

PLAN SYMBOLS

COUNTY LINE	-----
TOWNSHIP OR RANGE LINE	-----
SECTION LINE	-----
QUARTER LINE	-----
SIXTEENTH LINE	-----
RIGHT OF WAY LINE	-----
SLOPE EASEMENT	-----
PRESENT RIGHT OF WAY	-----
PROPERTY LINE	-----
CORPORATE OR CITY LIMITS	-----
RETAINING WALL	-----
RAILROAD	-----
RAILROAD RIGHT OF WAY	-----
RIVER OR CREEK	-----
DRAINAGE DITCH	-----
CULVERT	-----
DROP INLET	-----
GAIRD RAIL	-----
BARBED WIRE FENCE	-----
WOVEN WIRE FENCE	-----
CHAIN LINK FENCE	-----
WOOD FENCE	-----
STONE WALL OR FENCE	-----
HEDGE	-----
LOWLAND	-----
TIMBER	-----
ORCHARD	-----
BRUSH	-----
NURSERY	-----
CATTLE GUARD	-----
OVERPASS (Highway Over)	-----
UNDERPASS (Highway Under)	-----
BRIDGE	-----
BUILDING (One Story Frame)	-----
F-FRAME C-CONCRETE	-----
S-STONE T-TILE	-----
B-BRICK ST-STUCCO	-----
RAILROAD CROSSING BELL	-----
RAILROAD CROSSING GATE	-----
MANHOLE	-----
CATCH BASIN	-----
FIRE HYDRANT	-----
CAST IRON MONUMENT	-----
IRON PIN	-----
GRAVEL PIT	-----
SAND PIT	-----
BORROW PIT	-----
ROCK QUARRY	-----

UTILITY SYMBOLS

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

SCALES

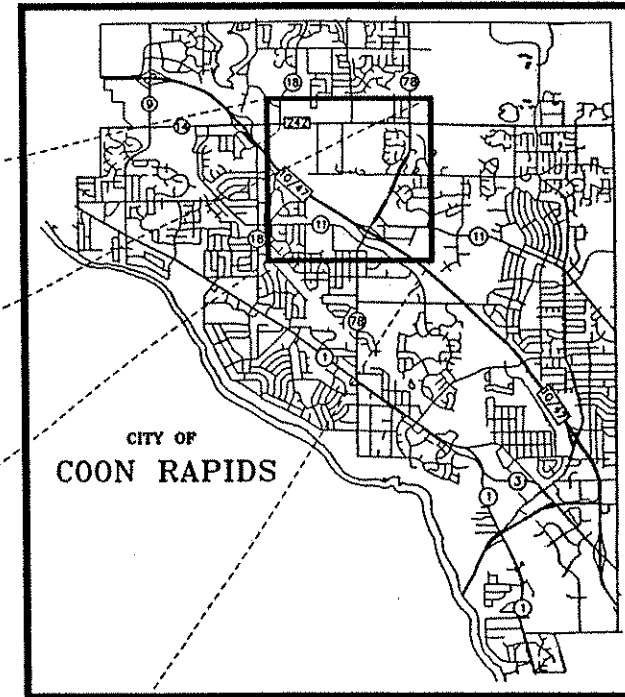
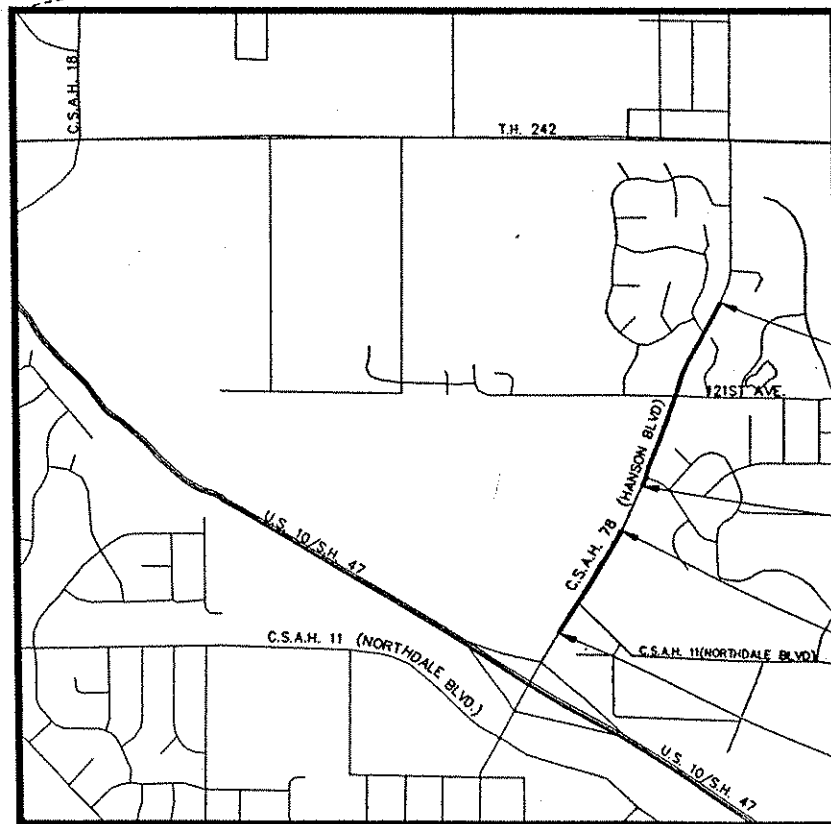
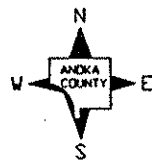
PLAN	0 50 100
PROFILE HORIZONTAL	0 50 100
PROFILE VERTICAL	0 10 20
X-SECTIONS HORIZONTAL	0 20 40
X-SECTIONS VERTICAL	0 10 20
INDEX MAP	0 1000 2000

# MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

## CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS SURFACING, CONCRETE CURB & GUTTER, AND SIGNAL SYSTEM

S.A.P. 02-678-08: LOCATED ON C.S.A.H. 78 FROM A POINT 367' SO. OF CSAH 11 TO A POINT 869' NO. OF CSAH 11 (IN THE CITY OF COON RAPIDS)  
S.A.P. 02-678-09: LOCATED ON C.S.A.H. 78 FROM A POINT 642' SO. OF 121ST AVE. TO A POINT 1082' NO. OF 121ST AVE. (IN THE CITY OF COON RAPIDS)

STATE AID PROJ. NO. 02-678-08 (M.S.A.P. 114-020-07)	STATE AID PROJ. NO. 02-678-09 (M.S.A.P. 114-020-08)
GROSS LENGTH 1236.00 FEET 0.234 MILES	GROSS LENGTH 2439.77 FEET 0.462 MILES
BRIDGES-LENGTH 0.00 FEET 0.000 MILES	BRIDGES-LENGTH 0.00 FEET 0.000 MILES
EXCEPTIONS-LENGTH 0.00 FEET 0.000 MILES	EXCEPTIONS-LENGTH 0.00 FEET 0.000 MILES
NET LENGTH 1236.00 FEET 0.234 MILES	NET LENGTH 2439.77 FEET 0.462 MILES



END S.A.P. 02-678-09, M.S.A.P. 114-020-08  
STATION 54+61.77

BEGIN S.A.P. 02-678-09, M.S.A.P. 114-020-08  
STATION 30+22.00

END S.A.P. 02-678-08, M.S.A.P. 114-020-07  
STATION 28+27.00

BEGIN S.A.P. 02-678-08, M.S.A.P. 114-020-07  
STATION 15+91.00

MINN. PROJ. NO. ....  
MINN. PROJ. NO. ....

GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE "SUPPLEMENTAL SPECIFICATIONS" DATED MAY 2, 1994, SHALL GOVERN.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3-5	QUANTITY TABULATIONS
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10-11	TYPICAL SECTION AND STANDARD DETAILS
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17	SUPERELEVATION CHART
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33-44	TRAFFIC CONTROL PLANS

THIS PLAN CONTAINS 44 SHEETS

DESIGN DESIGNATION

EN1820	3,994,023
R VALUE	70
ADT (1995)	22,392
Proj. ADT (2015)	38,066
Proj. HCADT (2015)	2,855
Soil Factor	NA
TON DESIGN	10
Shoulder Width	NA

Functional Classification	ARTERIAL-HIGH DENSITY
No. of Traffic Lanes	4
No. of Parking Lanes	0
Design Speed	45 MPH
Based on Stopping Sight Distance	
Height of eye	3.5
Height of object	0.5
Design Speed not achieved at	NA
STA. TO STA.	MPH
STA. TO STA.	MPH
STA. TO STA.	MPH

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.

DATE 6/5/95 REG. NO. 20235 ENGR. Douglas M. Jensen  
DESIGN SQUAD G. ANDERSON

Recommended for Approval	Michael P. Kelly	4/4	1995
Recommended for Approval	John Jensen	5/6	1995
Recommended for Approval	John Jensen	6/6	1995
Approved	John Jensen	6/6	1995
Approved	John Jensen	6/6	1995
Recommended for Approval	John Jensen	6/6	1995
Recommended for Approval	John Jensen	6/6	1995
Approved	John Jensen	6/6	1995

STATEMENT OF ESTIMATED QUANTITIES

CHART NO.	NOTE	ITEM NO.	ITEM	UNIT	TOTAL		ANDOKA COUNTY				CITY OF COON RAPIDS						
					ESTIMATED	FINAL	SAP 02-678-08		SAP 02-678-09		NON-PARTICIPATING		MSAP 114-020-07		MSAP 114-020-08		
							ESTIMATED	FINAL	ESTIMATED	FINAL	ESTIMATED	FINAL	ESTIMATED	FINAL	ESTIMATED	FINAL	
		0013.601	CELLULAR MOBILE TELEPHONE	LUMP SUM	1		0.5		0.5								
		2021.501	MOBILIZATION	LUMP SUM	1		0.5		0.5								
		2031.501	FIELD OFFICE TYPE D	EACH	1		0.5		0.5								
A		2101.501	CLEARING	ACRE	0.51											0.51	
A		2101.502	CLEARING	TREE	3				3								
A		2101.506	GRUBBING	ACRE	0.51											0.51	
A		2101.507	GRUBBING	TREE	3				3								
		(2102.502)	PAVEMENT MARKING REMOVAL	LN FT	2690		895		1795								
P	①	2104.501	REMOVE PIPE SEWER (STORM)	LN FT	153		153										
D		2104.501	REMOVE CURB AND GUTTER	LN FT	5,810		1,370		4,414								
B		2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	14,259		1,028		13,231								
C		2104.505	REMOVE CONCRETE PAVEMENT	SQ YD	1,352		441		911								
P		2104.509	REMOVE CATCH BASIN	EACH	10		6		4								
E		2104.511	SAVING CONCRETE PAVEMENT	LN FT	90		35		55								
F		2104.513	SAVING BITUMINOUS PAVEMENT	LN FT	1,665		1,355		310								
P		2104.521	SALVAGE PIPE SEWER	LN FT	33				33								
P		2104.523	SALVAGE CASTING	EACH	8				8								
P		2104.523	SALVAGE SIGN TYPE C	EACH	35		15		20								
		2105.501	COMMON EXCAVATION	CU YD	11,747(P)		1,595(P)		10,152(P)								
	②	2130.501	WATER	M-GAL	20				20								
H		2211.503	AGGREGATE BASE (CV), CLASS 5A	CU YD	3,265(P)		282(P)		2,983(P)								
I	③	(0331.601)	2" THICK BITUMINOUS WEARING COURSE	SQ YD	96		43		53								
H		2340.508	TYPE 47 WEARING COURSE MIXTURE	TON	1,446		143		1,303								
H	④	2340.510	TYPE 47 BINDER COURSE MIXTURE	TON	2,170		214		1,956								
H	⑤	2340.514	TYPE 31 BASE COURSE MIXTURE	TON	3,904		214		3,690								
H		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	1,751		173		1,578								
P		2503.541	12" RC PIPE SEWER, DESIGN 3006	LN FT	308		179		129								
P		2503.541	15" RC PIPE SEWER, DESIGN 3006	LN FT	20		20										
P		2503.571	INSTALL PIPE SEWER	LN FT	33				33								
P		0503.602	CONNECT TO EXISTING STORM SEWER	EACH	8		4		4								
M		0504.602	ADJUST VALVE BOX-WATER	EACH	6							2				4	
L		0504.602	RELOCATE HYDRANT & VALVE	EACH	1							1					
P		2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN H	LN FT	24.6		7.4		17.2								
P		2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	LN FT	14.2		10.0		4.2								
P		2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN F	LN FT	21.8				21.8								
P		2506.503	RECONSTRUCT DRAINAGE STRUCTURE	LN FT	7.6				7.6								
P		2506.516	CASTING ASSEMBLY	EACH	13		6		7								
P		2506.521	INSTALL CASTING	EACH	8				8								
P		2506.522	ADJUST FRAME & RING CASTING	EACH	5				5								
K	⑥	0506.602	ADJUST FRAME & RING CASTING (SPECIAL)	EACH	4												4
G	⑦	2521.501	4" CONCRETE WALK	SQ FT	21,753		2,463		13,115							6,175	
F		2531.501	CONCRETE CURB & GUTTER DESIGN B-612	LN FT	2,068				2,068								
F		2531.501	CONCRETE CURB & GUTTER DESIGN B-618	LN FT	5,218		1,012		4,180							26	
F		2531.501	CONCRETE CURB & GUTTER DESIGN B-624	LN FT	371		371										
I	⑧	2531.507	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	11				11								
I	⑨	2531.507	8" CONCRETE DRIVEWAY PAVEMENT	SQ YD	93		93										
G		0531.602	PEDESTRIAN CURB RAMP	EACH	23		6		15								2
G		0531.602	CONCRETE MEDIAN NOSE SPECIAL	EACH	2				2								
		0563.601	TRAFFIC CONTROL STAGE 1	LUMP SUM	1		0.5		0.5								
		0563.601	TRAFFIC CONTROL STAGE 2	LUMP SUM	1				1								
		0563.601	TRAFFIC CONTROL STAGE 3	LUMP SUM	1				1								
		0563.601	TRAFFIC CONTROL STAGE 4	LUMP SUM	1				1								
		0563.603	ONE-WAY RAISED PAVEMENT MARKER, TEMP	EACH	680		150		530								
		0563.603	REPLACEMENT ONE-WAY RPM, TEMP	EACH	105		22		83								
		0563.605	POLICE OFFICER	HR	180		60		120								
		0564.602	INSTALL SIGN TYPE SPECIAL	EACH	6		1		5								
		2565.511	FULL-TRAF-ACT TRAFFIC CONTROL SIGNAL SYS. B	SIG SYS	1				0.5			0.5					
		0565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1												1
		0565.602	CONC. HANDHOLE (TYPE C COVER)-INTERCONNECT	EACH	1		1		1								
		0565.603	2" RIGID STEEL CONDUIT-INTERCONNECT	LN FT	250		250										
		0563.603	6 PAIR #19-INTERCONNECT	LN FT	550		550										
		0565.604	REVISE SIGNAL SYSTEM A	SYSTEM	1		1										
	⑩	2573.501	BALE CHECK	EACH	100		30		70								
J		2575.505	SODDING, TYPE LAWN	SQ YD	7,411		1,067		6,344								
J		2575.532	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10	POUND	765		110		655								
		2580.501	TEMPORARY LANE MARKING	RD STA	25				25								
		2581.501	4" REMOVABLE PREFORMED PLASTIC MARKING	LN FT	26,480		6,870		19,610								

THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY

PLATE NO.	DESCRIPTION
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR R.C. PIPE
3007 B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
4005 K	MANHOLE OR CATCH BASIN (DESIGN F)
4006 K	MANHOLE OR CATCH BASIN (DESIGN G AND DESIGN H)
4010 G	CONCRETE SHORT CONE & ADJUSTING RING
4011 E	PRECAST CONCRETE BASE
4020 G	MANHOLE OR CATCH BASIN COVER
4101 C	RING CASTING FOR MANHOLE OR CATCH BASIN
4108 F	ADJUSTING RINGS
4110 E	COVER CASTING FOR MANHOLE
4126 F	CATCH BASIN FRAME CASTING
4149 C	GRATE CASTING FOR CATCH BASIN
4161 F	CURB BOX CASTING FOR CATCH BASIN
4180 H	MANHOLE OR CATCH BASIN STEP
7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7036 D	PEDESTRIAN CURB RAMP (FOR HANDICAPPED)
7100 G	CONCRETE CURB & GUTTER (DESIGN B)
7111 H	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
8000 I	STANDARD BARRICADES

SEE SHEET 23 FOR TRAFFIC SIGNAL SYSTEM STANDARD PLATES

INDEX OF TABULATION CHARTS

CHART	SHEET NO.	DESCRIPTION
A	3	CLEARING & GRUBBING
B	3	BITUMINOUS REMOVAL
C	3	CONCRETE REMOVAL
D	3	CURB & GUTTER REMOVAL
E	3	SAW CONCRETE/BITUMINOUS PAVEMENT
F	3	CONCRETE CURB & GUTTER
G	3	CONCRETE SIDEWALK-MEDIAN CHART
H	4	BITUMINOUS & AGGREGATE BASE SUMMARY
I	4	DRIVEWAY CONSTRUCTION CHART
J	4	TURF ESTABLISHMENT
K	4	SANITARY SEWER & PRIVATE UTILITY MODIF.
L	4	RELOCATE HYDRANTS
M	4	ADJUST VALVE BOX-WATER
N	4	RIGHT-OF-WAY OFFSETS
O	4	CURB OFFSETS
P	5	DRAINAGE TABULATION
Q	5	DRAINAGE CASTING SCHEDULE

BASIS OF PLANNED QUANTITIES

2340	TYPE 47 PLANT MIXED WEARING COURSE MIXTURE: 110 LBS./SQ.YD. PER 1" THICKNESS BITUMINOUS MIXTURE DESIGNATION: (47WEA50070X) <b>A</b>
2340	TYPE 47 PLANT MIXED BINDER COURSE MIXTURE: 110 LBS./SQ.YD. PER 1" THICKNESS BITUMINOUS MIXTURE DESIGNATION: (47BIB50070X) <b>A</b>
2340	TYPE 31 PLANT MIXED BASE COURSE MIXTURE: 110 LBS./SQ.YD. PER 1" THICKNESS BITUMINOUS MIXTURE DESIGNATION: 31BBB50000Y
2357	BITUMINOUS MATERIAL FOR TACK: 0.05 GALLONS/SQ.YD.
2575	COMMERCIAL FERTILIZER, ANALYSIS 10-10-10: 500 LBS./ACRE ON ALL SOD AREAS

NOTES: ① INCLUDES ALL TYPES AND SIZES. ② FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. ③ FOR DRIVEWAY CONSTRUCTION. ④ FOR PRIVATE ENTRANCE CONSTRUCTION INCLUDING APRONS. ⑤ FOR COMMERCIAL ENTRANCE CONSTRUCTION INCLUDING APRONS. ⑥ FOR EROSION CONTROL AT DRAINAGE STRUCTURES AND AS DIRECTED BY THE ENGINEER. ⑦ INCLUDES 6,687 SQ FT FOR MEDIAN CONSTRUCTION AND 15,066 SQ FT FOR SIDEWALK CONSTRUCTION. ⑧ QUANTITY INCLUDES ADDING 1/4" THICKNESS TO THE DESIGN THICKNESS. ⑨ FOR ADJUSTMENT OF SANITARY SEWER MANHOLES.

STATEMENT OF ESTIMATED QUANTITIES

REVISIONS BY DATE DW 5/27/95

FILE NAME: \P:\867808\CHARTS.DWG (06-28-95)

CLEARING & GRUBBING (A)					
STATION - STATION	LOCATION	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
S.A.P. 02-678-08					
	TOTALS	0	0	0	0
S.A.P. 02-678-09					
36+17 - 40+12	LSB/LT		0.30		0.30
40+36 - 43+00	LSB/LT		0.21		0.21
37+91	LNB/24'RT	1		1	
39+52	LNB/25'RT	1		1	
44+87	LSB/21'LT	1		1	
	TOTALS	3	0.51	3	0.51

CURB & GUTTER REMOVAL (D)			
STATION - STATION	LOCATION	TYPE	LIN FT
S.A.P. 02-678-08			
15+91 - 19+30	RT	B-624	356
19+85 - 28+27	RT	B-618	872
AMOCO ENT.	RT	B-618	82
PARK ENT.	RT	B-618	60
	TOTAL		1,370
S.A.P. 02-678-09			
32+35	LT/LS	B-618	13 (1)
32+55	LT/LS	B-618	13 (1)
33+80 - 121ST AVE	LT/LSB	B-618	1,020
33+80 - 119TH AVE	RT/LNB	B-618	130
119TH AVE - PLAZA ENT	RT/LNB	B-618	606
PLAZA ENT - 121ST AVE	RT/LNB	B-618	331
121ST AVE - GROUSE ST	LT/LSB	B-618	915
GROUSE ST - 54+66	LT/LSB	B-618	316
121ST AVE - 54+59	RT/LNB	B-618	1,096
	TOTAL		4,440

CONCRETE CURB & GUTTER (F)				
STATION - STATION	LOC.	B624	B618	B612
		C&G LIN.FT.	C&G LIN.FT.	C&G LIN.FT.
S.A.P. 02-678-08				
15+91 - 19+29	RT	371		
19+87 - 22+16	RT		275	
21+91 - 22+72	RT		81	
22+53 - 26+15	RT		401	
26+01 - 26+58	RT		57	
26+43 - 28+27	RT		198	
	TOTALS	371	1,012	
S.A.P. 02-678-09				
32+35	LS/LT		(1) 13	
32+55	LS/LT		(1) 13	
33+80 - 121ST AVE	LSB/LT		976	
33+80 - 119TH AVE	LNB/RT		130	
119TH AVE - PLAZA ENT	LNB/RT		576	
PLAZA ENT - 121ST AVE	LNB/RT		331	
121ST AVE - GROUSE ST	LSB/LT		800	
GROUSE ST - 54+66	LSB/LT		308	
121ST AVE - 54+59	LNB/RT		1,059	
38+40 - 43+12	LSB/RT			950
43+12 - 43+31	LSB/LT			60
44+23 - 44+42	LNB/RT			62
44+44 - 49+36	LNB/RT			996
	TOTALS	0	4,206	2,068

BITUMINOUS REMOVAL (B)			
STATION - STATION	LOCATION	DESCRIPTION	SQ. YDS.
S.A.P. 02-678-08			
15+91 - 19+30	RT	SEE SHEET NO. 12 FOR REMOVAL AREA	222
19+84 - 28+27	RT	SEE SHEET NO. 12 FOR REMOVAL AREA	763
22+31	RT	AMOCO SERVICE STATION ENTRANCE	31
26+30	RT	CITY OF COON RAPIDS PARK ENTRANCE	12
	TOTAL		1,028
S.A.P. 02-678-09			
33+80 - 54+60	MAINLINE	C.S.A.H. 78 (HANSON BLVD.)	11,877
34+65 - 35+54	LNB/RT	119TH AVENUE	32
40+48 - 40+73	LNB/RT	SAND CREEK PLAZA ENTRANCE	25
43+00 - 44+10	LSB/LT	121ST AVENUE	625
43+47 - 44+55	LNB/RT	121ST AVENUE	501
45+04 - 45+42	LSB/LT	HOUSE NO. 12110 ENTRANCE	61
51+11 - 52+05	LSB/LT	GROUSE STREET	110
	TOTAL		13,231

Δ (1) MSAP 114-020-08

Δ (1) MSAP 114-020-08

CONCRETE SIDEWALK - MEDIAN CHART (G)					
STATION - STATION	LOC.	① 4' CONC. WALK SQ. FT.	CONC. PED. RAMP EACH	② 4' CONC. WALK SQ. FT.	CONC. MEDIAN NOSE EACH
			S.A.P. 02-678-08		
16+02 - 19+14	RT	1,560			
19+14	RT		1		
19+96 - 21+52	RT	798			
20+04	RT		1		
22+04 - 22+10	RT	30			
22+12	RT		1		
22+51	RT		1		
22+53 - 22+57	RT	20			
26+07 - 26+12	RT	25			
26+14	RT		1		
26+45	RT		1		
26+47 - 26+53	RT	30			
	TOTALS	2,463	6	0	0
S.A.P. 02-678-09					
30+22 - 32+31	LS/LT	1,045			
32+35	LS/LT		1		
32+55	LS/LT		1		
32+61 - 42+87	LSB/LT	5,130			
34+91	LNB/RT		1		
35+23	LNB/RT		1		
38+40	LSB/RT				1
38+40 - 43+12	LSB/RT			2,968	
40+46	LNB/RT		1		
40+46	LNB/RT		1		
42+87 - 43+06	LSB/LT	247			
43+00	LSB/LT		1		
43+12 - 43+31	LSB/LT			228	
43+23	LSB/LT		3		
43+63	LNB/RT		1		
44+23 - 44+42	LNB/RT			242	
44+31	LNB/RT		3		
44+44 - 49+36	LNB/LT			3,249	
44+49 - 44+71	LNB/RT	266			
44+55	LNB/RT		1		
44+71 - 52+44	LNB/RT	3,865			
46+84 - 50+94	LSB/LT	2,050			
49+36	LNB/LT				1
51+43	LSB/LT		1		
51+74	LSB/LT		1		
	TOTALS	12,603	17 (3)	6,687 (4)	2

- ① FOR SIDEWALK CONSTRUCTION.
- ② FOR MEDIAN CONSTRUCTION.
- ③ INCLUDES 6,175 SQ. FT. FOR NEW SIDEWALK CONSTRUCTION TO BE PAID UNDER MSAP 114-020-08.
- ④ 2 PED RAMPS TO BE PAID UNDER MSAP 114-020-08.

SAWING CONC./BIT. PAVEMENT (E)			
STATION - STATION	LOCATION	CONCRETE	BITUMINOUS
		LIN.FT.	LIN.FT.
S.A.P. 02-678-08			
16+02	RT	5	
20+08	58'RT	5	
21+52	RT	5	
22+04	RT	5	
22+57	RT	5	
26+07	RT	5	
26+52	RT	5	
15+91	44'-52'RT		8
15+91 - 19+30	RT		339
19+30	38'-83'RT		55
19+84	24'-80'RT		56
22+31	RT		28
26+30	RT		26
19+84 - 28+27	RT		843
	TOTAL	35	1,355
S.A.P. 02-678-09			
34+84	LNB 32'-37'RT	5	
35+28	LNB 32'-37'RT	5	
40+40	LNB 31'-36'RT	5	
40+41 - 40+46	LNB 39'RT	5	
40+83	LNB 32'-37'RT	5	
42+96 - 43+01	LSB 64'LT	5	
43+58	LNB 36'-41'RT	5	
43+61 - 43+66	LNB 42'RT	5	
44+53 - 44+58	LNB 68'RT	5	
50+94	LSB 24'-29'LT	5	
52+44	LNB 24'-29'RT	5	
33+80	24.5'LT-24.5'RT		49
34+94 - 35+20	LNB 44'RT		26
40+48 - 40+73	LNB 40'RT		25
44+05 - 44+53	LNB 103'RT		48
43+04 - 43+52	LSB 84'LT		48
45+04 - 45+43	LSB 27'LT		39
51+46 - 51+72	LSB 45'LT		26
54+60	24.5'LT-24.5'RT		49
	TOTAL	55	310

CONCRETE REMOVAL (C)			
STATION - STATION	LOCATION	DESCRIPTION	SQ. YDS.
S.A.P. 02-678-08			
16+02 - 19+10	RT	CONCRETE WALK	173
19+95 - 21+52	RT	CONCRETE WALK	88
20+08	RT	CONCRETE WALK	7
22+04 - 22+14	RT	CONCRETE WALK	6
22+31	RT	AMOCO ENTRANCE	94
22+47 - 22+57	RT	CONCRETE WALK	6
26+07 - 26+17	RT	CONCRETE WALK	6
26+30	RT	CITY OF COON RAPIDS PARK ENTRANCE	55
26+42 - 26+52	RT	CONCRETE WALK	6
	TOTAL		441
S.A.P. 02-678-09			
34+84 - 34+92	LNB/RT	CONCRETE WALK	4
35+20 - 35+28	LNB/RT	CONCRETE WALK	5
40+40 - 40+47	LNB/RT	CONCRETE WALK	5
40+34 - 40+88	LNB/RT	SAND CREEK PLAZA ENTRANCE	48
40+76 - 40+83	LNB/RT	CONCRETE WALK	4
42+96 - 43+22	LSB/LT	CONCRETE WALK	102
43+54 - 43+72	LNB/RT	CONCRETE WALK	25
44+35	LNB/RT	CONCRETE WALK	25
44+35 - 52+44	LNB/RT	CONCRETE WALK	421
45+18 - 45+56	LSB/LT	HOUSE NO. 12110 ENTRANCE	19
46+84 - 50+94	LSB/LT	CONCRETE WALK	219
51+28 - 51+47	LSB/LT	GROUSE ST.	17
51+73 - 51+92	LSB/LT	GROUSE ST.	17
	TOTAL		911

TABULATION CHARTS

REVISIONS  
DATE BY DATE BY  
6/27/95 DWF

RELOCATE HYDRANTS					
INPLACE		DESCRIPTION	RELOCATE TO		
STATION	LOCATION		STATION	LOCATION	
S.A.P. 02-678-08					
20+63	34' RT		20+63	43' RT	
TOTAL				1	

BITUMINOUS AND AGGREGATE BASE SUMMARY													
STATION - STATION	TYPE 31 BASE			TYPE 47 BINDER			TYPE 47 WEAR			TACK COAT	AGGREGATE BASE CLASS 5A		
	DEPTH (IN.)	AREA (SQ.YDS.)	WEIGHT (TON)	DEPTH (IN.)	AREA (SQ.YDS.)	WEIGHT (TON)	DEPTH (IN.)	AREA (SQ.YDS.)	WEIGHT (TON)	(GALLON)	DEPTH (IN.)	AREA (SQ.YDS.)	VOLUME (CU.YDS.)
S.A.P. 02-678-08													
15+91 - 19+30	2	489	61	2	489	61	1.5	489	41	49	5	489	68
19+86 - 28+27	2	1,235	153	2	1,235	153	1.5	1,235	102	124	5	1,235	172
											3.5	307	30
TOTALS		1,724	214		1,724	214		1,724	143	173		2,159	282
S.A.P. 02-678-09													
33+80 - 43+58	4.0	6,814	1,594	2	6,814	845	1.5	6,814	562	681	6.0	7,744	1,291
43+58 - 54+60	4.0	7,488	1,752	2	7,488	928	1.5	7,488	618	749	6.0	8,452	1,410
119TH AVE.	4.0	142	33	2	142	18	1.5	142	12	14	6.0	175	29
121ST AVE. (LT.)	4.0	639	149	2	639	79	1.5	639	53	64	6.0	712	119
121ST AVE. (RT.)	4.0	549	128	2	549	68	1.5	549	46	55	6.0	623	104
GROUSE ST.	4.0	145	34	2	145	18	1.5	145	12	15	6.0	177	30
TOTALS		15,777	3,690		15,777	1,956		15,777	1,303	1,578		17,890	2,983

① QUANTITY INCLUDES ADDING 1/4" THICKNESS TO THE DESIGN THICKNESS.

ADJUST VALVE BOX-WATER		
STATION	LOCATION	REMARKS
S.A.P. 02-678-08		
20+24	24' RT	
20+56	26' RT	
TOTAL	2	
S.A.P. 02-678-09		
LNB 34+97	1' LT	
LNB 40+25	7' LT	
LNB 43+85	16' RT	
LSB 43+91	6' RT	
TOTAL	4	

DRIVEWAY CONSTRUCTION CHART																		
STATION/LOC.	ADDRESS	REMARKS	EXIST WIDTH	REMOVE		CONCRETE DRIVEWAY PAVEMENT						BIT. PAVEMENT			AGGREGATE ENTRANCE			
				CONC. SQ.YD.	BIT. SQ.YD.	APRON SQ.YD.		DRIVEWAY SQ.YD.				DRIVEWAY SQ.YD.			WIDTH	CU.YD.		
				WIDTH	6'	8'	WIDTH	6'	8'	6'	8'	WIDTH	REPLMT.	NEW	WIDTH	REPLMT.	NEW	
S.A.P. 02-678-08																		
22+31 / RT	AMOCO GAS		28	94	31									53	28	31		
26+30 / RT	CITY PARK		24	55	12									40	24	12		
TOTALS			① 149	② 43										③ 93	④ 43			
S.A.P. 02-678-09																		
LNB 40+60 / RT	SAND CR PLAZA		24	48	25										24	34		
LSB 45+32 / LT	12110		20	19	61									11	20	19		
TOTALS			① 67	② 86										③ 11	④ 53			

① QUANTITY INCLUDED IN CONCRETE REMOVAL CHART.  
 ② QUANTITY INCLUDED IN BITUMINOUS REMOVAL CHART.  
 ③ PAID FOR AS 2" THICK WEARING COURSE PLACED.

RIGHT-OF-WAY OFFSETS		
STATION	LOCATION	REMARKS
15+66.56	107.91' RT	R/W P.I.
16+00.00	99.61' RT	
16+95.64	75.85' RT	R/W P.I.
17+00.00	75.78' RT	
18+00.00	74.13' RT	
18+95.61	72.55' RT	R/W CORNER @ NORTHDALE
20+16.63	60.56' RT	R/W CORNER @ NORTHDALE
21+00.00	60.39' RT	
22+00.00	60.50' RT	
23+00.00	61.48' RT	
24+00.00	63.34' RT	
25+00.00	66.01' RT	
26+00.00	68.86' RT	
27+00.00	71.70' RT	
28+00.00	74.54' RT	
29+00.00	77.38' RT	

TURF ESTABLISHMENT			
STATION - STATION	LOCATION	SOD SQ.YD.	FERT. POUND
S.A.P. 02-678-08			
15+91 - 19+21	RT	94	9.7
19+87 - 22+12	RT	388	40.1
22+52 - 26+15	RT	370	38.2
26+43 - 28+27	RT	215	22.2
TOTALS		1,067	110.2
S.A.P. 02-678-09			
30+22 - 32+35	LS/LT	223	23.0
32+55 - 121ST AVE	LSB/LT	1,774	183.3
33+80 - 119TH AVE	LNB/RT	212	21.9
119TH AVE - PLAZA ENT	LNB/RT	905	93.5
PLAZA ENT - 121ST AVE	LNB/RT	335	34.6
121ST AVE - 54+60	LNB/RT	1,304	134.7
121ST AVE - GROUSE ST	LSB/LT	1,034	106.8
GROUSE ST - 54+66	LSB/LT	557	57.5
TOTALS		6,344	655.3

SANITARY SEWER & PRIVATE UTILITY MODIFICATIONS							
STATION	LOCATION	OWNERSHIP	INPLACE	PROPOSED	ADJUST	RECONST	REMARKS
			ELEVATION	ELEVATION	EACH	EACH	
S.A.P. 02-678-08							
19+07	46' RT	U.S. WEST	858.17	858.17			TO BE ADJUSTED BY OTHERS
19+16	38' RT	U.S. WEST	857.79	857.79			TO BE ADJUSTED BY OTHERS
23+18	28' RT	U.S. WEST	858.65	858.65			TO BE ADJUSTED BY OTHERS
TOTALS					0	0	
S.A.P. 02-678-09							
LSB 35+68	12' LT	COON RAPIDS	862.20	862.02	1		
LSB 36+12	13' LT	COON RAPIDS	862.78	862.72	1		
LSB 40+11	3' RT	COON RAPIDS	866.15	866.58	1		
LNB 40+44	3' RT	U.S. WEST	866.84	866.98			TO BE ADJUSTED BY OTHERS
LSB 43+72	6' RT	COON RAPIDS	872.17	872.40	1		TO BE ADJUSTED BY OTHERS
LNB 49+25	20' RT	U.S. WEST	882.38	882.42			
TOTALS					4	0	

CURB OFFSETS		
STATION	C/L TO F/C	REMARKS
15+91.33	54.74' RT	BEGIN CURB & GUTTER CONSTRUCTION
16+00	55.15' RT	
16+45.36	57.25' RT	END TAPER
17+00	56.17' RT	
18+00	54.18' RT	
18+88.85	52.43' RT	BEGIN 40' RADIUS
20+35	38.00' RT	END 50' RADIUS
21+00	38.00' RT	
21+91.16	38.00' RT	BEGIN 25' RADIUS
22+71.79	38.00' RT	END 25' RADIUS
22+87.06	38.00' RT	BEGIN 45' TAPER
23+00	37.55' RT	
24+00	34.58' RT	
25+00	32.43' RT	
26+00	30.46' RT	
26+00.71	30.45' RT	BEGIN 15' RADIUS
26+57.40	29.34' RT	END 15' RADIUS
27+00	28.50' RT	
28+00	26.53' RT	
28+27.05	26.00' RT	END CURB & GUTTER CONSTRUCTION

REVISIONS  
 BY DATE



**DRAINAGE TABULATION**

STRUCT NO.	STATION	LOCATION			REMARKS	MH. OR CB.	EXISTING								STRUCT DESIGN	PAY HEIGHT LIN FT	TOP CAST. ELEV.	OUTLET ELEV.	DRAINS TO		GRADE IN %	F&I ① CAST. ASSY.	FURNISH & INSTALL				STRUCT NO.
		ALIGN.	DIST. FT.	OUT RT/LT			REMOVE		SALVAGE		INSTALL		ADJUST. CAST. EACH	RE-CONST LIN FT					EXIST	NEW			12'RCP LIN FT	15'RCP LIN FT	RCP APRON EACH	CLASS OF PIPE ②	
							STRUCT EACH	PIPE LIN FT	CAST. ASSY. LIN FT	PIPE LIN FT	CAST. ASSY. EACH	PIPE LIN FT															
PROJECT S.A.P. 02-678-08																											
1	16+11	LS	1.3	RT	TO REMAIN INPLACE	CB																1					
2	16+11	LS	3.9	RT	TO REMAIN INPLACE	CB																2					
3	16+11	LS	78.1	LT	TO REMAIN INPLACE	APRON																3					
4	17+43	LS	47.1	RT	TO REMAIN INPLACE	CB	1	8								861.27	856.97					4					
5	17+42	LS	24.7	LT	TO REMAIN INPLACE	CB										861.43	856.49					5					
6	17+42	LS	66.8	LT	TO REMAIN INPLACE	APRON																6					
7	19+28	LS	83.5	RT	TO REMAIN INPLACE	CB	1	55								857.64	853.79					7					
8	18+92	LS	42.2	RT	TO REMAIN INPLACE	CB	1	8					0.0			857.64	853.79					8					
9	19+17	LS	24.8	LT	TO REMAIN INPLACE	CB										857.75	853.45					9					
10	19+17	LS	56.8	LT	TO REMAIN INPLACE	APRON																10					
11	19+87	LS	70.7	RT	TO REMAIN INPLACE	CB	1	66					0.0			856.66	854.69					11					
12	20+33	LS	25.1	RT	TO REMAIN INPLACE	CB	1	8					0.0			856.98	853.98					12					
13	20+31	LS	24.9	LT	TO REMAIN INPLACE	CB										857.12	853.82					13					
14	20+31	LS	43.9	LT	TO REMAIN INPLACE	APRON																14					
15	25+00	LS	24.9	RT	TO REMAIN INPLACE	CB	1	8								858.55	854.70					15					
16	25+00	LS	25.0	LT	TO REMAIN INPLACE	CB										858.50	854.00					16					
17	25+00	LS	51.0	LT	TO REMAIN INPLACE	APRON																17					
							TOTALS:	6	153	0	0	0	0	0	0.0		17.4					6	179	20			
PROJECT S.A.P. 02-678-09																											
21	34+93	LNB	29.0	RT	TO REMAIN INPLACE	MH										861.49	854.79					21					
23	34+93	LNB	43.0	RT	TO REMAIN INPLACE	CB										860.90	856.20					23					
24	35+21	LNB	41.0	RT	TO REMAIN INPLACE	CB										861.19	856.69					24					
22	35+21	LNB	30.0	RT	TO REMAIN INPLACE	MH										861.73	854.85					22					
25	35+50	LNB	12.0	RT	INSTALL CAST. ASS'Y. - STRUCT. #202	CB	1			33						REMOVE	856.53				REMOVE		25				
26	35+50	LSB	12.0	LT	INSTALL CAST. ASS'Y. - STRUCT. #201	CB	1									REMOVE	857.41				REMOVE		26				
26A	36+06	LNB	30.0	RT	TO REMAIN INPLACE	MH										865.25	858.60					26A					
27	39+40	LNB	12.0	RT	INSTALL CAST. ASS'Y. - STRUCT. #203	CB							2.2			865.25	858.60				B	27					
28	39+40	LSB	0.0	LT	INSTALL CAST. ASS'Y. - STRUCT. #204	CB	1									REMOVE	859.81				REMOVE	28					
29	44+03	LNB	18.0	RT	TO REMAIN INPLACE	MH										872.34	865.53					29					
30	44+58	LNB	6.0	RT	INSTALL CAST. ASS'Y. - STRUCT. #206	CB							2.0			873.16	866.90				B	30					
31	47+52	LNB	7.0	RT	INSTALL CAST. ASS'Y. - STRUCT. #209	CB							1.8			878.39	872.16				B	31					
32	50+27	LNB	7.0	RT	INSTALL CAST. ASS'Y. - STRUCT. #210	CB							1.6			883.96	877.92				B	32					
33	50+33	LSB	1.0	LT	INSTALL CAST. ASS'Y. - STRUCT. #211	CB	1									REMOVE	878.52					33					
							TOTALS:	4		8	33	8	33	5	7.6		43.2					7	129	0			
201	35+50	LSB	12.9	LT	CONNECT TO EXIST. CAST. FROM #26	CB								G	4.2	861.70	857.33				202	1.00	4	201			
202	35+50	LNB	13.0	RT	CONNECT TO EXIST. CAST. FROM #25	CB								F	5.0	861.70	856.51					1.00	4	202			
203	39+45	LNB	16.6	RT	CONNECT TO EXIST. CAST. FROM #27	CB								H	2.8	865.06	862.10					1.00	7	203			
204	39+40	LSB	12.9	LT	INSTALL CAST. FROM STRUCT. #28	CB								F	5.1	865.15	859.93				205	1.00	14	204			
205	39+40	LNB	17.3	LT	CONSTRUCT ON EXISTING 12" RCP	CB								F	5.8	865.53	859.60						27	205			
207	44+52	LSB	24.9	RT		CB								H	2.8	873.75	870.80				208		6	207			
208	44+51	LNB	12.9	LT		CB								H	2.8	873.11	870.16						21	208			
206	45+03	LNB	12.9	RT	INSTALL CAST. FROM STRUCT. #30	CB								H	3.2	873.43	870.10						30	206			
209	47+56	LNB	12.9	RT	INSTALL CAST. FROM STRUCT. #31	CB								H	2.8	878.15	875.20						7	209			
210	50+31	LNB	12.9	RT	INSTALL CAST. FROM STRUCT. #32	CB								H	2.8	883.93	880.98						7	210			
211	50+33	LSB	12.9	LT	CONNECT TO EXIST. CAST. FROM #33	CB								F	5.9	884.70	878.64						14	211			

① SEE CHART Q, SHEET 6, FOR CASTING INFORMATION  
 ② ALL PIPE CLASS 11, UNLESS OTHERWISE NOTED.

DRAINAGE CASTING SCHEDULE						
ASS'Y. TYPE	NO. REQ'D.	FRAME CASTING	GRATE CASTING	CURB BOX CASTING	RING CASTING	COVER CASTING
S.A.P. 02-678-08						
A	6	801	810	821-B		
S.A.P. 02-678-09						
A	3	801	810	821-B		
B	4			700-7	716	

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EARTHWORK SUMMARY

S.A.P. 02-678-08, STATION 15+91 TO STATION 28+27

EXCAVATION:

COMMON: 1,595 CU.YDS. — REGULAR: 662 CU.YDS.  
 TOPSOIL: 392 CU.YDS.  
 SUBCUT: 541 CU.YDS.

EMBANKMENT: (CV)

REGULAR FILL: 541 CU.YDS.  
 TOPSOIL DRESSING: 127 CU.YDS.

BALANCE:

TOPSOIL:  
 TOPSOIL DRESSING (CV) - [TOPSOIL STRIPPING (EV) x SHRINKAGE FACTOR] =  
 EXCESS(-) OR SHORTAGE(+)  
 127 - (541 x 0.85) = -333 (EXCESS)

REGULAR FILL:  
 REGULAR FILL (CV) - [REGULAR EXCAVATION (EV) x SHRINKAGE FACTOR] -  
 [SUBCUT EXCAVATION x SHRINKAGE FACTOR] = EXCESS(-) OR (SHORTAGE(+))  
 541 - [662 x 0.90] - [541 x 0.90] = -542 (EXCESS)

SOIL FACTORS:

- (1) TOPSOIL DRESSING (EV TO CV): 85% SHRINKAGE
- (2) SUBCUT COMPACTION (EV TO CV): 90% SHRINKAGE

S.A.P. 02-678-09, STATION 30+22 TO STATION 54+62

EXCAVATION:

COMMON: 12,250 CU.YDS. — REGULAR: 6039 CU.YDS. (1)  
 TOPSOIL: 822 CU.YDS.  
 SUBCUT: 5389 CU.YDS.

(1) INCLUDES 2098 CU.YDS. CONCRETE CONCRETE AND BITUMINOUS REMOVAL  
 CONCRETE AND BITUMINOUS REMOVALS WILL BE PAID UNDER ITEM 2104

EMBANKMENT: (CV)

REGULAR FILL: 5727 CU.YDS.  
 TOPSOIL DRESSING: 705 CU.YDS.

BALANCE:

TOPSOIL:  
 TOPSOIL DRESSING (CV) - [TOPSOIL STRIPPING (EV) x SHRINKAGE FACTOR] =  
 EXCESS(-) OR SHORTAGE(+)  
 705 - (822 x 0.86) = 0 (BALANCES)

REGULAR FILL:  
 REGULAR FILL (CV) - [REGULAR EXCAVATION (EV) x SHRINKAGE FACTOR] -  
 [SUBCUT EXCAVATION x SHRINKAGE FACTOR] = EXCESS(-) OR (SHORTAGE(+))  
 5727 - [3941 x 0.80] - [5389 x 0.80] = -1737 (EXCESS)(CV)

SOIL FACTORS:

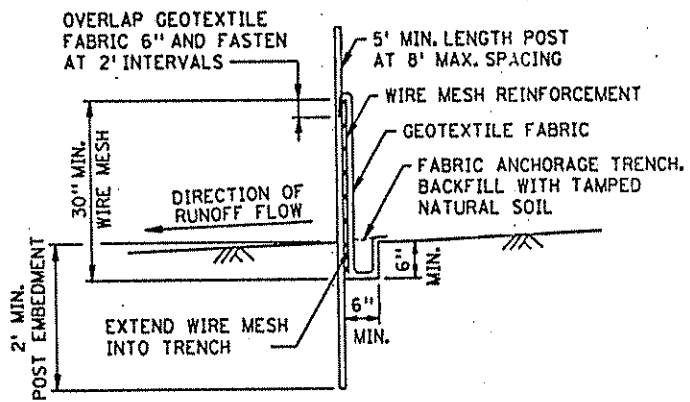
- (1) TOPSOIL DRESSING (EV TO CV): 85% SHRINKAGE
- (2) SUBCUT COMPACTION (EV TO CV): 80% SHRINKAGE

SOILS AND CONSTRUCTION NOTES

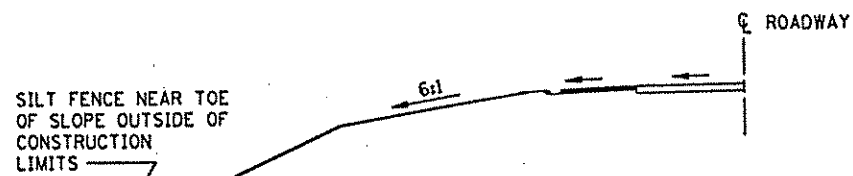
1. TOP OF GRADING GRADE IS DEFINED AS THE BOTTOM OF AGGREGATE BASE.
2. IN FILL AREAS, THE SUBGRADE SHALL BE CONSTRUCTED WITH SELECT GRADING MATERAIL.
3. COMPACTION OF THE GRADING PORTION OF THIS PROJECT SHALL BE BY THE "SPECIFIED DENSITY METHOD".
4. TEST ROLLING WILL NOT BE REQUIRED.
5. BITUMINOUS AND/OR CONCRETE ITEMS REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3.
6. DISPOSITION OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH SPEC. 2105.3D WITH NO DIRECT COMPENSATION MADE THEREFOR.
7. WHERE MATCHING INTO THE INPLACE ROADWAY AT THE ENDS OF CONSTRUCTION, CUT VERTICALLY TO THE TOP OF THE GRADING GRADE, AND THEN AT A 20:1 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
8. WHERE CONNECTING NEW SURFACING TO AN INPLACE PAVEMENT, THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING THE INPLACE PAVEMENT.
9. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES PRIOR TO PLACING BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING CONCRETE OR BITUMINOUS SURFACES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GALLONS PER SQUARE YARD BETWEEN BITUMINOUS LAYERS. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY); ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPEC. 2357.
10. COMPACTION OF ALL BITUMINOUS COURSES SHALL BE BY THE "MODIFIED SPECIFIED DENSITY METHOD".
11. COMPACTION OF THE AGGREGATE BASE LAYERS SHALL BE BY THE "SPECIFIED DENSITY METHOD".
12. IN AREAS TO BE DISTURBED BY CONSTRUCTION, STRIP AND RE-USE AS SLOPE DRESSING ALL TOPSOIL AND INPLACE SLOPE DRESSING. REFER TO THE CROSS-SECTION FOR THE LIMITS OF TOPSOIL STRIPPING. GENERAL DEPTHS OF TOPSOIL LAYER ARE ASSUMED TO BE 0'-5'.
13. PLACE MINIMUM 4 INCHES TOPSOIL OR SLOPE DRESSING ON ALL AREAS DISTURBED BY CONSTRUCTION AND SCHEDULED FOR PERMANENT TURF ESTABLISHMENT. FERTILIZE WITH COMMERCIAL FERTILIZER, ANALYSIS 10-10-10, AT A RATE OF 500 POUNDS PER ACRE.
14. ALL SOD UTILIZED WITHIN THE PROJECT LIMITS SHALL MEET THE REQUIREMENTS OF SPEC. 3878.2A (LAWN AND BOULEVARD SOD).
15. ORGANIC AND NON-GRANULAR EXCAVATED MATERIAL MAY BE USED IN EMBANKMENT CONSTRUCTION IN AREAS OUTSIDE OF A 1 1/2:1 SLOPE FROM THE BACK OF CURB, OR GRADING P.I.
16. BITUMINOUS REMOVAL QUANTITY BASED ON 5 1/2" OF BITUMINOUS SURFACING. THE CONTRACTOR SHALL INVESTIGATE AND MAKE THEIR OWN DETERMINATION OF ACTUAL PAVEMENT DEPTH.

EARTHWORK SUMMARY  
 AND  
 CONSTRUCTION NOTES

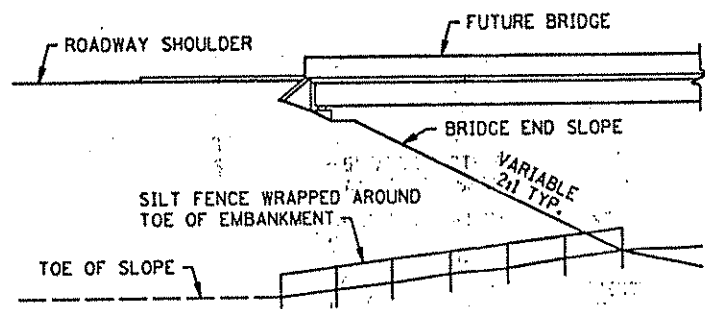
REVISIONS	DATE	BY



SILT FENCE DETAIL

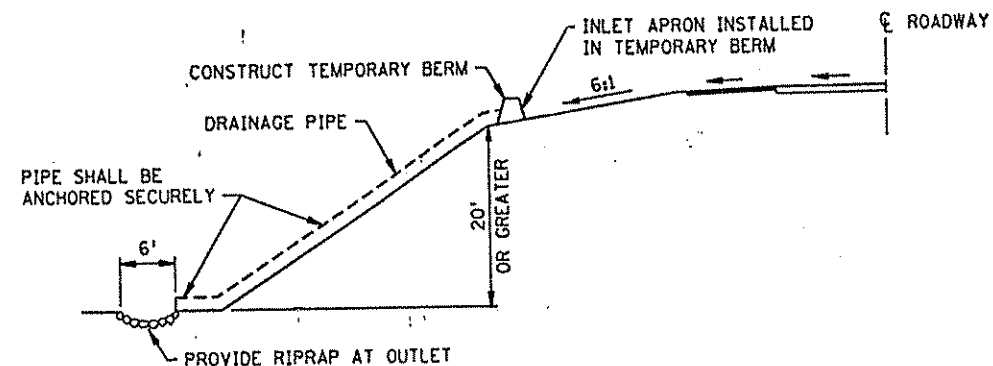


ROADWAY EMBANKMENT

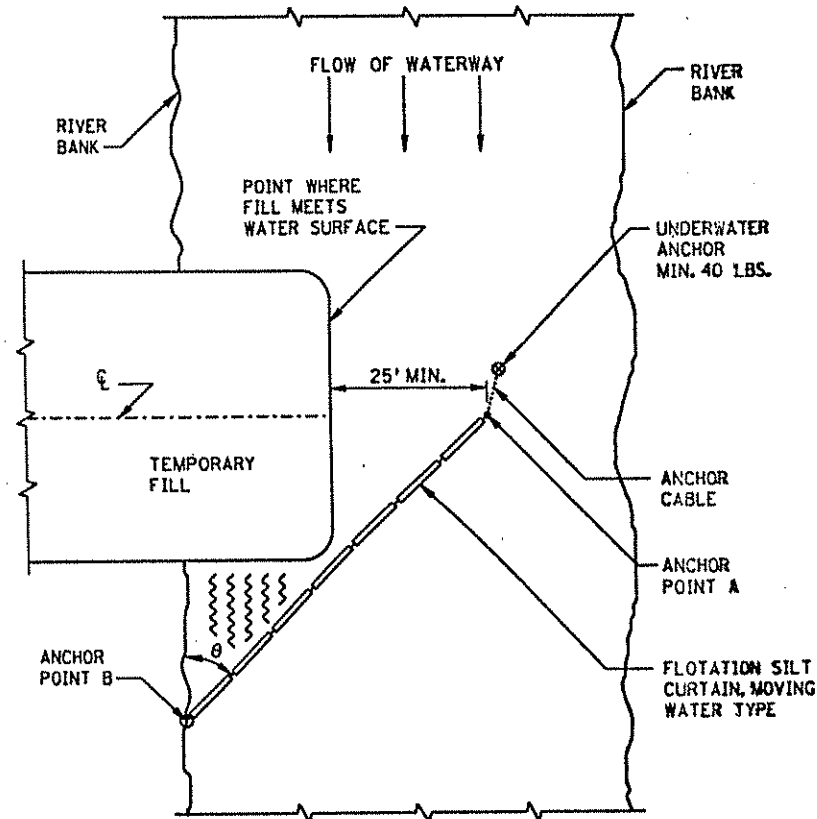


BRIDGE ABUTMENT

SILT FENCE OR BALE CHECK TO PROTECT ADJACENT CRITICAL AREAS

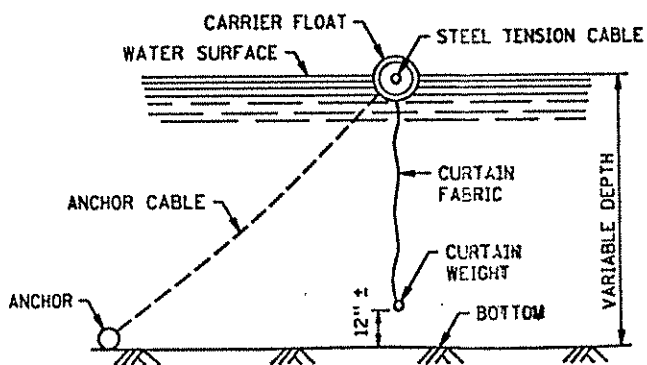


TEMPORARY DRAIN ON FILL SLOPE

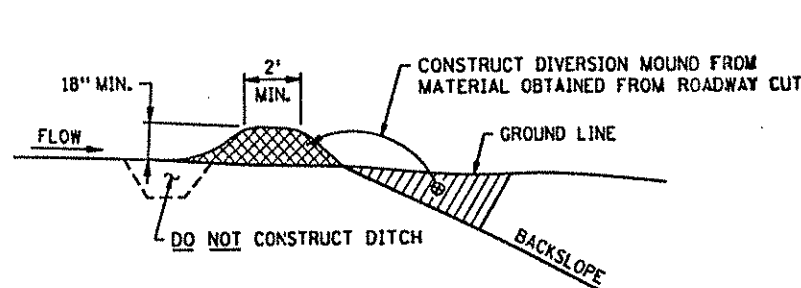


PLAN VIEW OF SILT CURTAIN - MOVING WATER

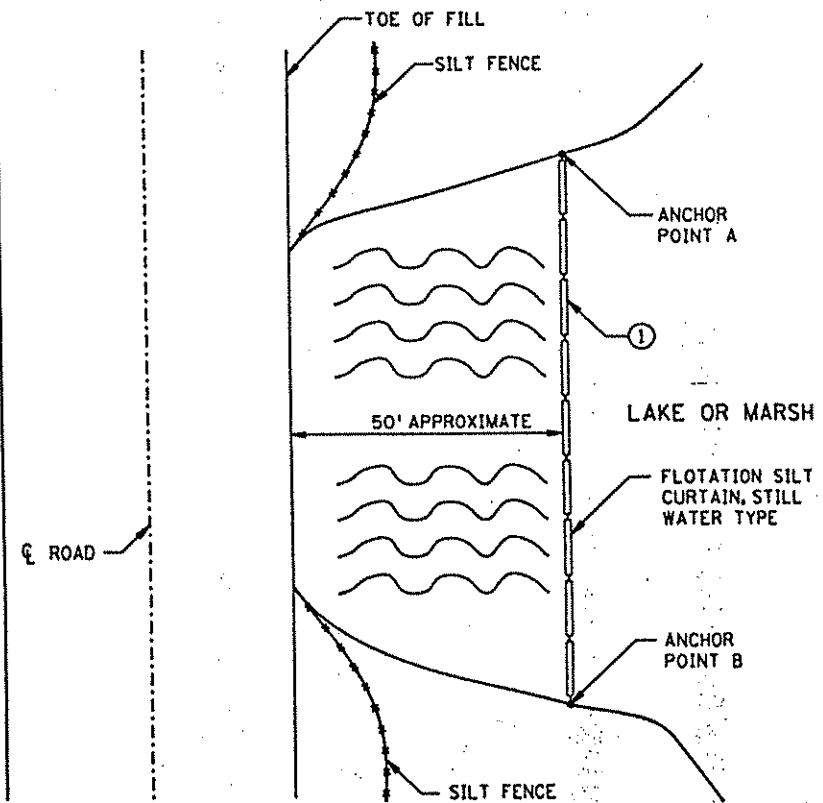
∠ θ	RIVER VELOCITY
45°	SLOW, LESS THAN 5 FT./SEC.
35°	MODERATE, 5 TO 7 FT./SEC.



FLOATATION SILT CURTAIN

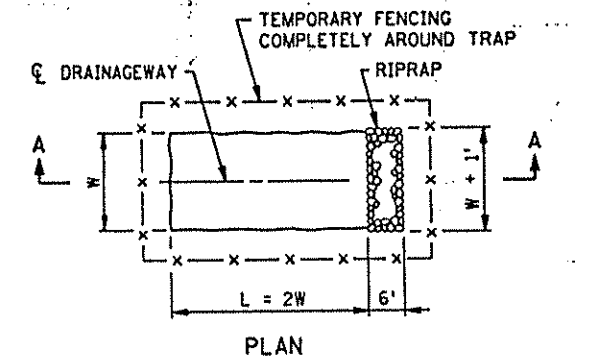


DIVERSION MOUND

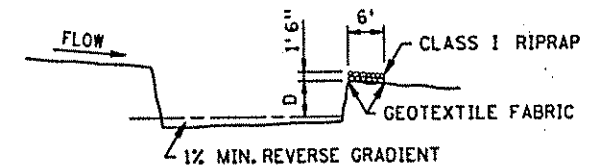


PLAN VIEW OF SILT CURTAIN - STILL WATER

① CURTAIN 1 FT. FROM BOTTOM



PLAN



NOTE:  
D = 3' MIN., 6' MAX.  
W = 10' MIN., 20' MAX.

SECTION A-A  
TEMPORARY SEDIMENT TRAP

SERVER CAG451\USR\STANDARDS FILE NAME S4051H93.SPN

STANDARD SHEET NO.  
5-297.405 (1 OF 2 )  
STANDARD APPROVED:  
AUGUST 2, 1993

TITLE:

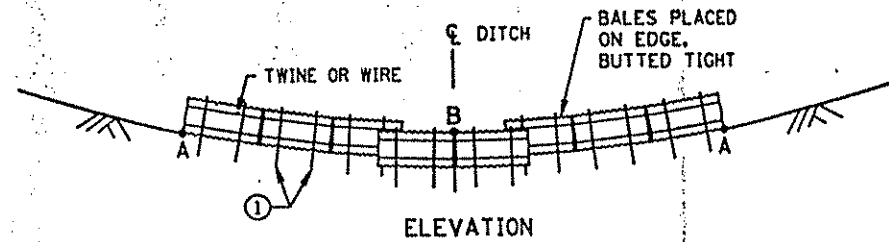
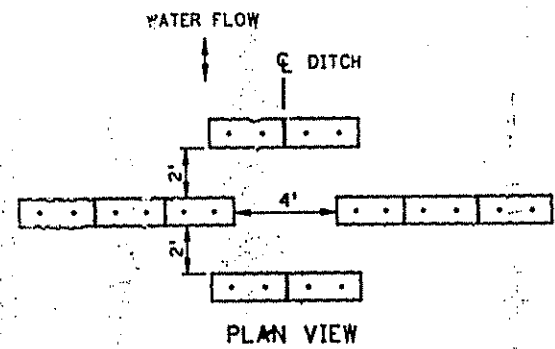
TEMPORARY EROSION CONTROL

S.A.P. 02-678-08/02-678-09 M.S.A.P. 114-020-07/114-020-08

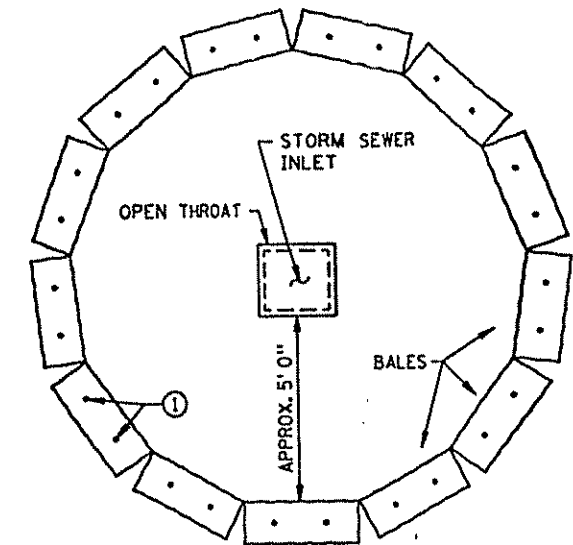
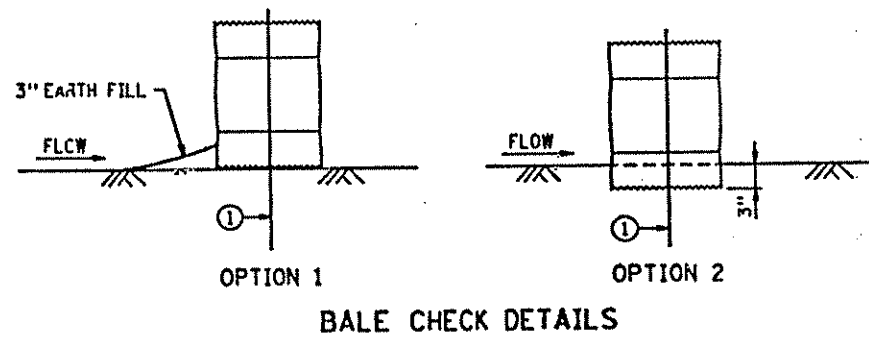
STATE PROJ. NO. \_\_\_\_\_

SHEET NO. 1 OF 44 SHEETS

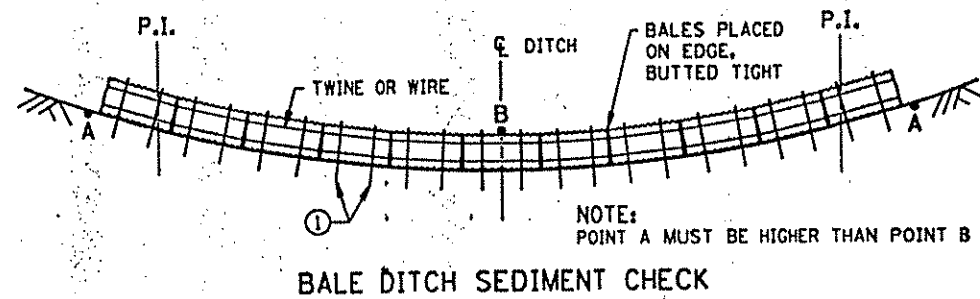
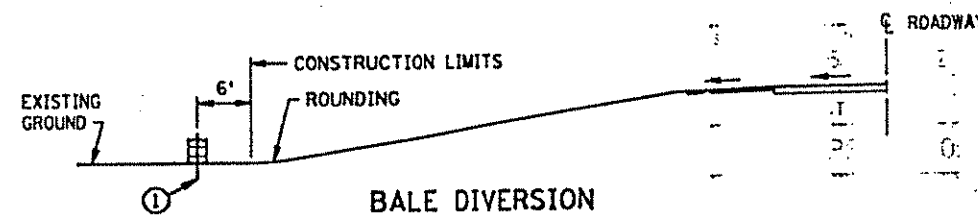
SERVER CAG451/USR/STANDARDS FILE NAME S4052H93.SPN



NOTE:  
POINT A MUST BE HIGHER THAN POINT B  
**BALE DITCH VELOCITY CHECKS**  
(WILL REQUIRE A MINIMUM OF 10 BALES PER SITE)



**BALE CHECK TO PROTECT STORM SEWER INLETS**



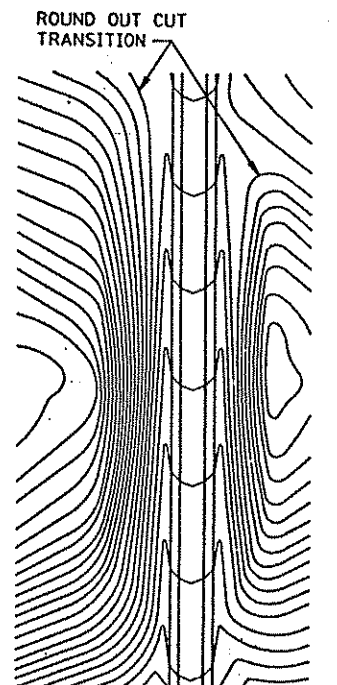
NOTE:  
POINT A MUST BE HIGHER THAN POINT B  
**BALE DITCH SEDIMENT CHECK**

RECOMMENDED SPACING BETWEEN BALE DITCH CHECKS	
DITCH GRADE (%)	SPACING (FT.)
2	100
4	75
6	50
8	40
10	25

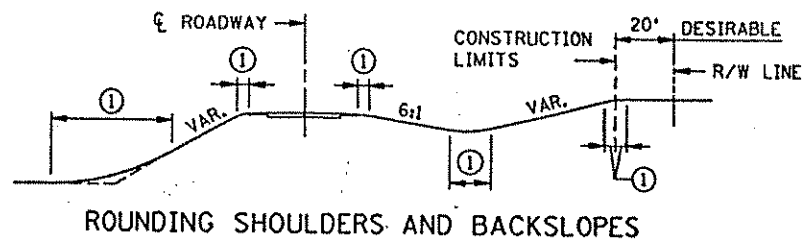
NOTE:  
① TWO 2" X 2" WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10" MINIMUM.

STANDARD SHEET NO. 5-297.405 (2 OF 2)	TITLE TEMPORARY EROSION CONTROL
STANDARD APPROVED: AUGUST 2, 1993	
STATE PROJ. NO. _____	SHEET NO. <u>8</u> OF <u>44</u> SHEETS

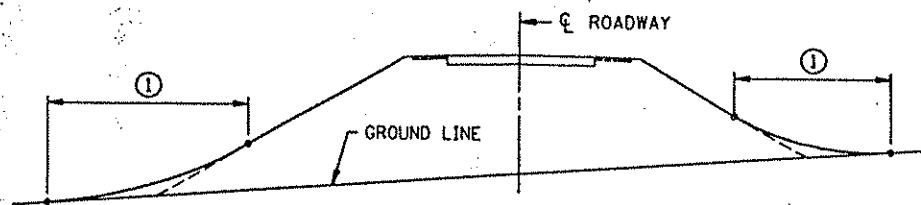




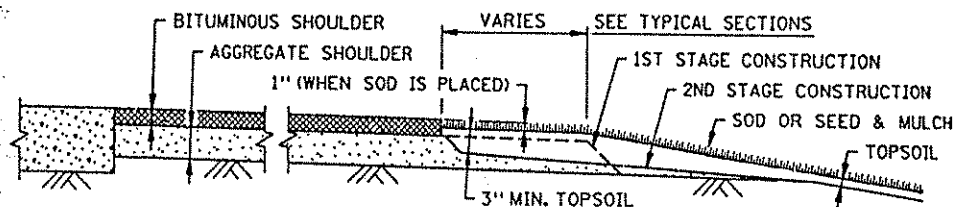
CONTOURING ROAD CUTS



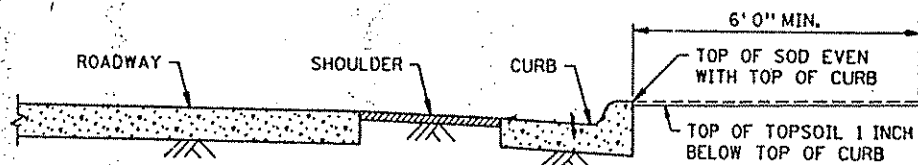
ROUNDING SHOULDERS AND BACKSLOPES



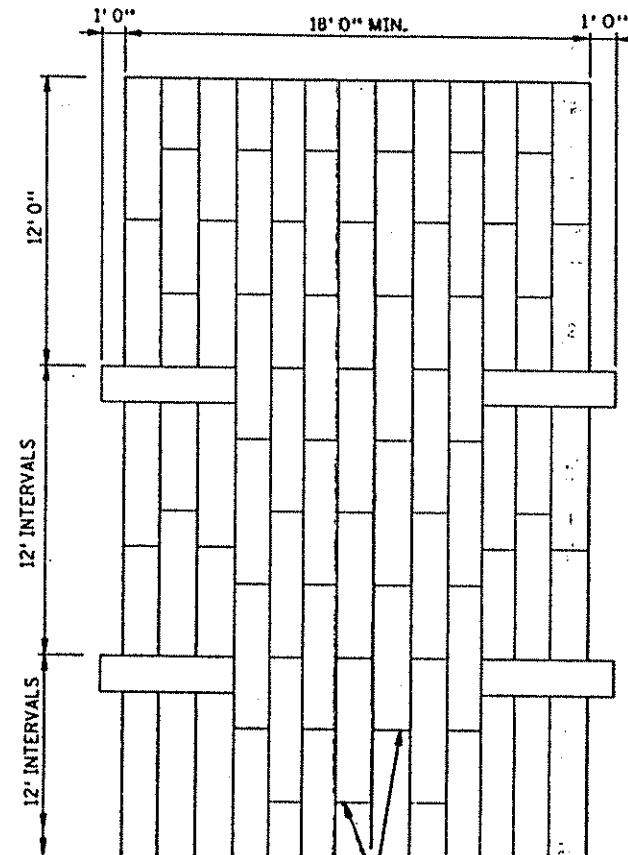
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



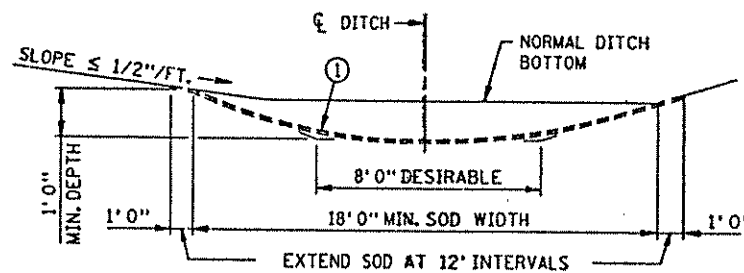
SHAPING AND TOPSOILING INSLOPES



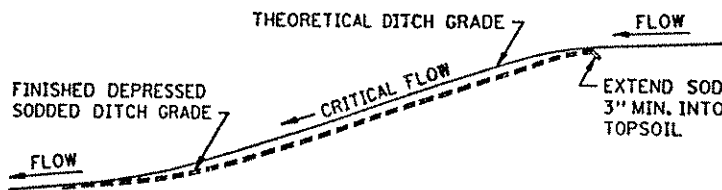
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



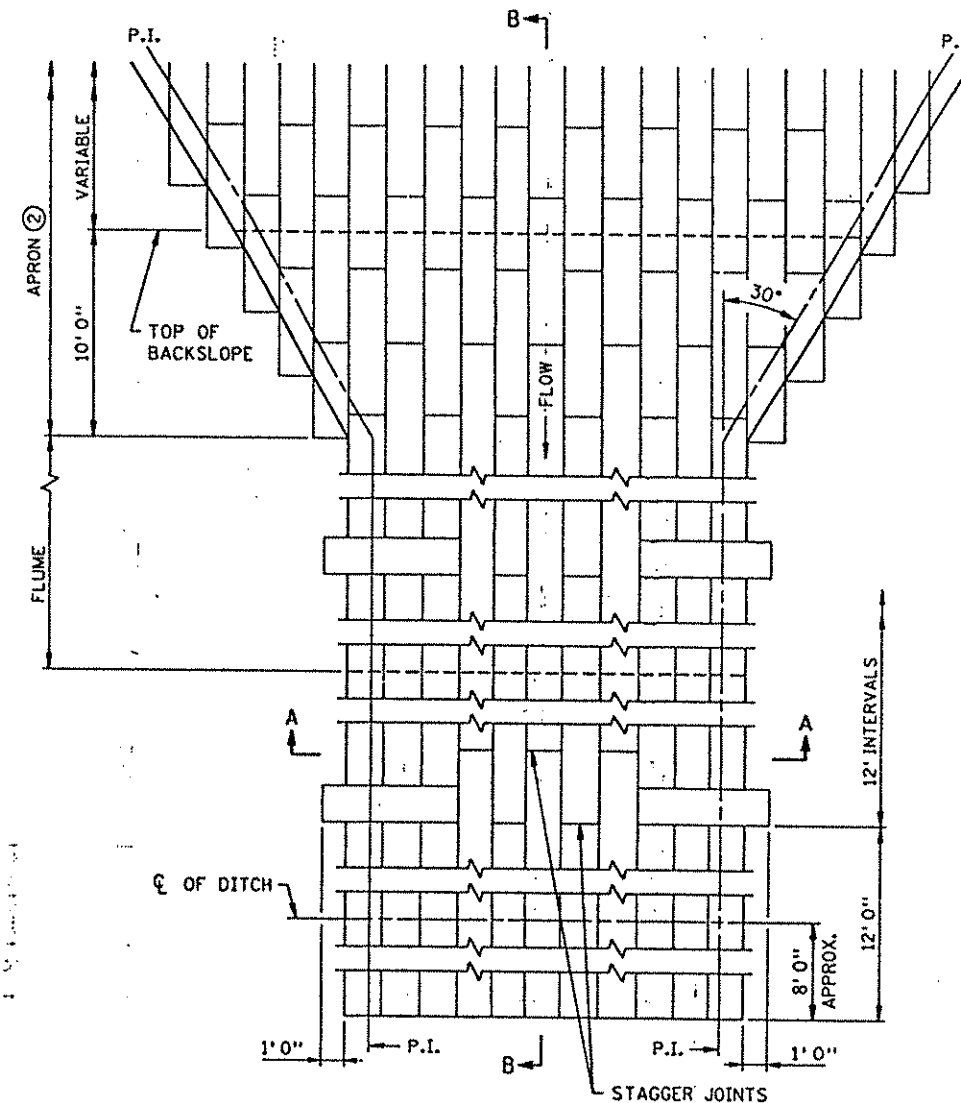
STAGGER JOINTS  
PLAN VIEW



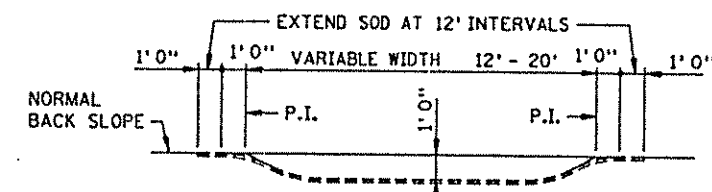
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),  
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



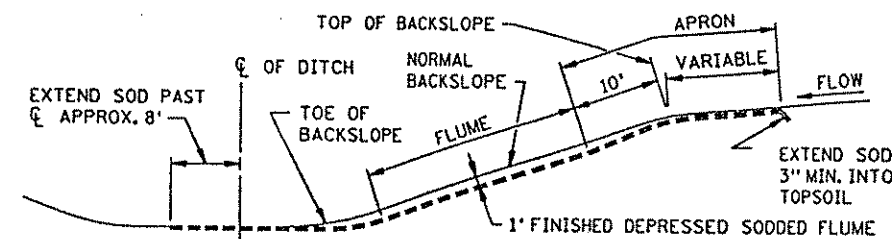
DITCH PROFILE  
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B  
SODDED FLUME DETAILS

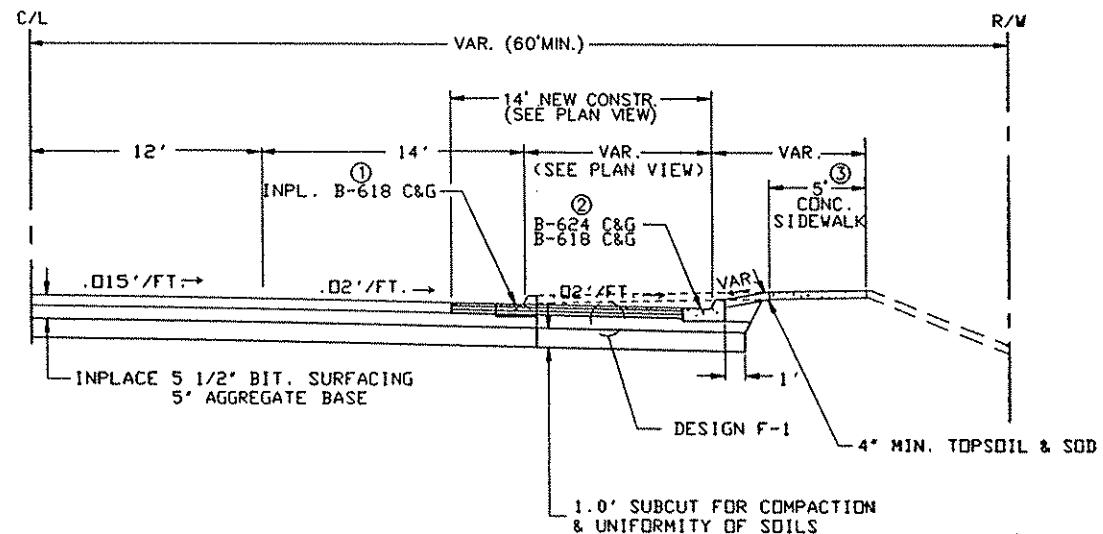
NOTES:

- SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
- ① FOR ROUNDING, SEE ROAD DESIGN MANUAL.
- ② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

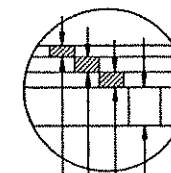
STANDARD SHEET NO.  
5-297.104  
STANDARD APPROVED  
DECEMBER 19, 1990

TITLE:  
PERMANENT EROSION CONTROL  
ALONG ROADWAYS, DITCHES AND FLUMES

S.A.P. 02-678-08 (CSAH 78)  
(STA. 15+91 TO STA. 28+27)



DESIGN F-1



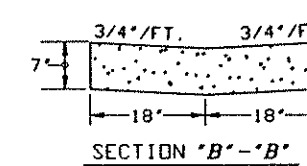
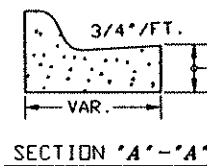
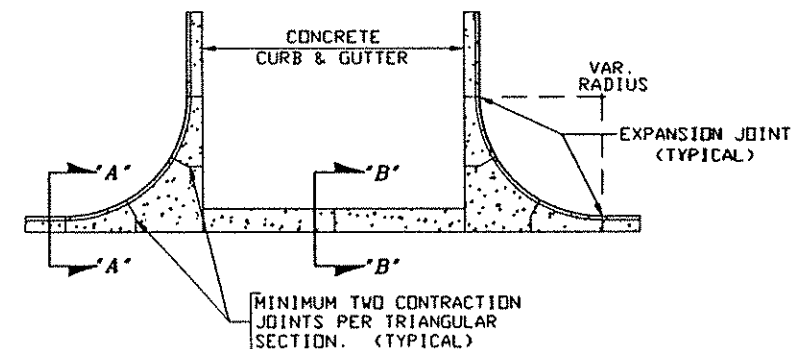
- 1 1/2" TYPE 47 WEAR (47WEA50070X)
- 2" TYPE 47 BINDER (47BIB50070X)
- 2" TYPE 31 (31BBB50000Y)
- 5" AGGREGATE BASE CLASS 5

- ① REMOVE AND DISPOSE OF INPLACE CONCRETE CURB AND GUTTER.
- ② SEE CURB & GUTTER CHART FOR DESIGN LOCATIONS.
- ③ TO REMAIN INPLACE OR TO BE RECONSTRUCTED AS DIRECTED BY THE ENGINEER. (SEE PLAN SHEET FOR PROPOSED RECONSTRUCTION AREAS)

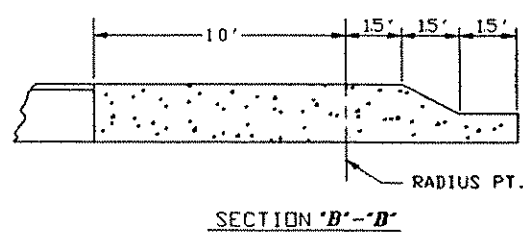
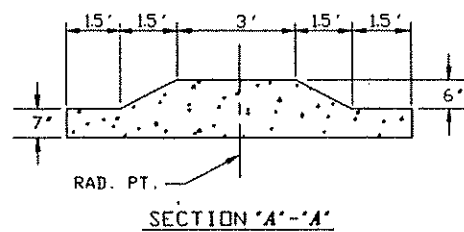
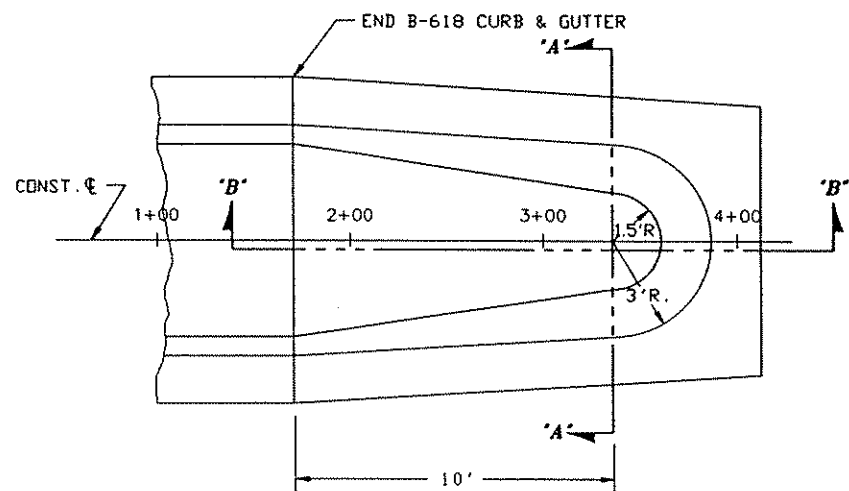
CROSS GUTTER DETAIL

LOCATION

- SAP 20-678-08:  
AMOCO GAS ENTRANCE  
COON RAPIDS PARK ENTRANCE
- SAP 02-678-09:  
SAND CREEK PLAZA ENTRANCE



MEDIAN NOSE DETAIL



NOTE: CURB IN RADIUS SHALL BE FORMED AND POURED AS ONE UNIT, WITH THE CROSS GUTTER TO BE CONSIDERED PART OF THE TRIANGULAR SECTION FOR PAYMENT PURPOSES.

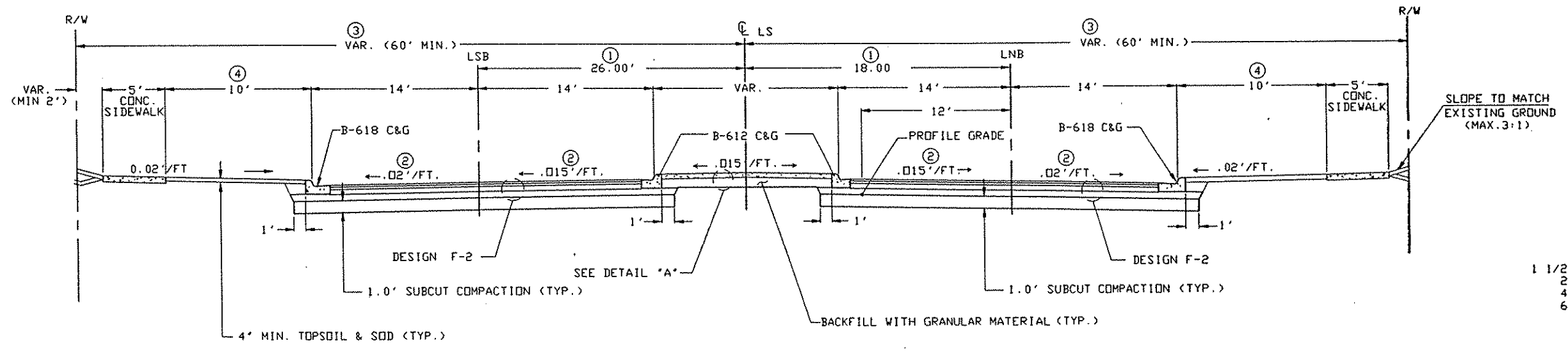
CONSTRUCT CROSS GUTTER SAME THICKNESS AS B-618 CURB & GUTTER.

CONSTRUCT ONE SIDE AT A TIME TO PROVIDE FOR TRAFFIC.

TYPICAL SECTIONS & STANDARD DETAILS

REVISIONS	DATE	BY

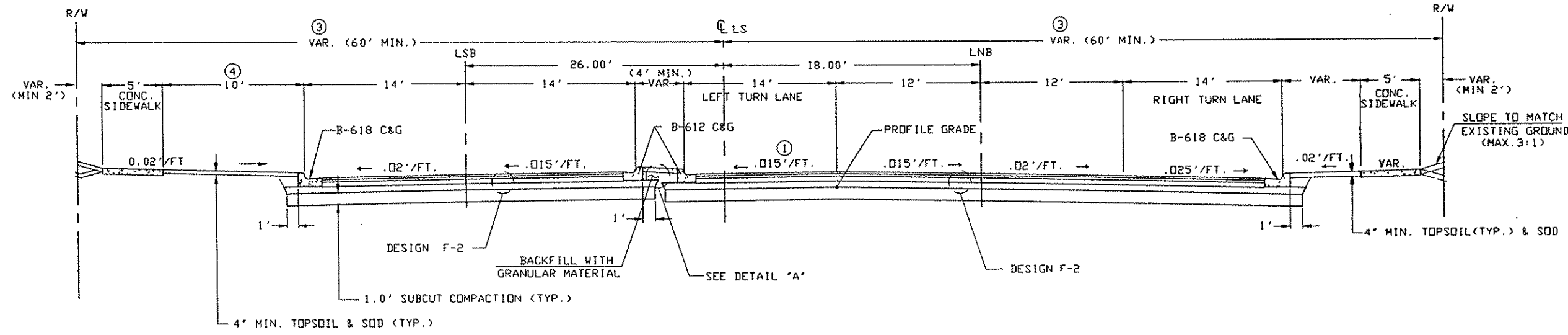
S.A.P. 02-678-09 (CSAH 78)-MAINLINE  
(LNB STA. 33+79 TO STA. 54+60)



DESIGN F-2

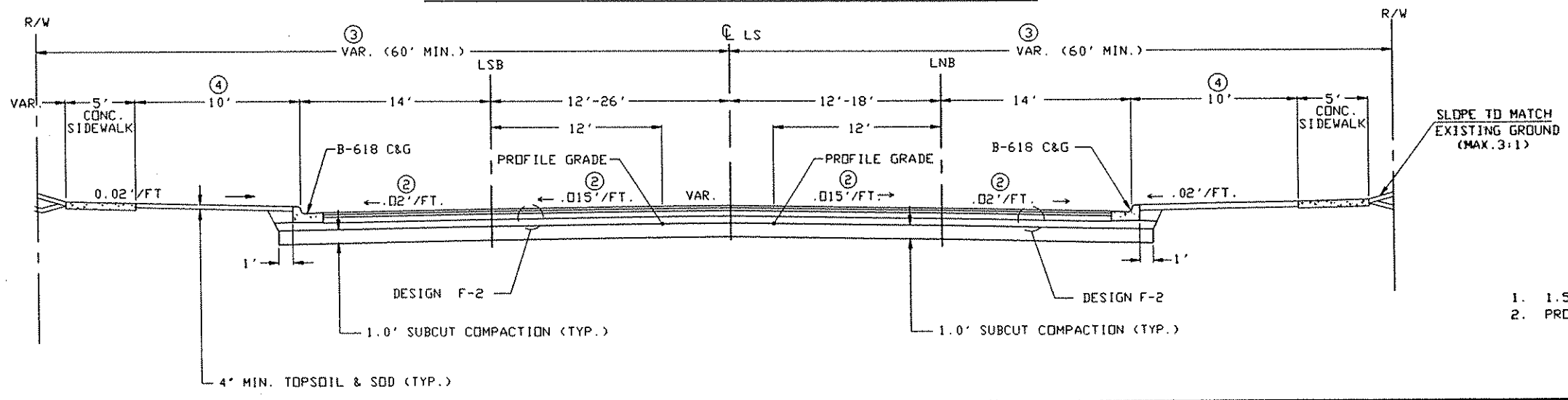
- 1 1/2" TYPE 47 WEAR (47WEA50070X)
- 2" TYPE 47 BINDER (47BIB50070X)
- 4" TYPE 31 BASE (31BBB50000Y)
- 6" AGGREGATE BASE CLASS 5

S.A.P. 02-678-09 TYPICAL TURNBAY CONST.

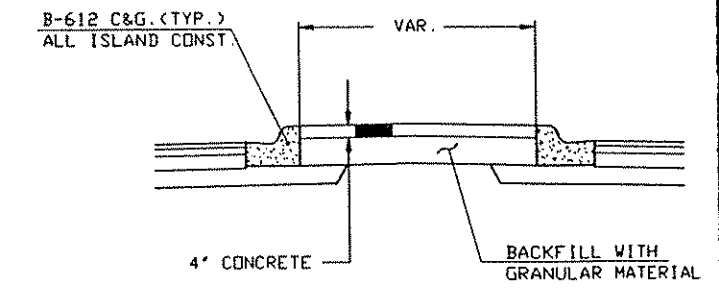


- ① SEE PLAN & PROFILE SHEETS FOR TRANSITIONS TO FULL DESIGN SECTION.
- ② SEE SUPERELEVATION CHART FOR SLOPE IN SUPERELEVATED AREAS.
- ③ SEE PLAN & PROFILE SHEETS FOR R/W WIDTHS.
- ④ 10' BOULEVARD IN AREAS OF SIDEWALK RECONSTRUCTION, VARIABLE WIDTH IN AREAS WHERE SIDEWALK REMAINS INPLACE.

S.A.P. 02-678-09 TYPICAL BEGIN & END CONST.



DETAIL "A"





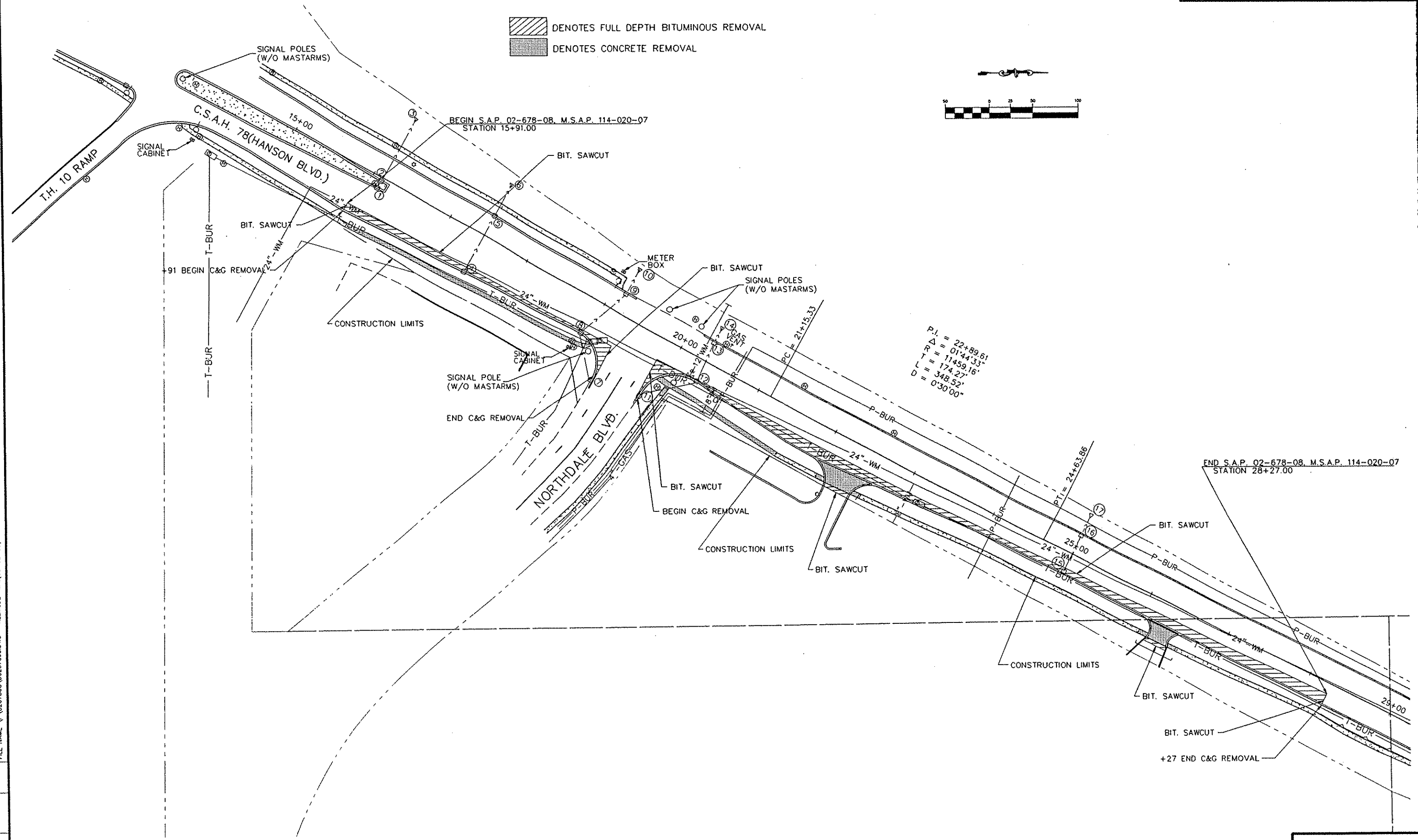
GENERAL NOTES

- 1. 1.5' OBSTACLE FREE ZONE REQUIRED FROM FACE OF CURB.
- 2. PROFILE GRADE IS SAME AS GRADING GRADE.

TYPICAL SECTIONS

REVISIONS	BY	DATE

 DENOTES FULL DEPTH BITUMINOUS REMOVAL  
 DENOTES CONCRETE REMOVAL



P.I. = 22+89.61  
 $\Delta = 01^{\circ}44'33''$   
 $TR = 11459.16'$   
 $L = 174.27'$   
 $D = 0^{\circ}30'00''$



END S.A.P. 02-678-08, M.S.A.P. 114-020-07  
STATION 28+27.00

REVISIONS	BY	DATE

**REMOVALS PLAN**  
 STA. 15+91 TO STA. 28+27

FILE NAME: P:\0267808\0267808.DWG TILEMOOE MN(06-02-95)

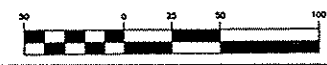
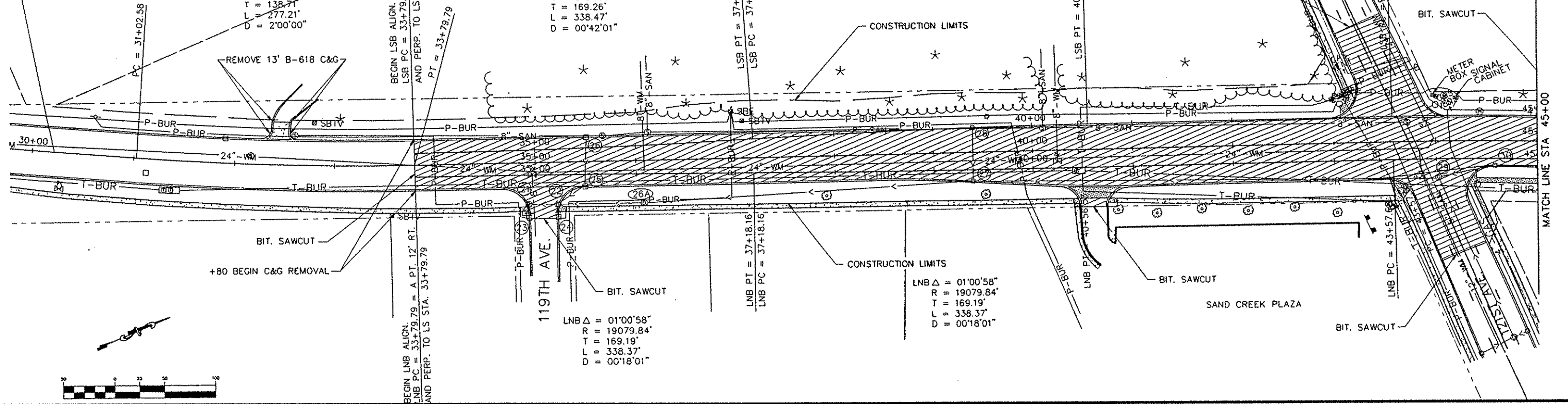
BEGIN S.A.P. 02-678-09, M.S.A.P. 114-020-08  
LS STA. 30+22.00

 DENOTES FULL DEPTH BITUMINOUS REMOVAL  
 DENOTES CONCRETE REMOVAL

LSB Δ = 02°22'13"  
R = 8181.86'  
T = 169.26'  
L = 338.48'  
D = 00°42'01"

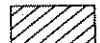

LSB Δ = 02°22'13"  
R = 8181.86'  
T = 169.26'  
L = 338.47'  
D = 00°42'01"

Δ = 05°32'39"  
R = 2864.79'  
T = 138.71'  
L = 277.21'  
D = 2°00'00"



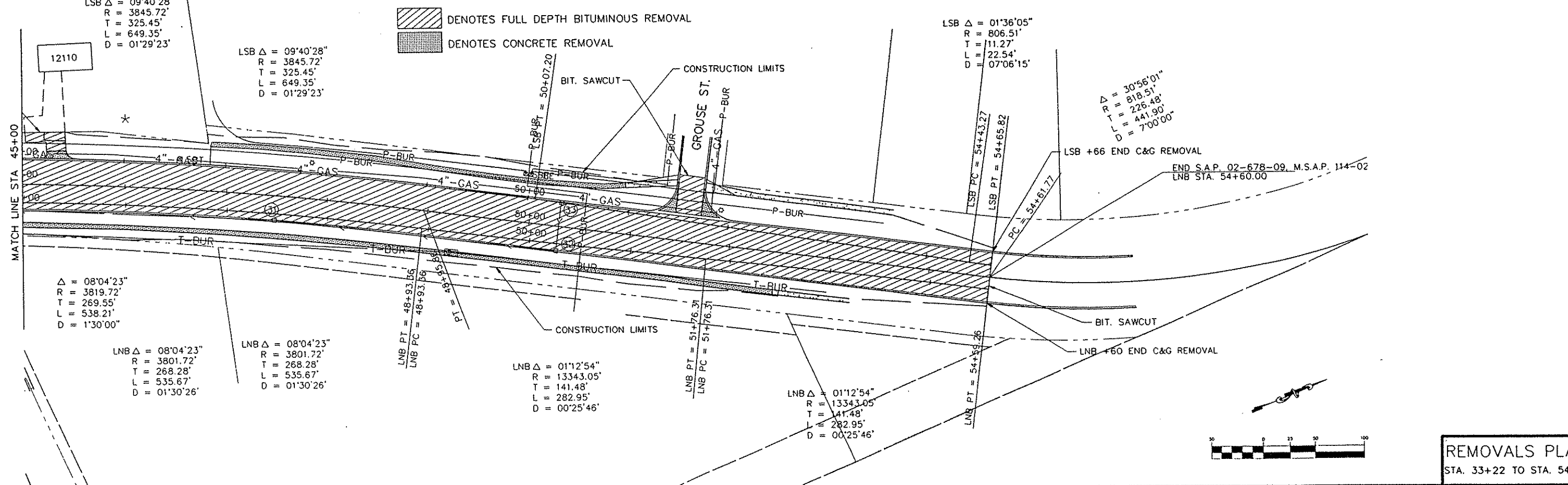
LSB Δ = 09°40'28"  
R = 3845.72'  
T = 325.45'  
L = 649.35'  
D = 01°29'23"

LSB Δ = 09°40'28"  
R = 3845.72'  
T = 325.45'  
L = 649.35'  
D = 01°29'23"

 DENOTES FULL DEPTH BITUMINOUS REMOVAL  
 DENOTES CONCRETE REMOVAL

LSB Δ = 01°36'05"  
R = 806.51'  
T = 11.27'  
L = 22.54'  
D = 07°06'15"

Δ = 30°56'01"  
R = 818.51'  
T = 226.48'  
L = 441.90'  
D = 7°00'00"



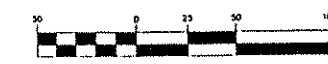
Δ = 08°04'23"  
R = 3819.72'  
T = 269.55'  
L = 538.21'  
D = 1°30'00"

LNB Δ = 08°04'23"  
R = 3801.72'  
T = 268.28'  
L = 535.67'  
D = 01°30'26"

LNB Δ = 08°04'23"  
R = 3801.72'  
T = 268.28'  
L = 535.67'  
D = 01°30'26"

LNB Δ = 01°12'54"  
R = 13343.05'  
T = 141.48'  
L = 282.95'  
D = 00°25'46"

LNB Δ = 01°12'54"  
R = 13343.05'  
T = 141.48'  
L = 282.95'  
D = 00°25'46"



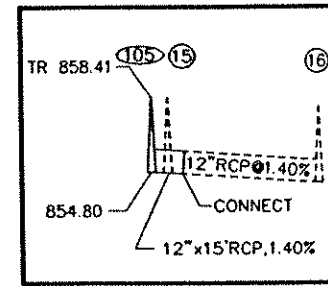
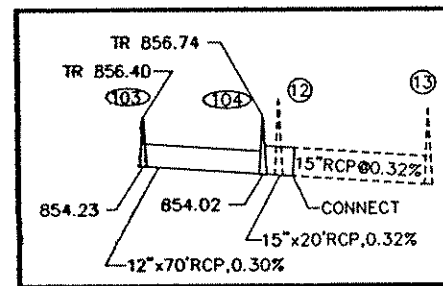
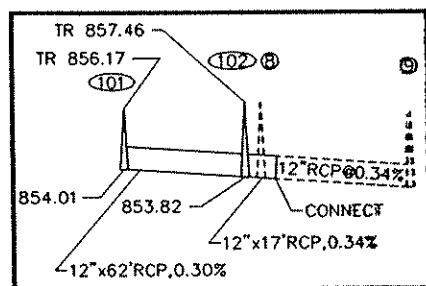
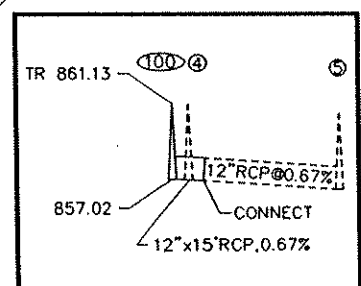
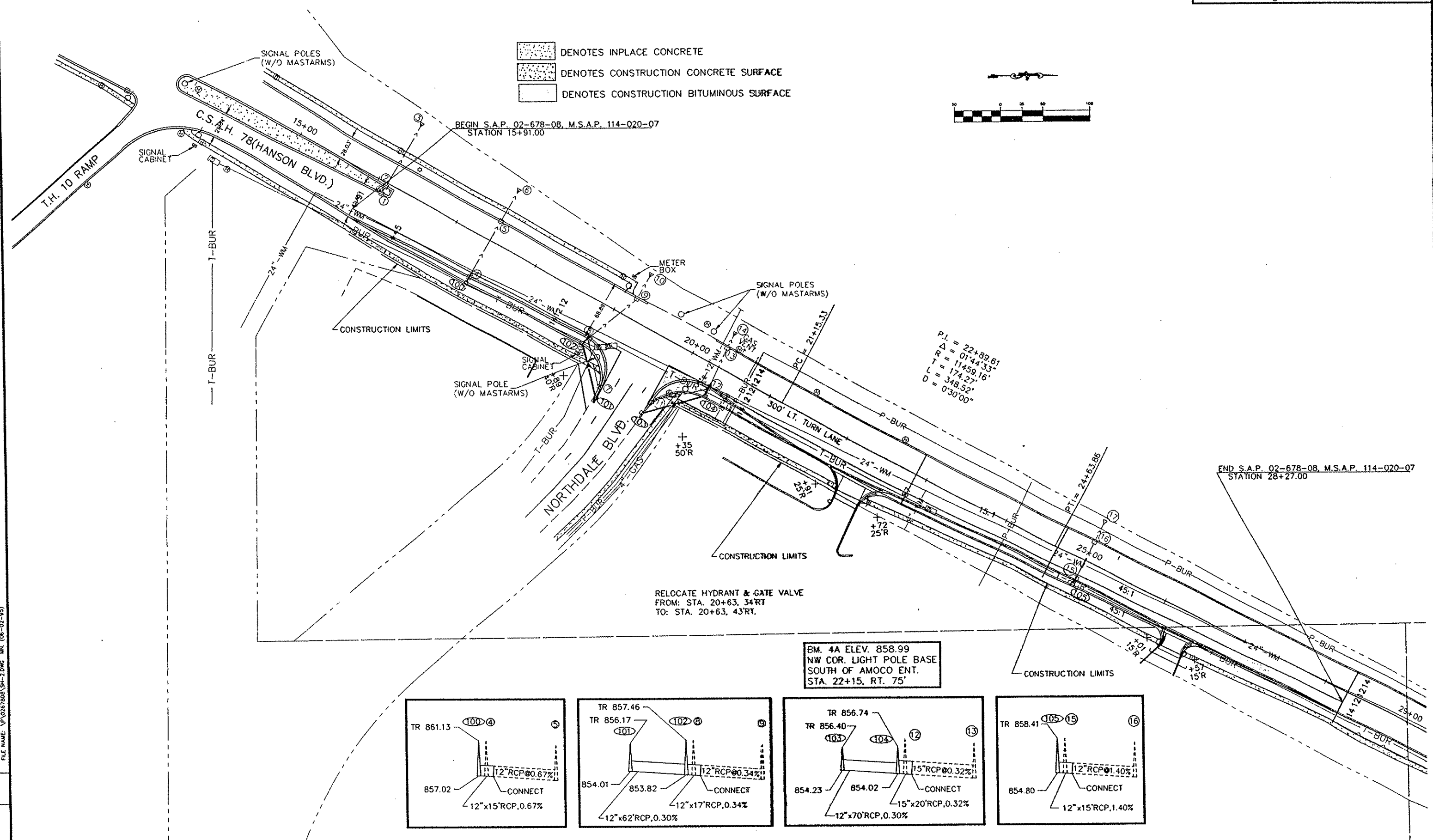
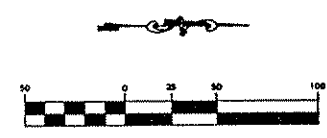
REMOVALS PLAN  
STA. 33+22 TO STA. 54+62

FILE NAME: V:\0267808\0267808.DWG TELECODE: MM(06-02-95)

REVISIONS	DATE	BY

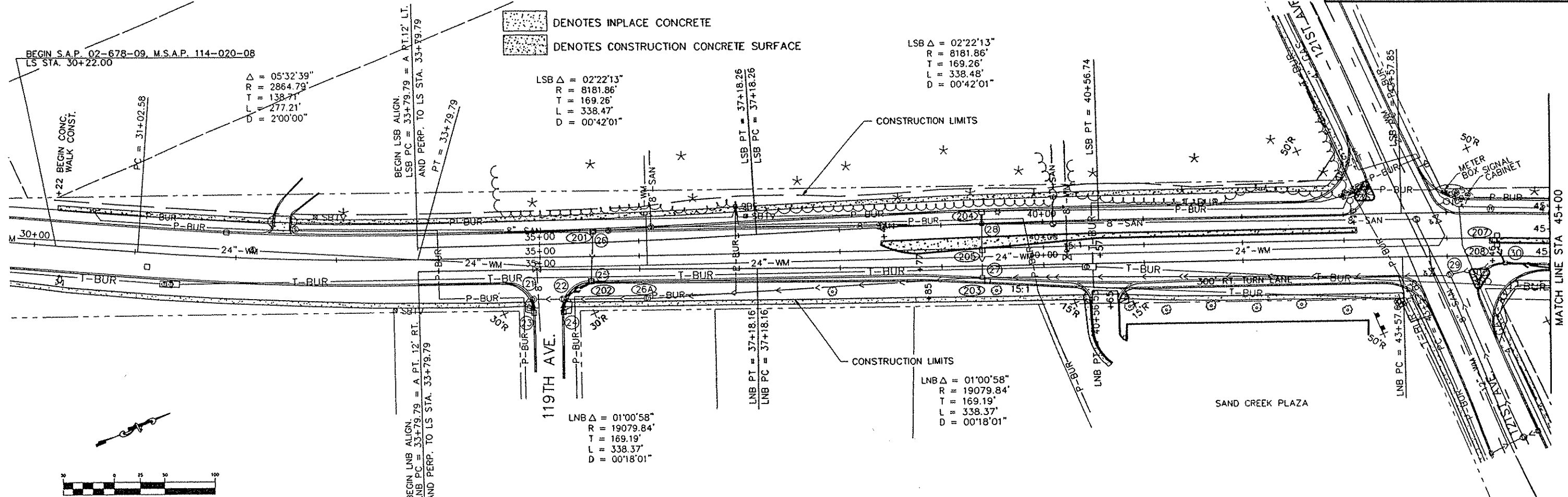


DENOTES INPLACE CONCRETE  
 DENOTES CONSTRUCTION CONCRETE SURFACE  
 DENOTES CONSTRUCTION BITUMINOUS SURFACE



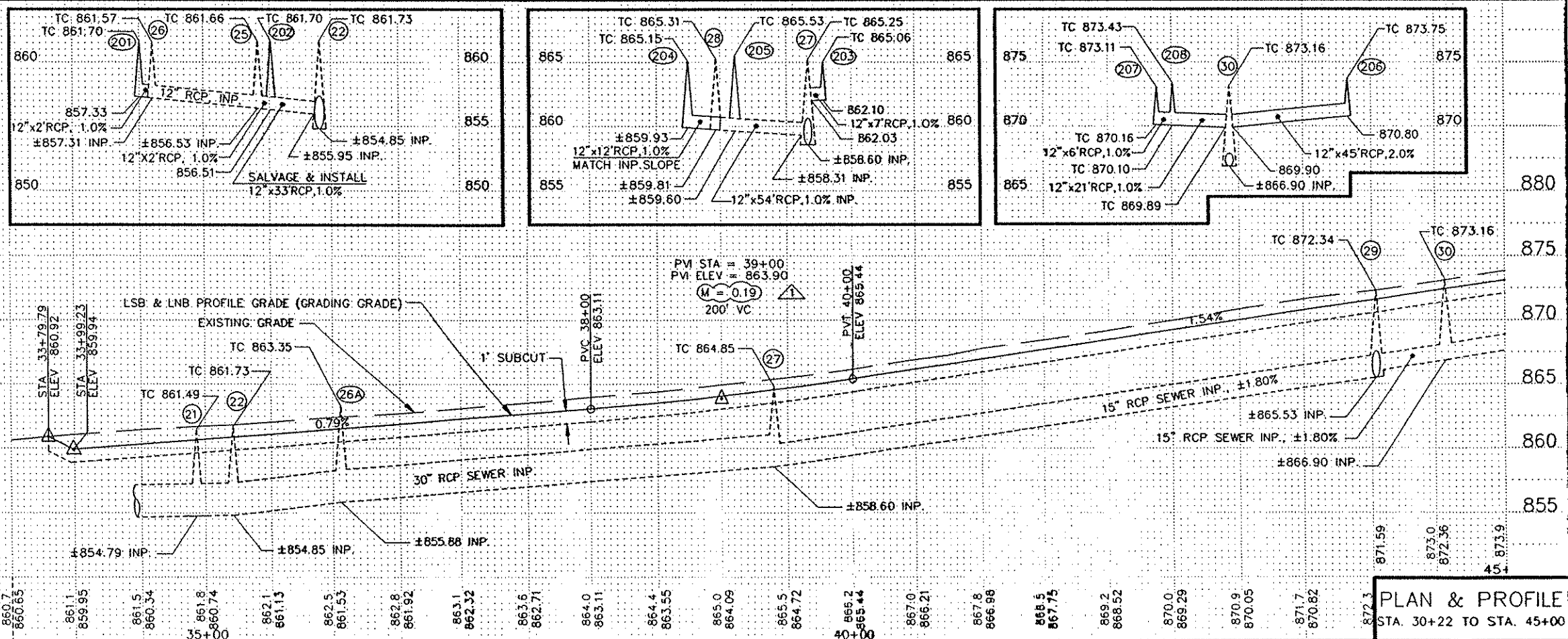
**PLAN & PROFILE**  
 STA. 15+91 TO STA. 28+27

REVISIONS	DATE	BY

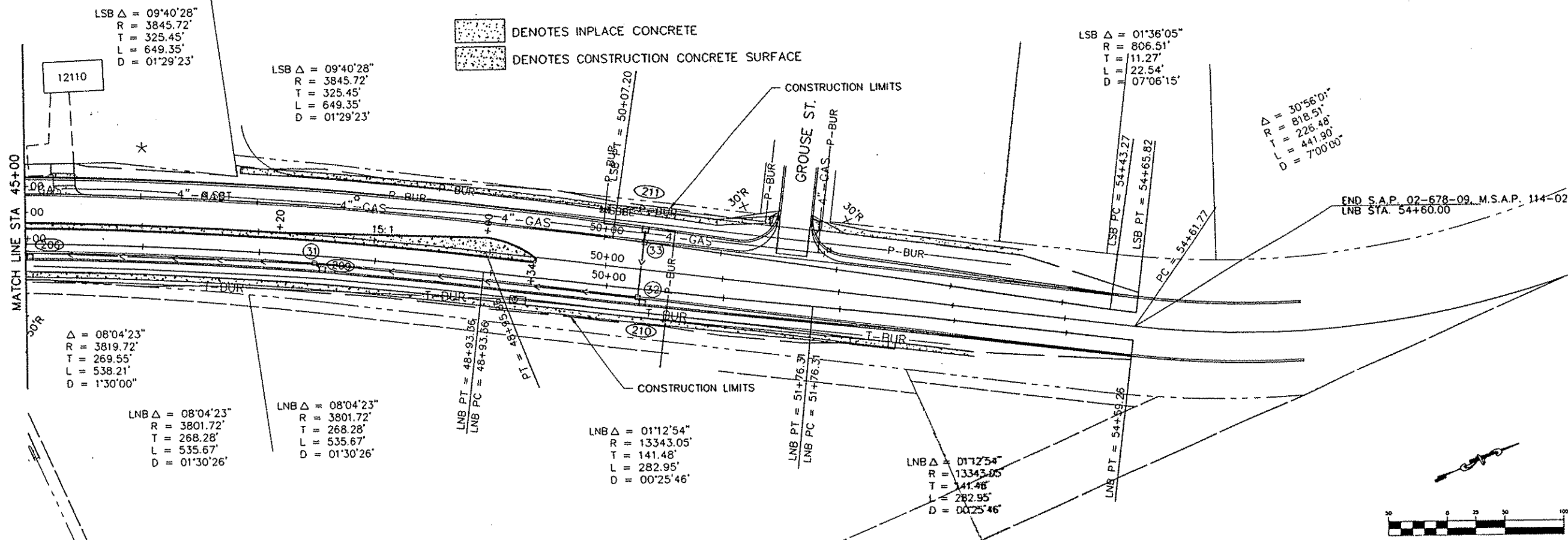


FILE NAME: \P\0267808\SH-1.DWG MN. (06-28-95)

REVISIONS	DATE	BY
1	6/27/95	DWF

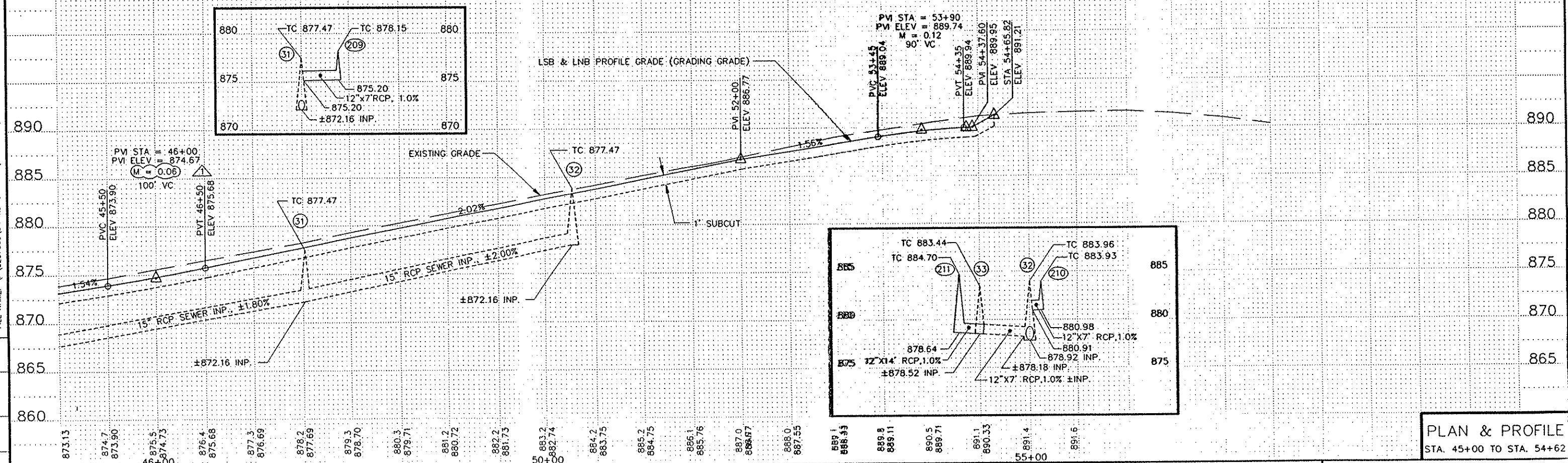


PLAN & PROFILE  
 STA. 30+22 TO STA. 45+00



FILE NAME: P:\0267808\SH-1.DWG MR. (06-28-95)

REVISIONS	DATE	BY



END OF CURVE NO. 1  
(INPLACE)

LS FINISH PROFILE GRADE INPLACE

24.5' RT. (INPLACE)  
12' RT. (INPLACE)  
12' LT. (INPLACE)  
24.5' LT. (INPLACE)

PT. +76.28

BEG. FULL WIDTH CONST. STA. 33+79

200:1  
400:1  
12' LT. -0.18  
24.5' LT. -0.43  
12' RT. -0.18  
24.5' RT. -0.43

30+00 32+00 34+00 36+00

NOTE: STATIONING BASED ON LS ALIGN.

LSB CURVE NO. 2  
SPEED DESIGN 45 MPH  
DEGREE = 1° 29' 23"  
MAX. e = 0.024/FT.

LSB FINISH PROFILE

LSB FINISH PROFILE

LNB FINISH PROFILE

LNB FINISH PROFILE

LNB CURVE NO. 2  
SPEED DESIGN 45 MPH  
DEGREE = 1° 30' 26"  
MAX. e = 0.024/FT.

NOTE: STATIONING BASED ON CONST. LNB AND LSB.

40+00 42+00 44+00 46+00 48+00 50+00 52+00 54+00

BEG. OF CURVE NO. 3  
(INPLACE)

LS FINISH PROFILE (INPLACE)

208:1  
400:1

END CONST. STA. 54+62

LS PC +61.77 = SB PT

12' RT. -0.18  
24.5' RT. -0.43  
12' LT. (INPLACE)  
24.5' LT. (INPLACE)

52+00 54+00 56+00 58+00

NOTE: STATIONING BASED ON LS ALIGN.

SUPERELEVATION CHARTS

REVISIONS	DATE	BY

FILE NAME: P:\0267808\SUPER.DWG MN(05-04-95)



**NOTES:**

- 1) LOCATION OF POLES, CONTROLLER CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
- 4) NEW HANDHOLES SHALL BE CONCRETE HANDHOLES WITH TYPE "C" COVERS PER MN/DOT STANDARD PLATE No.8117F.
- 5) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
- 6) EACH PEDESTRIAN INDICATION IS 12"x12", IS INPLACE AND SHALL BE REUSED AS SHOWN.
- 7) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED APPROXIMATELY 6' FROM THE LEFT END OF EACH MAST ARM.
- 8) SEE SPECIAL PROVISIONS REGARDING REMOVAL, SALVAGING AND/OR REINSTALLING INPLACE SIGNAL EQUIPMENT (INCLUDING INTERCONNECT CABLE).
- 9) CONTRACTOR SHALL KEEP SIGNAL SYSTEM OPERATIONAL AT ALL TIMES, EXCEPT AS OTHERWISE NOTED IN THE SPECIAL PROVISIONS.
- 10) (INTERCONNECT) DENOTES MATERIALS TO BE MEASURED AND PAID FOR SEPARATELY FROM ITEM No. 0565.604.

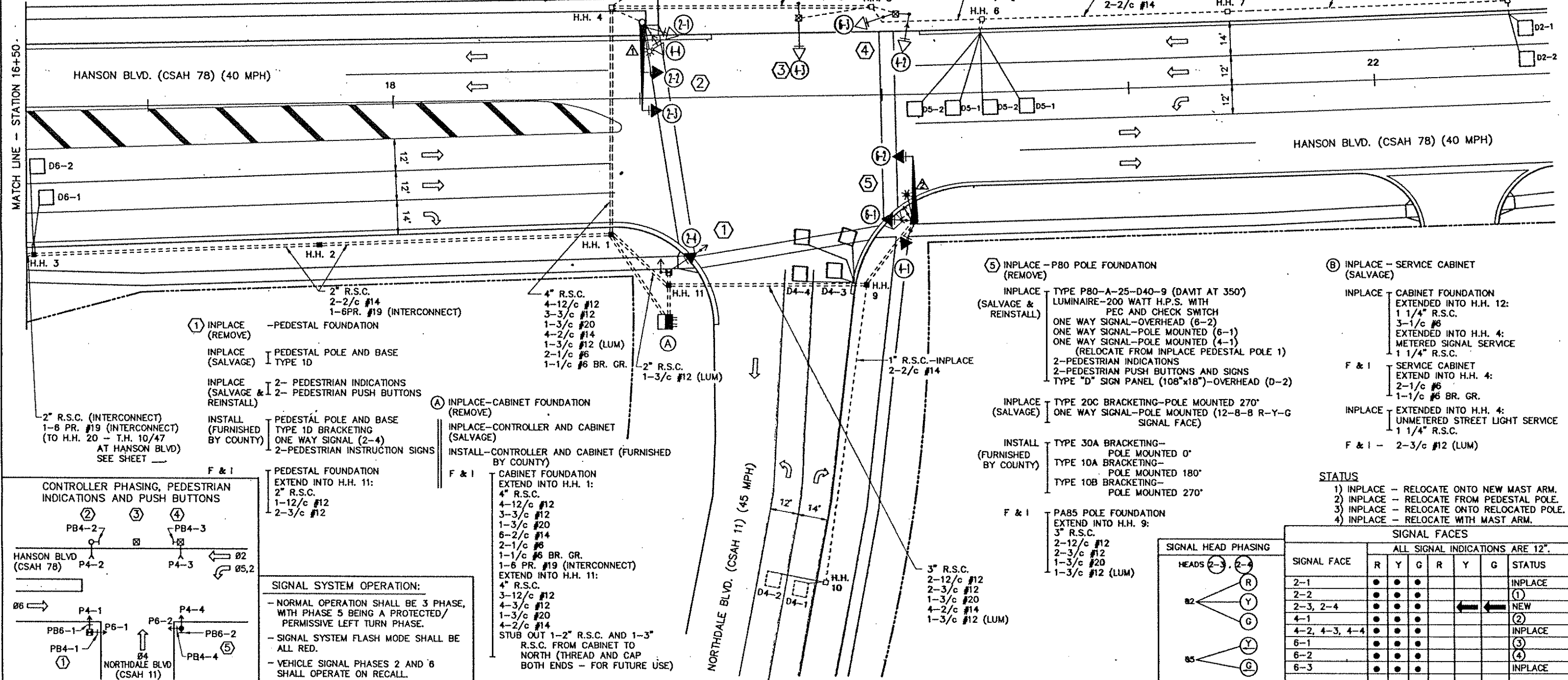
LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
* D2-1	6x6	250'	1
* D2-2	6x6	250'	1
* D4-1	6x6	130'	3,8
* D4-2	6x6	130'	3,8
D4-3	2-6x6	AS SHOWN	7
D4-4	2-6x6	AS SHOWN	1
D5-1	2-6x6	20 & 50'	1,11
D5-2	2-6x6	5' & 35'	1,11
D6-1	6x6	250'	1
D6-2	6x6	250'	1

NOTE: LOCATION=DISTANCE FROM CROSSWALK TO FRONT OF LOOP DETECTOR. \* = INPLACE DETECTOR - REUSE INPLACE.

**LOOP DETECTOR FUNCTIONS:**

- 1) CALL AND EXTEND
- 2) CALL ONLY
- 3) EXTEND ONLY
- 4) CALL ONLY DENSITY
- 5) DELAYED CALL ONLY
- 6) DELAYED CALL ONLY DENSITY
- 7) DELAYED CALL- IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)
- 9) ADVISORY DETECTOR
- 10) SAMPLING DETECTOR
- 11) EXTEND #2 DURING #2 GREEN

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- ① INPLACE (REMOVE) - PEDESTAL FOUNDATION
- INPLACE (SALVAGE) PEDESTAL POLE AND BASE TYPE 1D
- INPLACE (SALVAGE & REINSTALL) 2- PEDESTRIAN INDICATIONS 2- PEDESTRIAN PUSH BUTTONS
- 2" R.S.C. (INTERCONNECT) 1-8 PR. #19 (INTERCONNECT) (TO H.H. 20 - T.H. 10/47 AT HANSON BLVD) SEE SHEET
- INSTALL (FURNISHED BY COUNTY) PEDESTAL POLE AND BASE TYPE 1D BRACKETING ONE WAY SIGNAL (2-4) 2-PEDESTRIAN INSTRUCTION SIGNS

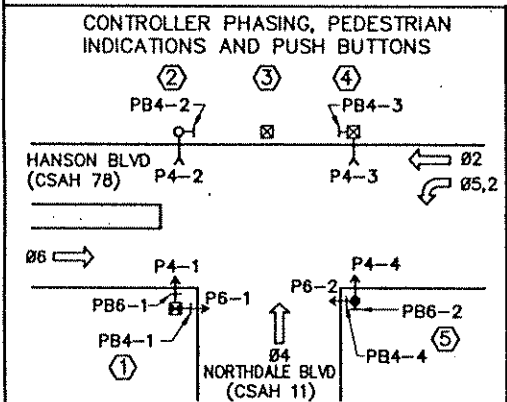
- ⑤ INPLACE - CABINET FOUNDATION (REMOVE)
- INPLACE - CONTROLLER AND CABINET (SALVAGE)
- INSTALL - CONTROLLER AND CABINET (FURNISHED BY COUNTY)
- F & I CABINET FOUNDATION EXTEND INTO H.H. 1: 4" R.S.C. 4-12/c #12 3-3/c #12 1-3/c #20 6-2/c #14 2-1/c #8 1-1/c #6 BR. GR. 1-6 PR. #19 (INTERCONNECT) EXTEND INTO H.H. 11: 4" R.S.C. 3-12/c #12 4-3/c #12 1-3/c #20 4-2/c #14 STUB OUT 1-2" R.S.C. AND 1-3" R.S.C. FROM CABINET TO NORTH (THREAD AND CAP BOTH ENDS - FOR FUTURE USE)

- ⑤ INPLACE - P80 POLE FOUNDATION (REMOVE)
- INPLACE (SALVAGE & REINSTALL) TYPE P80-A-25-D40-9 (DAVIT AT 350') LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH ONE WAY SIGNAL-OVERHEAD (8-2) ONE WAY SIGNAL-POLE MOUNTED (6-1) ONE WAY SIGNAL-POLE MOUNTED (4-1) (RELOCATE FROM INPLACE PEDESTAL POLE 1) 2-PEDESTRIAN INDICATIONS 2-PEDESTRIAN PUSH BUTTONS AND SIGNS TYPE "D" SIGN PANEL (108"x18")-OVERHEAD (D-2)
- INPLACE (SALVAGE) TYPE 20C BRACKETING-POLE MOUNTED 270° ONE WAY SIGNAL-POLE MOUNTED (12-8-B R-Y-G SIGNAL FACE)
- INSTALL (FURNISHED BY COUNTY) TYPE 30A BRACKETING-POLE MOUNTED 0° TYPE 10A BRACKETING-POLE MOUNTED 180° TYPE 10B BRACKETING-POLE MOUNTED 270°
- F & I PAB5 POLE FOUNDATION EXTEND INTO H.H. 9: 3" R.S.C. 2-12/c #12 2-3/c #12 1-3/c #20 1-3/c #12 (LUM)

- ⑥ INPLACE - SERVICE CABINET (SALVAGE)
- INPLACE CABINET FOUNDATION EXTENDED INTO H.H. 12: 1 1/4" R.S.C. 3-1/c #8 EXTENDED INTO H.H. 4: METERED SIGNAL SERVICE 1 1/4" R.S.C.
- F & I SERVICE CABINET EXTEND INTO H.H. 4: 2-1/c #6 1-1/c #6 BR. GR.
- INPLACE EXTENDED INTO H.H. 4: UNMETERED STREET LIGHT SERVICE 1 1/4" R.S.C.
- F & I - 2-3/c #12 (LUM)

**SIGNAL SYSTEM OPERATION:**

- NORMAL OPERATION SHALL BE 3 PHASE, WITH PHASE 5 BEING A PROTECTED/ PERMISSIVE LEFT TURN PHASE.
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.



**STATUS**

- 1) INPLACE - RELOCATE ONTO NEW MAST ARM.
- 2) INPLACE - RELOCATE FROM PEDESTAL POLE.
- 3) INPLACE - RELOCATE ONTO RELOCATED POLE.
- 4) INPLACE - RELOCATE WITH MAST ARM.

SIGNAL HEAD PHASING	SIGNAL FACES						STATUS
	ALL SIGNAL INDICATIONS ARE 12"						
HEADS 2-3, 2-4	R	Y	G	R	Y	G	
2-1	●	●	●				INPLACE
2-2	●	●	●				①
2-3, 2-4	●	●	●	←	←		NEW
4-1	●	●	●				②
4-2, 4-3, 4-4	●	●	●				INPLACE
6-1	●	●	●				③
6-2	●	●	●				④
6-3	●	●	●				INPLACE

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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.  
*Robert A. Ellen*  
Date: 4/18/95 Reg. No. 5859

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.  
*John M. Jones*  
Date: 4/18/95 Reg. No. 22457



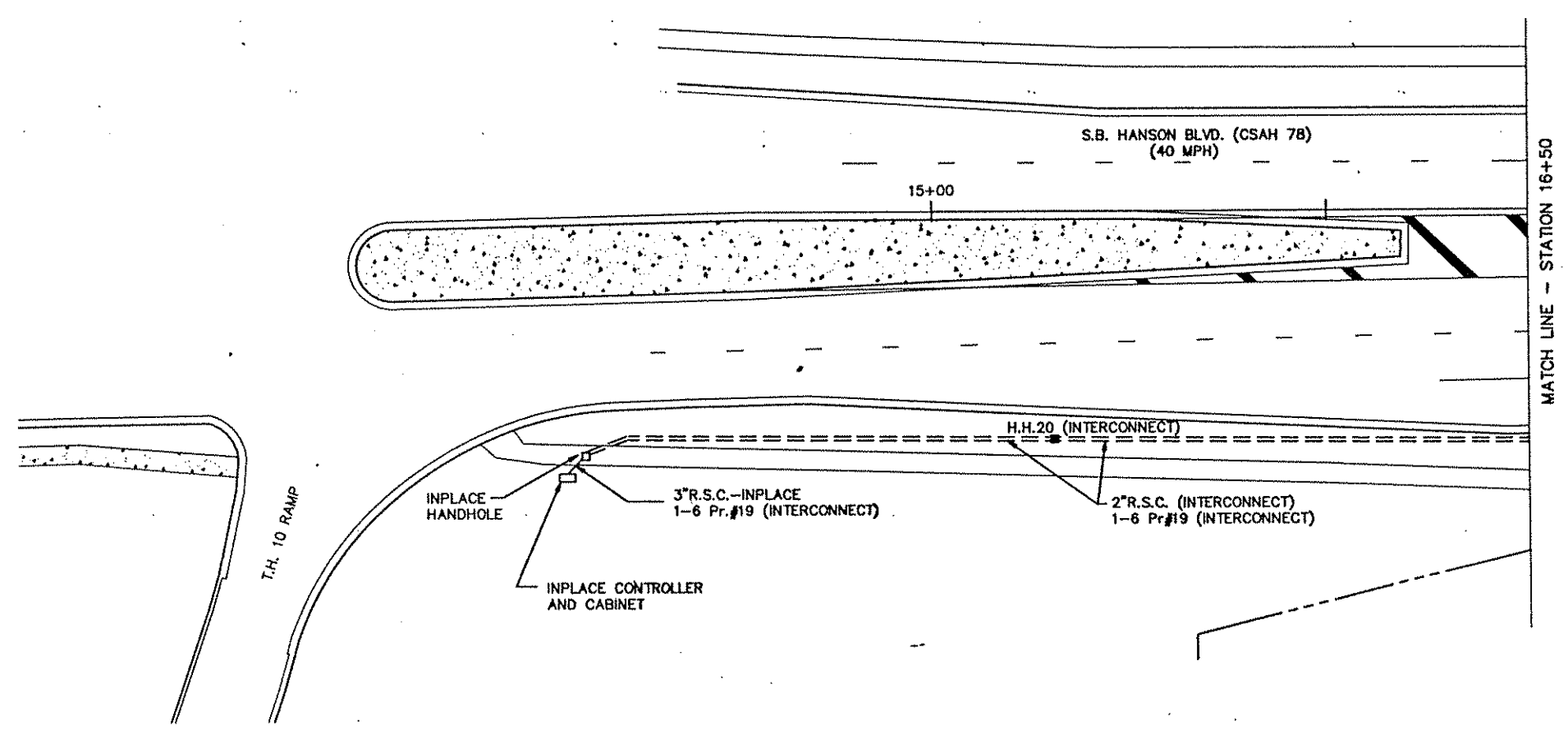
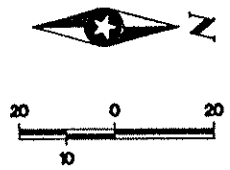
ANOKA COUNTY, MINNESOTA  
CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM "A"  
INTERSECTION LAYOUT  
HANSON BLVD. (CSAH 78) AT NORTHDAL BLVD. (CSAH 11)

FILE NO. ANOKC9504  
DATE 4/18/95

NO. BY DATE REVISIONS





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 Date: 4-18-95 Reg. No. 5859

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*John M. Has*  
 Date: 4/18/95 Reg. No. 22457



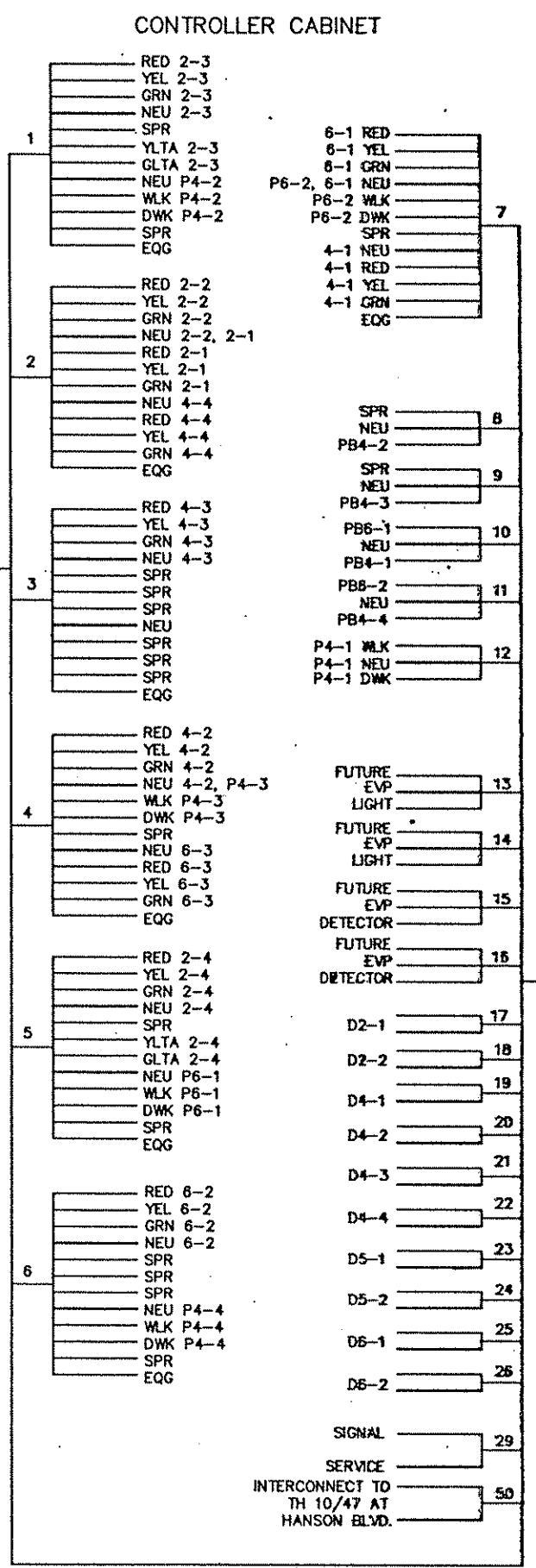
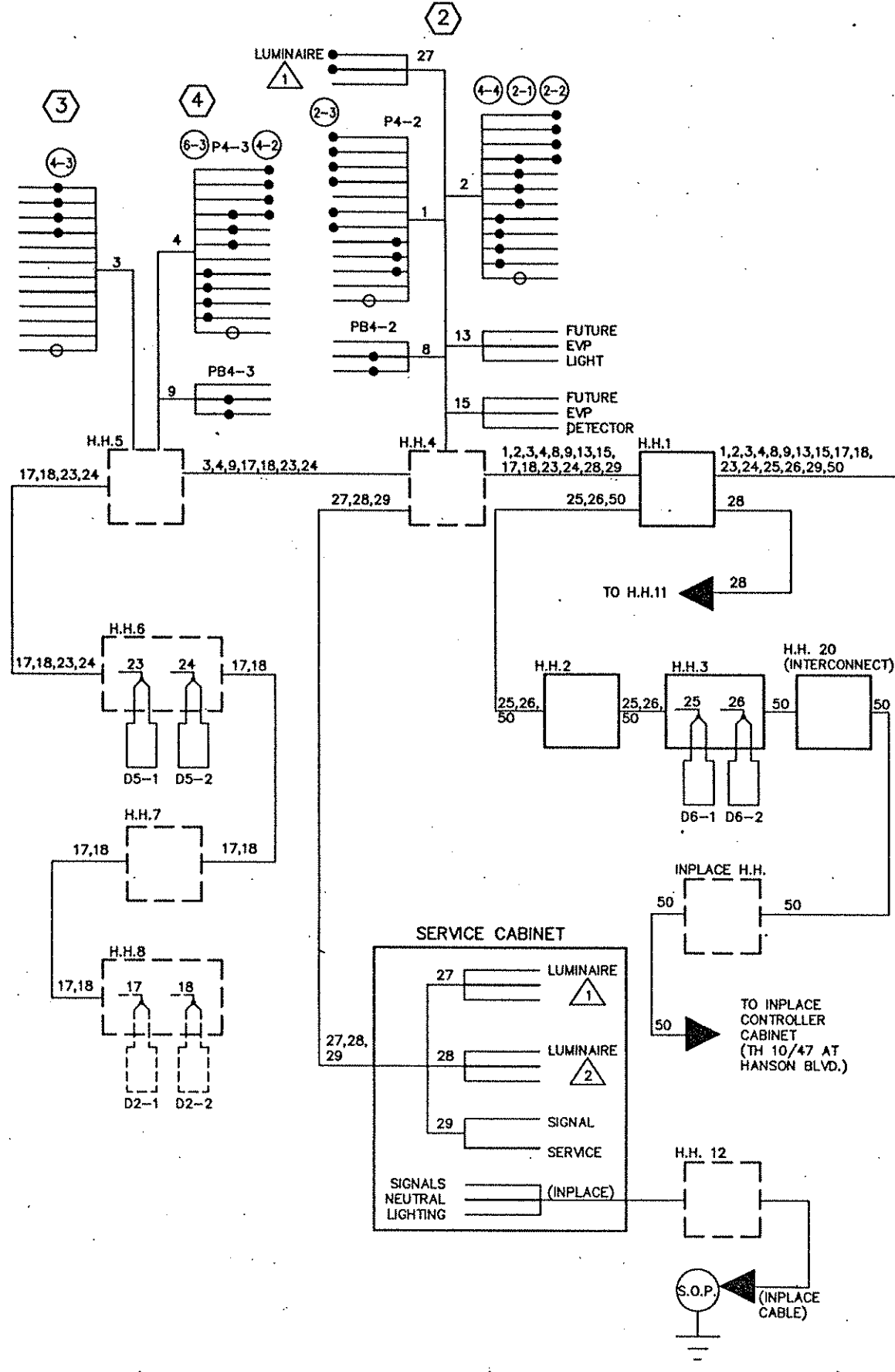
ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM "A"  
 INTERSECTION LAYOUT  
 HANSON BLVD. (CSAH 78) AT NORTHDAL BLVD. (CSAH 11)

FILE NO.  
 ANOKC9504  
 DATE  
 4/18/95

BASE OVERLAY DRC. NO.

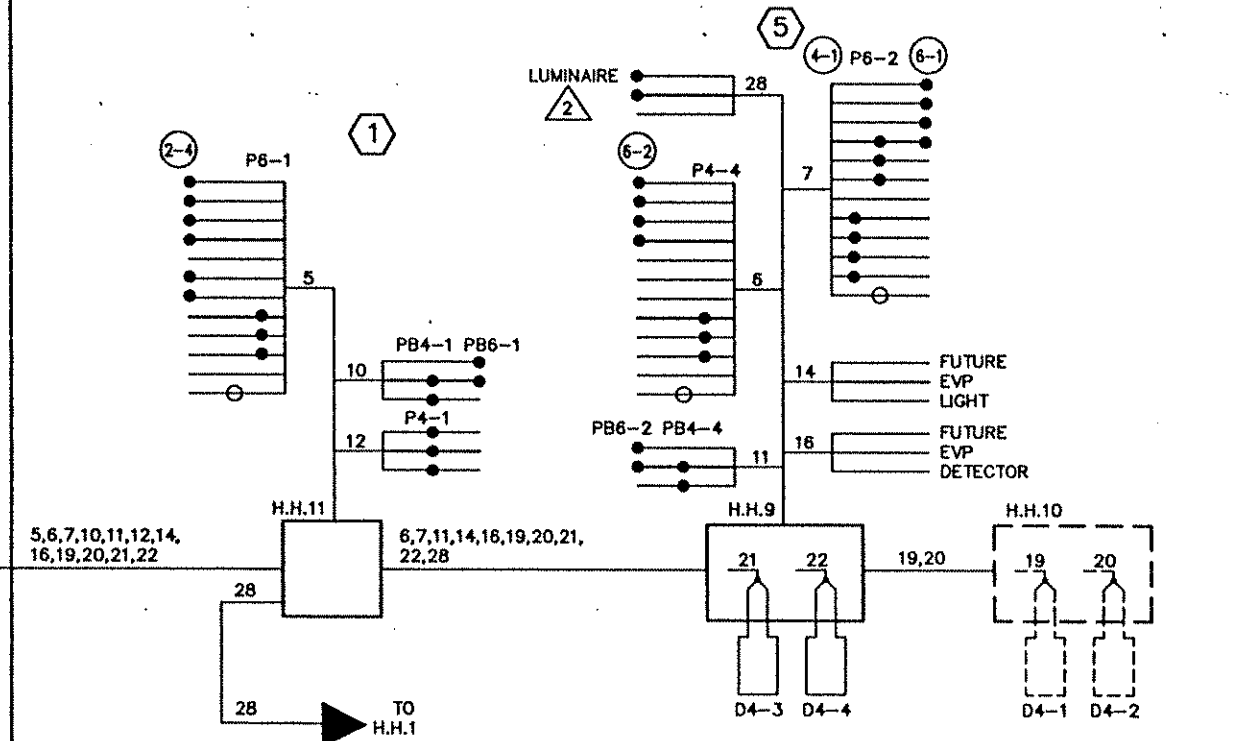
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#### CONDUCTOR COLOR CODING

R	BLK	2-1/c#2
O	WH	2-1/c#6
BL	WH	2-1/c#10
WH		
R/BLK	R	
O/BLK	WH	3/c#12
BL/BLK	BLK	
WH/BLK		
BLK	BLK	2/c#12
BLK/WH	CLEAR	
G/BLK		
G		
	R OR O	
	WH OR YEL	3/c#20
	BLK OR BL	

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



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 Date: 4-18-95 Reg. No. 5859

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*John M. Hayes*  
 Date: 4/18/95 Reg. No. 22457



ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS

TRAFFIC SIGNAL SYSTEM "A"  
 FIELD WIRING DIAGRAM  
 HANSON BLVD. (CSAH 78) AT NORTHDAL E BLVD. (CSAH 11)

FILE NO. ANOKC9504  
 DATE 4/18/95

- NOTES:**
- 1) LOCATION OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) LOOP DETECTOR WRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
  - 4) NEW HANDHOLES SHALL BE CONCRETE HANDHOLES WITH TYPE "C" COVERS (EXCEPT THAT HANDHOLES 4, 9, 10 AND 19 SHALL HAVE TYPE "LD" COVERS) PER MN/DOT STANDARD PLATE NO. 8117F.
  - 5) EACH SIGNAL FACE WILL HAVE BACKGROUND SHIELD.
  - 6) EACH PEDESTRIAN INDICATION WILL BE 12"x12".
  - 7) SEE SPECIAL PROVISIONS REGARDING REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEM (INCIDENTAL TO ITEM NO. 2565.511).
  - 8) ITEMS DENOTED BY ▲ SHALL BE MEASURED AND PAID FOR UNDER ITEM NO. 0565.601 (EMERGENCY VEHICLE PREEMPTION SYSTEM).
  - 9) INPLACE ITEMS TO BE REUSED INPLACE AS PART OF THE NEW SIGNAL SYSTEM SHALL BE PROTECTED AND MAINTAINED INPLACE. SEE SPECIAL PROVISIONS.

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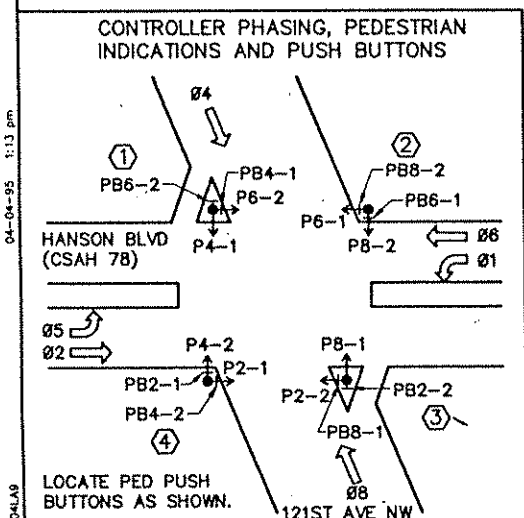
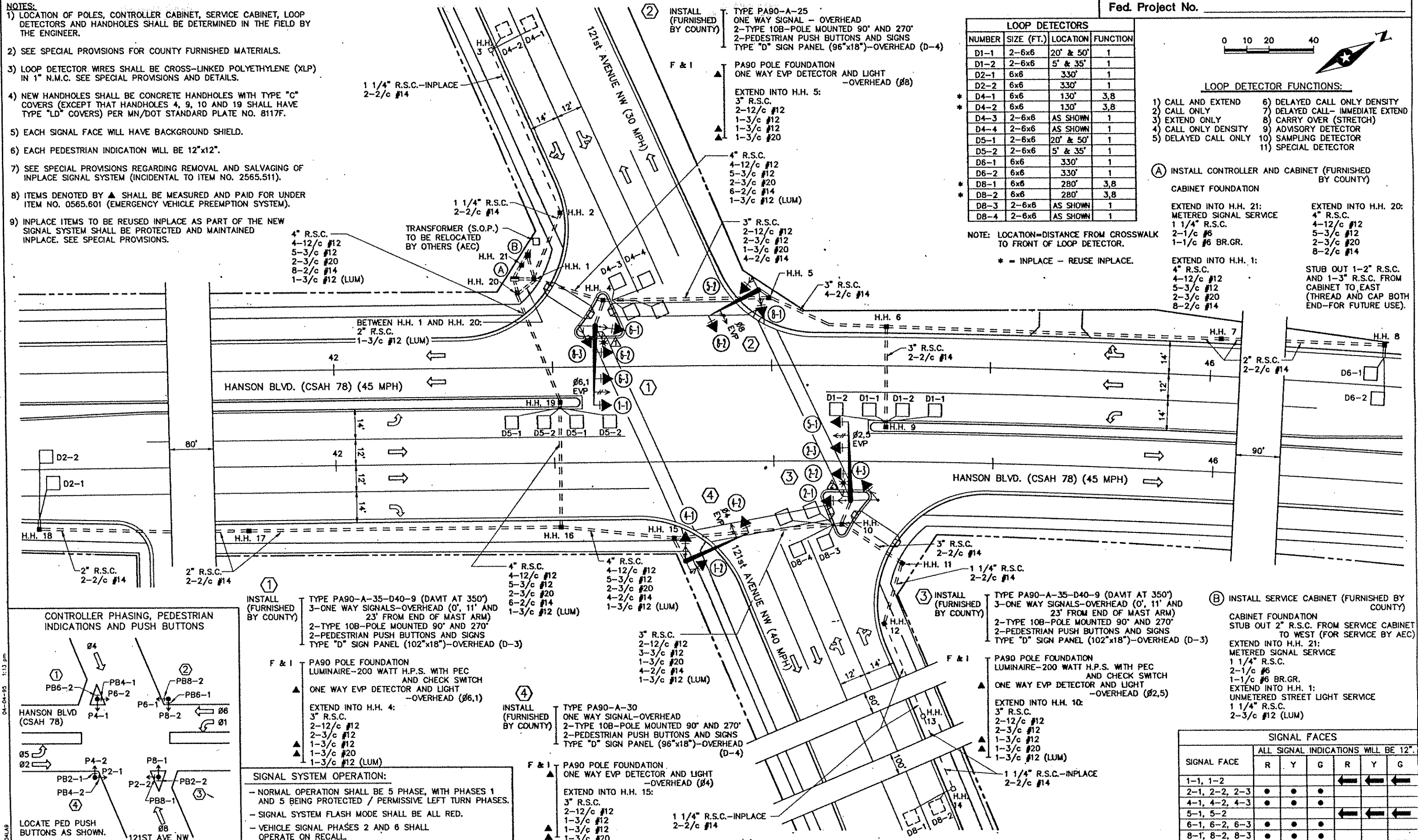
LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	
D1-1	2-6x6	20' & 50'	1	
D1-2	2-6x6	5' & 35'	1	
D2-1	6x6	330'	1	
D2-2	6x6	330'	1	
* D4-1	6x6	130'	3,8	
* D4-2	6x6	130'	3,8	
D4-3	2-6x6	AS SHOWN	1	
D4-4	2-6x6	AS SHOWN	1	
D5-1	2-6x6	20' & 50'	1	
D5-2	2-6x6	5' & 35'	1	
D6-1	6x6	330'	1	
D6-2	6x6	330'	1	
* D8-1	6x6	280'	3,8	
* D8-2	6x6	280'	3,8	
D8-3	2-6x6	AS SHOWN	1	
D8-4	2-6x6	AS SHOWN	1	

- LOOP DETECTOR FUNCTIONS:**
- |                      |                                   |
|----------------------|-----------------------------------|
| 1) CALL AND EXTEND   | 6) DELAYED CALL ONLY DENSITY      |
| 2) CALL ONLY         | 7) DELAYED CALL- IMMEDIATE EXTEND |
| 3) EXTEND ONLY       | 8) CARRY OVER (STRETCH)           |
| 4) CALL ONLY DENSITY | 9) ADVISORY DETECTOR              |
| 5) DELAYED CALL ONLY | 10) SAMPLING DETECTOR             |
|                      | 11) SPECIAL DETECTOR              |

- (A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)**
- CABINET FOUNDATION**
- EXTEND INTO H.H. 21:  
METERED SIGNAL SERVICE  
1 1/4" R.S.C.  
2-1/c #8  
1-1/c #6 BR.GR.
- EXTEND INTO H.H. 20:  
4" R.S.C.  
4-12/c #12  
5-3/c #12  
2-3/c #20  
8-2/c #14
- EXTEND INTO H.H. 1:  
4" R.S.C.  
4-12/c #12  
5-3/c #12  
2-3/c #20  
8-2/c #14
- STUB OUT 1-2" R.S.C. AND 1-3" R.S.C. FROM CABINET TO EAST (THREAD AND CAP BOTH END-FOR FUTURE USE).

- (B) INSTALL SERVICE CABINET (FURNISHED BY COUNTY)**
- CABINET FOUNDATION**
- STUB OUT 2" R.S.C. FROM SERVICE CABINET TO WEST (FOR SERVICE BY AEC)
- EXTEND INTO H.H. 21:  
METERED SIGNAL SERVICE  
1 1/4" R.S.C.  
2-1/c #6  
1-1/c #6 BR.GR.
- EXTEND INTO H.H. 1:  
UNMETERED STREET LIGHT SERVICE  
1 1/4" R.S.C.  
2-3/c #12 (LUM)

SIGNAL FACE	ALL SIGNAL INDICATIONS WILL BE 12"					
	R	Y	G	R	Y	G
1-1, 1-2				←	←	←
2-1, 2-2, 2-3	•	•	•			
4-1, 4-2, 4-3	•	•	•			
5-1, 5-2				←	←	←
6-1, 6-2, 6-3	•	•	•			
8-1, 8-2, 8-3	•	•	•			



**SIGNAL SYSTEM OPERATION:**

- NORMAL OPERATION SHALL BE 5 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED / PERMISSIVE LEFT TURN PHASES.
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- VEHICLE SIGNAL PHASES 2 AND 8 SHALL OPERATE ON RECALL.

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*Robert D. Elber*  
Date: 4-18-95 Reg. No. 5859

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*John M. Gray*  
Date: 4/18/95 Reg. No. 22457

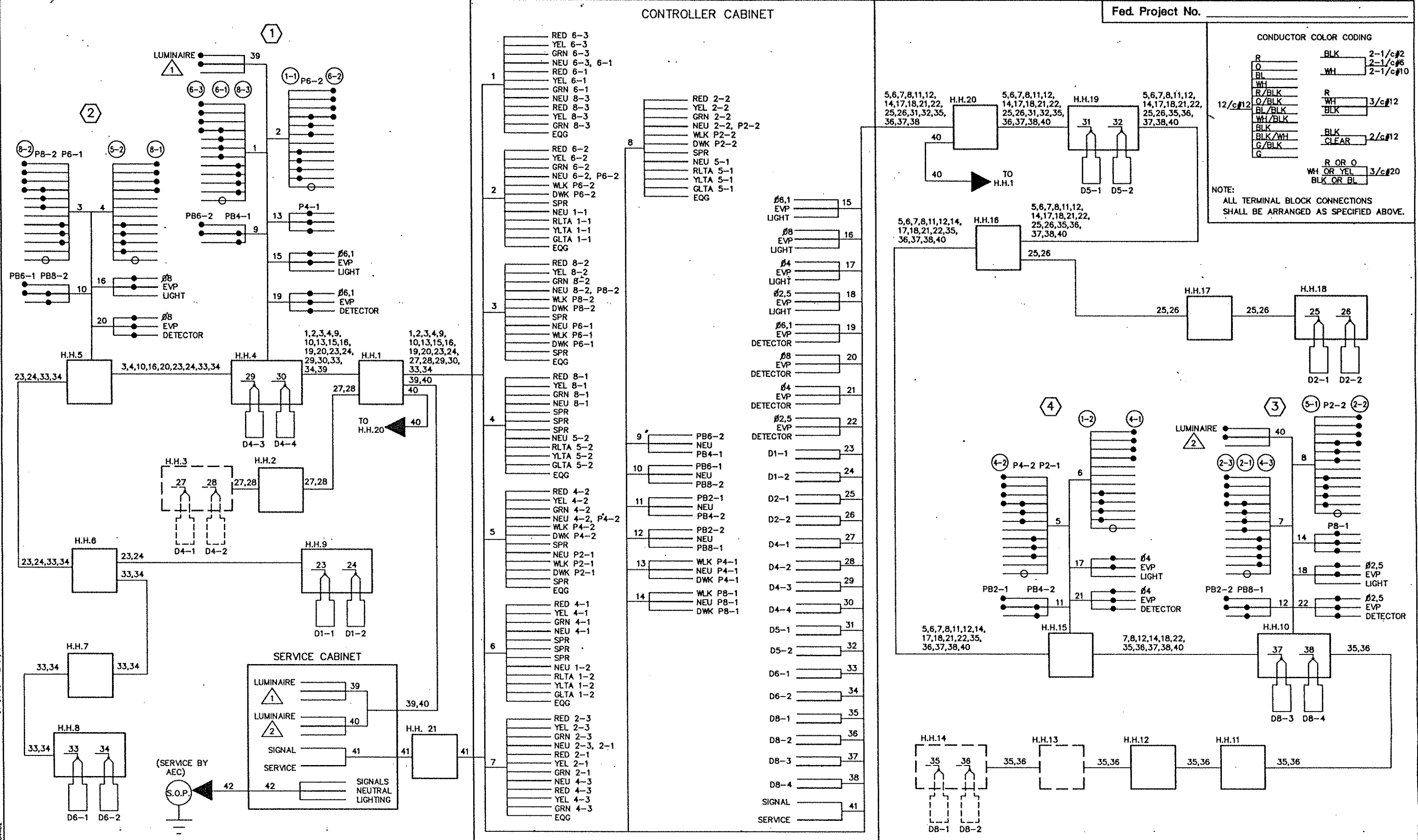


**ANOKA COUNTY, MINNESOTA**  
**CITY OF COON RAPIDS**

**TRAFFIC SIGNAL SYSTEM "B"**  
**INTERSECTION LAYOUT**  
HANSON BLVD. (CSAH 78) AT 121st AVENUE NW

FILE NO. ANOKC9504  
DATE 4/18/95

NO.	BY	DATE	REVISIONS



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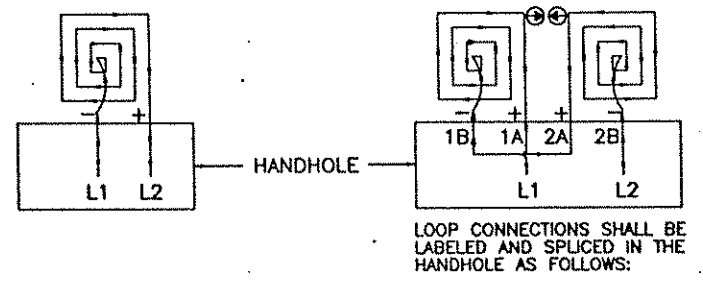
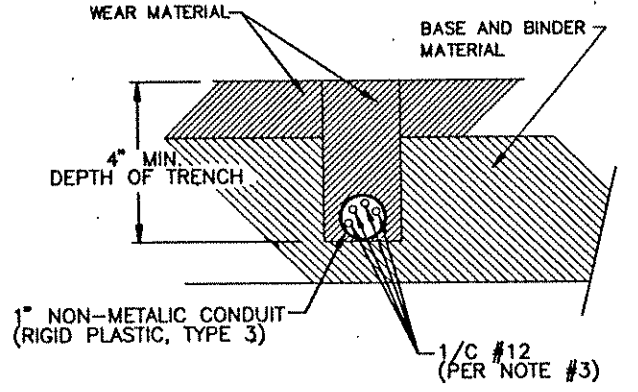
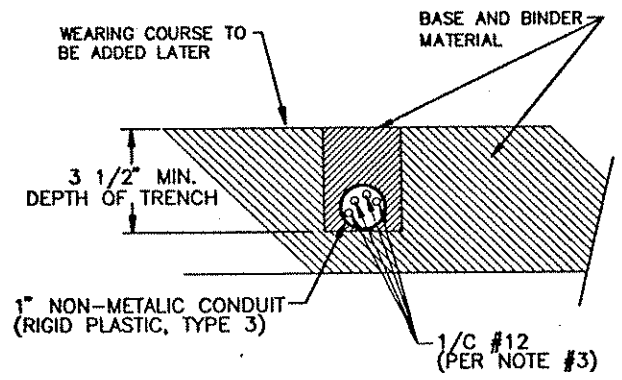
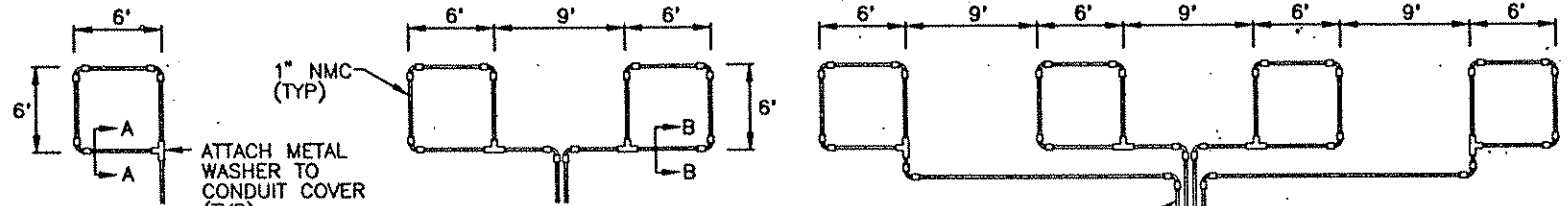
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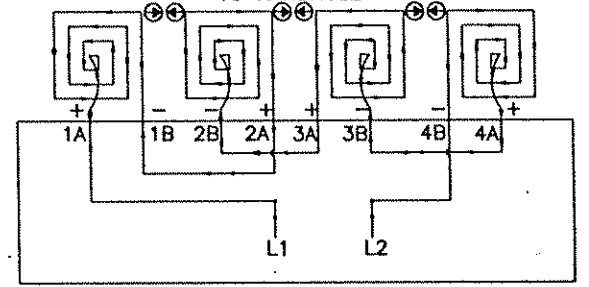
ANOKA COUNTY, MINNESOTA  
 CITY OF COON RAPIDS  
 S.A.P. 02-678-09 S.P. C.P.

Fed. Project No. \_\_\_\_\_  
 TRAFFIC SIGNAL SYSTEM "B"  
 FIELD WIRING DIAGRAM  
 HANSON BOULEVARD (CSAH 78) AT 121ST AVENUE NW  
 FILE NO. ANOKC9504  
 DATE 4/18/95  
 Sheet No. 22 of 44 Sheets



L1 TO 1A  
1B TO 2A  
2B TO L2

**LOOP DETECTOR DETAIL 'B'**  
(LOOP PHASING FOR SERIES CONNECTION)



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)

**LOOP DETECTOR DETAIL 'A'**  
(LOOP PHASING FOR SINGLE CONNECTION)

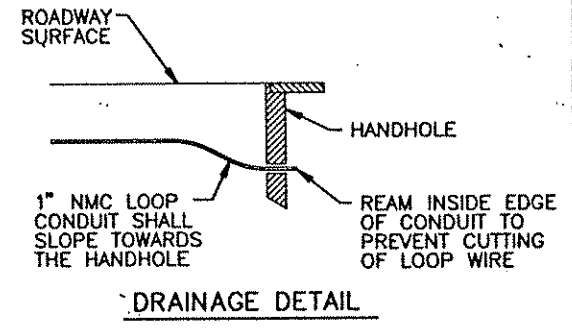
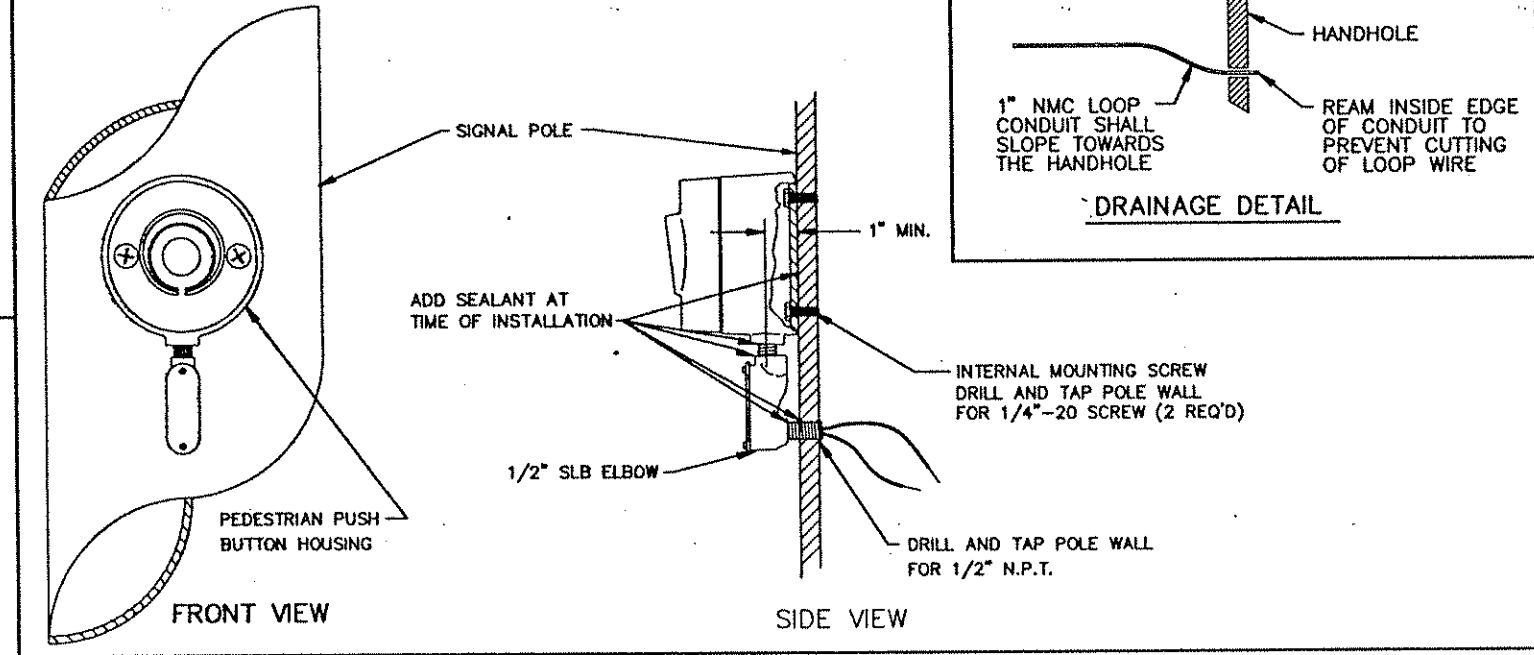
**LOOP DETECTOR WIRING**

- 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 POLYETHYLENE (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 6'x 6' THRU 6'x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6'x 15' AND LARGER SHALL HAVE (2) TURNS.

**LEGEND OF SYMBOLS**

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(B)
SIGNAL FACE NO.	(C)
LUMINAIRE NO.	(D)
CONTROLLER AND CABINET	(E)
CONTROLLER AND CABINET - IN PLACE	(F)
HANDHOLE	(G)
HANDHOLE - IN PLACE	(H)
RIGID STEEL CONDUIT (RSC)	(I)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(J)
SIGNAL FACE WITH BACKGROUND SHIELD	(K)
SIGNAL FACE W/O BACKGROUND SHIELD	(L)
SIGNAL FACE - IN PLACE	(M)
PEDESTRIAN INDICATORS	(N)
PEDESTRIAN INDICATORS - IN PLACE	(O)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(P)
PEDESTRIAN PUSH BUTTON STATION	(Q)
TRAFFIC SIGNAL PEDESTAL	(R)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(S)
TRAFFIC SIGNAL POLE AND MAST ARM	(T)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(U)
STREET LIGHT POLE AND LUMINAIRE	(V)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(W)
MAST ARM AND LUMINAIRE	(X)
MAST ARM AND LUMINAIRE - INPLACE	(Y)
WOOD POLE	(Z)
WOOD POLE - IN PLACE	(AA)
SOURCE OF POWER	(AB)
RAILROAD SIGNAL - IN PLACE	(AC)
RIGHT OF WAY LINE	(AD)
CENTERLINE	(AE)
EDGE OF ROADWAY	(AF)
SHOULDERLINE	(AG)
CURB LINE	(AH)
STOP BAR	(AI)

**MAST ARM POLE PEDESTRIAN PUSH BUTTON DETAIL**



**STANDARD PLATES**  
THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:

PLATE NO.	DESCRIPTION
8110 C	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
8111 B	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED
8112 C	PEDESTAL FOUNDATION
8113 C	MAGNETIC VEHICLE DETECTOR INSTALLATION
8115 C	PEDESTRIAN PUSH BUTTON INSTALLATION
8117 F	PRECAST CONCRETE HANDHOLE
8118 C	SERVICE EQUIPMENT AND POLE-TRAFFIC CONTROL SIGNALS
8119 C	GROUND MOUNTED CABINET FOUNDATION
8120 J	PA85 AND PA90 POLE FOUNDATION
8121 C	TRANSFORMER BASE AND POLE BASE PLATE
8122 C	PEDESTAL AND PEDESTAL BASE
8123 C	POLE AND MAST ARM
8124 D	MAST ARM SIGNAL HEAD MOUNTS
8126 E	PA100 POLE FOUNDATION
3124 B	METAL APRON CONNECTION
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
7035 J	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
7100 G	CONCRETE CURB AND GUTTERS
7036 D	PEDESTRIAN CURB RAMP

• - APPLIES TO THIS PROJECT

**ABBREVIATIONS**

3-1(EG)	SIGNAL HEAD PHASE "3" - NO. "1"	P2-1(EG)	PEDESTRIAN INDICATION PHASE "2" - NO. "1"
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE "2" - NO. "1"
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE "2" - NO. "1"	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EGG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED TURN ARROW
F&I	FURNISH AND INSTALL	RLTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGTH TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	TDW	TELEPHONE DROP WIRE
HPS	HIGH PRESSURE SODIUM	WLK	WALK
JB	JUNCTION BOX	YEL	YELLOW
LUM	LUMINAIRE	YLTA	YELLOW LEFT TURN ARROW
NEU	NEUTRAL	YRTA	YELLOW RIGHT TURN ARROW
NMC	NONMETALLIC CONDUIT	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

"ELECTRICAL ENGINEER CERTIFICATION"  
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.  
*Robert A. Ellen*  
Date: 4-18-99 Reg. No. 5859

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.  
*John M. Hayes*  
Date: 4/18/95 Reg. No. 22457



ANOKA COUNTY, MINNESOTA  
CITY OF COON RAPIDS

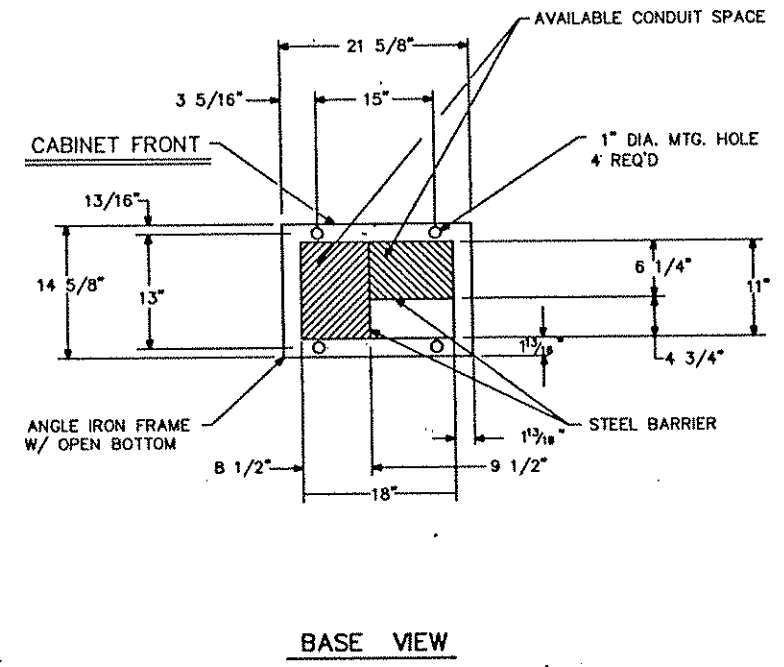
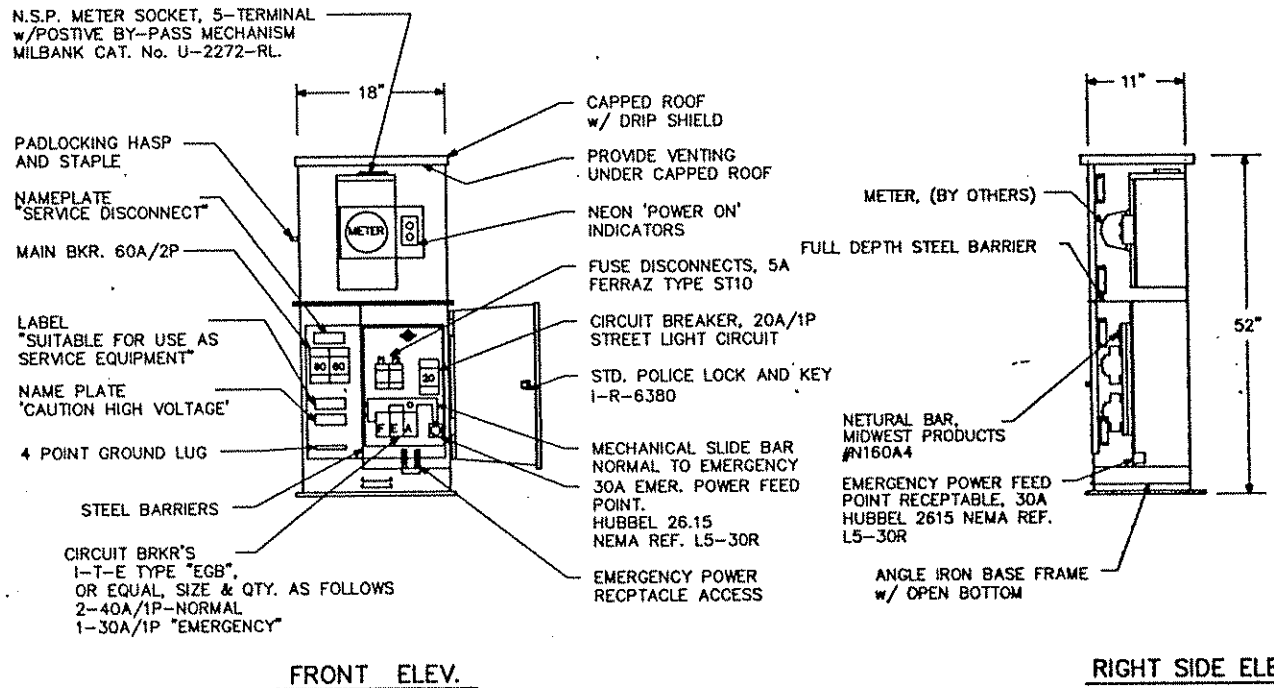
TRAFFIC SIGNAL SYSTEMS "A" & "B"  
DETAILS

FILE NO. ANOKC9504  
DATE 4/18/95

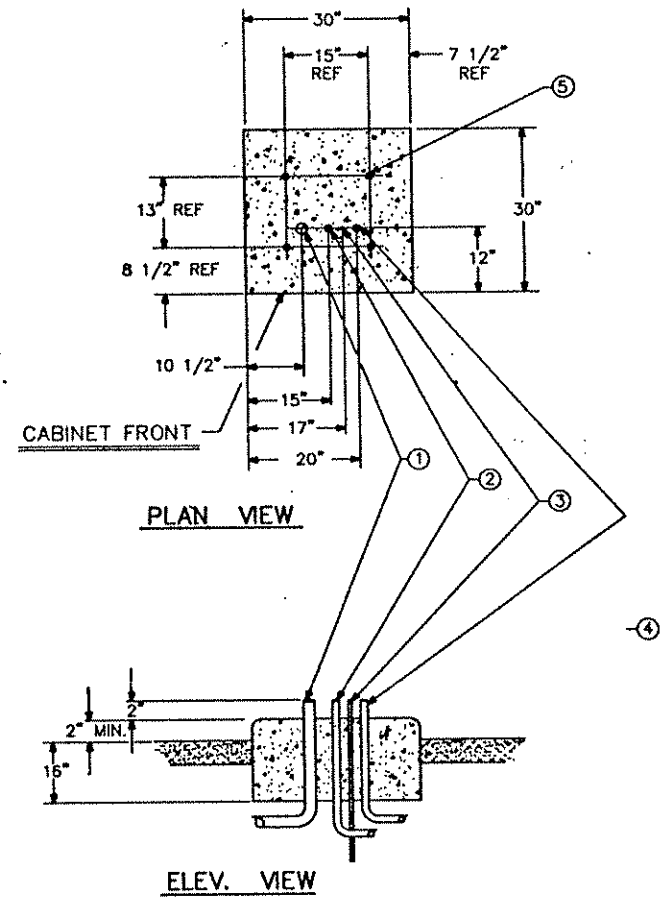
03-31-95 3:23 pm



**SIGNAL SERVICE CABINET**



**SERVICE CABINET FOUNDATION (SIGNAL SYSTEM "B")**



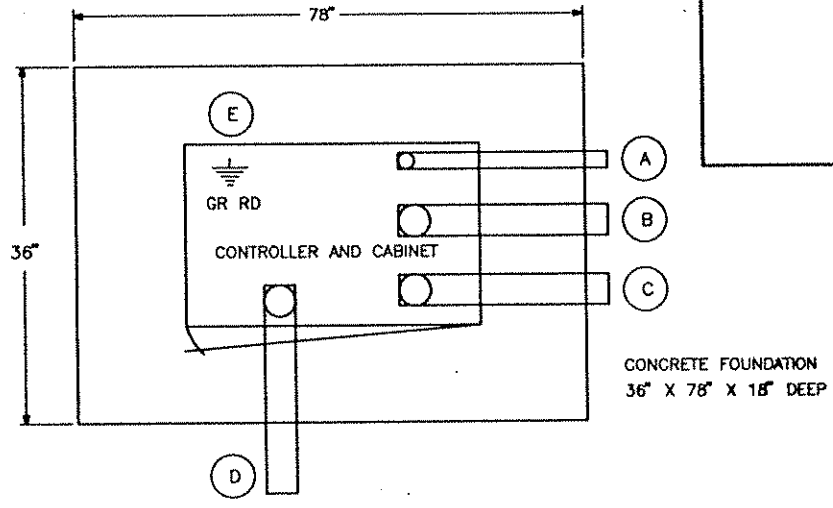
- ① 2" RSC FROM SOURCE OF POWER
- ② 1 1/4" RSC TO CONTROLLER CABINET (VIA HANDHOLE 14)
- ③ GROUNDING ROD
- ④ 1 1/4" RSC TO HANDHOLE 1 (STREET LIGHTING)
- ⑤ ANCHOR BOLT LOCATIONS (4 REQUIRED)

**SIGN DETAILS**

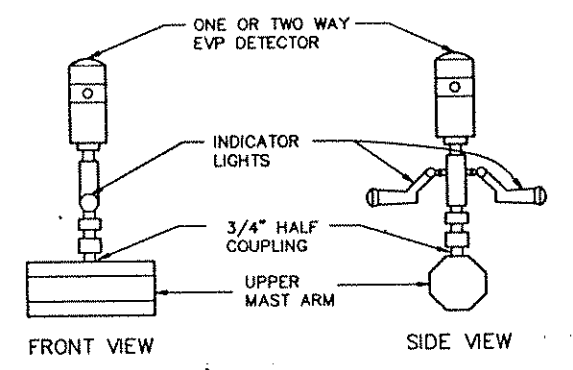
INPLACE TYPE "D" SIGNS (SALVAGE AND REINSTALL)							
SIGN NUMBER	APPROX. SIZE (IN.)	NO. REQ.	NO. POSTS PER SIGN	POST SPACING	POLE NO.	°	SIGNAL SYSTEM
D-1	108 x 18	1	3	45"	2	20'	"A"
D-2	108 x 18	1	3	45"	5	8'	"A"
D-3	102 x 18	2	3	45"	1 & 3	14'	"B"
D-4	96 x 18	2	2	54"	2 & 4	8'	"B"
MISCELLANEOUS SIGNS							
R10-12	24 x 30	1	2	12"	2	2'	"A"

- NOTES:**
- FOR STRUCTURAL DETAILS, TYPE "D" SIGNS, SEE STANDARD SIGNS MANUAL, PAGES 105A & 105B.
  - FOR TYPE "D" STRINGER AND PANEL - JOINT DETAIL, SEE STANDARD SIGNS MANUAL.
  - LEGEND ON D-1, D-2 = "NORTHDAL BLVD"  
LEGEND ON D-3 = "121ST AVE NW"  
LEGEND ON D-4 = "HANSON BLVD"

- (A) 1 1/4" R.S.C. FOR SERVICE CONNECTION TO HH 14
- (B) 4" R.S.C. TO HH 1
- (C) 4" R.S.C. TO HH 13
- (D) 3" R.S.C. STUBOUT, THREAD & CAP BOTH ENDS. (FOR FUTURE INTERCONNECT).
- (E) 5/8" DIA X 15' GROUND ROD



**EVP DETECTOR AND LIGHT MOUNTING DETAIL ON MAST ARM**



1:18 PM 04-04-95 1:18 PM

"ELECTRICAL ENGINEER CERTIFICATION"  
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.  
*Robert A. Ellis*  
Date: 4-18-95 Reg. No. 5859

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.  
*John M. [Signature]*  
Date: 4/18/95 Reg. No. 22457



ANOKA COUNTY, MINNESOTA  
CITY OF COON RAPIDS

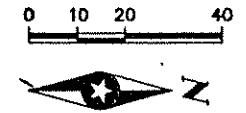
TRAFFIC SIGNAL SYSTEMS "A" & "B"  
DETAILS

FILE NO.  
ANOKC9504  
DATE  
4/18/95

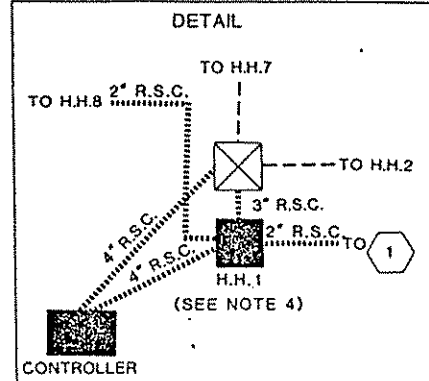
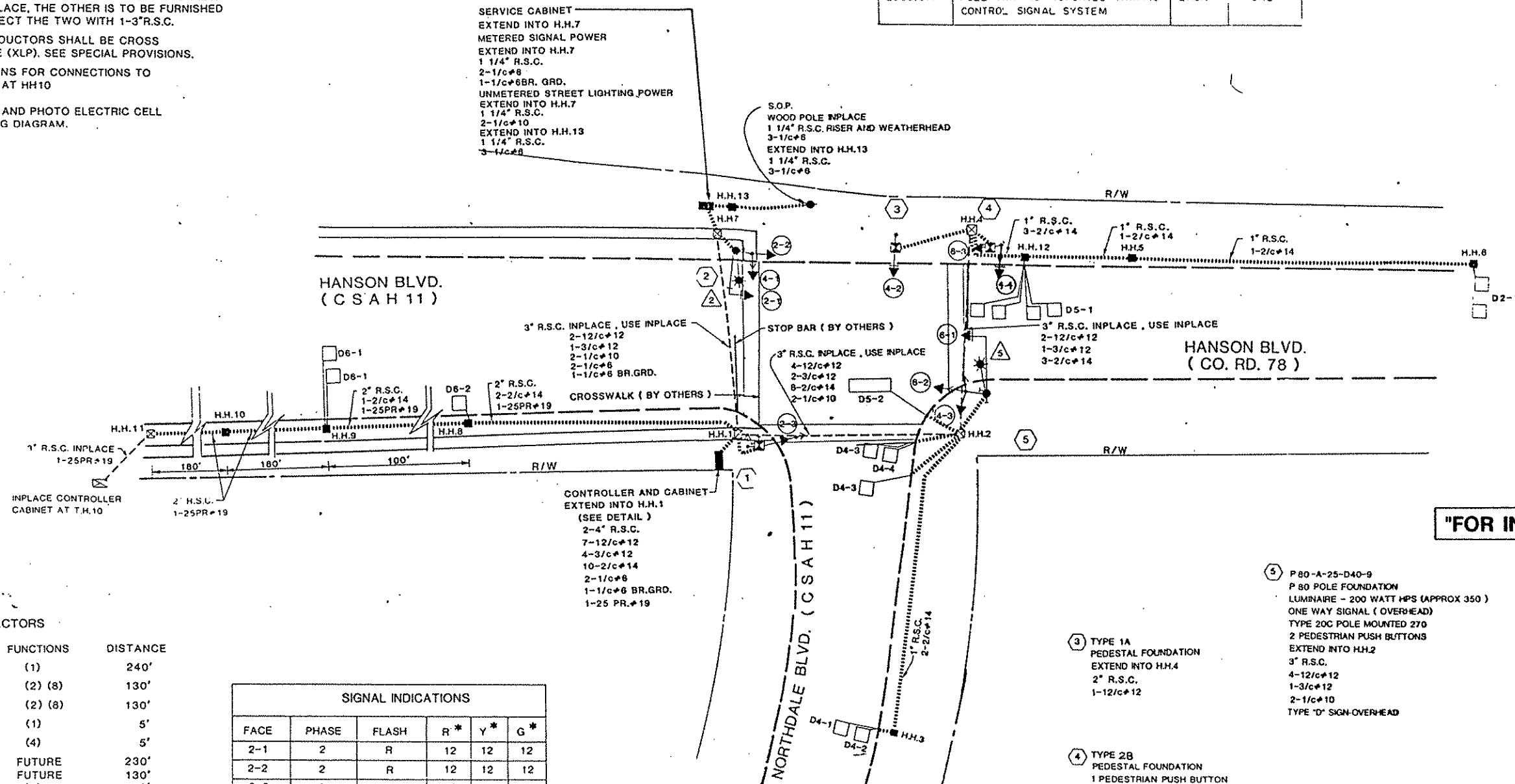
NO.	BY	DATE	REVISIONS

NOTES:

- 1) ALL LOOP DETECTORS ARE IN 1" N.M.C. (SEE DETAILS).
- 2) SEE SPECIAL PROVISIONS FOR INSTALLING GUARD POSTS.
- 3) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATIONS OF UTILITIES.
- 4) HANDHOLE 1 CONSISTS OF TWO HANDHOLES (SEE DETAILS) ONE HANDHOLE IS IN PLACE, THE OTHER IS TO BE FURNISHED AND INSTALLED. CONNECT THE TWO WITH 1-3" R.S.C.
- 5) LOOP DETECTOR/CONDUCTORS SHALL BE CROSS LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 6) SEE SPECIAL PROVISIONS FOR CONNECTIONS TO IN PLACE CONTROLLER AT HH10
- 7) INSTALL TEST SWITCH AND PHOTO ELECTRIC CELL ON POLE 5. SEE WIRING DIAGRAM.



ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
2565.511	FULL TRAFFIC ACTUATED TRAFFIC CONTROL SIGNAL SYSTEM	EACH	ONE



**"FOR INFORMATION ONLY"**

**LOOP DETECTORS**

NUMBER	SIZE (FT.)	FUNCTIONS	DISTANCE
D2-1	2-8x6	(1)	240'
D4-1	1-6x6	(2) (8)	130'
D4-2	1-6x6	(2) (8)	130'
D4-3	2-6x6	(1)	5'
D4-4	1-6x6	(4)	5'
D5-1	4-6x6	FUTURE	230'
D5-2	1-6x20	FUTURE	130'
D6-1	2-6x6	(1)	2'
D6-2	1-6x6	(2)	N/A

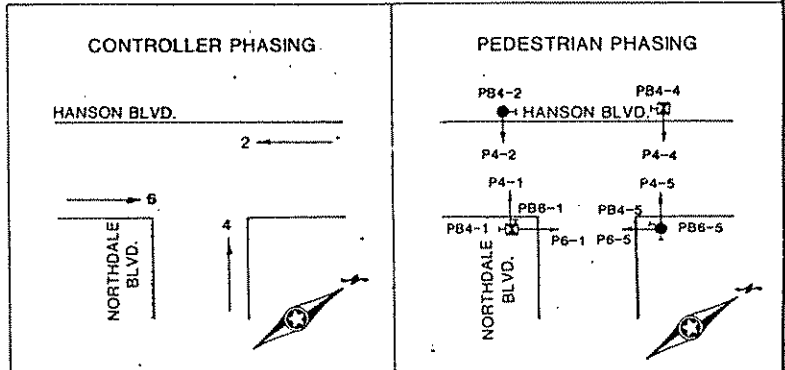
**SIGNAL INDICATIONS**

FACE	PHASE	FLASH	R*	Y*	G*
2-1	2	R	12	12	12
2-2	2	R	12	12	12
2-3	2	R	12	12	12
4-1	4	R	12	12	12
4-2	4	R	12	12	12
4-3	4	R	12	8	8
6-1	6	R	12	12	12
6-2	6	R	12	12	12
6-3	6	R	12	12	12

- FUNCTIONS**
- (1) CALL AND EXTEND
  - (2) EXTEND ONLY
  - (3) CALL ONLY
  - (4) CALL AFTER DELAY, EXTEND IMMEDIATELY
  - (5) CALL AFTER DELAY ONLY
  - (6) OPERATE DURING PHASE 2 CLEARANCE ONLY
  - (7) OPERATE DURING PHASE 5 ONLY
  - (8) "EXTENDING" DETECTOR (STRECH)

\* ALL DIMENSIONS IN INCHES

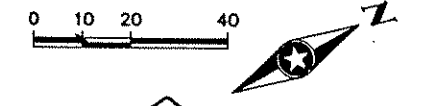
- 1) TYPE 1D PEDESTAL FOUNDATION  
2 PEDESTRIAN PUSH BUTTONS  
EXTEND INTO H.H.1  
2" R.S.C.  
1-12/c#12  
1-3/c#12
- 2) P100 -A-20-D40-9  
P100 POLE FOUNDATION  
LUMINAIRE - 200 WATT HPS (APPROX.350)  
ONE WAY SIGNAL (OVERHEAD)  
TYPE 20B POLE MOUNTED 0  
1 PEDESTRIAN PUSH BUTTON  
TYPE "D" SIGN-OVERHEAD  
EXTEND INTO H.H.7  
3" R.S.C.  
2-12/c#12  
1-3/c#12  
2-1/c#10
- 3) TYPE 1A PEDESTAL FOUNDATION  
EXTEND INTO H.H.4  
2" R.S.C.  
1-12/c#12
- 4) TYPE 2B PEDESTAL FOUNDATION  
1 PEDESTRIAN PUSH BUTTON  
EXTEND INTO H.H.4  
2" R.S.C.  
1-12/c#12  
1-3/c#12
- 5) P80 -A-25-D40-9  
P80 POLE FOUNDATION  
LUMINAIRE - 200 WATT HPS (APPROX 350)  
ONE WAY SIGNAL ( OVERHEAD)  
TYPE 20C POLE MOUNTED 270  
2 PEDESTRIAN PUSH BUTTONS  
EXTEND INTO H.H.2  
3" R.S.C.  
4-12/c#12  
1-3/c#12  
2-1/c#10  
TYPE "D" SIGN-OVERHEAD



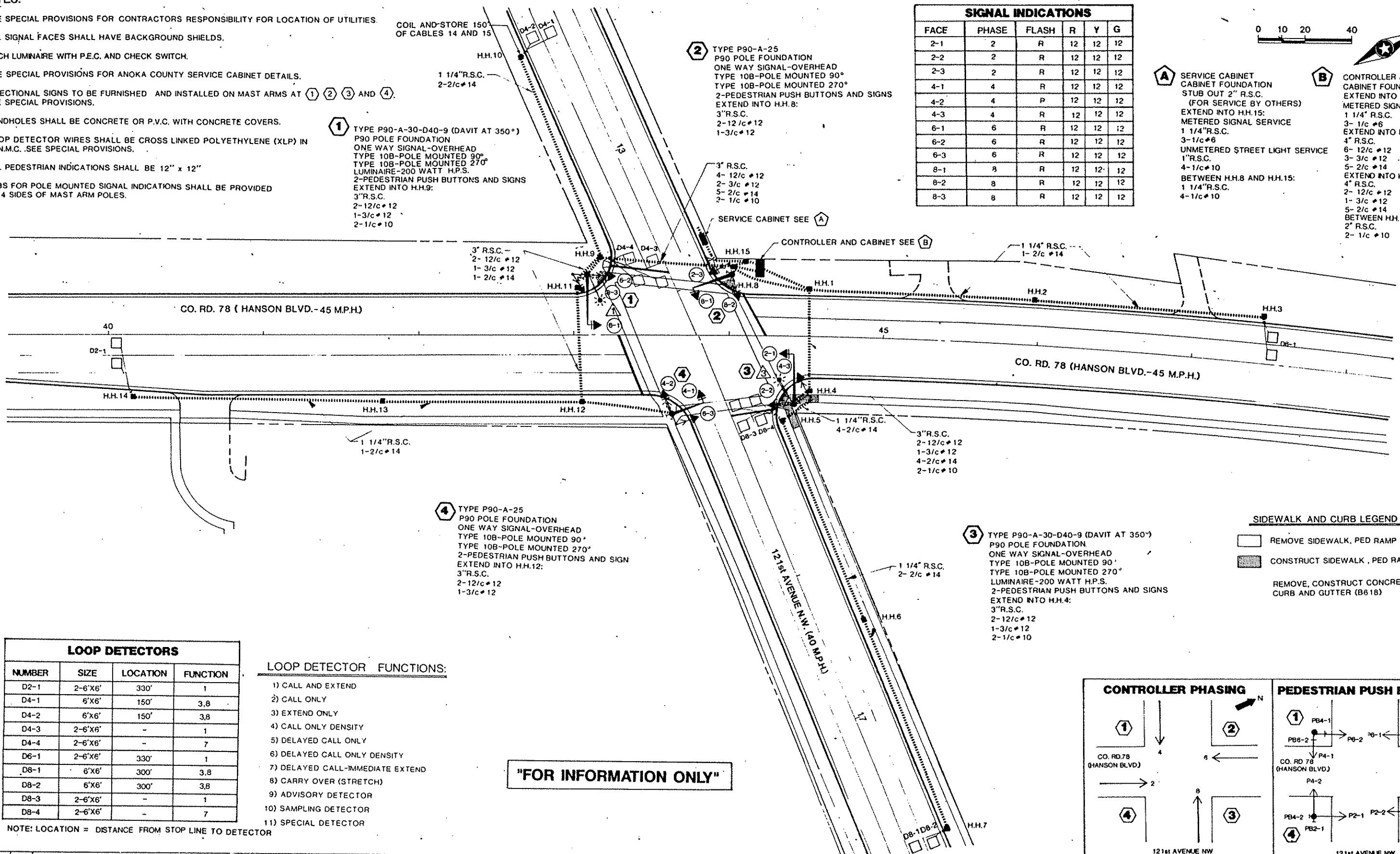
**NOTES:**

- 1) SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
- 2) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
- 3) EACH LUMINAIRE WITH P.E.C. AND CHECK SWITCH.
- 4) SEE SPECIAL PROVISIONS FOR ANOKA COUNTY SERVICE CABINET DETAILS.
- 5) DIRECTIONAL SIGNS TO BE FURNISHED AND INSTALLED ON MAST ARMS AT ① ② ③ AND ④. SEE SPECIAL PROVISIONS.
- 6) HANDHOLES SHALL BE CONCRETE OR P.V.C. WITH CONCRETE COVERS.
- 7) LOOP DETECTOR WIRES SHALL BE CROSS LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS.
- 8) ALL PEDESTRIAN INDICATIONS SHALL BE 12" x 12"
- 9) HUBS FOR POLE MOUNTED SIGNAL INDICATIONS SHALL BE PROVIDED ON 4 SIDES OF MAST ARM POLES.

SIGNAL INDICATIONS						
FACE	PHASE	FLASH	R	Y	G	
2-1	2	R	12	12	12	
2-2	2	R	12	12	12	
2-3	2	R	12	12	12	
4-1	4	R	12	12	12	
4-2	4	P	12	12	12	
4-3	4	R	12	12	12	
6-1	6	R	12	12	12	
6-2	6	R	12	12	12	
6-3	6	R	12	12	12	
8-1	8	R	12	12	12	
8-2	8	R	12	12	12	
8-3	8	R	12	12	12	



- A** SERVICE CABINET  
CABINET FOUNDATION  
STUB OUT 2" R.S.C.  
(FOR SERVICE BY OTHERS)  
EXTEND INTO H.H.15:  
METERED SIGNAL SERVICE  
1 1/4" R.S.C.  
3-1/c #6  
UNMETERED STREET LIGHT SERVICE  
1" R.S.C.  
4-1/c #10  
BETWEEN H.H.8 AND H.H.15:  
1 1/4" R.S.C.  
4-1/c #10
- B** CONTROLLER AND CABINET  
CABINET FOUNDATION  
EXTEND INTO H.H.15:  
METERED SIGNAL SERVICE  
1 1/4" R.S.C.  
EXTEND INTO H.H.8:  
4" R.S.C.  
6-12/c #12  
3-3/c #12  
5-2/c #14  
EXTEND INTO H.H.1:  
4" R.S.C.  
1-12/c #12  
1-3/c #12  
5-2/c #14  
BETWEEN H.H.8 AND H.H.1:  
2" R.S.C.  
2-1/c #10



**SIDEWALK AND CURB LEGEND**

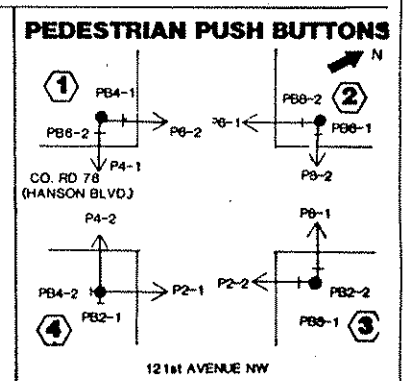
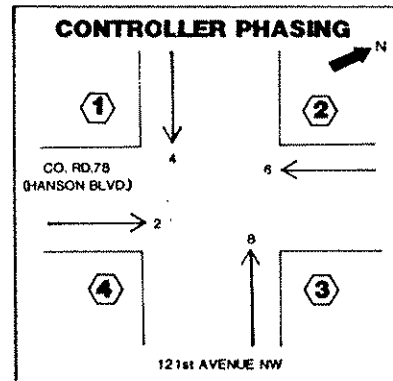
- REMOVE SIDEWALK, PED RAMP
- CONSTRUCT SIDEWALK, PED RAMP
- REMOVE, CONSTRUCT CONCRETE CURB AND GUTTER (B618)

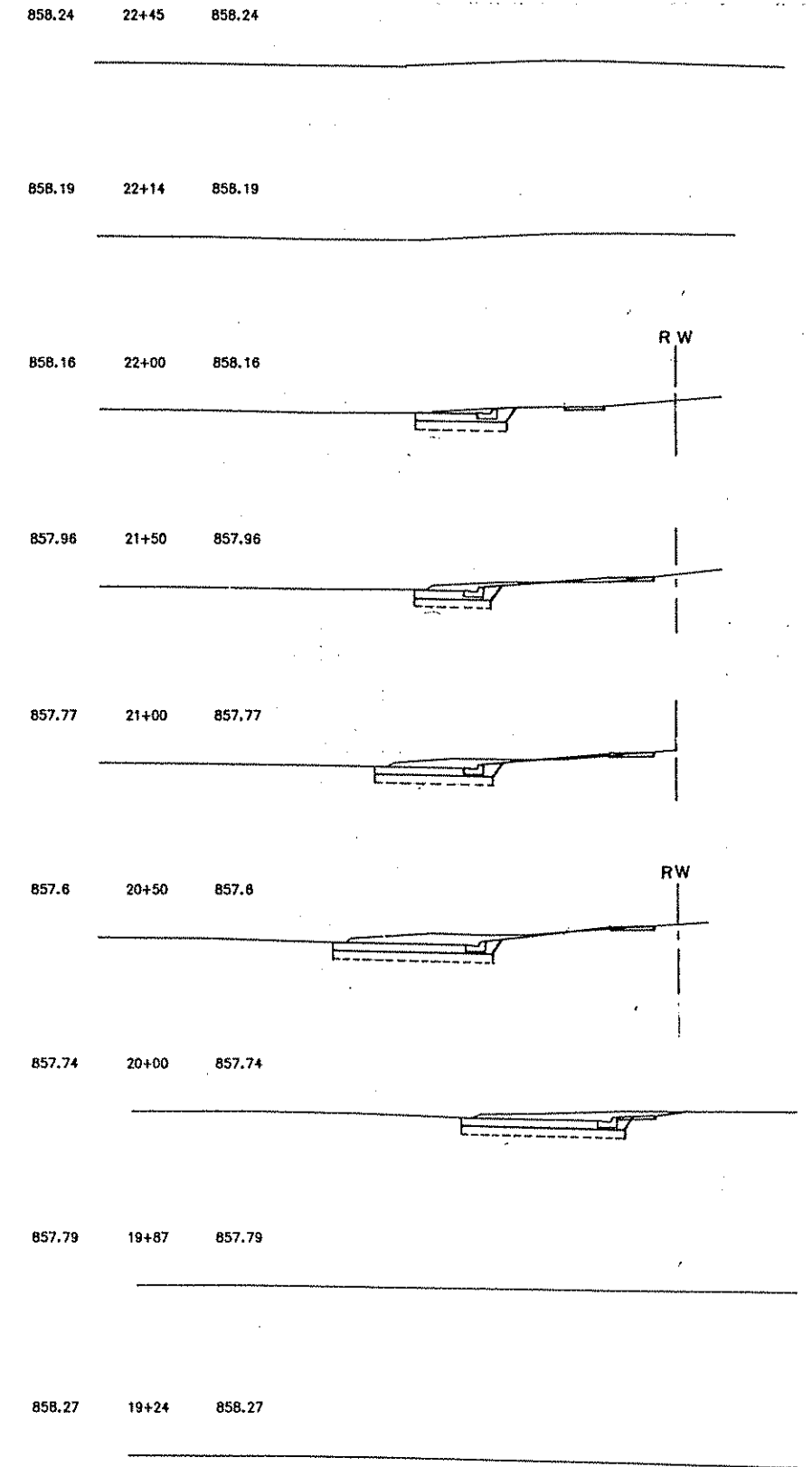
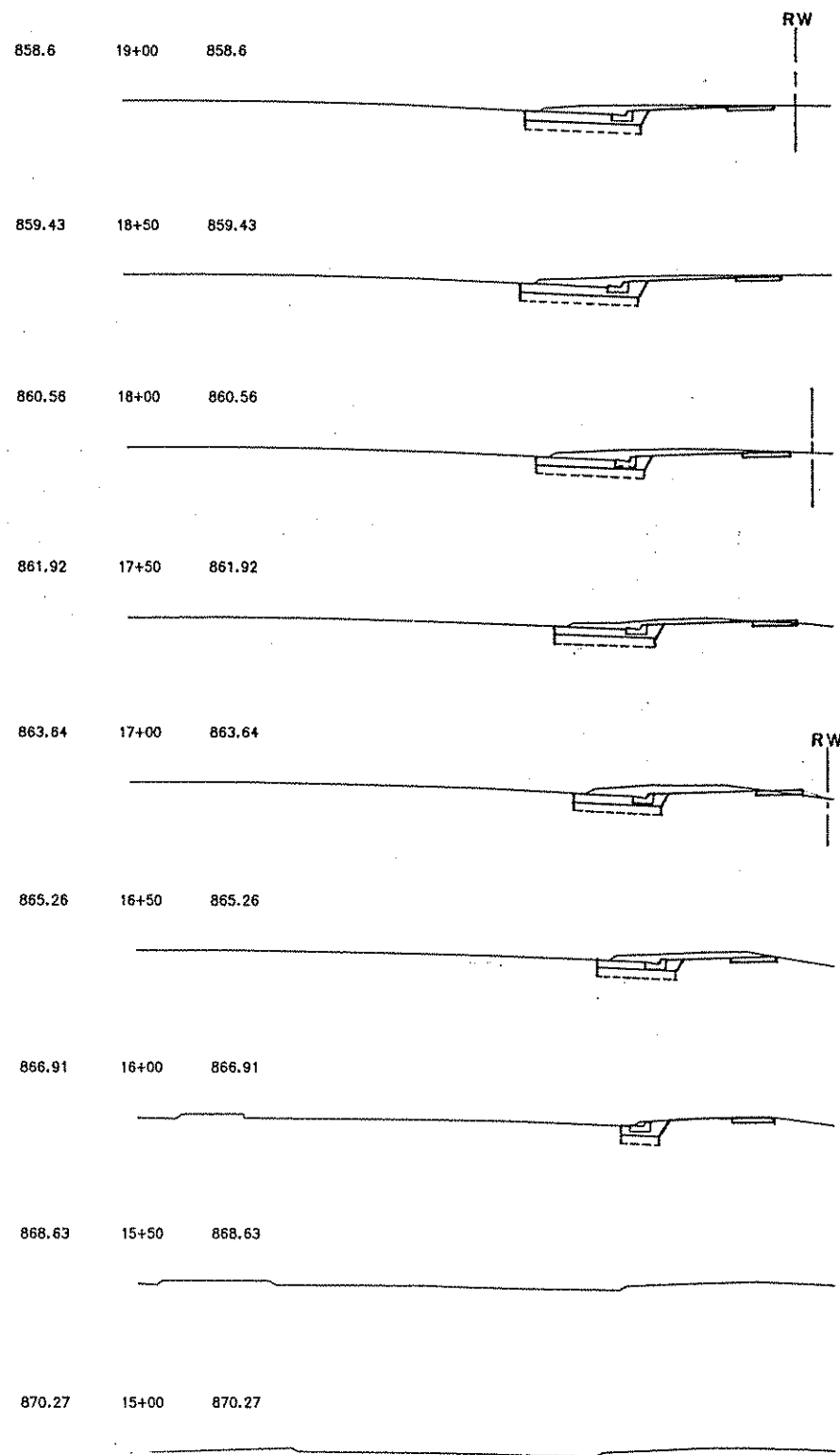
LOOP DETECTORS			
NUMBER	SIZE	LOCATION	FUNCTION
D2-1	2-6'x6'	330'	1
D4-1	6'x6'	150'	3,8
D4-2	6'x6'	150'	3,8
D4-3	2-6'x6'	-	1
D4-4	2-6'x6'	-	7
D6-1	2-6'x6'	330'	1
D8-1	6'x6'	300'	3,8
D8-2	6'x6'	300'	3,8
D8-3	2-6'x6'	-	1
D8-4	2-6'x6'	-	7

**LOOP DETECTOR FUNCTIONS:**

- 1) CALL AND EXTEND
- 2) CALL ONLY
- 3) EXTEND ONLY
- 4) CALL ONLY DENSITY
- 5) DELAYED CALL ONLY
- 6) DELAYED CALL ONLY DENSITY
- 7) DELAYED CALL-IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)
- 9) ADVISORY DETECTOR
- 10) SAMPLING DETECTOR
- 11) SPECIAL DETECTOR

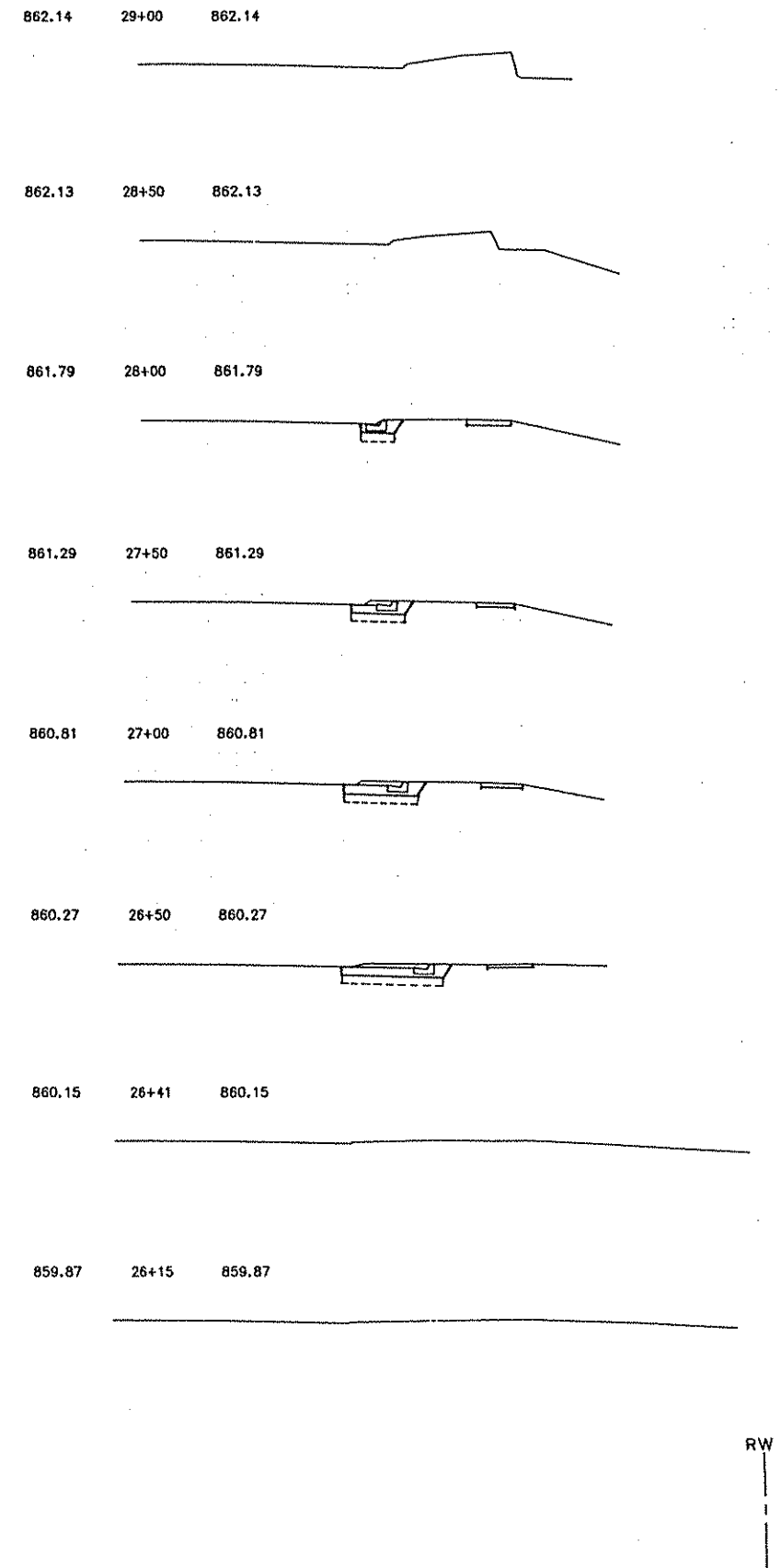
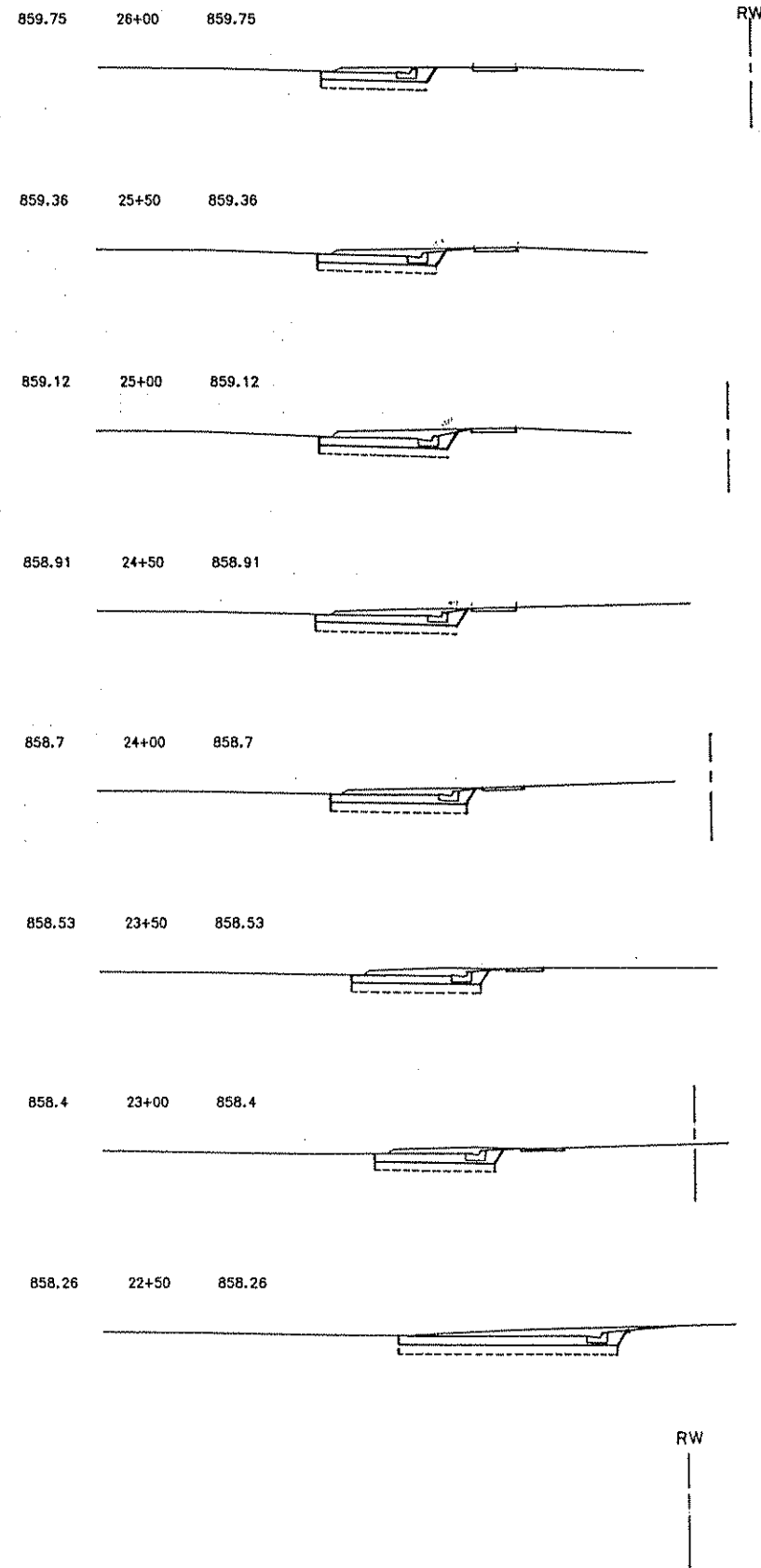
**"FOR INFORMATION ONLY"**





02-678-08 114-020-07  
 02-678-09 114-020-08

CROSS-SECTION  
 STA. 15+00 TO 22+14  
 27 44

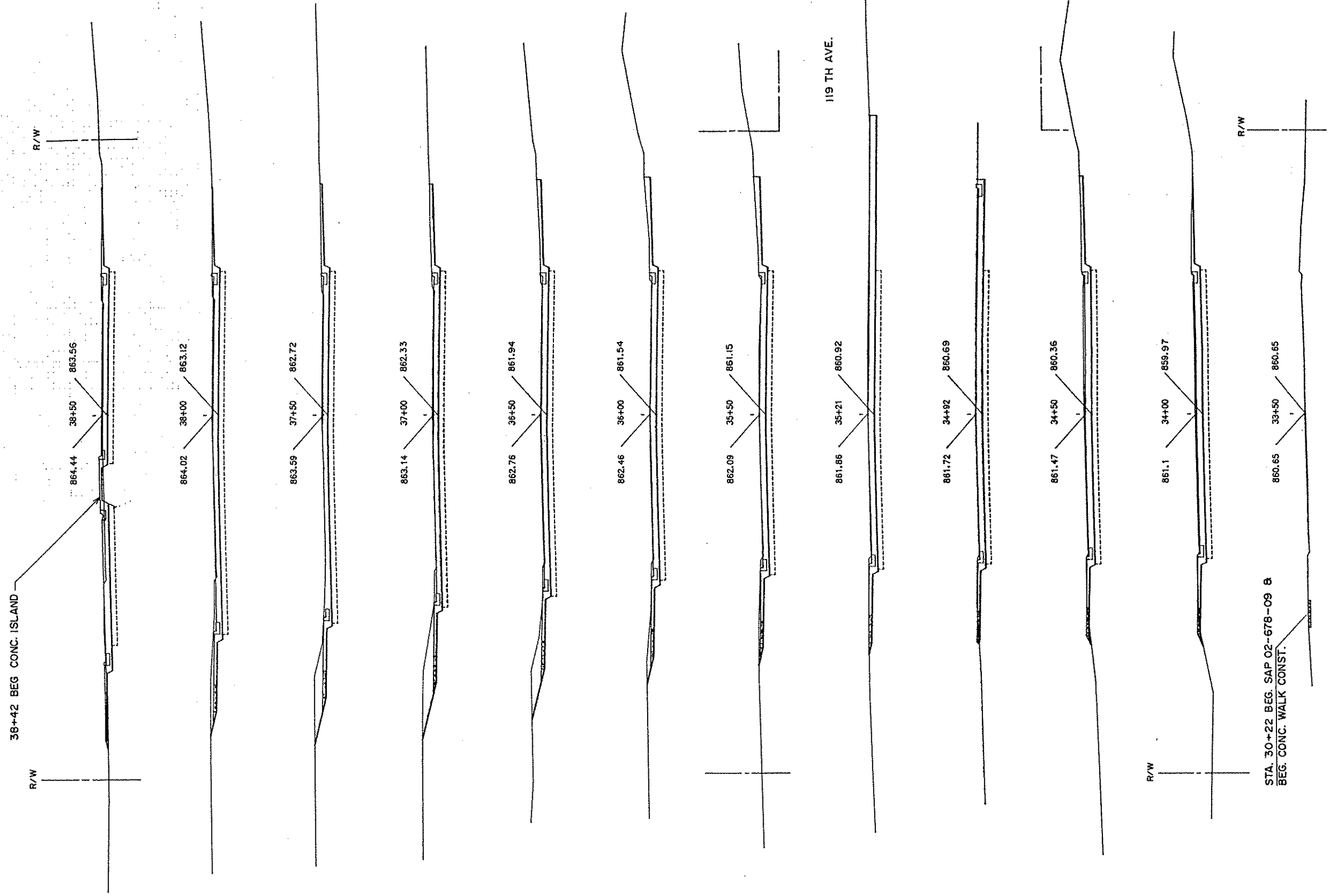


02-678-08  
02-678-09

114-020-07  
114-020-08

CROSS-SECTION  
STA. 22+50 TO STA 29+00  
28 44

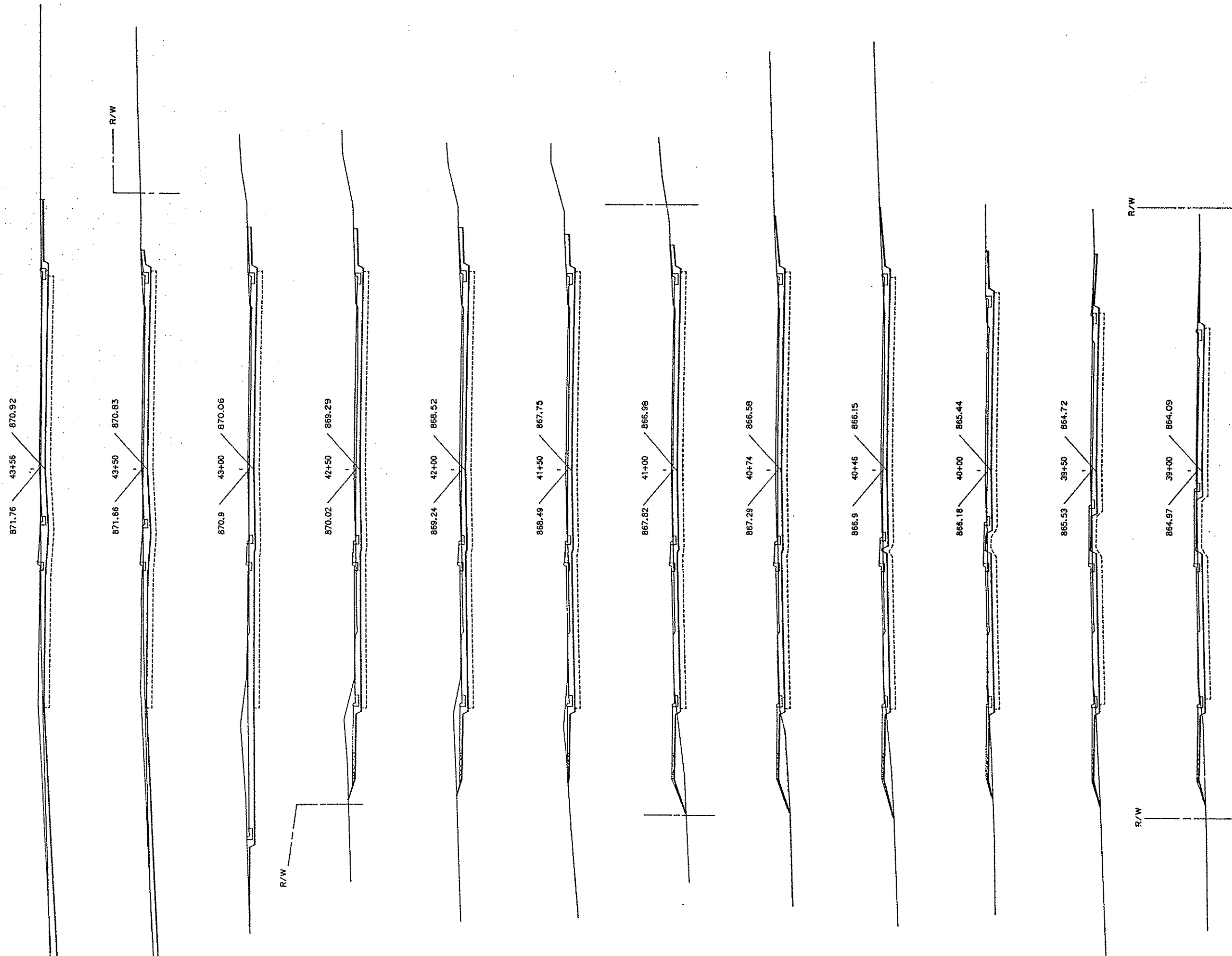




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114-020-08

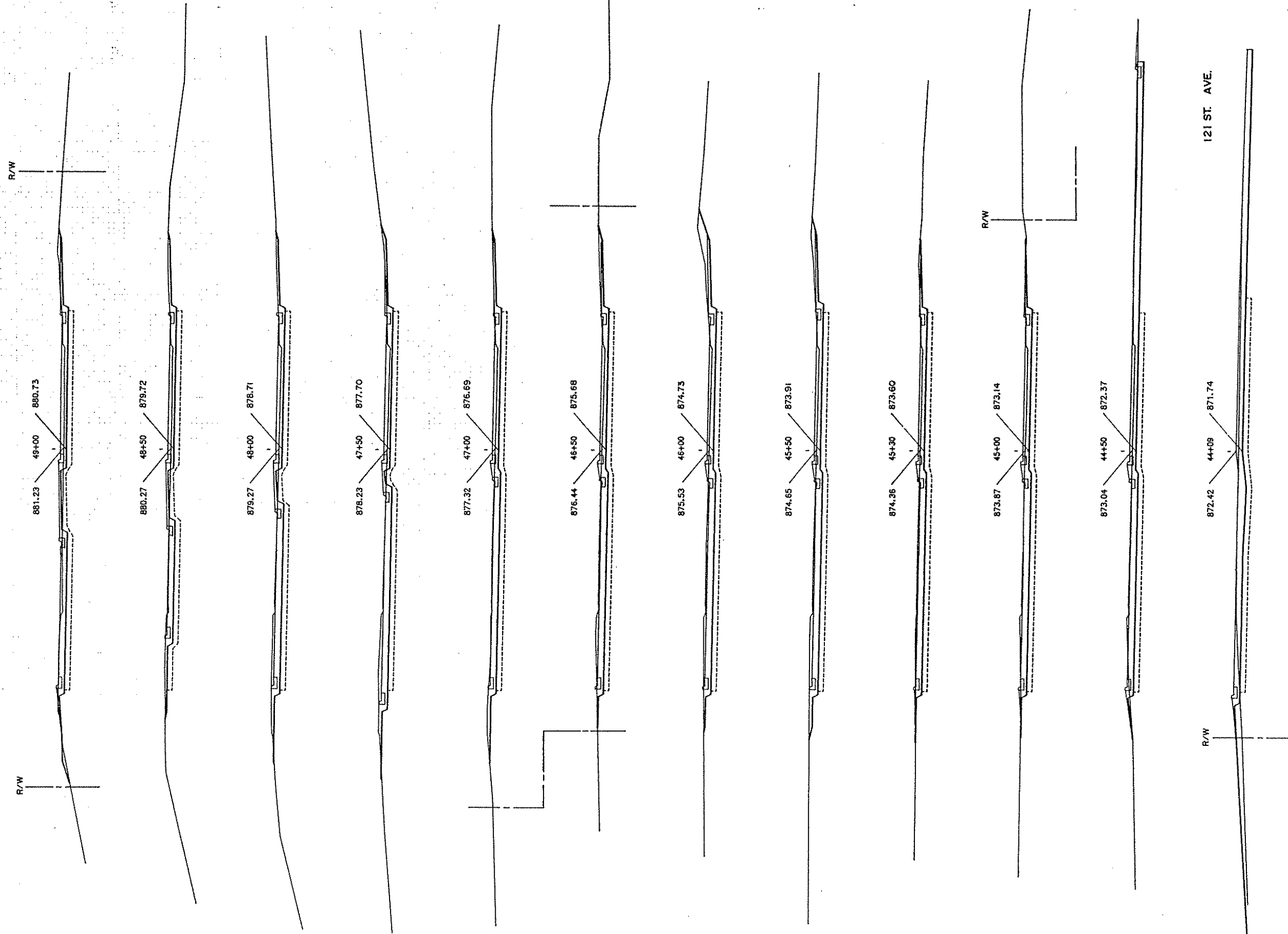
CROSS-SECTION  
STA. 33+50 TO 38+50  
29 44



02-678-08  
02-678-09

114-020-07  
114-020-08

CROSS-SECTION  
STA. 39+00 TO STA 43+56  
30 44

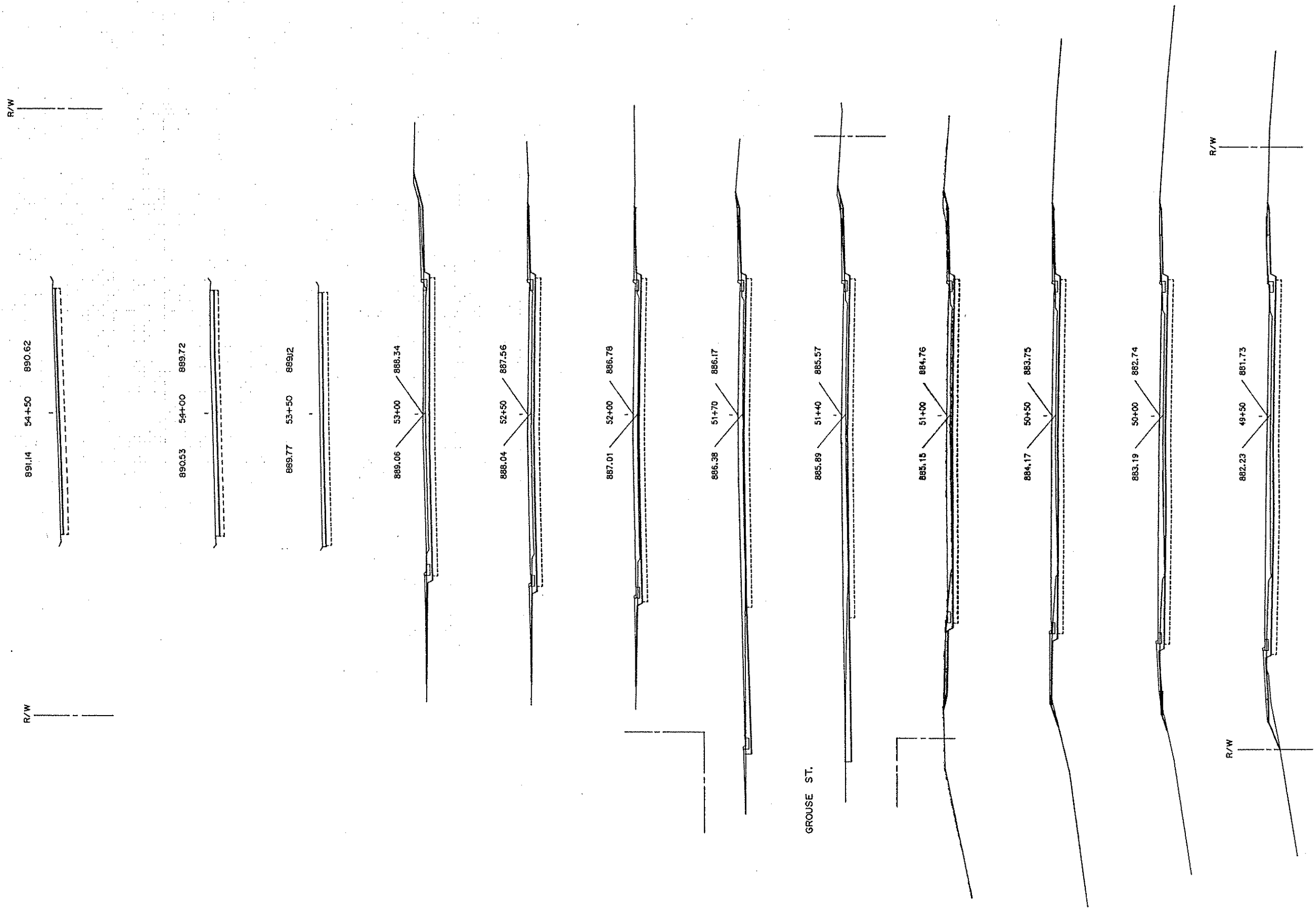


121 ST. AVE.

02-678-08  
02-678-09

114-020-07  
114-020-08

CROSS-SECTION  
STA. 44+09 + STA. 49+00  
31 44



GROUSE ST.

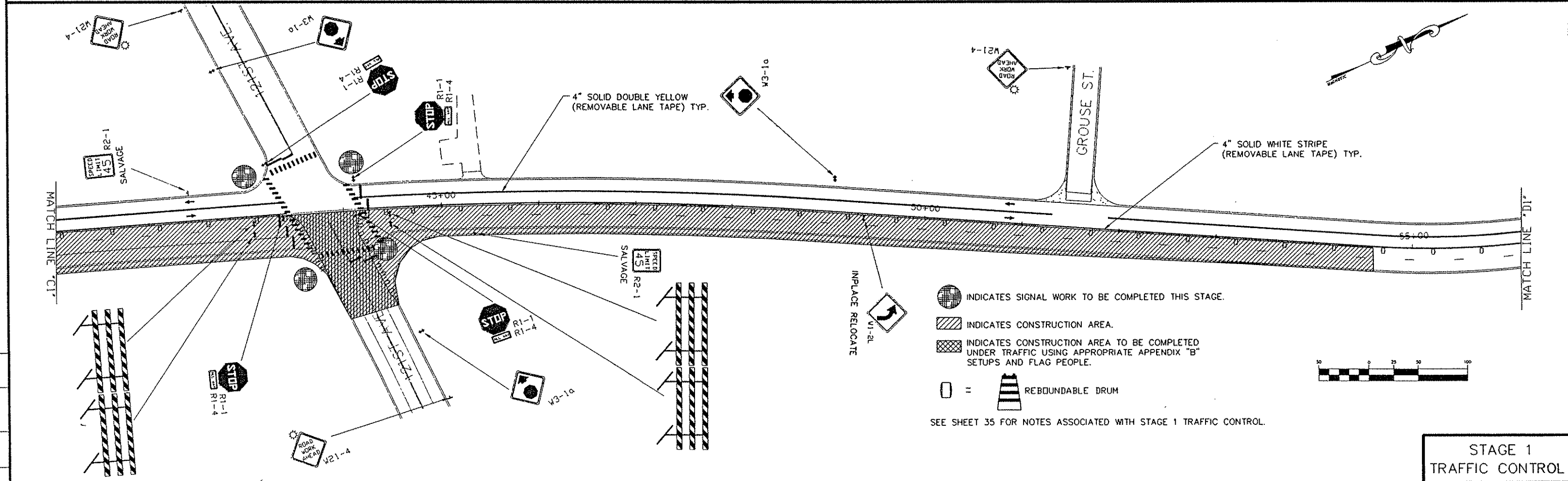
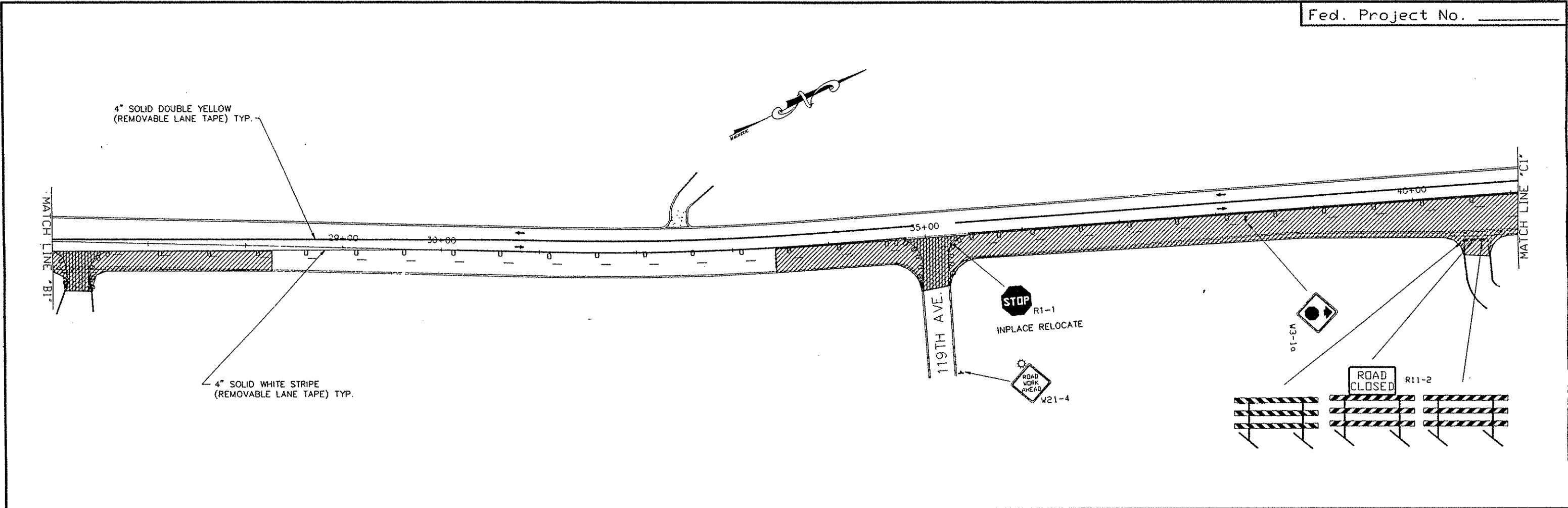
02-678-08  
02-678-09

114-020-07  
114-020-08

CROSS-SECTION  
STA. 49+50 TO STA. 53+00







- INDICATES SIGNAL WORK TO BE COMPLETED THIS STAGE.
- INDICATES CONSTRUCTION AREA.
- INDICATES CONSTRUCTION AREA TO BE COMPLETED UNDER TRAFFIC USING APPROPRIATE APPENDIX "B" SETUPS AND FLAG PEOPLE.
- = REBOUNDABLE DRUM

SEE SHEET 35 FOR NOTES ASSOCIATED WITH STAGE 1 TRAFFIC CONTROL.



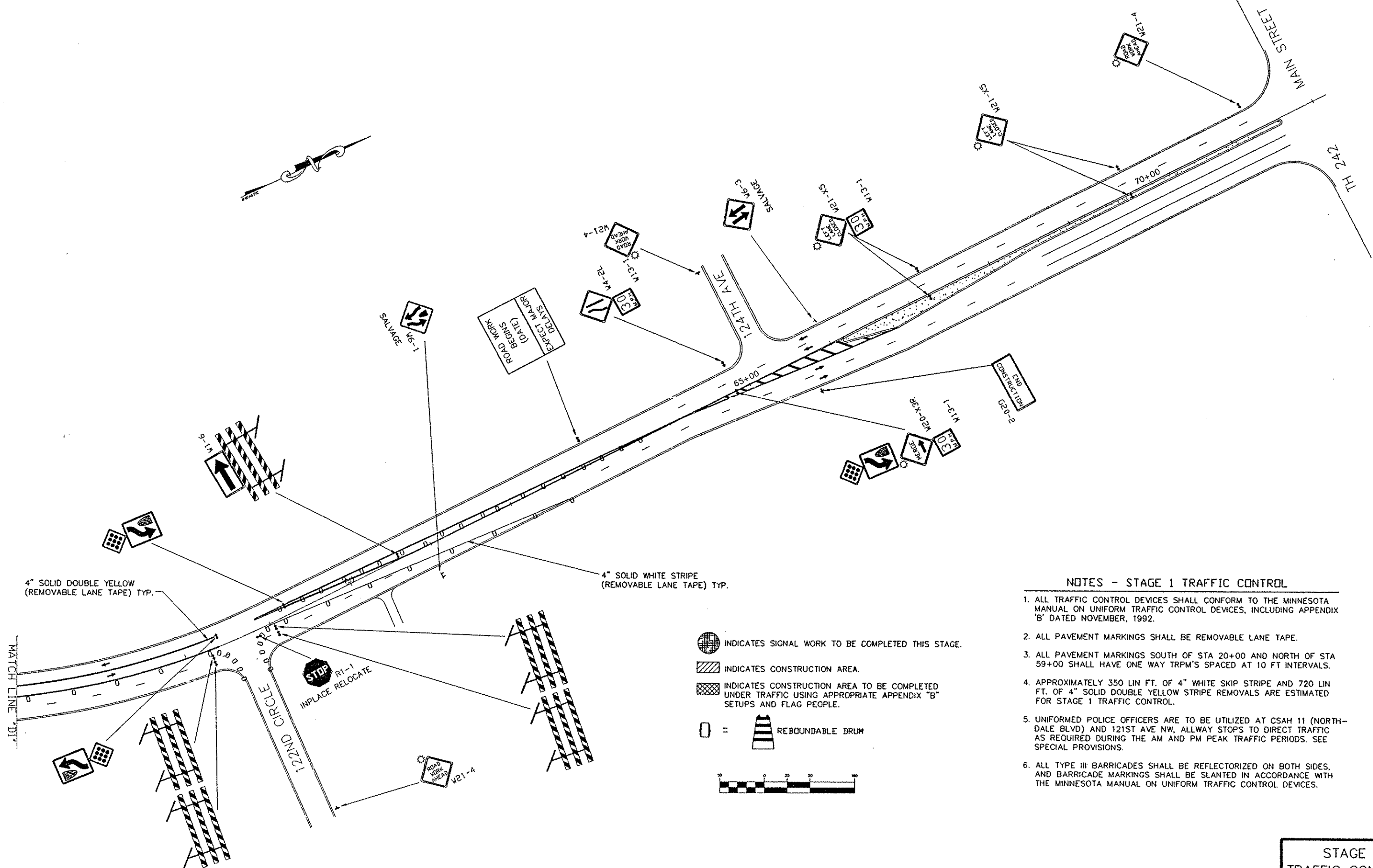
REVISIONS	DATE	BY

CERTIFIED BY *Douglas W. ...* P.E. REG NO. 20235 4/5 19 95

S.A.P. 02-678-08 / 02-678-09 M.S.A.P. 114-020-07 / 114-020-08 C.P. \_\_\_\_\_

Sheet No. 34 of 44 Sheets

STAGE 1  
TRAFFIC CONTROL



4" SOLID DOUBLE YELLOW  
(REMOVABLE LANE TAPE) TYP.

4" SOLID WHITE STRIPE  
(REMOVABLE LANE TAPE) TYP.

- INDICATES SIGNAL WORK TO BE COMPLETED THIS STAGE.
- INDICATES CONSTRUCTION AREA.
- INDICATES CONSTRUCTION AREA TO BE COMPLETED UNDER TRAFFIC USING APPROPRIATE APPENDIX "B" SETUPS AND FLAG PEOPLE.
- = REBOUNDABLE DRUM



**NOTES - STAGE 1 TRAFFIC CONTROL**

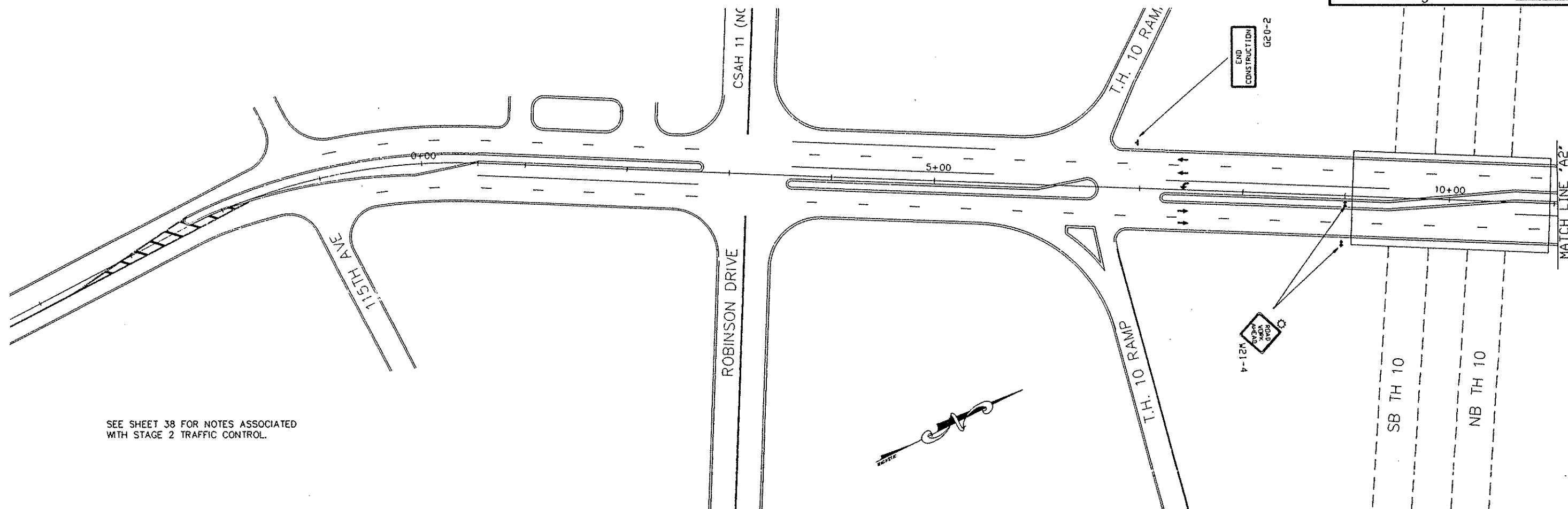
1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B' DATED NOVEMBER, 1992.
2. ALL PAVEMENT MARKINGS SHALL BE REMOVABLE LANE TAPE.
3. ALL PAVEMENT MARKINGS SOUTH OF STA 20+00 AND NORTH OF STA 59+00 SHALL HAVE ONE WAY TRPM'S SPACED AT 10 FT INTERVALS.
4. APPROXIMATELY 350 LIN FT. OF 4" WHITE SKIP STRIPE AND 720 LIN FT. OF 4" SOLID DOUBLE YELLOW STRIPE REMOVALS ARE ESTIMATED FOR STAGE 1 TRAFFIC CONTROL.
5. UNIFORMED POLICE OFFICERS ARE TO BE UTILIZED AT CSAH 11 (NORTH-DALE BLVD) AND 121ST AVE NW, ALLWAY STOPS TO DIRECT TRAFFIC AS REQUIRED DURING THE AM AND PM PEAK TRAFFIC PERIODS. SEE SPECIAL PROVISIONS.
6. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS	DATE	BY

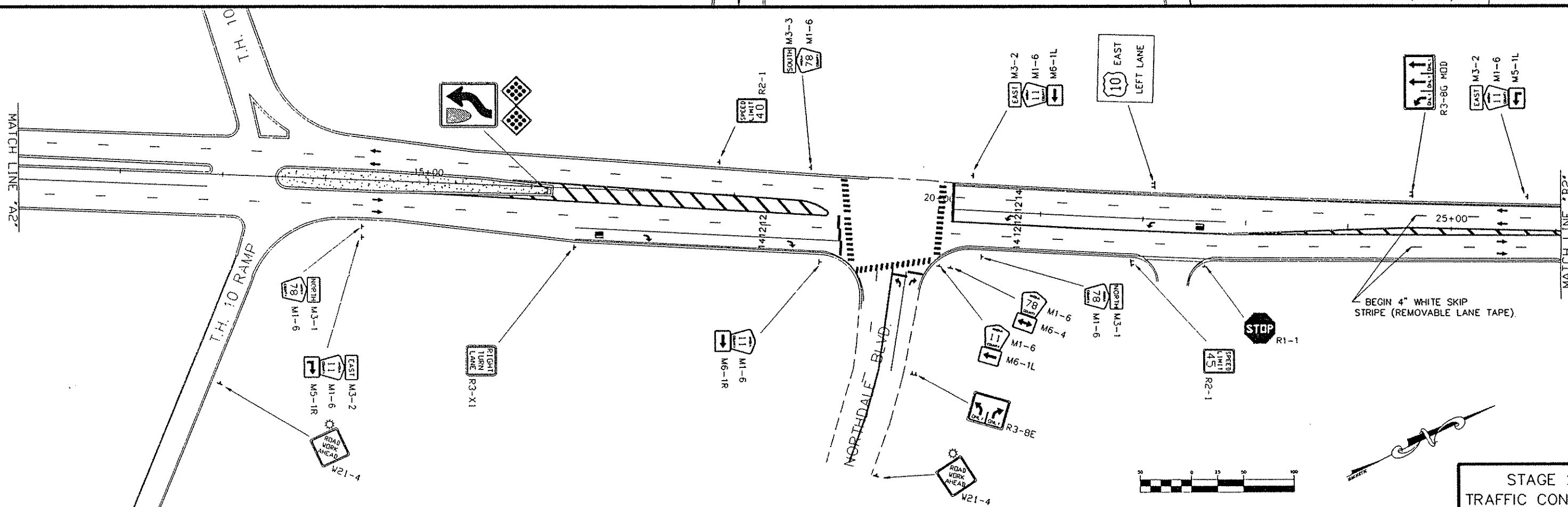
CERTIFIED BY Douglas M. Timmerman P.E. REG NO. 20235 4/5 19 95

S.A.P. 02-678-08 M.S.A.P. 114-020-07 C.P. \_\_\_\_\_  
02-678-09 114-020-08

**STAGE 1  
TRAFFIC CONTROL**



SEE SHEET 38 FOR NOTES ASSOCIATED WITH STAGE 2 TRAFFIC CONTROL.



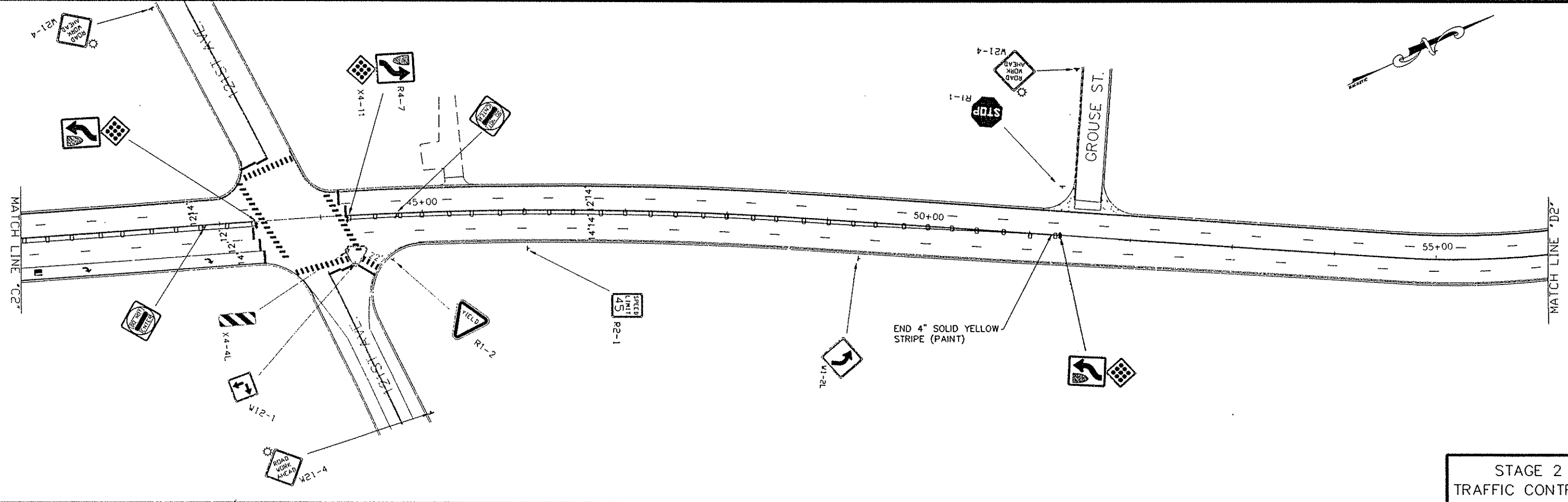
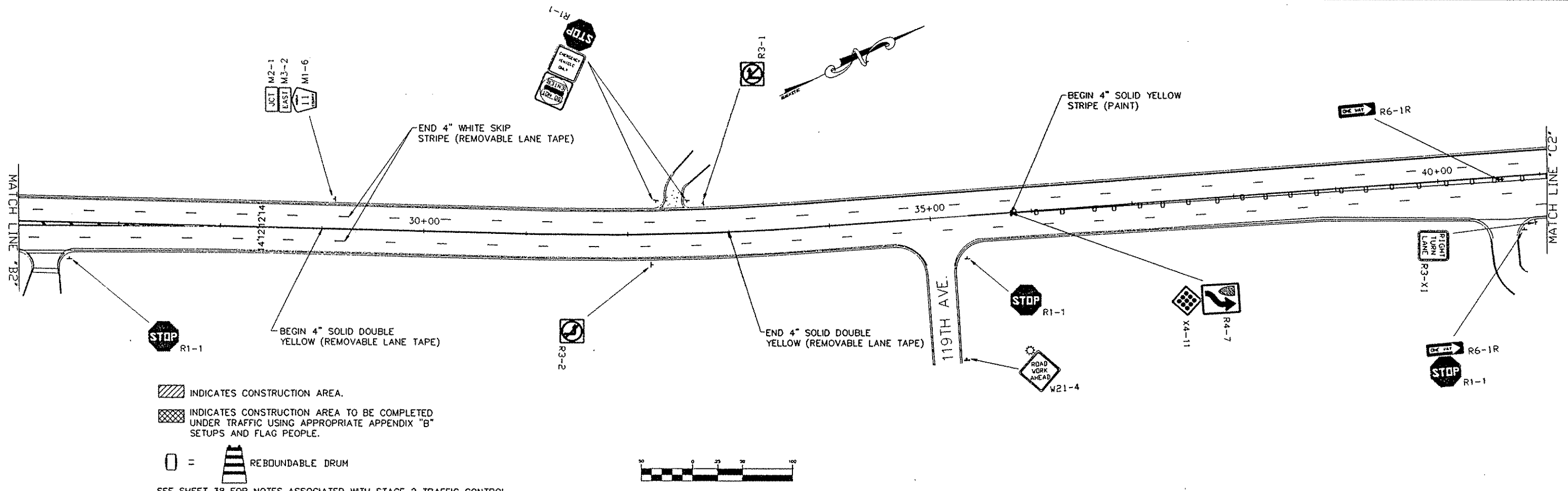
BEGIN 4" WHITE SKIP STRIPE (REMOVABLE LANE TAPE).

STAGE 2 TRAFFIC CONTROL

REVISIONS	DATE	BY

CERTIFIED BY *Angela McEwen* P.E. REG NO. 20235 4/5 19 95

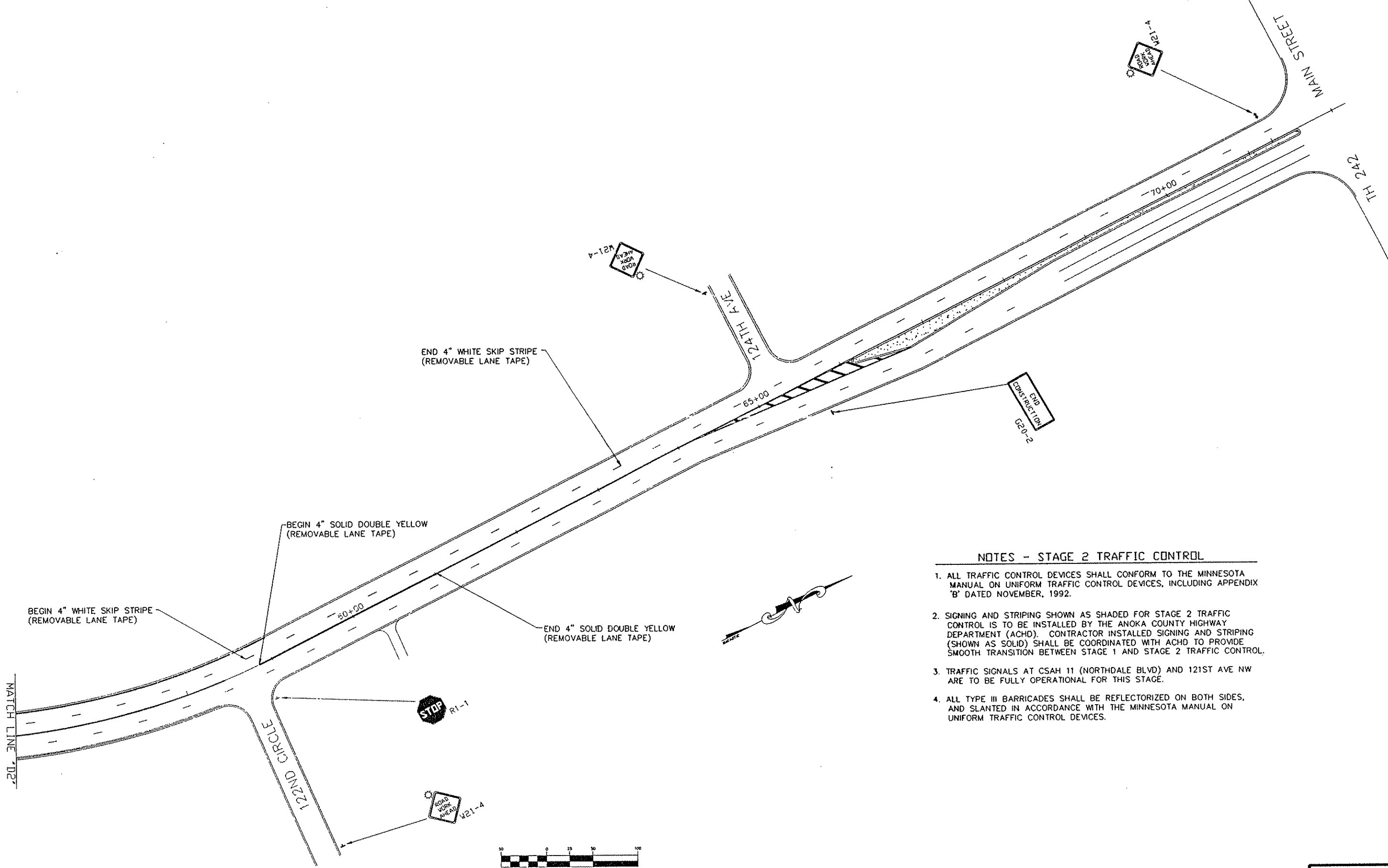
S.A.P. 02-678-08 02-678-09 M.S.A.P. 114-020-07 114-020-08 C.P. Sheet No. 36 of 44 Sheets



REVISIONS	DATE	BY

CERTIFIED BY Angela M. ... P.E. REG NO. 20235 4/5 19 95

S.A.P. 02-678-08 M.S.A.P. 114-020-07 C.P. \_\_\_\_\_



**NOTES - STAGE 2 TRAFFIC CONTROL**

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B' DATED NOVEMBER, 1992.
2. SIGNING AND STRIPING SHOWN AS SHADED FOR STAGE 2 TRAFFIC CONTROL IS TO BE INSTALLED BY THE ANOKA COUNTY HIGHWAY DEPARTMENT (ACHD). CONTRACTOR INSTALLED SIGNING AND STRIPING (SHOWN AS SOLID) SHALL BE COORDINATED WITH ACHD TO PROVIDE SMOOTH TRANSITION BETWEEN STAGE 1 AND STAGE 2 TRAFFIC CONTROL.
3. TRAFFIC SIGNALS AT CSAH 11 (NORTHDAL BLVD) AND 121ST AVE NW ARE TO BE FULLY OPERATIONAL FOR THIS STAGE.
4. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS	DATE	BY

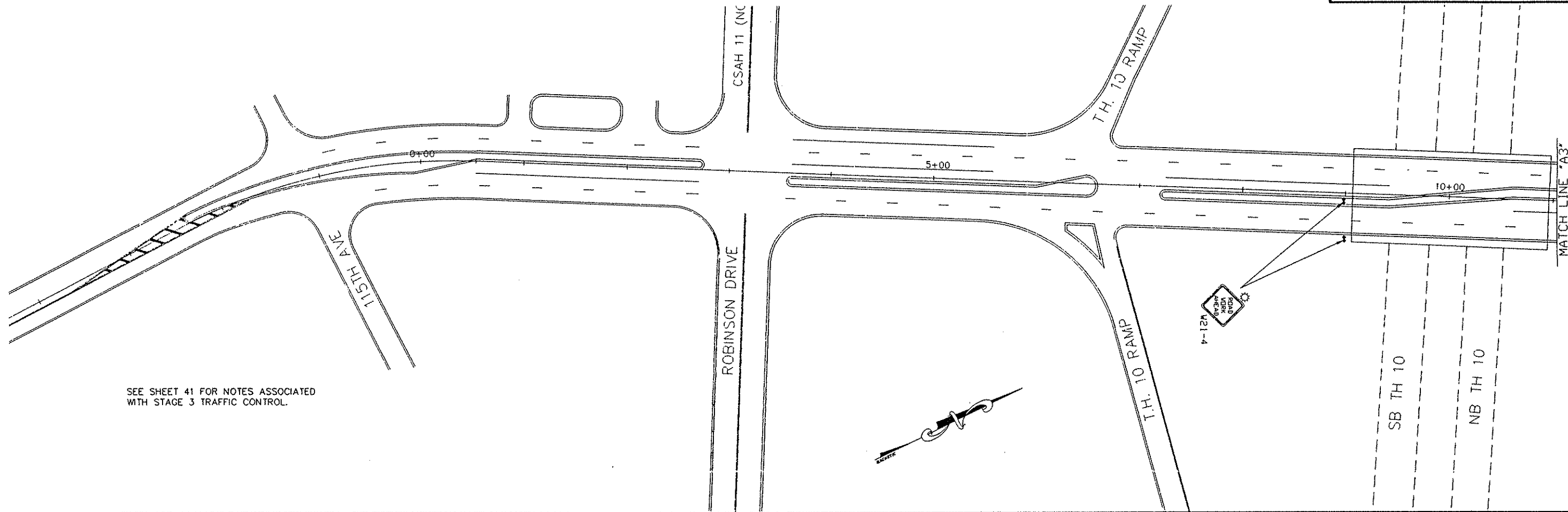
CERTIFIED BY Douglas W. Johnson P.E. REG NO. 20235 4/5 19 95

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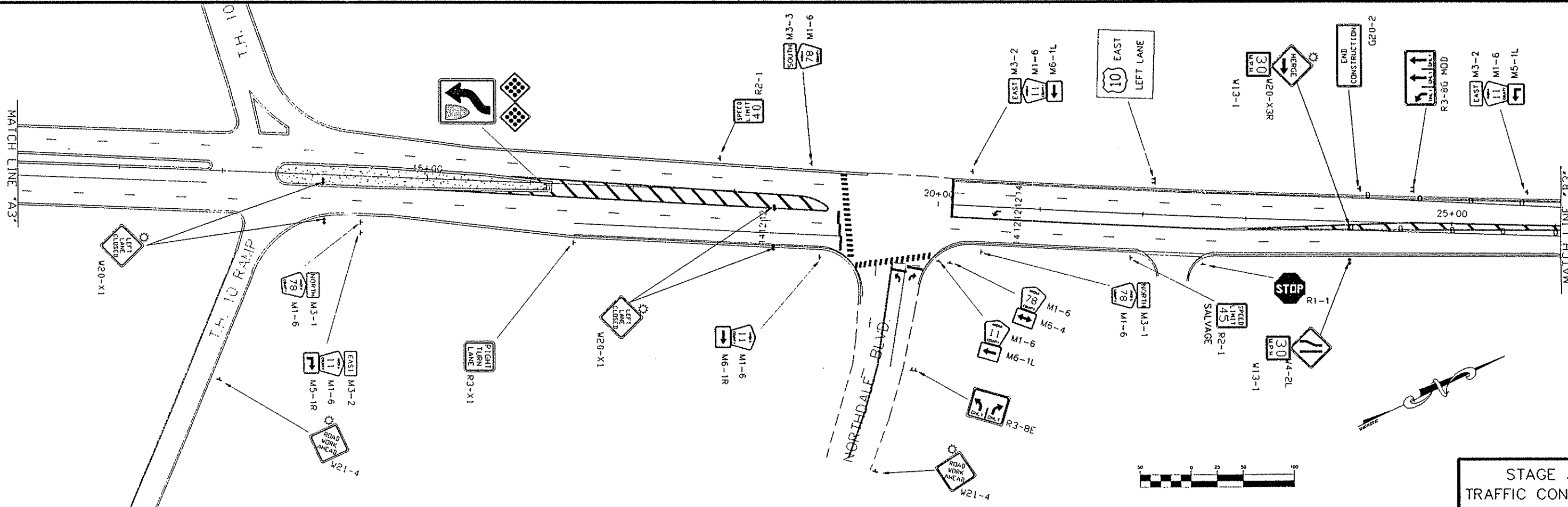
Sheet No. 38 of 44 Sheets

**STAGE 2 TRAFFIC CONTROL**





SEE SHEET 41 FOR NOTES ASSOCIATED WITH STAGE 3 TRAFFIC CONTROL.



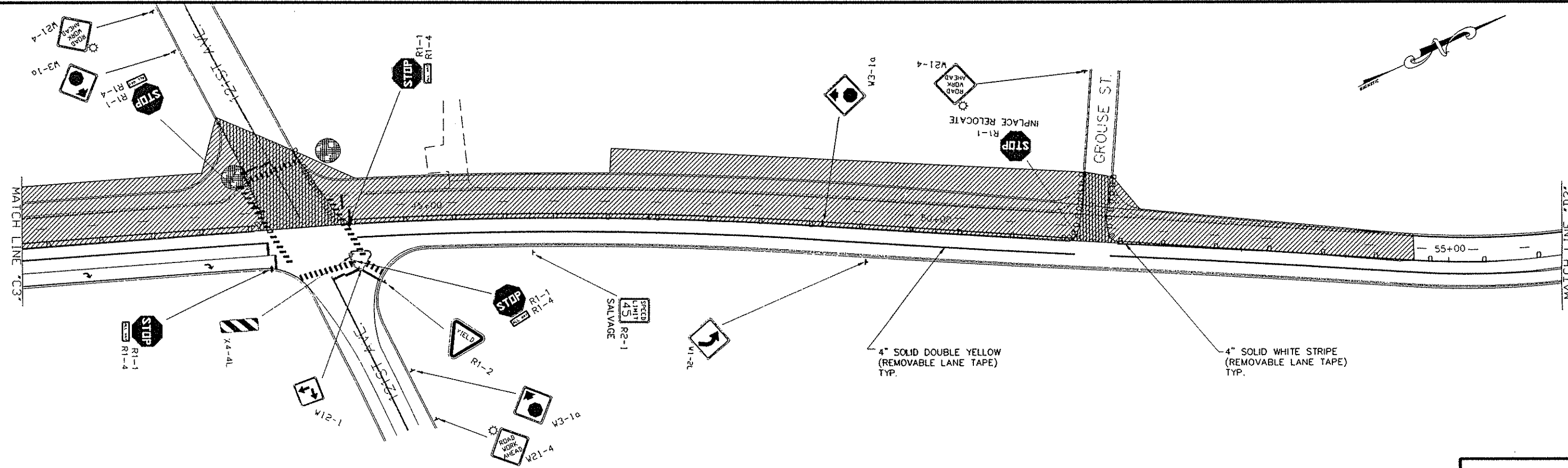
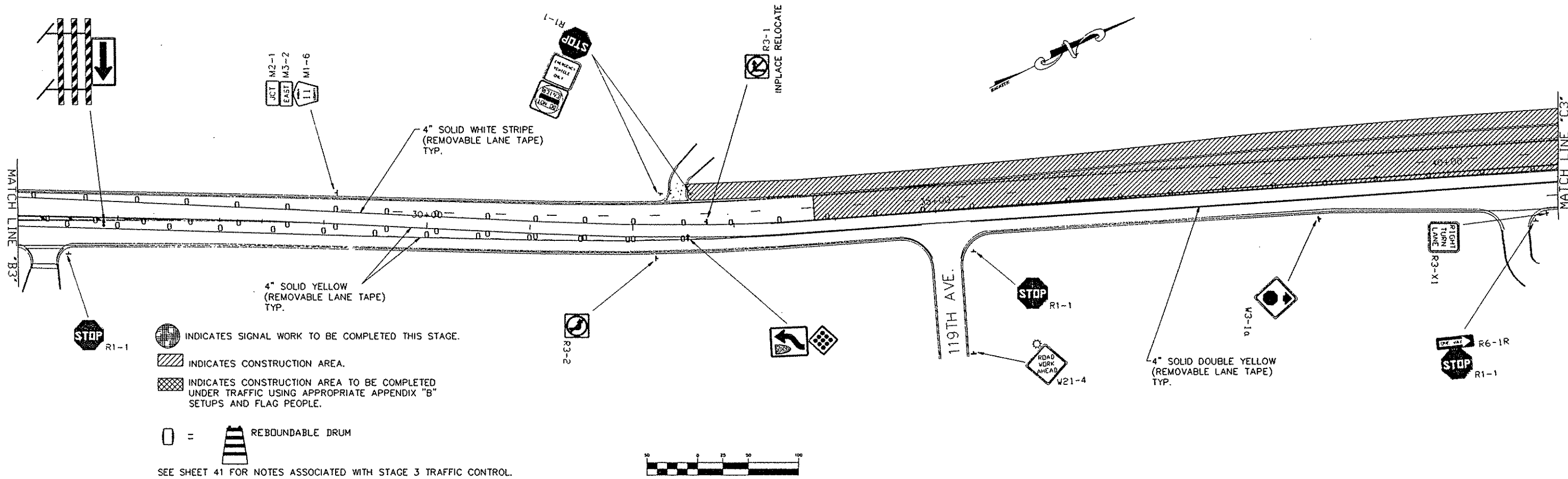
STAGE 3 TRAFFIC CONTROL

REVISIONS	DATE	BY

CERTIFIED BY Douglas M. Tuckey P.E. REG NO. 20235 4/5 19 95

S.A.P. 02-678-08 M.S.A.P. 114-020-07 C.P. 114-020-08

Sheet No. 39 of 44 Sheets

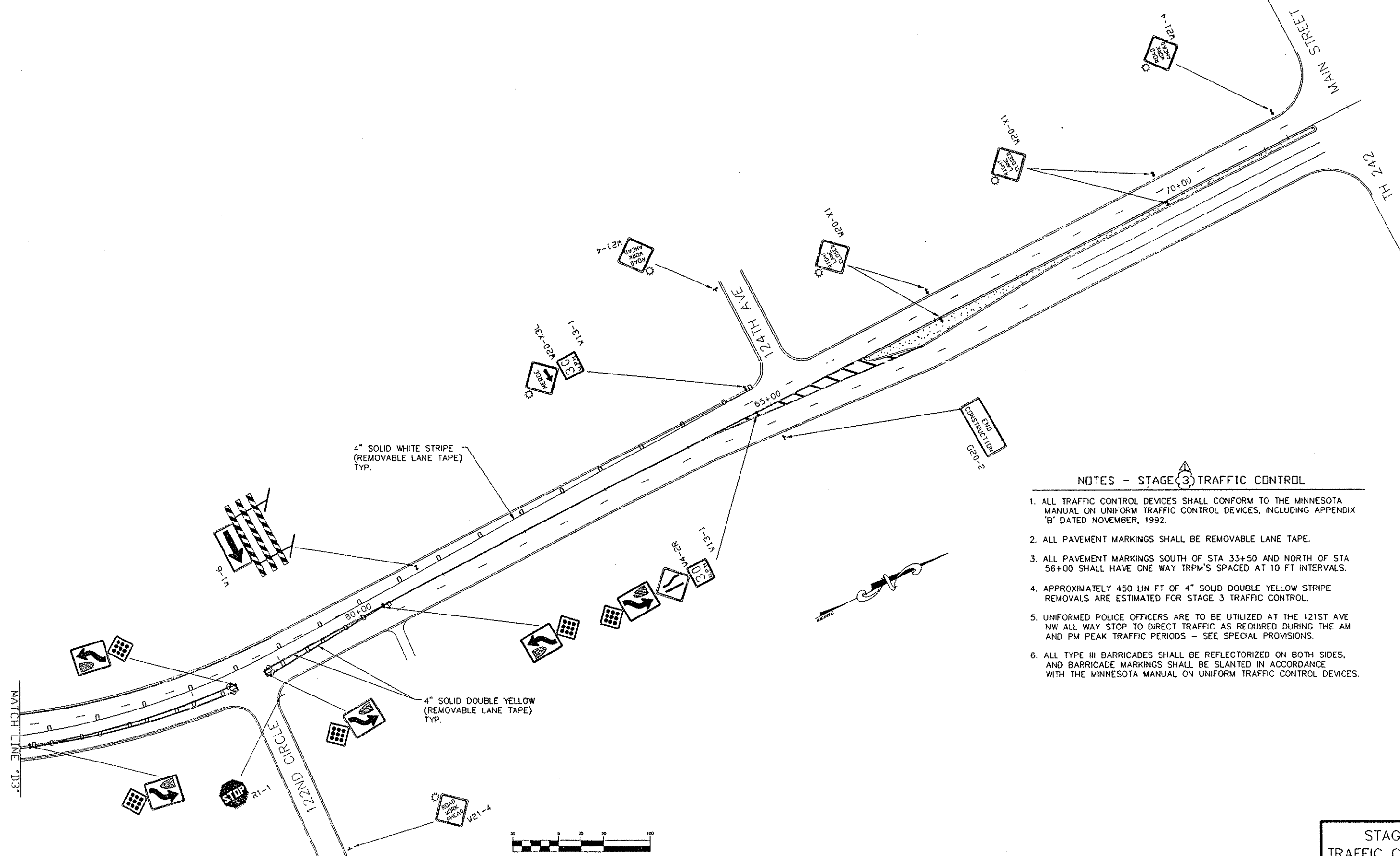


REVISIONS	DATE	BY

CERTIFIED BY Roderic W. Kunkel P.E. REG NO. 20235 4/5 19 95

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02-678-09 114-020-08

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NOTES - STAGE 3 TRAFFIC CONTROL

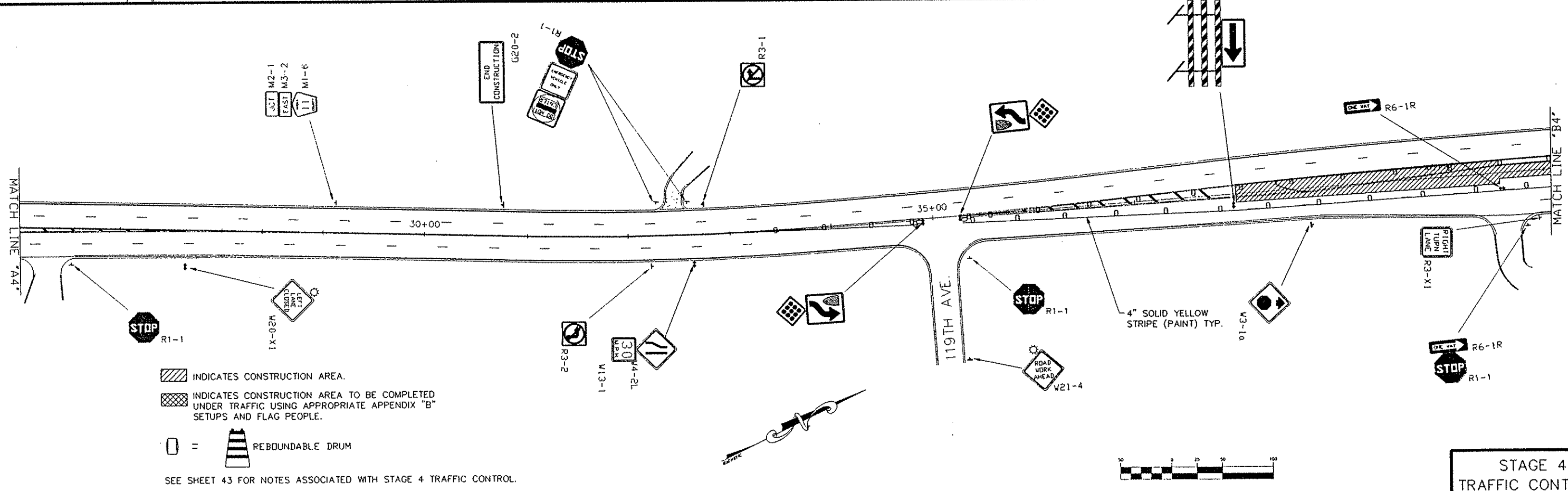
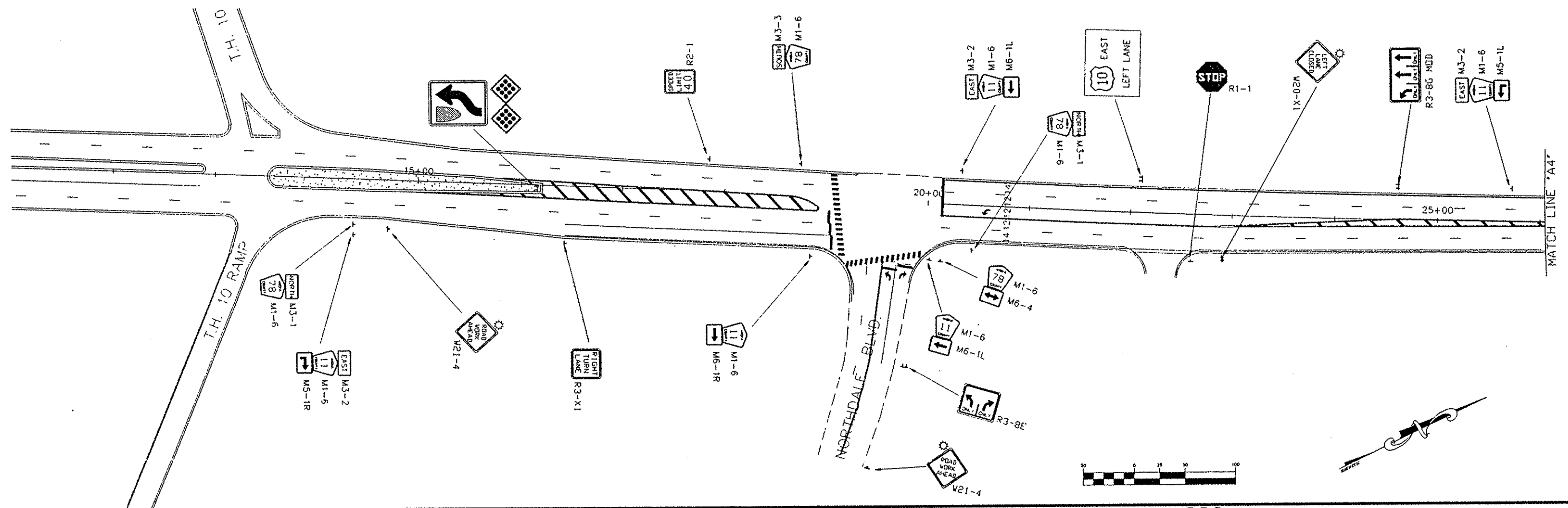
1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B' DATED NOVEMBER, 1992.
2. ALL PAVEMENT MARKINGS SHALL BE REMOVABLE LANE TAPE.
3. ALL PAVEMENT MARKINGS SOUTH OF STA 33+50 AND NORTH OF STA 56+00 SHALL HAVE ONE WAY TRPM'S SPACED AT 10 FT INTERVALS.
4. APPROXIMATELY 450 LIN FT OF 4" SOLID DOUBLE YELLOW STRIPE REMOVALS ARE ESTIMATED FOR STAGE 3 TRAFFIC CONTROL.
5. UNIFORMED POLICE OFFICERS ARE TO BE UTILIZED AT THE 121ST AVE NW ALL WAY STOP TO DIRECT TRAFFIC AS REQUIRED DURING THE AM AND PM PEAK TRAFFIC PERIODS - SEE SPECIAL PROVISIONS.
6. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.




REVISIONS	BY	DATE
1	RB	6/27/95

CERTIFIED BY Rudolf W. Janssen P.E. REG NO. 20235 4/86 19 95

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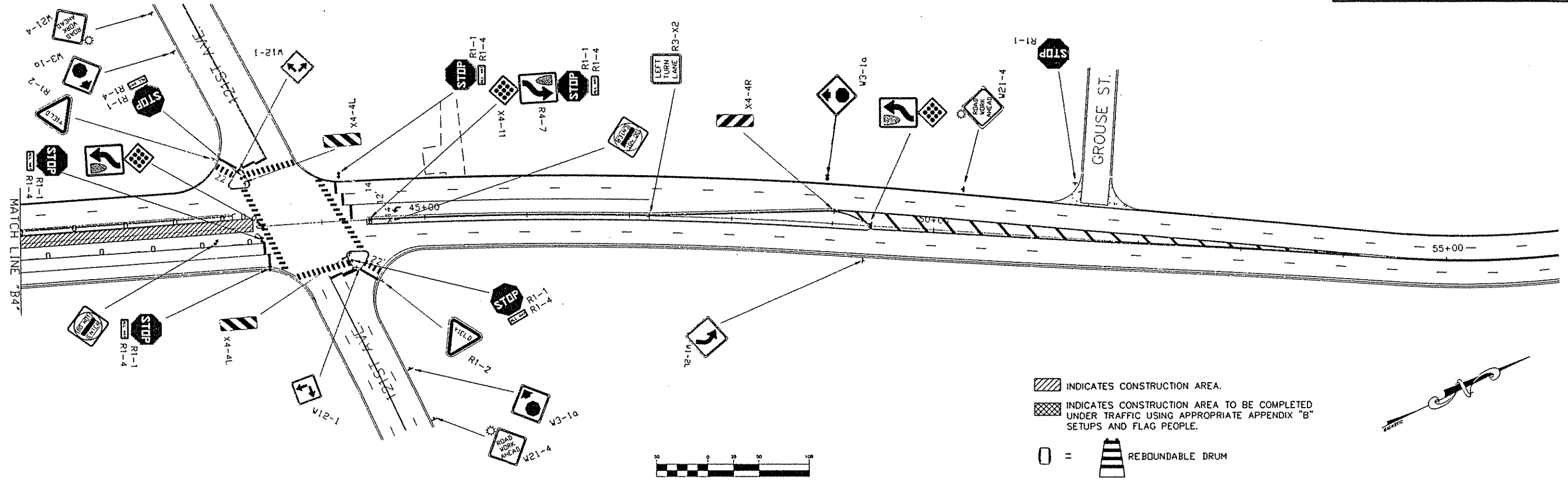
STAGE 3 TRAFFIC CONTROL



 INDICATES CONSTRUCTION AREA.  
 INDICATES CONSTRUCTION AREA TO BE COMPLETED UNDER TRAFFIC USING APPROPRIATE APPENDIX "B" SETUPS AND FLAG PEOPLE.  
 = REBOUNDABLE DRUM  
 SEE SHEET 43 FOR NOTES ASSOCIATED WITH STAGE 4 TRAFFIC CONTROL.

STAGE 4  
TRAFFIC CONTROL

REVISIONS	DATE	BY



**NOTES - STAGE 4 TRAFFIC CONTROL**

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX "B" DATED NOVEMBER, 1992.
2. ALL PAVEMENT MARKINGS SHALL BE PAINT. DOUBLE YELLOW CENTERLINE BETWEEN STA 33+00 AND STA 38+00 SHALL BE AUGMENTED WITH ONE WAY TRPM'S SPACED AT 10 FT INTERVALS.
3. UNIFORMED POLICE OFFICERS ARE TO BE UTILIZED AT THE 121ST AVE NW ALL WAY STOP TO DIRECT TRAFFIC AS REQUIRED DURING THE AM AND PM PEAK TRAFFIC PERIODS - SEE SPECIAL PROVISIONS.
4. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS	DATE	BY

CERTIFIED BY Douglas W. Jurek P.E. REG NO. 20265 6/5 19 95

S.A.P. 02-678-08 M.S.A.P. 114-020-07 C.P. \_\_\_\_\_

STAGE 4  
TRAFFIC CONTROL



M.U.T.C.D. CODE	SIZE	INSERT	STAGE I	STAGE II	STAGE III	STAGE IV
			QTY	QTY	QTY	QTY
R1-1	48"x48"		• 11	• 0	• 4	• 6
R1-4	18"x16"		• 9	• 0	• 4	• 6
R5-1	30"x30"		• 0	• 0	• 0	• 1
R3-X1	30"x30"		• 1	• 0	• 0	• 0
R4-7	30"x36"		• 3	• 4	• 6	• 6
X4-2	18"x18"		• 3	• 4	• 6	• 6
R6-1R	36"x12"		• 0	• 1	• 0	• 1
R11-2	48"x30"		• 2	• 0	• 0	• 0
TYPE III	8 FT.		• 2	• 0	• 0	• 0
W1-6L	48"x24"		• 2	• 0	• 1	• 0
TYPE III	8 FT.		• 15	• 0	• 1	• 0
W1-6R	48"x24"		• 1	• 0	• 1	• 1
TYPE III	8 FT.		• 3	• 0	• 1	• 1
X4-4R	12"x36"		• 2	• 0	• 0	• 0
W3-1a	48"x48"		• 7	• 0	• 4	• 4
FLASHER			• 1	• 0	• 1	• 0
W4-2R	48"x48"		• 1	• 0	• 1	• 0
W13-1	24"x24"		• 1	• 0	• 1	• 0
FLASHER			• 1	• 0	• 1	• 1
W4-2L	48"x48"		• 1	• 0	• 1	• 1
W13-1	24"x24"		• 1	• 0	• 1	• 1

M.U.T.C.D. CODE	SIZE	INSERT	STAGE I	STAGE II	STAGE III	STAGE IV
			QTY	QTY	QTY	QTY
FLASHER			• 1	• 0	• 1	• 0
W20-X3L	48"x48"		• 1	• 0	• 1	• 0
W13-1	24"x24"		• 1	• 0	• 1	• 0
FLASHER			• 1	• 0	• 1	• 0
W20-X3R	48"x48"		• 1	• 0	• 1	• 0
W13-1	24"x24"		• 1	• 0	• 1	• 0
G20-2	60"x24"		• 2	• 2	• 2	• 2
FLASHER			• 11	• 10	• 11	• 6
W21-4	48"x48"		• 11	• 10	• 11	• 6
FLASHER			• 4	• 0	• 4	• 2
W21-X5L	48"x48"		• 4	• 0	• 4	• 2
W13-1	24"x24"		• 2	• 0	• 0	• 0
FLASHER			• 3	• 0	• 4	• 0
W21-X5R	48"x48"		• 3	• 0	• 4	• 0
REBOUNDABLE DRUM REFLECTORIZED			• 203	• 60	• 176	• 45
	48"x48"		• 2	• 0	• 0	• 0

THIS SIGN IS TO BE INSTALLED AT LEAST 7 DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, AND REMOVED SOON AS STAGE 1 IS IMPLEMENTED.

STANDARD TRAFFIC CONTROL NOTES

- 1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) ALL BARRICADES AND SIGNS SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
- 3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
- 4) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- 5) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B', DATED NOVEMBER 1992.
- 6) ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.

STAGE QUANTITIES  
TRAFFIC CONTROL

REVISIONS  
BY DATE BY