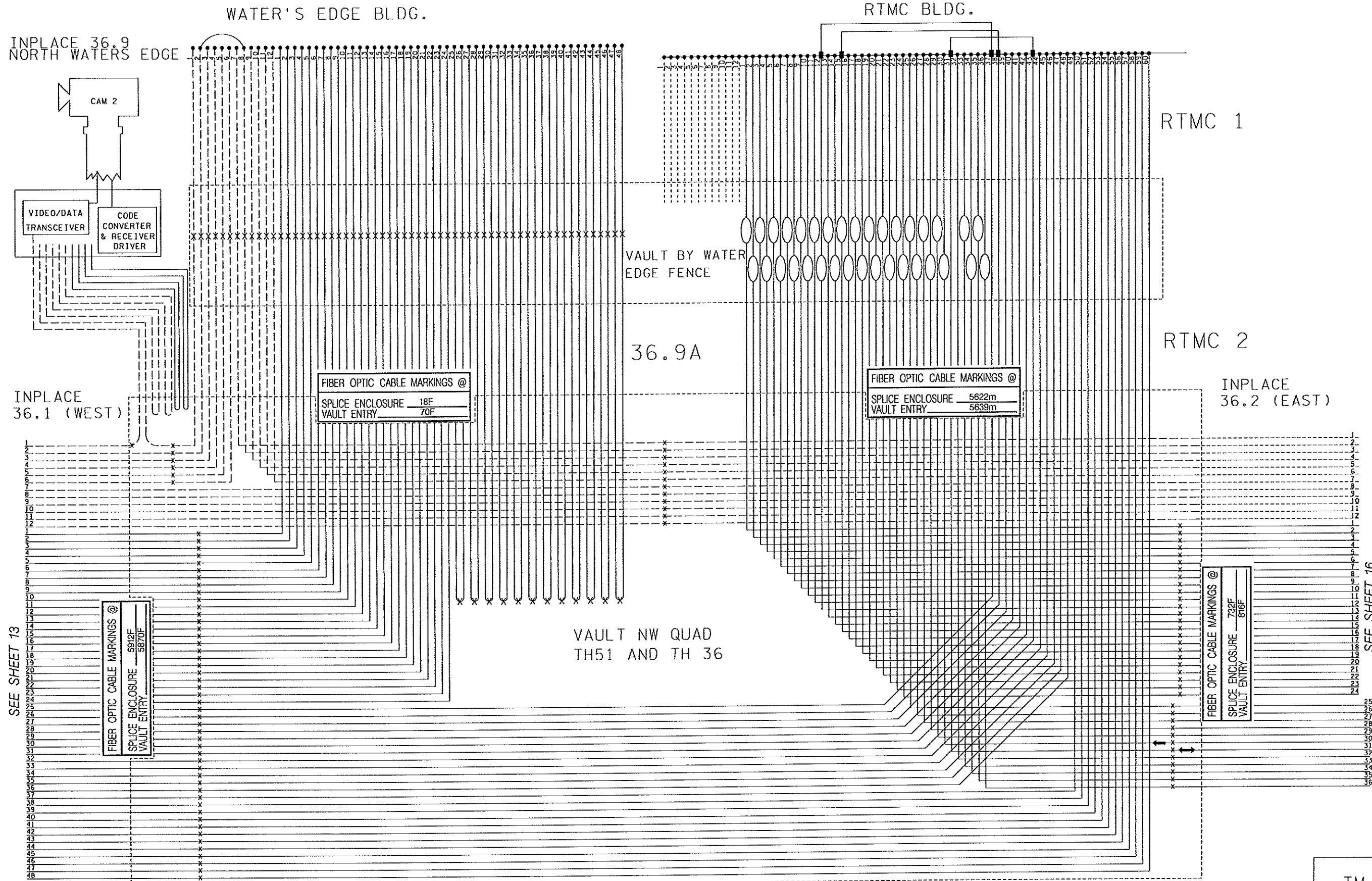
RS 232 LINE SHARER

LEGEND FOR COMMUNICATION SCHEMATICS

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SEE SHEET 13

SEE SHEET 16

VAULT NW QUAD
 TH51 AND TH 36

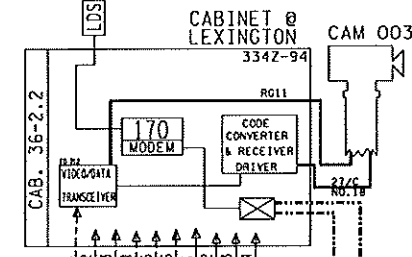
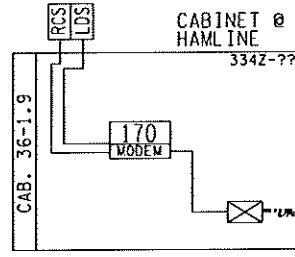
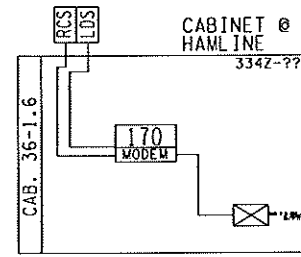
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 OF TM 31

FIBER OPTIC SCHEMATICS
 PLAN SHEET LOCATION

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REV. NO.	DATE: / /

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FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 6502F
 VAULT ENTRY 6428F

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE 325F
 VAULT ENTRY 426F

F-36.2

F-36.3

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
1	1
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36	36

VAULT @
 LEXINGTON

OLD CASE - LOOKS OK
 UNARMORED PIGTAIL

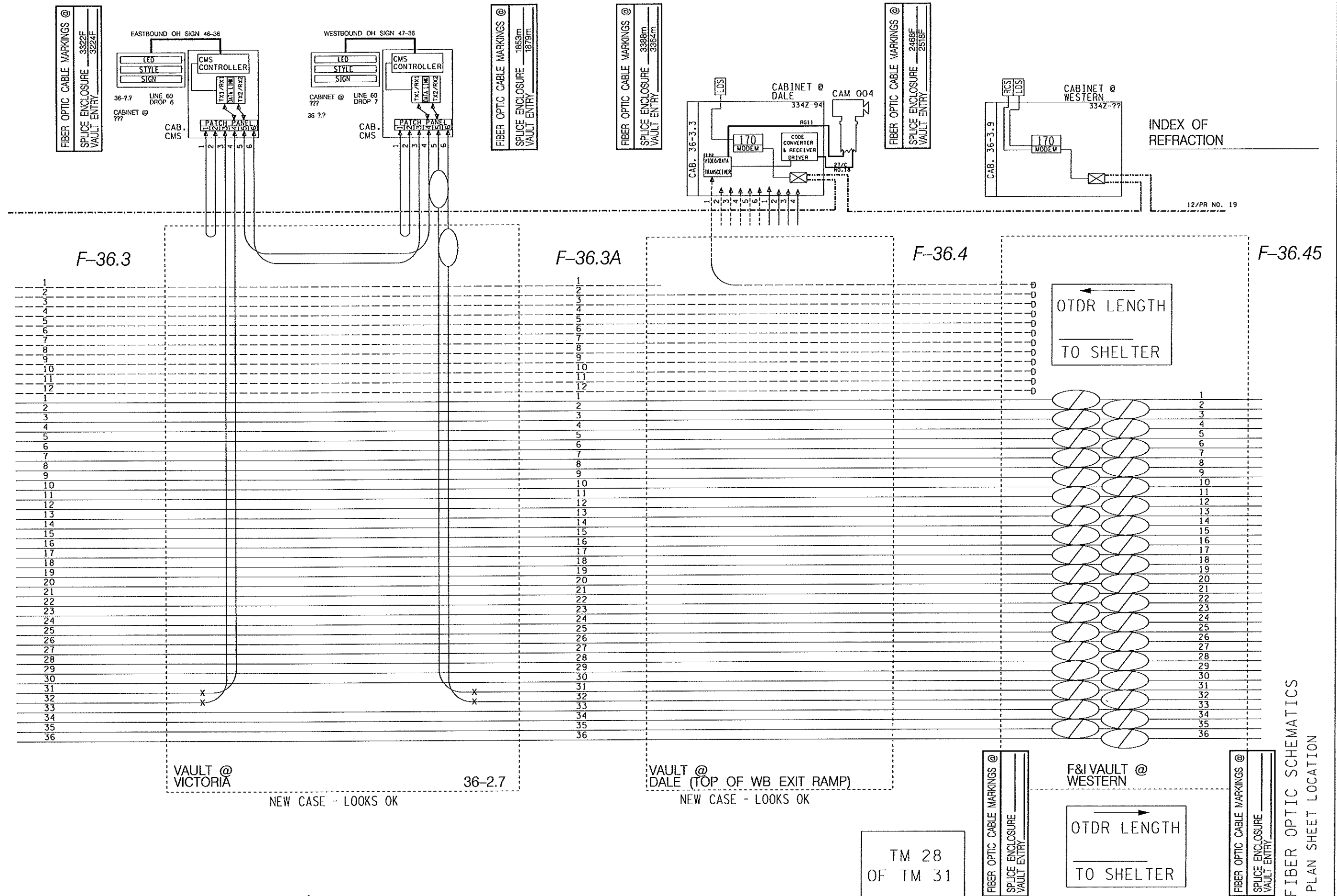
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FIBER OPTIC SCHEMATICS
 PLAN SHEET LOCATION

REV. NO.	DATE: / /
REV. NO.	DATE: / /

CERTIFIED BY *Jeffrey M. Pulgo* LIC. NO. 26530 MAR 31 2010
 LICENSED PROFESSIONAL ENGINEER

STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 370 OF 534 SHEETS



REV. NO.	DATE: / /
REV. NO.	DATE: / /

CERTIFIED BY *Jeffrey M. Puleo* LIC. NO. 26530 MAR 31 2010
 LICENSED PROFESSIONAL ENGINEER

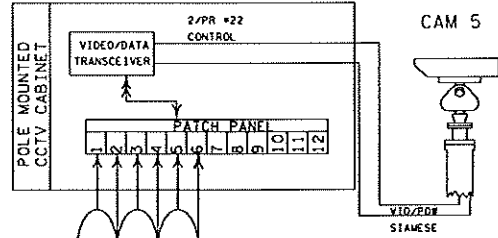
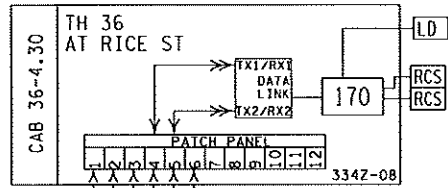
STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 371 OF 534 SHEETS

TM 28
 OF TM 31

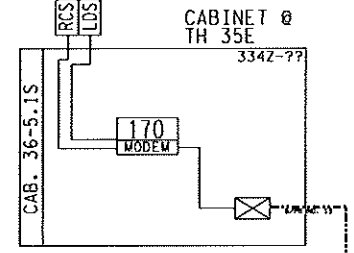
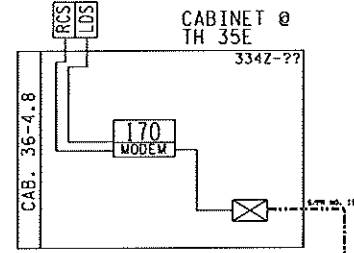
FIBER OPTIC SCHEMATICS
 PLAN SHEET LOCATION

PIGTAIL ID#: 36-4.30

_____ m B
 _____ m E



PIGTAIL ID#: CAM5
 _____ m B
 _____ m E



FIBER OPTIC CABLE MARKINGS @
 SHELTER FIBER PACK 5736 F
 SHELTER ENTRY 5714 F

PIGTAIL OTDR LENGTH _____ km

F-36.45

PIGTAIL OTDR LENGTH _____ km

F-36.45A

F-36.5

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FDF

FIBER OPTIC CABLE MARKINGS @
 SPICE ENCLOSURE VAULT ENTRY

F&I VAULT @ RICE

OTDR LENGTH TO SHELTER

OTDR LENGTH TO SHELTER

FIBER OPTIC CABLE MARKINGS @
 SPICE ENCLOSURE VAULT ENTRY

INDEX OF REFRACTION

OTDR LENGTH TO SHELTER

OTDR LENGTH TO SHELTER

F&I VAULT @ EAST OF RICE

TM 29 OF TM 31

35E & 36 SHELTER

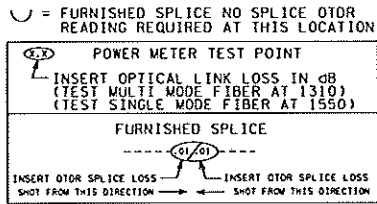
FIBER OPTIC SCHEMATICS
 PLAN SHEET LOCATION

REV. NO.	DATE: / /
REV. NO.	DATE: / /

CERTIFIED BY *[Signature]*
 LICENSED PROFESSIONAL ENGINEER

LIC. NO. 26530 MAR 31 2010

STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 372 OF 534 SHEETS

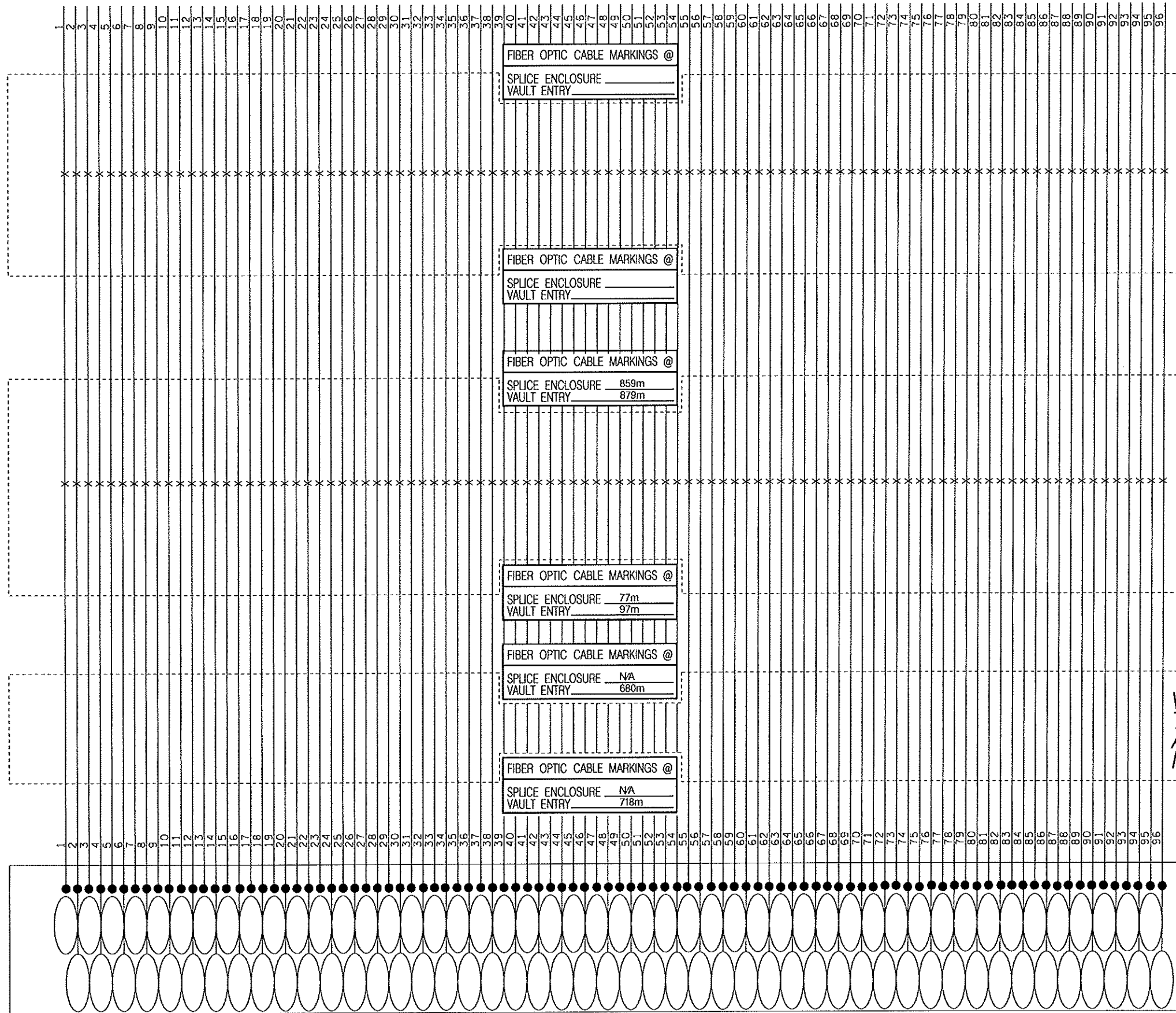


TRUNK ID # 36X-20

TRUNK ID # 36X-10

INDEX OF REFRACTION

FIBER OPTIC CABLE MARKINGS @	
SHELTER FIBER RACK	NA
SHELTER ENTRY	821m



TRUNK ID # 36X-30

VAULT@LEXINGTON

VAULT@HAMLINE

VAULT@WB TH 36 TO NB SNELLING AVE- NE QUAD NEAR BD4

RTMC BLDG

TM 30 OF TM 31

FIBER OPTIC SCHEMATICS
 RTMC TO LEXINGTON

REV. NO.	DATE: / /
REV. NO.	DATE: / /

CERTIFIED BY Jeffrey M. Puleo LIC.NO. 26530 MAR 31 2010 STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 373 OF 534 SHEETS

FIBER OPTIC CABLE MARKINGS @
 SHELTER FIBER RACK NA
 SHELTER ENTRY 5246m

OTDR LENGTH
 TO SHELTER

OTDR LENGTH
 TO SHELTER

INDEX OF REFRACTION

OTDR LENGTH
 TO SHELTER

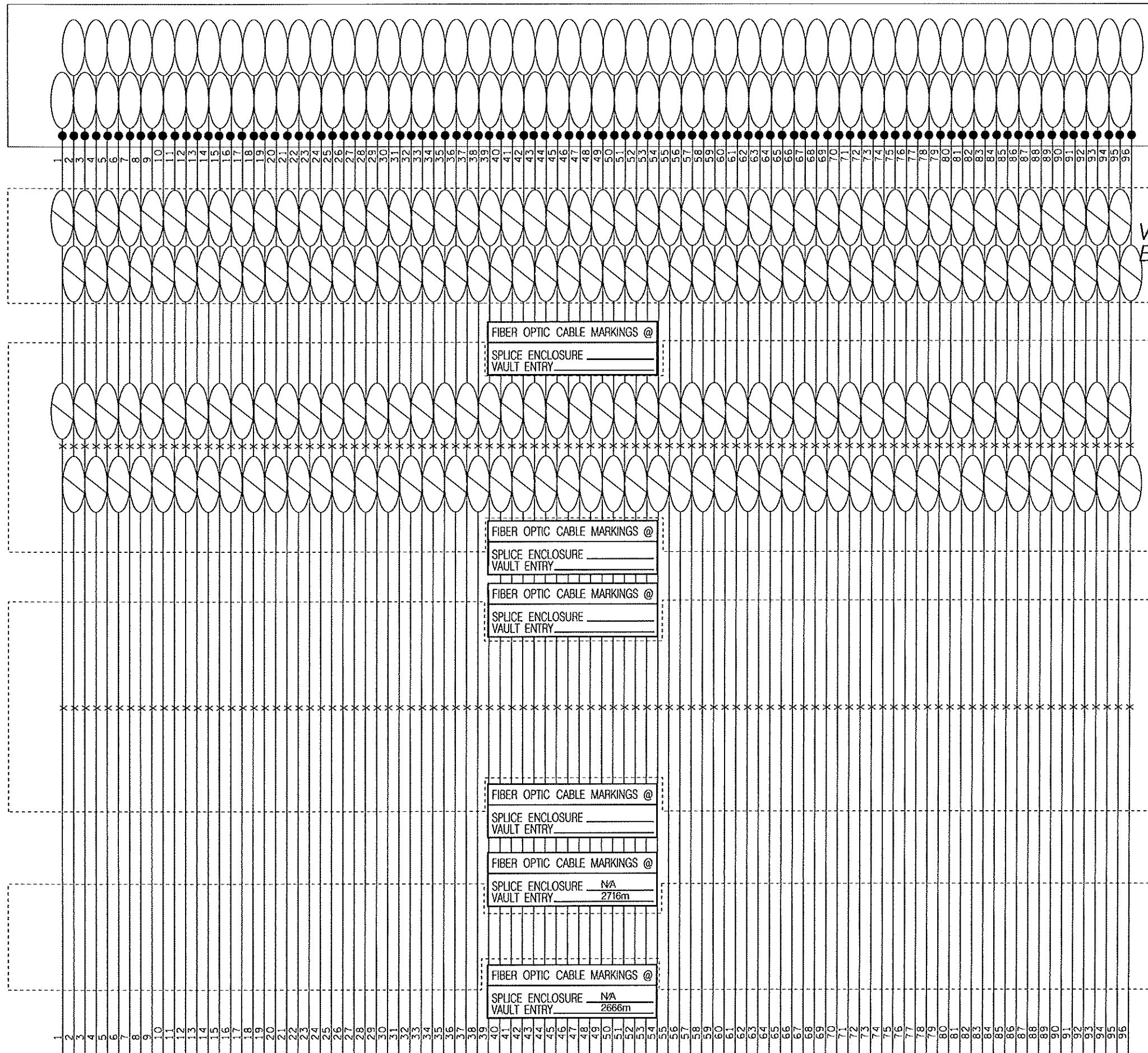
OTDR LENGTH
 TO SHELTER

U = FURNISHED SPLICE NO SPLICE OTDR READING REQUIRED AT THIS LOCATION

POWER METER TEST POINT
 INSERT OPTICAL LINK LOSS IN dB
 (TEST MULTI MODE FIBER AT 1310)
 (TEST SINGLE MODE FIBER AT 1550)

FURNISHED SPLICE

INSERT OTDR SPLICE LOSS SHOT FROM THIS DIRECTION → ← SHOT FROM THIS DIRECTION



35E & 36 SHELTER

TRUNK ID # 36X-50

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE
 VAULT ENTRY

VAULT@WEST OF RR BRIDGE

FIBER OPTIC CABLE MARKINGS @
 SPLICE ENCLOSURE
 VAULT ENTRY

TRUNK ID # 36X-45

INSTALL VAULT@WEST OF RICE

TRUNK ID # 36X-40

VAULT@DALE

TRUNK ID # 36X-30

VAULT@VICTORIA

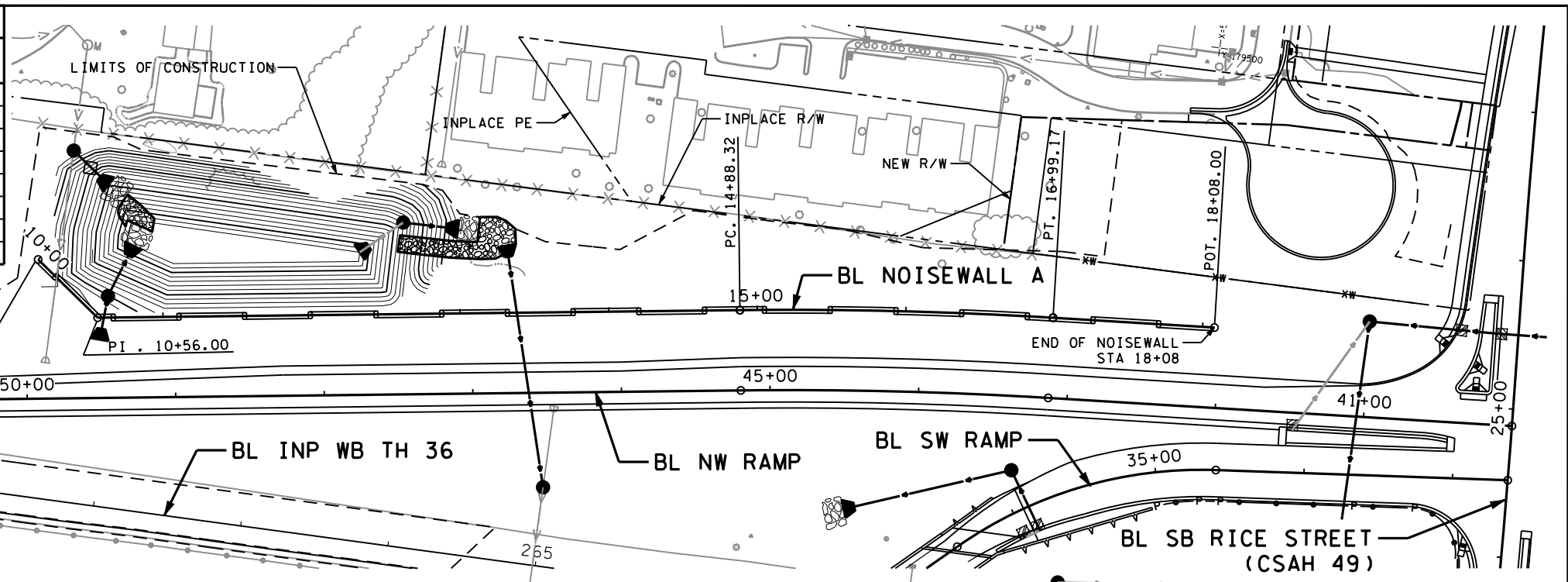
TM 31
 OF TM 31

FIBER OPTIC SCHEMATICS
 VICTORIA TO 35E

REV. NO.	DATE: / /
REV. NO.	DATE: / /

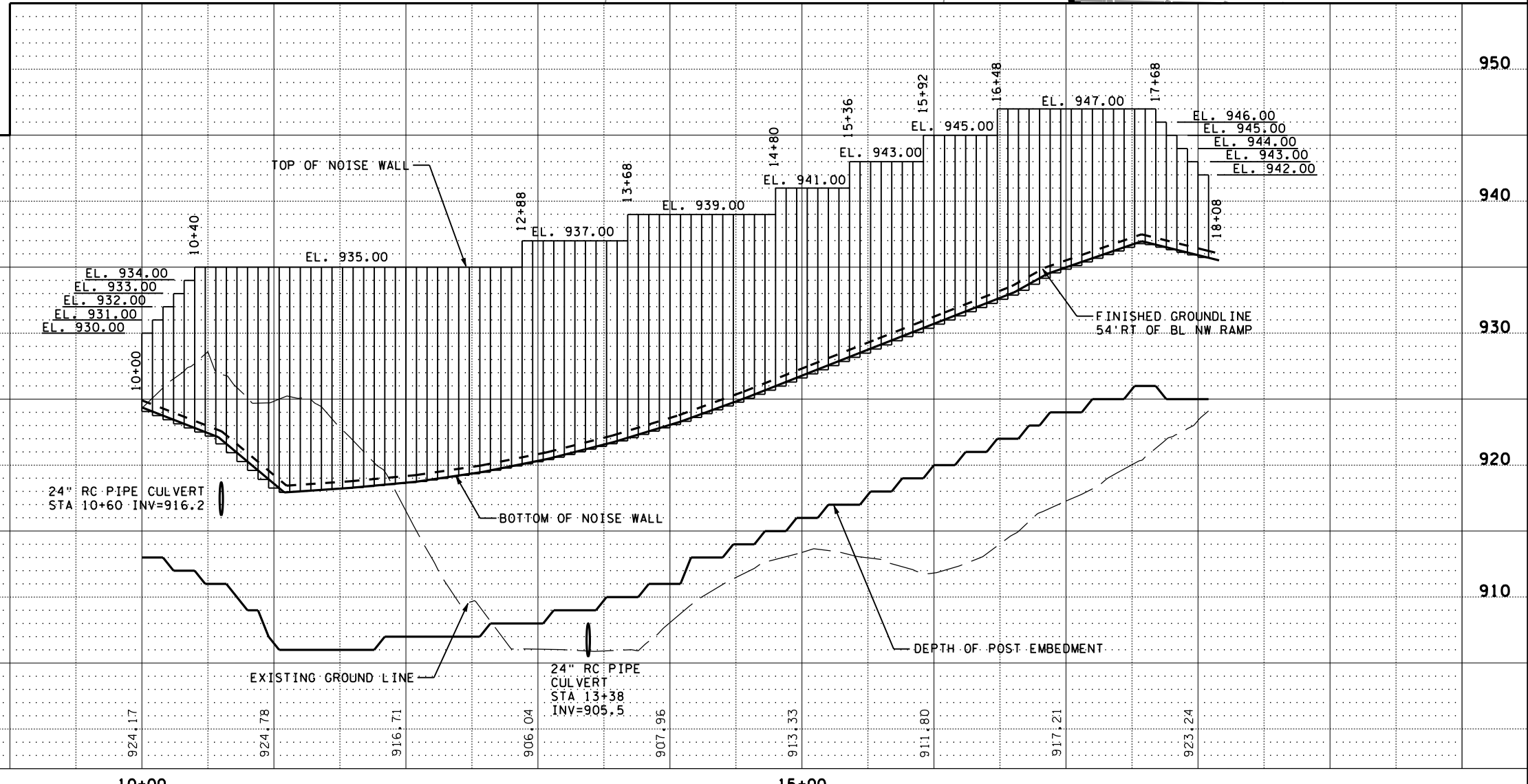
CERTIFIED BY Jeffrey M. Puleo LIC.NO. 26530 MAR 31 2010 STATE PROJ. NO. 6212-165 (TH 36) SHEET NO. 374 OF 534 SHEETS

ALIGNMENT TABULATION										
POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	EASTING	NORTHING	
NOISEWALL A (NWALL 1)										
1400	POT	10+00.000						570,732.4096	179,247.8861	
1402	POT	10+56.000						570,777.5512	179,214.7465	
1405	PC	14+88.322						571,204.8798	179,280.2639	81° 17' 00.12"
1406	PI	15+93.790	4° 08' 19.92" RT	1° 57' 46.79"	2,918.789'	105.468'	210.844'	571,309.1295	179,296.2473	PI
1407	CC							571,647.2158	176,395.1871	
1408	PT	16+99.166						571,414.2610	9,304.6650	85° 25' 20.04"
1410	POT	18+08.000						571,522.7478	9,313.3512	



NOTES:

- CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF PROPOSED CULVERTS TO ENSURE THEY DO NOT CONFLICT WITH NOISE WALL POSTS.
- CONTRACTOR SHALL HAND LOCATE EXISTING STORM SEWER WHERE IT INTERSECTS WITH THE NOISEWALL AND CHECK FOR CONFLICTS WITH NOISE WALL POSTS. ANY MODIFICATIONS TO EXISTING STORM SEWER OR NOISEWALL POST LOCATIONS MUST BE APPROVED BY THE ENGINEER.



DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MTT				
DESIGNER: SRH,HLR				
CHECKED BY: KLE				

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.

Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**NOISE WALL
 PLAN AND PROFILE**

FILE NO. **375**
 RAMSP08790
 NW1
 OF NW5 **534**

S:\PT\RV\Ramsp\108790\plans\ts\ramsp108790_nw.dgn

kerickson

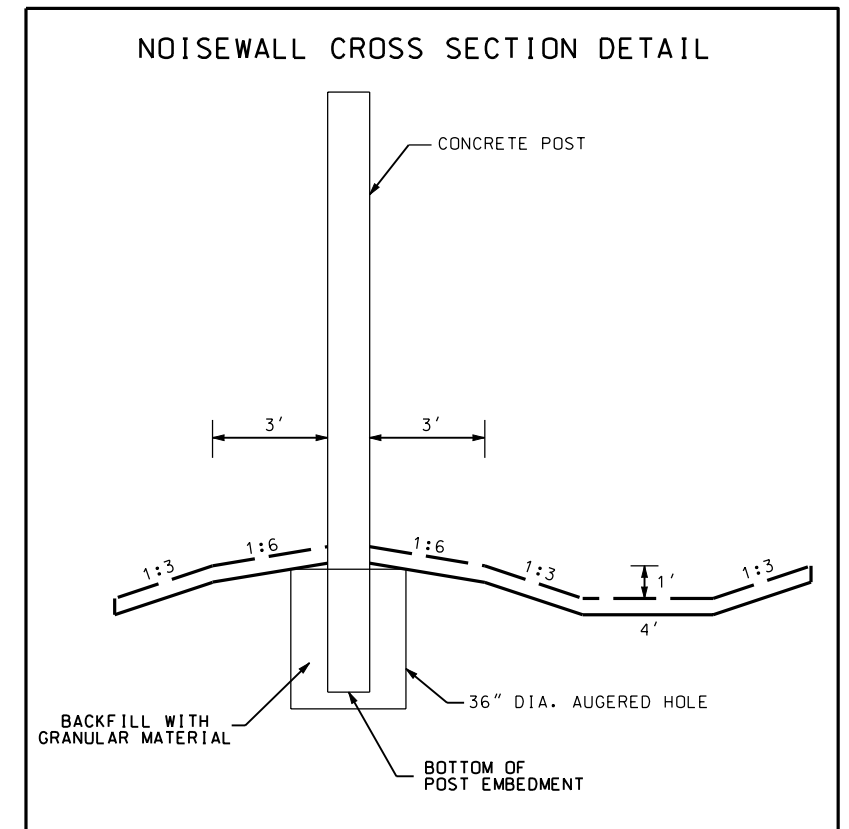
5/6/2010

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NOISEWALL A									
POST NO.	WALL STATION	GROUND ELEV.	BERM SLOPE	TOP OF WALL ELEV.	PLANKING AREA	ROUNDED POST LENGTH	ACTUAL POST EMBEDMENT	BOTTOM OF EMBEDMENT ELEV.	POST NO.
					(SQ FT)	(LIN FT)	(LIN FT)		
1	10+00.00	924.34	1:6	930.00		17	11.34	913.00	1
2	10+08.00	924.03	1:6	931.00	50.52	18	11.03	913.00	2
3	10+16.00	923.72	1:6	932.00	60.99	19	10.72	913.00	3
4	10+24.00	923.41	1:6	933.00	71.46	21	11.41	912.00	4
5	10+32.00	923.11	1:6	934.00	81.93	22	11.11	912.00	5
6	10+40.00	922.80	1:6	935.00	92.39	23	10.80	912.00	6
7	10+48.00	922.49	1:6	935.00	98.86	24	11.49	911.00	7
8	10+56.00	922.18	1:6	935.00	101.33	24	11.18	911.00	8
9	10+64.00	921.60	1:6	935.00	104.90	24	10.60	911.00	9
10	10+72.00	920.93	1:6	935.00	109.91	25	10.93	910.00	10
11	10+80.00	920.26	1:6	935.00	115.27	26	11.26	909.00	11
12	10+88.00	919.59	1:6	935.00	120.63	26	10.59	909.00	12
13	10+96.00	918.92	1:6	935.00	126.00	28	11.92	907.00	13
14	11+04.00	918.24	1:6	935.00	131.36	29	12.24	906.00	14
15	11+12.00	917.94	1:6	935.00	135.25	29	11.94	906.00	15
16	11+20.00	918.00	1:6	935.00	136.24	29	12.00	906.00	16
17	11+28.00	918.05	1:6	935.00	135.80	29	12.05	906.00	17
18	11+36.00	918.11	1:6	935.00	135.36	29	12.11	906.00	18
19	11+44.00	918.16	1:6	935.00	134.92	29	12.16	906.00	19
20	11+52.00	918.22	1:6	935.00	134.47	29	12.22	906.00	20
21	11+60.00	918.28	1:6	935.00	134.01	29	12.28	906.00	21
22	11+68.00	918.35	1:6	935.00	133.47	29	12.35	906.00	22
23	11+76.00	918.43	1:6	935.00	132.87	29	12.43	906.00	23
24	11+84.00	918.50	1:6	935.00	132.28	28	11.50	907.00	24
25	11+92.00	918.58	1:6	935.00	131.68	28	11.58	907.00	25
26	12+00.00	918.65	1:6	935.00	131.08	28	11.65	907.00	26
27	12+08.00	918.73	1:6	935.00	130.48	28	11.73	907.00	27
28	12+16.00	918.85	1:6	935.00	129.70	28	11.85	907.00	28
29	12+24.00	918.96	1:6	935.00	128.76	28	11.96	907.00	29
30	12+32.00	919.08	1:6	935.00	127.82	28	12.08	907.00	30
31	12+40.00	919.20	1:6	935.00	126.88	28	12.20	907.00	31
32	12+48.00	919.32	1:6	935.00	125.93	28	12.32	907.00	32
33	12+56.00	919.43	1:6	935.00	124.99	28	12.43	907.00	33
34	12+64.00	919.59	1:6	935.00	123.92	27	11.59	908.00	34
35	12+72.00	919.75	1:6	935.00	122.67	27	11.75	908.00	35
36	12+80.00	919.91	1:6	935.00	121.39	27	11.91	908.00	36
37	12+88.00	920.07	1:6	937.00	128.11	29	12.07	908.00	37
38	12+96.00	920.23	1:6	937.00	134.83	29	12.23	908.00	38
39	13+04.00	920.39	1:6	937.00	133.54	29	12.39	908.00	39
40	13+12.00	920.57	1:6	937.00	132.17	28	11.57	909.00	40
41	13+20.00	920.77	1:6	937.00	130.62	28	11.77	909.00	41
42	13+28.00	920.98	1:6	937.00	128.98	28	11.98	909.00	42
43	13+36.00	921.18	1:6	937.00	127.35	28	12.18	909.00	43
44	13+44.00	921.39	1:6	937.00	125.71	28	12.39	909.00	44
45	13+52.00	921.59	1:6	937.00	124.07	27	11.59	910.00	45
46	13+60.00	921.81	1:6	937.00	122.39	27	11.81	910.00	46
47	13+68.00	922.05	1:6	939.00	128.55	29	12.05	910.00	47
48	13+76.00	922.30	1:6	939.00	134.59	29	12.30	910.00	48
49	13+84.00	922.54	1:6	939.00	132.63	28	11.54	911.00	49
50	13+92.00	922.79	1:6	939.00	130.67	28	11.79	911.00	50
51	14+00.00	923.03	1:6	939.00	128.71	28	12.03	911.00	51
52	14+08.00	923.28	1:6	939.00	126.75	28	12.28	911.00	52
53	14+16.00	923.57	1:6	939.00	124.61	26	10.57	913.00	53
54	14+24.00	923.86	1:6	939.00	122.28	26	10.86	913.00	54
55	14+32.00	924.15	1:6	939.00	119.94	26	11.15	913.00	55
56	14+40.00	924.44	1:6	939.00	117.61	26	11.44	913.00	56
57	14+48.00	924.74	1:6	939.00	115.28	25	10.74	914.00	57
58	14+56.00	925.03	1:6	939.00	112.95	25	11.03	914.00	58
59	14+64.00	925.34	1:6	939.00	110.54	25	11.34	914.00	59
60	14+72.00	925.66	1:6	939.00	108.02	24	10.66	915.00	60
61	14+80.00	925.97	1:6	941.00	113.49	26	10.97	915.00	61
62	14+88.00	926.29	1:6	941.00	118.95	26	11.29	915.00	62
63	14+96.00	926.61	1:6	941.00	116.42	25	10.61	916.00	63
64	15+04.00	926.92	1:6	941.00	113.88	25	10.92	916.00	64
65	15+12.00	927.24	1:6	941.00	111.35	25	11.24	916.00	65
66	15+20.00	927.55	1:6	941.00	108.83	24	10.55	917.00	66
67	15+28.00	927.87	1:6	941.00	106.31	24	10.87	917.00	67
68	15+36.00	928.18	1:6	943.00	111.80	26	11.18	917.00	68
69	15+44.00	928.50	1:6	943.00	117.28	26	11.50	917.00	69

NOISEWALL A									
POST NO.	WALL STATION	GROUND ELEV.	BERM SLOPE	TOP OF WALL ELEV.	PLANKING AREA	ROUNDED POST LENGTH	ACTUAL POST EMBEDMENT	BOTTOM OF EMBEDMENT ELEV.	POST NO.
					(SQ FT)	(LIN FT)	(LIN FT)		
70	15+52.00	928.81	1:6	943.00	114.77	25	10.81	918.00	70
71	15+60.00	929.13	1:6	943.00	112.25	25	11.13	918.00	71
72	15+68.00	929.44	1:6	943.00	109.74	25	11.44	918.00	72
73	15+76.00	929.75	1:6	943.00	107.23	24	10.75	919.00	73
74	15+84.00	930.07	1:6	943.00	104.72	24	11.07	919.00	74
75	15+92.00	930.38	1:6	945.00	110.21	26	11.38	919.00	75
76	16+00.00	930.69	1:6	945.00	115.70	25	10.69	920.00	76
77	16+08.00	931.01	1:6	945.00	113.19	25	11.01	920.00	77
78	16+16.00	931.32	1:6	945.00	110.68	25	11.32	920.00	78
79	16+24.00	931.64	1:6	945.00	108.17	24	10.64	921.00	79
80	16+32.00	931.95	1:6	945.00	105.65	24	10.95	921.00	80
81	16+40.00	932.26	1:6	945.00	103.14	24	11.26	921.00	81
82	16+48.00	932.58	1:6	947.00	108.63	25	10.58	922.00	82
83	16+56.00	932.89	1:6	947.00	114.12	25	10.89	922.00	83
84	16+64.00	933.25	1:6	947.00	111.41	25	11.25	922.00	84
85	16+72.00	933.70	1:6	947.00	108.17	24	10.70	923.00	85
86	16+80.00	934.15	1:6	947.00	104.59	24	11.15	923.00	86
87	16+88.00	934.56	1:6	947.00	101.18	23	10.56	924.00	87
88	16+96.00	934.83	1:6	947.00	98.45	23	10.83	924.00	88
89	17+04.00	935.11	1:6	947.00	96.24	23	11.11	924.00	89
90	17+12.00	935.38	1:6	947.00	94.03	23	11.38	924.00	90
91	17+20.00	935.66	1:6	947.00	91.82	22	10.66	925.00	91
92	17+28.00	935.94	1:6	947.00	89.61	22	10.94	925.00	92
93	17+36.00	936.21	1:6	947.00	87.40	22	11.21	925.00	93
94	17+44.00	936.49	1:6	947.00	85.19	22	11.49	925.00	94
95	17+52.00	936.77	1:6	947.00	82.98	21	10.77	926.00	95
96	17+60.00	936.89	1:6	947.00	81.38	21	10.89	926.00	96
97	17+68.00	936.69	1:6	946.00	77.67	20	10.69	926.00	97
98	17+76.00	936.49	1:6	945.00	71.26	20	11.49	925.00	98
99	17+84.00	936.29	1:6	944.00	64.85	19	11.29	925.00	99
100	17+92.00	936.10	1:6	943.00	58.44	18	11.10	925.00	100
101	18+00.00	935.90	1:6	942.00	52.02	17	10.90	925.00	101
TOTAL					11,250	2,547			

NOISEWALL A SUMMARY				
STATION TO STATION	COST PART.	WOOD NOISE ATTENUATER WALL	CONCRETE POSTS 12X18	SELECT GRANULAR
		SQ FT	LIN FT	CU YD
NOISEWALL A				
10+00 - 12+00	B	2,742	643	76
12+00 - 14+00	B	3,208	654	76
14+00 - 16+00	B	2,864	664	76
16+00 - 18+00	B	2,384	673	76
18+00 - 18+08	B	52	680	76
TOTAL		11,250	2,547	299



COST PARTICIPATION:

- A = BRIDGES & CAST-IN-PLACE RETAINING WALLS
- B = RAMPS & RICE ST. STA. 19+00 - 30+00
- C = REMAINDER OF PROJECT :
RICE ST. - SOUTH OF STA. 19+00 & NORTH OF STA. 30+00
COUNTY RD B, MINNESOTA AVE, & COUNTY RD B2
INFILTRATION BASINS
- D = STORM SEWER
- E = NON-PARTICIPATING CITY OF ROSEVILLE
- F = NON-PARTICIPATING CITY OF LITTLE CANADA

DESIGN TEAM			
DRAWN BY:	MTT		
DESIGNER:	SRH,HLR		
CHECKED BY:	KLE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRET W. JOHNSON Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

NOISE WALL TABULATIONS & DETAIL

FILE NO.	376
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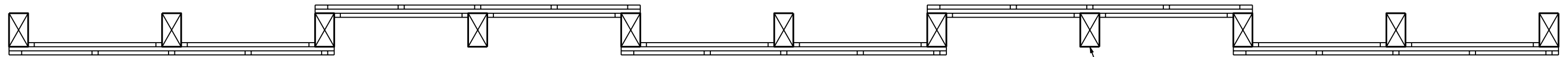
5/6/2010

kerickson

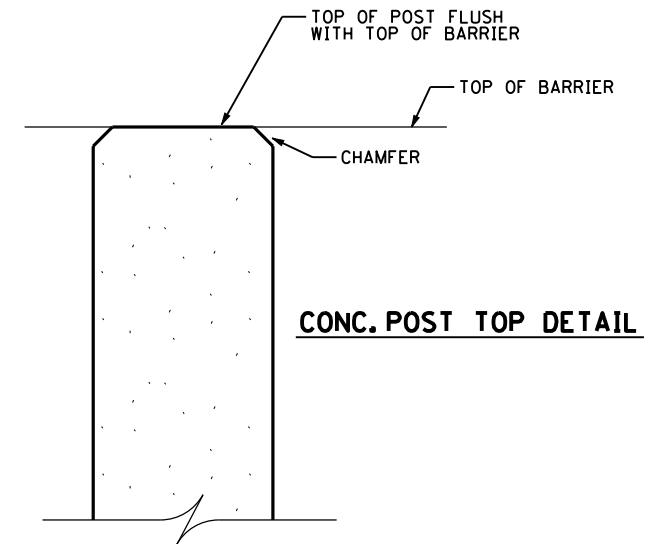
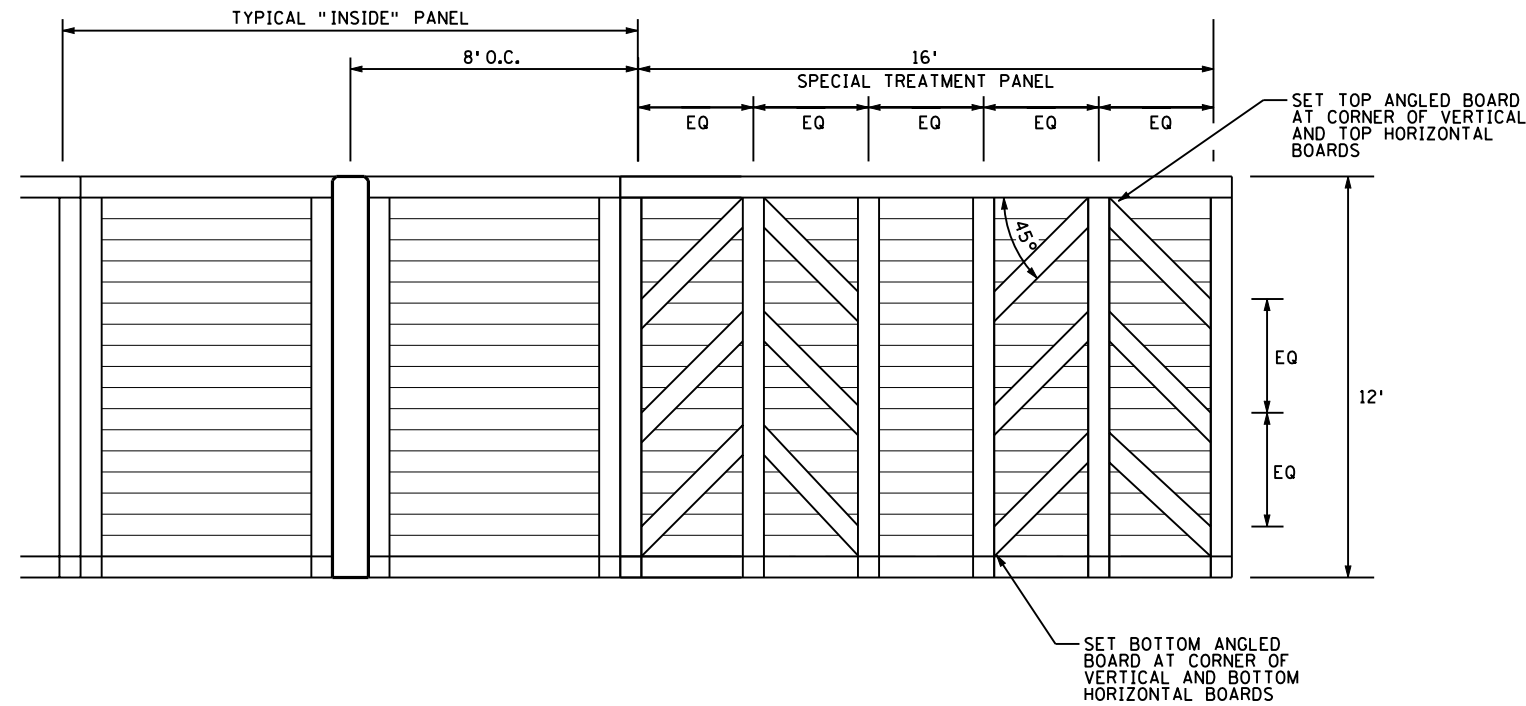
S:\PT\RAMSP\108790\plans\108790_nw.dgn
noise wall details

BACK
(RESIDENCE FACING)

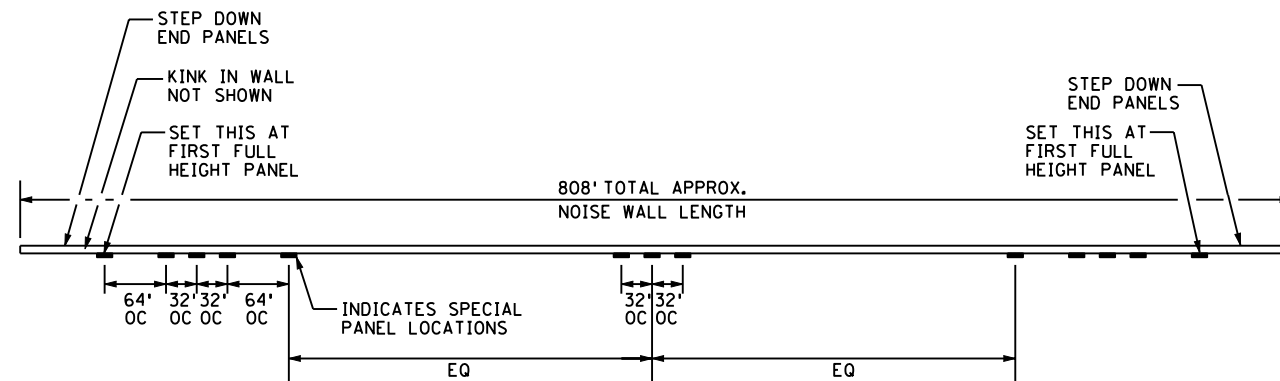
FRONT
(HWY 36 FACING)



12' x 18" CONCRETE POST



CONC. POST TOP DETAIL



SPECIAL PATTERN LAYOUT PLAN
HWY 36 FACING ONLY
(13 TOTAL SPECIAL PANELS)

COLOR: POST FED STD. NO. 30372
WOOD FED STD. NO. 30140

- NOTES:
1. ALL FACING AND FRAMES - 2 x 6 LUMBER
 2. ALL SPECIAL PANESL FACE TH 36
 3. MATCH STEPPING SEQUENCE AND LENGTH AT ENDS

DESIGN TEAM				
DRAWN BY: <u>MTT</u>				
DESIGNER: <u>SRH,HLR</u>				
CHECKED BY: <u>KLE</u>				
NO.	BY	DATE	REVISIONS	

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.

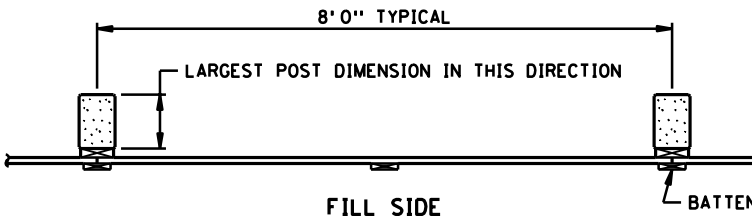
Certified By: *Bret W. Johnson* Lic. No. 25087
 Licensed Professional Engineer
 Printed Name: BRET W. JOHNSON Date: 3/3/2010

SEH
 PHONE: 651-490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

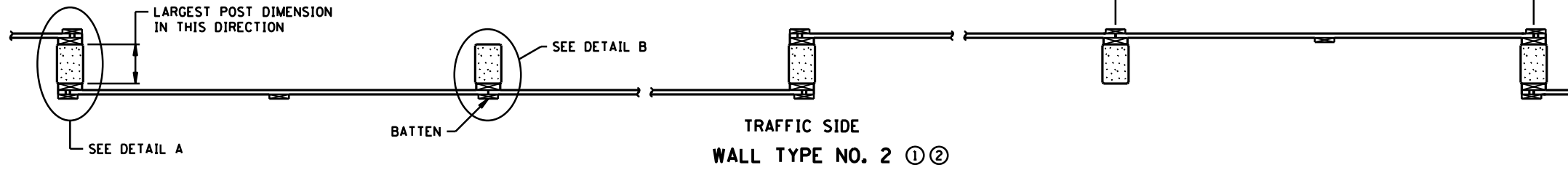
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

NOISE WALL DETAILS

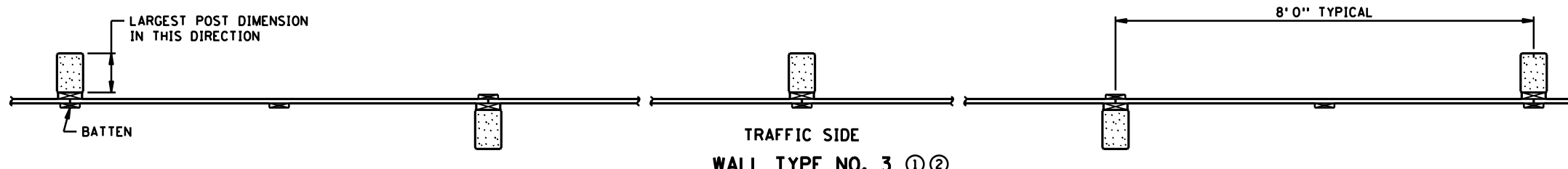
FILE NO. RAMSP108790	377
NW3 OF NW5	534



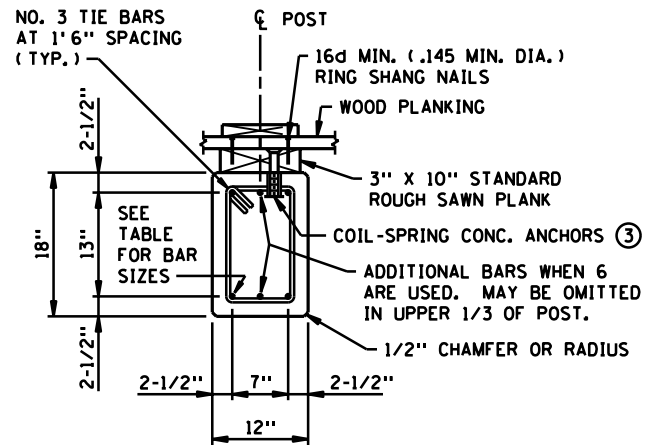
WALL TYPE NO. 1 ①



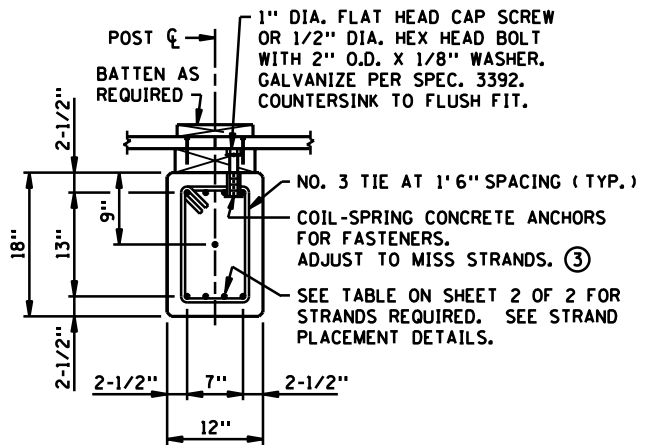
WALL TYPE NO. 2 ① ②



WALL TYPE NO. 3 ① ②

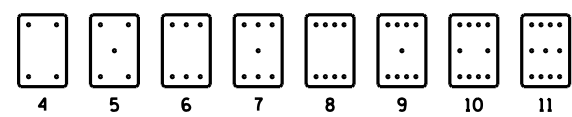


REINFORCED

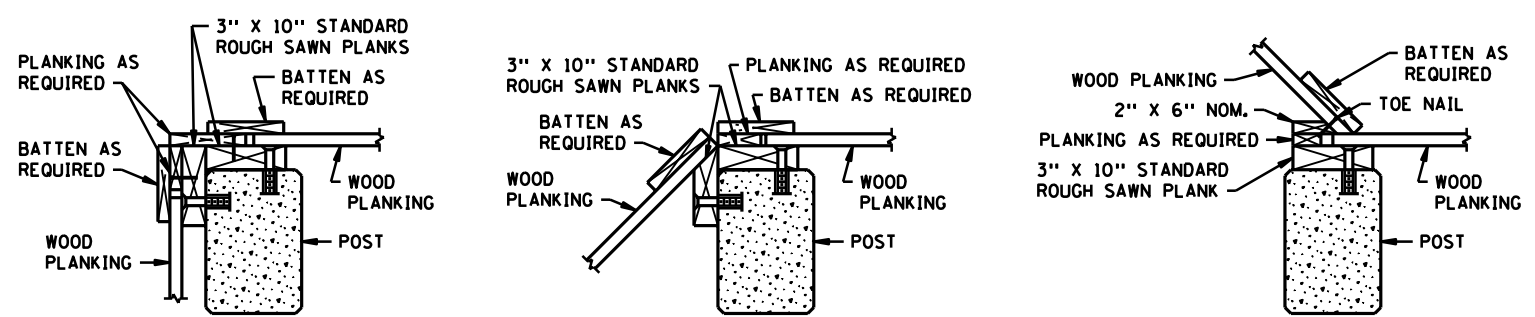


PRESTRESSED

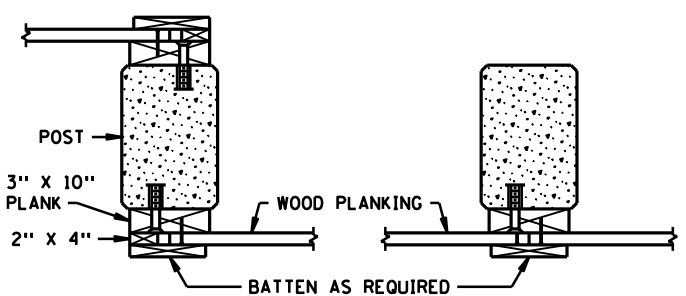
POST DETAILS



STRAND PLACEMENT DETAILS



POST LOCATIONS FOR ANGLE TURNS



DETAIL A

DETAIL B

- NOTES:**
- ① SEE SHEET(S) _____ FOR WALL TYPE REQUIRED.
 - ② TYPE NO. 2 AND 3 SHALL BE USED IN NON-FILL CONDITIONS ONLY.
 - ③ SPACE AT 4' 0" ON ALTERNATE SIDES OF POST ϕ . ULTIMATE PULL-OUT 2.25K PER ANCHOR.

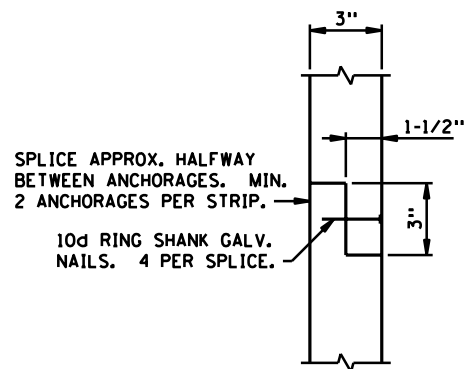
STANDARD SHEET NO.
5-297.661 (1 OF 2)

STANDARD APPROVED:
JANUARY 4, 1994

TITLE:
WOOD PLANKING NOISE BARRIER WITH CONCRETE POSTS

FILL HEIGHT W = 0' TO 1'

"H" WALL HEIGHT (FT.)	POST SPACING (FT.)	POST SIZE (IN.)	REINF. BARS	PRE-STRESSED STRANDS	POST EMBEDMENT		
					LEVEL GROUND	2:1 SLOPE	3:1 SLOPE
5	8	12 X 18	4 NO. 4	4	5' 0"	8' 0"	7' 0"
6	8	12 X 18	4 NO. 4	4	6' 0"	9' 0"	8' 0"
7	8	12 X 18	4 NO. 4	4	6' 0"	9' 0"	8' 0"
8	8	12 X 18	4 NO. 4	4	7' 0"	10' 0"	9' 0"
9	8	12 X 18	4 NO. 4	4	7' 0"	11' 0"	10' 0"
10	8	12 X 18	4 NO. 4	4	8' 0"	11' 0"	10' 0"
11	8	12 X 18	4 NO. 5	4	8' 0"	12' 0"	11' 0"
12	8	12 X 18	4 NO. 5	4	8' 0"	12' 0"	11' 0"
13	8	12 X 18	4 NO. 5	4	9' 0"	13' 0"	11' 0"
14	8	12 X 18	4 NO. 5	4	9' 0"	13' 0"	11' 0"
15	8	12 X 18	6 NO. 5	4	9' 0"	13' 0"	11' 0"
16	8	12 X 18	6 NO. 5	4	9' 0"	14' 0"	12' 0"
17	8	12 X 18	6 NO. 5	4	10' 0"	14' 0"	12' 0"
18	8	12 X 18	6 NO. 6	4	10' 0"	15' 0"	13' 0"
19	8	12 X 18	6 NO. 6	5	10' 0"	15' 0"	13' 0"
20	8	12 X 18	6 NO. 6	5	10' 0"	15' 0"	13' 0"
21	8	12 X 18	6 NO. 6	6	11' 0"	16' 0"	14' 0"
22	8	12 X 18	6 NO. 7	6	11' 0"	16' 0"	14' 0"
23	8	12 X 18	6 NO. 7	7	11' 0"	17' 0"	14' 0"
24	8	12 X 18	6 NO. 7	8	11' 0"	17' 0"	14' 0"
25	8	12 X 18	6 NO. 7	9	12' 0"	17' 0"	14' 0"



NAILER STRIP SPLICE DETAIL

NOTES:

SEE SPECIAL PROVISIONS FOR FASTENER PATTERNS USED FOR NAILING PLANKS TO NAILER COMPONENTS AND SCREWING BATTENS, CAP BOARDS AND ARCHITECTURAL FEATURES TO PLANKS.

DESIGN CRITERIA:

φ = 30° (GRANULAR)
 WIND LOAD = 23 P.S.F.
 f_b = 4000 P.S.I. CONCRETE POSTS.
 f_b = 1400 P.S.I. WOOD PLANKING.
 f_b = 1200 P.S.I. ALL OTHER WOOD MEMBERS.
 STRESS LEVEL SYMBOL
 PER AITC-117-(LATEST ADDITION)
 24F = 2400 PSI ALLOWABLE BENDING STRESS
 20F = 2000 PSI ALLOWABLE BENDING STRESS

POST DESIGN CRITERIA

NO. OF STRANDS	f' _{ci} (6)	f' _c (5)
6 OR LESS	4000 PSI	5500 PSI
7 OR MORE	4000 PSI	6000 PSI

NOTES:

EMBEDMENT LENGTH IS BASED ON THE WATER TABLE BEING BELOW THE EMBEDMENT DEPTH OTHER CONDITIONS REQUIRE A SPECIAL DESIGN.

FOR SLOPES BETWEEN THOSE SHOWN, USE THE EMBEDMENTS FOR THE STEEPER SLOPE OR USE INTERPOLATION.

FOR SLOPES 6:1 OR FLATTER, USE LEVEL GROUND EMBEDMENT.

THE FINISHED WIDE FACE DIMENSION FOR THE ROUGH SAWN 3" PLANKS SHALL BE THE SAME AS THE FINISHED WIDE FACE DIMENSION FOR THE 2" PLANKS.

GALVANIZE NAILS PER SPEC. 3392. NAILING REQUIREMENTS SHOWN ARE BASED ON FULL HEAD NAILS AND ENTIRE LENGTH OF SHANK BEING DEFORMED. SEE SPECIAL PROVISIONS FOR POWER NAILS ALTERNATE.

SOIL TESTS AT 200 FT. INTERVALS SHALL BE REQUIRED AT EACH SITE LOCATION AND THE RESULTS REVIEWED BY THE SOILS ENGINEER FOR RECOMMENDATIONS.

SOIL TREATMENT AND BACKFILL SHALL CONFORM TO SPEC. 2451.

SEE SPEC. 2554 FOR ADDITIONAL CONST. INFORMATION, UNLESS OTHERWISE NOTED.

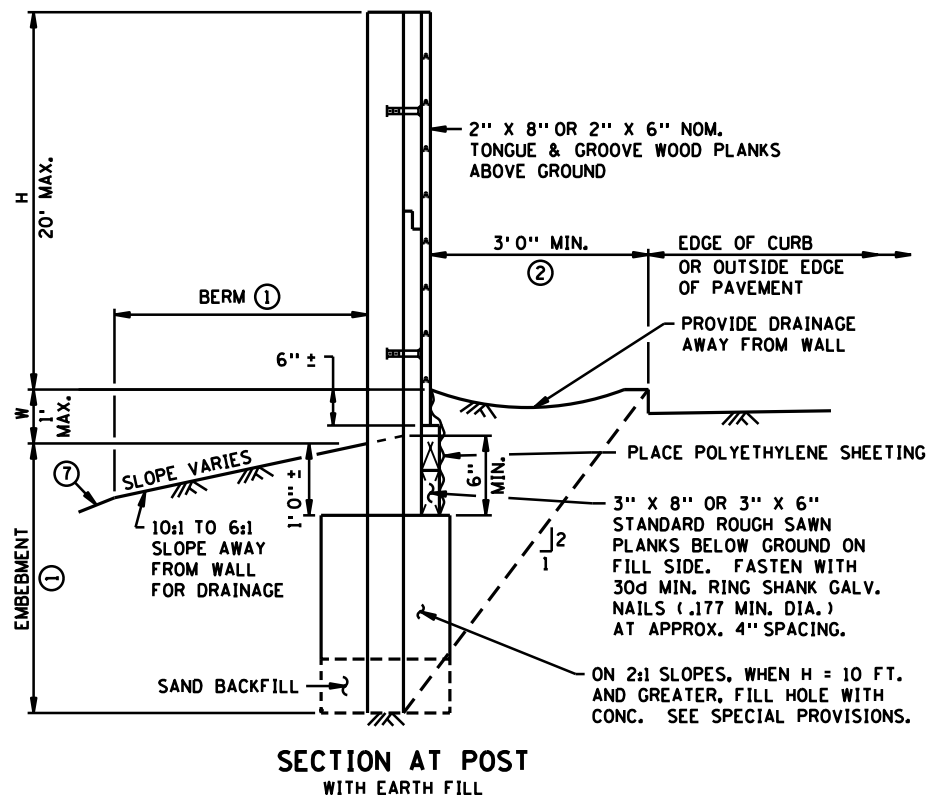
CONCRETE POSTS WITH THE SAME TOTAL LENGTH SHALL USE THE LARGEST NUMBER OF PRESTRESSED STRANDS REQUIRED FOR THAT POST LENGTH.

PRESTRESSED STEEL STRANDS ARE 1/2" DIA. (AREA = 0.153 SQ. IN.), MIN. OF 2 SPACES, 270 KIP ULTIMATE STRENGTH. INITIAL PRESTRESS EQUALS 28,900 LBS./STRAND.

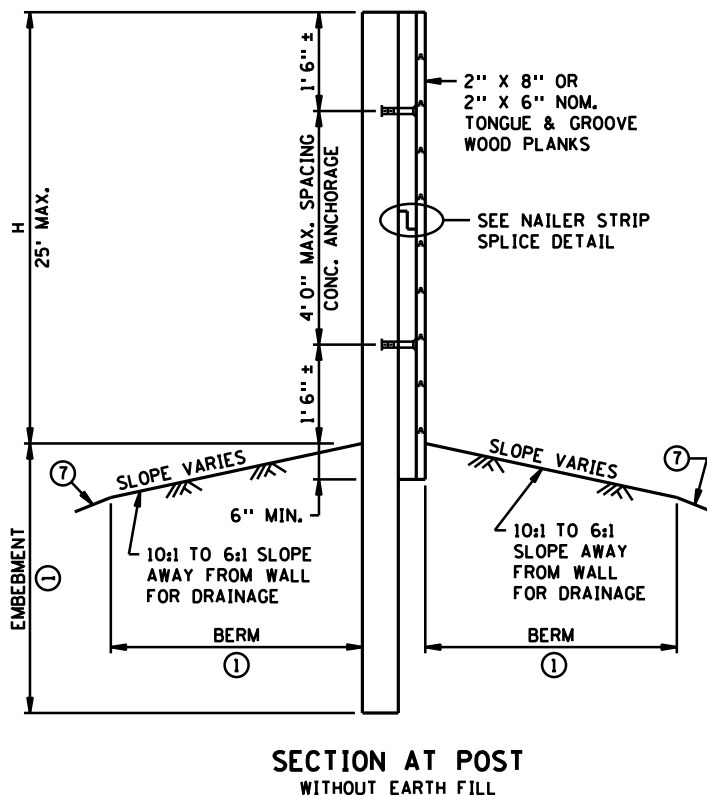
STEEL STRANDS PER SPEC. 3348 AND PAINT THE EXPOSED ENDS OF THE STRANDS WITH AN APPROVED GRAY EPOXY.

ALL REINF. BARS SHALL BE EPOXY COATED GRADE 60 PER SPEC. 3301 AND HAVE A MIN. 2" CLEAR UNLESS OTHERWISE NOTED.

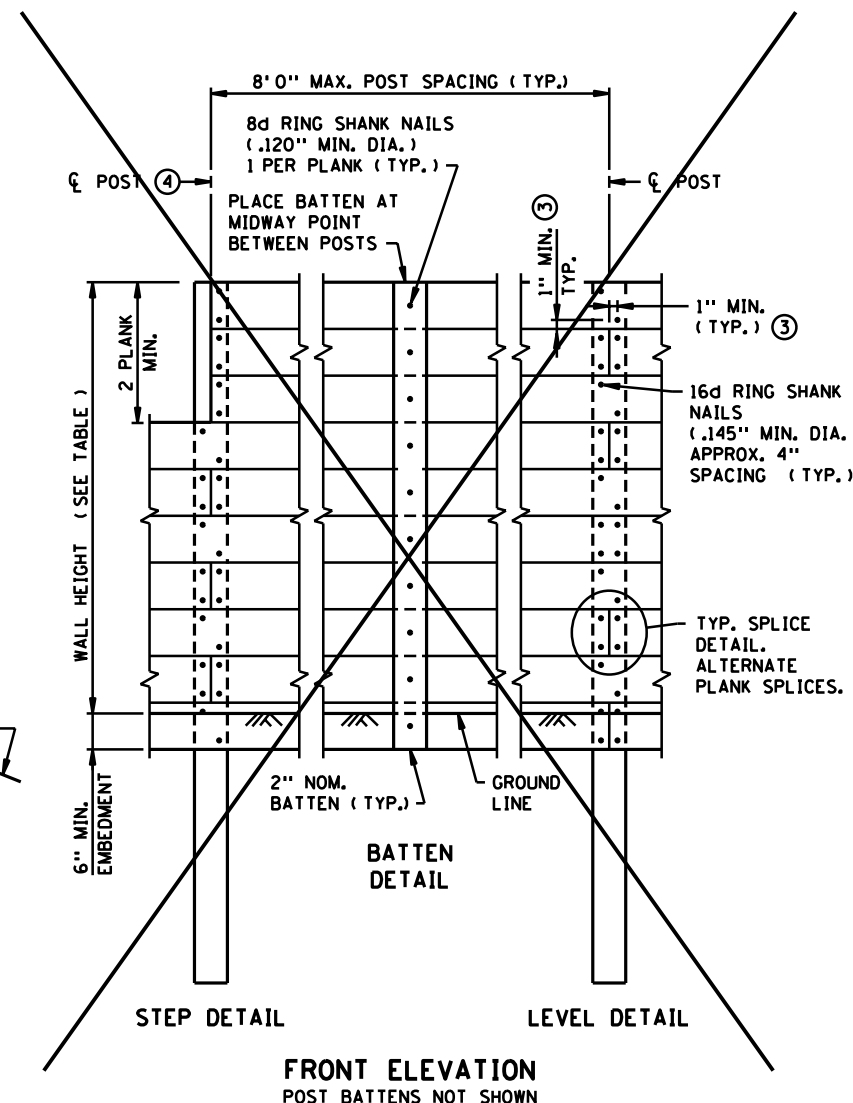
- ① EMBEDMENT DEPTHS IN THE TABLES ARE BASED ON A 3 FT. MIN. BERM IN FRONT OF THE WALL.
- ② WHEN THE CURB LINE IS CLOSER THAN 2:1 SLOPE, A SPECIAL DESIGN IS REQUIRED.
- ③ 1" MIN. DISTANCE FROM EDGE OR END OF PLANK.
- ④ USE THE POST SIZE AND EMBEDMENT FOR THE HIGHER WALL SECTION AT THE STEP.
- ⑤ MINIMUM CONCRETE STRENGTH AT THE TIME OF PRESTRESS TRANSFER.
- ⑥ MIN. CONCRETE STRENGTH THE POST CAN BE TRANSPORTED AND INSTALLED. THE CONCRETE SHALL BE PER SPEC. 2461.4A4b.
- ⑦ SEE POST EMBEDMENT TABLES.



SECTION AT POST WITH EARTH FILL



SECTION AT POST WITHOUT EARTH FILL



FRONT ELEVATION POST BATTENS NOT SHOWN

STANDARD SHEET NO. 5-297.661 (2 OF 2)
 STANDARD APPROVED: JANUARY 4, 1994

TITLE: WOOD PLANKING NOISE BARRIER WITH CONCRETE POSTS

REVISION DATE 4-1-99

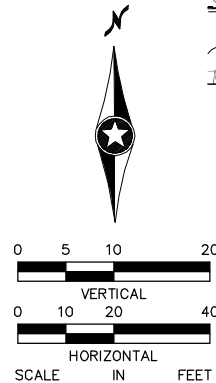
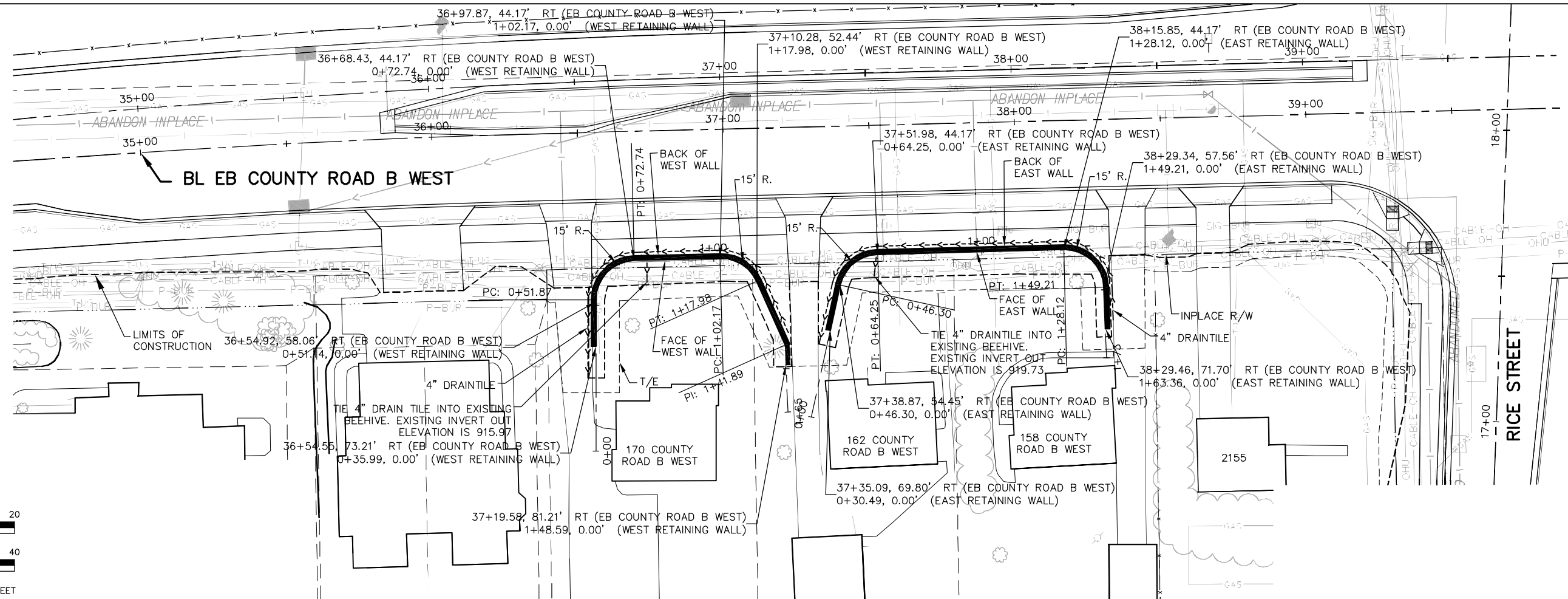
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Bret W. Johnson* Lic. No. 25087
 Printed Name: BRETT W. JOHNSON Date: 3/3/2010

STATE PROJ. NO. 62-649-27 CTB & 6212-165 (TH36)

SHEET NO. 379 OF 534 SHEETS

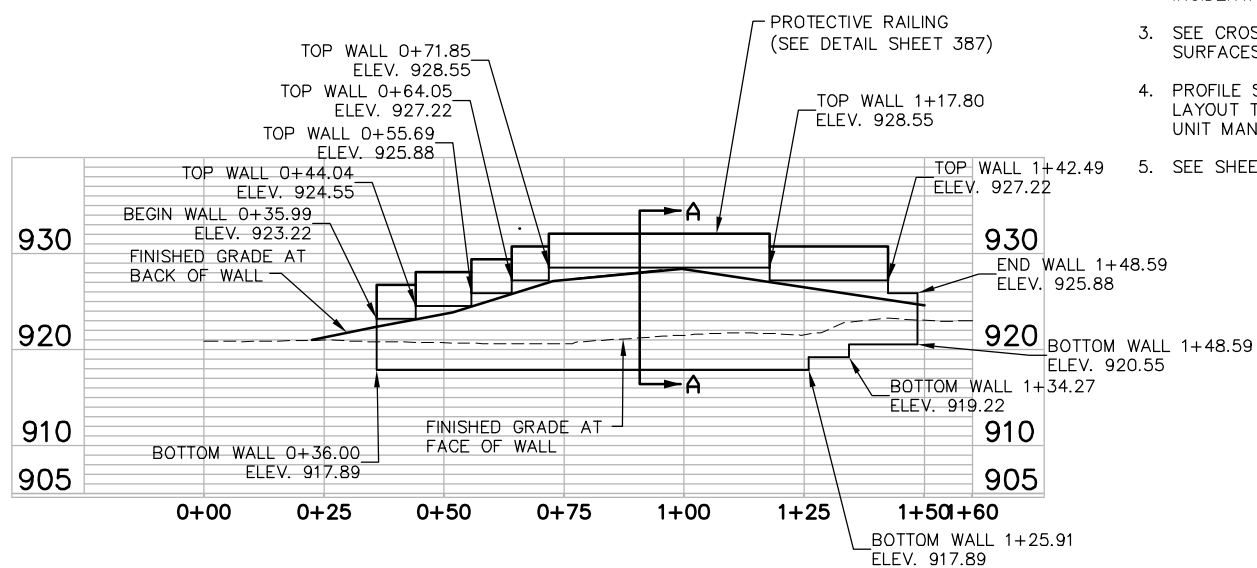
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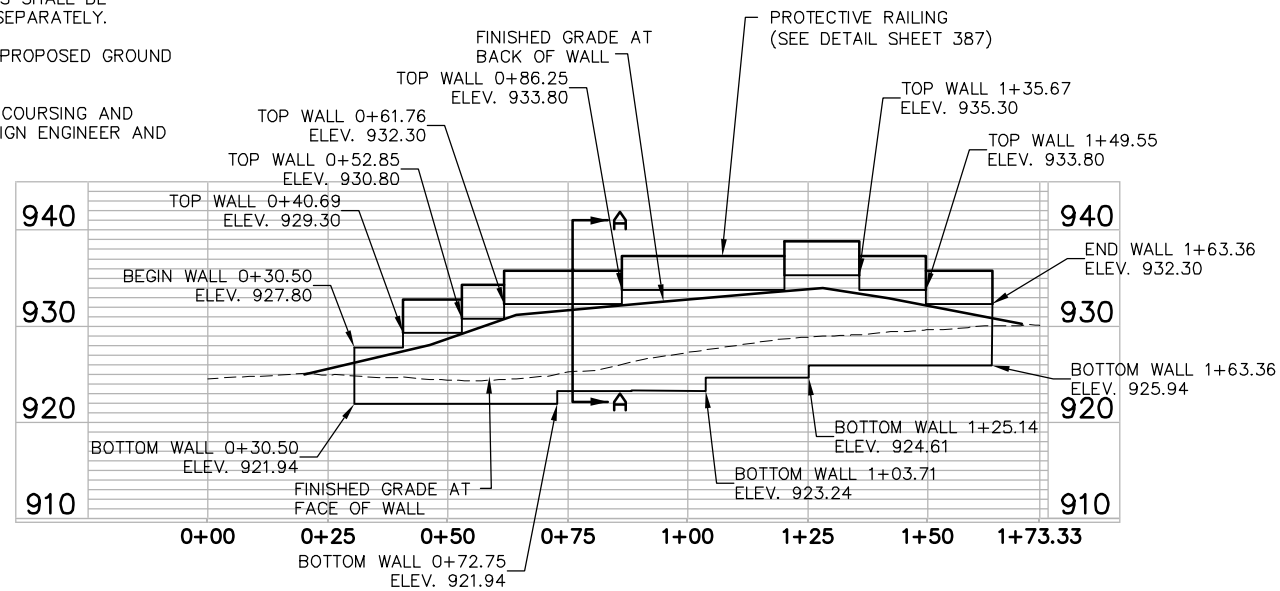


NOTES:

1. FOR WET CAST MODULAR BLOCK RETAINING WALL AND PROTECTIVE RAILING DETAILS, SEE SHEETS 385 AND 387.
2. CONTRACTOR SHALL PROVIDE SHEETING, SHORING, TEMPORARY BRACING, ETC., AS REQUIRED TO ALLOW FOR THE CONSTRUCTION OF THE WALL. THESE ITEMS SHALL BE INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.
3. SEE CROSS SECTIONS FOR EXISTING AND PROPOSED GROUND SURFACES..
4. PROFILE SHOWS INTENT OF WALL. FINAL COURSING AND LAYOUT TO BE DETERMINED BY WALL DESIGN ENGINEER AND UNIT MANUFACTURER.
5. SEE SHEET 385 FOR SECTION A-A.



**WEST RETAINING WALL
WET CAST MODULAR BLOCK RETAINING WALL**



**EAST RETAINING WALL
WET CAST MODULAR BLOCK RETAINING WALL**

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
4	DJG	3/29/11	COUNTY ROAD B PROFILE

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.
 Certified By: *[Signature]* Lic. No. 47323
 Licensed Professional Engineer
 Printed Name: DAVID J. GOODMAN Date: 3/3/2010

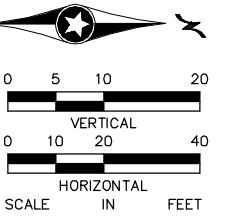
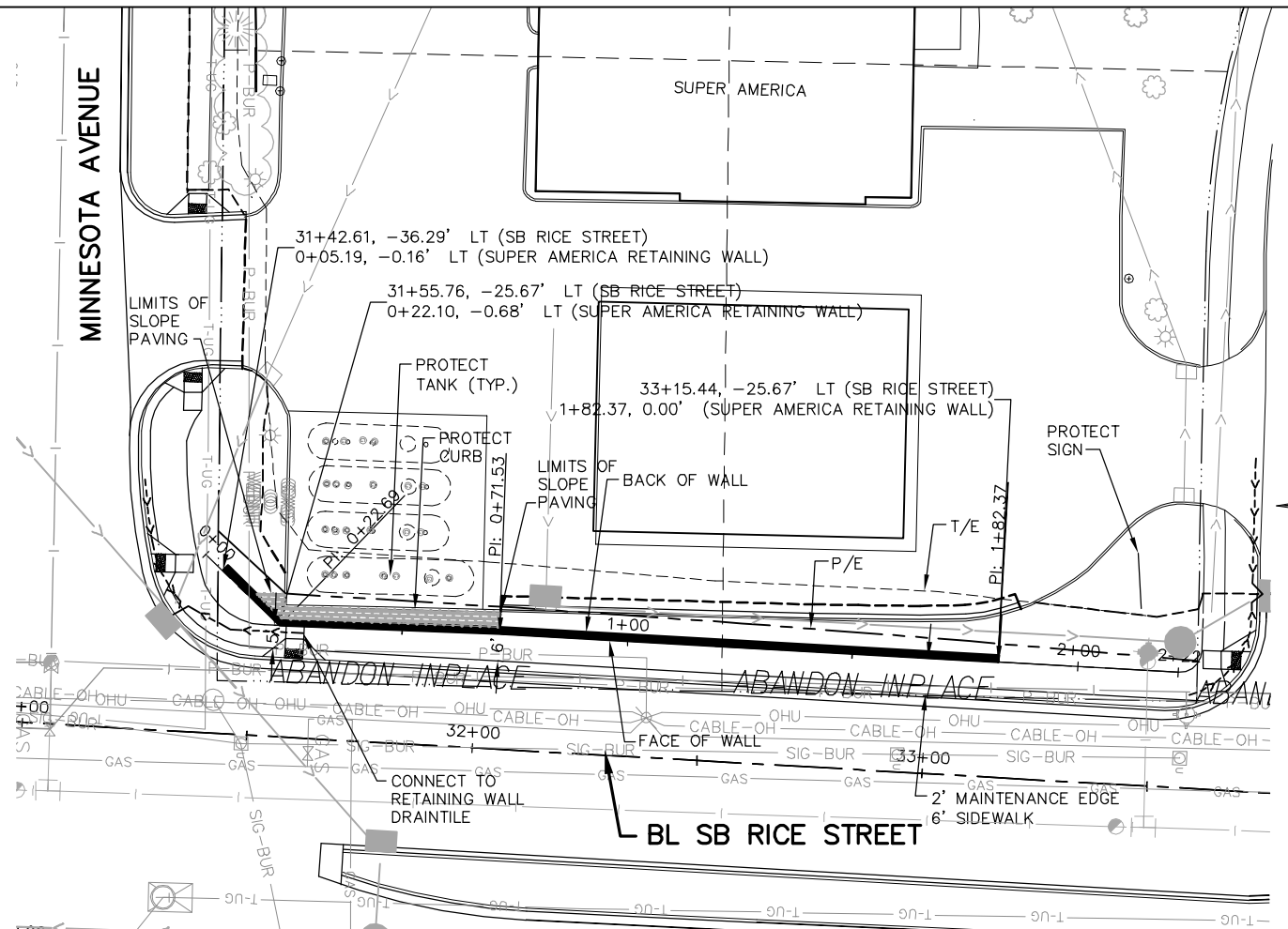
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5716

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

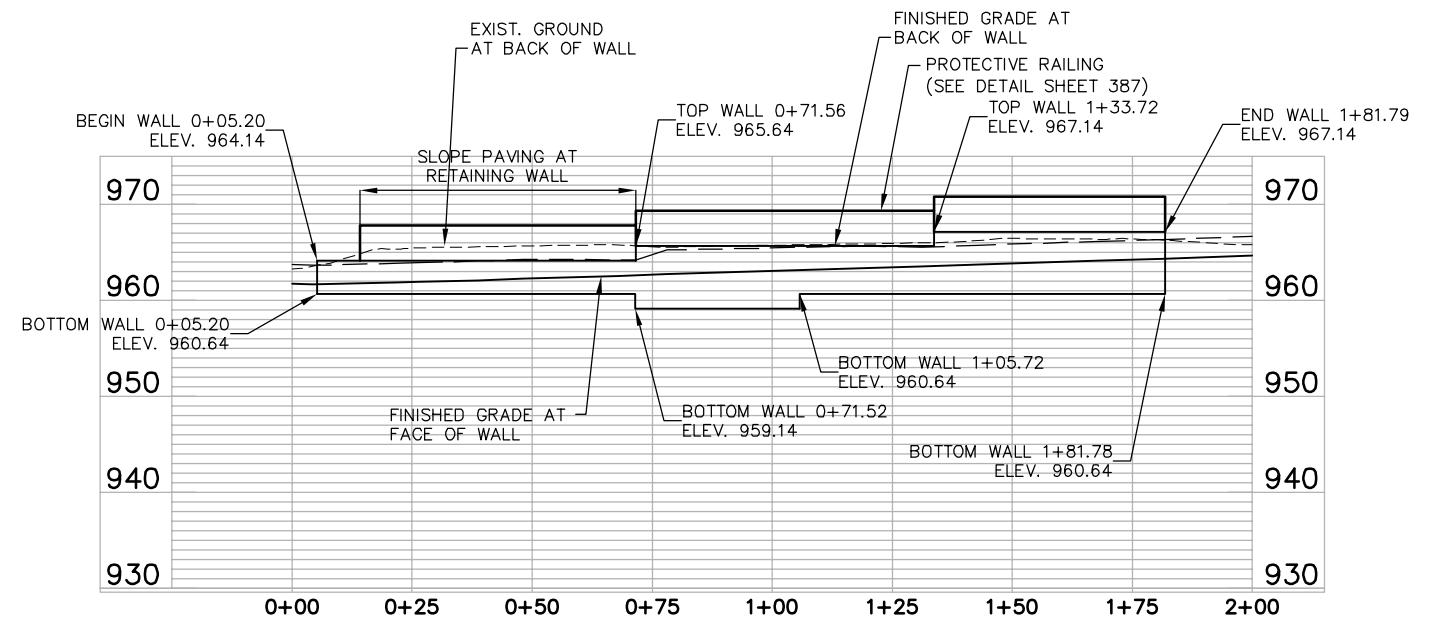
**RETAINING WALL
PLAN / PROFILES AND DETAIL**
 COUNTY ROAD B WEST

FILE NO. **380**
 160599001
 RW1
 OF RW25
534

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- NOTES:**
1. FOR SLOPE PAVING DETAILS AND DETAILS FOR RETAINING WALL ADJACENT TO SLOPE PAVING, SEE SHEET 386A. FOR DETAILS FOR RETAINING WALL NOT ADJACENT TO SLOPE PAVING, SEE SHEET 385.
 2. FOR RAILING DETAILS, SEE SHEET 387.



**SUPER AMERICA
SHEETPILE WALL WITH CONCRETE FORMLINER**

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS
6	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION
4	BAE	10/12/2010	WALL MODIFICATIONS

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.

Certified By: *David J. Goodman* Lic. No. 47323
 Licensed Professional Engineer
 Printed Name: DAVID J. GOODMAN Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

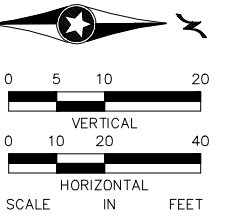
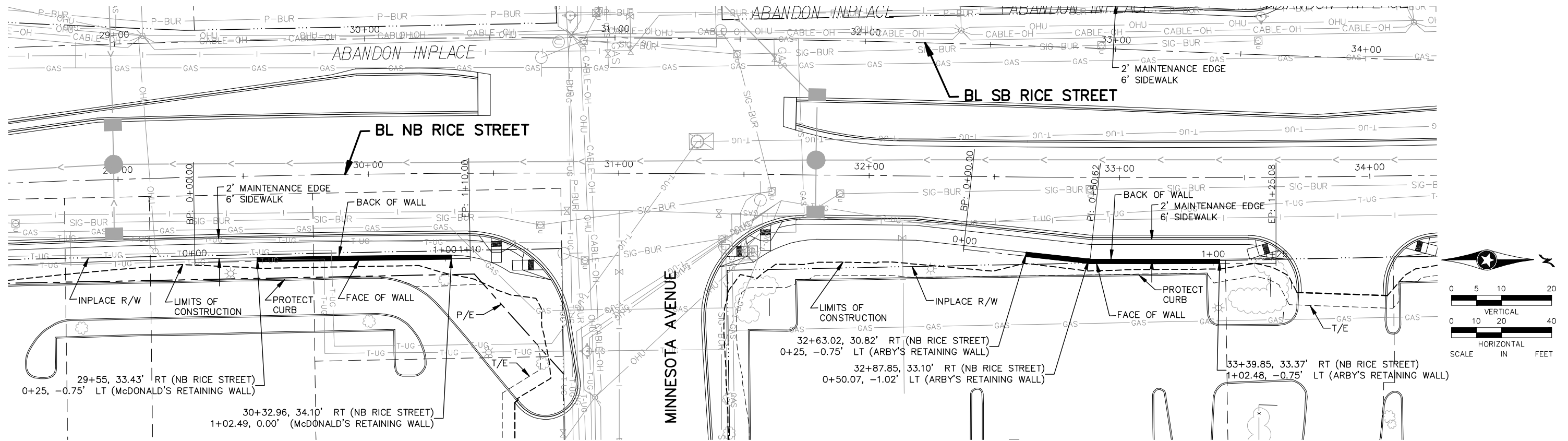
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**RETAINING WALL
PLAN / PROFILES AND DETAIL**

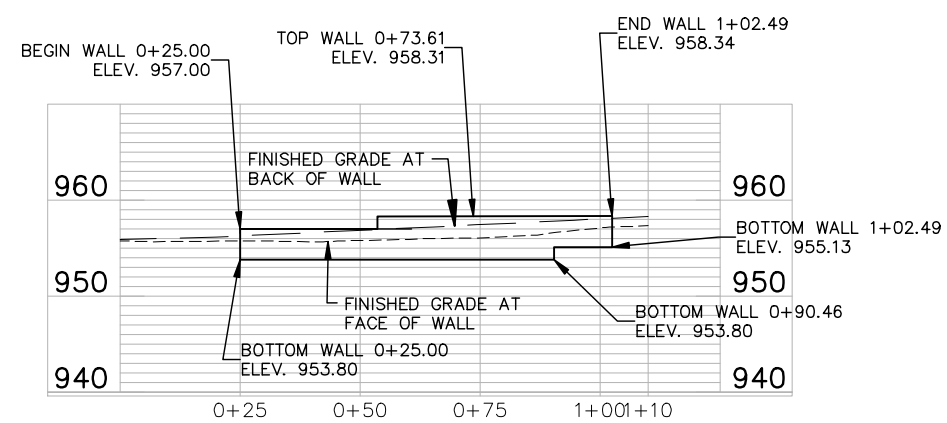
SUPER AMERICA

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OF RW25	534

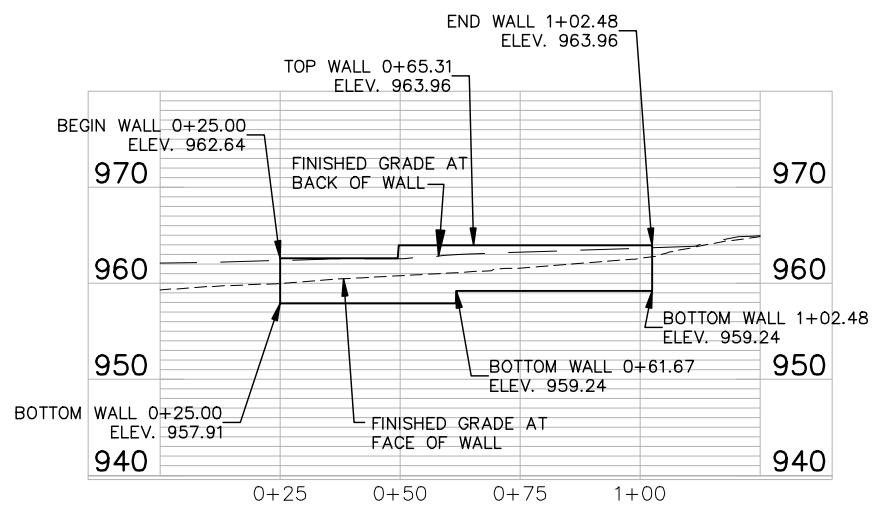
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- NOTES:**
1. TOP OF WALL SHALL LINE UP WITH HIGHEST FINISHED GRADE.
 2. BOTTOM OF WALL SHALL BE A MINIMUM OF 2 FEET BELOW LOWEST FINISH GRADE.
 3. PROVIDE A MINIMUM OF 2 FEET COARSE FILTER AGGREGATE BELOW BOTTOM OF WALL.



McDONALD'S
 DRY CAST MODULAR BLOCK RETAINING WALL



ARBY'S
 DRY CAST MODULAR BLOCK RETAINING WALL

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* Lic. No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

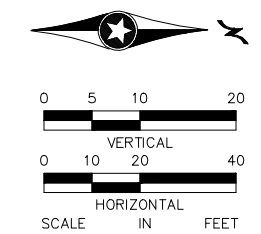
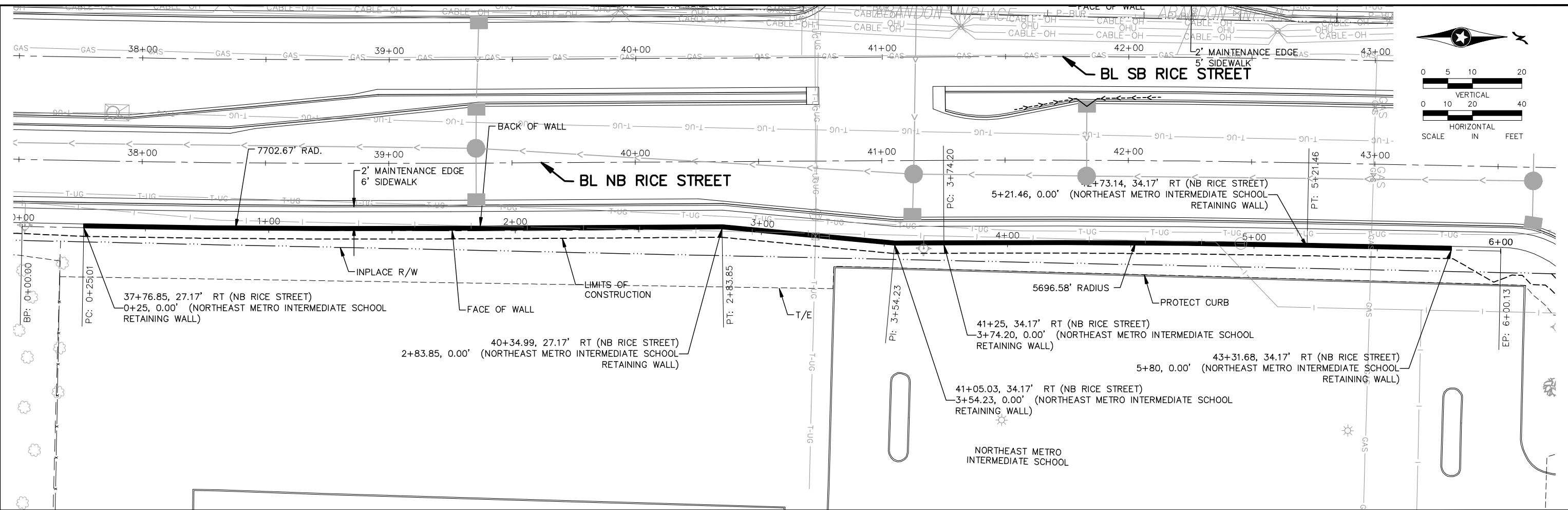
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

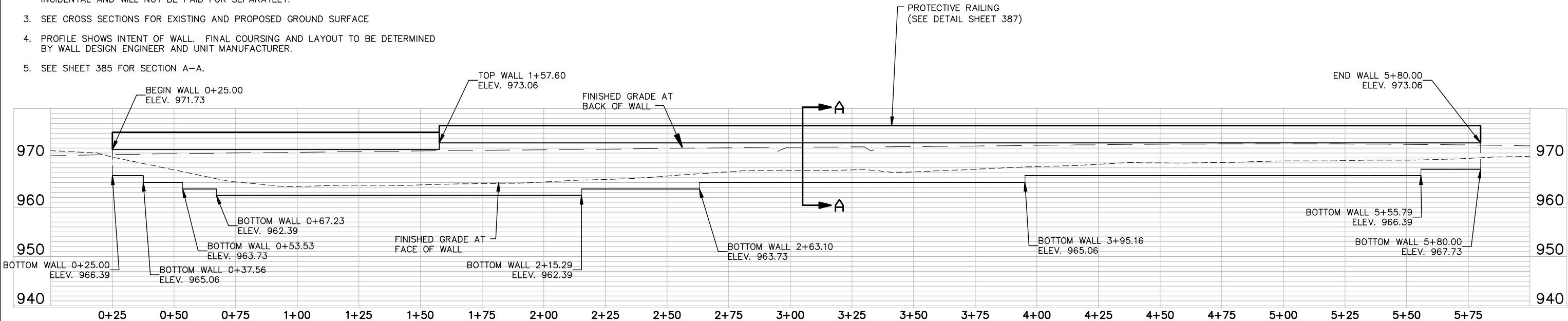
RETAINING WALL
 PLAN / PROFILES AND DETAIL
 McDONALD'S AND ARBY'S

FILE NO. 382
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 RW3
 OFRW25 534

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- NOTES:**
- FOR WET CAST MODULAR BLOCK RETAINING WALL AND PROTECTIVE RAILING DETAILS, SEE SHEETS 385 AND 387.
 - CONTRACTOR SHALL PROVIDE SHEETING, SHORING, TEMPORARY BRACING, ETC., AS REQUIRED TO ALLOW FOR THE CONSTRUCTION OF THE WALL. THESE ITEMS SHALL BE INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.
 - SEE CROSS SECTIONS FOR EXISTING AND PROPOSED GROUND SURFACE
 - PROFILE SHOWS INTENT OF WALL. FINAL COURSING AND LAYOUT TO BE DETERMINED BY WALL DESIGN ENGINEER AND UNIT MANUFACTURER.
 - SEE SHEET 385 FOR SECTION A-A.



**NORTHEAST METRO INTERMEDIATE SCHOOL
WET CAST MODULAR BLOCK RETAINING WALL**

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Sara L. Nelson* Lic. No. 42330
 SARA L. NELSON Date: 3/3/2010

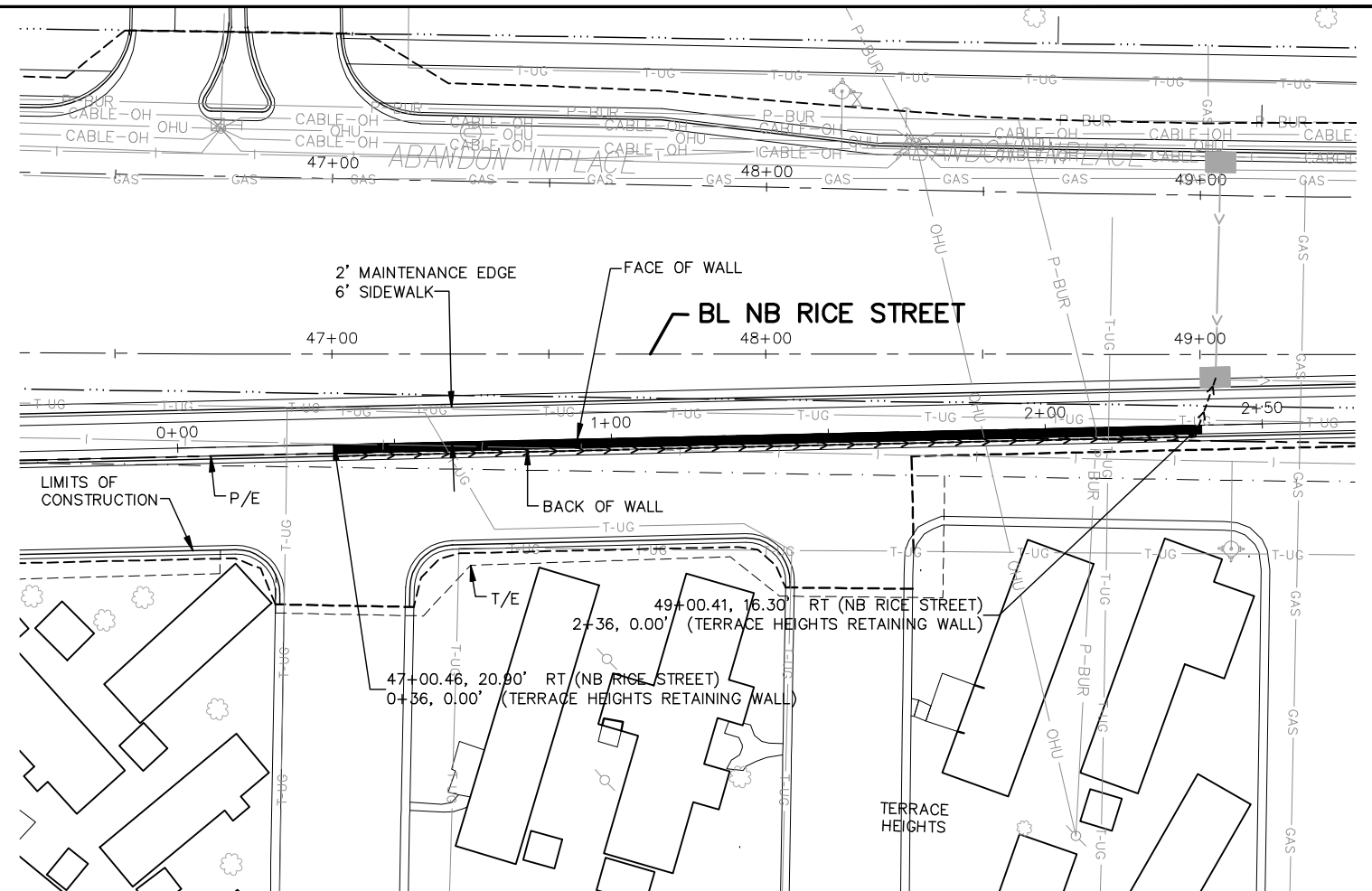
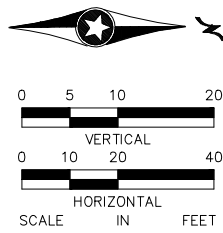
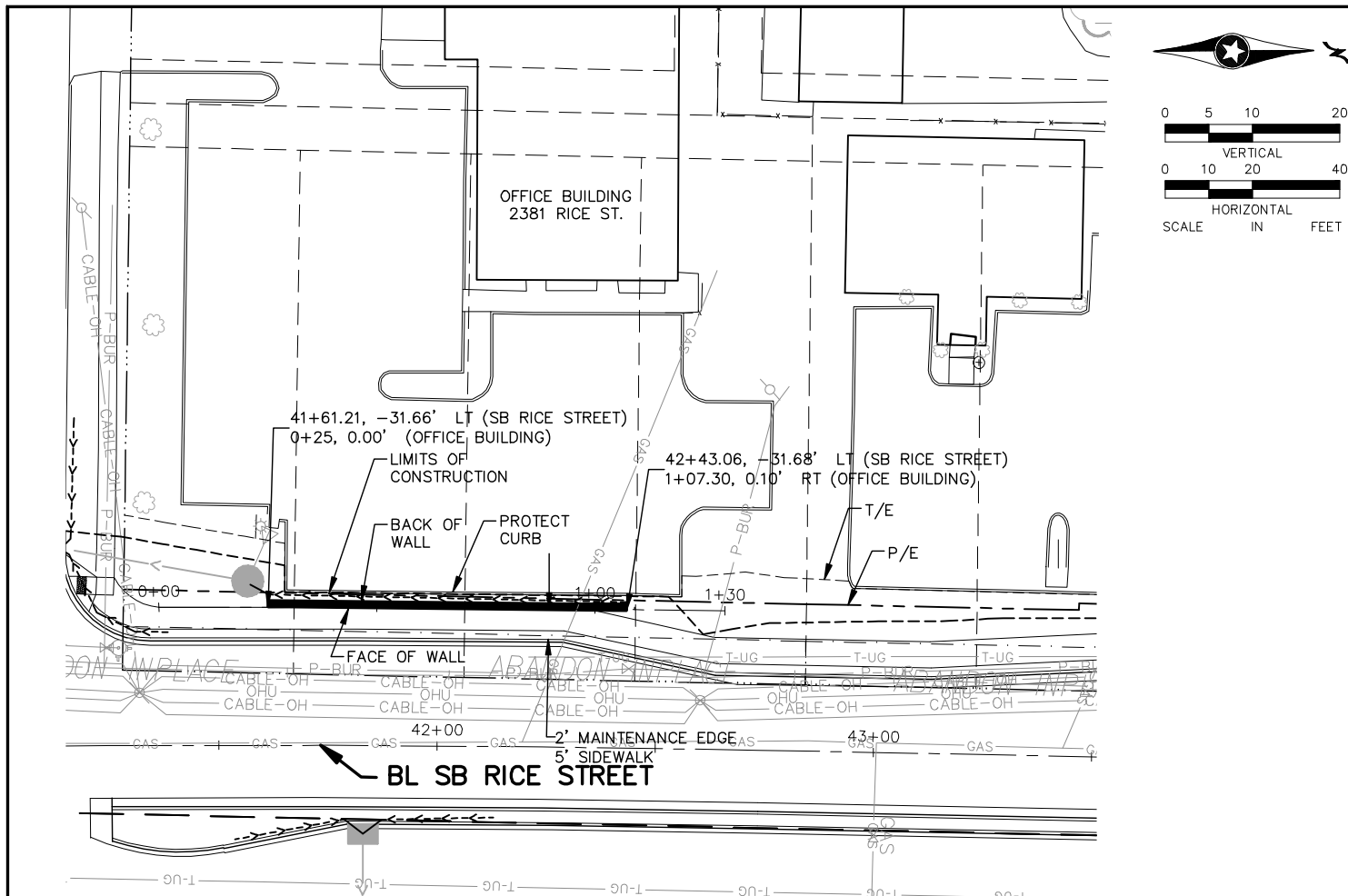
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL
 PLAN / PROFILES AND DETAIL
 NORTHEAST METRO INTERMEDIATE SCHOOL

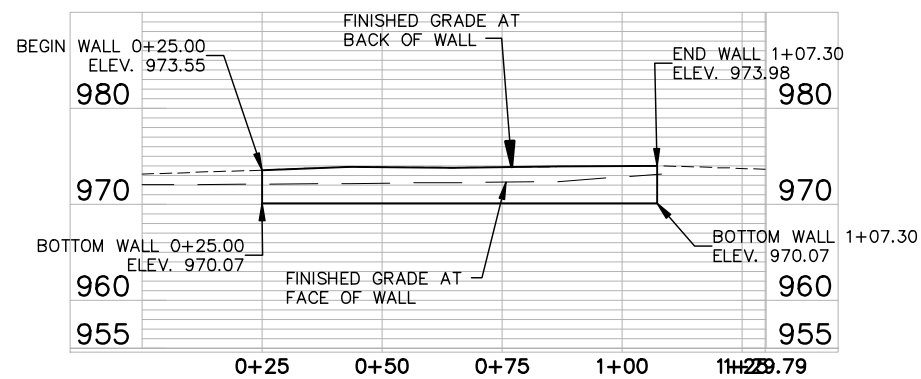
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 OF RW25
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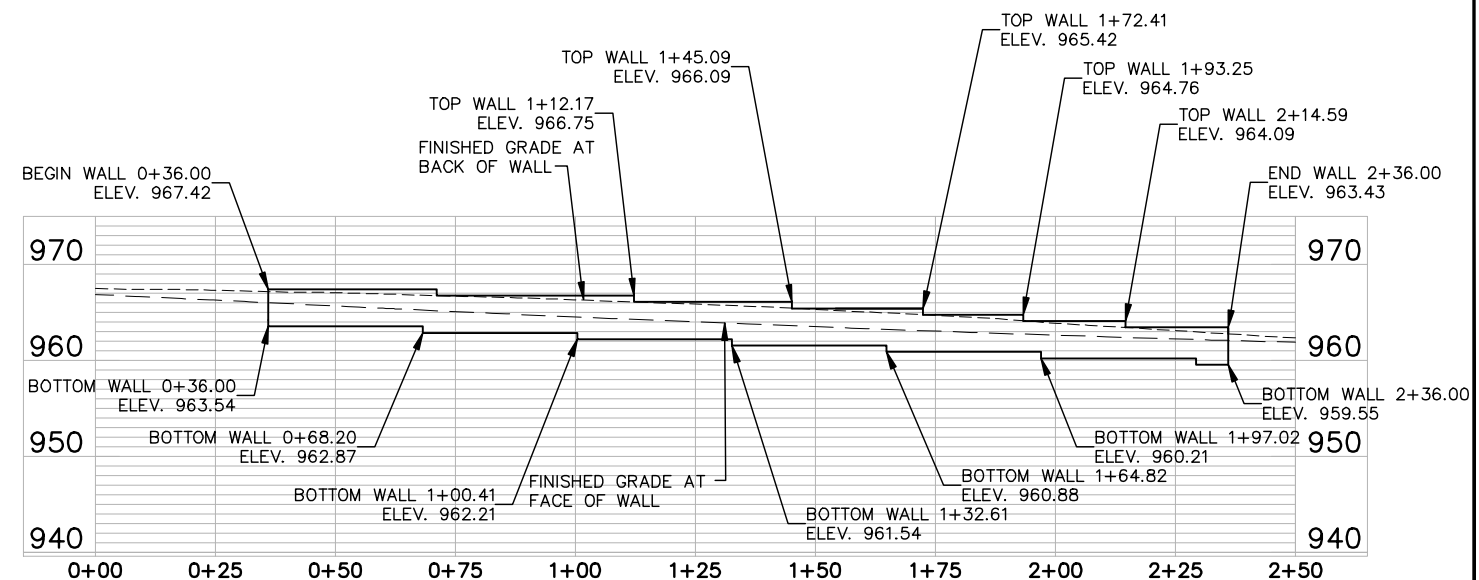


NOTES:

1. TOP OF WALL SHALL LINE UP WITH HIGHEST FINISHED GRADE.
2. BOTTOM OF WALL SHALL BE A MINIMUM OF 2 FEET BELOW LOWEST FINISH GRADE.
3. PROVIDE A MINIMUM OF 2 FEET COARSE FILTER AGGREGATE BELOW BOTTOM OF WALL.



**OFFICE BUILDING
DRY CAST MODULAR BLOCK
RETAINING WALL**



**TERRACE HEIGHTS
DRY CAST MODULAR BLOCK
RETAINING WALL**

DESIGN TEAM			
DRAWN BY:	RJG		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Beth A. Engum* License No. 44785
 Printed Name: BETH A. ENGUM Date: 3/3/2010

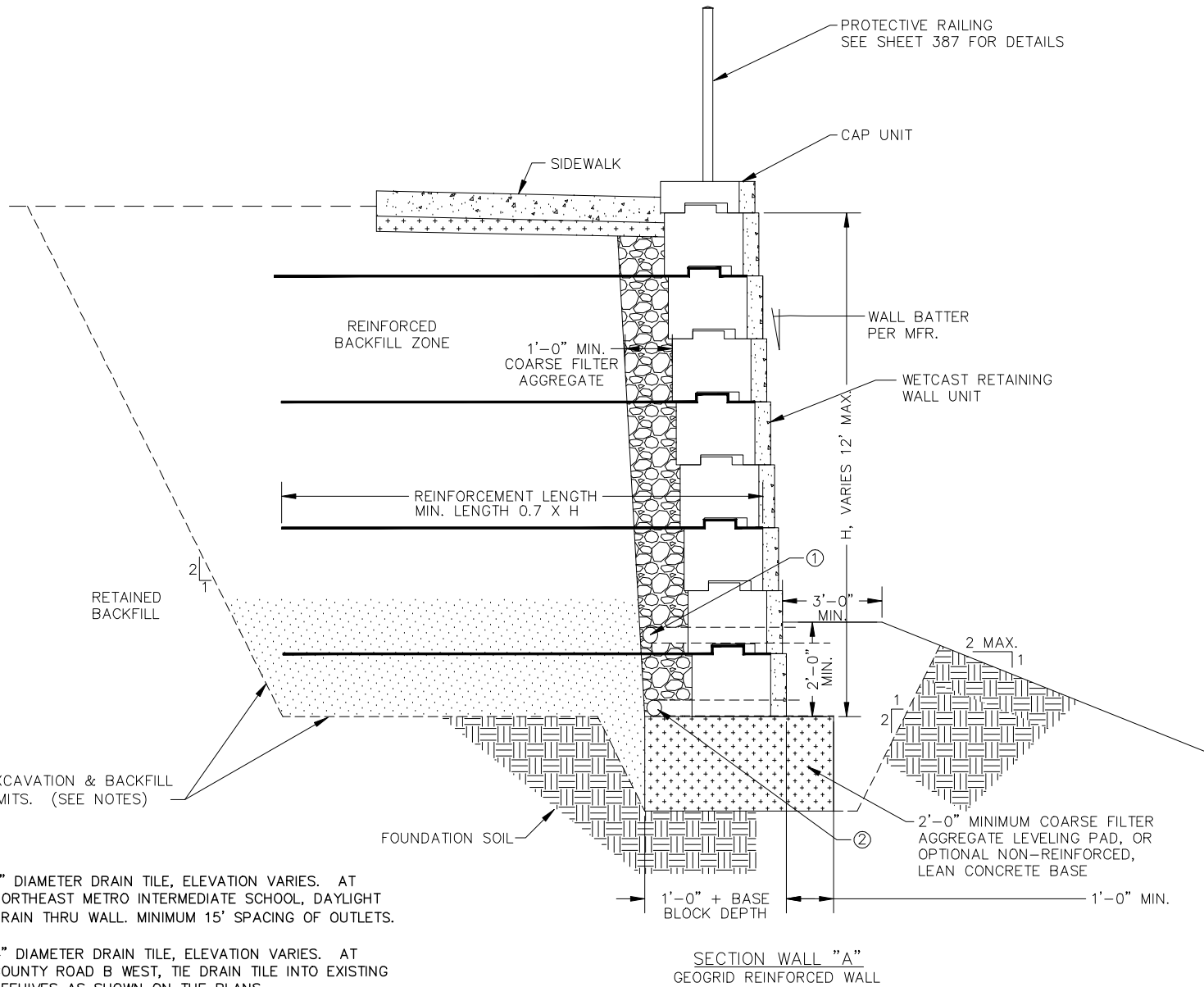
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 349N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL PLAN / PROFILES AND DETAIL	
FILE NO.	384
160599001	
RW5	
OF RW25	534

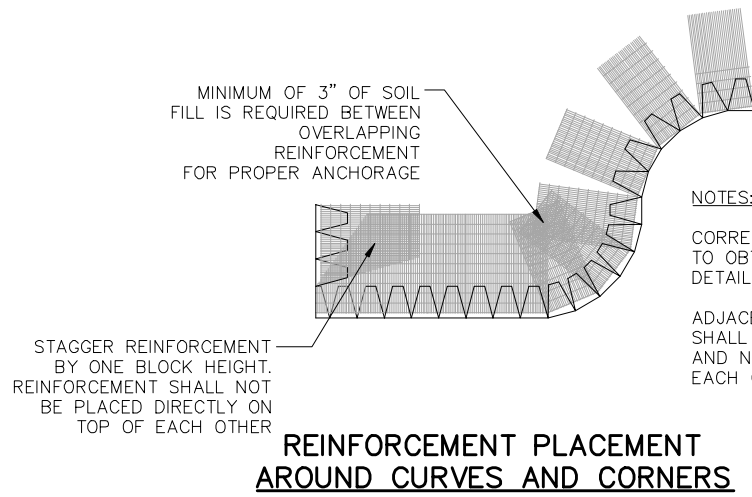
OFFICE BUILDING & TERRACE HEIGHTS

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN\WALL-SECT.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



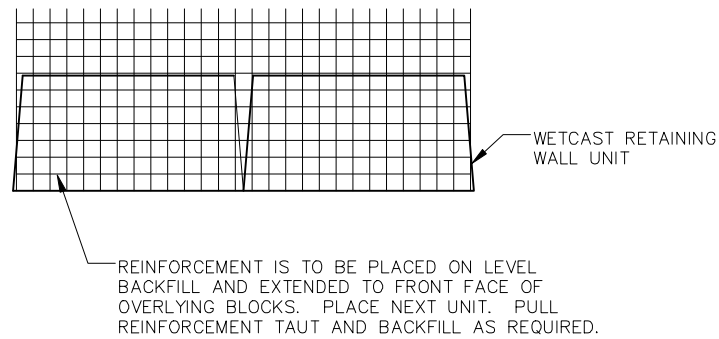
TYPICAL WETCAST WALL SECTION A-A

- ① 4" DIAMETER DRAIN TILE, ELEVATION VARIES. AT NORTHEAST METRO INTERMEDIATE SCHOOL, DAYLIGHT DRAIN THRU WALL. MINIMUM 15' SPACING OF OUTLETS.
- ② 4" DIAMETER DRAIN TILE, ELEVATION VARIES. AT COUNTY ROAD B WEST, TIE DRAIN TILE INTO EXISTING BEEHIVES AS SHOWN ON THE PLANS.



REINFORCEMENT PLACEMENT AROUND CURVES AND CORNERS

- NOTES:**
- CORRECT ORIENTATION OF GEOSYNTHETIC TO OBTAIN PROPER STRENGTH SHALL BE DETAILED ON CONTRACTOR DRAWINGS.
 - ADJACENT WIDTHS OF REINFORCEMENT SHALL BE EXTENDED AS NECESSARY AND NOT PLACED DIRECTLY ON TOP OF EACH OTHER.



REINFORCEMENT PLACEMENT BETWEEN BLOCK UNITS

DESIGN CRITERIA

- DESIGN CRITERIA FOLLOWS THE AASHTO SPECIFICATION FOR HIGHWAY BRIDGES (16TH EDITION WITH 1998 INTERIMS) EXCEPT FOR THE DEVIATIONS NOTED BELOW. DESIGN CRITERIA ARE IN ACCORDANCE WITH Mn/DOT POLICY, AS RECORDED IN THE Mn/DOT ROAD DESIGN MANUAL.
- A. THE MINIMUM REINFORCEMENT LENGTH IS 4 FT. OR 0.7H, WHICHEVER IS GREATER.
 - B. THE REINFORCEMENT FILL FRICTION ANGLE IS 35°.
 - C. THE ALLOWABLE CONNECTION LOAD, AT A GIVEN NORMAL LOAD, IS COMPUTED AS THE ULTIMATE CONNECTION STRENGTH REDUCED BY A SAFETY FACTOR EQUAL TO 2.0.
 - D. THE LATERAL EARTH PRESSURE COMPUTATION FOR EXTERNAL STABILITY CALCULATIONS USES AN INTERFACE ANGLE SET EQUAL TO THE RETAINED BACKFILL ANGLE.
 - E. THE LATERAL EARTH PRESSURE COMPUTATION FOR INTERNAL STABILITY CALCULATIONS INCORPORATES THE EFFECTS OF WALL FACE BATTER.

MINIMUM FACTORS OF SAFETY:
 OVERTURNING: 2.0
 SLIDING: 1.5
 ECCENTRICITY: $e < L/6$
 BEARING CAPACITY: 2.5
 DEEP SEATED STABILITY: 1.3

BEARING:
 A. USE 3000 PSF FOR ALLOWABLE SOIL BEARING PRESSURE.

- REINFORCED WALL FILL CHARACTERISTICS:
- A. SELECT GRANULAR BORROW MODIFIED FOLLOWING SPEC. 3149.2B2. MODIFICATION: SELECT GRANULAR BORROW MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE, SUCH THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: #200/1" RATIO)
 - B. INTERNAL ANGLE OF FRICTION (ϕ_r)=35°
 - C. COHESION (C)=0
 - D. MOIST UNIT WEIGHT (γ_r)=125 PSF

COARSE FILTER AGGREGATE CHARACTERISTICS:
 A. COARSE FILTER AGGREGATE TO MEET SPEC. 3149.2H. INCIDENTAL, NO DIRECT PAYMENT WILL BE MADE.

- RETAINED BACKFILL CHARACTERISTICS FOR COUNTY ROAD B WEST:
- A. INTERNAL ANGLE OF FRICTION (ϕ_r)=28°
 - B. COHESION (C)=0
 - C. MOIST UNIT WEIGHT (γ_b)=120 PCF

- FOUNDATION SOILS CHARACTERISTICS FOR COUNTY ROAD B WEST:
- A. INTERNAL ANGLE OF FRICTION (ϕ_r)=31°
 - B. COHESION (C)=0
 - C. MOIST UNIT WEIGHT (γ_b)=105 PCF

- RETAINED BACKFILL CHARACTERISTICS FOR NE METRO INTERMEDIATE SCHOOL:
- A. INTERNAL ANGLE OF FRICTION (ϕ_r)=30°
 - B. COHESION (C)=0
 - C. MOIST UNIT WEIGHT (γ_b)=120 PCF

- FOUNDATION SOILS CHARACTERISTICS FOR NE METRO INTERMEDIATE SCHOOL:
- A. INTERNAL ANGLE OF FRICTION (ϕ_r)=30°
 - B. COHESION (C)=0
 - C. MOIST UNIT WEIGHT (γ_b)=100 PCF

GENERAL NOTES

UTILITIES:
 EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION & BACKFILL LIMITS:
 PAY LIMITS FOR UNIT PRICE BID PROJECTS ARE SHOWN IN THE SECTIONS. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATIONS BEYOND THE SLOPES SHOWN ARE AT THE CONTRACTOR'S EXPENSE.

IN ADDITION TO THE EXCAVATION LIMITS SHOWN, RETAINING WALL RW-04 MAY REQUIRE A 3' SUBCUT. PRIOR TO SUBCUTTING, THE BASE OF THE EXCAVATION SHOULD BE EVALUATED BY A GEOTECHNICAL ENGINEER TO DETERMINE IF THE 3' RECOMMENDED SUBCUT DEPTH CAN BE REDUCED.

ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO Mn/DOT 2451.

CONSTRUCTION:
 CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT 2411. EXCEPT AS NOTED.

COMPACTION REQUIREMENTS:
 COMPACT REINFORCED WALL FILL IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.
 COMPACT GRANULAR BEDDING IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

NOTES TO THE CONTRACTOR:

- PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:
1. ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, WALL FACING LAYOUT, AND GEOMETRIC INFORMATION. MINIMIZE THE EXPOSED WALL SURFACE ON THE BACK FACE OF THE WALL.
 2. PLAN VIEW WITH BOTTOM AND TOP OF WALL ALIGNMENT, AND PLAN LIMITS OF WALL ALIGNMENT.
 3. CROSS SECTIONS DETAILING BATTER, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND WATER RUNOFF COLLECTION ABOVE WALL.
 4. REINFORCEMENT LAYOUT: REINFORCEMENT SHALL BE PLACED AT 100% COVERAGE RATIO. REINFORCEMENT ELEVATIONS SHALL BE CONSISTENT ACROSS LENGTH OF WALL STRUCTURE.
 5. NOTE BLOCK: REINFORCEMENT AND FILL PLACEMENT METHODS AND REQUIREMENTS.
 6. DETAIL ALL WALL FILL PENETRATIONS AND WALL FACE PENETRATIONS. DETAIL REINFORCEMENT AND/OR WALL FACING UNIT PLACEMENT AROUND PENETRATIONS.
 7. DETAILS THAT ARE SPECIFIC TO VENDOR PRODUCTS AND THEIR INTERACTION WITH OTHER PROJECT COMPONENTS.
 8. LIST INFORMATION ON APPROVED COMBINATION OF PRECAST BLOCK WALL UNIT AND GEOSYNTHETIC REINFORCEMENT. ON NOMINAL BLOCK WIDTH, PROPERTIES FOR FIELD IDENTIFICATION AND INSTALLATION INSTRUCTIONS.
 9. DETAILS OF CAP UNITS AND INSTALLATION INSTRUCTIONS FOR THE CAPS. CAP UNITS SHALL BE SET IN A BED OF ADHESIVE DESIGNED TO WITHSTAND MOISTURE AND TEMPERATURE EXTREMES, REMAIN FLEXIBLE, AND SHALL BE SPECIFICALLY FORMULATED FOR BONDING MASONRY TO MASONRY.
 10. DETAILS OF THE RAILING BASE PLATE CONNECTION TO THE CAP BLOCK, INCLUDING DETAILS FOR THE TYPE, SIZE, AND MANUFACTURER OF THE ADHESIVE ANCHOR.
 11. CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND SPECIFICATIONS.

DESIGN TEAM			
DRAWN BY:	RKM		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

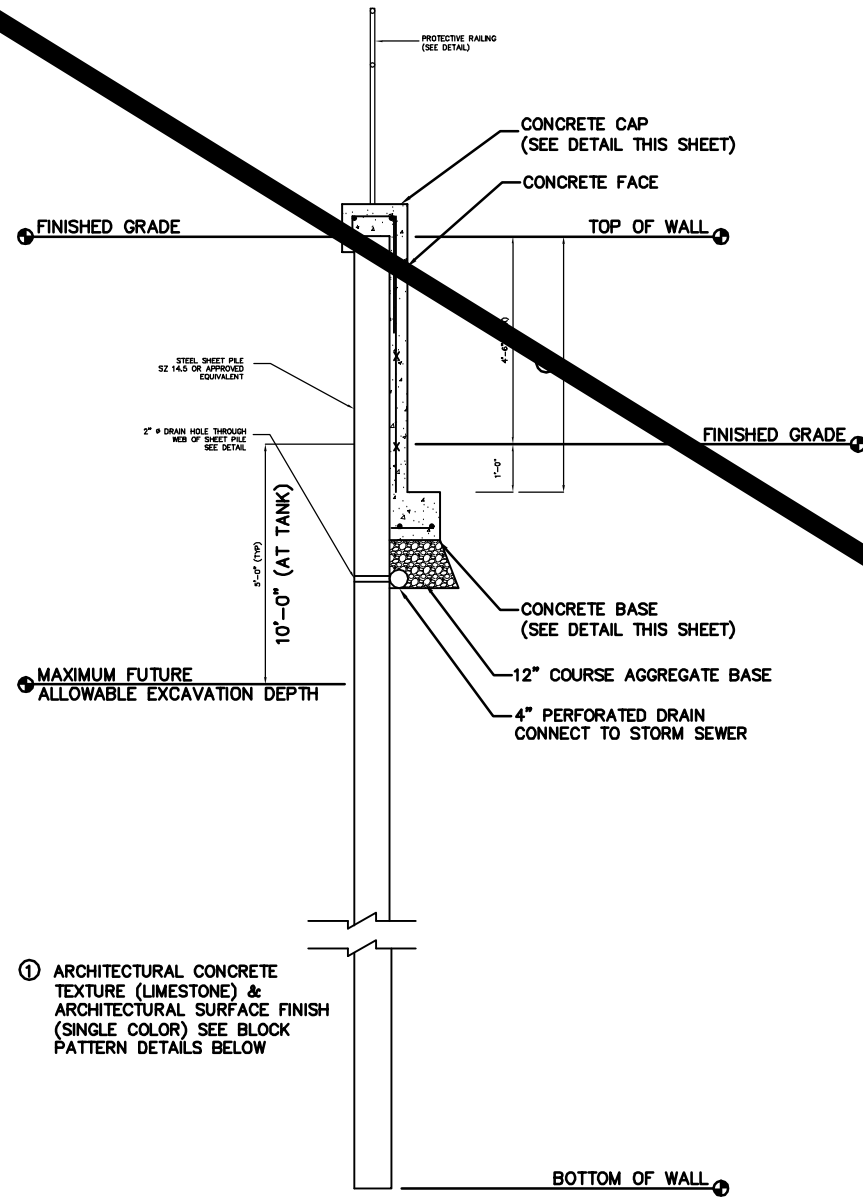
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *Sara L. Nelson* Lic. No. 42330
 Printed Name: SARA L. NELSON Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

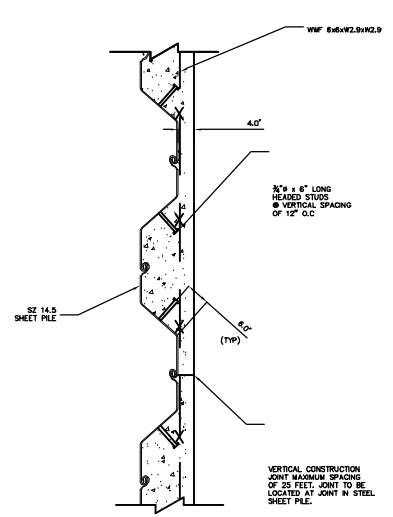
RETAINING WALL PLAN / PROFILE AND DETAIL		FILE NO. 385
GENERAL NOTES AND WETCAST SECTION		160599001
		RW6
		OF RW25
		534

K:\TWC\CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST_PLAN_RICE_DTL03.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

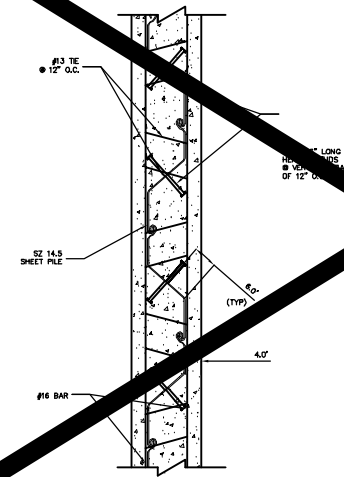


WALL SECTION
SCALE: 1/2"=1'-0"

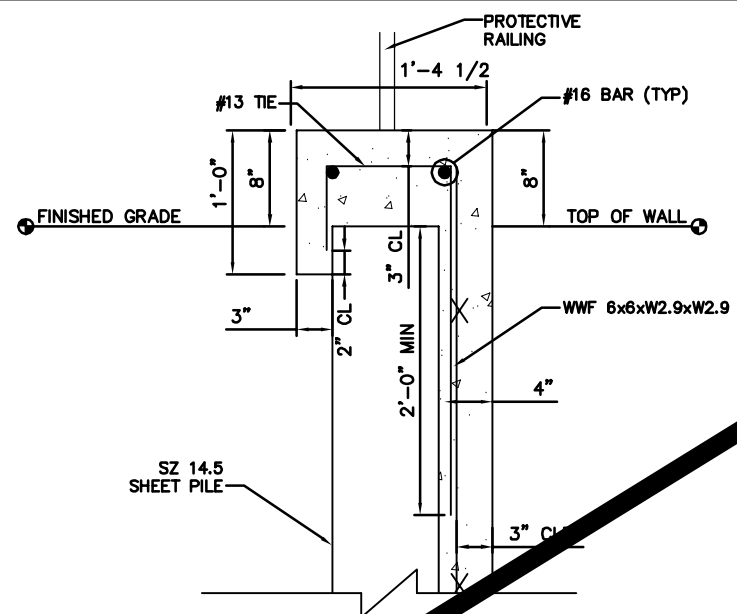
① ARCHITECTURAL CONCRETE TEXTURE (LIMESTONE) & ARCHITECTURAL SURFACE FINISH (SINGLE COLOR) SEE BLOCK PATTERN DETAILS BELOW



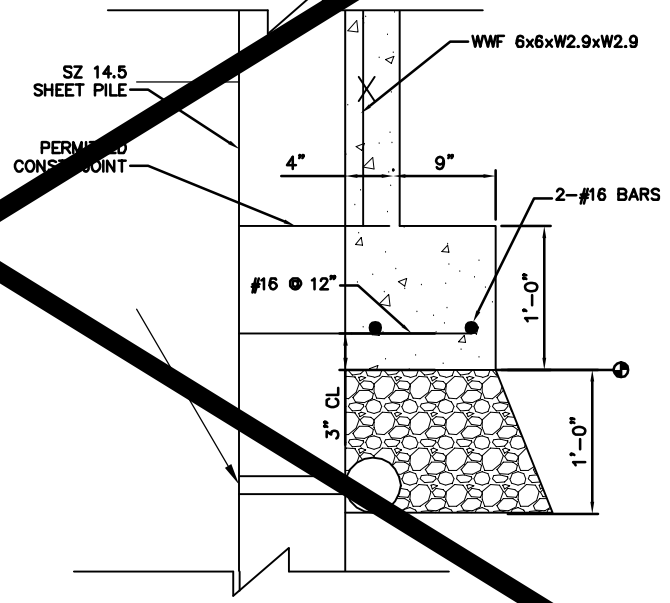
TYPICAL WALL SECTION
SCALE: 1/2"=1'-0"



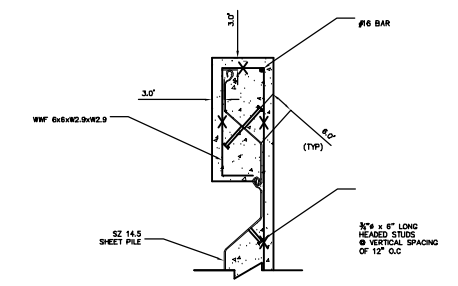
CAP SECTION
SCALE: 1/2"=1'-0"



CAP DETAIL
SCALE: 1 1/2"=1'-0"



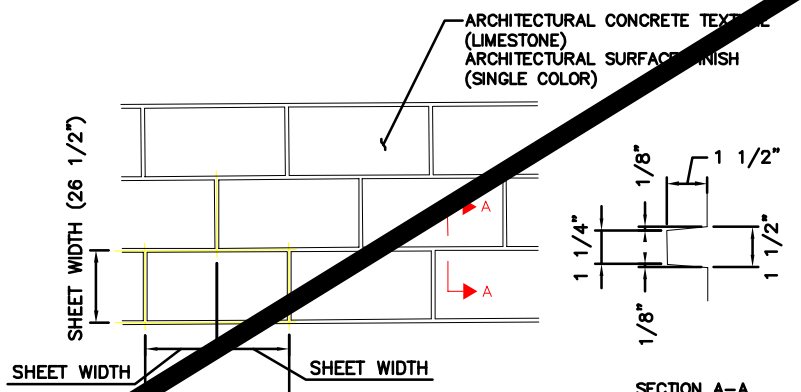
BASE DETAIL
SCALE: 1 1/2"=1'-0"



END WALL DETAIL
SCALE: 1/2"=1'-0"

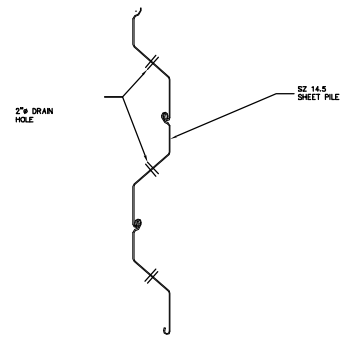
NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005 EDITION, UNLESS NOTED OTHERWISE.
2. STEEL SHEET PILING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572 GR. 50.
3. STEEL REINFORCING SHALL BE DEFORMED BILLET STEEL BARS CONFORMING TO THE REQUIREMENTS OF Mn/DOT SPEC 3301, GRADE 60 AND EPOXY COATED EXCEPT AS NOTED.
4. REINFORCING BAR SIZE DESIGNATIONS SHOWN ARE IN METRIC UNITS.
5. WELDED-WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF Mn/DOT SPEC 3303.
6. WELDED-WIRE-FABRIC (WWF) IS SHOWN IN ENGLISH UNITS AND SHALL BE SUPPLIED IN FLAT SHEETS ONLY. MINIMUM LAP LENGTH FOR WWF SHALL BE 1'-0"
7. STEEL REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST REVISION OF ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT"
8. MINIMUM LAP SPLICE LENGTH SHALL BE CLASS B TENSION SPLICES IN ACCORDANCE WITH ACI 318-05.
9. CAST-IN-PLACE CONCRETE SHALL CONFORM TO Mn/DOT MIX TYPE 3Y46
10. STEEL STUDS SHALL CONFORM TO THE REQUIREMENTS OF Mn/DOT SPEC. 3391.



BLOCK PATTERN DETAILS

LINE UP VERTICAL REVEALS WITH SHEET PILE WALL JOINTS



DRAIN HOLE DETAIL
SCALE: 1/2"=1'-0"

DESIGN TEAM				
DRAWN BY:	RJG			
DESIGNER:	RJG	6	BAE	4/21/2011
CHECKED BY:	BAE	4	BAE	10/12/2010
		NO.	BY	DATE
				REVISIONS

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.
 Certified By: *DAVID J. GOODMAN* Lic. No. 47323
 Printed Name: DAVID J. GOODMAN Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL
 PLAN / PROFILES AND DETAIL
 SHEET PILE DETAILS

FILE NO. 386
 160599001
 RW7
 OF RW25
 534

GENERAL NOTES:

UTILITIES:
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND BACKFILL LIMITS:
PAY ITEMS FOR UNIT PRICE BID PROJECTS ARE SHOWN IN THE SECTIONS. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS. EXCAVATIONS BEYOND THE SLOPES SHOWN ARE AT THE CONTRACTOR'S EXPENSE.

EXCAVATION AND EARTHWORK:
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO Mn/DOT 2452.

CONSTRUCTION:
CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT 2411, EXCEPT AS NOTED.

COMPACTION REQUIREMENTS:
COMPACT REINFORCED WALL FILL IN ACCORDANCE WITH Mn/DOT SPEC. 210R.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

COMPACT GRANULAR BEDDING IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

NOTES TO THE CONTRACTOR:

PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:

- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, WALL FACING LAYOUT, AND GEOMETRIC INFORMATION. TOP OF WALL MAY EXTEND UP TO 10" ABOVE PLAN TOP OF WALL ELEVATION.
- PLAN VIEW WITH BOTTOM AND TOP OF WALL ALIGNMENT, AND PLAN LIMITS OF WALL ALIGNMENT.
- CROSS SECTIONS DETAILING BATTER, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND WATER RUNOFF COLLECTION ABOVE WALL.
- REINFORCEMENT LAYOUT: REINFORCEMENT SHALL BE PLACED AT 100% COVERAGE RATIO. REINFORCEMENT ELEVATIONS SHALL BE CONSISTENT ACROSS LENGTH OF WALL STRUCTURE.
- NOTE BLOCK: REINFORCEMENT AND FILL PLACEMENT METHODS AND REQUIREMENTS.
- DETAIL ALL WALL FILL PENETRATIONS AND WALL FACE PENETRATIONS. DETAIL REINFORCEMENT AND/OR WALL FACING UNIT PLACEMENT AROUND PENETRATIONS.
- DETAILS THAT ARE SPECIFIC TO VENDOR PRODUCTS AND THEIR INTERACTION WITH OTHER PROJECT COMPONENTS.
- LIST INFORMATION ON APPROVED COMBINATIONS OF PRECAST BLOCK WALL UNIT AND GEOSYNTHETIC REINFORCEMENT. ON NOMINAL BLOCK WIDTH, PROPERTIES FOR FIELD IDENTIFICATION AND INSTALLATION INSTRUCTIONS.
- DETAILS OF CAP UNITS AND INSTALLATION INSTRUCTIONS FOR THE CAPS.
- DETAILS OF THE RAILING BASE PLATE CONNECTION TO THE CAP BLOCK, INCLUDING DETAILS FOR THE TYPE, SIZE, AND MANUFACTURER OF THE ADHESIVE ANCHOR.
- CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND SPECIFICATIONS.

DESIGN CRITERIA

DESIGN CRITERIA FOLLOWS THE AASHTO SPECIFICATION FOR HIGHWAY BRIDGES (16TH EDITION WITH 1998 INTERIMS) EXCEPT FOR THE DEVIATIONS NOTED BELOW. DESIGN CRITERIA ARE IN ACCORDANCE WITH Mn/DOT POLICY, AS RECORDED IN THE Mn/DOT ROAD DESIGN MANUAL.

- THE MINIMUM REINFORCEMENT LENGTH IS 4 FT. OR 0.7H, WHICHEVER GREATER.
- THE REINFORCEMENT FILL FRICTION ANGLE IS 35°.
- THE ALLOWABLE CONNECTION LOAD, AT A GIVEN NORMAL LOAD, IS COMPUTED AS THE ULTIMATE CONNECTION STRENGTH REDUCED BY A SAFETY FACTOR EQUAL TO 2.0.
- THE LATERAL EARTH PRESSURE COMPUTATION FOR EXTERNAL STABILITY CALCULATIONS USES AN INTERFACE ANGLE SET EQUAL TO THE RETAINED BACKFILL ANGLE.
- THE LATERAL EARTH PRESSURE COMPUTATION FOR INTERNAL STABILITY CALCULATIONS INCORPORATES THE EFFECTS OF WALL FACE BATTER.

MINIMUM FACTORS OF SAFETY:
OVERTURNING: 2.0
SLIDING: 1.5
ECCENTRICITY: $e < L/6$
BEARING CAPACITY: 2.5
DEEP SEATED STABILITY: 1.3

BEARING:
A. USE 2,000 PSF FOR ALLOWABLE SOIL BEARING PRESSURE.

REINFORCED WALL FILL CHARACTERISTICS:
A. SELECT GRANULAR BORROW MODIFIED FOLLOWING SPEC. 3149.2B2. MODIFICATION: SELECT GRANULAR BORROW MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE, SUCH THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: #200/1" RATIO)
B. INTERNAL ANGLE OF FRICTION (Φ_r) = 35°
C. COHESION (C) = 0
D. MOIST UNIT WEIGHT (γ_r) = 125 PSF

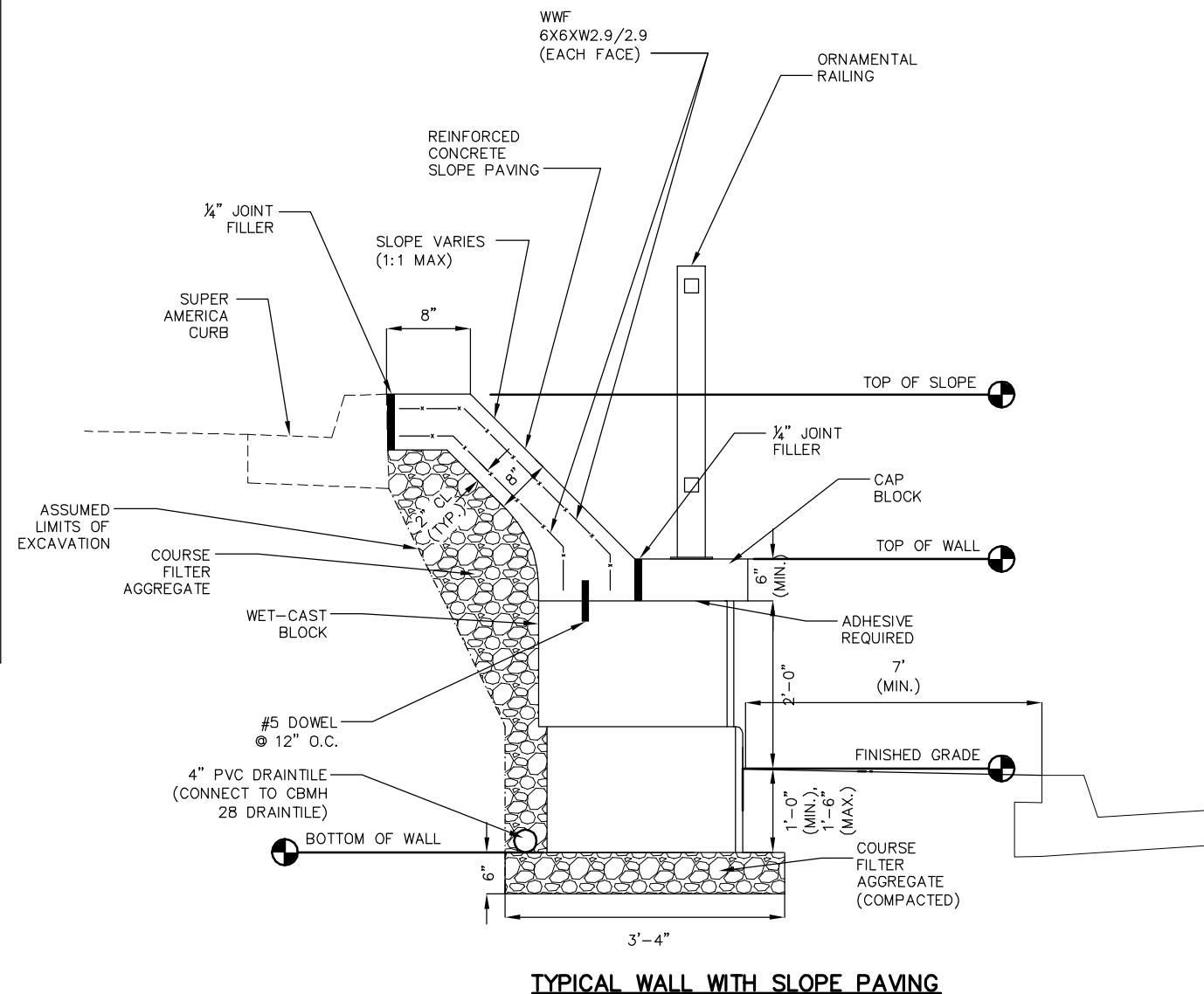
COARSE FILTER AGGREGATE CHARACTERISTICS:
A. COARSE FILTER AGGREGATE TO MEET SPEC. 3149.2H.

RETAINED BACKFILL CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_b) = 30°
B. COHESION (C) = 0
C. MOIST UNIT WEIGHT (γ_b) = 120 PSF

FOUNDATION SOILS CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_f) = 30°
B. COHESION (C) = 0
C. UNIT WEIGHT (γ_f) = 120 PSF

NOTES:

- CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005 EDITION, UNLESS NOTED OTHERWISE.
- WELDED-WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF Mn/DOT SPEC 3303.
- WELDED-WIRE-FABRIC (WWF) IS SHOWN IN ENGLISH UNITS AND SHALL BE SUPPLIED IN FLAT SHEETS ONLY. MINIMUM LAP LENGTH FOR WWF SHALL BE 1'-0"
- STEEL REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST REVISION OF ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT"
- CAST-IN-PLACE CONCRETE SHALL CONFORM TO Mn/DOT MIX TYPE 3Y46



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DESIGN TEAM				
DRAWN BY:	RJG			
DESIGNER:	RJG			
CHECKED BY:	BAE	BAE	4/21/2011	SOUTHBOUND RICE STREET REALIGNMENT / SA WALL REVISION
	NO.	BY	DATE	REVISIONS

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.
 Certified By: *David J. Goodman* Lic. No. 47323
 Printed Name: DAVID J. GOODMAN Date: 3/3/2010

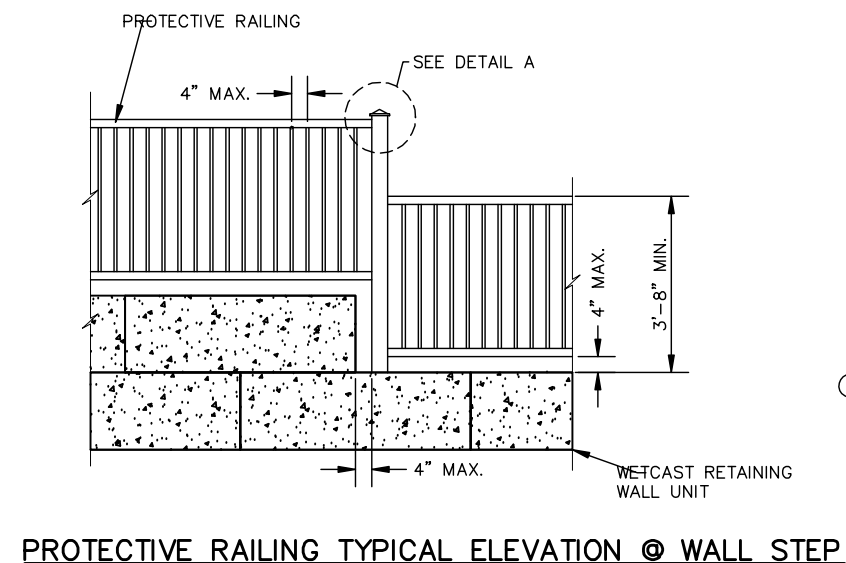
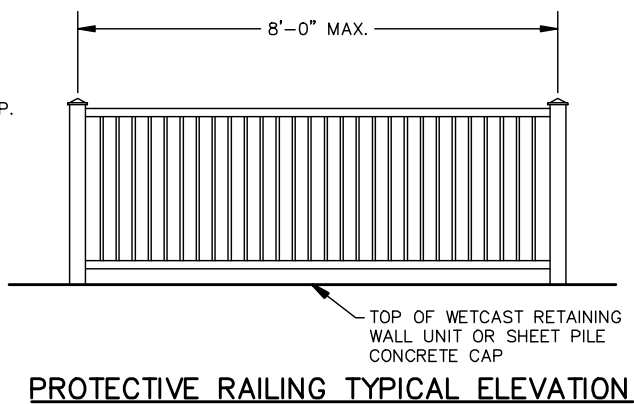
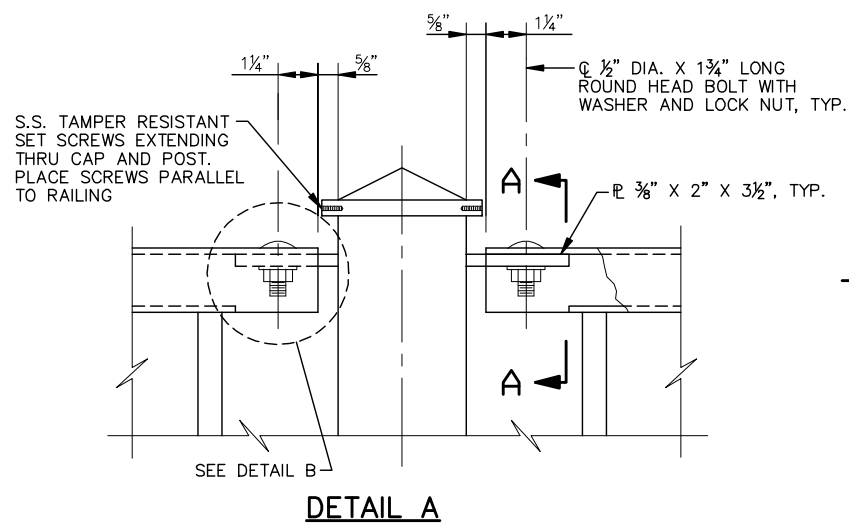
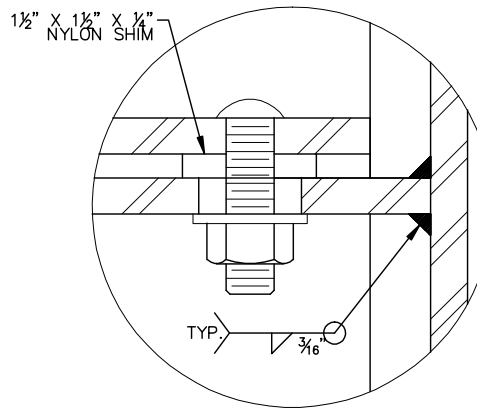
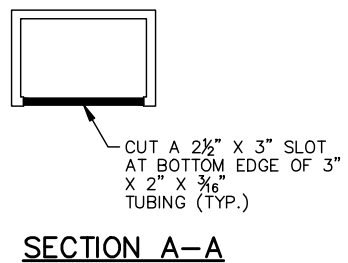
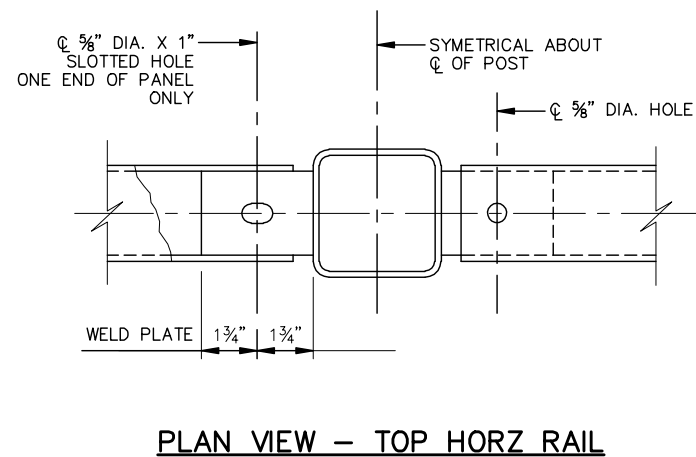
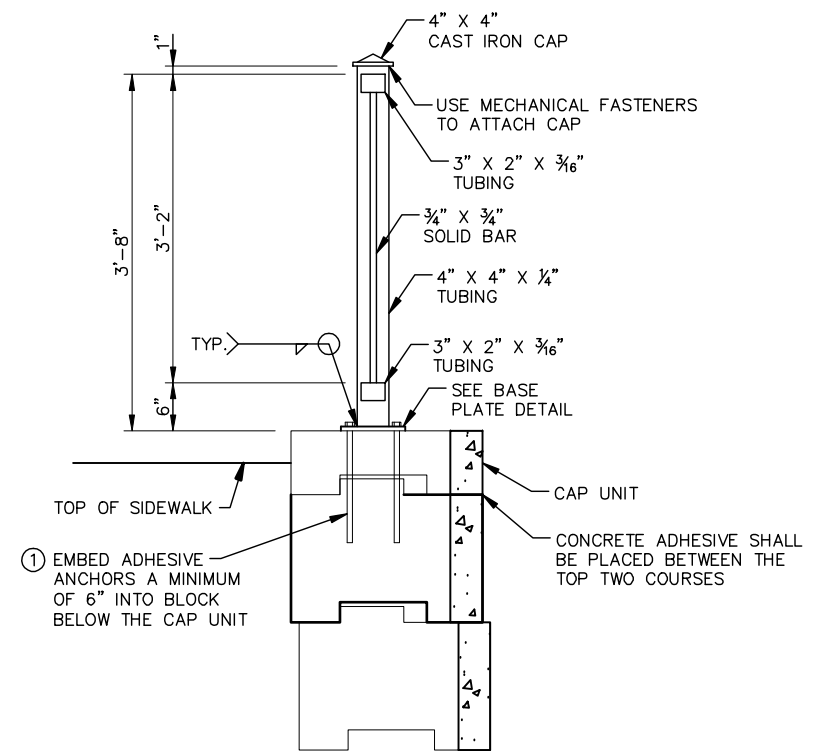
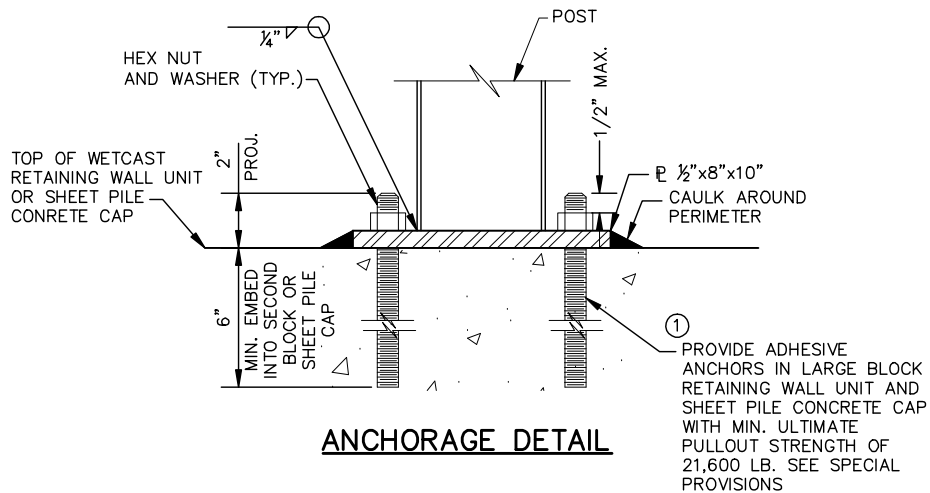
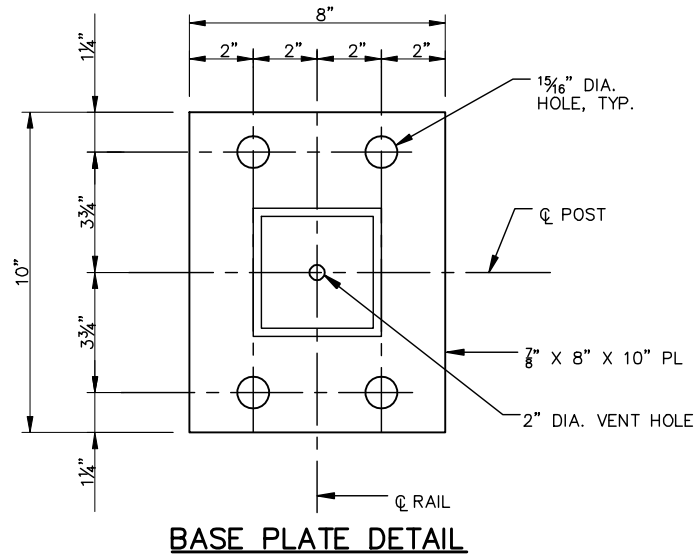
Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116

TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL
 PLAN / PROFILES AND DETAILS
 SLOPE PAVING AND RETAINING WALL

FILE NO. 160599001
 386A
 RW7A OF RW25
 534

K:\TWC_CIVIL\COUNTY\RAMSEY\TH36_FINAL\CADD\PLAN_SHEETS\CONST\PLAN\RIE_DTL05.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM



NOTES

- LENGTH OF RAILING FOR PAYMENT WILL BE MEASURED BETWEEN THE CENTERS OF THE END STEEL RAILPOSTS.
- STRUCTURAL STEEL TUBING IN THE RAILING SHALL BE A500, GRADE B. MATERIAL SHALL CONFORM TO SPEC. 3361. ALL OTHER STEEL SHALL CONFORM TO SPEC. 3306.
- MATERIAL FOR CONNECTION PLATES, BASE PLATES AND SPINDLES SHALL CONFORM TO SPEC. 3306.
- FASTENERS SHALL BE PER 3391 AND SHALL BE MECHANICALLY GALVANIZED PER ASTM B695 CLASS 50.
- VENT HOLES SHALL BE DRILLED IN THE RAIL POST BASE PLATES AND THE RAIL TUBES AS NECESSARY TO FACILITATE GALVANIZING.
- RAIL POSTS AND PICKETS SHALL BE VERTICAL.
- FOR RAIL COATING, SEE SPECIAL PROVISIONS.
- THE RAILING, BAS PLATES, AND PROTRUDING PORTIONS OF BOLTS, NUTS AND WASHERS, SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- RAILING SHALL BE GROUNDED WITH 5/8" DIA. COPPER ROD AS PER SPEC. 2557.
- ① ADHESIVE ANCHORAGE WITH 5/8" DIA. ANCHOR ROD SPEC. 3385. TYPE A WITH HEX NUT AND WASHER. MINIMUM ULTIMATE PULL-OUT STRENGTH OF ADHESIVE SHALL BE 21.6 KIPS WITH A 6" MINIMUM EMBEDMENT. SEE SPECIAL PROVISIONS.

DESIGN TEAM			
DRAWN BY:	RKM		
DESIGNER:	RJG		
CHECKED BY:	BAE		
NO.	BY	DATE	REVISIONS

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.
 Certified By: *Sara L. Nelson* Lic. No. 42330
 Licensed Professional Engineer
 Printed Name: SARA L. NELSON Date: 3/3/2010

Kimley-Horn and Associates, Inc.
 2550 UNIVERSITY AVE. WEST, SUITE 345N
 ST. PAUL, MINNESOTA 55114
 TEL. NO. (651) 645-4197
 FAX. NO. (651) 645-5116

RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL PLAN / PROFILES AND DETAIL		FILE NO.	387
PROTECTIVE RAILING DETAILS		160599001	
		RW8	534
		ORFW25	

GENERAL NOTES:

UTILITIES:
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND BACKFILL LIMITS:
PAY ITEMS FOR UNIT PRICE BID PROJECTS ARE SHOWN IN THE SECTIONS. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS. EXCAVATIONS BEYOND THE SLOPES SHOWN ARE AT THE CONTRACTOR'S EXPENSE.

EXCAVATION AND EARTHWORK:
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO Mn/DOT 2452.

CONSTRUCTION:
CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT 2411, EXCEPT AS NOTED.

COMPACTION REQUIREMENTS:
COMPACT REINFORCED WALL FILL IN ACCORDANCE WITH Mn/DOT SPEC. 210R.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

COMPACT GRANULAR BEDDING IN ACCORDANCE WITH Mn/DOT SPEC. 210S.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

NOTES TO THE CONTRACTOR:

PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:

- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, WALL FACING LAYOUT, AND GEOMETRIC INFORMATION. TOP OF WALL MAY EXTEND UP TO 10" ABOVE PLAN TOP OF WALL ELEVATION.
- PLAN VIEW WITH BOTTOM AND TOP OF WALL ALIGNMENT, AND PLAN LIMITS OF WALL ALIGNMENT.
- CROSS SECTIONS DETAILING BATTER, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND WATER RUNOFF COLLECTION ABOVE WALL.
- REINFORCEMENT LAYOUT: REINFORCEMENT SHALL BE PLACED AT 100% COVERAGE RATIO. REINFORCEMENT ELEVATIONS SHALL BE CONSISTENT ACROSS LENGTH OF WALL STRUCTURE.
- NOTE BLOCK: REINFORCEMENT AND FILL PLACEMENT METHODS AND REQUIREMENTS.
- DETAIL ALL WALL FILL PENETRATIONS AND WALL FACE PENETRATIONS. DETAIL REINFORCEMENT AND/OR WALL FACING UNIT PLACEMENT AROUND PENETRATIONS.
- DETAILS THAT ARE SPECIFIC TO VENDOR PRODUCTS AND THEIR INTERACTION WITH OTHER PROJECT COMPONENTS.
- LIST INFORMATION ON APPROVED COMBINATIONS OF PRECAST BLOCK WALL UNIT AND GEOSYNTHETIC REINFORCEMENT. ON NOMINAL BLOCK WIDTH, PROPERTIES FOR FIELD IDENTIFICATION AND INSTALLATION INSTRUCTIONS.
- DETAILS OF CAP UNITS AND INSTALLATION INSTRUCTIONS FOR THE CAPS.
- DETAILS OF THE RAILING BASE PLATE CONNECTION TO THE CAP BLOCK, INCLUDING DETAILS FOR THE TYPE, SIZE, AND MANUFACTURER OF THE ADHESIVE ANCHOR.
- CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND SPECIFICATIONS.

DESIGN CRITERIA

DESIGN CRITERIA FOLLOWS THE AASHTO SPECIFICATION FOR HIGHWAY BRIDGES (16TH EDITION WITH 1998 INTERIMS) EXCEPT FOR THE DEVIATIONS NOTED BELOW. DESIGN CRITERIA ARE IN ACCORDANCE WITH Mn/DOT POLICY, AS RECORDED IN THE Mn/DOT ROAD DESIGN MANUAL.

- THE MINIMUM REINFORCEMENT LENGTH IS 4 FT. OR 0.7H, WHICHEVER GREATER.
- THE REINFORCEMENT FILL FRICTION ANGLE IS 35°.
- THE ALLOWABLE CONNECTION LOAD, AT A GIVEN NORMAL LOAD, IS COMPUTED AS THE ULTIMATE CONNECTION STRENGTH REDUCED BY A SAFETY FACTOR EQUAL TO 2.0.
- THE LATERAL EARTH PRESSURE COMPUTATION FOR EXTERNAL STABILITY CALCULATIONS USES AN INTERFACE ANGLE SET EQUAL TO THE RETAINED BACKFILL ANGLE.
- THE LATERAL EARTH PRESSURE COMPUTATION FOR INTERNAL STABILITY CALCULATIONS INCORPORATES THE EFFECTS OF WALL FACE BATTER.

MINIMUM FACTORS OF SAFETY:
OVERTURNING: 2.0
SLIDING: 1.5
ECCENTRICITY: $e < L/6$
BEARING CAPACITY: 2.5
DEEP SEATED STABILITY: 1.3

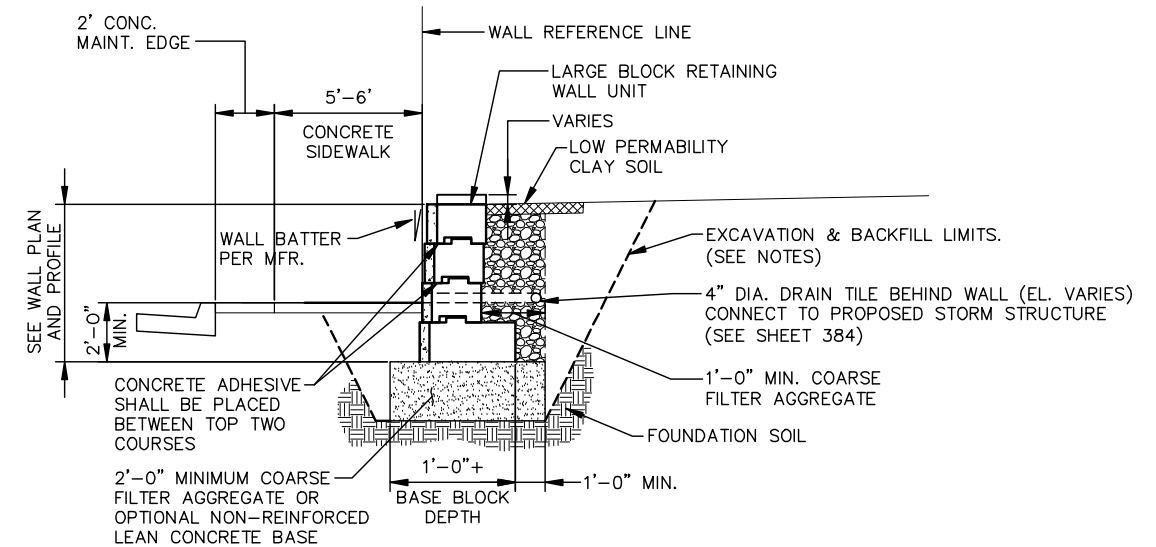
BEARING:
A. USE 2,000 PSF FOR ALLOWABLE SOIL BEARING PRESSURE.

REINFORCED WALL FILL CHARACTERISTICS:
A. SELECT GRANULAR BORROW MODIFIED FOLLOWING SPEC. 3149.2B2. MODIFICATION: SELECT GRANULAR BORROW MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE, SUCH THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: #200/1" RATIO)
B. INTERNAL ANGLE OF FRICTION (Φ_r) = 35°
C. COHESION (C) = 0
D. MOIST UNIT WEIGHT (γ_r) = 125 PSF

COARSE FILTER AGGREGATE CHARACTERISTICS:
A. COARSE FILTER AGGREGATE TO MEET SPEC. 3149.2H.

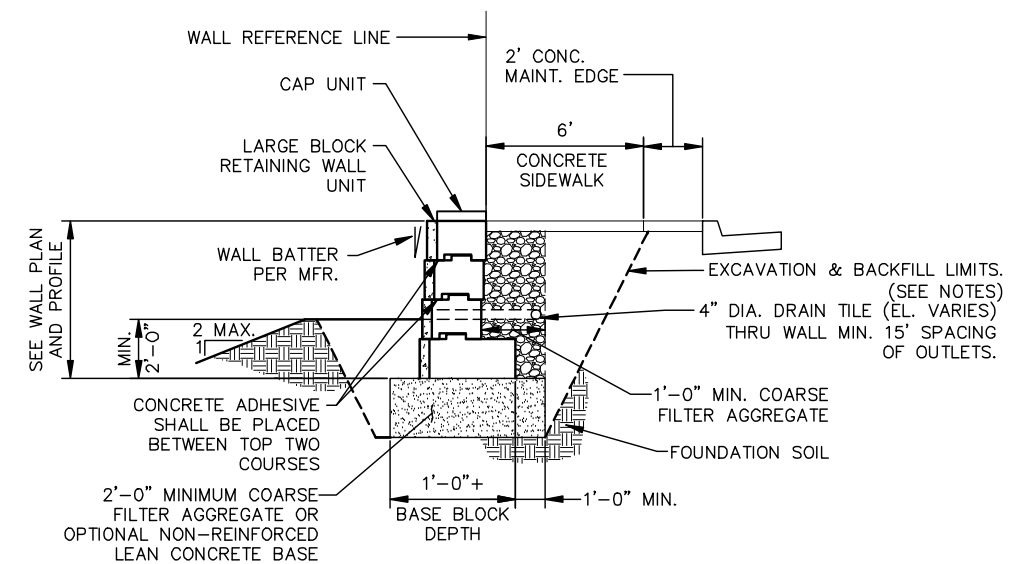
RETAINED BACKFILL CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_b) = 30°
B. COHESION (C) = 0
C. MOIST UNIT WEIGHT (γ_b) = 120 PSF

FOUNDATION SOILS CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_f) = 30°
B. COHESION (C) = 0
C. UNIT WEIGHT (γ_f) = 120 PSF



TYPICAL SECTION

OFFICE BUILDING AND TERRACE HEIGHTS WALLS



TYPICAL SECTION

McDONALD'S AND ARBY'S WALLS

K:\TWC_CIVIL\COUNTY\RAMSEY\ICE_Th36_FINAL\CADD\PLAN SHEETS\CONST\PLAN\ICE_DTL06.DWG PLOT DATE: Tuesday, February 24, 2009 6:16:09 AM

DESIGN TEAM				
DRAWN BY: RJG				
DESIGNER: RJG				
CHECKED BY: BAE				
NO.	BY	DATE	REVISIONS	

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.
Certified By: *Beth A. Engum* Lic. No. 47323
Printed Name: BETH A. ENGUM Date: 3/3/2010

Kimley-Horn and Associates, Inc.
2550 UNIVERSITY AVE. WEST, SUITE 349N ST. PAUL, MINNESOTA 55114
TEL. NO. (651) 645-4197 FAX. NO. (651) 645-5116

TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

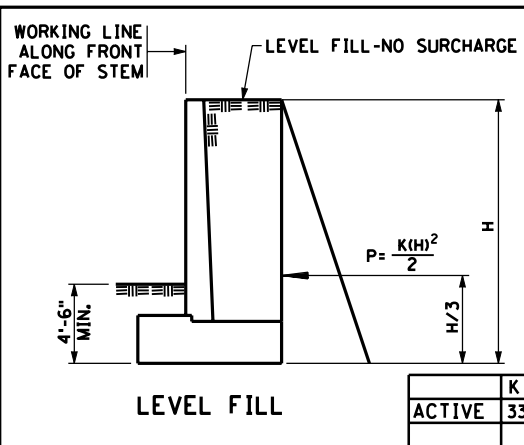
RETAINING WALL PLAN / PROFILES AND DETAIL	FILE NO. 388
DRY CAST MODULAR BLOCK	160599001
	RW9
	OF RW25
	534

3/30/07 PM

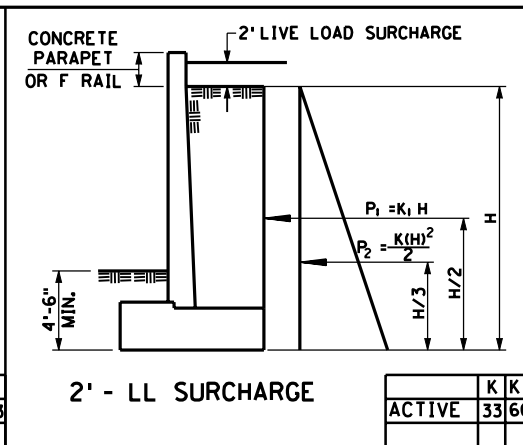
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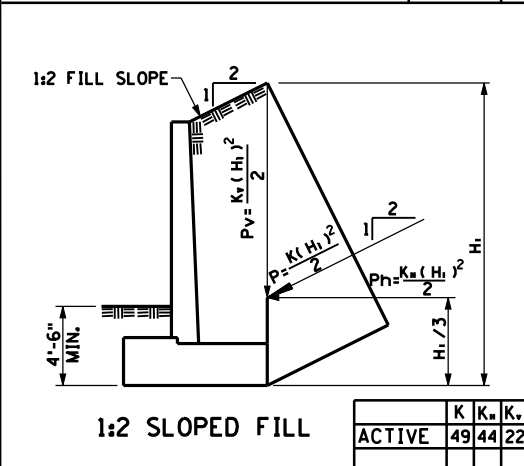
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LEVEL FILL	K
ACTIVE	33



2' - LL SURCHARGE	K	K ₁
ACTIVE	33	66



1:2 SLOPED FILL	K	K ₁	K ₂
ACTIVE	49	44	22

LOADING CASES

DESIGN CRITERIA

1992 AASHTO DESIGN SPECIFICATIONS
WORKING STRESS-STABILITY, FOUNDATIONS
LOAD FACTOR DESIGN-REINFORCED CONCRETE
f'_c=4000 PSI n=8
f_y =60000 PSI

SEE FOUNDATION REPORT FOR RECOMMENDED FOUNDATION TYPE.
ALLOWABLE BENDING (LATERAL LOAD) PER PILE:
60 TON CIP PILE: 13 KIPS
55 TON HP PILE: 12 KIPS
50 TON CIP PILE: 11 KIPS
30 TON TIMBER PILE: 7.5 KIPS

BACKFILL CHARACTERISTICS:
INTERNAL ANGLE OF FRICTION: 35°
EQUIVALENT FLUID PRESSURE (k), IN PCF, IS SHOWN IN LOADING CASE TABLES.
UNIT WEIGHT: 125 PCF
COEFFICIENT OF FRICTION: 0.55
β_e = 1.0

BAR LAP (CLASS C)

BAR SIZE	PLAIN (4)	EPOXY (4)
16	2'-5"	2'-11"
19	2'-11"	3'-10"
22	3'-8"	4'-11"
25	4'-10"	6'-5"
29	6'-1"	8'-1"

BAR LAP (CLASS A)

BAR SIZE	EPOXY (4)
16	1'-11"
19	2'-3"
22	2'-11"
25	3'-9"
29	4'-9"

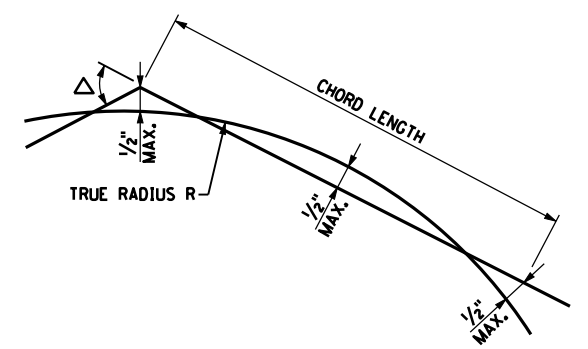
AC SUMMARY OF QUANTITIES FOR RETAINING WALLS

PANEL	STRUCTURAL CONCRETE		REINFORCEMENT BARS		ANTI GRAFFITI COATING	ARCH. CONC. TEXTURE (WEATHERED LIMESTONE)	ARCH. SURFACE FINISH (SINGLE COLOR)	CONCRETE BARRIER (TYPE MOD.F TF-4)	CIP CONC. PILING DRIVEN 12"	CIP CONC. PILING DELIVERED 12"
	FOOTING	STEM	PLAIN	EPOXY						
	CU YD	CU YD	POUND	POUND						
1A	17.8	17.8	1087.0	2282.0	282.6	282.6	282.6	24.5	275	275
1B	20.7	24.1	2305.0	3172.0	111.1	111.1	111.1	20.0	380	380
2A	18.6	20.2	1295.0	2426.0	244.5	244.5	244.5	24.0	343	343
2B	19.6	23.2	2489.0	3051.0	82.1	82.1	82.1	18.0	380	380
3A	21.0	25.3	2550.0	3519.0	222.5	222.5	222.5	18.0	381	381
3B	21.1	24.0	1451.0	2889.0	132.8	132.8	132.8	24.0	345	345
4A	35.1	41.4	3476.0	5511.0	502.5	502.5	502.5	30.0	697	697
4B	29.6	35.0	3052.0	3915.0	375.0	375.0	375.0	30.0	530	530
4C	23.3	24.5	1998.0	3915.0	202.5	202.5	202.5	30.0	428	428
4D	6.8	6.4	369.0	1109.0	37.1	37.1	37.1	14.0	153	153
5A	26.9	29.5	1832.0	3487.0	458.7	458.7	458.7	30.5	355	355
5B	16.4	19.7	2156.0	2843.0	106.2	106.2	106.2	14.0	323	323
6A	35.7	41.8	2911.0	5578.0	263.5	263.5	263.5	30.5	552	552
7A	30.0	35.6	2552.0	3996.0	233.9	233.9	233.9	30.5	390	390
8A	28.5	33.1	2209.0	3761.0	251.0	251.0	251.0	30.5	342	342
TOTALS	351	402	31732	51454	3506	3506	3506	369	5876	5876

- #### NOTES:
- ① MODIFIED TO LESS THAN 10% PASSING A NO. 200 SIEVE. SPEC. 3149.2B.
 - ② COMPACT TO 100% DENSITY IN ACCORDANCE WITH SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.
 - ③ LIMITING CRITERIA.
 - ④ LAPS ARE GIVEN FOR THE TOP BAR CONDITION.
 - ⑤ CURVED FORMS MAY BE USED FOR ANY WALL WITH A RADIUS, BUT MUST BE USED ON WALLS WITH RADIUS LESS THAN 23 FEET.
 - ⑥ DOWELED JOINTS/CONSTRUCTION JOINTS ARE SHOWN ON STANDARD PLAN 5-297.624 (3 OF 3). THESE JOINTS ARE INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.
 - ⑦ DOWELED JOINT/CONSTRUCTION JOINT QUANTITIES ARE NOT INCLUDED.
 - ⑧ QUANTITIES FOR THE FOUNDATION WITH AGGREGATE BACKFILL OPTION ONLY.
 - ⑨ INCLUDES CONCRETE BARRIER TYPE F REINFORCEMENT.

CURVED RETAINING WALLS ALLOWABLE CHORD LENGTH (5)

MAXIMUM DEGREE OF CURVE	RADIUS	ALLOWABLE CHORD LENGTH	DEVIATION FROM TRUE RADIUS	MAXIMUM DEFLECTION ANGLE Δ
4°-00'	1432'	30'-6"	± 1/2" (3)	1°-15'
8°-00'	716'	21'-10"	± 1/2" (3)	1°-45'
16°-30'	347'	15'-3"	± 1/2" (3)	2°-30'
23°-00'	249'	12'-11"	± 1/2" (3)	2°-57'
65°-30'	87'	7'-7 1/2"	± 1/2"	5°-00' (3)
114°-30'	50'	4'-4 3/8"	± 1/4"	5°-00' (3)
250°-00'	23'	2'-0"	± 1/8"	5°-00' (3)



GENERAL NOTES:

UTILITIES:
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO SPEC. 2451.

CONCRETE:
ALL CONCRETE SHALL CONFORM TO SPEC. 2461.

TRANSVERSE CONSTRUCTION JOINTS IN FOOTING ARE PERMISSIBLE. KEYWAYS AND CONTINUOUS REINFORCEMENT ARE REQUIRED THROUGH THESE JOINTS.

THE THICKNESS OF THE ARCHITECTURAL CONCRETE TEXTURE VARIES WITH THE TEXTURE RELIEF. THE STRUCTURAL CONCRETE 3Y43 QUANTITIES DO NOT INCLUDE THE MATERIAL WITHIN THE ARCHITECTURAL CONCRETE TEXTURE. CONCRETE NEEDED FOR THE TEXTURING IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. SEE SPECIAL PROVISIONS 2411.

POURING SEQUENCE:
THE POURING SEQUENCE SHALL BE AT THE CONTRACTOR'S OPTION BUT MUST BE SUBMITTED (WITH ADEQUATE APPROVAL TIME) TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING THE FIRST POUR.

CONSTRUCTION:
CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPEC. 2411, EXCEPT AS NOTED.

REINFORCING STEEL:
REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS CONFORMING TO SPEC. 3301, GRADE 60 AND EPOXY COATED EXCEPT AS NOTED.

THE CLEAR DISTANCE BETWEEN REINFORCEMENT BARS AND FACE OF CONCRETE SHALL BE 3 INCHES IN FOOTINGS, 5 INCHES IN BOTTOM OF SPREAD FOOTINGS, 2 INCHES ON ARCHITECTURAL CONCRETE TEXTURE, AND 2 INCHES ELSEWHERE UNLESS OTHERWISE NOTED.

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR NUMBER WHICH APPROXIMATES THE NOMINAL DIAMETER OF THE BAR IN MILLIMETERS (mm).

ALL BENT BAR DIMENSIONS ARE GIVEN OUT-TO-OUT.
BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED. ALL BARS WHICH COME OUT OF THE FOOTING AND ALL BARS WHICH ARE ABOVE THE FOOTING SHALL BE EPOXY COATED.

THE CONTRACTOR HAS THE OPTION OF SUBSTITUTING 60'-0" LONG BARS FOR THE LONGITUDINAL FOOTING STEEL SHOWN. CHANGES IN THE BILL OF REINFORCEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT WILL BE BASED ON QUANTITIES SHOWN.

THE CONSTRUCTION JOINT FOR CONCRETE RAIL MAY BE LOCATED AT TOP OR BOTTOM OF COPE, AT THE CONTRACTOR'S OPTION. PAYMENT WILL BE BASED ON QUANTITIES SHOWN, WHICH IS BASED ON CONSTRUCTION JOINT ABOVE COPE.

FOR VARIABLE STEM HEIGHTS, VARY THE LAP LENGTH OF THE VERTICAL REINFORCEMENT. MINIMUM LAP LENGTHS ARE GIVEN IN THE TABLE ON THIS SHEET. SMALLER BAR GOVERNS LAP LENGTH.

DOWEL BAR ASSEMBLIES:
DOWELED JOINTS/CONSTRUCTION JOINTS ARE SHOWN ON STANDARD PLAN 5-297.624 (3 OF 3). THESE JOINTS ARE INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.

CONSTRUCTION JOINTS MAY BE SUBSTITUTED FOR SOME OF THE CORK & DOWEL JOINTS AT THE CONTRACTOR'S OPTION. CORK & DOWEL JOINTS MUST BE SPACED AT 91'-6" MAXIMUM.

CORK & DOWEL JOINTS MUST BE USED IN VERTICAL JOINTS AT FOOTING STEP LOCATIONS.

GEOMETRICS AND GRADES:
DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL.

ON UP TO 10% SLOPES, THE CONTRACTOR HAS THE OPTION OF POURING FOOTINGS SLOPED OR STEPPED. ADDITIONAL CONCRETE VOLUMES AND CHANGES TO THE BILL OF REINFORCEMENT WHICH MAY RESULT FROM CONTRACTOR REQUESTED OPTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE MADE.

QUANTITIES ARE BASED ON ASSUMED TOP OF ROCK ELEVATION. ACTUAL TOP OF ROCK TO BE DETERMINED BY ENGINEER.

REVISED:
APPROVED: MAY 31, 2006
Nathan C. Klopp
STATE BRIDGE ENGINEER

DESIGN TEAM				
DRAWN BY:	MAW			
DESIGNER:	MAW			
CHECKED BY:	NCK			
NO.	BY	DATE	REVISIONS	

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.
Certified By: *Nathan C. Klopp* Lic. No. 43836
Printed Name: NATHAN C. KLOPP Date: 3/3/2010



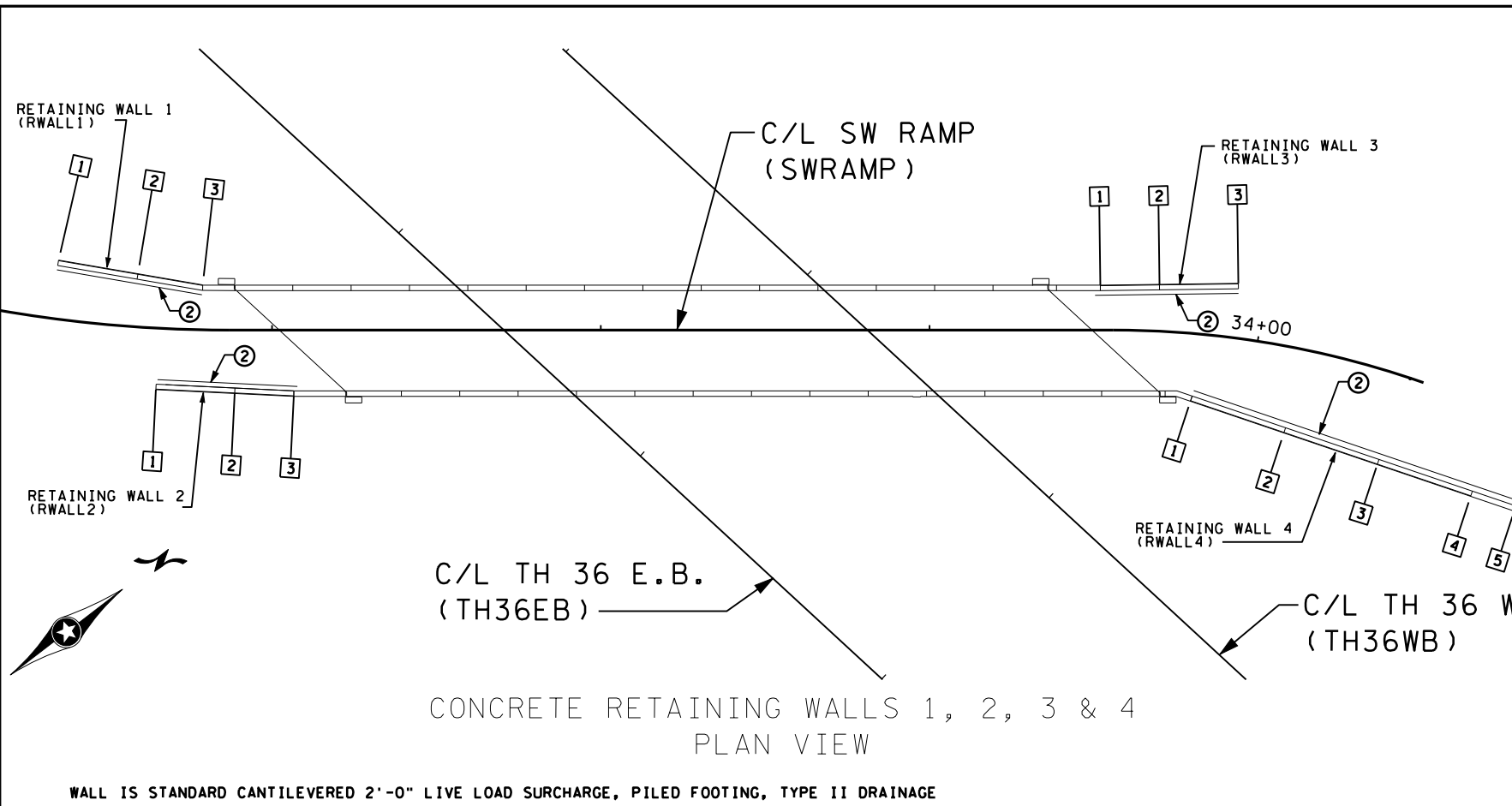
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL GENERAL NOTES AND SUMMARY OF QUANTITIES
FILE NO. 389
RAMSP108790
RW10 OF RW25
534

STANDARD SHEET NO. 5-297.620
STANDARD APPROVED: MAY 31, 2006
MODIFIED

3/3/2010 PM

5/6/2010

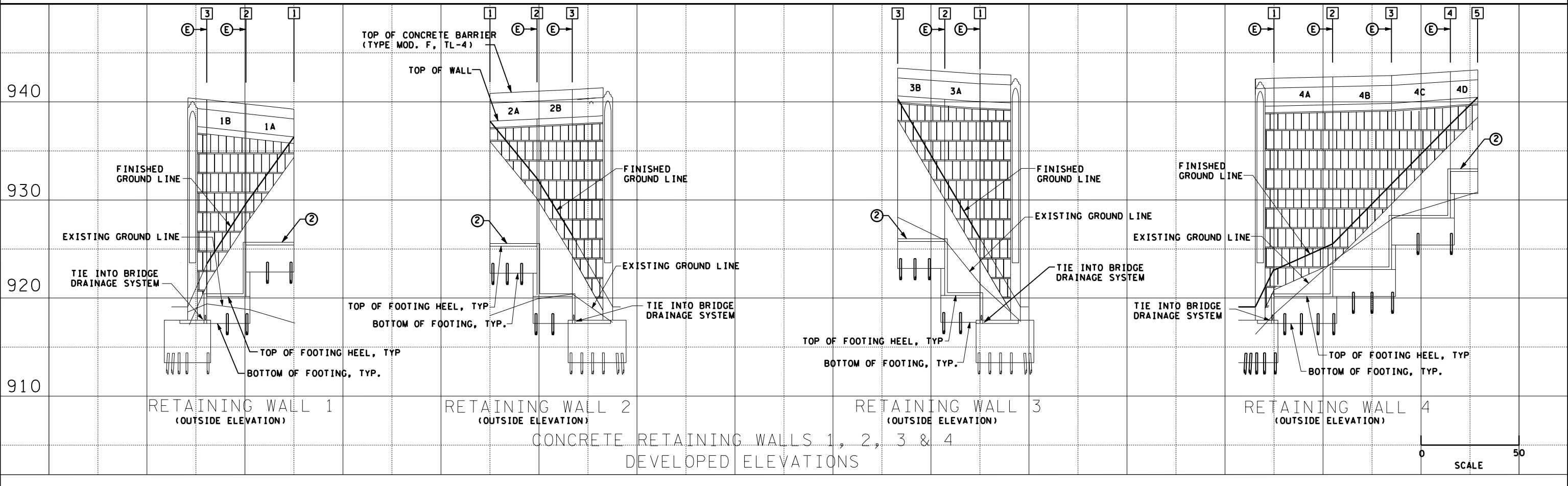


JOINT NO	STATION	X	Y	GROUND ELEVATION	TOP OF WALL	TOP OF BARRIER	WALL HEIGHT (FT)	TOP OF FOOTING HEEL	BOTTOM OF FOOTING	PANEL LENGTH	PANEL NAME
RETAINING WALL 1											
1	1+0.00	571123.049	178939.583	923.48	936.23	938.06	10.83	925.40	922.65		
2	1+24.50	571143.529	178953.029	929.63	936.88	938.71	11.48	925.40	922.65	24.50	1A
3	1+44.50	571160.248	178964.006	936.42	937.39	939.22	17.24	920.15	917.40	20.00	1B
RETAINING WALL 2											
1	2+0.00	571171.370	178931.239	926.38	938.03	939.86	12.76	925.27	922.52		
2	2+24.00	571189.670	178946.733	932.19	938.22	940.05	12.95	925.27	922.52	24.00	2A
3	2+42.00	571203.407	178958.370	938.03	938.42	940.25	18.27	920.15	917.40	18.00	2B
RETAINING WALL 3											
1	3+0.00	571359.843	179150.322	926.07	940.03	941.86	19.77	920.26	917.51		
2	3+18.00	571372.821	179162.770	932.17	940.21	942.04	19.95	920.26	917.51	18.00	3A
3	3+42.00	571390.142	179179.382	940.30	940.61	942.44	14.86	925.75	923.00	24.00	3B
RETAINING WALL 4											
1	4+0.00	571403.794	179143.489	922.84	939.57	941.40	19.42	920.15	917.40		
2	4+30.00	571431.136	179155.836	925.55	939.73	941.56	19.58	920.15	917.40	30.00	4A
3	4+60.00	571458.477	179168.183	931.63	939.86	941.69	16.96	922.90	920.15	30.00	4B
4	4+90.00	571485.818	179180.530	937.72	940.32	942.15	12.17	928.15	925.40	30.00	4C
5	5+4.00	571498.578	179186.292	940.50	940.54	942.37	7.64	932.90	930.65	14.00	4D

CONCRETE RETAINING WALLS 1, 2, 3 & 4
PLAN VIEW

WALL IS STANDARD CANTILEVERED 2'-0" LIVE LOAD SURCHARGE, PILED FOOTING, TYPE II DRAINAGE

- ① 4" DIA PERF DRAIN PIPE. CONNECT TO ABUTMENT DRAINAGE SYSTEM.
- ② 4" DIA PERF DRAIN PIPE TYPE II. SEE RETAINING WALL DETAILS.
- ③ SEE PILE LAYOUT PLAN ON SHEET RWx.
- ⓔ DENOTES WALL EXPANSION JOINT LOCATIONS (CORK AND DOWEL JOINTS).



kerickson

S:\PT\RV\Ramsp\108790\plans\retwalls\ramsp108790_r_w.dgn
RW1-4

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MAW				
DESIGNER: MAW				
CHECKED BY:				

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.
 Certified By: *Nathan C. Klapp* (P.E. No. 43836)
 Licensed Professional Engineer
 Printed Name: NATHAN C. KLOPP Date: 3/3/2010



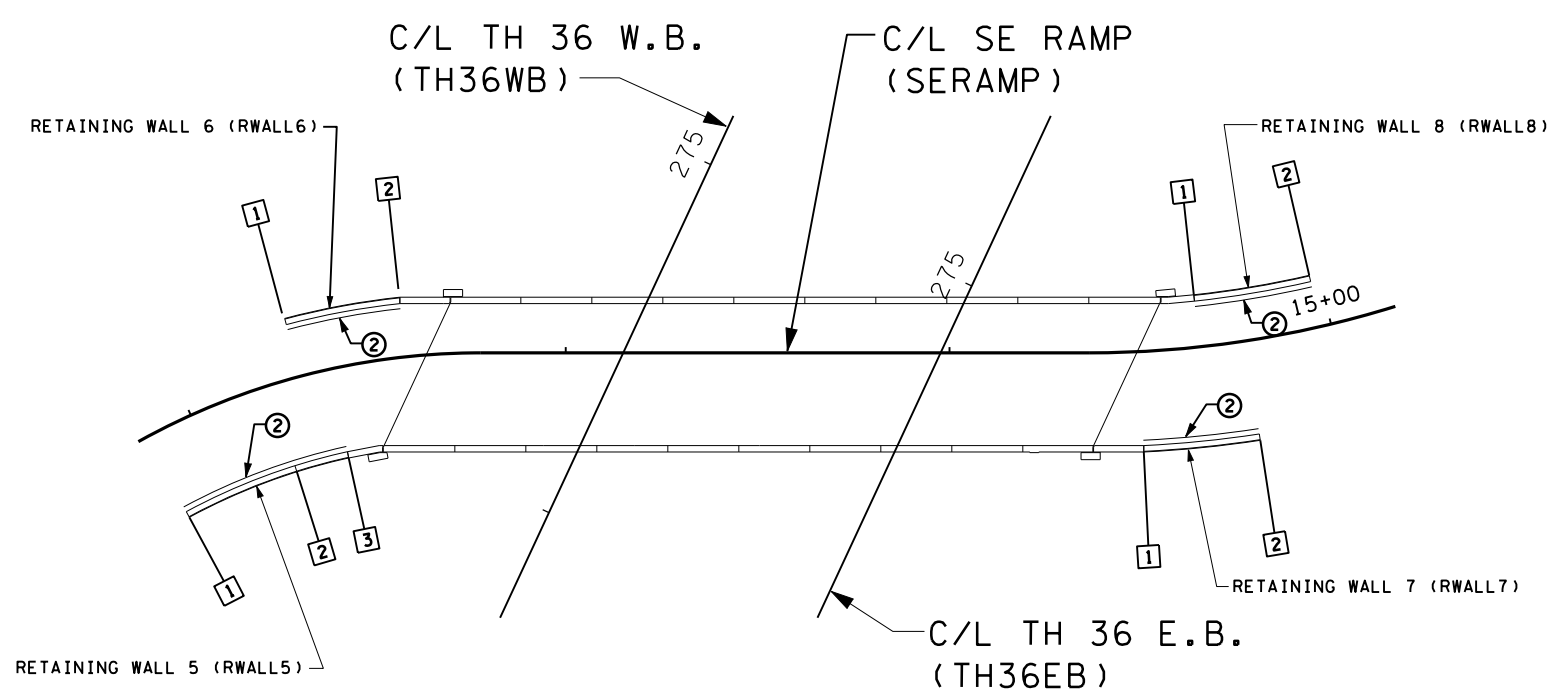
RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL PLANS
 WALLS 1 TO 4

FILE NO.	390
RAMSP108790	
RW11	
OF RW25	534

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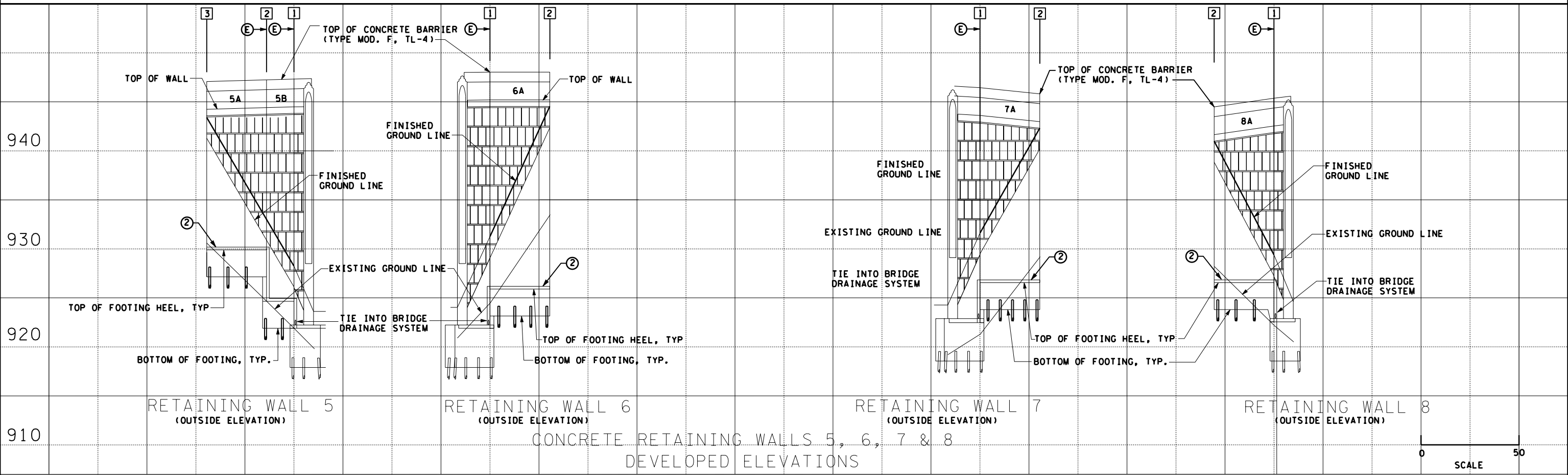


JOINT NO	STATION	X	Y	GROUND ELEVATION	TOP OF WALL	TOP OF BARRIER	WALL HEIGHT (FT)	TOP OF FOOTING HEEL	BOTTOM OF FOOTING	PANEL LENGTH	PANEL NAME
RETAINING WALL 5											
1	5+0.00	571951.483	179180.438	928.24	944.26	946.09	14.36	929.90	927.15		
2	5+30.50	571974.189	179160.143	933.01	944.45	946.28	14.55	929.90	927.15	30.50	5A
3	5+44.50	571983.216	179149.447	943.40	944.50	946.33	19.85	924.65	921.90	14.00	5B
RETAINING WALL 6											
1	6+0.00	572008.715	179179.840	931.26	945.20	947.03	19.30	925.90	923.15		
2	6+30.50	572026.508	179155.101	944.53	945.22	947.05	19.32	925.90	923.15	30.50	6A
RETAINING WALL 7											
1	7+0.00	572073.079	178962.725	931.61	943.62	945.45	17.07	926.55	923.80		
2	7+30.50	572088.783	178936.595	942.31	942.98	944.81	16.43	926.55	923.80	30.50	7A
RETAINING WALL 8											
1	8+0.00	572115.394	178968.263	929.39	942.53	944.36	15.98	926.55	923.80		
2	8+30.50	572132.822	178943.213	941.00	941.65	943.48	15.10	926.55	923.80	30.50	8A

CONCRETE RETAINING WALLS 5, 6, 7 & 8
PLAN VIEW

- ① 4" DIA PERF DRAIN PIPE. CONNECT TO ABUTMENT DRAINAGE SYSTEM.
- ② 4" DIA PERF DRAIN PIPE TYPE II. SEE RETAINING WALL DETAILS.
- ③ SEE PILE LAYOUT PLAN ON SHEET RWx.
- (E) DENOTES WALL EXPANSION JOINT LOCATIONS (CORK AND DOWEL JOINTS).

WALL IS STANDARD CANTILEVERED 2'-0" LIVE LOAD SURCHARGE, PILED FOOTING, TYPE II DRAINAGE



kerickson

S:\PT\RW\ramsp\108790\p\shnt\svet\walls\ramsp\108790_r_w.dgn
RW5-6

DESIGN TEAM				REVISIONS			
DRAWN BY:	MAW			NO.	BY	DATE	
DESIGNER:	MAW						
CHECKED BY:							

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.
Certified By: *Nathan C. Klopp* Lic. No. 43836
Printed Name: NATHAN C. KLOPP Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL PLANS
WALLS 5 TO 8

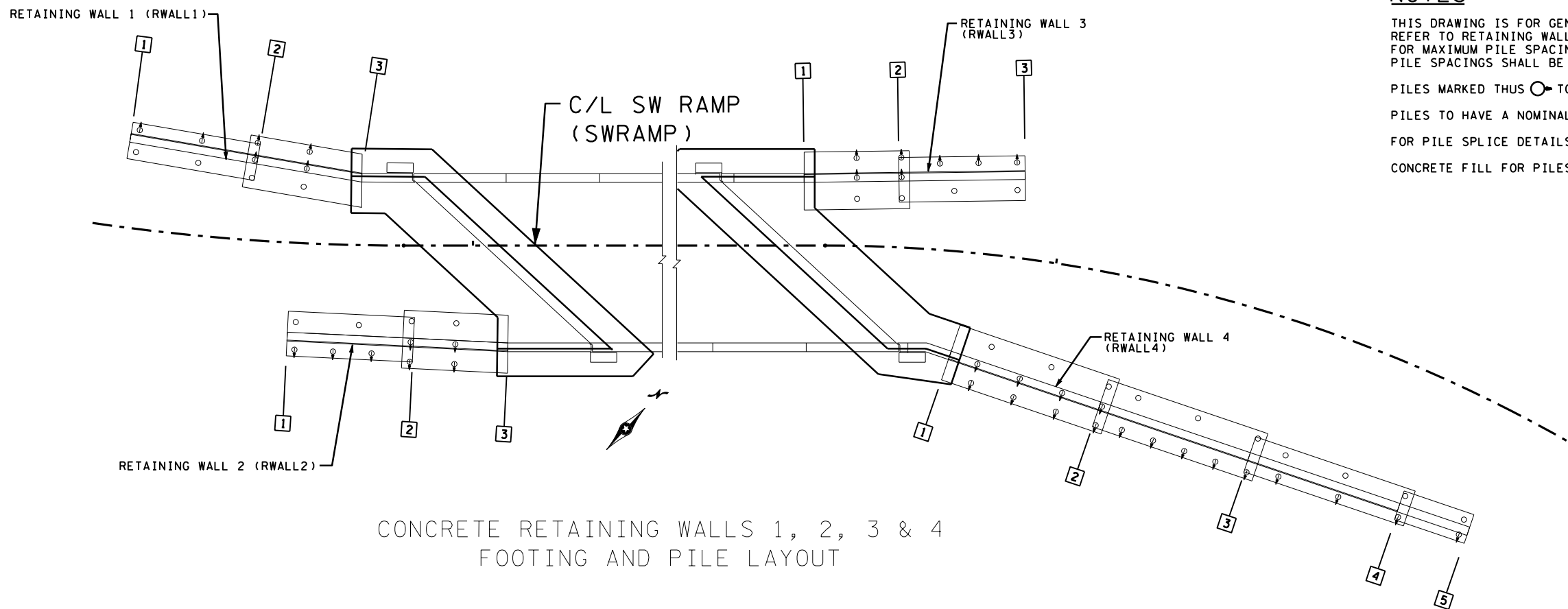
FILE NO.	391
RAMSP08790	
RW12	
OF RW25	534

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5/6/2010

kerickson

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RW:Footings



CONCRETE RETAINING WALLS 1, 2, 3 & 4
FOOTING AND PILE LAYOUT

NOTES

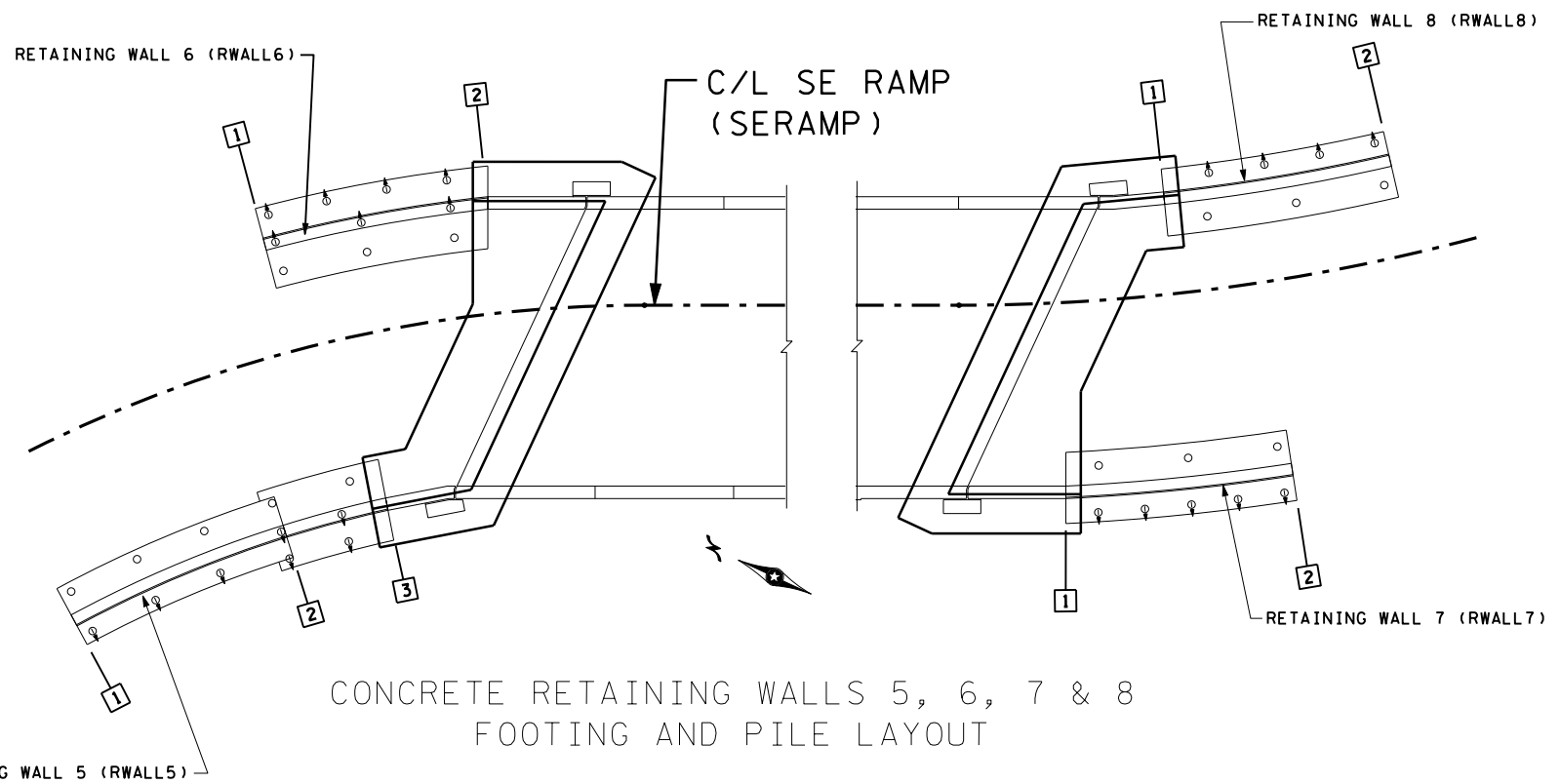
THIS DRAWING IS FOR GENERAL PILE LAYOUT SCHEME.
 REFER TO RETAINING WALL STANDARD PLAN SHEET 5-297.632 (2 OF 4)
 FOR MAXIMUM PILE SPACINGS AT EACH WALL PANEL PER PANEL HEIGHT.
 PILE SPACINGS SHALL BE MEASURED AT BOTTOM OF FOOTING.

PILES MARKED THIS ○ TO BE BATTERED 4" PER FOOT IN DIRECTION SHOWN.

PILES TO HAVE A NOMINAL DIAMETER OF 12".

FOR PILE SPLICE DETAILS SEE DETAIL B201.

CONCRETE FILL FOR PILES TO BE MNDOT MIX 1C62.



CONCRETE RETAINING WALLS 5, 6, 7 & 8
FOOTING AND PILE LAYOUT

DESIGN TEAM			
DRAWN BY:	MAW		
DESIGNER:	MAW		
CHECKED BY:	NCK		
NO.	BY	DATE	REVISIONS

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.

Certified By: *Nathan C. Klopp* Lic. No. 43836
 Licensed Professional Engineer
 Printed Name: NATHAN C. KLOPP Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL PLANS

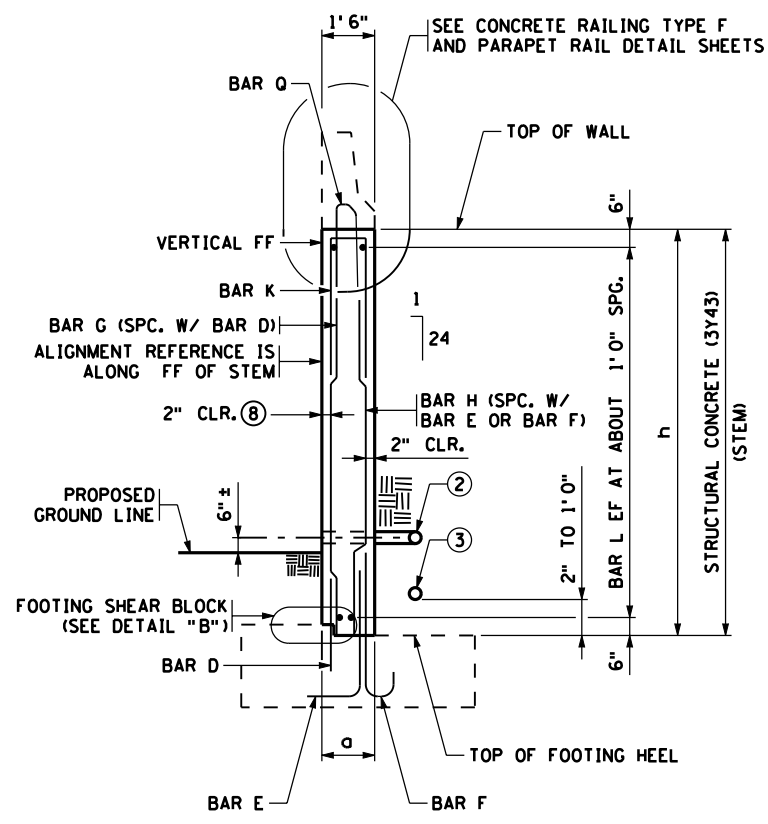
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RW13 OF RW25	534

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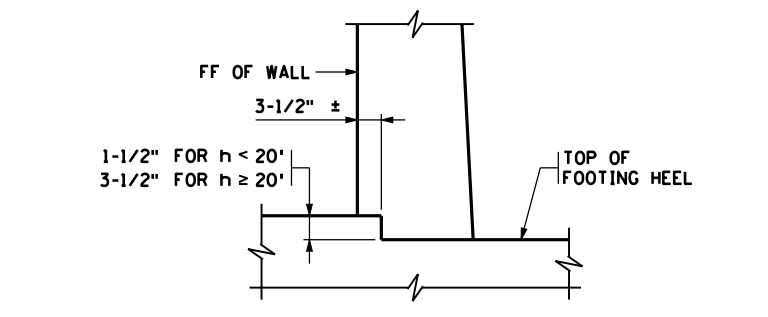
5/6/2010

kerickson

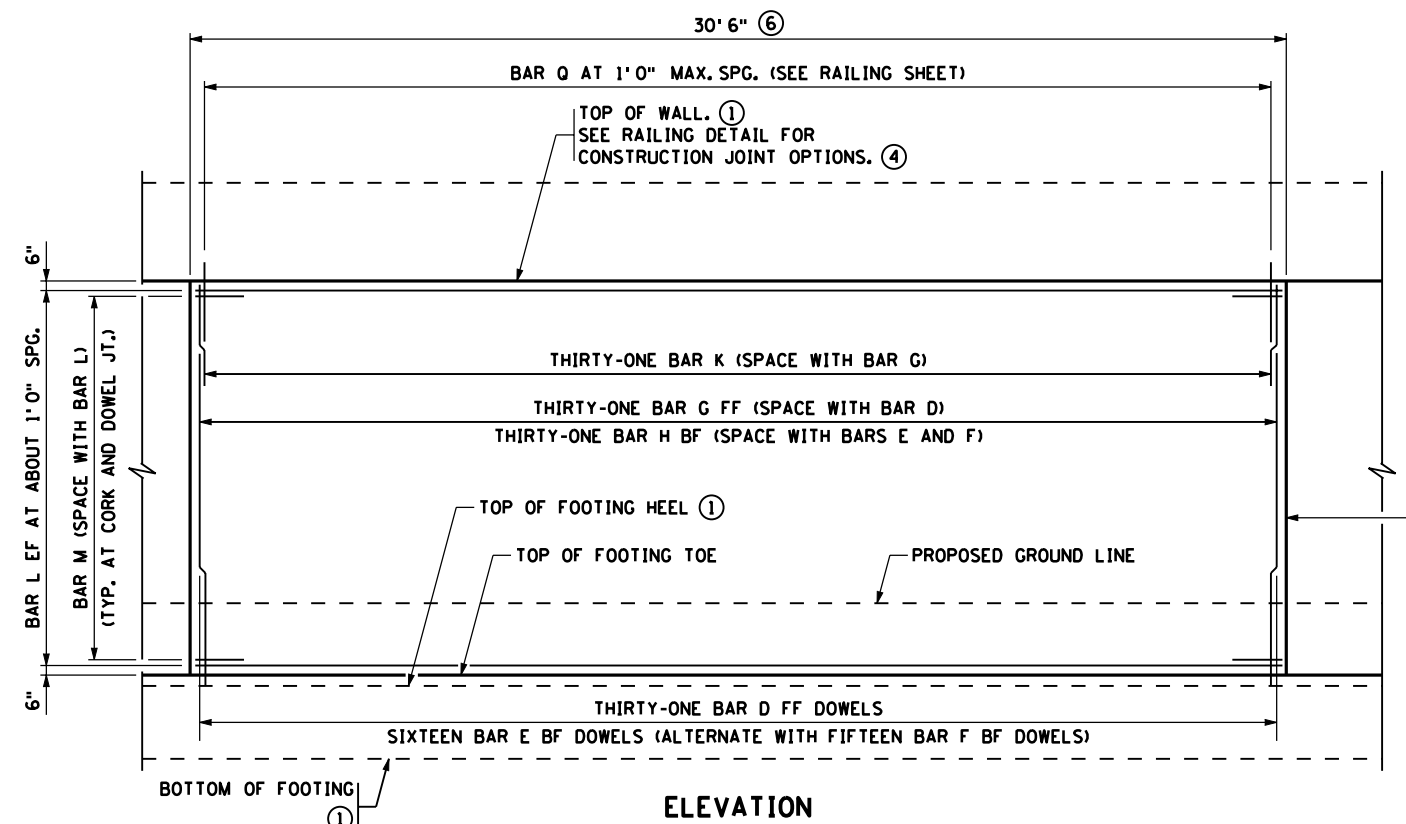
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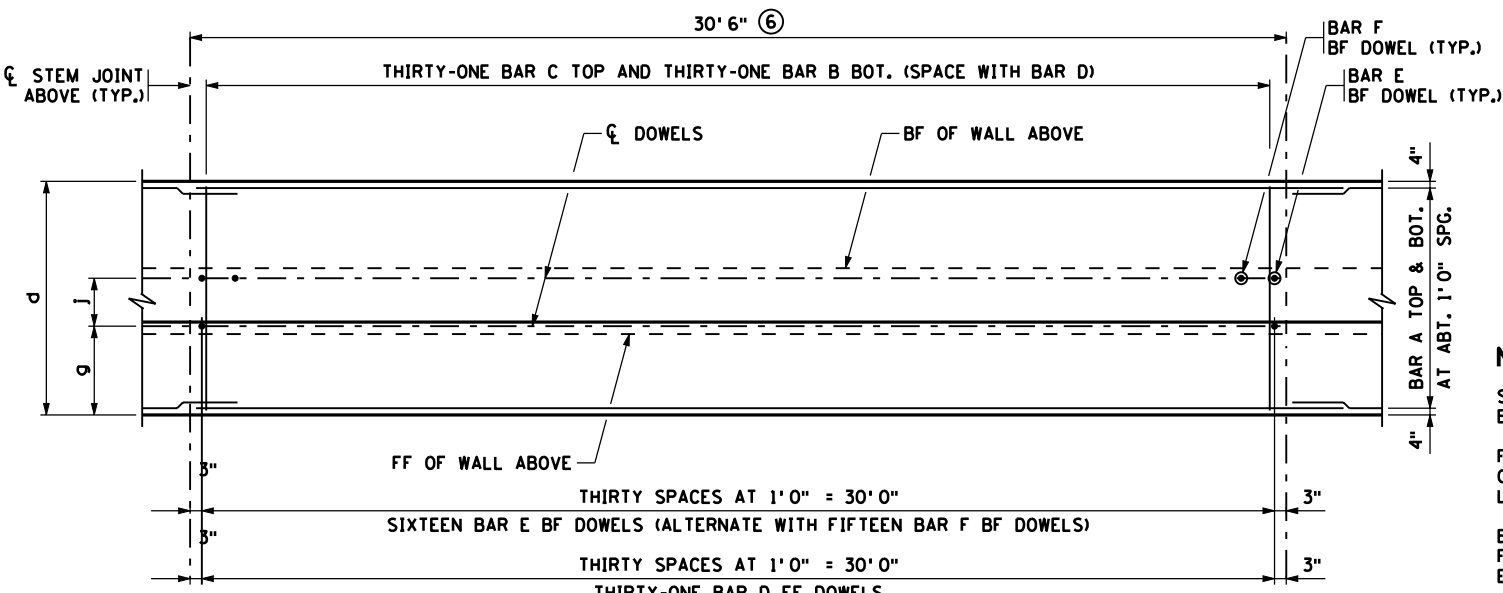
WALL SECTION
BARRIER OPTION SHOWN



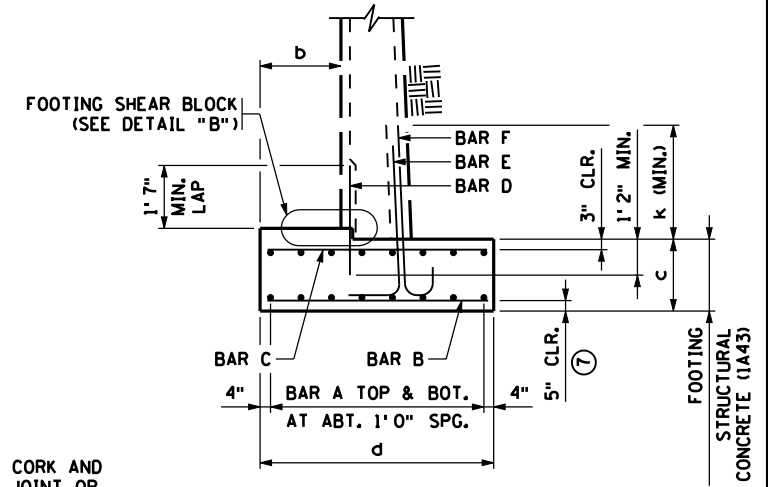
DETAIL "B"



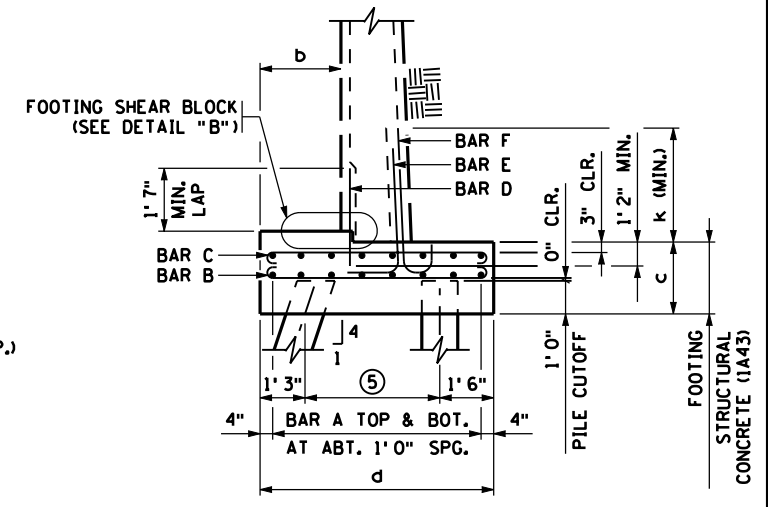
ELEVATION



FOOTING PLAN ~ REINFORCEMENT



TYPICAL SECTION THROUGH SPREAD FOOTING



TYPICAL SECTION THROUGH PILE FOOTING

NOTES:

- STEM REINFORCEMENT IS TO BE SYMMETRICALLY/EQUALLY SPACED BETWEEN STEM JOINTS.
- FOOTING REINFORCEMENT SYMMETRICAL ABOUT STEM JOINT ABOVE UNLESS OTHERWISE NOTED. SEE RETAINING WALL TABLES FOR PILE SPACING AND LAYOUT.
- BF DENOTES BACK FACE. FF DENOTES FRONT FACE. EF DENOTES EACH FACE.
- ① STRAIGHT LINE BETWEEN ELEVATIONS SHOWN ON WALL ELEVATION (EXCEPT FOR STEPPED CONDITIONS), IF A BARRIER IS NOT USED, TOPS OF RETAINING WALL COULD BE USED.
- ② TYPE I DRAIN. SEE DETAIL "A" ON STANDARD PLAN 5-297.624 (1).
- ③ TYPE II DRAIN. SEE DETAIL "A" ON STANDARD PLAN 5-297.624 (1).
- ④ SEE STANDARD PLAN 5-297.624 (1).
- ⑤ SEE GENERAL PLAN FOR PILE SPACING.
- ⑥ AT THE CONTRACTOR'S OPTION, PANEL LENGTH MAY VARY UP TO ± 1' 0". BAR CUTTING LISTS SHALL BE REVISED ACCORDINGLY BY THE CONTRACTOR.
- ⑦ 5" CLR. FOR ALL BARS EXCEPT 2" CLR. MIN. FOR BAR D.
- ⑧ SEE DETAIL "C" ON STANDARD PLAN 5-297.624(1).

RW14 OF RW25

REVISED:

APPROVED: MAY 31, 2006

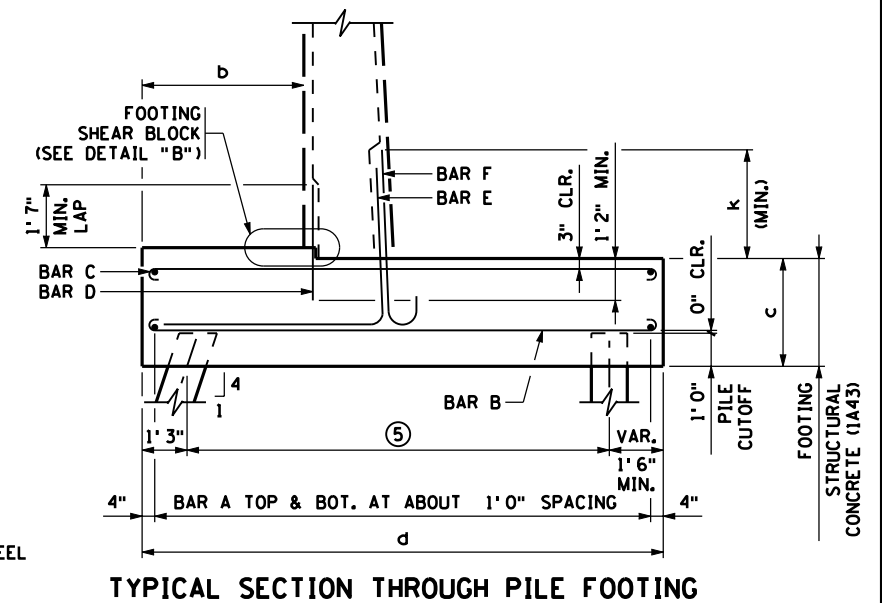
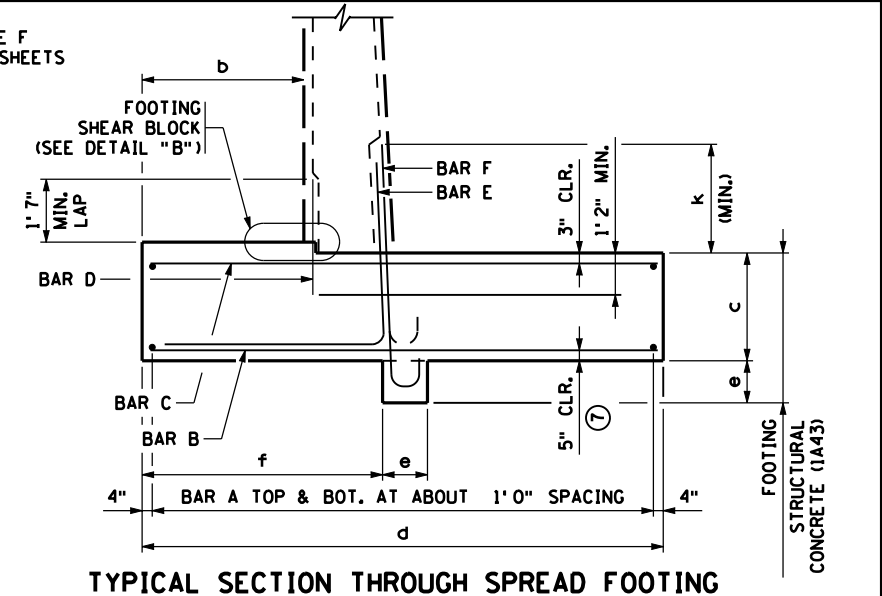
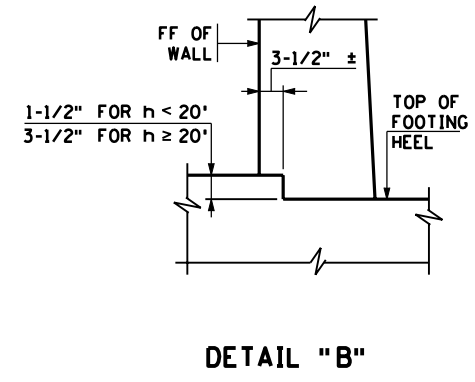
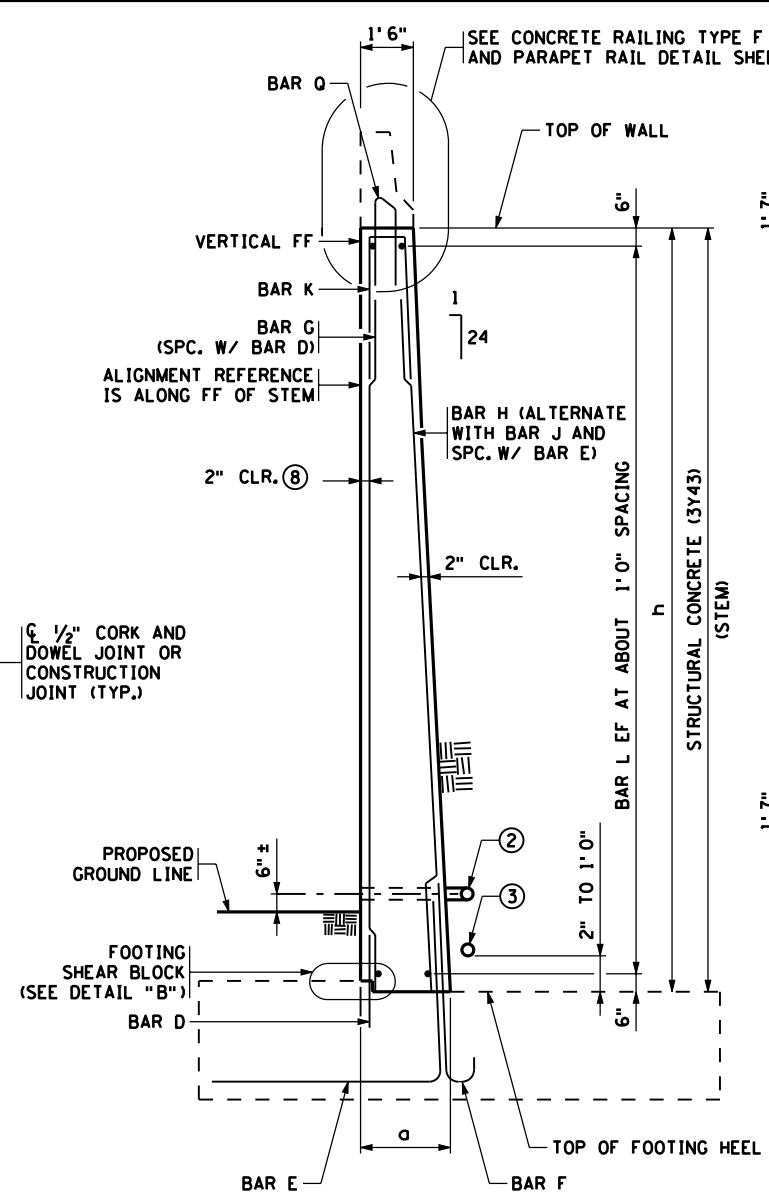
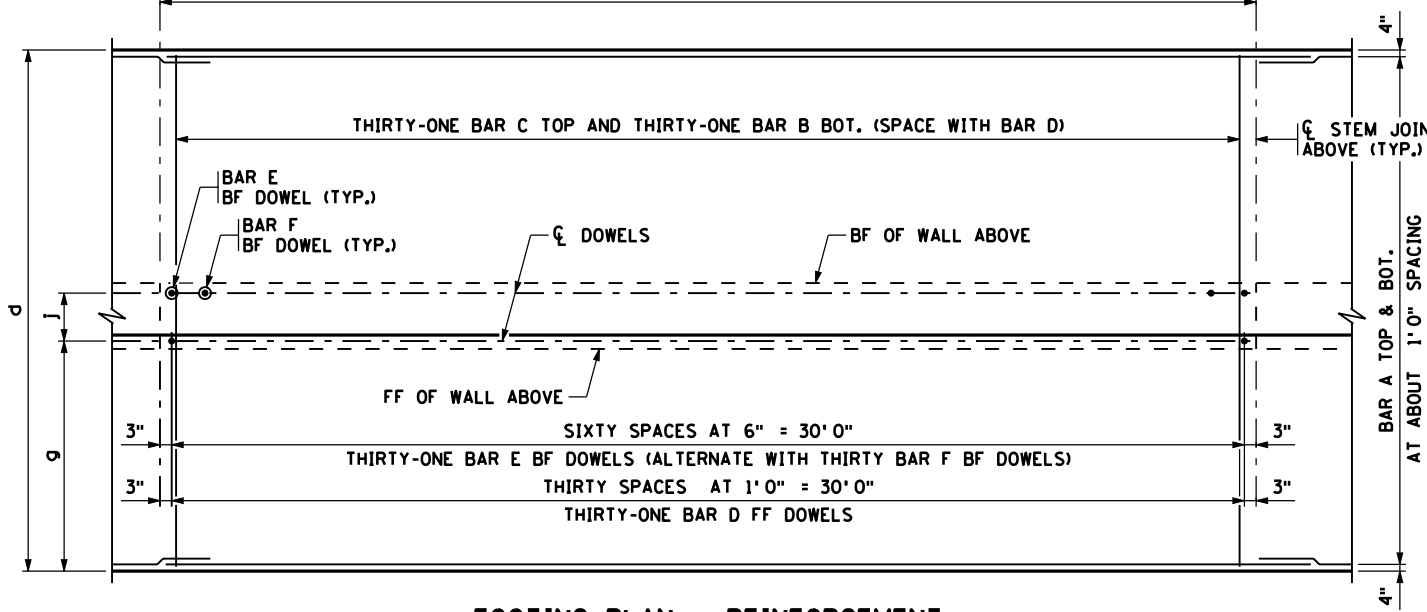
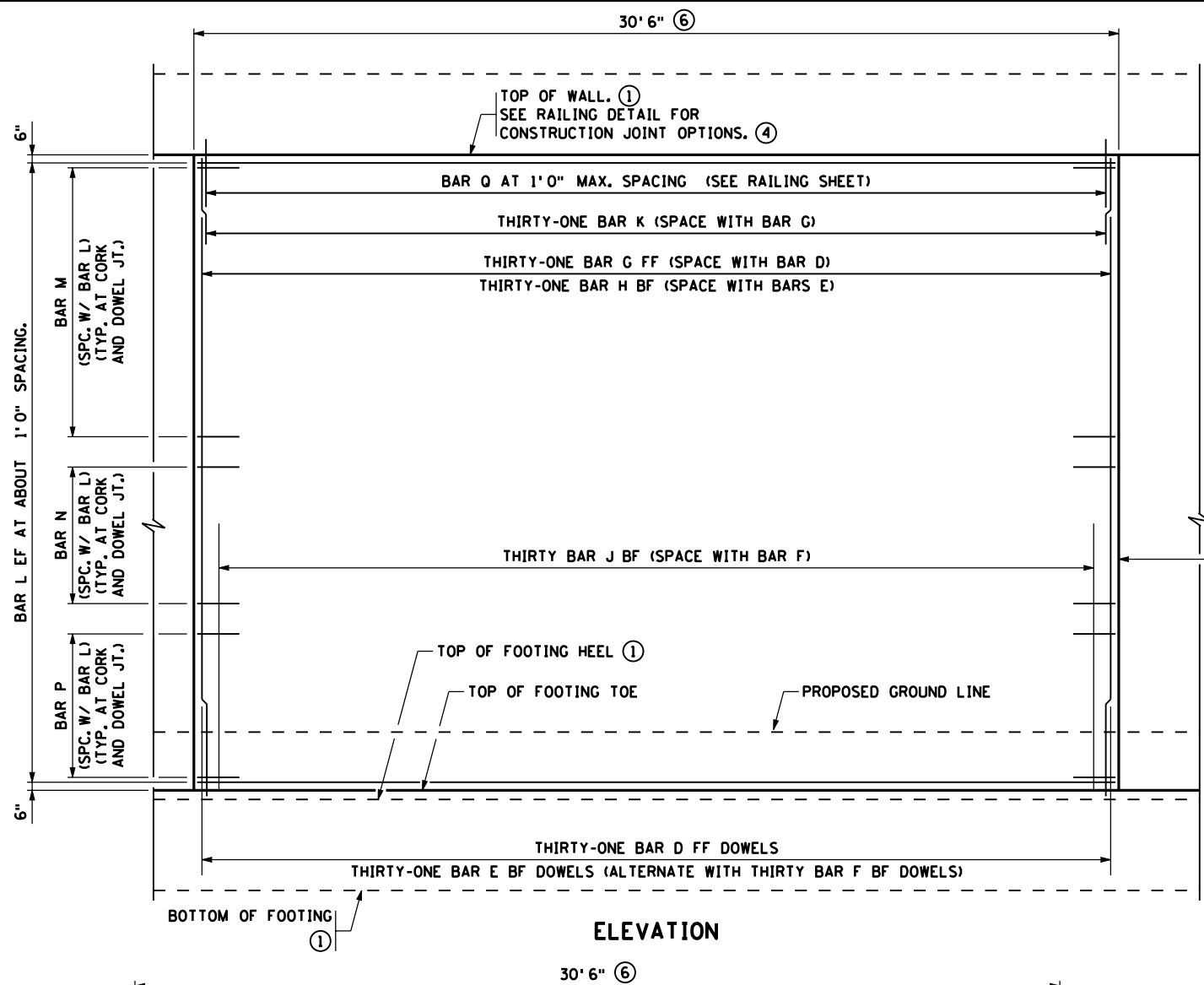
Samuel W. Hanson
STATE BRIDGE ENGINEER

STANDARD SHEET NO.
5-297.621

STANDARD APPROVED:
MAY 31, 2006

TITLE:
RETAINING WALL REINFORCEMENT DETAILS (SHORT WALLS)
(PANEL 4D)

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 393 OF 534 SHEETS



- NOTES:**
- STEM REINFORCEMENT IS TO BE SYMMETRICALLY/EQUALLY SPACED BETWEEN STEM JOINTS.
- FOOTING REINFORCEMENT SYMMETRICAL ABOUT STEM JOINT ABOVE UNLESS OTHERWISE NOTED. SEE RETAINING WALL TABLES FOR PILE SPACING AND LAYOUT.
- BF DENOTES BACK FACE.
FF DENOTES FRONT FACE.
EF DENOTES EACH FACE.
- (1) STRAIGHT LINE BETWEEN ELEVATIONS SHOWN ON WALL ELEVATION (EXCEPT FOR STEPPED CONDITIONS). IF A BARRIER IS NOT USED, TOPS OF RETAINING WALL COULD BE USED.
 - (2) TYPE I DRAIN. SEE DETAIL "A" ON STANDARD PLAN 5-297.624 (1).
 - (3) TYPE II DRAIN. SEE DETAIL "A" ON STANDARD PLAN 5-297.624 (1).
 - (4) SEE STANDARD PLAN 5-297.624 (1).
 - (5) SEE GENERAL PLAN FOR PILE SPACING.
 - (6) AT THE CONTRACTOR'S OPTION, PANEL LENGTH MAY VARY UP TO ± 1' 0". BAR CUTTING LISTS SHALL BE REVISED ACCORDINGLY BY THE CONTRACTOR.
 - (7) 5" CLR. FOR ALL BARS EXCEPT 2" CLR. FOR BAR D.
 - (8) SEE DETAIL "C" ON STANDARD PLAN 5-297.624(1). RW16 OF RW25

REVISED:

APPROVED: MAY 31, 2006

Samit H. Aliyev
STATE BRIDGE ENGINEER

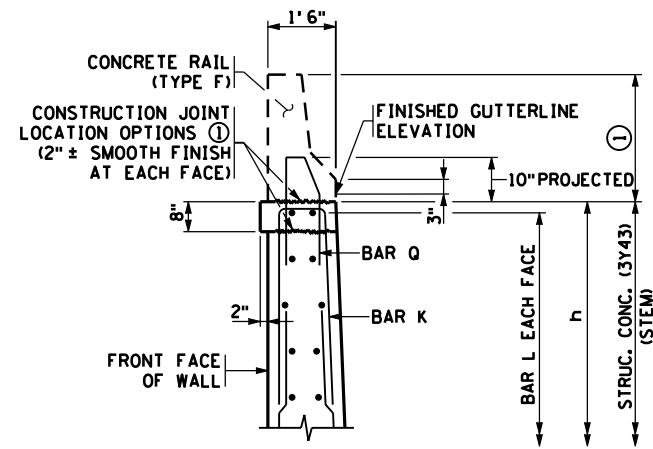
STANDARD SHEET NO. 5-297.623	TITLE: RETAINING WALL REINFORCEMENT DETAILS (TALL WALLS) (ALL PANELS EXCEPT 1A, 2A AND 4D)
STANDARD APPROVED: MAY 31, 2006	

STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 395 OF 534 SHEETS

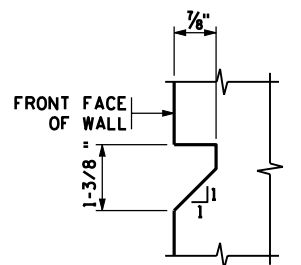
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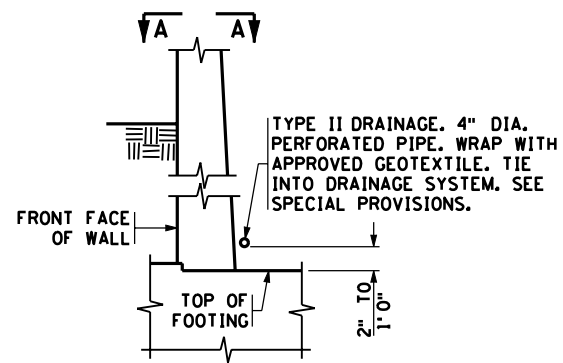
kerickson



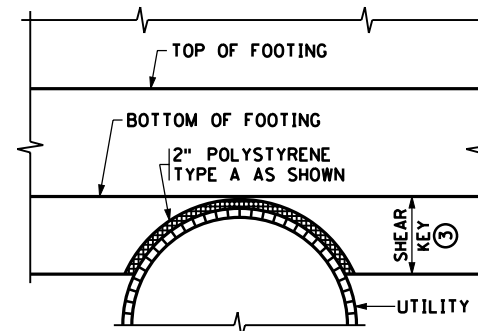
TYPE F RAILING DETAIL
2" COPING OPTION SHOWN



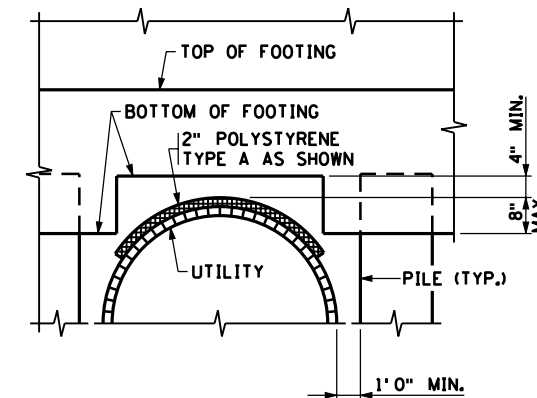
DETAIL "D"



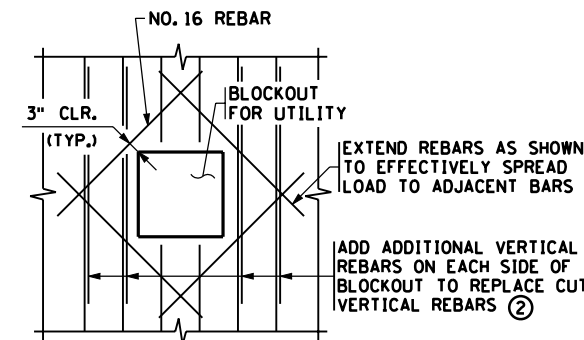
DETAIL "A"



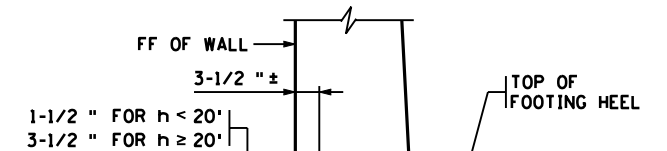
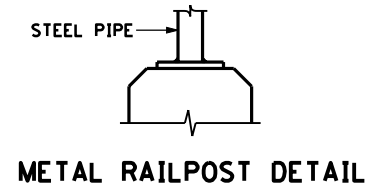
PIPE UNDER SPREAD FOOTING (THROUGH SHEAR KEY)
CHECK PIPE TO DETERMINE IF IT CAN TAKE THE LOAD



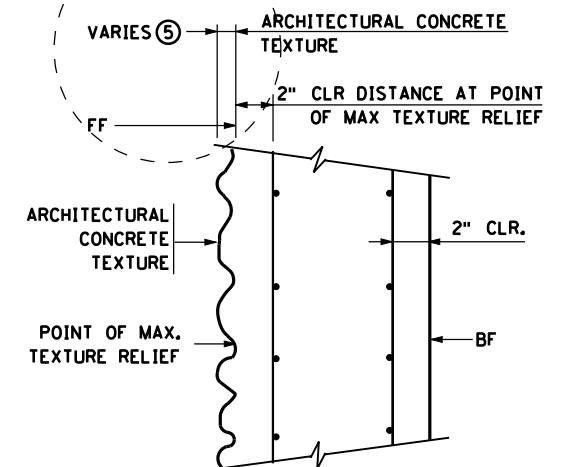
PIPE THROUGH PILE FOOTING



UTILITY BLOCKOUT DETAIL



DETAIL "B"



DETAIL "C"

NOTES:

- ARCHITECTURAL TREATMENT OPTION ON FRONT FACE OF RETAINING WALL TO BE DETERMINED BY Mn/DOT.
- ALL CONCRETE ABOVE JOINT LOCATION SHALL BE STRUCTURAL CONCRETE (3Y46).
- FIELD CUT/ADJUST VERTICAL AND HORIZONTAL REINFORCEMENT AS NECESSARY TO CLEAR BLOCKOUT. PLACE REINFORCEMENT AS SHOWN.
- MODIFY FOR INTERRUPTION.
- DRAINAGE SYSTEM IS INCIDENTAL.
- THE THICKNESS OF THE ARCHITECTURAL CONCRETE TEXTURE VARIES WITH THE TEXTURE RELIEF. THE STRUCTURAL CONCRETE 3Y43 QUANTITIES DO NOT INCLUDE THE MATERIAL WITHIN THE ARCHITECTURAL CONCRETE TEXTURE. MATERIAL NEEDED FOR THE TEXTURING SHALL BE INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. SEE SPECIAL PROVISIONS 2411. TEXTURE RELIEF SHALL ADHERE TO FHWA CRASH BARRIER GUIDANCE WHENEVER THE WALL FACE IS INSIDE OR NEAR THE CLEAR ZONE.

SUMMARY OF DRAINAGE QUANTITIES (4)

ITEM	UNIT	WALL 1	WALL 2	WALL 3	WALL 4	WALL 5	WALL 6	WALL 7	WALL 8	TOTAL
4" DIA. PERFORATED PIPE	LIN. FT.	53	50	50	120	53	36	36	36	383
4" DIA. DRAIN PIPE	LIN. FT.									
END CAP	EACH	1	1	1	1	1	1	1	1	8
LONG RADIUS 90° ELBOW	EACH	3	3	3	7	3	1	1	1	18

REVISED:
 APPROVED: MAY 31, 2006
Samuel A. Hanson
 STATE BRIDGE ENGINEER

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MAW				
DESIGNER: MAW				
CHECKED BY: NCK				

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.
 Certified By: *Nathan C. Klopp* P.E. No. 43836
 Licensed Professional Engineer
 Printed Name: NATHAN C. KLOPP Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

STANDARD SHEET NO. 5-297.624 (1 OF 3)
 STANDARD APPROVED: MAY 31, 2006
 MODIFIED

RETAINING WALL MISCELLANEOUS DETAILS

FILE NO. 396
 RAMSP08790
 RW17 OF RW25
 534

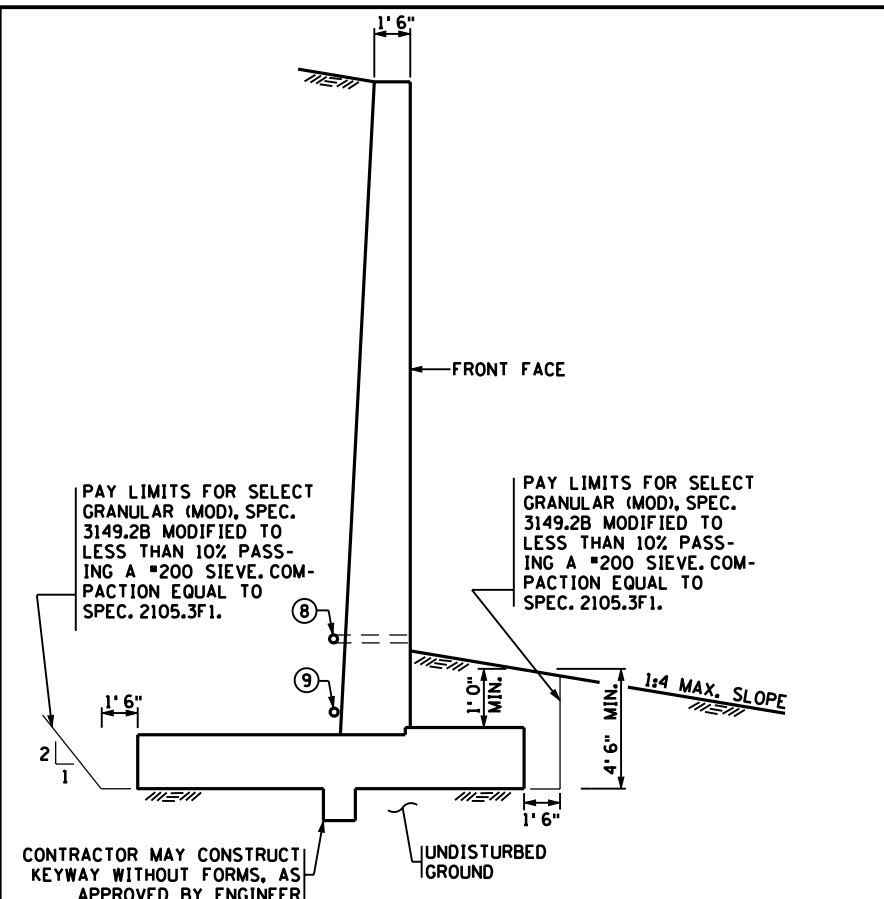
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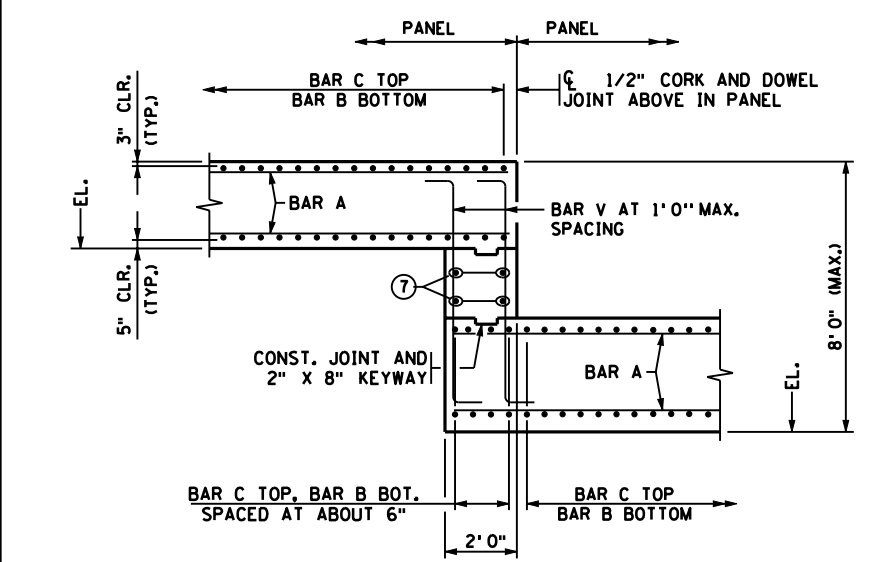
5/6/2010

kerickson

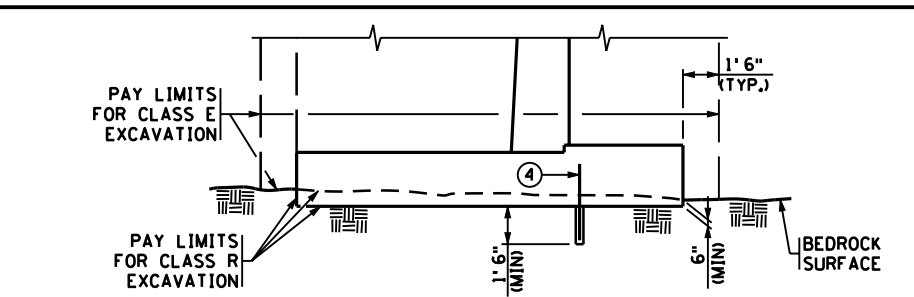
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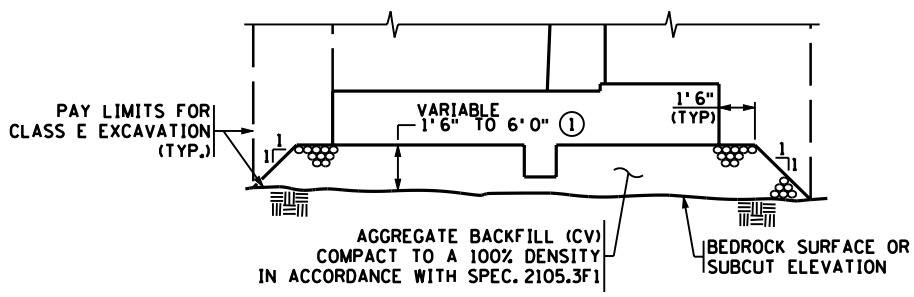
TYPICAL SECTION INPLACE SOIL OPTION SHOWN



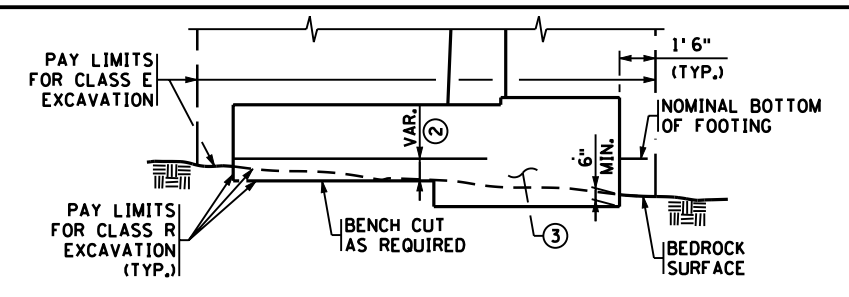
STEPPED FOOTING DETAIL - LONGIT. SECTION 5 6 TYPE 1 - VARIABLE STEP HEIGHT (SPREAD FOOTING SHOWN)



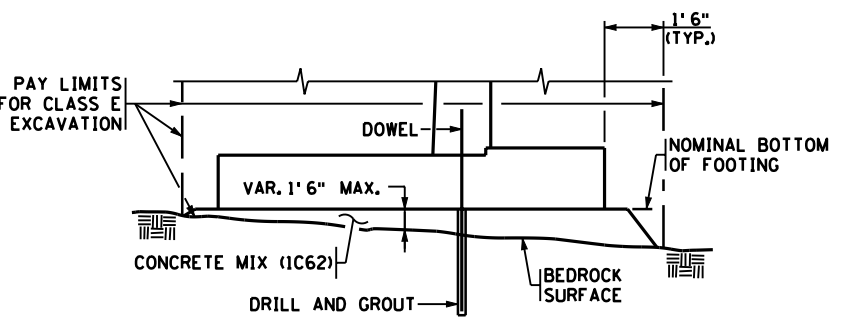
ROCK EXCAVATION OPTION



AGGREGATE BACKFILL OPTION

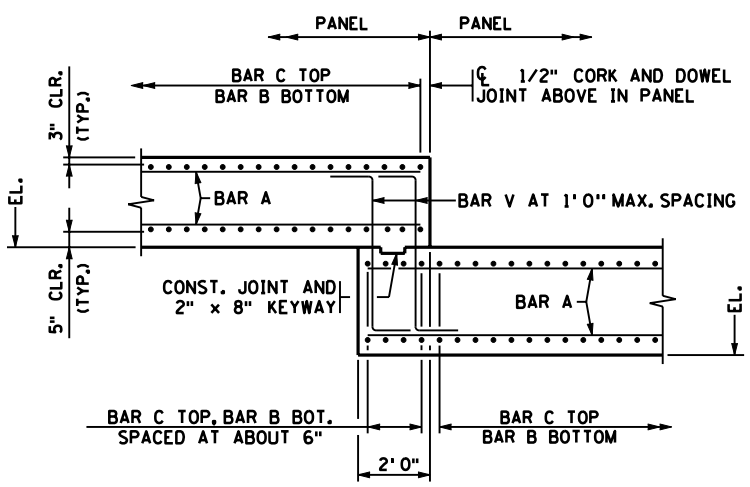


ROCK SUBCUT WITH CONCRETE BACKFILL OPTION

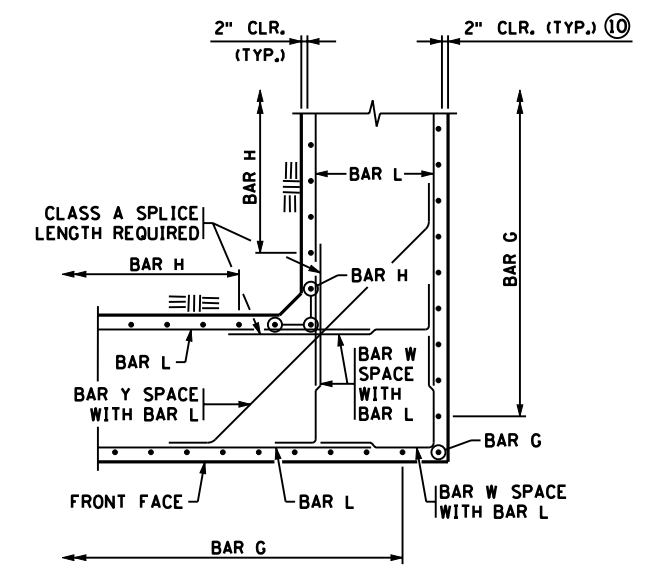


DOWEL AND LEAN CONCRETE BACKFILL OPTION

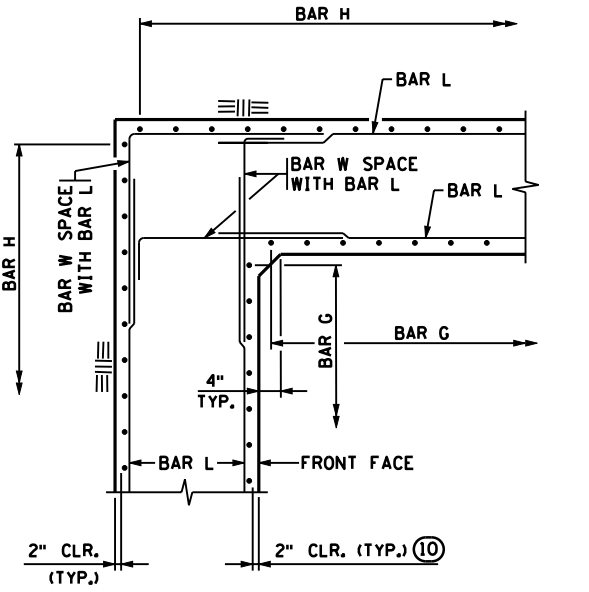
FOUNDATION OPTIONS



STEPPED FOOTING DETAIL - LONGIT. SECTION 5 6 TYPE 2 - MINIMUM STEP HEIGHT (SPREAD FOOTING SHOWN)



OUTSIDE CORNER DETAIL - PLAN VIEW 5



INSIDE CORNER DETAIL - PLAN VIEW 5

NOTES:

- ① MINIMUM DEPTH 1 FT. 6 INCH OR SHEAR KEY DEPTH. DESIGNER TO DETERMINE MAXIMUM DEPTH.
- ② SEE SPECIAL PROVISIONS FOR PAYMENT OF ADDITIONAL CONCRETE.
- ③ STRUCTURAL CONCRETE (1A43) OR LEAN CONCRETE BACKFILL (IC62), AS APPROVED BY ENGINEER.
- ④ CERTAIN ROCKS (SHALE, ETC.) BREAK OFF IN LAYERS. IN SUCH CASES, DRILL HOLES FOR ANCHORS TO KEY FOOTING TO ROCK.
- ⑤ ALL BARS RELATED TO STEPPED FOOTING AND CORNER CONSTRUCTION SHALL BE INCIDENTAL WITH NO DIRECT COMPENSATION.
- ⑥ ALL STRUCTURAL CONCRETE (1A43) RELATED TO THE STEPPED FOOTING SHALL BE INCIDENTAL WITH NO DIRECT COMPENSATION.
- ⑦ 6 INCH MAX. SPACING. BARS TO BE SAME TYPE AS BAR B OF THE LOWER FOOTING. NO BARS REQUIRED IF DISTANCE BETWEEN FOOTINGS IS LESS THAN 6 INCHES.
- ⑧ TYPE I DRAIN. SEE DETAIL "A" ON STANDARD PLAN 5-297.624 (1 OF 3).
- ⑨ TYPE II DRAIN. SEE DETAIL "A" ON STANDARD PLAN 5-297.624 (1 OF 3).
- ⑩ SEE DETAIL "C" ON STANDARD PLAN 5-297.624(1).

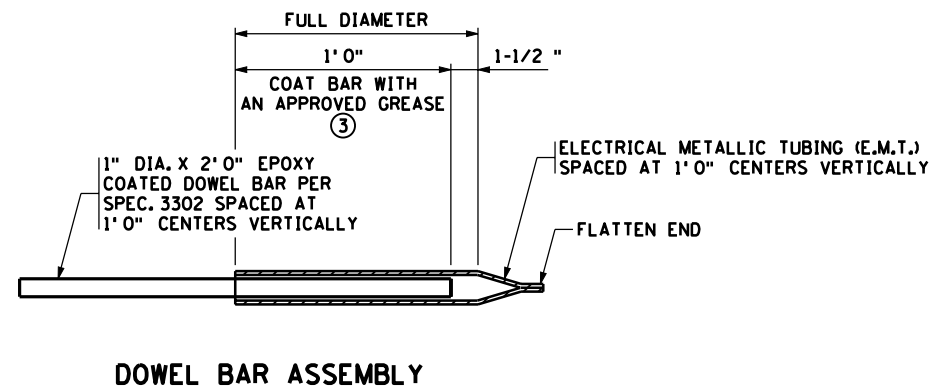
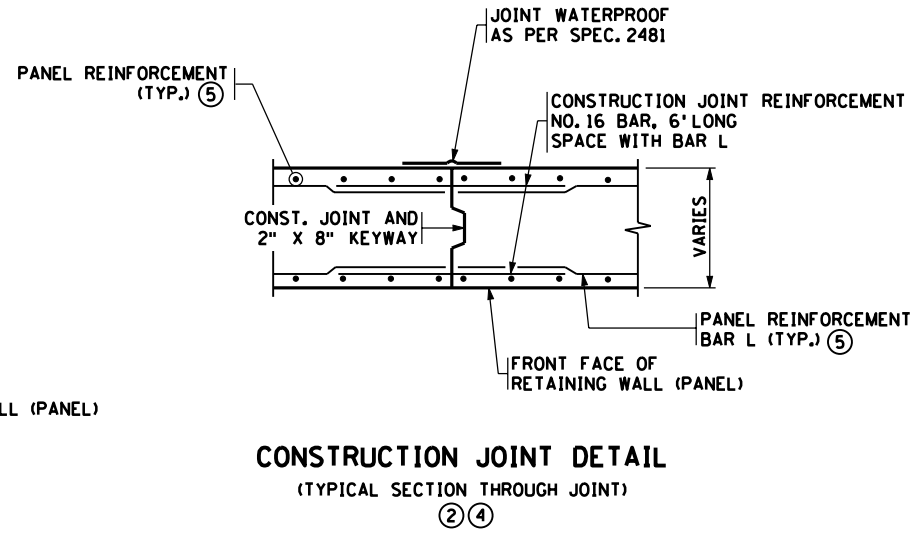
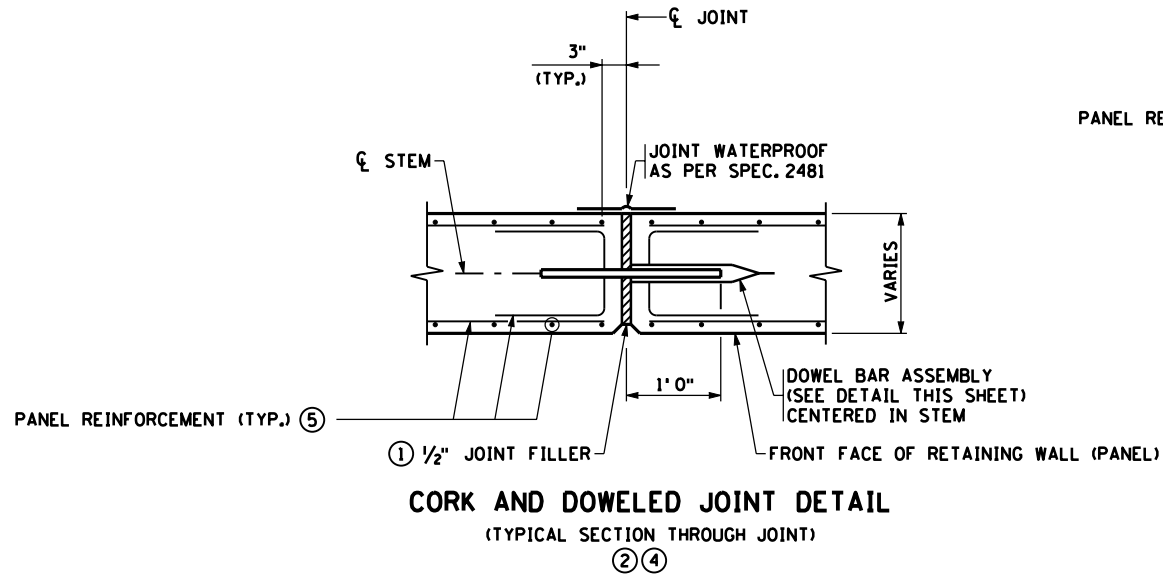
RW18 OF RW25

REVISED:

APPROVED: MAY 31, 2006

Samuel W. Johnson
STATE BRIDGE ENGINEER

STANDARD SHEET NO. 5-297.624 (2 OF 3)	TITLE: RETAINING WALL MISCELLANEOUS DETAILS
STANDARD APPROVED: MAY 31, 2006	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 397 OF 534 SHEETS	



NOTES:

THE MATERIALS AND PLACEMENT OF THE CORK AND DOWEL JOINT / CONSTRUCTION JOINT (DOWEL BAR ASSEMBLIES, NO. 16 REINFORCING BARS, JOINT FILLER, AND JOINT WATERPROOFING) ARE INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.

THE CONTRACTOR SHALL ASSIGN TO THE REINFORCING BAR SUPPLIER THE RESPONSIBILITY OF SUPPLYING THE NECESSARY MATERIALS ASSOCIATED WITH THE DETAILS SHOWN ON THIS SHEET.

- ① JOINT FILLER SHALL BE CORK (SPEC. 2401.3E3).
- ② CONSTRUCTION JOINT(S) MAY BE SUBSTITUTED FOR SOME OF THE CORK AND DOWEL JOINT(S) AT THE CONTRACTOR'S OPTION. CORK AND DOWEL JOINT(S) MUST BE SPACED AT 9'-6" MAXIMUM. CORK AND DOWEL JOINT(S) MUST BE USED IN VERTICAL JOINT(S) AT FOOTING STEP LOCATIONS.
- ③ GREASE SHALL BE AN APPROVED HIGH PRESSURE TYPE THAT IS EFFECTIVE OVER THE FULL RANGE OF EXPECTED TEMPERATURES AND RESISTANT TO CHEMICAL ACTION.
- ④ DOWEL BAR ASSEMBLY MUST BE INSTALLED PERPENDICULAR TO JOINT AND PARALLEL TO THE WALL FACE, AND TO EACH OTHER.
- ⑤ SEE PANEL SHEETS FOR REINFORCING DETAILS.

REVISED:

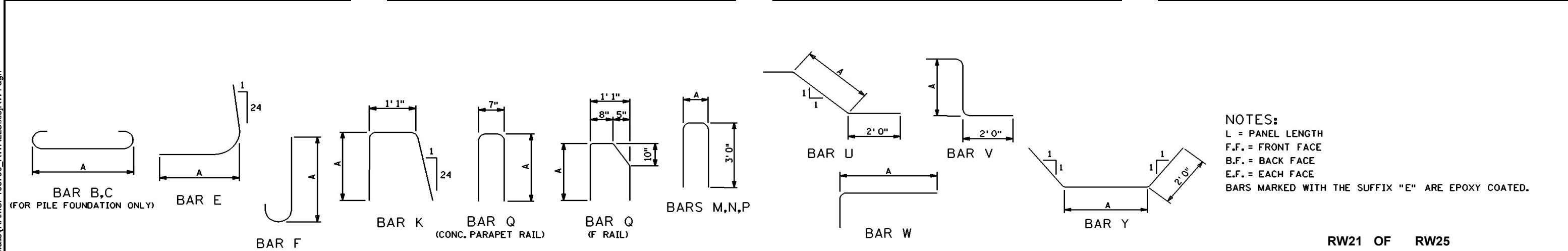
APPROVED: MAY 31, 2006

Samuel A. Hargison
STATE BRIDGE ENGINEER

STANDARD SHEET NO. 5-297.624 (3 OF 3)	TITLE: RETAINING WALL MISCELLANEOUS DETAILS
STANDARD APPROVED: MAY 31, 2006	
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 398 OF 534 SHEETS	

BAR	MARK	NO.	LENGTH	A	LOCATION	WT.	DIMENSIONS & QUANTITIES		BAR	MARK	NO.	LENGTH	A	LOCATION	WT.	DIMENSIONS & QUANTITIES		BAR	MARK	NO.	LENGTH	A	LOCATION	WT.	DIMENSIONS & QUANTITIES																
h = 15' PANELS: 5A L = 30'-6" AT LOW END: 14'-4" AT HIGH END: 14'-6"																																									
PILED FOOTING REINFORCEMENT							DIMENSIONS							PILED FOOTING REINFORCEMENT							DIMENSIONS																				
A	F	2201	18	29'-11"	STR.	LONG T & B	1101	PILED FOOTING		A	F	2501	22	16'-5"	STR.	LONG T & B	964	SPREAD FOOTING		A	F	2501	22	29'-11"	STR.	LONG T & B	1757	SPREAD FOOTING													
B	F	1902	31	9'-4"	8'-0"	TRANS BOT	435	b	3'-0"	e								b	4'-3"	e																					
C	F	1603	31	9'-2"	8'-0"	TRANS TOP	296	c	2'-9"	f								c	2'-9"	f																					
							STEM							STEM							STEM																				
							a 2'-1 1/2" k 2'-6"							a 2'-4" k 5'-0"							a 2'-4" k 5'-0"																				
							j 1'-8 7/8"							j 1'-11 2/8"							j 1'-11 2/8"																				
							TOW THICKNESS 1'-6"							TOW THICKNESS 1'-6"							TOW THICKNESS 1'-6"																				
							RUSTICATION THICK FF 0"							RUSTICATION THICK FF 0"							RUSTICATION THICK FF 0"																				
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES							FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES							FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES						
D	F	1604E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURE CONCRETE (1A43)		D	F	1604E	15	3'-0"	STR.	DOWEL FF	47	STRUCTURE CONCRETE (1A43)		D	F	1604E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURE CONCRETE (1A43)													
E	F	1905E	31	8'-10"	4'-7"	DOWEL BF	411	(FOOTING)		E	F	2505E	15	12'-10"	6'-1"	DOWEL BF	514	(FOOTING)		E	F	2505E	31	12'-10"	6'-1"	DOWEL BF	1062	(FOOTING)													
F	F	1906E	30	5'-9"	4'-9"	DOWEL BF	259	PILED	26.9	CY	F	F	2506E	14	8'-9"	7'-9"	DOWEL BF	327	SPREAD	16.4	CY	F	F	2506E	30	8'-9"	7'-9"	DOWEL BF	701	SPREAD	35.7	CY									
G	S	1301E	31	14'-0"	STR.	VERT FF	290	STRUCTURE CONCRETE (3Y43)		G	S	1301E	15	19'-4"	STR.	VERT FF	194	STRUCTURE CONCRETE (3Y43)		G	S	1301E	31	18'-10"	STR.	VERT FF	390	STRUCTURE CONCRETE (3Y43)													
H	S	1602E	31	14'-2"	STR.	VERT BF	458	(STEM)		H	S	1902E	15	19'-8"	STR.	VERT BF	443	(STEM)		H	S	1902E	31	19'-2"	STR.	VERT BF	892	(STEM)													
J	S	1603E	30	7'-3"	STR.	VERT BF	227	REINFORCEMENT (PLAIN)		J	S	1903E	14	10'-3"	STR.	VERT BF	216	REINFORCEMENT (PLAIN)		J	S	1903E	30	10'-3"	STR.	VERT BF	462	REINFORCEMENT (PLAIN)													
K	S	1604E	31	10'-11"	4'-11"	TIE	353	REINFORCEMENT (PLAIN)		K	S	1604E	15	10'-11"	4'-11"	TIE	171	REINFORCEMENT (PLAIN)		K	S	1604E	31	10'-7"	4'-9"	TIE	342	REINFORCEMENT (PLAIN)													
L	S	1305E	30	30'-0"	STR.	HORIZ EF	601	REINFORCEMENT (EPOXY)		L	S	1305E	40	13'-6"	STR.	HORIZ EF	361	REINFORCEMENT (EPOXY)		L	S	1305E	40	30'-0"	STR.	HORIZ EF	802	REINFORCEMENT (EPOXY)													
M	S	1606E	20	7'-4"	1'-4"	EXP JT TIE	153	PILED	1832	LB	M	S	1606E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	2156	LB	M	S	1606E	20	7'-4"	1'-4"	EXP JT TIE	153	SPREAD	2911	LB									
N	S	1607E	10	7'-9"	1'-9"	EXP JT TIE	81	REINFORCEMENT (EPOXY)		N	S	1607E	20	7'-9"	1'-9"	EXP JT TIE	162	REINFORCEMENT (EPOXY)		N	S	1607E	20	7'-9"	1'-9"	EXP JT TIE	162	REINFORCEMENT (EPOXY)													
P	S	1608E	8	8'-2"	2'-2"	EXP JT TIE		REINFORCEMENT (EPOXY)		P	S	1608E	8	8'-2"	2'-2"	EXP JT TIE		REINFORCEMENT (EPOXY)		P	S	1608E	8	8'-2"	2'-2"	EXP JT TIE		REINFORCEMENT (EPOXY)													
Q	S	1609E	36	6'-0"	2'-8"	J-RAIL DOWEL	225	REINFORCEMENT (EPOXY)		Q	S	1609E	36	6'-0"	2'-8"	J-RAIL DOWEL	225	REINFORCEMENT (EPOXY)		Q	S	1609E	36	6'-0"	2'-8"	J-RAIL DOWEL	225	REINFORCEMENT (EPOXY)													

BAR	MARK	NO.	LENGTH	A	LOCATION	WT.	DIMENSIONS & QUANTITIES		BAR	MARK	NO.	LENGTH	A	LOCATION	WT.	DIMENSIONS & QUANTITIES		BAR	MARK	NO.	LENGTH	A	LOCATION	WT.	DIMENSIONS & QUANTITIES		BAR	MARK	NO.	LENGTH	A	LOCATION	WT.	DIMENSIONS & QUANTITIES									
h = 17' PANELS: 7A L = 30'-6" AT LOW END: 17'-0" AT HIGH END: 17'-0"																																											
PILED FOOTING REINFORCEMENT							DIMENSIONS							PILED FOOTING REINFORCEMENT							DIMENSIONS							PILED FOOTING REINFORCEMENT							DIMENSIONS								
A	F	2501	20	29'-11"	STR.	LONG T & B	1598	PILED FOOTING		A	F	2501	18	29'-11"	STR.	LONG T & B	1438	PILED FOOTING		A	F	2201	16	32'-5"	STR.	LONG T & B	1080	PILED FOOTING		A	F	1601	12	16'-5"	STR.	LONG T & B	205	PILED FOOTING					
B	F	1902	31	10'-4"	9'-0"	TRANS BOT	481	b	3'-6"	e								b	2'-6"	e																							
C	F	1903	31	10'-2"	9'-0"	TRANS TOP	473	c	2'-9"	f								c	2'-9"	f																							
							STEM							STEM							STEM																						
							a 2'-2 1/2" k 4'-6"							a 2'-2" k 3'-6"							a 2'-1/2" k 5'-3"							a 1'-10" k 2'-0"															
							j 1'-9 7/8"							j 1'-9 3/8"							j 1'-7 7/8"							j 1'-5 3/8"															
							TOW THICKNESS 1'-6"							TOW THICKNESS 1'-6"							TOW THICKNESS 1'-6"							TOW THICKNESS 1'-6"															
							RUSTICATION THICK FF 0"							RUSTICATION THICK FF 0"							RUSTICATION THICK FF 0"							RUSTICATION THICK FF 0"															
FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES							FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES							FOOTING DOWELS & STEM REINFORCEMENT							QUANTITIES								
D	F	1604E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURE CONCRETE (1A43)		D	F	1604E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURE CONCRETE (1A43)		D	F	1604E	31	3'-0"	STR.	DOWEL FF	97	STRUCTURE CONCRETE (1A43)		D	F	1604E	15	3'-0"	STR.	DOWEL FF	47	STRUCTURE CONCRETE (1A43)					
E	F	1905E	31	11'-5"	5'-2"	DOWEL BF	532	(FOOTING)		E	F	1905E	31	10'-2"	4'-11"	DOWEL BF	473	(FOOTING)		E	F	1605E	31	7'-10"	0'-10"	DOWEL BF	253	(FOOTING)		E	F	1605E	8	4'-1"	0'-10"	DOWEL BF	34	(FOOTING)					
F	F	1906E	30	8'-0"	7'-0"	DOWEL BF	360	PILED	30.0	CY	F	F	1906E	30	7'-0"	6'-0"	DOWEL BF	315	PILED	28.5	CY	F	F	1606E	30	8'-3"	7'-3"	DOWEL BF	258	PILED	23.3	CY	F	F	1606E	7	4'-3"	3'-3"	DOWEL BF	31	PILED	6.8	CY
G	S	1301E	31	16'-8"	STR.	VERT FF	345	STRUCTURE CONCRETE (3Y43)		G	S	1301E	31	15'-8"	STR.	VERT FF	324	STRUCTURE CONCRETE (3Y43)		G	S	1301E	31	12'-5"	STR.	VERT FF	257	STRUCTURE CONCRETE (3Y43)		G	S	1301E	15	7'-0"	STR.	VERT FF	70	STRUCTURE CONCRETE (3Y43)					
H	S	1602E	31	16'-10"	STR.	VERT BF	544	(STEM)		H	S	1602E	31	15'-10"	STR.	VERT BF	512	(STEM)		H	S	1602E	31	12'-7"	STR.	VERT BF	407	(STEM)		H	S	1602E	15	7'-2"	STR.	VERT BF	112	(STEM)					
J	S	1603E	30	9'-3"	STR.	VERT BF	289	REINFORCEMENT (PLAIN)		J	S	1603E	30	8'-3"	STR.	VERT BF	258	REINFORCEMENT (PLAIN)		J	S	1603E	-	0'-0"	STR.	VERT BF	-	REINFORCEMENT (PLAIN)		J	S	1603E	-	0'-0"	STR.	VERT BF	-	REINFORCEMENT (PLAIN)					
K	S	1604E	31	10'-7"	4'-9"	TIE	342	REINFORCEMENT (PLAIN)		K	S	1604E	31	10'-7"	4'-9"	TIE	342	REINFORCEMENT (PLAIN)		K	S	1604E	31	9'-5"	4'-2"	TIE	304	REINFORCEMENT (PLAIN)		K	S	1604E	15	7'-7"	3'-3"	TIE	119	REINFORCEMENT (PLAIN)					
L	S	1305E	34	30'-0"	STR.	HORIZ EF	681	REINFORCEMENT (EPOXY)		L	S	1305E	32	30'-0"	STR.	HORIZ EF	641	REINFORCEMENT (EPOXY)		L	S	1305E	26	29'-6"	STR.	HORIZ EF	512	REINFORCEMENT (EPOXY)		L	S	1305E	16	13'-6"	STR.	HORIZ EF	144	REINFORCEMENT (EPOXY)					
M	S	1606E	20	7'-4"	1'-4"	EXP JT TIE	153	PILED	2552	LB	M	S	1606E	20	7'-4"	1'-4"	EXP JT TIE	153	PILED	2209	LB	M	S	1606E	20	7'-4"	1'-4"	EXP JT TIE	153	PILED	1998	LB	M	S	1606E	16	7'-4"	1'-4"	EXP JT TIE	122	PILED	369	LB
N	S	1607E	14	7'-9"	1'-9"	EXP JT TIE	113	REINFORCEMENT (EPOXY)		N	S	1607E	12	7'-9"	1'-9"	EXP JT TIE	97	REINFORCEMENT (EPOXY)		N	S	1607E	6	7'-9"	1'-9"	EXP JT TIE	48	REINFORCEMENT (EPOXY)		N	S	1607E	7	7'-9"	1'-9"	EXP JT TIE	-	REINFORCEMENT (EPOXY)					
P	S	1608E	8	8'-2"	2'-2"	EXP JT TIE		REINFORCEMENT (EPOXY)		P	S	1608E	8	8'-2"	2'-2"	EXP JT TIE		REINFORCEMENT (EPOXY)		P	S	1608E	8	8'-2"	2'-2"	EXP JT TIE		REINFORCEMENT (EPOXY)		P	S	1608E	-	8'-2"	2'-2"	EXP JT TIE	-	REINFORCEMENT (EPOXY)					
Q	S	1609E	36	6'-0"	2'-8"	J-RAIL DOWEL	225	REINFORCEMENT (EPOXY)		Q	S	1609E	36	6'-0"	2'-8"	J-RAIL DOWEL	225	REINFORCEMENT (EPOXY)		Q	S	1609E	36	6'-0"	2'-8"	J-RAIL DOWEL	225	REINFORCEMENT (EPOXY)		Q	S	1609E	36	6'-0"	2'-8"	J-RAIL DOWEL	225	REINFORCEMENT (EPOXY)					



PILE SPACING AND FOOTING DIMENSIONS - 60 TON PILES
2' - LIVE LOAD SURCHARGE

STEM HEIGHT	PILE SPACING										QUANTITIES						
	FOOTING GEOMETRY				TRANSVERSE					LONGITUDINAL				PER FOOT			WALL DETAILING SCHEME ②
	DIM. a	DIM. b	DIM. c	DIM. d	FRONT ROW TO BACK ROW	FRONT ROW TO 2ND ROW	2ND ROW TO 3RD ROW	3RD ROW TO BACK ROW	BACK ROW TO HEEL	FRONT ROW	2ND ROW	3RD ROW	BACK ROW	STEEL PLAIN (POUND)	CONCRETE ① (CU.YD.)	NO. OF PILES	
5	1'-8 1/2"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	30.88	0.489	0.167	SHORT	
6	1'-9"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.489	0.167	SHORT	
7	1'-9 1/2"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.489	0.167	SHORT	
8	1'-10"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.489	0.167	SHORT	
9	1'-10 1/2"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.489	0.167	SHORT	
10	1'-11"	2'-0"	2'-6"	6'-0"	3'-3"				1'-6"	12'-0"		12'-0"	39.14	0.566	0.167	MEDIUM	
11	1'-11 1/2"	2'-2"	2'-6"	6'-6"	3'-9"				1'-6"	12'-0"		12'-0"	44.78	0.613	0.167	MEDIUM	
12	2'-0"	2'-4"	2'-9"	7'-0"	4'-3"				1'-6"	12'-0"		12'-0"	45.84	0.725	0.167	MEDIUM	
13	2'-0 1/2"	2'-6"	2'-9"	7'-6"	4'-9"				1'-6"	11'-3"		12'-0"	54.75	0.777	0.172	MEDIUM	
14	2'-1"	2'-9"	2'-9"	8'-0"	5'-3"				1'-6"	10'-3"		12'-0"	60.17	0.829	0.181	MEDIUM	
15	2'-1 1/2"	3'-0"	2'-9"	8'-6"	5'-9"				1'-6"	9'-6"		12'-0"	61.91	0.881	0.189	TALL	
16	2'-2"	3'-3"	2'-9"	9'-0"	6'-3"				1'-6"	7'-6"		12'-0"	77.66	0.933	0.217	TALL	
17	2'-2 1/2"	3'-6"	2'-9"	9'-6"	6'-9"				1'-6"	6'-3"		12'-0"	85.14	0.985	0.243	TALL	
18	2'-3"	3'-9"	2'-9"	10'-0"		3'-3"	3'-6"		2'-0"	10'-0"	12'-0"	12'-0"	90.86	1.037	0.267	TALL	
19	2'-3 1/2"	4'-0"	2'-9"	10'-6"		3'-6"	3'-9"		2'-0"	9'-3"	12'-0"	12'-0"	104.08	1.089	0.275	TALL	
20	2'-4"	4'-3"	2'-9"	11'-0"		3'-9"	4'-0"		2'-0"	8'-6"	12'-0"	12'-0"	100.10	1.169	0.284	TALL	
21	2'-4 1/2"	4'-6"	2'-9"	11'-4"		4'-0"	4'-1"		2'-0"	8'-3"	8'-3"	12'-0"	113.26	1.206	0.326	TALL	
22	2'-5"	4'-8"	2'-9"	11'-9"		4'-3"	4'-3"		2'-0"	7'-6"	7'-6"	12'-0"	114.77	1.250	0.350	TALL	
23	2'-5 1/2"	4'-10"	3'-0"	12'-3"		4'-6"	4'-6"		2'-0"	7'-3"	7'-3"	12'-0"	122.76	1.416	0.359	TALL	
24	2'-6"	5'-0"	3'-0"	12'-9"		4'-9"	4'-9"		2'-0"	6'-9"	6'-9"	12'-0"	132.36	1.474	0.380	TALL	
25	2'-6 1/2"	5'-3"	3'-0"	13'-3"		3'-3"	3'-3"	3'-6"	2'-0"	8'-0"	8'-0"	12'-0"	140.66	1.532	0.417	TALL	
26	2'-7"	5'-6"	3'-0"	13'-9"		3'-6"	3'-6"	3'-6"	2'-0"	7'-6"	7'-6"	12'-0"	142.78	1.590	0.433	TALL	
27	2'-7 1/2"	5'-9"	3'-0"	14'-3"		3'-6"	3'-9"	3'-9"	2'-0"	7'-3"	7'-3"	12'-0"	168.87	1.649	0.443	TALL	
28	2'-8"	6'-0"	3'-3"	14'-9"		3'-9"	3'-9"	4'-0"	2'-0"	6'-9"	6'-9"	12'-0"	163.78	1.843	0.463	TALL	
29	2'-8 1/2"	6'-2"	3'-3"	15'-3"		4'-0"	4'-0"	4'-0"	2'-0"	6'-0"	6'-0"	12'-0"	172.46	1.905	0.500	TALL	
30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

ALLOWABLE LOADS PER PILE: AXIAL 60 TONS
 BENDING 13 KIPS

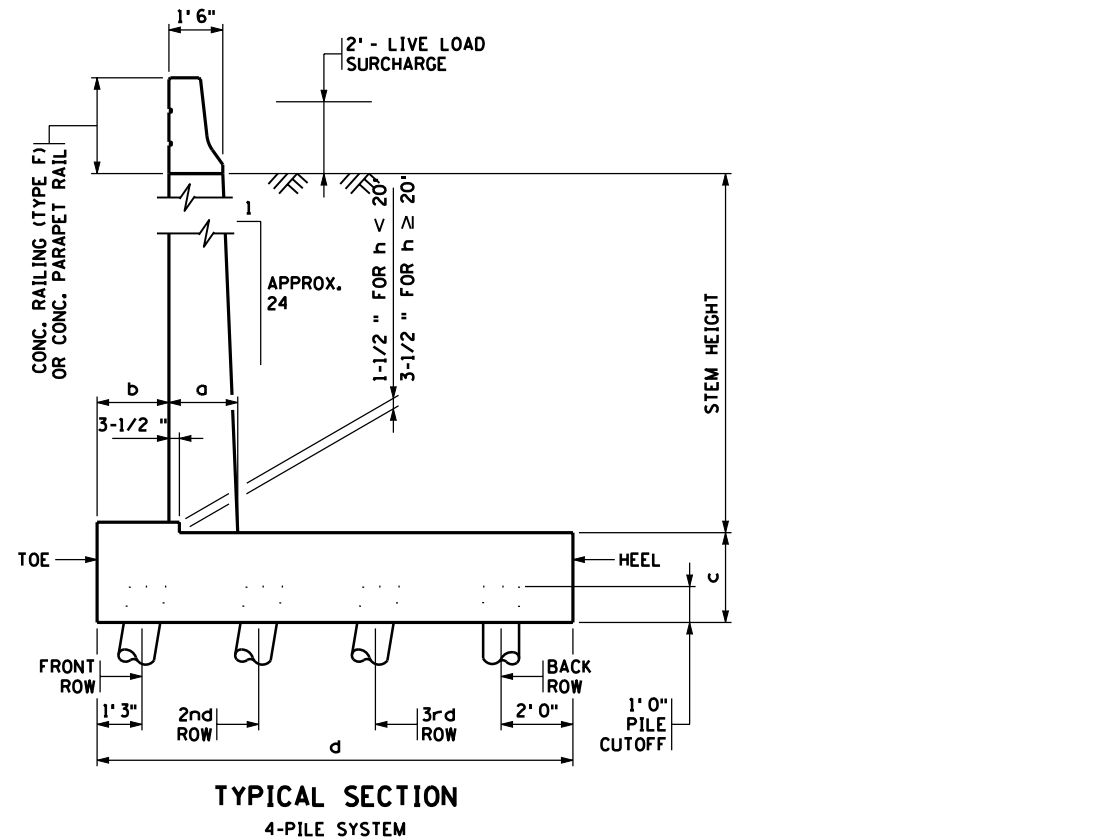
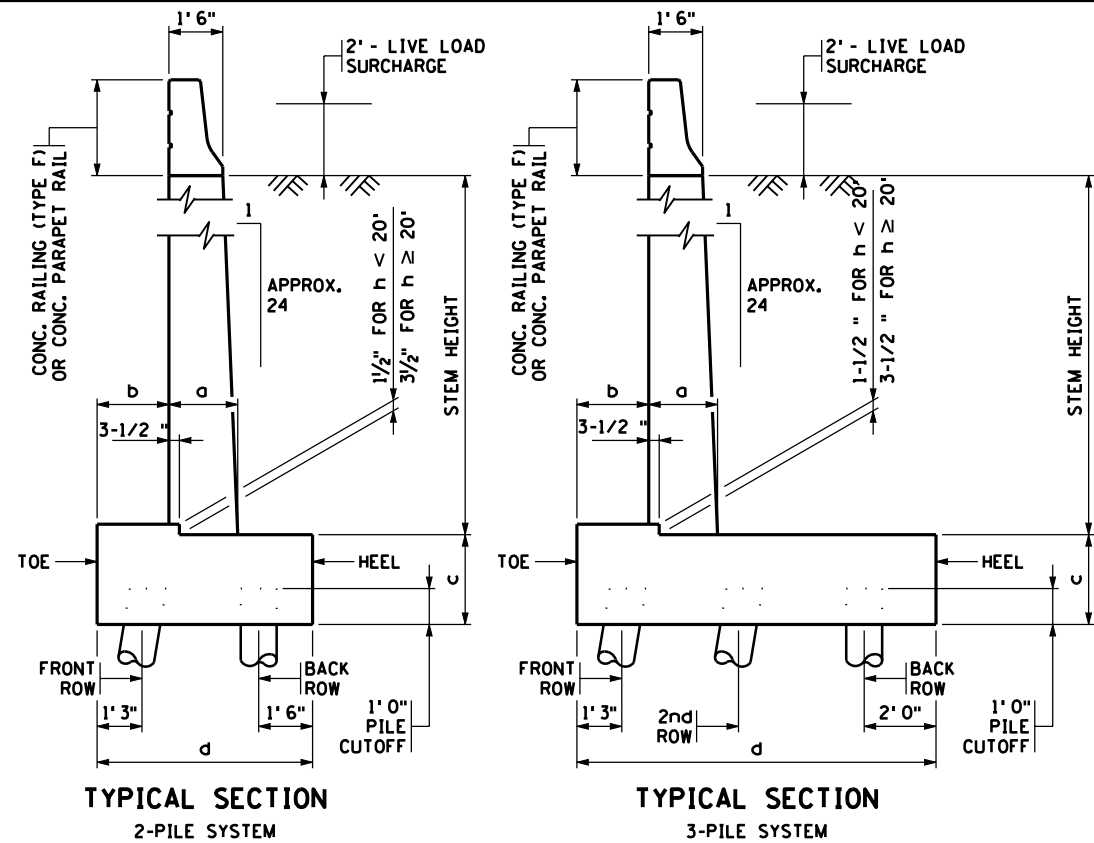
PILE SPACING AND FOOTING DIMENSIONS - 55 TON PILES
2' - LIVE LOAD SURCHARGE

STEM HEIGHT	PILE SPACING										QUANTITIES						
	FOOTING GEOMETRY				TRANSVERSE					LONGITUDINAL				PER FOOT			WALL DETAILING SCHEME ②
	DIM. a	DIM. b	DIM. c	DIM. d	FRONT ROW TO BACK ROW	FRONT ROW TO 2ND ROW	2ND ROW TO 3RD ROW	3RD ROW TO BACK ROW	BACK ROW TO HEEL	FRONT ROW	2ND ROW	3RD ROW	BACK ROW	STEEL PLAIN (POUND)	CONCRETE ① (CU.YD.)	NO. OF PILES	
5	1'-8 1/2"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	30.88	0.489	0.167	SHORT	
6	1'-9"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.489	0.167	SHORT	
7	1'-9 1/2"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.489	0.167	SHORT	
8	1'-10"	1'-9"	2'-3"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.489	0.167	SHORT	
9	1'-10 1/2"	1'-9"	2'-6"	5'-9"	3'-0"				1'-6"	12'-0"		12'-0"	38.61	0.542	0.167	SHORT	
10	1'-11"	2'-0"	2'-6"	6'-0"	3'-3"				1'-6"	12'-0"		12'-0"	39.14	0.566	0.167	MEDIUM	
11	1'-11 1/2"	2'-2"	2'-6"	6'-6"	3'-9"				1'-6"	11'-9"		12'-0"	44.78	0.613	0.168	MEDIUM	
12	2'-0"	2'-4"	2'-9"	7'-0"	4'-3"				1'-6"	11'-3"		12'-0"	45.84	0.725	0.172	MEDIUM	
13	2'-0 1/2"	2'-6"	2'-9"	7'-6"	4'-9"				1'-6"	10'-3"		12'-0"	54.75	0.777	0.181	MEDIUM	
14	2'-1"	2'-9"	2'-9"	8'-0"	5'-3"				1'-6"	9'-6"		12'-0"	60.17	0.829	0.189	MEDIUM	
15	2'-1 1/2"	3'-0"	2'-9"	8'-6"	5'-9"				1'-6"	8'-3"		12'-0"	61.91	0.881	0.205	TALL	
16	2'-2"	3'-3"	2'-9"	9'-0"	6'-3"				1'-6"	6'-6"		12'-0"	77.66	0.933	0.237	TALL	
17	2'-2 1/2"	3'-6"	2'-9"	9'-6"	6'-9"				1'-6"	6'-3"		12'-0"	85.14	0.985	0.274	TALL	
18	2'-3"	3'-9"	2'-9"	10'-0"		3'-3"	3'-6"		2'-0"	10'-6"	10'-6"	12'-0"	90.86	1.037	0.288	TALL	
19	2'-3 1/2"	4'-0"	2'-9"	10'-6"		3'-6"	3'-9"		2'-0"	9'-3"	9'-3"	12'-0"	98.57	1.089	0.300	TALL	
20	2'-4"	4'-3"	2'-9"	11'-0"		3'-9"	4'-0"		2'-0"	8'-6"	8'-6"	12'-0"	100.10	1.169	0.319	TALL	
21	2'-4 1/2"	4'-6"	2'-9"	11'-4"		4'-0"	4'-1"		2'-0"	8'-0"	8'-0"	12'-0"	113.26	1.206	0.333	TALL	
22	2'-5"	4'-8"	2'-9"	11'-9"		4'-3"	4'-3"		2'-0"	7'-6"	7'-6"	12'-0"	114.77	1.250	0.359	TALL	
23	2'-5 1/2"	4'-10"	3'-0"	12'-3"		4'-6"	4'-6"		2'-0"	6'-9"	6'-9"	12'-0"	122.76	1.416	0.380	TALL	
24	2'-6"	5'-0"	3'-0"	12'-9"		4'-9"	4'-9"		2'-0"	6'-3"	6'-3"	12'-0"	132.36	1.474	0.403	TALL	
25	2'-6 1/2"	5'-3"	3'-3"	13'-3"		5'-0"	5'-0"		2'-0"	5'-9"	5'-9"	12'-0"	140.66	1.655	0.431	TALL	
26	2'-7"	5'-6"	3'-3"	13'-9"		3'-6"	3'-6"	3'-6"	2'-0"	6'-9"	6'-9"	12'-0"	142.78	1.718	0.463	TALL	
27	2'-7 1/2"	5'-9"	3'-3"	14'-3"		3'-6"	3'-9"	3'-9"	2'-0"	6'-6"	6'-6"	12'-0"	161.29	1.781	0.474	TALL	
28	2'-8"	6'-0"	3'-3"	14'-9"		3'-9"	3'-9"	4'-0"	2'-0"	6'-0"	6'-0"	12'-0"	163.78	1.843	0.500	TALL	
29	2'-8 1/2"	6'-2"	3'-3"	15'-3"		4'-0"	4'-0"	4'-0"	2'-0"	5'-6"	5'-6"	11'-0"	146.77	2.047	0.545	TALL	
30	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

ALLOWABLE LOADS PER PILE: AXIAL 55 TONS
 BENDING 12 KIPS

NOTES

- ALL PILES TO BE BATTERED 4V TO 1H EXCEPT BACK ROW WHICH IS TO BE DRIVEN VERTICAL
- ① FOOTING CONCRETE. FOR STEM CONCRETE (3Y43) SEE APPROPRIATE SPREAD FOOTING TABLE.
- ② SEE STANDARD PLANS 5-297.621 TO .623 FOR REINFORCING DETAILS.



REVISED:
 APPROVED: MAY 31, 2006

Nathan C. Klopp
 STATE BRIDGE ENGINEER

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.
 Certified By: *Nathan C. Klopp* Lic. No. 43836
 Printed Name: NATHAN C. KLOPP Date: 3/3/2010

STANDARD SHEET NO. 5-297.632 (2 OF 4)
 STANDARD APPROVED
 MAY 31, 2006

RETAINING WALL (LIVE LOAD SURCHARGE)
 PILE FOOTING GEOMETRY AND DATA

3:39:58 PM

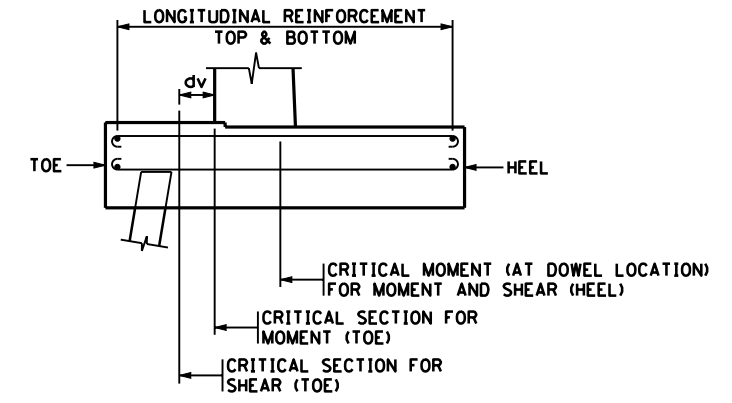
5/6/2010

kerickson

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Default

WALL LOADING CASE: 2' - LIVE LOAD SURCHARGE

WALL HEIGHT h	FOOTING REINFORCEMENT - PILE FOOTING									
	TOE (BOT. TRANS.) 30 TON PILES ③	TOE (BOT. TRANS.) 50 TON PILES ③	TOE (BOT. TRANS.) 55 TON PILES ③	TOE (BOT. TRANS.) 60 TON PILES ③	HEEL (TOP TRANSVERSE) ①	LONGIT. (T & B) 30 TON PILES ②	LONGIT. (T & B) 50 TON PILES ②	LONGIT. (T & B) 55 TON PILES ②	LONGIT. (T & B) 60 TON PILES ②	
	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	BAR SIZE & SPA.	
5	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*22 @ 12"	*22 @ 12"	*19 @ 12"	*19 @ 12"	
6	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	
7	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*25 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	
8	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*22 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	
9	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	
10	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	
11	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	
12	*19 @ 12"	*19 @ 12"	*16 @ 12"	*16 @ 12"	*16 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	
13	*22 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*16 @ 12"	*25 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	
14	*25 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	*16 @ 12"	*22 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	
15	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*16 @ 12"	*22 @ 12"	*25 @ 12"	*22 @ 12"	*22 @ 12"	
16	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*16 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
17	*22 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*16 @ 12"	*22 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
18	*22 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*22 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
19	*22 @ 12"	*22 @ 12"	*19 @ 12"	*22 @ 12"	*19 @ 12"	*22 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
20	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
21	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*22 @ 12"	*19 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
22	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*22 @ 12"	*22 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
23	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*22 @ 12"	*19 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
24	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*25 @ 12"	*19 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
25	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*25 @ 12"	*19 @ 12"	*22 @ 12"	*25 @ 12"	*25 @ 12"	
26	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*25 @ 12"	*19 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
27	*22 @ 12"	*19 @ 12"	*19 @ 12"	*22 @ 12"	*29 @ 12"	*19 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
28	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*29 @ 12"	*22 @ 12"	*25 @ 12"	*25 @ 12"	*25 @ 12"	
29	*19 @ 12"	*19 @ 12"	*19 @ 12"	*19 @ 12"	*29 @ 12"	*22 @ 12"	*22 @ 12"	*22 @ 12"	*25 @ 12"	
30	---	---	---	---	---	---	---	---	---	



TYPICAL SECTION

NOTES:

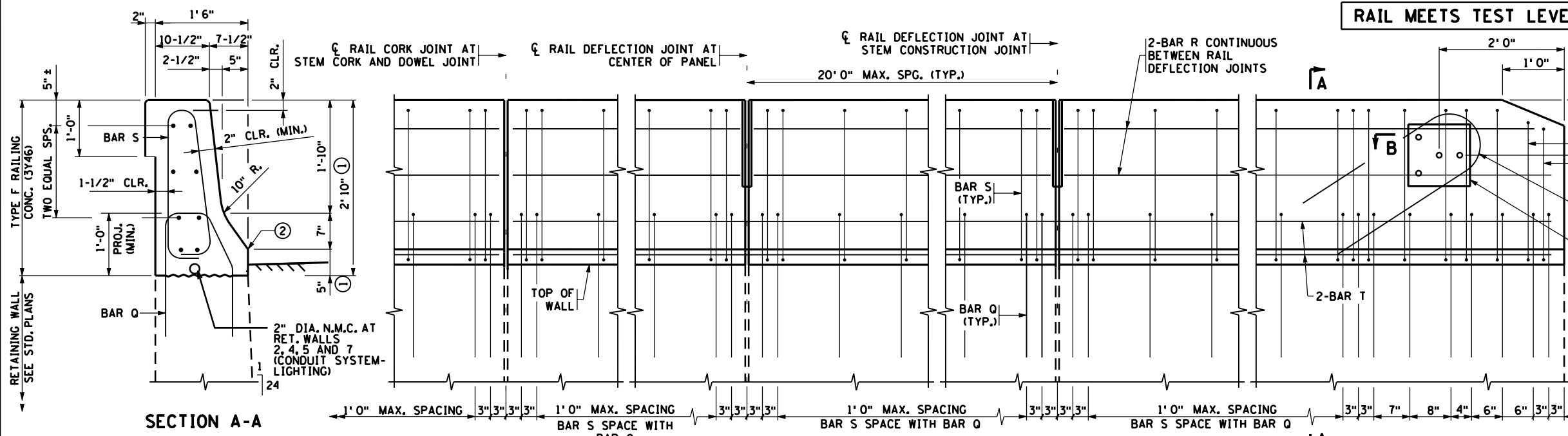
- FOOTING BAR SIZE, #16 BAR MINIMUM FOR TRANSVERSE REINFORCEMENT, #19 BAR MINIMUM FOR LONGITUDINAL REINFORCEMENT, PER Mn/DOT
- ① BASED ON GROSS SOIL LOAD ON HEEL
- ② BASED ON $wl^2/10$ BETWEEN BACK ROW PILE SPACING OR MINIMUM REINFORCEMENT, 0.002Ag.
- ③ AREA OF STEEL PROVIDED INCLUDES BACK FACE STEM DOWELS, EXCLUDING #16 DOWELS, SEE STEM REINFORCEMENT.

REVISED:
APPROVED: MAY 31, 2006
Daniel J. Anderson
STATE BRIDGE ENGINEER

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.
Certified By: *Nathan C. Klopp*
Printed Name: NATHAN C. KLOPP
Date: 3/3/2010

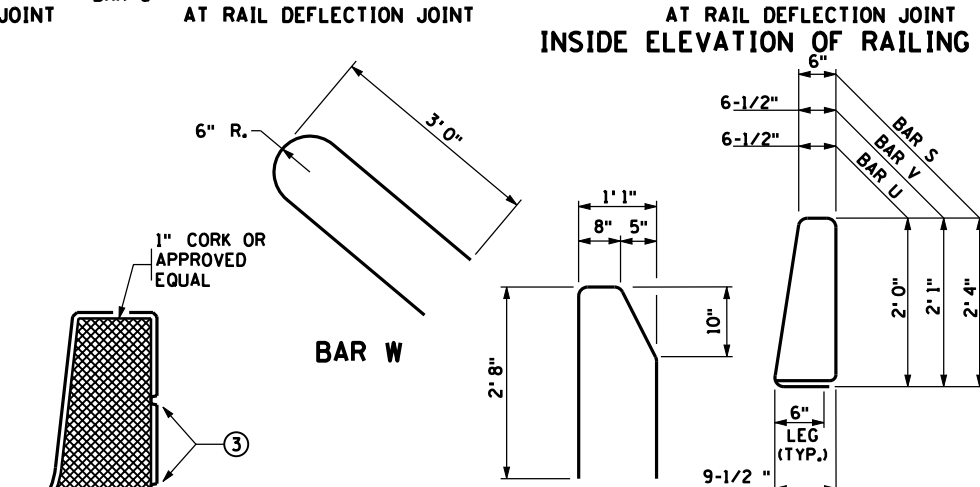
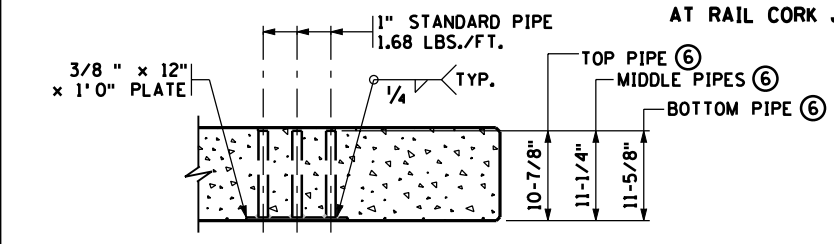
STANDARD SHEET NO. 5-297.632 (4 OF 4)
STANDARD APPROVED: MAY 31, 2006

MODIFIED
TITLE: RETAINING WALL (LIVE LOAD SURCHARGE) PILE FOOTING REINFORCEMENT DETAILS
STATE PROJ. NO. 62-649-27 CTB, 6212-165 (TH 36) SHEET NO. 402 OF 534 SHEETS
RW23 OF RW25



BILL OF REINFORCEMENT
24' 6" PANEL LENGTH (5)
WITH GUARDRAIL CONNECTION, PANELS: 1A

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	S1609E	4	6'-1"	BENT	RAILING DOWEL
S	R1601E	32	6'-3"	BENT	RAILING - VERTICAL
V	R1602E	1	5'-9"	BENT	RAILING - VERTICAL
U	R1603E	1	5'-7"	BENT	RAILING - VERTICAL
R	R1304E	8	11'-11"	STR.	RAILING - HORIZONTAL
W	R2205E	1	6'-7"	BENT	RAILING - VERTICAL
T	R1306E	4	24'-2"	BENT	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
3.0 CU YD (4)					390 POUND

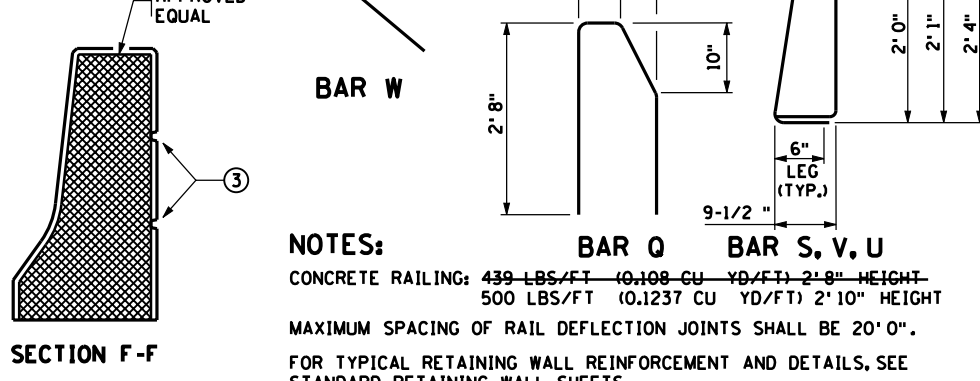
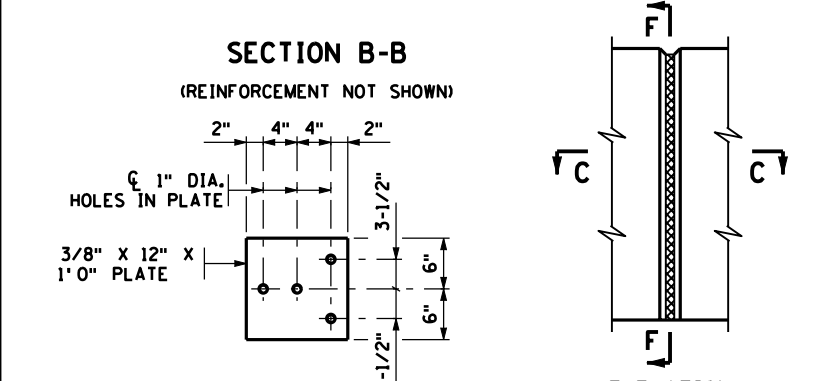


BILL OF REINFORCEMENT
TYPICAL RAILING ON RETAINING WALL (5)
20' 0" PANEL LENGTH, PANELS: 1B

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	S1609E	4	6'-1"	BENT	RAILING DOWEL
S	R1601E	30	6'-3"	BENT	RAILING - VERTICAL
V	R1602E	1	5'-9"	BENT	RAILING - VERTICAL
U	R1603E	1	5'-7"	BENT	RAILING - VERTICAL
R	R1304E	8	9'-8"	STR.	RAILING - HORIZONTAL
T	R1306E	4	19'-8"	STR.	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
2.5 CU YD (4)					300 POUND

BILL OF REINFORCEMENT
24' 0" PANEL LENGTH (5)
WITH GUARDRAIL CONNECTION, PANELS: 2A, 3B

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	S1609E	4	6'-1"	BENT	RAILING DOWEL
S	R1601E	32	6'-3"	BENT	RAILING - VERTICAL
V	R1602E	1	5'-9"	BENT	RAILING - VERTICAL
U	R1603E	1	5'-7"	BENT	RAILING - VERTICAL
R	R1304E	8	11'-8"	STR.	RAILING - HORIZONTAL
W	R2205E	1	6'-7"	BENT	RAILING - VERTICAL
T	R1306E	4	24'-0"	BENT	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
3.0 CU YD (4)					390 POUND

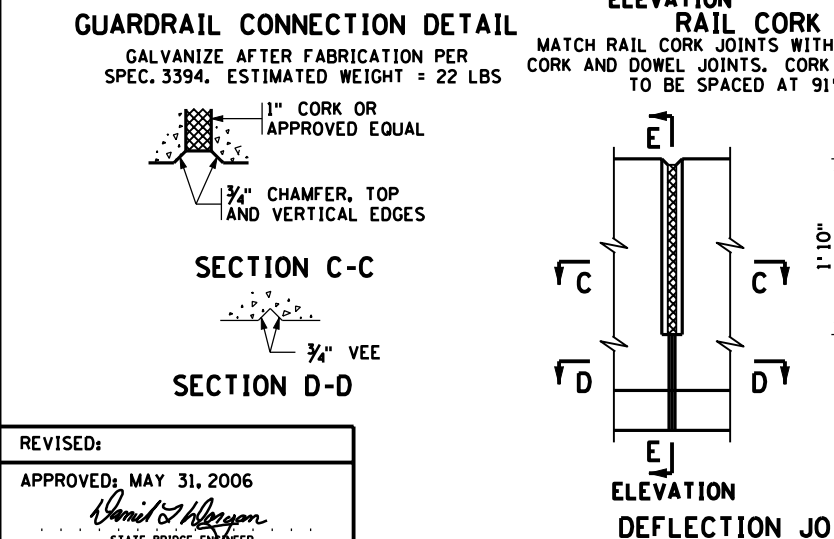


BILL OF REINFORCEMENT
TYPICAL RAILING ON RETAINING WALL (5)
18' 0" PANEL LENGTH, PANELS: 2B, 3A

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
S	R1601E	24	6'-3"	BENT	RAILING - VERTICAL
R	R1304E	8	8'-8"	STR.	RAILING - HORIZONTAL
T	R1306E	4	17'-8"	STR.	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
2.2 CU YD (4)					250 POUND

BILL OF REINFORCEMENT
14' 0" PANEL LENGTH (5)
WITH GUARDRAIL CONNECTION, PANELS: 4D

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	S1609E	4	6'-1"	BENT	RAILING DOWEL
S	R1601E	22	6'-3"	BENT	RAILING - VERTICAL
V	R1602E	1	5'-9"	BENT	RAILING - VERTICAL
U	R1603E	1	5'-7"	BENT	RAILING - VERTICAL
R	R1304E	4	13'-8"	STR.	RAILING - HORIZONTAL
W	R2205E	1	6'-7"	BENT	RAILING - VERTICAL
T	R1306E	4	13'-8"	BENT	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
1.7 CU YD (4)					270 POUND



NOTES:
 1. USE 2' 10" BARRIER HEIGHT WHEN RETAINING WALL IS ADJACENT TO A BRIDGE WITH OVERLAY, 3" DIMENSION BECOMES 5".
 2. NO CHAMFER.
 3. SEE RAIL RUSTICATION DETAIL ON THIS SHEET.
 4. QUANTITY GIVEN FOR 2' 10" BARRIER HEIGHT. FOR INFORMATIONAL PURPOSES ONLY.
 5. REINFORCEMENT SHOWN ASSUMES RAIL DEFLECTION JOINT LOCATED IN CENTER OF PANEL.
 6. DIMENSIONS INCLUDE 3/8" PLATE.

CONCRETE RAILING: 439 LBS/FT (0.108 CU YD/FT) 2'-8" HEIGHT
 500 LBS/FT (0.1237 CU YD/FT) 2' 10" HEIGHT

MAXIMUM SPACING OF RAIL DEFLECTION JOINTS SHALL BE 20' 0".

FOR TYPICAL RETAINING WALL REINFORCEMENT AND DETAILS, SEE STANDARD RETAINING WALL SHEETS.

THE GUARDRAIL CONNECTION IS INCLUDED IN THE PRICE BID FOR TYPE F RAIL CONCRETE (3Y46).

BAR S MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

CONCRETE RAIL (TYPE F) SHALL BE PAID FOR ON A LINEAL FOOT BASIS.

GUARDRAIL CONNECTION SHALL BE STRUCTURAL STEEL, SPEC. 3306 AND GALVANIZED AFTER FABRICATION PER SPEC. 3394.

BILL OF REINFORCEMENT
TYPICAL RAILING ON RETAINING WALL (5)
30' 0" PANEL LENGTH, PANELS: 4A, 4B, 4C

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
S	R1601E	36	6'-3"	BENT	RAILING - VERTICAL
R	R1304E	8	14'-8"	STR.	RAILING - HORIZONTAL
T	R1306E	4	29'-8"	STR.	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
3.7 CU YD (4)					390 POUND

BILL OF REINFORCEMENT
30' 6" PANEL LENGTH (5)
WITH GUARDRAIL CONNECTION, PANELS: 5A, 6A, 7A, 8A

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	S1609E	4	6'-1"	BENT	RAILING DOWEL
S	R1601E	38	6'-3"	BENT	RAILING - VERTICAL
V	R1602E	1	5'-9"	BENT	RAILING - VERTICAL
U	R1603E	1	5'-7"	BENT	RAILING - VERTICAL
R	R1304E	8	14'-11"	STR.	RAILING - HORIZONTAL
W	R2205E	1	6'-7"	BENT	RAILING - VERTICAL
T	R1306E	4	30'-2"	BENT	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
1.7 CU YD (4)					270 POUND

BILL OF REINFORCEMENT
TYPICAL RAILING ON RETAINING WALL (5)
14' 0" PANEL LENGTH, PANELS: 5B

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
S	R1601E	20	6'-3"	BENT	RAILING - VERTICAL
R	R1304E	8	6'-8"	STR.	RAILING - HORIZONTAL
T	R1306E	4	13'-8"	STR.	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
1.7 CU YD (4)					200 POUND

BILL OF REINFORCEMENT
30' 6" PANEL LENGTH (5)
WITH GUARDRAIL CONNECTION, PANELS: 5A, 6A, 7A, 8A

BAR	MARK	NO.	LENGTH	SHAPE	LOCATION
Q	S1609E	4	6'-1"	BENT	RAILING DOWEL
S	R1601E	38	6'-3"	BENT	RAILING - VERTICAL
V	R1602E	1	5'-9"	BENT	RAILING - VERTICAL
U	R1603E	1	5'-7"	BENT	RAILING - VERTICAL
R	R1304E	8	14'-11"	STR.	RAILING - HORIZONTAL
W	R2205E	1	6'-7"	BENT	RAILING - VERTICAL
T	R1306E	4	30'-2"	BENT	RAILING - HORIZONTAL
TYPE F RAIL CONC. (3Y46)					REINFORCEMENT BARS (EPOXY)
3.8 CU YD (4)					460 POUND

REVISED:
 APPROVED: MAY 31, 2006
 Samuel J. Hanson
 STATE BRIDGE ENGINEER

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: MAW				
DESIGNER: MAW				
CHECKED BY: NCK				

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.
 Certified By: Nathan C. Klopp, No. 43836
 Licensed Professional Engineer
 Printed Name: NATHAN C. KLOPP Date: 3/3/2010

STANDARD SHEET NO. 5-297.634
 STANDARD APPROVED: MAY 31, 2006
 MODIFIED



RAMSEY COUNTY, MINNESOTA
 TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

RETAINING WALL CONCRETE BARRIER (TYPE MOD. F, TL-4)
 FILE NO. 403
 RAMSP108790
 RW24 OF RW25
 534

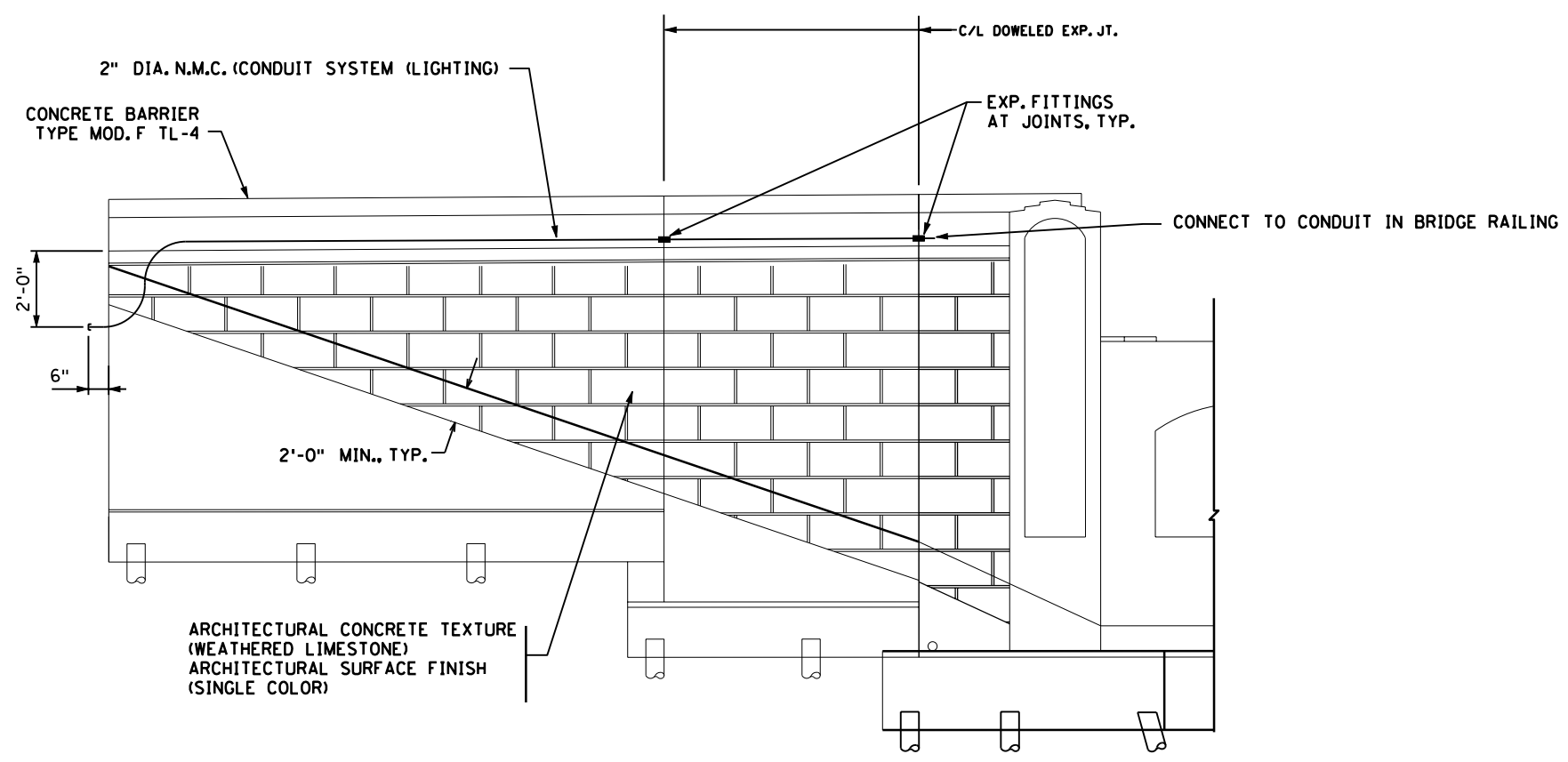
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kerickson

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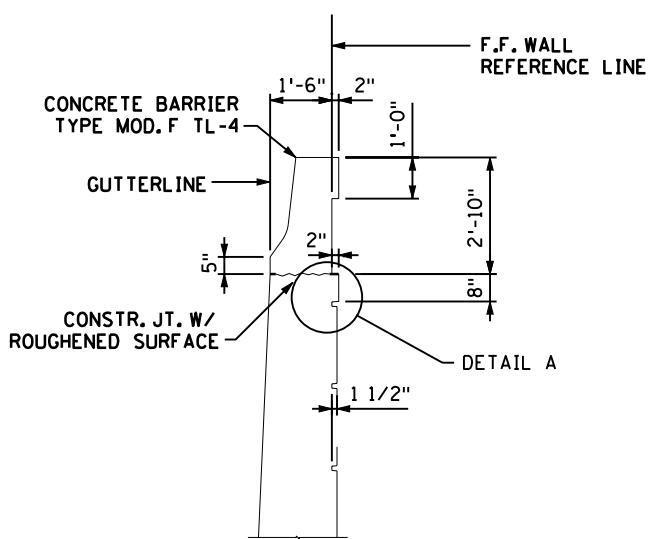


TYPICAL WALL ELEVATION

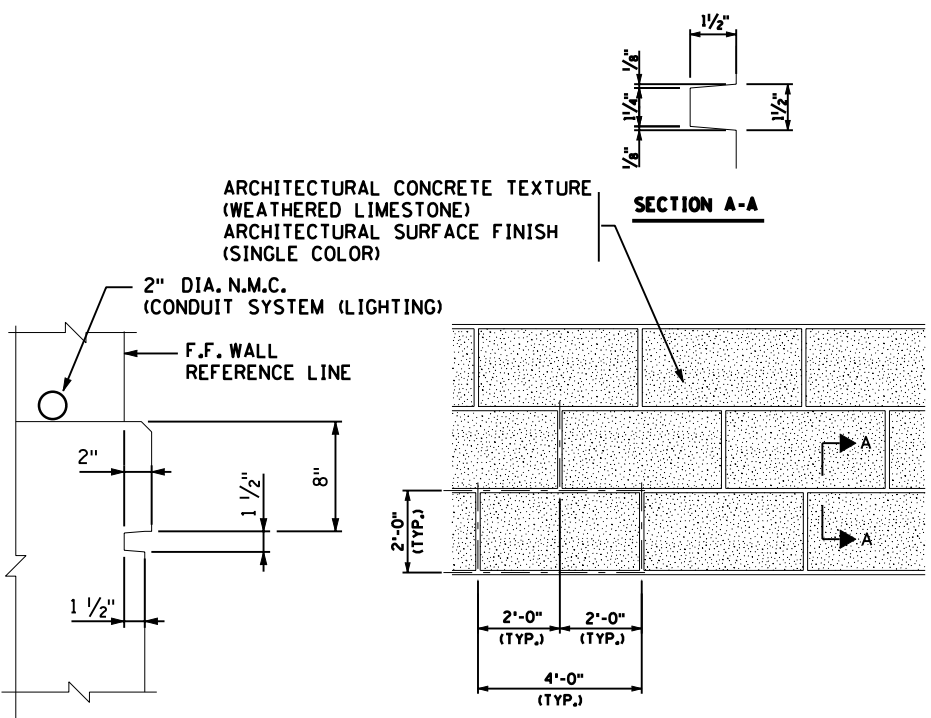
CONDUIT SYSTEM - LIGHTING ①

ITEM	UNIT	WALL 2	WALL 4	WALL 5	WALL 7
2" DIA. N.M.C.	L.F.	43	105	45	32
2" DIA. EXPANSION FITTING	EACH	2	4	1	2
2" DIA. N.M.C. END CAPS	EACH	1	1	1	1

① INCIDENTAL.



DETAIL A



BLOCK PATTERN DETAILS

DESIGN TEAM				REVISIONS			
NO.	BY	DATE		NO.	BY	DATE	

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.

Certified By: *Nathan C. Klopp* License No. 43836
 Licensed Professional Engineer
 Printed Name: NATHAN C. KLOPP Date: 3/3/2010



RAMSEY COUNTY, MINNESOTA
TH 36 / RICE STREET (CSAH 49)
 SP NO. 62-649-27 CTB, 6212-165 (TH 36)

**CONCRETE RETAINING
 WALL RUSTICATION AND
 CONDUIT SYSTEM (LIGHTING)**

FILE NO. **404**
 RAMSP108790
 RW25
 OF RW25 **534**