ANOKA COUNTY
HIGHWAY DEPARTMENT AND
MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR GRADING, STORM SEWER, BITUMINOUS AND CONCRETE PAVING, CONCRETE CURB & GUTTER, TRAFFIC SIGNALS, BOX CULVERT, BR. 02550

S.A.P. 02-617-11
LOCATED ON C.S.A.H. 17 (LEXINGTON AVE.)
FROM C.S.A.H. 23 TO PHEASANT RIDGE DR.

GROSS LENGTH	1028.508	METERS	1.01	KILOMETERS
BRIDGES-LENGTH	87.862	METERS	0.09	KILOMETERS
EXCEPTIONS-LENGTH	0.	METERS	0	KILOMETERS
NET LENGTH	940.646	METERS	0.92	KILOMETERS

S.A.P. 106-020-12
LOCATED ON C.S.A.H. 17 (LEXINGTON AVE.)
FROM EDGEWOOD RD. TO PHEASANT RIDGE DR.

GROSS LENGTH	1028.508	METERS	1.01	KILOMETERS
BRIDGES-LENGTH	87.862	METERS	0.09	KILOMETERS
EXCEPTIONS-LENGTH	0.	METERS	0	KILOMETERS
NET LENGTH	940.646	METERS	0.92	KILOMETERS

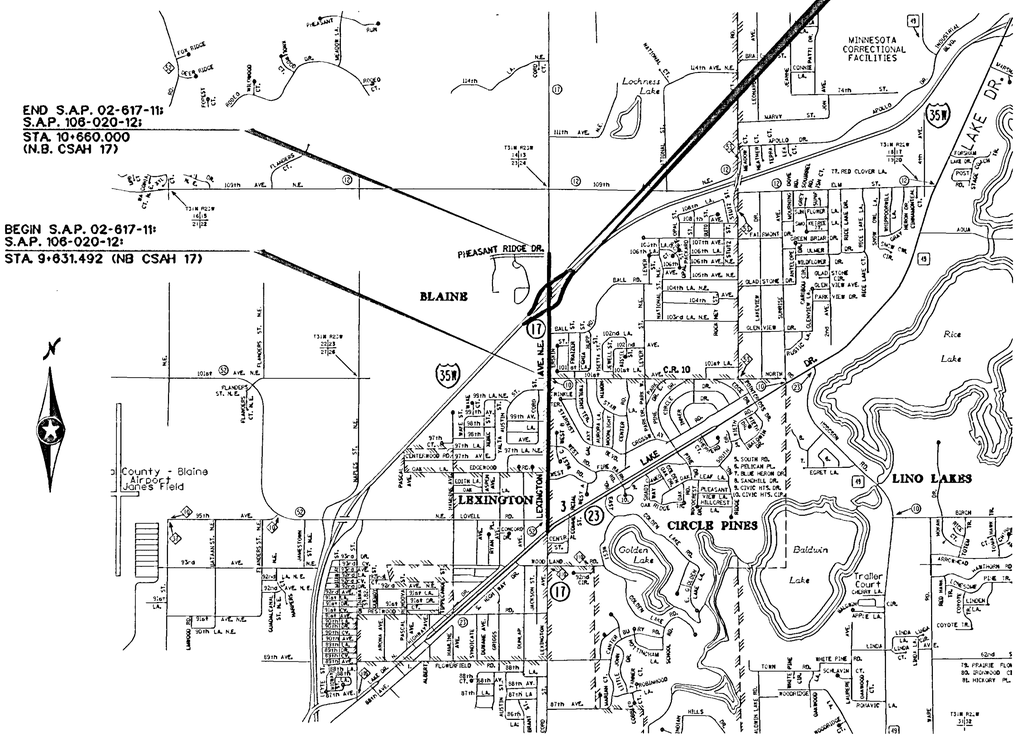
S.P. 0280-47
LOCATED ON C.S.A.H. 17 (LEXINGTON AVE.) AT I-35W

GROSS LENGTH	NA	METERS	NA	KILOMETERS
BRIDGES-LENGTH	NA	METERS	NA	KILOMETERS
EXCEPTIONS-LENGTH	NA	METERS	NA	KILOMETERS
NET LENGTH	NA	METERS	NA	KILOMETERS

BRIDGE NO. 02550
STA. 10+283.723 (N.B. CSAH 17)
STA. 10+371.585 (N.B. CSAH 17)

END S.A.P. 02-617-11:
S.A.P. 106-020-12:
STA. 10+660.000
(N.B. CSAH 17)

BEGIN S.A.P. 02-617-11:
S.A.P. 106-020-12:
STA. 9+831.492 (NB CSAH 17)

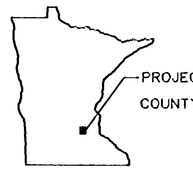


SEE GENERAL LAYOUT FOR TRAFFIC SIGNAL LOCATIONS AND PROJECT NUMBERS

SCALES

PLAN	10	
PROFILE	10 HORZ.	1 VERT.
INDEX MAP	1000	
GENERAL LAYOUT	75	
X-SECTION	2 HORZ.	2 VERT.

ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE



PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY
3-26-97	1,3-6,22,28,37,39-41,45,	DAD
	46,65,66,68,69,71,87,111,	
	113,115,116,147,148,152,159	
4-1-97	119,123,129,134	DAD
4-4-97	52,57,62,70,73,77,	DAD
	80,83,88	
4-17-97	3-7	DAD
4-24-97	105,106,108-112,115,117,	DAD
	118,134,145	

DESIGN DESIGNATION	S.A.P. 02-617-11 C.S.A.H. 17	S.P. 0280-47 RAMPS
FUNCTIONAL CLASSIFICATION	HIGH DENSITY ARTERIAL	
NO. OF TRAFFIC LANES	4	1
NO. OF PARKING LANES	0	0
STRUCTURAL DESIGN	10 TON	10 TON
R-VALUE	55	55
DESIGN SPEED	70 Km/h	70 Km/h (1)
STOPPING SIGHT DISTANCE BASED ON:		
HEIGHT OF EYE	1070mm	1070mm
HEIGHT OF OBJECT	150mm	150mm
ADT (CURRENT YEAR) (1997)	10200	6300
ADT (FUTURE YEAR) (2017)	18300	11400
ΣN18	2.18E X 06	3.06E X 06

(1) SW RAMP-STA. 40+022 TO STA. 40+128 AND
NE RAMP-STA. 30+022 TO STA. 30+128
AS BUILT ALIGNMENTS MEET 60km/h

minnesota metric

PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY LINE
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
CATCH BASIN
FIRE HYDRANT
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
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY

UTILITY SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRIC CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED COMMUNICATION CABLE
BURIED TELEPHONE CABLE
BURIED ELECTRIC CABLE
AERIAL TELEPHONE CABLE
SEWER, (SANITARY)
SEWER, (STORM)
SEWER MANHOLE
HANDHOLE
CATCH BASIN

NAME: COV2 410.PLN DATE: Apr. 08, 1997

GOVERNING SPECIFICATIONS

THE 1995 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" (METRIC) AND ALL SUPPLEMENTS THERETO, SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, DATED APRIL, 1995.

INDEX

THIS PLAN CONTAINS 282 SHEETS.

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.

ENGR. Donald A Dennes

Reg. No. 23397 Date 3-21-97

SRF CONSULTING GROUP, INC.

Approved ..... 19 .....
ANOKA COUNTY HIGHWAY ENGINEER

Approved ..... 19 .....
CITY OF BLAINE

Recommended for Approval ..... 19 .....
FOR METRO DIVISION

Recommended for Approval ..... 19 .....
STATE TRAFFIC ENGINEER

Recommended for Approval ..... 19 .....
STATE PRE-LETTING ENGINEER

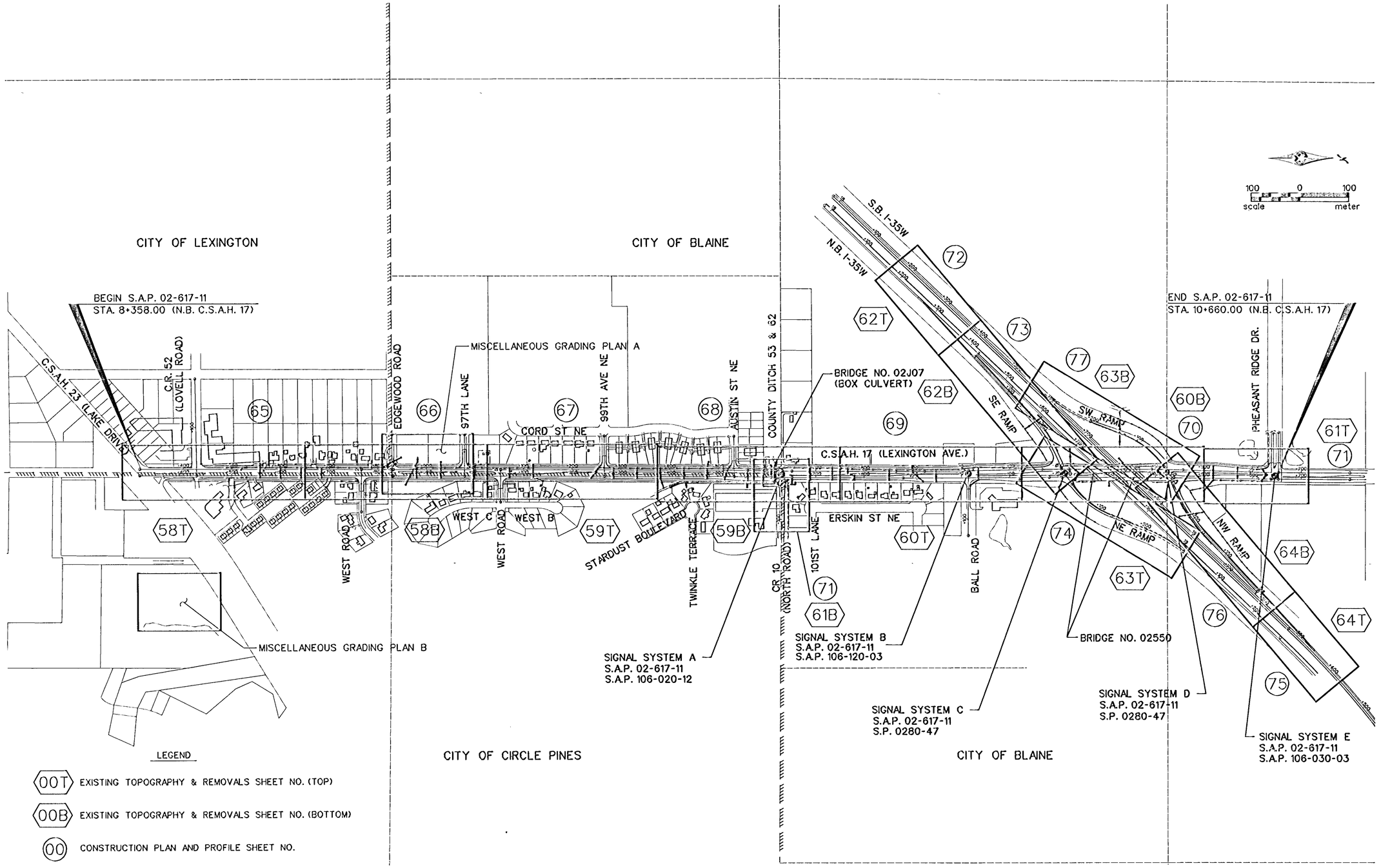
Office of Land Management ..... 19 .....
Approved
DIRECTOR, LAND MANAGEMENT

Approved ..... 19 .....
STATE DESIGN ENGINEER

Recommended for Approval ..... 19 .....
METRO ASSISTANT DIVISION ENGINEER - STATE AID

Approved for State Aid Division ..... 19 .....
STATE AID ENGINEER

ANOKA COUNTY C.S.A.H. 17 RECONSTRUCTION
S.A.P. 02-617-11, 106-010-15, 106-020-12, 106-120-03, S.P. 0280-47 (TH 35W-394)



NO	DATE	BY	CKD	APPR	REVISION
1	4-17-97	MCI		DAD	SAP 106-120-03 SIG. SYS. B

NAME: GEN 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 2-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
GENERAL LAYOUT
C.S.A.H. 17 RECONSTRUCTION

SHEET 2 OF 236

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	ANOKA COUNTY SAP 02-617-11	DRAINAGE SAP 02-617-11	LEXINGTON NON-PART	CIRCLE PINES NON-PART	BLAINE SAP 106-020-12	MN/DOT SP 0280-47
		2021.501	MOBILIZATION	LUMP SUM	1.00	0.38	0.12				
		2031.501	FIELD OFFICE TYPE D	EACH	1.00	0.88	0.12				
		0013.601	SURVEY EQUIPMENT	LUMP SUM	1.00	0.38	0.12				
		0013.601	CELLULAR MOBILE TELEPHONE	LUMP SUM	1.00	0.38	0.12				
		0015.601	COMPUTER EQUIPMENT	LUMP SUM	1.00	0.88	0.12				
A		2101.501	CLEARING	ha	1.64	1.64					
A		2101.502	CLEARING	TREE	257	257					
A		2101.506	GRUBBING	ha	1.64	1.64					
A		2101.507	GRUBBING	TREE	257	257					
		2102.502	PAVEMENT MARKING REMOVAL	m	8800.0	8800.0					
E		2104.501	REMOVE TIMBER RETAINING WALL	m	19.5	19.5					
E		2104.501	REMOVE CONCRETE RETAINING WALL	m	9.0	9.0					
B		2104.501	REMOVE PIPE SEWER	m	513.0	513.0					
C		2104.501	REMOVE CONCRETE C & G	m	955.0	955.0					
K		2104.501	REMOVE GUARDRAIL	m	73.0	73.0					
C	15	2104.503	REMOVE BITUMINOUS PAVEMENT	m2	36771.0	36771.0					
C		2104.503	REMOVE CONCRETE PAVEMENT	m2	7810.0	7810.0					
B		2104.509	REMOVE DRAINAGE STRUCTURE	EACH	21	21					
B		2104.509	REMOVE PIPE APRON	EACH	23	23					
N		2104.509	REMOVE LIGHT STANDARD BASE	EACH	12	12					
N		2104.509	REMOVE PULL BOX	EACH	4	4					
J		2104.501	REMOVE FENCE	m	140.3	140.3					
B		2104.501	REMOVE TIMBER BOX CULVERT (P)	m	16.0		16.0				
C		2104.511	SAWING CONCRETE PAVEMENT	m	542.0	542.0					
C		2104.513	SAWING BITUMINOUS PAVEMENT	m	176.0	176.0					
J		2104.521	SALVAGE FENCE (CHAIN LINK)	m	947.5	947.5					
J		2104.521	SALVAGE FENCE (WOOD)	m	28.6	28.6					
J		2104.521	SALVAGE FENCE (WIRE)	m	167.3	167.3					
K	9	2104.521	SALVAGE GUARDRAIL	m	369.0	369.0					
E		2104.521	SALVAGE TIMBER PLANTER BOX	m	31.0	31.0					
E		2104.521	SALVAGE CONCRETE BLOCK BBQ	m	6.0	6.0					
L		2104.521	SALVAGE 457 mm STEEL CASING	m	15.0					15.0	
M		2104.521	SALVAGE 762 mm STEEL CASING	m	18.0					18.0	
L		2104.521	SALVAGE 152 mm DUCT. IRON PIPE (SANITARY)	m	26.5					26.5	
M		2104.521	SALVAGE 400 mm DUCT. IRON PIPE (WATERMAIN)	m	97.0					97.0	
N		2104.523	SALVAGE LIGHTING UNIT	EACH	12	12					
K		2104.523	SALVAGE WOOD BOLLARD	EACH	11	11					
		2104.523	SALVAGE SIGN PANEL (TYPE C & D)	EACH	149	149					
		2104.523	SALVAGE SIGN PANEL (TYPE A)	EACH	2	2					
M		2104.523	SALVAGE CURB STOP AND BOX	EACH	8			8			
M		2104.523	SALVAGE GATE VALVE AND BOX	EACH	1					1	
M		2104.523	SALVAGE HYDRANT	EACH	5			1	1	3	
S		2105.501	COMMON EXCAVATION (P)	m3	43296.0	43296.0					
S	1	2105.507	SUBGRADE EXCAVATION	m3	20175.0	20175.0					
S	25	0105.603	SPECIAL EXCAVATION	m3	32296.0		32296.0				
S		2105.522	SELECT GRANULAR BORROW (LV)	m3	81450.0	81450.0					
		2105.522	SELECT GRANULAR BORROW, MODIFIED (LV)	m3	4560.0	4560.0					
		2105.523	COMMON BORROW (LV)	m3	44100.0	44100.0					
	19	2130.501	WATER	m3	1000.0	1000.0					
H		2211.503	AGGREGATE BASE (CV) CLASS 5A (P)	m3	15580.0	15580.0					
F	23	2211.501	AGGREGATE BASE (CV) CLASS 5A	metric ton	76.0	76.0					
		2301.501	CONCRETE PAVEMENT	m2	1890.0	1890.0					
		2301.511	STRUCTURAL CONCRETE	m3	380.0	380.0					
		2301.529	REINFORCEMENT BARS (EPOXY COATED)	kg	255.0	255.0					
		2301.538	DOWEL BAR	EACH	1380	1380					
		2301.545	CONCRETE CORING	EACH	6	6					
		2301.553	BRIDGE APPROACH PANEL	m2	806.0	806.0					
		0301.604	PERMANENT HEADER	m	14.6	14.6					
		0301.610	DRILL & GROUT REINFORCEMENT BAR	EACH	28	28					
H		2340.508	TYPE 41 WEARING COURSE MIXTURE	metric ton	5225.0	5225.0					
H		2340.508	TYPE 47 WEARING COURSE MIXTURE	metric ton	530.0	530.0					
F	12	SPEC	TYPE 41 WEARING COURSE MIXTURE	m2	910.0	910.0					
	8	SPEC	TYPE 41 WEARING COURSE MIXTURE	m2	5890.0	5890.0					
H	24	2340.510	TYPE 41 BINDER COURSE MIXTURE	metric ton	5630.0	5630.0					
H	24	2340.510	TYPE 47 BINDER COURSE MIXTURE	metric ton	610.0	610.0					
H	24	2340.514	TYPE 31 BASE COURSE MIXTURE	metric ton	11325.0	11325.0					
H	24	2340.516	TYPE 31 SHOULDER MIXTURE	metric ton	330.0	330.0					
		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	LITER	103715.0	103715.0					
E		0411.603	CONCRETE BLOCK RETAINING WALL	m2	47.0	47.0					
E		0411.604	INSTALL TIMBER PLANTER BOX	m	31.0	31.0					
E		0411.604	INSTALL CONCRETE BLOCK BBQ	m	6.0	6.0					
		2412.511	3600 mm x 2400 mm PRECAST CONC BOX CULV	m	249.49		249.49				
		2412.512	3600 mm x 2400 mm PRECAST CONC BOX CULV END SECT	EACH	2		2				

SEE NOTES ON SHEET 6

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97			DAD	ACAD COMMENTS
2	4-17-97	DAD		DAD	0340.601 TO SPEC, BLAINE SAP No
3	4-24-97	DAD		DAD	Revise Item Desc. (Remove Light STD Base)

NAME: SEQ1 410.PLN DATE: Mar. 17, 1997

Minnesota Traffic

I hereby certify that this plan, specification or report 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.

Donald A Dames

Date 3-21-97 Reg. No. 23597

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. MOORE 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0952.410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
STATEMENT OF ESTIMATED QUANTITIES
C.S.A.H. 17 RECONSTRUCTION

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	ANOKA COUNTY SAP 02-617-11	DRAINAGE SAP 02-617-11	LEXINGTON NON-PART	CIRCLE PINES NON-PART	BLAINE SAP 106-020-12	MN/DOT SP 0280-47
D		0412.602	RELOCATE MAIL BOX	EACH	8	8					
	6	0451.602	AGGREGATE FOUNDATION	metric ton	3100.0		3100.0				
R		2501.511	450 mm RC PIPE CULVERT CLASS II	m	4.6	4.6					
R		2501.511	675 mm RC PIPE CULVERT CLASS V	m	44.0	44.0					
R		2501.515	300 mm RC PIPE APRON	EACH	1		1				
		2501.515	375 mm RC PIPE APRON	EACH	1		1				
R		2501.515	450 mm RC PIPE APRON	EACH	1	1					
R		2501.515	525 mm RC PIPE APRON	EACH	1		1				
R		2501.515	600 mm RC PIPE APRON	EACH	5		5				
R		2501.515	675 mm RC PIPE APRON	EACH	2	2					
R		2501.515	900 mm RC PIPE APRON	EACH	3		3				
R		2501.515	375 mm CS PIPE APRON	EACH	2		2				
		2501.515	450 mm CS PIPE APRON	EACH	1		1				
R		2501.567	375 mm RC SAFETY APRON AND GRATE DESIGN M30228	EACH	1		1				
R		2501.567	450 mm RC SAFETY APRON AND GRATE DESIGN M30228	EACH	1		1				
R		2501.567	750 mm RC SAFETY APRON AND GRATE DESIGN M30228	EACH	1		1				
R		2501.567	900 mm RC SAFETY APRON AND GRATE DESIGN M30228	EACH	1		1				
R		0501.602	TRASH GUARD FOR 300 mm PIPE APRON	EACH	1		1				
R		0501.602	TRASH GUARD (SPECIAL) (300 mm TO 600 mm)	EACH	4		4				
R		0501.602	TRASH GUARD (SPECIAL) (750 mm TO 900 mm)	EACH	2		2				
R		2503.541	300 mm RC PIPE SEWER DESIGN 3006 CLASS II	m	1020.8		1020.8				
R		2503.541	300 mm RC PIPE SEWER DESIGN 3006 CLASS III	m	74.1		74.1				
R		2503.541	375 mm RC PIPE SEWER DESIGN 3006 CLASS II	m	271.6		271.6				
R		2503.541	375 mm RC PIPE SEWER DESIGN 3006 CLASS III	m	10.2		10.2				
R		2503.541	450 mm RC PIPE SEWER DESIGN 3006 CLASS II	m	171.3		171.3				
R		2503.541	450 mm RC PIPE SEWER DESIGN 3006 CLASS III	m	40.2		40.2				
R		2503.541	525 mm RC PIPE SEWER DESIGN 3006 CLASS II	m	376.2		376.2				
R		2503.541	525 mm RC PIPE SEWER DESIGN 3006 CLASS IV	m	50.0		50.0				
R		2503.541	525 mm RC PIPE SEWER DESIGN 3006 CLASS V	m	38.5		38.5				
R		2503.541	600 mm RC PIPE SEWER DESIGN 3006 CLASS II	m	205.8		205.8				
R		2503.541	600 mm RC PIPE SEWER DESIGN 3006 CLASS III	m	104.2		104.2				
R		2503.541	600 mm RC PIPE SEWER DESIGN 3006 CLASS IV	m	195.8		195.8				
R		2503.541	750 mm RC PIPE SEWER DESIGN 3006 CLASS II	m	100.7		100.7				
R		2503.541	750 mm RC PIPE SEWER DESIGN 3006 CLASS III	m	4.0		4.0				
R		2503.541	825 mm RC PIPE SEWER DESIGN 3006 CLASS III	m	143.4		143.4				
R		2503.541	900 mm RC PIPE SEWER DESIGN 3006 CLASS II	m	55.8		55.8				
R		2503.541	900 mm RC PIPE SEWER DESIGN 3006 CLASS IV	m	49.0		49.0				
R		2503.511	375 mm CS PIPE SEWER DESIGN 3040 16 GA	m	75.0		75.0				
R		2503.511	450 mm CS PIPE SEWER DESIGN 3040 16 GA	m	36.2		36.2				
		0503.602	FURNISH & INSTALL BAFFELED WEIR	EACH	1		1				
L,M		0503.605	50 mm INSULATION	m2	1668.0			1368.0		300.0	
M		0504.602	ADJUST VALVE BOX	EACH	21			3	7	11	
M		0504.602	ADJUST HYDRANT	EACH	2				1	1	
M		0504.602	RELOCATE CURB STOP AND BOX	EACH	8			8			
M		0504.602	INSTALL GATE VALVE AND BOX	EACH	1					1	
M		0504.602	INSTALL HYDRANT	EACH	5			1	1	3	
	22	0504.602	REVISE IRRIGATION SYSTEM	EACH	1	1					
L	16	0504.603	INSTALL 457 mm STEEL CASING	m	15.0					15.0	
M	17	0504.603	INSTALL 762 mm STEEL CASING	m	18.0					18.0	
L	16	0504.603	INSTALL 152 mm DUCT. IRON PIPE	m	26.5					26.5	
M	17	0504.603	INSTALL 400 mm DUCT. IRON PIPE	m	97.0					97.0	
M		0504.603	150 mm WATERMAIN DUCT. IRON CL 52	m	47.0			11.0	5.0	31.0	
M		0504.603	400 mm WATERMAIN DUCT. IRON CL 52	m	8.5					8.5	
L		0504.603	457 mm STEEL CASING PIPE	m	5.0					5.0	
M		0504.603	762 mm STEEL CASING PIPE	m	24.0					24.0	
M		0504.620	WATERMAIN FITTINGS	kg	252.0			68.0		184.0	
R		2506.501	CONST DRAINAGE STRUCT DESIGN F	m	77.76		77.76				
R		2506.501	CONST DRAINAGE STRUCT DESIGN G	m	41.87		41.87				
R		2506.501	CONST DRAINAGE STRUCT DESIGN 1200 mm 4020	m	8.50		8.50				
R		2506.501	CONST DRAINAGE STRUCT DESIGN 1350 mm 4020	m	13.78		13.78				
R		2506.501	CONST DRAINAGE STRUCT DESIGN 1500 mm 4020	m	19.49		19.49				
R		2506.501	CONST DRAINAGE STRUCT DESIGN 1800 mm 4020	m	1.60		1.60				
R		2506.501	CONST DRAINAGE STRUCT DESIGN 1950 mm 4020	m	1.78		1.78				
R		2506.502	CONST DRAINAGE STRUCT DESIGN SPECIAL 1	EACH	1		1				
L		2506.503	RECONSTRUCT DRAINAGE STRUCTURE	m	3.50			1.6		1.9	
Q		2506.516	CASTING ASSEMBLY	EACH	120		120				
L		2506.522	ADJUST FRAME AND RING CASTING	EACH	5			4		1	
R	10	2511.505	HAND PLACED RIPRAP	m3	70.5	5.3	65.2				
G	4	2521.501	100 mm CONCRETE WALK	m2	4895.0	4895.0					
G	4 14	2521.501	150 mm CONCRETE WALK	m2	44.0	44.0					
G	4	2521.511	50 mm BITUMINOUS WALK	m2	8930.0			360.0	3660.0	4310.0	
G		2531.501	CONCRETE CURB AND GUTTER DESIGN B618	m	4360.0	2205.0		205.0	645.0	1305.0	
G		2531.501	CONCRETE CURB AND GUTTER, SURMOUNTABLE	m	160.0	80.0		2.5	30.0	47.5	

SEE NOTES ON SHEET 6

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97			DMD	ASHD COMMENTS
1	4-17-97	DMD		DMD	BLAINE SAP NO.

NAME: SE02 400 PLN DATE: Mar. 17, 1997

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12

CO. PROJECT NO.

DRAWN BY	DATE
V. GRAF	12-96
DESIGNED BY	
B. MOORE	12-96
CHECKED BY	
D. DEMERS	3-97

COMM. NO. 0952410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
STATEMENT OF ESTIMATED QUANTITIES
C.S.A.H. 17 RECONSTRUCTION

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	ANOKA COUNTY SAP 02-617-11	DRAINAGE SAP 02-617-11	LEXINGTON NON-PART	CIRCLE PINES NON-PART	BLAINE SAP 106-020-12	MN/DOT SP 0280-47
G		2531.501	CONCRETE CURB AND GUTTER DESIGN 3612	m	3090.0	3090.0					
G		2531.501	CONCRETE CURB AND GUTTER DESIGN D424	m	655.0	655.0					
G		2531.501	CONCRETE CURB AND GUTTER DESIGN B418	m	120.0	60.0				60.0	
	13	2533.504	CONCRETE MEDIAN BARRIER DESIGN 8323	m	1300.0	1300.0					
N		2545.515	LIGHT BASE DESIGN E	EACH	81	81					
N		2545.521	78 mm RIGID STEEL CONDUIT	m	103.6	103.6					
N		2545.521	78 mm RIGID STEEL CONDUIT (AUGERED)	m	80.0	80.0					
N		2545.533	ARMORED CABLE 3 CONDUCTOR NO. 4	m	1110.0	1110.0					
N		2545.553	PULLBOX	EACH	3	3					
N		0545.602	INSTALL LIGHTING UNIT	EACH	8	8					
K		2554.501	TRAFFIC BARRIER DESIGN SPECIAL	m	15.2	15.2					
K		2554.501	TRAFFIC BARRIER DESIGN B 8307	m	170.0	170.0					
		2554.509	GUIDE POST, TYPE B	EACH	12	3	9				
K	9	2554.511	INSTALL TRAFFIC BARRIER	m	290.0	290.0					
K		2554.521	ANCHORAGE ASSEMBLY	EACH	2	2					
K		2554.523	END TREATMENT (ELT) 8329	EACH	4	4					
K		0554.602	INSTALL WOOD BOLLARD	EACH	9	9					
	13	0554.604	IMPACT ATTENUATOR	ASSEMBLY	7	7					
J		2557.501	WIRE FENCE DESIGN 60-9322	m	49.7	49.7					
J		0557.603	INSTALL FENCE (CHAIN LINK)	m	947.5	947.5					
J		0557.603	INSTALL FENCE (WOOD)	m	28.6	28.6					
J		0557.603	INSTALL FENCE (WIRE)	m	167.3	167.3					
		0563.601	DETOUR SIGNING	LUMP SUM	1.0	1.0					
	13	0563.602	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	40	40					
	13	0563.603	RAISED PAVEMENT MARKER TEMPORARY	EACH	200	200					
	18	0554.604	RELOCATE IMPACT ATTENUATOR	ASSEMBLY	2	2					
	20	0533.603	RELOCATE CONCRETE MEDIAN BARRIER	m	380	380					
T	7	2564.531	SIGN PANELS TYPE C	m2	84.0	84.0					
		2564.531	SIGN PANELS TYPE D	m2	12.5	12.5					
		2564.537	INSTALL SIGN TYPE C	EACH	56	56					
		2564.537	INSTALL SIGN TYPE D	EACH	1	1					
U		2564.537	INSTALL SIGN TYPE A	EACH	2	2					
	28	0564.602	F&I SIGN COLLAR	EACH	12	12					
		2564.522	STRUCTURAL STEEL (POSTS FOR TYPE A SIGNS)	kg	1760	1760					
		2564.552	TRAFFIC CONTROL (STAGE 1A)	LUMP SUM	1.00	1.00					
		2564.552	TRAFFIC CONTROL (STAGE 1B)	LUMP SUM	1.00	1.00					
		2564.552	TRAFFIC CONTROL (STAGE 2A)	LUMP SUM	1.00	1.00					
		2564.552	TRAFFIC CONTROL (STAGE 2B)	LUMP SUM	1.00	1.00					
		0564.602	PAVEMENT MESSAGE (ONLY) PAINT	EACH	19	19					
		0564.602	PAVEMENT MESSAGE (LEFT ARROW) PAINT	EACH	36	36					
		0564.602	PAVEMENT MESSAGE (RIGHT ARROW) PAINT	EACH	23	23					
		0564.602	PAVEMENT MESSAGE (LEFT/THRU ARROW) PAINT	EACH	4	4					
	11	0564.602	RELOCATE SIGN TYPE SPECIAL	EACH	4	4					
	5,21	0564.603	100 mm SOLID LINE WHITE PAINT	m	9900.0	9900.0					
	5,29	0564.603	100 mm BROKEN LINE WHITE PAINT	m	9100.0	9100.0					
	5	0564.603	300 mm SOLID LINE WHITE PAINT	m	230.0	230.0					
		0564.603	600 mm SOLID LINE WHITE PAINT	m	198.0	198.0					
	5	0564.603	100 mm SOLID LINE YELLOW PAINT	m	8250.0	8250.0					
	5,29	0564.603	100 mm BROKEN LINE YELLOW PAINT	m	1500.0	1500.0					
	21	0564.603	200 mm DOUBLE SOLID LINE YELLOW PAINT	m	6600.0	6600.0					
		0564.603	200 mm SOLID LINE WHITE PAINT	m	360.0	360.0					
		0564.604	ZEBRA CROSSWALK WHITE PAINT	m2	325.0	325.0					
	30	2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM A	SIGNAL SYSTEM	1.0	0.5000				0.5000	
	31	2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM B	SIGNAL SYSTEM	1.0	0.2500				0.7500	
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM C	SIGNAL SYSTEM	1.0	0.500					0.500
		2565.511	FULL T ACT T CONTROL SIGNAL SYSTEM D	SIGNAL SYSTEM	1.0	0.500					0.500
		0565.604	REVISE SIGNAL SYSTEM E	SYSTEM	1.0	1.000					
	32	0565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM A	LUMP SUM	1.0					1.000	
	33	0565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM B	LUMP SUM	1.0					1.000	
	34	0565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM C	LUMP SUM	1.0					1.000	
	34	0565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM D	LUMP SUM	1.0					1.000	
		0565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM E	LUMP SUM	1.0					1.000	
		0565.601	TRAFFIC CONTROL INTERCONNECTION	LUMP SUM	1	1					
	26	0104.601	SALVAGE MISCELLANEOUS STRUCTURES	LUMP SUM	1	1					
	26	0104.601	REMOVE MISCELLANEOUS STRUCTURES	LUMP SUM	1	1					
	26	0104.607	HAUL SALVAGED MATERIAL	LUMP SUM	1	1					
	26	2550.509	SYSTEMS INTEGRATION	LUMP SUM	1	1					
	26	2550.511	CABINET FOUNDATION	EACH	1	1					
	26	2550.511	SERVICE FOUNDATION	EACH	1	1					
	26	2550.512	HANDHOLE, TYPE PVC CONCRETE COVER	EACH	7	7					
	26	2550.514	FIBEROPTIC SPLICE VAULT	EACH	1	1					
	26	2550.515	OUTDOOR FIBER SPLICE ENCLOSURE	EACH	1	1					
	26,27	2550.523	50 mm NON-METALLIC CONDUIT	m	205.0	205.0					
	26	2550.523	75 mm NON-METALLIC CONDUIT	m	170.0	170.0					
	26	2550.523	100 mm NON-METALLIC CONDUIT	m	10.0	10.0					
	26	2550.524	75 mm PUSHED CONDUIT	m	45.0	45.0					

SEE NOTES ON SHEET 6

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97			DAD	ACHD COMMENTS
2	4-17-97	DAD		DAD	ADD TYPE D SIGNS, TRAFFIC CONTROL BY STAGES
3	4-24-97	DAD		DAD	REVISE EVP FUNDING SOURCE, C.I.P. SIGN QTY, STEEL POST QTY

NAME: SE03 AND.PLN DATE: Mar. 17, 1997

minnesota graphics

I hereby certify that this plan, specification or report 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.

Donald A Dames

Date 3-21-97 Reg No 23397

STATE AID PROJECT NO. S.A.P. 02-617-11 S.A.P. 106-020-12

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. MOORE 12-96
CHECKED BY D. DEVERS 3-97
COMM. NO. 0262410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

STATEMENT OF ESTIMATED QUANTITIES
C.S.A.H. 17 RECONSTRUCTION

STATEMENT OF ESTIMATED QUANTITIES

TAB	NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	ANOKA COUNTY SAP 02-617-11	DRAINAGE SAP 02-617-11	LEXINGTON NON-PART	CIRCLE PINES NON-PART	BLAINE SAP 106-020-12	MN/DOT SP 0280-47
	26	2550.532	POWER CABLE 1 CONDUCTOR NO. 6	m	400.0	400.0					
	26	2550.532	POWER CABLE 1 CONDUCTOR NO. 3	m	150.0	150.0					
	26	2550.532	LEAD-IN CABLE 2 CONDUCTOR NO. 14	m	1580.0	1580.0					
	26	2550.532	SIGNAL CONTROL CABLE 5 CONDUCTOR NO. 12	m	240.0	240.0					
	26	2550.532	CONTROL CABLE 15 CONDUCTOR NO. 18	m	50.0	50.0					
	26	2550.533	VIDEO CABLE RG1 1	m	50.0	50.0					
	26	2550.535	ARMORED FIBEROPTIC PIGTAIL	EACH	1	1					
	26	2550.541	1.7 m X 1.7m LOOP DETECTOR DESIGN SAWCUT	EACH	2	2					
	26	2550.542	LOOP DETECTOR SPLICE	EACH	6	6					
	26	2550.571	INSTALL CABINET	EACH	1	1					
	26	0550.601	DOCUMENTATION AND TRAINING	LUMP SUM	1	1					
	3	2573.501	BALE CHECK	EACH	300	300					
	3	2573.502	SILT FENCE HEAVY DUTY	m	4550.0	4550.0					
	3	2573.505	FLOATATION SILT CURTAIN, TYPE STILL WATER	m	150.0		150.0				
		2575.501	SEEDING	ha	5.5	5.5					
		2575.502	SEED MIXTURE 30A	kg	250.0	250.0					
		2575.502	SEED MIXTURE 25A	kg	25.0	25.0					
		2575.505	SODDING TYPE SALT RESISTANT	m2	16900.0	16900.0					
		2575.505	SODDING TYPE LAWN	m2	11350.0	11350.0					
		2575.511	MULCH MATERIAL TYPE I	metric ton	20.8	20.8					
		2575.519	DISK ANCHORING	ha	5.5	5.5					
	3	2575.523	EROSION CONTROL BLANKET (STRAW 2S)	m2	9300.0	9300.0					
		2575.532	COMMERCIAL FERT ANALYSIS 10-10-10	kg	3120.0	3120.0					
	13	2581.501	REMOVABLE PREFORMED PLASTIC MARKING	m	3865.0	3865.0					
		2401.513	TYPE F (SPECIAL) RAILING CONCRETE (3Y46)	m	30.0	30.0					
	2	0563.605	POLICE OFFICER	HOUR	1440.0	1440.0					

NOTES:

1 INCLUDES 7500 m2 FOR SUBGRADE CORRECTION TO BE USED AT THE DIRECTION OF THE ENGINEER IN THE FIELD.
2 FOR USE AT I-35W AND 95TH AVENUE RAMP INTERSECTIONS DURING PEAK HOURS.
3 INCLUDES MAINTENANCE.
4 QUANTITY INCLUDES AGGREGATE BASE.
5 QUANTITY INCLUDES STRIPING PROJECT SOUTH OF BALL ROAD TWICE.
6 QUANTITY CONSISTS OF 1900 metric tons FOR THE BOX CULVERT AND 1200 metric tons FOR PIPE FOUNDATION CORRECTIONS TO BE USED AT THE DIRECTION OF THE ENGINEER IN THE FIELD.
7 QUANTITY INCLUDES DELINEATORS X4-2 AND X4-5.
8 QUANTITY CONSISTS OF 5890 m2 FOR TEMPORARY PAVEMENT CONSTRUCTION AND INCLUDES 150 mm AGGREGATE BASE CLASS 5A.
9 QUANTITY INCLUDES PREFORMED RADIUS SECTIONS.
10 THE REQUIRED GRANULAR FILTER MATERIAL AND/OR FILTER FABRIC SHALL BE CONSIDERED INCIDENTAL.
11 QUANTITY CONSISTS OF CIRCLE PINES PROFESSIONAL CENTER, CENTENNIAL REAL ESTATE, LOVELL BUILDING - LEXINGTON CITY HALL, AND OASIS MARKET.
12 QUANTITY CONSISTS OF BITUMINOUS SURFACED DRIVES AND INCLUDES 100 mm AGGREGATE BASE CLASS 5A.
13 FOR TRAFFIC CONTROL PURPOSES DURING CONSTRUCTION.
14 QUANTITY FOR CONCRETE APPROACH NOSES ON MEDIANS.
15 QUANTITY INCLUDES 2531 m2 FOR BITUMINOUS SURFACED DRIVES.
16 FOR SANITARY SEWER FORCEMAIN RELOCATION.
17 FOR 400 mm DIP WATERMAIN RELOCATION.
18 QUANTITY CONSISTS OF 2 IMPACT ATTENUATORS WHICH MAY BE REQUIRED TO BE RELOCATED TO DIFFERENT LOCATIONS ALONG CSAH 17 AS DIRECTED BY THE ENGINEER IN THE FIELD.
19 FOR DUST CONTROL.
20 QUANTITY CONSISTS OF 380 m SHOWN BETWEEN CR 10 AND BALL ROAD WHICH MAY BE REQUIRED TO BE RELOCATED TO DIFFERENT LOCATIONS ALONG CSAH 17 AS DIRECTED BY THE ENGINEER IN THE FIELD.
21 QUANTITY INCLUDES 3200 m FOR TRAFFIC CONTROL DURING STAGE I TEMPORARY WIDENING AND 3200 m FOR TRAFFIC CONTROL DURING STAGE II CONSTRUCTION.
22 ASSUMES IRRIGATION SYSTEM AT OASIS MARKET.
23 QUANTITY CONSISTS OF AGGREGATE SURFACED DRIVES.
24 QUANTITY BASED UPON PLAN THICKNESS PLUS 6 mm.
25 QUANTITY CONSISTS OF PONDS A AND B.
26 SEE TRAFFIC MANAGEMENT SYSTEM PLANS AND DETAIL SHEETS.
27 20 m OF 50 mm NMC IS HD NMC UNDER ROADWAY SURFACE.
28 FOR USE ON SIGN POSTS IN CONCRETE MEDIANS WITHIN MN/DOT RIGHT-OF-WAY.
29 LENGTH INCLUDES GAP.
30 0.50 (SAP 106-020-12) IS FUNDED AS FOLLOWS: 0.1875 SAP 106-020-12, 0.3125 CITY OF BLAINE (NON-PART).
31 0.75 (SAP 106-020-12) IS FUNDED AS FOLLOWS: 0.25 SAP 106-020-12, 0.25 SAP 106-120O3, 0.25 CITY OF BLAINE (NON-PART).
32 1.0 (SAP 106-020-12) IS FUNDED AS FOLLOWS: 0.50 SAP 106-020-12, 0.50 CITY OF BLAINE (NON-PART).
33 1.0 (SAP 106-020-12) IS FUNDED AS FOLLOWS: 0.75 SAP 106-020-12, 0.25 CITY OF BLAINE (NON-PART).
34 1.0 (SAP 106-020-12) IS FUNDED AS FOLLOWS: 0.50 SAP 106-020-12, 0.50 SAP 106-010-15.
(P) PLAN QUANTITY.

INDEX OF TABULATIONS

NOTE: "I" AND "O" NOT USED

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97			DAD	ACHD COMMENTS
2	4-17-97	DAD		DAD	ADD EVP ITEMS
3	4-24-97	DAD		DAD	ADD NOTES 32,33,34 FOR EVP ITEMS

NAME: SE06 410.PLN DATE: Mar 17, 1997

Minnesota Merit

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. MOORE 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0252410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
STATEMENT OF ESTIMATED QUANTITIES
C.S.A.H. 17 RECONSTRUCTION

SHEET 6 OF 236

THE FOLLOWING STANDARD PLATES APPROVED BY THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT

STANDARD PLATES

PLATE NO.	DESCRIPTION
M 1103 J	TYPICAL DOWEL BAR ASSEMBLY
M 1141 D	PAVEMENT KEYWAY FOR KEYED CONSTRUCTION
M 1150 P	CONSTRUCTION OF HEADER JOINTS
M 3000 L	REINFORCED CONCRETE PIPE
M 3006 G	GASKET JOINT FOR R.C. PIPE
M 3007 B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
M 3022 B	PRECAST CONCRETE END SECTION
M 3040 F	CORRUGATED METAL PIPE CULVERT
M 3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
M 3123 J	METAL APRON FOR CS PIPE
M 3124 B	METAL APRON CONNECTION
M 3128 F	SAFETY APRON
M 3133 B	RIPRAP AT RCP OUTLETS
M 3145 E	CONCRETE PIPE TIES
M 3148 A	SAFETY SLOPE METAL END SECTION
M 3221 C	CORRUGATED STEEL PIPE COUPLING BAND
M 4005 L	MANHOLE OR CATCH BASIN
M 4006 L	MANHOLE OR CATCH BASIN
M 4010 H	CONC. SHORT CONE & ADJUSTING RING
M 4011 E	PRECAST CONCRETE BASE
M 4018 A	MH OR CB REDUCER CONE SECTION
M 4020 G	MANHOLE OR CATCH BASIN COVER
M 4101 D	RING CASTING FOR MANHOLE OR CATCH BASIN
M 4110 F	COVER CASTING FOR MANHOLE
M 4126 F	CATCH BASIN FRAME CASTING
M 4132 F	CATCH BASIN FRAME CASTING TYPE D CURB
M 4143 E	STOOL GRATE & CONCRETE FRAME
M 4149 C	GRATE CASTING FOR CATCH BASIN
M 4154 B	CATCH BASIN GRATE CASTING
M 4161 F	CURB BOX CASTING FOR CATCH BASIN
M 7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
M 7036 D	PEDESTRIAN CURB RAMP
M 7100 G	CONCRETE CURB & GUTTER
M 7102 I	CONCRETE CURB & GUTTER
M 7108 F	EXIT NOSE
M 7111 J	INSTALLATION OF CATCH BASIN CASTINGS
M 7112 C	INSTALLATION AND REINFORCEMENT OF CB AND MH CASTINGS
M 7113 A	CONCRETE APPROACH NOSE DETAIL
M 8000 I	STANDARD BARRICADES
M 8110 D	TRAFFIC SIGNAL BRACKETING
M 8111 C	TRAFFIC SIGNAL BRACKETING
M 8112 C	PEDESTAL FOUNDATION
M 8114 A	P.V.C. HANDHOLE / PULLBOX
M 8115 D	PEDESTRIAN PUSH BUTTON INSTALLATION
8117 F	PRECAST CONCRETE HANDHOLE (OR PULLBOX)
M 8119 C	GROUND MOUNTED CABINET FOUNDATION
M 8120 K	POLE FOUNDATION
M 8121 D	TRANSFORMER BASE AND POLE BASE PLATE
M 8122 C	PEDESTAL AND PEDESTAL BASE
M 8123 D	POLE AND MAST ARM
M 8124 E	MAST ARM SIGNAL HEAD MOUNTS
M 8126 F	POLE FOUNDATION
M 8127 B	LIGHT BASE - DESIGN E
M 8130 D	SAW CUT LOOP DETECTORS
M 8150 B	INSTALLATION OF CULVERT MARKERS
M 8307 P	STEEL PLATE BEAM GUARDRAIL
M 8319 C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S
M 8323 H	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER
M 8329 F	ECCENTRIC LOADER BREAKAWAY CABLE TERMINAL (ELT)
M 9101 B	SHAPING AND SODDING OF SLOPES AT BOX CULVERT ENDS
M 9102 D	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)
M 9322 J	CHAIN LINK FENCE

CONSTRUCTION /SOILS NOTES

1 SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF SLOPE DRESSING, DEBRIS, ORGANIC MATERIAL, MUCK AND OTHER UNSUITABLE MATERIAL.

2 ITEMS REFERRED TO AS INCIDENTAL ON THIS PROJECT SHALL BE CONSIDERED INCIDENTAL WITH NO DIRECT COMPENSATION MADE THEREFORE.

3 SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2B2.

4 BITUMINOUS AND CONCRETE SURFACING REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED OR DISPOSED OF OFF THE PROJECT, IN ACCORDANCE WITH THE THE PROVISIONS OF SPEC. 2104 AND 2105.

5 UNSUITABLE MATERIALS SHALL BE PLACED IN EMBANKMENTS OUTSIDE OF A 1V:1-1/2H SLOPE EXTENDING DOWN AND OUTWARD FROM THE GRADING PI OR THE BOULEVARD PI.

6 COMPACTION OF THE GRADING ITEMS OF THIS PROJECT SHALL BE BY THE "SPECIFIED DENSITY METHOD", EXCEPT WHEN WITHIN 1 m OF THE WATER TABLE, THEN BY THE "QUALITY COMPACTION METHOD".

7 COMPACTION OF THE AGGREGATE BASE ITEMS OF THIS PROJECT SHALL BE BY THE "SPECIFIED DENSITY METHOD" EXCEPT WHEN THE CONTRACTOR ELECTS TO USE RECYCLED MATERIALS FOR THE AGGREGATE BASE ITEMS, THEN THE "QUALITY COMPACTION METHOD" SHALL BE UTILIZED.

8 COMPACTION OF THE BITUMINOUS ITEMS OF THIS PROJECT SHALL BE BY THE "MODIFIED SPECIFIED DENSITY METHOD", IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2340.

9 STABILIZING AGGREGATE SHALL BE INCORPORATED INTO THE SUBGRADE TO ACHIEVE SATISFACTORY SURFACE STABILITY AT LOCATIONS DEEMED NECESSARY BY THE ENGINEER, IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2105.3G. GRANULAR MATERIAL WHICH IS FURNISHED BY THE CONTRACTOR SHALL BE STABILIZED, IF NECESSARY, AT THE CONTRACTOR'S EXPENSE. WHERE STABILIZING AGGREGATE IS DEEMED NECESSARY, IT SHALL BE APPLIED AT A RATE OF APPROXIMATELY 110 KILOGRAMS PER SQUARE METER.

10 WHERE WIDENING ADJACENT TO EXISTING PAVEMENT, CUT VERTICALLY TO THE BOTTOM OF THE CLASS 5 AGGREGATE BASE AND THEN AT A 1V:1/2H SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION (AS SHOWN ON THE TYPICAL SECTIONS AND THE CROSS SECTIONS). BACKFILL PROMPLTY TO AVOID UNDERMINING THE EXISTING PAVEMENT.

11 PROVIDE 1V:20H LONGITUDINAL TAPERS BETWEEN CHANGES IN SUBGRADE AND SUBCUT DEPTHS.

12 USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND WHERE CONCRETE CURBING ABUTS BITUMINOUS MIXTURES.

13 STRIP AND REUSE AS SLOPE DRESSING ALL EXISTING TOPSOIL, WHERE PRESENT. IN AREAS TO BE DISTURBED BY CONSTRUCTION. TOPSOIL STRIPING IS CONSIDERED TO BE COMMON EXCAVATION.

14 PLACE A MINIMUM OF 100 MILLIMETERS OF SLOPE DRESSING ON ALL AREAS SCHEDULED FOR PERMANENT TURF ESTABLISHMENT. ALL EXCESS TOPSOIL SHALL BE USED AS SLOPE DRESSING BY PROVIDING A THICKNESS GREATER THAN 100 mm.

15 SEEDING REQUIREMENTS ON THIS PROJECT SHALL BE AS FOLLOWS.

a. SEED MIXTURE 90A SHALL BE APPLIED AT A RATE OF 50 KILOGRAMS PER HECTARE.
b MULCH MATERIAL TYPE I SHALL BE APPLIED AT A RATE OF 4.5 METRIC TONS PER HECTARE.
c. COMMERCIAL FERTILIZER ANALYSIS 10-10-10 (OR EQUIVALENT) SHALL BE APPLIED AT A RATE OF 560 KILOGRAMS PER HECTARE.

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

17 ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, DATED APRIL 1995.

18 COMMON BORROW MATERIAL SHALL HAVE A MINIMUM R-VALUE OF 55. BORROW MATERIAL PLACED WITHIN THE UPPER 1.2 m OF THE EMBANKMENT BELOW THE GRADING GRADE SHALL BE SELECT GRANULAR MATERIAL.

19 THE EXISTING 35W MAINLINE PAVEMENT IS ASSUMED TO BE 203 mm CONTINUALLY REINFORCED CONCRETE PAVEMENT WITH VARIABLE DEPTHS OF BITUMINOUS OVERLAY. THE EXISTING RAMP PAVEMENT IS ASSUMED TO BE 203 mm UNIFORM REINFORCED CONCRETE PAVEMENT WITH INTEGRANT CURB. THE CONTRACTOR SHALL INVESTIGATE AND MAKE OWN DETERMINATION OF ACTUAL PAVEMENT DEPTHS. (INFORMATION FROM RECORD DRAWING FOR SP 0280-06).

THE EXISTING CSAH 17 BITUMINOUS PAVEMENT IS ASSUMED TO BE 114 mm THICK SOUTH OF I-35W AND 191 mm NORTH OF I-35W. THE CONTRACTOR SHALL INVESTIGATE AND MAKE OWN DETERMINATION OF ACTUAL PAVEMENT DEPTHS. (INFORMATION TAKEN FROM RECORD DRAWINGS FOR SAP 02-617-04 AND SAP 02-617-06).

20 GRADING GRADE ON THIS PROJECT SHALL BE DEFINED AS THE BOTTOM OF THE AGGREGATE BASE OR SELECT GRANULAR MATERIAL AS SHOWN IN THE PAVEMENT DETAILS.

NO	DATE	BY	CKD	APPR	REVISION
1	4-17-97	DAD	DAD	DAD	ADD "M" TO PL. 8110 D AND 8115 D
2	4-24-97	DAD	DAD	DAD	ADD "M" TO PL. 8115, 8122 C 8124 E, 8130 D, ADD PL. 8114 A

NAME: CSN 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0252410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION/SOILS NOTES, STANDARD PLATES
C.S.A.H. 17 RECONSTRUCTION

SHEET 7 OF 236

EARTHWORK TABULATION

STATION	EXCAVATION COMMON	EXCAVATION TOPSOIL STRIPPING	EXCAVATION SUBGRADE	EMBANKMENT SUBGRADE BACKFILL	EMBANKMENT SUBGRADE SUITABLE	EMBANKMENT SELECT GRANULAR	EMBANKMENT SLOPE DRESSING
	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)
CSAH 17 (LEXINGTON AVE) SOUTH OF I-35W							
8+436.5							
8+460.0	337	33	161	161	0	0	14
8+480.0	291	29	137	137	0	0	11
8+500.0	308	24	137	137	0	0	11
8+520.0	294	29	137	137	7	11	12
8+540.0	264	39	137	137	14	39	22
8+547.5	106	18	51	51	3	23	9
8+560.0	194	35	86	86	5	44	16
8+567.3	110	14	50	50	6	27	9
8+580.0	212	15	87	87	10	46	11
8+600.0	359	35	137	137	16	72	21
8+610.5	170	18	72	72	8	33	11
8+620.0	143	15	65	65	7	24	12
8+640.0	303	45	137	137	16	65	28
8+660.0	307	47	137	137	15	63	21
8+664.0	62	7	27	27	3	9	4
8+671.0	107	10	48	48	6	25	7
8+680.0	137	18	62	62	8	43	9
8+700.0	355	27	137	137	10	83	16
8+720.0	442	27	137	137	7	54	19
8+740.0	429	54	127	137	14	31	24
8+756.8	280	32	121	121	9	15	14
8+760.0	49	6	26	25	1	2	2
8+766.1	91	13	73	73	0	1	4
8+780.0	170	27	153	153	4	11	11
8+783.5	36	6	24	24	2	6	3
8+790.0	67	11	44	44	4	10	5
8+796.5	71	15	44	44	3	9	6
8+800.0	39	10	24	24	15	16	2
8+820.0	202	68	131	131	240	227	22
8+829.4	98	27	77	77	152	144	16
8+840.0	87	32	85	85	144	167	20
8+860.0	151	68	111	111	126	286	34
8+880.0	216	56	111	111	32	186	48
8+900.0	275	53	128	128	21	98	44
8+920.0	411	49	138	138	14	36	18
8+940.0	483	47	137	137	7	0	17
8+960.0	524	48	137	137	0	0	15
8+978.4	727	32	193	193	0	0	9
9+000.0	779	37	214	214	0	0	12
9+020.0	461	48	114	114	0	0	16
9+023.0	74	5	17	17	0	0	2
9+040.0	385	32	105	105	3	4	11
9+052.6	294	24	127	127	4	7	6
9+060.0	187	15	79	79	3	5	4
9+080.0	423	54	139	139	10	29	16
9+082.3	44	5	14	14	1	5	2
9+100.0	312	35	106	106	11	39	13
9+120.0	273	52	117	117	12	53	16
9+140.0	248	50	114	114	12	55	15
9+160.0	285	50	119	119	9	31	15
9+180.0	344	54	131	131	4	11	17
9+200.0	427	58	138	138	3	8	21
9+220.0	463	58	138	138	4	8	20
9+240.0	446	55	138	138	4	7	18
9+260.0	533	53	153	153	1	3	15
9+265.9	217	11	66	66	0	0	4
9+280.0	451	25	144	144	0	0	10
9+300.0	446	50	121	121	0	0	17
9+320.0	481	53	116	116	0	0	21
9+340.0	508	56	116	116	1	2	24

EARTHWORK TABULATION

STATION	EXCAVATION COMMON	EXCAVATION TOPSOIL STRIPPING	EXCAVATION SUBGRADE	EMBANKMENT SUBGRADE BACKFILL	EMBANKMENT SUBGRADE SUITABLE	EMBANKMENT SELECT GRANULAR	EMBANKMENT SLOPE DRESSING
	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)
9+360.0	517	62	115	115	4	5	29
9+380.0	509	62	115	115	9	26	29
9+400.0	354	73	108	108	270	75	39
9+420.0	204	75	86	86	428	295	47
9+440.0	163	68	88	68	348	548	40
9+460.0	141	73	64	64	389	598	40
9+480.0	152	73	66	66	348	603	40
9+500.0	168	74	76	76	264	604	40
9+520.0	164	69	94	94	237	497	34
9+532.8	141	34	102	102	143	233	16
9+540.0	63	20	63	63	86	115	8
9+560.0	80	71	108	108	274	418	28
9+580.0	116	70	83	83	220	512	30
9+600.0	223	52	104	104	131	389	24
9+607.0	88	14	36	36	47	110	7
9+615.5	83	16	41	41	38	145	10
9+620.0	29	6	17	17	20	48	4
9+631.5	246	12	105	105	67	83	7
9+640.0	231	9	92	92	0	0	2
9+660.0	422	49	170	170	0	2	14
9+680.0	389	53	159	159	9	27	18
9+700.0	401	53	159	159	17	63	18
9+720.0	444	54	159	159	17	68	20
9+740.0	436	55	160	160	15	47	19
9+760.0	476	52	149	149	13	19	17
9+780.0	573	49	131	131	6	2	17
9+800.0	653	48	125	125	0	0	19
9+813.8	499	23	83	83	0	0	13
9+820.0	226	10	36	36	0	0	6
9+840.0	628	49	115	115	0	2	21
9+860.0	551	48	117	117	0	4	21
9+880.0	504	46	125	125	0	4	18
9+900.0	430	47	140	140	9	16	17
9+920.0	352	58	150	150	20	59	25
9+940.0	307	61	144	144	22	90	26
9+960.0	286	57	131	131	24	98	20
9+980.0	263	56	124	124	19	94	18
10+000.0	245	54	137	137	11	71	17
10+014.9	273	33	156	156	4	22	10
10+020.0	107	9	68	68	0	0	3
10+040.0	176	53	155	155	30	231	23
10+060.0	0	78	24	24	233	677	35
10+080.0	0	87	0	0	743	987	44
10+100.0	0	102	0	0	1452	1075	59
10+120.0	0	118	0	0	2168	1068	71
10+140.0	0	124	0	0	2829	1051	77
10+160.0	0	135	0	0	3496	1055	87
10+180.0	0	132	0	0	3823	1138	94
10+200.0	0	118	0	0	2712	1158	79
10+220.0	4	114	0	0	1592	1158	93
10+240.0	4	105	0	0	1908	1044	105
10+260.0	0	77	0	0	1563	797	100
10+280.0	0	49	0	0	474	437	124
10+283.7	0	7	0	0	14	31	25
SUBTOTAL	29309	5215	10822	10822	27555	20073	2719
CSAH 17 (LEXINGTON AVE) NORTH OF I-35W							
10+360.0							
10+380.0	0	83	0	0	1335	694	108
10+400.0	0	88	0	0	1894	964	100
10+420.0	0	87	0	0	2028	1176	107
10+440.0	0	83	0	0	2669	1304	104

EARTHWORK TABULATION

STATION	EXCAVATION COMMON	EXCAVATION TOPSOIL STRIPPING	EXCAVATION SUBGRADE	EMBANKMENT SUBGRADE BACKFILL	EMBANKMENT SUBGRADE SUITABLE	EMBANKMENT SELECT GRANULAR	EMBANKMENT SLOPE DRESSING
	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)
10+460.0	0	92	0	0	3146	1254	95
10+480.0	0	108	0	0	3406	1200	105
10+500.0	0	111	0	0	3171	1142	100
10+520.0	0	100	0	0	2591	1120	90
10+540.0	0	89	0	0	2009	1097	79
10+560.0	0	75	0	0	1356	1062	66
10+580.0	0	58	0	0	629	1023	52
10+600.0	0	47	1	1	160	801	42
10+620.0	8	42	79	79	54	416	38
10+639.2	166	20	192	192	18	112	23
10+653.4	234	0	174	174	0	0	5
10+660.0	102	0	73	73	0	0	3
SUBTOTAL	510	1083	519	519	24166	13365	1118
COUNTY ROAD 10 (NORTH ROAD)							
8+035.0						0	
8+040.0	84	4	19	19	0	0	3
8+060.0	265	15	69	69	0	0	11
8+075.0	130	6	47	47	0	0	6
8+080.0	35	2	16	16	0	0	1
8+100.0	103	6	63	63	0	0	5
8+105.0	19	1	16	16	0	0	1
SUBTOTAL	636	34	230	230	0	0	27
SE RAMP							
18+253.9					0		
18+260.0	13	2	6	6	0	0	2
18+280.0	43	5	23	23	0	0	6
18+300.0	43	9	30	30	4	4	8
18+320.0	40	14	37	37	8	14	10
18+340.0	36	16	40	40	7	20	8
18+360.0	36	17	41	41	6	18	6
18+380.0	40	18	45	45	4	15	5
18+400.0	48	20	50	50	6	21	6
18+422.0	43	24	46	46	11	36	7
=							
3+000.0							
3+020.0	27	23	28	28	13	48	9
3+040.0	25	24	24	24	16	76	12
3+060.0	20	26	15	15	20	126	17
3+080.0	19	29	4	4	44	209	24
3+100.0	22	32	0	0	131	292	31
3+120.0	30	40	0	0	318	344	38
3+140.0	42	49	0	0	583	365	45
3+160.0	36	58	0	0	918	386	53
3+180.0	24	73	0	0	1283	424	63
3+200.0	20	85	0	0	1505	454	68
3+220.0	15	92	0	0	1508	466	71
3+240.0	17	96	0	0	1380	446	78
3+260.0	8	94	0	0	1439	484	90
3+280.0	0	58	0	0	852	505	98
SUBTOTAL	647	904	389	389	10056	4753	755
NE RAMP							
30+020.0							
30+040.0	0	78	0	0	1201	819	82
30+060.0	0	100	0	0	1766	707	101
30+080.0	0	99	4	4	1434	374	104

NO.	DATE	BY	CKD	APPR	REVISION

NAME: EWT1410.PLN DATE: Mar. 17, 1997

Minnesota Department of Transportation

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg. No. 23347

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0252410

SRF Consulting Group, Inc.

ANOKA COUNTY
EARTHWORK TABULATION
C.S.A.H. 17 RECONSTRUCTION

SHEET 8 OF 236

(S) EARTHWORK TABULATION

STATION	EXACAVATION			EMBANKEMENT			
	COMMON	TOPSOIL STRIPPING	SUBGRADE	SUBGRADE BACKFILL	SUITABLE	SELECT GRANULAR	SLOPE DRESSING
	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)	(m3)
30+100.0	12	86	22	22	576	208	95
30+120.0	57	75	40	40	244	118	82
30+140.0	112	64	45	45	140	90	70
30+160.0	147	55	45	45	64	88	61
30+170.0	80	22	22	22	20	45	23
SUBTOTAL	408	579	178	178	5445	2447	618
NW RAMP							
19+178.0					0		
19+200.0	192	42	48	48	10	42	27
19+220.0	193	40	51	51	9	32	24
19+240.0	188	39	44	44	8	32	25
19+260.0	156	36	40	40	8	28	24
19+280.0	112	30	37	37	6	22	21
19+300.0	60	20	34	34	6	17	14
19+320.0	32	12	29	29	8	8	10
19+340.0	33	11	24	24	9	0	10
19+346.1	10	3	7	7	3	0	3
5+000.0							
5+020.0	164	37	32	32	10	48	28
5+040.0	170	36	28	28	11	58	34
5+060.0	180	38	19	19	14	86	37
5+080.0	185	40	7	7	19	164	40
5+100.0	197	47	0	0	59	285	46
5+120.0	198	56	0	0	191	354	52
5+140.0	191	63	0	0	391	354	59
5+160.0	179	70	0	0	608	345	64
5+180.0	151	77	0	0	788	350	70
5+200.0	159	81	0	0	900	367	79
5+220.0	160	85	0	0	874	375	88
5+240.0	136	88	0	0	825	369	88
5+260.0	108	90	0	0	1029	373	92
5+280.0	41	60	0	0	728	426	94
SUBTOTAL	3195	1101	400	400	6505	4135	1029
SW RAMP							
40+040.0			0	0			
40+060.0	10	91	0	0	1678	796	101
40+080.0	6	92	0	0	1667	838	107
40+100.0	19	95	0	0	1507	753	106
40+120.0	59	102	0	0	1224	599	101
40+140.0	93	109	5	5	1104	457	100
40+160.0	102	95	30	30	772	236	90
40+180.0	109	75	49	49	335	94	73
40+200.0	135	63	46	46	159	89	51
40+205.0	39	14	11	11	15	22	14
SUBTOTAL	572	736	141	141	8461	3884	753
MISCELLANEAOUS GRADING PLANS							
A	12733	559					559
B	19563						320
I-35W MEDIAN		148					148
SUBTOTAL	32296	707	0	0		0	1027
TOTAL	67573	10359	12679	12679	82488	48657	8046

(1) EARTHWORK SUMMARY

EXCAVATION m3 (EV)

(2)	COMMON	45636	
(5)	SUBGRADE	20179	
(6)	SPECIAL	32296	SUITABLE GRADING

EMBANKMENT m3 (CV)

	SUITABLE GRADING	83233		
	SUBGRADE BACKFILL	12679		
(5)	SELECT GRANULAR	56157	81450	(LV)
	SELECT GRANULAR (MOD 10%)	3150	4560	(LV)
	TOPSOIL	8046	8046	(LV)

BORROW m3 (CV)

	SELECT GRANULAR (MOD 10%)	3150	4560	(LV)
(5)	SELECT GRANULAR	56157	81450	(LV)
(3)	COMMON	30388	44100	(LV)

SUITABLE GRADING

	SUITABLE GRADING	31118
(4)	PAVEMENT REMOVAL	4159
	TOPSOIL	10359

NOTES:

SEE CONSTRUCTION/SOIL NOTES FOR MATERIAL DEFINITIONS AND ADDITIONAL INFORMATION.

(1) 120% SHRINKAGE FACTOR USED FROM EXCAVATED VOLUME (EV) TO COMPACTED VOLUME (CV), EXCEPT FOR TOPSOIL.
145% SHRINKAGE FACTOR USED FROM LOOSE VOLUME (LV) TO COMPACTED VOLUME (CV), EXCEPT FOR TOPSOIL. SHRINKAGE FACTORS ARE ASSUMMED 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 THE SHRINKAGE FACTOR.

(2) INCLUDES TOPSOIL STRIPPING (ASSUMED TO BE 100 mm THICK). PAY QUANTITY INCREASED BY 1819 m3 FOR REMOVAL OF TEMPORARY WIDENING CONSTRUCTED UNDER STAGE I TRAFFIC CONTROL PLANS.

(3) COMMON BORROW QUANTITY INCLUDES 170 m3 FOR PLASTIC SOILS CAP AT BOX CULVERT.

(4) TO BE PAID UNDER SEPERATE ITEMS.

(5) QUANTITY INCLUDES 7500 m3 (CV) FOR SUBGRADE CORRECTION.

(6) SPECIAL EXCAVATION CONSISTS OF PONDS A AND B. ASSUMED TO BE SUITABLE GRADING MATERIAL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: EWT2 410.PLN DATE: Mar. 17, 1997

minnesota dnr

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0952410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
EARTHWORK SUMMARY AND TABULATION
C.S.A.H. 17 RECONSTRUCTION

(A) CLEARING & GRUBBING

STATION	TO STATION	OFFSET LEFT	OFFSET RIGHT	CLEARING TREE	CLEARING HECTARE	GRUBBING TREE	GRUBBING HECTARE	REMARK
NB CSAH 17								
8+389.1			7.2	1		1		
8+391.2			8.4	1		1		
8+438.8		24.0		1		1		
8+461.5		17.1		1		1		
8+467.1		17.2		1		1		
8+481.0		17.6		1		1		
8+487.2		17.9		1		1		
8+495.8		19.4		1		1		
8+504.5		15.4		1		1		
8+506.4		17.6		1		1		
8+508.0		15.8		1		1		
8+511.6		17.1		1		1		
8+516.0		20.2		1		1		
8+528.4		17.9		1		1		
8+533.9		16.1		1		1		
8+536.9			12.7	1		1		
8+538.3		24.3		1		1		
8+545.8		23.2		1		1		
8+550.1		23.5		1		1		
8+551.3		17.0		1		1		
8+554.1		17.7		1		1		
8+562.0		22.8		1		1		
8+575.9		17.8		2		2		
8+576.0		14.7 - 31.5						HEDGES
8+583.4	8+601.4	14.1 - 16.6						HEDGES
8+584.5		17.7		1		1		
8+597.7			2.5	1		1		
8+602.2			2.6	2		2		
8+606.2		18.3		1		1		
8+613.3			2.6	1		1		
8+618.5		16.0		1		1		
8+622.5			3.2	2		2		
8+621.6		20.0		1		1		
8+624.4		17.4		1		1		
8+629.3		17.6		1		1		
8+623.2			3.5	1		1		
8+629.0		24.0		2		2		
8+635.4			4.3	2		2		
8+635.8		13.2 - 24.9						HEDGES
8+636.0		15.0		1		1		
8+637.9		20.8		1		1		
8+643.2		24.0		1		1		
8+644.4		15.9		1		1		
8+651.2		15.9		1		1		
8+653.3			3.6	1		1		
8+655.0		18.3		1		1		
8+655.8			3.8	3		3		
8+658.1		16.5		1		1		
8+659.5		15.7		1		1		
8+661.1			3.1	1		1		
8+665.8			6.0	1		1		
8+677.3		18.9		1		1		
8+677.7		23.7		1		1		
8+690.8		20.2		1		1		
8+695.4		16.8		4		4		
8+705.4		21.6		1		1		

(A) CLEARING & GRUBBING

STATION	TO STATION	OFFSET LEFT	OFFSET RIGHT	CLEARING TREE	CLEARING HECTARE	GRUBBING TREE	GRUBBING HECTARE	REMARK
8+705.8		16.4		1		1		
8+707.5		20.9		1		1		
8+708.1		14.5		1		1		
8+710.3		14.7		1		1		
8+711.1		17.6		1		1		
8+712.2	8+727.3	14.8		12		12		
8+714.6		17.9		1		1		
8+715.7		24.9		1		1		
8+718.3		22.5		1		1		
8+719.6		18.0		1		1		
8+724.6		19.5		1		1		
8+741.4		20.7		1		1		
8+728.4	8+754.5	14.8						HEDGES
8+753.8		16.4 - 25.4						HEDGES
8+759.4	8+778.2	15.8						HEDGES
8+759.7		16.7 - 25.4						HEDGES
8+762.9		21.4		1		1		
8+732.0			9.7	1		1		
8+737.2			9.7	1		1		
8+747.1			10.4	1		1		
8+753.9			9.3	1		1		
8+786.5	8+788.5	16.0 - 21.3						LANDSCAPING
8+788.4		23.5		1		1		
8+795.9		22.5		1		1		
8+796.3		17.1		1		1		
8+809.7			12.5	1		1		
8+811.6		25.0		1		1		
8+816.0	8+819.4	16.9 - 19.8						LANDSCAPING
8+819.6		16.5		1		1		
8+819.8		22.4		1		1		
8+820.4		25.7		1		1		
8+820.8			7.2	1		1		
8+834.8			5.5	1		1		
8+844.8			9.9	1		1		
8+862.6			5.7	1		1		
8+891.1			6.1	1		1		
8+898.3			6.3	1		1		
8+900.7			11.7	1		1		
8+907.1			8.0	1		1		
8+910.3			13.5	1		1		
8+842.9	8+[illegible]2.9	13.9 - 76.0			0.42		0.42	
8+822.9	8+832.9		11.5 - 21.5		0.02		0.02	
8+918.0	8+965.3	14.4 - 76.0			0.3		0.3	
8+933.9			11.4	1		1		
8+936.9			5.7	1		1		
8+938.7			7.0	1		1		
8+941.9			8.2	1		1		
8+944.0			6.5	1		1		
8+949.2			5.9	1		1		
8+952.6			9.5	1		1		
8+961.6			5.3	1		1		
8+963.3			7.8	1		1		
8+964.3			6.0	1		1		
8+970.8			8.0	1		1		
8+973.0			8.1	1		1		
8+981.8			7.3	1		1		
8+982.2			8.5	1		1		

(A) CLEARING & GRUBBING

NO	DATE	BY	CKD	APPR	REVISION

NAME: TAB1410.PLN DATE: Mar. 17, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	2-97

COMM. NO. 0262410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

(A) CLEARING & GRUBBING

STATION	TO STATION	OFFSET LEFT	OFFSET RIGHT	CLEARING TREE	CLEARING HECTARE	GRUBBING TREE	GRUBBING HECTARE	REMARK
9+674.5			8.0	1		1		
9+677.5			8.6	1		1		
9+680.0		18.6		1		1		
9+680.6		29.7		1		1		
9+683.6			8.4	1		1		
9+686.5		18.6		1		1		
9+689.8			8.5	1		1		
9+691.0		29.0		1		1		
9+691.4		19.5		1		1		
9+698.9		20.3		1		1		
9+703.5			8.8	1		1		
9+706.3		20.0		1		1		
9+754.5			5.4	1		1		
9+758.7			6.4	1		1		
9+738.4	9+760.4	18.3 - 25.1			0.02		0.02	
9+772.4	9+785.7	19.6 - 25.3			0.02		0.02	
9+790.3			8.3	1		1		
9+796.4			8.7	1		1		
9+802.6			8.5	1		1		
9+808.7			8.5	1		1		
9+818.1			8.3	1		1		
9+821.1			8.0	1		1		
9+824.0			8.4	1		1		
9+826.8			7.9	1		1		
9+833.0			8.0	1		1		
9+833.0		20.4		1		1		
9+836.1			8.2	1		1		
9+839.1			8.0	1		1		
9+842.0			8.2	1		1		
9+845.0			8.1	1		1		
9+851.3			7.9	1		1		
9+854.4			8.3	1		1		
9+857.5			8.1	1		1		
9+860.5			8.3	1		1		
9+863.3		20.6		1		1		
9+863.6			7.8	1		1		
9+866.1			8.2	1		1		
9+869.7			8.1	1		1		
9+872.5			7.6	1		1		
9+878.3		20.1		1		1		
9+886.7			6.2	1		1		
9+889.5			6.2	2		2		
9+894.3		19.7		1		1		
9+897.1			8.3	1		1		
9+900.1			8.3	1		1		
9+903.2			7.9	1		1		
9+906.2			8.2	1		1		
9+909.2			7.9	1		1		
9+312.2			15.1	1		1		
9+912.2			8.3	1		1		
9+915.5			8.0	1		1		
9+918.7			8.7	1		1		
9+922.4			8.0	1		1		
9+925.6			8.8	1		1		
9+931.8			9.2	1		1		
9+935.3			8.5	1		1		
9+938.2			9.4	1		1		

(A) CLEARING & GRUBBING

STATION	TO STATION	OFFSET LEFT	OFFSET RIGHT	CLEARING TREE	CLEARING HECTARE	GRUBBING TREE	GRUBBING HECTARE	REMARK
8+987.4			8.3	1		1		
8+989.9			8.9	1		1		
8+990.4			4.8	1		1		
8+990.5			8.7	1		1		
8+990.7	8+996.3	19.2 - 23.4			0.02		0.02	
8+991.2			8.4	1		1		
8+992.6			8.6	1		1		
8+992.8			4.9	1		1		
8+996.4			8.5	1		1		
8+999.5			8.7	1		1		
9+001.1			8.7	1		1		
9+004.5			8.9	1		1		
9+008.6			9.2	1		1		
9+013.1			10.2	1		1		
9+016.7			7.7	1		1		
9+018.8			6.7	2		2		
9+036.0	9+157.0	18.8 - 24.5			0.06		0.06	
9+036.2			4.7	1		1		
9+042.2			4.3	1		1		
9+042.9			10.4	1		1		
9+043.3			8.5	1		1		
9+066.1			4.9	2		2		
9+073.5			5.6	1		1		
9+077.5			5.8	1		1		
9+226.0	9+257.0	16.0 - 24.5			0.02		0.02	
9+087.7			11.6	1		1		
9+275.2	9+323.1	14.0 - 26.3			0.04		0.04	
9+344.0	9+358.2	20.5 - 23.0			0.02		0.02	
9+089.6	9+404.5	2.0 - 24.0			0.38		0.38	
9+367.5		20.5		1		1		
9+409.3		22.8		1		1		
9+431.7			21.3	1		1		
9+432.2			13.9	2		2		
9+549.9	9+585.6	15.9 - 28.0			0.04		0.04	
9+554.7	9+577.9		19.9 - 21.7		0.02		0.02	
9+594.5			21.0	1		1		
9+600.0			21.0	1		1		
9+604.2			21.0	1		1		
9+608.6			21.0	1		1		
9+618.0			21.0	1		1		
9+619.5			23.0	1		1		
9+622.1			22.0	1		1		
9+643.0	9+656.0		6.0 - 19.0					SHRUBS
9+622.0		23.2		1		1		
9+636.4		18.2						LANDSCAPING
9+650.9		21.2		1		1		
9+653.0		26.7		1		1		
9+655.5		20.4		1		1		
9+656.4			8.2	1		1		
9+659.0		25.6		1		1		
9+662.2		21.9		1		1		
9+665.3			8.5	1		1		
9+666.4		16.9		1		1		
9+666.6		20.5		1		1		
9+666.7		25.1		1		1		
9+668.3			7.8	1		1		
9+671.3			8.5	1		1		

(A) CLEARING & GRUBBING

NO	DATE	BY	CKD	APPR	REVISION

NAME: TAB2 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE NO. PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	2-97

COMM. NO. 026210

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

SHEET 11 OF 236

(A) CLEARING & GRUBBING

STATION	TO STATION	OFFSET LEFT	OFFSET RIGHT	CLEARING TREE	CLEARING HECTARE	GRUBBING TREE	GRUBBING HECTARE	REMARK
9+941.6			9.0	1		1		
9+945.1			9.6	1		1		
10+034.6			14.7	1		1		
10+058.2			12.4	1		1		
10+060.7			14.3	1		1		
10+066.2			8.6	1		1		
10+080.0			11.4	1		1		
10+080.6			15.4	1		1		
10+081.6		29.8		1		1		
10+087.2			19.5	1		1		
10+027.9	10+046.2		10.0 - 15.0					LANDSCAPING
10+080.6	10+085.0		17.8 - 21.2					LANDSCAPING
10+233.2		20.9		1		1		
10+267.7			18.3	1		1		
10+282.7			23.7	1		1		
10+287.4			21.3	1		1		
10+289.1			19.1	1		1		
10+298.5			13.6	1		1		
10+377.4		24.2		1		1		
10+383.1		24.5		1		1		
10+387.4		31.2		1		1		
10+425.2	10+517.6	28.4 - 71.1			0.26		0.26	
10+283.2		31.4		1		1		
10+590.4		34.0		1		1		
10+593.7		34.0		1		1		
10+597.3		34.2		1		1		
10+601.3		34.2		1		1		
10+604.9		34.0		1		1		
10+609.0		33.5		1		1		
WEST ROAD (SOUTH)								
				3		3		
TOTAL				257	1.64	257	1.64	

NOTES: TREES WITHIN THE CONSTRUCTION LIMITS WILL BE DESIGNATED FOR REMOVAL BY THE ENGINEER.
ALL TREES TO BE TRANSPLANTED WILL BE TRANSPLANTED BY OTHERS.
REMOVAL OF MISCELLANEOUS SHRUBS AND LANDSCAPING SHALL BE CONSIDERED INCIDENTAL.

(B) DRAINAGE REMOVALS

ALIGNMENT	STATION TO STATION	OFFSET LEFT (meter)	OFFSET RIGHT (meter)	REMOVE STRUCTURE (EACH)	REMOVE APRON (EACH)	REMOVE PIPE (meter)	REMARK
NB CSAH 17	8+436.0	24.0		1			CB
NB CSAH 17	8+511.0		3.0	1			MH
NB CSAH 17	8+511.0		1.0 - 3.0			11.0	12" RCP
NB CSAH 17	8+519.0	12.0		1			CB
NB CSAH 17	8+521.0	12.0		1			CB
NB CSAH 17	8+522.0		1.0	1			CB
NB CSAH 17	8+519.0 8+521.0	12.0				2.0	15" RCP
NB CSAH 17	8+527.0		5.0		1		12" RCP
NB CSAH 17	8+522.0 8+527.0		1.0 - 4.0			5.0	12" RCP
NB CSAH 17	8+541.0		6.0		1		12"
NB CSAH 17	8+541.0 8+548.0		6.0			7.0	12"
NB CSAH 17	8+548.0		6.0		1		12"
NB CSAH 17	8+521.0 8+547.0	12.0 - 14.0				26.0	
NB CSAH 17	8+547.0	14.0		1			
NB CSAH 17	8+547.0 8+547.5	14.0 - 20.0				6.0	
NB CSAH 17	8+547.5	20.0		1			
NB CSAH 17	8+547.0 8+558.0	20.0 - 25.5				13.0	
NB CSAH 17	8+911.0 8+921.0	15.0				10.0	6"
NB CSAH 17	8+966.0	16.0			1		15" CMP
NB CSAH 17	8+966.0 8+994.0	16.0				28.0	15"
NB CSAH 17	8+994.0	16.0			1		15" CMP
NB CSAH 17	9+519.0 8+546.0	17.0				27.0	15"
NB CSAH 17	9+593.0	16.0			1		15" CMP
NB CSAH 17	9+593.0 9+608.0	16.0				15.0	15" CMP
NB CSAH 17	9+608.0	16.0			1		15" CMP
NB CSAH 17	9+612.0 9+619.0	17.0	4.0 - 7.0			16.0	TIMBER BOX (DOUBLE 5' x 5')
NB CSAH 17	9+617.0		9.0		1		21" RCP
NB CSAH 17	9+617.0		7.0		1		30" RCP
NB CSAH 17	9+617.0 9+647.0		4.0 - 9.0			28.0	21" RCP
NB CSAH 17	9+617.0 9+649.0		1.5 - 7.0			31.0	30" RCP
NB CSAH 17	9+647.0		4.0	1			MH
NB CSAH 17	9+647.0		4.0 - 12.0			6.0	21" RCP
NB CSAH 17	9+647.0		12.0		1		21" RCP
NB CSAH 17	9+649.0		1.5	1			MH
NB CSAH 17	9+649.0		1.5			9.0	30" RCP
NB CSAH 17	9+649.0		12.0		1		30" RCP
NB CSAH 17	9+807.0 9+820.0	17.0				13.0	6" CMP
NB CSAH 17	10+003.0 10+027.0		6.0			24.0	30" RCP
NB CSAH 17	10+085.0 10+102.0		6.0			17.0	18"
NB CSAH 17	10+267.0		0.5	1			CB
NB CSAH 17	10+267.0	8.0		1			CB
NB CSAH 17	10+380.0		0.5	1			CB
NB CSAH 17	10+380.0	8.0	0.1	1			CB
SB 35W	18+804.0	13.0			1		24" RCP
SB 35W	18+815.0	14.0			1		24"
SB 35W	18+815.0 18+873.0	14.0 - 15.0				58.0	24"
SB 35W	18+873.0	15.0			1		24"
NB 35W	18+608.0		10.0		1		24" RCP
NB 35W	18+800.0		10.0		1		24" RCP
NB 35W	18+802.0 18+835.0	12.0	10.0			33.0	18" CMP
NB 35W	18+835.0	12.0			1		18" CMP
SE RAMP	3+121.0	3.0		1			CB
SE RAMP	3+121.0	3.0	2.0			6.0	12"
SE RAMP	3+136.0	2.0		1			CB
SE RAMP	3+136.0	2.0	4.0			6.0	12"
SE RAMP	3+187.0	11.0			1		18"
SE RAMP	3+184.0 3+187.0	11.0	11.0			22.0	18"
SE RAMP	3+194.0		4.0	1			CB
SE RAMP	3+194.0		4.0 - 15.0			11.0	12"
NW RAMP	4+991.0		1.0		1		18"
NW RAMP	5+110.0	3.0		1			CB
NW RAMP	5+110.0	3.0	3.0			6.0	12" CMP
NW RAMP	5+125.0	2.0		1			CB
NW RAMP	5+125.0	2.0	4.0			6.0	18" CMP
NW RAMP	5+183.0		4.0	1			CB
NW RAMP	5+183.0		4.0 - 15.0			11.0	12"
NW RAMP	5+204.0	13.0			1		24" RCP
NW RAMP	5+192.0 5+204.0	13.0	15.0			29.0	24" RCP
SW RAMP	40+133.0	17.0			1		30" RCP
SW RAMP	40+133.0 40+146.0	17.0	18.0			35.0	30" RCP
SW RAMP	40+146.0		18.0		1		30" RCP
SW RAMP	40+175.0		3.6	1			CB
SW RAMP	40+175.0		3.6 - 15.0			12.0	12"
SW RAMP	40+175.0		15.0		1		12"
NE RAMP	30+163.0		4.0	1			CB
TOTAL				21	23	529.0	

NOTE:
REMOVAL OF TIMBER BOX CULVERT TO BE PAID UNDER SEPERATE ITEM . REMOVAL OF WING WALLS IS CONCIDERED INCIDENTAL

(A) CLEARING & GRUBBING
(B) DRAINAGE REMOVALS

NO	DATE	BY	CKD	APPR	REVISION

NAME: TAB3 410.PLN DATE: Mar. 17, 1997

minnesota | metric

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg No 23377

STATE NO.
PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 2-97
COMM. NO. 0252410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

SHEET 12 OF 236

(C) PAVEMENT REMOVALS

NOTES	LOCATION	REMOVE CURB & GUTTER (meter)	REMOVE BITUMINOUS PAVEMENT 3 (m2)	REMOVE CONCRETE PAVEMENT 2 (m2)	SAWING BITUMINOUS PAVEMENT (meter)	SAWING CONCRETE PAVEMENT (meter)
	CSAH 17 (SOUTH OF BR)	271	21910		55	
	CSAH 17 (NORTH OF BR)	424	6380		31	
	EDGEWOOD RD	24	240		8	
	WEST RD (SOUTH)	58	340		10	
	WEST RD (NORTH)	40	350		10	
	97th LANE	70	440		9	
	99th LANE	38	530		9	
	AUSTIN ST	30	280		9	
	CR 10		1070		10	
	BALL RD		340		7	
	PHEASANT RIDGE DR		350		18	
	SE RAMP		370	2800		270
	NE RAMP			1110		6
	NW RAMP		320	2660		250
	SW RAMP			1240		6
1	NB I-35W		640			
1	SB I-35W		680			
	TOTAL	955	34240	7810	176	542

NOTES:
1 QUNTITY FOR USE IN RECONSTRUCTING I-35W MEDIAN SHOULDERS AS PART OF TRAFFIC STAGING PLANS.
2 QUANTITY INCLUDES CONCRETE CURB & GUTTER.
3 QUANTITY FOR CSAH 17 (SOUTH OF BRIDGE) INCLUDES 5890 m2 FOR TEMPORARY PAVEMENT PLACED AS PART OF STAGING PLANS.

(D) MAILBOXES

ALIGNMENT	STATION	OFFSET LT	OFFSET RT	ADDRESS	RELOCATE (EACH)	REMARK
NB CSAH 17	8+562.0		1.5	9507	1	MAILBOX
SB CSAH 17	8+576.0	0.5		9480	1	MAILBOX
SB CSAH 17	8+613.0		1.0	9500	1	MAILBOX
SB CSAH 17	8+643.0		1.1	9508	1	MAILBOX
SB CSAH 17	8+674.0		0.5	9516	1	MAILBOX
SB CSAH 17	8+703.0		2.0	9532	1	MAILBOX
SB CSAH 17	8+753.0		0.5	9546	1	MAILBOX
SB CSAH 17	8+772.0		0.5	9560	1	MAILBOX
PROJECT TOTALS:					8	

NOTES: INSTALL MAIL BOXES TO LOCATIONS DESIRED BY THE OWNER.

(E) RETAINING WALL & PLANTER BOX CONSTRUCTION

ALIGNMENT	STATION TO STATION	OFFSET LT	OFFSET RT	ADDRESS	REMOVE (meter)	SALVAGE (meter)	INSTALL (meter)	FURNISH & INSTALL CONCRETE BLOCK WALL (m2)	REMARK
SB CSAH 17	8+755.0	1.5 - 16.5		9546	15.0				TIMBER WALL
SB CSAH 17	8+780.0	5.0 - 12.0		9560		7.0	7.0		TIMBER PLANTER BOX & ROCKS
NB CSAH 17	8+785.5 8+797.2		10.2					13.0	WALL A
SB CSAH 17	8+786.3 8+788.4	2.8 - 8.5		9560		14.1	14.1		TIMBER PLANTER BOX
NB CSAH 17	8+793.1 8+795.5		8.8 - 10.5	1	4.5				TIMBER WALL
NB CSAH 17	8+959.3 8+979.2		10.2					22.0	WALL B
NB CSAH 17	9+062.0		8.0			6.0	6.0		CONCRETE BLOCK BBQ
NB CSAH 17	9+409.1 9+411.7		9.0 - 21.0		9.0				CONCRETE WALL
SB CSAH 17	9+605.5 9+611.5	7.7						12.0	WALL C
SB CSAH 17	9+635.4 9+638.5	3.3 - 6.0		10102		9.9	9.9		TIMBER PLANTER BOX
PROJECT TOTALS:					28.5	37.0	37.0	47.0	

NOTES: INSTALL SALVAGED TIMBER PLANTER BOXES TO LOCATIONS DESIRED BY THE OWNER.

(F) DRIVEWAY CONSTRUCTION

NOTES	ALIGNMENT	STATION	ADDRESS	LT	RT	EXISTING SURFACING	REMOVAL (m2)	DRIVEWAY WIDTH (meter)	AGGREGATE DRIVES (t)	BITUMINOUS PAVEMENT (m2)
	NB CSAH 17	8+427.7			X	BITUMINOUS	92	10.0		86
	NB CSAH 17	8+500.0			X	BITUMINOUS	272	9.0		198
	NB CSAH 17	8+547.5	9507		X	BITUMINOUS	74	3.6		52
	NB CSAH 17	8+567.3	4175	X		BITUMINOUS	130	6.8		52
	NB CSAH 17	8+580.0	9480	X		BITUMINOUS	274	5.0		96
	NB CSAH 17	8+610.5	9500	X		AGGREGATE		4.8	18	16
	NB CSAH 17	8+664.0	9508	X		AGGREGATE		4.0	3	13
	NB CSAH 17	8+671.0	9516	X		AGGREGATE		5.0	2	16
	NB CSAH 17	8+700.0	9532	X		AGGREGATE		3.3	8	11
	NB CSAH 17	8+700.0			X	BITUMINOUS	220	6.3		155
	NB CSAH 17	8+756.8	9546	X		AGGREGATE		2.5	8	9
1	NB CSAH 17	8+783.5	9560	X		BITUMINOUS	104	6.3		40
	WEST ROAD	2+026.0	2		X	BITUMINOUS	16	3.0		5
	WEST ROAD	2+026.0	1	X		BITUMINOUS	155	5.8		24
2	NB CSAH 17	8+913.0	9564	X		BITUMINOUS	87			
2	NB CSAH 17	8+915.1		X		AGGREGATE				
	NB CSAH 17	9+023.0	GAS SUBSTATION	X		AGGREGATE		3.6	6	12
3	NB CSAH 17	9+082.3	95		X	AGGREGATE		2.7	31	10
	NB CSAH 17	9+500.0	LIFT STATION	X		BITUMINOUS	145	6.8		22
	NB CSAH 17	9+631.5	10102	X		BITUMINOUS	154	5.3		19
2	NB CSAH 17	9+313.8		X		AGGREGATE				
2	NB CSAH 17	10+094.3	10333 - 10345		X	BITUMINOUS	754			
	CR 10	8+074	GALILEE CHURCH		X	BITUMINOUS	54	7.2		54
	TOTAL						2531		76	910

NOTES:
AGGREGATE DRIVE SURFACING SHALL BE 175 mm THICK.
BITUMINOUS DRIVEWAY PAVEMENT SHALL BE A MINIMUM OF 100 mm THICK. QUANTITY INCLUDES 100 mm AGGREGATE BASE CLASS 5A.
BITUMINOUS DRIVE APRONS SHALL EXTEND 3 m FROM FACE OF CURB AND SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN ON STD PL M7035.
1 BEGIN DRIVEWAY PROFILE AT FACE OF CURB.
2 CLOSE DRIVEWAY.
3 REALIGN DRIVE TO WEST ROAD.

(C) PAVEMENT REMOVALS
(D) MAILBOXES
(E) RETAINING WALL & PLANTER BOX CONSTRUCTION
(F) DRIVEWAY CONSTRUCTION

NO	DATE	BY	CKD	APPR	REVISION

NAME: TAB4 400.PLN DATE: Mar. 17, 1997

minnesota | metric

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 2-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

SHEET 13 OF 236

(G) WALK and CURB & GUTTER CONSTRUCTION

NOTES	LOCATION	100 mm CONCRETE WALK (m2)	150 mm CONCRETE WALK (m2)	50 mm BITUMINOUS WALK (m2)	B612 C & G 1 (meter)	B618 C & G (meter)	B418 C & G 2 (meter)	D424 C & G (meter)	SURMOUNTABLE C & G (meter)
	CSAH 17 (SOUTH OF BR)	3870	25	8200	2590	3670	55		
	CSAH 17 (NORTH OF BR)	965	7	730	500	480	65		
	EDGEWOOD RD								10
	WEST RD (SOUTH)								35
	WEST RD (NORTH)								25
	97th LANE								55
	99th LANE								25
	AUSTIN ST								10
	CR 10					160			
	BALL RD								
	PHEASANT RIDGE DR								
	SE RAMP	30	6			25			
	NE RAMP							305	
	NW RAMP	30	6			25			
	SW RAMP							350	
	NB I-35W								
	SB I-35W								
	TOTAL	4895	44	8930	3090	4350	120	655	160

NOTES: 1 CSAH 17 MEDIAN.
2 CSAH 17 ADJACENT TO GUARDRAIL AT BRIDGE APPROACHES.

(H) BITUMINOUS PAVEMENT CONSTRUCTION

NOTES	LOCATION	TYPE 41 WEAR (t)	TYPE 41 BINDER (t)	TYPE 47 WEAR (t)	TYPE 47 BINDER (t)	TYPE 31 BASE (t)	TYPE 31 SHLD (t)	AGGREGATE BASE CLASS 5 (m3)
	CSAH 17 (SOUTH OF BR)	3950	4540			7990		9915
	CSAH 17 (NORTH OF BR)	830	950			1670		1750
	EDGEWOOD RD	5	5			10		10
	WEST RD (SOUTH)	15	15			30		30
	WEST RD (NORTH)	10	10			25		25
	97th LANE	25	25			45		45
	99th LANE	10	10			25		25
	AUSTIN ST	5	5			10		10
	CR 10	60	65			120		130
	BALL RD	5	5			10		10
	PHEASANT RIDGE DR							
	SE RAMP			290	330	760	160	1710
	NE RAMP							90
	NW RAMP			240	280	630	170	1675
	SW RAMP							155
1	NB I-35W	150						
1	SB I-35W	160						
	TOTAL	5225	5630	530	610	11325	330	15580

NOTES:
1 QUANTITY FOR USE IN RECONSTRUCTING I-35W MEDIAN SHOULDERS AS PART OF TRAFFIC STAGING PLANS.

(J) FENCE CONSTRUCTION

ALIGNMENT	STATION	TO	STATION	OFFSET LEFT (meter)	OFFSET RIGHT (meter)	LEAVE IN PLACE	REMOVE (meter)	SALVAGE (meter)	INSTALL (meter)	F & I CHAIN LINK (meter)	REMARK
SB CSAH 17	8+575.0			5.5 - 14.5			6.0	3.0	3.0		CHAIN LINK
SB CSAH 17	8+605.6			1.8 - 13.0			8.2	3.0	3.0		CHAIN LINK
SB CSAH 17	8+617.3	TO	8+634.3	1.5 - 2.0				16.5	16.5		CHAIN LINK
SB CSAH 17	8+816.0	TO	8+819.6	3.3 - 7.5				6.0	6.0		SPLIT RAIL
NB CSAH 17	8+711.5				9.5 - 13.0		2.5	1.0	1.0		CHAIN LINK
NB CSAH 17	8+711.5	TO	8+729.4		9.5			18.0	18.0		CHAIN LINK
NB CSAH 17	8+729.4				9.5 - 12.0		2.5				CHAIN LINK
NB CSAH 17	8+785.5	TO	8+797.2		9.5					11.7	WALL A
NB CSAH 17	8+885.5	TO	8+892.3		7.0 - 15.2			32.2	32.2		CHAIN LINK (GAS BUILDING)
NB CSAH 17	8+962.4	TO	9+016.0		10.6 - 12.5	X					CHAIN LINK
SB CSAH 17	9+007.5	TO	9+030.5	9.3 - 11.5			4.6	23.1	23.1		CHAIN LINK (GAS SUBSTATION)
NB CSAH 17	9+022.4	TO	9+043.1		10.7	X					WOOD FENCE
NB CSAH 17	9+089.1				7.4 - 11.0		3.6				CHAIN LINK
NB CSAH 17	9+089.1	TO	9+111.7		7.4			22.6	22.6		WOOD FENCE
NB CSAH 17	9+111.7				7.4 - 10.6		3.2				WOOD FENCE
SB CSAH 17	9+107.7	TO	9+117.0	11.5		X					CHAIN LINK
SB CSAH 17	9+117.0	TO	9+123.0	11.5		X					CHAIN LINK
SB CSAH 17	9+123.0	TO	9+204.5	11.5		X					CHAIN LINK
NB CSAH 17	9+111.7	TO	9+137.0		10.6 - 11.6	X					CHAIN LINK
NB CSAH 17	9+137.0	TO	9+140.0		11.6 - 13.8	X					CHAIN LINK
NB CSAH 17	9+144.3	TO	9+171.2		11.3	X					WOOD FENCE
SB CSAH 17	9+592.8			12.6 - 17.5				5.0	5.0		CHAIN LINK
NB CSAH 17	9+398.6	TO	9+403.3		19.5 - 17.6					5.5	BOX CULVERT
NB CSAH 17	9+400.2	TO	9+404.8		23.4 - 21.5					5.5	BOX CULVERT
NB CSAH 17	9+403.3	TO	9+404.8		17.6 - 21.4					5.0	BOX CULVERT
NB CSAH 17	9+406.5	TO	9+436.2		22.0 - 30.5	X					SPLIT RAIL
SB CSAH 17	9+605.5	TO	9+611.5	7.1						6.0	WALL C
SB CSAH 17	9+614.4			14.1 - 12.1						5.5	BOX CULVERT
SB CSAH 17	9+614.4	TO	9+618.5	14.1						5.0	BOX CULVERT
SB CSAH 17	9+618.5			14.1 - 19.1						5.5	BOX CULVERT
NB CSAH 17	9+545.2	TO	9+676.0		20.5	X					WOOD FENCE (PICKET)
SB CSAH 17	9+693.4			7.2 - 17.0			6.4	3.4	3.4		WIRE FENCE
SB CSAH 17	9+693.4	TO	9+780.0	6.9 - 7.2				86.6	86.6		WIRE FENCE
NB CSAH 17	9+705.8	TO	9+730.2		19.0	X					WOOD FENCE
NB CSAH 17	9+754.5	TO	9+778.6		18.4	X					WOOD FENCE
SB CSAH 17	9+856.6			7.7 - 13.4			5.7				WIRE FENCE
SB CSAH 17	9+856.6	TO	9+934.5	6.4 - 7.7				77.9	77.9		WIRE FENCE
SB CSAH 17	9+964.0			11.7 - 31.5		X					WIRE FENCE
NB CSAH 17	10+200.6	TO	10+212.2		9.0 - 20.4		6.0	10.0	10.0		CHAIN LINK
NB CSAH 17	10+237.0	TO	10+284.0		2.0 - 8.6		8.5	42.0	42.0		CHAIN LINK
NB CSAH 17	10+373.6	TO	10+428.8		2.4 - 8.4		18.1	38.0	38.0		CHAIN LINK
NB CSAH 17	10+460.0	TO	10+502.5		15.0 - 25.0			50.6	50.6		CHAIN LINK
SB CSAH 17	10+177.9	TO	10+196.6	1.4 - 14.7			23.0				CHAIN LINK
SB CSAH 17	10+218.3	TO	10+274.0		0.0 - 7.4		30.2	26.0	26.0		CHAIN LINK
SB CSAH 17	10+363.0	TO	10+410.3	0.5 - 0.0	0.0 - 7.5			49.9	49.9		CHAIN LINK
SB CSAH 17	10+436.8	TO	10+445.5	6.8 - 13.0			12.4				CHAIN LINK
SE RAMP	3+160.0	TO	3+259.0		16.0 - 28.5			102.0	102.0		CHAIN LINK
NE RAMP	30+011.3	TO	30+120.0		25.5			122.0	122.0		CHAIN LINK
NW RAMP	5+009.5	TO	5+255.0		17.0 - 25.3			238.0	238.0		CHAIN LINK
SW RAMP	40+015.3	TO	40+182.5		20.6 - 25.5			167.2	167.2		CHAIN LINK
					PROJECT TOTALS:		140.9	1144.0	1144.0	49.7	

NOTES: F & I CHAIN LINK FENCE INCLUDES THE REQUIRED ELECTRICAL GROUNDS, BRACE ASSEMBLIES, AND METAL POST EXTENSIONS.

(G) WALK AND CURB & GUTTER CONSTRUCTION
(H) BITUMINOUS PAVEMENT CONSTRUCTION
(J) FENCE CONSTRUCTION

NO	DATE	BY	CKD	APPR	REVISION

NAME: TAB5 410.PLN DATE: Mar. 17, 1997

I hereby certify that this plan, specification or report 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.
Donald A Domers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 105-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 2-97
COMM. NO. 0252410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

SHEET 14 OF 236

(K) TRAFFIC BARRIER (GUARDRAIL)

ALIGNMENT	STATION	TO	STATION	LOCATION	SALVAGE WOOD BOLLARD	INSTALL WOOD BOLLARD	REMOVE END TREATMENT	SALVAGE END TREATMENT	PLATE BEAM GUARDRAIL					ANCHORAGE ASSEMBLY	END TREATMENT (ELT) 8329	REMARK
									REMOVE	SALVAGE	INSTALL	DESIGN B8307	DESIGN SPECIAL			
				(meter)	(EACH)	(EACH)	(EACH)	(EACH)	(meter)	(meter)	(meter)	(meter)	(meter)	(EACH)	(EACH)	
NB CSAH 17	8+433.0			11.5 RT. - 16.5 RT.	2	2										
NB CSAH 17	8+689.5	TO	8+703.8	6.0 RT. - 16.5 RT.	9	7										
NB CSAH 17	9+607.2	TO	9+628.9	10.7 LT. - 12.5 LT.			2		22							
NB CSAH 17	9+595.3	TO	9+625.7	0.0 RT. - 5.0 RT.			1		34							
NB CSAH 17	10+245.6	TO	10+283.6	4.0 RT. - 1.3 RT.			1			39						
NB CSAH 17	10+373.5	TO	10+411.0	1.7 RT. - 5.3 RT.			1			38						
SB CSAH 17	10+226.6	TO	10+269.5	4.0 RT. - 7.6 RT.			1			33						
SB CSAH 17	10+363.0	TO	10+400.7	7.7 RT. - 5.2 RT.			1			38						
C.R. 10	8+018.0	TO	8+035.2	6.0 RT.			1		17							
NB 35W	18+734.3	TO	18+795.7	6.7 RT. - 9.3 RT.				1		62						
NB 35W	18+780.0	TO	18+827.5	10.0 LT. - 15.1 LT.						100						1
SB 35W	18+817.7	TO	18+876.4	6.5 LT. - 9.0 LT.				1		59						
NB CSAH 17	10+240.6	TO	10+252.0	6.828 RT											1	
NB CSAH 17	10+252.0	TO	10+267.4	6.828 RT								15.4				
NB CSAH 17	10+267.4	TO	10+275.0	6.828 RT									7.6			
SB CSAH 17	10+357.0	TO	10+364.6	6.828 LT									7.6			
SB CSAH 17	10+364.6	TO	10+381.6	6.828 LT								17				
SB CSAH 17	10+381.6	TO	10+393.0	6.828 LT											1	
NB 35W	18+760.2			LT							11.4					2
NB 35W	18+760.2	TO	18+835.0	LT							134.6	25				
NB 35W	18+835.0			LT							11.4					
NW RAMP	5+136.0	TO	5+147.4	3.6 LT											1	
NW RAMP	5+147.4	TO	5+260.0	3.6 LT								112.5				
NW RAMP	5+260.0			3.6 LT										1		
SE RAMP	3+116.0	TO	3+127.4	3.6 LT											1	
SE RAMP	3+127.4	TO	3+260.0	3.6 LT							132.6					
SE RAMP	3+260.0			3.6 LT										1		
PROJECT TOTALS:					11	9	8	2	73	369	290.0	170.0	15.2	2	4	

NOTES: SALVAGING AND REMOVAL OF END TREATMENTS AND ANCHORAGES SHALL BE CONSIDERED INCIDENTAL.
1 100 m INCLUDES 7.6m OF 1.5m RADIUS AND 15.2m OF 12m RADIUS PREFORMED SECTIONS.
2 PREFORMED RADII FROM MEDIAN LOOP ENCLOSURE.

(L) SANITARY SEWER CONSTRUCTION

ALIGNMENT	STATION	TO	STATION	OFFSET LT	OFFSET RT	OWNER	SALVAGE 457 mm CASING	SALVAGE 152 mm DIP	INSTALL 457 mm CASING	INSTALL 152 mm DIP	FURNISH & INSTALL 457 mm CASING	FURNISH & INSTALL 50 mm INSULATION BOARD	PROPOSED RIM ELEV.	ADJUST CASTING	RECONSTRUCT MANHOLE	NOTES
				(meter)	(meter)		(meter)	(meter)	(meter)	(meter)	(meter)	(m2)		(EACH)	(meter)	
SB CSAH 17	8+346.075				3.1	LEXINGTON										LEAVE AS IS
SB CSAH 17	8+427.229				3.1	LEXINGTON										LEAVE AS IS
SB CSAH 17	8+495.932				3.0	LEXINGTON							276.856	1		
SB CSAH 17	8+565.235				3.1	LEXINGTON							276.852	1		
SB CSAH 17	8+631.328				3.0	LEXINGTON							277.311	1		
SB CSAH 17	8+697.165				3.0	LEXINGTON							277.772	1		
SB CSAH 17	8+793.176				3.0	LEXINGTON							277.757		1.60	
SB CSAH 17	9+604.5	TO	9+630.0	4.2 - 6.0		BLAINE	15.0	26.5	15.0	26.5	5.0					1
SB CSAH 17	9+612.3	TO	9+621.3	4.2 - 8.0		BLAINE						108.0				2
SB CSAH 17	10+024.336			1.3		BLAINE							275.601		1.90	
BALL RD	9+050.276				9.8	BLAINE										LEAVE AS IS
NB CSAH 17	10+646.393				11.4	BLAINE										LEAVE AS IS
EDGEWOOD RD	3+031.709				0.0	BLAINE										LEAVE AS IS
97th LANE	4+035.355				0.1	BLAINE							276.567	1		
PROJECT TOTALS:							15.0	26.5	15.0	26.5	5.0	108.0		5	3.50	

NOTES: 1 QUANTITY INCLUDES FOUR 152 mm BY 45 DEGREE BENDS.
2 QUANTITY CONSISTS OF 3 LAYERS OF 50 mm INSULATION BOARD.

(K) TRAFFIC BARRIER (GUARDRAIL)
(L) SANITARY SEWER CONSTRUCTION

NO	DATE	BY	CKD	APPR	REVISION

NAME: TABS 410.PLN DATE: Mar 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.
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SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

(M) WATERMAIN CONSTRUCTION

ALIGNMENT	STATION	TO	STATION	OFFSET LT	OFFSET RT	OWNER	F & I DIP WM (CL 52) 150 mm (meter)	F & I DIP WM (CL 52) 400 mm (meter)	F & I 762 mm CASING (meter)	F & I 50 mm INSULATION BOARD (m2)	SALVAGE 400 mm DIP (meter)	SALVAGE 762 mm CASING (meter)	SALVAGE HYDRANT (EACH)	SALVAGE GATE VALVE (EACH)	INSTALL 400 mm DIP (meter)	INSTALL 762 mm CASING (meter)	INSTALL HYDRANT (EACH)	INSTALL GATE VALVE (EACH)	RELOCATE CURB STOP & BOX (EACH)	ADJUST HYDRANT (EACH)	ADJUST VALVE BOX (EACH)	WATERMAIN FITTINGS (kilogram)	NOTES
SB CSAH 17	8+415.0			7.1		LEXINGTON																	HYDRANT LEAVE AS IS
SB CSAH 17	8+416.7			0.1		LEXINGTON																	VALVE BOX LEAVE AS IS
SB CSAH 17	8+424.7			3.5		LEXINGTON																	VALVE BOX LEAVE AS IS
SB CSAH 17	8+438.0			0.1		LEXINGTON															1		
NB CSAH 17	8+491.1				36.0	CIRCLE PINES																	HYDRANT LEAVE AS IS
SB CSAH 17	8+540.0	TO	8+760.0		0.1	LEXINGTON				1056													
SB CSAH 17	8+589.0			4.0		LEXINGTON													1				
SB CSAH 17	8+628.0			3.9		LEXINGTON													1				
SB CSAH 17	8+641.5			4.0		LEXINGTON													1				
NB CSAH 17	8+683.0				13.5	CIRCLE PINES															1		
SB CSAH 17	8+684.8			3.4		LEXINGTON													1				
NB CSAH 17	8+692.7				14.4	CIRCLE PINES														1			
NB CSAH 17	8+694.0				15.5	CIRCLE PINES															1		
SB CSAH 17	8+714.8			2.6		LEXINGTON													1				
SB CSAH 17	8+748.0			5.2		LEXINGTON													1				
NB CSAH 17	8+753.5				9.5	CIRCLE PINES	5.0										1						
NB CSAH 17	8+758.5				9.5	CIRCLE PINES							1										
NB CSAH 17	8+757.8				7.2	CIRCLE PINES															1		
NB CSAH 17	8+761.2				9.5	CIRCLE PINES															1		
NB CSAH 17	8+766.7				9.8	CIRCLE PINES															1		
SB CSAH 17	8+775.0			6.0		LEXINGTON													1				
NB CSAH 17	8+776.0				7.2	CIRCLE PINES															1		
NB CSAH 17	8+776.9				6.2	CIRCLE PINES															1		
SB CSAH 17	8+797.0			4.8		LEXINGTON													1				
SB CSAH 17	8+819.5			0.4		LEXINGTON															1		
SB CSAH 17	8+820.5			2.0		LEXINGTON							1										
SB CSAH 17	8+820.5			12.5		LEXINGTON	11.0										1					68	LEAD 0.6m BELOW STORM
SB CSAH 17	8+827.3			0.7		LEXINGTON															1		
SB CSAH 17	8+833.0			10.8		BLAINE															1		
EDGEWOOD RD	3+036.7			10.0		BLAINE																	VALVE BOX LEAVE AS IS
SB CSAH 17	8+834.5			11.8		BLAINE															1		
SB CSAH 17	8+836.0			12.0		BLAINE							1										
SB CSAH 17	8+838.0			12.0		BLAINE	2.0										1						
SB CSAH 17	8+900.0	TO	8+940.0		0.1	BLAINE				192.0													
SB CSAH 17	8+960.0	TO	8+980.0		0.1	BLAINE				96.0													
SB CSAH 17	8+867.0	TO	8+882.0	0.7		BLAINE	12.0			12.0												92	LOWER WATERMAIN
EDGEWOOD	3+051.0	TO	3+059.0	3.0		BLAINE	8.0			12.0												92	LOWER WATERMAIN
SB CSAH 17	8+980.5			11.0		BLAINE															1		
SB CSAH 17	8+983.5			12.0		BLAINE															1		
SB CSAH 17	8+984.3			12.0		BLAINE							1										
SB CSAH 17	8+986.3			12.0		BLAINE	2.0										1						
97th LANE	4+030.0				10.0	BLAINE																	VALVE BOX LEAVE AS IS
NB CSAH 17	9+539.5				13.3	BLAINE														1			
BALL RD	9+041.6				9.3	BLAINE																	HYDRANT LEAVE AS IS
SB CSAH 17	9+592.5			32.0		BLAINE																	VALVE BOX LEAVE AS IS
NB CSAH 17	9+592.0			25.0	14.0	BLAINE					39.0	18.0											
NB CSAH 17	9+592.0			25.0	19.5	BLAINE		5.5	24.0						39.0	18.0							
NB CSAH 17	9+592.0	TO	9+636.0		5.2 - 14.0	BLAINE		3.0			58.0				58.0								
NB CSAH 17	9+636.0	TO	9+638.0		11.0 - 13.0	BLAINE	3.0																
NB CSAH 17	9+638.7				8.5	BLAINE												1					
NB CSAH 17	9+640.8				10.5	BLAINE								1									
NB CSAH 17	9+666.1				5.0	BLAINE															1		
NB CSAH 17	9+630.0	TO	9+720.0		4.5	BLAINE				192.0													
BALL RD	9+041.6				11.5	BLAINE																	VALVE BOX LEAVE AS IS
BALL RD	9+046.2				12.2	BLAINE																	VALVE BOX LEAVE AS IS
NB CSAH 17	10+002.4				1.8	BLAINE															1		
SB CSAH 17	10+002.8			1.2		BLAINE															1		
SB CSAH 17	10+029.2			4.2		BLAINE															1		
SB CSAH 17	10+030.7				1.6	BLAINE															1		
SB CSAH 17	10+629.5			15.5		BLAINE	4.0										1						
SB CSAH 17	10+633.5			15.5		BLAINE							1										
SB CSAH 17	10+635.0			15.4		BLAINE															1		
NB CSAH 17	10+640.8				9.1	BLAINE															1		
PROJECT TOTALS:							47.0	8.5	24.0	1560.0	97.0	18.0	5	1	97.0	18.0	5	1	8	2	21	252	

(M) WATERMAIN CONSTRUCTION

NO	DATE	BY	CKD	APPR	REVISION

NAME: TAB7 410.PLN DATE: Mar. 17, 1997

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 2-97
COMM. NO. 0952410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

SHEET 16 OF 236

(N) RAMP LIGHTING

ALIGNMENT	STATION TO STATION	OFFSET LEFT (meter)	OFFSET RIGHT (meter)	LIGHTING UNIT NUMBER	REMOVE PULLBOX (EACH)	REMOVE LIGHT BASE (EACH)	SALVAGE LIGHTING UNIT (EACH)	F & I LIGHT BASE DESIGN E (EACH)	F & I PULLBOX (EACH)	INSTALL LIGHTING UNIT (EACH)	F & I 78 mm RSC (meter)	F & I 78 mm RSC AUGERED (meter)	F & I 3/C #4 (meter)	REMARK
NB 35W	18+242		14.027	1				1		1			80	
NB 35W	18+422		19.356	2				1		1			65	
NB 35W	18+438.5		12.0	1 EXIST.		1	1							
NB 35W	18+487		23.693	3				1		1			15	
NB 35W	18+487	9.4	23.7								14.3			
NB 35W	18+487		9.350	4				1		1			100	
NB 35W	18+518		17.0	2 EXIST.		1	1							
NB 35W	18+581		25.3	3 EXIST.		1	1							
NB 35W	18+584		9.5	4 EXIST.		1	1							
NB 35W	18+584		9.350						1				205	SPLICE TO EXISTING CABLE
NB 35W	18+835 TO 18+890	42.0	16.0									80		
NB 35W	19+012		13.6	5 EXIST.										LEAVE AS IS
NB 35W	19+085		11.0	6 EXIST.										LEAVE AS IS
NB 35W	19+158		9.5	7 EXIST.										LEAVE AS IS
NB CSAH 17	10+183.3	10.0		15 EXIST.		1	1							
NB CSAH 17	10+228 TO 10+255	35.0	11.0								53			
NB CSAH 17	10+239		4.5		1									
NB CSAH 17	10+240.5		3.3	16 EXIST.		1	1							
NB CSAH 17	10+253.0		4.5		1									
NB CSAH 17	10+263		14.0						1				395	
NB CSAH 17	10+395		4.0		1									
NB CSAH 17	10+405.5		4.0		1									
NB CSAH 17	10+406.5	10.5		17 EXIST.		1	1							
NB CSAH 17	10+467		10.5	18 EXIST.		1	1							
NW RAMP	5+251 TO 5+265	8.5	7.5								16			
SB 35W	18+451.5	9.0		14 EXIST.										LEAVE AS IS
SB 35W	18+524.5	10.5		13 EXIST.										LEAVE AS IS
SB 35W	18+597.5	13.0		12 EXIST.										LEAVE AS IS
SB 35W	19+027	8.0		11 EXIST.		1	1							
SB 35W	19+028	25.5		10 EXIST.		1	1							
SB 35W	19+029	9.350							1				90	SPLICE TO EXISTING CABLE
SB 35W	19+095	16.3		9 EXIST.		1	1							
SB 35W	19+113	9.350		11				1		1			15	
SB 35W	19+113	9.4	23.7								14.3			
SB 35W	19+113	23.693		10				1		1			65	
SB 35W	19+165	11.6		8 EXIST.		1	1							
SB 35W	19+178	19.360		9				1		1			80	
SB 35W	19+258	14.027		8				1		1				
				PROJECT TOTALS	4	12	12	8	3	8	103.6	80	1110	

(N) RAMP LIGHTING

NO	DATE	BY	CKD	APPR	REVISION

NAME: TAB8 410.PLN DATE: Mar. 17, 1997

minnesota department of transportation

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

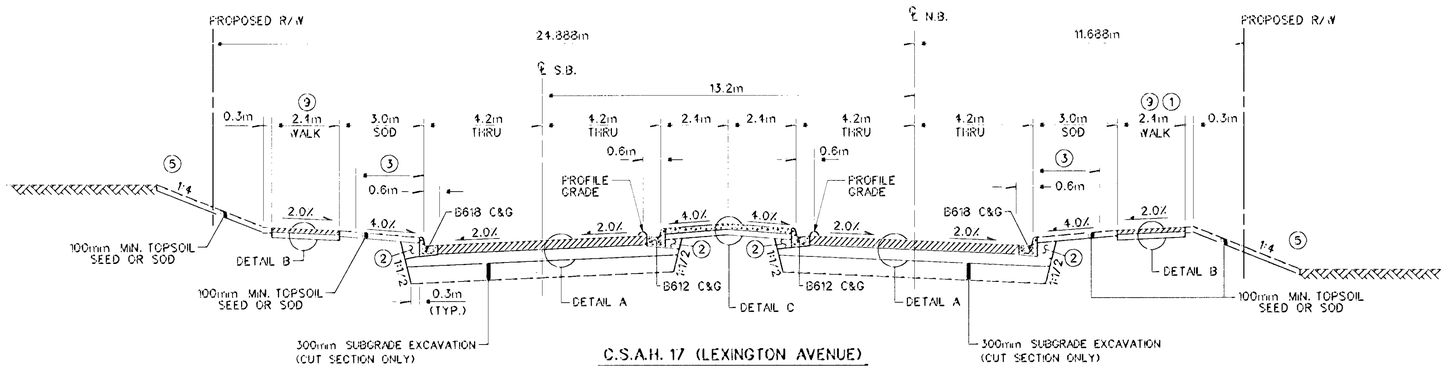
CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	2-97
COMM. NO.	0962410	

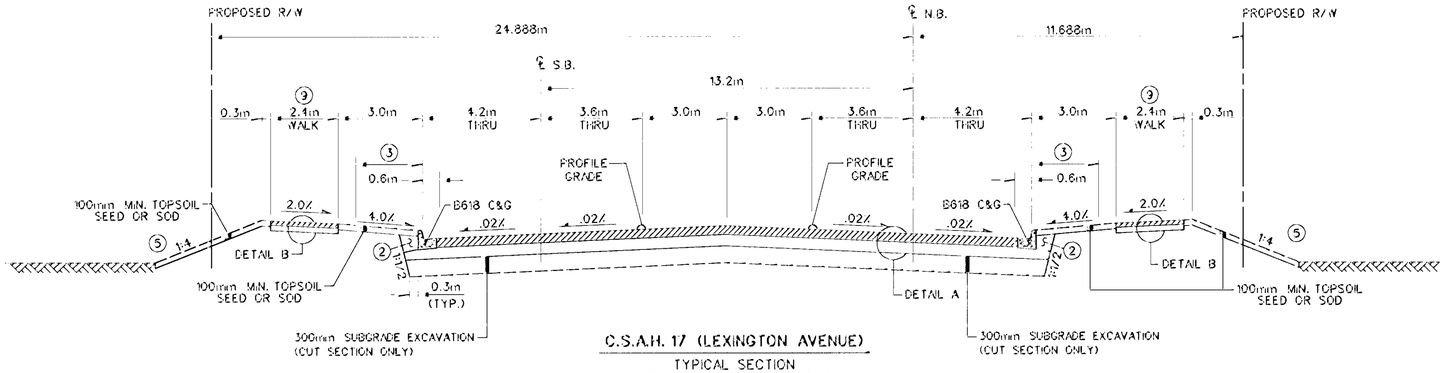
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TABULATIONS
C.S.A.H. 17 RECONSTRUCTION

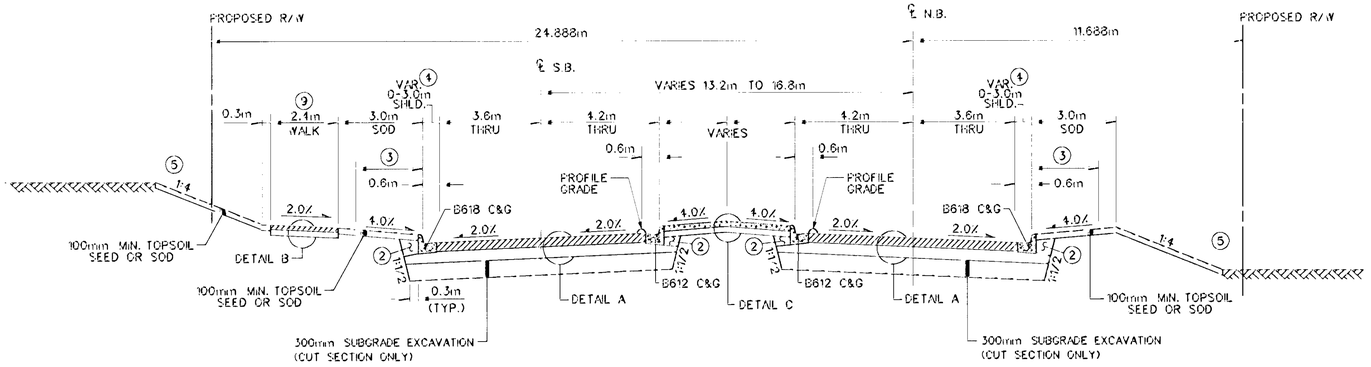
SHEET 17 OF 236



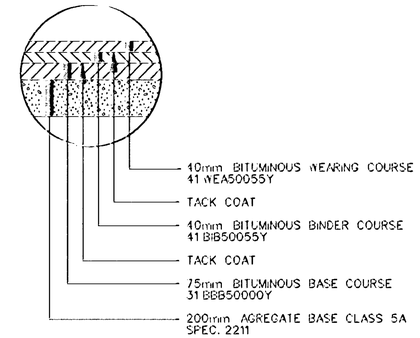
C.S.A.H. 17 (LEXINGTON AVENUE)
TYPICAL SECTION
STA. 8+842 TO STA. 9+865



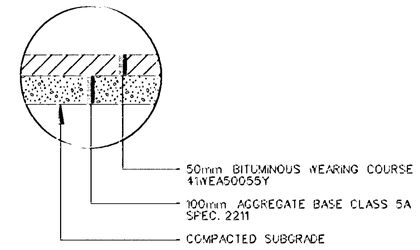
C.S.A.H. 17 (LEXINGTON AVENUE)
TYPICAL SECTION
STA. 8+436 TO STA. 8+842



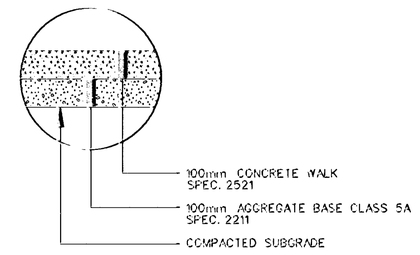
C.S.A.H. 17 (LEXINGTON AVENUE)
TYPICAL SECTION
STA. 9+865 TO STA. 10+660



DETAIL A



DETAIL B



DETAIL C

NOTES:

1. STATION 8+358 TO STATION 9+624.
2. BACKFILL WITH SUITABLE GRADING MATERIAL.
3. 0.5m OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
4. 3.0m SHLD. FROM STA. 10+230 TO STA. 10+430 (NB CSAH 17)
5. SEE CROSS SECTIONS FOR LOCATIONS OF VARIABLE SLOPES.
9. SEE CONSTRUCTION PLANS FOR WALK LOCATION.

NO	DATE	BY	CKD	APPR	REVISION

NAME: TS1410.PLN DATE: Mar. 20, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

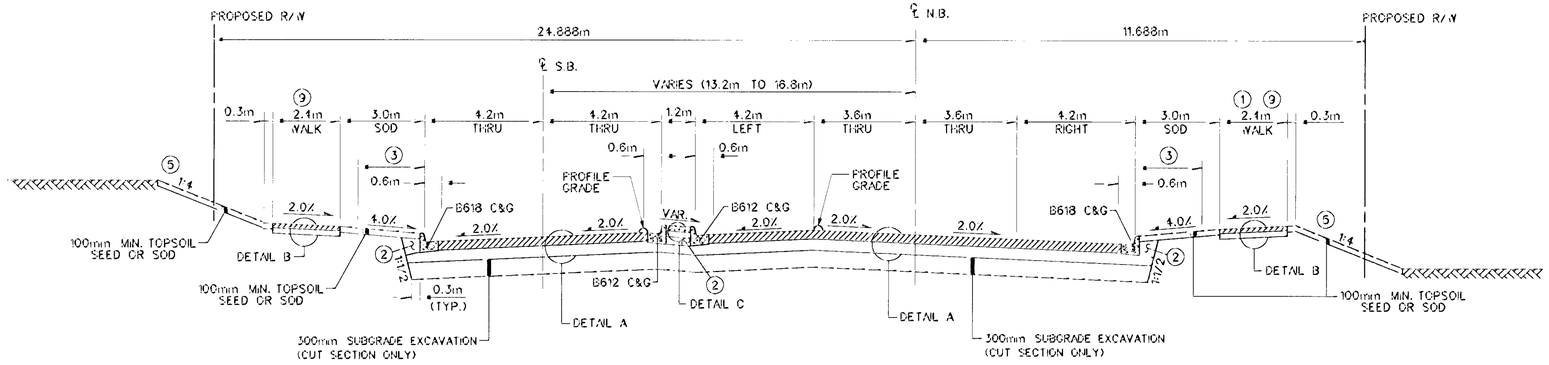
CO. PROJECT NO.

DRAWN BY L. VanDRASEK DATE 11-96
DESIGNED BY B. URBANEK 11-96
CHECKED BY D. DEMERS 12-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

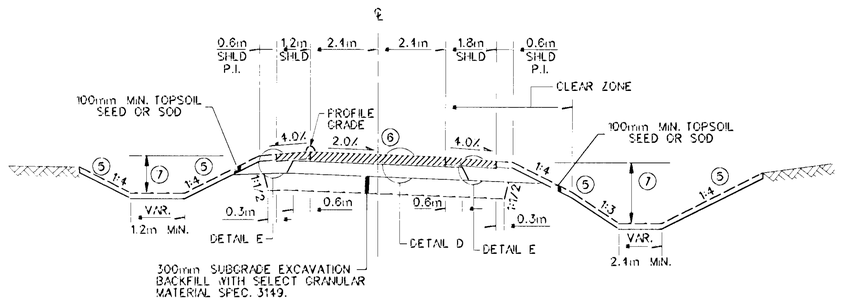
ANOKA COUNTY
TYPICAL SECTIONS
C.S.A.H. 17 RECONSTRUCTION

SHEET 18 OF 236

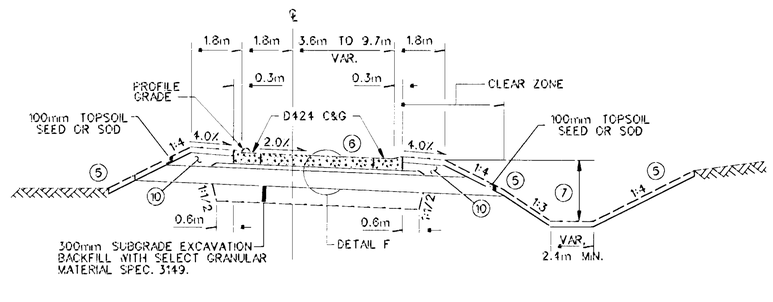


C.S.A.H. 17 (LEXINGTON AVENUE)
TYPICAL SECTION WITH TURN LANES

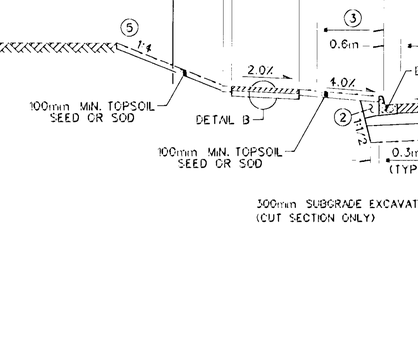
NOTE: FOR DOUBLE LEFT TURN LANE, THE TURN LANE ADJACENT TO THE THRU LANE SHALL SLOPE TO THE RIGHT.



S.E. RAMP AND N.W. RAMP
TYPICAL SECTION

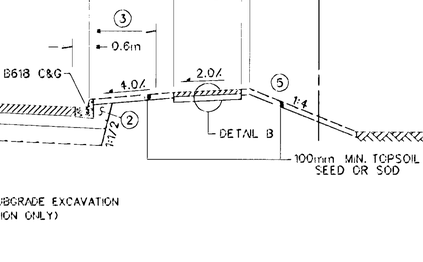


S.W. RAMP AND N.E. RAMP
TYPICAL SECTION

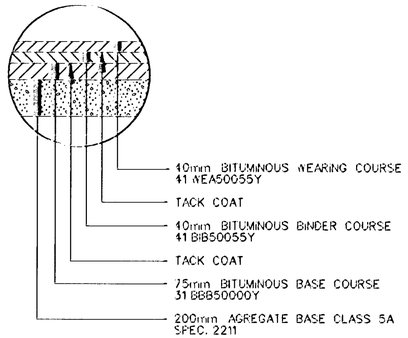


DETAIL D

DETAIL E

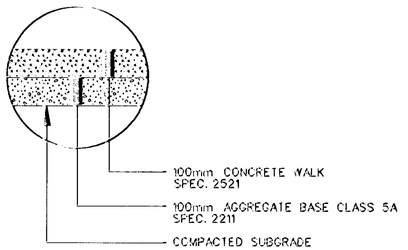


DETAIL F



DETAIL A

DETAIL B



DETAIL C

NOTES:

1. STATION 8+358 TO STATION 9+624.
2. BACKFILL WITH SUITABLE GRADING MATERIAL.
3. 0.5m OBSTACLE FREE CLEAR ZONE FROM FACE OF CURB
4. 3.0m SHLD. FROM STA. 10+230 TO STA. 10+430 (N.B. C.S.A.H. 17)
5. SEE CROSS SECTIONS FOR LOCATIONS OF VARIABLE SLOPES.
6. SEE CONSTRUCTION PLANS FOR SUPER ELEVATION TRANSITIONS.
7. SEE PROFILES FOR SPECIAL DITCH GRADES.
9. SEE CONSTRUCTION PLANS FOR WALK LOCATION.
10. BACKFILL WITH AGGREGATE BASE CLASS 5A SPEC. 2211.

NO	DATE	BY	CKD	APPR	REVISION

NAME: TS2 410.PLN DATE: Mar. 20, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

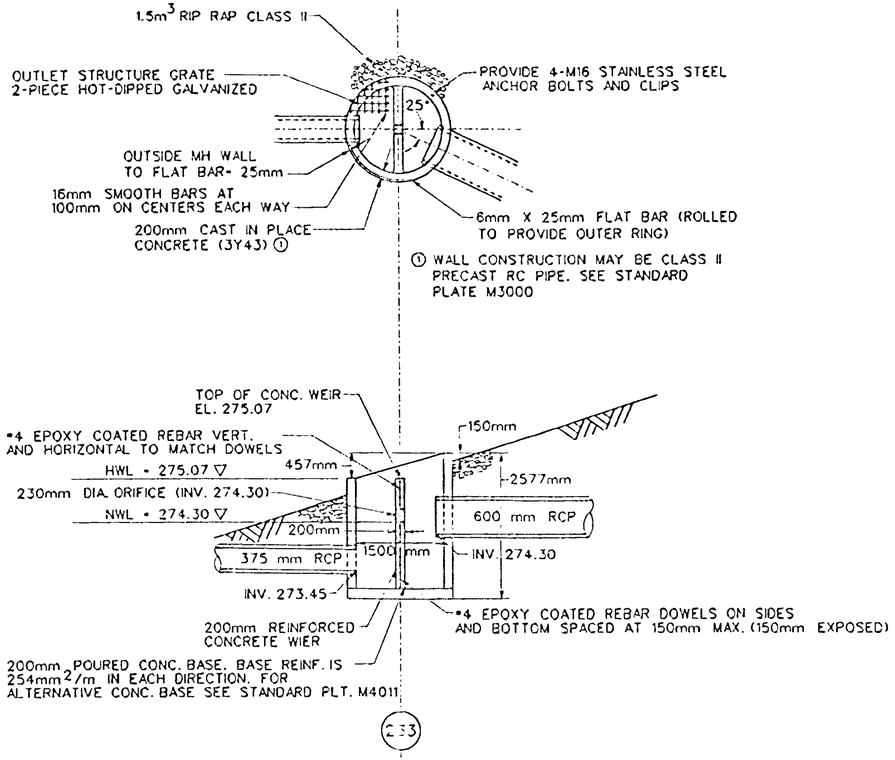
STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

		DATE
DRAWN BY	L. VanDRASEK	11-96
DESIGNED BY	B. URBANEK	11-96
CHECKED BY	D. DEMERS	12-96
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TYPICAL SECTIONS
C.S.A.H. 17 RECONSTRUCTION

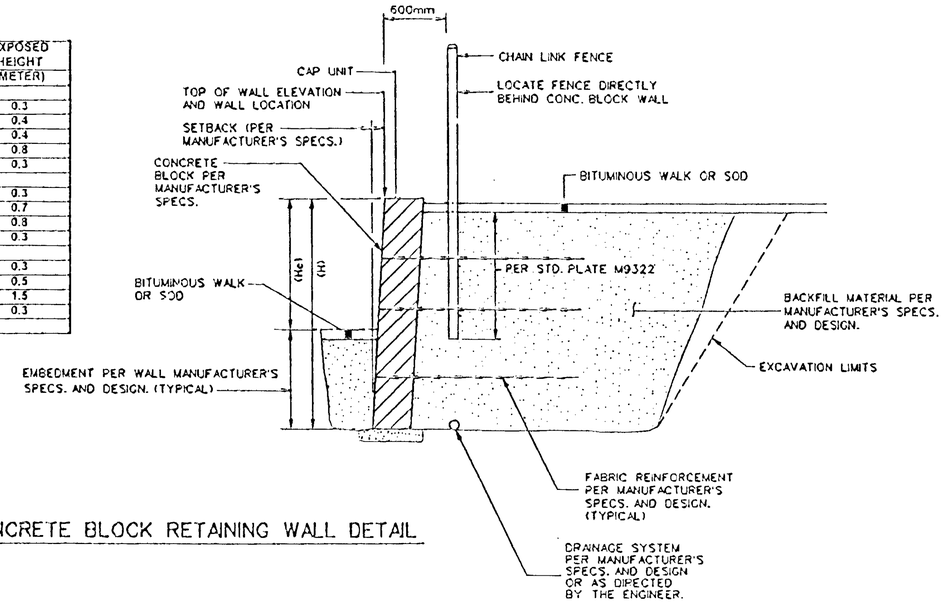
SHEET 19 OF 236



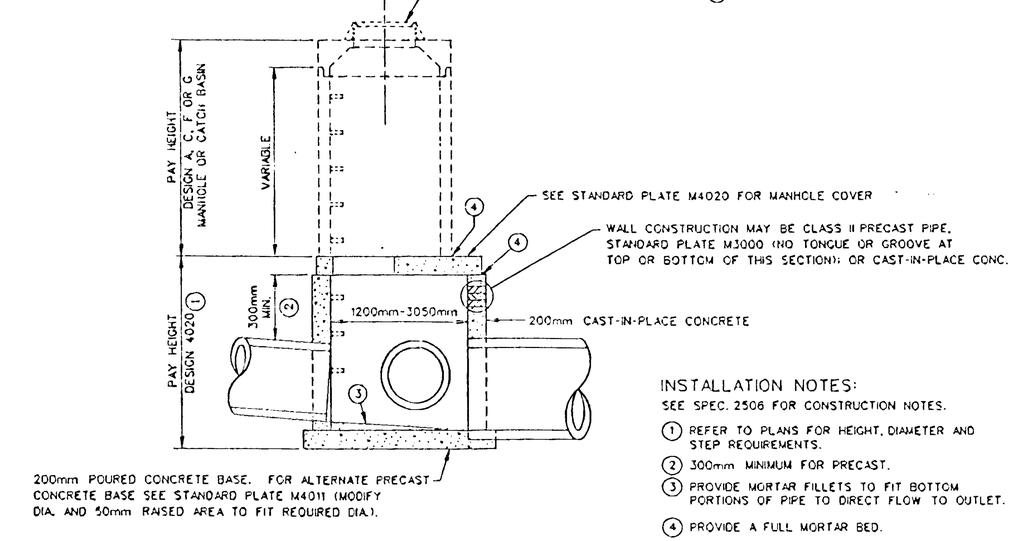
POND A OUTLET STRUCTURE

(DRAINAGE STRUCTURE DESIGN SPECIAL 1)

ALIGNMENT	STATION	OFFSET LEFT (METER)	OFFSET RIGHT (METER)	EXPOSED HEIGHT (METER)
		WALL A		
NB CSAH 17	8+785.5		10.2	0.3
	8+785.9		10.2	0.4
	8+790.0		10.2	0.4
	8+796.5		10.2	0.8
	8+797.2		10.2	0.3
		WALL B		
NB CSAH 17	8+959.3		10.2	0.3
	8+960.0		10.2	0.7
	8+978.4		10.2	0.8
	8+979.2		10.2	0.3
		WALL C		
SB CSAH 17	9+605.5	7.7		0.3
	9+606.0	7.7		0.5
	9+610.0	7.7		1.5
	9+611.5	7.7		0.3



CONCRETE BLOCK RETAINING WALL DETAIL



INSTALLATION NOTES:

SEE SPEC. 2506 FOR CONSTRUCTION NOTES.

1. REFER TO PLANS FOR HEIGHT, DIAMETER AND STEP REQUIREMENTS.
2. 300mm MINIMUM FOR PRECAST.
3. PROVIDE MORTAR FILLETS TO FIT BOTTOM PORTIONS OF PIPE TO DIRECT FLOW TO OUTLET.
4. PROVIDE A FULL MORTAR BED.

DRAINAGE STRUCTURE TYPE 4020

INSTALLATION DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME: DET1410.PLN DATE: Mar 17, 1997

minnesota metric

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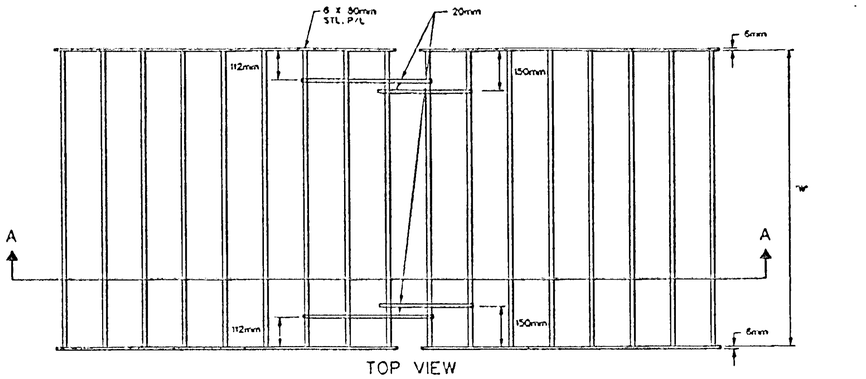
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

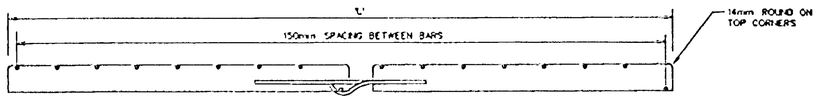
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DETAILS
C.S.A.H. 17 RECONSTRUCTION

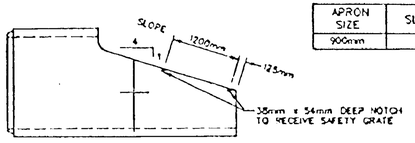
SHEET 20 OF 236



TOP VIEW

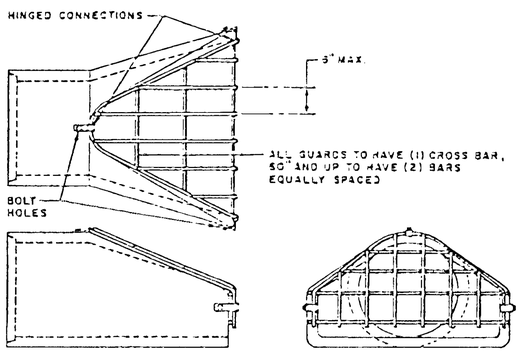


SECTION A-A



APRON SIZE	SLOPE	"L" LENGTH OF GRATE	"W" WIDTH OF GRATE	CROSS BAR DIA.	NO. PCS. GRATE
900mm	1:4	2075mm	1100mm	32mm	2

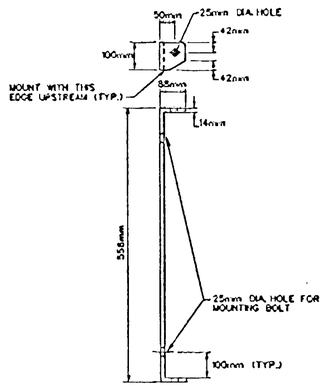
SAFETY GRATES
FOR PRECAST CONCRETE END SECTION



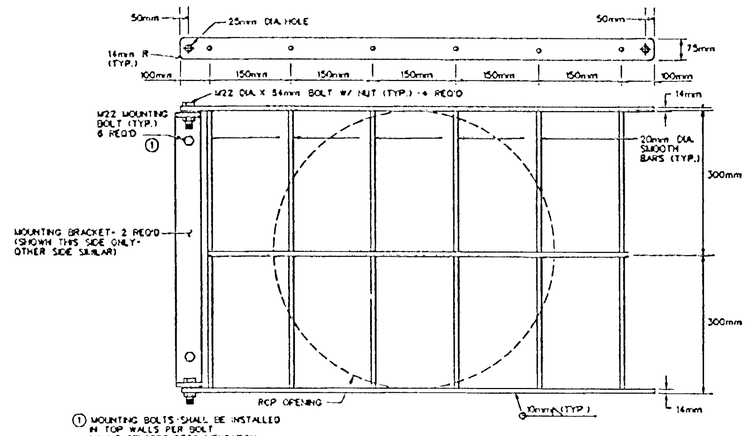
Hot dip galvanized per MnDOT 3392 or ASTM-A153.

BAR SIZES				
HEAVY DESIGN				
	PIPE SIZE	HOLE DIA. SIZE	BOLT	BAR SIZE
ROUND	300mm-450mm	18mm	M16	20mm
ROUND	525mm-1200mm	24mm	M22	25mm
BOLT LG.=PIPE WALL THK + 64mm				

TRASH GUARD FOR FLARED ENDS

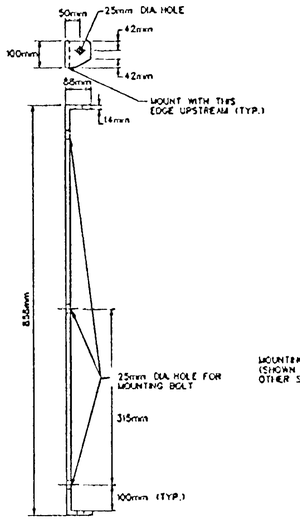


NOTE: TRASH GUARD AND MOUNTING BRACKETS TO BE GALVANIZED AFTER FABRICATION PER MN/DOT SPEC. 3392.

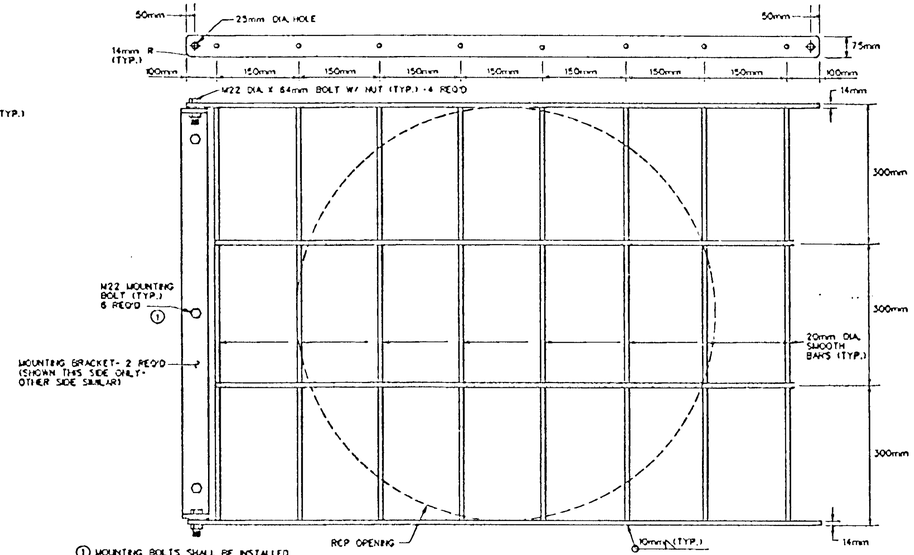


① MOUNTING BOLTS SHALL BE INSTALLED IN TOP WALLS PER BOLT MANUFACTURERS RECOMMENDATION

TRASH GUARD DESIGN SPECIAL
(300mm THROUGH 600mm RCP AT BOX CULVERT)



NOTE: TRASH GUARD AND MOUNTING BRACKETS TO BE GALVANIZED AFTER FABRICATION PER MN/DOT SPEC. 3392.



① MOUNTING BOLTS SHALL BE INSTALLED IN TOP WALLS PER BOLT MANUFACTURERS RECOMMENDATION

TRASH GUARD DESIGN SPECIAL
(750mm THROUGH 900mm RCP AT BOX CULVERT)

NO	DATE	BY	CKD	APPR	REVISION

NAME: DET2 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

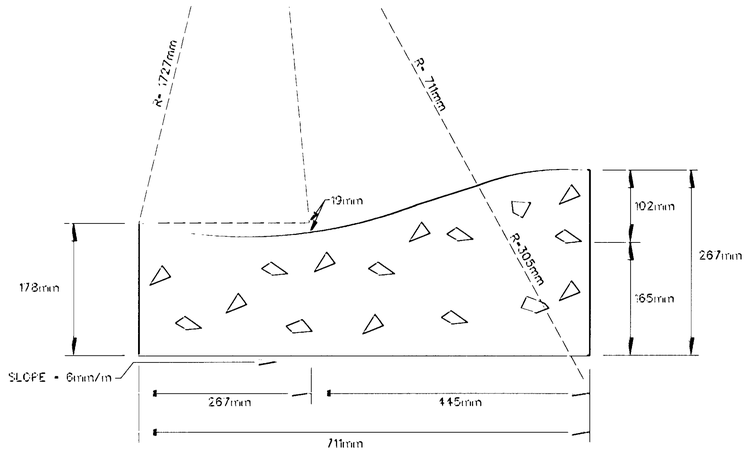
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY L. ROBIENT 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRE CONSULTING GROUP, INC.

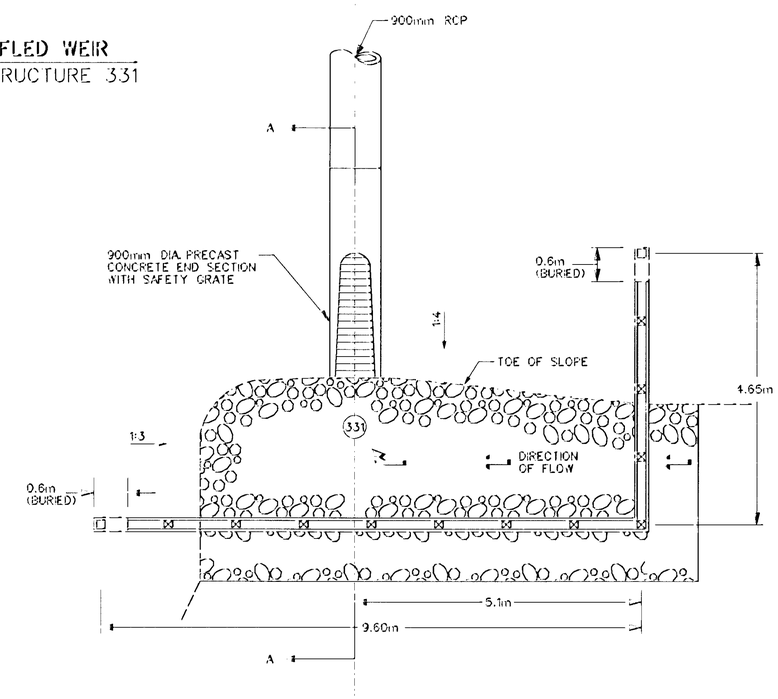
ANOKA COUNTY
DETAILS
C.S.A.H. 17 RECONSTRUCTION

SHEET 21 OF 236

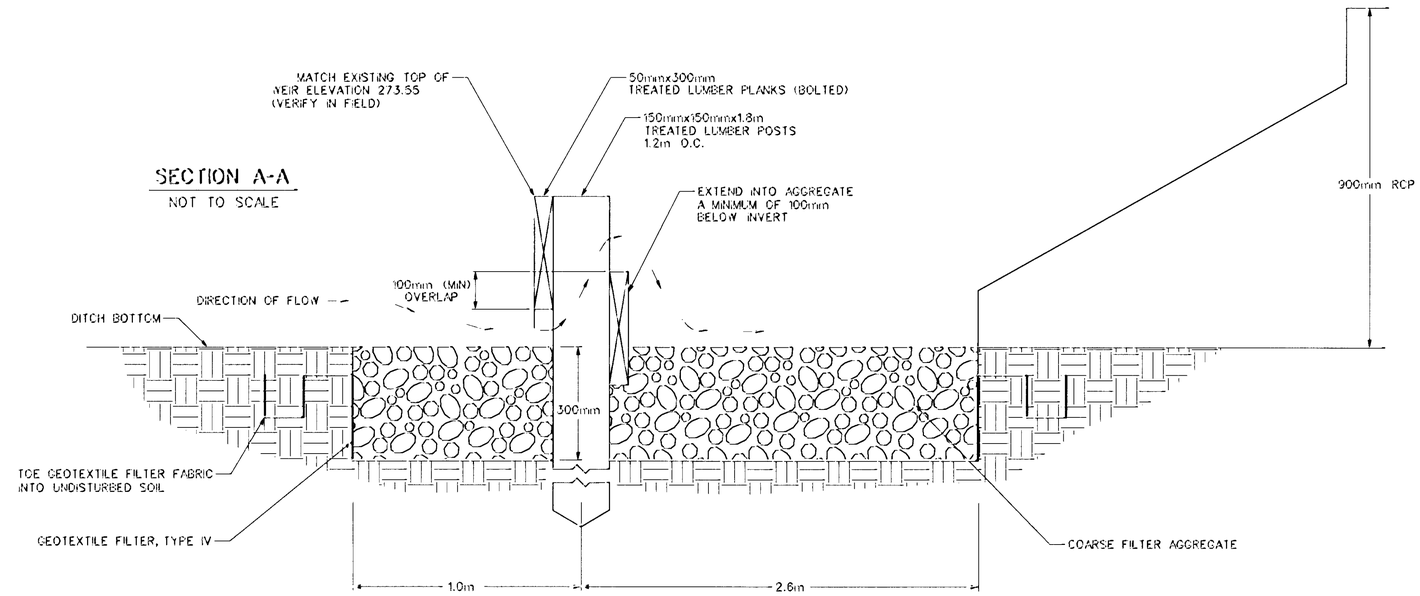


SURMOUNTABLE CURB

BAFFLED WEIR
AT STRUCTURE 331



SECTION A-A
NOT TO SCALE



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ACHD COMMENT

NAME: DET3 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

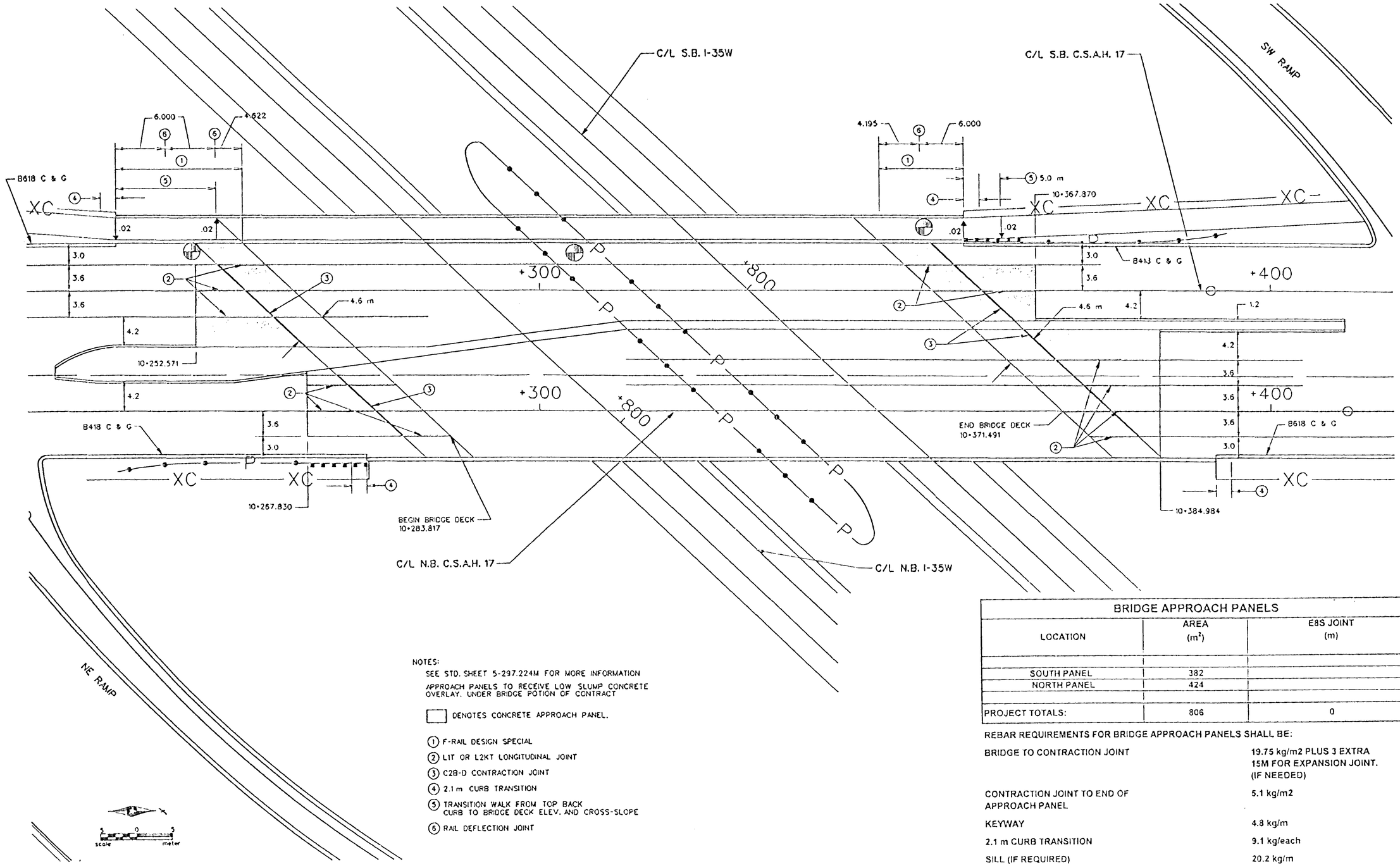
	DATE
DRAWN BY L. VanDRASEK	12-96
DESIGNED BY L. ROBJENT	12-96
CHECKED BY D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DETAILS
C.S.A.H. 17 RECONSTRUCTION

SHEET 22 OF 236



NOTES:

SEE STD. SHEET 5-297.224M FOR MORE INFORMATION

APPROACH PANELS TO RECEIVE LOW SLUMP CONCRETE OVERLAY. UNDER BRIDGE POTION OF CONTRACT

☐ DENOTES CONCRETE APPROACH PANEL.

① F-RAIL DESIGN SPECIAL
② L1T OR L2KT LONGITUDINAL JOINT
③ C2B-D CONTRACTION JOINT
④ 2.1 m CURB TRANSITION
⑤ TRANSITION WALK FROM TOP BACK CURB TO BRIDGE DECK ELEV. AND CROSS-SLOPE
⑥ RAIL DEFLECTION JOINT

BRIDGE APPROACH PANELS		
LOCATION	AREA (m^2)	E8S JOINT (m)
SOUTH PANEL	382	
NORTH PANEL	424	
PROJECT TOTALS:	806	0

REBAR REQUIREMENTS FOR BRIDGE APPROACH PANELS SHALL BE:

BRIDGE TO CONTRACTION JOINT	19.75 kg/m2 PLUS 3 EXTRA 15M FOR EXPANSION JOINT. (IF NEEDED)
CONTRACTION JOINT TO END OF APPROACH PANEL	5.1 kg/m2
KEYWAY	4.8 kg/m
2.1 m CURB TRANSITION	9.1 kg/each
SILL (IF REQUIRED)	20.2 kg/m

NO	DATE	BY	CKD	APPR	REVISION

NAME: APD 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.	
S.A.P. 02-617-11	
S.A.P. 106-020-12	
S.A.P. 106-030-03	
CO. PROJECT NO.	

DRAWN BY	M. ISAKKA	DATE 3-97
DESIGNED BY	D. DEMERS	3-97
CHECKED BY	D. DEMERS	3-97
COMM. NO.	0262410	

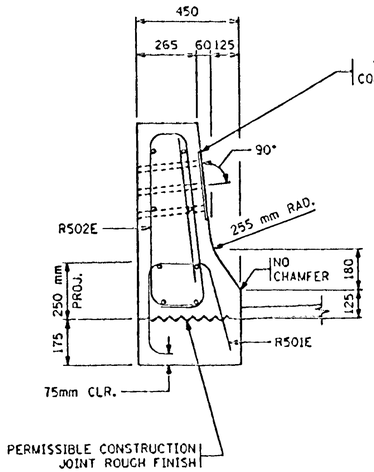
SRF CONSULTING GROUP, INC.

ANOKA COUNTY

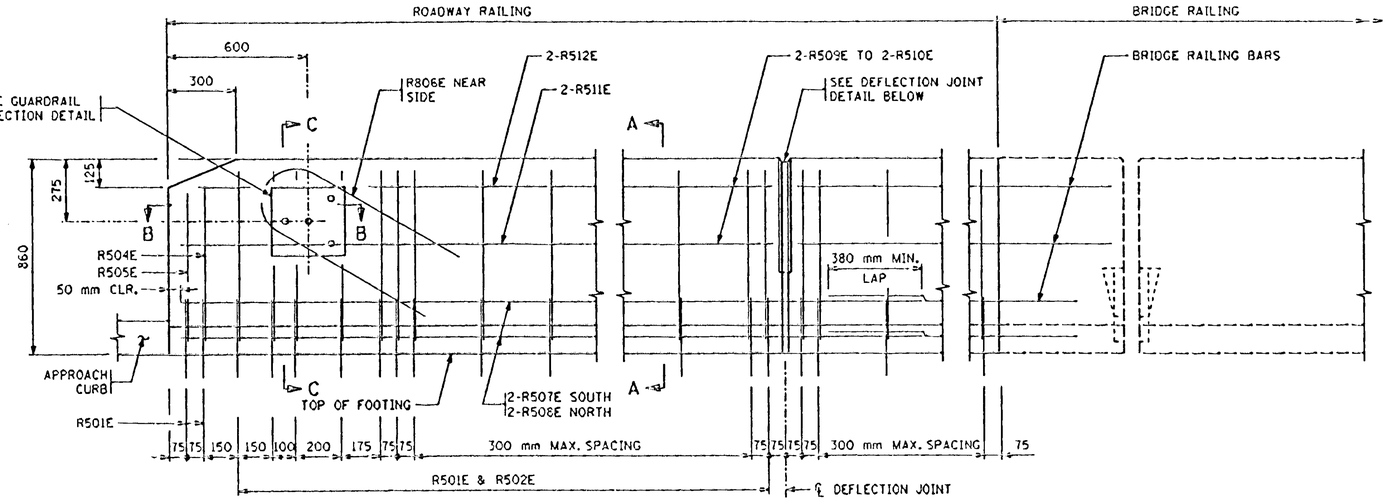
APPROACH PANEL DETAIL

C.S.A.H. 17 RECONSTRUCTION

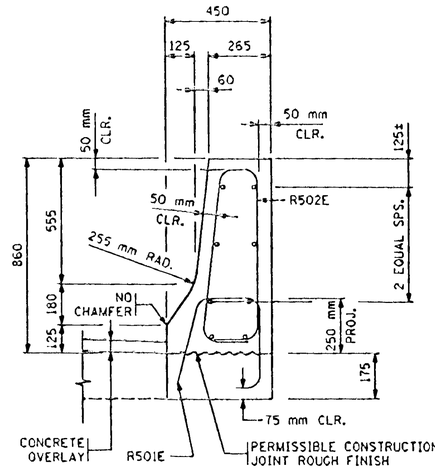
SHEET 23 OF 236



SECTION C-C



DEFLECTION JOINT



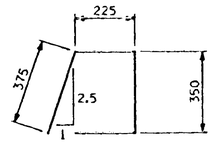
SECTION A-A

EXPANSION JOINT

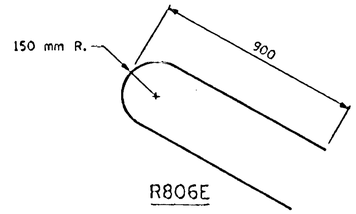
(EXPANSION DEVICE NOT SHOWN)

INSIDE ELEVATION OF RAILING

(OVERLAY NOT SHOWN)

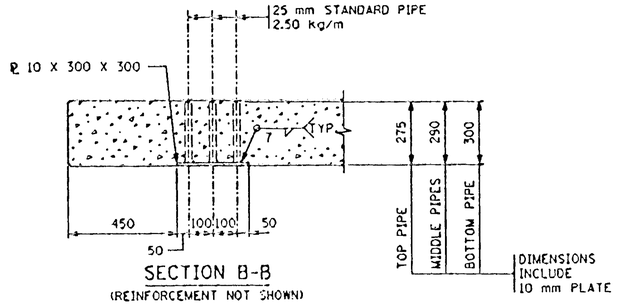


R501E



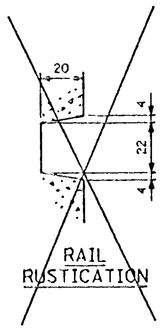
R806E

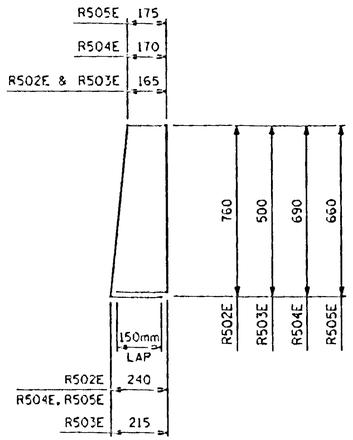
BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	107	1150		RAIL DOWEL
R502E	103	2080		RAIL VERTICAL
R503E	-	1530		RAIL VERTICAL
R504E	2	1940		RAIL VERTICAL
R505E	2	1890		RAIL VERTICAL
R806E	2	1970		RAIL VERTICAL
R507E	8	8475	——	RAIL LONGITUDINAL
R508E	8	5500	——	RAIL LONGITUDINAL
R509E	4	5875	——	RAIL LONGITUDINAL
R510E	8	4550	——	RAIL LONGITUDINAL
R511E	4	5885	——	RAIL LONGITUDINAL
R512E	4	5805	——	RAIL LONGITUDINAL



SECTION B-B

(REINFORCEMENT NOT SHOWN)





R502E, R503E, R504E & R505E

GENERAL NOTES

CONCRETE RAILING = 0.369m³/m INCLUDING FOOTING.

GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306.

FINISH ALL EDGES OF RAIL WITH 13 mm VEE, EXCEPT WHERE OTHERWISE NOTED.

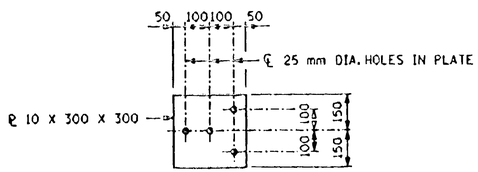
SEE APPROACH PANEL DETAIL SHEET FOR JOINT SPACING.

GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 6 METERS.

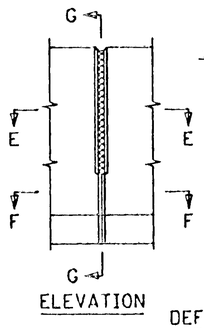
RAIL TO BE CONCRETE MIX NO. 3Y46.

RAIL REINFORCEMENT (895kg) INCIDENTAL TO RAILING.

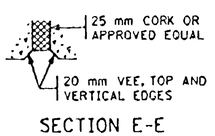


GUARDRAIL CONNECTION DETAIL

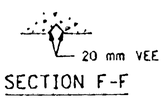
GALVANIZE AFTER FABRICATION PER SPEC. 3394
ESTIMATED WEIGHT = 9.9 kg



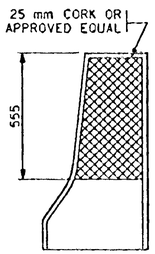
ELEVATION



SECTION E-E



SECTION F-F

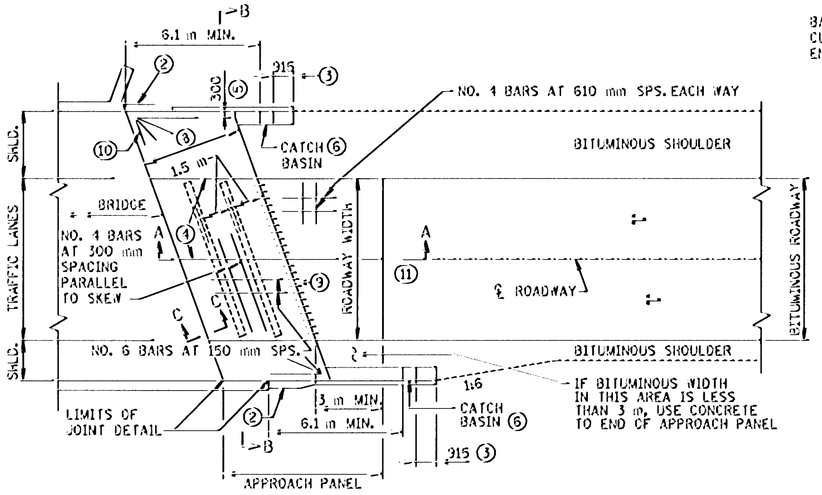


SECTION G-G

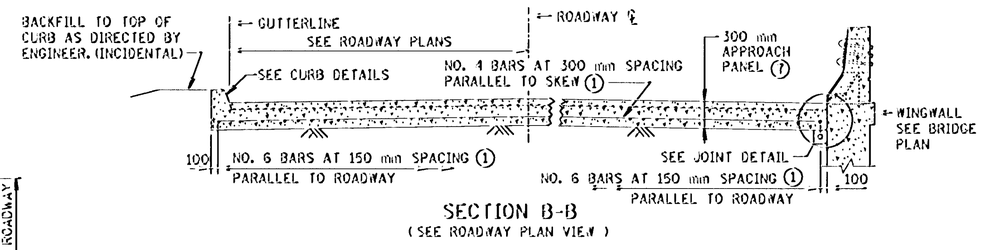
DEFLECTION JOINT DETAILS

S.A.P. 02-617-11, et al.

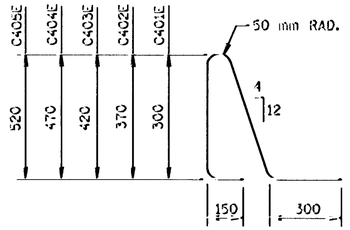
APPROVED: X X, 1995	CERTIFIED BY: Robert C. Sampson PROFESSIONAL ENGINEER	TITLE: CONCRETE RAILING (TYPE F) SPECIAL WITH INTEGRAL END POST (WITH CONCRETE OVERLAY)	MODIFIED
STATE BRIDGE ENGINEER	REG. NO. 19632 3/21 1997	DES: RAS DR: JCH CHK: LAE CHK: RAS	FIG. 5-397.117M
H:/STRUC/003/2413/FIG 7117M.DGN		SHEET NO. 24 OF 236 SHEETS	BRIDGE NO.



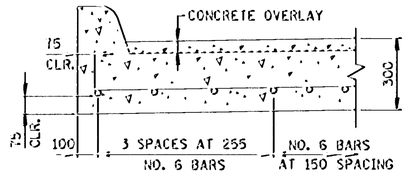
DIVIDED-URBAN ROADWAY PLAN
PARALLEL & NONPARALLEL WINGWALLS



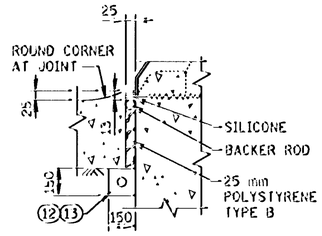
SECTION B-B
(SEE ROADWAY PLAN VIEW)



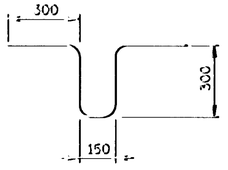
C401E- C405E (1)



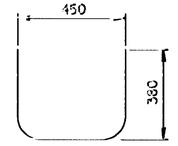
CURB DETAIL
(B4 INTEGRANT CURB)



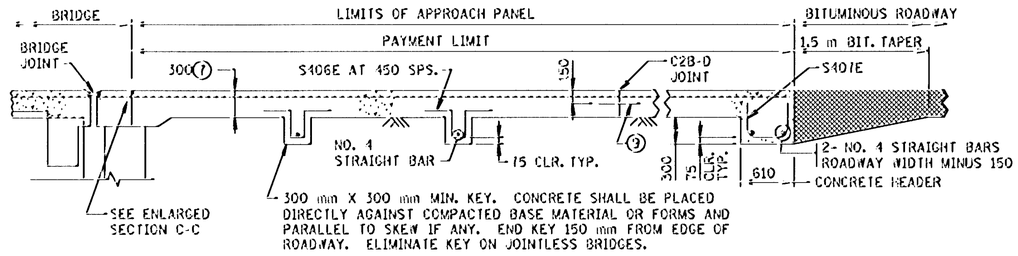
JOINT DETAIL
(AT PARALLEL WINGWALLS)



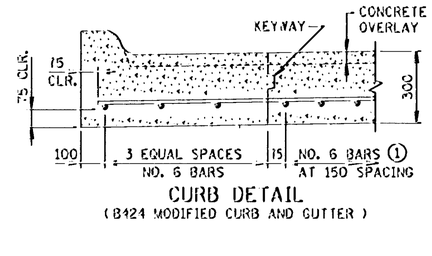
S406E



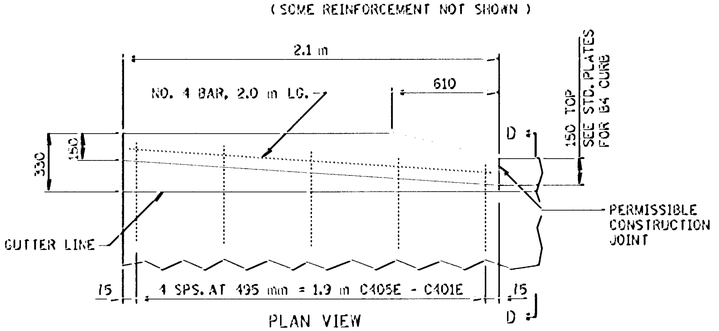
S407E



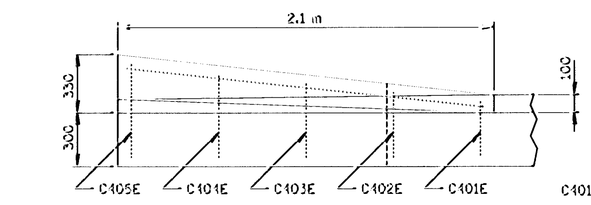
SECTION A-A
(SOME REINFORCEMENT NOT SHOWN)



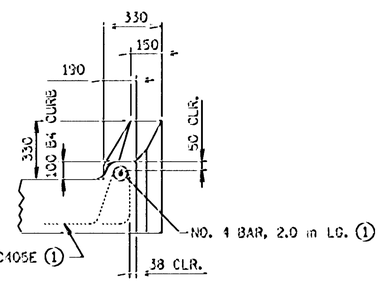
CURB DETAIL
(B424 MODIFIED CURB AND GUTTER)



PLAN VIEW

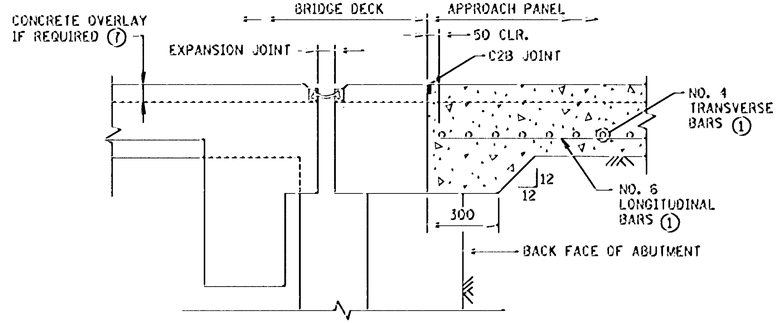


INSIDE ELEVATION



SECTION D-D

CURB TRANSITION DETAILS



SECTION C-C
(PARAPET ABUTMENT SHOWN)

NOTES:
1. ALL REINFORCEMENT IN APPROACH PANEL, SILL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.
2. TRANSITION FACE OF 100 mm CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAILS.
3. TRANSITION APPROACH PANEL CURB HEIGHT 100 mm TO 0 mm WHERE THERE IS NO ROADWAY CURB.
4. L2KT OR L1T LONGITUDINAL JOINTS AS REQUIRED. SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.
5. EDGE OF PANEL PERPENDICULAR TO GUTTER FOR SKEWS OVER 45°.
6. LOCATION MAY BE ON OR OFF THE APPROACH PANEL AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL CHAPTER 7 FOR CATCH BASIN INFORMATION.
7. APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. SEE BRIDGE PLANS FOR REQUIREMENTS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.
8. 6.1 m TO 40° SKEWS, 4.6 m OVER 40° SKEWS.
9. CONTRACTION JOINT C2B-D WITH 38 mm DIA. X 460 mm LG. EPOXY COATED DOWEL BARS AT 305 mm SPACING PARALLEL TO ℄ OF ROADWAY. CAGES NOT REQUIRED.
10. FAN 4 - NO. 4 BARS 2.4 m LONG AS SHOWN FOR SKEWS OVER 45°.
11. SEE STANDARD PLAN SHEET FOR BRIDGE APPROACH TRANSITION INFORMATION.
12. 50 mm NOMINAL DIA. THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH ON LOW SIDE. FURNISHING AND INSTALLING DRAIN SYSTEM SHALL BE INCIDENTAL, WITH NO DIRECT PAYMENT. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 3 mm PER 300 mm MINIMUM SLOPE.
13. BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0-3% PASSING A 75 µm SIEVE.

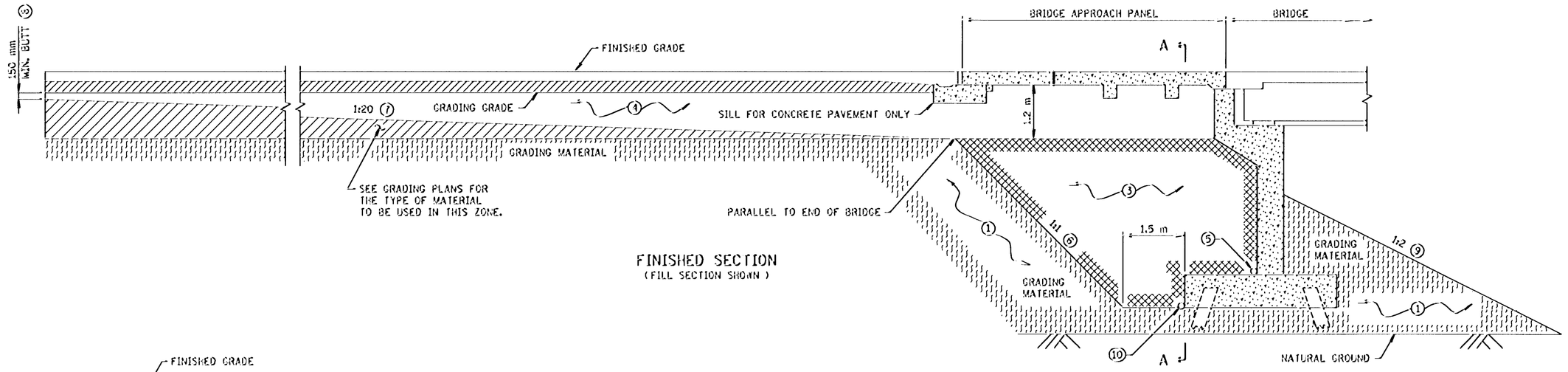
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO. 5-297.224M	TITLE: BRIDGE APPROACH PANEL WITH OR WITHOUT CONCRETE OVERLAY BITUMINOUS ROADWAY
STANDARD APPROVED: FEBRUARY 24, 1994	
S.A.P. 02-617-11, et al.	SHEET NO. 25 OF 236 SHEETS

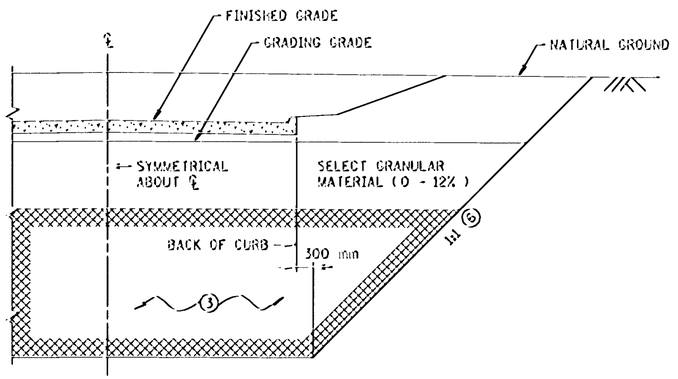
2-16-96

SERVER CAGASL:/USR/STANDARDS FILE NAME SW224854.SPN

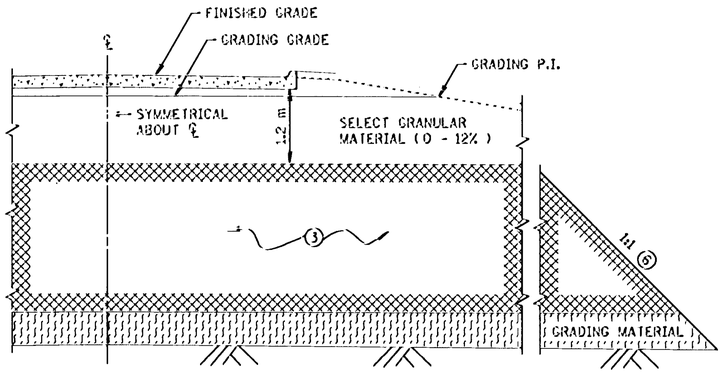
NAME: BA2 410.PLN DATE: Mar. 17, 1997



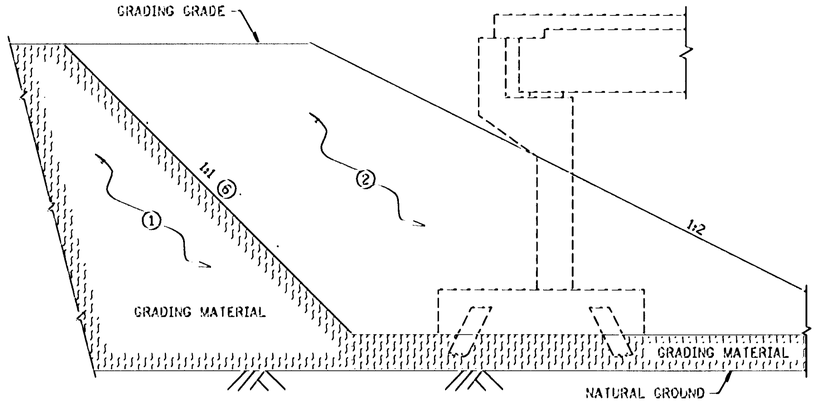
FINISHED SECTION
(FILL SECTION SHOWN)



HALF SECTION A-A
(CUT SECTION)



HALF SECTION A-A
(FILL SECTION)



GRADING SECTION AT ABUTMENT

NOTES:

(1) GRADING MATERIAL PLACED BY THE CONTRACTOR.

(2) GRADING MATERIAL CONSTRUCTED BY THE CONTRACTOR PRIOR TO THE BRIDGE CONSTRUCTION. TO BE REMOVED LATER BY THE CONTRACTOR.

(3) SELECT GRANULAR MATERIAL MODIFIED SHALL COMPLY WITH SPEC. 3149.2B, MODIFIED TO 10% OR LESS PASSING THE NUMBER 15 µm SIEVE. MATERIAL SHALL BE PLACED BY THE CONTRACTOR AFTER COMPLETION OF THE ABUTMENT.

(4) BACKFILL PLACED BY THE CONTRACTOR. MATERIAL SHALL COMPLY WITH SPEC. 3149.2B (SELECT GRANULAR BORROW).

(5) DRAIN IF REQUIRED. SEE BRIDGE STANDARD DETAIL B910.

(6) ACTUAL SLOPE TO BE DETERMINED DURING CONSTRUCTION BY THE CONTRACTOR, DEPENDING ON INSITU SOIL PROPERTIES AND/OR SAFETY FACTORS. (USE 1:1 FOR DESIGN)

(7) START 1:20 TAPER AT END OF APPROACH PANELS ON SKEWED BRIDGES.

(8) GRADING TO BE SQUARED OFF ON SKEWED APPROACHES.

(9) SEE BRIDGE PLANS FOR SLOPE PAVING.

(10) SUBSURFACE PIPE DRAIN WHEN REQUIRED AS DIRECTED BY THE DISTRICT SOILS ENGINEER. 100 mm NOM. DIA. PLASTIC PIPE PER SPEC. 3245 PLACED BY THE CONTRACTOR. PERFORATED PIPE TO BE WRAPPED WITH GEOTEXTILE MEETING THE REQUIREMENTS OF SPEC. 3733 TYPE 1. FOUNDATION SHALL BE SHAPED TO FIT LOWER ONE THIRD CIRCUMFERENCE OF PIPE.

STANDARD SHEET NO. 5-297.225M	TITLE: BRIDGE APPROACH TREATMENT FOR BOTH HIGH AND LOW ABUTMENTS ON PILING
STANDARD APPROVED: AUGUST 4, 1992	

3-23-95 | S.A.P. 02-617-11, et al. | SHEET NO. 26 OF 236 SHEETS

SERVER: CA64S1/USR/STANDARDS FILE NAME: SM225N52.SPN

NAME: BA3 410.PLN DATE: Mar. 17, 1997

V DETOUR TRAFFIC SIGN TABULATION

SIGN LEGEND	SIGN DESIGNATION	SIGN SIZE	SIGN COLOR	QUANTITY
35W	M1-1	24"X24"	WHITE ON RED, BLUE	2
17	M1-6	24"X24"	WHITE AND YELLOW ON BLUE	24
NORTH	M3-1	24"X12"	BLACK ON WHITE	9
SOUTH	M3-3	24"X12"	BLACK ON WHITE	12
TO	M4-5A	24"X12"	WHITE ON BLUE	2
DETOUR	M4-8	24"X12"	BLACK ON ORANGE	22
END DETOUR	M4-8A	24"X18"	BLACK ON ORANGE	2
	M5-1R	21"X15"	BLACK ON WHITE	2
	M5-1L	21"X15"	BLACK ON WHITE	1
	M5-1AR	21"X15"	WHITE ON BLUE	1
	M6-1	21"X15"	BLACK ON WHITE	7
	M6-3	21"X15"	BLACK ON WHITE	11
	M6-3A	21"X15"	WHITE ON BLUE	1
STOP	R1-1	36"X36"	WHITE ON RED	2
ALL WAY	R1-4	18"X6"	WHITE ON RED	3
	W3-1A	36"X36"	BLACK, RED, WHITE ON ORANGE	1
(4) 17 LEXINGTON AVE. CLOSED USE EXIT 32	SPECIAL-2	174"X108"	BLACK ON ORANGE	2
(6) LEXINGTON CIRCLE PINES	SPECIAL-3	102"X36"	BLACK ON ORANGE	1
(4) 17 LEXINGTON AVE. CLOSED	SPECIAL-4	174"X90"	BLACK ON ORANGE	1

V DETOUR TRAFFIC SIGN TABULATION

SIGN LEGEND	SIGN DESIGNATION	SIGN SIZE	SIGN COLOR	QUANTITY
(4) FOLLOW DETOUR 17 LEXINGTON AVE.	SPECIAL-5	174"X114"	BLACK ON ORANGE	2
(5) LEXINGTON AVE.	SPECIAL-6	24"X18"	BLACK ON ORANGE	23
(3) (7) LEXINGTON AVE CLOSED	SPECIAL-7	216"X23"	BLACK ON ORANGE	4
(3) (10) EXIT 32	SPECIAL-8	78"X16"	BLACK ON ORANGE	1
(3) (8) (9) CLOSED	SPECIAL-9	90"X24"	BLACK ON ORANGE	2
	SPECIAL-10	120"X42"	BLACK ON ORANGE	2
(1) 17 ROAD CLOSED LOWER ROAD TO 109TH AVE. FOLLOW DETOUR	G20-X2 (A)	132"X108"	BLACK ON ORANGE	2
(1) 17 ROAD CLOSED 109TH AVE. TO LOWER ROAD FOLLOW DETOUR	G20-X2 (B)	132"X108"	BLACK ON ORANGE	2
THIS RAMP WILL BE CLOSED 19after	G20-X1 (A)	84"X60"	BLACK ON ORANGE	4
THIS ROAD WILL BE CLOSED 19after	G20-X1 (B)	84"X60"	BLACK ON ORANGE	2

GENERAL TRAFFIC CONTROL NOTES:

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS DATED APRIL 1995.

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, AS APPROPRIATE, ALL SIGNS SHOWN ON THESE PLANS TO THE SATISFACTION OF THE ENGINEER.

THE CONTRACTOR SHALL REMOVE, SALVAGE, OR COVER AS APPROPRIATE, ALL EXISTING SIGNING WHICH CONFLICTS WITH THIS TRAFFIC CONTROL PLAN TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL RESTORE ALL APPROPRIATE ORIGINAL SIGNING WHEN AND AS DIRECTED BY THE ENGINEER.

THE LOCATIONS AND QUANTITIES OF TRAFFIC CONTROL DEVICES SHOWN ON THESE PLANS ARE APPROXIMATE AND ARE SUBJECT TO REVISION BY THE ENGINEER.

THESE DETOUR LAYOUTS DO NOT SHOW ALL INPLACE SIGNING. CONTRACTOR SHALL RELOCATE ALL APPROPRIATE INPLACE SIGNING TO MAINTAIN PROPER SIGN VISIBILITY DURING CONSTRUCTION AS DEEMED NECESSARY BY THE ENGINEER.

"SPECIAL-1" NOT USED

(1) CONTRACTOR SHALL PLACE SIX G20-X1 SIGNS (BLACK ON ORANGE) ONE WEEK IN ADVANCE OF PLACEMENT OF DETOUR. INSTALL G20-X1(a) AT RAMPS AND G20-X1(b) ON C.S.A.H. 17 AT BALL ROAD AND 109TH AVE.

(2) THIS SIGN OWNED BY MINNESOTA LOGOS
201 W. TRAVELERS TRAIL SUITE 230
BURNSVILLE MN. 55337
PHONE 895-8499
CONTRACTOR SHALL CONTACT OWNER OF SIGN TO COVER SIGN AS PART OF TRAFFIC CONTROL DETOUR PLAN.

(3) SIGN PANEL OVERLAY TO BE MOUNTED ON EXISTING TYPE A SIGN. EXISTING SIGN PANEL HAS OVERLAY IN PLACE.

(4) "Lexington Ave." LETTERS SHALL BE 13.3"-10" SERIES E-MOD. ALL OTHER LETTERS SHALL BE 10" SERIES E.

(5) LETTERS SHALL BE 4", SERIES E.

(6) LETTERS SHALL BE 8"-6" SERIES E-MOD.

(7) LETTERS SHALL BE 10.67"-8", SERIES E-MOD.

(8) LETTERS SHALL BE 12", SERIES E.

(9) LETTERS SHALL BE 16", SERIES E-MOD.

(10) LETTERS SHALL BE 10" SERIES E.

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ALL WAY STOP AT W. 95TH RAMPS

NAME: DPN 410.PLN DATE: Mar. 13, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

CO. PROJECT NO.

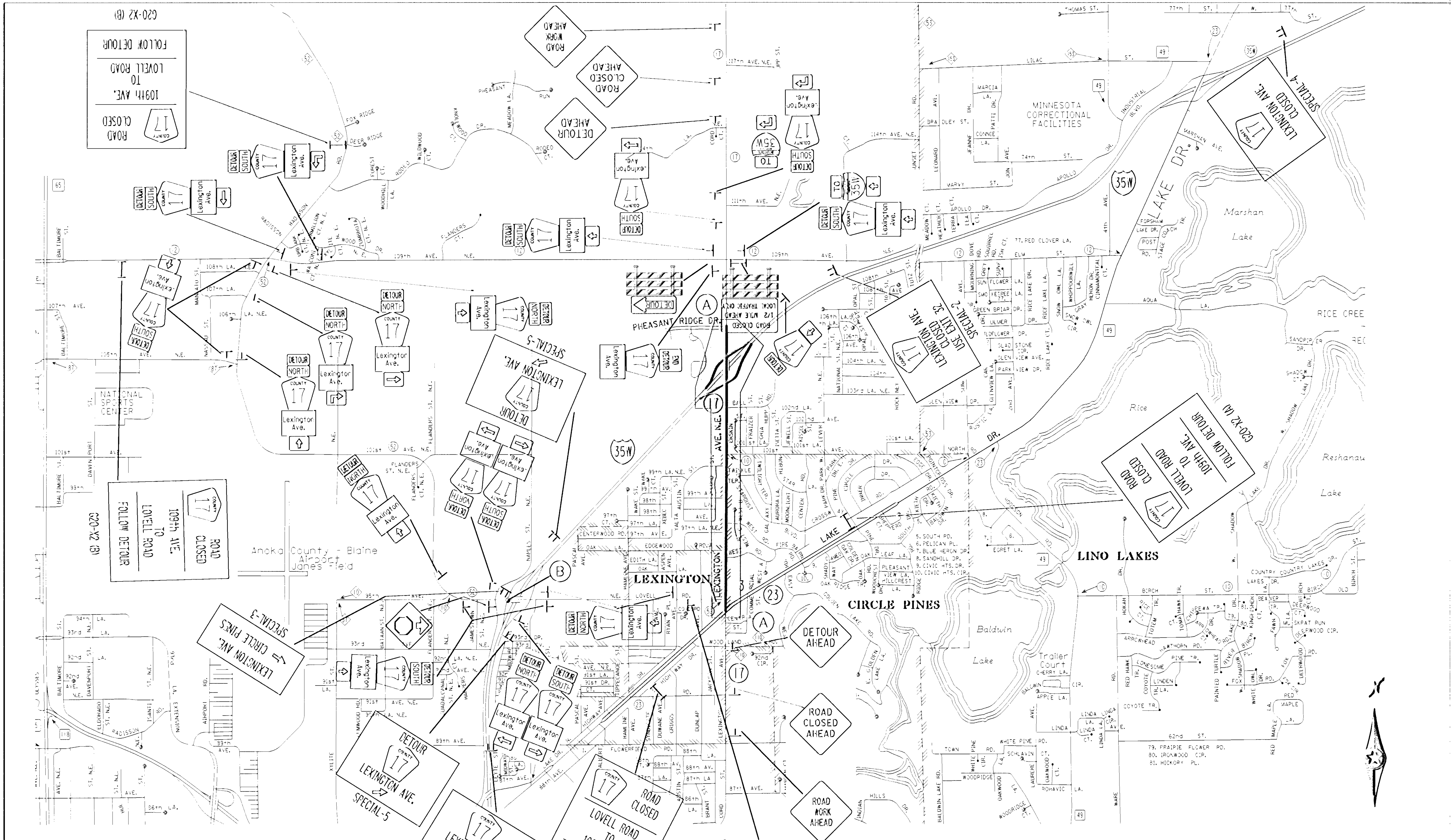
DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

DETOUR SIGN TABULATION AND GENERAL NOTES
C.S.A.H. 17 RECONSTRUCTION

SHEET 27 OF 236



A SEE STAGING PLANS I AND II FOR ADDITIONAL DETOUR SIGNING THIS AREA

B PROVIDE 2 R1-1 (STOP) SIGNS AT WESTERLY RAMPS OF 95TH AVE. PROVIDE 3 R1-4 (ALL WAY) SIGNS.

PROPOSED PROJECT

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD ALL WAY STOP AT 95TH RAMPS

NAME: DP1 410.PLN DATE: Mar. 18, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY M. IISAKKA	DATE 12-96
DESIGNED BY D. DEMERS	11-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0962410	

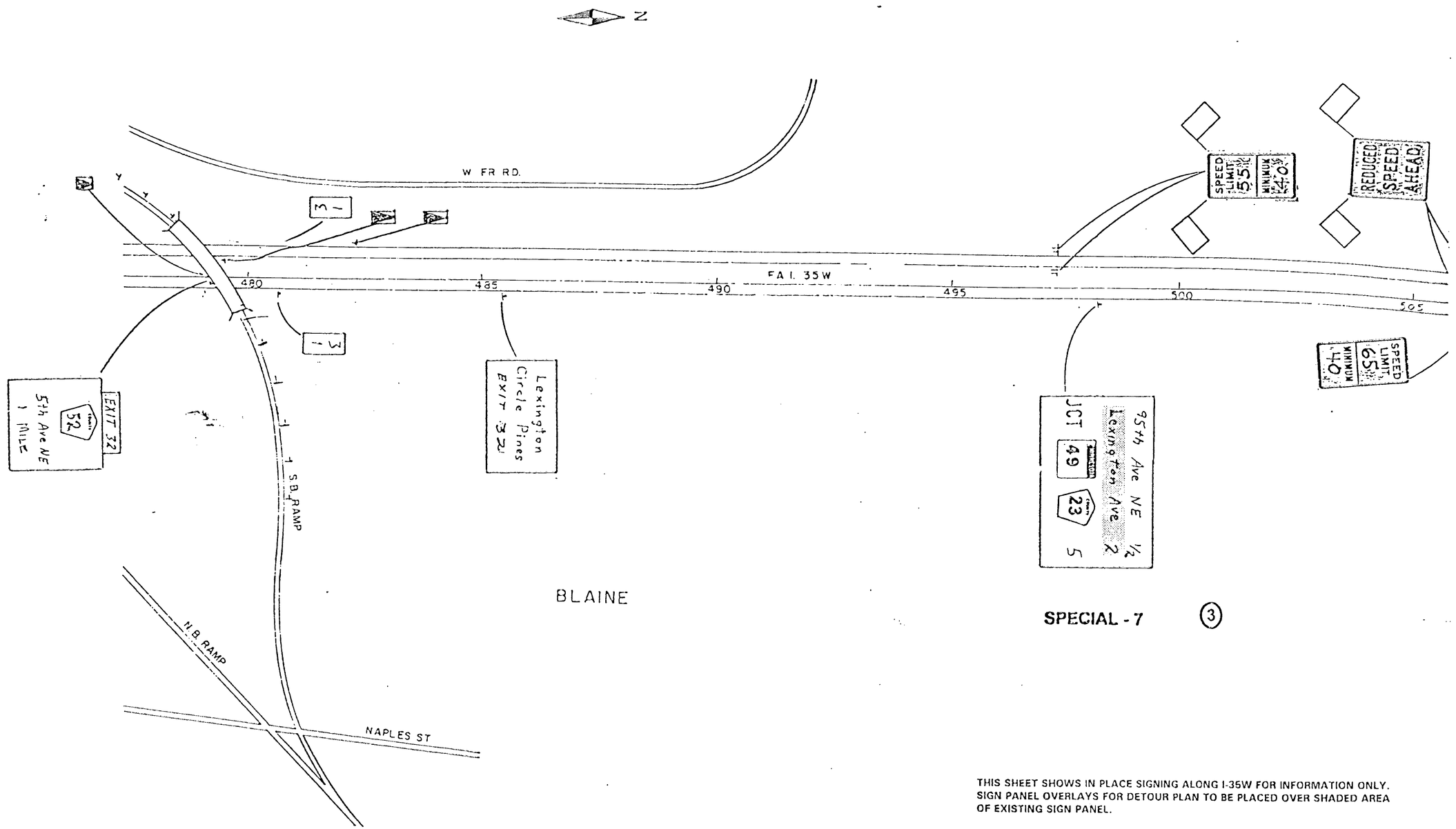
SRF CONSULTING GROUP, INC.

ANOKA COUNTY

DETOUR PLAN

C.S.A.H. 17 RECONSTRUCTION

SHEET 28 OF 236



SPECIAL - 7 (3)

THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO.	DATE	BY	CKD	APPR	REVISION

NAME: DP2 410 PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	2-97

COMM. NO. 0962410

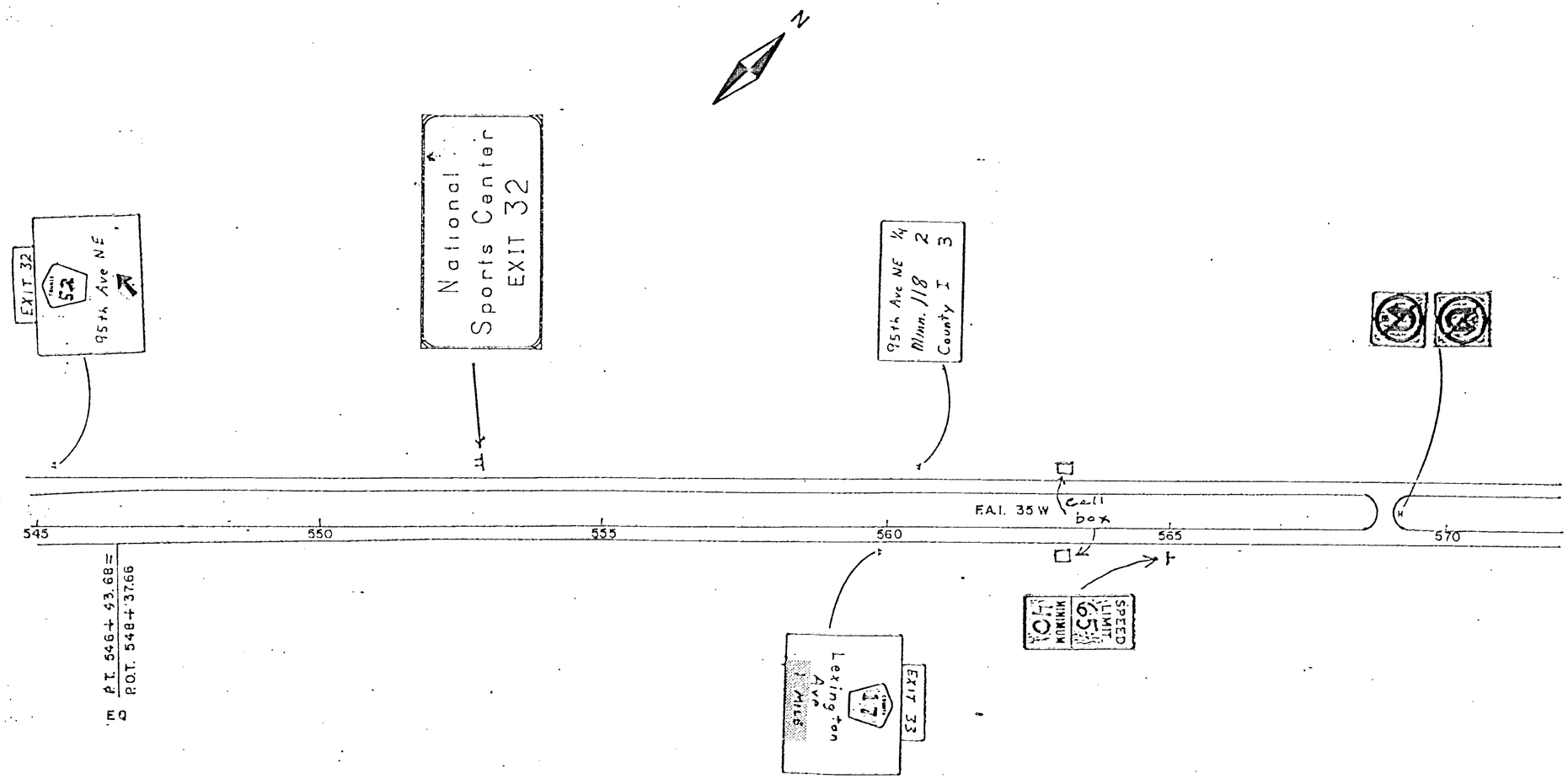
SRF CONSULTING GROUP, INC.

ANOKA COUNTY

DETOUR PLAN

C.S.A.H. 17 RECONSTRUCTION

SHEET 29 OF 236



SPECIAL - 9 (3)

THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: DP3 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	12-96
DESIGNED BY	Q. DEMERS	12-96
CHECKED BY	Q. DEMERS	2-97
COMM. NO.	0962410	

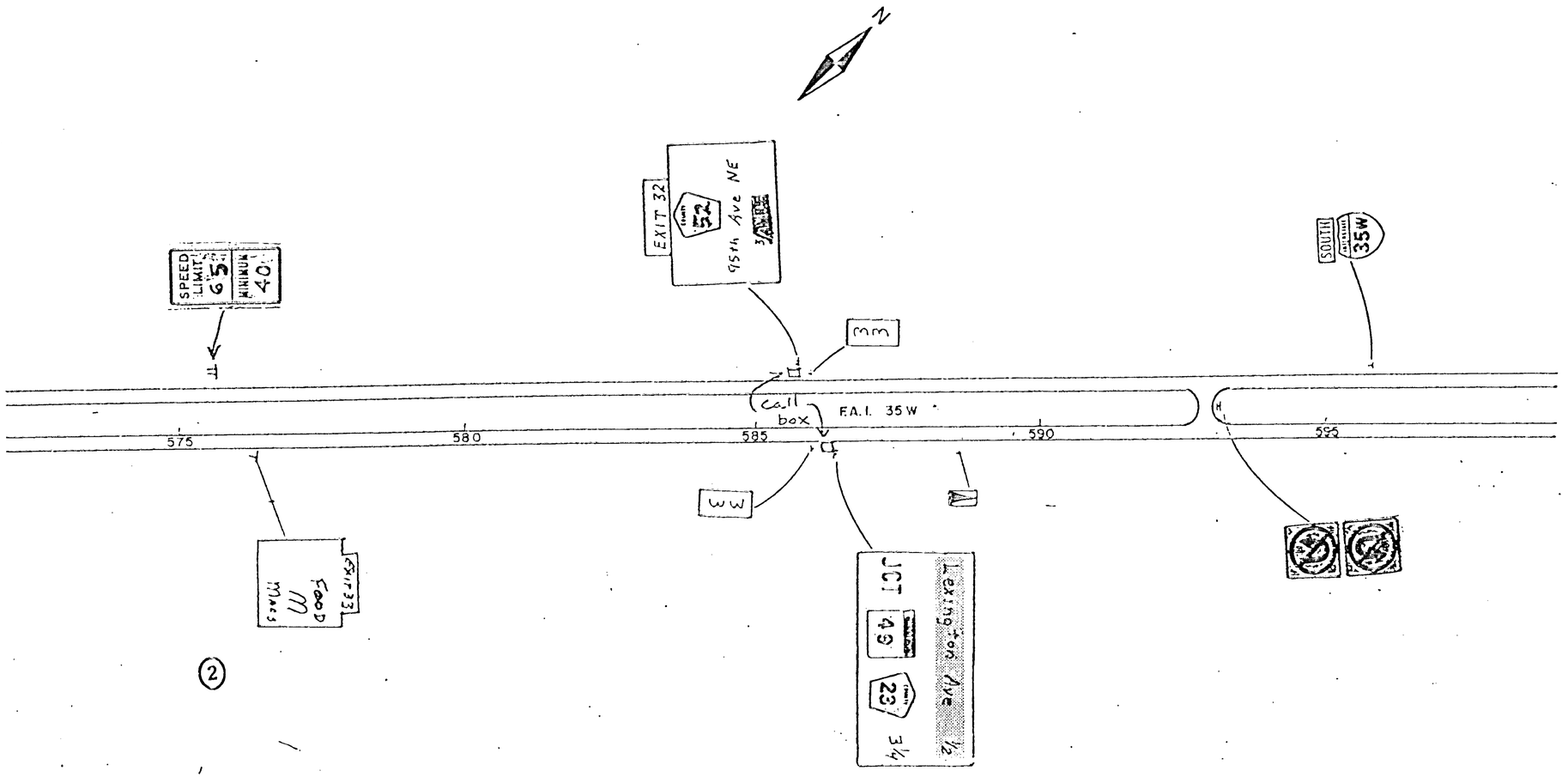
SRF CONSULTING GROUP, INC.

ANOKA COUNTY

DETOUR PLAN

C.S.A.H. 17 RECONSTRUCTION

SHEET 30 OF 236



THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: DP4 410.PLN DATE: Mar. 17, 1997

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

	DRAWN BY	DATE
	V. GRAF	12-96
	DESIGNED BY	
	D. DEMERS	12-96
	CHECKED BY	
	D. DEMERS	2-97
	COMM. NO.	
	0262410	

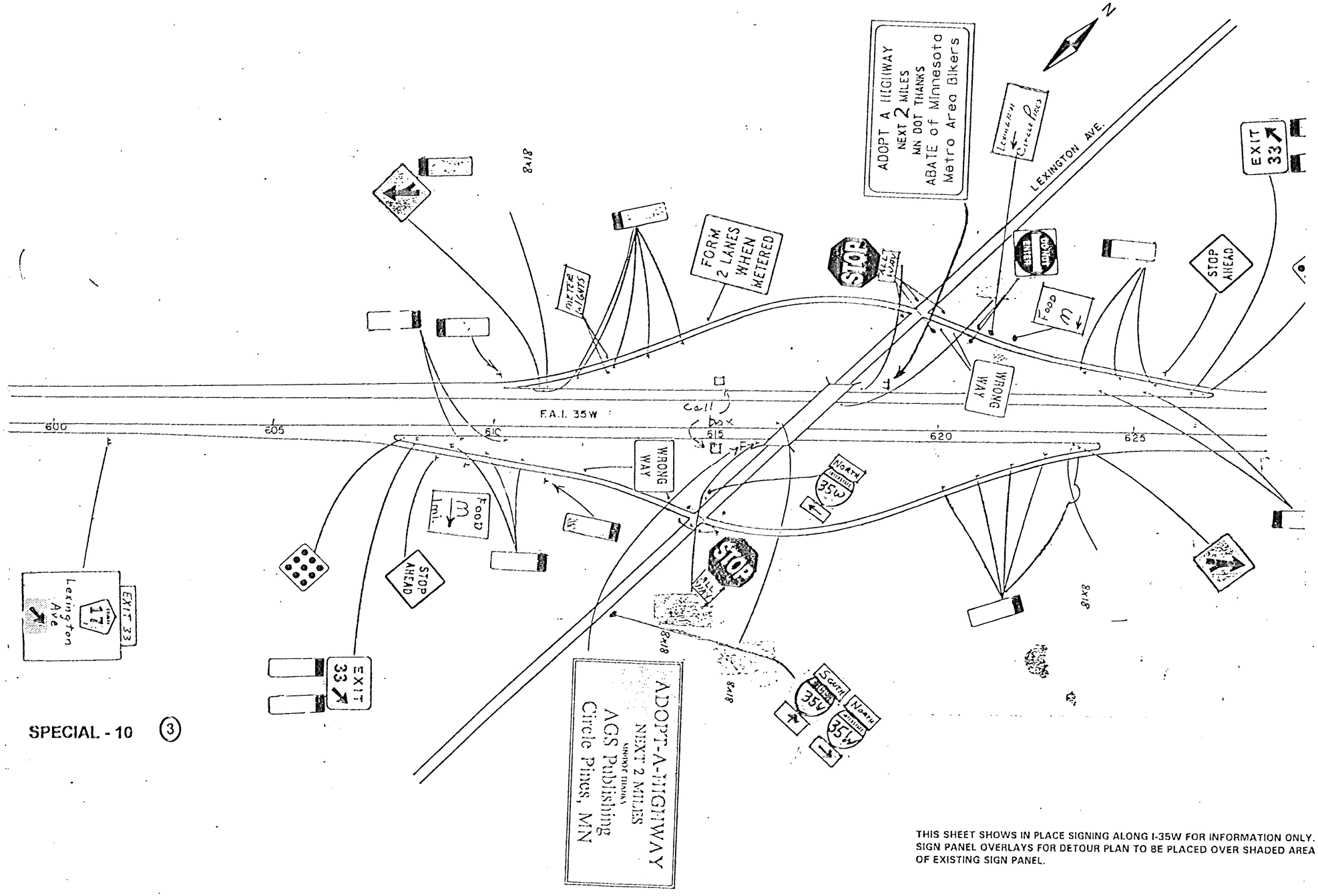
SRF CONSULTING GROUP, INC.

ANOKA COUNTY

DETOUR PLAN

C.S.A.H. 17 RECONSTRUCTION

SHEET 31 OF 236



SPECIAL - 10 (3)

THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: DPS 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.	DRAWN BY	DATE
S.A.P. 02-617-11	V. GRAF	12-96
S.A.P. 106-020-12	DESIGNED BY	
S.A.P. 106-030-03	D. DEMERS	12-96
CO. PROJECT NO.	CHECKED BY	
	D. DEMERS	2-97
	COMM. NO.	
	02624.10	

SRF CONSULTING GROUP, INC.

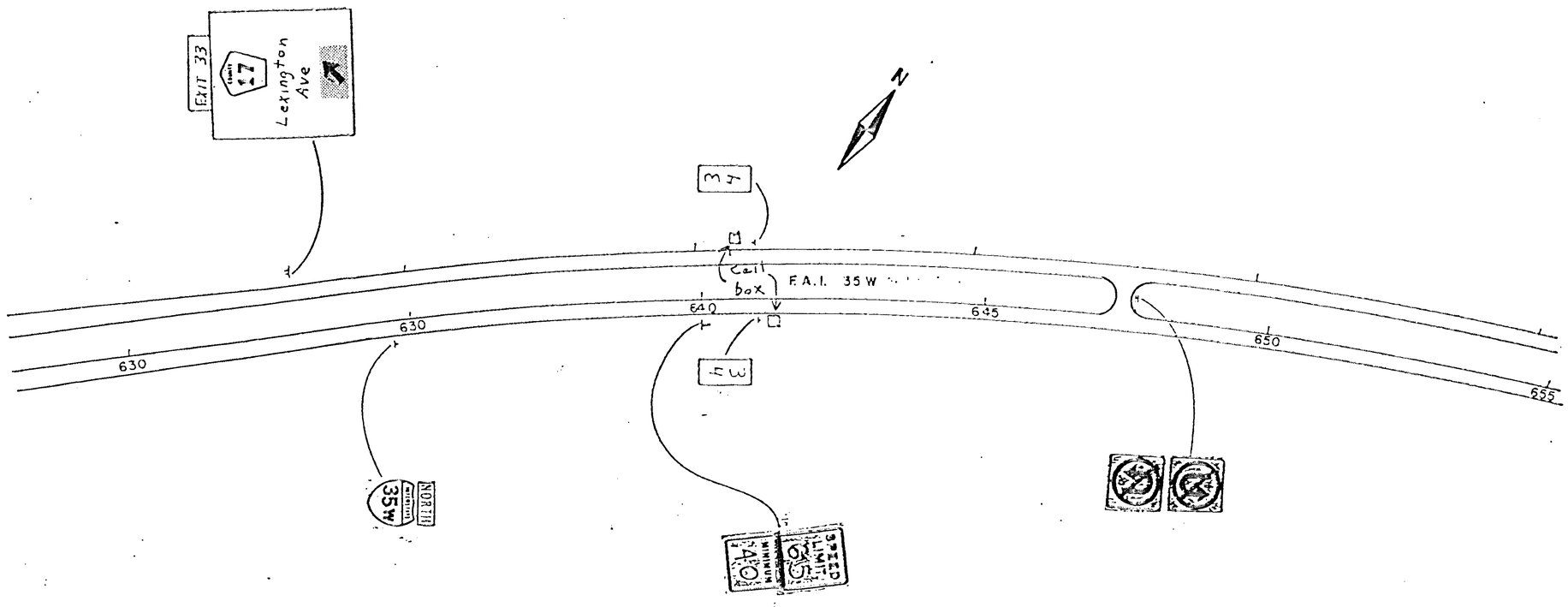
ANOKA COUNTY

DETOUR PLAN

C.S.A.H. 17 RECONSTRUCTION

SHEET 32 OF 236

SPECIAL - 10 (3)



THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: DPS 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers
Date 3-21-97 Reg. No. 23397

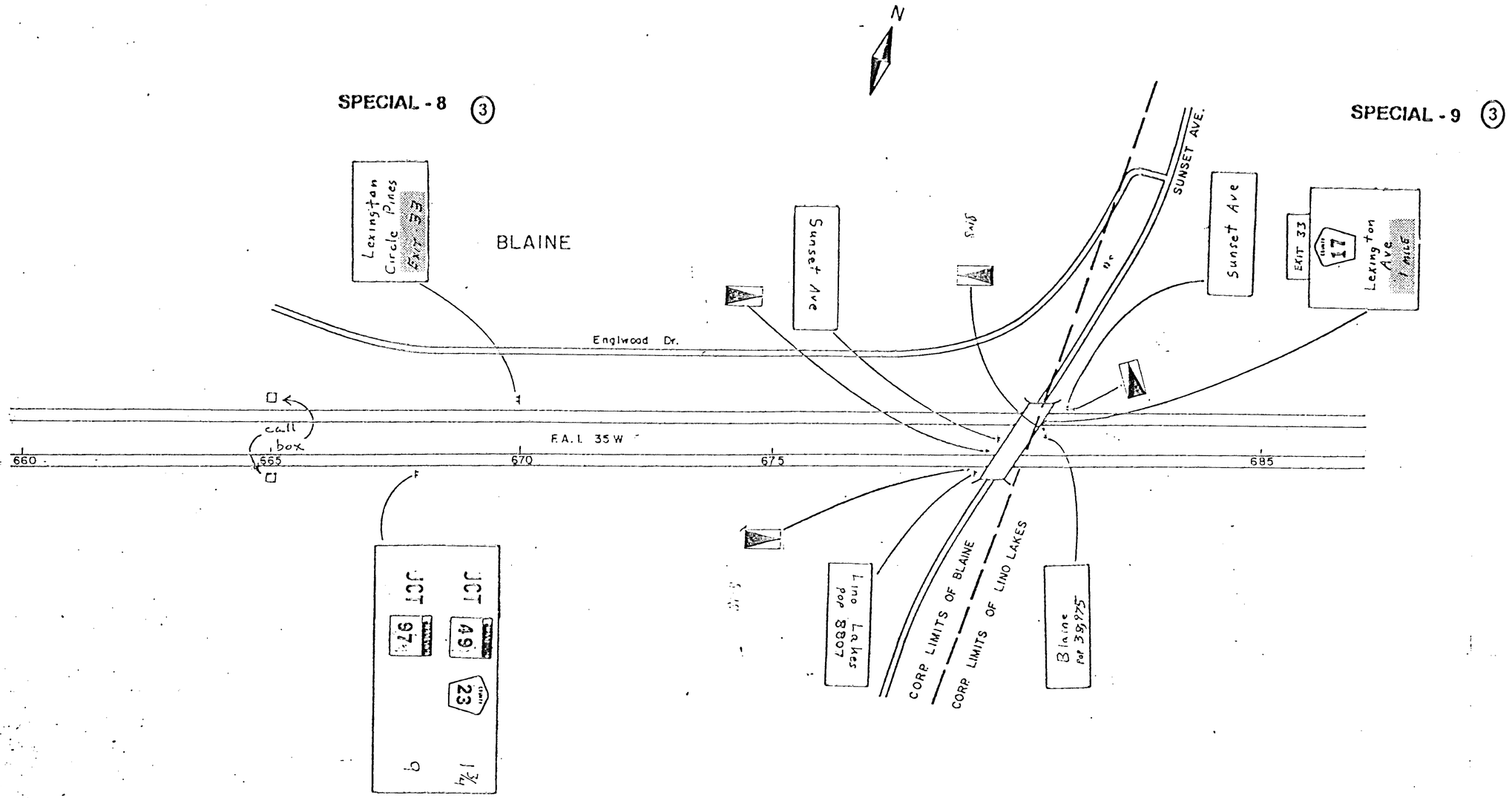
STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	2-97
COMM. NO.	0252410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DETOUR PLAN
C.S.A.H. 17 RECONSTRUCTION

SHEET 33 OF 236



THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: DP7 410.PLN DATE: Mar 17, 1997

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Donald A Diemers

Date 3-21-97 Reg No. 23397

STATE AID PROJECT NO.	
S.A.P. 02-617-11	
S.A.P. 106-020-12	
S.A.P. 106-030-03	
CO. PROJECT NO.	

DRAWN BY V. GRAF	DATE 12-96
DESIGNED BY D. DEMERS	12-96
CHECKED BY D. DEMERS	2-97
COMM. NO. 0952410	

SRE CONSULTING GROUP, INC.

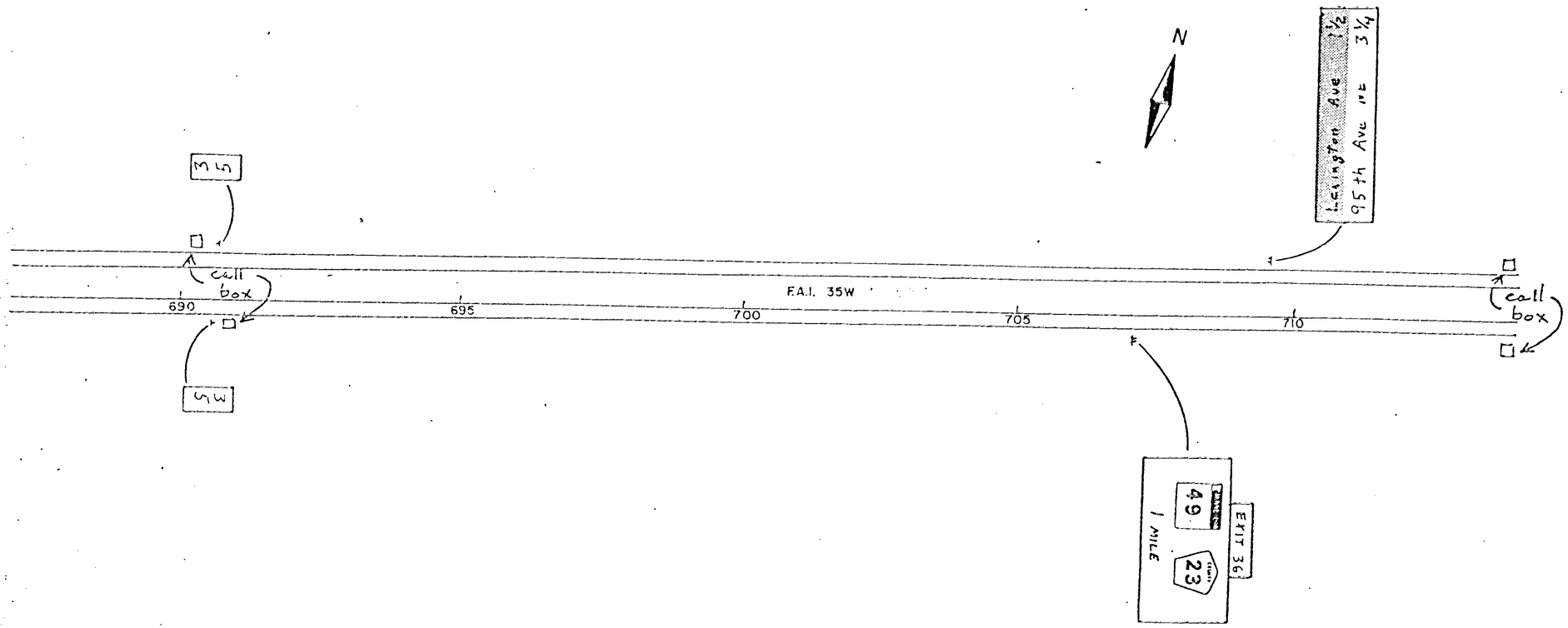
ANOKA COUNTY

DETOUR PLAN

C.S.A.H. 17 RECONSTRUCTION

SHEET 34 OF 236

SPECIAL - 7 (3)



THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: DP8 410 PLN DATE: Mar. 17, 1997

Minnesota Department of Transportation

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	2-97

COMM. NO. 0962410

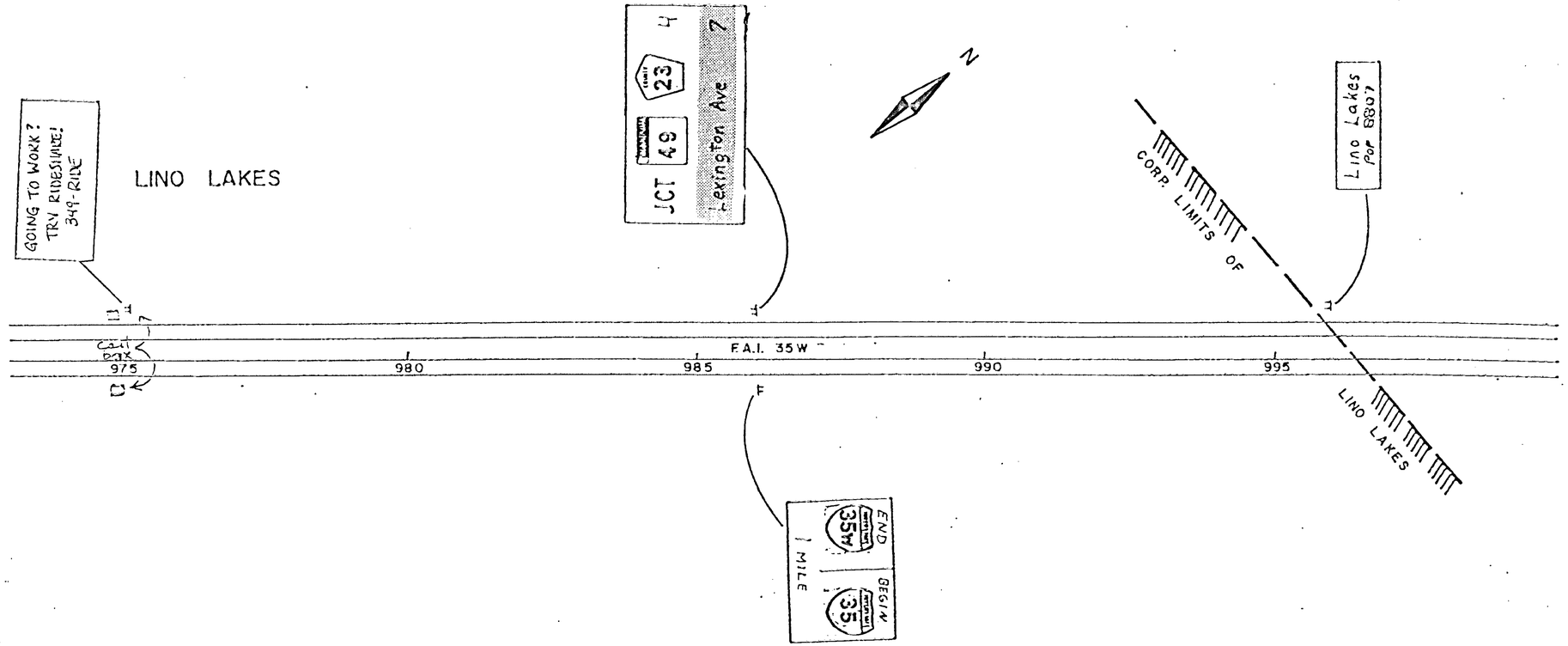
SRF CONSULTING GROUP, INC.

ANOKA COUNTY

DETOUR PLAN

C.S.A.H. 17 RECONSTRUCTION

SPECIAL - 7 (3)



THIS SHEET SHOWS IN PLACE SIGNING ALONG I-35W FOR INFORMATION ONLY. SIGN PANEL OVERLAYS FOR DETOUR PLAN TO BE PLACED OVER SHADED AREA OF EXISTING SIGN PANEL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: DP9 410 PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers
Date 3-21-97 Reg No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 2-97
COMM. NO. 0962410

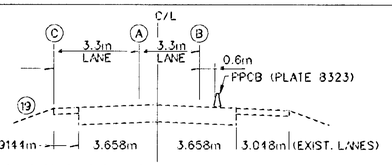
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DETOUR PLAN
C.S.A.H. 17 RECONSTRUCTION

SHEET 36 OF 236

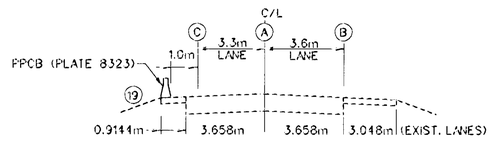
W TRAFFIC SIGN TABULATION

SIGN LEGEND	SIGN DESIGNATION	SIGN SIZE	SIGN COLOR	QUANTITY STAGE I	QUANTITY STAGE II
END ROAD WORK	G20-2A	18"X24"	BLACK ON ORANGE	4	4
STOP	R1-1	30"X30"	WHITE ON RED	8	8
YIELD	R1-2	36"X36"X36"	RED ON WHITE	1	1
ONE WAY	R1-4	18"X6"	WHITE ON RED	4	4
	R3-1	24"X24"	BLACK AND RED ON WHITE	2	2
	R4-7	24"X30"	BLACK ON WHITE	3	0
ROAD CLOSED	R11-2	18"X30"	BLACK ON WHITE	2	2
ROAD CLOSED 1/4 MILES AHEAD LOCAL TRAFFIC ONLY	R3-11	60"X30"	BLACK ON WHITE	2	2
	W1-1R	30"X30"	BLACK ON WHITE	1	1
	W1-3R	30"X30"	BLACK ON ORANGE	1	1
	W1-6	18"X24"	BLACK ON ORANGE	4	1
	W1-7	18"X24"	BLACK ON ORANGE	1	4
	W3-1a	36"X36"	BLACK, RED, WHITE ON ORANGE	3	3
	W4-2R	36"X36"	BLACK ON ORANGE	0	1
	W6-3	30"X30"	BLACK ON ORANGE	4	3
10 M.P.H	W13-1	24"X24"	BLACK ON ORANGE	1	1
	W14-X7	24"X24"	BLACK ON ORANGE	1	1
ROAD CLOSED AHEAD	W20-1	18"X18"	BLACK ON ORANGE	19	19
DETOUR AHEAD	W20-2	18"X18"	BLACK ON ORANGE	2	2
ROAD CLOSED AHEAD	W20-3	18"X18"	BLACK ON ORANGE	4	4
1000 FEET	W20-100 P	24"X18"	BLACK ON ORANGE	1	1
	W20-X7(R)	18"X18"	BLACK ON ORANGE	4	4



LANE CONFIGURATION FOR PPCB ALONG RT. SIDE OF I-35W

(A) 100mm BROKEN LINE WHITE (REMOVABLE POLY PRE-FORMED)
(B) 100mm SOLID LINE WHITE (REMOVABLE POLY PRE-FORMED)
(C) 100mm SOLID LINE YELLOW (REMOVABLE POLY PRE-FORMED)



LANE CONFIGURATION FOR PPCB ALONG LT. SIDE OF I-35W

(A) 100mm BROKEN LINE WHITE (REMOVABLE POLY PRE-FORMED)
(B) 100mm SOLID LINE WHITE (REMOVABLE POLY PRE-FORMED)
(C) 100mm SOLID LINE YELLOW (REMOVABLE POLY PRE-FORMED)

SEE TRAFFIC SIGN TABULATION AND GENERAL NOTES FOR GENERAL TRAFFIC CONTROL NOTES.

LEGEND

- REFLECTORIZED DRUMS (USED FOR CHANNELIZATION)
- REFLECTORIZED DRUM WITH STANDARD SIGN
- TYPE "A" LOW INTENSITY WARNING FLASHER
- STANDARD SIGN (POST OR STAND MOUNTED)
- TYPE 3 BARRICADE - REFLECTORIZED BOTH SIDES (2.4m WIDE UNLESS NOTED OTHERWISE)
- TRAFFIC LOCATION AND DIRECTION
- (1) 100mm DOUBLE SOLID LINE YELLOW (PAINT)
- (2) 100mm BROKEN LINE WHITE (REMOVABLE POLY PREFORM)
- (3) 100mm SOLID LINE WHITE (REMOVABLE POLY PREFORM)
- (4) 100mm SOLID LINE YELLOW (REMOVABLE POLY PREFORM)
- (5) 100mm SOLID LINE WHITE PAINT
- TEMPORARY RAISED PAVEMENT MARKERS (TRPM)
- STAGE I TEMPORARY PAVEMENT WIDENING
- CONSTRUCTION AREA
- BOX CULVERT CONSTRUCTION (STAGE I)
- CONSTRUCTION UNDER TRAFFIC

W TRAFFIC SIGN TABULATION

	W20-X7(L)	18"X18"	BLACK ON ORANGE	4	4
LANES NARROW	W20-X17	18"X18"	BLACK ON ORANGE	4	4
NO SHOULDER	W21-X1	18"X18"	BLACK ON ORANGE	4	4
DETOUR	M4-10L	18"X18"	BLACK ON ORANGE	2	1
DETOUR	M4-10R	18"X18"	BLACK ON ORANGE	1	1
	X4-4	18"X18"	YELLOW ON BLACK	4	4
	SPECIAL	24"X30"	BLACK ON WHITE	0	1

GENERAL TRAFFIC CONTROL NOTES:

1. ALL TRAFFIC CONTROL DEVICES, TEMPORARY LANE CLOSURE ARRANGEMENTS AND PROCEDURES, ETC. SHALL CONFORM TO REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS DATED APRIL 1995.

2. PAVEMENT MARKINGS SHALL BE PAINT OR REMOVABLE POLYMER PREFORMED AND SHALL BE SUPPLEMENTED WITH ONE-WAY TEMPORARY RAISED PAVEMENT MARKERS (TRPM'S), AS APPROPRIATE , ON 3 METER CENTERS WHERE IDENTIFIED ON THE PLANS. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE ALL TRPM'S AND PAVEMENT MARKINGS TO THE SATISFACTION OF THE ENGINEER. TRPM COLORS SHALL CONFORM TO THE REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND SHALL BE PLACED AS DETAILED IN FIGURE 8.7 OF THE MN/DOT TRAFFIC MANUAL. REMOVABLE PREFORMED PAVEMENT MARKINGS AND TRPM'S SHALL BE PAID FOR SEPERATELY FROM THE LUMP SUM FOR TRAFFIC CONTROL UNDER THE APPROPRIATE CONTRACT ITEMS INDICATED ON THE PROPOSAL.

   TRPM LOCATIONS:
   - NB I-35W (STAGE I & II)
     - STA. 18+000 TO 18+100
     - STA. 18+560 TO 18+670
   - SB I-35W (STAGE I & II)
     - STA. 18+950 TO 19+050
     - STA. 19+500 TO 19+650
   - CSAH 17 (STAGE II)
     - STA. 8+390 TO 8+440

3. ALL TRAFFIC THRU LANES SHALL BE A MINIMUM OF 3.6 METERS IN WIDTH UNLESS NOTED OTHERWISE.

4. REFLECTORIZED DRUMS USED FOR CHANNELIZATION SHALL TYPICALLY HAVE 3 METER SPACING IN INTERSECTION AREAS, AND 15 METER SPACING IN OTHER AREAS. DRUMS SPACED AT 15m INTERVALS SHALL BE SUPPLEMENTED WITH DOWN ARROWS. DRUM LOCATIONS AND SPACINGS SHOWN ON THIS PLAN ARE APPROXIMATE AND ARE SUBJECT TO REVISION BY THE ENGINEER.

5. THE LOCATIONS AND QUANTITIES OF TRAFFIC CONTROL DEVICES SHOWN ON THESE PLANS ARE APPROXIMATE AND ARE SUBJECT TO REVISION BY THE ENGINEER.

6. ANY TEMPORARY PORTABLE TRAFFIC BARRIER USED ON THIS PROJECT SHALL HAVE BARRIER DELINEATORS SPACED AT 15.24 METERS. THE DELINEATORS SHALL HAVE A MINIMUM OF 0.0155 SQUARE METERS (24 SQ. INCHES.)

7. THE CONTRACTOR SHALL MAINTAIN A 0.6 METER MINIMUM CLEAR DISTANCE BETWEEN THE EDGE OF THE TRAVEL LANE AND THE NEAREST EDGE OF ANY ADJACENT TRAFFIC CONTROL DEVICES (DRUMS, BARRICADES, BARRIERS, ETC.)

8. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES TO THE SATISFACTION OF THE ENGINEER.

9. THE CONTRACTOR SHALL PROVIDE CHANNELIZING DEVICES (AND SIGNING IF NECESSARY) AT ALL PRIVATE ENTRANCE LOCATIONS WHERE NEEDED TO SAFELY GUIDE TRAFFIC TO AND FROM THE TRAVEL CORRIDOR, TO THE SATISFACTION OF THE ENGINEER.

10. THE CONTRACTOR SHALL REMOVE, SALVAGE, OR COVER AS APPROPRIATE, ALL EXISTING SIGNING WHICH CONFLICTS WITH THIS TRAFFIC CONTROL PLAN TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL RESTORE ALL APPROPRIATE ORIGINAL SIGNING WHEN AND AS DIRECTED BY THE ENGINEER.

11. THE CONTRACTOR SHALL REMOVE ALL EXISTING PAVEMENT MARKINGS WHICH CONFLICT WITH THESE TRAFFIC CONTROL PLANS TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR SHALL RESTORE ALL APPROPRIATE ORIGINAL PAVEMENT MARKINGS WHEN AND AS DIRECTED BY THE ENGINEER.

    PAVEMENT MARKING REMOVALS:
    - CSAH 17 (STAGE I)
      - STA. 8+390 TO 10+030
    - NB I-35W STA. 18+000 TO 18+840
    - SB I-35W STA. 18+760 TO 19+650

12. THESE TRAFFIC CONTROL LAYOUTS DO NOT SHOW ALL INPLACE SIGNING. CONTRACTOR SHALL RELOCATE ALL APPROPRIATE INPLACE SIGNING TO MAINTAIN PROPER SIGN VISIBILITY DURING CONSTRUCTION AS DEEMED NECESSARY BY THE ENGINEER.

13. THE CONTRACTOR SHALL PROVIDE QUALIFIED FLAGGERS WITH TWO-WAY RADIOS AT ALL TIMES WHEN CONTRACTOR OPERATIONS REQUIRE ONE-LANE-TWO-WAY OPERATION OR WHEN, IN THE OPINION OF THE ENGINEER, ONE-LANE TWO-WAY OPERATIONS IS APPROPRIATE DUE TO SAFETY CONCERNS FROM OPEN EXCAVATIONS, ADJACENT EQUIPMENT, ETC..

14. THE CONTRACTOR SHALL NOT PLACE PAINTED TEMPORARY PAVEMENT MARKINGS ON PERMANENT FINAL SURFACING (OR ON OTHER SURFACING WHICH WILL NOT ULTIMATELY BE REPLACED OR COVERED BY PLANNED CONSTRUCTION), UNLESS THE TEMPORARY MARKINGS ARE IN THE SAME LOCATION AS THE PERMANENT MARKINGS.

    PAVEMENT MARKINGS SHALL BE PAINT EXCEPT MARKINGS SHALL BE REMOVABLE POLY PREFORMED AT THE FOLLOWING LOCATIONS:
    - CSAH 17 SOUTH OF STA. 8+440
    - NB I-35W STA. 18+000 TO 18+840
    - SB I-35W STA. 18+760 TO 19+650

15. 1:3 MAXIMUM TEMPORARY CONSTRUCTION EDGE SLOPES SHALL BE MAINTAINED AT ALL TIMES EXCEPT WHEN EXCAVATION WORK TEMPORARILY MANDATES STEEPER EDGE SLOPES. WHEN STEEPER EDGE SLOPES ARE NECESSARY (AS APPROVED BY THE ENGINEER), CONTRACTOR SHALL PROVIDE PPCB AND ATTENUATORS. PPCB IS SHOWN BETWEEN NORTH ROAD AND BALL ROAD. BID ITEMS ARE INCLUDED TO RELOCATE THIS PPCB AND ATTENUATORS AS NEEDED ALONG CSAH 17.

16. THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, AS APPROPRIATE, ALL SIGNS, PAVEMENT MARKINGS AND DEVICES SHOWN ON THESE PLANS TO THE SATISFACTION OF THE ENGINEER.

17. STORM SEWER LATERALS, MISCELLANEOUS SANITARY SEWER, AND WATERMAIN CROSSINGS SHALL BE CONSTRUCTED UNDER TRAFFIC AS REQUIRED. PROVIDE TEMPORARY PAVEMENT AS REQUIRED.

18. TEMPORARY PAVEMENT SHALL CONSIST OF 90 mm BITUMINOUS WEAR COURSE AND 150 mm OF AGGREGATE BASE CLASS 5A.

19. THE I-35W MEDIAN (LEFT) SHOULDERS SHALL BE RECONSTRUCTED TO PROVIDE A MINIMUM DEPTH OF 100 mm BITUMINOUS WEARING COURSE PRIOR TO LANE SHIFTS.

NO	DATE	BY	CKD	APPR	REVISION
1	3-28-97	MCI		DAD	ACHD COMMENTS

NAME: TCN 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

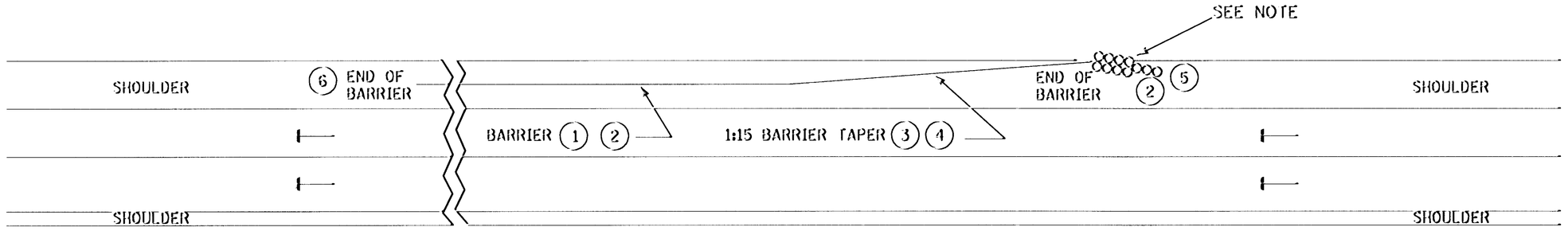
DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TRAFFIC CONTROL SIGN TABULATION AND GENERAL NOTES
C.S.A.H. 17 RECONSTRUCTION

SHEET 37 OF 236

PORTABLE CONCRETE BARRIER PLACEMENT



(1) IF IS DESIRABLE TO MAINTAIN FULL SHOULDER WIDTH WHENEVER POSSIBLE. IF NOT POSSIBLE, MINIMUM DESIRABLE LATERAL OFFSETS ARE BASED ON THE FOLLOWING POSTED SPEEDS:

65 MPH - 3.0 m
60 MPH - 2.4 m
50 MPH - 2.0 m
40 MPH - 1.5 m

FOR RESTRICTED CONDITIONS, LESSER OFFSETS MAY BE USED. THE OFFSETS SHOULD BE A MINIMUM OF 600 mm UNLESS THE CONDITIONS ARE EXTREME. LATERAL OFFSETS ARE MEASURED TO THE BOTTOM OF THE BARRIER. BARRIER OFFSET FROM EDGE OF THRU LANE SHOULD NOT EXCEED 4.5 m.

(2) DESIRABLE TREATMENTS FOR EXPOSED BARRIER ENDS ARE; A CONNECTION TO EXISTING BARRIER; IMPACT ATTENUATOR; TAPER AWAY TO THE EDGE OF THE CLEAR ZONE; AND EXTENDING THROUGH A PLATE BEAM GUARDRAIL BY REMOVING A PANEL.

FOR POSTED SPEEDS 30 MPH OR LESS, THE TAPERING AWAY FROM THE TRAFFIC IS DESIRABLE AND USE OF IMPACT ATTENUATOR ARE OPTIONAL

(3) A 1:10 TAPER MAY BE USED WHEN POSTED SPEED LIMIT IS 35 MPH OR LESS.

(4) IF THE BARRIER IS TO BE EXTENDED BEYOND THE SHOULDER, ADDITIONAL FILL WILL BE NEEDED IN ORDER TO PROVIDE A FLAT (1:10) APPROACH AREA TO THE BARRIER. FILL WILL BE INCIDENTAL TO BARRIER AND/OR IMPACT ATTENUATOR. (SEE SHOULDER FILL DETAIL BELOW)

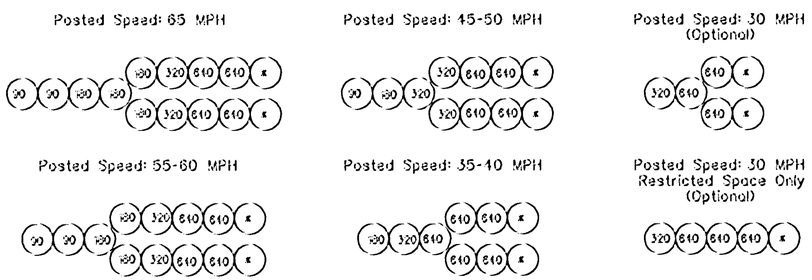
(5) THE IMPACT ATTENUATOR SHOULD BE OFFSET A MINIMUM OF 600 mm FROM THE EDGE OF THE THRU LANE (SEE SAND BARREL OFFSET DETAIL). THE IMPACT ATTENUATOR SHOULD BE ORIENTED TO ACCOMMODATE THE PROBABLE IMPACT ANGLE OF AN ENCROACHING VEHICLE. FOR MOST ROADSIDE CONDITIONS, AN ANGLE APPROXIMATELY 10 DEGREES, AS MEASURED BETWEEN THE HIGHWAY AND THE IMPACT ATTENUATOR LONGITUDINAL CENTERLINE, IS CONSIDERED APPROPRIATE (SEE SHOULDER FILL DETAIL). FOR SAND BARREL ARRANGEMENT SEE DETAIL BELOW.

(6) FOR TWO-LANE TWO-WAY TRAFFIC BOTH ENDS OF THE BARRIER SHOULD BE TREATED IN THE SAME MANNER AS DESCRIBED IN (2)

NOTE:

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

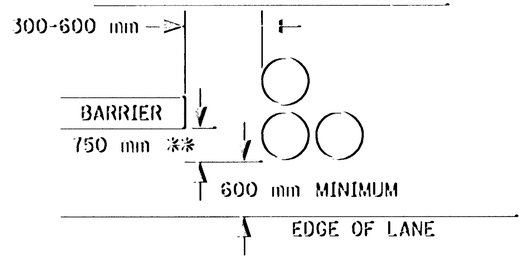
SAND FILLED BARREL ARRANGEMENT



(x) Use a 960 Kilogram drum for Energite System and a 640 Kilogram drum for a Fitch System

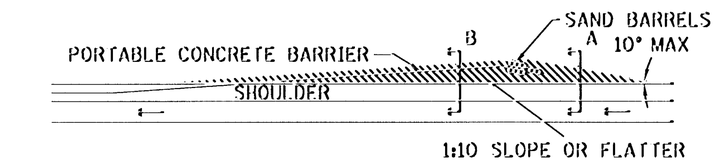
Note: Numbers indicate standard module weights in kilograms.

SAND FILLED BARREL OFFSET



** DISTANCE MAY BE REDUCED TO MINIMUM OF 380 mm. THIS IS ACCEPTABLE ONLY WHERE A GREATER OFFSET WOULD CAUSE UNACCEPTABLE INTERFERENCE WITH TRAFFIC.

SHOULDER FILL



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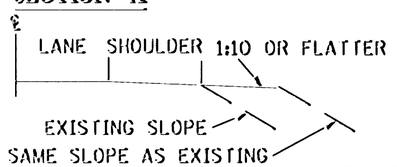

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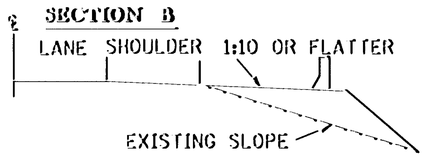


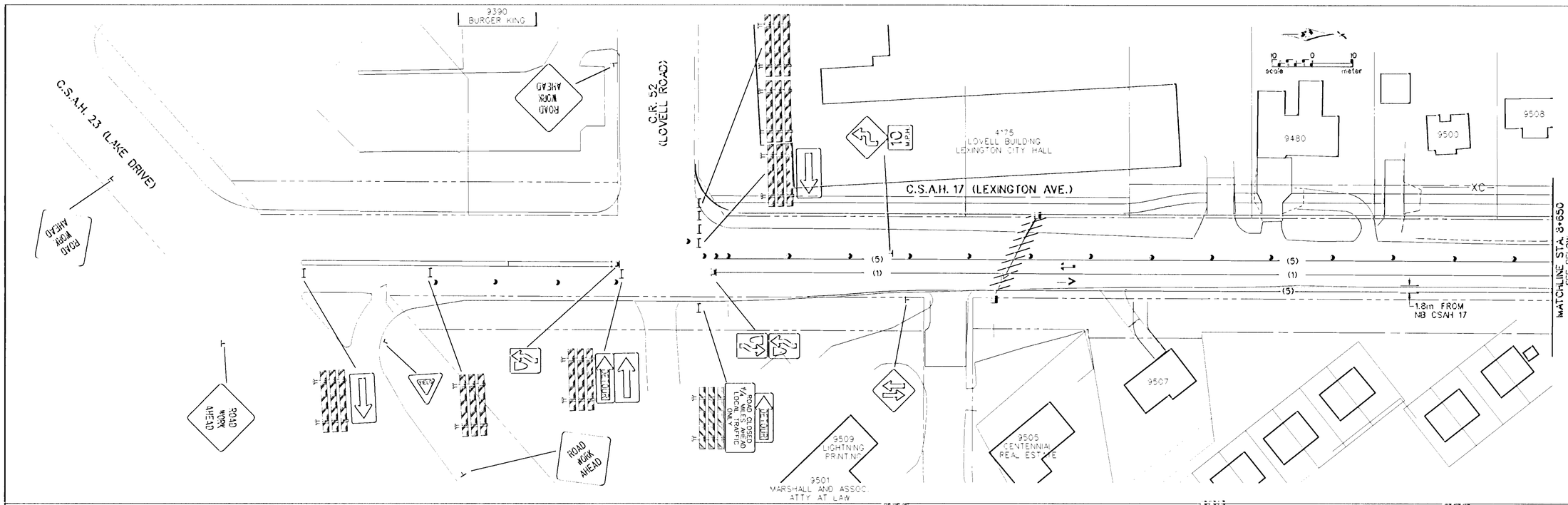
minnesota metric

TRAFFIC CONTROL SHEET NO. 1

TITLE: GUIDELINES FOR PORTABLE CONCRETE BARRIER PLACEMENT AND END TREATMENTS IN WORK ZONES

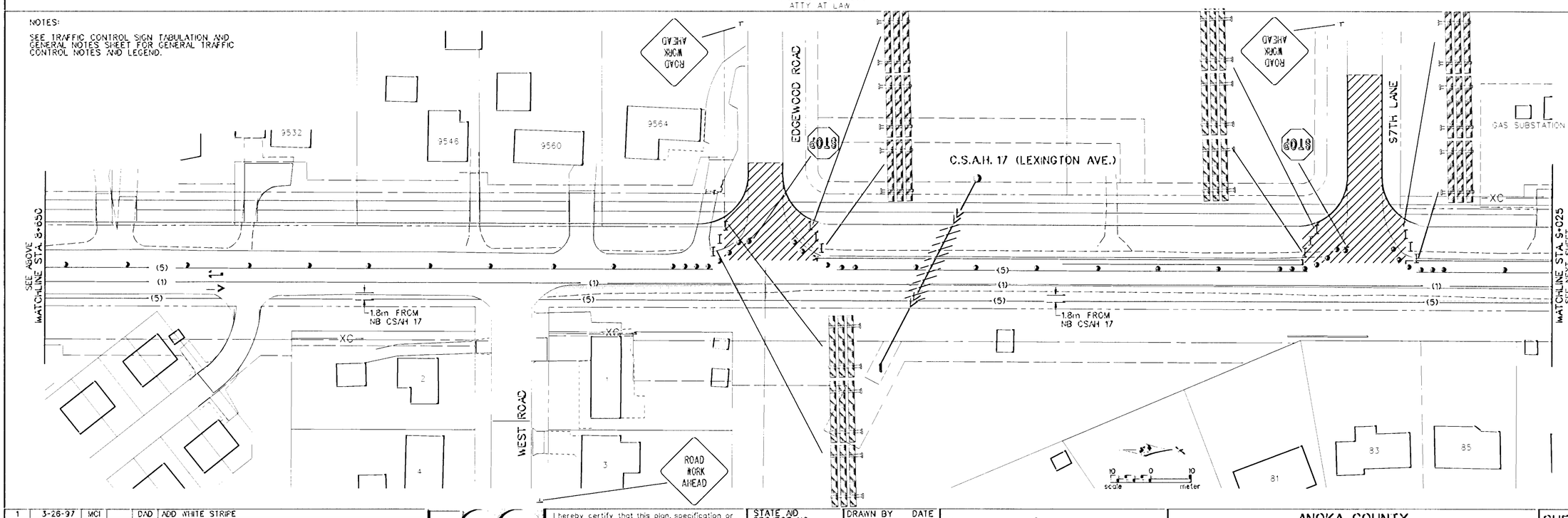
CERTIFIED BY Donald A. Dienes PROFESSIONAL ENGINEER REG NO 23397 3-21 19 97

STATE PROJ NO S.A.P. 02-617-11, etal SHEET NO 38 OF 236 SHEETS



NOTES:

SEE TRAFFIC CONTROL SIGN TABULATION AND GENERAL NOTES SHEET FOR GENERAL TRAFFIC CONTROL NOTES AND LEGEND.



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD WHITE STRIPE

NAME: TC1A 410.PLN DATE: Mar. 19, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	M. IISAKKA	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

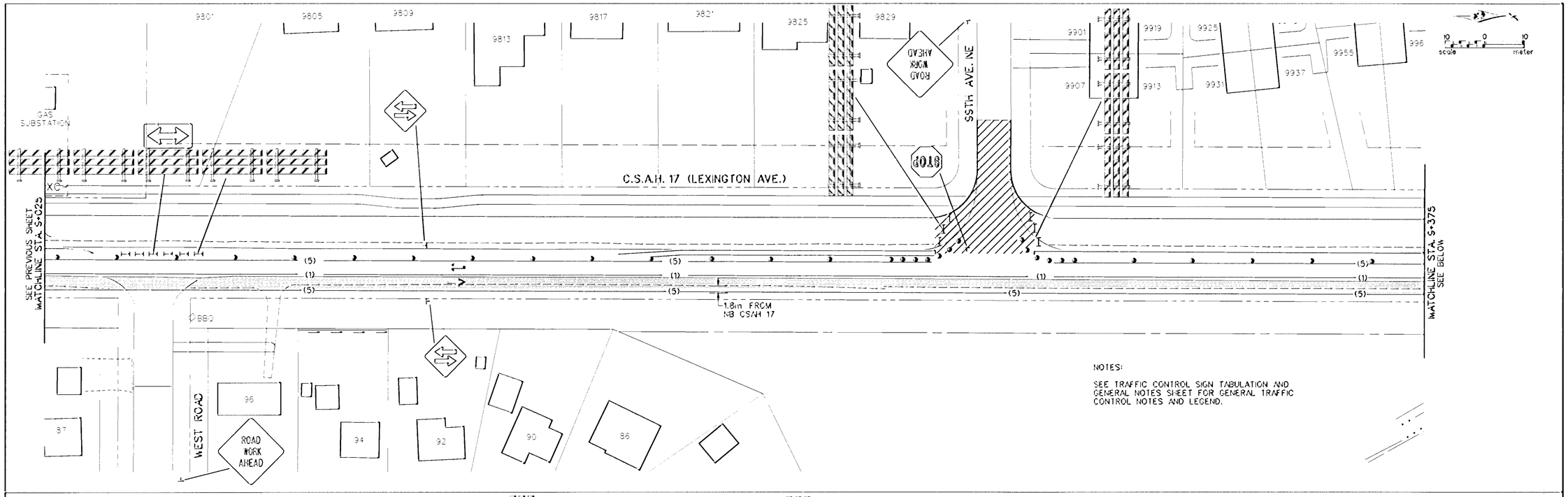
ANOKA COUNTY

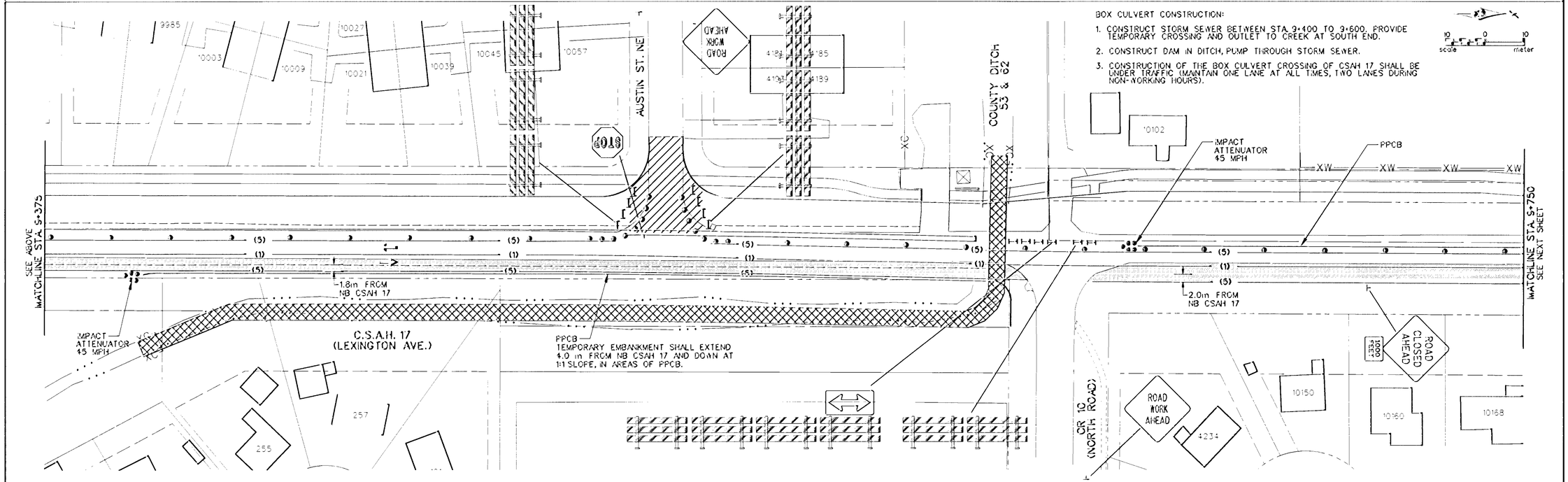
TRAFFIC CONTROL-STAGE 1

C.S.A.H. 17 RECONSTRUCTION

STA. 8+358 TO STA. 9+025

SHEET 39 OF 236





NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD WHITE STRIPE

NAME: TC1B 410.PLN DATE: Mar. 20, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY M. ISAKKA DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

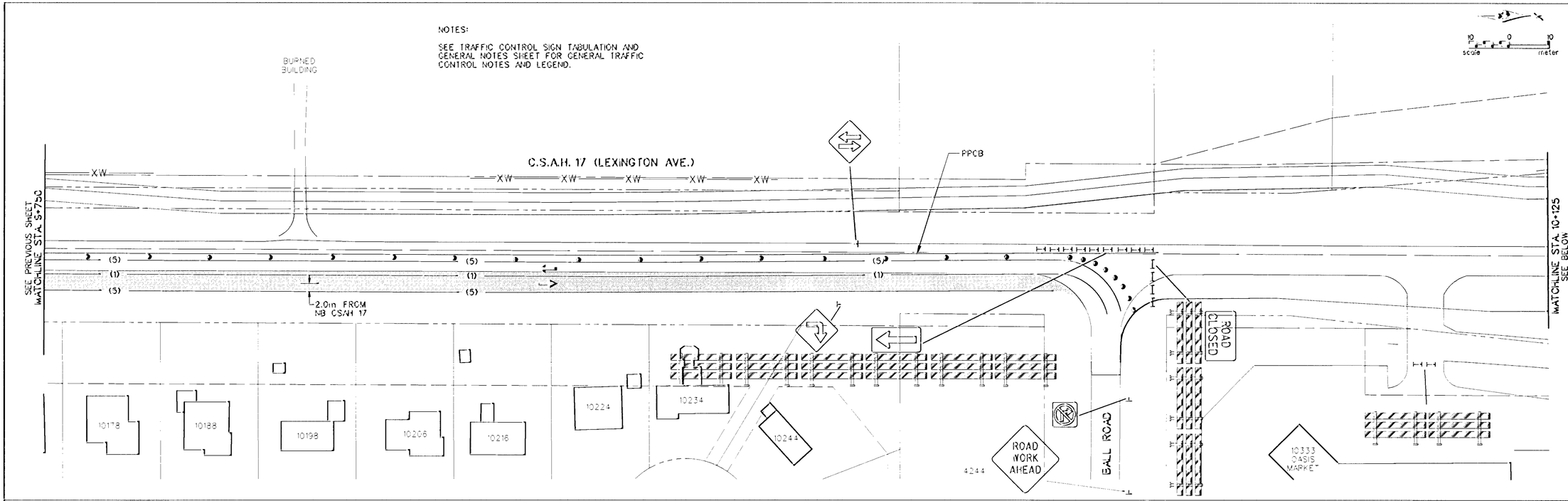
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TRAFFIC CONTROL-STAGE 1
C.S.A.H. 17 RECONSTRUCTION
STA. 9+025 TO STA. 9+750

SHEET 40 OF 236

NOTES:

SEE TRAFFIC CONTROL SIGN TABULATION AND GENERAL NOTES SHEET FOR GENERAL TRAFFIC CONTROL NOTES AND LEGEND.



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD PAINT STRIPE

NAME: TC1C 410.PLN DATE: Mar. 20, 1997

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	M. IISAKKA	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

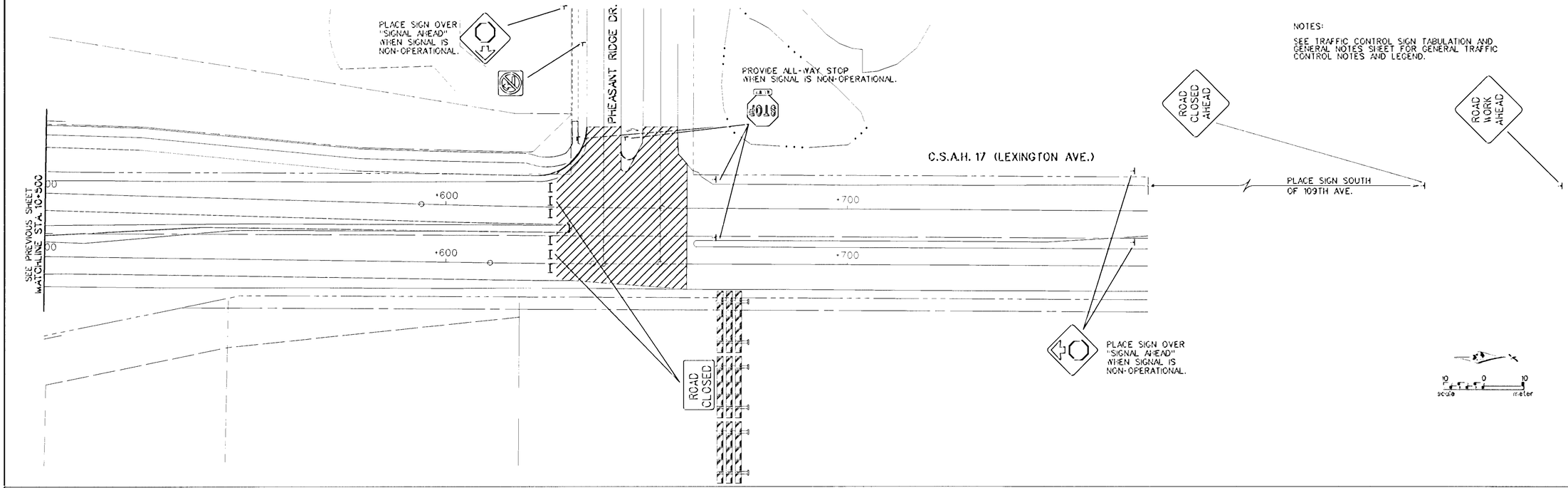
ANOKA COUNTY

TRAFFIC CONTROL-STAGE 1

C.S.A.H. 17 RECONSTRUCTION

STA. 9+750 TO STA. 10+500

SHEET 41 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: TCID 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY	DATE
M. IISAKKA	12-96
DESIGNED BY	
D. DEMERS	12-96
CHECKED BY	
D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

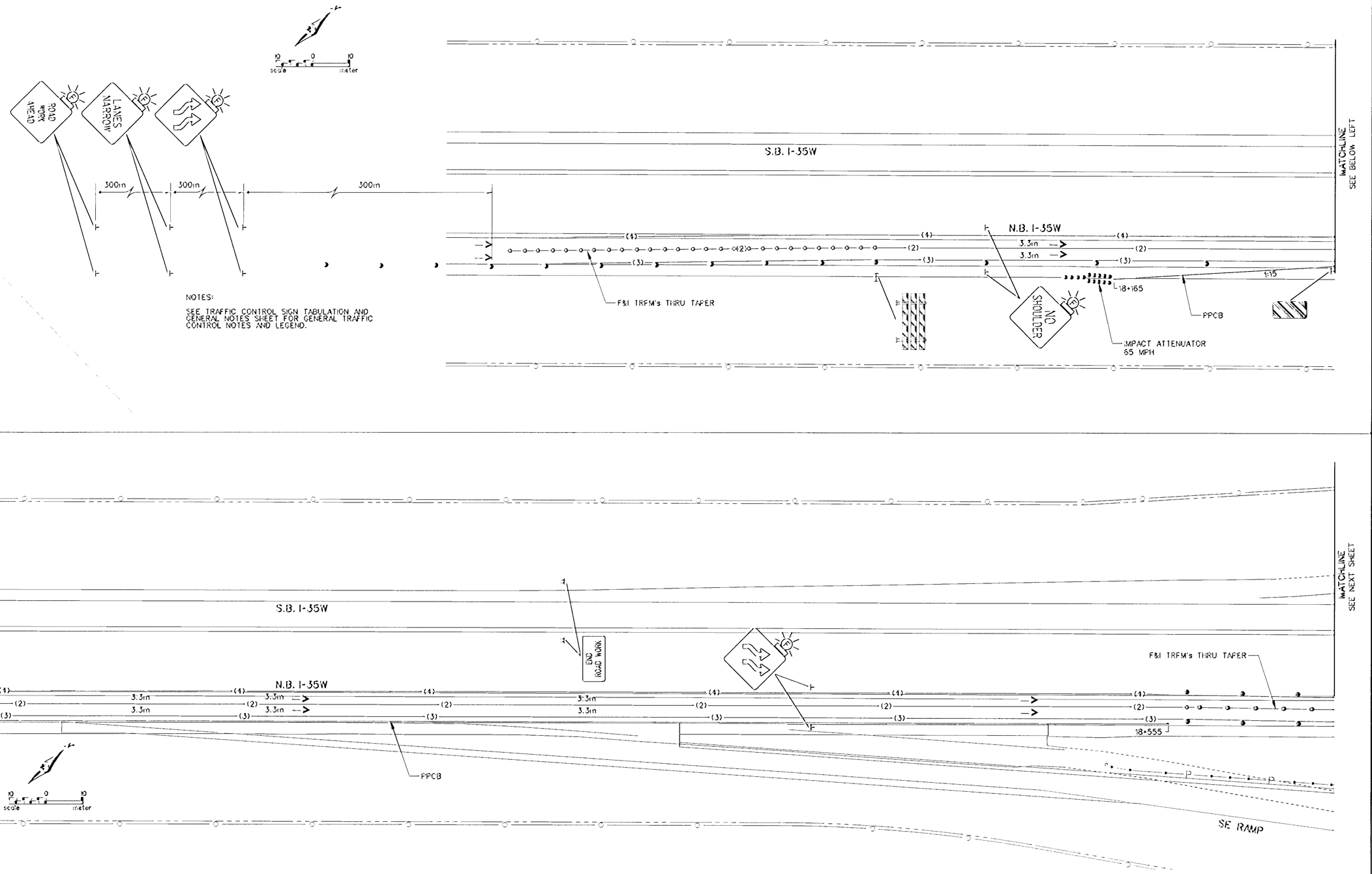
ANOKA COUNTY

TRAFFIC CONTROL-STAGE 1

C.S.A.H. 17 RECONSTRUCTION

STA. 10+500 TO STA. 10+660

SHEET 42 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: TCIE 410.PLN DATE: Mar. 17, 1997

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

	DATE
DRAWN BY M. IISAKKA	12-96
DESIGNED BY D. DEMERS	12-96
CHECKED BY D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

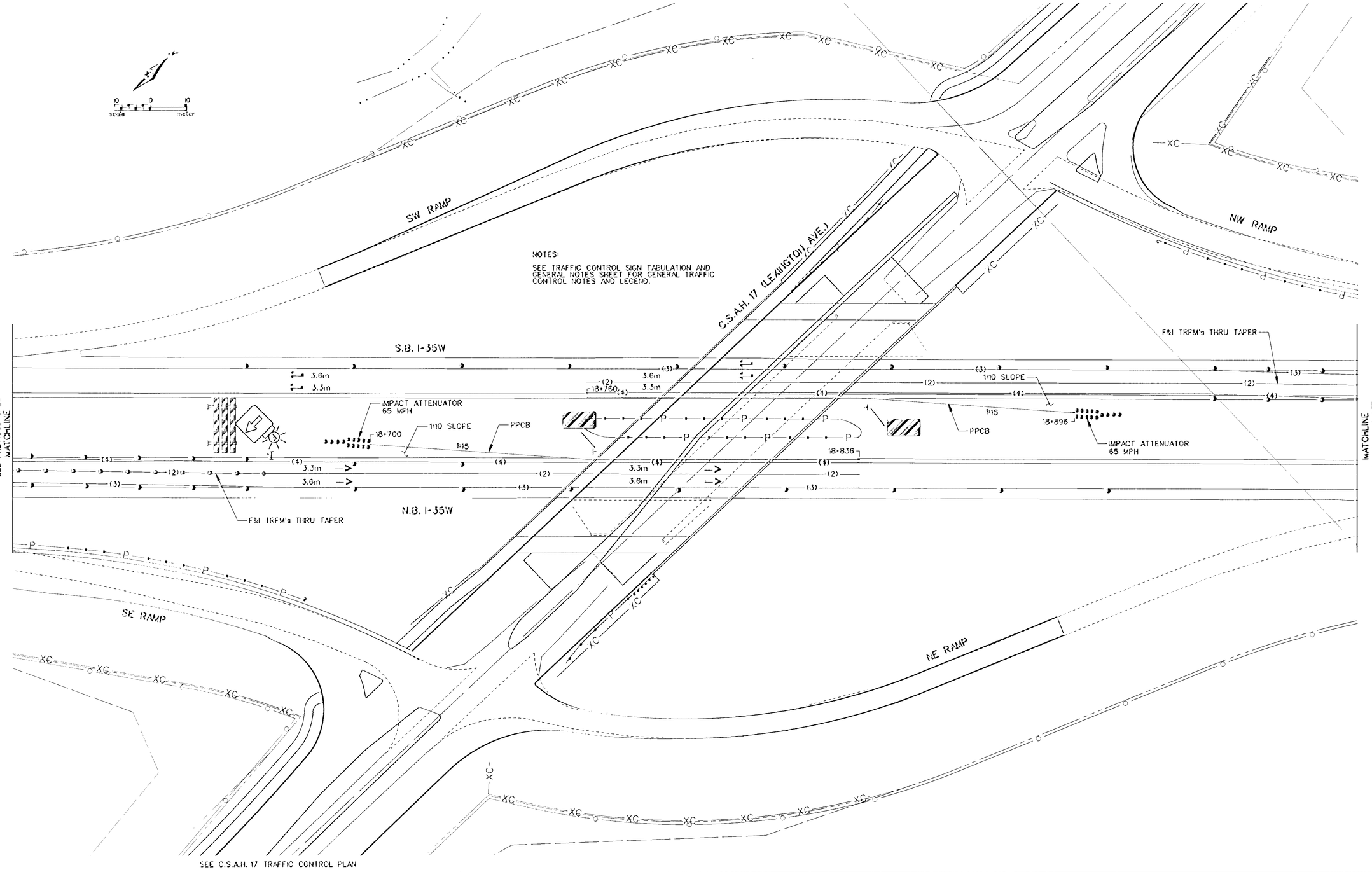
ANOKA COUNTY

TRAFFIC CONTROL- STAGE 1 AND 2

C.S.A.H. 17 RECONSTRUCTION

INTERSTATE 35W

SHEET 43 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: TCIF 410.PLN DATE: Mar. 17, 1997

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Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	M. IIS/KKA	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	1-97
COMM. NO.	0962410	

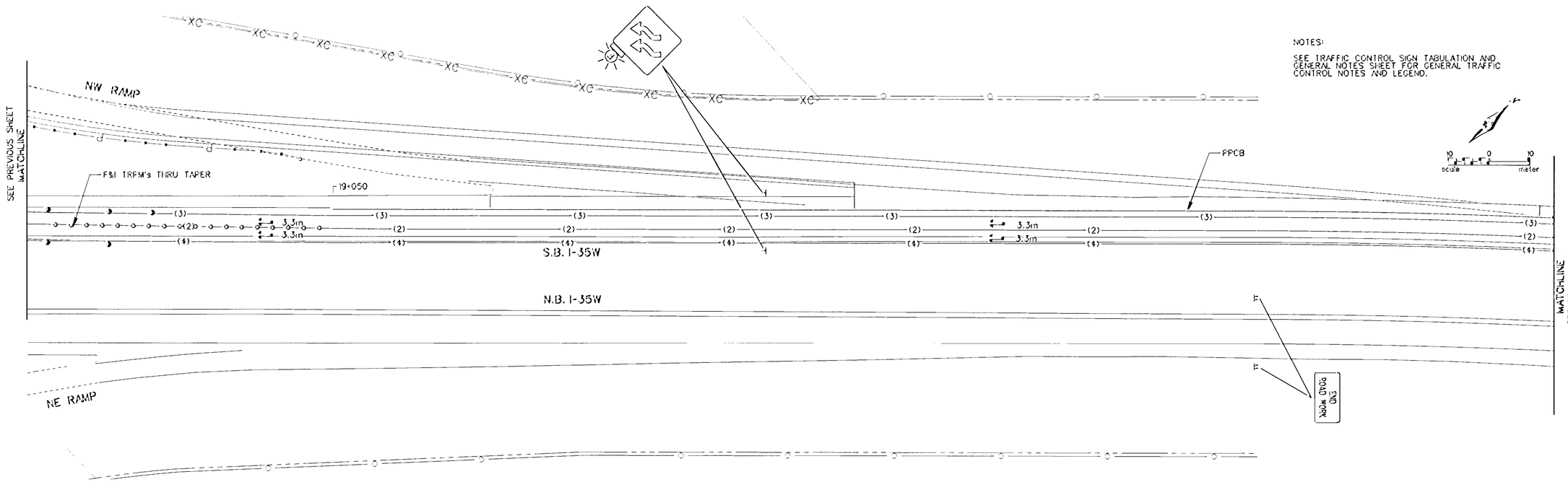
SRF CONSULTING GROUP, INC.

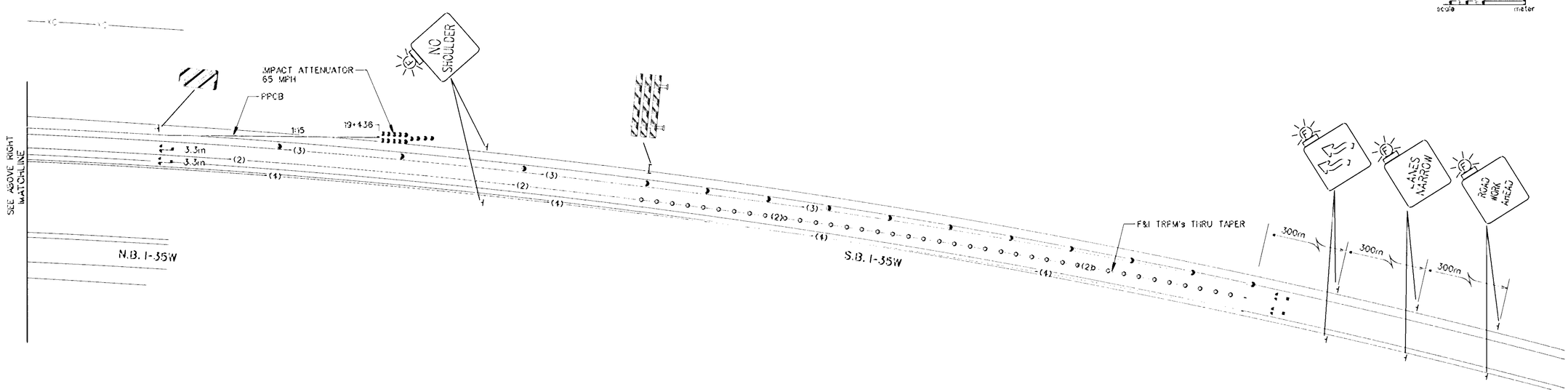
ANOKA COUNTY
TRAFFIC CONTROL- STAGE 1 AND 2
C.S.A.H. 17 RECONSTRUCTION
INTERSTATE 35W

SHEET 44 OF 236

NOTES:

SEE TRAFFIC CONTROL SIGN TABULATION AND GENERAL NOTES SHEET FOR GENERAL TRAFFIC CONTROL NOTES AND LEGEND.





NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	REVISE TAPER STRIPE

NAME: TC1G 410.PLN DATE: Mar. 17, 1997

minnesota metro

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Donald A. Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	M. IISAKKA	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

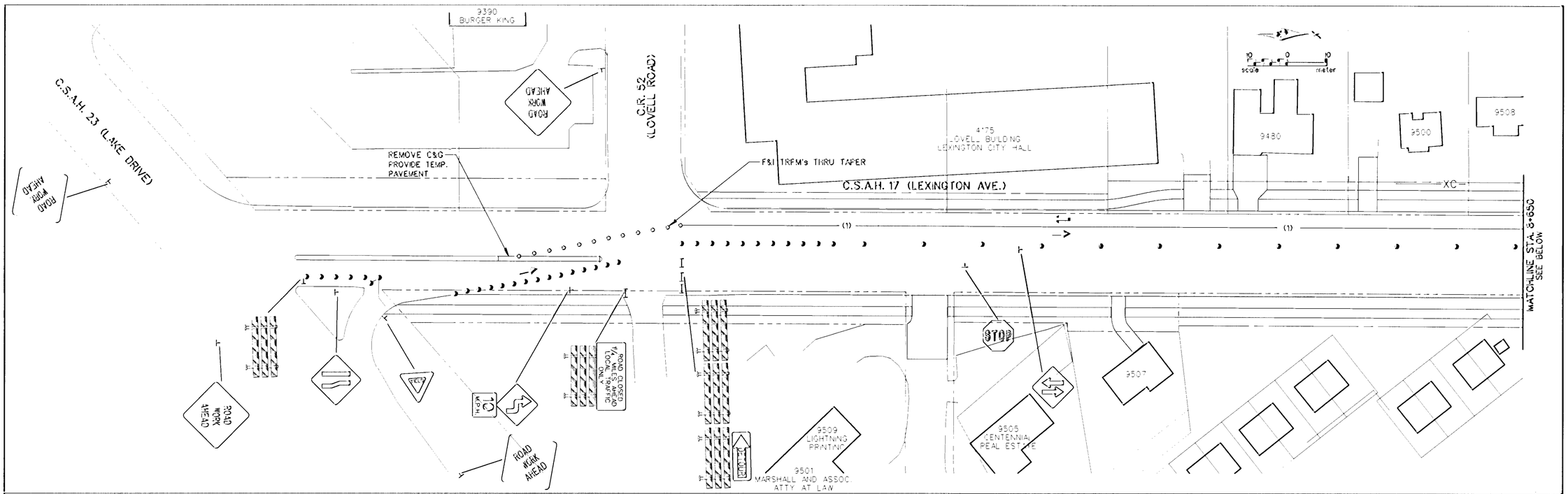
ANOKA COUNTY

TRAFFIC CONTROL - STAGE 1 AND 2

C.S.A.H. 17 RECONSTRUCTION

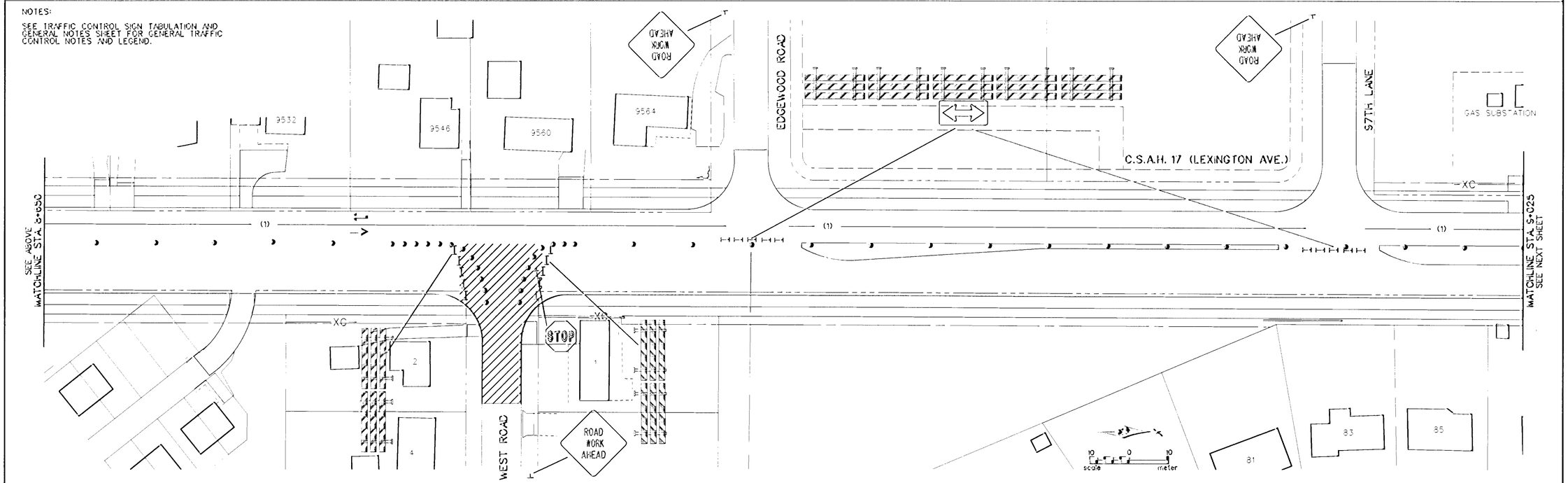
INTERSTATE 35W

SHEET 45 OF 236



NOTES:

SEE TRAFFIC CONTROL SIGN TABULATION AND GENERAL NOTES SHEET FOR GENERAL TRAFFIC CONTROL NOTES AND LEGEND.



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	REVISE TAPER AREA

NAME: TC2A 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

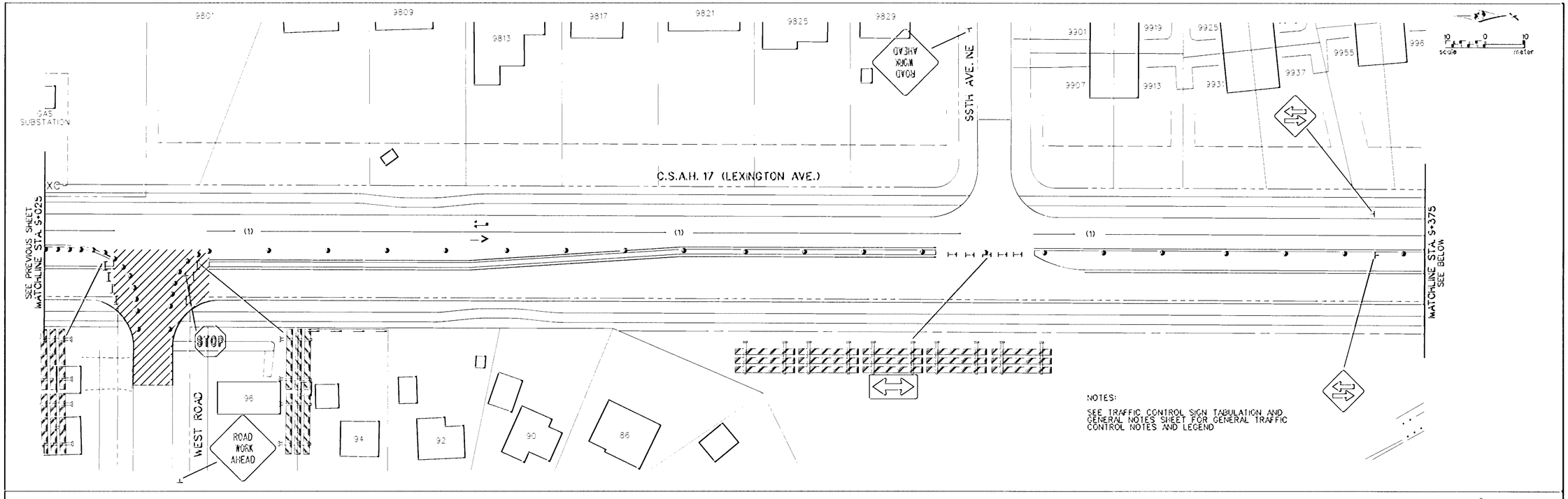
CO. PROJECT NO.

DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TRAFFIC CONTROL-STAGE 2
C.S.A.H. 17 RECONSTRUCTION
STA. 8+358 TO STA. 9+025

SHEET 46 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: TC2B 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY	DATE
M. IISAKKA	12-96
DESIGNED BY	
D. DEMERS	12-96
CHECKED BY	
D. DEMERS	1-97

COMM. NO. 0962410

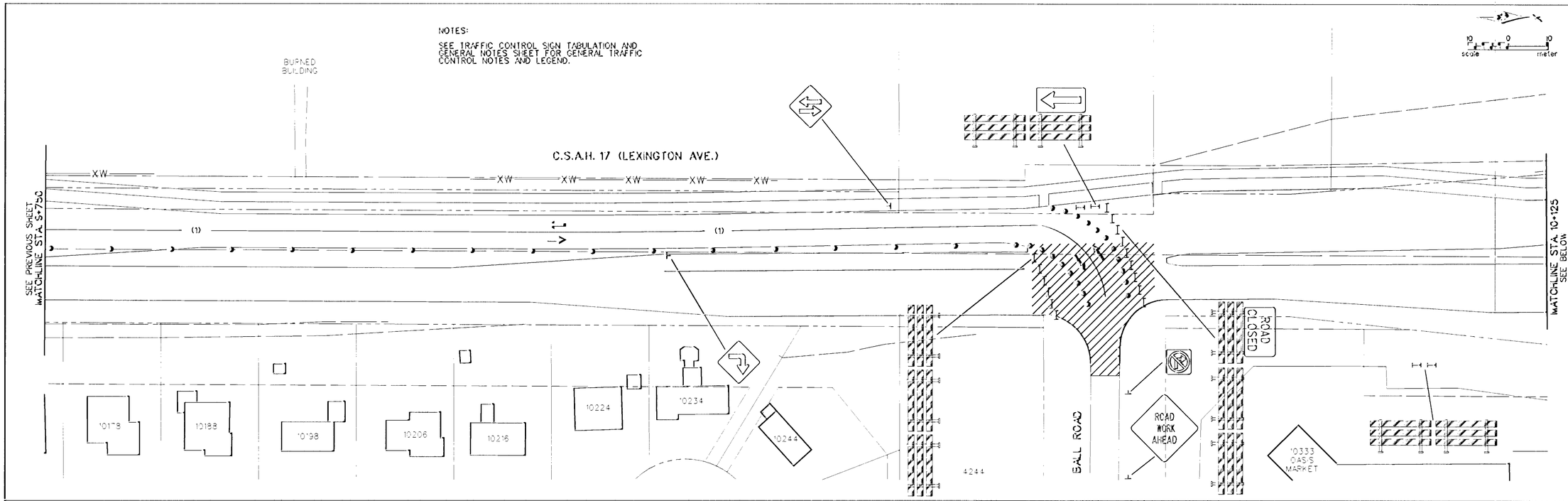
SRF CONSULTING GROUP, INC.

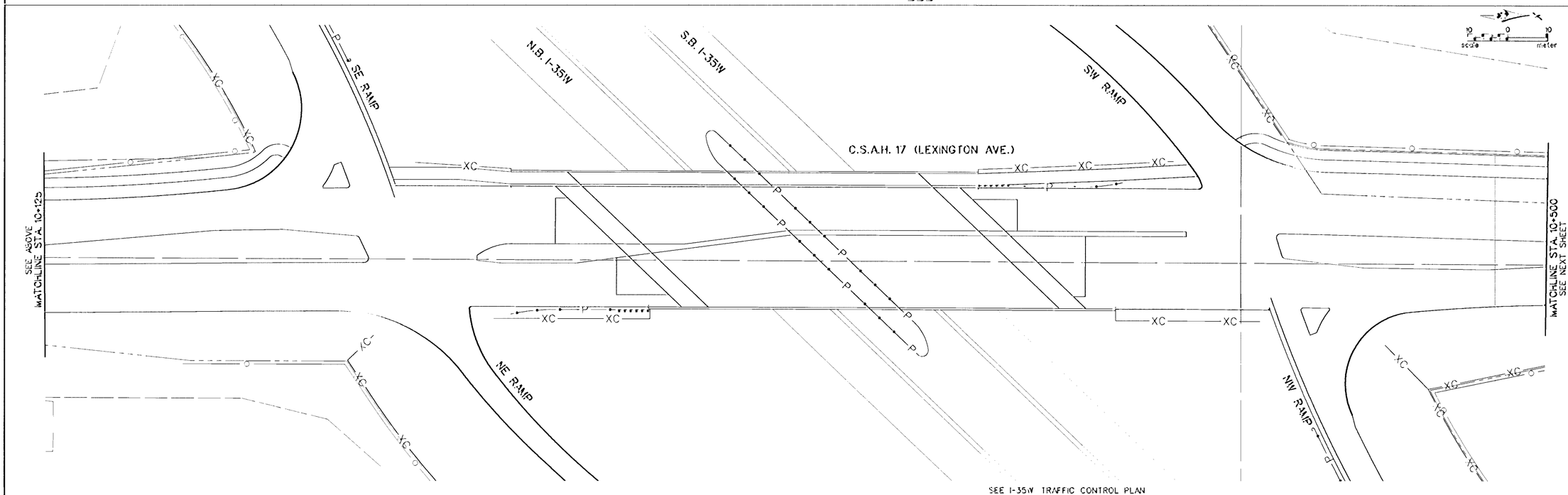
ANOKA COUNTY
TRAFFIC CONTROL-STAGE 2
C.S.A.H. 17 RECONSTRUCTION
STA. 9+025 TO STA. 9+750

SHEET 47 OF 236

NOTES:

SEE TRAFFIC CONTROL SIGN TABULATION AND GENERAL NOTES SHEET FOR GENERAL TRAFFIC CONTROL NOTES AND LEGEND.





SEE I-35W TRAFFIC CONTROL PLAN

NO	DATE	BY	CKD	APPR	REVISION

NAME: TC2C 410.PLN DATE: Mar. 17, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

Donald A. Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

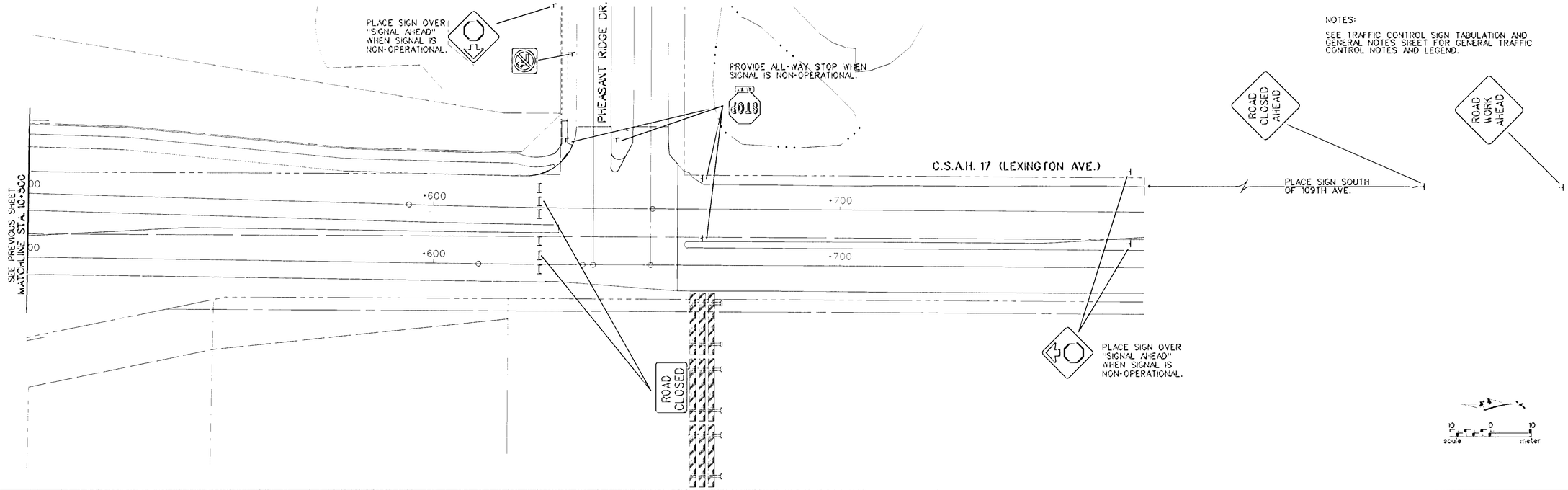
CO. PROJECT NO.

DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TRAFFIC CONTROL-STAGE 2
C.S.A.H. 17 RECONSTRUCTION
STA. 9+750 TO STA. 10+500

SHEET 48 OF 236



NOTES:

SEE TRAFFIC CONTROL SIGN TABULATION AND GENERAL NOTES SHEET FOR GENERAL TRAFFIC CONTROL NOTES AND LEGEND.

NO	DATE	BY	CKD	APPR	REVISION

NAME: TC2D 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY	DATE
M. IISAKKA	12-96
DESIGNED BY	
D. DEMERS	12-96
CHECKED BY	
D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

TRAFFIC CONTROL-STAGE 2

C.S.A.H. 17 RECONSTRUCTION

STA. 10+500 TO STA. 10+660

SHEET 49 OF 236

HORIZONTAL CONTROL BASED ON ANOKA COUNTY COORDINATE SYSTEM.

25 0 25 scale meter

CITY OF LEXINGTON

CITY OF BLAINE

CITY OF CIRCLE PINES

C.R. 52 (LOVELL ROAD)

S.B. C.S.A.H. 17 PT STA. 8+831.972

S.B. C.S.A.H. 17 POT STA. 8+832.001

EDGEWOOD ROAD

97TH LANE

WEST RD. (SOUTH)

WEST RD. (NORTH)

C/L S.B. C.S.A.H. 17

C/L N.B. C.S.A.H. 17

CURVE SBLEX-1

CURVE NBLEX-1

1100 1200 50011 1000 1201 1250 50001 50013 1110 1300 1350 50014 1400 1251 1301 1351 50004 1401

MATCHLINE STA. 9+200 SEE BELOW

CITY OF BLAINE

CITY OF CIRCLE PINES

CITY OF BLAINE

S.B. C.S.A.H. 17 PT STA. 9+555.927

S.B. C.S.A.H. 17 POT STA. 9+555.644

S.B. C.S.A.H. 17 PT STA. 9+650.795

S.B. C.S.A.H. 17 POT STA. 9+651.016

AUSTIN ST. N.E.

93TH AVE. N.

CO. RD. 10 (NORTH RD.)

BALL ROAD

C/L S.B. C.S.A.H. 17

C/L N.B. C.S.A.H. 17

C/L BOX CULVERT (BRIDGE NO. 02J07)

CURVE SBLEX-2 CURVE SBLEX-3 CURVE SBLEX-4 CURVE NBLEX-2 CURVE NBLEX-3 CURVE NBLEX-4 CURVE BOX-1

1500 1450 50016 1451 50017 3506 1550 1111 1112 1600 1501 3500 3501 50007 3505 3504 3503 3502 50008 1601 1551

SEE ABOVE MATCHLINE STA. 9+200

MATCHLINE STA. 10+100 SEE NEXT SHEET

T. 31N R. 23W R. 23W T. 31N 26 23 25 24

NO	DATE	BY	CKD	APPR	REVISION

NAME: AP1 $10.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

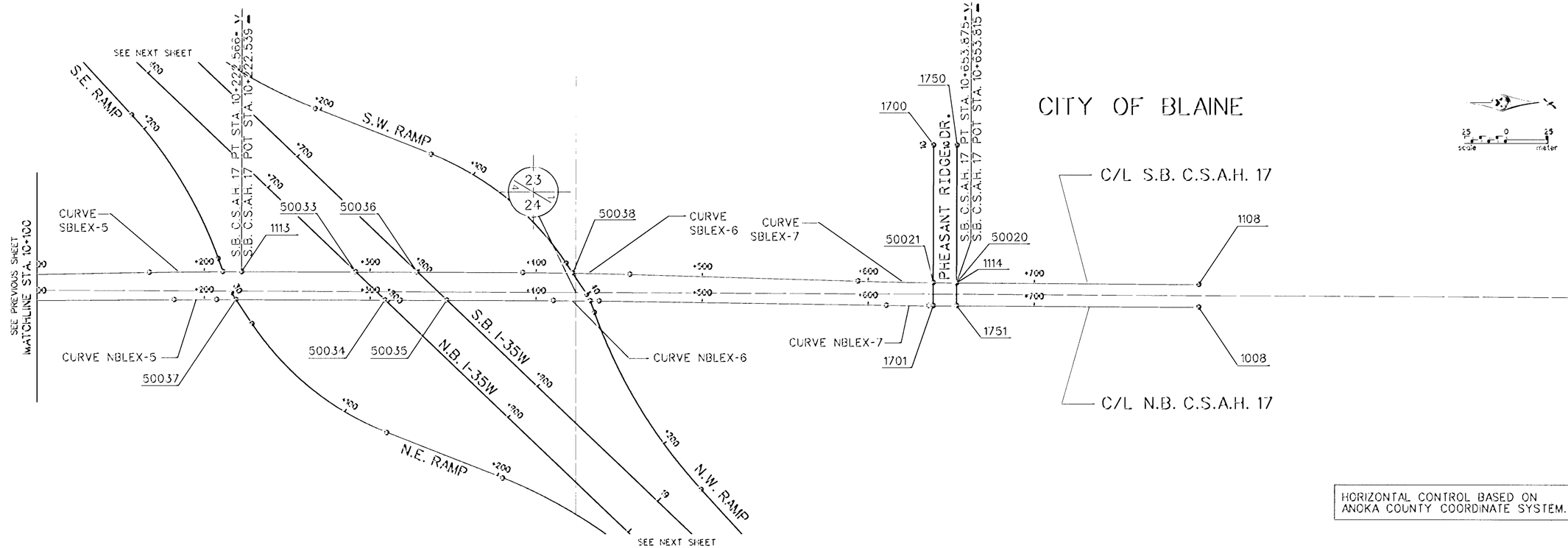
CO. PROJECT NO.

DRAWN BY L. VanDRASEK DATE 11-96
DESIGNED BY B. URBANEK 11-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
ALIGNMENT PLAN
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 STA. 8+300 TO STA. 10+100

SHEET 50 OF 236



HORIZONTAL CONTROL BASED ON ANOKA COUNTY COORDINATE SYSTEM.

NO	DATE	BY	CKD	APPR	REVISION

NAME: AP2 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY	DATE
L. VanDRASEK	11-96
DESIGNED BY	
B. URBANEK	11-96
CHECKED BY	
D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

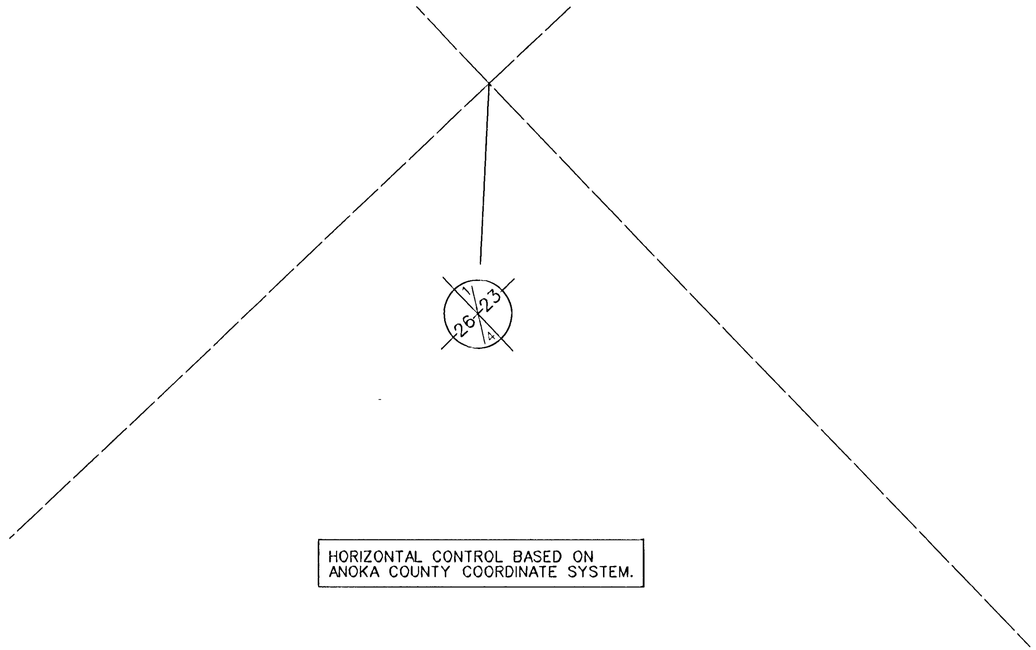
ANOKA COUNTY

ALIGNMENT PLAN

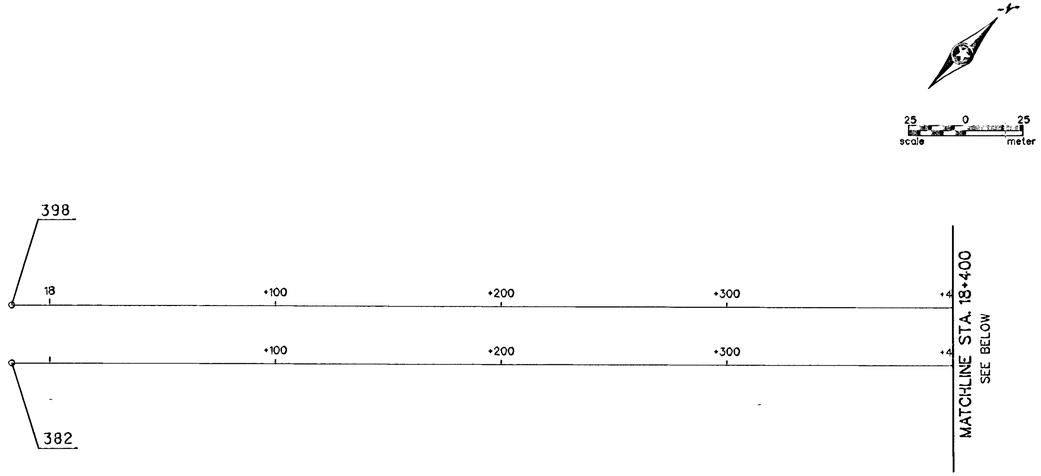
C.S.A.H. 17 RECONSTRUCTION

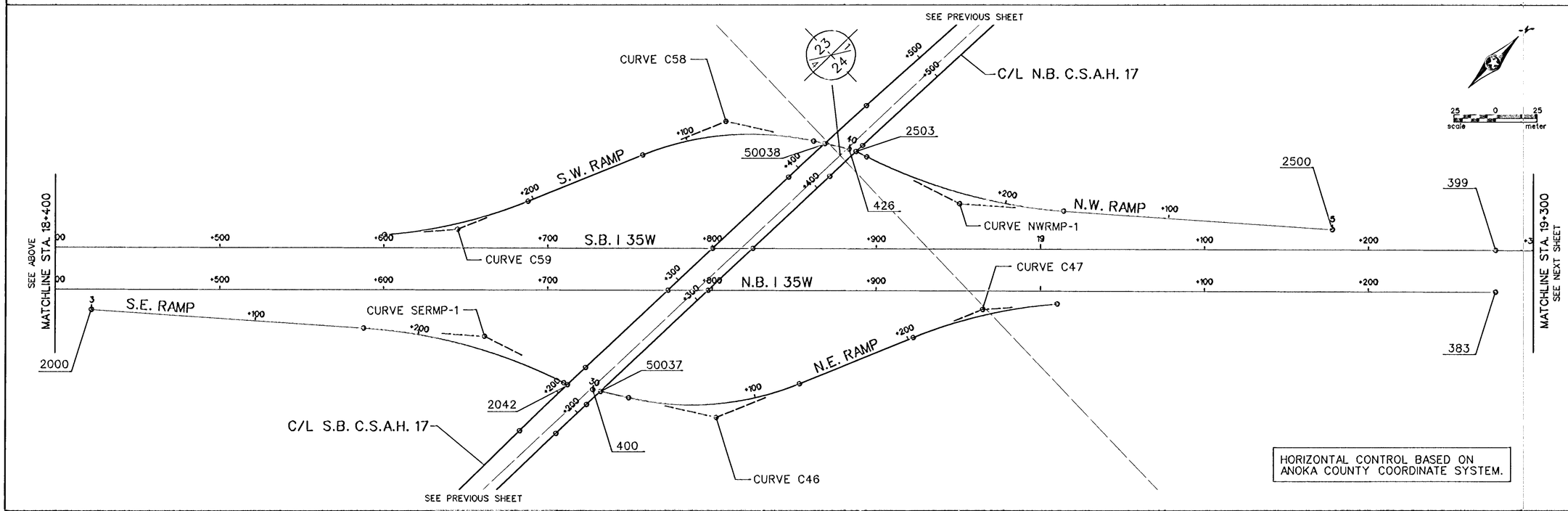
C.S.A.H. 17 STA. 10+100 TO STA. 10+800

SHEET 51 OF 236



HORIZONTAL CONTROL BASED ON
ANOKA COUNTY COORDINATE SYSTEM.





HORIZONTAL CONTROL BASED ON
ANOKA COUNTY COORDINATE SYSTEM.

NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	DAD		REVISE SE RAMP ALIGNMENT

NAME: AP3 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23597

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

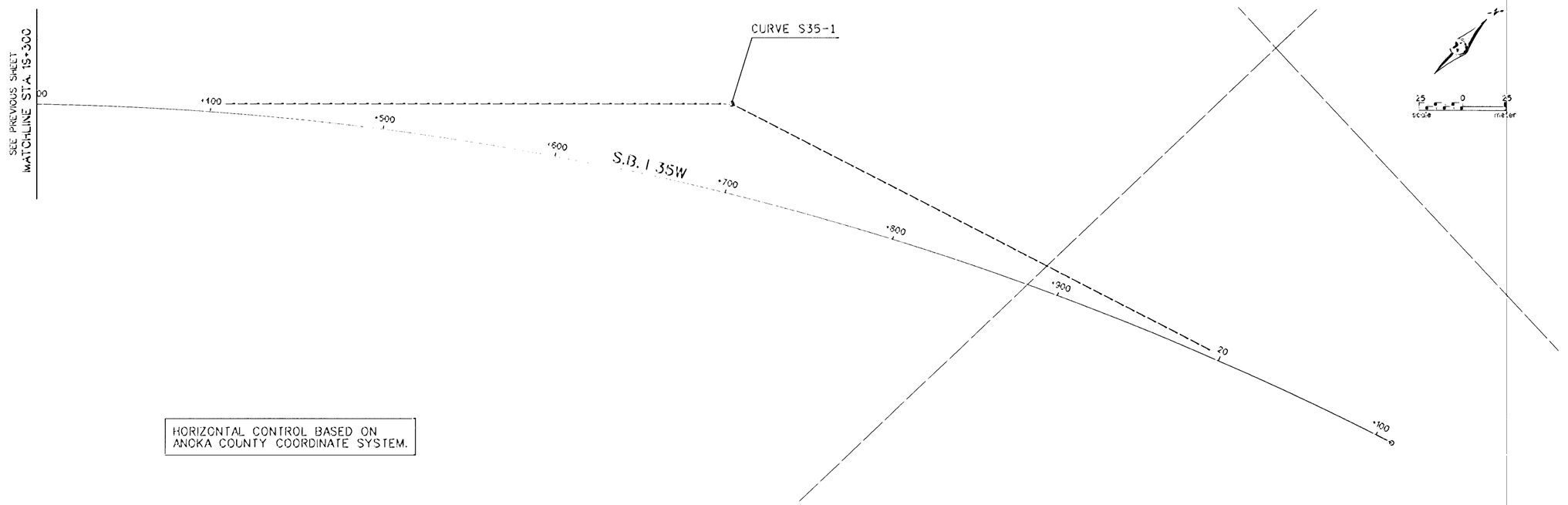
CO. PROJECT NO.

DRAWN BY L. VanDRASEK 11-96
DESIGNED BY B. URBANEK 11-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
ALIGNMENT PLAN
C.S.A.H. 17 RECONSTRUCTION
I-35W STA. 18+000 TO STA. 19+300

SHEET 52 OF 236



HORIZONTAL CONTROL BASED ON ANOKA COUNTY COORDINATE SYSTEM.

SEE PREVIOUS SHEET

NO	DATE	BY	CKD	APPR	REVISION

NAME: AP4 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

	DATE
DRAWN BY L. VanDRASEK	11-96
DESIGNED BY B. URBANEK	11-96
CHECKED BY D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

ALIGNMENT PLAN

C.S.A.H. 17 RECONSTRUCTION

I-35W STA. 19+300 TO STA. 20+010

SHEET 53 OF 236

Ⓟ

CURVE NO.	POINT	STATION	CURVE DATA Δ	R	T	L	COORDINATES X	Y	AZIMUTH
C/L N.B. C.S.A.H. 17 (LEXINGTON AVE.)									
1000	POT	C/L N.B. C.S.A.H. 17 3+310.564					279,212.9810	24,925.5160	0° 11' 12.7"
	PC	3+826.787					279,214.6645	25,441.7362	
NBLEX-1	PI	3+829.334	0° 00' 10.8" RT	100,000.000	2.607	5.214	279,214.6730	25,444.3430	PI
	PT	3+832.001					279,214.6816	25,446.9498	0° 11' 23.4"
	PC	3+509.586					279,216.9267	26,124.5314	
NBLEX-2	PI	3+532.616	1° 03' 20.1" RT	2,500.000	23.030	46.058	279,217.0030	26,147.5610	PI
	PT	3+555.644					279,217.5035	26,170.5853	1° 14' 43.5"
	PC	3+608.829					279,218.6595	26,223.7578	
NBLEX-3	PI	3+629.923	0° 58' 00.7" LT	2,500.000	21.094	42.187	279,219.1180	26,244.8470	PI
	PT	3+651.016					279,219.2206	26,265.9409	0° 16' 42.8"
	PC	3+880.665					279,220.3370	26,495.5867	
NBLEX-4	PI	3+834.853	0° 39' 01.2" LT	2,500.000	14.189	28.377	279,220.4060	26,509.7750	PI
	PT	3+909.042					279,220.3139	26,523.9632	359° 37' 41.5"
	PC	10+181.973					279,218.5429	26,796.8885	
NBLEX-5	PI	10+134.746	0° 35' 07.8" RT	2,500.000	12.774	25.547	279,218.4600	26,809.6620	PI
	PT	10+207.520					279,218.5076	26,822.4357	0° 12' 49.4"
	PC	10+410.473					279,219.2646	27,025.3872	
NBLEX-6	PI	10+424.242	0° 37' 52.0" RT	2,500.000	13.769	27.537	279,219.3160	27,039.1560	PI
	PT	10+438.010					279,219.5130	27,052.9234	0° 50' 41.4"
	PC	10+611.027					279,222.0700	27,225.9209	
NBLEX-7	PI	10+623.343	0° 35' 14.9" LT	2,500.000	12.817	25.633	279,222.2590	27,238.7360	PI
	PT	10+636.660					279,222.3166	27,251.5524	0° 15' 26.5"
1008	POT	C/L N.B. C.S.A.H. 17 10+739.276					279,223.0470	27,414.1670	
C/L S.B. C.S.A.H. 17 (LEXINGTON AVE.)									
1100	POT	C/L S.B. C.S.A.H. 17 3+310.564					279,199.7810	24,925.5590	0° 11' 12.7"
	PC	3+826.815					279,201.4646	25,441.8076	
SBLEX-1	PI	3+829.334	0° 00' 10.6" RT	100,013.200	2.578	5.157	279,201.4730	25,444.3860	PI
	PT	C/L S.B. C.S.A.H. 17 3+831.912=					279,201.4815	25,446.9644	0° 11' 23.3"
1110	A PT.	ON C/L S.B. C.S.A.H. 17 POT 3+832.001					279,201.4815	25,446.9644	0° 11' 23.3"
	PC	3+509.604					279,203.7263	26,124.5642	
SBLEX-2	PI	3+532.766	1° 03' 21.8" RT	2,513.200	23.162	46.322	279,203.8030	26,147.7260	PI
	PT	C/L S.B. C.S.A.H. 17 3+555.927=					279,204.3066	26,170.8824	1° 14' 45.1"
1111	A PT.	ON C/L S.B. C.S.A.H. 17 POT 3+555.644					279,204.3066	26,170.8824	1° 14' 45.1"
	PC	3+608.808					279,205.4625	26,224.0337	
SBLEX-3	PI	3+629.802	0° 58' 02.6" LT	2,486.800	20.994	41.987	279,205.9130	26,245.0230	PI
	PT	C/L S.B. C.S.A.H. 17 3+650.795					279,206.0210	26,266.0170	0° 16' 42.5"
1112	A PT.	ON C/L S.B. C.S.A.H. 17 POT 3+651.016=					279,206.0210	26,266.0170	0° 16' 42.5"
	PC	3+865.630					279,207.0641	26,480.6283	
SBLEX-4	PI	3+884.823	1° 20' 17.0" LT	2,500.000	29.193	58.384	279,207.2060	26,509.8210	PI
	PT	3+924.014					279,206.6662	26,539.0091	358° 56' 25.5"
	PC	10+167.005					279,202.1727	26,781.9592	
SBLEX-5	PI	10+134.787	1° 16' 24.1" RT	2,500.000	27.782	55.561	279,201.6530	26,809.7360	PI
	PT	C/L S.B. C.S.A.H. 17 10+222.566=					279,201.7627	26,837.5174	0° 12' 49.6"
1113	A PT.	ON C/L S.B. C.S.A.H. 17 POT 10+222.539					279,201.7627	26,837.5174	0° 12' 49.6"
	PC	10+391.932					279,202.3947	27,006.9098	
SBLEX-6	PI	10+424.175	1° 28' 10.1" RT	2,500.000	32.242	64.481	279,202.5150	27,039.1520	PI
	PT	10+456.414					279,203.4668	27,071.3804	1° 41' 29.7"
	PC	10+593.931					279,207.5262	27,208.8379	
SBLEX-7	PI	10+623.304	1° 22' 25.7" LT	2,500.000	29.973	59.943	279,208.4110	27,238.7980	PI
	PT	C/L S.B. C.S.A.H. 17 10+653.875=					279,208.5772	27,268.7707	0° 19' 04.0"
1114	A PT.	ON C/L S.B. C.S.A.H. 17 POT 10+653.815					279,208.5772	27,268.7707	0° 19' 04.0"
1108	POT	C/L S.B. C.S.A.H. 17 10+739.275					279,209.3840	27,414.2280	
C/L C.R. 52 (LOVELL ROAD)									
1200	POT	C/L LOVELL ROAD 1+000.000					279,013.7950	25,039.3000	89° 02' 53.0"
50011	POT	C/L LOVELL ROAD 1+186.393=					279,200.1620	25,042.3970	
	A PT.	ON C/L S.B. C.S.A.H. 17 POT 3+427.402							
1201	POT	C/L LOVELL ROAD 1+199.536=					279,213.3630	25,042.6160	
	A PT.	ON C/L N.B. C.S.A.H. 17 POT 3+427.665							

NO	DATE	BY	CKD	APPR	REVISION

NAME: AT1410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY L. VanDRASEK DATE 11-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
ALIGNMENT TABULATION
C.S.A.H. 17 RECONSTRUCTION

SHEET 54 OF 236

Ⓟ

CURVE NO.	POINT	STATION	CURVE DATA Δ	R	T	L	COORDINATES X	Y	AZIMUTH
C/L WEST ROAD (SOUTH)									
1250	POT	C/L WEST ROAD 2+000.000=					279,201.2660	25,381.1330	90° 11' 19.6"
	A PT. ON C/L S.B. C.S.A.H. 17	3+766.140							
50001	POT	C/L WEST ROAD 2+013.201=					279,214.4670	25,381.0830	
	A PT. ON C/L N.B. C.S.A.H. 17	3+766.140							
1251	POT	C/L WEST ROAD 2+038.018					279,239.2830	25,380.8430	
C/L EDGEWOOD ROAD									
1300	POT	C/L EDGEWOOD ROAD 3+000.000					279,129.1650	25,443.3600	89° 45' 23.7"
50013	POT	C/L EDGEWOOD ROAD 3+072.008=					279,201.1730	25,444.2660	
	A PT. ON C/L S.B. C.S.A.H. 17	3+829.274							
1301	POT	C/L EDGEWOOD ROAD 3+085.210=					279,214.6710	25,444.3220	
	A PT. ON C/L N.B. C.S.A.H. 17	3+829.373							
C/L 97TH LANE									
1350	POT	C/L 97TH LANE 4+000.000					279,129.9300	25,593.2970	89° 56' 27.0"
50014	POT	C/L 97TH LANE 4+072.037=					279,201.9670	25,593.3710	
	A PT. ON C/L S.B. C.S.A.H. 17	3+978.379							
1351	POT	C/L 97TH LANE 4+085.237=					279,215.1670	25,593.3850	
	A PT. ON C/L N.B. C.S.A.H. 17	3+978.437							
C/L WEST ROAD (NORTH)									
1400	POT	C/L WEST ROAD 5+000.000=					279,202.2120	25,667.5970	90° 16' 07.3"
	A PT. ON C/L S.B. C.S.A.H. 17	3+052.605							
50004	POT	C/L WEST ROAD 5+013.201=					279,215.4130	25,667.5350	
	A PT. ON C/L N.B. C.S.A.H. 17	3+052.587							
1401	POT	C/L WEST ROAD 5+066.955					279,269.1660	25,667.2830	
C/L 99TH AVENUE N.E.									
1450	POT	C/L 99TH AVE. N.E. 6+000.000					279,133.0140	25,880.6570	89° 53' 42.7"
50016	POT	C/L 99TH AVE. N.E. 6+069.305=					279,202.9190	25,880.7850	
	A PT. ON C/L S.B. C.S.A.H. 17	3+265.734							
1451	POT	C/L 99TH AVE. N.E. 6+083.105=							
	A PT. ON C/L N.B. C.S.A.H. 17	3+265.862					279,216.1190	25,880.8090	
C/L AUSTIN ST. N.E.									
1500	POT	C/L AUSTIN ST. N.E. 7+000.000					279,134.0340	26,147.0580	89° 31' 50.5"
50017	POT	C/L AUSTIN ST. N.E. 7+069.817=					279,203.9030	26,147.6300	
	A PT. ON C/L S.B. C.S.A.H. 17	3+532.641							
1501	POT	C/L AUSTIN ST. N.E. 7+083.021=							
	A PT. ON C/L N.B. C.S.A.H. 17	3+532.793					279,217.1120	26,147.7380	
C/L CO. RD. 10 (NORTH ROAD)									
1550	POT	C/L CO. RD. 10 8+000.000=					279,205.8500	26,246.5450	90° 33' 19.9"
	A PT. ON C/L S.B. C.S.A.H. 17	3+631.332							
50007	POT	C/L CO. RD. 10 8+013.200=					279,219.0430	26,246.4170	
	A PT. ON C/L N.B. C.S.A.H. 17	3+631.492							
1551	POT	C/L CO. RD. 10 8+115.723					279,321.5680	26,245.4230	

NO	DATE	BY	CKD	APPR	REVISION

NAME: AT2 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Deines

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
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S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY L. VanDRASEK DATE 11-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
ALIGNMENT TABULATION
C.S.A.H. 17 RECONSTRUCTION

Ⓟ

CURVE NO.	POINT	STATION	CURVE DATA Δ	R	T	L	COORDINATES X	Y	AZIMUTH
C/L BALL ROAD									
1600	POT	C/L BALL ROAD 3+000.000=					279,204.9840	26,629.9350	90° 25' 45.5"
	A PT.	ON C/L S.B. C.S.A.H. 17 10+014.366							
50008	POT	C/L BALL ROAD 3+014.643=					279,219.6270	26,629.8250	
	A PT.	ON C/L N.B. C.S.A.H. 17 10+014.306							
1601	POT	C/L BALL ROAD 3+134.266					279,339.2460	26,628.9230	
C/L W.B. PHEASANT RIDGE DRIVE									
1750	POT	C/L W.B. PLEASANT RIDGE DRIVE 10+000.000					279,125.8860	27,268.4360	90° 06' 05.5"
50020	POT	C/L W.B. PLEASANT RIDGE DRIVE 10+082.689=					279,208.5750	27,268.2890	
	A PT.	ON C/L S.B. C.S.A.H. 17 10+653.306							
1751	POT	C/L W.B. PLEASANT RIDGE DRIVE 10+096.506=					279,222.3920	27,268.2650	
	A PT.	ON C/L N.B. C.S.A.H. 17 10+653.373							
C/L E.B. PHEASANT RIDGE DRIVE									
1700	POT	C/L E.B. PLEASANT RIDGE DRIVE 10+000.000					279,125.8610	27,254.3500	90° 07' 41.8"
50021	POT	C/L E.B. PLEASANT RIDGE DRIVE 10+082.635=					279,208.4960	27,254.1650	
	A PT.	ON C/L S.B. C.S.A.H. 17 10+639.271							
1701	POT	C/L E.B. PLEASANT RIDGE DRIVE 10+096.468=					279,222.3290	27,254.1340	
	A PT.	ON C/L N.B. C.S.A.H. 17 10+639.241							
C/L N.B. I 35W (FOR INFORMATION ONLY)									
382	POT	C/L N.B. I 35W 17+983.240					278,656.9380	26,334.6080	43° 38' 14.0"
50033	POT	C/L N.B. I 35W 18+773.110=					279,202.0191	26,306.2556	
	A PT.	ON C/L S.B. C.S.A.H. 17 10+291.277							
50034	POT	C/L N.B. I 35W 18+797.552=					279,218.8860	26,923.9450	
	A PT.	ON C/L N.B. C.S.A.H. 17 10+309.030							
383	POT	C/L N.B. I 35W 19+277.201					279,549.8870	27,271.0780	
C/L S.B. I 35W (FOR INFORMATION ONLY)									
398	POT	C/L S.B. I 35W 17+983.240					278,638.4080	26,352.2760	43° 38' 14.0"
50036	POT	C/L S.B. I 35W 18+800.163=					279,202.1580	26,343.5020	
	A PT.	ON C/L S.B. C.S.A.H. 17 10+328.525							
50035	POT	C/L S.B. I 35W 18+824.605=					279,219.0250	26,361.1920	
	A PT.	ON C/L N.B. C.S.A.H. 17 10+346.277							
399	POT	C/L S.B. I 35W 19+277.201					279,531.3570	27,288.7460	
C/L N.W. RAMP									
2500	POT	5+000.000=					279,453.9255	27,225.5093	227° 27' 04.0"
	A PT.	12.400m LT. OF C/L S.B. I 35W 19+178.000							
	PC	5+164.373					279,332.8317	27,114.3570	
NWRMP-1	PI	5+227.849	22° 47'10.0" RT	315.000	63.475	125.273	279,286.0693	27,071.4337	PI
	PT	5+289.646					279,226.3326	27,049.9710	250° 14' 14.0"
2503	POT	C/L N.W. RAMP 5+236.365=					279,219.4449	27,047.4363	
	A PT.	ON C/L N.B. C.S.A.H. 17 10+432.583							

NO	DATE	BY	CKD	APPR	REVISION

NAME: AT3 410.PLN DATE: Mar. 17, 1997

minnesota▸metro

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

CO. PROJECT NO.

DRAWN BY L. VanDRASEK DATE 11-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
ALIGNMENT TABULATION
C.S.A.H. 17 RECONSTRUCTION

(P)

CURVE NO.	POINT	STATION	CURVE DATA Δ	R	T	L	COORDINATES X	Y	AZIMUTH
C/L N.E. RAMP (AS BUILT)									
400	POT	C/L N.E. RAMP 30+000.000=					279,214.5274	26,831.3659	56° 14' 14.0"
	A PT.	4.014m LT. C/L N.B. C.S.A.H. 17 10+216.435					279,218.5310	26,834.0557	
50037	POT	C/L N.E. RAMP 30+004.840=							
	A PT.	ON C/L N.B. C.S.A.H. 17 10+219.140							
	PC	30+022.311					279,233.0759	26,843.7856	
C46	PI	30+077.005	34° 46'45.0" LT	174.639	54.694	106.008	279,270.5451	26,874.1619	PI
	PT	30+128.319					279,298.5531	26,925.0644	21° 27' 29.0"
	PC	30+203.272					279,325.9726	26,994.8225	
C47	PI	30+248.722	17° 45'00.0" RT	291.063	45.449	90.170	279,342.5983	27,037.1214	PI
	PT	C/L N.E. RAMP 30+293.443					279,371.3290	27,072.3380	39° 12' 29.0"
	A PT.	7.922m RT. C/L N.B. I 35W 19+010.147							
C/L S.W. RAMP (AS BUILT)									
426	POT	C/L S.W. RAMP 40+000.000=					279,215.4136	27,045.4104	236° 14' 14.0"
	A PT.	12.576m RT. C/L S.B. C.S.A.H. 17 10+430.678							
50038	POT	C/L S.W. RAMP 40+015.309=					279,202.6365	27,036.9023	
	A PT.	ON C/L S.B. C.S.A.H. 17 10+421.927							
	PC	40+022.311					279,196.8851	27,033.0107	
C58	PI	40+077.005	34° 46'45.0" LT	174.639	54.694	106.008	279,151.3959	27,002.6144	PI
	PT	40+128.319					279,131.3379	26,951.7119	201° 27' 29.0"
	PC	40+203.272					279,103.9184	26,881.9538	
C59	PI	40+248.722	17° 45'00.0" RT	291.063	45.449	90.170	279,087.3422	26,839.6549	PI
	PT	C/L S.W. RAMP 40+293.443=					279,058.6120	26,804.4384	219° 12' 29.0"
	A PT.	7.921m LT. C/L S.B. I 35W 18+600.459							
C/L S.E. RAMP									
2000	POT	C/L S.W. RAMP 3+000.000=					279,963.6960	26,643.5919	47° 27' 04.0"
	A PT.	12.400m RT. C/L N.B. I 35W 18+422.000							
	PC	3+166.330					279,091.232	26,756.068	
SERMP-1	PI	3+230.813	22° 47'10.0" RT	320.000	64.483	127.262	279,138.736	26,799.672	PI
	PT	3+293.592					279,199.421	26,821.476	70° 14' 14.0"
2042	POT	C/L S.E. RAMP 3+296.069=					279,201.752	26,822.313	
	A PT.	6.6m LT OF S.B. C.S.A.H. 17 10+207.362							
C/L BOX CULVERT (BRIDGE NO. 02J07)									
3500	POT	C/L BOX CULVERT 20+000.000=					279,238.0160	26,014.2910	337° 41' 16.3"
	A PT.	21.455m RT. C/L N.B. C.S.A.H. 17 9+399.416							
3501	PI	20+024.707					279,223.6330	26,037.1430	0° 11' 22.5"
	PC	20+111.964					279,228.9247	26,124.4042	
BOX-1	PI	20+134.880	1° 03' 19.6" RT	2,488.000	22.916	45.831	279,229.0005	26,147.3202	PI
	PT	20+157.795					279,229.4985	26,170.2310	1° 14' 42.1"
3502	PI	20+211.345					279,230.6620	26,223.7690	338° 49' 39.1"
3503	PI	20+215.033					279,229.3300	26,227.2030	318° 17' 05.4"
3504	PI	20+218.691					279,226.8020	26,229.8520	293° 45' 43.6"
3505	PI	20+222.349					279,223.4540	26,231.3260	271° 14' 47.7"
3506	PI	C/L BOX CULVERT 20+259.260=					279,186.5520	26,232.1290	
	A PT.	32.270m LT. C/L N.B. C.S.A.H. 17 9+616.601							

NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	mph	DAD	REVISE SE RAMP ALIGNMENT

NAME: AT4 410.PLN DATE: Mar. 17, 1997

minnesota | metro

I hereby certify that this plan, specification or report 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.

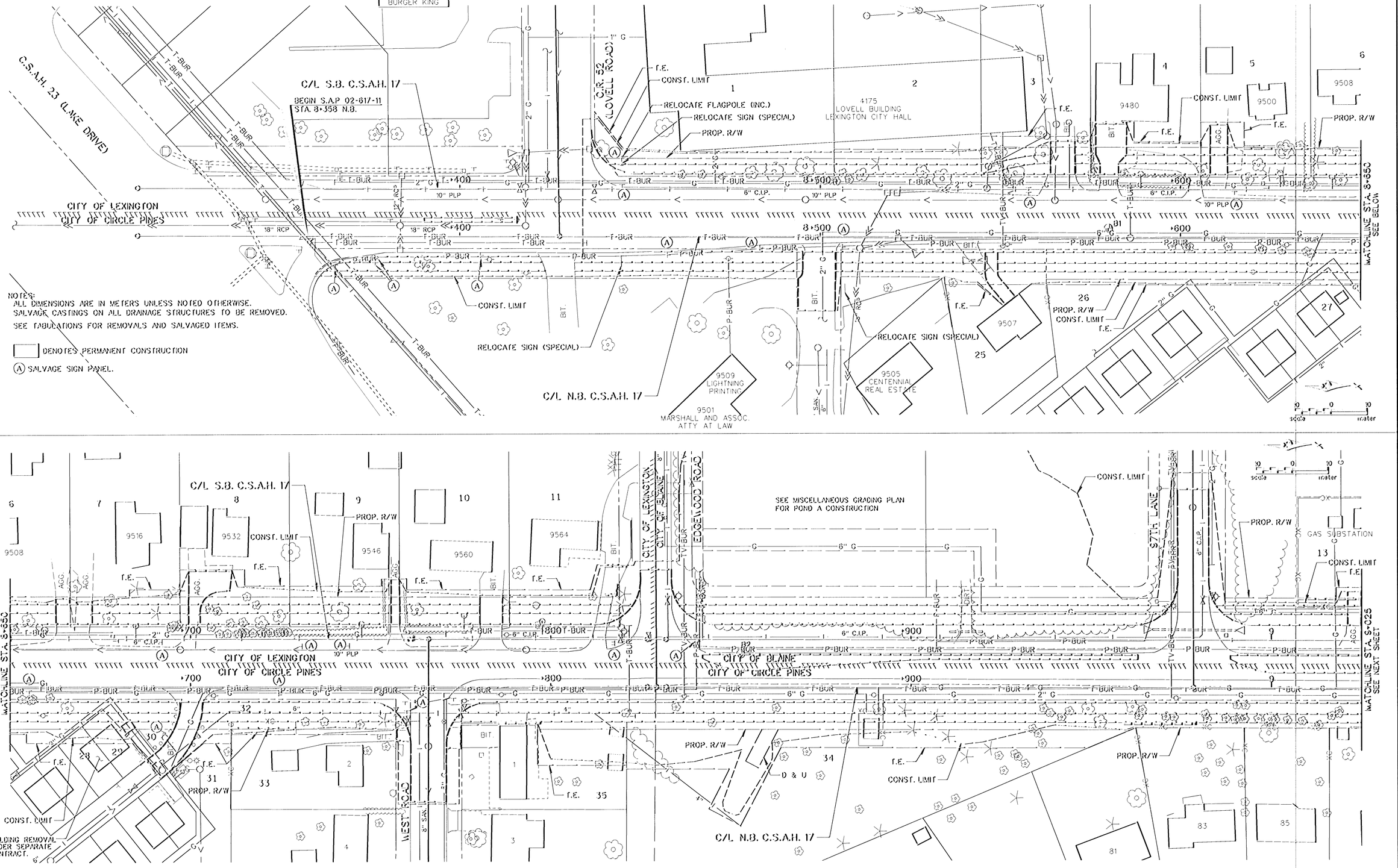
Date 3-21-97 Reg. No. 23997

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY L. VanDRASEK DATE 11-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
ALIGNMENT TABULATION
C.S.A.H. 17 RECONSTRUCTION



NO	DATE	BY	CKD	APPR	REVISION

NAME: EP1410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF	DATE 10-96
DESIGNED BY B. URBANEK	10-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

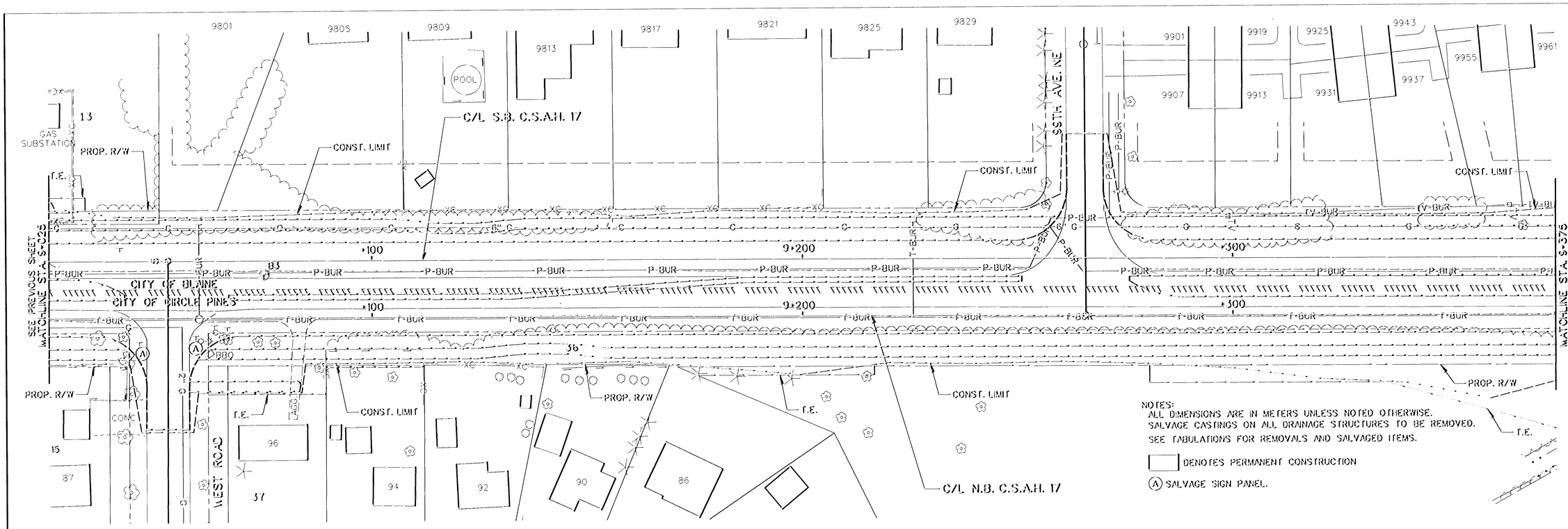
ANOKA COUNTY

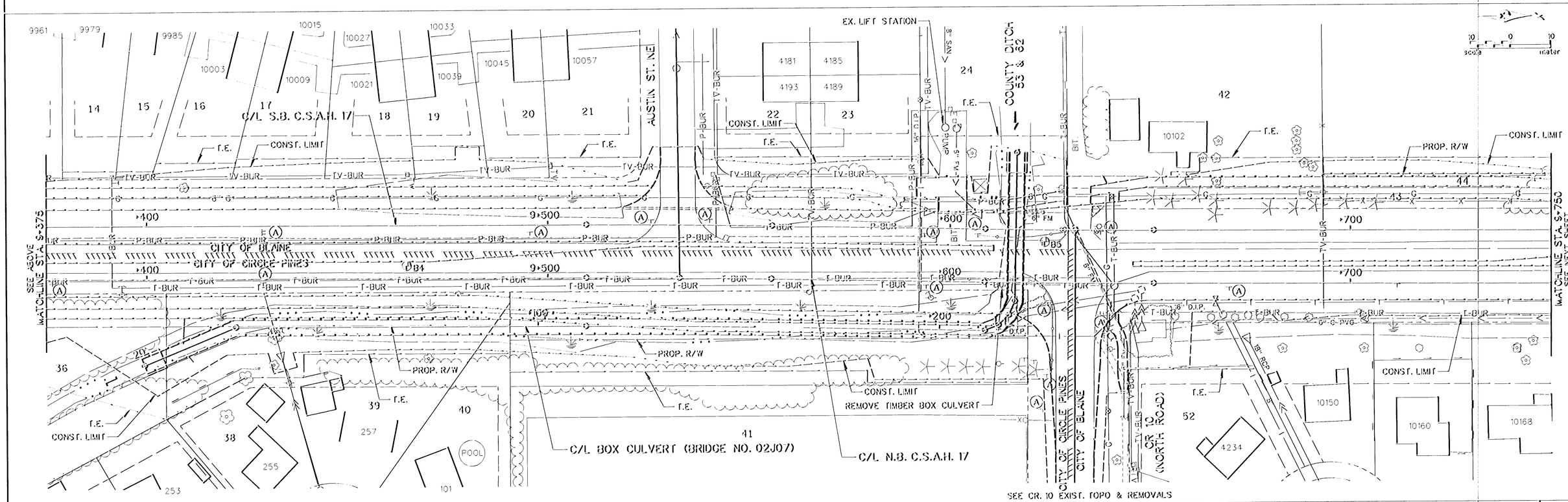
EXISTING TOPOGRAPHY AND REMOVALS

C.S.A.H. 17 RECONSTRUCTION

STA. 8+358 TO STA. 9+025

SHEET 58 OF 236





NO	DATE	BY	CKD	APPR	REVISION

NAME: TP2 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	10-96
DESIGNED BY	B. URBANEK	10-96
CHECKED BY	D. DEMERS	1-97
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

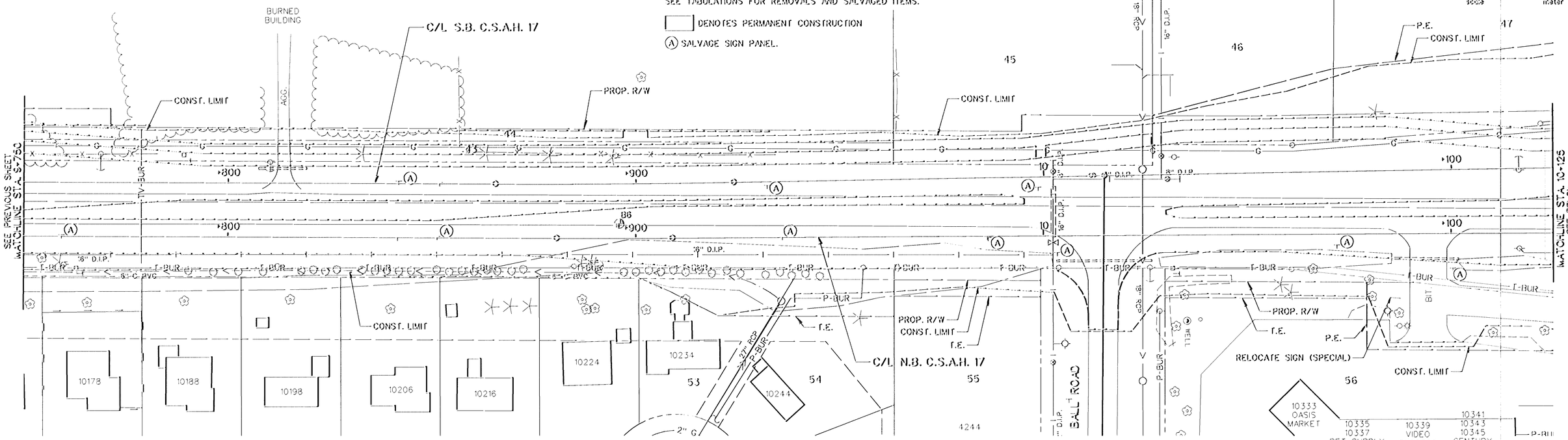
EXISTING TOPOGRAPHY AND REMOVALS
C.S.A.H. 17 RECONSTRUCTION
STA. 9+025 TO STA. 9+750

SHEET 59 OF 236

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SALVAGE CASTINGS ON ALL DRAINAGE STRUCTURES TO BE REMOVED.
SEE TABULATIONS FOR REMOVALS AND SALVAGED ITEMS.

DENOTES PERMANENT CONSTRUCTION

(A) SALVAGE SIGN PANEL.



NO	DATE	BY	CKD	APPR	REVISION

NAME: FP3 410.PLN DATE: Mar. 20, 1997

minnesota metric

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Donald A. Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

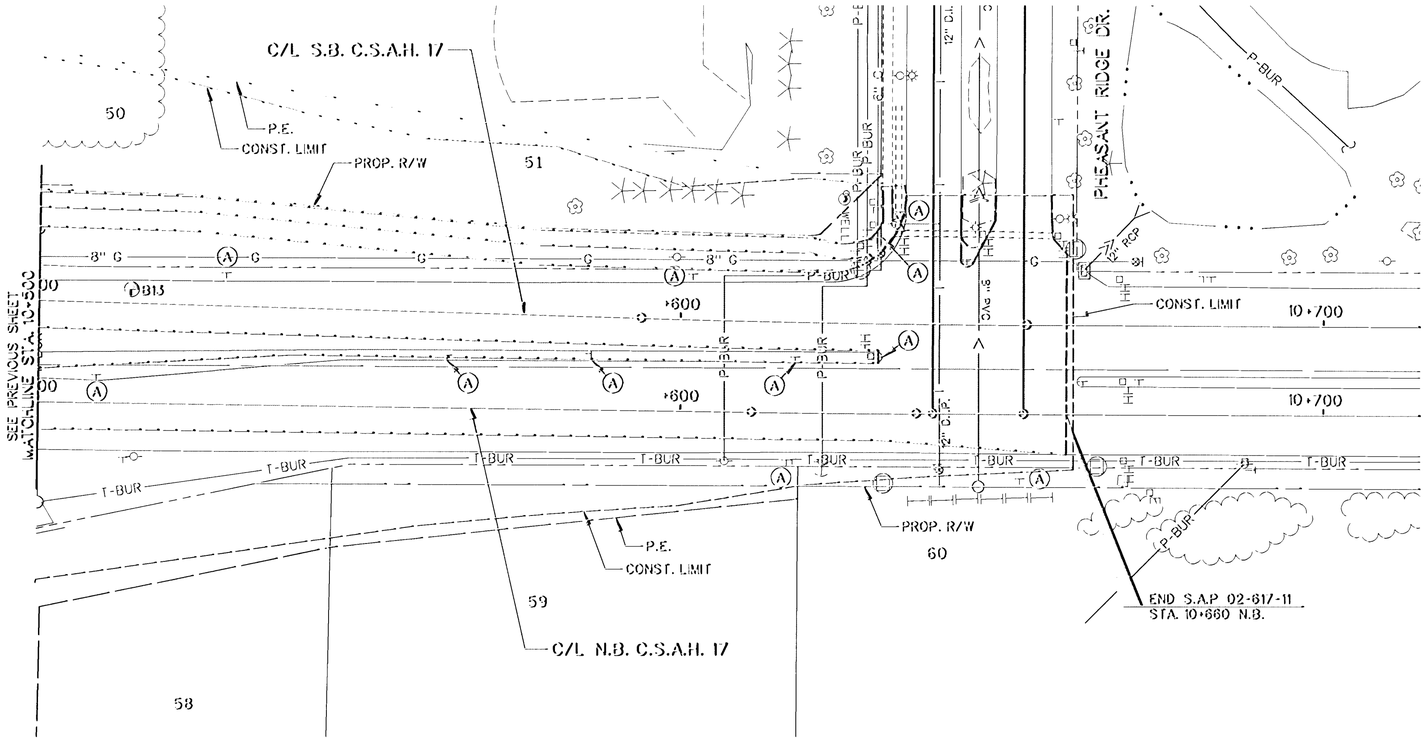
CO. PROJECT NO.

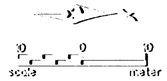
DRAWN BY V. GRAF DATE 10-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
EXISTING TOPOGRAPHY AND REMOVALS
C.S.A.H. 17 RECONSTRUCTION
STA. 9+750 TO STA. 10+500

SHEET 60 OF 236



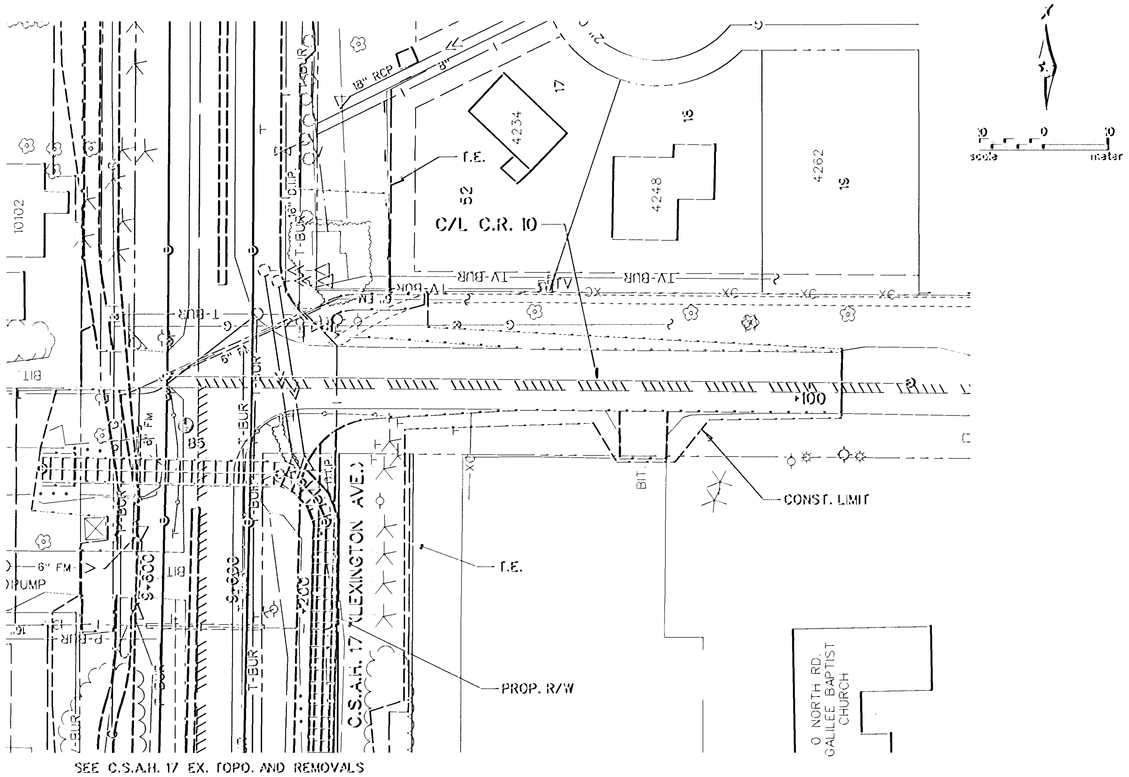


NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SALVAGE CASTINGS ON ALL DRAINAGE STRUCTURES TO BE REMOVED.

SEE TABULATIONS FOR REMOVALS AND SALVAGED ITEMS.

☐ DENOTES PERMANENT CONSTRUCTION

Ⓐ SALVAGE SIGN PANEL.



SEE C.S.A.H. 17 EX. TOPO. AND REMOVALS

NO	DATE	BY	CKD	APPR	REVISION

NAME: TP4 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 10-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
EXISTING TOPOGRAPHY AND REMOVALS
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 STA. 10+500 TO STA. 10+660 & C.R. 10

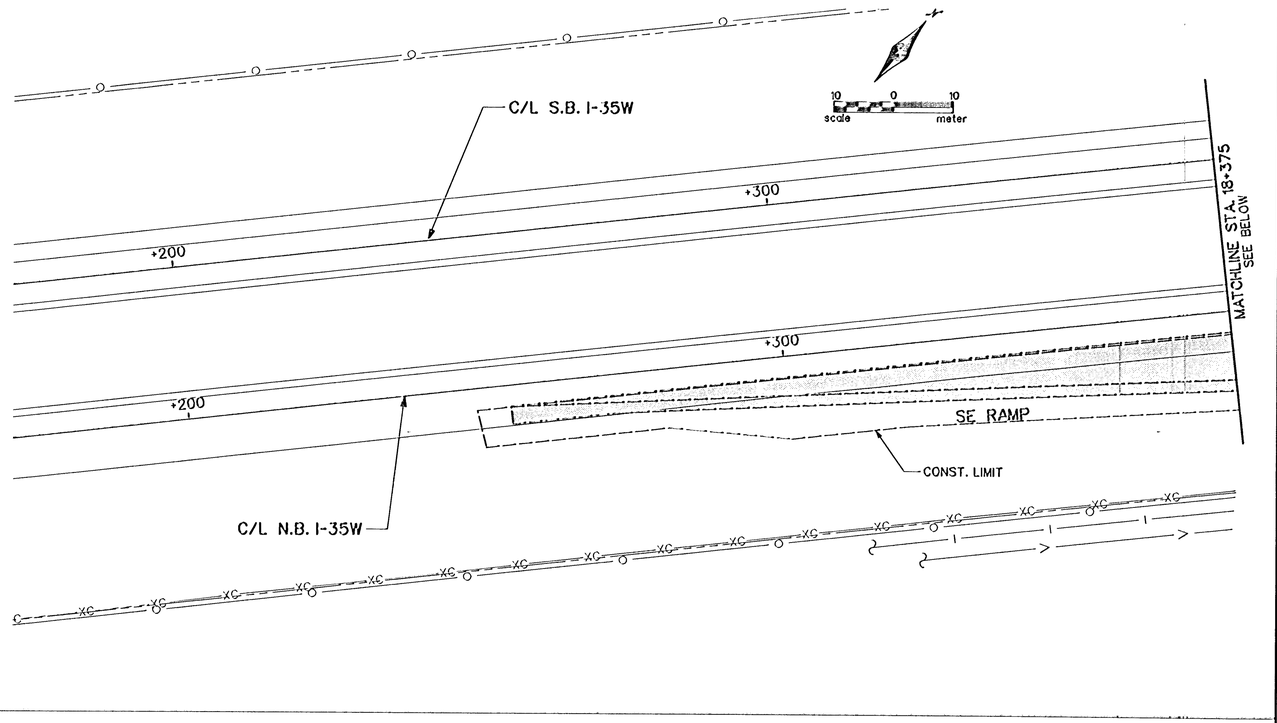
SHEET 61 OF 236

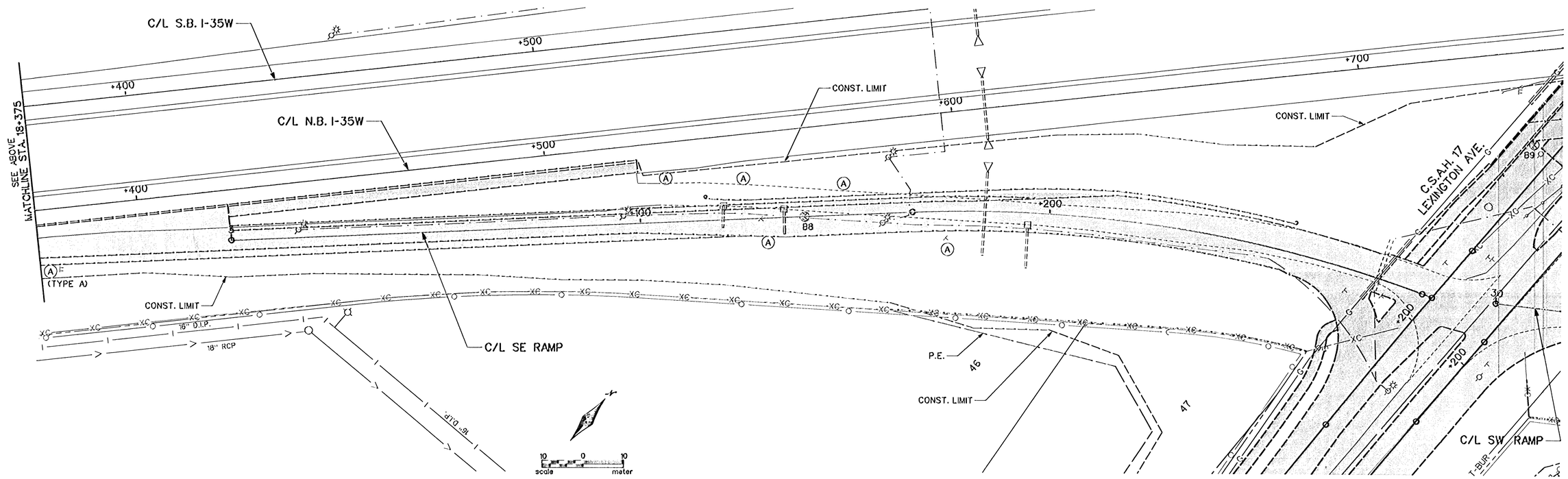
NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SALVAGE CASTINGS ON ALL DRAINAGE STRUCTURES TO BE REMOVED.

SEE TABULATIONS FOR REMOVALS AND SALVAGED ITEMS.

[XXXX] DENOTES PERMANENT CONSTRUCTION

(A) SALVAGE SIGN PANEL.





NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	MCH	DAD	REVISE SE RAMP

NAME: TP5 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A. Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

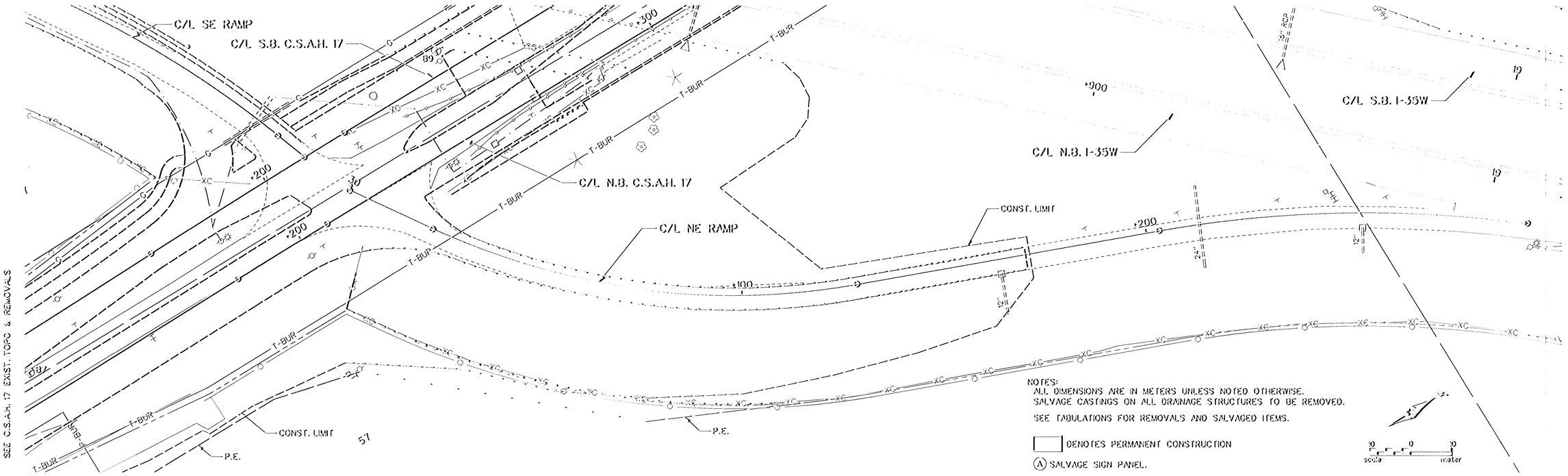
CO. PROJECT NO.

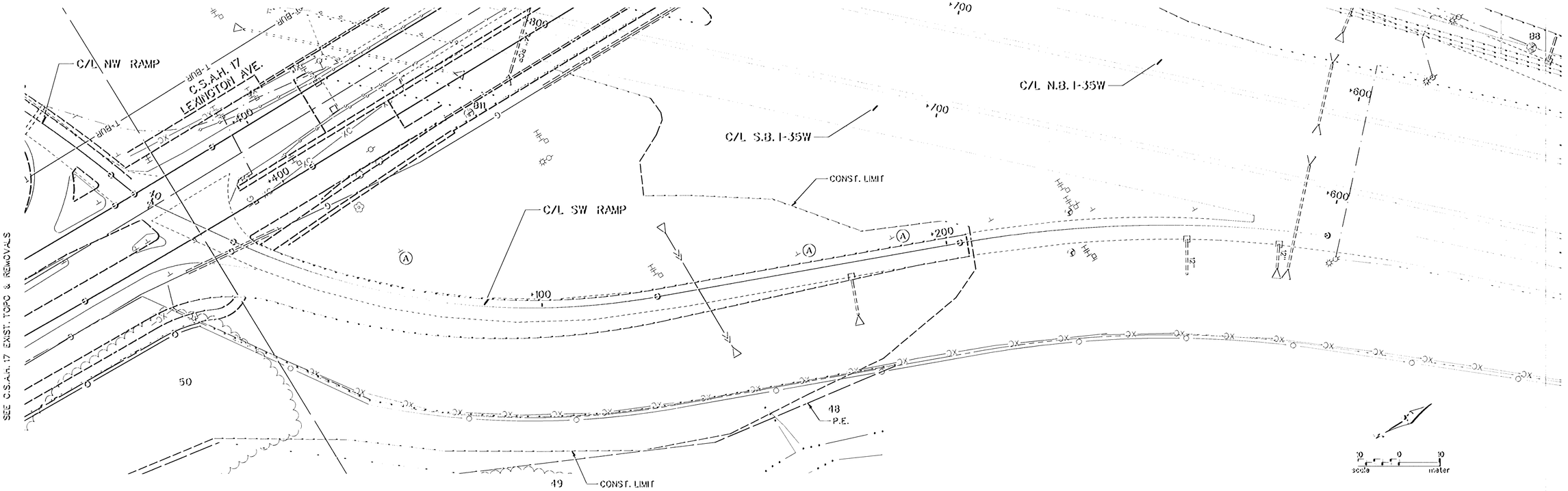
DRAWN BY V. GRAF	DATE 12-96
DESIGNED BY B. URBANEK	12-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
EXISTING TOPOGRAPHY AND REMOVALS
C.S.A.H. 17 RECONSTRUCTION
SE RAMP

SHEET 62 OF 236





NO	DATE	BY	CKD	APPR	REVISION

NAME: TP6 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY	DATE
V. GRAF	12-96
DESIGNED BY	
B. URBANEK	12-96
CHECKED BY	
D. DEMERS	1-97
COMM. NO.	
0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

EXISTING TOPOGRAPHY AND REMOVALS

C.S.A.H. 17 RECONSTRUCTION

NE RAMP AND SW RAMP

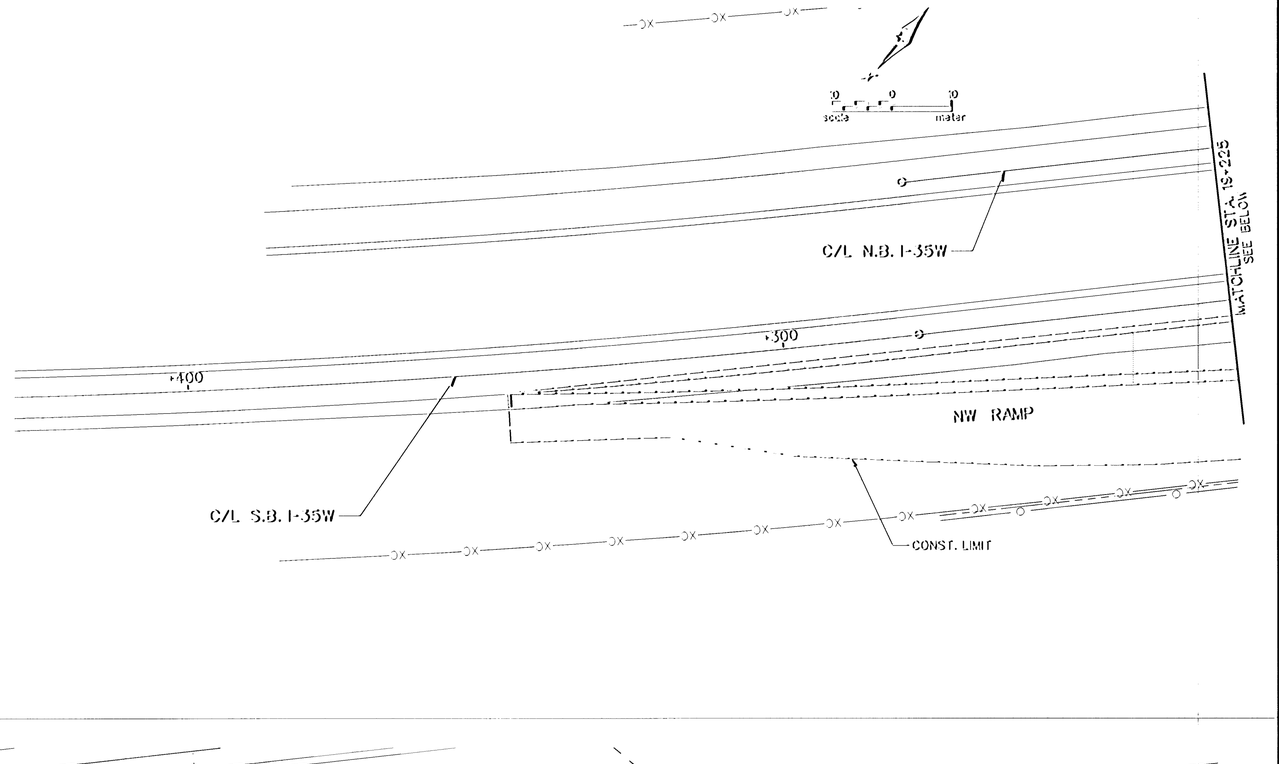
SHEET 63 OF 236

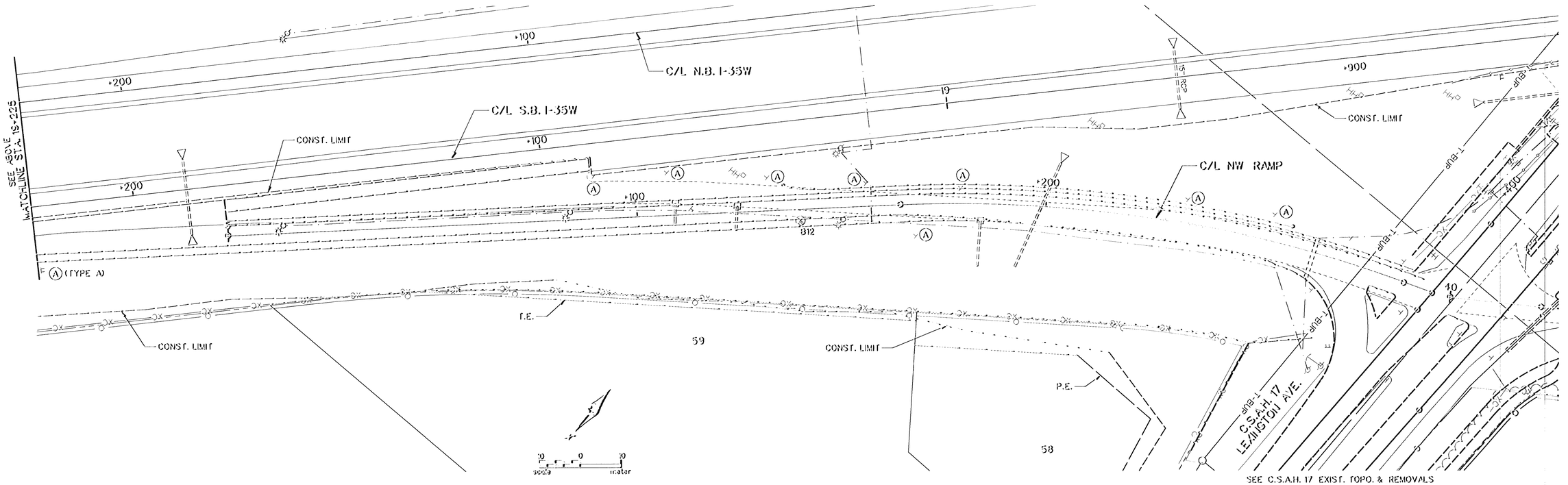
NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SALVAGE CASTINGS ON ALL DRAINAGE STRUCTURES TO BE REMOVED.

SEE TABULATIONS FOR REMOVALS AND SALVAGED ITEMS.

[ ] DENOTES PERMANENT CONSTRUCTION

(A) SALVAGE SIGN PANEL.





NO	DATE	BY	CKD	APPR	REVISION

NAME: tp7 410.PLN DATE: Mar. 17, 1997

minnesota: metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF	DATE 12-96
DESIGNED BY B. URBANEK	12-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

EXISTING TOPOGRAPHY AND REMOVALS
C.S.A.H. 17 RECONSTRUCTION
NW RAMP

SHEET 64 OF 236


9390
BURGER KING
C.S.A.H. 23 (LAKE DRIVE)
C.R. 52 (LOVELL ROAD)
C/L S.B. C.S.A.H. 17
BEGIN S.A.P. 02-617-11
STA. 8+358 N.B.
PROP. R/W
2.4 BIT. WALK
B618 C&G
T.E.
+436.5 SB
4175
LOVELL BUILDING
LEXINGTON CITY HALL
+541.5 SB
+563.1 SB
9480
9500
9508
CITY OF LEXINGTON
CITY OF CIRCLE PINES
+400
8+500
+600
+453.9
2.4 BIT. WALK
WALK SHALL SLOPE OUT
AND MATCH EXISTING
GRADE THIS AREA.
C/L N.B. C.S.A.H. 17
9509
LIGHTNING
PRINTING
9501
MARSHALL AND ASSOC.
ATTY AT LAW
9505
CENTENNIAL
REAL ESTATE
9507
PROP. R/W
MATCHLINE STA. 8+650
SEE NEXT SHEET
scale
meter

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
ALL STATION CALL OUTS ARE N.B. CSAH 17 UNLESS NOTED OTHERWISE.
ALL STREET DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE DRAINAGE TABULATION AND STORM PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

(A) CONSTRUCT BITUMINOUS PEDESTRIAN CURB RAMP IN ACCORDANCE WITH MN/DOT STD. PLATE M7036.
(B) CONSTRUCT CONCRETE APPROACH NOSE IN ACCORDANCE WITH MN/DOT STD. PLATE 7113.

STREET RADII

RADIUS	ALIGNMENT	STATION	LOCATION
12.0	SBLEX	8+448.5	16.2 (LT)


C.S.A.H. 17
C/L C.S.A.H. 23/LAKE DR.
C/L C.R. 52 (LOVELL ROAD)
CB (107) STA. 8+437.31 24.20 LT T.C. 277.200
CB (105) STA. 8+489 3.86 RT T.C. 276.668
CB (106) STA. 8+511 3.86 RT T.C. 276.572
CB (104) STA. 8+530 3.86 RT T.C. 276.545
CB (222) STA. 8+558 17.06 LT T.C. 276.602
CB (223) STA. 8+600 17.06 LT T.C. 276.866
CB (226) STA. 8+642 17.06 LT T.C. 277.160
C/L DRIVEWAY
PROFILE GRADE (CARRIED 3.6m LEFT OF N.B. C.S.A.H. 17)
-0.76%
100m V.C.
+0.70%
EXISTING GROUND
SUBGRADE
EXISTING 18" RCP
EXISTING 6" CIP WM
EXISTING 8" PLP
MATCH EXISTING PIPE
1.5m - 300mm RCP @ 4.00%
22.0m - 300mm RCP @ 0.50%
19.0m - 300mm RCP @ 0.50%
42.0m - 450mm RCP @ 0.40%
42.0m - 525mm RCP @ 0.40%
INV. 276.320
INV. 275.598
INV. 275.448
INV. 275.413
INV. 275.583
INV. 275.611
INV. 275.443
INV. 275.388
INV. 275.200
B.M. ELEV. 276.177
TNH N.E. QUAD CO. RD. 10 AND LEXINGTON AVE.
280
275
270
+400
8+500
+600

NO	DATE	BY	CKD	APPR	REVISION
1	3-28-97	MCI		DAD	ADD C&G ON EXIST. MEDIAN

NAME: CP1 410.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A. Demers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	10-96
DESIGNED BY	B. URBANEK	10-96
CHECKED BY	D. DEMERS	1-97
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
STA. 8+358 TO STA. 8+650

SHEET 65 OF 236

STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
12.0	NBLEX	8+749.1	16.2 (RT)
12.0	NBLEX	8+783.1	16.2 (RT)
12.0	SBLEX	8+812.8	16.2 (LT)
12.0	SBLEX	8+845.5	16.2 (LT)
12.0	SBLEX	8+961.9	16.2 (LT)
12.0	SBLEX	8+994.6	16.2 (LT)

ISLAND RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
25.0	NBLEX	8+854.3	29.6 (LT)
25.0	NBLEX	9+001.5	29.2 (LT)

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
ALL STATION CALL OUTS ARE N.B. CSAH 17 UNLESS NOTED OTHERWISE.
ALL STREET DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE DRAINAGE TABULATION AND STORM PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

(A) CONSTRUCT BITUMINOUS PEDESTRIAN CURB RAMP IN ACCORDANCE WITH MN/DOT STD. PLATE 7036.

(B) CONSTRUCT CONCRETE APPROACH NOSE IN ACCORDANCE WITH MN/DOT STD. PLATE 7113.

(C) TRANSITION B618 C&G TO MATCH EXSTING CURB TYPE.

(D) LOWER EXISTING WATERMAIN. SEE DETAIL ON MISC. PROFILE SHEET

NO	DATE	BY	CKD	APPR	REVISION

NAME: CP2 410.PLN DATE: Mar. 18, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

		DATE
DRAWN BY	V. GRAF	10-96
DESIGNED BY	B. URBANEK	10-96
CHECKED BY	D. DEMERS	1-97
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

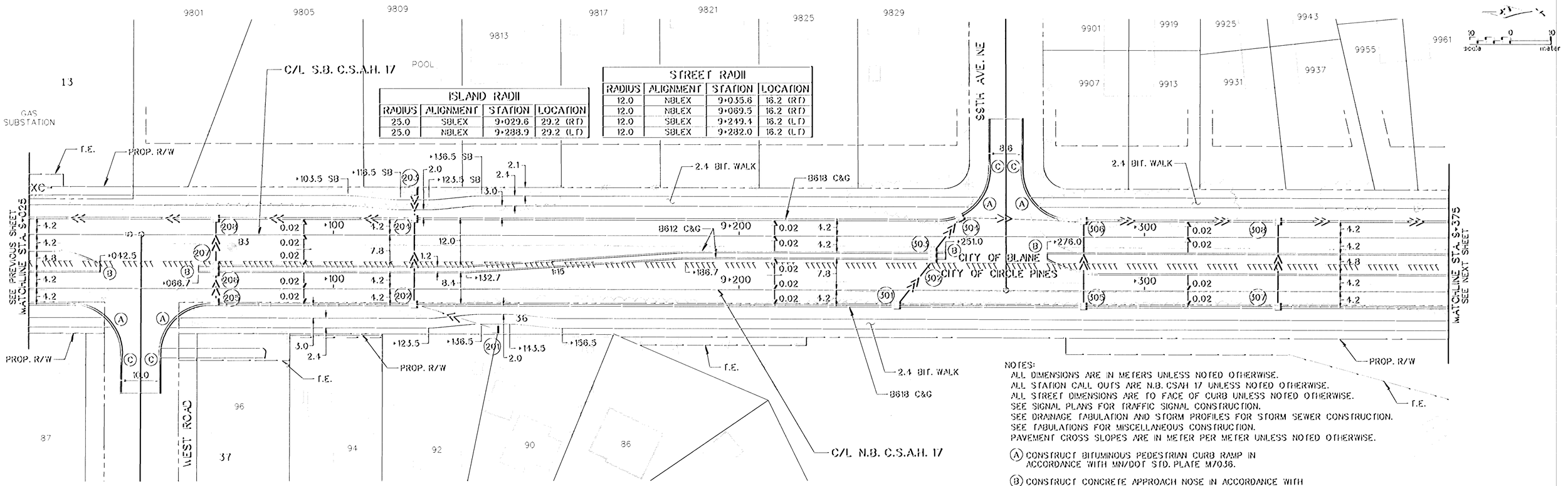
CONSTRUCTION PLAN AND PROFILE

C.S.A.H. 17 RECONSTRUCTION

STA. 8+650 TO STA. 9+025

ISLAND RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
25.0	SBLEX	9+029.6	29.2 (RT)
25.0	NBLEX	9+288.9	29.2 (LT)

STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
12.0	NBLEX	9+035.6	16.2 (RT)
12.0	NBLEX	9+069.5	16.2 (RT)
12.0	SBLEX	9+249.4	16.2 (LT)
12.0	SBLEX	9+282.0	16.2 (LT)



NOTES:
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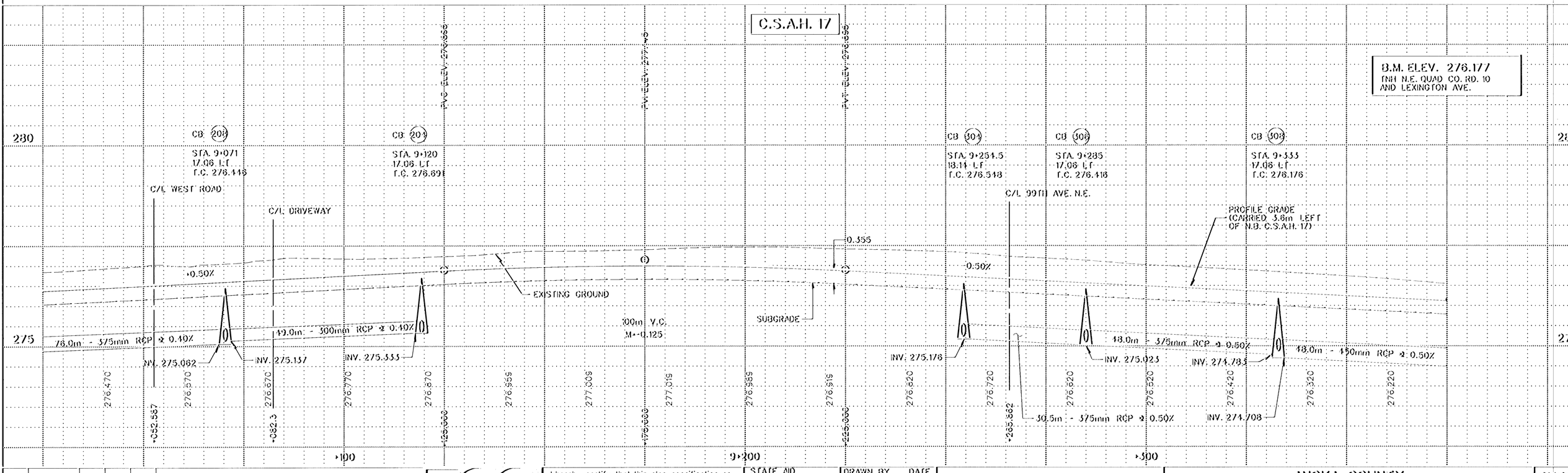
ALL STREET DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE DRAINAGE TABULATION AND STORM PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

(A) CONSTRUCT BITUMINOUS PEDESTRIAN CURB RAMP IN ACCORDANCE WITH MN/DOT STD. PLATE M/036.

(B) CONSTRUCT CONCRETE APPROACH NOSE IN ACCORDANCE WITH MN/DOT STD. PLATE 7115.

(C) TRANSITION B618 C&G TO MATCH EXISTING CURB TYPE.



NO	DATE	BY	CKD	APPR	REVISION

NAME: CP3 410.PLN DATE: Mar. 18, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 10-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
STA. 9+025 TO STA. 9+375

SHEET 67 OF 236

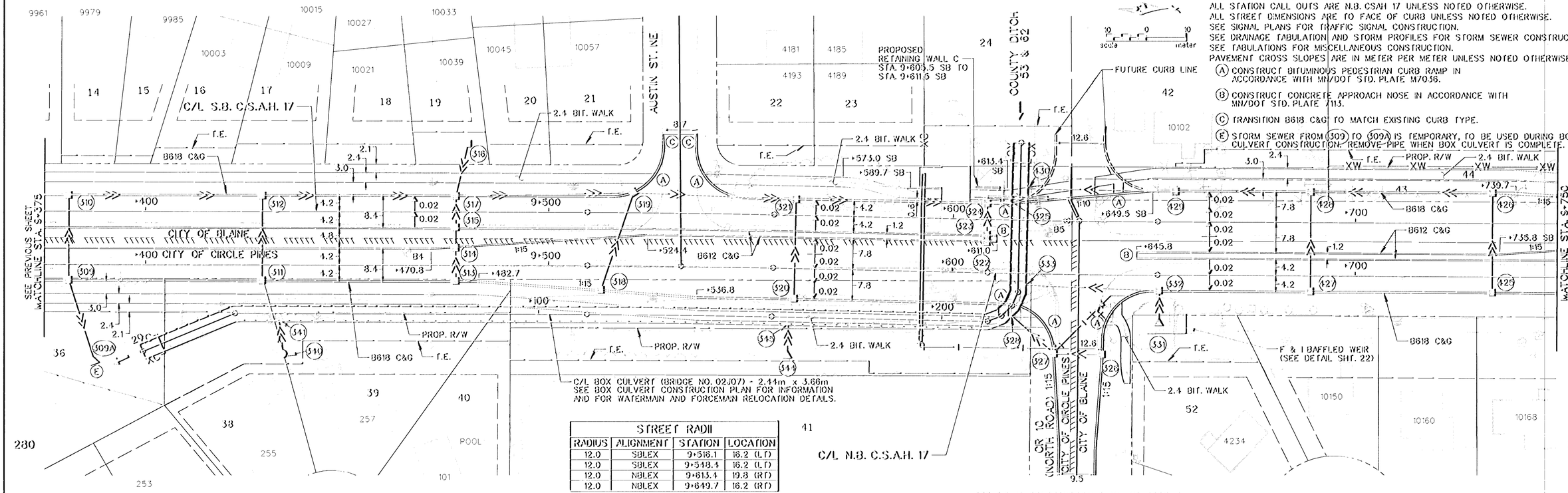
NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
ALL STATION CALL OUTS ARE N.B. CSAH 17 UNLESS NOTED OTHERWISE.
ALL STREET DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE DRAINAGE TABULATION AND STORM PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

(A) CONSTRUCT BITUMINOUS PEDESTRIAN CURB RAMP IN ACCORDANCE WITH MN/DOT STD. PLATE M7036.

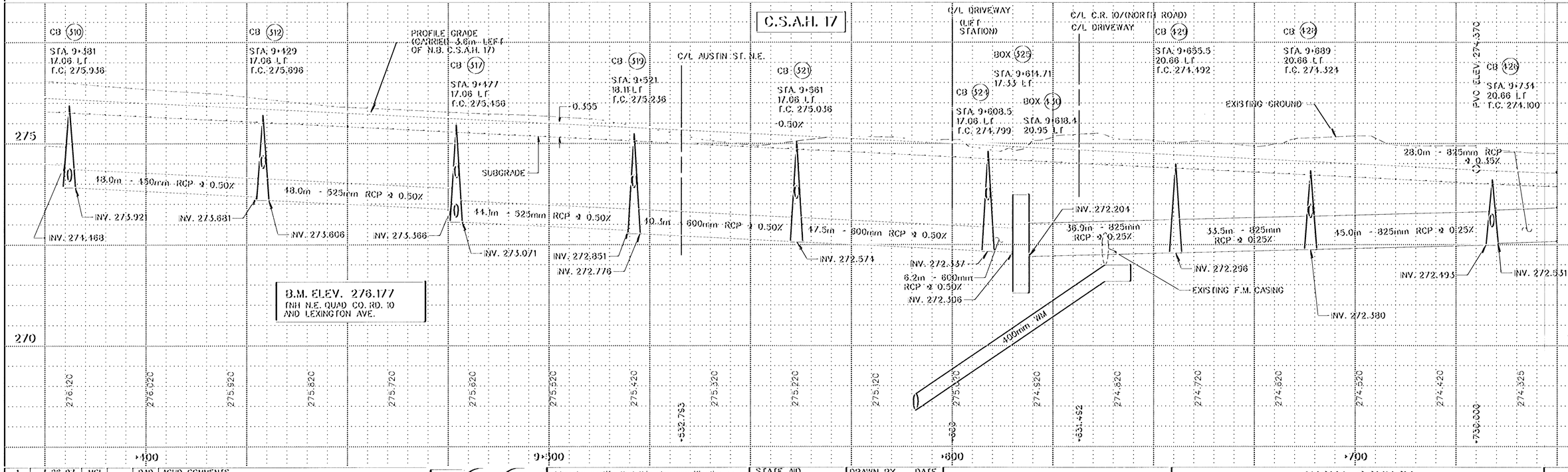
(B) CONSTRUCT CONCRETE APPROACH NOSE IN ACCORDANCE WITH MN/DOT STD. PLATE 7115.

(C) TRANSITION B618 C&G TO MATCH EXISTING CURB TYPE.

(E) STORM SEWER FROM (309) TO (309A) IS TEMPORARY, TO BE USED DURING BOX CULVERT CONSTRUCTION. REMOVE PIPE WHEN BOX CULVERT IS COMPLETE.



STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
12.0	SBLEX	9+516.1	16.2 (LT)
12.0	SBLEX	9+548.4	16.2 (LT)
12.0	NBLEX	9+613.4	19.8 (RT)
12.0	NBLEX	9+649.7	16.2 (RT)



NO	DATE	BY	CKD	APPR	REVISION
1	3-28-97	MCI		DAD	ACHD COMMENTS

NAME: CP1 410.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 10-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
STA. 9+375 TO STA. 9+750

SHEET 68 OF 236

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
ALL STATION CALL OUTS ARE N.B. CSAH 17 UNLESS NOTED OTHERWISE.
ALL STREET DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE DRAINAGE TABULATION AND STORM PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

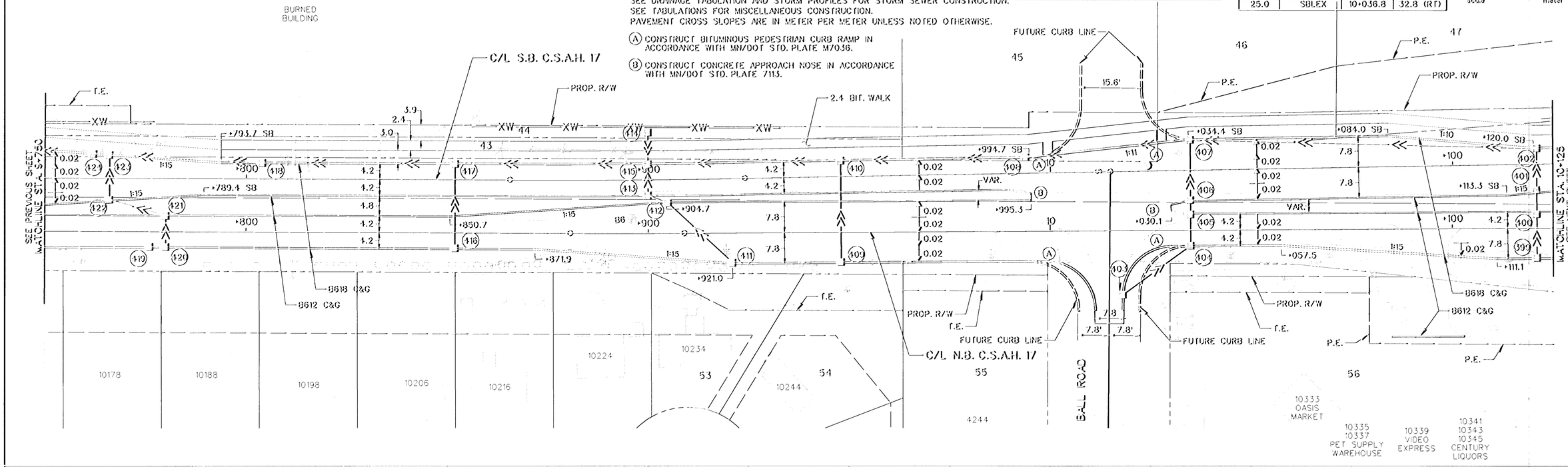
(A) CONSTRUCT BITUMINOUS PEDESTRIAN CURB RAMP IN ACCORDANCE WITH MN/DOT STD. PLATE M7036.

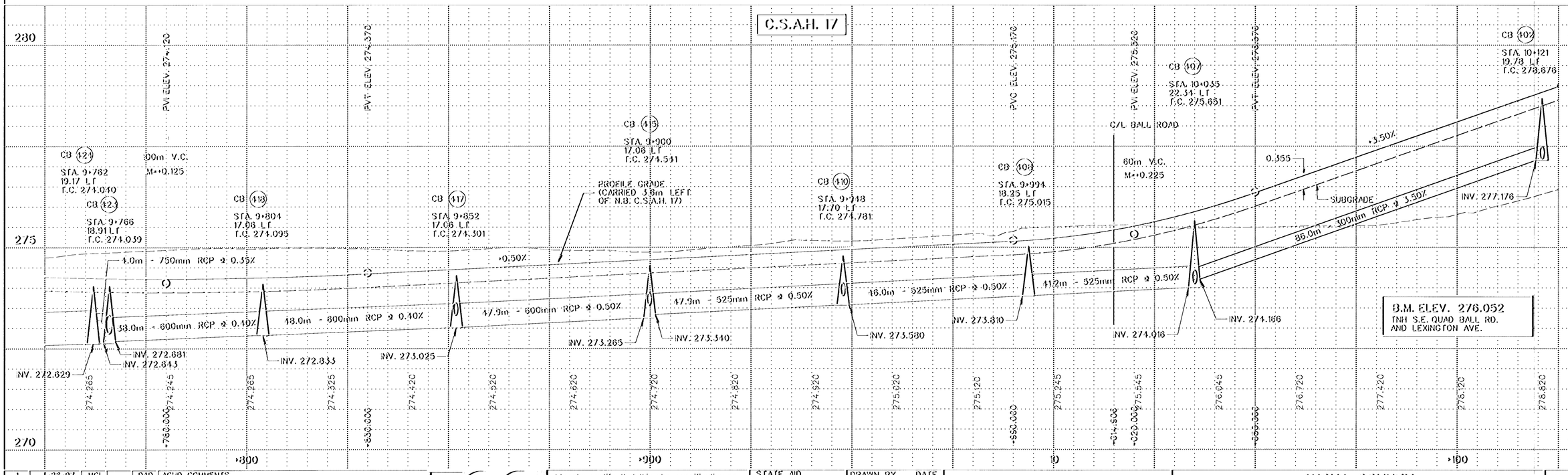
(B) CONSTRUCT CONCRETE APPROACH NOSE IN ACCORDANCE WITH MN/DOT STD. PLATE 7115.

STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
12.0	NBLEX	9+999.0	19.8 (RT)
12.0	NBLEX	10+030.8	16.2 (RT)

ISLAND RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
25.0	SBLEX	9+987.5	29.2 (RT)
20.0	NBLEX	10+035.2	24.2 (LT)
25.0	SBLEX	10+036.8	32.8 (RT)

10 0 10
scale meter





NO	DATE	BY	CKD	APPR	REVISION
1	3-28-97	MCI		DAD	ACHD COMMENTS

NAME: CP5 110.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers
Date 3-21-97 Reg. No. 23397

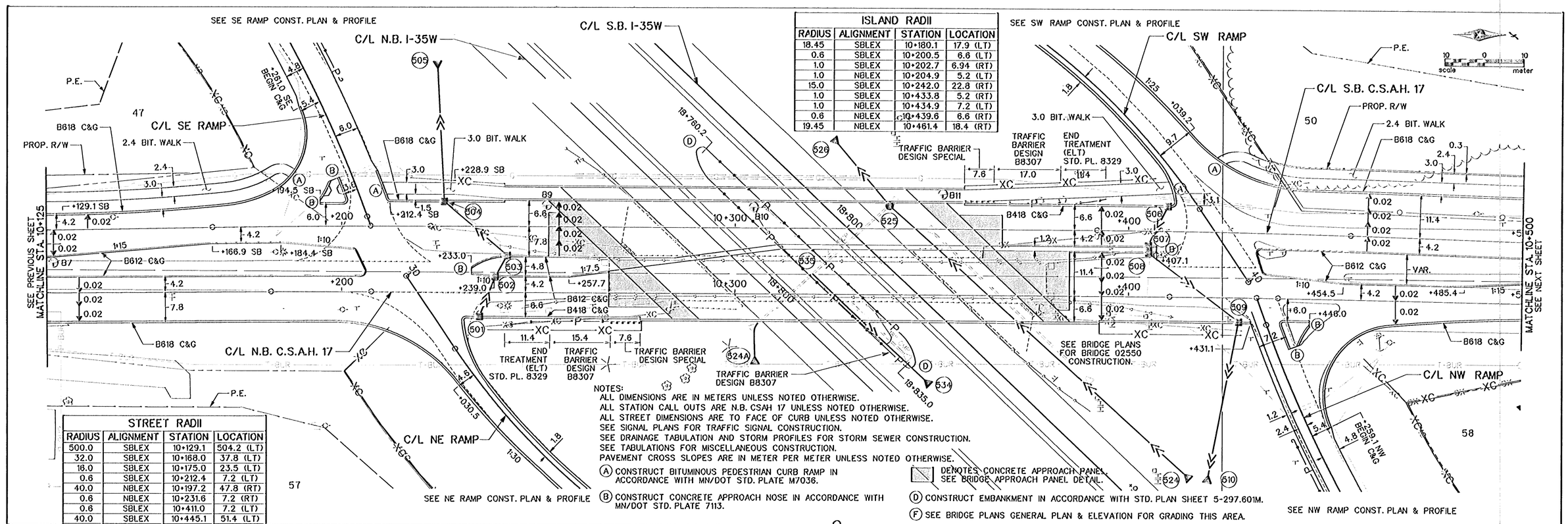
STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 10-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
STA. 9+750 TO STA. 10+125

SHEET 69 OF 236



ISLAND RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
18.45	SBLEX	10+180.1	17.9 (LT)
0.6	SBLEX	10+200.5	6.6 (LT)
1.0	SBLEX	10+202.7	6.94 (RT)
1.0	NBLEX	10+204.9	5.2 (LT)
15.0	SBLEX	10+242.0	22.8 (RT)
1.0	SBLEX	10+433.8	5.2 (RT)
1.0	NBLEX	10+434.9	7.2 (LT)
0.6	NBLEX	10+439.6	6.6 (RT)
19.45	NBLEX	10+461.4	18.4 (RT)

STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
500.0	SBLEX	10+129.1	504.2 (LT)
32.0	SBLEX	10+168.0	37.8 (LT)
18.0	SBLEX	10+175.0	23.5 (LT)
0.6	SBLEX	10+212.4	7.2 (LT)
40.0	NBLEX	10+197.2	47.8 (RT)
0.6	NBLEX	10+231.6	7.2 (RT)
0.6	SBLEX	10+411.0	7.2 (LT)
40.0	SBLEX	10+445.1	51.4 (LT)
18.0	NBLEX	10+468.3	24.6 (RT)
400.0	NBLEX	10+510.6	404.2 (RT)

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
ALL STATION CALL OUTS ARE N.B. CSAH 17 UNLESS NOTED OTHERWISE.
ALL STREET DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE DRAINAGE TABULATION AND STORM PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

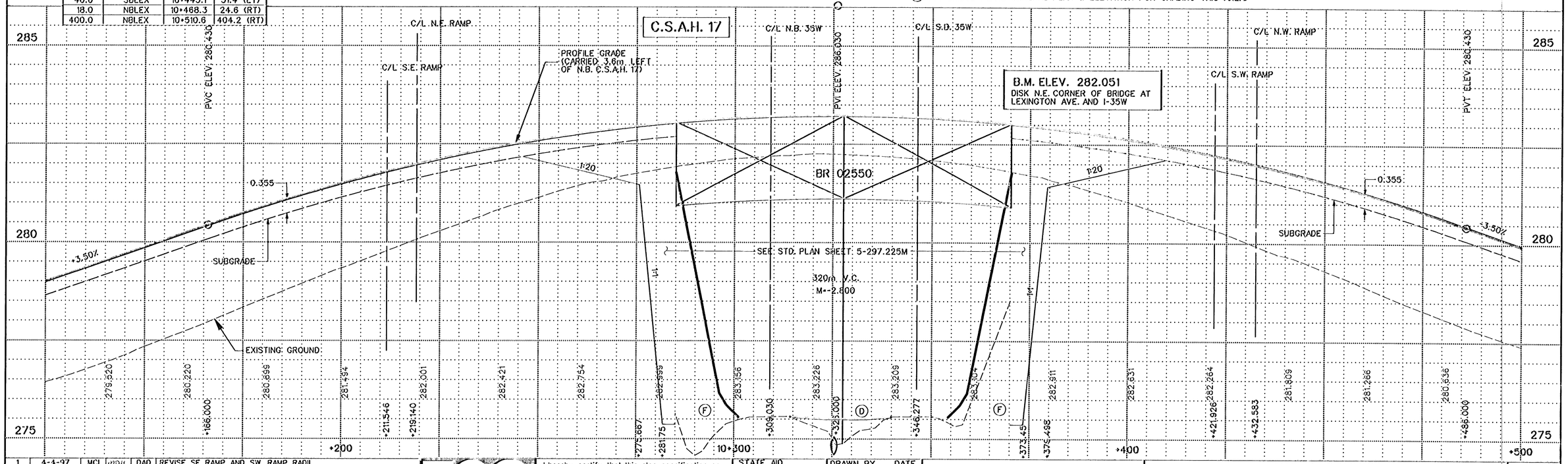
(A) CONSTRUCT BITUMINOUS PEDESTRIAN CURB RAMP IN ACCORDANCE WITH MN/DOT STD. PLATE M7036.

(B) CONSTRUCT CONCRETE APPROACH NOSE IN ACCORDANCE WITH MN/DOT STD. PLATE 7113.

DENOTES CONCRETE APPROACH PANEL. SEE BRIDGE APPROACH PANEL DETAIL.

(D) CONSTRUCT EMBANKMENT IN ACCORDANCE WITH STD. PLAN SHEET 5-297.601M.

(F) SEE BRIDGE PLANS GENERAL PLAN & ELEVATION FOR GRADING THIS AREA.



NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	mDH	DAD	REVISE SE RAMP AND SW RAMP RADII

NAME: CP6 410.PLN DATE: Mar. 18, 1997

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23377

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

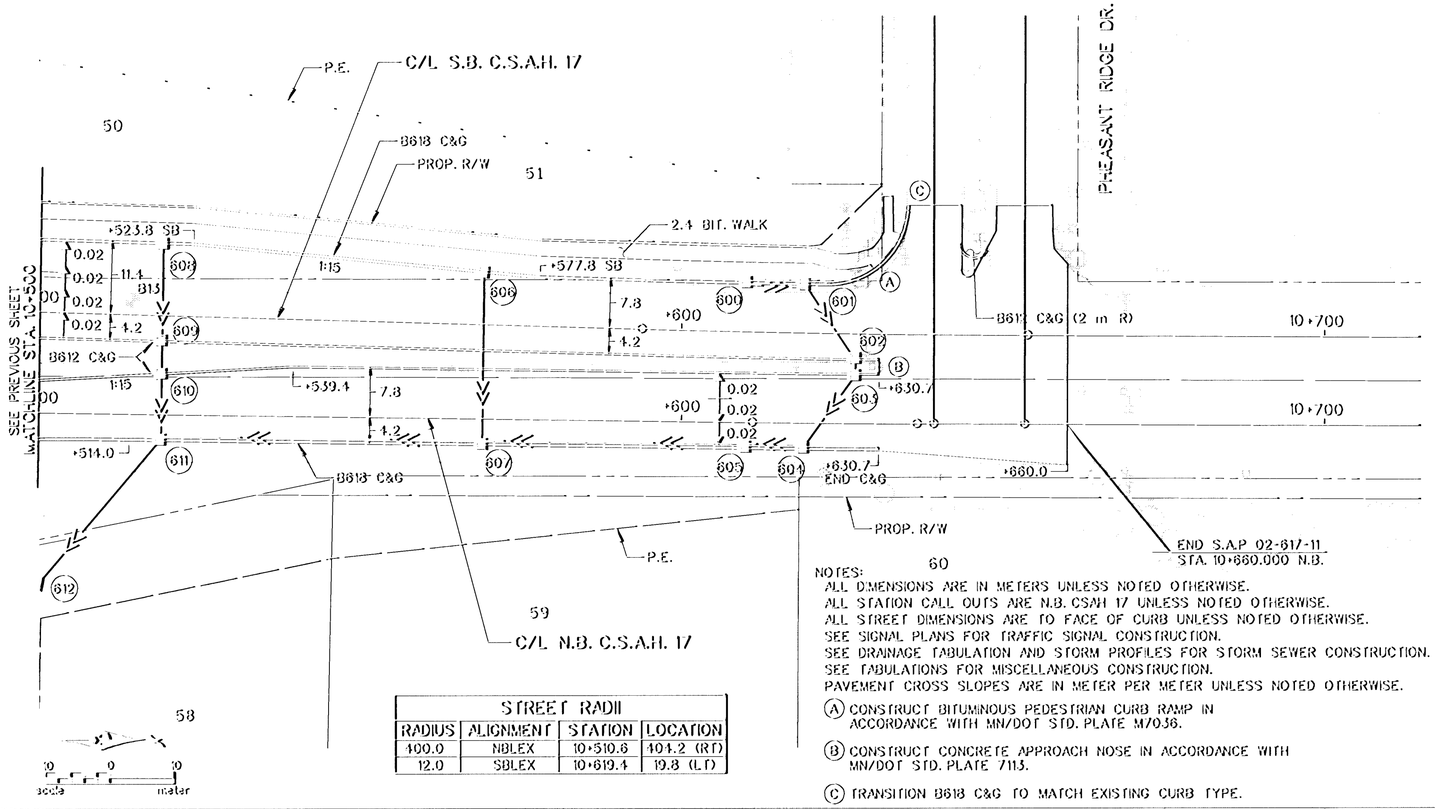
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 10-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
STA. 10+125 TO STA. 10+500

SHEET 70 OF 236



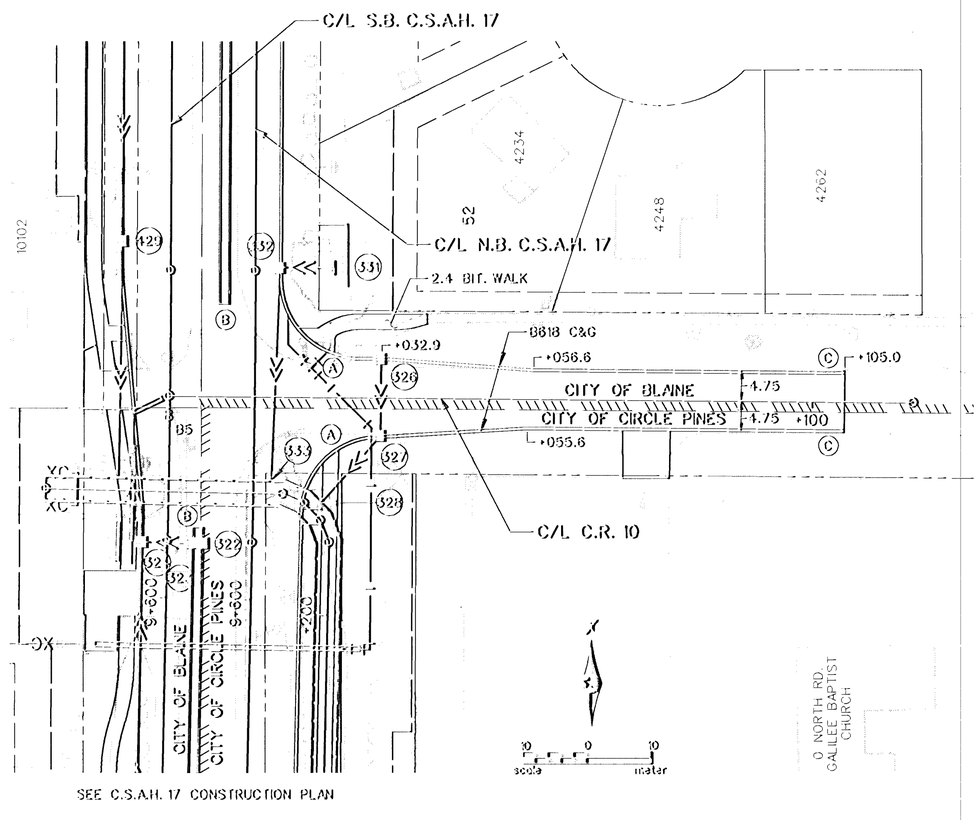
STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
400.0	NBLEX	10+510.6	404.2 (RT)
12.0	SBLEX	10+619.4	19.8 (LT)

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
ALL STATION CALL OUTS ARE N.B. CSAH 17 UNLESS NOTED OTHERWISE.
ALL STREET DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE DRAINAGE TABULATION AND STORM PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

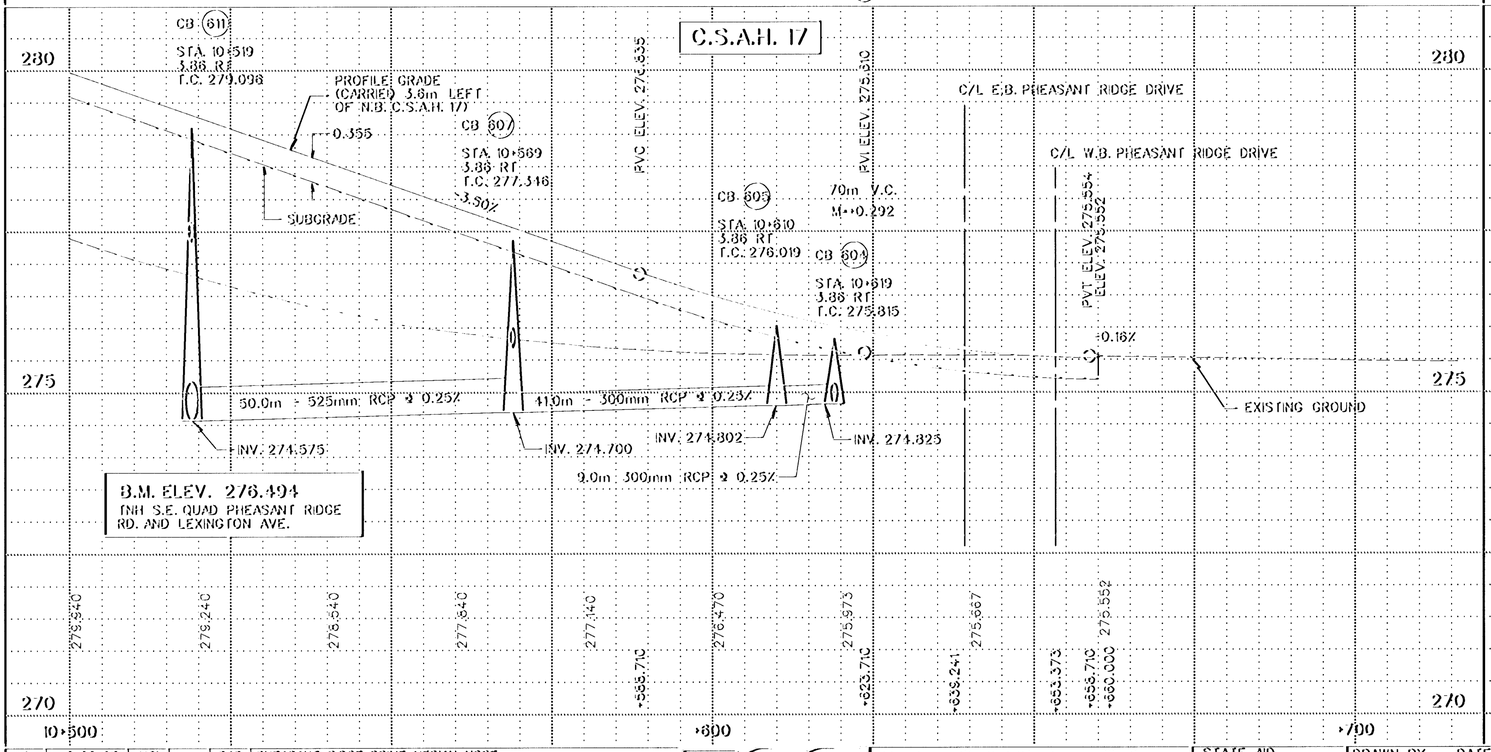
(A) CONSTRUCT BITUMINOUS PEDESTRIAN CURB RAMP IN ACCORDANCE WITH MN/DOT STD. PLATE M7036.

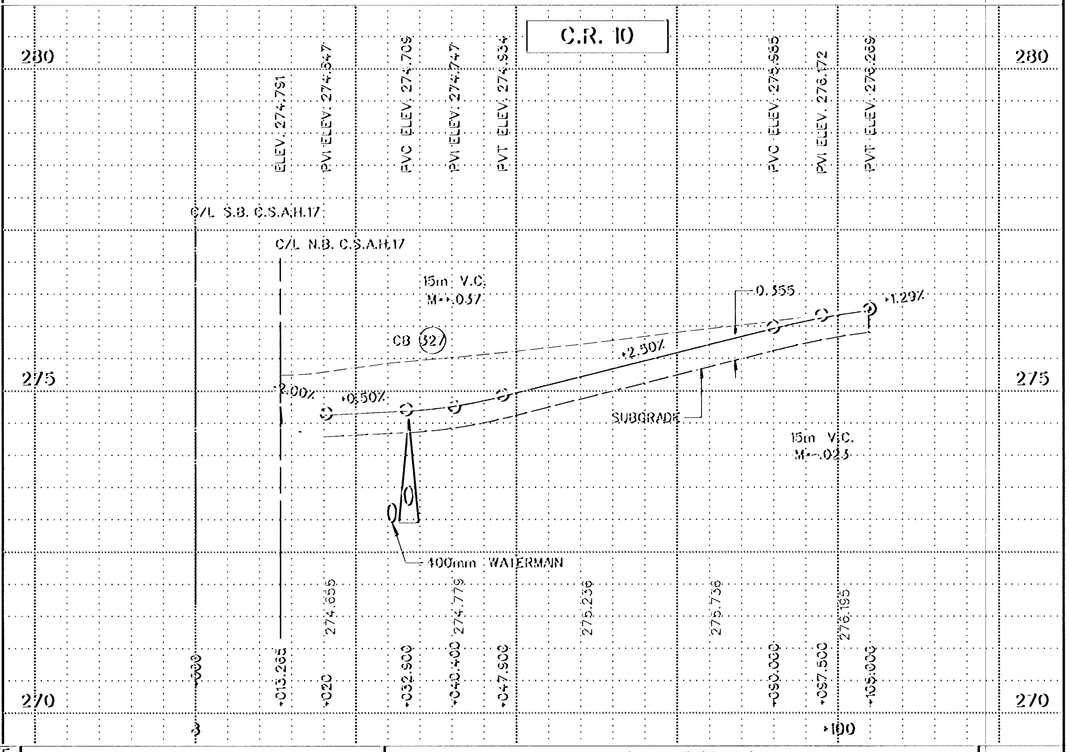
(B) CONSTRUCT CONCRETE APPROACH NOSE IN ACCORDANCE WITH MN/DOT STD. PLATE 7113.

(C) TRANSITION B618 C&G TO MATCH EXISTING CURB TYPE.



SEE C.S.A.H. 17 CONSTRUCTION PLAN





NO	DATE	BY	CKD	APPR	REVISION
1	5-28-97	MCI		DAD	PHEASANT RIDGE DRIVE MEDIAN NOSE

NAME: CP7 410.PLN DATE: Mar. 18, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

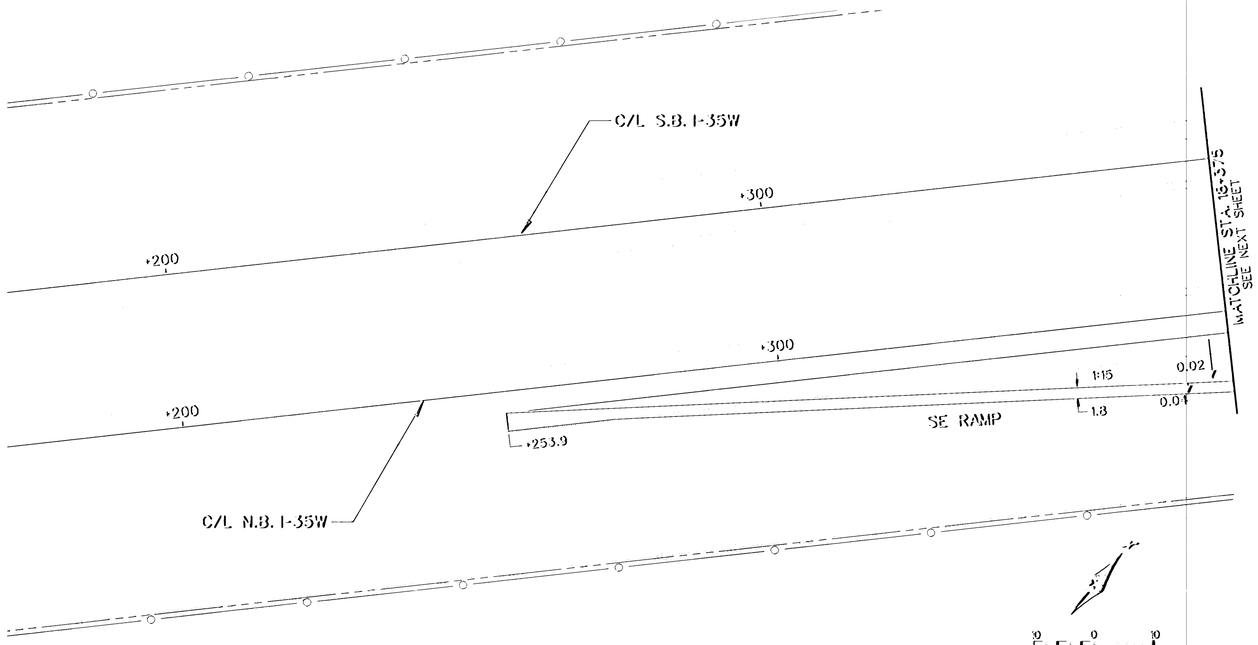
DRAWN BY V. GRAF DATE 10-96
DESIGNED BY B. URBANEK 10-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 STA. 10+500 TO STA. 10+660+000 & C.R. 10

SHEET 71 OF 236

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SEE LIGHTING PLAN FOR RAMP LIGHTING CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.



B.M. ELEV. 282.051
DISK N.E. CORNER OF BRIDGE AT LEXINGTON AVE. AND I-35W

NO	DATE	BY	CKD	APPR	REVISION

NAME: CP8 410.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Date _____ Reg. No. _____

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

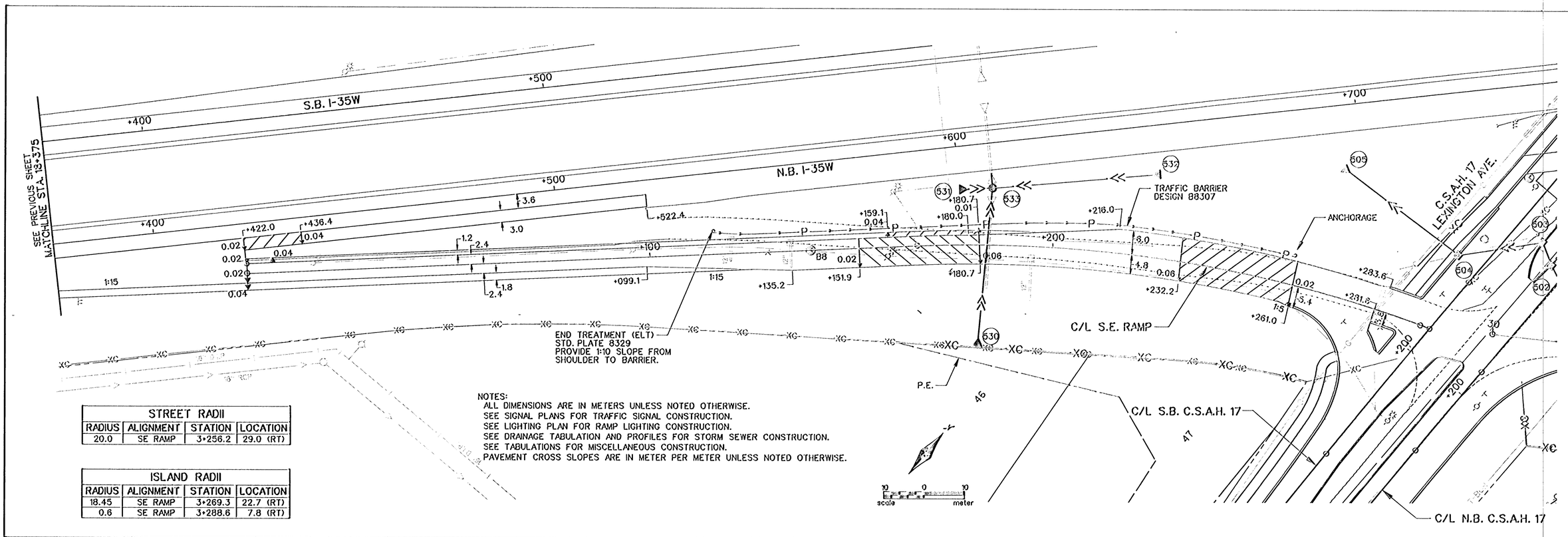
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
S.E. RAMP

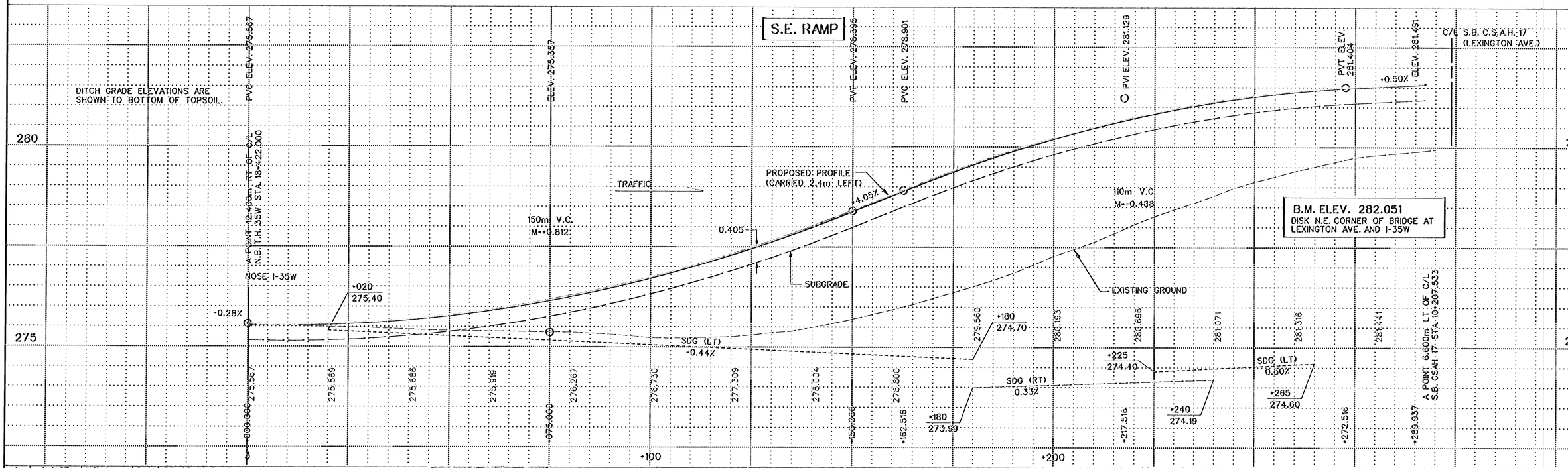
SHEET 72 OF 236



NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE LIGHTING PLAN FOR RAMP LIGHTING CONSTRUCTION.
SEE DRAINAGE TABULATION AND PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.

STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
20.0	SE RAMP	3+256.2	29.0 (RT)

ISLAND RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
18.45	SE RAMP	3+269.3	22.7 (RT)
0.6	SE RAMP	3+288.6	7.8 (RT)



NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	mdh	DAD	REVISE SE RAMP

NAME: CP9 410.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23327

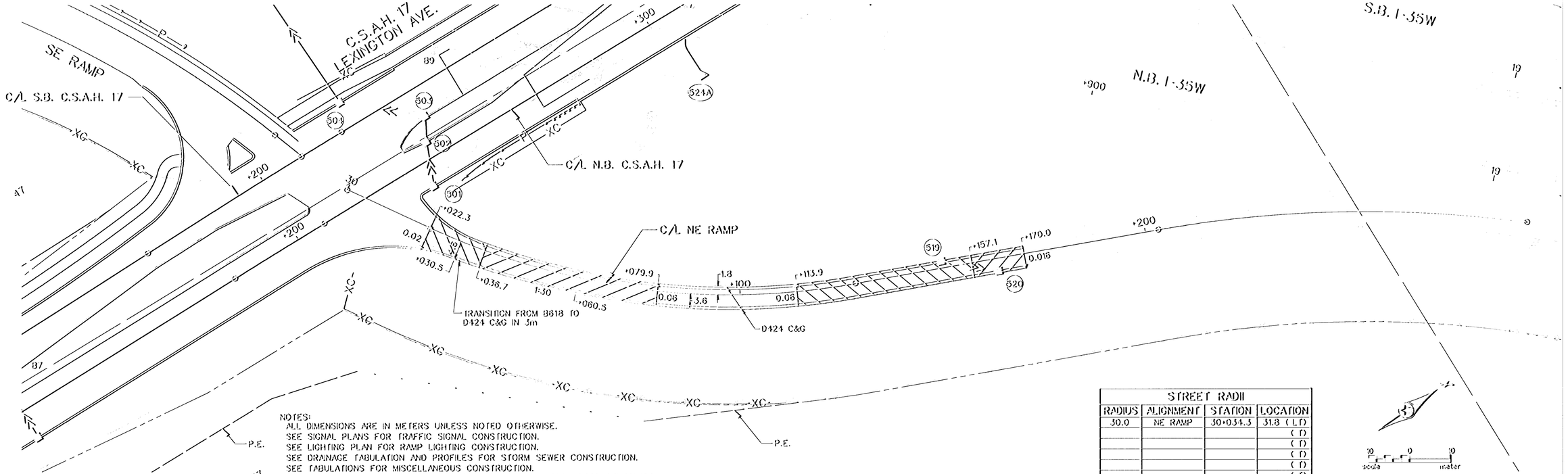
STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF	DATE 12-96
DESIGNED BY B. URBANEK	12-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
S.E. RAMP

SHEET 73 OF 236



NOTES:
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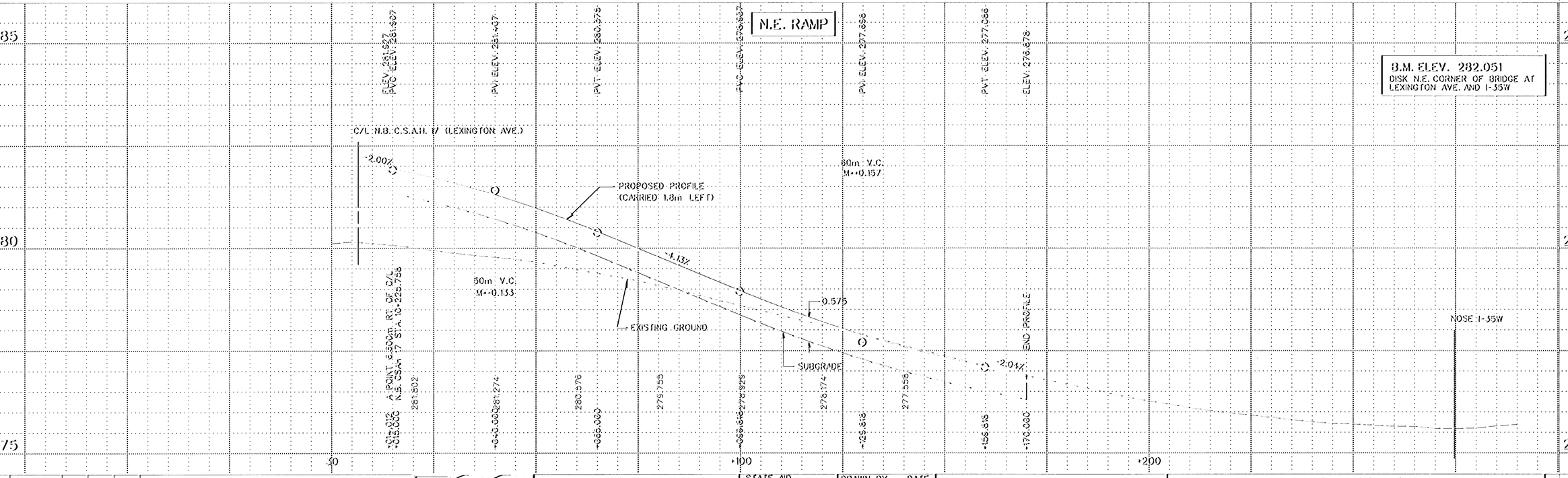
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE LIGHTING PLAN FOR RAMP LIGHTING CONSTRUCTION.
SEE DRAINAGE TABULATION AND PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.
SEE PAVEMENT JOINT LAYOUT FOR CONCRETE PAVEMENT CONSTRUCTION FOR NE RAMP.

STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
30.0	NE RAMP	30+034.5	31.8 (LT)
			( )
			( )
			( )
			( )
			( )

scale 0 10 meter



B.M. ELEV. 282.051
DISK N.E. CORNER OF BRIDGE AT LEXINGTON AVE. AND I-35W

NO	DATE	BY	CKD	APPR	REVISION

NAME: CP10 410.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

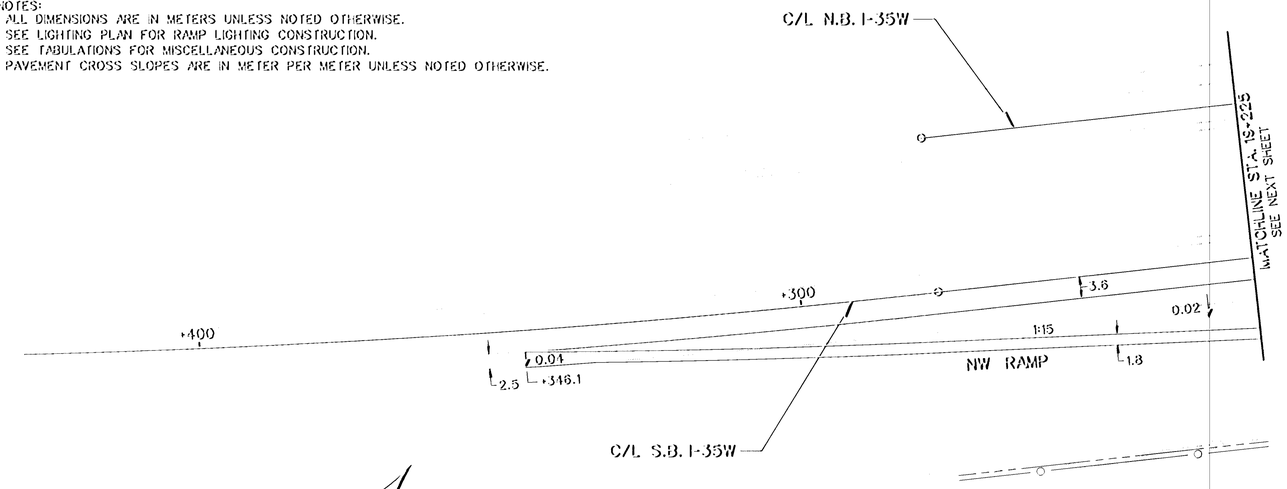
DRAWN BY V. CRAF DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

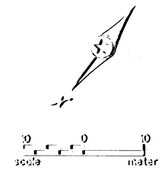
ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
N.E. RAMP

SHEET 74 OF 236

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SEE LIGHTING PLAN FOR RAMP LIGHTING CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.



B.M. ELEV. 282.051
DISK N.E. CORNER OF BRIDGE AT LEXINGTON AVE. AND I-35W



NO	DATE	BY	CKD	APPR	REVISION

NAME: CP11410.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg. No. 23397

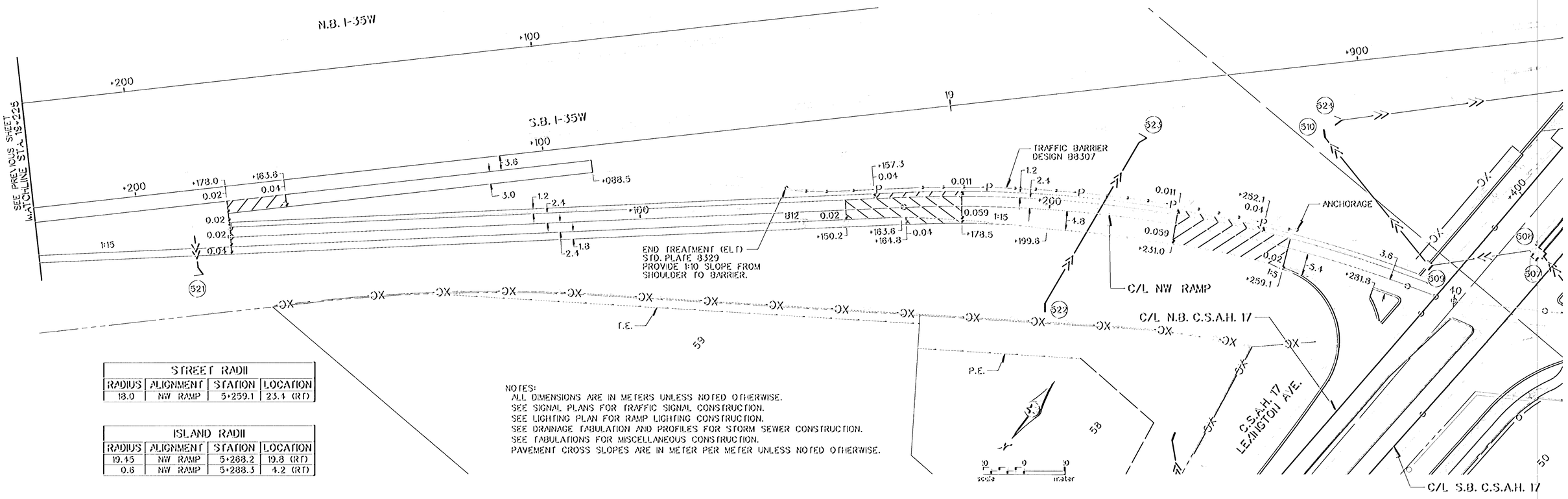
STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0982410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
N.W. RAMP

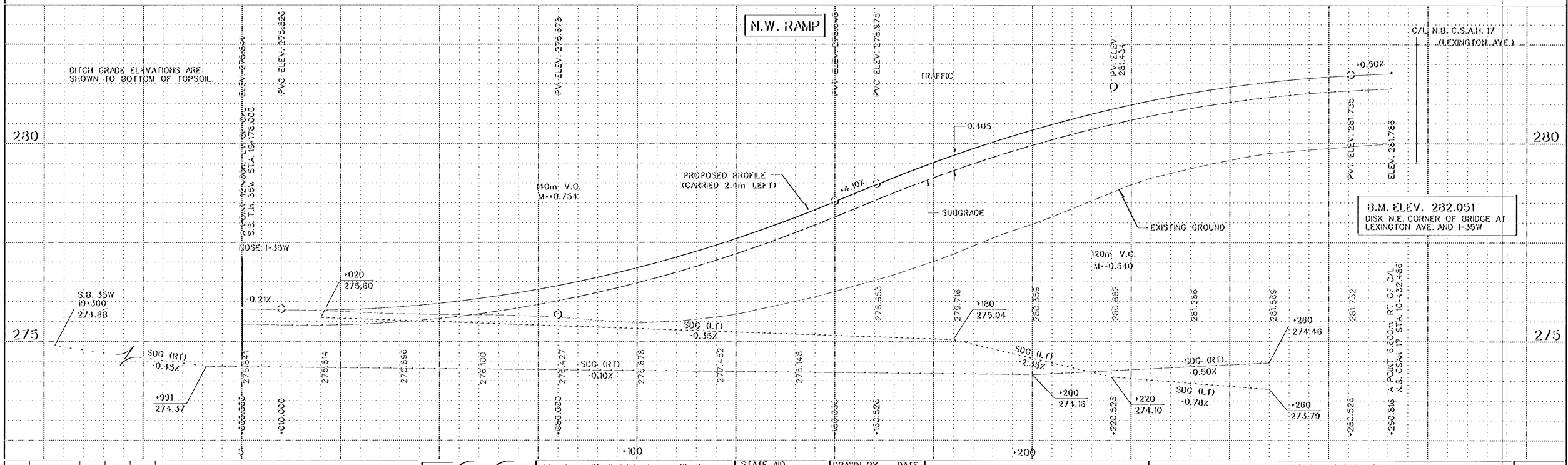
SHEET 75 OF 236



STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
18.0	NW RAMP	5+259.1	23.4 (RT)

ISLAND RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
19.45	NW RAMP	5+268.2	19.8 (RT)
0.6	NW RAMP	5+288.3	4.2 (RT)

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE LIGHTING PLAN FOR RAMP LIGHTING CONSTRUCTION.
SEE DRAINAGE TABULATION AND PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.



NO	DATE	BY	CKD	APPR	REVISION

NAME: CP12 410.PLN DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23377

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

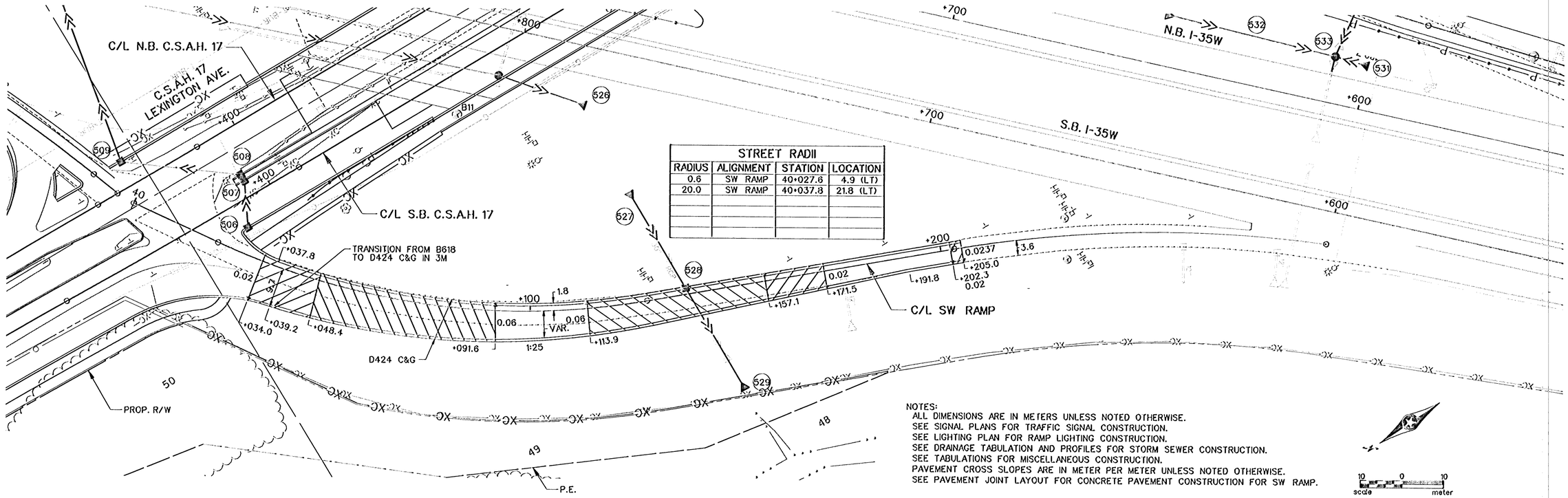
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
N.W. RAMP

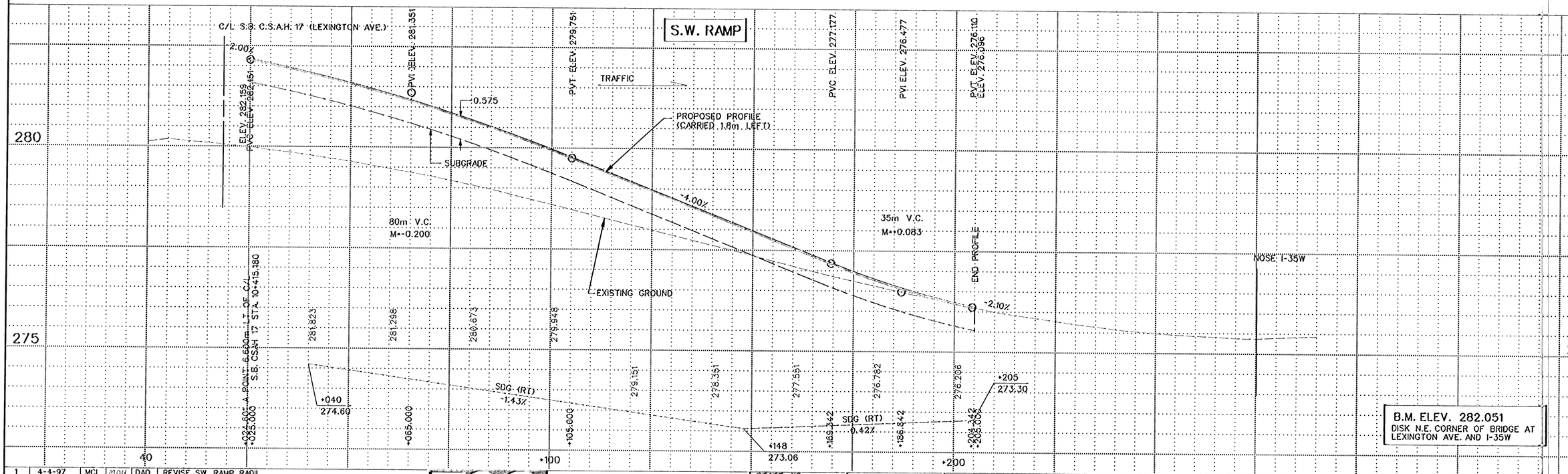
SHEET 76 OF 236



STREET RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
0.6	SW RAMP	40+027.6	4.9 (LT)
20.0	SW RAMP	40+037.8	21.8 (LT)

NOTES:
ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
SEE SIGNAL PLANS FOR TRAFFIC SIGNAL CONSTRUCTION.
SEE LIGHTING PLAN FOR RAMP LIGHTING CONSTRUCTION.
SEE DRAINAGE TABULATION AND PROFILES FOR STORM SEWER CONSTRUCTION.
SEE TABULATIONS FOR MISCELLANEOUS CONSTRUCTION.
PAVEMENT CROSS SLOPES ARE IN METER PER METER UNLESS NOTED OTHERWISE.
SEE PAVEMENT JOINT LAYOUT FOR CONCRETE PAVEMENT CONSTRUCTION FOR SW RAMP.

scale 10 0 10 meter



B.M. ELEV. 282.051
DISK N.E. CORNER OF BRIDGE AT LEXINGTON AVE. AND I-35W

NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	MDH	DAD	REVISE SW RAMP RADII

NAME: CP13 410.PLN DATE: Mar. 18, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

Donald A. Demers

Date 3-21-97 Reg. No. 23377

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
CONSTRUCTION PLAN AND PROFILE
C.S.A.H. 17 RECONSTRUCTION
S.W. RAMP

SHEET 77 OF 236

C.S.A.H. 17 (LEXINGTON AVE.)

WEST ROAD (SOUTH)

277.783
+749.1
2.57%
277.299
+029.1
277.855
0.50%
277.630
+783.1
2.57%
+778.0
100
+040.0
276.830
+045.0 END CONSTRUCTION

scale 5 0 5 meter

EDGEWOOD ROAD

817
277.121
+052.7
END CONSTR.
+055.8
0.50%
277.107
230
251
+312.8
229
277.284
1.15%
2.31%
+345.5
276.885

800

800

C.S.A.H. 17 (LEXINGTON AVE.)

817
+030.0
END CONSTR
276.459
+040.0
97TH LANE
276.281
+050.0
276.152
+056.4
0.45%
+961.9
1.31%
275.905
276.068
212
+994.6
9
211
210
9
209

C.S.A.H. 17 (LEXINGTON AVE.)

GENERAL NOTES:
ALL ELEVATIONS ARE AT THE FLOW LINE OF THE CURB
X.XXX INDICATES FLOW LINE PROFILE GRADE

XC

C.S.A.H. 17 (LEXINGTON AVE.)

208
207
206
276.273
+035.6
1.15%
0.25%
276.446
+069.5
205
276.366
+029.4
276.490
+035.0
276.500
+040.0 END CONSTRUCTION
100

WEST ROAD (NORTH)

scale 5 0 5 meter

55TH AVE.

817
+041.0 END CONSTRUCTION
276.685
+045.0
276.708
+050.0
276.682
+053.7
0.75%
1.31%
+249.4
276.573
+254.5
276.598
0.50%
304
303
302
301
+282.0
306
276.455
305

C.S.A.H. 17 (LEXINGTON AVE.)

AUSTIN STREET

817
275.297
+050.4 END CONSTRUCTION
+053.6
0.41%
1.03%
+516.1
275.240
0.50%
319
275.265
+548.4
275.105
321
318
320

C.S.A.H. 17 (LEXINGTON AVE.)

NO	DATE	BY	CKD	APPR	REVISION

NAME: IN1410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

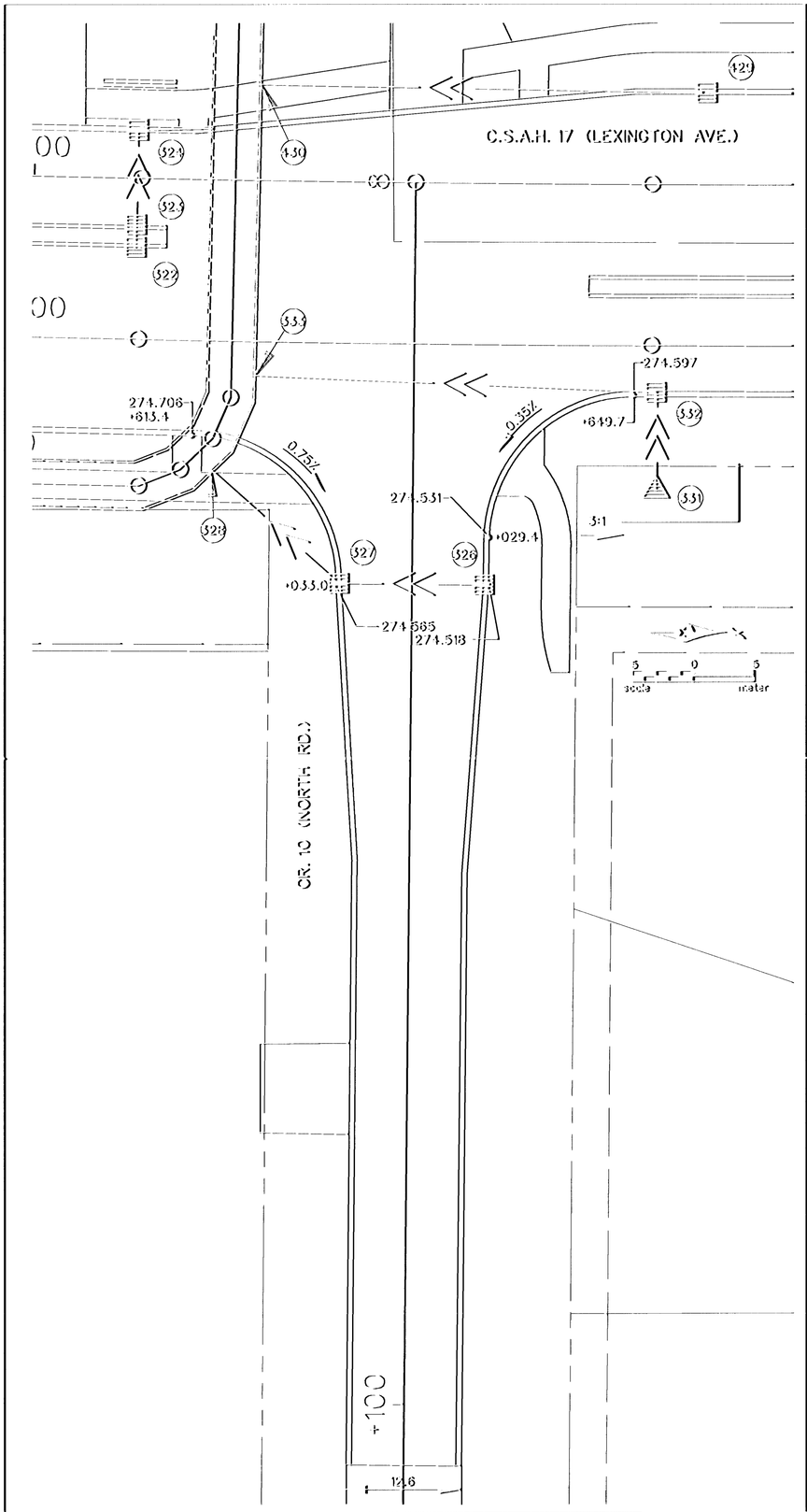
CO. PROJECT NO.

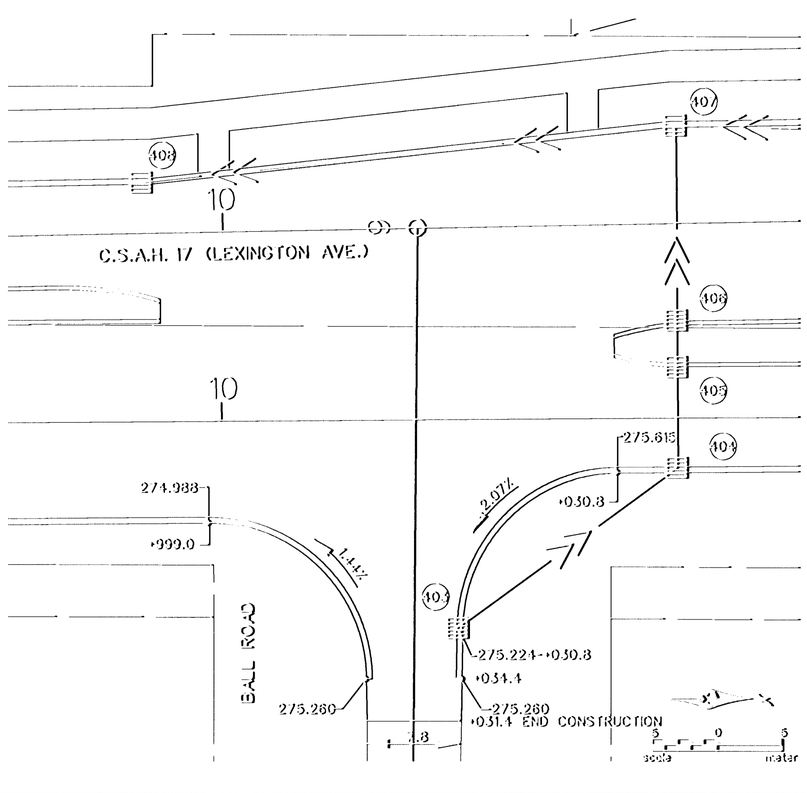
DRAWN BY M. ISAKKA DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
INTERSECTION DETAILS
C.S.A.H. 17 RECONSTRUCTION

SHEET 78 OF 236





GENERAL NOTES:

ALL ELEVATIONS ARE AT THE FLOW LINE OF THE CURB

X.XXX INDICATES FLOW LINE PROFILE GRADE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: IN2 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

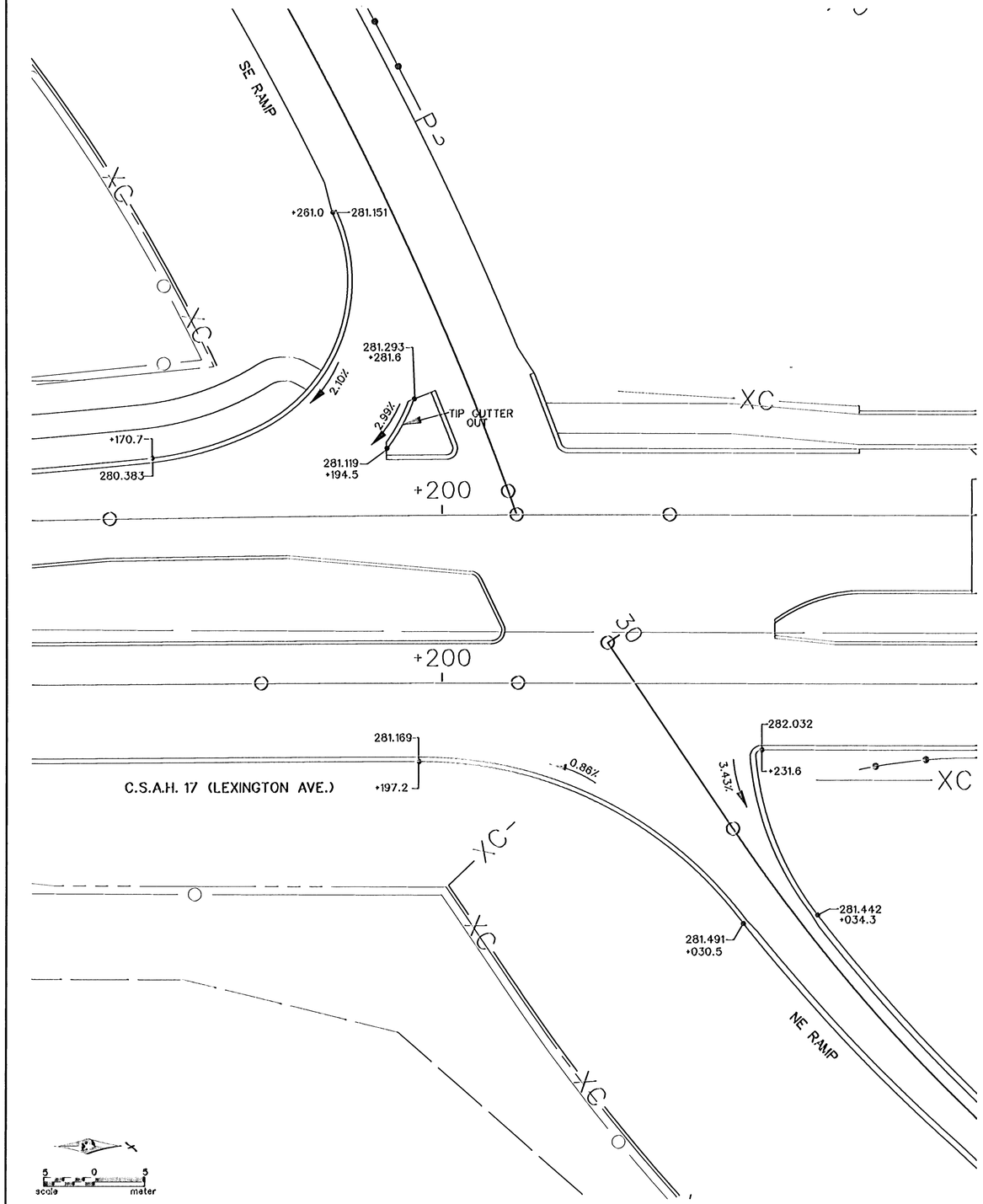
SRF CONSULTING GROUP, INC.

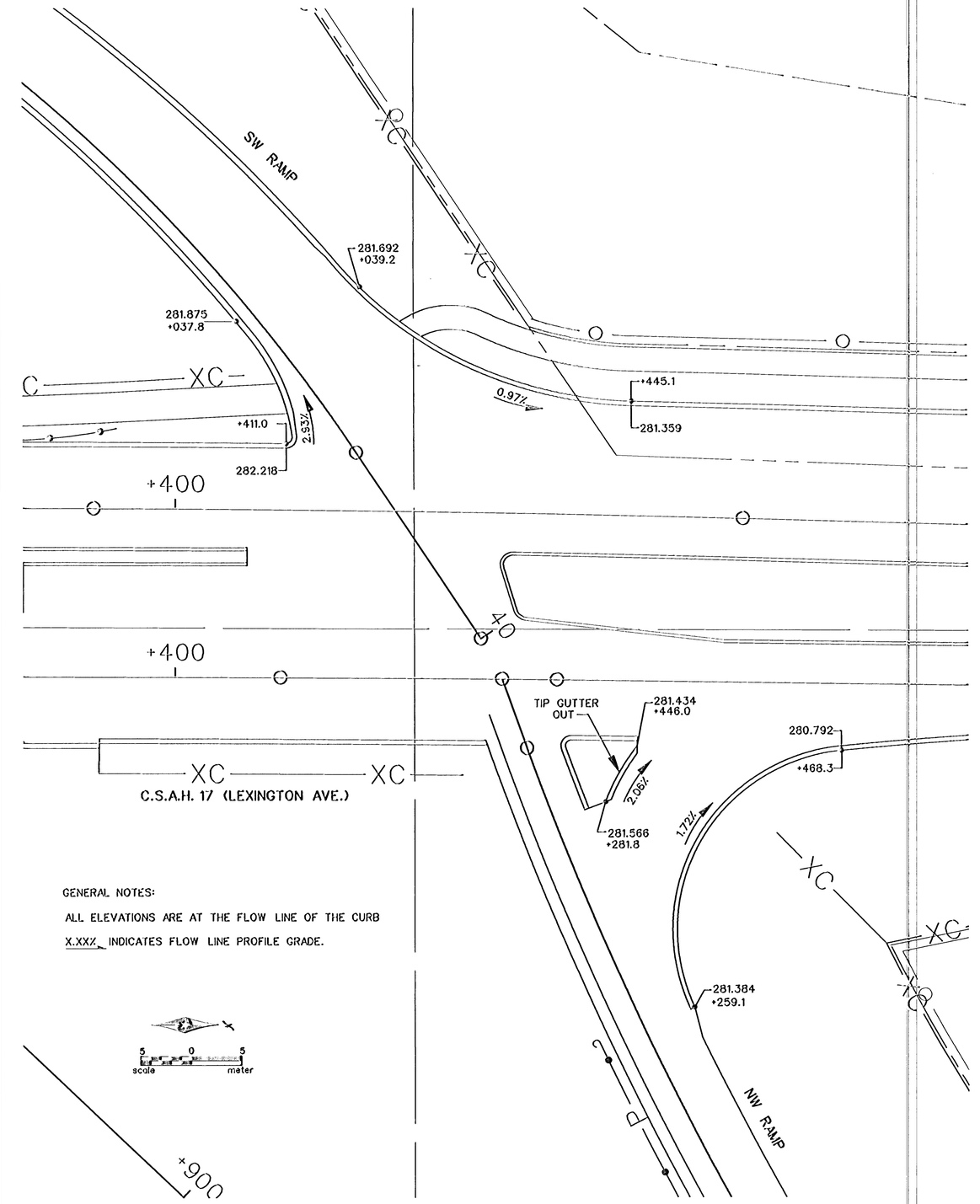
ANOKA COUNTY

INTERSECTION DETAILS

C.S.A.H. 17 RECONSTRUCTION

SHEET 79 OF 236





GENERAL NOTES:

ALL ELEVATIONS ARE AT THE FLOW LINE OF THE CURB

X.XX% INDICATES FLOW LINE PROFILE GRADE.

NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	MSH	DAD	REVISE SE AND SW RAMP RADII

NAME: IN3 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald D Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
INTERSECTION DETAILS
C.S.A.H. 17 RECONSTRUCTION

SHEET 80 OF 236

R

DRAINAGE TABULATION

FLOWS FROM: STR. OR APRON INLET	ALIGNMENT	STATION (1)	OFF SET (1)	L / R	TOP OF CAST-ING ELEV (1)	INV ELEV FROM	PIPE SLOPE	FLOWS TO: STR. OR APRON OUTLET	NEW STRUCTURE CONSTRUCTION DESIGN	PAY HT.	F & I CASTING ASMBLY TYPE	STEPS RE-QUIRED (12)	DRAINAGE PIPE RCP (DESIGN 3005) 300mm CL II	300mm CL III	375mm CL II	375mm CL III	450mm CL II	450mm CL III	525mm CL II	525mm CL IV	525mm CL V	600mm CL II	600mm CL III	600mm CL IV	675mm CL V	750mm CL II	750mm CL III	825mm CL III	900mm CL II	900mm CL IV	CSP 375mm 16 GA.	CSP 450mm 16 GA.	RIP RAP CLASS III (15)	GUIDE POSTS TYPE B	NOTES
			m		m	m	m/m			m			m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m3	EACH	
101	NB CSAH 17	8+530.00	17.06	L	276.545	275.764	0.005	103	G	0.72	B-1			8.2																				
102	NB CSAH 17	8+489.00	17.06	L	276.668	275.887	0.005	103	G	0.72	B-1			32.8																				
103	NB CSAH 17	8+521.80	17.06	L	276.550	275.723	0.01	106	1500-4020	0.77	B-1						5.0																	2
104	NB CSAH 17	8+530.00	3.86	R	276.545	275.583	0.005	106	G	0.90	B-1		19.0																					
105	NB CSAH 17	8+489.00	3.86	R	276.668	275.598	0.005	106	G	1.01	B-1		22.0																					
106	NB CSAH 17	8+511.00	3.86	R	276.572	275.413		EX	1500-4020	1.09	B-1																							3
107	NB CSAH 17	8+437.31	24.20	L	277.200	276.320	0.04	EX	G	0.84	B-1		1.5																					2
201	NB CSAH 17	9+140.00	10.00	R	276.500	275.543	0.005	202	G	0.92	M-11		20.9																					
202	NB CSAH 17	9+120.00	3.86	R	276.691	275.438	0.005	204	F	1.19	B-1		20.9																					4
203	NB CSAH 17	9+120.00	23.80	L	276.300	275.367	0.005	204	G	0.90	M-11		6.7																					
204	NB CSAH 17	9+120.00	17.06	L	276.691	275.333	0.004	208	F	1.30	B-1		49.0																					4
205	NB CSAH 17	9+071.00	3.86	R	276.446	275.242	0.005	206	G	1.14	B-1		7.7																					
206	NB CSAH 17	9+071.00	3.86	L	276.583	275.203	0.005	207	F	1.32	B-1		1.9																					4
207	NB CSAH 17	9+071.00	5.74	L	276.499	275.194	0.005	208	F	1.24	B-1		11.3																					4
208	NB CSAH 17	9+071.00	17.06	L	276.446	275.062	0.004	212	F	1.32	B-1				76.0																			4
209	NB CSAH 17	8+998.00	3.86	R	276.081	274.941	0.005	210	G	1.08	B-1		8.0																					
210	NB CSAH 17	8+998.00	4.12	L	276.213	274.901	0.005	211	F	1.25	B-1		5.2																					4
211	NB CSAH 17	8+998.00	9.34	L	276.218	274.875	0.005	212	F	1.28	B-1		8.3																					4
212	NB CSAH 17	8+995.00	17.06	L	276.066	274.608	0.003	218	1500-4020	1.40	B-1								65.0															
213	NB CSAH 17	8+930.00	3.86	R	275.791	274.668	0.005	214	G	1.06	B-1				11.3																			
214	NB CSAH 17	8+930.00	7.46	L	275.844	274.612	0.005	215	F	1.17	B-1				1.9																			4
215	NB CSAH 17	8+930.00	9.34	L	275.928	274.602	0.005	218	F	1.26	B-1				7.7																			4
216	NB CSAH 17	8+880.00	3.86	R	276.104	274.954	0.005	217	G	1.09	B-1		20.9																					
217	NB CSAH 17	8+880.00	17.06	L	276.104	274.775	0.004	218	F	1.27	B-1				50.0																			4
218	NB CSAH 17	8+930.00	17.06	L	275.791	274.338	0.003	219	1500-4020	1.39	B-1											11.0	1.0											14
219	NB CSAH 17	8+930.00	28.78	L				POND	APRON																							4.4		
220	NB CSAH 17	8+558.00	25.50	L	277.330	275.854	0.02	222	G	1.51	A-70				8.4																			3
221	NB CSAH 17	8+558.00	3.86	R	276.602	275.770	0.004	222	G	0.77	B-1		20.9																					
222	NB CSAH 17	8+558.00	17.06	L	276.602	275.611	0.004	224	1200-4020	0.93	B-1							42.0																
223	NB CSAH 17	8+600.00	3.86	R	276.866	275.716	0.005	224	G	1.09	B-1		20.9																					
224	NB CSAH 17	8+600.00	17.06	L	276.866	275.368	0.004	226	1350-4020	1.44	B-1								42.0															
225	NB CSAH 17	8+642.00	3.86	R	277.160	276.010	0.005	226	G	1.09	B-1		20.9																					
226	NB CSAH 17	8+642.00	17.06	L	277.160	275.200	0.004	228	1350-4020	1.90	B-1	Y							42.0															
227	NB CSAH 17	8+684.00	3.86	R	277.454	276.304	0.005	228	G	1.09	B-1		20.9																					
228	NB CSAH 17	8+684.00	17.06	L	277.454	274.957	0.004	229	1350-4020	2.43	B-1	Y																	125.8					
229	NB CSAH 17	8+809.80	17.06	L	277.324	274.454	0.004	230	F	2.81	B-1	Y																	18.0					5
230	EDGEWOO	3+058.40	4.25	R	277.102	274.382	0.004	231	F	2.66	B-1	Y																	24.0	1.0				5,14
231	NB CSAH 17	8+848.00	38.09	L				POND	APRON																							4.4		
232	NB CSAH 17	8+882.35	38.32	L		273.500	0.0053	233							9.5																			6
233	NB CSAH 17	8+881.90	28.85	L	275.527	274.300	0.002	234	SPECIAL 1													51.1	1.0											7,14
234	NB CSAH 17	8+857.56	18.24	R				DITCH	APRON																							4.4		
301	NB CSAH 17	9+239.00	3.86	R	276.646	275.389	0.005	302	G	1.19	B-1		14.5																					
302	NB CSAH 17	9+248.00	7.46	L	276.654	275.317	0.005	303	F	1.27	B-1		1.9																					4
303	NB CSAH 17	9+248.00	9.34	L	276.738	275.307	0.005	304	F	1.37	B-1		11.0																					4
304	NB CSAH 17	9+254.50	18.14	L	276.548	275.175	0.005	306	F	1.31	B-1				30.5																			4
305	NB CSAH 17	9+285.00	3.86	R	276.416	275.203	0.005	306	G	1.15	B-1		20.9																					
306	NB CSAH 17	9+285.00	17.06	L	276.416	275.023	0.005	308	F	1.33	B-1				48.0																			4
307	NB CSAH 17	9+333.00	3.86	R	276.176	274.976	0.005	308	G	1.14	B-1		20.9																					
308	NB CSAH 17	9+333.00	17.06	L	276.176	274.708	0.005	310	F	1.41	B-1							42.0																4
309	NB CSAH 17	9+381.00	3.86	R	275.936	274.176	0.005	310	F	1.70	B-1		20.9																					4
310	NB CSAH 17	9+381.00	17.06	L	275.936	273.921	0.005	312	F	1.95	B-1	Y						42.0																4

SEE NOTES ON SHEET 84

NO	DATE	BY	CKD	APPR	REVISION

NAME: DT1 410 PLN DATE: Mar 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No 21364

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0262410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DRAINAGE TABULATION
C.S.A.H. 17 RECONSTRUCTION

R

DRAINAGE TABULATION

FLOWS FROM: STR. OR APRON INLET	ALIGNMENT	STATION (1)	OFF SET (1)	L / R	TOP OF CAST-ING ELEV (1)	INV ELEV FROM	PIPE SLOPE	FLOWS TO: STR. OR APRON OUTLET	NEW STRUCTURE CONSTRUCTION DESIGN	PAY HT.	F & I CASTING ASMBLY TYPE	STEPS RE-QUIRED (12)	DRAINAGE PIPE RCP (DESIGN 3006) 300mm CL II	300mm CL III	375mm CL II	375mm CL III	450mm CL II	450mm CL III	525mm CL II	525mm CL IV	525mm CL V	600mm CL II	600mm CL III	600mm CL IV	675mm CL V	750mm CL II	750mm CL III	825mm CL III	900mm CL II	900mm CL IV	CSP 375mm 16 GA.	CSP 450mm 16 GA.	RIP RAP CLASS III (15)	GUIDE POSTS TYPE B	NOTES
			m		m	m	m/m			m			m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m3	EACH	
311	NB CSAH 17	9+429.00	3.86	R	275.696	274.496	0.005	312	G	1.14	B-1		20.9																						
312	NB CSAH 17	9+429.00	17.06	L	275.696	273.606	0.005	317	F	2.03	B-1	Y							48.0																
313	NB CSAH 17	9+477.00	3.86	R	275.456	274.256	0.005	314	G	1.14	B-1		8.1																						4
314	NB CSAH 17	9+477.00	4.27	L	275.573	274.216	0.005	315	F	1.29	B-1		5.1																						
315	NB CSAH 17	9+477.00	9.34	L	275.593	274.190	0.005	317	F	1.34	B-1		7.7																						4
316	NB CSAH 17	9+480.00	30	L	273.900	273.250	0.005	317	G	0.62	M-11		13.3																						4
317	NB CSAH 17	9+477.00	17.06	L	275.456	273.071	0.005	319	1500-4020	2.32	B-1	Y							44.1																
318	NB CSAH 17	9+513.00	5.96	R	275.234	274.034	0.005	319	G	1.14	B-1		25.4																						
319	NB CSAH 17	9+521.00	18.11	L	275.236	272.776	0.005	321	F	2.40	B-1	Y																							
320	NB CSAH 17	9+561.00	7.46	R	274.964	273.764	0.005	321	G	1.14	B-1		24.5																						5
321	NB CSAH 17	9+561.00	17.06	L	275.036	272.574	0.005	324	F	2.40	B-1	Y																							
322	NB CSAH 17	9+608.50	7.46	L	274.852	273.652	0.005	323	G	1.14	B-1		1.9																						5
323	NB CSAH 17	9+608.50	9.34	L	274.936	273.643	0.005	324	F	1.23	B-1		7.7																						
324	NB CSAH 17	9+608.50	17.06	L	274.799	272.337	0.005	325	F	2.40	B-1	Y																							4
325	NB CSAH 17	9+614.71	17.33	L					BOX																										5
326	CR 10	8+032.90	5.96	L	274.493	273.282	0.005	327	G	1.15	B-1		11.9																						8,17
327	CR 10	8+032.90	5.96	R	274.561	272.970	0.005	328	F	1.53	B-1		14.0																						
328	NB CSAH 17	9+615.07	10.60	R					BOX																										4
309	NB CSAH 17	9+381.00	3.86	R	275.936	274.176	0.13	309A	F				19.3	1.0																					8,17
309A	NB CSAH 17	9+387.50	24.00	R				DITCH	APRON																										9,14
331	NB CSAH 17	9+651.50	11.86	R		272.930	0.005	332	END SEC																									1.6	
332	NB CSAH 17	9+651.50	3.86	R	274.573	272.739	0.0115	333	1950-4020	1.78	B-1	Y																	3.6						18
333	NB CSAH 17	9+618.32	2.81	R					BOX																				33.2						
340	NB CSAH 17	9+434.31	22.00	R	274.700	272.638	0.010	341	1200-4020	2.09	A-7D	Y																							8,17
341	NB CSAH 17	9+433.22	13.83	R					BOX																										3
344	NB CSAH 17	9+559.70	21.50	R		273.200	0.040	345	APRON						5.8	1.0																			8,17
345	NB CSAH 17	9+559.70	13.83	R					BOX																										16
																																		8,17
399	NB CSAH 17	10+121.00	7.46	R	278.604	277.312	0.005	400	G	1.23	B-1		11.3																						
400	NB CSAH 17	10+121.00	3.86	L	278.813	277.256	0.005	401	F	1.49	B-1		5.1																						
401	NB CSAH 17	10+121.00	8.96	L	278.738	277.230	0.005	402	F	1.45	B-1		10.8																						4
402	NB CSAH 17	10+121.00	19.78	L	278.676	277.176	0.035	407	F	1.46	B-1		86.0																						4
403	BALL RD	9+030.60	3.56	L	275.225	274.408	0.005	404	G	0.75	B-1		20.8																						4
404	NB CSAH 17	10+035.00	3.86	R	275.723	274.305	0.005	405	F	1.36	B-1		7.7																						
405	NB CSAH 17	10+035.00	3.86	L	275.860	274.191	0.005	406	F	1.61	B-1				3.6																				4
406	NB CSAH 17	10+035.00	7.42	L	275.776	274.173	0.005	407	F	1.54	B-1				14.9																				4
407	NB CSAH 17	10+035.00	22.34	L	275.651	274.016	0.005	408	1500-1020	1.57	B-1								41.2																4
408	NB CSAH 17	9+994.00	18.25	L	275.015	273.810	0.005	410	F	1.14	B-1								46.0																
409	NB CSAH 17	9+948.00	7.46	R	274.709	273.931	0.005	410	G	0.72	B-1			25.2																					4
410	NB CSAH 17	9+948.00	17.70	L	274.781	273.580	0.005	415	1350-1020	1.14	B-1								47.9																
411	NB CSAH 17	9+921.00	7.46	R	274.574	273.740	0.005	412	G	0.77	B-1		21.9																						
412	NB CSAH 17	9+905.00	7.46	L	274.619	273.831	0.005	413	1200-1020	0.93	B-1		5.3																						
413	NB CSAH 17	9+900.00	9.34	L	274.678	273.604	0.005	415	1200-1020	1.01	B-1		7.7																						
414	NB CSAH 17	9+900.00	25.00	L	274.350	273.604	0.005	415	G	0.71	M-11			7.9																					
415	NB CSAH 17	9+900.00	17.06	L	274.541	273.265	0.005	417	1350-1020	1.21	B-1											47.9													
416	NB CSAH 17	9+852.00	3.86	R	274.301	273.430	0.005	417	G	0.81	B-1		20.9																						
417	NB CSAH 17	9+852.00	17.06	L	274.301	273.025	0.004	418	1350-1020	1.21	B-1											48.0													
418	NB CSAH 17	9+804.00	17.06	L	274.095	272.833	0.004	423	1200-1020	1.20	B-1											38.0													
419	NB CSAH 17	9+776.00	3.86	R	274.067	273.055	0.005	420	G	0.95	B-1				4.0																				
420	NB CSAH 17	9+780.00	3.86	R	274.066	273.035	0.005	421	1350-1020	0.97	B-1										7.7														
421	NB CSAH 17	9+780.00	3.36	L	274.203	272.996	0.005	422	1200-1020	1.14	B-1										14.5														

SEE NOTES ON SHEET 84

NO.	DATE	BY	CKD	APPR	REVISION

NAME: DT2 410.PLN DATE: Mar. 17, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No. 21364

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY O. DEMERS 1-97
COMM. NO. 0252410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DRAINAGE TABULATION
C.S.A.H. 17 RECONSTRUCTION

R

DRAINAGE TABULATION

FLOWS FROM: STR. OR APRON INLET	ALIGNMENT	STATION (1)	OFF SET (1)	L / R	TOP OF CAST-ING ELEV (1)	INV ELEV FROM	PIPE SLOPE	FLOWS TO: STR. OR APRON OUTLET	NEW STRUCTURE CONSTRUCTION: DESIGN	PAY HT.	F & I CASTING ASMBLY TYPE	STEPS RE-QUIRED (12)	DRAINAGE PIPE: RCP (DESIGN 3006) 300mm CL II	300mm CL III	375mm CL II	375mm CL III	450mm CL II	450mm CL III	525mm CL II	525mm CL IV	525mm CL V	600mm CL II	600mm CL III	600mm CL IV	675mm CL V	750mm CL II	750mm CL III	825mm CL III	900mm CL II	900mm CL IV	CSP 375mm 16 GA.	CSP 450mm 16 GA.	RIP RAP CLASS III (15)	GUIDE POSTS TYPE B	NOTES
			m		m	m	m/m			m			m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m3	EACH	
422	NB CSAH 17	9+766.00	7.78	L	274.182	272.924	0.005	423	1200-4020	1.20	B-1						11.1																		
423	NB CSAH 17	9+766.00	18.91	L	274.039	272.643	0.0035	424	1500-4020	1.33	B-1																	4.0							
424	NB CSAH 17	9+762.00	19.17	L	274.040	272.629	0.0035	425	1350-4020	1.35	B-1																		28.0						
425	NB CSAH 17	9+734.00	3.86	R	274.172	273.066	0.005	426	G	1.04	B-1		24.5																						
426	NB CSAH 17	9+734.00	20.66	L	274.100	272.493	0.0025	428	1500-4020	1.54	B-1																		45.0						
427	NB CSAH 17	9+689.00	3.86	R	274.396	273.290	0.005	428	G	1.04	B-1		24.5																						
428	NB CSAH 17	9+689.00	20.66	L	274.324	272.380	0.0025	429	1500-4020	1.88	B-1	Y																	33.5						
429	NB CSAH 17	9+655.50	20.66	L	274.492	272.296	0.0025	430	1350-4020	2.13	B-1	Y																	36.9						
430	NB CSAH 17	9+618.40	20.95	L					BOX																										8,17
501	NB CSAH 17	10+235.00	6.26	R	282.102	280.952	0.005	502	G	1.09	B-1		10.9																						
502	NB CSAH 17	10+239.00	3.86	L	282.361	280.898	0.005	503	F	1.40	B-1		6.2																						4
503	NB CSAH 17	10+242.00	9.34	L	282.489	280.867	0.008	5504	F	1.56	B-1		21.1																						4
504	NB CSAH 17	10+226.00	23.06	L	281.910	280.623	0.008	504	F	1.23	B-1																						34.5	1.0		10
505	SE RAMP	3+266.50	27.50	L				DITCH	APRON																								2.2	1.0		
506	NB CSAH 17	10+410.00	23.00	L	282.233	280.983	0.005	507	G	1.19	B-1		10.3																						
507	NB CSAH 17	10+405.00	12.94	L	282.453	280.932	0.005	508	F	1.46	B-1		1.9																						4
508	NB CSAH 17	10+405.00	11.09	L	282.489	280.923	0.008	509	F	1.51	B-1		26.5																						4
509	NB CSAH 17	10+428.00	6.26	R	281.865	280.636	0.008	510	F	1.17	B-1																								4
510	NW RAMP	5+260.00	29.00	L				DITCH	APRON																								40.5	1.0		4,10
																																	2.2	1.0		
519	NE RAMP	30+150.00	1.49	L	277.282	276.008	0.04	520	G	1.26	D-4		14.2																						
520	NE RAMP	30+163.40	3.29	R	276.942	275.410		EX	F	1.47	D-4																								3
524A	NB I-35W	18+807.00	15.70	R		274.500		525	APRON													9.8	1.0												2,3,20
524	SB I-35W	18+906.50	14.00	L		273.889	0.0035	525	END SEC																		100.7								
525	SB I-35W	18+803.90	11.50	L	275.100	273.530	0.0035	526	1800-4020	1.60	A-7D																							1.0	18
526	SB I-35W	18+782.50	14.00	L				DITCH	APRON																				19.0	1.0					3
																																	8.4	1.0		
527	SW RAMP	40+128.70	26.00	L		273.322	0.003	528	APRON																										
528	SW RAMP	40+137.20	1.49	L	278.366	273.243	0.003	529	1500-4020	5.09	D-4	Y																						1.0	
529	SW RAMP	40+147.70	24.50	R				DITCH	APRON																									1.0	
																																	8.4	1.0		
530	SE RAMP	3+180.00	26.50	R		274.091	0.0035	533	APRON															38.5	1.0										
531	SE RAMP	3+178.00	13.50	L		274.800	0.077	533	END SEC								5.2																	1.0	14
532	SE RAMP	3+225.00	18.00	L		274.500	0.0094	533	END SEC											40.2														1.0	14,19
533	SE RAMP	3+185.60	13.50	L	275.094	273.950	0.001	EX	1500-4020	1.11	M-11												2.0											1.0	14,19
534	NB I-35W	18+842.70	11.00	L		274.630	0.011	535	APRON																										2
535	NB I-35W	18+801.90	11.00	L				EX																									36.2	1.0		
																																			21
600	NB CSAH 17	10+610.00	21.56	L	275.947	274.925	0.0025	601	G	0.96	B-1		9.0																						
601	NB CSAH 17	10+619.00	21.49	L	275.743	274.902	0.0025	602	F	0.78	B-1		13.9																						4
602	NB CSAH 17	10+627.00	10.11	L	275.803	274.867	0.0025	603	F	0.87	B-1		2.7																						4
603	NB CSAH 17	10+627.00	7.46	L	275.719	274.860	0.0025	604	F	0.79	B-1		13.9																						4
604	NB CSAH 17	10+613.00	3.86	R	275.815	274.825	0.0025	605	F	0.93	B-1		9.0																						4
605	NB CSAH 17	10+610.00	3.86	R	276.019	274.802	0.0025	607	F	1.15	B-1		41.0																						4
606	NB CSAH 17	10+569.00	22.70	L	277.263	275.963	0.01	607	G	1.23	B-1		26.6																						
607	NB CSAH 17	10+569.00	3.86	R	277.346	274.700	0.0025	611	F	2.58	B-1	Y									50.0														5

SEE NOTES ON SHEET 84

NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCE	MDH	DAD	REVISE CB 507 AND 508 LOCATION

NAME: DT3 410.PLN DATE: Mar 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No. 21364

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0352410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DRAINAGE TABULATION
C.S.A.H. 17 RECONSTRUCTION

R

DRAINAGE TABULATION

FLOWS FROM: STR. OR APRON INLET	ALIGNMENT	STATION (1)	OFF SET (1)	L / R	TOP OF CASTING ELEV (1)	INV ELEV FROM	PIPE SLOPE	FLOWS TO: STR. OR APRON OUTLET	NEW STRUCTURE CONSTRUCTION: DESIGN	PAY HT.	F & I CASTING ASMBLY TYPE	STEPS REQUIRED (12)	DRAINAGE PIPE: RCP (DESIGN 3006) 300mm CL II	300mm CL III	375mm CL II	375mm CL III	450mm CL II	450mm CL III	525mm CL II	525mm CL IV	525mm CL V	600mm CL II	600mm CL III	600mm CL IV	675mm CL V	750mm CL II	750mm CL III	825mm CL III	900mm CL II	900mm CL IV	DRAINAGE PIPE: CSP 375mm 16 GA.	450mm 16 GA.	RIP RAP CLASS III (15)	GUIDE POSTS TYPE B	NOTES
													m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m APR	m3	EACH	
608	NB CSAH 17	10+519.00	26.46	L	278.950	277.650	0.01	609	G	1.24	B-1		14.9																						
609	NB CSAH 17	10+519.00	11.53	L	279.230	277.501	0.01	610	F	1.66	B-1		5.4																						4
610	NB CSAH 17	10+519.00	6.10	L	279.175	277.447	0.01	611	F	1.66	B-1		10.0																						4
611	NB CSAH 17	10+519.00	3.86	R	279.096	274.575	0.0025	612	F	4.46	B-1	Y												28.0	1.0										5,14
612	NB CSAH 17	10+500.00	27.00	R		274.500			APRON																									4.4		
TOTAL PIPE SEWER										164.76			1020.8	74.1	271.6	10.2	171.3	40.2	376.2	50.0	38.5	205.8	104.2	195.8		100.7	4.0	143.4	55.8	49.0	75.0	36.2			
521	SB I-35W	19+186.80	20.10	L		274.470	0.006	DITCH	APRON								4.6	1.0																2.8	1.0	2,13
522	NW RAMP	5+200.00	24.00	R		274.250	0.001	523	APRON																44.0	1									1.0	13
523	NW RAMP	5+220.00	19.50	L		274.200		DITCH	APRON																	1								5.3	1.0	13
TOTAL PIPE CULVERT														1.0		1.0		4.6	1.0			1.0	3.0		2.0	44.0	2.0			1.0	2.0		2.0	1.0	48.5	12.0	

NOTES

1 STATIONS, OFFSETS, AND TOP OF CASTING ELEVATIONS ARE GIVEN TO CENTER OF CASTING. CENTER OF CATCH BASIN CASTING IS 0.34 m FROM FACE OF CURB. SUMP DEPTH IS 25 mm ON OUTSIDE CURB AND 50 mm ON MEDIAN CURB. PIPE APRON LOCATIONS ARE GIVEN AT TOE OF APRON.
2 MATCH EXISTING PIPE. VERIFY EXISTING PIPE ELEVATION IN THE FIELD. CONNECTION TO EXISTING PIPE CONSIDERED INCIDENTAL.
3 CONSTRUCT OVER EXISTING PIPE. VERIFY EXISTING PIPE ELEVATION IN THE FIELD. CONNECTION TO EXISTING PIPE CONSIDERED INCIDENTAL.
4 USE TYPE C CONE.
5 USE TYPE B CONE.
6 SUBMERGED OUTLET, NO APRON.
7 OUTLET CONTROL STRUCTURE, DESIGN SPECIAL 1 (SEE DETAIL).
8 STATION AND OFFSET GIVEN TO INSIDE WALL OF BOX CULVERT.
9 TEMPORARY STORM PIPE TO BE IN PLACE DURING BOX CULVERT CONSTRUCTION. REMOVE PIPE AND APRON AND REPAIR CB 309 WHEN BOX CULVERT CONSTRUCTION IS COMPLETE.
10 PIPE LENGTH INCLUDES TWO (2) 25 DEGREE ELBOWS. FURNISHING AND INSTALLING PIPE ELBOWS CONSIDERED INCIDENTAL.
11 BLANK.
12 FURNISHING AND INSTALLING STEPS CONSIDERED INCIDENTAL.
13 TIE ALL JOINTS. FURNISHING AND INSTALLING PIPE TIES CONSIDERED INCIDENTAL.
14 TIE LAST THREE JOINTS AT APRON END. FURNISHING AND INSTALLING PIPE TIES CONSIDERED INCIDENTAL.
15 GRANULAR FILTER BLANKET OR GEOTEXTILE MATERIAL REQUIRED CONSIDERED INCIDENTAL.
16 FURNISH AND INSTALL TRASH GUARD.
17 FURNISH AND INSTALL TRASH GUARD DESIGN SPECIAL (SEE DETAIL).
18 FURNISH AND INSTALL PRECAST CONCRETE END SECTION (1:4 SLOPE, MALE END) AND SAFETY GRATE.
19 FURNISH AND INSTALL PRECAST CONCRETE END SECTION (1:6 SLOPE, MALE END).
20 PIPE LENGTH INCLUDES EIGHT (8) 7.5 DEGREE LONG RADIUS BENDS. FURNISHING AND INSTALLING PIPE BENDS WILL BE PAID FOR AS 600mm RCP.
21 PLUG HOLE FROM OLD PIPE. CONNECTION TO EXISTING PIPE AT NEW LOCATION CONSIDERED INCIDENTAL.

Q

CASTING ASSEMBLIES SUMMARY

ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	STANDARD PLATE NO.	QUANTITY	REMARKS
B-1	801			M4126	109	CATCH BASIN
		810		M4149		
			821B	M4161		
D-4	805			M4129	3	CATCH BASIN
		816		M4154		
M-11	Round Conc.			M4143	5	CATCH BASIN
		731		M4143		
A-7D	700-7			M4101	3	MANHOLE
		715		M4110		
PROJECT TOTALS:					120	

NO	DATE	BY	CKD	APPR	REVISION

NAME: DT4 410.PLN DATE: Mar. 17, 1997

minnesota metro

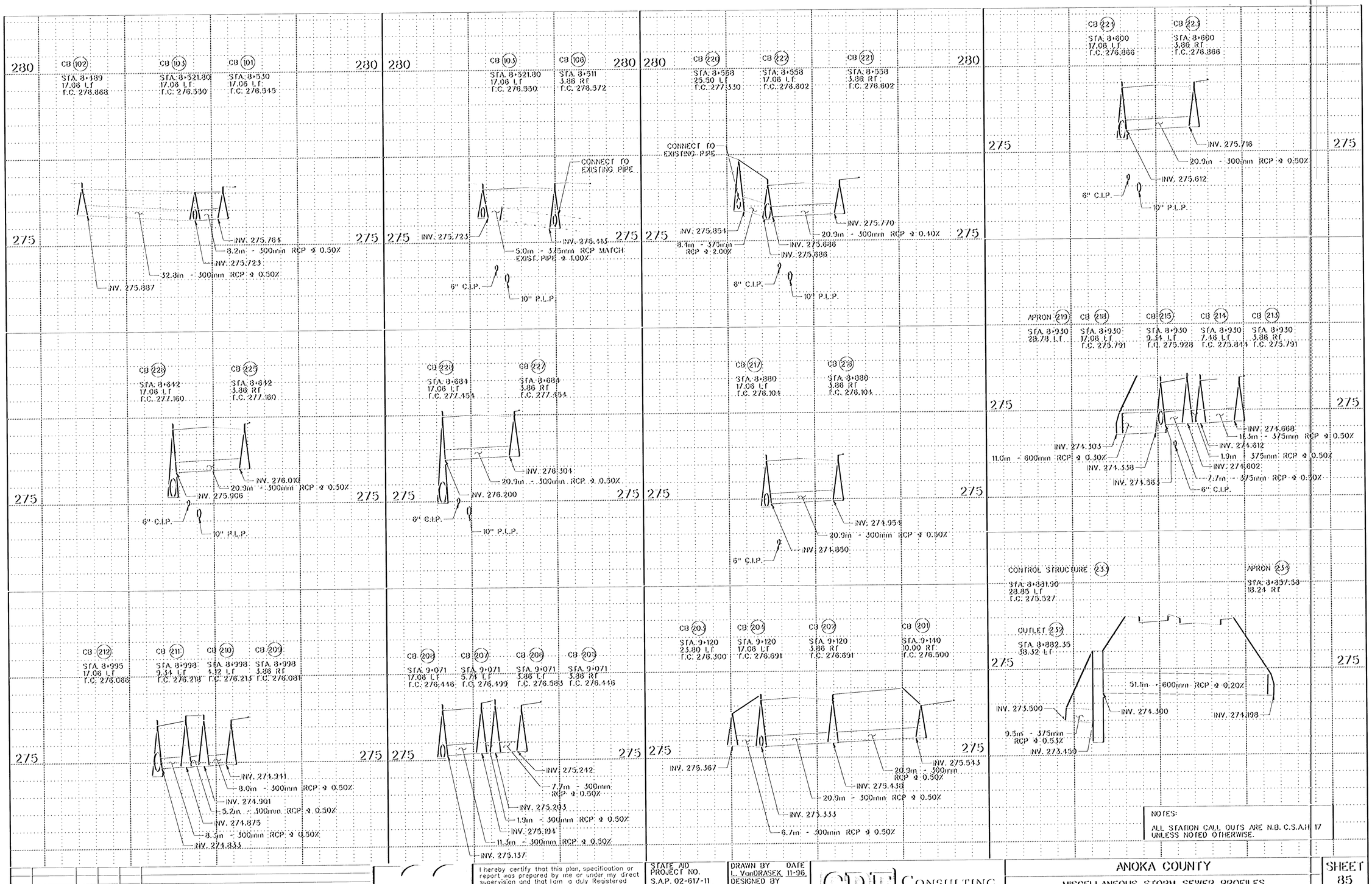
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Date 3-21-97 Reg. No. 21304

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY M. HANSEN 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
DRAINAGE TABULATION
C.S.A.H. 17 RECONSTRUCTION



NOTES:

ALL STATION CALL OUTS ARE N.B. C.S.A.H. 17 UNLESS NOTED OTHERWISE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: SP1 110.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No. 21364

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

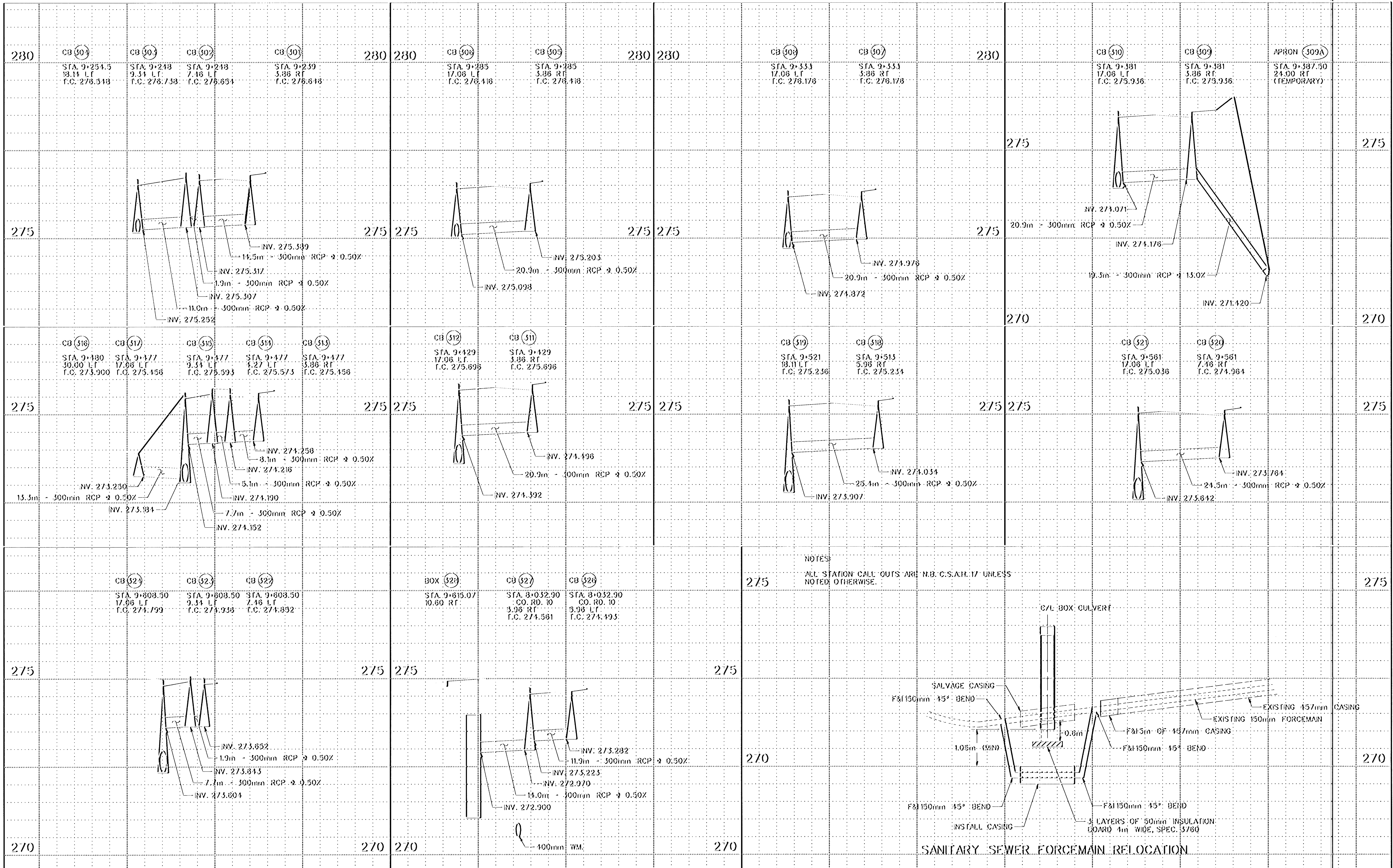
DRAWN BY DATE
L. VanDRASEK 11-96
DESIGNED BY
M. HANSEN 11-96
CHECKED BY
D. DEMERS 3-97
COMM. NO.
0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

MISCELLANEOUS STORM SEWER PROFILES
C.S.A.H. 17 RECONSTRUCTION

SHEET 85 OF 236


CB 304
STA. 9+254.5
18.14 LT
T.C. 276.318
CB 303
STA. 9+248
9.34 LT
T.C. 276.738
CB 302
STA. 9+248
7.46 LT
T.C. 276.654
CB 301
STA. 9+239
3.86 RT
T.C. 276.618
INV. 275.389
14.5m - 300mm RCP @ 0.50%
INV. 275.317
1.9m - 300mm RCP @ 0.50%
INV. 275.307
11.0m - 300mm RCP @ 0.50%
INV. 275.252
CB 306
STA. 9+285
17.06 LT
T.C. 276.418
CB 305
STA. 9+285
3.86 RT
T.C. 276.418
INV. 275.203
20.9m - 300mm RCP @ 0.50%
INV. 275.098
CB 308
STA. 9+333
17.06 LT
T.C. 276.178
CB 307
STA. 9+333
3.86 RT
T.C. 276.178
INV. 274.976
20.9m - 300mm RCP @ 0.50%
INV. 274.872
CB 310
STA. 9+381
17.06 LT
T.C. 275.936
CB 309
STA. 9+381
3.86 RT
T.C. 275.936
APRON 309A
STA. 9+387.50
24.00 RT
(TEMPORARY)
INV. 274.071
20.9m - 300mm RCP @ 0.50%
INV. 274.176
19.3m - 300mm RCP @ 15.0%
INV. 271.420
CB 316
STA. 9+480
30.00 LT
T.C. 273.900
CB 317
STA. 9+477
17.06 LT
T.C. 275.456
CB 315
STA. 9+477
9.34 LT
T.C. 275.593
CB 314
STA. 9+477
7.27 LT
T.C. 275.573
CB 313
STA. 9+477
3.86 RT
T.C. 275.456
INV. 274.258
8.1m - 300mm RCP @ 0.50%
INV. 274.218
5.1m - 300mm RCP @ 0.50%
INV. 274.190
INV. 273.250
13.3m - 300mm RCP @ 0.50%
INV. 273.184
7.7m - 300mm RCP @ 0.50%
INV. 274.152
CB 312
STA. 9+429
17.06 LT
T.C. 275.696
CB 311
STA. 9+429
3.86 RT
T.C. 275.696
INV. 274.496
20.9m - 300mm RCP @ 0.50%
INV. 274.392
CB 319
STA. 9+521
18.11 LT
T.C. 275.236
CB 318
STA. 9+513
5.96 RT
T.C. 275.234
INV. 274.034
25.4m - 300mm RCP @ 0.50%
INV. 273.907
CB 321
STA. 9+561
17.06 LT
T.C. 275.036
CB 320
STA. 9+561
7.46 RT
T.C. 274.964
INV. 273.764
24.5m - 300mm RCP @ 0.50%
INV. 273.642
CB 324
STA. 9+608.50
17.06 LT
T.C. 274.799
CB 323
STA. 9+608.50
9.34 LT
T.C. 274.936
CB 322
STA. 9+608.50
7.46 LT
T.C. 274.852
INV. 273.652
1.9m - 300mm RCP @ 0.50%
INV. 273.643
7.7m - 300mm RCP @ 0.50%
INV. 273.604
BOX 328
STA. 9+615.07
10.60 RT
CB 327
STA. 8+032.90
CO. RD. 10
3.96 RT
T.C. 274.381
CB 326
STA. 8+032.90
CO. RD. 10
3.96 LT
T.C. 274.195
INV. 273.282
11.9m - 300mm RCP @ 0.50%
INV. 273.223
INV. 272.970
14.0m - 300mm RCP @ 0.50%
INV. 272.900
400mm WM
NOTES:
ALL STATION CALL OUTS ARE N.B. C.S.A.H. 17 UNLESS NOTED OTHERWISE.
C/L BOX CULVERT
SALVAGE CASING
F&I 150mm 45° BEND
EXISTING 457mm CASING
EXISTING 150mm FORCEMAIN
0.6m
F&I 5m OF 457mm CASING
1.05m (MIN)
F&I 150mm 45° BEND
F&I 150mm 45° BEND
F&I 150mm 45° BEND
3 LAYERS OF 50mm INSULATION BOARD 4m WIDE, SPEC. 3760
INSTALL CASING
SANITARY SEWER FORCEMAIN RELOCATION
280
275
270

NO	DATE	BY	CKD	APPR	REVISION

NAME: SP2 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Date 3-21-97 Reg. No. 21364

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

	DATE
DRAWN BY L. VonDRASEK	11-96
DESIGNED BY M. HANSEN	11-96
CHECKED BY D. DEMERS	3-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

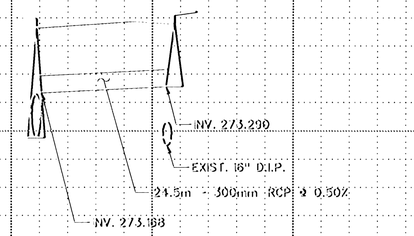
ANOKA COUNTY

MISCELLANEOUS STORM SEWER PROFILES
C.S.A.H. 17 RECONSTRUCTION

SHEET 86 OF 236

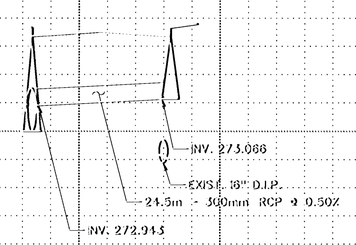
CB (12)
STA. 9+689
20.66 LF
F.C. 274.324

CB (11)
STA. 9+689
3.86 RF
F.C. 274.396



CB (12)
STA. 9+734
20.66 LF
F.C. 274.100

CB (11)
STA. 9+734
3.86 RF
F.C. 274.172



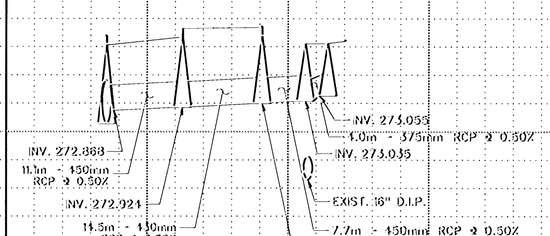
CB (13)
STA. 9+766
18.91 LF
F.C. 274.059

CB (12)
STA. 9+766
7.78 LF
F.C. 274.182

CB (12)
STA. 9+780
3.86 LF
F.C. 274.205

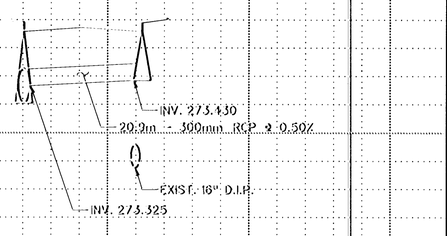
CB (11)
STA. 9+780
3.86 RF
F.C. 274.068

CB (11)
STA. 9+776
3.86 RF
F.C. 274.067



CB (117)
STA. 9+852
17.06 LF
F.C. 274.301

CB (116)
STA. 9+852
3.86 RF
F.C. 274.301



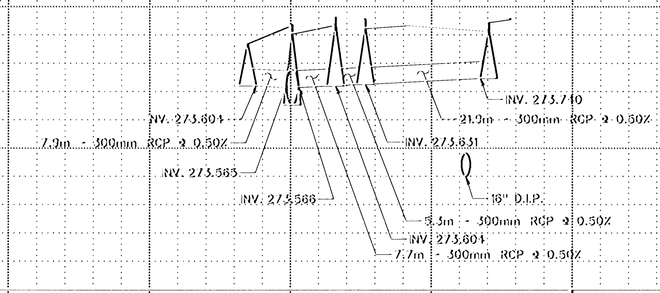
CB (114)
STA. 9+909
25.00 LF
F.C. 274.350

CB (115)
STA. 9+900
17.06 LF
F.C. 274.541

CB (113)
STA. 9+900
9.34 LF
F.C. 274.678

CB (112)
STA. 9+905
7.46 LF
F.C. 274.619

CB (111)
STA. 9+921
7.46 RF
F.C. 274.574



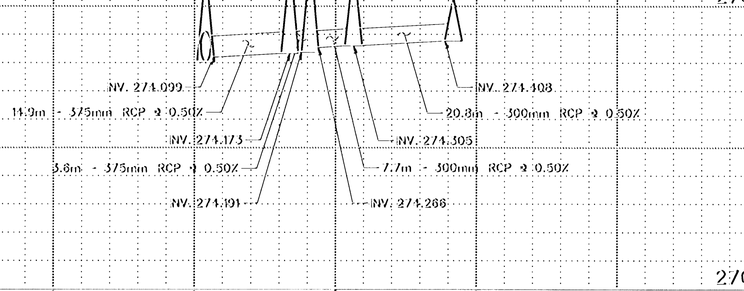
CB (107)
STA. 10+035
22.34 LF
F.C. 275.851

CB (106)
STA. 10+035
7.12 LF
F.C. 275.776

CB (105)
STA. 10+035
3.86 LF
F.C. 275.860

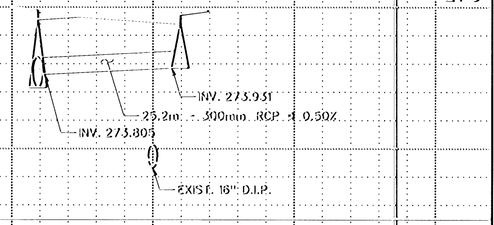
CB (104)
STA. 10+035
3.86 RF
F.C. 275.725

CB (103)
STA. 9+030.80 BAEL ROAD
3.56 LF
F.C. 275.225
END SECTION



CB (110)
STA. 9+948
17.70 LF
F.C. 274.781

CB (109)
STA. 9+948
7.46 RF
F.C. 274.709

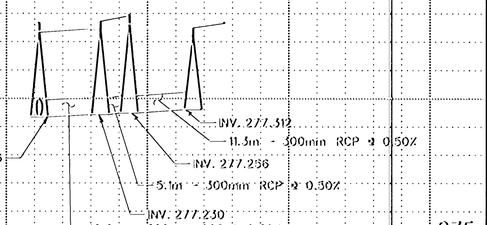


CB (102)
STA. 10+121
19.73 LF
F.C. 278.676

CB (101)
STA. 10+121
8.96 LF
F.C. 278.738

CB (100)
STA. 10+121
3.86 LF
F.C. 278.813

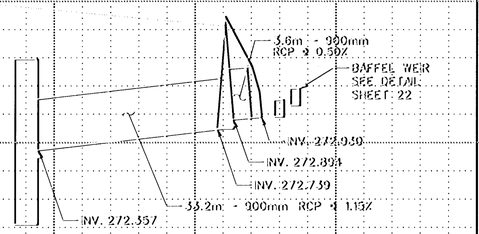
CB (99)
STA. 10+121
7.46 RF
F.C. 278.604



BOX (33)
STA. 9+618.32
2.81 RF

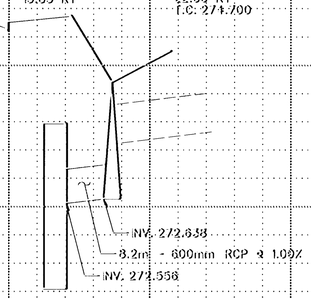
CB (32)
STA. 9+651.50
3.86 RF
F.C. 274.573

END SECTION (31)
STA. 9+651.50
11.86 RF



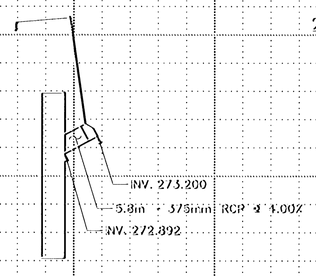
BOX (31)
STA. 9+433.22
13.83 RF

CB (30)
STA. 9+434.31
22.00 RF
F.C. 274.700



BOX (15)
STA. 9+559.70
13.83 RF

APRON (14)
STA. 9+559.70
21.50 RF



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ACHD COMMENTS

NAME: SP3 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Date 3-21-97 Reg. No. 21364

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 106-030-03

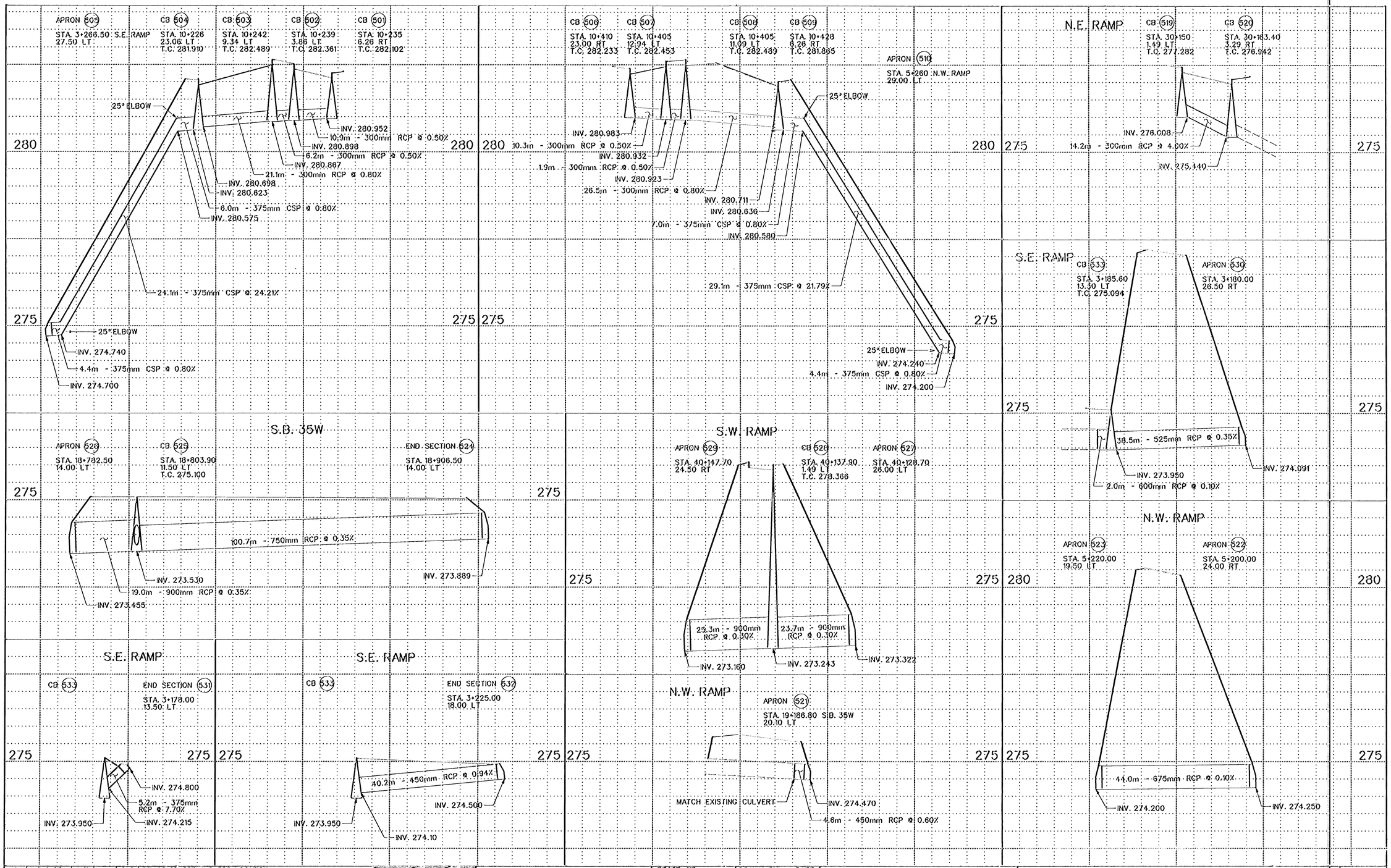
CO. PROJECT NO.

DRAWN BY DATE
L. VanDRASEK 11-96
DESIGNED BY
M. HANSEN 11-96
CHECKED BY
D. DEMERS 3-97
COMM. NO.
0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
MISCELLANEOUS STORM SEWER PROFILES
C.S.A.H. 17 RECONSTRUCTION

SHEET 87 OF 236



NO	DATE	BY	CKD	APPR	REVISION
1	4-4-97	MCI	MDH	DAD	REVISE CB 507 AND 508 LOCATION

NAME: SP5 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Date 3-21-97 Reg. No. 21364

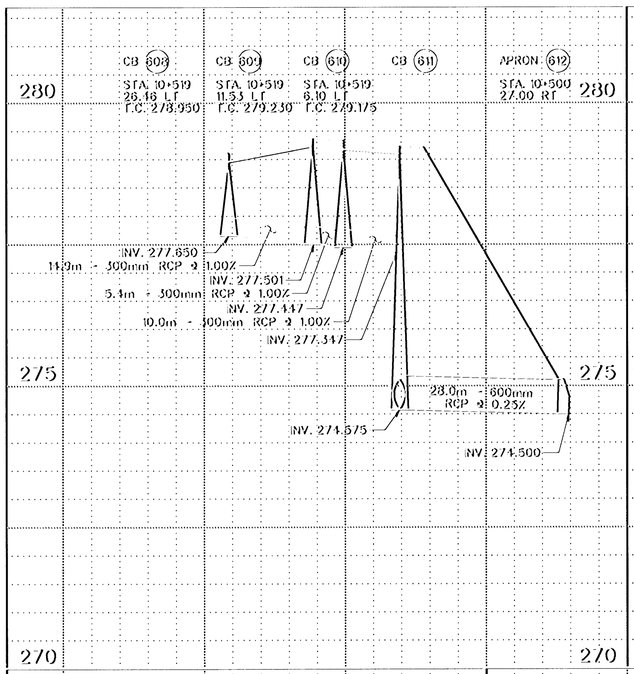
STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

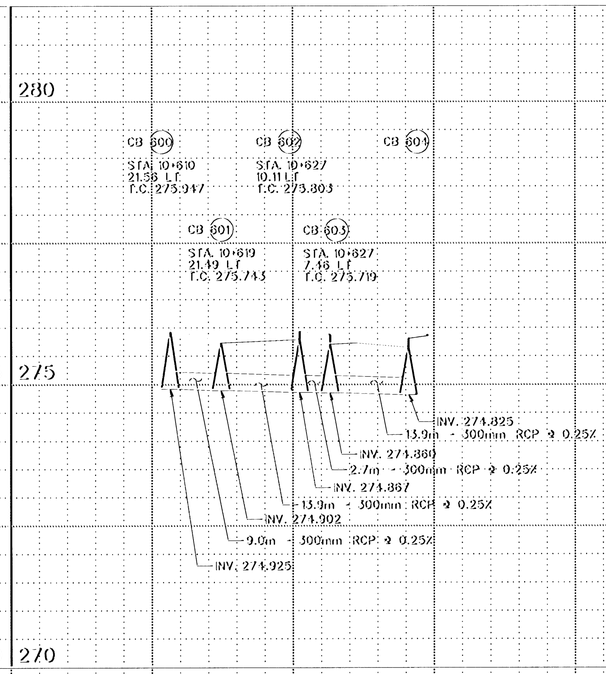
DRAWN BY L. VanDRASEK DATE 11-96
DESIGNED BY M. HANSEN 11-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0962410

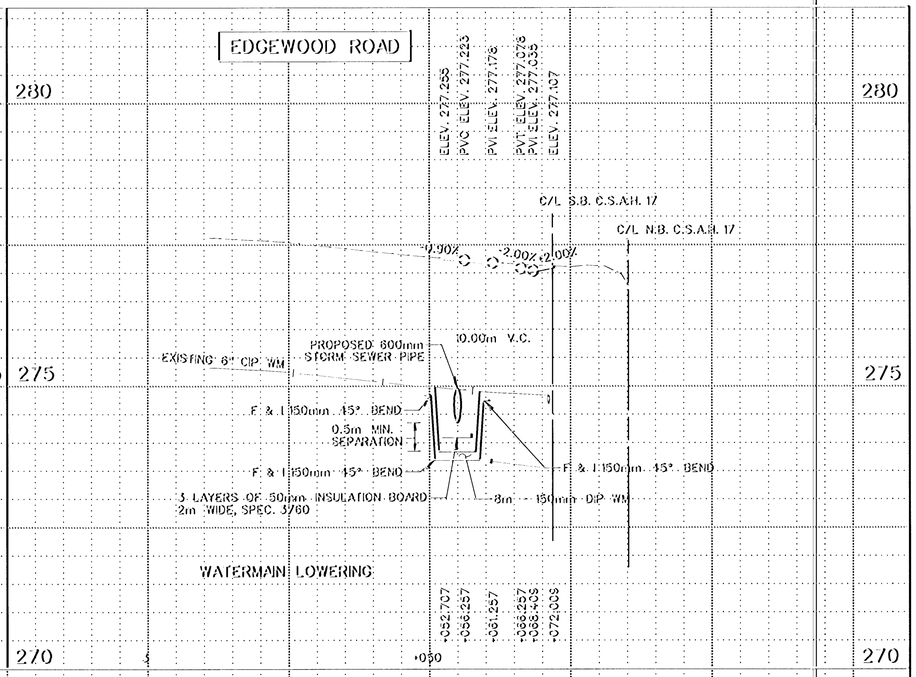
SRF CONSULTING GROUP, INC.

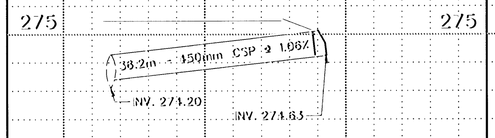
ANOKA COUNTY
MISCELLANEOUS STORM SEWER PROFILES
C.S.A.H. 17 RECONSTRUCTION

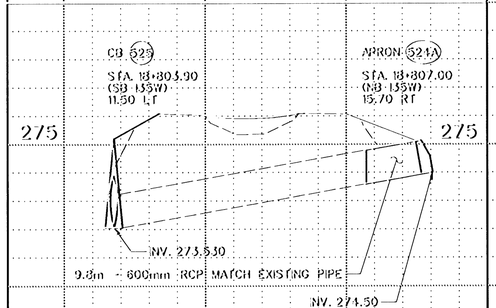
SHEET 83 OF 236

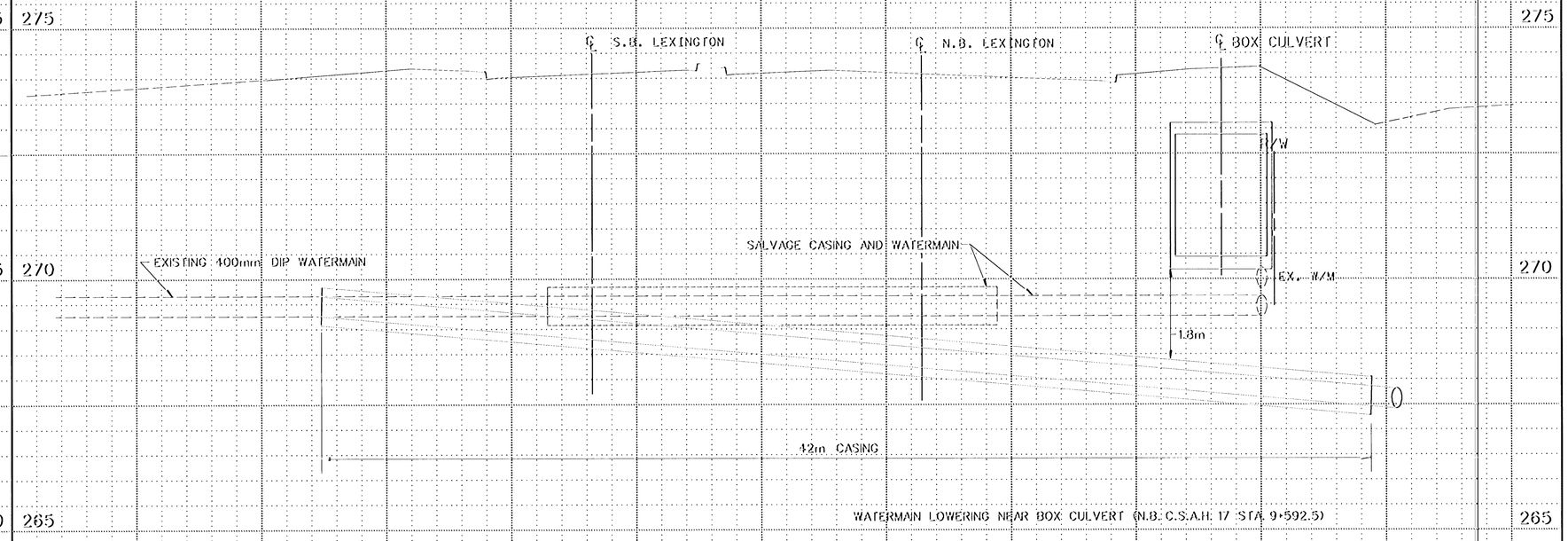












NO	DATE	BY	CKD	APPR	REVISION

NAME: SP4 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Date 3-21-97 Reg. No. 21364

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

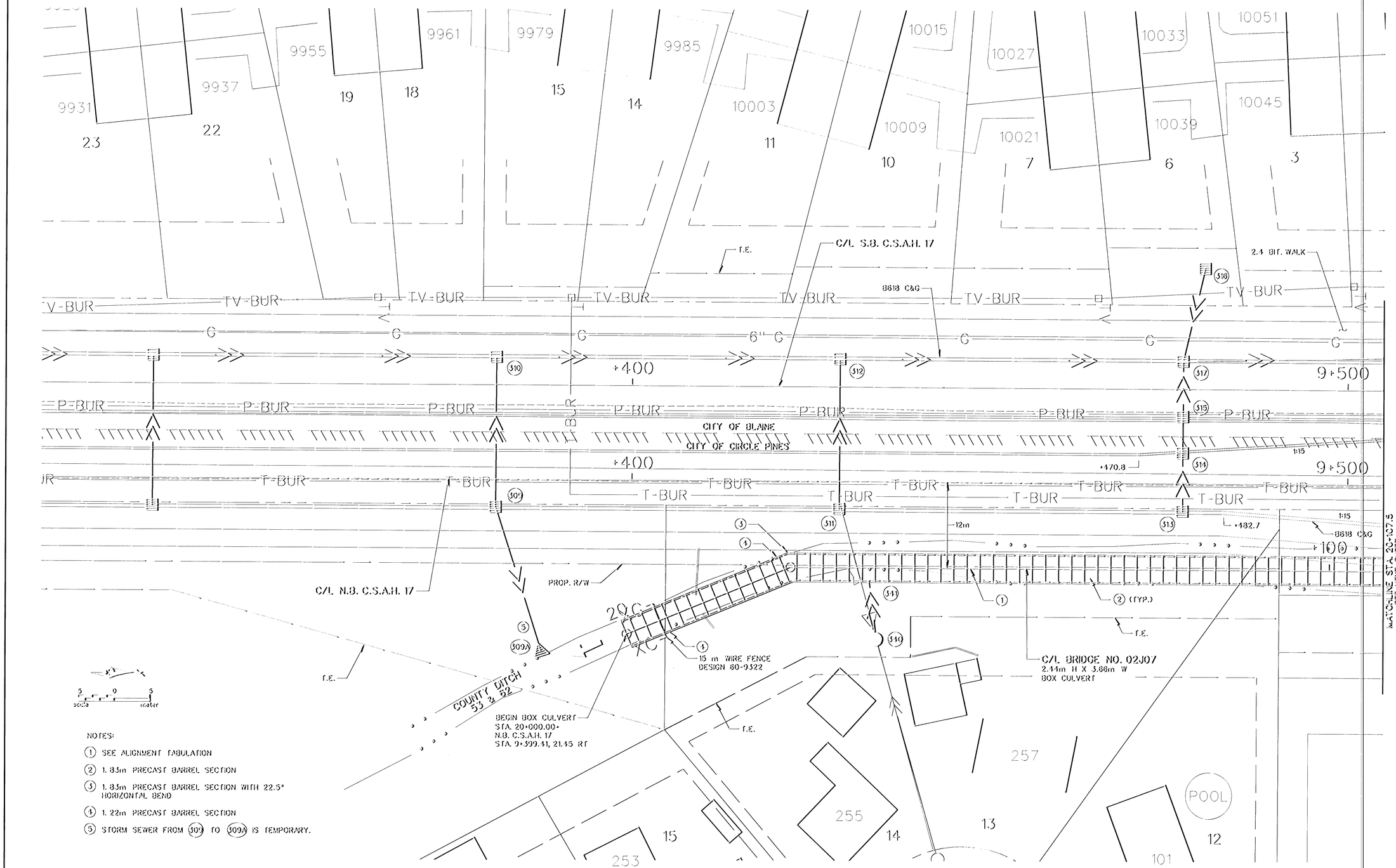
CO. PROJECT NO.

DRAWN BY DATE
L. VanDIRASEK 11-96
DESIGNED BY
M. HANSEN 11-96
CHECKED BY
D. DEMERS 3-97
COMM. NO.
0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
MISCELLANEOUS PROFILES
C.S.A.H. 17 RECONSTRUCTION

SHEET 89 OF 236



NOTES:

1. SEE ALIGNMENT TABULATION
2. 1.83m PRECAST BARREL SECTION
3. 1.83m PRECAST BARREL SECTION WITH 22.5° HORIZONTAL BEND
4. 1.22m PRECAST BARREL SECTION
5. STORM SEWER FROM (309) TO (309A) IS TEMPORARY.

NO	DATE	BY	CKD	APPR	REVISION

NAME: BC1 110.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No. 25066

STATE AID PROJECT NO.
S.A.P. 02-817-11
S.A.P. 108-020-12
S.A.P. 106-030-03

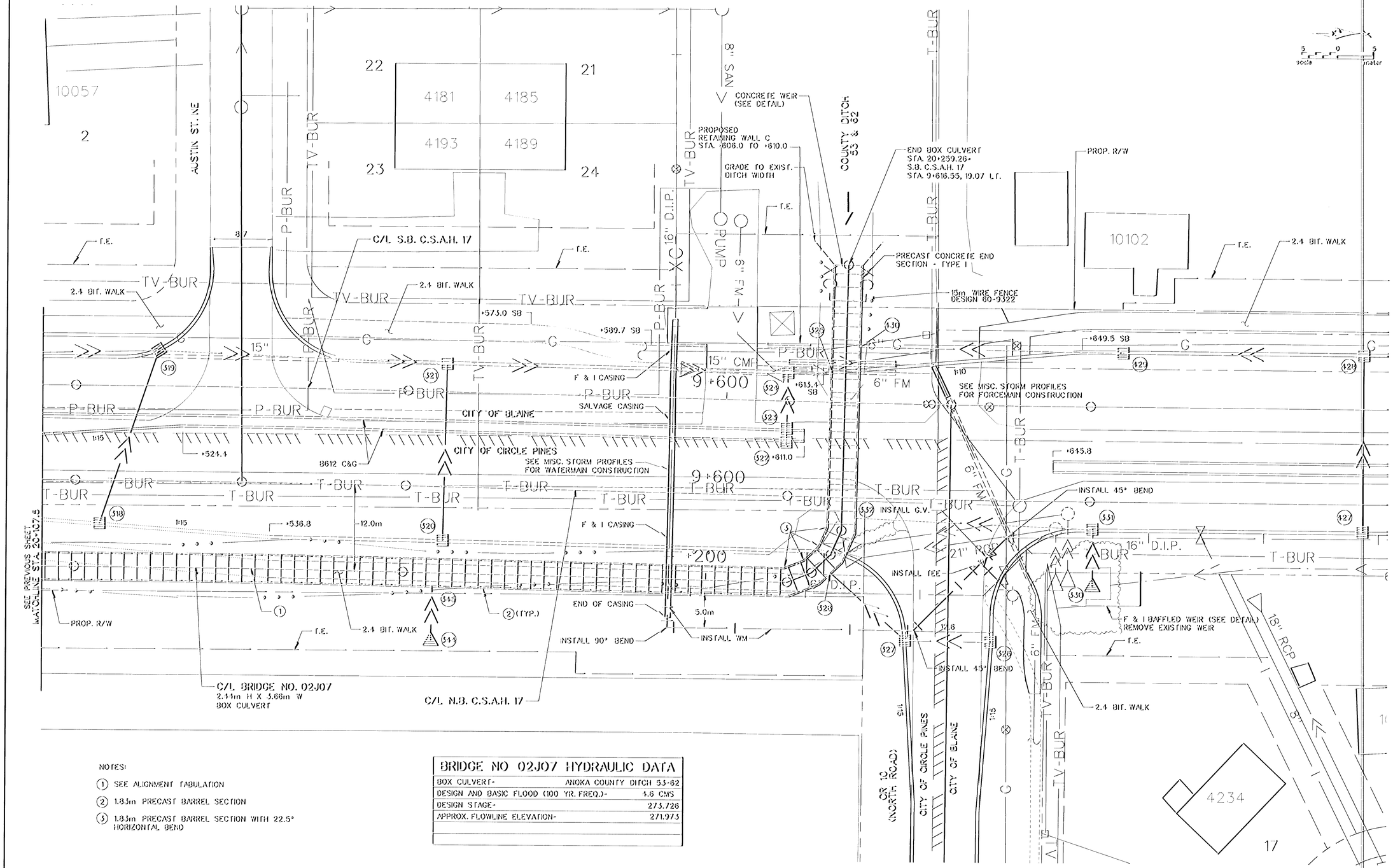
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY L. ROBIENT 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
BOX CULVERT CONSTRUCTION PLAN
C.S.A.H. 17 RECONSTRUCTION
STA. 20+000 TO STA. 20+107.5

SHEET 90 OF 236



NOTES:

1. SEE ALIGNMENT TABULATION
2. 1.83m PRECAST BARREL SECTION
5. 1.83m PRECAST BARREL SECTION WITH 22.5° HORIZONTAL BEND

BRIDGE NO 02J07 HYDRAULIC DATA	
BOX CULVERT-	ANOKA COUNTY DITCH 53-62
DESIGN AND BASIC FLOOD (100 YR. FREQ.)-	4.6 CMS
DESIGN STAGE-	273.726
APPROX. FLOWLINE ELEVATION-	271.973

NO	DATE	BY	CKD	APPR	REVISION

NAME: BC2 110.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No. 15066

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY L. ROBJENT 12-96
CHECKED BY D DEMERS 3-97
COMM. NO. 0962410

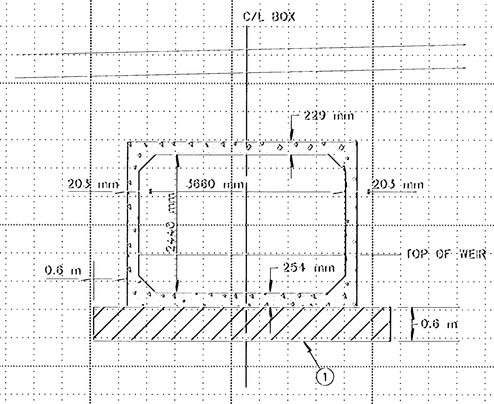
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
BOX CULVERT CONSTRUCTION PLAN
C.S.A.H. 17 RECONSTRUCTION
STA. 20+107.5 TO STA. 20+259.26

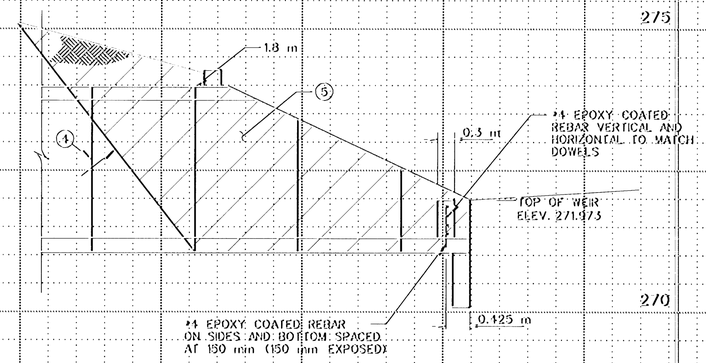
SHEET 91 OF 236

PIPE CONNECTIONS (3)

NO.	PIPE SIZE	STATION	INV.
341	600 mm	20+035.68 Rt.	272.556
345	375 mm	20+161.98 Rt.	272.892
328	300 mm	20+276.26 Rt.	272.900
332	900 mm	20+224.19 Rt.	272.557
325	600 mm	20+244.32 Lt.	272.306
430	825 mm	20+248 Rt.	272.204



SECTION A-A



WEIR DETAIL

WEIR CONSTRUCTION INCIDENTAL TO END SECTION

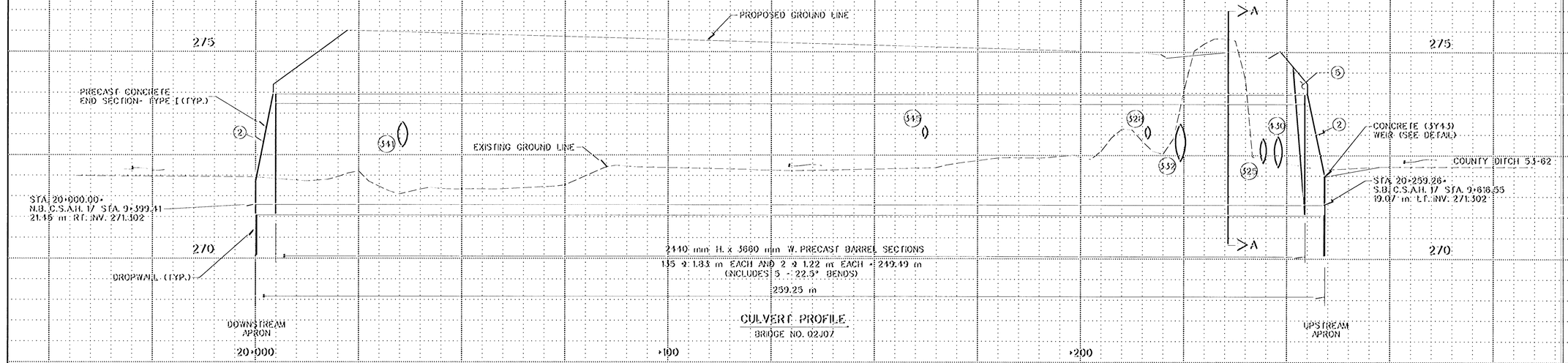
(1) AGGREGATE BEDDING - 820 m³ SPEC. 3142-2G FOR BARREL SECTIONS. CLASS C BEDDING FOR END SECTIONS.

(2) RIP RAP CLASS III - 22 m³ INCLUDES 100 m² GEOTEXTILE FILTER TYPE IV.

(3) OPENINGS FOR PIPES ENTERING BOX CULVERT SHALL BE PLANT FABRICATED OPENINGS SHALL BE CENTERED HORIZONTALLY IN 1.83 m PRECAST SECTION. FURNISH AND INSTALL TRASH GUARD (DESIGN SPECIAL) OVER EACH OPENING-SEE DETAILS

(4) JOINTS BETWEEN ALL SECTIONS SHALL HAVE MASTICSEALS ALL AROUND.

(5) SELECTED PLASTIC SOILS CAP (MIN. 50% PASSING THE 75 micrometer SIEVE, MIN. 20% CLAY SIZE PARTICLES). SOILS CAP SHALL EXTEND 3.6 m EACH SIDE OF BARREL.



CULVERT PROFILE

BRIDGE NO. 02J07

NO	DATE	BY	CKD	APPR	REVISION

NAME: BC3 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No. 25066

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

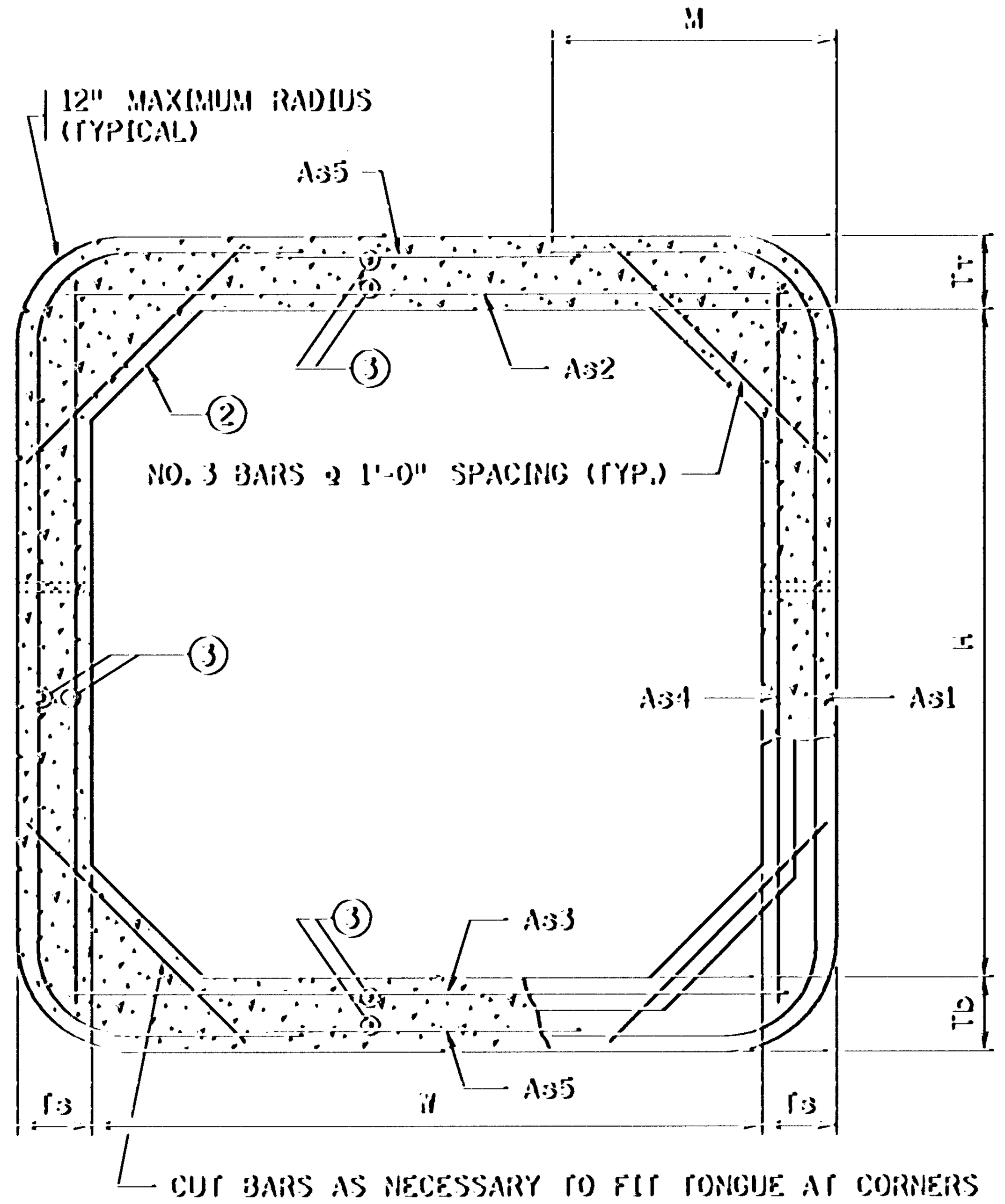
CO. PROJECT NO.

DRAWN BY J. VAN BECK DATE 12-96
DESIGNED BY L. ROBJENT 12-96
CHECKED BY D. DEMERS 3-97
COMM. NO. 0962410

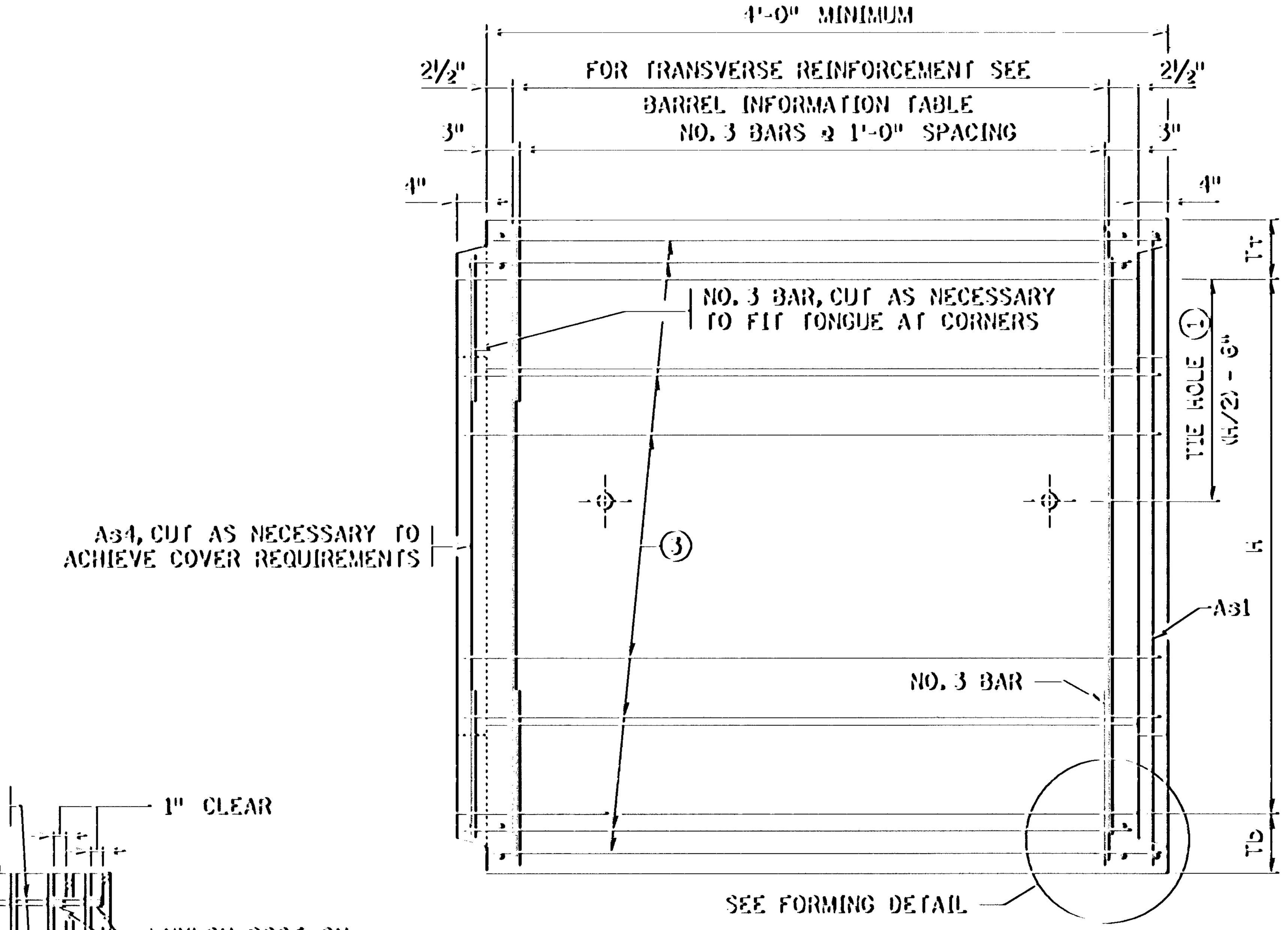
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
BOX CULVERT PROFILE
C.S.A.H. 17 RECONSTRUCTION

SHEET 92 OF 236



TRANSVERSE BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)



LONGITUDINAL BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)

CONSTRUCTION NOTES:

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1½" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM MESH SIZE SHALL BE ½" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

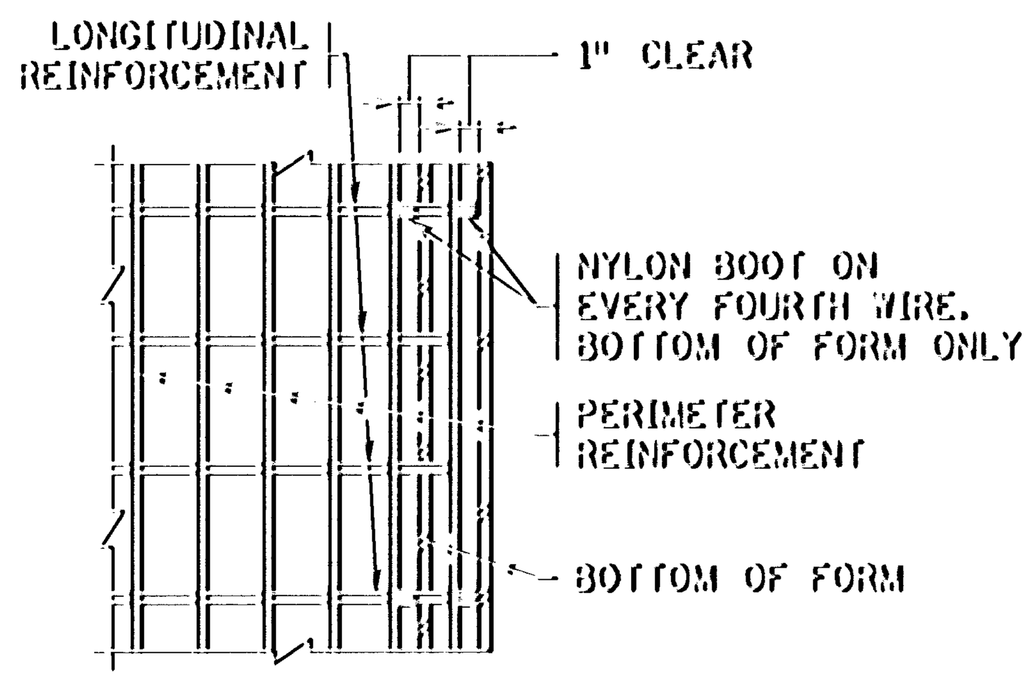
BARREL SECTIONS WHICH ARE CAST WITH A DRAFT IN THE FORMS SHALL BE LAID WITH THE NARROWEST PART OF THE SECTION DOWNSTREAM.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

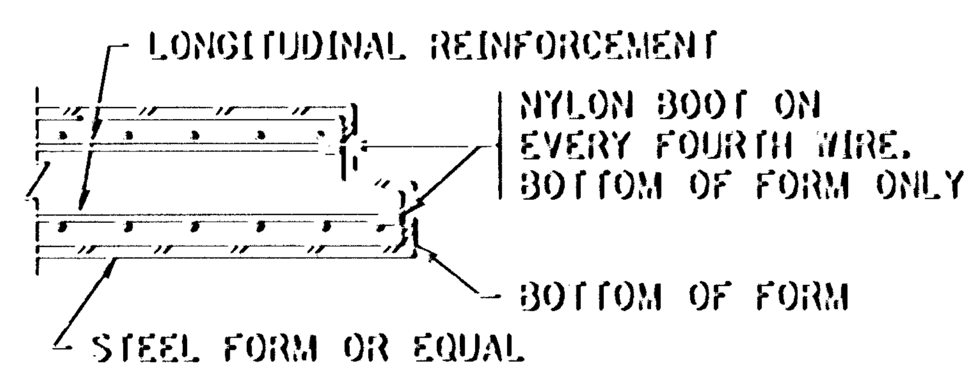
① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6 AND 8 FT. WIDTHS - 6 TO 12 INCHES
10 FT WIDTH - 10 TO 12 INCHES
12 FT WIDTH - 12 INCHES

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN. /FT.

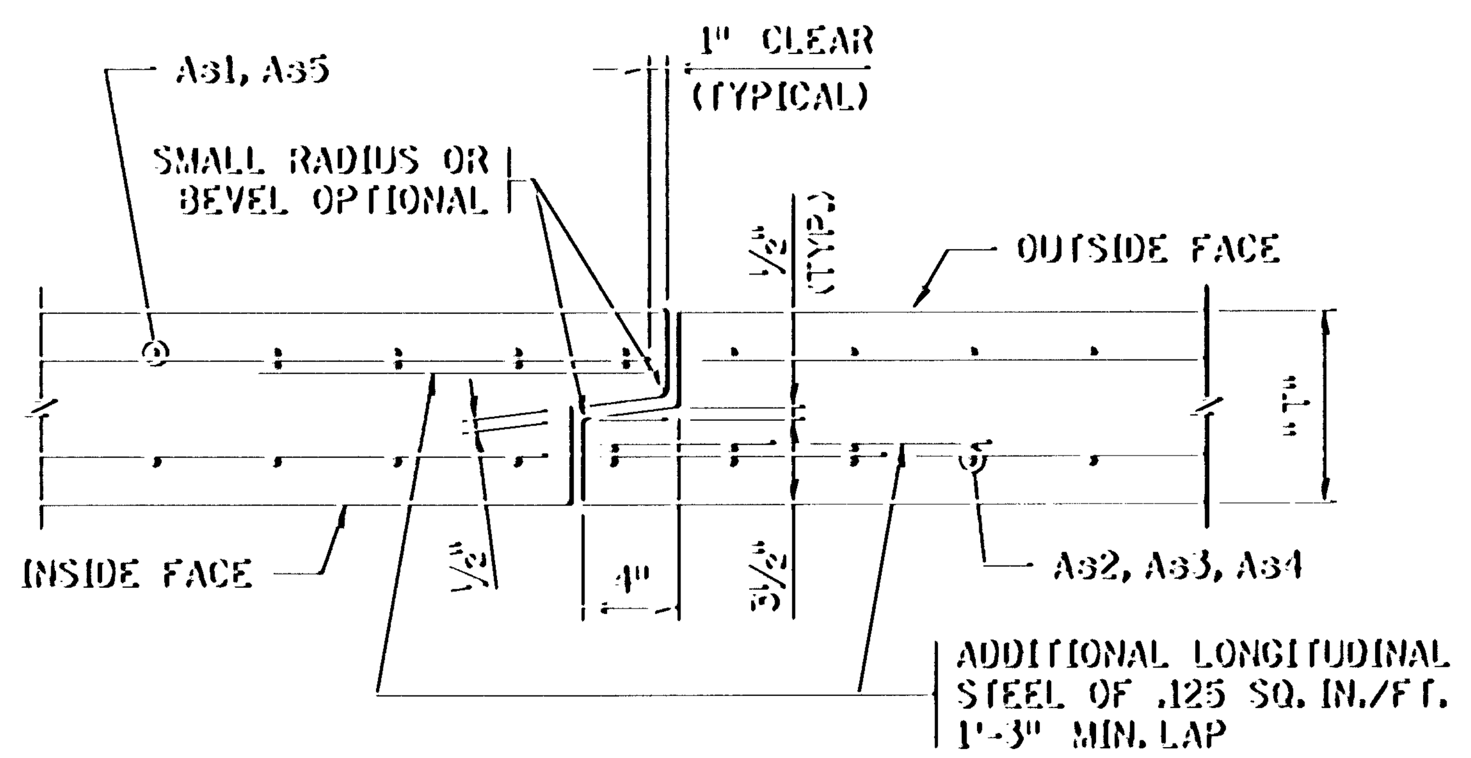


PLAN

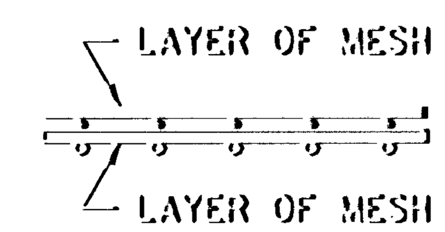


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT										
											As1			As2		As3		As4		As5	
					W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)
C053-62	12x8	2	5000	2-5	12	8	9	10	8	4930	0.74	14.58	3.17	1.11	12.67	1.06	12.67	0.20	8.67	0.06	9.00

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Date 3-21-97 Reg. No. 25066

SRF CONSULTING GROUP, INC.

DES: L. ROBJENT | DR:
CHK: R.A.S. | CHK:
APPROVED:

BRIDGE NO. 02J07

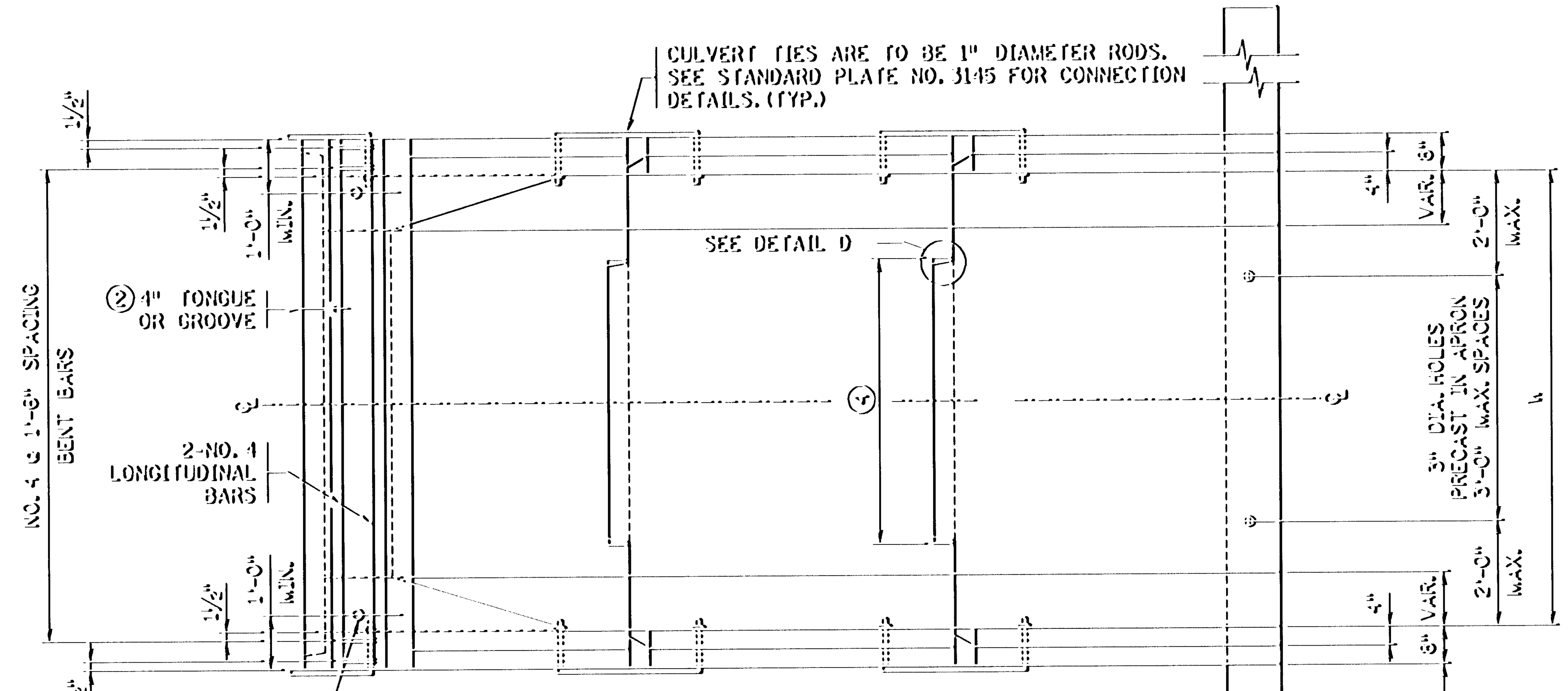
STANDARD SHEET NO. 5-297.420 (1 OF 2)
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995

TITLE: BARREL DETAILS

S.A.P. 02-617-11, et al.

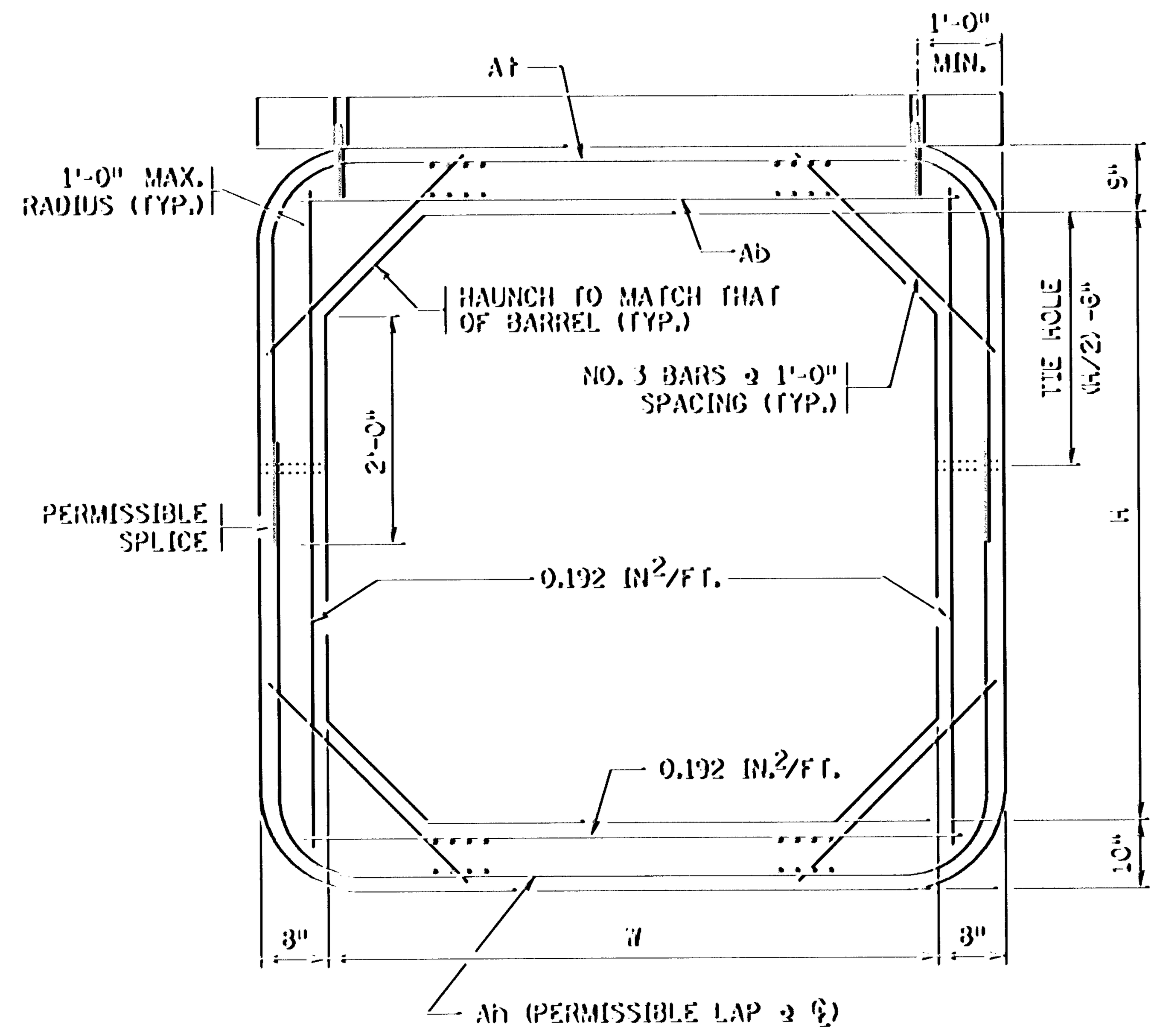
NAME: BC4 410.PLN DATE: Mar. 17, 1997

SERVER CA6451:/USR/STANDARDS FILE NAME S4201HS5.SPN

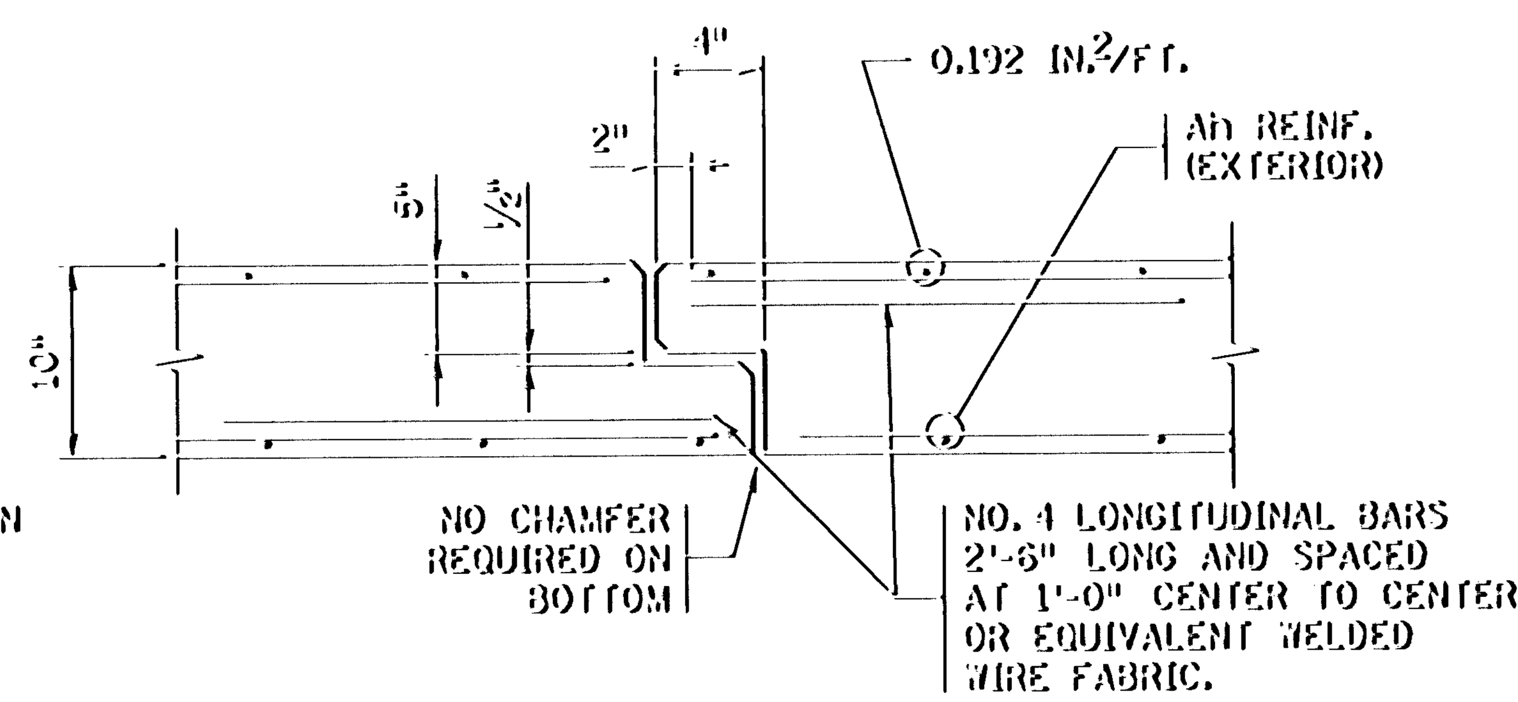


PLAN VIEW

(SOME REINFORCEMENT NOT SHOWN)

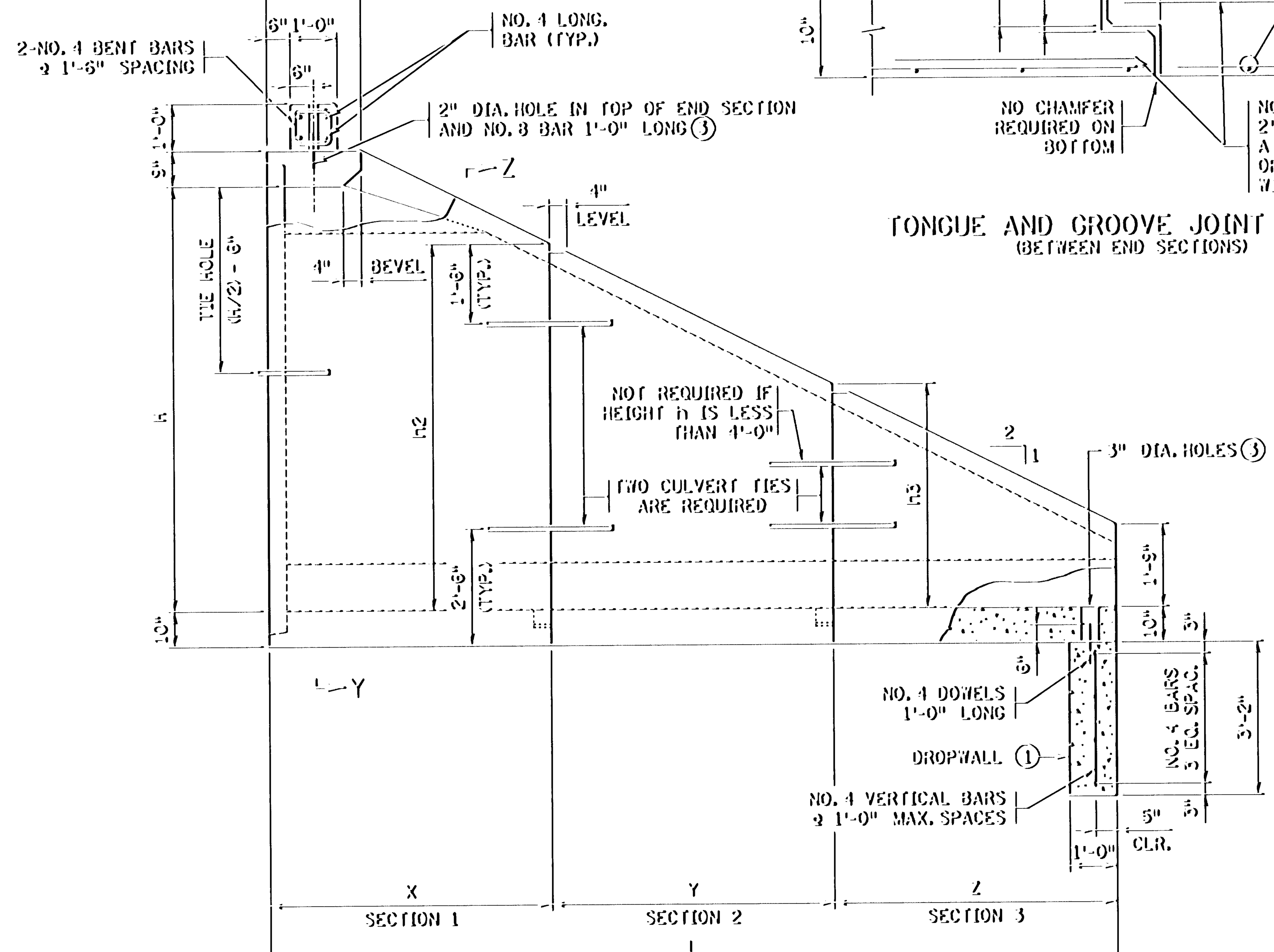


SECTION Y-Y

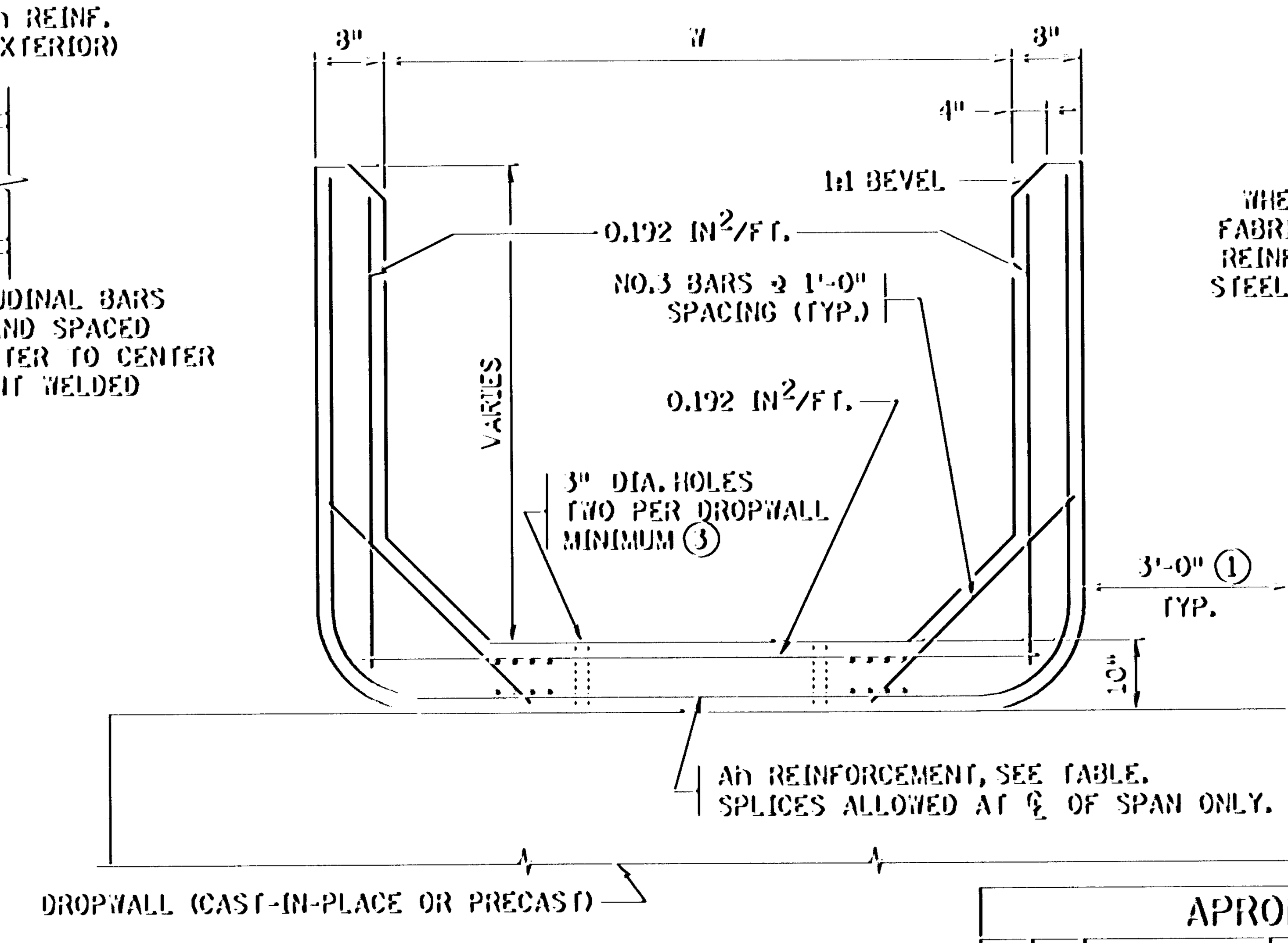


TONGUE AND GROOVE JOINT DETAIL

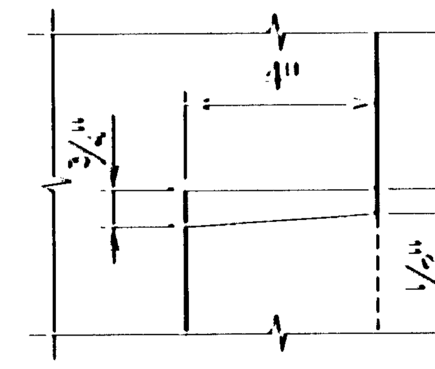
(BETWEEN END SECTIONS)



SIDE ELEVATION



SECTION Z-Z



DETAIL D

NOTES:

SEE 5-297.420, FOR DIMENSIONS AND CONSTRUCTION NOTES, EXCEPT AS NOTED.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE 5-297.425 FOR EMBANKMENT PROTECTION.

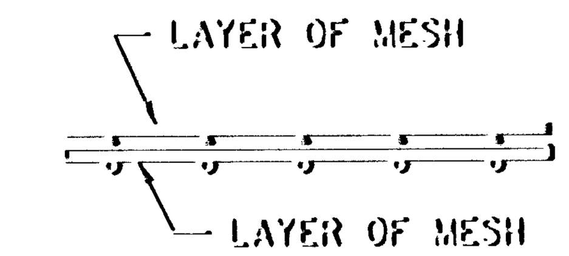
FINISH ALL EDGES OF CONCRETE WITH ½" OR ¾" CHAMFER UNLESS OTHERWISE NOTED.

① WITH MULTIPLE BOXES LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE 5-297.424 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

② CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

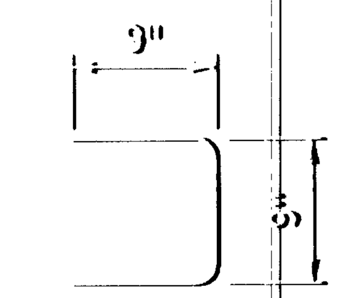
③ FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

④ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON ℄ OF EACH APRON JOINT.



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN.



NO. 4 BENT BAR

At, Ab REINFORCEMENT

WIDTH (FT.)	At (IN²/FT.)	Ab (IN²/FT.)
6	.27	.44
8	.47	.60
10	.62	.74
12	.88	1.06

APRON DIMENSIONS & Ah REINFORCEMENT

H FT.	L FT.	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5
		X	Ah		Y	Ah		Z	Ah		ZZ	Ah	
4	8	8'	0.192	1'-9"									
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"						
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"						
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"						
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"			
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN²/FT.).

BRIDGE NO. 02J07

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Date 3-21-97 Reg. No. 25066

SRF CONSULTING GROUP, INC.

DES: L. ROBJENT | DR:
CHK: R.A.S. | CHK:
APPROVED:

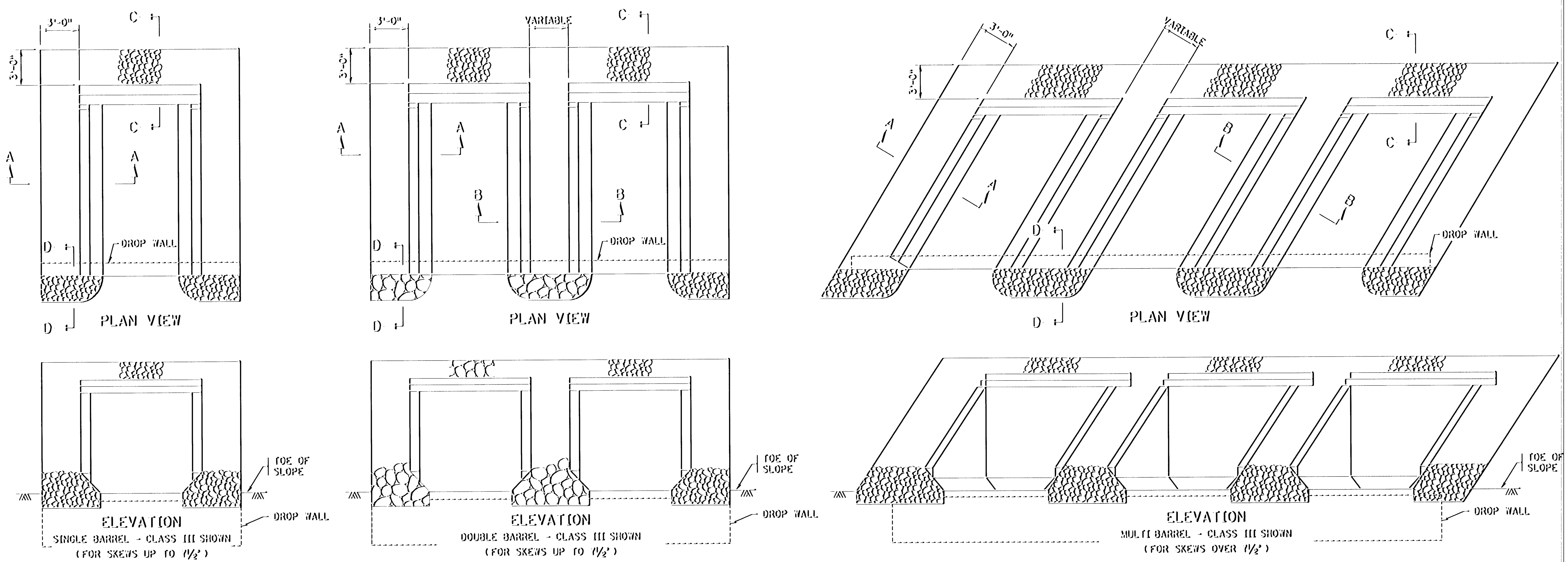
STANDARD SHEET NO. 5-297.421
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995

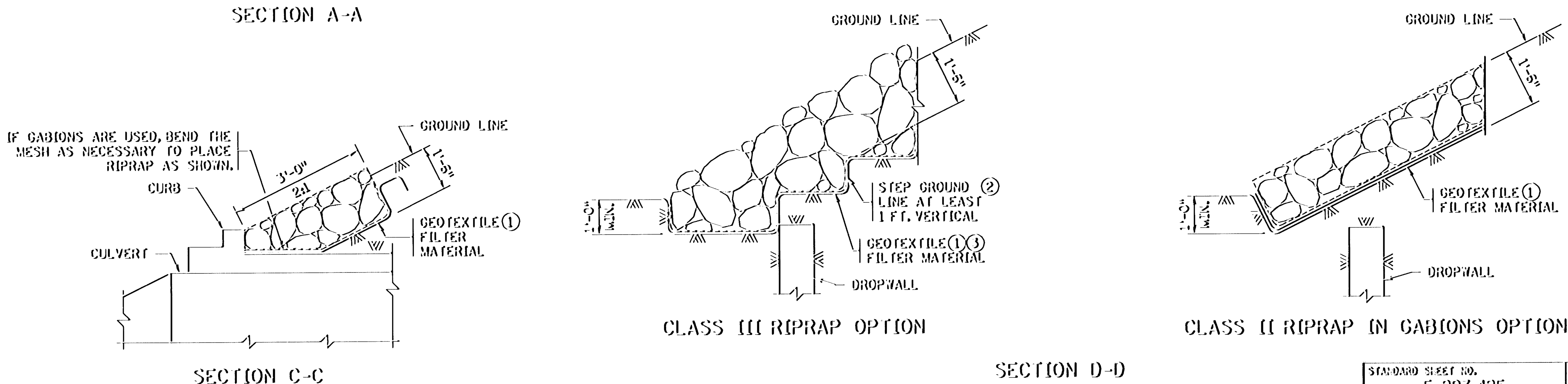
TITLE: PRECAST CONCRETE END SECTION TYPE I - SINGLE OR MULTI-BARREL FOR SKEWS UP TO 1½°

S.A.P. 02-617-11, et al.

SERVER CAG4S1:/USR/STANDARDS FILE NAME S421SE.SPN

NAME: BCS 410.PLN DATE: Mar. 17, 1997





NOTES:

RIPRAP SHALL COMPLY WITH SPECS. 2511 AND 3601. THE CONTRACTOR MAY USE EITHER CLASS III, WITH GEOTEXTILE FILTER MATERIAL, OR CLASS II ENCLOSED IN GABIONS, WITH GEOTEXTILE FILTER MATERIAL. 4" TO 8" DIA. ROCK MAY BE USED IN GABIONS, IF THE MESH OPENINGS ARE 4" OR LESS. GABIONS SHALL BE RIVER TYPE, CODE "D", 3 FT. WIDE X 1.5 FT. DEEP.

① FOR TYPE OF GEOTEXTILE FILTER MATERIAL REQUIRED, SEE SPEC. 3733. GEOTEXTILE STRIPS SHOULD BE CONTINUOUS WITHOUT OVERLAPS, EXCEPT FOR THE TOP STRIP, WHICH SHOULD SHINGLE VERTICAL STRIPS. THE TOP EDGE SHOULD BE BURIED TO PREVENT UNDERMINING (SPEC. 2511.3B).

② SLOPES 2:1 TO 3:1 MUST BE STEPPED TO MINIMIZE SLIDING POTENTIAL.

③ IF SLOPES ARE NOT STEPPED, GRANULAR FILTER SHOULD BE USED.

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Date 3-21-97 Reg. No. 25066

SRF CONSULTING GROUP, INC.

BRIDGE NO. 02J07

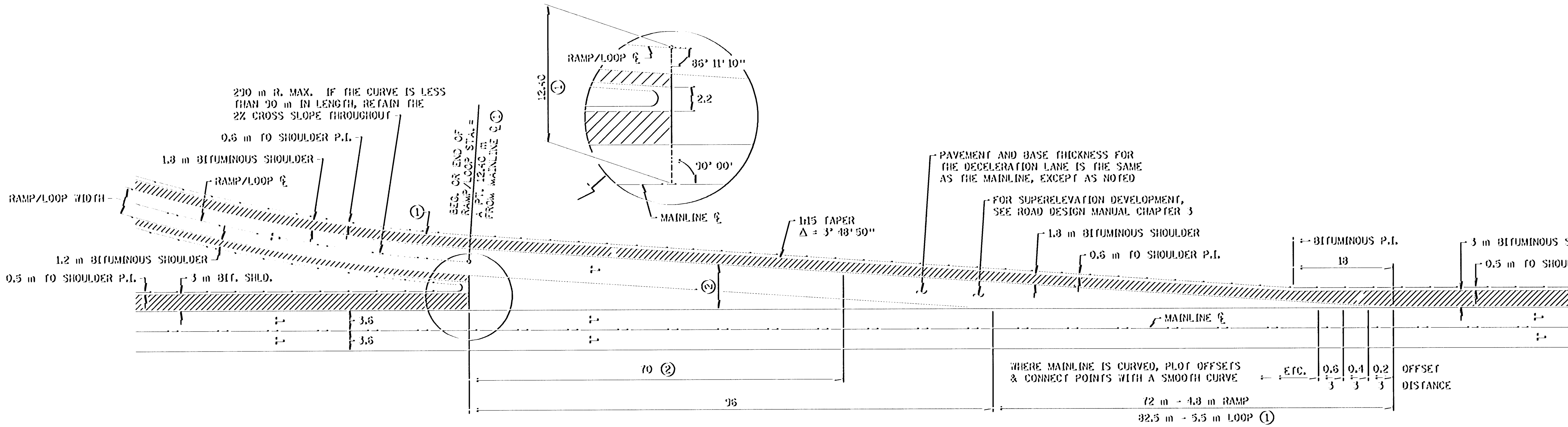
DES: L. ROBJENT	DR:	APPROVED:	STANDARD SHEET NO. 5-297.425 / STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995
CHK: R.A.S.	CHK:		S.A.P. 02-617-11, et al.

TITLE: EMBANKMENT PROTECTION FOR BOX CULVERTS

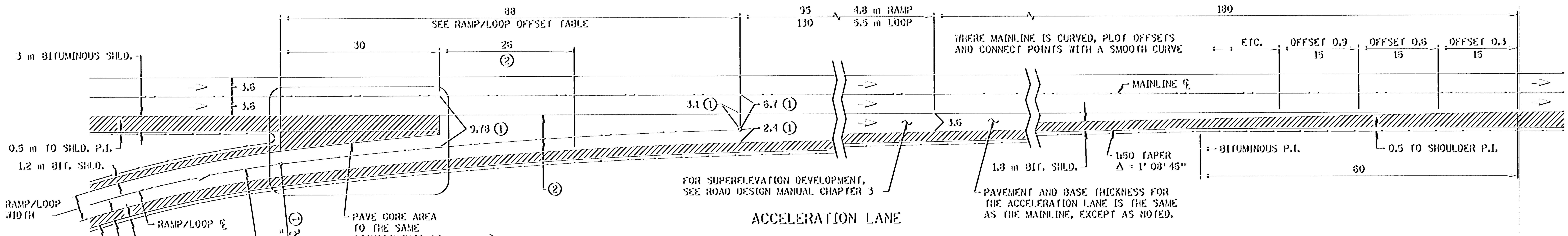
SHEET NO. 95 OF 236 SHEETS

SERVER CA64SH:/USR/STANDARDS FILE NAME 5425455.SPN

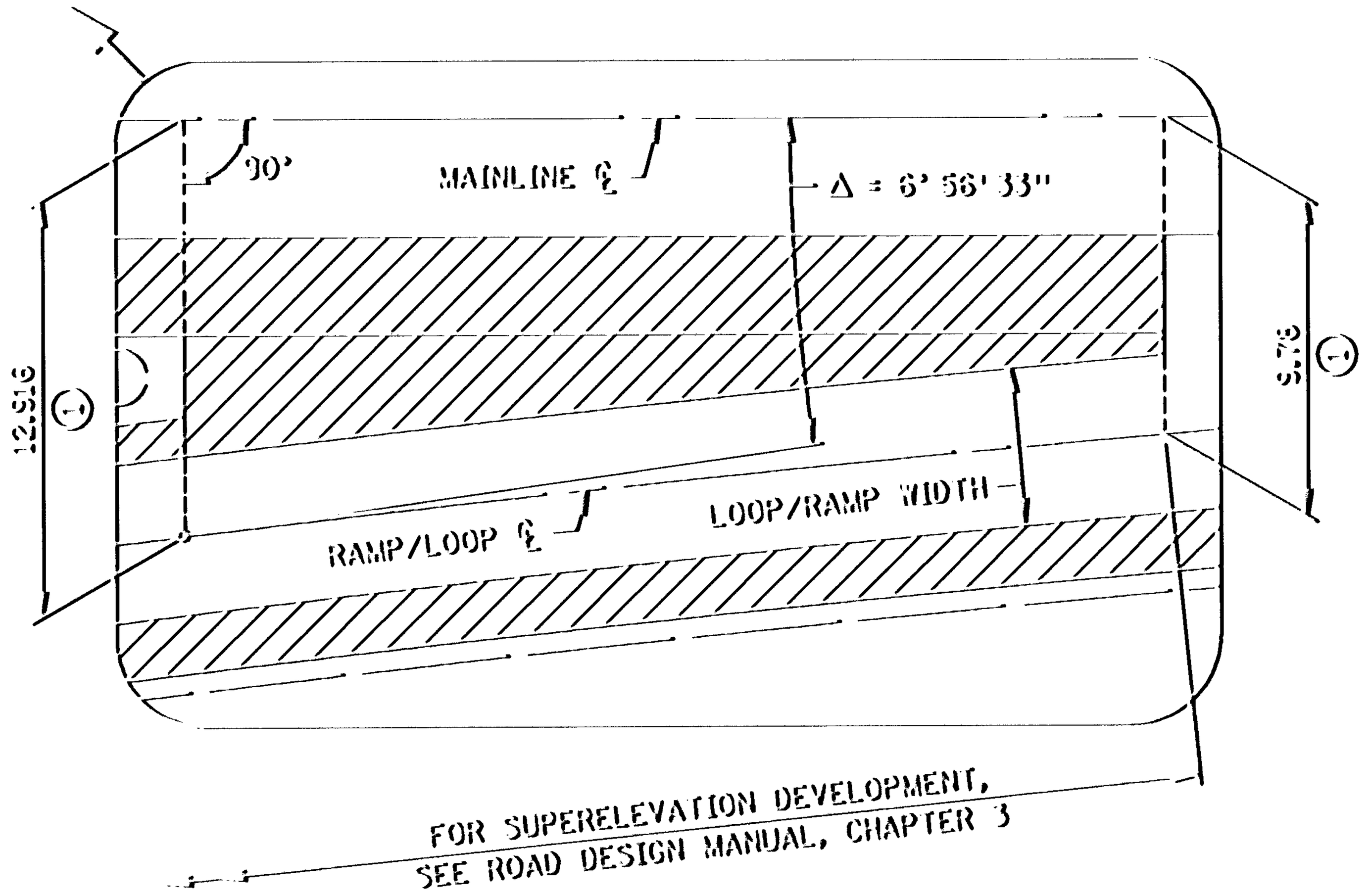
NAME: BC6 410.PLN DATE: Mar. 17, 1997



DECELERATION LANE



ACCELERATION LANE



4.8 m RAMP/LOOP OFFSET TABLE FOR APPROX. 875 m R. CURVE (1)

OFFSET FROM MAINLINE ℄ TO RAMP/LOOP ℄

DISTANCE	0	6	12	18	24	30	36	42	48
OFFSET	6.706	6.843	7.030	7.255	7.522	7.831	8.179	8.585	9.020
DISTANCE	54	58	60	66	72	78	84	88	
OFFSET	9.450	9.779	9.960	10.521	11.124	11.769	12.459	12.916	

NOTES:

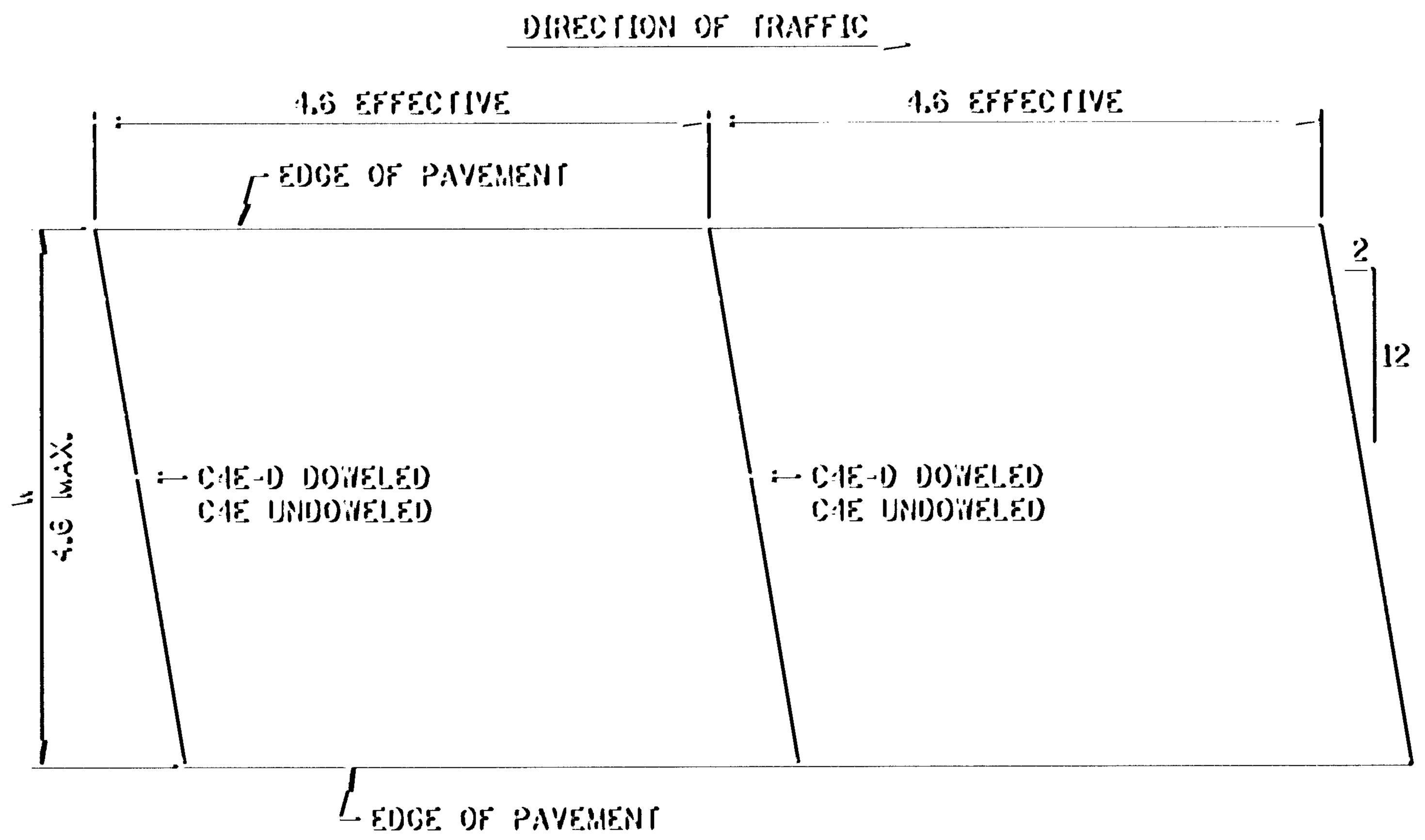
(1) WHEN IT IS NECESSARY FOR RAMPS/LOOPS TO BE WIDER, SEE ROAD DESIGN MANUAL TABLE CHAPTER 6, WIDENING SHALL BE DONE ON THE OUTSIDE AND THE TAPER LENGTH INCREASED ACCORDINGLY.

(2) THE AREA SHOWN SHALL BE GRADED FOR MAINLINE DEPTH. THE RAMP PAVEMENT THICKNESS WILL BE USED WITH ADDITIONAL DEPTH CORRECTED IN THE AGGREGATE BASE, OR GRADING MATERIAL, DEPENDING ON THE SURFACING TYPE.

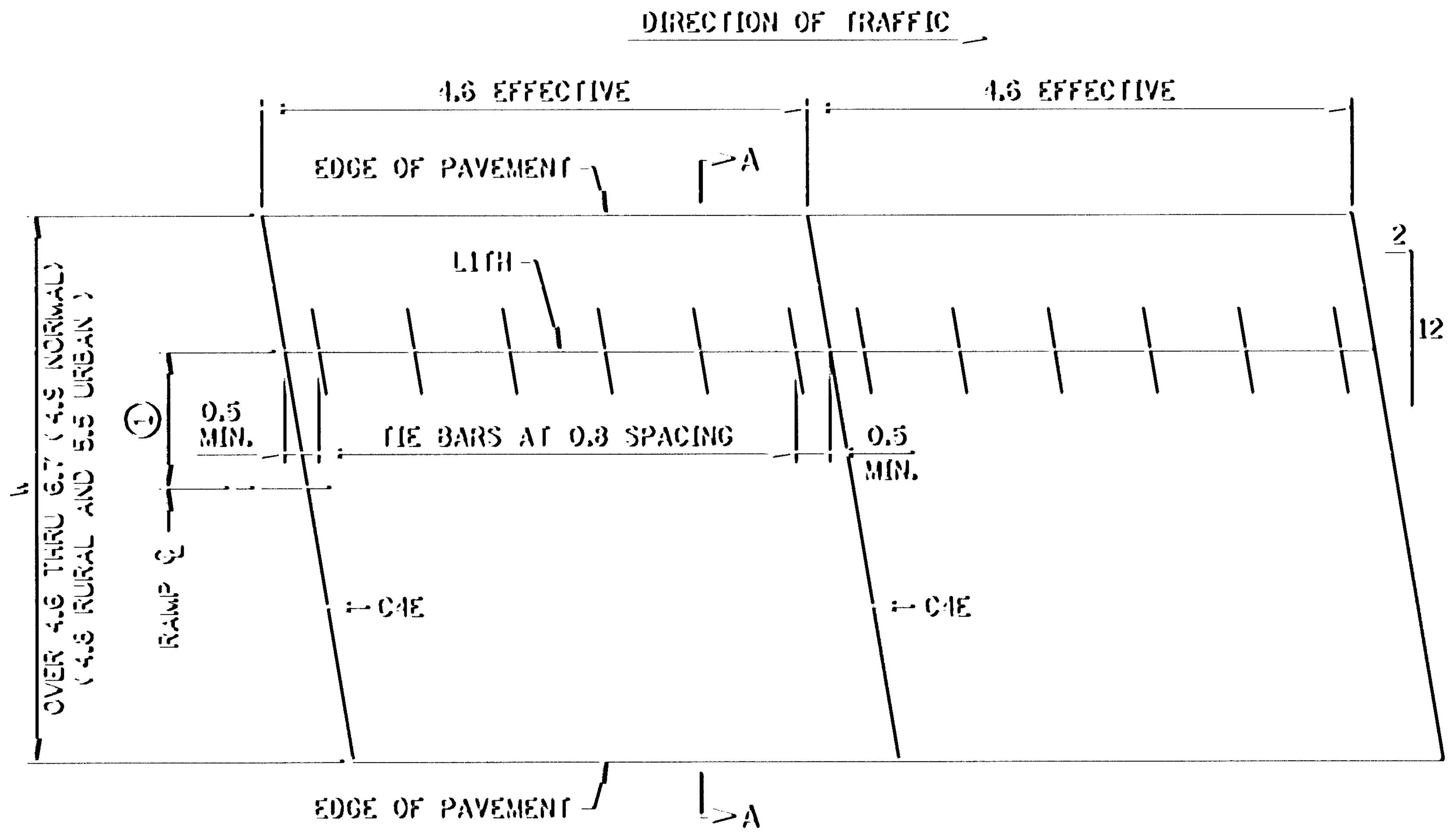
NOTE: ALL DIMENSIONS ARE IN METERS, EXCEPT AS NOTED.

STANDARD SHEET NO. 5-297.106M	STANDARD ACCELERATION AND DECELERATION LANES (RURAL) BITUMINOUS PAVEMENT
STANDARD APPROVED: JULY 30, 1991	

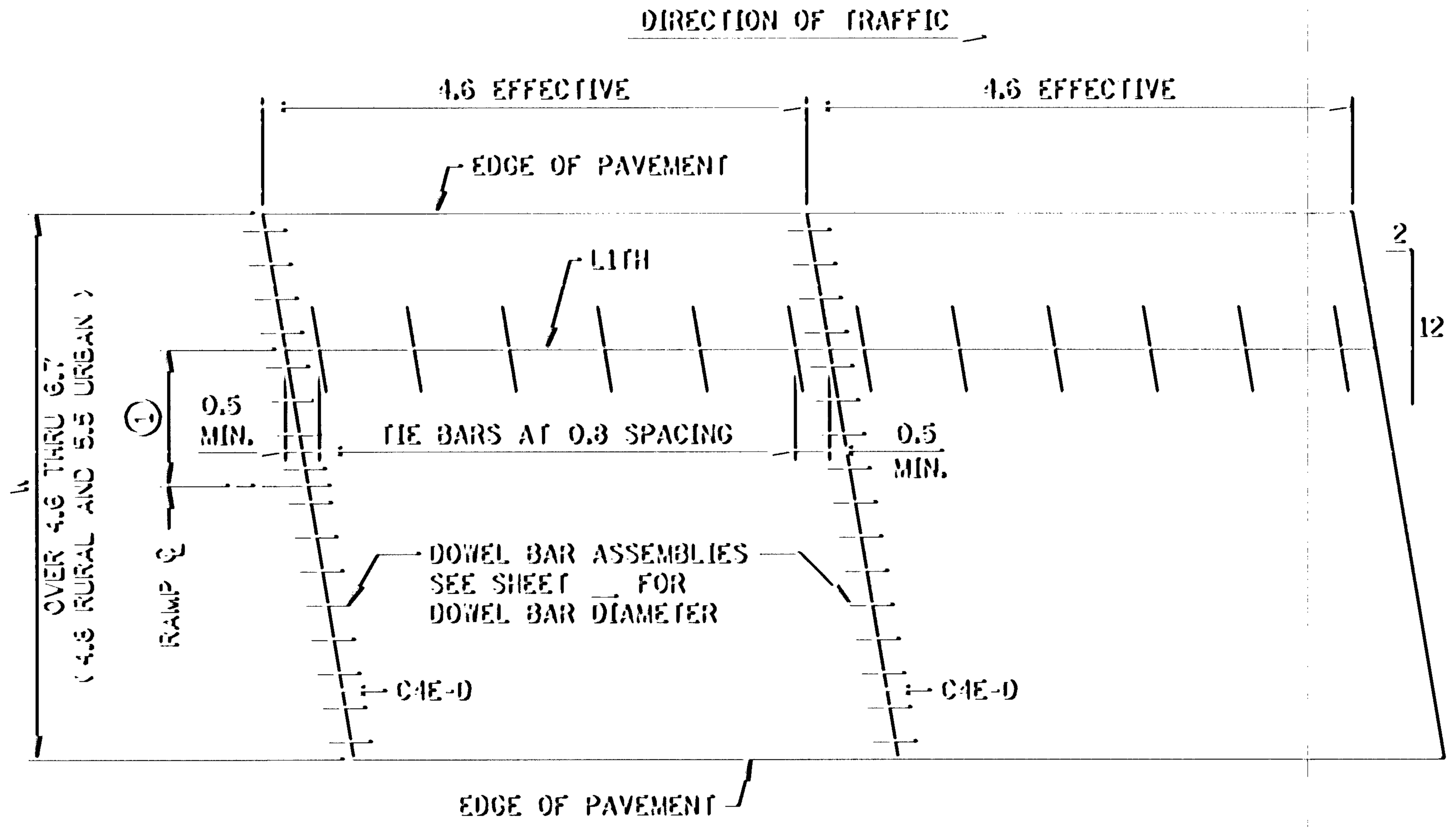
2-14-96 S.A.P. 02-617-11, et al.



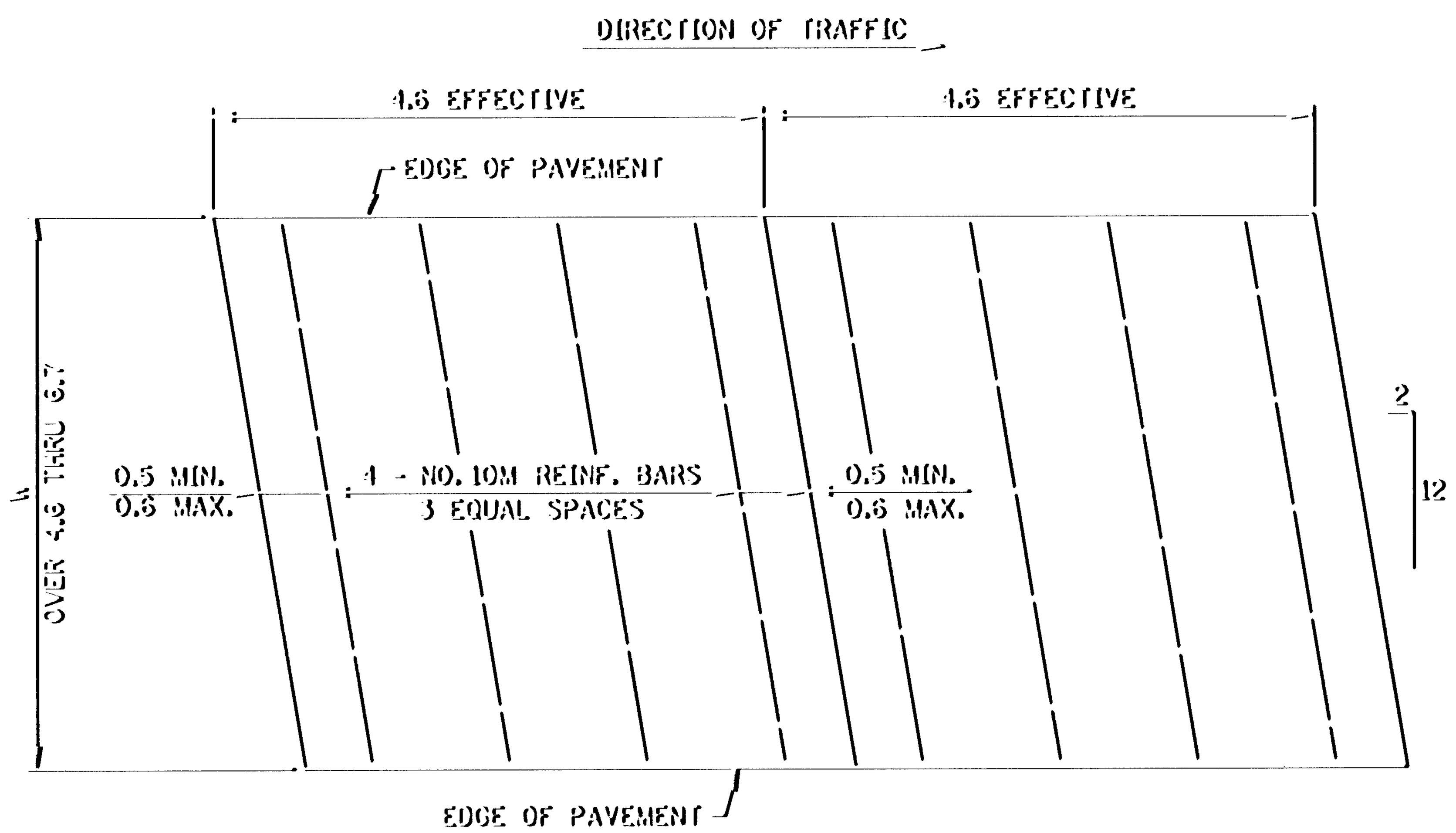
PAVEMENT 0.3 m THRU 4.6 m WIDTH



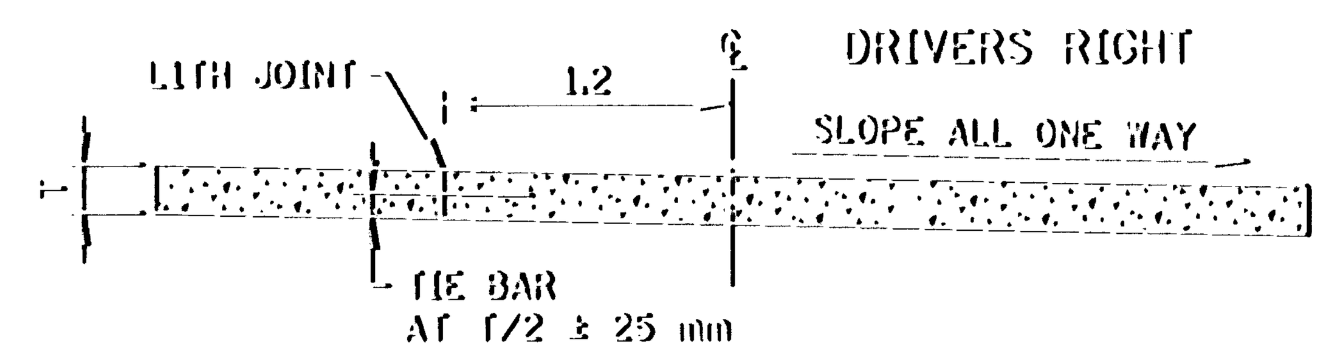
PAVEMENT OVER 4.6 m THRU 6.7 m WIDTH
UNDOWELED



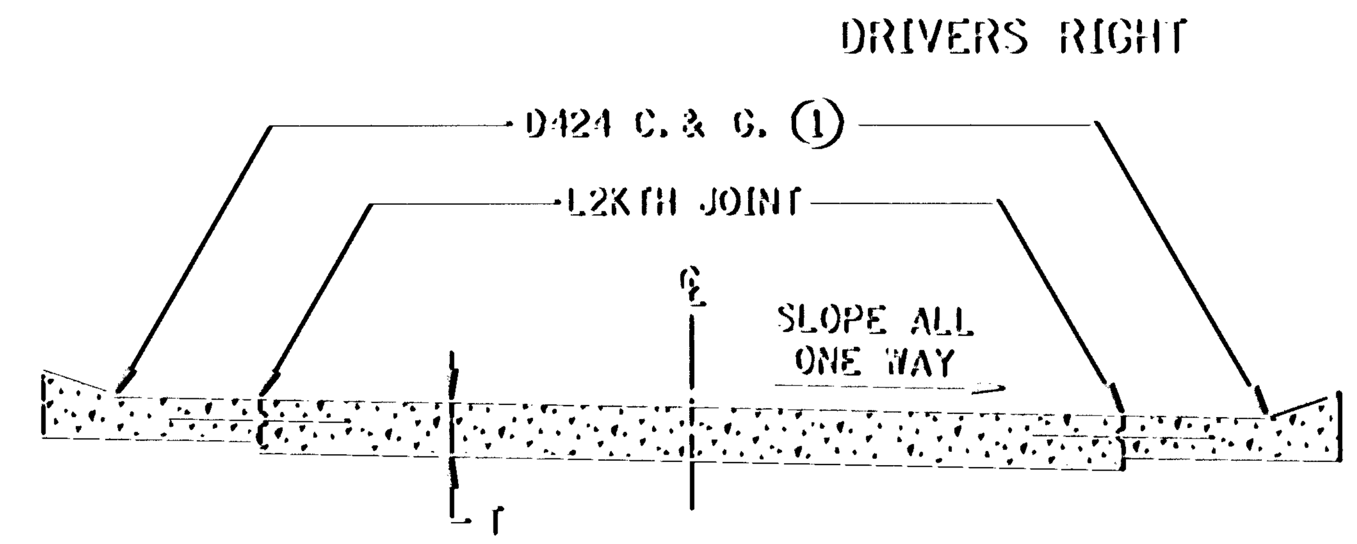
PAVEMENT OVER 4.6 m THRU 6.7 m WIDTH
DOWELED



SUPPLEMENTAL PANEL REINFORCEMENT
PANELS OVER 4.6 m THRU 6.7 m WIDTHS



RURAL DESIGN RAMP
SECTION A-A



URBAN DESIGN RAMP
CROSS SECTION

GENERAL NOTES:

WHEN RIGID PAVEMENT ADJOINS FLEXIBLE PAVEMENT, BRIDGE APPROACHES, R.R. CROSSINGS OR OTHER TYPES OF FREE ENDS, THE FOLLOWING MODIFICATIONS SHALL BE MADE: THE FIRST OR LAST 10 JOINTS SHALL BE DOWELED CONTRACTION JOINTS, C4E-D (SKEWED). TIE BARS SHALL BE SPACED AS SHOWN, EXCEPT THE FIRST AND LAST TIE BAR OF EACH PANEL SHALL BE 0.5 m FROM AND PARALLEL TO THE CONTRACTION JOINT.

4.6 m EFFECTIVE JOINT SPACING IS ACTUALLY 4.0 m, 4.9 m, 4.3 m, 5.2 m AND REPEAT JOINT SPACING.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE M1103.

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS T.

FOR URBAN DESIGN RAMPS, DELETE L1T JOINT ON LEFT SIDE OF RAMP AND USE URBAN DESIGN RAMP CROSS-SECTION.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 420 FOR AASHTO M-31M OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE M1070.

TIE BARS:
FOR PAVEMENT THICKNESSES 250 mm OR LESS, USE NO. 10M BARS 0.8 m LONG, AT 0.8 m SPACING.
FOR PAVEMENT THICKNESSES OVER 250 mm USE NO. 15M BARS 0.90 m LONG AT 0.8 m SPACING.

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTHS EXCEED 4.8 m WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE WHERE TIED PAVEMENT WIDTHS EXCEED 9.1 m. USE NO. 10M BARS FOR PAVEMENT THICKNESSES 250 mm OR LESS. USE NO. 15M BARS FOR THICKNESSES OVER 250 mm PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 25 mm.

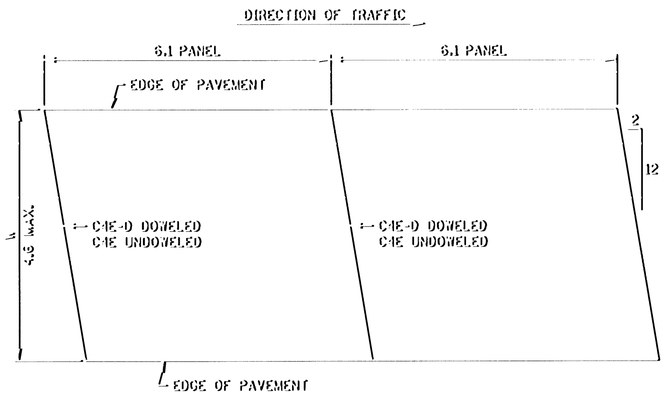
SPECIFIC NOTES:

(1) THE CONTRACTOR SHALL HAVE THE OPTION TO CONSTRUCT INTEGRANT CURBS WITH ONE L1T JOINT, LOCATED 1.2 m FROM THE RAMP ℄ ON THE DRIVERS LEFT SIDE, IN PLACE OF D424 CURB AND GUTTERS WITH L2KT JOINTS. IN EITHER OPTION, DOWEL BAR ASSEMBLIES WILL NOT BE REQUIRED IN THE CURB AND GUTTER AREA. PAYMENT WILL BE BASED ON THE D424 CURB AND GUTTER OPTION, REGARDLESS OF THE METHOD OF CONSTRUCTION USED.

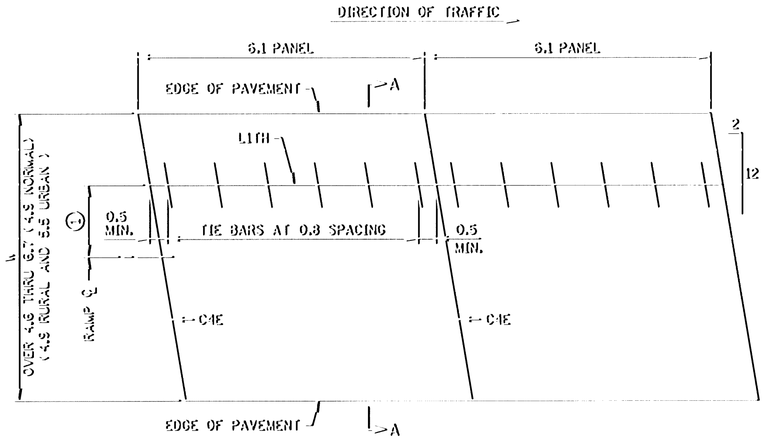
NOTE: ALL DIMENSIONS ARE IN METERS, EXCEPT AS NOTED.

STANDARD SHEET NO.
5-297.219M (1 OF 2)
STANDARD APPROVED:
JANUARY 25, 1993

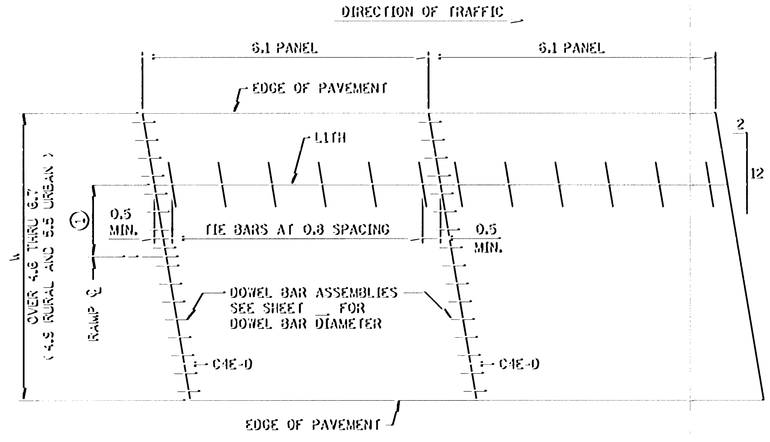
TITLE:
NON-REINFORCED CONCRETE RAMP PAVEMENT WITH SKEWED JOINTS
4.6 m EFFECTIVE PANELS (T = 250 mm OR LESS)



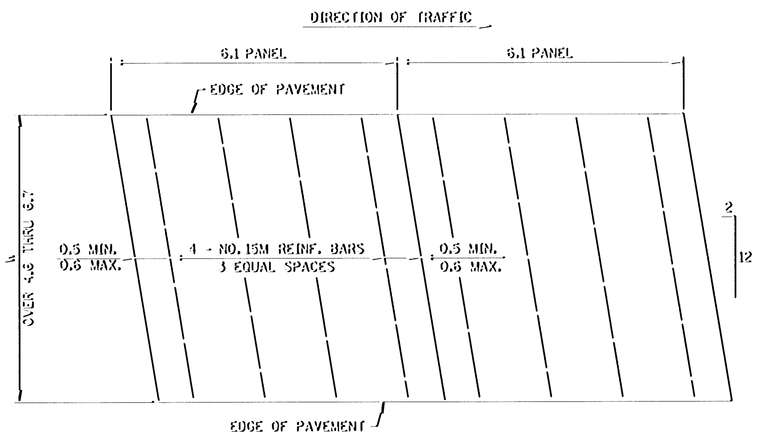
PAVEMENT 0.3 m THRU 4.6 m WIDTH



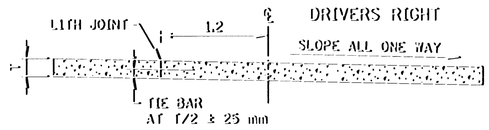
PAVEMENT OVER 4.6 m THRU 6.7 m WIDTH
UNDOWELED



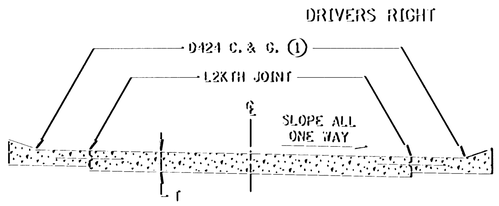
PAVEMENT OVER 4.6 m THRU 6.7 m WIDTH
DOWELED



SUPPLEMENTAL PANEL REINFORCEMENT
PANELS OVER 4.6 m THRU 6.7 m WIDTHS



RURAL DESIGN RAMP
SECTION A-A



URBAN DESIGN RAMP
CROSS SECTION

GENERAL NOTES:

WHEN RIGID PAVEMENT ADJOINS FLEXIBLE PAVEMENT, BRIDGE APPROACHES, R.R. CROSSINGS OR OTHER TYPES OF FREE ENDS, THE FOLLOWING MODIFICATIONS SHALL BE MADE: THE FIRST OR LAST 10 JOINTS SHALL BE DOWELED CONTRACTION JOINTS, C 4E-D (SKEWED). TIE BARS SHALL BE SPACED AS SHOWN, EXCEPT THE FIRST AND LAST TIE BAR OF EACH PANEL SHALL BE 0.5 m FROM AND PARALLEL TO THE CONTRACTION JOINT.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE M1103.

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS T.

FOR URBAN DESIGN RAMPS, DELETE LIT JOINT ON LEFT SIDE OF RAMP AND USE URBAN DESIGN RAMP CROSS-SECTION.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 420 FOR AASHTO M-31M OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE M1070.

TIE BARS:
USE NO. 15M BARS 0.9 m LONG, AT 0.8 m SPACING.

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE NO. 15M BARS IN PANELS WHERE PAVEMENT WIDTHS EXCEED 4.8 m WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE WHERE TIED PAVEMENT WIDTHS EXCEED 9.1 m PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 25 mm.

SPECIFIC NOTES:

(1) THE CONTRACTOR SHALL HAVE THE OPTION TO CONSTRUCT INTEGRANT CURBS WITH ONE LITH JOINT, LOCATED 1.2 m FROM THE RAMP ℄ ON THE DRIVERS LEFT SIDE, IN PLACE OF D424 CURB AND GUTTERS WITH L2KTH JOINTS. IN EITHER OPTION, DOWEL BAR ASSEMBLIES WILL NOT BE REQUIRED IN THE CURB AND GUTTER AREA. PAYMENT WILL BE BASED ON THE D424 CURB AND GUTTER OPTION, REGARDLESS OF THE METHOD OF CONSTRUCTION USED.

NOTE: ALL DIMENSIONS ARE IN METERS, EXCEPT AS NOTED.

STANDARD SHEET NO. S-297.219M (2 OF 2)	TITLE: NON-REINFORCED CONCRETE RAMP PAVEMENT WITH SKEWED JOINTS 6.1 m PANELS (T = GREATER THAN 250 mm)
STANDARD APPROVED: JANUARY 25, 1993	

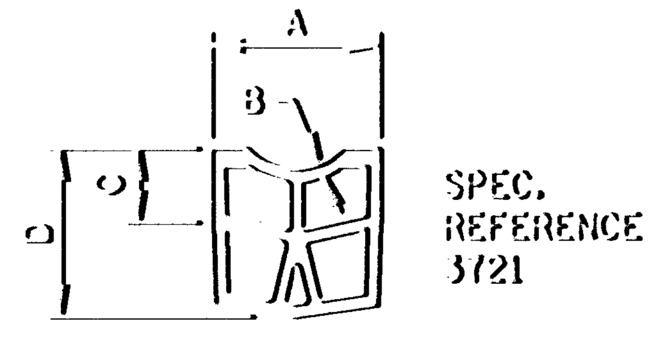
3-6-95 | S.A.P. 02-617-11, et al. | SHEET NO. 98 OF 236 SHEETS

NAME: STD4 410.PLN DATE: Mar. 17, 1997

SERVER: CABSS1:/USR/STANDARDS FILE NAME: SM2192A93.SPA

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	21 mm USE IN ALL 10 JOINTS
A	20 mm +3.6 -1.3
B	2 mm ±0.5
C	15 mm MIN.
D	20 mm MIN.
WEB AND WALL THICKNESS, UNLESS NOTED	0.8 mm MIN.

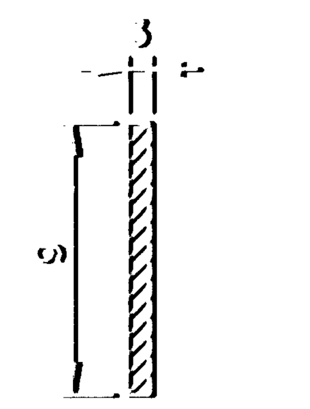


TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

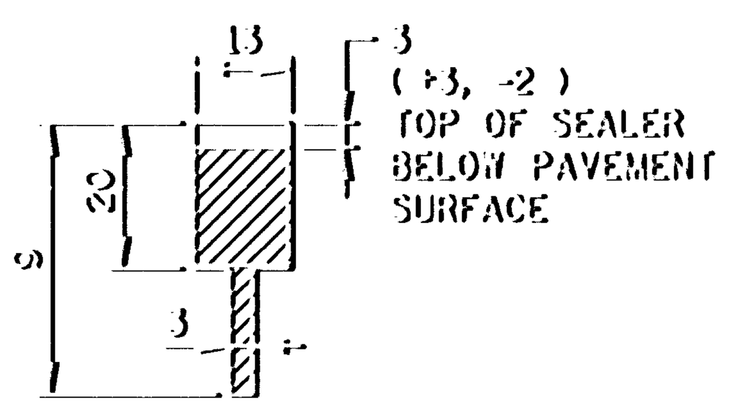
NOTES:
"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 3 mm, NOR MORE THAN 7 mm BELOW THE PAVEMENT SURFACE.

SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

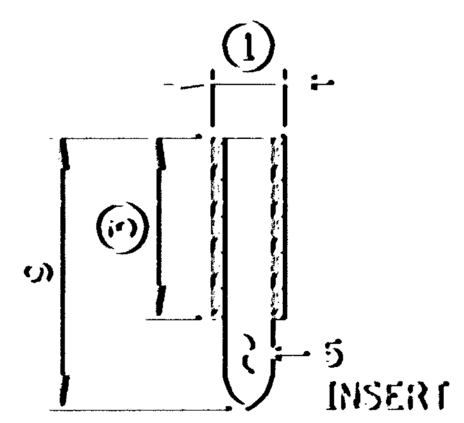
CONTRACTION JOINT SEALER
PREFORMED ELASTIC TYPE



DETAIL A
FORMED & SAWED



DETAIL B ②
SAWED



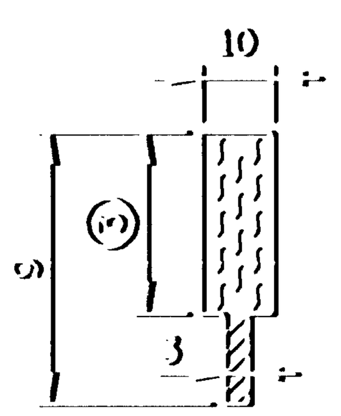
DETAIL C
FORMED
(INSERT TO BE REMOVED)

CONTRACTION JOINT CLASS DESIGNATION, DETAIL & SEALER SPEC. TABLE

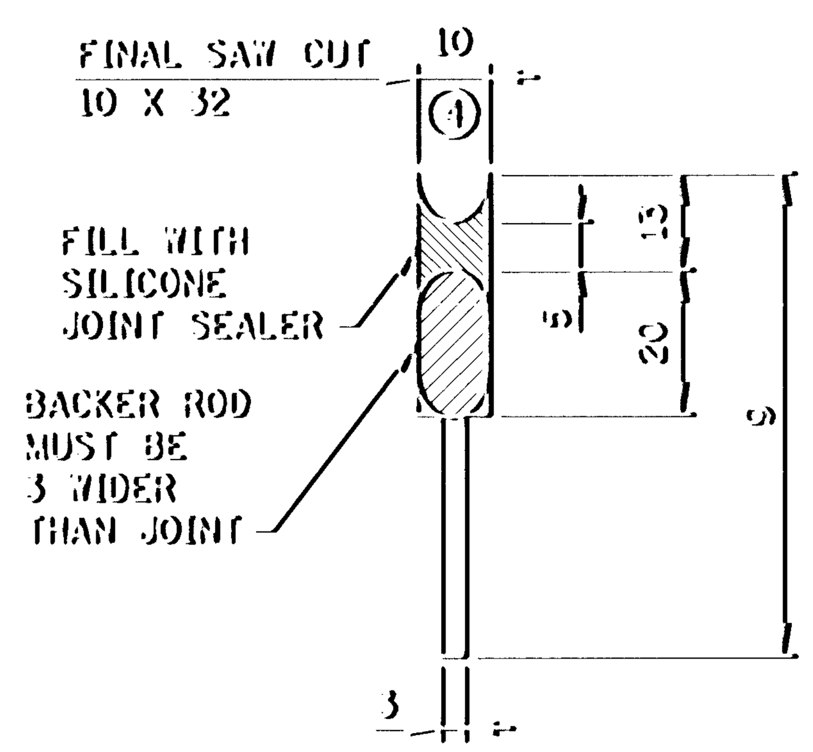
CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1A	C1A-D	A	UNSEALED
C2B	C2B-D	B	3723
C2X	C2X-D	B OR C	3723
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	SILICONE

CONTRACTION JOINT DEPTH & DOWEL BAR TABLE

	PAVEMENT THICKNESS T	CONCRETE PAVEMENT JOINT DEPTH G ⑤	CONCRETE BASE JOINT DEPTH G	DOWEL BAR DIAMETER
	150-170	45	35	20
Ⓐ	180-210	50	40	35
	220-270	65	50	35
	280-320	80	—	40
	330-360	90	—	45



DETAIL D
SAWED

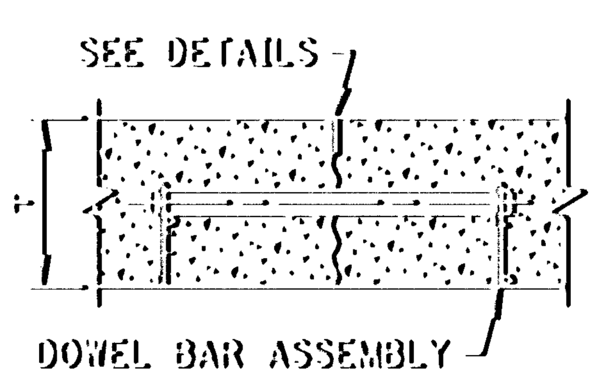


DETAIL E
SAWED

LEGEND

C = CONTRACTION JOINT
NO. = SEALANT TYPE
1 = UNSEALED
2 = 3723
3 = 3721
4 = SILICONE
LETTER = DETAIL
X = MORE THAN 1 DETAIL
-D = DOWEL BARS

EXAMPLE
C2B-D



SECTION AT JOINT

CONTRACTION JOINT NOTES:
IN CONCRETE BASE CONSTRUCTION THE CONTRACTION JOINTS SHALL BE SPACED AT 9 m INTERVALS AND AT RIGHT ANGLES TO THE LONGITUDINAL JOINTS, EXCEPT AS NOTED BELOW. WHERE THE CONCRETE BASE IS CONSTRUCTED ADJACENT TO EXISTING PAVEMENT OR BASE, THE CONTRACTION JOINTS IN THE NEW BASE SHALL MATCH THOSE IN THE EXISTING PAVEMENT OR BASE, EXCEPT THAT THE SPACING SHALL NOT BE LESS THAN 4.6 m, NOR MORE THAN 9 m.

JOINT WIDTH TOLERANCES: + 2 mm AND - 1 mm.

GENERAL NOTES:
SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEET FOR ADDITIONAL DETAILS: DOWEL BAR ASSEMBLY, M1103; CONSTRUCTION OF HEADER JOINTS, M1150; AND CONCRETE PAVEMENT WITH SKEWED JOINTS, 5-297.215M - .219M.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

NOTES:
① DESIGN C3X OR C3X-D - PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 10 mm BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.

DESIGN C2X OR C2X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C), WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH WIDTH OF 13 mm FOR A DEPTH OF 20 mm, + 3 mm, 2 mm, BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT. THE SEALER SHALL BE FILLED TO THE SAME DEPTH AS SHOWN IN DETAIL B.

② DESIGN C2B OR C2B-D - PRIOR TO SEALING JOINT (DETAIL B) WITH HOT POUR JOINT SEALER, A STRIP OF PAPER 13 mm WIDE SHALL BE PLACED ON THE BOTTOM OF THE 13 mm WIDE JOINT.

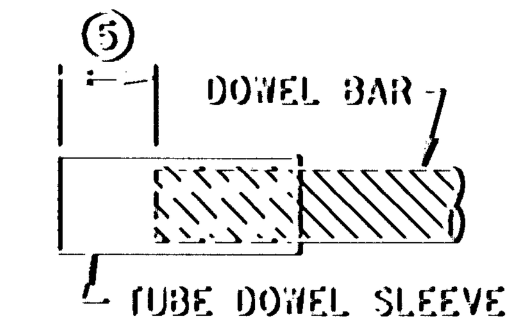
③ WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 5 mm MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH.

④ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 13 mm DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 13 mm BELOW THE SURFACE OF THE PAVEMENT. SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 5 mm.

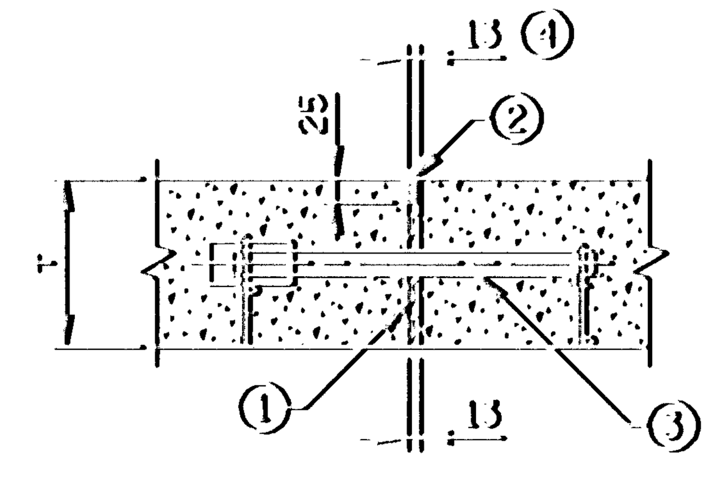
⑤ FOR UNBONDED OVERLAYS, THE JOINT DEPTH "G" SHALL BE T/3.

CONTRACTION JOINTS
DESIGN C

Ⓐ NOTE: REVISED DOWEL BAR TO 35mm FOR 180-210mm PAVEMENT THICKNESS

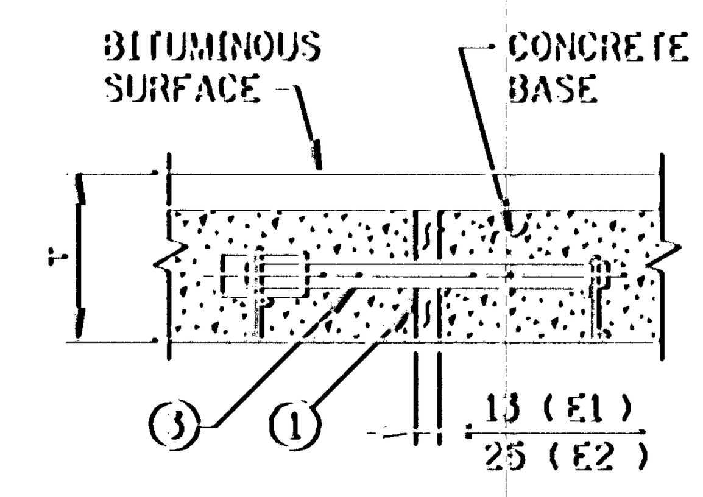


DOWEL BAR SLEEVE DETAIL



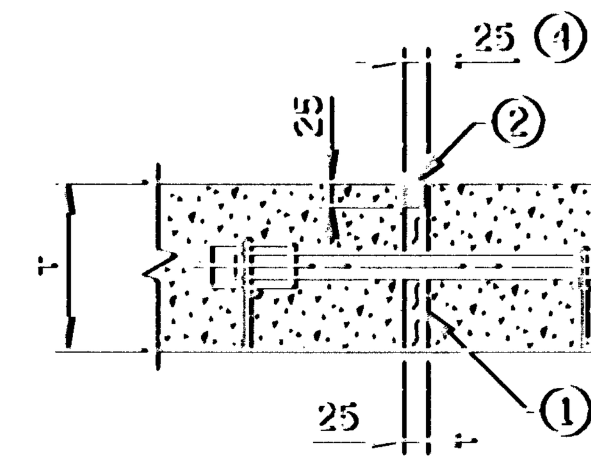
E1D-1 (W/DOWELS) E1-1 (W/O DOWELS)

DETAIL A



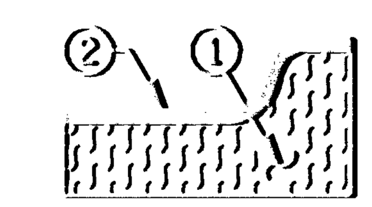
E1DB & E2DB (W/DOWELS) E1B & E2B (W/O DOWELS)

DETAIL B

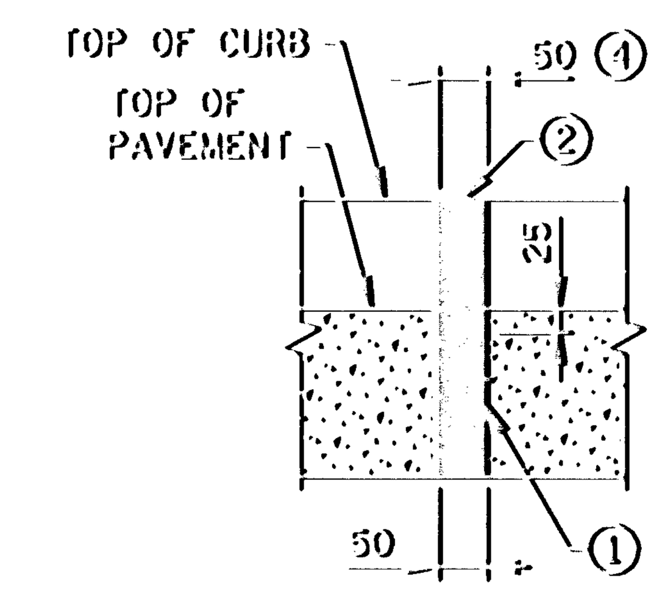


E2D-1 (W/DOWELS) E2-1 (W/O DOWELS)

DETAIL C

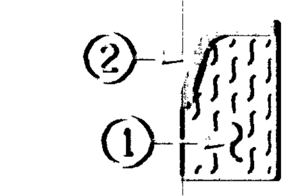


SECTION THRU CURB
E2-1

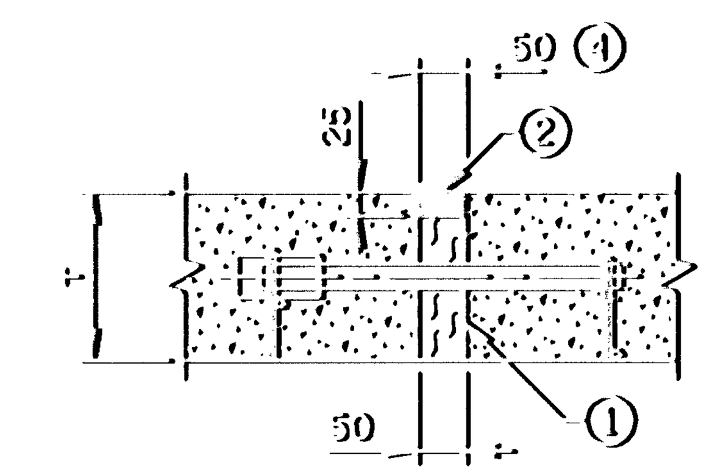


E4-1 (W/O DOWELS)

DETAIL D



SECTION THRU CURB
E4-1



E4D-1 (W/DOWELS)

DETAIL E

EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D-1	E1-1	A	②
E1DB	E1B	B	UNSEALED
E2D-1	E2-1	C	②
E2DB	E2B	B	UNSEALED
	E4-1	D	②
E4D-1		E	②

LEGEND

E = EXPANSION JOINT
NO. = JOINT REFERENCE
-1 = HOT POURED SEAL ②
D = DOWEL BARS
B = CONCRETE BASE
S = CONCRETE SILL

EXAMPLE
E1D-1
- HOT POURED SEAL ②
- DOWEL BARS
- JOINT REFERENCE
- EXPANSION JOINT

NOTES:
① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

② JOINT SEALER SPEC. 3723. TOP OF SEALER, FLUSH TO 3 mm BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE (0 IN.) ± 3 mm.

③ DOWEL BAR ASSEMBLY, SEE STANDARD PLATE M1103.

④ JOINT WIDTH IS EQUAL TO HALF OF THE JOINT NUMBER IN 13 mm. INTERVALS (i.e. E1 = 13 mm, E2 = 25 mm, E3 = 38 mm, E4 = 50 mm, E8 = 100 mm).

⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.

EXPANSION JOINTS
DESIGN E

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

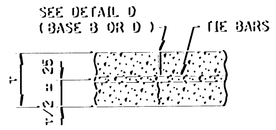
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Donald A Diemes
Date 3-21-97 Reg. No. 23397

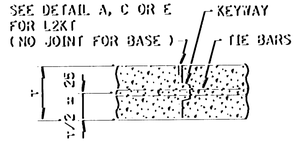
STANDARD SHEET NO.
~~5-297.221M~~ (1 OF 2)
STANDARD APPROVED:
JANUARY 25, 1993

TITLE:
PAVEMENT JOINTS (MODIFIED)
CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

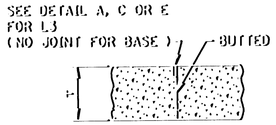
S.A.P. 02-617-11, et al.



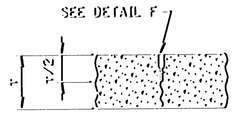
L1, L1T, L1B & L1TB



L2KT & L2KTB



L3 & L3B



L4

LONGITUDINAL JOINT CLASS DESIGNATION, DETAIL & SEALER SPECIFICATION TABLE

CLASS DESIGNATION				JOINT DETAIL	JOINT SEALER SPECIFICATION
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS	BUTTED		
L1H	L1TH			B	3/23
L1HU	L1THU			A OR B	UNSEALED
		L2KTH		D OR E	3/23
		L2KTS		C	SILICONE
			L3H	D OR E	3/23
			L3S	C	SILICONE
L4S				F	SILICONE

LEGEND

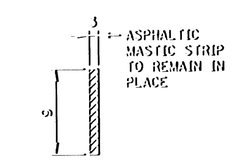
L = LONGITUDINAL JOINT
NO. = JOINT REFERENCE
K = KEYWAY
T = TIE BARS
B = CONCRETE BASE
U = UNSEALED
H = HOT POUR
S = SILICONE

JOINT REFERENCE NUMBERS

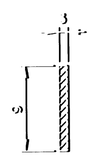
1 = SAWED TO A DEPTH OF T/3
2 = KEYED CONSTRUCTION JOINT
3 = BUTTED CONSTRUCTION JOINT
4 = SAWED TO A DEPTH OF T/2

LONGITUDINAL JOINT DEPTH TABLE

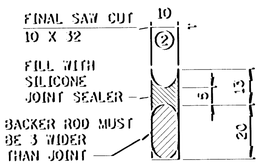
PAVEMENT THICKNESS T	CONCRETE PAVEMENT JOINT DEPTH D	CONCRETE BASE JOINT DEPTH D
150	50	50
165	55	50
180	57	57
190	65	57
205	68	65
215	73	65
230	75	70
240	83	75
255	86	
265	90	
280	93	
290	98	
300	100	
315	105	
330	113	
345	115	
355	118	



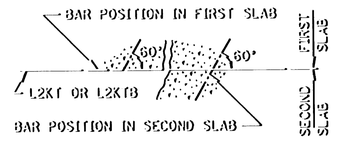
DETAIL A
(FORMED & UNSEALED)



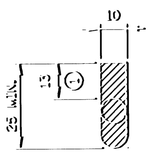
DETAIL B
(SAWED & SEALER, SPEC. 3/23)
(BASE JOINTS UNSEALED)



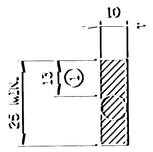
DETAIL C
(SAWED)



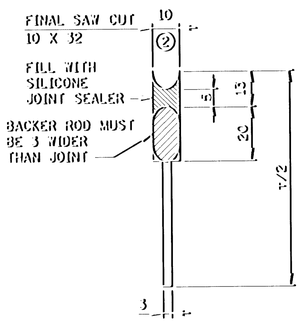
TIE BAR BENDING DETAIL



DETAIL D
(FORMED & SEALED SPEC. 3/23)



DETAIL E
(SAWED & SEALER SPEC. 3/23)



DETAIL F
(SAWED)

LONGITUDINAL JOINT NOTES:

TIE BARS FOR L1TB JOINTS SHALL BE THE SAME SIZE AND SPACING AS SHOWN ON STANDARD PLAN SHEETS 5-297.216M - .219M.

EXCEPT WHEN NOTED OTHERWISE IN THE PLANS, THE TIE BAR SPACING FOR ALL L2KT AND L2KTB JOINTS SHALL BE 0.8 m C. TO C. AND BENT 60° AS SHOWN.

TIE BARS IN THE L2KT AND L2KTB JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T OR L1TB JOINTS, WHEN TYING PAVEMENT TO PAVEMENT OR BASE TO BASE. TIE BARS IN THE L2KT OR L2KTB JOINTS SHALL BE NO. 4 X 0.8 m, WHEN TYING CURB & GUTTER TO PAVEMENT OR BASE.

ALL TIE BARS SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED 8 METERS, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 2 mm TO - 1 mm.

SPEC. 3/23 SEALER - TOP OF SEALER FLUSH TO - 4 mm BELOW TOP OF PAVEMENT SURFACE.

(1) THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 205 DEGREES C, WITH A DIAMETER 3 mm LARGER THAN THE JOINT OPENING, MAY BE PLACED 13 mm BELOW THE TOP OF THE PAVEMENT.

(2) THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 13 mm DIAMETER CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 13 mm BELOW THE SURFACE OF THE PAVEMENT. SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 5 mm.

GENERAL NOTES:

SEE THE FOLLOWING STANDARD PLATES AND STANDARD PLAN SHEETS FOR ADDITIONAL DETAILS: DOWEL BAR ASSEMBLY M1103, PAVEMENT KEYWAY M1141 AND CONCRETE PAVEMENT WITH SKEWED JOINTS 5-297.216M - .219M.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED & SPECIAL REINFORCEMENT REQUIRED.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO.
5-297.221M (2 OF 2)

STANDARD APPROVED:
JANUARY 25, 1993

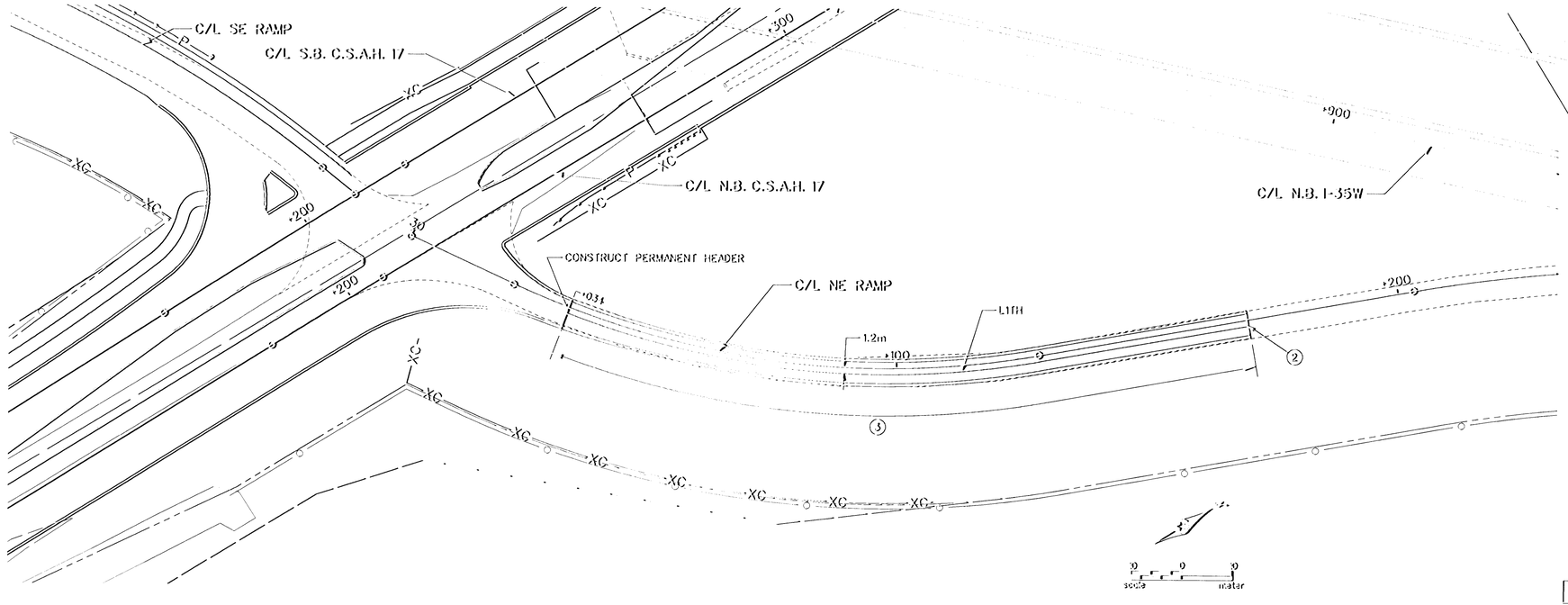
TITLE:
PAVEMENT JOINTS
LONGITUDINAL (DESIGN L)

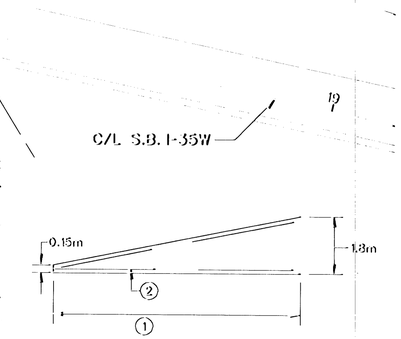
S.A.P. 02-617-11, et al.

SHEET NO. 100 OF 236 SHEETS

SERVER: CAGIS1/USR/STANDARDS FILE NAME: SM221A53.SPN

NAME: STDS 110.PLN DATE: Mar. 17, 1997





DETAIL

NOTES:

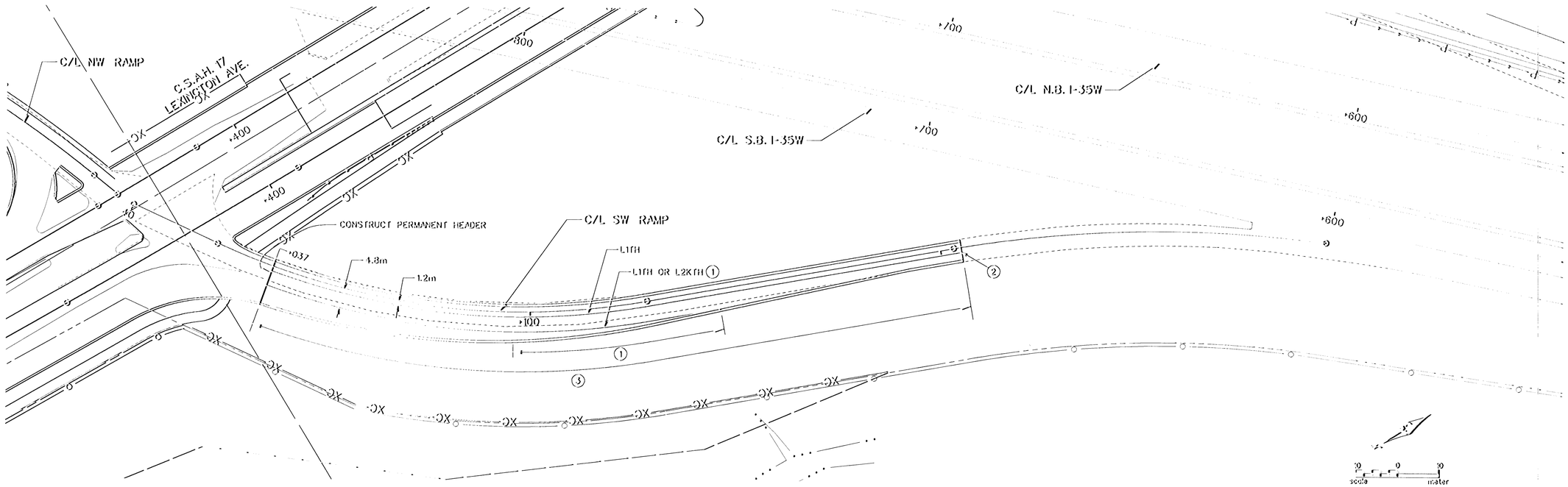
THE LONGITUDINAL JOINT LOCATIONS SHOWN ON THIS SHEET SHALL MODIFY THOSE SHOWN ON THE STANDARD PLAN SHEETS.

(1) IN PAVEMENT TAPER AREAS 1.8m WIDE OR LESS, PLACE A M15 REINFORCEMENT BAR 100mm FROM AND ALONG EACH EDGE OF THE TAPER.

(2) FURNISH AND INSTALL M15 REINFORCING BARS 0.45m LONG DRILLED & GROUTED INTO EXISTING PAVEMENT AT 0.5m C-C SKEWED 20° FROM NORMAL TO BOTH JOINTS. PLACE WITH APPROVED NON-SHRINK GROUT.

(3) CME-D JOINTS (4.6m EFFECTIVE SPACING).

DENOTES NEW CONCRETE PAVEMENT CONSTRUCTION



NO	DATE	BY	CKD	APPR	REVISION

NAME: PJI 110.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Oames

Date 3-21-97 Reg. No. 23317

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF	DATE 12-96
DESIGNED BY D. DEMERS	12-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

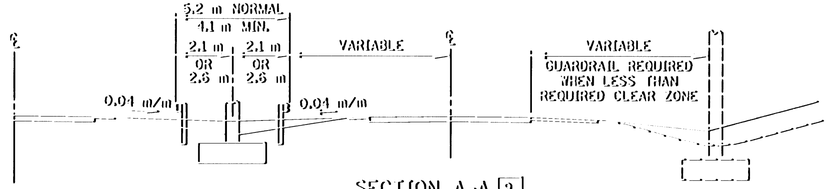
ANOKA COUNTY

PAVEMENT JOINT LAYOUT

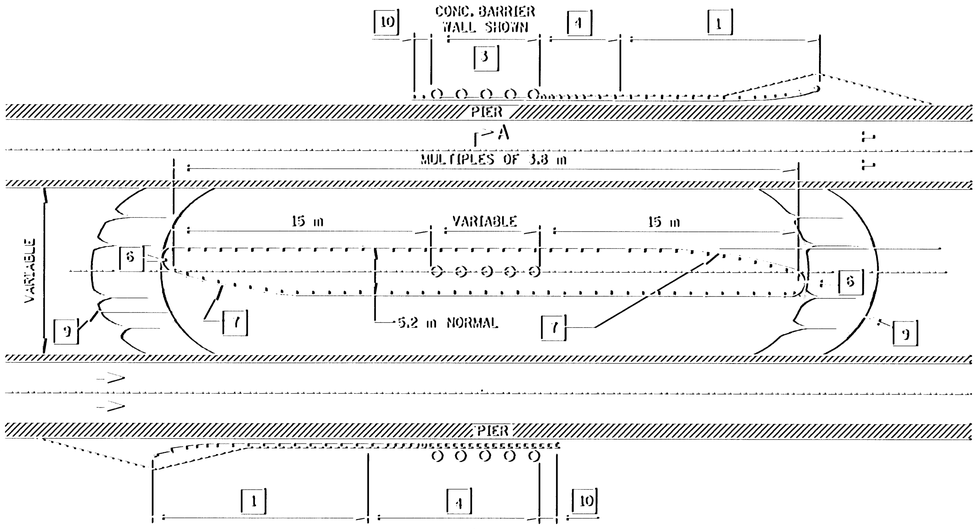
C.S.A.H. 17 RECONSTRUCTION

NE RAMP AND SW RAMP

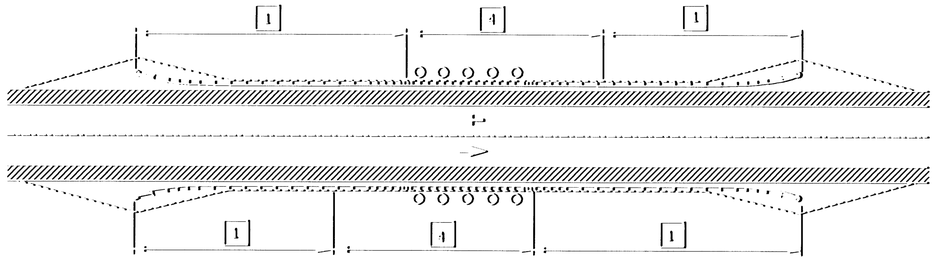
SHEET 101 OF 236



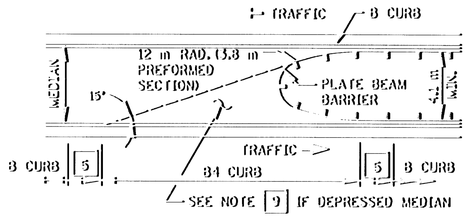
SECTION A-A [9]



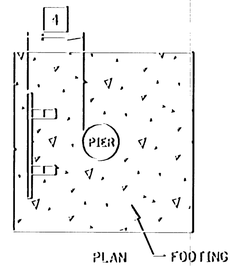
UNDERPASS-DEPRESSED MEDIAN
(DESIGN SPECIAL SHOWN)

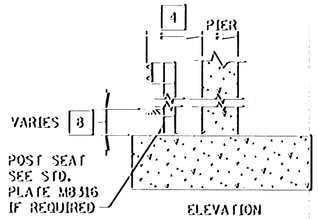


TWO-WAY UNDERPASS
(DESIGN SPECIAL SHOWN)

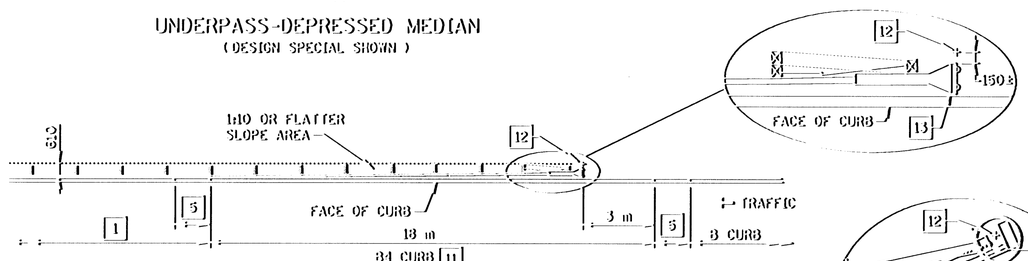


MODIFIED CURB AT MEDIAN
(OPTIONAL GUARDRAIL PLACEMENT SHOWN)

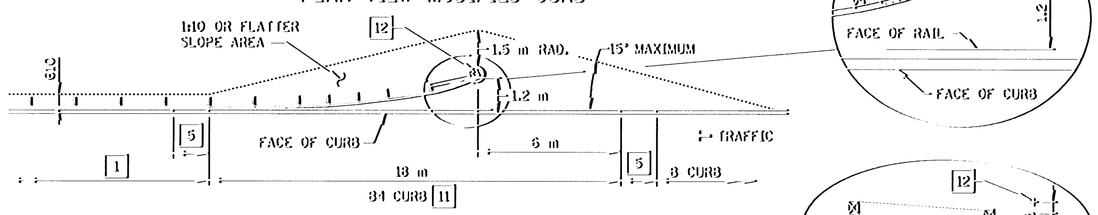




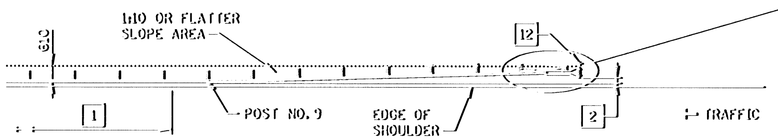
POST REQUIREMENTS



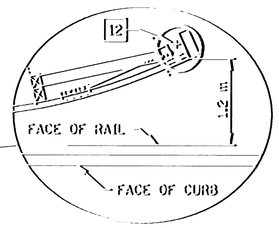
PLAN VIEW MODIFIED CURB

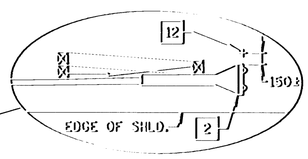


PLAN VIEW MODIFIED CURB AND SLOPE



PLAN VIEW NO CURB





NOTES:

ALL GUARDRAIL POSTS SHALL BE 1.9 m CTR. TO CTR., EXCEPT WHERE NOTED.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

WHEN THE APPROACHING PLATE BEAM FLARE CAN BE BURIED IN THE BACKSLOPE ELIMINATE THE END TREATMENT AND ADD REQUIRED RAIL LENGTH TO REACH BACKSLOPE.

[1] FOR REQUIRED L LENGTH SEE DESIGN MANUAL 10-7.03 FOR DESIGN PARAMETERS SEE STD. PLATE M8329 FOR END TREATMENT SHOWN.

[2] SET EDGE OF EXTRUDER BOX 230 mm FROM FACE OF RAIL EXTENDED FROM POST NO. 9.

[3] CONCRETE BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED. SEE SHEET NO. .. OF .. FOR WALL DETAILS. CONNECT GUARDRAIL TO BARRIER WALL ANCHORAGE PLATE SEE SHEET NO. .. OF .. FOR DETAILS.

[4]

DISTANCE FROM FACE OF RAIL TO HAZARD	GUARDRAIL POST SPACING
OVER 1.2 m	1.9 m
1.2 m TO 600 mm	950 mm
LESS THAN 600 mm	DESIGN SPECIAL & [3]

[5] 1.5 m CURB TRANSITION, USE IF ADJACENT CURB IS A DIFFERENT TYPE OR HEIGHT.

[6] 1.5 m RADIUS NOSE SECTION (3.8 m PREFORMED CURVED RAIL SECTION, SEE DETAIL, ON SHEET 1 OF 2).

[7] 7.6 m OF PREFORMED (12 m RADIUS) RAIL SECTIONS.

[8] IF EMBEDMENT IS GREATER THAN 915 mm OR IF EMBEDMENT IS 760 mm TO 915 mm AND ADJACENT POSTS ARE EMBEDDED 915 mm OR MORE, POST SEAT IS NOT REQUIRED.

[9] THE MEDIAN DITCH SHALL BE FILLED TO PROVIDE AN ELEVATION OF GUARDRAIL APPROXIMATELY (WITHIN 150 mm±) THE SAME AS IF INSTALLED ON THE SHOULDER. EXTEND FILL TO GUARDRAIL NOSE AND TAPER TO MEDIAN DITCH ON 1:10 SLOPE.

[10] 3800 mm MINIMUM, IF ONE WAY TRAFFIC.

[11] IF 150 mm+ HIGH CURB, MILL TO 75 mm HEIGHT. NEW: CONSTRUCT 100 mm HIGH CURB.

[12] SNOW PLOW MARKER (X4-5) WITH A 3 kg/m DELINEATOR POST 2.4 m LG. (SPEC. 3401) DRIVEN INTO GROUND. EXTEND 915 mm ABOVE TERMINAL.

[13] SET EDGE OF EXTRUDER BOX 230 mm FROM FACE OF CURB.

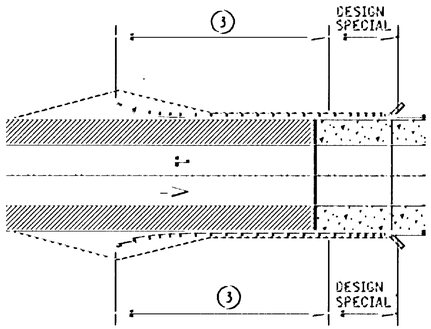
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO.	TITLE:
5-297.601M (1 OF 2)	GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: MARCH 17, 1994	

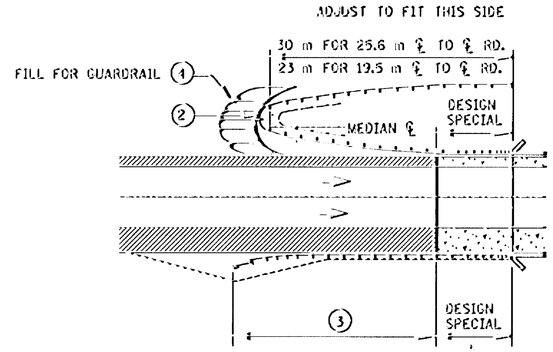
NAME: GRP1-410.PLN DATE: Mar. 17, 1997

3-1-95

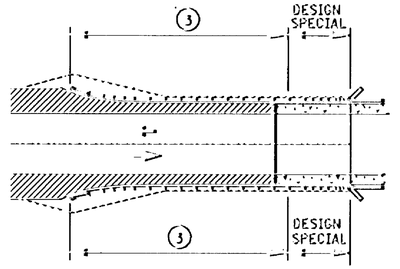
S.A.P. 02-617-11, et al. SHEET NO. 102 OF 236 SHEETS



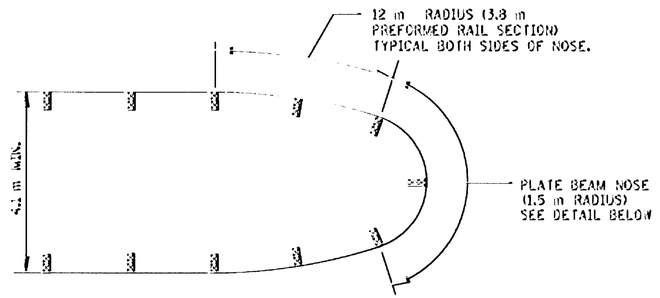
TWO - WAY BRIDGE
WITH FULL SHOULDERS



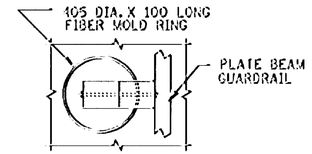
ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER



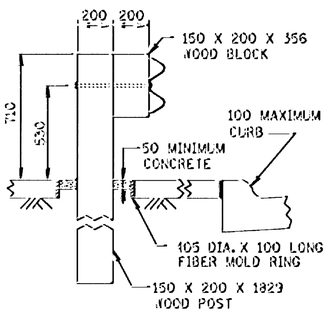
TWO - WAY BRIDGE
WITHOUT FULL SHOULDERS



OPTIONAL GUARDRAIL INSTALLATION (1)



PLAN VIEW



ELEVATION

TYPICAL SECTION AT POST
SET IN CONCRETE

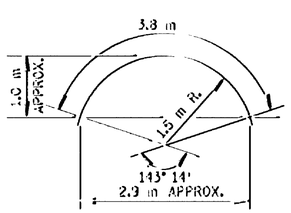


PLATE BEAM NOSE (5)
(1.5 m RADIUS)

NOTES:

ALL GUARDRAIL POSTS SHALL BE 1.9 m CTR. TO CTR., EXCEPT WHERE NOTED.

WHEN THE APPROACHING PLATE BEAM FLARE CAN BE BURIED IN THE BACKSLOPE ELIMINATE THE END TREATMENT AND ADD REQUIRED RAIL LENGTH TO REACH BACKSLOPE.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

(1) OPTIONAL GUARDRAIL AS DETERMINED BY THE DESIGNER AND SPECIFIED ON SHEET NO. ____ OF ____.

(2) 1.5 m RADIUS NOSE SECTION (3.8 m PREFORMED CURVED RAIL SECTION, SEE DETAIL).

(3) FOR THE REQUIRED L LENGTH SEE ROAD DESIGN MANUAL 10-7.03 FOR DESIGN PARAMETERS. SEE STANDARD PLATE M8323 FOR END TREATMENT SHOWN.

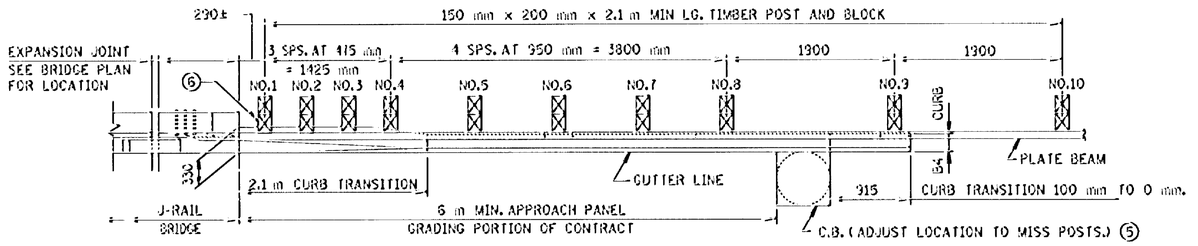
(4) THE MEDIAN DITCH SHALL BE FILLED TO PROVIDE AN ELEVATION OF GUARDRAIL APPROXIMATELY (WITHIN 150 mm±) THE SAME AS IF INSTALLED ON THE SHOULDER. EXTEND FILL TO GUARDRAIL NOSE AND TAPER TO MEDIAN DITCH ON 10:1 SLOPE.

(5) STANDARD PLATE BEAM GUARDRAIL SECTION HAVING STANDARD PUNCHING AT BOTH ENDS WITH INTERMEDIATE 19 mm X 62 mm SLOT. SEE STANDARD PLATE M8307.

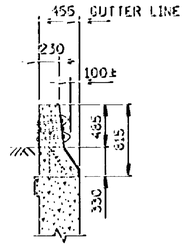
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO. 5-297.601M (2 OF 2)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: MARCH 17, 1994	
S.A.P. 02-617-11, et al.	SHEET NO. 103 OF 236 SHEETS

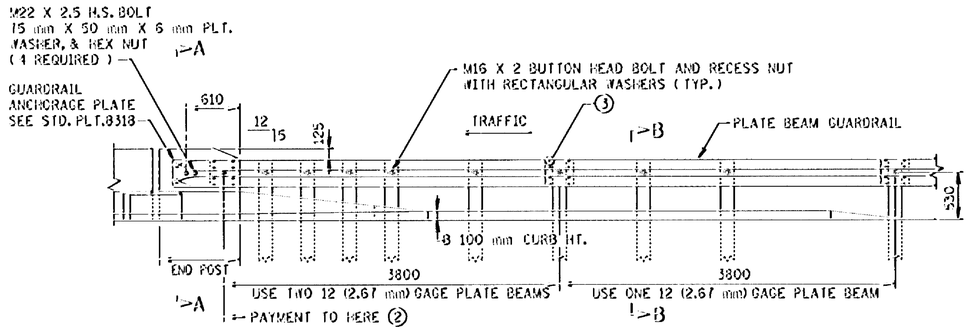
NAME: GRP2 410.PLN DATE: Mar. 17, 1997



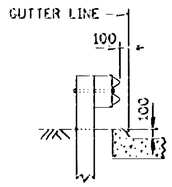
PLAN



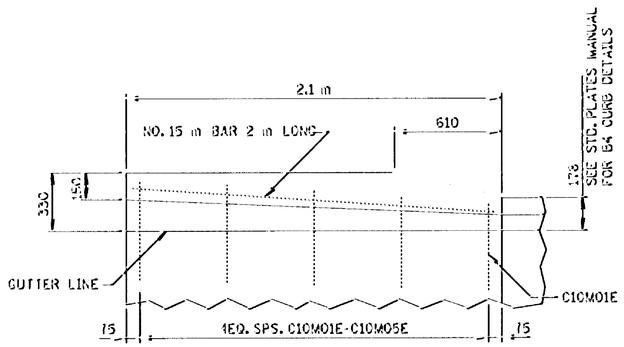
SECTION
A-A
(PARALLEL WINGWALL SHOWN)



ELEVATION



SECTION B-B

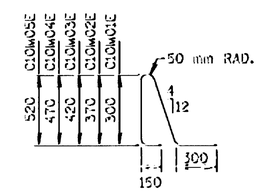


PLAN VIEW

INSIDE ELEVATION

END VIEW

CURB TRANSITION DETAILS



C10M01E-C10M05E ④

NOTES:

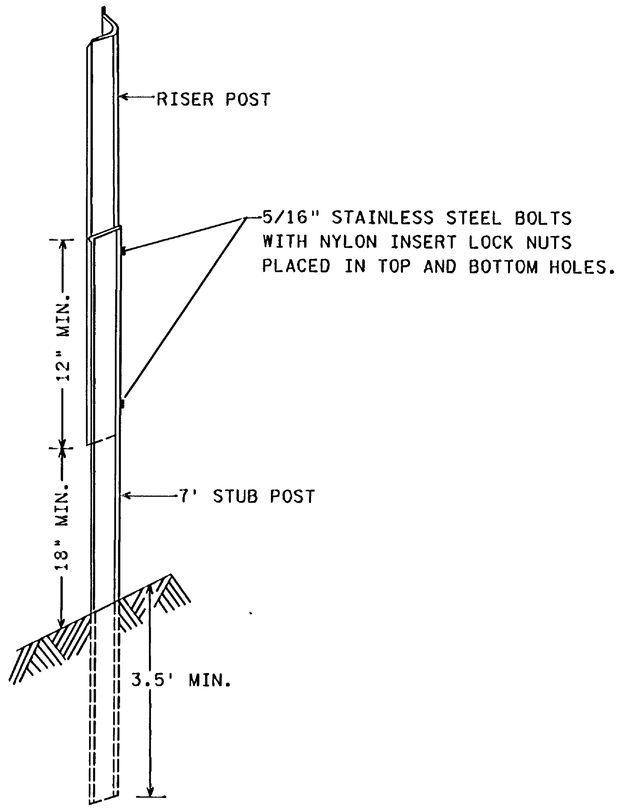
① END OF TRANSITION TO MATCH BRIDGE RAIL SURFACE.
② PAY LENGTH IS 7.6 METERS.
③ M16 X 2 X 32 mm LG. BUTTON HEAD BOLTS AND NUTS TYPICAL AT SPLICES.
④ REINFORCEMENT TO BE EPOXY COATED AS PER SPEC. 3301.
⑤ SEE ROAD PLANS TO VERIFY ACTUAL DIMENSION AND LOCATION.
⑥ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

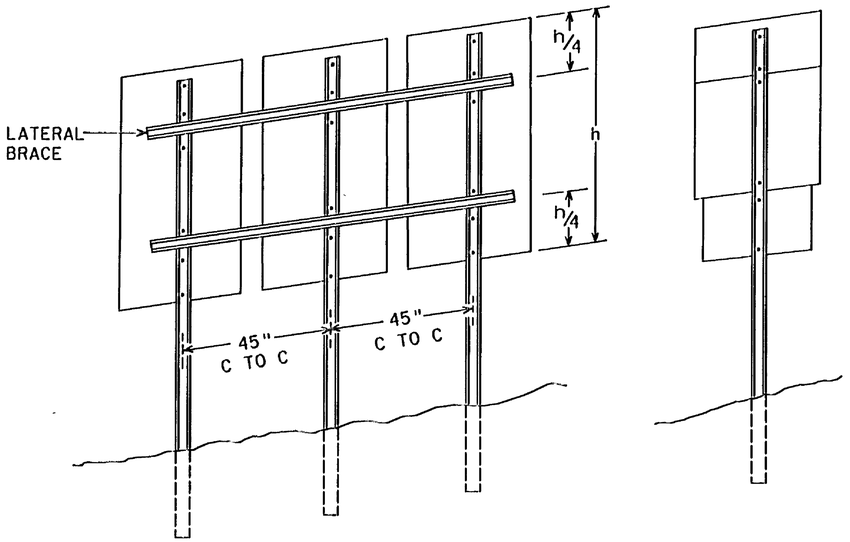
STANDARD SHEET NO. 5-297.605M	TITLE: GUARDRAIL TRANSITION FOR NEW TYPE J RAILING WITH APPROACH CURB
STANDARD APPROVED: JANUARY 23, 1992	
3-30-95	S.A.P. 02-617-11, et al. SHEET NO. 104 OF 236 SHEETS

NAME: GRP3 410.PLN DATE: Mar. 17, 1997

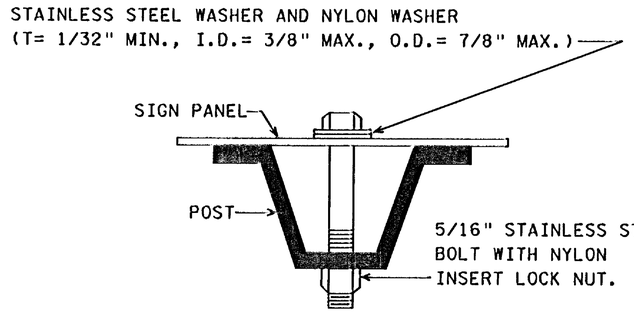
TYPE "C" & "D" POST



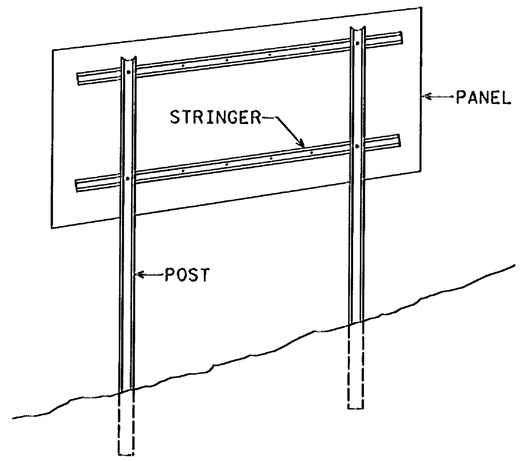
"U POST" SPLICE



TYPICAL TYPE "C" INSTALLATIONS



"U POST" MOUNTING
TYPE "C" SIGNS



TYPICAL TYPE "D" INSTALLATION

NOTES:

1. USE 3# 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 POST LENGTHS AND SPACINGS, SEE SIGN DATA SHEET.
3. TYPE "D" SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH TYPE "D" STRINGER AND PANEL-JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
4. MOUNTING (PUNCHING 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 3352.2A7.
11. 2 AND 3 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 OR MORE SINGLE POST SIGNS (TYPE "C") ARE MOUNTED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 POST SECTIONS, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN SKETCH.

"C" & "D" SIGN DETAILS

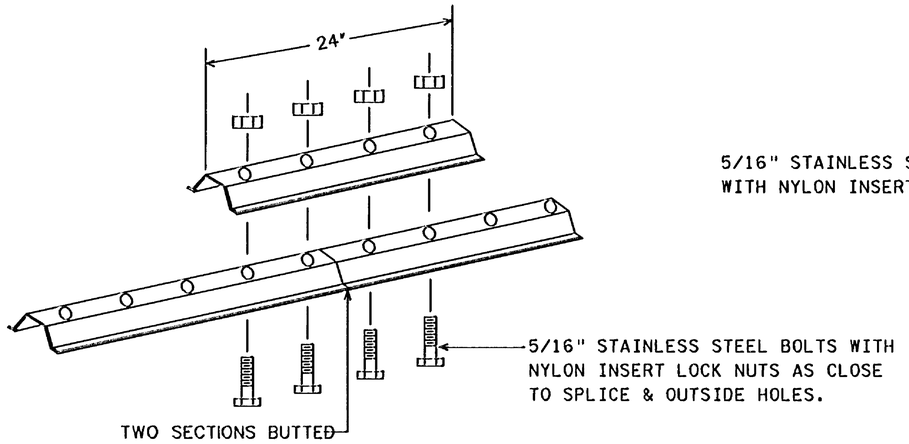
DESIGN A
Sheet 1 of 3

NOTE: THIS SHEET IN ENGLISH UNITS

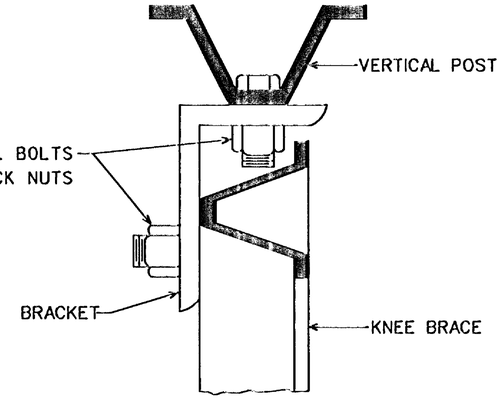
Rev. 7-20-93
Rev. 3-23-90

NAME: SGN5 410.PLN DATE: Apr. 25, 1997

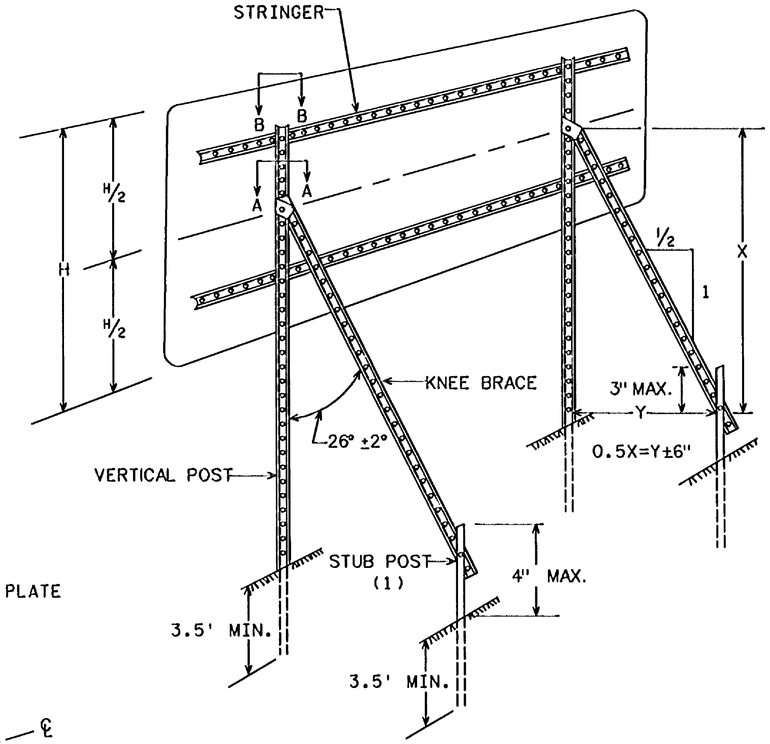
CDSIGN.STR CD1 6-9-94



Lateral Brace or Stringer. Splice Detail (Exploded View)

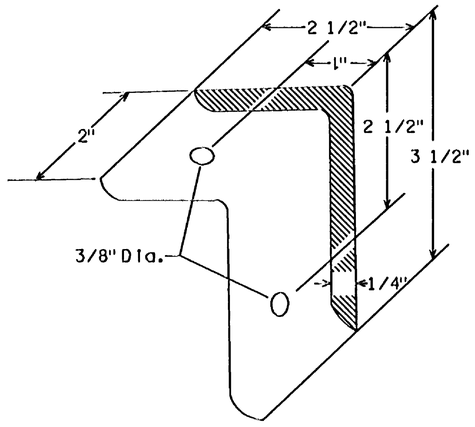


Section A-A



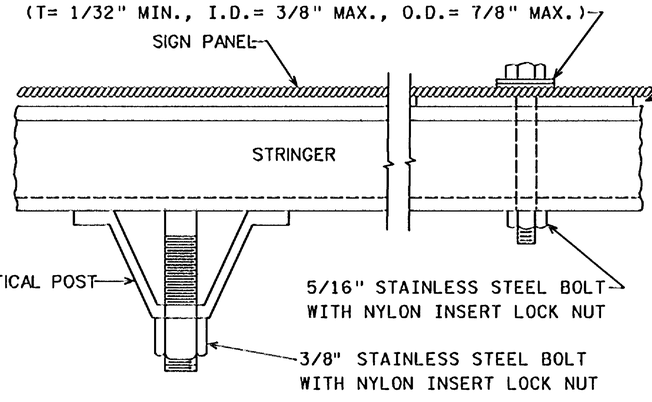
Typical "A-Frame" Installation
Type "D" Signs

(1) Offset stub post 1' toward roadway relative to vertical post.

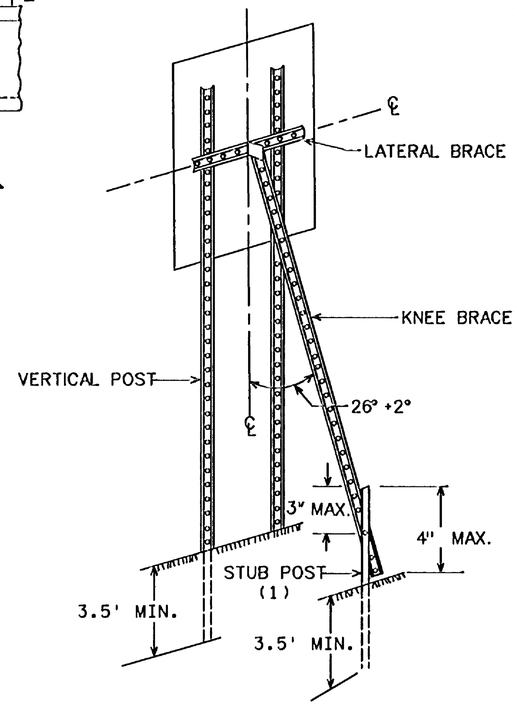


A-Frame Bracket

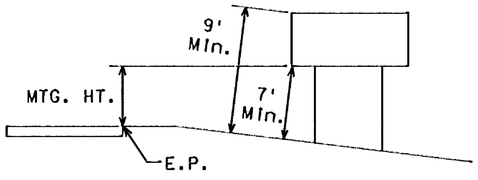
(Steel Mn/DOT 3306 galvanized per Mn/DOT 3394)



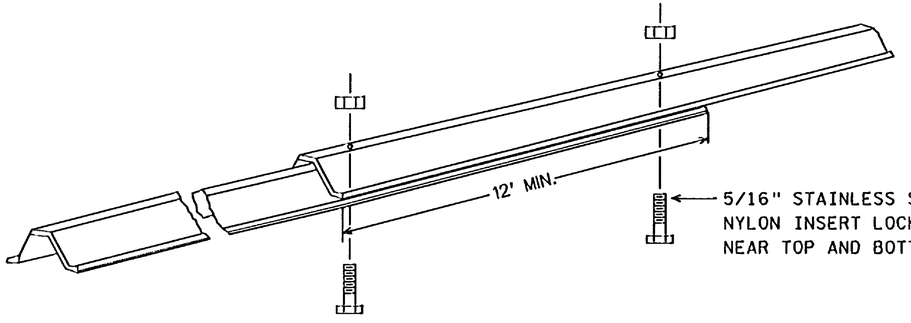
Section B-B



Typical "A-Frame" Installation
Type C Signs



Typical Mounting



Knee Brace Splice

"C" & "D" SIGN DETAILS

DESIGN A

Sheet 2 of 3

Rev. 3-31-93
Rev. 3-23-90

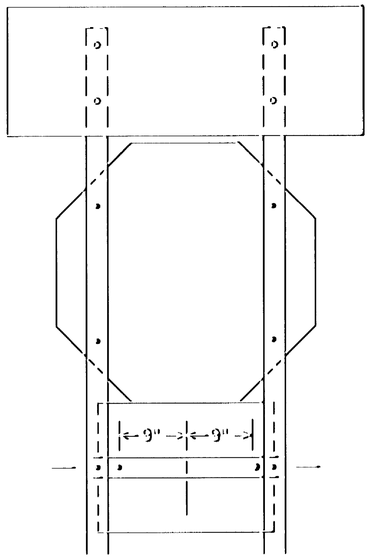
NOTE:THIS SHEET IN ENGLISH UNITS

S.A.P. 02-617-11, et al.

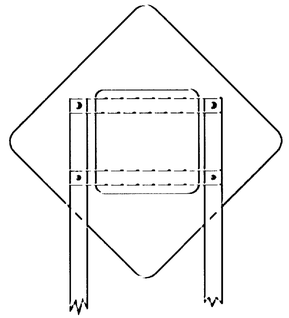
Sheet No. 106 of 236 Sheets

NAME: SGN6 410.PLN DATE: Apr. 25, 1997

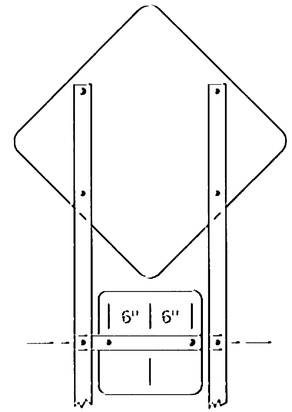
CDSIGN.STR C02 6-9-94



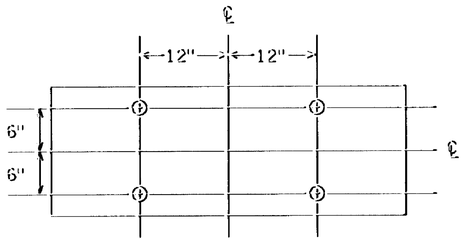
R6-1, R1-1 & (R6-3 or R6-3a)
Mounting



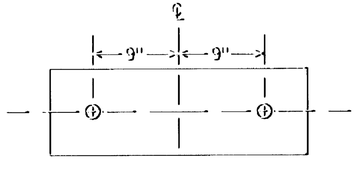
Back to back mounting
of R4-7 and W9-2



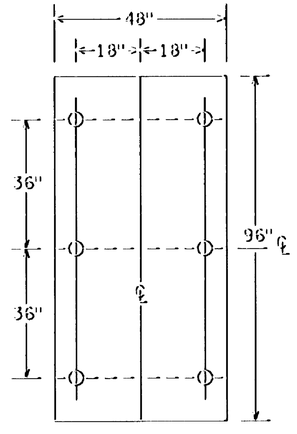
(W1-1, W1-2, W1-3, W1-4 or W1-5) & W13-1
Mounting



Punching for R6-1(48x18")



Punching for R6-1(36x12")



Punching for R2-4a
SPEED LIMIT

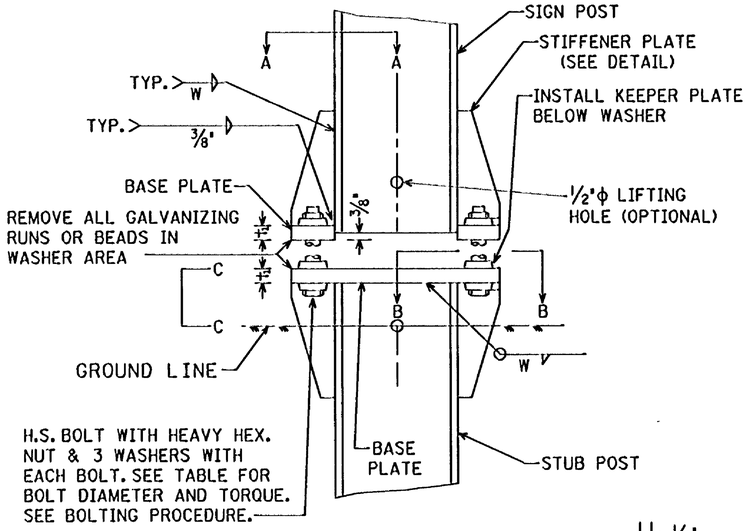
"C" & "D" SIGN DETAILS

DESIGN A
Sheet 3 of 3

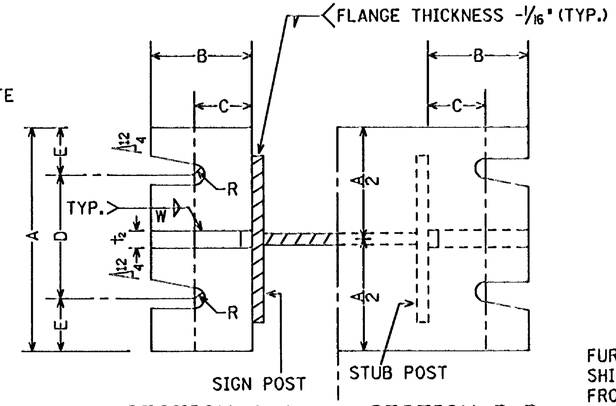
Rev. 3-31-93
Rev. 3-23-90

NOTE: THIS SHEET IN ENGLISH UNITS

DESIGN.SHT 003 9-7-94
NAME: SGN3 410.PLN DATE: Mar. 17, 1997



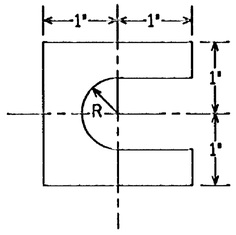
SIGN POST AND STUB POST
ELEVATION



SECTION A-A SECTION B-B

(SEE TABLE FOR DIMENSIONS)

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. PLATE SLOT BEVELS ARE OPPOSITE HAND FROM THAT SHOWN FOR INSTALLATIONS ON LEFT SHOULDER.

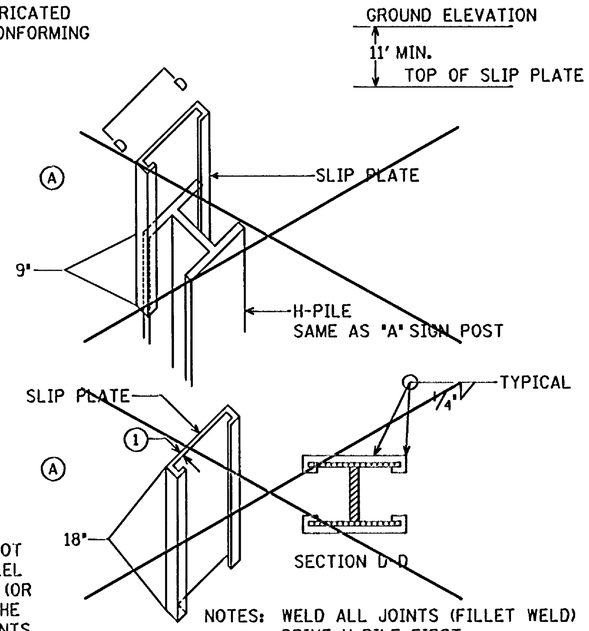


FURNISH 2-.012"± THICK AND 2-.032"± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO A.S.T.M. B36.

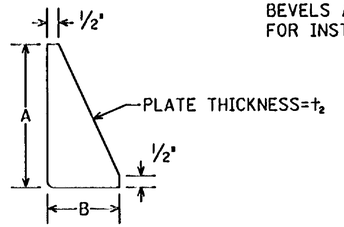
SHIM DETAIL

BOLTING PROCEDURE - BASE CONNECTION

1. ASSEMBLE SIGN POST TO STUB POST WITH BOLTS AND WITH ONE OF THE FLAT WASHERS ON EACH BOLT BETWEEN PLATES.
2. SHIM AS REQUIRED TO PLUMB POST.
3. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH 12" OR 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT TREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE. (SEE TABLE)
4. BURR TREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

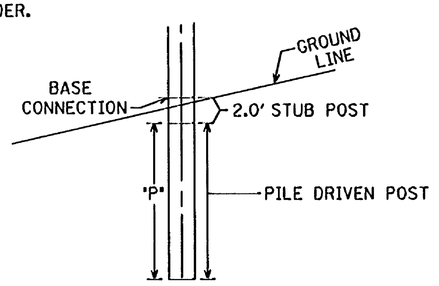


NOTES: WELD ALL JOINTS (FILLET WELD) DRIVE H-PILE FIRST.
TOP OF SLIP PLATE SHALL BE A MINIMUM OF 11" BELOW GROUND ELEVATION.



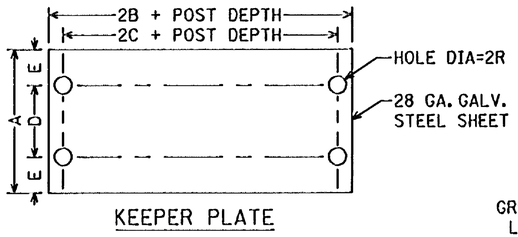
STIFFENER PLATE DETAIL

(SEE TABLE FOR DIMENSIONS)

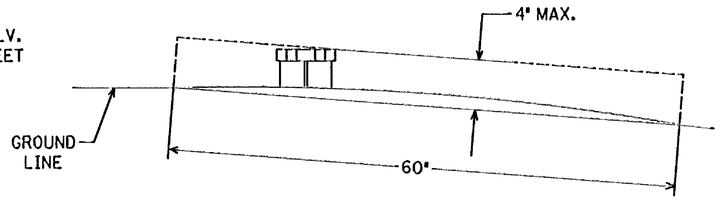


H-PILE FOOTING

MAXIMUM PROJECTION OF STUB POST SHALL NOT EXTEND BEYOND A LINE ABOVE AND 4" PARALLEL TO ANY CHORD WHICH IS PERPENDICULAR TO (OR ALIGNED RADIALLY TO) THE CENTERLINE OF THE HIGHWAY AND HAS ITS (THE CHORD'S) END POINTS ON THE GROUND SURFACE ON OPPOSITE SIDES OF THE STUB POST.



KEEPER PLATE



VIEW C-C

DIMENSION / POST SIZE	BASE CONNECTION DATA: BOLT SIZE AND TORQUE	A	B	C	D	E	t_1	t_2	W	R
W4X13	3/4"ø x 3-1/2" TORQUE=600'#	6"	2-1/2"	1-1/2"	3-1/2"	1-1/4"	1"	1/2"	1/4"	13/32"
W5X16										
W6X20	7/8"ø x 4-1/4" TORQUE=800'#	8"	3"	1-3/4"	4"	2"	1-1/4"	1/2"	1/4"	15/32"
W8X24										
W8X28	1" ø x 5" TORQUE=1000'#	8"	3"	2"	4"	2"	1-1/2"	3/4"	5/16"	17/32"
W8X31	1-1/8"ø x 5" TORQUE=1200'#	9"	3-1/2"	2"	5"	2"	1-1/2"	3/4"	5/16"	19/32"
③ W10X39										

FUSE AND HINGE PLATE DATA											FOOTING DATA	
G	H	J	K	L	M	d_1	d_2	t_3	BOLT DIA.	STUB POST LENGTH ②	H PILE POST P (MIN. LENGTH)
2"	1-1/4"	4"	2-1/4"	7/8"	1"	11/16"	3/4"	3/8"	5/8"	2'	12'
2-1/2"	1-1/4"	5"	2-3/4"	1-1/8"	1-1/8"	13/16"	7/8"	3/8"	3/4"	2'	12'
2-1/2"	1-1/4"	6"	3-1/2"	1-1/4"	1-3/8"	13/16"	1-1/8"	3/8"	3/4"	2'	12'
2-1/2"	1-1/2"	6-1/2"	3-1/2"	1-1/2"	1-1/2"	15/16"	1-1/4"	1/2"	7/8"	2'	12'
2-1/2"	1-1/2"	6-1/2"	3-1/2"	1-1/2"	1-5/8"	1-1/16"	1-1/8"	1/2"	1"	2'	12'
3"	1-3/4"	8"	5-1/2"	1-1/4"	2"	1-1/16"	1-1/2"	1/2"	1"	2'	12'
3"	1-3/4"	8"	5-1/2"	1-1/4"	1-7/8"	1-3/16"	1-3/8"	1/2"	1-1/8"	2'	12'

SPECIFIC NOTES:
① SAME THICKNESS AS SIGN POST
② MEASURED FROM TOP OF BASE PLATE
③ OLD BEAM DEPTH = 10". NEW REVISED BEAM DEPTH = 9-7/8". KEEPER PLATES MUST BE FABRICATED ACCORDINGLY

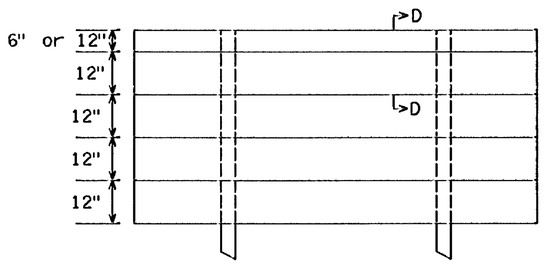
REV. Ⓐ DELETE SLIP PLATE DETAIL 4-24-97

REV. DATE 1-10-91
9-4-92

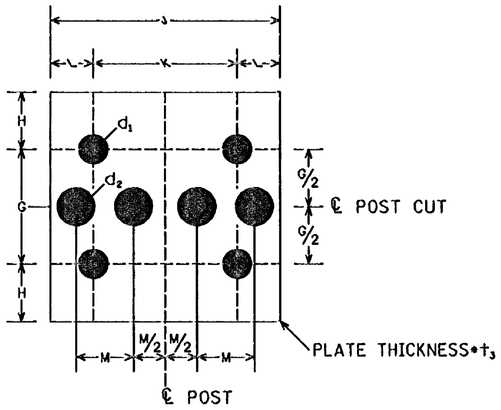
NOTE: THIS SHEET IN ENGLISH UNITS

STRUCTURAL DETAILS
TYPE "A" SIGNS (BREAKAWAY)
(H-PILE FOOTING)

SHEET 1 OF 2

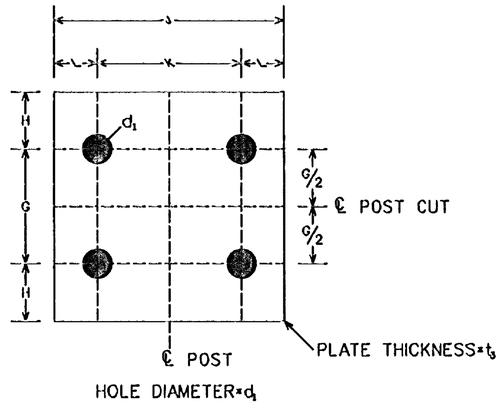


TYPICAL PANEL MOUNTING



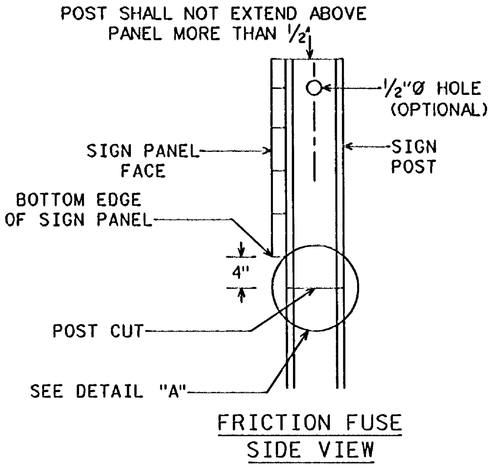
FRICTION FUSE PLATE DETAIL

(SEE TABLE ON SHEET 1 OF 2 FOR DIMENSIONS)

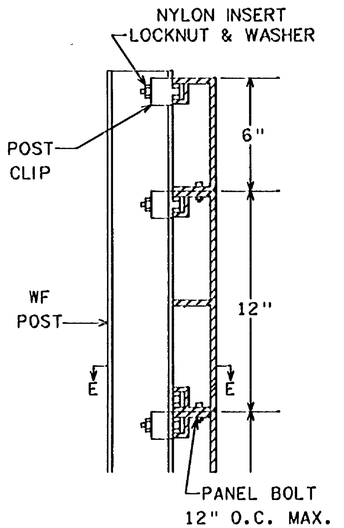


HINGE PLATE DETAIL

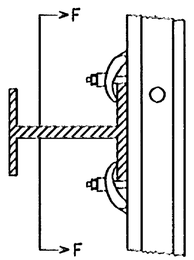
(SEE TABLE ON SHEET 1 OF 2 FOR DIMENSIONS)



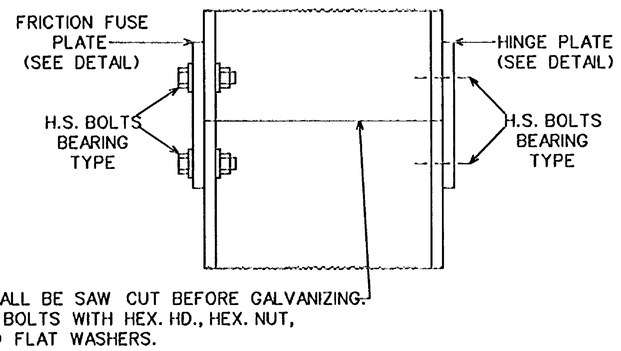
FRICTION FUSE SIDE VIEW



SECTION D-D

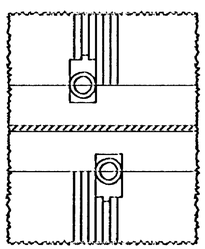


SECTION E-E



POST SHALL BE SAW CUT BEFORE GALVANIZING. USE H.S. BOLTS WITH HEX. HD., HEX. NUT, AND TWO FLAT WASHERS.

DETAIL "A" FRICTION FUSE



NOTE: POST CLIPS SHALL BE INSTALLED ON BOTH SIDES OF EACH POST AT EACH PANEL JOINT AS INDICATED.

SECTION F-F

CONTRACTOR NOTE: ALL FRICTION FUSE BOLTS SHALL BE TORQUE WRENCH TIGHTENED IN THE FIELD IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE. NUTS SHALL HAVE BEEN RETAPPED AND BOLT THREADS SHALL HAVE BEEN CLEANED WITH A 1/64" OVERSIZED RETHREADING DIE AFTER GALVANIZING. BEFORE TIGHTENING MAY BEGIN, THE TORQUE WRENCH SHALL BE CALIBRATED WITH A BOLT-TENSION-CALIBRATOR USING TYPICAL BOLT-NUT-WASHER ASSEMBLIES OF EACH SIZE AND LOT TO BE USED SO AS TO SHOW THE TORQUE NECESSARY TO OBTAIN THE FOLLOWING MINIMUM RESIDUAL TENSION IN EACH BOLT.

BOLT SIZE	MIN. RESIDUAL, BOLT TENSION
½" ø	12,050#
⅝" ø	19,200#
¾" ø	28,400#
⅞" ø	39,250#
1" ø	51,500#
1 ⅛" ø	56,450#

GENERAL NOTES:

1. Structural steel shall conform to Mn/DOT 3308. Reinforcing bars shall conform to Mn/DOT 3301. Spirals shall conform to Mn/DOT 3305-no splices. High Strength bolts shall conform to A.S.T.M.-A325.
2. Forms will be required for the exposed vertical surfaces of the footings.
3. Refer to "SIGN DATA" sheet for specific data on each individual sign installation.
4. Friction Fuse Plate shall be installed on side of post facing traffic.
5. All post cuts shall be saw cuts. Plates may be sheared or flame cut using a mechanically guided cutting torch. Edge preparation shall be in accordance with Mn/DOT 2471.3C4 and Mn/DOT 2471.3D4.

REV. DATE
6-12-81
1-3-89

NOTE:THIS SHEET IN ENGLISH UNITS

STRUCTURAL DETAILS

TYPE "A" SIGNS (BREAKAWAY)

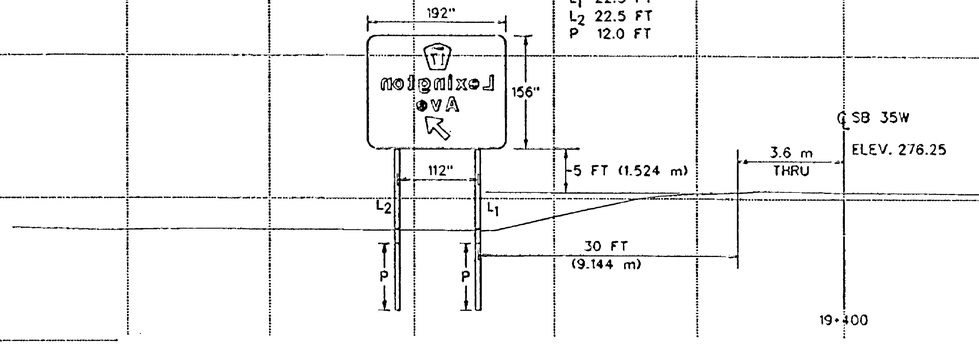
SHEET 2 OF 2

ASIGN.STR 2 6-9-94

NAME: ASNG 410.PLN DATE: Mar. 17, 1997

SIGN A-2

POST TYPE W8x24
L_1 22.5 FT
L_2 22.5 FT
P 12.0 FT



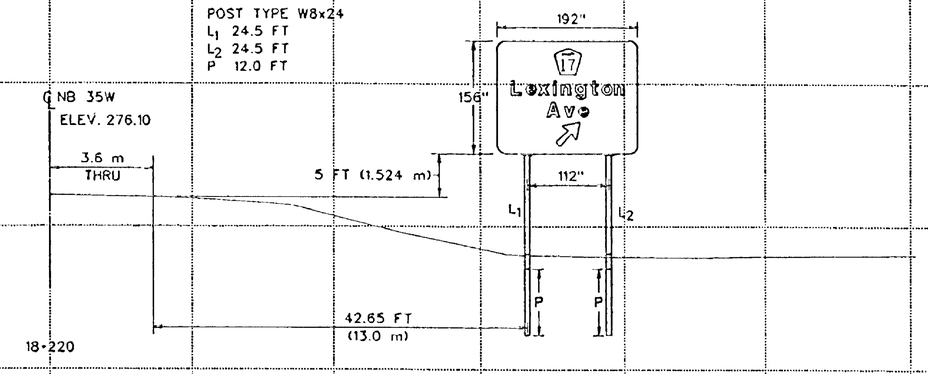
TYPE "A" SIGNS

SIGN NO.	ALIGNMENT	STATION	OFFSET		PANELS 1		POSTS									PILE			
			LT	RT	SIZE (IN.)	AREA (SQ. FT.)	SIZE	QUANTITY	L1 (FT.)	L2 (FT.)	ADDITIONAL STEEL PER POST (LBS)	WEIGHT (LBS)	c (IN.)	d (IN.)	"P" (FT.)	WEIGHT (LBS)	"X" (FT.)	"H" (FT.)
A-1	NB I-35W	18+220		X	192 x 156	208	W8 x 24	2	24.5	24.5	118	1412	40	112	12	576	42.65	5
A-2	SB I-35W	19+400	X		192 x 156	208	W8 x 24	2	22.5	22.5	118	1316	40	112	12	576	30.00	5
	PROJECT TOTALS:							4				2728				1152		

NOTES: 1 EXISTING SIGN PANEL SIZES SHOWN FOR INFORMATION ONLY. SIGN PANELS TO BE REINSTALLED ON NEW POSTS AT LOCATION INDICATED IN TAB.
EXISTING SIGN PANELS HAVE OVERLAY PANELS IN PLACE.

SIGN A-1

POST TYPE W8x24
L_1 24.5 FT
L_2 24.5 FT
P 12.0 FT



NOTE: DIMENSIONS ON THIS SHEET IN ENGLISH UNITS

NO	DATE	BY	CKD	APPR	REVISION
1	4-24-97	MCJ		DAD	REVISE POST SIZE AND SIGN LOCATION

NAME: SDT 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.
Donald A Demers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

DRAWN BY V. GRAF 3-97
DESIGNED BY D. DEMERS 3-97
CHECKED BY S.R. BROWN 3-97
COMM. NO. 0262410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
SIGN DETAILS
C.S.A.H. 17 RECONSTRUCTION

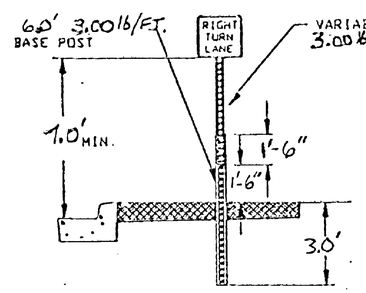
SHEET 110 OF 236

PERMANENT SIGN INSTALLATIONS

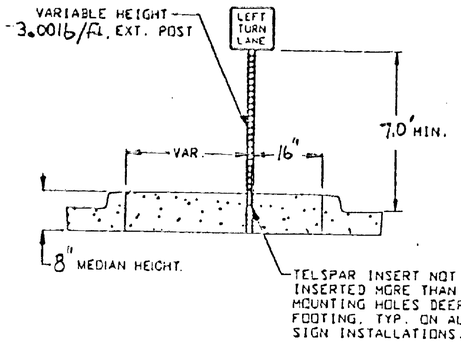
SIGN DESIGNATION	SIGN SIZE	SIGN AREA (FT^2)	SIGN AREA (m2)	TOTAL INSTALLATIONS	TOTAL AREA (m2)	MOUNTING HEIGHT (FT)	POSTS PER INSTALLATION	GROUND MOUNT	MEDIAN MOUNT	NOTES
R1-2	36"x36"x36"	3.90	0.362	3	1.087	7	2	3		
R7-1	12"x18"	1.50	0.139	19	2.648	7	1	19		
R3-2	24"x24"	4.00	0.372	2	0.743	7	1			R
R3-3FL	36"x30"	7.50	0.697	2	1.394	7	2		2	
R3-9b	24"x36"	6.00	0.557	5	2.787	7	1	5		
R3-X1	30"x30"	6.25	0.581	8	4.645	7	1	8		
R3-X2	30"x30"	6.25	0.581	9	5.225	7	1		9	
R4-7	24"x30"	5.00	0.465	16	7.432	7	1		16	
R4-7	30"x36"	7.50	0.697	1	0.697	7	1		1	
R1-1	30"x30"	6.25	0.581	10	5.806	7	1	10		
R5-1	30"x30"	6.25	0.581	15	8.710	7	1	2	13	
R6-1R	36"x12"	3.00	0.279	14	3.902					S
R6-1L	36"x12"	3.00	0.279	15	4.181			4	1	T
R2-1	24"x30"	5.00	0.465	8	3.716	7	1	8		
R5-10d	18"x24"	3.00	0.279	2	0.557	7	1	2		
R16-X4	36"x36"	9.00	0.836	2	1.672	7	2	2		
R3-3FR	36"x30"	7.50	0.697	2	1.394	7	2	2		
R5-1A	36"x24"	6.00	0.557	2	1.115	7	2	2		
R3-8G	48"x30"	10.00	0.929	4	3.716	7	2	4		
X4-2	18"x18"	2.25	0.209	20	4.181	4	1		2	U
X4-5	6"x12"	0.50	0.046	7	0.325	4	1		7	
W9-1R	36"x36"	9.00	0.836	1	0.836	7	2	1		
W6-1	36"x36"	9.00	0.836	1	0.836	7	2	1		
W4-2R	36"x36"	9.00	0.836	2	1.672	7	2	2		
W1-7	48"x24"	8.00	0.743	1	0.743	7	2	1		
W3-3	36"x36"	9.00	0.836	2	1.672	7	2	2		
W9-2	36"x36"	9.00	0.836	1	0.836	7	2	1		
M6-1A	21"x15"	2.19	0.203	5	1.017					V
M4-6	24"x12"	2.00	0.186	2	0.372					V
M2-X1	24"x12"	2.00	0.186	2	0.372					V
M4-5A	24"x12"	2.00	0.186	1	0.186					V
M3-1A	24"x12"	2.00	0.186	4	0.743					V
M3-3A	24"x12"	2.00	0.186	1	0.186					V
M3-2A	24"x12"	2.00	0.186	1	0.186					V
M3-4A	24"x12"	2.00	0.186	1	0.186					V
M1-1	30"x24"	5.00	0.465	1	0.465	7	1	1		
M1-6	24"x24"	4.00	0.372	17	6.317	7	1	17		
M2-1A	21"x15"	2.19	0.203	6	1.221					V
M6-4A	21"x15"	2.19	0.203	1	0.203					V
PROJECT TOTALS:				216	83.982					

NOTE: THIS TABLE ILLUSTRATES QUANTITIES FOR F&I NEW TYPE "C" SIGNS ONLY.
MOUNTING HEIGHTS INDICATED IN THIS TABLE ARE TO THE BOTTOM OF THE SIGN PANEL.

GROUND POST MOUNT SIGN INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN POST INSTALLATION TYPICAL



GENERAL NOTES:

ALL STRIPING DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

ALL STRIPING SHALL BE PAINT UNLESS NOTED OTHERWISE.

PROPOSED SIGN DIMENSIONS ARE GIVEN IN ENGLISH UNITS OF INCHES.
(ENGLISH VALUE (ft^2) X 0.092903 = METRIC VALUE (m^2)

ANY EXISTING SIGNING NOT SHOWN ON THIS PLAN WHICH FALLS WITHIN THE CONSTRUCTION LIMITS AND WHICH IS STILL APPROPRIATE UNDER THE PERMANENT CONDITION, IN THE OPINION OF THE ENGINEER, SHALL BE TEMPORARILY RELOCATED OUTSIDE OF THE CONSTRUCTION LIMITS BY THE CONTRACTOR. FOLLOWING CONSTRUCTION, THE CONTRACTOR SHALL RELOCATE THE SIGNS AS NEAR AS POSSIBLE TO THEIR ORIGINAL LOCATIONS.

EXISTING SIGNING NOT SHOWN ON THIS PLAN WHICH IS NOT APPROPRIATE UNDER THE PERMANENT CONDITION, IN THE OPINION OF THE ENGINEER, SHALL BE REMOVED BY THE CONTRACTOR. SUCH REMOVALS SHALL BE CONSIDERED INCIDENTAL TO PERMANENT SIGNING CONSTRUCTION AND NO DIRECT COMPENSATION SHALL BE MADE THEREFOR.

(A) INSTALL SALVAGED SIGN PANEL.

(B) SIGN TO REMAIN IN PLACE.

(C) 100 mm SOLID LINE WHITE

(D) 100 mm SOLID LINE YELLOW

(E) 100 mm BROKEN LINE YELLOW. SKIP RATIO SHALL BE 2.0 m LINE FOLLOWED BY 8.0 m GAP.

(F) 100 mm BROKEN LINE WHITE. SKIP RATIO SHALL BE 2.0 m OF LINE FOLLOWED BY 8.0 m GAP FOR C.S.A.H. 17. SKIP RATIO SHALL BE 3.048 m OF LINE FOLLOWED BY 12.192 m GAP FOR I-35W

(H) 300 CROSSWALK LINE WHITE.

(J) 600 STOP LINE WHITE.

(K) PAVEMENT MESSAGE (ARROW)

(L) PAVEMENT MESSAGE (ONLY)

(N) CROSSWALK MARKING.

(P) THIS SIGN OWNED BY:
MINNESOTA LOGOS
201 W. TRAVELERS TRAIL SUITE 230
BURNSVILLE, MN. 55337
PHONE 895-8499
CONTRACTOR SHALL CONTACT OWNER OF SIGN TO REMOVE AND REINSTALL.

(O) F & I SIGN PANEL ON SIGNAL POLE

(R) MOUNTED ON BACK OF R4-7 SIGN POST ASSEMBLY

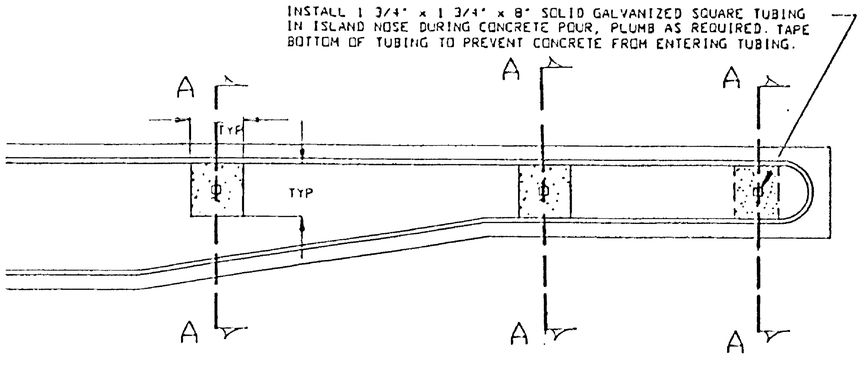
(S) 8 SIGNS MOUNTED ON SIGNAL POLES. REMAINDER MOUNTED ON R1-1 SIGN POST ASSEMBLIES

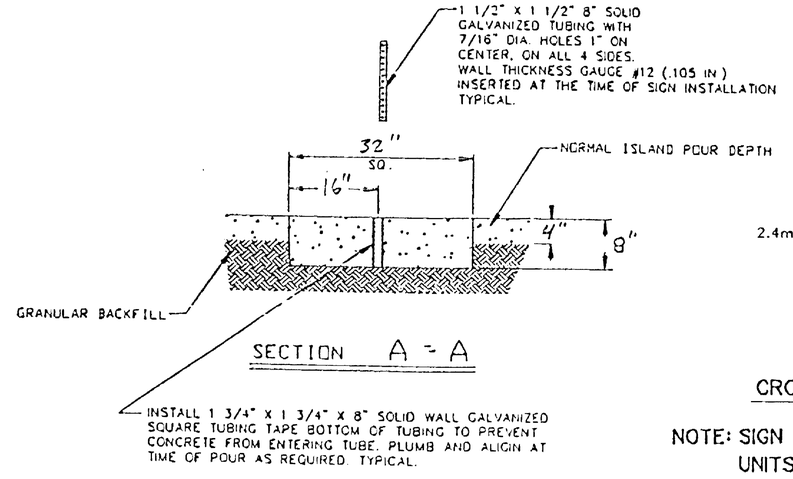
(T) 8 SIGNS MOUNTED ON SIGNAL POLES. 2 SIGNS MOUNTED ON R1-1 SIGN POST ASSEMBLIES.

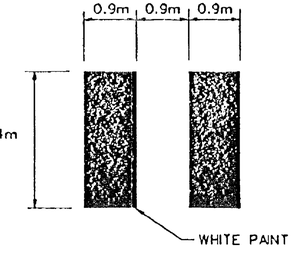
(U) 2 SIGNS MOUNTED IN FREE RIGHT ISLANDS. REMAINDER MOUNTED ON R4-7 SIGN POST ASSEMBLIES.

(V) SIGN MOUNTED ON M1-6 SIGN POST ASSEMBLY.

(G) NOT USED







CROSSWALK MARKING DETAIL

NOTE: SIGN DIMENSIONS IN ENGLISH UNITS THIS SHEET

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	REVISE SIGN TAB AND ADD SIGN DETAILS
2	4-24-97	MCI		DAD	SIGN DIMENSIONS IN ENGLISH

NAME: SSN 410 PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification, or report 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.
Donald A Demers
Date 3-21-97 Reg. No 23397

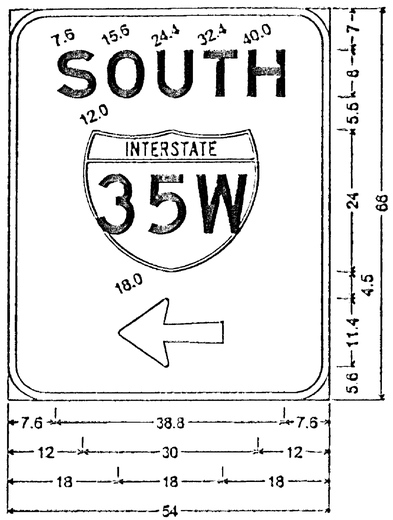
STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03
CO. PROJECT NO.

		DATE
DRAWN BY	M. ISAKKA	3-97
DESIGNED BY	D. DEMERS	3-97
CHECKED BY	D. DEMERS	3-97
COMM. NO.	095240	

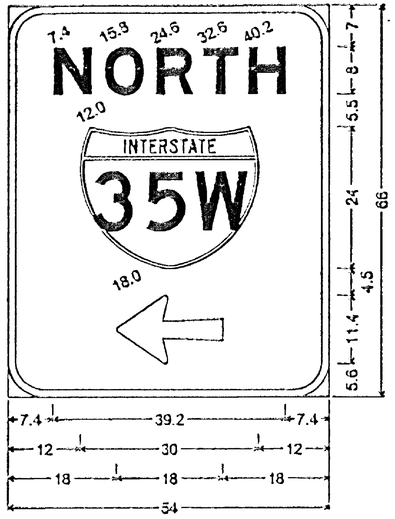
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
SIGNING AND STRIPING GENERAL NOTES AND TABULATION
C.S.A.H. 17 RECONSTRUCTION

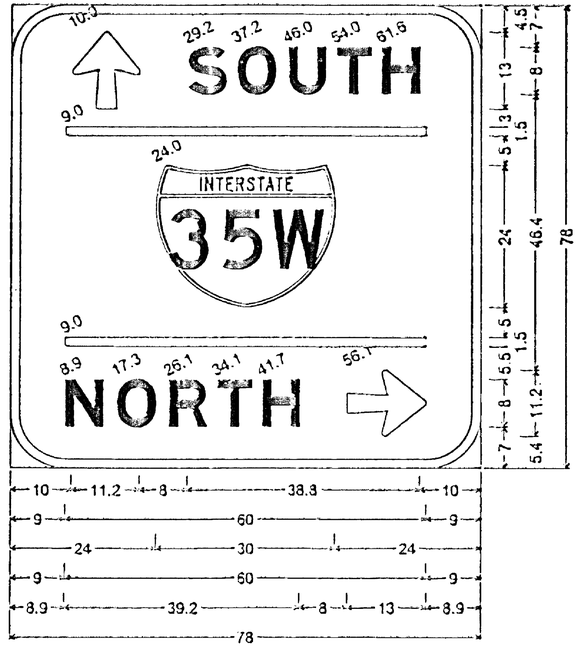
SHEET 111 OF 236



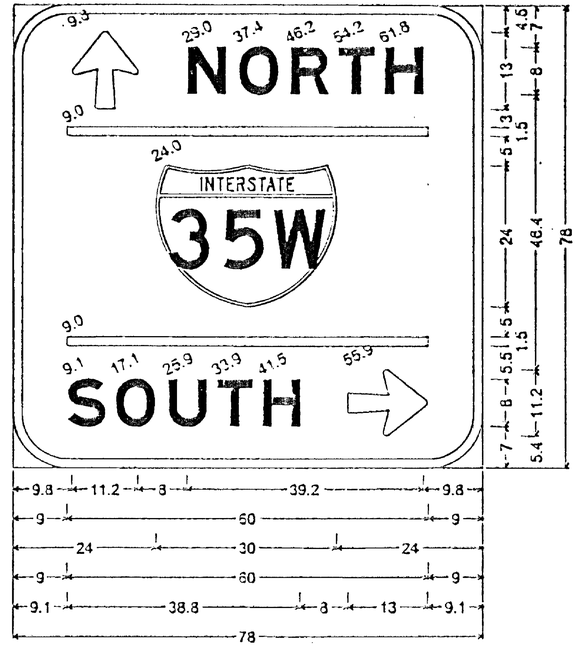
D 1;
6.0" Radius, 1.2" Border, White on Green;
"SOUTH" E Mod; Arrow 14 - 18.0" 180";



D 2;
6.0" Radius, 1.2" Border, White on Green;
"NORTH" E Mod; Arrow 14 - 18.0" 180";



D 3; 9.0" Radius, 1.5" Border, White on Green;
Arrow 5 - 13.0" 90"; "SOUTH" E Mod; "NORTH" E Mod;
Arrow 5 - 13.0" 0";



D 4; 9.0" Radius, 1.5" Border, White on Green;
Arrow 5 - 13.0" 90"; "NORTH" E Mod; "SOUTH" E Mod;
Arrow 5 - 13.0" 0";

NOTES:

1) COLOR - HIGH INTENSITY WHITE LEGEND AND BORDER ON HIGH INTENSITY GREEN BACKGROUND. FULLY REFLECTORIZED.

2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.

3) SEE STANDARD SIGN MANUAL FOR ARROW DETAILS.

4) FOR STRUCTURAL DETAILS, TYPE "D" SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105B.

5) FOR TYPE "D" STRINGER AND PANEL - JOINT DETAIL, SEE STANDARD SIGNS MANUAL, PAGE 105.

NOTE: THIS SHEET IN ENGLISH UNITS.

NO	DATE	BY	CKD	APPR	REVISION
1	4-24-97	MAB		GMS	REVISE SIGN PANEL

NAME: H:\CIVIL\SGN4R410.PLN DATE: APRIL 24, 1997

I hereby certify that this plan, specification, or report 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.
George M. Stuempfig
Date 4/24/97 Reg. No. 21849

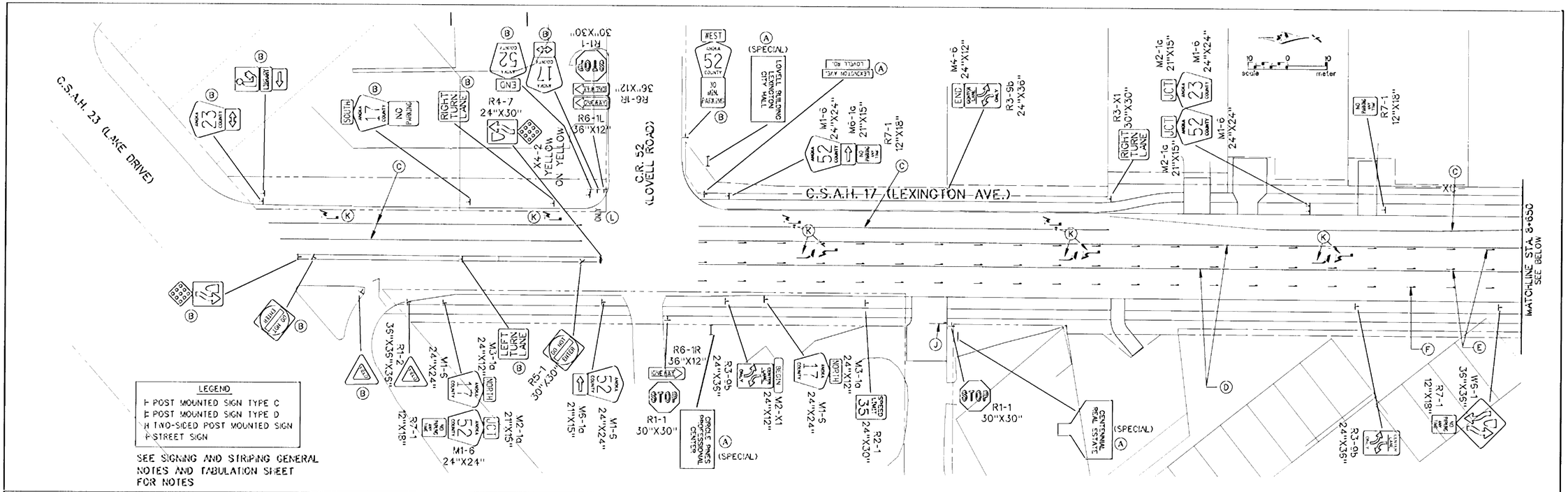
STATE AID PROJECT NO. SAP 02-617-11
STATE PROJECT NO. SP 0280-47

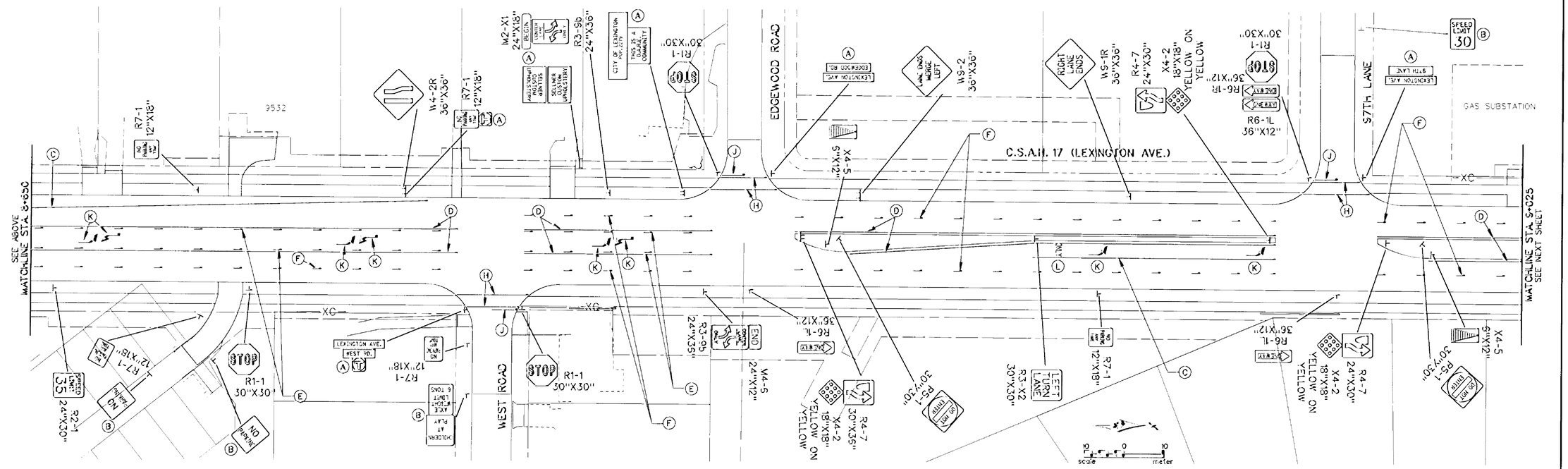
DRAWN BY M. ISAKKA DATE 3-97
DESIGNED BY M. BRESSLER 3-97
CHECKED BY G. STUEMPFIG 3-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TYPE "D" SIGN DETAILS
C.S.A.H. 17 RECONSTRUCTION

SHEET 112 OF 236





NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ACTIVD COMMENT

NAME: SSP1410.PLN DATE: Mar. 20, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Domes

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. CRAF	DATE 11-96
DESIGNED BY D. DEMERS	11-96
CHECKED BY B. MOORE	3-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

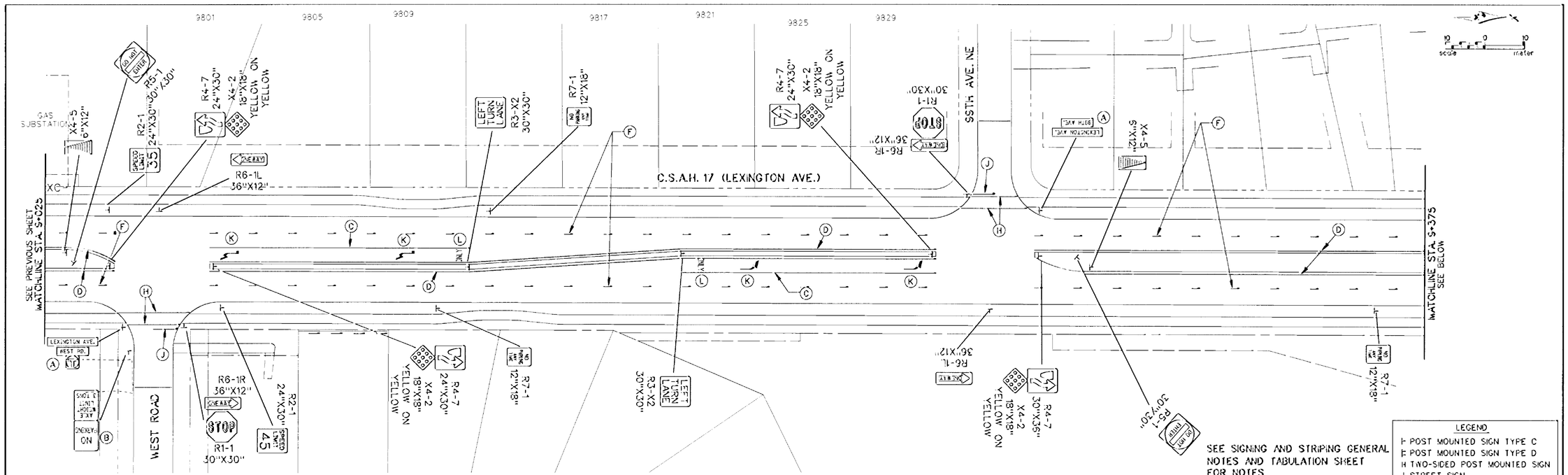
ANOKA COUNTY

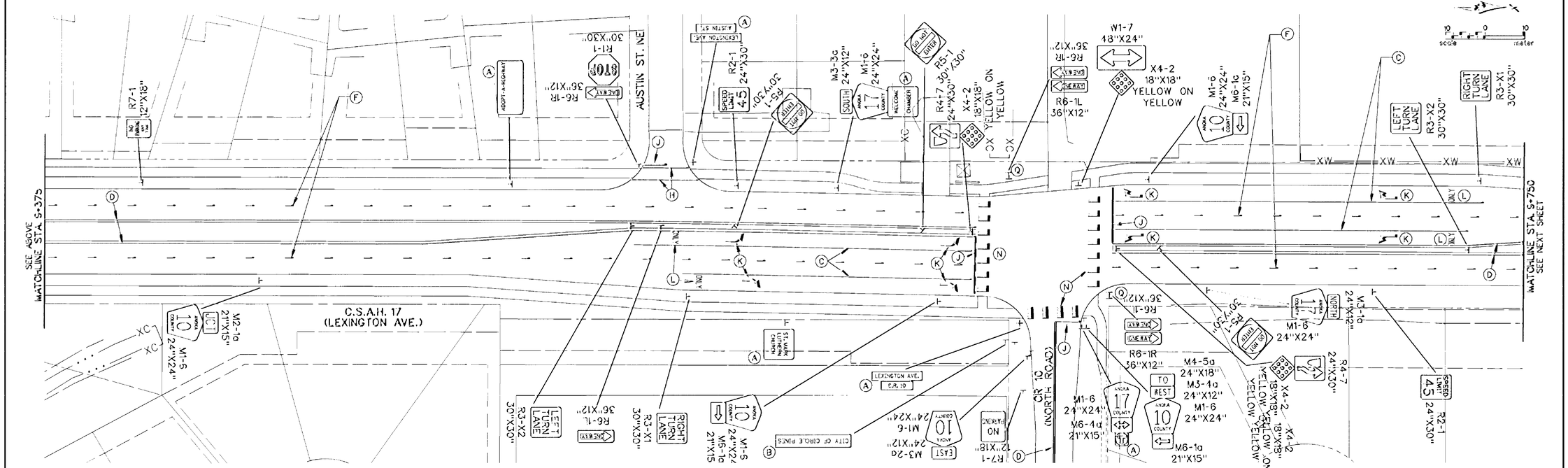
SIGNING AND STRIPING PLAN

C.S.A.H. 17 RECONSTRUCTION

STA. 8+358 TO STA. 9+025

SHEET 113 OF 236





NO	DATE	BY	CKD	APPR	REVISION

NAME: SSP2 410.PLN DATE: Mar. 17, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

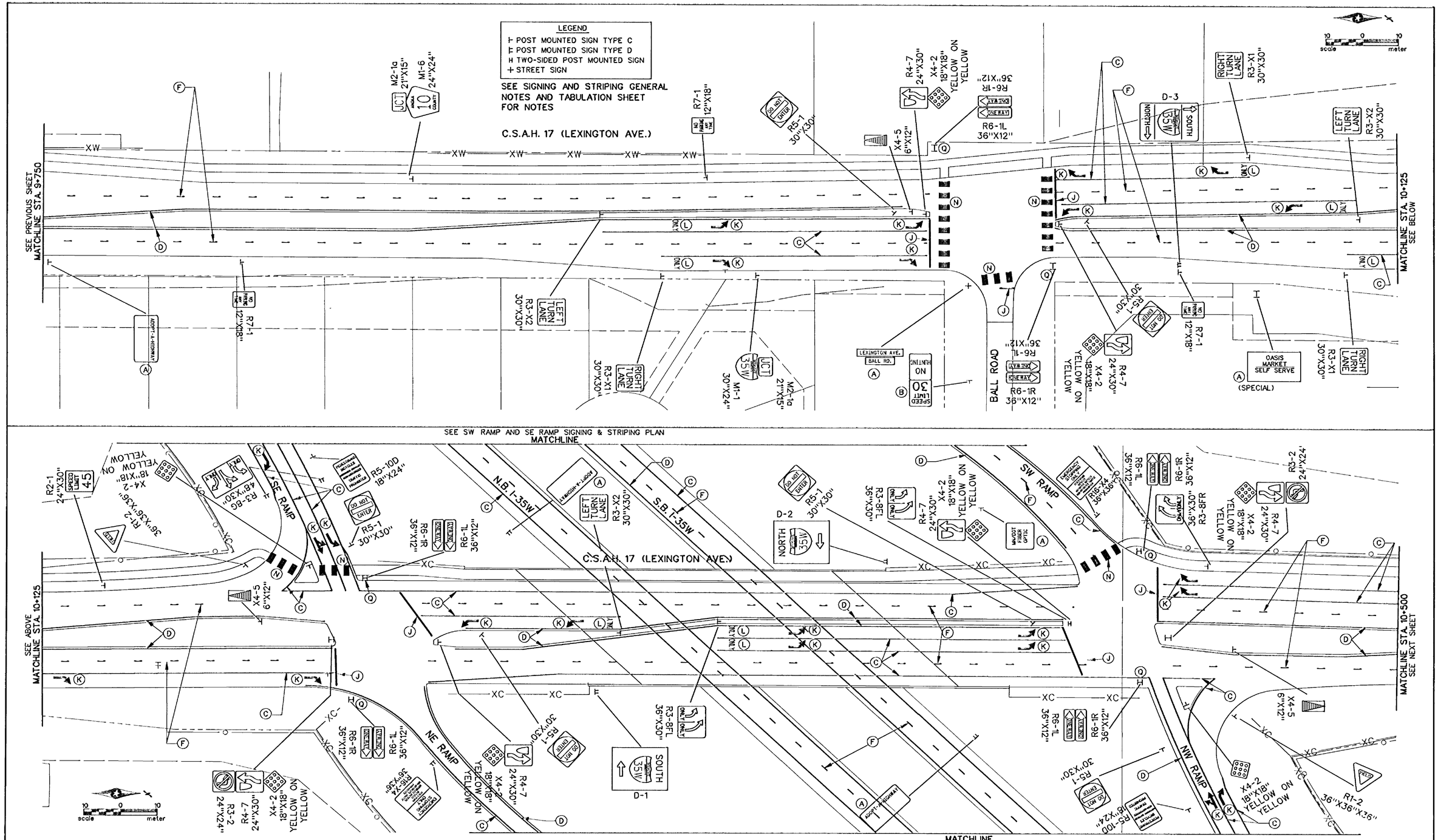
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 11-96
DESIGNED BY D. DEMERS 11-96
CHECKED BY B. MOORE 3-97
CCMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
SIGNING AND STRIPING PLAN
C.S.A.H. 17 RECONSTRUCTION
STA. 9+025 TO STA. 9+750

SHEET 114 OF 236



NO	DATE	BY	CKD	APPR	REVISION
1	3-28-97	MCI		DAD	REVISE NORTH MEDIAN NOSE AT BALL RD.
2	4-24-97	MCI		DAD	DELETE R3-4, R6-1R TO NEAR SIDE

NAME: SSP3 410.PLN DATE: Mar. 20, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23317

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

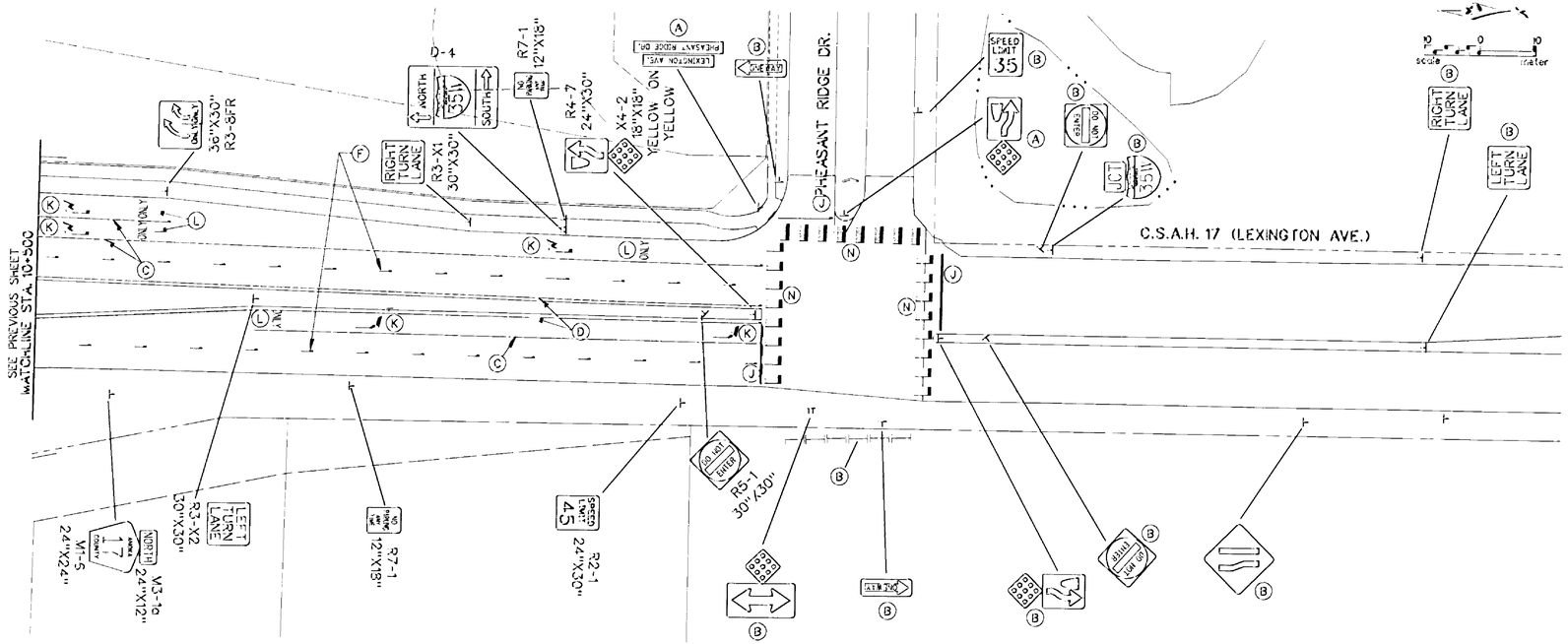
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 11-96
DESIGNED BY D. DEMERS 11-96
CHECKED BY B. MOORE 3-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
SIGNING AND STRIPING PLAN
C.S.A.H. 17 RECONSTRUCTION
STA. 9+750 TO STA. 10+500

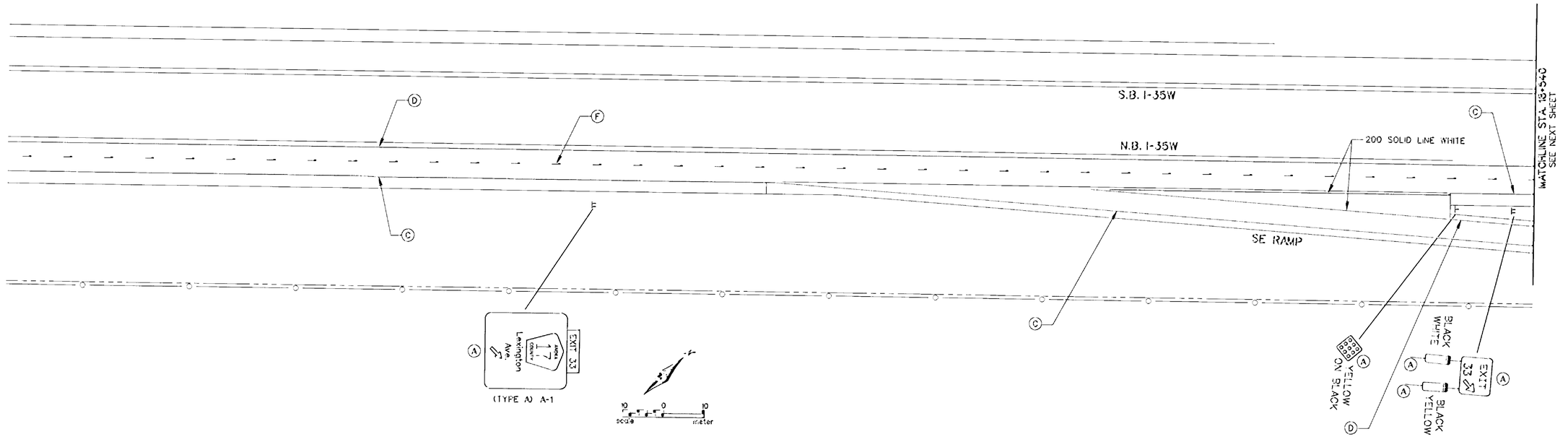
SHEET 115 OF 236



LEGEND

- POST MOUNTED SIGN TYPE C
- POST MOUNTED SIGN TYPE D
- TWO-SIDED POST MOUNTED SIGN
- STREET SIGN

SEE SIGNING AND STRIPING GENERAL NOTES AND TABULATION SHEET FOR NOTES



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	REVISE WEST MEDIAN NOSE

NAME: SSP# 410.PLN DATE: Mar. 20, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A. Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 11-96
DESIGNED BY D. DEMERS 11-96
CHECKED BY B. MOORE 3-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
SIGNING AND STRIPING PLAN
C.S.A.H. 17 RECONSTRUCTION
STA. 10+500 TO STA. 10+660 AND SE RAMP

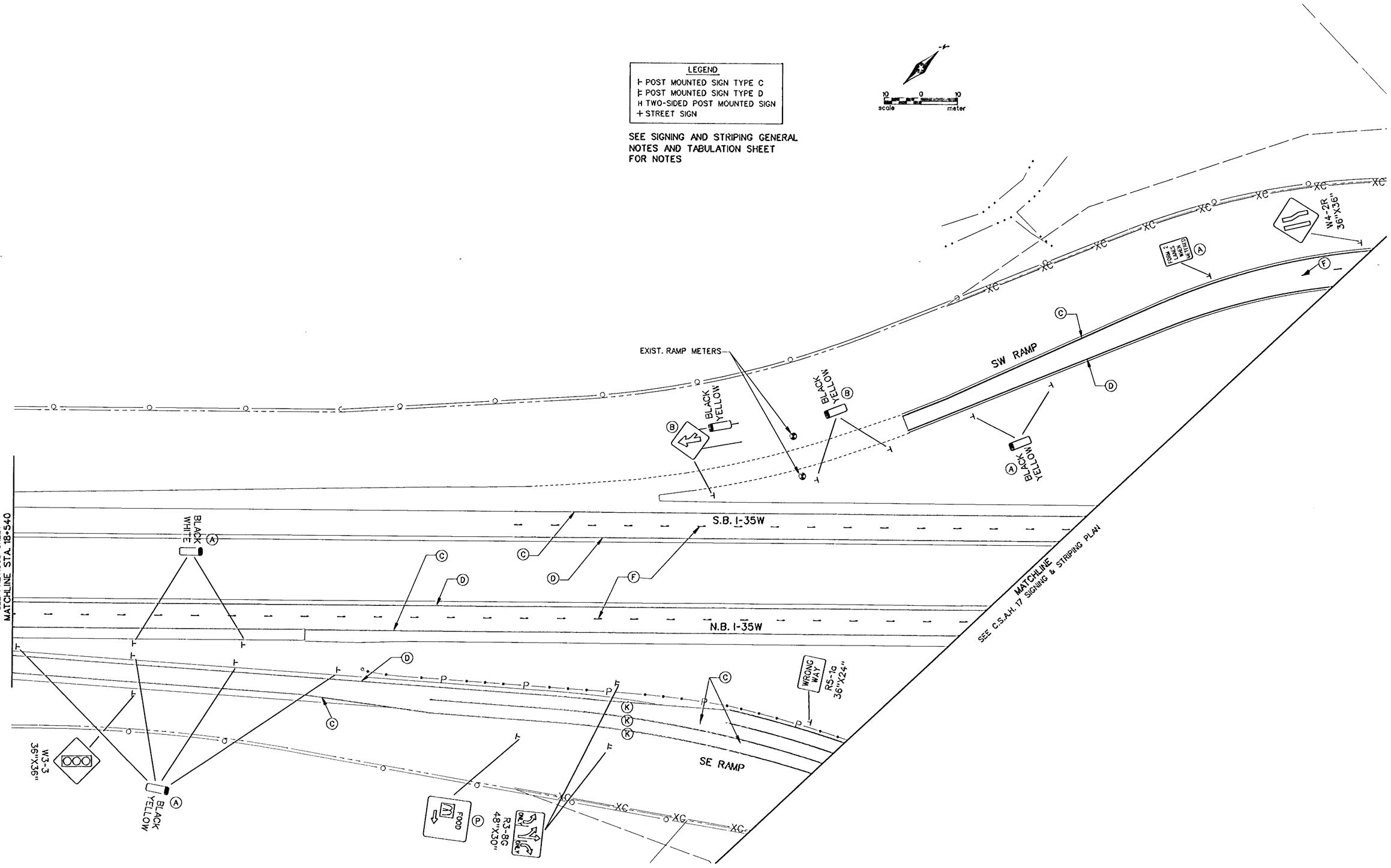
SHEET 116 OF 236

LEGEND

- ⊢ POST MOUNTED SIGN TYPE C
- ⊧ POST MOUNTED SIGN TYPE D
- H TWO-SIDED POST MOUNTED SIGN
- + STREET SIGN

SEE SIGNING AND STRIPING GENERAL NOTES AND TABULATION SHEET FOR NOTES

10 0 10
scale meter



NO	DATE	BY	CKD	APPR	REVISION
1	4-24-97	MCI		DAD	DELETE D-5 SIGN

NAME: SSP5 410.PLN DATE: Mar. 20, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23371

STATE AID PROJECT NO.	
S.A.P. 02-617-11	
S.A.P. 106-020-12	
S.A.P. 106-030-03	
CO. PROJECT NO.	

DRAWN BY V. GRAF	DATE 11-96
DESIGNED BY D. DEMERS	11-96
CHECKED BY B. MOORE	3-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

SIGNING AND STRIPING PLAN

C.S.A.H. 17 RECONSTRUCTION

SW RAMP AND SE RAMP

SHEET 117 OF 236

LEGEND
- ⊢ POST MOUNTED SIGN TYPE C
- ⊨ POST MOUNTED SIGN TYPE D
- H TWO-SIDED POST MOUNTED SIGN
- ┼ STREET SIGN

SEE SIGNING AND STRIPING GENERAL NOTES AND TABULATION SHEET FOR NOTES

scale 10 0 10 meter

SEE C.S.A.H. 17 SIGNING & STRIPING PLAN MATCHLINE

RIGHT TURN LANE R3-X1 30"X30"

WRONG WAY R5-1a 36"X24"

LEXINGTON CIRCLE PINES

FOOD

BLACK YELLOW

W3-3 36"X36"

NW RAMP

S.B. I-35W

N.B. I-35W

BLACK WHITE

BLACK YELLOW

NE RAMP

MATCHLINE STA. 19+160 SEE BELOW

EXIT 33

YELLOW ON BLACK

(TYPE A) A-2

EXIT 33 ANOKA 17 COUNTY Lexington Ave.

200 SOLID LINE WHITE

SEE ABOVE MATCHLINE STA. 19+160

NO	DATE	BY	CKD	APPR	REVISION
1	4-24-97	MCI		DAD	DELETE D-5 SIGN

NAME: SSP6 410.PLN DATE: Mar. 20, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A. Demers

Date 3-21-97 Reg. No. 23377

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY	V. GRAF	DATE 11-96
DESIGNED BY	D. DEMERS	11-96
CHECKED BY	B. MOORE	3-97

COMM. NO. 09624.10

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

SIGNING AND STRIPING PLAN

C.S.A.H. 17 RECONSTRUCTION

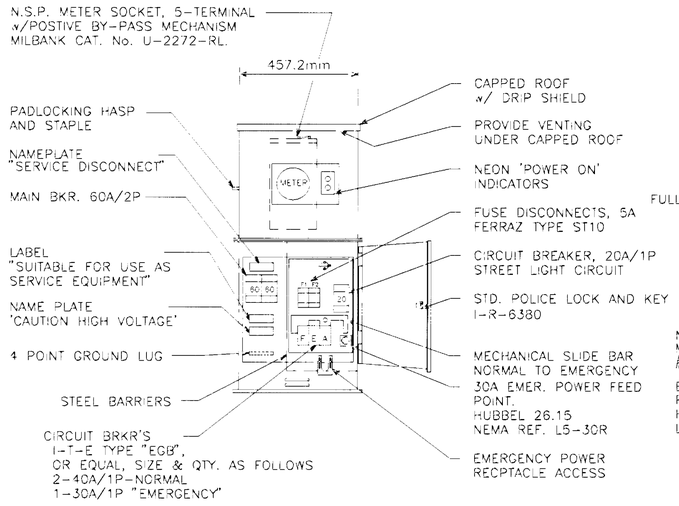
NW RAMP AND NE RAMP

SHEET 118 OF 236

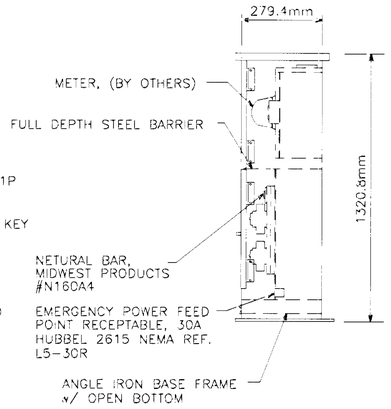
CONSTRUCTION NOTES

ENCLOSURE SHALL BE FABRICATED FROM #12 GA. ALL WELDED COLD ROLLED STEEL FOR OUTDOOR WEATHER PROOF SERVICE.
DOORS TO BE GASKETED, ALL HINGES, PINS AND LOCKS TO BE OF NON CORRODING CONSTRUCTION.
CABINET TO BE PRIMED INSIDE AND OUT WITH RUST INHIBITTING PRIMER. FINISH PER MN/DOT #3527

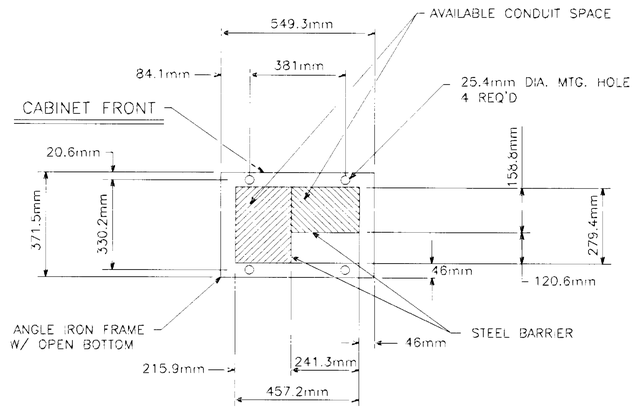
ENCLOSURE SHALL BE 'UL' APPROVED



FRONT ELEV.

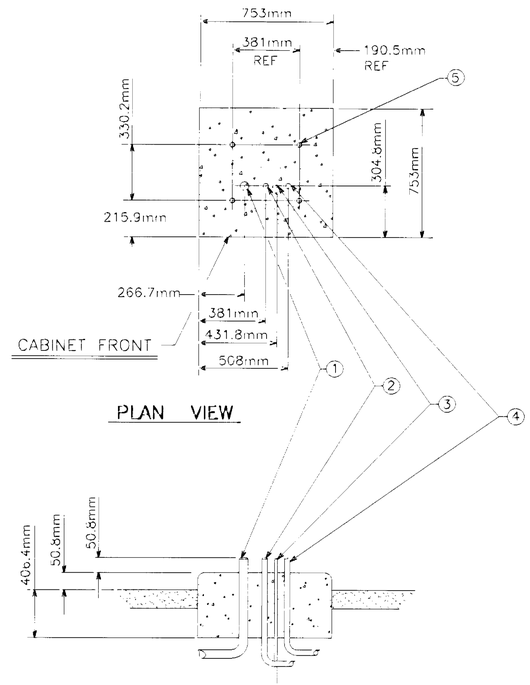


RIGHT SIDE ELEV.



BASE VIEW

SERVICE CABINET FOUNDATION



PLAN VIEW

ELEV. VIEW

1. 53mm RSC FROM SOURCE OF POWER
2. 53mm RSC TO CONTROLLER CABINET
3. GROUNDING ROD
4. 53mm RSC WITH STREET LIGHTING CONDUCTORS
5. ANCHOR BOLT LOCATIONS (4 REQUIRED)

SIGNAL SERVICE CABINET

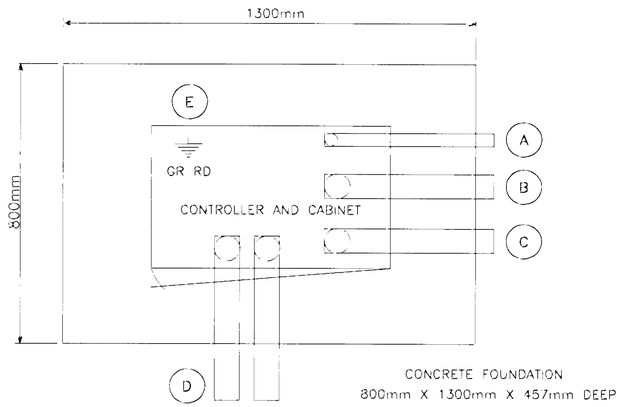
A 53mm RSC FOR SERVICE CONNECTION FROM SERVICE CABINET

B 103mm RSC WITH SIGNAL CONDUCTORS

C 103mm RSC WITH SIGNAL CONDUCTORS

D 2-78mm RSC STUBOUTS, THREAD & CAP BOTH ENDS.

E 15.9mm DIA X 4.6m GROUND ROD



CONCRETE FOUNDATION
800mm X 1300mm X 457mm DEEP

SEE INTERSECTION LAYOUT FOR CONDUIT & CABLE INFORMATION

CONTROLLER CABINET PAD LAYOUT (TYP.)

NO SCALE

NO	DATE	BY	CK'D	APPR	REVISION
1	3-27-97	MAB	GMS	SRE	CHANGED CONTROLLER CABINET PAD DIMENSIONS

NAME: H:\SIGNALS\2410\10-CAB.DWG DATE: MAR 27, 1997 TIME: 10:25 AM

minnesota metric

I hereby certify that this plan, specification or report 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.

George M. Stuempfig

Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO. SAP 02-617-11

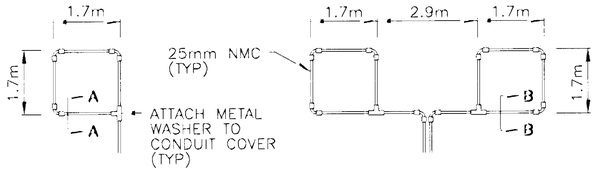
STATE PROJECT NO. SP 0280-47

DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY P.CORKLE 9-96
CHECKED BY G.STUEMPFIG 9-96
COMM. NO. 0962410

SRE CONSULTING GROUP, INC.

ANOKA COUNTY
SIGNAL SERVICE CABINET AND CONTROLLER CABINET DETAILS
C.S.A.H.17 RECONSTRUCTION

SHEET 119 OF 236

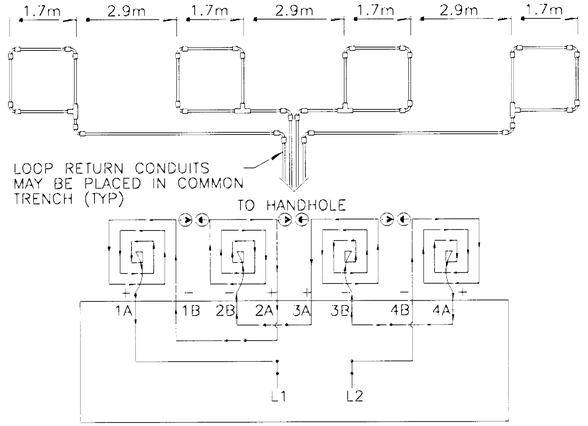


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

L1 TO 1A
1B TO 2A
2B TO L2

LOOP DETECTOR DETAIL 'A'
(LOOP PHASING FOR SINGLE CONNECTION)

LOOP DETECTOR DETAIL 'B'
(LOOP PHASING FOR SERIES CONNECTION)

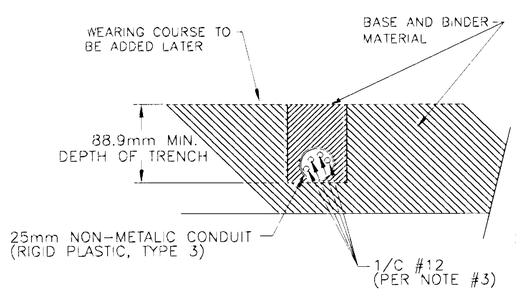


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

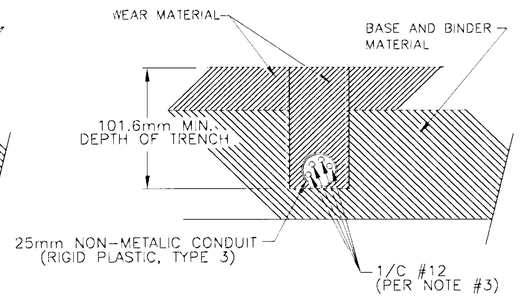
L1 TO 1A	3B TO 4A
1B TO 2A	4B TO L2
2B TO 3A	

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

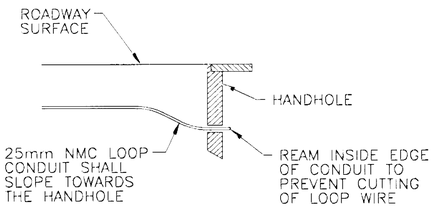
LOOP DETECTOR DETAIL 'C'
(LOOP PHASING FOR SERIES CONNECTION)



SECTION A-A
DETAIL FOR LOOP INSTALLATION IN NEW ROADWAY



SECTION B-B
DETAIL FOR LOOP INSTALLATION IN EXISTING ROADWAY



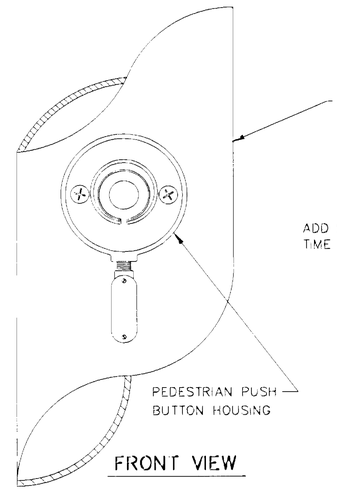
DRAINAGE DETAIL

LOOP DETECTOR WIRING

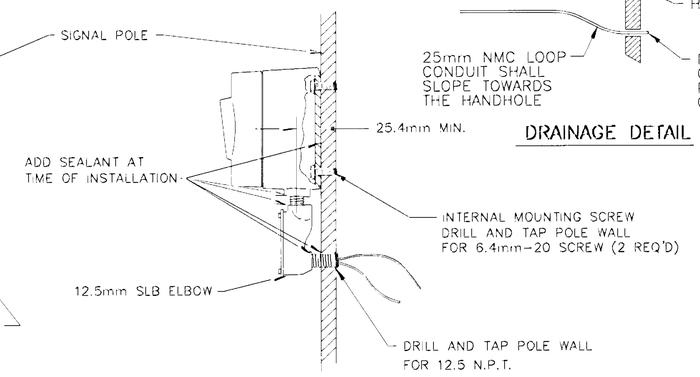
1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHLENE (XLP). SEE SPECIAL PROVISIONS.
4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
6) LOOPS 1.7m x 1.7m THRU 1.7m x 4.3m SHALL HAVE (4) TURNS.
7) LOOPS 1.7m x 4.6m AND LARGER SHALL HAVE (2) TURNS.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's
SIGNAL BASE NO.
SIGNAL FACE NO.
LUMINAIRE NO.
CONTROLLER AND CABINET
CONTROLLER AND CABINET - IN PLACE
HANDHOLE
HANDHOLE - IN PLACE
RIGID STEEL CONDUIT (RSC)
RIGID STEEL CONDUIT (RSC) - IN PLACE
SIGNAL FACE WITH BACKGROUND SHIELD
SIGNAL FACE W/O BACKGROUND SHIELD
SIGNAL FACE - IN PLACE
PEDESTRIAN INDICATORS
PEDESTRIAN INDICATORS - IN PLACE
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE
PEDESTRIAN PUSH BUTTON STATION
TRAFFIC SIGNAL PEDESTAL
TRAFFIC SIGNAL PEDESTAL - INPLACE
TRAFFIC SIGNAL POLE AND MAST ARM
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE
STREET LIGHT POLE AND LUMINAIRE
STREET LIGHT POLE AND LUMINAIRE - IN PLACE
MAST ARM AND LUMINAIRE
MAST ARM AND LUMINAIRE - INPLACE
WOOD POLE
WOOD POLE - IN PLACE
SOURCE OF POWER
RAILROAD SIGNAL - IN PLACE
RIGHT OF WAY LINE
CENTERLINE
EDGE OF ROADWAY
SHOULDERLINE
CURB LINE
STOP BAR



FRONT VIEW



SIDE VIEW

MAST ARM POLE PEDESTRIAN PUSH BUTTON DETAIL

ABBREVIATIONS

3-1(EG)	SIGNAL HEAD PHASE "3" - NO. "1"
BR. GR.	BARE GROUND
CH. SW.	CHECK SWITCH
CLR	CLEAR
D2-1(EG)	DETECTOR PHASE "2" - NO. "1"
DWK	DON'T WALK
EQG	EQUIPMENT GROUND
EVP	EMERGENCY VEHICLE PRE-EMPTION
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
G	GREEN
GLTA	GREEN LEFT TURN ARROW
GRN	GREEN
GR. R.	GROUND ROD
GRTA	GREEN RIGHT TURN ARROW
GTHA	GREEN THRU ARROW
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
JB	JUNCTION BOX
LUM	LUMINAIRE
NEU	NEUTRAL
NMC	NONMETALLIC CONDUIT
P2-1(EG)	PEDESTRIAN INDICATION PHASE "2"-NO."1"
PB	PUSH BUTTON
PB2-1(EG)	PUSH BUTTON PHASE "2"-NO. "1"
PEC	PHOTOELECTRIC CELL
PED	PEDESTRIAN
R	RED
R&S	REMOVE AND SALVAGE
RLTA	RED LEFT TURN ARROW
RRTA	RED RIGHT TURN ARROW
RSC	RIGID STEEL CONDUIT
SOP	SOURCE OF POWER
SPR	SPARE
ST. LHT.	STREET LIGHT
STA	STATION
SW	SWITCH
SWD	SWITCHED
TDW	TELEPHONE DROP WIRE
WLK	WALK
YEL	YELLOW
YLTA	YELLOW LEFT TURN ARROW
YRTA	YELLOW RIGHT TURN ARROW
YTHA	YELLOW THRU ARROW

CONDUCTOR COLOR CODE

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

NO	DATE	BY	CKD	APPR	REVISION

NAME: H:\SIGNALS\2410\10-LOOP.DWG DATE: MAR 17, 1997 TIME: 1:31 PM

minnesota metric

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO. SAP 02-617-11
STATE PROJECT NO. SP 0280-47

DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY P.CORKLE 9-96
CHECKED BY G.STUEMPFIG 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
LOOP DETECTOR DETAILS
C.S.A.H.17 RECONSTRUCTION

SHEET 120 OF 236

LOOP DETECTOR CHART			DISTANCE FROM STOP LINE
DESIGNATION	SIZE	FUNCTION	
D1-1	2-1.7m x 1.7m	(1)	0.6,9.8m
D1-2	2-1.7m x 1.7m	(1)	-4.0,5.2m
D2-1	1-1.7m x 1.7m	(1)	92m
D2-2	1-1.7m x 1.7m	(1)	92m
D4-1	1-1.7m x 3.4m	(7)	0m
D5-1	2-1.7m x 1.7m	(1)	1.3,10.5m
D5-2	2-1.7m x 1.7m	(1)	-3.3,5.9m
D6-1	1-1.7m x 1.7m	(1)	92m
D6-2	1-1.7m x 1.7m	(1)	92m
D8-1	1-1.7m x 1.7m	(3)	55m
D8-2	3-1.7m x 1.7m	(7)	-5.6,-1.0,3.6m
D8-3	1-1.7m x 1.7m	(7)	-7.6m

FUNCTIONS:

(1) - CALL AND EXTEND
(3) - EXTEND ONLY
(7) - IMMEDIATE EXTEND, DELAY CALL

(2) TYPE PA100-A15.2m-D12.2m-2.7m (DAVIT AT 350°)
PA100 POLE FOUNDATION
3 - ONE WAY SIGNALS (OVERHEAD)
(0m, 3.4m AND 7.0m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 10B AT 0°
TYPE 10B AT 270°
LUMINAIRE - 250 WATT H.P.S. W/PEC & CHECK SWITCH
2 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 7A
78mm RSC
2-12/C #12
4-3/C #12
1-3/C #12 (LUM)
1-3/C #20

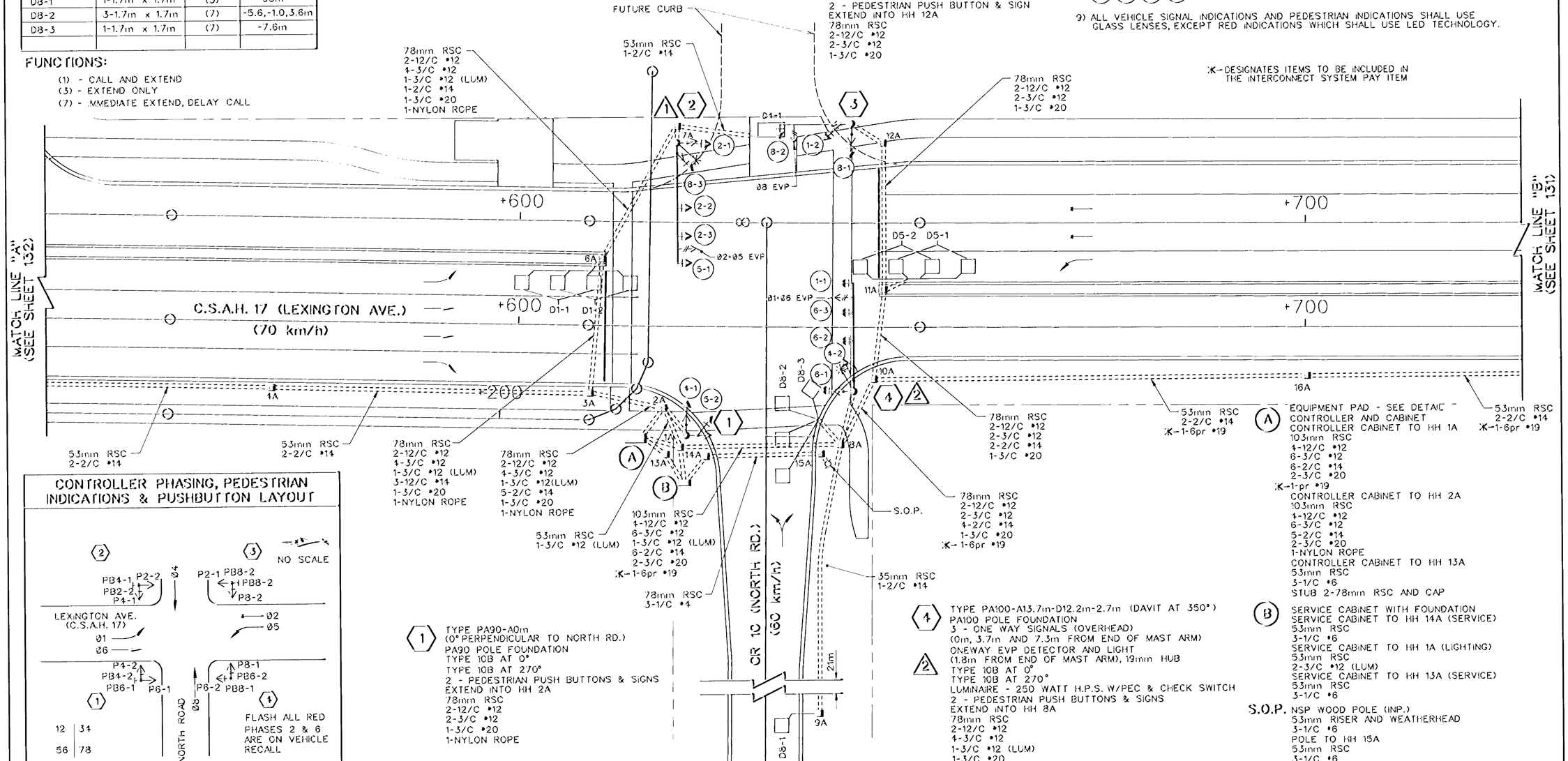
(3) TYPE PA90-A9.1m
PA100 POLE FOUNDATION
1 - ONE WAY SIGNALS (OVERHEAD)
(0m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 10B AT 0°
TYPE 10B AT 270°
2 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 12A
78mm RSC
2-12/C #12
2-3/C #12
1-3/C #20

10 0 10
scale meter

NOTES:

1) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED EQUIPMENT.
2) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
3) SEE SHEET 119 AND SPECIAL PROVISIONS FOR SERVICE CABINET DETAILS.
4) TYPE D SIGNS SHALL BE FURNISHED AND INSTALLED ON MAST ARM POLES 1.2.3. AND 4. SEE SPECIAL PROVISIONS.
5) SEE SPECIAL PROVISIONS FOR HANDHOLE TYPE.
6) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
7) ALL PEDESTRIAN INDICATIONS SHALL BE MAN/HAND (SEE SPECIAL PROVISIONS).
8) ALL SIGNAL FACES SHALL BE 300mm - 3 SECTION R-Y-G, EXCEPT (1-1) (1-2) (5-1) (5-2) WHICH SHALL BE 300mm - 3 SECTION RLTA, YLTA AND GLTA.
9) ALL VEHICLE SIGNAL INDICATIONS AND PEDESTRIAN INDICATIONS SHALL USE GLASS LENSES, EXCEPT RED INDICATIONS WHICH SHALL USE LED TECHNOLOGY.

*K-DESIGNATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM



CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT

(1) TYPE PA90-A0m
(0° PERPENDICULAR TO NORTH RD.)
PA90 POLE FOUNDATION
TYPE 10B AT 0°
TYPE 10B AT 270°
2 - PEDESTRIAN PUSH BUTTONS & SIGNS
EXTEND INTO HH 2A
78mm RSC
2-12/C #12
2-3/C #12
1-3/C #20
1-NYLON ROPE

(4) TYPE PA100-A13.7m-D12.2m-2.7m (DAVIT AT 350°)
PA100 POLE FOUNDATION
3 - ONE WAY SIGNALS (OVERHEAD)
(0m, 3.7m AND 7.3m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 10B AT 0°
TYPE 10B AT 270°
LUMINAIRE - 250 WATT H.P.S. W/PEC & CHECK SWITCH
2 - PEDESTRIAN PUSH BUTTONS & SIGNS
EXTEND INTO HH 8A
78mm RSC
2-12/C #12
4-3/C #12
1-3/C #12 (LUM)
1-3/C #20

(A) EQUIPMENT PAD - SEE DETAIL
CONTROLLER AND CABINET
CONTROLLER CABINET TO HH 1A
103mm RSC
4-12/C #12
6-3/C #12
6-2/C #14
2-3/C #20
*K-1-pr #19
CONTROLLER CABINET TO HH 2A
103mm RSC
4-12/C #12
6-3/C #12
5-2/C #14
2-3/C #20
1-NYLON ROPE
CONTROLLER CABINET TO HH 13A
53mm RSC
3-1/C #6
STUB 2-78mm RSC AND CAP

(B) SERVICE CABINET WITH FOUNDATION
SERVICE CABINET TO HH 14A (SERVICE)
53mm RSC
3-1/C #6
SERVICE CABINET TO HH 1A (LIGHTING)
53mm RSC
2-3/C #12 (LUM)
SERVICE CABINET TO HH 13A (SERVICE)
53mm RSC
3-1/C #6

S.O.P. NSP WOOD POLE (INP.)
53mm RISER AND WEATHERHEAD
3-1/C #6
POLE TO HH 15A
53mm RSC
3-1/C #6

NO	DATE	BY	CKD	APPR	REVISION

NAME: AINT DATE: Dec. 19, 1996

minnesota metric

I hereby certify that this plan, specification or report 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.
Date 3/21/97 Reg. No. 24766

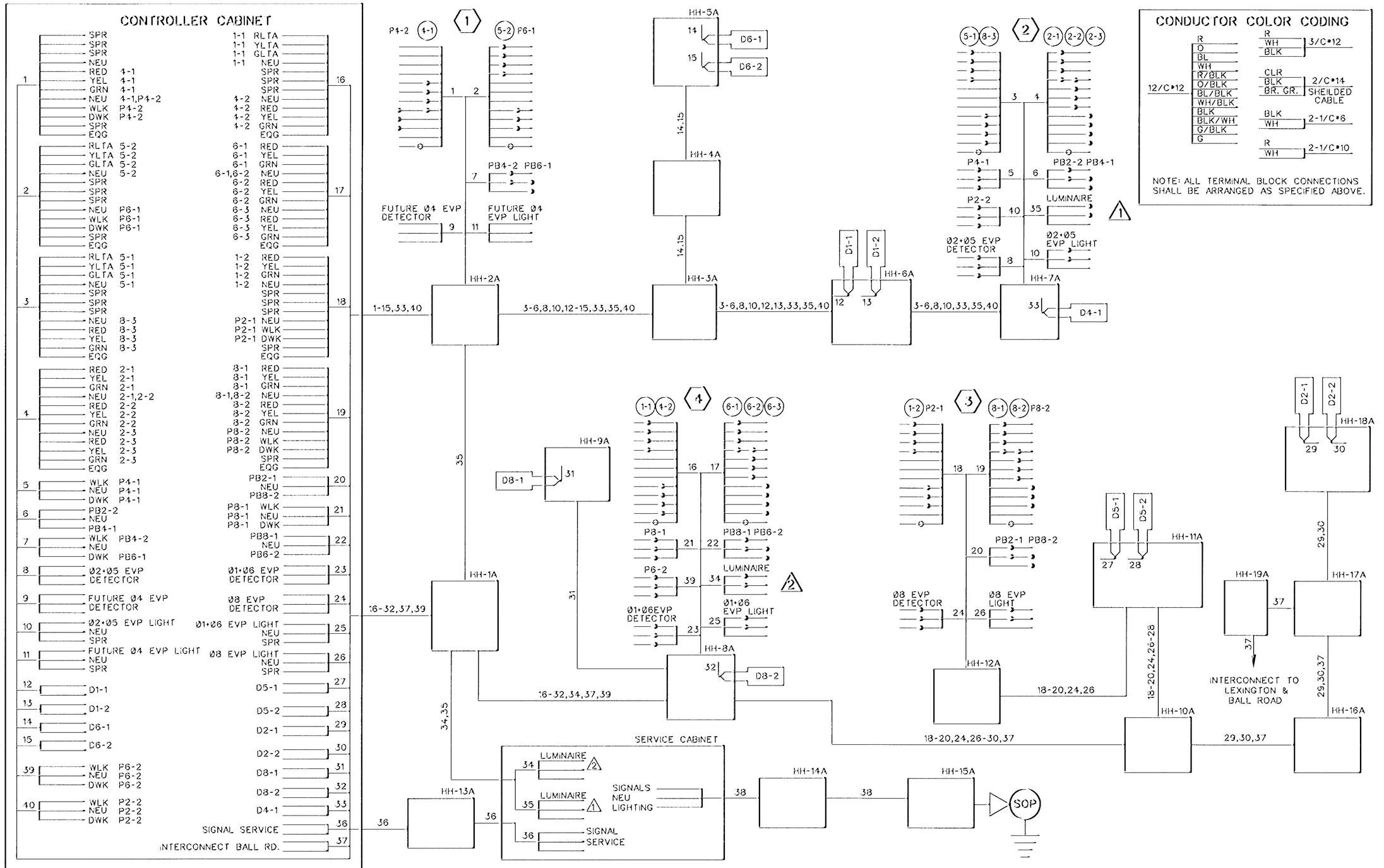
STATE AID PROJECT NO.
SAP 02-617-11

DRAWN BY R.W.SMITH	DATE 9-96
DESIGNED BY P.CORKLE	9-96
CHECKED BY G.STUEMPFIG	9-96
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
INTERSECTION LAYOUT
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 & CR 10 (NORTH RD.) (SYSTEM A)

SHEET 121 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: A.ND DATE: Mar. 18, 1997

minnesota metro

I hereby certify that this plan, specification, or report 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.

Date 3/21/97 Reg. No. 23761

STATE AID PROJECT NO.
SAP 02-617-11

DRAWN BY	R.W.SMITH	DATE 9-96
DESIGNED BY	P.CORKLE	9-96
CHECKED BY	G.STUEMPFIG	9-96
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
FIELD WIRING DIAGRAM
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 & CR 10 (NORTH RD.) (SYSTEM A)

SHEET 122 OF 236

LOOP DETECTOR CHART			DISTANCE FROM STOP LINE
DESIGNATION	SIZE	FUNCTION	
D1-1	2-1.7m x 1.7m	(1)	4.6,13.8m
D1-2	2-1.7m x 1.7m	(1)	0,9.2m
D2-1,D2-2	1-1.7m x 1.7m	(1)	92m
D5-1	2-1.7m x 1.7m	(1)	4.6,13.8m
D5-2	2-1.7m x 1.7m	(1)	0,9.2m
D6-1,D6-2	1-1.7m x 1.7m	(1)	92m
D8-1	1-1.7m x 1.7m	(3)	46m
D8-2	2-1.7m x 1.7m & 1-1.7m x 3.0m	(7)	-3.2,1.4,6m

FUNCTIONS:
(1) - CALL AND EXTEND
(3) - EXTEND ONLY
(7) - IMMEDIATE EXTEND, DELAY CALL

3 TYPE PA100-A12.2m-D12.2m-2.7m (DAVIT AT 350°)
PA100 POLE FOUNDATION
3 - ONE WAY SIGNALS (OVERHEAD)
(0m, 3.8m AND 7.4m FROM END OF MAST ARM)
ONE WAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 10B AT 0°
TYPE 10A AT 270°

2 LUMINAIRE - 250 WATT H.P.S. W/PEC & CHECK SWITCH
1 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 7B
78mm RSC
2-12/C #12
4-3/C #12
1-3/C #12 (LUM)
1-3/C #20

78mm RSC
2-12/C #12
4-3/C #12
1-3/C #12 (LUM)
1-3/C #20

4 TYPE PA100-A13.7m
PA100 POLE FOUNDATION
1 - ONE WAY SIGNAL (OVERHEAD)
(0m FROM END OF MAST ARM)
ONE WAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 10A AT 0°
TYPE 10B AT 270°
1 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 8B
78mm RSC
1-12/C #12
4-3/C #12
1-3/C #20

78mm RSC
1-12/C #12
4-3/C #12
2-2/C #14
1-3/C #20

53mm RSC
2-2/C #14

53mm RSC
2-2/C #14

Ø8 EVP

Ø2·Ø5 EVP

Ø1·Ø6 EVP

53mm RSC
1-3/C #12 (LUM.)

78mm RSC
1-12/C #12
4-3/C #12
4-2/C #14
1-3/C #20

78mm RSC
1-12/C #12
4-3/C #12
4-2/C #14
1-3/C #20
:K-1-6pr #19

53mm RSC
1-6pr #19
:K-17B

S.O.P.

53mm RSC
2-2/C #14
:K-1-6pr #19

53mm RSC
2-2/C #14
:K-1-6pr #19

78mm RSC
2-12/C #12
4-3/C #12
1-3/C #12 (LUM)
2-2/C #14
1-3/C #20

FUTURE CURB (TYP.)

103mm RSC
4-12/C #12
8-3/C #12
1-3/C #12 (LUM)
4-2/C #14
2-3/C #20
:K-1-6pr #19

35mm RSC
1-2/C #14

C.S.A.H. 17 (LEXINGTON AVE.)
(70 km/h)

BALL RD.
(50 km/h)

MATCH LINE "C"
(SEE SHEET 131)

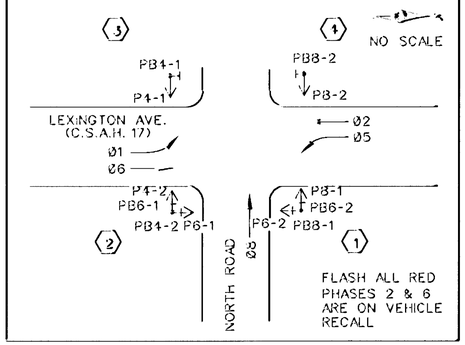
MATCH LINE "D"
(SEE SHEET 125)

SYS. "B" SYS. "C"

10 0 10
scale meter

NOTES:
1) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED EQUIPMENT.
2) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
3) SEE SHEET 119 AND SPECIAL PROVISIONS FOR SERVICE CABINET DETAILS.
4) TYPE D SIGNS SHALL BE FURNISHED AND INSTALLED ON MAST ARM POLES 1,2,3 AND 4. SEE SPECIAL PROVISIONS.
5) SEE SPECIAL PROVISIONS FOR HANDHOLE TYPE.
6) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
7) ALL PEDESTRIAN INDICATIONS SHALL BE MAN/HAND (SEE SPECIAL PROVISION).
8) ALL SIGNAL FACES SHALL BE 300mm - 3 SECTION R-Y-G, EXCEPT (1-1) (1-2) (5-1) (5-2) WHICH SHALL BE 300mm - 3 SECTION RLTA, YLTA AND GLTA.
9) ALL VEHICLE SIGNAL INDICATIONS AND PEDESTRIAN INDICATIONS SHALL USE GLASS LENSES, EXCEPT RED INDICATIONS WHICH SHALL USE LED TECHNOLOGY.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT



2 TYPE PA100-A0m (0° PERPENDICULAR TO ℄ BALL RD.)
PA100 POLE FOUNDATION
TYPE 10B AT 0°
TYPE 30A AT 270°
2 - PEDESTRIAN PUSH BUTTONS & SIGNS
EXTEND INTO HH 3B
78m RSC
2-12/C #12
4-3/C #12
1-3/C #20

1 TYPE PA100-A12.2m-D12.2m-2.7m (DAVIT AT 350°)
PA100 POLE FOUNDATION
3 - ONE WAY SIGNALS (OVERHEAD)
(0m, 3.1m AND 6.7m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 30A AT 0°
TYPE 10B AT 270°

1 LUMINAIRE - 250 WATT H.P.S. W/PEC & CHECK SWITCH
2 - PEDESTRIAN PUSH BUTTONS & SIGNS
EXTEND INTO HH 13B
78mm RSC
2-12/C #12
4-3/C #12
1-3/C #12 (LUM)
1-3/C #20

:K-DESIGNATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM

SYSTEM BOUNDARY

A EQUIPMENT PAD - SEE DETAIL
CONTROLLER AND CABINET
CONTROLLER CABINET TO HH 1B
103mm RSC
4-12/C #12
8-3/C #12
6-2/C #14
2-3/C #20
:K-1-6pr #19
CONTROLLER CABINET TO HH 13B
103mm RSC
3-12/C #12
8-3/C #12
4-2/C #14
2-3/C #20
:K-1-6pr #19
CONTROLLER CABINET TO HH 14B
53mm RSC
3-1/C #6
STUB OUT AND CAP
2-78mm RSC TO WEST

B SERVICE CABINET FOUNDATION
SERVICE CABINET TO HH 14B (SERVICE)
53mm RSC
3-1/C #6
SERVICE CABINET TO HH 1B (LIGHTING)
53mm RSC
2-3/C #12
SERVICE CABINET TO HH 15B (SERVICE)
53mm RSC
3-1/C #6

S.O.P. NSP WOOD POLE (INP.)
53mm RSC RISER AND WEATHERHEAD
3-1/C #6
POLE TO HH 15B
53mm RSC
3-1/C #6

NO	DATE	BY	CKD	APPR	REVISION
1	3-27-97	MAB	GMS	DRE	ADJUST CROSSWALK LOCATIONS

NAME: B.INT DATE: Mar. 27, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO.
SAP 02-617-11

DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY C.LEIGHT 9-96
CHECKED BY G.STUEMPFIG 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
INTERSECTION LAYOUT
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 & BALL RD. (SYSTEM B)

SHEET 123 OF 236

CONTROLLER CABINET

1	RLTA 5-2	6-1 RED		
	YLTA 5-2	6-1 YEL		
	GLTA 5-2	6-1 GRN		
	NEU 5-2	6-1,6-2 NEU		
	SPR	6-2 RED		
	SPR	6-2 YEL		19
	SPR	6-2 GRN		
	NEU	6-3 NEU		
	SPR	6-3 RED		
	SPR	6-3 YEL		
	SPR	6-3 GRN		
	EQG	EQG		
2	SPR	1-1 RLTA		
	SPR	1-1 YLTA		
	SPR	1-1 GLTA		
	NEU	1-1 NEU		
	SPR	SPR		
	SPR	SPR		20
	SPR	SPR		
	NEU	NEU		
	SPR	SPR		
	SPR	SPR		
	SPR	SPR		
	EQG	EQG		
3	RED 2-1	1-2 RLTA		
	YEL 2-1	1-2 YLTA		
	GRN 2-1	1-2 GLTA		
	NEU 2-1, 2-2	1-2 NEU		
	RED 2-2	8-1 RED		
	YEL 2-2	8-1 YEL		21
	GRN 2-2	8-1 GRN		
	NEU 2-3	8-1,8-2 NEU		
	RED 2-3	8-2 RED		
	YEL 2-3	8-2 YEL		
	GRN 2-3	8-2 GRN		
	EQG	EQG		
4	RLTA 5-1	P6-2 WLK		22
	YLTA 5-1	P6-2 NEU		
	GLTA 5-1	P6-2 DWK		
	NEU 5-1	P8-1 WLK		23
	RED 8-3	P8-1 NEU		
	YEL 8-3	P8-1 DWK		
	GRN 8-3	FUTURE P2-1 WLK		24
	NEU 8-3	FUTURE P2-1 NEU		
	SPR	FUTURE P2-1 DWK		
	SPR			
	SPR	P8-2 WLK		25
	EQG	P8-2 NEU		
		P8-2 DWK		
5	WLK P6-1	FUTURE PB2-1		26
	NEU P6-1	NEU		
	DWK P6-1	PB8-2		
6	WLK P4-2	PB6-2		27
	NEU P4-2	NEU		
	DWK P4-2	PB8-1		
7	WLK FUTURE P2-2			
	NEU FUTURE P2-2	Ø1•Ø6 EVP		28
	DWK FUTURE P2-2	DETECTOR		
8	WLK P4-1			
	NEU P4-1	Ø8 EVP		29
	DWK P4-1	DETECTOR		
9	FUTURE PB2-2			
	NEU	Ø1•Ø6 EVP LIGHT		30
	PB4-1	NEU		
10	PB6-1	SPR		
	NEU	Ø8 EVP LIGHT		31
	PB4-2	NEU		
11	FUTURE Ø4 EVP	SPR		
	DETECTOR			
		D8-1		32
12	Ø2•Ø5 EVP			
	DETECTOR	D5-1		33
13	FUTURE Ø4 EVP LIGHT	D5-2		34
	NEU			
	SPR	D2-1		35
14	Ø2•Ø5 EVP LIGHT			
	NEU	D2-2		36
	SPR			
15	D1-1	D8-2		37
16	D1-2	INTERCONNECT TO NORTH ROAD		43
17	D6-1			
18	D6-2	INTERCONNECT TO SOUTH RAMPS		44
	SIGNAL SERVICE			41

CONDUCTOR COLOR CODING

12/C•12: R, O, BL, WH, R/BLK, O/BLK, BL/BLK, WH/BLK, BLK, BLK/WH, G/BLK, G

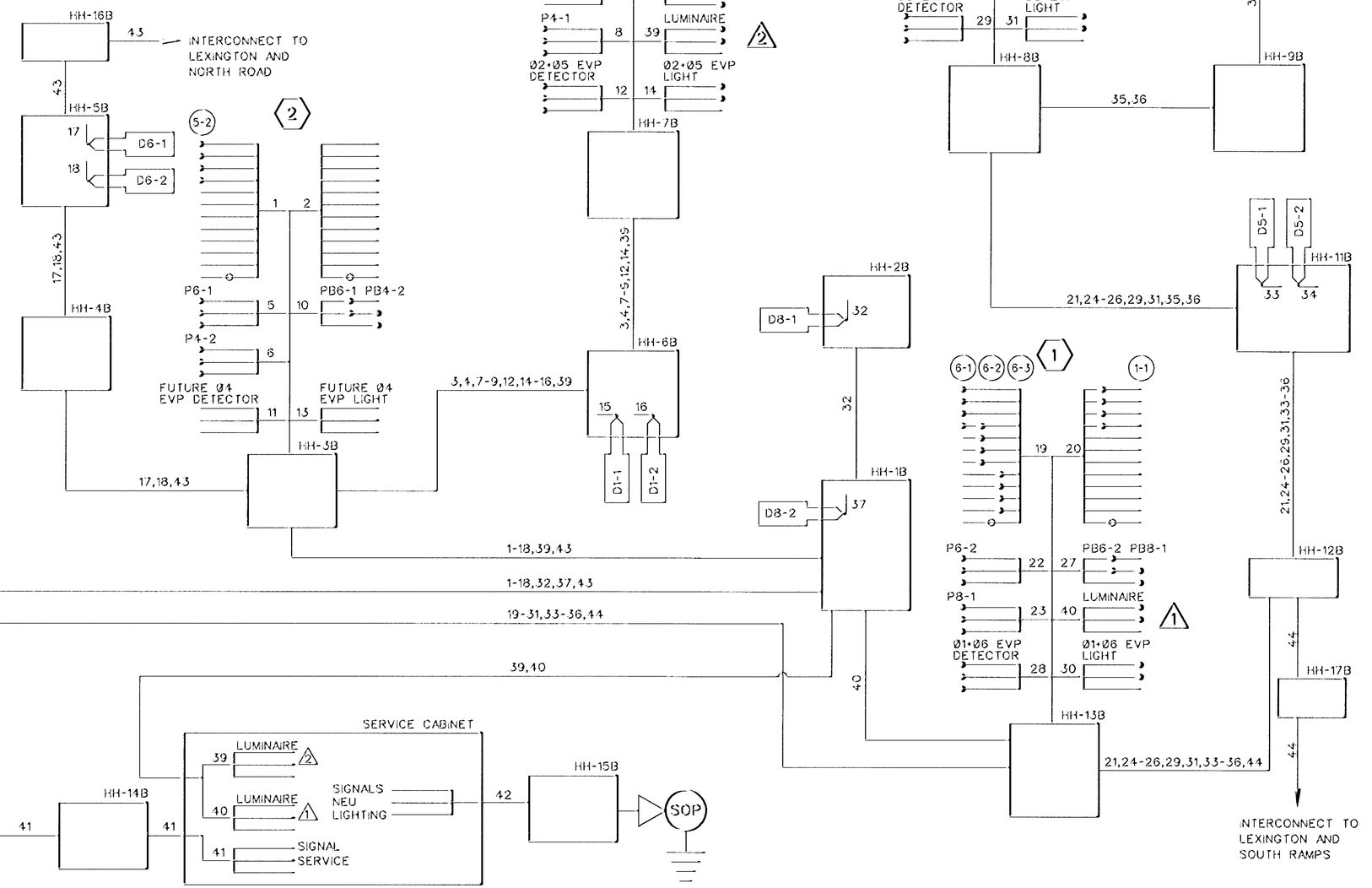
3/C•12: R, WH, BLK

2/C•14 SHEILDED CABLE: CLR, BLK, BR. GR.

2-1/C•6: BLK, WH

2-1/C•10: R, WH

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



NO	DATE	BY	CKD	APPR	REVISION

NAME: B.WD DATE: Mar. 18, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

George M. Stuempfig

Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO.

SAP 02-617-11

DRAWN BY	R.W.SMITH	DATE 9-96
DESIGNED BY	C.LEIGHT	9-96
CHECKED BY	G.STUEMPFIG	9-96
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

FIELD WIRING DIAGRAM

C.S.A.H. 17 RECONSTRUCTION

C.S.A.H. 17 & BALL RD. (SYSTEM B)

SHEET 124 OF 236

LOOP DETECTOR CHART

DESIGNATION	SIZE	FUNCTION	DISTANCE FROM STOP LINE
D2-1	1-1.7m x 1.7m	(1)	92m
D2-2	1-1.7m x 1.7m	(1)	92m
D4-1	1-1.7m x 1.7m	(3)	35m
D4-2	1-1.7m x 1.7m	(3)	35m
D4-3	2-1.7m x 1.7m	(1)	0m,4.6m
D4-4	2-1.7m x 1.7m	(1)	0m,4.6m
D5-1	2-1.7m x 1.7m	(1)	6.1m,15.2m
D5-2	2-1.7m x 1.7m	(1)	1.5m,10.7m
D6-1	1-1.7m x 1.7m	(1)	92m
D6-2	1-1.7m x 1.7m	(1)	92m

FUNCTIONS:

(1) - CALL AND EXTEND
(3) - EXTEND ONLY
(7) - IMMEDIATE EXTEND, DELAY CALL

(3) TYPE PA90-A9.1m-D12.2m-2.7m
(DAVIT AT 350°)
PA90 POLE FOUNDATION
2 - ONE WAY SIGNALS (OVERHEAD)
(0m AND 3.3m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
(1.2m FROM END OF MAST ARM), 19mm HUB
TYPE 10B AT 270°
LUMINAIRE - 250 WATT H.P.S.
WITH PEC & CHECK SWITCH
1 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 5C
78mm RSC
1-12/C #12
3-3/C #12
1-3/C #12 (LUM)
1-3/C #20

(2) TYPE PA90-A10.7m
PA90 POLE FOUNDATION
1 - ONE WAY SIGNALS (OVERHEAD)
(0m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 10A AT 0°
TYPE 10A AT 270°
1-R9-3a SIGN FACING (3)
EXTEND INTO HH 4C
78mm RSC
1-12/C #12
1-3/C #12
1-3/C #20

78mm RSC
2-12/C #12
4-3/C #12
4-2/C #14
1-3/C #12 (LUM)
1-3/C #20

(4) 10' PEDESTAL AND BASE
PEDESTAL FOUNDATION
TYPE 1B
1 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 6C
53mm RSC
1-12/C #12
1-3/C #12

35mm RSC
2-2/C #14

53mm RSC
4-2/C #14

78mm RSC
1-12/C #12
1-3/C #12
4-2/C #14

SYSTEM BOUNDARY
SYS. "B" | SYS. "C"

MATCH LINE "D" (SEE SHEET 123)

MATCH LINE "E" (SEE SHEET 132)

S.E. RAMP

N.E. RAMP (N.B. I-35W ENTRANCE)

C.S.A.H. 17 (LEXINGTON AVE.)
(70 km/h)

+200

Ø2+Ø5 EVP
Ø4 EVP
Ø6 EVP

53mm RSC
2-2/C #14
:K-1-6pr #19

103mm RSC
3-12/C #12
5-3/C #12
1-3/C #12 (LUM)
4-2/C #14
2-3/C #20

78mm RSC
2-12/C #12
1-3/C #12
1-3/C #12 (LUM)
4-2/C #14
1-3/C #20
:K-1-6pr #19

S.O.P. 53mm RSC
1-3/C #12 (LUM)

53mm RSC
1-6pr #19

(5) TYPE PA90-A9.1m-D12.2m-2.7m
(DAVIT AT 350°)
PA90 POLE FOUNDATION
2 - ONE WAY SIGNALS (OVERHEAD)
(0m AND 3.3m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
(1.2m FROM END OF MAST ARM), 19mm HUB
TYPE 10A AT 90°
TYPE 10A AT 180°
LUMINAIRE - 250 WATT H.P.S.
WITH PEC & CHECK SWITCH
1-R9-3a SIGN FACING (4)
EXTEND INTO HH 12C
78mm RSC
2-12/C #12
1-3/C #12
1-3/C #12 (LUM)
1-3/C #20

(1) 10' PEDESTAL AND BASE
PEDESTAL FOUNDATION
TYPE 1A
EXTEND INTO HH 13C
53mm RSC
1-12/C #12

S.O.P. NSP WOOD POLE
(TO BE RELOCATED BY OTHERS)
53mm RSC RISER AND
WEATHERHEAD
3-1/C #6
POLE TO HH 15C
53mm RSC
3-1/C #6

(B) SERVICE CABINET FOUNDATION
SERVICE CABINET TO HH 14C (SERVICE)
53mm RSC
3-1/C #6
SERVICE CABINET TO HH 13C (LIGHTING)
53mm RSC
2-3/C #12 (LUM)
SERVICE CABINET TO HH 15C
53mm RSC
3-1/C #6

(A) EQUIPMENT PAD - SEE DETAIL
CONTROLLER AND CABINET
CONTROLLER CABINET TO HH 1C
103mm RSC
3-12/C #12
5-3/C #12
6-2/C #14
2-3/C #20
:K-1-6pr #19
CONTROLLER CABINET TO HH 13C
103mm RSC
3-12/C #12
1-3/C #12
4-2/C #14
1-3/C #20
:K-1-6pr #19
CONTROLLER CABINET TO HH 14C
53mm RSC
3-1/C #6
STUB OUT AND CAP
2-78mm RSC TO WEST

CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT

NO SCALE

LEXINGTON AVE. (C.S.A.H. 17)
PB2-2
PB2-1
P2-2
P2-1
Ø2
Ø5
Ø6
N.B. I-35W RAMP
FLASH ALL RED PHASES 2 & 6 ARE ON VEHICLE RECALL

NOTES:

1) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED EQUIPMENT.
2) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
3) SEE SHEET 119 AND SPECIAL PROVISIONS FOR SERVICE CABINET DETAILS.
4) TYPE D SIGNS SHALL BE FURNISHED AND INSTALLED ON MAST ARM POLES 1,2,3 AND 4. SEE SPECIAL PROVISIONS.
5) SEE SPECIAL PROVISIONS FOR HANDHOLE TYPE.
6) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
7) ALL PEDESTRIAN INDICATIONS SHALL BE MAN/HAND (SEE SPECIAL PROVISIONS).
8) ALL SIGNAL FACES SHALL BE 300mm - 3 SECTION R-Y-G, EXCEPT (5-1) (5-2) WHICH SHALL BE 300mm - 3 SECTION RLTA, YLTA AND GLTA.
9) ALL VEHICLE SIGNAL INDICATIONS AND PEDESTRIAN INDICATIONS SHALL USE GLASS LENSES, EXCEPT RED INDICATIONS WHICH SHALL USE LED TECHNOLOGY.
10) CONDUIT AND JUNCTION BOXES ON BRIDGE TO BE INCLUDED IN BRIDGE PAY ITEMS.

:K-DESIGNATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM

NO	DATE	BY	CKD	APPR	REVISION

NAME: C.INT DATE: Mar. 18, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO. SAP 02-617-11
STATE PROJECT NO. SP 0280-47

DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY G.STUEMPFIG 9-96
CHECKED BY C.LEIGHT 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
INTERSECTION LAYOUT
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 & I-35W SOUTH RAMPS (SYSTEM C)

SHEET 125 OF 236

CONTROLLER CABINET

1
- RED 2-2
- YEL 2-2
- GRN 2-2
- NEU 2-2,2-3
- RED 2-3
- YEL 2-3
- GRN 2-3
- NEU 2-4
- RED 2-4
- YEL 2-4
- GRN 2-4
- EQG

2
- RED 2-1
- YEL 2-1
- GRN 2-1
- NEU 2-1,P2-1
- WLK P2-1
- DWK P2-1
- SPR
- NEU
- SPR
- SPR
- SPR
- EQG

3
- RED 4-1
- YEL 4-1
- GRN 4-1
- NEU 4-1,4-2
- RED 4-2
- YEL 4-2
- GRN 4-2
- NEU 5-1
- RLTA 5-1
- YLTA 5-1
- GLTA 5-1
- EQG

4
- PB2-2
- NEU
- SPR

5
- PB2-1
- NEU
- SPR

6
- Ø2•Ø5 EVP LT
- NEU
- SPR

7
- Ø2•Ø5 EVP
- DETECTOR

8
- Ø4 EVP LT
- NEU
- SPR

9
- Ø4 EVP
- DETECTOR

10 D4-1

11 D4-2

12 D4-3

13 D4-4

29
- WLK P2-2
- NEU P2-2
- DWK P2-2

14
- 5-2 RLTA
- 5-2 YLTA
- 5-2 GLTA
- 5-2 NEU
- SPR
- SPR
- SPR
- NEU
- SPR
- SPR
- SPR
- EQG

15
- 6-1 RED
- 6-1 YEL
- 6-1 GRN
- 6-1,6-2 NEU
- 6-2 RED
- 6-2 YEL
- 6-2 GRN
- 4-3 NEU
- 4-3 RED
- 4-3 YEL
- 4-3 GRN
- EQG

16
- Ø6 EVP LT
- NEU
- SPR

17 Ø6 EVP DETECTOR

18 D6-1

19 D6-2

20 D2-1

21 D2-2

22 D5-1

23 D5-2

31
- 6-3 RED
- 6-3 YEL
- 6-3 GRN
- 6-3 NEU
- SPR
- SPR
- SPR
- NEU
- SPR
- SPR
- SPR
- EQG

24 INTERCONNECT TO NORTH RAMP

25 INTERCONNECT TO BALL ROAD

28 SIGNAL SERVICE

(2-2)(2-3)(2-4) ③

1 27 LUMINARE ②

6 Ø2•Ø5 EVP LIGHT

P2-2 29

7 Ø2•Ø5 EVP DETECTOR

PB2-2 4

1,4,6,7,27,29

(4-1)(4-2)(5-1) ②

3 3,8,9

Ø4 EVP LIGHT 8

Ø4 EVP DETECTOR 9

1,2,4-7,10-13,27,29

RH-4C

1-13,27,29

RH-1C

1-13,18,19,25,29

18,19,25

RH-2C

18,19,25

RH-3C

18 D6-1

19 D6-2

25

(5-2) ①

14

RH-13C

15-17,20-24,26,31

INTERCONNECT TO LEXINGTON AND BALL ROAD

14-17,20-24,31

26,27

SERVICE CABINET

26 LUMINARE ①

27 LUMINARE ②

28 SIGNAL SERVICE

SIGNALS NEU LIGHTING

30

RH-14C

28 28

RH-15C

SOP

RH-5C

1,4,6,7,27,29

2,5,10-13

RH-6C

10-13

D4-1 10

D4-2 11

10,11

RH-8C

D4-3 D4-4

RH-7C

12 13

④

(2-1) P2-1

2

PB2-1

5

2,5

D2-1 20

D2-2 21

20,21

JB-11C

JB-10C

20,21

RH-9C

D5-1 22

D5-2 23

20-23

RH-12C

15-17,26,31

24

RH-16C

24

INTERCONNECT TO LEXINGTON AND NORTH RAMP

⑤

(6-3)

31

(6-1)(6-2)(4-3)

Ø6 EVP LIGHT 16

15

Ø6 EVP DETECTOR 17

LUMINARE 26 ①

CONDUCTOR COLOR CODING

12/C•12
- R
- O
- BL
- WH
- R/BLK
- O/BLK
- BL/BLK
- WH/BLK
- BLK
- BLK/WH
- G/BLK
- G

3/C•12
- R
- WH
- BLK

3/C•20
- R OR O
- WH OR YEL
- BLK OR BL

2/C•14
- BLK
- CLEAR

3-1/C•6
- BLK
- WH
- BR. GR.

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

NO	DATE	BY	CKD	APPR	REVISION

NAME: C.WD DATE: Mar. 18, 1997

minnesota metric

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George M. Stuempfig

Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO. SAP 02-617-11

STATE PROJECT NO. SP 0280-47

DRAWN BY M.BRESSLER DATE 9-96

DESIGNED BY G.STUEMPFIG 9-96

CHECKED BY D.EYLER 9-96

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

FIELD WIRING DIAGRAM

C.S.A.H. 17 RECONSTRUCTION

C.S.A.H. 17 & I-35W SOUTH RAMPS (SYSTEM C)

SHEET 126 OF 236

LOOP DETECTOR CHART

DESIGNATION	SIZE	FUNCTION	DISTANCE FROM STOP LINE
D1-1,D1-3	2-1.7m x 1.7m	(1)	6.1,15.2m
D1-2,D1-4	2-1.7m x 1.7m	(1)	1.5,10.7m
D3-1,D3-2	1-1.7m x 1.7m	(1)	92m
D3-3,D3-4	2-1.7m x 1.7m	(1)	1.5,6.1m
D6-1,D6-2	1-1.7m x 1.7m	(1)	92m
D8-1	1-1.7m x 1.7m	(3)	35m
D8-2	2-1.7m x 1.7m	(1)	1.5,6.1m

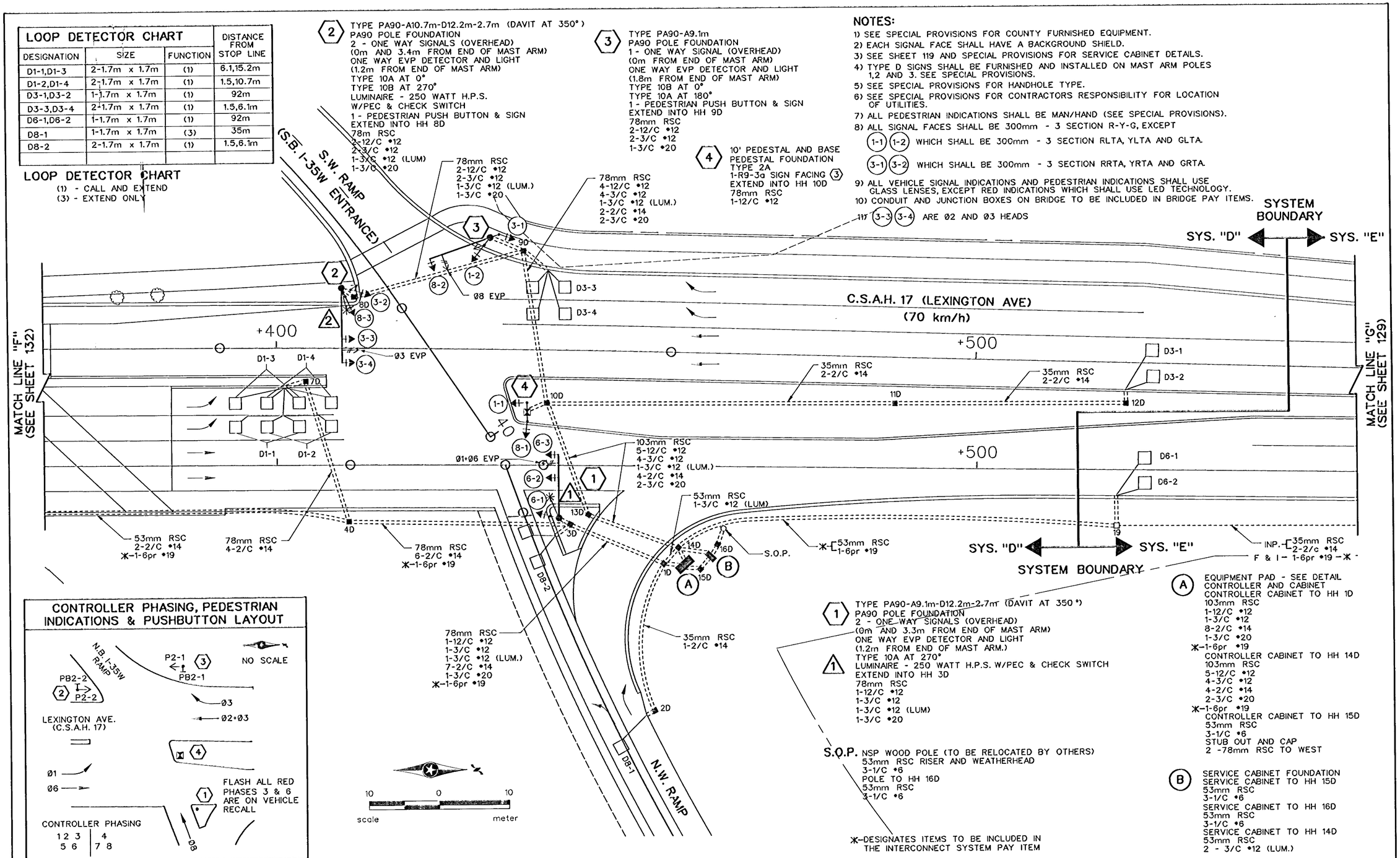
LOOP DETECTOR CHART
(1) - CALL AND EXTEND
(3) - EXTEND ONLY

(2) TYPE PA90-A10.7m-D12.2m-2.7m (DAVIT AT 350°)
PA90 POLE FOUNDATION
2 - ONE WAY SIGNALS (OVERHEAD)
(0m AND 3.4m FROM END OF MAST ARM)
ONE WAY EVP DETECTOR AND LIGHT
(1.2m FROM END OF MAST ARM)
TYPE 10A AT 0°
TYPE 10B AT 270°
LUMINAIRE - 250 WATT H.P.S.
W/PEC & CHECK SWITCH
1 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 8D
78m RSC
2-12/C •12
2-3/C •12
1-3/C •12 (LUM)
1-3/C •20

(3) TYPE PA90-A9.1m
PA90 POLE FOUNDATION
1 - ONE WAY SIGNAL (OVERHEAD)
(0m FROM END OF MAST ARM)
ONE WAY EVP DETECTOR AND LIGHT
(1.8m FROM END OF MAST ARM)
TYPE 10B AT 0°
TYPE 10A AT 180°
1 - PEDESTRIAN PUSH BUTTON & SIGN
EXTEND INTO HH 9D
78mm RSC
2-12/C •12
2-3/C •12
1-3/C •20

(4) 10' PEDESTAL AND BASE
PEDESTAL FOUNDATION
TYPE 2A
1-R9-3a SIGN FACING (3)
EXTEND INTO HH 10D
78mm RSC
1-12/C •12

NOTES:
1) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED EQUIPMENT.
2) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
3) SEE SHEET 119 AND SPECIAL PROVISIONS FOR SERVICE CABINET DETAILS.
4) TYPE D SIGNS SHALL BE FURNISHED AND INSTALLED ON MAST ARM POLES 1,2 AND 3. SEE SPECIAL PROVISIONS.
5) SEE SPECIAL PROVISIONS FOR HANDHOLE TYPE.
6) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
7) ALL PEDESTRIAN INDICATIONS SHALL BE MAN/HAND (SEE SPECIAL PROVISIONS).
8) ALL SIGNAL FACES SHALL BE 300mm - 3 SECTION R-Y-G, EXCEPT
(1-1)(1-2) WHICH SHALL BE 300mm - 3 SECTION RLTA, YLTA AND GLTA.
(3-1)(3-2) WHICH SHALL BE 300mm - 3 SECTION RRTA, YRTA AND GRTA.
9) ALL VEHICLE SIGNAL INDICATIONS AND PEDESTRIAN INDICATIONS SHALL USE GLASS LENSES, EXCEPT RED INDICATIONS WHICH SHALL USE LED TECHNOLOGY.
10) CONDUIT AND JUNCTION BOXES ON BRIDGE TO BE INCLUDED IN BRIDGE PAY ITEMS.
11) (3-3)(3-4) ARE Ø2 AND Ø3 HEADS



CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT

10 0 10
scale meter

(1) TYPE PA90-A9.1m-D12.2m-2.7m (DAVIT AT 350°)
PA90 POLE FOUNDATION
2 - ONE WAY SIGNALS (OVERHEAD)
(0m AND 3.3m FROM END OF MAST ARM)
ONE WAY EVP DETECTOR AND LIGHT
(1.2m FROM END OF MAST ARM.)
TYPE 10A AT 270°
(1) LUMINAIRE - 250 WATT H.P.S. W/PEC & CHECK SWITCH
EXTEND INTO HH 3D
78mm RSC
1-12/C •12
1-3/C •12
1-3/C •12 (LUM)
1-3/C •20

S.O.P. NSP WOOD POLE (TO BE RELOCATED BY OTHERS)
53mm RSC RISER AND WEATHERHEAD
3-1/C •6
POLE TO HH 16D
53mm RSC
3-1/C •6

*-DESIGNATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM

(A) EQUIPMENT PAD - SEE DETAIL
CONTROLLER AND CABINET
CONTROLLER CABINET TO HH 1D
103mm RSC
1-12/C •12
1-3/C •12
8-2/C •14
1-3/C •20
*-1-6pr •19
CONTROLLER CABINET TO HH 14D
103mm RSC
5-12/C •12
4-3/C •12
4-2/C •14
2-3/C •20
*-1-6pr •19
CONTROLLER CABINET TO HH 15D
53mm RSC
3-1/C •6
STUB OUT AND CAP
2 -78mm RSC TO WEST

(B) SERVICE CABINET FOUNDATION
SERVICE CABINET TO HH 15D
53mm RSC
3-1/C •6
SERVICE CABINET TO HH 16D
53mm RSC
3-1/C •6
SERVICE CABINET TO HH 14D
53mm RSC
2 - 3/C •12 (LUM.)

NO	DATE	BY	CKD	APPR	REVISION
1	4/9/97	RWS	GMS	DRE	CHANGE 3-2 TO 3-SECTION RTA HEAD

NAME: D.INT DATE: Apr. 09, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 3/21/97 Reg. No. 21647

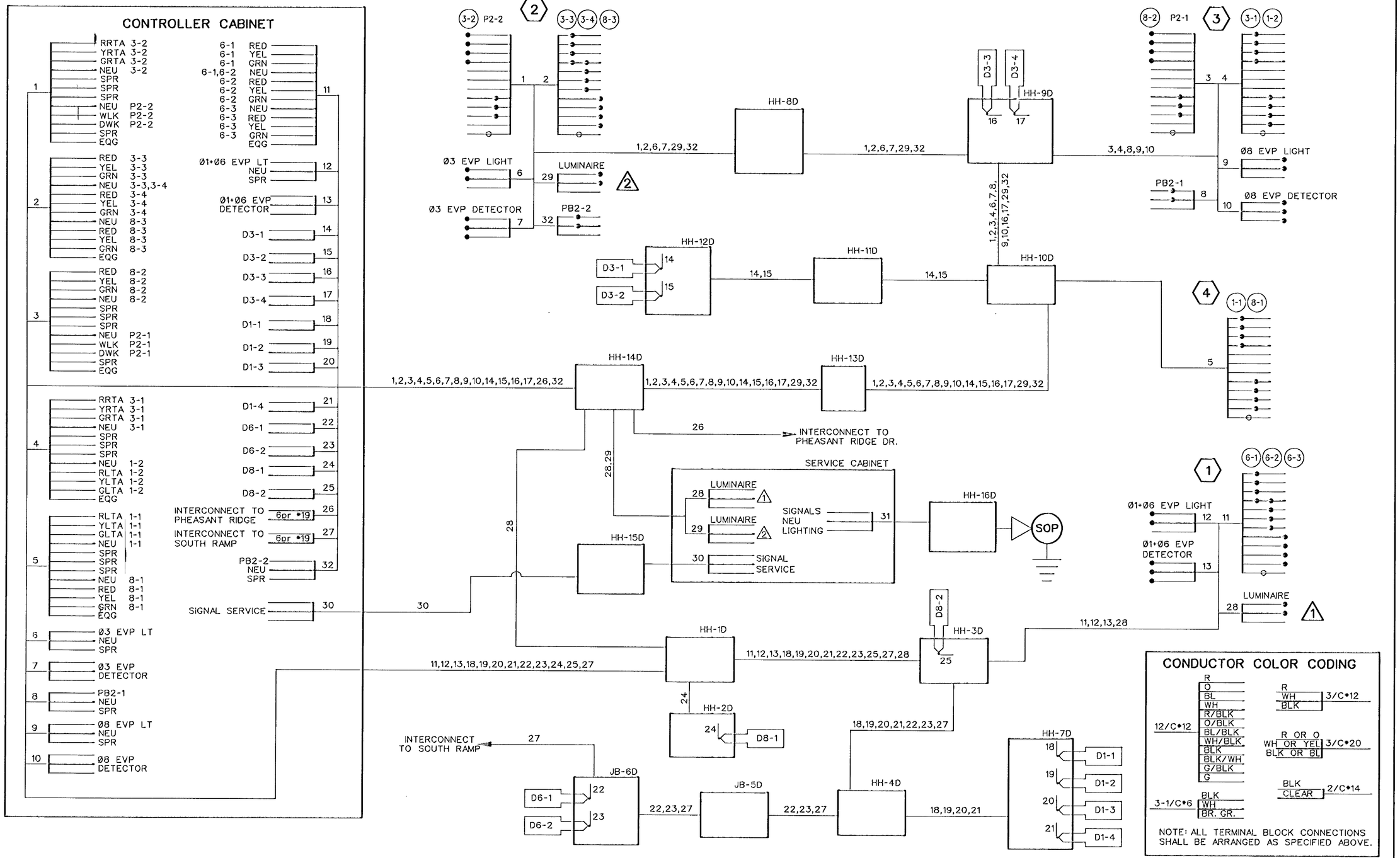
STATE AID PROJECT NO. SAP 02-617-11
STATE PROJECT NO. SP 0280-47

DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY G.STUEMPFIG 9-96
CHECKED BY P.CORKLE 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
INTERSECTION LAYOUT
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 & I-35W NORTH RAMPS (SYSTEM D)

SHEET 127 OF 236



NO	DATE	BY	CKD	APPR	REVISION
1	4/9/97	RWS	GMS	DRE	CHANGE 3-2 TO 3-SECTION RTA HEAD

NAME: D.WD DATE: Apr. 09, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

George M. Stuempfig

Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO. SAP 02-617-11

STATE PROJECT NO. SP 0280-47

DRAWN BY M.BRESSLER DATE 9-96
DESIGNED BY G.STUEMPFIG 9-96
CHECKED BY D.EYLER 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

FIELD WIRING DIAGRAM

C.S.A.H. 17 RECONSTRUCTION

C.S.A.H. 17 & I-35W NORTH RAMPS (SYSTEM D)

SHEET 128 OF 236

LOOP DETECTOR CHART

DESIGNATION	SIZE	FUNCTION	DISTANCE FROM STOP LINE	NOTES
D1-1	1-1.7m x 1.7m	(1)	-0.6,4.0,8.6,13.2m	F & I
D2-1,D2-2	1-1.7m x 1.7m	(1)	11.7m	INP.
D4-1,D4-2	1-1.7m x 1.7m	(3)	89m	INP.
D4-3	2-1.7m x 1.7m	(1)	-1.7,2.9m	F & I
D4-4	2-1.7m x 1.7m	(7)	-1.7,2.9m	F & I
D4-5	1-1.7m x 1.7m	(7)	-2.9m	F & I
D5-1	4-1.7m x 1.7m	(1)	1.4,6.0,10.6,15.2m	INP.
D6-1,D6-2	1-1.7m x 1.7m	(1)	9.2m	F & I

FUNCTIONS:

(1) - CALL AND EXTEND
(3) - EXTEND ONLY
(7) - IMMEDIATE EXTEND, DELAY CALL

REMOVE— P100 POLE FOUNDATION
2 - STEEL GUARD POSTS
REMOVE & SALVAGE— P100-A12.2m
D9.1m-2.7m (DAVIT AT 355°)
REMOVE & REINSTALL— 2 - ONE WAY SIGNALS (OVERHEAD)
(0m AND 3.6m FROM END OF MAST ARM)
TYPE 10C AT 270°
LUMINAIRE - 250 WATT H.P.S.
2 - PEDESTRIAN PUSH BUTTONS & SIGNS
PA100 POLE FOUNDATION
PA100-A15.2m
1 - ONE WAY SIGNAL (OVERHEAD)
(7.2m FROM END OF MAST ARM)
ONEWAY EVP DETECTOR AND LIGHT
F & I— (1.8m FROM END OF MAST ARM), 19mm HUB
EXTEND INTO HH 20
78mm RSC
1-3/C #12
1-3/C #20
INP.— 35mm RSC
REMOVE & REPLACE— 2-2/C #14
REMOVE & REPLACE— 2-12/C #12
1-3/C #12
2-1/C #10

78mm RSC
CONDUIT CONNECTION
F & I— 1-3/C #12
1-3/C #20
REMOVE & REINSTALL— 2-12/C #12
1-3/C #12
2-1/C #10
REMOVE & REPLACE— 4-2/C #14
F & I — 35mm RSC
REMOVE & REPLACE— 2-2/C #14

MATCH LINE "J"
(SEE SHEET 132)

PHEASANT RIDGE DRIVE

C.S.A.H. 17 (LEXINGTON AVE.)
(70 km/h)

MATCH LINE "G"
(SEE SHEET 127)

+600

+700

Ø2 Ø5 EVP
Ø1 Ø6 EVP
Ø4 EVP

D1-1 D4-1 D4-2 D4-3 D4-4 D5-1

REMOVE EXIST. HH, SALVAGE COVER

INP.— 78mm RSC
1-12/C #12
2-3/C #12
2-2/C #14
2-1/C #10
REMOVE & REPLACE— 2-12/C #12
4-2/C #14
F & I— 2-3/C #12
1-3/C #20
1-2/C #14

INP.— 35mm RSC
2-2/C #14

INP.— 78mm RSC
1-12/C #12
2-3/C #12
3-2/C #14
2-1/C #10
REMOVE & REPLACE— 2-12/C #12
4-2/C #14
F & I— 2-3/C #12
1-3/C #20
1-2/C #14

INP.— 78mm RSC
1-12/C #12
2-3/C #12
2-1/C #10
REMOVE & REPLACE— 2-12/C #12
4-2/C #14
F & I— 1-3/C #12
1-3/C #20
1-2/C #14

INP.— 78mm RSC
1-12/C #12
2-3/C #12
2-2/C #14
2-1/C #10
REMOVE & REPLACE— 2-12/C #12
4-2/C #14
F & I— 2-3/C #12
1-3/C #20
1-2/C #14

④ TYPE P100-D9.1m-2.7m
P100 POLE FOUNDATION
LUMINAIRE - 250 WATT H.P.S.
2 - PEDESTRIAN PUSH BUTTONS & SIGNS
EXTEND INTO HH 5
INP.— 78mm RSC
1-12/C #12
2-3/C #12
2-1/C #10
REMOVE & REINSTALL— TYPE 10C AT 0° (ROTATE BRACKETING & PEDESTRIAN HEADS, REPLACE CIRCULAR LENSES WITH LEFT TURN ARROW LENSES, REWIRE HEADS AS INDICATED IN THE WIRING DIAGRAM)
REMOVE & SALVAGE— A-7.6m
1 - ONE WAY SIGNAL (OVERHEAD)
F & I— 1-3/C #12
REMOVE & REPLACE— 1-3/C #12
2-1/C #10
REMOVE— 2 - STEEL GUARD POSTS

S.O.P.

MATCH LINE "H"
(SEE SHEET 132)

INP.— 35mm RSC
REMOVE & REINSTALL— 2-2/C #14
F & I— 1-6pr #19→K

INP.— 35mm RSC
REMOVE & REINSTALL— 2-2/C #14
F & I— 1-6pr #19→K

INP.— 78mm RSC
REMOVE & — 1-2/C #14
REINSTALL

REMOVE— 53mm RSC INCASED IN 78mm RSC
F & I— 78mm RSC
REMOVE & REINSTALL— 1-12/C #12
2-3/C #12
3-2/C #14
F & I— 1-12/C #12
1-3/C #12
1-3/C #20
1-6pr #19→K

INP.— 78mm RSC
REMOVE & REINSTALL— 1-12/C #12
2-3/C #12
3-2/C #14
F & I— 1-12/C #12
1-3/C #20
1-6pr #19→K

INP.— 35mm RSC

:K—DESIGNATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM

③ TYPE P100-A7.6m
P100 POLE FOUNDATION
1 - ONE WAY SIGNAL (OVERHEAD)
TYPE 10B AT 270°
(REMOVE 1 - PED. HEAD FROM EXISTING TYPE 10C)
INP.— 2 - PEDESTRIAN PUSH BUTTONS & SIGNS
EXTEND INTO HH 1
78mm RSC
1-12/C #12
2-3/C #12
F & I— ONE WAY EVP DETECTOR & LIGHT
(1.8m FROM END OF MAST ARM), 19mm HUB
TYPE 10B AT 0° (REMOVE PED. HEAD FROM EXISTING 10C, REINSTALL ON NEW 10B)
1-12/C #12
1-3/C #12
1-3/C #20
REMOVE— 2 - STEEL GUARD POSTS

① REMOVE & SALVAGE— A-12.2m
REMOVE & REINSTALL— 2 - ONE WAY SIGNALS (OVERHEAD)
(0m, 5.5m FROM END OF MAST ARM)
TYPE P100
P100 POLE FOUNDATION
TYPE 10C MOUNTED AT 270°
INP.— 2 - PEDESTRIAN PUSH BUTTONS & SIGNS
EXTEND INTO HH 1
78mm RSC
2-12/C #12
2-3/C #12
A-12.2m
1 - ONE WAY SIGNAL (OVERHEAD)
(2.4m FROM END OF MAST ARM)
F & I— ONE WAY EVP DETECTOR & LIGHT
(1.2m FROM END OF MAST ARM), 19mm HUB
1-3/C #12
1-3/C #20
REMOVE— 2 - STEEL GUARD POSTS

Ⓐ INP.— EQUIPMENT PAD
CONTROLLER AND CABINET-REMOVE, SALVAGE & REPLACE WITH COUNTY FURNISHED CONTROLLER & CABINET
CONTROLLER CABINET TO HH 1
INP.— 78mm RSC
3-12/C #12
2-3/C #12
3-2/C #14
F & I— 1-12/C #12
2-3/C #12
2-3/C #20
1-6pr #19→K
CONTROLLER CABINET TO HH 2
INP.— 78mm RSC
1-12/C #12
2-3/C #12
3-2/C #14
REMOVE & REPLACE— 2-12/C #12
4-2/C #14
F & I— 2-3/C #12
1-3/C #20
1-2/C #14
CONTROLLER CABINET TO HH 12
INP.— 35mm RSC
2-1/C #6
1-1/C #6 BR.GR.

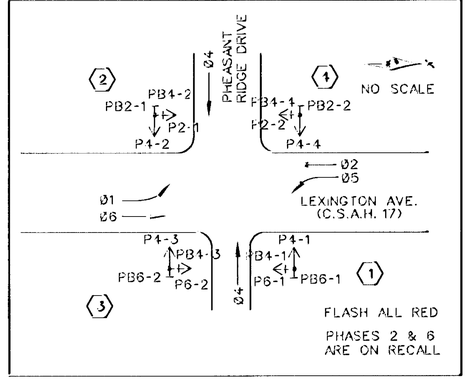
REMOVE & REPLACE Ⓑ SERVICE CABINET
SERVICE CABINET FOUNDATION
SERVICE CABINET TO HH 13 (SERVICE)
35mm RSC
3-1/C #4
1-1/C #6 BR.GR.
INP.— SERVICE CABINET TO HH 12 (SIGNAL & LIGHTING)
35mm RSC
2-1/C #6
1-1/C #6 BR.GR.
2-1/C #10
1-1/C #6 BR.GR.

S.O.P.
INP.— 50' WOOD POLE
35mm RSC RISER w/ WEATHERHEAD
POLE TO HH 13
35mm RSC
3-1/C #4
1-1/C #6 BR.GR.

NOTES:

1) SEE SPECIAL PROVISIONS FOR EXPLANATION OF WORK.
2) THE CONTRACTOR SHALL FURNISH AND INSTALL A NEW TYPE D SIGN ON MAST ARM POLE 2, WHICH SHALL BE CONSIDERED INCIDENTAL WORK.
3) SEE SPECIAL PROVISIONS FOR HANDHOLE TYPE.
4) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
5) EACH SIGNAL FACE HAS A BACKGROUND SHIELD.
6) ALL EXISTING PEDESTRIAN INDICATIONS SHALL BE REUSED.
7) THE SIGNAL FACES ARE 300mm - 3 SECTION R-Y-G, EXCEPT (1-1) (1-2) (5-1) (5-2) WHICH ARE 300mm - 3 SECTION RLTA, YLTA AND GLTA.
8) REMOVE AND SALVAGE EXISTING CONTROLLER AND CABINET. INSTALL COUNTY FURNISHED CONTROLLER AND CABINET ON EXISTING EQUIPMENT PAD.
9) REMOVE AND REPLACE EXISTING CONCRETE STEP IN FRONT OF EQUIPMENT PAD AS DIRECTED BY THE ENGINEER.
10) REMOVE AND SALVAGE EXISTING SERVICE CABINET. FURNISH AND INSTALL NEW SERVICE CABINET ON EXISTING FOUNDATION.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT



NO.	DATE	BY	CKD	APPR	REVISION
1	3-27-97	MAB	GMS	DRE	ADJUST CROSSWALK LOCATIONS

NUMBER PRINT DATE: Mar. 27, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 3/21/97 Reg. No. 21849

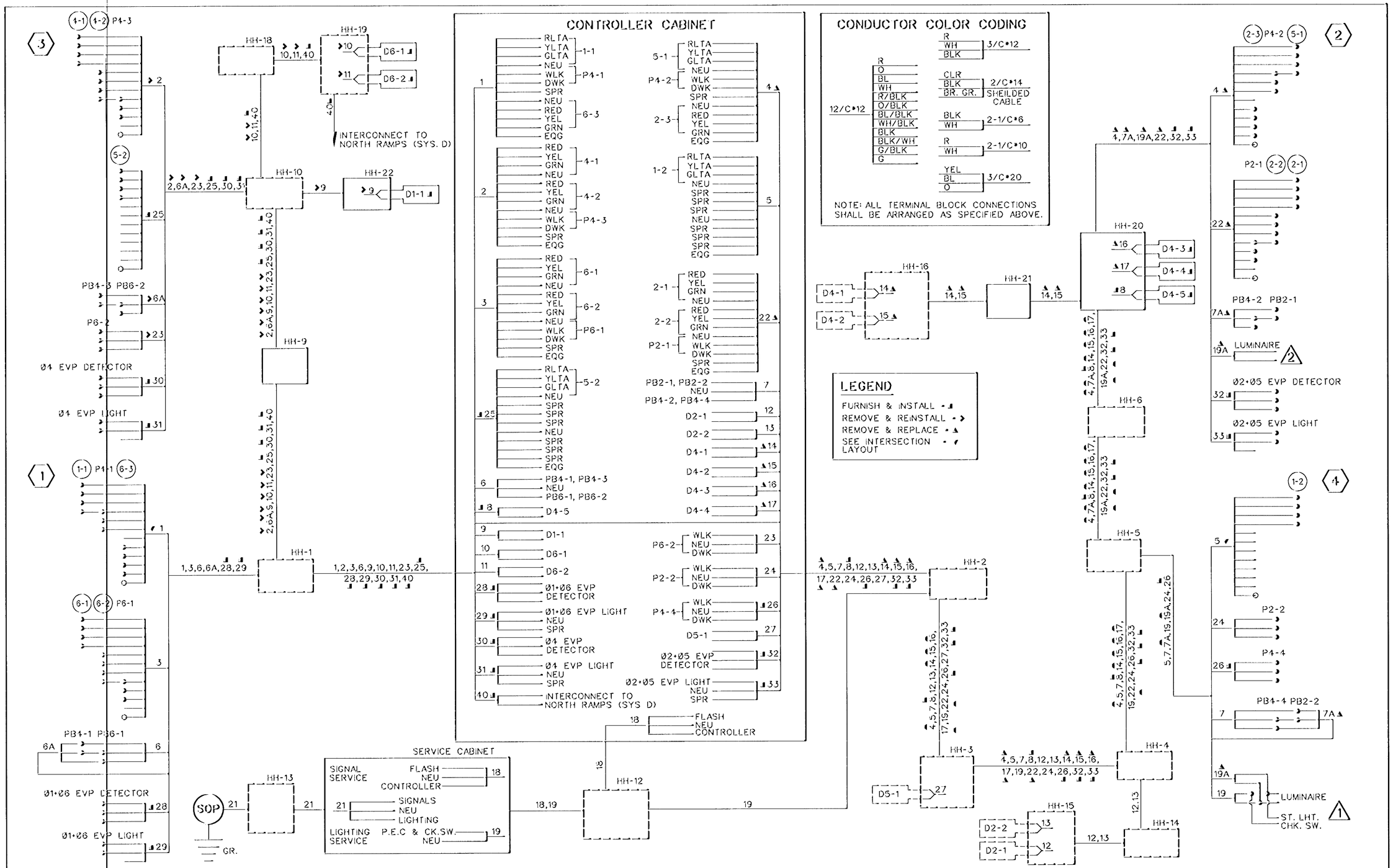
STATE AID PROJECT NO. SAP 02-617-11

DRAWN BY M.BRESSLER DATE 9-96
DESIGNED BY P.CORKLE 9-96
CHECKED BY G.STUEMPFIG 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
REVISED INTERSECTION LAYOUT
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 & PHEASANT RIDGE DR. (SYSTEM E)

SHEET 129 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: E.WD DATE: Mar. 20, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

George M. Stuempfig

Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO.

SAP 02-617-11

DRAWN BY	M BRESSLER	DATE 9-96
DESIGNED BY	P CORKLE	9-96
CHECKED BY	D EYLER	9-96
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

REVISED FIELD WIRING DIAGRAM

C.S.A.H. 17 RECONSTRUCTION

C.S.A.H. 17 & PHEASANT RIDGE DR. (SYSTEM E)

SHEET 130 OF 236

10 0 10
scale meter

SYSTEM BOUNDARY
SYS. "A" SYS. "B"

MATCH LINE "B" (SEE SHEET 121)

D2-1
D2-2
C.S.A.H. 17 (LEXINGTON AVE.)
(70 km/h)
+800
+900
18
78mm RSC 2-2/C #14
+800
17A
53mm RSC 2-2/C #14 :K-1-6pr #19
:K-53mm RSC 1-6pr #19
:K-19A
:K-53mm RSC 1-6pr #19
:K-16B
:K-53mm RSC 1-6pr #19
+900
D6-1
D6-2
5B
53mm RSC 2-2/C #14 :K-1-6pr #19

MATCH LINE "C" (SEE SHEET 123)

SYS. "A" SYS. "B"
SYSTEM BOUNDARY

:K- DESIGNATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM

NO	DATE	BY	C'D	APPR	REVISION

NAME: MATCH1.INT DATE: Dec. 18, 1996

minnesota metric

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 3/21/97 Reg. No. 21849

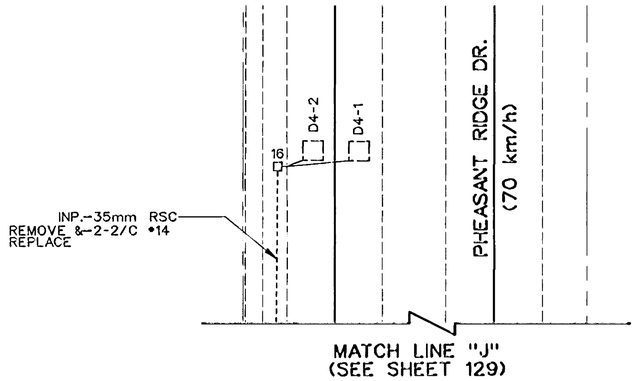
STATE AID PROJECT NO.
SAP 02-617-11

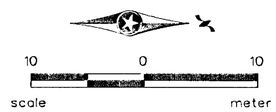
DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY P.CORKLE 9-96
CHECKED BY G.STUEMPFIG 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
MATCH LINE LAYOUT
C.S.A.H. 17 RECONSTRUCTION
C.S.A.H. 17 (SYSTEMS A AND B)

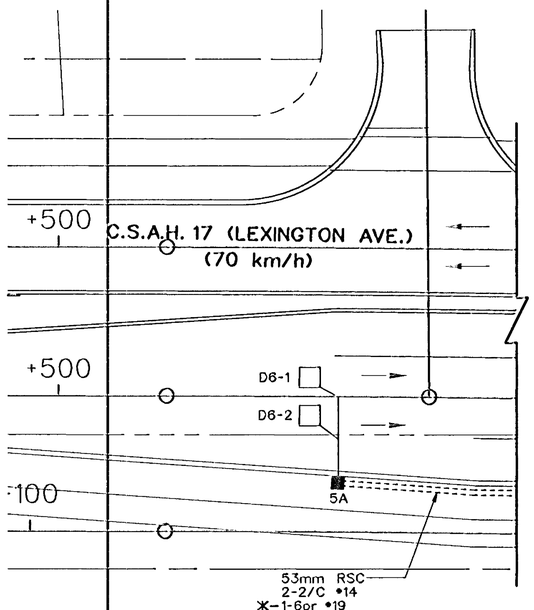
SHEET 131 OF 236

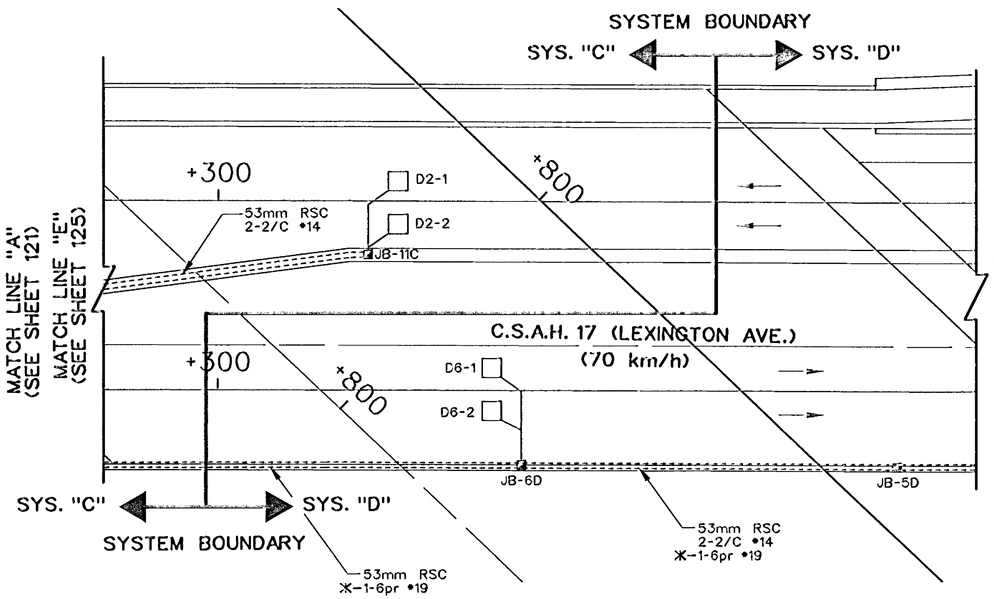


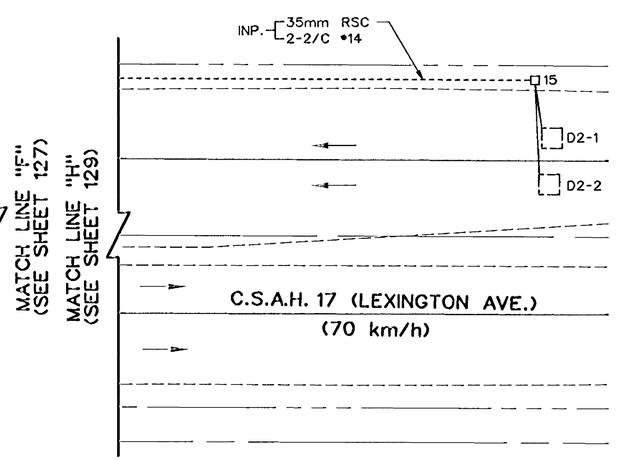


NOTE:

CONDUIT AND JUNCTION BOXES ON BRIDGE TO BE INCLUDED IN BRIDGE PAY ITEMS.







*-DESIGNATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM

NO	DATE	BY	CKD	APPR	REVISION

NAME: MATCH2.DNT DATE: Mar. 19, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

George M. Stuempfig

Date 3/21/97 Reg. No. 21849

STATE AID PROJECT NO.	DRAWN BY R.W.SMITH	DATE 9-96
SAP 02-617-11	DESIGNED BY P.CORKLE	9-96
STATE PROJECT NO.	CHECKED BY G.STUEMPFIG	9-96
SP 0280-47	COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

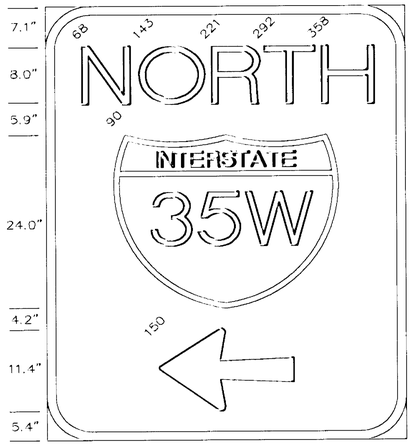
MATCH LINE LAYOUT

C.S.A.H. 17 RECONSTRUCTION

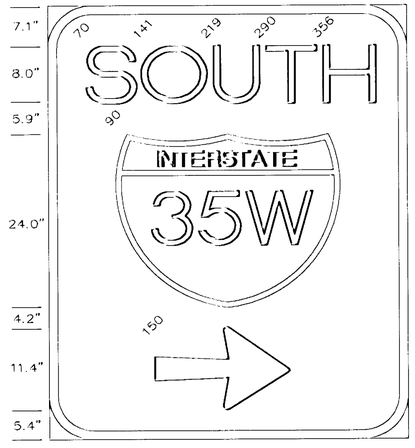
C.S.A.H. 17 (SYSTEMS A,C,D AND E)

SHEET 132 OF 236

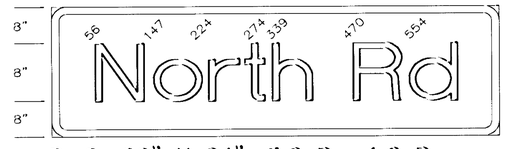
D-1 102" X 24", 3.0 R. 1.0 B.
LINE 1 = 90.83" : 8"-6" "E" MOD.



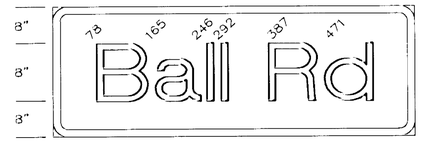
D-2 48" x 66", 6" R. 1.2" B.
D-3 48" x 66", 6" R. 1.2" B.
LINE 1 = 34.43 : 8" "D" MOD., 1.2"
LINE 2 = 30.0 : 30" x 24" --- 10" NUM.
LINE 3 = 18.0 : 14--18 ARROW - 180 = D-2
ARROW - 0 = D-3



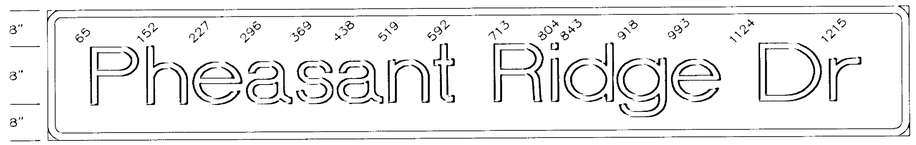
D-4 48" x 66", 6" R. 1.2" B.
D-5 48" x 66", 6" R. 1.2" B.
LINE 1 = 34.00 : 8" "D" MOD., 1.2"
LINE 2 = 30.0 : 30" x 24" --- 10" NUM.
LINE 3 = 18.0 : 14--18 ARROW - 0 = D-4
ARROW - 180 = D-5



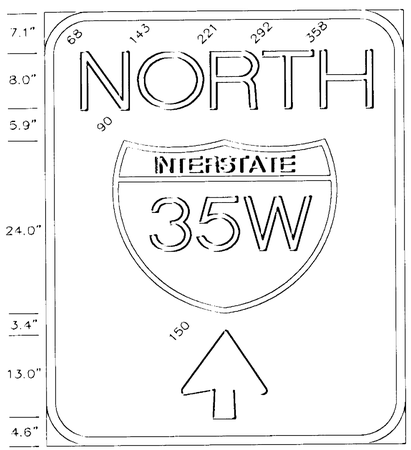
D-6 66" X 24", 3.0 R. 1.0 B.
LINE 1 = 54.85" : 8"-6" "E" MOD.



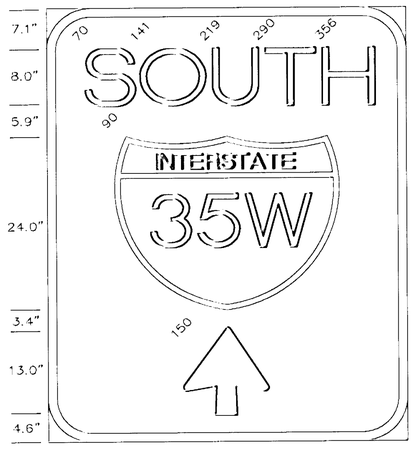
D-7 60" X 24", 3.0 R. 1.0 B.
LINE 1 = 44.32" : 8"-6" "E" MOD.



D-8 132" X 24", 3.0 R. 1.0 B.
LINE 1 = 118.92" : 8"-6" "E" MOD.



D-9 48" x 66", 6" R. 1.2" B.
LINE 1 = 34.43 : 8" "D" MOD.
LINE 2 = 30.0 : 30" x 24" --- 10" NUM.
LINE 3 = 11.16 : 5--13 ARROW - 90



D-10 48" x 66", 6" R. 1.2" B.
LINE 1 = 34.00 : 8" "D" MOD.
LINE 2 = 30.0 : 30" x 24" --- 10" NUM.
LINE 3 = 11.16 : 5--13 ARROW - 90

NOTES:

1) COLOR - HIGH INTENSITY WHITE LEGEND AND BORDER ON HIGH INTENSITY GREEN BACKGROUND, FULLY REFLECTORIZED.
2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
3) BORDERS SHALL BE AS SHOWN ON PLANS.
4) FOR STRUCTURAL DETAILS, TYPE "D" SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105B.
5) FOR TYPE "D" STRINGER AND PANEL - JOINT DETAIL, SEE STANDARD SIGNS MANUAL, PAGE 105.
6) LETTERING STYLE SHALL BE HIGHWAY GOTHIC CONFORMING TO MN/DOT STANDARDS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: H:\SIGNALS\2410\10-SGN1.DWG DATE: MAR 17, 1997 TIME: 8:54 AM

minnesota metric

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 3/21/97 Reg. No. 21849

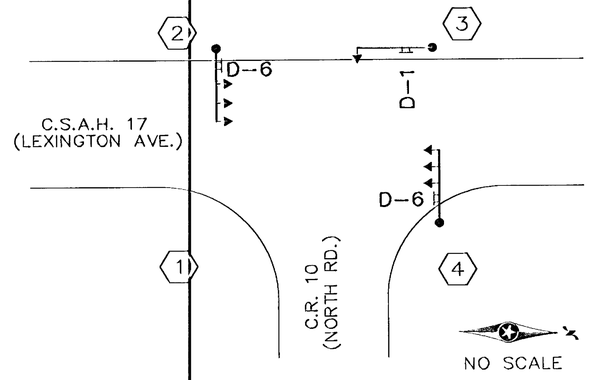
STATE AID PROJECT NO. SAP 02-617-11
STATE PROJECT NO. SP 0280-47

DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY P.CORKLE 9-96
CHECKED BY G.STUEMPFIG 9-96
COMM. NO. 0962410

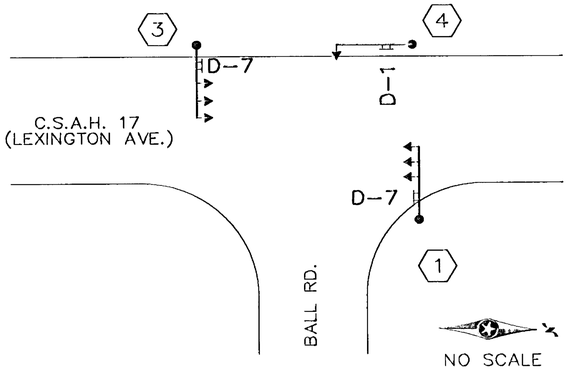
SRF CONSULTING GROUP, INC.

ANOKA COUNTY
MAST ARM SIGN DETAILS
C.S.A.H. 17 RECONSTRUCTION

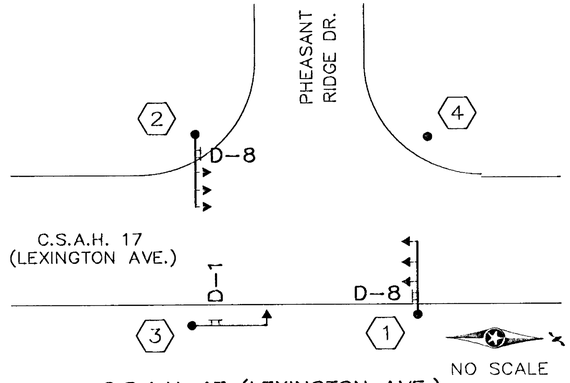
SHEET 133 OF 236



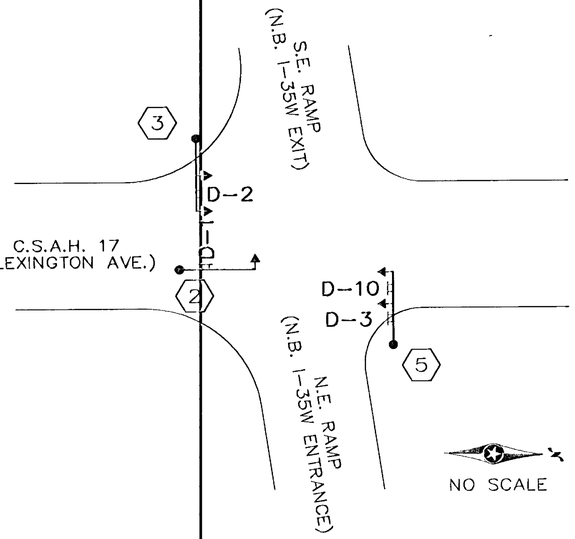
C.S.A.H. 17 (LEXINGTON AVE.) & C.R. 10 (NORTH RD.)
SIGN LAYOUT (SYSTEM "A")



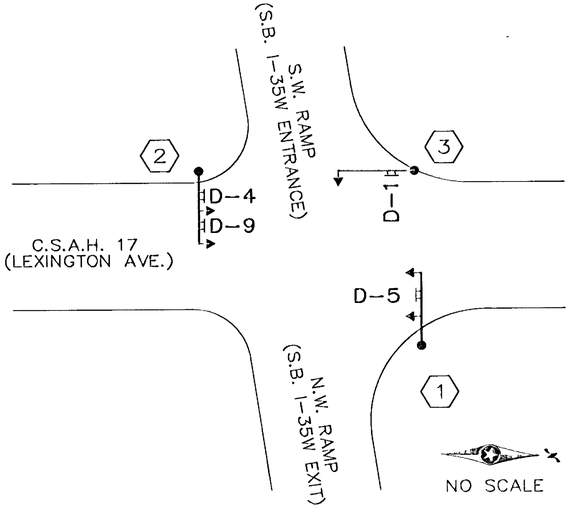
C.S.A.H. 17 (LEXINGTON AVE.) & BALL ROAD
SIGN LAYOUT (SYSTEM "B")



C.S.A.H. 17 (LEXINGTON AVE.)
& PHEASANT RIDGE DR.
(SYSTEM "E") SIGN LAYOUT

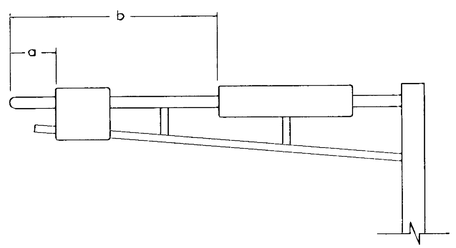


C.S.A.H. 17 (LEXINGTON AVE.) & I-35W SOUTH RAMPS
SIGN LAYOUT (SYSTEM "C")



C.S.A.H. 17 (LEXINGTON AVE.) & I-35W NORTH RAMPS
SIGN LAYOUT (SYSTEM "D")

OVERLAYS				
CODE NO.	QUANTITY	SIZE	LEGEND	SQ. FT. PER OVERLAY
M1-1	6	30" x 24"	35W	5



MAST ARM SIGN DIMENSIONING DETAIL

TYPE "D" SIGNS (SYSTEM A)								
SIGN PANEL	SIZE	NUMBER REQUIRED	BRACKETS PER SIGN	BRACKET SPACING	SQUARE FT. PER SIGN	a	b	POLE NUMBER
D-1	102" x 24"	1	2	54"	17		15'	③
D-6	66" x 24"	2	2	42"	11		30'	②④

TYPE "D" SIGNS (SYSTEM B)								
SIGN PANEL	SIZE	NUMBER REQUIRED	BRACKETS PER SIGN	BRACKET SPACING	SQUARE FT. PER SIGN	a	b	POLE NUMBER
D-1	102" x 24"	1	2	54"	17		25'	④
D-7	60" x 24"	2	2	36"	10		30'	①③

TYPE "D" SIGNS (SYSTEM C)								
SIGN PANEL	SIZE	NUMBER REQUIRED	BRACKETS PER SIGN	BRACKET SPACING	SQUARE FT. PER SIGN	a	b	POLE NUMBER
D-1	102" x 24"	1	2	54"	17		16'	②
D-2	48" x 66"	1	2	24"	22	5'		③
D-3	48" x 66"	1	2	24"	22	16'		⑤
D-10	48" x 66"	1	2	24"	22	5'		⑤

TYPE "D" SIGNS (SYSTEM D)								
SIGN PANEL	SIZE	NUMBER REQUIRED	BRACKETS PER SIGN	BRACKET SPACING	SQUARE FT. PER SIGN	a	b	POLE NUMBER
D-1	102" x 24"	1	2	54"	17		12'	③
D-4	48" x 66"	1	2	24"	22	21'		②
D-5	48" x 66"	1	2	24"	22	5'		①
D-9	48" x 66"	1	2	24"	22	5'		②

TYPE "D" SIGNS (SYSTEM E)								
SIGN PANEL	SIZE	NUMBER REQUIRED	BRACKETS PER SIGN	BRACKET SPACING	SQUARE FT. PER SIGN	a	b	POLE NUMBER
D-1	102" x 24"	1	2	18"	17		12'	③
D-8	132" x 24"	1	3	42"	22		24'	①
D-8	132" x 24"	1	3	42"	22		30'	②

NO	DATE	BY	CKD	APPR	REVISION
1	3-27-97	MAB	GMS	DRE	AID MAST ARM SIGNS AT SYSTEMS C, D AND E

NAME: H:\SIGNALS\2410\10-SIGN2.DWG DATE: MAR 27, 1997 TIME: 10:39 AM

minnesota metric

I hereby certify that this plan, specification or report 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.
George M. Stuempfig
Date 4/29/97 Reg. No. 21849

STATE AID PROJECT NO. SAP 02-617-11
STATE PROJECT NO. SP 0280-47

DRAWN BY R.W.SMITH DATE 9-96
DESIGNED BY P.CORKLE 9-96
CHECKED BY G.STUEMPFIG 9-96
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
MAST ARM SIGN DETAILS
C.S.A.H. 17 RECONSTRUCTION

SHEET 134 OF 236

LEGEND OF SYMBOLS

	CABLE TRAY
	CONDUIT - F&I
	CONDUIT - INPLACE
	DETECTOR (SPECIFY) - (SPECIFY)
	DIRECT BURIED COMMUNICATION CABLE - F&I
	DIRECT BURIED COMMUNICATION CABLE - INPLACE
	DIRECT BURIED POWER CABLE - F&I
	DIRECT BURIED POWER CABLE - INPLACE
	FLASHER - F&I
	FLASHER - INPLACE
	FLASHING BEACON - F&I
	FOUNDATION F&I, GATE ARM - F&I
	FOUNDATION INPLACE, GATE ARM - F&I
	GATE ARM - INPLACE
	GUARDRAIL END TREATMENT (SPECIFY) - (SPECIFY)
	GUARDRAIL (PLATE BEAM) - (SPECIFY)
	HANDHOLE - F&I
	HANDHOLE - INPLACE
	JUNCTION BOX OR CONDULET - F&I
	JUNCTION BOX OR CONDULET - INPLACE
	LANE ARROW
	OVERHEAD SIGN - F&I
	OVERHEAD SIGN - INPLACE
	PAD (SPECIFY) - F&I
	PAD (SPECIFY) - INPLACE
	PEDESTAL - F&
	PEDESTAL - INPLACE
	RAMP CONTROL SIGNAL (DESIGN ONE-WAY) - F&I
	RAMP CONTROL SIGNAL (DESIGN TWO-WAY) - F&I
	RAMP CONTROL SIGNAL (DESIGN ONE-WAY) - INPLACE
	RAMP CONTROL SIGNAL (DESIGN TWO-WAY) - INPLACE
	SHELTER (TMS) - F&I
	SHELTER (TMS) - INPLACE
	SIGN (TYPE A OR D) - (SPECIFY)
	SIGN (TYPE C) (SPECIFY)

LEGEND OF SYMBOLS

	SIGN (TYPE CMS) - (SPECIFY)
	SIGNAL FACE - F&I
	SIGNAL FACE - INPLACE
	SPLICE CABINET (SPECIFY) - (SPECIFY)
FO	SPLICE VAULT (FIBER OPTIC) - (SPECIFY)
TV	TELEVISION CAMERA (CCTV) - (SPECIFY)
	WOOD POLE - F&I
	WOOD POLE - INPLACE
	WOOD POLE F&I, SERVICE INSTALLATION - F&I
	WOOD POLE INPLACE, SERVICE INSTALLATION - F&I
	WOOD POLE INPLACE, SERVICE INSTALLATION - INPLACE

ABBREVIATIONS

BR.GR. - BARE GROUND
C.B. - CIRCUIT BREAKER
CCTV - CLOSED CIRCUIT TELEVISION
CMS - CHANGEABLE MESSAGE SIGN
DNL - DOWNLIGHT
EQG - EQUIPMENT GROUND
FL - FLASH / FLASHING
F&I - FURNISH AND INSTALL
GR.R. - GROUND ROD
H.H. - HANDHOLE
HAR - HIGHWAY ADVISORY RADIO
IMC - INTERMEDIATE METAL CONDUIT
INP - INPLACE
J.B. - JUNCTION BOX
LCS - LANE CONTROL SIGNAL
LUM - LUMINAIRE
NEU - NEUTRAL
NMC - NON METALLIC CONDUIT
RCS - RAMP CONTROL SIGNAL
R&S - REMOVE AND SALVAGE
RSC - RIGID STEEL CONDUIT
SOP - SOURCE OF POWER
SPR - SPARE CONDUCTOR
TDW - TELEPHONE DROP WIRE
TMC - TRAFFIC MANAGEMENT CENTER
TMS - TRAFFIC MANAGEMENT SYSTEM

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

PLATE NO.	DESCRIPTION
8119 C	GROUND MOUNTED CABINET FOUNDATION

TABULATION OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	02-617-11 EST QUAN	02-617-11 FINAL QUAN
	SALVAGE MISCELLANEOUS STRUCTURES	LUMP SUM	1	
	REMOVE MISCELLANEOUS STRUCTURES	LUMP SUM	1	
	HAUL SALVAGED MATERIAL	LUMP SUM	1	
	SYSTEMS INTEGRATION	LUMP SUM	1	
	CABINET FOUNDATION	EACH	1	
	SERVICE FOUNDATION	EACH	1	
	HANDHOLE, TYPE PVC CONCRETE COVER	EACH	7	
	FIBEROPTIC SPLICE VAULT	EACH	1	
	OUTDOOR FIBER SPLICE ENCLOSURE	EACH	1	
	50 mm NON-METALLIC CONDUIT (1)	m	205	
	75 mm NON-METALLIC CONDUIT	m	170	
	100 mm NON-METALLIC CONDUIT	m	10	
	75 mm PUSHED CONDUIT	m	45	
	POWER CABLE 1 CONDUCTOR NO. 6	m	400	
	POWER CABLE 1 CONDUCTOR NO. 8	m	150	
	LEAD-IN CABLE 2 CONDUCTOR NO. 14	m	1580	
	SIGNAL CONTROL CABLE 5 CONDUCTOR NO. 12	m	240	
	CONTROL CABLE 15 CONDUCTOR NO. 18	m	50	
	VIDEO CABLE RG11	m	50	
	ARMORED FIBEROPTIC PIGTAIL	EACH	1	
	1.7 m X 1.7 m LOOP DETECTOR DESIGN SAWCUT	EACH	2	
	LOOP DETECTOR SPLICE	EACH	6	
	INSTALL CABINET	EACH	1	
	DOCUMENTATION & TRAINING	LUMP SUM	1	

(1) 20 m OF 50 mm NMC IS HD NMC UNDER ROADWAY SURFACE

TMS CONSTRUCTION PLAN

CERTIFIED BY P.M. Beddard PROFESSIONAL ENGINEER REG.NO. 18491 MAR 13 1997

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1 INPLACE CCTV ASSEMBLY & FOUNDATION (CAM NO.644)

2 INPLACE 50 mm NMC, 3-1/C NO.10, 1-27/C NO.18 & 1-RG11
REMOVE CABLES AND ABANDON CONDUIT

3 INPLACE 334Z CABINET & FOUNDATION CAB NO.35W-33.55
SALVAGE CABINET (SEE SPECIAL PROVISIONS)
REMOVE FOUNDATION (SEE SPECIAL PROVISIONS)

4 INPLACE 50 mm NMC, 6-2/C NO.14 & 2-5/C NO.12
REMOVE CABLES & ABANDON CONDUIT

5 SALVAGE INPLACE 1-FO PIGTAIL (SEE SPECIAL PROVISIONS)

6 INPLACE 1-FO SPLICE VAULT & OUTDOOR FIBER SPLICE ENCLOSURE
SALVAGE 1-FO SPLICE VAULT & OUTDOOR FIBER SPLICE ENCLOSURE (SEE SPECIAL PROVISIONS)

7 INPLACE 53 mm RSC & 2-2/C NO.14
REMOVE CABLES & ABANDON CONDUIT
INPLACE 53 mm RSC & 3-1/C NO.6
REMOVE CABLES & ABANDON CONDUIT

8 INPLACE 53 mm RSC & 3-1/C NO.6
REMOVE CABLES & ABANDON CONDUIT

9 INPLACE S.O.P. ADDRESS (10400 LEXINGTON AVE)
DISCONNECT & REMOVE INSTALLATION

10 INPLACE 53 mm NMC & 2-2/C NO.14
REMOVE CABLES & ABANDON CONDUIT

11 INPLACE 50 mm NMC & 2-2/C NO.14
REMOVE CABLES

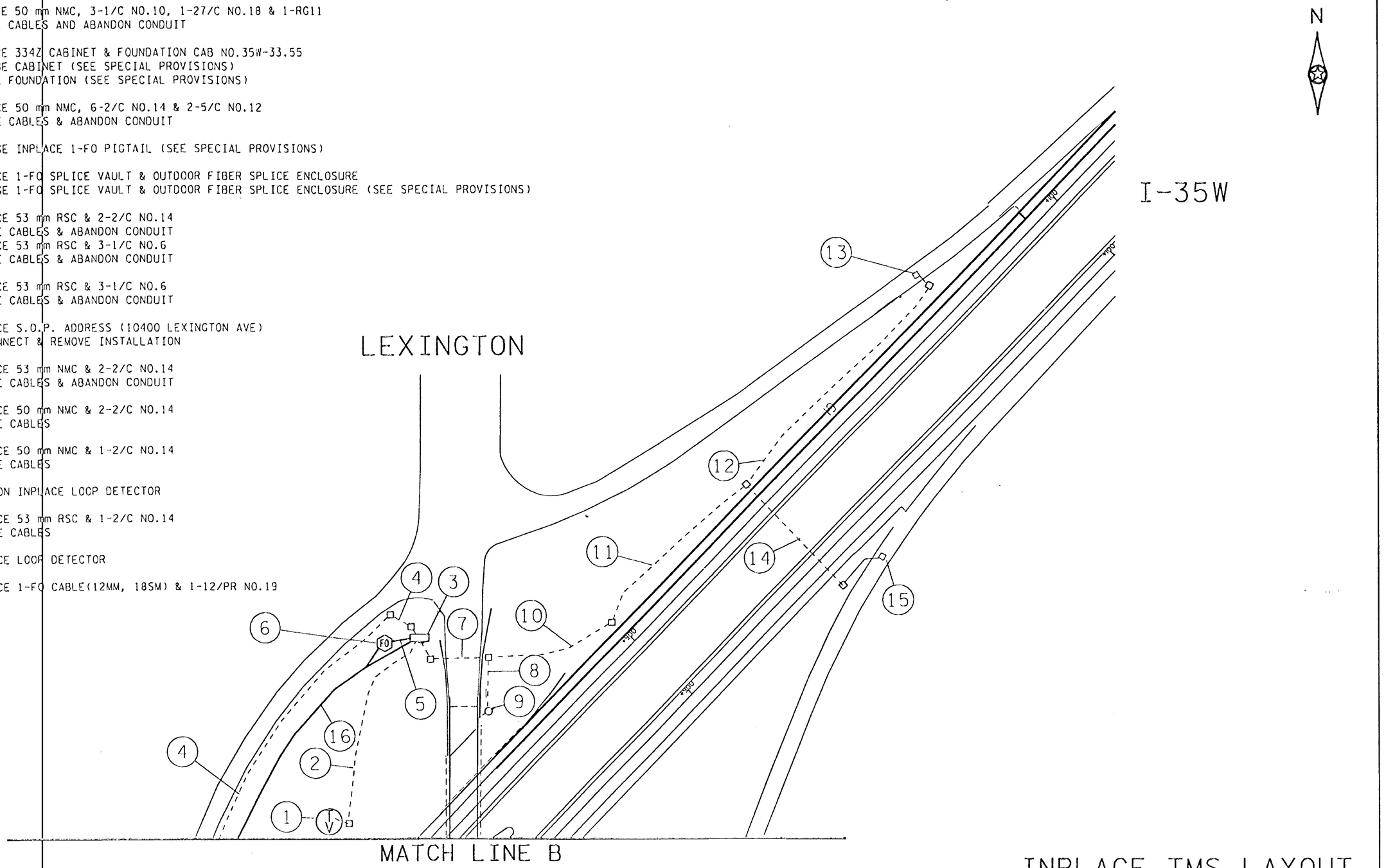
12 INPLACE 50 mm NMC & 1-2/C NO.14
REMOVE CABLES

13 ABANDON INPLACE LOOP DETECTOR

14 INPLACE 53 mm RSC & 1-2/C NO.14
REMOVE CABLES

15 INPLACE LOOP DETECTOR

16 INPLACE 1-FO CABLE(12MM, 18SM) & 1-12/PR NO.19



INPLACE TMS LAYOUT

CERTIFIED BY P.M. Bedeau PROFESSIONAL ENGINEER REG.NO. 18491 MAR 13 1997

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1 INPLACE RAMP CONTROL SIGNAL & FOUNDATION

2 INPLACE 78 mm RSC, 1-5/C NO.12, 1-FO CABLE(12MM, 18SM) & 1-12/PR NO.19

3 INPLACE LOOP DETECTOR

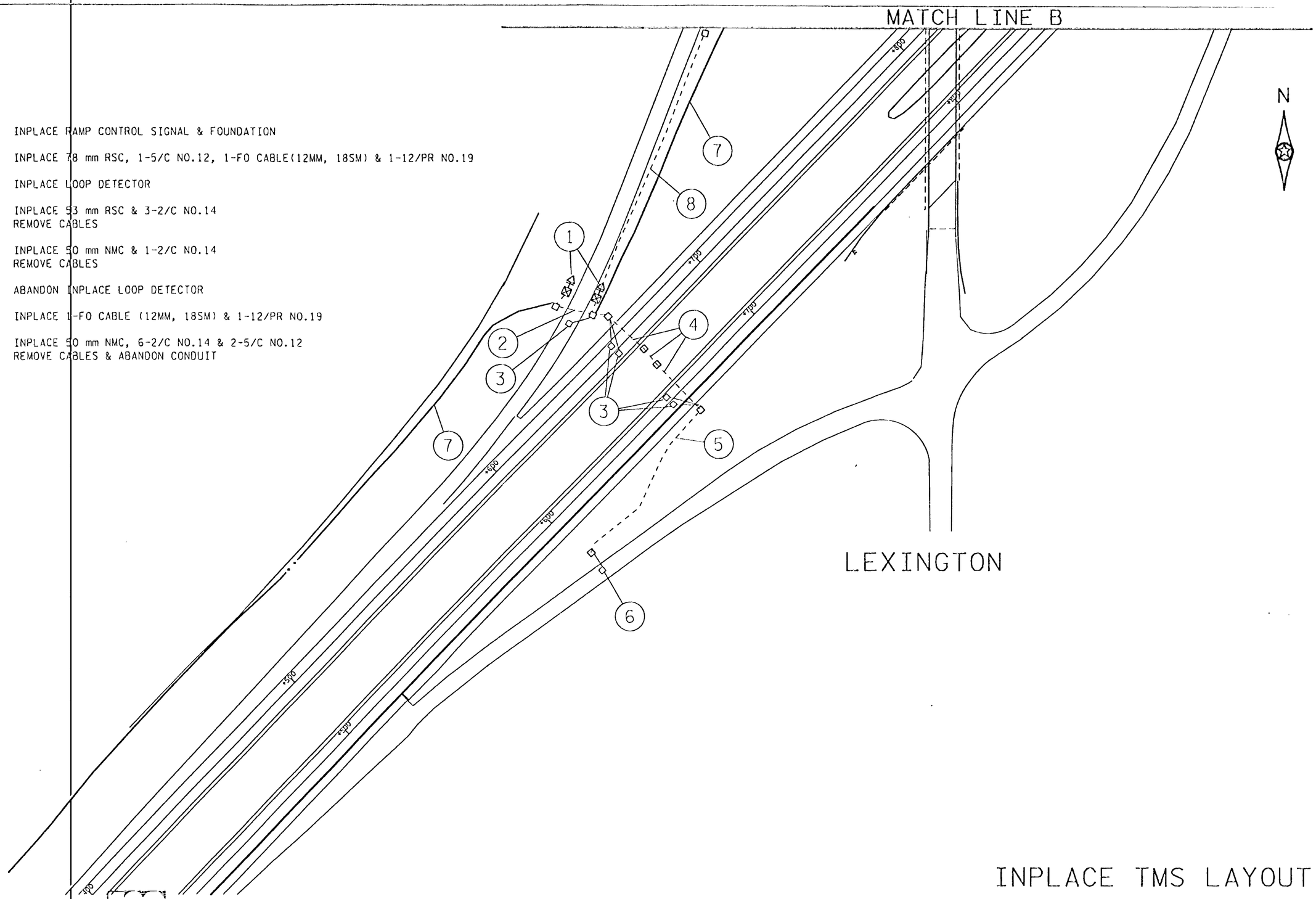
4 INPLACE 53 mm RSC & 3-2/C NO.14
REMOVE CABLES

5 INPLACE 50 mm NMC & 1-2/C NO.14
REMOVE CABLES

6 ABANDON INPLACE LOOP DETECTOR

7 INPLACE 1-FO CABLE (12MM, 18SM) & 1-12/PR NO.19

8 INPLACE 50 mm NMC, 6-2/C NO.14 & 2-5/C NO.12
REMOVE CABLES & ABANDON CONDUIT



INPLACE TMS LAYOUT

CERTIFIED BY P M Bedard PROFESSIONAL ENGINEER REG.NO. 18491 MAR 13 1997

STATE PROJ. NO. 02-617-11 SHEET NO. 137 OF 236 SHEETS

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1 INPLACE CCTV ASSEMBLY & FOUNDATION (CAM NO.644)

2 F&I 50 mm NMC, 3-1/C NO.8, 1-15/C NO.18 & 1-RG11

3 F&I 100 mm NMC, 2-5/C NO.12, 6-2/C NO.14, 3-1/C NO.8, 1-15/C NO.18 & 1-RG11

4 F&I 334 FOUNDATION (SEE DETAIL & SPECIAL PROVISIONS)
INSTALL SALVAGED 334Z CAB NO.35W-33.55 (SEE SPECIAL PROVISIONS)

5 F&I 75 mm NMC, 6-2/C NO.14 & 2-5/C NO.12

6 F&I 100 mm NMC, 2-2/C NO.14 & 1-FO PIGTAIL (SEE SPECIAL PROVISIONS)

7 F&I 1-FO PIGTAIL (SEE SPECIAL PROVISIONS)

8 F&I SAWCUT LOOP DETECTOR (SEE DETAILS & SPECIAL PROVISIONS)

9 F&I 50 mm NMC & 1-2/C NO.14

10 INPLACE 50 mm NMC
F&I 1-2/C NO.14

11 INPLACE LOOP DETECTOR
F&I LOOP DETECTOR SPLICE IN HANDHOLE (SEE SPECIAL PROVISIONS)

12 INPLACE 53 mm RSC
F&I 1-2/C NO.14

13 INPLACE 50 mm NMC
F&I 2-2/C NO.14

14 F&I 50 mm NMC & 2-2/C NO.14

15 F&I 75 mm HD NMC PUSH, 3-1/C NO.6 & 2-2/C NO.14

16 F&I 75 mm NMC & 2-2/C NO.14
F&I 50 mm NMC & 3-1/C NO.6

17 F&I 1-FO SPLICE VAULT & OUTDOOR FIBER SPLICE ENCLOSURE
HAND DIG INPLACE FIBER OPTIC CABLE AND COIL 15 m
OF CABLE IN SPLICE VAULT

18 INPLACE 1-FO CABLE (12MM, 18SM) & 1-12/PR NO.19
HAND DIG 1-12/PR NO.19 AND ROUTE INTO
INSTALLED 334Z CABINET

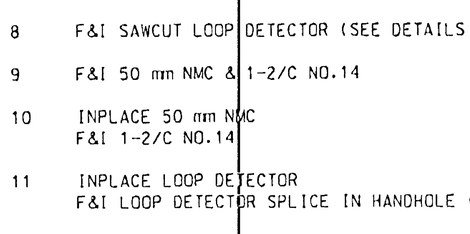
19 INPLACE POWER POLE
F&I WEATHER HEAD, RISER & 3-1/C NO.6

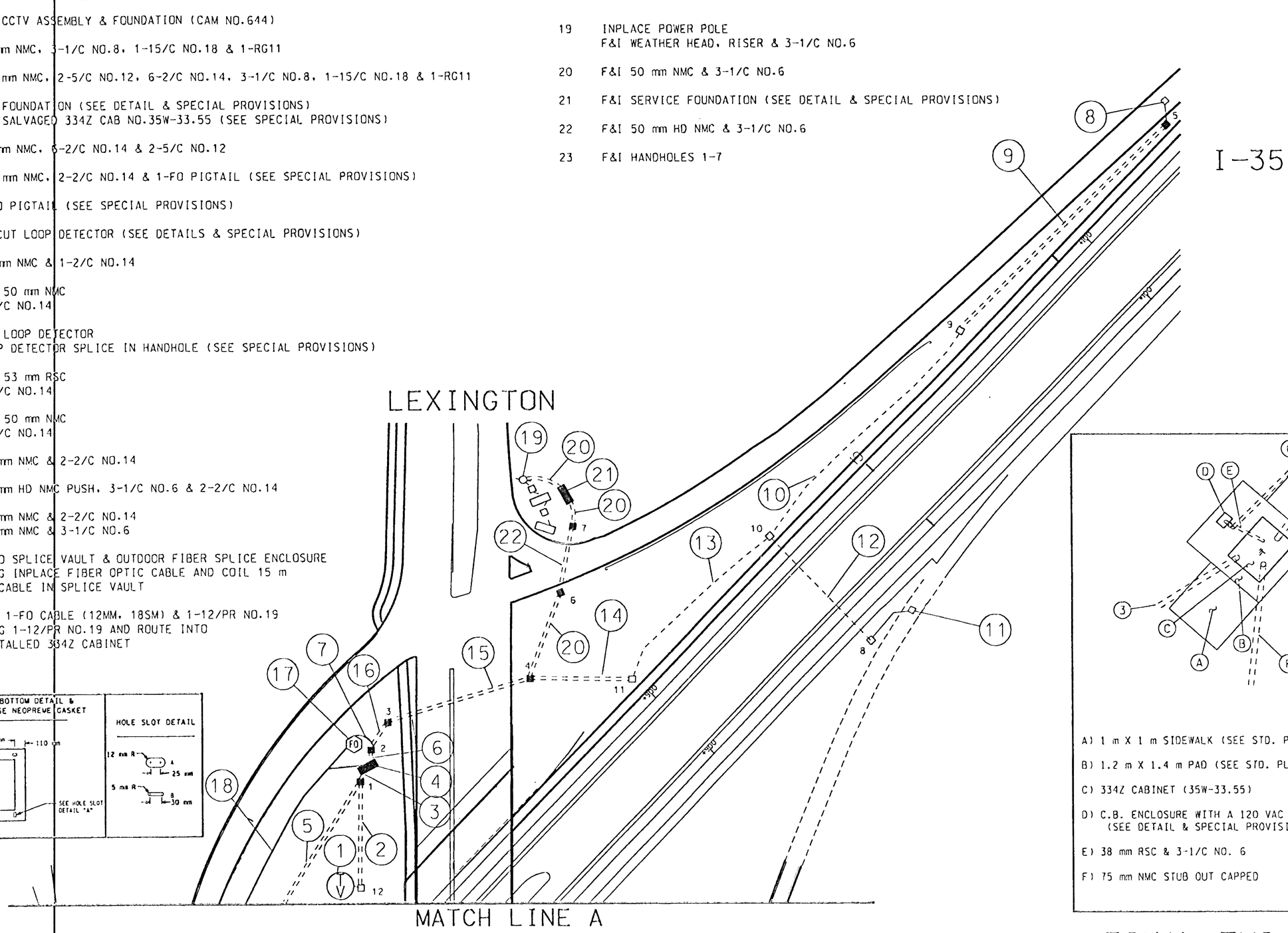
20 F&I 50 mm NMC & 3-1/C NO.6

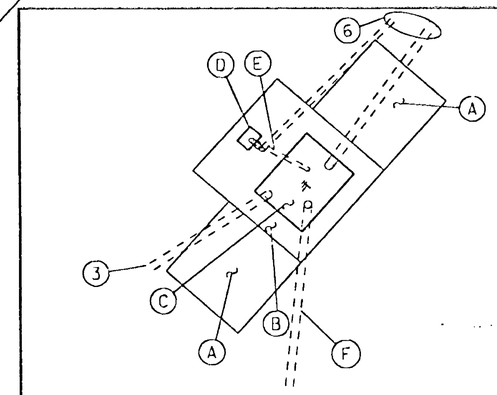
21 F&I SERVICE FOUNDATION (SEE DETAIL & SPECIAL PROVISIONS)

22 F&I 50 mm HD NMC & 3-1/C NO.6

23 F&I HANDHOLES 1-7







A) 1 m X 1 m SIDEWALK (SEE STD. PLATE 8119C)

B) 1.2 m X 1.4 m PAD (SEE STD. PLATE 8119C)

C) 334Z CABINET (35W-33.55)

D) C.B. ENCLOSURE WITH A 120 VAC 30 AMP MAIN C.B.
(SEE DETAIL & SPECIAL PROVISIONS)

E) 38 mm RSC & 3-1/C NO. 6

F) 75 mm NMC STUB OUT CAPPED

FINAL TMS LAYOUT

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1 F&I SAWCUT LOOP DETECTOR (SEE DETAIL & SPECIAL PROVISIONS)

2 F&I 50 mm NMC & 1-2/C NO.14

3 INPLACE 50 mm NMC
F&I 1-2/C NO.14

4 INPLACE 50 mm RSC
F&I 3-2/C NO.14

5 INPLACE LOOP DETECTOR
F&I LOOP DETECTOR SPLICE IN HANDHOLE

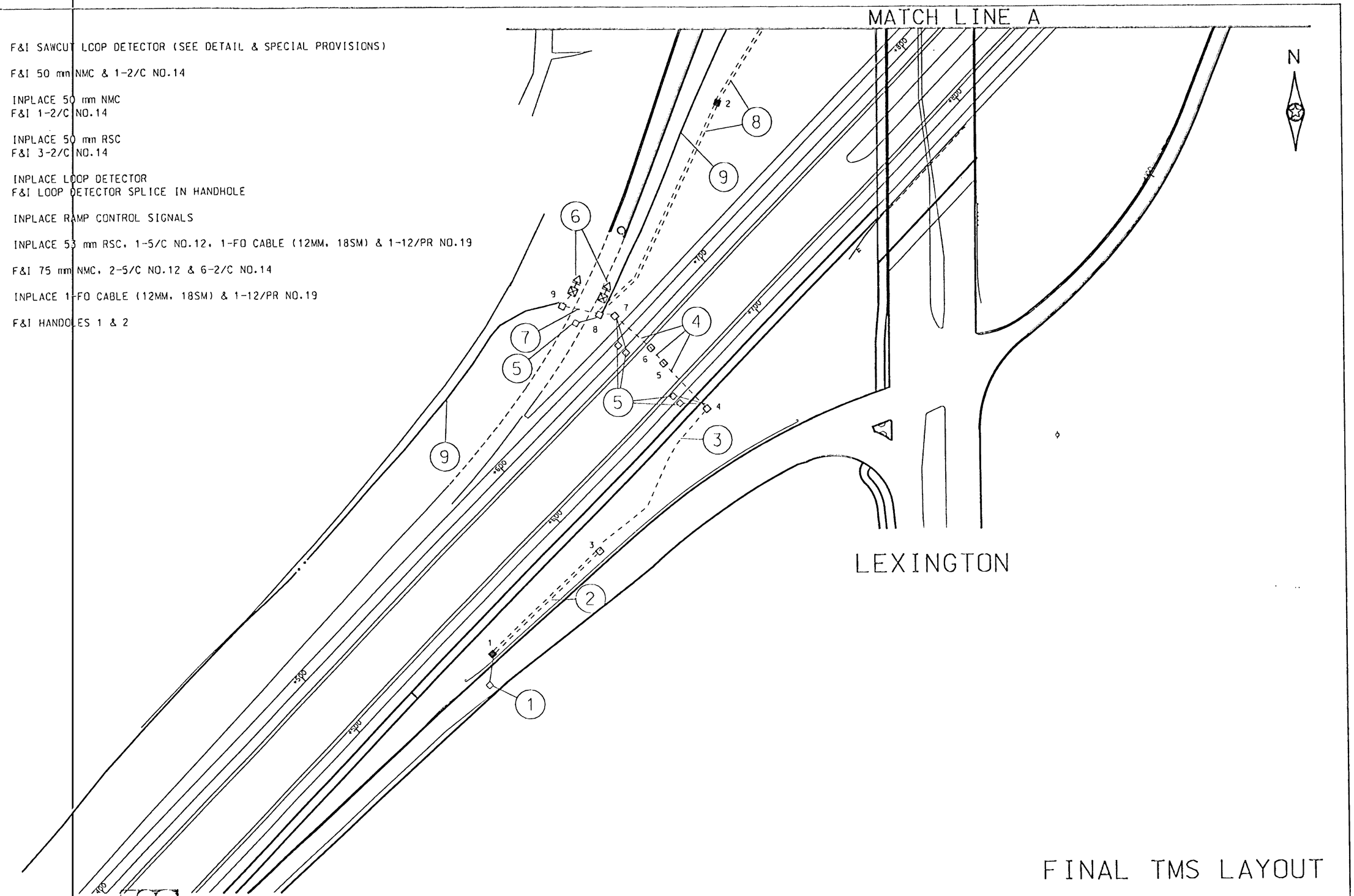
6 INPLACE RAMP CONTROL SIGNALS

7 INPLACE 53 mm RSC, 1-5/C NO.12, 1-FO CABLE (12MM, 18SM) & 1-12/PR NO.19

8 F&I 75 mm NMC, 2-5/C NO.12 & 6-2/C NO.14

9 INPLACE 1-FO CABLE (12MM, 18SM) & 1-12/PR NO.19

10 F&I HANDOLES 1 & 2



FINAL TMS LAYOUT

I-35W

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PROFESSIONAL ENGINEER

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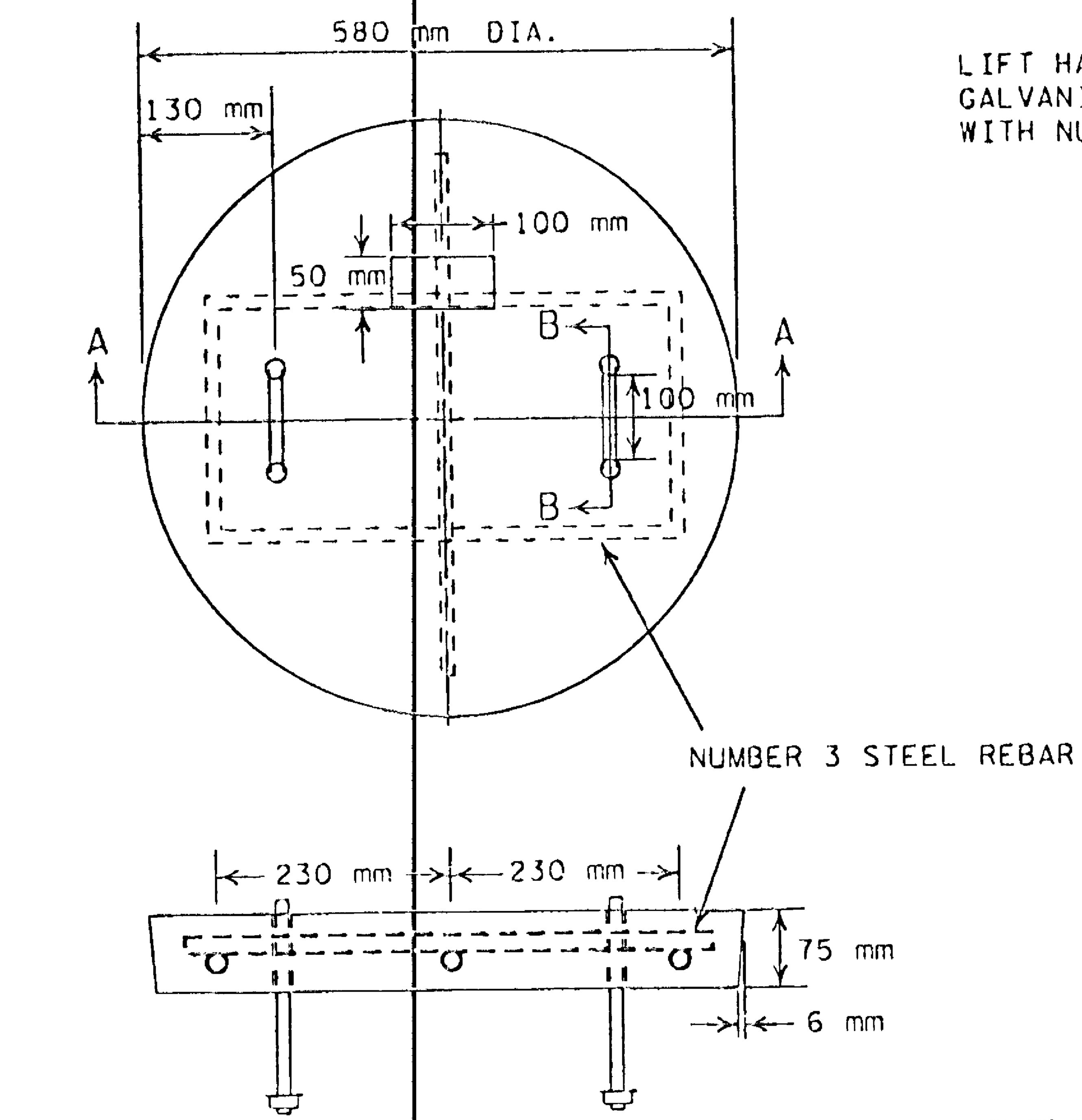
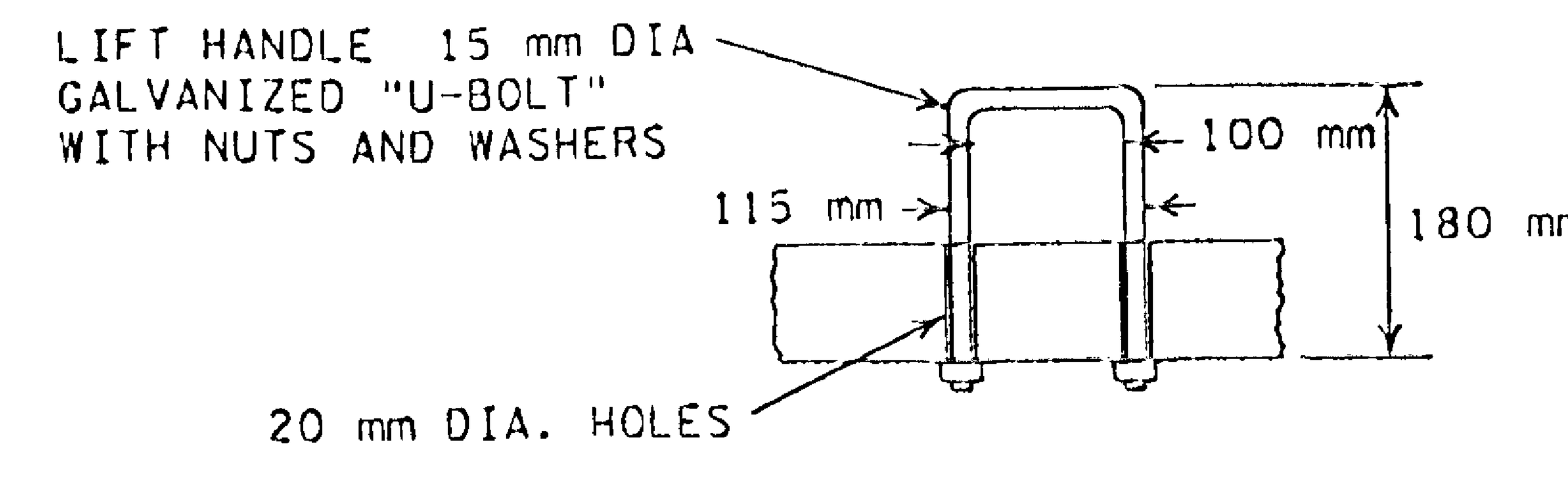
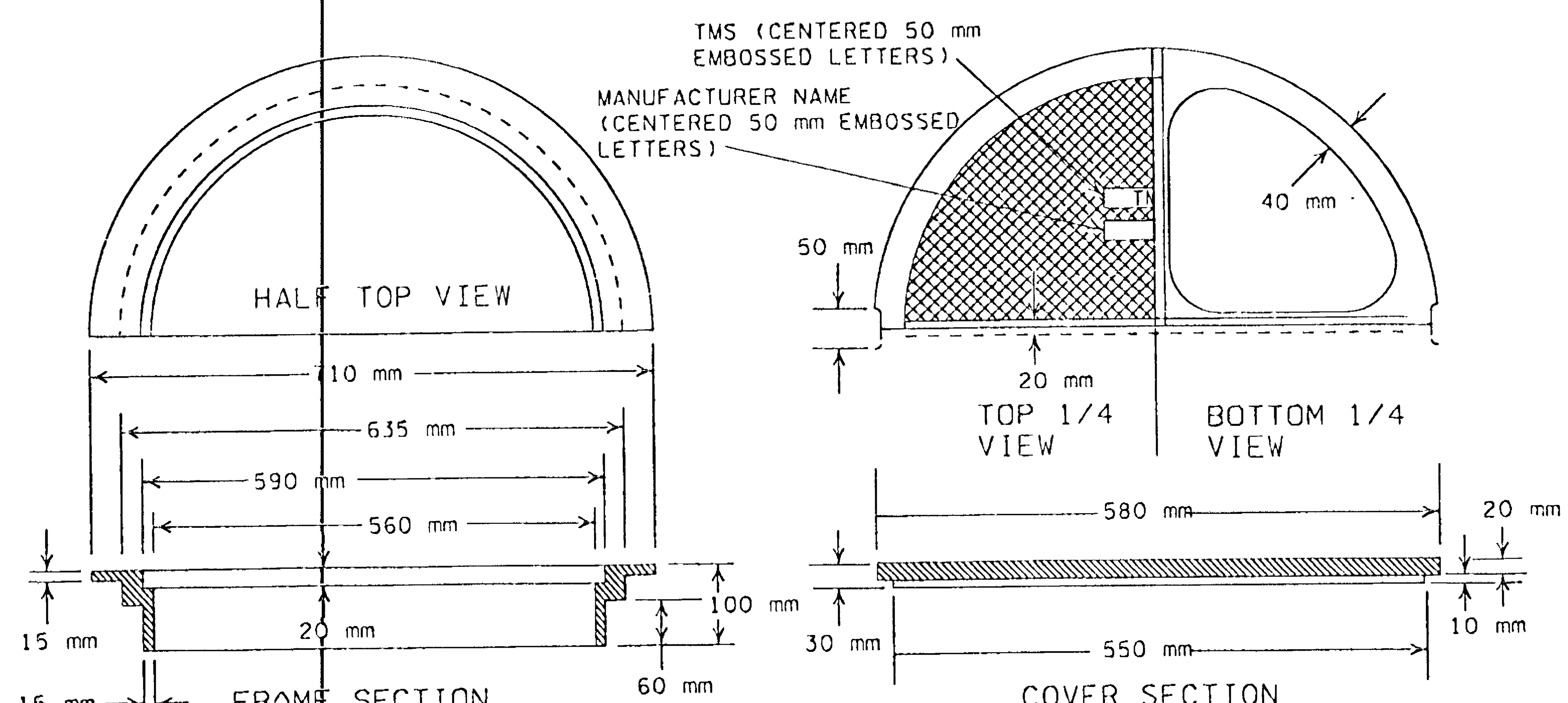




NOTES:

1. INSTALL NUMBER 3 STEEL REINFORCEMENT BARS IN 230 mm RECTANGLES, COAT THE BARS WITH EPOXY AS PER MN/DOT 3301
2. COAT THE ENTIRE COVER WITH EPOXY, AS PER MN/DOT CONCRETE MANUAL 5-694.184E, AS RECOMMENDED BY THE MANUFACTURER.
3. USE 3U32 CONCRETE AS PER MN/DOT 2461.
4. EMBOSS THE CONCRETE COVER WITH "TMS" IN 50 mm LETTERS 5 mm DEEP.

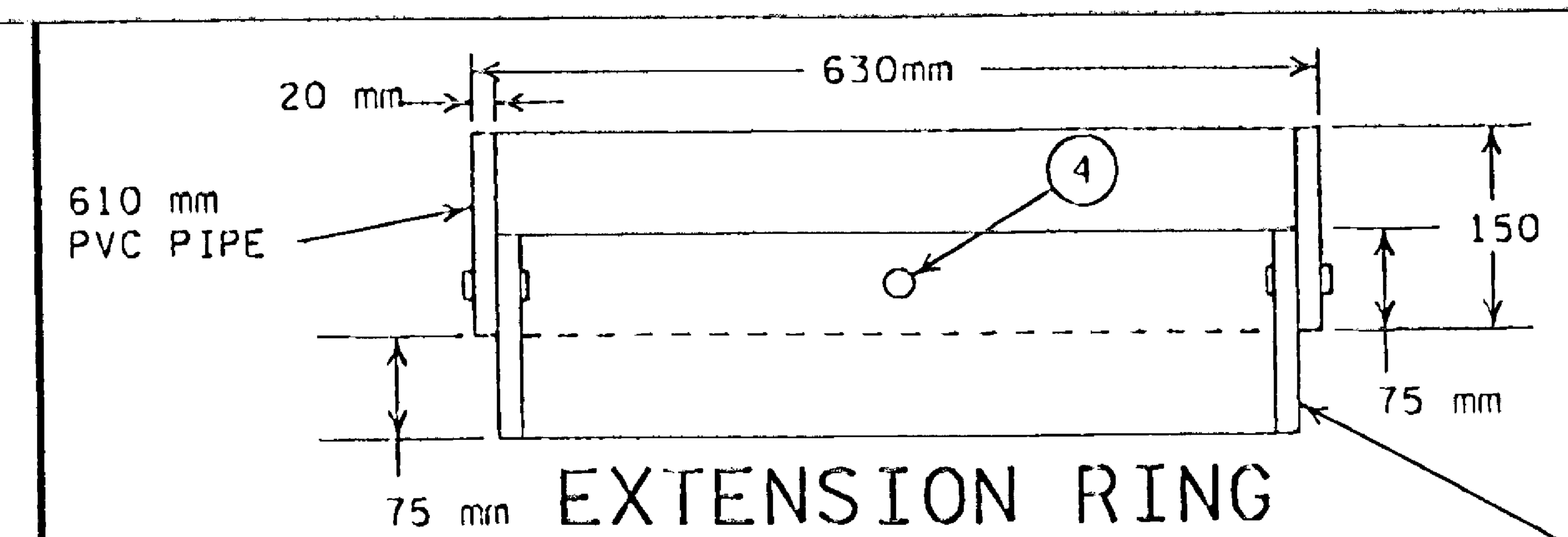
CONCRETE COVER



FRAME AND COVER CASTING

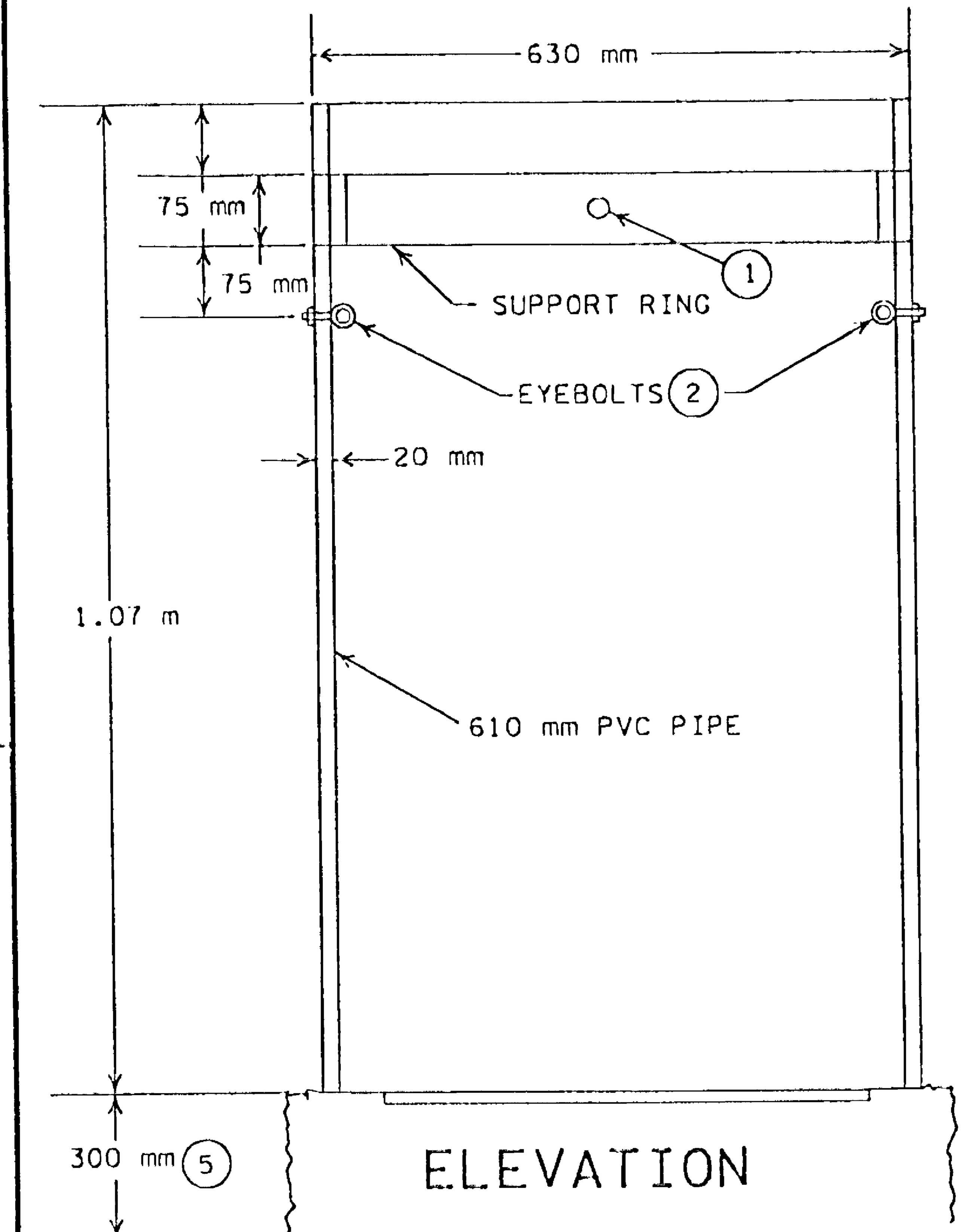
NOTE:
ALL CASTINGS ARE GRAY IRON PER MN/DOT SPEC. 3321 CLASS 35B

LIGHT DUTY METAL COVER



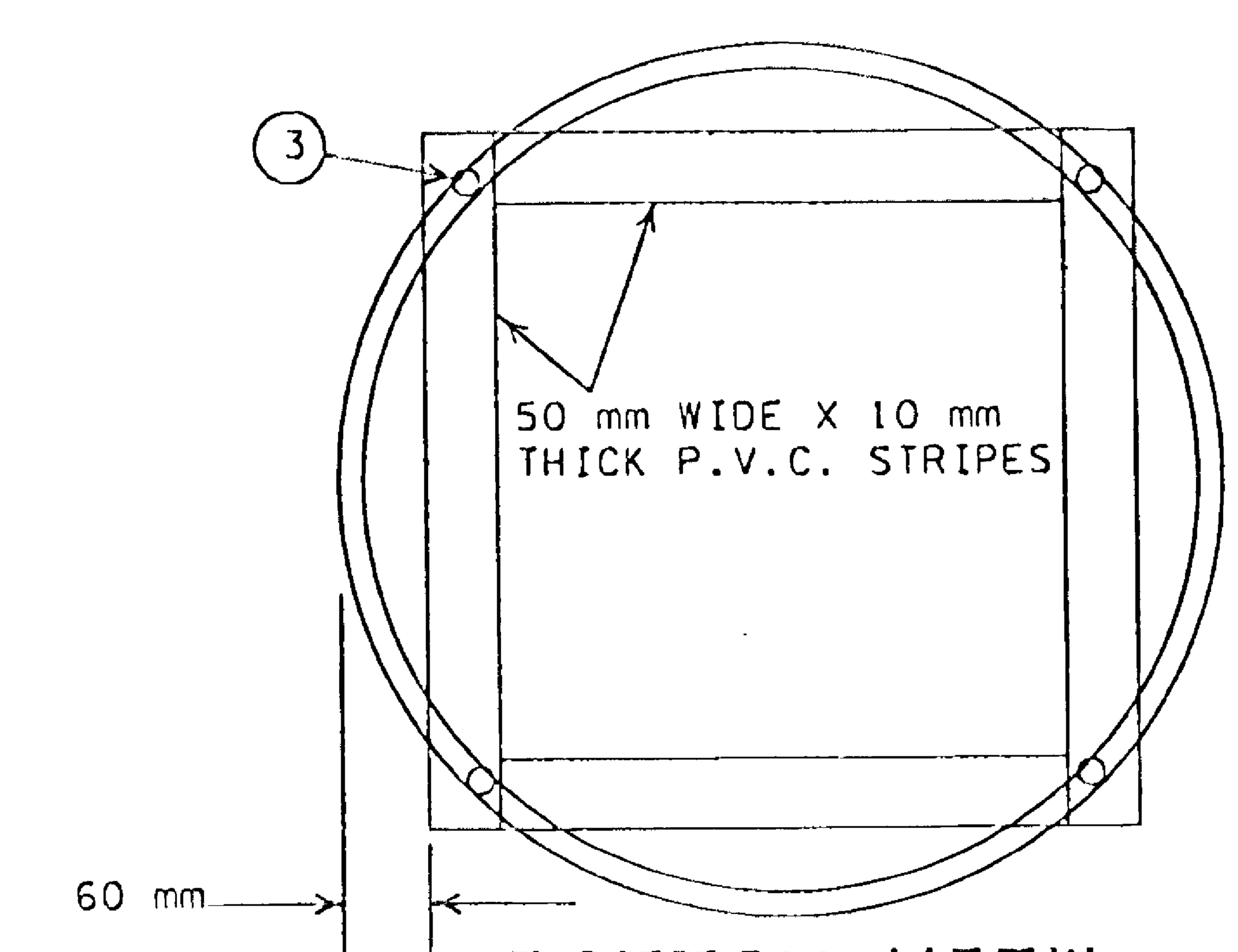
EXTENSION RING
AS REQUIRED

USE APPROVED P.V.C. GLUE TO ATTACH EXTENSION RING TO HANDHOLE



ELEVATION

1. ATTACH SPLIT 610 mm DIA. P.V.C. COVER SUPPORT RING WITH FOUR 10mm DIA. X 50 mm LONG BOLTS AND NUTS AT 90° APART.
2. TWO TYPE 2 SHOULDER EYEBOLTS, 10 mm DIA. X 30 mm SHANK LENGTH, WITH HEX. NUTS AT 180° APART (FOR LIFTING HANDHOLES AND SUPPORTING ELECTRICAL CABLES).
3. FOUR 6.4 mm X 30 mm LONG GALVANIZED LAG SCREWS.
4. ATTACH SPLIT 610 mm DIA. PVC EXTENSION RING WITH FOUR 10 mm DIA. X 50mm LONG BOLTS AT 90° APART. THE BOLTS & NUTS COMPLY WITH MN/DOT 3392.2E, THE OTHER HARDWARE WITH 3392.
5. COMPACT AGGREGATE, COMPLYING WITH MN/DOT 3149.2H, TO A 300 mm DEPTH.
6. CONDUIT ENTRANCES IN THE BARREL ARE SIZED 25 mm LARGER THAN THE CONDUIT USED.
7. AFTER HANDHOLE AND CONDUIT INSTALLATION, SEAL ALL INSIDE WALLS WATER TIGHT.
8. THE PVC PIPE COMPLIES WITH ASTM F679T-1.



BOTTOM VIEW

HANDHOLE DETAIL

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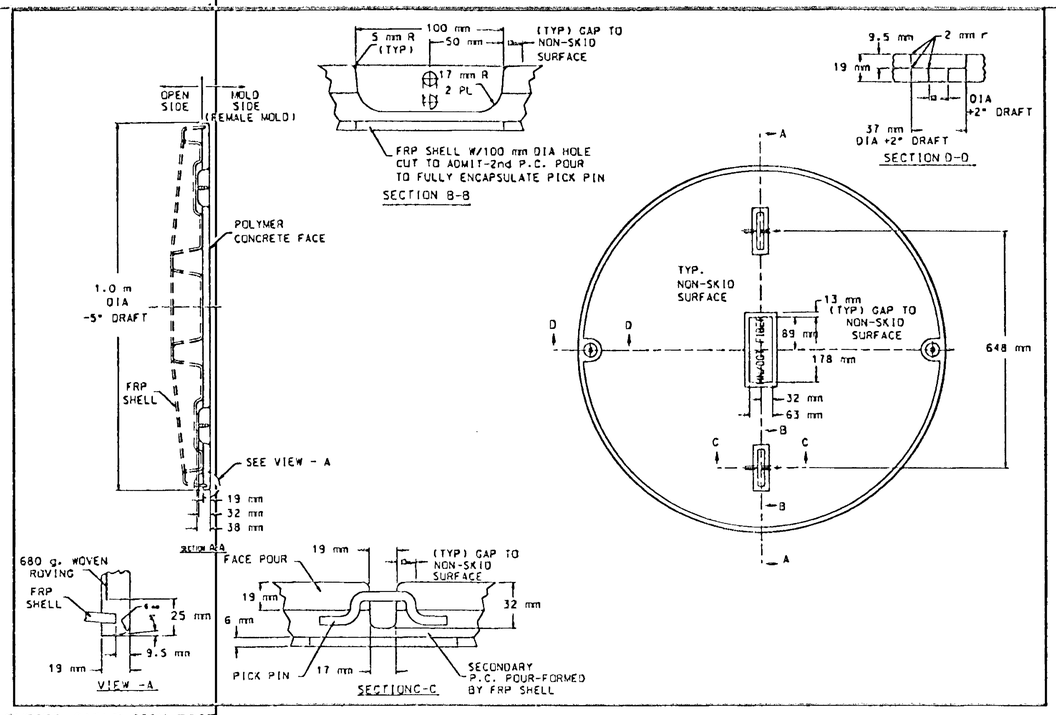
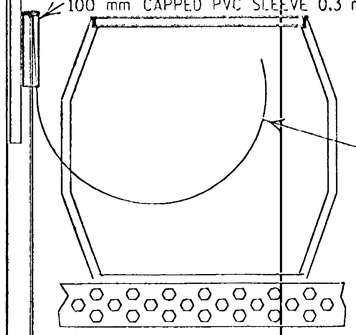
FIBER OPTIC SPLICE VAULT





5 m GROUND ROD INSTALLED IN ACCORDANCE TO MN/DOT 2565.3J

GENERAL NOTES

1. CONDUITS SHALL BE SEALED WITH MATERIAL COMPATIBLE SEALANT.
2. GROUND CONNECTIONS SHALL BE COATED WITH OXIDATION PROHIBITING COMPOUND.
3. CABLE SHALL ENTER BELOW THE SUPPORT BRACKETS WITH 16 m OF EXTRA CABLE FOR EACH CABLE COILED AROUND INSIDE OF SUPPORT BRACKETS
4. SEE SPECIAL PROVISIONS
5. DRAWING NOT TO SCALE.

FRP = FIBER REINFORCED POLYMER

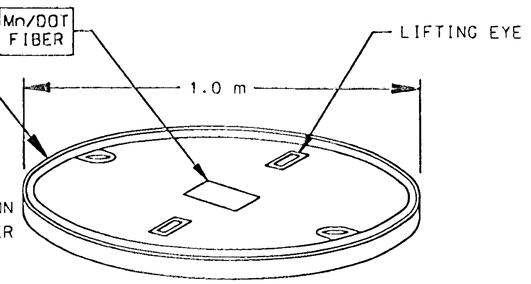
THE FRAME AND LID OF THE VAULT SHALL BE IN ACCORDANCE WITH AASHTO LOAD RATING H-10

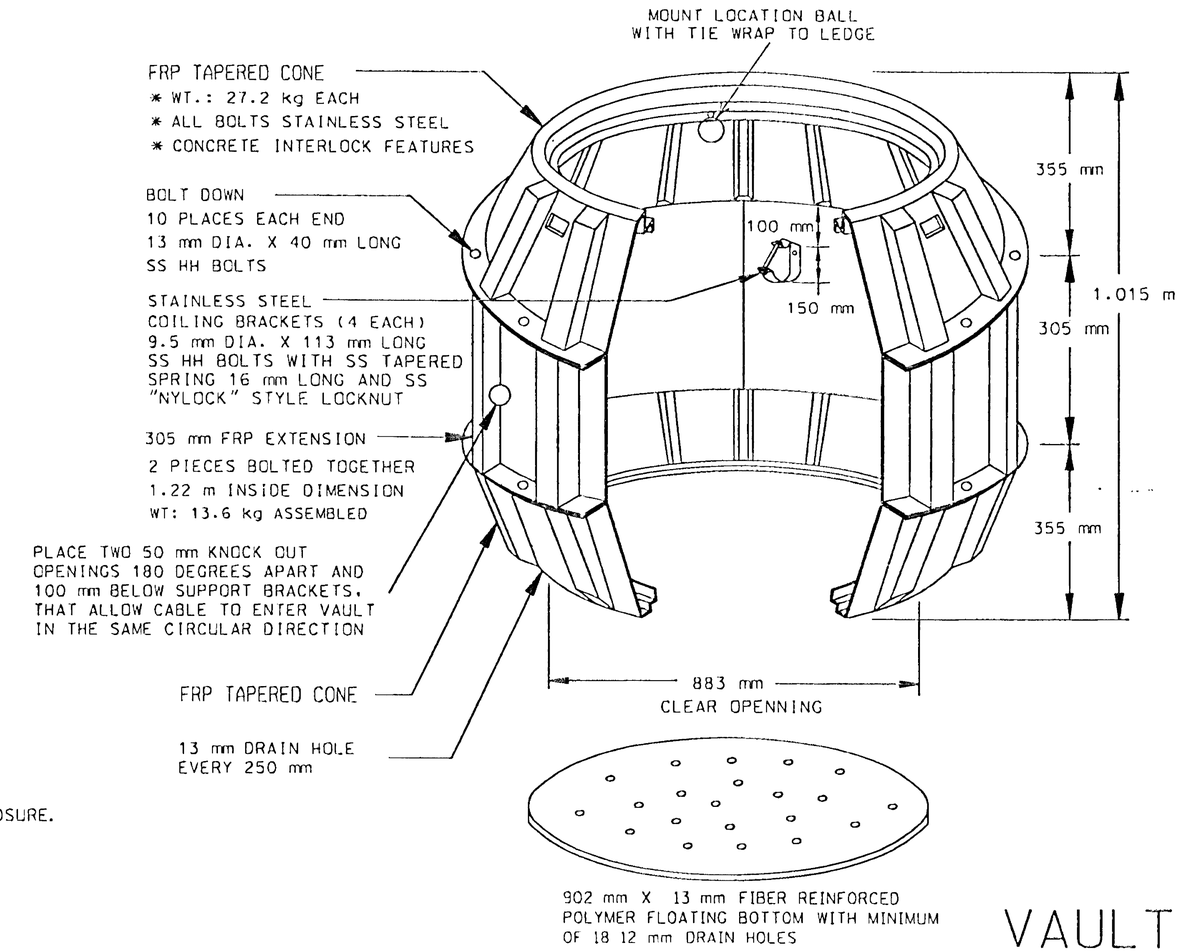
INSTALL 0.3 m AGGREGATE BASE UNDER VAULT IN ACCORDANCE WITH MN/DOT 3129.2J

CABLES SHALL BE CUT TO THE SAME LENGTH AND SPLICED. SPLICE SHALL BE ENCAPSULATED WITH RE-ENTERABLE COMPOUND IN A PRESSURIZED ENCLOSURE.

PROVIDE MOUNTING ANGLES & 1 m CHANNEL FOR ATTACHING OUTDOOR FIBER SPLICE ENCLOSURE TO SIDE WALL

COVER FEATURES
* WHEEL LOAD :H-10 LBS.ULTIMATE
* APPROX WT.: 68 kg
* TWO SS BOLTS ENGAGING FLOATING NUTS. 9.5 mm -16 X 90 mm LONG
* POLYMER CONCRETE/FRP CONSTRUCTION
* IDENTIFICATION/LOGO: Mn/DOT FIBER
* NON-SKID SURFACE





VAULT

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1. SAW CUT LOOP DETECTORS ARE VARIABLE SIZED, AND INSTALLED IN THE CENTER OF THE LANE.

2. THE LOOP DETECTOR CONDUCTOR IS 1/C NO.16 STRANDED COPPER, POLYESTER INSULATED WIRE COPPER, XLP INSULATED WIRE. THE WIRE IS CONTAINED IN A FLEXIBLE POLYESTER TUBING.

3. USE A SEALANT MADE SPECIFICALLY TO SEAL LOOP DETECTOR SAW CUTS IN CONCRETE ROADWAYS. USE AN APPROVED SEALANT IN BITUMINOUS ROADWAYS AND CONCRETE ROADWAYS THAT ARE TO BE OVERLAYED WITH BITUMINOUS.

4. INSTALL THE LOOP CONDUCTOR TO LEAD-IN SPLICE IN A PLASTIC TUBE WITH END CAPS THAT FUNCTION AS SPOUTS. AND A TWO PART PLASTIC ENVELOPE CONTAINING RESINS THAT TURN BLACK WHEN MIXED AND BECOME HARD WHEN CURED. INSTALL BOTH LOOP CONDUCTORS AND LEAD-IN INTO THE SAME END OF THE TUBE AND ENCAPSULATING THE SPLICE.

5. THE LEAD-IN CABLE SHALL CONFORM TO MN/DOT 3809.

METHOD

6. CLEAN ALL DEBRIS FROM THE ENTIRE LOOP DETECTOR AREA.

7. MARK THE LOOP DETECTOR AND LEAD-IN SAW CUTS ON THE ROADWAY

8. SAW THE CUT TO 65 mm +/- 5 mm DEEP BY 3 mm WIDER THAN THE "OD" OF THE CONDUCTOR. SMOOTH THE BOTTOM AND ANGLES TO PREVENT DAMAGE TO INSULATION.

9. REAM THE CONDUIT ENDING IN THE ROADWAY. PLUG THE CONDUIT IN THE ROADWAY TO PREVENT THE LOOP SEALANT OR DUCT SEAL FROM ENTERING THE CONDUIT.

10. DRILL THE CORNERS 5 mm DEEPER THAN THE SAW SLOT AND SMOOTH THE HOLE CORNERS.

11. AGAIN, CLEAN AND DRY THE ENTIRE LOOP DETECTOR AREA.

12. INSTALL BEAD OF LOOP DETECTOR SEALANT TO WITHIN 150 mm OF LOOP CONDUTORS CONDUIT. INSTALL CLEAN, DRY LOOP CONDUCTOR, STAYING TO THE OUTSIDE OF THE CORNERS. DO NOT INSTALL THE CONDUCTOR TIGHT. PUSH THE CONDUCTORS TO THE BOTTOM OF THE SAWSLOT WITH A BLUNT TOOL.

13. INSTALL 15 mm DIAMETER BY 50 mm FOAM BACKER ROD AT 600 mm INTERVALS TO HOLD THE CONDUCTOR AT THE BOTTOM OF THE SAWCUT. INSTALL LOOP SEALANT.

14. INSTALL A JOINT INSTALLATION EACH TIME A JOINT OR PAVEMENT CRACK IS CROSSED.

15. TWIST THE CONDUCTORS 3 TURNS PER 0.3 m IN THE CONDUIT FROM THE ROADWAY TO THE HANDHOLE.

16. SOLDER THE LOOP CONDUCTOR TO LEAD-IN SPLICE, INSTALL THE SPLICE IN WIRE NUT, THEN PLACE IT INTO THE SPLICE ENCAPSULATOR

17. THE LOOP INSULATION RESISTANCE READING MUST BE GREATER THAN 100 MEG OHM.

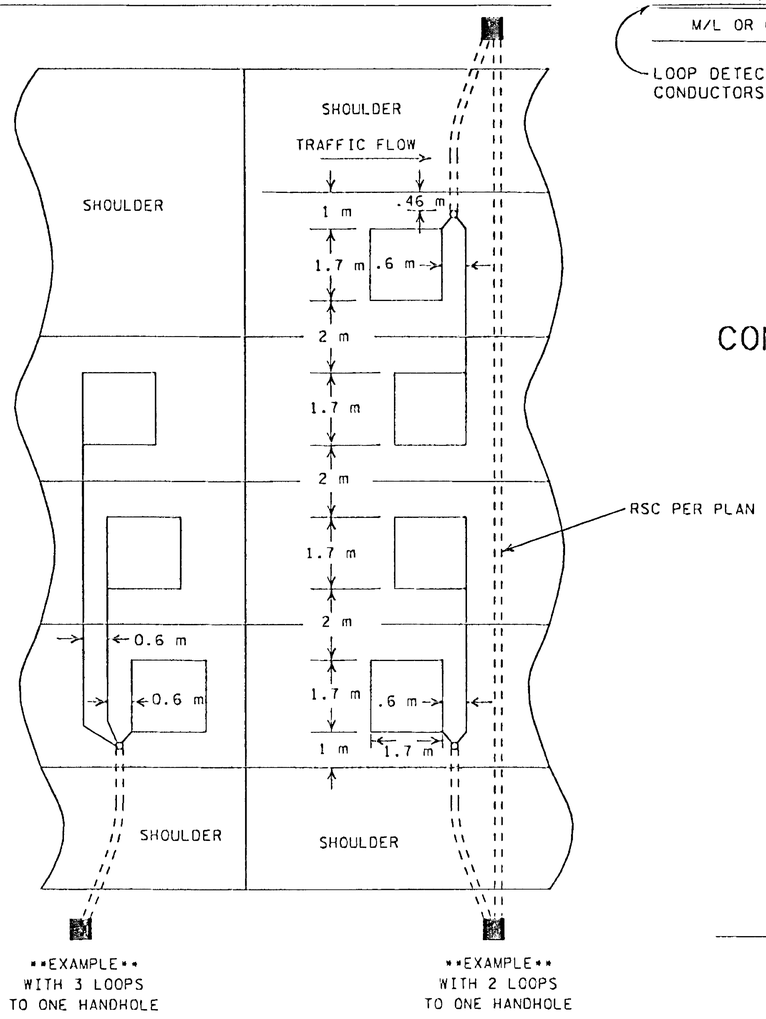
18. SAWCUTS SHALL REMAIN 0.6 m FROM OTHER SAWCUTS.

19. FILL SAW SLOT UNIFORMLY ACCORDING TO THE LOOP SEALANT MANUFACTURERS RECOMMENDED DEPTH.

	LEAD-IN LENGTH (METERS)	0-150	210	300	365
	NUMBER OF LOOP TURNS	4	5	6	7
OHMS	#12 LOOP AT HH	0.345	0.387	0.429	0.472
OHMS	#14 LOOP AT HH	0.539	0.605	0.671	0.737
OHMS	#16 LOOP AT HH	0.862	0.968	1.074	1.179

TABLE A

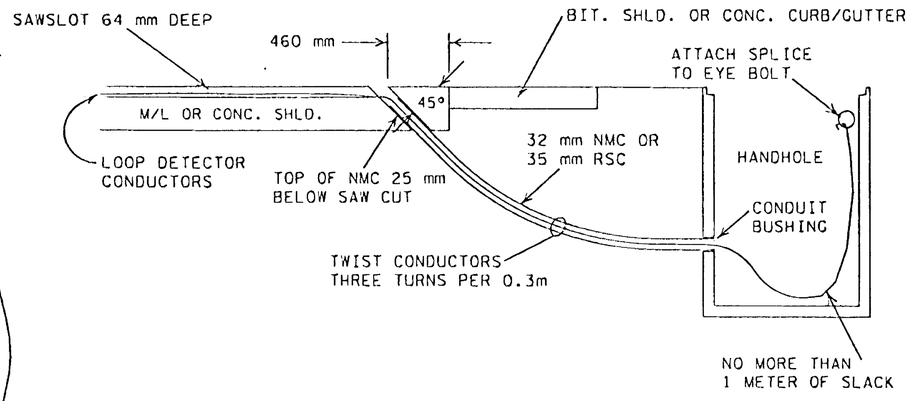
NOTE: WIPE ALL EXCESS SEALANT MATERIAL FROM ROADWAY SURFACE



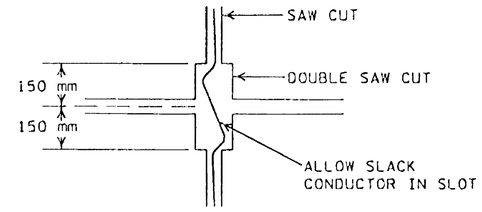
EXAMPLE WITH 3 LOOPS TO ONE HANDHOLE

EXAMPLE WITH 2 LOOPS TO ONE HANDHOLE

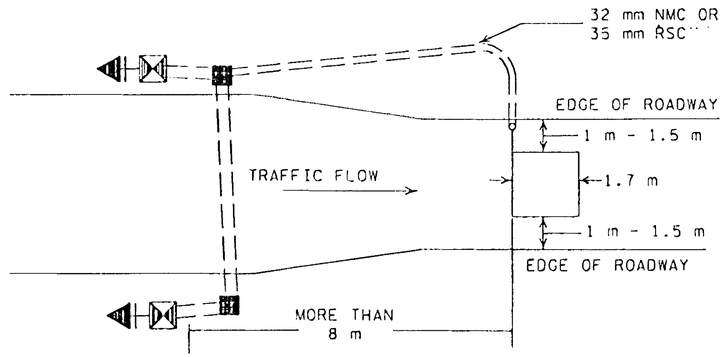
MAINLINE DETECTORS



CONDUIT/HANDHOLE INSTALLATION



CONCRETE JOINT INSTALLATION



LOOP/RAMP DETECTION

TMC SAW CUT LOOP DETECTOR TYPICAL - PART ONE

CERTIFIED BY _____ PROFESSIONAL ENGINEER REG.NO. 18491 MAR 13 1997

STATE PROJ. NO. 02-617-11 SHEET NO. 142 OF 236 SHEETS

c:\mn\prj\02-61711\02-61711.dgz Mar. 17, 1997 12:37:45

SEE SPECIAL PROVISIONS
FOR LOOP TESTING FORM

LOOP DETECTOR TYPICAL - PART TWO

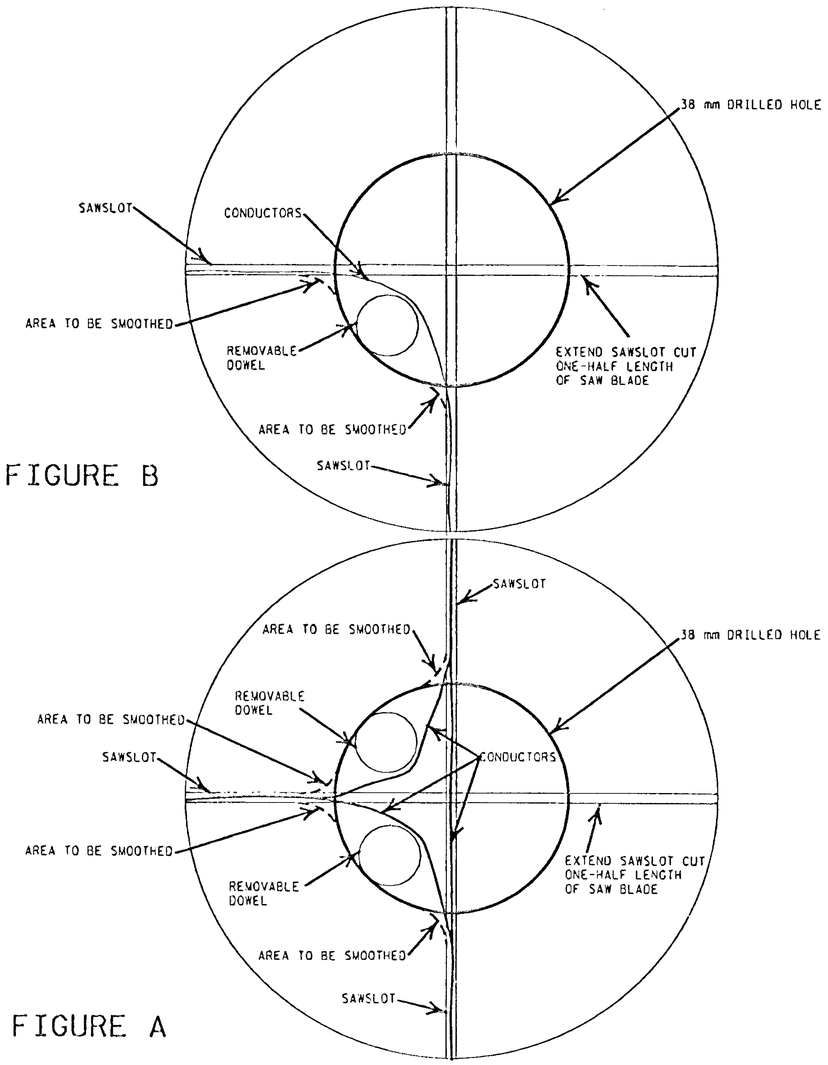
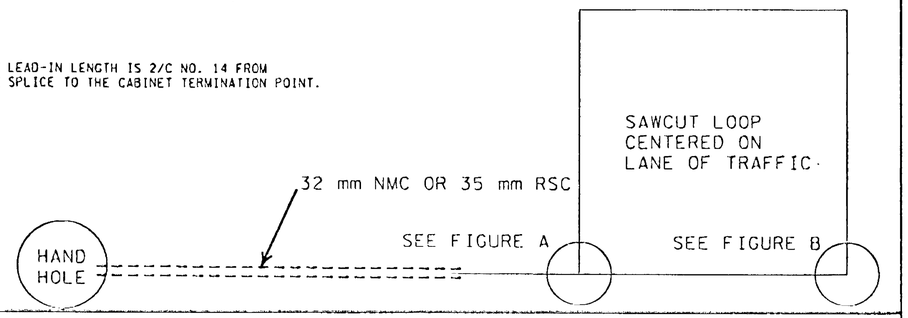


FIGURE B

FIGURE A

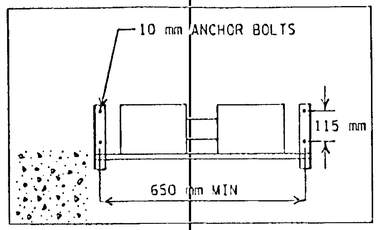
NOTE: THE LEAD-IN LENGTH IS 2/C NO. 14 FROM THE SPLICE TO THE CABINET TERMINATION POINT.



CERTIFIED BY P M Bellanger PROFESSIONAL ENGINEER REG.NO. 18491 MAR 13 1997

STATE PROJ. NO. 02--617-11 SHEET NO. 143 OF 236 SHEETS

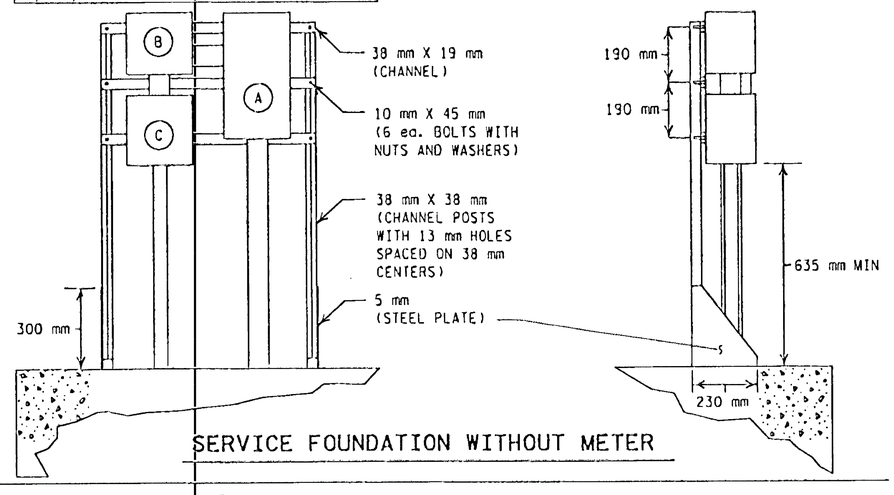
c:\mn\prj\02-61711\02-61711.dg2 Mar. 17, 1997 12:37:58



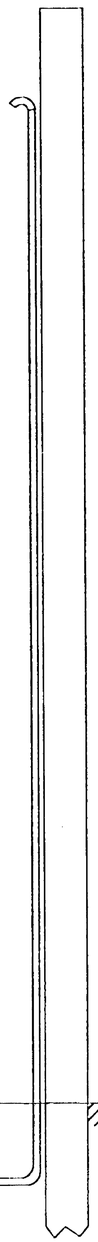
A) CIRCUIT BREAKER ENCLOSURE

B) TRANSFORMER

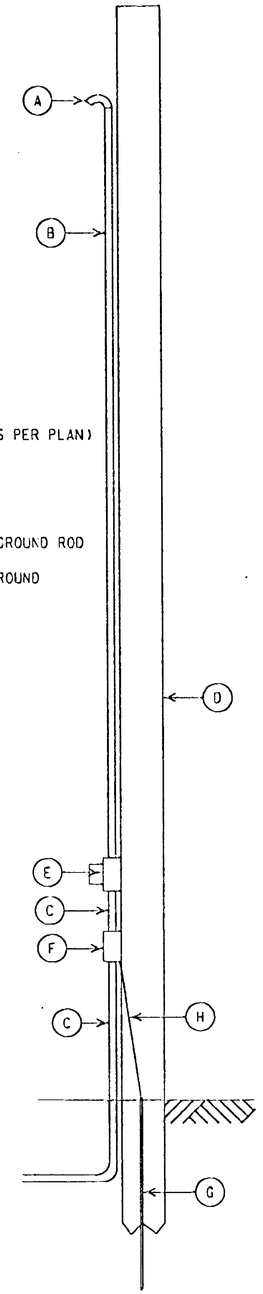
C) DISCONNECT



SERVICE FOUNDATION WITHOUT METER



WEATHER HEAD AND RISER WHEN REQUIRED



A) WEATHERHEAD

B) RISER

C) 53 mm RSC

D) WOOD POLE (AS PER PLAN)

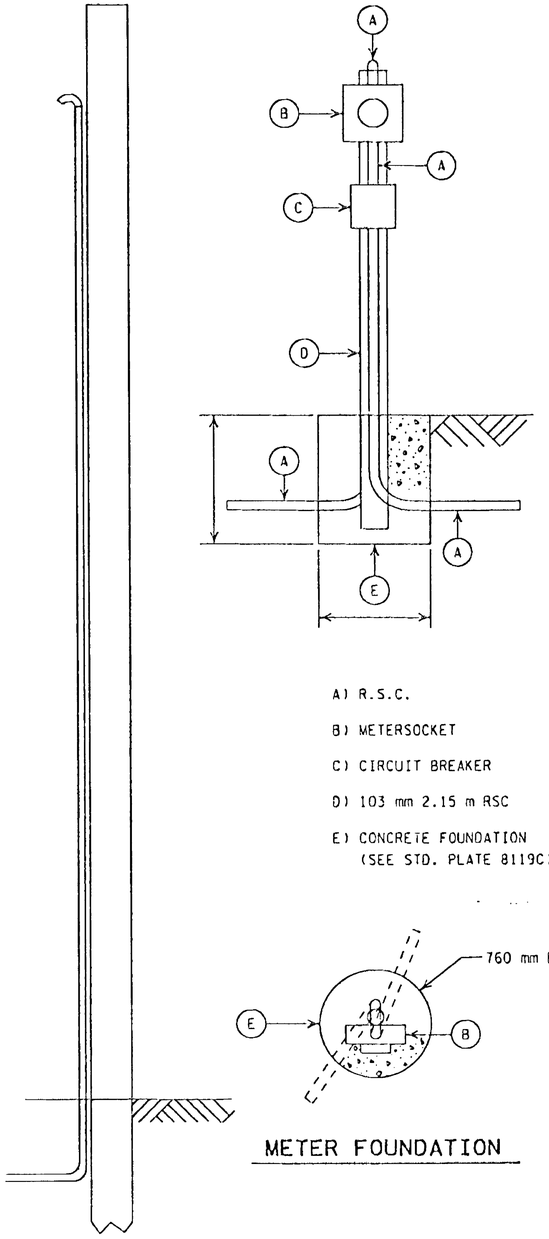
E) METERSOCKET

F) DISCONNECT

G) 16 mm X 5 m GROUND ROD

H) No. 4 BARE GROUND

SERVICE INSTALLATION



A) R.S.C.

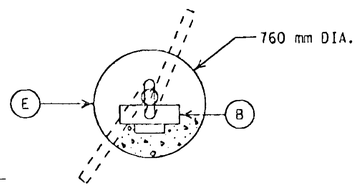
B) METERSOCKET

C) CIRCUIT BREAKER

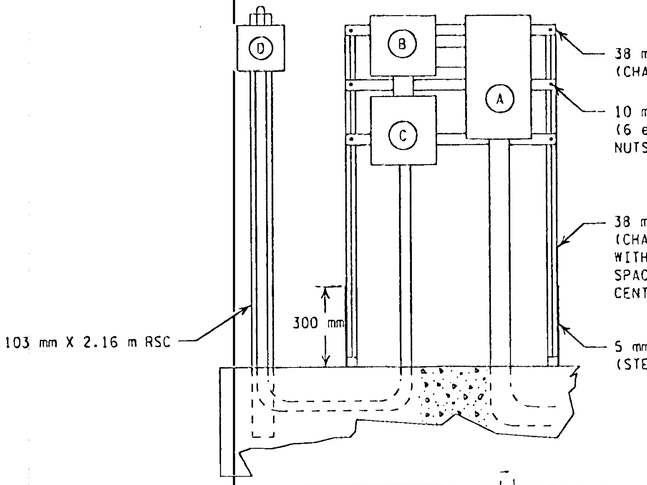
D) 103 mm 2.15 m RSC

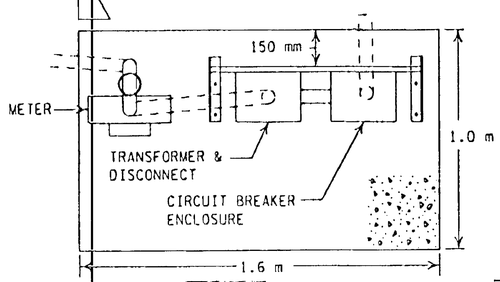
E) CONCRETE FOUNDATION (SEE STD. PLATE 8119C)

WEATHER HEAD AND RISER WHEN REQUIRED



METER FOUNDATION





A) CIRCUIT BREAKER ENCLOSURE

B) TRANSFORMER

C) DISCONNECT

D) METERSOCKET

SERVICE FOUNDATION WITH METER

ELECTRIC SERVICE TYPICALS

CERTIFIED BY P.M. Schaus PROFESSIONAL ENGINEER REG.NO. 18491 MAR 13 1997

STATE PROJ. NO. 02-617-11 SHEET NO. 144 OF 236 SHEETS

c:\mn\prj\02-61711\02-61711.dg2 Mar. 17, 1997 12:38:14

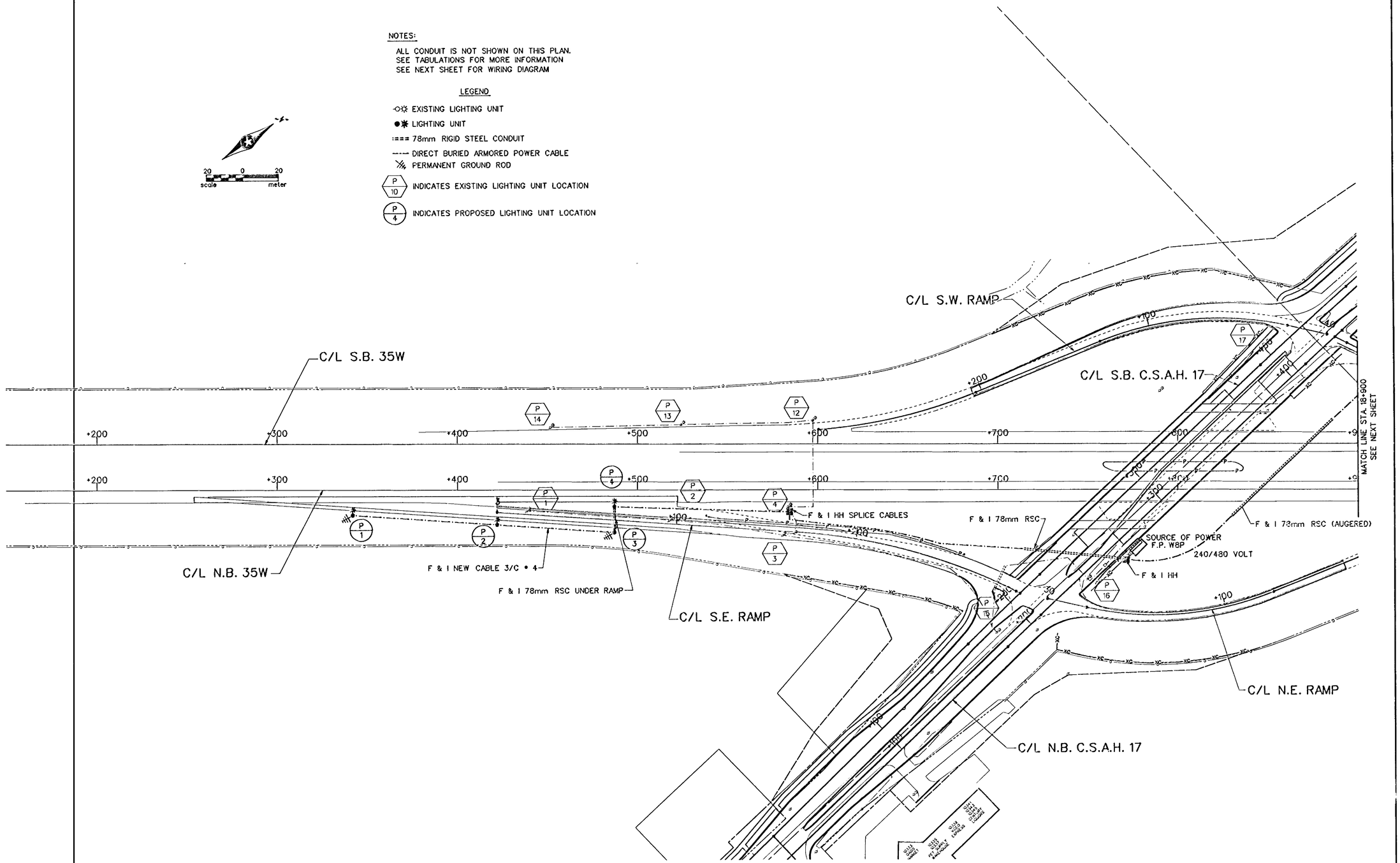
NOTES:

ALL CONDUIT IS NOT SHOWN ON THIS PLAN.
SEE TABULATIONS FOR MORE INFORMATION
SEE NEXT SHEET FOR WIRING DIAGRAM

LEGEND

- EXISTING LIGHTING UNIT
- LIGHTING UNIT
- 78mm RIGID STEEL CONDUIT
- DIRECT BURIED ARMORED POWER CABLE
- PERMANENT GROUND ROD
- INDICATES EXISTING LIGHTING UNIT LOCATION
- INDICATES PROPOSED LIGHTING UNIT LOCATION

20 0 20
scale meter



NO	DATE	BY	CKD	APPR	REVISION
1	4-24-97	MCI		DAD	ADD 240/480 VOLT AT S.O.P.

NAME: LP1 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Dennes

Date 3-21-97 Reg. No. 23317

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	M. ISAKKA	12-96
DESIGNED BY	D. DEMERS	12-96
CHECKED BY	D. MICHALKO	1-97
COMM. NO.	0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
LIGHTING PLAN
C.S.A.H. 17 RECONSTRUCTION

SHEET 145 OF 236

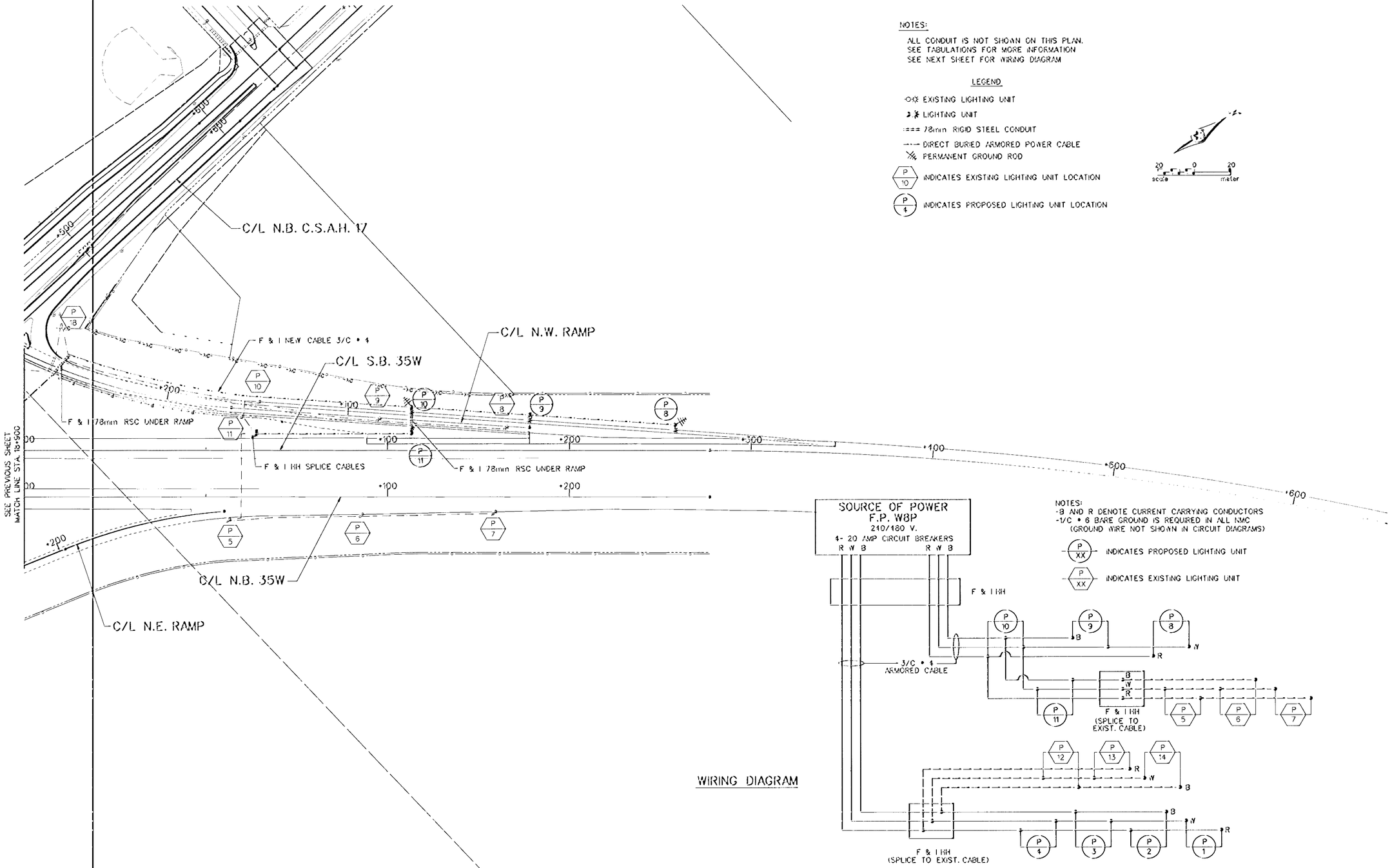
NOTES:

ALL CONDUIT IS NOT SHOWN ON THIS PLAN.
SEE TABULATIONS FOR MORE INFORMATION
SEE NEXT SHEET FOR WIRING DIAGRAM

LEGEND

- EXISTING LIGHTING UNIT
- LIGHTING UNIT
- 78mm RIGID STEEL CONDUIT
- DIRECT BURIED ARMORED POWER CABLE
- PERMANENT GROUND ROD
- P 10 — INDICATES EXISTING LIGHTING UNIT LOCATION
- P 4 — INDICATES PROPOSED LIGHTING UNIT LOCATION

20 0 20
scale meter



NOTES:
-B AND R DENOTE CURRENT CARRYING CONDUCTORS
-1/C • 6 BARE GROUND IS REQUIRED IN ALL NMC (GROUND WIRE NOT SHOWN IN CIRCUIT DIAGRAMS)

- P XX — INDICATES PROPOSED LIGHTING UNIT
- P XX — INDICATES EXISTING LIGHTING UNIT

WIRING DIAGRAM

NO	DATE	BY	C&D	APPR	REVISION

NAME: LP2 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers
Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY M. ISAKKA DATE 12-96
DESIGNED BY D. DEMERS 12-96
CHECKED BY D. MICHALKO 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
LIGHTING PLAN
C.S.A.H. 17 RECONSTRUCTION

SHEET 146 OF 236

9390
BURGER KING

C.S.A.H. 23 (LAKE DRIVE)

(LOVELL ROAD)

4175
LOVELL BUILDING
EXINGTON CITY HALL

9480

9500

9508

scale 10 0 10 meter

·400 ·500 ·600

CITY OF LEXINGTON
CITY OF CIRCLE PINES

C.S.A.H. 17 (LEXINGTON AVE.)

MATCHLINE STA. 8+650
SEE BELOW

9507

9509
LIGHTNING PRINTING

9505
CENTENNIAL REAL ESTATE

9501
MARSHALL AND ASSOC
ATTY AT LAW

LEGEND

SILT FENCE	
BALE CHECKS	
SEED (MIXTURE 90A)	
SEED (MIXTURE 25A)	
SOD (TYPE LAWN)	
SOD (SALT RESISTANT)	
SEED (MIXTURE 90A) STRAW 2S BLANKET	
PLACE SOD AT APRON END SEE STD. PLATE 9102	(S)
PLACE RIPRAP AT APRON END SEE STD. PLATE 3133	(R)

EDGEWOOD ROAD

CITY OF LEXINGTON

CITY OF BLAINE

ELEV. 275.25

ELEV. 274.3

POND A
NWL=274.30
HWL=275.07

97TH LANE

GAS SUBSTATION

9516

9532

9546

9560

9564

·700 ·800 ·900

SEE ABOVE MATCHLINE STA. 8+650

CITY OF LEXINGTON
CITY OF CIRCLE PINES

CITY OF BLAINE
CITY OF CIRCLE PINES

WEST ROAD

C.S.A.H. 17 (LEXINGTON AVE.)

MATCHLINE STA. 9+025
SEE NEXT SHEET

NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD R NOTE AT 23+
2	4-1-97	MCI		DAD	REVISE SEED MIX FROM 20A TO 25A

NAME: TE1 $10.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 108-030-03

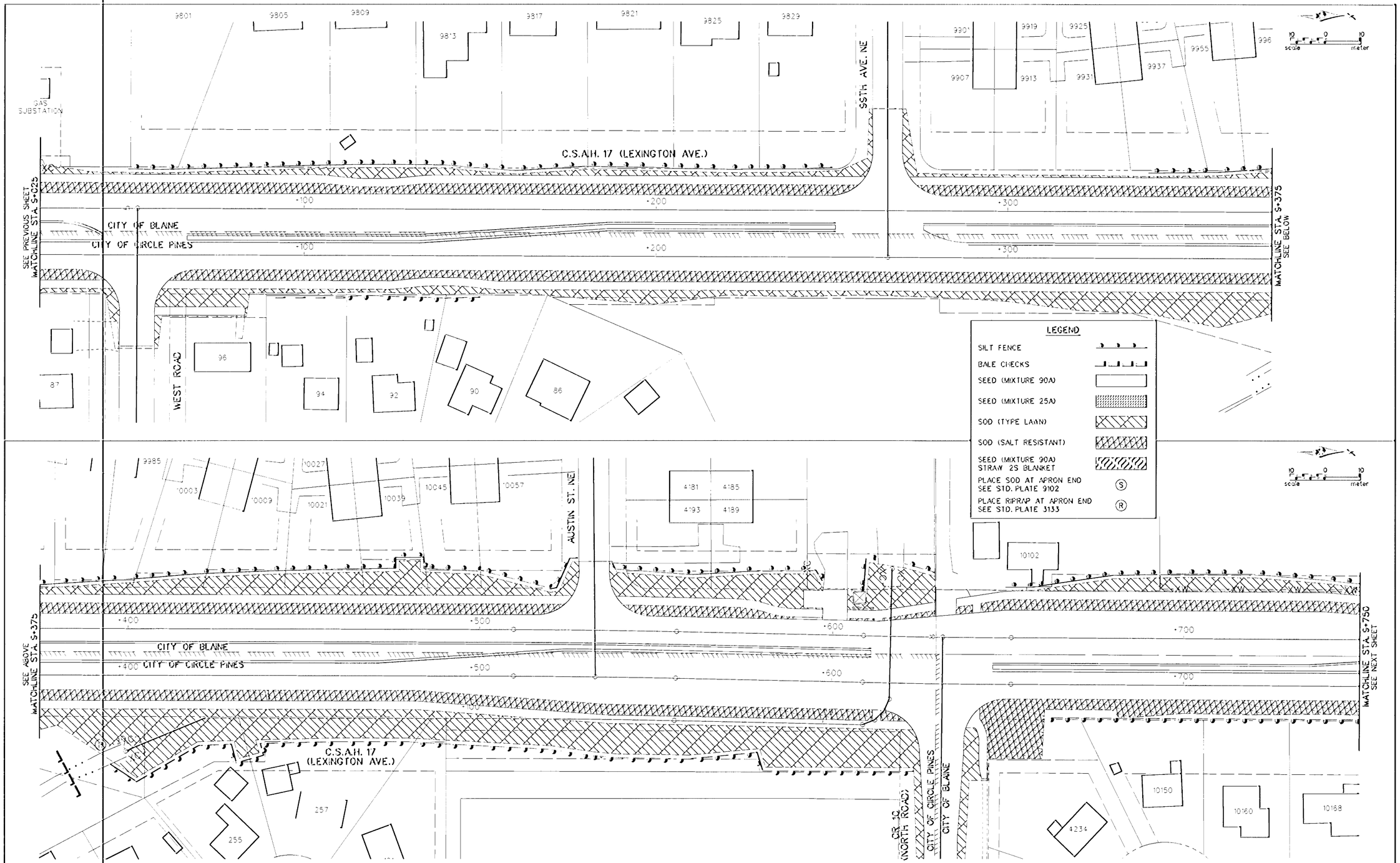
CO. PROJECT NO.

DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TURF ESTABLISHMENT/ EROSION CONTROL PLAN
C.S.A.H. 17 RECONSTRUCTION
STA. 8+358 TO STA. 9+025

SHEET 147 OF 236



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD R NOTE AT 309 TEMP.
2	4-1-97	MCI		DAD	REVISE SEED MIX FROM 20A TO 25A

NAME: 1E2 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification, or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.	
S.A.P. 02-617-11	
S.A.P. 106-020-12	
S.A.P. 106-030-03	
CO. PROJECT NO.	

DRAWN BY M. ISAKKA	DATE 12-96
DESIGNED BY B. URBANEK	12-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0962410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

TURF ESTABLISHMENT/ EROSION CONTROL PLAN

C.S.A.H. 17 RECONSTRUCTION

STA. 9+025 TO STA. 9+750

SHEET 148 OF 236

LEGEND

SILT FENCE		SOD (SALT RESISTANT)	
BALE CHECKS		SEED (MIXTURE 90A) W/ STRAW 2S BLANKET	
SEED (MIXTURE 90A)		PLACE SOD AT APRON END SEE STD. PLATE 9102	(S)
SOD (TYPE LAWN)		PLACE RIPRAP AT APRON END SEE STD. PLATE 3133	(R)

scale 10 0 10 meter

BURNED BUILDING

C.S.A.H. 17 (LEXINGTON AVE.)

SEE PREVIOUS SHEET MATCHLINE STA. 5+750

MATCHLINE STA. 10+125 SEE BELOW

10175 10188 10198 10206 10216 10224 10234 10244 4244

BALL ROAD

10333 OASIS MARKET

SEE I-35W TURF ESTAB. SHEET

SEE I-35W TURF ESTAB. SHEET

SE RAMP

N.B. I-35W

S.B. I-35W

SW RAMP

SEE ABOVE MATCHLINE STA. 10+125

C.S.A.H. 17 (LEXINGTON AVE.)

AGG. BASE CL. 5 SPES. 2211

NE RAMP

NW RAMP

MATCHLINE STA. 10+500 SEE NEXT SHEET

SEE I-35W TURF ESTAB. SHEET

SEE I-35W TURF ESTAB. SHEET

NO	DATE	BY	CKD	APPR	REVISION

NAME: TE3 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 27397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

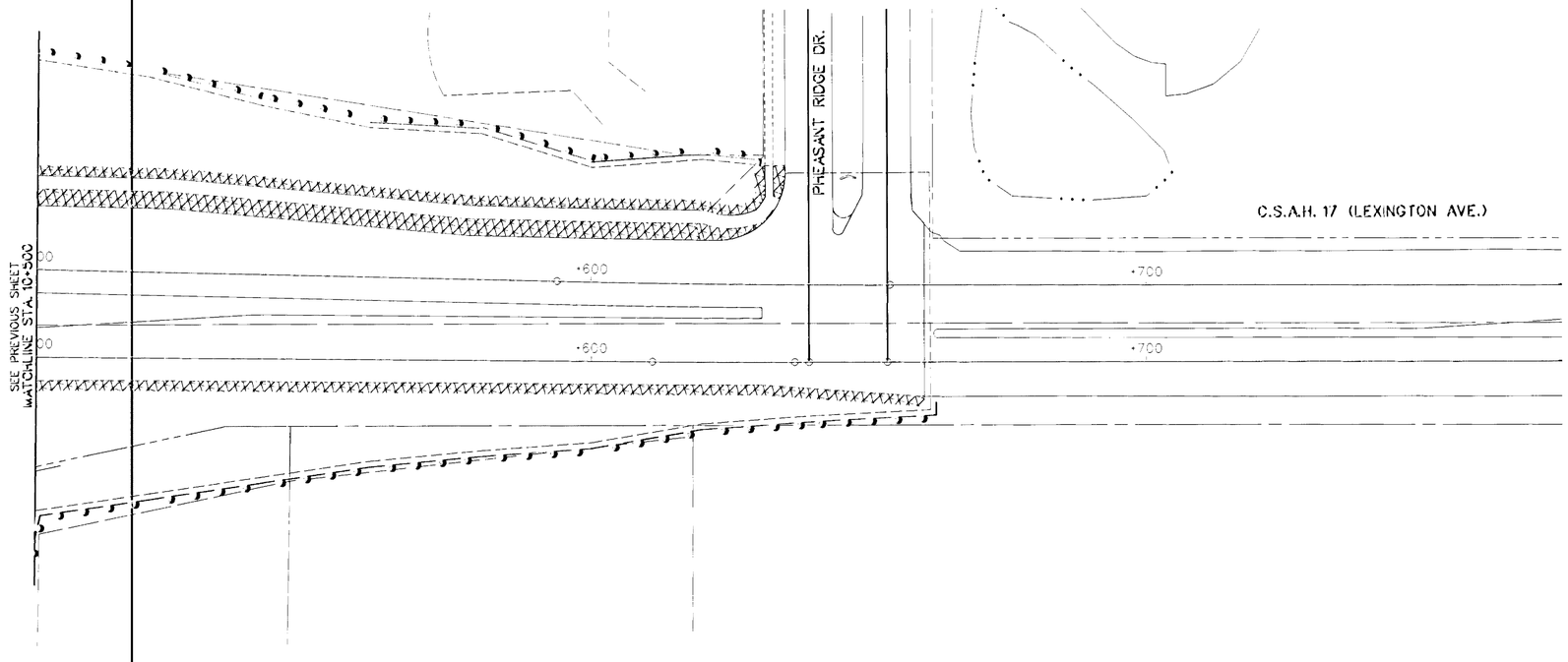
ANOKA COUNTY

TURF ESTABLISHMENT/ EROSION CONTROL PLAN

C.S.A.H. 17 RECONSTRUCTION

STA. 9+750 TO STA. 10+500

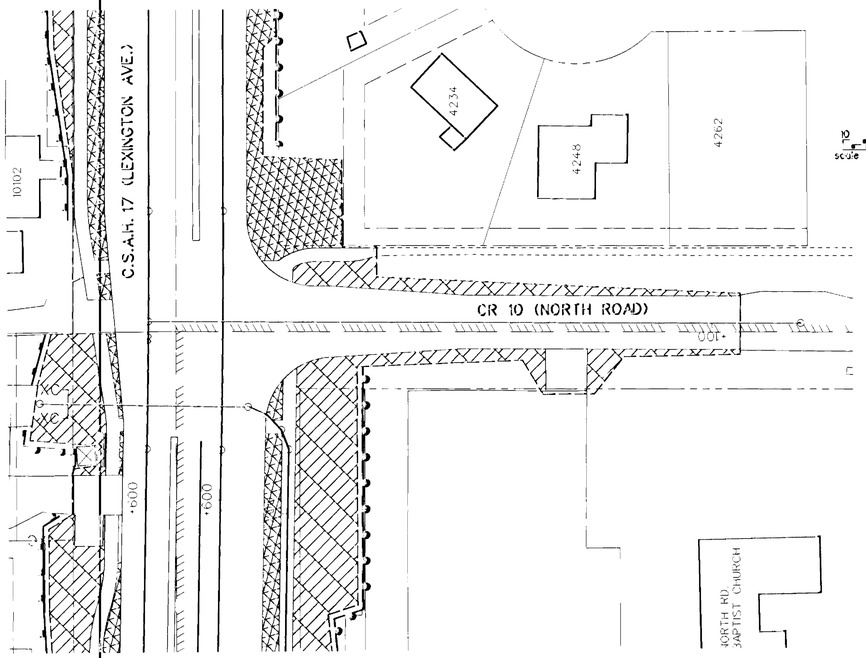
SHEET 149 OF 236



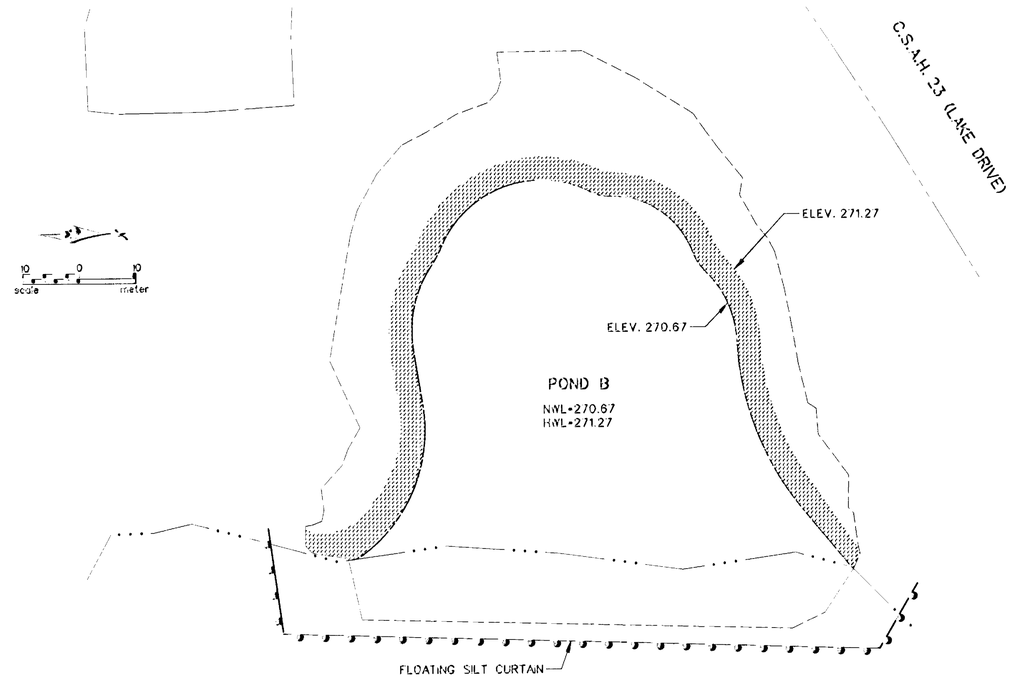
LEGEND

- SILT FENCE
- BALE CHECKS
- SEED (MIXTURE 90A)
- SEED (MIXTURE 25A)
- SOD (TYPE LAWN)
- SOD (SALT RESISTANT)
- SEED (MIXTURE 90A) STRAW 2S BLANKET
- PLACE SOD AT APRON END SEE STD. PLATE 9102 (S)
- PLACE RIPRAP AT APRON END SEE STD. PLATE 3133 (R)

scale 10 0 10 meter



scale 10 0 10 meter



NO	DATE	BY	CKD	APPR	REVISION
2	4-1-97	MCI		DAD	REVISE SEED MIX FROM 20A TO 25A

NAME: 1E4 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 108-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	M. IISAKKA	12-96
DESIGNED BY	B. URBANEK	12-96
CHECKED BY	D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

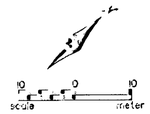
ANOKA COUNTY

TURF ESTABLISHMENT/ EROSION CONTROL PLAN

C.S.A.H. 17 RECONSTRUCTION

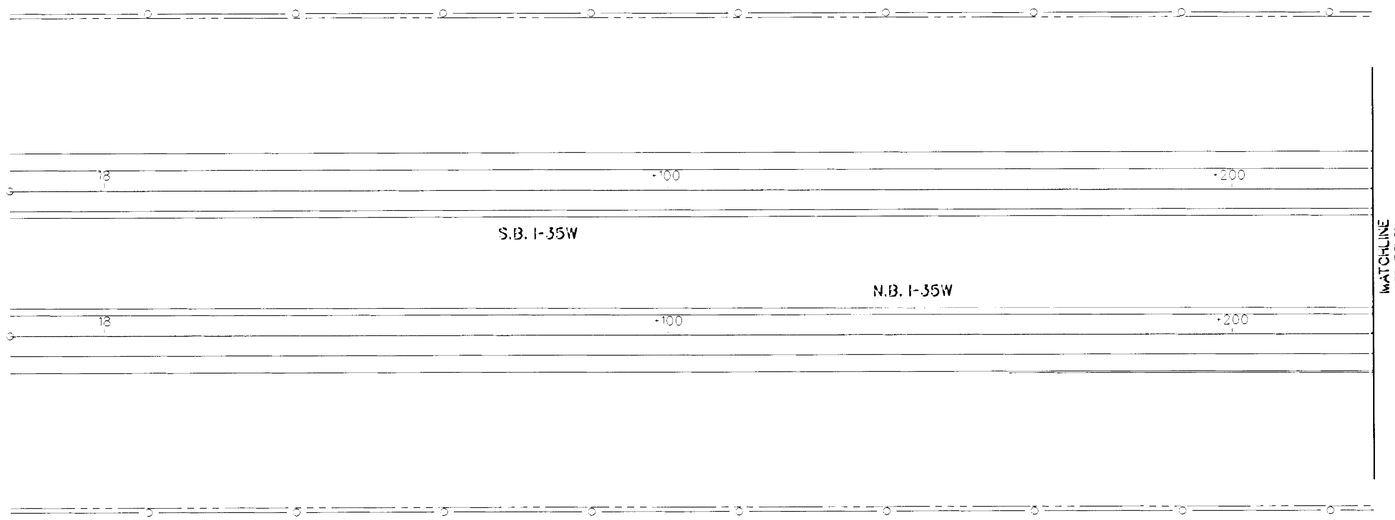
STA. 10+500 TO STA. 10+660, C.R. 10, POND B

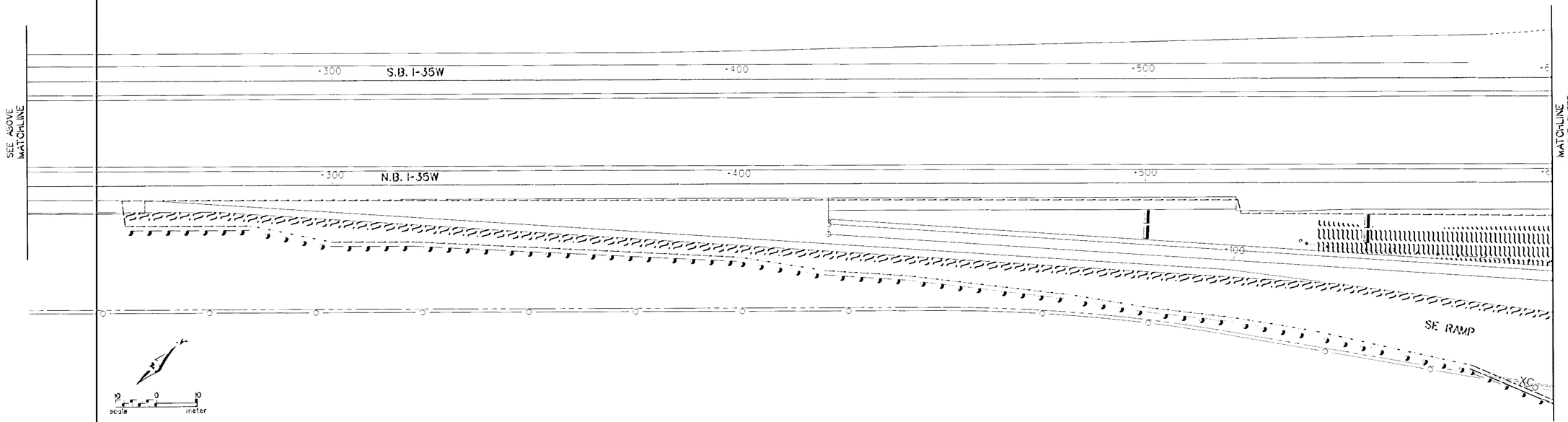
SHEET 150 OF 236



LEGEND

- SILT FENCE
- BALE CHECKS
- SEED (MIXTURE 90A)
- SEED (MIXTURE 25A)
- SOD (TYPE LAWN)
- SOD (SALT RESISTANT)
- SEED (MIXTURE 90A) STRAW 2S BLANKET
- PLACE SOD AT APRON END SEE STD. PLATE 9102 (S)
- PLACE RIPRAP AT APRON END SEE STD. PLATE 3133 (R)





NO	DATE	BY	CKD	APPR	REVISION
2	4-1-97	MCI		DAD	REVISE SEED MIX FROM 20A TO 25A

NAME: TE5 410.PLN DATE: Mar. 17, 1997

minnesota metro

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

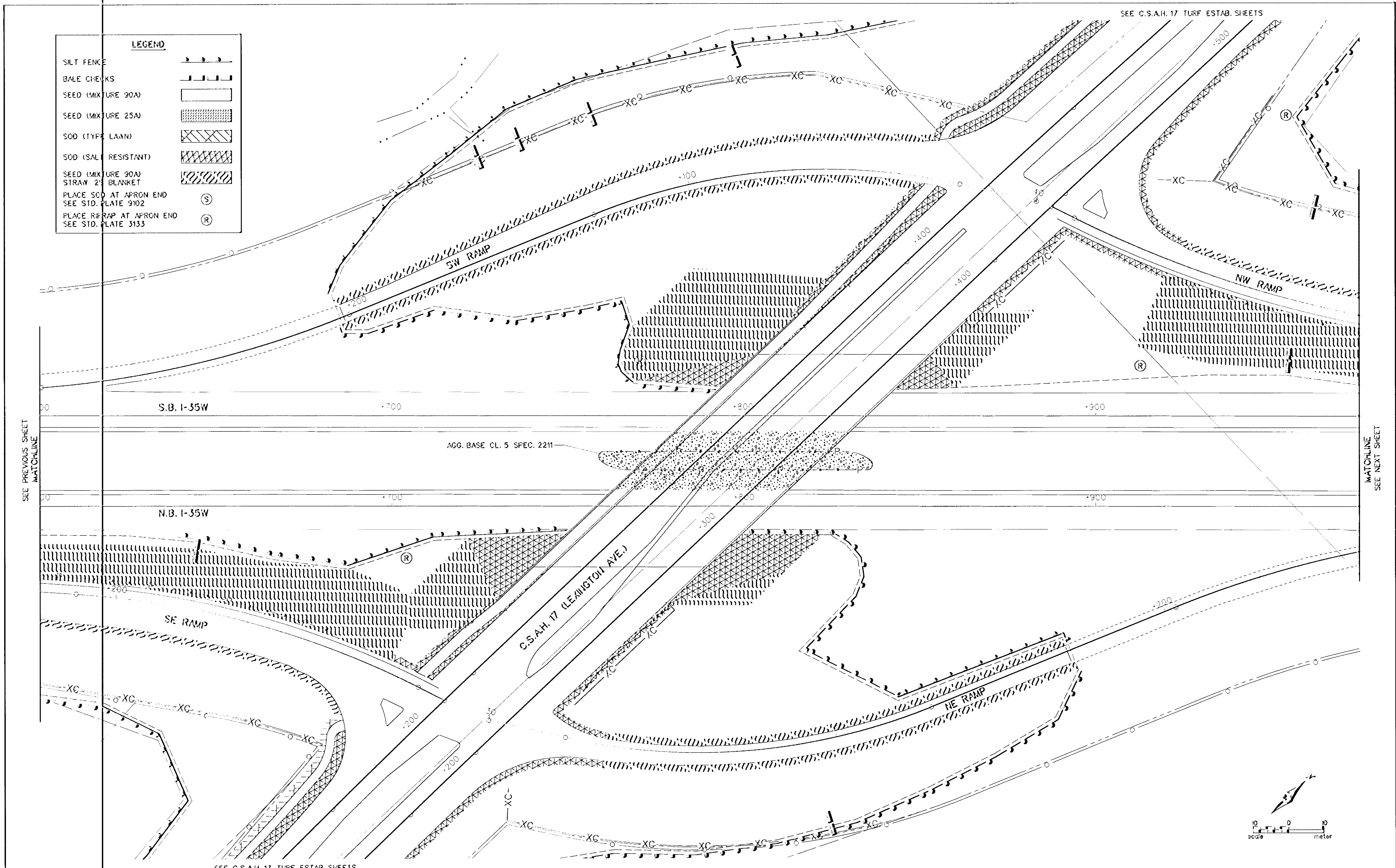
ANOKA COUNTY

TURF ESTABLISHMENT/ EROSION CONTROL PLAN

C.S.A.H. 17 RECONSTRUCTION

INTERSTATE 35W

SHEET 151 OF 236



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD R NOTE AT APRONS
2	4-1-97	MCI		DAD	REVISE SEED MIX FROM 20A TO 25A

NAME: 1E6 410.PLN DATE: Mar. 17, 1997

minnesota metric

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Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

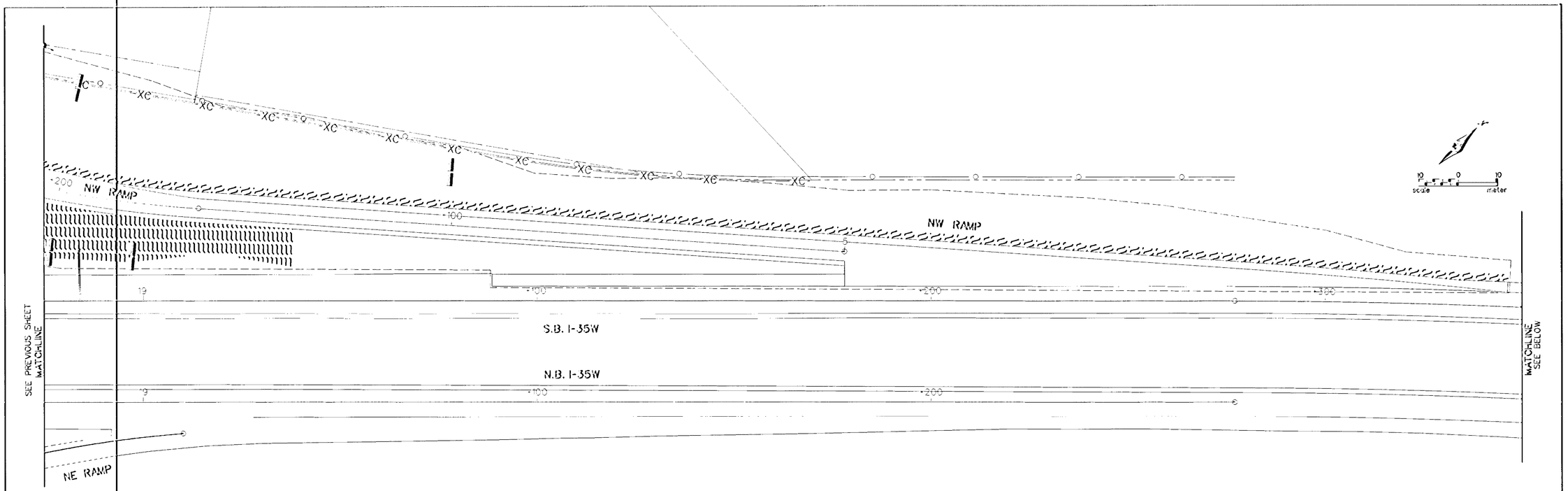
CO. PROJECT NO.

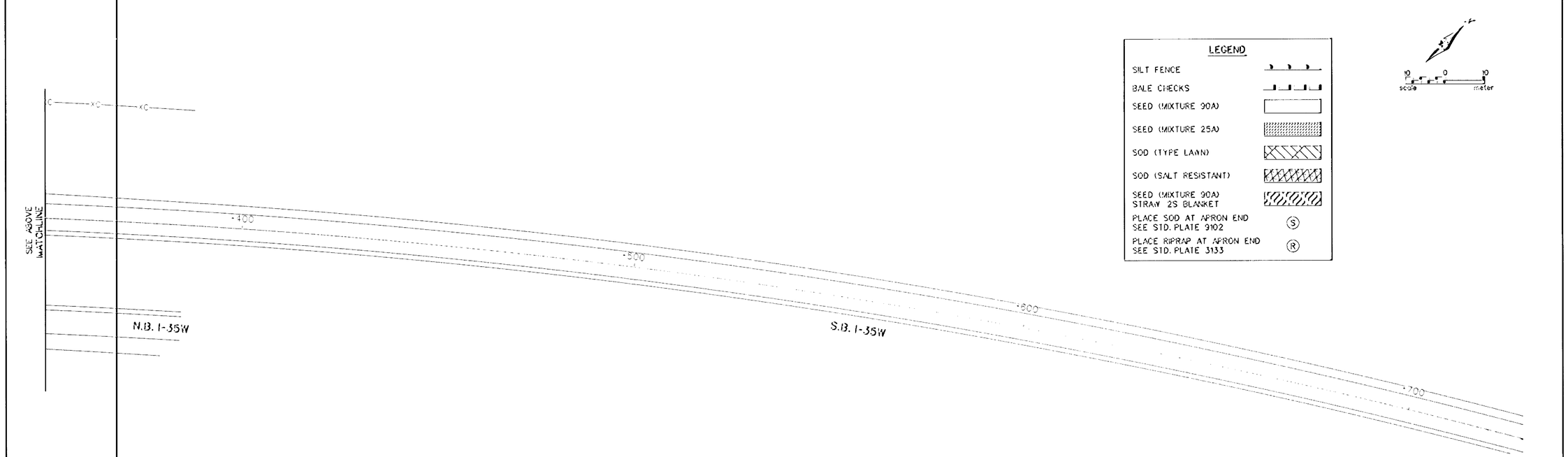
DRAWN BY M. IISAKKA DATE 12-96
DESIGNED BY B. URBANEK 12-96
CHECKED BY D. DEMERS 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
TURF ESTABLISHMENT/ EROSION CONTROL PLAN
C.S.A.H. 17 RECONSTRUCTION
INTERSTATE 35W

SHEET 152 OF 236





NO	DATE	BY	CKD	APPR	REVISION
2	4-1-97	MCI		DAD	REVISE SEED MIX FROM 20A TO 25A

NAME: TE7 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

		DATE
DRAWN BY	M. IISAKKA	12-96
DESIGNED BY	B. URBANEK	12-96
CHECKED BY	D. DEMERS	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

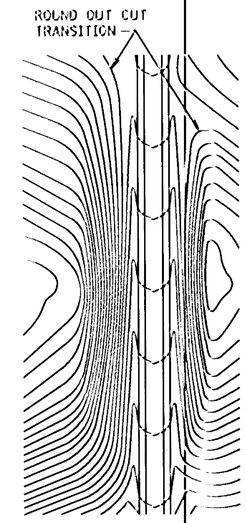
ANOKA COUNTY

TURF ESTABLISHMENT/ EROSION CONTROL PLAN

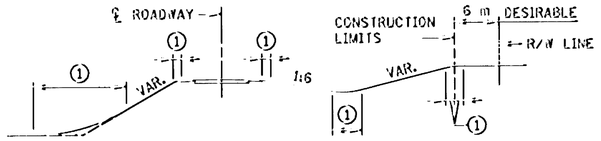
C.S.A.H. 17 RECONSTRUCTION

INTERSTATE 35W

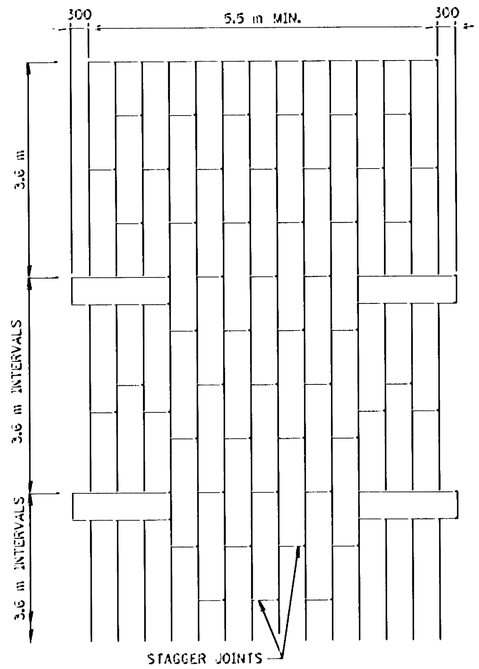
SHEET 153 OF 236



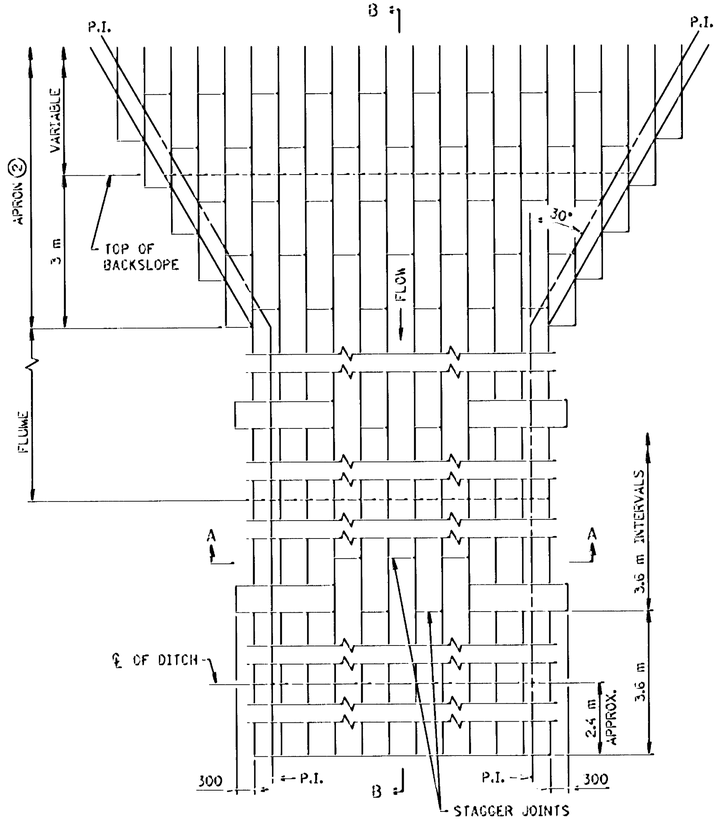
CONTOURING ROAD CUTS



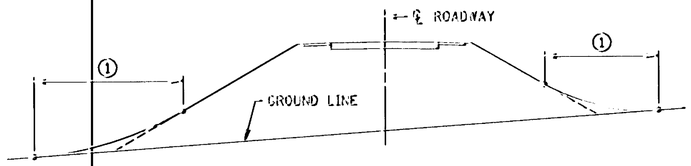
ROUNDING SHOULDERS AND BACKSLOPES



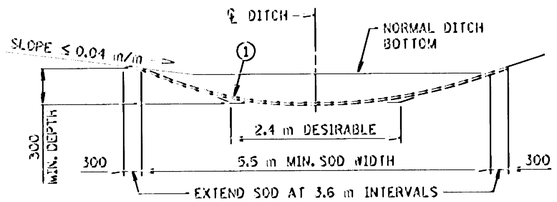
PLAN VIEW



PLAN VIEW

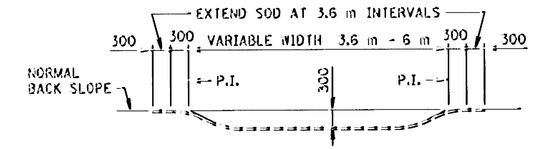


SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

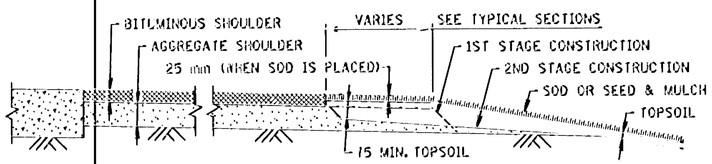


SODDED DITCH CROSS SECTION

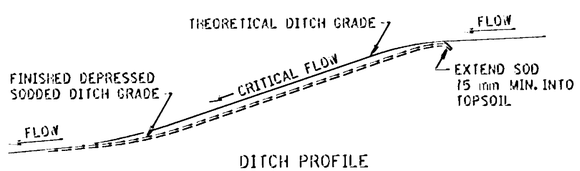
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 0.04 m/m), FIRST NOTCH DITCH AND THAN PROVIDE ROUNDING.



SECTION A-A

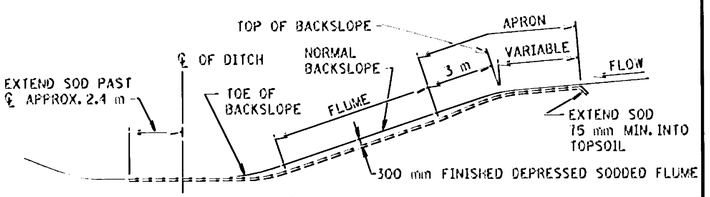


SHAPING AND TOPSOILING INSLOPES



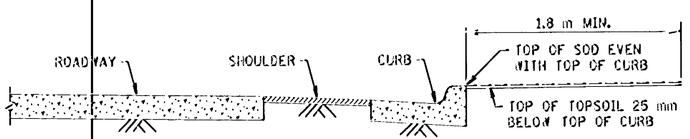
DITCH PROFILE

SODDED DITCH DETAILS



SECTION B-B

SODDED FLUME DETAILS



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

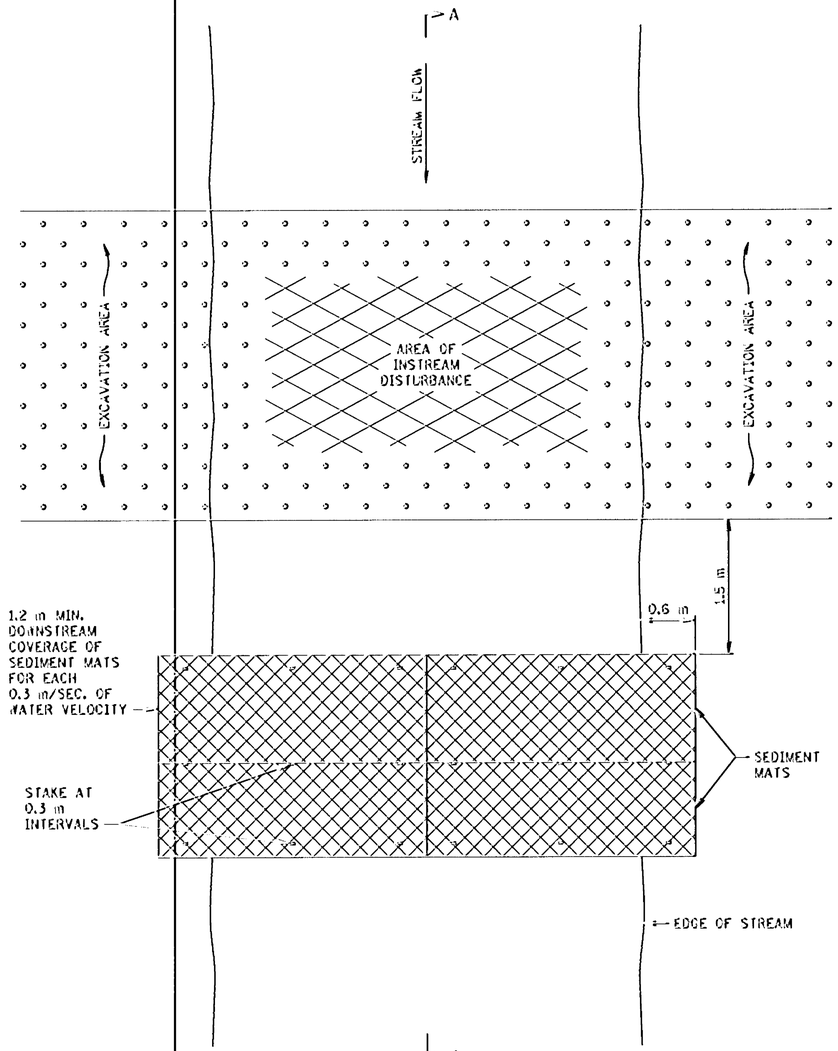
① FOR ROUNDING, SEE ROAD DESIGN MANUAL.

② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

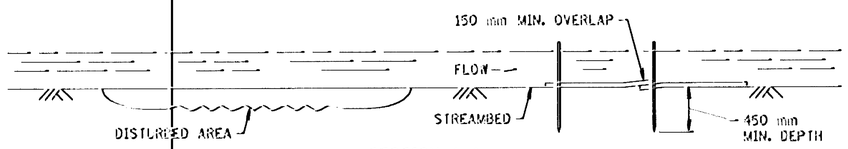
3-6-95

STANDARD SHEET NO. 5-297.404M	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: DECEMBER 19, 1990	
S.A.P. 02-617-11, et al.	SHEET NO. 154 OF 245 SHEETS

NAME: ECP1410.PLN DATE: Mar. 17, 1997



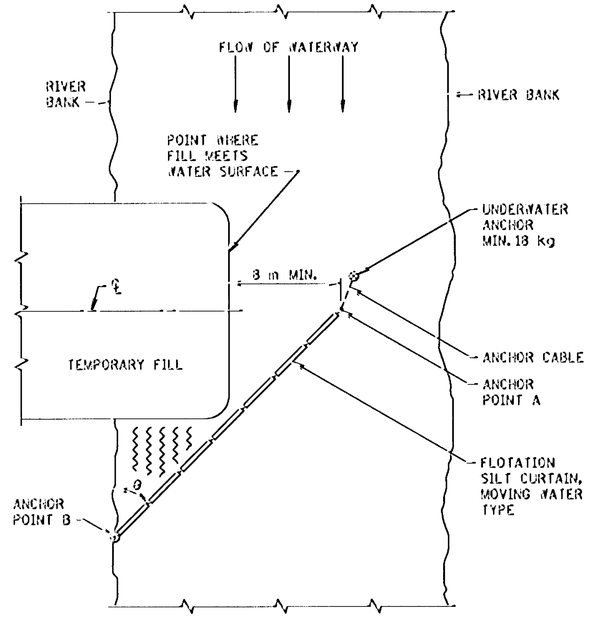
PLAN VIEW



SECTION A-A

SEDIMENT MAT
TYPICAL STREAMBED INSTALLATION

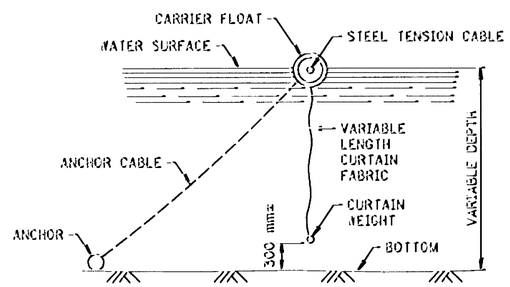
DESIGN CRITERIA:
MAXIMUM FLOW VELOCITY: 1.5 m/SEC.
MAXIMUM FLOW DEPTH: 0.6 m



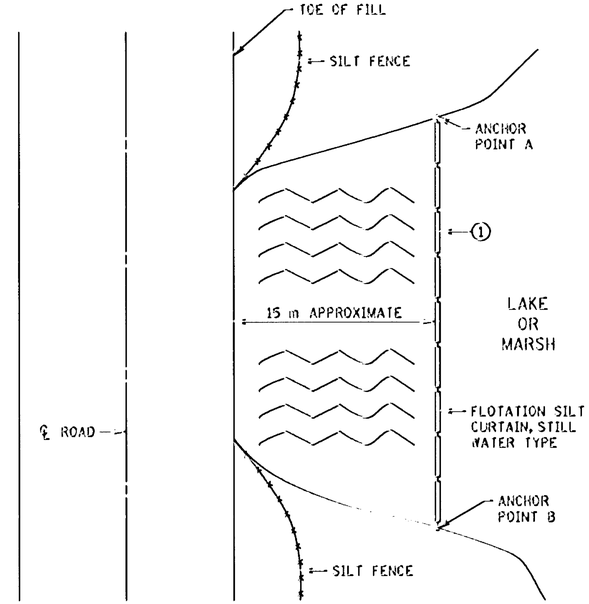
∠ θ	RIVER VELOCITY
45°	SLOW, LESS THAN 1.5 m/SEC.
35°	MODERATE, 1.5 m - 2 m/SEC.

PLAN VIEW OF SILT CURTAIN - MOVING WATER

DESIGN CRITERIA:
MAXIMUM WATER DEPTH: 3.6 m
MAXIMUM WATER VELOCITY: 2.1 m/SEC.

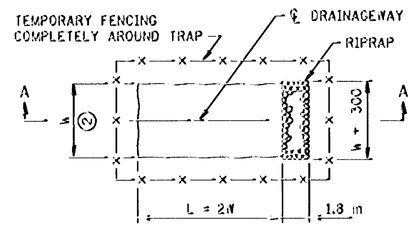


FLOTATION SILT CURTAIN DETAIL
(SEE SPEC. 3887)

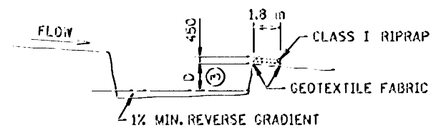


PLAN VIEW OF SILT CURTAIN - STILL WATER

DESIGN CRITERIA:
MAXIMUM WATER DEPTH: 3.6 m



PLAN



SECTION A-A

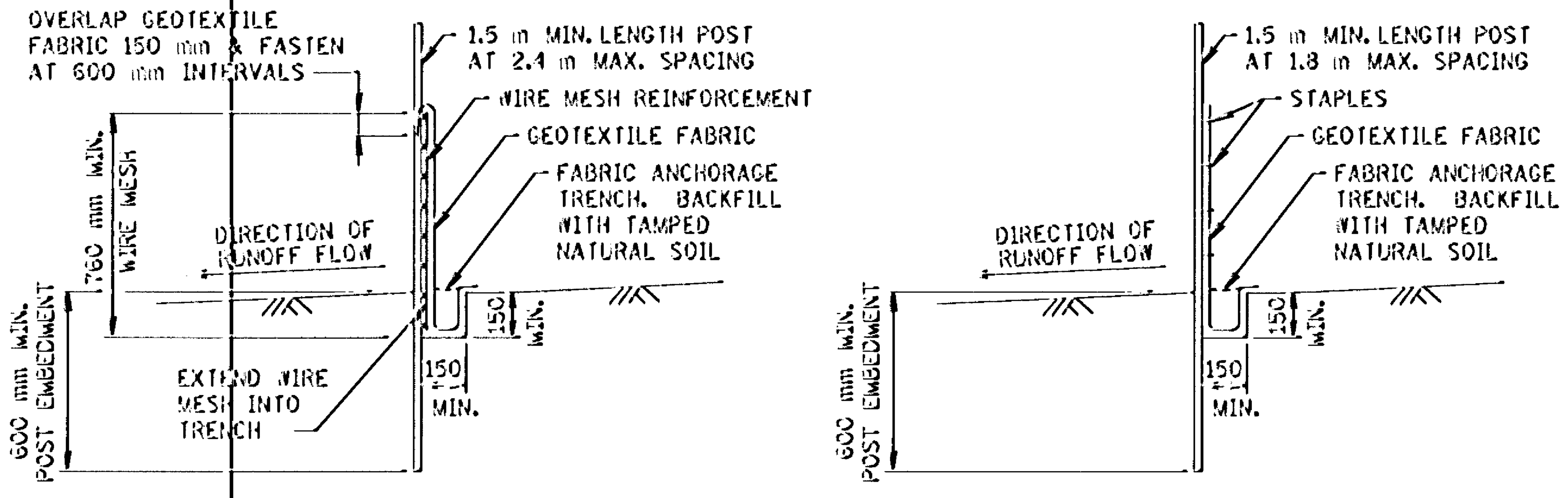
TEMPORARY SEDIMENT TRAP DETAIL

NOTES:
① CURTAIN 300 mm FROM BOTTOM
② W = 3 m MIN., 6 m MAX.
③ D = 1 m MIN., 1.8 m MAX.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO.	TITLE:
5-297.405M (1 OF 3)	TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	
S.A.P. 02-617-11, et al.	SHEET NO. 155 OF 245 SHEETS

NAME: ECT1 410.PLN DATE: Mar. 17, 1997

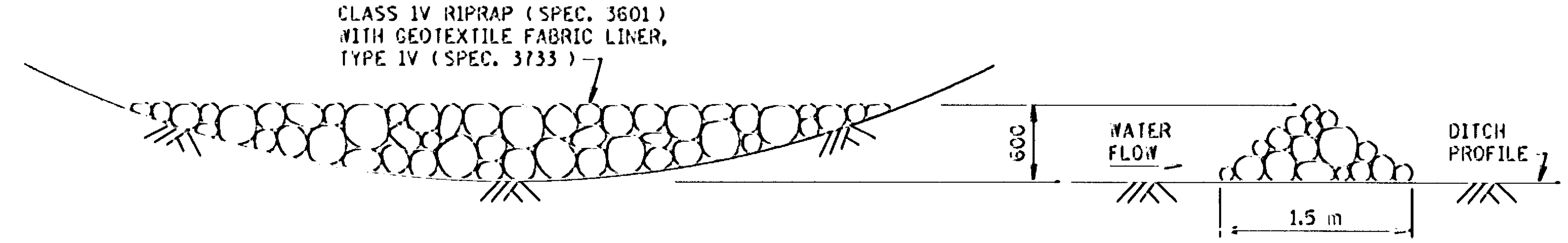


SILT FENCE DETAILS

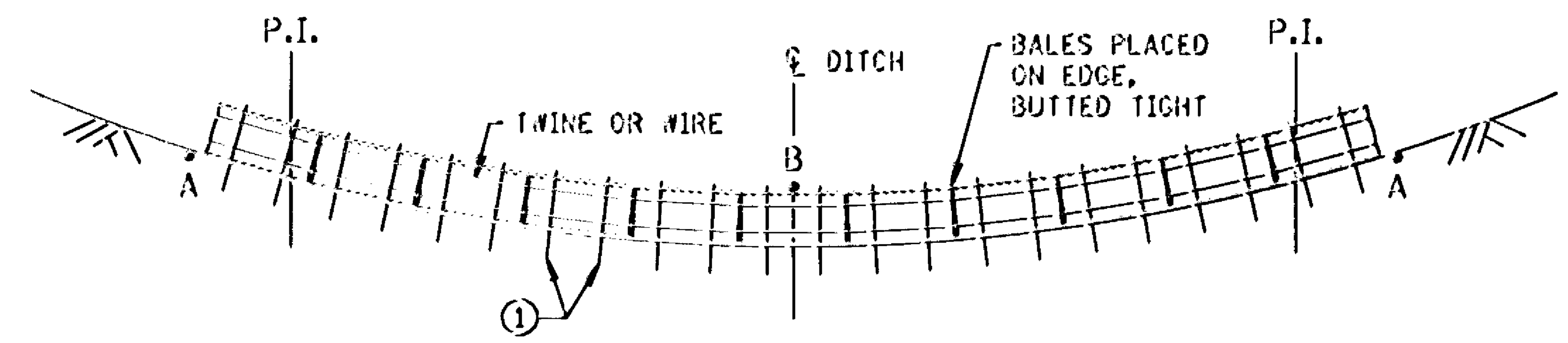
TO PROTECT AREAS FROM SHEET FLOW
(SEE SPEC. 3886)

DESIGN CRITERIA:
MAXIMUM CONTRIBUTING AREA: 1.2 ha

ROADWAY EMBANKMENT

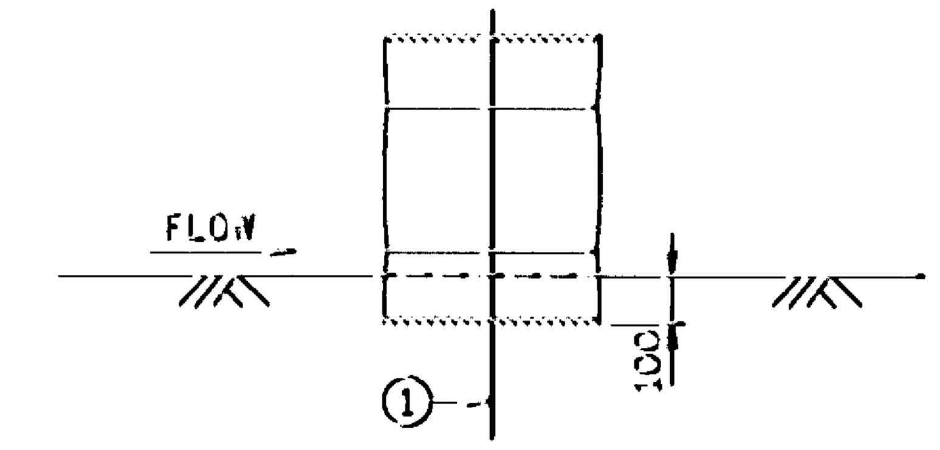


ROCK DITCH CHECK

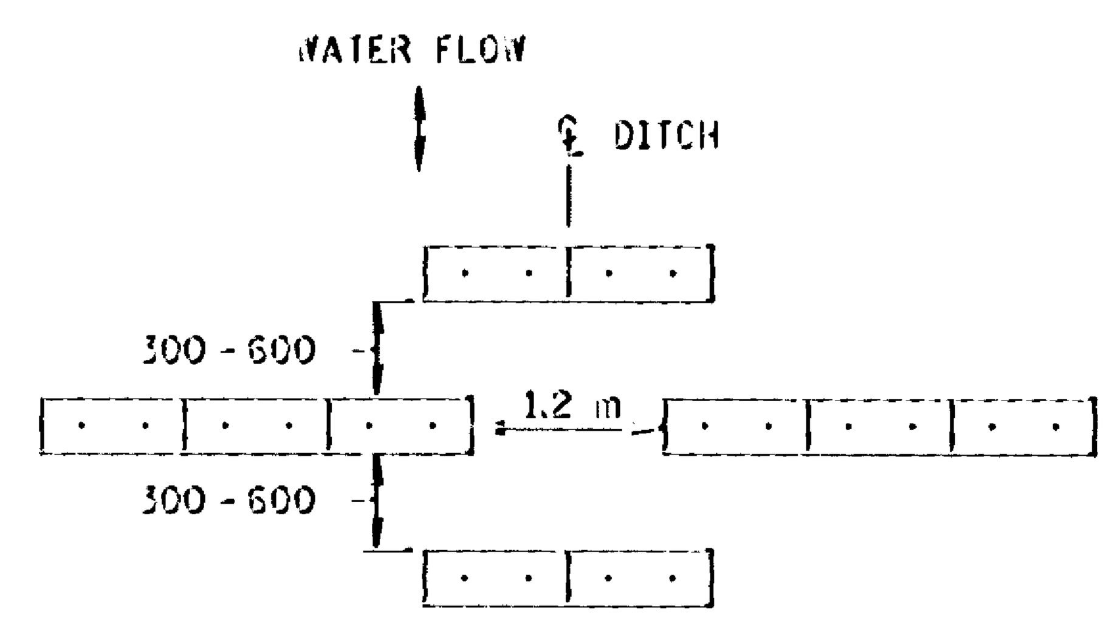


NOTE:
POINT A MUST BE HIGHER THAN POINT B

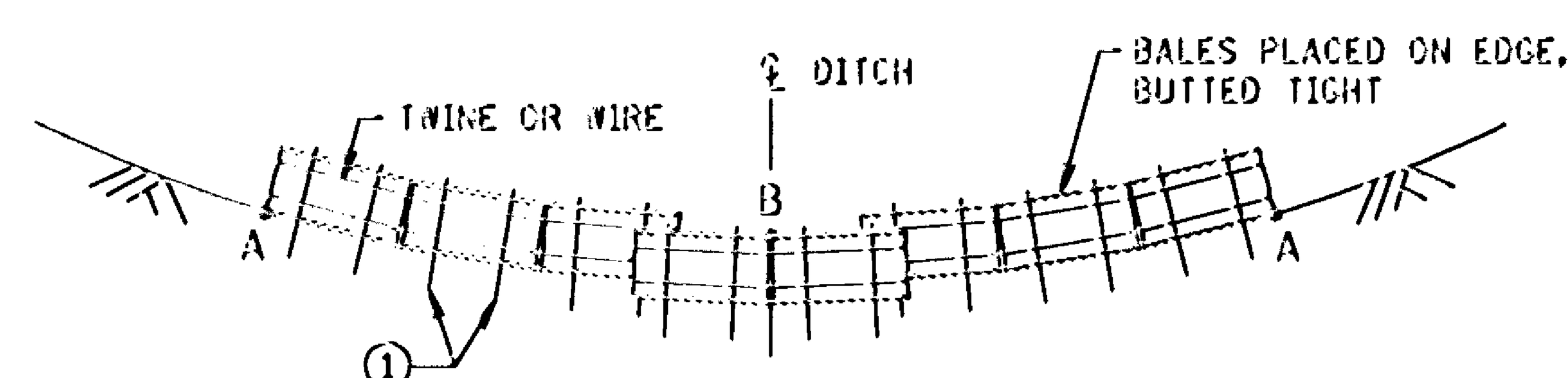
BALE DITCH SEDIMENT CHECK



BALE CHECK DETAIL



RECOMMENDED SPACING BETWEEN DITCH CHECKS	
DITCH GRADE (%)	SPACING (m)
2	30
4	23
6	15
8	12
10	8



NOTE:
POINT A MUST BE HIGHER THAN POINT B

BALE DITCH VELOCITY CHECKS

(WILL REQUIRE A MINUMUM OF 10 BALES PER SITE)

DESIGN CRITERIA:

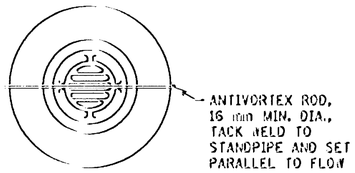
	BALE	ROCK
STORM FREQUENCY:	2 YR. - 24 HR.	10 YR. - 24 HR.
MAX. FLOW VELOCITY:	1.5 m/SEC.	3.6 m/SEC.
MAX. DITCH GRADE:	5%	—
MAX. DRAINAGE AREA:	0.8 ha	2.0 ha

NOTE:
① TWO 50 mm X 50 mm WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 250 mm MINIMUM.

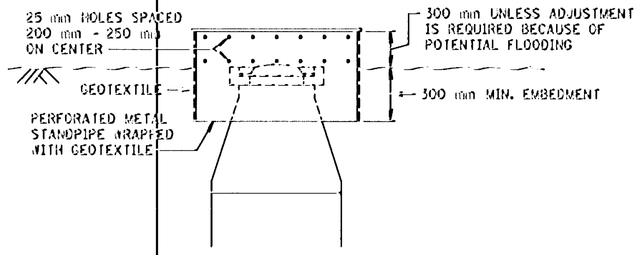
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO.	TITLE:
5-297.405M (2 OF 3)	TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	

S.A.P. 02-617-11, et al. SHEET NO. 156 OF 245 SHEETS



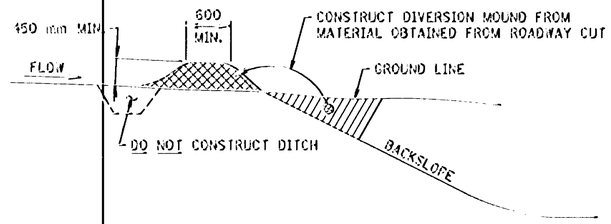
PLAN VIEW



ELEVATION

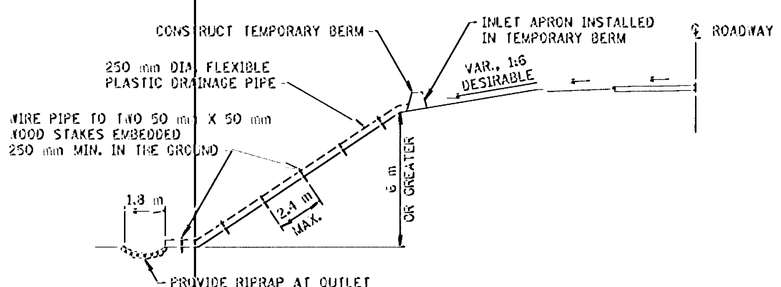
TEMPORARY STANDPIPE
TO PROTECT DROP INLET

DESIGN CRITERIA:
STORM FREQUENCY: 10 YEAR - 24 HOUR.



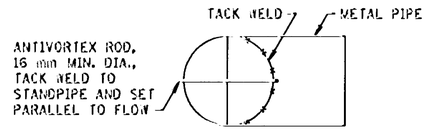
DIVERSION MOUND

DESIGN CRITERIA:
STORM FREQUENCY: 10 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 2 ha
MAXIMUM DIVERSION: GRADE 5%

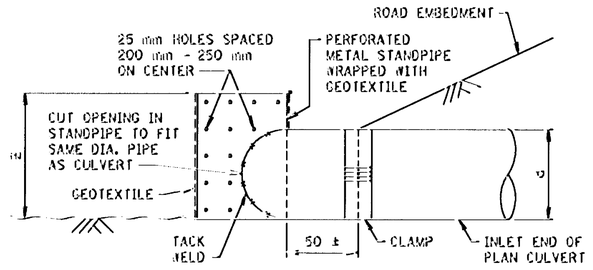


TEMPORARY DRAIN ON FILL SLOPE

DESIGN CRITERIA:
STORM FREQUENCY: 2 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 1.2 ha



PLAN VIEW

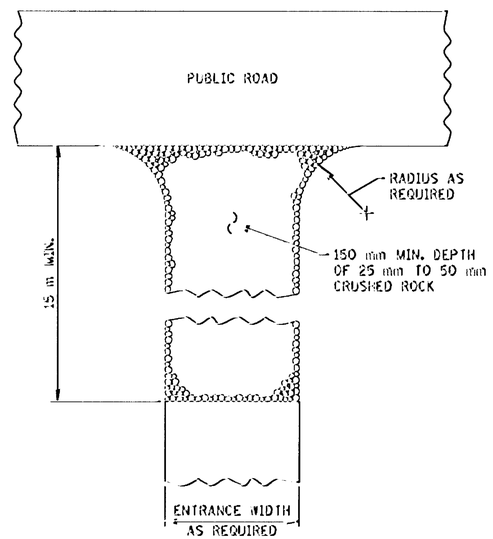


ELEVATION

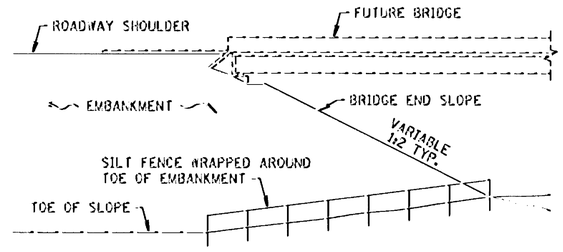
TEMPORARY STANDPIPE
FOR SEDIMENT CONTROL ON CULVERT INLET

d = DIA. OF STANDPIPE EQUAL TO DIA. OF PLAN CULVERT
ℓ = LENGTH OF PERFORATED STANDPIPE (d + 300 mm)

DESIGN CRITERIA:
CULVERT SIZE: 300 - 900 mm
STORM FREQUENCY: 10 YR. - 24 HR.

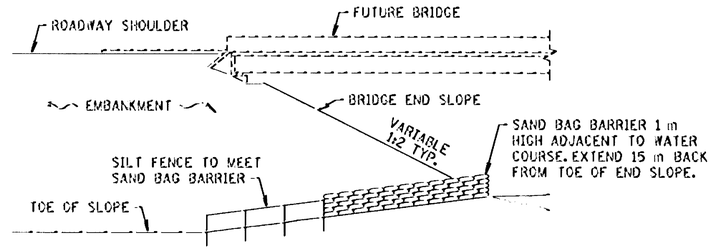


ROCK CONSTRUCTION ENTRANCE



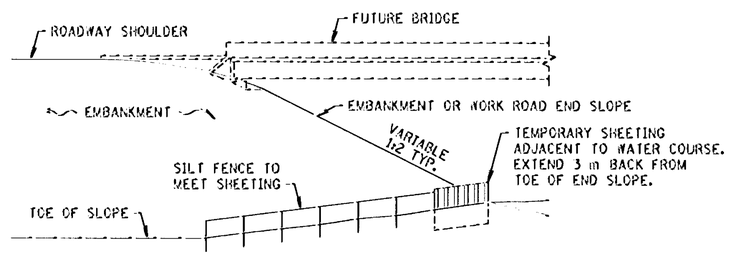
BRIDGE FILL

DESIGN CRITERIA:
WATER COURSE FLOW VELOCITY: STAGNANT
CONTRIBUTING SLOPE AREA: 0.2 ha



BRIDGE FILL

DESIGN CRITERIA:
MAX. WATER COURSE FLOW VELOCITY: 2 m/SEC.
CONTRIBUTING SLOPE AREA: 0.4 ha



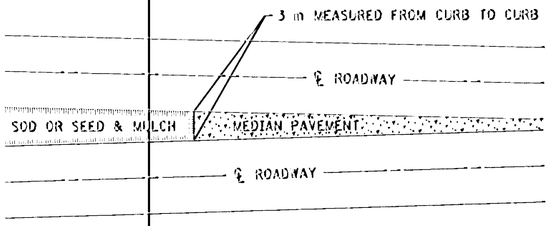
EMBANKMENT OR WORK ROAD FILL

DESIGN CRITERIA:
MAX. WATER COURSE FLOW VELOCITY: 4.5 m/SEC.
CONTRIBUTING SLOPE AREA: 1.2 ha

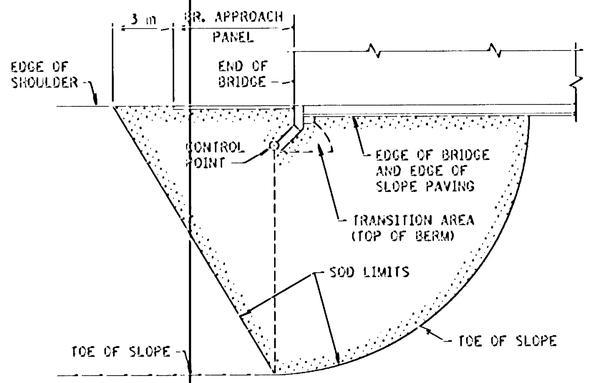
NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

STANDARD SHEET NO. 5-297.405M (3 OF 3)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	
S.A.P. 02-617-11, et al.	SHEET NO. 157 OF 245 SHEETS

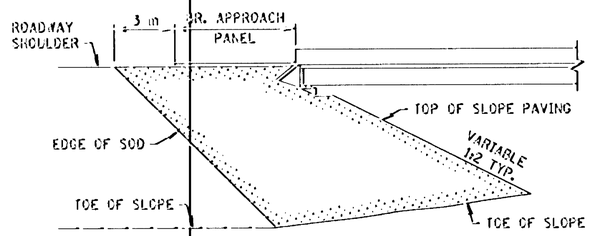
NAME: ECT3 410.PLN DATE: May 17, 1997



SODDING LIMITS AT GORE AREA

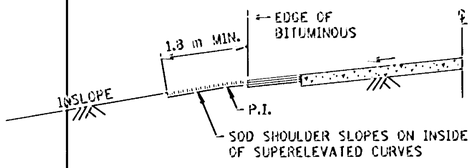


PLAN

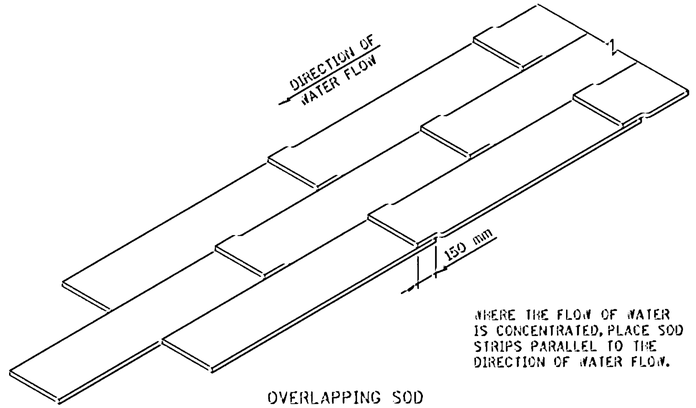


ELEVATION

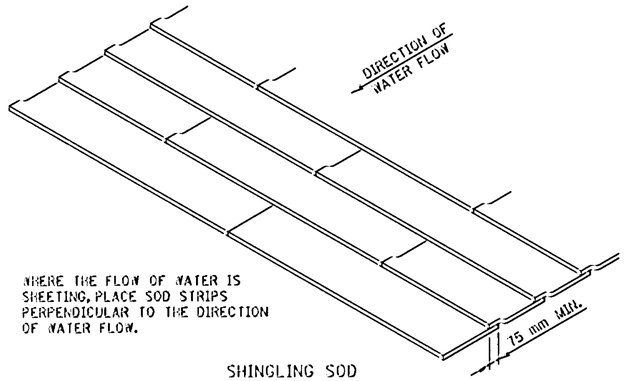
SODDING LIMITS AT BRIDGE APPROACH FILLS



SODDING INSLOPES OF SUPERELEVATED CURVES

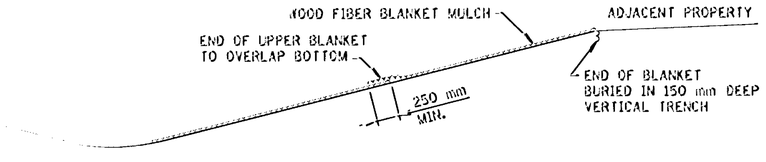


OVERLAPPING SOD

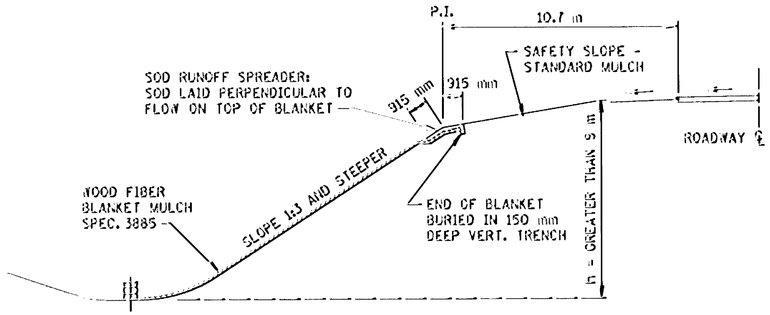


SHINGLING SOD

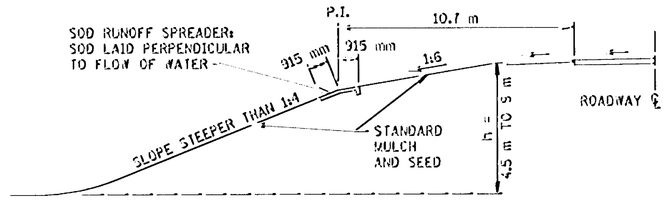
SPECIAL SOD PLACEMENT TECHNIQUES



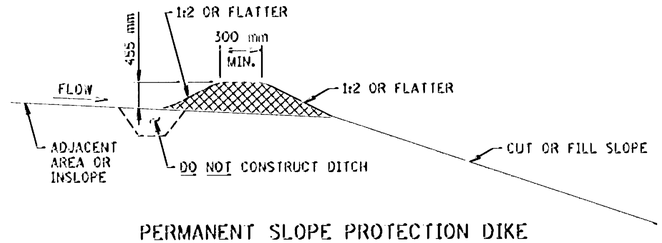
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)



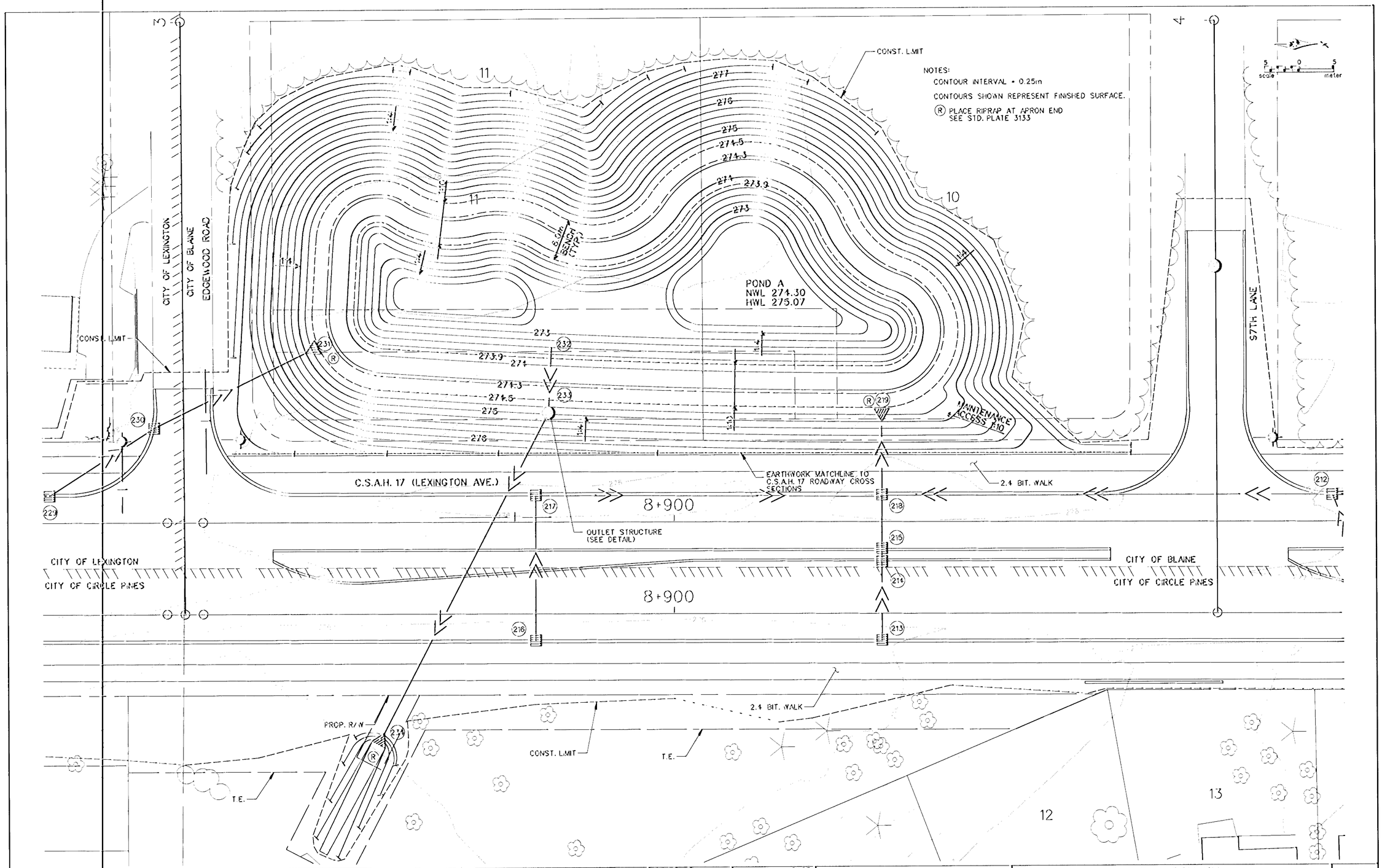
BROKEN-BACK SAFETY FILL SLOPE



PERMANENT SLOPE PROTECTION DIKE

STANDARD SHEET NO.	TITLE:
S-297.406M	PERMANENT EROSION CONTROL
STANDARD APPROVED: JANUARY 31, 1985	ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
4-27-95	S.A.P. 02-617-11, et al. SHEET NO. 158 OF 245 SHEETS

NAME: ECP2 410.PLN DATE: Mar. 17, 1997



NO	DATE	BY	CKD	APPR	REVISION
1	3-26-97	MCI		DAD	ADD R NOTE AT 234

NAME: MCP1 410.PLN DATE: Mar. 17, 1997

minnesota metric

I hereby certify that this plan, specification or report 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.

Donald A Dennes

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

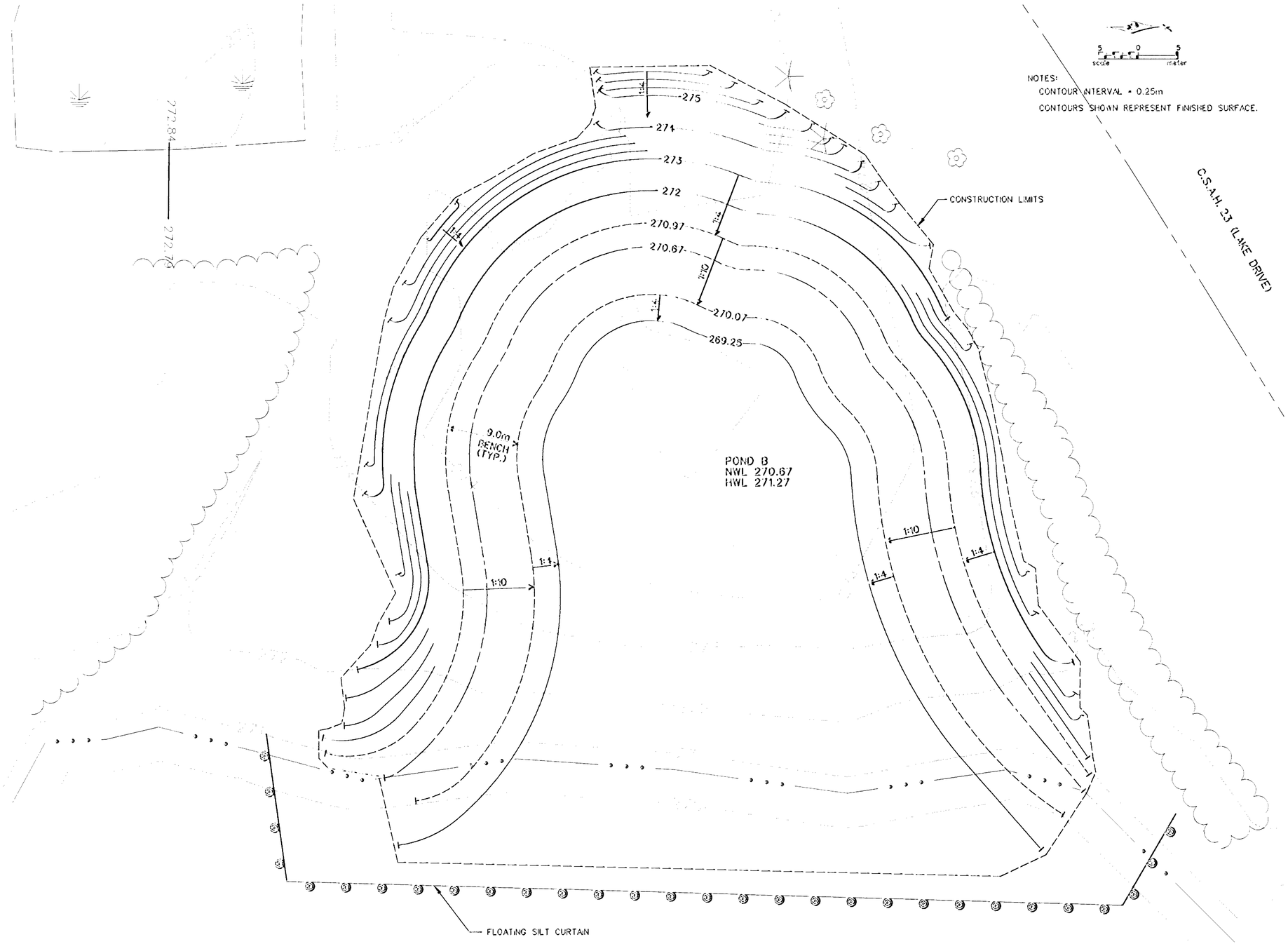
CO. PROJECT NO.

DRAWN BY V. GRAF DATE 12-96
DESIGNED BY L. ROBJENT 12-96
CHECKED BY L. ROBJENT 1-97
COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
MISCELLANEOUS GRADING PLAN
C.S.A.H. 17 RECONSTRUCTION
POND A

SHEET 159 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: MGP2 410.PLN DATE: Mar. 17, 1997

minnesota metro

I hereby certify that this plan, specification or report 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.

Date 3-21-97 Reg. No. 25066

STATE AID PROJECT NO.
S.A.P. 02-617-11
S.A.P. 106-020-12
S.A.P. 106-030-03

CO. PROJECT NO.

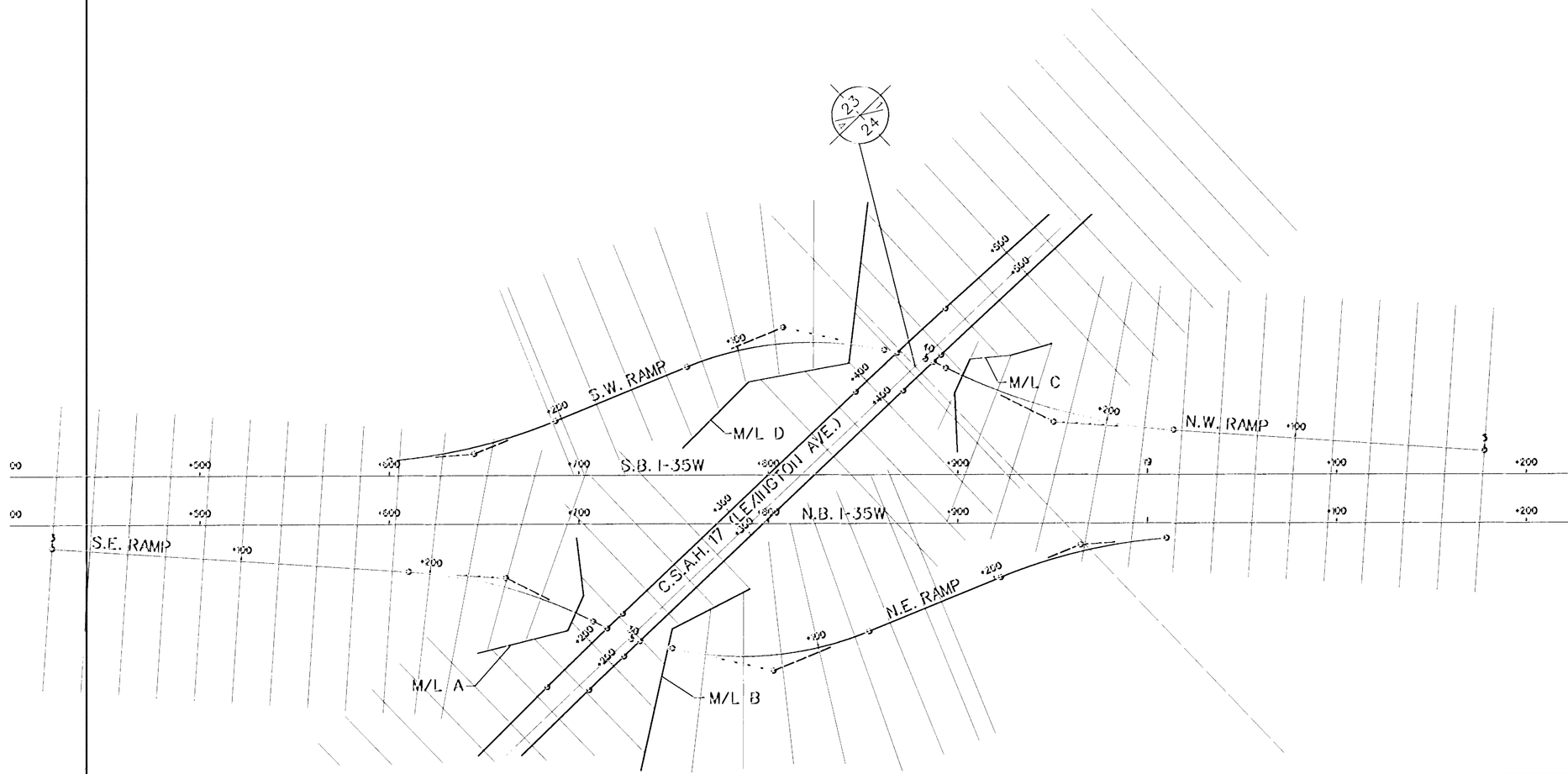
	DATE
DRAWN BY M. IISAKKA	12-96
DESIGNED BY L. ROBJENT	12-96
CHECKED BY L. ROBJENT	1-97

COMM. NO. 0962410

SRF CONSULTING GROUP, INC.

ANOKA COUNTY
MISCELLANEOUS GRADING PLAN
C.S.A.H. 17 RECONSTRUCTION
POND B

SHEET 160 OF 236



NO	DATE	BY	CKD	APPR	REVISION

NAME: XL1 410.PLN DATE: Mar. 17, 1997

minnesota: metric

I hereby certify that this plan, specification or report 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.

Donald A Demers

Date 3-21-97 Reg. No. 23397

STATE AID PROJECT NO.	
S.A.P. 02-617-11	
S.A.P. 106-020-12	
S.A.P. 106-030-03	
CO. PROJECT NO.	

DRAWN BY M. IISAKKA	DATE 12-96
DESIGNED BY B. URBANEK	12-96
CHECKED BY D. DEMERS	1-97
COMM. NO. 0362410	

SRF CONSULTING GROUP, INC.

ANOKA COUNTY

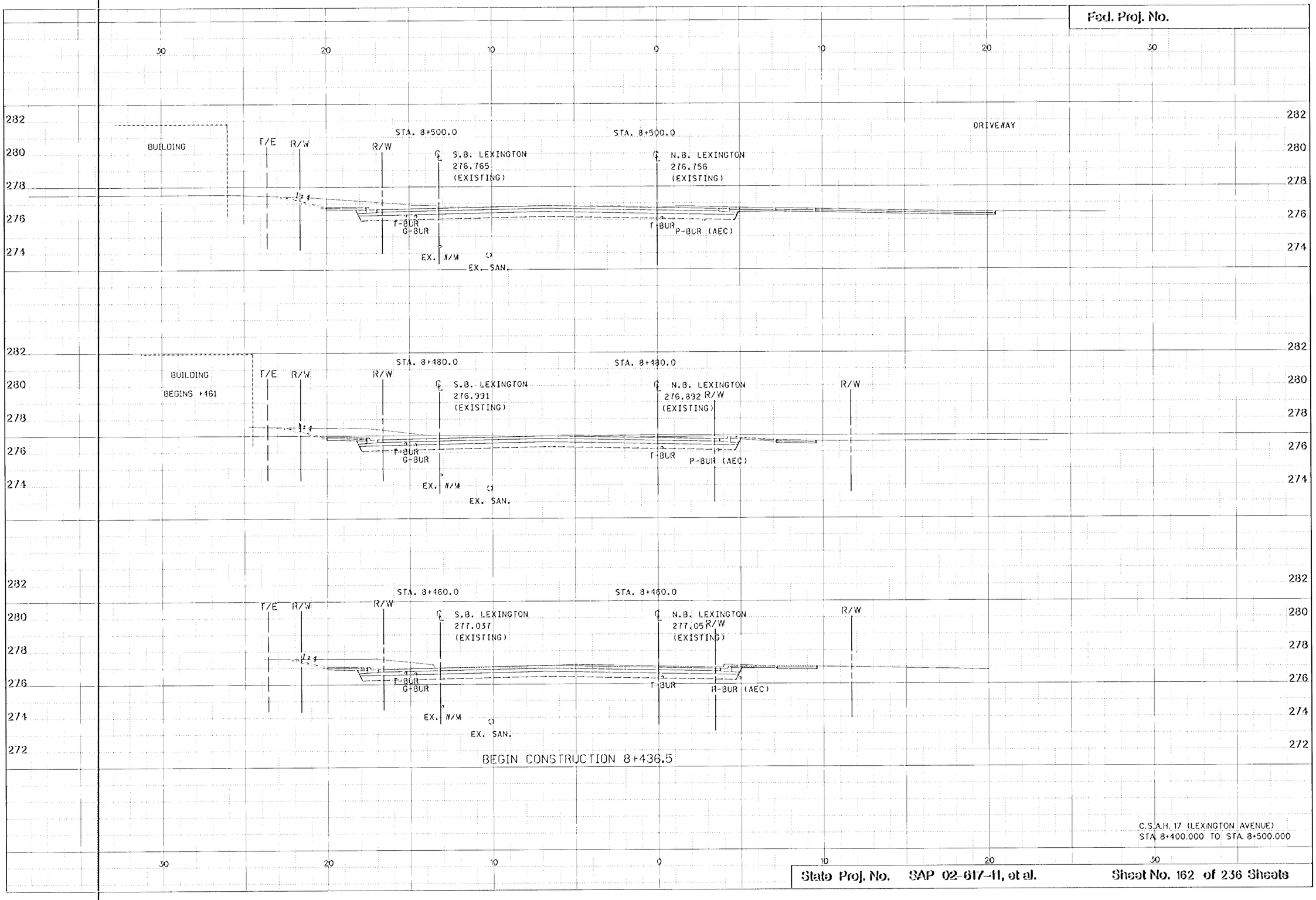
CROSS SECTION MATCHLINES

C.S.A.H. 17 RECONSTRUCTION

C.S.A.H. 17 AT INTERSTATE 35W

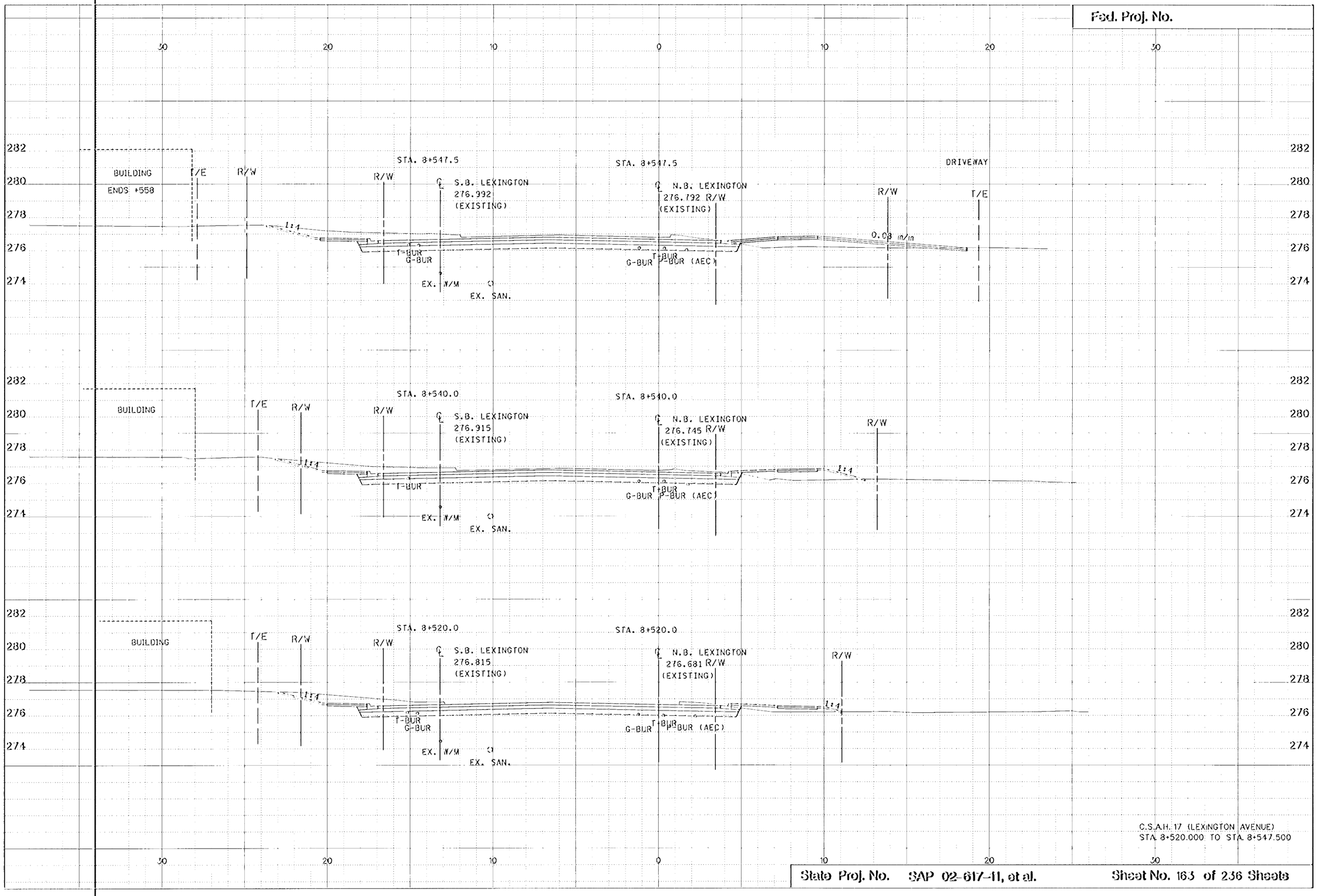
SHEET 161 OF 236

Fed. Proj. No.



State Proj. No. SAP 02-617-11, et al. Sheet No. 162 of 236 Sheets

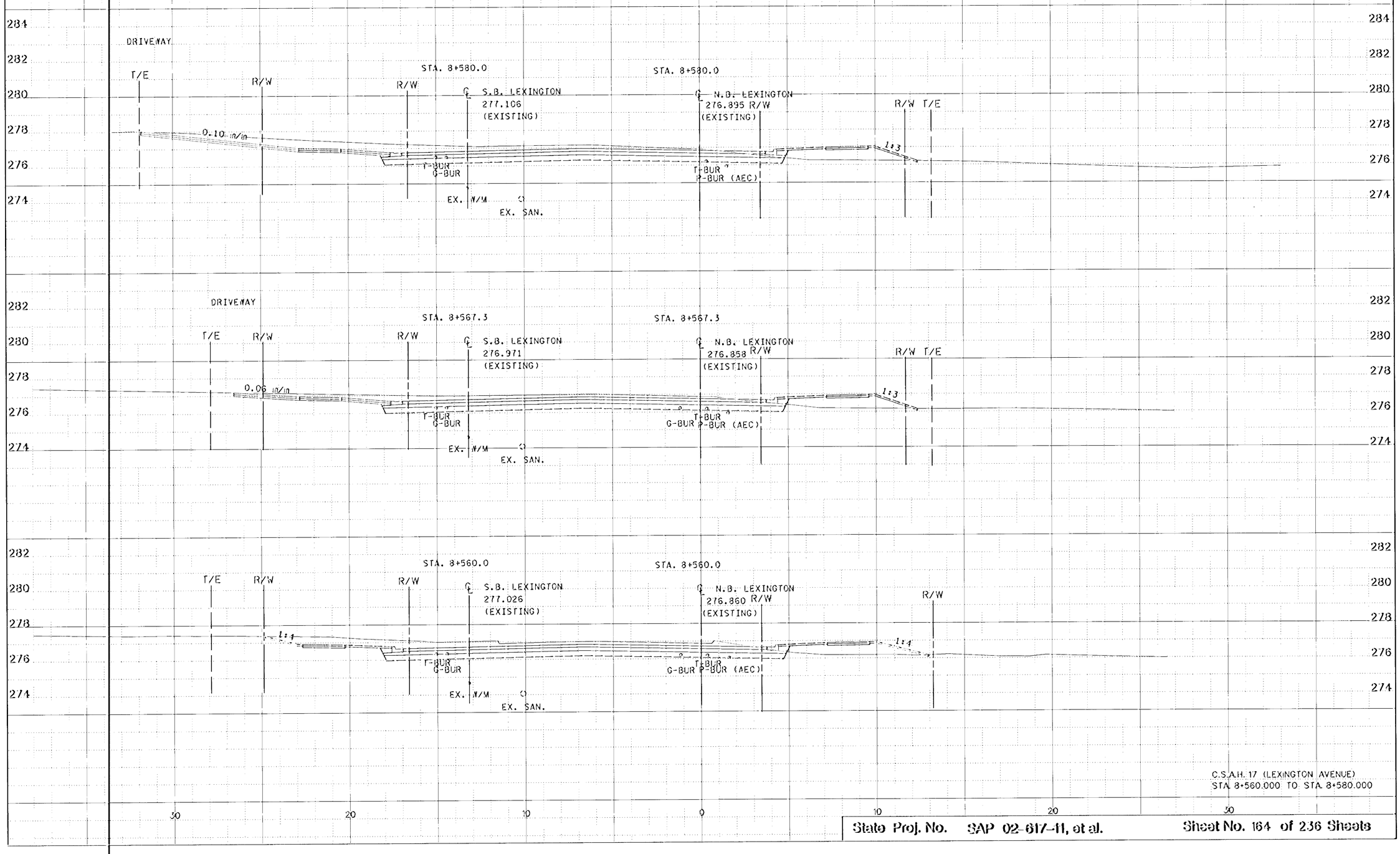
Fed. Proj. No.



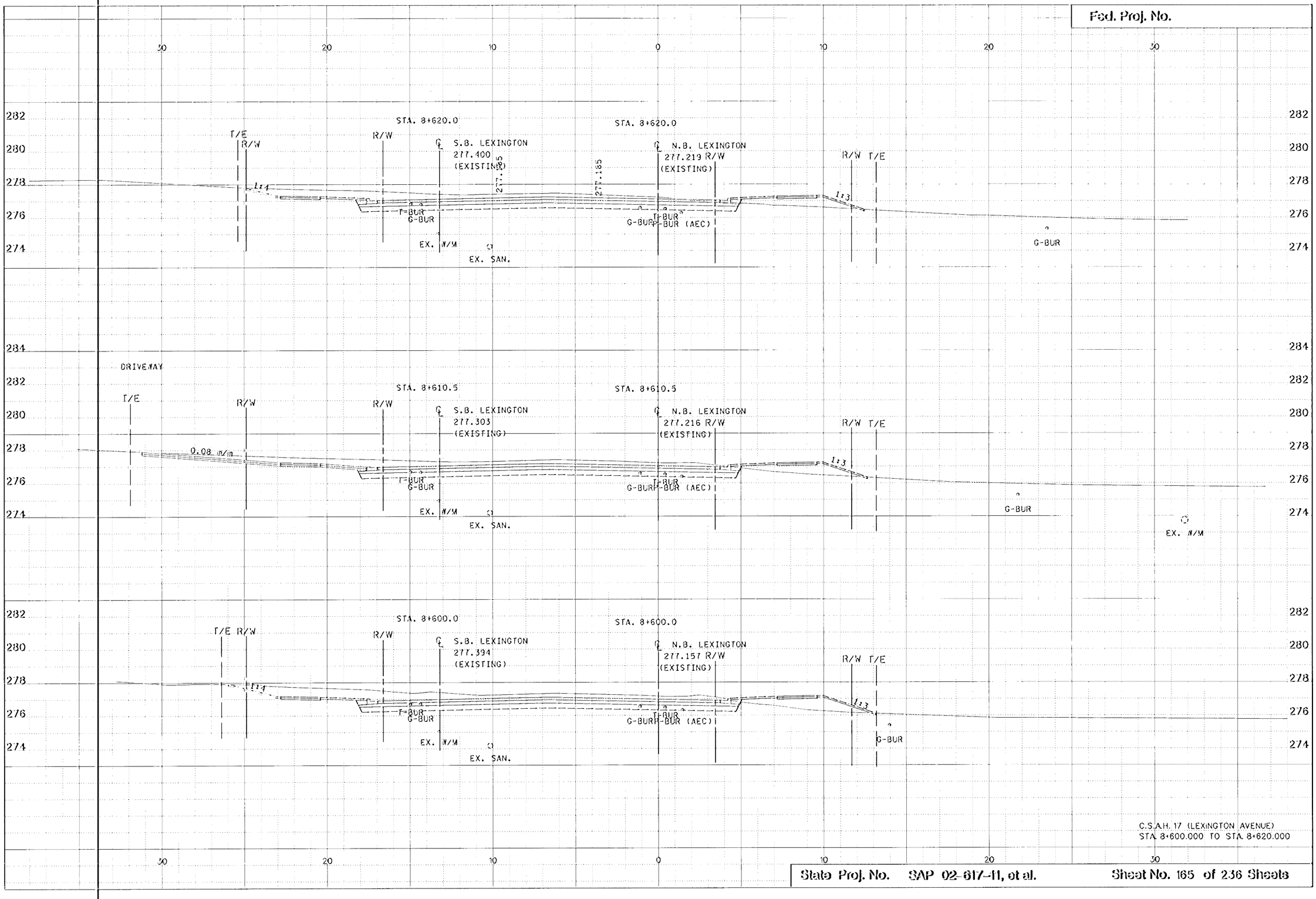
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 8+520.000 TO STA. 8+547.500

State Proj. No. SAP 02-617-11, et al. Sheet No. 163 of 236 Sheets

Fed. Proj. No.

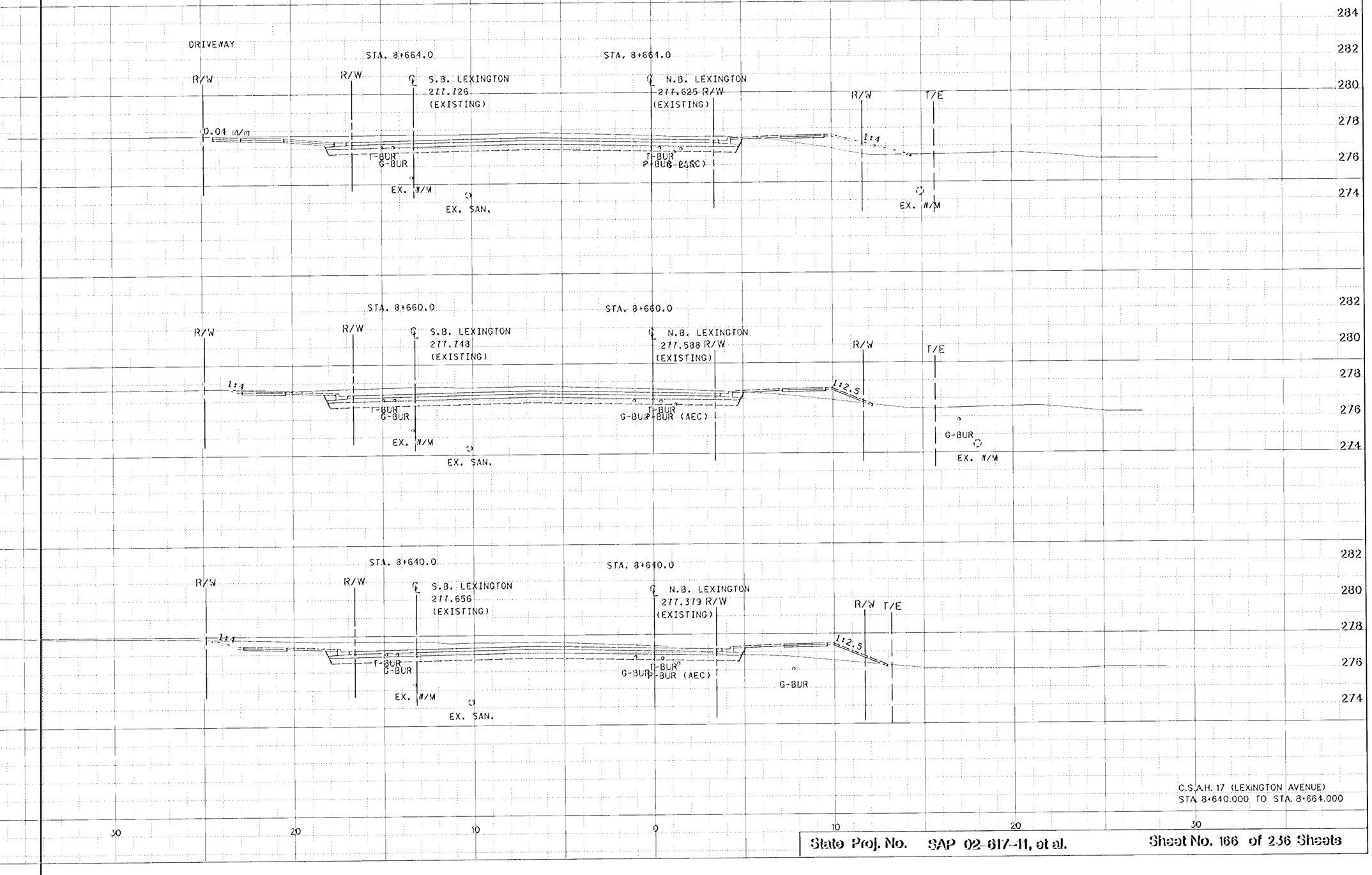

30
20
10
0
10
20
30
284
282
280
278
276
274
DRIVEWAY
T/E
R/W
R/W
STA. 8+580.0
℄ S.B. LEXINGTON
277.106
(EXISTING)
STA. 8+580.0
℄ N.B. LEXINGTON
276.895 R/W
(EXISTING)
R/W T/E
0.10 in/in
1:3
T-BUR
G-BUR
T-BUR
P-BUR (AEC)
EX. W/M
EX. SAN.
282
280
278
276
274
DRIVEWAY
T/E
R/W
R/W
STA. 8+567.3
℄ S.B. LEXINGTON
276.971
(EXISTING)
STA. 8+567.3
℄ N.B. LEXINGTON
276.858 R/W
(EXISTING)
R/W T/E
0.06 in/in
1:3
T-BUR
G-BUR
T-BUR
G-BUR P-BUR (AEC)
EX. W/M
EX. SAN.
282
280
278
276
274
STA. 8+560.0
T/E
R/W
R/W
℄ S.B. LEXINGTON
277.026
(EXISTING)
STA. 8+560.0
℄ N.B. LEXINGTON
276.860 R/W
(EXISTING)
R/W
1:4
1:4
T-BUR
G-BUR
T-BUR
G-BUR P-BUR (AEC)
EX. W/M
EX. SAN.
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 8+560.000 TO STA. 8+580.000

Fed. Proj. No.



State Proj. No. SAP 02-617-11, et al. Sheet No. 165 of 236 Sheets

Fed. Proj. No.

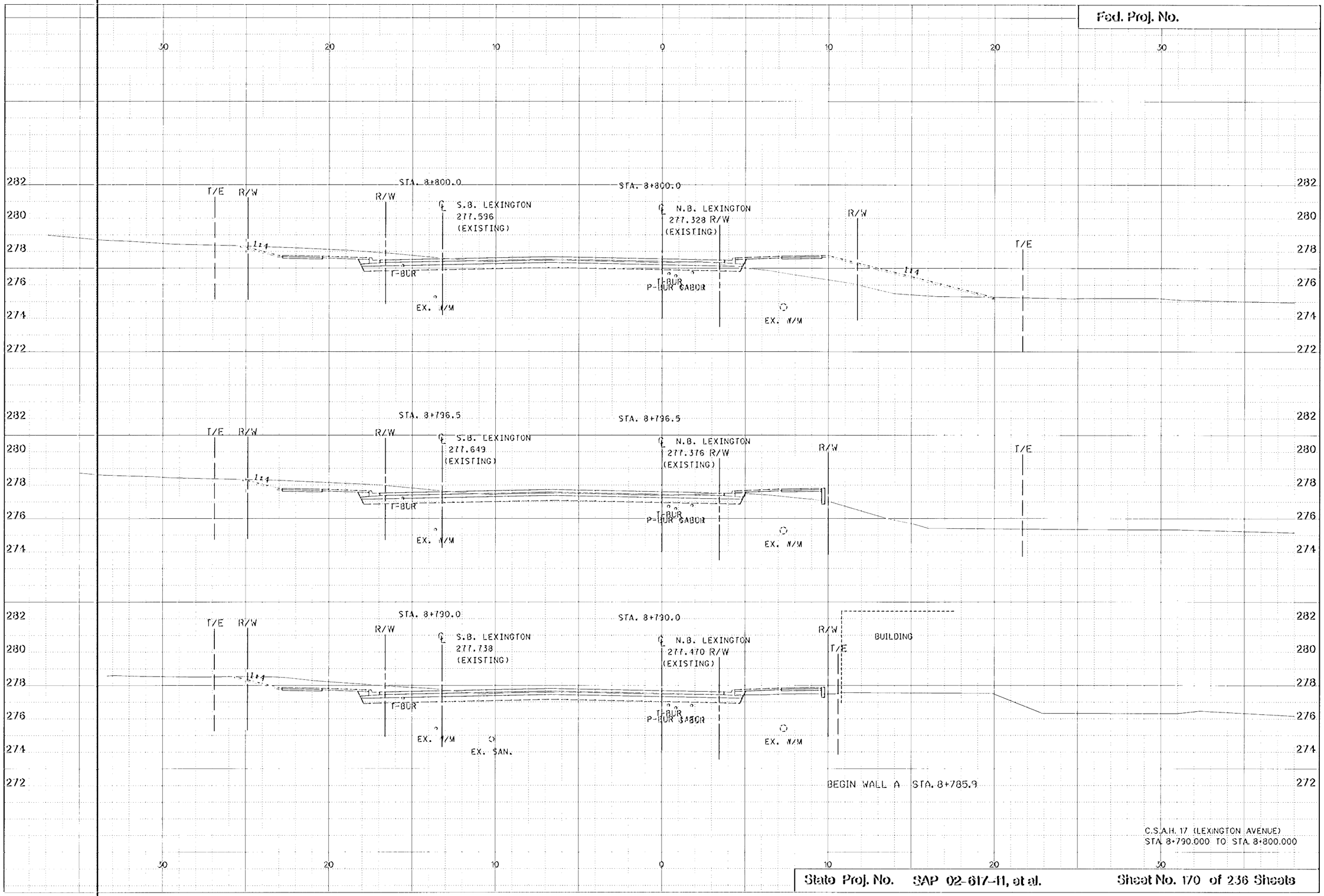


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 8+640.000 TO STA. 8+664.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 166 of 236 Sheets

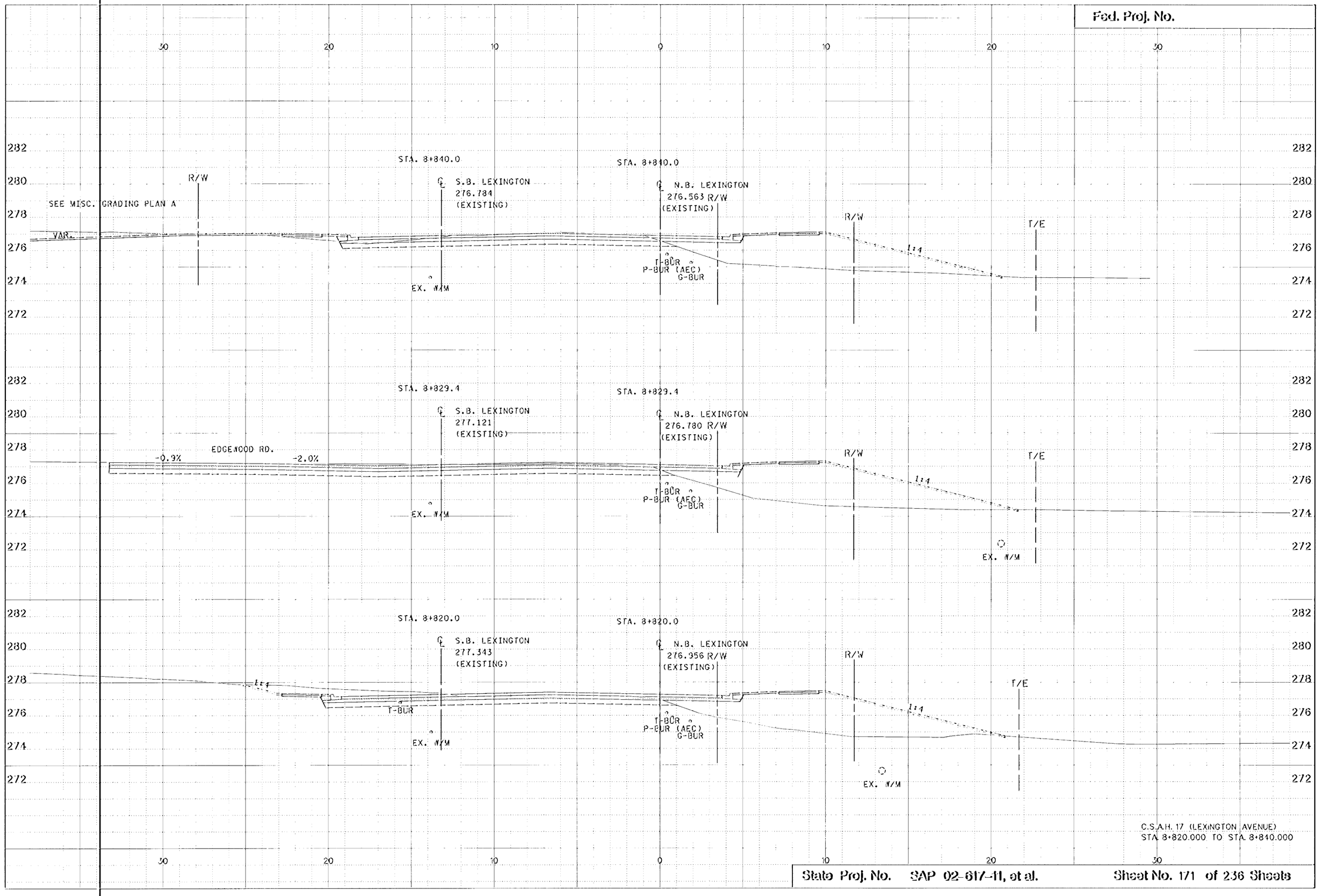
Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 8+790.000 TO STA. 8+800.000

State Proj. No. SAP 02-617-11, et al. Sheet No. 170 of 236 Sheets

Fed. Proj. No.

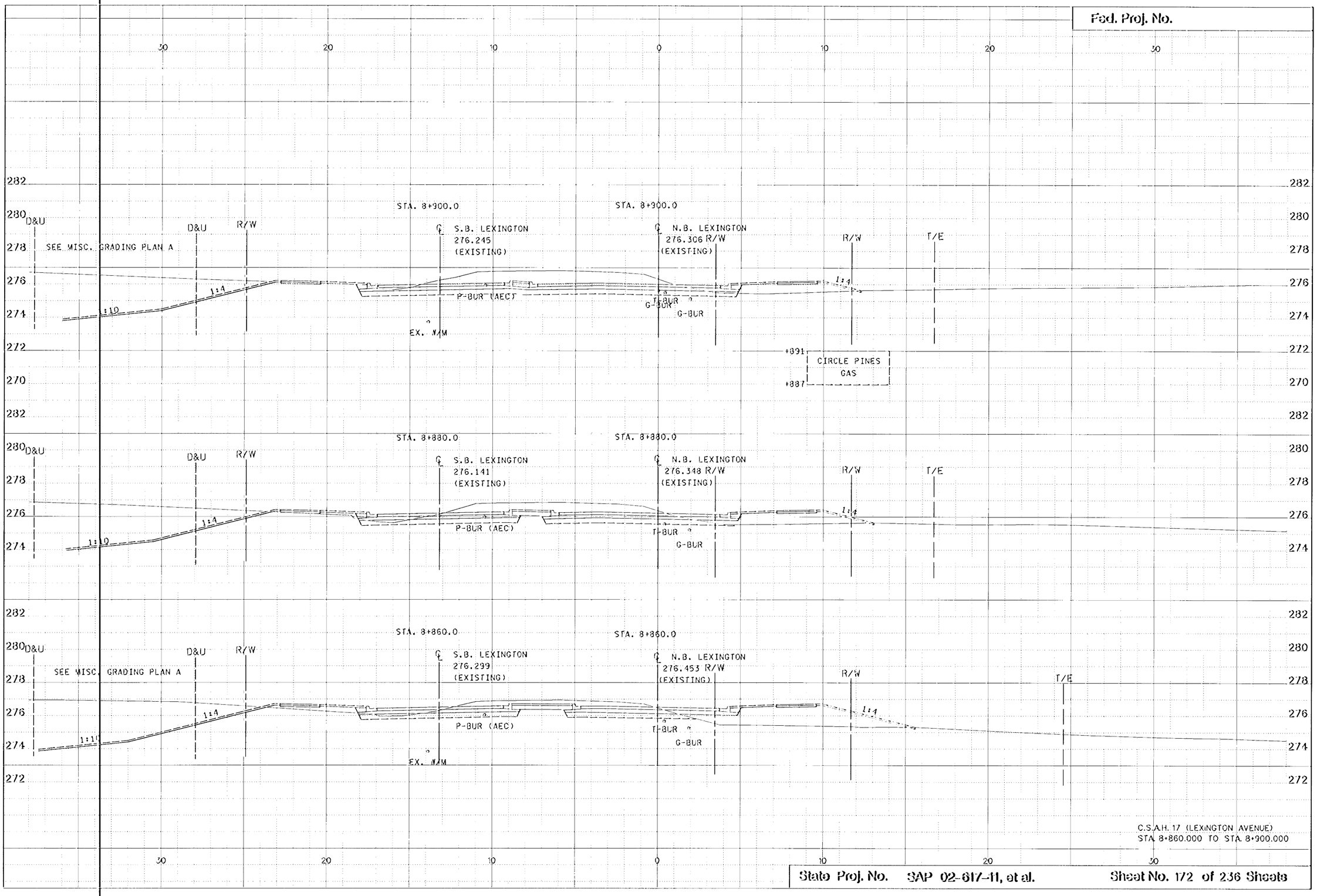


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 8+820.000 TO STA. 8+840.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 171 of 236 Sheets

Fed. Proj. No.


30
20
10
0
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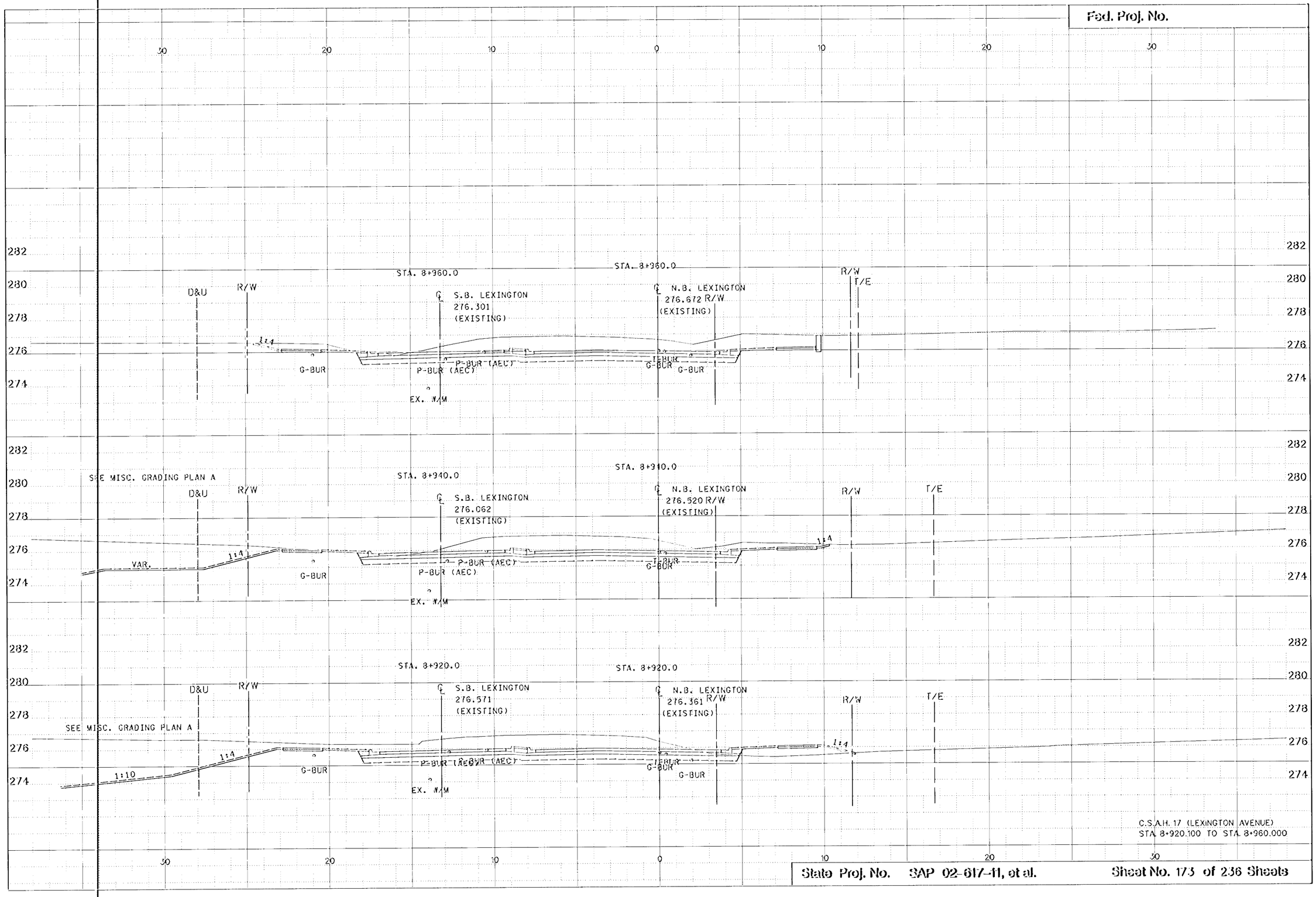
20
30
282
280
278
276
274
272
270
STA. 8+900.0
STA. 8+880.0
STA. 8+860.0
D&U
R/W
SEE MISC. GRADING PLAN A
1:10
1:4
℄ S.B. LEXINGTON
276.245
(EXISTING)
℄ N.B. LEXINGTON
276.306 R/W
(EXISTING)
276.141
276.348 R/W
276.299
276.453 R/W
P-BUR (AEC)
T-BUR
G-BUR
EX. W/M
T/E
+891
+887
CIRCLE PINES
GAS
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 8+860.000 TO STA. 8+900.000

Fed. Proj. No.

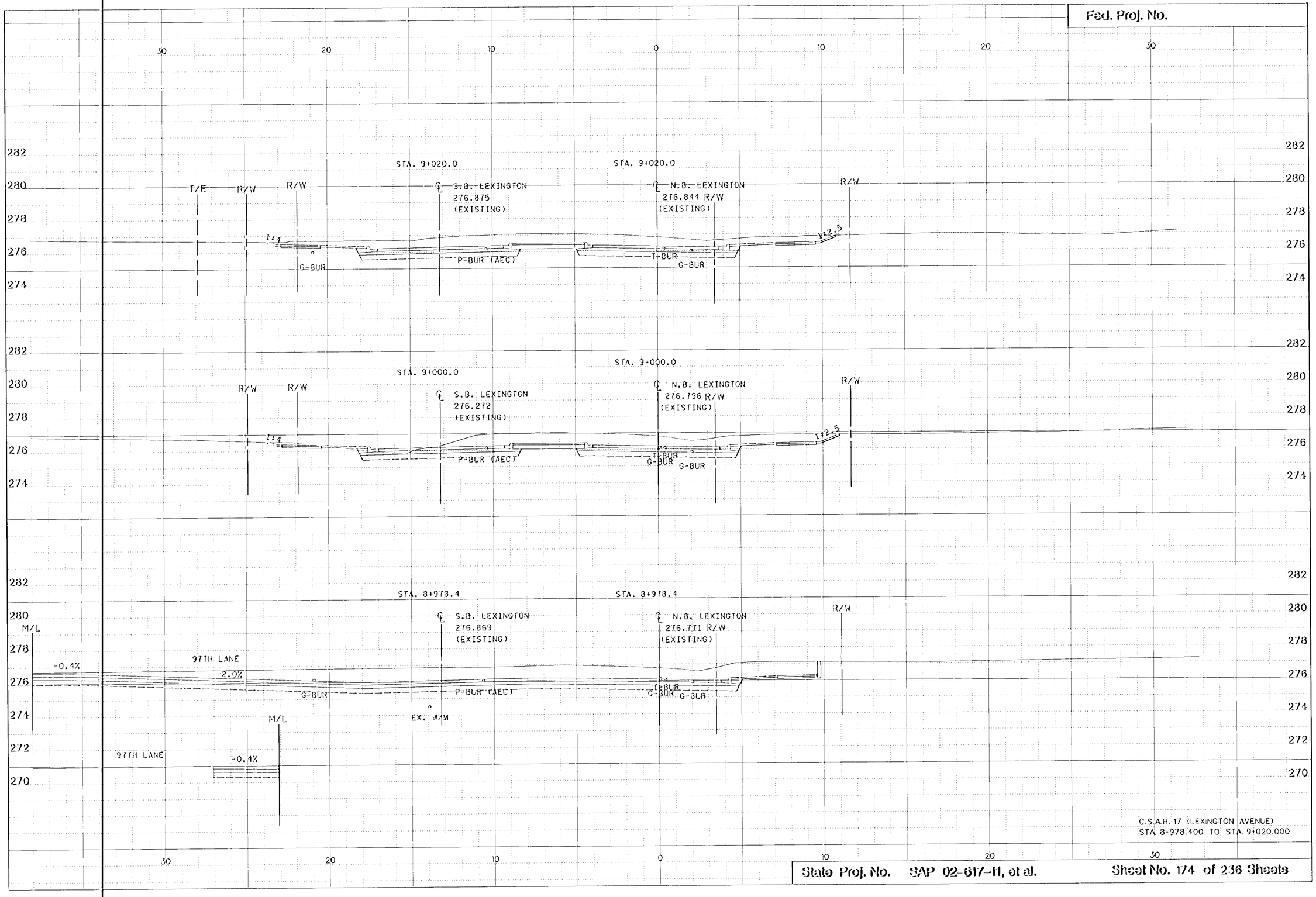


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 8+920.100 TO STA. 8+960.000

State Proj. No. SAP 02-617-11, et al.

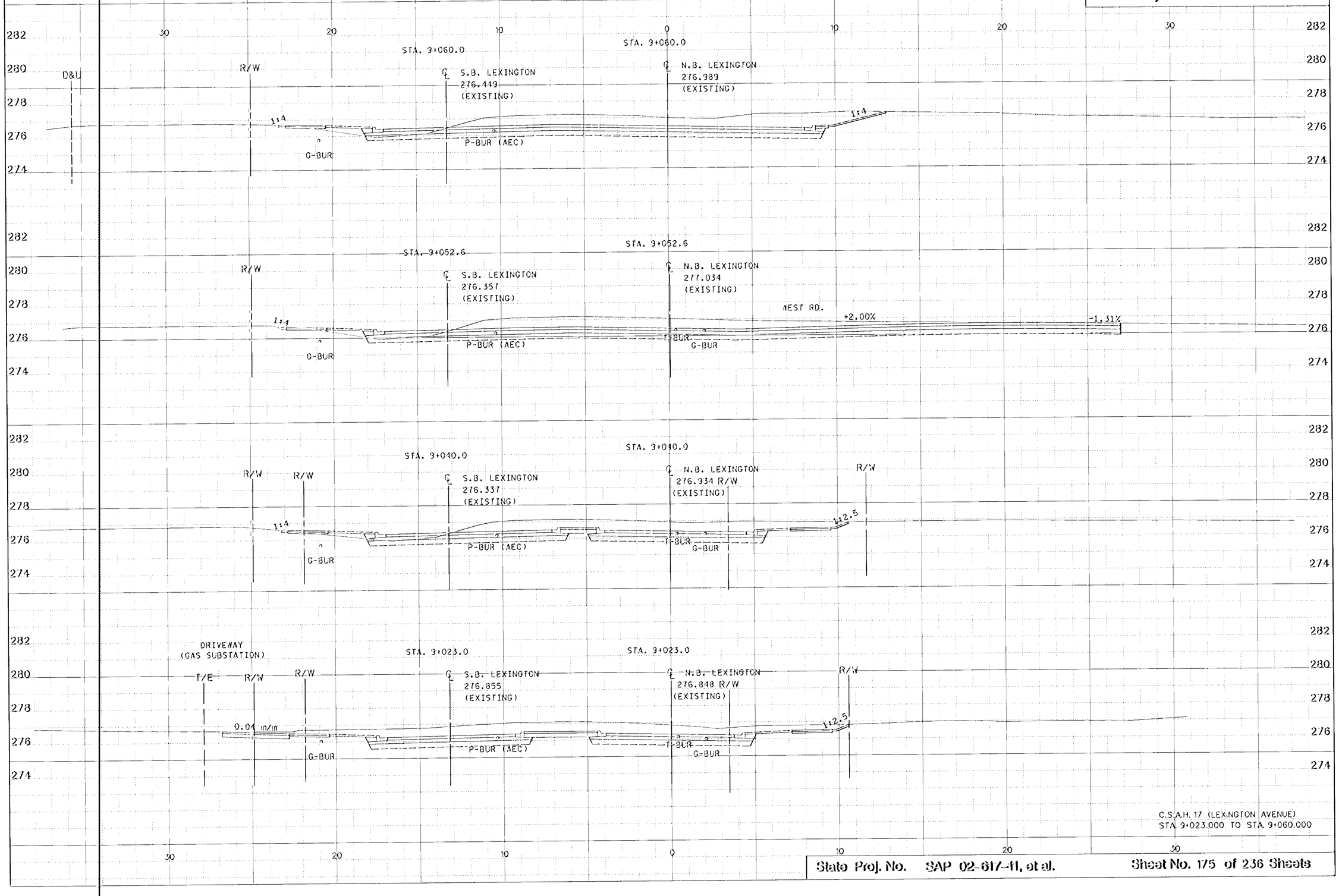
Sheet No. 173 of 236 Sheets

Fed. Proj. No.



State Proj. No. SAP 02-617-11, et al. Sheet No. 174 of 236 Sheets

Fed. Proj. No.

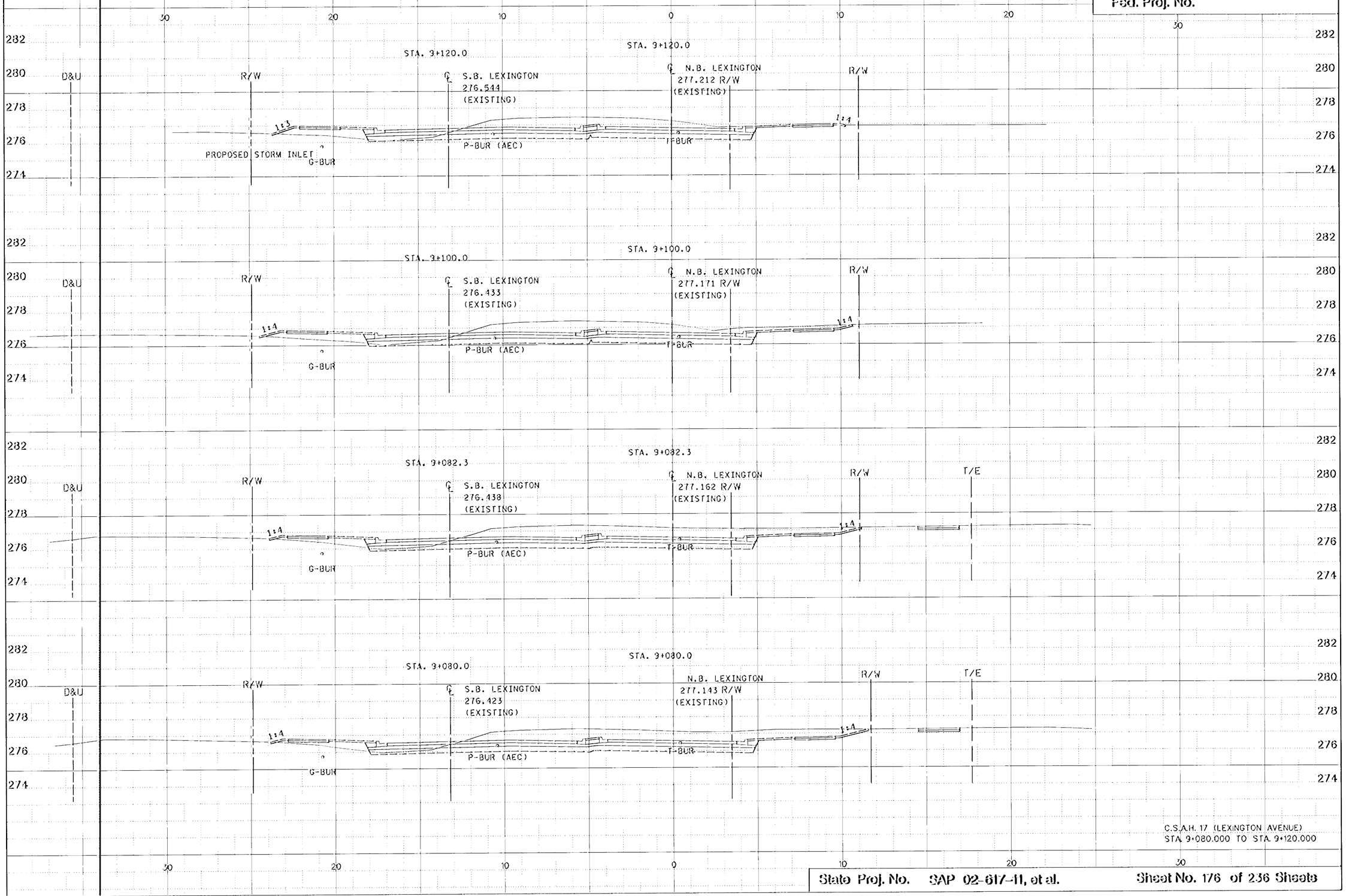


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+023.000 TO STA. 9+060.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 175 of 236 Sheets

Fed. Proj. No.

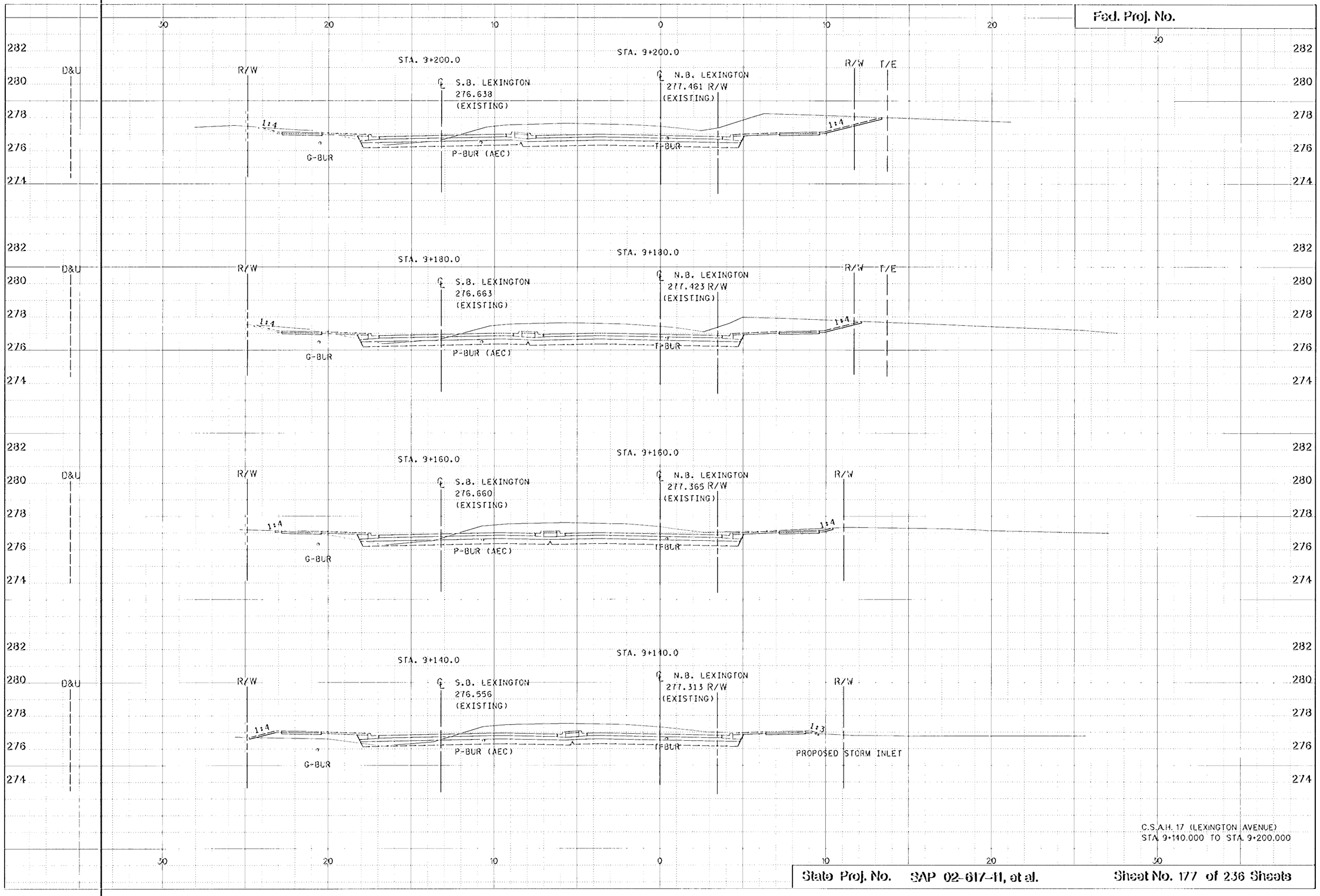


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+080.000 TO STA. 9+120.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 176 of 236 Sheets

Fed. Proj. No.

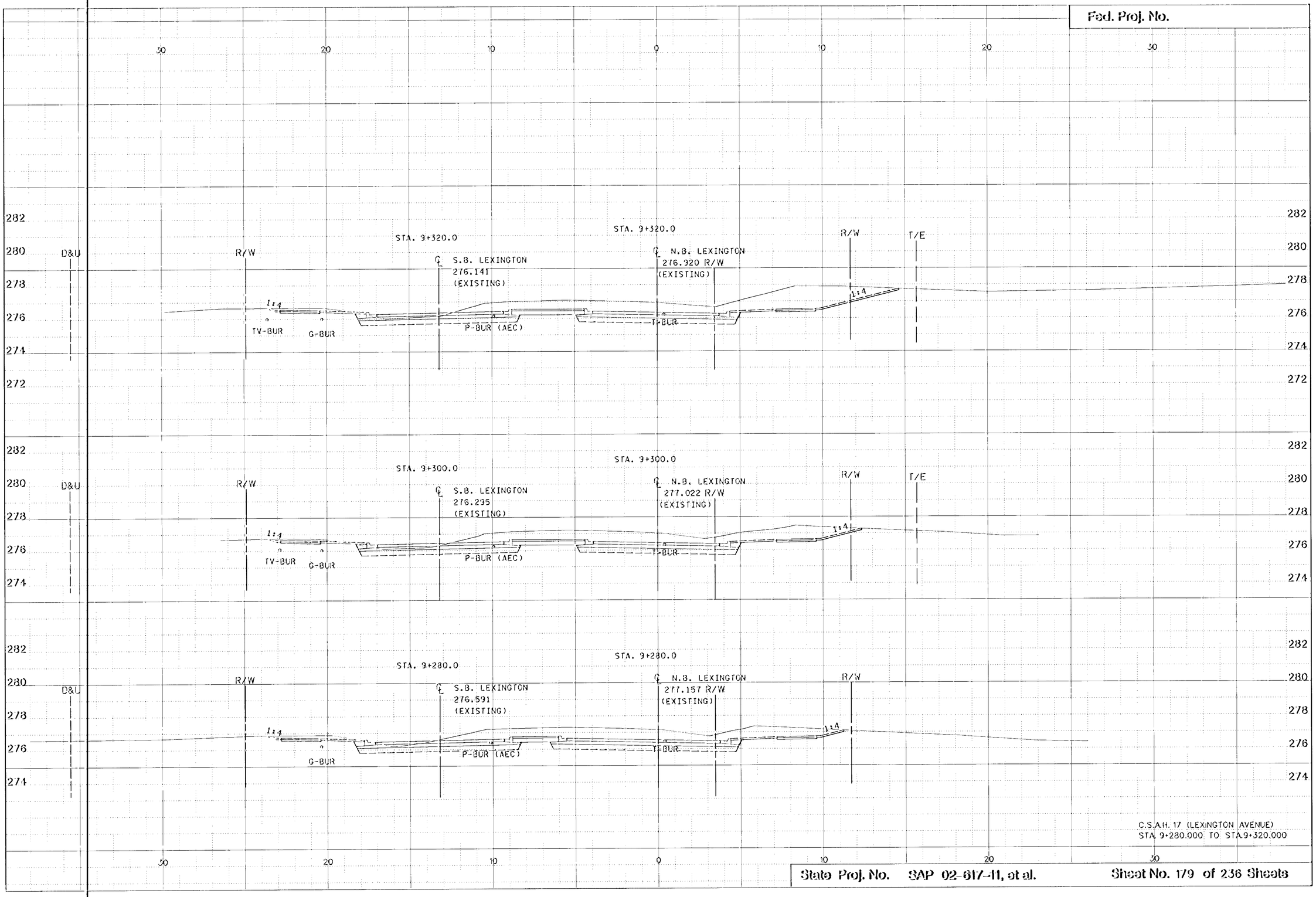


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+140.000 TO STA. 9+200.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 177 of 236 Sheets

Fed. Proj. No.

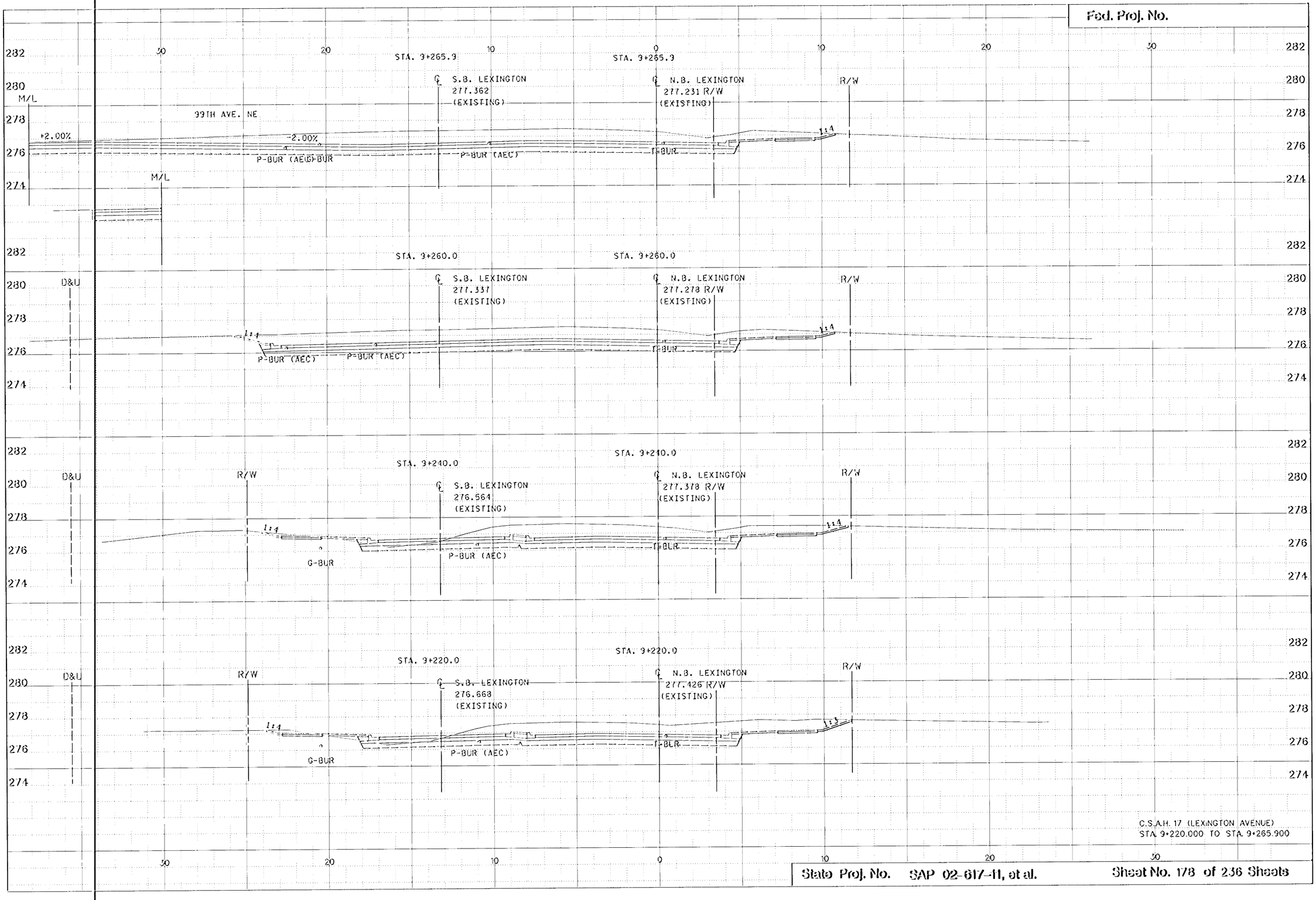


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+280.000 TO STA.9+320.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 179 of 236 Sheets

Fed. Proj. No.

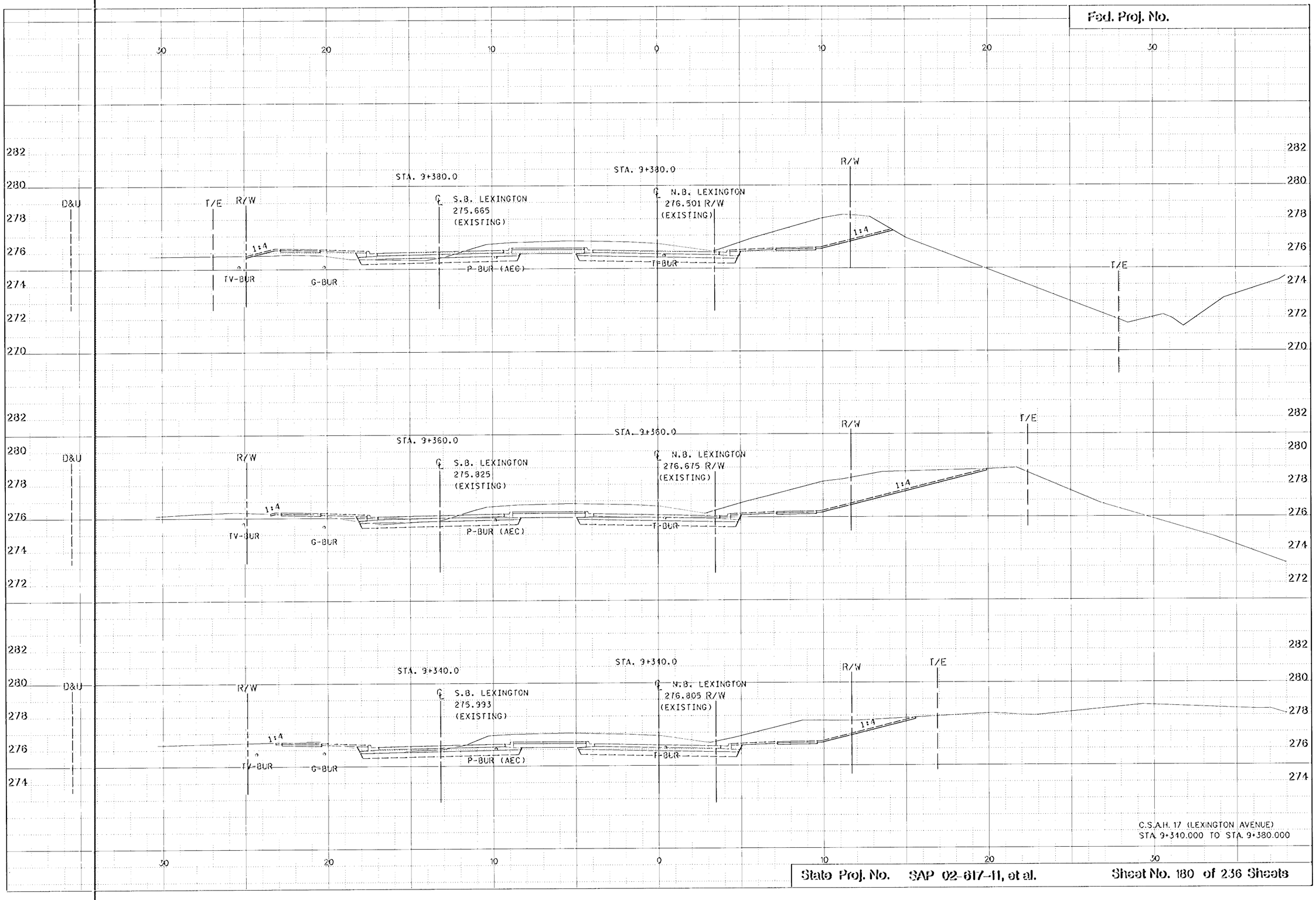


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+220.000 TO STA. 9+265.900

State Proj. No. SAP 02-617-11, et al.

Sheet No. 178 of 236 Sheets

Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+340.000 TO STA. 9+380.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 180 of 236 Sheets

Fed. Proj. No.

30 20 10 0 10 20 30

280
278
276
274
272
270

STA. 9+440.0

℄ S.B. LEXINGTON
275.023
(EXISTING)

STA. 9+440.0

℄ N.B. LEXINGTON
275.982 R/W
(EXISTING)

D&U T/E R/W 1:4 TV-BUR G-BUR P-BUR (AEC) T-BUR T-BUR R/W ℄ BOX CULVERT 1:4 T/E D&U

280
278
276
274
272
270
282

STA. 9+420.0

℄ S.B. LEXINGTON
275.513
(EXISTING)

STA. 9+420.0

℄ N.B. LEXINGTON
276.136 R/W
(EXISTING)

D&U T/E R/W 1:4 TV-BUR P-BUR (AEC) T-BUR T-BUR R/W ℄ BOX CULVERT 1:4 T/E D&U

280
278
276
274
272
270

STA. 9+400.0

℄ S.B. LEXINGTON
275.562
(EXISTING)

STA. 9+400.0

℄ N.B. LEXINGTON
276.336 R/W
(EXISTING)

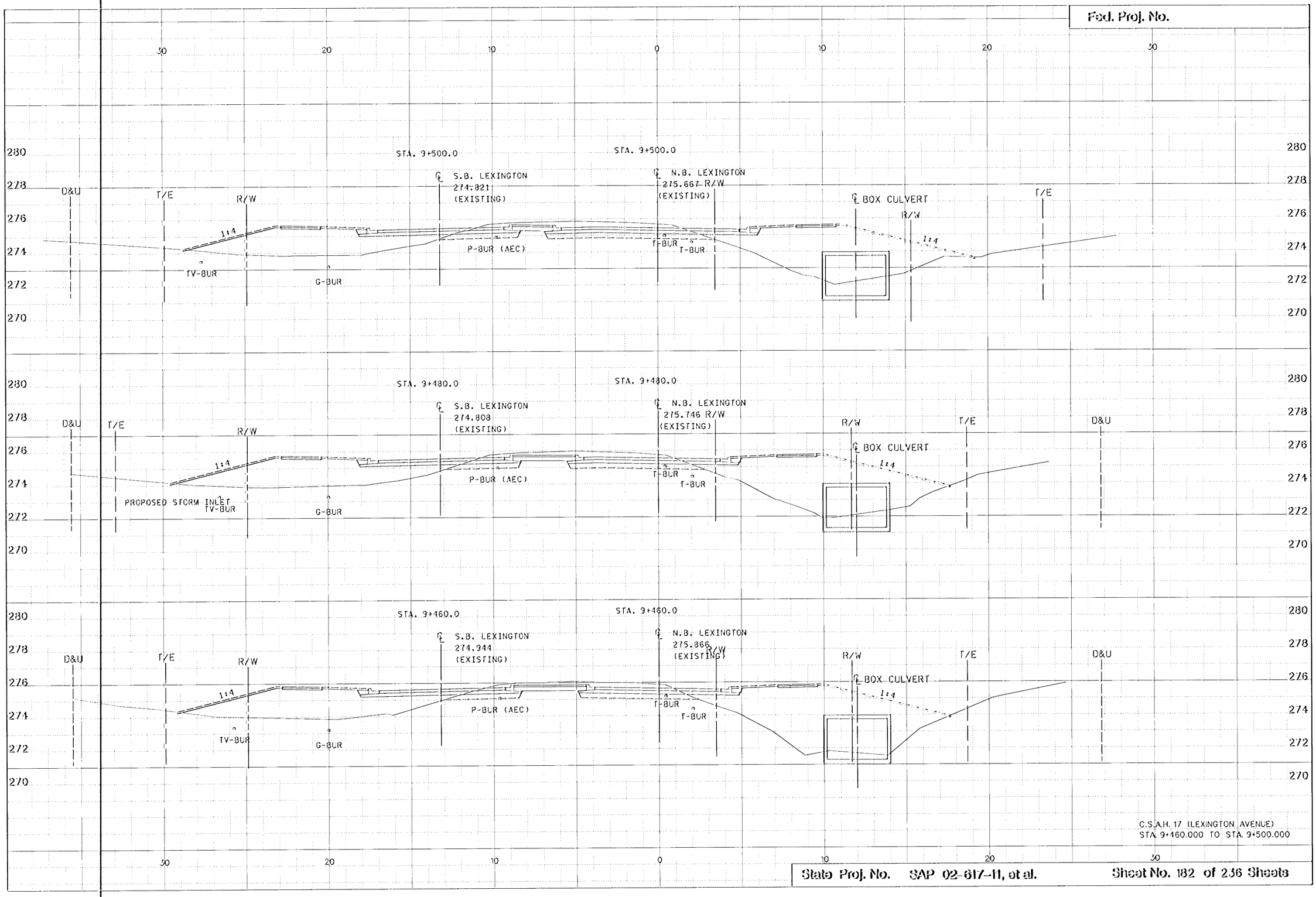
D&U T/E R/W 1:4 TV-BUR G-BUR P-BUR (AEC) T-BUR T-BUR R/W ℄ BOX CULVERT VAR.

C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+400.000 TO STA. 9+440.000

30 20 10 0 10 20 30

State Proj. No. SAP 02-617-11, et al. Sheet No. 181 of 236 Sheets

Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+460.000 TO STA. 9+500.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 182 of 236 Sheets

Fed. Proj. No.

STA. 9+540.0

℄ S.B. LEXINGTON
274.963
(EXISTING)

STA. 9+540.0

℄ N.B. LEXINGTON
275.068 R/W
(EXISTING)

℄ BOX CULVERT
R/W

T/E

1:4

TV-BUR

G-BUR

P-BUR (AEC)

T-BUR

T-BUR

STA. 9+532.8

℄ S.B. LEXINGTON
275.147
(EXISTING)

STA. 9+532.8

℄ N.B. LEXINGTON
275.204 R/W
(EXISTING)

℄ BOX CULVERT
R/W

T/E

AUSTIN ST. NE.

-1.50%

1:4

TV-BUR

G-BUR

P-BUR (AEC)

T-BUR

T-BUR

STA. 9+520.0

D&U D&U

T/E

R/W

℄ S.B. LEXINGTON
275.171
(EXISTING)

STA. 9+520.0

℄ N.B. LEXINGTON
275.454 R/W
(EXISTING)

℄ BOX CULVERT
R/W

T/E

1:4

TV-BUR

G-BUR

P-BUR (AEC)

T-BUR

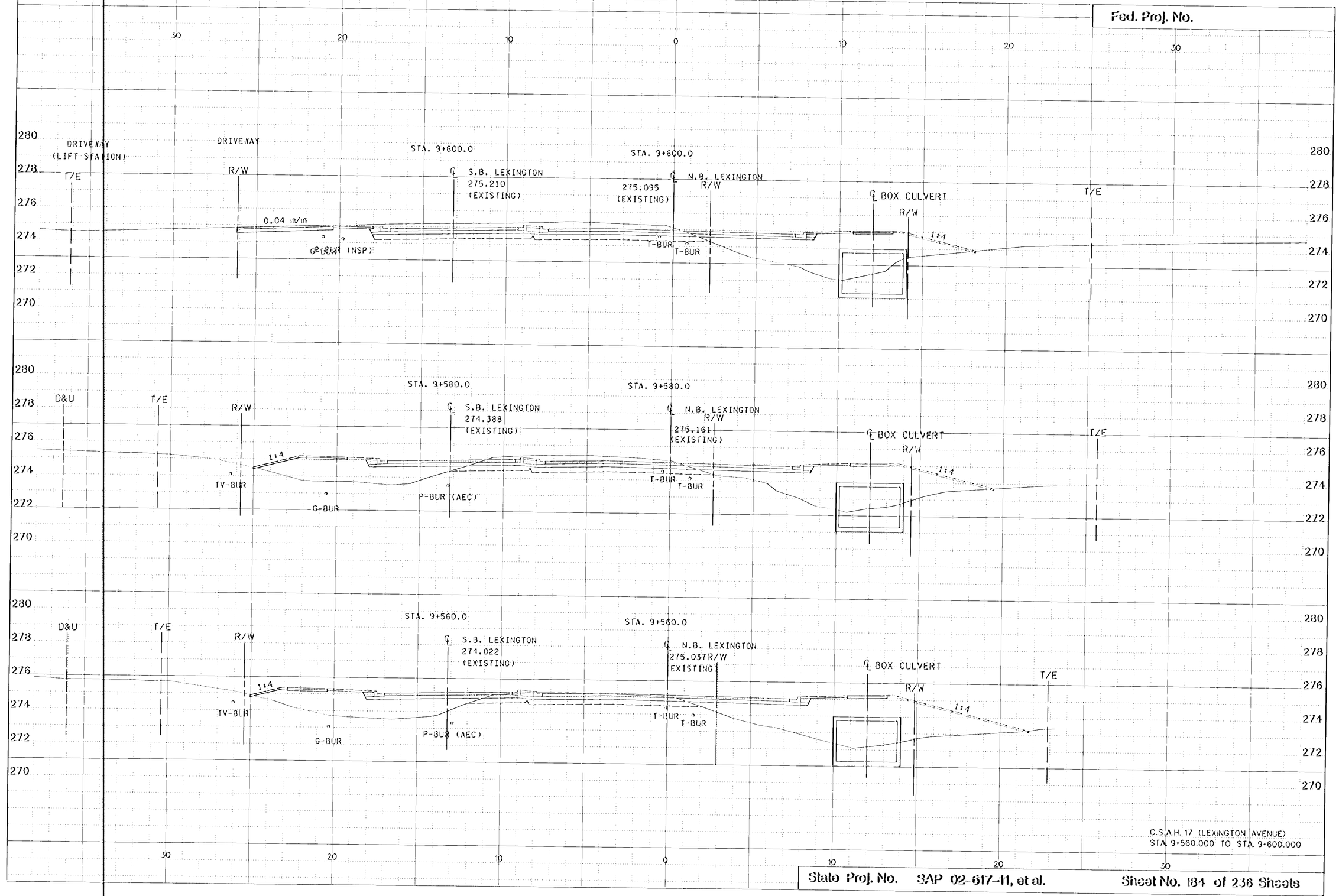
T-BUR

C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+520.000 TO STA. 9+540.000

State Proj. No. SAP 02-617-11, et al.

Sheet No. 183 of 236 Sheets

Fed. Proj. No.

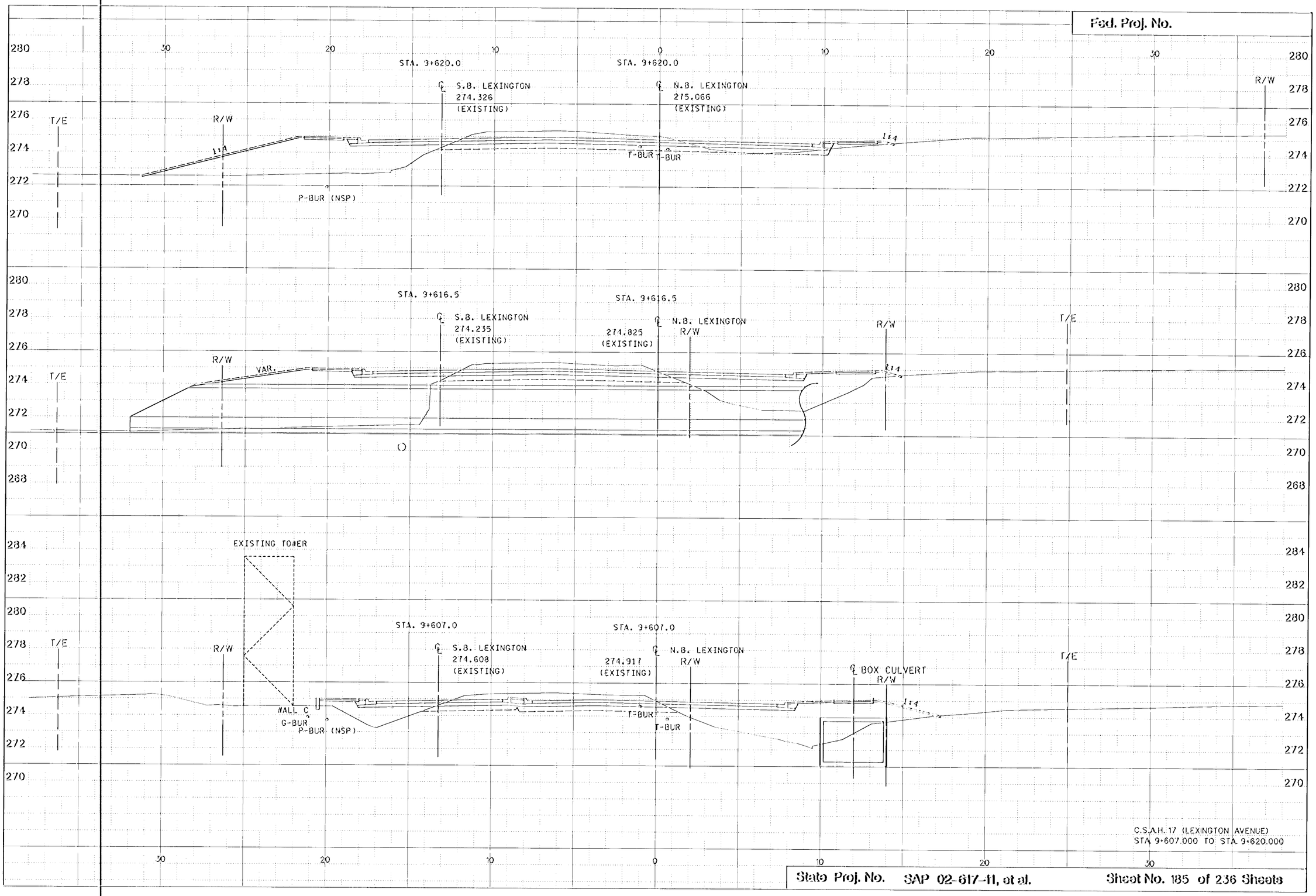


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+560.000 TO STA. 9+600.000

State Proj. No. SAP 02-617-11, et al.

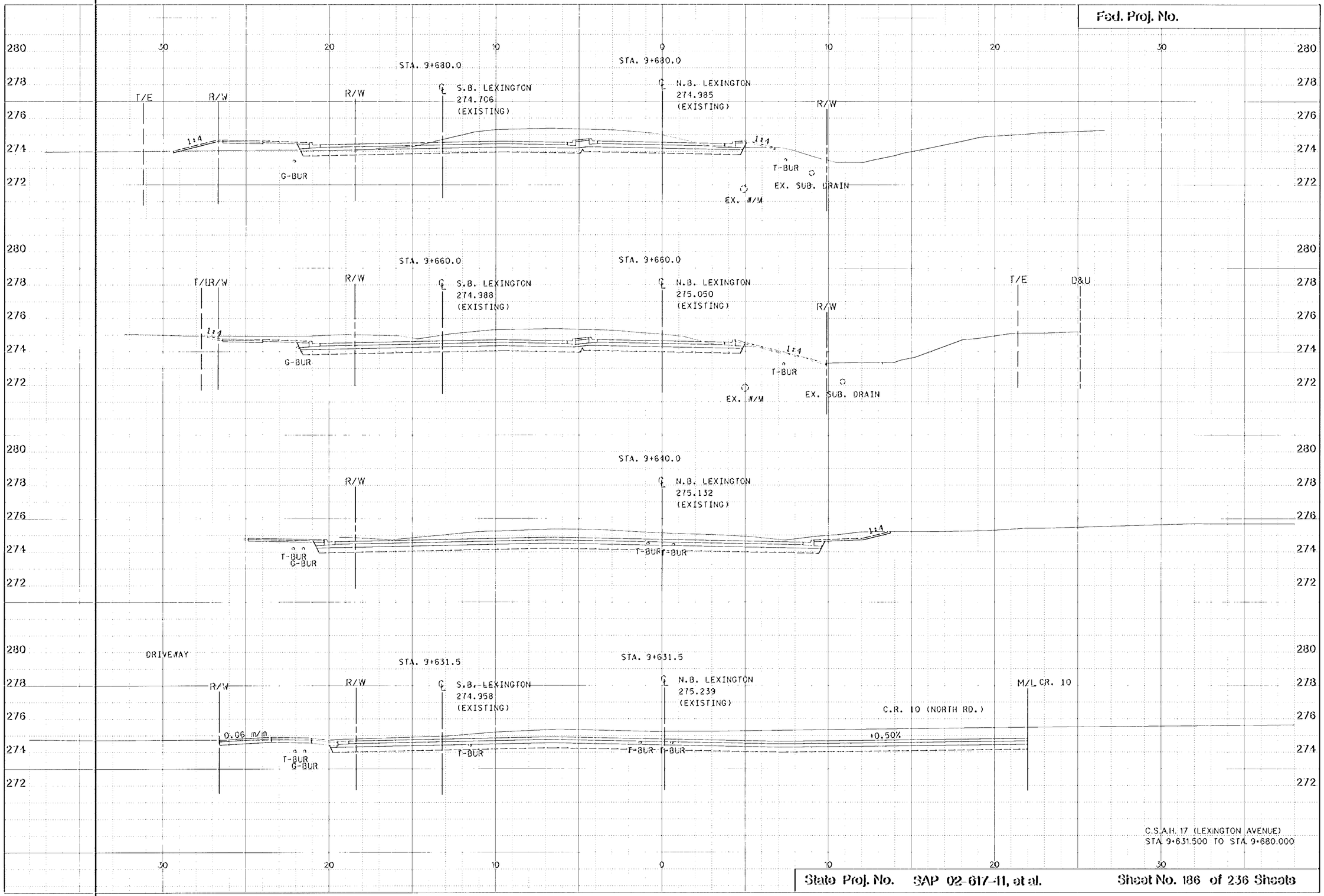
Sheet No. 184 of 236 Sheets

Fed. Proj. No.



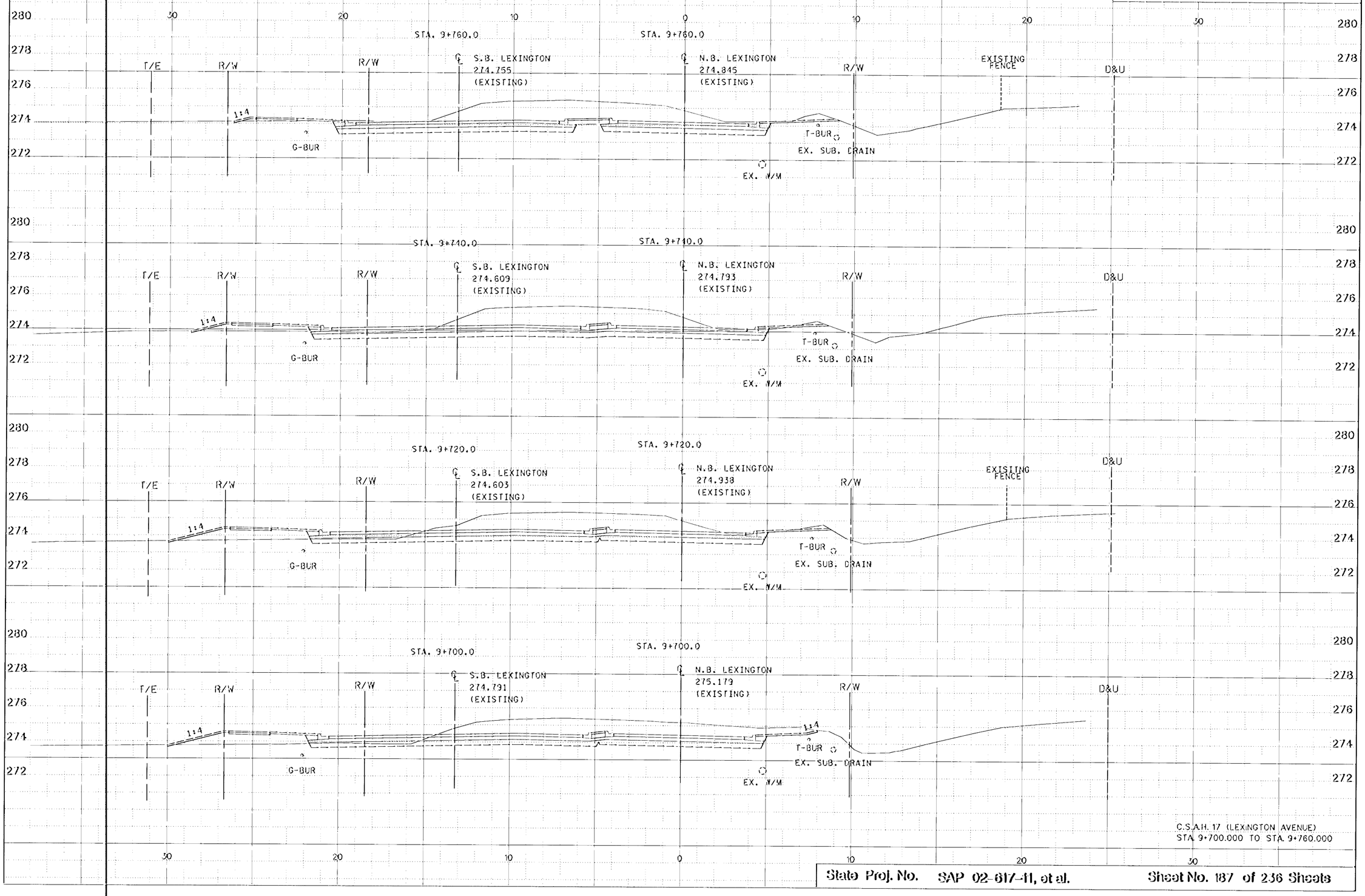
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+607.000 TO STA. 9+620.000

Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+631.500 TO STA. 9+680.000

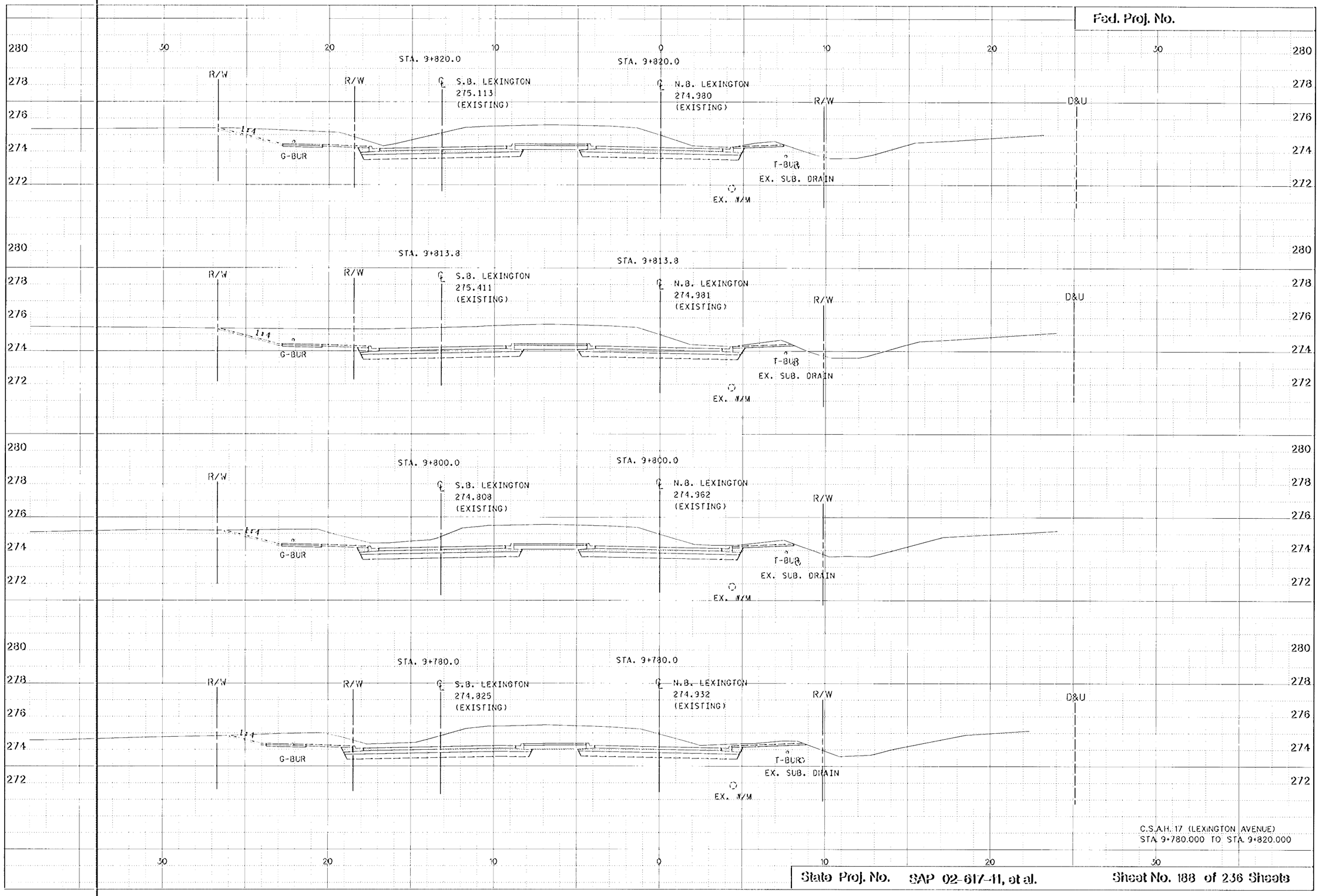
Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+700.000 TO STA. 9+760.000

State Proj. No. SAP 02-617-11, et al. Sheet No. 187 of 236 Sheets

Fed. Proj. No.

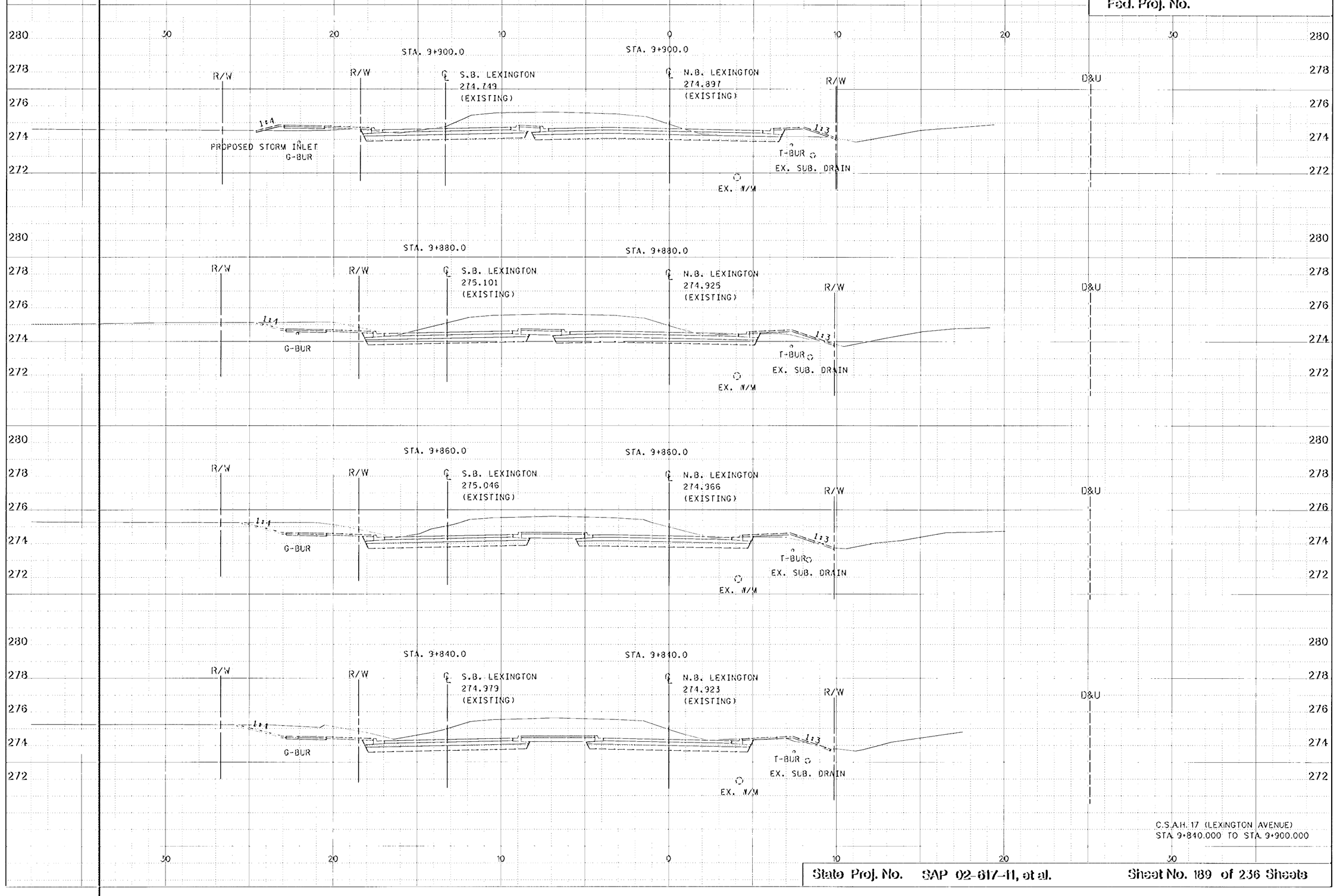


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+780.000 TO STA. 9+820.000

State Proj. No. SAP 02-617-11, et al.

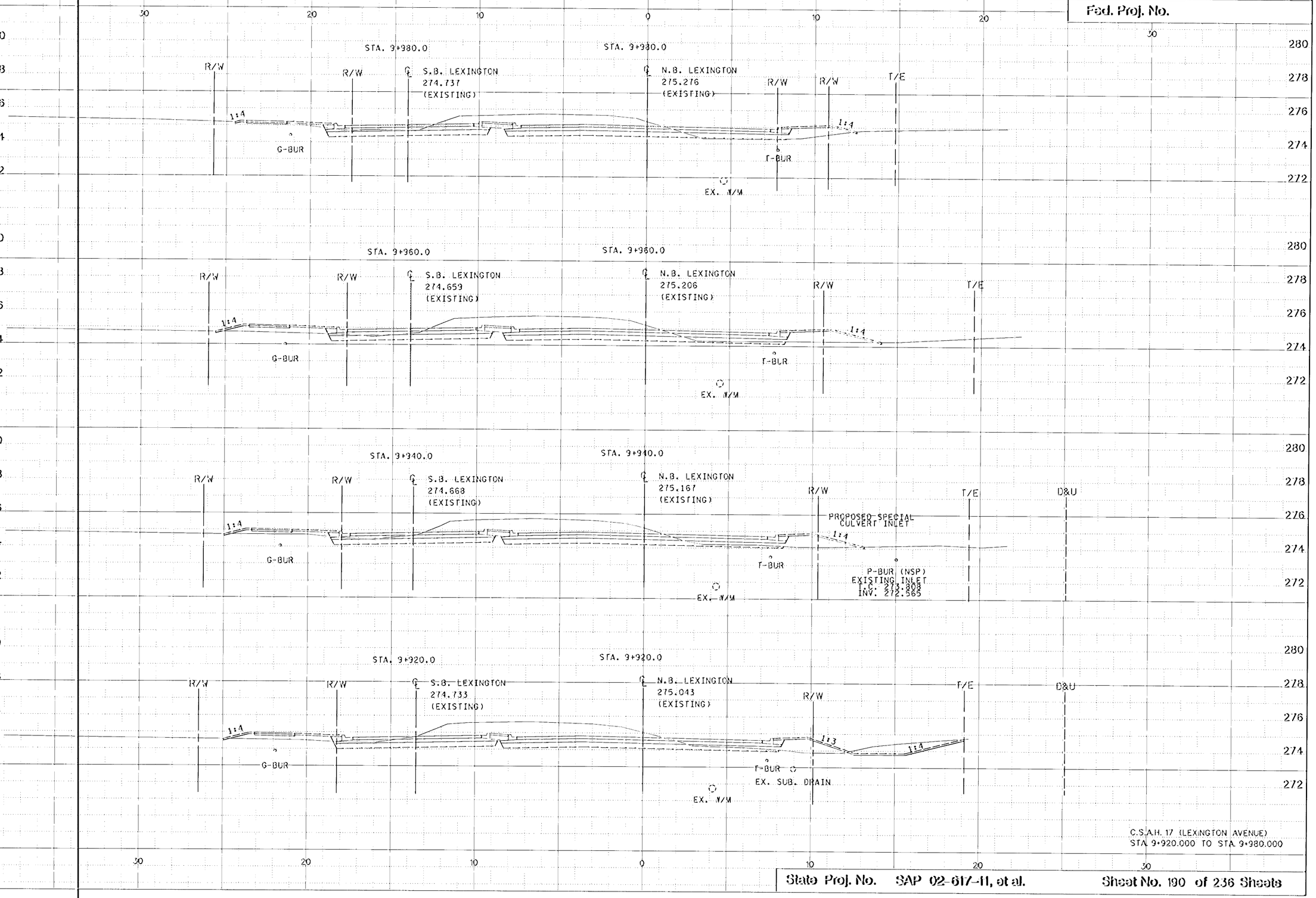
Sheet No. 188 of 236 Sheets

Fed. Proj. No.



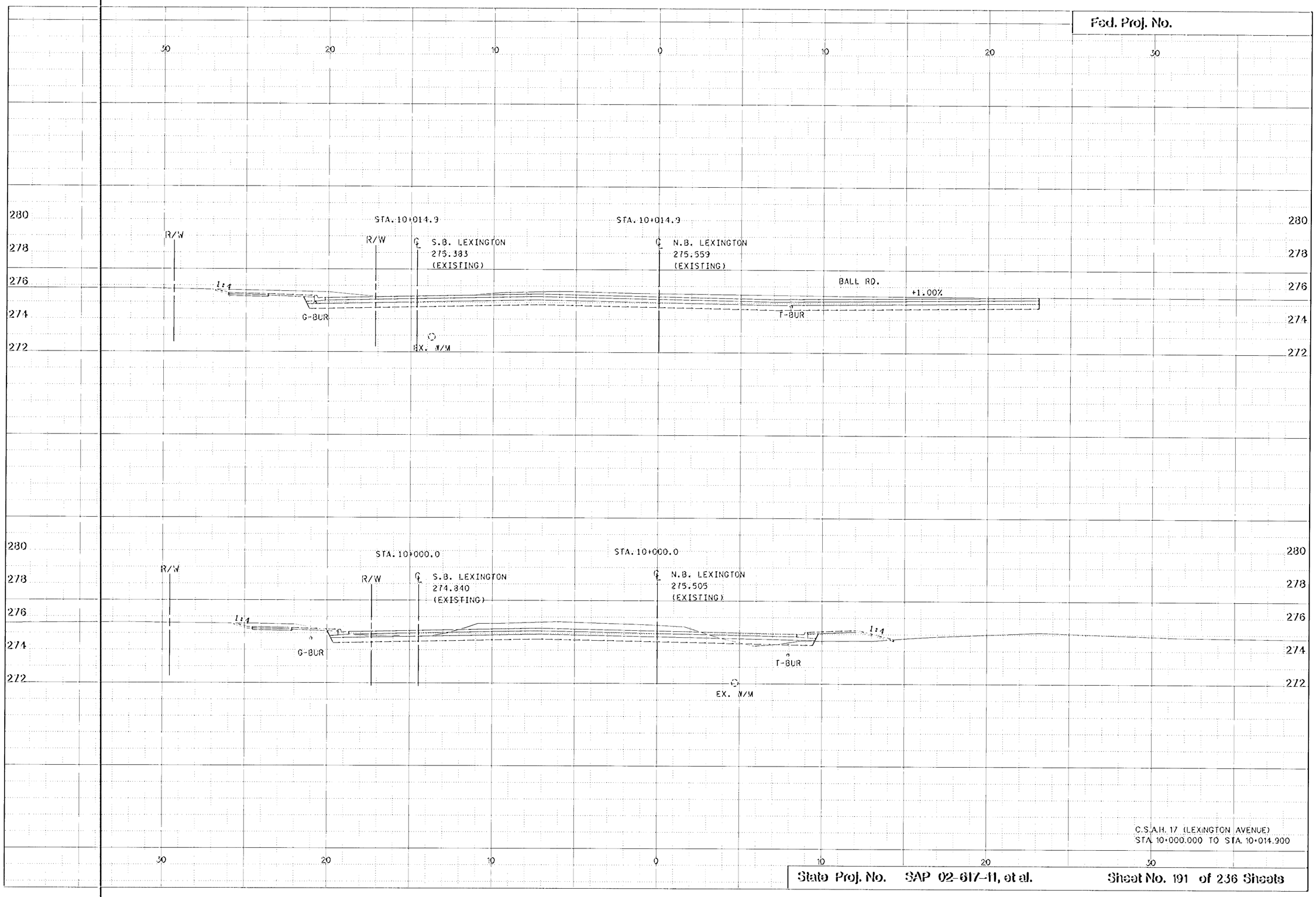
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+840.000 TO STA. 9+900.000

Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 9+920.000 TO STA. 9+980.000

Fed. Proj. No.

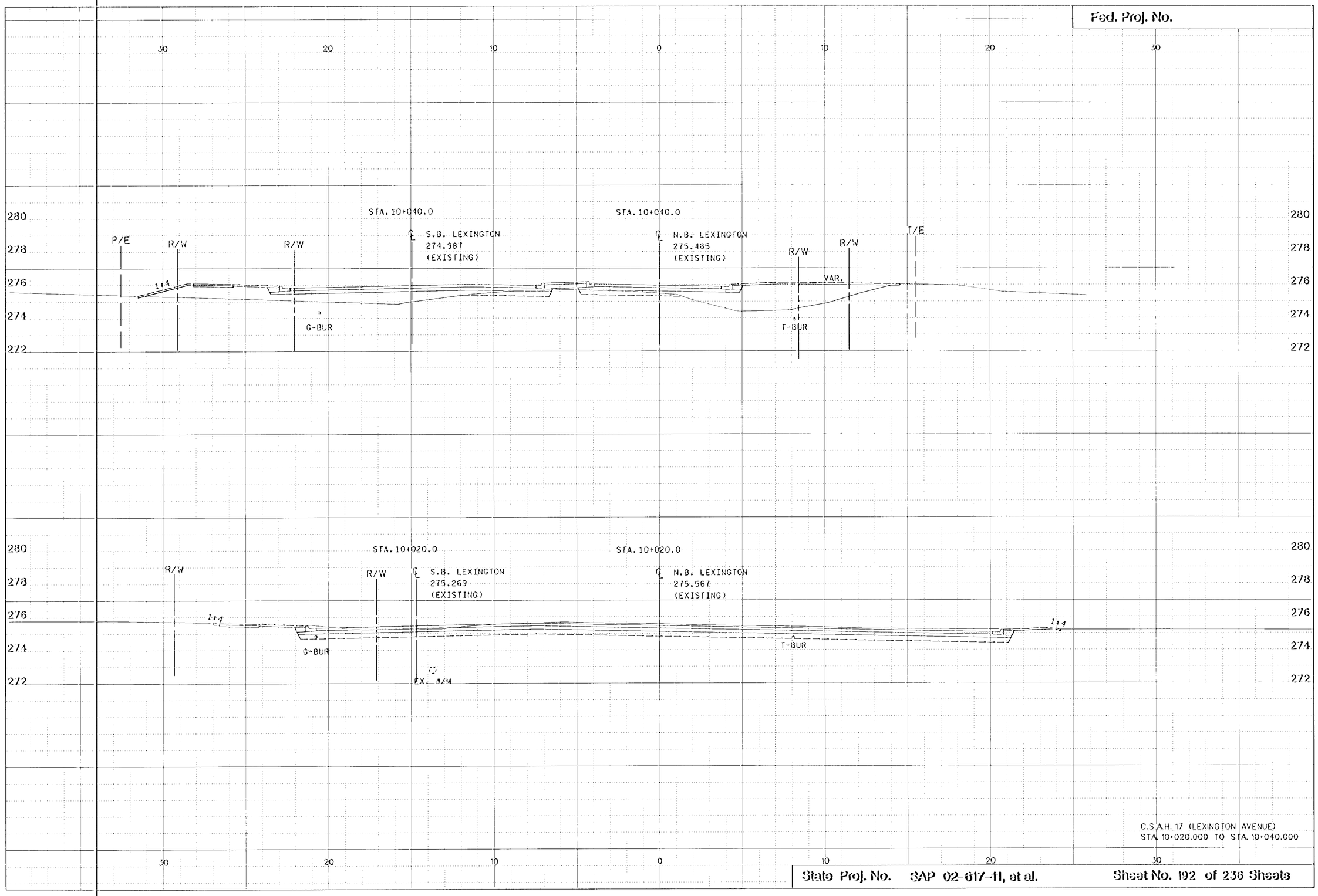


C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+000.000 TO STA. 10+014.900

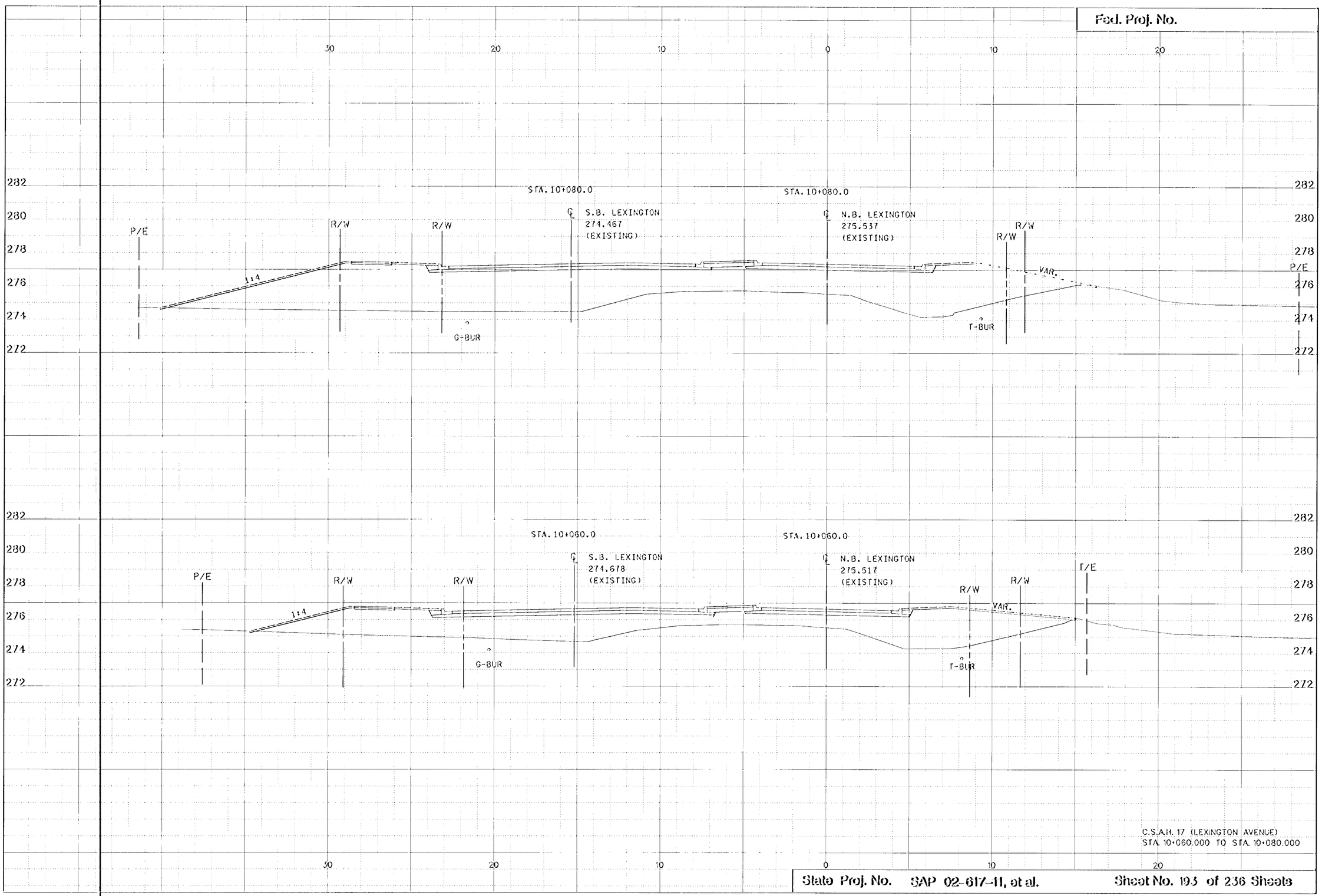
State Proj. No. SAP 02-617-11, et al.

Sheet No. 191 of 236 Sheets

Fed. Proj. No.


30
20
10
0
10
20
30
280
278
276
274
272
STA. 10+040.0
℄ S.B. LEXINGTON
274.987
(EXISTING)
STA. 10+040.0
℄ N.B. LEXINGTON
275.485
(EXISTING)
P/E
R/W
R/W
R/W
R/W
T/E
1:4
VAR.
G-BUR
T-BUR
STA. 10+020.0
℄ S.B. LEXINGTON
275.269
(EXISTING)
STA. 10+020.0
℄ N.B. LEXINGTON
275.567
(EXISTING)
R/W
R/W
1:4
1:4
G-BUR
T-BUR
EX. M/H
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+020.000 TO STA. 10+040.000

Fed. Proj. No.


30
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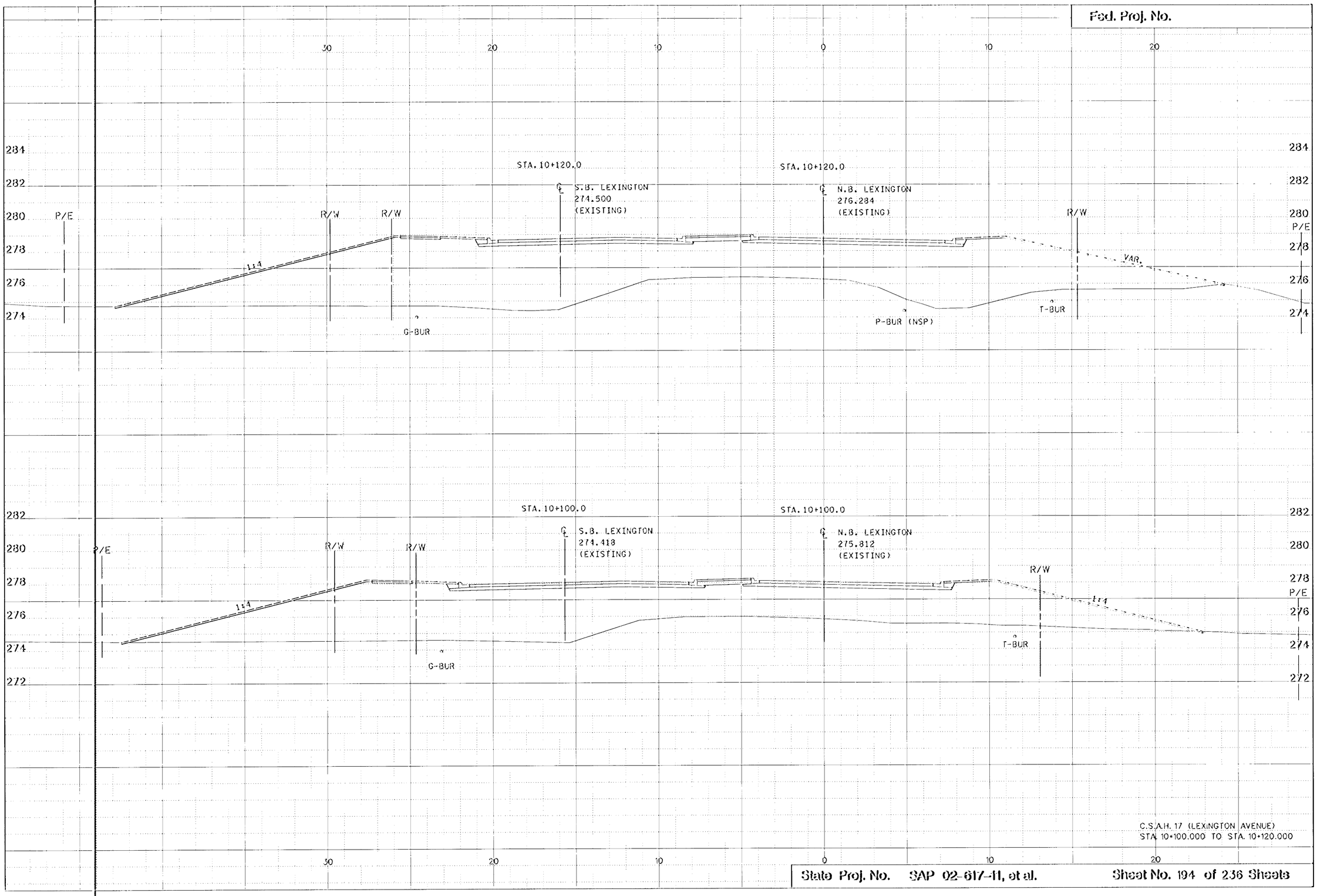
282
280
278
276
274
272
STA. 10+080.0
STA. 10+080.0
℄ S.B. LEXINGTON
274.467
(EXISTING)
℄ N.B. LEXINGTON
275.537
(EXISTING)
P/E
R/W
R/W
R/W
R/W
1:4
VAR.
G-BDR
T-BDR
P/E
STA. 10+060.0
STA. 10+060.0
℄ S.B. LEXINGTON
274.678
(EXISTING)
℄ N.B. LEXINGTON
275.517
(EXISTING)
P/E
R/W
R/W
R/W
R/W
T/E
1:4
VAR.
G-BDR
T-BDR
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+060.000 TO STA. 10+080.000

Fed. Proj. No.


30
20
10
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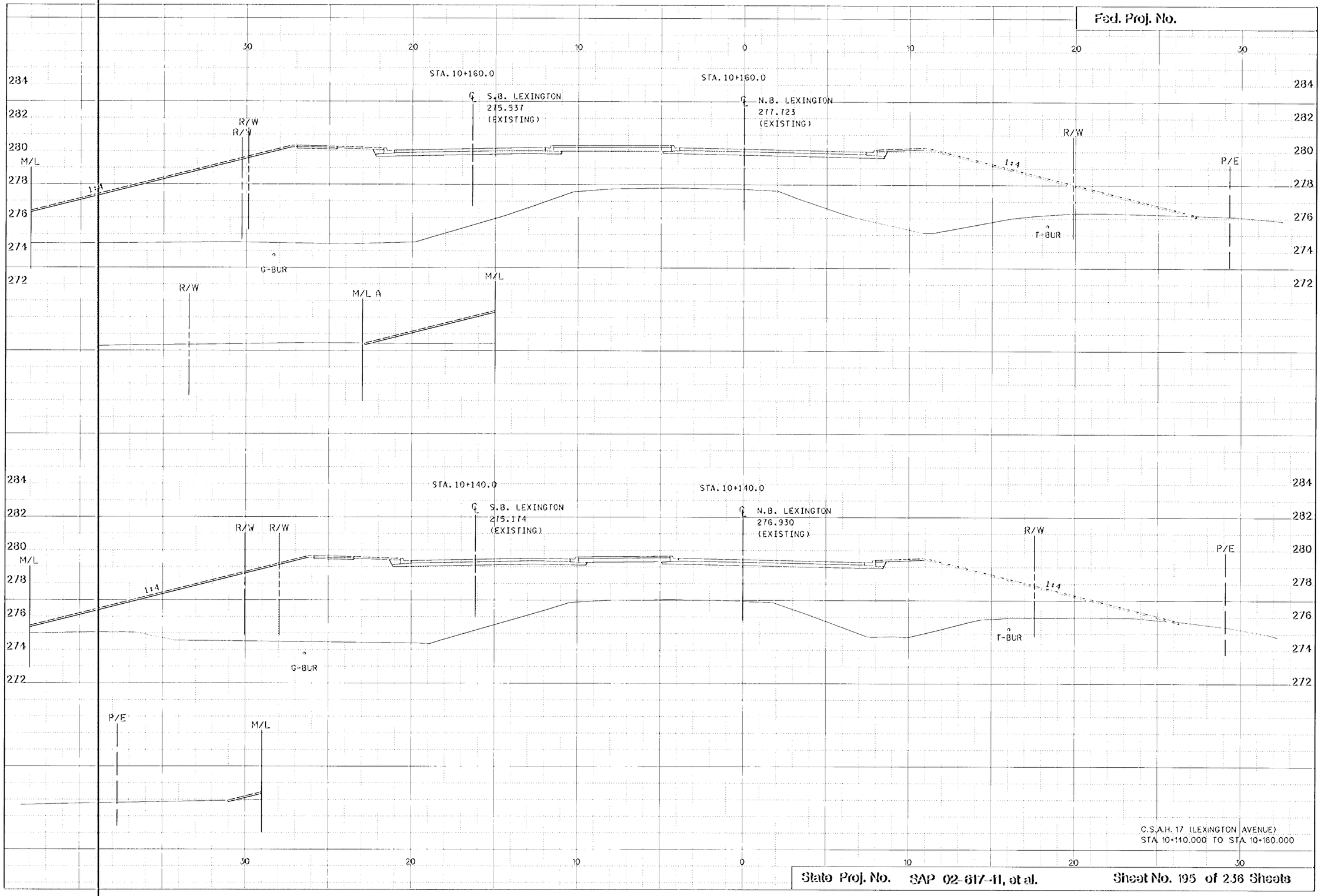
10
20
284
282
280
278
276
274
P/E
R/W
R/W
STA. 10+120.0
℄ S.B. LEXINGTON
274.500
(EXISTING)
STA. 10+120.0
℄ N.B. LEXINGTON
276.284
(EXISTING)
R/W
VAR.
1:4
G-BUR
P-BUR (NSP)
T-BUR
P/E
282
280
278
276
274
272
R/W
R/W
STA. 10+100.0
℄ S.B. LEXINGTON
274.418
(EXISTING)
STA. 10+100.0
℄ N.B. LEXINGTON
275.812
(EXISTING)
R/W
1:4
1:4
G-BUR
T-BUR
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+100.000 TO STA. 10+120.000

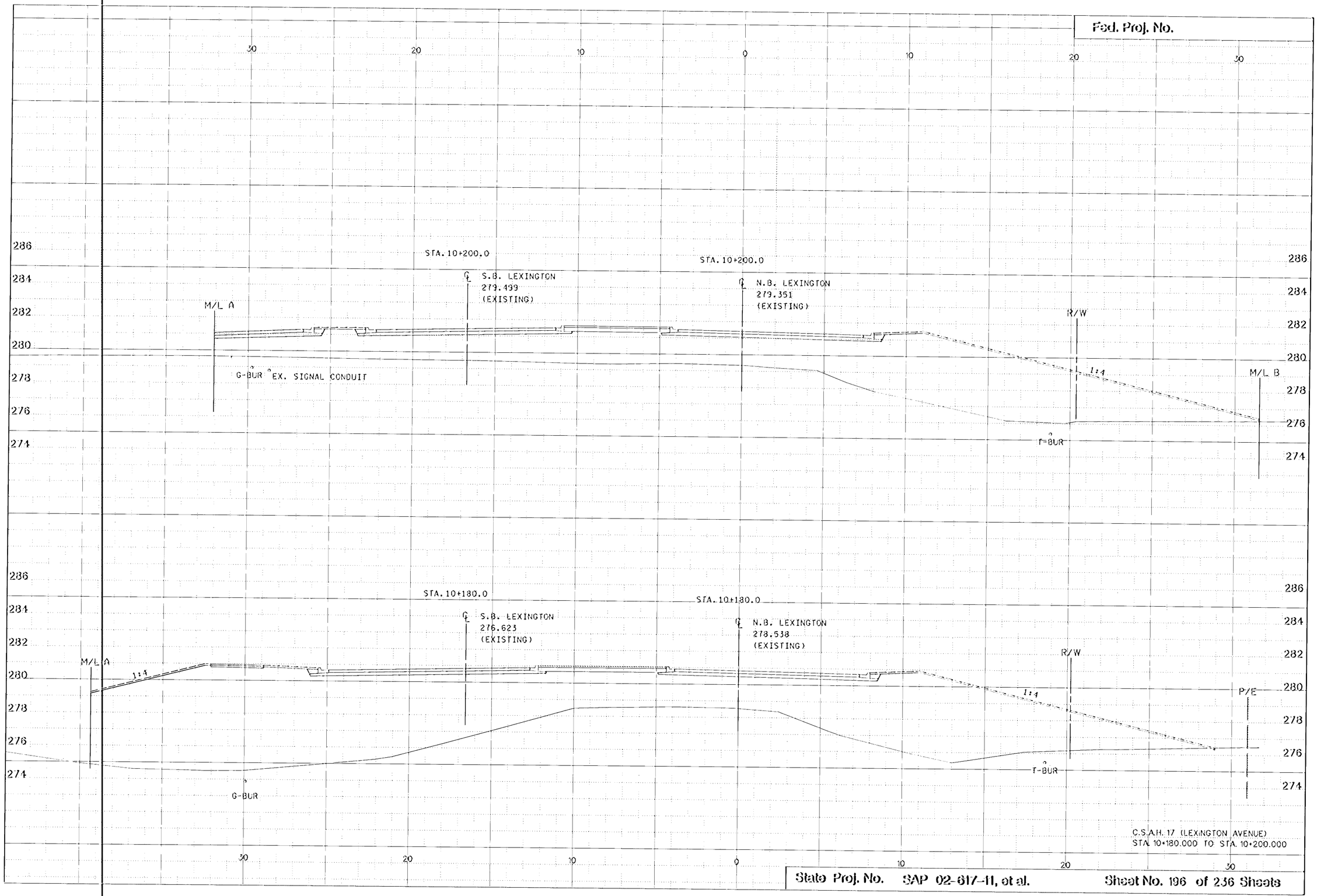
Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+140.000 TO STA. 10+160.000

State Proj. No. SAP 02-617-11, et al. Sheet No. 195 of 236 Sheets

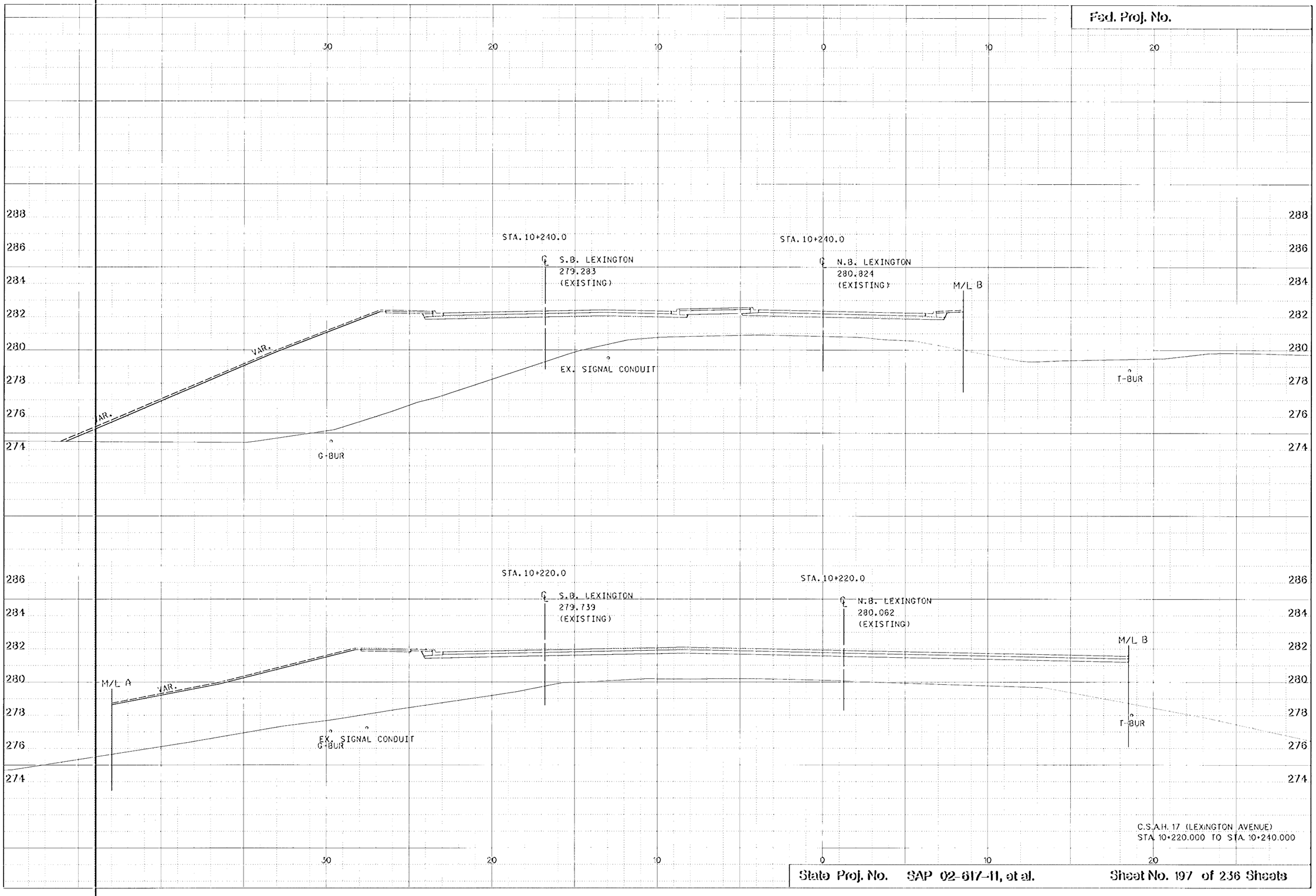
Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+180.000 TO STA. 10+200.000

State Proj. No. SAP 02-617-11, et al. Sheet No. 196 of 236 Sheets

Fed. Proj. No.


30
20
10
0
10
20
288
286
284
282
280
278
276
274
STA. 10+240.0
℄ S.B. LEXINGTON
279.283
(EXISTING)
STA. 10+240.0
℄ N.B. LEXINGTON
280.824
(EXISTING)
M/L B
VAR.
VAR.
EX. SIGNAL CONDUIT
G-BUR
T-BUR
STA. 10+220.0
℄ S.B. LEXINGTON
279.739
(EXISTING)
STA. 10+220.0
℄ N.B. LEXINGTON
280.062
(EXISTING)
M/L B
M/L A
VAR.
EX. SIGNAL CONDUIT
G-BUR
T-BUR
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+220.000 TO STA. 10+240.000

Fed. Proj. No.

30 20 10 0 10 20 30

290
288
286
284
282
280
278
276
274

BEGIN BRIDGE 10+283.817 (N.B.)

STA. 10+280.0
℄ S.B. LEXINGTON
275.234
(EXISTING)

M/L BRIDGE

STA. 10+280.0
℄ N.B. LEXINGTON
281.837
(EXISTING)

EX. SIGNAL CONDUIT

M/L B

G-BUR

T-BUR

STA. 10+260.0
℄ S.B. LEXINGTON
279.551
(EXISTING)

M/L BRIDGE

SEE BRIDGE PLAN

STA. 10+260.0
℄ N.B. LEXINGTON
281.436
(EXISTING)

1:4

M/L B

EX. SIGNAL CONDUIT

G-BUR

T-BUR

C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+260.000 TO STA. 10+280.000

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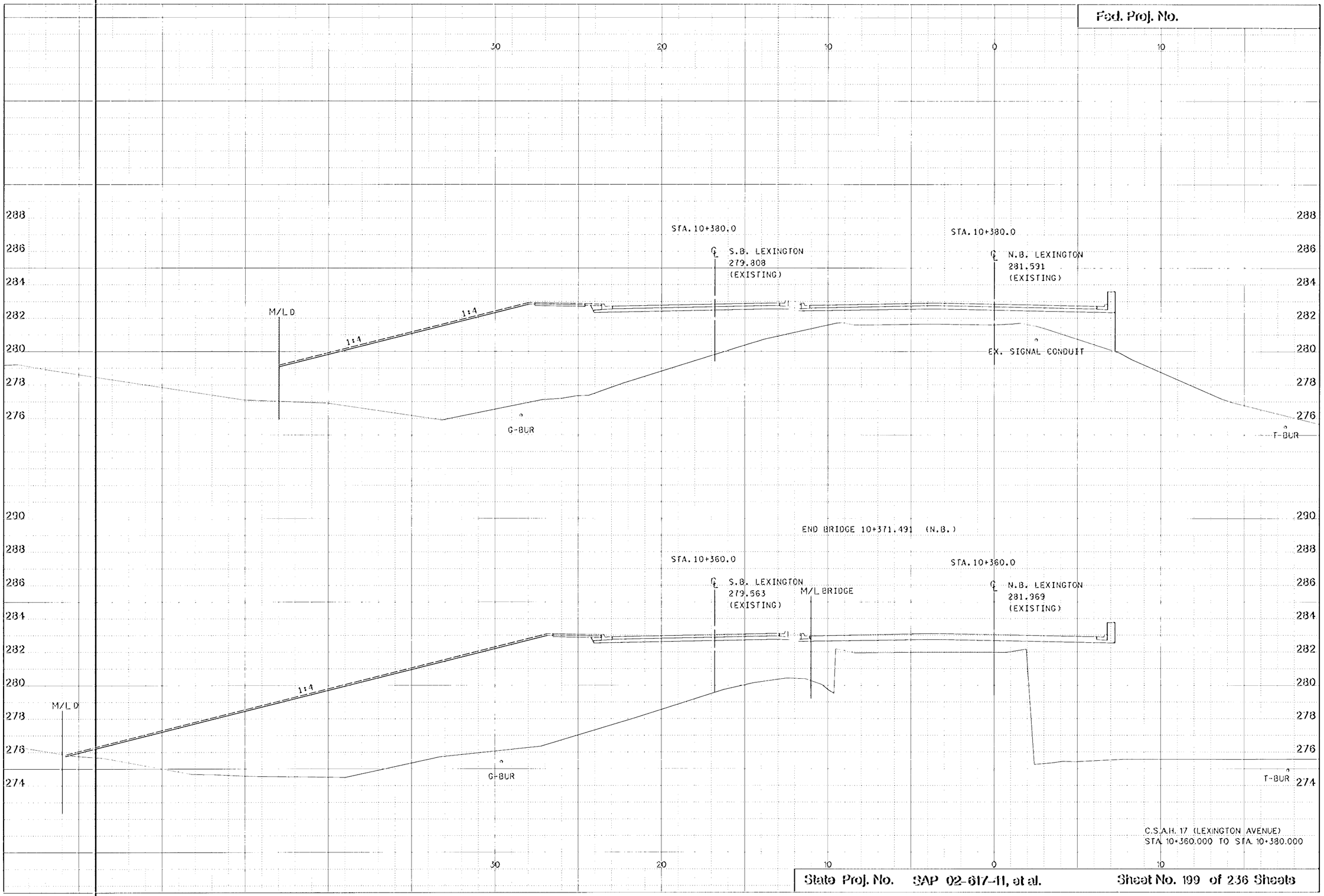
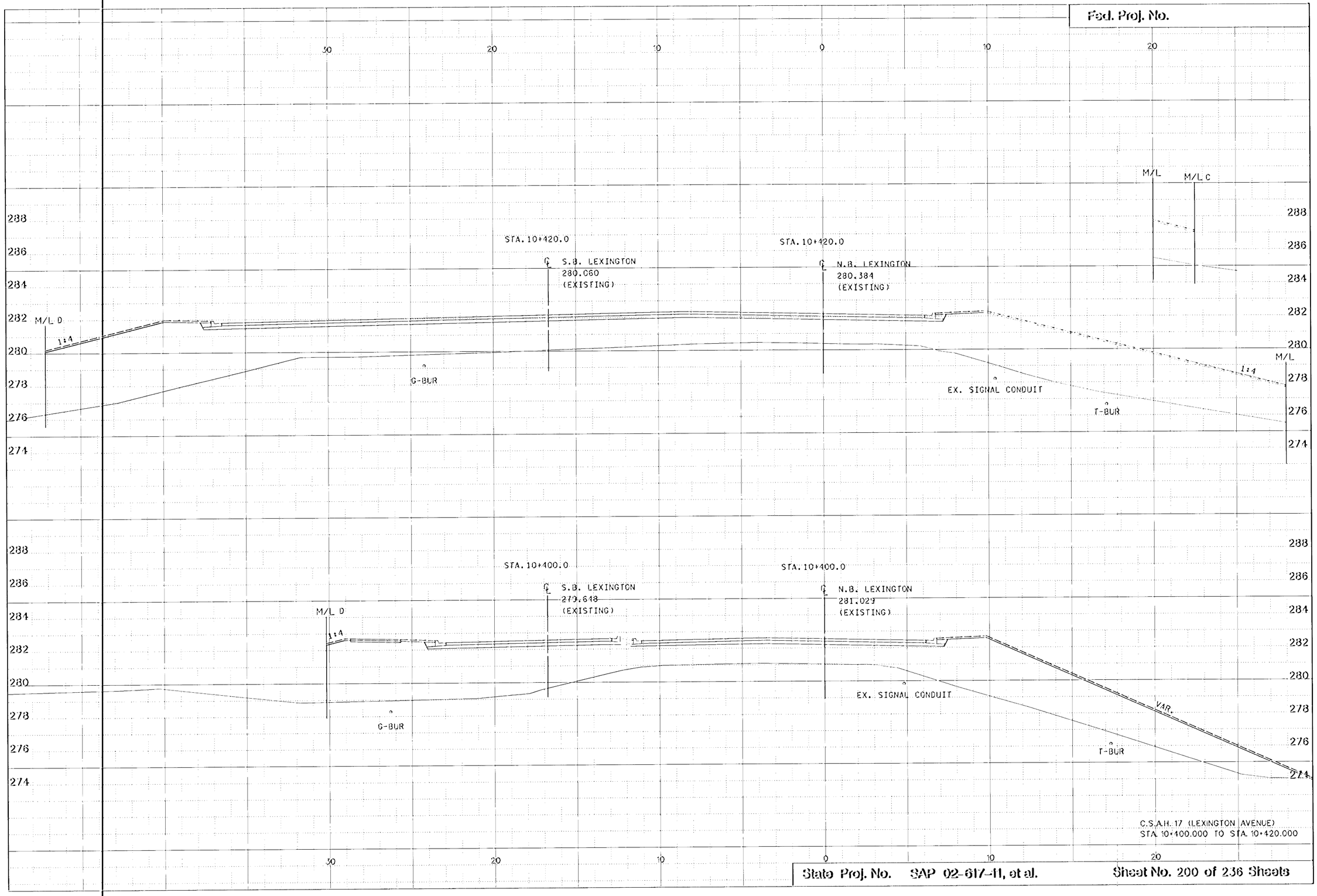
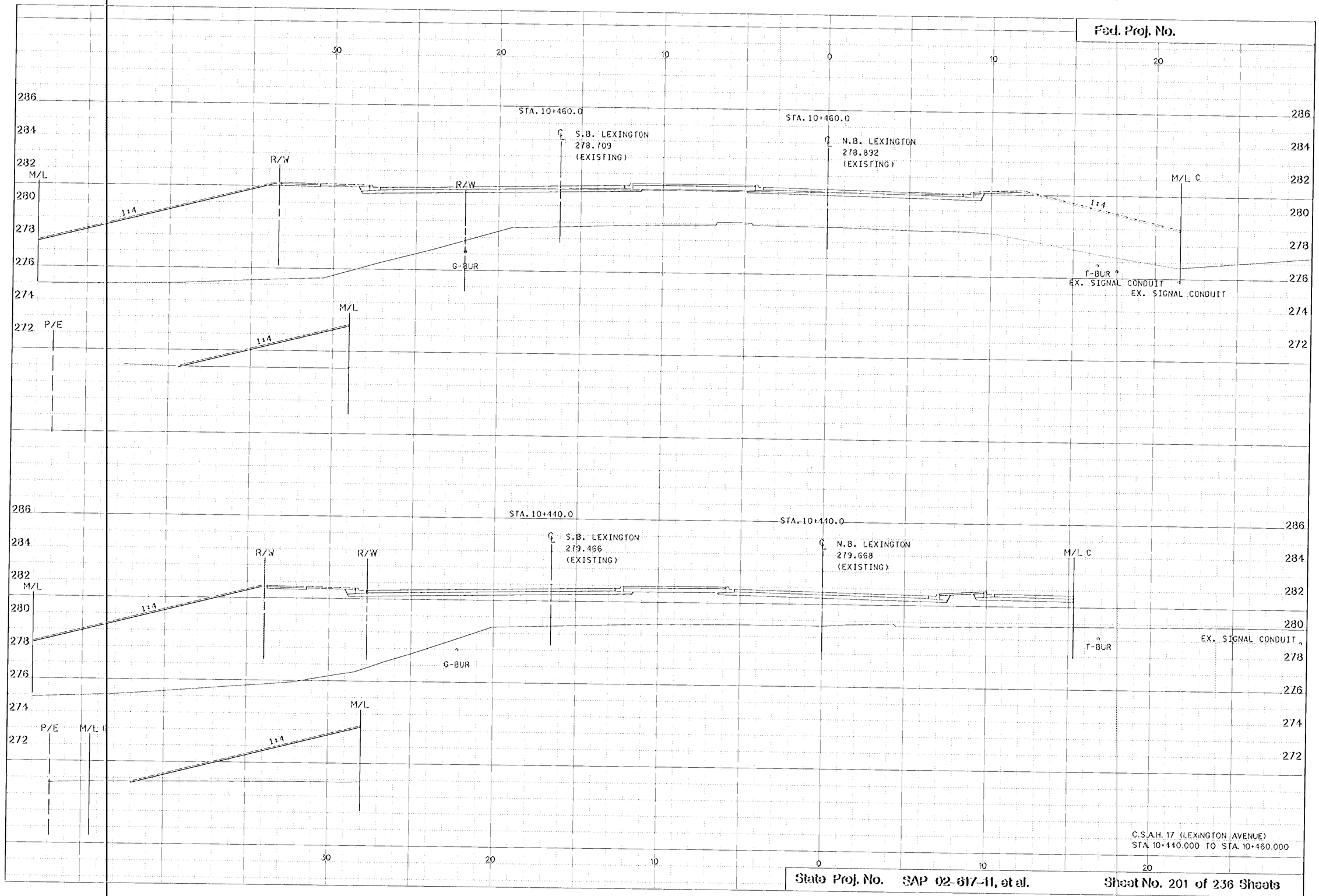
Fed. Proj. No.


30
20
10
0
10
288
286
284
282
280
278
276
STA. 10+380.0
℄ S.B. LEXINGTON
279.808
(EXISTING)
STA. 10+380.0
℄ N.B. LEXINGTON
281.591
(EXISTING)
M/L D
1:4
1:4
EX. SIGNAL CONDUIT
G-BUR
T-BUR
290
288
286
284
282
280
278
276
274
END BRIDGE 10+371.491 (N.B.)
STA. 10+360.0
℄ S.B. LEXINGTON
279.563
(EXISTING)
M/L BRIDGE
STA. 10+360.0
℄ N.B. LEXINGTON
281.369
(EXISTING)
M/L D
1:4
G-BUR
T-BUR
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+360.000 TO STA. 10+380.000

Fed. Proj. No.


30
20
10
0
10
20
288
286
284
282
280
278
276
274
STA. 10+420.0
℄ S.B. LEXINGTON
280.060
(EXISTING)
STA. 10+420.0
℄ N.B. LEXINGTON
280.384
(EXISTING)
M/L D
1:4
G-BUR
EX. SIGNAL CONDUIT
T-BUR
M/L
M/L C
M/L
1:4
STA. 10+400.0
℄ S.B. LEXINGTON
279.648
(EXISTING)
STA. 10+400.0
℄ N.B. LEXINGTON
281.029
(EXISTING)
M/L D
1:4
G-BUR
EX. SIGNAL CONDUIT
T-BUR
VAR.
C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+400.000 TO STA. 10+420.000

Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+440.000 TO STA. 10+460.000

Fed. Proj. No.

STA. 10+500.0
℄ S.B. LEXINGTON
277.271
(EXISTING)

STA. 10+500.0
℄ N.B. LEXINGTON
277.391
(EXISTING)

STA. 10+480.0
℄ S.B. LEXINGTON
277.965
(EXISTING)

STA. 10+480.0
℄ N.B. LEXINGTON
278.096
(EXISTING)

C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+480.000 TO STA. 10+500.000

Fed. Proj. No.

STA. 10+560.0

℄ S.B. LEXINGTON
275.873
(EXISTING)

R/W R/W P/E 1:4 G-BUR

STA. 10+560.0

℄ N.B. LEXINGTON
275.934
(EXISTING)

R/W R/W P/E 1:4 T-BUR

STA. 10+540.0

℄ S.B. LEXINGTON
276.203
(EXISTING)

R/W R/W P/E 1:4 G-BUR

STA. 10+540.0

℄ N.B. LEXINGTON
276.286
(EXISTING)

R/W R/W P/E 1:4 T-BUR

STA. 10+520.0

℄ S.B. LEXINGTON
276.703
(EXISTING)

R/W R/W M/L 1:4 G-BUR P/E M/L

STA. 10+520.0

℄ N.B. LEXINGTON
276.785
(EXISTING)

R/W P/E 1:4 T-BUR

C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+520.000 TO STA. 10+540.000

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Fed. Proj. No.

STA. 10+620.0

℄ S.B. LEXINGTON
275.590
(EXISTING)

275.572

STA. 10+620.0

℄ N.B. LEXINGTON
275.571
(EXISTING)

275.571

P/E

R/W

R/W

G-BUR

P-BUR (NSP)

R/W

R/W

VAR.

T-BUR

STA. 10+600.0

℄ S.B. LEXINGTON
275.596
(EXISTING)

276.420

STA. 10+600.0

℄ N.B. LEXINGTON
275.600
(EXISTING)

276.420

P. E. @ 40.0 m LT.

R/W

R/W

VAR.

G-BUR

R/W

R/W

P/E

1:4

T-BUR

STA. 10+580.0

℄ S.B. LEXINGTON
275.676
(EXISTING)

277.140

STA. 10+580.0

℄ N.B. LEXINGTON
275.719
(EXISTING)

277.140

P. E. @ 43.0 m LT.

R/W

R/W

1:4

G-BUR

R/W

R/W

P/E

1:4

T-BUR

C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+580.000 TO STA. 10+620.000

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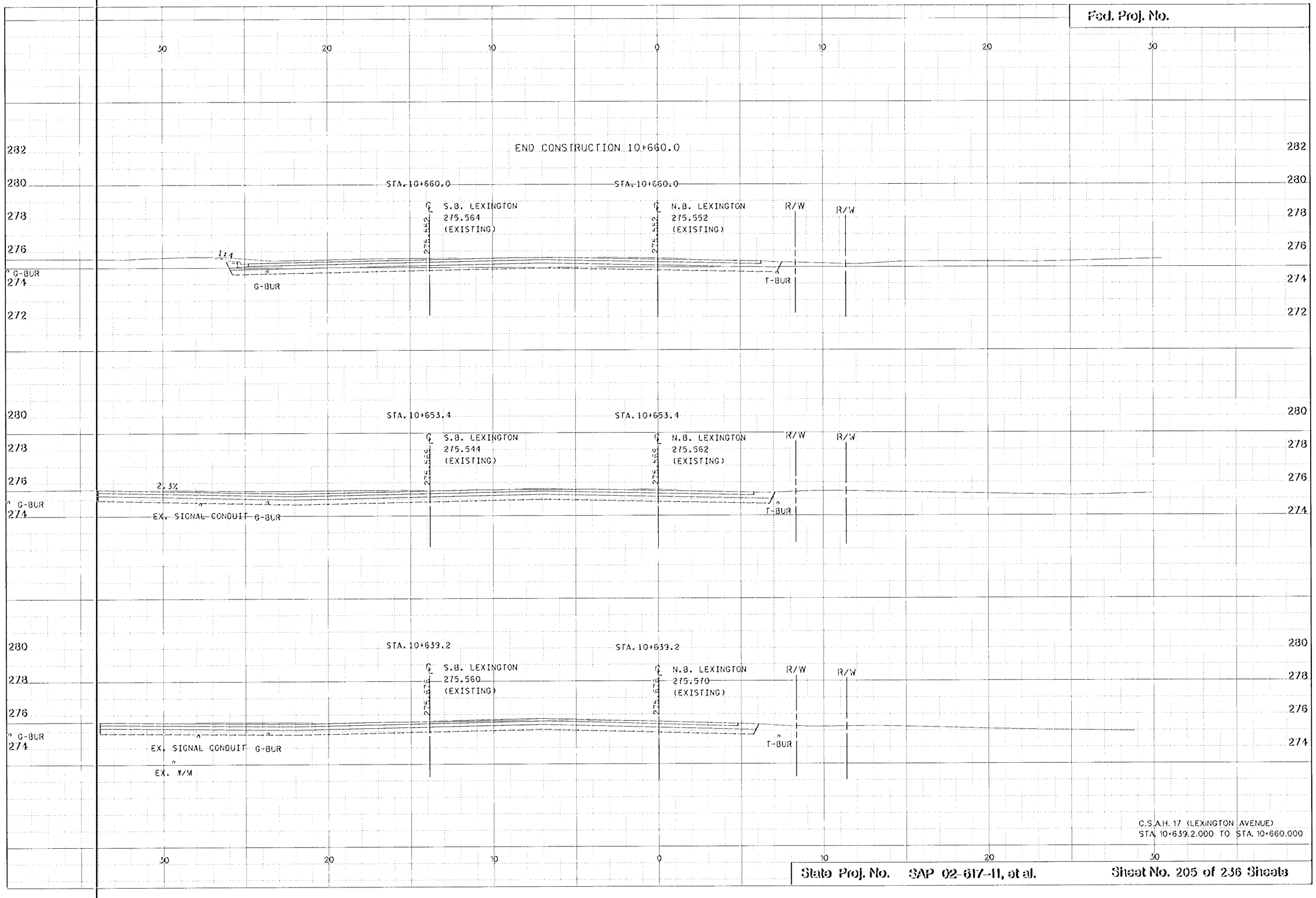
Fed. Proj. No.



C.S.A.H. 17 (LEXINGTON AVENUE)
STA. 10+639.2.000 TO STA. 10+660.000

State Proj. No. SAP 02-617-11, et al.

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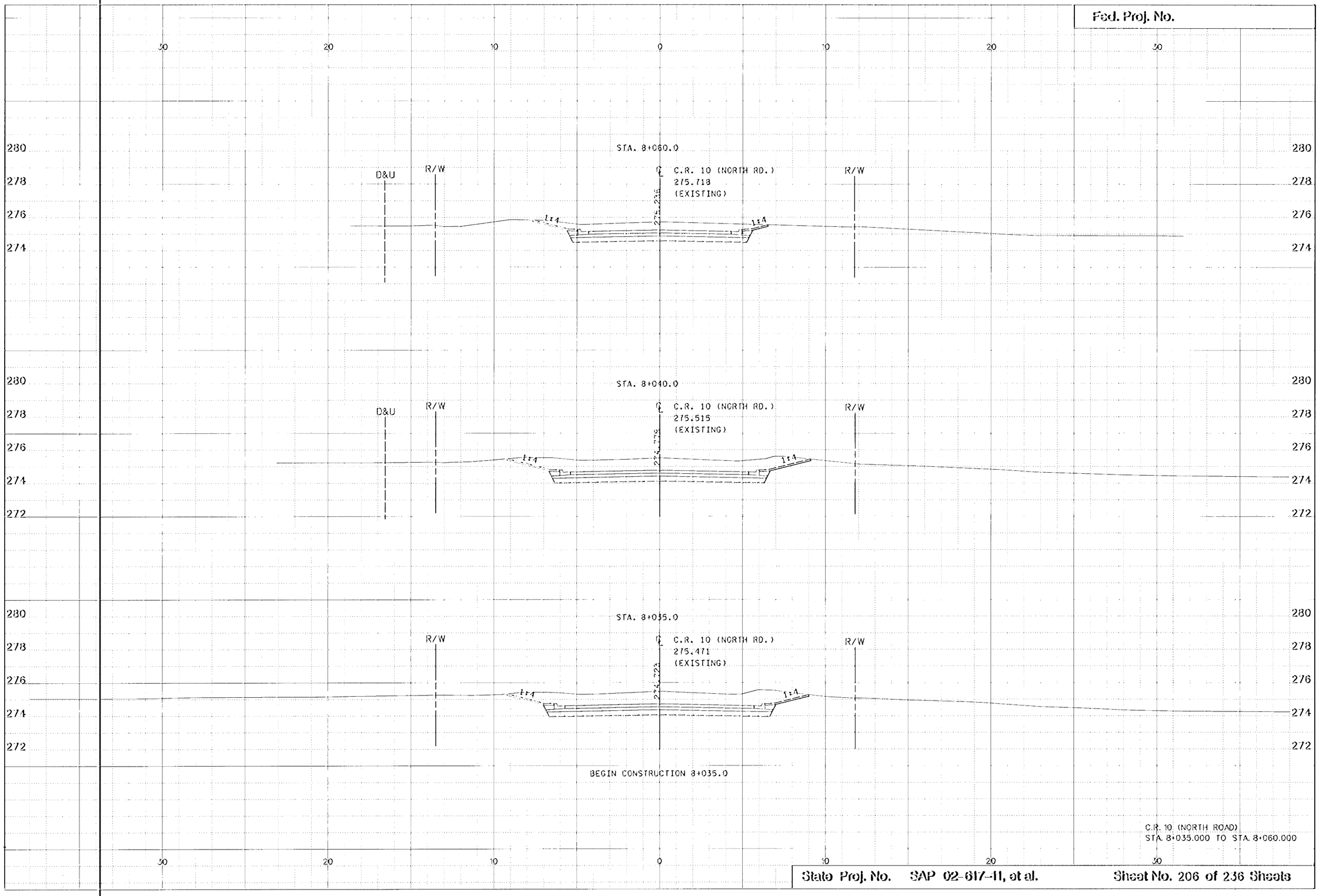
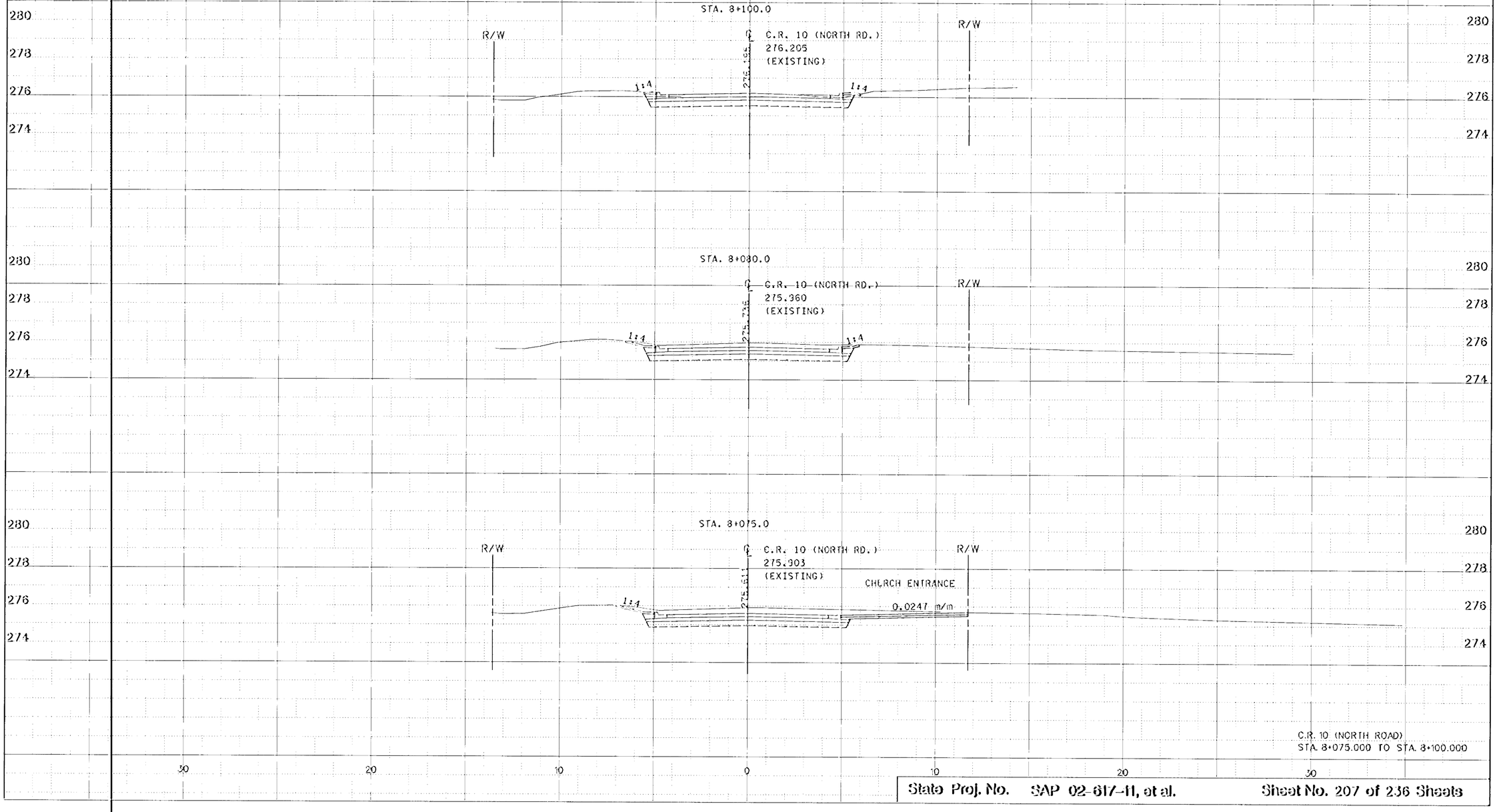
Fed. Proj. No.



C.R. 10 (NORTH ROAD)
STA. 8+035.000 TO STA. 8+060.000

Fed. Proj. No.



C.R. 10 (NORTH ROAD)
STA. 8+075.000 TO STA. 8+100.000

State Proj. No. SAP 02-617-11, et al.

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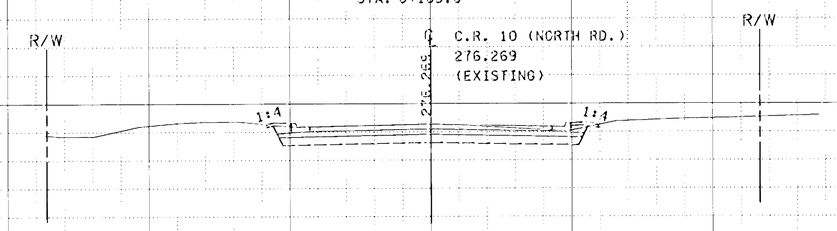
Fed. Proj. No.

30 20 10 0 10 20 30

284
282
280
278
276
274

END CONSTRUCTION 8+105.0

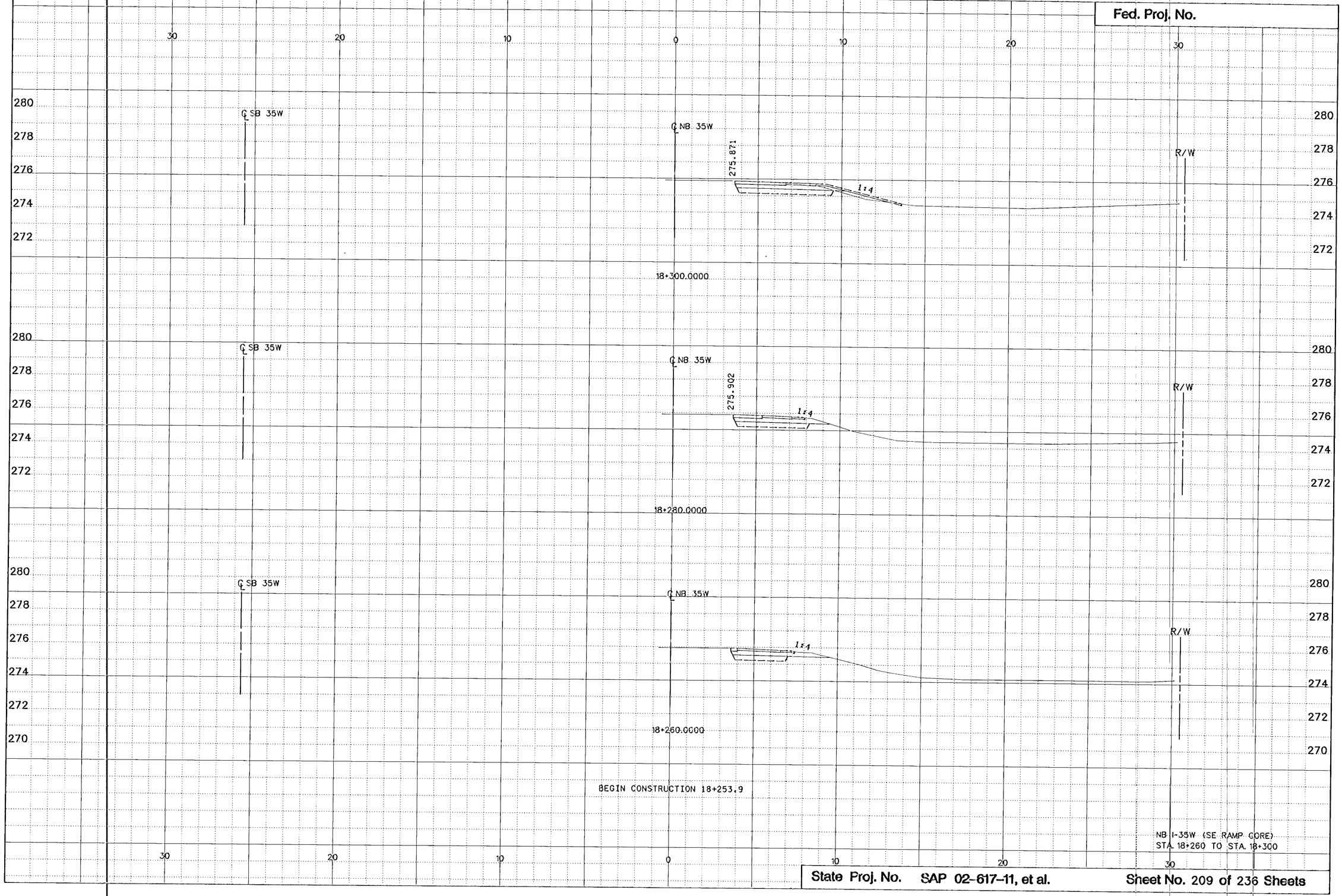
STA. 8+105.0



C.R. 10 (NORTH ROAD)
STA. 8+105.00

30 20 10 0 10 20 30

Fed. Proj. No.



NB I-35W (SE RAMP CORE)
STA. 18+260 TO STA. 18+300

State Proj. No. SAP 02-617-11, et al.

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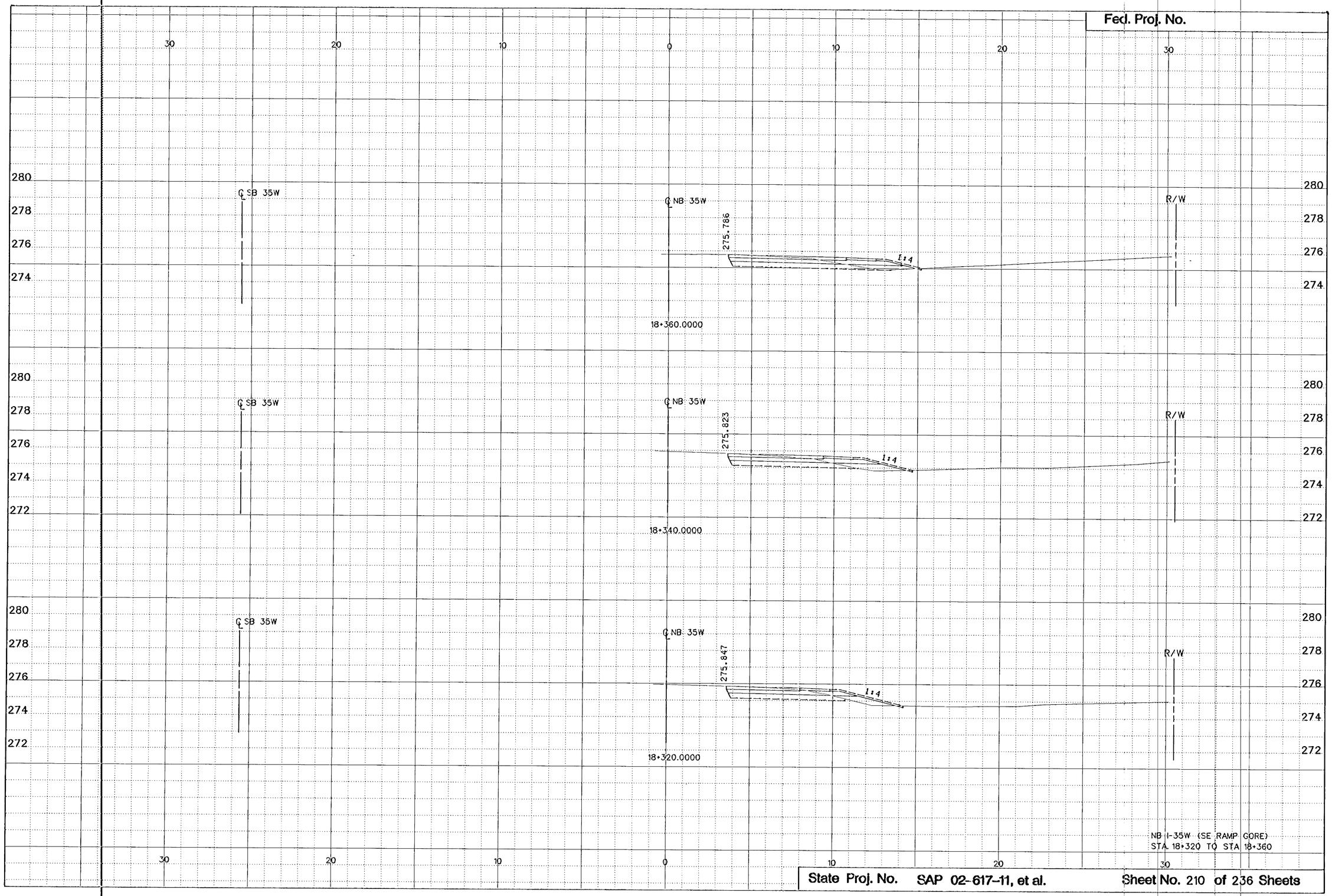
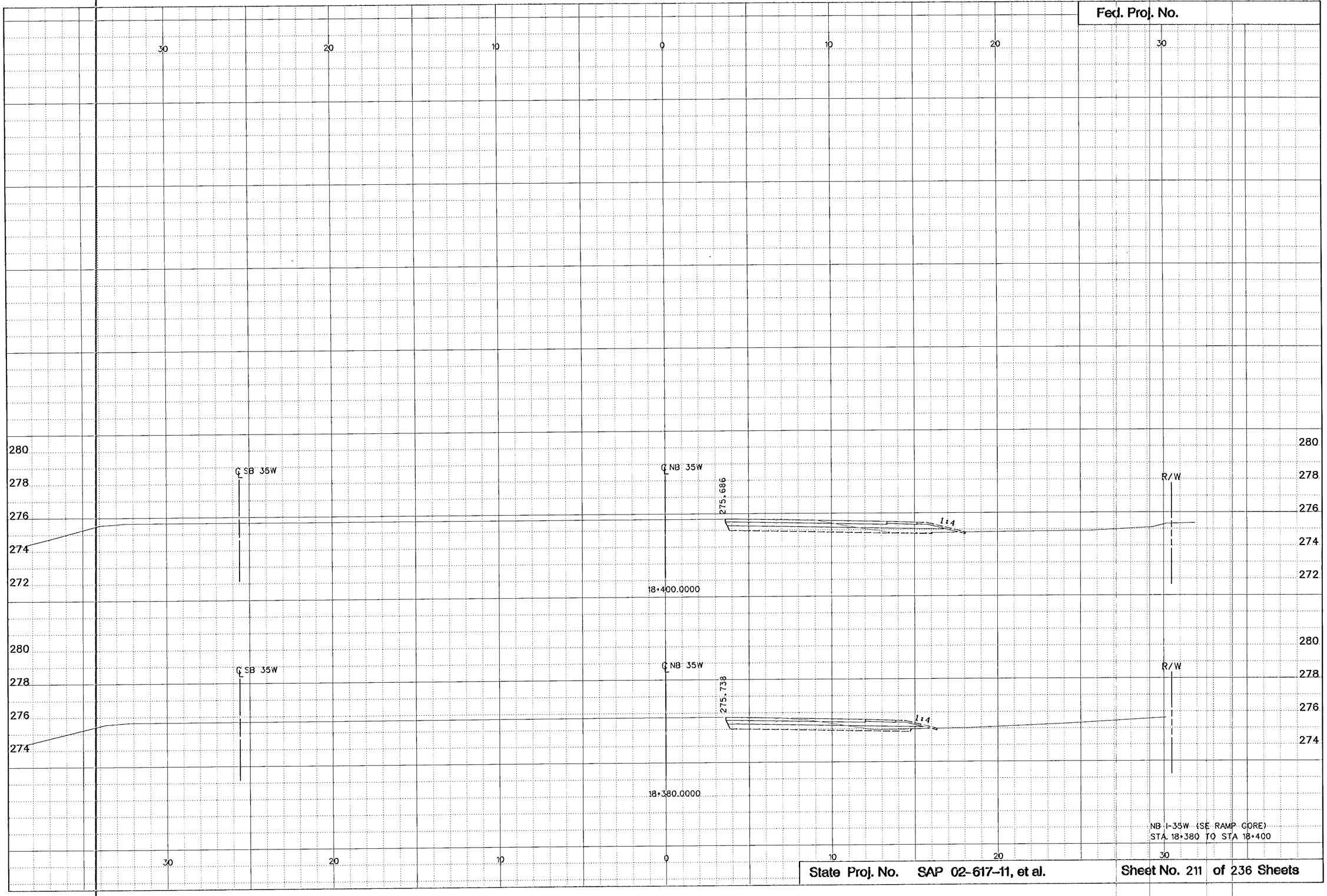
Fed. Proj. No.



NB I-35W (SE RAMP CORE)
STA. 18+320 TO STA. 18+360

State Proj. No. SAP 02-617-11, et al. Sheet No. 210 of 236 Sheets

Fed. Proj. No.



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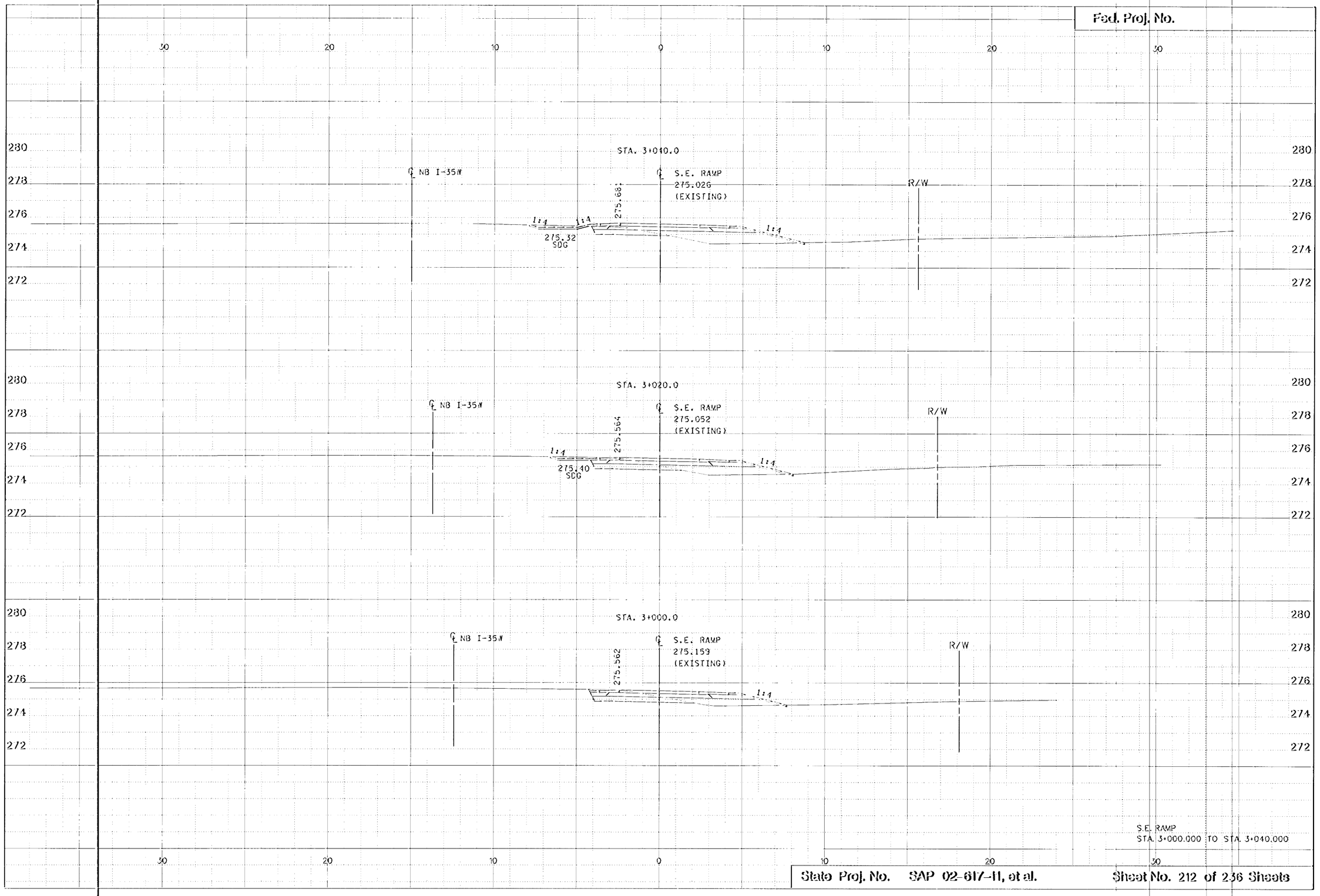
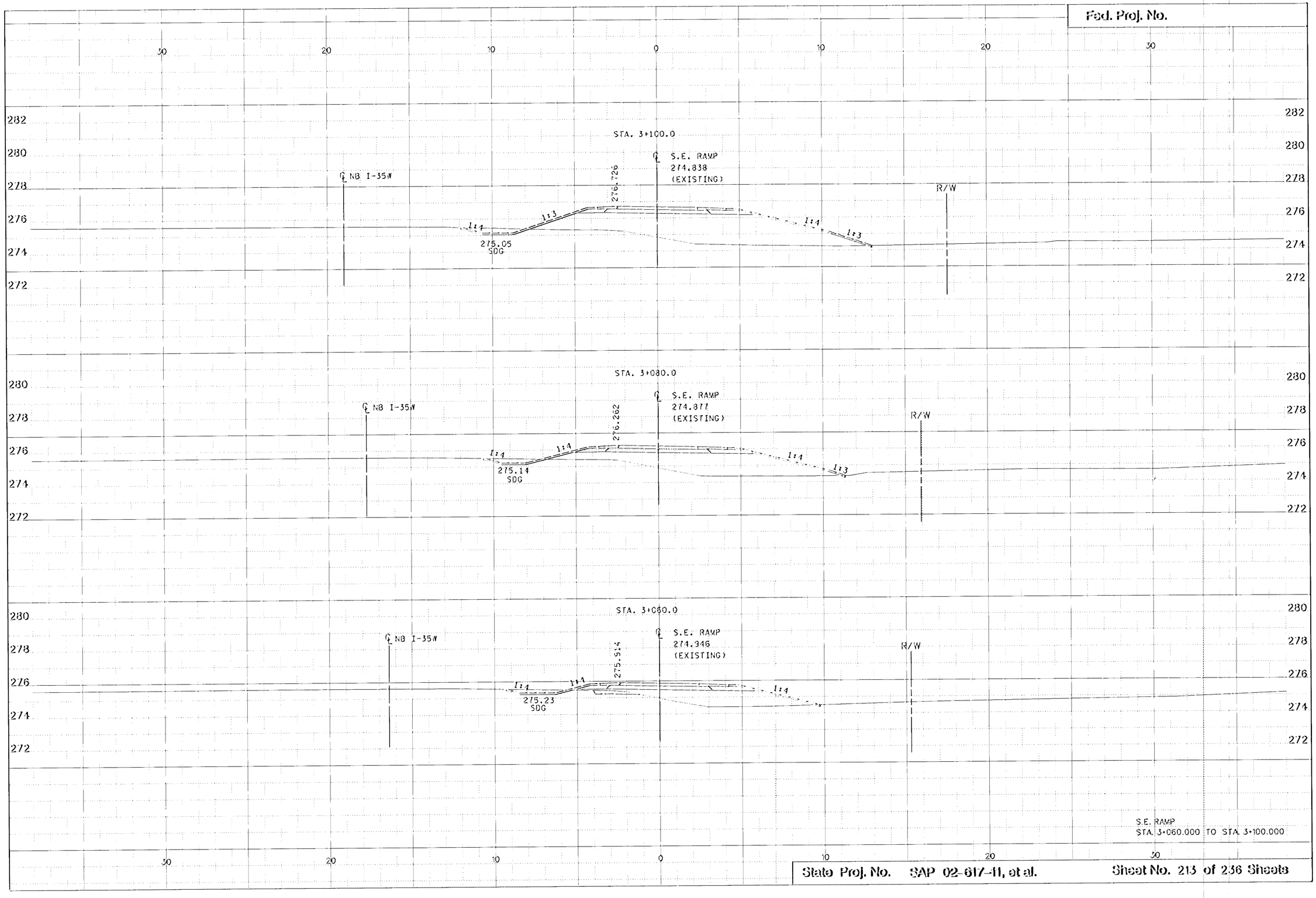
Fed. Proj. No.


30
20
10
0
10
20
30
280
278
276
274
272
STA. 3+040.0
℄ NB I-35W
℄ S.E. RAMP
275.026
(EXISTING)
275.68±
R/W
1:4
1:4
1:4
275.32
SDG
STA. 3+020.0
℄ NB I-35W
℄ S.E. RAMP
275.052
(EXISTING)
275.564
R/W
1:4
1:4
275.40
SDG
STA. 3+000.0
℄ NB I-35W
℄ S.E. RAMP
275.159
(EXISTING)
275.562
R/W
1:4
S.E. RAMP
STA. 3+000.000 TO STA. 3+040.000

Fed. Proj. No.


STA. 3+100.0
℄ NB I-35W
℄ S.E. RAMP
274.838
(EXISTING)
276.726
R/W
1:4
1:3
275.05
SDG
STA. 3+080.0
℄ NB I-35W
℄ S.E. RAMP
274.877
(EXISTING)
276.262
R/W
275.14
SDG
STA. 3+060.0
℄ NB I-35W
℄ S.E. RAMP
274.946
(EXISTING)
275.914
R/W
275.23
SDG
S.E. RAMP
STA. 3+060.000 TO STA. 3+100.000

Fed. Proj. No.

STA. 3+160.0

℄ S.E. RAMP
275.884
(EXISTING)

276.797

℄ NB I-35W

1:4 1:2 1:4 1:3

274.79
SDG

R/W

STA. 3+140.0

℄ S.E. RAMP
275.496
(EXISTING)

276.001

℄ NB I-35W

1:4 1:2 1:4 1:3

274.88
SDG

R/W

STA. 3+120.0

℄ S.E. RAMP
274.976
(EXISTING)

277.306

℄ NB I-35W

1:4 1:2.1 1:4 1:3

274.36
SDG

R/W

S.E. RAMP
STA. 3+120.000 TO STA. 3+160.000

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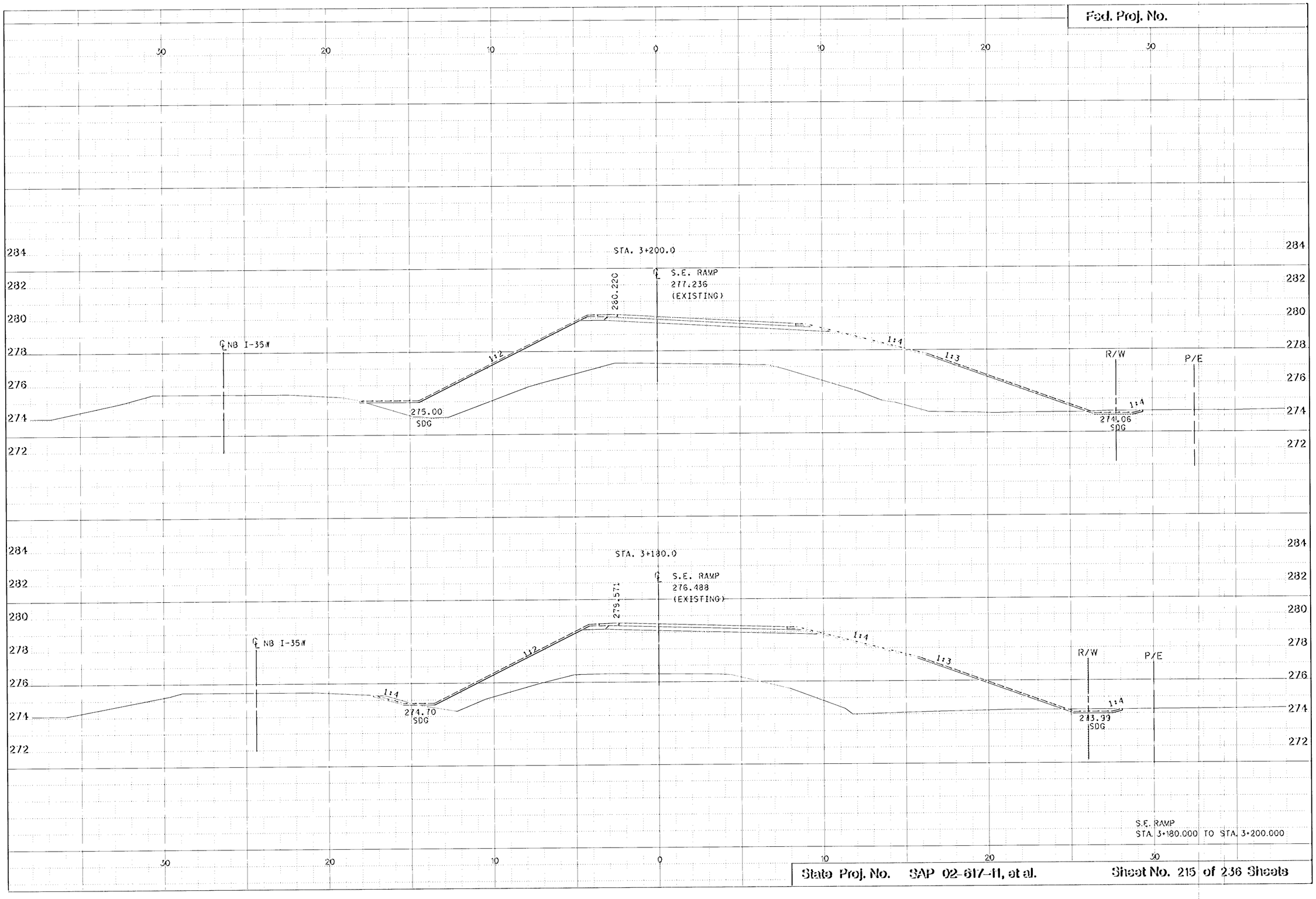
Fed. Proj. No.



S.E. RAMP
STA. 3+180.000 TO STA. 3+200.000

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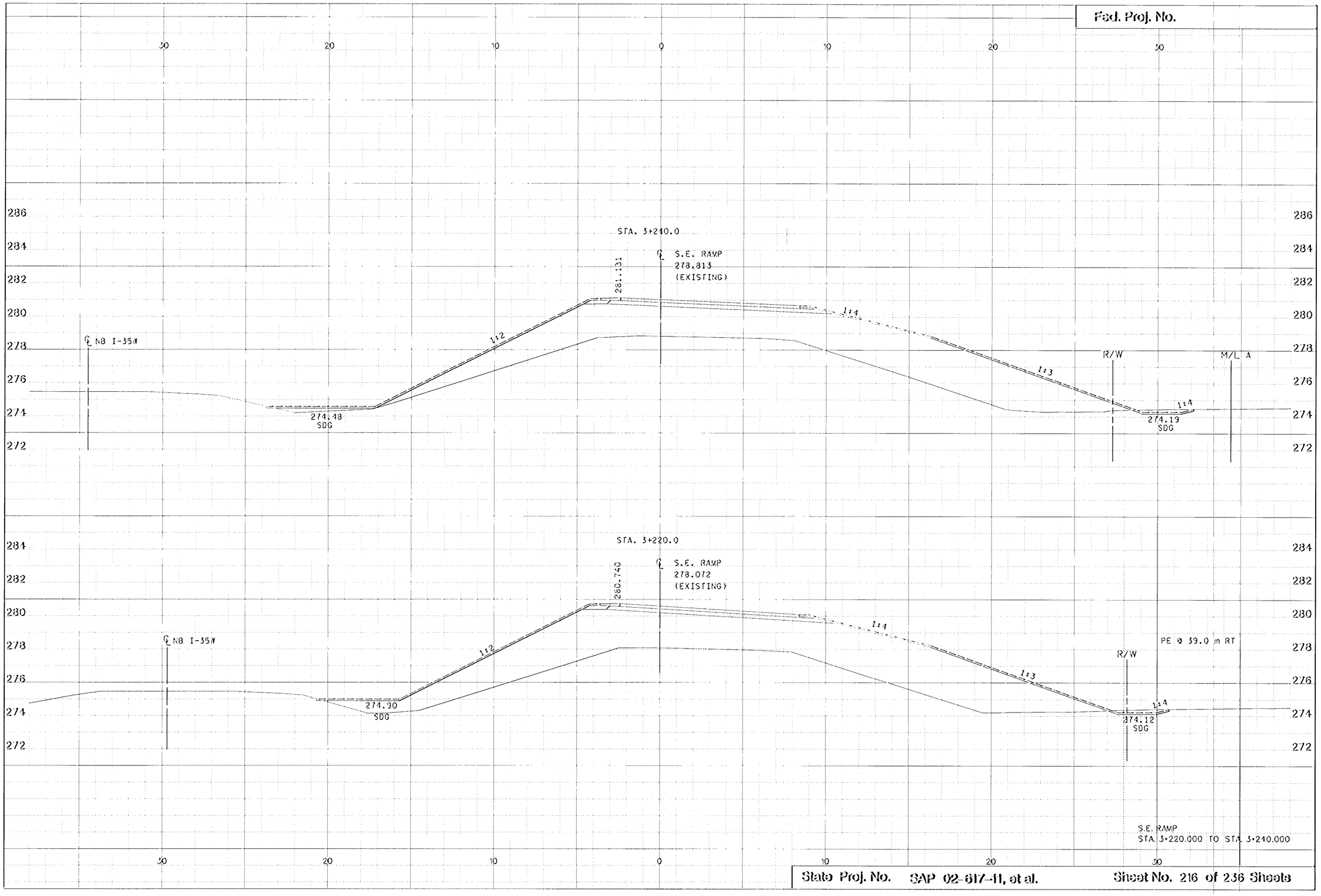
Fed. Proj. No.



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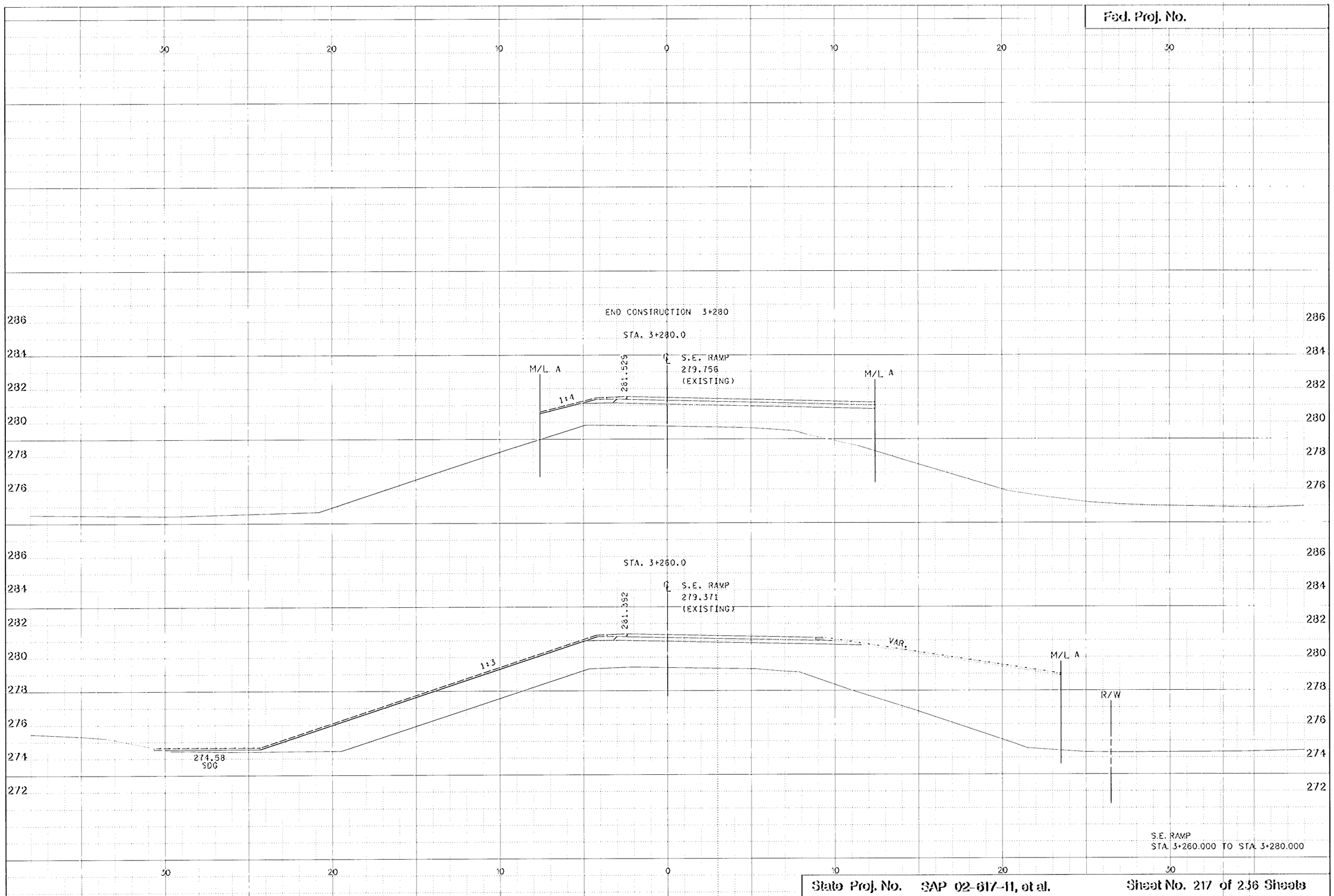
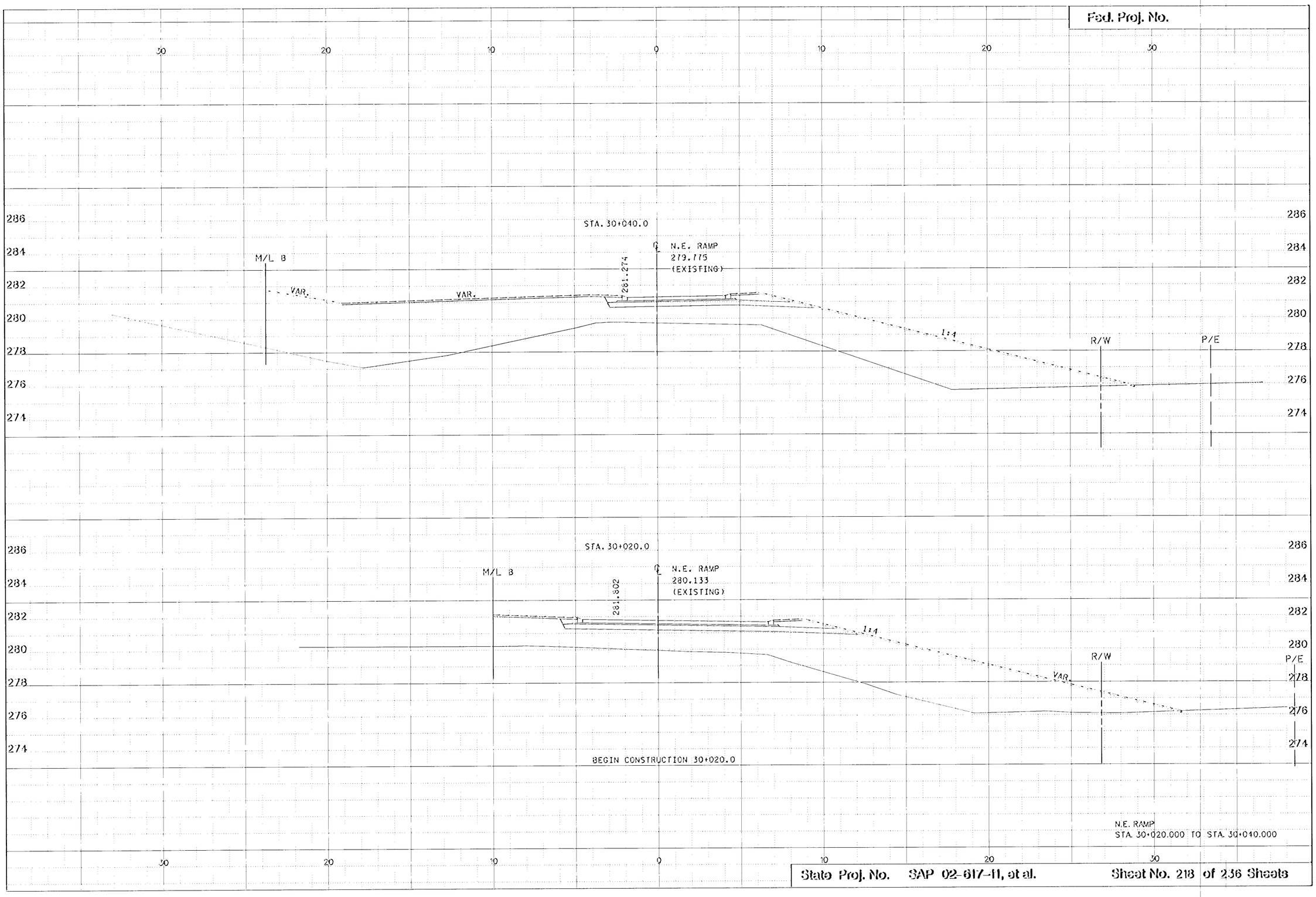
Fed. Proj. No.

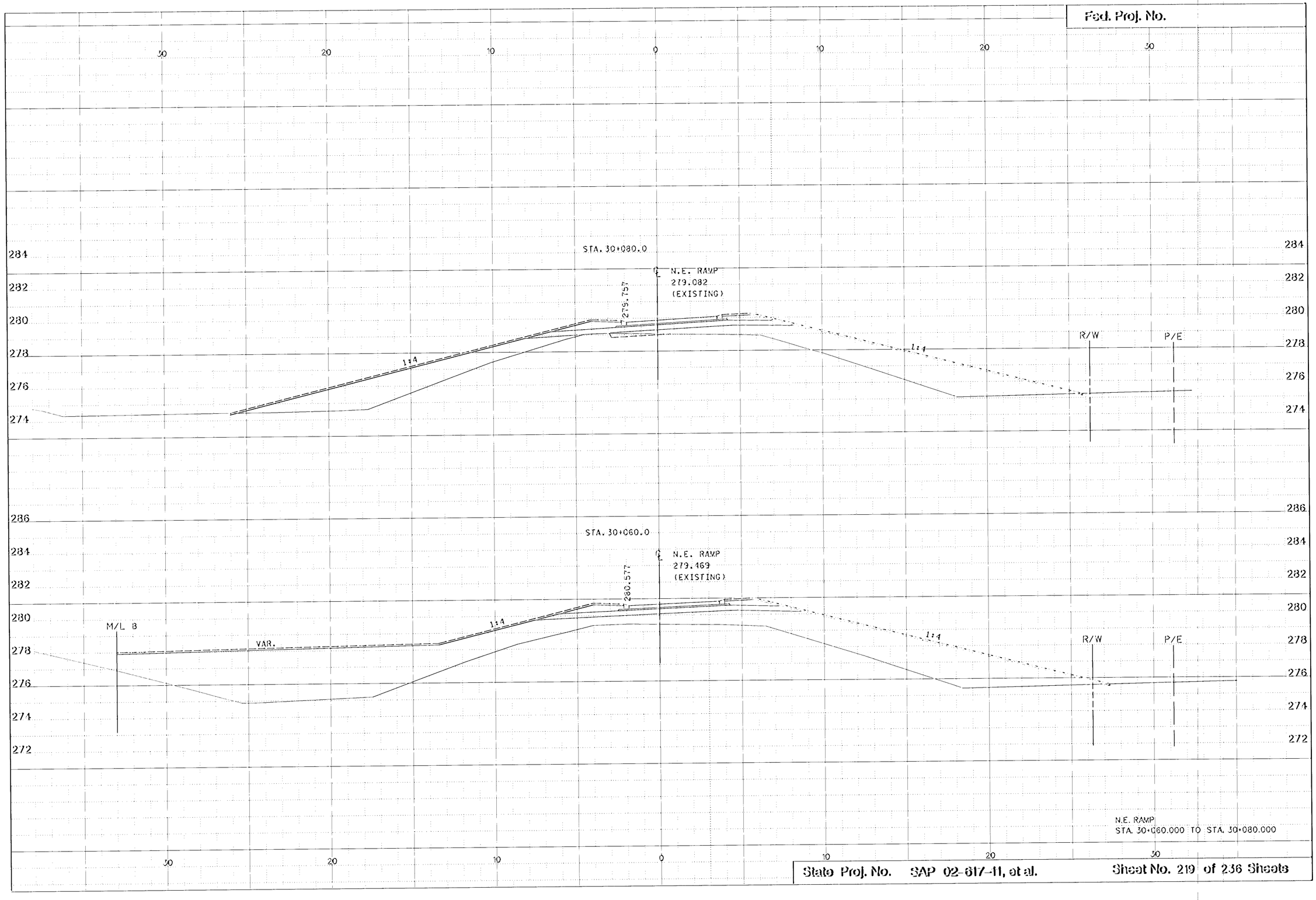

30
20
10
0
10
20
30
286
284
282
280
278
276
274
272
END CONSTRUCTION 3+280
STA. 3+280.0
℄ S.E. RAMP
279.756
(EXISTING)
281.529
M/L A
1:4
STA. 3+260.0
℄ S.E. RAMP
279.371
(EXISTING)
281.352
1:3
VAR.
M/L A
R/W
274.58
SDG
S.E. RAMP
STA. 3+260.000 TO STA. 3+280.000

Fed. Proj. No.



N.E. RAMP
STA. 30+020.000 TO STA. 30+040.000

Fed. Proj. No.



N.E. RAMP
STA. 30+060.000 TO STA. 30+080.000

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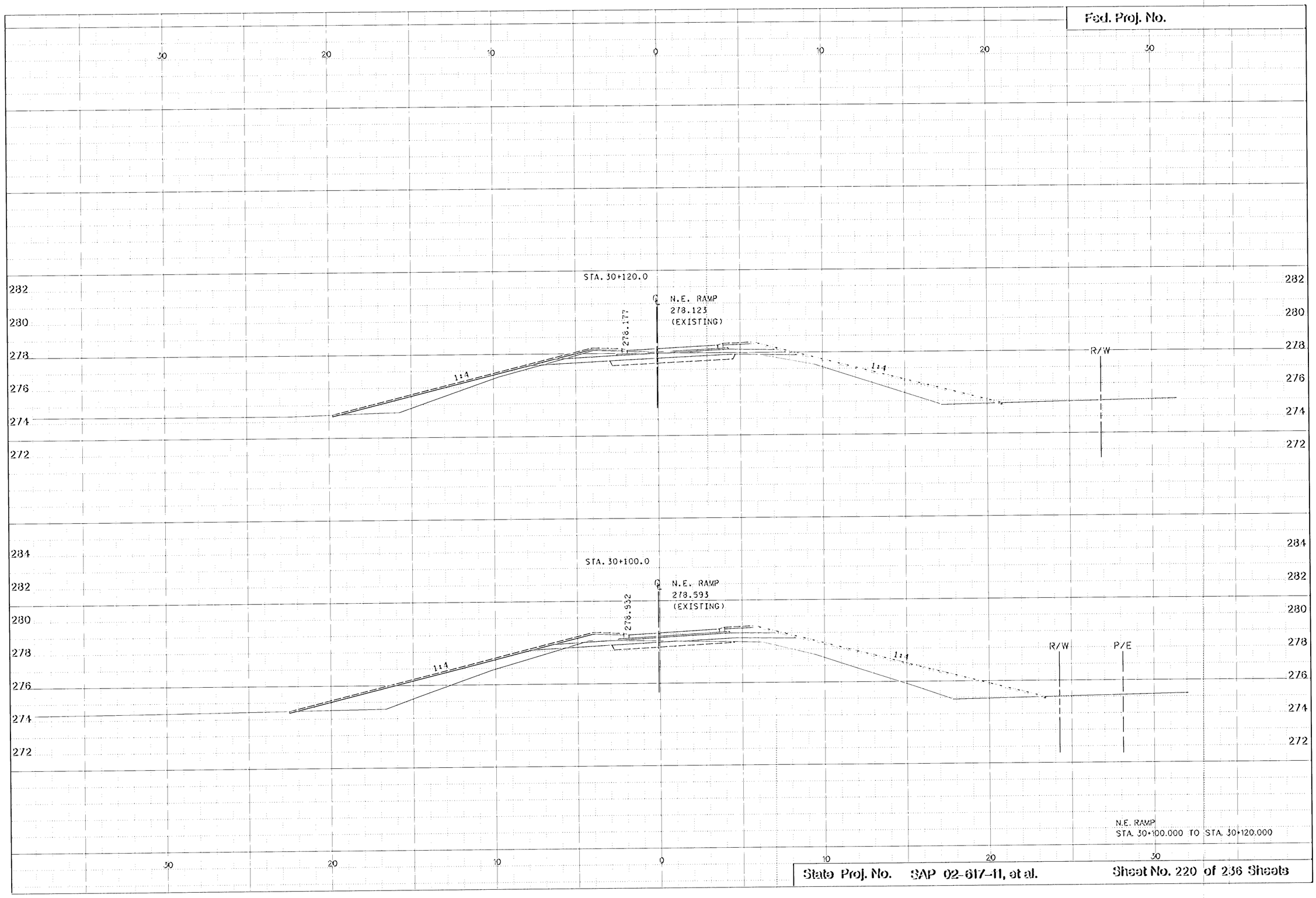
Fed. Proj. No.



N.E. RAMP
STA. 30+100.000 TO STA. 30+120.000

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END CONSTRUCTION 30+170

STA. 30+169.4

℄ N.E. RAMP
276.894
(EXISTING)

276.852

1:4

1:4

R/W

STA. 30+160.0

℄ N.E. RAMP
277.111
(EXISTING)

277.083

1:4

1:4

R/W

STA. 30+140.0

℄ N.E. RAMP
277.617
(EXISTING)

277.560

1:4

1:4

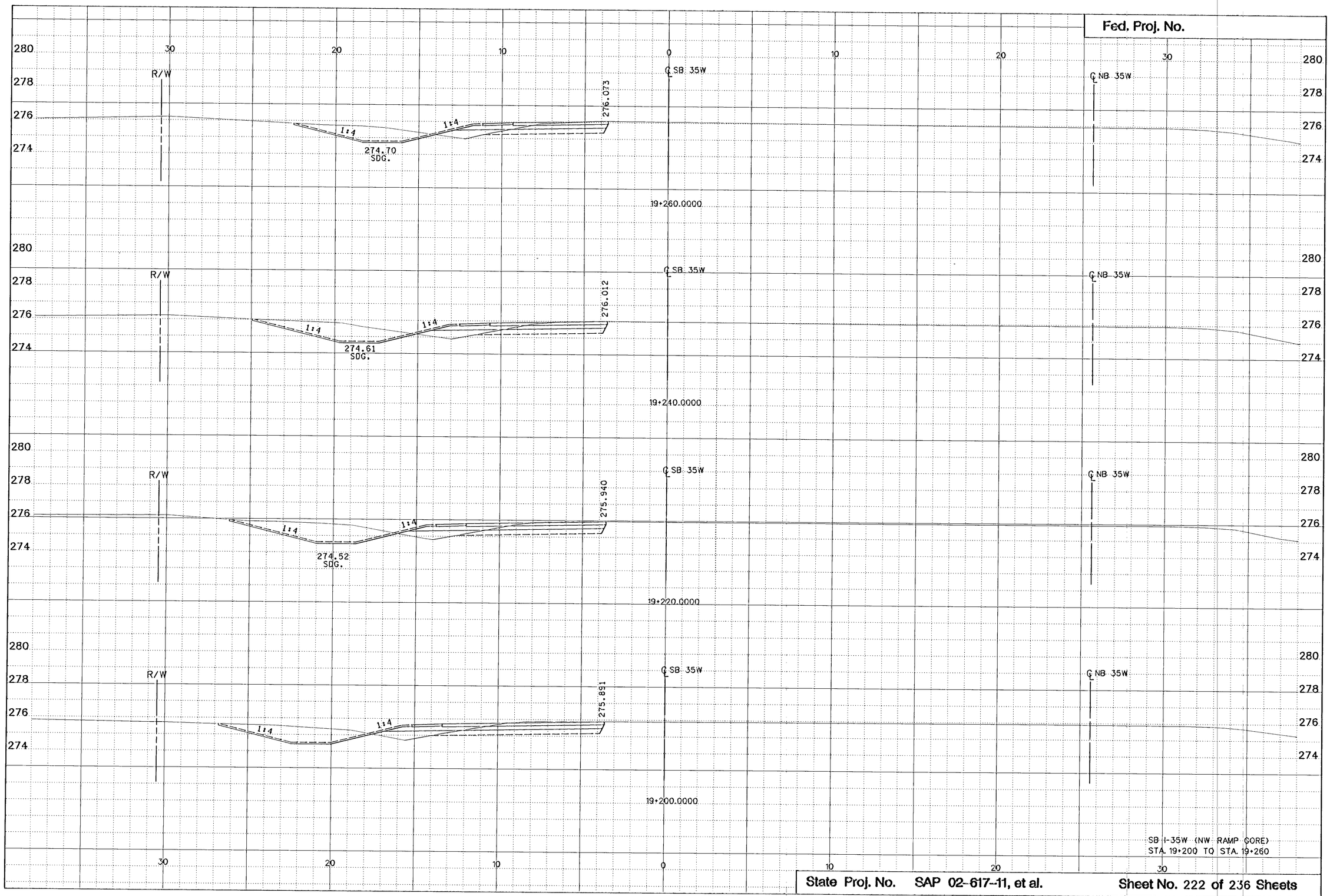
R/W

N.E. RAMP
STA. 30+140.00 TO STA. 30+170

30 20 10 0 10 20 30

284 282 280 278 276 274 272

Fed. Proj. No.



SB I-35W (NW RAMP CORE)
STA. 19+200 TO STA. 19+260

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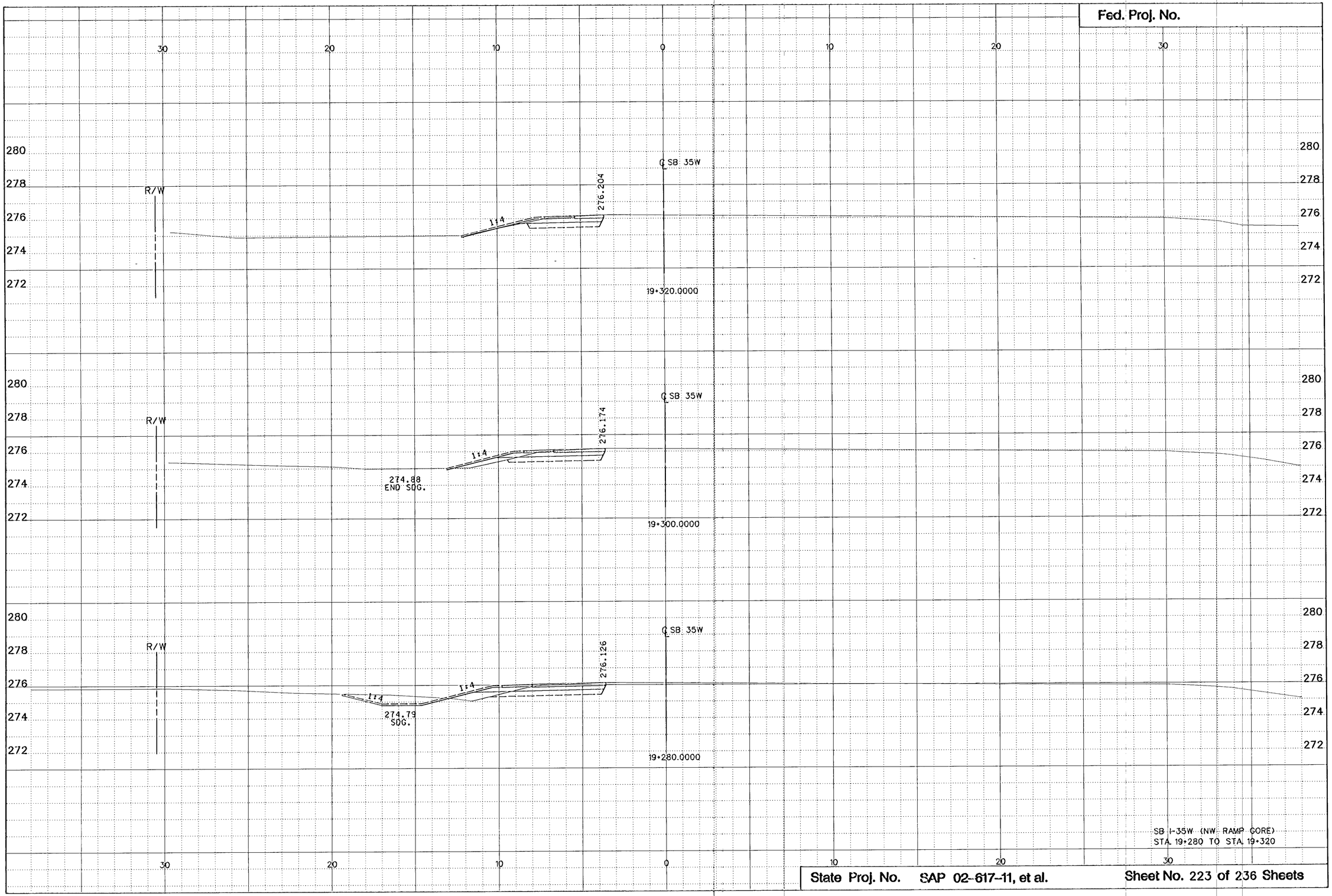
Fed. Proj. No.



SB I-35W (NW RAMP CORE)
STA. 19+280 TO STA. 19+320

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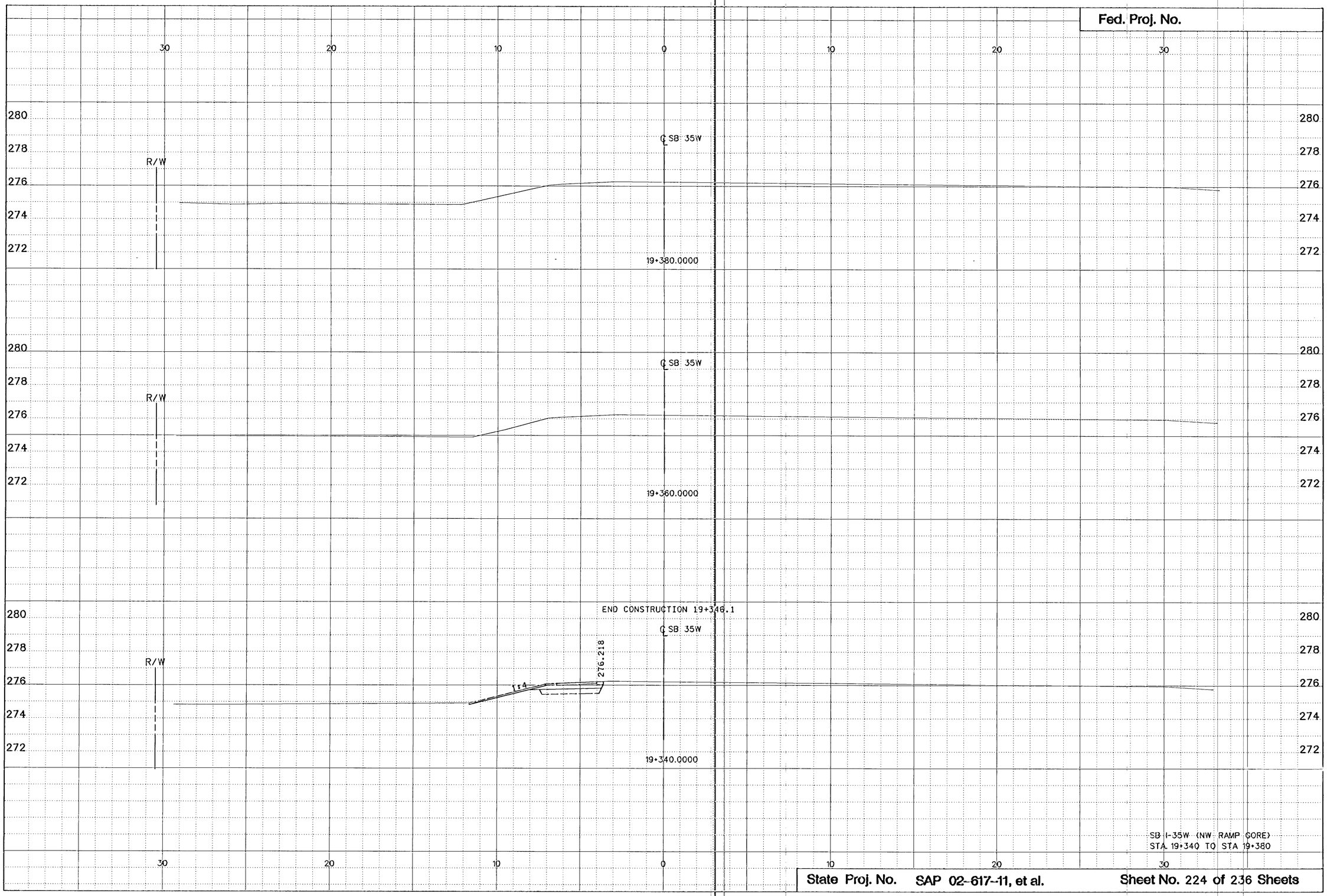
Fed. Proj. No.



SB I-35W (NW RAMP CORE)
STA 19+340 TO STA 19+380

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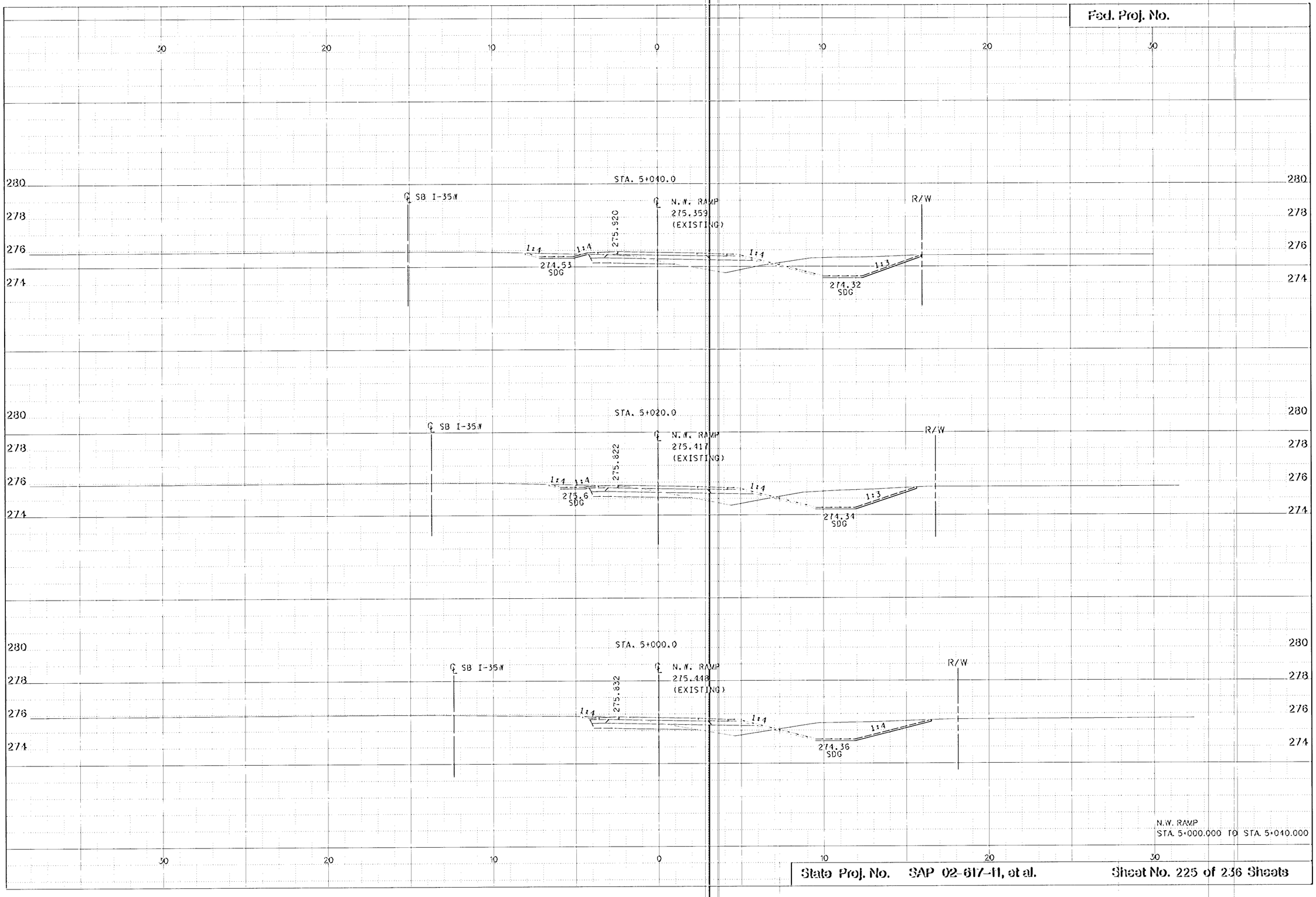
Fed. Proj. No.



N.W. RAMP
STA. 5+000.000 TO STA. 5+040.000

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Fed. Proj. No.

STA. 5+100.0

℄ SB I-35W

℄ N.W. RAMP
275.268
(EXISTING)

276.960

1:4 1:4 1:4 1:3 1:3

275.32
SDG

274.26
SDG

R/W F/E

STA. 5+080.0

℄ SB I-35W

℄ N.W. RAMP
275.284
(EXISTING)

276.489

1:4 1:4 1:4 1:3 1:3

275.39
SDG

274.28
SDG

R/W F/E

STA. 5+060.0

℄ SB I-35W

℄ N.W. RAMP
275.343
(EXISTING)

276.142

1:4 1:4 1:4 1:3 1:3

275.46
SDG

274.30
SDG

R/W F/E

N.W. RAMP
STA. 5+060.000 TO STA. 5+100.000

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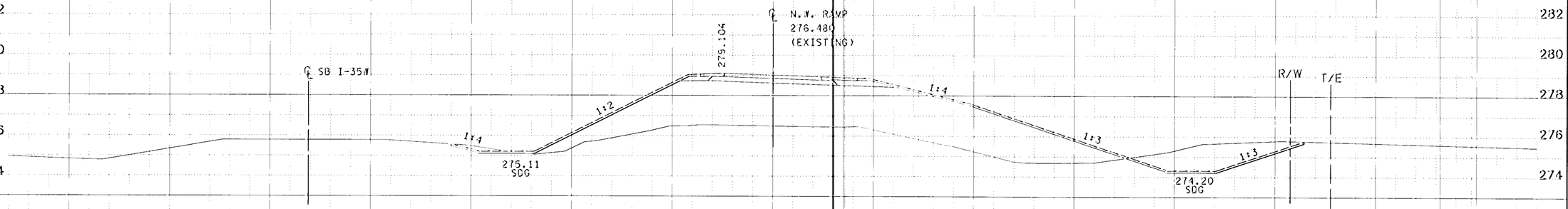
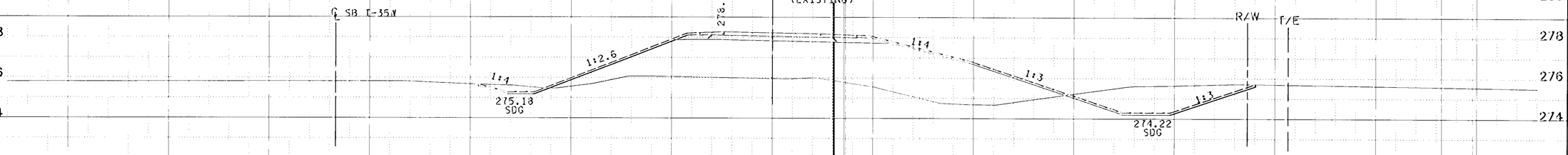
Fed. Proj. No.

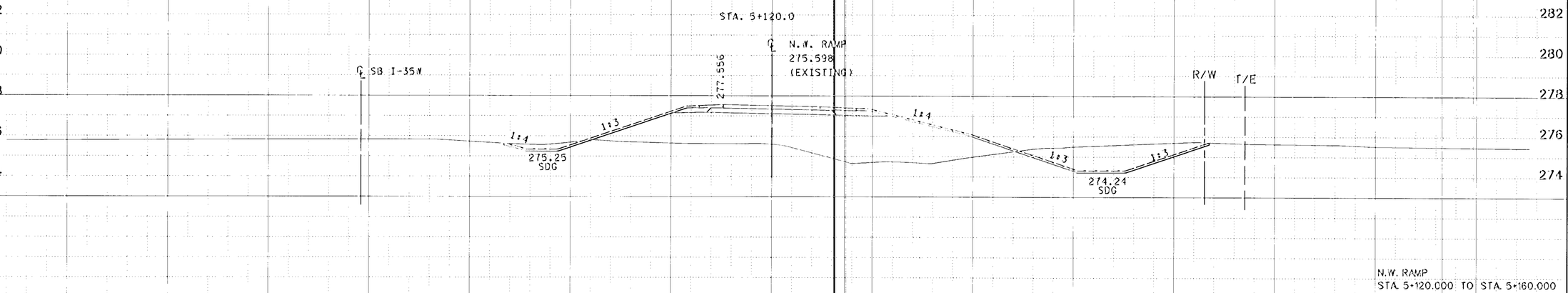
STA. 5+160.0



STA. 5+140.0



STA. 5+120.0



N.W. RAMP
STA. 5+120.000 TO STA. 5+160.000

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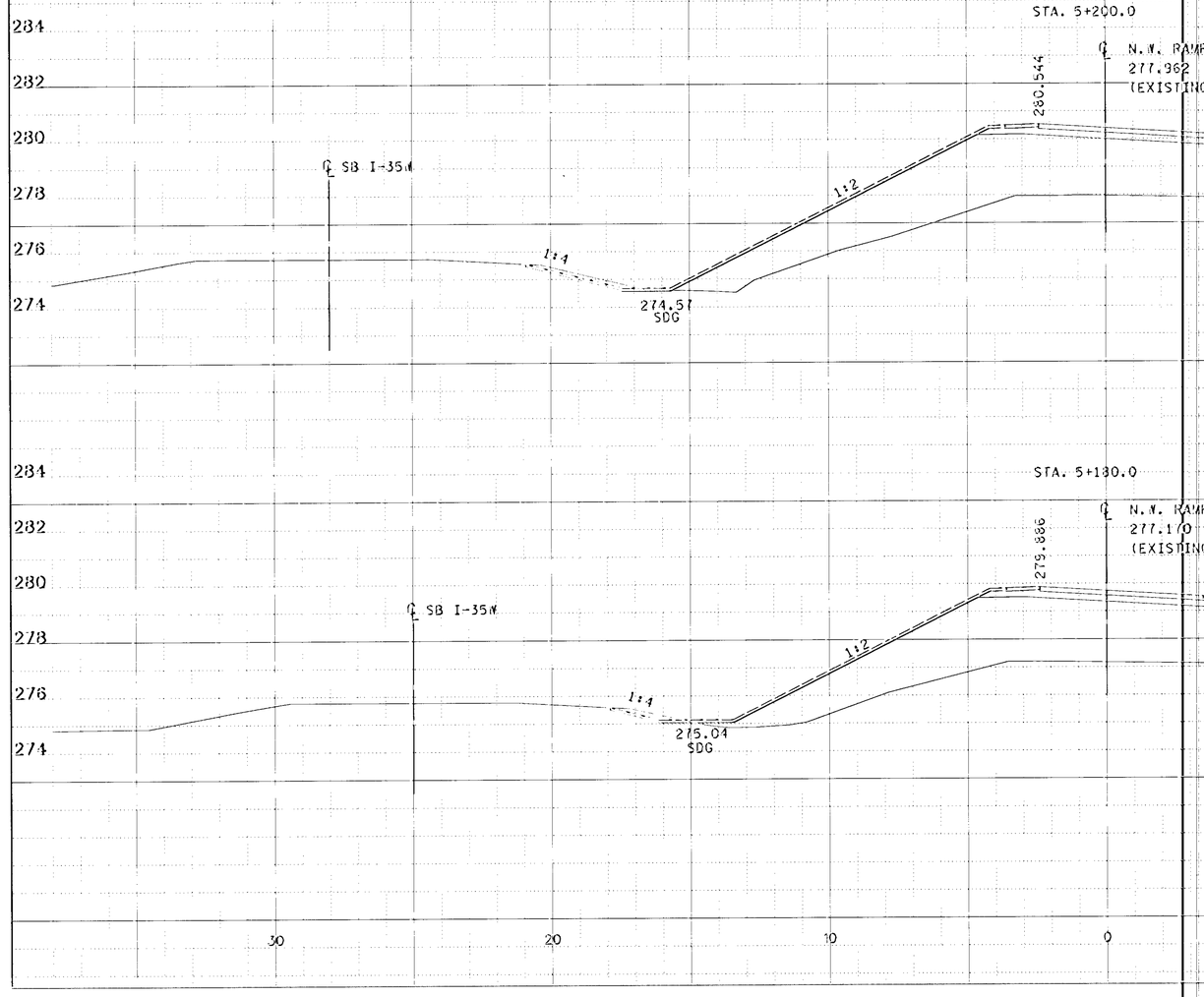

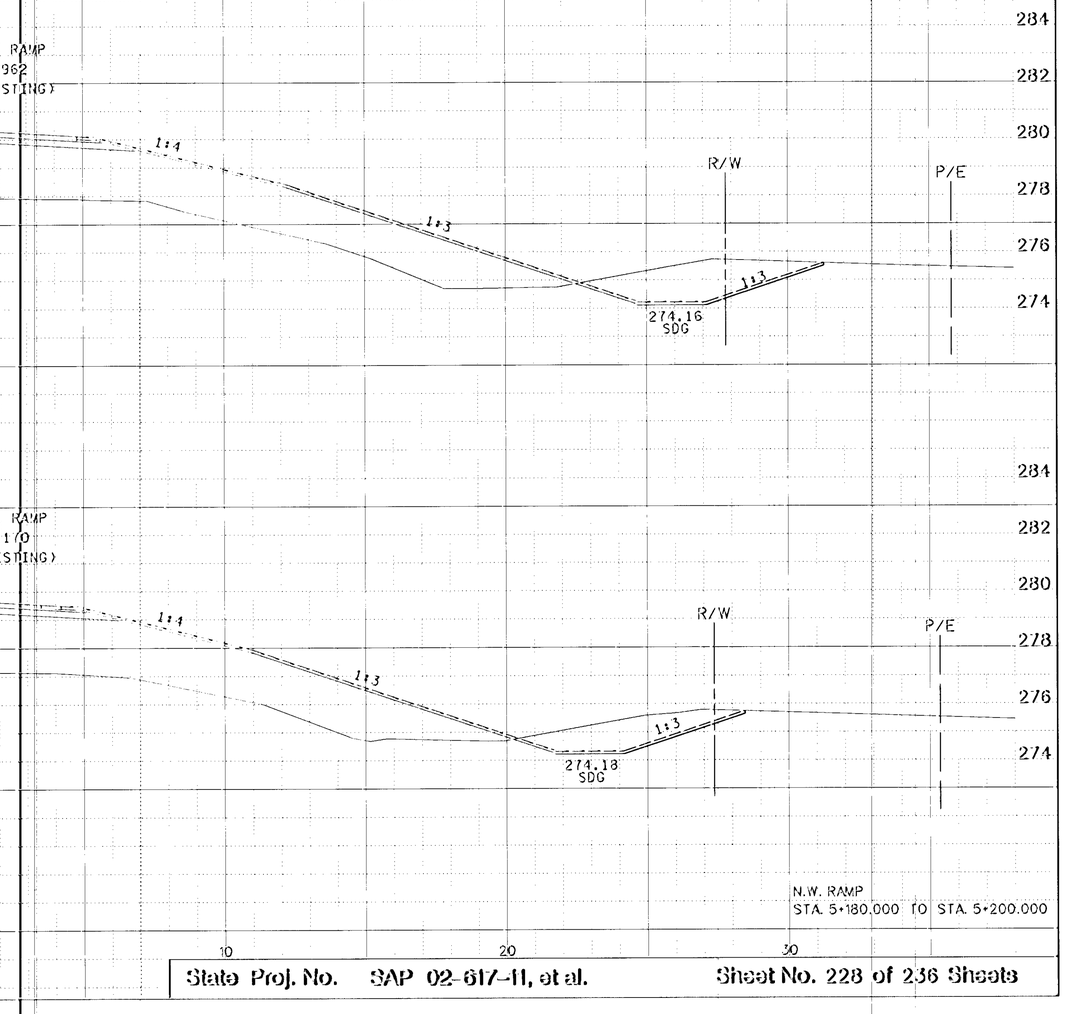

N.W. RAMP
STA. 5+180.000 TO STA. 5+200.000

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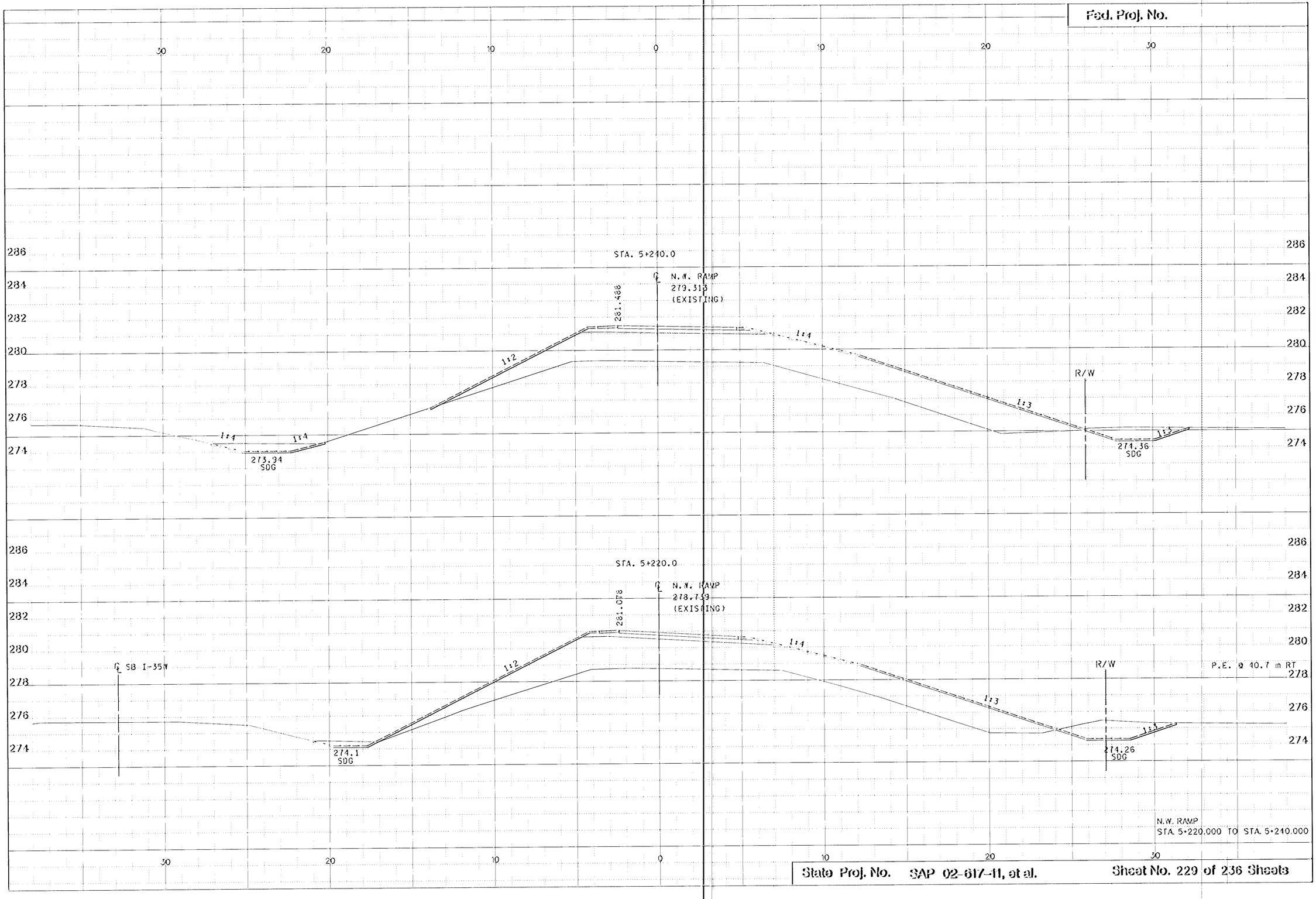
Fed. Proj. No.



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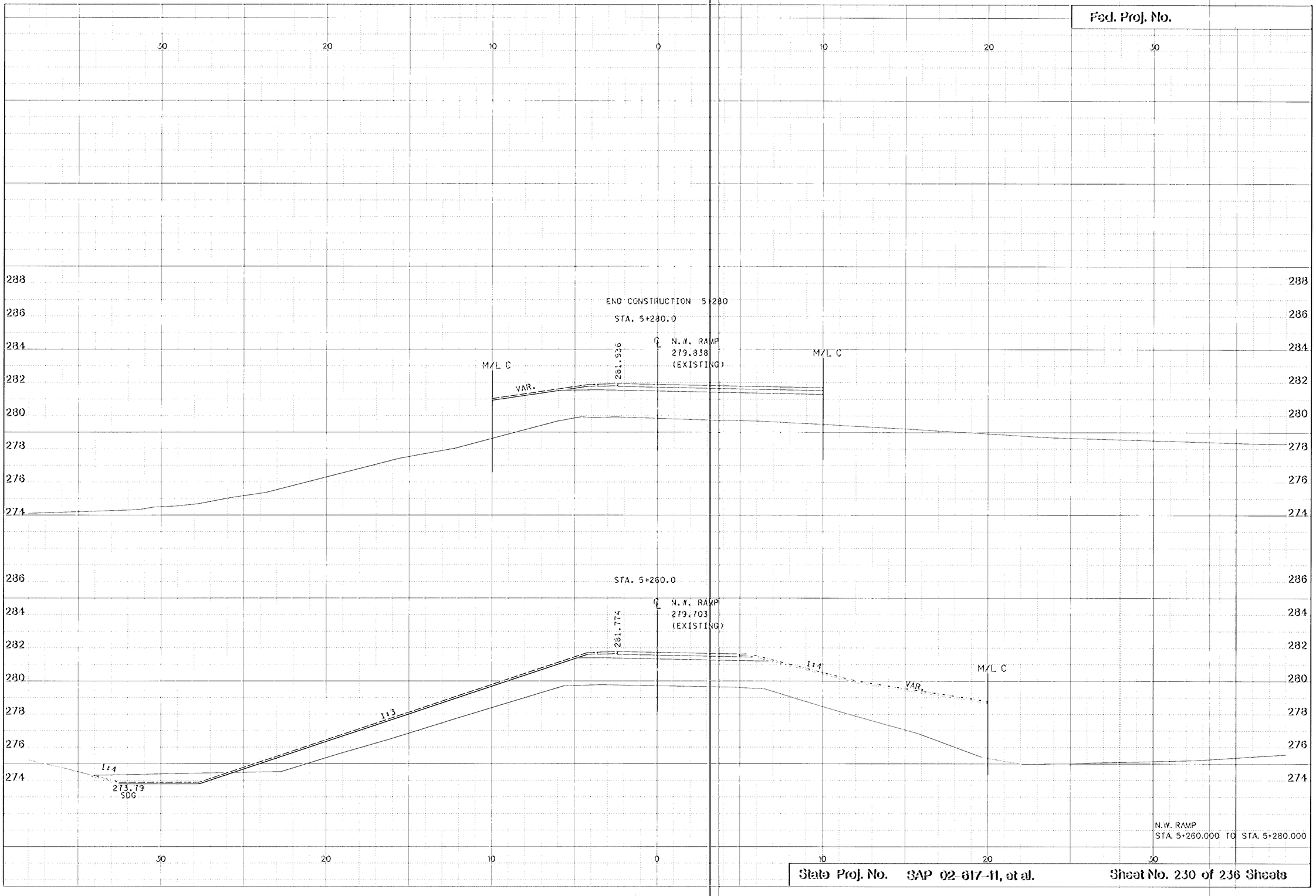
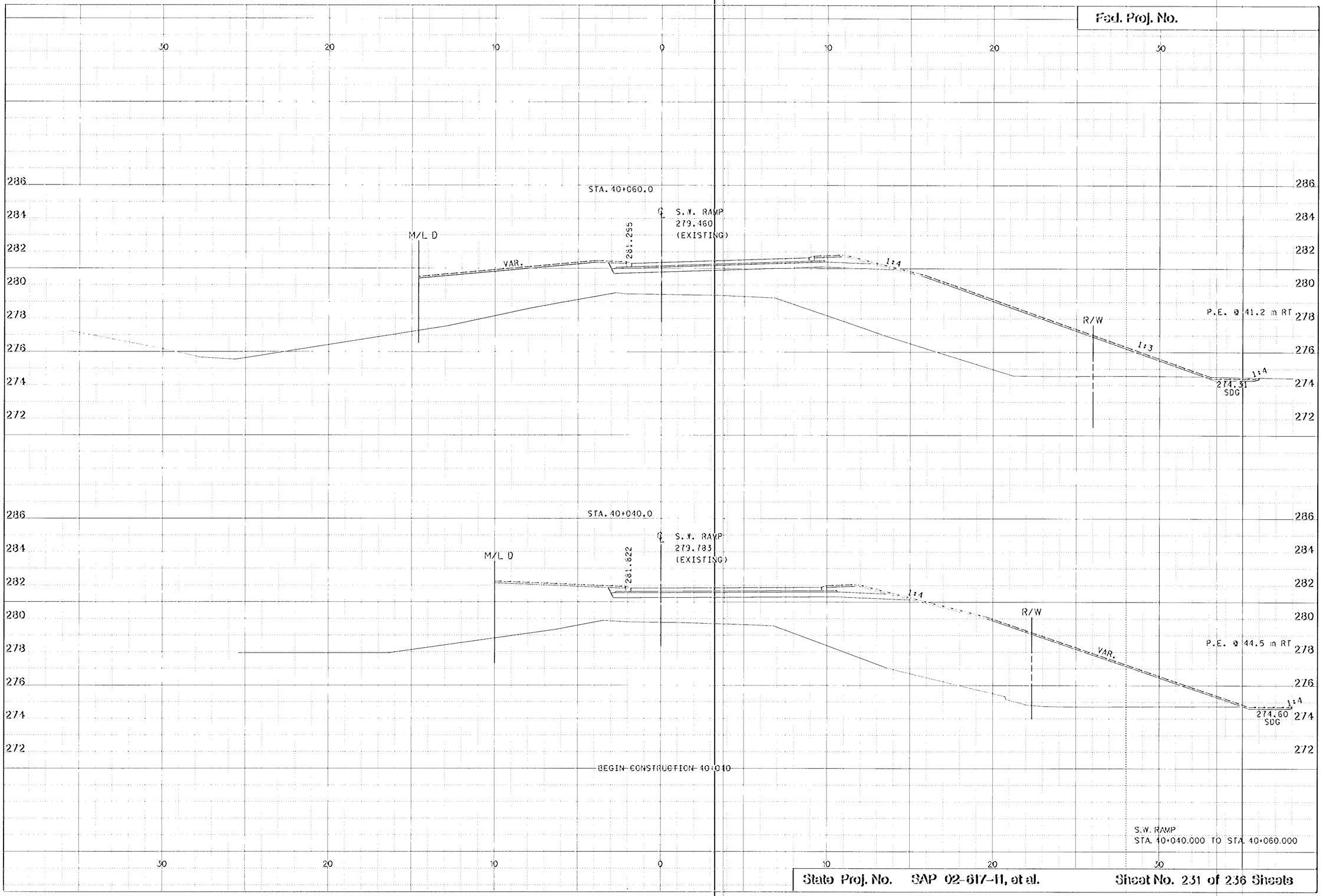
Fed. Proj. No.

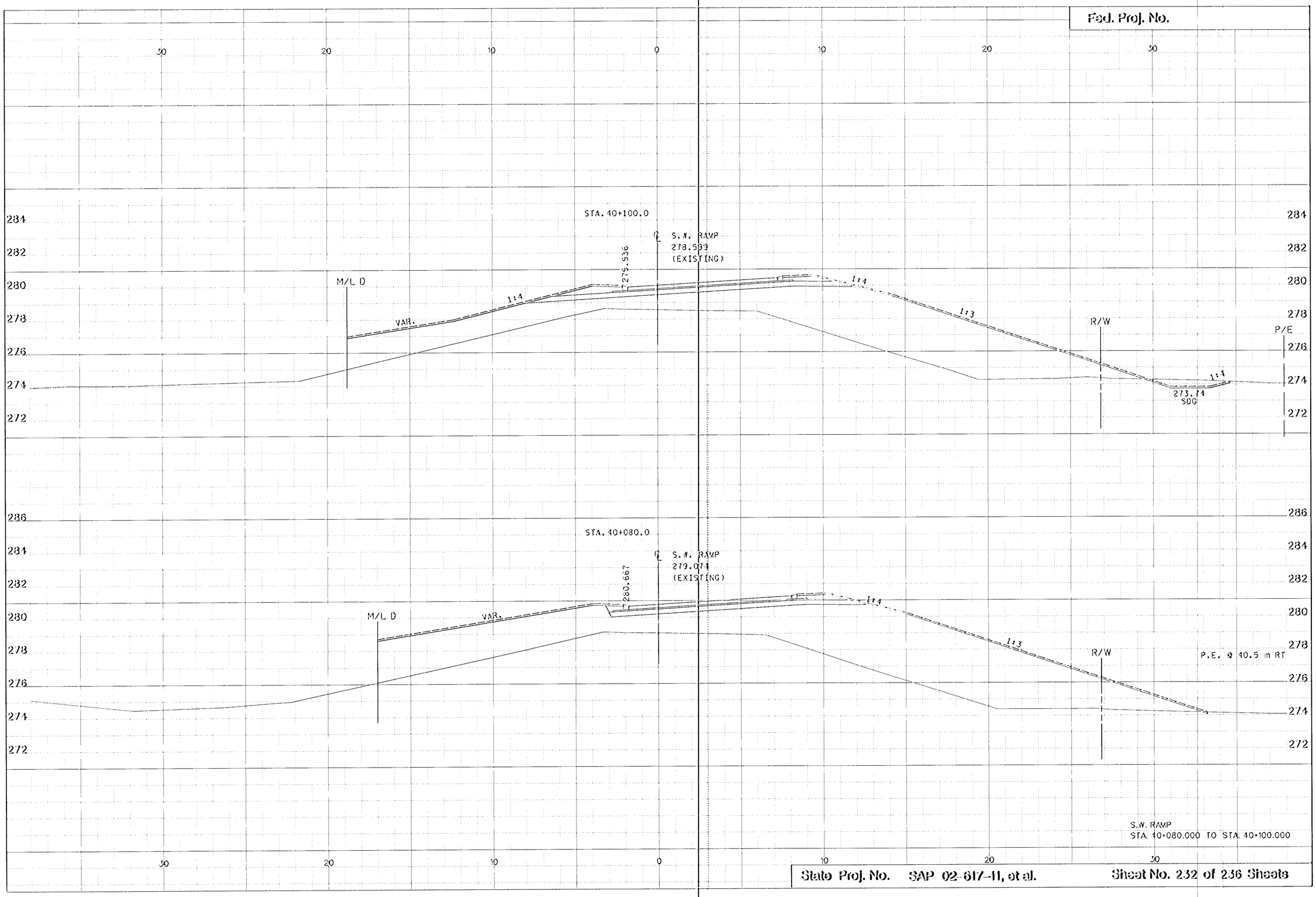

30
20
10
0
10
20
30
288
286
284
282
280
278
276
274
END CONSTRUCTION 5+280
STA. 5+280.0
℄ N.W. RAMP
279.838
(EXISTING)
281.936
M/L C
VAR.
STA. 5+260.0
℄ N.W. RAMP
279.703
(EXISTING)
281.774
1:3
1:4
273.79
SDG
N.W. RAMP
STA. 5+260.000 TO STA. 5+280.000

Fed. Proj. No.



S.W. RAMP
STA. 40+040.000 TO STA. 40+060.000

Fed. Proj. No.



S.W. RAMP
STA. 40+080.000 TO STA. 40+100.000

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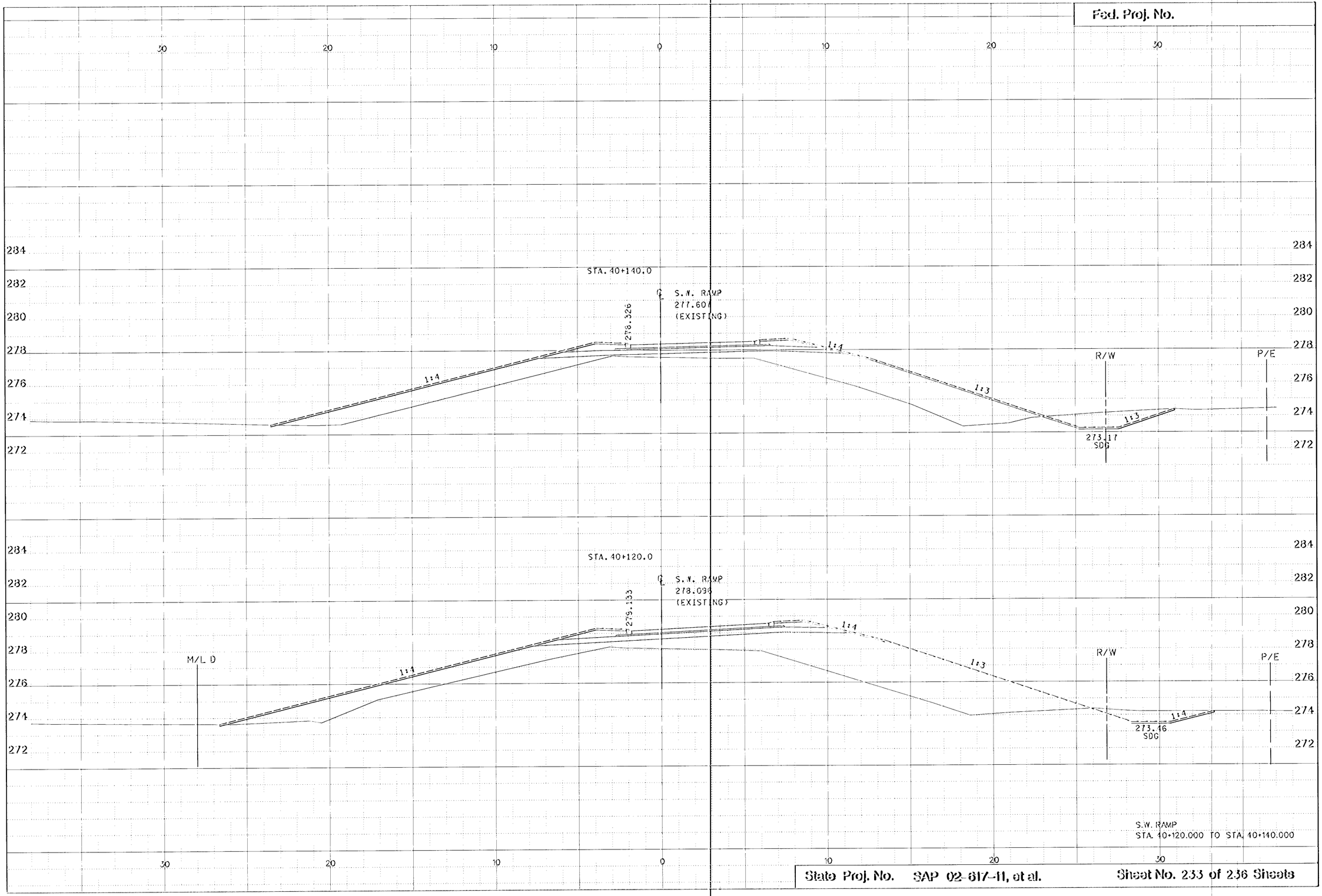
Fed. Proj. No.



S.W. RAMP
STA. 40+120.000 TO STA. 40+140.000

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