

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## ANOKA COUNTY HIGHWAY DEPARTMENT

### CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS SURFACING, MILL AND OVERLAY, SIGNING AND STRIPING

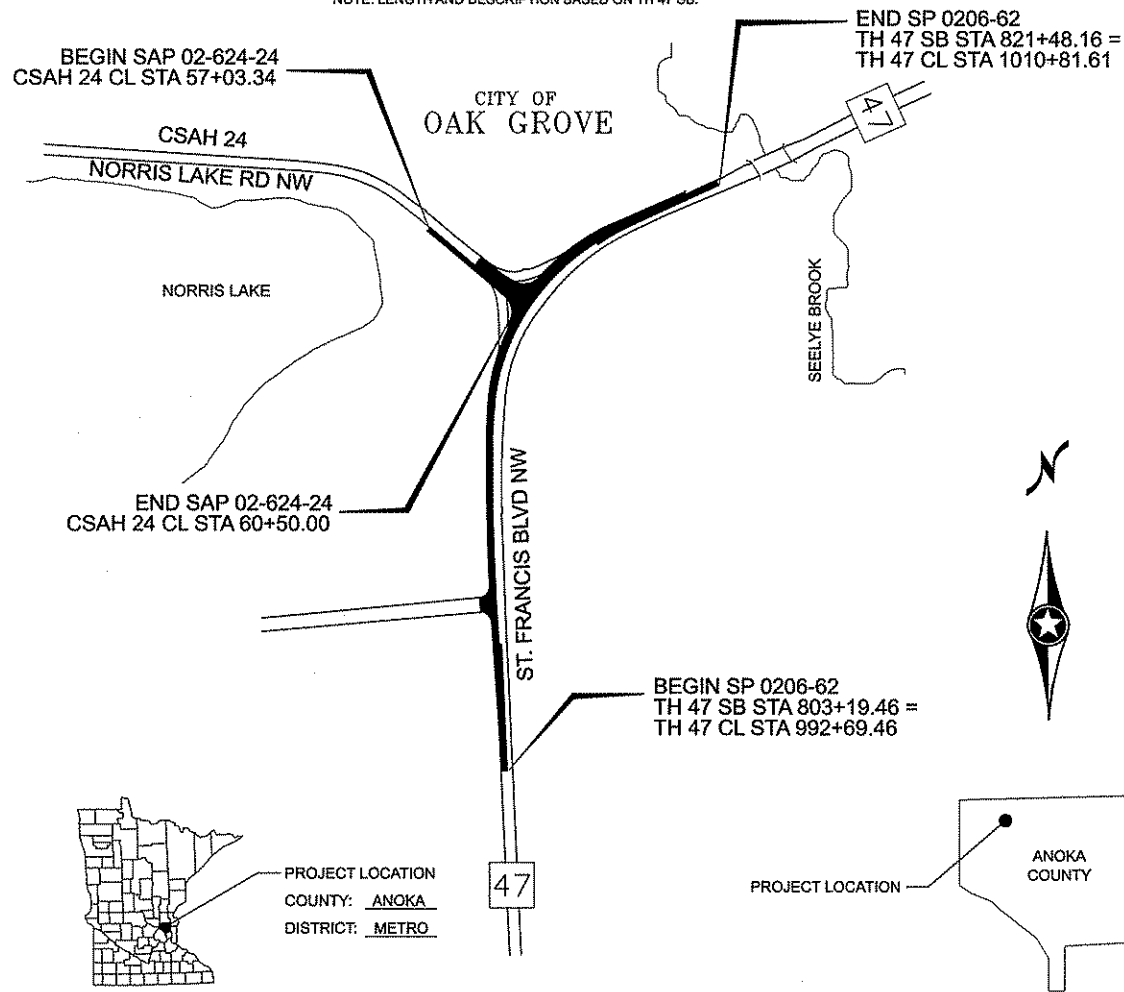
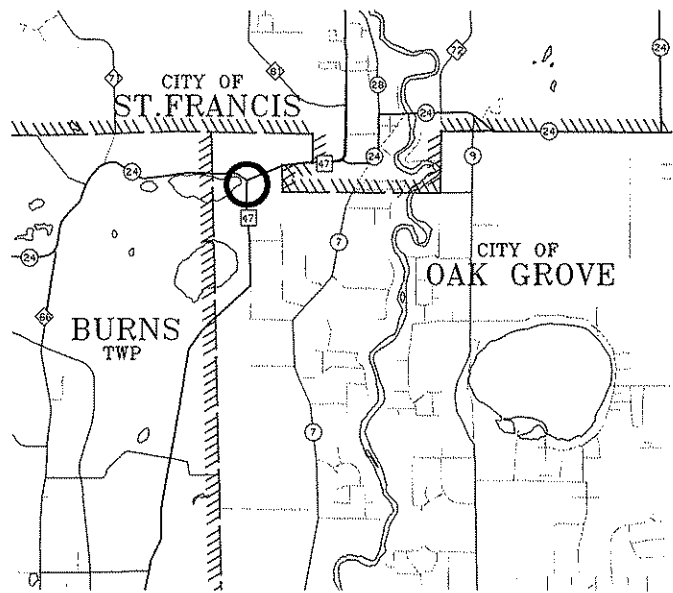
LOCATED ON CSAH 24 BETWEEN 347' WEST OF TH 47 AND TH 47  
 LOCATED ON TH 47 BETWEEN 596' NORTH OF CSAH 24 AND 1233' SOUTH OF CSAH 24

STATE AID PROJ. NO. 02-624-24 STATE PROJ. NO. 0206-62  
CSAH 24 (NORRIS LAKE RD NW) TH 47 (ST. FRANCIS BLVD NW)

GROSS LENGTH <u>346.66</u> FEET <u>0.066</u> MILES BRIDGES-LENGTH <u>0.00</u> FEET <u>0.000</u> MILES EXCEPTIONS-LENGTH <u>0.00</u> FEET <u>0.000</u> MILES NET LENGTH <u>346.66</u> FEET <u>0.066</u> MILES	GROSS LENGTH <u>1828.70</u> FEET <u>0.346</u> MILES BRIDGES-LENGTH <u>0.00</u> FEET <u>0.000</u> MILES EXCEPTIONS-LENGTH <u>0.00</u> FEET <u>0.000</u> MILES NET LENGTH <u>1828.70</u> FEET <u>0.346</u> MILES
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REF. POINT 033+00.340 TO REF. POINT 033+00.686  
 NOTE: LENGTH AND DESCRIPTION BASED ON TH 47 SB.

AGREEMENT NUMBER 93747  
 ANOKA COUNTY  
 S.P. 0206-62 (TH 47=110)  
 STATE FUNDS  
 METRO DISTRICT



PROJECT LOCATION  
 COUNTY: ANOKA  
 DISTRICT: METRO

PROJECT LOCATION  
 ANOKA COUNTY

MINN. PROJ. NO. \_\_\_\_\_ STATE FUNDS \_\_\_\_\_

#### GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

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

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

#### INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3	SOILS AND CONSTRUCTION NOTES
4-5	TABULATIONS AND STANDARD PLATES
6	EARTHWORK TABULATIONS AND SUMMARY
7-8	TYPICAL SECTIONS AND DETAILS
9	ALIGNMENT PLAN
10	REMOVAL PLAN
11-13	CONSTRUCTION PLAN AND PROFILE
14	INTERSECTION DETAILS
15	SUPERELEVATION PLAN
16-17	STORM WATER POLLUTION PREVENTION PLAN
18	EROSION CONTROL AND TURF ESTABLISHMENT PLAN
19-22	EROSION CONTROL STANDARD PLANS
23	INPLACE SIGNING AND STRIPING
24-25	DETOUR PLAN
26-29C	PERMANENT SIGNING / STRIPING
30-46	CROSS SECTIONS

THIS PLAN CONTAINS 49 SHEETS

Approved: *[Signature]* 4/23/2007  
 ANOKA COUNTY ENGINEER

Approved: *[Signature]* 4/27/2009  
 CITY OF OAK GROVE ENGINEER

Recommended for Approval: *[Signature]* 6/12/2009  
 DISTRICT TRANSPORTATION ENGINEER

Recommended for Approval: *[Signature]* 5/4/2009  
 DISTRICT MATERIALS ENGINEER

Recommended for Approval: *[Signature]* 5/11/2009  
 DISTRICT WATER RESOURCE/HYDRAULICS ENGINEER

Recommended for Approval: *[Signature]* 5-12-2009  
 DISTRICT TRAFFIC ENGINEER

Recommended for Approval: *[Signature]* 6/30/2009  
 STATE PERMITTING ENGINEER

Recommended for Approval: *[Signature]* 7/7/2009  
 DIRECTOR, OFFICE OF LAND MANAGEMENT

Approved: *[Signature]* July 2009  
 STATE DESIGN ENGINEER

For: *[Signature]* 5/4/2009  
 DISTRICT STATE AID ENGINEER REVIEWED FOR COMPLIANCE WITH STATE AID POLICY

For: *[Signature]* 5/4/2009  
 STATE AID ENGINEER APPROVED FOR STATE AID FUNDING

#### DESIGN DESIGNATION (CSAH 24)

ESAL <sub>20</sub> <u>298,486</u>	FUNCTIONAL CLASSIFICATION <u>MAJOR COLLECTOR</u>
R VALUE <u>50</u>	NO. OF TRAFFIC LANES <u>2</u> NO. OF PARKING LANES <u>0</u>
ADT (2009) <u>2005</u>	DESIGN SPEED <u>55</u> MPH <u>CSAH 24</u>
PROJ. ADT (2029) <u>3207</u>	STOPPING SIGHT DISTANCE BASED ON:
PROJ. HCADT (2029) <u>189</u>	HEIGHT OF EYE <u>3.5'</u> HEIGHT OF OBJECT <u>2.0'</u>
SOIL FACTOR <u>NA</u>	DESIGN SPEED NOT ACHIEVED AT:
<u>10</u> TON DESIGN	STA. _____ TO STA. _____ MPH _____

#### DESIGN DESIGNATION (TH 47)

ESAL <sub>20</sub> <u>1,120,363</u>	FUNCTIONAL CLASSIFICATION <u>A MINOR ARTERIAL</u>
R VALUE <u>50</u>	NO. OF TRAFFIC LANES <u>2</u> NO. OF PARKING LANES <u>0</u>
ADT (2009) <u>7521</u>	DESIGN SPEED <u>55</u> MPH <u>TH 47</u>
PROJ. ADT (2029) <u>12034</u>	STOPPING SIGHT DISTANCE BASED ON:
PROJ. HCADT (2029) <u>710</u>	HEIGHT OF EYE <u>3.5'</u> HEIGHT OF OBJECT <u>2.0'</u>
SOIL FACTOR <u>NA</u>	DESIGN SPEED NOT ACHIEVED AT:
<u>10</u> TON DESIGN	STA. <u>803+19.46</u> TO STA. <u>821+44.27</u> MPH <u>40</u>

#### PLAN SYMBOLS

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

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

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

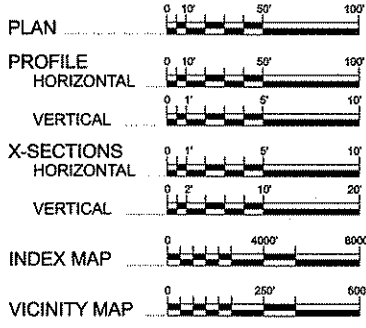
- BUILDING (One Story Frame) \_\_\_\_\_
- F-FRAME C-CONCRETE
- S-STONE T-TILE
- B-BRICK ST-STUCCO

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

#### UTILITY SYMBOLS

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

#### SCALES



1	04/23/2009	EM	JO	CK	UPDATED BEGIN AND END CONSTRUCTION LABELS, AND SHEET NUMBERS UNDER INDEX.
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:102-624-24\Plan\0262424_TSH.dgn					

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

PRINT NAME: CURT KOBILARCIK  
 SIGNATURE: *[Signature]*  
 DATE: 4-23-09 LICENSE NO. 24756

DRAWN BY EJ DATE 12/22/08  
 DESIGN BY MN DATE 11/10/08  
 CHECKED BY JO DATE 12/23/08



ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47=110)  
 STATE AID PROJECT NO. 02-624-24  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE PROJECT NO. \_\_\_\_\_

TITLE SHEET

Sheet 1 of 46 Sheets

## STATEMENT OF ESTIMATED QUANTITIES

TAB. NO.	NOTE	ITEM NO.	ITEM	UNIT	TOTAL QUANTITY	ANOKA COUNTY SAP 02-624-24	MNDOT SP 0206-62 (11)
		2021.501	MOBILIZATION	LUMP SUM	1	0.16	0.84
A	(1)	2101.502	CLEARING	TREE	13	6	7
A	(1)	2101.507	GRUBBING	TREE	13	6	7
B	(2)	2104.501	REMOVE PIPE CULVERTS	LIN FT	3		3
C	(2)	2104.501	REMOVE BITUMINOUS CURB	LIN FT	126	126	
D	(2)	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	2232		2232
D	(3)	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	2082	181	1901
J	(4)	2104.523	SALVAGE SIGN TYPE C	EACH	49	19	30
J	(4)	2104.523	SALVAGE SIGN TYPE SPECIAL	EACH	2	1	1
		2104.601	HAUL SALVAGED MATERIAL	LUMP SUM	1	0.5	0.5
I	(5),(6)	2105.501	COMMON EXCAVATION (P)	CU YD	3457	1064	2393
I	(6)	2105.507	SUBGRADE EXCAVATION	CU YD	1609	394	1215
I	(7)	2105.522	SELECT GRANULAR BORROW (LV)	CU YD	1907		1907
	(8)	2123.509	DOZER	HOUR	15		15
	(9)	2130.501	WATER	M GALLON	25	5	20
E	(10)	2221.503	AGGREGATE BASE (CV) CLASS 5 (P)	CU YD	1559	216	1343
E		2221.503	AGGREGATE SHOULDERING (CV) CLASS 2 (P)	CU YD	44	10	34
D		2232.501	MILL BITUMINOUS SURFACE (2.0")	SQ YD	1198		1198
E		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	579	56	523
E		2360.501	TYPE SP 12.5 WEARING COURSE MIX (2,E)	TON	127	127	
D,E		2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,E)	TON	1123		1123
E		2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (2,B)	TON	179	179	
E		2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (4,B)	TON	548		548
B		2501.511	21" RC PIPE CULVERT CL III	LIN FT	20		20
B		2501.569	21" CS SAFETY APRON	EACH	1		1
		2501.601	CONNECT TO INPLACE CULVERT	LUMP SUM	1		1
B		2511.501	RANDOM RIPRAP CLASS II	CU YD	4	4	
B		2511.515	GEOTEXTILE FILTER TYPE IV	SQ YD	13	13	
F		2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	107	107	
B		2531.604	CONCRETE DRAINAGE FLUME	SQ YD	8	8	
		2554.509	GUIDE POST TYPE B	EACH	1		1
		2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.16	0.84
K		2564.531	SIGN PANELS TYPE C	SQ FT	180	56	124
J		2564.602	TEMPORARILY RELOCATE SIGN TYPE SPECIAL	EACH	2	1	1
G		2573.502	SILT FENCE, TYPE MACHINE SLICED	LIN FT	763	323	440
G		2573.512	TEMPORARY DITCH CHECK TYPE 2	LIN FT	40		40
G		2575.501	SEEDING	ACRE	1.29	0.24	1.05
G		2575.502	SEED MIXTURE 350	POUND	109	20	89
G		2575.511	MULCH MATERIAL TYPE 1	TON	1.94	0.48	1.46
G		2575.519	DISK ANCHORING	ACRE	0.97	0.24	0.73
G		2575.523	EROSION CONTROL BLANKETS, CATEGORY 3	SQ YD	1323		1323
G		2575.532	FERTILIZER TYPE 3	POUND	129	24	105
G		2575.571	RAPID STABILIZATION METHOD 3	M GALLON	1.4	0.2	1.2
K		2582.501	PAVT MESSAGE (LT ARROW) POLY PREFORM	EACH	2		2
K		2582.501	PAVT MESSAGE (RT ARROW) POLY PREFORM	EACH	2		2
K		2582.502	4" SOLID LINE WHITE-EPOXY	LIN FT	2800	550	2250
K		2582.502	24" SOLID LINE WHITE-EPOXY	LIN FT	24		24
K		2582.502	24" SOLID LINE YELLOW-EPOXY	LIN FT	395		395
K		2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	3015	125	2890

**NOTES:**

- (1) CLEARING AND GRUBBING SHALL BE STAKED IN FIELD BY THE ENGINEER.
- (2) ALL REMOVAL ITEMS SHALL BE DISPOSED OFF-SITE. NO DISPOSAL SHALL BE ALLOWED WITHIN THE ROADWAY RIGHT-OF-WAY OR EASEMENTS.
- (3) PAYMENT FOR SAWING BITUMINOUS WILL ONLY BE PAID WHEN THE CUT IS MADE WITH A SAW. NO PAYMENT SHALL BE MADE FOR CUTS MADE BY A MILLING MACHINE OR RECLAIMER.
- (4) SALVAGE TO: ANOKA COUNTY HIGHWAY DEPT, 1440 BUNKER LAKES BLVD NW, ANDOVER, MN OR AS DIRECTED BY MN/DOT.
- (5) INCLUDES INPLACE TOPSOIL AND BITUMINOUS PAVEMENT LESS THAN 6" THICK. BITUMINOUS MATERIAL SHALL BE DISPOSED OUTSIDE THE ROADWAY RIGHT-OF-WAY.
- (6) SEE SOILS AND CONSTRUCTION NOTES.
- (7) SELECT GRANULAR MATERIAL FOR USE IN 4-FOOT SURCHARGE. SEE SHEET 8 FOR DETAILS.
- (8) SHALL BE USED FOR MISCELLANEOUS GRADING ACTIVITIES AS DIRECTED BY THE ENGINEER.
- (9) WATER TO BE USED ONLY FOR DUST CONTROL AS DIRECTED BY THE ENGINEER IN FIELD. WATER USED FOR COMPACTION AND TURF ESTABLISHMENT SHALL BE INCIDENTAL.
- (10) INCLUDES QUANTITY FOR GRAVEL DRIVEWAY.
- (11) SEE LUMP SUM AGREEMENT NUMBER 93747.
- (P) PLAN QUANTITY.

### BASIS OF QUANTITIES

SPEC NO	DESCRIPTION	RATE
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GALLONS / SQ YD / LIFT
2357	BITUMINOUS MATERIAL FOR TACK COAT(OVERLAY)	0.085 GALLONS / SQ YD / LIFT
2360	TYPE SP12.5 WEARING COURSE MIXTURE	113 POUNDS / SQ YD / IN
2360	TYPE SP12.5 NON-WEARING COURSE MIXTURE	113 POUNDS / SQ YD / IN
2575	SEED MIXTURE 350	84.5 POUNDS / ACRE
2575	MULCH MATERIAL TYPE 1	2 TONS / ACRE
2575	SLOW RELEASE FERTILIZER 10-10-10	100 POUNDS / ACRE
2575	RAPID STABILIZATION METHOD 3	6000 GALLONS / ACRE

### INDEX OF TABULATION CHARTS

CHART	SHEET	DESCRIPTION
A	4	CLEARING AND GRUBBING
B	4	CULVERT AND DRAINAGE FLUME TABULATION
C	4	REMOVE BITUMINOUS CURB
D	4	REMOVE/MILL BITUMINOUS SURFACE
E	4	BASE AND BITUMINOUS QUANTITIES
F	4	CONCRETE CURB AND GUTTER
G	4	TURF ESTABLISHMENT AND EROSION CONTROL
H	6	EARTHWORK TABULATION
I	6	EARTHWORK SUMMARY
J	5	INPLACE TRAFFIC
K	5	PERMANENT SIGNING & STRIPING
L	5	GAS - CENTERPOINT ENERGY MINNESOTA GAS
M	5	POWER - CONNEXUS ENERGY
N	5	TELEPHONE - QWEST CORPORATION

1	04/09/2009	EM	JO	CK	UPDATED SEQ. NOTES AND BASIS OF QUANTITIES PER MNDOT REVIEW COMMENTS.
2	06/03/2009	EM	JO	CK	UPDATED SEQ AND NOTES PER MNDOT COMMENTS.
3	06/25/2009	EM	JO	CK	UPDATED SEQ AND NOTES PER MNDOT COMMENTS.
NO	DATE	BY	CHKD	APPR	REVISION

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

PRINT NAME: CURT A. KOBLARCSIK  
 SIGNATURE: *Curt A. Koblarsik*  
 DATE: 6-26-09 LICENSE NO. 24756

DRAWN BY: E.J. DATE: 12/22/08  
 DESIGN BY: MN DATE: 11/10/08  
 CHECKED BY: JO DATE: 12/23/08



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

STATEMENT OF  
ESTIMATED QUANTITIES

SOILS AND CONSTRUCTION NOTES:

1. TOP OF THE GRADING SUBGRADE (GRADING GRADE) SHALL BE DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. BOTTOM OF SUBBASE GRADE SHALL BE DEFINED AS THE BOTTOM OF THE SELECT GRANULAR (BOTTOM OF FROST FREE ZONE).
3. SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL GRANULAR AND FINER GRAINED SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSUITABLE MATERIAL.
4. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2B2.
5. SELECT GRANULAR MATERIAL SHALL BE USED TO BACK FILL THE EMBANKMENT UNDER THE NEW ROADWAY CORE, UP TO THE TOP OF THE GRADING SUBGRADE.
6. SELECT GRANULAR MATERIAL SHALL BE USED FOR THE 4-FOOT SURCHARGE AS SHOWN IN THE PLAN.
7. TOPSOIL SHALL BE DEFINED AS EXISTING SOILS WHICH MEET MN/DOT SPECIFICATION 3877 THAT WOULD BE SUITABLE FOR REUSE.
8. UNSUITABLE SOILS ARE DEFINED AS SOILS WHICH DO NOT MEET OR ARE NOT MANUFACTURED TO MEET ANY OF THE ABOVE DEFINED CATEGORIES, AND ARE THEREFORE NOT REUSABLE AS STRUCTURAL BACKFILL OR EMBANKMENT WITHIN THE ROADWAY CORE.
9. REGULAR EMBANKMENT SHALL BE DEFINED AS ALL GRADING MATERIALS THAT ARE APPROPRIATE FOR REUSE ON THE PROJECT BUT THAT MAY NOT MEET THE REQUIREMENTS OF SUITABLE GRADING MATERIALS. REGULAR EMBANKMENT MAY CONSIST OF GRADING SOILS NOT MEETING GRANULAR SPECIFICATIONS AND THEREFORE NOT SUITABLE FOR REUSE UNDER ROAD CORE. REGULAR EMBANKMENT MAY CONSIST OF TOPSOIL AND ORGANIC SOILS, UNLESS THE ENGINEER DETERMINES THESE SOILS ARE NOT REUSABLE, IN WHICH CASE THE CONTRACTOR SHALL REMOVE THEM FROM THE PROJECT LIMITS WITH NO DIRECT PAYMENT. REGULAR EMBANKMENT SHALL NOT CONSIST OF DEBRIS.
10. AGGREGATE SHOULDERING MATERIAL FOR THIS PROJECT SHALL BE CLASS 2 IN ACCORDANCE WITH MNDOT 2221 AND 3138.
11. MUCK DISPOSAL SHALL BE DEFINED AS THE UNSUITABLE MATERIAL USED OUTSIDE THE ROADWAY CORE TO BACK FILL THE MUCK EXCAVATION.
12. UNLESS OTHERWISE REQUIRED, IN ANY NEW ROADWAY CORE EMBANKMENT CONSTRUCTION, THE UPPER 48" OF THE SUBGRADE SHALL BE CONSTRUCTED WITH SELECT GRANULAR MATERIAL AS SPECIFIED IN THE PLANS. THE REMAINDER OF THE SUBGRADE SHALL BE CONSTRUCTED WITH SUITABLE GRADING MATERIAL. EXCEPTIONS INCLUDE FILLING IN SENSITIVE BOTTOM OR STANDING WATER CONDITIONS.
13. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3C3.
14. OBTAIN COMPACTION ON THE GRADING PORTIONS OF PERMANENT CONSTRUCTION, INCLUDING SELECT GRANULAR, IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS, MN/DOT SPECIFICATION 2105.3F1.
15. COMPACTION OF THE AGGREGATE BASE LAYER SHALL BE OBTAINED IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD".
16. OBTAIN COMPACTION ON GRADING PORTIONS OF TEMPORARY CONSTRUCTION IN ACCORDANCE WITH THE "QUALITY COMPACTION METHOD" REQUIREMENTS. TEMPORARY GRADING AND AGGREGATE BASE PORTIONS PLACED BY THE "QUALITY COMPACTION METHOD" SHOULD BE REMOVED AFTER CONSTRUCTION IS COMPLETE.
17. NOTE NOT USED.
18. NOTE NOT USED.
19. UNLESS OTHERWISE REQUIRED, IN ALL TREATMENTS, THE CONTRACTOR SHOULD STRIVE TO SUBSTANTIALLY MATCH THE SOILS INPLACE IN THE UPPER 5.0 FEET OF THE ROADWAY.
20. UNLESS OTHERWISE REQUIRED, ADD 1:20 TAPERS TO THE FULL DEPTH STATION LIMITS OF ALL SUBGRADE EXCAVATIONS. PROVIDE 1:20 TRANSITION TAPERS BETWEEN CHANGES IN SUBGRADE EXCAVATION DEPTHS LONGITUDINALLY. THE 1:20 TAPER SHALL BE CONSTRUCTED SO THAT THE GRANULAR BACKFILL MATERIAL OVERLAYS THE ADJACENT PLASTIC SOIL BACKFILL.
21. WHERE CONNECTING NEW SURFACING ADJACENT TO ANY INPLACE PAVEMENTS TO BE WIDENED, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A MINIMUM 1:2 SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
22. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:20 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.

23. WHERE MATCHING INTO INPLACE CROSSROADS, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:4 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
24. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON THE EXISTING PAVEMENT. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.05 GALLONS/SQ. YD. BETWEEN BITUMINOUS LAYERS AND 0.085 GALLONS/SQ. YD. ON MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY) OR MC AND RC LIQUID ASPHALTS. THE ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPECIFICATION 2357.
25. THE BITUMINOUS MIXTURE SHALL MEET THE MOST CURRENT REQUIREMENTS OF MNDOT SPECIFICATION 2360.
26. STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. APPROXIMATE DIMENSIONS ENCOUNTERED ARE 0.5 FEET MINIMUM TO 2.0 FEET MAXIMUM.
27. QUANTITIES SHOWN ON THE EARTHWORK TABULATION REPRESENT ALL EARTHWORK QUANTITIES BELOW THE PROPOSED GRADING GRADE OF ALL PERMANENT ROADWAYS. QUANTITIES REQUIRED ABOVE THE GRADING GRADE OR FOR TEMPORARY CONSTRUCTION ARE PROVIDED IN DETAIL ON THE AGGREGATE AND BITUMINOUS SUMMARY TABS.
28. FOR ALL ROADWAYS, UNLESS OTHERWISE REQUIRED, PROVIDE FOR A 12" SUBCUT BELOW THE TOP OF THE GRADING GRADE TO ASSURE UNIFORMITY AND COMPACTION. THE BOTTOM OF THE SUBCUT SHALL BE SHAPED AND COMPACTED BY THE QUALITY COMPACTION METHOD WITH A MINIMUM OF 4 PASSES OF AN APPROVED ROLLER. REPLACEMENT FILL SHALL BE SELECT GRANULAR MATERIAL.
29. EXISTING UNPAVED AREAS SHALL BE CORRECTED, CORRECTION SHALL INCLUDE SUBCUTTING OF VEGETATION, SOILS CONTAINING SOD/ROOTS AND SIGNIFICANTLY ORGANIC SOILS WHEN CONSTRUCTING AN EMBANKMENT. ON GRADING SLOPES STEEPER THAN 1:4, CONSTRUCT STEPS IN SLOPE PER MN/DOT SPECIFICATION 2105.3B WHEN CONSTRUCTING AN EMBANKMENT.
30. AS A PRECAUTIONARY MEASURE FROM A SOILS STANDPOINT, TRAFFIC LANES TO BE USED DURING CONSTRUCTION MUST BE DELINEATED TO KEEP VEHICLES A SAFE DISTANCE AWAY FROM THE ADJACENT EXCAVATION. THE DELINEATION SHOULD COINCIDE WITH POINTS ESTABLISHED BY PROJECTING 1:2 OR GREATER (FLATTER) SLOPE BETWEEN THE EDGE OF THE TRAFFIC SURFACE AND THE BOTTOM OF THE EXCAVATION. WHERE THESE SLOPES ARE NOT POSSIBLE, CHEMICAL STABILIZATION OF THE SOILS OR A TEMPORARY RETAINING WALL WILL LIKELY BE NEEDED.
31. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
32. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER AND SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
33. DISTURBED SOILS BELOW THE GROUNDWATER TABLE IN UTILITY TRENCHES WILL LIKELY BE UNSUITABLE FOR SUPPORT OF THE UTILITY PIPES. IN THESE AREAS THE BOTTOM OF THE UTILITY TRENCH SHALL BE SUBCUT 1 TO 2 FEET AND THE DISTURBED SOIL REPLACED BY SELECT GRANULAR BORROW AND TRENCH ROCK AS DIRECTED BY THE ENGINEER.
34. ANY MATERIAL INCLUDING UNSUITABLE SOILS NOT USED ON PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE PROJECT AND DISPOSED OF IN ACCORDANCE WITH MNDOT SPECIFICATIONS.
35. PIPE SEWERS CONNECTING MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH SPECIFICATION 2503. BEDDING AND BACKFILL SHALL CONSIST OF UNIFORM SUITABLE GRADING MATERIAL MATCHING ADJACENT SOILS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
36. DISPOSITION OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH SPECIFICATION 2105.3D.
37. NOTE NOT USED.
38. SWAMP EXCAVATION - SWAMP DEPOSITS SHALL BE REMOVED FROM BENEATH THE PROPOSED ROADWAY CORE, INCLUDING LATERAL OVERSIZING, AS SHOWN IN THE TYPICAL SECTIONS AND IN ACCORDANCE WITH SECTION 5-2.02.01 OF THE MNDOT GEOTECHNICAL AND PAVEMENT MANUAL. IN SWAMP AREAS, EXCAVATION DEWATERING SHALL BE PERFORMED TO ALLOW COMPLETE OBSERVATION OF THE SOILS EXPOSED IN THE EXCAVATION BOTTOM. DEWATERING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 5-2.04 OF THE MNDOT GEOTECHNICAL AND PAVEMENT MANUAL.
39. INPLACE BITUMINOUS PAVEMENT RANGES FROM 4" TO 8" THICK. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THIS BEFORE SUBMITTING BID. VALUE WILL NOT BE INCREASED FROM ESTIMATED QUANTITY.
40. WHERE FILL MUST BE PLACED INTO WATER OR ONTO WET SUBGRADE SOILS, FILL SHALL CONSIST OF SELECT GRANULAR BORROW.
41. SURFICIAL ORGANIC TOPSOIL, SILT, CLAY OR SILT SAND LOCATED LESS THAN FOUR FEET BELOW THE TOP OF THE PAVEMENT SHALL BE REMOVED IN NEW EMBANKMENT AREAS, PRIOR TO EMBANKMENT CONSTRUCTION, - AND SHALL BE REPLACED WITH SELECT GRANULAR MATERIAL.

1	06/03/2009	EM	JO	CK	UPDATED NOTE 6.
2	06/25/2009	EM	JO	CK	UPDATED NOTES 5, 10 AND 34.
NO	DATE	BY	CKD	APPR	REVISION
	06/25/2009				06/25/2009 9:55:57 AM

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

PRINT NAME: CURT A. KOBILARCSIK


SIGNATURE: *Curt Kobilarsik*

DATE: 6-26-09 LICENSE NO. 24768

DRAWN BY: EJ DATE: 12/22/08

DESIGN BY: MN DATE: 11/10/08

CHECKED BY: JO DATE: 12/23/08



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

STATE PROJECT NO. 0206-62 (TH 47)

STATE AID PROJECT NO. 02-624-24

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

COUNTY PROJECT NO. \_\_\_\_\_

**SOILS AND CONSTRUCTION NOTES**

Sheet 3 of 46 Sheets

CLEARING AND GRUBBING								A	
STATION TO STATION		LOCATION				CLEAR TREE	GRUB TREE		
		ALIGN	BEGIN	END					
CSAH 24 ( 02-624-24 )									
57+23.34	59+00.00	CSAH 24	LT	52	LT	130	6	6	
SUBTOTAL							6	6	
TH 47 ( 0206-62 )									
806+92.00	815+00.00	TH 47 SB	LT	37	LT	36	7	7	
SUBTOTAL							7	7	
TOTAL							13	13	

BASE AND BITUMINOUS QUANTITIES										E		
STATION TO STATION	LOCATION	DESCRIPTION	BITUMINOUS SURFACE	TYPE SP 12.5 WEAR (SPWEB240E)	TYPE SP 12.5 WEAR (SPWEB440E)	TYPE SP 12.5 NON WEAR (SPNWB230B) (1)	TYPE SP 12.5 NON WEAR (SPNWB430B) (1)	TACK COAT	CLASS 5 AGGREGATE (2)	AGGREGATE SHOULDERING CL 2		
											SQ YD	TON
CSAH 24 ( 02-624-24 )												
57+03.34	60+25	CSAH 24	MAIN	1124	127		179		56	216	10	
SUBTOTAL				1124	127		179		56	216	10	
TH 47 ( 0206-62 )												
803+19.46	821+48.16	TH 47 SB	MAIN	4602		983			548	421	1343	34
806+51.27	817+95.13	TH 47 SB	OVERLAY	1198					102			
SUBTOTAL				5800		983			548	523	1343	34
TOTAL				6924	127	983	179	548	579	1559	44	

(1) INCLUDES QUANTITY FOR ADDITIONAL 1/4 INCH TO DESIGN PAVEMENT THICKNESS.  
(2) INCLUDES QUANTITY FOR GRAVEL DRIVEWAY ACCESS.

CULVERT AND DRAINAGE FLUME TABULATION										B			
STATION TO STATION		LOCATION				REMOVE PIPE CULVERTS	FURNISH AND INSTALL						
							21" RC PIPE CULVERT CLASS III	21" CS SAFETY APRON	CONC FLUME	RIPRAP CL II	GEOTEXTILE FABRIC		
ALIGN	BEGIN	END	LIN FT	LIN FT	EACH	SQ YD	CU YD	SQ YD					
CSAH 24 ( 02-624-24 )													
59+77	59+84	CSAH 24	25	LT	37	LT			8	4	13		
SUBTOTAL							8	4	13				
TH 47 ( 0206-62 )													
810+46	810+50	TH 47 SB	31	LT	52	LT	3	20	1				
SUBTOTAL							3	20	1				
TOTAL							3	20	1	8	4	13	

CONCRETE CURB AND GUTTER					F	
STATION TO STATION		LOCATION		DESCRIPTION	CONCRETE CURB & GUTTER DESIGN B624	
					LIN FT	
ALIGN	OFFSET				LIN FT	
CSAH 24 ( 02-624-24 )						
58+76	59+83	CSAH 24	20'	LT	SHOULDER	107
TOTAL						107

REMOVE BITUMINOUS CURB					C	
STATION TO STATION		LOCATION			REMOVE BITUMINOUS CURB	
		ALIGN	OFFSET	LIN FT		
CSAH 24 ( 02-624-24 )						
58+75.66	59+83.00	CSAH 24	14	LT		126
TOTAL						126

TURF ESTABLISHMENT AND EROSION CONTROL										G	
LOCATION	SILT FENCE	TEMP DITCH CHECK TYPE 2	SEEDING	SEED		MULCH MATERIAL TYPE 1	DISK ANCHOR	EROSION CONTROL BLANKETS (STRAW 2S)	FERTILIZER TYPE 3 10-10-10	RAPID STABILIZATION METHOD 3	
				350							
STA. TO STA.	LIN FT	LIN FT	ACRE	POUND	TON	ACRE	SQ YD	POUND	M GALLON		
CSAH 24 ( 02-624-24 )											
56+90 TO 60+00	323			0.05	4	0.10	0.05		5		
57+03 TO 58+68				0.05	4	0.10	0.05		5		
58+74 TO 60+11				0.14	12	0.28	0.14		14	0.2	
58+84 TO 60+13											
SUBTOTAL				323	0.24	20	0.48	0.24	24	0.2	
TH 47 ( 0206-62 )											
803+19 TO 804+09				0.06	5	0.12	0.06		6		
804+09 TO 807+36				0.17	14	0.34	0.17		17		
807+74 TO 810+13				0.14	12	0.28	0.14		14		
810+13 TO 815+27	278			0.33	28	0.66	0.33		33		
815+97 TO 821+48	162	40		0.35	30	0.06	0.03	1323	35	1.2	
SUBTOTAL				440	40	1.05	0.73	1323	105	1.2	
TOTAL				763	40	1.29	1.09	1.94	0.97	1323	129

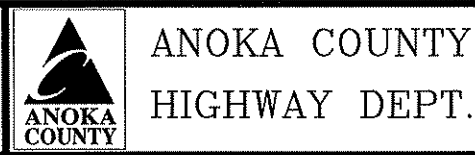
NOTES:  
- SEED MIX 350: Application Rate 84.5 pounds/acre. Native mix for general roadside areas.  
- MULCH MATERIAL TYPE 1: Application rate 2 tons per acre  
- FERTILIZER TYPE 3, 10-10-10: Application rate 100 pounds per acre.  
- RAPID STABILIZATION METHOD 3: Application rate 6000 gallon per acre  
- Quantities are based on 110% of the computed area.

REMOVE/MILL BITUMINOUS SURFACE						D	
STATION TO STATION		LOCATION		REMOVE BITUMINOUS PAVEMENT	SAWING BITUMINOUS PAVEMENT	MILL BITUMINOUS SURFACE	2 INCH WEAR (SPWEB440E)
CSAH 24 ( 02-624-24 )							
57+23.34	60+50.00	CSAH 24	EB & WB		181		
SUBTOTAL					181		
TH 47 ( 0206-62 )							
803+19.46	821+48.16	TH 47 SB	SB	2232	1901		
806+51.27	817+95.13	TH 47 SB	RT		1198	140	
SUBTOTAL				2232	1901	1198	140
TOTAL				2232	2082	1198	140

1	04/09/2009	EM	JO	CK	UPDATED TAB E AND TAB G.
2	06/09/2009	EM	JO	CK	UPDATED CULVERT QUANTITIES IN TAB B.
3	06/25/2009	EM	JO	CK	UPDATED TAB B AND TAB E PER MNDOT REVIEW COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
					06/25/2009 12:54:41 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: CURT A. KOBIARCSIK  
SIGNATURE: *Curt A. Kobiarcsik*  
DATE: 6-26-09 LICENSE NO. 24756

DRAWN BY EJ DATE 12/22/08  
DESIGN BY MN DATE 11/10/08  
CHECKED BY JO DATE 12/23/08



STATE PROJECT NO. 0206-62 (TH 47)  
STATE AID PROJECT NO. 02-624-24  
CITY PROJECT NO.  
COUNTY PROJECT NO.



INPLACE TRAFFIC							J
STATION (LNB) TH 47	STATION (LEB) CSAH 24	ADDRESS/DESCRIPTION (NOTES)	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE SPECIAL	TEMPORARY SIGN TYPE SPECIAL RELOCATE (1)	SIGN NUMBER	NOTES
			EACH	EACH	EACH		
996+70	RT		1			W1-2R	
996+70	RT		1			W13-1	
998+10	RT		1			M2-1A	
998+10	RT		1			M3-4A	
998+10	RT		1			M1-6A	
1000+95	LT		1			R2-1	
1002+15	LT		1			W1-8R	
1002+15	LT		1			W1-8L	
1002+85	RT		1			M3-4A	
1002+85	RT		1			M1-6A	
1002+85	RT		1			M6-2AL	
1003+00	LT		1			W1-8R	
1003+00	LT		1			W1-8L	
1003+50	LT		1			W1-8R	
1004+25	LT		1			W1-8R	
1004+25	LT		1			W1-8L	
1004+40	LT		1			W1-6	
1005+00	LT		1			W1-8R	
1005+00	LT		1			W1-8L	
1005+90	LT		1			W1-6	
1008+15	LT		1			M3-4A	
1008+15	LT		1			M1-6A	
1008+15	LT		1			M6-2AR	
1008+15	RT		1			M3-1A	
1008+15	RT		1			M1-5A	
1008+55	LT		1			W1-8R	
1008+55	LT		1			W1-8L	
1009+35	LT		1			W1-8R	
1009+35	LT		1			W1-8L	
1010+70	LT		1			X4-5	
57+30	RT		1			W11-2	
57+30	RT		1			W16-7np	
57+45	LT		1			W11-2	
57+45	LT		1			W16-7np	
58+95	RT		1			M4-5A	
58+95	RT		1			M3-2A	
58+95	RT		1			M1-6A	
58+95	RT		1			M6-1AL	
58+95	LT		1			W11-2	
59+65	LT		1			R1-2	
59+65	LT		1			X4-13	
59+75	LT		1			X4-5	
60+05	RT		1			W1-7	
60+05	RT		1			X4-2	
60+05	RT		1			X4-2	
60+15	RT	NORRIS LAKE RD		1	1	STREET SIGN	
60+15	RT	SAINT FRANCIS BLVD		1	1	STREET SIGN	
60+20	LT		1			M3-4A	
60+20	LT		1			M1-6A	
60+50	RT		1			R1-1	
60+50	RT		1			X4-13	
<b>TOTAL</b>			<b>49</b>	<b>2</b>	<b>2</b>		

NOTE: FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER. RELOCATION INCIDENTAL.

PERMANENT SIGNING & STRIPING				K
ITEM	LOCATION	EACH	LIN FT	SQ FT
<b>CSAH 24 (02-624-24)</b>				
F & I SIGN PANELS TYPE C	CSAH 24			56
4" SOLID LINE WHITE - EPOXY	CSAH 24		550	
24" SOLID LINE WHITE - EPOXY	CSAH 25		24	
4" DOUBLE SOLID LINE YELLOW - EPOXY	CSAH 24		125	
<b>TH 47 (0206-62)</b>				
F & I SIGN PANELS TYPE C	TH 47			124
LT ARROW POLY PREFORM	TH 47	2		
RT ARROW POLY PREFORM	TH 47	2		
4" SOLID LINE WHITE - EPOXY	TH 47		2250	
24" SOLID LINE YELLOW - EPOXY	TH 47		395	
4" DOUBLE SOLID LINE YELLOW - EPOXY	TH 47		2890	

GAS - CENTERPOINT ENERGY				L
STATION	OFFSET	REMARKS	SIZE & ITEM	
803+19 TO 807+87	RT 27 RT 39	LEAVE	2" PVC	
807+87	RT 39 LT 500	LEAVE	2" PVC	

POWER - CONNEXUS ENERGY				M
STATION	OFFSET	ALIGN	INPLACE ITEM	REMARKS
807+17	43 RT	TH 47 SB	POWER POLE	LEAVE
807+20	22 LT	TH 47 SB	POWER POLE	RELOCATE
807+20	22-200 LT	TH 47 SB	P-BUR	LEAVE
809+74	18 LT	TH 47 SB	POWER POLE	RELOCATE
812+20	22 LT	TH 47 SB	POWER POLE	RELOCATE
814+49	76 LT	TH 47 SB	POWER POLE	LEAVE
816+03	13 LT	TH 47 SB	POWER POLE	RELOCATE
819+02	27 LT	TH 47 SB	POWER POLE	RELOCATE
821+98	33 LT	TH 47 SB	POWER POLE	LEAVE
59+14	46 RT	CSAH 24 CL	POWER POLE	LEAVE

NOTE: RELOCATE DONE BY OTHERS.

TELEPHONE - QWEST CORPORATION				N
STATION	ALIGN	OFFSET	INPLACE ITEM	REMARKS
803+19 TO 807+21	TH 47 SB	LT 38 LT 25	T-BUR	LEAVE
807+21	TH 47 SB	LT 25	T-BUR	LEAVE
807+21 TO 813+70	TH 47 SB	LT 25 LT 25	T-BUR	RELOCATE
813+70 TO 814+67	TH 47 SB	LT 25 LT 42	T-BUR	LEAVE
814+51	TH 47 SB	LT 74	SPLICE BOX	LEAVE
814+51 TO 814+67	TH 47 SB	LT 74 LT 42	T-BUR	LEAVE
816+60 TO 822+25	TH 47 SB	LT 53 LT 42	T-BUR	LEAVE
817+12	TH 47 SB	LT 38 RT 48	T-BUR	LEAVE
817+18 TO 822+07	TH 47 SB	RT 48 RT 36	T-BUR	LEAVE
56+00 TO 59+12	CSAH 24	LT 22 LT 33	2 CABLES T-BUR	LEAVE
58+12	CSAH 24	LT 18 RT 16	CROSSING T-BUR	LEAVE
58+08 TO 59+08	CSAH 24	RT 16 RT 12	T-BUR	RELOCATE
59+08 TO 60+25	CSAH 24	RT 12 RT 96	2 CABLES T-BUR	RELOCATE
59+08	CSAH 24	RT 12 LT 33	2 CROSSING CABLES	RELOCATE
59+12 TO 59+96	CSAH 24	LT 33 LT 112	T-BUR	LEAVE

NOTE: RELOCATE DONE BY OTHERS

UTILITY NOTE:  
THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS 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".

THE FOLLOWING STANDARD PLATES AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY.

STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE
3128H	METAL SAFETY APRON & GRATE
3133C	RIPRAP AT RCP OUTLETS
3145F	CONCRETE PIPE TIES
7100H	CONCRETE CURB AND GUTTER
8000I	STANDARD BARRICADES
8150C	INSTALLATION OF CULVERT MARKERS
9102D	TURF ESTABLISHMENT AREAS

PRIVATE UTILITY OWNER INFORMATION

CenterPoint Energy Minnesota Gas  
700 West Linden Avenue  
Minneapolis, MN 55403  
612-321-5055

Connexus Energy  
14601 Ramsey Blvd.  
Ramsey, MN 55303  
763-323-4268

Qwest Corporation  
425 Monroe Street  
Anoka, MN 55303  
763-712-5017

1	04/09/2009	EM	JO	CK	ADDED 3000L, 3100G AND 3145F TO STANDARD PLATES PER MNDOT COMMENTS.
2	06/24/2009	EM	JO	CK	ADDRESSED MNDOT REVIEW COMMENTS
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:102-624-24\Plan\0262424_TAB.dgn	06/25/2009				12:53:24 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt Kobilarcsik*  
DATE: 6-26-09 LICENSE NO. 24756

DRAWN BY EJ DATE 12/22/08  
DESIGN BY MN DATE 11/10/08  
CHECKED BY JO DATE 12/23/08



ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
STATE AID PROJECT NO. 02-624-24  
CITY PROJECT NO.  
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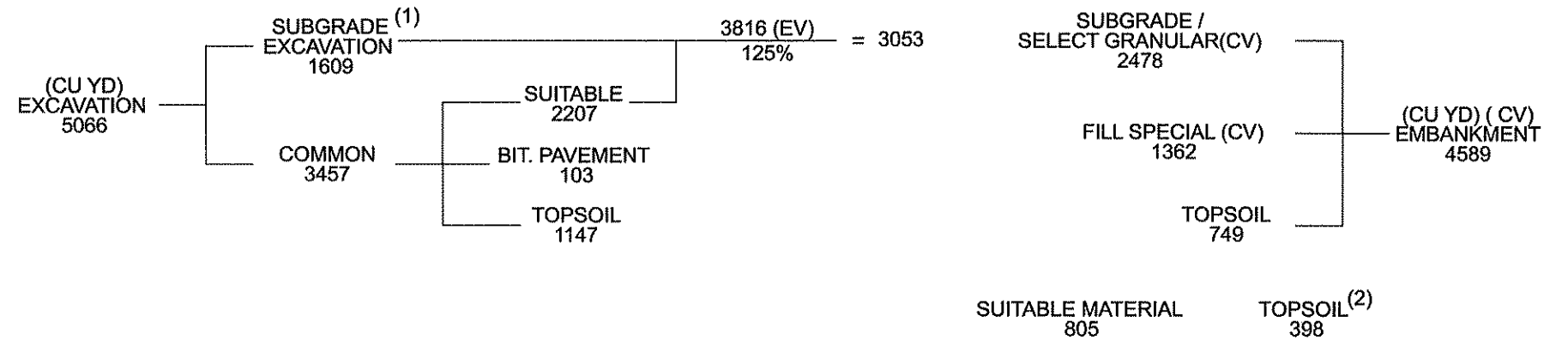
TABULATIONS AND  
STANDARD PLATES  
Sheet 5 of 46 Sheets

EARTHWORK TABULATION (TH 47)						H
STATION	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)			SURCHARGE SELECT GRANULAR (CU YD)
	COMMON (CU YD)	SUBGRADE (CU YD)	TOPSOIL (CU YD)	SUBGRADE (CU YD)	SELECT GRANULAR (CU YD)	
803+19.46						
803+50.00	41	19	11	19	3	
804+00.00	79	32	20	32	4	
804+50.00	90	34	22	34	9	
805+00.00	93	35	22	36	16	
805+50.00	78	33	20	39	19	
806+00.00	61	32	18	42	23	
806+50.00	67	33	18	44	22	
807+00.00	72	26	19	39	19	
807+25.00	34	13	9	17	6	
807+50.00	24	28	5	29	3	
807+75.00	19	40		40	3	
808+00.00	35	25	5	28	3	
808+50.00	98	21	20	33	6	
809+00.00	92	18	20	33	8	
809+50.00	74	16	19	33	13	
810+00.00	47	17	14	33	8	119
810+43.02	59	18	21	29		279
810+50.00	14	3	5	5		55
811+00.00	68	22	25	33		297
811+50.00	29	19	9	33	9	110
812+00.00	45	15	12	33	19	
812+50.00	51	18	17	35	22	
813+00.00	31	20	13	37	34	
813+50.00	25	20	11	38	41	
814+00.00	43	31	15	40	30	
814+50.00	71	41	27	42	13	
814+75.00	53	21	23	21	3	
815+00.00	136	18	35	25	7	
815+25.00	109	17	21	31	13	
815+52.89	15	17		35	17	
815+75.00	9	9		25	10	
816+00.00	11	10		27	7	
816+25.00	27	18	6	28	5	
816+50.00	37	25	13	30	3	
817+00.00	43	54	19	58	7	
817+50.00	38	49	16	56	9	
818+00.00	51	43	19	55	7	
818+50.00	70	47	19	53	5	
819+00.00	86	50	20	51	2	
819+50.00	79	50	19	50		
820+00.00	74	49	15	49		77
820+50.00	57	47	6	47		161
820+60.45	9	8	1	8		31
821+00.00	24	25	3	25		105
821+48.16	25	29	12	29		128
<b>SUBTOTAL</b>	<b>2393</b>	<b>1215</b>	<b>644</b>	<b>1559</b>	<b>428</b>	<b>1362</b>

EARTHWORK TABULATION (CSAH 24)						H
STATION	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)			SURCHARGE SELECT GRANULAR (CU YD)
	COMMON (CU YD)	SUBGRADE (CU YD)	TOPSOIL (CU YD)	SUBGRADE (CU YD)	SELECT GRANULAR (CU YD)	
57+23.34						
57+50.00	14	8	6	15	40	
58+00.00	23	23	6	28	21	
58+50.00	21	28	2	28	1	
58+75.66	21	29	1	28	1	
59+00.00	30	41	2	41	3	
59+50.00	84	86	9	89	11	
59+75.00	119	47	12	47	3	
60+00.00	360	53	32	53		
60+25.00	392	79	35	82		
<b>SUBTOTAL</b>	<b>1064</b>	<b>394</b>	<b>105</b>	<b>411</b>	<b>80</b>	
<b>TOTAL</b>	<b>3457</b>	<b>1609</b>	<b>749</b>	<b>1970</b>	<b>508</b>	<b>1362</b>

	EARTHWORK SUMMARY						SURCHARGE SELECT GRANULAR BORROW (LV) (CU YD)
	EXCAVATION TOTALS		EMBANKMENT TOTALS (CV)			SURCHARGE SELECT GRANULAR (CU YD)	
	COMMON (CU YD)	SUBGRADE (CU YD)	TOPSOIL (CU YD)	SUBGRADE (CU YD)	SELECT GRANULAR (CU YD)		
CSAH 24	1064	394	105	411	80		
TH 47	2393	1215	644	1559	428	1362	1907
<b>TOTAL</b>	<b>3457</b>	<b>1609</b>	<b>749</b>	<b>1970</b>	<b>508</b>	<b>1362</b>	<b>1907</b>

EARTHWORK BALANCE



NOTES:

(1) 1' SUBGRADE TREATMENT EXCAVATION PAID FOR AS SUBGRADE EXCAVATION. THIS SAME MATERIAL SHALL BE USED TO BACKFILL THE 1' SUBGRADE TREATMENT AND SHALL BE CONSIDERED INCIDENTAL.

(2) TOPSOIL TO BE USED AS DIRECTED BY THE ENGINEER.

EARTHWORK BALANCE NOTES:

EXCAVATION, 5066 CU YD (EV) = SUBGRADE EXCAVATION, 1609 CU YD (EV) + COMMON, 3457 CU YD (EV)

COMMON, 3457 CU YD (EV) = SUITABLE, 2207 CU YD (EV) + TOPSOIL, 1147 CU YD (EV) + BIT. PAVEMENT, 103 CU YD

SUITABLE, 3053 CU YD (CV) = ( SUBGRADE EXCAVATION, 1609 CU YD (EV) + SUITABLE, 2207 CU YD (EV) ) / 125%

SURCHARGE SELECT GRANULAR BORROW, 1907 CU YD (LV) = ( SURCHARGE SELECT GRANULAR, 1362 CU YD (CV) ) \* 140%

SUITABLE MATERIAL, 805 CU YD (LV) = (SUITABLE(AVAILABLE), 3053 CU YD (CV) MINUS ( SELECT GRANULAR, 508 CU YD (CV) + SUBGRADE, 1970 CU YD (CV) ) ) \* 140%

TOPSOIL, 398 CU YD = TOPSOIL, 1147 CU YD MINUS TOPSOIL, 749 CU YD

125% SHRINKAGE FACTOR USED FROM EXCAVATED VOLUME (EV) TO COMPACTED VOLUME (CV).

140% SHRINKAGE FACTOR USED FROM LOOSE VOLUME (LV) TO COMPACTED VOLUME (CV).

SHRINKAGE FACTORS ARE ASSUMED VALUES, USED ONLY FOR THE PURPOSE OF ESTIMATED QUANTITIES. IT SHALL BE UNDERSTOOD THAT NO WARRANTY IS MADE OR IMPLIED AS TO THE ACCURACY, SUFFICIENCY, OR RELIABILITY OF SHRINKAGE FACTORS. SHRINKAGE FACTORS DO NOT APPLY TO TOPSOIL.

GENERAL NOTES:

SEE SOILS AND CONSTRUCTION NOTES FOR MATERIAL DEFINITIONS AND ADDITIONAL INFORMATION.

ALL MATERIAL NOT USED ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT LIMITS WITH NO DIRECT PAYMENT THEREFORE. THE MATERIAL QUANTITY IS BASED ON ESTIMATED QUANTITIES. DISPOSAL SHALL BE IN ACCORDANCE WITH SPEC. 2105

THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER BEFORE HAULING MATERIAL OFF SITE.

1	06/22/2009	EJ	JO	CK	REVISED TAB CHARTS H, I AND NOTES PER MNDOT REVIEW COMMENTS.
2	06/25/2009	EJ	JO	CK	UPDATED NOTES PER MNDOT REVIEW COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
					06/25/2009

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-26-09 LICENSE NO. 24756

DRAWN BY: EJ DATE: 12/22/08  
 DESIGN BY: MN DATE: 11/10/08  
 CHECKED BY: JO DATE: 12/23/08



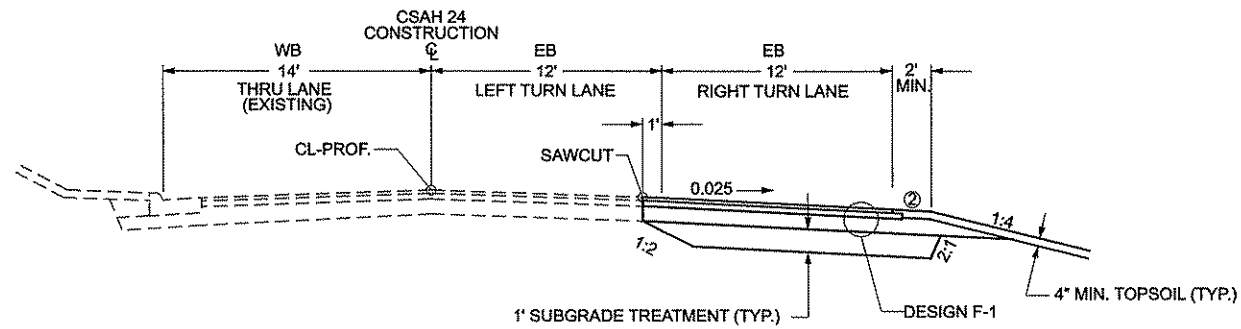
ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE PROJECT NO. 02-624-24  
 STATE AID PROJECT NO.  
 STATE PROJECT NO.

EARTHWORK TABULATIONS  
AND SUMMARY

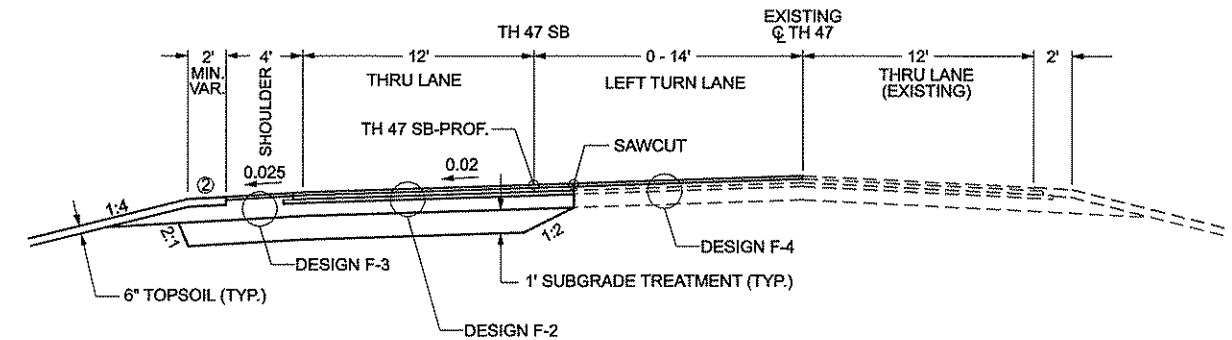
NORRIS LAKE ROAD NW (CSAH 24) TYPICAL SECTION

(STA. 57+23.34 TO STA. 58+75.66)



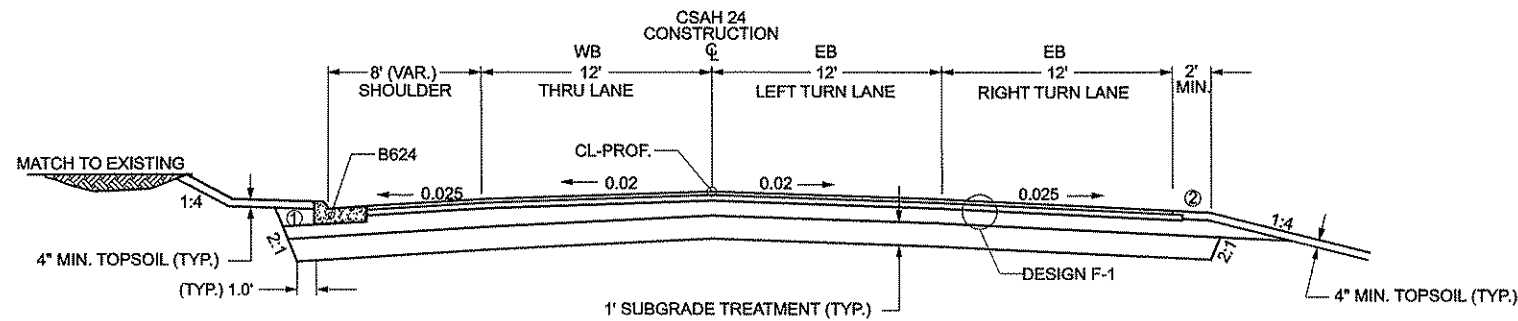
ST FRANCIS BLVD NW (TH 47) TYPICAL SECTION

(SB STA. 803+19.46 TO STA. 815+50.00)



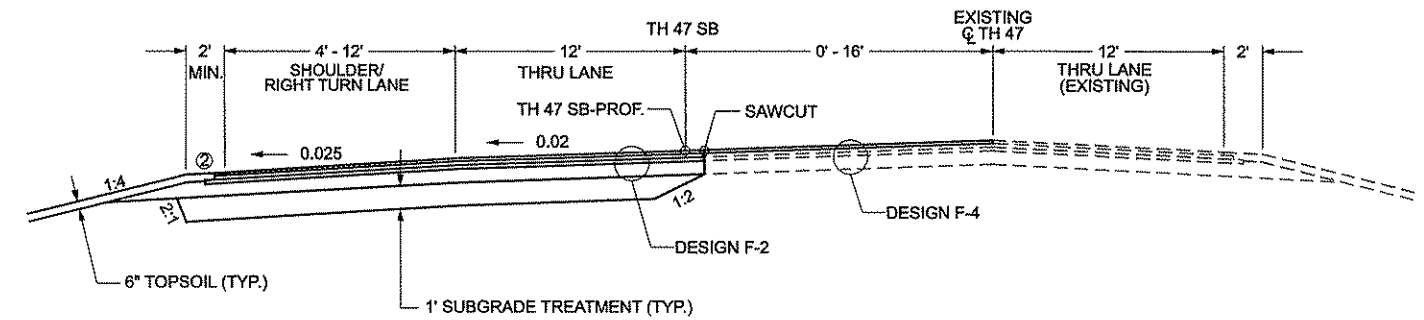
NORRIS LAKE ROAD NW (CSAH 24) LEFT AND RIGHT TURN LANES

(LSB STA. 58+75.66 TO STA. 60+00)



ST FRANCIS BLVD NW (TH 47) RIGHT TURN SECTION

(SB STA. 815+50.00 TO STA. 821+48.16)



DESIGN F-1  
CSAH 24

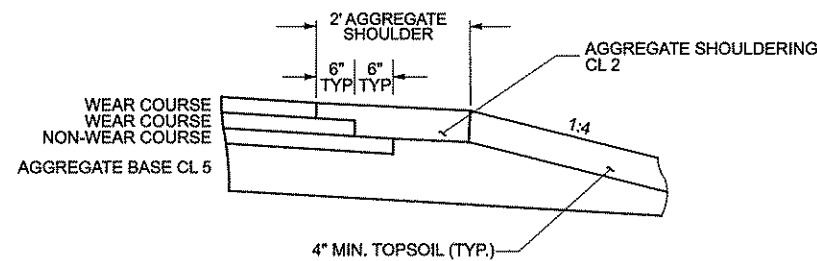
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (2,E) SPWEB240E
- 2.5" TYPE SP 12.5 NON-WEARING COURSE MIXTURE (2,B) SPNWB230B
- 6.0" AGGREGATE BASE, CLASS 5 (MNDOT SPEC. 2211)

NOTES

- ① BACKFILL WITH SELECT GRANULAR MATERIAL.
- ② AGGREGATE SHOULDERING, CLASS 2.

ALL SLOPES IN FT/FT.

BITUMINOUS PAVEMENT EDGE AND AGGREGATE SHOULDER DETAIL



DESIGN F-2  
TH 47

- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4,E) SPWEB440E
- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4,E) SPWEB440E
- 2.0" TYPE SP 12.5 NON-WEARING COURSE MIXTURE (4,B) SPNWB430B
- 8.0" AGGREGATE BASE, CLASS 5 (MNDOT SPEC. 2211)

DESIGN F-3  
TH 47

- 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4,E) SPWEB440E
- 12.0" AGGREGATE BASE, CLASS 5 (MNDOT SPEC. 2211)

DESIGN F-4  
TH 47

- MILL BITUMINOUS SURFACE (2.0")
  - 2.0" TYPE SP 12.5 WEARING COURSE MIXTURE (4,E) SPWEB440E
- (SEE BITUMINOUS OVERLAY DETAIL ON SHEET 8)

1	06/24/2009	EM	JO	CK	UPDATED AGGREGATE SHOULDERING DETAIL AND NOTES PER MNDOT COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:102-624-24\Plan\0262424_TYP.dgn					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt A. Kobiarcsik*  
 DATE: 6-26-09 LICENSE NO. 24756

DRAWN BY EJ DATE 12/22/08  
 DESIGN BY MN DATE 11/10/08  
 CHECKED BY JO DATE 12/23/08

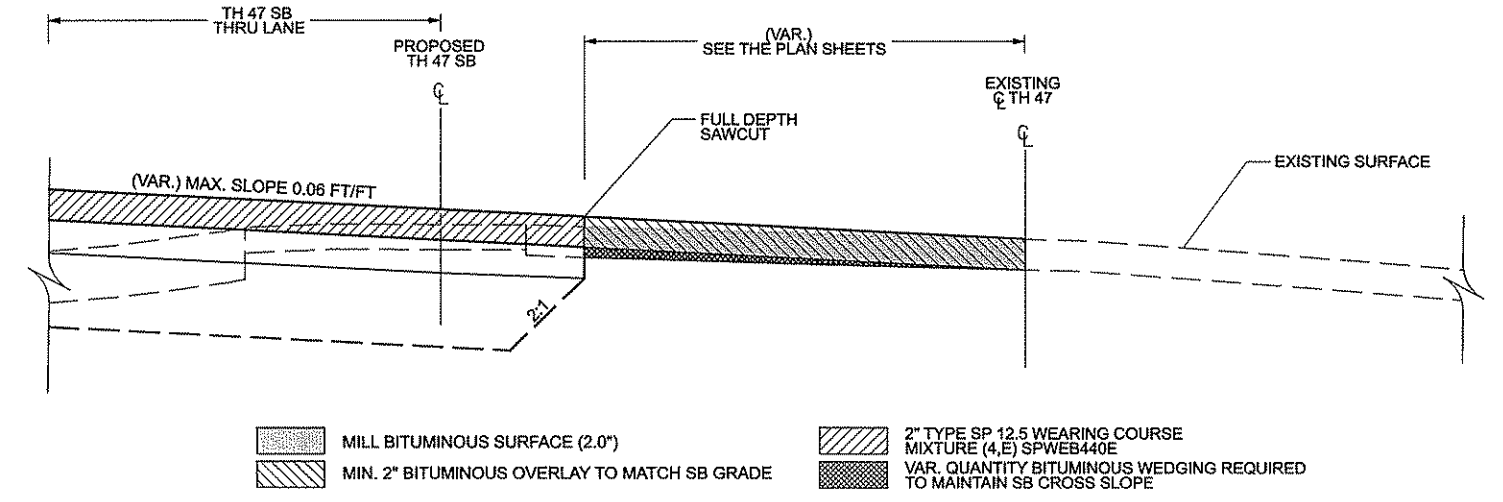


ANOKA COUNTY  
HIGHWAY DEPT.

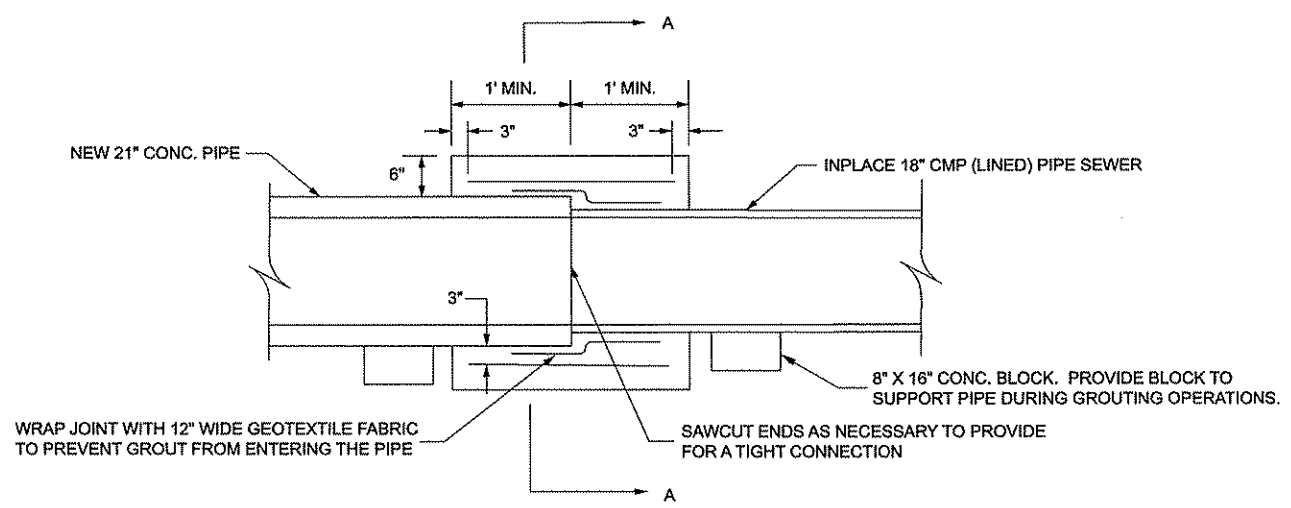
STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

TYPICAL SECTIONS  
AND DETAILS

BITUMINOUS OVERLAY/ WEDGING DETAIL

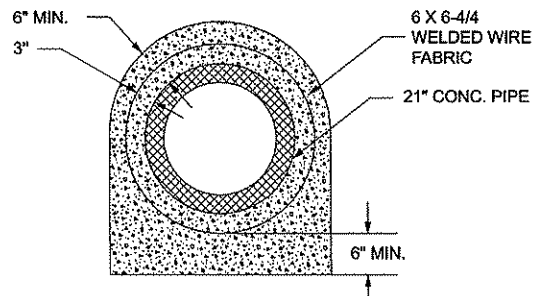


MILL BITUMINOUS SURFACE (2.0")  
 2" TYPE SP 12.5 WEARING COURSE MIXTURE (4,E) SPWEB440E  
 MIN. 2" BITUMINOUS OVERLAY TO MATCH SB GRADE  
 VAR. QUANTITY BITUMINOUS WEDGING REQUIRED TO MAINTAIN SB CROSS SLOPE



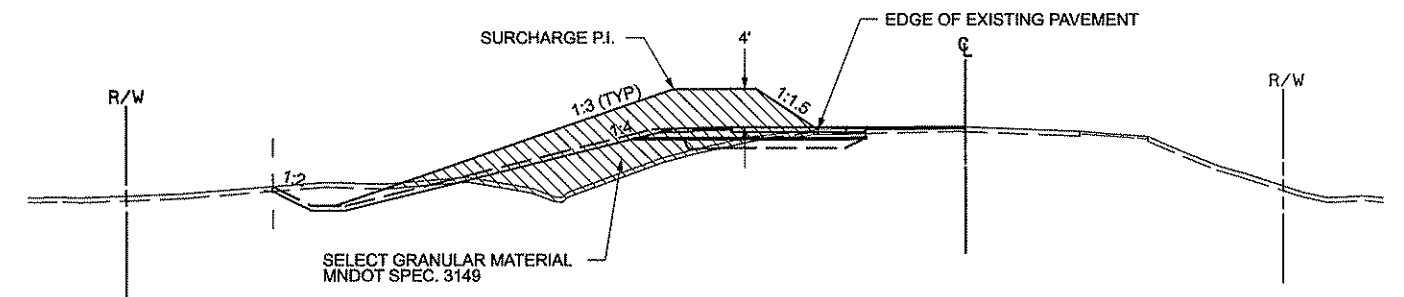
LONGITUDINAL SECTION

NOTE:  
GROUT CONNECTION, USE CONCRETE CURB AND GUTTER MIX (3A32) OR AS DIRECTED BY THE ENGINEER



SECTION A-A  
GROUT CONNECTION DETAIL FOR CULVERT EXTENSION  
NO SCALE

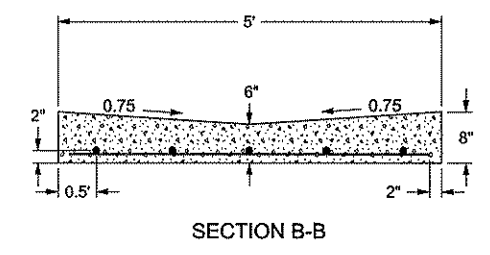
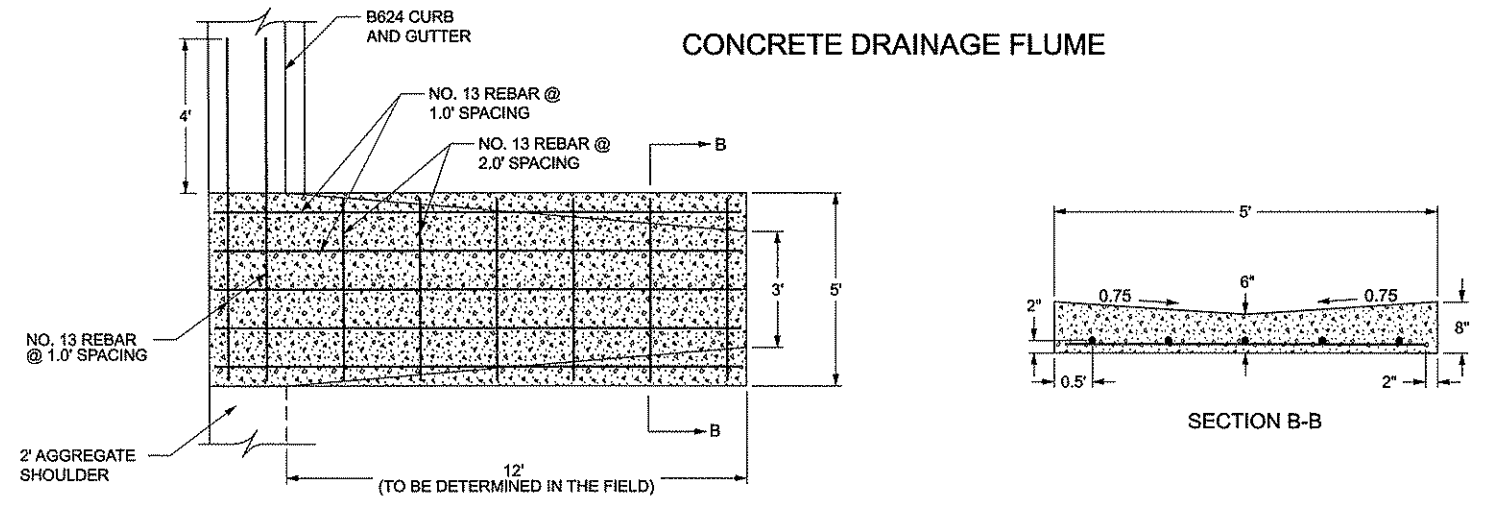
4-FOOT SURCHARGE DETAIL



TH 47  
SURCHARGE STA. 810+00 TO STA. 811+00  
STA. 820+00 TO STA. 821+48  
(SEE CROSS SECTIONS)

NOTE: SURCHARGE MATERIAL SHALL BE SALVAGED AND USED AS SELECT GRANULAR FILL AS APPROVED BY THE ENGINEER.

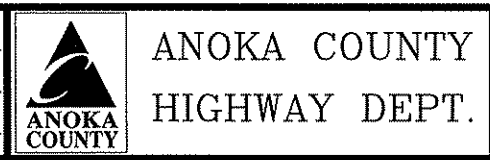
CONCRETE DRAINAGE FLUME



1	04/03/2009	EM	JO	CK	UPDATED 'BITUMINOUS OVERLAY DETAIL' TITLE AND NOTES.
2	06/03/2009	EM	JO	CK	ADDED '4-FOOT SURCHARGE DETAIL' AND DELETED THE 'MUCK EXCAVATION DETAIL'.
3	06/24/2009	EM	JO	CK	ADDRESSED MNDOT REVIEW COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:102-624-24\Plant\0262424_TYP.dgn 06/24/2009 1:22:02 PM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-26-09 LICENSE NO. 24756

DRAWN BY: EJ DATE: 12/22/08  
 DESIGN BY: MN DATE: 11/10/08  
 CHECKED BY: JO DATE: 12/23/08



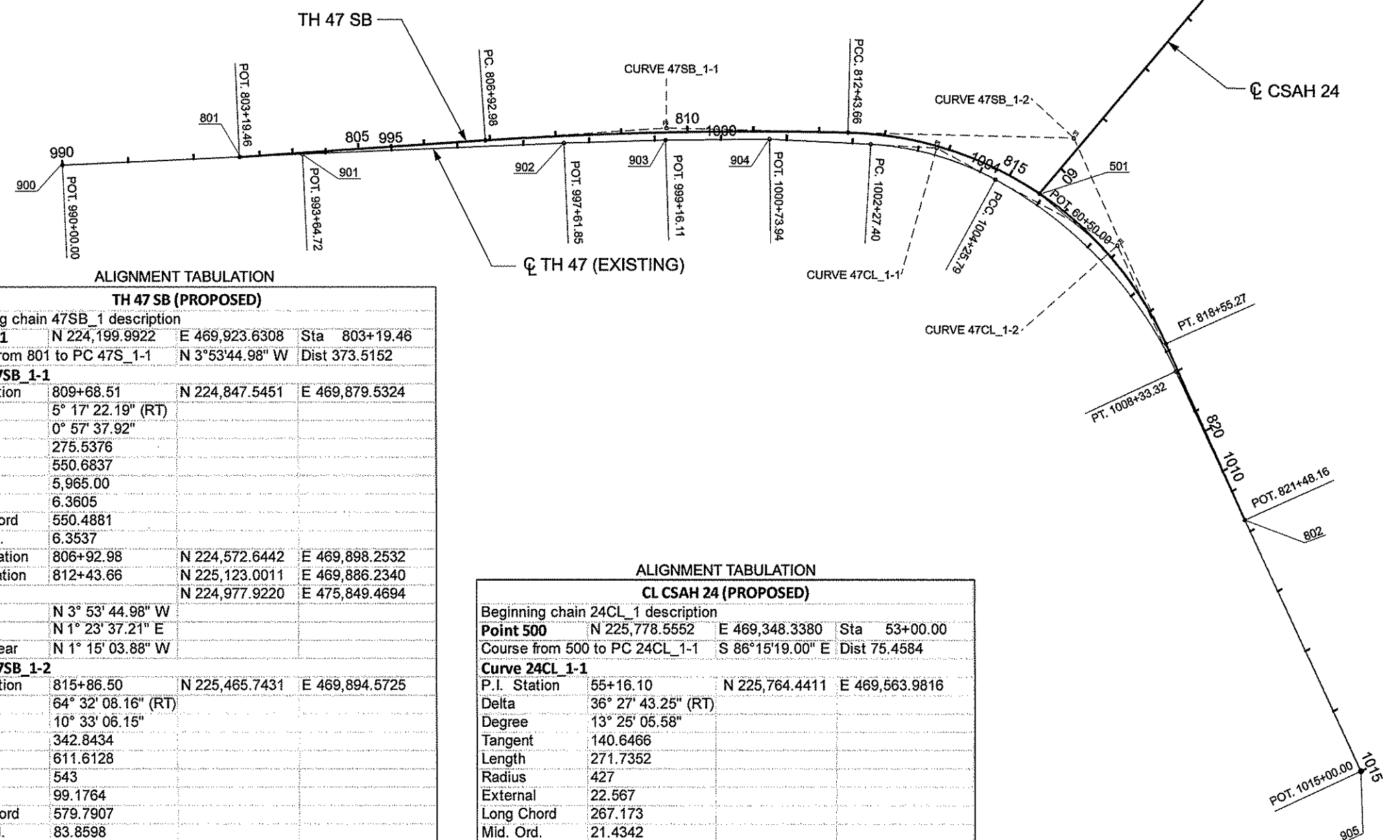
STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

TYPICAL SECTIONS AND DETAILS  
 Sheet 8 of 46 Sheets



ALIGNMENT TABULATION

CL TH 47 (EXISTING)			
Beginning chain 47CL_1 description			
Point 900	N 223,930.8167	E 469,935.9614	Sta 990+00.00
Course from 900 to 901 N 2°37'22.18" W Dist 364.7200			
Point 901	N 224,295.1546	E 469,919.2715	Sta 993+64.72
Course from 901 to 902 N 2°26'11.69" W Dist 397.1298			
Point 902	N 224,691.9254	E 469,902.3881	Sta 997+61.85
Course from 902 to 903 N 1°40'51.94" W Dist 154.2553			
Point 903	N 224,846.1143	E 469,897.8628	Sta 999+16.11
Course from 903 to 904 N 0°34'25.55" W Dist 157.8309			
Point 904	N 225,003.9373	E 469,896.2823	Sta 1000+73.94
Course from 904 to PC 47CL_1-1 N 2°52'25.33" E Dist 153.4592			
<b>Curve 47CL_1-1</b>			
P.I. Station	1003+28.22	N 225,257.8641	E 469,909.7070
Delta	25° 09' 48.91" (RT)		
Degree	12° 41' 00.75"		
Tangent	100.8236		
Length	198.3956		
Radius	451.7333		
External	11.1148		
Long Chord	196.8049		
Mid. Ord.	10.8479		
P.C. Station	1002+27.40	N 225,157.2035	E 469,903.9759
P.T. Station	1004+25.79	N 225,346.5349	E 469,957.6955
C.C.	N 225,131.5256 E 470,354.9788		
Back	N3° 15' 31.02" E		
Ahead	N 28° 25' 19.93" E		
Chord Bear	N 15° 50' 25.48" E		
<b>Curve 47CL_1-2</b>			
P.I. Station	1006+36.84	N 225,532.1462	E 470,058.1482
Delta	36° 44' 51.66" (RT)		
Degree	9° 01' 01.72"		
Tangent	211.0504		
Length	407.5312		
Radius	635.4093		
External	34.1333		
Long Chord	400.5821		
Mid. Ord.	32.3932		
P.C. Station	1004+25.79	N 225,346.5349	E 469,957.6955
P.T. Station	1008+33.32	N 225,620.7724	E 470,249.6884
C.C.	N 225,044.1023 E 470,516.5153		
Back	N 28° 25' 19.93" E		
Ahead	N 65° 10' 11.59" E		
Chord Bear	N 46° 47' 45.76" E		
Course from PT 47CL_1-2 to 905 N 65°10'11.59" E Dist 666.6780			
Point 905	N 225,900.7299	E 470,854.7366	Sta 1015+00.00
Ending chain 47CL_1 description			

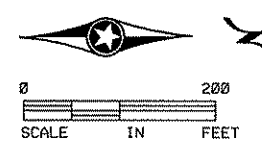


ALIGNMENT TABULATION

TH 47 SB (PROPOSED)			
Beginning chain 47SB_1 description			
Point 801	N 224,199.9922	E 469,923.6308	Sta 803+19.46
Course from 801 to PC 47S_1-1 N 3°53'44.98" W Dist 373.5152			
<b>Curve 47SB_1-1</b>			
P.I. Station	809+68.51	N 224,847.5451	E 469,879.5324
Delta	5° 17' 22.19" (RT)		
Degree	0° 57' 37.92"		
Tangent	275.5376		
Length	550.6837		
Radius	5,965.00		
External	6.3605		
Long Chord	550.4881		
Mid. Ord.	6.3537		
P.C. Station	806+92.98	N 224,572.6442	E 469,898.2532
P.T. Station	812+43.66	N 225,123.0011	E 469,886.2340
C.C.	N 224,977.9220 E 475,849.4694		
Back	N 3° 53' 44.98" W		
Ahead	N 1° 23' 37.21" E		
Chord Bear	N 1° 15' 03.88" W		
<b>Curve 47SB_1-2</b>			
P.I. Station	815+86.50	N 225,465.7431	E 469,894.5725
Delta	64° 32' 08.16" (RT)		
Degree	10° 33' 06.15"		
Tangent	342.8434		
Length	611.6128		
Radius	543		
External	99.1764		
Long Chord	579.7907		
Mid. Ord.	83.8598		
P.C. Station	812+43.66	N 225,123.0011	E 469,886.2340
P.T. Station	818+55.27	N 225,605.5766	E 470,207.6032
C.C.	N 225,109.7944 E 470,429.0734		
Back	N 1° 23' 37.21" E		
Ahead	N 65° 55' 45.37" E		
Chord Bear	N 33° 39' 41.29" E		
Course from PT 47S_1-2 to 802 N 65°55'45.37" E Dist 292.8905			
Point 802	N 225,725.0361	E 470,475.0247	Sta 821+48.16
Ending chain 47SB_1 description			

ALIGNMENT TABULATION

CL CSAH 24 (PROPOSED)			
Beginning chain 24CL_1 description			
Point 500	N 225,778.5552	E 469,348.3380	Sta 53+00.00
Course from 500 to PC 24CL_1-1 S 86°15'19.00" E Dist 75.4584			
<b>Curve 24CL_1-1</b>			
P.I. Station	55+16.10	N 225,764.4411	E 469,563.9816
Delta	36° 27' 43.25" (RT)		
Degree	13° 25' 05.58"		
Tangent	140.6466		
Length	271.7352		
Radius	427		
External	22.567		
Long Chord	267.173		
Mid. Ord.	21.4342		
P.C. Station	53+75.46	N 225,773.6269	E 469,423.6353
P.T. Station	56+47.19	N 225,673.6470	E 469,671.3962
C.C.	N 225,347.5385 E 469,395.7474		
Back	S 86° 15' 19.00" E		
Ahead	S 49° 47' 35.75" E		
Chord Bear	S 68° 01' 27.37" E		
Course from PT 24CL_1-1 to 501 S 49°47'35.75" E Dist 402.8064			
Point 501	N 225,413.6164	E 469,979.0276	Sta 60+50.00
Ending chain 24CL_1 description			



NO	DATE	BY	CKD	APPR	REVISION

NAME: p:102-624-24\plan\0262424\_ALL\_PLAN.dgn 09/15/2009 1:13:59 PM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *[Signature]*

DATE: 6-4-09 LICENSE NO. 24756

DRAWN BY: EJ DATE: 12/22/08

DESIGN BY: MN DATE: 11/10/08

CHECKED BY: JO DATE: 12/23/08

**ANOKA COUNTY HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)

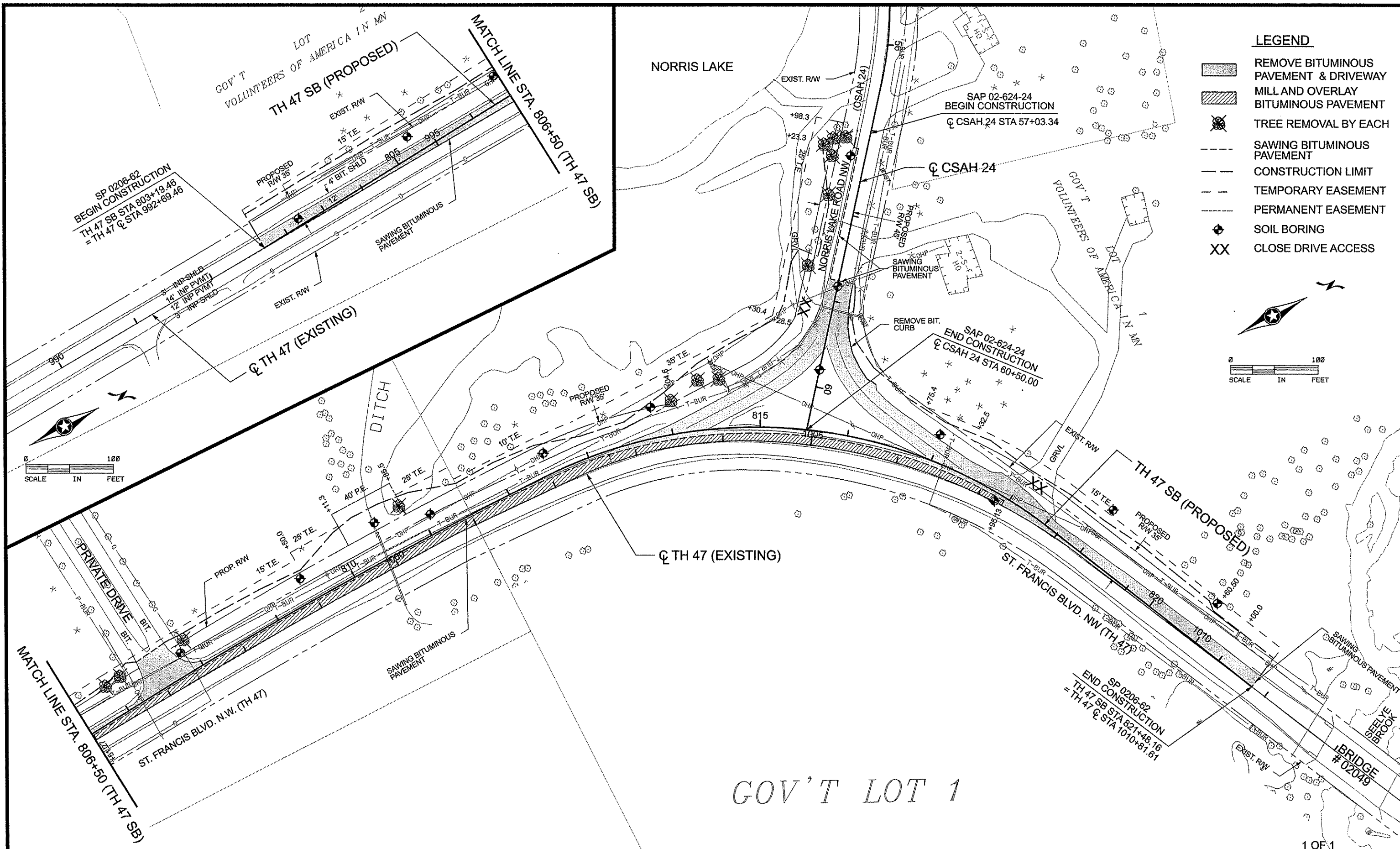
STATE AID PROJECT NO. 02-624-24

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

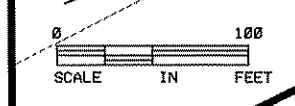
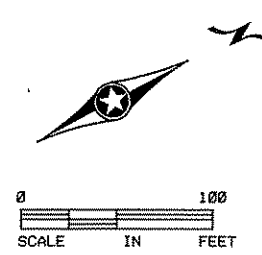
COUNTY PROJECT NO. \_\_\_\_\_

ALIGNMENT TABULATIONS

Sheet 9 of 46 Sheets



- LEGEND**
- REMOVE BITUMINOUS PAVEMENT & DRIVEWAY
  - MILL AND OVERLAY BITUMINOUS PAVEMENT
  - TREE REMOVAL BY EACH
  - SAWING BITUMINOUS PAVEMENT
  - CONSTRUCTION LIMIT
  - TEMPORARY EASEMENT
  - PERMANENT EASEMENT
  - SOIL BORING
  - CLOSE DRIVE ACCESS



1	04/20/2009	EM	JO	CK	ADDED END CONSTRUCTION LABEL FOR CSAH 24 PER MNDOT REVIEW COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
NAME: p:\02-624-24\plan\0262424_REM1.dgn					

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

PRINT NAME: CURT A. KOBIARCSIK

SIGNATURE: *Curt A. Kobiarcsik*

DATE: 4.23.09 LICENSE NO. 24756

DRAWN BY: EJ DATE: 12/22/08

DESIGN BY: MN DATE: 11/10/08

CHECKED BY: JO DATE: 12/23/08

**ANOKA COUNTY**  
HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)

STATE AID PROJECT NO. 02-624-24

CITY PROJECT NO.

COUNTY PROJECT NO.

**REMOVAL PLAN**

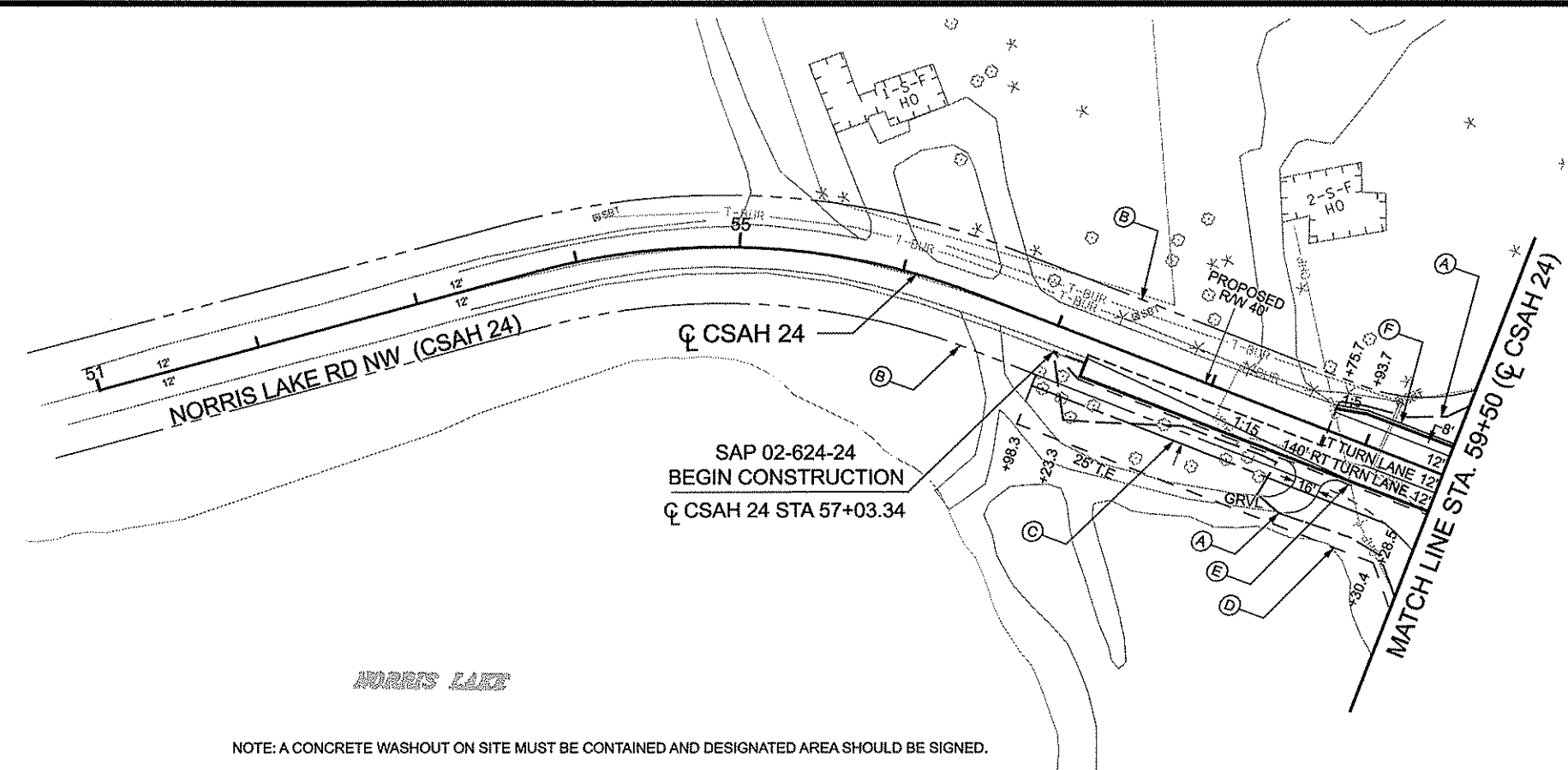
STA 803+19.46 TO 821+48.16

Sheet 10 of 46 Sheets

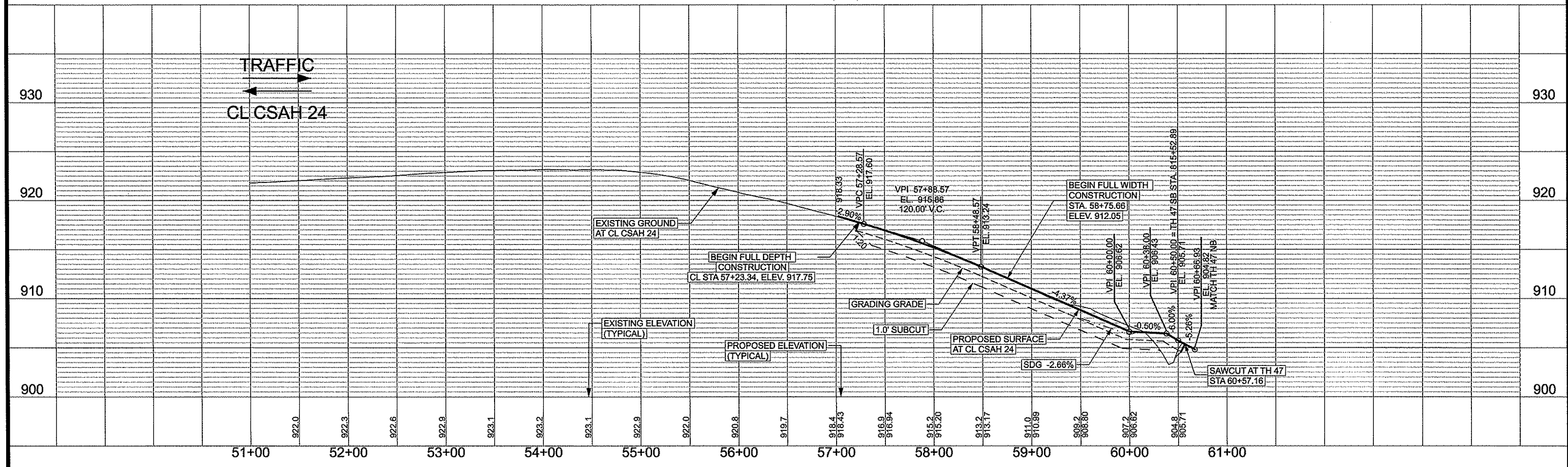
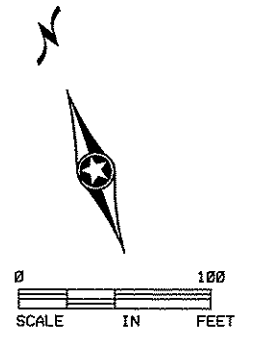
**CONSTRUCTION NOTES:**

- (A) CONSTRUCTION LIMITS
- (B) EXISTING RW
- (C) PROPOSED RW
- (D) TEMPORARY EASEMENT
- (E) 2' AGGREGATE SHOULDER
- (F) B624 CURB & GUTTER

ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



NOTE: A CONCRETE WASHOUT ON SITE MUST BE CONTAINED AND DESIGNATED AREA SHOULD BE SIGNED.



1	04/02/2009	EM	JO	CK	ADDED CONCRETE WASHOUT NOTE PER MNDOT REVIEW COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
					04/23/2009 10:58:26 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 4.23.09 LICENSE NO. 24756

DRAWN BY EJ DATE 12/22/08  
 DESIGN BY MN DATE 11/10/08  
 CHECKED BY JO DATE 12/23/08



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

CONSTRUCTION PLAN AND PROFILE  
 STA 57+03.34 TO 59+50.00  
 Sheet 11 of 46 Sheets

GOV'T LOT 2  
VOLUNTEERS OF AMERICA IN MN

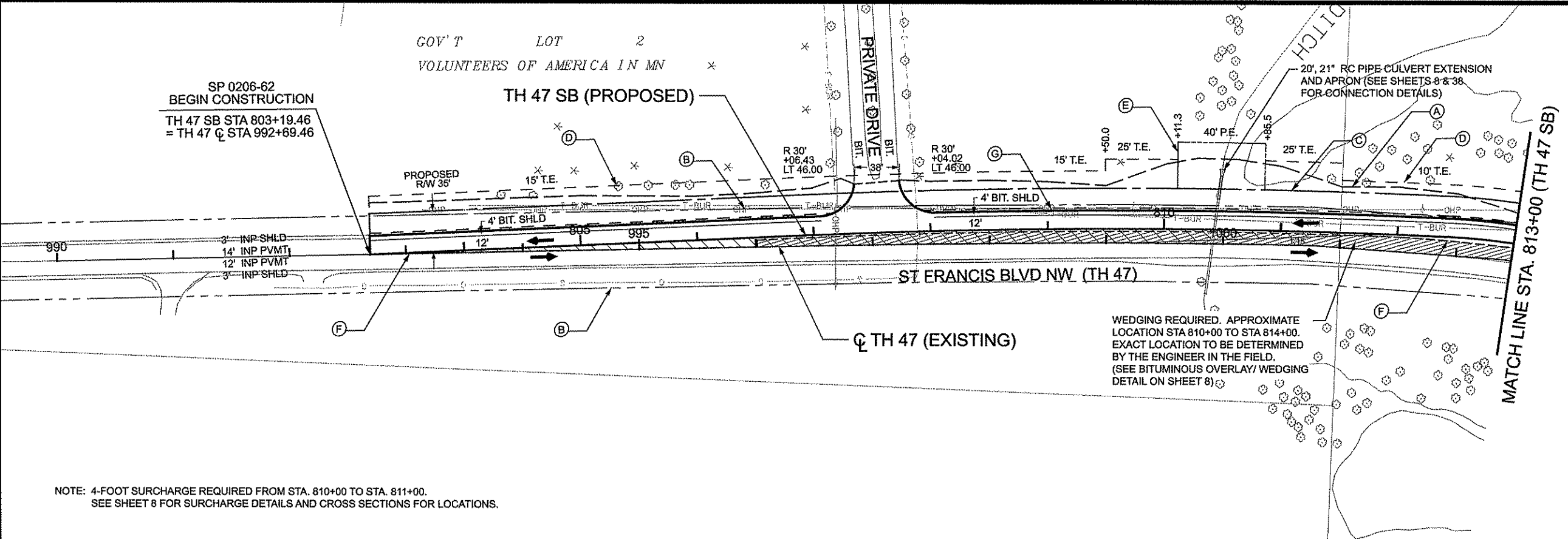
SP 0206-62  
BEGIN CONSTRUCTION  
TH 47 SB STA 803+19.46  
= TH 47 CL STA 992+69.46

TH 47 SB (PROPOSED)

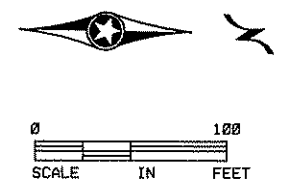
PRIVATE DRIVE

20', 21" RC PIPE CULVERT EXTENSION  
AND APRON (SEE SHEETS 8 & 38  
FOR CONNECTION DETAILS)

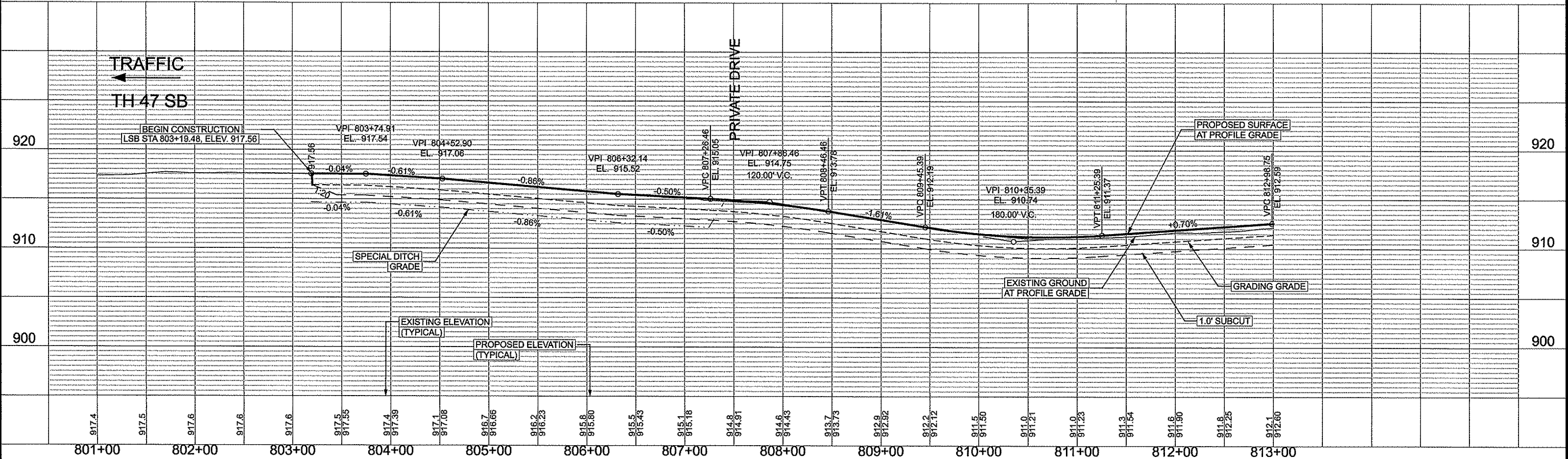
MATCH LINE STA. 813+00 (TH 47 SB)



- CONSTRUCTION NOTES:**
- (A) CONSTRUCTION LIMITS
  - (B) EXISTING RW
  - (C) PROPOSED RW
  - (D) TEMPORARY EASEMENT
  - (E) PERMANENT EASEMENT
  - (F) SAWING BIT. PAVEMENT
  - (G) 2' AGGREGATE SHOULDER
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
- MILL AND OVERLAY BITUMINOUS PAVEMENT



NOTE: 4-FOOT SURCHARGE REQUIRED FROM STA. 810+00 TO STA. 811+00.  
SEE SHEET 8 FOR SURCHARGE DETAILS AND CROSS SECTIONS FOR LOCATIONS.



1	04/09/2009	EM	JO	CK	UPDATED THE WEDGING NOTE FOR CLARITY PER MNDOT COMMENTS.
2	06/02/2009	EM	JO	CK	ADDED A NOTE FOR THE 4-FOOT SURCHARGE REQUIRED.
3	07/18/2009	EM	JO	CK	UPDATED THE NOTE FOR 21" RC PIPE CULVERT EXTENSION.
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\102-624-24\Plan\0262424_PP2.dgn	07/18/2009	8:06:24 AM			

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

PRINT NAME: CURT A. KOBIARCSIK

SIGNATURE: *Curt A. Kobiarcsik*

DATE: 7-16-09 LICENSE NO. 24756

DRAWN BY: EJ DATE: 12/22/08

DESIGN BY: MN DATE: 11/10/08

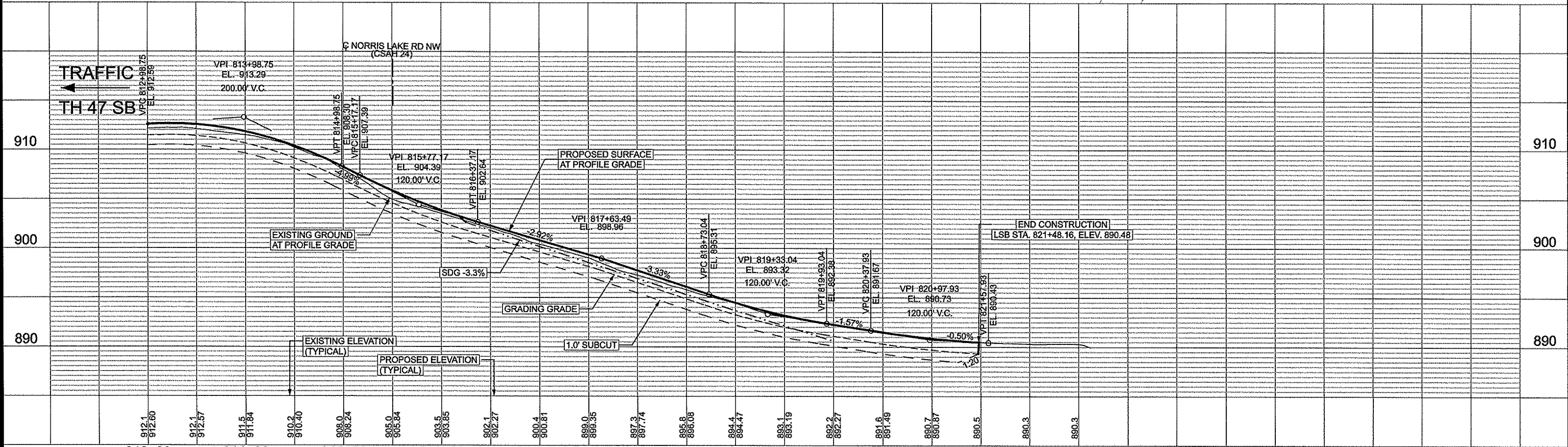
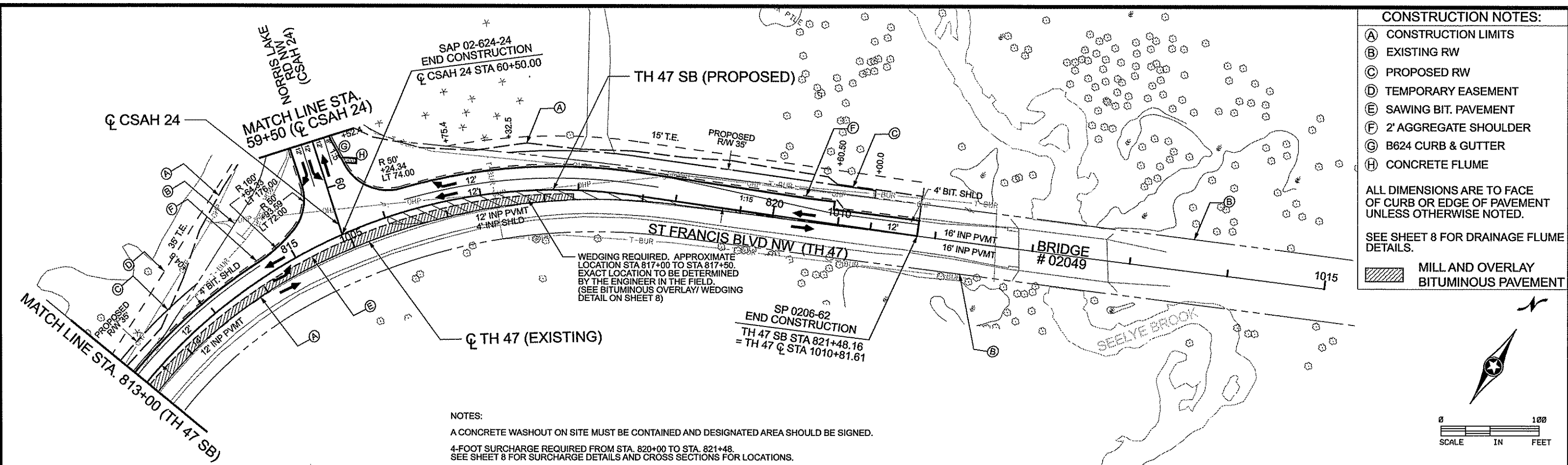
CHECKED BY: JO DATE: 12/23/08

**ANOKA COUNTY**  
HIGHWAY DEPT.

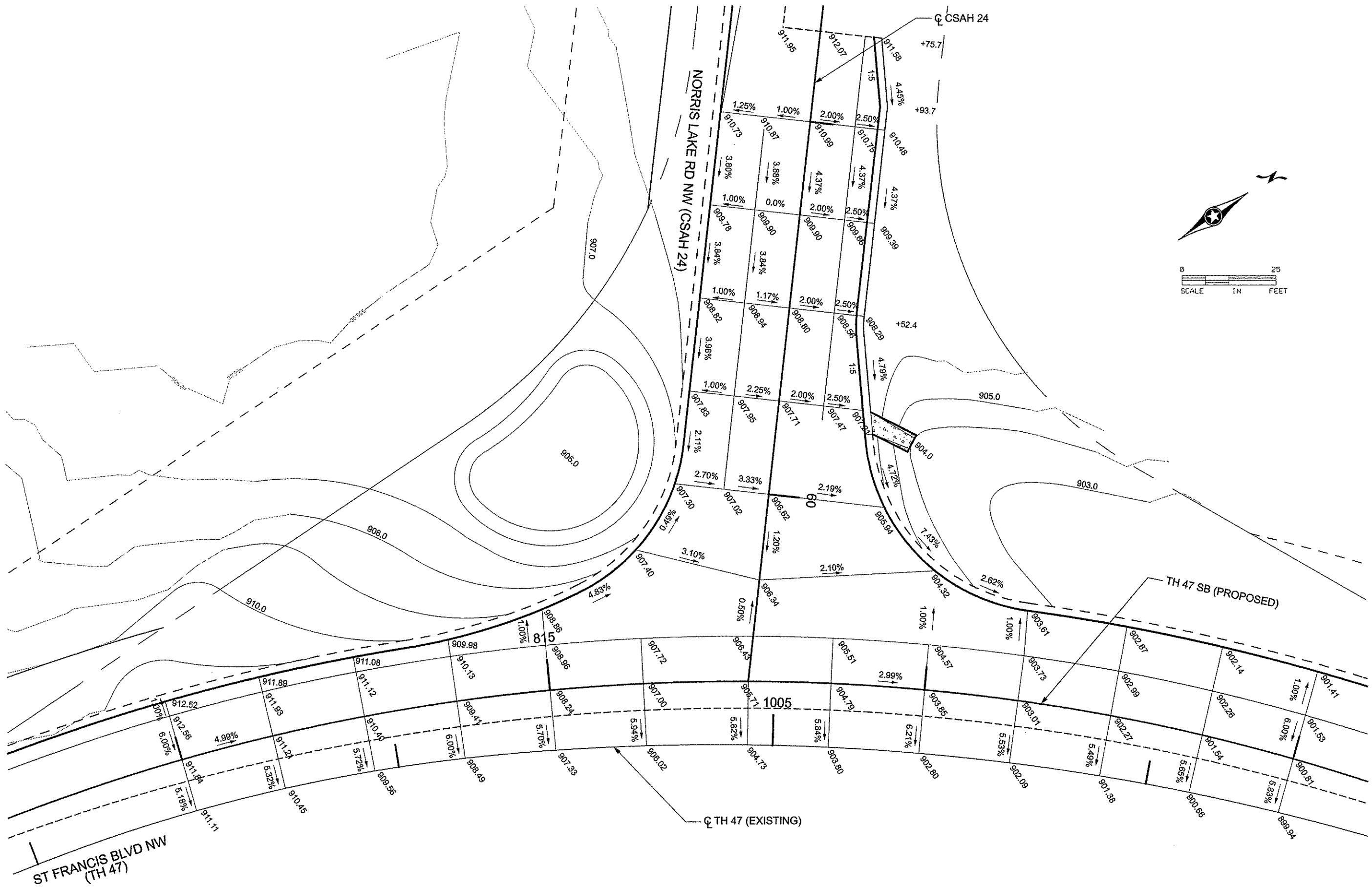
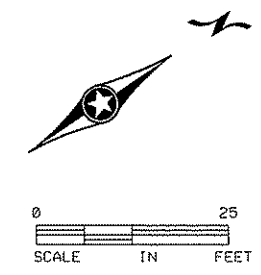
STATE PROJECT NO. 0206-62 (TH 47)  
STATE AID PROJECT NO. 02-624-24  
CITY PROJECT NO.  
COUNTY PROJECT NO.

CONSTRUCTION PLAN AND PROFILE  
STA 803+19.46 TO 813+00.00  
Sheet 12 of 46 Sheets





<table border="1"> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CKD</th> <th>APPR</th> <th>REVISION</th> </tr> <tr> <td>1</td> <td>04/09/2009</td> <td>EM</td> <td>JO</td> <td>CK</td> <td>ADDED END CONSTRUCTION LABEL FOR CSAH 24, CONCRETE WASHOUT NOTE AND UPDATED THE WEDGING NOTE PER MANDOT COMMENTS.</td> </tr> <tr> <td>2</td> <td>06/03/2009</td> <td>EM</td> <td>JO</td> <td>CK</td> <td>ADDED A NOTE FOR THE 4-FOOT SURCHARGE REQUIRED.</td> </tr> </table>					NO	DATE	BY	CKD	APPR	REVISION	1	04/09/2009	EM	JO	CK	ADDED END CONSTRUCTION LABEL FOR CSAH 24, CONCRETE WASHOUT NOTE AND UPDATED THE WEDGING NOTE PER MANDOT COMMENTS.	2	06/03/2009	EM	JO	CK	ADDED A NOTE FOR THE 4-FOOT SURCHARGE REQUIRED.	<p>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.</p> <p>PRINT NAME: CURT A. KOBIARCSIK</p> <p>SIGNATURE: <i>Curt Kobilarcsik</i></p> <p>DATE: 6-4-09 LICENSE NO. 24756</p>					<p>DRAWN BY: EJ DATE: 12/22/08</p> <p>DESIGN BY: MN DATE: 11/10/08</p> <p>CHECKED BY: JO DATE: 12/23/08</p>					<p><b>ANOKA COUNTY HIGHWAY DEPT.</b></p> <p>STATE PROJECT NO. 0206-62 (TH 47)</p> <p>STATE AID PROJECT NO. 02-624-24</p> <p>CITY PROJECT NO.</p> <p>COUNTY PROJECT NO.</p>					<p>3 OF 3</p> <p>CONSTRUCTION PLAN AND PROFILE</p> <p>STA 813+00.00 TO 821+48.16</p> <p>Sheet 13 of 46 Sheets</p>				
NO	DATE	BY	CKD	APPR	REVISION																																					
1	04/09/2009	EM	JO	CK	ADDED END CONSTRUCTION LABEL FOR CSAH 24, CONCRETE WASHOUT NOTE AND UPDATED THE WEDGING NOTE PER MANDOT COMMENTS.																																					
2	06/03/2009	EM	JO	CK	ADDED A NOTE FOR THE 4-FOOT SURCHARGE REQUIRED.																																					



1	04/20/2009	EM	JO	CK	UPDATED WITH RIGHT-OF-WAY AND EASEMENTS AND CONTOUR ELEVATIONS.
NO	DATE	BY	CKD	APPR	REVISION
NAME: p:\102-624-24\Plan\0262424_IN.dgn					
DATE: 04/20/2009 12:04:25 PM					

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

PRINT NAME: CURT A. KOBIARCSIK

SIGNATURE: *Curt A. Kobiarcsik*


DATE: 4-23-09 LICENSE NO. 24756

DRAWN BY EJ DATE 12/22/08

DESIGN BY MN DATE 11/10/08

CHECKED BY JO DATE 12/23/08

**ANOKA COUNTY**  
HIGHWAY DEPT.



STATE PROJECT NO. 0206-62 (TH 47)

STATE AID PROJECT NO. 02-624-24

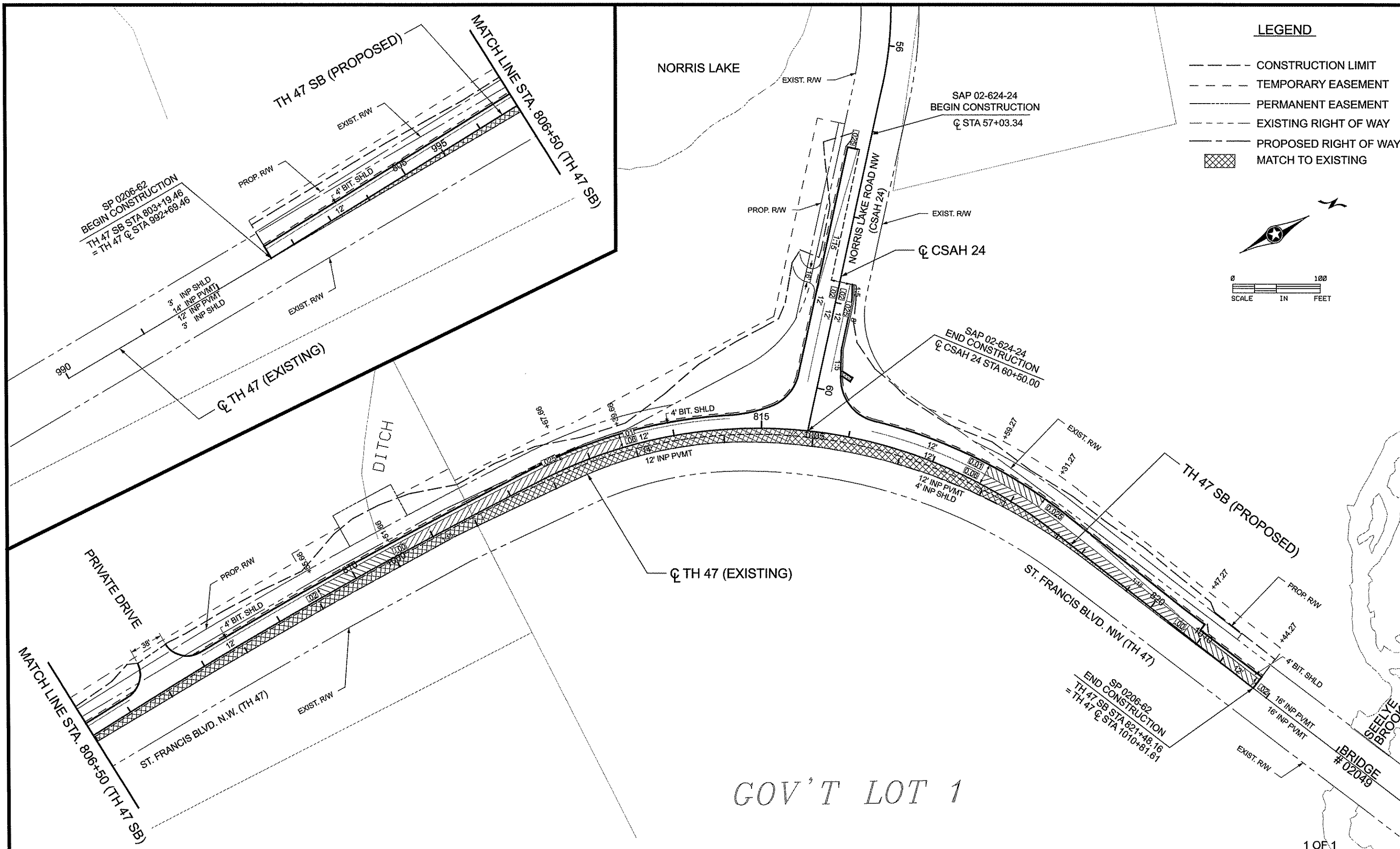
CITY PROJECT NO.

COUNTY PROJECT NO.

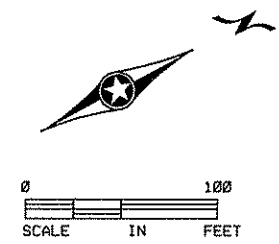
INTERSECTION DETAILS

STA 814+00.00 TO 817+00.00

Sheet 14 of 46 Sheets



- LEGEND**
- CONSTRUCTION LIMIT
  - - - TEMPORARY EASEMENT
  - PERMANENT EASEMENT
  - - - EXISTING RIGHT OF WAY
  - - - PROPOSED RIGHT OF WAY
  - [Cross-hatched] MATCH TO EXISTING



GOV'T LOT 1

1	04/08/2009	EM	JO	CK	ADDED END CONSTRUCTION LABEL FOR CSAH 24 PER MNDOT REVIEW COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
NAME: p:\02-624-24\plan\0262424_SE.dgn					

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 4.23.09 LICENSE NO. 24758

DRAWN BY: EJ DATE: 12/22/08  
 DESIGN BY: MN DATE: 11/19/08  
 CHECKED BY: JO DATE: 12/23/08

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

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

**SUPERELEVATION PLAN**  
 STA 803+19.46 TO 821+48.16  
 Sheet 15 of 46 Sheets

# STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

**Project Description**

SAP 02-624-24 consists of grading, aggregate base, bituminous surfacing and curb and gutter in the city of Oak Grove. Construction activities include excavation and grading for widening of TH 47 and CSAH 24. The receiving waters for storm water from this project include special ditches along the roadway before discharging into the ditch and Seelye Brook. Rum River is the ultimate receiving body for runoff, however it is not directly impacted due to the construction.

**Site Maps**

In addition to what is located within this plan, existing and proposed site maps have been created and kept on file with the Anoka County Highway Department. The site maps are roll maps that show the project limits, alignment, soil types, existing and proposed contours, drainage areas, culvert locations, flow arrows and impervious surface. If applicable, impaired waters and wetlands are also shown.

**Environmentally Sensitive Areas**

Wetlands are impacted within the project limits, however none has been identified as Impaired or Special Waters, thus no wetlands have been identified as Environmentally Sensitive.

**Outstanding Resource Value Waters**

There are no outstanding resource value waters within the project limits.

**Calcareous Fens**

There are no calcareous fens within the project limits.

**TMDL Implementation Plans Containing Storm Water Requirements**

No TMDL Implementation Plans currently exist for the receiving waters on this project.

**Land Feature Changes**

Total Project Area Disturbed: 2.52 Acres  
 Total Existing Impervious Surface: 0.74 Acres  
 Total Existing Pervious Surface: 1.78 Acres  
 Total Proposed Impervious Surface: 1.21 Acres  
 Total Proposed Pervious Surface: 1.31 Acres

**Timing of BMP Installation**

The erosion prevention and sediment control BMP's shall be installed as necessary to minimize erosion from disturbed surfaces and capture sediment on site, and shall meet the NPDES Permit Part IV Construction Activity Requirements. All silt fence used for contamination shall be installed prior to grading operations.

**Hazardous Materials**

Hazardous materials such as oil, gasoline, and paint must be properly stored, including secondary containment, to prevent spills, leaks or other discharge. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with MPCA Regulations.

**Project Contacts**

The Project Engineer and the Contractor are responsible for implementation of the SWPPP and the installation, inspection, and maintenance of the erosion prevention and sediment control BMP's before and during construction. Anoka County and the city of Oak Grove are responsible for long term operation and maintenance of the permanent storm water management system.


Anoka County Project Manager;  
 Douglas W. Fischer, PE  
 Anoka County Engineer  
 1440 Bunker Lake Boulevard NW  
 Andover, MN 55304  
 (763) 862-4200

**MPCA 24-HOUR EMERGENCY NOTIFICATION : 651-649-5451  
 800-422-0798**

**Construction Notes**

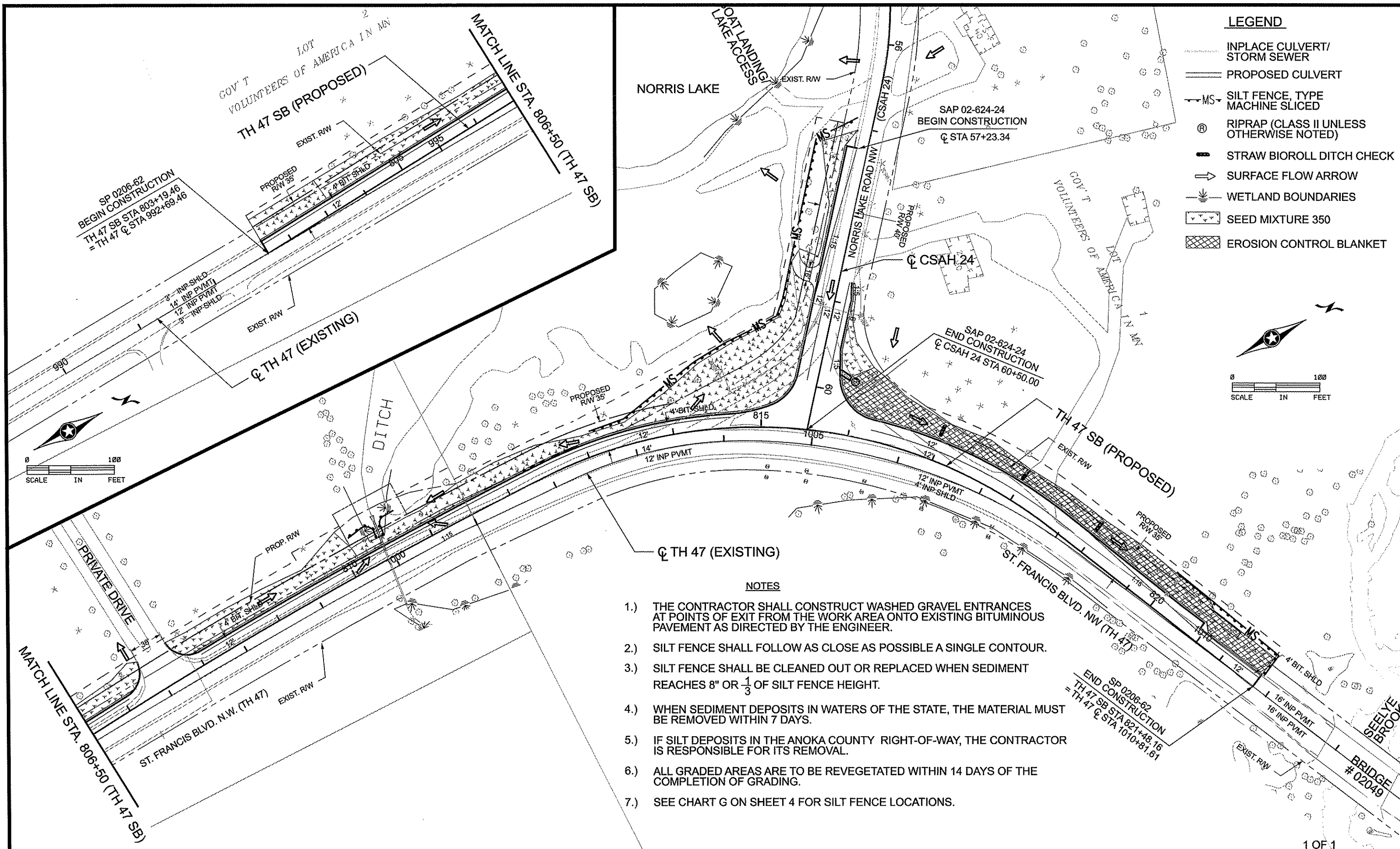
Construction shall be governed by MN/DOT Standard Specifications for Construction, 2005 edition and the Special Provisions. The Contractor shall keep the inspection and maintenance log.

Description	Plan Sheet Title	Location
Temporary Erosion Control	Erosion Control and Turf Establishment Plan	Sheet No. 18
Permanent Erosion Control	Erosion Control and Turf Establishment Plan	Sheet No. 18
Direction of Flow	Erosion Control and Turf Establishment Plan	Sheet No. 18
Final Stabilization	Erosion Control and Turf Establishment Plan	Sheet No. 18
Drainage Culvert/Flume	Construction Plan	Sheet No. 12 - 13
Special Ditch Grade	Construction Profile	Sheet No. 11 - 13
Erosion Control Details	Erosion Control Standard Plans	Sheet No. 19 - 22
Turf Establishment / Erosion Control Tabulation	Tabulation Charts	Sheet No. 4

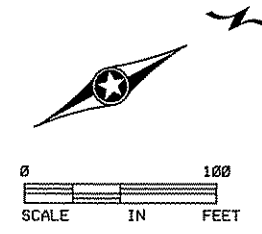
1	04/09/2009	EM	JO	CK	ADDED HAZARDOUS MATERIAL CONTAINMENT NOTE PER MNDOT REVIEW COMMENTS.	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: <u>CURT A. KOBLARCSIK</u> SIGNATURE: <u><i>Curt Koblarcsik</i></u> DATE: <u>4-23-09</u> LICENSE NO. <u>24756</u>	DRAWN BY <u>EJ</u> DATE <u>12/22/08</u> DESIGN BY <u>MIN</u> DATE <u>11/10/08</u> CHECKED BY <u>JO</u> DATE <u>12/23/08</u>	 <b>ANOKA COUNTY                  HIGHWAY DEPT.</b>	STATE PROJECT NO. <u>0206-62 (TH 47)</u> STATE AID PROJECT NO. <u>02-624-24</u> STATE PROJECT NO. _____ STATE PROJECT NO. _____	<b>STORM WATER POLLUTION                  PREVENTION PLAN</b>  Sheet <u>16</u> of <u>46</u> Sheets
NO DATE BY CKD APPR REVISION NAME: P:\02-624-24\Plan\0262424_SWPPP1.dgn 04/20/2009 1:28:37 PM										







- LEGEND**
- INPLACE CULVERT/ STORM SEWER
  - == PROPOSED CULVERT
  - MS SILT FENCE, TYPE MACHINE SLICED
  - ⊗ RIPRAP (CLASS II UNLESS OTHERWISE NOTED)
  - ▬ STRAW BIOROLL DITCH CHECK
  - SURFACE FLOW ARROW
  - WETLAND BOUNDARIES
  - SEED MIXTURE 350
  - EROSION CONTROL BLANKET



- NOTES**
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
  - 3.) SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.
  - 4.) WHEN SEDIMENT DEPOSITS IN WATERS OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
  - 5.) IF SILT DEPOSITS IN THE ANOKA COUNTY RIGHT-OF-WAY, THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.
  - 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.
  - 7.) SEE CHART G ON SHEET 4 FOR SILT FENCE LOCATIONS.

1	04/09/2009	EM	JO	CK	ADDED END CONSTRUCTION LABEL FOR CSAH 24 PER MNDOT REVIEW COMMENTS.
NO	DATE	BY	CKD	APPR	REVISION
NAME: p102-624-24\plan\0262424_EC.dgn					
DATE: 04/20/2009 12:04:32 PM					

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt A. Kobilarsik*

DATE: 4.23.09 LICENSE NO. 24756

DRAWN BY: EJ DATE: 12/22/08

DESIGN BY: MN DATE: 11/10/08

CHECKED BY: JO DATE: 12/23/08

**ANOKA COUNTY HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)

STATE AID PROJECT NO. 02-624-24

CITY PROJECT NO.

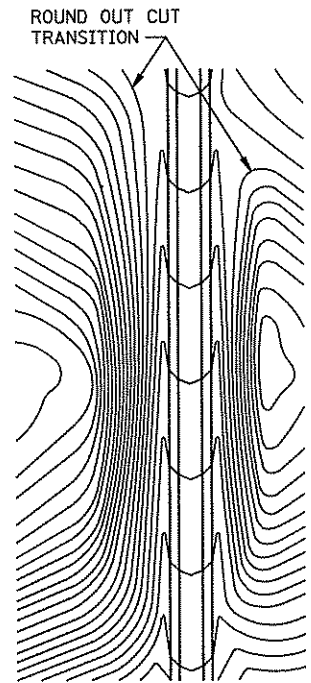
COUNTY PROJECT NO.

**EROSION CONTROL AND TURF ESTABLISHMENT PLAN**

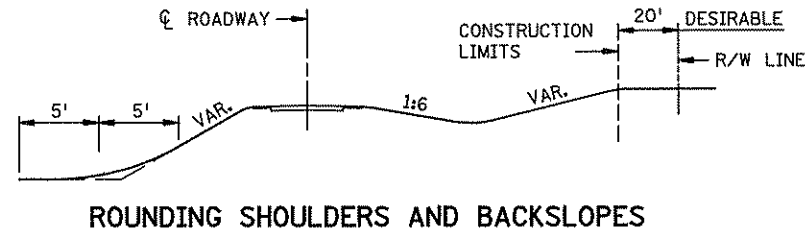
STA 803+19.46 TO 821+48.16

Sheet 18 of 46 Sheets

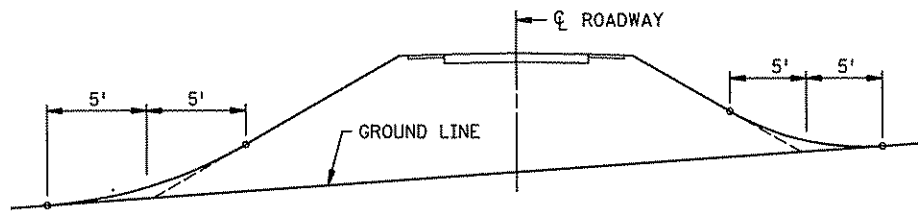
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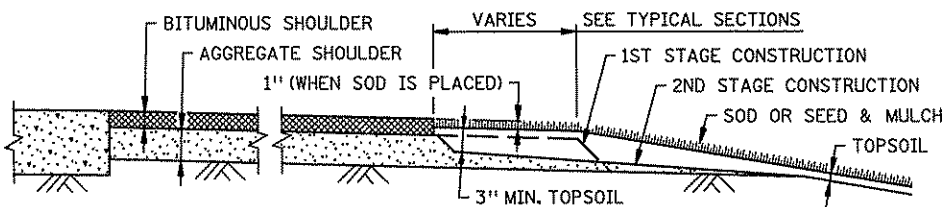
CONTOURING ROAD CUTS



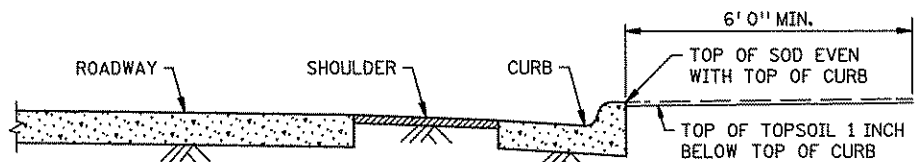
ROUNDING SHOULDERS AND BACKSLOPES



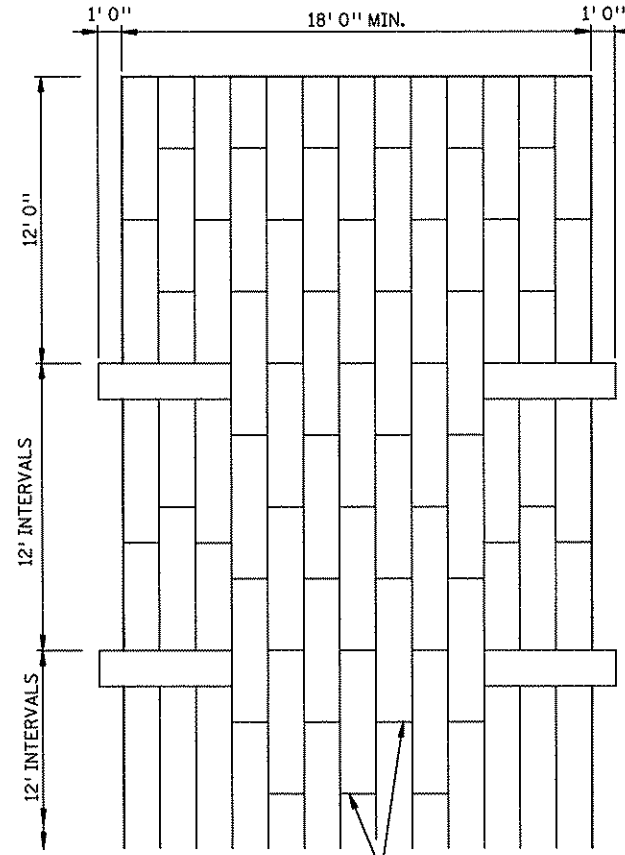
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



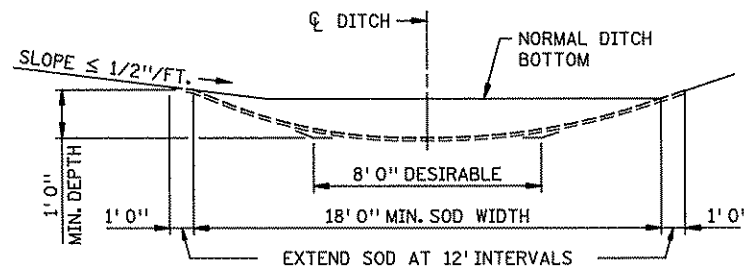
SHAPING AND TOPSOILING INSLOPES



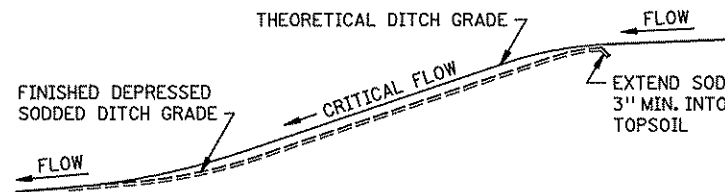
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



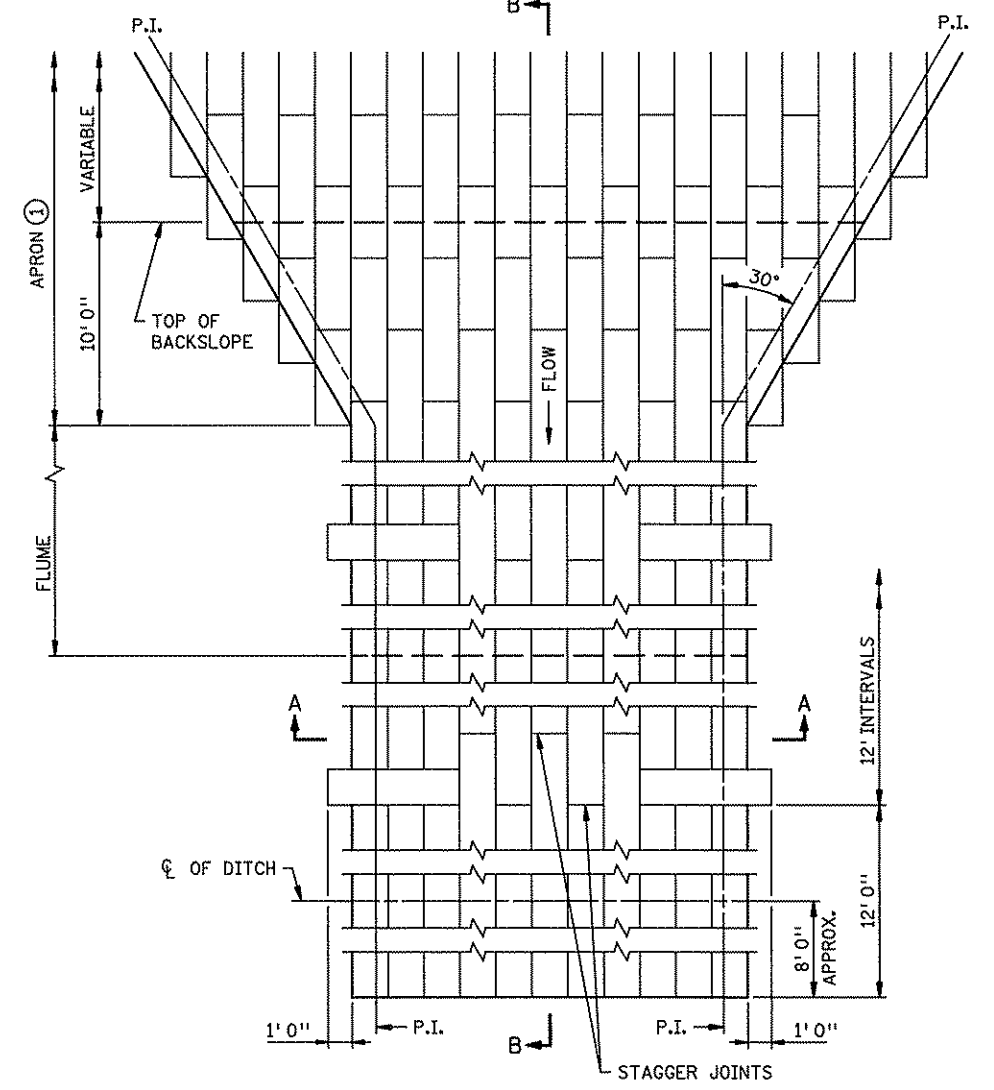
PLAN VIEW



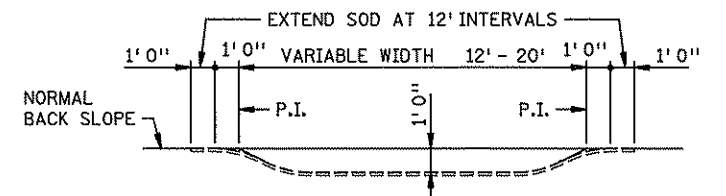
SODDED DITCH CROSS SECTION WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



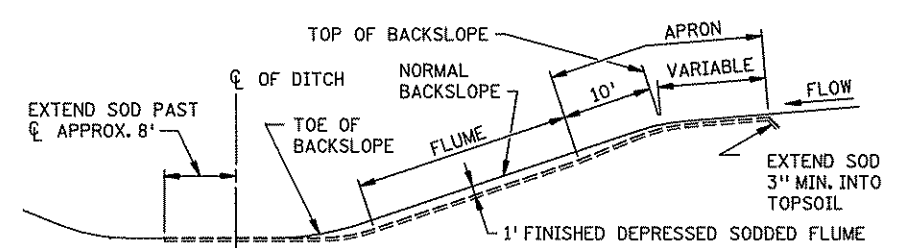
DITCH PROFILE SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B SODDED FLUME DETAILS

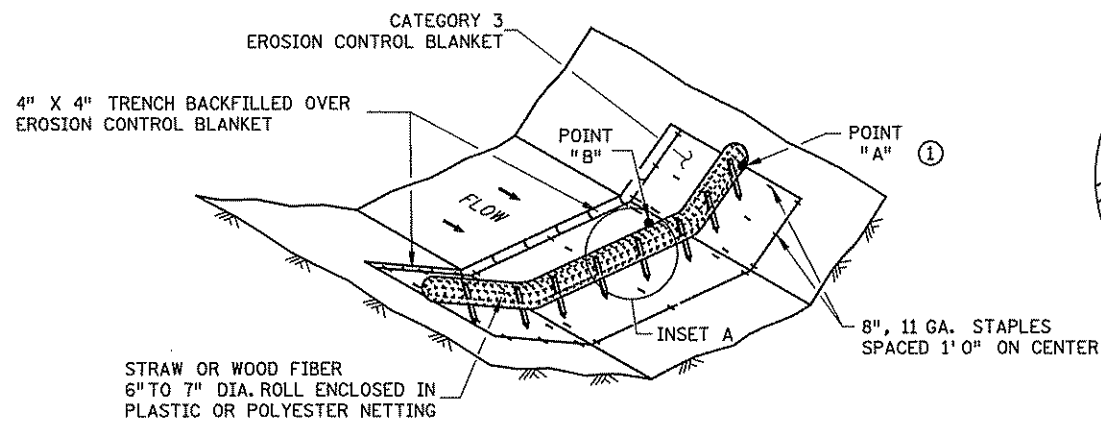
NOTES: SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION. 1 CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

Table with 2 columns: STANDARD SHEET NO. (5-297.404), STANDARD APPROVED: (NOVEMBER 20, 2002), S.P. NO. 0206-62 (TH 47), S.A.P. NO. 02-624-24

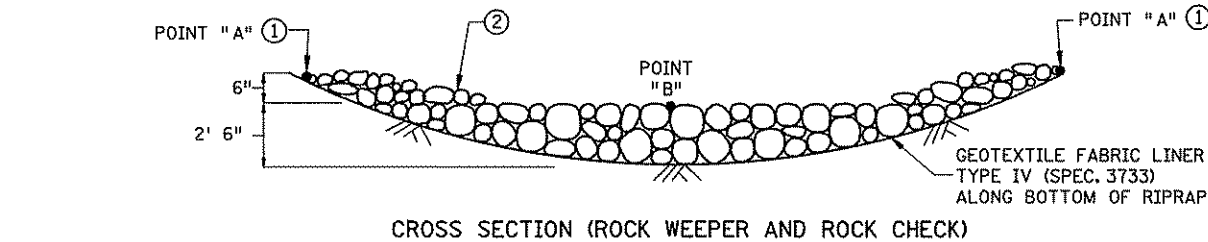
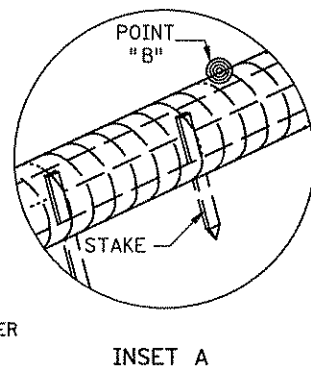
Table with 2 columns: TITLE: (PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES), SHEET NO. 19 OF 46 SHEETS

DISTRICT #: \$\$\$@DISTRICT@\$\$ USER NAME: \$\$\$@USER@NAME@\$\$\$ PATH & FILENAME: \$\$\$@PATH@FILENAME@\$\$\$ FILE NAME: \$\$\$@FILENAME@\$\$\$

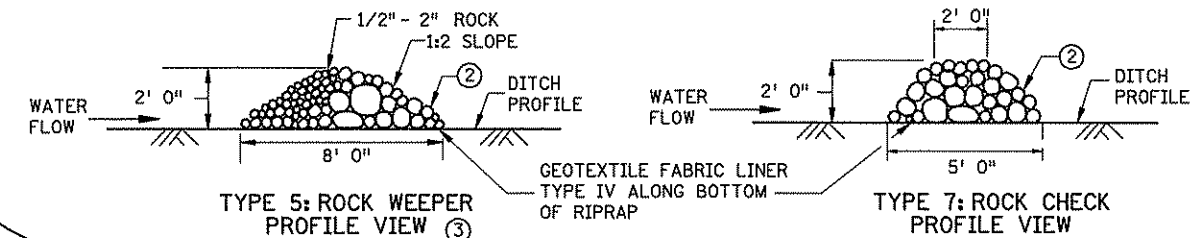
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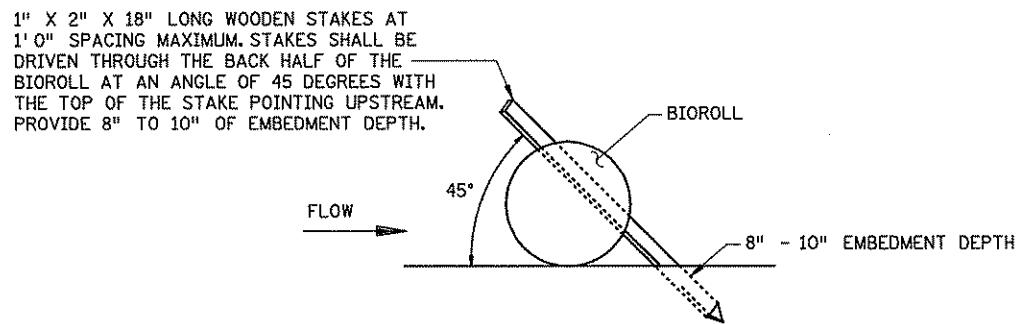
**TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK**



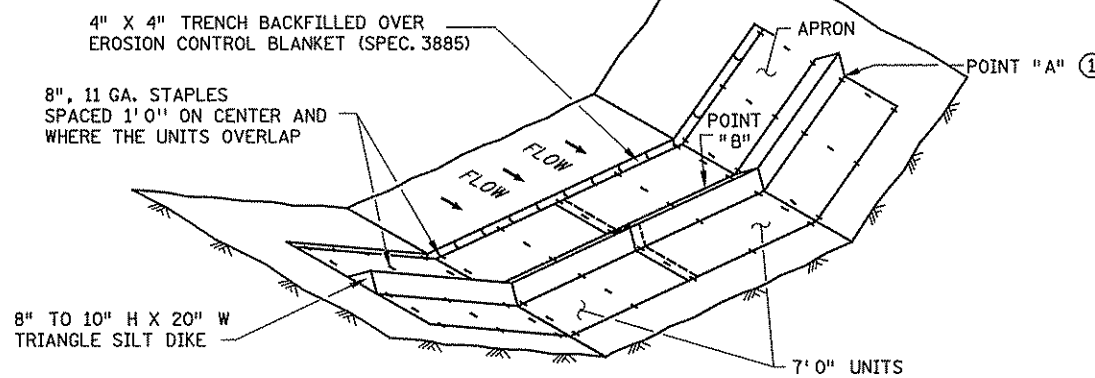
CROSS SECTION (ROCK WEEPER AND ROCK CHECK)



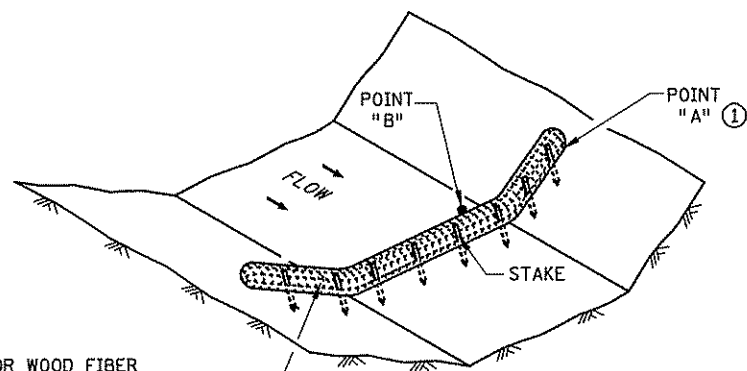
**TYPE 5: ROCK WEEPER AND TYPE 7: ROCK CHECK DITCH CHECKS**  
USE ON ROUGH GRADED AREAS



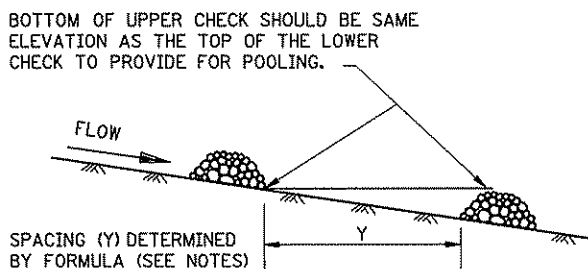
**BIOROLL STAKING DETAIL**



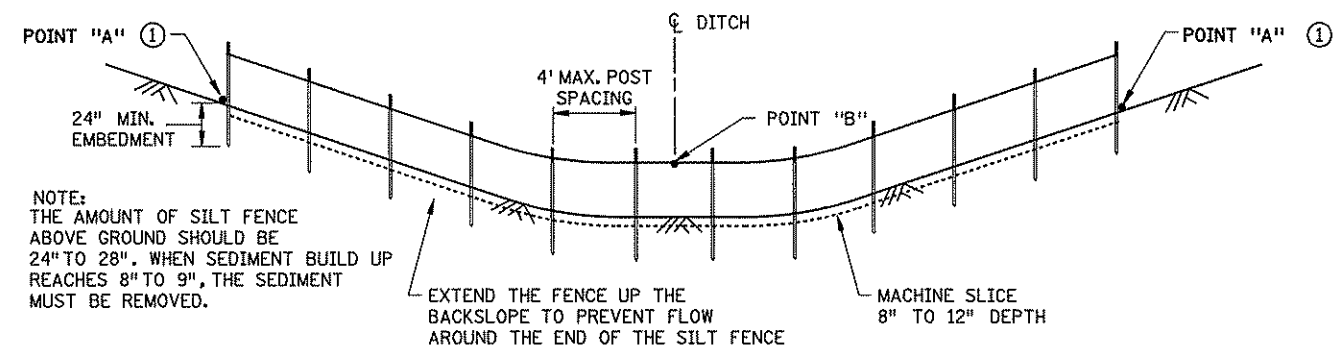
**TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK**



**TYPE 2: BIOROLL DITCH CHECK**  
USE ON ROUGH GRADED AREAS



**DITCH CHECK SPACING** ④



**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 )  
STANDARD APPROVED:  
SEPTEMBER 27, 2006  
S.P. NO. 0206-62 (TH 47)  
S.A.P. NO. 02-624-24

**TEMPORARY SEDIMENT CONTROL**  
DITCH CHECK/BARRIER

SHEET NO. 20 OF 46 SHEETS

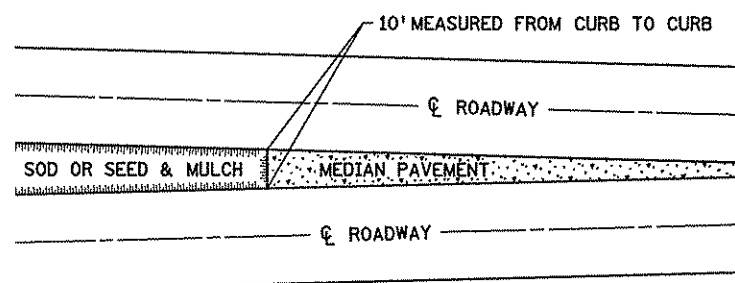
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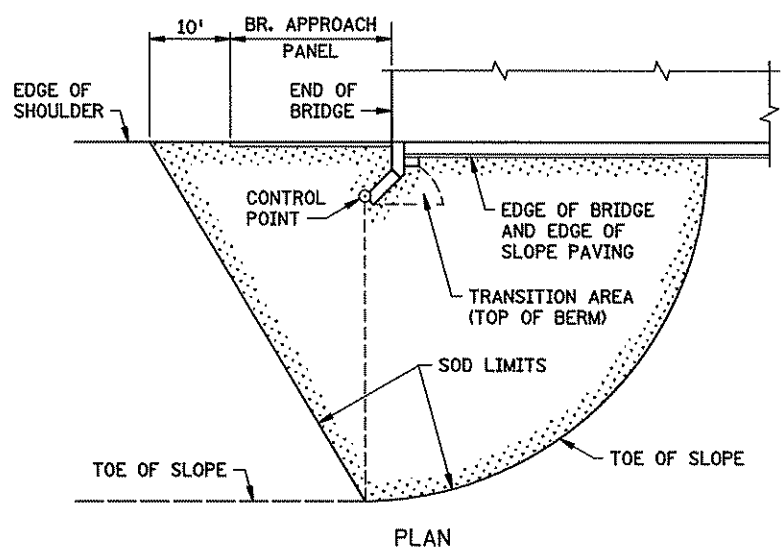
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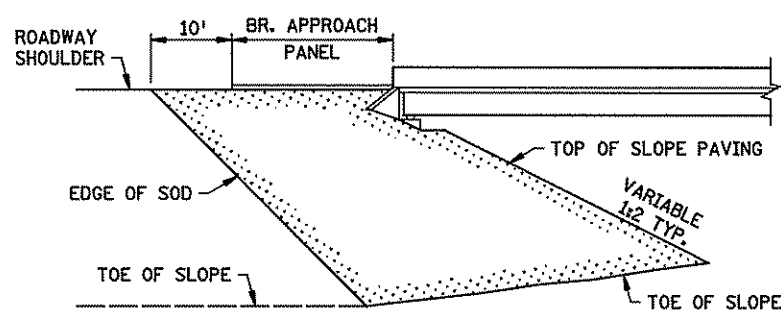
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SODDING LIMITS AT GORE AREA

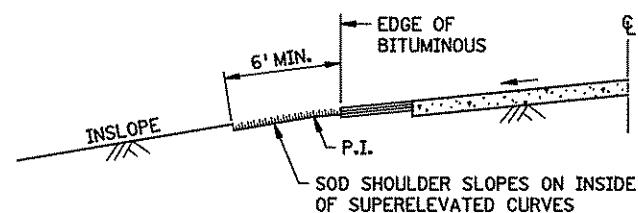


PLAN

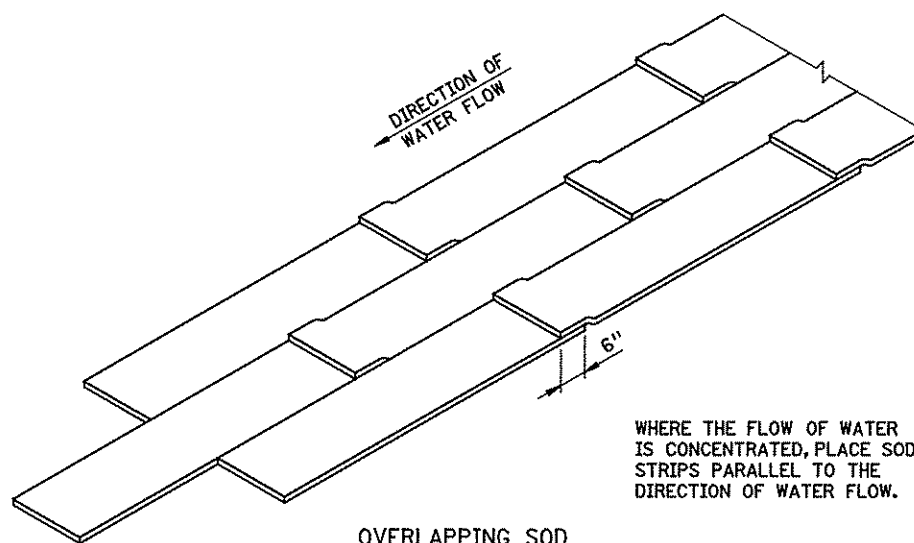


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

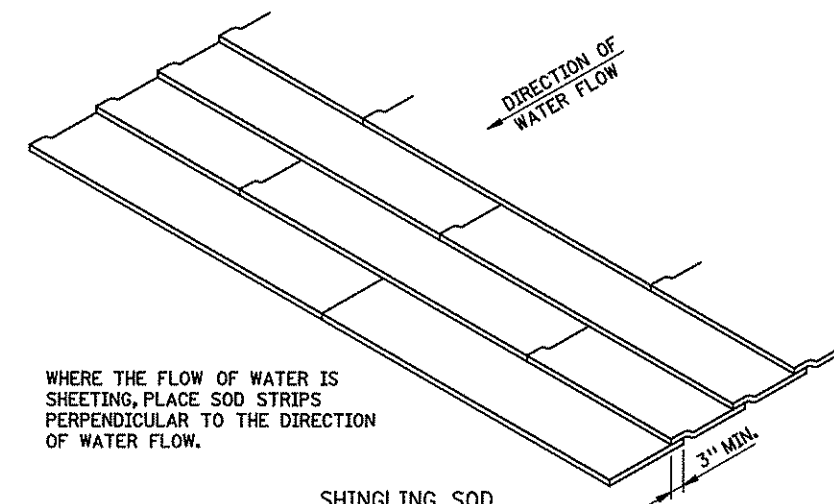


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

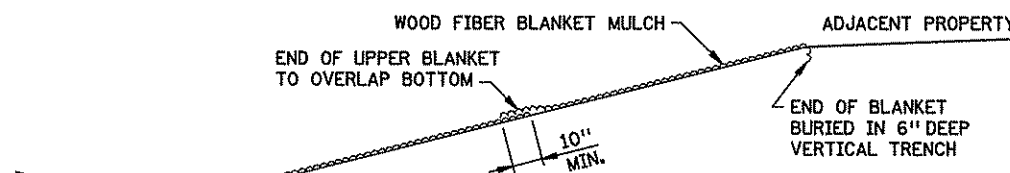
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



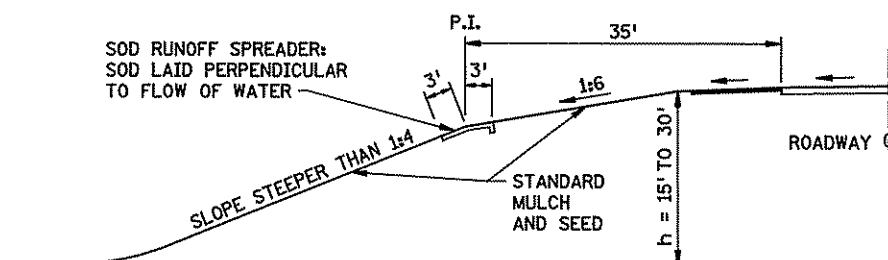
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

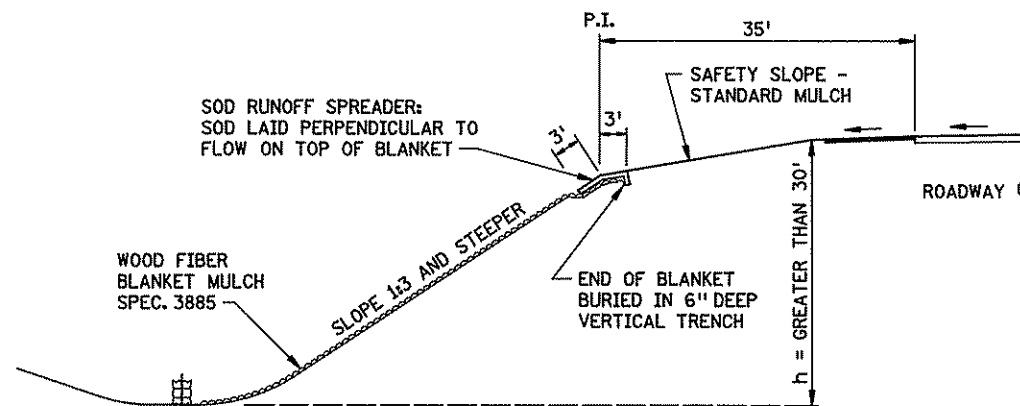
SPECIAL SOD PLACEMENT TECHNIQUES



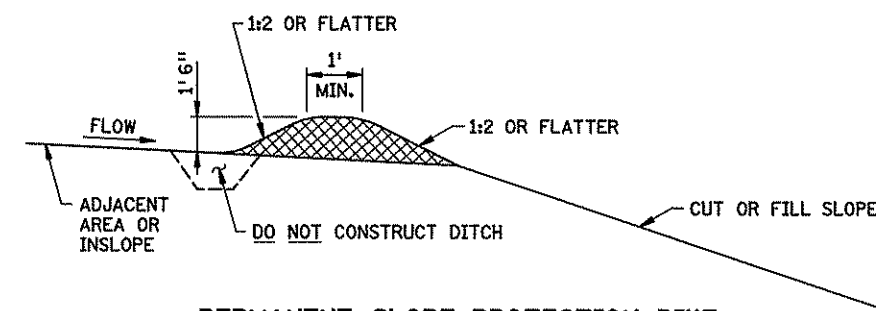
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



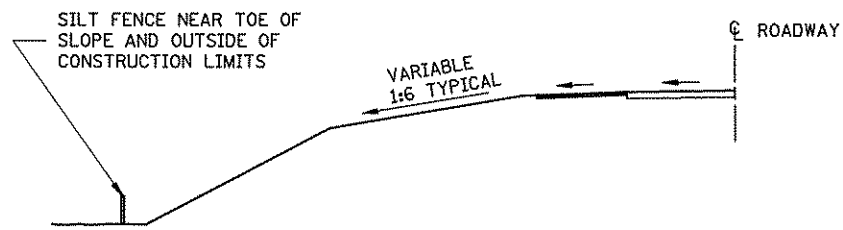
WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)



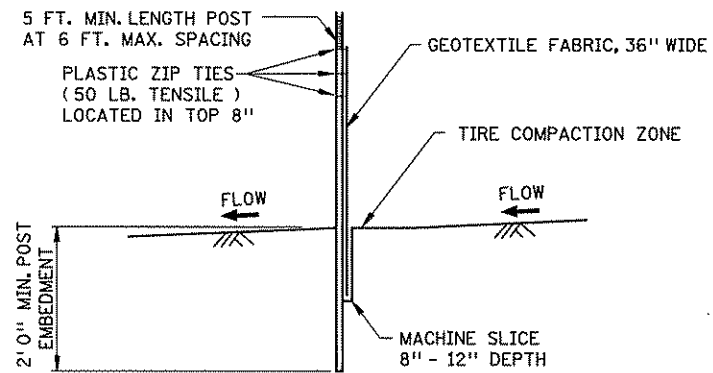
PERMANENT SLOPE PROTECTION DIKE

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	
S.P. NO. 0206-62 (TH 47) S.A.P. NO. 02-624-24	SHEET NO. 21 OF 46 SHEETS

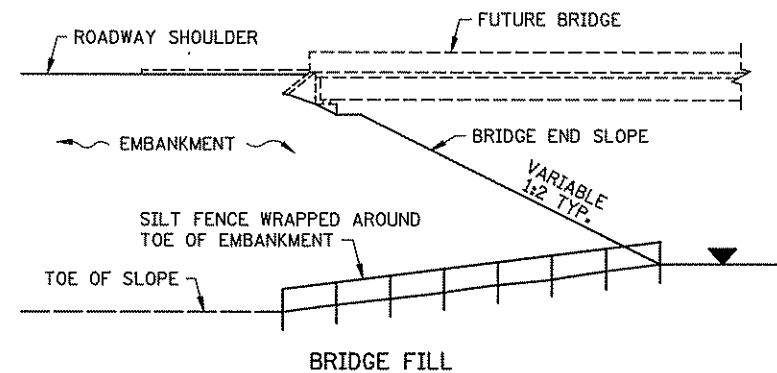
PLOTTED/REVISED: \$\$\$@DATE@\$\$\$



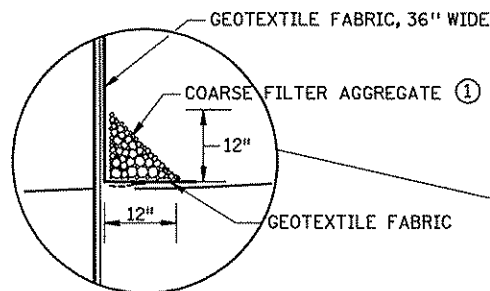
LOCATION OF SILT FENCE AT TOE OF ROADWAY EMBANKMENT



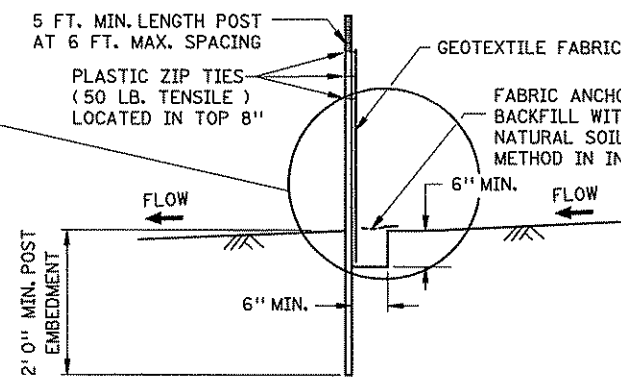
SILT FENCE, MACHINE SLICED  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



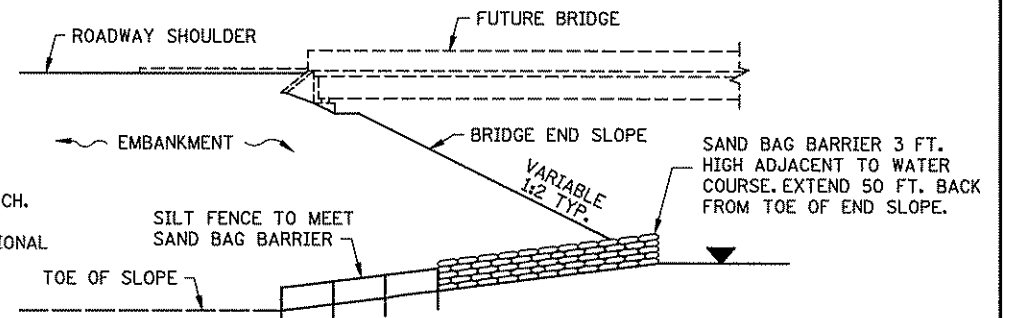
DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: STAGNANT  
CONTRIBUTING SLOPE AREA: 1/2 ACRE



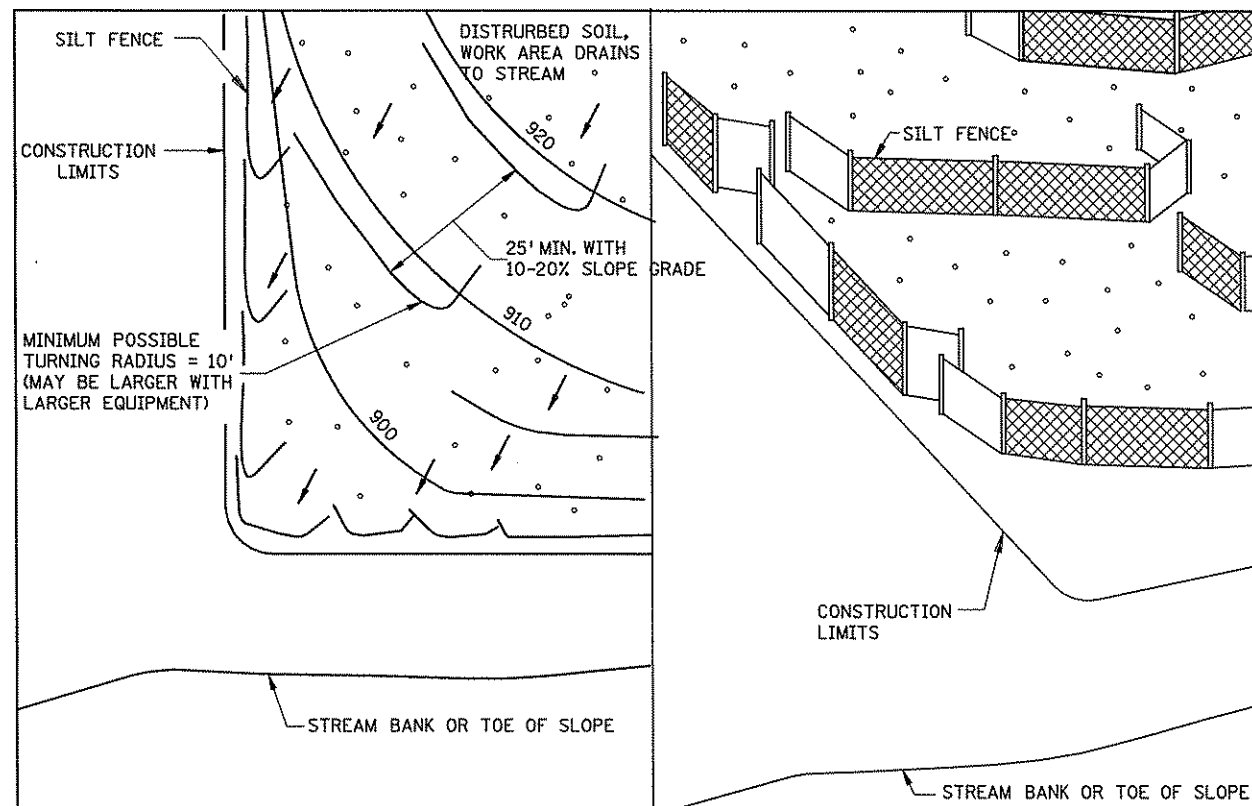
OPTIONAL METHOD FOR SILT FENCE, HEAVY DUTY



SILT FENCE, HEAVY DUTY (HAND INSTALLED)  
DESIGN GUIDELINES:  
TO PROTECT AREAS FROM SHEET FLOW.  
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



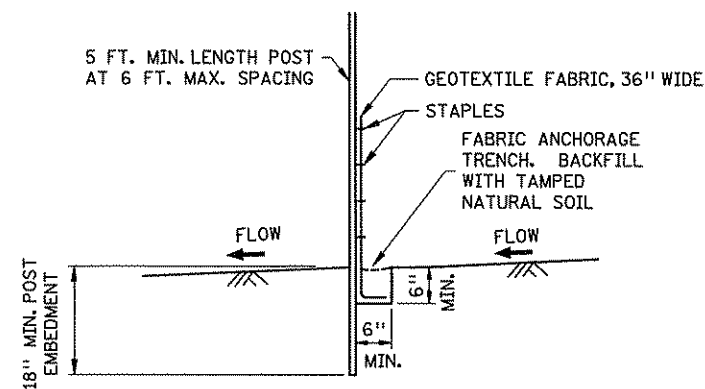
DESIGN GUIDELINES:  
WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.  
CONTRIBUTING SLOPE AREA: 1 ACRE



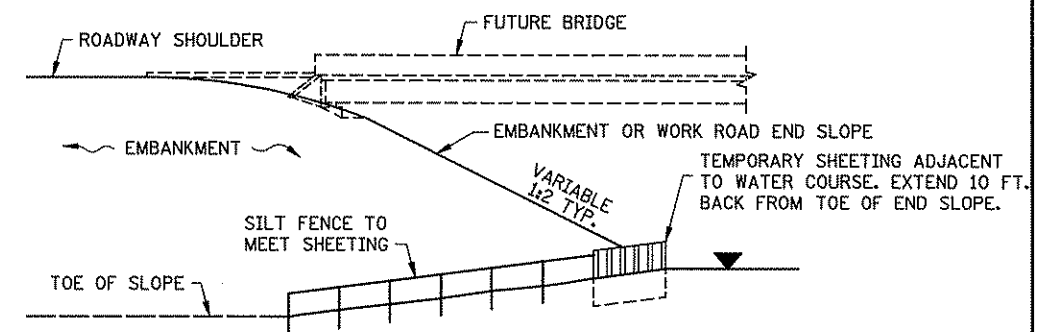
PLAN VIEW

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.

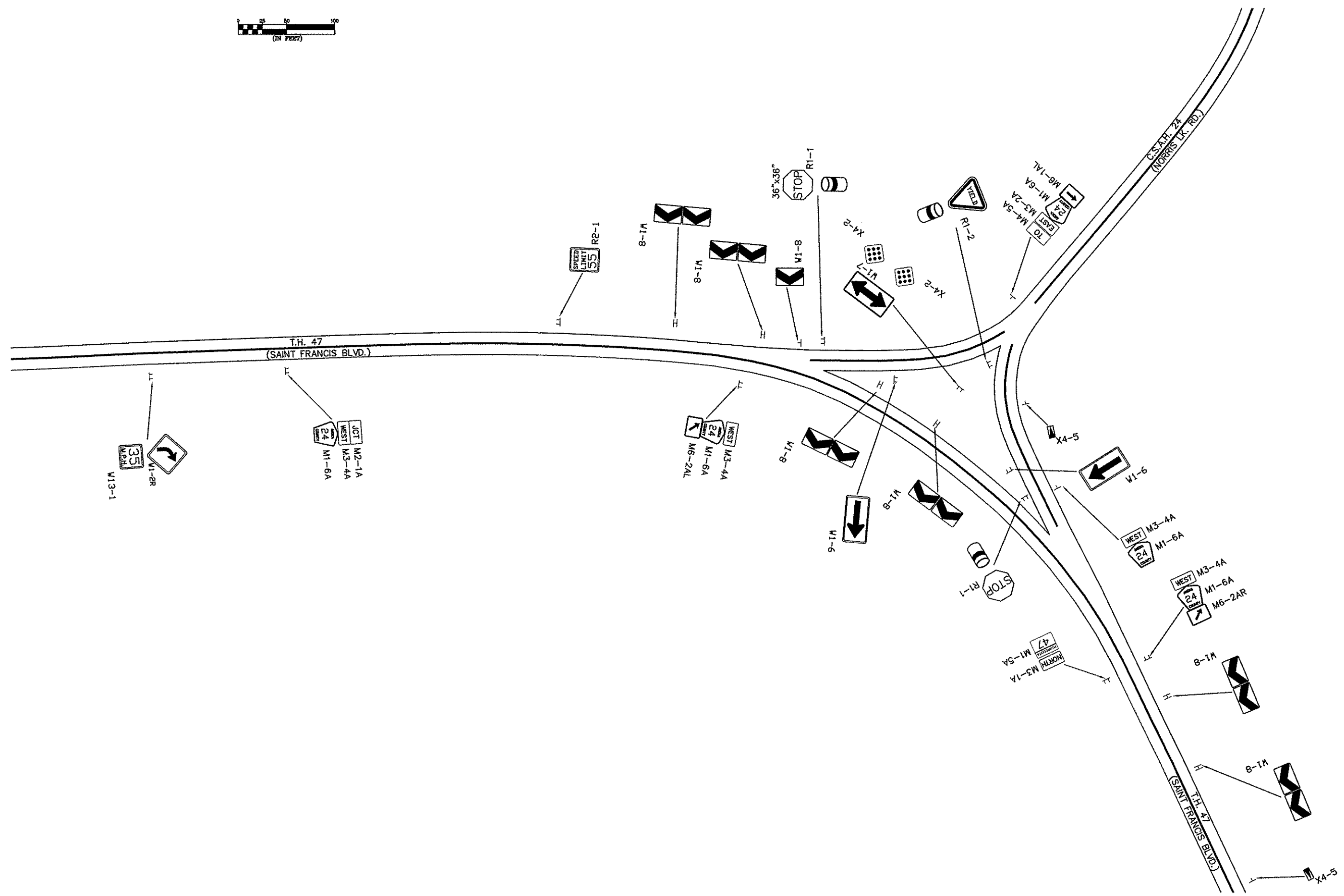
① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

DISTRICT #: \$@DISTRICT@\$  
USER NAME: \$\$\$@USER\$NAME@\$  
PATH & FILENAME: \$\$\$@PATH\$FILENAME\$\$\$

FILE NAME: @FILENAME@

STANDARD SHEET NO. 5-297.408 (1 OF 2)
STANDARD APPROVED: SEPTEMBER 27, 2006
S.P. NO. 0206-62 (TH 47) S.A.P. NO. 02-624-24

TITLE: <b>TEMPORARY SEDIMENT CONTROL SILT FENCE</b>
<b>SHEET NO. 22 OF 46 SHEETS</b>



NO	DATE	BY	CHKD	APPR	REVISION
2	6/25/09	ST			TC NOTE CHANGES REQUESTED BY MNDOT
NAME: P:\02-624-24\Base\EXISTING\inplacesign&stripe.dwg, 06/25/2009 1:50:46 PM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-26-09 REG. NO. 24756

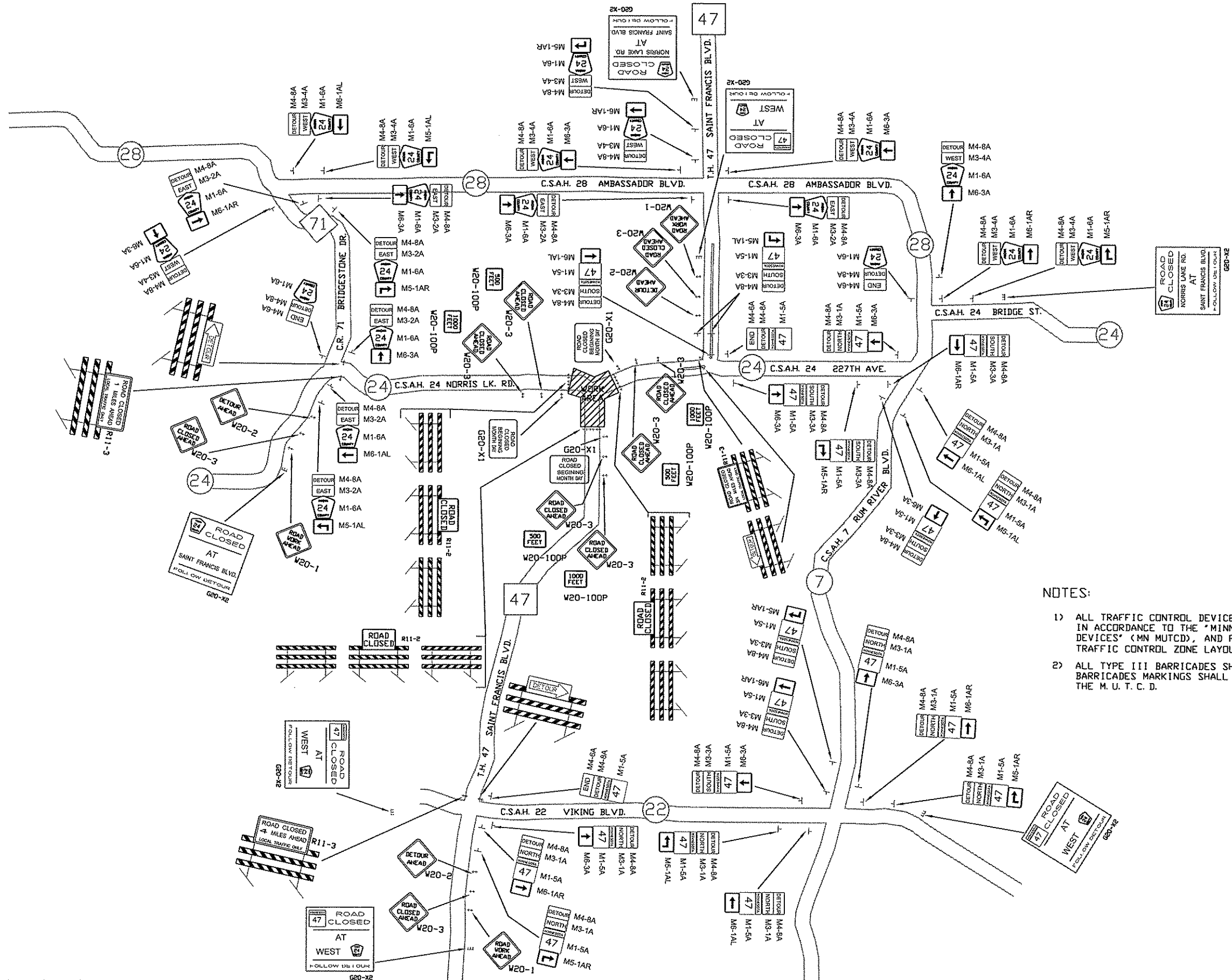
DRAWN BY: S.T. DATE: 07/28/08  
 DESIGN BY: DATE: \_\_\_\_\_  
 CHECKED BY: DATE: \_\_\_\_\_



ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 STATE AID PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

INPLACE SIGNING  
 AND STRIPING  
 Sheet 23 of 46 Sheets



NOTES:

- 1) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- 2) ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES. BARRICADES MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE M. U. T. C. D.

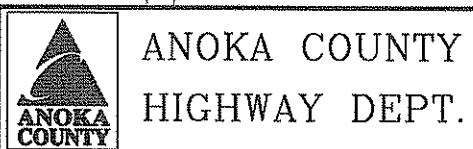
NO	DATE	BY	CKD	APPR	REVISION
2	6/25/09	ST			TC NOTE CHANGES REQUESTED BY MNDOT

NAME: P:\02-624-24\AutoCAD\detour.dwg, 06/25/2009 2:29:25 PM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6.26.09 REG. NO. 24756

DRAWN BY: S.T. DATE: 11/25/08  
 DESGN BY: S.T. DATE: 11/25/08  
 CHECKED BY: R.B. DATE: 11/26/08



STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 STATE AID PROJECT NO.  
 COUNTY PROJECT NO.

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY	M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY	M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY
W20-1	48" x 48"		• 3	R11-3	60" x 30"		SEE NOTE	M4-8A	24" x 12"		• 3
W20-2	48" x 48"		• 3	TYPE III	8 FOOT		• 1	M3-1A	24" x 12"		• 2
W20-3	48" x 48"		• 9					M1-5A	24" x 24"		• 1
W20-100P	24" x 18"		• 3	R11-3	60" x 30"		SEE NOTE		21" x 15"		• 2
M4-10L	48" x 18"		SEE NOTE	TYPE III	8 FOOT		• 1				• 2
TYPE III	8 FOOT		• 2					M4-6A	24" x 12"		
R11-2	48" x 30"		SEE NOTE					M4-8A	24" x 12"		• 2
TYPE III	8 FOOT		• 3					M1-6A	24" x 24"		
R11-3	60" x 30"		SEE NOTE	M4-8A	24" x 12"		• 4	G20-X2	132" x 108"		• 4
TYPE III	8 FOOT		• 1	M3-3A	24" x 12"		• 1				
				M1-6A	24" x 24"		• 1	G20-X2	132" x 108"		• 2
					21" x 15"		• 1				
							• 1				
M4-10R	48" x 18"		SEE NOTE	M4-8A	24" x 12"		• 2	G20-X2	132" x 108"		• 1
TYPE III	8 FOOT		• 1	M3-1A	24" x 12"		• 2				
				M1-6A	24" x 24"		• 4	G20-X1	60" x 48"		• 3
					21" x 15"		• 1				
							• 1				
TYPE III	8 FOOT		SEE NOTE	M4-8A	24" x 12"		• 3				
			• 3	M3-3A	24" x 12"		• 2				
				M1-5A	24" x 24"		• 2				
					21" x 15"		• 2				
							• 2				
TYPE III	8 FOOT		SEE NOTE								
			• 3								

\* SIGN TO BE PLACED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. USE FOLLOW DETOUR PANEL UPON CLOSURE.

\* SIGN TO BE PLACED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. USE FOLLOW DETOUR PANEL UPON CLOSURE.

\* SIGN TO BE PLACED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. USE FOLLOW DETOUR PANEL UPON CLOSURE.

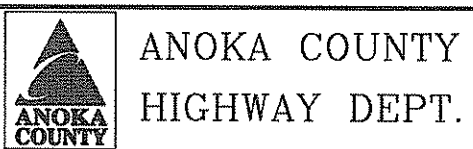
\* SIGN TO BE PLACED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGNS TO BE REMOVED AT TIME OF DETOUR INSTALLATION.

- NOTES:
- 1) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
  - 2) ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES. BARRICADES MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE M. U. T. C. D.

NO	DATE	BY	CKD	APPR	REVISION
2	6/25/09	ST			TC NOTE CHANGES REQUESTED BY MNDOT

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

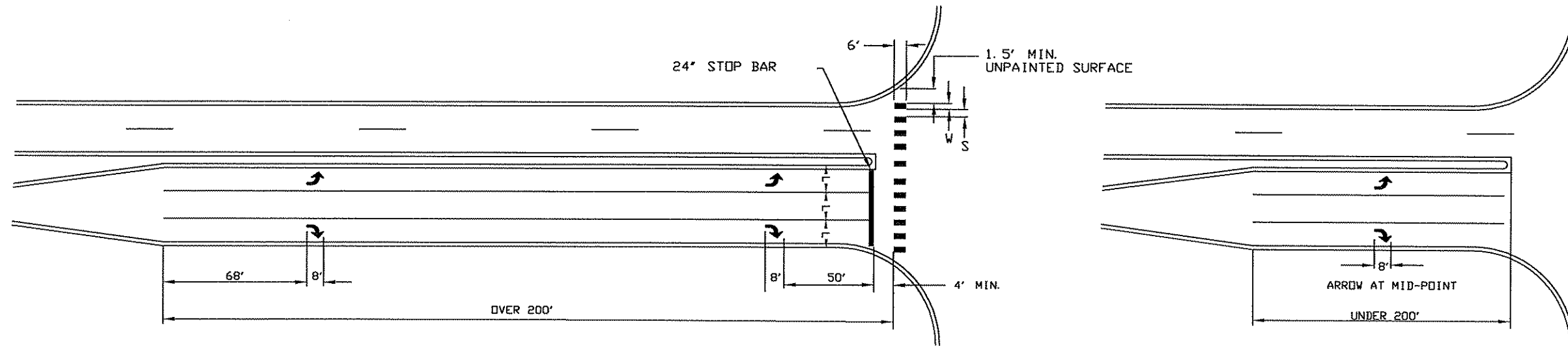
DRAWN BY: S.T. DATE 11/25/08  
 DESIGN BY: S.T. DATE 11/25/08  
 CHECKED BY: R.B. DATE 11/26/08



STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 STATE AID PROJECT NO.  
 COUNTY PROJECT NO.

02-624-24  
 DETOUR  
 Sheet 25 of 46 Sheets



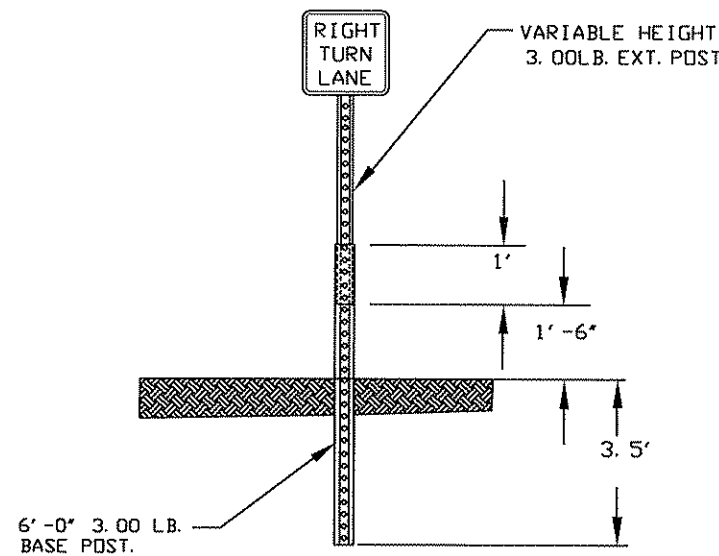


( L )	( W )	( S )
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'

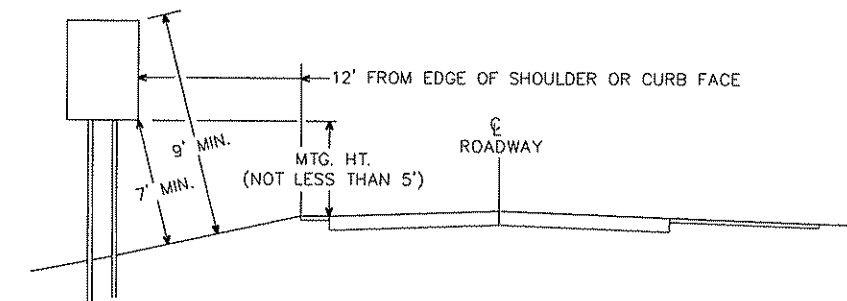
NOTES: CROSSWALKS:

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

GROUND POST MOUNT SIGN  
INSTALLATION TYPICAL - Anoka County ROW



ROADSIDE PLACEMENT - Anoka County ROW



NO	DATE	BY	CHKD	APPR	REVISION
1	05/15/2009	ST	JR	CK	ADDRESSED MNDOT REVIEW COMMENTS.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-26-09 REG. NO. 24756

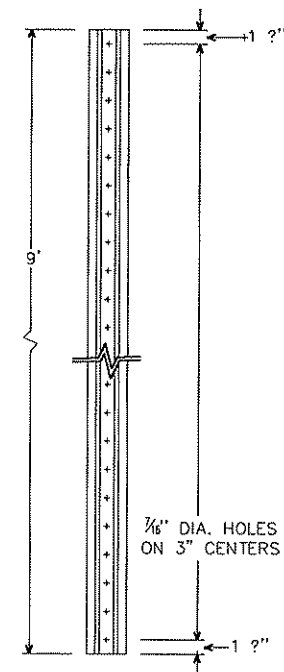
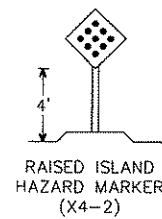
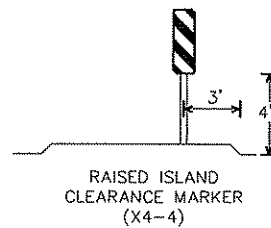
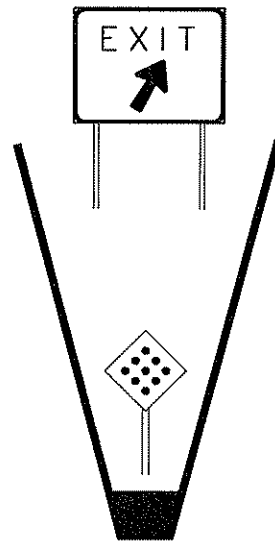
DRAWN BY: ST DATE 10/31/08  
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 CHECKED BY: RB DATE 11/05/08



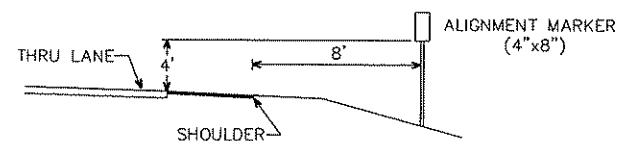
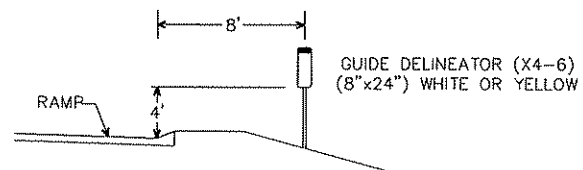
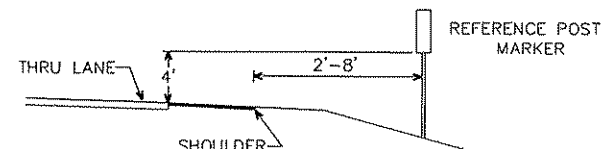
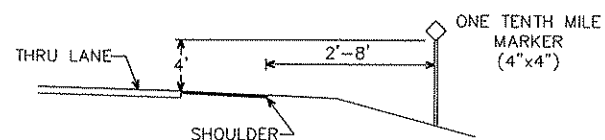
ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE PROJECT NO. 02-624-24  
 STATE AID PROJECT NO.  
 STATE PROJECT NO.

SIGNING/  
STRIPING DETAILS



MN/DOT 3401  
NORMAL WEIGHT= 2 LB./FT.  
DELINEATOR POST



TYPICAL PLACEMENT

DELINEATORS AND MARKERS

NO	DATE	BY	CHKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-26-09 REG. NO. 24756

DRAWN BY ST DATE 10/31/08  
 DESIGN BY ST DATE 10/31/08  
 CHECKED BY RB DATE 11/05/08

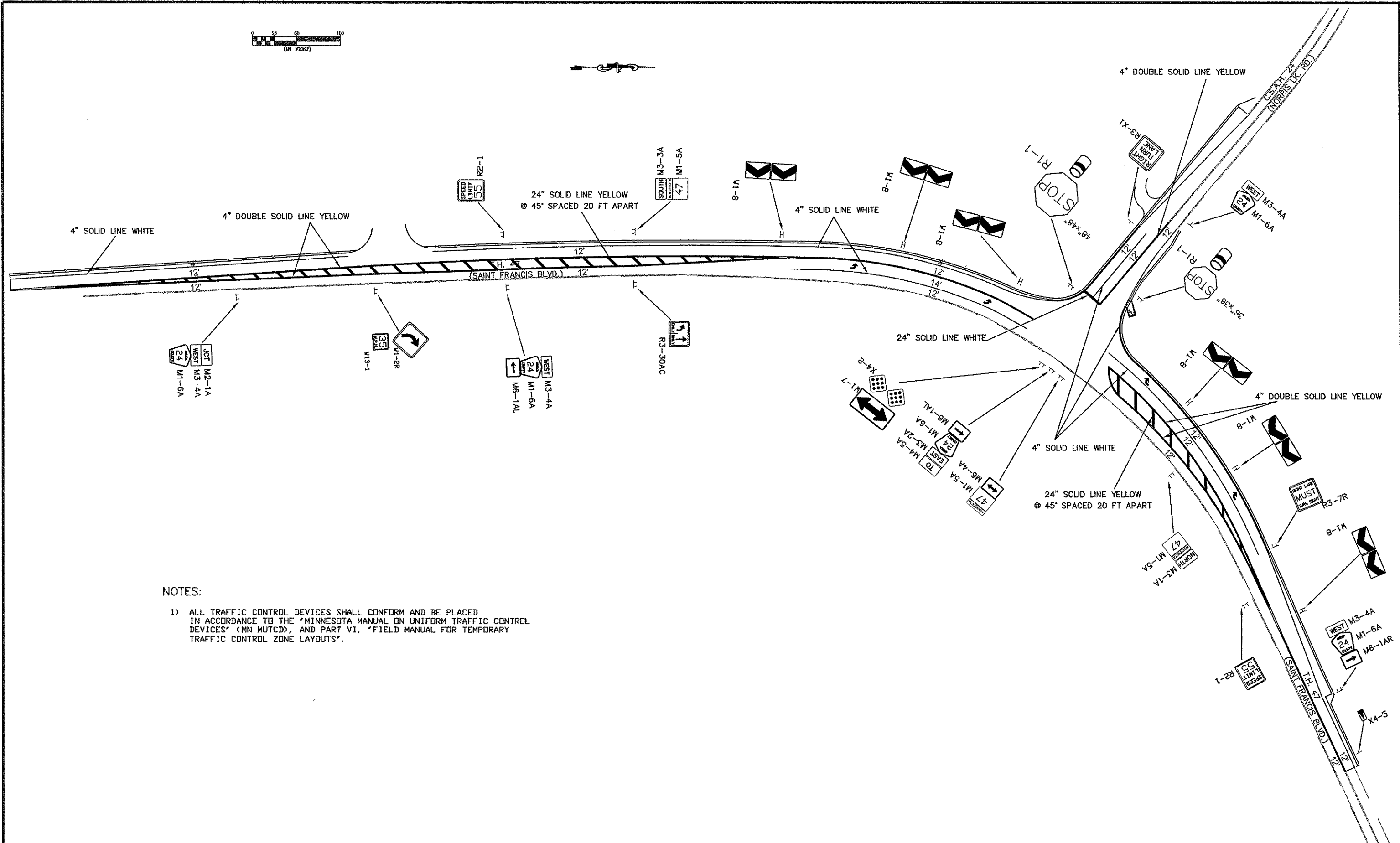


ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE PROJECT NO. 02-624-24  
 STATE AID PROJECT NO. \_\_\_\_\_  
 STATE PROJECT NO. \_\_\_\_\_

SIGNING/  
 STRIPING DETAILS

Sheet 27 of 46 Sheets



NOTES:

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

1	05/15/2009	ST	JR	CK	ADDRESSED MNDOT REVIEW COMMENTS.
2	6/25/09	ST			TC NOTE CHANGES REQUESTED BY MNDOT
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-624-24\AutoCAD\0262424_proposedsign&stripe.dwg, 06/25/2009 2:48:44 PM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-26-09 REG. NO. 24756

DRAWN BY: S.T. DATE 10/28/08  
 DESIGN BY: S.T. DATE 10/28/08  
 CHECKED BY: R.B. DATE 11/05/08



ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 STATE AID PROJECT NO.  
 COUNTY PROJECT NO.

PERMANENT SIGNING  
 AND STRIPING  
 Sheet 28 of 46 Sheets

SIGN PANELS TYPE C						
M. U. T. C. D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY		MOUNTING HEIGHT (To Pavement Edge) FT. (8)
				No. POST		
R1-1	48' x 48'	16.00		1	2	7.0'
R1-1	36' x 36'	9.00		1	2	7.0'
R2-1	24' x 30'	5.00		2	2	7.0'
R3-X1	30' x 30'	6.25		1	1	7.0'
R3-7	30' x 30'	6.25		1	2	7.0'
R3-30AC	36' x 30'	7.50		1	2	7.0'
W1-2R	30' x 30'	6.25		1	2	7.0'
W13-1	18' x 18'	2.25		1		
W1-7	48' x 24'	8.00		1	2	7.0'
W1-8R	18' x 24'	3.00	(#9)	6	1	4.0'
W1-8L	18' x 24'	3.00	(#9)	6	(#1)	4.0'

Delineators and Object Markers						
M. U. T. C. D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY		MOUNTING HEIGHT (To Pavement Edge) FT. (8)
				No. POST		
X4-2	18' x 18'	2.25		2	(#2)	4.0'
X4-5	6' x 12'	0.50		1	1	4.0'
DEL INEATOR X4-13	4" DIA x 15'	1.31		2	(#3)	4.0'

SIGN PANELS TYPE C						
M. U. T. C. D. CODE	SIZE	PANEL AREA FT. <sup>2</sup>	INSERT	QUANTITY		MOUNTING HEIGHT (To Pavement Edge) FT. (8)
				No. POST		
M2-1A	24' x 12'	2.00		1	(#4)	
M3-2A	24' x 12'	2.00		1	(#4)	
M3-4A	24' x 12'	2.00		4	(#4)	
M4-5A	24' x 12'	2.00		1	(#4)	
M1-6A	24' x 24'	4.00		5	4-2 1-1	7.0'
M6-1AR	21' x 15'	2.18		1	(#5)	
M6-1AL	21' x 15'	2.18		2	(#5)	
M3-1A	24' x 12'	2.00		1	(#6)	
M3-3A	24' x 12'	2.00		1	(#6)	
M1-5A	24' x 24'	4.00		3	2	7.0'
M6-4A	21' x 15'	2.18		1	(#7)	

SPECIFIC NOTES:

- (#1) MOUNTED BACK TO BACK w/W1-8R
- (#2) MOUNTED BELOW W1-7
- (#3) MOUNTED BELOW R1-1
- (#4) MOUNTED ABOVE M1-6A
- (#5) MOUNTED BELOW M1-6A
- (#6) MOUNTED ABOVE M1-5A
- (#7) MOUNTED BELOW M1-5A
- (#8) MOUNTING HEIGHT IS MINIMUM SEE SHEET 29B FOR TYPICAL MOUNTING
- (#9) MOUNT BACK TO BACK

GENERAL NOTES:

- 1.) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".
- 2.) POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
- 3.) SEE SHEETS 29A-29C FOR STRUCTURAL DETAILS.
- 4.) SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.

1	05/15/2009	ST	JR	CK	ADDRESSED MNDOT REVIEW COMMENTS.
2	6/25/09	ST			TC NOTE CHANGES REQUESTED BY MNDOT
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-624-24\AutoCAD\0262424_proposedsign&stripe.dwg, 06/25/2009 2:48:49 PM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE:   
 DATE: 6-26-09 REG. NO. 24756

DRAWN BY: S.T. DATE 10/28/08  
 DESIGN BY: S.T. DATE 10/28/08  
 CHECKED BY: R.B. DATE 11/05/08

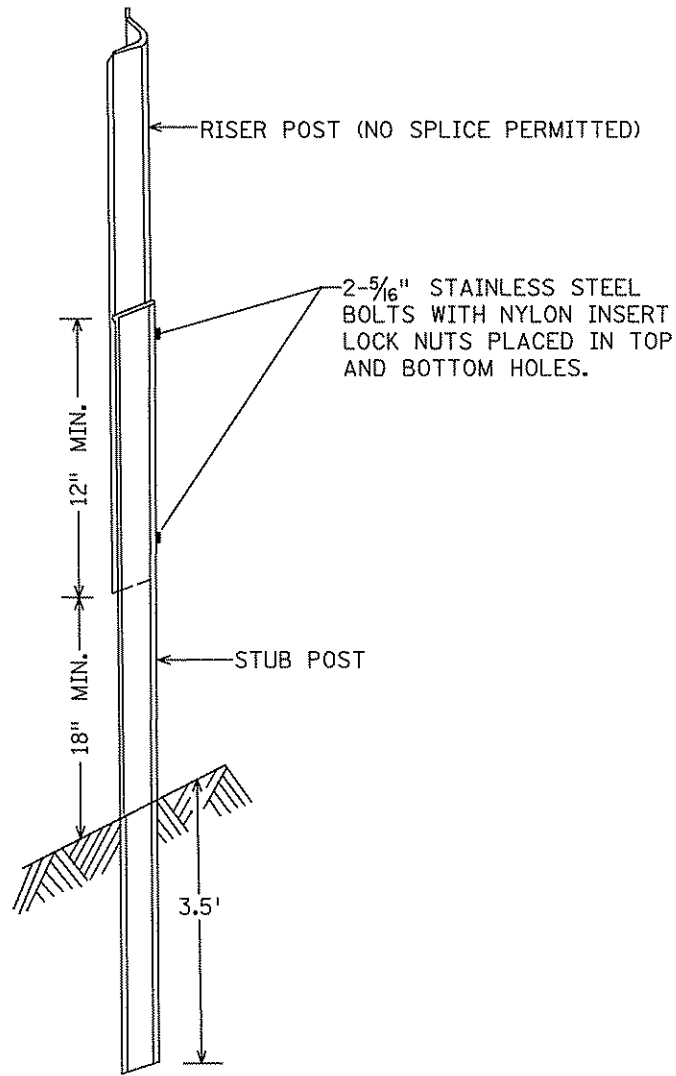


ANOKA COUNTY  
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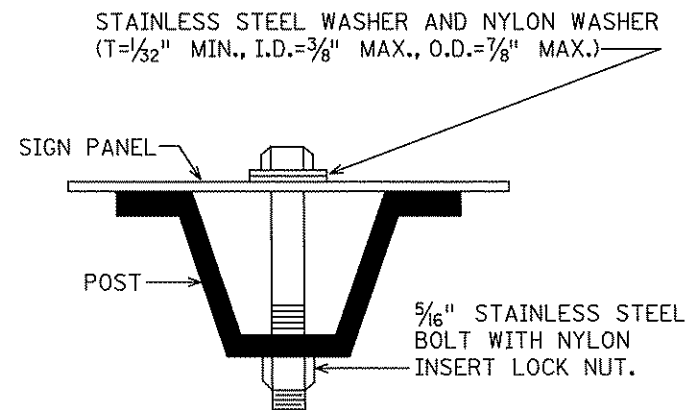
STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 STATE AID PROJECT NO.  
 COUNTY PROJECT NO.

PERMANENT SIGNING  
 AND STRIPING

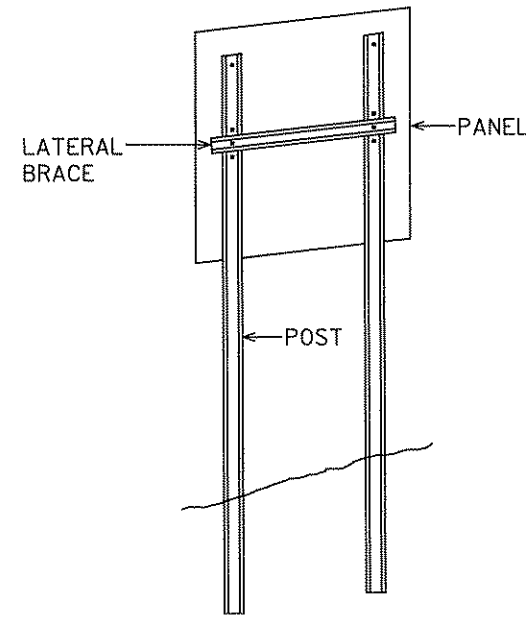
**TYPE C & D POST**



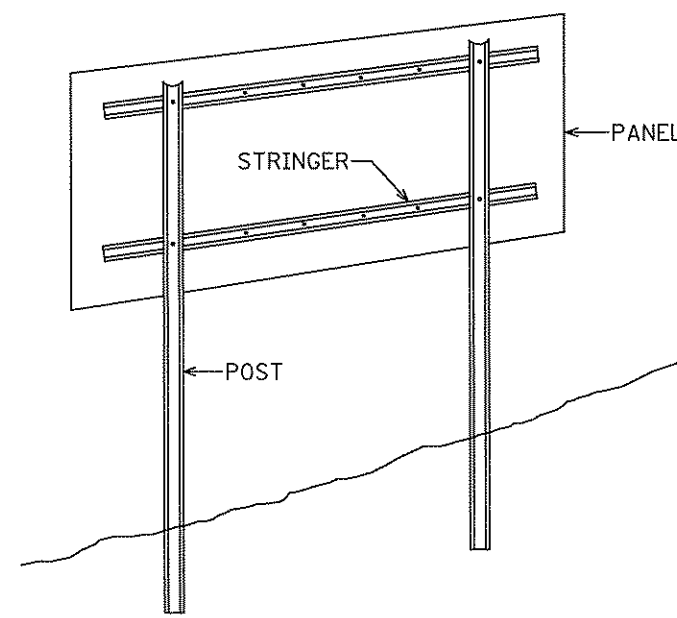
**U POST SPLICE**



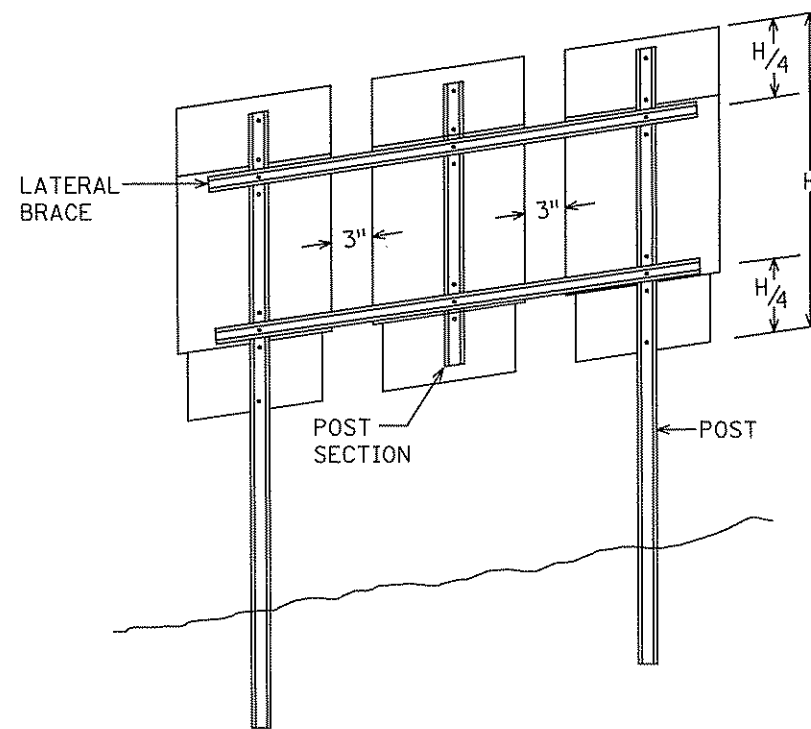
**U POST MOUNTING  
TYPE C SIGNS**



**TYPICAL TYPE C INSTALLATION**



**TYPICAL TYPE D INSTALLATION**



**MODIFIED TYPE C INSTALLATION**

**NOTES:**

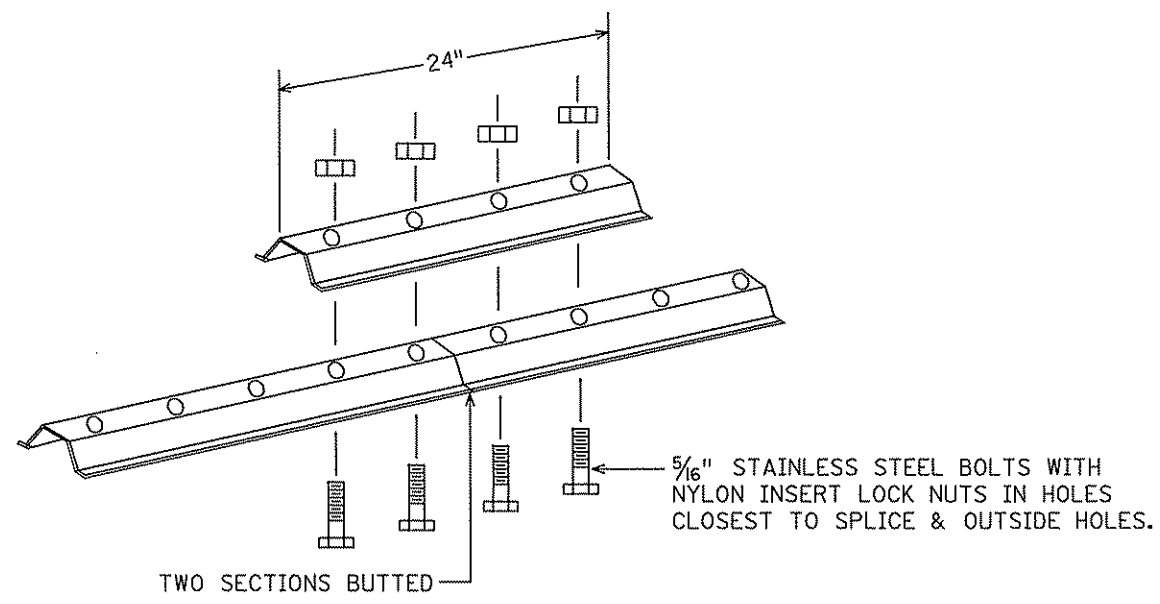
1. USE 3 LB/FT STUB POSTS, RISER POSTS, STRINGERS, KNEE BRACES, LATERAL BRACES AND KNEE BRACE STUB POSTS. ALL SHALL CONFORM TO MN/DOT 3401.
2. FOR TYPE D SIGN POSTS LENGTHS AND SPACINGS, SEE SIGN DATA SHEET.
3. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH 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 1/2'.
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**

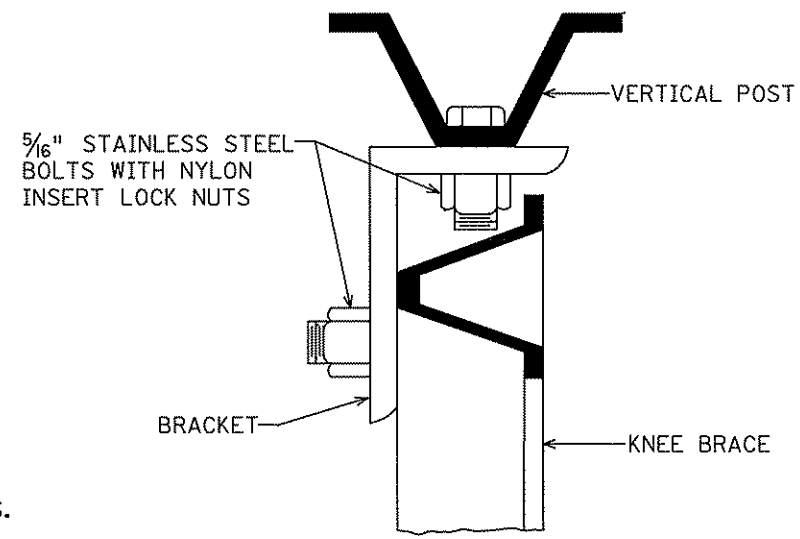


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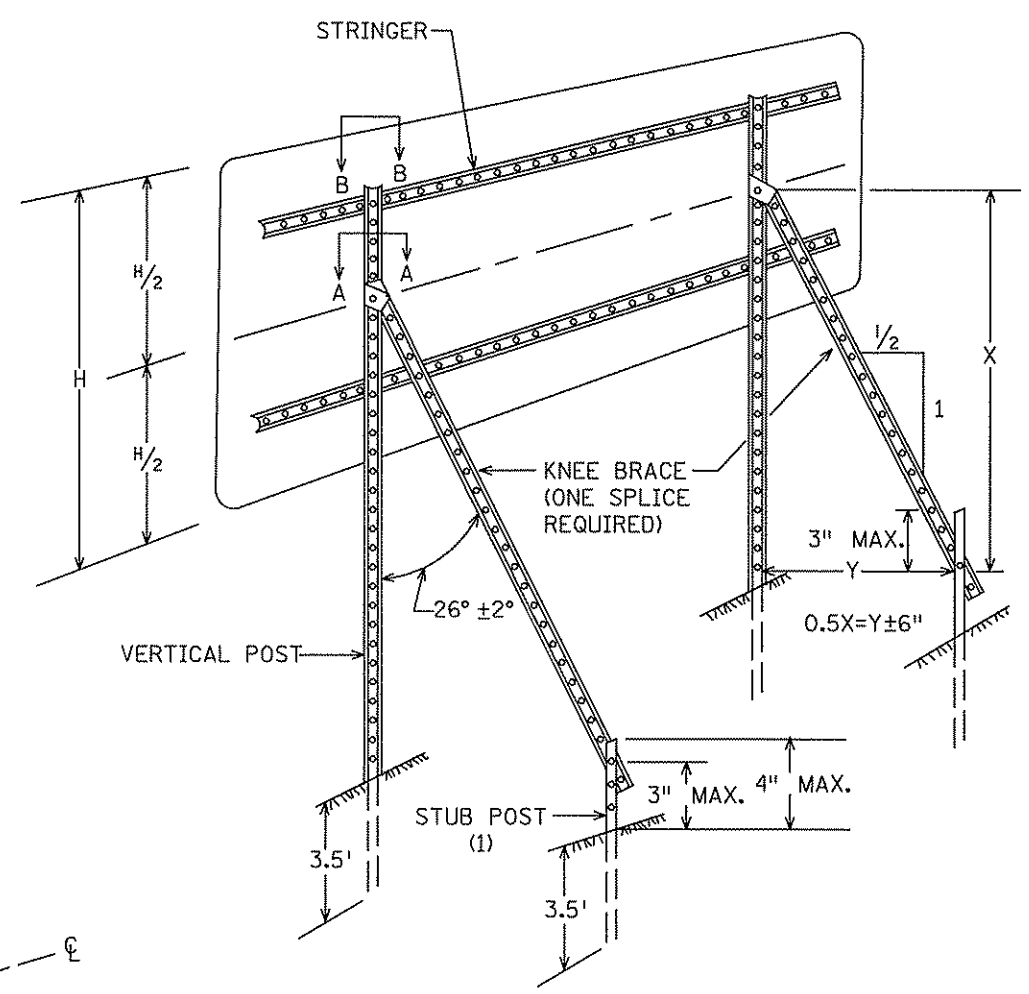
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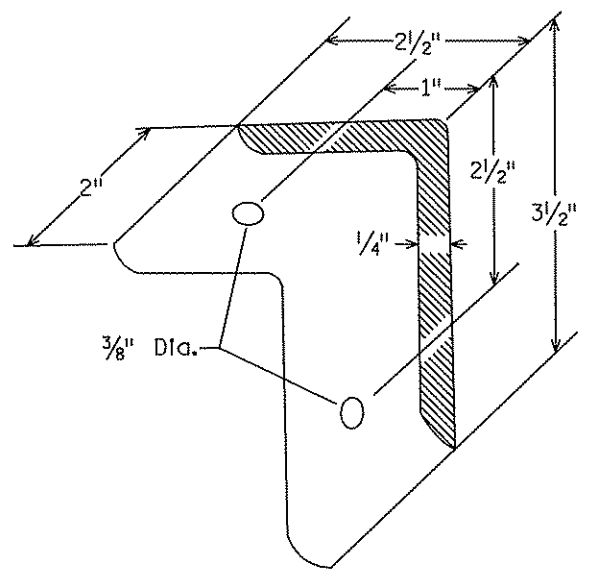
**LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)**



**SECTION A-A**

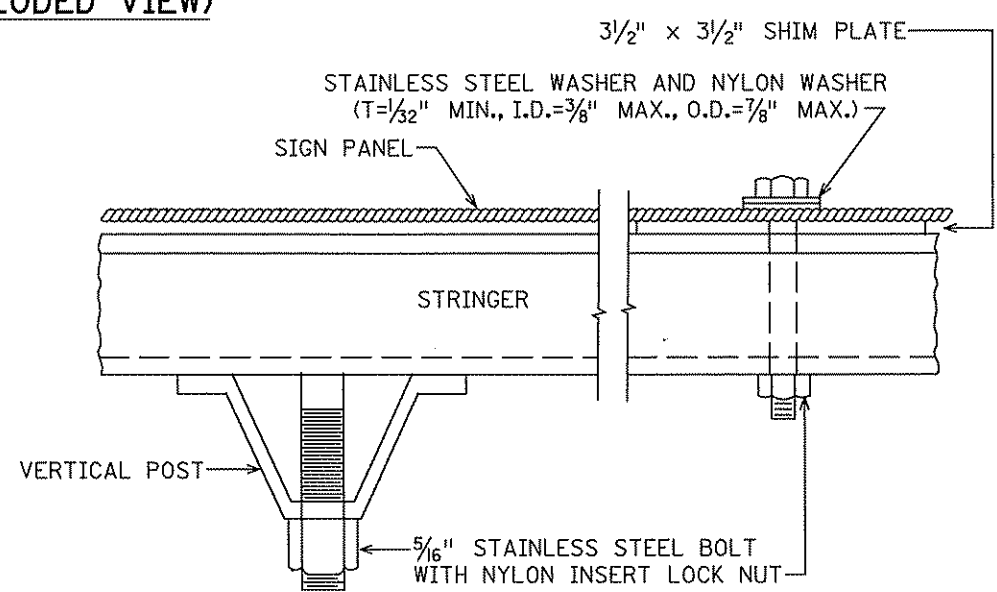


**TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS**

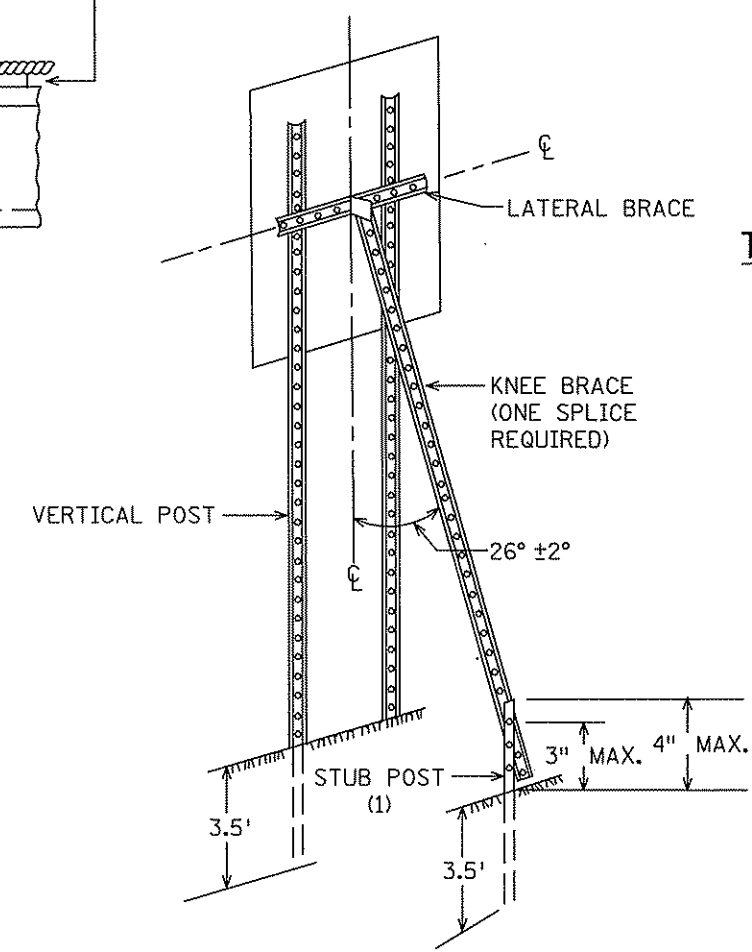


**A-FRAME BRACKET**

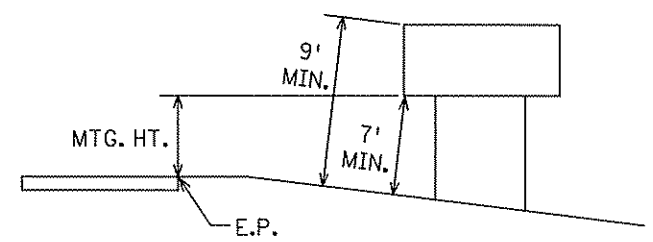
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



**SECTION B-B**



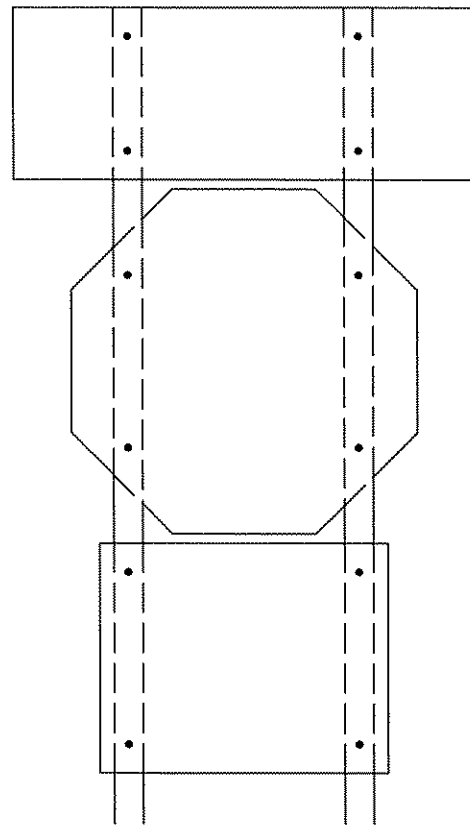
**TYPICAL "A-FRAME" INSTALLATION TYPE "C" SIGNS**



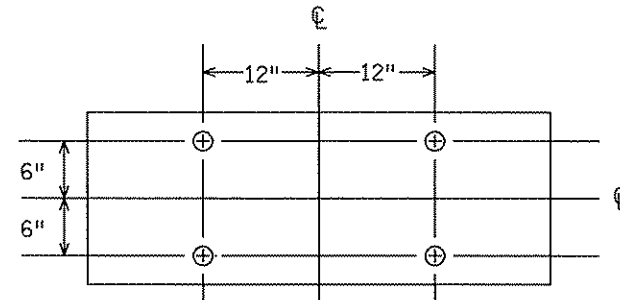
**TYPICAL MOUNTING**

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.

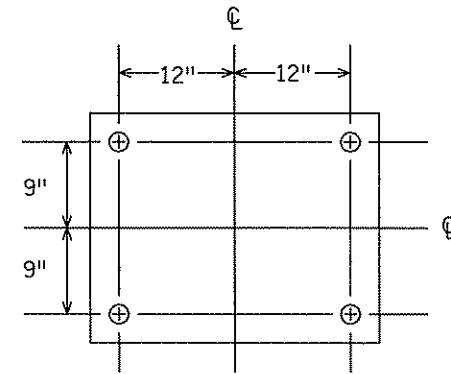
**TYPE C & D SIGN STRUCTURAL DETAILS**



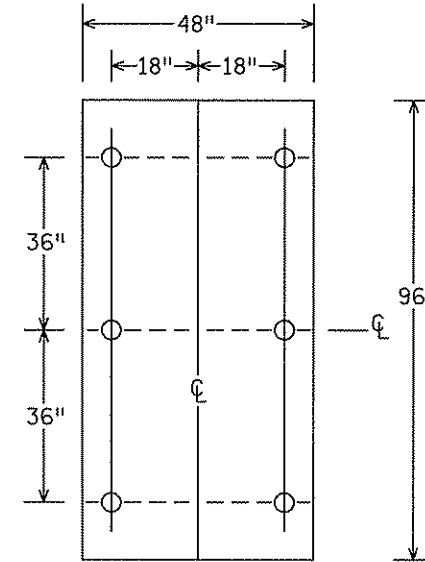
R6-1, R1-1 & (R6-3 OR R6-3a)  
MOUNTING



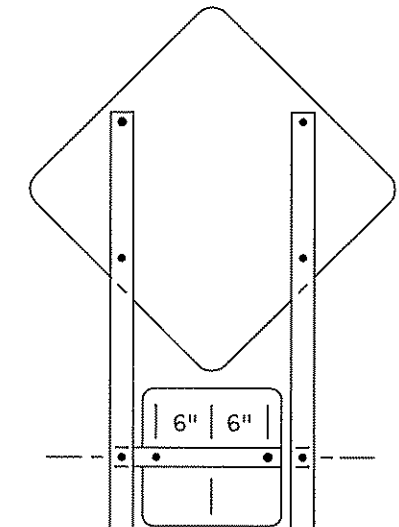
PUNCHING FOR R6-1(48" x 18")



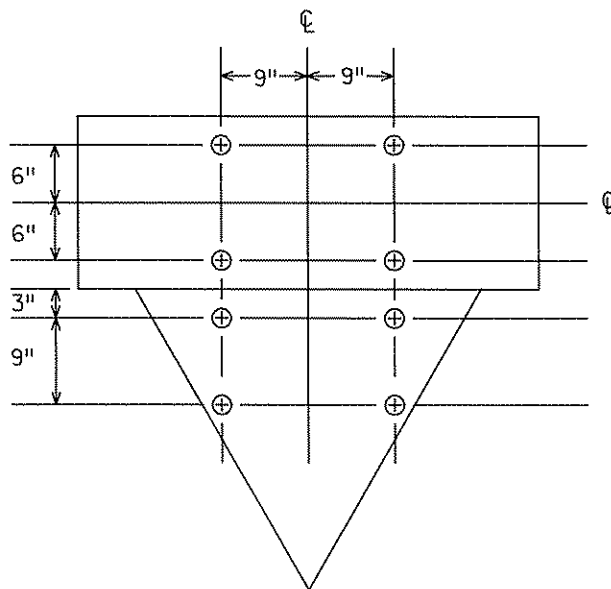
PUNCHING FOR R6-3 OR R6-3a(30" x 24")



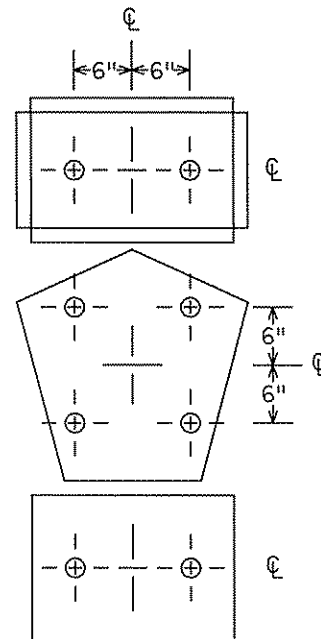
PUNCHING FOR R2-4b  
SPEED LIMIT



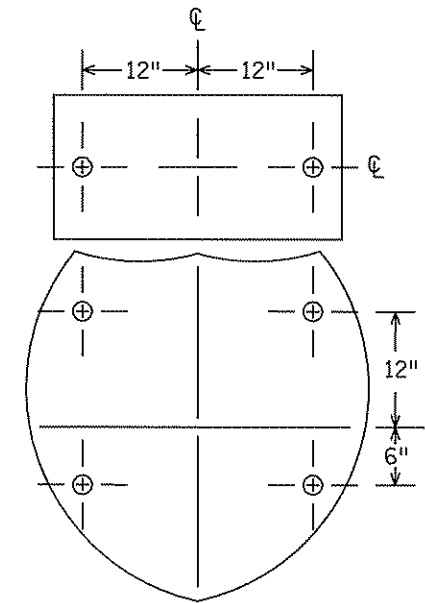
(W1-1, W1-2, W1-3, W1-4 OR W1-5) & W13-1  
MOUNTING



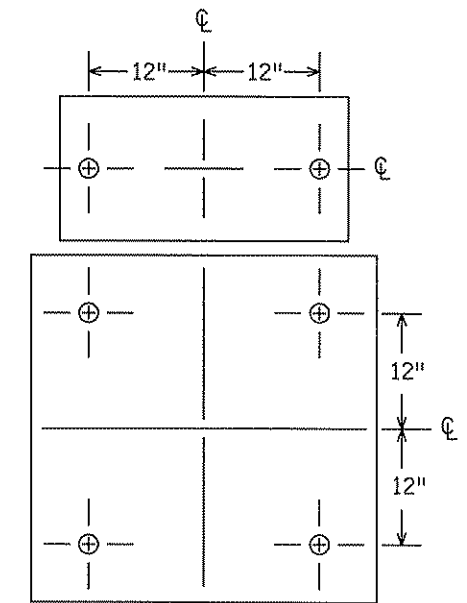
PUNCHING FOR R6-1(48" x 18")  
& R1-2(36" x 36" x 36")



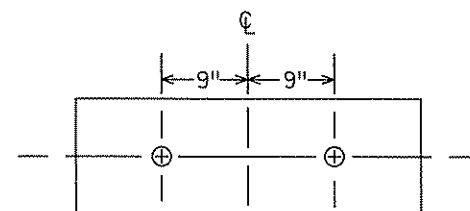
M2-1A [21" x 15"] OR  
(M3-1A, M3-2A, M3-3A OR M3-4A) [24" x 12"] AND  
M1-6 [24" x 24"] AND  
(M5-1A, M5-2A, M6-1A, M6-2A, M6-3A M6-4A, M6-5A OR M6-6A) [21" x 15"]  
PUNCHING



(M3-1A, M3-2A, M3-3A OR M3-4A) [30" x 15"] AND  
M1-1 [45" x 36" OR 36" x 36"]  
PUNCHING



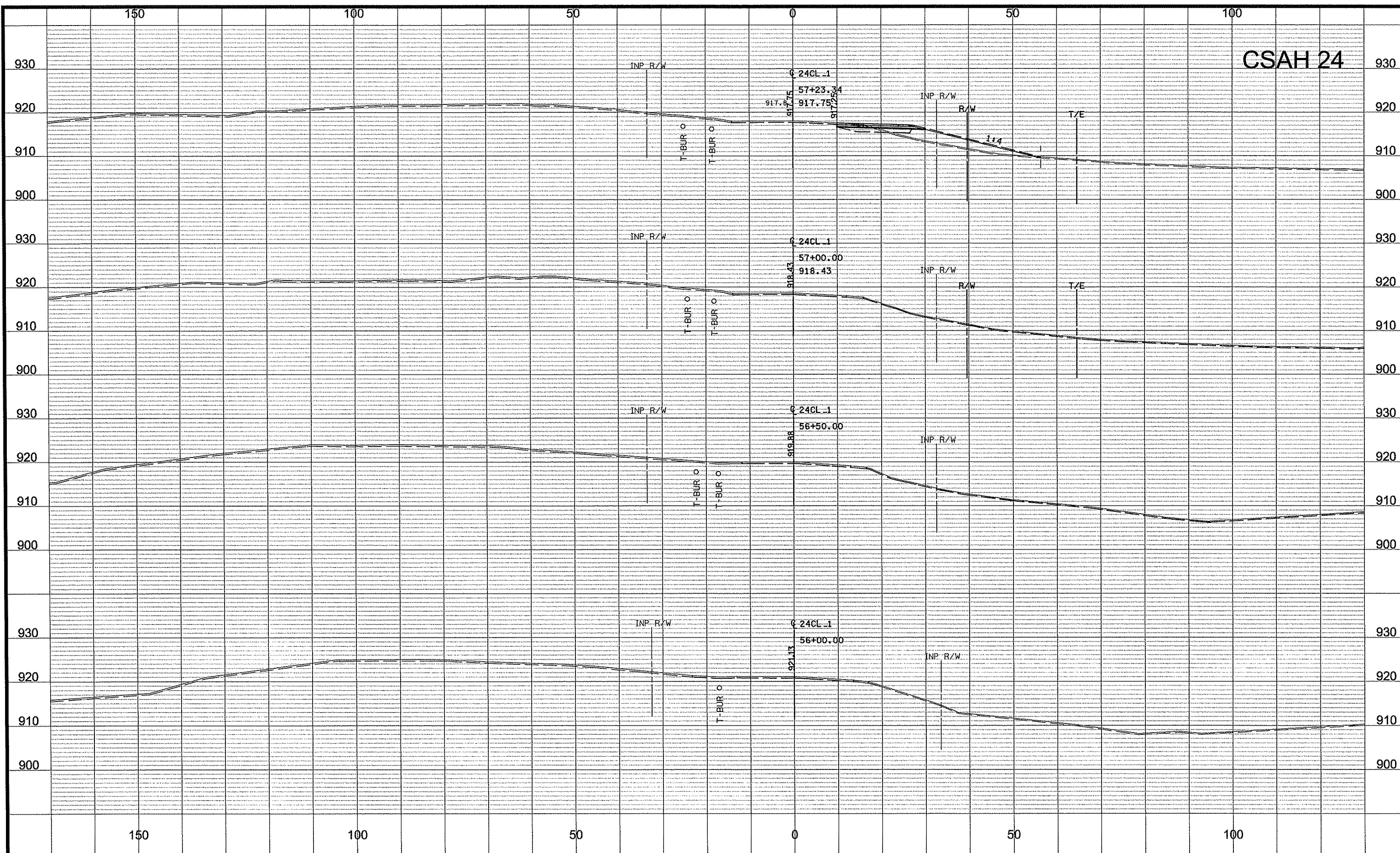
(M3-1, M3-1A, M3-2, M3-2A, M3-3, M3-3A M3-4 OR  
M3-4A) [30" x 15"] AND (M1-4 OR M1-5A) [36" x 36"]  
PUNCHING



PUNCHING FOR R6-1(36" x 12")

# TYPE C & D SIGN STRUCTURAL DETAILS

# CSAH 24



NO	DATE	BY	CKD	APPR	REVISION	
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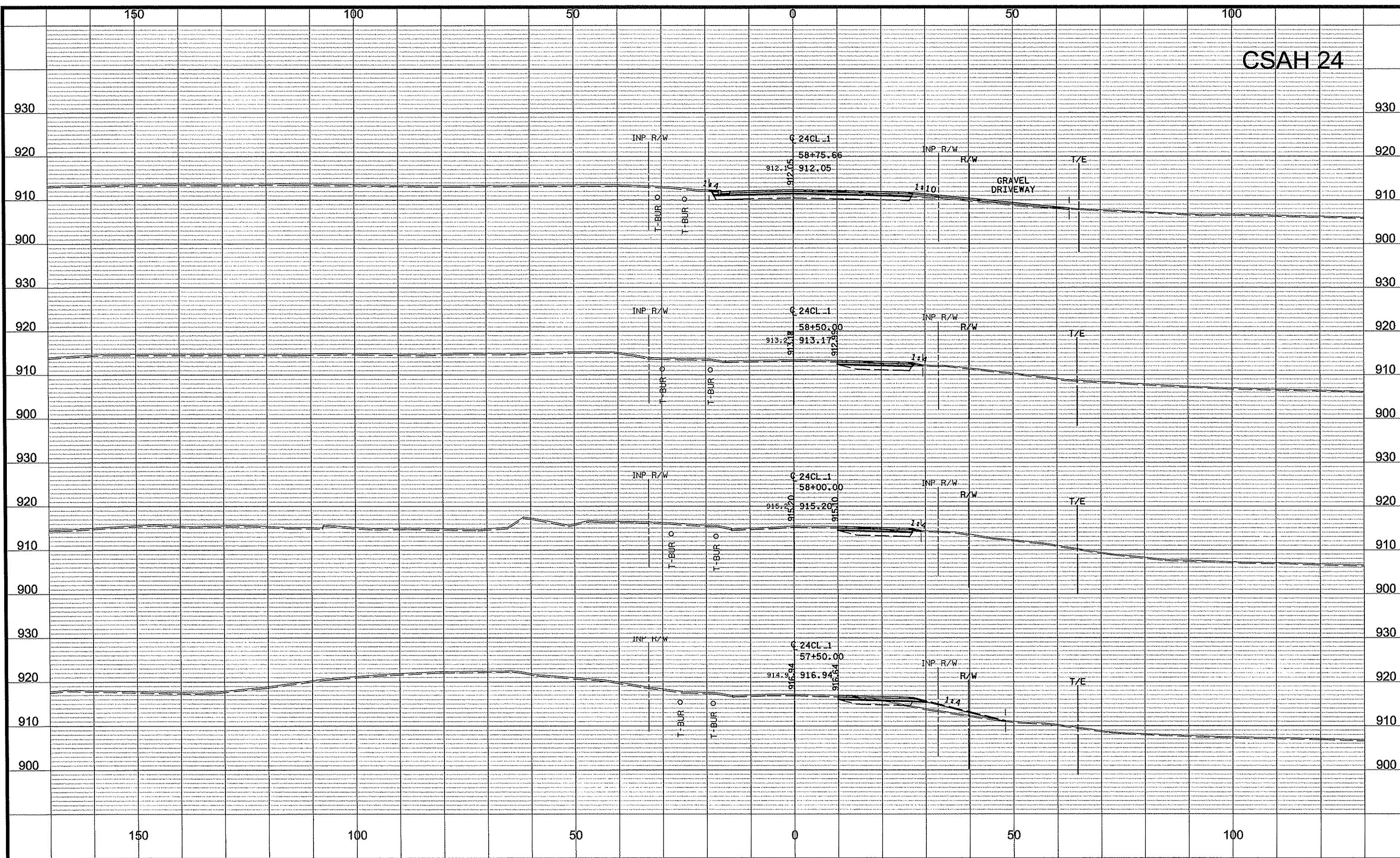


**ANOKA COUNTY**  
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 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

**CROSS SECTIONS**  
 STA 56+00.00 TO 57+23.34  
 Sheet 30 of 46 Sheets

# CSAH 24



NO	DATE	BY	CKD	APPR	REVISION
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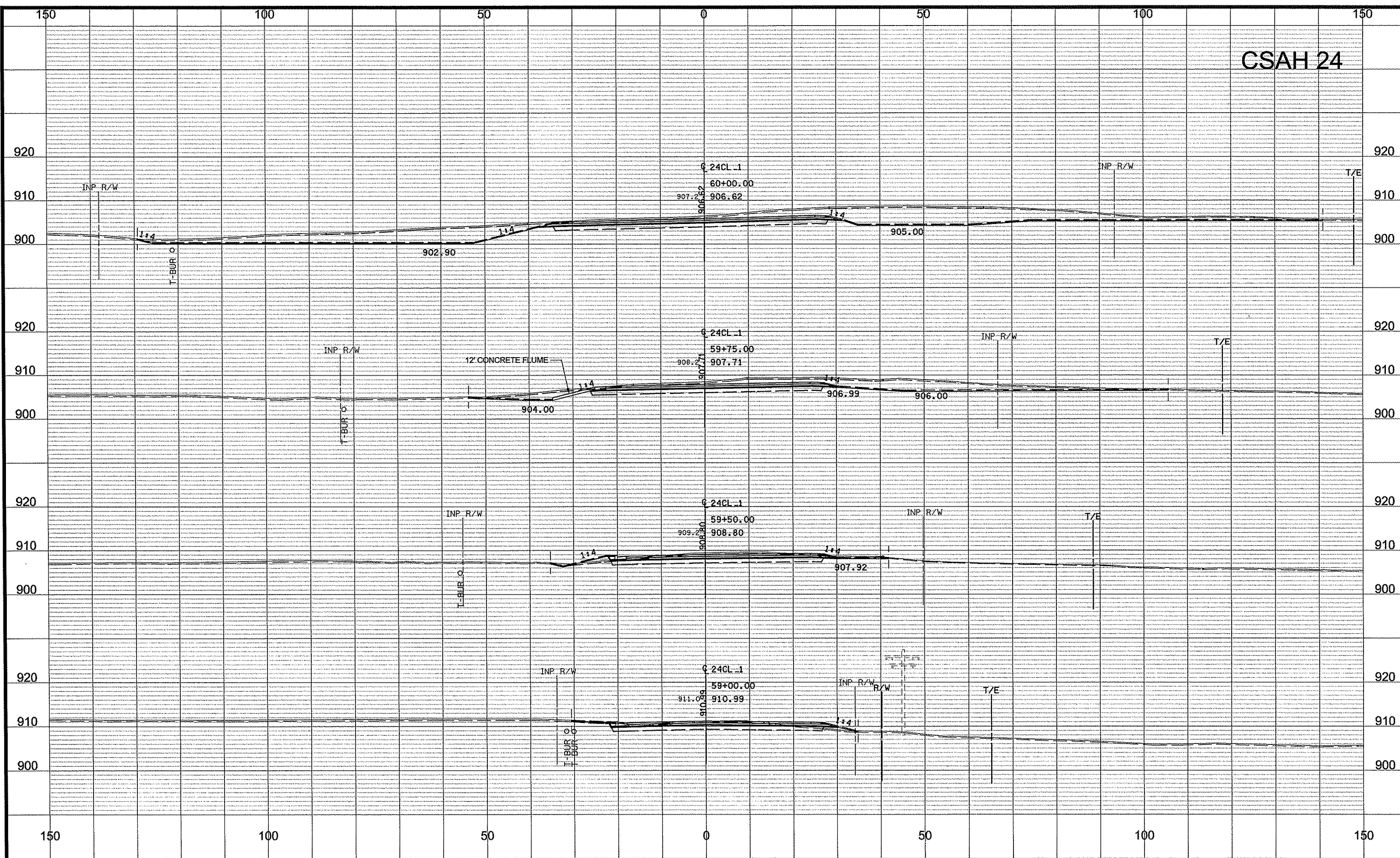
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 57+50.00 TO 58+75.66  
 Sheet 31 of 46 Sheets



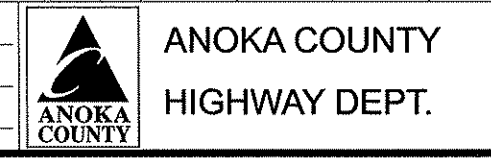
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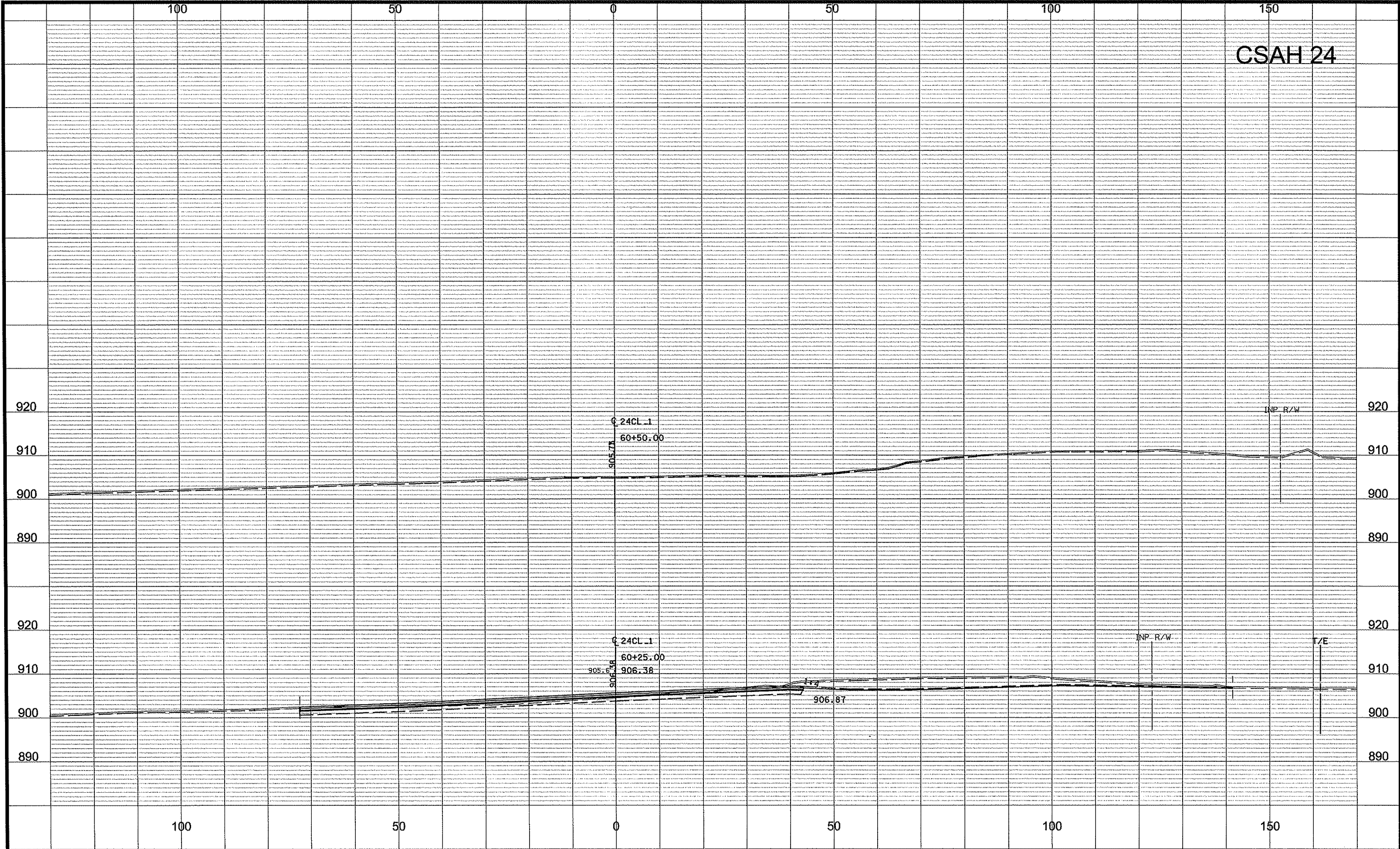


STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 59+00.00 TO 60+00.00  
 Sheet 32 of 46 Sheets



# CSAH 24



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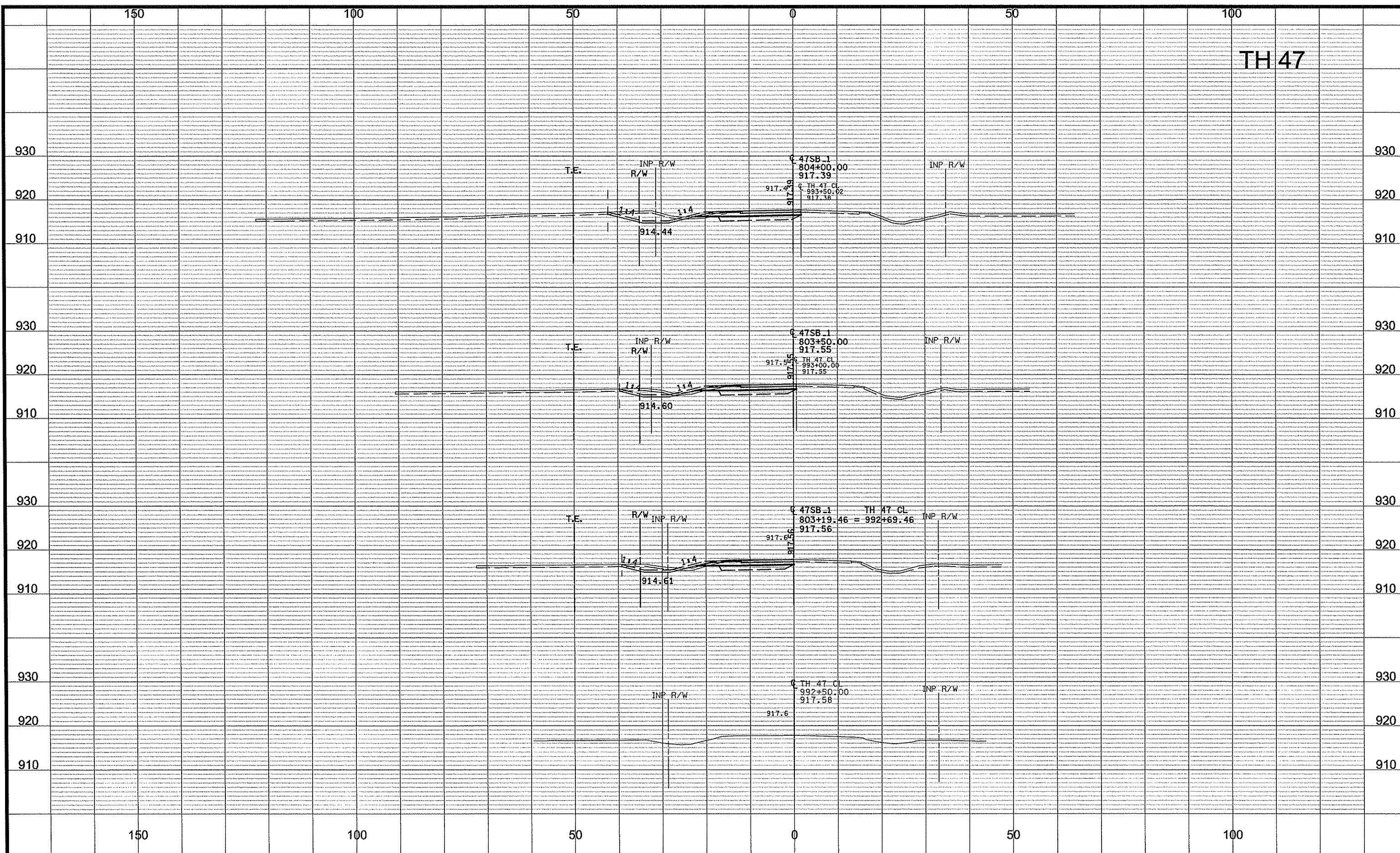
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

**CROSS SECTIONS**  
 STA 60+25.00 TO 60+50.00  
 Sheet 33 of 46 Sheets

NO	DATE	BY	CKD	APPR	REVISION
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TH 47



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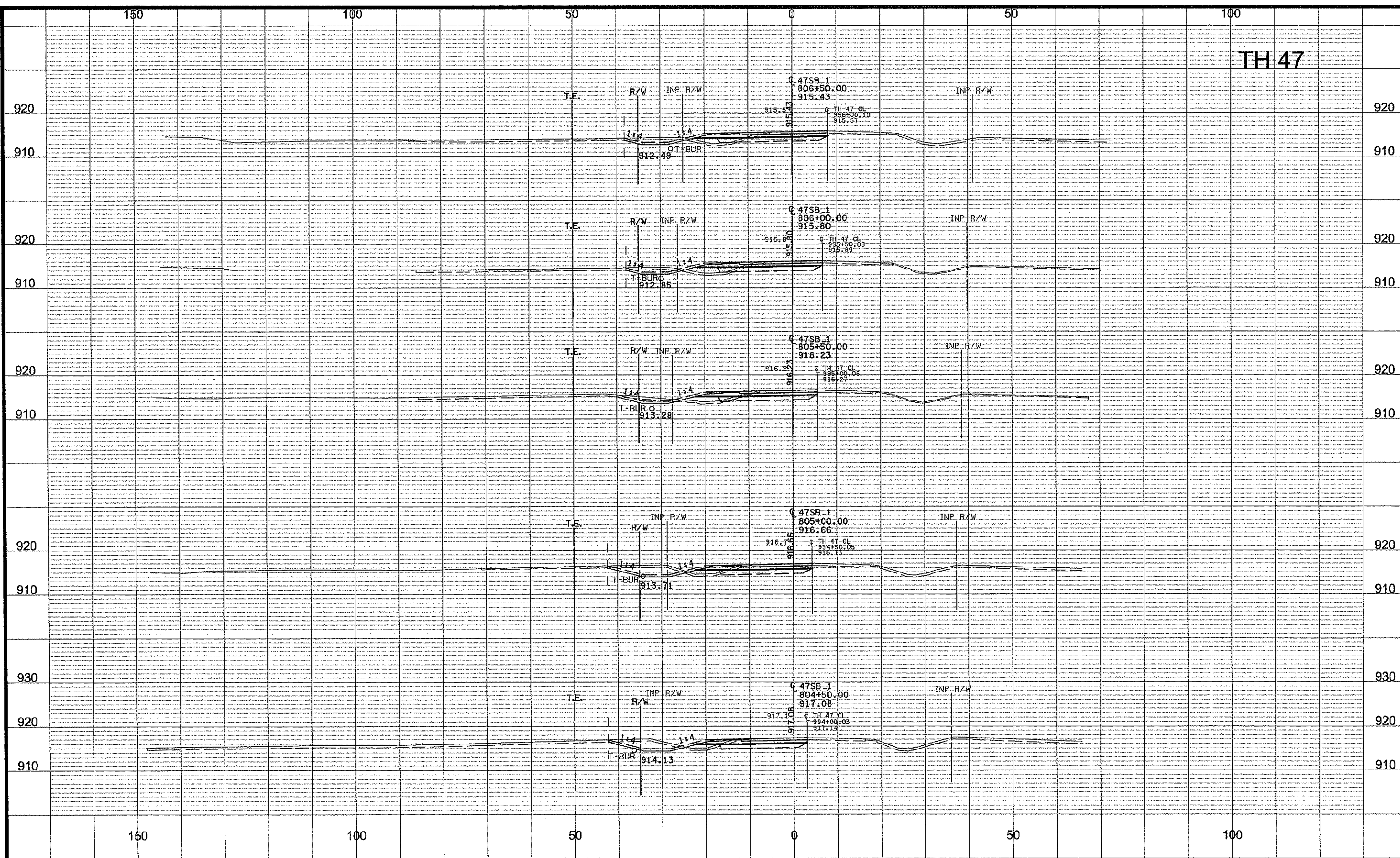


**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 992+50 (CL) TO 804+00 (SB)  
 Sheet 34 of 46 Sheets

TH 47



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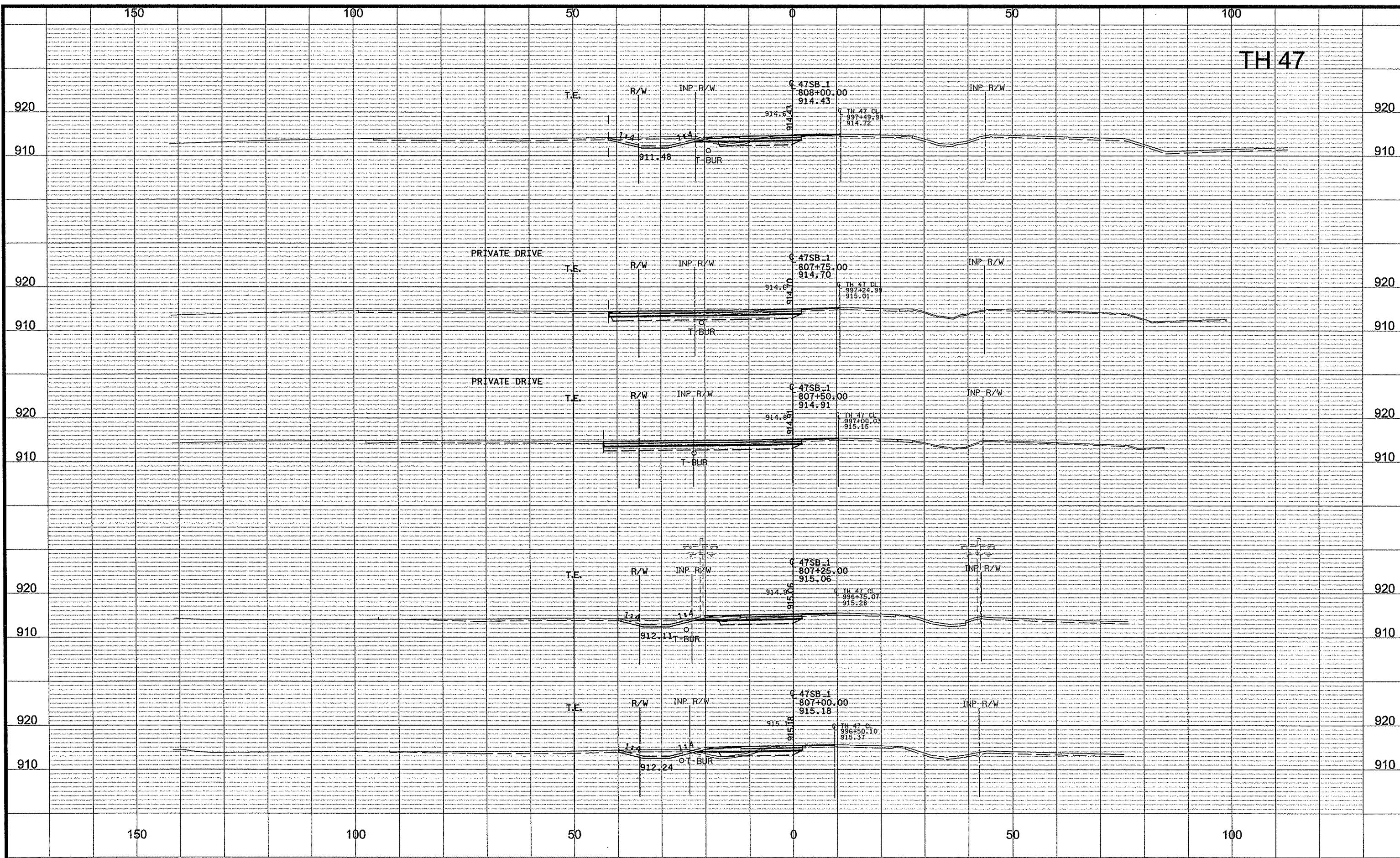
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 804+50 TO 806+50  
 Sheet 35 of 46 Sheets



TH 47



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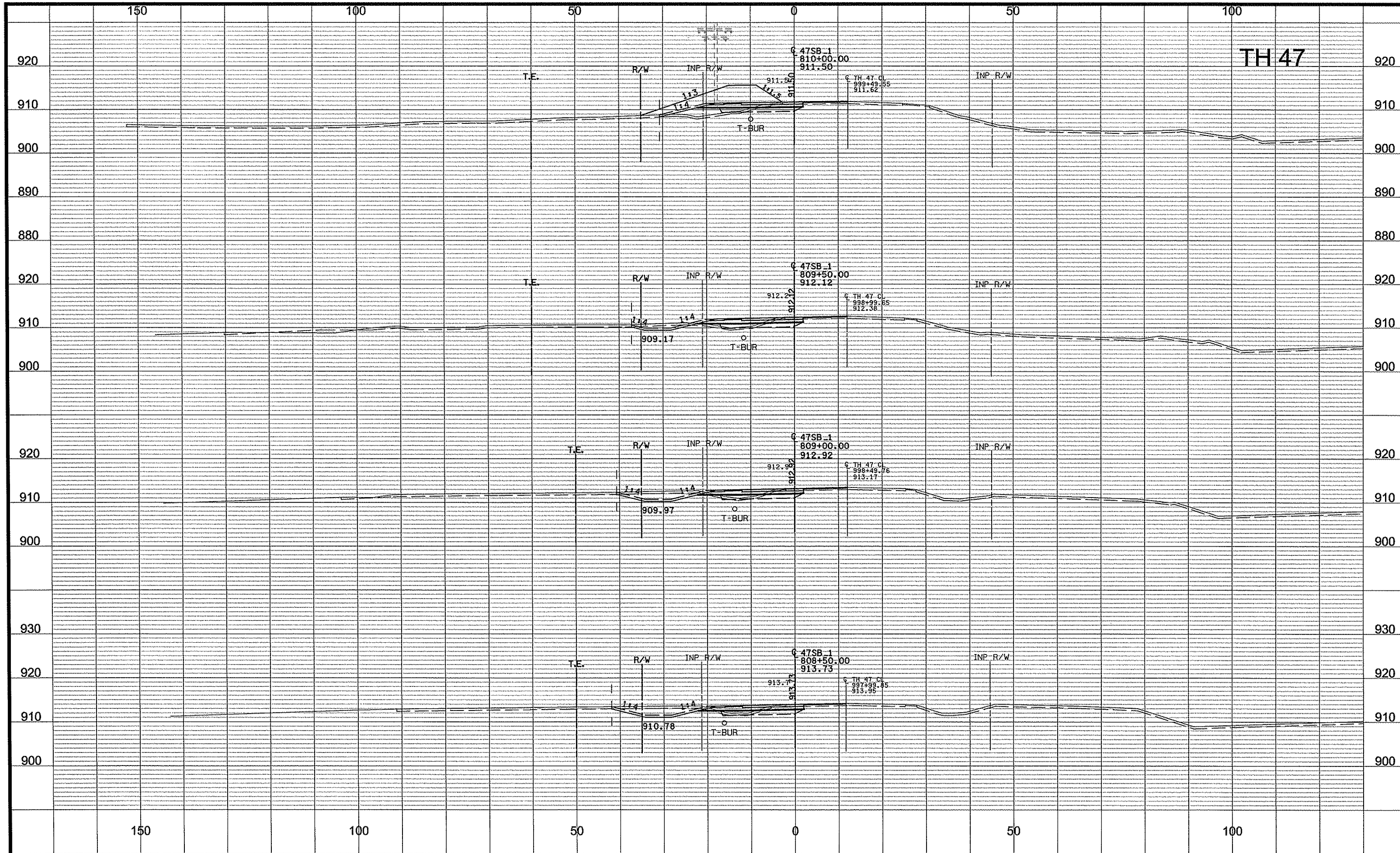
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ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

CROSS SECTIONS  
 STA 807+00 TO 808+00  
 Sheet 36 of 46 Sheets



1	06/03/2009	EM	JO	CK	ADDED SURCHARGE SECTIONS AND DELETED MUCK EXCAVATION FROM STA. 810+00.
NO	DATE	BY	CKD	APPR	REVISION
					06/03/2009 11:02:46 AM

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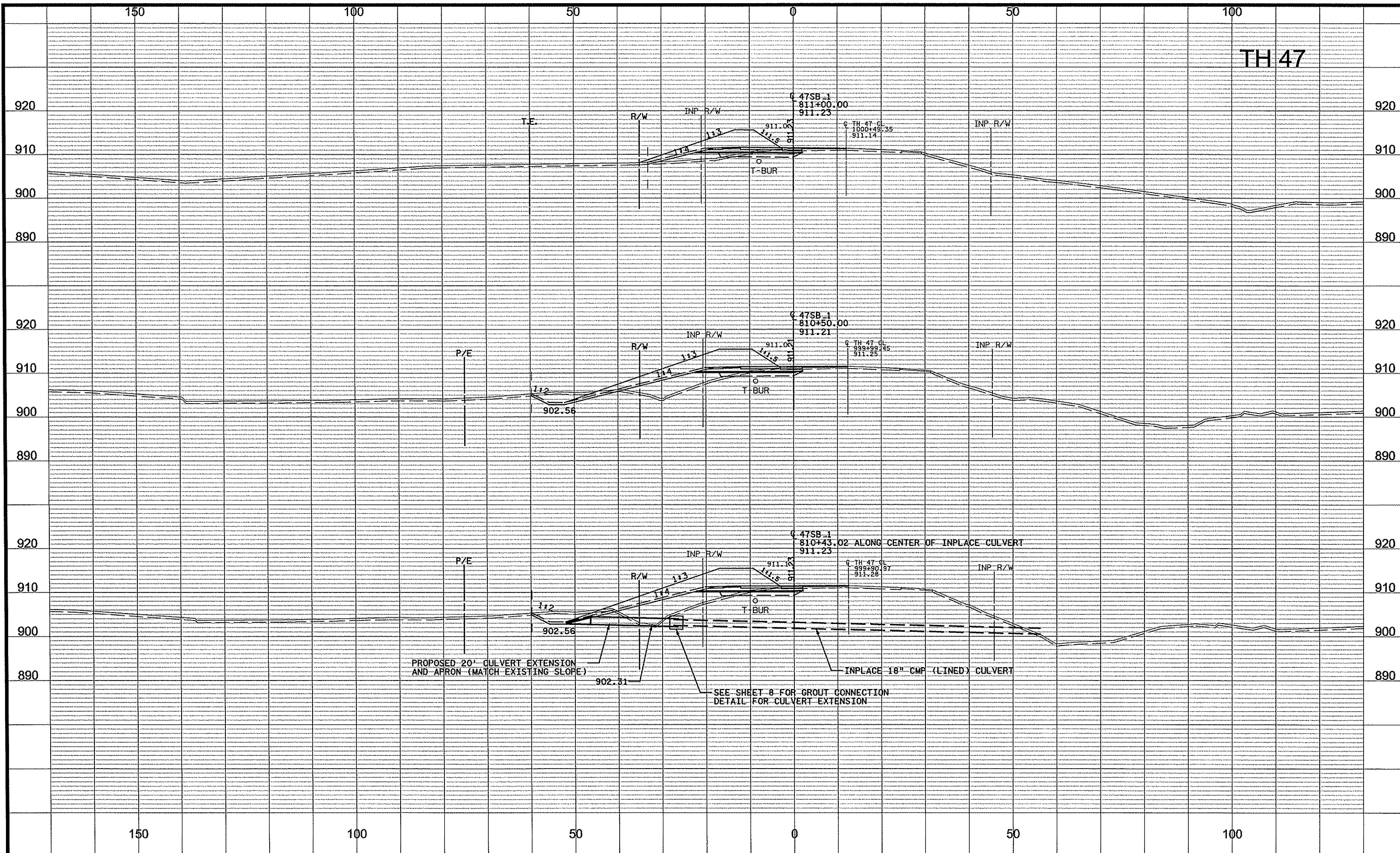
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 808+50 TO 810+00  
 Sheet 37 of 46 Sheets



TH 47



1	06/03/2009	EM	JO	CK	ADDED SURCHARGE SECTIONS AND DELETED MUCK EXCAVATION FROM CROSS SECTIONS.
NO	DATE	BY	CKD	APPR	REVISION
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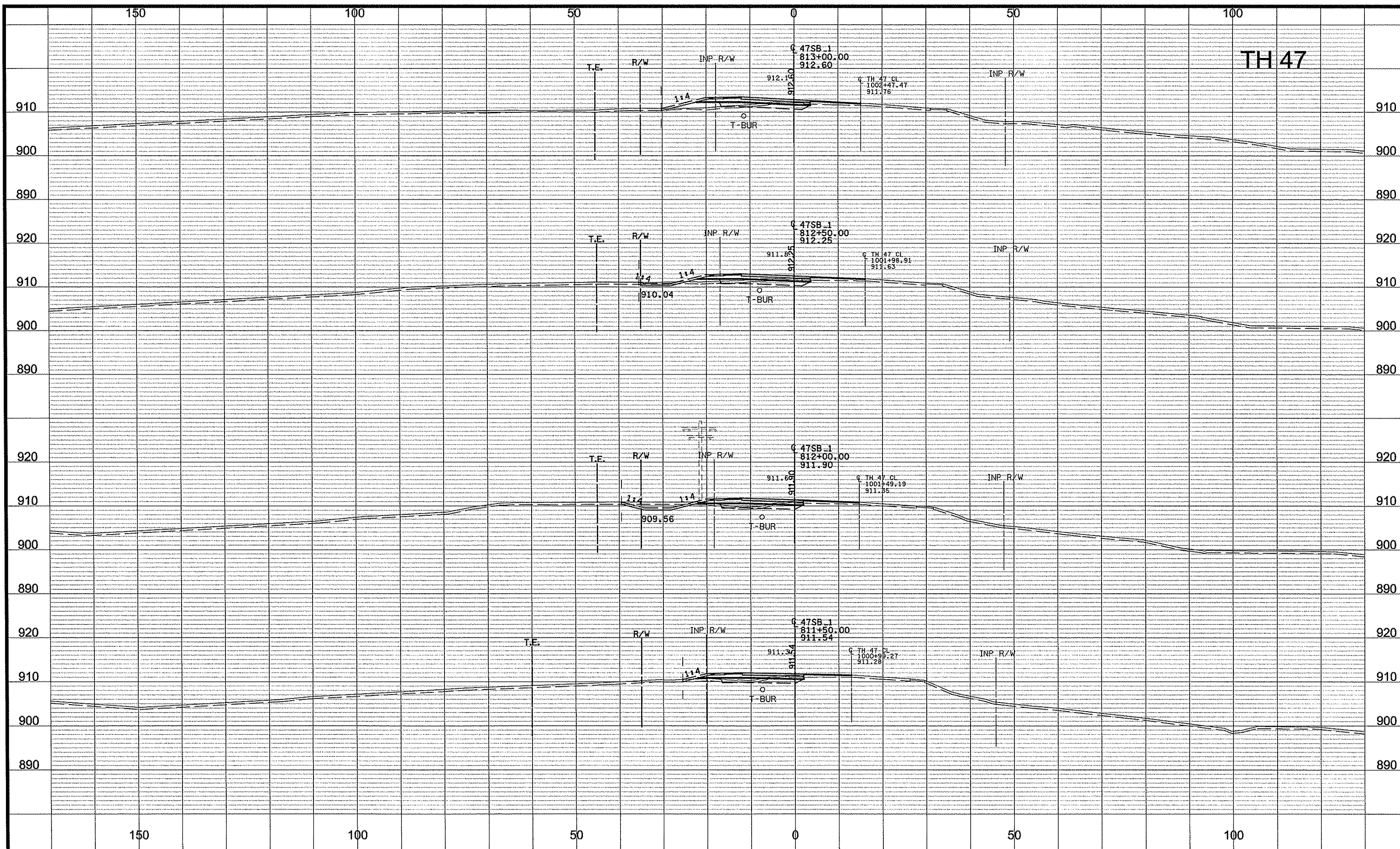
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ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 810+43.02 TO 811+00  
 Sheet 38 of 46 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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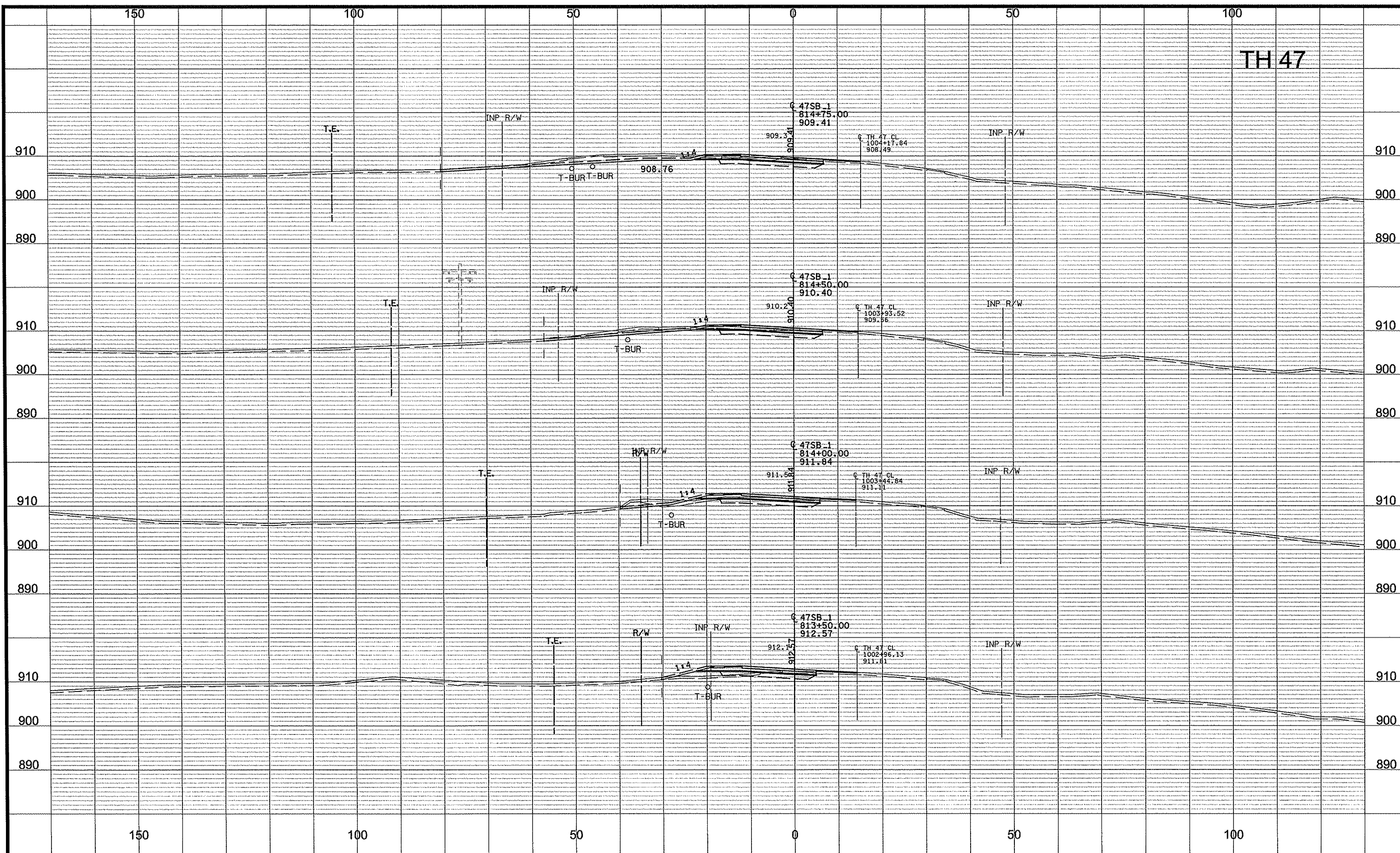


**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 811+50 TO 813+00  
 Sheet 39 of 46 Sheets

TH 47



NO	DATE	BY	CKD	APPR	REVISION
NAME: p102-624-24\plan10262424_XS.dgn					

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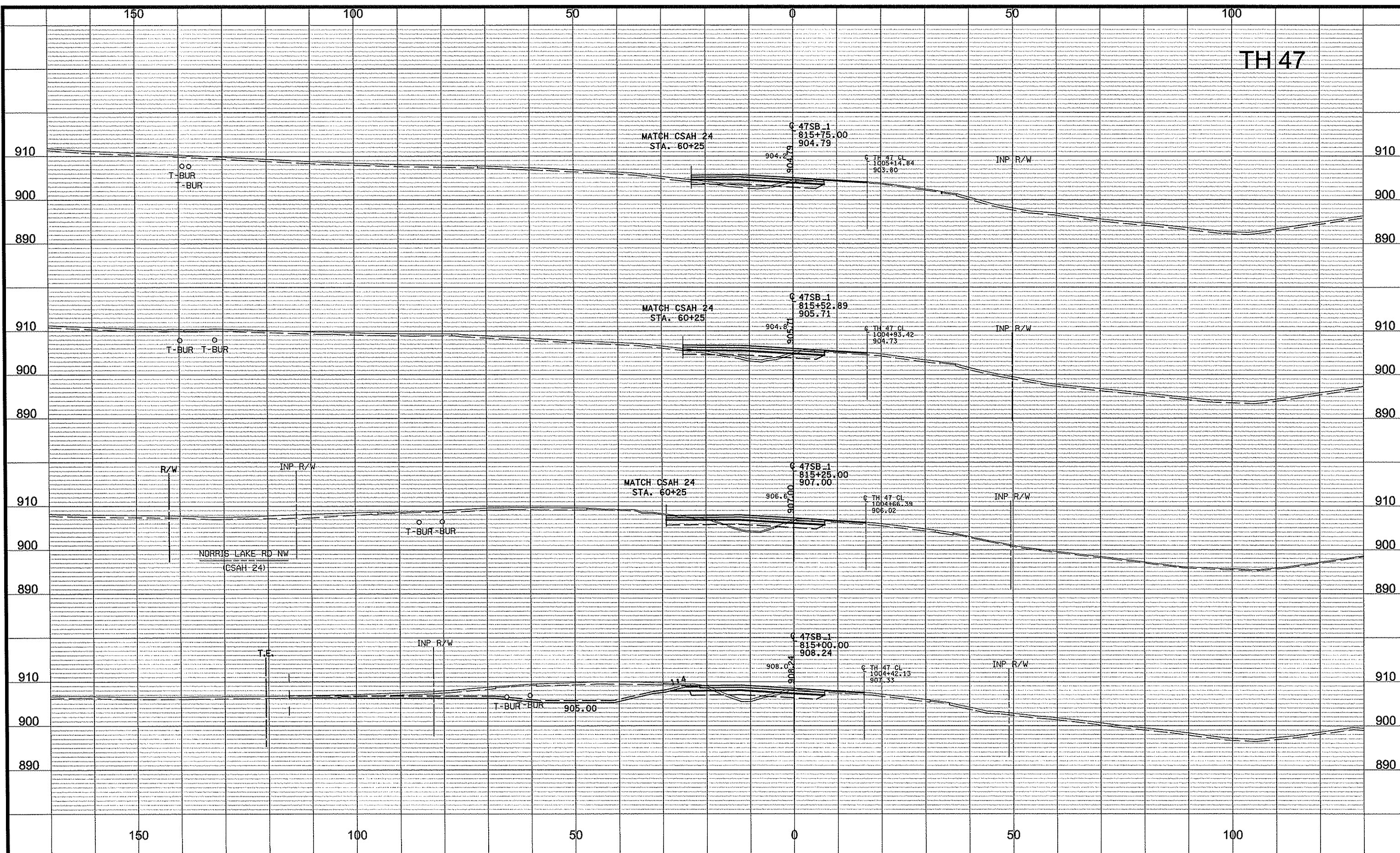
ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 813+50 TO 814+75  
 Sheet 40 of 46 Sheets



TH 47



NO	DATE	BY	CKD	APPR	REVISION

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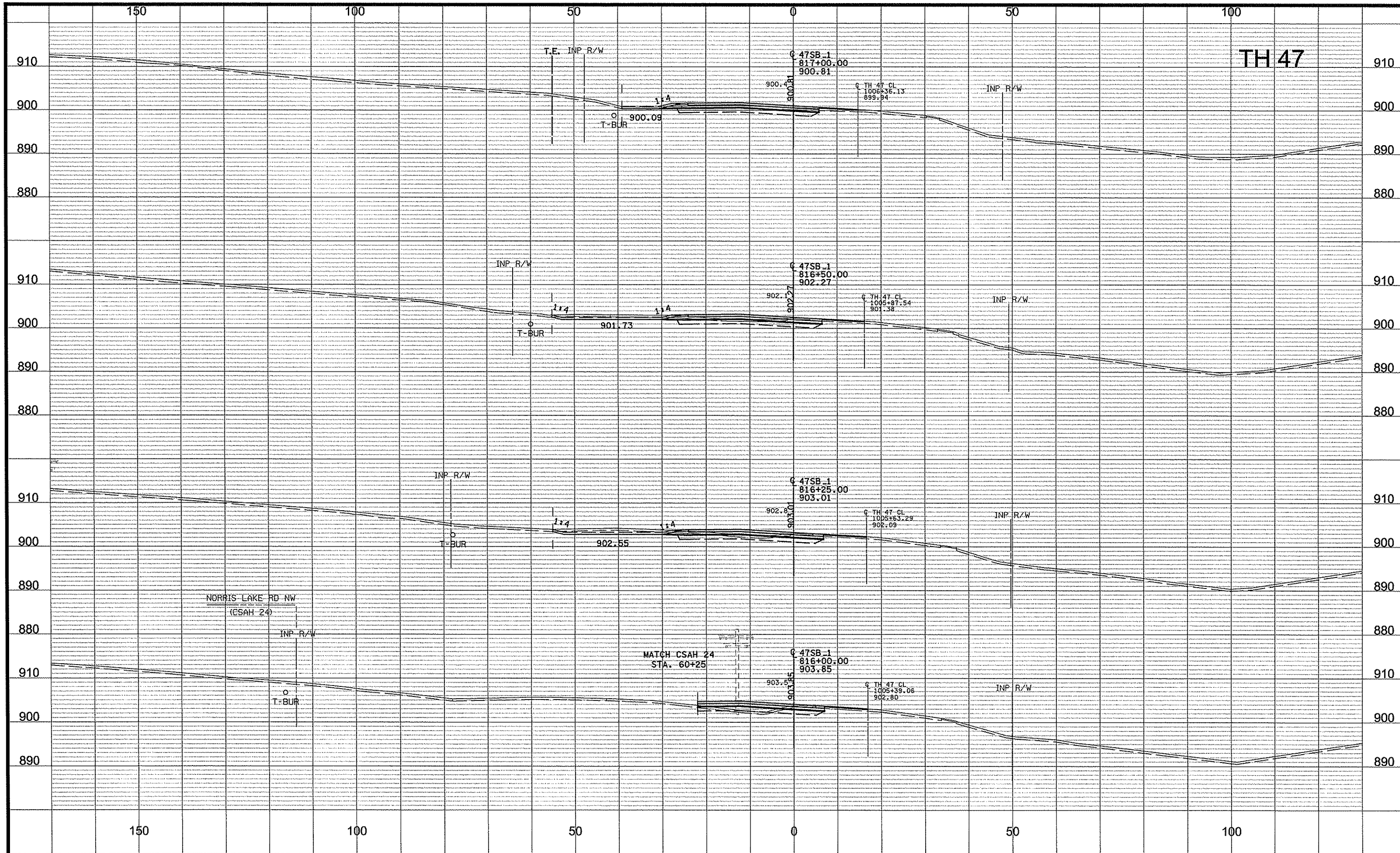
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ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 815+00 TO 815+75  
 Sheet 41 of 46 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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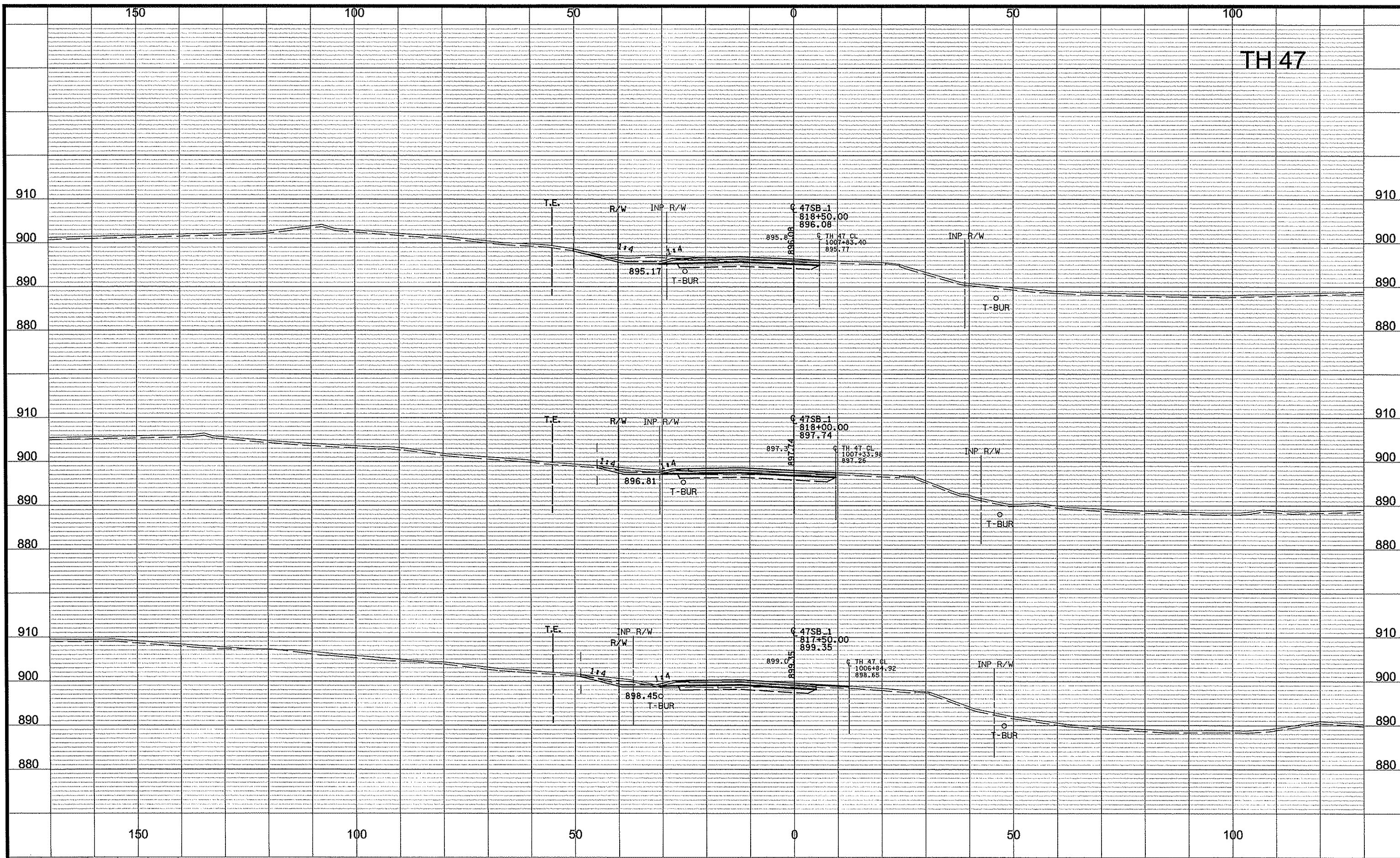
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

CROSS SECTIONS  
 STA 816+00 TO 817+00  
 Sheet 42 of 46 Sheets



TH 47



NO	DATE	BY	CKD	APPR	REVISION
					05/16/2009

NAME: p:\02-624-24\plan\0262424\_XS.dgn 1:14:24 PM

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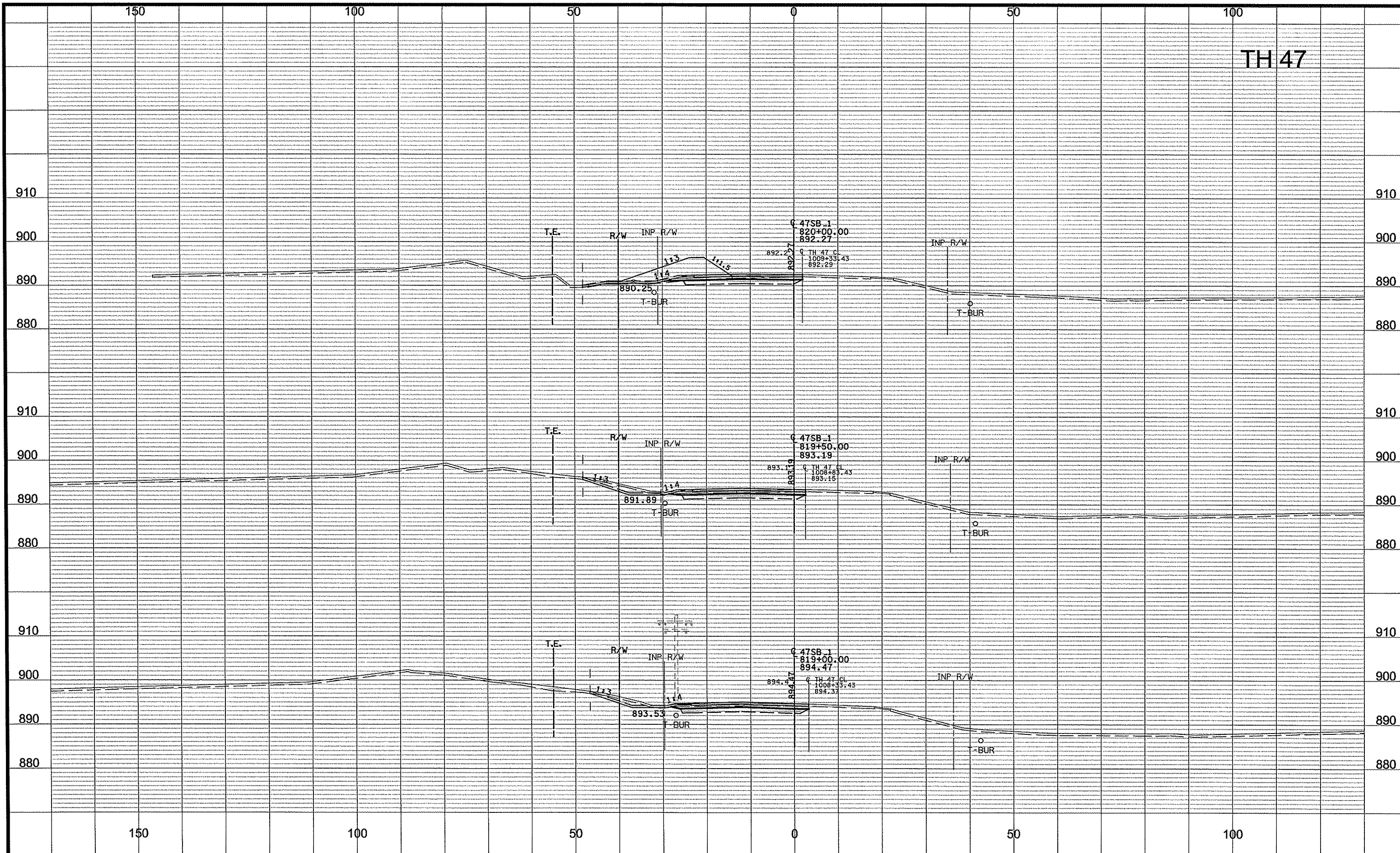
ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

CROSS SECTIONS  
 STA 817+50 TO 818+50  
 Sheet 43 of 46 Sheets

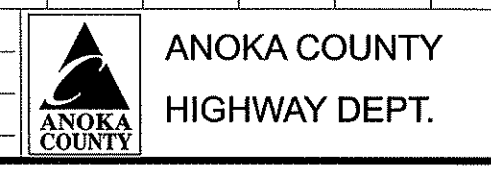


TH 47



1	06/03/2009	EM	JO	CK	ADDED SURCHARE SECTIONS AND DELETED MUCK EXCAVATION FROM STA. 820+00.
NO	DATE	BY	CKD	APPR	REVISION
					06/03/2009 11:03:07 AM

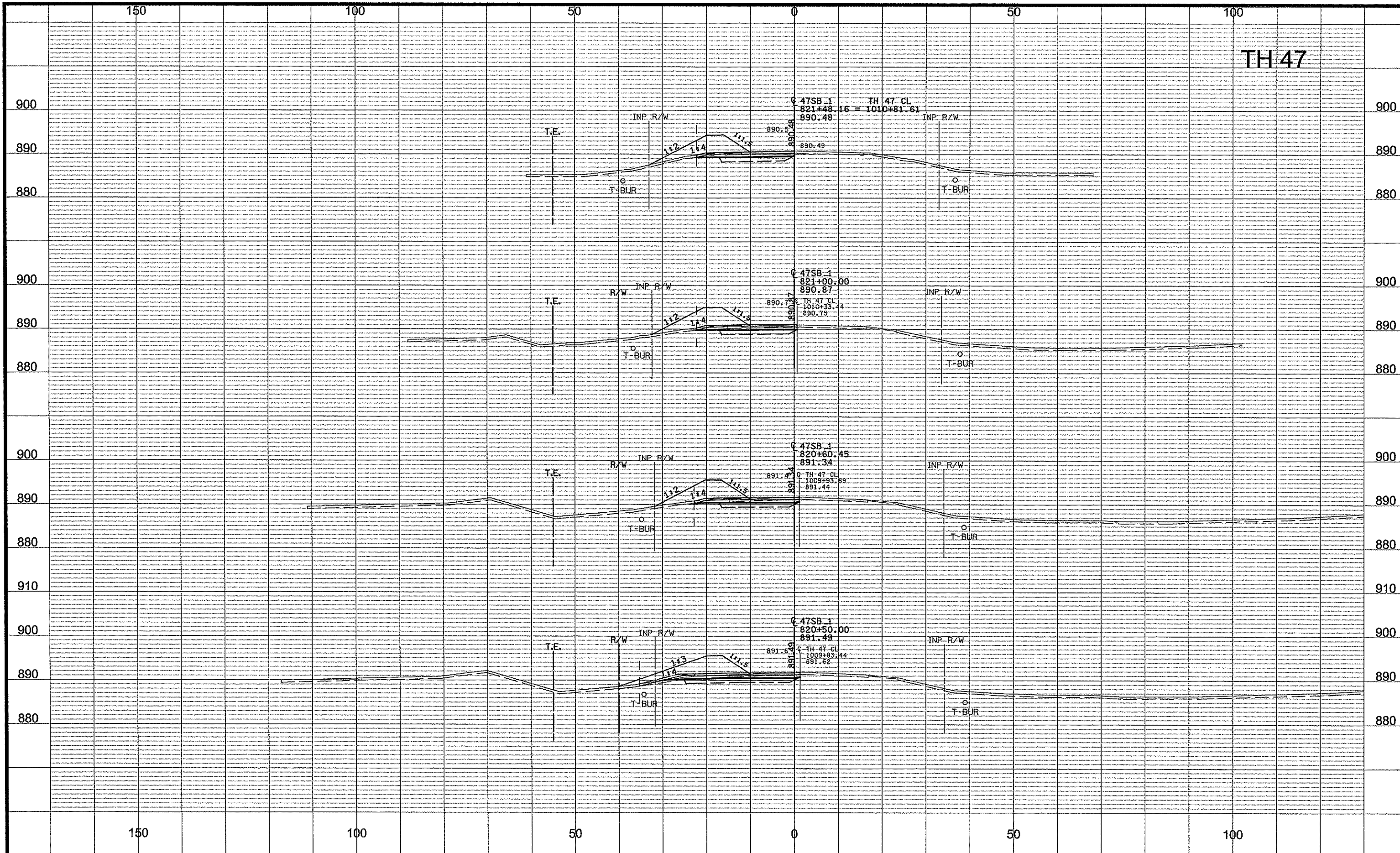
DRAWN BY EJ DATE \_\_\_\_\_  
 DESIGN BY MN DATE \_\_\_\_\_  
 CHECKED BY JO DATE \_\_\_\_\_



STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 819+00 TO 820+00  
 Sheet 44 of 46 Sheets

TH 47



1	06/03/2009	EM	JO	CK	ADDED SURCHARE SECTIONS AND DELETED MUCK EXCAVATION FROM CROSS SECTIONS.
NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-624-24\Plan\0262424_XS.dgn					06/03/2009
					11:03:15 AM

DRAWN BY EJ DATE \_\_\_\_\_  
 DESIGN BY MN DATE \_\_\_\_\_  
 CHECKED BY JO DATE \_\_\_\_\_



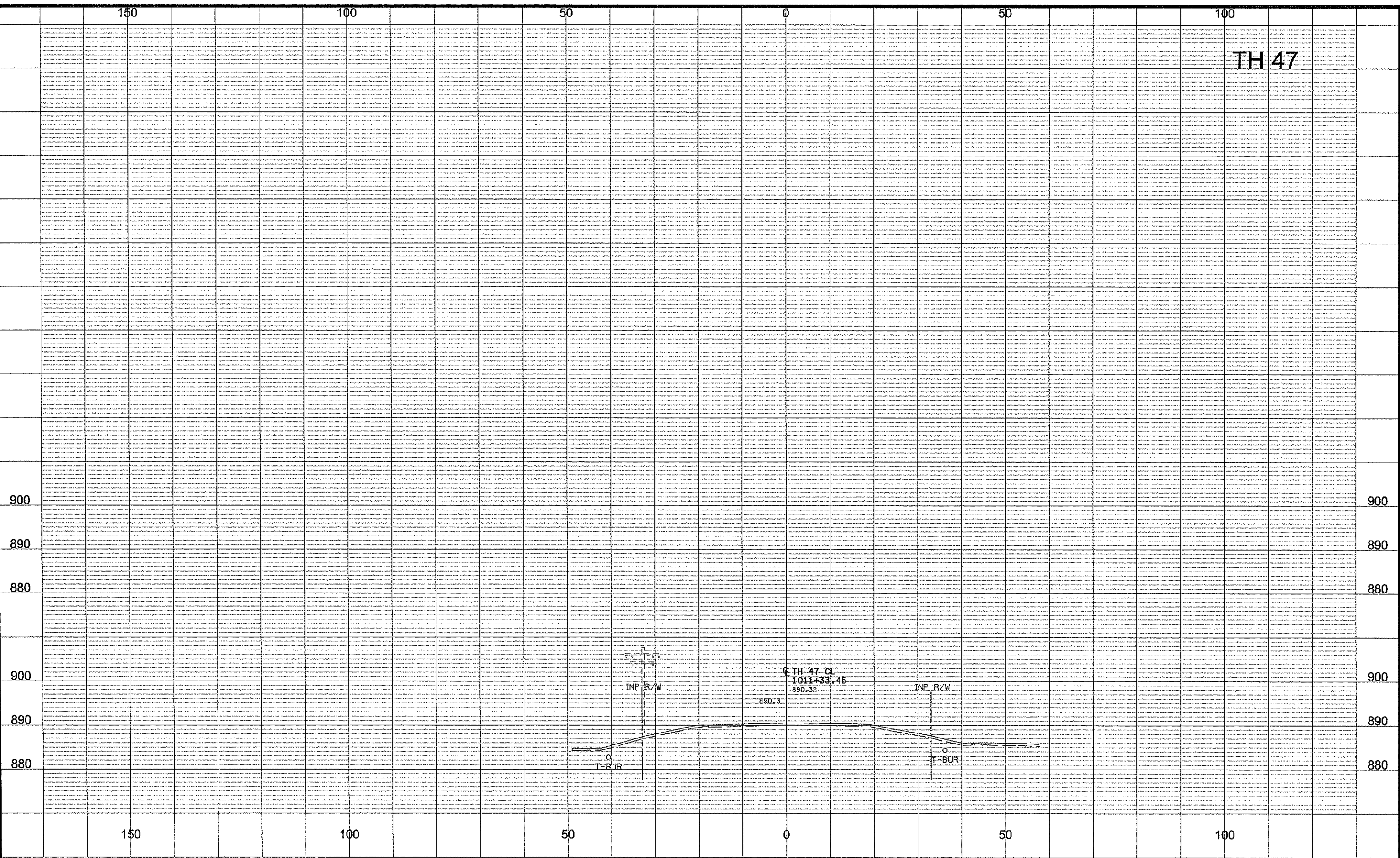
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO. \_\_\_\_\_  
 COUNTY PROJECT NO. \_\_\_\_\_

CROSS SECTIONS  
 STA 820+50 TO 821+48.16  
 Sheet 45 of 46 Sheets



TH 47



NO	DATE	BY	CKD	APPR	REVISION
NAME: p:\02-624-24\plan\0262424_XS.dgn					

DRAWN BY EJ DATE  
 DESIGN BY MN DATE  
 CHECKED BY JO DATE



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

STATE PROJECT NO. 0206-62 (TH 47)  
 STATE AID PROJECT NO. 02-624-24  
 CITY PROJECT NO.  
 COUNTY PROJECT NO.

**CROSS SECTIONS**  
 STA 1011+33.45 (CL) TO 1011+33.45 (CL)  
 Sheet 46 of 46 Sheets