

MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

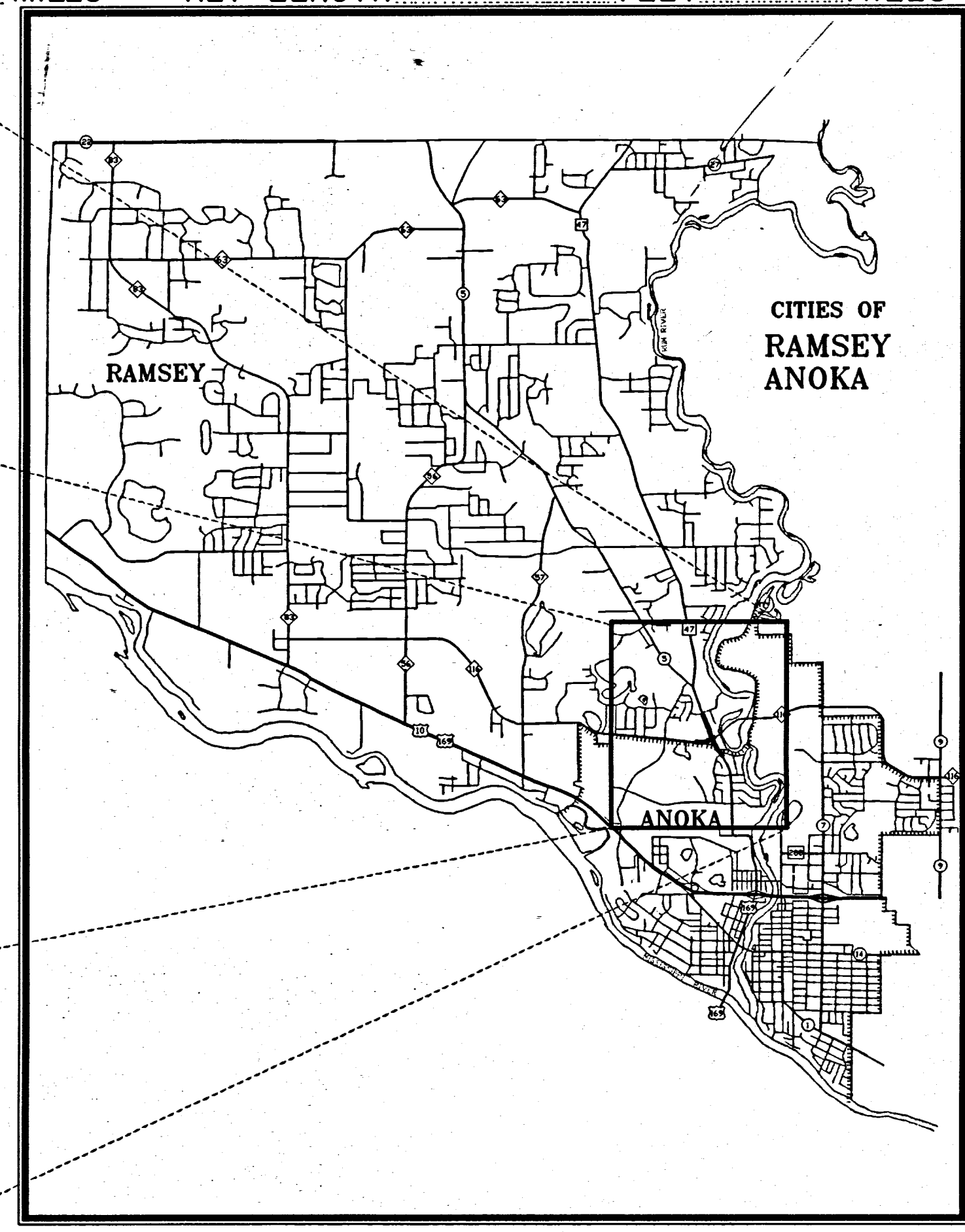
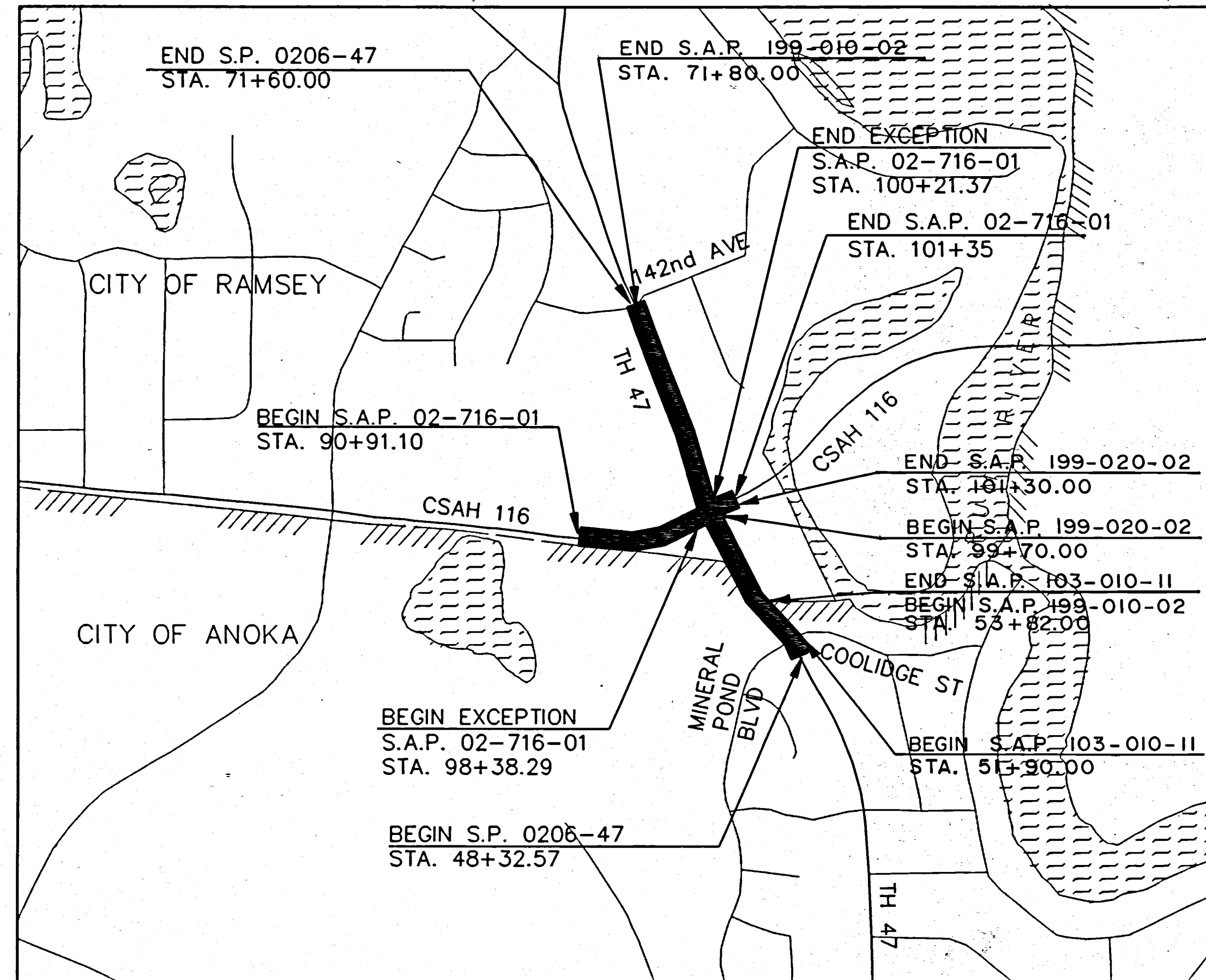
CONSTRUCTION PLAN FOR GRADING, DRAINAGE, AGGREGATE BASE, BITUMINOUS SURFACING, CURB & GUTTER, SIGNAL SYSTEMS, AND BIT. PATH.

LOCATED ON T. H. 47 BETWEEN 300' S. OF COOLIDGE STREET IN CITY OF ANOKA AND 142ND AVE N.W. IN CITY OF RAMSEY (GEOGRAPHIC DESCRIPTION)

FROM A POINT 962.911' NO. & 3888.706' W. OF TO A POINT 569.396' SO. & 591.634' W. OF (LEGAL DESCRIPTION)
THE E. 1/4 COR. OF SEC. 3, T30 N, R24 W. THE NE. COR. OF SEC. 35, T31 N, R24 W.

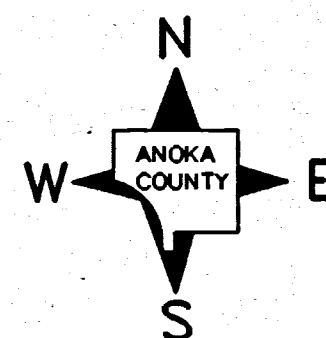
STATE PROJ. NO. 0206-47	STATE AID PROJ. NO. 02-716-01
GROSS LENGTH 2327.43 FEET 0.441 MILES	GROSS LENGTH 1043.90 FEET 0.198 MILES
BRIDGES-LENGTH FEET MILES	BRIDGES-LENGTH FEET MILES
EXCEPTIONS-LENGTH FEET MILES	EXCEPTIONS-LENGTH 183.08 FEET 0.035 MILES
NET LENGTH 2327.43 FEET 0.441 MILES	NET LENGTH 860.82 FEET 0.163 MILES

STATE AID PROJ. NO. 199-010-02	STATE AID PROJ. NO. 199-020-02	STATE AID PROJ. NO. 103-010-11
GROSS LENGTH 1798.0 FEET 0.341 MILES	GROSS LENGTH 160.0 FEET 0.030 MILES	GROSS LENGTH 192.0 FEET 0.036 MILES
BRIDGES-LENGTH FEET MILES	BRIDGES-LENGTH FEET MILES	BRIDGES-LENGTH FEET MILES
EXCEPTIONS-LENGTH FEET MILES	EXCEPTIONS-LENGTH FEET MILES	EXCEPTIONS-LENGTH FEET MILES
NET LENGTH 1798.0 FEET 0.341 MILES	NET LENGTH 160.0 FEET 0.030 MILES	NET LENGTH 192.0 FEET 0.036 MILES



VICINITY MAP

INDEX MAP



- ▲ REVISION DATE 10-1-96 SHT. 22, 23
- ▲ REVISION DATE 9-20-96 SHT. 45, 46, 47, 48, 49, 50
- ▲ REVISION DATE 9-17-96 SHT. 27A
- ▲ REVISION DATE 8-28-96 SHT. 2, 4, 5, 14, 15, 16, 26, 28, 40, 41

AGREEMENT NO. 75067
ANOKA COUNTY
S.P. 0206-47 (T.H.47-110)
STATE FUNDS
METRO DIVISION

STATE AID PROJ. NO. 103-010-11
STATE AID PROJ. NO. 199-010-02
STATE AID PROJ. NO. 199-020-02
STATE AID PROJ. NO. 02-716-01
STATE PROJ. NO. 0206-47 (47=110)

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.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MnMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, DATED APRIL 1995.

SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
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6	CONSTRUCTION NOTES AND EARTH WORK SUMMARY
7	CONSTRUCTION DETAILS
8 - 10	EROSION CONTROL DETAILS
11 - 13	CONSTRUCTION STAGING
14 - 16	TYPICAL SECTIONS
17 - 18	ALIGNMENT PLAN & TABULATION
19 - 20	EXISTING CONDITIONS AND REMOVAL PLAN
21	SUPERELEVATION CHART
22 - 24	PLAN AND PROFILE SHEETS
25	INTERSECTION DETAILS
26 - 28	DRAINAGE PLAN & PROFILE SHEETS
29	SEDIMENTATION POND PLAN
30 - 39	TRAFFIC SIGNAL PLAN
40 - 43C	SIGN AND STRIPING PLAN
44	RETAINING WALL PLAN AND DETAILS
45 - 50	CROSS SECTIONS
51 - 56	TRAFFIC CONTROL PLAN

THIS PLAN CONTAINS 59 SHEETS

DESIGN DESIGNATION

	S.P. 0206-47	S.A.P. 02-716-01
ΣN18 ₂₀	2,838,169	1,913,722
R VALUE	60	60
ADT (1996)=	15,912	9,656
Proj. ADT (2016)=	27,050	16,415
Proj. HCADT (2016)=	1,974	1,231
Soil Factor	N/A	N/A
10 TON DESIGN		
No. of Traffic Lanes	2	4 (Urban)
Shoulder Width	10'	0' (Urban) 10' (Rural)
No. of Parking Lanes	0	0
Design Speed	45 MPH	50 MPH
Functional Classification	ARTERIAL	ARTERIAL
Based on Stopping Sight Distance		
Height of eye	3.5'	Height of object 0.5'
Design Speed not achieved at:	N/A	
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 7/18/96 REG. NO. 20235 ENGR. *David J. Rohrer* ASSISTANT COUNTY ENGINEER
DESIGN SQUAD K. YANG/B. LUKART/H. GRAMS

Approved <i>James O. Olson</i> ANOKA COUNTY ENGINEER 7/22, 1996
Approved <i>Ray A. Kelly</i> CITY OF ANOKA ENGINEER 7/22, 1996
Approved <i>Steve P. Johnson</i> CITY OF RAMSEY ENGINEER 7/22, 1996
Recommended for Approval <i>Michael H. Johnson</i> METRO DIVISION 8/1, 1996
Recommended for Approval <i>Michael H. Johnson</i> STATE TRAFFIC ENGINEER 8/1, 1996
Recommended for Approval <i>Ray A. Kelly</i> STATE FIRE ALARMING ENGINEER 8-12, 1996
Right of Way Approval <i>Ray A. Kelly</i> STATE RIGHT OF WAY ENGINEER 8-19, 1996
Approved <i>David J. Rohrer</i> STATE DESIGN ENGINEER 8-22, 1996
Recommended for Approval _____, 19____
Recommended for Approval _____, 19____
Approved <i>James O. Olson</i> STATE ENGINEER 8/1, 1996

COUNTY PROJECT NO. _____
SHEET NO. 1 OF 56 SHEETS

REVISIONS BY DATE
7-29-96 47Y

FILE NAME: P:\902316\PLANS\47116C1.DWG MIN (7-16-96)

STATEMENT OF ESTIMATED QUANTITIES

Main table with columns: CHART NO., NOTE, ITEM NO., ITEM, UNIT, TOTAL (ESTIMATED, FINAL), S.A.P. 02-716-01 (ESTIMATED, FINAL), S.P. 0206-47 (ESTIMATED, FINAL), SAP 103-010-11 (ESTIMATED, FINAL), SAP 199-010-02 (ESTIMATED, FINAL).

Main table with columns: CHART NO., NOTE, ITEM NO., ITEM, UNIT, TOTAL (ESTIMATED, FINAL), S.A.P. 02-716-01 (ESTIMATED, FINAL), S.P. 0206-47 (ESTIMATED, FINAL), SAP 103-010-11 (ESTIMATED, FINAL), SAP 199-010-02 (ESTIMATED, FINAL).

INDEX OF TABULATION CHARTS. Table with columns: CHART, SHEET NO., DESCRIPTION.

STANDARD PLATES. Table with columns: PLATE NO., DESCRIPTION. Includes notes on approved plates and application.

BASIS OF PLANNED QUANTITIES. Table with columns: CHART, SHEET NO., DESCRIPTION.

REVISIONS table with columns: DATE, BY, DATE, BY.

CLEARING AND GRUBBING (A)

STATION - STATION	LOCATION	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
S.P. 0206-47					
50+16	41' RT LNB	1		1	
50+30	41' RT LNB	1		1	
50+45	41' RT LNB	1		1	
50+80	40' RT LNB	1		1	
51+17	42' RT LNB	1		1	
51+96	50' RT LNB	1		1	
52+08	31' RT LNB	1		1	
52+17	31' RT LNB	1		1	
52+35	24' RT LNB	1		1	
52+46	26' RT LNB	1		1	
53+00	22' RT LNB	1		1	
53+11	22' RT LNB	1		1	
53+25	29' RT LNB	1		1	
53+46	25' RT LNB	1		1	
53+56	31' RT LNB	1		1	
53+61	25' RT LNB	1		1	
53+75 TO 55+64	14'-52' RT LNB		0.1		0.1
55+86	22' RT LNB	1		1	
55+99	30' RT LNB	1		1	
56+02	15' RT LNB	1		1	
56+95	7' LT LSB	1		1	
57+04	8' LT LSB	1		1	
57+14	7' LT LSB	1		1	
69+10	18' LT LSB	1		1	
69+24	17' LT LSB	1		1	
69+29	34' LT LSB	1		1	
69+31	16' LT LSB	1		1	
69+53	19' LT LSB	1		1	
69+56	35' LT LSB	1		1	
TOTAL		28	0.10	28	0.10
S.A.P. 02-716-01					
NONE	NONE	NONE	NONE	NONE	NONE
TOTAL		0	0	0	0

SAWING BITUMINOUS PAVEMENT (B)

STATION - STATION	LOCATION	LIN. FT.
S.P. 0206-47		
48+34 TO 51+25	T.H. 47 1' LT. LNB	293
51+25	2' RT. LNB TO 14' LT. LSB	40
51+39 TO 51+73	38' LT. LSB	36
51+51 TO 51+85	47' RT. LNB	34
57+70 TO 58+00	38' RT. LNB	42
66+50 TO 66+79	50' RT. LNB	29
66+59 TO 66+85	43' LT. LSB	27
71+60	T.H. 47 12' RT. LNB TO 36' LT LNB	48
98+38	C.S.A.H. 116 5' TO 40' RT.	35
100+22	C.S.A.H. 116 3' TO 41' LT.	38
TOTAL		622
S.A.P. 02-716-01		
90+91 TO 95+67	C.S.A.H. 116 24' LT.	476
95+65	5' RT. TO 23' LT.	28
95+65 TO 98+38	5' RT	273
101+00 TO 101+35	3' TO 57' RT.	92
101+23 TO 101+62	C.S.A.H. 116 45' TO 95' RT. AT FINA GAS STA. ENTRANCE	78
TOTAL		947

MILL BITUMINOUS SURFACE (C)

STATION - STATION	LOC.	DESCRIPTION	SQ. YD.
S.P. 0206-47			
NONE	NONE	NONE	NONE
TOTAL			0
S.A.P. 02-716-01			
90+91 TO 95+67	LT.	MILLING 3" DEEP OF EXIST. BIT. SURFACE	1,275
TOTAL			1,275

FENCE REMOVAL (D)

STATION - STATION	LOCATION	DESCRIPTION	SALVAGE LIN. FT.	REMOVAL LIN. FT.
S.P. 0206-47				
54+69 TO 55+64	RT. LNB	6' HIGH WROUGHT IRON		95
57+18 TO 57+60	RT. LNB	REMOVE AND SALVAGE 6' HIGH WROUGHT IRON	43	
TOTAL			43	95
S.A.P. 02-716-01				
NONE	NONE	NONE	NONE	NONE
TOTAL			0	0

RETAINING WALL REMOVAL (E)

STATION - STATION	LOCATION	DESCRIPTION	SQ. FT.
S.P. 0206-47			
54+69 TO 55+64	RT. LNB	5' HIGH STONE BLOCK WALL	475
TOTAL			475
S.A.P. 02-716-01			
NONE	NONE	NONE	NONE
TOTAL			0

BITUMINOUS PAVEMENT REMOVAL (F)

STATION - STATION	LOCATION	DESCRIPTION	SQ. YDS.
S.P. 0206-47			
48+34 TO 51+25	T. H. 47	INCLUDES APPROACHES AND DRIVEWAYS	6,676
51+25 TO 62+00	T. H. 47	INCLUDES APPROACHES AND DRIVEWAYS	194
62+00 TO 71+60	T. H. 47	INCLUDES APPROACHES AND DRIVEWAYS	5,464
98+38 TO 98+60	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	272
99+98 TO 101+25	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	435
101+25 TO 101+60	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	152
TOTAL			13,193
S.A.P. 02-716-01			
90+91 TO 91+75	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	31
91+75 TO 95+64	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	339
95+64 TO 98+38	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	770
95+64 TO 98+38	C.S.A.H. 116	INCLUDES APPROACHES AND DRIVEWAYS	239
TOTAL			1,379

CONCRETE REMOVAL (G)

STATION - STATION	LOCATION	DESCRIPTION	SQ. YD.
S.P. 0206-47			
48+62 TO 48+90	RT. LNB	T. H. 47 CONCRETE DRIVEWAY	138
TOTAL			138
S.A.P. 02-716-01			
95+71 TO 98+78	CL	C.S.A.H. 116 CONCRETE MEDIAN	103
99+72 TO 101+00	CL	C.S.A.H. 116 CONCRETE MEDIAN	43
101+15 TO 101+35	RT.	C.S.A.H. 116 CONCRETE GUTTER	5
TOTAL			153

CURB AND GUTTER REMOVAL (H)

STATION - STATION	LOCATION	DESCRIPTION	LIN. FT.
S.P. 0206-47			
51+80	37.5' LT.	T. H. 47 CONCRETE C & G	5
57+66	33' RT.	T. H. 47 CONC. C & G AT FOOD N FUEL ENTRANCE	6
58+01	33' RT.	T. H. 47 CONC. C & G AT FOOD N FUEL ENTRANCE	3
99+95 TO 101+00	CL.	C.S.A.H. 116 CONCRETE MEDIAN C & G	105
TOTAL			119
S.A.P. 02-716-01			
94+20 TO 94+45	LT.	C.S.A.H. 116 SUPER AMERICA ENTRANCE C & G	45
95+71 TO 98+78	CL	C.S.A.H. 116 CONCRETE MEDIAN C & G	614
100+21 TO 101+15	RT.	C.S.A.H. 116 CONCRETE C & G (B-618)	94
101+15 TO 101+30	RT.	C.S.A.H. 116 CONCRETE C & G B-618	52
101+63	55' LT.	C.S.A.H. 116 CONCRETE C & G AT SEWER TRENCHING	6
TOTAL			811

BITUMINOUS FLUME (I)

STATION - STATION	LOCATION	DESCRIPTION	REMOVE EACH	INSTALL SQ. YDS.
S.P. 0206-47				
71+53	37' RT. LNB	REMOVE BIT FLUME AT T.H. 47 AND 142ND	1	
71+62	37' RT. LNB	INSTALL BIT FLUME AT T.H. 47 AND 142ND		9
TOTAL			1	9
S.A.P. 02-716-01				
NONE	NONE	NONE	0	0
TOTAL			0	0

REMOVAL OF EXISTING DRAINAGE (PIPE & CULVERT) (J)

STATION	LOCATION	REMARKS	ABANDON		REMOVAL	
			SEWER PIPE LIN. FT.	SEWER PIPE LIN. FT.	C.B. EACH	APRONS EACH
S.P. 0206-47						
57+45	30' RT LNB	REMOVE EXIST. 12" RCP (3)		23		1
57+50-59+70	27' RT LNB	REMOVE EXIST. 15" RCP (1)		220		2
59+87-61+00	14'-22' RT LNB	ABANDON 13" ARCH RCP (2)	113			2
62+01	25' RT LNB	REMOVE EXIST. 15" RCP (3)		22		1
66+35	30' RT LNB	REMOVE EXIST. 15" RCP & STRUCT.		22	1	1
66+42-67+00	15'-18' RT LNB	REMOVE EXIST. 12" RCP		68		2
71+53-71+63	34' RT LNB	REMOVE PART OF EXIST. 18" RCP		10		1
TOTAL			113	343	1	10
S.A.P. 02-716-01						
93+80-94+45	56' RT	REMOVE EXIST. 15" SMP (3)		58		1
97+00	41' LT-50' RT	ABANDON EXIST. 13" ARCH RCP (2)	91			2
TOTAL			91	58	0	3

NOTES:

- REMOVE EXIST. STORM SEWER PIPE AND APRONS INCLUDING TRASH GUARDS.
- ABANDON EXISTING STORM SEWER PIPE INPLACE. REMOVE APRONS AND FILL EXISTING STORM SEWER PIPE WITH SAND. FILL BOTH ENDS OF PIPE WITH CONCRETE.
- REMOVE ONLY THE EXISTING STORM SEWER PIPE AND APRON. PROTECT EXISTING DRAINAGE STRUCTURE TO REMAIN.

TABULATION CHARTS

CLEARING & GRUBBING
 SAWING BITUMINOUS PAVEMENT
 MILL BITUMINOUS SURFACE
 FENCE REMOVAL
 RETAINING WALL REMOVAL
 BITUMINOUS PAVEMENT REMOVAL
 CONCRETE REMOVAL
 CURB & GUTTER REMOVAL
 BITUMINOUS FLUME
 REMOVAL OF EXISTING DRAINAGE

REVISIONS
 DATE BY
 7-29-24 KTY

CERTIFIED BY *[Signature]*

P.E. REG NO. 20235 4/18 19 76

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 3 of 56 Sheets

FILE NAME: C:\P\0203116\PLANS\47116C3.DWG MN(7-16-96)

BITUMINOUS PAVEMENT (L)

STATION - STATION	TYPE 31 BASE			TYPE 41 BINDER			TYPE 41 WEARING			TACK COAT	AGGREGATE BASE CLASS-6			REMARK
	DEPTH (IN)	AREA (SQ. YD.)	WEIGHT (TON)	DEPTH (IN)	AREA (SQ. YD.)	WEIGHT (TON)	DEPTH (IN)	AREA (SQ. YD.)	WEIGHT (TON)	(GALLON)	DEPTH (IN)	AREA (SQ. YD.)	VOLUME (CU. YD.)	
S.P. 0206-47														
48+32 TO 71+60	4.0"	16,124	3,547	1.5"	16,124	1,330	1.5"	16,124	1,330	1,613	6.0	16,124	2,688	
TOTAL		16,124	3,547		16,124	1,330		16,124	1,330	1,613		16,124	2,688	
S.A.P. 02-716-01														
90+91 TO 101+23	4.0"	1,769	389	1.5"	1,769	146	1.5"	1,769	146	177	6.0	1,769	295	
90+91 TO 95+67				1.5"	1,275	105	1.5"	1,275	105	128				BITUMINOUS OVERLAY
TOTAL		1,769	389		3,044	251		3,044	251	305		1,769	295	

BALE CHECK (U)

STATION - STATION	LOCATION	EACH	REMARKS
S.P. 0206-47			
50+00	30' RT LNB	11	
51+20	34' RT LNB	11	AT INLET - A1
52+05 TO 54+10	40'-45' RT LNB	68	
57+51	43' RT LNB	11	AT INLET - D2
98+63	68' LT CL CSAH 116	11	AT INLET - G5
61+31	20' RT LNB	11	AT INLET - G6
100+23	59' LT CL CSAH 116	11	AT INLET - G7
63+34	20' LT LSB	11	AT INLET - J1
63+34	21' RT LNB	11	AT INLET - J2
66+90 TO 68+05	35' TO 25' LT LSB	40	
69+00	28' RT LNB	11	
70+25 TO 71+60	18' LT LSB	45	
71+30	28.6' RT LNB	11	AT INLET - K2
71+60	35' RT LNB	11	AT INLET - K2
TOTAL		274	

SEWER MANHOLE COVER ADJUSTMENT (M)

STATION	LOCATION	OWNERSHIP	INPLACE ELEVATION	PROPOSED ELEVATION	ADJUST EACH	REMARKS
S.P. 0206-47						
49+20	27' RT CL	FRIDLEY	867.49	867.00	1	FIELD VERIFY PROP. EL.
51+61	18' RT LNB	FRIDLEY	866.33	867.19	1	FIELD VERIFY PROP. EL.
51+64	23' LT LSB	FRIDLEY	866.05	866.94	1	FIELD VERIFY PROP. EL.
67+09	34' RT LNB	FRIDLEY	858.84	858.63	1	
67+64	37' RT LNB	FRIDLEY	858.06	859.36	1	
TOTAL					5	
S.A.P. 02-716-01						
NONE					0	
TOTAL					0	

CONCRETE WALK (Q)

STATION - STATION	LOCATION	SQ. FT.	REMARKS
S.P. 0206-47			
61+05 TO 67+83	T.H. 47 MEDIAN	5,795	NORTH OF C.R. 116
61+05 TO 67+83	T.H. 47 MEDIAN	3,556	SOUTH OF C.R. 116
TOTAL		9,351	
S.A.P. 02-716-01			
93+99 TO 98+65	CSAH 116 MEDIAN	420	EAST OF C.R. 116
99+96 TO 101+00	CSAH 116 MEDIAN	1,077	EAST OF C.R. 116
TOTAL		1,497	

S.A.P. 02-716-01

STATION	LOCATION	EACH	REMARKS
90+95	45' LT CL	11	
93+00	45' LT CL	11	
94+56	47.5' LT CL	11	AT INLET - N1
96+50	70' RT CL	11	
97+50	95' RT CL	12	AT POND BOTTOM
99+90	145' RT CL	12	AT POND BOTTOM
101+70	60' LT CL	6	AT INLET - F1
TOTAL		74	

CONCRETE CURB AND GUTTER/BITUMINOUS CURB (N)

STATION - STATION	LOCATION	DESCRIPTION	BIT. CURB LIN. FT.	B424 LIN. FT.	B612 LIN. FT.
S.P. 0206-47					
51+86 TO 57+75	RT.	T. H. 47		627	
51+80 TO 60+02	LT.			873	
55+23 TO 59+80	MEDIAN			914	
60+97 TO 67+83	MEDIAN			1,390	
100+20 TO 101+00	RT.	CSAH 116		80	
99+93 TO 101+00	MEDIAN	CSAH 116			136
67+70 TO 70+50	LT.	T. H. 47	280		
TOTAL			280	3,884	136
S.A.P. 02-716-01					
95+96 TO 98+68	MEDIAN	CSAH 116			545
101+00 TO 101+35	RT.	CSAH 116		38	
TOTAL			0	38	545

BITUMINOUS PATH (R)

STATION - STATION	LOCATION	SQ YD-IN	REMARKS
S.A.P. 199-010-02			
53+80 TO 57+80	RT. T.H. 47	664	
57+92 TO 59+97	RT.	316	
60+94 TO 66+55	RT.	996	
60+90 TO 66+58	LT.	1,008	
66+84 TO 71+80	RT.	876	
TOTAL		3,860	
S.A.P. 199-020-02			
99+70 TO 101+30	RT CSAH 116	268	
TOTAL		268	
S.A.P. 103-010-11			
51+90 TO 53+82	RT. T.H. 47	370	
TOTAL		370	

RELOCATE HYDRANT (W)

STATION	LOCATION	DESCRIPTION	RELOCATE TO		
			STATION	LOCATION	EACH
S.P. 0206-47					
57+41	11' LT LSB		57+41	13' LT LSB	1
TOTAL					1
S.A.P. 02-716-01					
NONE					0
TOTAL					0

RETAINING WALL (O)

STATION - STATION	LOCATION	SQ. FT.	REMARKS
S.P. 0206-47			
53+95 TO 54+50	LT. (LSB)	303	T.H. 47
54+40 TO 57+10	RT. (LNB)	1,643	T.H. 47
TOTAL		1,946	
S.A.P. 02-716-01			
NONE	NONE	NONE	
TOTAL		0	

TURF ESTABLISHMENT (T)

STATION - STATION	LOCATION	SODDING	SEEDING	SEED	MULCH	FIBER	FERTILIZER
		SQ. YD.	ACRE	POUND	TON	SQ. YD.	POUND
S.P. 0206-47							
48+33 - 51+30	RT.	1388					145
51+20 - 51+30	LT.	17					1.8
52+86 - 57+64	RT.	2166					225
51+81 - 59+95	LT.	1809					186.9
58+15 - 59+84	RT.	364					37.6
60+85 - 66+46	RT.	2097					216.6
66+82 - 72+43	RT.	2387					246.6
66+86 - 72+43	LT.	570					130
60+84 - 66+81	LT.	1239					80
91+25 - 93+40	LT.		0.16	5.6	0.32		480
94+44 - 98+65	RT.		0.96	33.6	1.92		
TOTAL		12,037	1.12	39.2	2.24		1,809.5
S.A.P. 02-716-01							
93+65 - 93+85	LT.	41					4.2
94+28 - 98+68	LT.	1022					105.6
96+04 - 98+34	RT.	1062					110
99+71 - 101+25	LT.	765					80
99+88 - 101+63	RT.	518					55
101+55 - 102+00	LT.	190					20
TOTAL		3,598					374.8

GATE VALVE COVER ADJUSTMENT (X)

STATION - STATION	LOCATION	EACH	REMARKS
S.P. 0206-47			
51+67	48' RT LNB	1	
66+20	35' LT LSB	1	
TOTAL		2	
S.A.P. 02-716-01			
NONE		0	
TOTAL		0	

FENCE (P)

STATION - STATION	LOCATION	CHAINLINK LIN. FT.	IRON LIN. FT.	REMARKS
S.P. 0206-47				
54+40 TO 57+10	RT. T.H. 47	270		5 FT HIGH CHAIN LINK FENCE
57+10 TO 57+53	RT. T.H. 47		43	INSTALL SALVAGED IRON FENCE
TOTAL		270	43	
S.A.P. 02-716-01				
NONE	NONE	NONE	NONE	
TOTAL		0	0	

- TABULATION CHARTS**
- BITUMINOUS PAVEMENT
 - SEWER MANHOLE COVER ADJUSTMENT
 - RETAINING WALL
 - FENCE
 - CONCRETE PAVEMENT
 - BITUMINOUS PATH
 - TURF ESTABLISHMENT
 - BALE CHECK
 - RELOCATE FIRE HYDRANT
 - GATE VALVE COVER ADJUSTMENT
 - CONCRETE CURB AND GUTTER/BIT CURB

REVISIONS
DATE BY
7-29-96 KTY
8-28-96 KTY

EARTHWORK SUMMARY (AA)

Fed. Project No. _____

EXCAVATION (EV)

EMBANKMENT (CV)

BALANCE

S. P. 0206-47

S. P. 0206-47

COMMON EXCAVATION	18,744 CU YD	REGULAR	4,228 CU. YD. ①
		SUBCUT	5,722 CU. YD.
		TOPSOIL	3,367 CU. YD.
		SEDIMENTATION POND EXCAVATION.....	4,940 CU. YD.
		SEDIMENTATION POND TOPSOIL REMOVAL.....	487 CU. YD.

GRANULAR	3,350 CU. YD.
TOPSOIL	2,470 CU. YD.

S. P. 0206-47

TOPSOIL

$$\begin{aligned} & \text{TOPSOIL DRESSING (CV)} - [\text{TOPSOIL STRIPING (EV)} \times \text{SHRINKAGE FACTOR}] \\ & - [\text{SED. POND TOPSOIL STRIPING} \times \text{SHRINKAGE FACTOR}] = \text{EXCESS(-) OR SHORTAGE(+)} \\ & 2,470 - (3,367 \times 0.85) - (487 \times 0.85) = -806 \text{ CU YD (EXCESS)} \end{aligned}$$

S.A.P. 02-716-01

S.A.P. 02-716-01

COMMON EXCAVATION	1,396 CU YD	REGULAR	94 CU. YD. ①
		SUBCUT	645 CU. YD.
		TOPSOIL	657 CU. YD.

GRANULAR	289 CU. YD.
TOPSOIL	1,308 CU. YD.

GRANULAR

$$\begin{aligned} & \text{GRANULAR (CV)} + \text{SUBCUT} - [\text{REGULAR EXCAVATION(EV)} \times \text{SHRINKAGE FACTOR}] - [\text{SUBCUT} \\ & \text{EXCAVATION} \times \text{SHRINKAGE FACTOR}] - [\text{SED. POND EXCAVATION} \times \text{SHRINKAGE FACTOR}] = \\ & \text{EXCESS (-) OR SHORTAGE (+)} \\ & 3,350 + 5,722 - (4,228 \times 0.85) - (5,722 \times 0.90) - (4,940 \times 0.85) = -3,871 \text{ CU YD (EXCESS)} \end{aligned}$$

S.A.P. 02-716-01

TOPSOIL

$$\text{TOPSOIL DRESSING (CV)} - [\text{TOPSOIL STRIPING (EV)} \times \text{SHRINKAGE FACTOR}] = \text{EXCESS(-) OR SHORTAGE(+)}$$

$$1,308 - (657 \times 0.85) = 750 \text{ CU YD (SHORTAGE) ①}$$

GRANULAR

$$\begin{aligned} & \text{GRANULAR (CV)} + \text{SUBCUT} - [\text{REGULAR EXCAVATION(EV)} \times \text{SHRINKAGE FACTOR}] - \\ & [\text{SUBCUT EXCAVATION} \times \text{SHRINKAGE FACTOR}] = \text{EXCESS (-) OR SHORTAGE (+)} \end{aligned}$$

$$289 + 645 - (94 \times 0.85) - (645 \times 0.90) = 274 \text{ CU YD (SHORTAGE) ①}$$

NOTE:

① GRANULAR MATERIAL AND TOP SOIL REQUIRED FOR C.S.H.A. 116 SHALL BE PROVIDED FROM EXCESS GRANULAR AND TOP SOIL FROM T. H. 47 EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE.

NOTE:

① EXCAVATION QUANTITIES ARE BASED ON ALL EXIST BITUMINOUS OR CONCRETE AND BASE MATERIAL (TOTAL BIT. OR CONCRETE & BASE THICKNESS OF 1.0 FT) HAVE BEEN REMOVED DURING REMOVAL OF THE EXISTING ROAD SURFACE. AND THEY ARE NOT INCLUDED IN THE EXCAVATION QUANTITIES.

SOIL FACTORS:

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

SOILS AND CONSTRUCTION NOTES

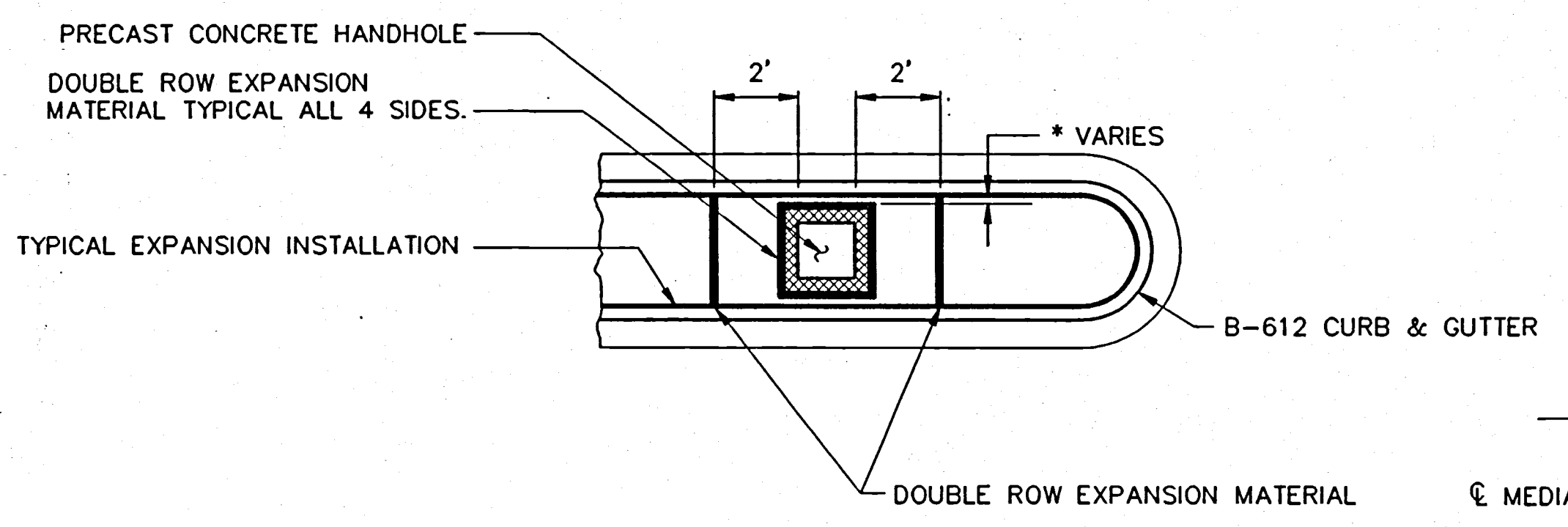
1. TOP OF PROFILE GRADE IS DEFINED AS THE TOP OF THE BITUMINOUS WEARING COURSE.
2. IN FILL AREAS, THE SUBGRADE SHALL BE CONSTRUCTED WITH SELECTED GRADING MATERIAL.
3. SELECTED GRADING MATERIALS SHALL CONSIST OF SELECT GRANULAR MATERIALS.
4. GRANULAR MATERIAL, REGARDLESS OF SOURCE, SHALL MEET THE REQUIREMENTS OF SPEC. 3149.2A.
5. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF SPEC 3149.2B.
6. COMPACTION OF THE GRADING PORTION OF THIS PROJECT SHALL BE BY THE "QUALITY COMPACTION METHOD" WITH THE EXCEPTION OF CULVERT AND STORM SEWER TRENCHES WHICH SHALL BE COMPACTED BY THE "SPECIFIED DENSITY METHOD".
7. TEST ROLLING WILL NOT BE REQUIRED.
8. 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 WITH NO DIRECT COMPENSATION MADE THEREFORE.
9. DISPOSITION OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH SPEC. 2105.3D WITH NO DIRECT COMPENSATION MADE THEREFORE.
10. WHERE MATCHING INTO THE INPLACE ROADWAY AT THE ENDS OF CONSTRUCTION, CUT VERTICALLY TO THE TOP OF THE GRADING SUBGRADE AND THEN AT A 20:1 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
11. WHERE CONNECTING NEW SURFACING TO AN INPLACE PAVEMENT, THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING THE INPLACE PAVEMENT.
12. 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.
13. COMPACTION OF THE BITUMINOUS BASE, BINDER, AND WEAR SHALL BE BY THE "MODIFIED SPECIFIED DENSITY METHOD".
14. COMPACTION OF THE AGGREGATE BASE LAYERS SHALL BE BY THE "SPECIFIED DENSITY METHOD".
15. IN AREAS TO BE DISTURBED BY CONSTRUCTION, STRIP AND RE-USE AS SLOPE DRESSING ALL TOPSOIL AND INPLACE SLOPE DRESSING. REFER TO THE CROSS-SECTIONS FOR THE LIMITS OF TOPSOIL STRIPPING. GENERAL DEPTHS OF TOPSOIL LAYER ARE ASSUMED TO BE 4 INCHES.
16. SLOPE DRESSING ON THIS PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.
17. PLACE A MINIMUM OF 6 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 450 POUNDS PER ACRE, OR EQUIVALENT.
18. ON ALL DISTURBED AREAS, USE MIXTURE 700 SEED WITH TYPE 1 MULCH, AND DISK ANCHORING, UNLESS SPECIFIED FOR SOD.
19. SOD ALL PERMANENT BOULEVARD AREAS, AND DISTURBED LAWNS.
20. ALL SOD UTILIZED WITHIN THE PROJECT LIMITS SHALL MEET THE REQUIREMENTS OF SPEC. 3878.2A (LAWN AND BOULEVARD SOD).
21. EXCESS TOPSOIL AND MUCK EXC. MAY BE USED IN EMBANKMENT CONSTRUCTION IN AREAS OUTSIDE OF A 1 1/2:1 SLOPE FROM THE GRADING SHOULDER P.I.
22. EXISTING STABILIZED SUBGRADE MUST BE PULVERIZED PRIOR TO USE AS EMBANKMENT MATERIAL.
23. GEOTEXTILE FABRIC SHALL BE UTILIZED, WHEN DIRECTED BY THE ENGINEER, IN AREAS WHERE THE SUBCUT AND SUBGRADE EXCAVATION OPERATIONS ENCOUNTER UNSUITABLE UNDERLYING SUBSOILS. THE FABRIC SHALL BE PLACED AND MEET THE REQUIREMENTS AS PROVIDED IN THE SPECIAL PROVISIONS.
24. EXCESS MUCK EXCAVATION TO BE DISPOSED OF BY THE CONTRACTOR OUTSIDE OF THE RIGHT-OF-WAY LIMITS AS APPROVED BY THE ENGINEER.
25. BITUMINOUS REMOVAL QUANTITY BASED ON 7" BITUMINOUS SURFACING AND STABILIZED BASE AND 6" AGGREGATE BASE. CONTRACTOR SHALL INVESTIGATE AND MAKE THEIR OWN DETERMINATION OF ACTUAL PAVEMENT DEPTH.

EARTHWORK SUMMARY
AND
CONSTRUCTION NOTES

REVISIONS	DATE	BY

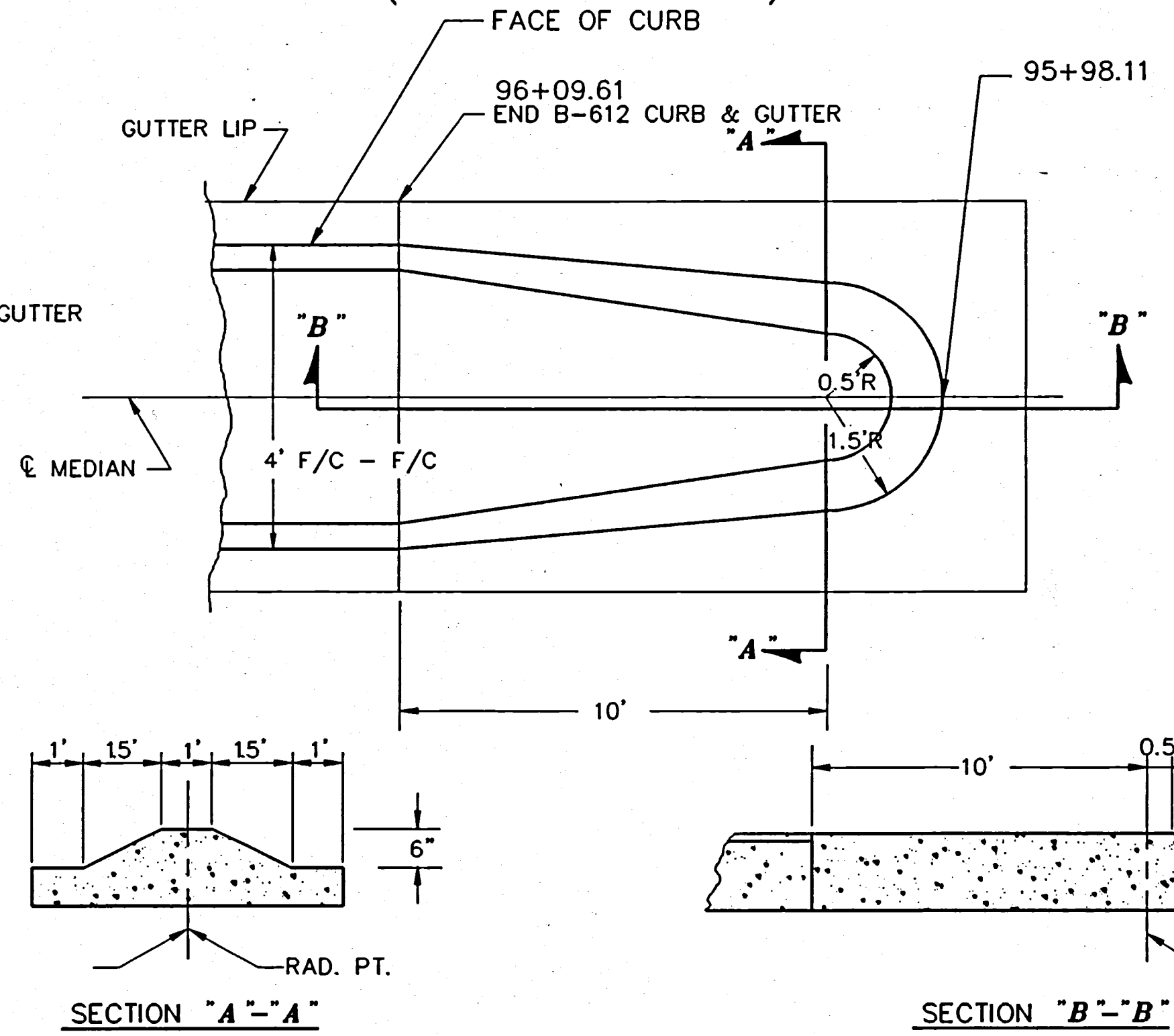
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EXPANSION MATERIAL PLACEMENT FOR PRECAST HANDHOLES



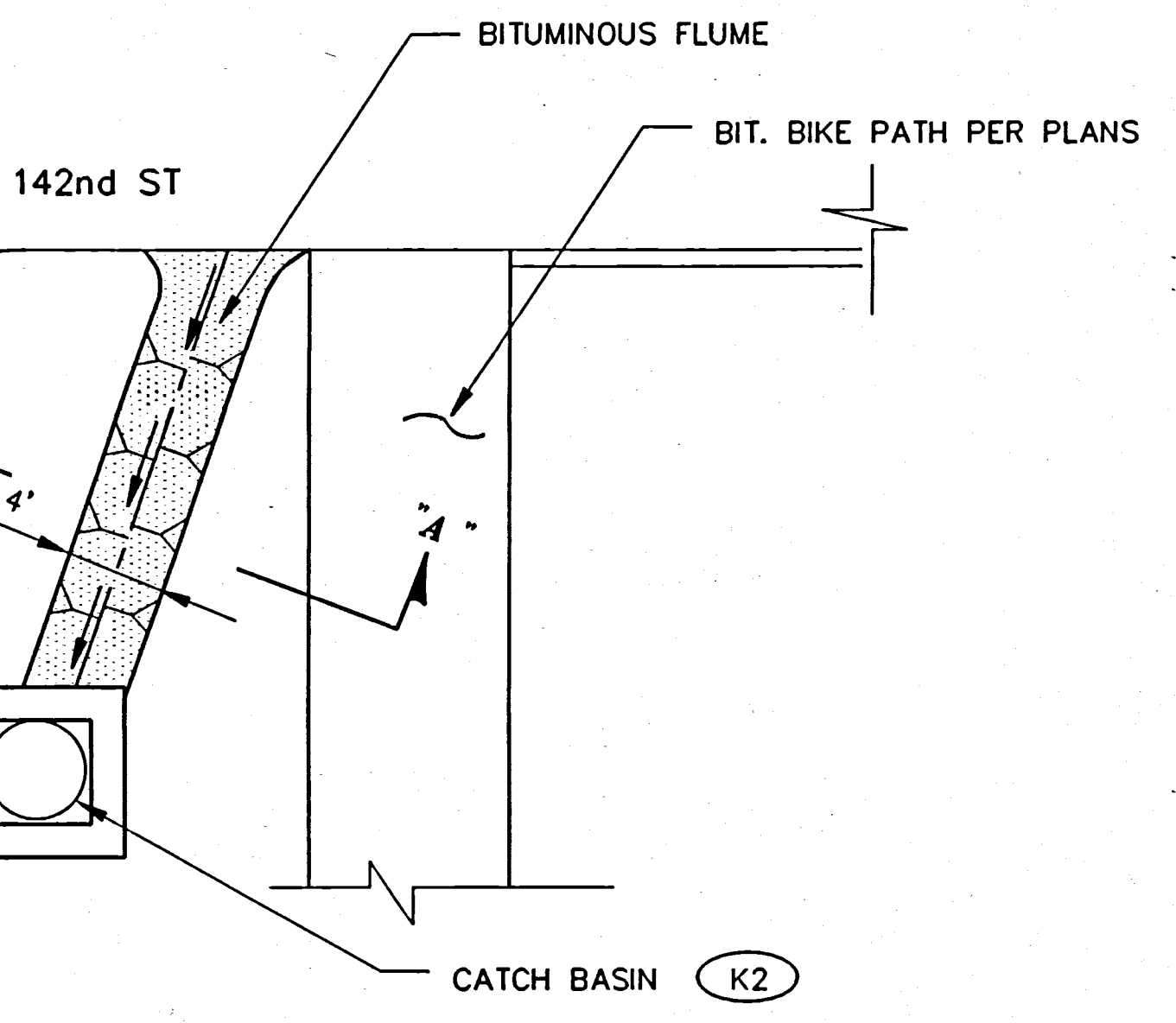
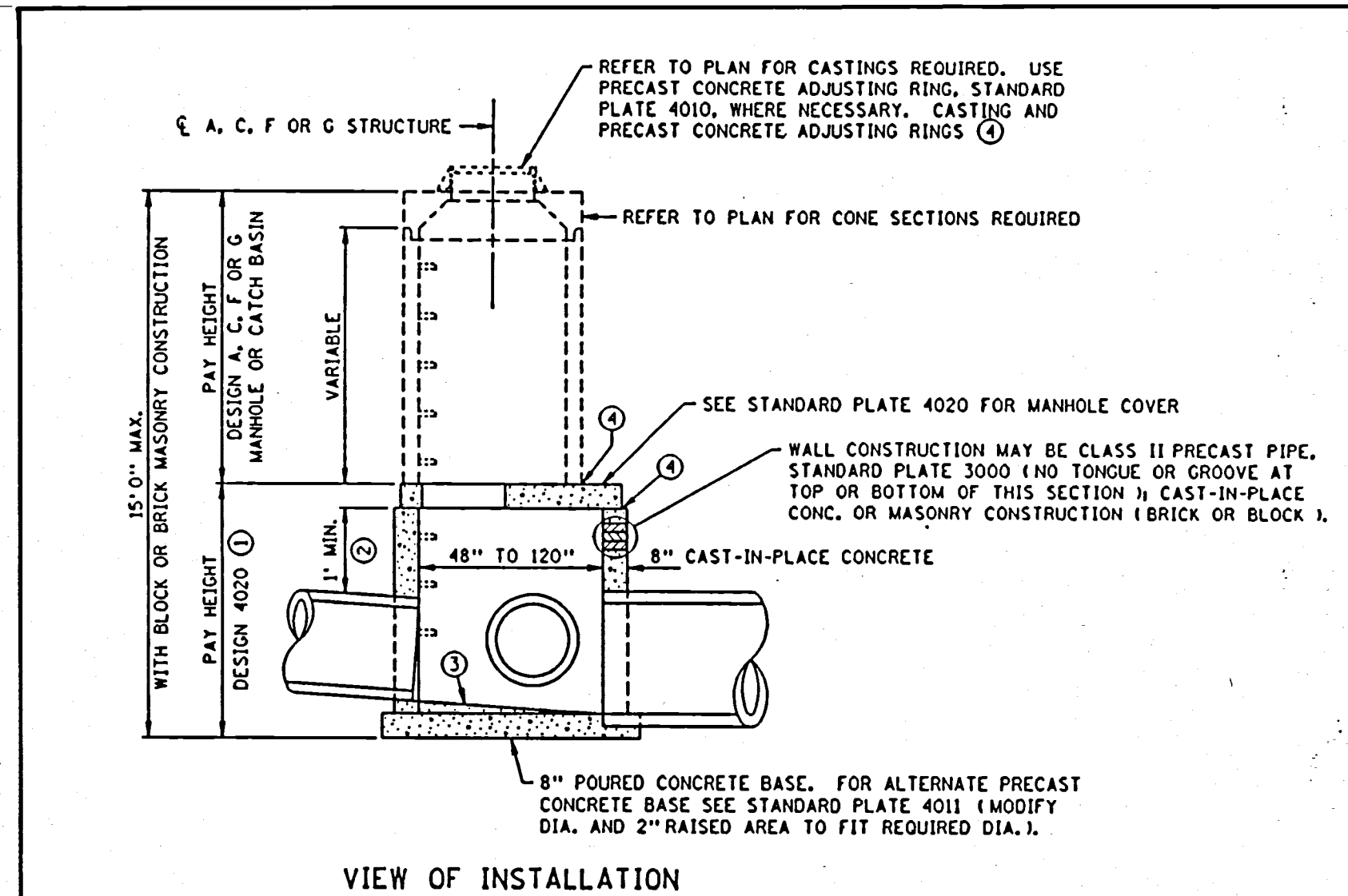
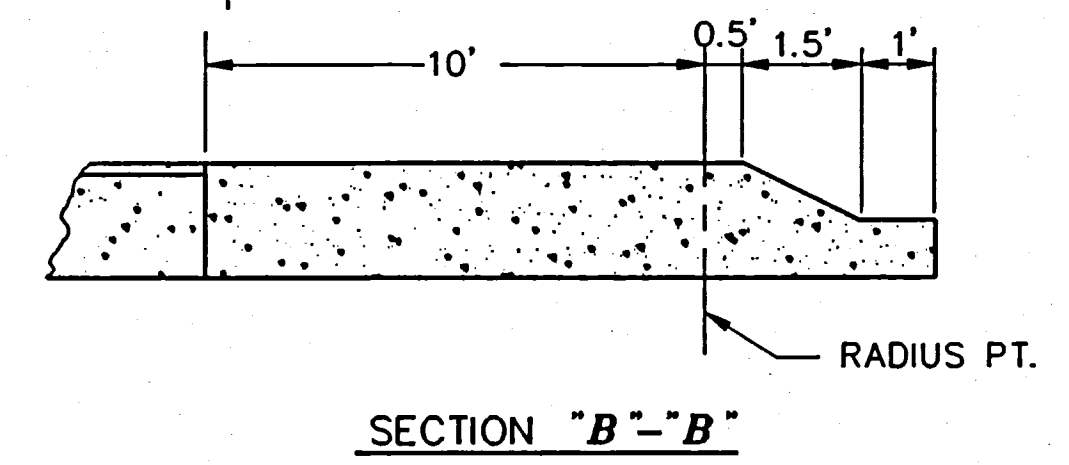
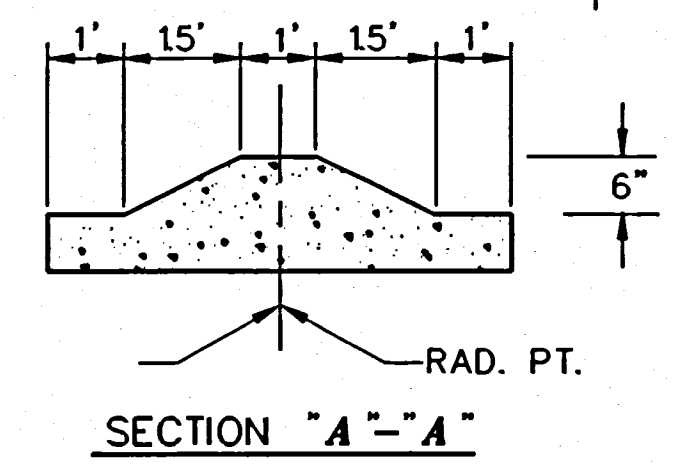
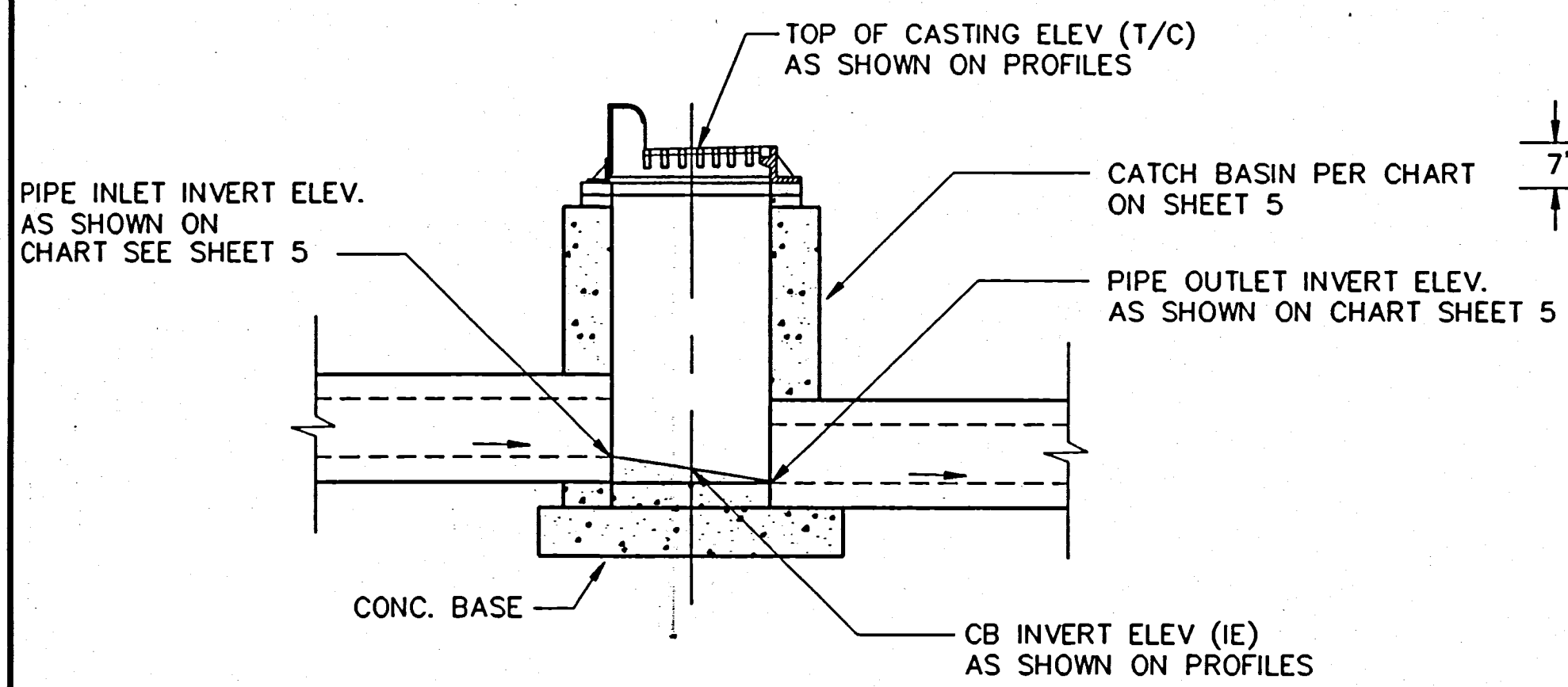
NOTE: * DIMENSION VARIES DEPENDING ON ISLAND WIDTH OR PLACEMENT OF HANDHOLE OTHER THAN IN AN ISLAND.

SPECIAL CONCRETE MEDIAN NOSE DETAIL (C.S.A.H. 116 ONLY)

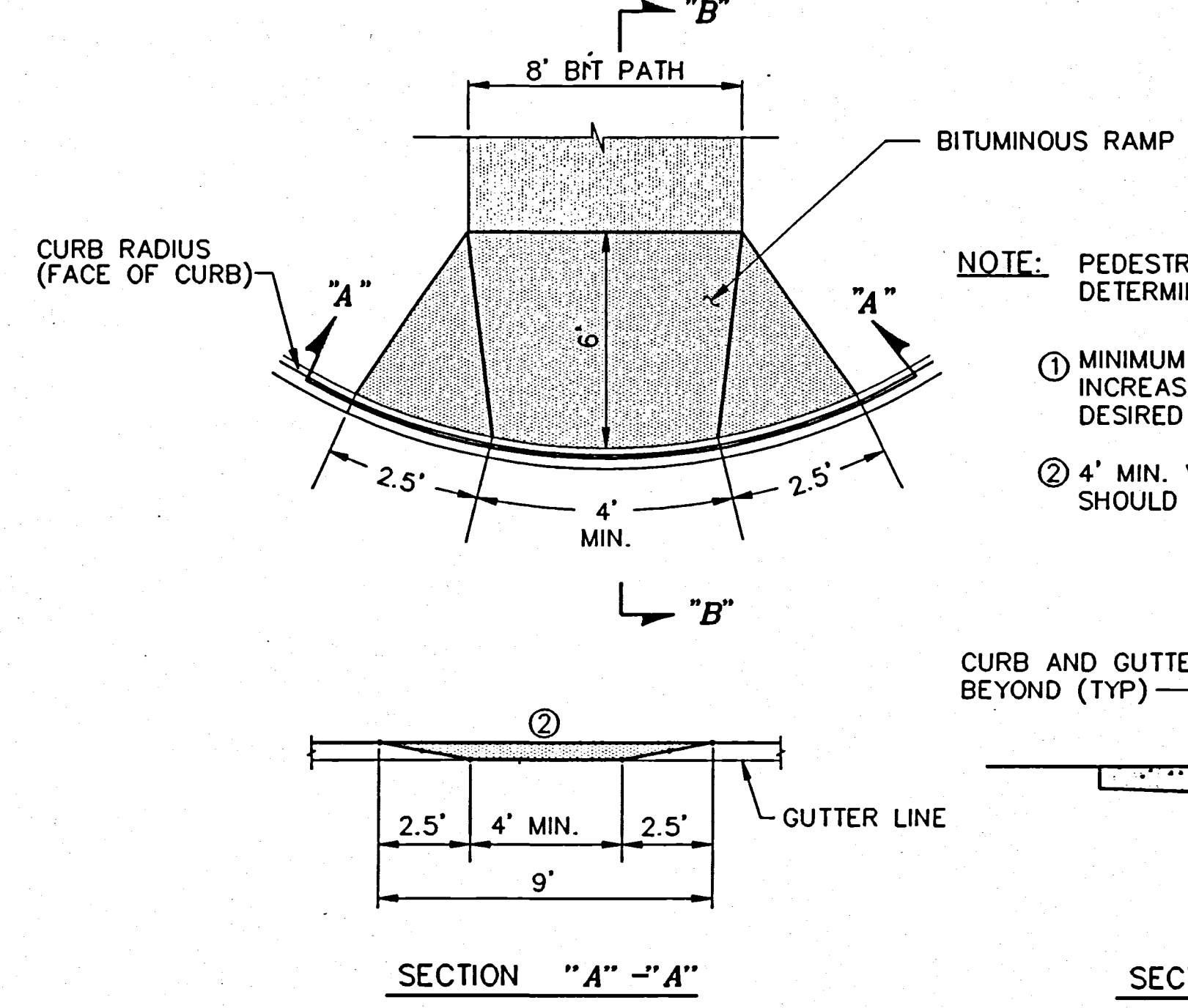


CONCRETE MEDIAN NOSE			
STA	LOCATION	EACH	REMARK
S.P. 0206-47			
55+26.28	LSB	1	CONC. MED NOSE DES. 7109C
67+83.41	LSB	1	CONC. MED NOSE DES. 7109C
TOTAL		2	
S.A.P. 02-716-01			
95+99.61	C/L	1	SPECIAL CONC. MED NOSE
98+65.61	C/L	1	CONC. MED NOSE DES. 7113A
99+96.71	C/L	1	CONC. MED NOSE DES. 7113A
TOTAL		3	

TYPICAL CATCH BASIN

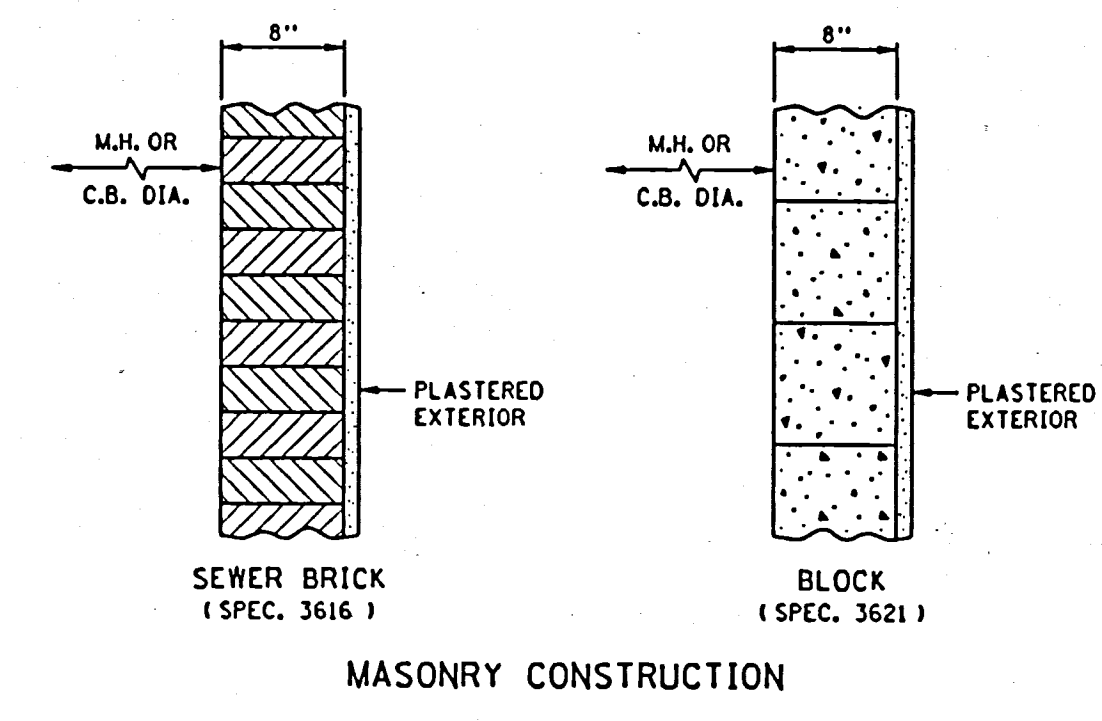
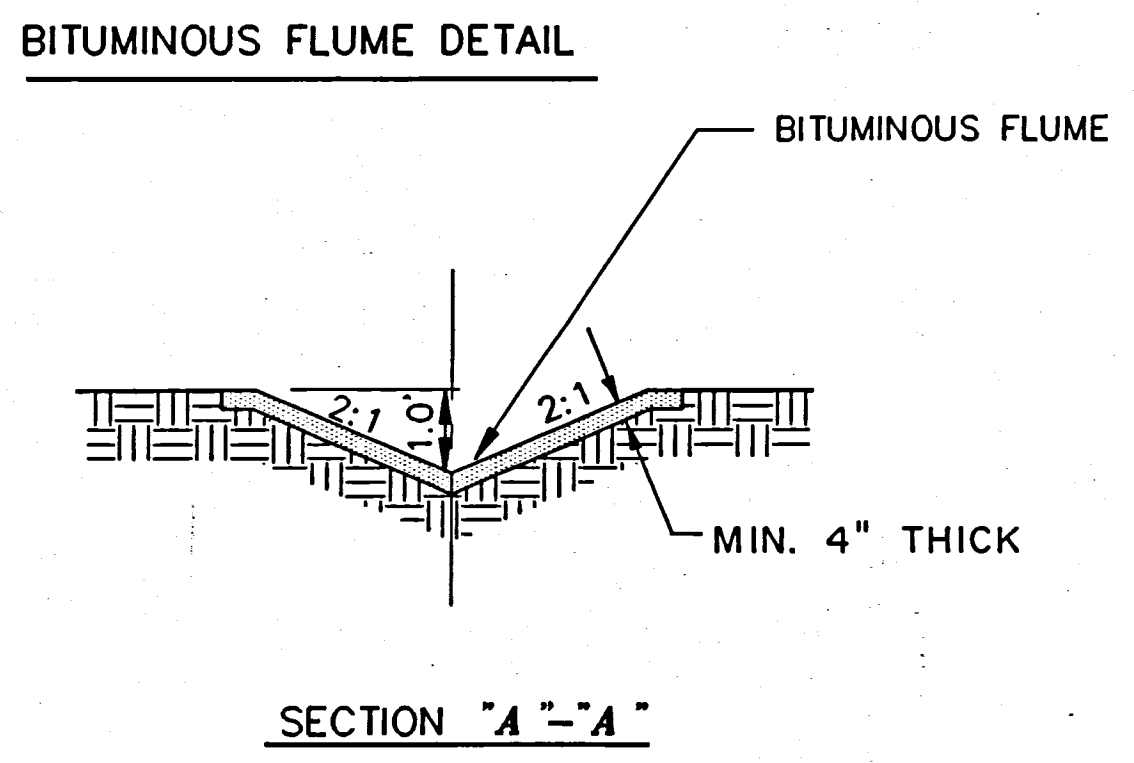
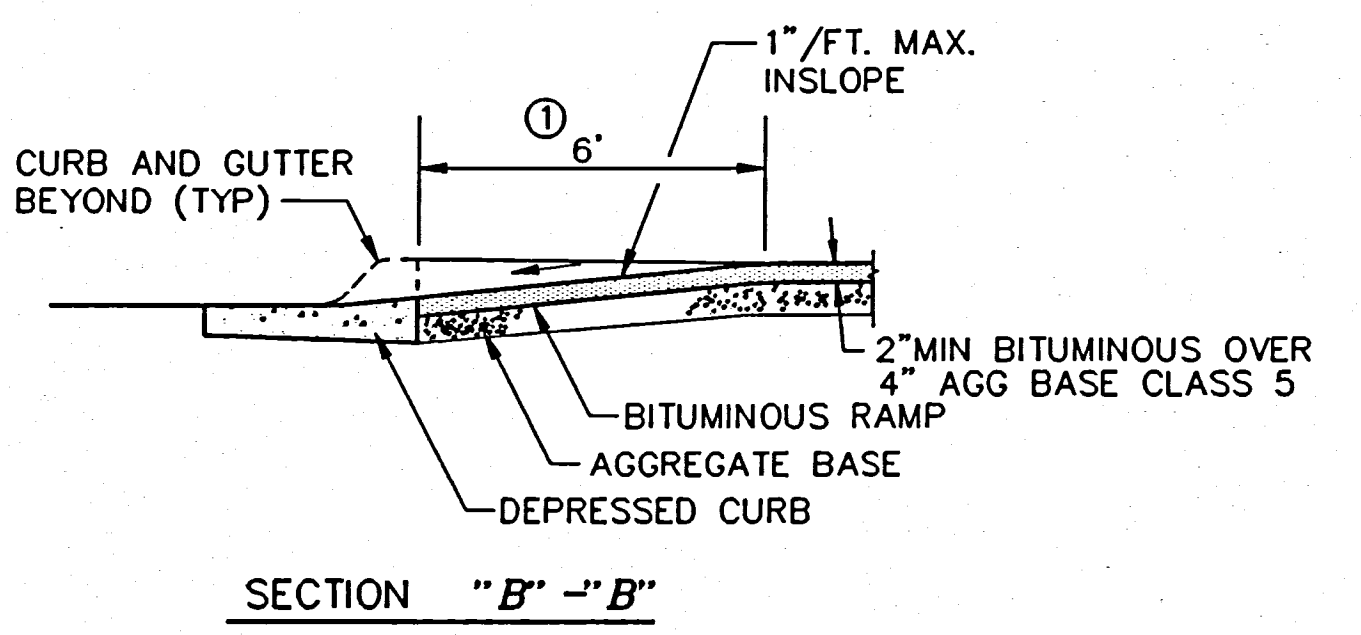
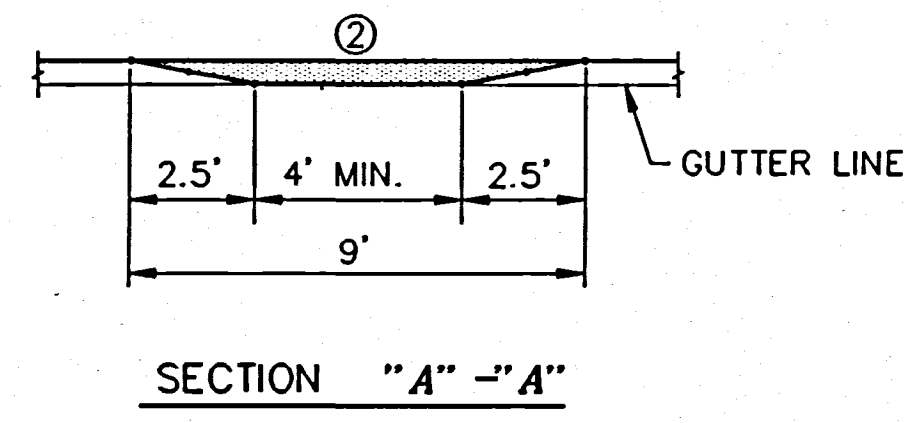


PEDESTRIAN RAMP DETAIL



NOTE: PEDESTRIAN RAMP LOCATION TO BE DETERMIND BY ENGINEER.

- ① MINIMUM DIMENSION - MAY INCREASE TO ACHIEVE DESIRED SLOPE.
- ② 4' MIN. VALLEY FROM GUTTER LINE SHOULD HAVE A SMOOTH TRANSITION



- INSTALLATION NOTES:**
SEE SPEC. 2506 FOR CONSTRUCTION NOTES.
GENERAL DIMENSIONS FOR CONCRETE CONSTRUCTION APPLY TO BRICK AND CONCRETE MASONRY UNIT CONSTRUCTION ALSO, EXCEPT AS NOTED.
- ① REFER TO PLANS FOR HEIGHT, DIAMETER AND STEP REQUIREMENTS.
 - ② 1 FT. MINIMUM FOR PRECAST. 3 BRICKS OR 1 BLOCK MINIMUM FOR MASONRY CONSTRUCTION.
 - ③ PROVIDE MORTAR FILLETS TO FIT BOTTOM PORTIONS OF PIPE TO DIRECT FLOW TO OUTLET.
 - ④ PROVIDE A FULL MORTAR BED.

DESIGNER NOTE:
WHEN STRUCTURE IS USED AS A CATCH BASIN, GIVE X, Y COORDINATES OF BOTH THE CENTERLINE FOR A, C, F OR G STRUCTURE AND THE CENTERLINE FOR THE 4020 STRUCTURE.

DESIGNATION:
DESIGN DIA.-STANDARD PLATE
EXAMPLE: DESIGN 66-4020

MANHOLE OR CATCH BASIN STRUCTURE FOR USE UNDER ALL TRAFFIC CONDITIONS
INSTALLATION DETAILS

CONSTRUCTION DETAILS

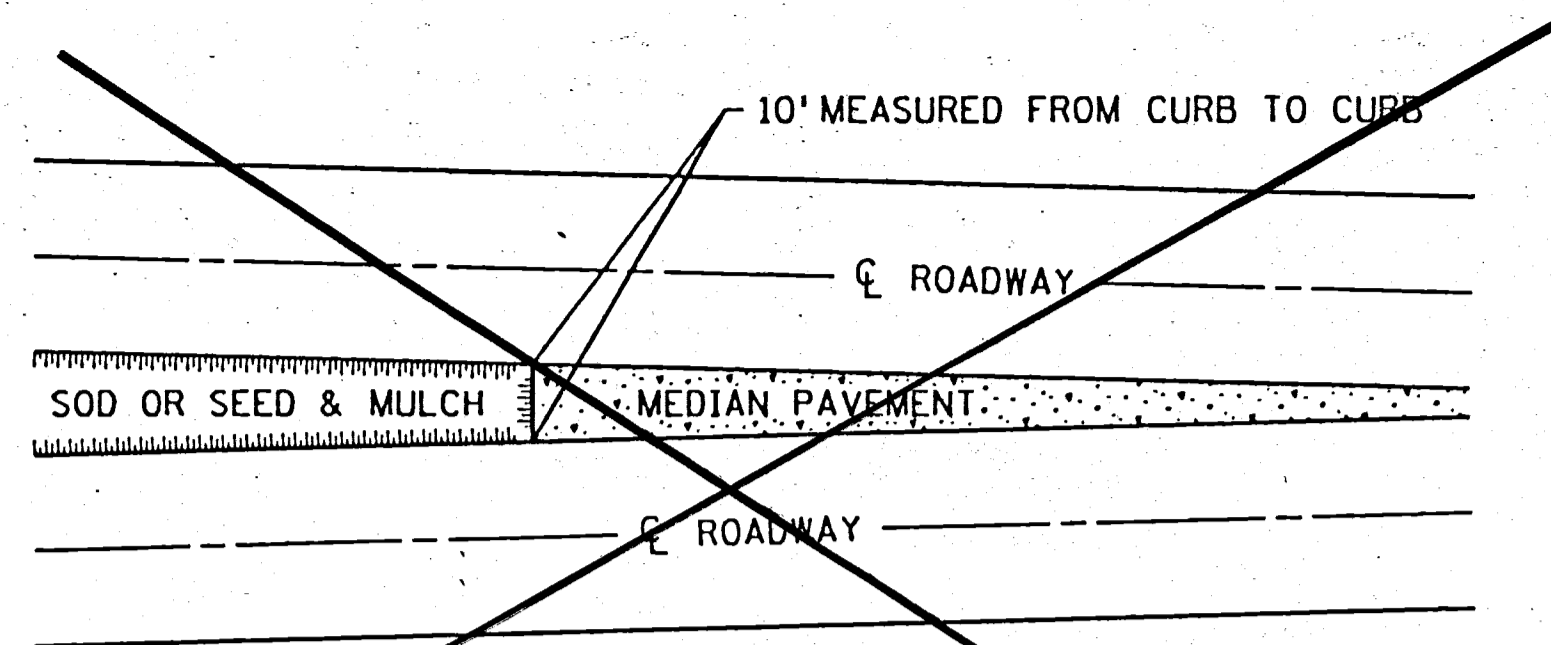
REVISIONS	DATE	BY

CERTIFIED BY *[Signature]*

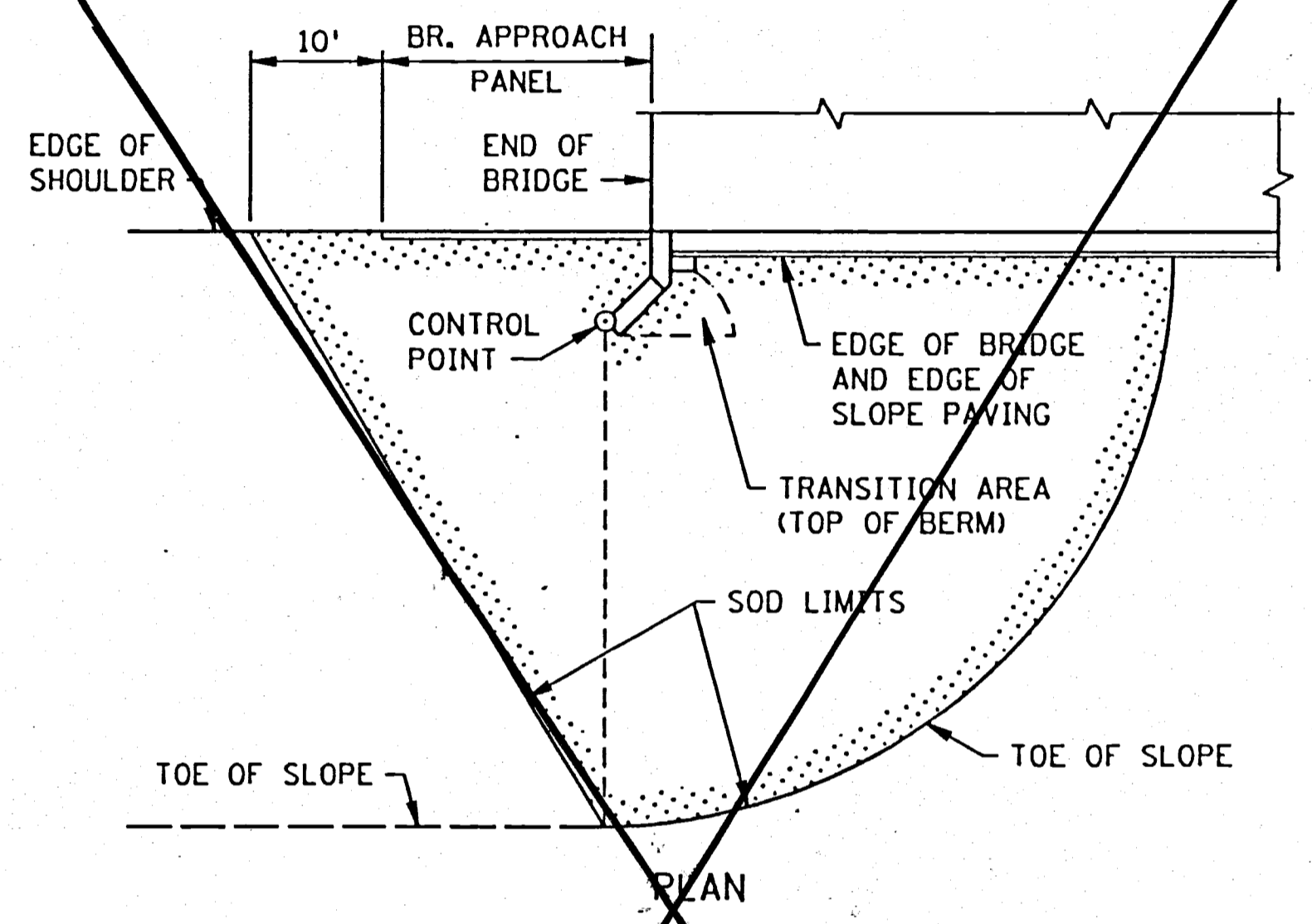
P.E. REG NO. _____ 4/15 19 76

S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

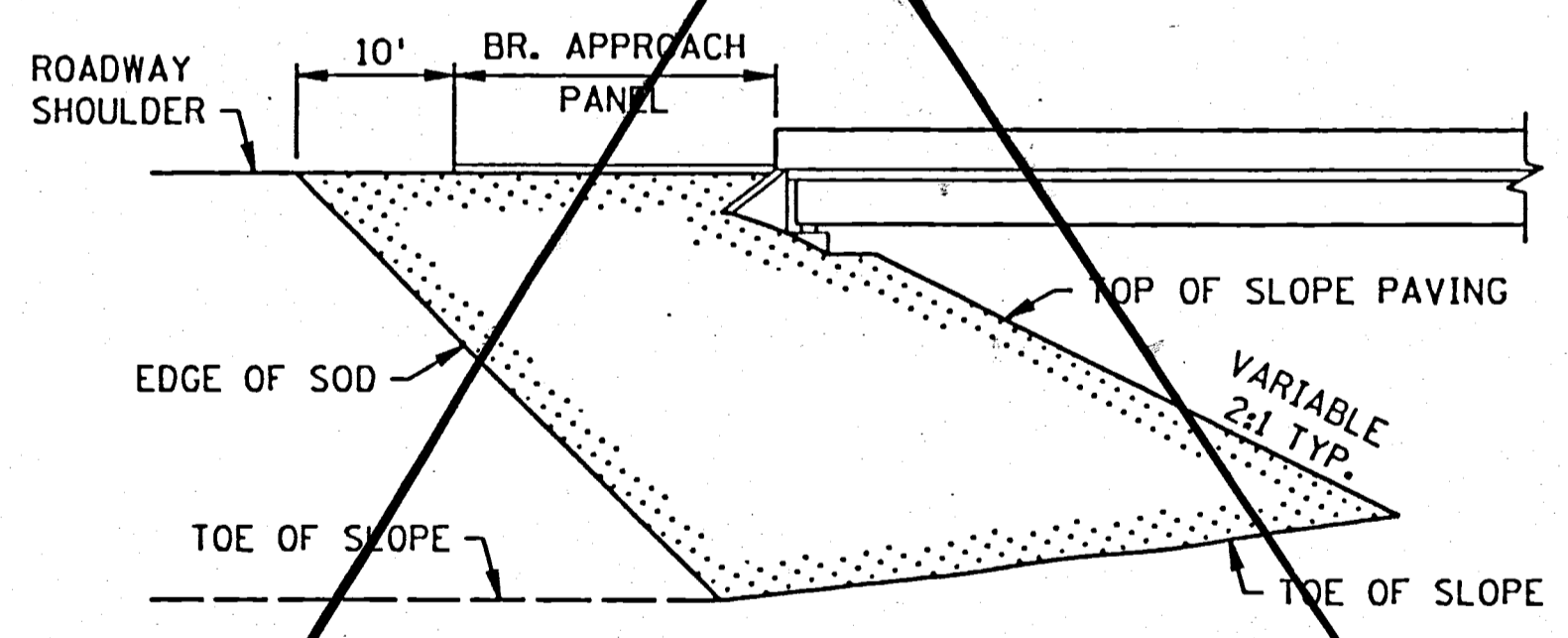
Sheet No. 7 of 56 Sheets



SODDING LIMITS AT GORE AREA

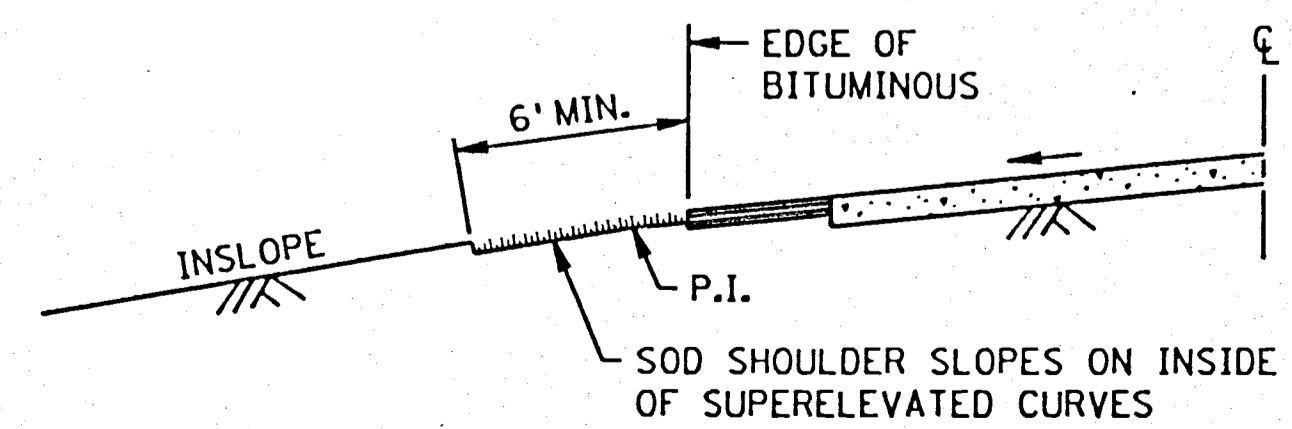


PLAN

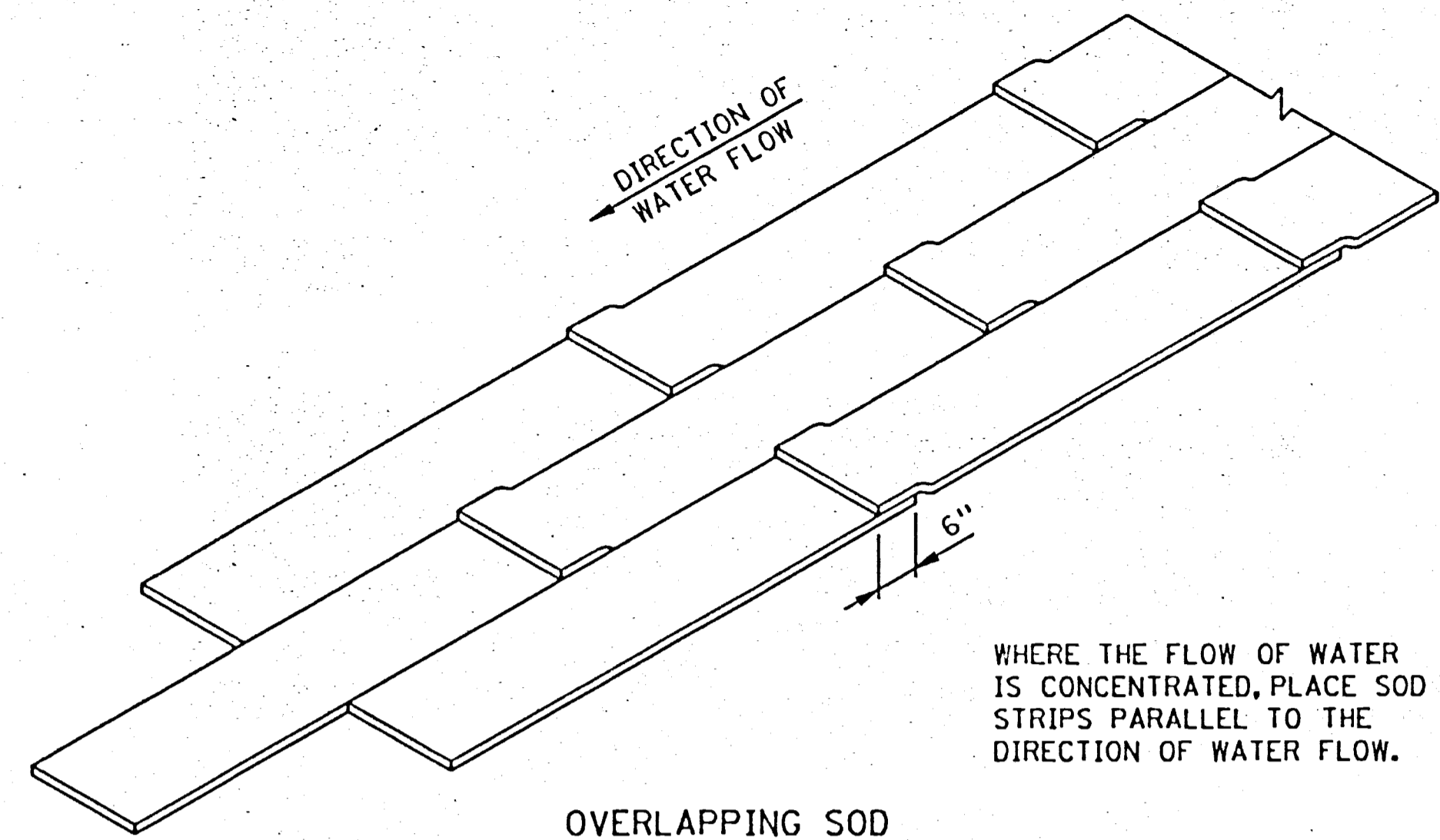


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

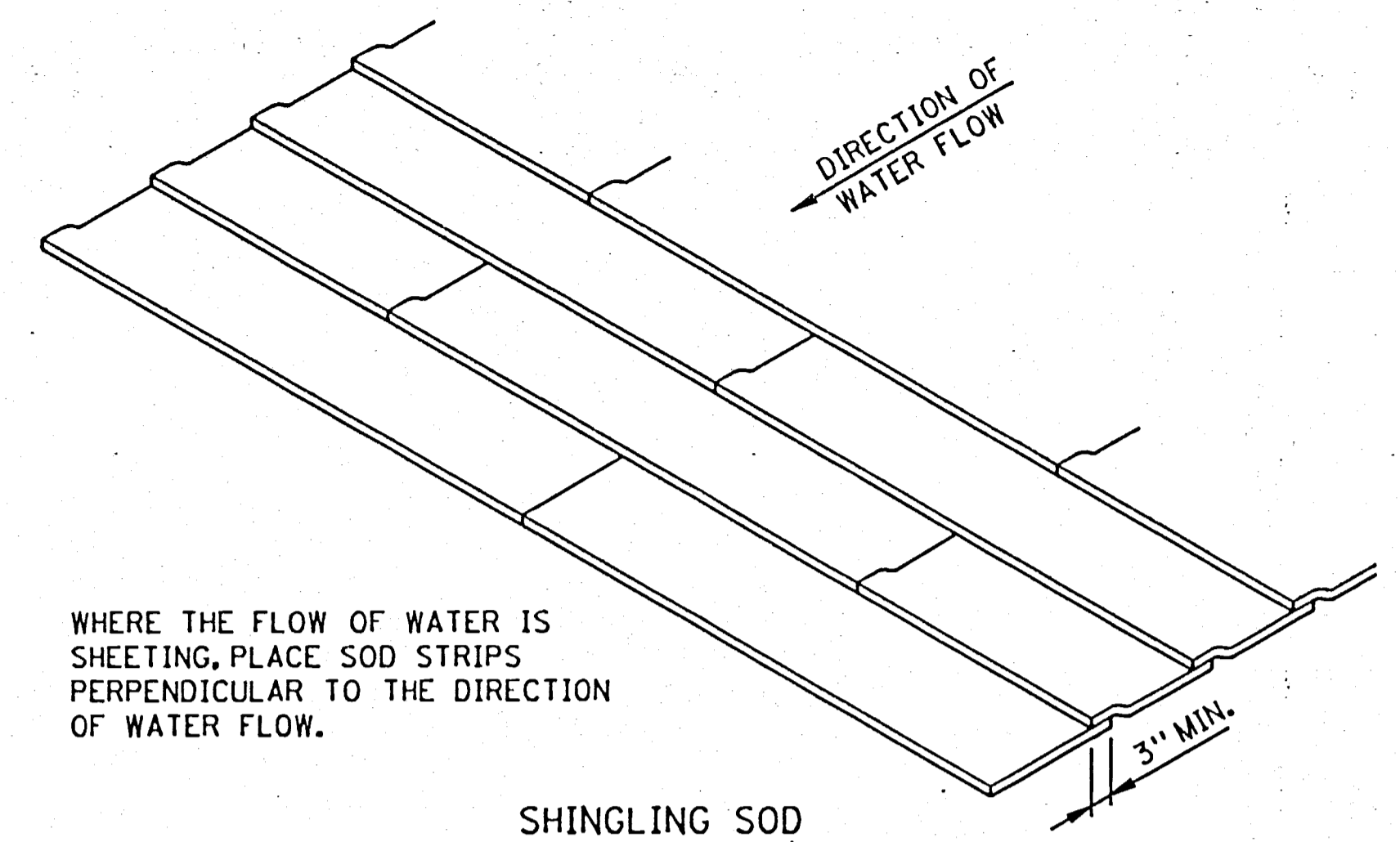


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

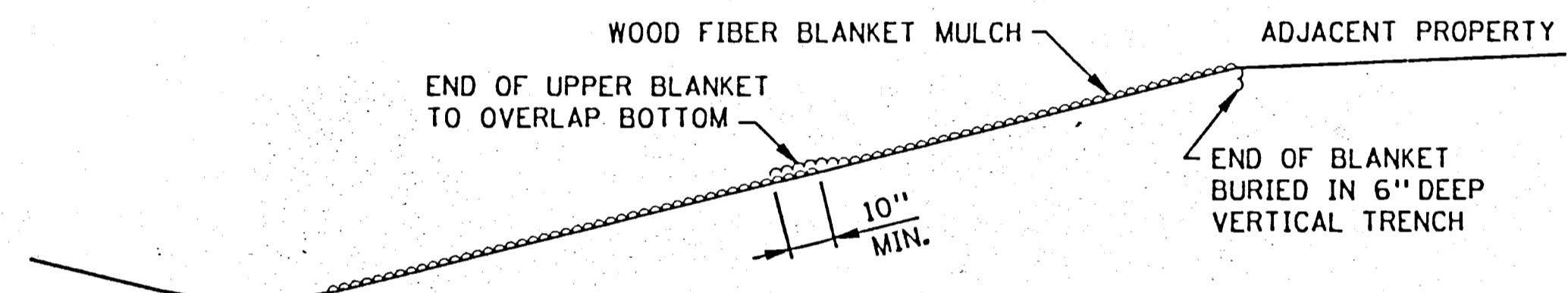
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



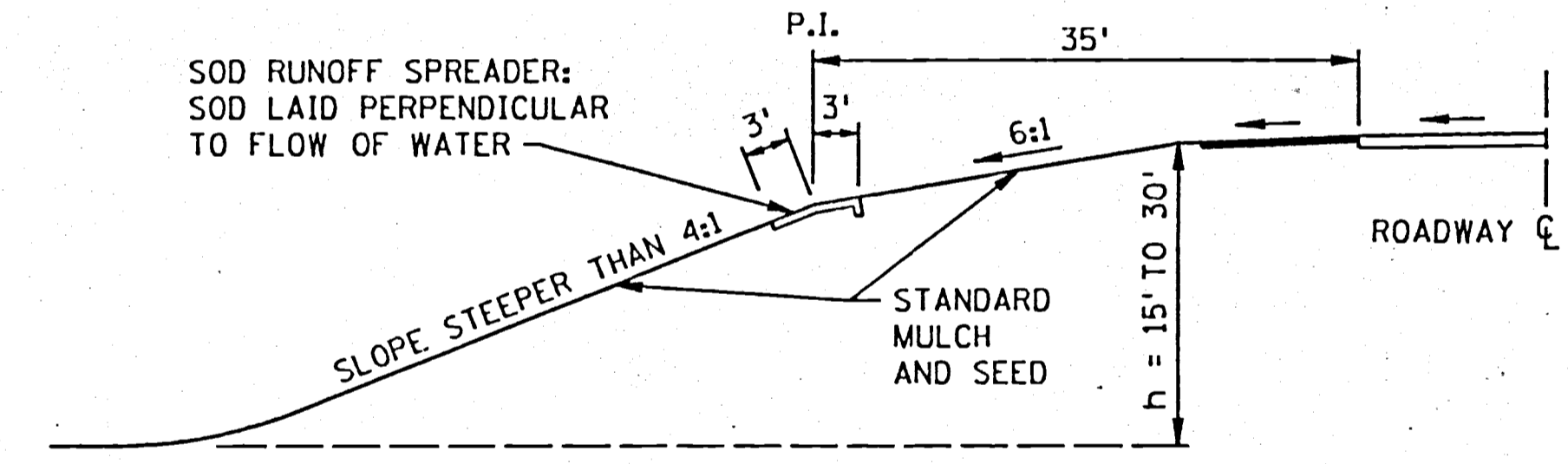
SHINGLING SOD

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

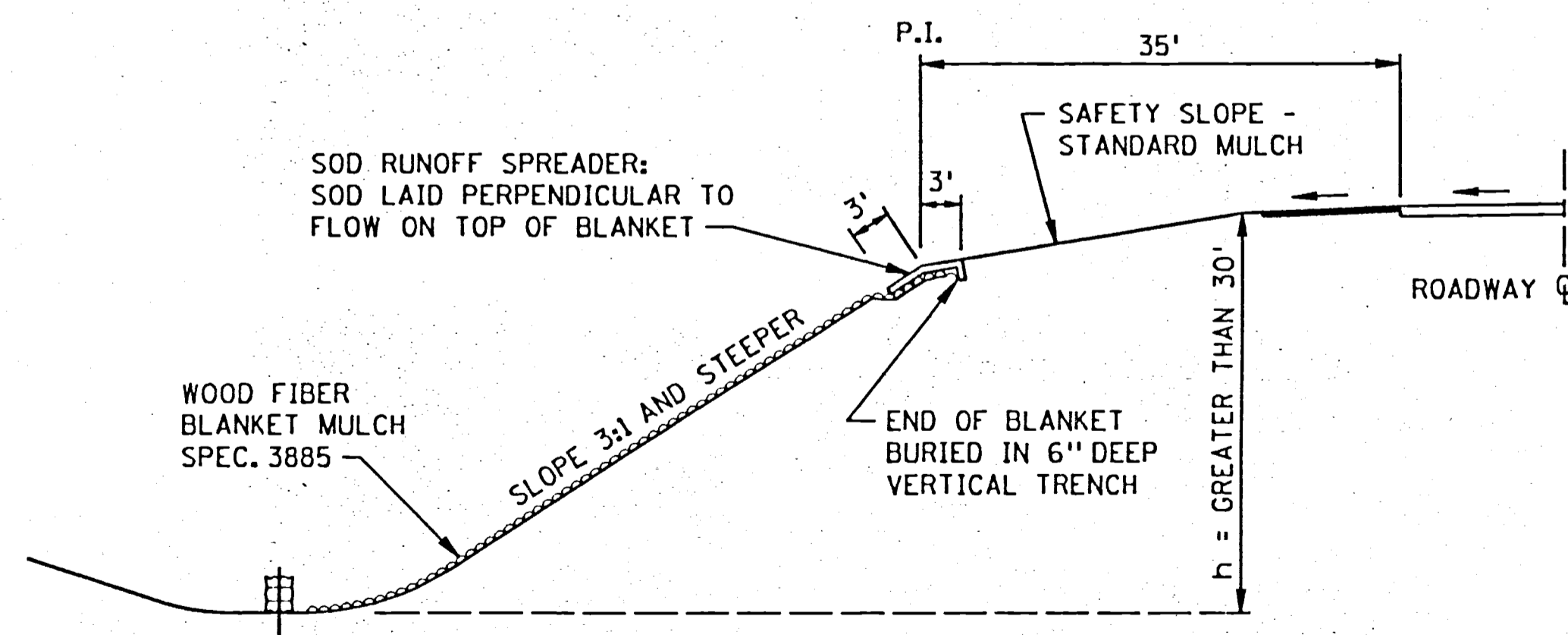
SPECIAL SOD PLACEMENT TECHNIQUES



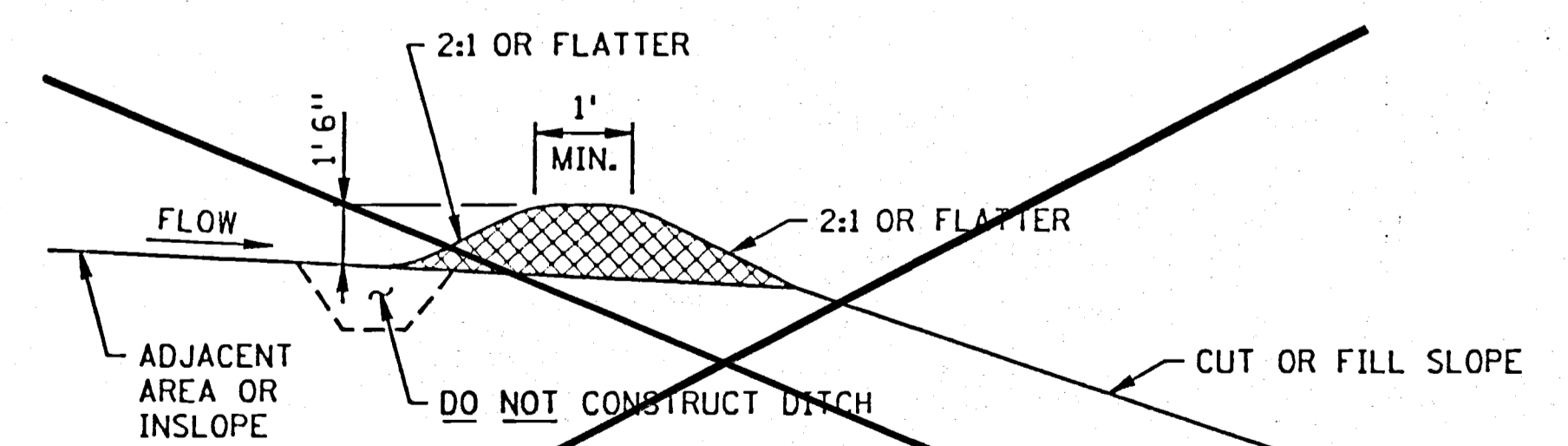
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)

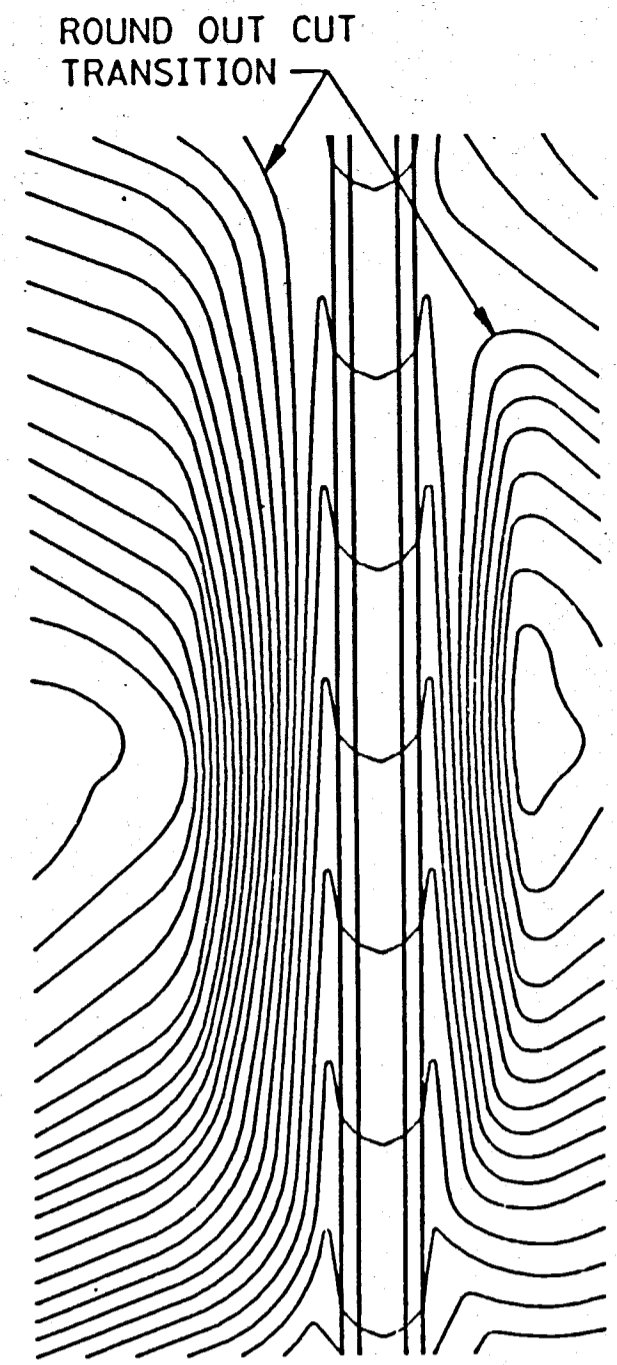


PERMANENT SLOPE PROTECTION DIKE

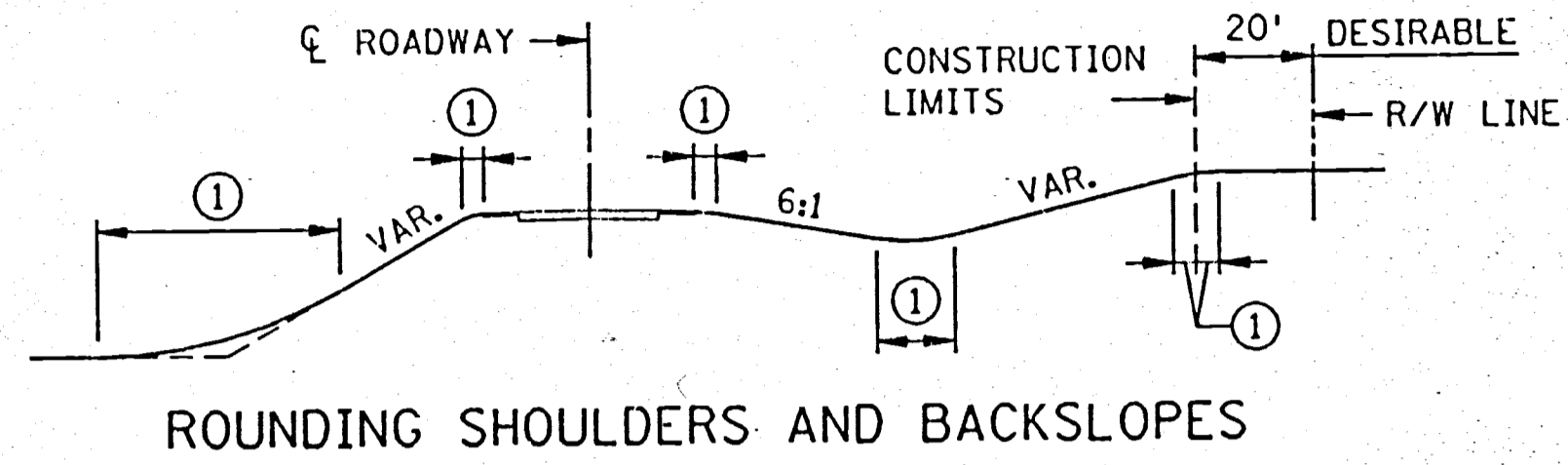
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CERTIFIED BY *Douglas M. Finch* PE. REG. NO. 20235 7/18 19 96

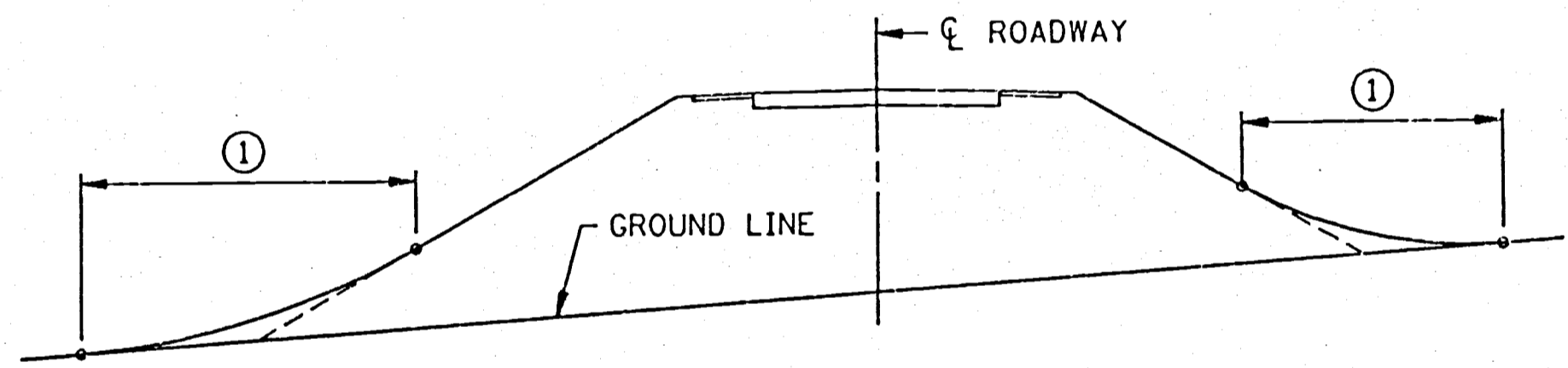
STANDARD SHEET NO. 5-297.406	TITLE: PERMANENT EROSION CONTROL
STANDARD APPROVED: JANUARY 31, 1985	ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STATE PROJ. NO. 0206-47 SAP 02-716-01 SHEET NO. 8 OF 56 SHEETS	



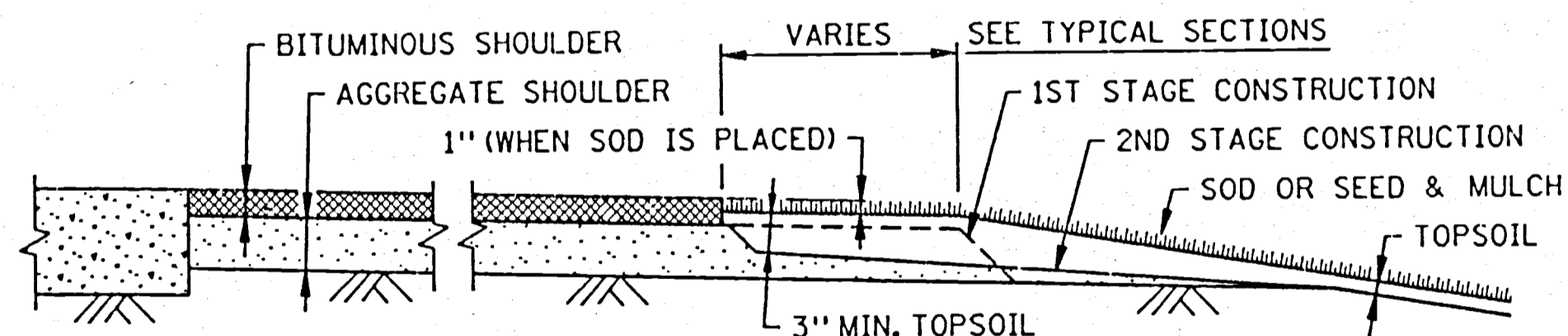
CONTOURING ROAD CUTS



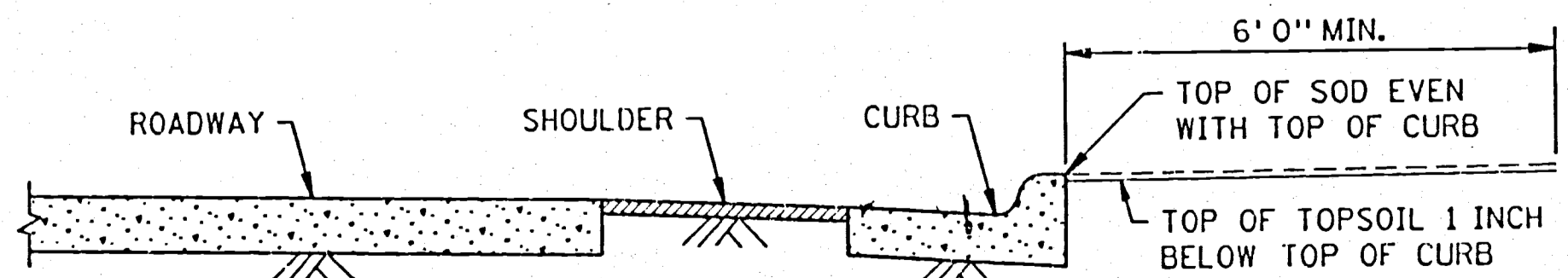
ROUNDING SHOULDERS AND BACKSLOPES



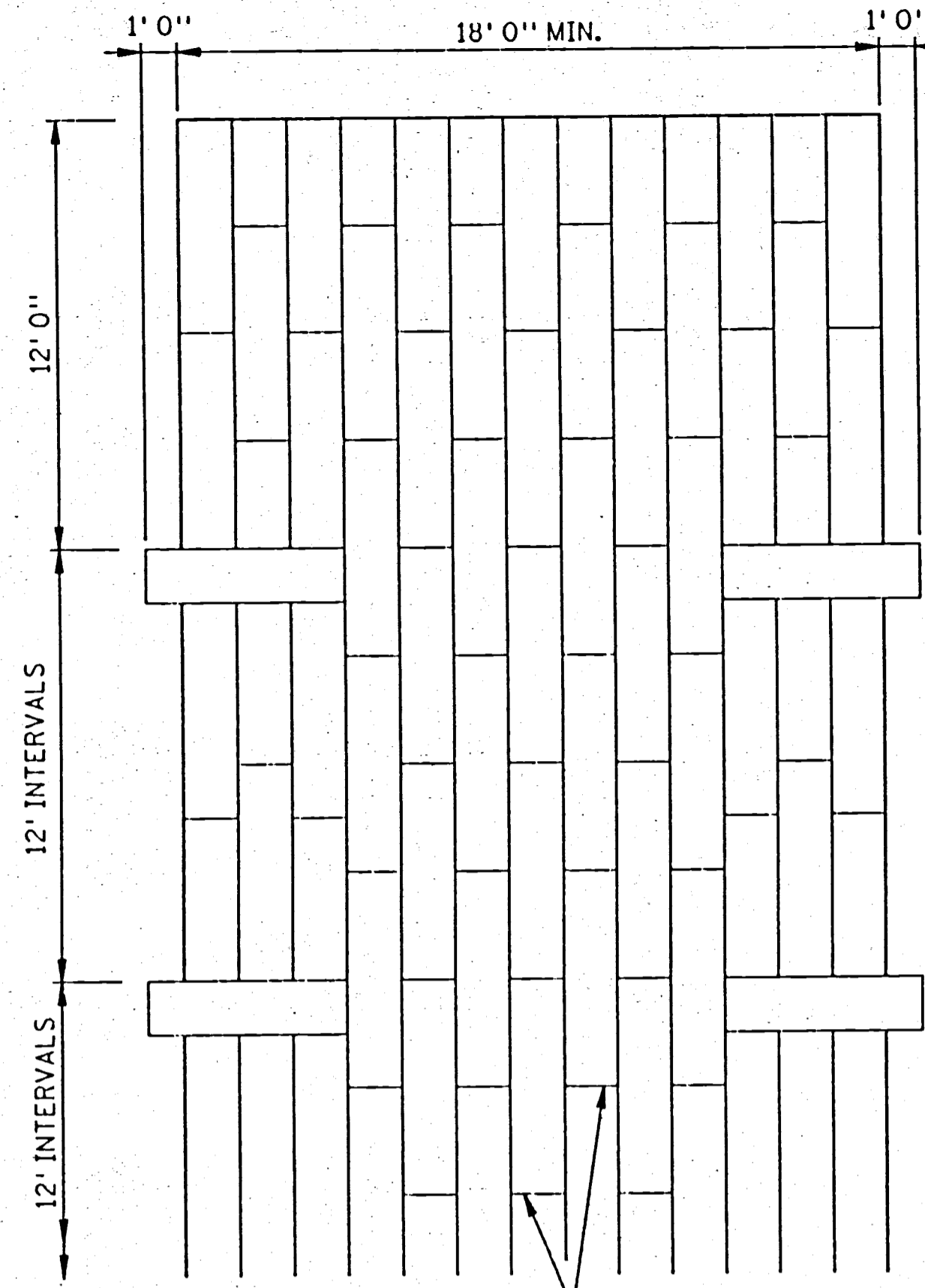
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



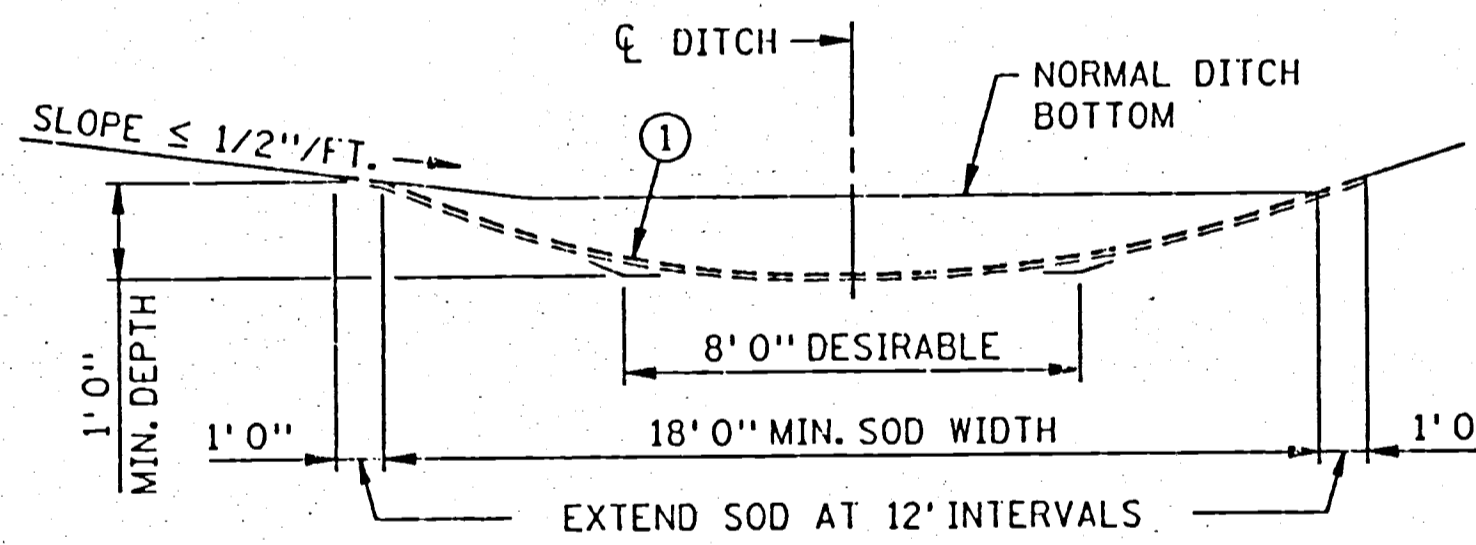
SHAPING AND TOPSOILING INSLOPES



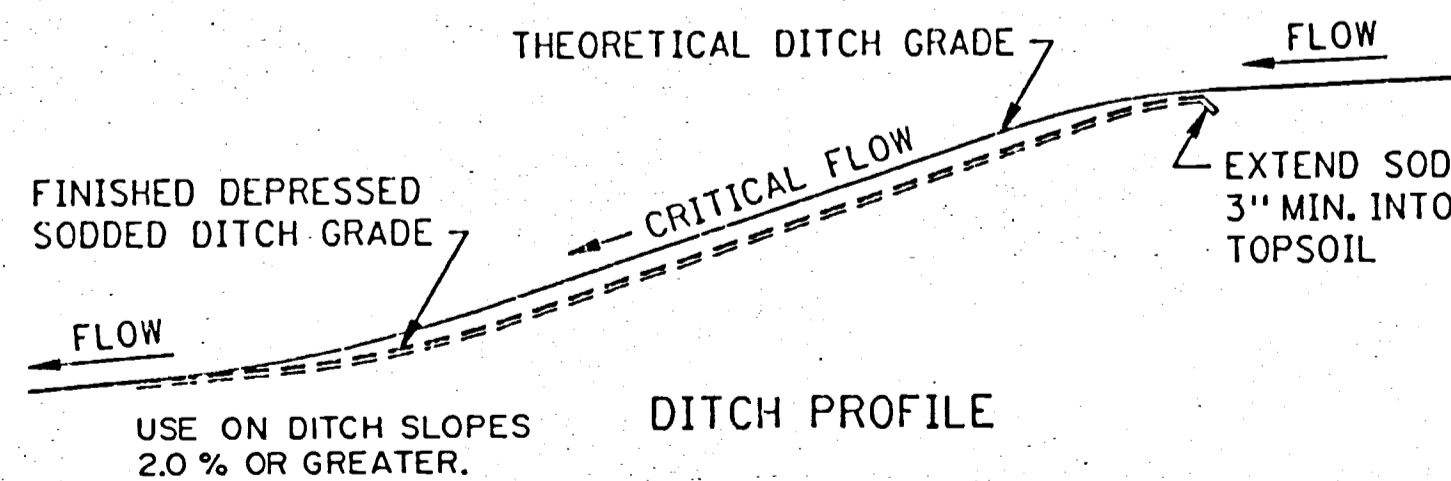
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



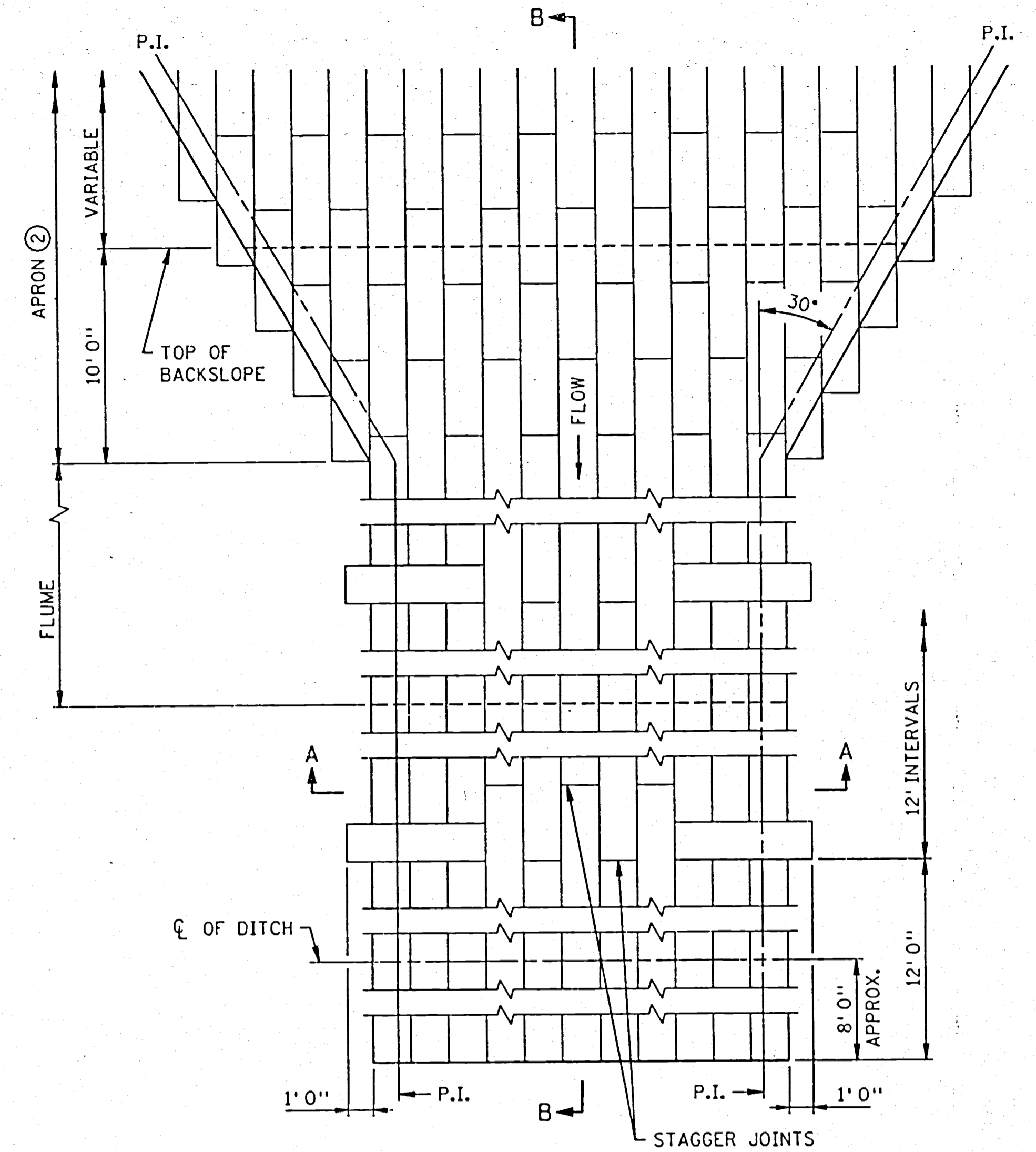
PLAN VIEW



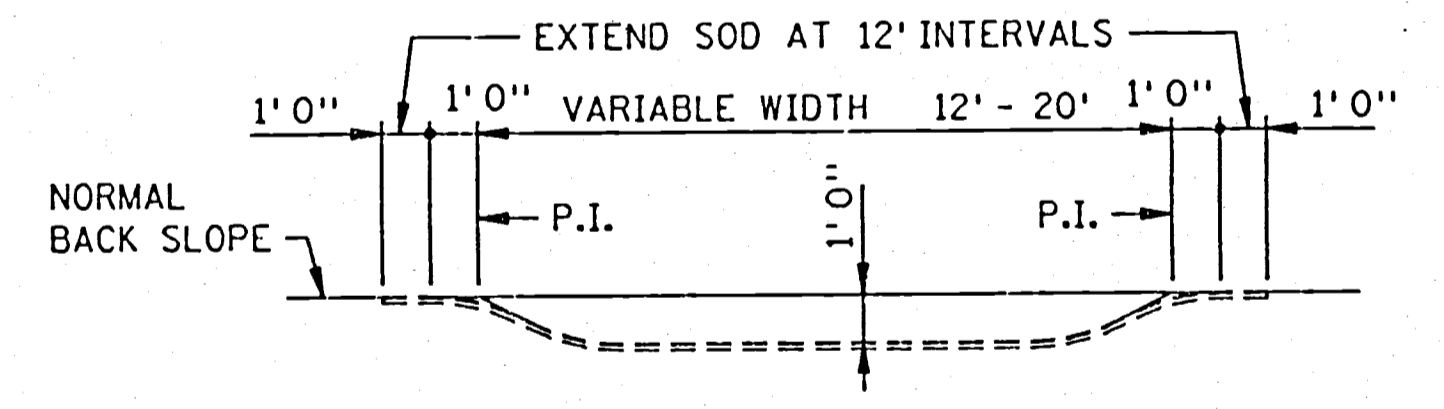
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



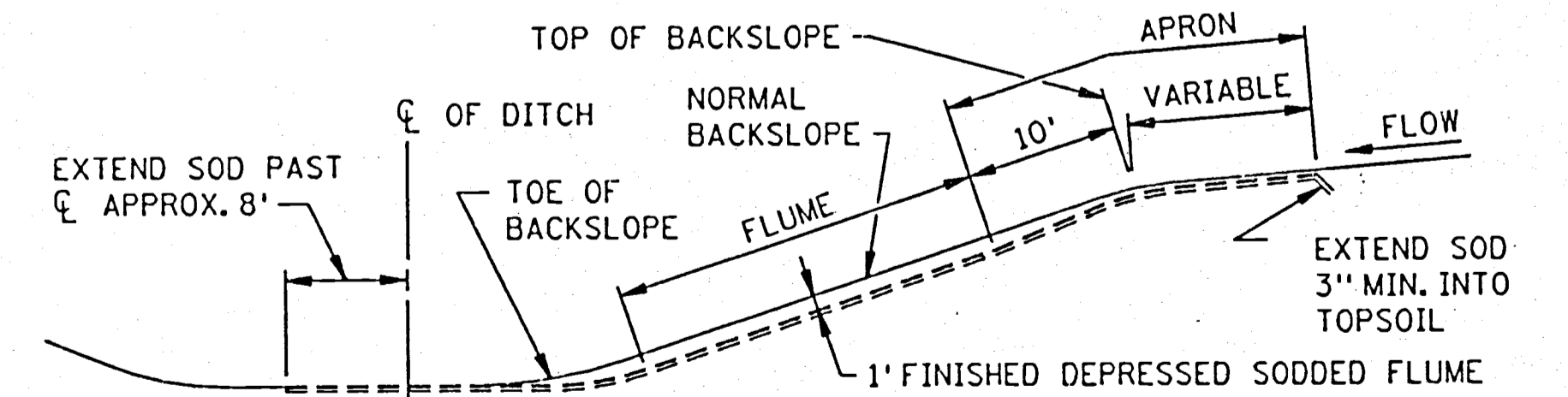
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A

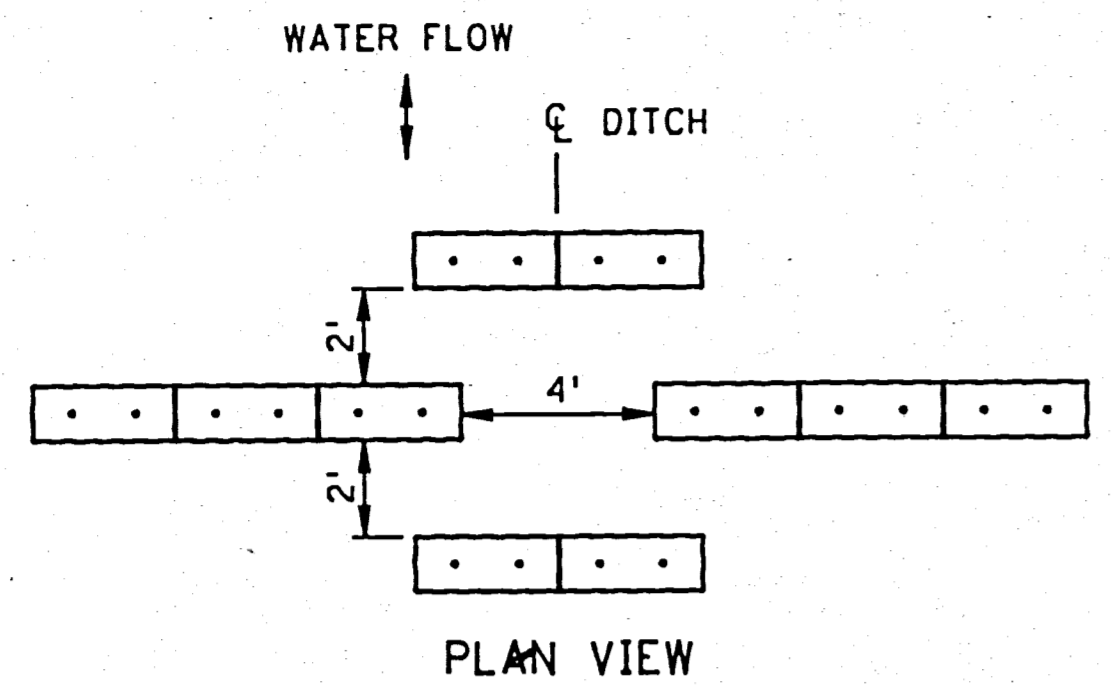


SECTION B-B
SODDED FLUME DETAILS

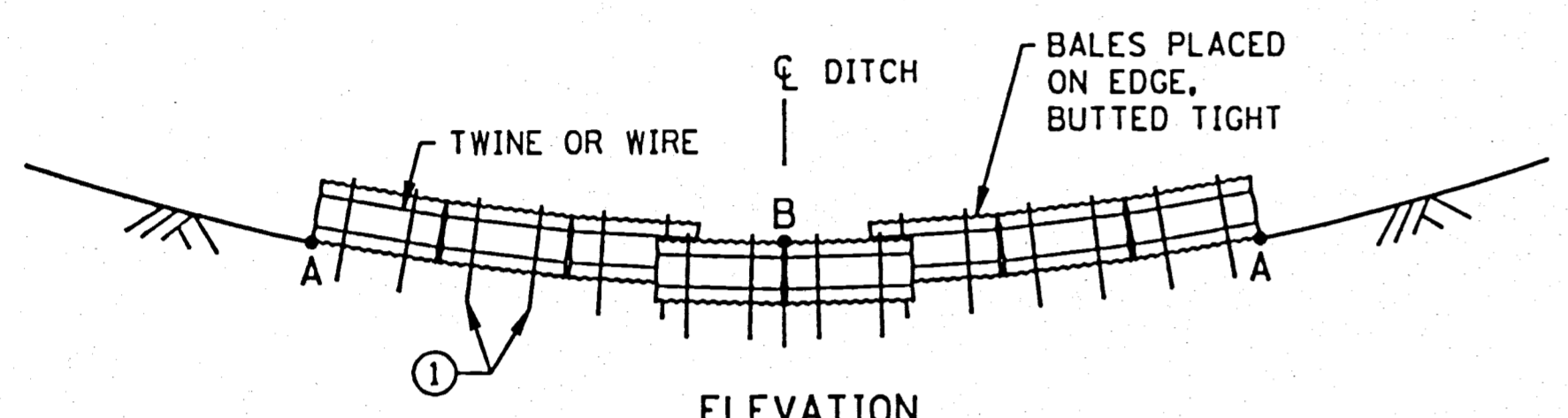
- NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① FOR ROUNDING, SEE ROAD DESIGN MANUAL.
② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

STANDARD SHEET NO.
5-297.404
STANDARD APPROVED:
DECEMBER 19, 1990

TITLE:
PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES



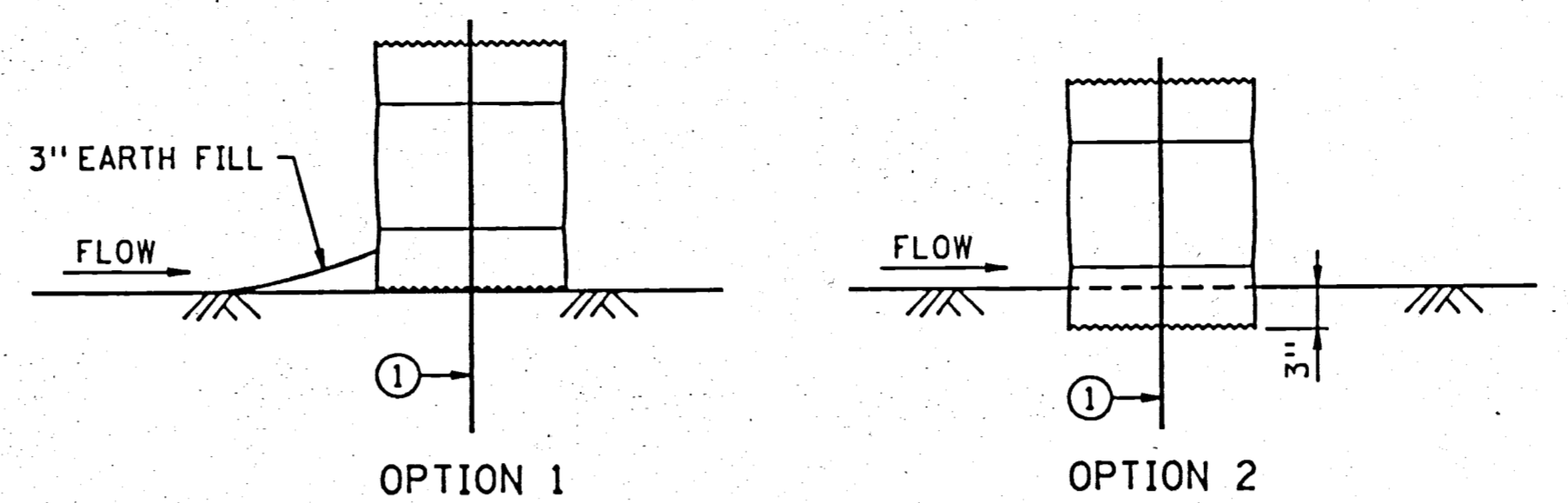
PLAN VIEW



ELEVATION

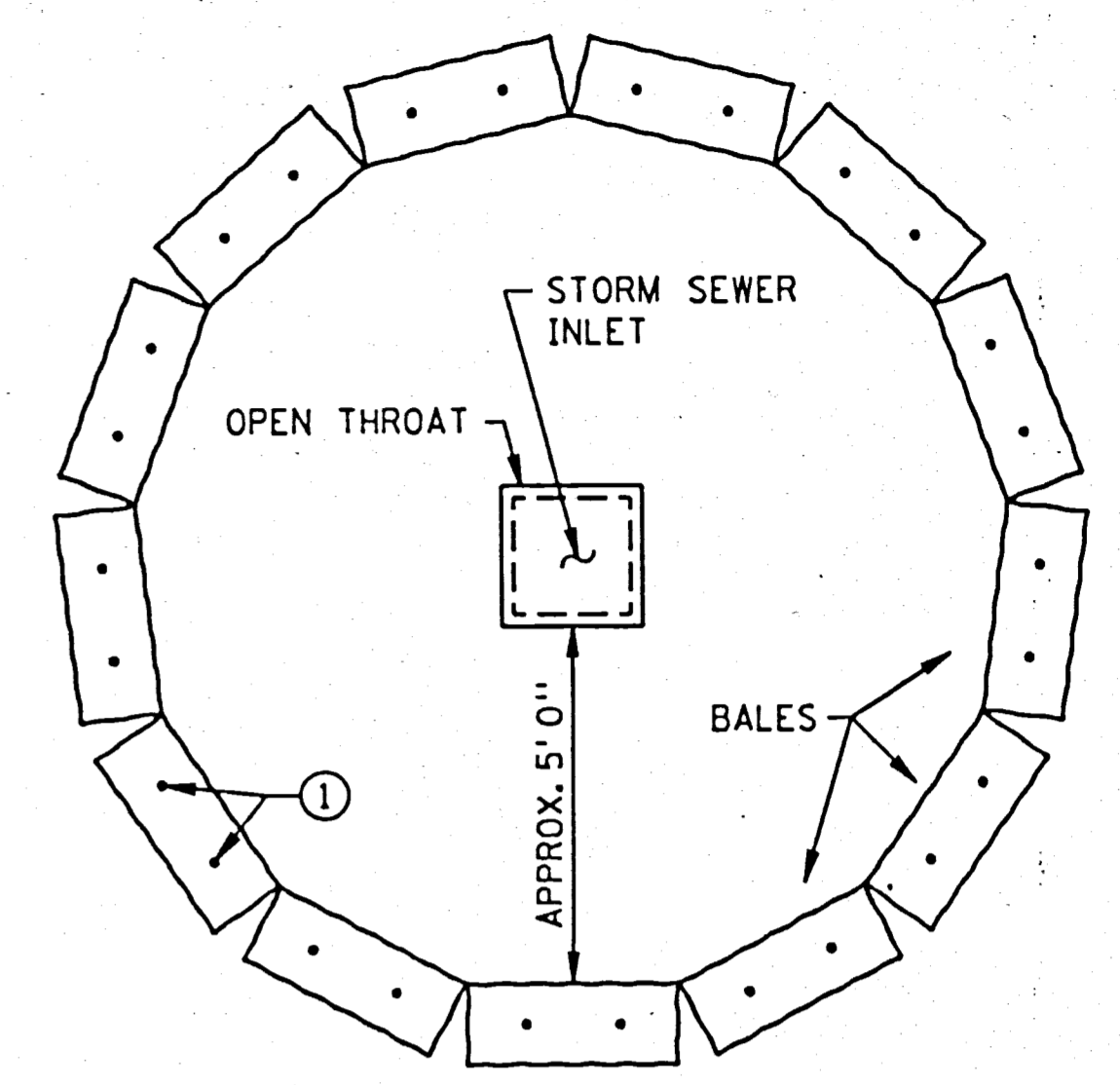
NOTE:
POINT A MUST BE HIGHER THAN POINT B

BALE DITCH VELOCITY CHECKS
(WILL REQUIRE A MINIMUM OF 10 BALES PER SITE)

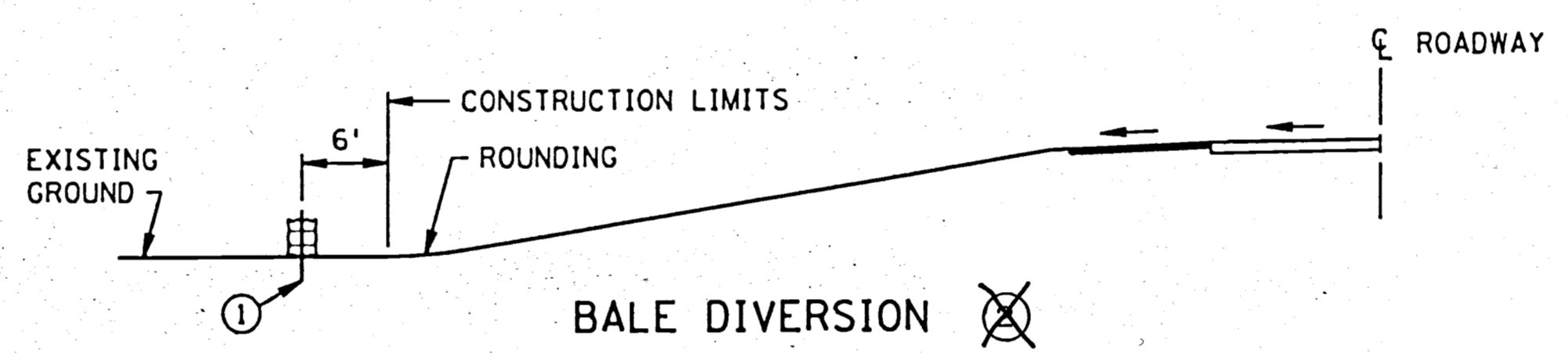


OPTION 1 OPTION 2

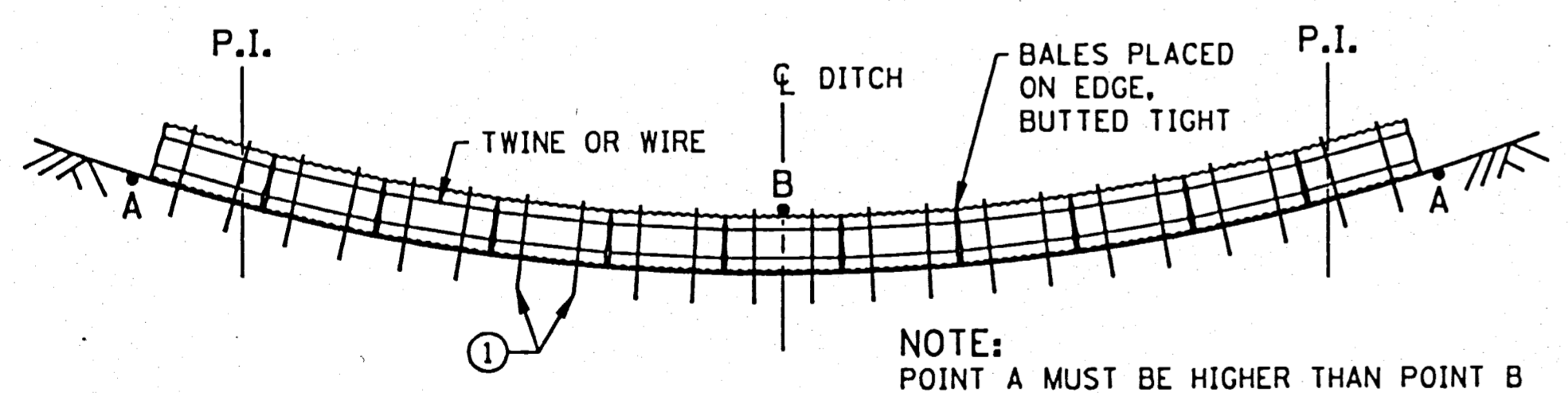
BALE CHECK DETAILS



BALE CHECK TO PROTECT STORM SEWER INLETS



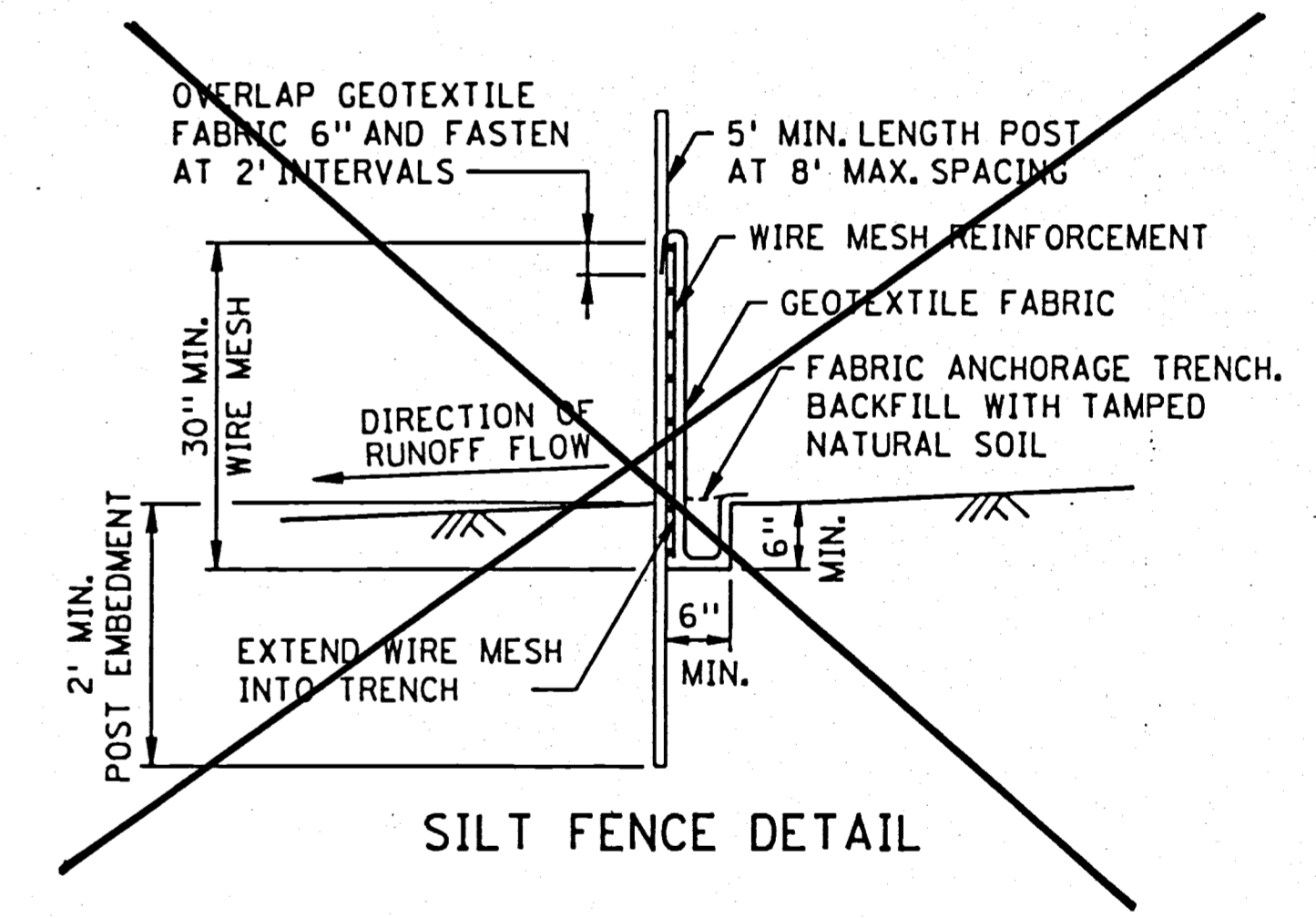
BALE DIVERSION



BALE DITCH SEDIMENT CHECK

NOTE:
POINT A MUST BE HIGHER THAN POINT B

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



SILT FENCE DETAIL

NOTE:
① TWO 2" X 2" WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10" MINIMUM.
② ~~SILT FENCE MAY ALSO BE USED AS A DIVERSION DEVICE.~~

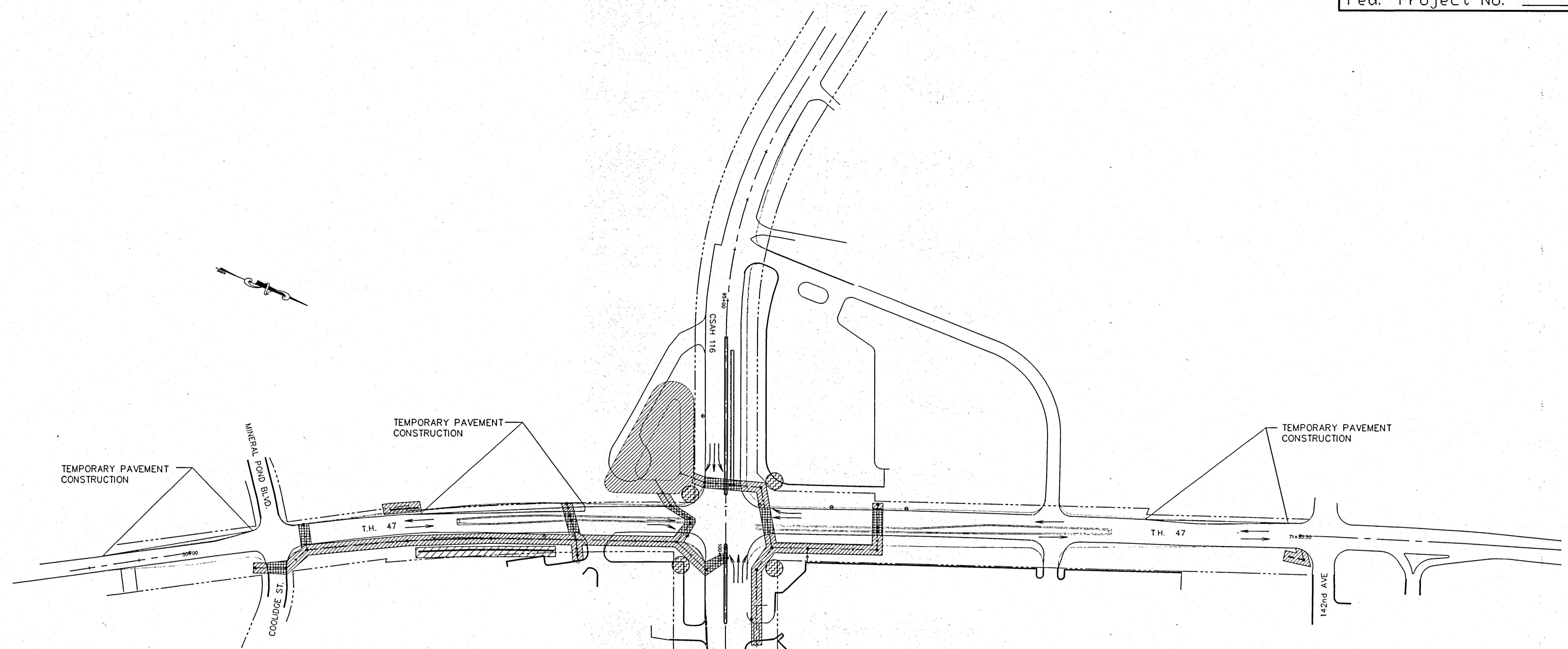
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CERTIFIED BY *Douglas W. Smith* P.E. REG NO. 20235 7/18 19 96

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

TITLE:
TEMPORARY EROSION CONTROL

S.P. 0206-47 S.A.P. 02-716-01 C.P. SHEET NO. 10 OF 56 SHEETS

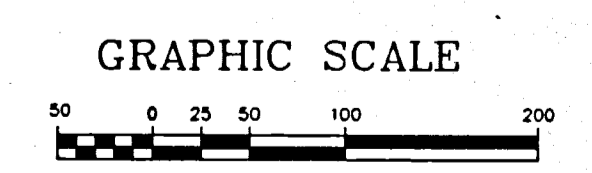


STAGE 1 CONSTRUCTION

- GENERAL:** THE CONSTRUCTION SEQUENCE PLANS INDICATE THE GENERAL SEQUENCE OF THE CONSTRUCTION ONLY REFER TO DETAILED PLANS FOR ADDITIONAL INFORMATION.
- TRAFFIC:** ALL TRAFFIC SHALL REMAIN ON INPLACE ROADWAYS EXISTING SIGNAL SYSTEM SHALL REMAIN FUNCTIONING INPLACE.
- CONSTRUCTION:**
- ① CONSTRUCT TEMPORARY PAVEMENT SECTIONS FOR S.B. TRAFFIC.
 - ② CONSTRUCT NEW TRAFFIC SIGNAL POLES AND MASTARMS.
 - ③ CONSTRUCT RETAINING WALLS.
 - ④ CONSTRUCT SEDIMENTATION POND.
 - ⑤ CONSTRUCT STORM SEWER CROSSINGS.
 - ⑥ CONSTRUCT STORM SEWER MAINLINE. (MAY BE CONSTRUCTED IN STAGE 2.)

LEGEND

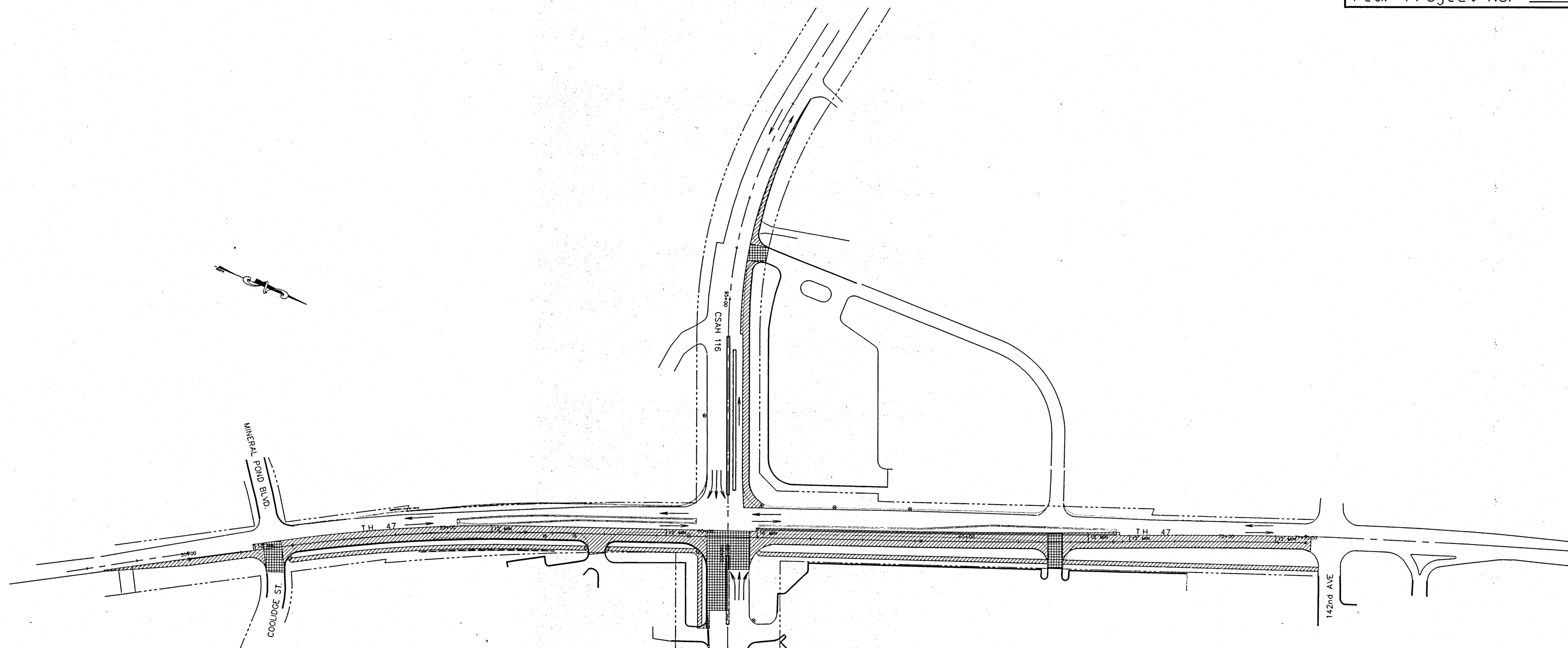
- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- TEMPORARY PAVEMENT CONSTRUCTION
- NEW SIGNAL CONSTRUCTION



**CONSTRUCTION SEQUENCE
STAGE 1**

T:\RANDY\47@116\STAGE1.DWG 5/16/96

REVISIONS	DATE	BY

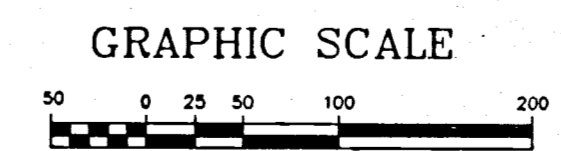


STAGE 2 CONSTRUCTION

- GENERAL:** THE CONSTRUCTION SEQUENCE PLANS INDICATE THE GENERAL SEQUENCE OF THE CONSTRUCTION ONLY. REFER TO DETAILED PLANS FOR ADDITIONAL INFORMATION.
- TRAFFIC:** N.B. AND S.B. TRAFFIC SHALL BE MOVED TO THE MOST WESTERLY PORTION OF THE EXISTING MAT. NEWLY INSTALLED TRAFFIC SIGNAL SYSTEM SHALL BE TEMPORARILY MODIFIED TO ACCOMMODATE LANE SHIFTS. SEE SIGNAL PLAN FOR MODIFICATION DETAILS.
- CONSTRUCTION:**
- ① N.B. T.H. 47 FROM SOUTH LIMITS TO NORTH LIMITS—CONSTRUCT TO A MINIMUM WIDTH OF 12 FEET WEST OF LNB TO PROVIDE FOR TRAFFIC SHIFT IN STAGE 3.
 - ② W.B. CSAH 116 FROM T.H.47 TO WEST LIMITS—CONSTRUCT NORTHERLY LANE WIDENING.

LEGEND

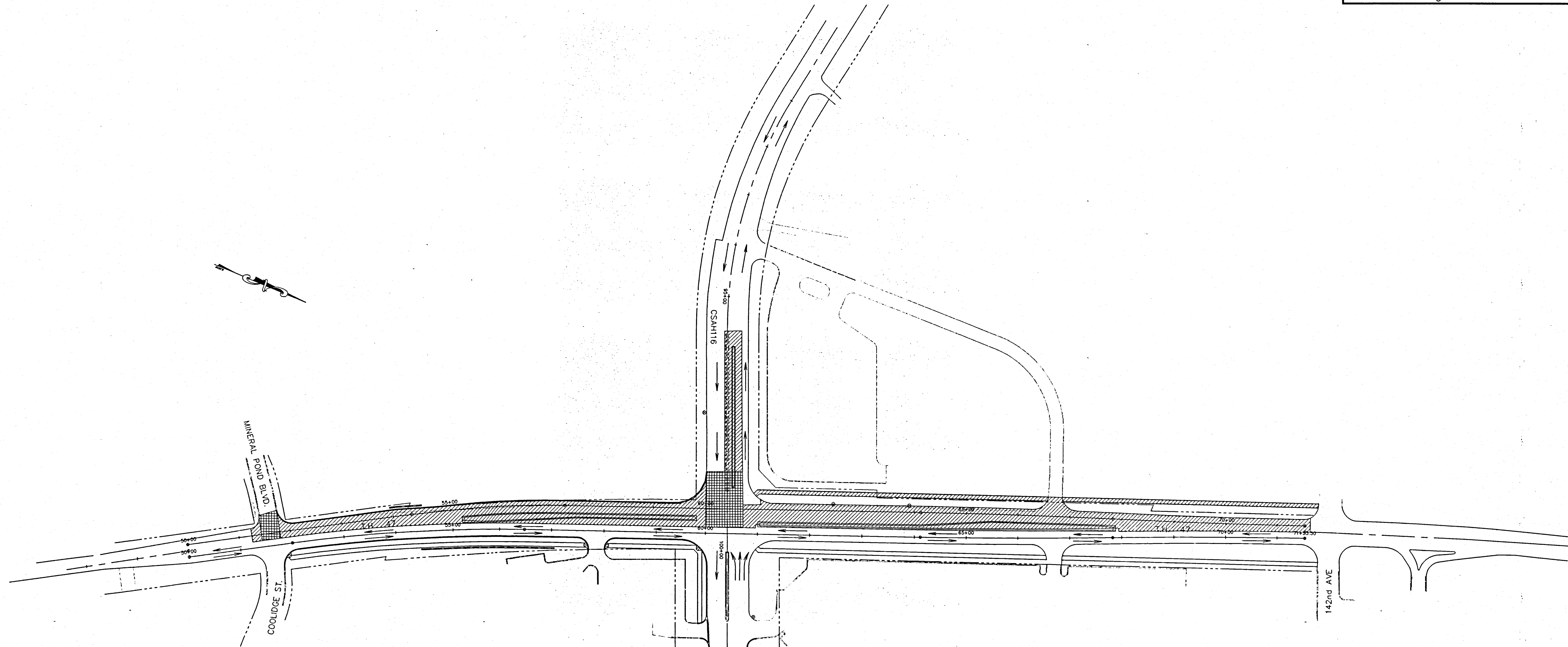
- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)



CONSTRUCTION SEQUENCE
STAGE 2

T: \RANDY\47@116\STAGE2.DWG 5/16/96

REVISIONS	DATE	BY



STAGE 3 CONSTRUCTION

GENERAL: THE CONSTRUCTION SEQUENCE PLANS INDICATE THE GENERAL SEQUENCE OF THE CONSTRUCTION ONLY. REFER TO DETAILED PLANS FOR ADDITIONAL INFORMATION.

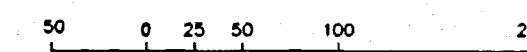
TRAFFIC: N.B. AND S.B. TRAFFIC SHALL BE SWITCHED TO NEWLY CONSTRUCTED N.B. TRAFFIC LANES. SEE SIGNAL PLANS FOR MODIFICATION OF TRAFFIC SIGNAL SYSTEM.

- CONSTRUCTION:
- ① S.B. T.H. 47 FROM SOUTH LIMITS TO NORTH LIMITS.
 - ② REMAINDER OF N.B. T.H. 47.
 - ② MEDIAN REMOVAL AND CONSTRUCTION FOR W.B. CSAH 116.

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)

GRAPHIC SCALE



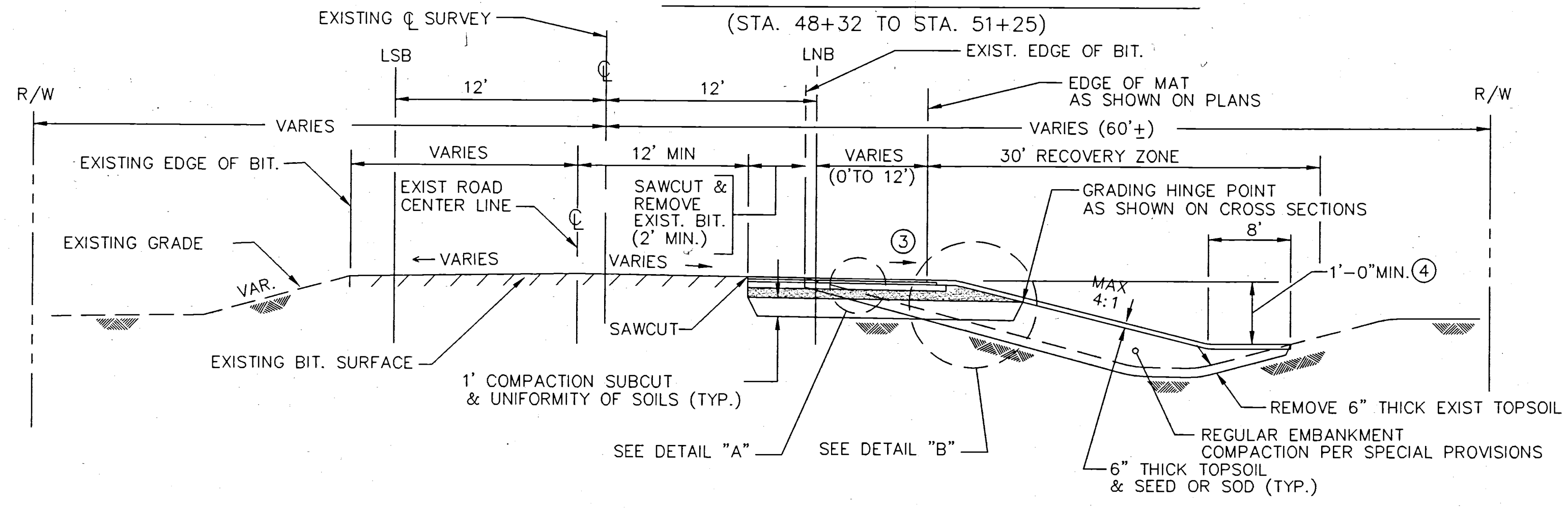
CONSTRUCTION SEQUENCE
STAGE 3

T:\RANDY\47@116\STAGE3.DWG 5/16/96

REVISIONS	DATE	BY

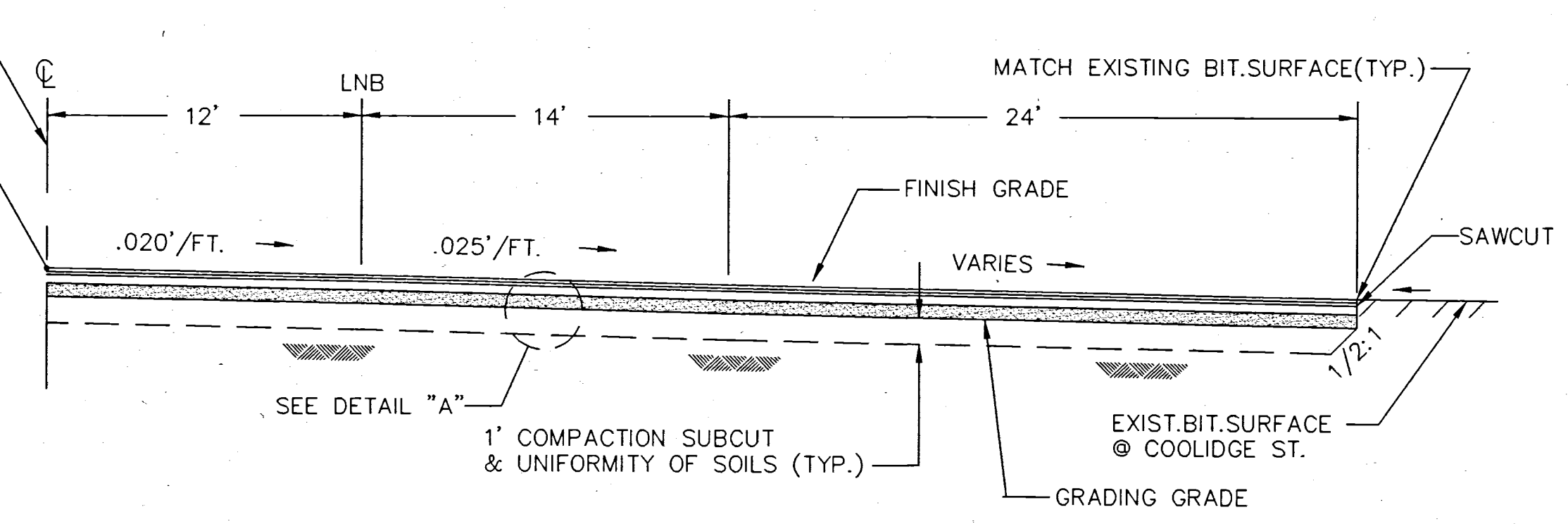
TYPICAL SECTION T.H. 47

(STA. 48+32 TO STA. 51+25)

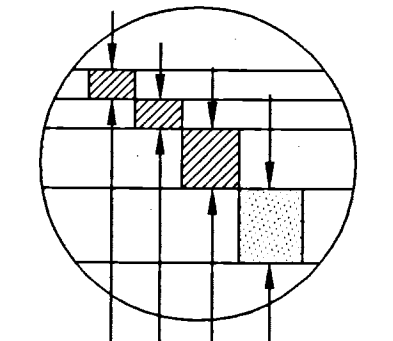


T.H. 47 & COOLIDGE ST. INTERSECTION

(STA. 51+25 TO STA. 51+83)

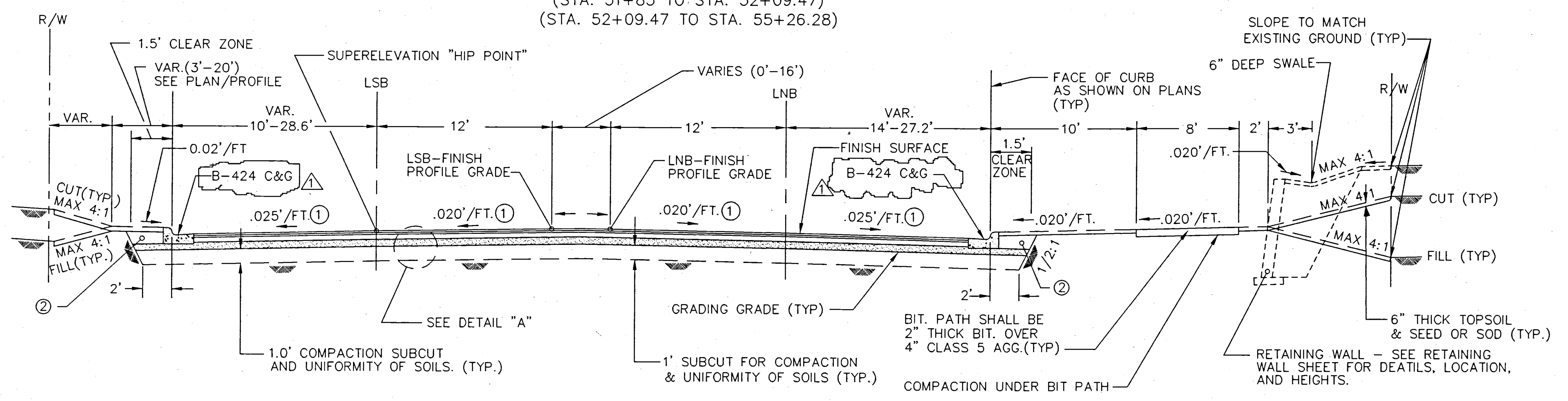


DETAIL "A"

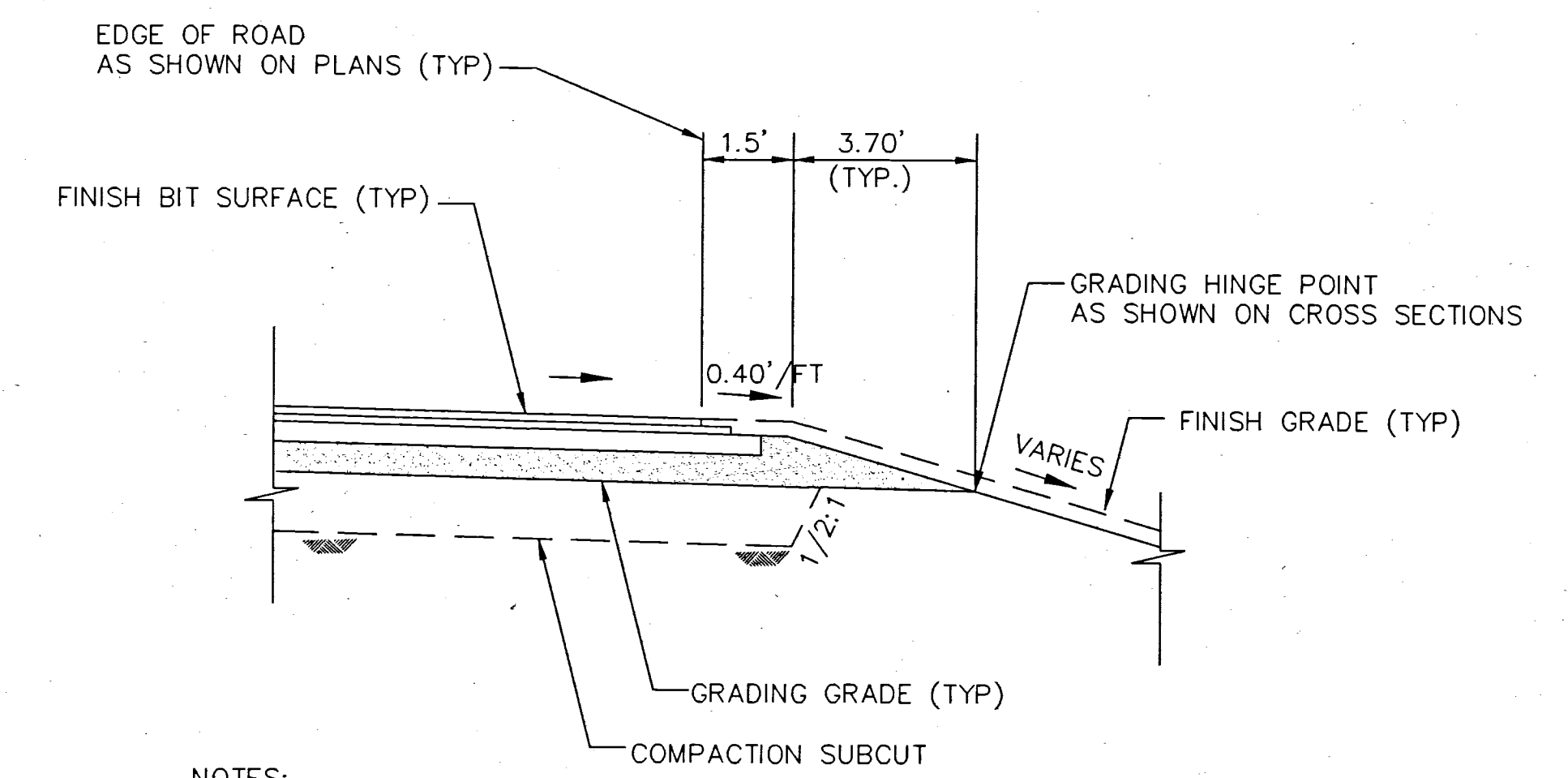


TYPICAL SECTION T.H. 47

(STA. 51+83 TO STA. 52+09.47)
(STA. 52+09.47 TO STA. 55+26.28)

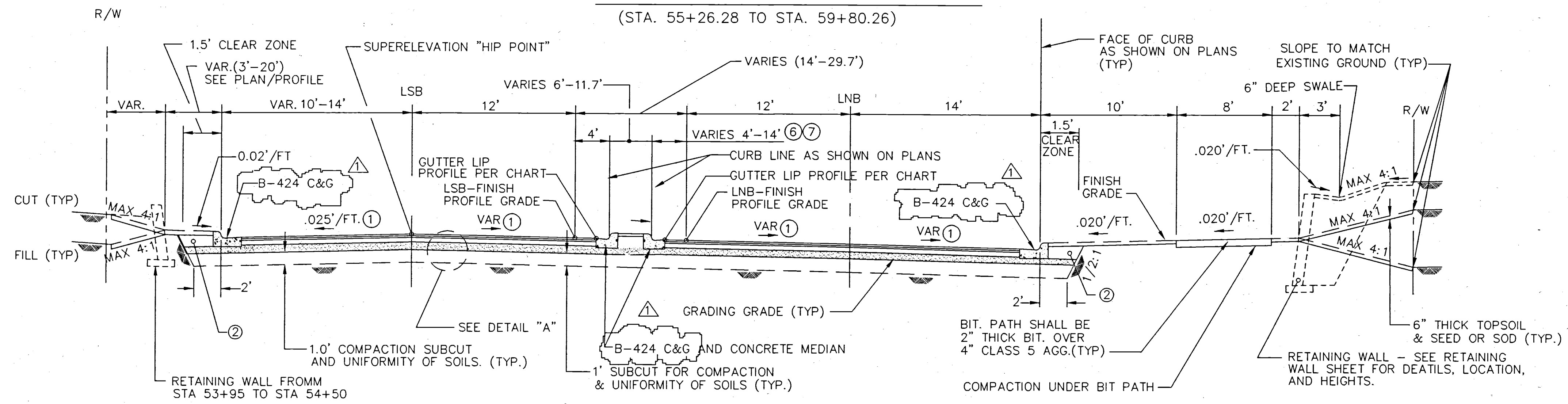


DETAIL "B"



TYPICAL SECTION T.H. 47

(STA. 55+26.28 TO STA. 59+80.26)



NOTES:

- ① SEE SUPERELEVATION CHART FOR SUPER SLOPES.
- ② BACKFILL WITH GRANULAR MATERIAL & COMPACT PER SPECIFICATIONS.
- ③ SLOPE TO MATCH EXISTING ROADWAY.
- ④ SEE PLAN & PROFILE SHEETS & CROSS SECTIONS FOR ACTUAL.
- ⑤ 4" THICK CONCRETE MEDIAN PAVING.
- ⑥ LOCATION OF LEFT TURN LANES, SEE ALIGNMENT PLANS.
- ⑦ FOR FINISH GRADE ELEVATION AT INTERSECTION AND LEFT TURN LANES, SEE SHEET 25.

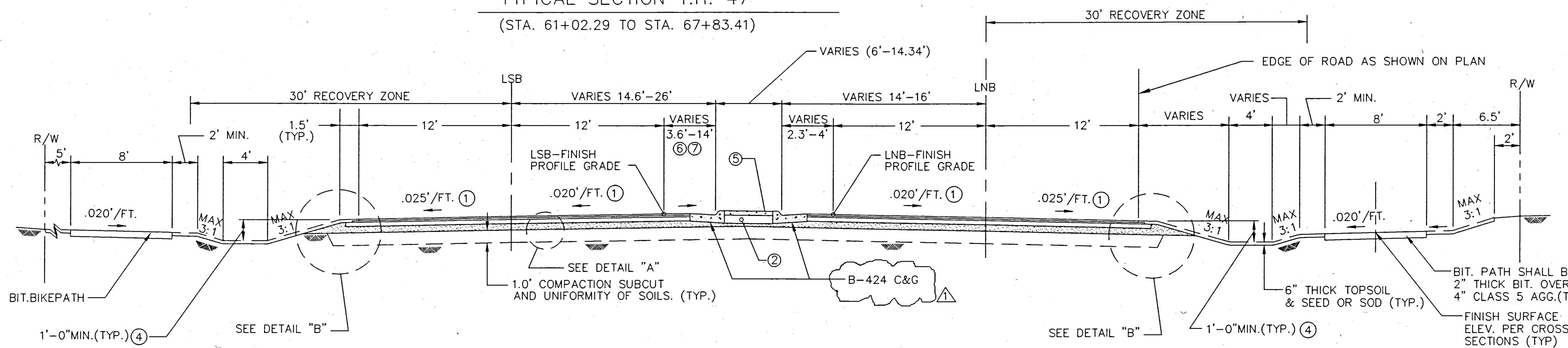
TYPICAL SECTIONS
T.H. 47

REVISIONS	DATE	BY

FILE NAME: P:\0203116\PLANS\47116C11.DWG MNL (05-16-96)

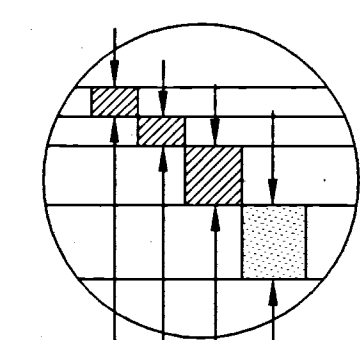
TYPICAL SECTION T.H. 47

(STA. 61+02.29 TO STA. 67+83.41)



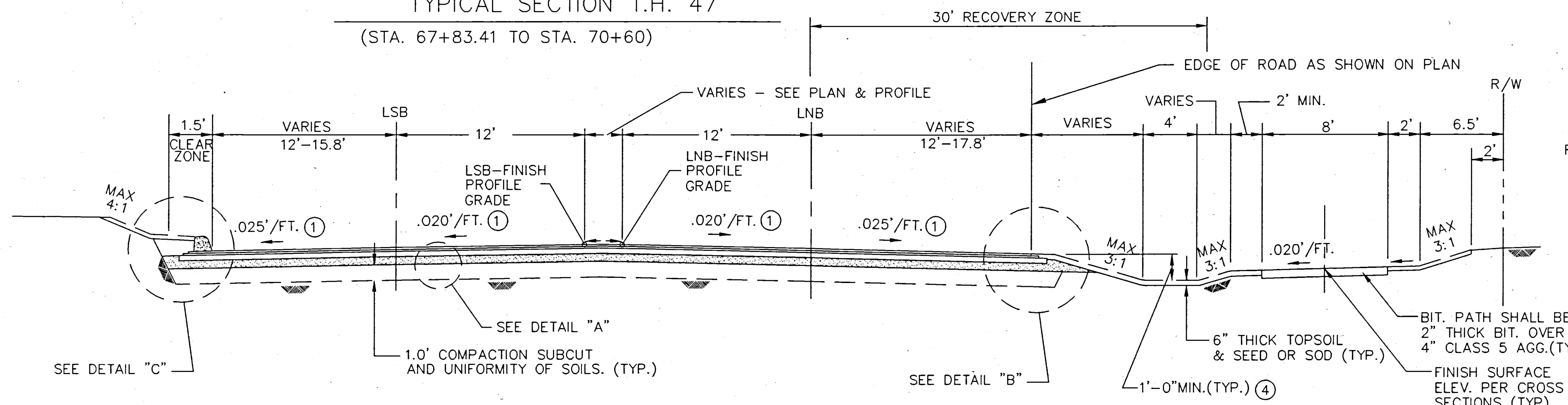
DETAIL "A"

- 1 1/2" TYPE 41 WEAR (41WEA50055Y)
- 1 1/2" TYPE 41 BINDER (41BIB50055Y)
- 4" TYPE 31 BASE (31BBB50000Y)
- 6" AGGREGATE BASE CLASS 6

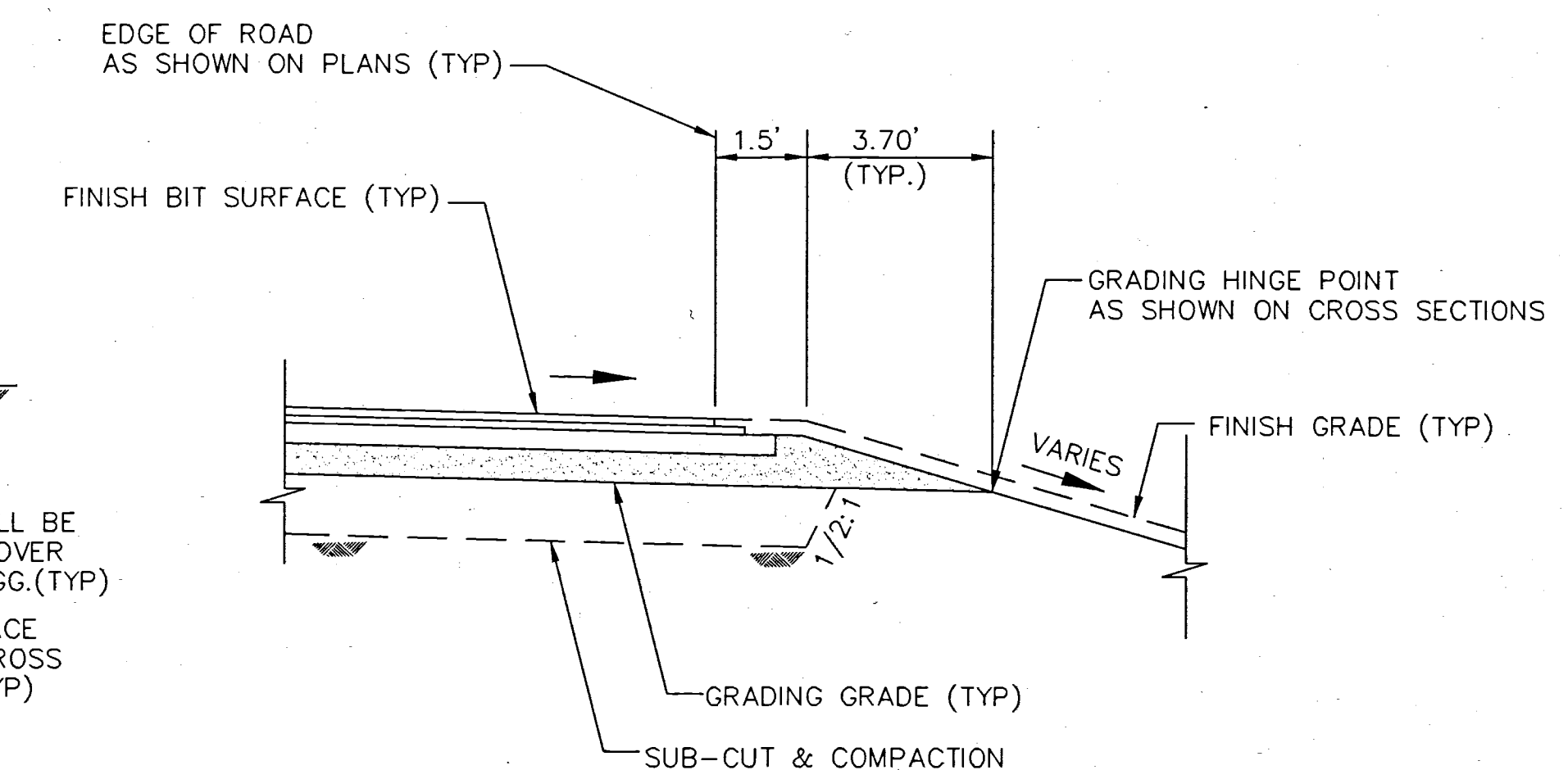


TYPICAL SECTION T.H. 47

(STA. 67+83.41 TO STA. 70+60)

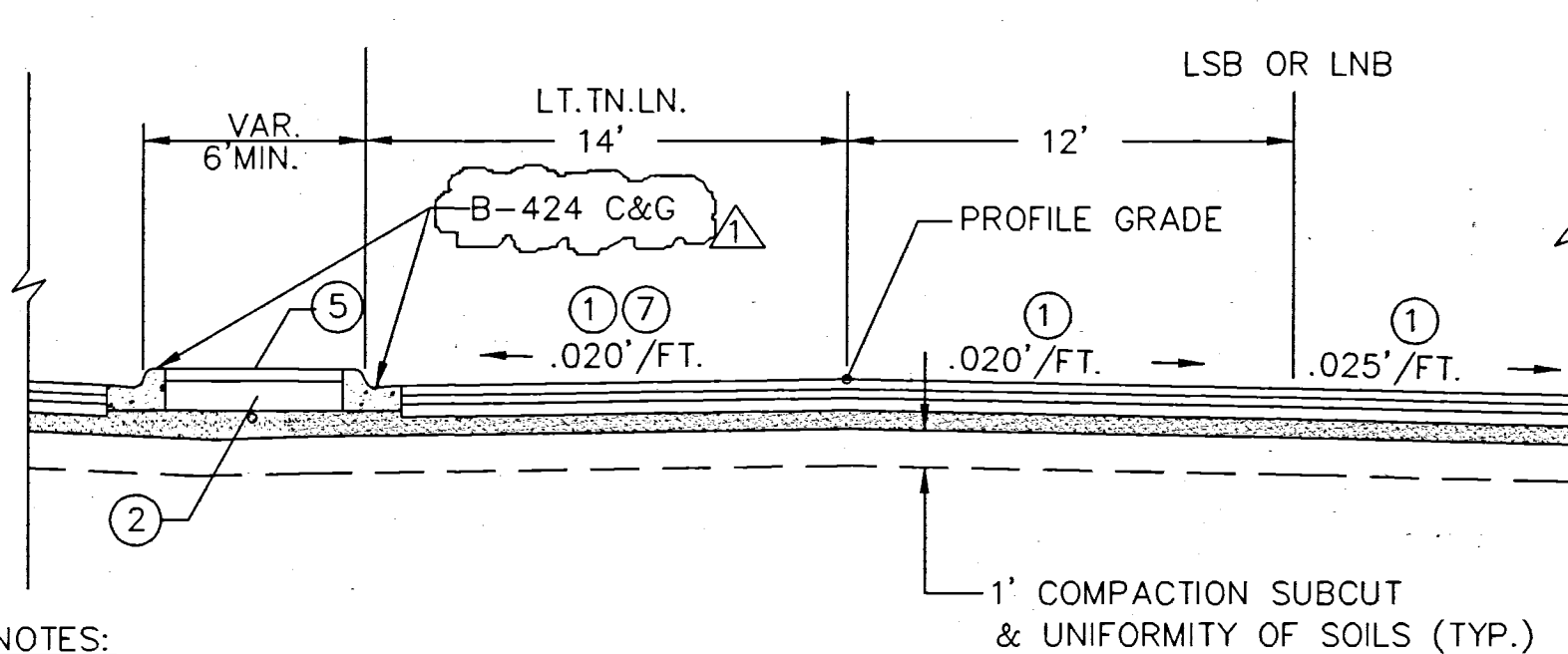


DETAIL "B"



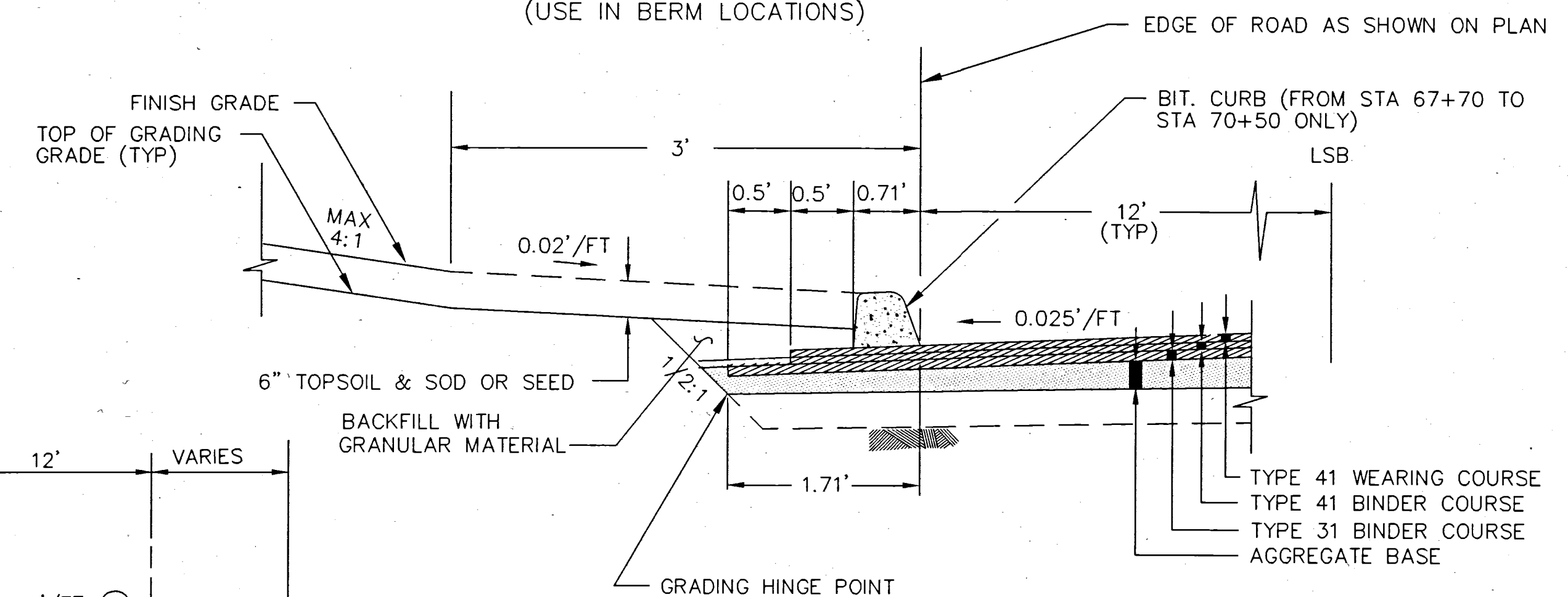
TYPICAL SECTION T.H. 47

(MEDIAN & LT. TURN LANE)
(STA. 55+88.03 TO STA. 59+80.38)
(STA. 60+96.82 TO STA. 65+49.61)



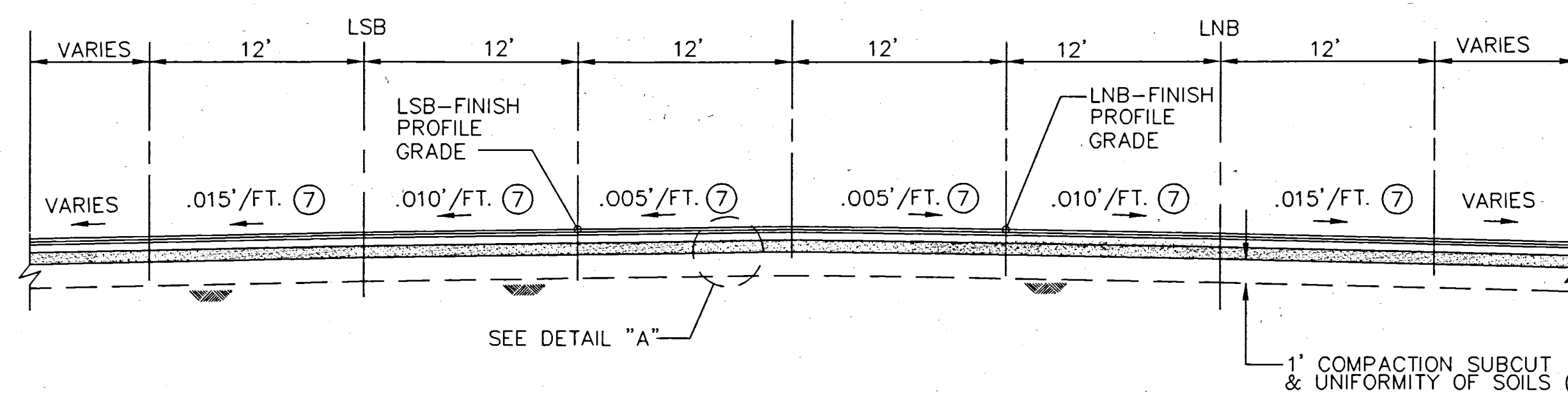
DETAIL "C"

BITUMINOUS CURB DETAIL
STANDARD PLATE NO. 7065
(USE IN BERM LOCATIONS)



TYPICAL SECTION T.H. 47

(INTERSECTION C.S.A.H. 116)
(STA. 59+80.38 TO STA. 61+02.29)



TYPICAL SECTIONS

T.H. 47

- NOTES:
- ① SEE SUPERELEVATION CHART FOR SUPER SLOPES.
 - ② BACKFILL WITH GRANULAR MATERIAL & COMPACT PER SPECIFICATIONS.
 - ③ SLOPE TO MATCH EXISTING ROADWAY.
 - ④ SEE PLAN & PROFILE SHEETS & CROSS SECTIONS FOR ACTUAL.
 - ⑤ 4" THICK CONCRETE MEDIAN PAVING.
 - ⑥ LOCATION OF LEFT TURN LANES, SEE ALIGNMENT PLANS.
 - ⑦ FOR FINISH GRADE ELEVATION AT LEFT TURN LANES, SEE SHEET 25.

REVISIONS	DATE	BY
7-29-96	KTY	
8-29-96	KTY	

CERTIFIED BY *Roderic M. Finch*

P.E. REG NO. 20235 10/2 19 96

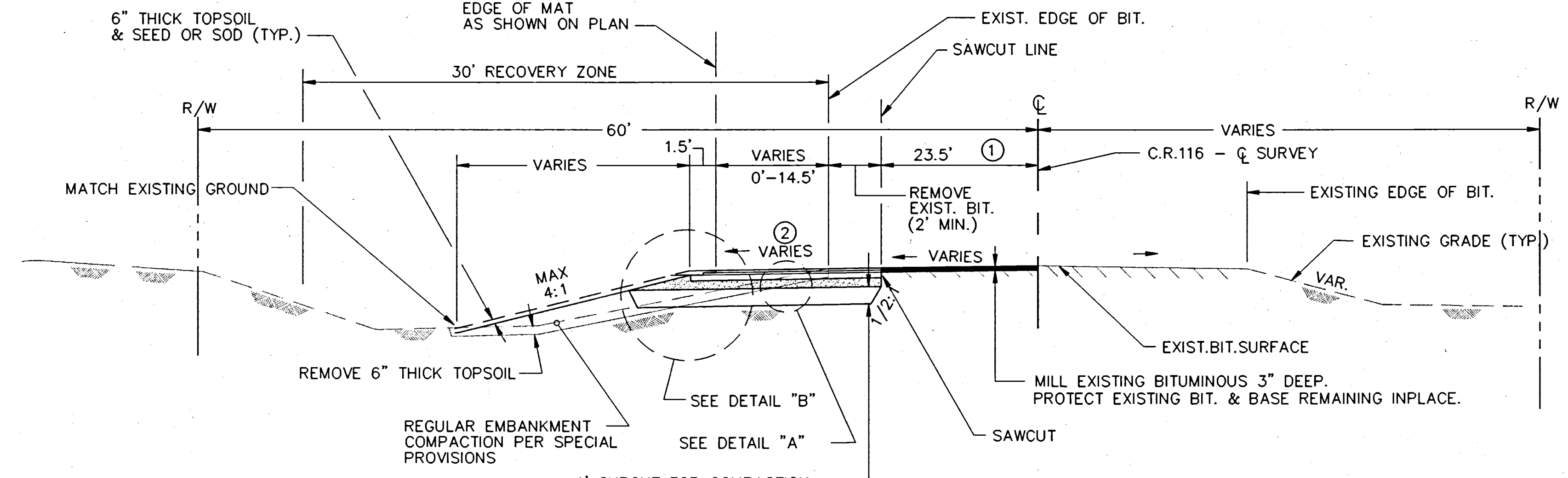
S.P. 0206-47 S.A.P. 02-716-01 C.P.

Sheet No. 15 of 56 Sheets

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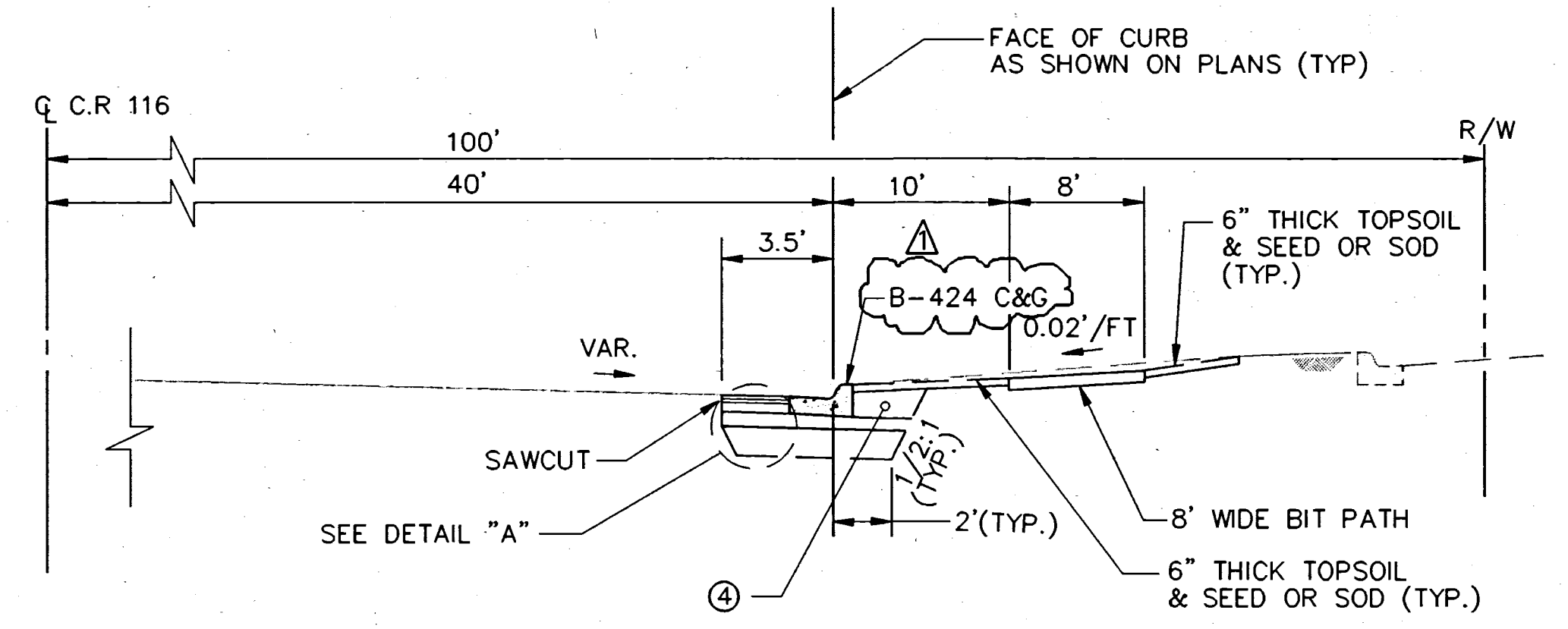
TYPICAL SECTION C.S.A.H. 116

(STA. 90+91.58 TO STA. 95+67)

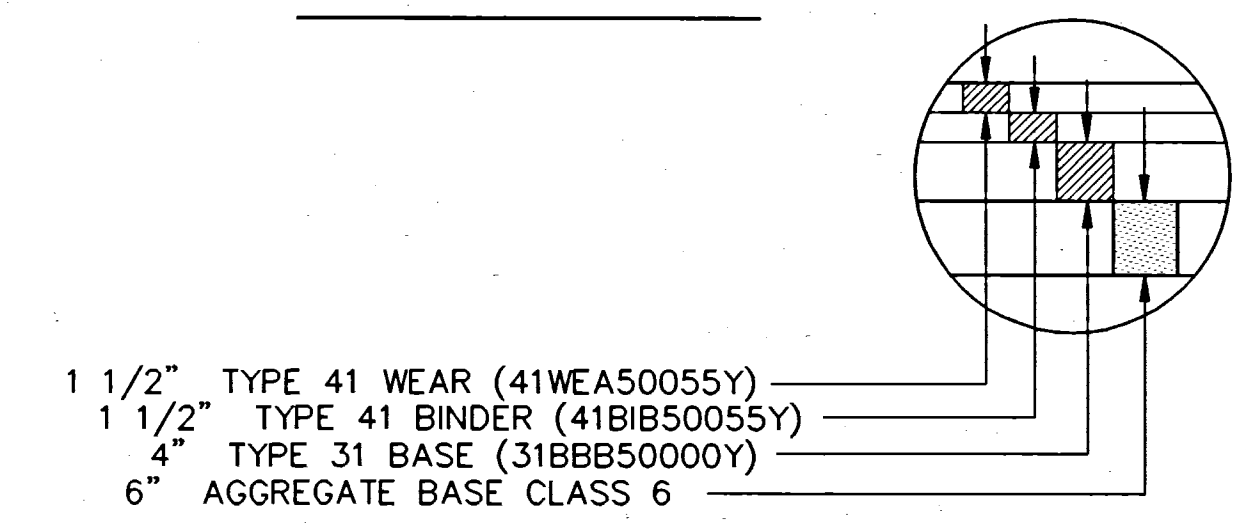


TYPICAL SECTION C.S.A.H. 116

(STA. 101+00 TO STA. 101+35)

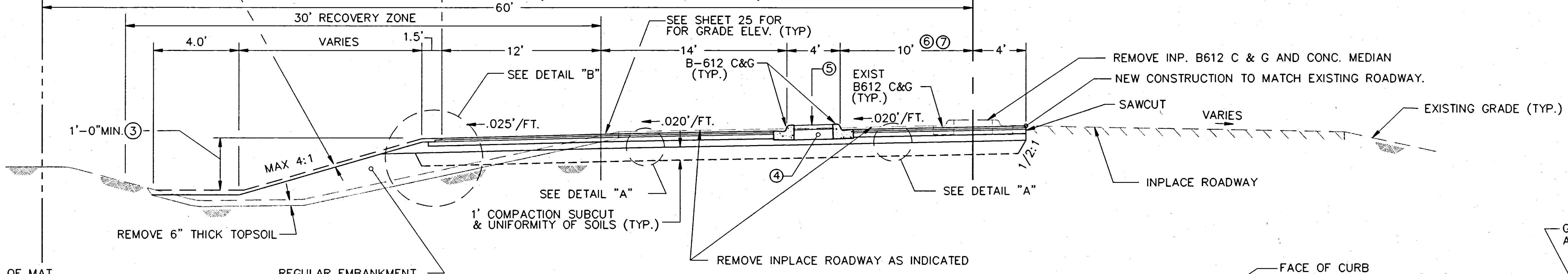


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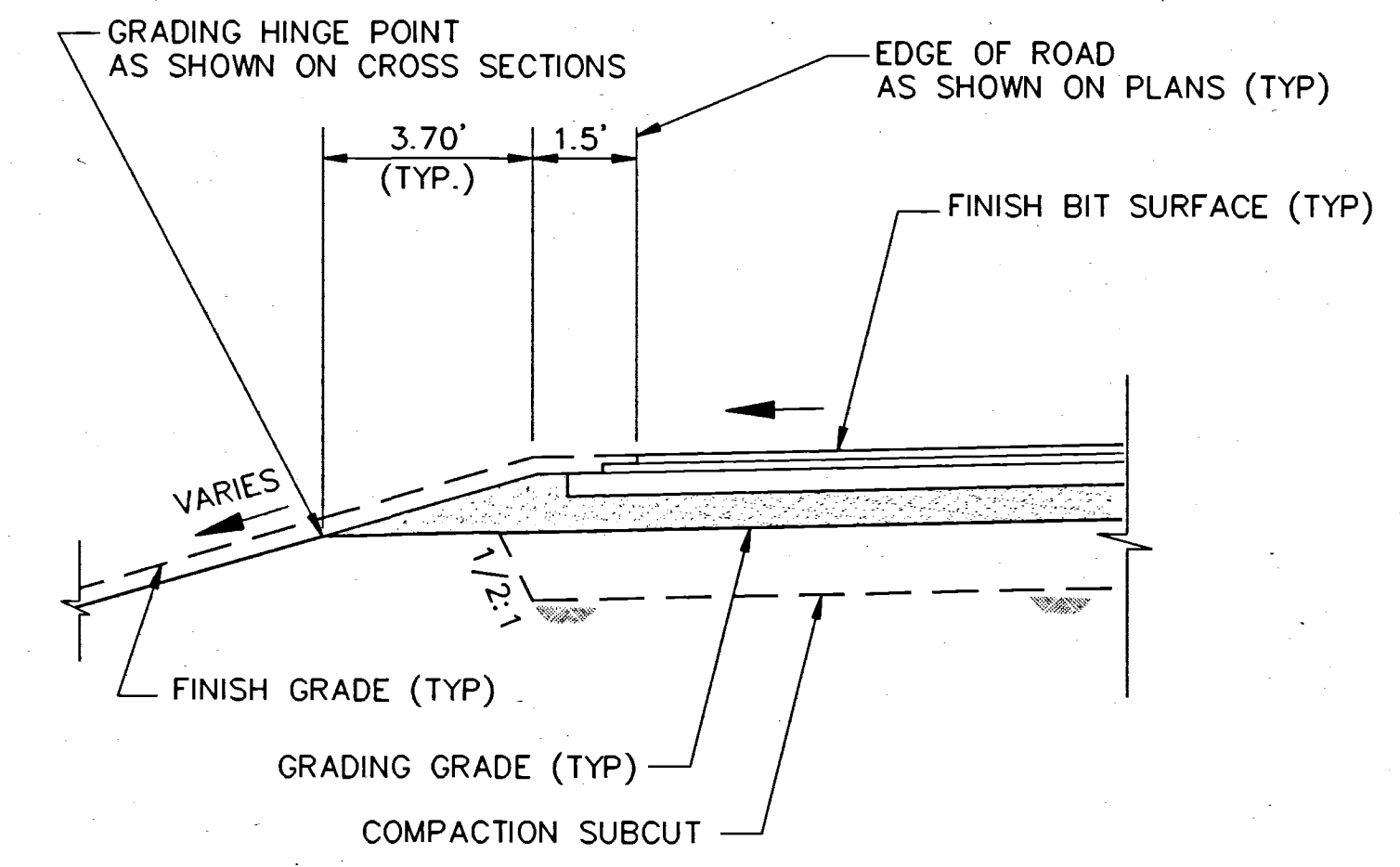


TYPICAL SECTION C.S.A.H. 116

(STA. 95+67 TO STA. 98+67.67)

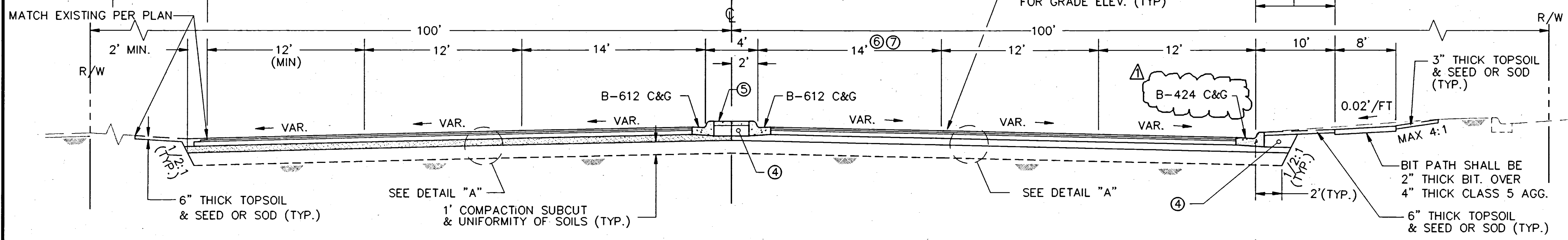


DETAIL "B"



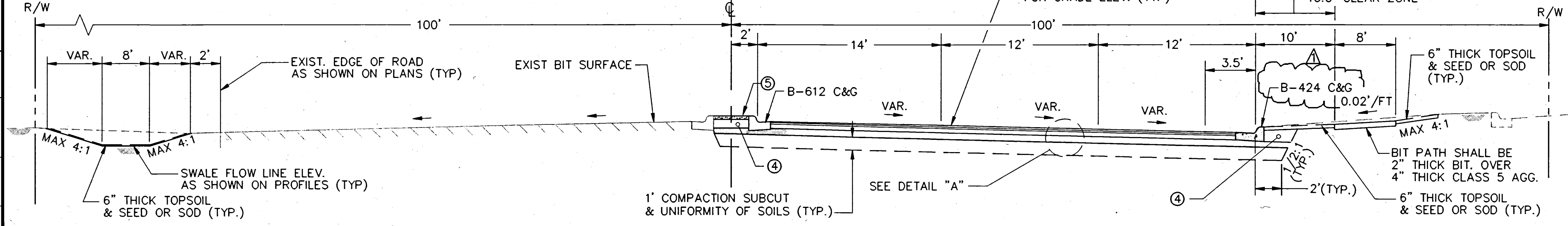
TYPICAL SECTION C.S.A.H. 116

(STA. 99+94.71 TO STA. 100+21.37)



TYPICAL SECTION C.S.A.H. 116

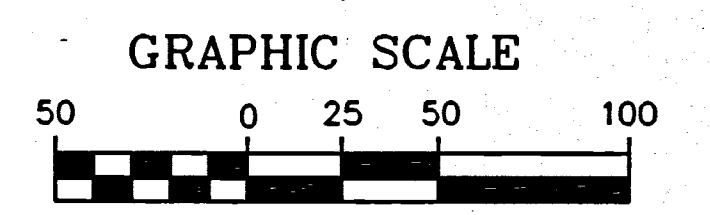
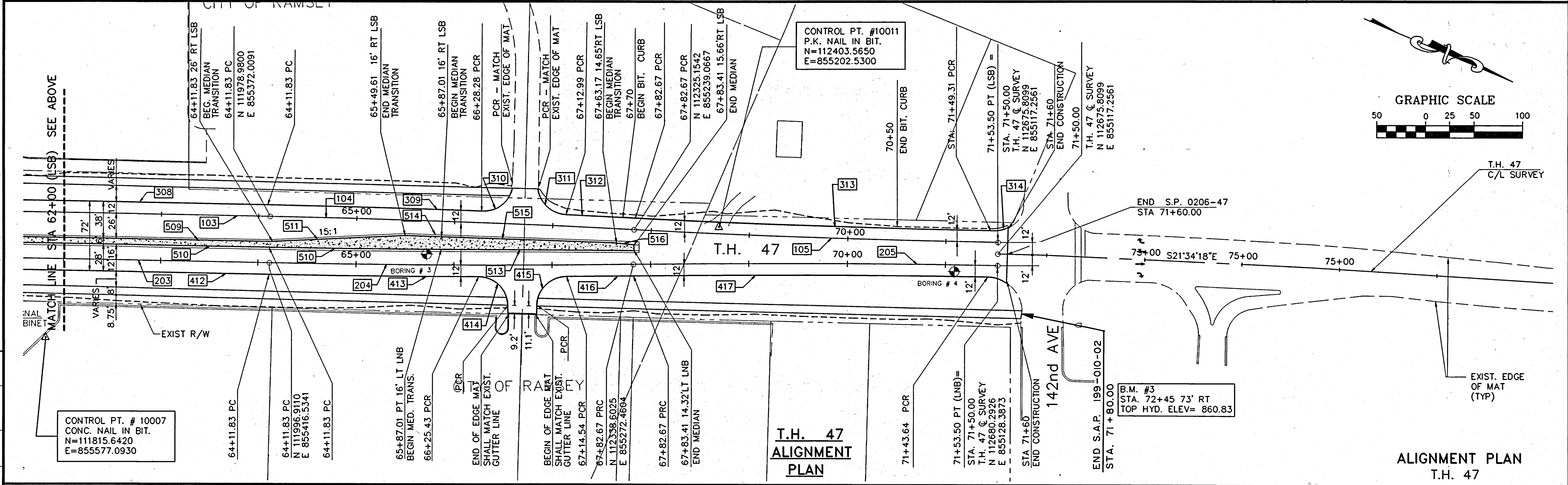
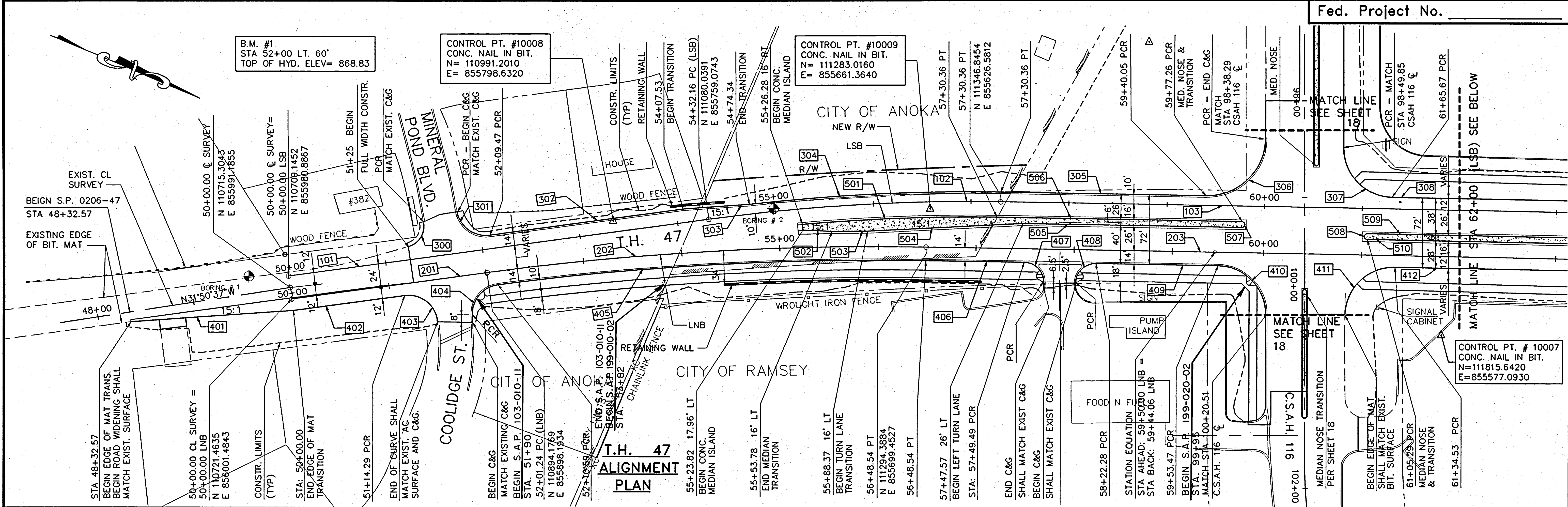
(STA. 100+21.37 TO STA. 101+00)



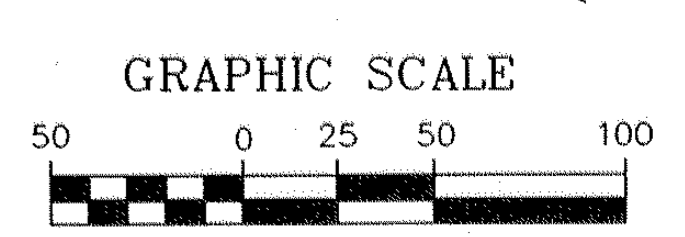
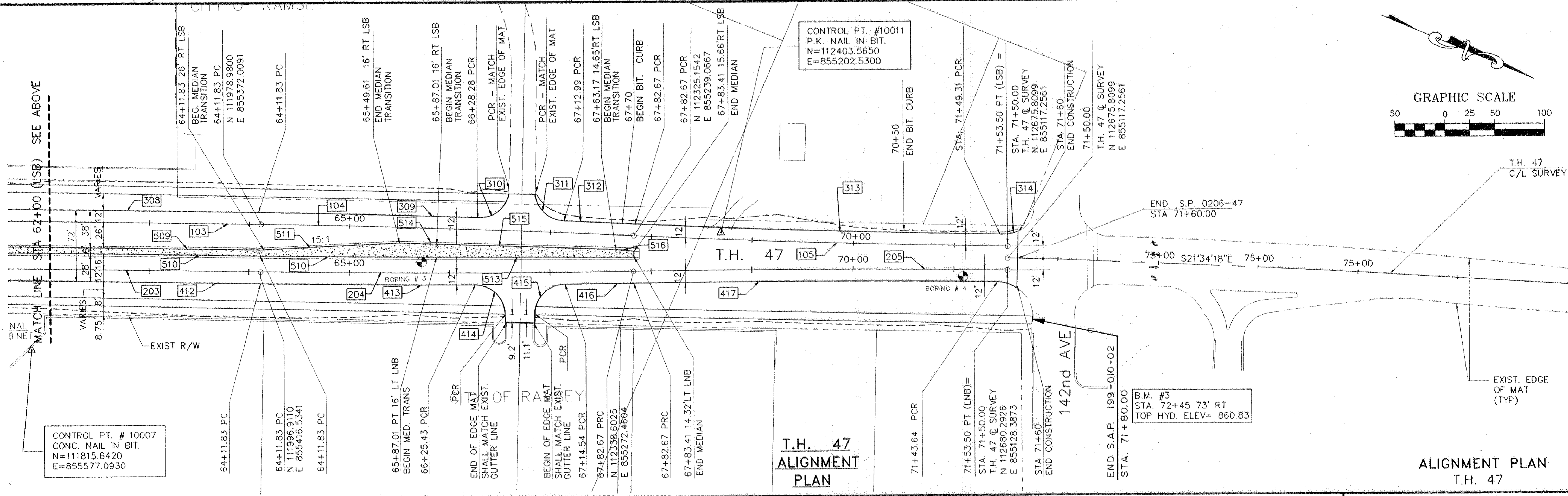
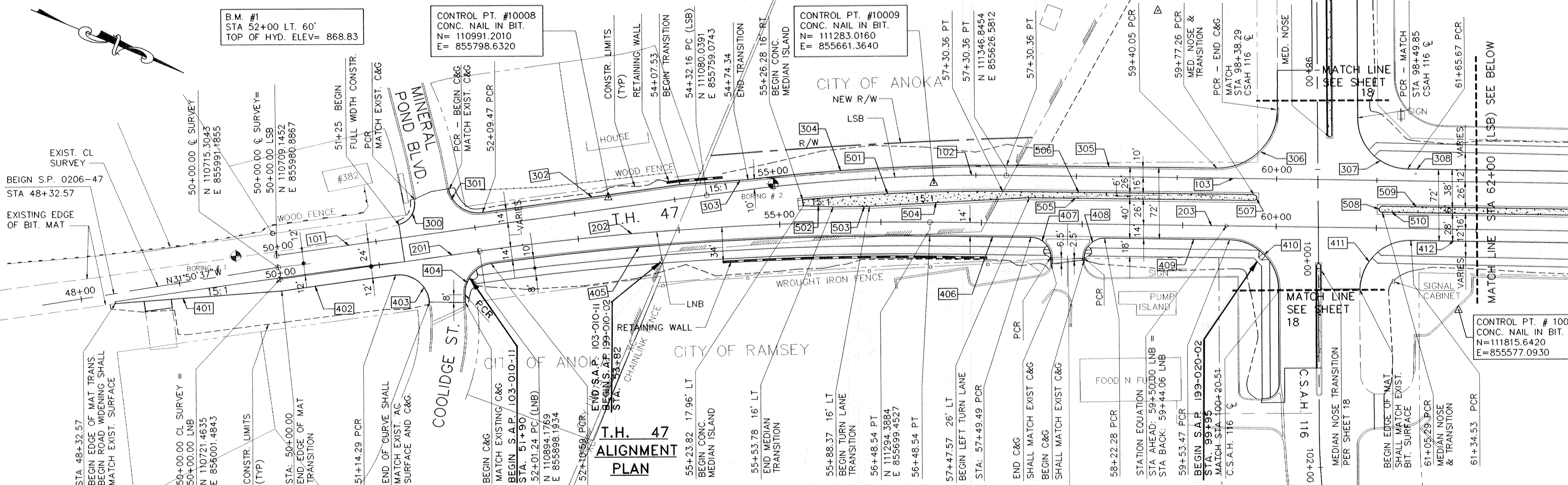
- NOTES:
- SEE PLAN & PROFILE SHEETS.
 - PROPOSED SLOPE SHALL MATCH INPLACE BITUMINOUS AND SHALL BE A CONTINUOUS SLOPE AS PROJECTING FROM ROAD C.L.
 - SEE PLAN & PROFILE SHEETS FOR SPECIAL DITCH DEPTHS & WIDTHS.
 - BACKFILL WITH GRANULAR & COMPACT PER SPECIFICATIONS.
 - 4" THICK CONCRETE MEDIAN PAVING.
 - LOCATION OF LEFT TURN LANES, SEE ALIGNMENT PLANS.
 - FOR FINISH GRADE ELEVATIONS AT INTERSECTION AND LEFT TURN LANES, SEE SHEET 25.

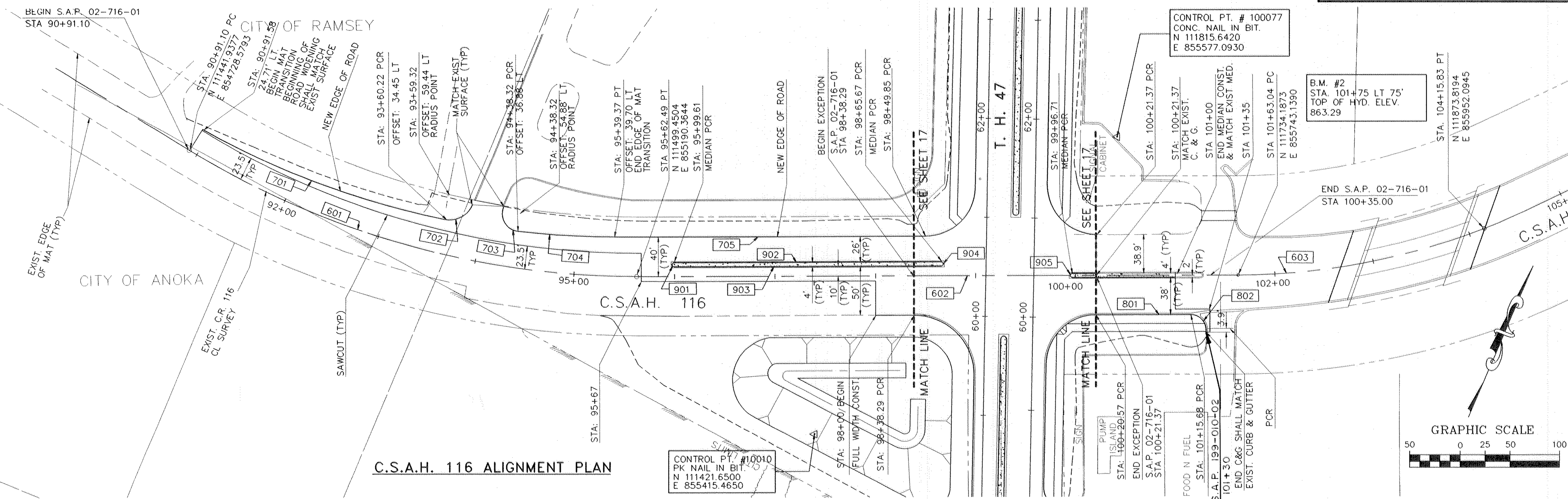
TYPICAL SECTIONS
 C.S.A.H. 116

REVISIONS	DATE	BY
1	8-28-96	KTY



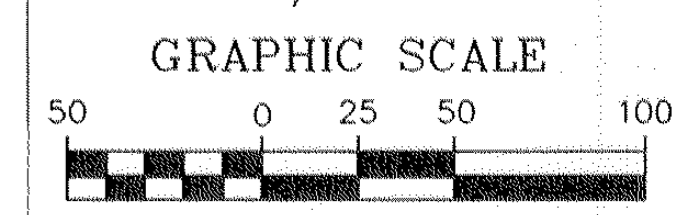
REVISIONS	DATE	BY
1	7-29-96	47





C.S.A.H. 116 ALIGNMENT PLAN

CONTROL PT. #10010
PK NAIL IN BIT.
N 111421.6500
E 855415.4650



CURVE DATA TABLE

I.D.	DELTA OR BEARING	RADIUS OR DISTANCE	TANGENT	ARC LENGTH	DESCRIPTION	I.D.	DELTA OR BEARING	RADIUS OR DISTANCE	TANGENT	ARC LENGTH	DESCRIPTION	I.D.	DELTA OR BEARING	RADIUS OR DISTANCE	TANGENT	ARC LENGTH	DESCRIPTION
101	N 30°52'53" W	432.16'	-	-	T.H. 47 LSB	401	N 27°04'03" W	167.61'	-	-	EDGE OF MAT	510	N 21°56'08" W	306.07'	-	-	B-624 C&G
102	08°56'45"	1909.85'	149.40'	298.20'		402	N 30°52'53" W	114.29'	-	-	EDGE OF MAT	511	N 25°48'59" W	137.90'	-	-	
103	N 21°56'08" W	1484.78'	-	-		403	93°02'12"	30.00'	31.63'	48.71'	EDGE OF MAT	512	00°52'33"	11443.16'	87.47'	174.94'	
104	01°51'15"	11459.16'	185.44'	370.84'		404	84°42'39"	30.00'	27.35'	44.35'	B-618 C&G	513	N 22°48'41" W	196.19'	-	-	
105	01°51'15"	11459.16'	185.44'	370.84'	T.H. 47 LSB	405	08°45'32"	2850.79'	218.33'	435.81'		514	00°11'13"	11443.16'	18.67'	37.35'	
201	N 35°52'53" W	201.24'	-	-	T.H. 47 LNB	406	N 21°56'08" W	100.95'	-	-		515	N 21°03'35" W	201.02'	-	-	
202	08°56'45"	2864.79'	224.10'	447.30'		407	89°28'48"	20.00'	19.82'	31.23'		516	N 17°15'18" W	20.24'	-	-	B-624 C&G
203	N 21°56'08" W	757.35'	-	-		408	90°31'12"	20.00'	20.18'	31.60'		601	31°49'07"	848.83'	241.94'	471.39'	C.S.A.H. 116 CL SURVEY
204	01°51'15"	11459.16'	185.44'	370.84'		409	N 21°56'08" W	125.25'	-	-		602	N 66°59'29" E	600.55'	-	-	C.S.A.H. 116 CL SURVEY
205	01°51'15"	11459.16'	185.44'	370.84'	T.H. 47 LSB	410	88°55'37"	50.00'	49.07'	77.60'	B-618 C&G	603	21°29'15"	674.07'	127.90'	252.79'	C.S.A.H. 116 CL SURVEY
300	80°24'33"	21.52'	18.19'	30.20'	EDGE OF MAT.	411	90°27'30"	50.00'	50.40'	78.94'	EDGE OF MAT	701	17°44'11"	838.00'	130.75'	259.41'	EDGE OF MAT
301	87°22'08"	30.00'	28.65'	45.75'	B-618 C&G	412	N 21°56'08" W	277.29'	-	-		702	79°05'09"	25.00'	20.64'	34.51'	
302	N 30°52'53" W	198.06'	-	-		413	01°04'05"	11471.16'	106.92'	213.82'		703	106°53'45"	18.00'	24.28'	33.58'	
303	N 27°04'03" W	67.17'	-	-		414	89°17'20"	30.00'	29.63'	46.75'		704	06°35'59"	838.00'	48.32'	96.53'	
304	07°40'50"	1919.85'	128.87'	257.36'		415	88°30'31"	30.00'	29.23'	46.34'		705	N 66°59'29" E	309.40'	-	-	EDGE OF MAT
305	N 21°56'08" W	209.54'	-	-		416	00°20'26"	11471.16'	34.10'	68.20'		801	N 66°59'29" E	95.17'	-	-	B-618 C&G
306	91°04'23"	60.00'	61.13'	95.37'	B-618 C&G	417	01°49'38"	11447.16'	182.55'	365.07'		802	85°57'12"	15.00'	13.98'	22.50'	B-618 C&G
307	88°55'37"	50.00'	49.07'	77.60'	EDGE OF MAT	418	33°50'08"	35.00'	10.65'	20.67'	EDGE OF MAT	901	180°00'00"	2.00'	-	6.28'	MED. NOSE & TRANS.
308	N 21°56'08" W	281.59'	-	-		501	06°07'21"	1893.85'	101.28'	202.37'	B-624 C&G	902	N 66°59'29" E	266.06'	-	-	B-612 C&G
309	01°04'56"	11471.16'	108.35'	216.68'		502	N 20°24'07" W	30.20'	-	-		903	N 66°59'29" E	266.06'	-	-	B-612 C&G
310	90°52'51"	30.00'	30.46'	47.59'		503	00°41'31"	2880.79'	17.40'	34.79'		904	180°00'00"	2.00'	-	6.28'	MED. NOSE & TRANS.
311	88°41'45"	30.00'	29.32'	46.44'	EDGE OF MAT	504	N 25°44'59" W	159.88'	-	-		905	180°00'00"	2.00'	-	6.28'	MED. NOSE & TRANS.
312	00°20'54"	11471.16'	34.88'	69.75'	EDGE OF MAT/BERM	505	N 21°56'08" W	224.00'	-	-							
313	01°48'52"	11447.16'	181.28'	362.52'	EDGE OF MAT/BERM	506	N 21°56'08" W	246.91'	-	-							
314	28°57'27"	30.00'	7.75'	15.16'	EDGE OF MAT	507	180°00'00"	3.00'	-	9.42'							
						508	180°00'00"	3.00'	-	9.42'							
						509	N 21°56'08" W	306.54'	-	-							

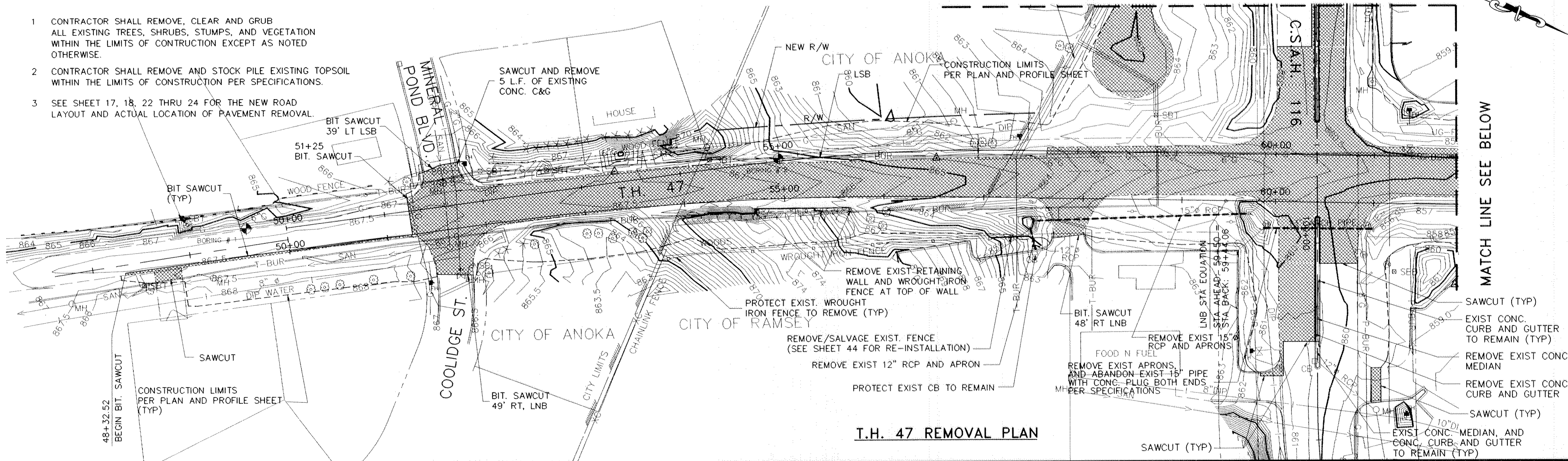
NOTE:
1. REFER TO SHEET 17 FOR T.H. 47 ROAD ALIGNMENT PLAN.

**ALIGNMENT PLAN
C.S.A.H. 116
AND TABULATION**

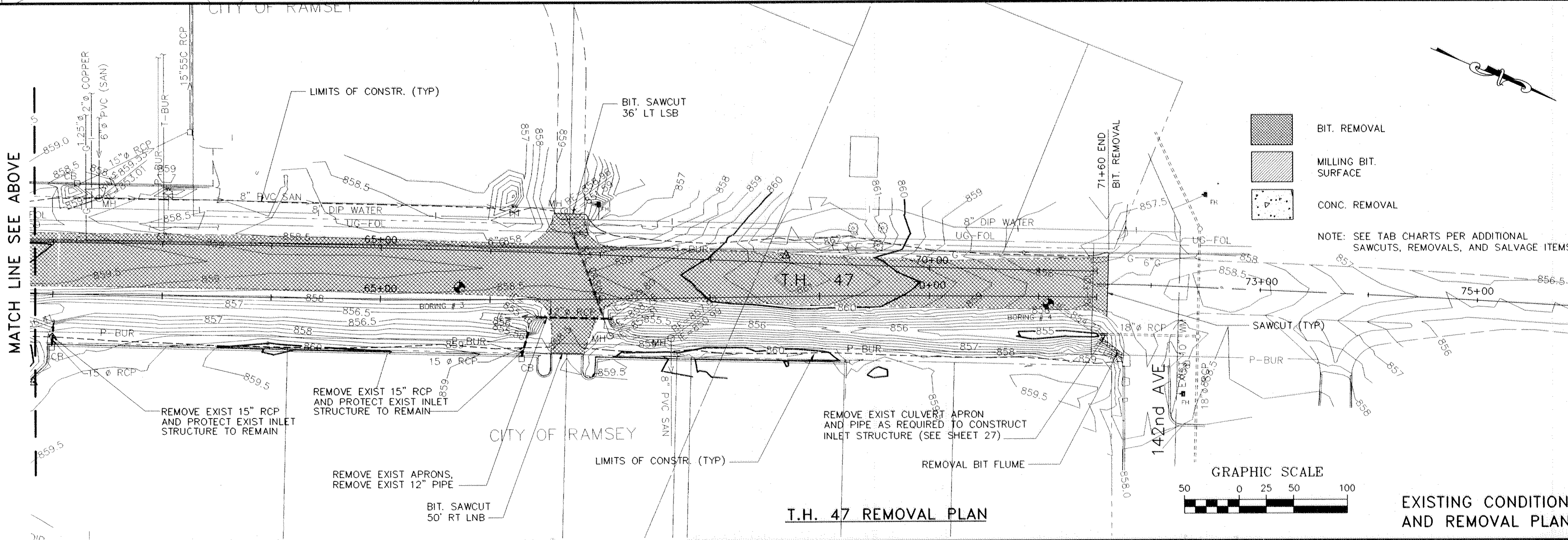
NOTES:

- 1 CONTRACTOR SHALL REMOVE, CLEAR AND GRUB ALL EXISTING TREES, SHRUBS, STUMPS, AND VEGETATION WITHIN THE LIMITS OF CONSTRUCTION EXCEPT AS NOTED OTHERWISE.
- 2 CONTRACTOR SHALL REMOVE AND STOCK PILE EXISTING TOPSOIL WITHIN THE LIMITS OF CONSTRUCTION PER SPECIFICATIONS.
- 3 SEE SHEET 17, 18, 22 THRU 24 FOR THE NEW ROAD LAYOUT AND ACTUAL LOCATION OF PAVEMENT REMOVAL.

MATCH LINE SEE SHEET 20



T.H. 47 REMOVAL PLAN

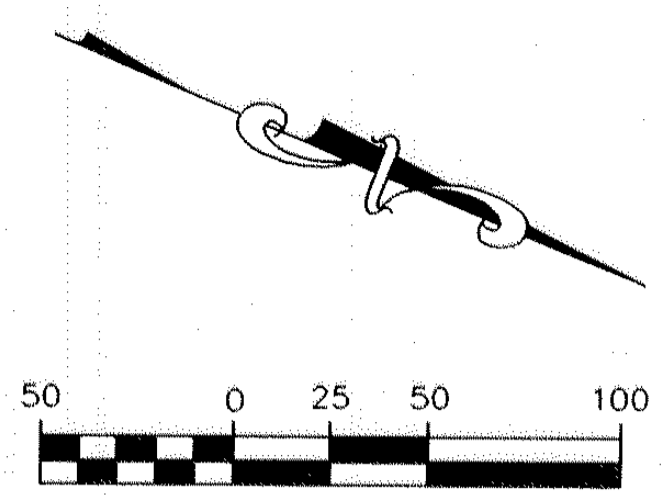
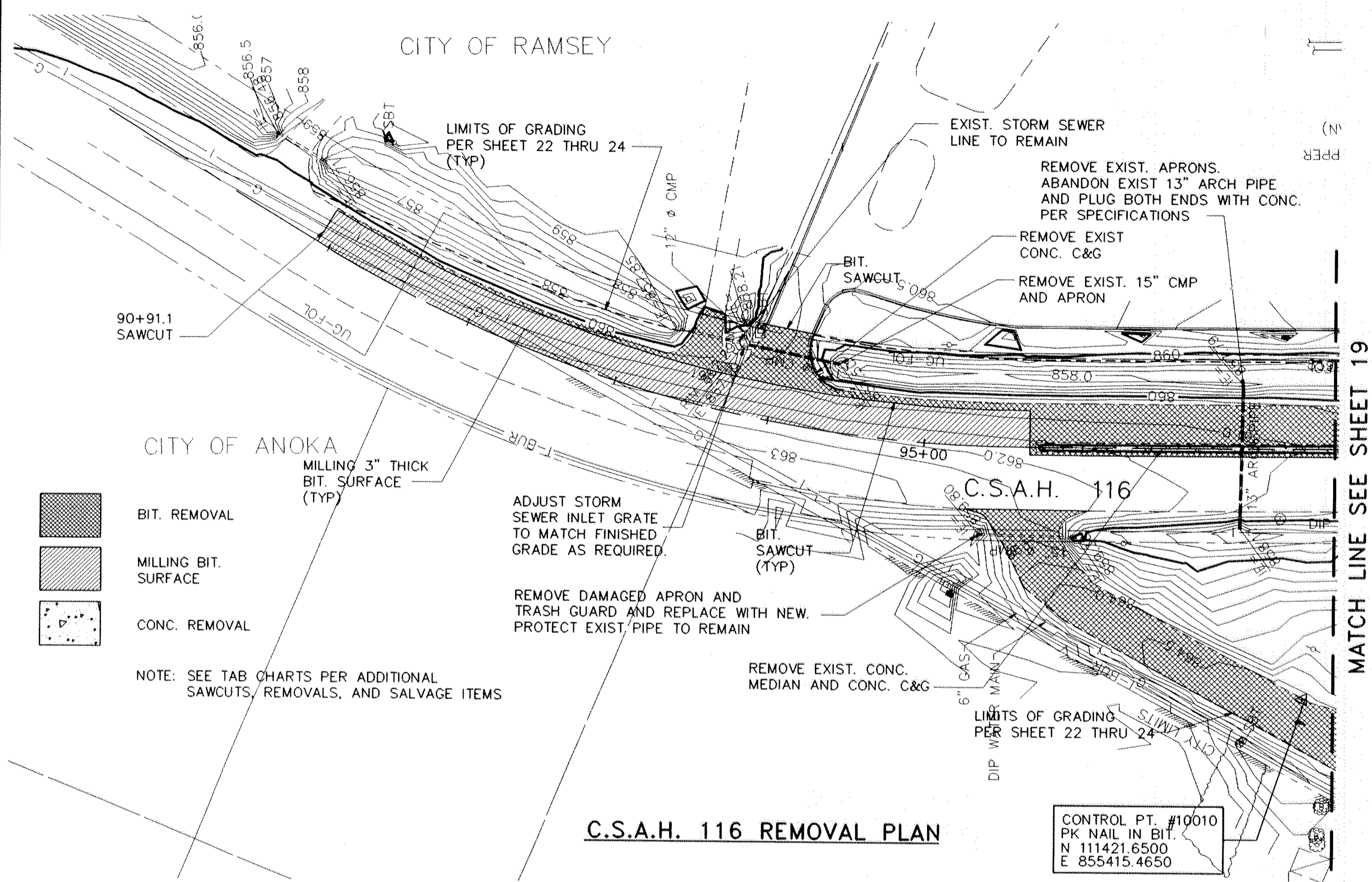


T.H. 47 REMOVAL PLAN



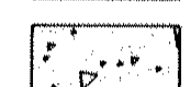
EXISTING CONDITION AND REMOVAL PLAN

REVISIONS	DATE	BY

FILE NAME: C:\P\023119\PLANS\4718C15.DWG MN(9-16-96)



- NOTES:**
- 1 CONTRACTOR SHALL REMOVE, CLEAR AND GRUB ALL EXISTING TREES, SHRUBS, STUMPS, AND VEGETATION WITHIN THE LIMITS OF CONSTRUCTION EXCEPT AS NOTED OTHERWISE.
 - 2 CONTRACTOR SHALL REMOVE AND STOCK PILE EXISTING TOPSOIL WITHIN THE LIMITS OF CONSTRUCTION PER SPECIFICATIONS.
 - 3 SEE SHEET 17, 18, 22 THRU 24 FOR THE NEW ROAD LAYOUT AND ACTUAL LOCATION OF PAVEMENT REMOVAL.

-  BIT. REMOVAL
-  MILLING BIT. SURFACE
-  CONC. REMOVAL

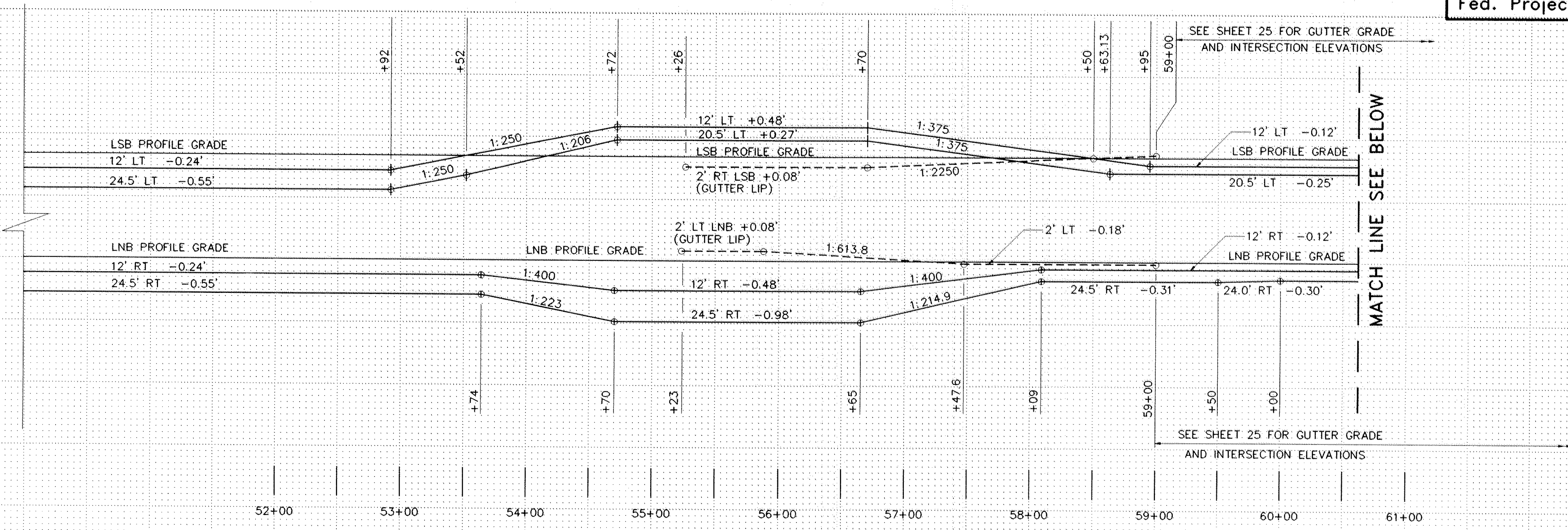
NOTE: SEE TAB CHARTS PER ADDITIONAL SAWCUTS, REMOVALS, AND SALVAGE ITEMS

C.S.A.H. 116 REMOVAL PLAN

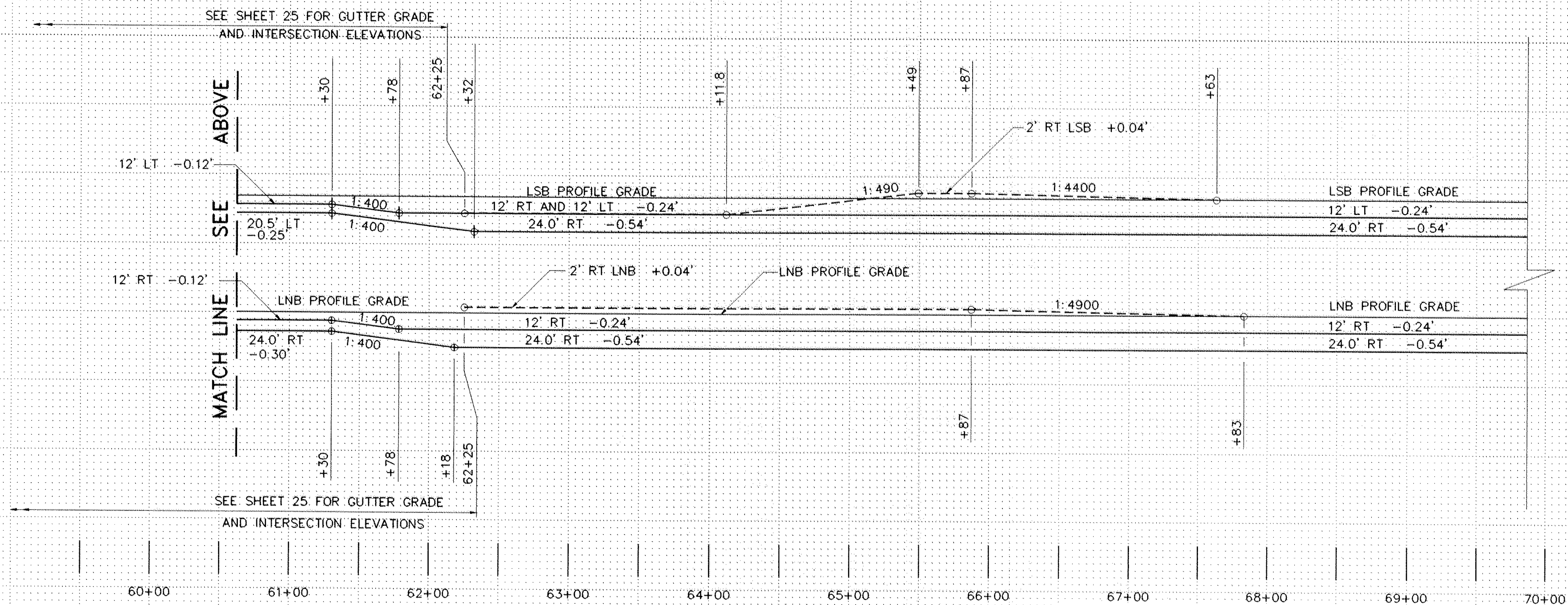
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E 855415.4650

EXISTING CONDITION AND REMOVAL PLAN

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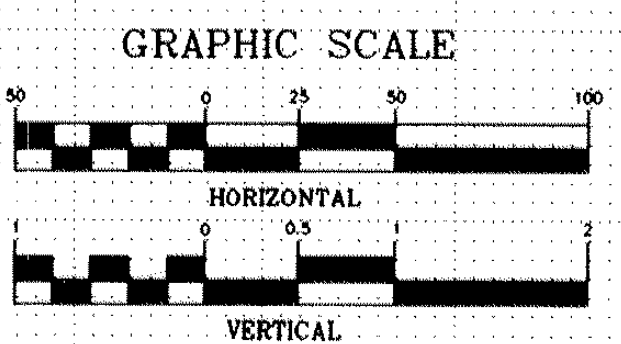


SUPERELEVATION CHART FOR T.H.47



SUPERELEVATION CHART FOR T.H.47

SUPERELEVATION CHART



REVISIONS	BY
DATE	DATE

CERTIFIED BY *Douglas W. Smith*

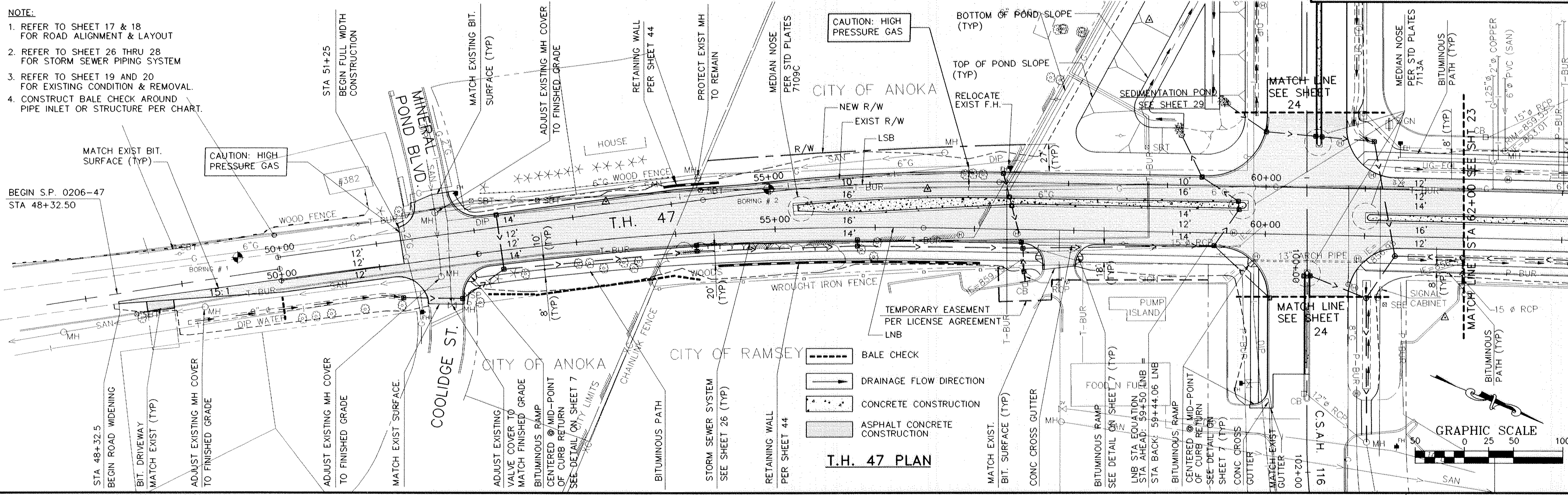
P.E. REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P.

Sheet No. 21 of 56 Sheets

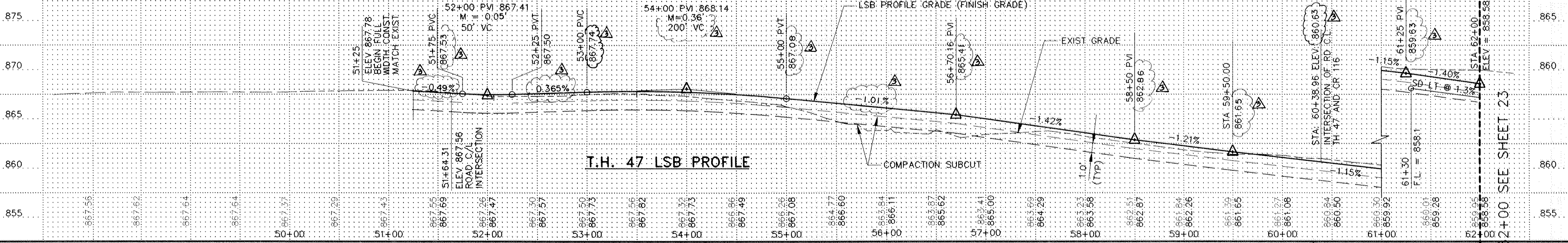
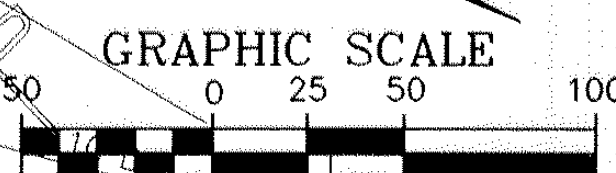
FILE NAME: C:\P\023116\PLANS\47118C7.DWG MM(7-18-96)

- NOTE:**
1. REFER TO SHEET 17 & 18 FOR ROAD ALIGNMENT & LAYOUT
 2. REFER TO SHEET 26 THRU 28 FOR STORM SEWER PIPING SYSTEM
 3. REFER TO SHEET 19 AND 20 FOR EXISTING CONDITION & REMOVAL.
 4. CONSTRUCT BALE CHECK AROUND PIPE INLET OR STRUCTURE PER CHART.

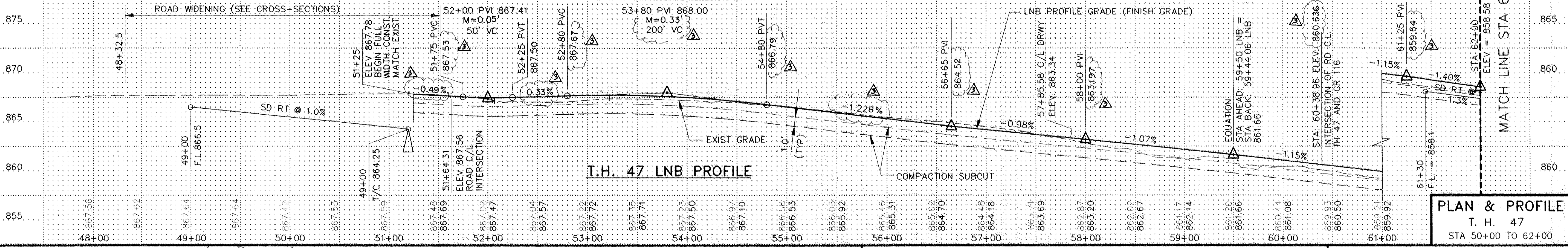


T.H. 47 PLAN

- BALE CHECK
- DRAINAGE FLOW DIRECTION
- CONCRETE CONSTRUCTION
- ASPHALT CONCRETE CONSTRUCTION



T.H. 47 LSB PROFILE

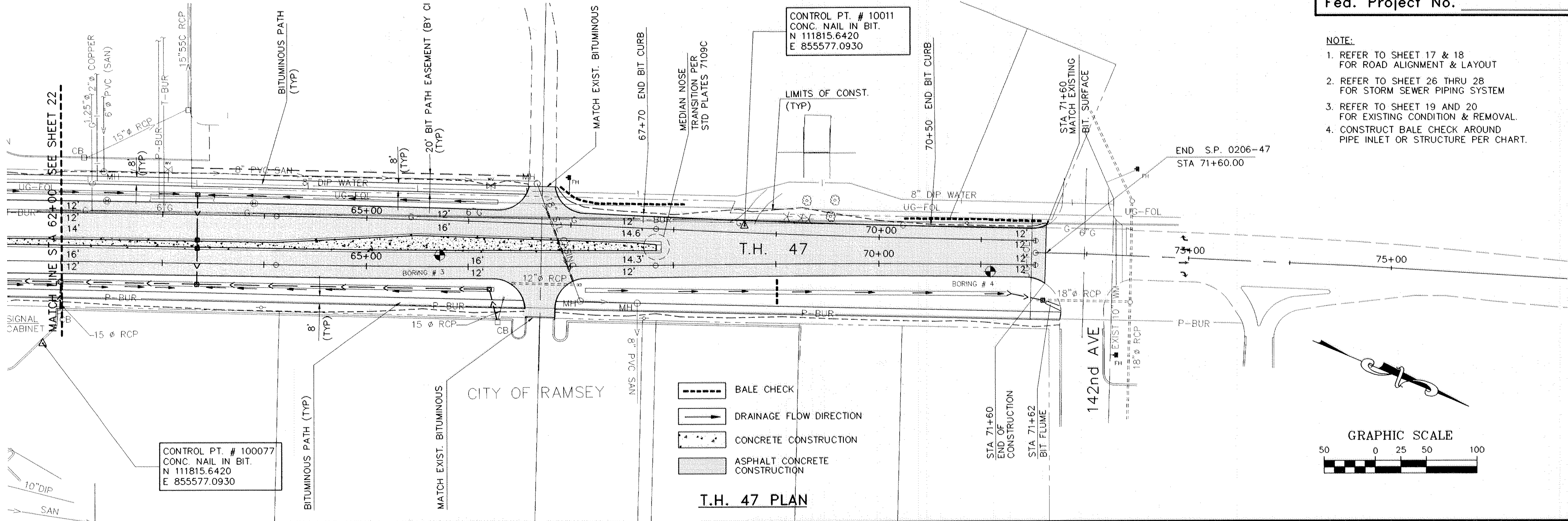


T.H. 47 LNB PROFILE

PLAN & PROFILE
T. H. 47
STA 50+00 TO 62+00

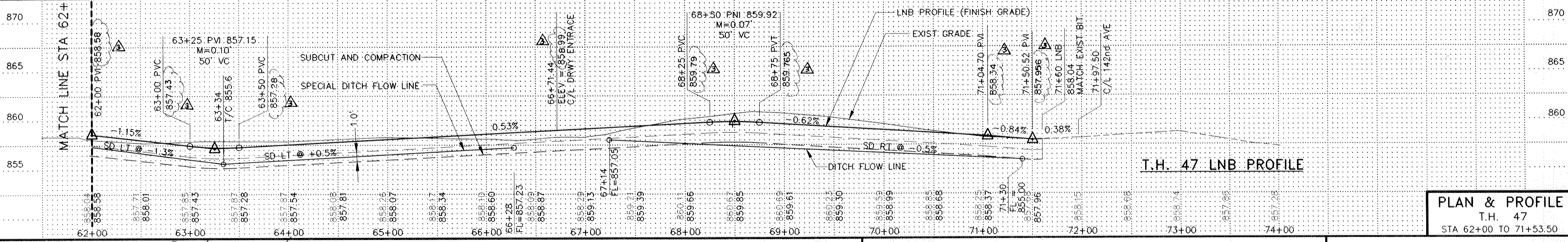
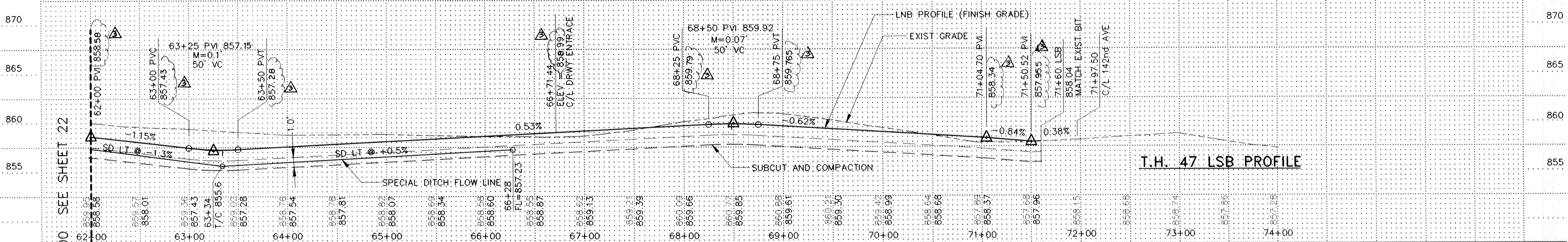
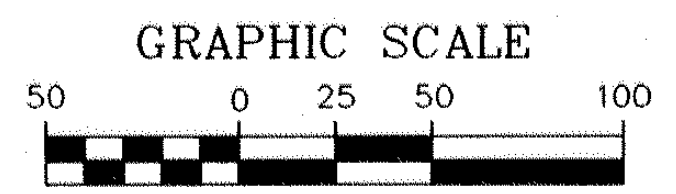
DATE	BY	REVISIONS
10/1/96	KTY	1

- NOTE:
1. REFER TO SHEET 17 & 18 FOR ROAD ALIGNMENT & LAYOUT
 2. REFER TO SHEET 26 THRU 28 FOR STORM SEWER PIPING SYSTEM
 3. REFER TO SHEET 19 AND 20 FOR EXISTING CONDITION & REMOVAL.
 4. CONSTRUCT BALE CHECK AROUND PIPE INLET OR STRUCTURE PER CHART.



Legend:

- BALE CHECK
- DRAINAGE FLOW DIRECTION
- CONCRETE CONSTRUCTION
- ASPHALT CONCRETE CONSTRUCTION

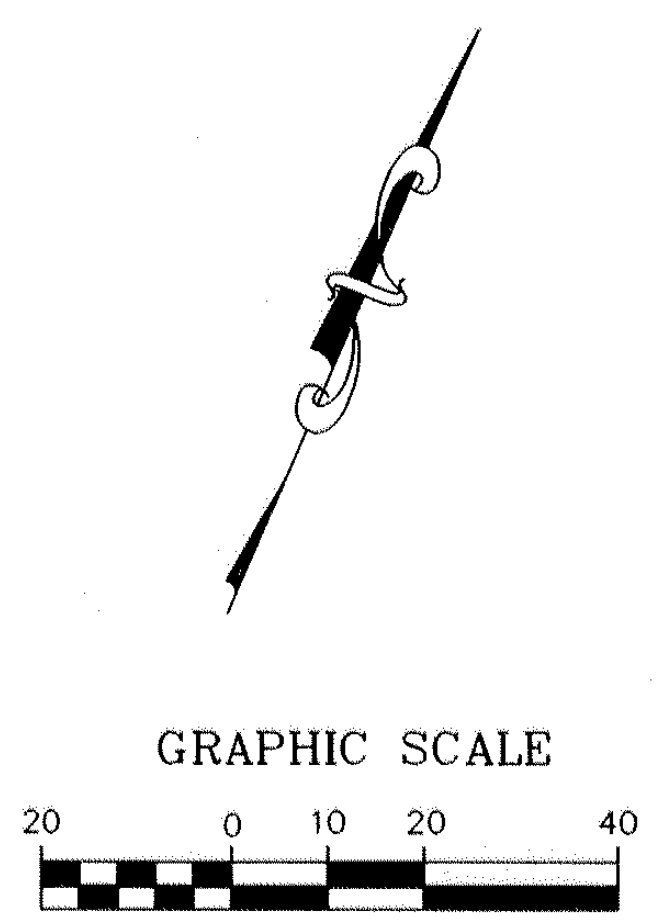


REVISIONS	DATE	BY
1	10-1-96	KAB

PLAN & PROFILE
T.H. 47
STA 62+00 TO 71+53.50

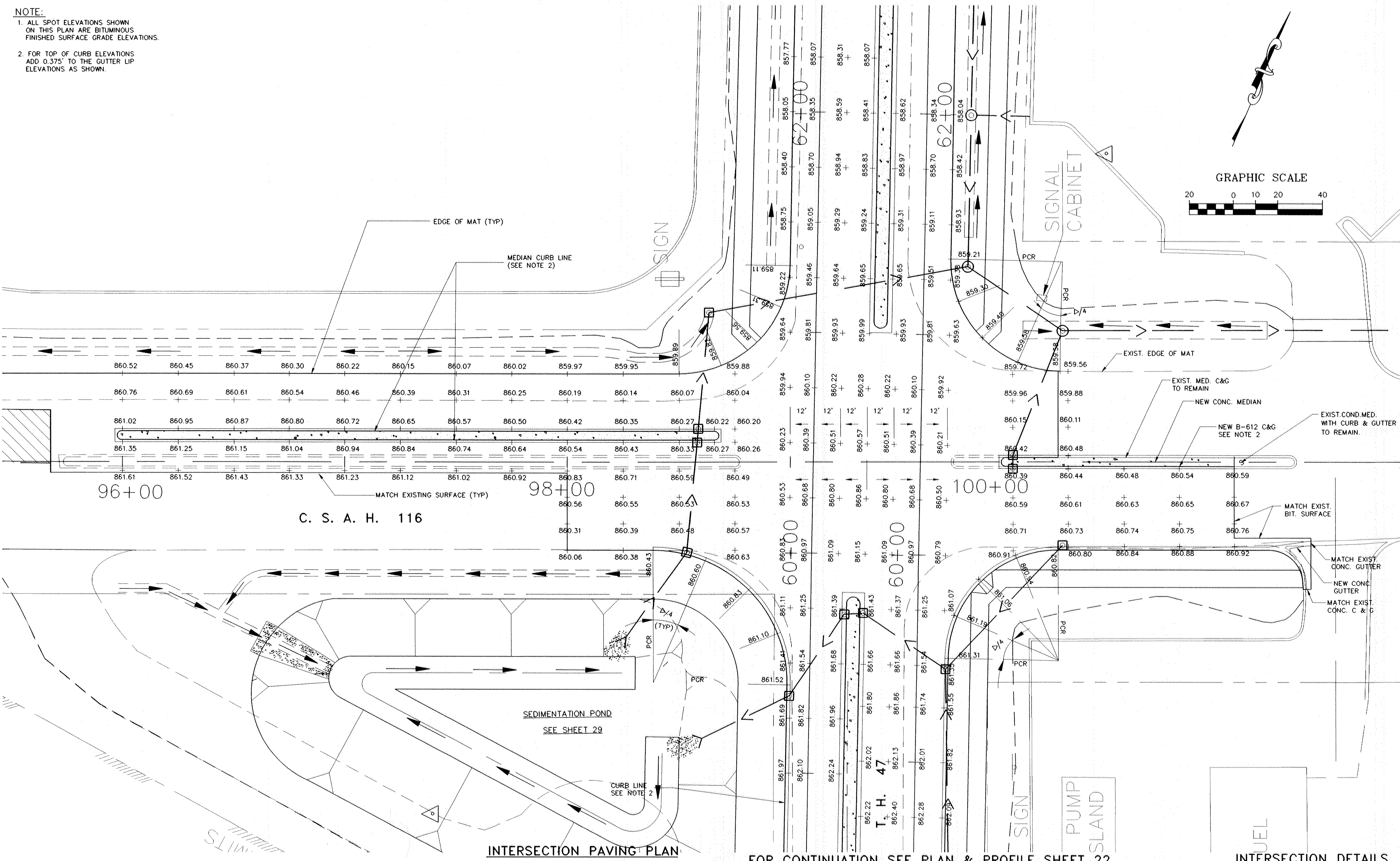
NOTE:

1. ALL SPOT ELEVATIONS SHOWN ON THIS PLAN ARE BITUMINOUS FINISHED SURFACE GRADE ELEVATIONS.
2. FOR TOP OF CURB ELEVATIONS ADD 0.375' TO THE GUTTER LIP ELEVATIONS AS SHOWN.



FOR CONTINUATION SEE PLAN & PROFILE SHEET 24

FILE NAME: C:\P\9023116\PLANS\47116C21.DWG MN(5-16-96)



INTERSECTION PAVING PLAN

FOR CONTINUATION SEE PLAN & PROFILE SHEET 22

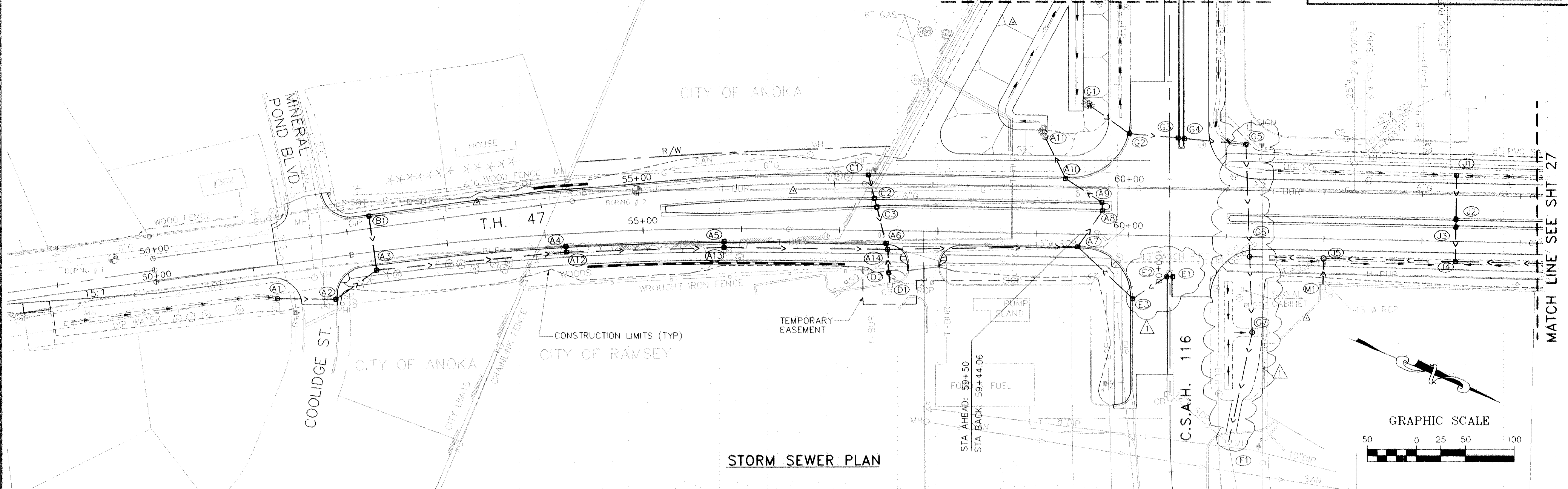
INTERSECTION DETAILS

CERTIFIED BY *Douglas M. [Signature]*

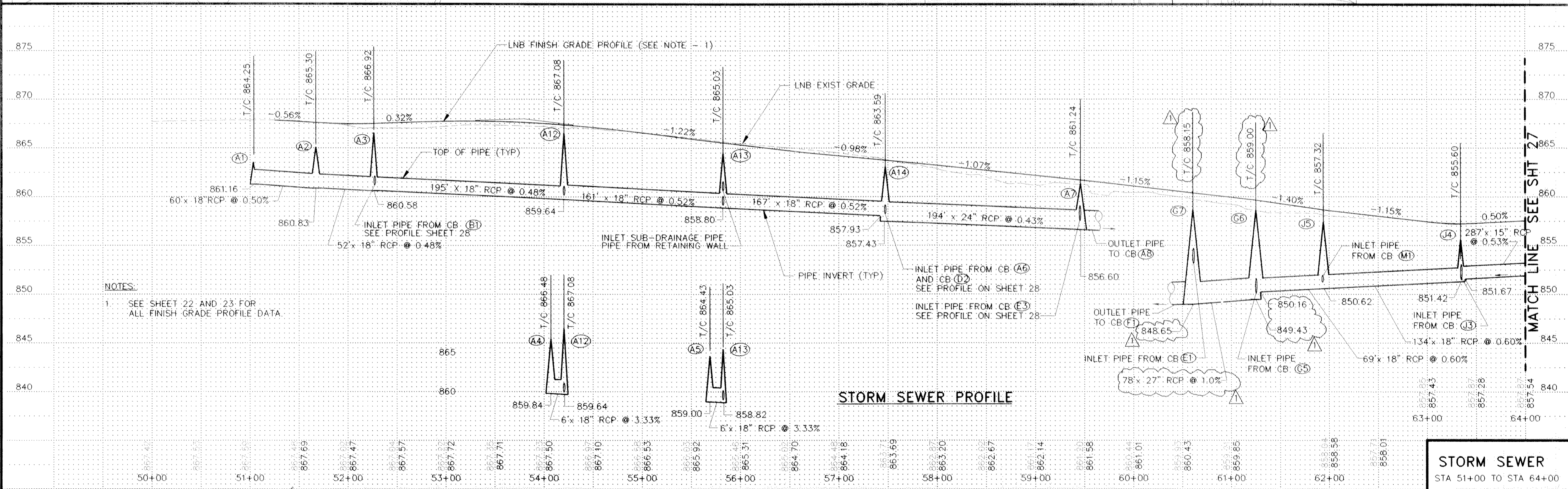
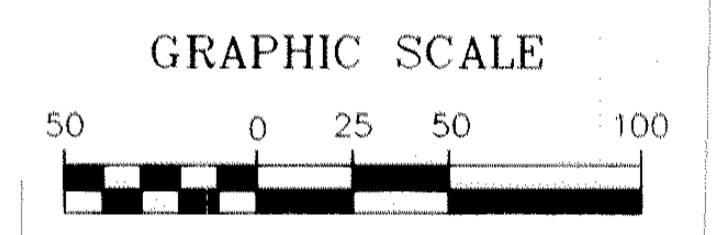
P.E. REG NO. 20235 7/18 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P.

Sheet No. 25 of 56 Sheets



STORM SEWER PLAN

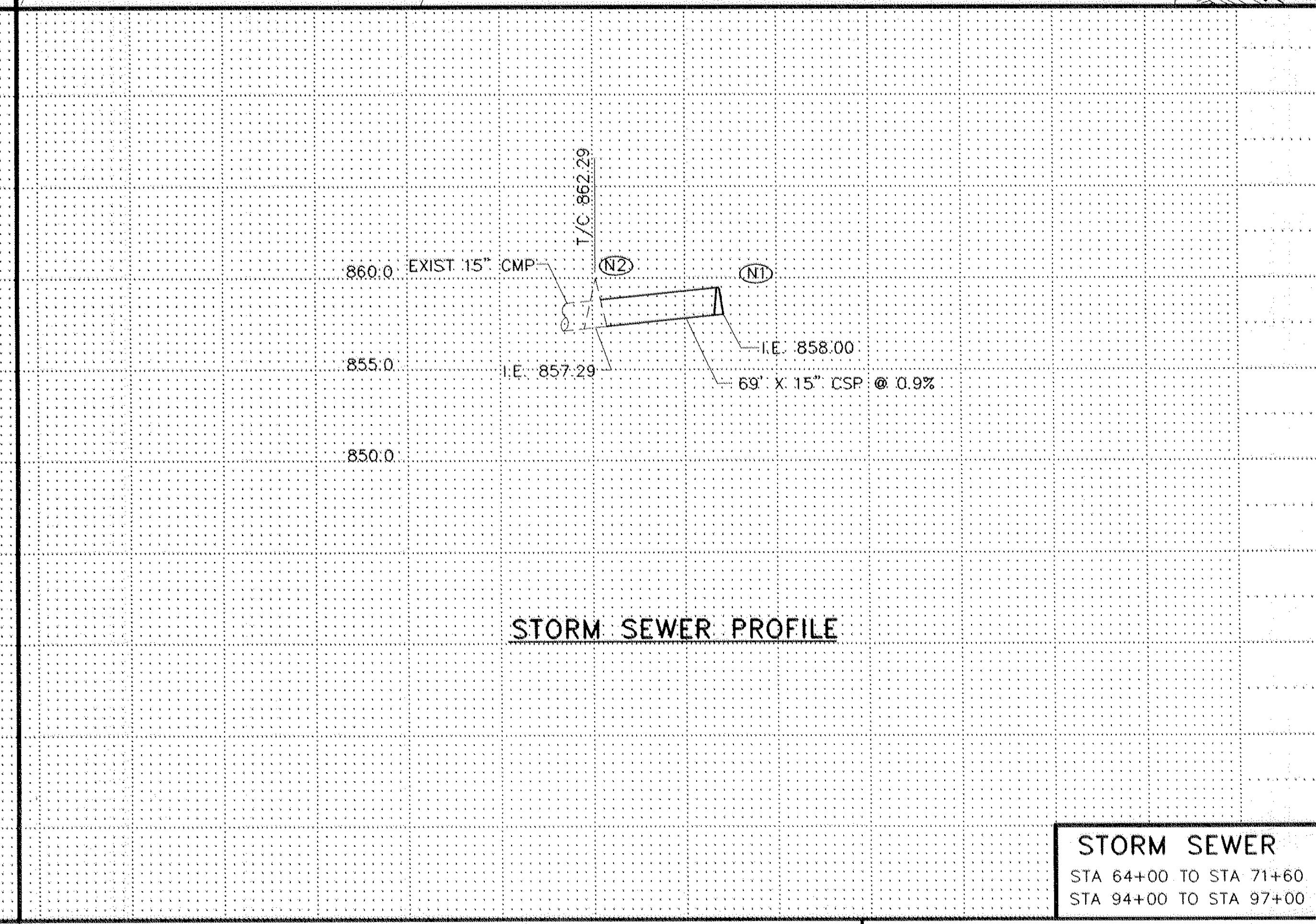
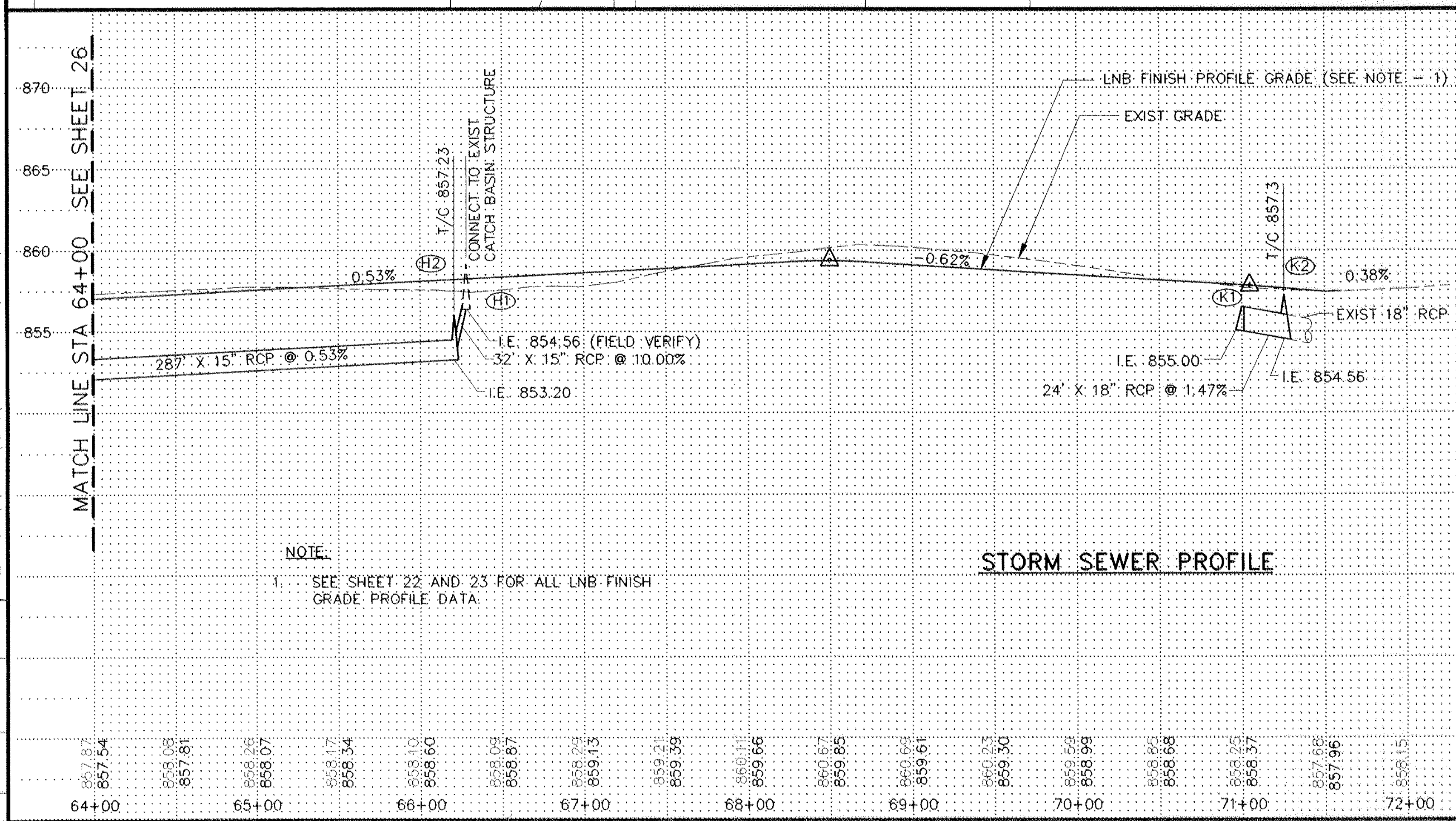
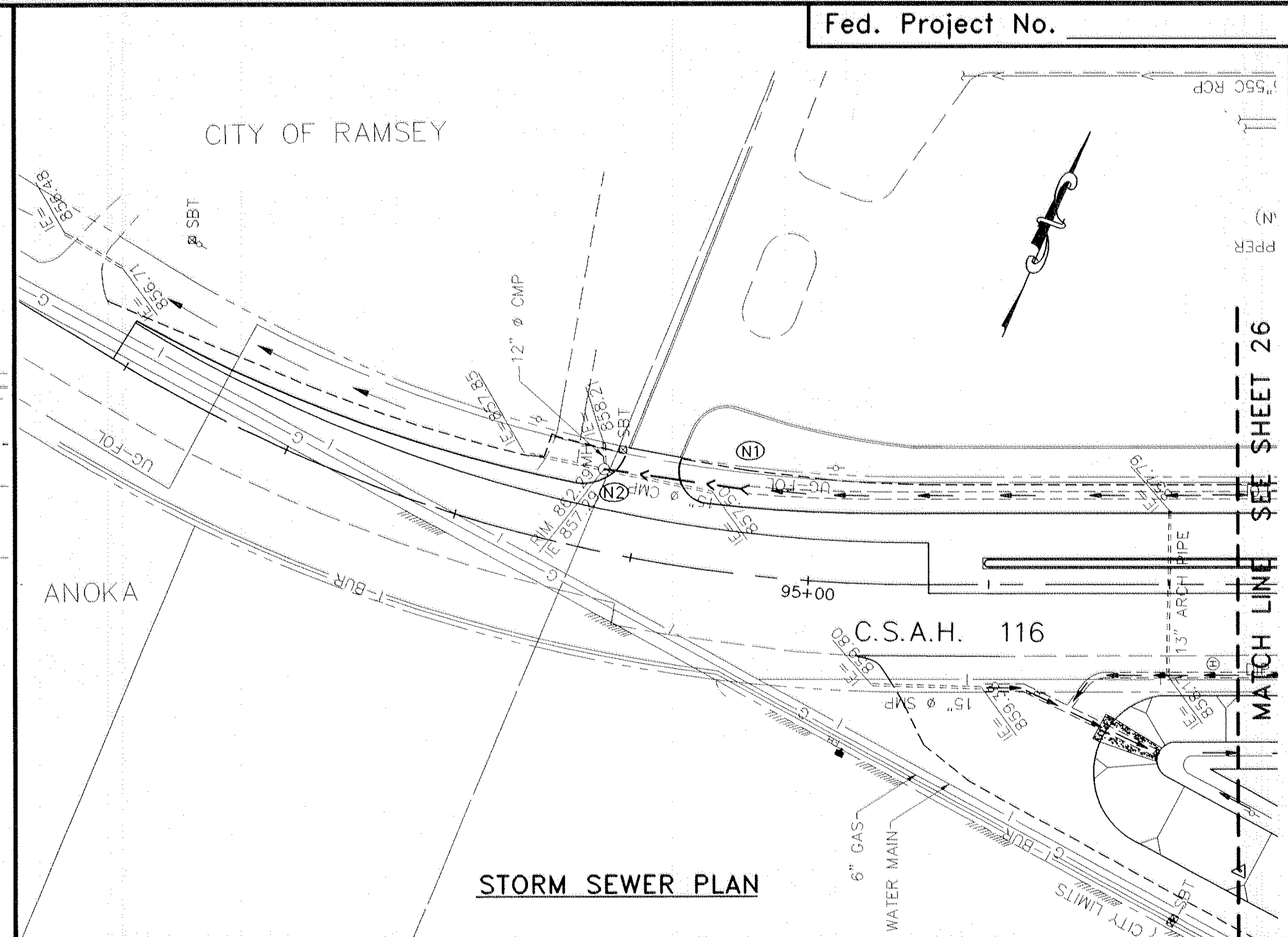
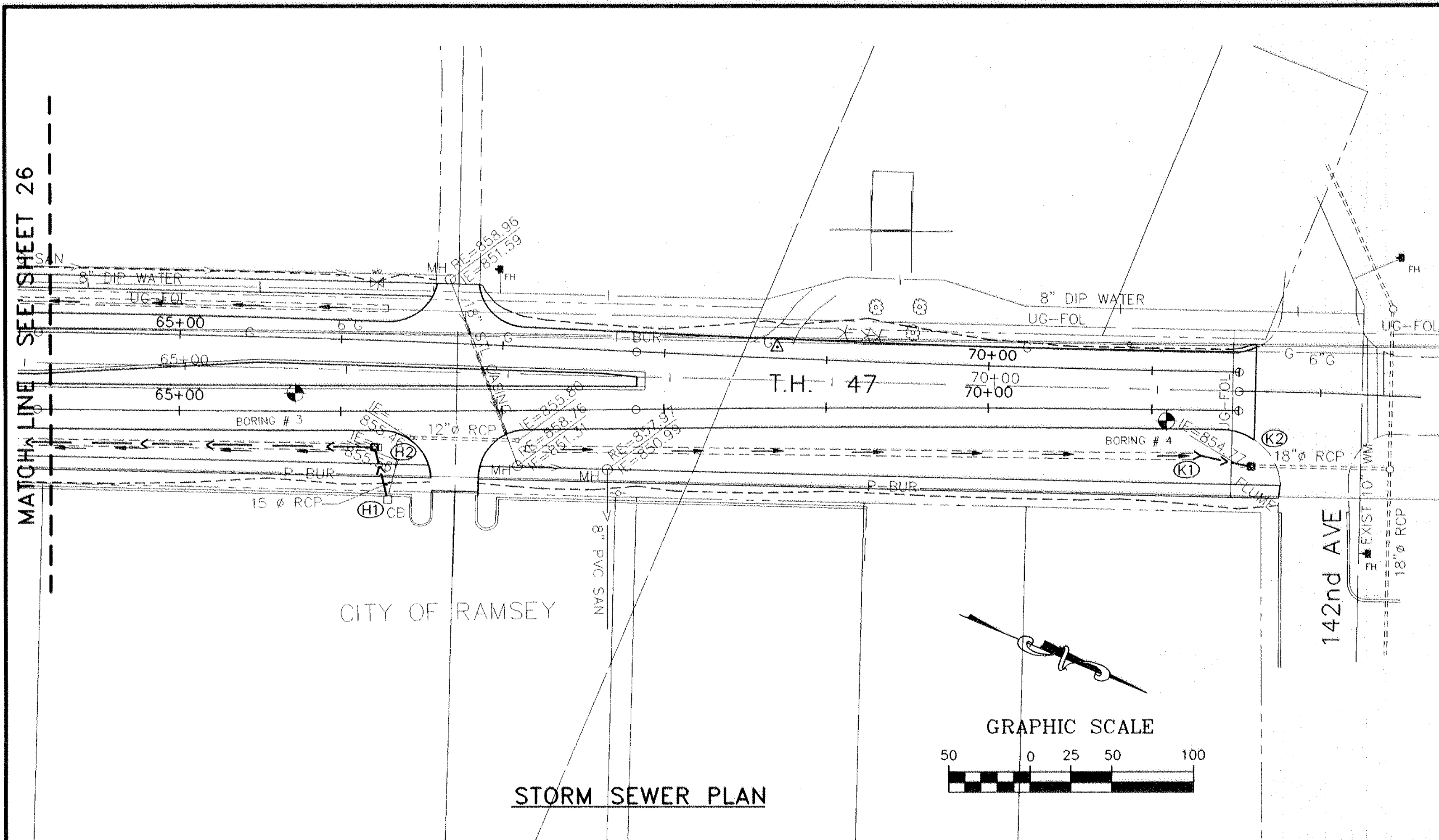


STORM SEWER PROFILE

NOTES:
1. SEE SHEET 22 AND 23 FOR ALL FINISH GRADE PROFILE DATA.

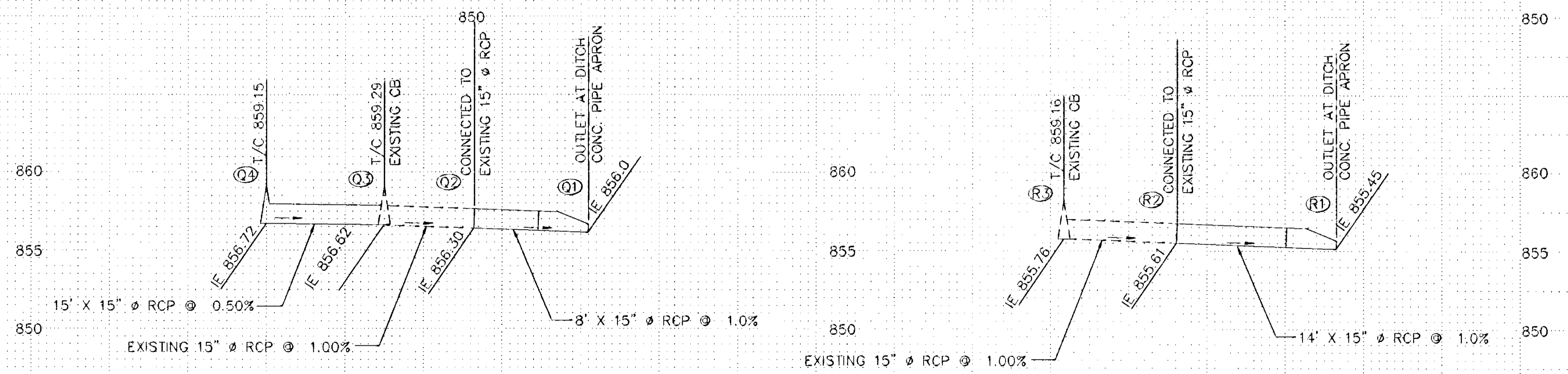
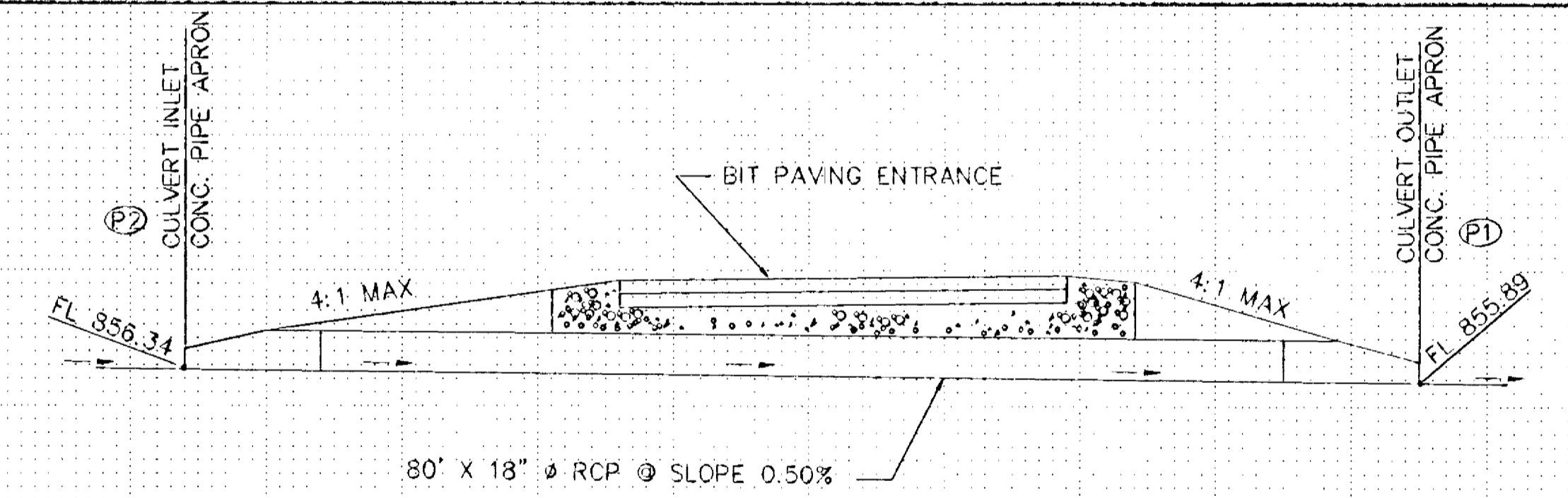
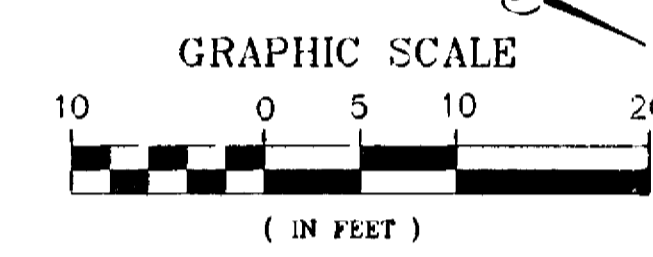
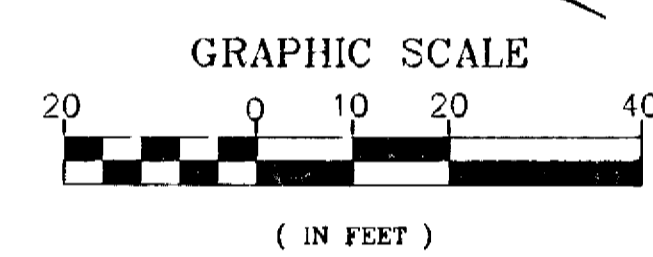
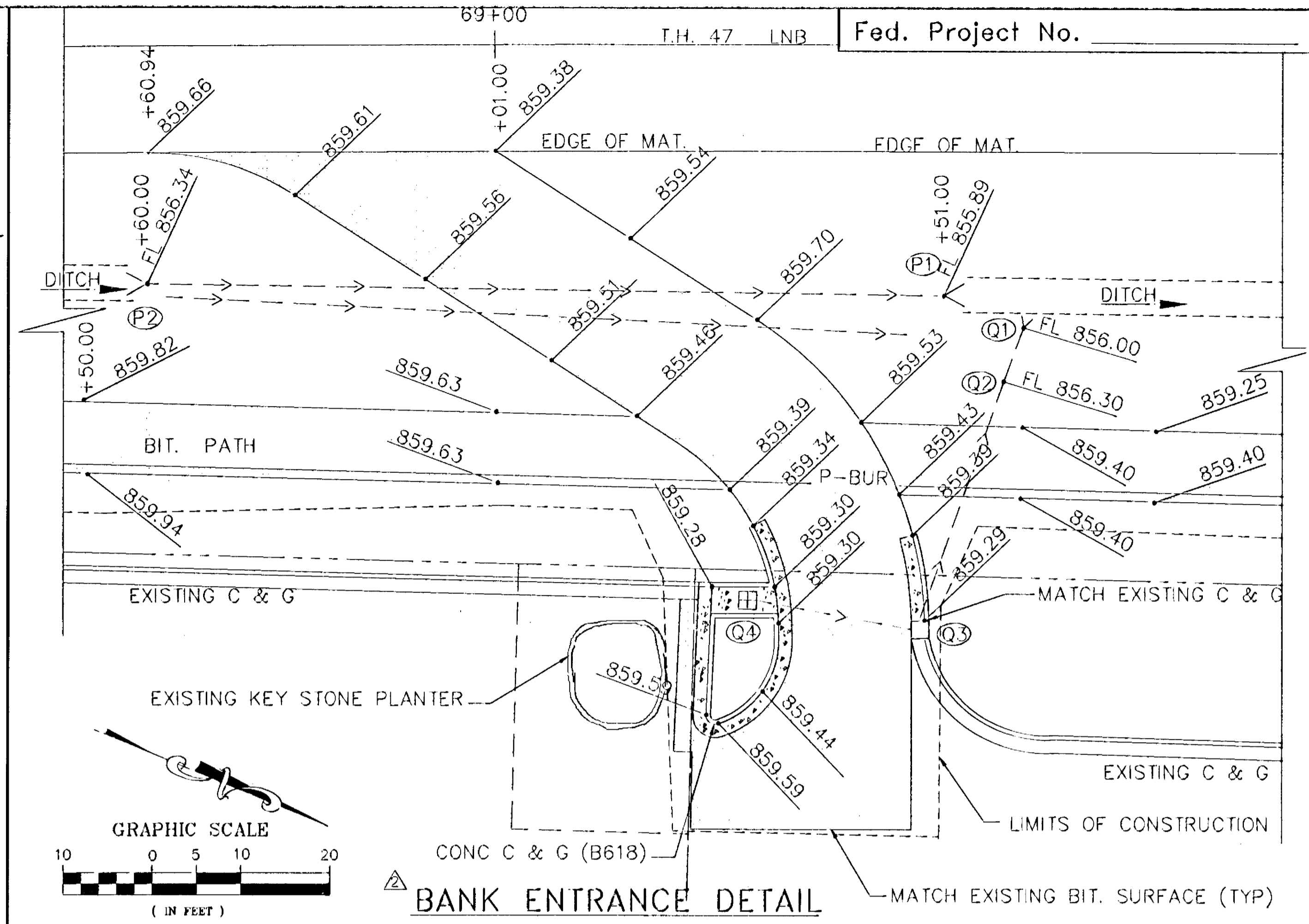
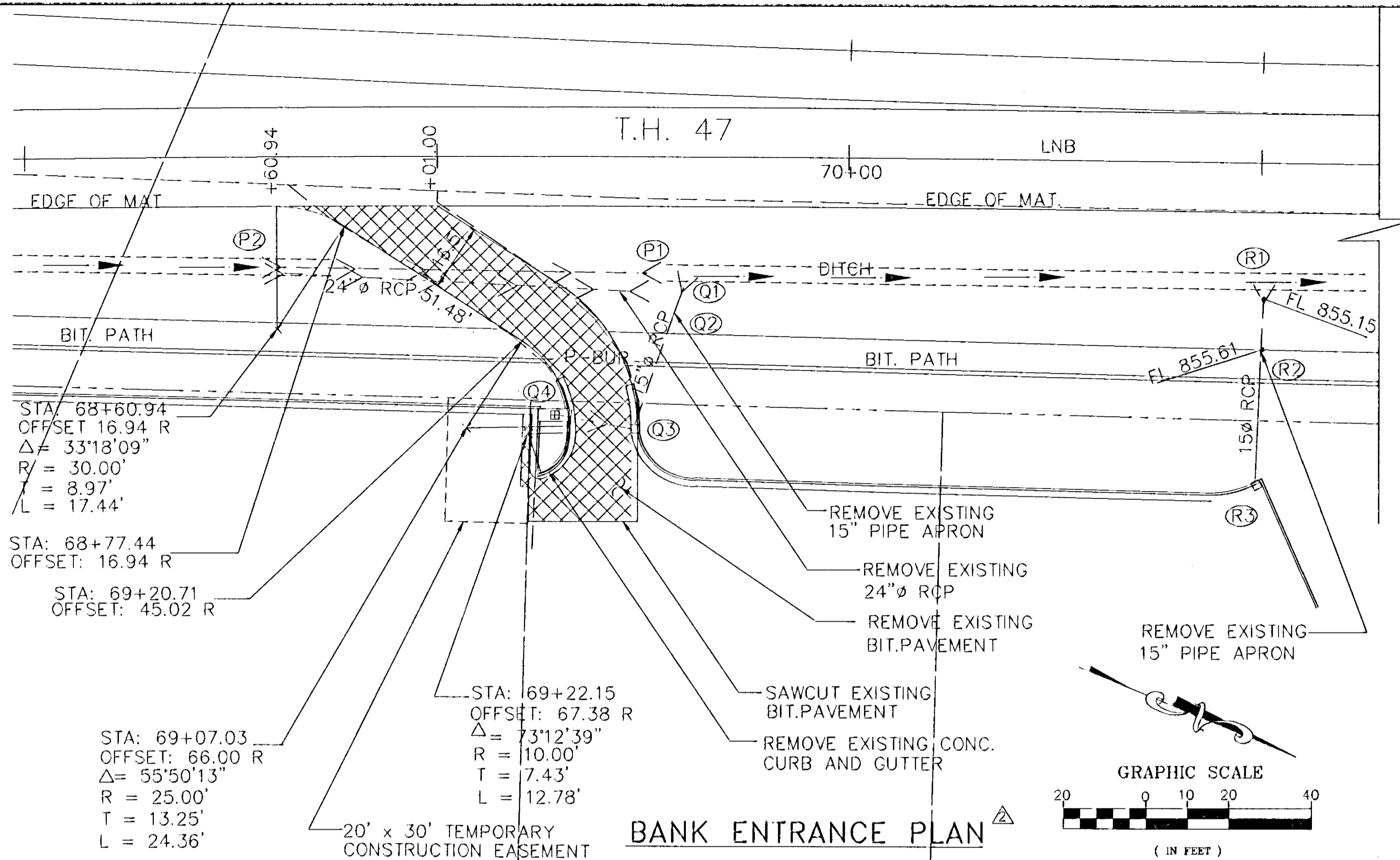
REVISIONS	DATE	BY
1	8/28/96	KTY

Rev-1



857.87	857.54	858.03	857.81	858.26	858.07	858.17	858.34	858.10	858.60	858.04	858.87	858.23	859.13	859.21	859.39	859.11	859.66	860.67	859.86	860.64	859.61	860.23	859.30	859.54	858.99	858.85	858.68	858.25	858.37	857.68	857.96	858.15	
64+00		65+00		66+00		67+00		68+00		69+00		70+00		71+00		72+00																	

STORM SEWER
 STA 64+00 TO STA 71+60
 STA 94+00 TO STA 97+00



STORM SEWER PROFILE

STORM SEWER

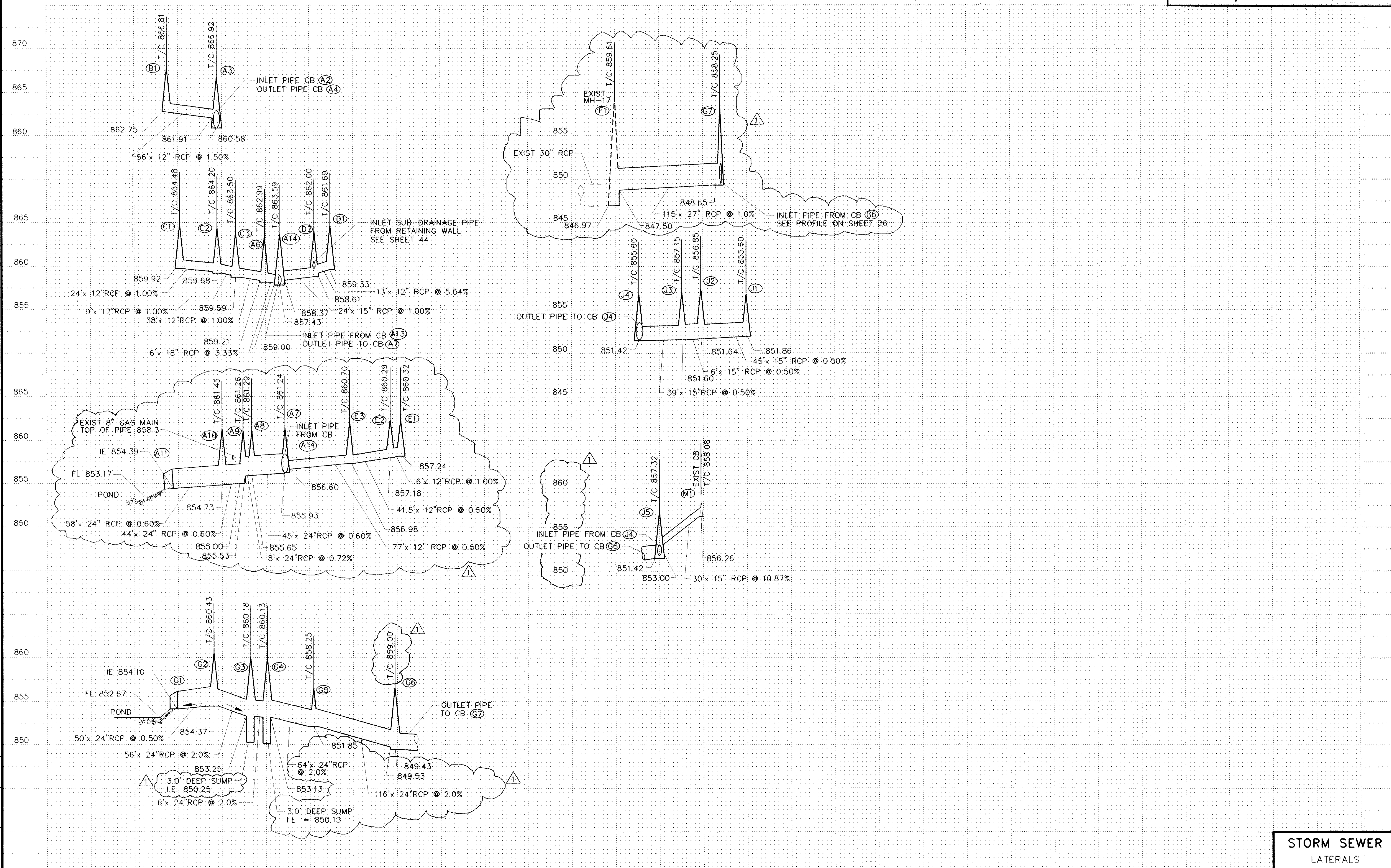
REVISIONS	DATE	BY
1	9-17-96	KAO

CERTIFIED BY *Douglas W. Fitch*

P.E. REG NO. 20235 10/2 19 96

S.P. 0206-47 S.A.P. 02-716-01 C.P.

Sheet No. 27A of 56 Sheets



REVISIONS	BY	DATE	BY
1	KTY	8-28-96	

CERTIFIED BY *Rough M. Finch*

P.E. REG NO. 20735 8/29 19 96

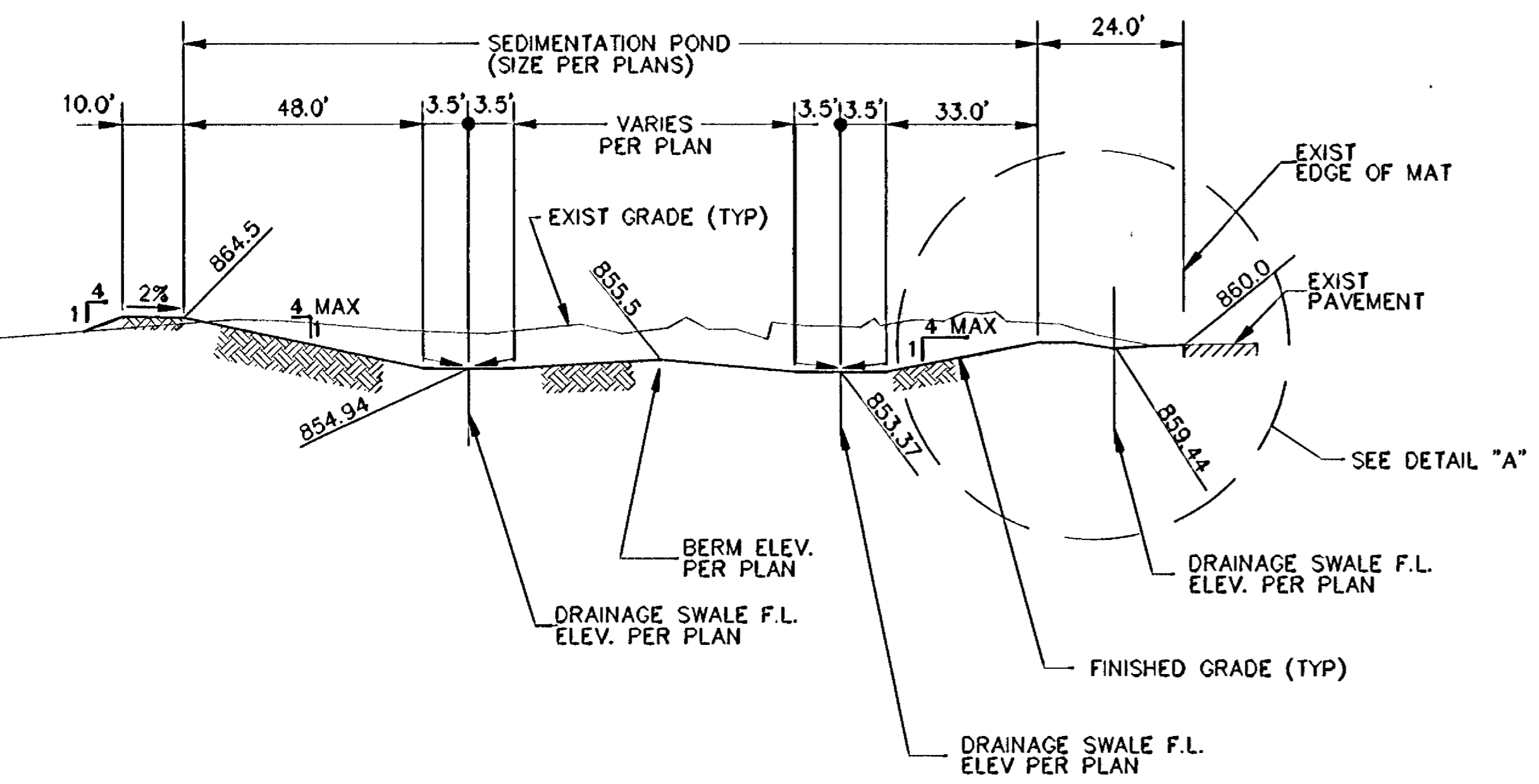
S.P. 0206-47 S.A.P. 02-716-01 C.P. _____

Sheet No. 28 of 56 Sheets

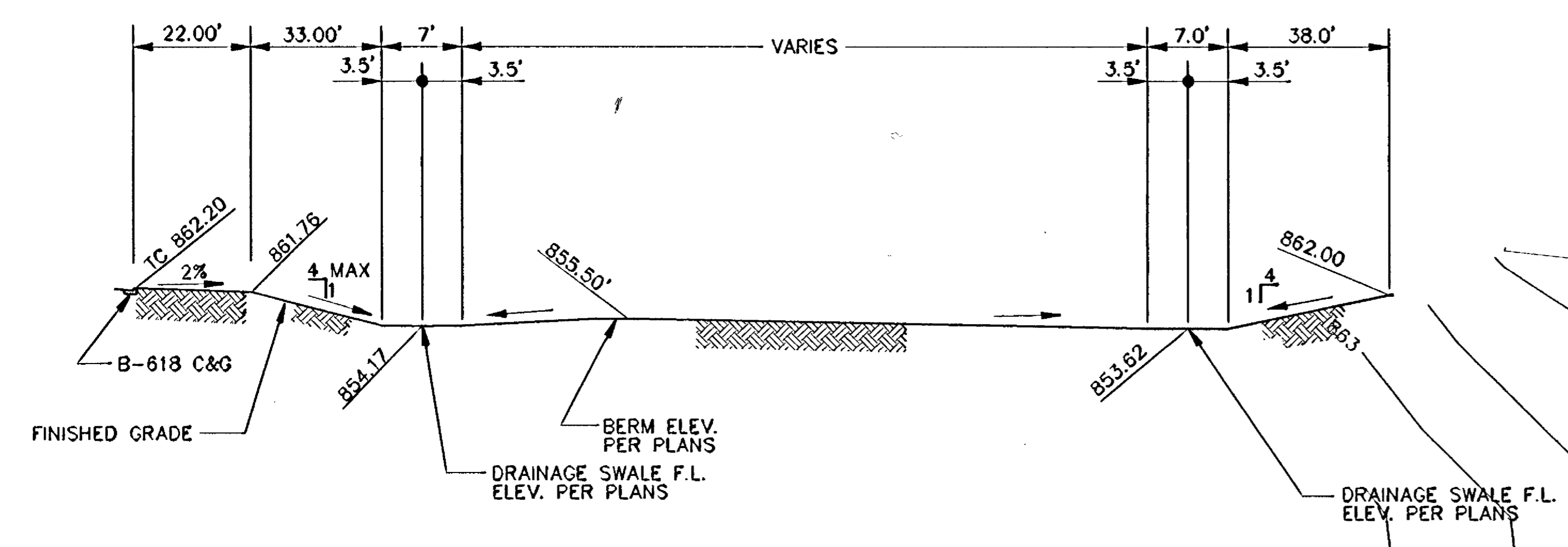
STORM SEWER
LATERALS

REV-1

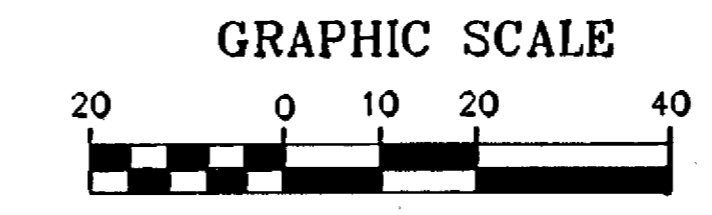
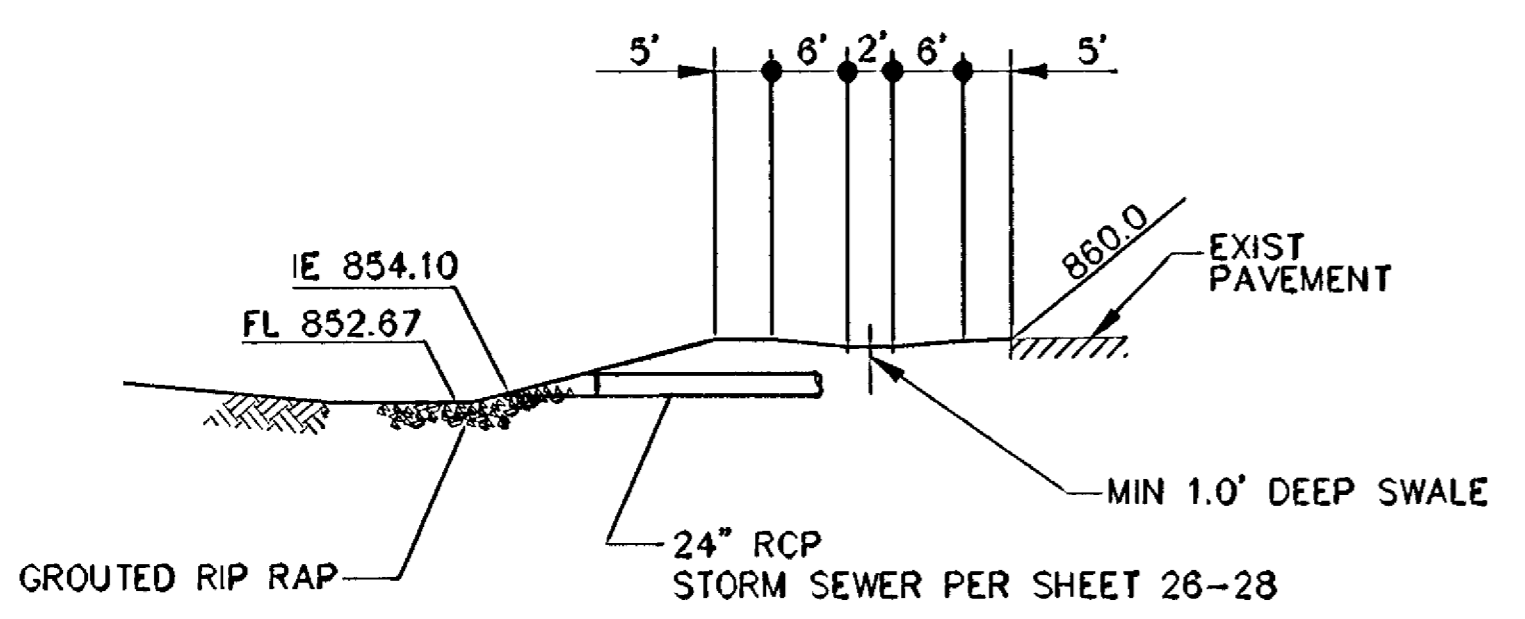
SEDIMENTATION POND
SECTION A-A



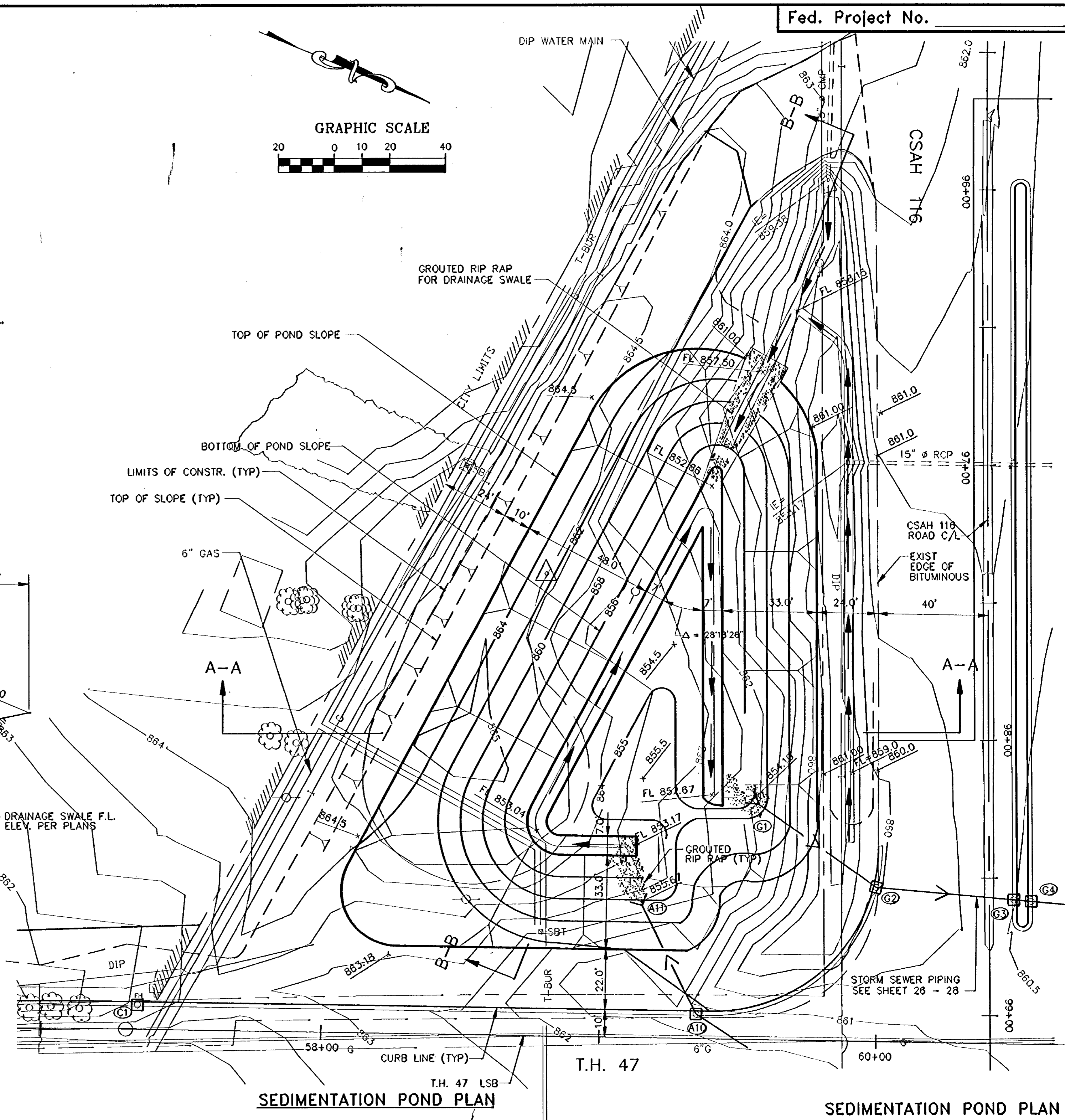
SEDIMENTATION POND
SECTION B-B



DETAIL "A"

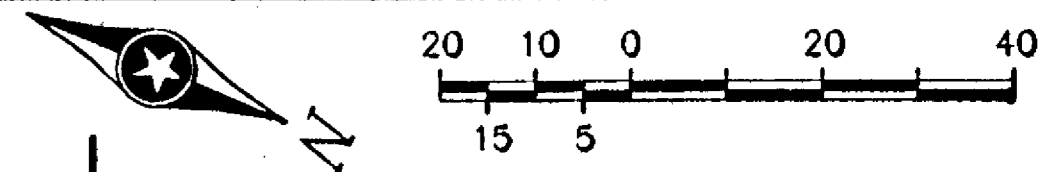


GRAPHIC SCALE



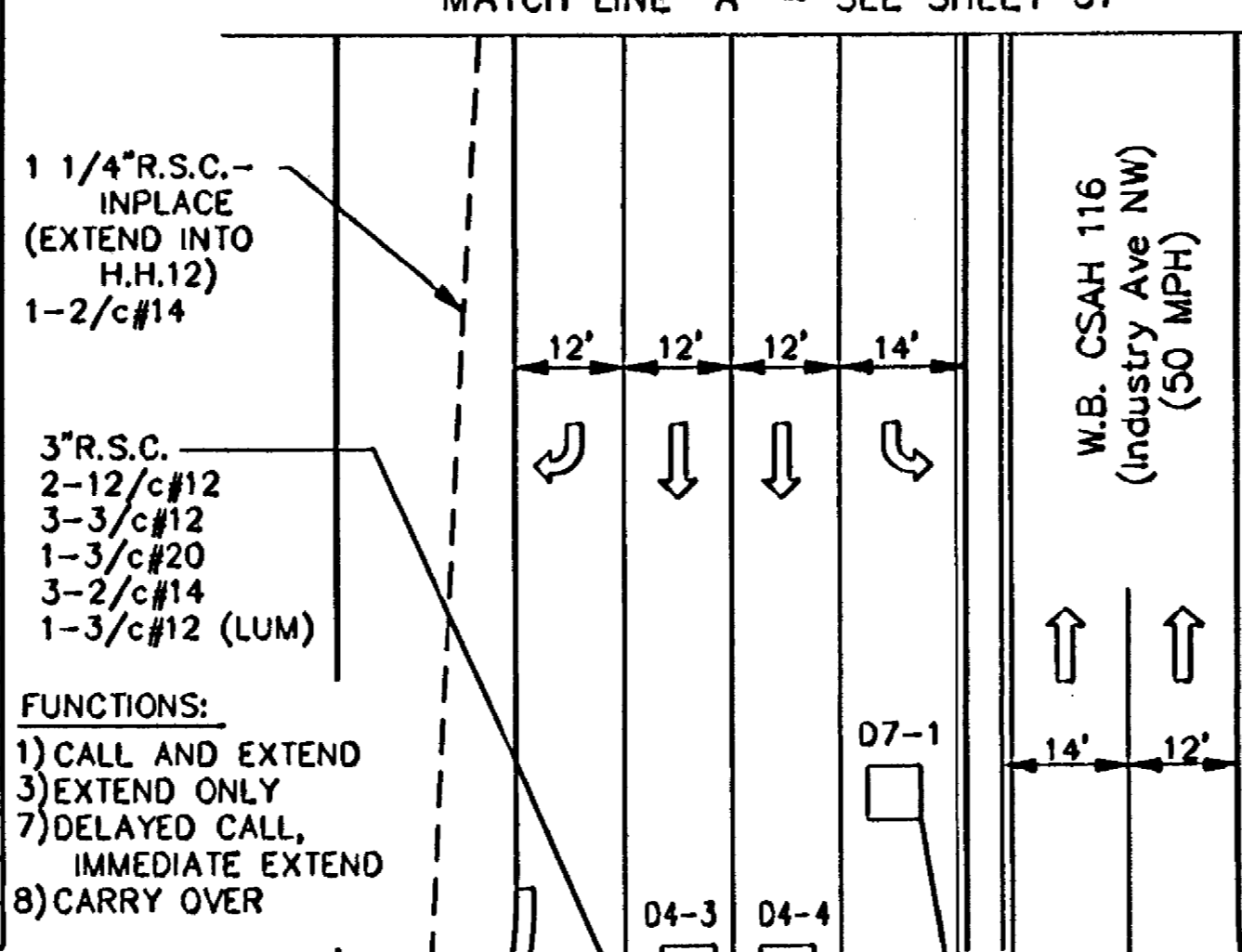
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REVISIONS	DATE	BY



- NOTES:**
- LOCATION OF POLES, LOOP DETECTORS, EQUIPMENT PAD AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY Mn/DOT DISTRICT TRAFFIC OFFICE PERSONNEL AND BY ANOKA COUNTY PERSONNEL.
 - EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
 - EACH PEDESTRIAN INDICATION SHALL BE A ONE SECTION HAND/WALKING PERSON INDICATION.
 - ALL RED (CIRCULAR AND ARROW) SIGNAL INDICATIONS SHALL BE LED.
 - ALL NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS AND SHALL CONTAIN A STATE FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
 - INPLACE HANDHOLES 2,3,4,13,14,15 AND 18 SHALL ALSO CONTAIN A STATE FURNISHED "BALL LOCATOR". SEE SPECIAL PROVISIONS.
 - SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGN PANELS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL TO ITEM NO.2565.511).
 - SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING STATE AND COUNTY FURNISHED MATERIALS.
 - SEE SPECIAL PROVISIONS AND DETAILS REGARDING CONSTRUCTION STAGING INVOLVING TRAFFIC SIGNAL OPERATION AND CONSTRUCTION DURING ROAD CONSTRUCTION.
 - REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEM SHALL BE MEASURED AND PAID FOR AS ITEM NO. 0565.601. SEE SPECIAL PROVISIONS.
 - ALL NEW LOOP DETECTORS SHALL BE INSTALLED IN NON-METALLIC CONDUIT. SEE SPECIAL PROVISIONS AND DETAILS.
 - A 3/4" HALF COUPLING AND CONDUIT OUTLET BODY FOR FUTURE EVP DETECTOR SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM. A 1-3/c#20 CABLE SHALL BE WIRED DIRECT TO THE CONDUIT OUTLET BODY CONTINUOUS WITHOUT SPLICES FROM CONTROLLER CABINET. 2-1/c#14 CONDUCTORS SHALL BE WIRED FROM THE CONDUIT OUTLET BODY TO THE TERMINAL BLOCK IN EACH POLE BASE FOR FUTURE EVP LIGHT.

LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	6x8	40'	1
D1-2	6x8	10'	1
D2-1	6x8	300'	1
D2-2	6x8	150'	1
D3-1	6x8	40'	1
D3-2	6x8	10'	1
D4-1	2-6x8	475'	3,8
D4-2	6x15	0'	7
D4-3	6x8	20'	1
D4-4	6x8	20'	1
D5-1	6x8	40'	1
D5-2	6x8	10'	1
D6-1	6x8	300'	1
D6-2	6x8	150'	1
D7-1	6x8	40'	1
D7-2	6x8	10'	1
D8-1	2-6x8	475'	3,8
D8-2	6x8	20'	1
D8-3	6x8	20'	1

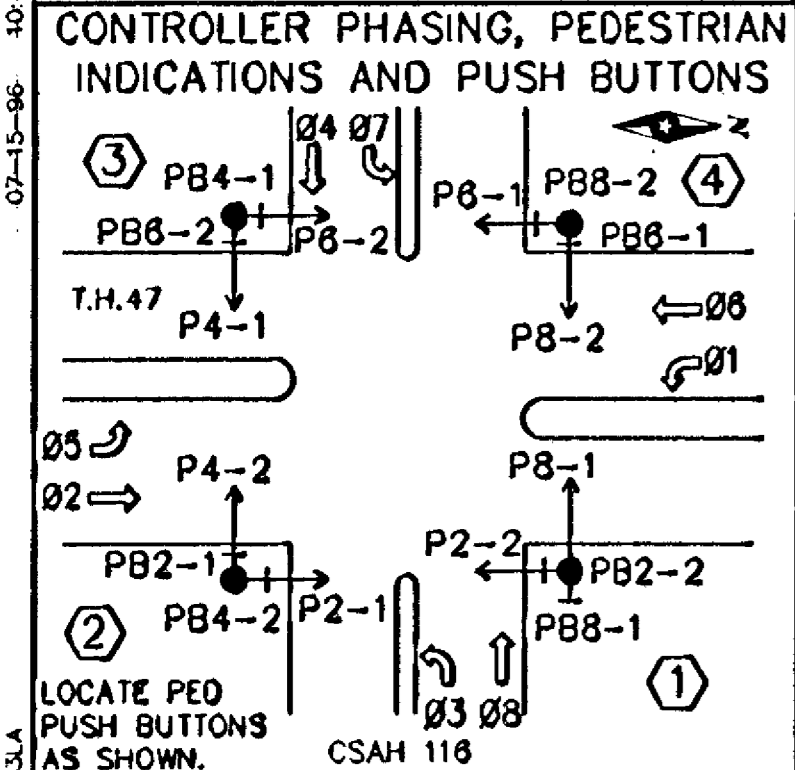
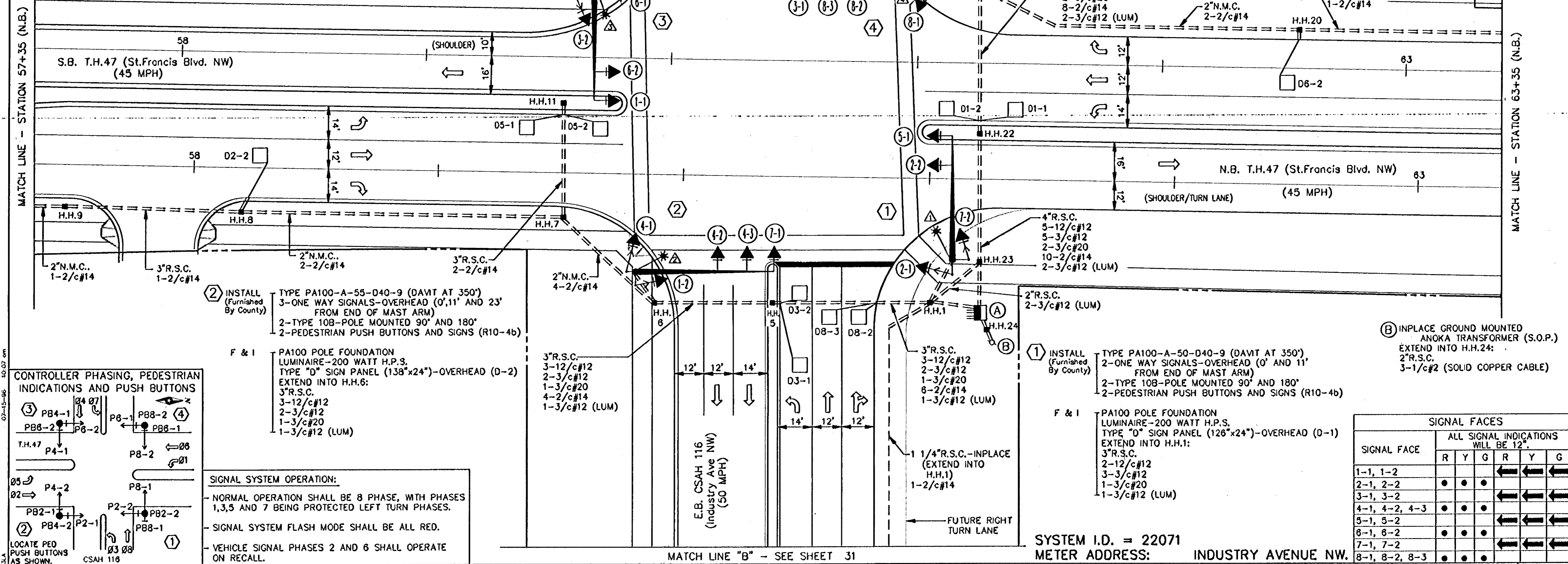


- INSTALL (Furnished By County)**
- TYPE PA100-A-45-D40-9 (DAVIT AT 350'), 2-ONE WAY SIGNALS-OVERHEAD (0' AND 11' FROM END OF MAST ARM)
 - 2-TYPE 108-POLE MOUNTED 90° AND 180°
 - 2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
- F & I**
- PA100 POLE FOUNDATION
 - LUMINAIRE-200 WATT H.P.S.
 - TYPE "D" SIGN PANEL (126"x24")-OVERHEAD (D-1)
 - EXTEND INTO H.H.12:
 - 3"R.S.C.
 - 2-12/c#12
 - 3-3/c#12
 - 1-3/c#20
 - 1-3/c#12 (LUM)

- INSTALL (Furnished By County)**
- TYPE PA100-A-50-D40-9 (DAVIT AT 350')
 - 3-ONE WAY SIGNALS-OVERHEAD (0',11, AND 23' FROM END OF MAST ARM)
 - 2-TYPE 108-POLE MOUNTED 90° AND 180°
 - 2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
- F & I**
- PA100 POLE FOUNDATION
 - LUMINAIRE-200 WATT H.P.S.
 - TYPE "D" SIGN PANEL (138"x24")-OVERHEAD (D-2)
 - EXTEND INTO H.H.19:
 - 3"R.S.C.
 - 3-12/c#12
 - 2-3/c#12
 - 1-3/c#20
 - 1-3/c#12 (LUM)

NOTE: LOCATION=DISTANCE FROM CROSSWALK TO FRONT OF LOOP DETECTOR.

INPLACE LOOP DETECTOR - REUSE AND MAINTAIN INPLACE. SEE SPECIAL PROVISIONS.



SIGNAL SYSTEM OPERATION:

- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1,3,5 AND 7 BEING PROTECTED LEFT TURN PHASES.
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SYSTEM I.D. = 22071
METER ADDRESS: INDUSTRY AVENUE NW.

SIGNAL FACE	ALL SIGNAL INDICATIONS WILL BE 12"					
	R	Y	G	R	Y	G
1-1, 1-2				←	←	←
2-1, 2-2	•	•	•			
3-1, 3-2				←	←	←
4-1, 4-2, 4-3	•	•	•			
5-1, 5-2				←	←	←
6-1, 6-2	•	•	•			
7-1, 7-2				←	←	←
8-1, 8-2, 8-3	•	•	•			

NO.	BY	DATE	REVISIONS
1	JMG/5/96		Per Mn/DOT Comments
2	JMG/7/96		Per Mn/DOT Comments

"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: 5/14/98 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. Gray
Date: 5/14/98 Reg. No. 22457

ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

SEH
ENGINEERS ARCHITECTS PLANNERS

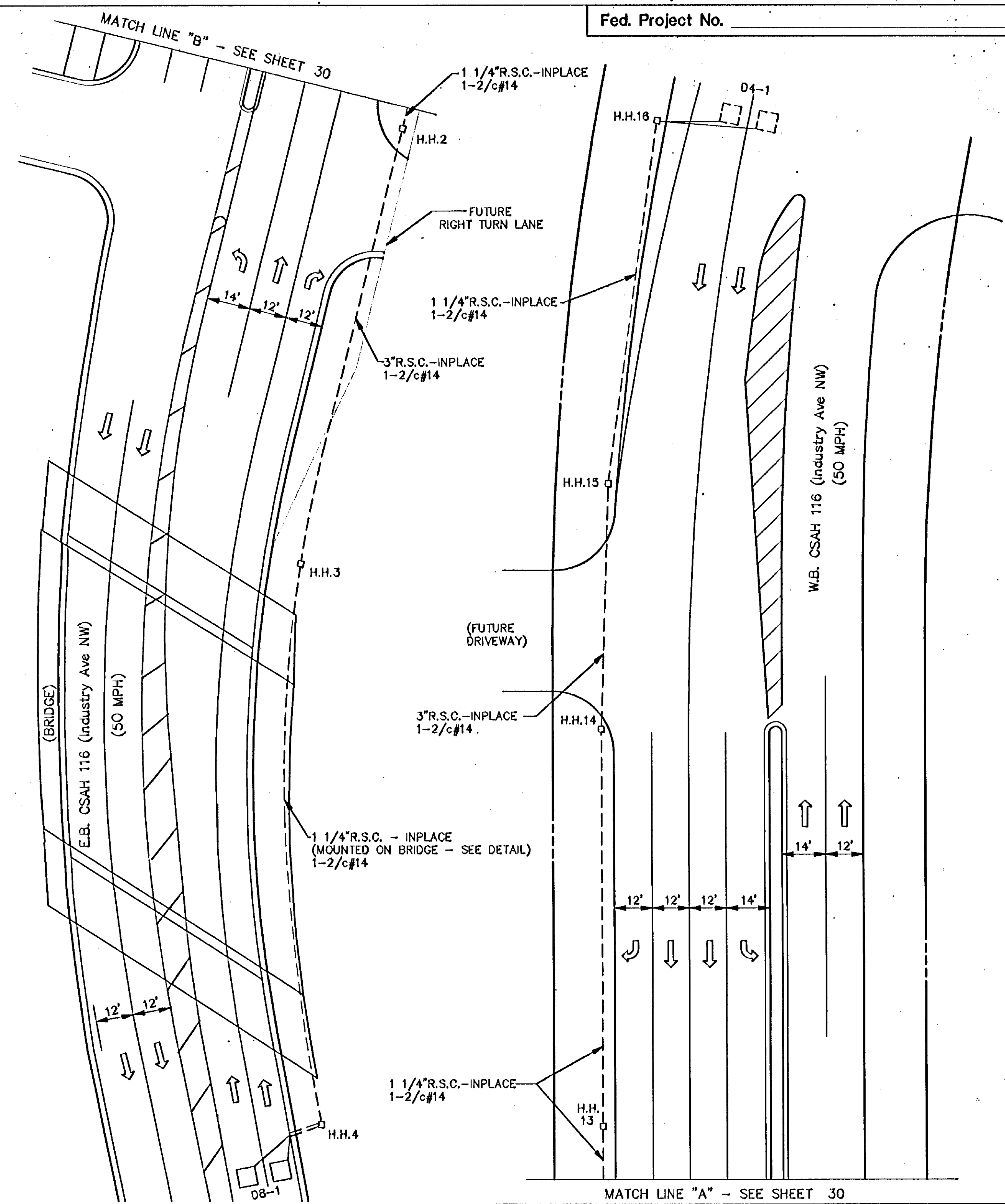
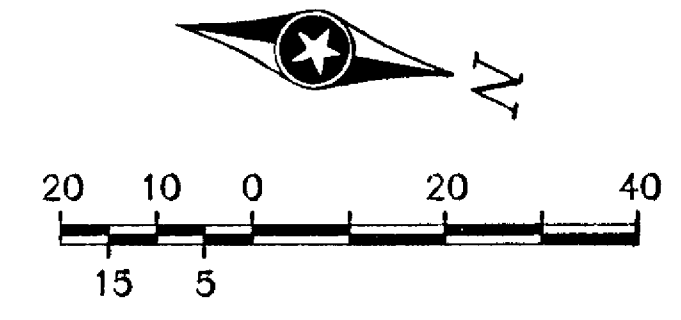
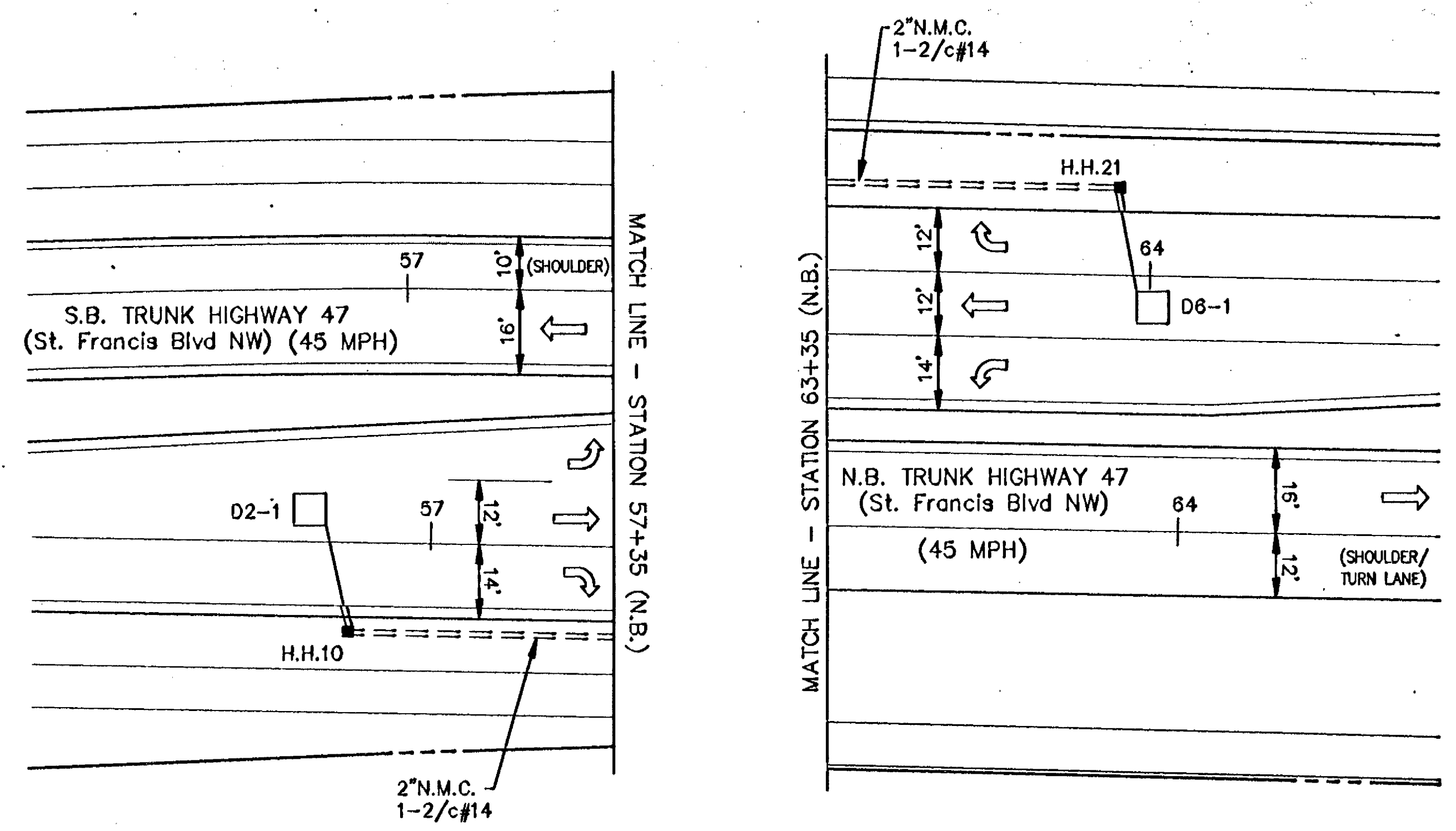
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TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO. ANOKC9603
DATE 5/14/98

Sheet No. 30 of 56 Sheets

BASE OVERLAY/DWG. NO.



S:\TRANS\AN9603\AN9603.B 05-14-96 9:32 am

NO.	BY	DATE	REVISIONS
1	JMG	5/96	Per Mn/DOT Comments

"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 O. Ellen
 Date: 5/14/96 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: 5/14/96 Reg. No. 22457



ANOKA COUNTY, MINNESOTA
 CITIES OF ANOKA AND RAMSEY
 S.A.P. 02-716-01 SP. 0206-47 C.P.

TRAFFIC SIGNAL SYSTEM
 INTERSECTION LAYOUT
 TRUNK HIGHWAY 47 AT CSAH 116
 Sheet No. 31. of 56 Sheets

FILE NO. ANOKC9603
 DATE 5/14/96

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(1)
SIGNAL FACE NO.	(2)
LUMINAIRE NO.	(3)
CONTROLLER AND CABINET	(4)
CONTROLLER AND CABINET - IN PLACE	(5)
HANDHOLE	(6)
HANDHOLE - IN PLACE	(7)
RIGID STEEL CONDUIT (RSC)	(8)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(9)
SIGNAL FACE WITH BACKGROUND SHIELD	(10)
SIGNAL FACE W/O BACKGROUND SHIELD	(11)
SIGNAL FACE - IN PLACE	(12)
PEDESTRIAN INDICATORS	(13)
PEDESTRIAN INDICATORS - IN PLACE	(14)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(15)
PEDESTRIAN PUSH BUTTON STATION	(16)
TRAFFIC SIGNAL PEDESTAL	(17)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(18)
TRAFFIC SIGNAL POLE AND MAST ARM	(19)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(20)
STREET LIGHT POLE AND LUMINAIRE	(21)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(22)
MAST ARM AND LUMINAIRE	(23)
MAST ARM AND LUMINAIRE - INPLACE	(24)
WOOD POLE	(25)
WOOD POLE - IN PLACE	(26)
SOURCE OF POWER	(27)
RAILROAD SIGNAL - IN PLACE	(28)
RIGHT OF WAY LINE	(29)
CENTERLINE	(30)
EDGE OF ROADWAY	(31)
SHOULDERLINE	(32)
CURB LINE	(33)
STOP BAR	(34)

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 SWTCH	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
EQG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED TURN ARROW
F&d	FURNISH AND INSTALL	RRTA	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

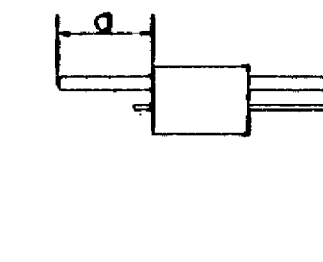
R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

SIGN DETAILS

TYPE "D" SIGNS (F & I)						
SIGN PANEL	NO. REQ.	PANEL		NO. POSTS PER SIGN	POST SPACING	a
		SIZE (IN.)	AREA (Sq.Ft.)			
D-1	2	126x24	21.00	3	45"	16'
D-2	2	138x24	23.00	3	48"	28'

NOTES:

- COLOR-WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
- CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- FOR STRUCTURAL DETAILS, TYPE "D" SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A AND B.
- FOR TYPE "D" STRINGER AND PANEL-JOINT DETAIL, SEE STANDARD SIGNS MANUAL.
- SIGN PANELS TO BE FURNISHED AND INSTALLED INCIDENTAL TO ITEM NO.2565.511.

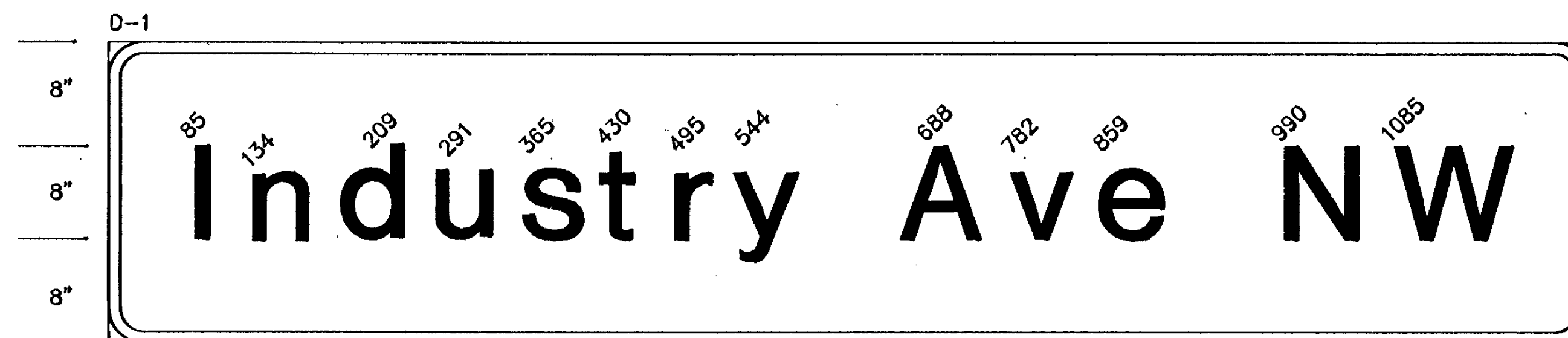


STANDARD PLATES

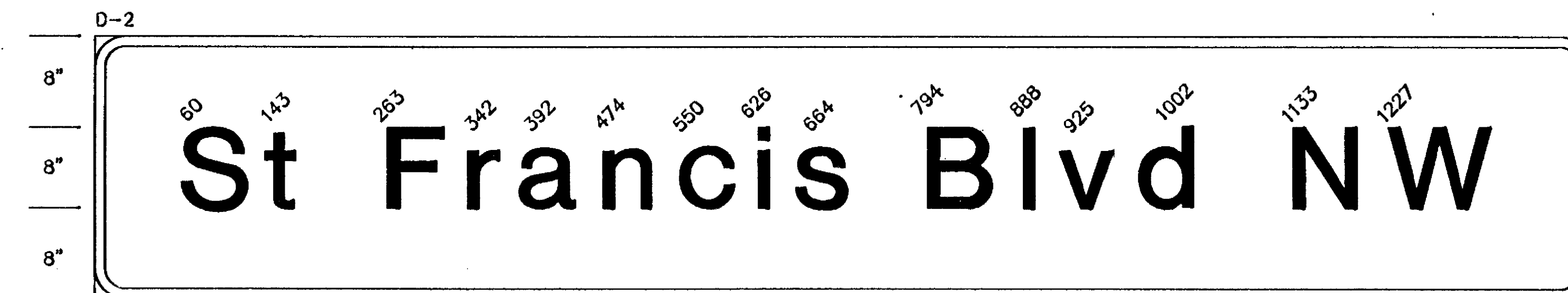
THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:

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 K	PA85 POLE FOUNDATION
* 8121 D	TRANSFORMER BASE AND POLE BASE PLATE
8122 C	PEDESTAL AND PEDESTAL BASE
* 8123 D	POLE AND MAST ARM
* 8124 D	MAST ARM SIGNAL HEAD MOUNTS
* 8126 F	PA90 AND PA100 POLE FOUNDATION
8130 D	SAW CUT LOOP DETECTORS

* - APPLIES TO THIS PROJECT



126"x24", 3"R. 1.0"B
Line 1 108.6: 8"-6" E MOD.



138"x24", 3"R. 1.0"B
Line 1 125.4: 8"-6" E MOD.

"ELECTRICAL ENGINEER CERTIFICATION"

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Date: 5/14/98 Reg. No. 5859

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John M. Gray
Date: 5/14/98 Reg. No. 22457



ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM
DETAILS AND STANDARD PLATES
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO.
ANOKC9603

DATE
5/14/98

S.A.P. 02-716-01

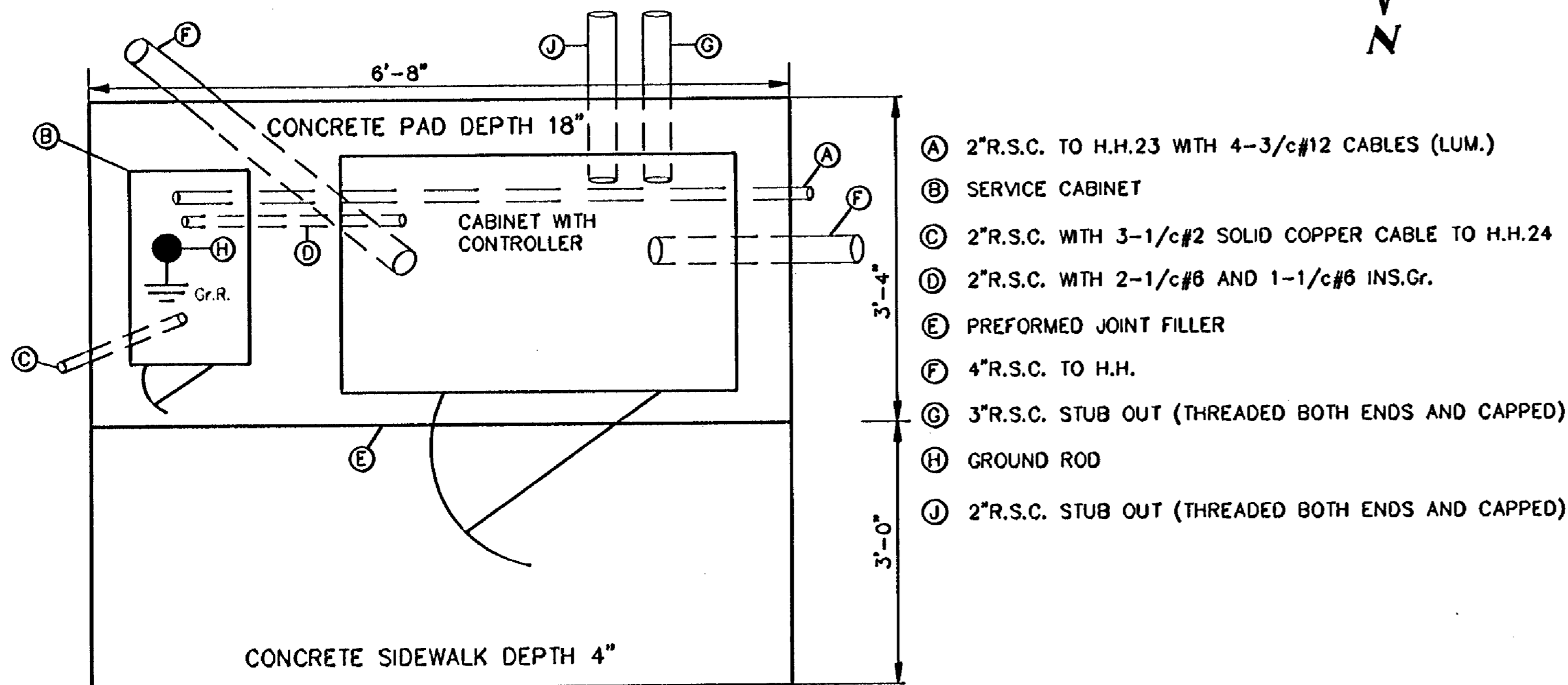
S.P. 0206-47

C.P.

Sheet No. 33 of 56 Sheets

TYPICAL PAD WITH CABINET, CONTROLLER, SERVICE EQUIPMENT

SEE INTERSECTION LAYOUT FOR CONDUIT AND CABLE INFORMATION

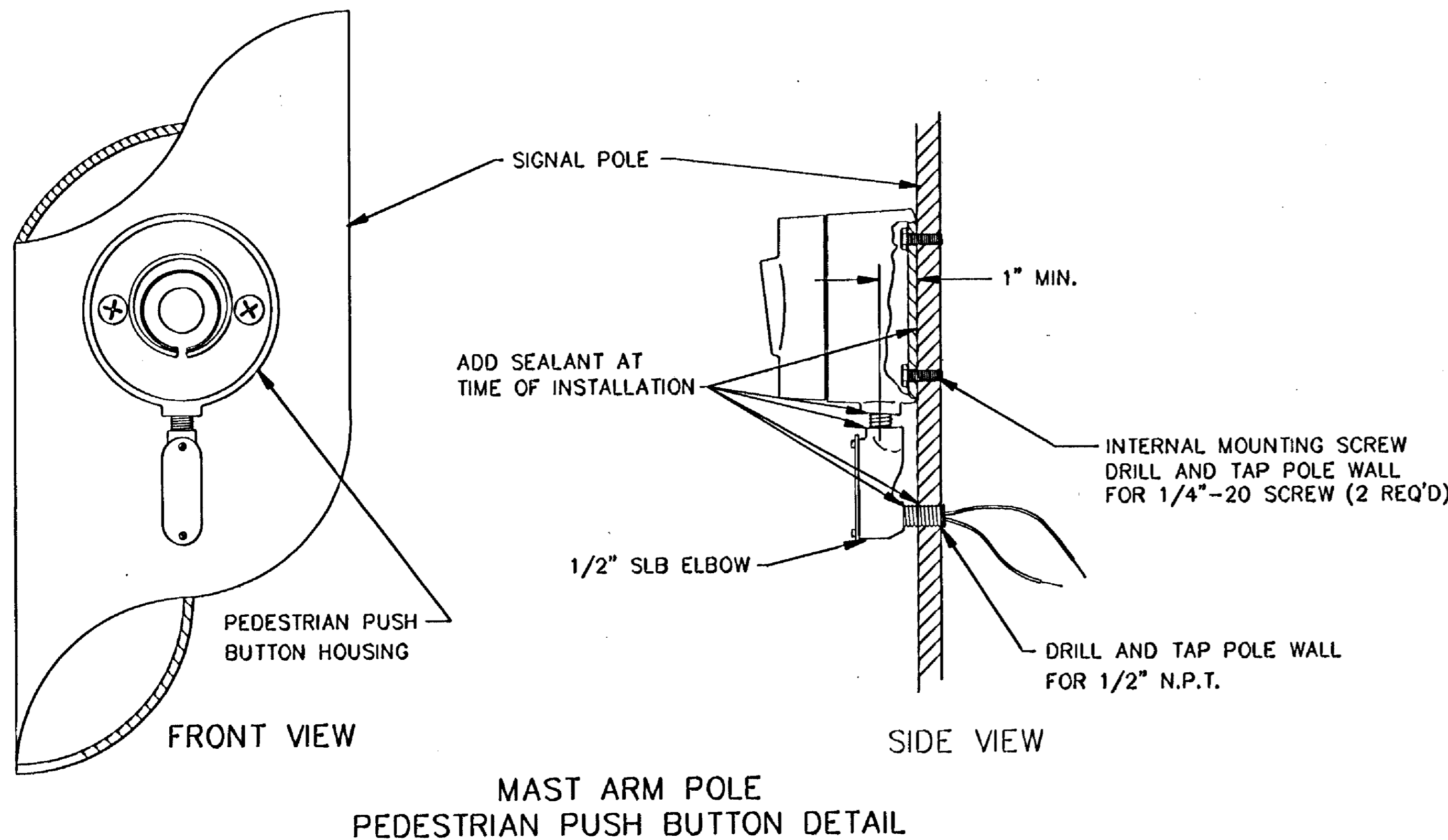
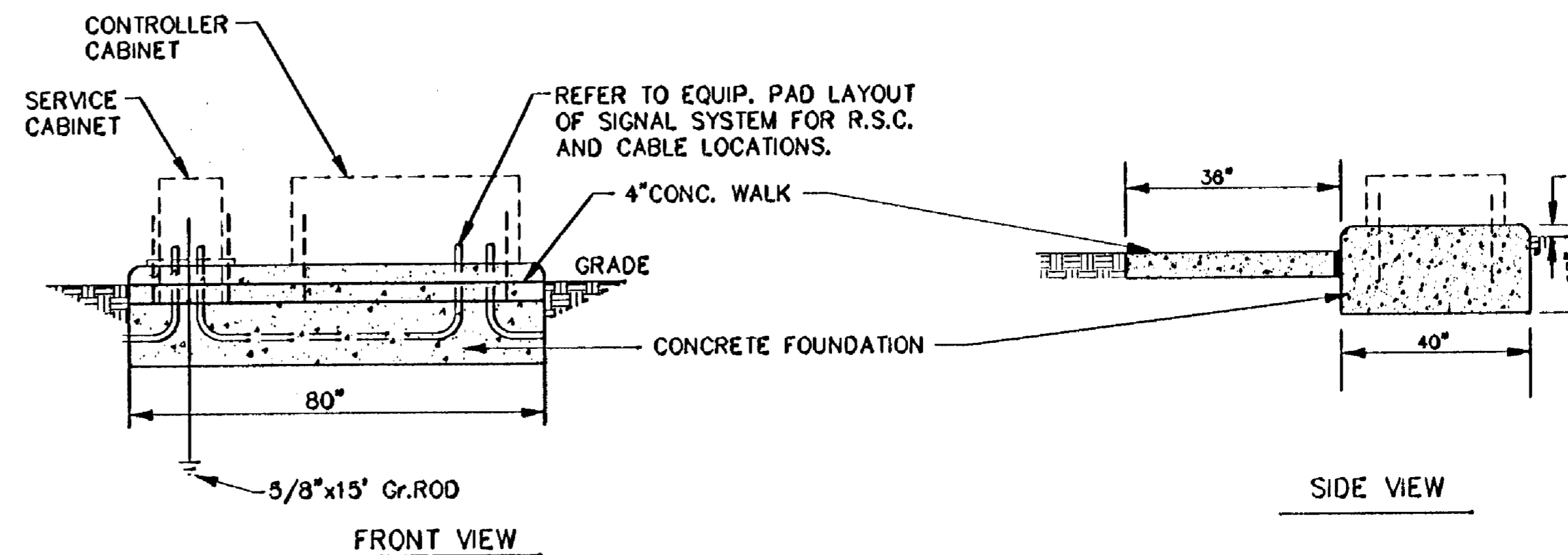


NOTES:

- 1) ANCHOR RODS, NUTS AND WASHERS PER Mn/DOT 3385 OR APPROVED EQUAL SET AS RECOMMENDED BY CABINET MANUFACTURER. NUMBER, SIZE AND LENGTH OF ANCHOR RODS SHALL BE AS REQUIRED BY THE CABINET MANUFACTURER.
- 2) UPPER PART OF FOUNDATION SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER IN THE FIELD.
- 3) TOP OF CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED). CONDUITS SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH CABINET FUNCTIONS OR SUPPORTING MEMBERS, ETC.

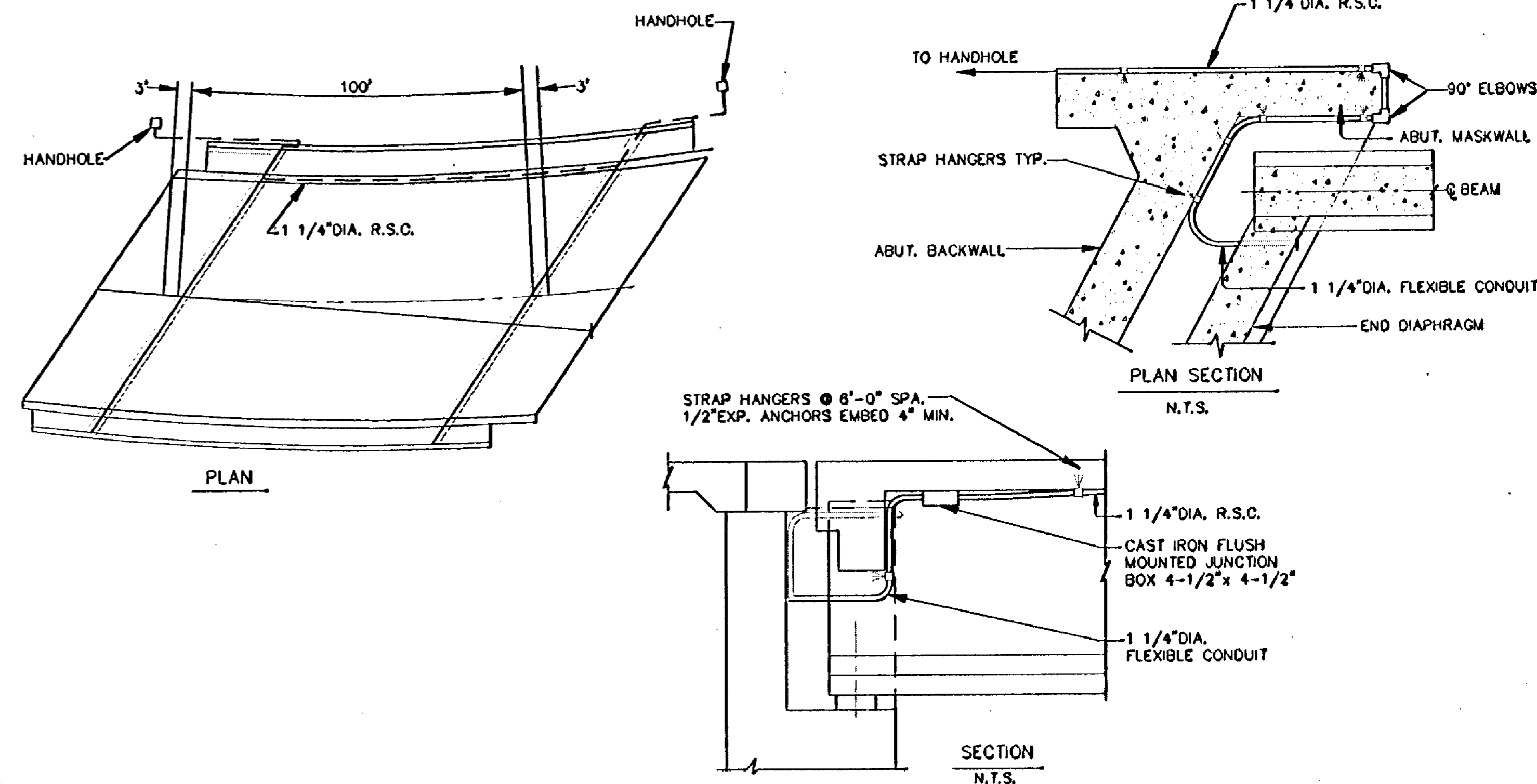
EQUIPMENT PAD FOUNDATION

- 4) CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR FOUNDATION AND CONCRETE WALK.
- 5) CONDUITS WHICH HAVE BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
- 6) EXACT LOCATIONS OF CONDUIT WITHIN THE PAD SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.
- 7) REFER TO EQUIPMENT PAD LAYOUT OF SIGNAL SYSTEM FOR FOUNDATION SIZE, CONDUIT PLACEMENT AND EQUIPMENT TO BE INSTALLED.
- 8) ANCHOR RODS, NUTS AND WASHERS FOR THE STATE FURNISHED CONTROLLER AND CABINET WILL BE FURNISHED BY THE STATE FOR THE CONTRACTOR TO INSTALL.



DETAIL FOR INSTALLATION AND MOUNTING OF CONDUIT ON BRIDGE

FOR INFORMATION ONLY



02-15-96 9:51 am S:\TRANS\ANOKA\ANOKC9603.DWG

NO.	BY	DATE	REVISIONS
1	JMG	5/96	Per Mn/DOT Comments
2	JMG	7/96	Per Mn/DOT Comments

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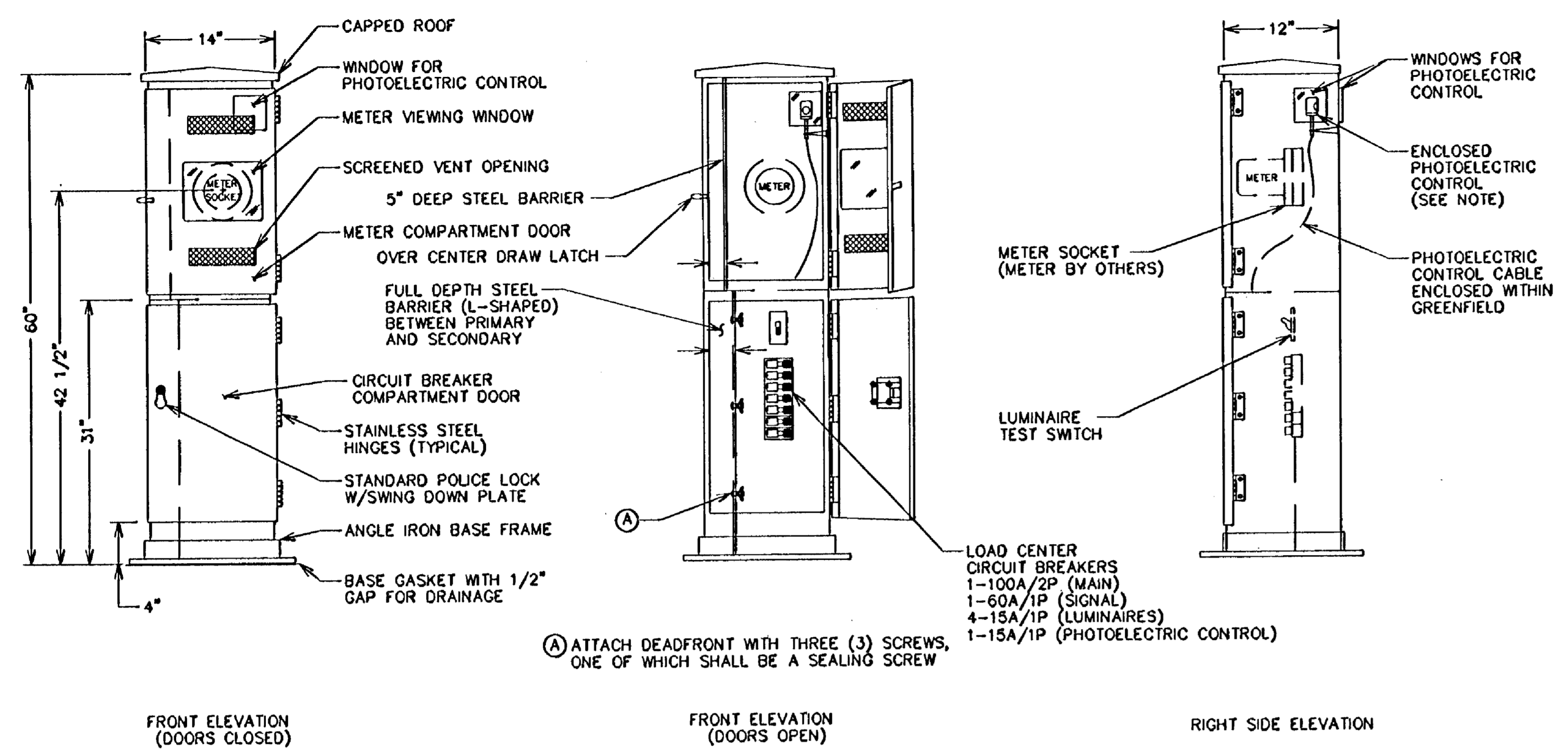


ANOKA COUNTY, MINNESOTA
 CITIES OF ANOKA AND RAMSEY

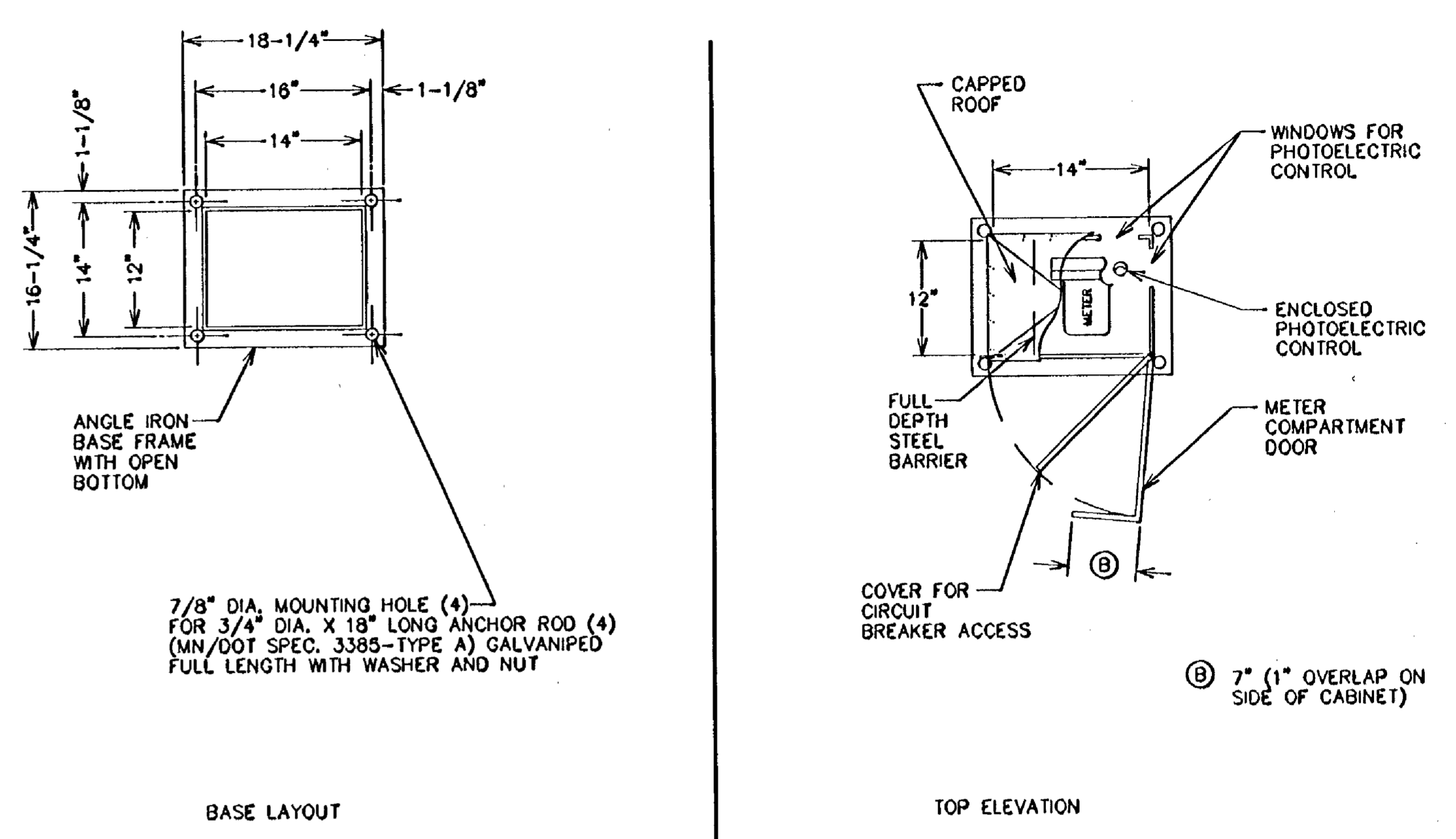
TRAFFIC SIGNAL SYSTEM
 DETAILS
 TRUNK HIGHWAY 47 AT CSAH 116

FILE NO.
 ANOKC9603
 DATE
 5/14/98

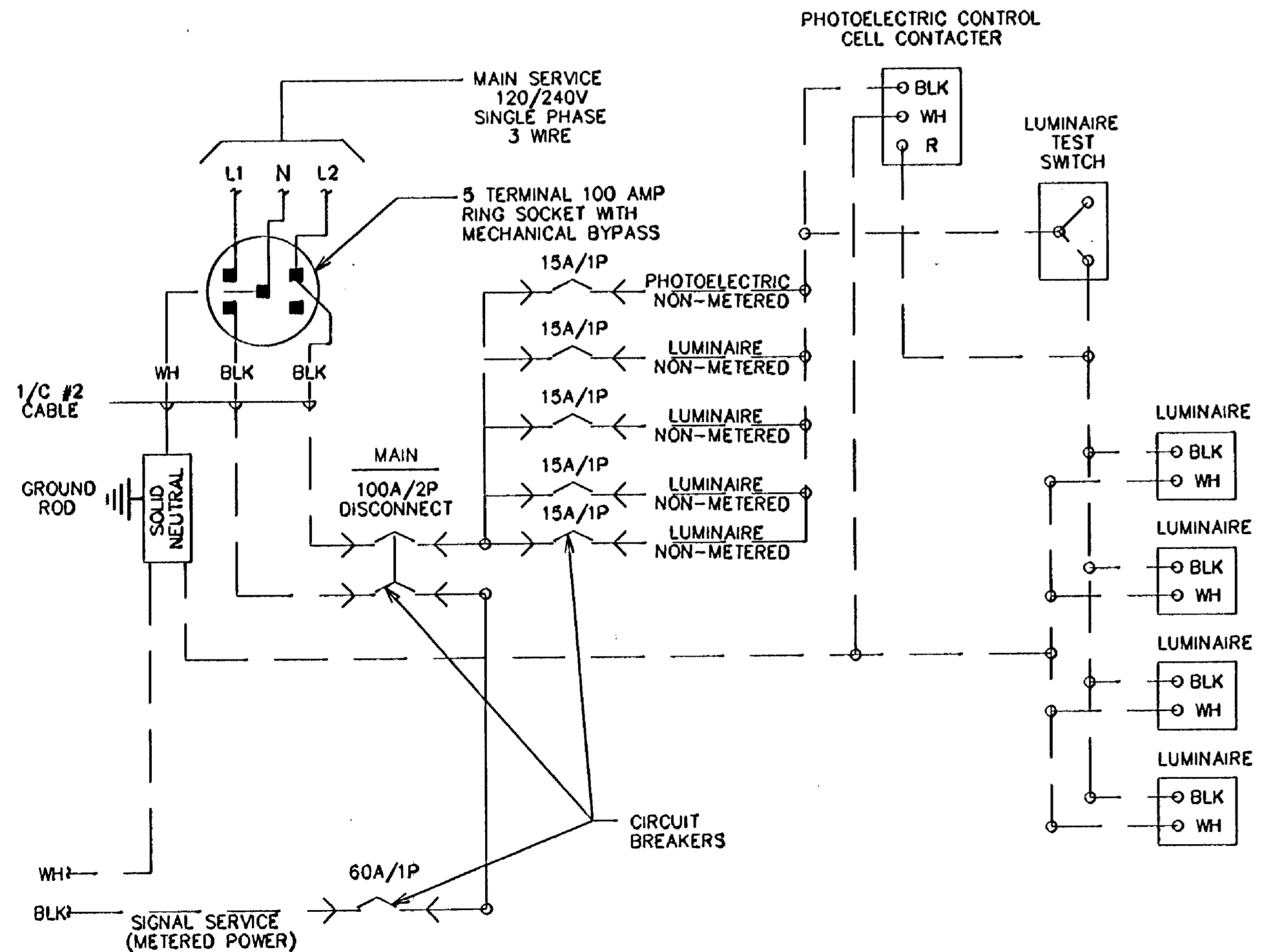
SERVICE CABINET DETAILS



CABINET BASE DETAILS



FEED POINT WIRING DIAGRAM



CONSTRUCTION NOTES

1. THE SERVICE CABINET SHALL BE FABRICATED FROM FORMED AND WELDED NO. 12 GAUGE, COLD ROLLED STEEL.
2. ALL HINGES, HINGE PINS AND LOCKS SHALL BE OF NON-CORRODING MATERIALS.
3. THE SERVICE CABINET DOORS SHALL BE ATTACHED TO THE ENCLOSURE WITH NON-CORRODING TYPE TAMPERPROOF CARRIAGE BOLTS.
4. THE METER COMPARTMENT DOOR SHALL BE SECURED WITH AN OVER CENTER DRAW LATCH AND DUAL LOCKING FIXTURE WITH LOCK.
5. THE CIRCUIT BREAKER COMPARTMENT DOOR SHALL BE SECURED WITH A STANDARD POLICE LOCK EQUIPPED WITH A SWING DOWN PLATE WITH TWO (2) KEYS.
6. BOTH DOOR OPENINGS SHALL BE SEALED WITH NEOPRENE GASKETS TO FORM A COMPLETE SEAL WITH THE ENCLOSURE.
7. THE VIEWING WINDOW (7" X 7" MINIMUM) AND PHOTOELECTRIC CONTROL WINDOW (4" X 4") SHALL BE CLEAR LEXAN MATERIAL.
8. THE SERVICE CABINET SHALL BE PROTECTED INSIDE AND OUTSIDE WITH A RUST INHIBITING RED IRON OXIDE ENAMEL PRIMER AND FINISHED WITH AN OVEN BAKED ENAMEL, SILVER.
9. CIRCUIT BREAKERS SHALL BE 120/240 VOLT AC, 60Hz AND SHALL BE CLEARLY MARKED WITH THE "ON" AND "OFF" POSITIONS AND IDENTIFIED WITH THE LOAD WHICH IT IS CARRYING (E.G. "SIGNALS" OR "LIGHTING").
10. ALL CIRCUIT BREAKERS SHALL BE CLEARLY MARKED IN A MANNER THAT WILL NOT DETERIORATE WITH MOISTURE OR AGE.
11. SHORT CIRCUIT RATING - 10,000 AIC SYMMETRICAL.
12. PROVIDE CLEARANCE TO INSTALL OR REMOVE PHOTOELECTRIC CONTROL.
13. PHOTOELECTRIC CONTROL LENS SHALL BE ORIENTED TO ELIMINATE INTERFERENCE BY MANMADE LIGHT SOURCES, PHOTOELECTRIC CONTROL LENS SHALL NORMALLY FACE NORTH AND EAST.
14. ALL CONDUIT ENTERING FOUNDATION SHALL BE SEALED WITH AN APPROVED DUCT SEALER.
15. THE SERVICE CABINET SHALL BE U.L. LISTED AND APPROVED FOR USE AS OUTDOOR WEATHER PROOF SERVICE ENTRANCE EQUIPMENT.
16. THE SERVICE CABINET SHALL BE WELDED TO THE BASE IN ACCORDANCE WITH U.L. STANDARDS.
17. RED CONDUCTOR OF 3/C#12 WIRE USED FOR LUMINAIRES MUST BE TAPED WITH GREEN TAPE AT BOTH THE ORIGIN AND TERMINUS OF THE CONDUCTOR AND IDENTIFIED AS GROUNDING CONDUCTOR.

DRAWN BY:	REVISED BY:	REVISED BY:	AS BUILT BY:	SIGNAL SERVICE CABINET DETAILS T.H. 47 IN ANOKA COUNTY
CKD BY:	CKD BY:	CKD BY:	CKD BY:	
DATE:	DATE:	DATE:	DATE:	
CERTIFIED BY _____				REG. NO. _____

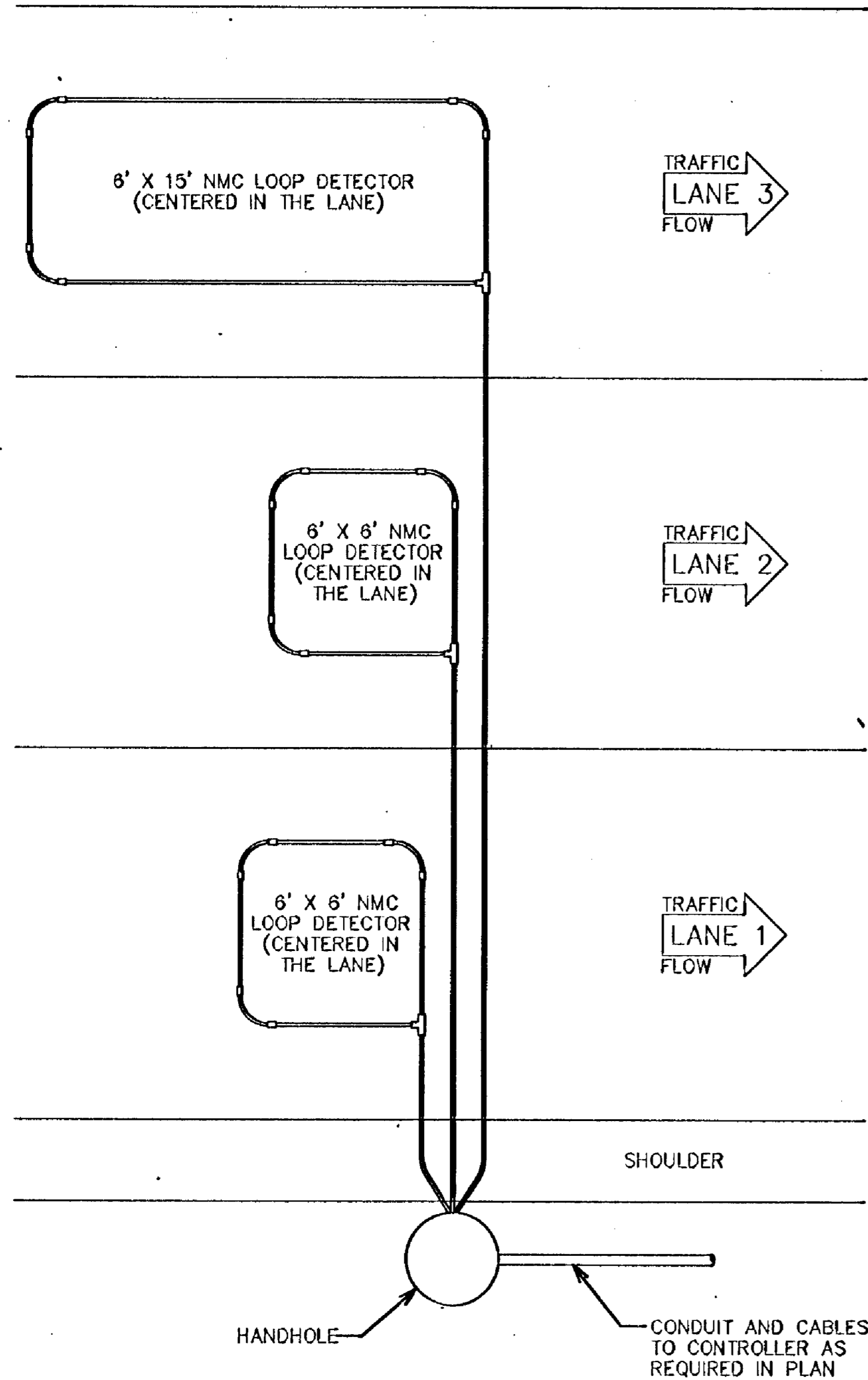
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 Date: 5/14/96 Reg. No. 22457

ENGINEERS ARCHITECTS PLANNERS	ANOKA COUNTY, MINNESOTA CITIES OF ANOKA AND RAMSEY	TRAFFIC SIGNAL SYSTEM DETAILS TRUNK HIGHWAY 47 AT CSAH 116	FILE NO. ANOKC9603 DATE 5/14/96
	S.A.P. 02-716-01	S.P. 0206-47	C.P. _____

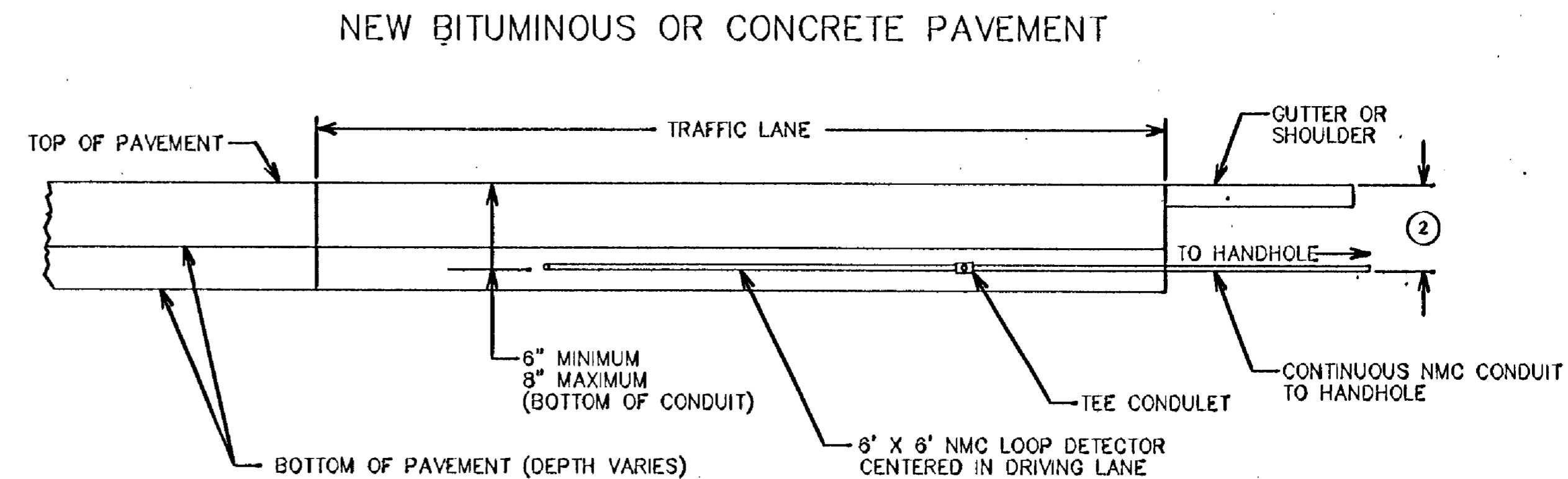
TYPICAL NMC LOOP DETECTOR LAYOUT



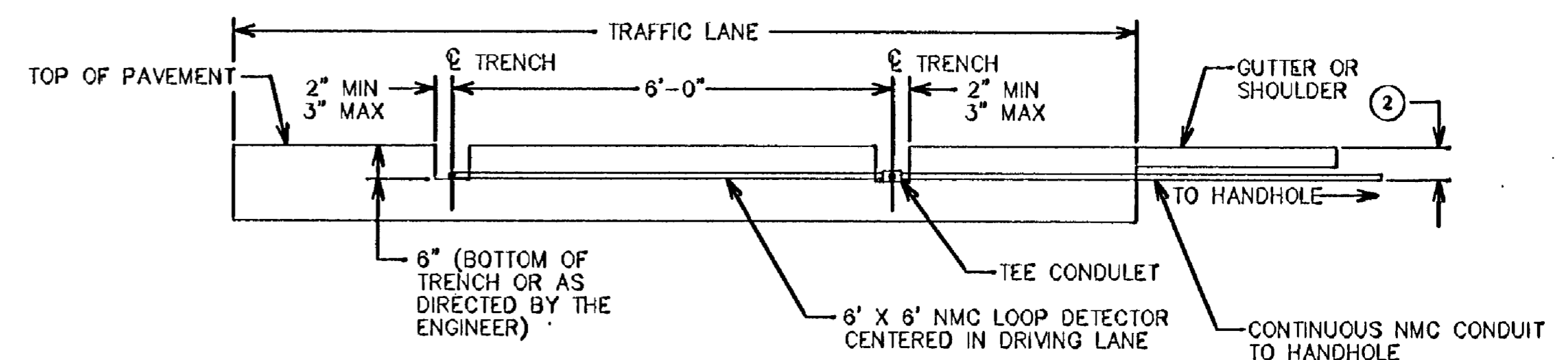
GENERAL NOTES:

1. SEE SPECIAL PROVISIONS FOR REQUIRED LOOP DETECTOR CONDUCTORS, SPLICE KITS, TESTS AND ACCEPTANCE PARAMETERS.
2. THE 3/4" NON-METALLIC CONDUIT (NMC) AND FITTINGS SHALL BE SCHEDULE 40 HEAVY WALL RIGID POLYVINYL CHLORIDE (PVC). SEE SPEC. 3803.
3. THREE CORNERS OF EACH LOOP DETECTOR SHALL BE A 90° FACTORY ELBOW (6" RADIUS). THE FOURTH SHALL BE A NMC TEE CONDULET.
4. APPROVED PVC PRIMER AND CEMENT SHALL BE USED FOR THE PVC JOINTS.
5. ALL SLACK MUST BE REMOVED FROM LOOP DETECTOR CONDUCTORS WITHIN THE NMC.
6. THE LOOP DETECTOR CONDUCTORS (1/C#14) SHALL BE TWISTED THREE TURNS PER FOOT FROM THE NMC TEE CONDULET TO THE HANDHOLE.
7. ATTACH A FERROUS METAL ITEM TO THE INTERIOR OF THE TEE CONDULET COVER.
8. EACH LOOP DETECTOR CONDUIT TO THE HANDHOLE SHALL BE SLOPED TOWARDS THE HANDHOLE.
9. LOOP DETECTOR CONDUITS TO THE HANDHOLE MAY BE PLACED WITHIN THE SAME TRENCH.
10. THE LOOP DETECTOR CONDUCTORS SHALL END IN THE HANDHOLE.
11. NO SPLICES ALLOWED IN CONDUIT OR TEE CONDULET.
12. TYPICAL LOOP DETECTOR SIZES SHALL BE 6' X 6', 6' X 10', 6' X 15' AND 6' X 20'. REFER TO THE INTERSECTION LAYOUT FOR SPECIFIC LOOP DETECTORS TO BE PLACED.
13. ALL LOOP DETECTORS SHALL HAVE FOUR (4) TURNS OF WIRE.

TYPICAL NMC LOOP DETECTOR INSTALLATION



INPLACE BITUMINOUS PAVEMENT

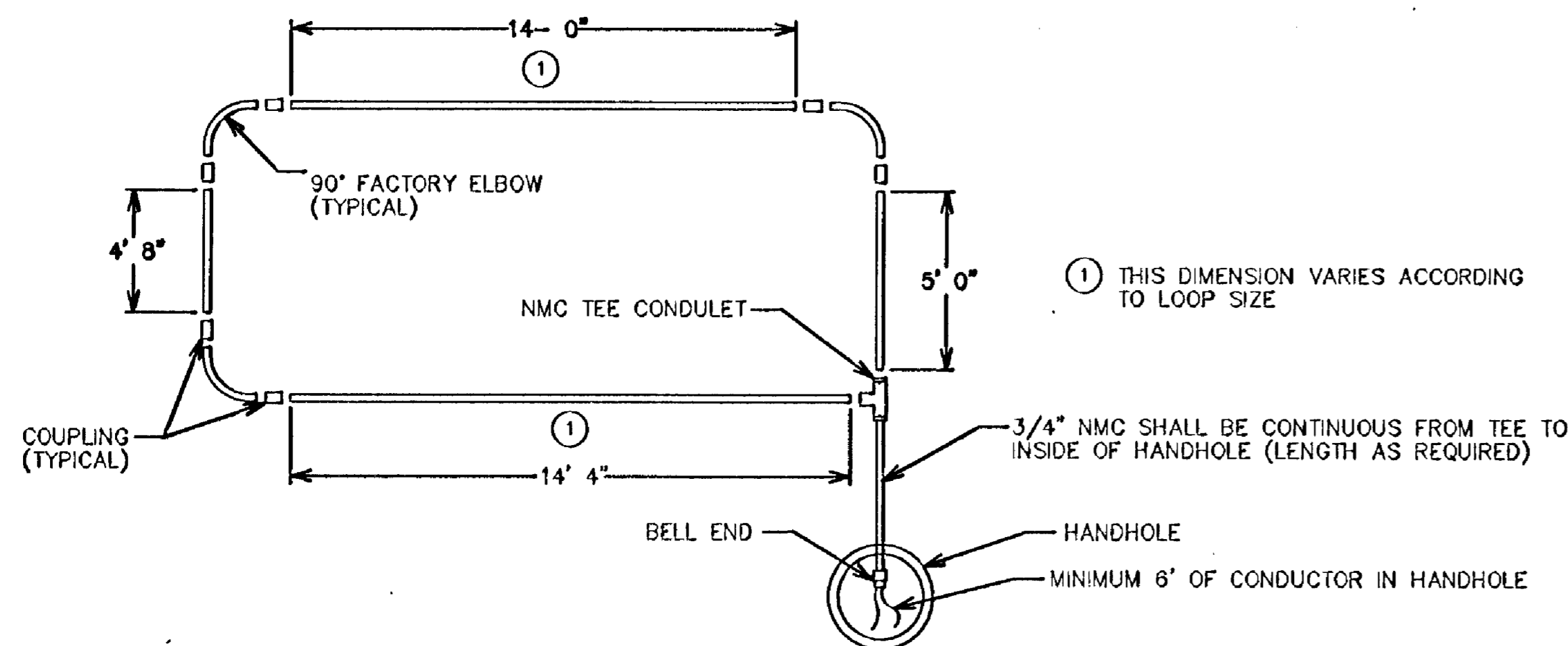


② VARIABLE DEPTH—MAINTAIN DRAINAGE TO HANDHOLE

NOTES:

1. USE THE ACTUAL LOOP DETECTOR TO BE PLACED FOR MARKING THE PAVEMENT FOR MILLING LOCATION.
2. MILL PAST THE CENTER OF THE CONDUIT TO BE PLACED.
3. ACHIEVE A MINIMUM 2 INCH VERTICAL EDGE ON ALL CUTS.
4. AN AIR COMPRESSOR UNIT (50 HP) IS REQUIRED FOR REMOVING ALL LOOSE MATERIAL FROM TRENCH PRIOR TO TACK APPLICATION.
5. BOTTOM AND EDGES OF MILLED AREA SHALL BE THOROUGHLY COVERED WITH TACK. (EMULSIFIED ASPHALT—SEE SPEC. 2357.2A)
6. USE TYPE 41 WEARING COURSE (TYPE 41WEA50055X OR Y) OR TYPE APPROVED BY ENGINEER.
7. DO NOT USE PETROLEUM DISTILLATES AS A RELEASE AGENT. REFER TO MN/DOT TECHNICAL MEMORANDUM NO. 94-16-MRE-05 DATED 3/10/94 FOR ADDITIONAL INFORMATION.
8. COMPACTION SHALL BE OBTAINED BY THE ORDINARY COMPACTION METHOD. A MINIMUM OF TWO LIFTS SHALL BE USED. DETERMINE LIFT DEPTHS SUCH THAT THERE IS NO DAMAGE TO CONDUIT. ENSURE BITUMINOUS PLACEMENT ADJACENT TO SIDES OF CONDUIT.
9. CREATE AN OVERFILL OF 1/4 INCH - 1/2 INCH OVER EXISTING PAVEMENT SURFACE.
10. APPLY A COAT OF TACK OVER THE FINAL ROADWAY SURFACE. IF UNDER TRAFFIC, SPRINKLE WITH SAND TO PREVENT TRACKING AND SPRAYING.

TYPICAL NMC LOOP DETECTOR DETAIL— (6' X 15' LOOP)



DRAWN BY:	REVISED BY:	REVISED BY:	AS BUILT BY:
CKD BY:	CKD BY:	CKD BY:	CKD BY:
DATE:	DATE:	DATE:	DATE:

PREFORMED NON-METALLIC CONDUIT
LOOP DETECTOR DETAILS
FOR
TRAFFIC CONTROL SIGNAL SYSTEM

S:\TRANS\ANG603\ANG603D 05-14-96 9:51 am

1	JMG	5/96	Per Mn/DOT Comments
NO.	BY	DATE	REVISIONS

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John M. Gray
Date: 5/14/96 Reg. No. 22457



ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA AND RAMSEY

TRAFFIC SIGNAL SYSTEM
DETAILS
TRUNK HIGHWAY 47 AT CSAH 116

FILE NO.
ANOKC9603
DATE
5/14/96



SIGNAL INDICATIONS								
FACE	PHASE	FLASH	R	Y	G	RLTA	YLTA	GLTA
5-1	5	R	12	12	12			12
5-2	5	R	12	12	12			12
5-3	5	R	12	12	12			
3-1	3	R				12	12	12
3-2	3	R				12	12	12
4-1	4	R	12	12	12			
4-2	4	R	12	12	12			
6-1	6	R	12	12	12			12
6-2	6	R	12	12	12			12
6-3	6	R	12	12	12			
7-1	7	R				12	12	12
7-2	7	R				12	12	12
8-1	8	R	12	12	12			
8-2	8	R	12	12	12			

Note: ALL SIZES ARE IN INCHES.

- Notes:
- SEE SPECIAL PROVISIONS FOR CONTRACTOR RESPONSIBILITY FOR THE LOCATION OF UTILITIES.
 - SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - EACH LUMINAIRE WITH P.E.C.
 - SEE SPECIAL PROVISIONS FOR ANOKA COUNTY SERVICE CABINET DETAILS.
 - ALL HANDHOLES SHALL BE CONCRETE WITH TYPE "C" COVERS.
 - LOOP DETECTOR WIRES FOR LOOP DETECTORS D3-1, D8-1, D8-2 AND D8-3 SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 1" N.M.C. SEE SPECIAL PROVISIONS AND DETAILS.
 - ALL PEDESTRIAN INDICATIONS SHALL BE FURNISHED BY COUNTY FOR CONTRACTOR TO INSTALL AND SHALL BE 12"x12", EXCEPT THAT P4-1, P4-2, P8-1 AND P8-2 SHALL BE 9"x9".
 - SEE SPECIAL PROVISIONS FOR DETAILS ON WOOD POLE SCREW ANCHORS.
 - SEE DETAIL SHEET FOR WOOD POLE, SPAN WIRE MOUNTING AND PEDESTRIAN PUSH BUTTON DETAILS.
 - LOOP DETECTORS D4-1, D4-2, D4-3 AND D7-1 ARE INPLACE AND SHALL BE USED INPLACE AS PART OF SIGNAL SYSTEM "B". CONTRACTOR SHALL FURNISH AND INSTALL LEAD-IN CABLES AND MAKE ALL SPLICES TO MAKE INPLACE LOOP DETECTORS OPERATIONAL.
 - HANDHOLES 4,5,6,7,12,17 AND 18 ARE INPLACE AND SHALL BE USED INPLACE AS PART OF SIGNAL SYSTEM "B".
 - INPLACE HANDHOLE 5 SHALL BE RAISED APPROXIMATELY 1 1/2 FEET AND FILL SHALL BE FURNISHED AND INSTALLED AROUND HANDHOLE. SEE SPECIAL PROVISIONS.

- ① 45' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
 TYPE 10B-WOOD POLE MOUNTED (4-2)
 LUMINAIRE -250 WATT H.P.S. AND 15' MAST ARM
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 METAL JUNCTION BOX
 3"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
 3-12/c#12
 1-3/c#12
 6-2/c#14
 EXTEND INTO H.H.18:
 2"R.S.C. RISER BELOW JUNCTION BOX
 6-2/c#14

- ② 45' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
 TYPE 10B-WOOD POLE MOUNTED (3-1)
 TYPE 10B-WOOD POLE MOUNTED (6-3)
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 METAL JUNCTION BOX
 2"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
 2-12/c#12
 EXTEND INTO H.H.5:
 2"R.S.C. RISER BELOW JUNCTION BOX
 2-12/c#12
 1-3/c#12
 EXTEND INTO H.H.5:
 3"R.S.C. RISER AND WEATHERHEAD
 3-12/c#12
 1-3/c#12
 6-2/c#14
 2-1/c#10
 3"R.S.C. RISER AND WEATHERHEAD
 3-12/c#12 2-1/c#10
 2-3/c#12

- ④ 45' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
 TYPE 10B-WOOD POLE MOUNTED (5-3)
 TYPE 10B-WOOD POLE MOUNTED (7-1)
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 METAL JUNCTION BOX
 3"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
 2-12/c#12
 1-3/c#12

- ③ 45' WOOD POLE-CLASS 2
 2-DOWN GUYS, GUY GUARDS AND SCREW ANCHORS
 TYPE 10B-WOOD POLE MOUNTED (5-1)
 TYPE 10B-WOOD POLE MOUNTED (8-2)
 LUMINAIRE-250 WATT H.P.S. AND 15' MAST ARM
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS
 METAL JUNCTION BOX
 3"R.S.C. RISER AND WEATHERHEAD ABOVE JUNCTION BOX
 2-12/c#12
 1-3/c#12

LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D5-1	6x8	300'	1
D5-2	2-6x8	—	11
D3-1	MULTIPLE	—	1
D4-1	2-6x8	475'	1
D4-2	6x8	—	4
D4-3	2-6x8	—	6
D8-1	6x8	300'	1
D8-2	2-6x8	—	11
D7-1	MULTIPLE	—	1
D8-1	2-6x8	475'	1
D8-2	6x8	—	4
D8-3	2-6x8	—	6

- LOOP DETECTORS FUNCTIONS:**
- CALL AND EXTEND
 - CALL ONLY
 - EXTEND ONLY
 - CALL ONLY DENSITY
 - DELAYED CALL ONLY
 - DELAYED CALL ONLY DENSITY
 - DELAYED CALL-IMMEDIATE EXTEND
 - CARRY OVER (STRETCH)
 - ADVISORY DETECTOR
 - SAMPLING DETECTOR
 - SPECIAL DETECTOR (EXTEND AFTER TIME DELAY).
 - CALL AND EXTEND AFTER TIME DELAY

Note: LOCATION=DISTANCE FROM STOP BAR TO LOOP DETECTOR.

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REVISIONS			
DATE	BY	DATE	BY
7/98	JMG		

FOR INFORMATION ONLY



ANOKA COUNTY, MINNESOTA
 CITIES OF ANOKA & RAMSEY

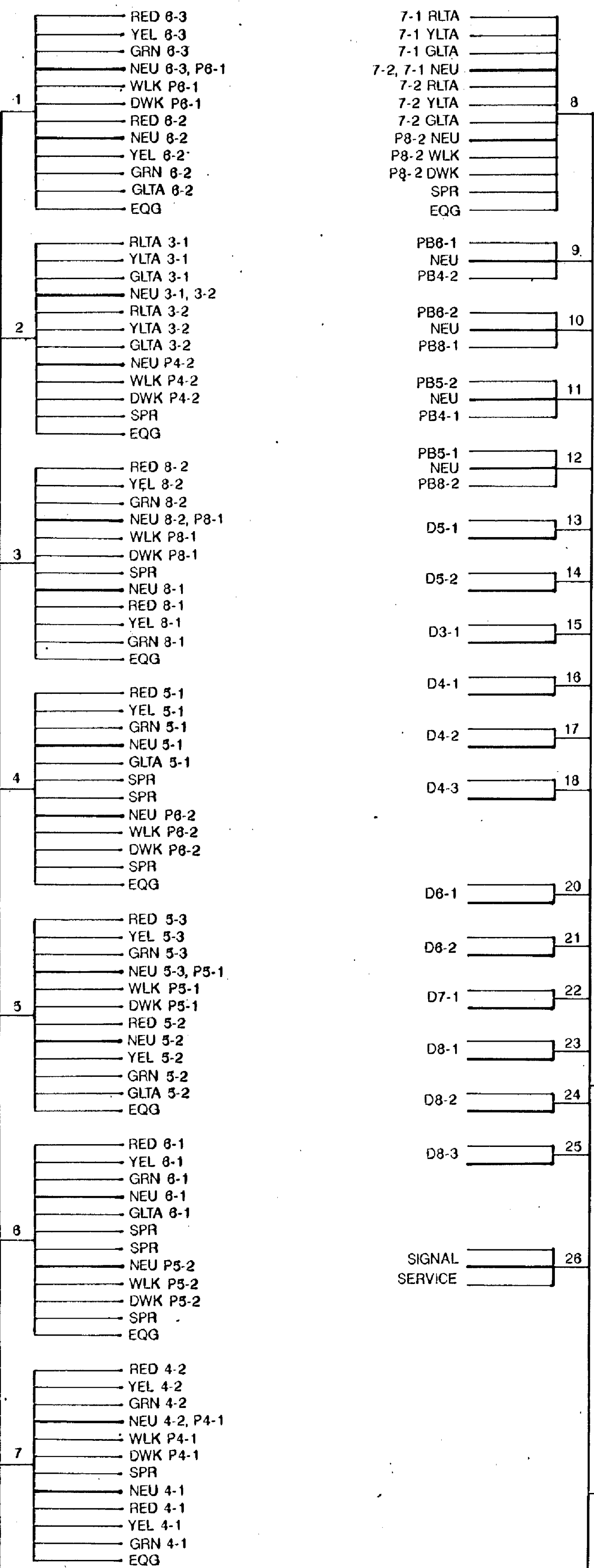
TRAFFIC SIGNAL SYSTEM
 INPLACE TEMPORARY SIGNAL
 TRUNK HIGHWAY 47 AT CSAH 116

FILE NO.
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S.A.P. 02-716-01 S.P. 0206-47 C.P.

Sheet No. 37 of 56 Sheets

CONTROLLER CABINET

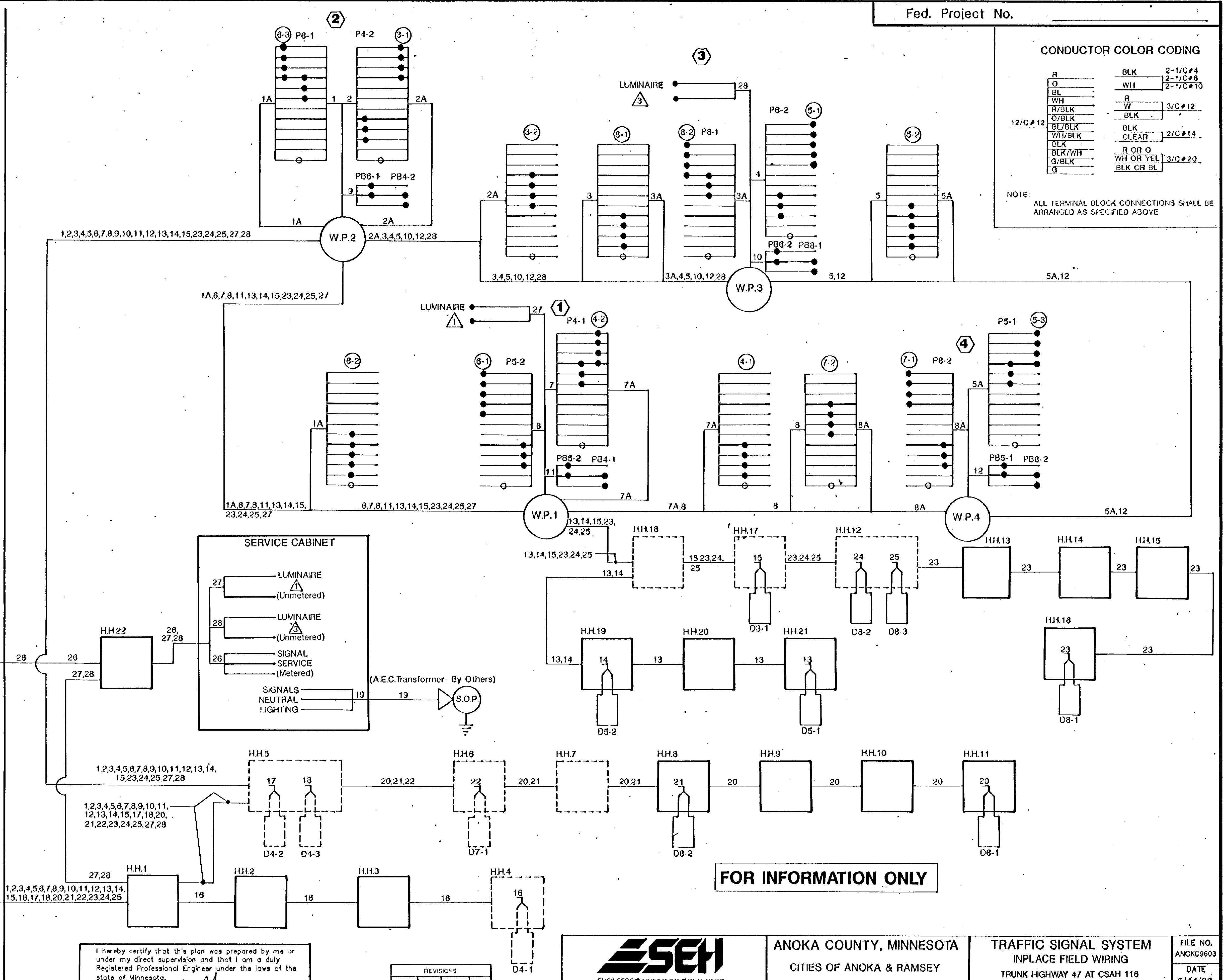


Fed. Project No. _____

CONDUCTOR COLOR CODING

R	BLK	2-1/C#4
O	WH	2-1/C#8
BL	R	3/C#12
WH	W	BLK
R/BLK	BLK	2/C#14
O/BLK	CLEAR	R OR O
BL/BLK	WH OR YEL	3/C#20
WH/BLK	BLK OR BL	
BLK		
G/BLK		
G		

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



FOR INFORMATION ONLY

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. Gray
 Date: 5/14/98 Reg. No. 22457

REVISIONS

DATE	BY	DATE	BY



ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA & RAMSEY

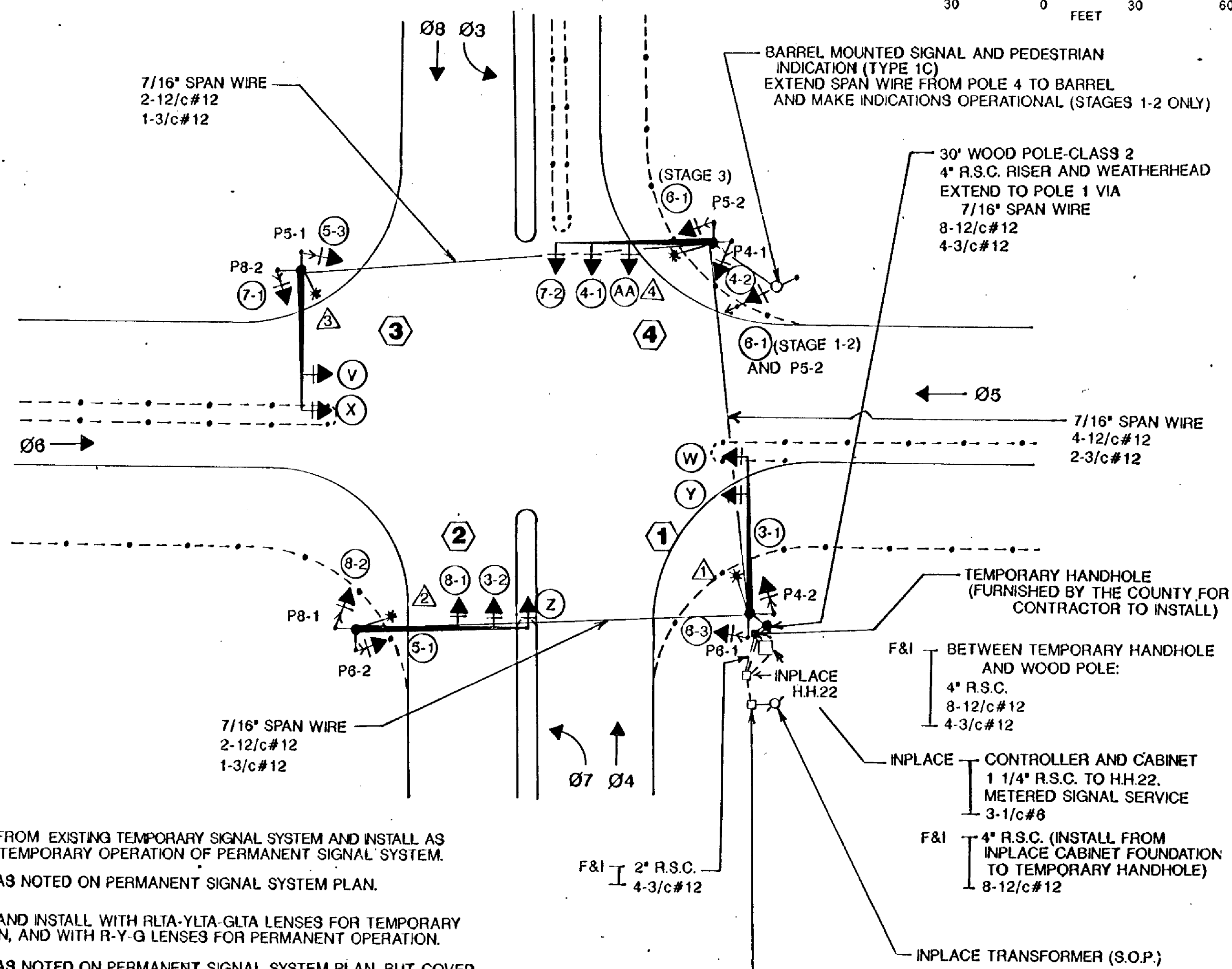
TRAFFIC SIGNAL SYSTEM
INPLACE FIELD WIRING
TRUNK HIGHWAY 47 AT CSAH 118

FILE NO. ANOKC9603
DATE 5/14/98

S.A.P. 02-716-01 S.P. 0206-47 C.P.

Sheet No. 38 of 56 Sheets

SUGGESTED INTERSECTION LAYOUT FOR TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM



ACTION

- 1) REMOVE FROM EXISTING TEMPORARY SIGNAL SYSTEM AND INSTALL AS PART OF TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.
- 2) INSTALL AS NOTED ON PERMANENT SIGNAL SYSTEM PLAN.
- 3) FURNISH AND INSTALL WITH RLTA-YLTA-GLTA LENSES FOR TEMPORARY OPERATION, AND WITH R-Y-G LENSES FOR PERMANENT OPERATION.
- 4) INSTALL AS NOTED ON PERMANENT SIGNAL SYSTEM PLAN, BUT COVER AND DO NOT MAKE OPERATIONAL AS PART OF TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.
- 5) REMOVE 12"-4 SECTION R-Y-G-GLTA INDICATION FROM EXISTING TEMPORARY SIGNAL SYSTEM AND INSTALL AT V AND W DURING STAGES 1-2 OF TEMPORARY OPERATION. RELOCATE TO X AND Y DURING STAGE 3 OF TEMPORARY OPERATION.

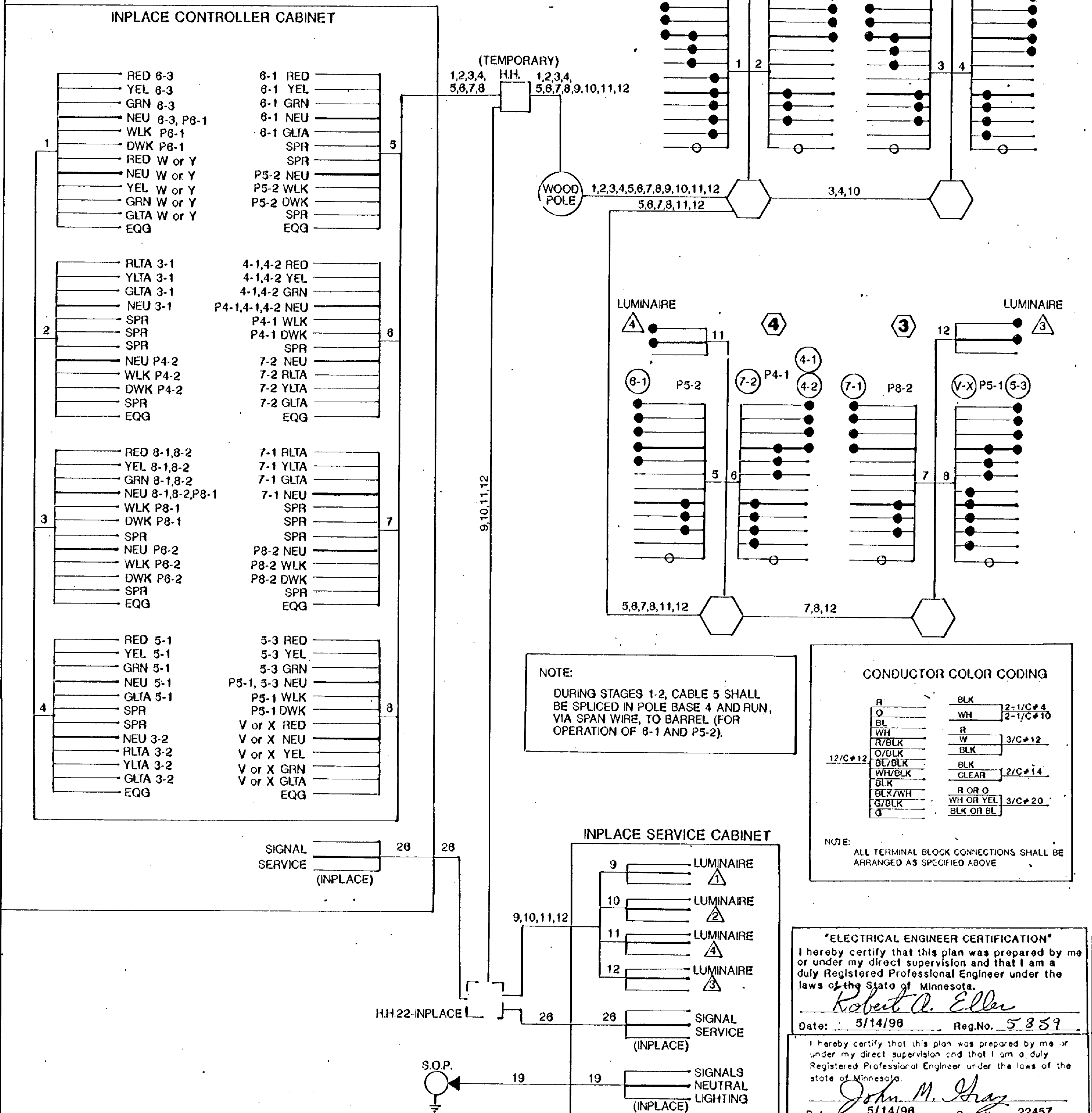
SIGNAL INDICATIONS DURING TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM

PERM FACE NO	TEMP FACE NO	PHASE	FLASH	R	Y	G	RLTA	YLTA	GLTA	ACTION
(1-2)	5-1	5	R	12	12	12			12	1
(8-2)	V	5	R	12	12	12			12	5
(8-1)	5-3	5	R	12	12	12				2
(7-2)	3-1	3	R				12	12	12	2
(4-3)	3-2	3	R				12	12	12	3
(8-3)	4-1	4	R	12	12	12				2
(8-1)	4-2	4	R	12	12	12				2
(5-2)	6-1	6	R	12	12	12			12	1
(5-1)	W	6	R	12	12	12			12	5
(2-1)	8-3	8	R	12	12	12				2
(3-2)	7-1	7	R				12	12	12	2
(3-1)	7-2	7	R				12	12	12	2
(4-2)	8-1	8	R	12	12	12				2
(4-1)	8-2	8	R	12	12	12				2
(1-1)	X	5	R	12	12	12			12	5
(2-2)	Y	6	R	12	12	12			12	5
(7-1)	Z	—	—	—	—	—	12	12	12	4
(8-2)	AA	—	—	12	12	12				4

NOTES:

- 1) - - - - = FUTURE ROADWAY IMPROVEMENTS.
- 2) CONTRACTOR SHALL FURNISH AND INSTALL SPAN WIRE (FOR OVERHEAD CABLE RUNS) APPROXIMATELY 5 FEET ABOVE EACH LUMINAIRE EXTENSION BASE AND BETWEEN LUMINAIRES, MAINTAINING A MINIMUM SPAN WIRE CLEARANCE OVER ROADWAY OF 23 FEET.
- 3) POLES 1,2,3 AND 4 SHALL BE INSTALLED BY CONTRACTOR AS DETAILED ON PERMANENT TRAFFIC SIGNAL LAYOUT, EXCEPT THAT PEDESTRIAN PUSH BUTTONS AND SIGNS, TYPE D SIGN PANELS, PERMANENT SIGNAL CABLES, AND CONDUIT EXTENSIONS INTO NEW HANDHOLES SHALL NOT BE FURNISHED OR INSTALLED AS PART OF TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.
- 4) SEE "ACTION" TABLE ON THIS PLAN SHEET FOR INFORMATION REGARDING VEHICLE SIGNAL FACES.
- 5) TEMP FACE NO= SIGNAL FACE NUMBER DURING TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM.
- 6) PERM FACE NO= SIGNAL FACE NUMBER FOR PERMANENT SIGNAL SYSTEM.
- 7) DURING STAGES 1 AND 2, WHILE V AND W ARE IN OPERATION, CONTRACTOR SHALL NOT INSTALL SIGNALS ON MOUNTS AT X AND Y. WHEN 12"-4 SECTION R-Y-G-GLTA INDICATIONS ARE RELOCATED TO X AND Y FOR STAGE 3 OPERATION, CONTRACTOR SHALL INSTALL SIGNAL INDICATIONS FOR V AND W AS NOTED ON PERMANENT SIGNAL PLAN, BUT SHALL COVER AND NOT MAKE V AND W OPERATIONAL DURING STAGE 3.

FIELD WIRING DIAGRAM FOR TEMPORARY OPERATION OF PERMANENT SIGNAL SYSTEM



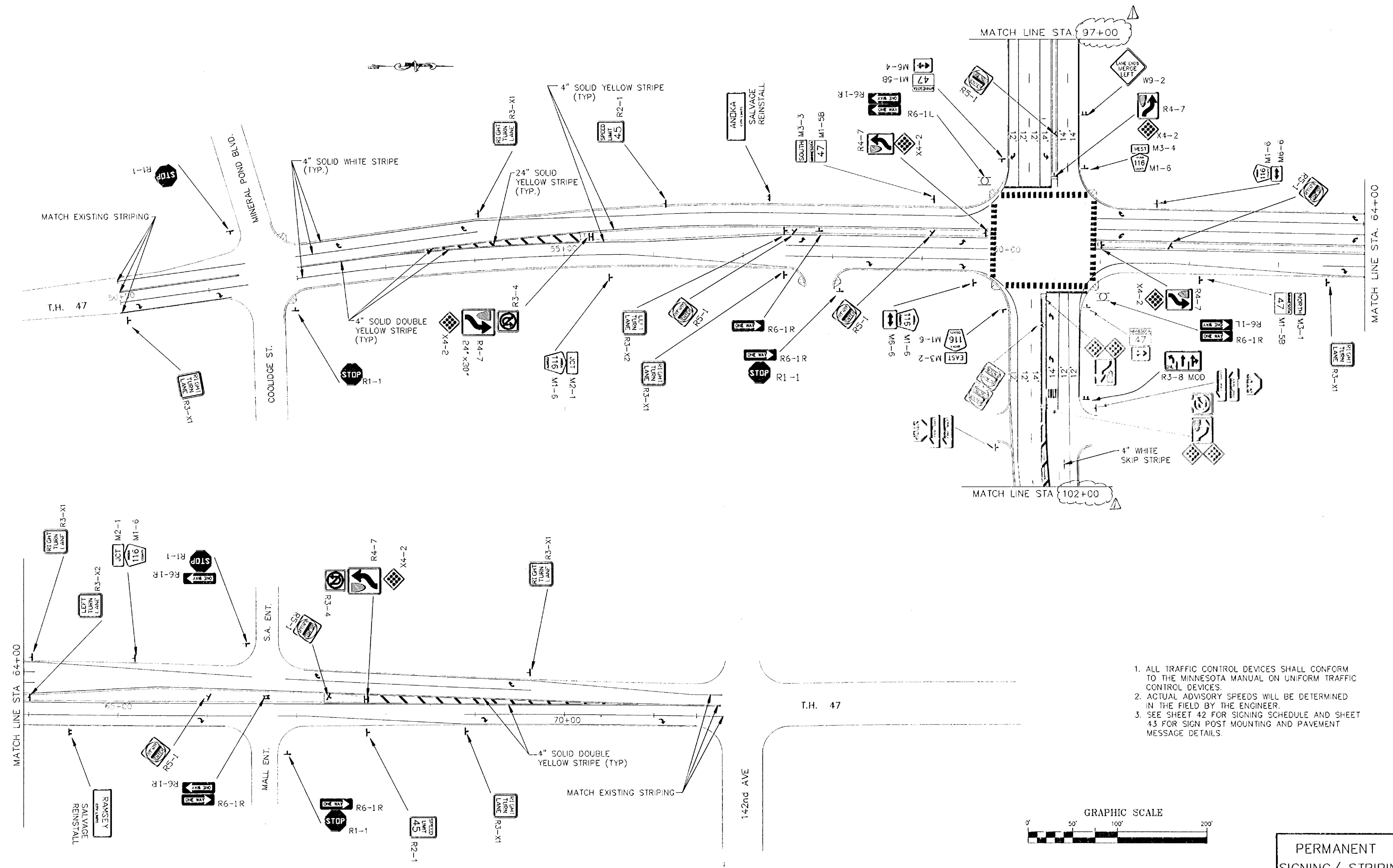
REVISIONS

DATE	BY	DATE	BY

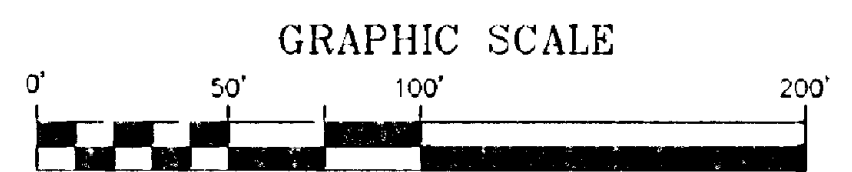


ANOKA COUNTY, MINNESOTA
CITIES OF ANOKA & RAMSEY

TRAFFIC SIGNAL SYSTEM
TEMPORARY OPERATION DETAIL
TRUNK HIGHWAY 47 AT CSAH 118

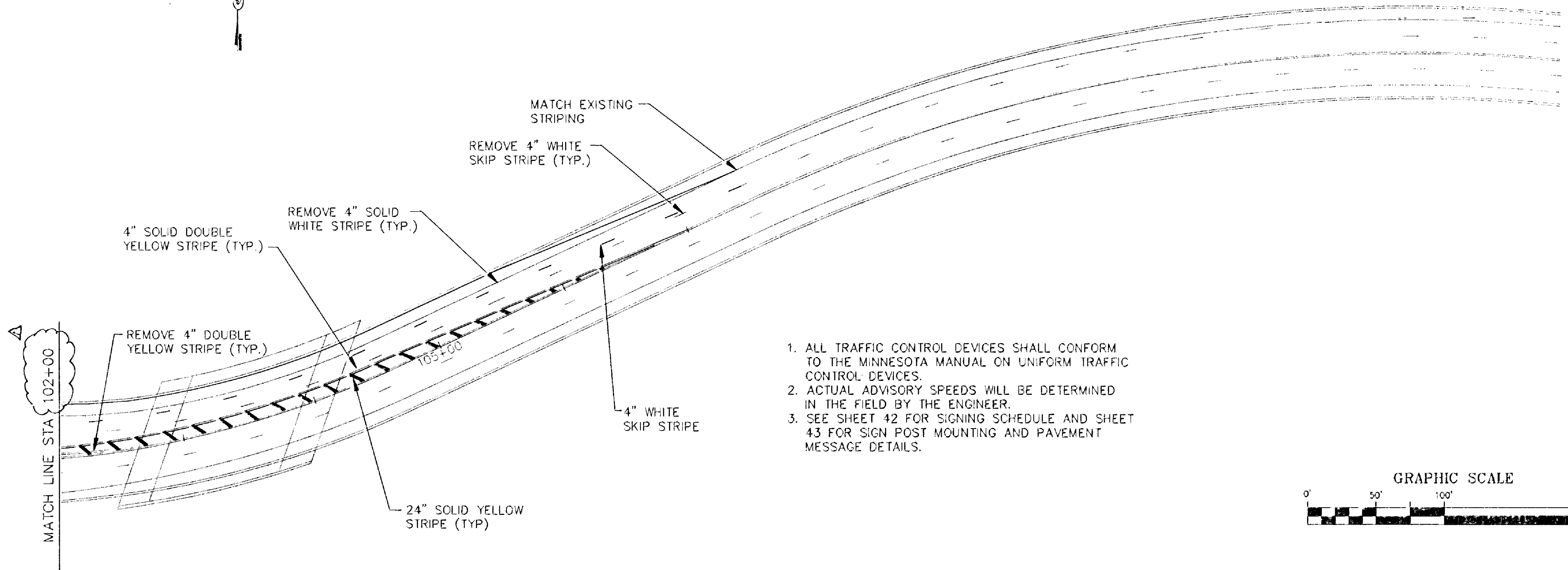
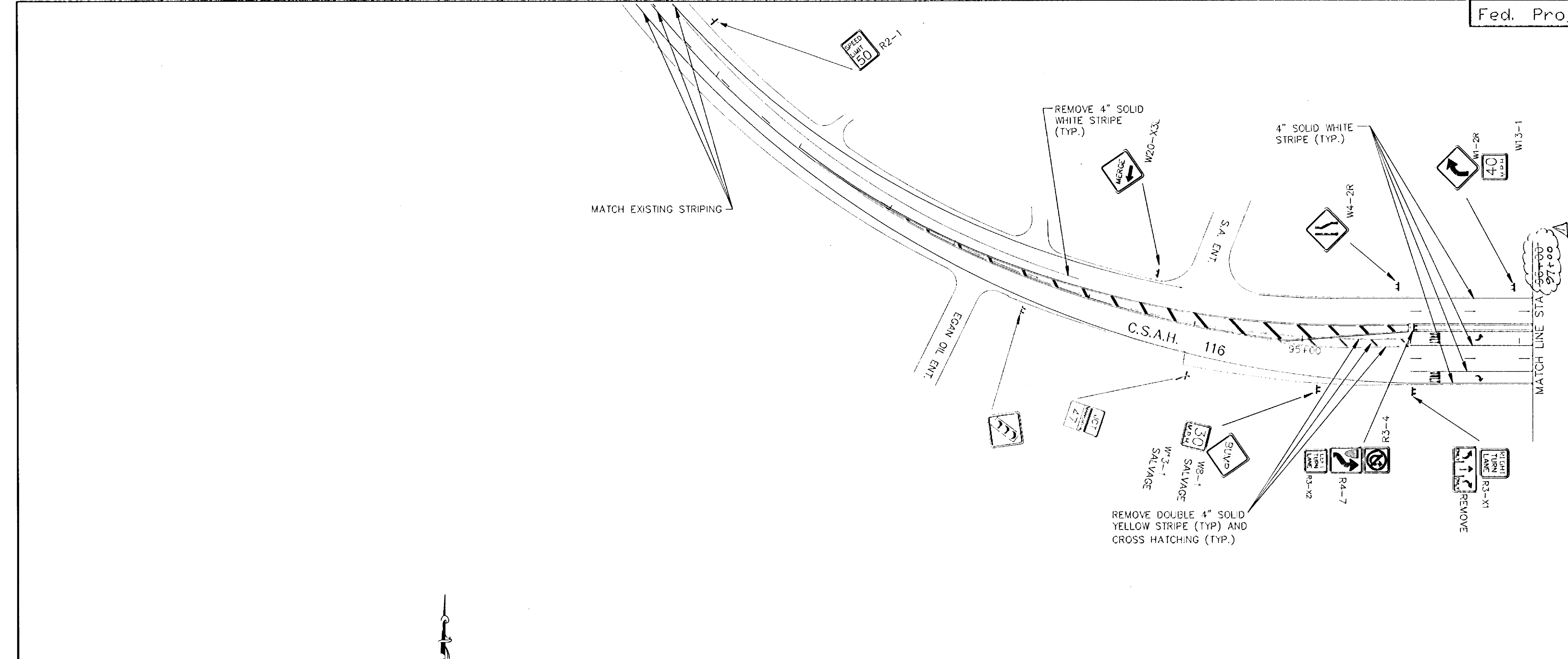


1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. ACTUAL ADVISORY SPEEDS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. SEE SHEET 42 FOR SIGNING SCHEDULE AND SHEET 43 FOR SIGN POST MOUNTING AND PAVEMENT MESSAGE DETAILS.

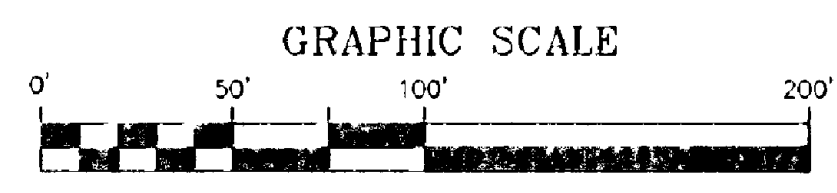


REVISIONS	DATE	BY
1	8/28/96	KTY

R21-1



1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. ACTUAL ADVISORY SPEEDS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. SEE SHEET 42 FOR SIGNING SCHEDULE AND SHEET 43 FOR SIGN POST MOUNTING AND PAVEMENT MESSAGE DETAILS.



REVISIONS	DATE	BY
1	5/29/96	KTY

CERTIFIED BY Douglas M. Fitch P. E. REG NO. 20235 10/2 19 96

S. P. 0206-47 S. A. P. 02-716-01 C. P. _____

Sheet No. 41 of 56 Sheets

PERMANENT SIGNING/ STRIPING

Rev-1

M.U.T.C.D.	CODE	SIZE	AREA (SQ.FT.)	QTY. GROUND POST INSTALLATIONS	QTY. ISLAND MOUNT INSTALLATIONS	SIGN PANEL LEGEND	# POST/INSTALLATION	MOUNTING HEIGHT
R1-1	30"x30"	6.25	5	0	0	STOP	2U	7.0'
R2-1	24"x30"	5.00	2	0	0	SPEED LIMIT	2U	7.0'
R1-1	24"x30"	5.00	1	0	0	SPEED LIMIT	2U	7.0'
R3-4	24"x24"	4.00	0	3	0	NO 'U' TURN	0	7.0'
R3-8M	48"x30"	10.00	1	0	0	LANE DESIGNATION	2U-1A	7.0'
R3-X1	30"x30"	6.25	8	0	0	RIGHT TURN LANE	2U	7.0'
R3-X2	30"x30"	6.25	0	3	0	LEFT TURN LANE	2U	7.0'
R4-7	24"x30"	5.00	0	6	0	KEEP RIGHT	2U	7.0'
X4-2	18"x18"	2.25	0	6	0	HAZARD MARKER		
R5-1	30"x30"	6.25	0	6	0	DO NOT ENTER	2U	7.0'
R6-1R	36"x12"	3.00	5	3	0	ONE WAY (RIGHT)	2U	7.0'
R6-1L	36"x12"	3.00	2	0	0	ONE WAY (LEFT)	2U	7.0'

(3) MOUNTED BEHIND R4-7 (30"x36")

(2)

(1) MOUNTED BEHIND R4-7

(1) MOUNTED BEHIND R3-X1
(1) MOUNTED BEHIND M1-6

(3) MOUNTED ABOVE R1-1
(4) ON SIGNAL POST

(4) MOUNTED ON SIGNAL POST

M.U.T.C.D.	CODE	SIZE	AREA (SQ.FT.)	QTY. GROUND POST INSTALLATIONS	QTY. ISLAND MOUNT INSTALLATIONS	SIGN PANEL LEGEND	# POST/INSTALLATION	MOUNTING HEIGHT
W1-2R	48"x48"	16.00	1	0	0	RIGHT CURVE	2U	7.0'
W13-1	24"x24"	4.00	1	0	0	ADVISORY SPEED	0	
W4-2R	48"x48"	16.00	1	0	0	LANE REDUCTION TRANSITION	2U	7.0'
W9-2	48"x48"	16.00	1	0	0	MERGE LEFT	2U	7.0'
W20-X3L	48"x48"	16.00	1	0	0	MERGE LEFT	2U	7.0'
M2-1A	21"x15"	2.19	2				2U-1A	7.0'
M3-2A	24"x12"	2.00	1					
M3-4A	24"x12"	2.00	1					
M1-6	24"x24"	4.00	6	0	0		2U-1A	7.0'
M6-4A	21"x15"	2.19	2					
M3-1A	24"x12"	2.00	1				2U-1A	7.0'
M3-3A	24"x12"	2.00	1					
M1-5B	24"x24"	4.00	3	0	0		2U-1A	7.0'
M6-4A	21"x15"	2.19	1					

(2)

(2)

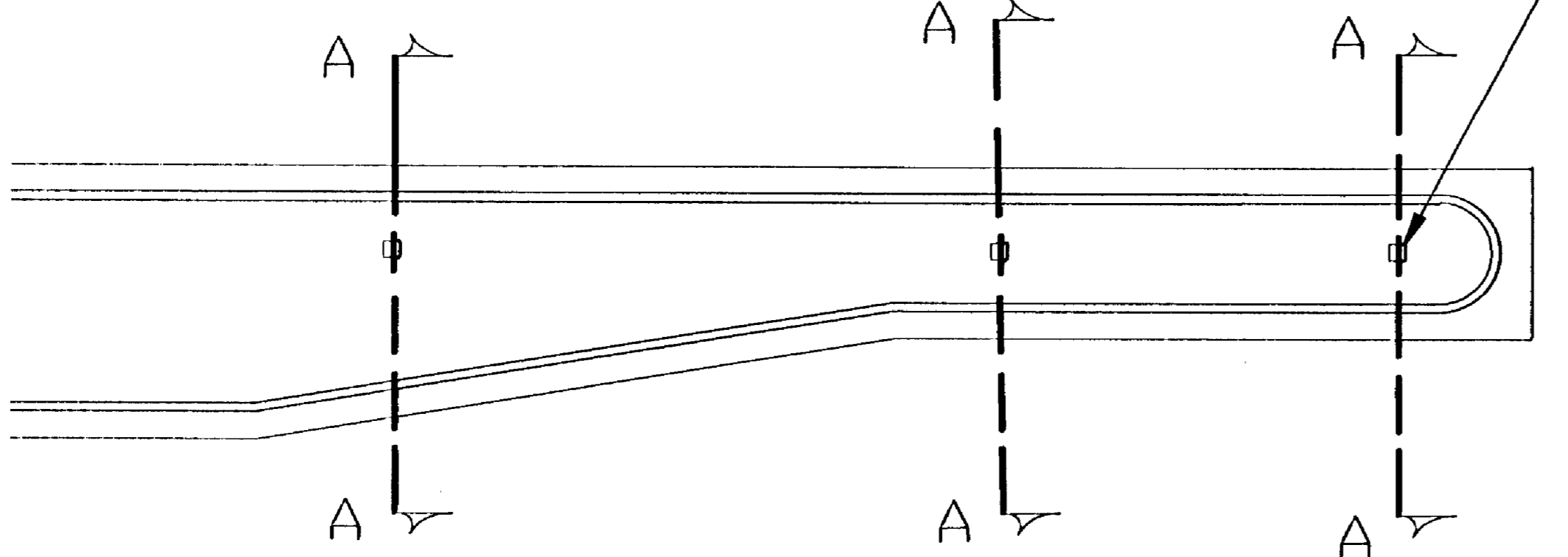
(2)

① U= VERTICAL 'U' POST
A= KNEE BRACE

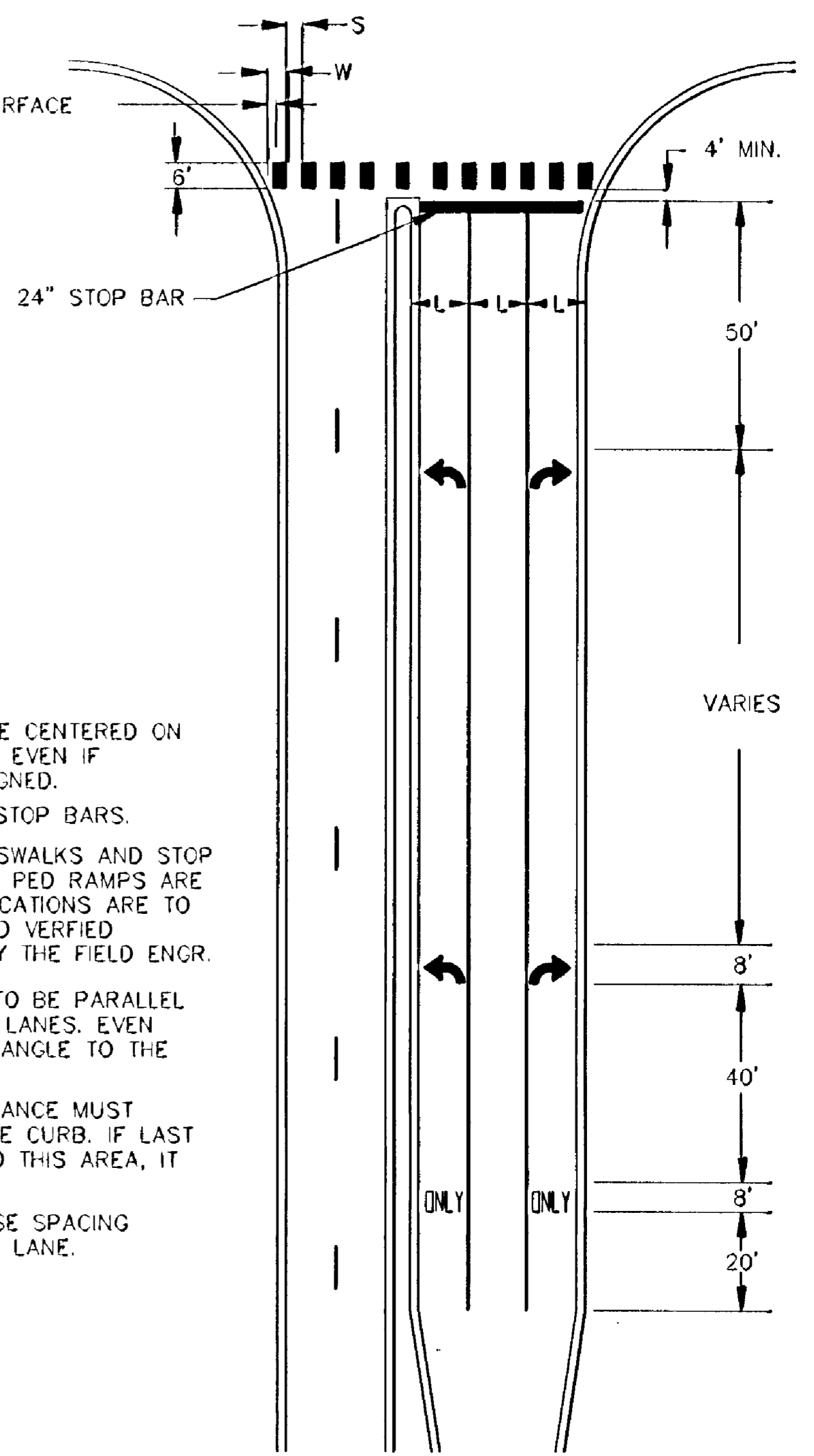
② KNEE BRACE NOT REQUIRED ON SIGN SUPPORTS ALONG CSAH 116

PERMANENT SIGNING QUANTITIES

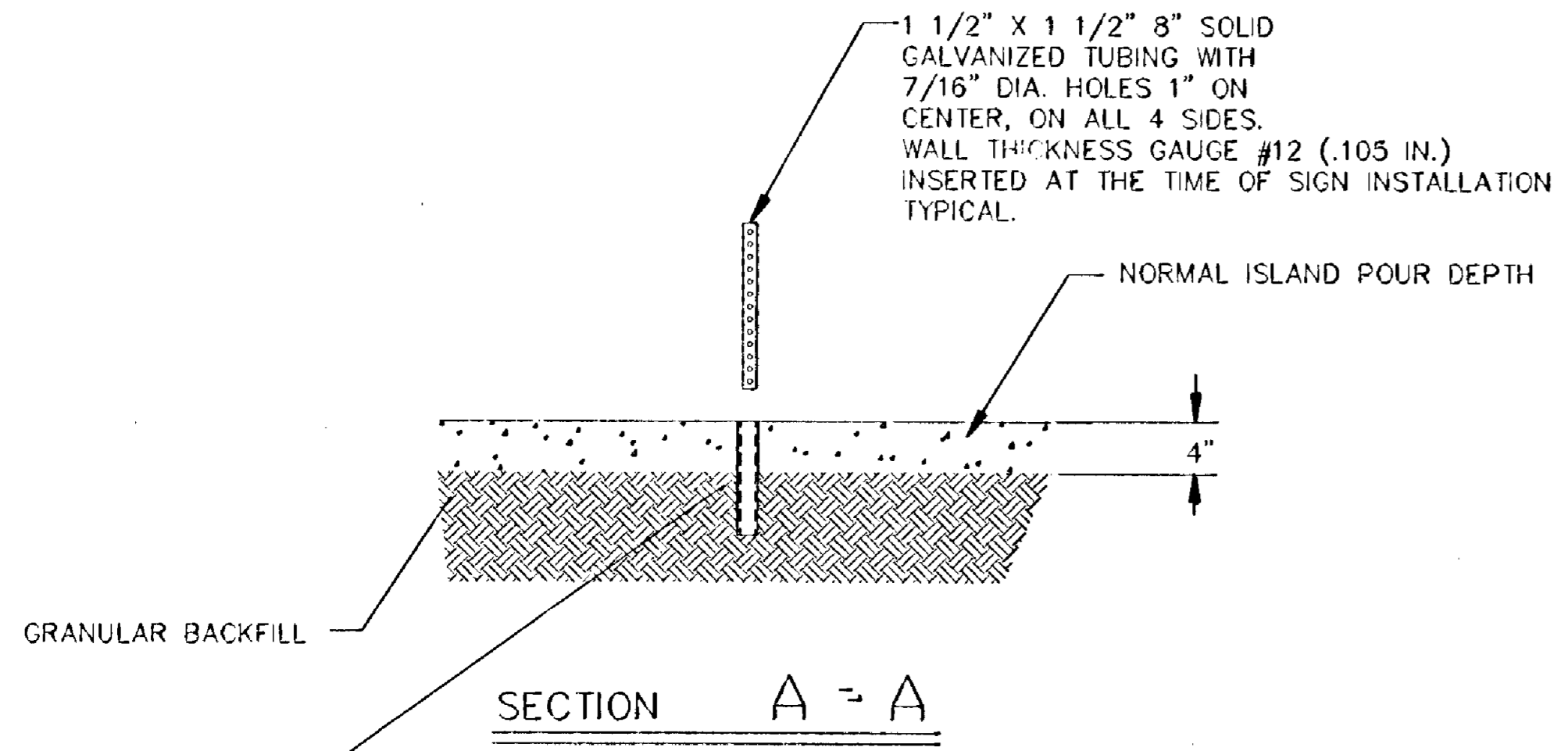
INSTALL 1 3/4" x 1 3/4" x 8" SOLID GALVANIZED SQUARE TUBING IN ISLAND NOSE DURING CONCRETE POUR, PLUMB AS REQUIRED. TAPE BOTTOM OF TUBING TO PREVENT CONCRETE FROM ENTERING TUBING.



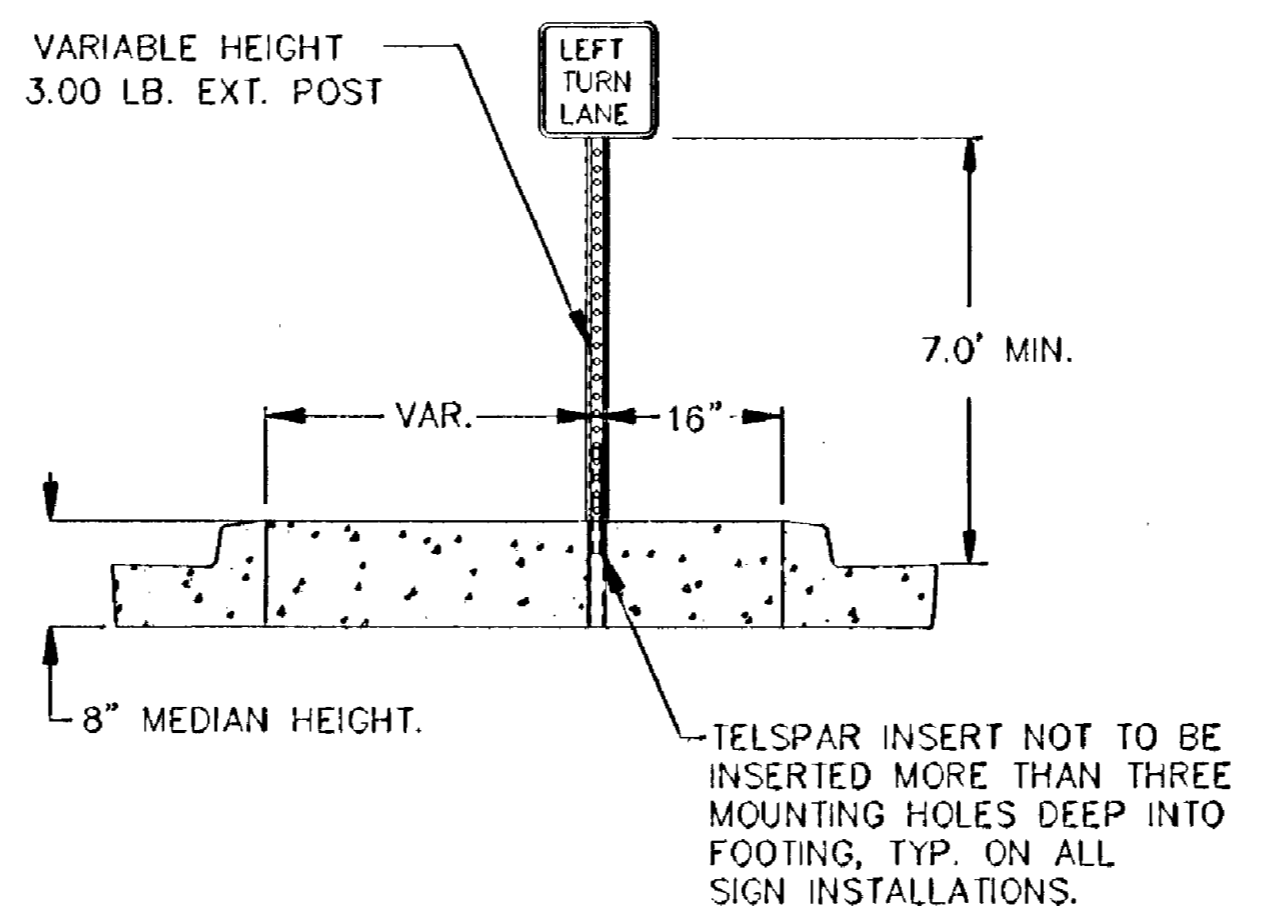
(L)	(W)	(S)
WIDTH OF INSIDE LANE	WIDTH OF PAINTED AREAS	WIDTH OF SPACE
9'	2.0'	2.5'
10'	2.5'	2.5'
11'	2.5'	3.0'
12'	3.0'	3.0'
13'	3.0'	3.5'



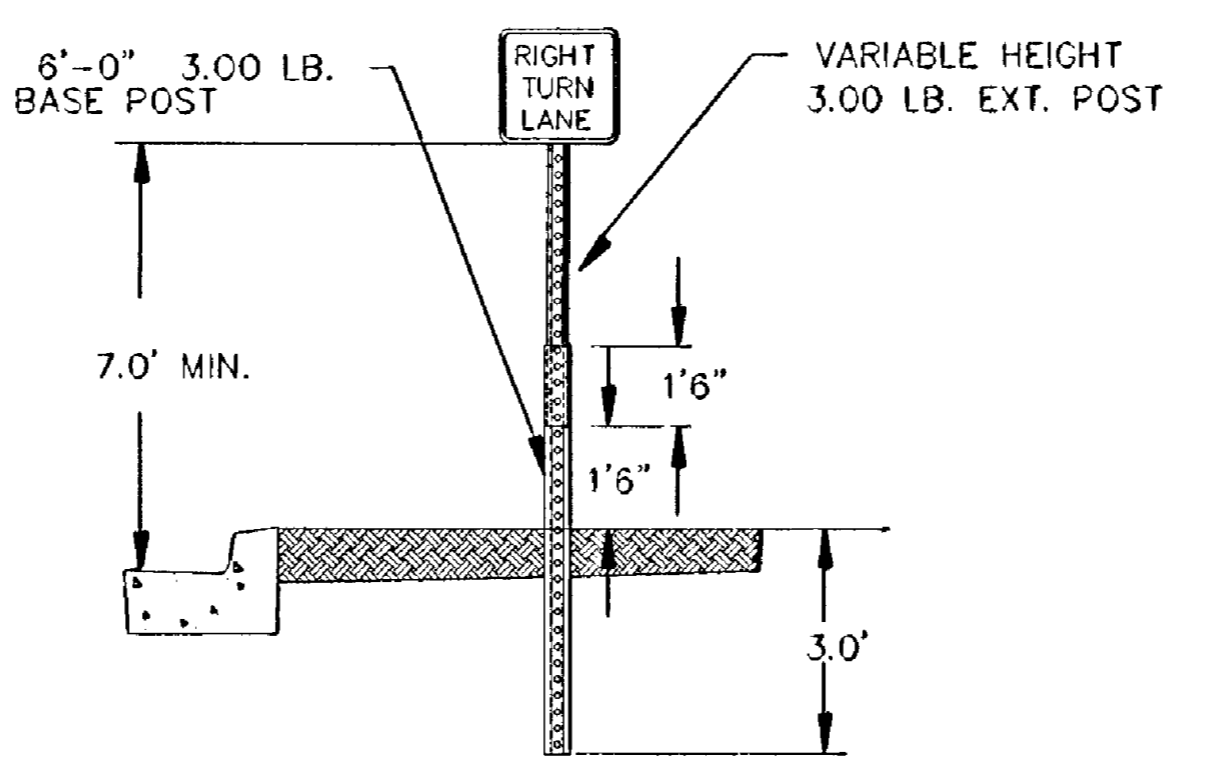
- NOTES: CROSSWALKS:
- 1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.
 - 2.) ZEBRA CROSSWALKS AND STOP BARS.
 - 3.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMP ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD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



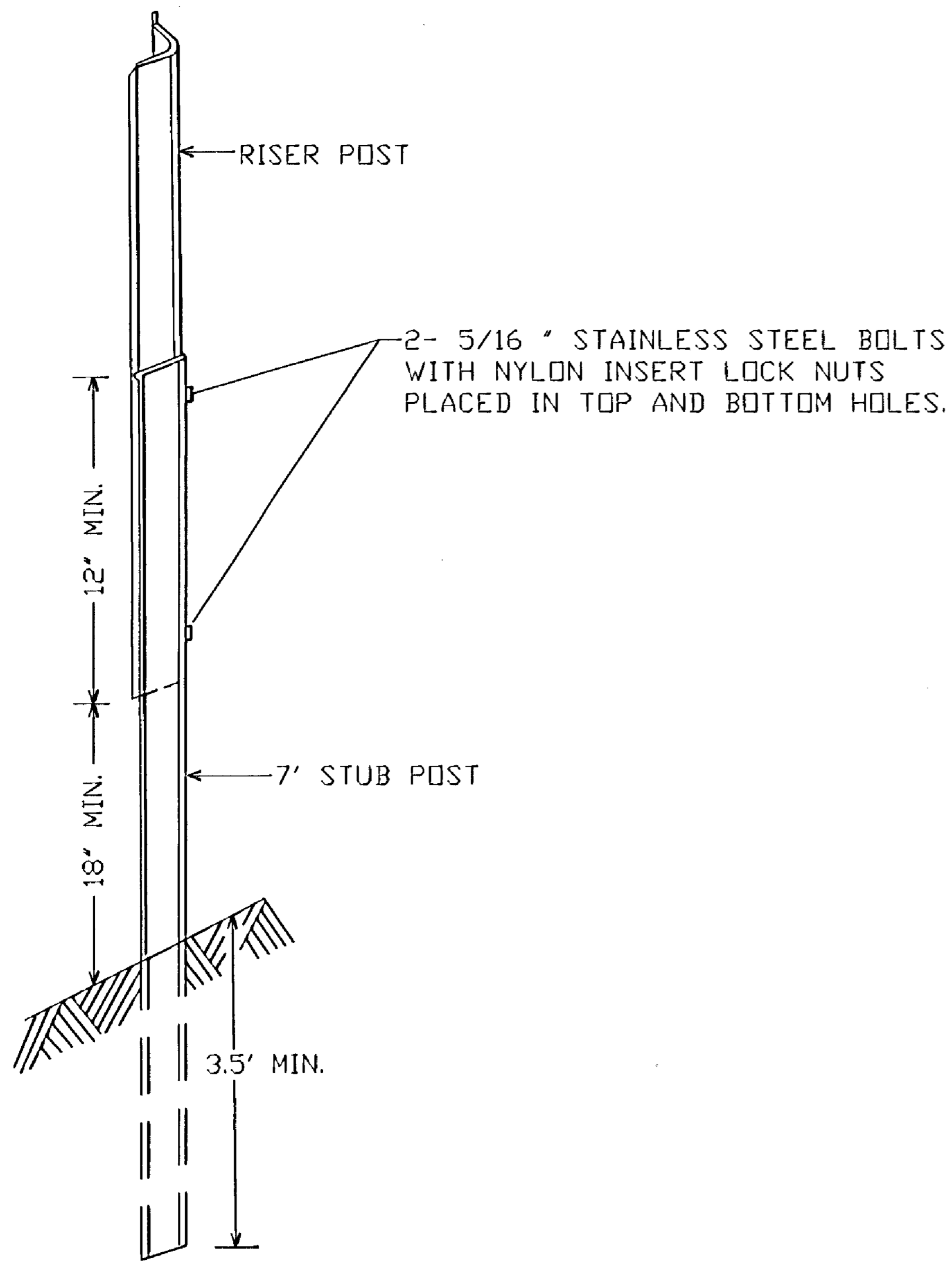
ISLAND MOUNT BREAK-AWAY SIGN POST INSTALLATION TYPICAL



GROUND POST MOUNT SIGN INSTALLATION TYPICAL

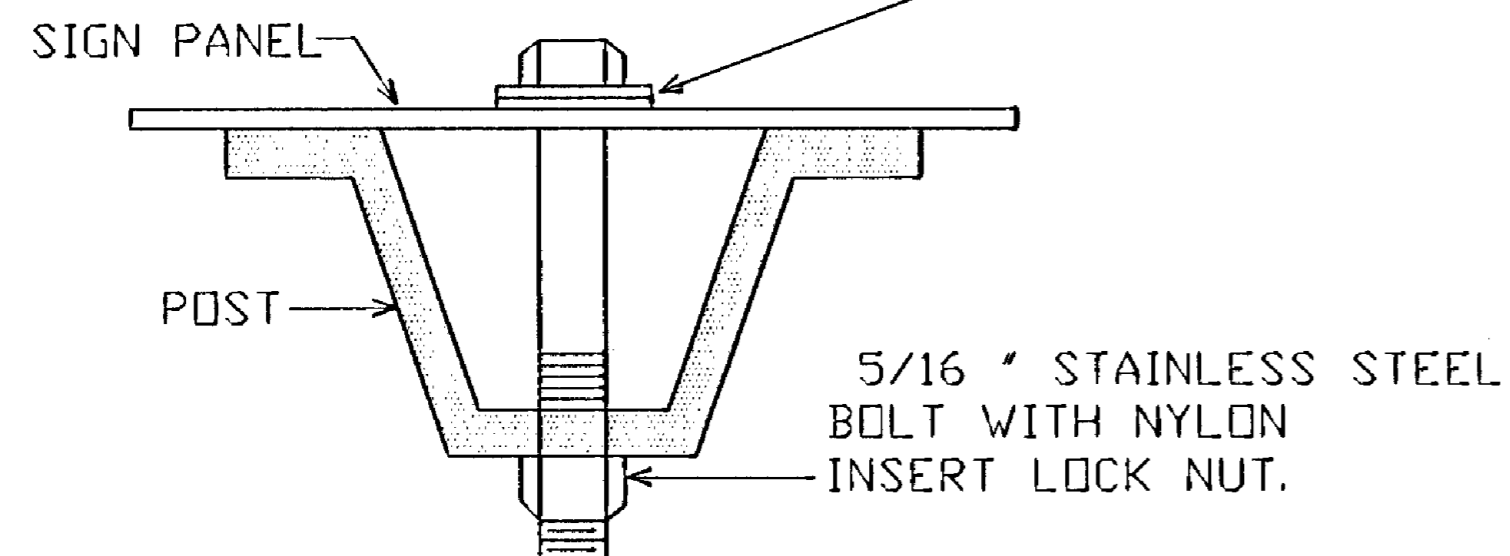


TYPE "C" & "D" POST

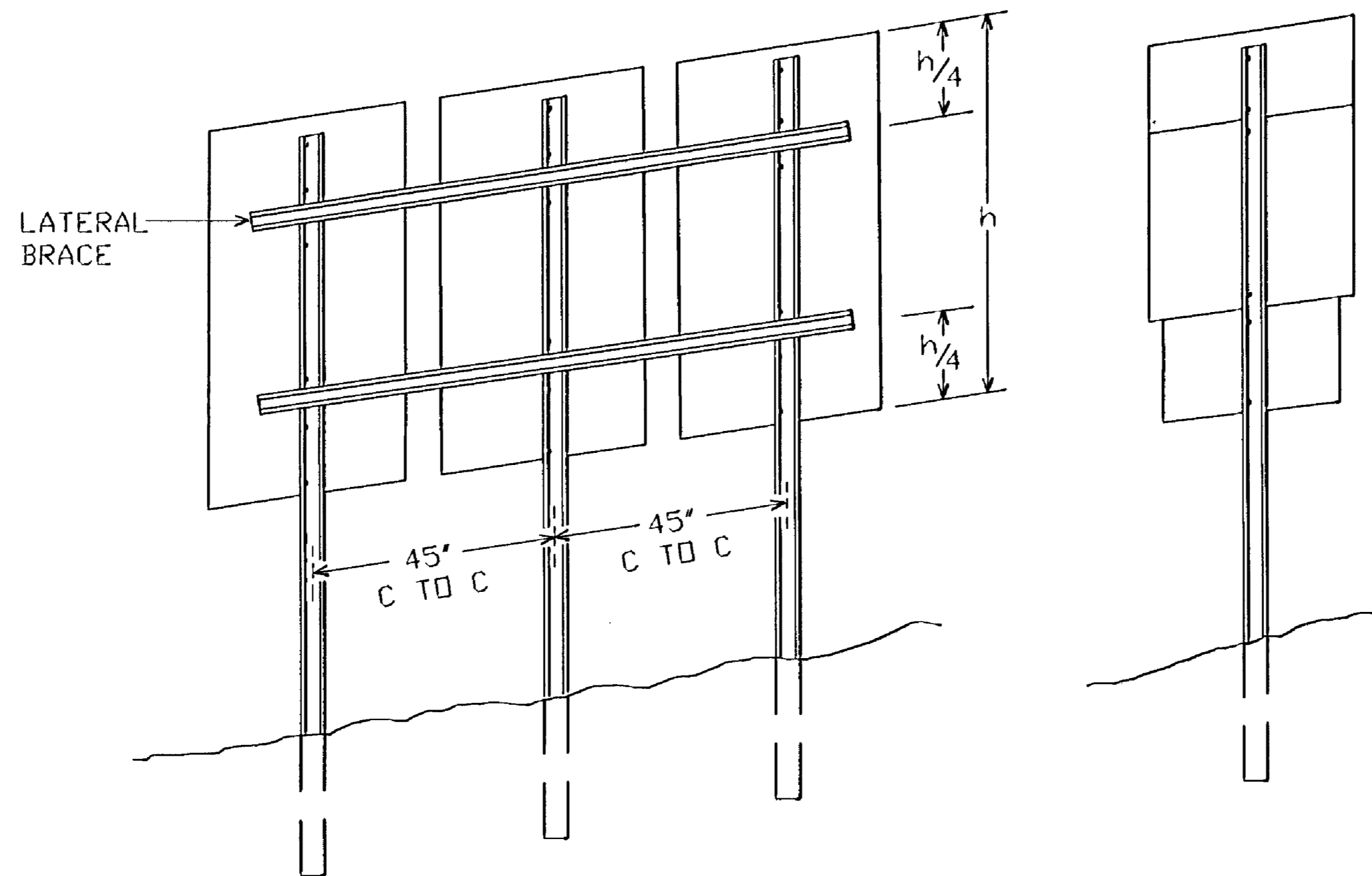


"U POST" SPLICE

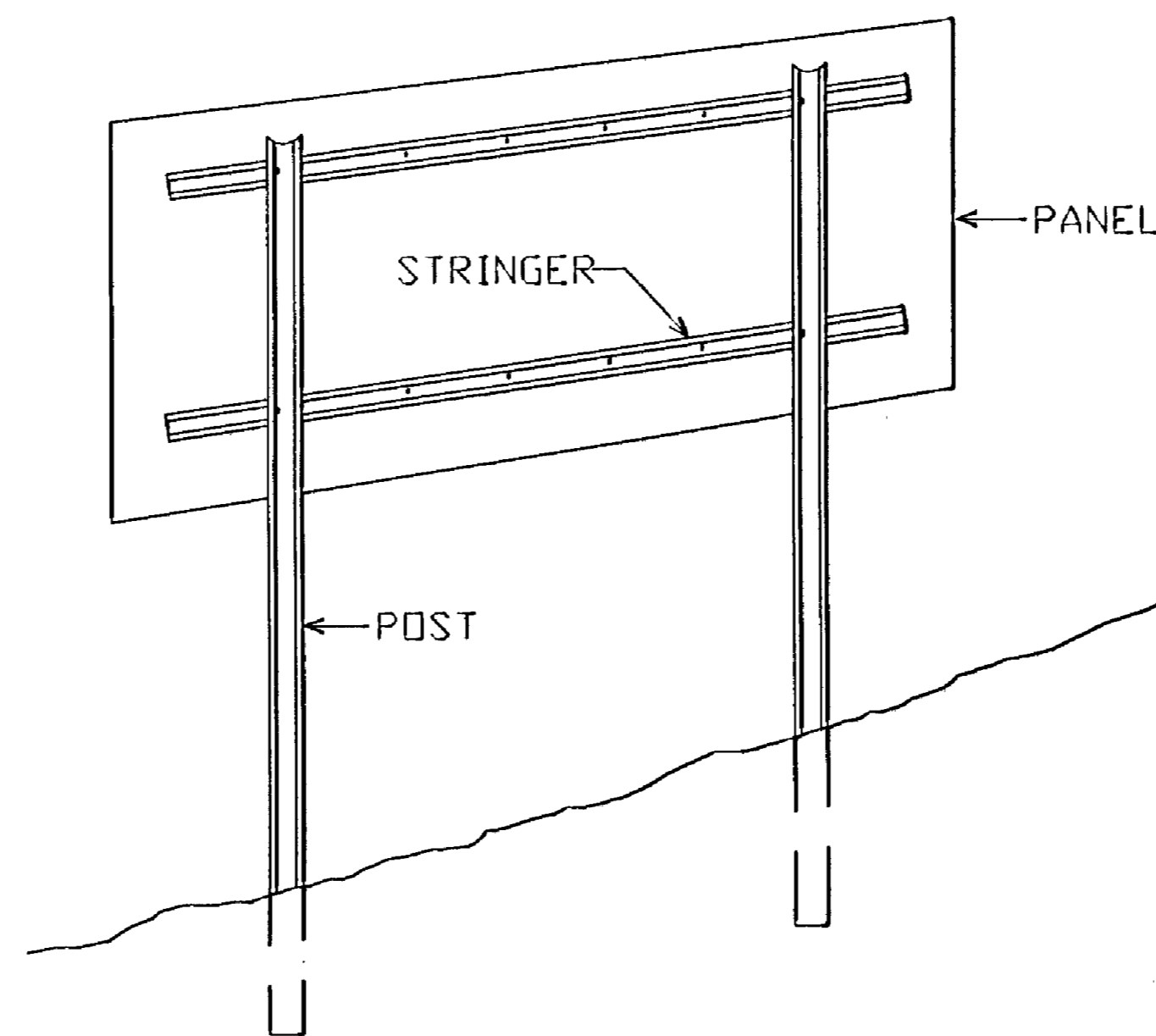
STAINLESS STEEL WASHER AND NYLON WASHER
(T= 1/32 " MIN, I.D.= 3/8 " MAX, O.D.= 7/8 " MAX.)



"U POST" MOUNTING
TYPE "C" SIGNS



TYPICAL TYPE "C" INSTALLATIONS



TYPICAL TYPE "D" INSTALLATION

NOTES:

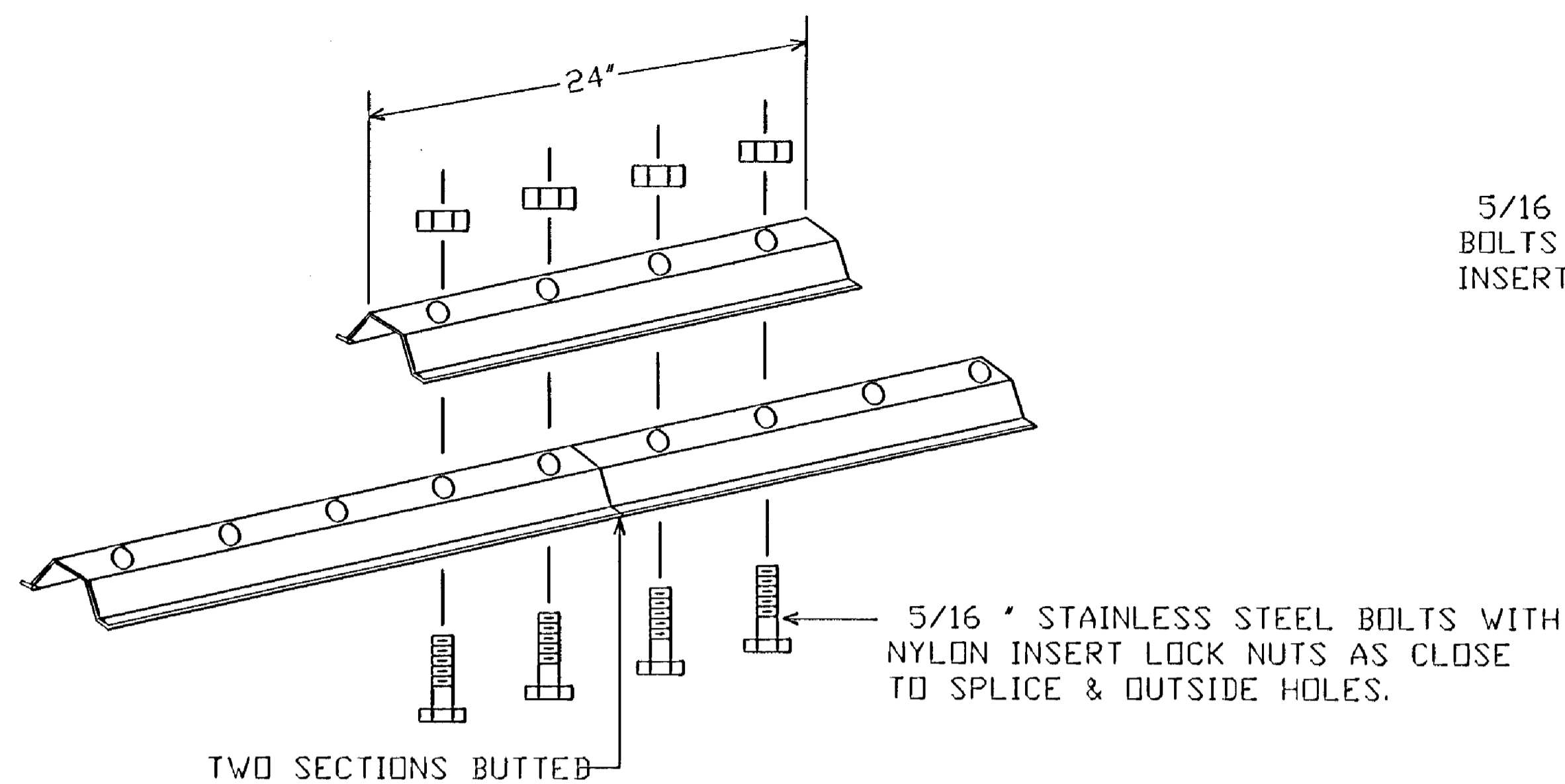
1. USE 3# STUB POSTS, RISER POSTS, STRINGERS, KNEE BRACES, LATERAL BRACES AND KNEE BRACE STUB POSTS. ALL SHALL CONFORM TO MN/DOT 3401.
2. FOR TYPE "D" SIGN POSTS LENGTHS AND SPACINGS, SEE SIGN DATA SHEET.
3. TYPE "D" SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH TYPE "D" STRINGER AND PANEL-JOINT DETAIL (SEE STANDARD SIGNS MANUAL).
4. MOUNTING (PUNCHING CODE) FOR TYPE "C" SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
5. ALL RISER (VERTICAL) "U POSTS" SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
6. USE STAINLESS STEEL 5/16 " BOLTS, WASHERS, AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
7. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
8. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 3 1/2 ".
9. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MN/DOT 3306 AND GALVANIZED IN ACCORDANCE WITH MN/DOT 3394.
10. COLLARS SHALL BE USED TO SHIM OVERLAYS AND DEMOUNTABLE LEGEND AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MN/DOT 3352.2A7.
11. 2 AND 3 POST TYPE "C" SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
12. WHERE 2 OR MORE SINGLE POST SIGNS (TYPE "C") ARE MOUNTED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 POST SECTIONS, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN SKETCH.

"C" & "D" SIGN DETAILS

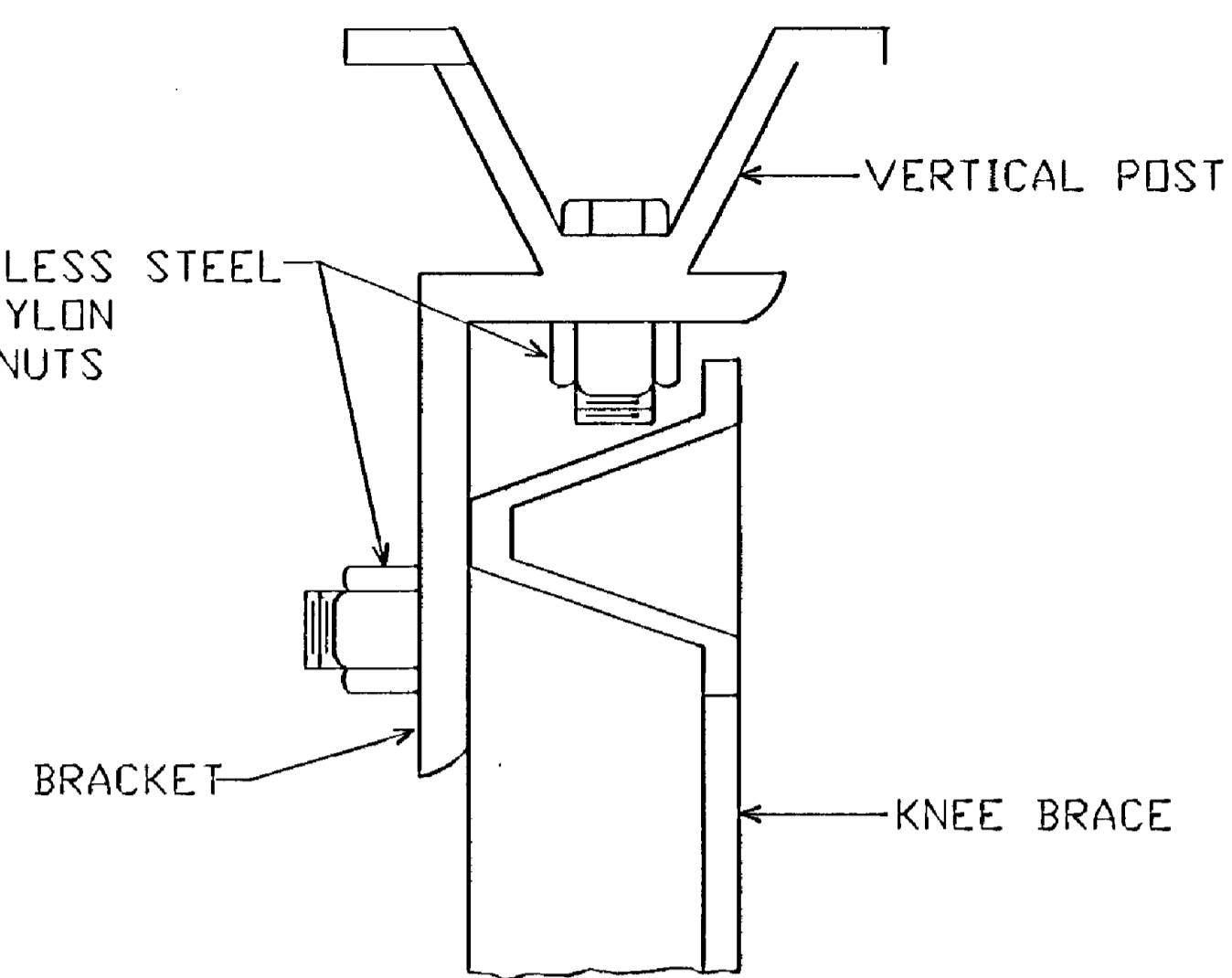
DESIGN A

Sheet 1 of 3

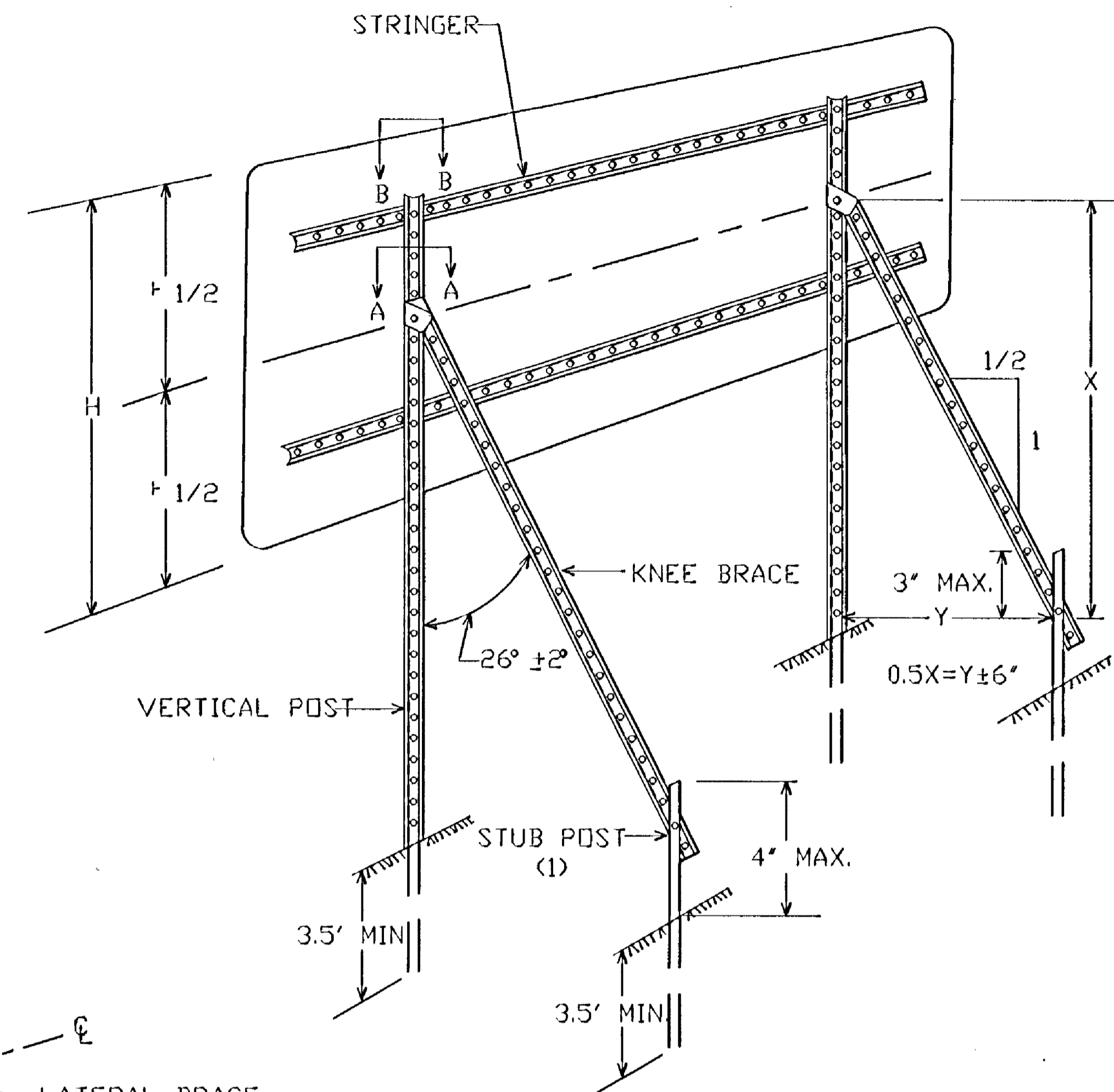
Rev. 7-20-93
Rev. 3-23-90



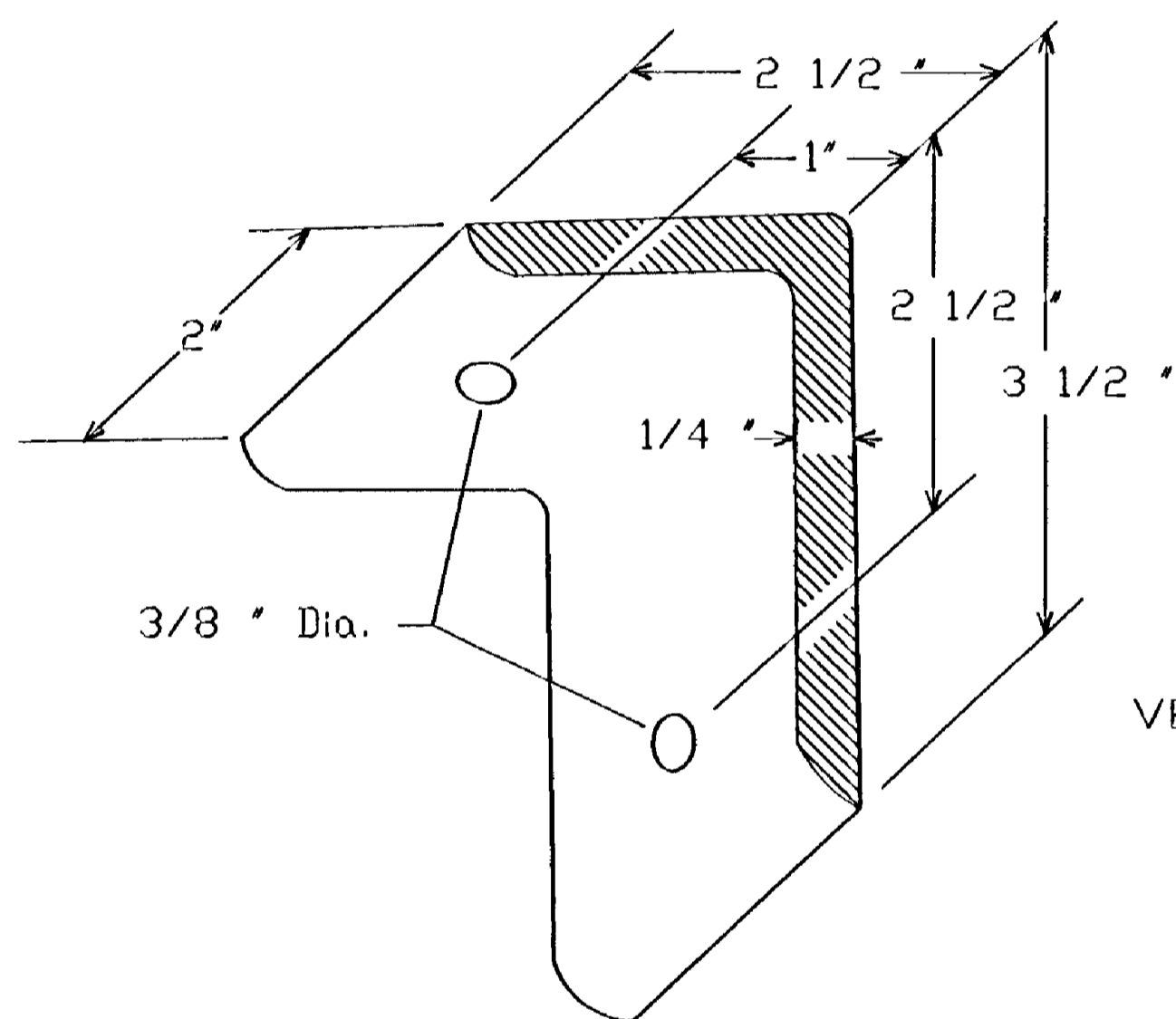
LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

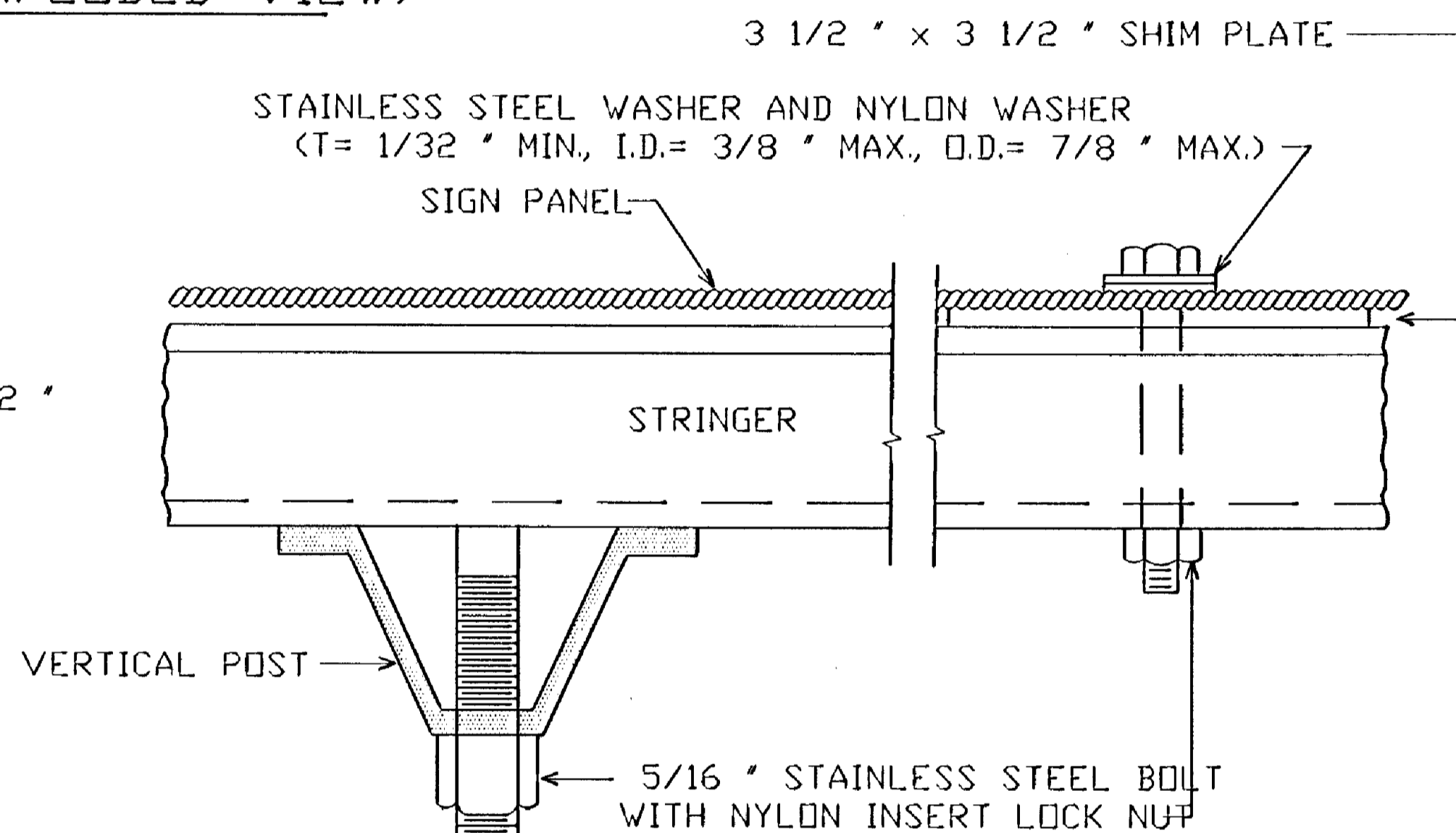


TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

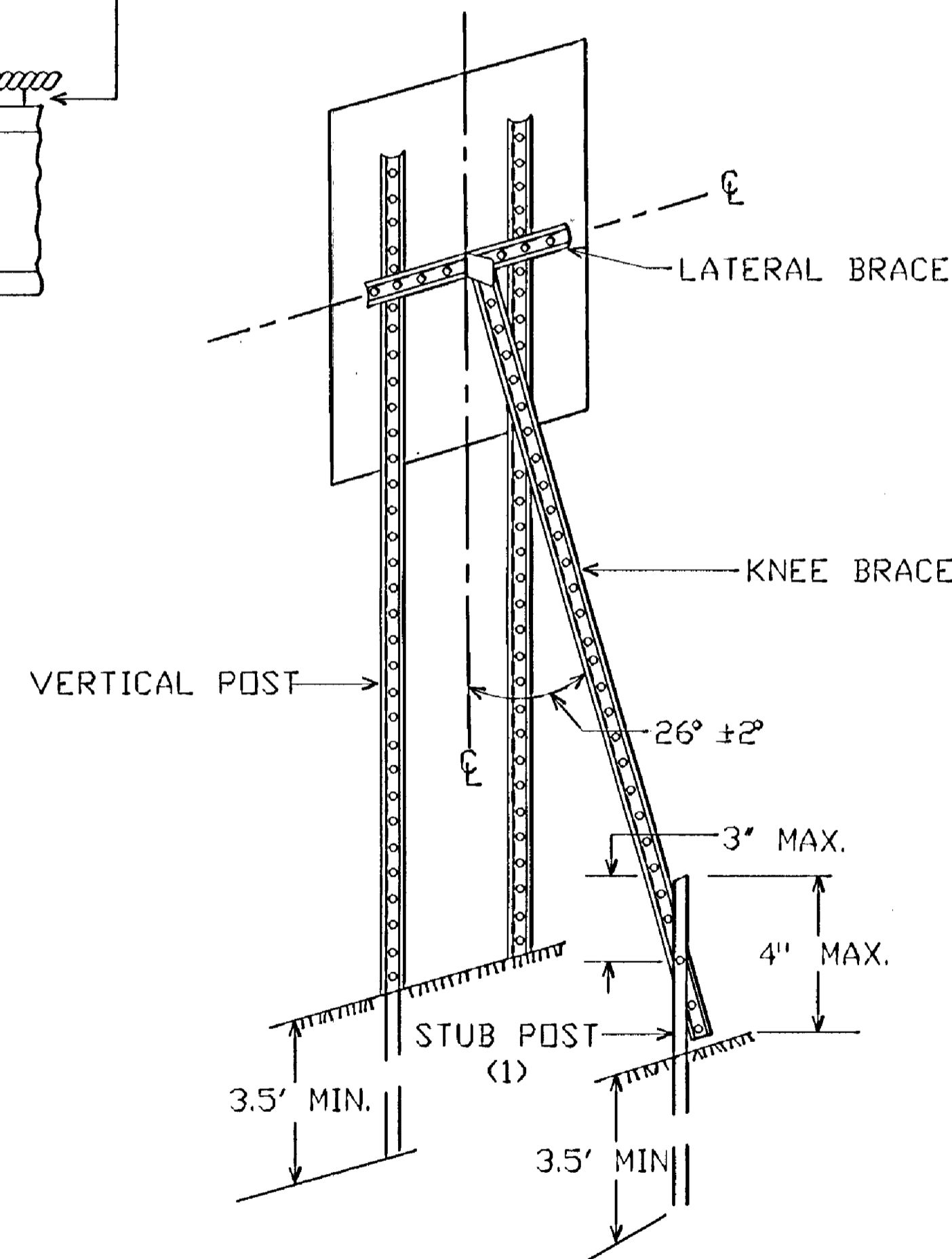


A-FRAME BRACKET

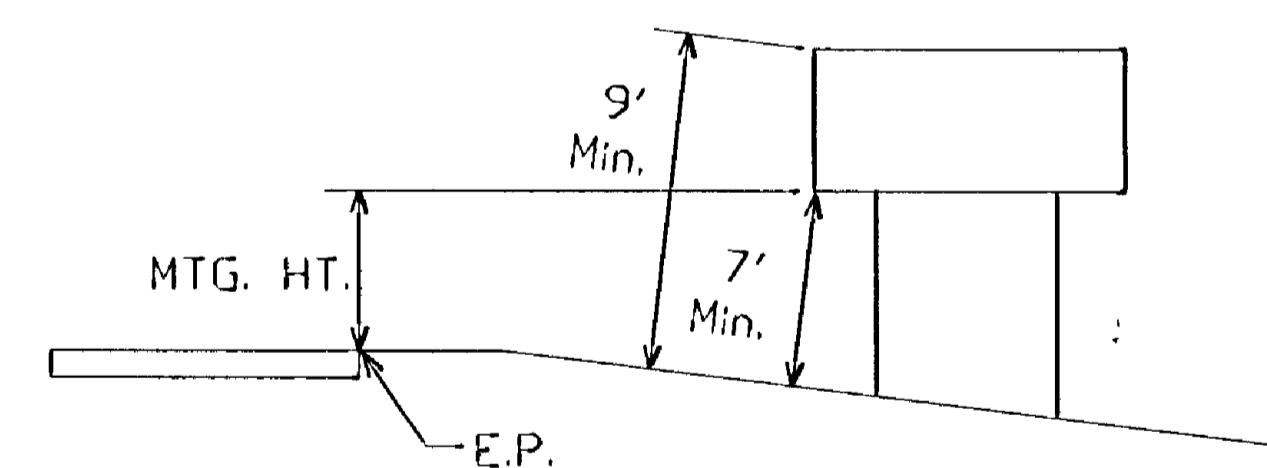
(Steel Mn/DDT 3306 galvanized per Mn/DDT 3394)



SECTION B-B



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

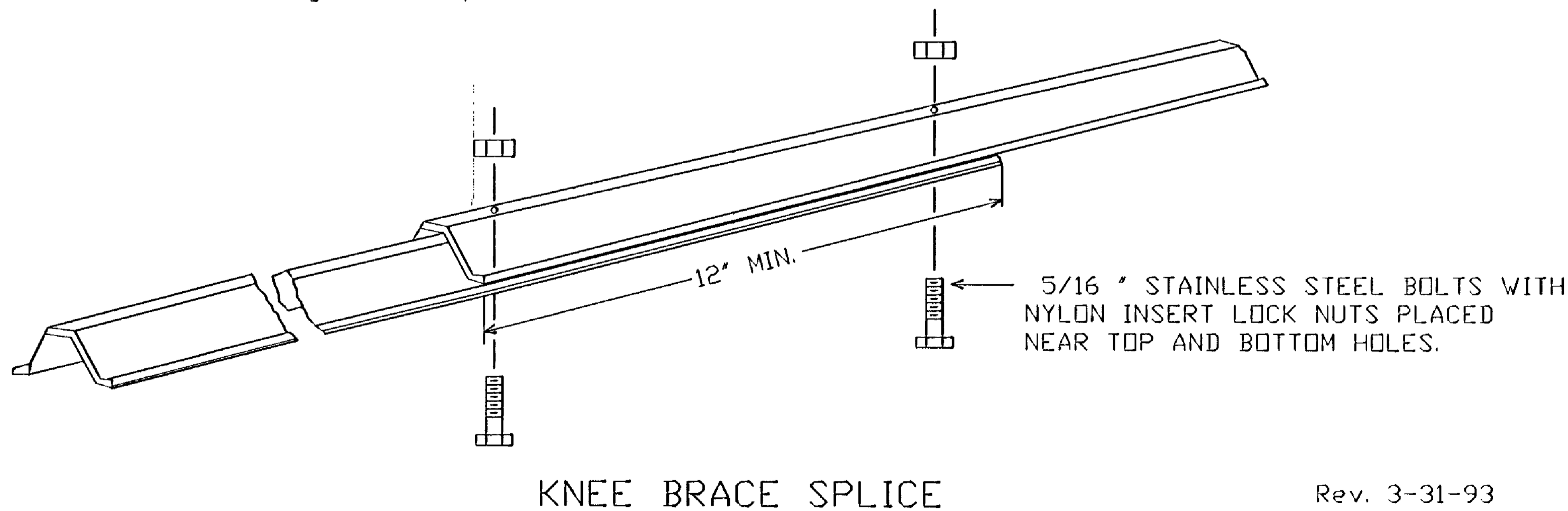


TYPICAL MOUNTING

(1) Offset stub post 1' toward roadway relative to vertical post.

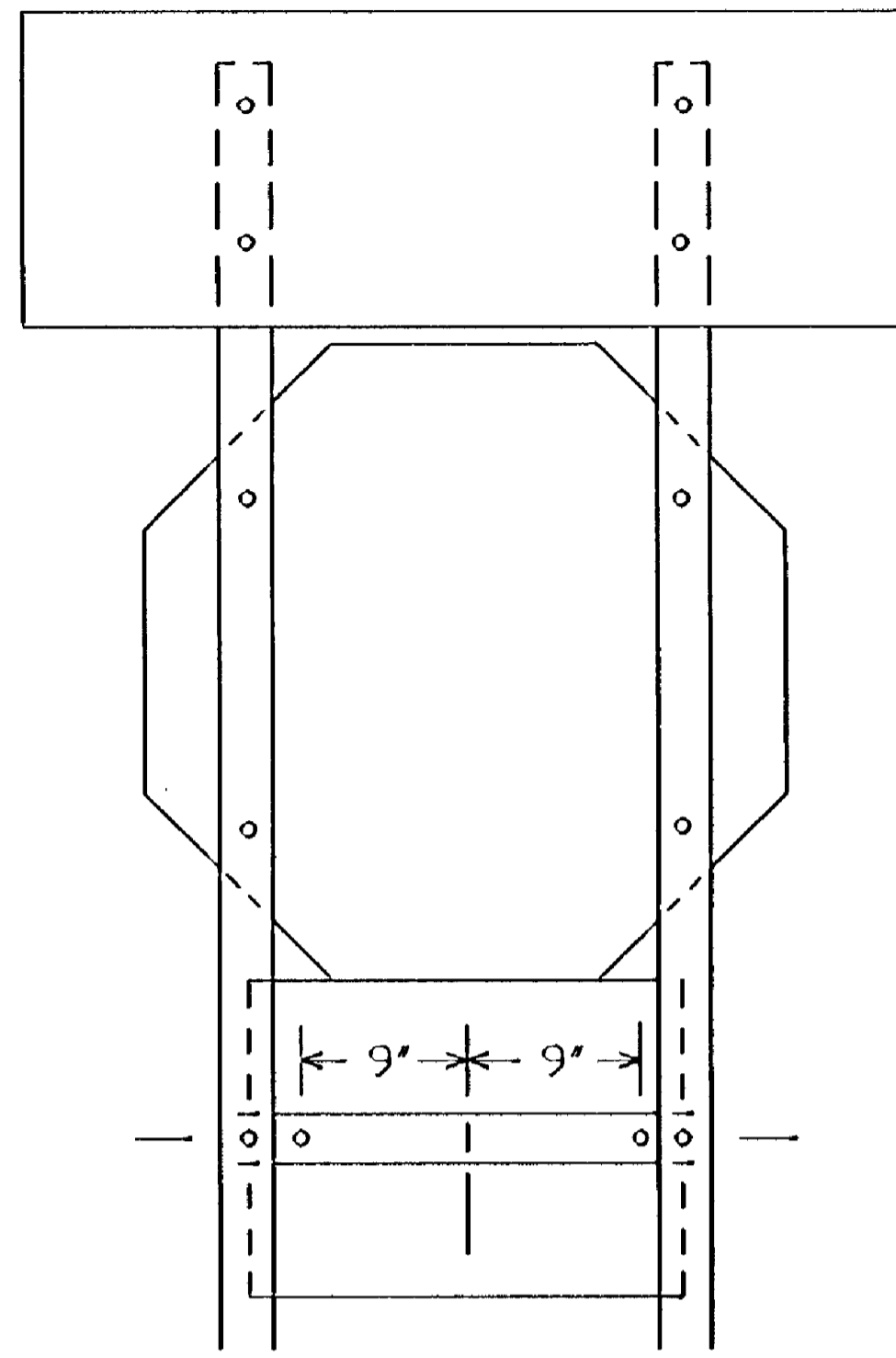
"C" & "D" SIGN DETAILS

DESIGN A
Sheet 2 of 3

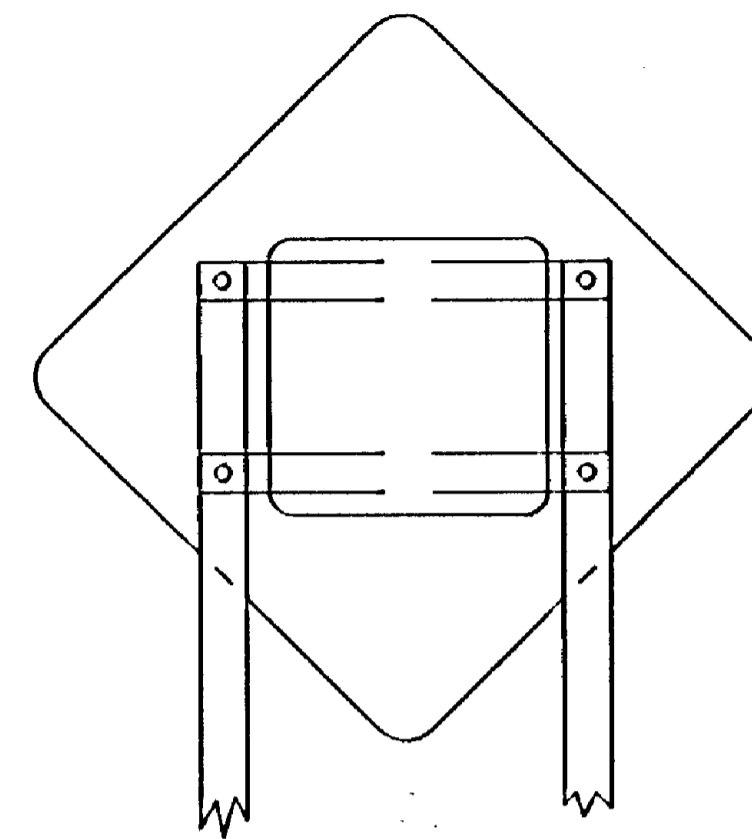


KNEE BRACE SPLICE

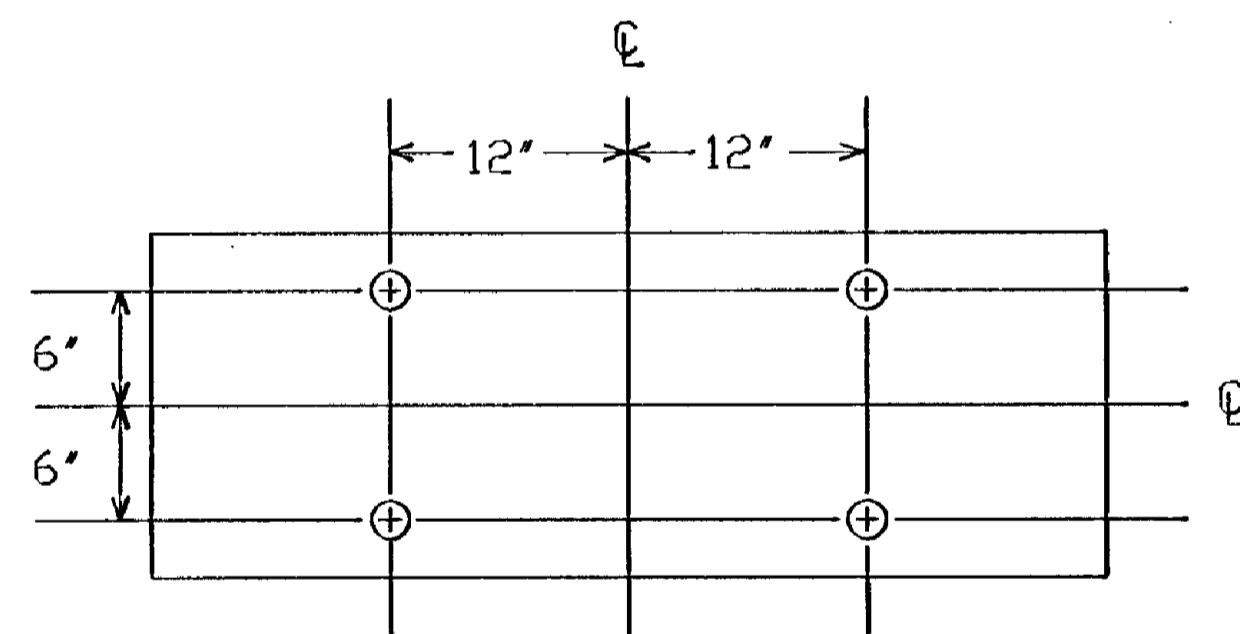
Rev. 3-31-93
Rev. 3-23-90



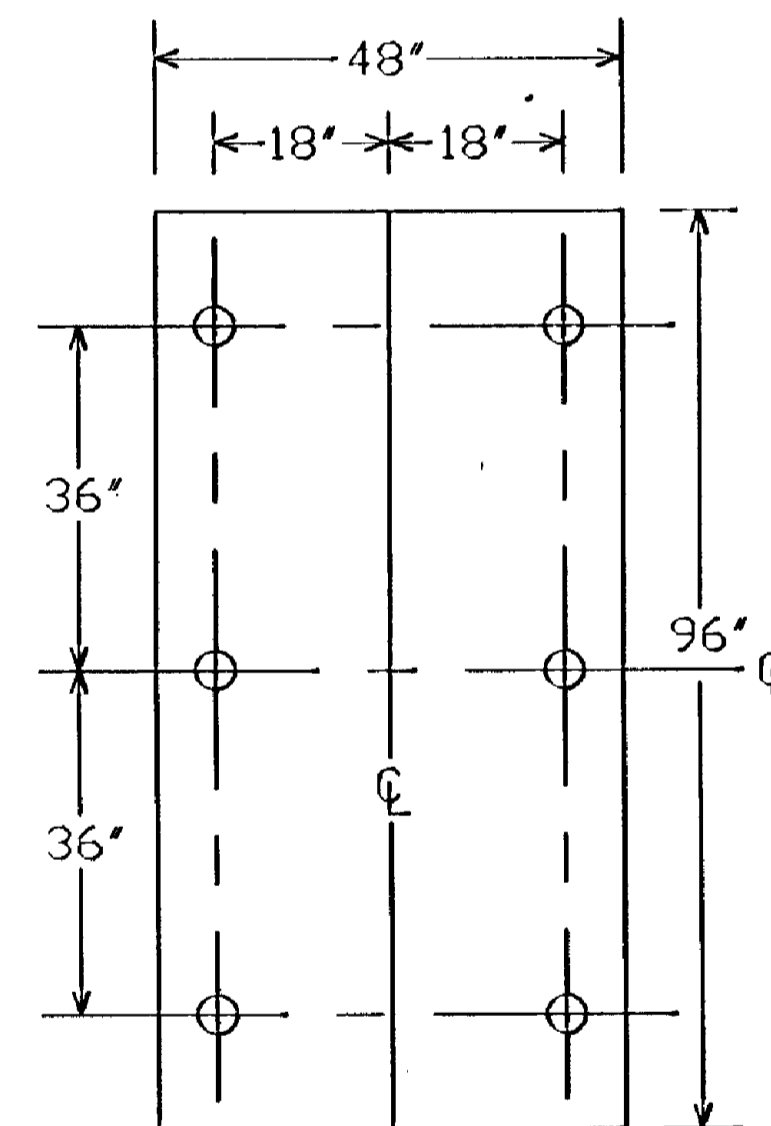
R6-1, R1-1 & (R6-3 or R6-3a)
Mounting



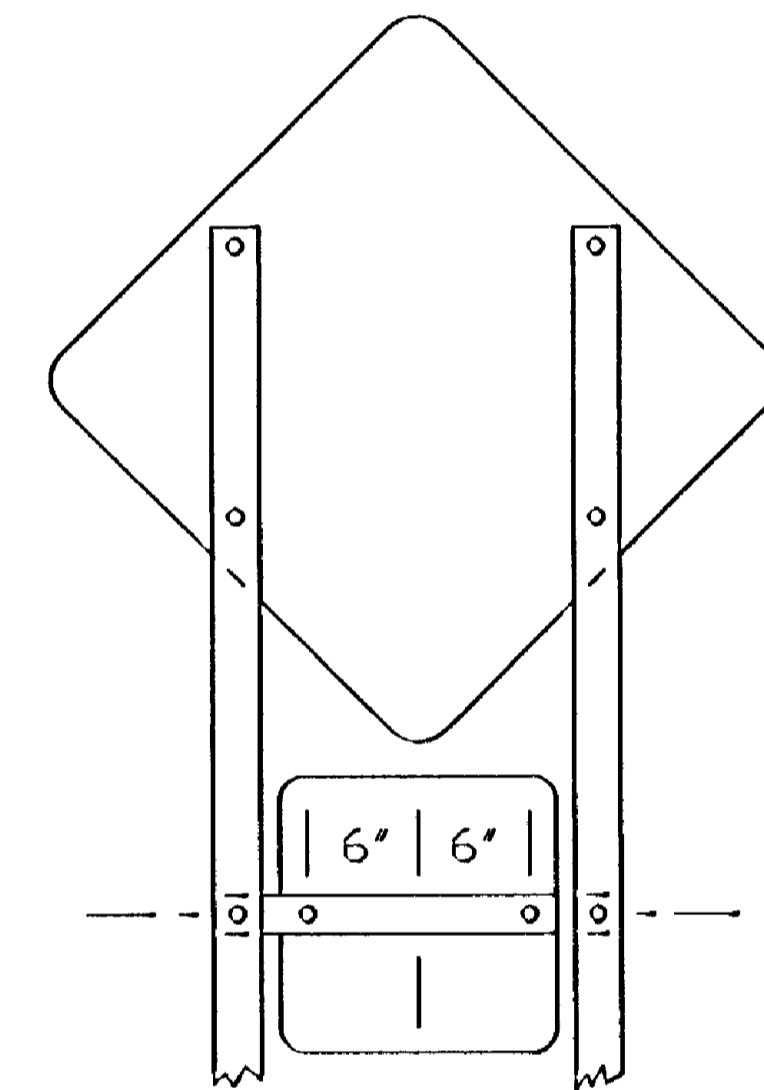
Back to back mounting
of R4-7 and W9-2



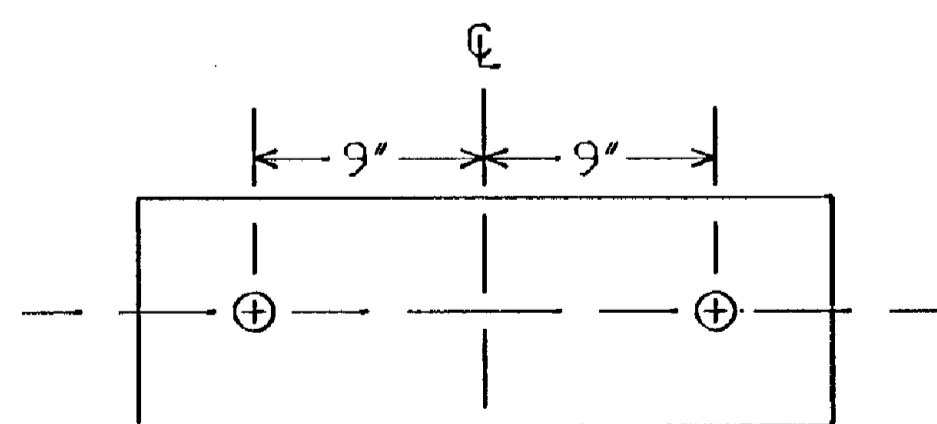
Punching for R6-1(48"x18")



Punching for R2-4a
SPEED LIMIT



(W1-1, W1-2, W1-3, W1-4 or W1-5) & W13-1
Mounting



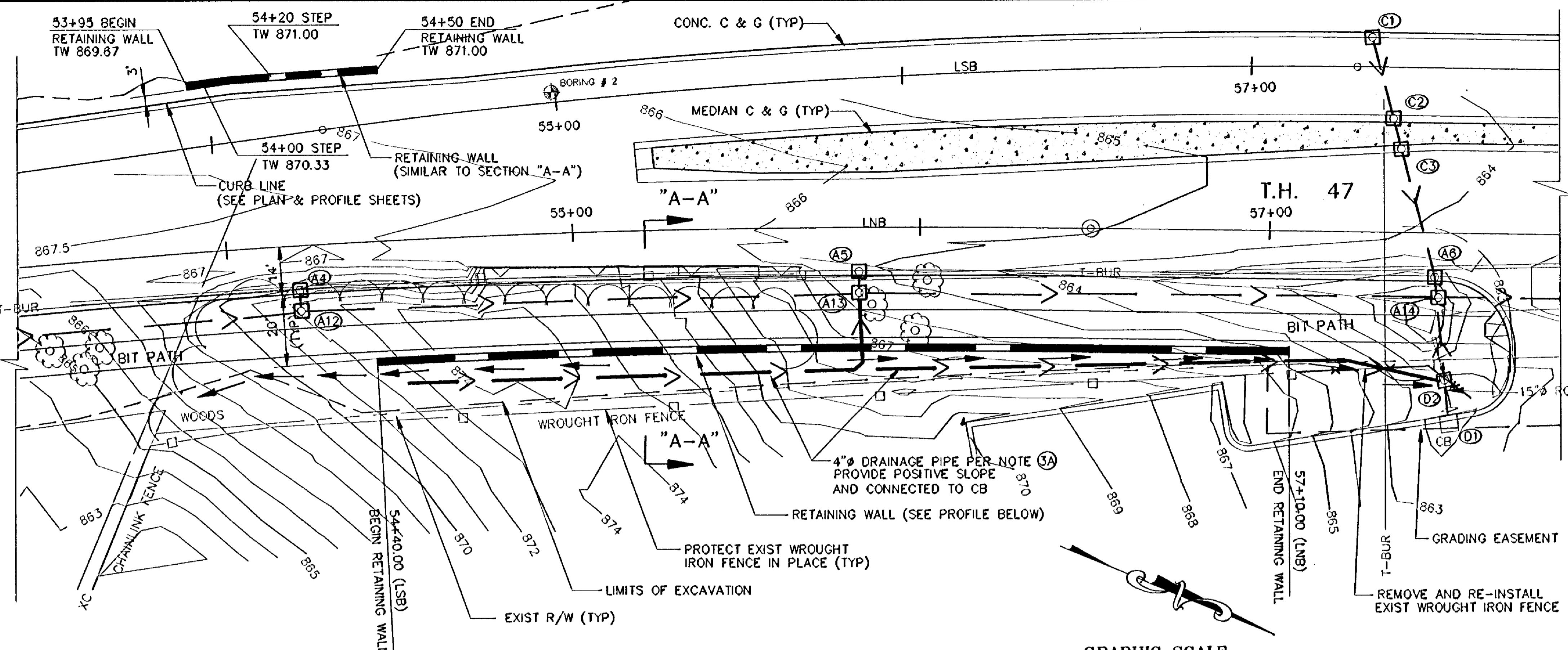
Punching for R6-1(36"x12")

Rev. 3-31-93
Rev. 3-23-90

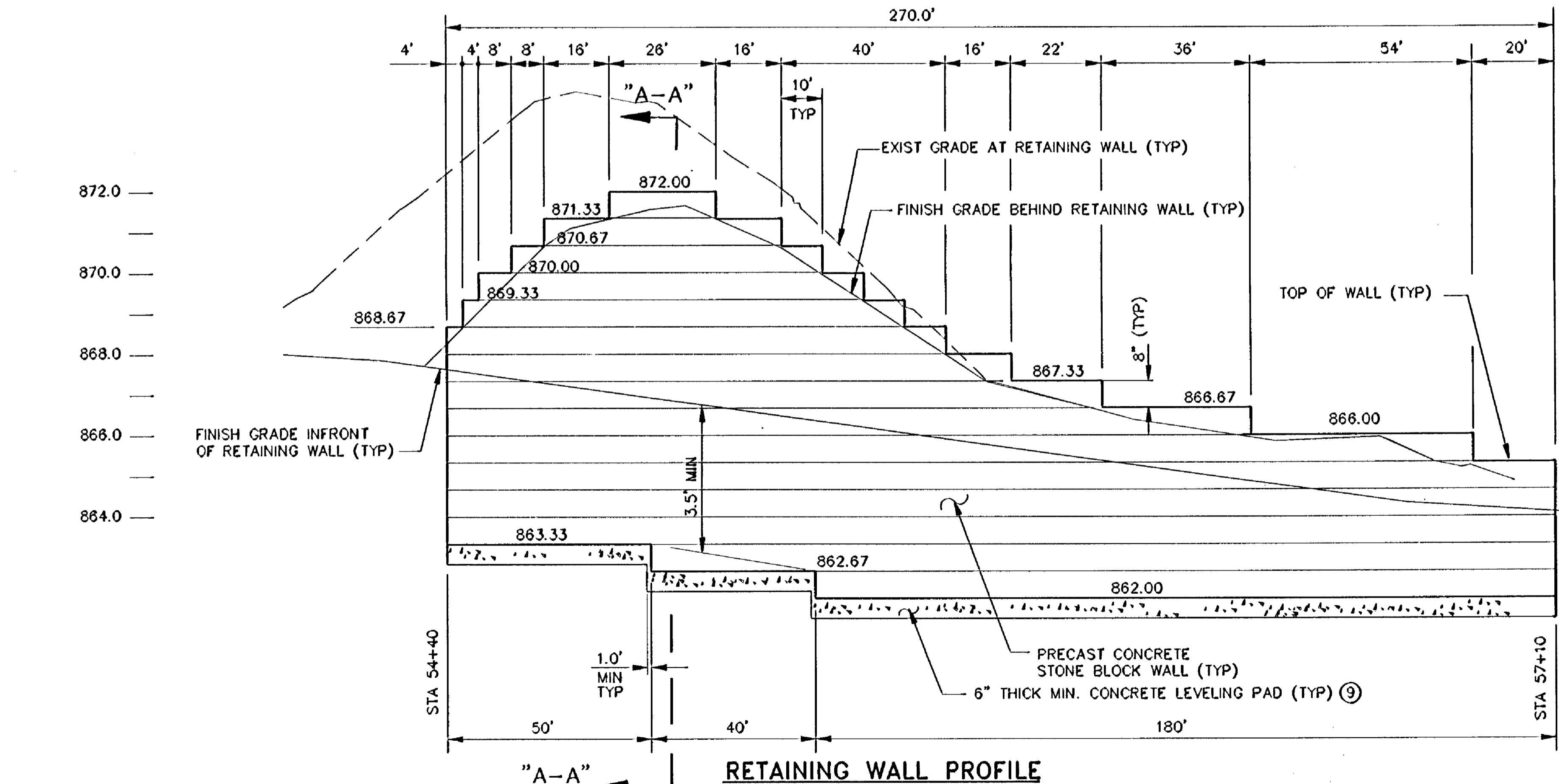
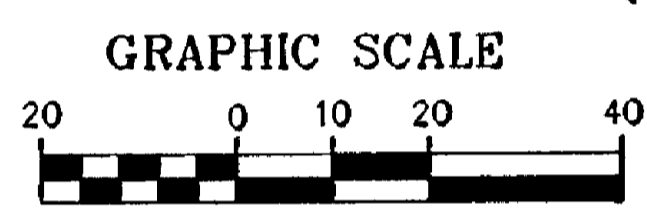
"C" & "D" SIGN DETAILS

DESIGN A
Sheet 3 of 3

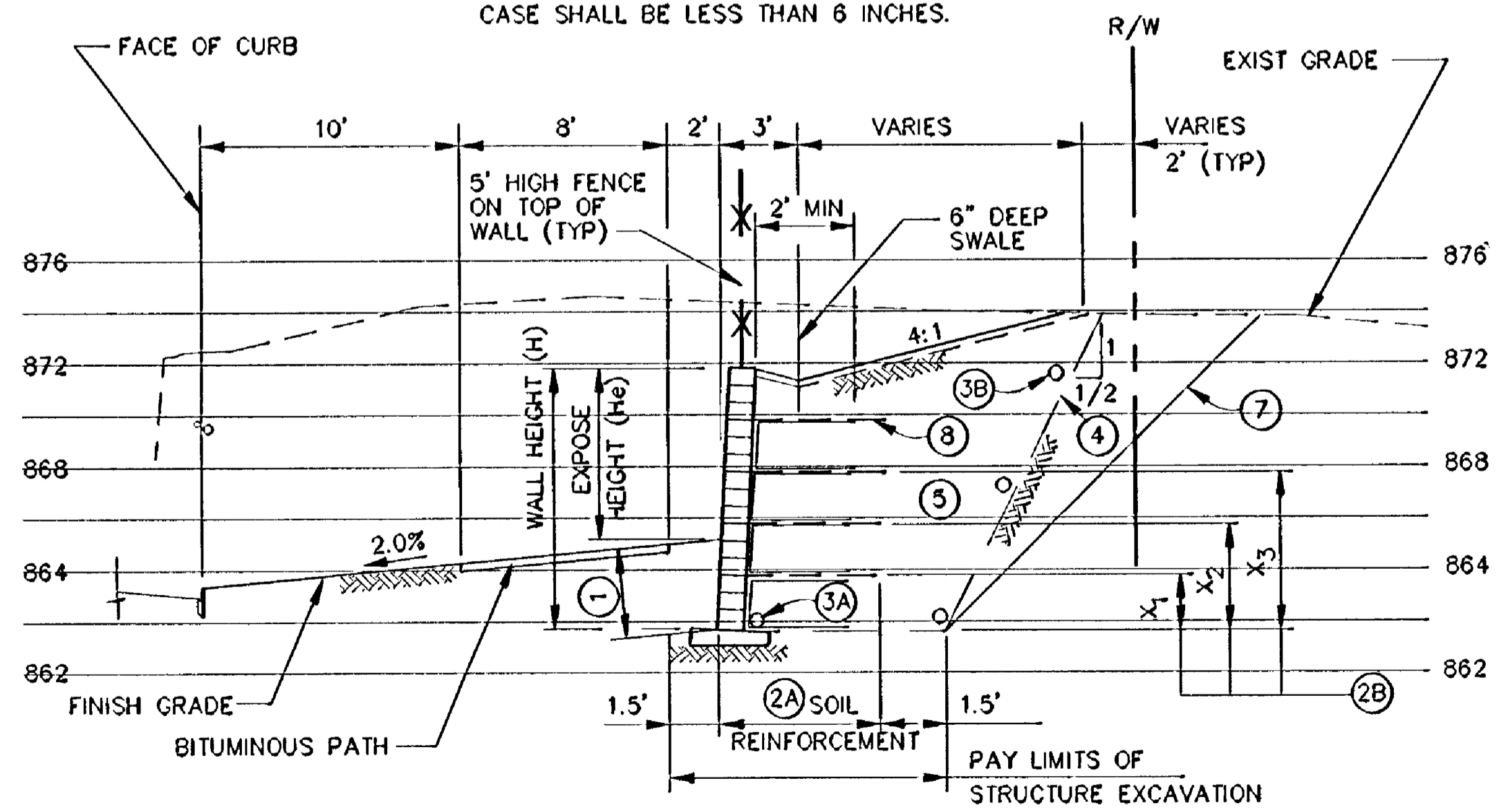
DESIGN-CTR C13 6-12-96



RETAINING WALL PLAN



RETAINING WALL PROFILE



RETAINING WALL SECTION A-A

NOTES

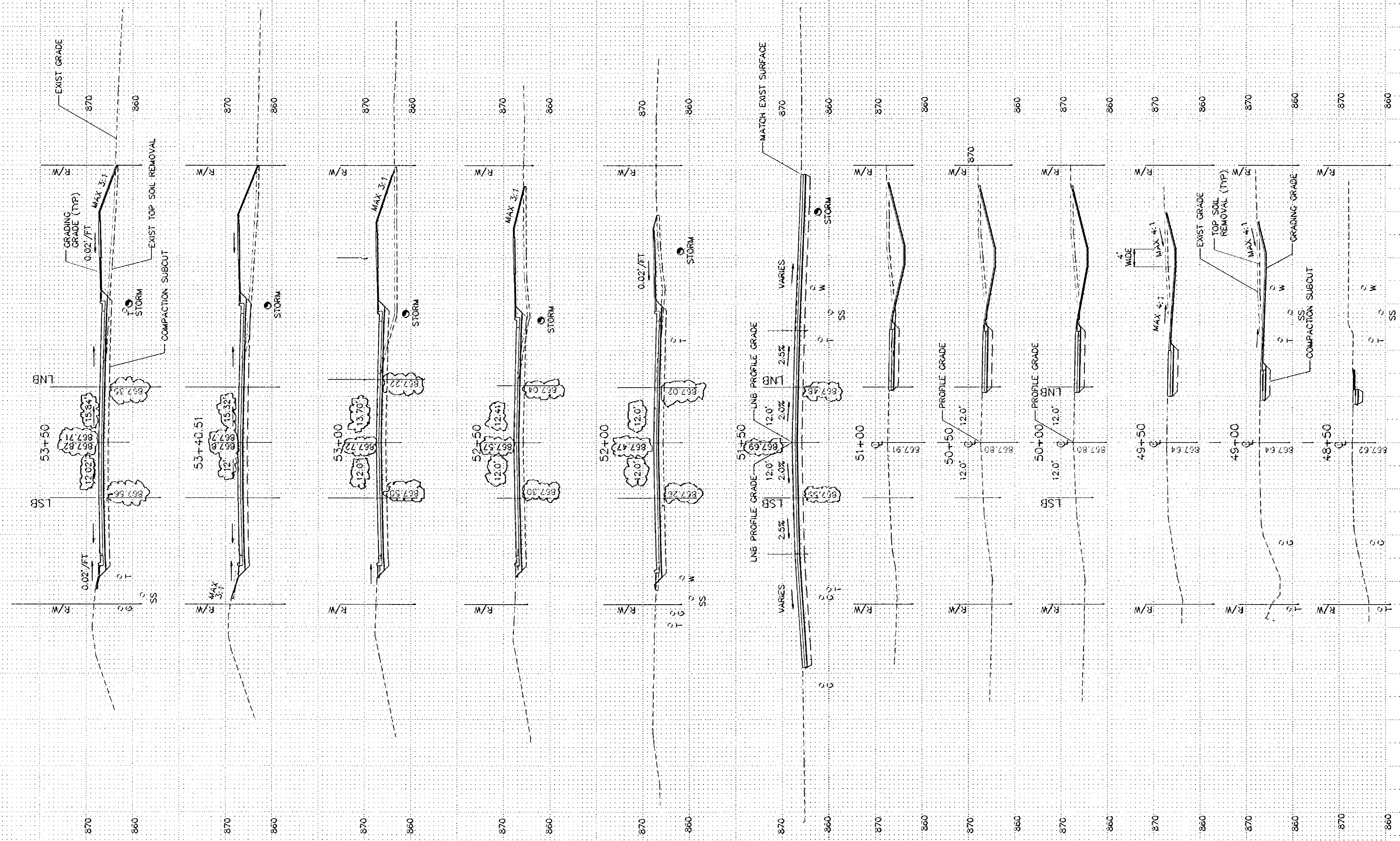
- A THE WALL SHALL BE DESIGNED AND THE DETAILED DRAWINGS PREPARED BY A PROFESSIONAL ENGINEER EXPERIENCED IN RETAINING WALL DESIGN WHO IS REGISTERED IN THE STATE OF MINNESOTA. THE DESIGN COMPUTATIONS AND THE PLANS SHALL BE CERTIFIED BY THE ENGINEER AND SUBMITTED TO THE WALL OWNER FOR THEIR REVIEW AND PERMANENT RECORD. THE DESIGN SHALL BE PER AASHTO AND Mn/DOT ROADWAY DESIGN MANUAL EXCEPT AS NOTED.
- B THE DETAILED DRAWING SHALL CONTAIN ALL THE NECESSARY INFORMATION FOR THE CONSTRUCTION OF THE WALL. INCLUDED SHALL BE A TYPICAL SECTION DETAILING EXCAVATION LIMITS, GEOTEXTILE LOCATIONS, BLOCK EMBEDMENTS, LEVELING PAD DIMENSIONS, BACKFILL, ETC. INCLUDE AS MANY SECTIONS AND OTHER VIEWS NECESSARY FOR THE CONSTRUCTION AND INSPECTION OF THE WALL. THE INFORMATION ON EMBEDMENT, GEOTEXTILE LOCATIONS, AND GEOTEXTILE LENGTH AS THEY RELATE TO WALL HEIGHTS MAY BE SHOWN IN TABULATE FORM. ALSO INCLUDED SHALL BE THE PERTINENT INFORMATION ON THE INDIVIDUAL BLOCKS AND THE GEOTEXTILE MATERIALS.
- C ALL PLANS SHALL CLEARLY IDENTIFY THE NAME OF THE RESPONSIBLE ENGINEERING FIRM AND THE NAME OF THE PERSON CERTIFYING THE PLANS. EACH SHEET SHALL BE CERTIFIED.

CONSTRUCTION NOTES

- ① THE MINIMUM DEPTH OF BLOCK EMBEDMENT SHALL BE 3.5 FEET MEASURED PERPENDICULAR TO THE SLOPE UNLESS A DETAILED ANALYSIS SHOWS A GREATER DEPTH IS REQUIRED (AASHTO 5.8)
- ②A THE MINIMUM REINFORCEMENT LENGTH SHALL BE 70 PERCENT OF THE TOTAL WALL HEIGHT UNLESS A DETAILED ANALYSIS SHOWS A LONGER LENGTH IS REQUIRED (AASHTO 5.8).
- ②B GEOTEXTILE VERTICAL SPACING TO BE DETERMINED BY DETAILED ANALYSIS.
- ③A A 4-INCH DRAINAGE PIPE, Mn/DOT 3278, WRAPPED IN TYPE 1 GEOTEXTILE, Mn/DOT 3733, SHALL BE INSTALLED.
- ③B THE PROJECT ENGINEER HAS THE OPTION OF HAVING ADDITIONAL DRAINS PLACED TO INTERCEPT ANY WATER-BEARING SOIL STRATA DISCOVERED DURING CONSTRUCTION.
- ④ PAY LIMITS OF STRUCTURE EXCAVATION.
- ⑤ BACKFILL TO MEET 3149.2B MODIFIED TO 40% OR LESS PASSING THE # 200 SIEVE. IN ADDITION, 100% MUST PASS THE 4-INCH SIEVE. COMPACTION TO BE IN ACCORDANCE WITH 2451.3D.
- ⑥ ANY SUITABLE BACKFILL. COMPACTION TO BE IN ACCORDANCE WITH 2105.3F2. ORDINARY COMPACTION.
- ⑦ SLOPE DETERMINATION BY IN-SITU SOILS AND/OR OSHA REGULATIONS. ANY EXCAVATION BEYOND "LIMITS OF EXCAVATION" SHALL BE AT THE CONTRACTOR'S EXPENSE.
- ⑧ TYPE 1 GEOTEXTILE TO BE PLACED ON BACK SIDE OF FACING BLOCKS AS SHOWN.
- ⑨ THE LEVELING PAD SHALL BE EITHER UNREINFORCED CONCRETE OR COMPACTED AGGREGATE. THE THICKNESS SHALL BE AS DETERMINED BY ANALYSIS BUT IN NO CASE SHALL BE LESS THAN 6 INCHES.

REVISIONS	DATE	BY

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P.E. REG NO. 20235 10/2 19 96

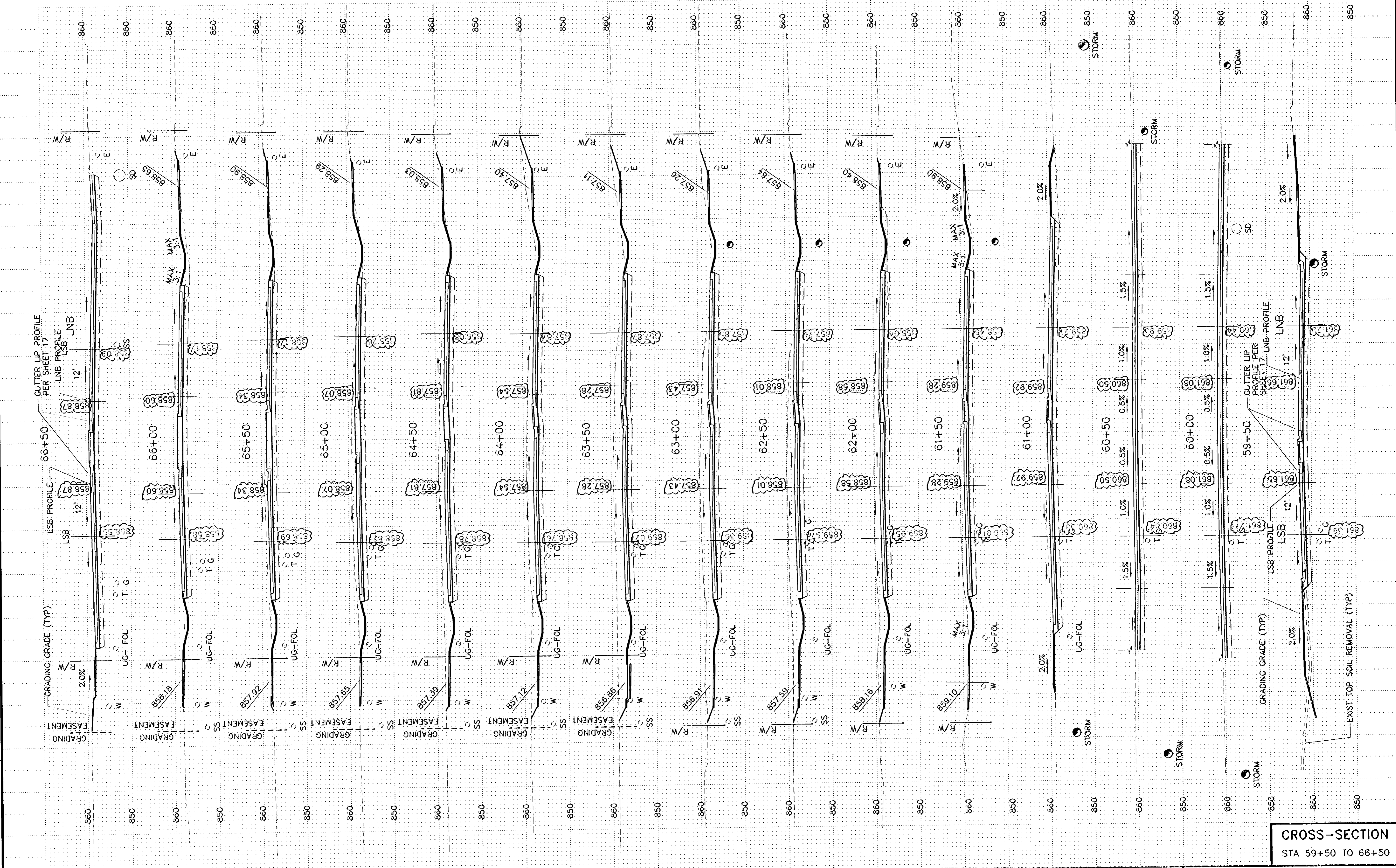
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Sheet No. 45 of 56 Sheets

CROSS-SECTION
STA 48+50 TO 53+50

REVISIONS	DATE	BY	BY
1	9/20/96	KAO	

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P.E. REG NO. 20235 10/2 19 96

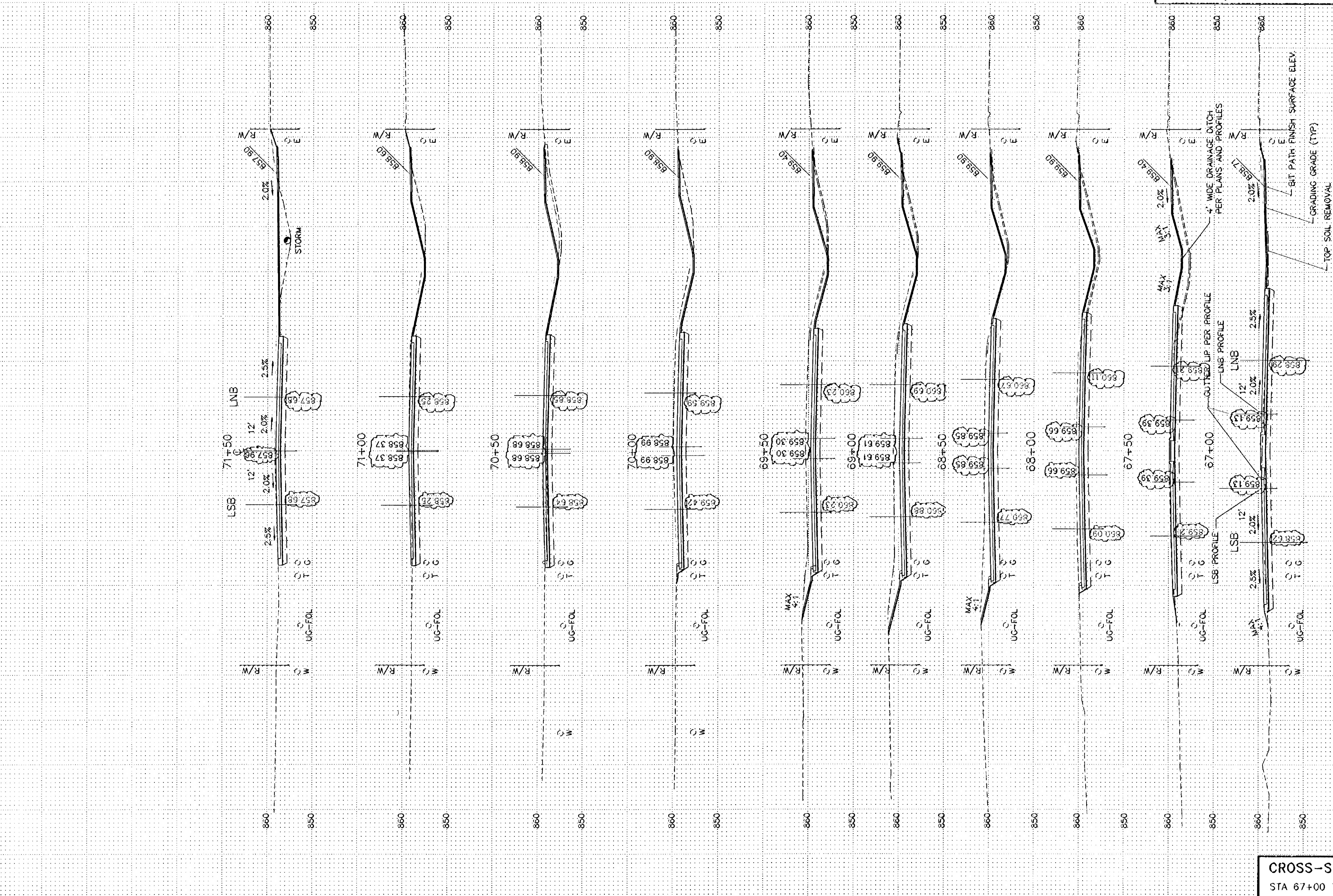
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Sheet No. 47 of 56 Sheets

CROSS-SECTION
STA 59+50 TO 66+50

REVISIONS		
DATE	BY	BY
9/20/06	RTY	

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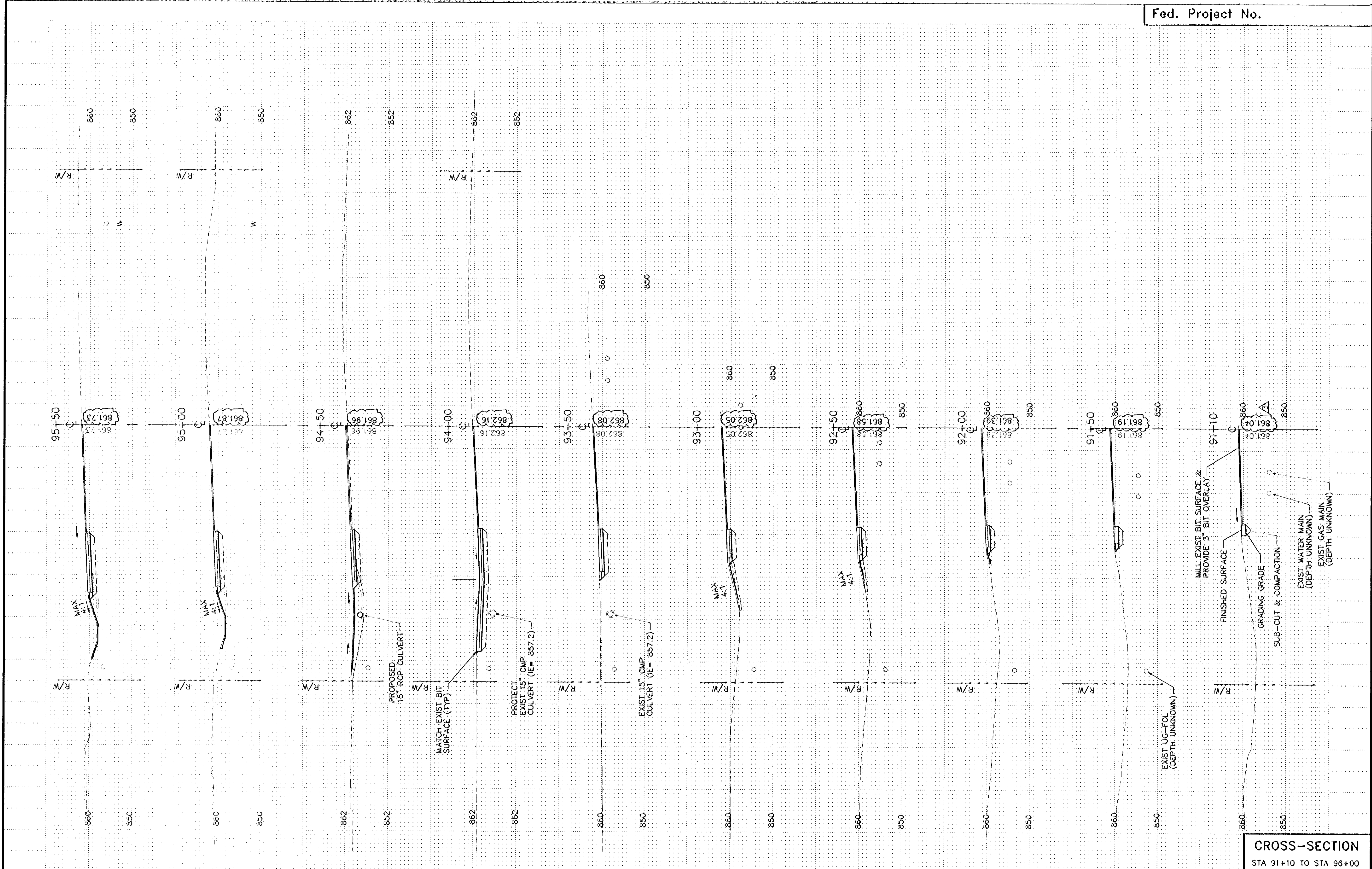
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Sheet No. 48 of 56 Sheets

CROSS-SECTION
STA 67+00 TO 71+50

REVISIONS	BY	DATE	IBY
1	KTY	9-20-96	

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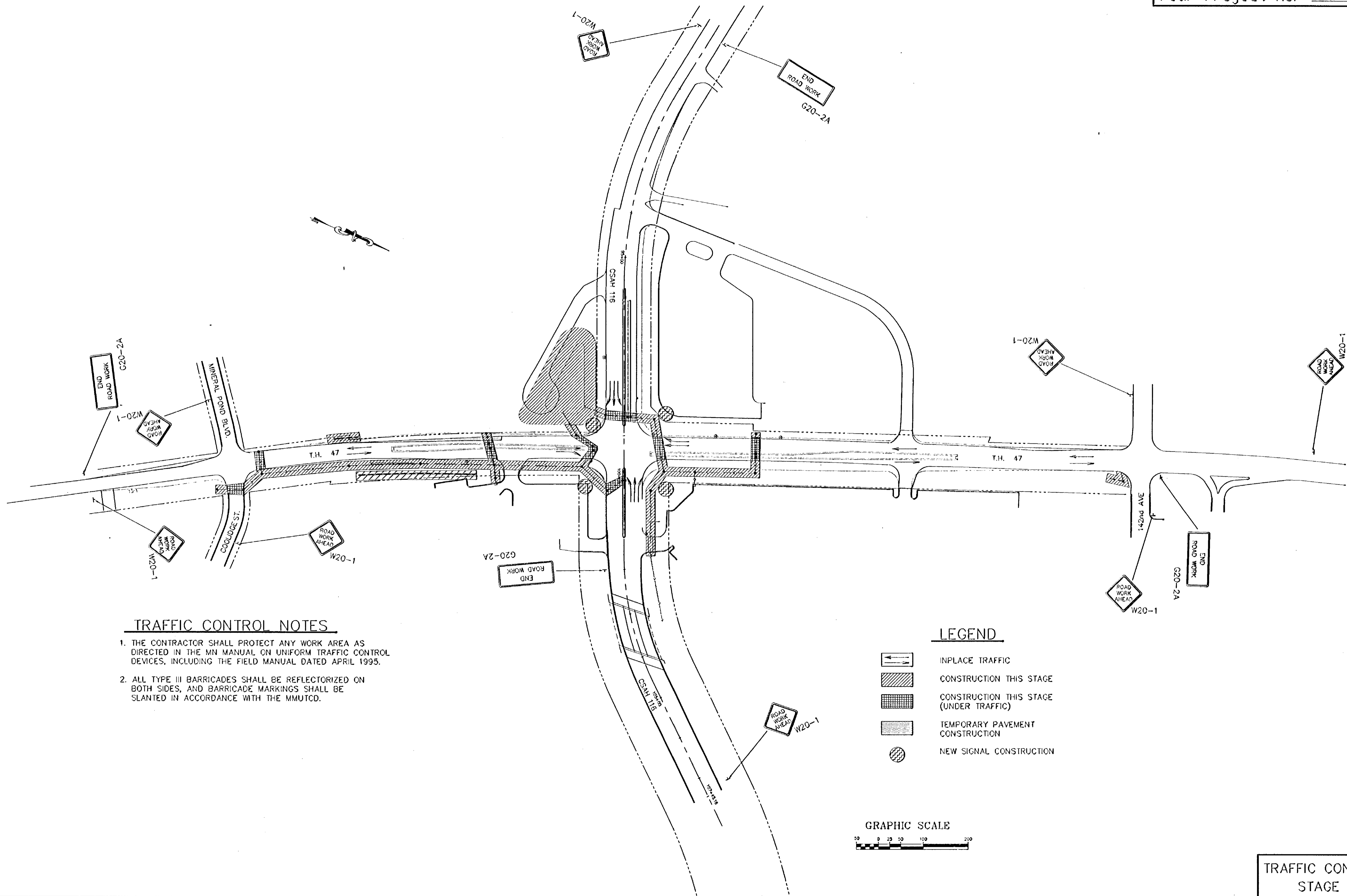
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Sheet No. 49 of 56 Sheets

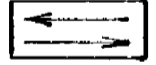



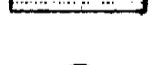
CROSS-SECTION
STA 91+10 TO STA 96+00



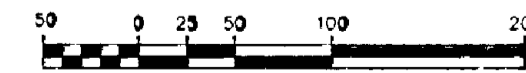
TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL PROTECT ANY WORK AREA AS DIRECTED IN THE MN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED APRIL 1995.
2. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.

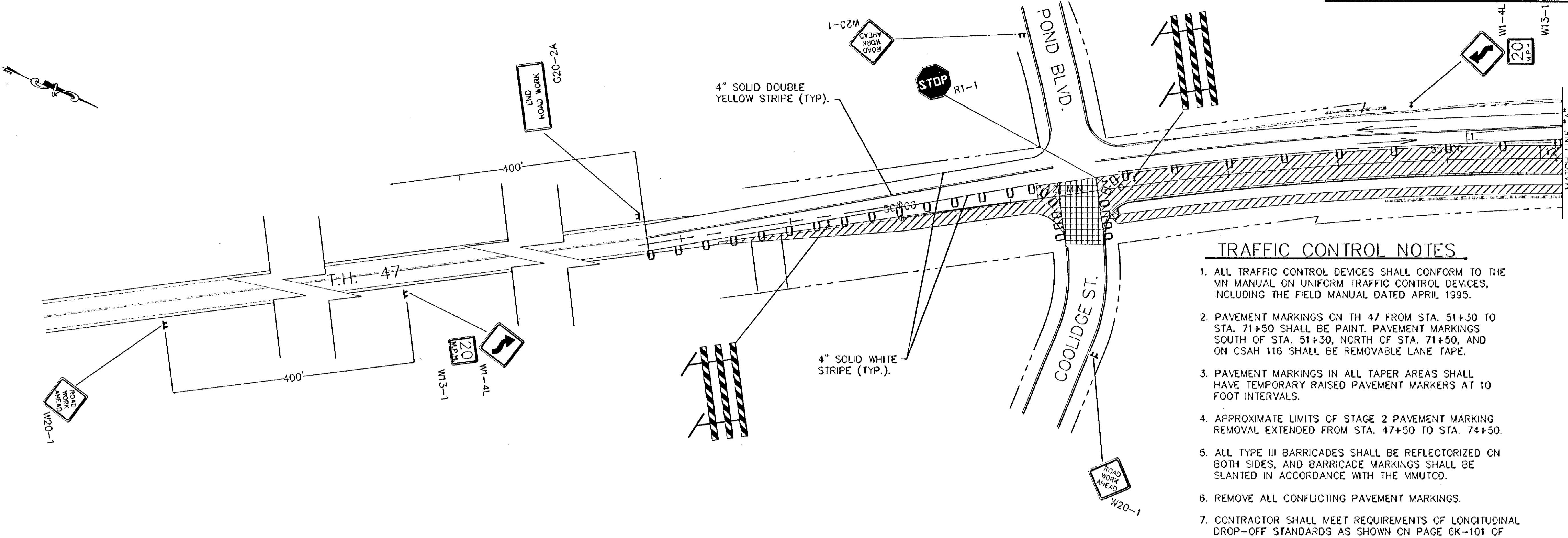
LEGEND

-  INPLACE TRAFFIC
-  CONSTRUCTION THIS STAGE
-  CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
-  TEMPORARY PAVEMENT CONSTRUCTION
-  NEW SIGNAL CONSTRUCTION

GRAPHIC SCALE

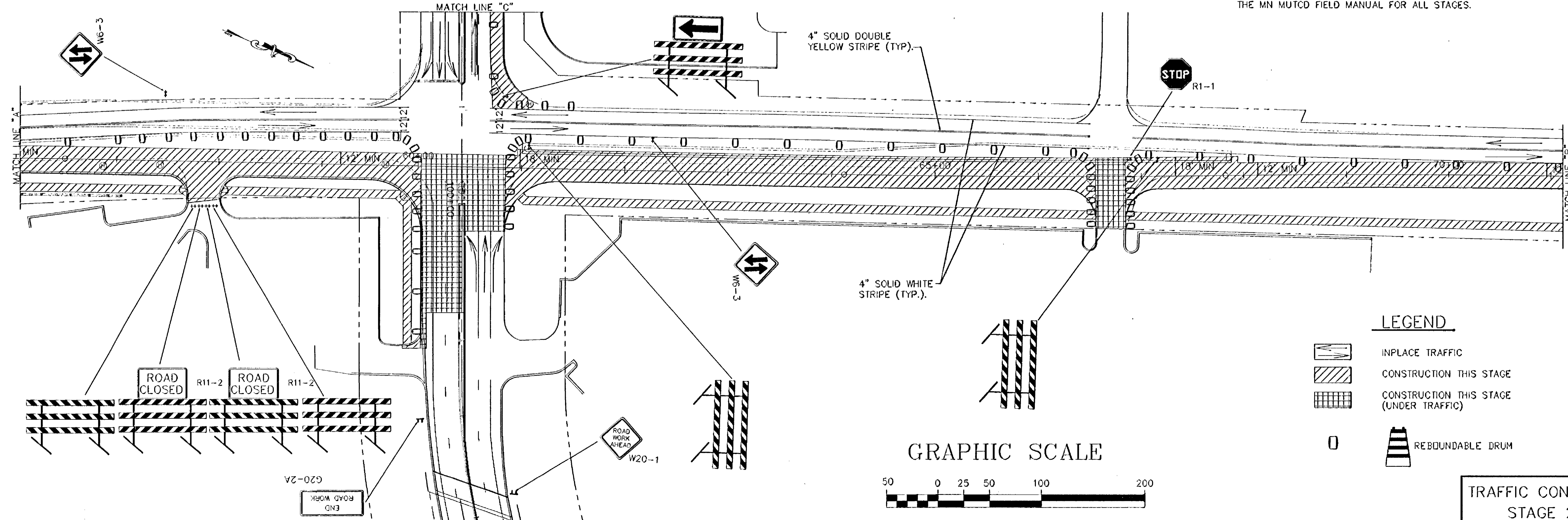


TRAFFIC CONTROL
STAGE 1



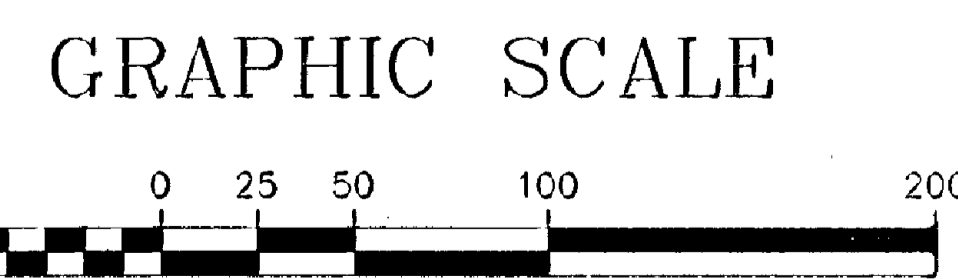
TRAFFIC CONTROL NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED APRIL 1995.
2. PAVEMENT MARKINGS ON TH 47 FROM STA. 51+30 TO STA. 71+50 SHALL BE PAINT. PAVEMENT MARKINGS SOUTH OF STA. 51+30, NORTH OF STA. 71+50, AND ON CSAH 116 SHALL BE REMOVABLE LANE TAPE.
3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. APPROXIMATE LIMITS OF STAGE 2 PAVEMENT MARKING REMOVAL EXTENDED FROM STA. 47+50 TO STA. 74+50.
5. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.
6. REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
7. CONTRACTOR SHALL MEET REQUIREMENTS OF LONGITUDINAL DROP-OFF STANDARDS AS SHOWN ON PAGE 6K-101 OF THE MN MUTCD FIELD MANUAL FOR ALL STAGES.



LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- REBOUNDABLE DRUM



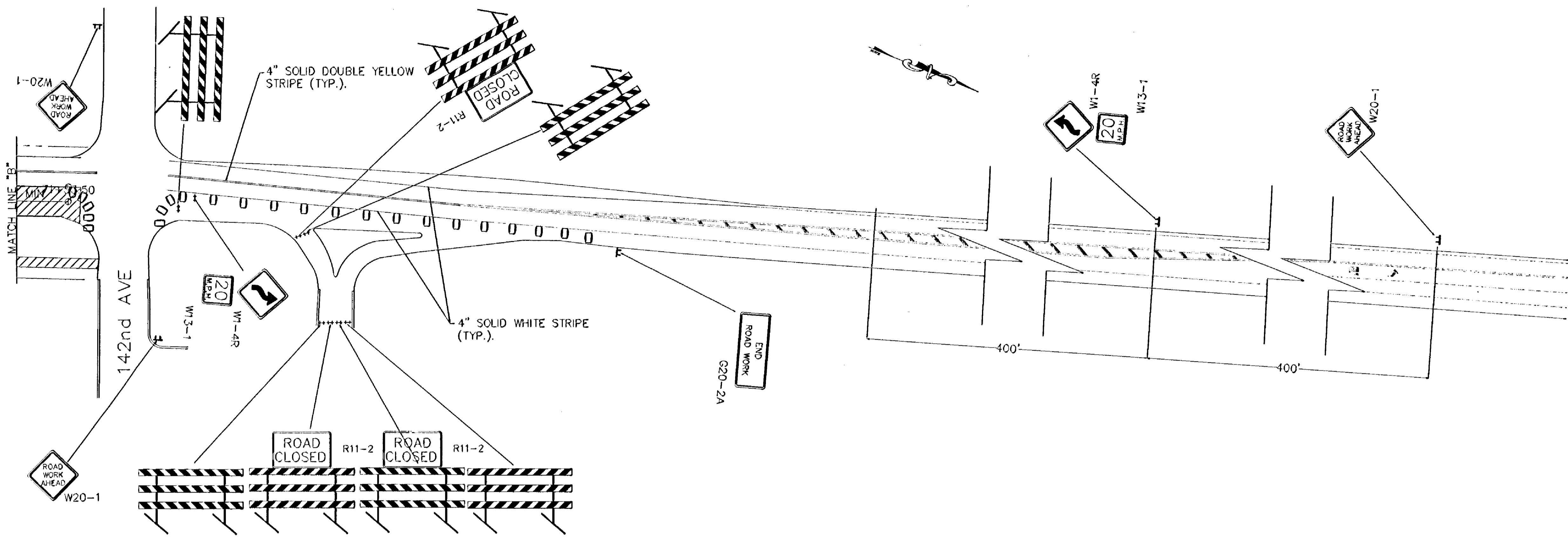
TRAFFIC CONTROL
STAGE 2

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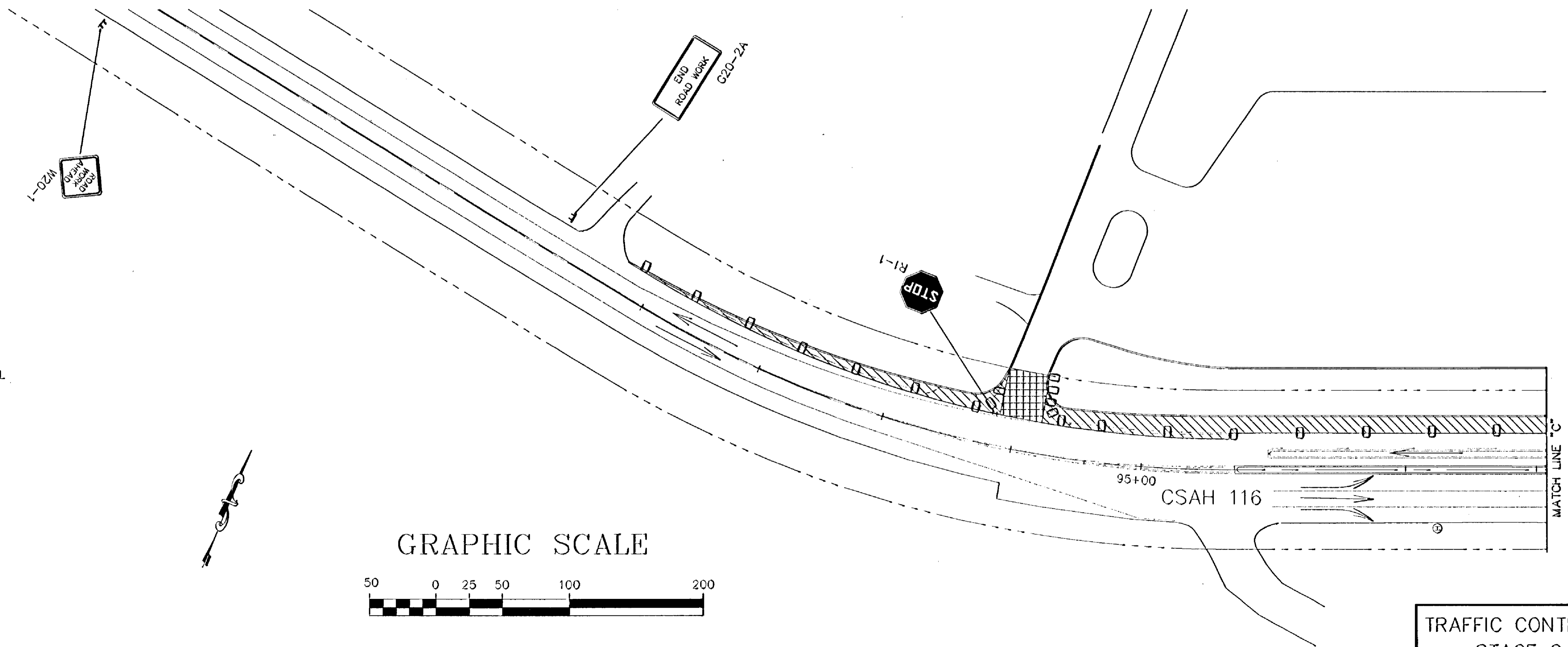


TRAFFIC CONTROL NOTES

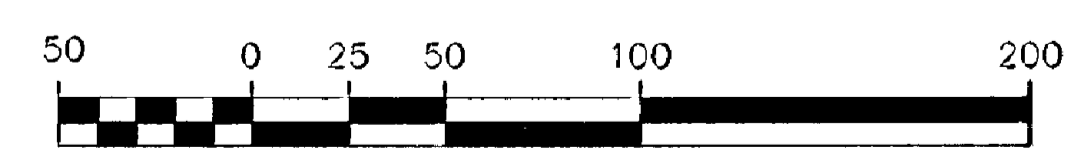
1. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL DATED APRIL 1995.
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3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. APPROXIMATE LIMITS OF STAGE 2 PAVEMENT MARKING REMOVAL EXTENDED FROM STA. 47+50 TO STA. 74+50.
5. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.
6. REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
7. CONTRACTOR SHALL MEET REQUIREMENTS OF LONGITUDINAL DROP-OFF STANDARDS AS SHOWN ON PAGE 6K-101 OF THE MN MUTCD FIELD MANUAL FOR ALL STAGES.

LEGEND

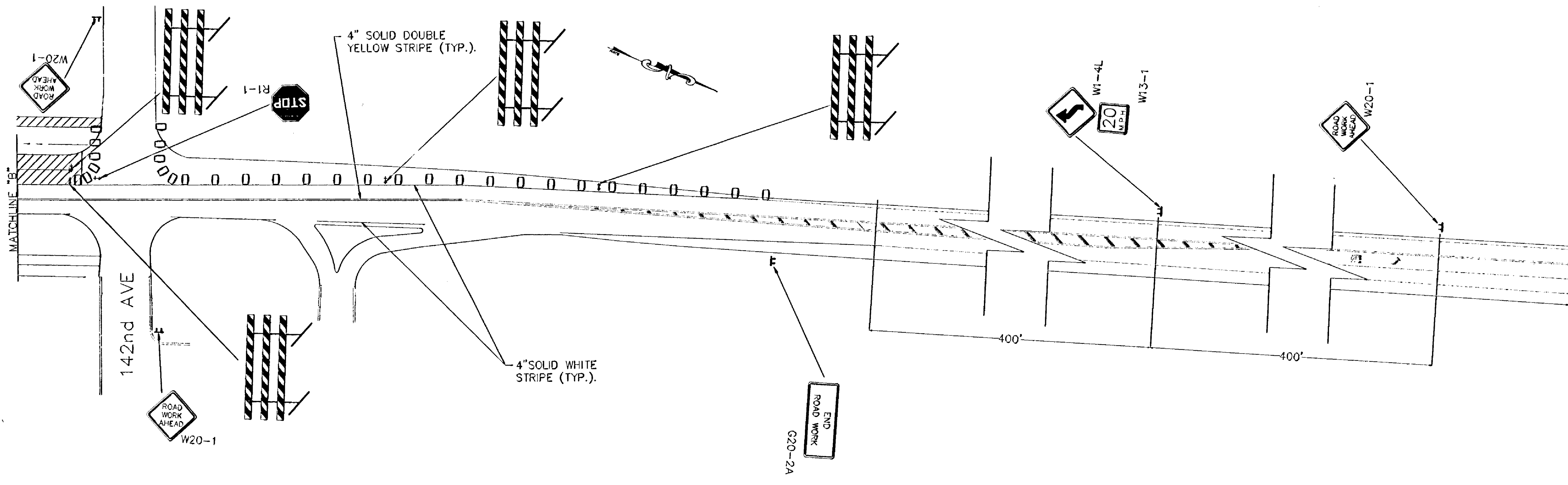
- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- REBOUNDABLE DRUM



GRAPHIC SCALE



TRAFFIC CONTROL
STAGE 2

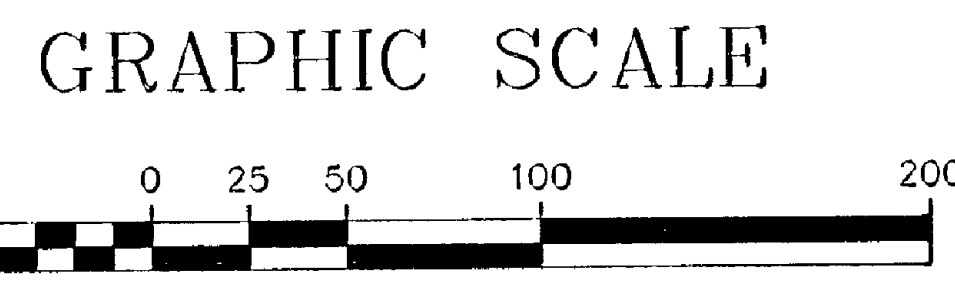
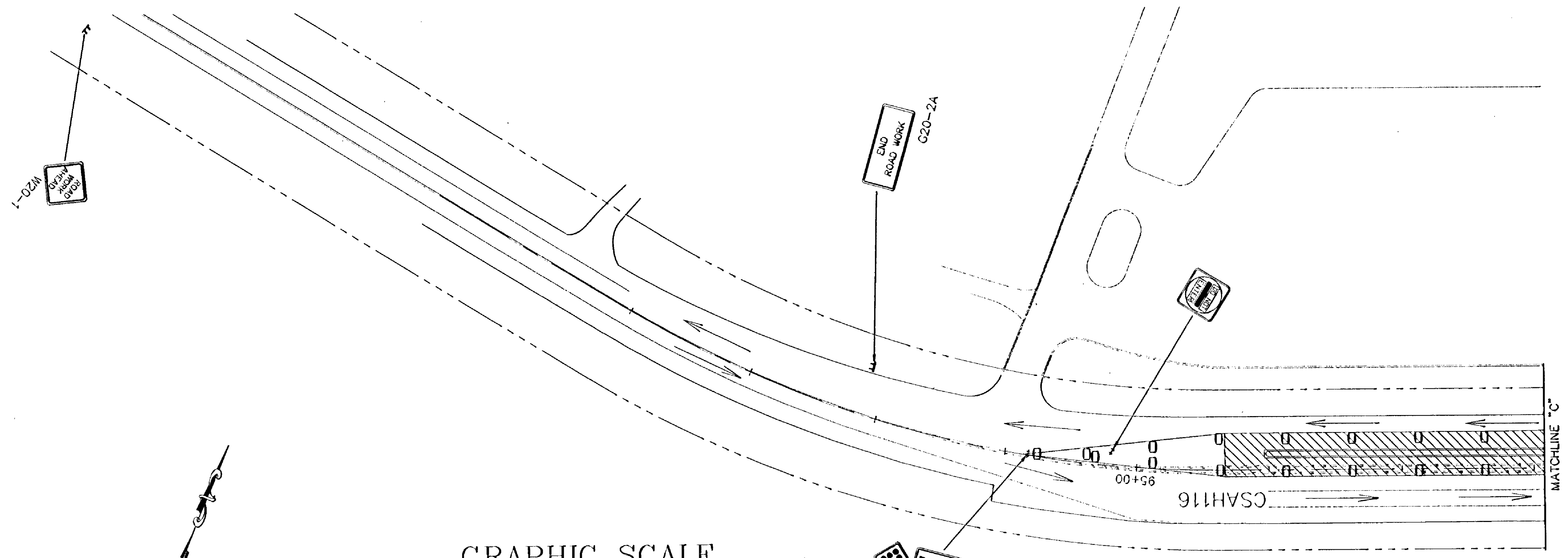


TRAFFIC CONTROL NOTES

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3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. APPROXIMATE LIMITS OF STAGE 3 PAVEMENT MARKING REMOVAL EXTENDED FROM STA. 47+50 TO STA. 51+30, AND FROM STA. 71+50 TO STA. 74+50.
5. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MUTCD.
6. REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
7. CONTRACTOR SHALL MEET REQUIREMENTS OF LONGITUDINAL DROP-OFF STANDARDS AS SHOWN ON PAGE 6K-101 OF THE MN MUTCD FIELD MANUAL FOR ALL STAGES.

LEGEND

- INPLACE TRAFFIC
- CONSTRUCTION THIS STAGE
- CONSTRUCTION THIS STAGE (UNDER TRAFFIC)
- REBOUNDABLE DRUM



TRAFFIC CONTROL
STAGE 3

M. U. T. C. D. CODE	SIZE	INSERT	STAGE I	STAGE II	STAGE III
			QTY	QTY	QTY
R1-1	48' x 48'		0	3	2
R4-7	30' x 36'		0	0	2
X4-2	18' x 18'		0	0	2
R11-2	48' x 30'		0	2	3
TYPE III	8 FT.		0	5	6
R11-2	48' x 30'		0	3	4
TYPE III	8 FT.		0	5	9
W1-6L	48' x 24'		0	1	1
TYPE III	8 FT.		0	6	3
W1-6R	48' x 24'		0	0	1
TYPE III	8 FT.		0	0	1
W1-4L	48' x 48'		0	2	2
W13-1	24' x 24'		0	2	2
W1-4R	48' x 48'		0	2	2
W13-1	24' x 24'		0	2	2
W6-3	48' x 48'		0	2	4
W20-1	48' x 48'		8	8	8
REBOUNDABLE DRUM REFLECTORIZED			0	150	134
G20-2A	48' x 24'		4	4	4

TRAFFIC CONTROL NOTES

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3. PAVEMENT MARKINGS IN ALL TAPER AREAS SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS AT 10 FOOT INTERVALS.
4. ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES, AND BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MMUTCD.

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REVISIONS	BY
DATE	DATE
BY	BY

STAGE QUANTITIES
TRAFFIC CONTROL

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