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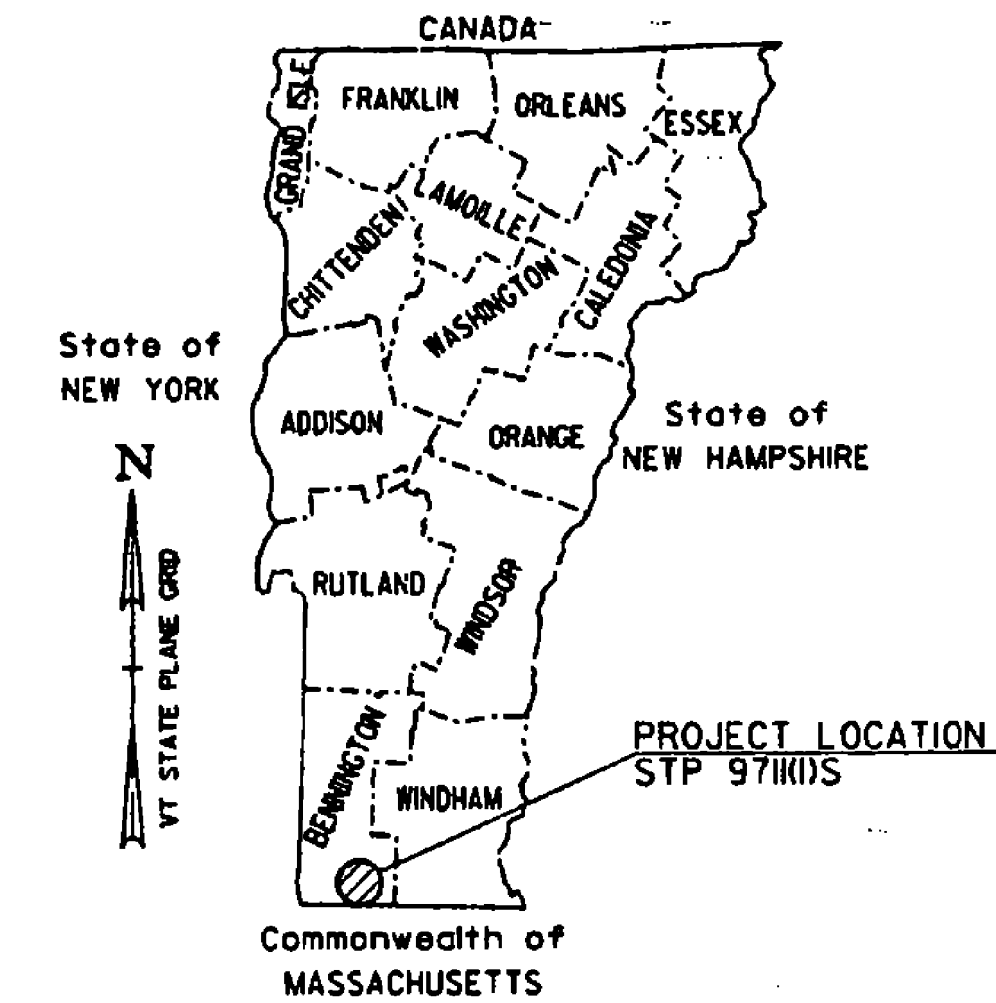
# STATE OF VERMONT AGENCY OF TRANSPORTATION



**CONTRACT PLANS**

THESE PLANS DO NOT REFLECT  
CHANGES MADE ON THE PROJECT.

## PROPOSED IMPROVEMENT TOWNS OF STAMFORD & READSBORO COUNTY OF BENNINGTON VT ROUTE 100



**STANDARDS**

C-2A	PORTLAND CEMENT CONCRETE SIDEWALK	06/01/94
D-8	REINFORCED CONCRETE DROP INLET W/ PRECAST COVER & GRATE (BOTTOM SECTION)	06/01/94
D-11	GRATES & COVERS (TYPE A)	06/01/94
D-15	CJ GRATE W/ FRAME, TYPE D	06/01/94
E-100	CONSTRUCTION APPROACH SIGNS	08/08/95
E-101	CONSTRUCTION SIGN DETAILS	08/08/95
E-102	CONSTRUCTION SIGN DETAILS	08/08/95
E-103	MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY, ONE LANE CLOSED	08/08/95
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	08/08/95
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	08/08/95
E-107A	BREAKAWAY BARRICADE DETAILS	08/08/95
E-110	MAJOR MAINTENANCE OPERATION LANE CLOSURE	08/08/95
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08/08/95
* E-141	REGULATORY SIGN DETAILS	09/20/95
E-142	REGULATORY SIGN DETAILS	09/20/95
E-143	REGULATORY SIGN DETAILS	09/20/95
E-146	REGULATORY SIGN DETAILS	09/20/95
E-152	WARNING SIGN DETAILS	08/08/95
E-153	WARNING SIGN DETAILS	08/08/95
E-160	FLANGED CHANNEL STEEL SIGN POST DETAIL	08/18/95
E-164	SQUARE TUBE STEEL SIGN POST DETAIL	08/18/95
E-191	PAVEMENT MARKING DETAILS	08/18/95
E-193	PAVEMENT MARKING DETAILS	08/18/95
G-1	STEEL BEAM GUARDRAIL (50MPH & OVER)	06/01/94
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS)	06/01/94
G-17A	MODIFIED ECCENTRIC LOADER TERMINAL	01/18/96
G-17B	MODIFIED ECCENTRIC LOADER TERMINAL	06/30/95
* E-140	REGULATORY SIGN DETAILS	08/30/96
* E-138	MILEMARKER DETAILS	08/08/95

BEGINNING IN STAMFORD AT THE MASSACHUSETTS/VERMONT STATE LINE AND EXTENDING NORTHERLY ALONG VT ROUTE 100 FOR A DISTANCE OF 12 786.23 METERS (7.945 MILES) TO STATION 3+529.29 (MM 2.193) IN READSBORO.

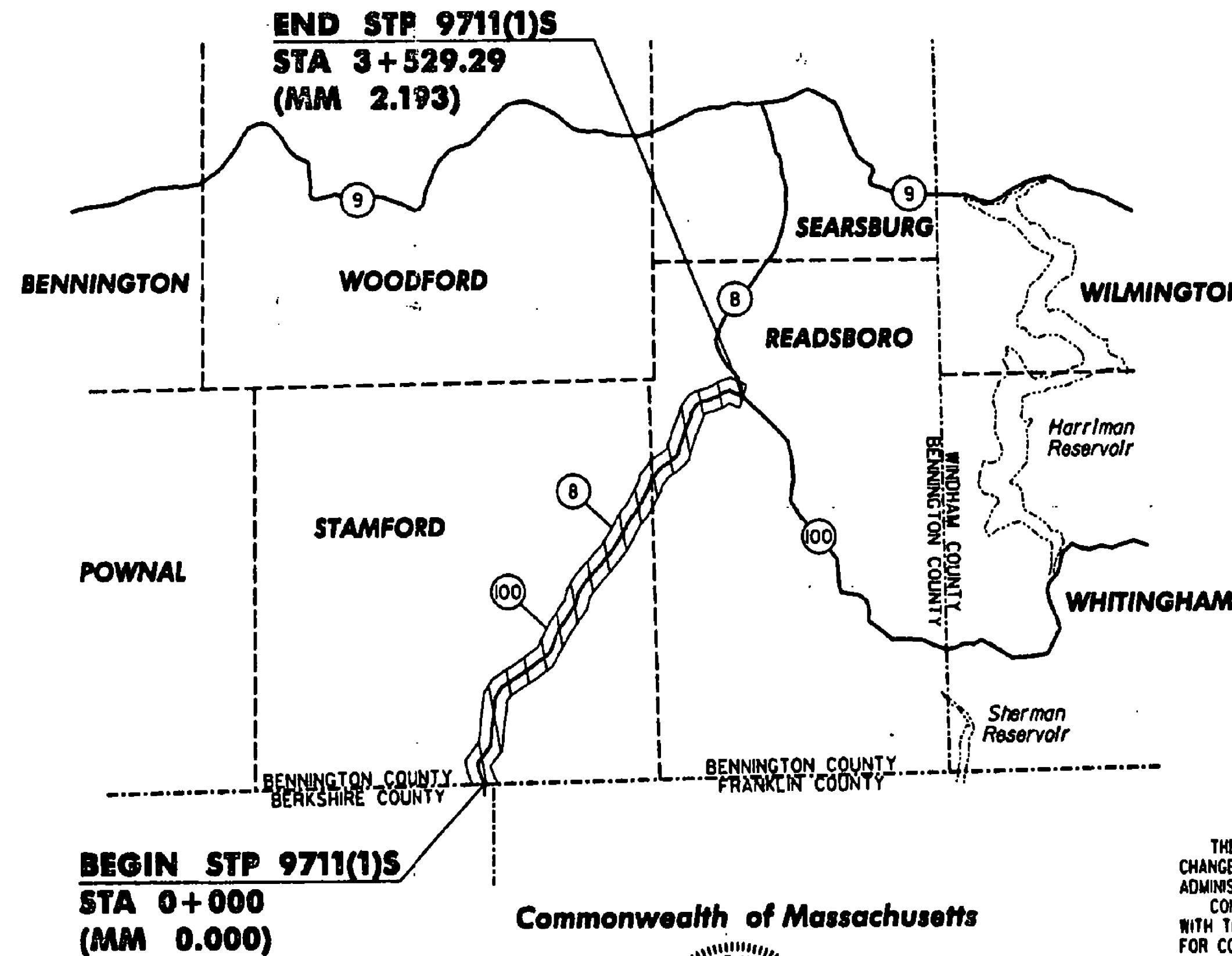
**PROJECT DATA**

FROM	TO
STA 0+000 (MM 0.000)	STA 3+529.29 (MM 2.193)
LENGTH OF ROADWAY	12 786.23 METERS (7.945 MILES)
LENGTH OF PROJECT	12 786.23 METERS (7.945 MILES)

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES RESURFACING OF THE EXISTING HIGHWAY WITH A LEVELING COURSE, WEARING COURSE, NEW PAVEMENT MARKINGS, GUARDRAIL, SIGNS AND INCIDENTAL ITEMS.

**TRAFFIC DATA**

VT ROUTE 100	
1998 ADT	= 3000
1998 DHV	= 420
2008 ADT	= 3540
2008 DHV	= 495
1998 - 2008 CUM. ESALS	= 656,000



Date **MAY 27 1997**

THE LANE CONSTRUCTION CORPORATION

Contractor

*B. G. Williams*  
Signature

President

*G. A. Fisher*  
Secretary of Transportation's Signature

**CONVENTIONAL SIGNS**

- COUNTY LINE
- TOWN LINE
- LIMITS OF ACCESS
- POINT OF ACCESS
- FENCE LINE
- STONE WALL
- TRAVELED WAY
- GUARDRAIL
- RAILROAD
- SURVEY LINE
- CULVERT
- POWER POLE
- TELEPHONE POLE
- TREES
- CONTROL OF ACCESS
- PROPERTY LINE
- R.O.W. TAKING LINE
- SLOPE RIGHTS
- TOP OF CUT
- TOE OF SLOPE

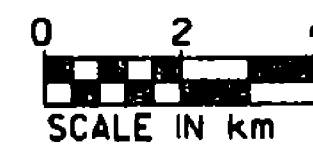
UNLESS OTHERWISE INDICATED, THE DRAWINGS AND DETAILS OF THESE PLANS ARE NOT TO SCALE.

DATUM  
VERTICAL \_\_\_\_\_  
HORIZONTAL \_\_\_\_\_

HORIZONTAL CONTROL (STATIONS)  
WAS SET BY HOLDING THE ROUTE LOG STATIONING AT PROJECT CONTROL POINTS.

METRIC PLANS PREPARED BY:

**CLD** COSTELLO, LORSHKEY & DE NAPOLI, INC.  
Consulting Engineers  
940 Commercial Street  
Manchester, NH 03103  
603-886-8222 FAX 603-886-8812



UNLESS OTHERWISE NOTED, ALL DRAWINGS AND DETAILS OF THESE PLANS ARE NOT TO SCALE.

RIGHT-OF-WAY LIMITS, IF APPLICABLE, ARE PROVIDED SOLELY FOR THE CONVENIENCE OF THE STATE AND ITS CONTRACTOR DURING THE COURSE OF THIS PAVING PROJECT. ANY REFERENCES TO OFFSETS ON THESE PLANS ARE APPROXIMATE AND SHOULD NOT BE RELIED UPON FOR ANY OTHER PURPOSES.

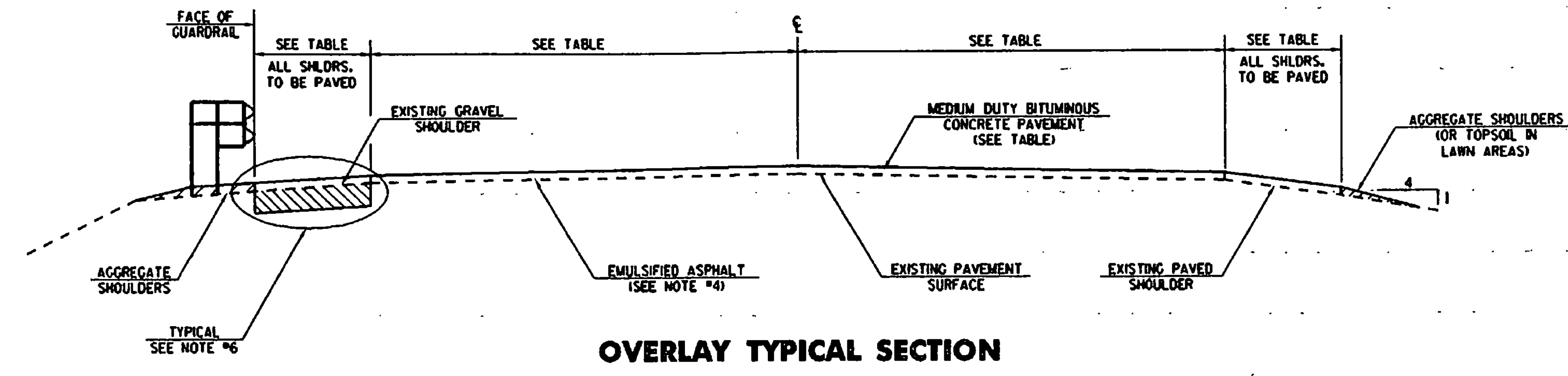
THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1995, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON AUGUST 21, 1995 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

APPROVED <i>Frank O. White</i> DATE <i>Sept 1997</i> DIRECTOR OF CONSTRUCTION AND MAINTENANCE
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DATE _____ DIVISION ADMINISTRATOR
PROJECT STAMFORD-READSBORO STP 9711(1)S
SHEET 1 OF 28 SHEETS



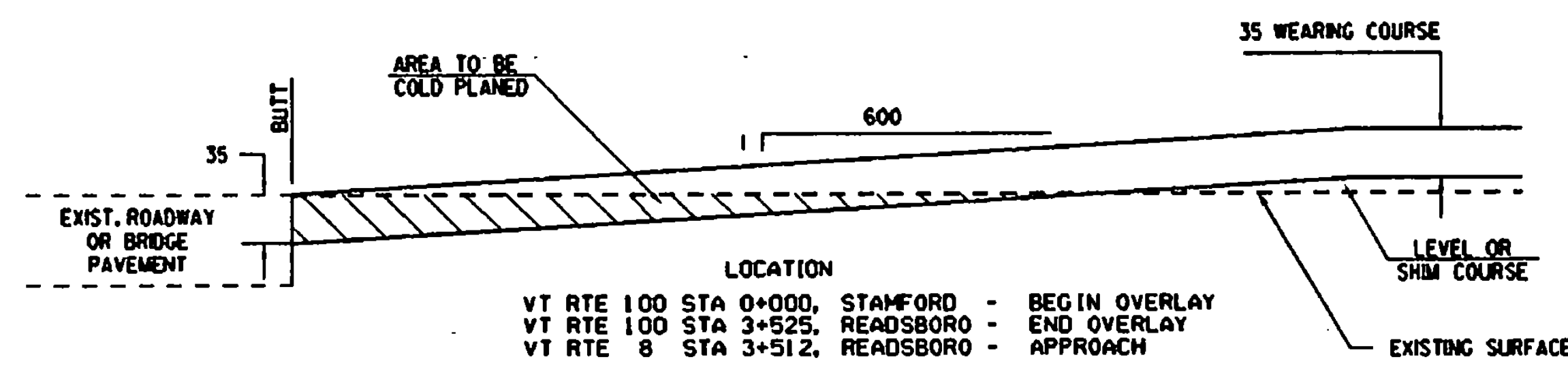
**NOTES**

1. THE PAVEMENT WEARING COURSE SHALL BE TYPE III, THE LEVELING COURSE SHALL BE TYPE IV, ITEM 406.27, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL LIQUID ASPHALT USED IN MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT SHALL BE PG 58-34.
2. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL EXISTING PAVEMENT SURFACES, ON COLD PLANED SURFACES AND BETWEEN ALL COURSES OF PAVEMENT AT THE RATE OF 0.07 L/m<sup>2</sup> OR AS DIRECTED BY THE RESIDENT ENGINEER.
3. MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT TOLERANCE = 5 mm +/- (TOTAL THICKNESS EXCLUDING LEVELING COURSE).
4. EXISTING SHOULDER MATERIAL DEEMED UNSUITABLE BY THE RESIDENT ENGINEER SHALL BE EXCAVATED TO A DEPTH OF 75 mm +/- OR AS DIRECTED BY THE ENGINEER. EXCAVATED MATERIAL SHALL BE SPREAD ON THE ADJACENT SLOPES OR REMOVED FROM THE PROJECT, AS DIRECTED BY THE ENGINEER. EXCAVATION WILL BE PAID FOR AS ALL PURPOSE EXCAVATOR OR GRADER RENTAL. MATERIAL REMOVED SHALL BE REPLACED WITH SUBBASE OF CRUSHED GRAVEL (FINE GRADED).
5. COLD PLANING SHALL BE COMPLETED ACCORDING TO TYPICAL OR AS DENOTED OTHERWISE ON THE PLANS.
6. ALL DRIVES, TOWN HIGHWAYS AND MAILBOX TURNOUTS SHALL RECEIVE A PAVED APRON UNLESS OTHERWISE DIRECTED BY THE ENGINEER. PAVER SHALL FEATHER APRON OVER EXISTING SURFACE.
7. ONE METER OF BACKING IS REQUIRED BEHIND THE FACE OF GUARDRAIL WITH L8 m POSTS, IF THIS CANNOT BE OBTAINED THEN 2.5 m POSTS SHALL BE USED.
8. MARKER POSTS SHALL BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.
9. ITEMS 604.40, 604.42, 604.45, AND 604.48 ARE ESTIMATED QUANTITIES AND SHALL BE PERFORMED AS DIRECTED BY THE RESIDENT ENGINEER.
10. ALL TIMBER CURBS SHALL BE BACKED UP FULL HEIGHT WITH ITEM 402.12, AGGREGATE SHOULDERS.



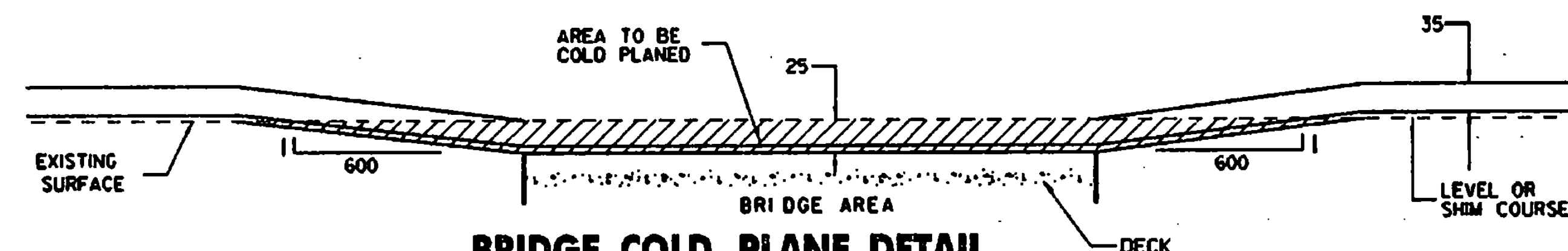
**OVERLAY TYPICAL SECTION**

N.T.S.



**APPROACH AREA COLD PLANING DETAIL**

FULL ROADWAY WIDTH  
N.T.S.



**BRIDGE COLD PLANE DETAIL**

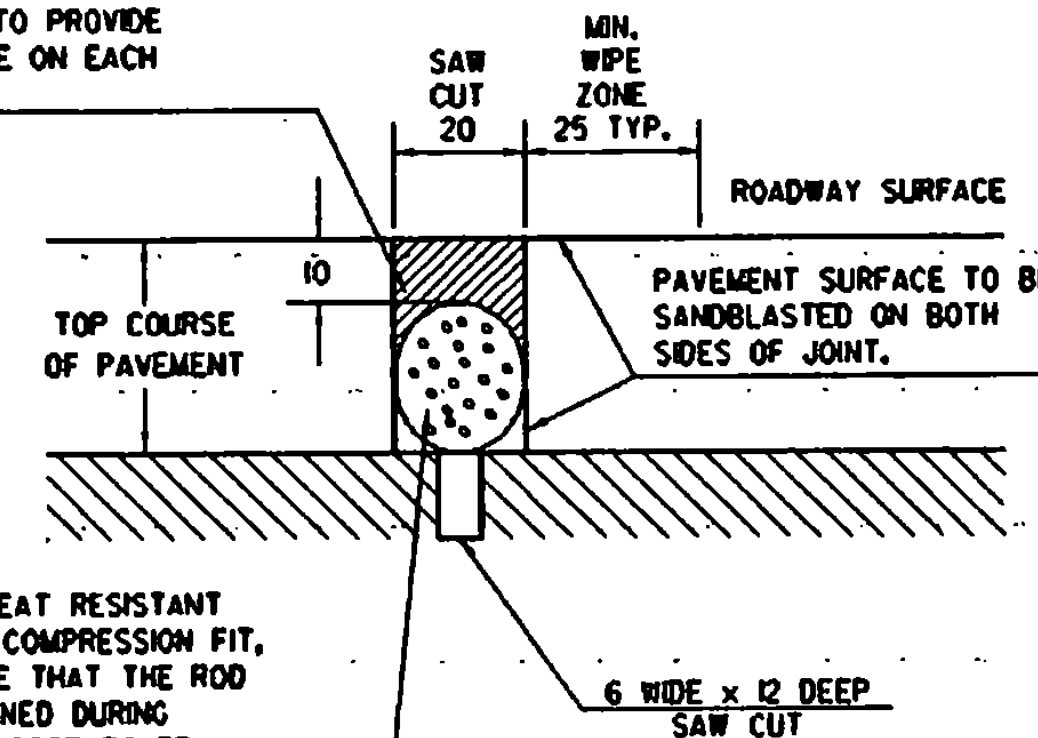
STAMFORD:	BRIDGE #2:	STA 1+841	TO 1+886
	BRIDGE #6:	STA 4+537	TO 4+633
	BRIDGE #8:	STA 5+641	TO 5+697
	BRIDGE #9:	STA 6+091	TO 6+163
	BRIDGE #10:	STA 6+664	TO 6+732

READSBORO:	BRIDGE #14:	STA 2+310	TO 2+372
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**PROJECT PAVING LIMITS**

TOWN	BEGIN STATION	END STATION	LANE TYPICAL (m)	WEARING DEPTH (mm)	BINDER DEPTH	LEVELING +/- (mm)	NOTES
VT ROUTE 30 STAMFORD	0+000	1+037	0.8-3.3-3.3-0.8	35		344	
	1+037	1+856	1.2-3.3-3.3-1.2	35		378	
	1+856	1+871	1.2-3.3-3.3-1.2	25		378	BRIDGE #2 ***
	1+871	1+997	1.2-3.3-3.3-1.2	35		378	
	1+997	2+926	0.9-3.3-3.3-0.9	35		353	
	2+926	4+592	0.8-3.3-3.3-0.8	35		344	
	4+592	4+618	1.2-3.3-3.3-1.2	25		378	BRIDGE #6 ***
	4+618	5+696	0.8-3.3-3.3-0.8	35		344	
	5+696	5+682	1.2-3.3-3.3-1.2	25		378	BRIDGE #9 ***
	5+682	6+106	0.8-3.3-3.3-0.8	35		344	
	6+106	6+148	1.2-3.3-3.3-1.2	25		378	BRIDGE #9 ***
	6+148	6+679	0.9-3.3-3.3-0.9	35		353	
	6+679	6+717	1.2-3.3-3.3-1.2	25		378	BRIDGE #10 ***
	6+717	6+865	0.9-3.3-3.3-0.9	35		353	
6+865	6+878	1.5-3.3-3.3-1.5	35		403	BRIDGE #11	
6+878	9+257	0.9-3.3-3.3-0.9	35		353		
READSBORO	0+000	2+325	0.9-3.3-3.3-0.9	35		353	
	2+325	2+357	1.2-3.3-3.3-1.2	25		378	BRIDGE #14 ***
	2+357	3+525	0.8-3.3-3.3-0.8	35		344	

JOINT SEALER, HOT OR COLD POURED, SHALL BE SLIGHTLY OVER FILLED, THEN WIPED FLUSH WITH A "V" OR "U" SHAPED SQUEEGEE TO PROVIDE A 25 mm WIPE ZONE ON EACH SIDE OF THE JOINT.



**SAW CUT JOINT DETAIL**

LOCATION: STAMFORD  
BRIDGE #2 (9m), @ STA 1+863.55 (MM L458) (e EXPANSION JOINT)  
BRIDGE #6 (9m), @ STA 4+584.50 (MM 2.849) (e EXPANSION JOINT)  
BRIDGE #8 (9m), @ STA 5+669.58 (MM 3.523) (e EXPANSION JOINT)  
BRIDGE #9 (9m), @ STA 6+125.87 (MM 3.806) (e EXPANSION JOINT)  
BRIDGE #10 (9m), @ STA 6+699.20 (MM 4.163) (e EXPANSION JOINT)

READSBORO BRIDGE #14 (9m), @ STA 2+339.95 (MM L454) (e EXPANSION JOINT)

**RURAL AREA - SEED MIXTURE**

% MASS	kg/ha	NAME	PUR %	GERM %
37.14	26	CREeping RED FESCUE	98	85
37.14	26	TALL FESCUE	95	90
5.71	4	RED TOP	95	90
14.30	10	BIRDFOOT TREFOL	98	85
5.71	4	ANNUAL RYE GRASS	95	85
100.00	70			

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY MASS AND SHALL BE FREE OF ALL NOXIOUS WEED SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10 TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA)

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

NOTE: ALL DIMENSIONS IN MILLIMETERS EXCEPT AS INDICATED

NOTE: JOINT IS TO BE LOCATED ACCURATELY BY STRING LINDING OR BY OTHER MEANS PRIOR TO PAVING, SO THAT THE SAW CUT WILL BE MADE DIRECTLY OVER THE END OF THE CONCRETE DECK. THE JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED PRIOR TO EXPOSURE TO TRAFFIC. THE JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER - SEE VERMONT SPECIFICATION 524 AND SPECIAL PROVISIONS.

<b>PROJECT TYPICAL SHEET</b>	PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP 9711(L)S
	DESIGN FILE NAME: /pays/96-020/pc020.dgn	PLOT DATE: 7-APR-1997
	IPARM FILE NAME: pc020.tbl	SURVEY DATE: N/A
	SURVEYED BY: E.B. Inc.	DRAWN BY: SMC
	SQUAD LEADER: JAW	SHEET: 2 OF 28

DATE: \_\_\_\_\_  
VERTICAL \_\_\_\_\_  
HORIZONTAL \_\_\_\_\_



# QUANTITY SHEET



SUMMARY OF ESTIMATED QUANTITIES										DETAILED SUMMARY OF QUANTITIES			DETAILED SUMMARY OF QUANTITIES				
					BRIDGE	ROADWAY	QUANTITIES GRAND TOTAL	UNIT	ITEMS	ITEM NUMBER	RND	QUANTITIES	UNIT	ITEMS	QUANTITIES	UNIT	ITEMS
					80		80	m	HEAVY DUTY STEEL BEAM GUARDRAIL	621.21	-						
					24		24	EA	TERMINAL CONNECTOR FOR STEEL BEAM GUARDRAIL	621.63	-						
					23	30	53	EA	MODIFIED ECCENTRIC LOADER TERMINAL	621.94	-						
					7	4	11	EA	ANCHOR FOR STEEL BEAM RAIL	621.60	-						
					850	1295	2145	m	REMOVAL AND DISP. OF GUARDRAIL	621.80	26						
					5	28	33	EA	REMOVAL AND DISP. OF GUIDE POSTS	621.81	2						
							840	HR	UNIFORMED TRAFFIC OFFICERS (N.A.B.I.)	630.10	EST.						
							1230	HR	FLAGGERS (N.A.B.I.)	630.15	EST.						
							1	LS	FIELD OFFICE ENGINEER	631.10							
							1	LS	TESTING EQUIPMENT - CONCRETE	631.16							
							1	LS	TESTING EQUIPMENT - BITUMINOUS	631.17							
							1	LS	FIELD OFFICE - TELEPHONE (N. A. B. I.)	631.25							
							1	LS	MOBILIZATION	635.10							
							25550	m	DURABLE 100 mm WHITE LINE	646.40	285						
							22500	m	DURABLE 100 mm YELLOW LINE	646.41	241						
							7	m	DURABLE 600 mm STOP BAR	646.46	1						
							16	EA	DURABLE LETTER OR SYMBOL	646.50	-						
							19	m	DURABLE CROSSWALK MARKING W/ DIAGONAL LINES	646.51	1						
							25550	m	TEMPORARY 100 mm WHITE LINE	646.60	285						
							22500	m	TEMPORARY 100 mm YELLOW LINE	646.61	241						
							7	m	TEMPORARY 600 mm STOP BAR	646.66	1						
							16	EA	TEMPORARY LETTER OR SYMBOL	646.70	-						
							19	m	TEMPORARY CROSSWALK MARKING W/ DIAGONAL LINES	646.71	1						
							1000	EA	LINE STRIPING TARGETS	646.76	17						
							15	kg	SEED	651.15	EST.						
							115	kg	FERTILIZER	651.18	EST.						
							1	†	AGRICULTURAL LIMESTONE	651.20	EST.						
							1	†	HAY MULCH	651.25	EST.						
							20	m3	TOPSOIL	651.35	EST.						
							30	m2	TRAFFIC SIGNS, TYPE A	675.20	135						
									*** BEGIN OPTION ITEMS ***								
							995	kg	FLANGED CHANNEL SIGN POSTS	675.30	13						
							995	kg	SQUARE TUBE STEEL POSTS AND ANCHORS	675.34	13						
									*** END OPTION ITEMS ***								
							80	EA	REMOVING SIGNS	675.50	-						
							4	EA	ERECTING SALVAGED SIGNS	675.60	-						

PROJECT 1 STAMFORD-READSBORO	PROJECT NO. 1 STP 971111S
DESIGN FILE NAME: /pav/96c020/pc020.dgn	
IPARM FILE NAME: pc020982.d	PLOT DATE: 24-MAR-1997
SURVEYED BY: N/A	SURVEY DATE: N/A
SQUAD LEADER: JAW	DRAWN BY: SMC
	SHEET: 4 OF 28

LOCATION			CURBED SIDEWALKS					DROP INLETS				GUARDRAIL								MISC.	REMARKS			
STATION	STATION	POS.	203J5 COMM. EXCAV.	203J6 SOLID ROCK EXCAV.	30L28 SUBBASE OF CR. GRAV.(FINE)	616.21 VERT. GRANITE CURB	618J0 PORT. CEM. CONC. SDWK. 125 mm	604.40 CHANGE ELEV. D.I.	604.412 REHAB. D.I. CLASS I	604.415 REHAB. D.I. CLASS II	604.418 REHAB. D.I. CLASS III	616.35 TIMBER CURB	621.20 STEEL BEAM G.R.	621.20 2.5 m POST BEAM G.R.(MOD)	621.21 H.D. BEAM G.R.	621.53 TERM. CONN.	621.54 M.E.L.T.	621.60 ANCHOR FOR G.R.	621.75 REMOVE & RESET G.R.	621.80 REMOVE & DISP. G.R.	621.81 REMOVE & DISP. G.P.	676.10 STEEL POST DELIN.		
VT ROUTE	100, STAMFORD		m3	m3	f	m	m2	EA.	EA.	EA.	EA.	m	m	m	m	EA.	EA.	EA.	m	m	EA.	EA.		
1+857		LT	1		2		4																	CONSTRUCT SIDEWALK RAMP, SEE DETAIL ON SHT #24
1+870		LT			2		4																	CONSTRUCT SIDEWALK RAMP, SEE DETAIL ON SHT #24
2+915	3+002	LT										87				2			10	8				MELT @ STA 2+915, MELT @ STA 3+002
2+965	2+977	RT										12				2			10	1				MELT @ STA 2+965, MELT @ STA 2+977
3+436	3+507	RT																		10				
4+344	4+359	RT																			4			
4+376	4+384	LT										8				2			11					MELT @ STA 4+376, MELT @ STA 4+384
4+376	4+395	RT										19					2		13					ANCHOR @ STA 4+376, INSTALL 1-5 m R PANEL, ANCHOR @ STA 4+395, INSTALL 1-5 m R PANEL
4+900	5+090	LT										190				1	1		72					MELT @ STA 4+900, ANCHOR @ STA 5+090, INSTALL 1-5 m R PANEL
5+076	5+091	RT																			3			
5+134	5+442	LT										308				2			302					MELT @ STA 5+134, MELT @ STA 5+442
5+197	5+285	RT										88				2			99					MELT @ STA 5+197, MELT @ STA 5+285
5+565	5+566	RT																			2			
6+175	6+182	RT																			2			
7+302	7+808	RT										350	156			2			413					MELT @ STA 7+302, MELT @ STA 7+808, INSTALL 2.5 m POSTS FROM STA 7+489 TO 7+645
8+282	8+328	RT										46				1	1							MELT @ STA 8+282, ANCHOR @ STA 8+328, INSTALL 1-5 m R PANEL
8+332	8+412	RT										80				1	1		76					ANCHOR @ STA 8+332, INSTALL 1-5 m R PANEL, MELT @ STA 8+412
8+521	8+586	RT										65				2			56					MELT @ STA 8+521, MELT @ STA 8+586
8+563	8+586	LT										23				2			21					MELT @ STA 8+563, MELT @ STA 8+586
VT RTE 100, READSBORO																								
0+000	3+529																							FOR LOCATIONS & GRATE TYPES, SEE LAYOUT SHEETS. GRATE INCLUDED UNDER EACH ITEM
0+000	3+529																							FOR LOCATIONS SEE LAYOUT SHEETS. ESTIMATED QUANTITY TO BE USED AS DIRECTED BY THE RESIDENT ENGINEER
1+606	1+705	LT										99				2			92					MELT @ STA 1+606, MELT @ STA 1+705
2+133	2+163	LT										30				2			40					MELT @ STA 2+133, MELT @ STA 2+163
2+136	2+147	RT										11				1	1							MELT @ STA 2+136, MELT @ STA 2+147
2+624	2+647	LT										23				2			13					ANCHOR @ STA 2+624, INSTALL 1-5 m R PANEL, ANCHOR @ STA 2+647, INSTALL 1-5 m R PANEL
2+625	2+636	RT										11				2			15					MELT @ STA 2+625, MELT @ STA 2+636
3+482	3+512	RT										30				2			35					MELT @ STA 3+482, MELT @ STA 3+512
SHEET TOTALS			2	4	8	1	1	1	1			1480	156			30	4		1278	27				
ROUNDING			-	-	-	-	-	-	-			13	4			-	-		17	1				
SUBTOTALS			2	4	8	1	1	1	1			1493	160			30	4		1295	28				
BRIDGE SHEET #23 TOTALS			-	-	-	-	-	-	-			771	62	80	24	23	7		850	6				
TOTALS			2	4	8	1	1	1	1			2264	222	80	24	53	11		2145	33				

ITEM  
DETAIL  
SHEET

PROJECT:	STAMFORD-READSBORO	PROJECT NO.:	STP 9711(1)-S
DESIGN FILE NAME:	/dpsvc/96c020/c020.dgn	PLOT DATE:	18-MAR-1997
PARM FILE NAME:	c0201d1	SURVEY DATE:	N/A
SURVEYED BY:	CLD	DRAWN BY:	SJC
SQUAD LEADER:	JAW	SHEET:	5 OF 28

: Sheet Number: 5

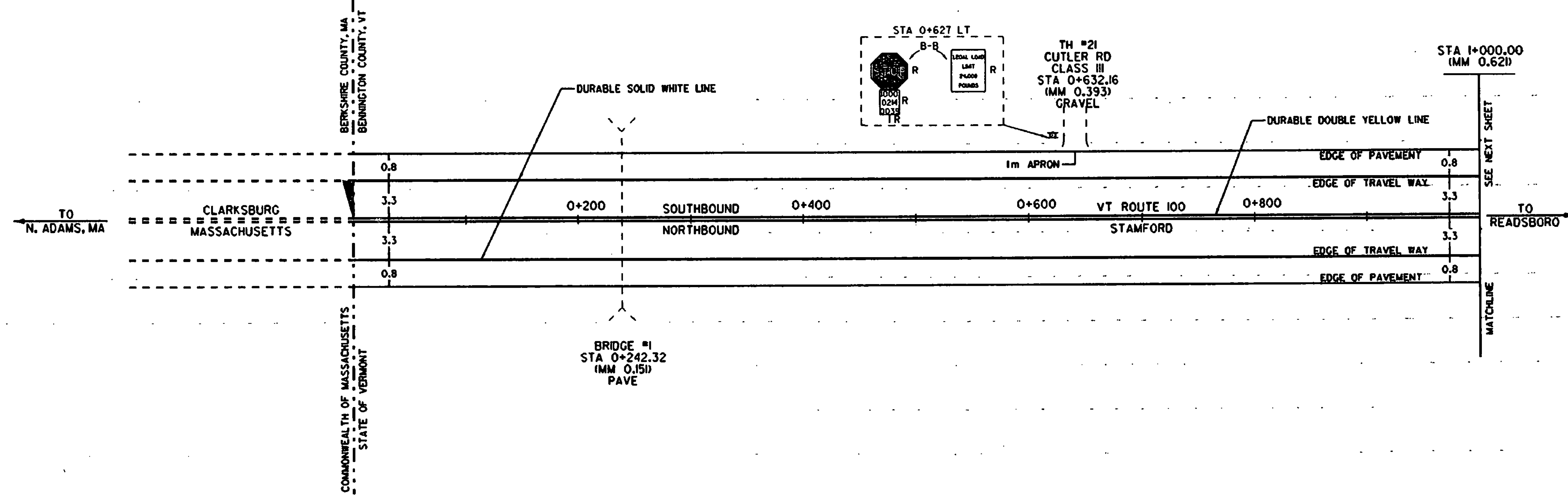


TEMPORARY AND DURABLE 100 mm YELLOW LINE  
 STA 0+000 TO 1+000 SOLID LT & RT

TEMPORARY AND DURABLE 100 mm WHITE LINE  
 STA 0+000 TO 1+000 SOLID LT. & RT.

REMOVING SIGNS  
 AS SHOWN - 3

**VT ROUTE 100**  
**STA 0+000.00 (MM 0.000)**  
**BEGIN PROJECT STP 9711(1)S**



DATUM  
 VERTICAL \_\_\_\_\_  
 HORIZONTAL \_\_\_\_\_

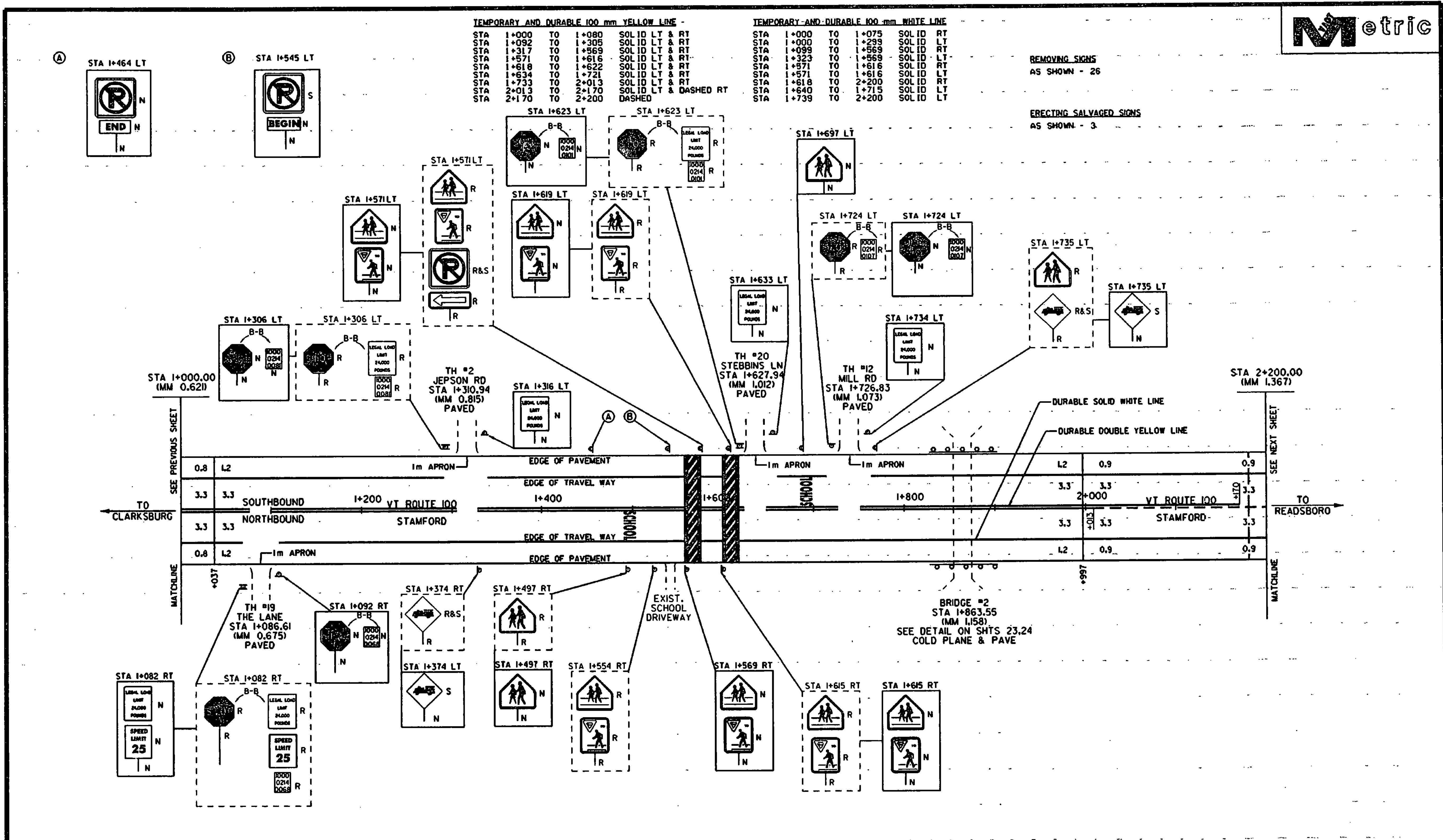
NOT TO SCALE

**LEGEND**

- R = REMOVE EXISTING
- N = NEW
- RET = RETAIN
- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- = NEW RAIL
- - - = EXISTING RAIL

**PAVING  
 PROJECT  
 LAYOUT**

PROJECT:	STAMFORD-READSBORO	PROJECT NO.:	STP 9711(1)S
DESIGN FILE NAME:	Z:\pav\95-020\2-020.dgn	PLOT DATE:	18-MAR-1997
IPARM FILE NAME:	pc020\011	SURVEY DATE:	2/96
SURVEYED BY:	CLD/lrc	DRAWN BY:	SMC
SQUAD LEADER:	JAW	SHEET:	6 OF 28



TEMPORARY AND DURABLE 100 mm YELLOW LINE				TEMPORARY AND DURABLE 100 mm WHITE LINE			
STA 1+000	TO	1+080	SOLID LT & RT	STA 1+000	TO	1+075	SOLID RT
STA 1+092	TO	1+305	SOLID LT & RT	STA 1+000	TO	1+299	SOLID LT
STA 1+317	TO	1+569	SOLID LT & RT	STA 1+099	TO	1+569	SOLID RT
STA 1+571	TO	1+616	SOLID LT & RT	STA 1+323	TO	1+569	SOLID LT
STA 1+618	TO	1+622	SOLID LT & RT	STA 1+571	TO	1+616	SOLID RT
STA 1+634	TO	1+721	SOLID LT & RT	STA 1+571	TO	1+616	SOLID LT
STA 1+733	TO	2+013	SOLID LT & RT	STA 1+618	TO	2+200	SOLID RT
STA 2+013	TO	2+170	SOLID LT & DASHED RT	STA 1+640	TO	1+715	SOLID LT
STA 2+170	TO	2+200	DASHED	STA 1+739	TO	2+200	SOLID LT

REMOVING SIGNS  
AS SHOWN - 26

ERECTING SALVAGED SIGNS  
AS SHOWN - 3

DATUM	_____
VERTICAL	_____
HORIZONTAL	_____

TEMPORARY AND DURABLE CROSSWALK W/DIAGONAL LINES

STA 1+570	RT & LT
STA 1+617	RT & LT

TEMPORARY AND DURABLE LETTER OR SYMBOL

STA 1+497	RT - "SCHOOL"
STA 1+697	LT - "SCHOOL"

LEGEND

R	= REMOVE EXISTING
N	= NEW
RET	= RETAIN
B-B	= BACK TO BACK
R&S	= REMOVE & SALVAGE
S	= SALVAGE
- - -	= NEW RAIL
- - -	= EXISTING RAIL

NOT TO SCALE

**PAVING PROJECT LAYOUT**

PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP 9711(1)S
DESIGN FILE NAME: _pave/36c020/pc020.dgn	PLOT DATE: 24-MAR-1997
IPARM FILE NAME: pc020(02).	SURVEY DATE: 2/96
SURVEYED BY: CLU-TRC	DRAWN BY: SMC
SQUAD LEADER: JAV	SHEET: 7 OF 28

Sheet Number:

**TEMPORARY AND DURABLE 100 mm YELLOW LINE**

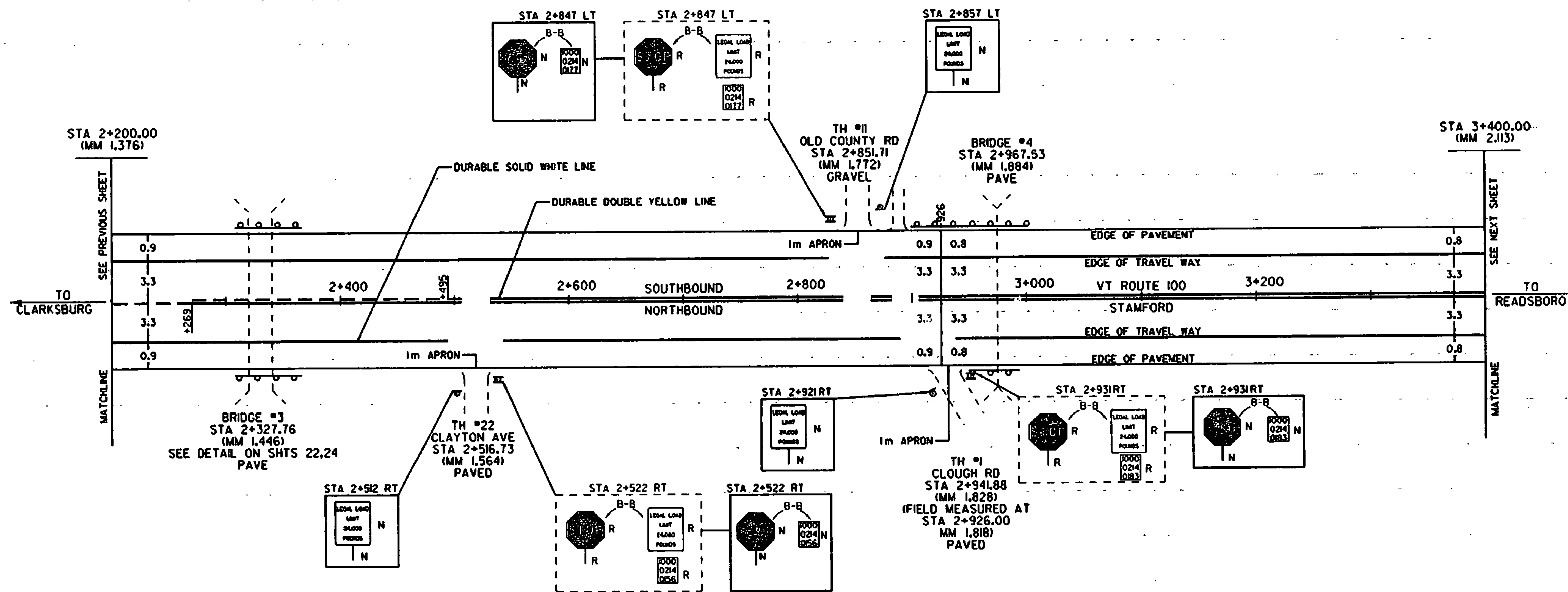
STA 2+200	TO	2+269	DASHED	
STA 2+269	TO	2+495	DASHED	LT, SOLID RT
STA 2+495	TO	2+511	SOLID	LT & RT
STA 2+523	TO	2+846	SOLID	LT & RT
STA 2+858	TO	2+936	SOLID	LT & RT
STA 2+948	TO	3+400	SOLID	LT & RT

**TEMPORARY AND DURABLE 100 mm WHITE LINE**

STA 2+200	TO	2+905	SOLID	RT
STA 2+200	TO	2+840	SOLID	LT
STA 2+529	TO	2+830	SOLID	RT
STA 2+854	TO	3+400	SOLID	RT
STA 2+864	TO	3+400	SOLID	LT

**REMOVING SIGNS**

AS SHOWN - 9



**STEEL BEAM GUARDRAIL**

STA 2+915	TO	3+002	LT
STA 2+965	TO	2+977	RT

**REMOVAL & DISP. OF GUARDRAIL**

STA 2+963	TO	2+973	LT
STA 2+965	TO	2+975	RT

**REMOVAL & DISP. OF GUIDE POSTS**

STA 2+961	TO	3+007	LT
STA 2+976	TO		RT

**MODIFIED ECCENTRIC LOADER TERMINAL**

STA 2+915	LT
STA 3+002	LT
STA 2+965	RT
STA 2+977	RT

**LEGEND**

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- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- = NEW RAIL
- = EXISTING RAIL

NOT TO SCALE

**PAVING PROJECT LAYOUT**

PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP 9711111S
DESIGN FILE NAME: \pave\36c020\ac020.dgn	PLOT DATE: 24-MAR-1997
PARM FILE NAME: ac020031	SURVEY DATE: 2/96
SURVEYED BY: G.O. JVC	DRAWN BY: SMC
SQUAD LEADER: JAW	SHEET: 8 OF 28

**DATUM**

VERTICAL	_____
HORIZONTAL	_____

**TEMPORARY AND DURABLE 100 mm YELLOW LINE**

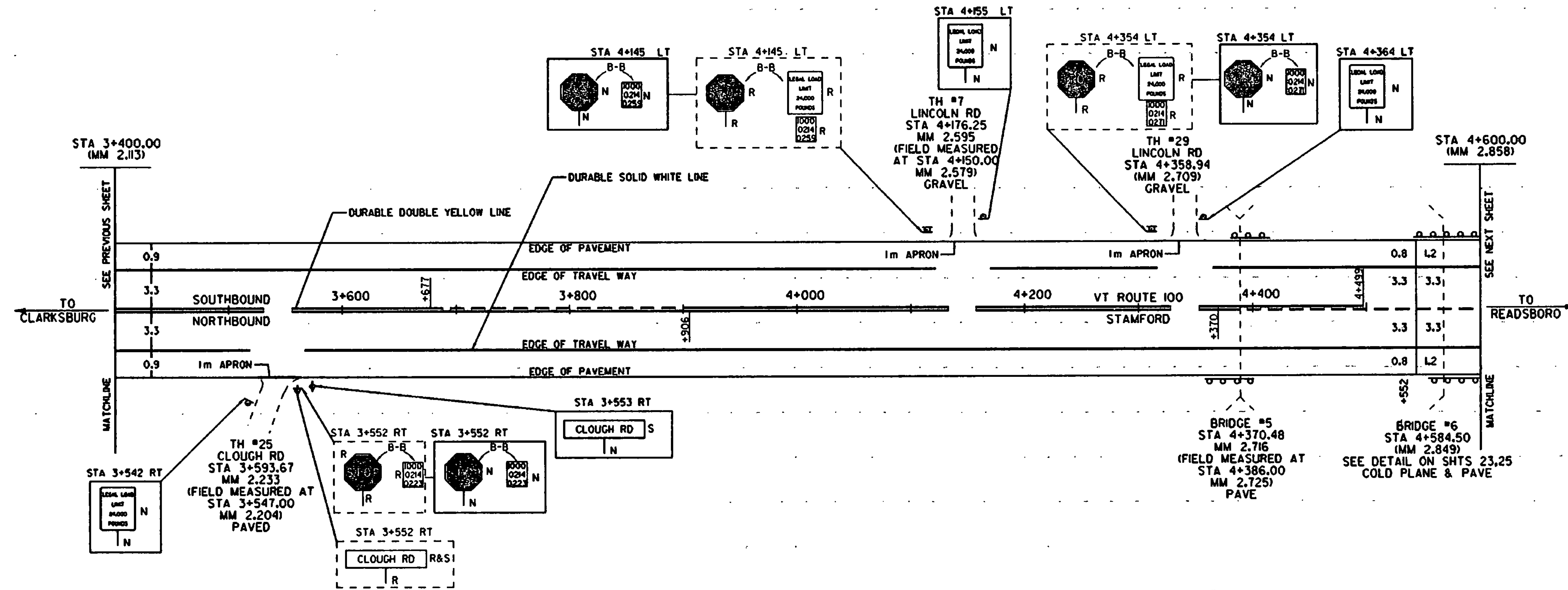
STA 3+400 TO 3+588	SOLID LT & RT
STA 3+600 TO 3+677	SOLID LT & RT
STA 3+677 TO 3+906	DASHED LT, SOLID RT
STA 3+906 TO 4+170	SOLID LT & RT
STA 4+182 TO 4+353	SOLID LT & RT
STA 4+365 TO 4+370	SOLID LT & RT
STA 4+370 TO 4+499	SOLID LT, DASHED RT
STA 4+499 TO 4+600	DASHED

**TEMPORARY AND DURABLE 100 mm WHITE LINE**

STA 3+400 TO 4+164	SOLID LT
STA 3+400 TO 3+582	SOLID RT
STA 3+606 TO 4+600	SOLID RT
STA 4+188 TO 4+347	SOLID LT
STA 4+371 TO 4+600	SOLID LT

**REMOVING SIGNS**  
AS SHOWN - 9

**ERECTING SALVAGED SIGNS**  
AS SHOWN - 1



**STEEL BEAM GUARDRAIL**

STA 4+376 TO 4+395	RT
STA 4+376 TO 4+384	LT

**REMOVAL & DISP. OF GUARDRAIL**

STA 4+379 TO 4+390	LT
STA 4+377 TO 4+390	RT

**REMOVAL & DISP. OF GUIDE POSTS**

STA 3+436 TO 3+507	RT
STA 4+344 TO 4+359	RT

**MODIFIED ECCENTRIC LOADER TERMINAL**

STA 4+376	LT
STA 4+384	LT

**ANCHOR FOR STEEL BEAM RAIL**

STA 4+376	RT
STA 4+398	RT

**LEGEND**

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- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- - - = NEW RAIL
- - - = EXISTING RAIL

NOT TO SCALE

<b>PAVING PROJECT LAYOUT</b>	PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP 9711(1)S
	DESIGN FILE NAME: J:\pav/96c020\pc020.dgn	PLOT DATE: 24-MAR-1997
	PARM FILE NAME: pc02004.d	SURVEY DATE: 2/96
	SURVEYED BY: ELO Jmc	DRAWN BY: SMC
	SQUAD LEADER: JAW	SHEET: 9 OF 28

DATE:	_____
VERTICAL:	_____
HORIZONTAL:	_____

**TEMPORARY AND DURABLE 100 mm YELLOW LINE**

STA 4+600 TO 4+845	DASHED
STA 4+845 TO 4+966	DASHED LT, SOLID RT
STA 4+966 TO 4+975	SOLID LT & RT
STA 4+987 TO 5+443	SOLID LT & RT
STA 5+495 TO 5+968	SOLID LT & RT
STA 5+568 TO 5+779	SOLID LT, DASHED RT
STA 5+779 TO 5+795	SOLID LT & RT
STA 5+795 TO 5+800	DASHED LT, SOLID RT

**TEMPORARY AND DURABLE 100 mm WHITE LINE**

STA 4+600 TO 5+800	SOLID LT
STA 4+600 TO 4+969	SOLID RT
STA 4+993 TO 5+437	SOLID RT
STA 5+461 TO 5+800	SOLID RT

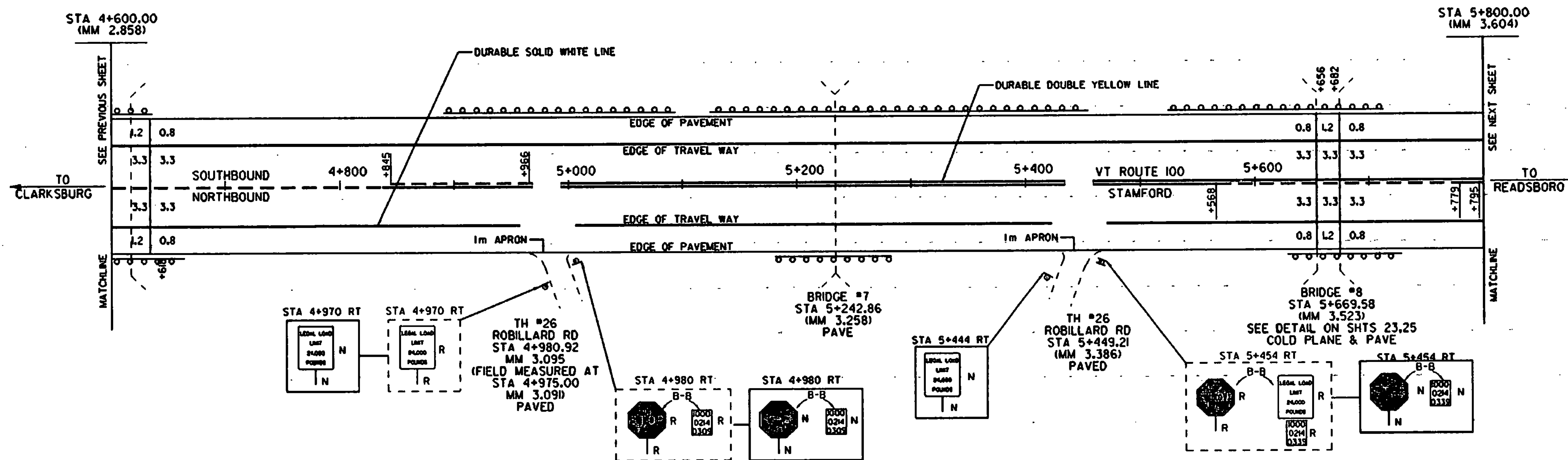
**REMOVING SIGNS**  
AS SHOWN - 6

**600 mm CSP**

STA 5+695	LT - 18M
STA 5+716	RT - 18M

**600 mm CSPES**

STA 5+677	LT
STA 5+698	RT



**STEEL BEAM GUARDRAIL**

STA 4+900 TO 5+090	LT
STA 5+134 TO 5+443	LT
STA 5+197 TO 5+285	RT

**REMOVAL & DISP. OF GUARDRAIL**

STA 5+014 TO 5+086	LT
STA 5+141 TO 5+443	LT
STA 5+197 TO 5+296	RT

**REMOVAL & DISP. OF GUIDE POSTS**

STA 5+076 TO 5+091	RT
STA 5+565 TO 5+566	RT

**MODIFIED ECCENTRIC LOADER TERMINAL**

STA 4+900	LT
STA 5+134	LT
STA 5+442	LT
STA 5+197	RT
STA 5+285	RT

**ANCHOR FOR STEEL BEAM RAIL**  
STA 5+090 LT

**LEGEND**

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- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- = NEW RAIL
- - - = EXISTING RAIL

**PAVING PROJECT LAYOUT**

NOT TO SCALE

DATUM	_____
VERTICAL	_____
HORIZONTAL	_____

PROJECT:	STAMFORD-READSBORO	PROJECT NO. 1	STP 9711(1)S
DESIGN FILE NAME:	/D:\p\96\020\pc020.dgn		
IPARM FILE NAME:	pc02005.1	PLOT DATE:	24-MAR-1997
SURVEYED BY:	CLQ JWC	SURVEY DATE:	2/96
SQUAD LEADER:	JAW	DRAWN BY:	SMC
		SHEET:	10 OF 28



**TEMPORARY AND DURABLE 100 mm YELLOW LINE**

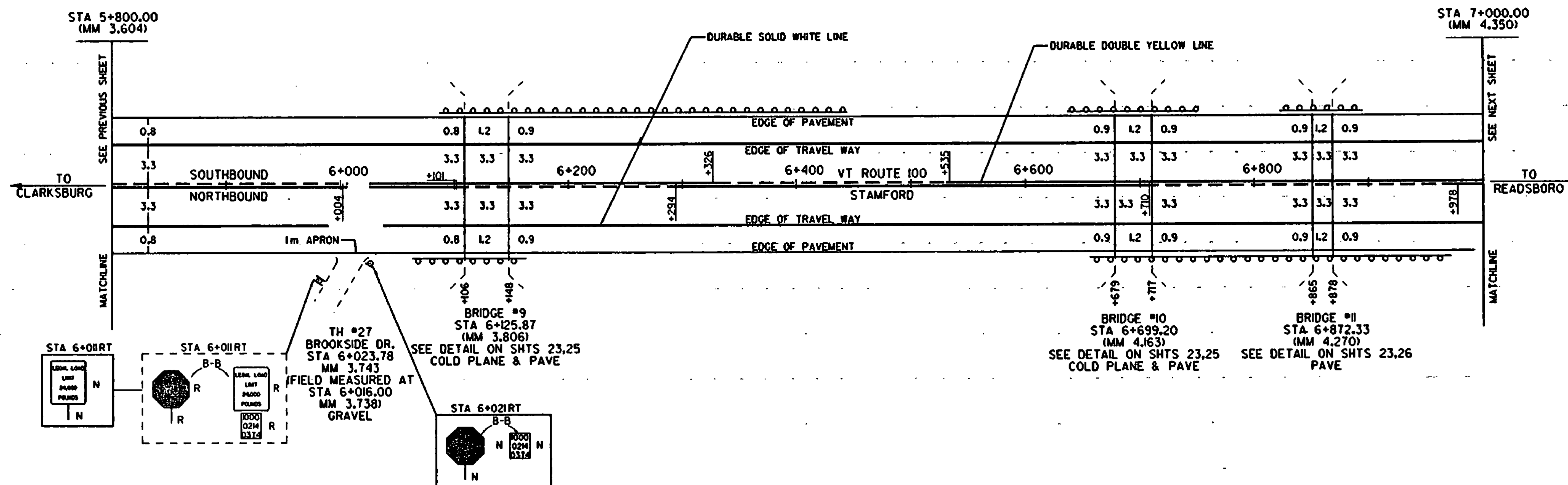
STA 5+800	TO	6+004	DASHED	LT,	SOLID RT
STA 6+004	TO	6+018	SOLID	LT & RT	
STA 6+030	TO	6+101	SOLID	LT & RT	
STA 6+101	TO	6+294	SOLID	LT, DASHED RT	
STA 6+294	TO	6+326	SOLID	LT & RT	
STA 6+326	TO	6+535	DASHED	LT, SOLID RT	
STA 6+535	TO	6+710	SOLID	LT & RT	
STA 6+710	TO	7+978	SOLID	LT, DASHED RT	
STA 6+978	TO	7+000	SOLID	LT & RT	

**TEMPORARY AND DURABLE 100 mm WHITE LINE**

STA 5+800	TO	7+000	SOLID	LT	
STA 5+800	TO	6+012	SOLID	RT	
STA 6+036	TO	7+000	SOLID	RT	

**REMOVAL & DISP. OF GUIDE POSTS**  
STA 6+175 TO 6+182 RT

**REMOVING SIGNS**  
AS SHOWN - 3



DATUM  
VERTICAL \_\_\_\_\_  
HORIZONTAL \_\_\_\_\_

NOT TO SCALE

- LEGEND**
- R = REMOVE EXISTING
  - N = NEW
  - RET = RETAIN
  - B-B = BACK TO BACK
  - R&S = REMOVE & SALVAGE
  - S = SALVAGE
  - - - = NEW RAIL
  - — — = EXISTING RAIL

**PAVING PROJECT LAYOUT**

PROJECT:	STAMFORD-READSBORO	PROJECT NO.:	STP 9711(1)S
DESIGN FILE NAME:	z:\pave\96c020\p020.dwg	PLOT DATE:	24-MAR-1997
IPARM FILE NAME:	pc02006.1	SURVEY DATE:	2/96
SURVEYED BY:	C.B. Inc.	DRAWN BY:	SMC
SQUAD LEADER:	JAV	SHEET:	DF 28

: Sheet Number:

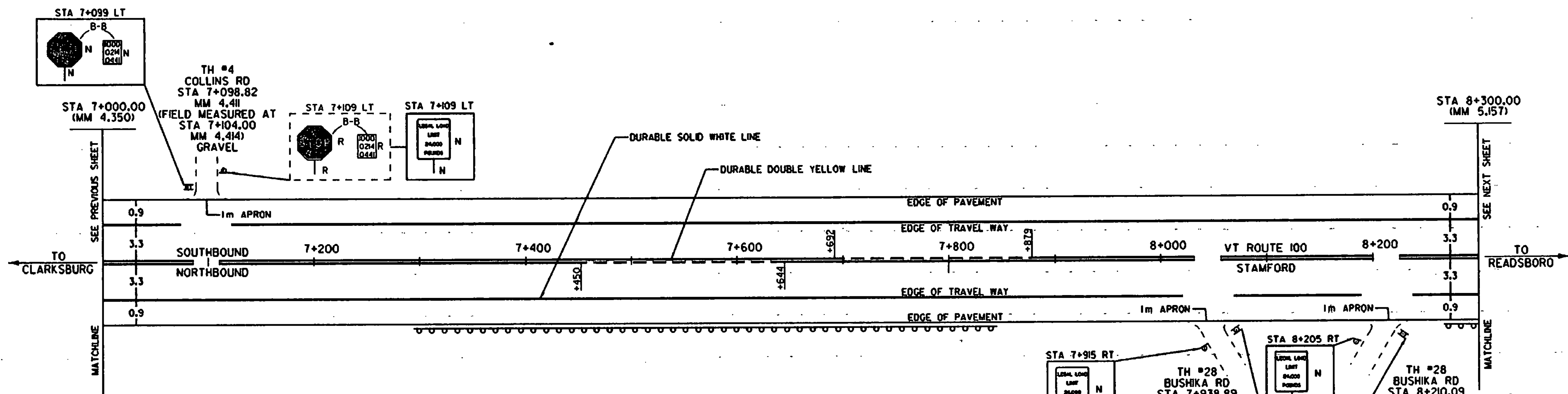
**TEMPORARY AND DURABLE 100 mm YELLOW LINE**

STA 7+000	TO	7+093	SOLID LT & RT
STA 7+109	TO	7+450	SOLID LT & RT
STA 7+450	TO	7+644	SOLID LT, DASHED RT
STA 7+644	TO	7+692	SOLID LT & RT
STA 7+692	TO	7+879	DASHED LT, SOLID RT
STA 7+879	TO	7+933	SOLID LT & RT
STA 7+945	TO	8+204	SOLID LT & RT
SAT 8+216	TO	8+300	SOLID LT & RT

**TEMPORARY AND DURABLE 100 mm WHITE LINE**

STA 7+000	TO	7+087	SOLID LT
STA 7+000	TO	7+927	SOLID RT
STA 7+111	TO	8+300	SOLID LT
STA 7+951	TO	8+198	SOLID RT
STA 8+222	TO	8+300	SOLID RT

REMOVING SIGNS  
AS SHOWN - 9



**STEEL BEAM GUARDRAIL**

STA 7+302	TO	7+489	RT
STA 7+645	TO	7+808	RT
STA 8+282	TO	8+300	RT

**REMOVAL & DISP. OF GUARDRAIL**

STA 7+316	TO	7+643	RT
STA 7+322	TO	7+808	RT

**STEEL BEAM GUARDRAIL W/2.5m STEEL POSTS (MODIFIED)**

STA 7+489	TO	7+645	RT
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**MODIFIED ECCENTRIC LOADER TERMINAL**

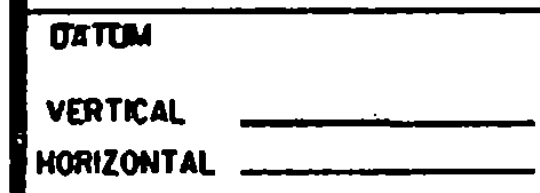
STA 7+302	RT
STA 7+808	RT
STA 8+262	RT

**LEGEND**

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- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- - - = NEW RAIL
- - - = EXISTING RAIL

NOT TO SCALE

<b>PAVING PROJECT LAYOUT</b>	PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP 9711(1)S.
	DESIGN FILE NAME: D:\p97\95-c020\p-c020.dwg	PLOT DATE: 24-MAR-1997
	IPARM FILE NAME: p-c020\p021	SURVEY DATE: 22-96
	SURVEYED BY: CLB Inc.	DRAWN BY: SMC
	SQUAD LEADER: JAW	SHEET: 12 OF 28



: Sheet Number:



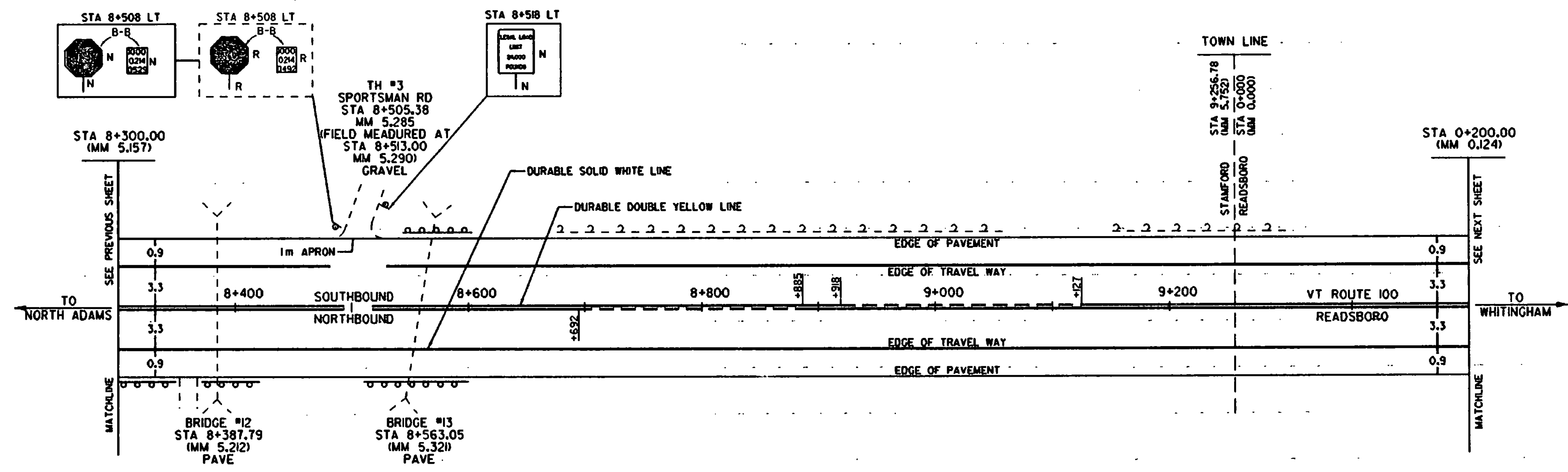
**TEMPORARY AND DURABLE 100 mm YELLOW LINE**

STA 8+300	TO	8+499	SOLID	LT & RT
STA 8+511	TO	8+692	SOLID	LT & RT
STA 8+832	TO	8+885	SOLID	LT, DASHED RT
STA 8+885	TO	8+918	SOLID	LT & RT
STA 8+918	TO	9+127	DASHED	LT, SOLID RT
STA 9+127	TO	9+257	SOLID	LT & RT
STA 0+000	TO	0+200	SOLID	LT & RT

**TEMPORARY AND DURABLE 100 mm WHITE LINE**

STA 8+300	TO	8+493	SOLID	LT
STA 8+300	TO	9+257	SOLID	RT
STA 8+817	TO	9+257	SOLID	RT
STA 0+000	TO	0+200	SOLID	LT & RT

**REMOVING SIGNS**  
AS SHOWN - 2



**STEEL BEAM GUARDRAIL**

STA 8+300	TO	8+328	RT
STA 8+332	TO	8+412	RT
STA 8+521	TO	8+586	RT
STA 8+583	TO	8+586	LT

**REMOVAL & DISP. OF GUARDRAIL**

STA 8+337	TO	8+413	RT
STA 8+538	TO	8+594	RT
STA 8+562	TO	8+583	LT

**MODIFIED ECCENTRIC LOADER TERMINAL**

STA 8+412	RT
STA 8+521	RT
STA 8+563	LT
STA 8+586	RT
STA 8+586	LT

**ANCHOR FOR STEEL BEAM RAIL**

STA 8+328	RT
STA 8+332	RT

**LEGEND**

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- N = NEW
- RET = RETAIN
- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- = NEW RAIL
- - - = EXISTING RAIL

**PAVING PROJECT LAYOUT**

NOT TO SCALE

**DATUM**

VERTICAL	_____
HORIZONTAL	_____

<b>PROJECT:</b> STAMFORD-READSBORO		<b>PROJECT NO.:</b> STP 9711(1)S	
<b>DESIGN FILE NAME:</b> D:\pave\96c020\nc020.dgn	<b>PLOT DATE:</b> 29-MAR-1997		
<b>PARM FILE NAME:</b> nc02008.1	<b>SURVEY DATE:</b> 2/96		
<b>SURVEYED BY:</b> CLO, JWC	<b>DRAWN BY:</b> SMC		
<b>SQUAD LEADER:</b> JAW	<b>SHEET:</b> 13 OF 28		

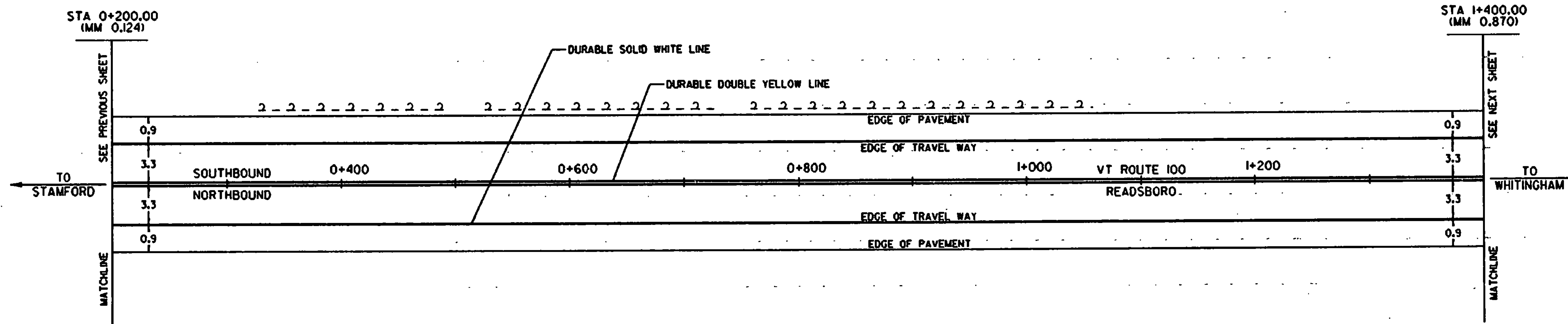
: Sheet Number:



TEMPORARY AND DURABLE 100 mm YELLOW LINE  
STA 0+200 TO 1+400 SOLID LT & RT

TEMPORARY AND DURABLE 100 mm WHITE LINE  
STA 0+200 TO 1+400 SOLID LT & RT

CHANGING ELEV. OF DL CB OR MH  
REHABILITATION OF DL CB OR MH CLASS I  
REHABILITATION OF DL CB OR MH CLASS II  
REHABILITATION OF DL CB OR MH CLASS III  
STA 0+853 LT - GRATE TYPE D  
STA 0+866 LT - GRATE TYPE D  
STA 1+034 LT - GRATE TYPE D



DATUM  
 VERTICAL \_\_\_\_\_  
 HORIZONTAL \_\_\_\_\_

NOT TO SCALE

LEGEND

- R = REMOVE EXISTING
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- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- = NEW RAIL
- - - = EXISTING RAIL

PAVING  
PROJECT  
LAYOUT

PROJECT:	STAMFORD-READSBORO	PROJECT NO.:	STP 9711(1)S
DESIGN FILE NAME:	z:\pave\96c020\nc020.dgn	PLOT DATE:	24-MAR-1997
PARM FILE NAME:	nc02003.l	SURVEY DATE:	2/96
SURVEYED BY:	CLQ, Inc.	DRAWN BY:	SAC
SQUAD LEADER:	JAN	SHEET:	14 OF 28

: Sheet Number:



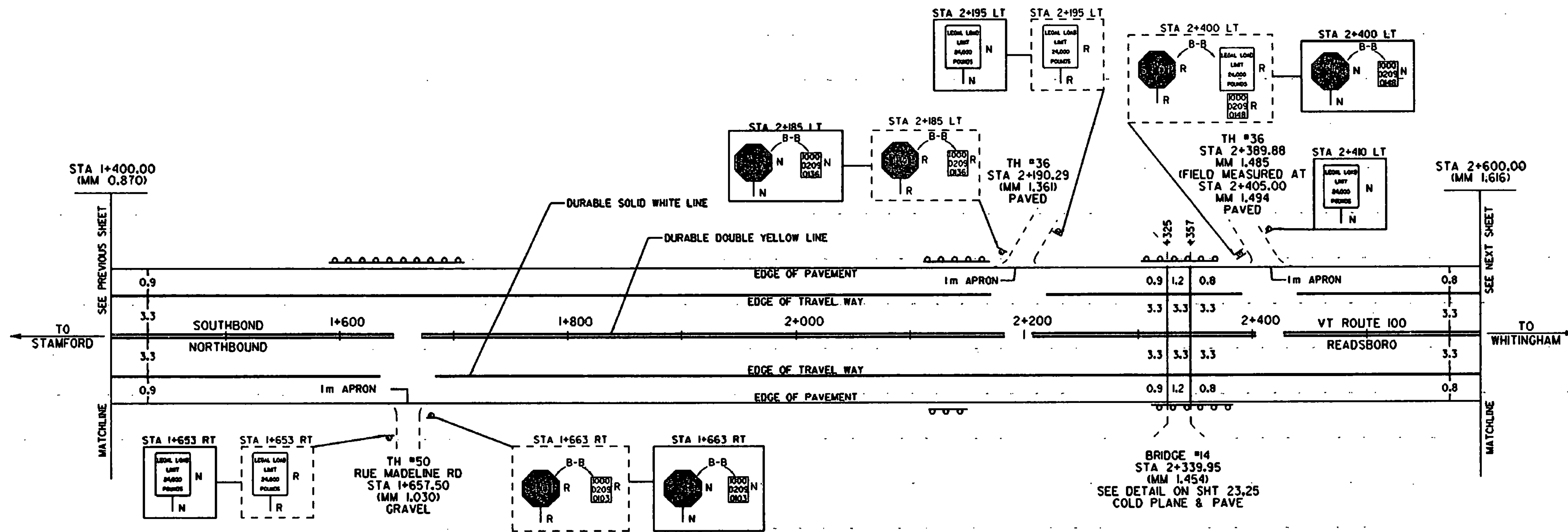
**TEMPORARY AND DURABLE 100 mm YELLOW LINE**

STA 1+400	TO	1+652	SOL ID	LT & RT
STA 1+664	TO	2+184	SOL ID	LT & RT
STA 2+198	TO	2+384	SOL ID	LT & RT
STA 2+398	TO	2+600	SOL ID	LT & RT

**TEMPORARY AND DURABLE 100 mm WHITE LINE**

STA 1+400	TO	1+646	SOL ID	RT
STA 1+400	TO	2+178	SOL ID	LT
STA 1+670	TO	2+600	SOL ID	RT
STA 2+202	TO	2+378	SOL ID	LT
STA 2+402	TO	2+600	SOL ID	LT

**REMOVING SIGNS**  
AS SHOWN - 9



**STEEL BEAM GUARDRAIL**

STA 1+606	TO	1+705	LT
STA 2+133	TO	2+163	LT
STA 2+136	TO	2+147	RT

**REMOVAL & DISP. OF GUARDRAIL**

STA 1+605	TO	1+697	LT
STA 2+134	TO	2+174	LT

**MODIFIED ECCENTRIC LOADER TERMINAL**

STA 1+606	LT
STA 1+705	LT
STA 2+133	LT
STA 2+163	LT
STA 2+136	RT
STA 2+147	RT

**LEGEND**

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- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- - = NEW RAIL
- τ - τ = EXISTING RAIL

<b>PAVING PROJECT LAYOUT</b>	PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP 97L1(1)S
	DESIGN FILE NAME: D:\pave\96c020\pc020.dwg	PLOT DATE: 24-MAR-1997
	IPARM FILE NAME: pc020.dwg	SURVEY DATE: 11-95
	SURVEYED BY: GJB, Jnc	DRAWN BY: SMC
	SQUAD LEADER: JAW	SHEET: 5 OF 28

**DATUM**

VERTICAL	_____
HORIZONTAL	_____

NOT TO SCALE

: Sheet Number:



TEMPORARY AND DURABLE LETTER OR SYMBOL  
 STA 3+512 LT - "STOP"

TEMPORARY AND DURABLE 100 mm YELLOW LINE  
 STA 2+500 TO 3+279 SOLID LT & RT  
 STA 3+291 TO 3+523 SOLID LT & RT  
 STA 3+512 VT ROUTE 8 (DOUBLE SOLID LT)

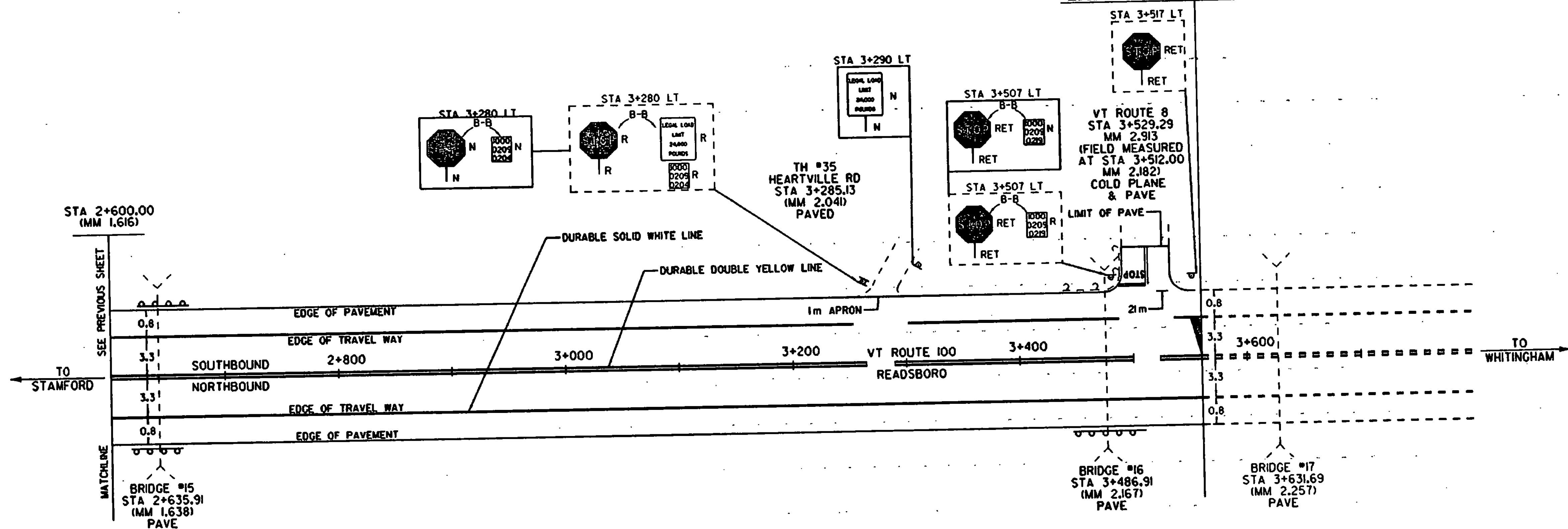
TEMPORARY AND DURABLE 100 mm WHITE LINE  
 STA 2+500 TO 3+529 SOLID RT  
 STA 2+600 TO 3+273 SOLID LT  
 STA 3+297 TO 3+517 SOLID LT

REMOVING SIGNS  
 AS SHOWN - 4

TEMPORARY AND DURABLE 600 mm STOP BAR  
 STA 3+512 LT

CHANGING ELEV. OF DL CB OR MH  
 REHABILITATION OF DL CB OR MH CLASS I  
 REHABILITATION OF DL CB OR MH CLASS II  
 REHABILITATION OF DL CB OR MH CLASS III  
 STA 3+094 LT - GRATE TYPE A

VT ROUTE 100  
 STA 3+529.29  
 (MM 2.193)  
 END PROJECT STP 9711(1)S



STEEL BEAM GUARDRAIL  
 STA 2+624 TO 2+647 LT  
 STA 2+625 TO 2+636 RT  
 STA 3+482 TO 3+512 RT

REMOVAL & DISP. OF GUARDRAIL  
 STA 2+628 TO 2+641 RT  
 STA 2+629 TO 2+644 LT  
 STA 3+482 TO 3+517 RT

MODIFIED ECCENTRIC LOADER TERMINAL  
 STA 2+625 RT  
 STA 2+636 RT  
 STA 3+482 RT  
 STA 3+512 RT

ANCHOR FOR STEEL BEAM RAIL  
 STA 2+624 LT  
 STA 2+647 LT

LEGEND

- R = REMOVE EXISTING
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- RET = RETAIN
- B-B = BACK TO BACK
- R&S = REMOVE & SALVAGE
- S = SALVAGE
- = NEW RAIL
- - - = EXISTING RAIL

NOT TO SCALE

PAVING  
 PROJECT  
 LAYOUT

PROJECT:	STAMFORD-READSBORO	PROJECT NO.:	STP 9711(1)S
DESIGN FILE NAME:	Z:\pave\98a020\p020.dwg	PLOT DATE:	24-MAR-1997
IPARM FILE NAME:	pc020011	SURVEY DATE:	11/95
SURVEYED BY:	ELQ, Inc	DRAWN BY:	SMC
SQUAD LEADER:	JAN	SHEET:	16 OF 28

DATUM	
VERTICAL	_____
HORIZONTAL	_____

Sheet Number:



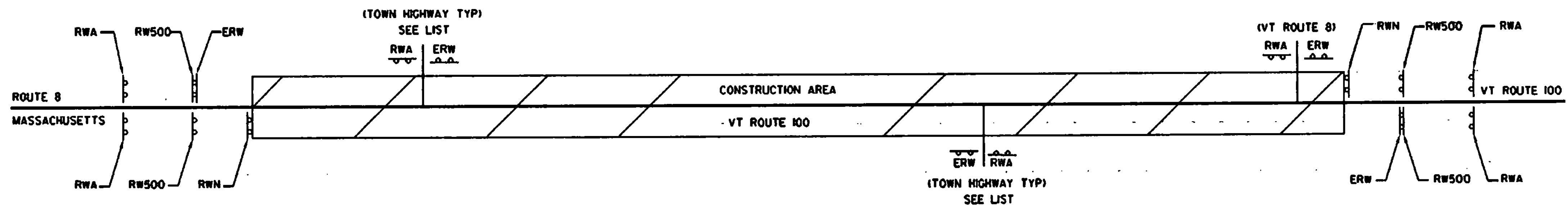








**LEGEND**  
 RWA = ROAD WORK AHEAD  
 RW500 = ROAD WORK 500'  
 RWN = ROAD WORK NEXT 8 mi  
 ERW = END ROAD WORK



NOTE: CONSTRUCTION SIGNING EXTENDS INTO THE STATE OF MASSACHUSETTS. CONTRACTOR SHALL NOTIFY THE MASSACHUSETTS DTA, MR. ROSS DINDIO, IN LENOX MA, AT PHONE NO. 413/637-1750.

**CONSTRUCTION APPROACH SIGNING**

NOT TO SCALE  
 SEE STD. E-100 FOR SIGN PLACEMENT  
 NOTE: WHEN DIRECTED BY THE RESIDENT ENGINEER, "NO OUTLET" SIDE ROADS WILL NOT REQUIRE CONSTRUCTION SIGNING

LIST OF TOWN HIGHWAYS FOR CONSTRUCTION SIGNS

TOWN/STATE HIGHWAY NAME	ROAD WORK AHEAD	END ROAD WORK	ROAD WORK 500'	ROAD WORK NEXT 8 mi	OTHER
<b>STAMFORD</b>					
TH #21	1	1			
TH #19	1	1			
TH #2	1	1			
TH #20	1	1			
TH #12	1	1			
TH #22	1	1			
TH #11	1	1			
TH #1	1	1			
TH #25	1	1			
TH #7	1	1			
TH #29	1	1			
TH #26	1	1			
TH #26	1	1			
TH #27	1	1			
TH #4	1	1			
TH #28	1	1			
TH #28	1	1			
TH #3	1	1			
<b>READSBORO</b>					
TH #50	1	1			
TH #36	1	1			
TH #36	1	1			
TH #35	1	1			
VT ROUTE 8	1	1			
<b>BEGINNING OF PROJECT</b>					
END OF PROJECT	2	1	2	1	
TOTAL	27	25	4	2	

DATUM  
 VERTICAL \_\_\_\_\_  
 HORIZONTAL \_\_\_\_\_

**CONSTRUCTION APPROACH SIGNING**

PROJECT: STAMFORD-READSBORO PROJECT NO.: STP 97111(L)S  
 DESIGN FILE NAME: /D:\p09/96c020/nc020.dgn PLOT DATE: 18-MAR-1997  
 PARM FILE NAME: nc020ca.j SURVEY DATE: 2/96  
 SURVEYED BY: BLO, Inc. DRAWN BY: SMC  
 SQUAD LEADER: JAW SHEET: 22 OF 28

**NOTES**

- BRIDGE RAIL SHALL BE HEAVY DUTY STEEL BEAM /CURB MOUNTED.
- BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY RAIL HEIGHT IN 7.6 METERS.
- APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM FOR 7.6 METERS FROM THE ENDS OF THE BRIDGE.
- FOR BRIDGE RAILING, THE TRANSITION POST SHALL HAVE AN OFFSET BLOCK AND BE LOCATED AS CLOSE AS PRACTICAL TO THE MID-POINT BETWEEN THE BRIDGE END POST AND APPROACH RAIL POST 1.
- SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
- JOINT SEALER, HOT POURED, OR JOINT SEALER, COLD POURED, SHALL BE INSTALLED ONLY AT BRIDGE EXPANSION JOINTS ON ANY BRIDGE GREATER THAN 9 METERS IN LENGTH. AS DIRECTED BY THE RESIDENT ENGINEER, AN ESTIMATED QUANTITY HAS BEEN INCLUDED FOR THIS PROVISION.
- AN ESTIMATED QUANTITY OF ITEM 501.22 CONCRETE CLASS A AND ITEM 507.15 REINFORCING STEEL HAVE BEEN ADDED TO REPAIR DAMAGED BRIDGE POSTS IF NECESSARY. REMOVAL OF EXISTING DAMAGED POSTS WILL BE AS DIRECTED BY THE ENGINEER AND WILL BE CONSIDERED SUBSIDIARY TO ITEM 501.22 AND 507.15.

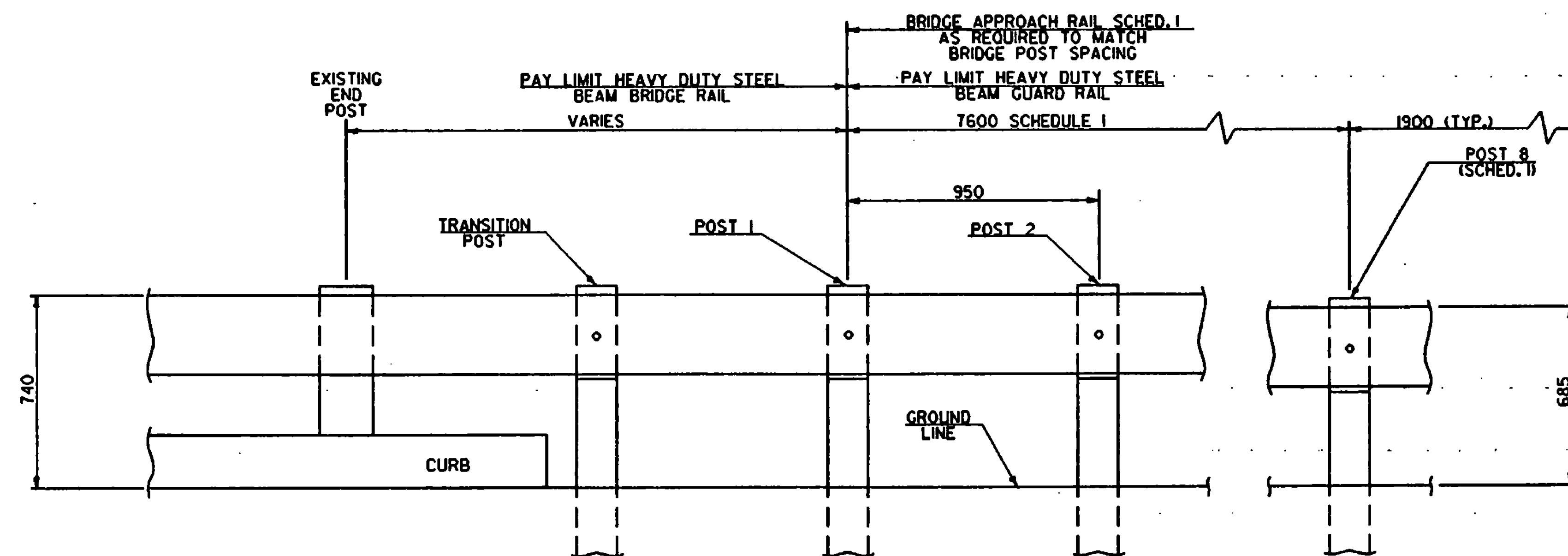
ITEM 501.22 CONCRETE CLASS A                    1 m<sup>3</sup> (EST.)  
 ITEM 507.15 REINFORCING STEEL                100 kg (EST.)

BRIDGE QUANTITY SHEET																
STATION	POS.	BRIDGE NO.	OFFSET BLOCK	525.00	525.40	601.0025	601.6025	621.20	621.20 (MOD)	621.21	621.53	621.54	621.60	621.80	621.81	REMARKS
<b>STAMFORD</b>																
1+841 TO 1+884	RT	2	150					8			2		2	15		ANCHORS @ STA 1+841 & STA 1+884. SEE SHEET #24
1+842 TO 1+885	LT	2	150					8			2		2	15		ANCHORS @ STA 1+842 & STA 1+885. SEE SHEET #24
2+317 TO 2+340	LT	3	150	5				23		20		1	1	8	2	ANCHOR @ STA 2+317 & MELT @ STA 2+340. SEE SHEET #24
2+319 TO 2+334	RT	3	150	5				15		20		2		8	2	MELTS @ STA 2+319 & STA 2+334. SEE SHEET #24
4+534 TO 4+610	RT	6	150					8			2	2		27		MELTS @ STA 4+534 & STA 4+610. SEE SHEET #25
4+558 TO 4+635	LT	6	150					15			2	2		24		MELTS @ STA 4+558 & STA 4+635. SEE SHEET #25
5+531 TO 5+707	LT	8	150			18	1	122			2	2		138		MELTS @ STA 5+531 & STA 5+707. SEE SHEET #25 INSTALL PIPE AND END SECTION @ STA. 5+695
5+645 TO 5+720	RT	8	150			18	1	30			2	1	1	17		ANCHOR @ STA 5+645 & MELT @ STA 5+720. SEE SHEET #25 INSTALL PIPE AND END SECTION @ STA. 5+716
6+089 TO 6+159	RT	9	150					15			2	2		23		MELTS @ STA 6+089 & STA 6+159. SEE SHEET #25
6+093 TO 6+442	LT	9	150					289			2	2		240		MELTS @ STA 6+093 & STA 6+442. SEE SHEET #25
6+660 TO 6+725	LT	10	150					15			2	2		22		MELTS @ STA 6+660 & STA 6+725. SEE SHEET #25
6+679 TO 6+856	RT	10	150					133			2	1		148		MELT @ STA 6+679. SEE SHEET #26
6+856 TO 6+958	RT	11	150	7	12			42	61	20				85		MELT @ STA 6+958. SEE SHEET #26. 621.20 (MOD) @ STA 6+890 TO 6+951 RT
6+858 TO 6+896	LT	11	150	7	12			8		20			1	1	13	ANCHOR @ STA 6+858 & MELT @ STA 6+896. SEE SHEET #26
<b>READSBORO</b>																
2+306 TO 2+369	LT	14	150					15			2	2		27		MELTS @ STA 2+306 & STA 2+369. SEE SHEET #25
2+311 TO 2+376	RT	14	150					15			2	2		31		MELTS @ STA 2+311 & STA 2+376. SEE SHEET #25
<b>SUBTOTALS</b>				24	24	36	2	761	61	80	24	23	7	841	4	
<b>ROUNDING</b>				1	-	-	-	10	1	-	-	-	-	9	1	
<b>TOTALS</b>				25	24	36	2	771	62	80	24	23	7	850	5	

**BRIDGE APPROACH RAILING**

WHEN A RAIL PANEL SPLICE OCCURS AT POST NO. 1, USE SCHEDULE I FOR APPROACH RAILING. WHEN A RAIL PANEL SPLICE OCCURS AT BRIDGE END POST USE SCHEDULE II FOR APPROACH RAILING.

SCHEDULE I		
POST NO.	SPACING	PAYMENT FACTOR
1		
2	950	1.4 x 3800
3	950	
4	950	
5	950	
6	1270	1.2 x 3800
7	1270	
8	1270	
9	1900 (TYP.)	1.0 (TYP.)



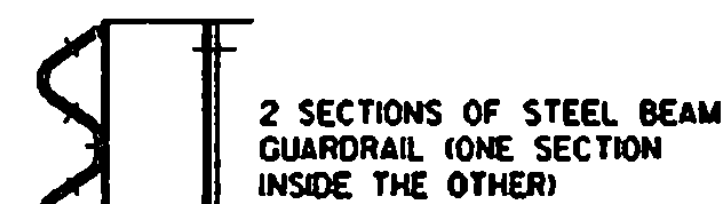
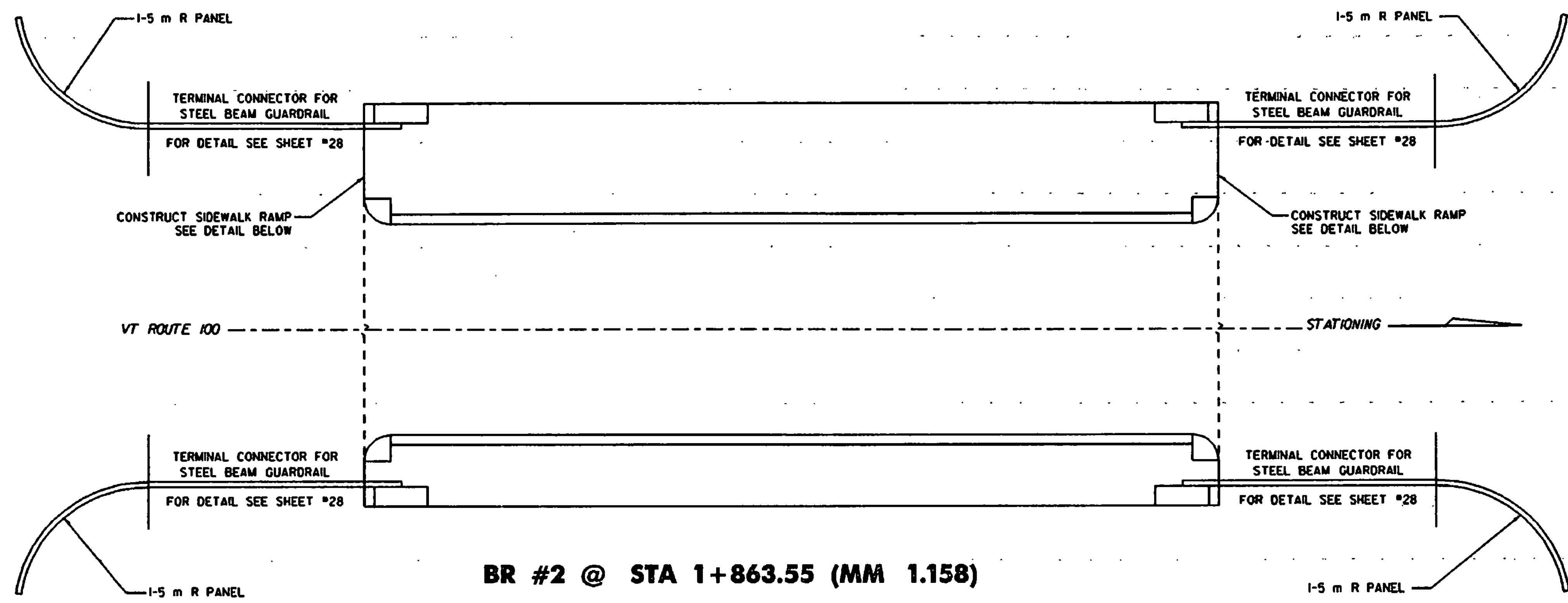
**BRIDGE APPROACH RAILING**

N.T.S.

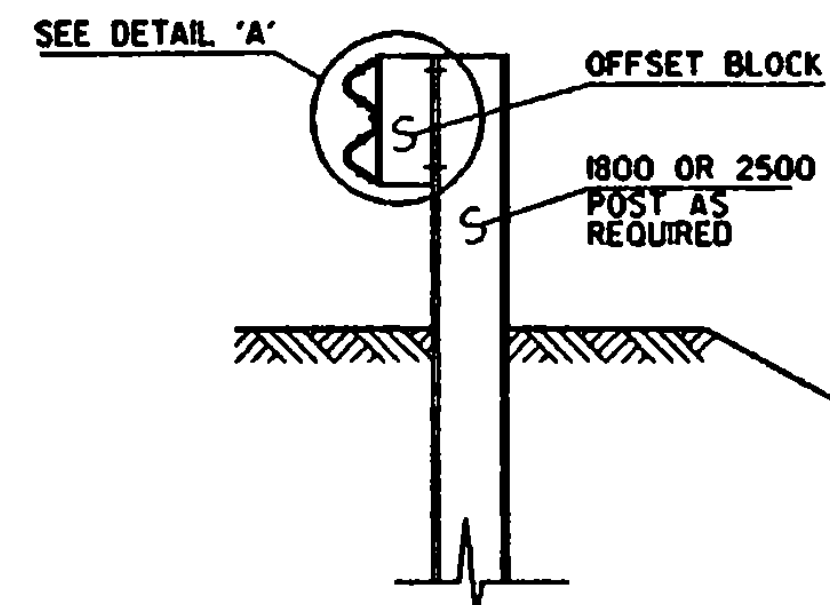
DATUM  
 VERTICAL \_\_\_\_\_  
 HORIZONTAL \_\_\_\_\_

**BRIDGE  
 DETAIL  
 SHEET #1**

PROJECT:	STAMFORD-READSBORO	PROJECT NO.:	STP 9711(1)S
DESIGN FILE NAME:	z:\pave\96-c020\pc020.dgn	PLOT DATE:	18-MAR-1997
PARM FILE NAME:	pc020.dtl	SURVEY DATE:	2/96
SURVEYED BY:	JAW	DRAWN BY:	SMC
SQUAD LEADER:	JAW	SHEET:	23 OF 28



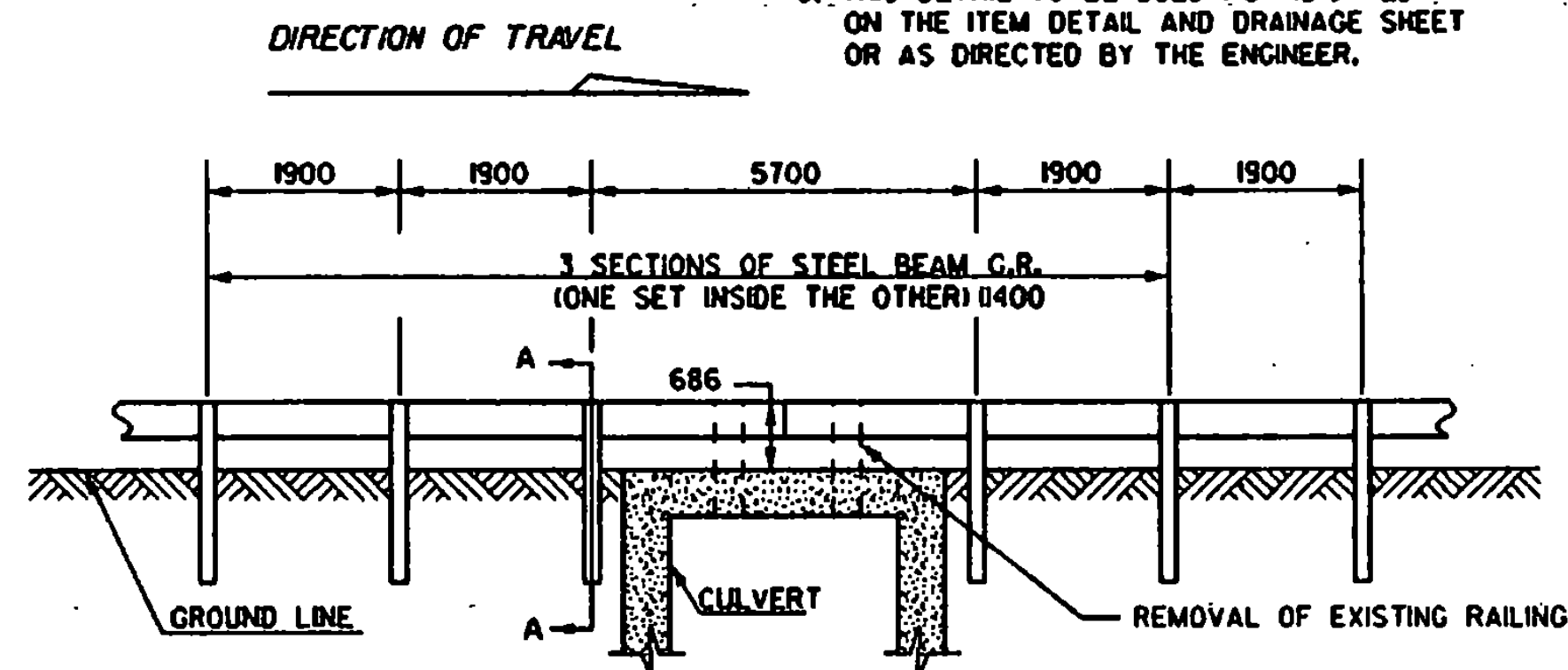
**DETAIL A**



**SECTION A-A**

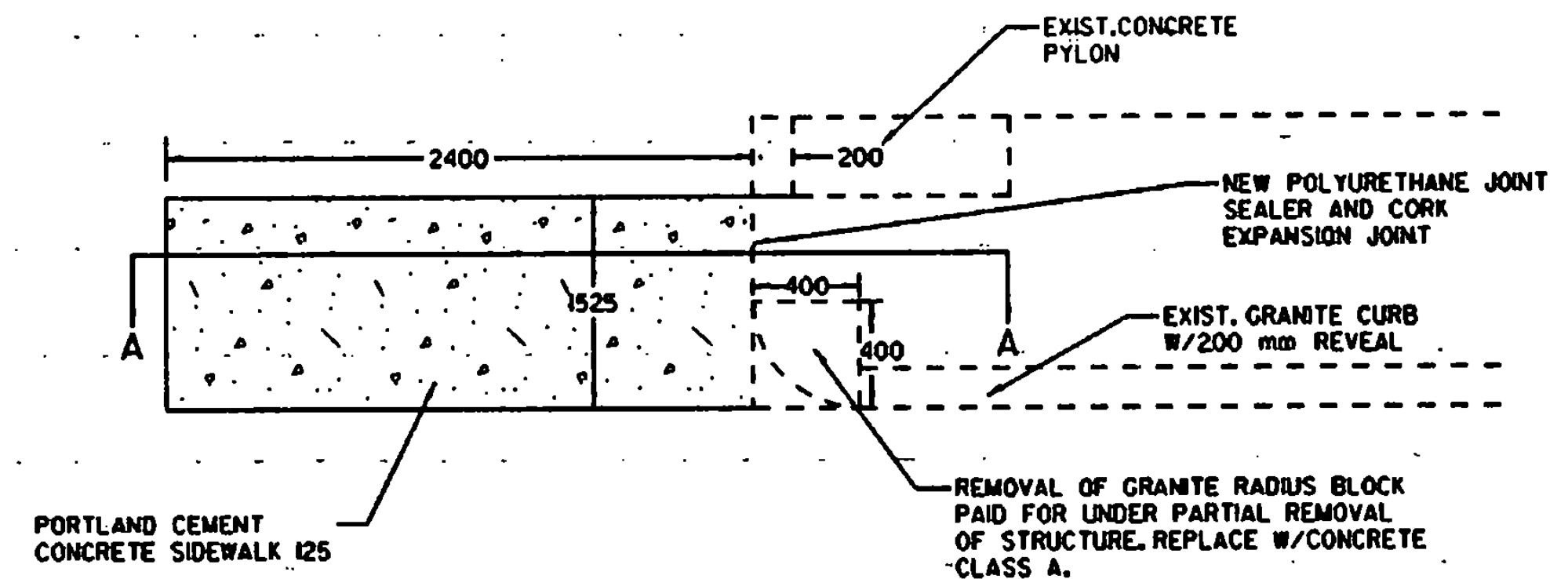
**NOTES**

1. SEE STANDARD G-1 & G-10 FOR STEEL BEAM GUARD RAIL DETAILS.
2. THIS WORK SHALL BE PAID UNDER ITEM 62L20, STEEL BEAM GUARD RAIL, OR 62L21 HEAVY DUTY STEEL BEAM GUARD RAIL AT A PAY FACTOR OF 1.0.
3. THIS DETAIL TO BE USED AS INDICATED ON THE ITEM DETAIL AND DRAINAGE SHEET OR AS DIRECTED BY THE ENGINEER.

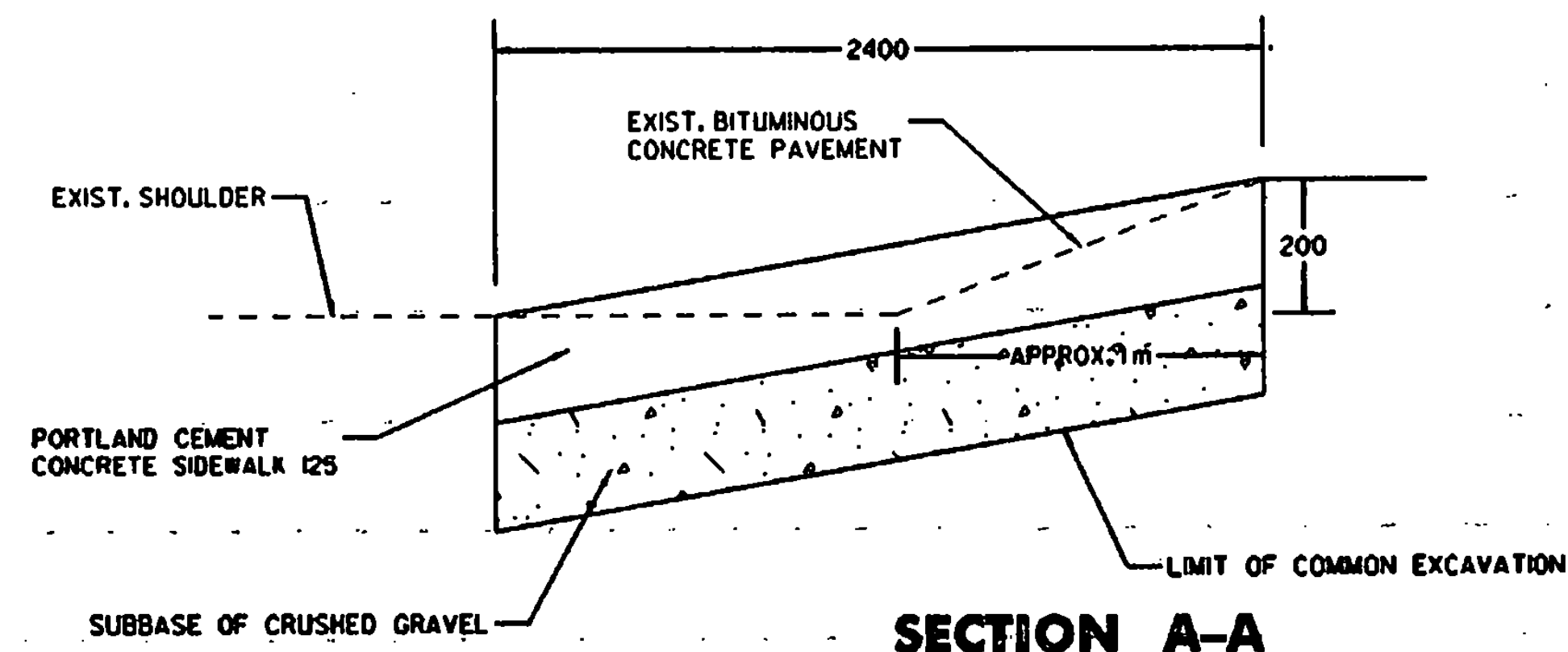


**DETAIL OF STEEL BEAM GUARD RAIL AT CONCRETE BOX CULVERT  
BRIDGE #3 @ STA 2+327.76 (MM 1.446), STAMFORD**

NOT TO SCALE



**SIDEWALK RAMP PLAN VIEW**



**SECTION A-A**

NOTE: ALL DIMENSIONS IN MILLIMETERS EXCEPT AS INDICATED

DATUM	_____
VERTICAL	_____
HORIZONTAL	_____

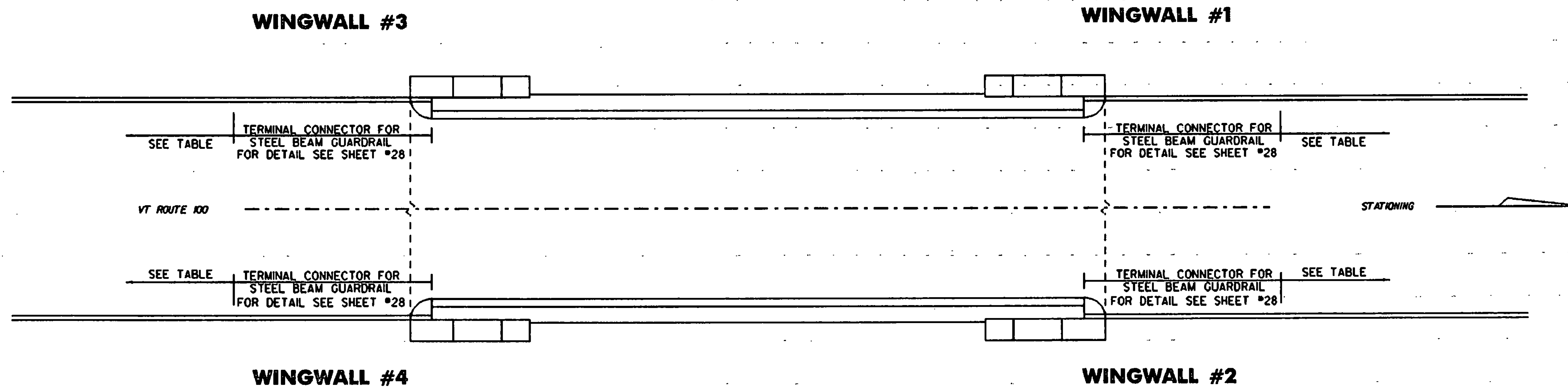
<b>BRIDGE DETAIL SHEET #2</b>	PROJECT: STAMFORD: READS BORO	PROJECT NO.: STP 971111LS
	DESIGN FILE NAME: /p-dwg/36c020/36c020.dgn	PLOT DATE: 18-MAR-1997
	IPARM FILE NAME: 36c020-112.1	SURVEY DATE: 2/96
	SURVEYED BY: N/A	DRAWN BY: SMC
	SQUAD LEADER: JAW	SHEET: 24 OF 28



BRIDGE #	WINGWALL #	GUARDRAIL (m) (AFTER TERM. CONN.)	TERMINAL END
STAMFORD 6	1	7.6	MELT
	2	-	MELT
	3	7.6	MELT
	4	7.6	MELT
8	1	15.2	MELT
	2	26.6	MELT
	3	11.4	MELT
	4	-	1-5 m R PANEL W/ANCHOR
9	1	28.1	MELT
	2	7.6	MELT
	3	7.6	MELT
	4	7.6	MELT

STAMFORD BRIDGE #	WINGWALL #	GUARDRAIL (m) (AFTER TERM. CONN.)	TERMINAL END
STAMFORD 10	1	7.6	MELT
	2	13.3	CONNECT TO TERM. CONN. @ BR #11
	3	7.6	MELT
	4	-	MELT
READSBORO 14	1	7.6	MELT
	2	7.6	MELT
	3	7.6	MELT
	4	7.6	MELT

**GUARDRAIL TREATMENT FROM TERMINAL CONNECTOR**



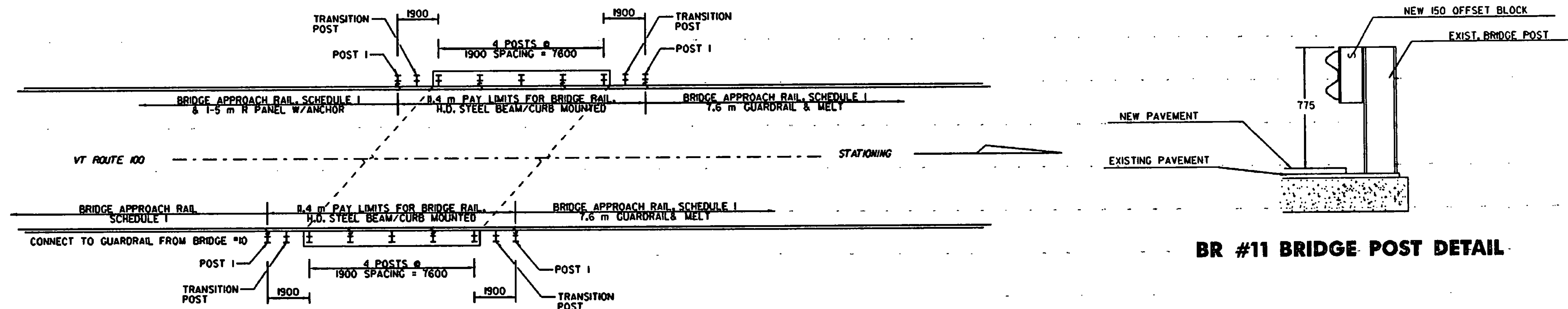
**STAMFORD:** BR #6 @ STA 4+584.50 (MM 2.849)  
 BR #8 @ STA 5+669.58 (MM 3.523)  
 BR #9 @ STA 6+125.87 (MM 3.806)  
 BR #10 @ STA 6+699.20 (MM 4.163)

**READSBORO:** BR #14 @ STA 2+339.95 (MM 1.454)

NOTE: ALL DIMENSIONS IN MILLIMETERS EXCEPT AS INDICATED

DATUM  
 VERTICAL \_\_\_\_\_  
 HORIZONTAL \_\_\_\_\_

<b>BRIDGE DETAIL SHEET #3</b>	PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP 9711(1)S
	DESIGN FILE NAME: Z:\dcae\36c020\pc020.dgn	PLOT DATE: 18-MAR-1997
	IPARM FILE NAME: pc020.dtl	SURVEY DATE: 2/96
	SURVEYED BY: W/A	DRAWN BY: SMC
	SQUAD LEADER: JAW	SHEET: 25 OF 28



**BR #11 BRIDGE POST DETAIL**

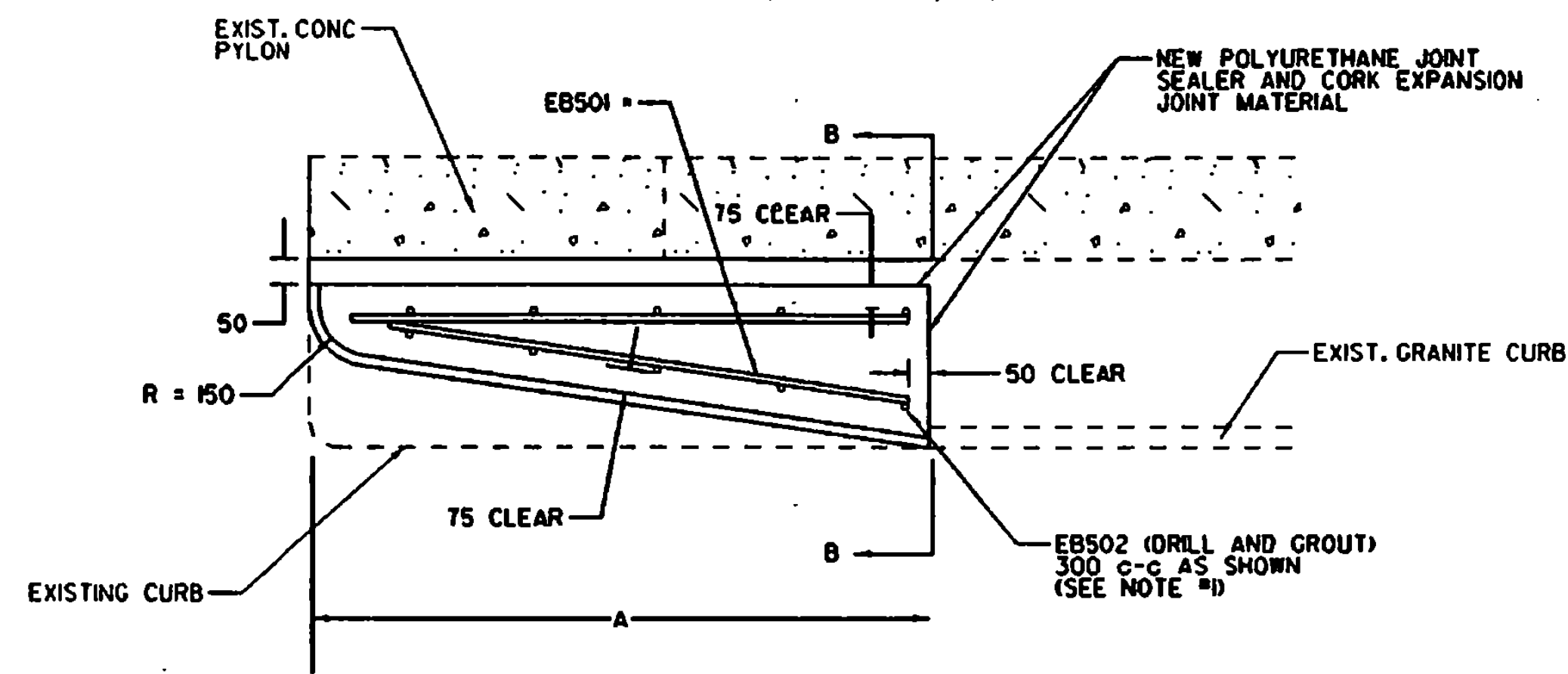
**BR #11 @ STA 6+872.33 (MM 4.270)**

SCALE 1/100

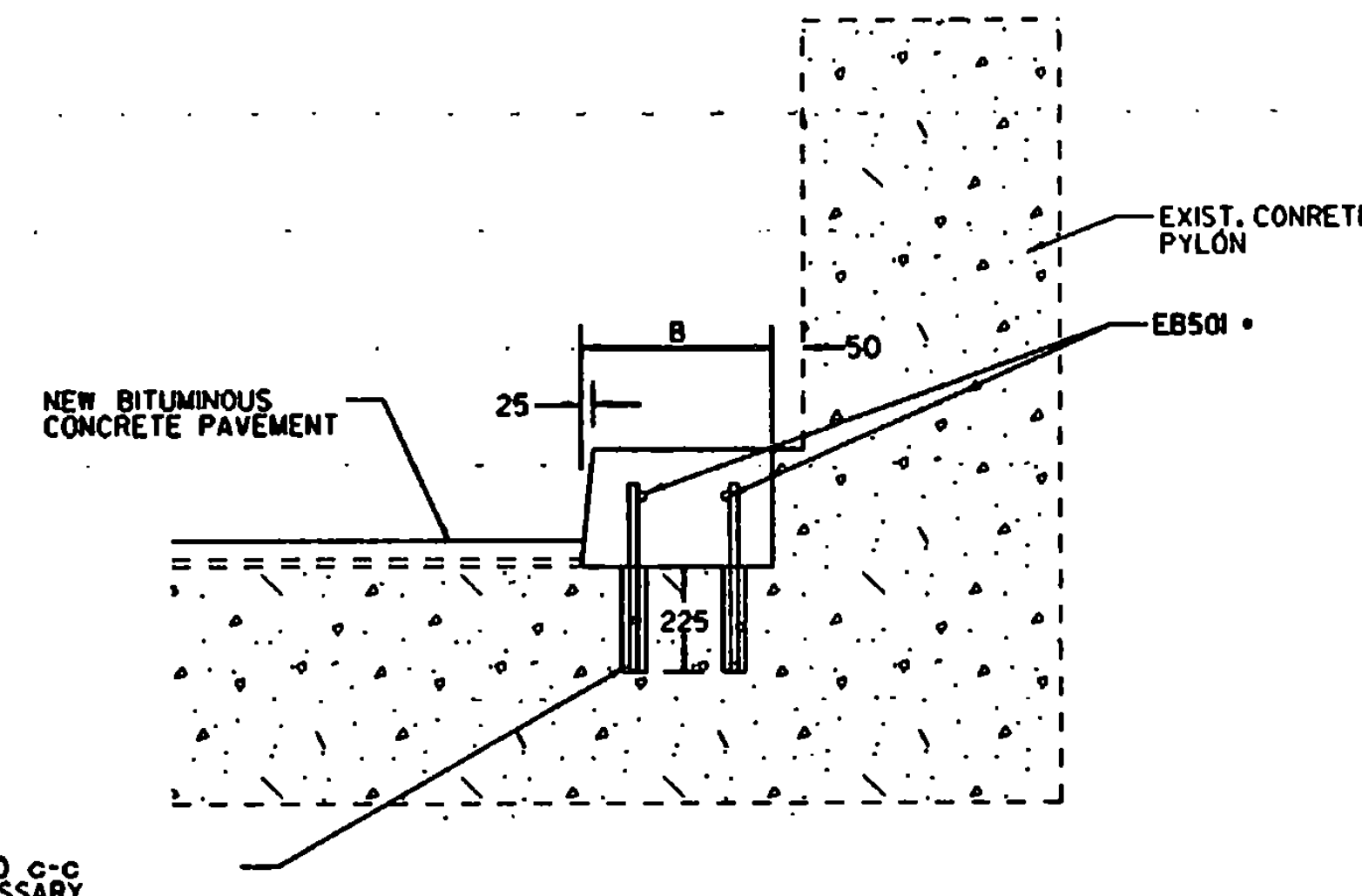
NOTE: ALL DIMENSIONS IN MILLIMETERS EXCEPT AS INDICATED

DATUM	_____
VERTICAL	_____
HORIZONTAL	_____

<b>BRIDGE DETAIL SHEET #4</b>	PROJECT:	STAMFORD-READSBORO	PROJECT NO.:	STP 9711(1)S
	DESIGN FILE NAME:	z:\pave\96c020\pc020.dgn	PLOT DATE:	18-MAR-1997
	IPARM FILE NAME:	pc020(1)1.l	SURVEY DATE:	2/96
	SURVEYED BY:	N/A	DRAWN BY:	SMC
SQUAD LEADER:	JAW		SHEET:	26 OF 28



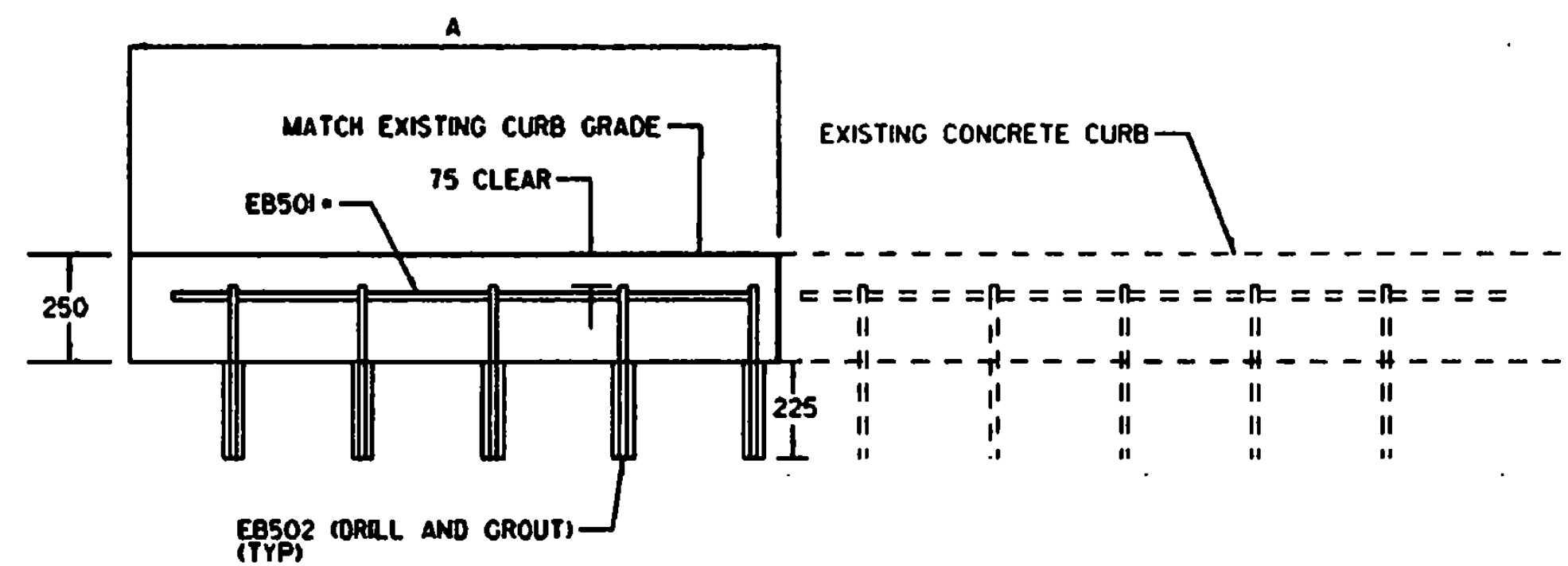
**NEW CURB END TREATMENT  
PLAN VIEW**



**SECTION B - B**

EB502 - 300 C-C WHERE NECESSARY DRILL AND GROUT AS SHOWN SEE NOTE #1

• DENOTES BAR TO BE CUT IN FIELD



**NEW CURB END TREATMENT  
ELEVATION VIEW**

**NOTES :**

1. LOCATION OF EXISTING REINFORCING BARS IS NOT KNOWN. DRILL AND GROUT EB502 AS SHOWN IN END TREATMENT DETAILS. AS DIRECTED BY THE ENGINEER, ANY EXISTING REINFORCING BARS RUSTED OR BROKEN OFF DURING THE REMOVAL OF CONCRETE SHALL BE REMOVED AND REPLACED BY EB502 DOWELS AS REQUIRED TO PROVIDE THE NECESSARY VERTICAL REINFORCEMENT.
2. WHEN POURING THE CONCRETE CURBS, THE CONCRETE WILL BE POURED BACK TO THE ORIGINAL CURB LINE AND GRADE.
3. REMOVAL OF THE CONCRETE CURBING TO THE LIMITS SHOWN SHALL BE PAID FOR AS ONE EACH UNDER ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE". THE RUBBLE CREATED BY THIS REMOVAL SHALL NOT BE LEFT AT THE BRIDGE SITE, BUT SHALL BE DISPOSED OF PROPERLY, AS DIRECTED BY THE ENGINEER.
4. POLYURETHANE JOINT SEALER AND CORK EXPANSION MATERIAL SHALL BE USED BETWEEN THE NEW CONCRETE CURB AND THE EXISTING BRIDGE CURB. IF NO ITEM APPEARS FOR THE JOINT SEALER OR THE EXPANSION MATERIAL, PAYMENT FOR BOTH SHALL BE CONSIDERED SUBSIDIARY TO ITEM 504.22, "CONCRETE - CLASS A".

WING-WALL NO.	STAMFORD, BRIDGE #2				STAMFORD, BRIDGE #6				STAMFORD, BRIDGE #8			
	DIMENSION		EB501	EB502	DIMENSION		EB501	EB502	DIMENSION		EB501	EB502
	A	B	EACH LENGTH	EACH LENGTH	A	B	EACH LENGTH	EACH LENGTH	A	B	EACH LENGTH	EACH LENGTH
1	2800	750	2	20	3500	450	2	24	3000	450	2	20
2	CONSTRUCT SIDEWALK RAMP		2	400	2350	450	2	18	3000	450	2	20
3	3100	750	2	18	2600	450	2	18	3000	450	2	20
4	CONSTRUCT SIDEWALK RAMP		2	400	4000	450	2	28	3000	450	2	20

WING-WALL NO.	STAMFORD, BRIDGE #9				STAMFORD, BRIDGE #10				READSBORO, BRIDGE #14			
	DIMENSION		EB501	EB502	DIMENSION		EB501	EB502	DIMENSION		EB501	EB502
	A	B	EACH LENGTH	EACH LENGTH	A	B	EACH LENGTH	EACH LENGTH	A	B	EACH LENGTH	EACH LENGTH
1	3400	400	2	24	3100	350	2	18	1850	400	2	12
2	2600	400	2	400	2000	350	2	12	2500	400	2	18
3	3150	400	2	400	2700	350	2	18	2400	400	2	18
4	2600	400	2	18	2900	350	2	20	3150	400	2	22

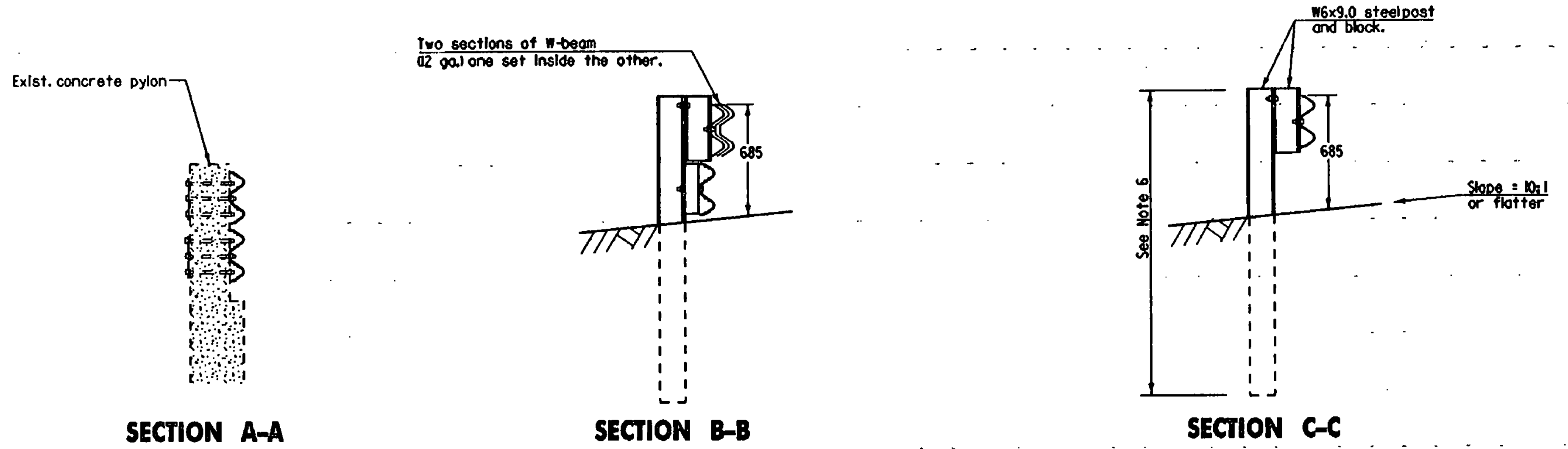
**CURB END TREATMENTS**

NOT TO SCALE

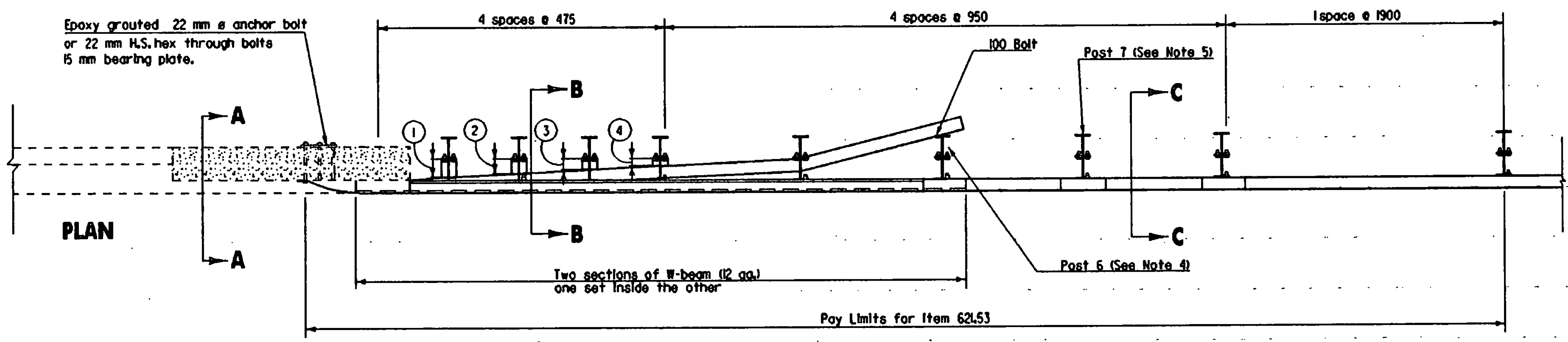
NOTE: ALL DIMENSIONS IN MILLIMETERS EXCEPT AS INDICATED

DATUM \_\_\_\_\_  
 VERTICAL \_\_\_\_\_  
 HORIZONTAL \_\_\_\_\_

<b>BRIDGE DETAIL SHEET #5</b>	PROJECT: STAMFORD-READSBORO	PROJECT NO.: STP. 9711(1)S.
	DESIGN FILE NAME: D:\pax\26-c020\bc020.dwg	PLOT DATE: 18-MAR-1997
	PARM FILE NAME: bc020-d15-1	SURVEY DATE: 2/96
	SURVEYED BY: CLQ	DRAWN BY: SMC
SQUAD LEADER: JAW	SHEET: 27 OF 28	

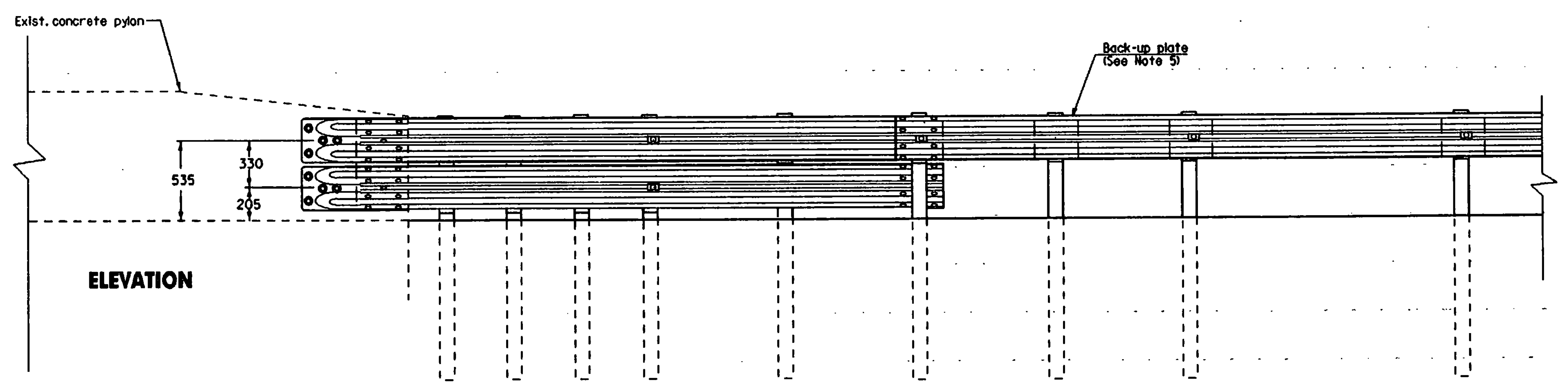


1. This guardrail transition is for connection to a vertical concrete bridge rail and should not be connected directly to a concrete safety shape.
2. Bottom beam blocks are offset drilled to sit squarely on the post flange. Blocks are attached with 15 mm carriage bolts.
3. The rubrail may be shop bent in the last 1 meter to facilitate installation.
4. Posts 1,2,3,4 and 6 require an additional hole to attach lower blocks and/or lower beam.
5. At post 7, back-up plate bolted to block only.
6. Posts will be either 1.8 meters or 2.5 meters steel posts, as directed by the Engineer.



**BOTTOM BEAM WOOD BLOCKS 1'-2" X 4 1/2"**

POST #	THICKNESS (mm)
①	125
②	100
③	75
④	50



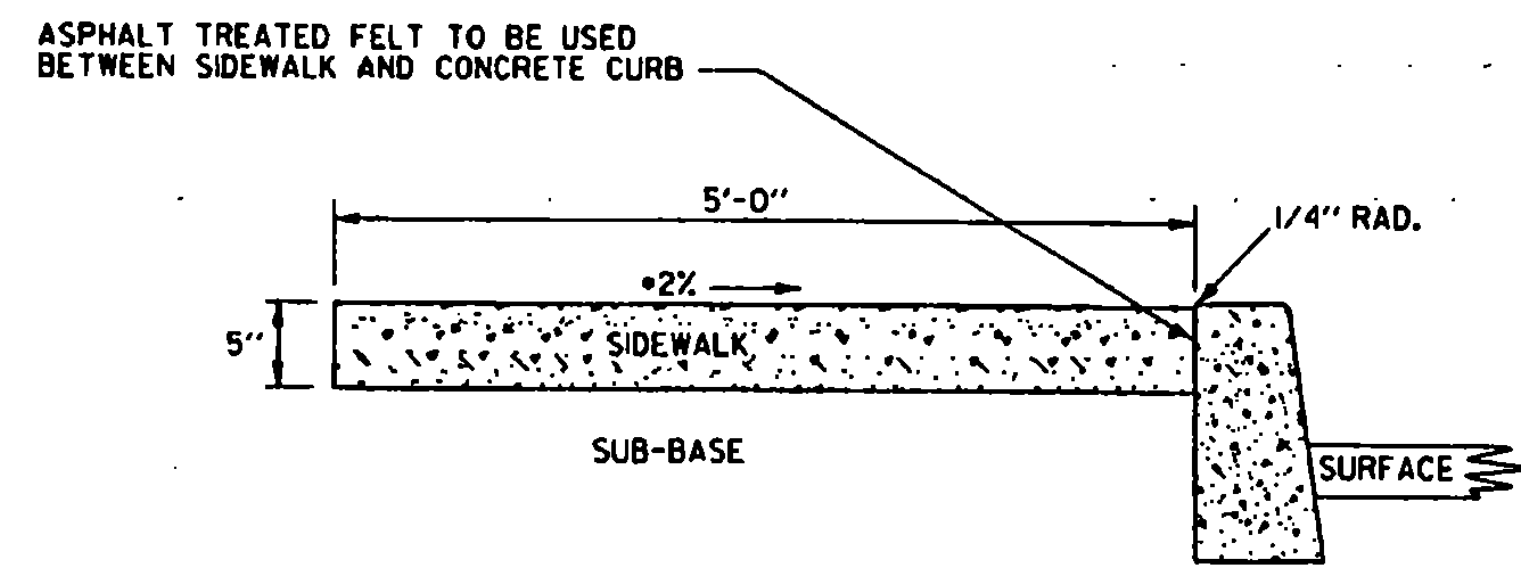
Not To Scale

NOTE: ALL DIMENSIONS IN MILLIMETERS EXCEPT AS INDICATED

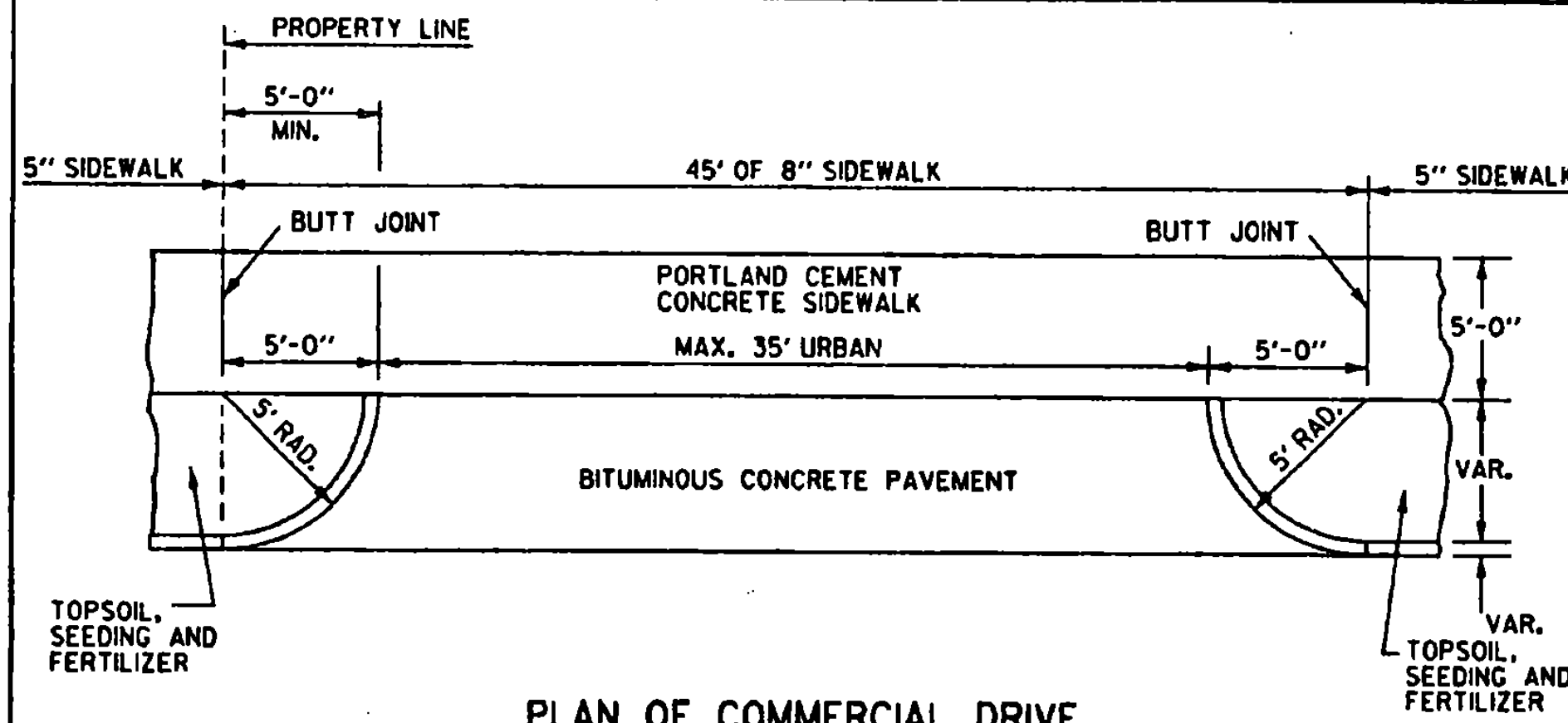
DATUM	_____
VERTICAL	_____
HORIZONTAL	_____

PROJECT: STAMFORD-READSBORO-		PROJECT NO.: STP 97HHS
DESIGN FILE NAME: /PAVE/96co20/pc020.dgn	PLOT DATE: 18-MAR-1997	
IPARM FILE NAME: pc020d16.l	SURVEY DATE: N/A	
SURVEYED BY: SLD	DRAWN BY: VAOT	
SQUAD LEADER: JAW	SHEET: 28 OF 28	

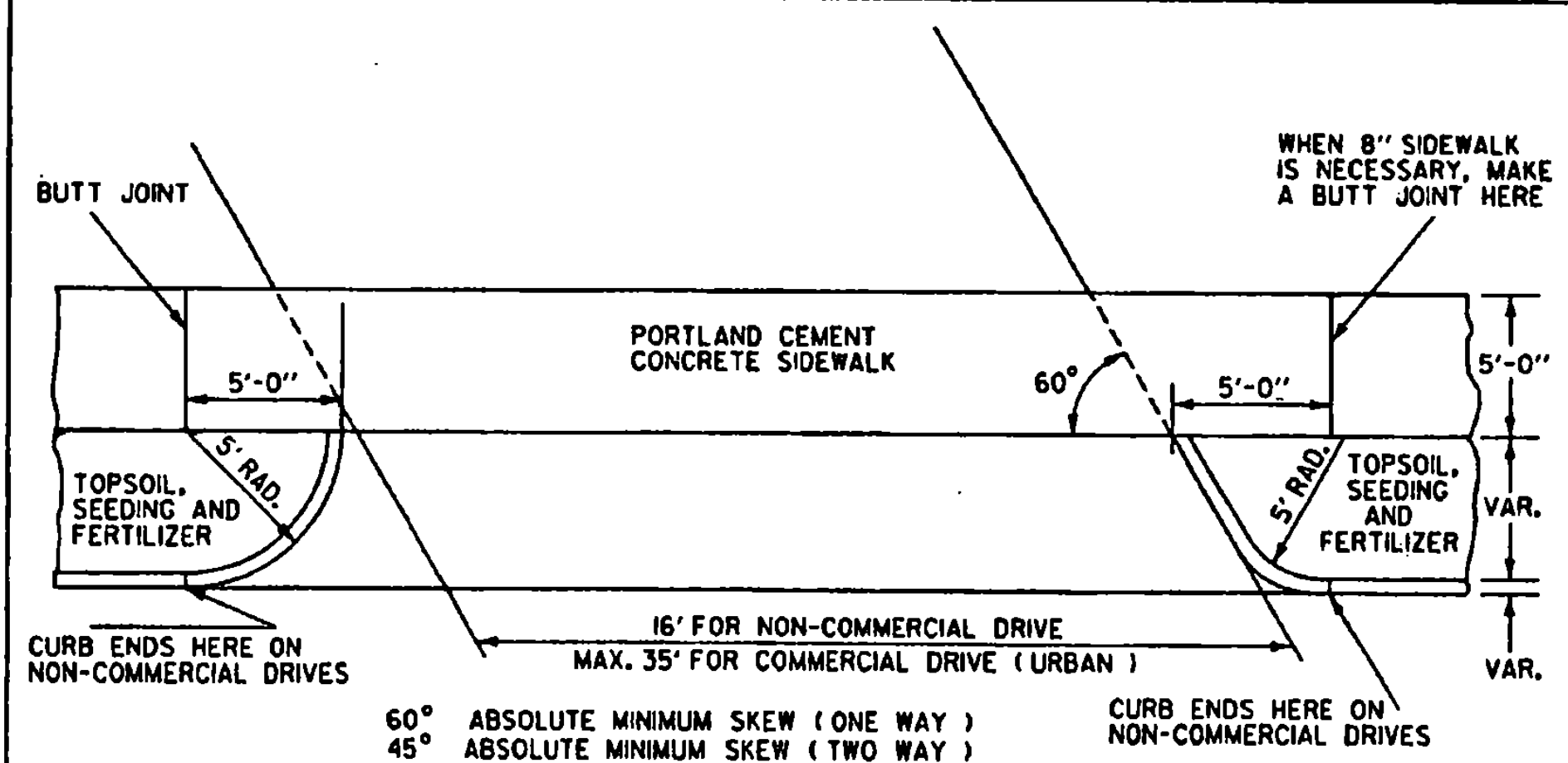
**TERMINAL CONNECTOR FOR STEEL BEAM G.R. W/STEEL POSTS**



PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH (WITH CONCRETE CURB)



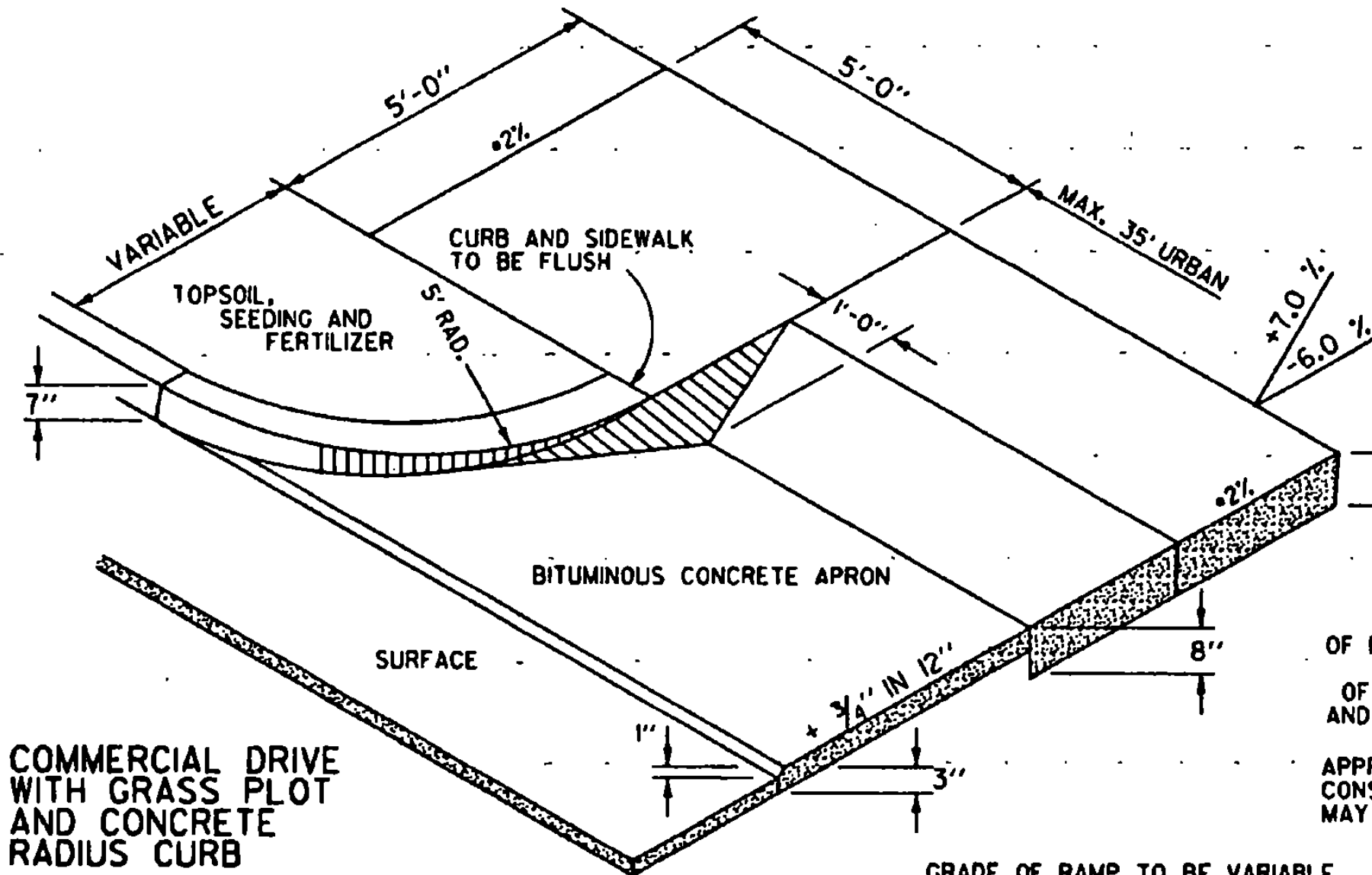
PLAN OF COMMERCIAL DRIVE



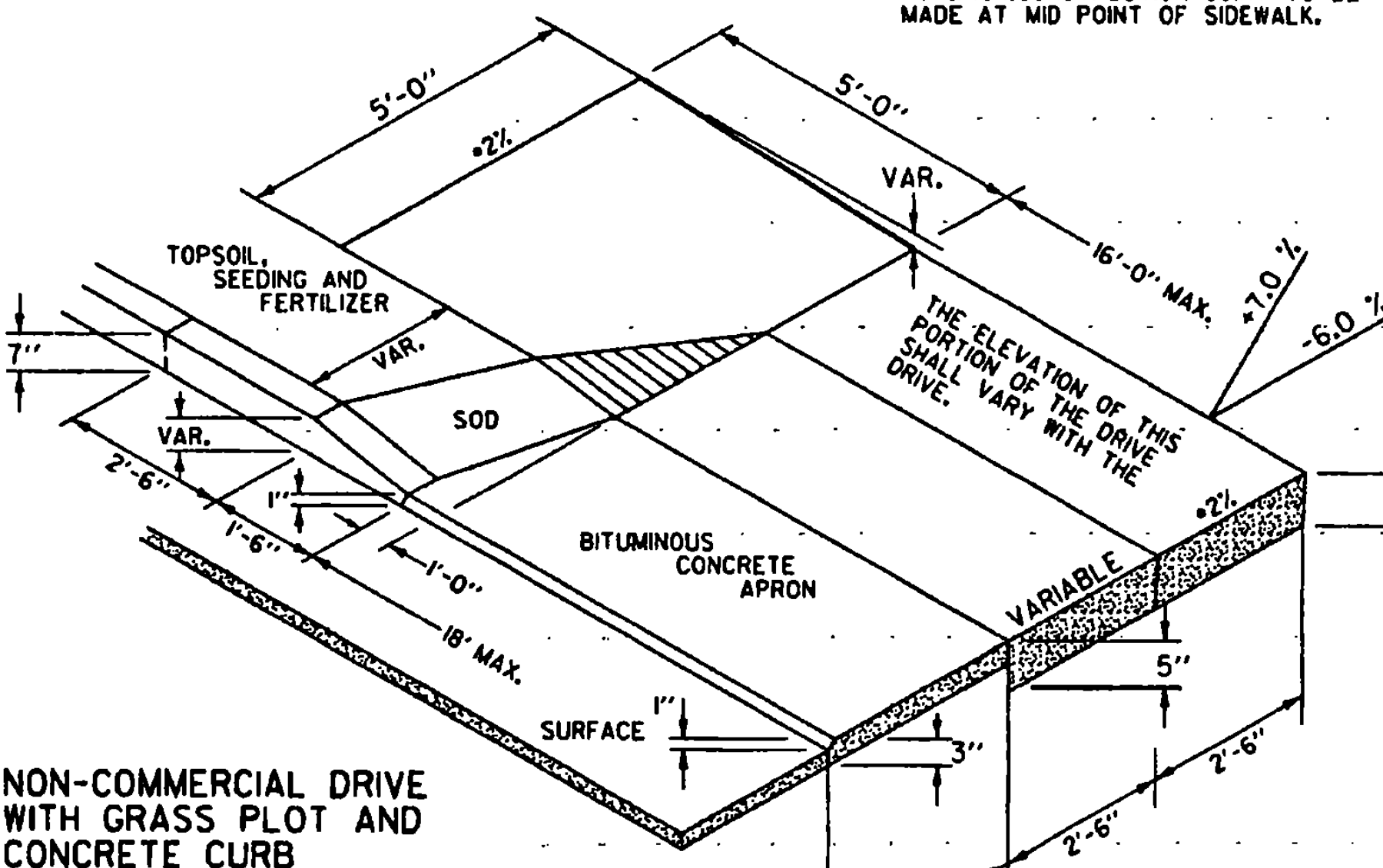
PLAN OF SKEW DRIVE

REVISIONS AND CORRECTIONS  
 DEC. 14, 1971 - ORIGINAL APPROVAL DATE  
 OCT. 25, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS  
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

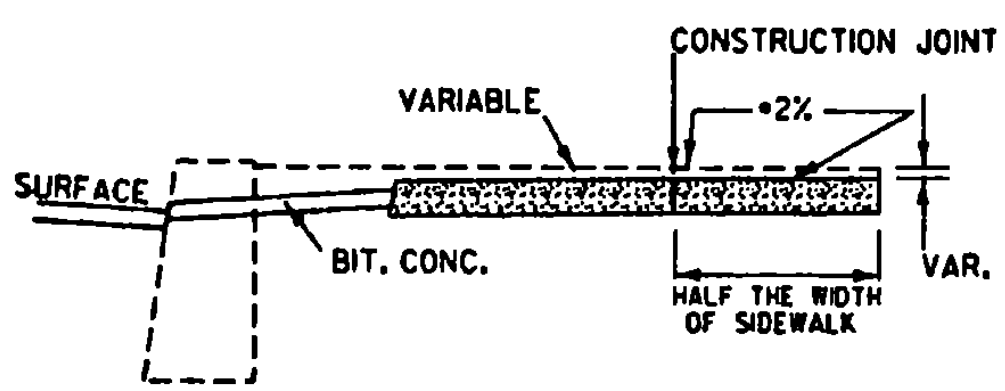
APPROVED  
 APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FINAL APPROVAL PENDING.  
 Director of Engineering  
 Design Engineer



COMMERCIAL DRIVE WITH GRASS PLOT AND CONCRETE RADIUS CURB



NON-COMMERCIAL DRIVE WITH GRASS PLOT AND CONCRETE CURB

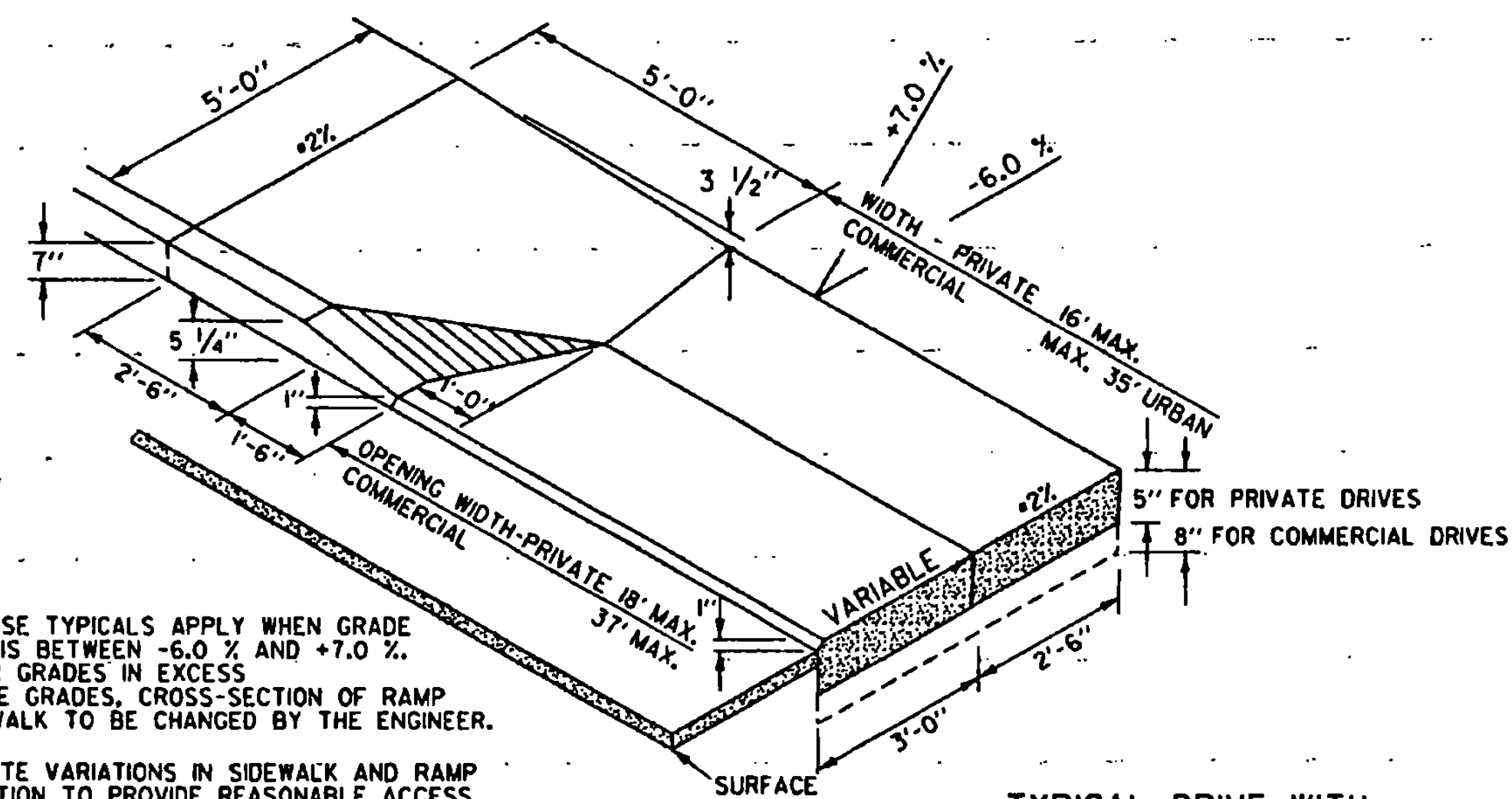


RAMPS TO BE PAID FOR AS PORTLAND CEMENT CONCRETE SIDEWALK  
 • NO WHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:50.

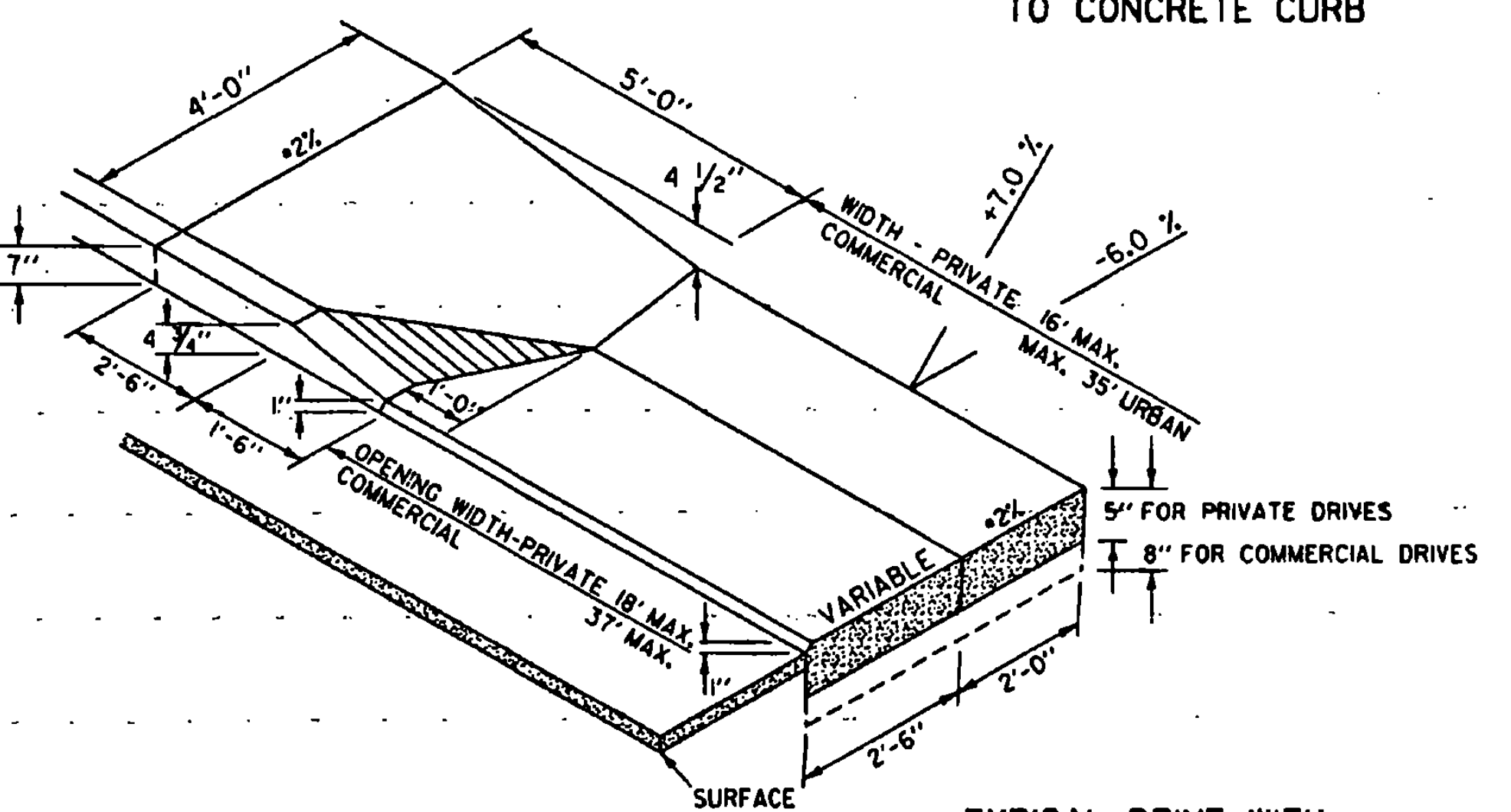
THESE TYPICALS APPLY WHEN GRADE OF DRIVE IS BETWEEN -6.0% AND +7.0%. FOR GRADES IN EXCESS OF THESE GRADES, CROSS-SECTION OF RAMP AND SIDEWALK TO BE CHANGED BY THE ENGINEER.  
 APPROPRIATE VARIATIONS IN SIDEWALK AND RAMP CONSTRUCTION TO PROVIDE REASONABLE ACCESS MAY BE AUTHORIZED BY THE ENGINEER.

GRADE OF RAMP TO BE VARIABLE TO MID POINT OF SIDEWALK. GRADE OF SIDEWALK TO BE +2% FROM MID POINT TO BACK. CONSTRUCTION JOINT TO BE MADE AT MID POINT OF SIDEWALK.

DISTANCE BETWEEN DOUBLE DRIVEWAYS 10 FEET MINIMUM (URBAN)

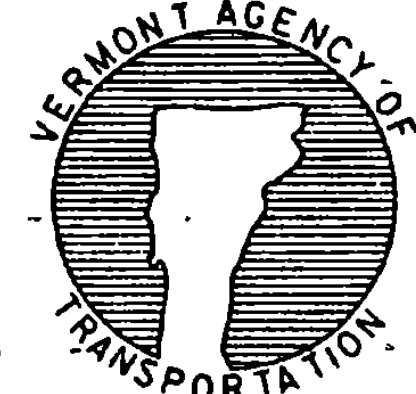


TYPICAL DRIVE WITH 5 FT. SIDEWALK ADJACENT TO CONCRETE CURB



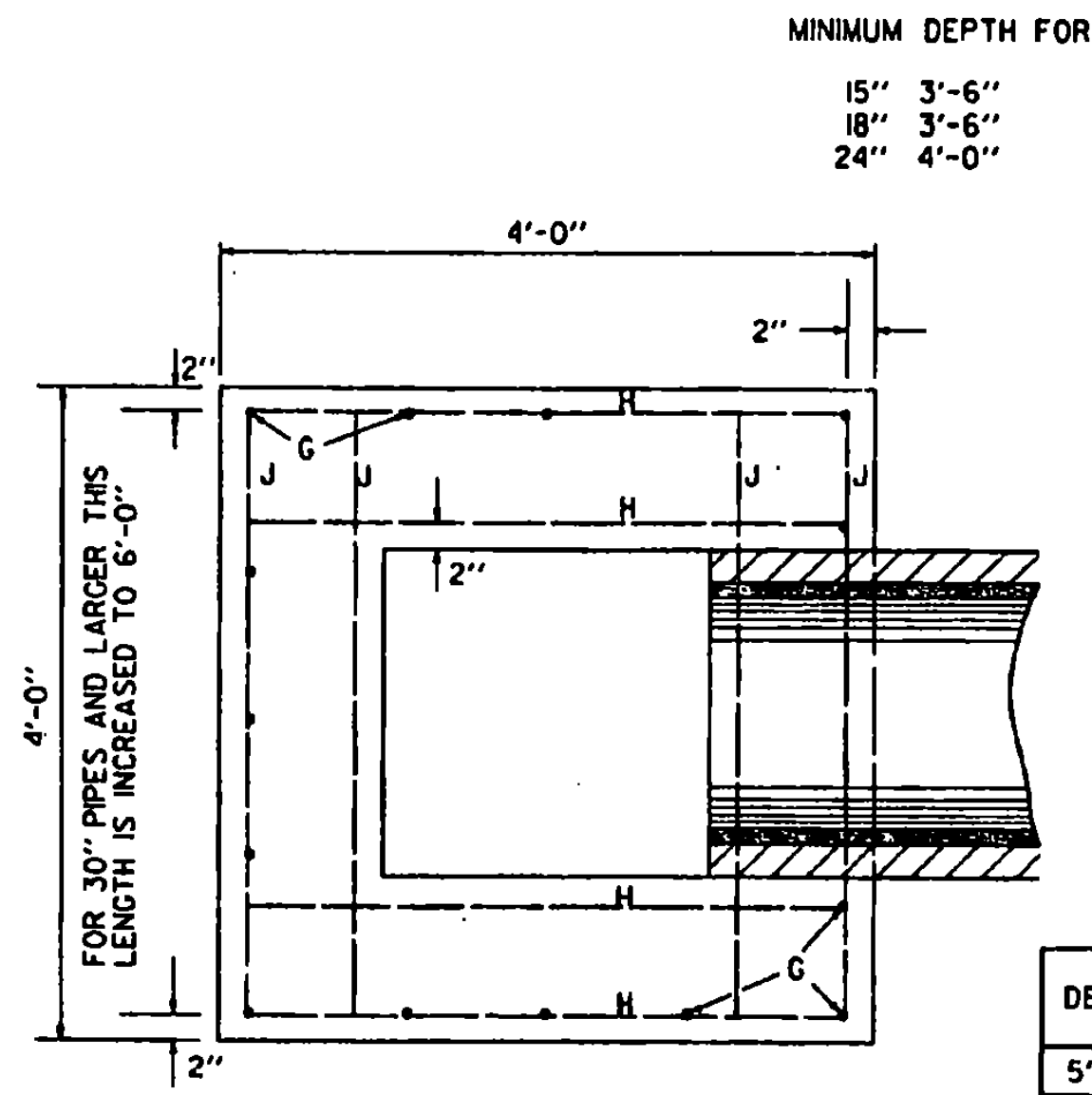
TYPICAL DRIVE WITH 4 FT. SIDEWALK ADJACENT TO CONCRETE CURB

PORTLAND CEMENT CONCRETE SIDEWALK  
 DRIVE ENTRANCES WITH  
 PRECAST REINFORCED CONCRETE CURB OR  
 CAST-IN-PLACE CONCRETE CURB



STANDARD  
 C-2A

REINFORCED CONCRETE DROP INLET WITH GRATE (BOTTOM SECTION)  
SEE SHEETS D-9, D-10, D-11, AND D-16 FOR TOP SECTION



STEEL SCHEDULE FOR DROP INLET (BOTTOM SECTION ONLY)

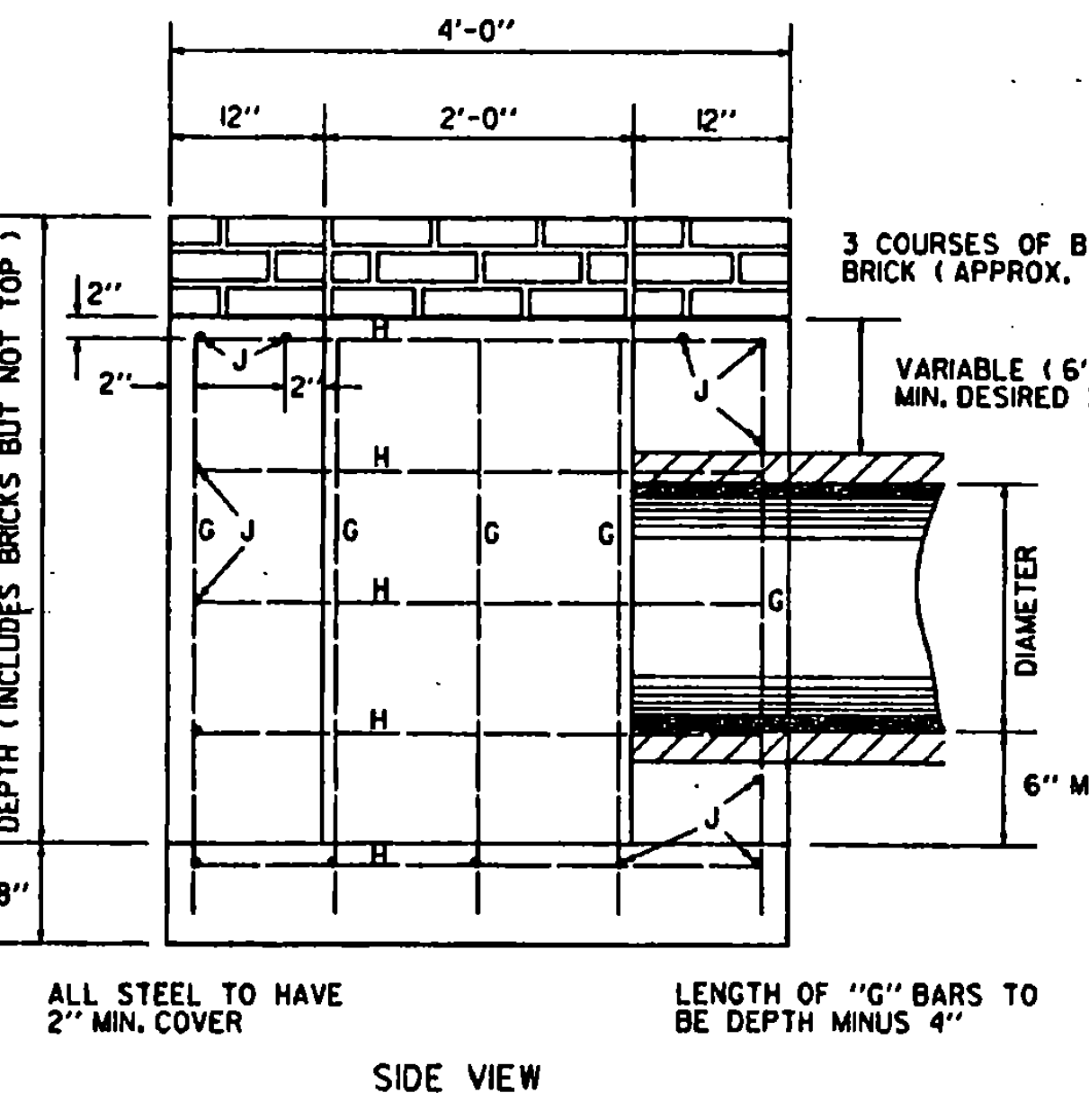
DEPTH	12" TO 24" DIAMETER 4' x 4' D.I.			30" DIAMETER 4' x 6' D.I.		
	NO. J	LENGTH	NO. G	LENGTH	NO. H	LENGTH
3'-0"	12	3'-8"	13	3'-8"	15	2'-8"
3'-6"	12	3'-8"	13	3'-8"	15	3'-2"
4'-0"	14	3'-8"	15	3'-8"	15	3'-8"
4'-6"	14	3'-8"	15	3'-8"	15	4'-2"
5'-0"	16	3'-8"	17	3'-8"	15	4'-8"
5'-6"	16	3'-8"	17	3'-8"	15	5'-2"
6'-0"	18	3'-8"	19	3'-8"	15	5'-8"

36" DIAMETER 4' x 6' D.I.

DEPTH	NO. J	LENGTH	NO. H	LENGTH	NO. G	LENGTH
5'-0"	14	5'-8"	19	3'-8"	17	4'-8"
5'-6"	14	5'-8"	19	3'-8"	17	5'-2"
6'-0"	16	5'-8"	21	3'-8"	17	5'-8"

CONCRETE AND STEEL QUANTITIES FOR DROP INLETS (BOTTOM SECTION ONLY)

DEPTH	12"-24" DIA.		30" DIA.		36" DIA.	
	CONC BY C.Y.	STEEL BY C.Y.	CONC BY C.Y.	STEEL BY C.Y.	CONC BY C.Y.	STEEL BY C.Y.
3'-0"	1.73	138				
3'-6"	1.95	145				
4'-0"	2.17	168				
4'-6"	2.40	176	3.08	210		
5'-0"	2.62	199	3.37	238	3.29	238
5'-6"	2.84	207	3.67	247	3.59	247
6'-0"	3.06	230	3.97	276	3.89	276



BRICKS ARE INCLUDED IN CONCRETE QUANTITIES IN CHART

TO FIND VOLUME OF CONCRETE FOR THE ENTIRE STRUCTURE, ADD THE VOLUME FOR THE TOP USED, TO THE VOLUME IN THIS TABLE. FOR VOLUME IN TOP, SEE SHEETS D-9, D-10.

ALL REINFORCING STEEL TO BE NO. 5  $\phi$  DEFORMED BARS, EVENLY SPACED, WITH A MAXIMUM SPACING OF 12" CENTER TO CENTER.

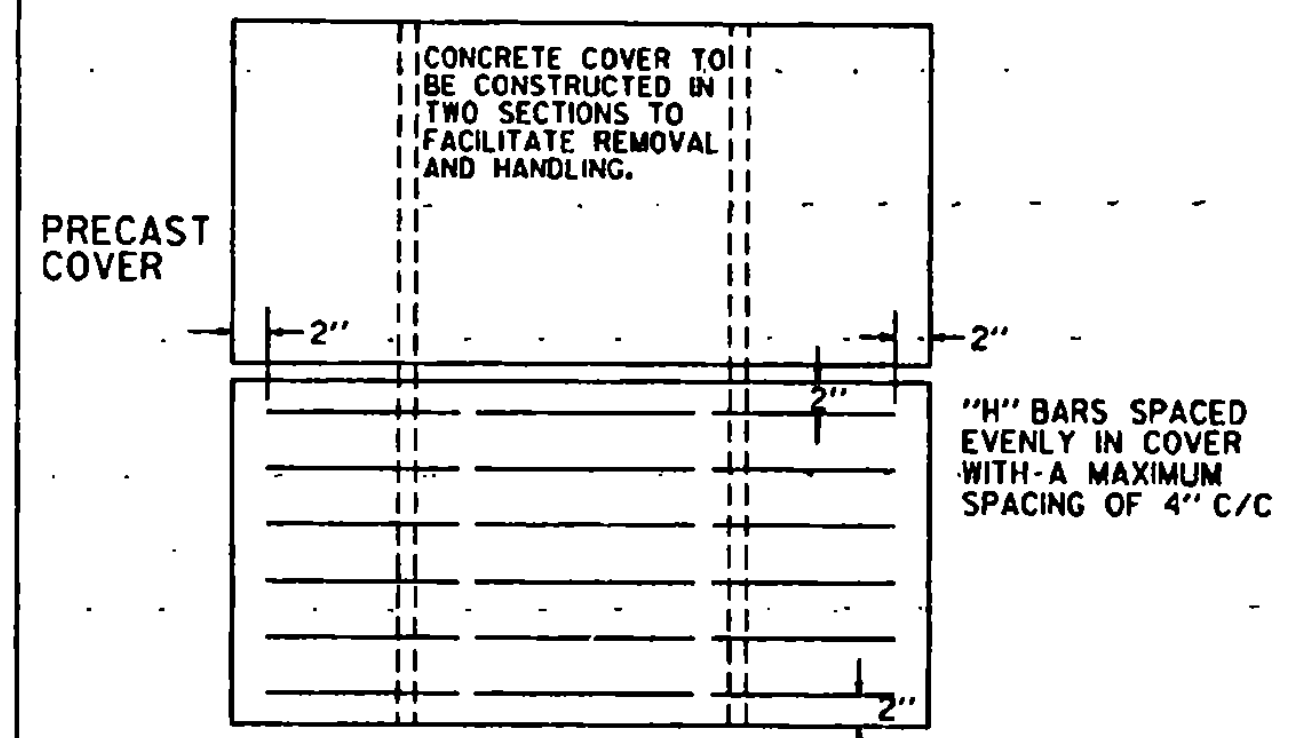
DROP INLET TO BE CONSTRUCTED IN ACCORDANCE WITH STRUCTURAL CONCRETE, SECTION 501.

FURNISHING AND LAYING OF BRICKS FOR ADJUSTING ELEVATION OF GRATE SHALL BE INCLUDED IN UNIT BID PRICE FOR CONCRETE, CLASS B, PAY ITEM 501.25, AND THEIR VOLUME TO BE INCLUDED IN THE FINAL QUANTITIES.

MORTAR, TYPE II, TO BE USED FOR JOINT FILLER AND LAYING OF BRICK.

FOR PIPES OF 30" OR MORE IN DIAMETER, ALLOWANCE SHALL BE MADE FOR THE OPENING IN COMPUTING CONCRETE VOLUMES. THIS DEDUCTION WILL BE BASED ON THE RATED DIAMETER OF THE PIPE USED, WITH THE SAME DEDUCTION FOR CONCRETE AND METAL PIPE.

REINFORCED CONCRETE DROP INLET WITH PRECAST COVER  
DROP INLET AND COVER TO BE CONSTRUCTED IN ACCORDANCE WITH STRUCTURAL CONCRETE, SECTION 501

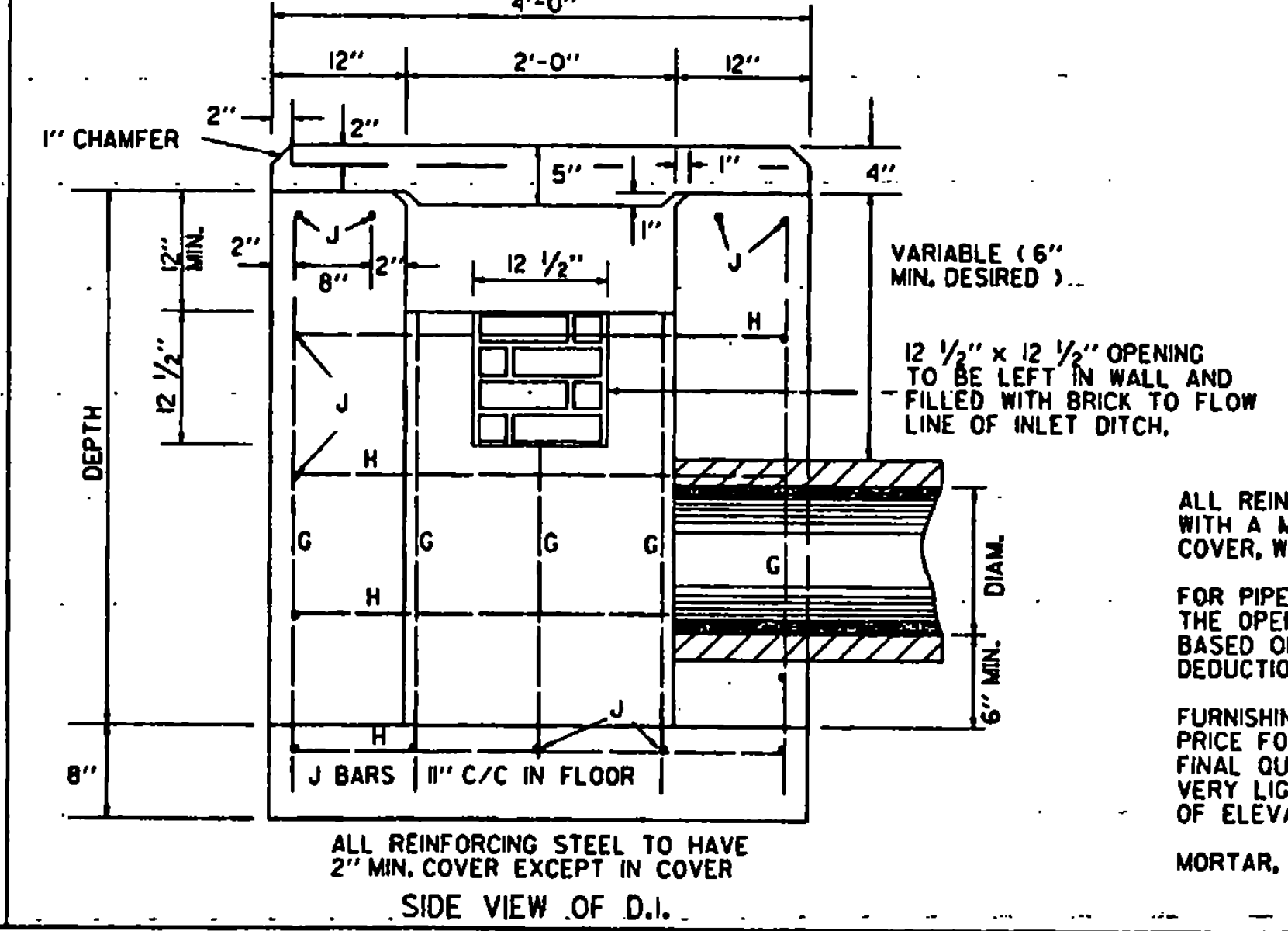
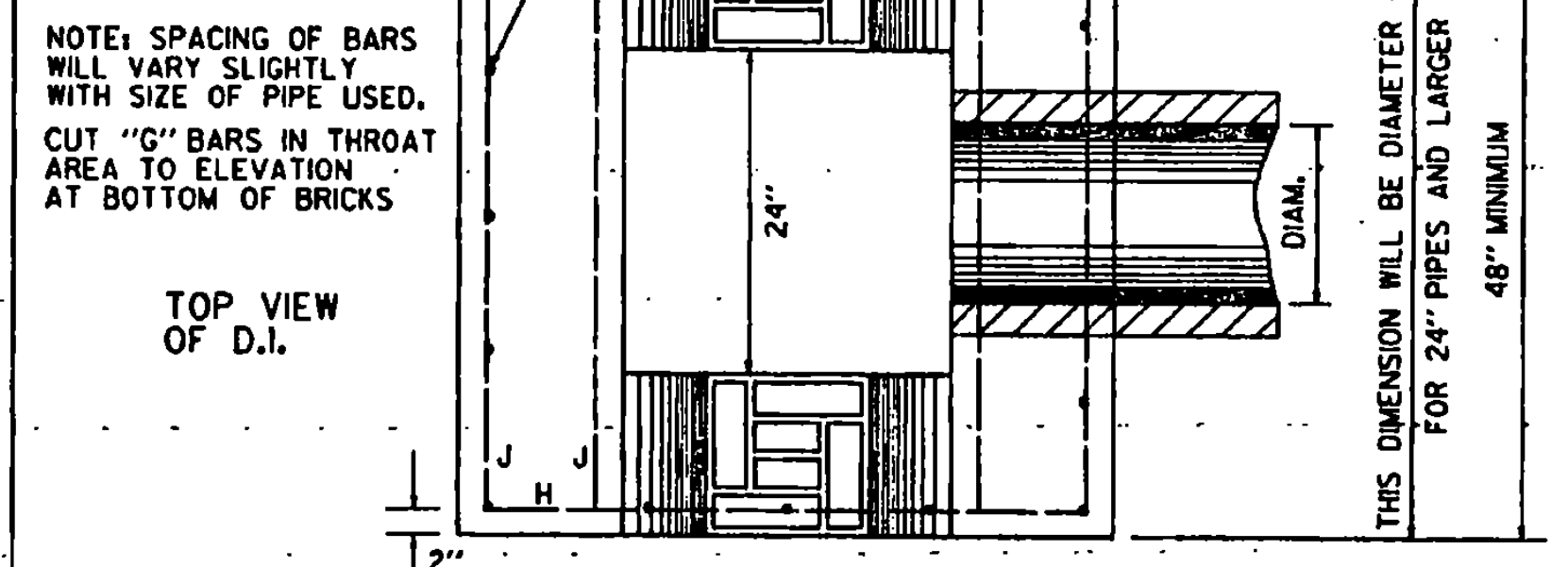


STEEL SCHEDULE FOR DROP INLETS WITH PRECAST COVERS

DEPTH	12" TO 24" DIAMETER			30" DIAMETER		
	G	LENGTH	H-J	LENGTH	G	LENGTH
2'-0"	15	2'-4"	31	3'-8"		
2'-6"	15	2'-10"	33	3'-8"		
3'-0"	15	3'-4"	36	3'-8"		
3'-6"	15	3'-10"	36	3'-8"	16	3'-10"
4'-0"	15	4'-4"	39	3'-8"	16	4'-4"
4'-6"	15	4'-10"	39	3'-8"	16	4'-10"
5'-0"	15	5'-4"	42	3'-8"	16	5'-4"
5'-6"	15	5'-10"	42	3'-8"	16	5'-10"
6'-0"	15	6'-4"	45	3'-8"	16	6'-4"

36" DIAMETER

DEPTH	G	LENGTH	J	LENGTH	H	LENGTH
4'-0"	16	4'-4"	14	4'-8"	28	3'-8"
4'-6"	16	4'-10"	14	4'-8"	28	3'-8"
5'-0"	16	5'-4"	16	4'-8"	30	3'-8"
5'-6"	16	5'-10"	16	4'-8"	30	3'-8"
6'-0"	16	6'-4"	18	4'-8"	32	3'-8"



CONCRETE AND STEEL QUANTITIES FOR DROP INLETS OF VARIOUS DEPTHS

DROP INLETS WITH PRECAST COVERS

DEPTH	12" 15" 18"		24"		30"		36"	
	CONC BY C.Y.	STEEL LBS	CONC BY C.Y.	STEEL LBS.	CONC BY C.Y.	STEEL LBS	CONC BY C.Y.	STEEL LBS.
2'-0"	1.4	155						
2'-6"	1.6	171	1.6	171				
3'-0"	1.8	190	1.8	190				
3'-6"	2.0	198	2.0	198	2.1	204		
4'-0"	2.3	217	2.3	217	2.3	221	2.5	248
4'-6"	2.5	225	2.5	225	2.6	237	2.7	256
5'-0"	2.7	244	2.7	244	2.8	254	3.0	282
5'-6"	2.9	252	2.9	252	3.0	270	3.2	290
6'-0"	3.2	271	3.2	271	3.3	287	3.5	316

ALL REINFORCING BARS SHALL BE NO. 5  $\phi$  DEFORMED BARS, EVENLY SPACED, WITH A MAXIMUM SPACING OF 12" CENTER TO CENTER, EXCEPT IN THE COVER, WHERE THE MAXIMUM SPACING IS 4" CENTER TO CENTER.

FOR PIPES OF 30" OR MORE IN DIAMETER, ALLOWANCE SHALL BE MADE FOR THE OPENING IN COMPUTING CONCRETE VOLUMES. THIS DEDUCTION WILL BE BASED ON THE RATED DIAMETER OF THE PIPE USED, WITH THE SAME DEDUCTION FOR CONCRETE AND METAL PIPE.

FURNISHING AND LAYING OF BRICKS, SHALL BE INCLUDED IN THE UNIT BID PRICE FOR CONCRETE, CLASS B, AND THEIR VOLUME TO BE INCLUDED IN THE FINAL QUANTITIES. ONLY SUFFICIENT MORTAR TO BE USED TO PROVIDE A VERY LIGHT BOND TO ALLOW WITH EASE, FUTURE REMOVAL, FOR CORRECTION OF ELEVATION OF FLOW LINE.

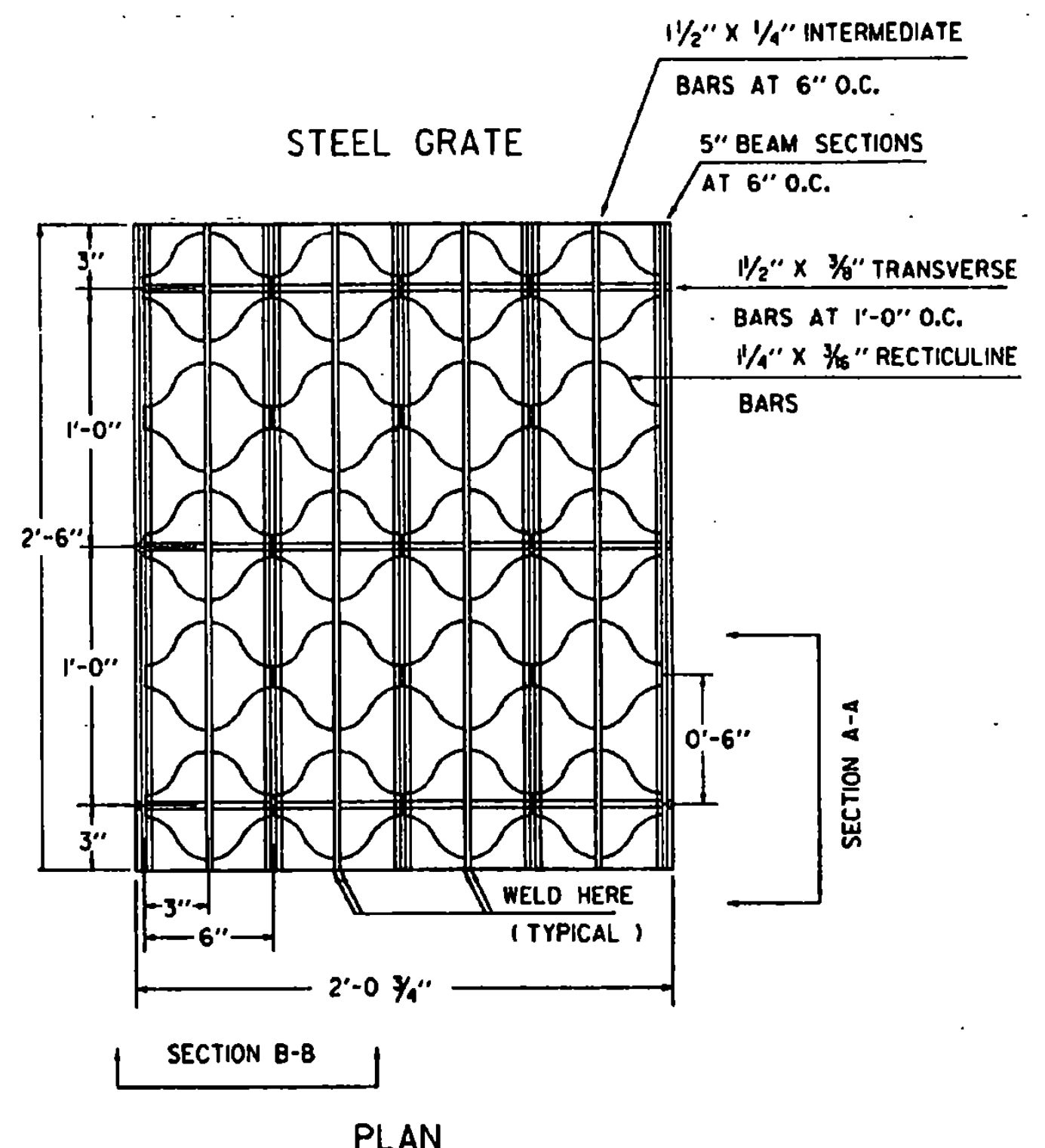
MORTAR, TYPE II, TO BE USED FOR JOINT FILLER AND LAYING OF BRICK.

REVISIONS AND CORRECTIONS  
DEC. 6, 1971 - ORIGINAL APPROVAL  
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED  
[Signature]  
DIRECTOR OF ENGINEERING  
[Signature]  
DESIGN ENGINEER

REINFORCED CONCRETE DROP INLET WITH PRECAST COVER  
REINFORCED CONCRETE DROP INLET WITH GRATE (BOTTOM SECTION)  
(SEE SHEETS D-9, D-10, AND D-11 FOR TOP SECTION)

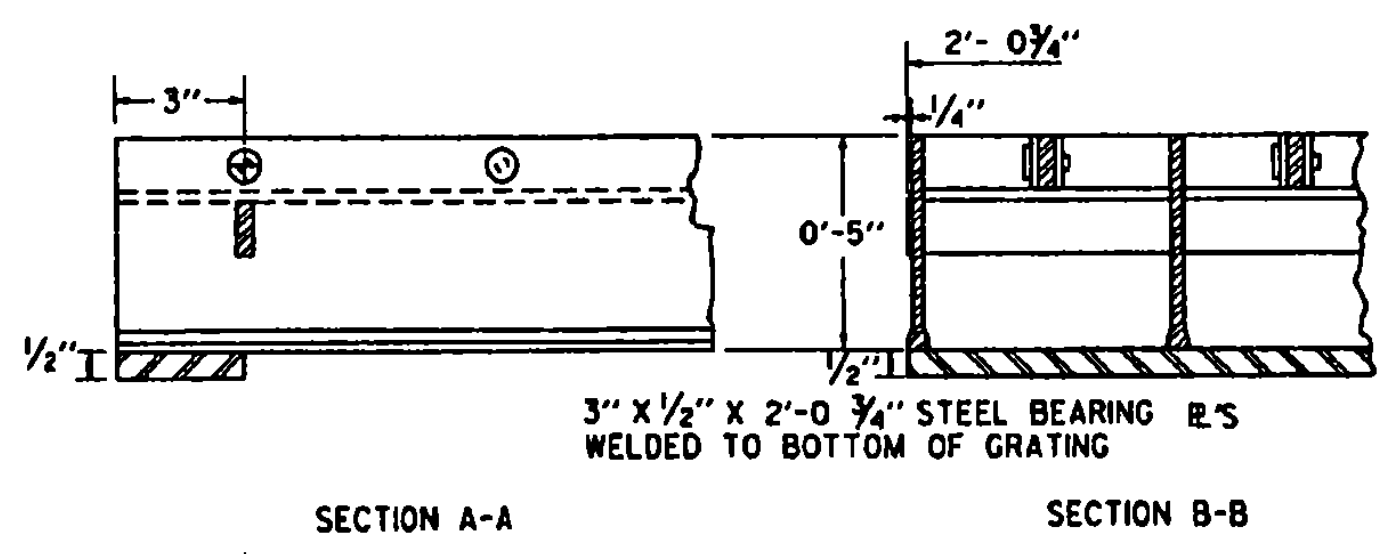




GRATE SIZE SINGLE 24 3/4" X 30"  
DOUBLE 24 3/4" X 54"

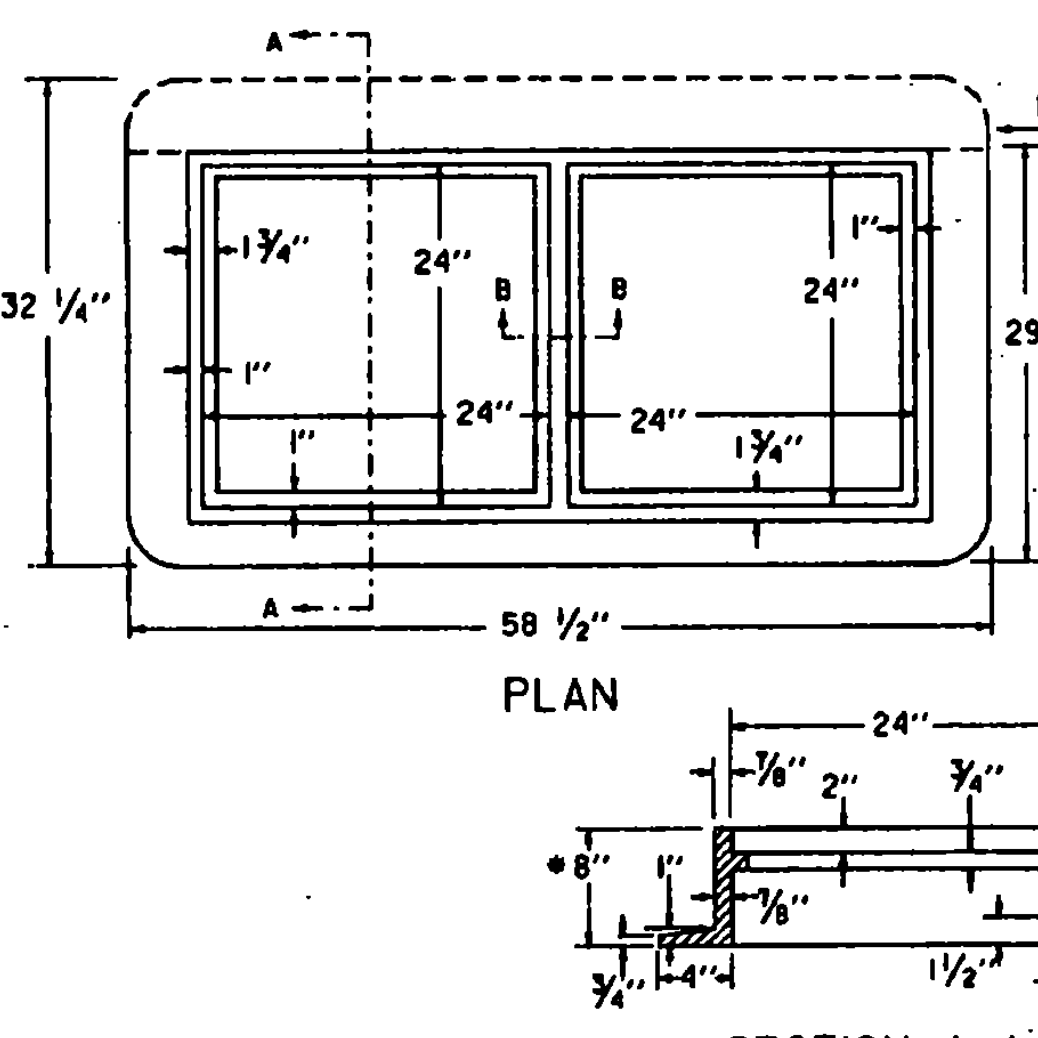
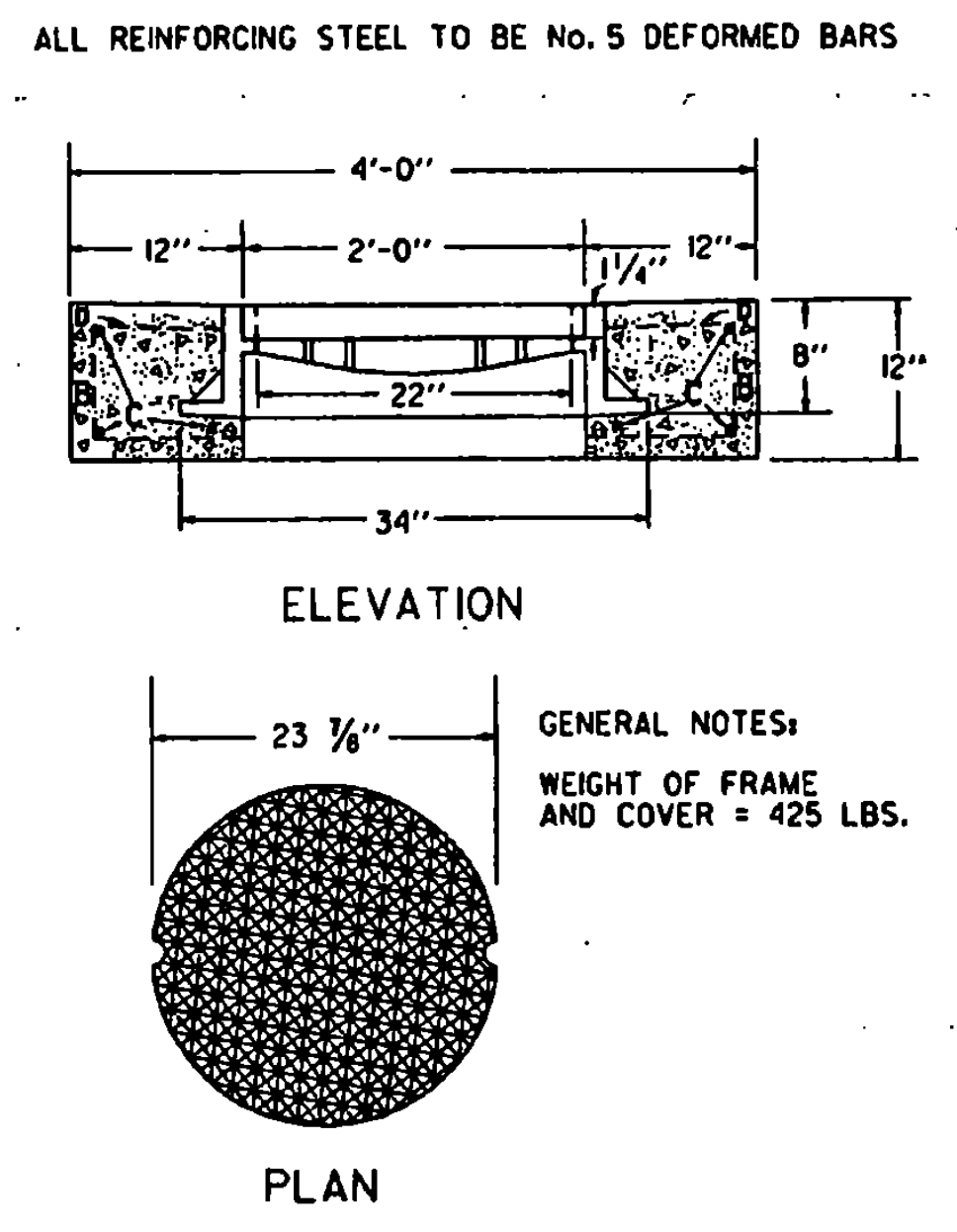
WEIGHT 95 LBS OR MORE  
GRATES SHALL BE CAPABLE OF SUPPORTING H-20 (32,000 LB. AXLE LOAD) INCLUDING 30% IMPACT.

UNIT STRESSES (LBS PER SQ. IN.)	18,000	20,000
MAIN BAR PARALLEL TO TRAFFIC	H-20 49"	53"
MAIN BAR PERPENDICULAR TO TRAFFIC	H-20 39"	42"

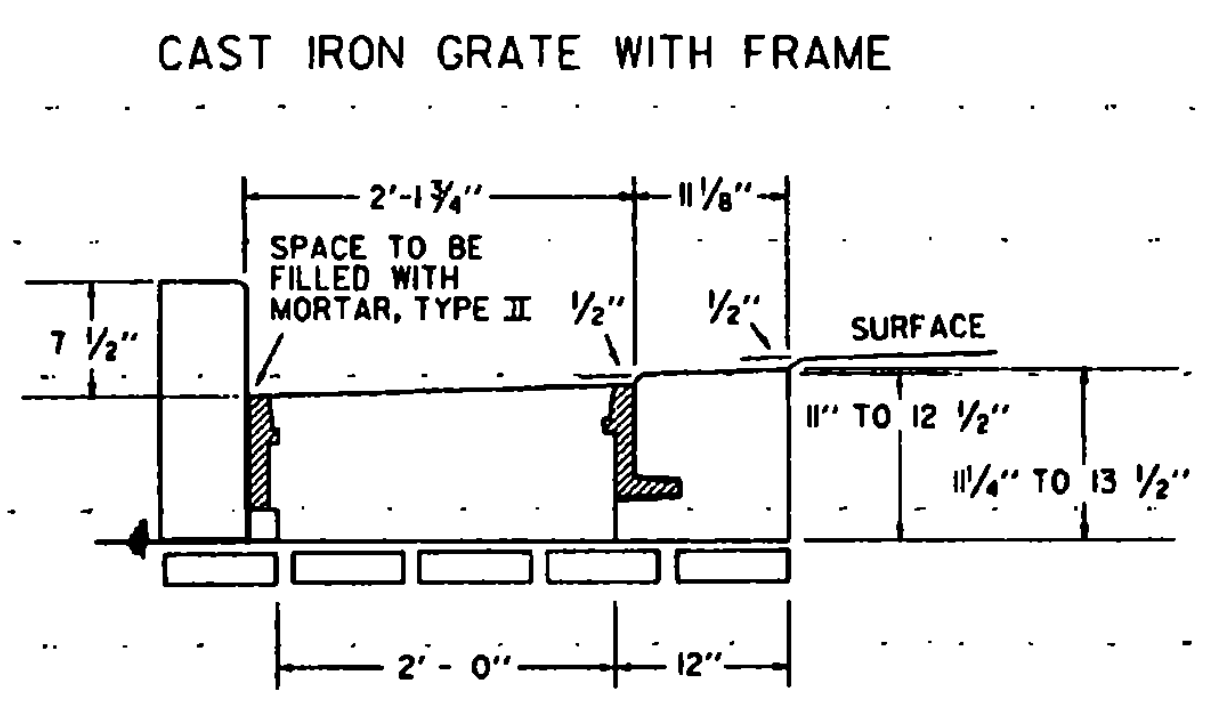


CAST IRON COVER WITH FRAME

BAR NO.	LENGTH	DESCRIPTION
B	4	8" 3'-8" 8"
C	6	3'-8" STRAIGHT
D	4	3'-8" STRAIGHT

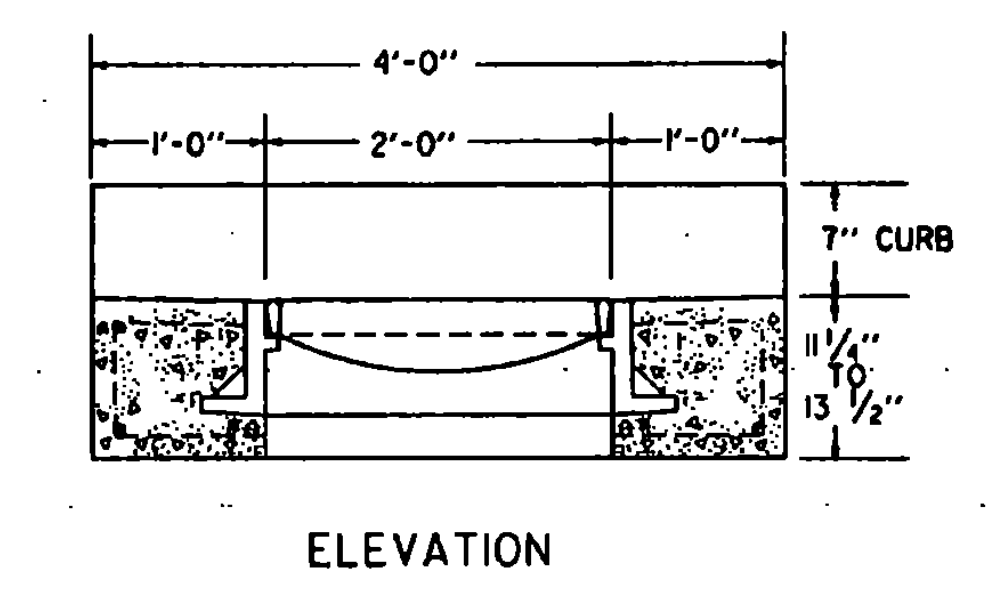


RECTANGULAR CAST IRON FRAME FOR TWO 24" SQUARE CAST IRON GRATES



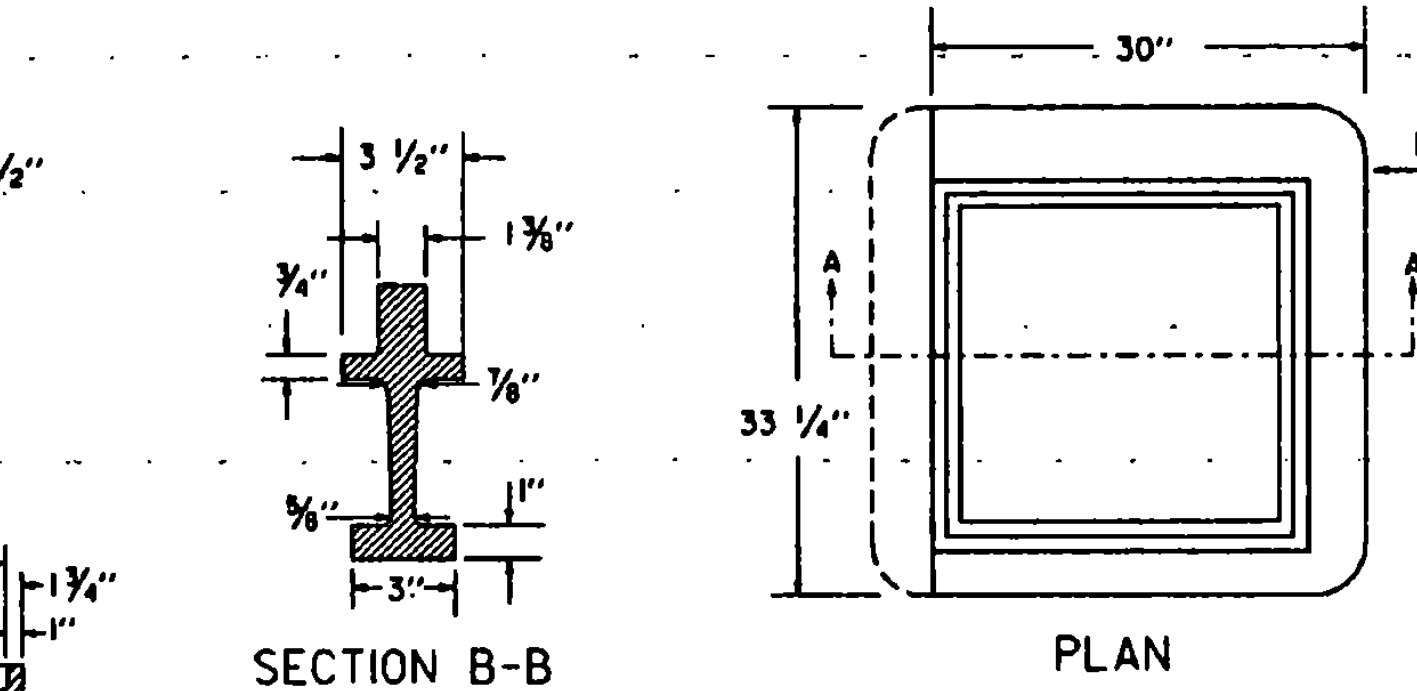
ELEVATION OF REINFORCED CONCRETE DROP INLET WITH VERTICAL GRANITE CURB AND 3 FLANGE CAST IRON FRAME FOR CAST IRON GRATE

SEE STANDARD D-9 FOR CONCRETE VOLUME, REINFORCING STEEL SCHEDULE, AND CURB JOINT DETAIL.



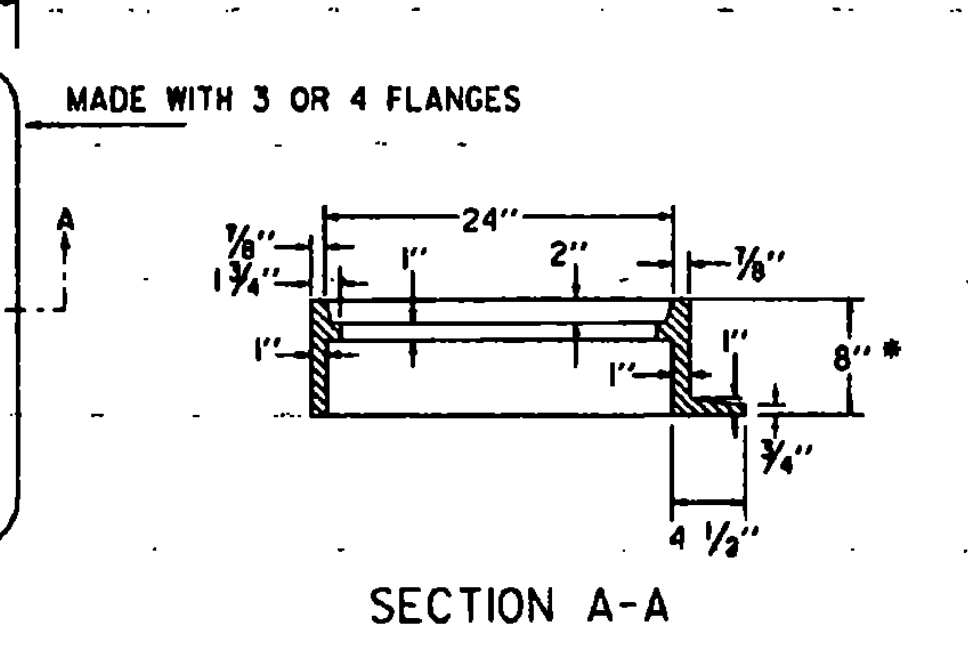
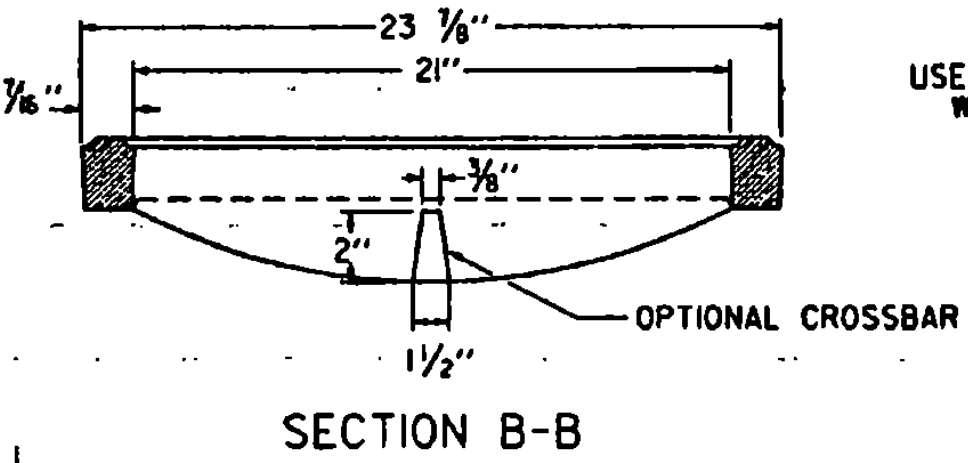
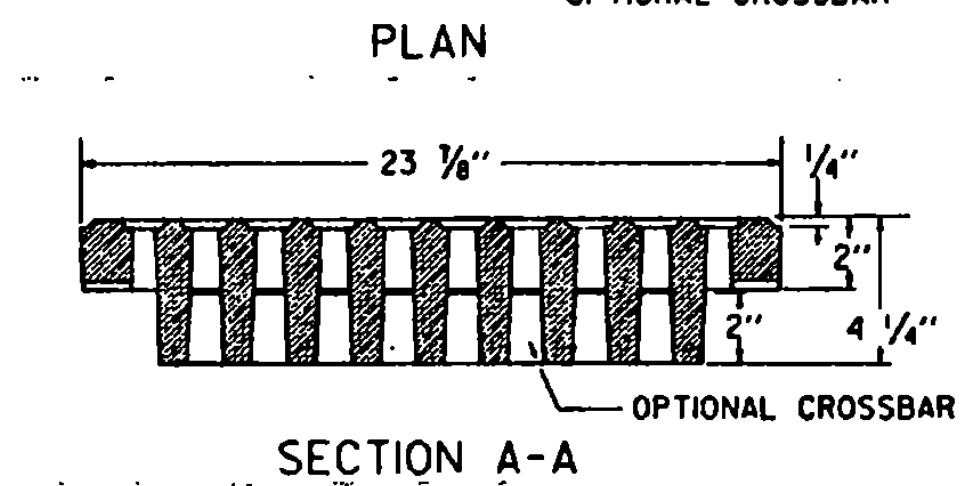
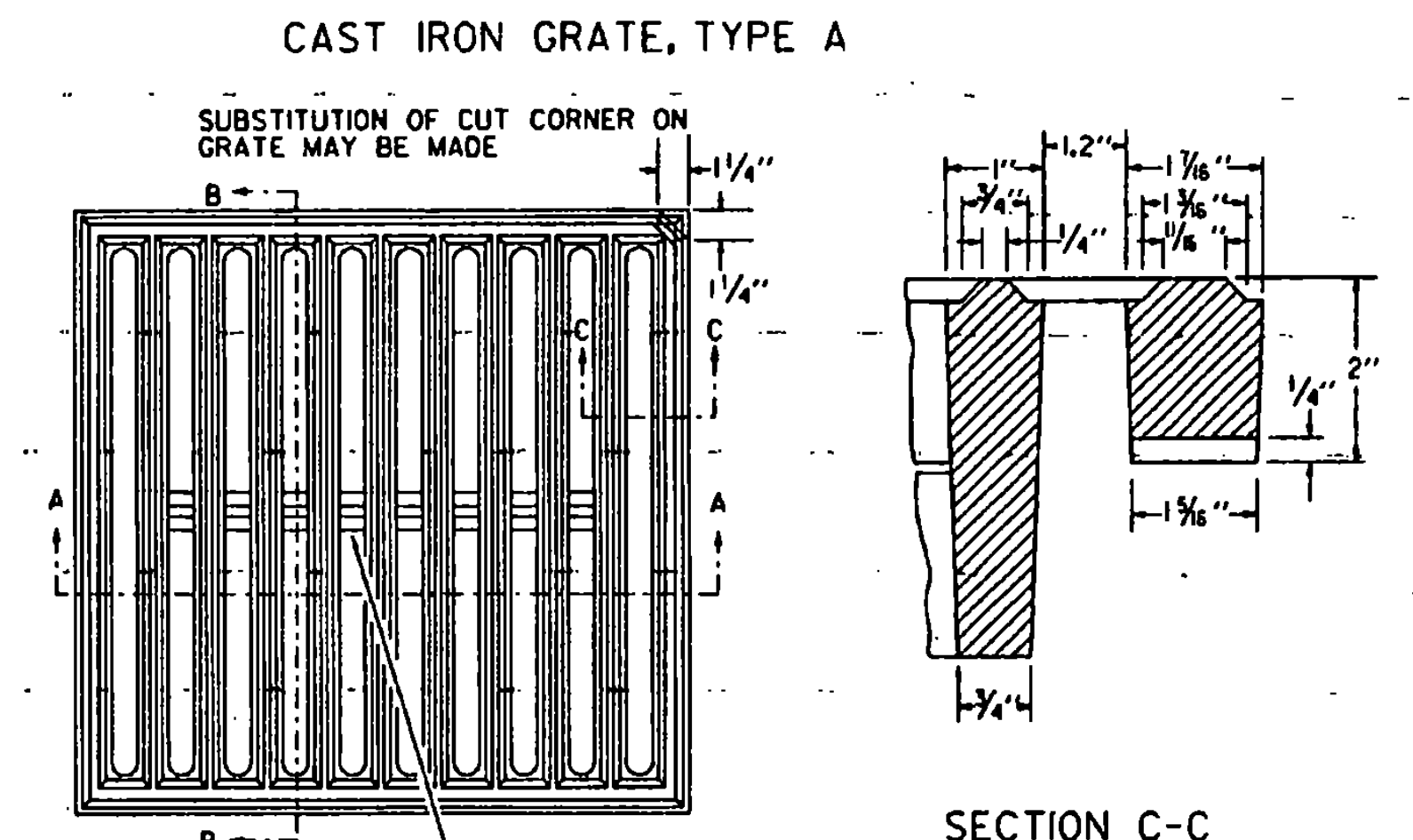
WEIGHT OF 3 FLANGED FRAME AND GRATE

GRATE	220 LBS
FRAME	260 LBS
TOTAL	480 LBS



SQUARE CAST IRON FRAME FOR CAST IRON GRATE TYPE A

\* NOTE: FRAME DEPTH TO BE "6" WHEN USED IN CONJUNCTION WITH DROP INLET DETAILED ON STANDARD D-6.



USE OF THE TYPE A GRATE IS PROHIBITED WHERE BICYCLE TRAFFIC IS EXPECTED

THIS FRAME TO BE PLACED IN DROP INLET TOP BEFORE CONCRETE IS POURED.

4 FLANGES UNLESS OTHERWISE INDICATED. FRAMES TO BE FURNISHED WITH 3 FLANGES WHEN USED IN CONJUNCTION WITH CURB OR AS DIRECTED BY THE ENGINEER.

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL

APR. 25, 1972 - CAST IRON COVER CHANGED FROM SQUARE TO CIRCULAR

SEPT. 4, 1980 - OPTIONAL CROSSBAR ADDED TO A GRATE; NOTE ADDED TO A GRATE FRAME DETAIL

AUG. 25, 1981 - NOTE ADDED RESTRICTING USE OF TYPE A GRATE

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

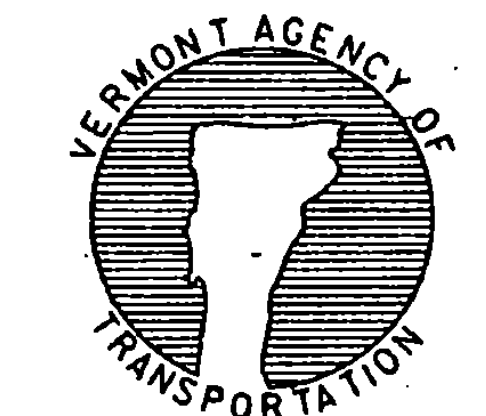
APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FINAL APPROVAL PENDING.

*Robert B. MacArthur, P.E.*  
DIRECTOR OF ENGINEERING

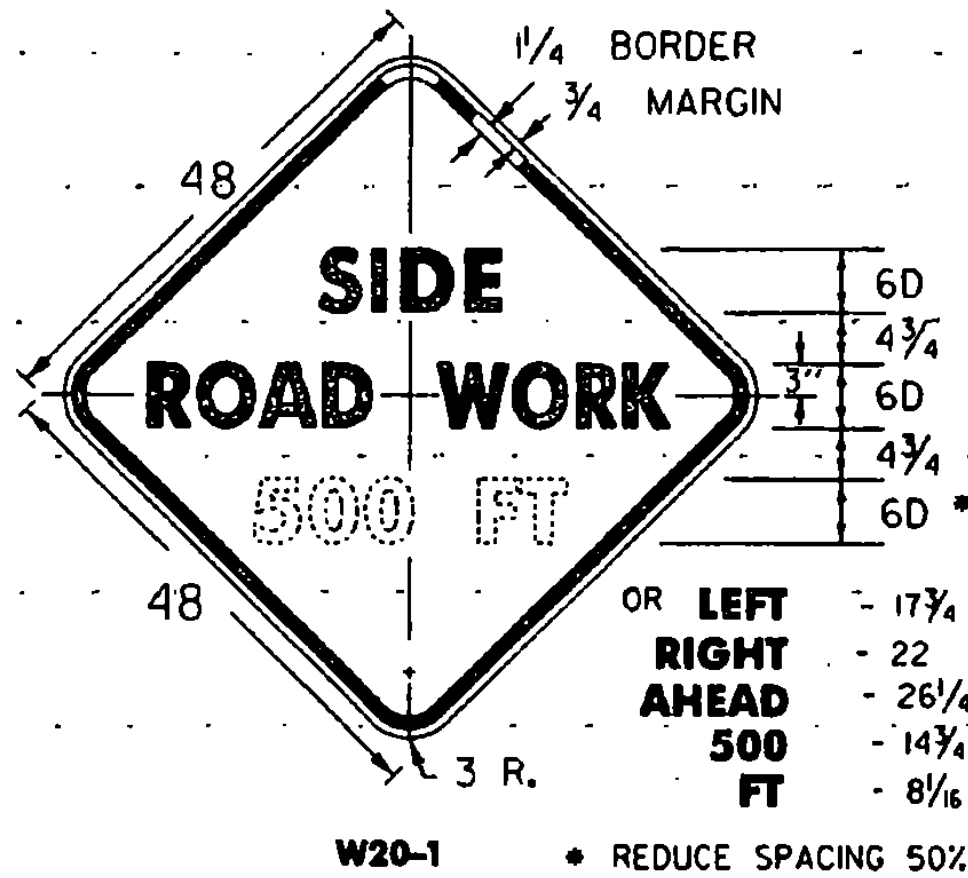
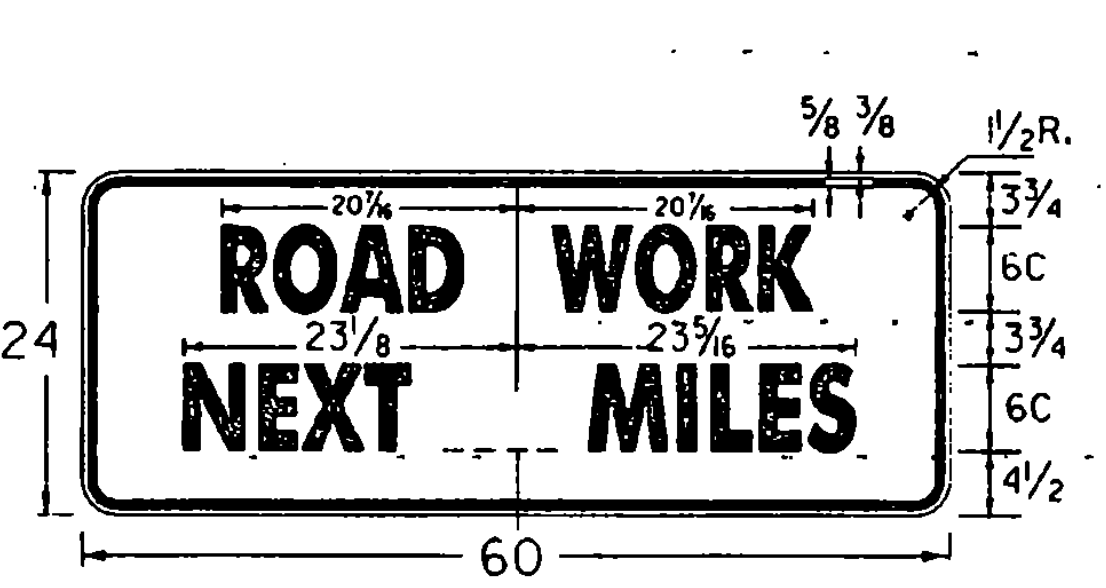
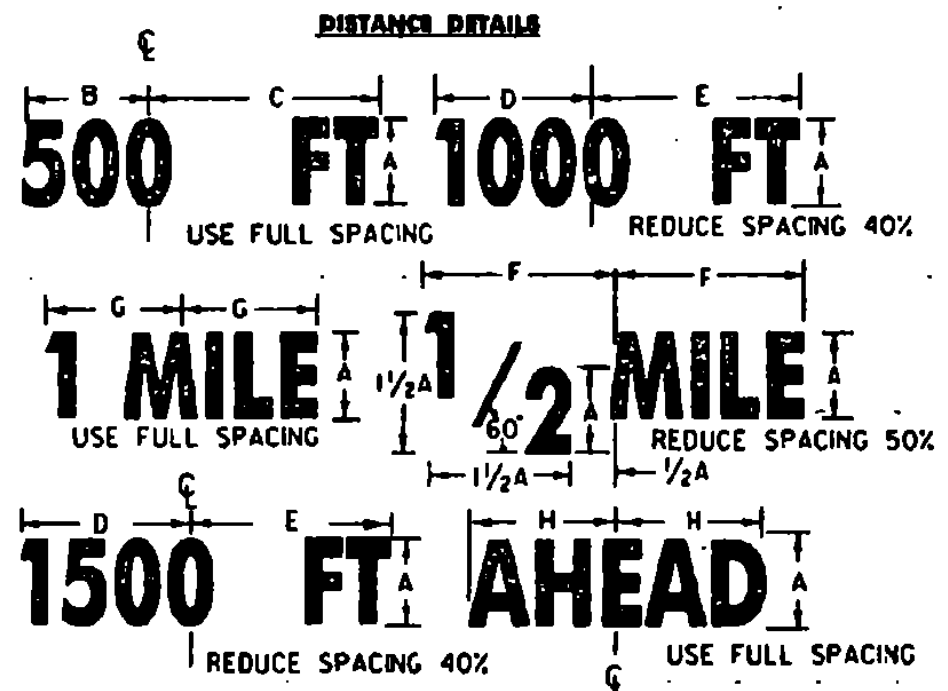
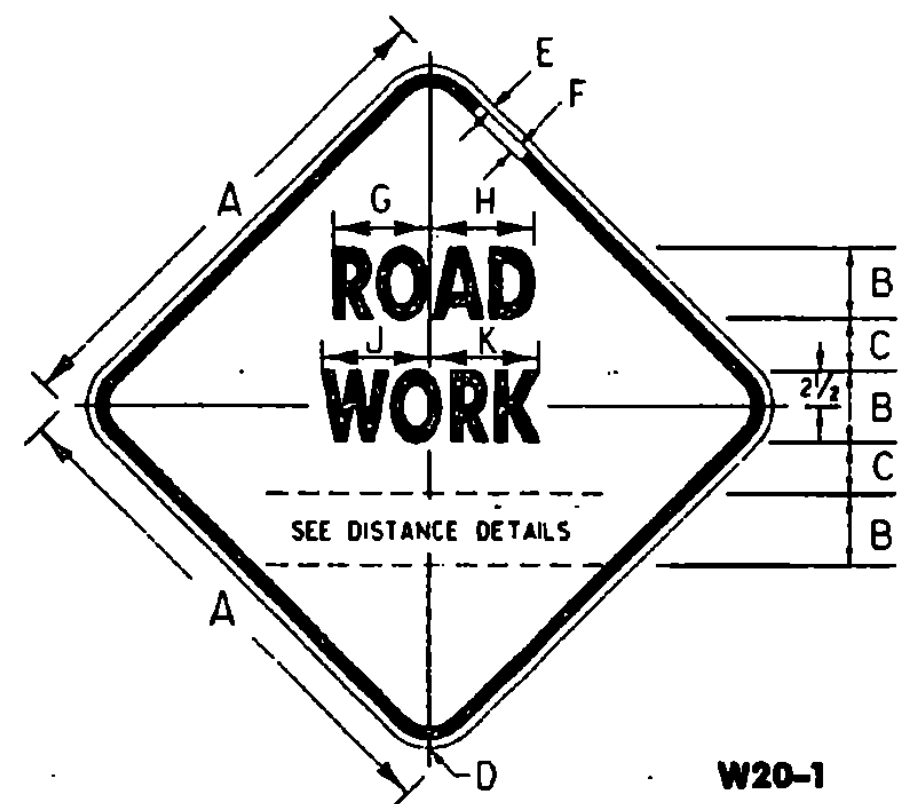
*Robert M. Murphy, PE*  
DESIGN ENGINEER

STEEL GRATE  
CAST IRON GRATE TYPE A  
CAST IRON COVER



STANDARD  
D-11

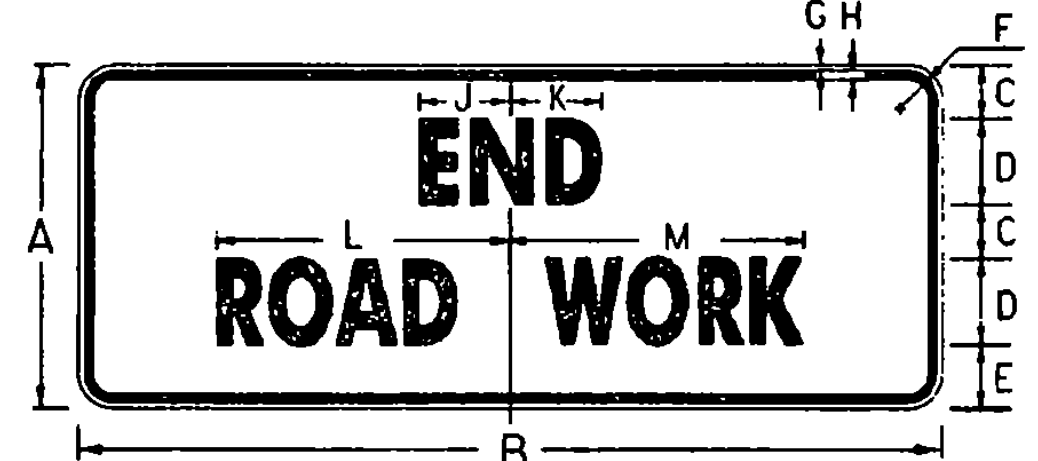




THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED. (ALL DIMENSIONS SHOWN IN INCHES)

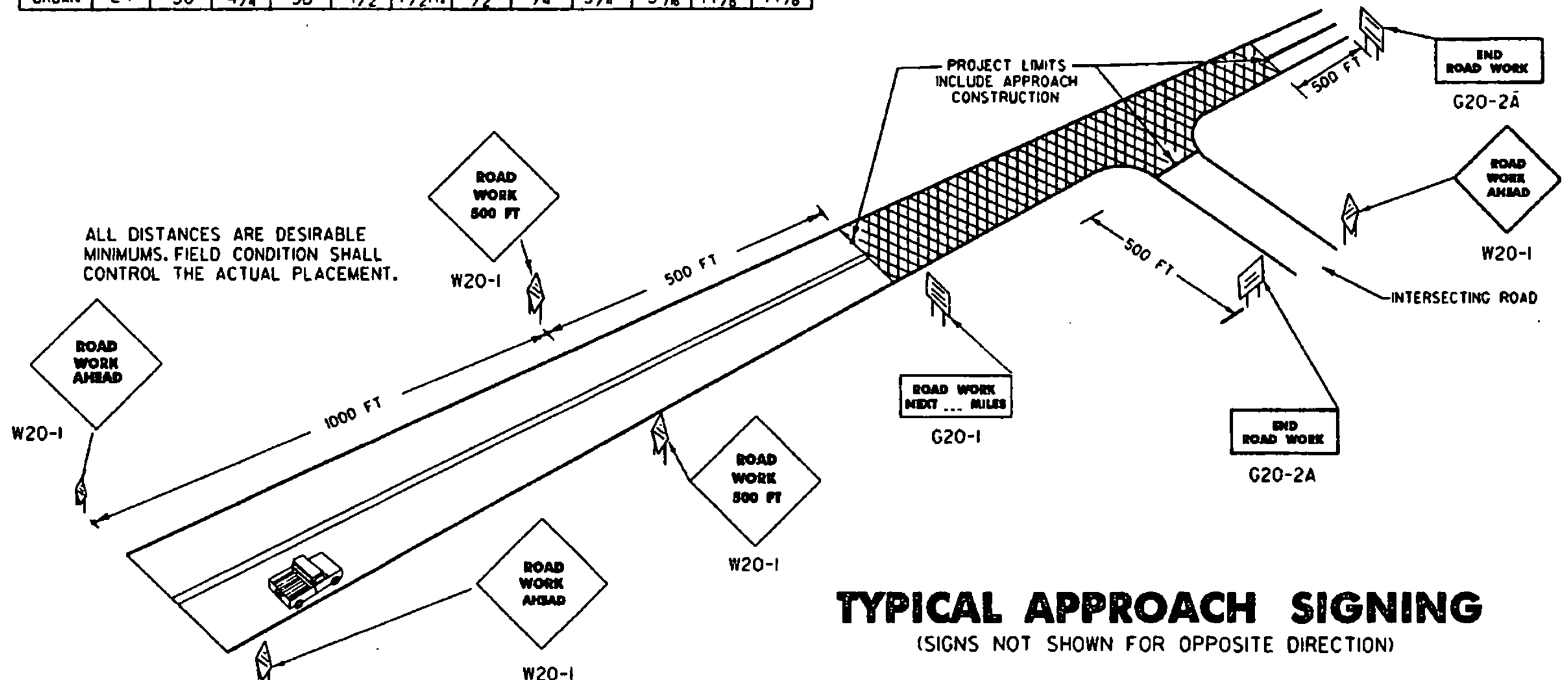
DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K
STD.	48	7C	4 3/4	3" R.	3/4	1 1/4	9 1/2	9 1/8	10 1/2	10 3/8
URBAN	36	5C	3 3/8	2 1/4 R.	5/8	3/8	6 3/8	7 1/8	7 1/2	7 7/8

DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G
5D	10 3/4	10 3/4	8 3/4	11 1/4	11 1/4	9 1/2	10 3/8
6C	10 3/8	10 1/2	11 1/4	12	12 1/2	9 1/8	10 1/2
7C	12	12 3/8	13 3/8	14	14 3/8	10 3/8	12 1/4
8D	16 1/4	17 1/4	17	18	18	14 3/8	17 3/8



DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M
STD.	24	60	3 3/4	6C	4 1/2	1 1/2 R.	3/8	3/8	6 1/4	6 3/8	20 1/8	20 1/16
URBAN	24	36	4 1/4	5B	4 1/2	1 1/2 R.	1/2	3/4	3 3/4	3 3/8	14 3/8	14 3/8

(ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED)



TYPICAL APPROACH SIGNING (SIGNS NOT SHOWN FOR OPPOSITE DIRECTION)

NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE APPROXIMATE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN THE DESIGN OF THE SIGNS SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE STANDARDS PRESCRIBED IN THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'. MATERIALS THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED. FLAT SHEET ALUMINUM 0.125 INCHES HIGH DENSITY OVERLAYED PLYWOOD 1/2, 5/8, OR 3/4 INCHES GALVANIZED SHEET STEEL 12 GAUGE

REFLECTORIZATION ALL REFLECTORIZED MATERIAL SHALL CONSIST OF TYPE IIB OR TYPE III SHEETING.

COLORS THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION. FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKGROUND.

INSTALLATION THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES. DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK, SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 7 FEET ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL, OR 2 FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK.

MAINTENANCE SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

NOTES CONT.

GENERAL THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES' SHALL BE MET. WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

SIGN COVERS SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL BE MADE FROM GRADE 2, AIR-DRIED SOUTHERN YELLOW PINE OR ANOTHER EQUIVALENT SOFTWOOD. AN ACCEPTABLE EQUIVALENT SOFTWOOD SHALL HAVE AN EXTREME FIBER BENDING "FB" DESIGN VALUE NOT TO EXCEED 800 PSI AND HORIZONTAL SHEAR "FH" DESIGN VALUE NOT TO EXCEED 90 PSI SPECIFICATION "DESIGN VALUES FOR WOOD CONSTRUCTION" AND RELATED SUPPLEMENT, DATED 1986.

AS ESTABLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

- 4' x 4' (ACTUAL DIMENSIONS ARE 3.5' x 3.5')
  - A) ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.
  - B) ACCEPTABLE FOR THREE POSTS (OR MORE) INSTALLATION ONLY WHEN THERE ARE NO MORE THAN TWO POSTS IN A 7 FOOT PATH.
- 4' x 6' (ACTUAL DIMENSIONS ARE 3.5' x 5.5')
  - A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 1 1/2" DIAMETER HOLES, ONE AT 4' AND THE OTHER 18" ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.
  - B) ACCEPTABLE FOR MULTIPLE POSTS (TWO OR MORE) INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
- 6' x 6' (ACTUAL DIMENSIONS ARE 5.5' x 5.5')
  - A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 2" DIAMETER HOLES, ONE AT 4' AND THE OTHER AT 18" ABOVE THE GROUND LINE AND PERPENDICULAR TO ROADWAY CENTERLINE.
  - B) ACCEPTABLE FOR MULTIPLE POST INSTALLATION ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
- 6' x 8' (ACTUAL DIMENSIONS ARE 5.5' x 7.5')
  - A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 3" DIAMETER HOLES, ONE AT 4' AND THE OTHER AT 18" ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.
  - B) ACCEPTABLE FOR MULTIPLE POST INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.

ADDITIONAL DESIGN CRITERIA

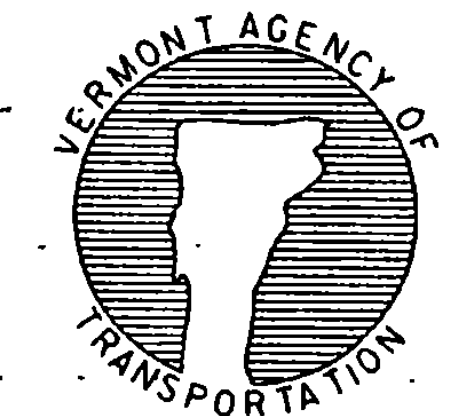
THE LONGER DIMENSION OF THE POST(S), SUCH AS THE 6' DIMENSION OF THE 4' x 6' POST, SHALL BE PLACED PARALLEL TO THE ROADWAY CENTERLINE. ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 4 FEET. NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:

- THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 3 1/2 FEET.
- THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 12 1/2 SQ. FEET.
- THE SV OF A SINGLE POST IS EXCEEDED. (SEE THE POST SELECTION CHART BELOW).

WOOD POST SELECTION CHART		
SIGN AREA (FT <sup>2</sup> ) X HEIGHT (FT) < Sv (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA:
4' x 4'	64	WIND SPEED = 60 MPH (10-YEAR MEAN OCCURENCE INTERVAL)
4' x 6'	147	WIND PRESSURE = 13 psf
6' x 6'	216	ALLOWABLE BENDING STRESS
6' x 8'	389	

POST SELECTION CHART DETAIL

OTHER STDS. REQUIRED:



STANDARD E-100

REVISIONS AND CORRECTIONS

- MAY 26, 1989 - DATE OF ORIGINAL ISSUE
- OCT 21, 1992 - REVISED WOOD POST REQUIREMENTS, ADDED SIGN DETAILS, & REVISED TITLE BLOCK
- AUG 08, 1995 - MINOR NOTE REVISIONS

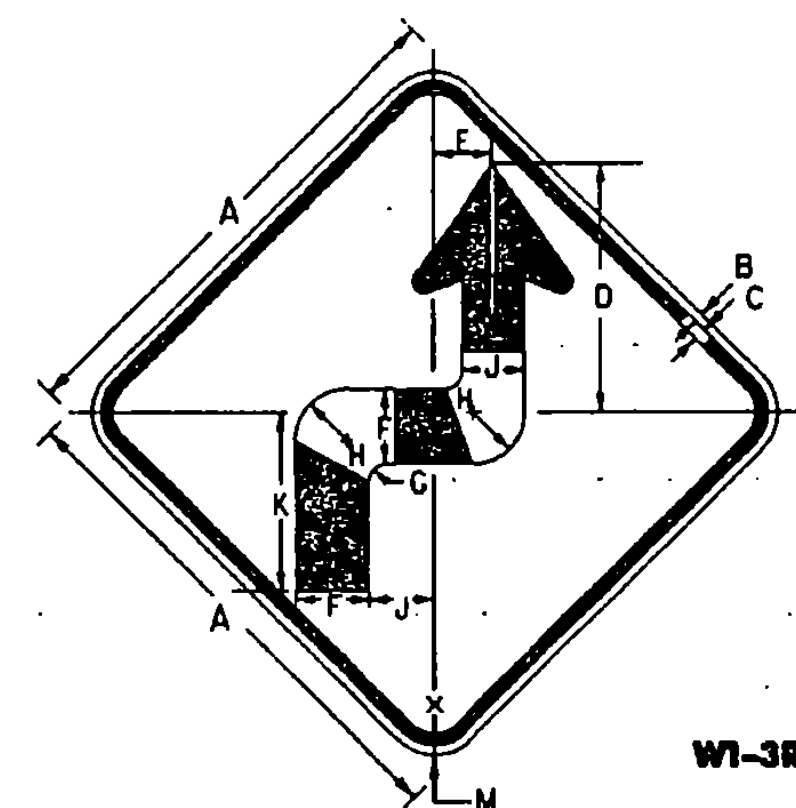
APPROVED

*Sandra M. O'Brien*  
DIRECTOR OF ENGINEERING

*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

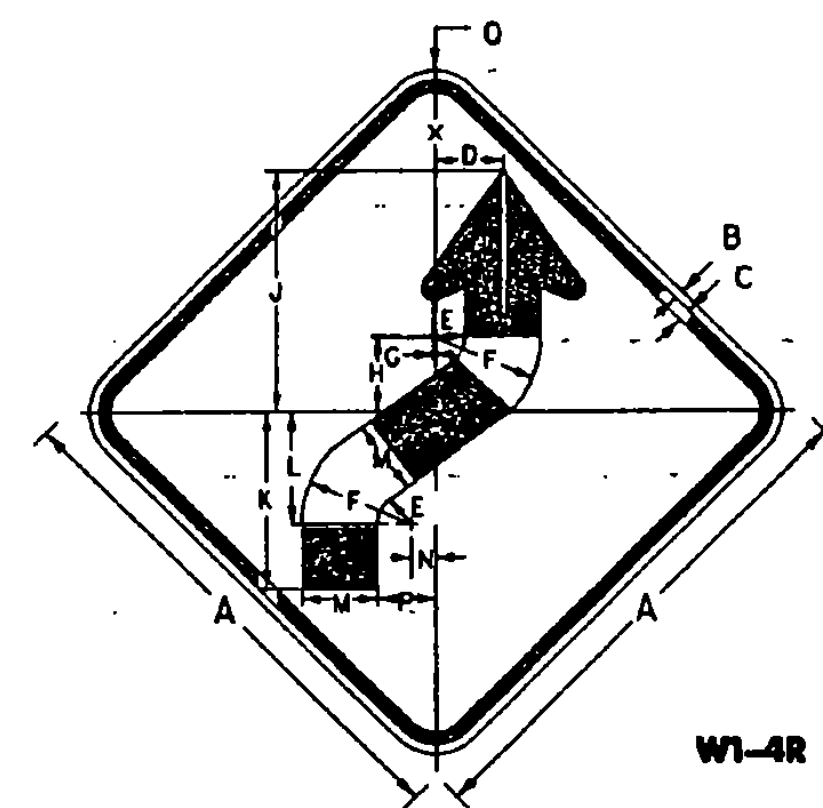
CONSTRUCTION APPROACH SIGNS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.



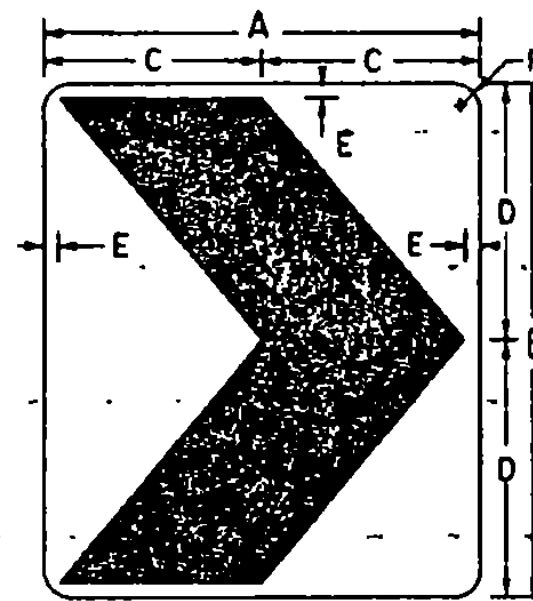
W1-3R

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
STD. & MIN.	36	3/8	7/8	17/16	4 1/2	5 1/4	1 1/4	3 3/8	4 1/2	12 3/4	1 7/8	2 1/4	
SPECIAL	48	3/4	1 1/4	23 3/8	5 5/8	7	1 5/8	4 7/8	6	16 3/8	2 3/8	3	



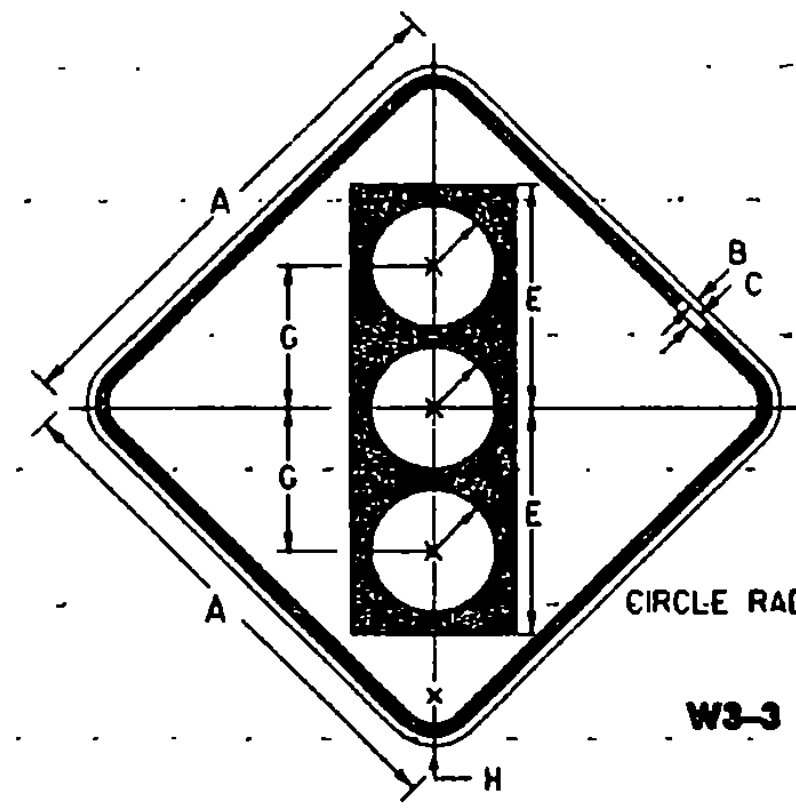
W1-4R

SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
STD. & MIN.	36	3/8	7/8	4 1/2	2 1/4	7 1/2	3/2	5 1/4	16 3/8	12 3/8	7 7/8	5 1/4	1 1/8	3 3/8	2 1/4
SPECIAL	48	3/4	1 1/4	6 5/8	3	10	3/2	7	22 1/2	16 1/2	10 1/2	7	2 1/4	5 1/4	3



W1-8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	1 1/2	2 1/4
EXPWY.	30	36	15	18	1 1/2	2 1/4
FRWY.	36	48	18	24	1 1/2	2 1/4

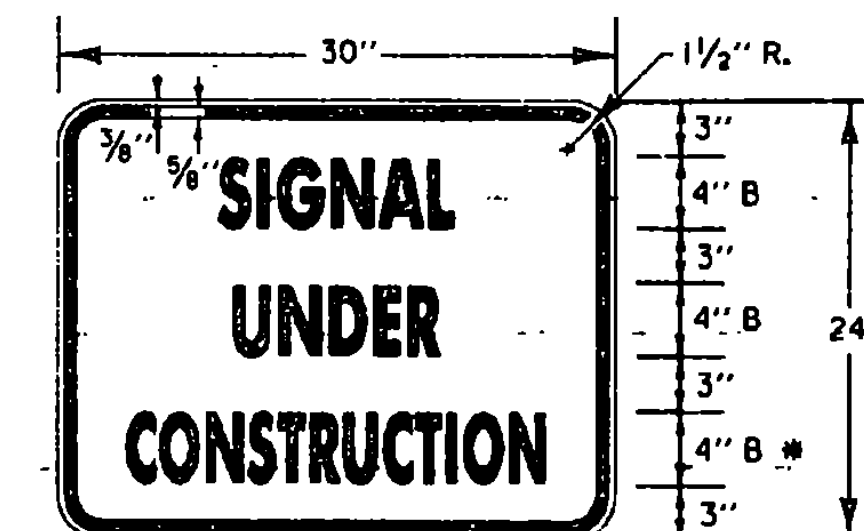


W3-3

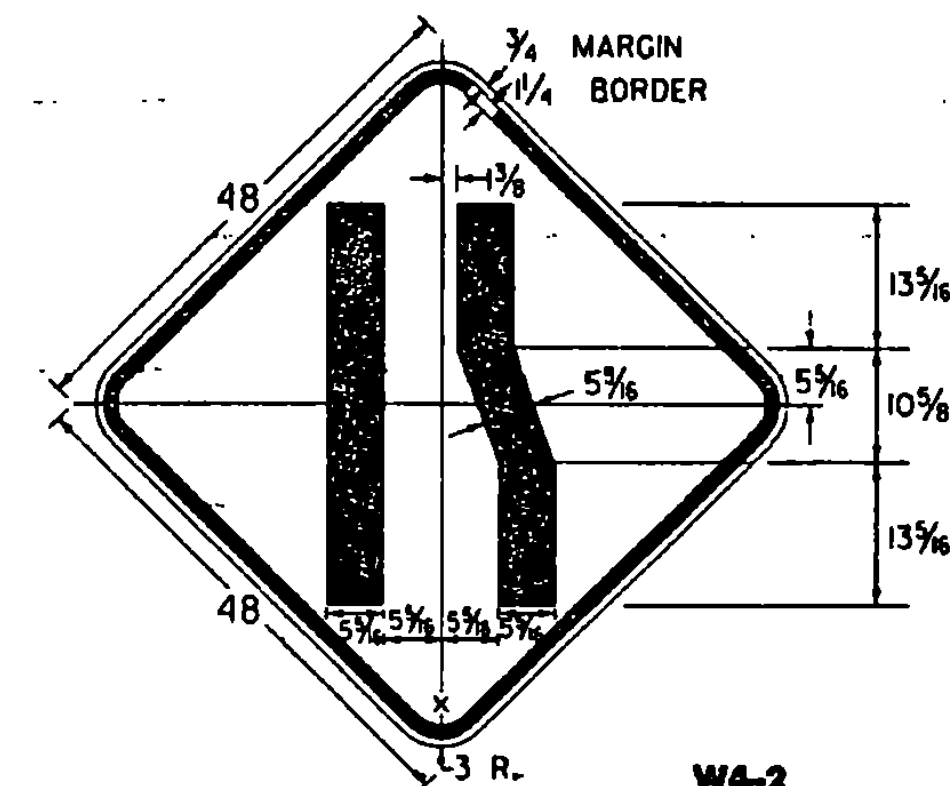
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
STD. & MIN.	36	3/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

**COLORS**

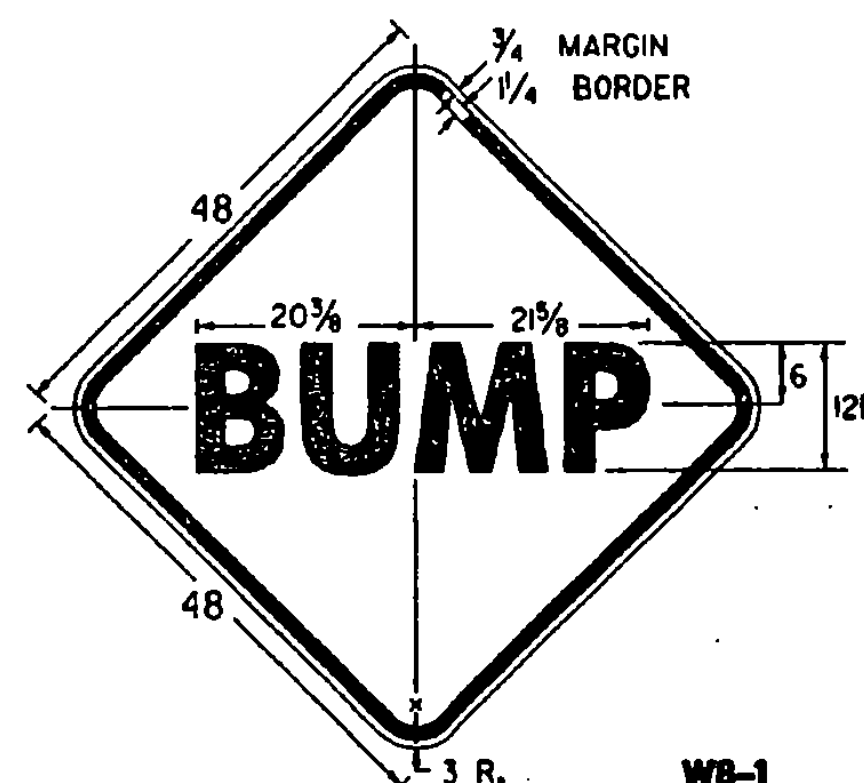
SYMBOL & LEGEND - BLACK (NON-REFL)  
BACKGROUND - ORANGE (REFL)  
TOP CIRCLE - RED (REFL)  
MIDDLE CIRCLE - YELLOW (REFL)  
BOTTOM CIRCLE - GREEN (REFL)



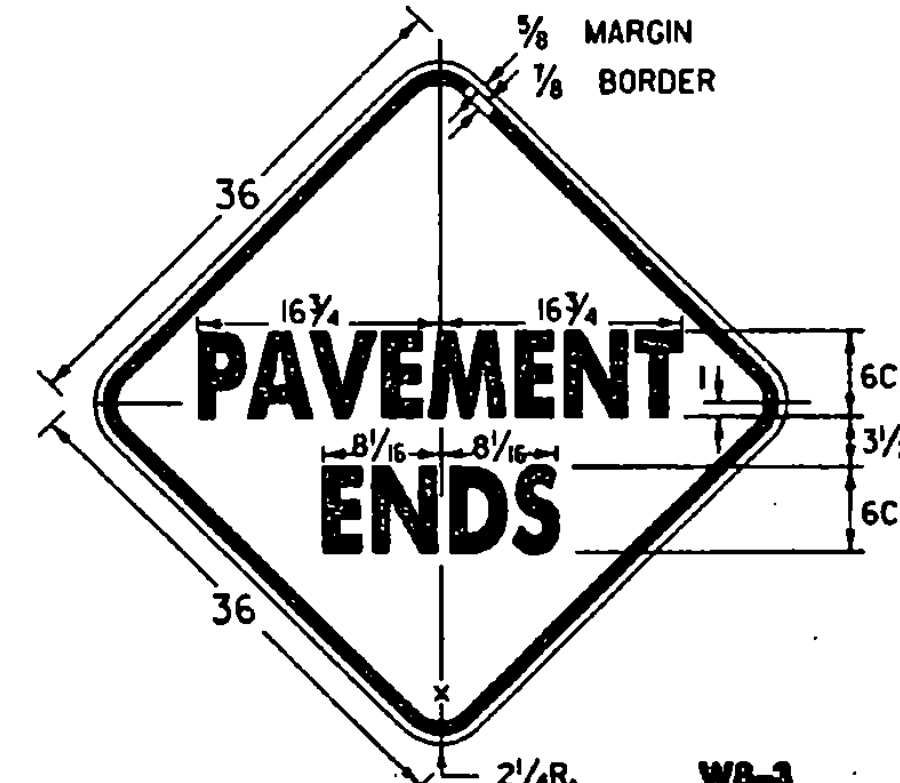
\* REDUCE SPACING 50%



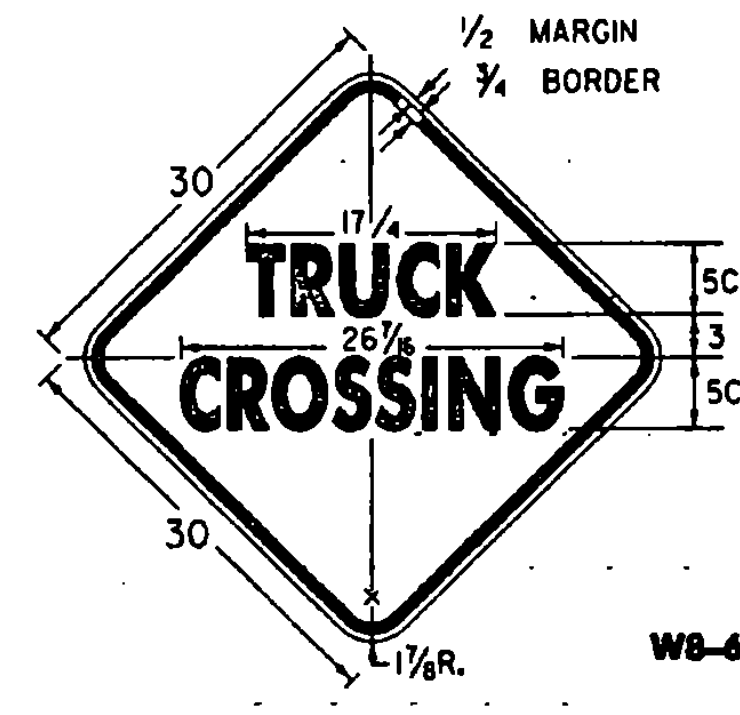
W4-2



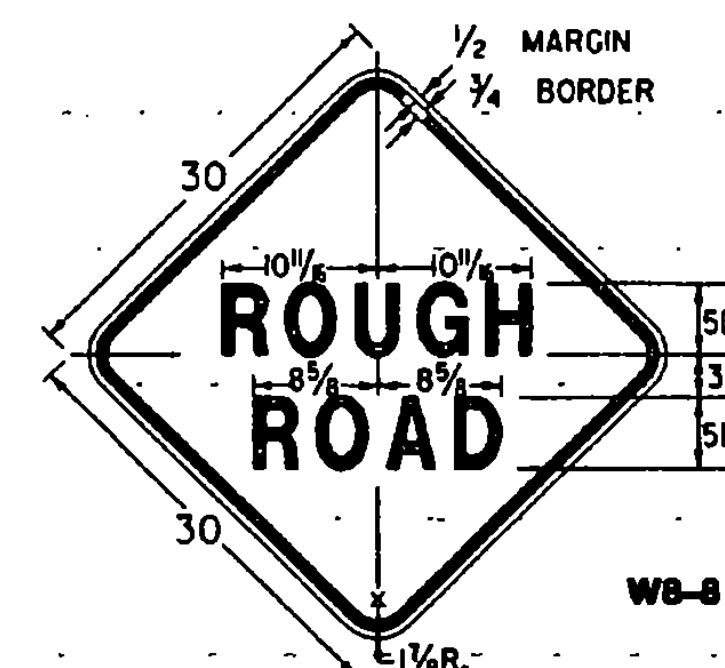
W8-1



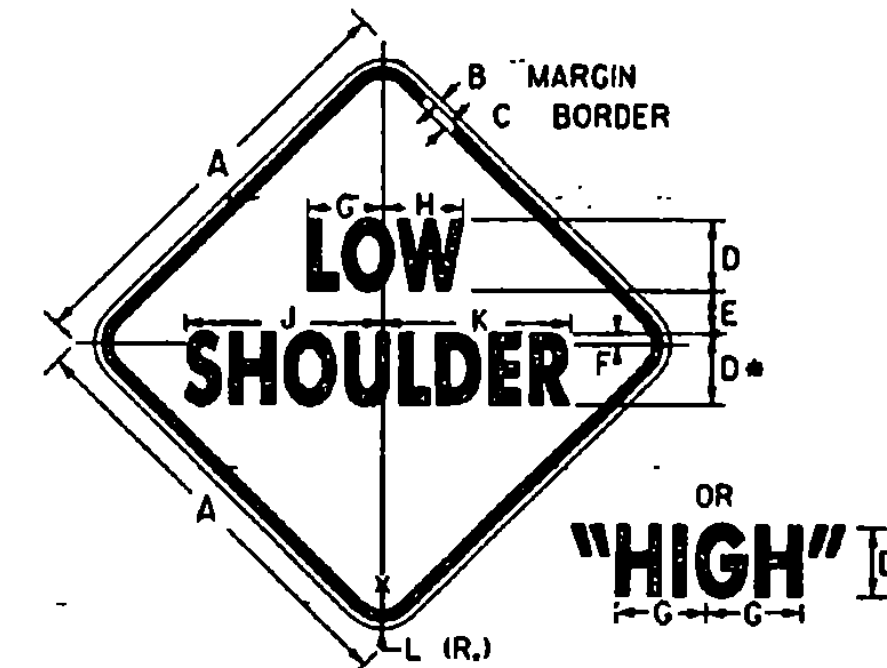
W8-3



W8-4



W8-8



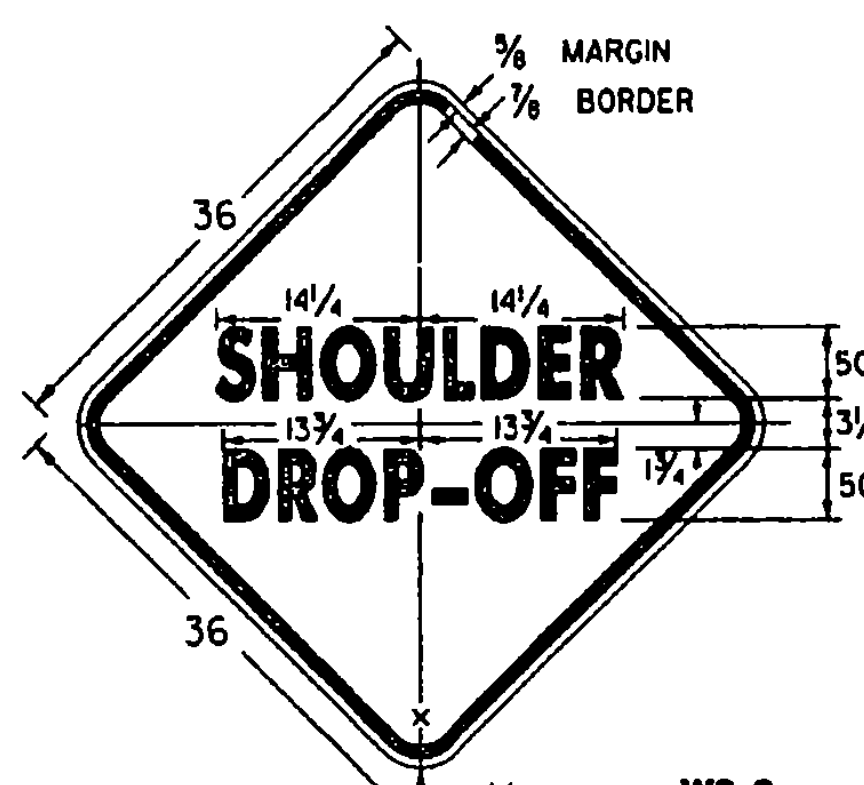
W8-9

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1/2	3/4	5C	3	3 1/2	5 3/8	5 3/8	13 3/8	13 3/8	1 1/2
FRWY.	48	3/4	1 1/4	8C	5	5 1/2	8 1/4	8 1/4	21 3/8	20 3/8	3

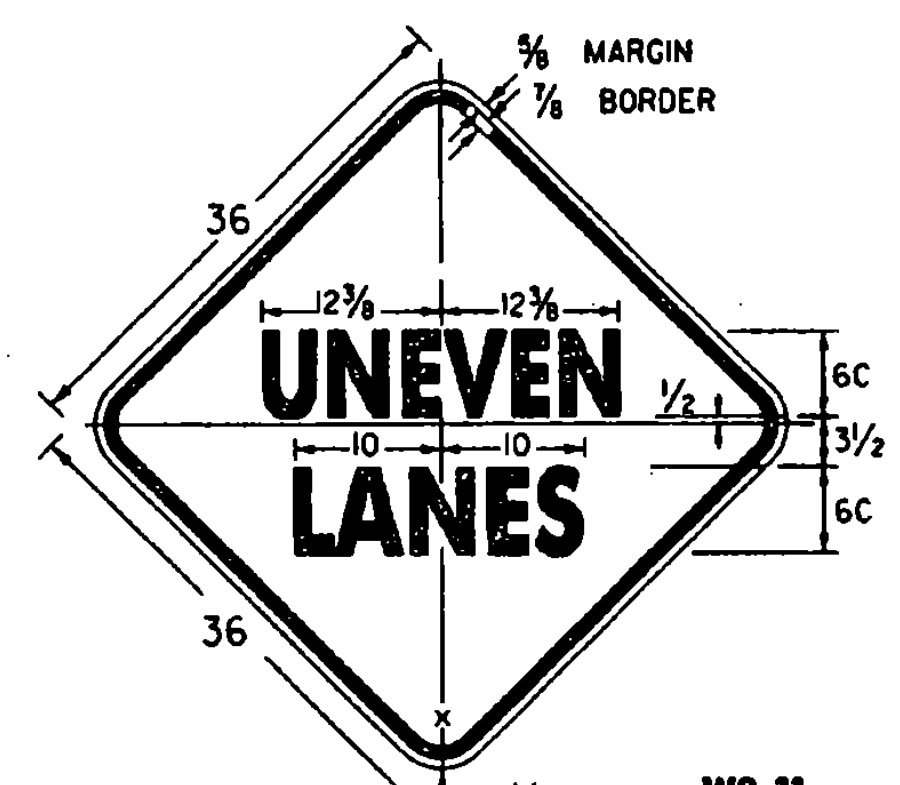
\* REDUCE SPACING 25%

**NOTES**

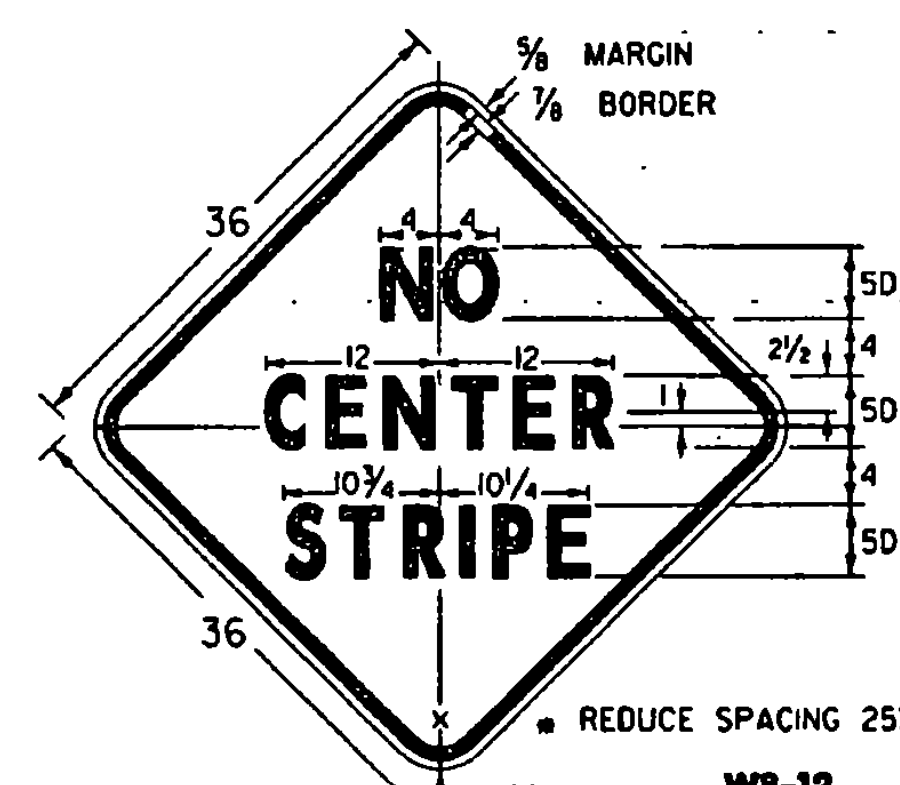
SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS  
COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED TYPE II B OR TYPE III ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.  
SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED, HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.



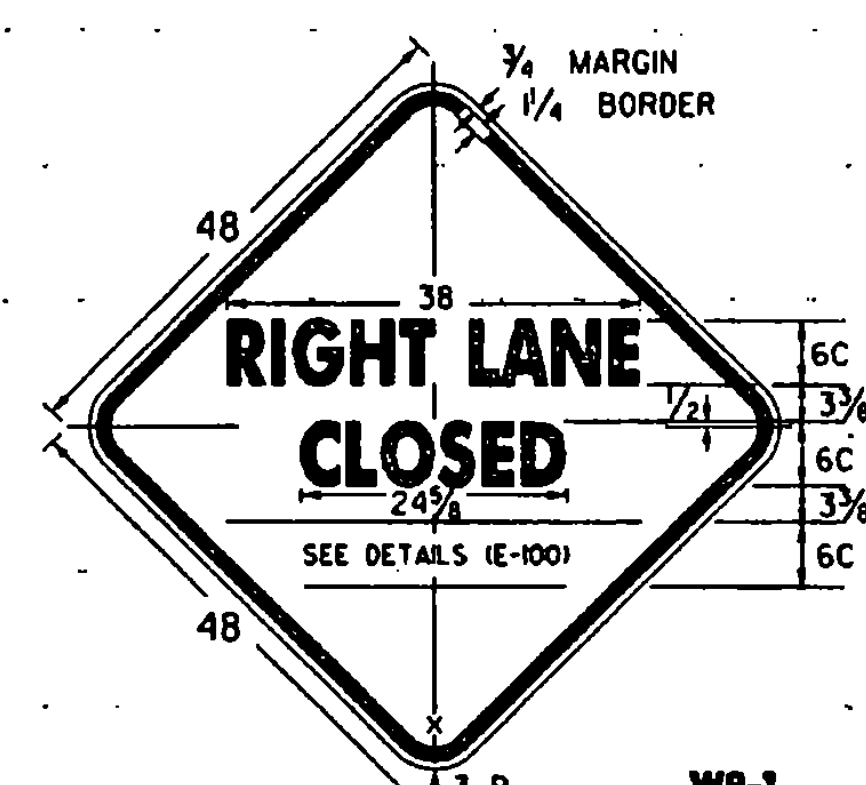
W8-9a



W8-11



W8-12



W9-1

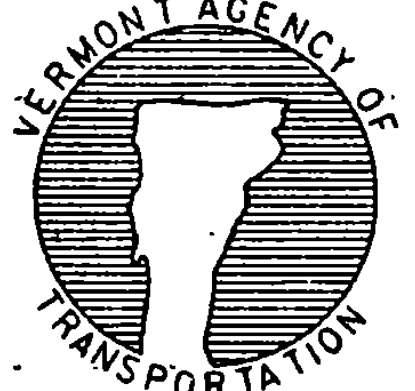
(ALL DIMENSIONS SHOWN IN INCHES) LEFT LANE

OTHER STDS. E-100 REQUIRED:

**REVISIONS AND CORRECTIONS**  
OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS, REVISED CHEVRON BACKGROUND TO ORANGE, & REVISED TITLE BLOCK  
AUG. 08, 1995 - ADDED AND DELETED VARIOUS SIGN DETAILS

APPROVED  
*Stephen D. McArthur*  
DIRECTOR OF ENGINEERING  
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

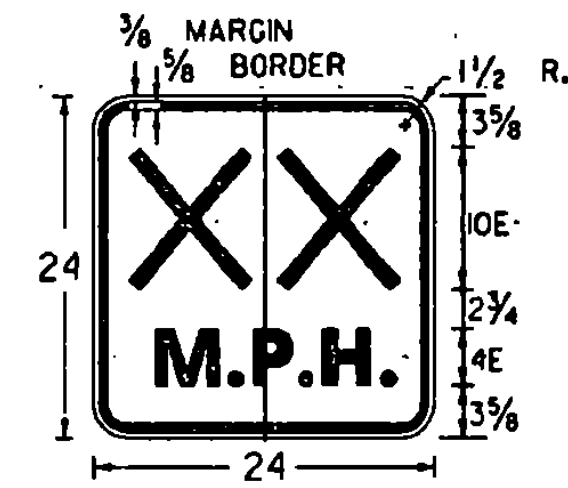
CONSTRUCTION SIGN DETAILS



STANDARD E-101

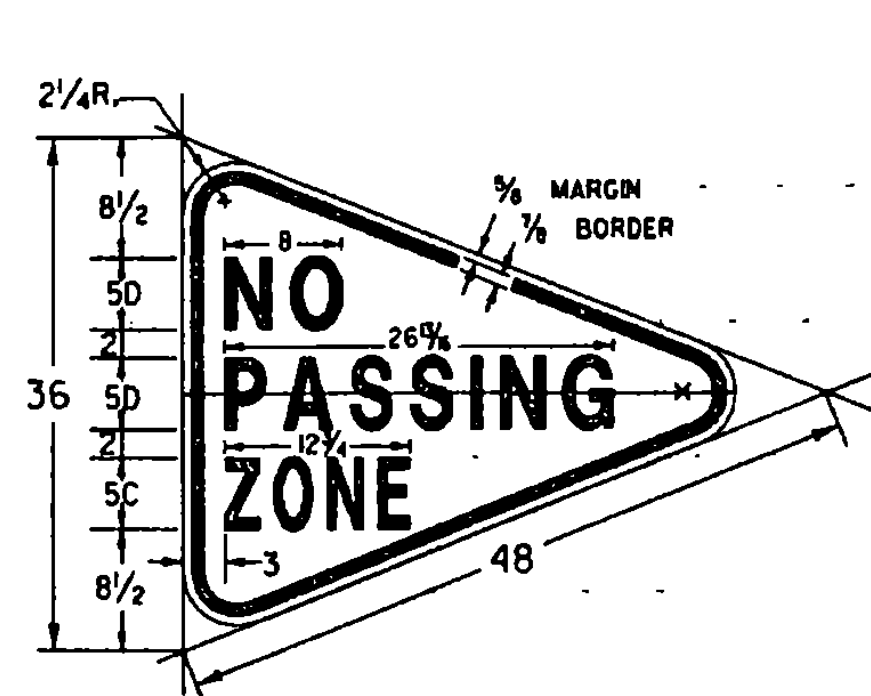
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

/traf/std/stdel01.dgn | stdel01

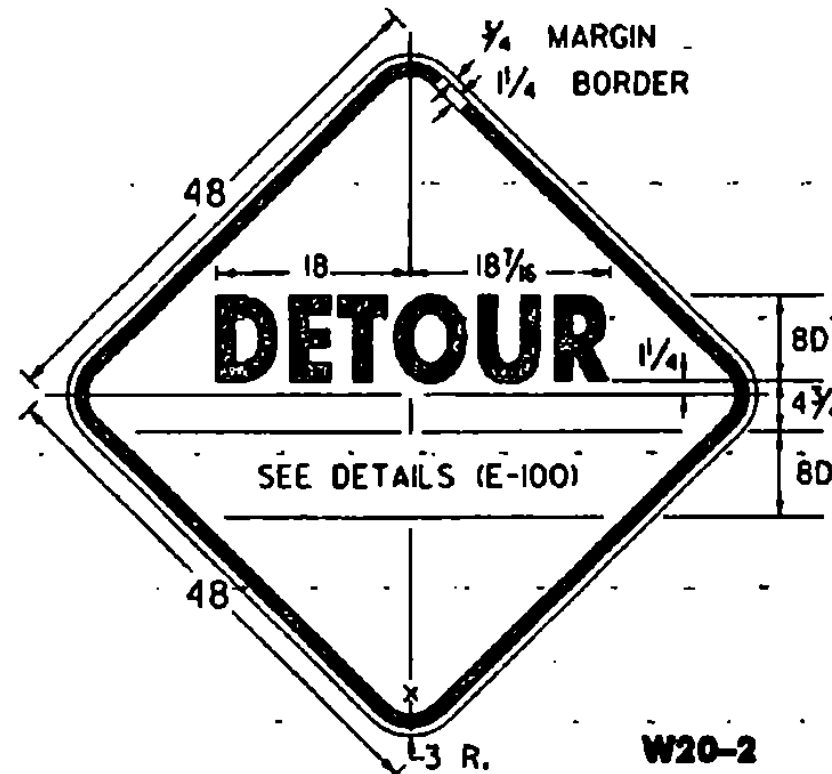


XX\* DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS

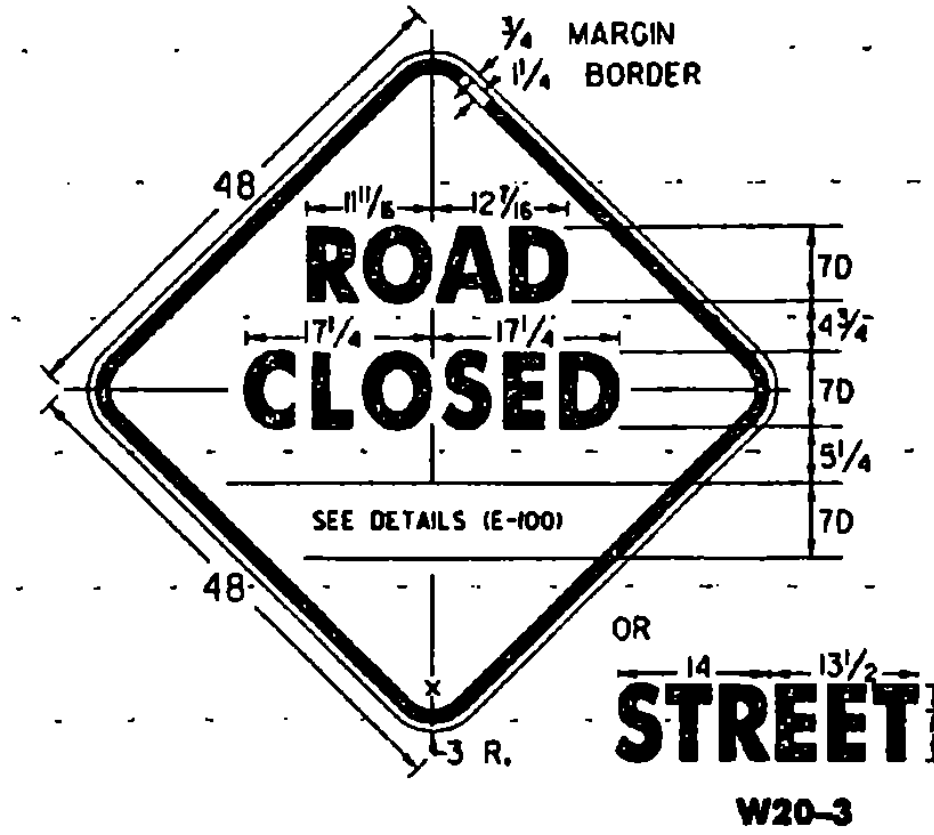
W13-1



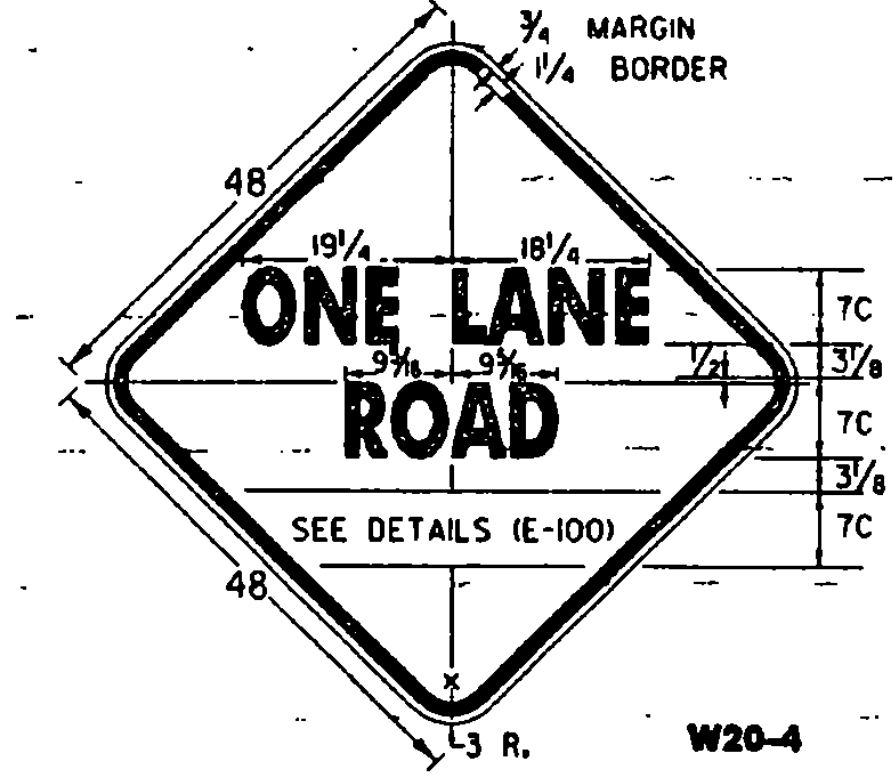
W14-3



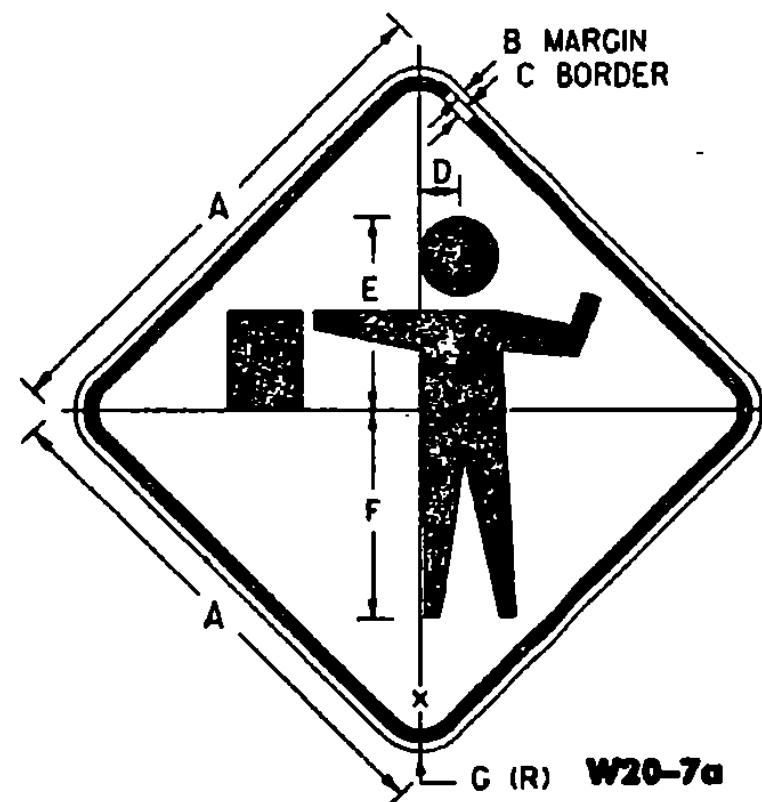
W20-2



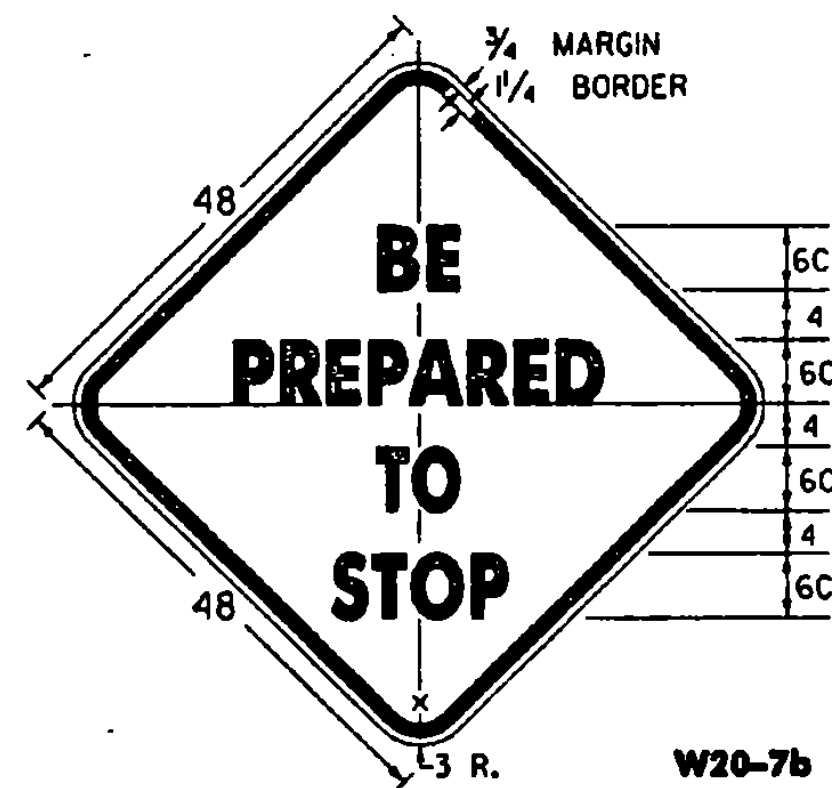
W20-3



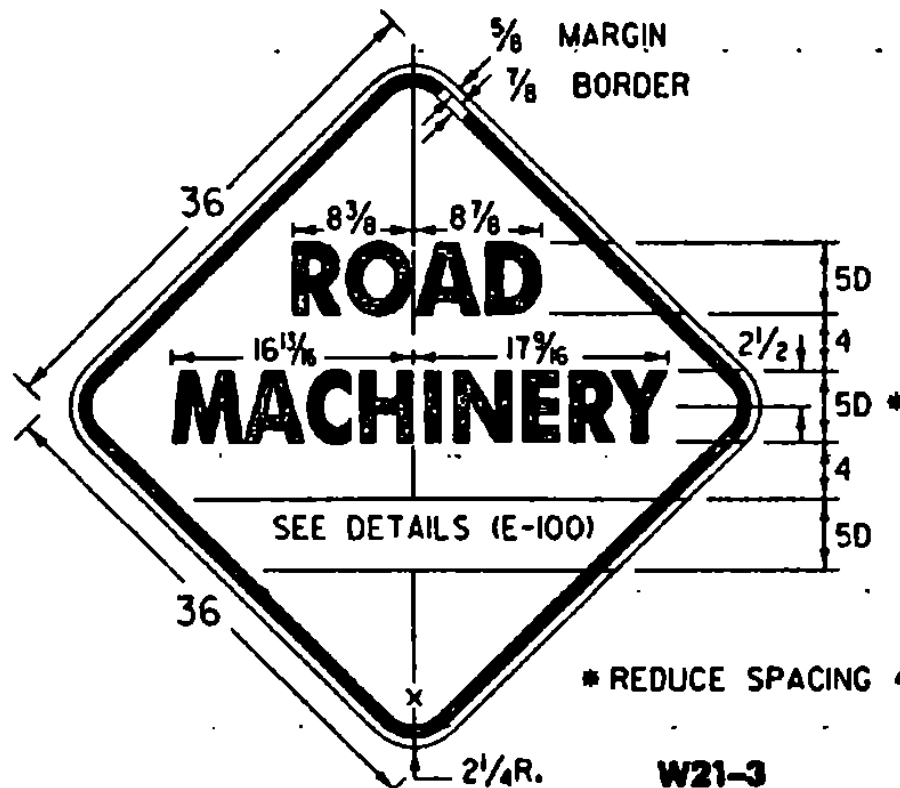
W20-4



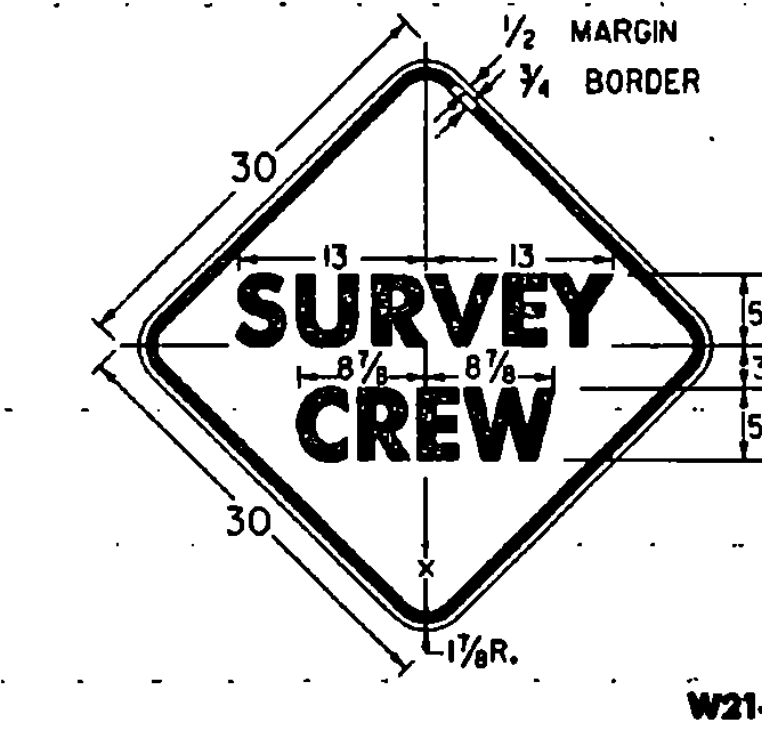
W20-7a



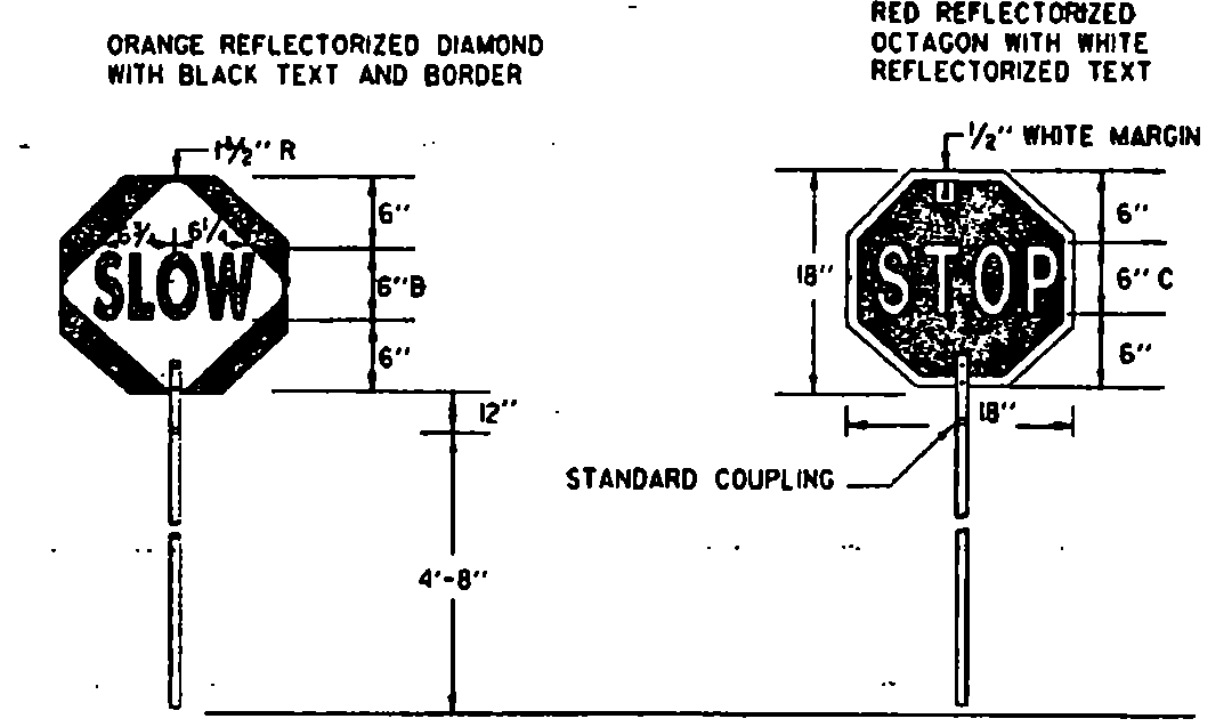
W20-7b



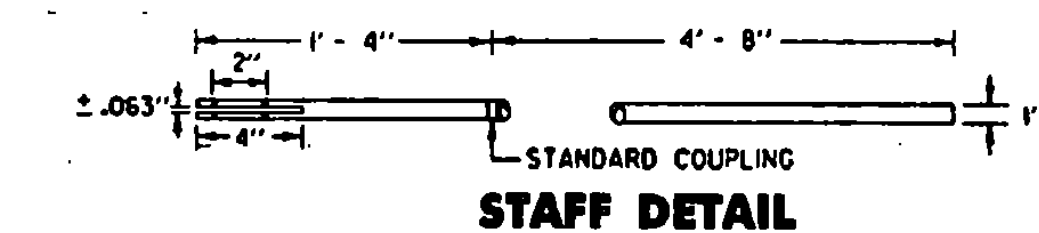
W21-3



W21-6



SIGN DETAIL



STAFF DETAIL

**MATERIALS**  
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.  
THE STAFF SHALL BE 1/2" TO 3/4" DIAMETER RIGID ALUMINUM CONDUIT/TUBING WITH A WALL THICKNESS OF 0.125" OR 1" TO 1 1/2" DIAMETER RIGID PVC CONDUIT/TUBING WITH 0.125" WALL THICKNESS.

**MOUNTING**  
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

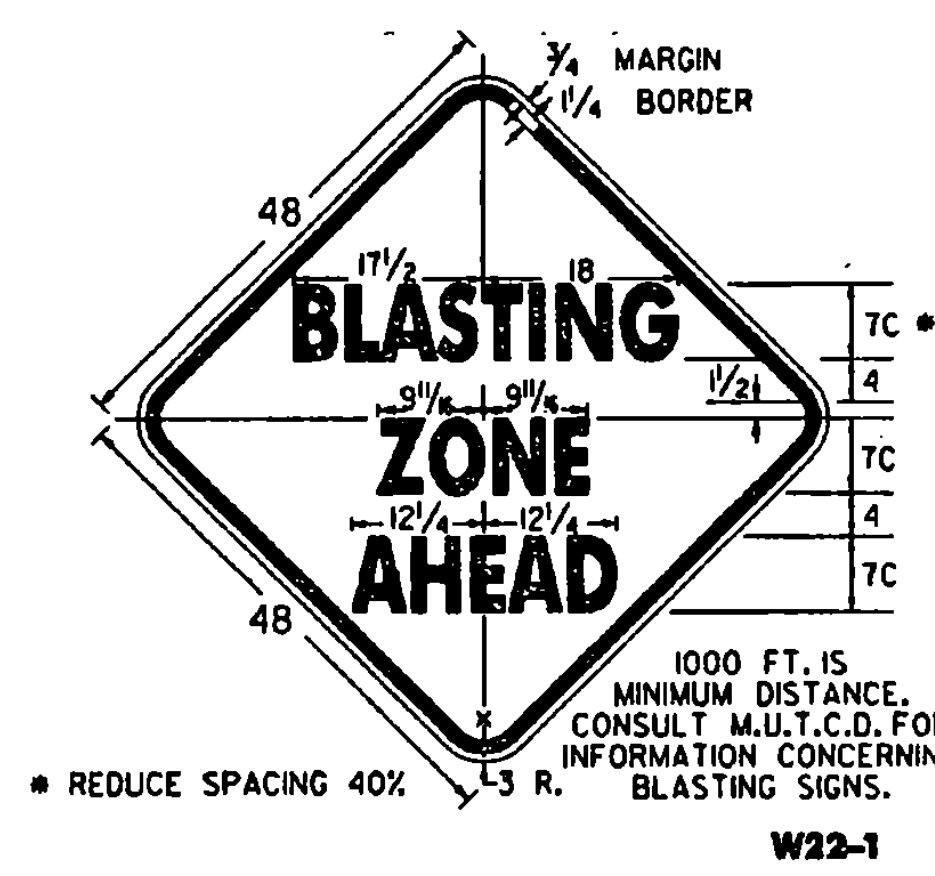
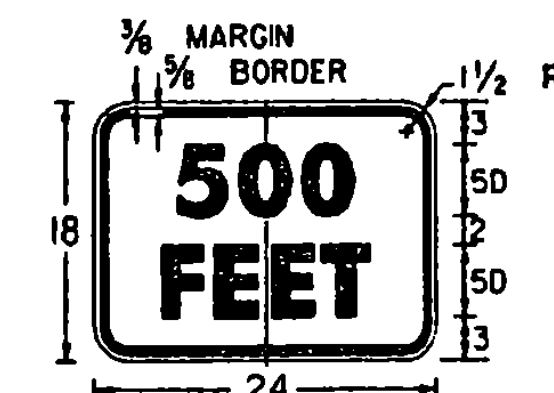
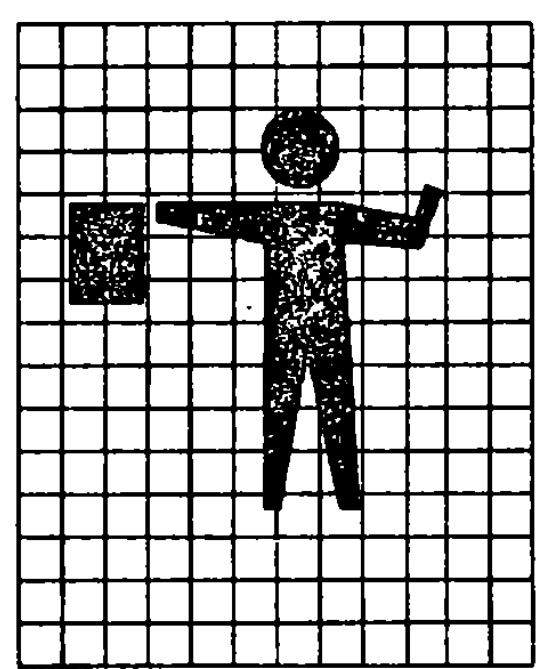
**SIGN PADDLE FOR FLAGPERSON**

**NOTES**

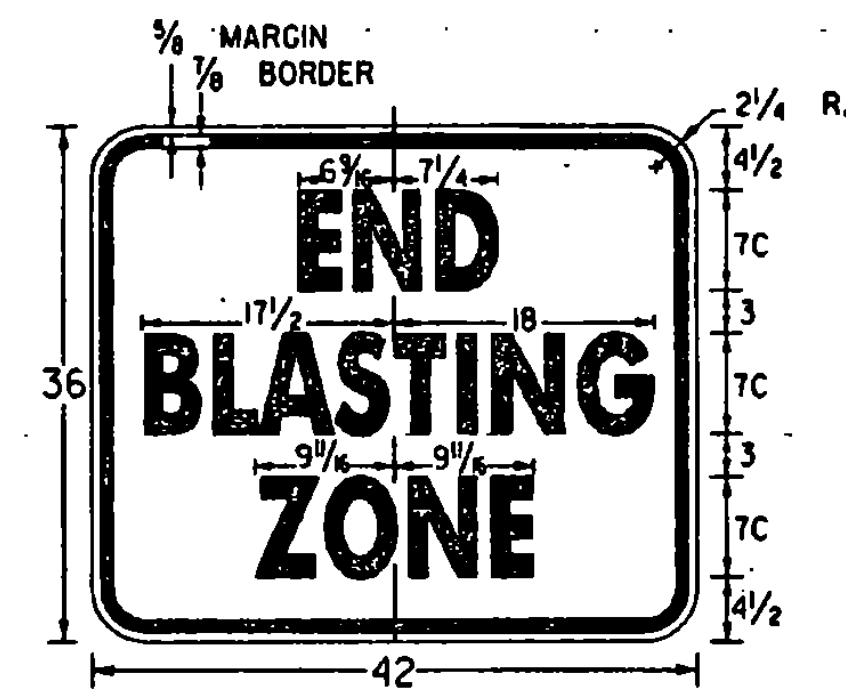
SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS. COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS SHALL BE ON A REFLECTORIZED ORANGE BACKGROUND OF TYPE II B OR TYPE III REFLECTIVE SHEETING, UNLESS OTHERWISE NOTED. THE EXCEPTION IS THE PADDLE SIGN.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

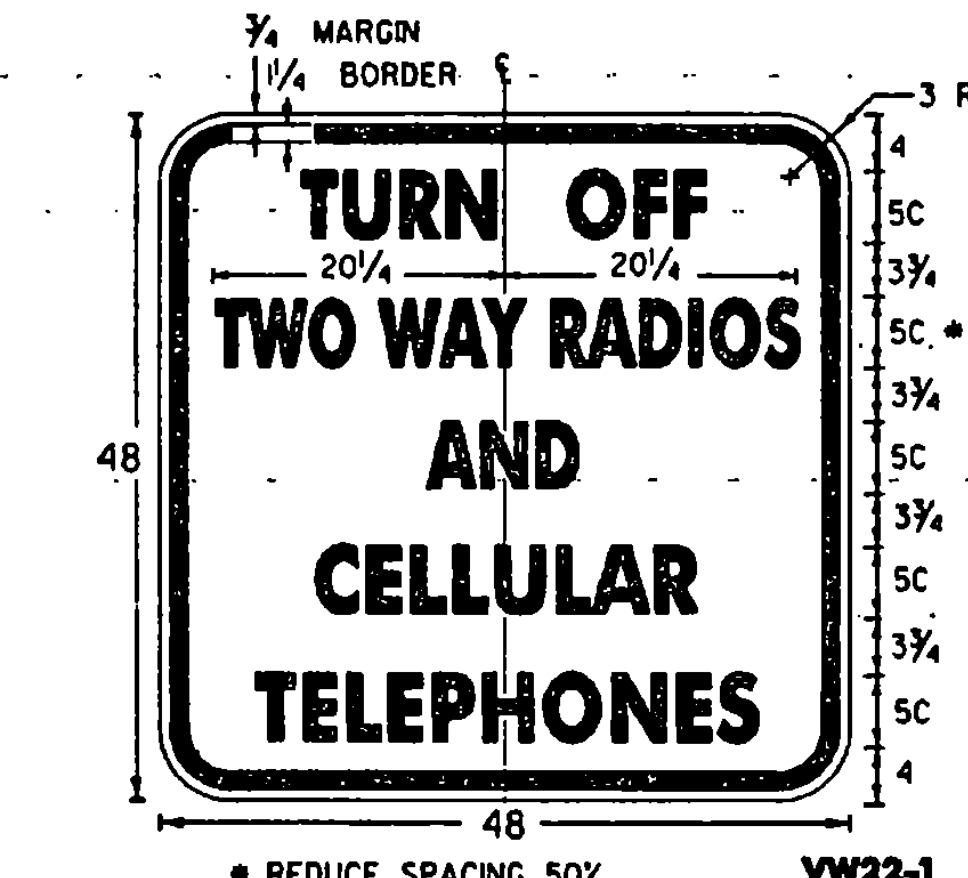
SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED; HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.



W22-1



W22-3



W22-1

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
STD.	36	3/8	3/8	2 1/4	13 1/2	14 3/4	2 1/4
FWY.	48	3/4	1 1/4	3 3/4	18	19 1/2	3

(ALL DIMENSIONS SHOWN IN INCHES)

OTHER STDS. E-100 REQUIRED:

**REVISIONS AND CORRECTIONS**  
OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
JAN. 23, 1989 - DELETE MOTORCYCLE SYMBOL SIGN AND SPEED SIGN, ADDED TWO SIGNS  
OCT. 21, 1992 - ADDED A SIGN, REVISED A SIGN DIMENSION & TYPE ERROR & REVISED TITLE BLOCK  
AUG. 08, 1995 - ADDED FLAGGER GRID

**APPROVED**  
*Stephen D. MacArthur*  
DIRECTOR OF ENGINEERING  
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

**CONSTRUCTION SIGN DETAILS**



**STANDARD E-102**

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**TRAVEL LANE REQUIREMENTS**

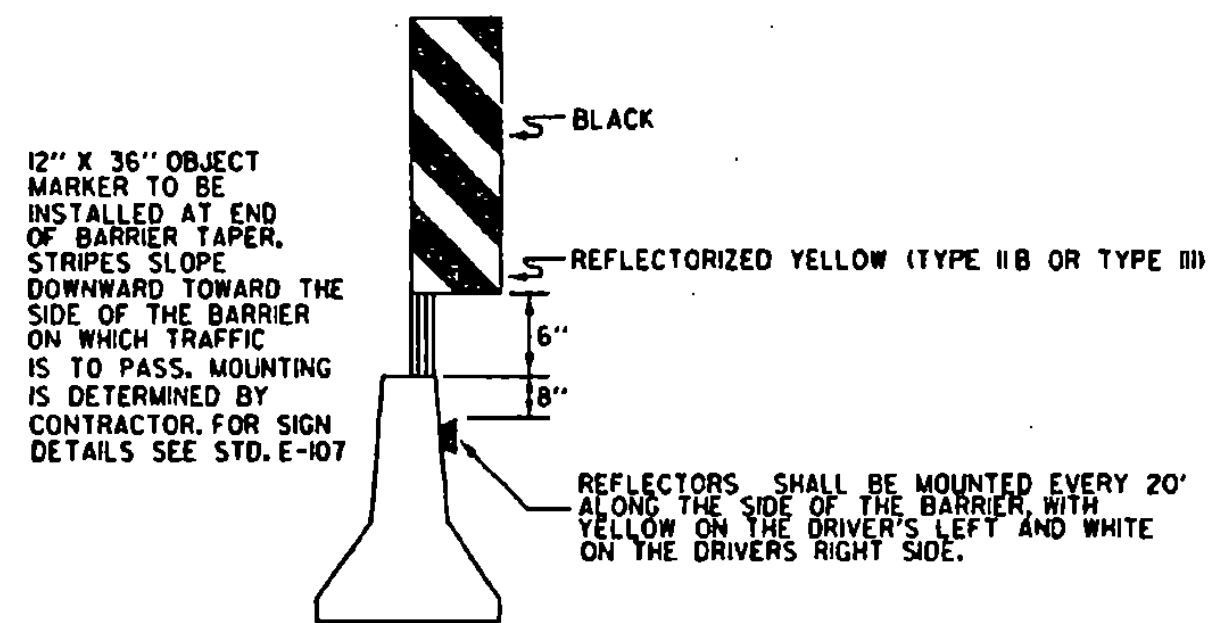
BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGE LINES SHALL BE REMOVED AND NEW TEMPORARY TAPE EDGE LINES APPLIED. THE DRIVER'S LEFT EDGE LINE SHALL BE A MINIMUM OF ONE FOOT, (TWO FEET IS DESIRABLE) FROM BARRIER. TRAVEL LANE SHALL BE 12 FEET WIDE.

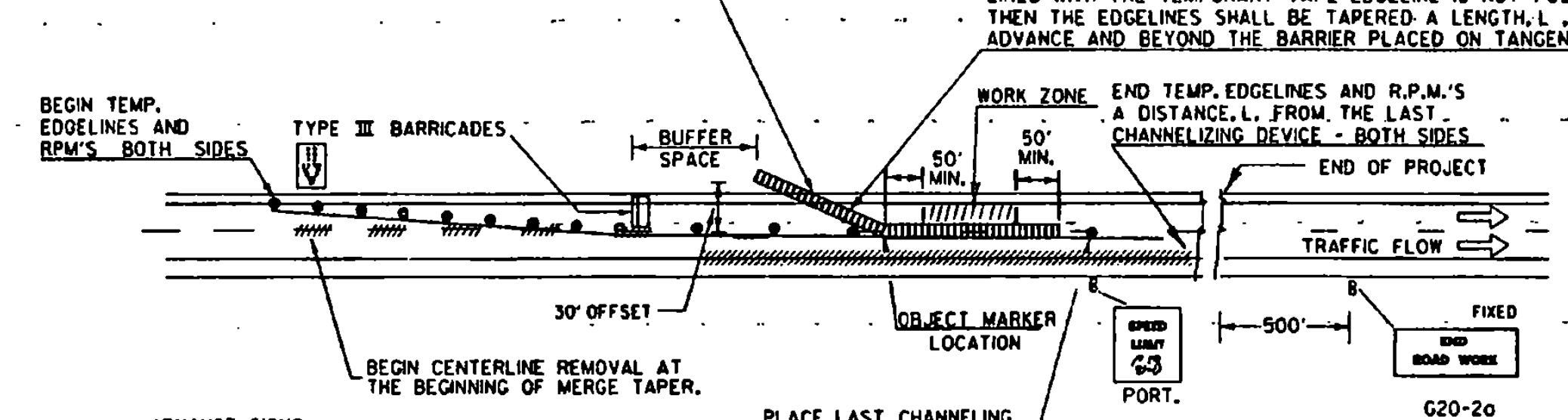
THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM. IT IS SUBSIDIARY TO THE TAPE ITEM.

THE RAISED PAVEMENT MARKERS (RPM'S) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS, THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPARATE RPM'S SHALL NOT BE REQUIRED.



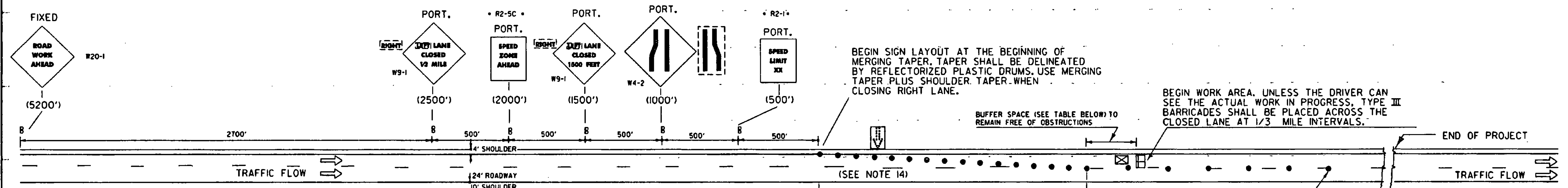
**CONCRETE MEDIAN BARRIER:** PROVIDE A MINIMUM TAPER RATE AS SHOWN IN THE TABLE BELOW, WITH A MINIMUM OF 50 FT. OF TANGENT SECTION ON EACH END OF THE WORK ZONE. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENTS: WHEN NO GUARDRAIL IS PRESENT, USE 30' OFFSET FROM EDGE OF TRAVELLED WAY. IF GUARDRAIL IS PRESENT, THEN CONCRETE BARRIER CAN BE TAPERED TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL. IF A 30' OFFSET IS NOT ATTAINABLE OR TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL, THEN A CRASH ATTENUATOR DESIGNED FOR THE REGULAR SPEED LIMIT OF THE ROADWAY SHALL BE PROVIDED.



**ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION**

**NOTES**

- WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMP, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (UTO'S) SHOULD BE USED TO ASSIST IN CONTROLLING TRAFFIC. SEE STD. E-106 FOR TRAFFIC CONTROL DETAILS.
- ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
- CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
- EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
- CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
- THE "SPEED LIMIT XX" AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
- "REDUCED SPEED AHEAD" SIGNS MAY BE USED IN LIEU OF "SPEED ZONE AHEAD".
- FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL SPEED ZONE ENACTMENT, THE SPEED LIMIT AND REDUCED SPEED LIMIT SIGNS CAN BE SUBSTITUTED WITH ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS.
- ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON APPROPRIATE STANDARD SHEETS.
- PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
- WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
- THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.)
- FOR ANY LONG TERM CLOSURE (GREATER THAN 3 DAYS) EXISTING CENTERLINE SHALL BE REMOVED AND TEMPORARY EDGE LINES PLACED AS SHOWN WITH POSITIVE BARRIER.



BEGIN SIGN LAYOUT AT THE BEGINNING OF MERGING TAPER. TAPER SHALL BE DELINEATED BY REFLECTORIZED PLASTIC DRUMS. USE MERGING TAPER PLUS SHOULDER TAPER WHEN CLOSING RIGHT LANE.

BEGIN WORK AREA, UNLESS THE DRIVER CAN SEE THE ACTUAL WORK IN PROGRESS. TYPE III BARRICADES SHALL BE PLACED ACROSS THE CLOSED LANE AT 1/3 MILE INTERVALS.

PLACE LAST CHANNELIZING DEVICE 100' BEYOND ANTICIPATED TERMINAL POINT OF DAYS WORK OR AS DETERMINED BY THE ENGINEER.

- LEGEND**
- (500) - DENOTES DISTANCE FROM BEGIN MERGE TAPER
  - [Flashing Arrow Panel] - FLASHING ARROW PANEL
  - - REFLECTORIZED PLASTIC DRUM
  - //// - PAVEMENT MARKING REMOVAL
  - [Concrete Barrier] - CONCRETE MEDIAN BARRIER
  - [Type III Barricade] - TYPE III BARRICADE
  - [Truck/Trailer Mounted Attenuator] - TRUCK/TRAILER MOUNTED ATTENUATOR (OPTIONAL)

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSONS AND U.T.O.'S SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BY STEPPING INTO THE LANE TO REDUCE THE DRIVER'S SPEED.

POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER 12' LANE	SHOULDER TAPER W=10'	BARRIER TAPER RATE	BUFFER SPACE (MINIMUMS)
40	320'	90'	9 TO 1	160'
45	540'	150'	11 TO 1	270'
50	600'	170'	11 TO 1	300'
55	660'	190'	13 TO 1	330'
60	720'	200'	13 TO 1	360'
65	780'	220'	-	390'

**TAPER FORMULA:**  
 $L = S \times W$  FOR SPEEDS OF 45 OR MORE.  
 $L = \frac{WS}{60}$  FOR SPEEDS OF 40 OR LESS.  
 WHERE:  
 L = MINIMUM LENGTH OF TAPER.  
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.  
 W = WIDTH OF OFFSET.

**REVISIONS AND CORRECTIONS**

- OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
- JAN. 23, 1989 - FHWA COMMENTS - CHANGE TO 65 M.P.H. TAPER RATES
- OCT. 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
- AUG. 08, 1995 - DELETED AN INVALID NOTE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. ERWA FINAL APPROVAL PENDING.

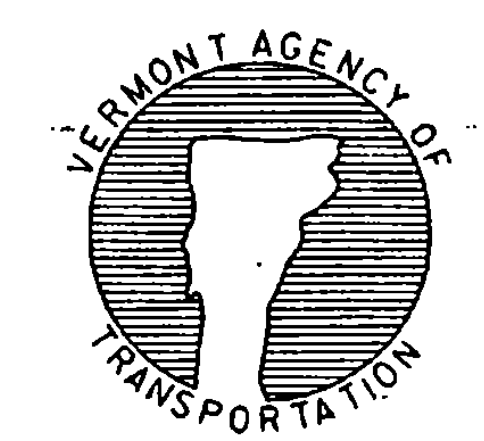
**APPROVED**

*Signature of Director of Engineering*  
 DIRECTOR OF ENGINEERING

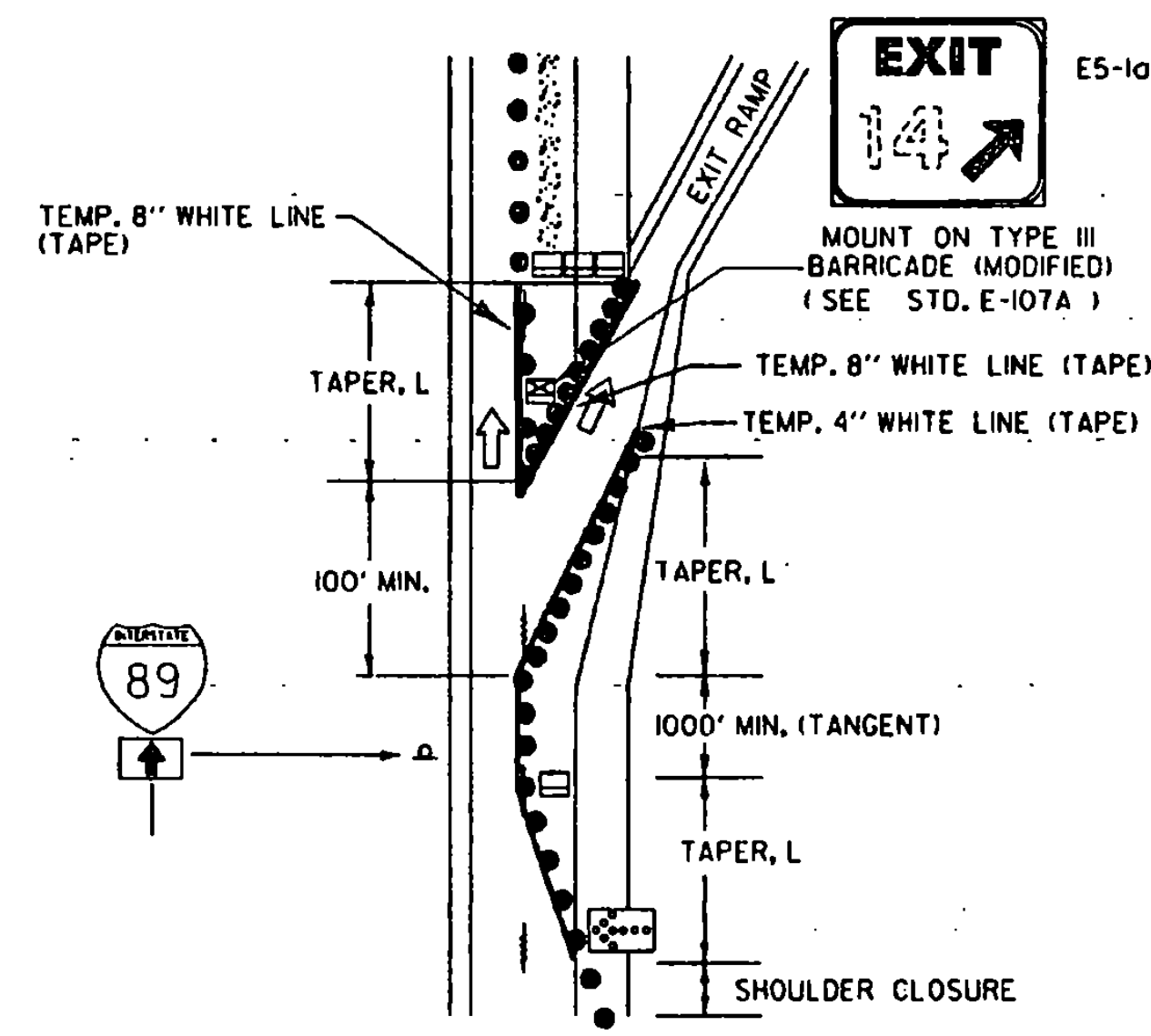
*Signature of Traffic and Safety Engineer*  
 TRAFFIC AND SAFETY ENGINEER

**MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED**

**OTHER STDS. REQUIRED:** E-100 E-101 E-102 E-102A E-107A



**STANDARD E-103**



NOT TO SCALE

**MAINLINE LANE CLOSURE AT AN EXIT RAMP**

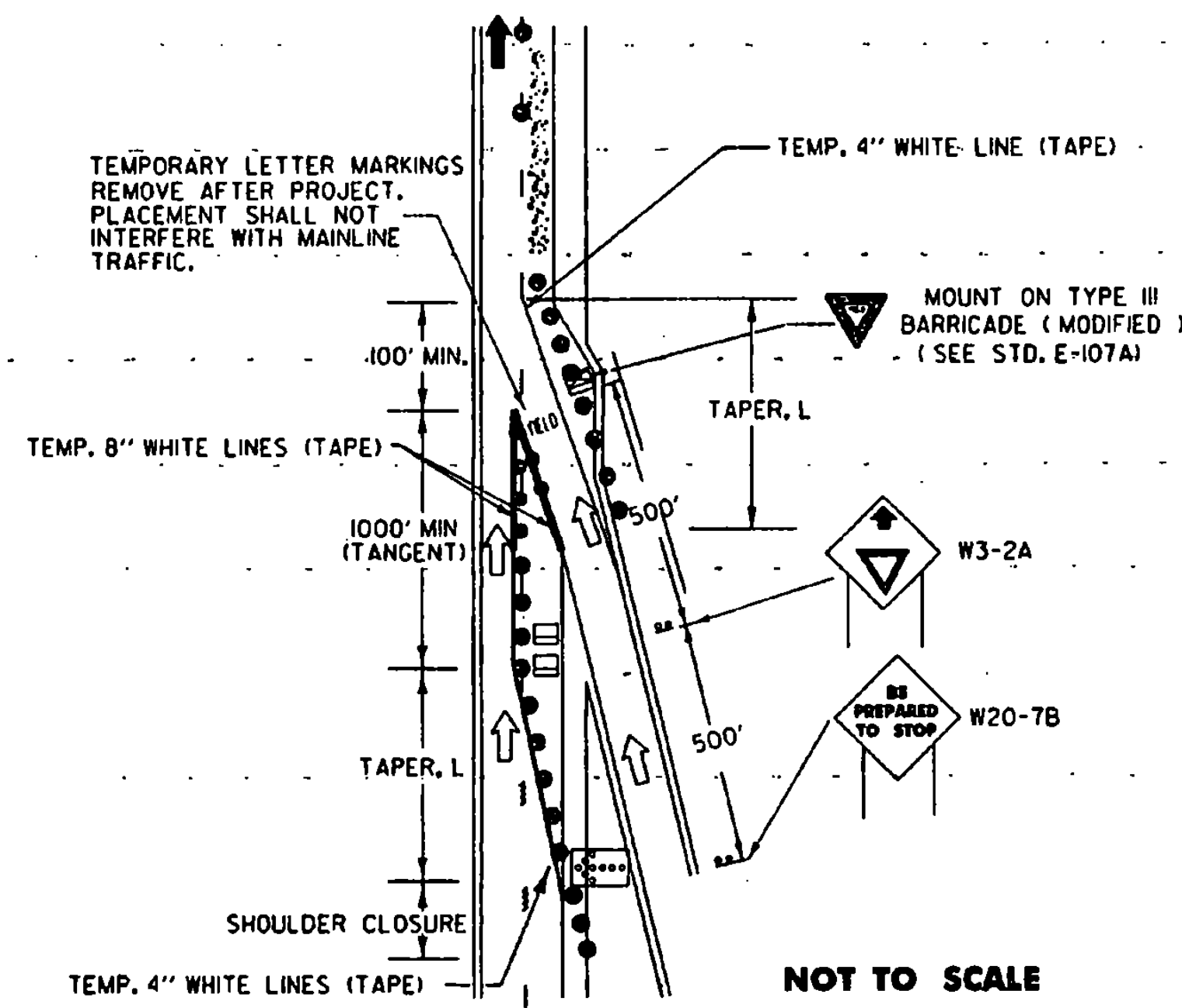
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

**NOTES:**

- 1) ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
- 2) CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:  
TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF "S" (THE SPEED LIMIT IN FEET) APART.  
TANGENT - DEVICES SHALL BE SPACED 2 X "S" (THE SPEED LIMIT IN FEET) APART.
- 3) ALL DISTANCES ARE DESIRABLE MINIMUMS FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
- 4) TAPER RATES ARE BASED ON THE POSTED MAINLINE AND EXIT SPEEDS.
- 5) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
- 6) LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON STANDARD E-103.
- 7) EXIT SIGN SHALL BE MOUNTED A MINIMUM OF 3' ABOVE THE GROUND AND HIGH ENOUGH TO BE SEEN ABOVE CHANNELIZING DEVICES.

**LEGEND**

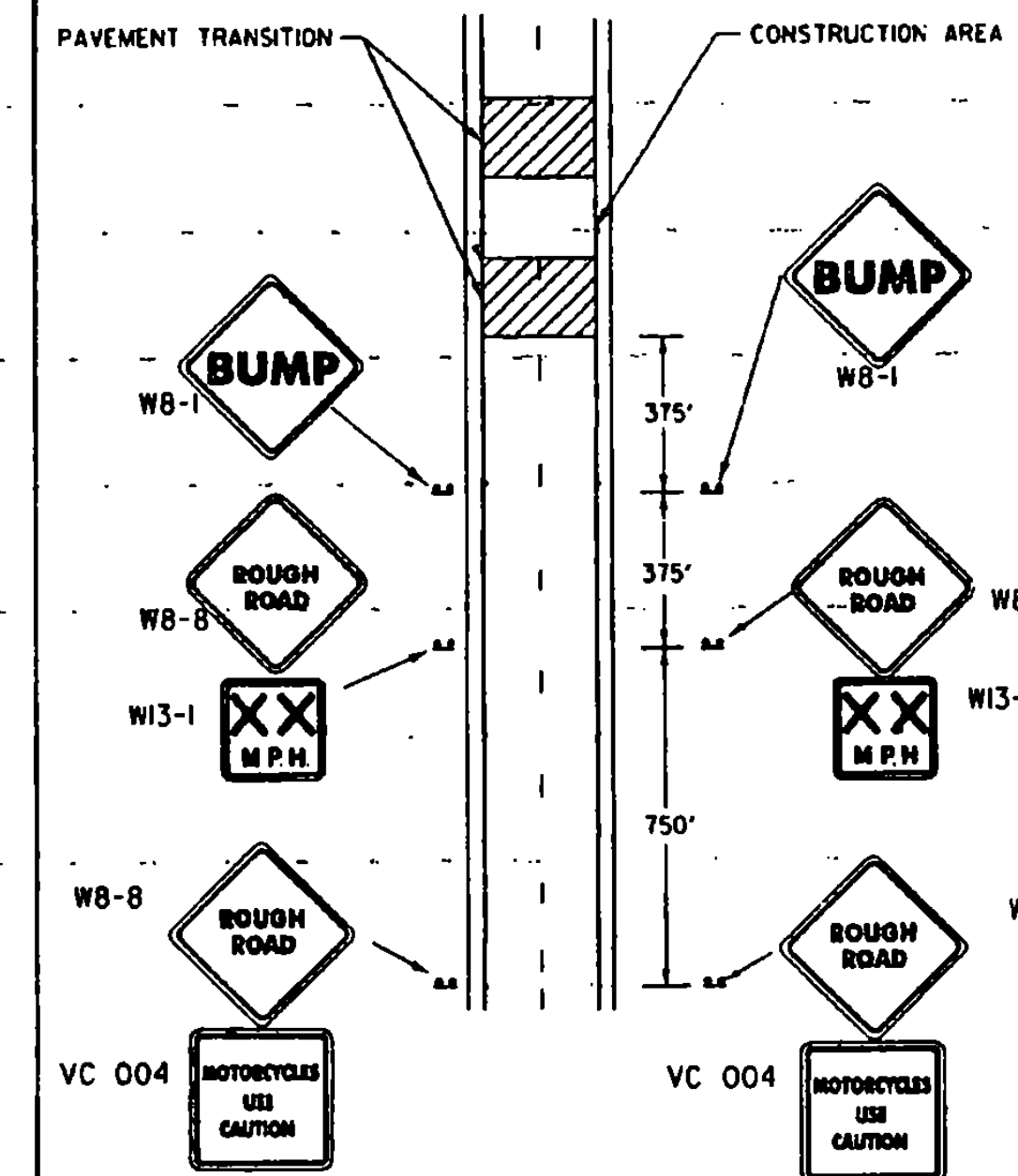
- REFL. 28" CONES
- REFL. PLASTIC DRUMS
- PAVEMENT MARKING REMOVAL
- ↑ INDICATES TRAFFIC FLOW
- ▭ WORK AREA
- ▭ FLASHING ARROW PANEL
- ▭ TYPE III BARRICADES
- ▭ TYPE III BARRICADES (MOD.)



NOT TO SCALE

**MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP**

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.  
IF THE LENGTH OF THE ACCELERATION LANE IS NOT ADEQUATE, THE YIELD SIGN SHALL BE REPLACED WITH A STOP SIGN. IF A STOP SIGN IS USED, IT SHOULD BE ACCOMPANIED BY A STOP BAR.

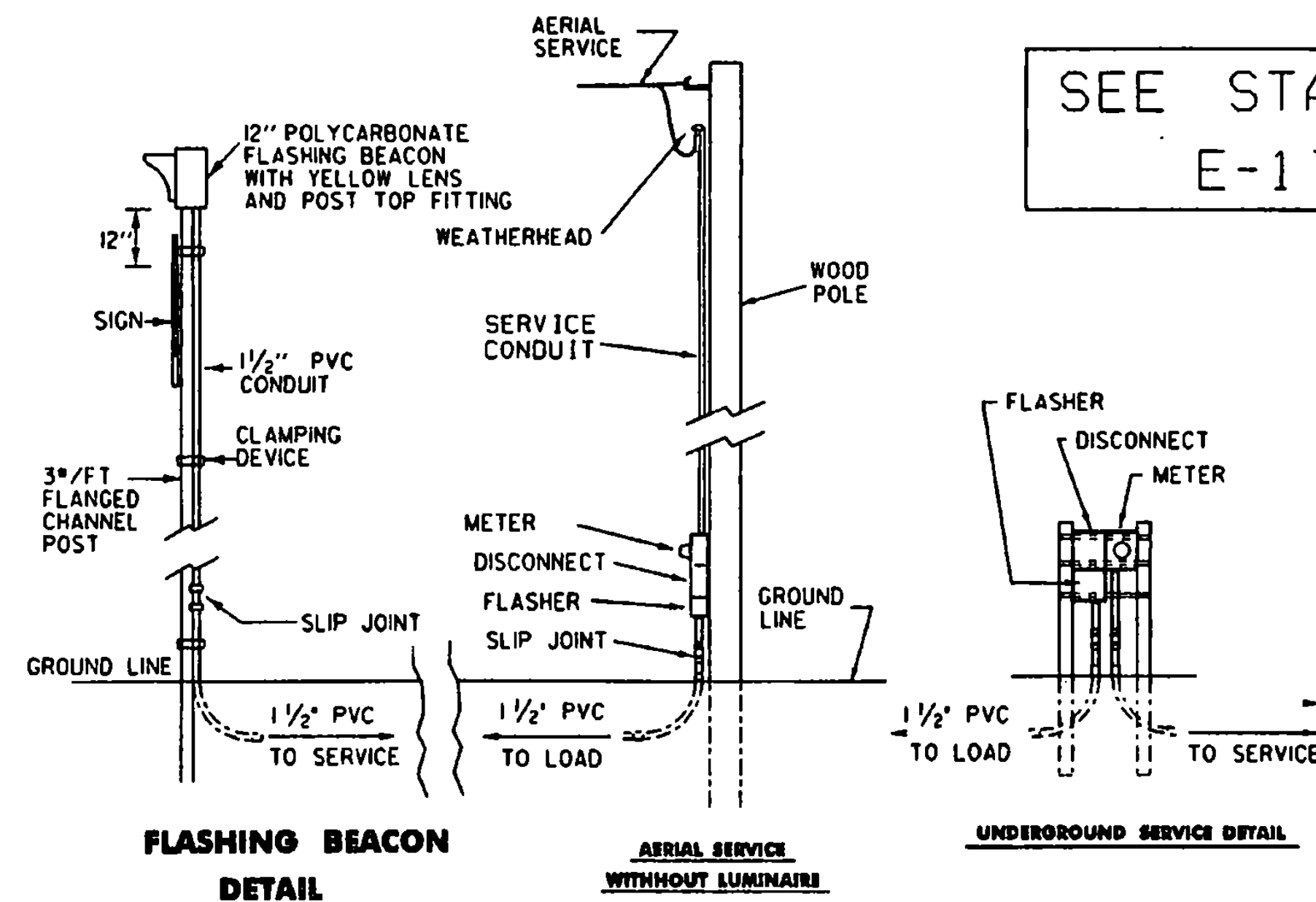


**NOTES:**

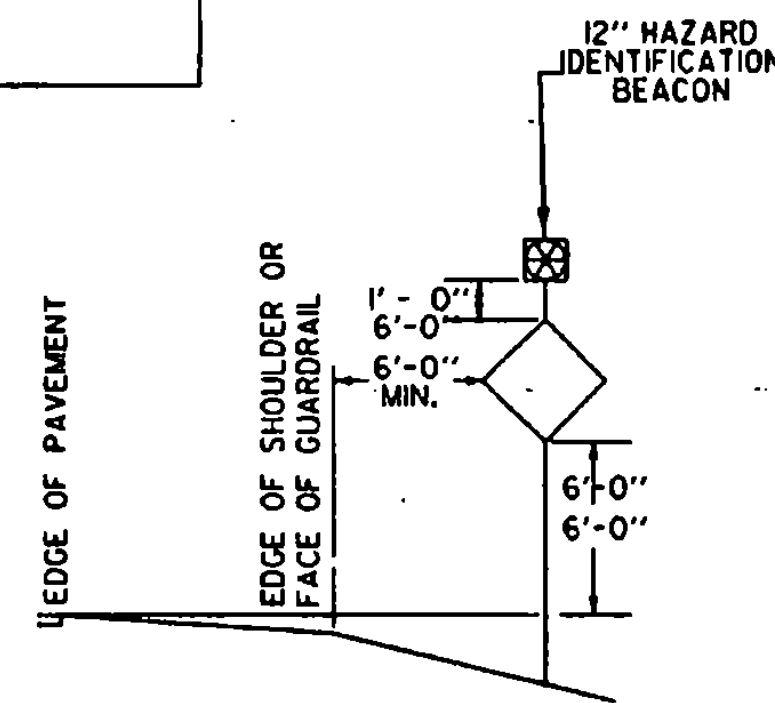
- 1) ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER (40 M.P.H. MINIMUM RECOMMENDED)
- 2) SIGNS MOUNTED ON FIXED POSTS (YIELDING TYPE)
- 3) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
- 4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP, WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD.E-103.

NOT TO SCALE

**ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES.**



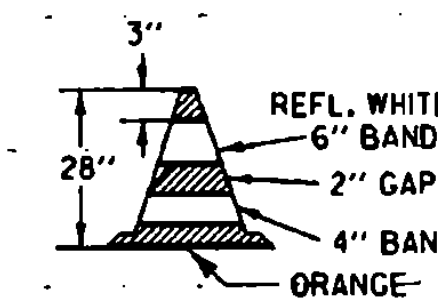
SEE STANDARD E-175



**SIGN PLACEMENT DETAIL**

**NOTES:**

- 1.) AT THE CONTRACTOR'S OPTION:  
A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).  
B. POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.  
C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
- 2.) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO-INTERFERENCE FILTER.
- 3.) BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
- 4.) BOTTOM OF THE BEACON SHALL BE A MIN. OF 8'-0" AND A MAX. OF 12'-0" ABOVE THE EDGE OF THE PAVEMENT.
- 5.) FOR URBAN AREA PLACEMENT SEE STD. E-121.

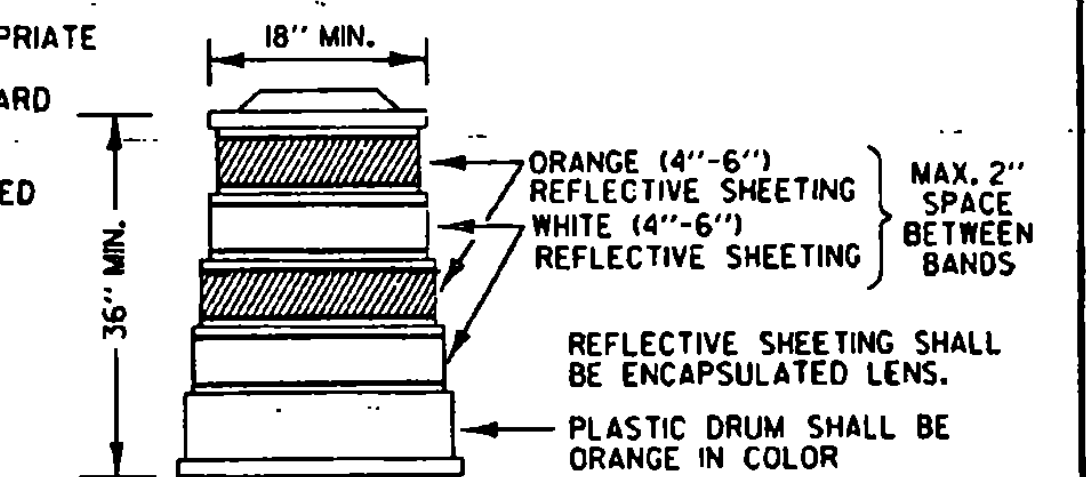


**NOTES:**

- 1.) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
- 2.) CONES MAY BE WEIGHTED TO PREVENT OVERTURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
- 3.) REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

**28" REFLECTORIZED CONE**

SAND BAGS OR AN APPROPRIATE BALLASTING DEVICE, WHICH DOES NOT PRESENT A HAZARD TO THE IMPACTING VEHICLE OR BECOME A PROJECTILE UPON IMPACT, SHALL BE USED TO WEIGHT DRUMS.



**REFLECTORIZED PLASTIC DRUM**

OTHER STDS. E-101 E-102A E-107A E-150  
REQUIRED: E-102 E-103 E-136 E-175

**REVISIONS AND CORRECTIONS**

- APR 12, 1988 - DATE OF ORIGINAL ISSUE
- JAN 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER
- SEPT 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD) TO STD-E-107A
- AUG 08, 1995 - REVISED BEACON SIZE

**APPROVED**

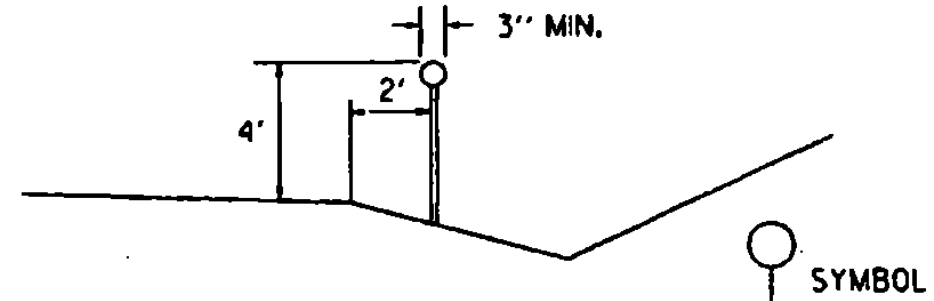
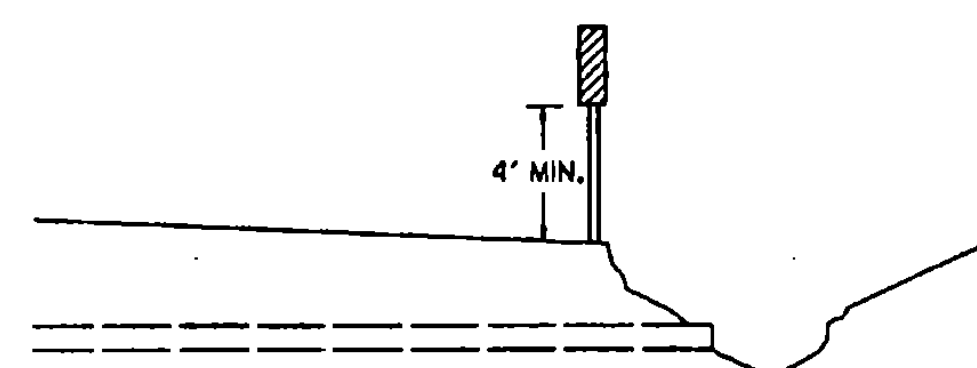
*Stephen D. McCall*  
DIRECTOR OF ENGINEERING  
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

**TRAFFIC CONTROL MISCELLANEOUS DETAILS**

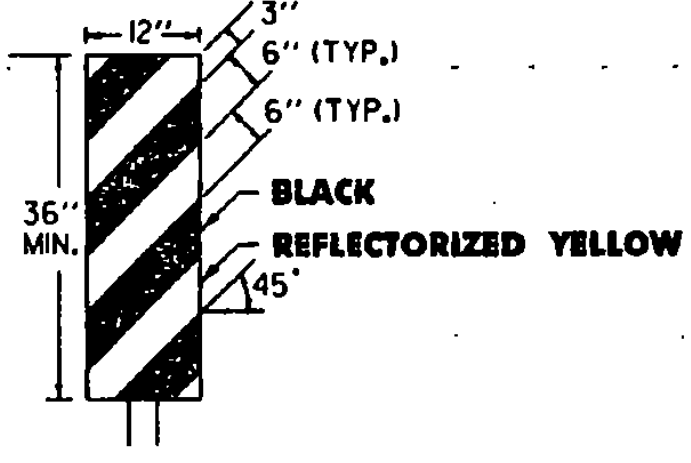


**STANDARD E-106**

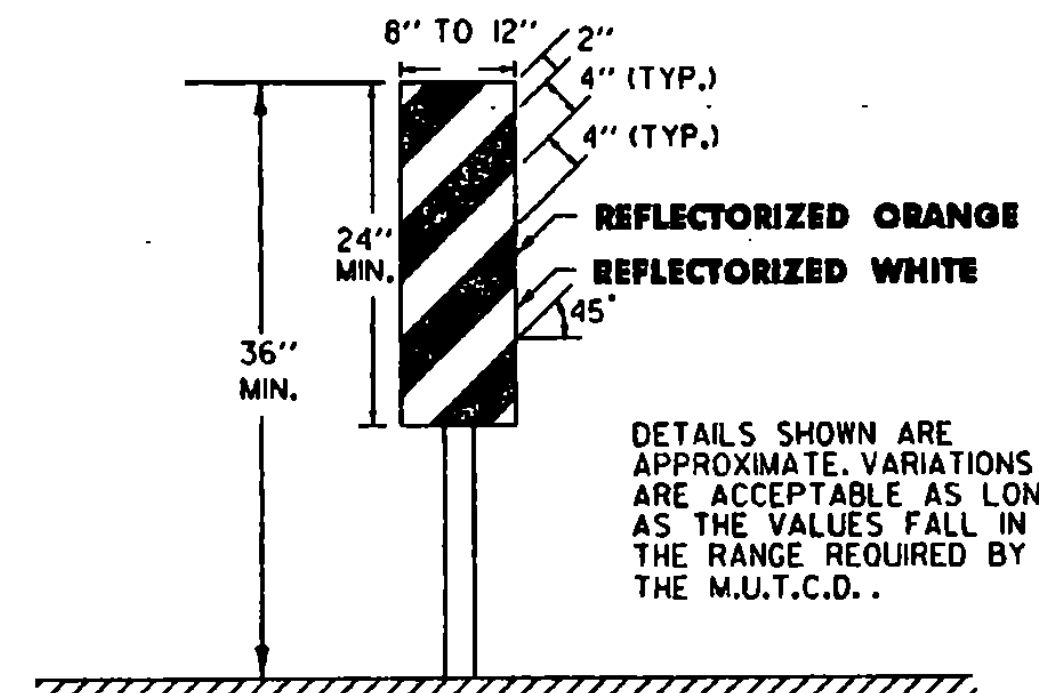
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



**DELINEATOR TYPICAL**  
 DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.



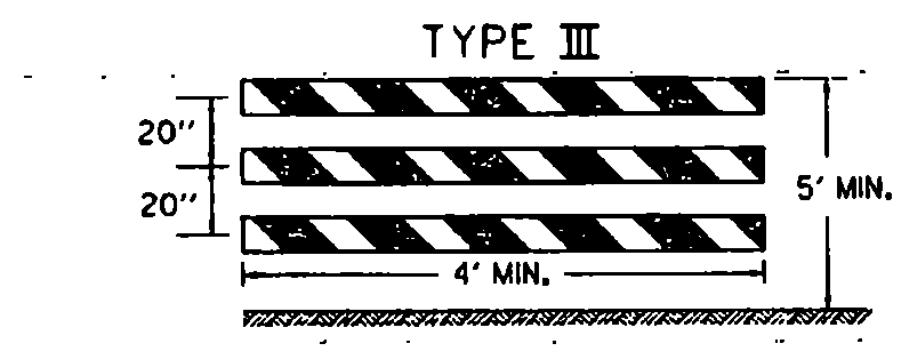
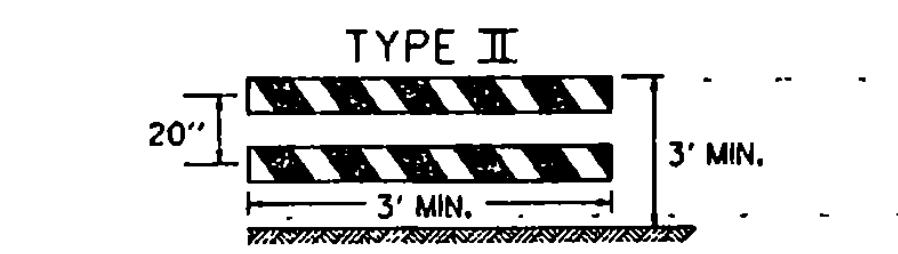
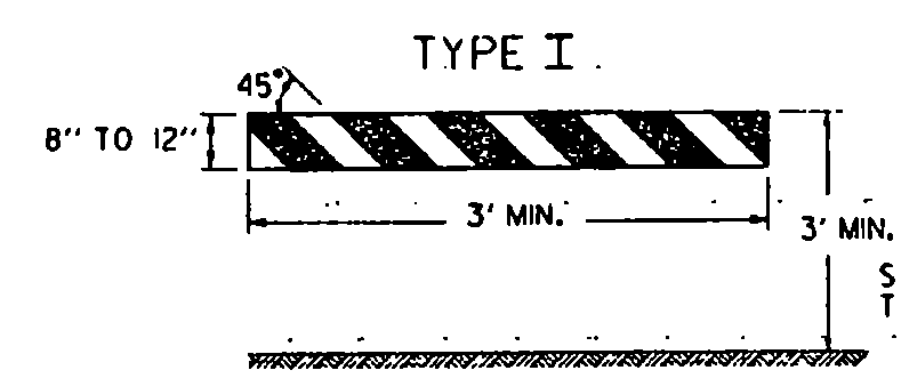
**OBJECT MARKER TYPICAL**  
 OBJECT MARKERS ARE USED TO MARK OBSTRUCTIONS WITHIN OR ADJACENT TO THE ROADWAY. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED, BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS, AND ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE. OBJECT MARKERS SHALL HAVE ALTERNATING BLACK AND REFLECTORIZED YELLOW STRIPES. (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).



**VERTICAL PANEL**  
 VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION, CHANNELIZING OR BARRICADING WHERE SPACE IS AT A MINIMUM.

**DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED**

ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING REQUIREMENTS FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.



A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

BARRICADE CHARACTERISTICS			
	I	II	III
WIDTH OF RAIL	8" MIN. 12" MAX.	8" MIN. 12" MAX.	8" MIN. 12" MAX.
LENGTH OF RAIL	3' MIN.	3' MIN.	4' MIN.
WIDTH OF STRIPES	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	SEE E-107A	SEE E-107A	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND ORANGE AND WHITE	ORANGE AND ORANGE AND WHITE	ORANGE AND ORANGE AND WHITE

**BARRICADE CHARACTERISTICS**

DETOUR DESIGN SPEED (M.P.H.)	MINIMUM RADIUS (FT.) <sup>a</sup>				
	SUPERELEVATION (FT./FT.)				
	0.00 <sup>b</sup>	0.02	0.04	0.06	0.08
20	160	140	130	120	110
25	245	220	200	185	170
30	375	335	305	275	255
35	510	455	410	375	340
40	715	630	575	510	470
50	1190	1045	955	850	765

a. PER AASHTO REQUIREMENTS  
 b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE

**BARRICADES**

**APPLICATION NOTES**

TYPE I BARRICADES SHALL BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.  
 TYPE II BARRICADES SHALL BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS TYPE I BARRICADES.  
 TYPE III BARRICADES (SEE STD. E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION OR LANE IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

**MATERIALS**

THE BARRICADES SHOWN ON THIS SHEET SHOULD BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY:

- WOODEN BARRICADES (TYPE I AND II)
  - SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 M.P.H. ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
  - MAY BE USED WHERE OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
- TYPE III WOODEN BARRICADES SHALL NOT BE USED.

**COLORS**

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE AN ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

**REFLECTORIZATION**

THE REFLECTIVE SHEETING ON BARRICADE PANELS SHALL BE TYPE III.

**LOCATION**

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE RESIDENT ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS OTHERWISE NOTED.

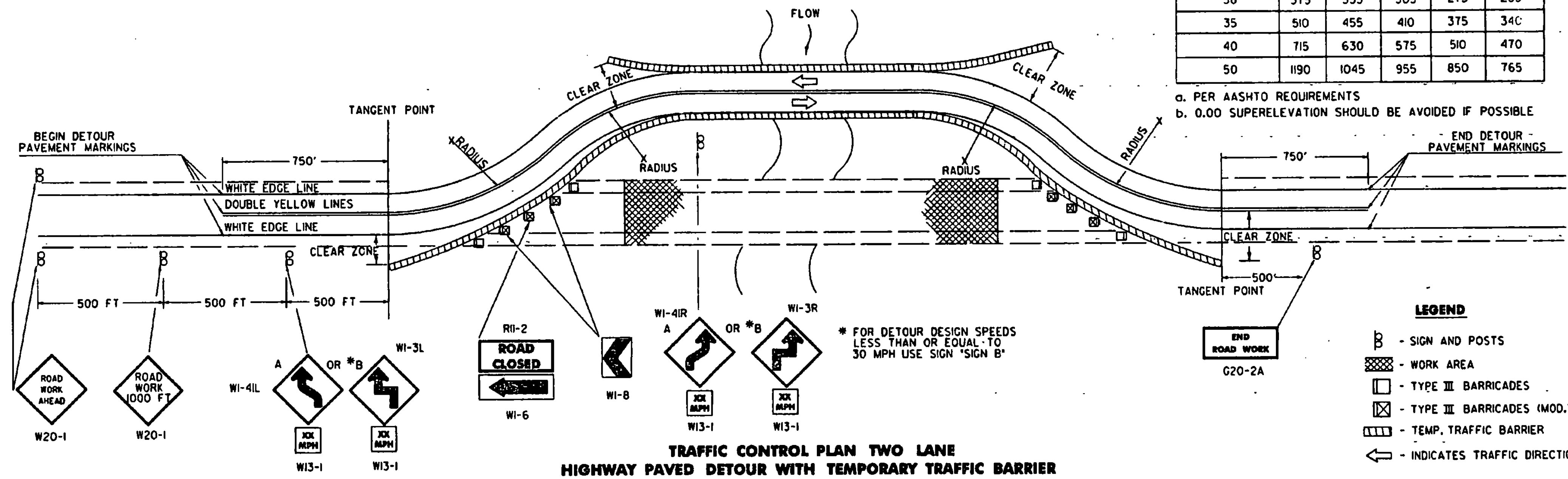
**MAINTENANCE**

BARRICADES SHALL BE MAINTAINED IN CLEAN CONDITION, SATISFACTORY TO THE RESIDENT ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO THE APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE RESIDENT ENGINEER.

**DETOUR NOTES**

- SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.
- THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
- ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.
- UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.
- THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).
- AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
- THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.
- SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.
- IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

OTHER STDS. REQUIRED:	E-100 E-101	E-102 E-102a	E-107a
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**TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER**

**REVISIONS AND CORRECTIONS**

- SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
- APRIL 29, 1988 - FHWA REVIEW COMMENTS
- SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER
- AUG. 08, 1995 - REVISED SIGNING PER MUTCD

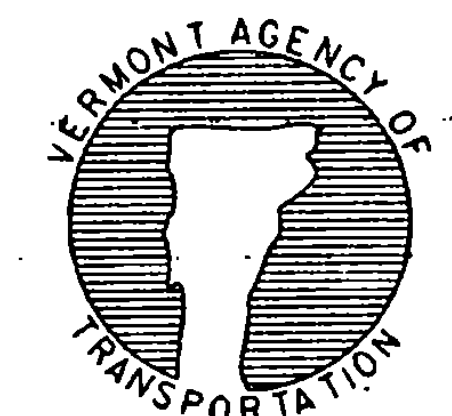
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

**APPROVED**

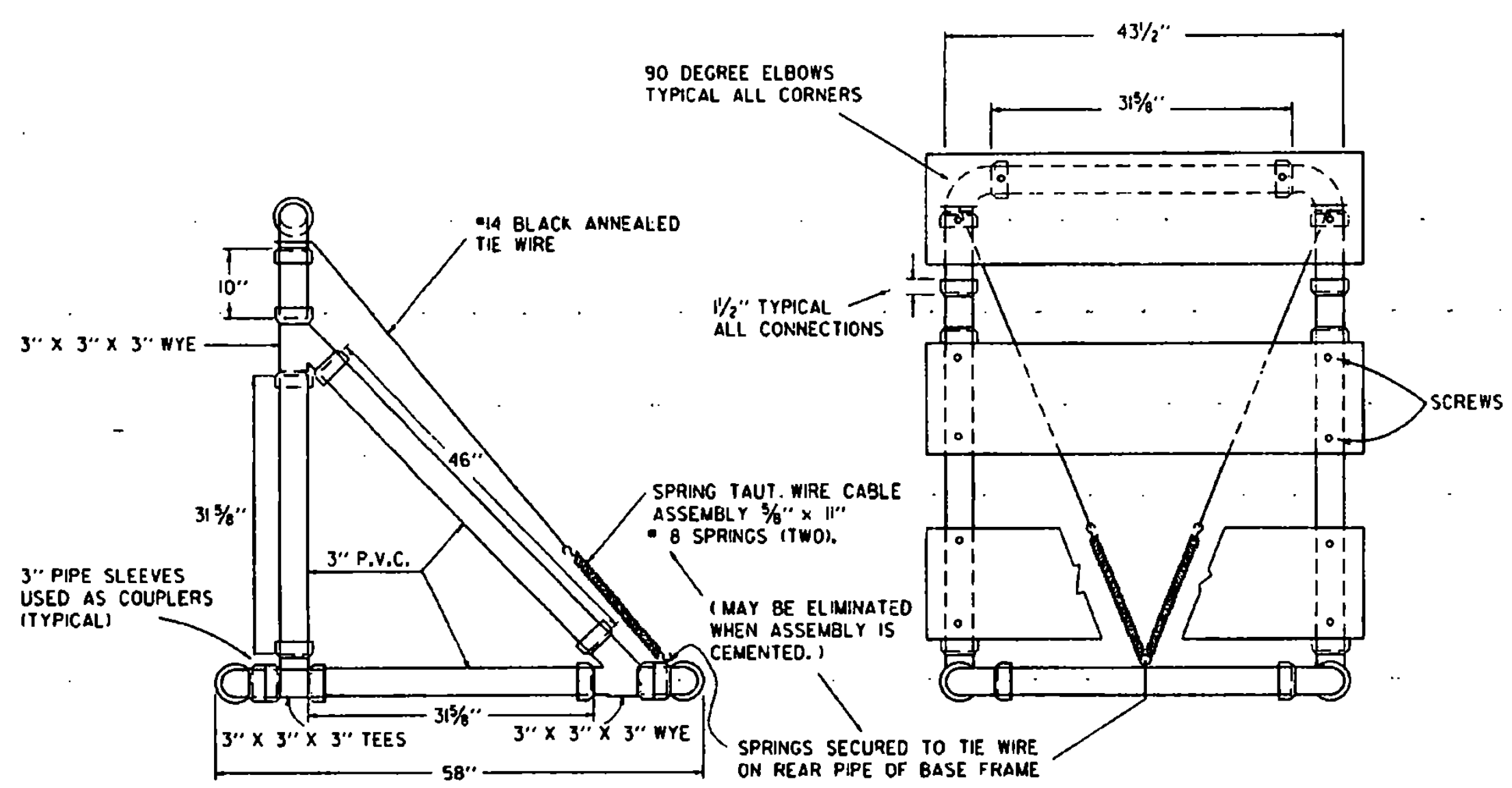
*Sharon M. McArthur*  
 DIRECTOR OF ENGINEERING

*David A. Ross*  
 TRAFFIC AND SAFETY ENGINEER

**DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS**

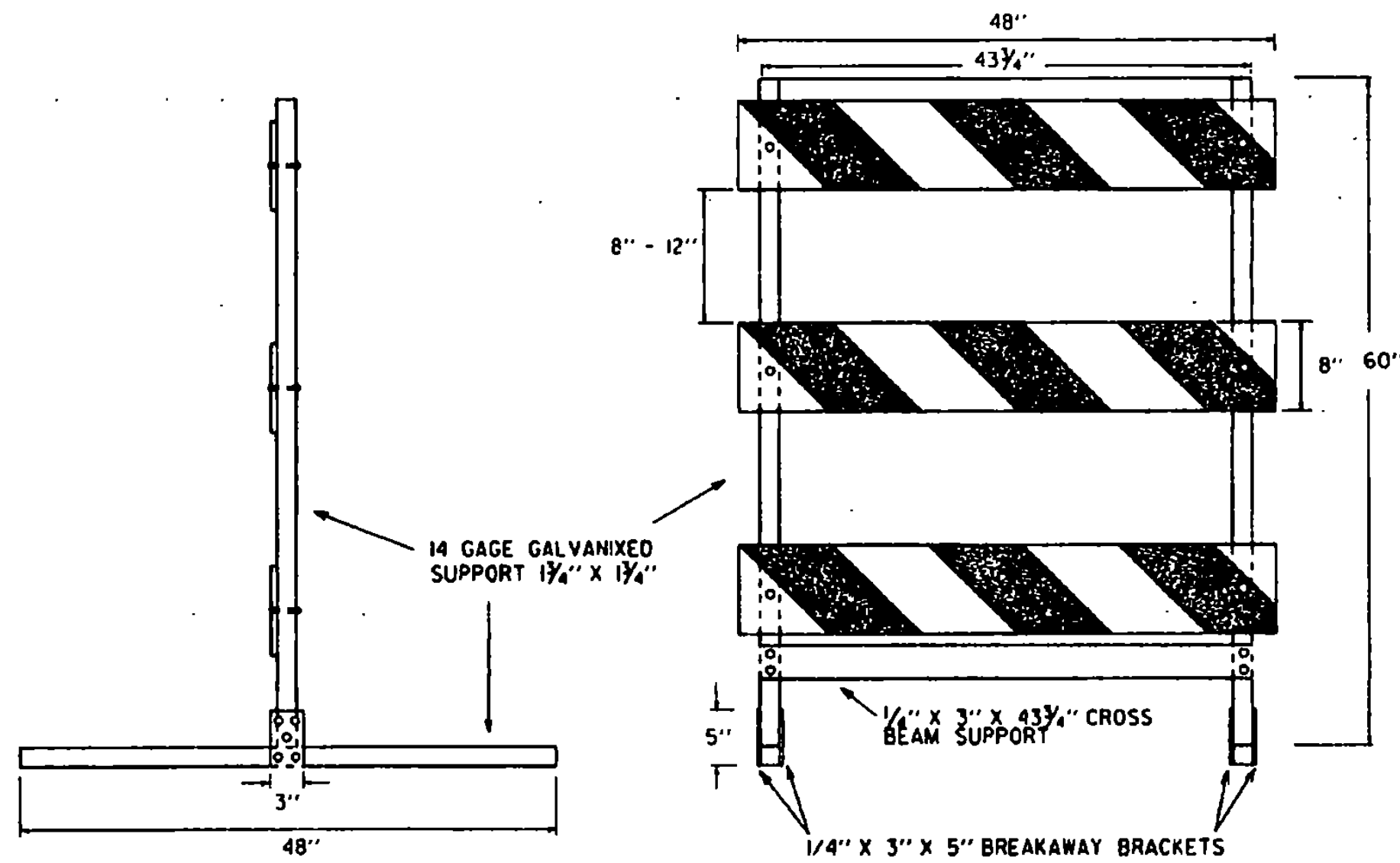


**STANDARD E-107**



**SIDE VIEW  
TYPE III BARRICADE**

**FRONT VIEW  
TYPE III BARRICADE**



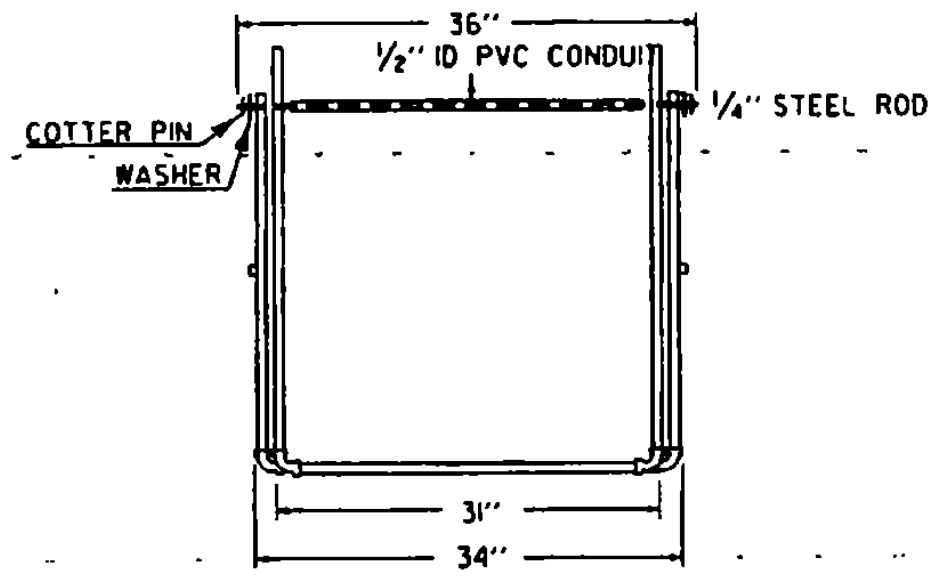
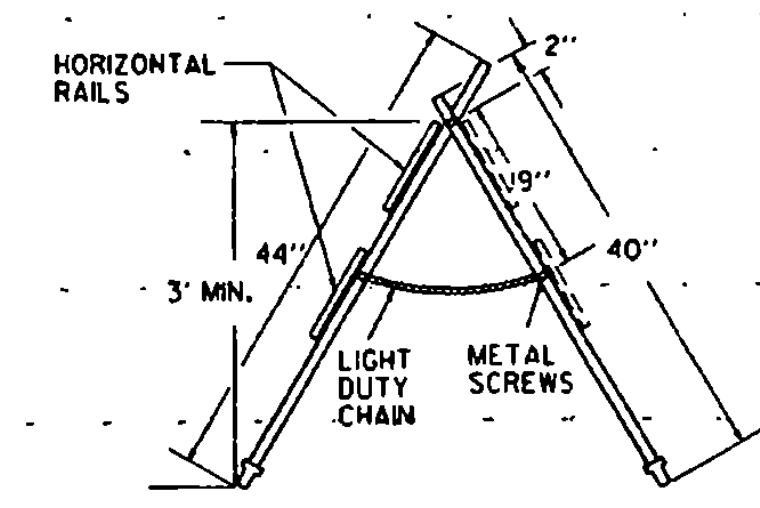
**SIDE AND FRONT VIEW OF TYPE III METAL BARRICADE**

**MATERIALS FOR TYPE I AND II BARRICADES**

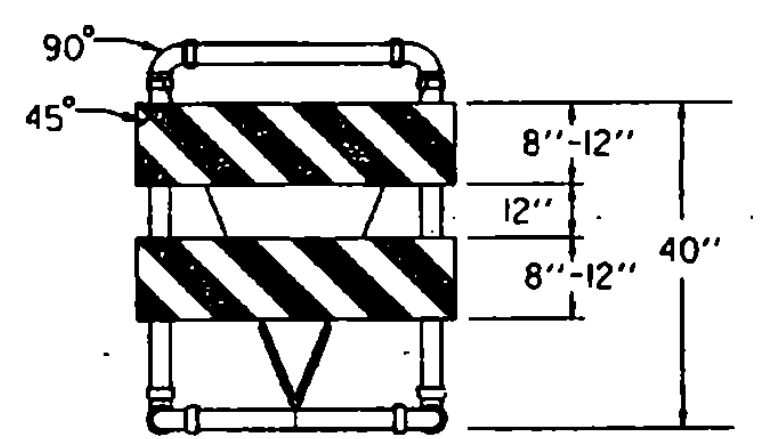
- 20' - 1" PVC
- 4 - 1" PVC 90° ELBOWS
- 30" - 1/2" ID THINWALL PVC CONDUIT
- 36" - 1/4" STEEL ROD
- 4 - 1" WASHERS
- 24" - LIGHT DUTY CHAIN
- 1/2" - #14 PAN HEAD METAL SCREWS (AS REQUIRED)
- 2 - 3/4" COTTER PINS
- 2 OR 4 - 8" OR 12" X 36" X 0.025" BARRICADE RAILS (AS REQUIRED)

**MATERIALS FOR TYPE III BARRICADES**

- 30 LF - 3" I.D. PVC PIPE
- 6 - 3" 90° ELBOWS
- 2 - 3" TEES
- 4 - 3" WYES
- 3 - 8" OR 12" X 48" X 0.025" BARRICADE RAILS
- 2 - 5/8" X 11" #8 SPRING (IF ASSEMBLY IS NOT CEMENTED)
- 12 - 1" #14 PAN HEAD METAL SCREWS (IF ASSEMBLY IS NOT CEMENTED)
- 15 LF - 1/4" BLACK ANNEALED TIE WIRE (IF ASSEMBLY IS NOT CEMENTED)



**TYPE I AND TYPE II BARRICADE**



**TYPE III (MODIFIED) BARRICADE  
(STRIPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT)**

**MATERIALS FOR METAL TYPE III BARRICADES**

- PANELS (3): 8' X 48" GALVANIZED STEEL, COVERED 1 OR 2 SIDES WITH WHITE/ORANGE, DIAGONALLY STRIPED REFLECTIVE SHEETING
- VERTICAL SUPPORTS (2): 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 60"
- HORIZONTAL SUPPORTS (2): 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 48"
- CROSS BEAM SUPPORT (1): COLD GALVANIZED STEEL 1/4" X 3" X 43 3/4"
- BREAKAWAY BRACKETS (4): COLD GALVANIZED STEEL 1/4" X 3" X 5"
- FASTENERS: 6 - SHEAR BOLTS WITH LOCK NUTS 1/4" D X 2 3/4" 4 - FULCRUM BOLTS WITH LOCK NUTS 3/8" D X 2 3/4" 4 - FASTENER BOLTS WITH LOCK NUTS 3/8" D X 2 3/4" 6 - PANEL BOLTS WITH LOCK NUTS AND WASHERS 1/4" D X 2"
- ALL FASTENERS GALVANIZED STEEL. ALL BOLTS HEX HEAD.

**MATERIALS**

THE PIPE, WYES, TEES AND ELBOWS USED TO CONSTRUCT BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2241 FOR P.V.C. 1120 OR 1220 SDR-21. PRESSURE RATING 200 PSI. THE WYES, TEES AND ELBOWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2466, TYPE II, GRADE 1. ALL JOINTS SHALL BE SLIP-FIT AND MAY BE LIGHTLY CEMENTED. THE BARRICADE RAILS SHALL BE FABRICATED FROM 0.025" ANODIZED ALUMINUM AND SHALL HAVE REFLECTORIZED ALTERNATING ORANGE AND WHITE STRIPES (SLOPING DOWNWARD AT AN

**MAINTENANCE**

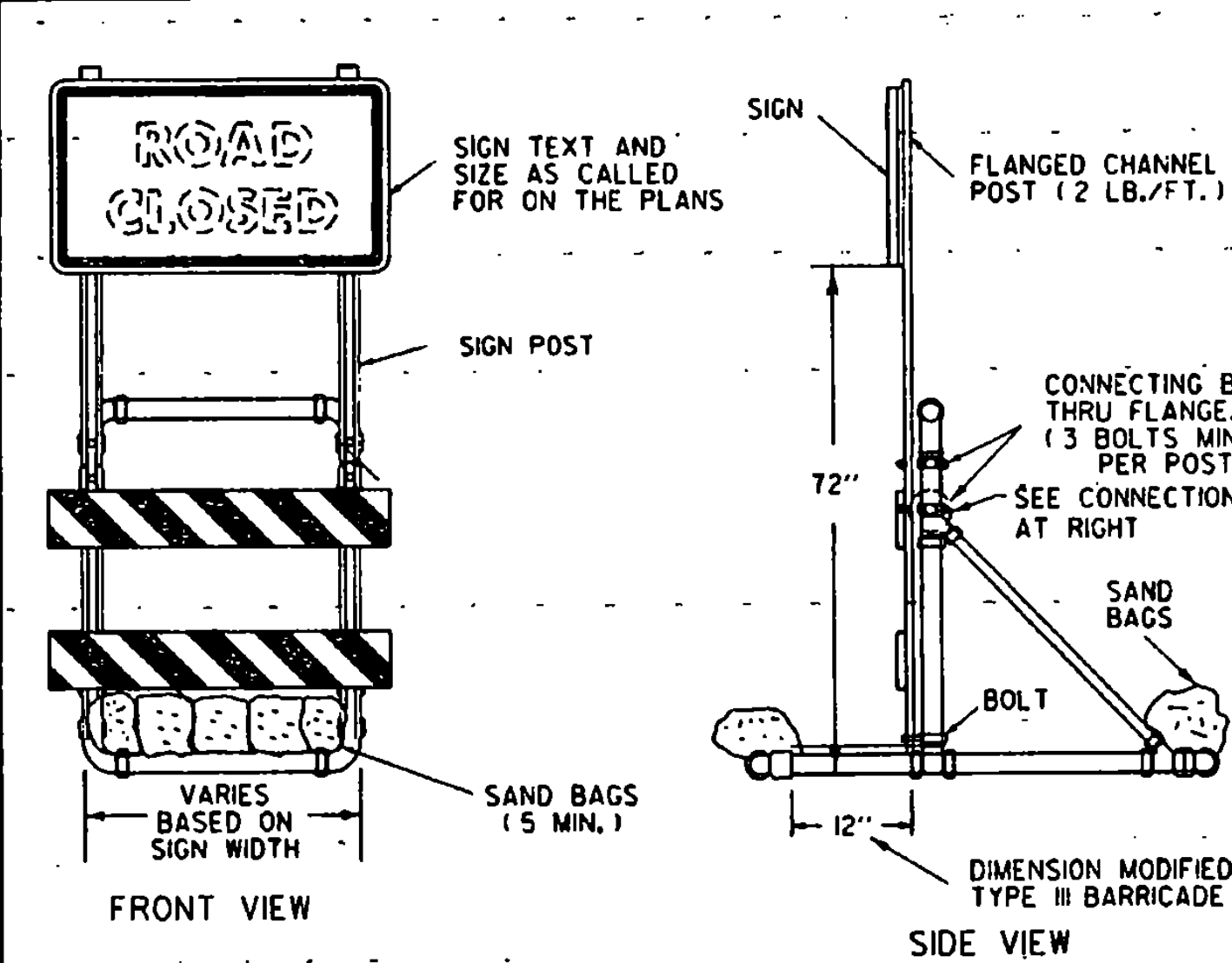
BARRICADES SHALL BE MAINTAINED IN CLEAN AND LEGIBLE CONDITIONS SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES, DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER. THE P.V.C. PIPE AND FITTINGS SHALL BE WHITE IN COLOR. AT LEAST TWO (2) HOLES SHALL BE DRILLED (3/8" DIAM.) IN EACH SECTION OF PIPE AND FITTINGS IF THE ASSEMBLY IS NOT CEMENTED.

WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT, THESE SHALL BE PLACED ONLY ON THE FRONT AND REAR PIPES OF THE BASE FRAME BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE. GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

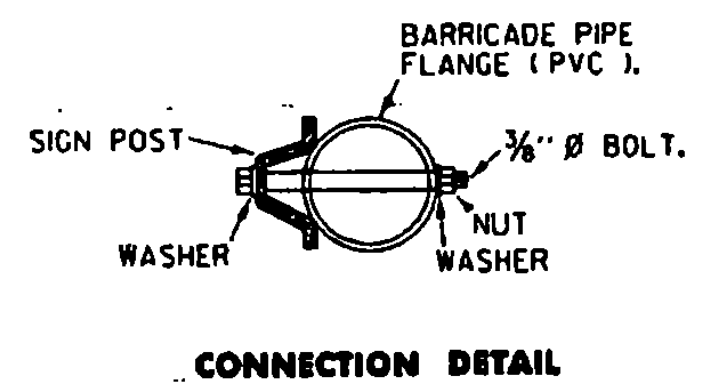
TYPE I BARRICADES SHALL UTILIZE ONE HORIZONTAL RAIL IN EACH DIRECTION. TYPE II BARRICADES SHALL BE A TYPE I BARRICADE WITH AN ADDITIONAL HORIZONTAL RAIL MOUNTED BELOW THE OTHER IN EACH DIRECTION. TYPE III BARRICADES (MODIFIED) SHALL CONSIST OF THE BREAKAWAY 3" PVC DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED ABOVE LEFT. SEE STD E-107 FOR ADDITIONAL INFORMATION.

**NOTES:**

- 1) REFER TO STANDARD TYPE III BARRICADE (ABOVE LEFT)
- 2) ALL BARRICADE JOINTS SHALL BE GLUED.
- 3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK, 50 LB. MINIMUM EACH.



**SIGN MOUNTING ON  
TYPE III BARRICADE (MODIFIED)**



**CONNECTION DETAIL**

**OTHER STDS. E-107  
REQUIRED:**

**REVISIONS AND CORRECTIONS**

- SEPT. 10, 1987 - ADDED METAL TYPE III BARRICADE
- SEPT. 20, 1993 - REVISED NOTES AND TYPE III (MOD.) BARRICADE DETAIL
- AUG. 08, 1995 - ADDED METAL TYPE III BARRICADE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**APPROVED**

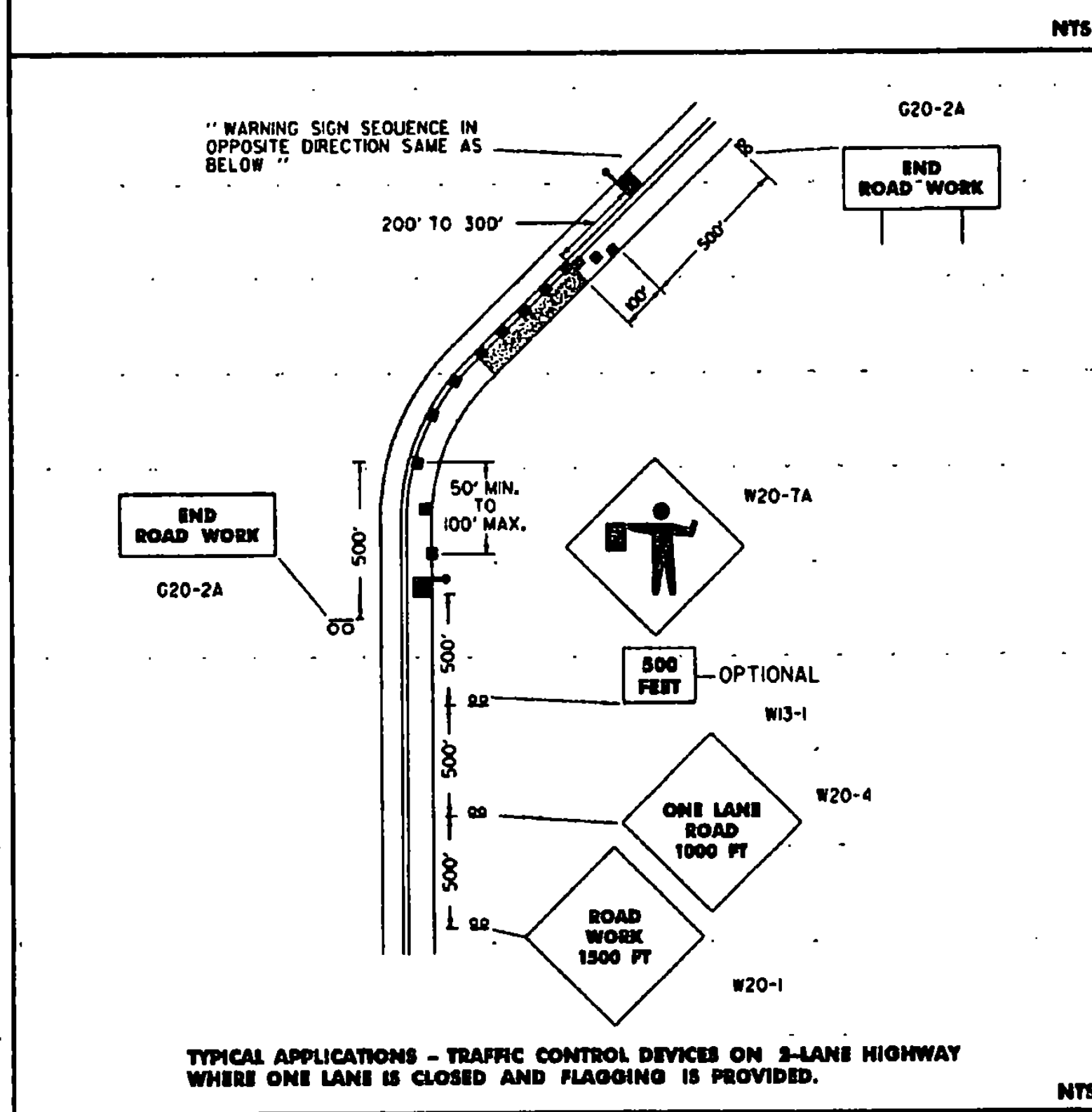
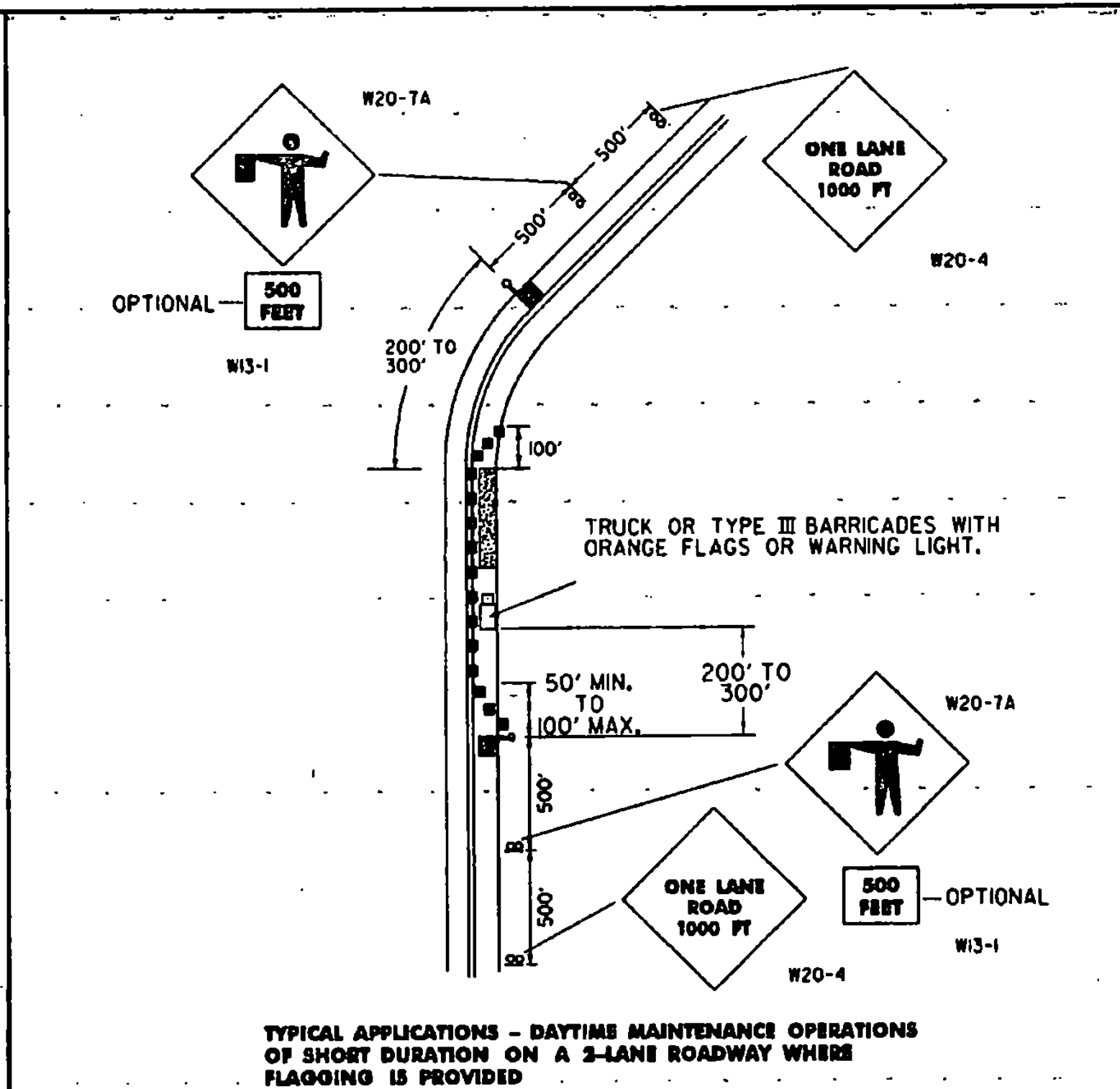
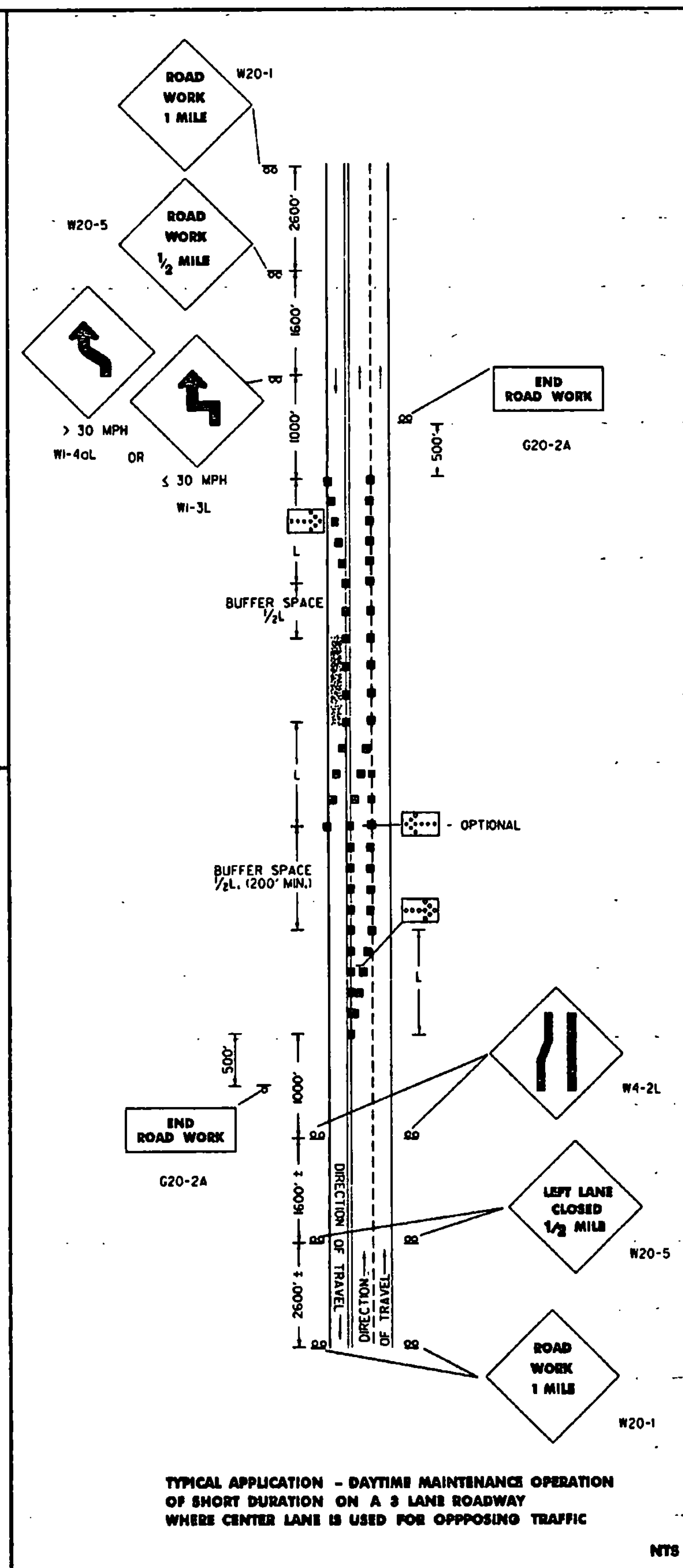
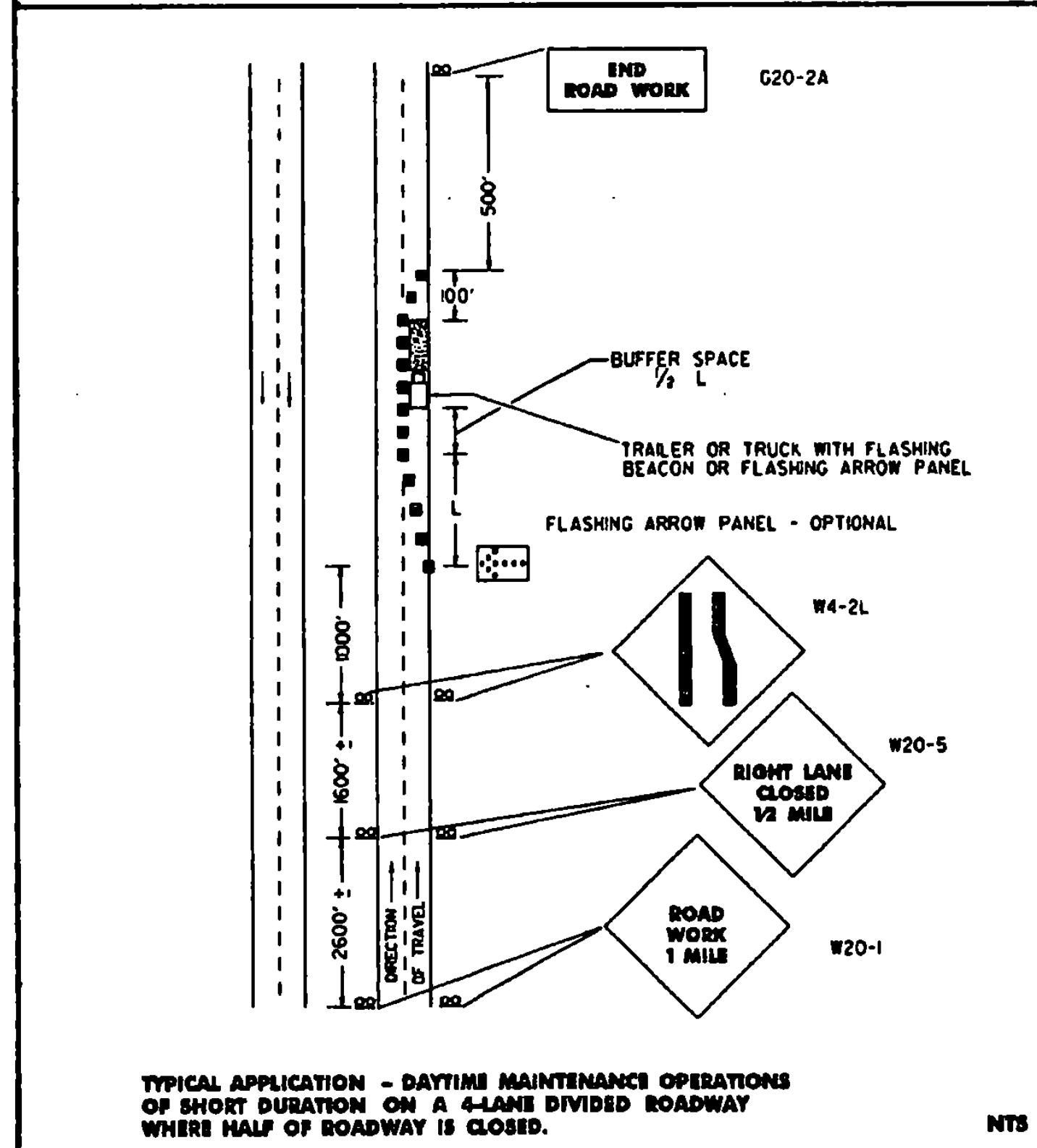
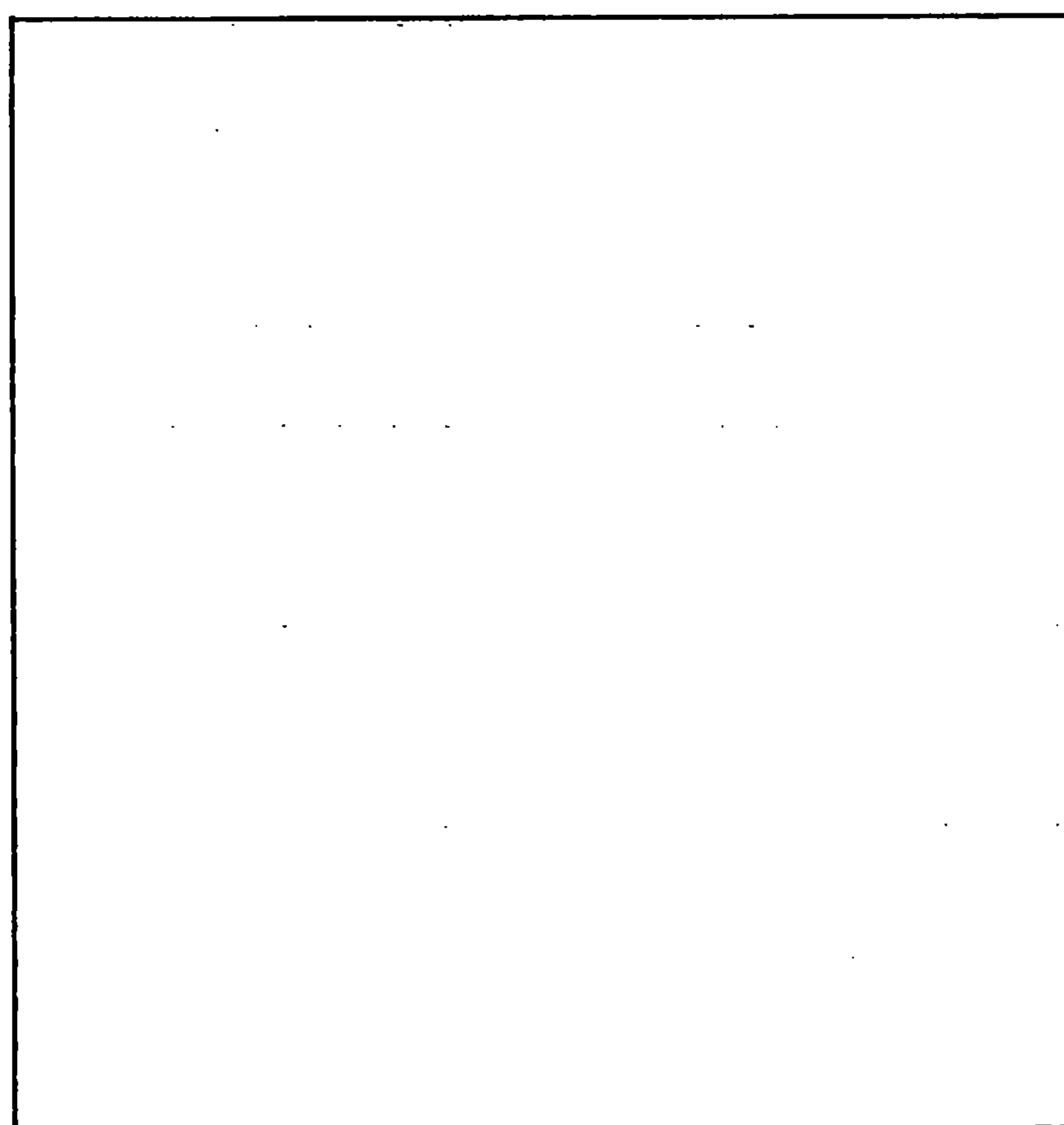
*Samuel D. MacArthur*  
DIRECTOR OF ENGINEERING

*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

**BREAKAWAY BARRICADE  
DETAILS**



**STANDARD  
E-107 A**



**NOTES**

**REFLECTORIZATION**  
ALL SIGNS USED DURING THE HOURS OF DARKNESS SHALL BE REFLECTORIZED (TYPE 11 OR 111). CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL COMPLY WITH STANDARD E-106.

**COLORS**  
THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON AN ORANGE BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PRINTED. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U. S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

**TEXT DESIGN**  
LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS" AS REFERENCED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

**SPECIFICATIONS**  
WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

**SIGN BASE MATERIAL**  
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED:  
 FLAT STEEL OR ALUMINUM 0.125 INCHES  
 HIGH DENSITY OVERLAYED PLYWOOD 1/2", 3/8", OR 3/4 INCHES  
 GALVANIZED SHEET STEEL 12 GAUGE

- SIGNS WITH "ROAD WORK 1500 FT." AND "END ROAD WORK" TEXT SHALL BE USED WHEN THE WORK IS NOT COMPLETE AND A HAZARD REMAINS OVERNIGHT.
- THE FLAGPERSON SHALL USE THE SIGN PADDLE DETAILED ON STANDARD SHEET E-102.
- ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORKING DAY UNLESS REQUIRED FOR THE PROTECTION AND SAFETY OF THE TRAVELING PUBLIC.
- INSTALLATION, SIGNS AND BARRICADES SHALL BE IN PLACE PRIOR TO THE START OF THE MAINTENANCE OPERATION TO WHICH THEY APPLY AND SHALL BE REMOVED PROMPTLY WHEN THE NEED NO LONGER EXISTS. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON YIELDING WOOD OR METAL POSTS SET SECURELY IN THE GROUND (IN ACCORDANCE WITH STD. E-121) OR ON PORTABLE SUPPORTS WHEN APPROPRIATE. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- ALTHOUGH LISTED AS A MAINTENANCE OPERATION STANDARD SIGN SHEET, THE APPROACH SIGNS SHOWN SHALL BE USED BY CONTRACTORS WHEN WORKING WITHIN OR OUTSIDE PROJECT LIMITS.
- ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
- SIGN DETAILS NOT SHOWN ON THIS SHEET CAN BE FOUND ON STANDARD SHEETS E-100, E-101, AND E-102.
- TAPER FORMULA  
 $L = \frac{S^2}{W}$  FOR SPEEDS OF 45 OR MORE  
 $L = \frac{S^2}{60}$  FOR SPEEDS OF 40 OR LESS  
 WHERE:  
 L = MINIMUM LENGTH OF TAPER  
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.  
 W = WIDTH OF OFFSET.
- THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT IN M.P.H., ON TANGENT SECTIONS THE MAXIMUM SPACING SHOULD BE APPROXIMATELY EQUAL TO TWICE THE POSTED SPEED LIMIT.
- FLOOD LIGHTS SHOULD BE PROVIDED TO MARK THE FLAGPERSON STATIONS AT NIGHT AS NEEDED.
- AT SHORT WORK ZONES WHERE ADEQUATE SIGHT DISTANCE IS AVAILABLE FOR THE SAFE HANDLING OF TRAFFIC ONE FLAGGER MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
- CHANNELIZING DEVICES SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
- THE NUMBER OF CHANNELIZING AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

**LEGEND:**

■ FLAGPERSON	■ WORK AREA
■ CHANNELIZING DEVICES (CONES OR DRUMS)	■ SIGN & POSTS
■ FLASHING ARROW PANEL	■ TYPE III BARRICADES

**OTHER STDS. REQUIRED:** E-100 E-102 E-101 E-106

**REVISIONS AND CORRECTIONS**  
 SEPT 10, 1987 - DATE OF ORIGINAL ISSUE  
 MAR 01, 1988 - FHWA REVIEW COMMENTS  
 SEP 20, 1993 - REVISED NOTES & MISC. DETAILS  
 AUG 08, 1995 - DELETED SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

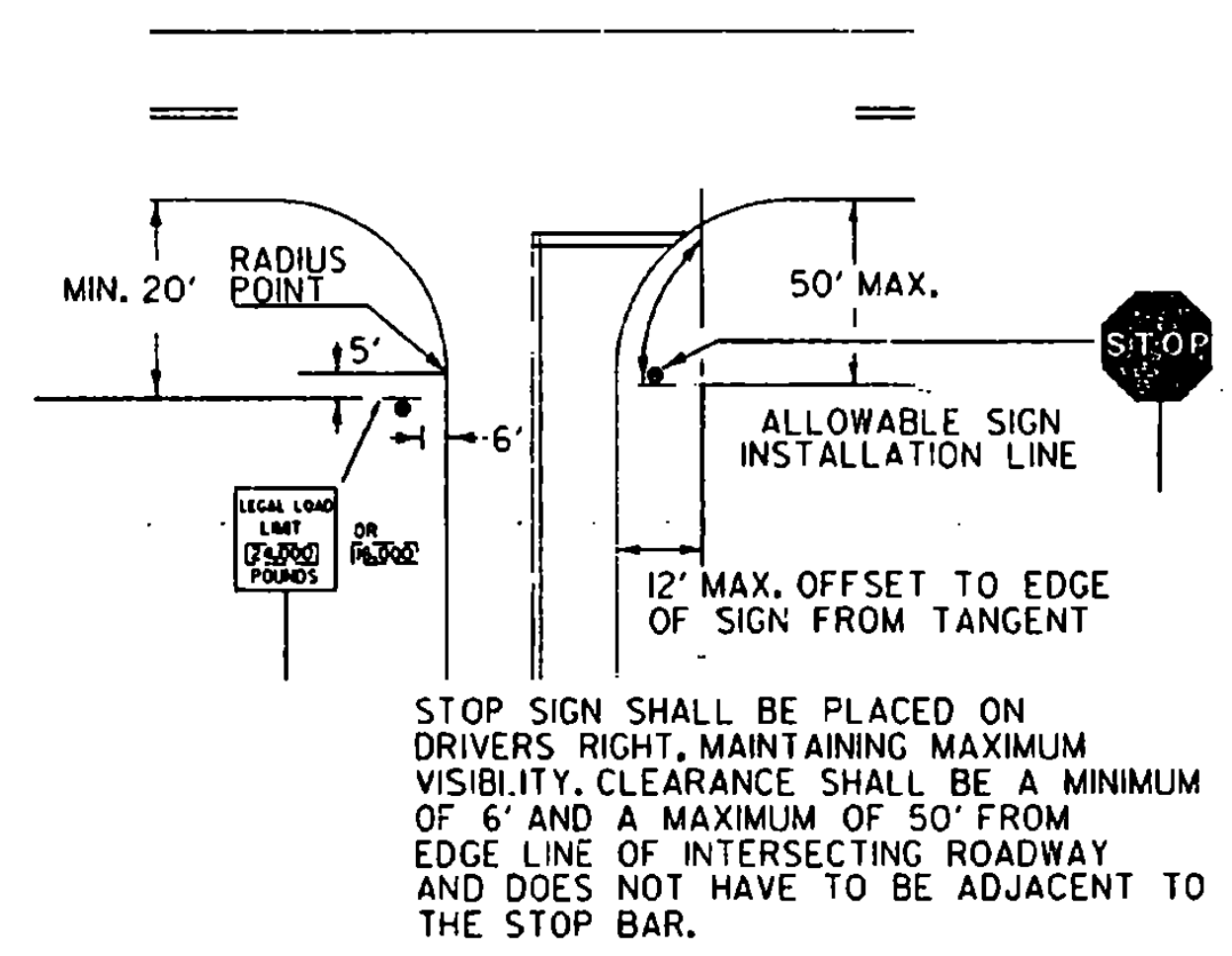
*Smother Os The Other*  
DIRECTOR OF ENGINEERING

*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

# MAJOR MAINTENANCE OPERATION LANE CLOSURE

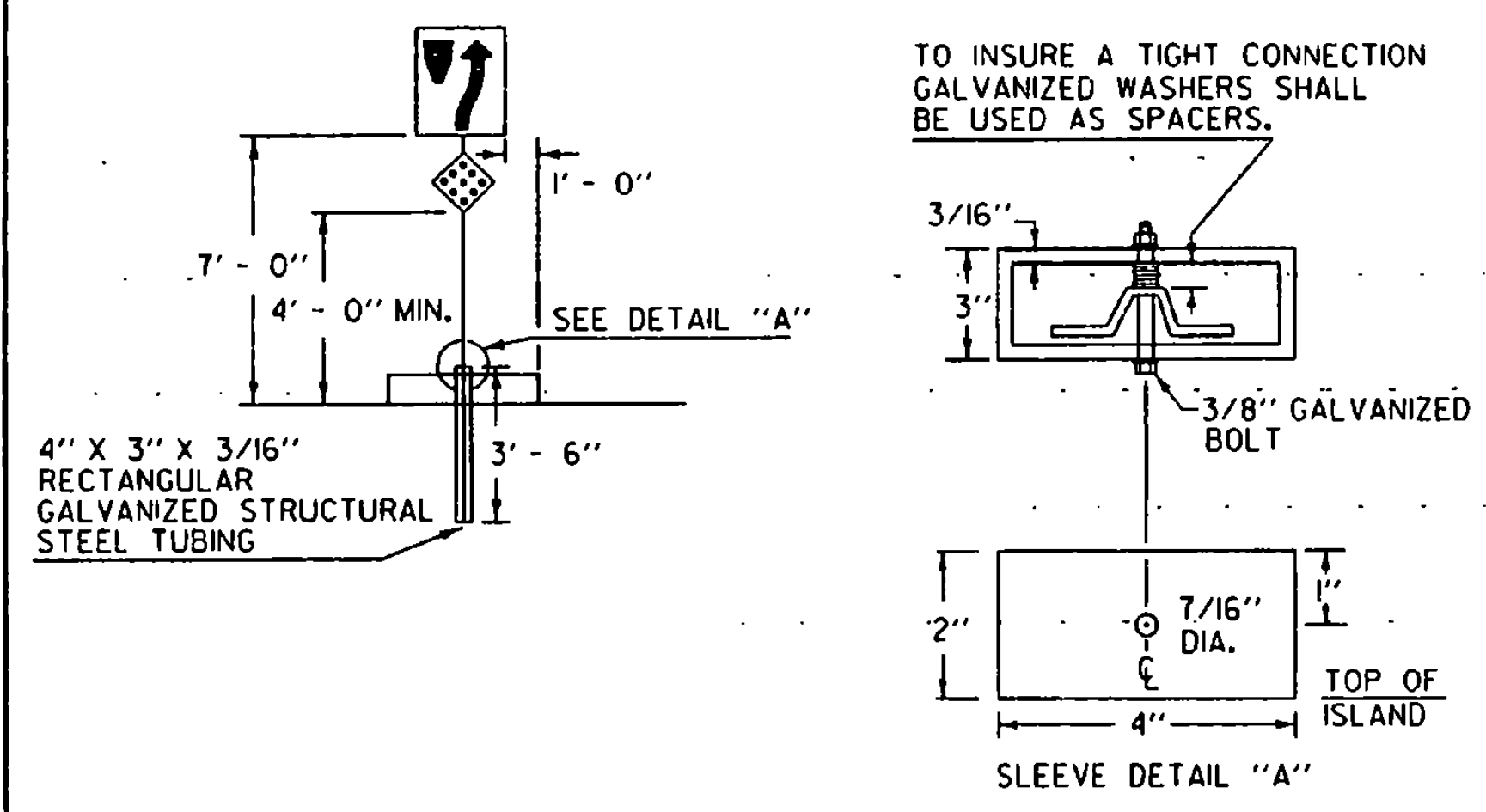
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## STANDARD E-110



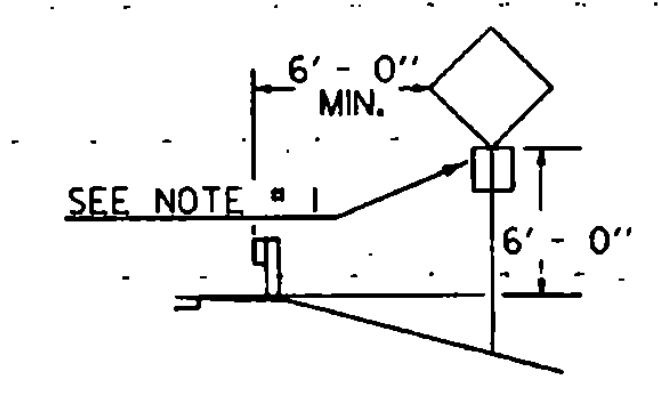
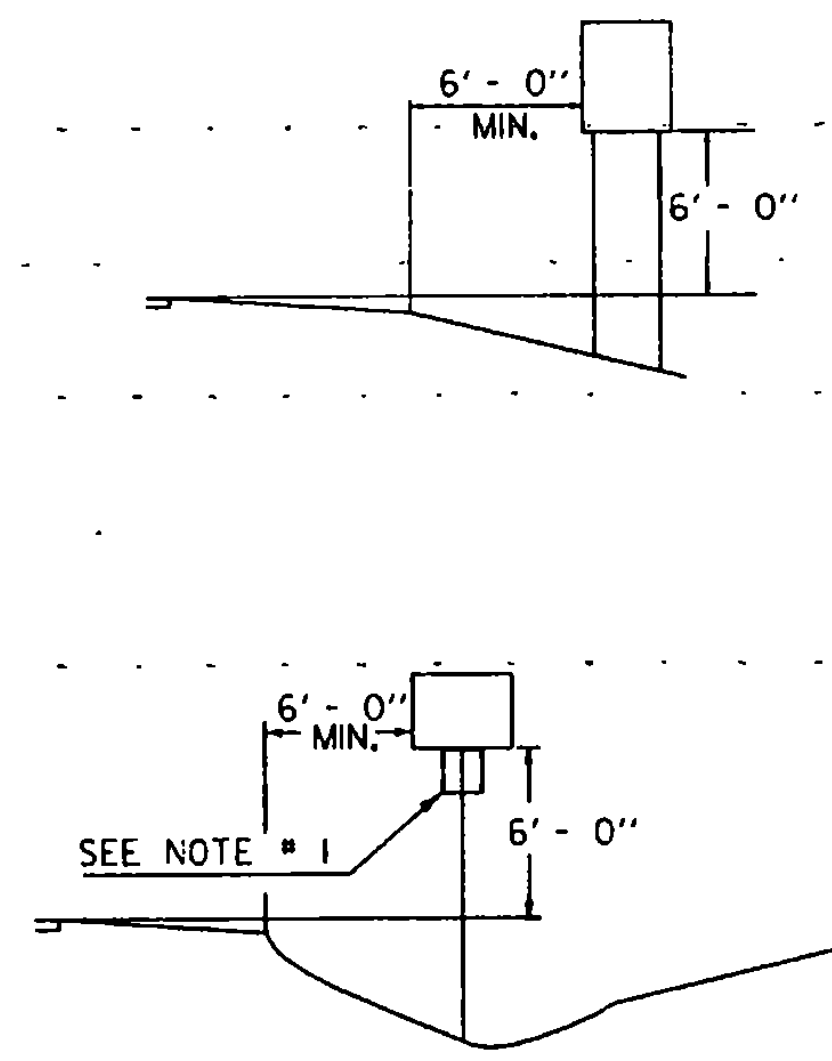
**LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS**

STOP SIGN SHALL BE PLACED ON DRIVERS RIGHT, MAINTAINING MAXIMUM VISIBILITY. CLEARANCE SHALL BE A MINIMUM OF 6' AND A MAXIMUM OF 50' FROM EDGE LINE OF INTERSECTING ROADWAY AND DOES NOT HAVE TO BE ADJACENT TO THE STOP BAR.

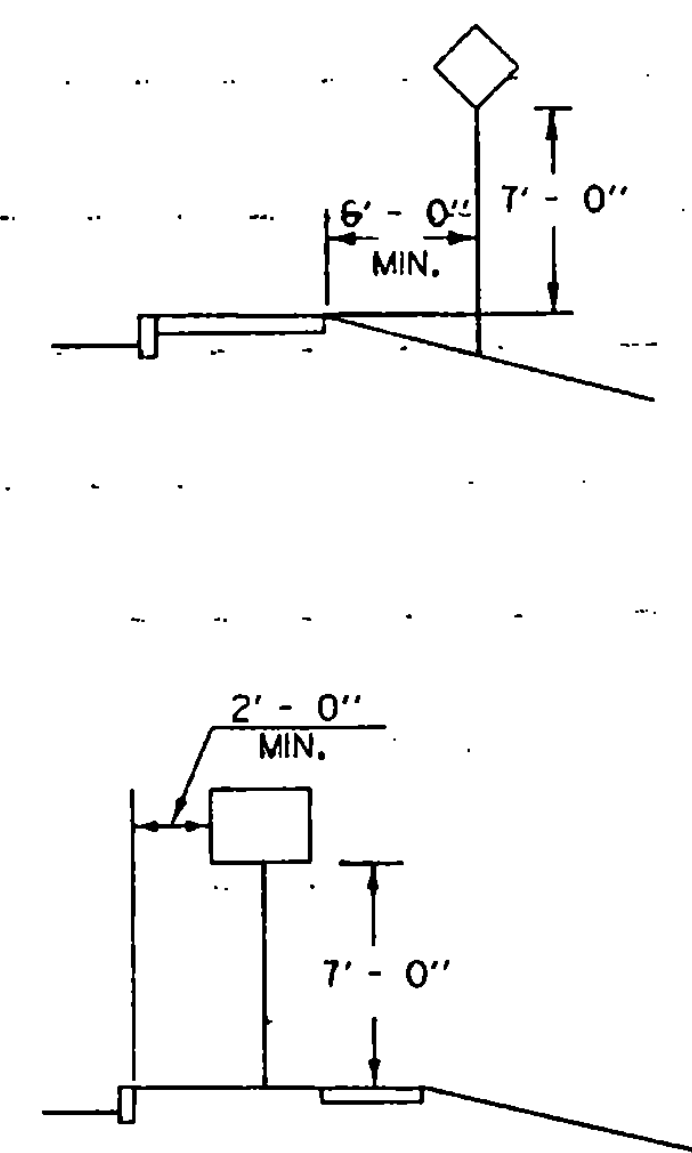


**SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC**

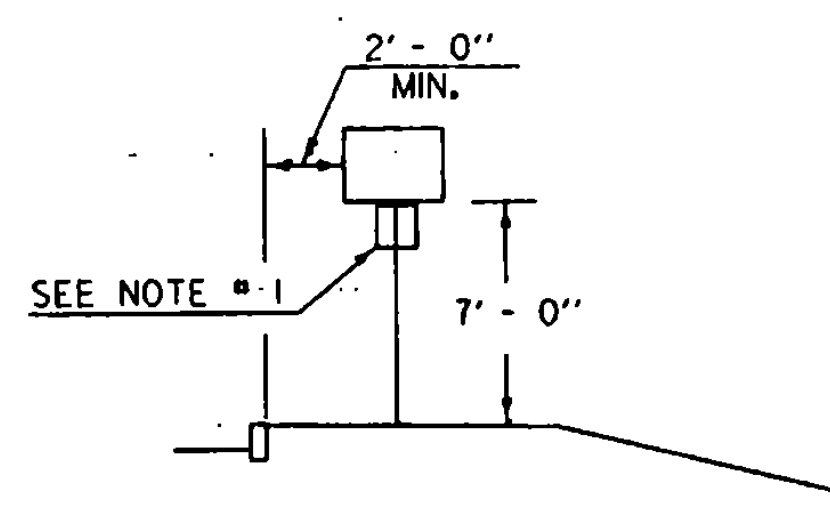
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY



**RURAL**



IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..



**URBAN**

**NOTES:**

1. IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

POST REFERENCE:  
REFER TO THE DETAILS ON THE APPROPRIATE STANDARD DRAWING FOR INFORMATION CONCERNING THE PROPER MOUNTING OF SIGNS ON APPROPRIATE POSTS.

**OTHER STDS. E-160 E-161 E-162 E-163 E-164 REQUIRED:**

REVISIONS AND CORRECTIONS  
JAN. 23, 1995 - DATE OF ORIGINAL ISSUE  
AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

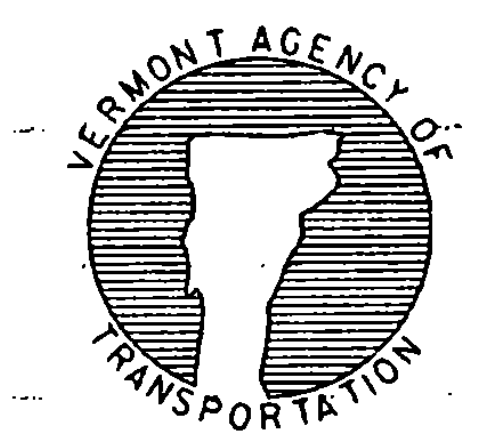
APPROVED

*Signature of Director of Engineering*  
DIRECTOR OF ENGINEERING

*Signature of Traffic and Safety Engineer*  
TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**STANDARD SIGN PLACEMENT  
CONVENTIONAL ROAD**



**STANDARD  
E-121**

**MILEMARKER INFORMATION**

IN ORDER TO PROVIDE FOR AN ACCURATE SYSTEM OF LOCATION, MILEMARKERS ARE INSTALLED ALONG U.S. AND STATE HIGHWAYS, CLASS I TOWN HIGHWAYS, FEDERAL AID PRIMARY AND FEDERAL AID SECONDARY HIGHWAYS.

THE FOLLOWING INFORMATION IS PROVIDED FOR INSTALLATION GUIDANCE.

MILEMARKERS WILL NORMALLY BE INSTALLED AT EACH 0.20 MI INTERVAL, ALTERNATING FROM ONE SIDE OF THE ROAD TO THE OTHER, THUS HAVING A SIGN FACING TRAFFIC EACH 0.40 MILE. A MILEMARKER WILL ALSO BE INSTALLED AT EACH INTERSECTION, ON THE POST WITH THE STOP SIGN. (MILEMARKER TO BE PLACED PARALLEL TO MAINLINE VISIBLE TO TRAFFIC.) ANY MILEMARKER LOCATION FALLING WITHIN 0.05 MI. OF AN INTERSECTION WILL BE OMITTED. IF A NORMAL MILEMARKER LOCATION FALLS WITHIN 50' OF AN EXISTING HIGHWAY SIGN, THE MILEMARKER WILL BE INSTALLED ON THE EXISTING POST. WHEN NORMAL LOCATION OF A MILEMARKER IS UNDESIRABLE, I.E. ON A LAWN, DRIVEWAY, LEDGE, ETC., AN ATTEMPT WILL BE MADE TO LOCATE IT ACROSS THE ROAD. IF NO SUITABLE LOCATION CAN BE FOUND WITHIN 50' OF THE NORMAL LOCATION ON EITHER SIDE OF THE ROAD, IT MAY BE OMITTED. IF A NORMAL MILEMARKER LOCATION FALLS WITHIN 50 FT. OF A POWER POLE, MAIL BOX OR OTHER OBJECT WHICH WILL GIVE IT PARTIAL PROTECTION, LOCATE IT NEAR OR AT SUCH PROTECTIVE FEATURE.

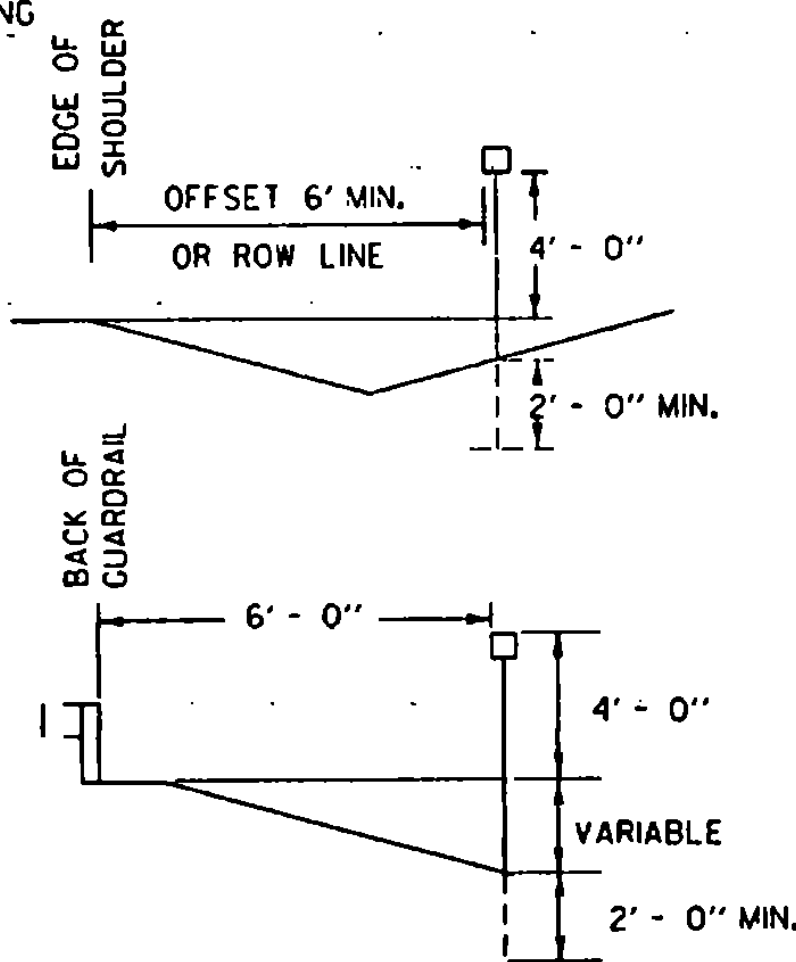
ON CLASS I TOWN HIGHWAYS (CITIES, VILLAGES) OR OTHER CONGESTED AREAS, MILEMARKERS WILL BE INSTALLED ON EXISTING SIGN POSTS AND WILL CARRY THE ACTUAL MILEAGE TO THAT LOCATION. A MILEMARKER EACH 0.10 +/- MILE IS DESIRABLE THROUGH SUCH AREAS.

THE TOP ROW OF NUMERALS INDICATE THE ROUTE NUMBER. THESE INCLUDE:

- 1) THE STATE ROUTE NUMBER, THE FOURTH NUMERAL OF WHICH BEING THE LETTER DESIGNATION, THUS, U.S. 2 WOULD BE 0020, ROUTE 100B WOULD BE 1002, ETC.
- 2) A 9000 SERIES NUMBER FOR NAMED STATE HIGHWAYS, CLASS I AND II TOWN HIGHWAYS AS LISTED ON THIS SHEET.
- 3) FEDERAL AID SECONDARY ROUTES ON TOWN HIGHWAYS USE F.A.S. ROUTE DESIGNATION NUMBERS AS SHOWN ON THE PLANNING DIVISIONS MAP TITLED "FEDERAL AID SYSTEMS ON VERMONT HIGHWAYS".

THE SECOND ROW OF NUMERALS INDICATE THE COUNTY AND TOWN. THE COUNTY IS INDICATED IN THE FIRST TWO NUMBERS, CODED ALPHABETICALLY. THE TOWN IS INDICATED IN THE LAST TWO NUMBERS, CODED ALPHABETICALLY WITHIN THE COUNTY. THUS WATERBURY, THE EIGHTEENTH TOWN ALPHABETICALLY, IN WASHINGTON COUNTY, THE TWELFTH COUNTY ALPHABETICALLY, WOULD BE INDICATED AS 1218 ON THE MARKER.

THE BOTTOM ROW OF NUMERALS INDICATES THE MILEAGE IN HUNDREDTHS FROM THE TOWN LINE OR BEGINNING OF A ROUTE (TRAVELING SOUTH TO NORTH OR WEST TO EAST). THE ROUTE DIRECTION IS ESTABLISHED USING THE AGENCY'S ROUTE LOG AND PROGRESS CHARTS AS A GUIDE.

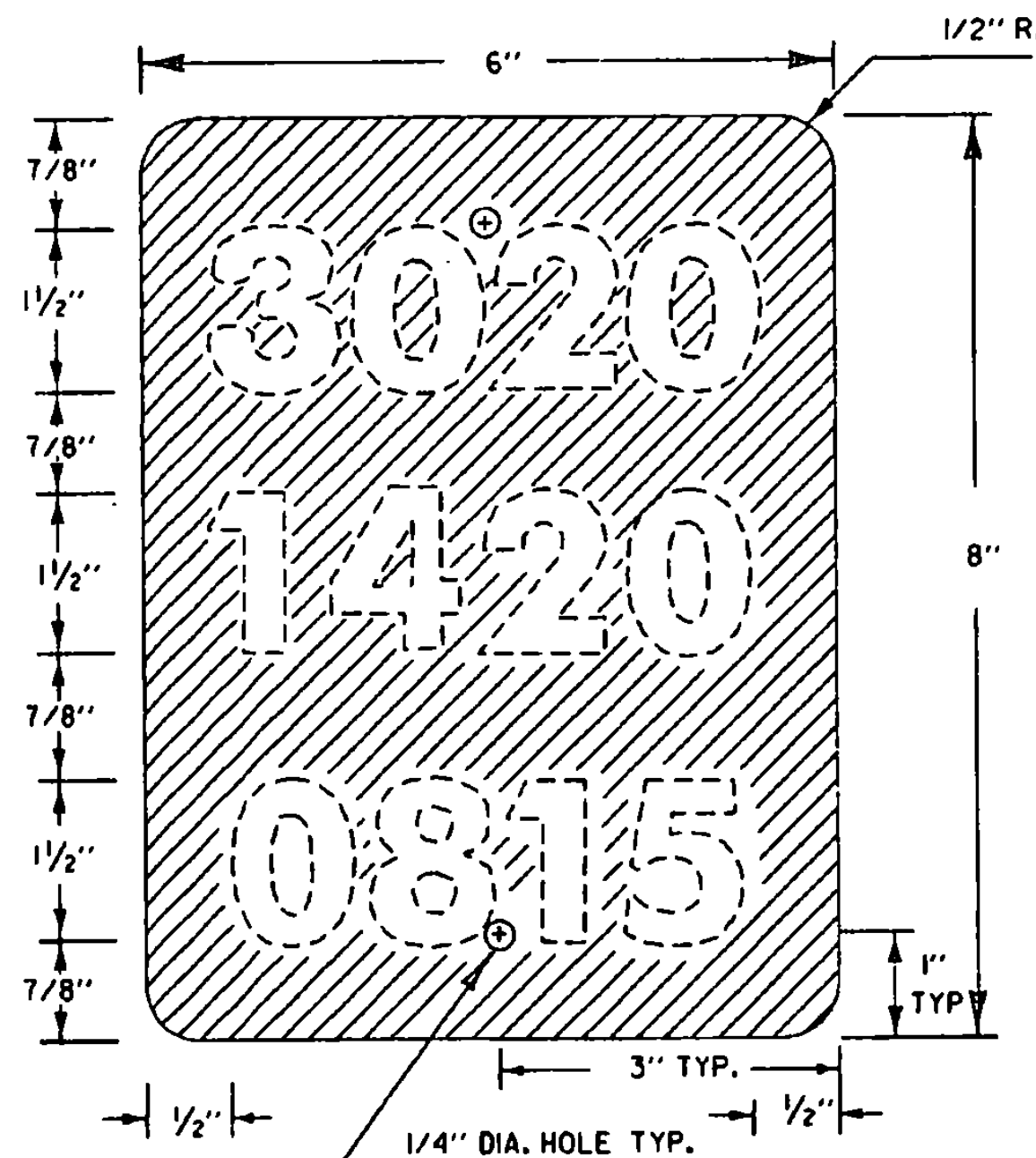


**COUNTY/TOWN DESIGNATIONS**

<b>1 - ADDISON</b> 0101 ADDISON 0102 BRIDGPORT 0103 BRISTOL 0104 CORNWALL 0105 FERRISBURG 0106 GOSHEN 0107 GRANVILLE 0108 HANCOCK 0109 LEICESTER 0110 LINCOLN 0111 MIDDLEBURY 0112 MONKTON 0113 NEW HAVEN 0114 ORWELL 0115 PANTON 0116 RIPTON 0117 SALISBURY 0118 SHOREHAM 0119 STARKSBORO 0120 VERGENNES 0121 WALTHAM 0122 WEYBRIDGE 0123 WHITING	<b>2 - BENNINGTON</b> 0201 ARLINGTON 0202 BENNINGTON 0203 DORSET 0204 GLASTENBURY 0205 LANDGROVE 0206 MANCHESTER 0207 PERU 0208 POWNAL 0209 READSBORO 0210 RUPERT 0211 SANDGATE 0212 SEARSBURG 0213 SHAFTSBURY 0214 STAMFORD 0215 SUNDERLAND 0216 WINHALL 0217 WOODFORD	<b>3 - CALEDONIA</b> 0301 BARNET 0302 BURKE 0303 DANVILLE 0304 GROTON 0305 HARDWICK 0306 KIRBY 0307 LYNDON 0308 NEWARK 0309 PEACHAM 0310 RYEGATE 0311 ST. JOHNSBURY 0312 SHEFFIELD 0313 STANNARD 0314 SUTTON 0315 WALDEN 0316 WATERFORD 0317 WHELOCK	<b>4 - CHITTENDEN</b> 0401 BOLTON 0402 BURLINGTON 0403 BURLINGTON 0404 CHARLOTTE 0405 COLCHESTER 0406 ESSEX 0407 HINESBURG 0408 HUNTINGTON 0409 JERICHO 0410 MILTON 0411 RICHMOND 0412 ST. GEORGE 0413 SHELburne 0414 SO. BURLINGTON 0415 UNDERHILL 0416 WESTFORD 0417 WILFORD 0418 WINDOOSKI	<b>5 - ESSEX</b> 0501 AVERILL 0502 AVERY'S GORE 0503 BLOOMFIELD 0504 BRIGHTON 0505 BRUNSWICK 0506 CANAAN 0507 CONCORD 0508 EAST HAVEN 0509 FERDINAND 0510 GRANBY 0511 GUILDHALL 0512 LEMINGTON 0513 LEWIS 0514 LUNEBURG 0515 MAIDSTONE 0516 NORTON 0517 VICTORY 0518 WARNER'S GRANT 0519 WARREN'S GORE	<b>6 - FRANKLIN</b> 0601 BAKERSFIELD 0602 BERKSHIRE 0603 ENOSBURG 0604 FAIRFAX 0605 FAIRFIELD 0606 FLETCHER 0607 FRANKLIN 0608 GEORGIA 0609 HIGHGATE 0610 MONTGOMERY 0611 RICHFORD 0612 ST. ALBANS CITY 0613 ST. ALBANS TOWN 0614 SHELTON 0615 SWANTON	<b>7 - GRAND ISLE</b> 0701 ALBURG 0702 GRAND ISLE 0703 ISLE LA MOTTE 0704 NORTH HERO 0705 SOUTH HERO
<b>8 - LAMOILLE</b> 0801 BELVIDERE 0802 CAMBRIDGE 0803 EDEN 0804 ELMORE 0805 HYDE PARK 0806 JOHNSON 0807 MORRISTOWN 0808 STONE 0809 WATERVILLE 0810 WOLLOTT	<b>9 - ORANGE</b> 0901 BRADFORD 0902 BRAintree 0903 BROOKFIELD 0904 CHELSEA 0905 GORINTH 0906 FAIRLEE 0907 NEWBURY 0908 ORANGE 0909 RANDOLPH 0910 STRAFFORD 0911 THEFORD 0912 TOPSHAM 0913 TUNBRIDGE 0914 VERSHIRE 0915 WASHINGTON 0916 WEST FAIRLEE 0917 WILLIAMSTOWN	<b>10 - ORLEANS</b> 1001 ALBANY 1002 BARTON 1003 BROWNINGTON 1004 CHARLESTON 1005 COVENTRY 1006 CRAFTSBURY 1007 DERBY 1008 GLOVER 1009 GREENSBORO 1010 HOLLAND 1011 IRASBURG 1012 JAY 1013 LOWELL 1014 MORGAN 1015 NEWPORT CITY 1016 NEWPORT TOWN 1017 TROY 1018 WESTFIELD 1019 WESTMORE	<b>11 - RUTLAND</b> 1101 BENSON 1102 BRANDON 1103 CASTLETON 1104 CHITTENDEN 1105 CLARENDON 1106 DANBY 1107 FAIR HAVEN 1108 HUBBARDTON 1109 IRA 1110 MENDON 1111 MIDDLETOWN 1112 MT. HOLLY 1113 MT. TABOR 1114 PAWLET 1115 PITTSFIELD 1116 PITTSFORD 1117 POULTNEY 1118 PROCTOR 1119 RUTLAND CITY 1120 RUTLAND TOWN 1121 SHERBURNE 1122 SHREWSBURY 1123 SUDBURY 1124 TINKNOUTH 1125 WALLINGFORD 1126 WELLS 1127 WEST HAVEN 1128 WEST RUTLAND	<b>12 - WASHINGTON</b> 1201 BARRE CITY 1202 BARRE TOWN 1203 BERLIN 1204 CABOT 1205 CALAIS 1206 DUXBURY 1207 E. MONTPELIER 1208 FAYSTON 1209 MARSHFIELD 1210 MIDDLESEX 1211 MONTPELIER 1212 MORETOWN 1213 NORTHFIELD 1214 PLAINFIELD 1215 ROXBURY 1216 WATTSFIELD 1217 WARREN 1218 WATERBURY 1219 WOODBURY 1220 WORCESTER	<b>13 - WINDHAM</b> 1301 ATHENS 1302 BRATTLEBORO 1303 BROOKLINE 1304 COVER 1305 DUMMERSTON 1306 GRAFTON 1307 GUILFORD 1308 HALIFAX 1309 JAMICA 1310 LONDONDERRY 1311 MARLBORO 1312 NEWFANE 1313 PUTNEY 1314 ROCKINGHAM 1315 SOMERSET 1316 STRATTON 1317 TOWNSHEND 1318 VERNON 1319 WARDSBORO 1320 WESTMINSTER 1321 WHITTINGHAM 1322 WILMINGTON 1323 WINDHAM	<b>14 - WINDSOR</b> 1401 ANDOVER 1402 BALTIMORE 1403 BARNARD 1404 BETHEL 1405 BRIDGEWATER 1406 CAVENDISH 1407 CHESTER 1408 HARTFORD 1409 HARTLAND 1410 LUDLOW 1411 NORWICH 1412 PLYMOUTH 1413 POMFRET 1414 READING 1415 ROCHESTER 1416 ROYALTON 1417 SHARON 1418 SPRINGFIELD 1419 STOCKBRIDGE 1420 WEATHERSFIELD 1421 WESTON 1422 WEST WINDSOR 1423 WINDSOR 1424 WOODSTOCK

**CLASS I AND II TOWN HIGHWAYS**

ROUTE CODE NUMBER	NAMED STATE HIGHWAY
9020	BARNET STATE HIGHWAY
9025	BENNINGTON NORTH STATE HIGHWAY
9030	BERLIN STATE HIGHWAY
9090	BRATTLEBORO STATE HIGHWAY
9150	CASTLETON STATE HIGHWAY
9180	COVENTRY STATE HIGHWAY
9210	FAIR HAVEN STATE HIGHWAY
9240	FAIRLEE STATE HIGHWAY
9270	FERRISBURG STATE HIGHWAY
9330	MAIDSTONE STATE HIGHWAY
9360	MIDDLESEX STATE HIGHWAY
9390	MONTPELIER STATE HIGHWAY
9420	MONTPELIER JUNCTION STATE HIGHWAY
9430	NEWBURY STATE HIGHWAY
9480	NORTON STATE HIGHWAY
9540	NORWICH STATE HIGHWAY
9600	PUTNEY STATE HIGHWAY
9630	QUECHEE STATE HIGHWAY
9720	ST. ALBANS ST. HWY. SOUTH
9730	ST. JOHNSBURY ST. HWY.
9750	SOUTH ALBURG STATE HIGHWAY
9840	WESTMINSTER STATE HIGHWAY
9870	WILDER STATE HIGHWAY
9900	WINHALL STATE HIGHWAY
9990	WEST RUTLAND-RUTLAND (BUS. US-4)
9991	BELLOWS FALLS 50117 (ROCK-WEST ST.)
9992	MONTPELIER 5117 (BRIDGE ST.)
9993	BURLINGTON (ALTERNATE US-7)
9995	MONTPELIER (BUS. US-2)
9996	NEWPORT (ALTERNATE US-5)
9997	ST. JOHNSBURY (ALTERNATE US-5)
9998	50. BURLINGTON-KENNEDY DRIVE



**PAYMENT:**  
MILEMARKERS SHALL BE PAID AS TRAFFIC SIGNS, TYPE "A", AND POSTS PAID AS FLANGED CHANNEL STEEL SIGN POSTS.

**MATERIAL:**  
THE SIGN BASE MATERIAL SHALL BE 0.04" FLAT SHEET ALUMINUM.

**COLORS:**  
THE SIGN SHALL HAVE A REFLECTORIZED WHITE TEXT ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

**LETTERING:**  
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS AS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

**POSTS:**  
FLANGED CHANNEL STEEL 2 #/FT. POSTS SHALL BE USED WHEN THE POST LENGTH EXCEEDS 7 FEET. FOR LENGTHS OF 7 FEET OR LESS, A 1.12 #/FT. STEEL SIGN POST SHALL BE USED.

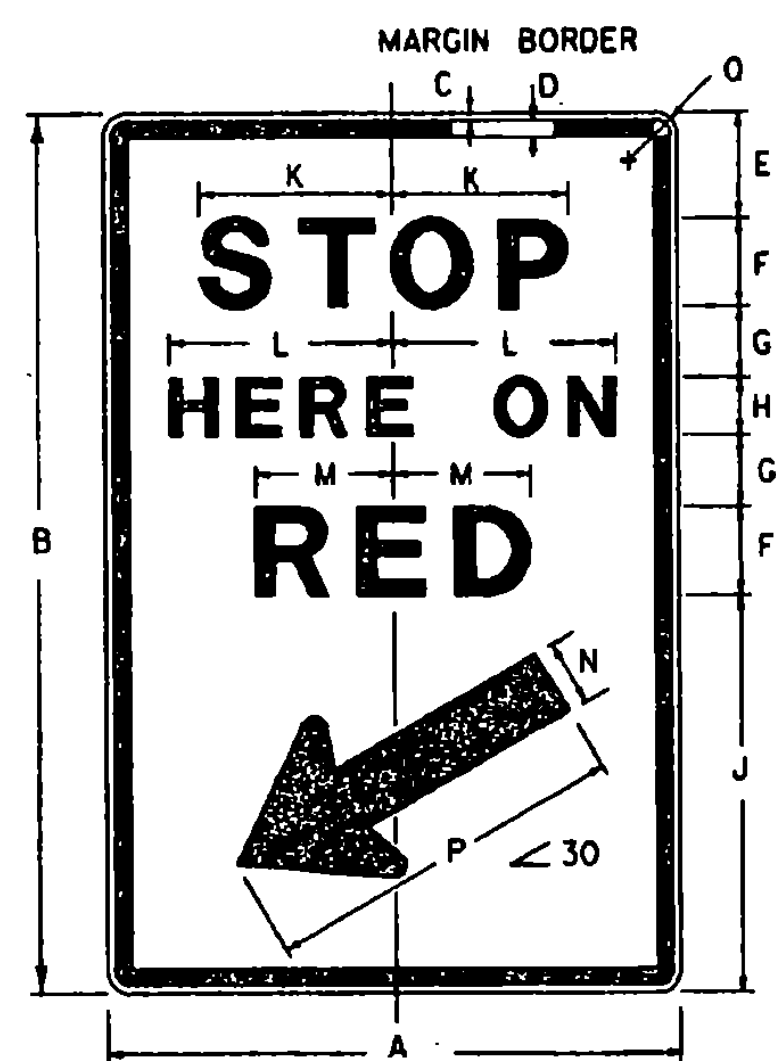
**OTHER STDS. E-160 REQUIRED:**

**STANDARD E-138**

**REVISIONS AND CORRECTIONS**  
OCT 20, 1988 - DATE OF ORIGINAL ISSUE  
AUG. 08, 1995 - MINOR NOTE REVISIONS

**APPROVED**  
*Smolin M. M. O'Brien*  
DIRECTOR OF ENGINEERING  
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

**MILEMARKER DETAILS  
STATE AND TOWN  
HIGHWAYS**

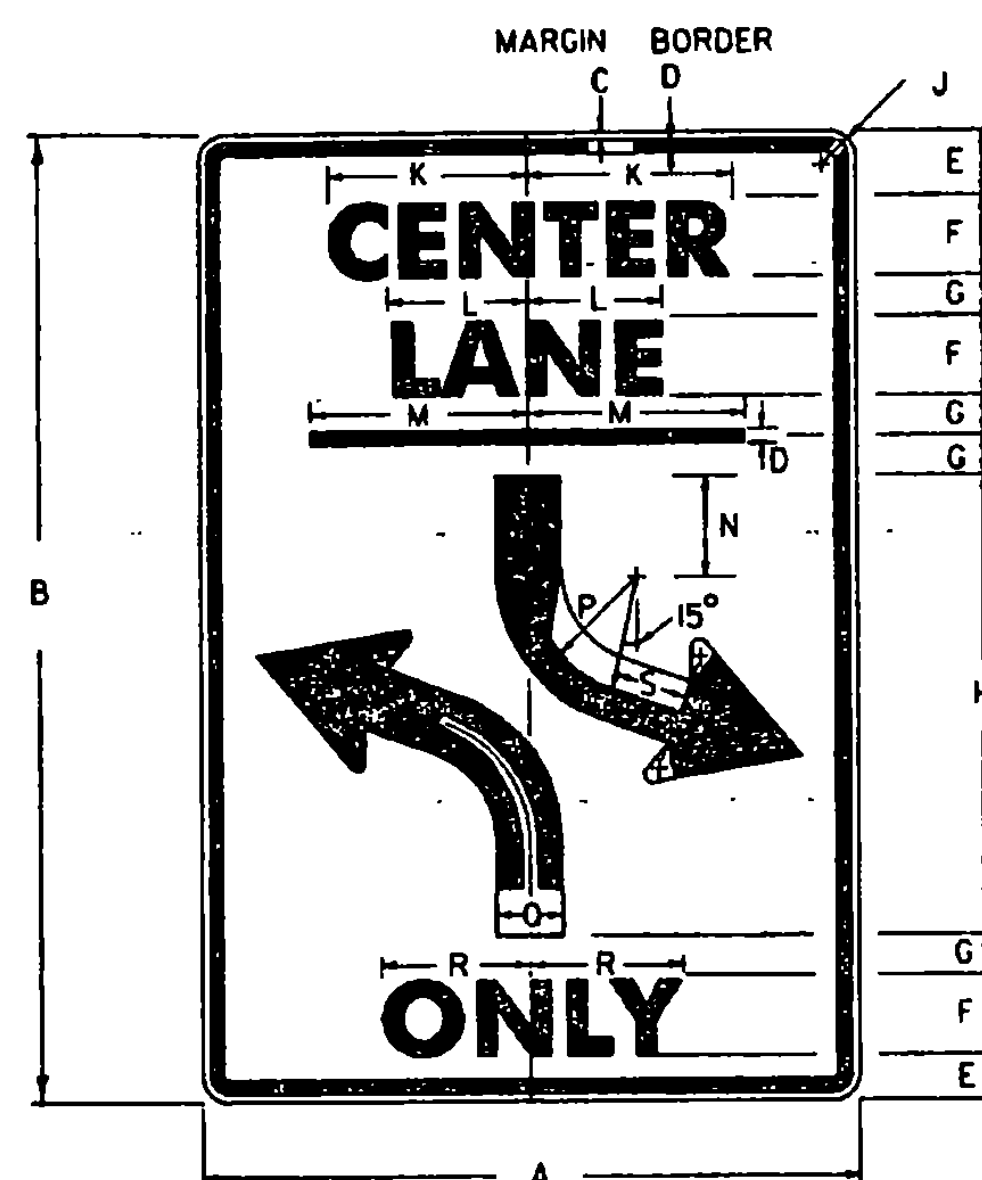


**R10-6**

SIGN	A	B	C	D	E	F	G	H
STD.	24	36	3/8	3/8	4	5D	2 1/2	3D
SPECIAL	36	48	5/8	7/8	6	6D	4	4D

SIGN	J	K	L	M	N	P	Q
STD.	14	8 1/2	9 1/2	5 1/2	2 1/2	14 1/2	1 1/2
SPECIAL	18	9 3/4	12 1/2	7 1/8	2 3/4	16	2 1/4

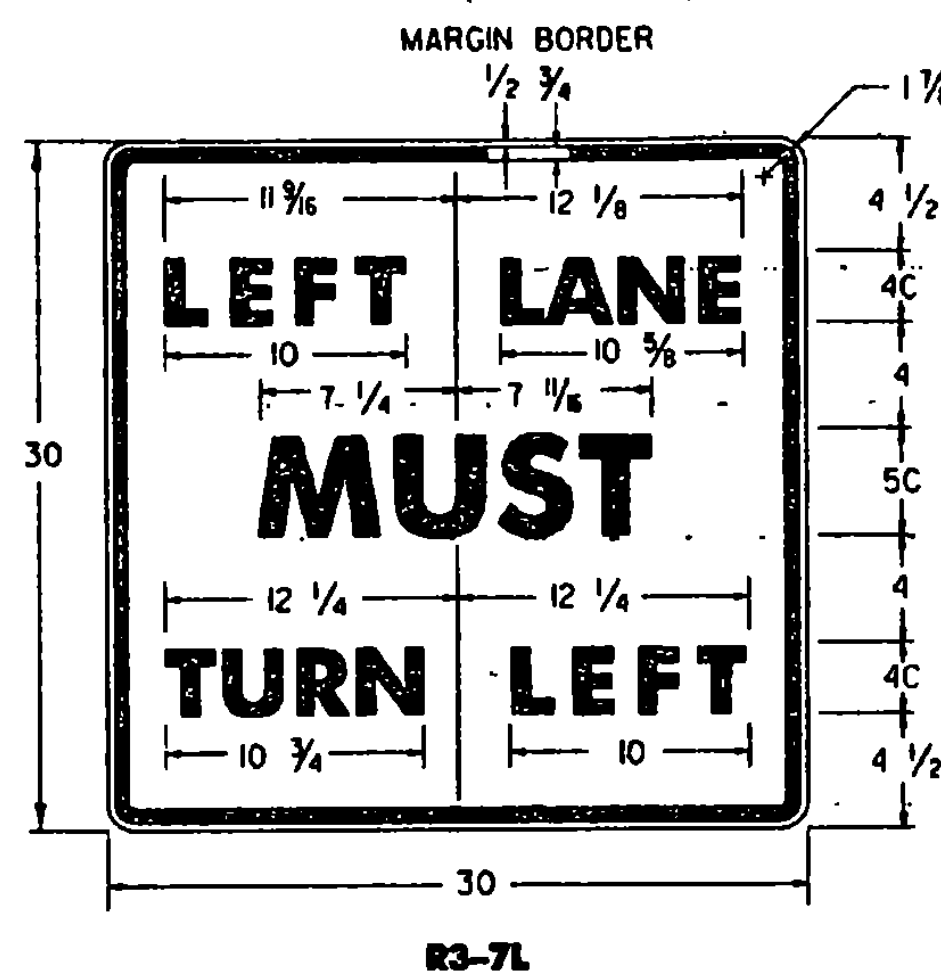


**R3-9B**

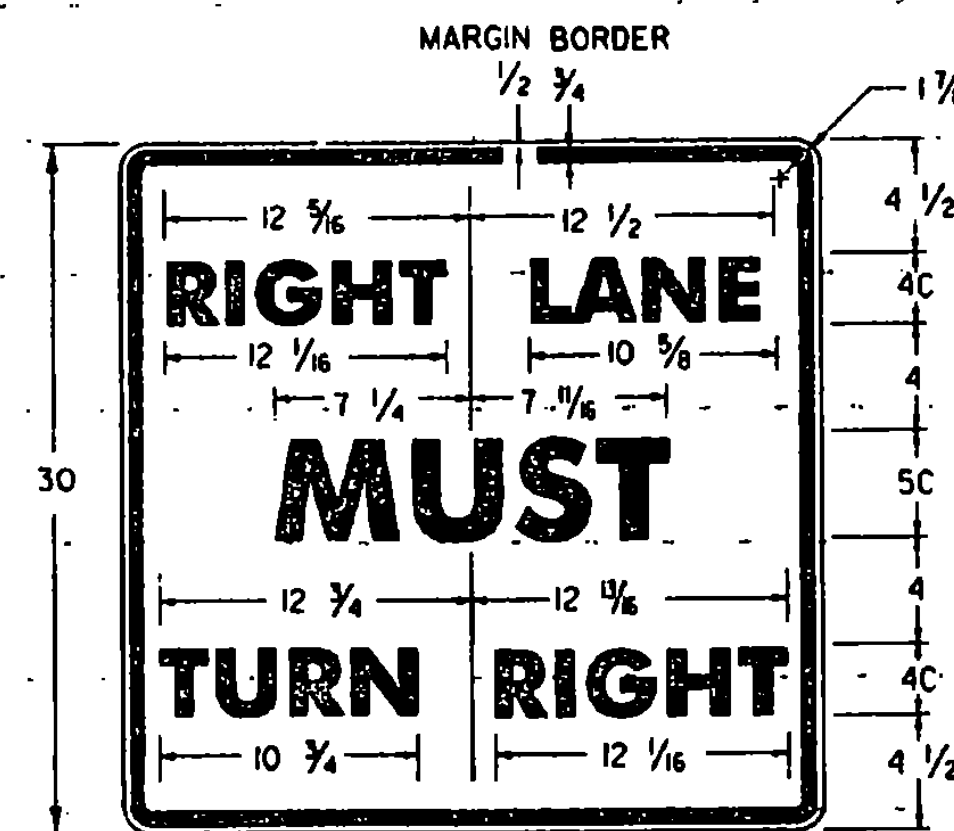
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	
STD.	24	36	3/8	3/8	2 1/2	3E	1 1/2	16	1 1/2	8 1/8	
SPECIAL	36	48	5/8	7/8	3 1/2	5E	1 1/2	20	2 1/4	14 1/8	

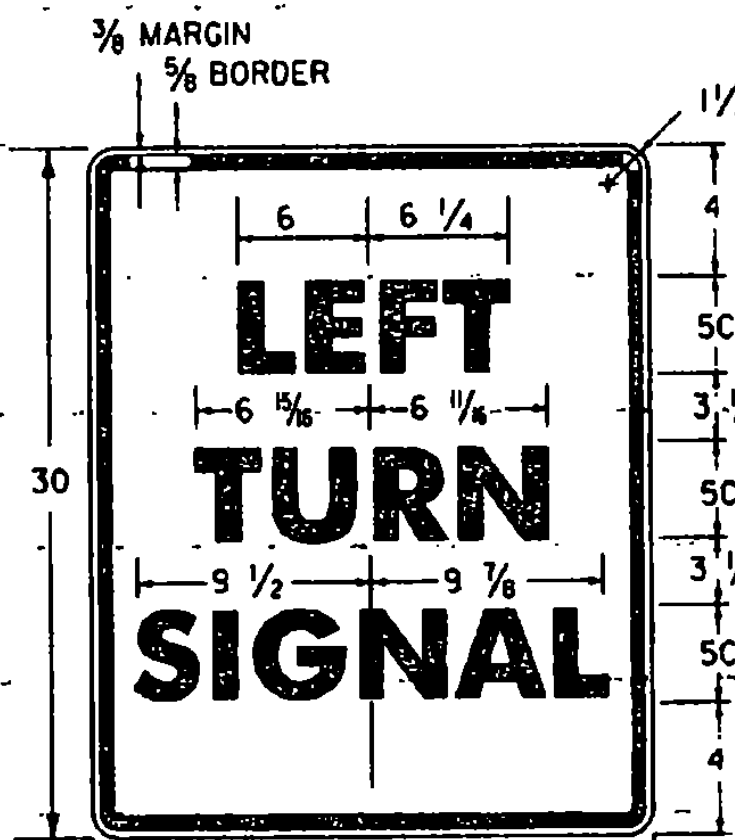
SIGN	L	M	N	P	O	R	S
	STD.	5 3/4	8	2 1/2	6	2	5 5/8
SPECIAL	9 1/2	12	3	8	3	9 1/8	2



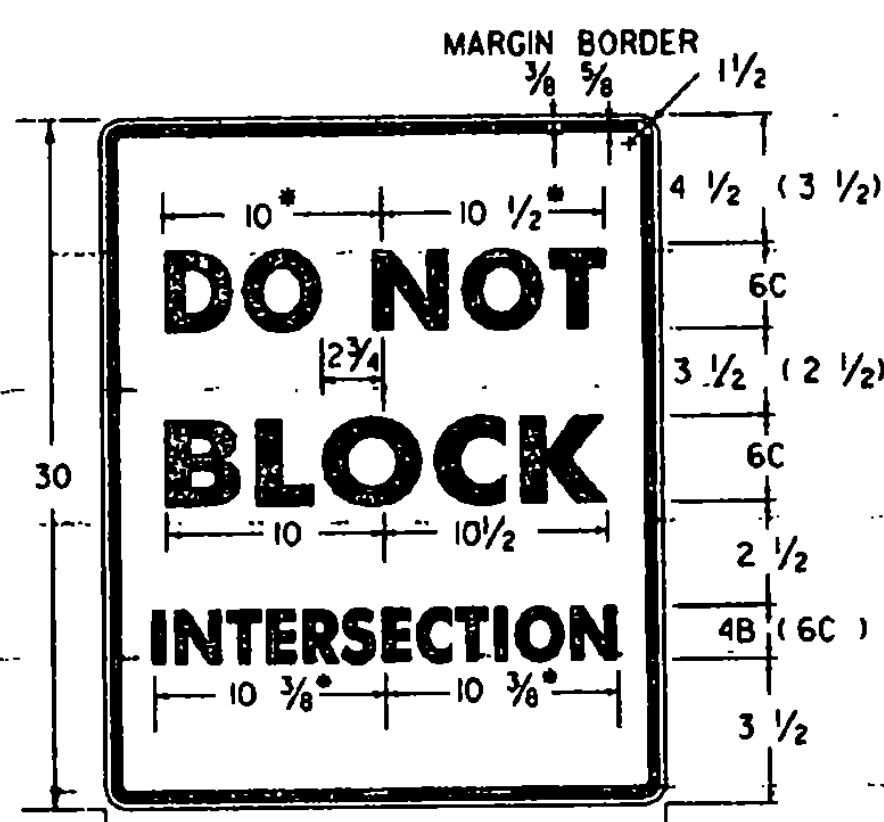
R3-7L



R3-7R

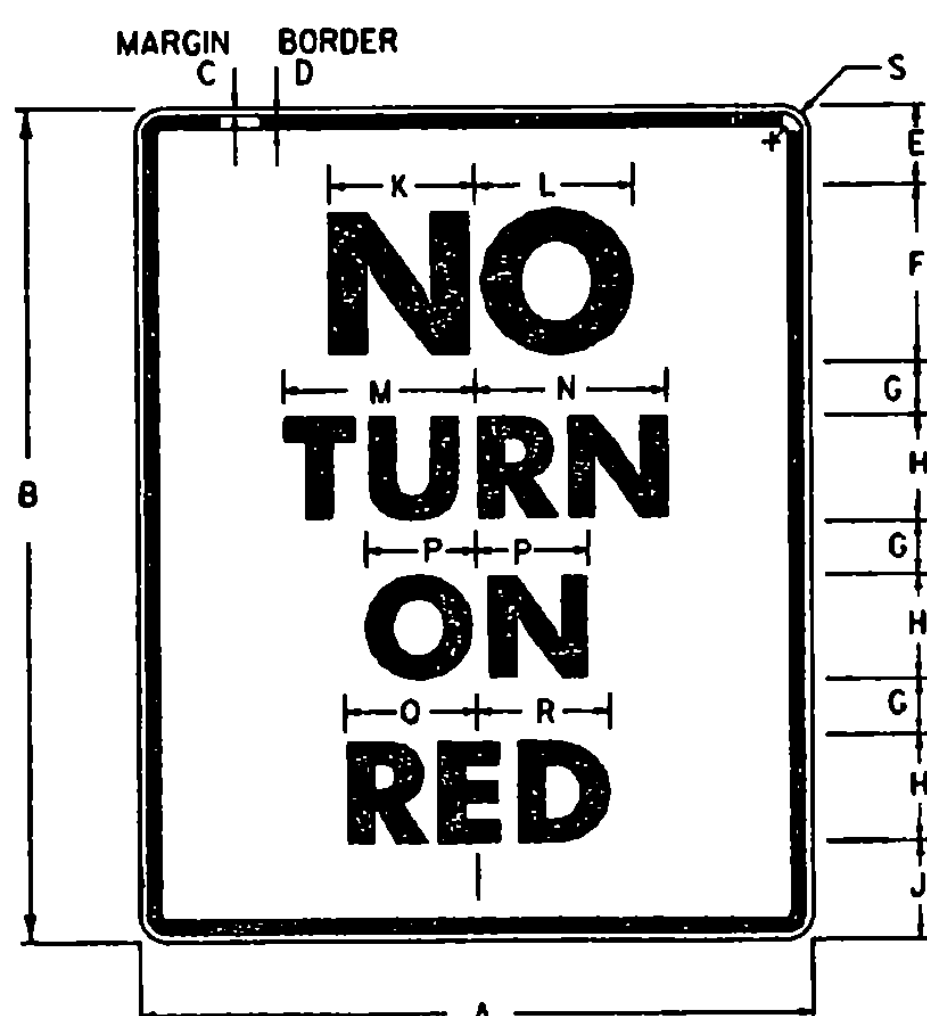


R10-10L



R10-7

\* REDUCE SPACING 50 %  
( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

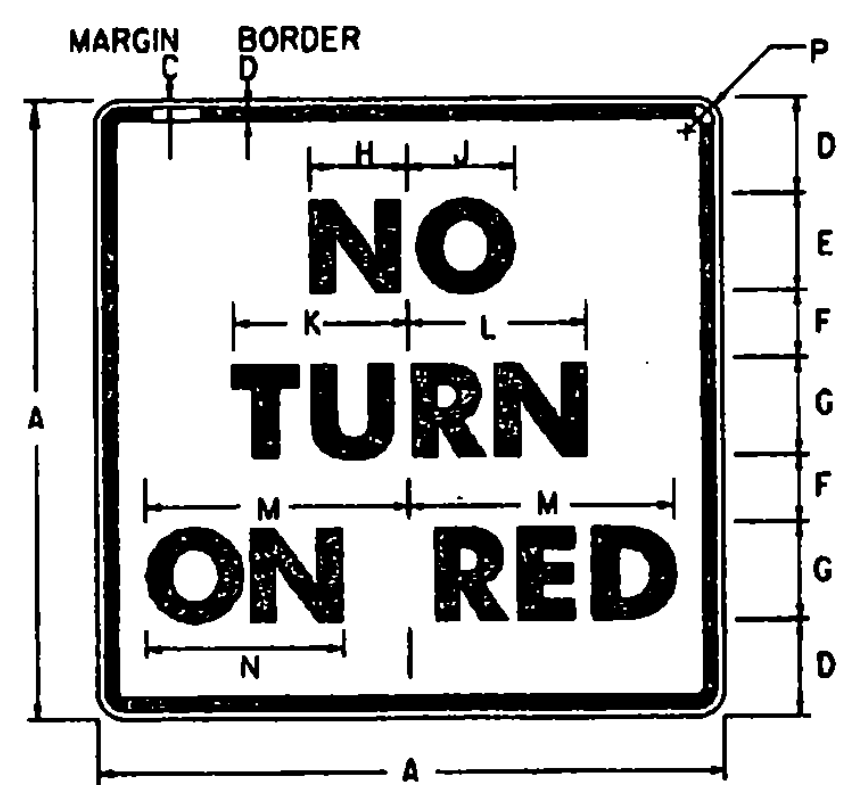


POST MOUNTING  
R10-11A

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	
STD.	24	30	3/8	3/8	3 1/4	5E	2 1/4	4D	3	4 1/8	
SPECIAL	36	48	5/8	7/8	6	6E	3 1/2	6D	5 1/2	7 3/4	

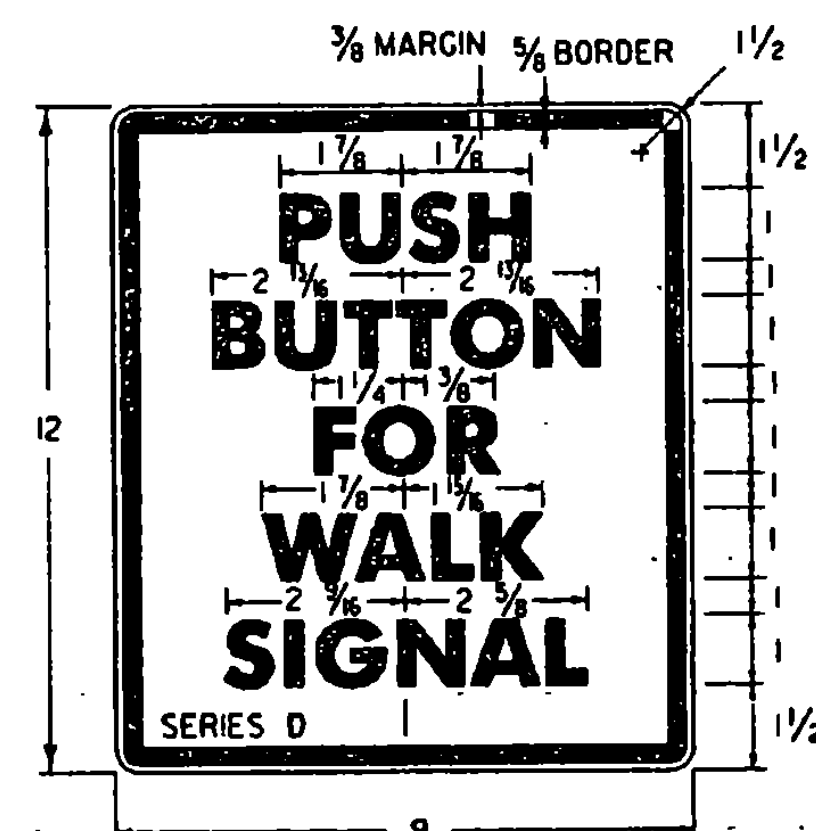
  

SIGN	L	M	N	P	Q	R	S
	STD.	5 3/8	6 5/8	6 1/2	3 1/2	4 3/8	4 1/8
SPECIAL	8 1/4	10	9 3/4	5 1/4	6 3/8	7 3/8	2 1/4

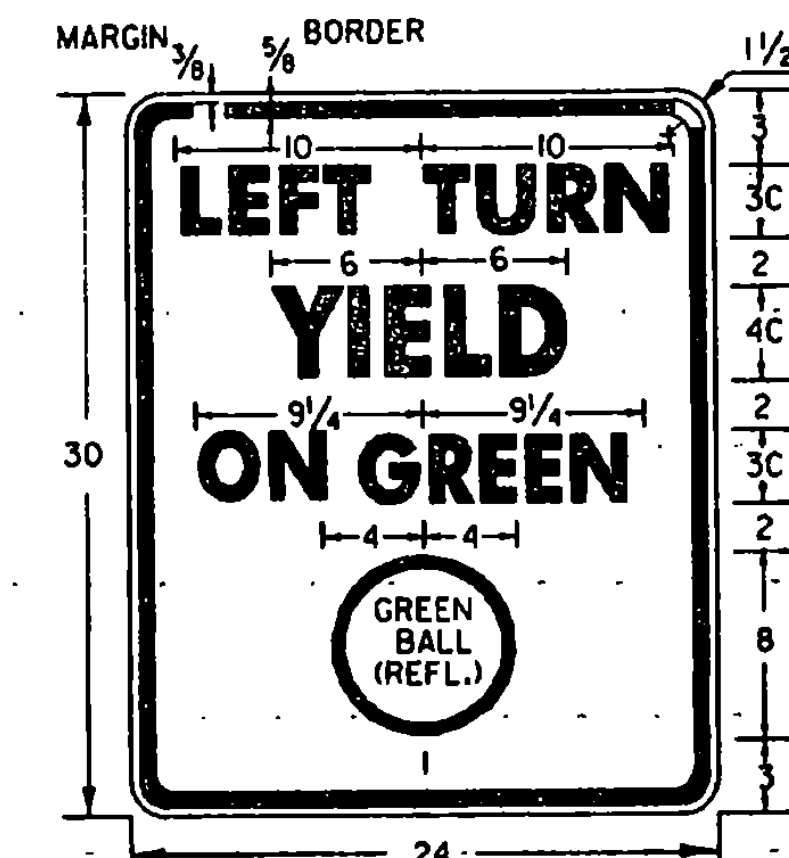


OVERHEAD MOUNTING  
R10-11B

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MIN.	18	3/8	3/8	2 3/4	3E	1 3/4	3D	2 3/8	3 1/16	5	4 1/8	7 1/8	5 1/4	1 1/2
STD.	24	3/8	3/8	3 1/2	4E	2 1/2	4D	3 3/8	4 1/8	6 3/8	6 1/2	9 1/2	6 1/2	1 1/2
SPECIAL	30	1/2	3/4	4 1/2	5E	3	5D	4 3/8	5 3/8	8 1/4	8 1/8	11 3/8	7 3/4	1 3/8



R10-4



R10-12

**GENERAL:**

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

**COLORS:**

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

**MATERIALS:**

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

24" X 12"	24" X 24"	24" X 30"	24" X 36"	36" X 48"
9' X 12'	18' X 18'	0.060"	0.080"	0.100"
		1 1/2"	1 1/2"	5/8"
		18 GAGE	16 GAGE	14 GAGE

FLAT SHEET ALUMINUM  
HIGH DENSITY OVERLAIN PLYWOOD  
GALVANIZED FLAT SHEET STEEL

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO-TYPE-III OR IIII WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

**SPECIFICATIONS**

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

**TEXT DESIGN:**

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS.: E-144  
REQUIRED



STANDARD  
E-140

**REVISIONS AND CORRECTIONS**

- OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
- SEPT. 20, 1995 - ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS, SHEET REALIGNMENT
- AUG. 30, 1996 - MADE ERROR CORRECTIONS TO SIGN DETAILS R10-6 & R10-11B

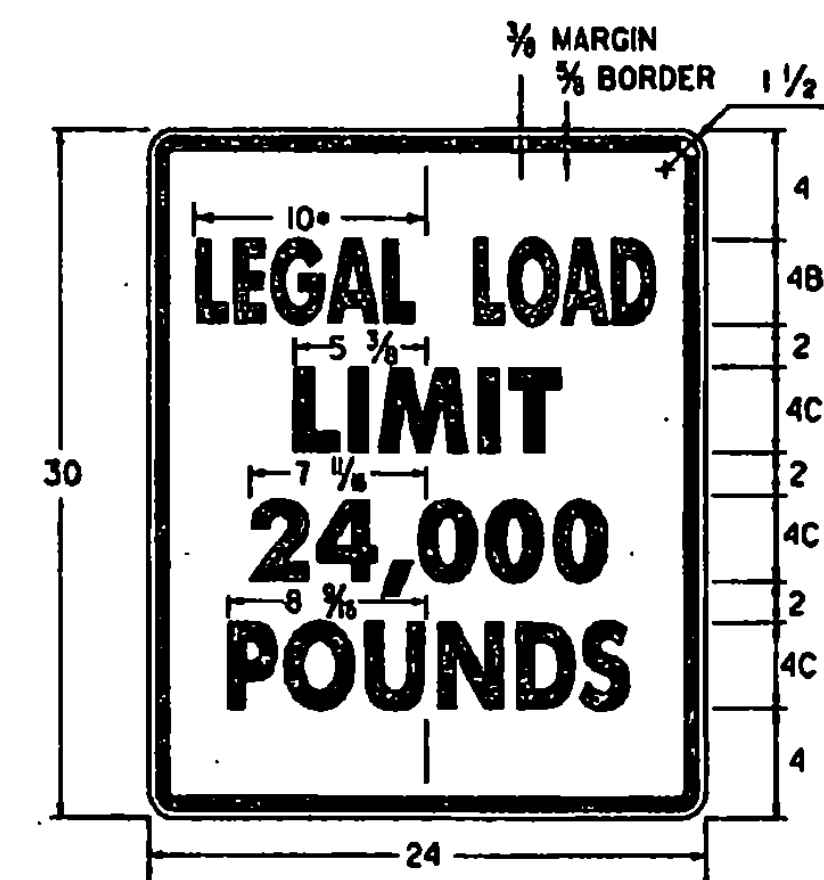
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**APPROVED**

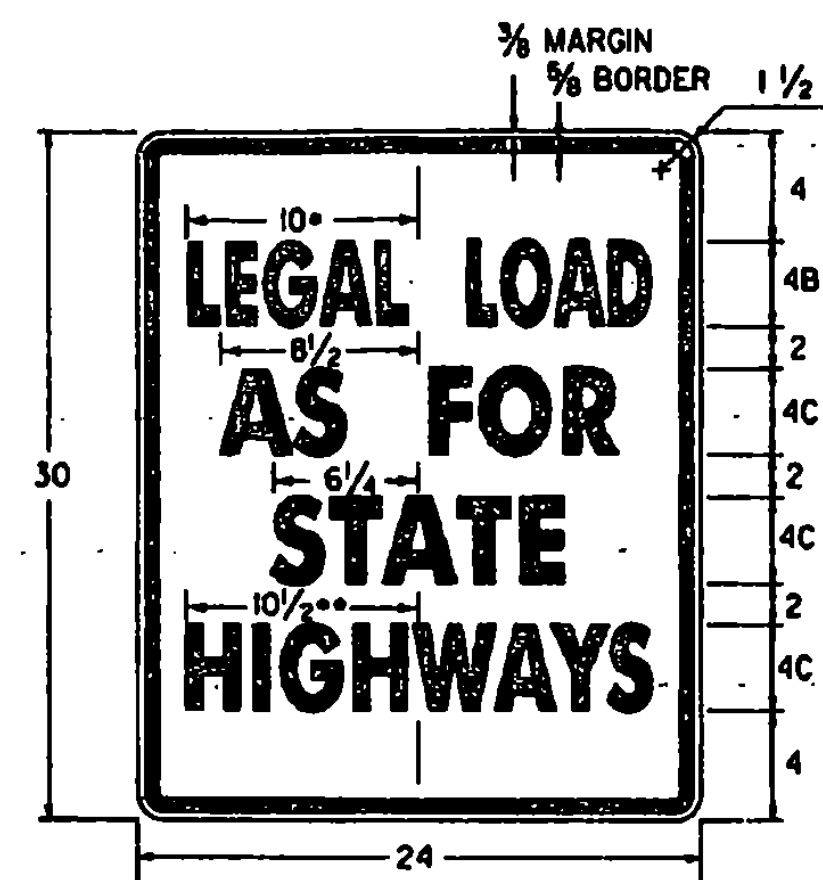
*John K...*  
DIRECTOR OF ENGINEERING

*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN  
DETAILS



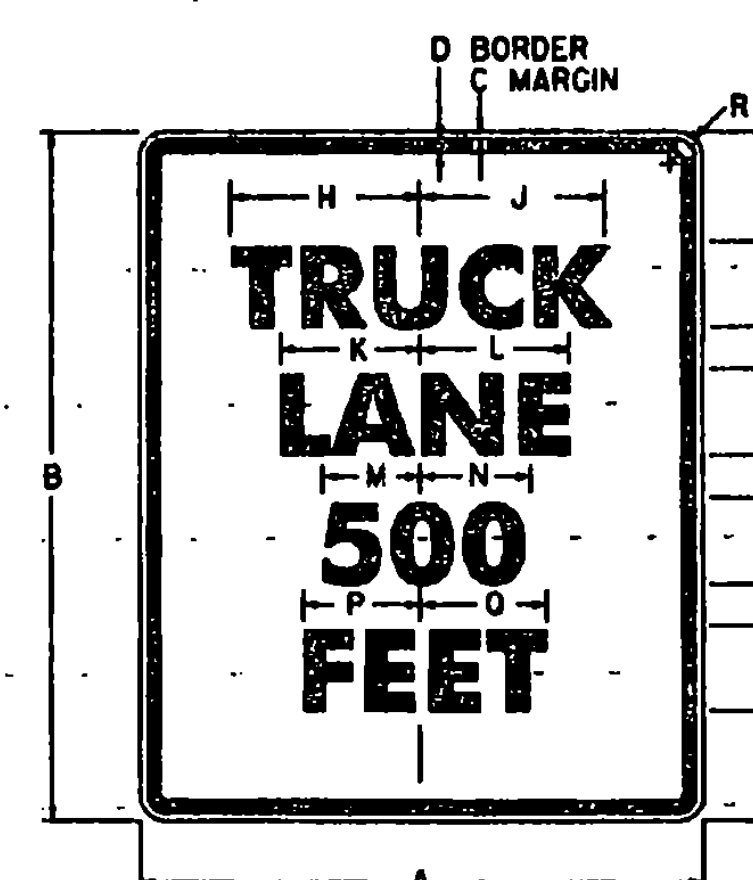
\* REDUCE SPACING 50 %  
LINE 3 ALTERNATE - 16,000  
VR-017



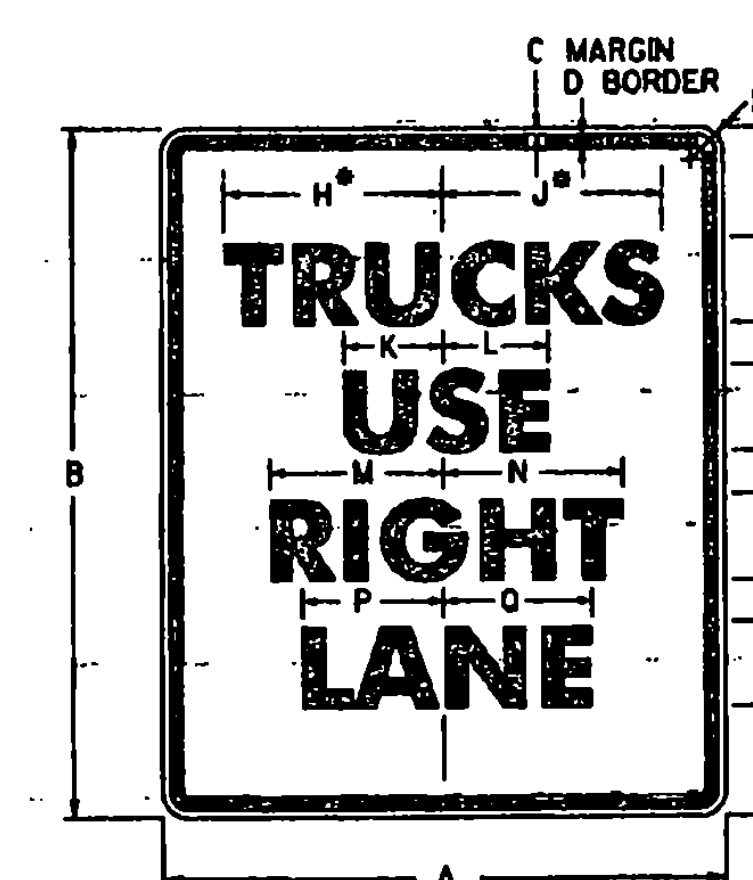
\* REDUCE SPACING 50 %  
\*\* REDUCE SPACING 38 %  
VR-079



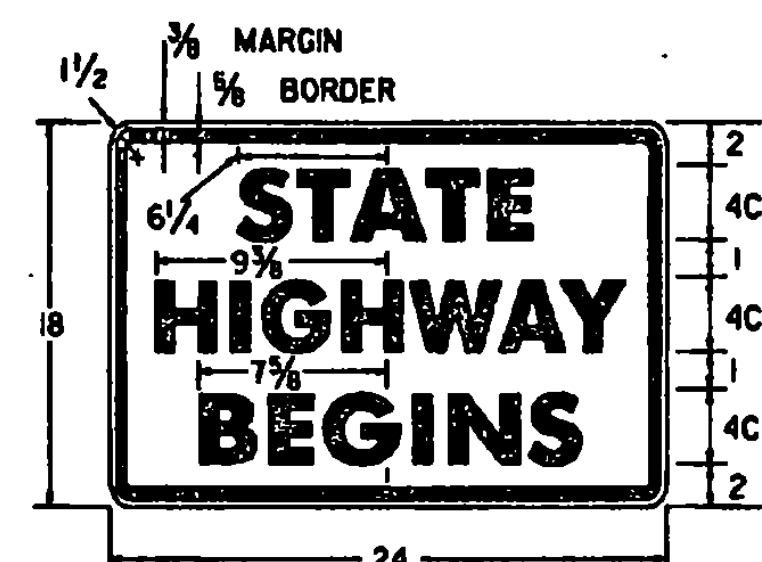
\* REDUCE SPACING 25 %  
R4-3



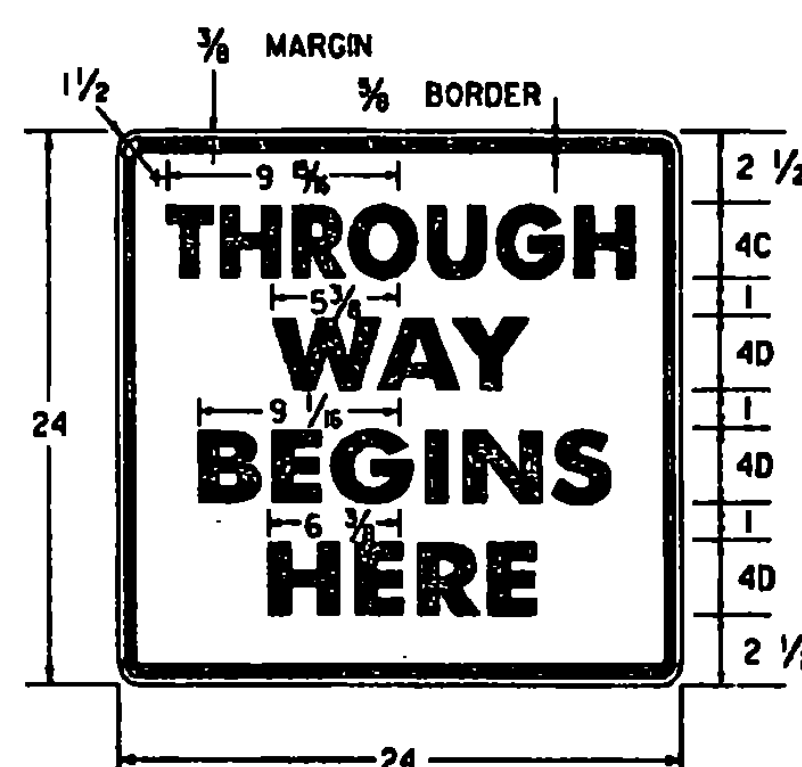
R4-6



\* REDUCE SPACING 32 %  
R4-5



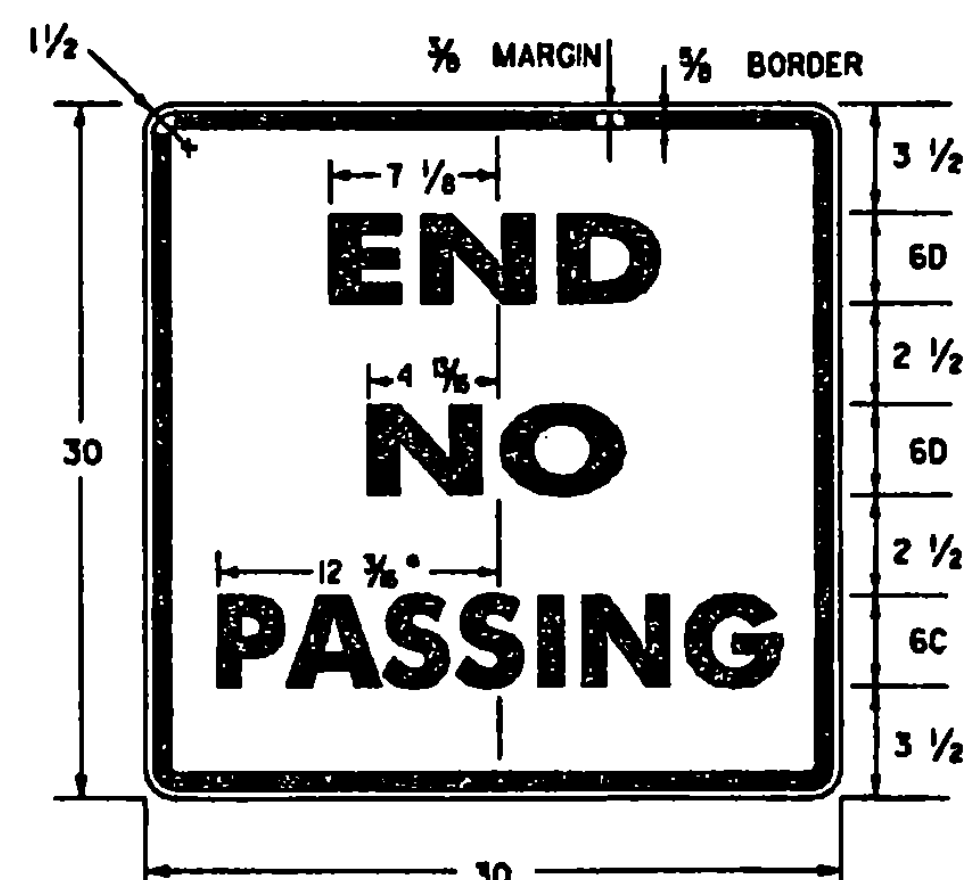
VR-039



VR-041



VR-038

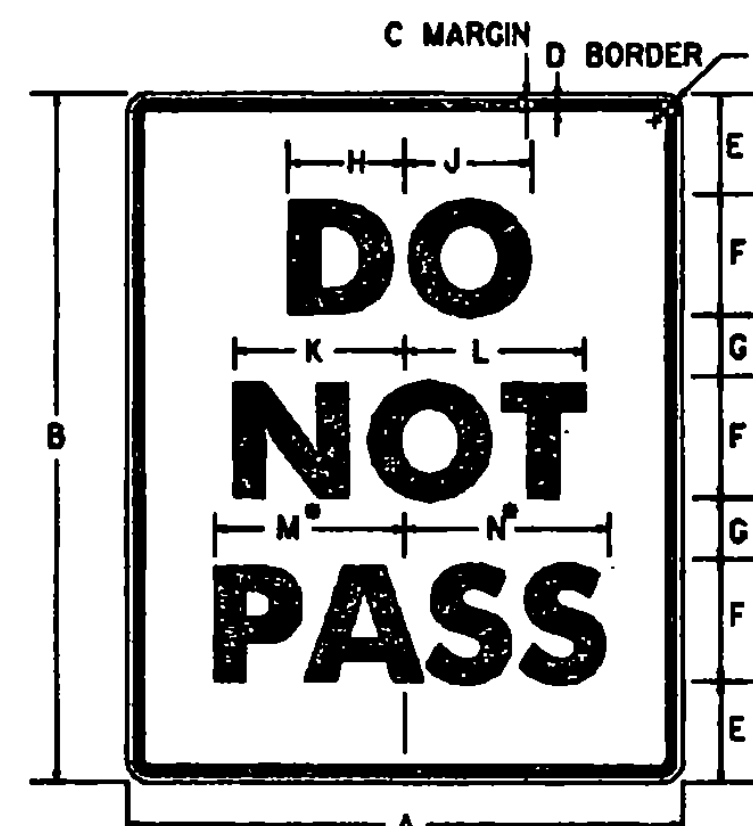


\* REDUCE SPACING 50 %  
VR-417

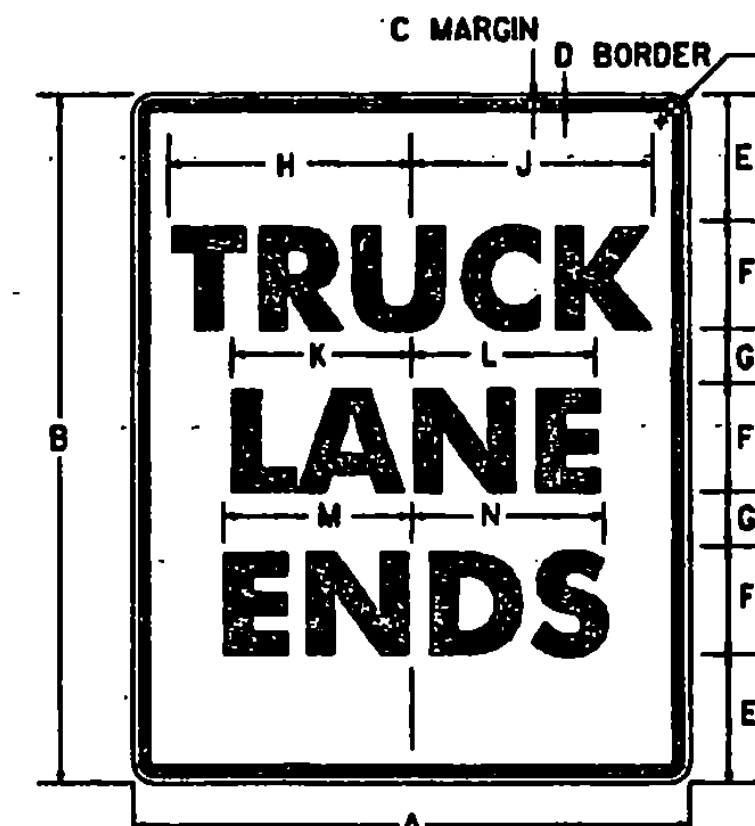
SIGN	DIMENSIONS ( INCHES )															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P		
STD.	24	30	3/8	3/8	3/8	3/8	4	2 1/4	9 3/4	10	6	6 3/8	7 1/8	7 5/8	1 1/2	
EXPWY.	36	48	3/8	7/8	6	6D	4	14 3/8	15	9	9 3/8	10 1/8	11 3/8	2 1/4		
FWY.	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	19 1/2	20	12	13 3/8	14 1/4	15 1/4	3		

SIGN	DIMENSIONS ( INCHES )																	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R		
STD.	24	30	3/8	3/8	3/8	3/8	4E	2 1/4	9 3/4	9 1/8	7 3/8	7 1/4	5 1/8	5 3/8	6 7/8	7 1/8	1 1/2	
EXPWY.	36	48	3/8	7/8	6	6E	4	14 3/4	14 1/2	11 3/8	11 1/2	8 1/2	8 3/4	10 3/8	10 3/8	2 1/4		
FWY.	48	60	3/4	1 1/4	7 1/4	8E	4 1/2	19 3/8	19 3/8	15 3/8	15 3/8	11 3/8	11 3/8	13 3/4	14 1/8	3		

SIGN	DIMENSIONS ( INCHES )																	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	O	R		
STD.	24	30	3/8	3/8	3/8	3/8	4D	2 1/4	9 3/4	9 3/8	4 3/4	5	7 1/8	7 5/8	6 1/4	6 5/8	1 1/2	
EXPWY.	36	48	3/8	7/8	6	6D	4	14 3/8	13 3/8	7 1/8	7 1/2	10 1/8	11 3/8	9 3/8	9 3/8	2 1/4		
FWY.	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	19 1/8	18 3/8	9 1/2	10	14 1/4	15 1/4	12 1/2	13 1/4	3		



\* REDUCE SPACING 40 %  
R4-1



VR-186

SIGN	DIMENSIONS ( INCHES )															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P		
STD.	24	30	3/8	3/8	3/2	6D	2 1/2	4 1/8	5	7 1/8	7 3/8	9 3/8	9 3/4	1 1/2		
EXPWY.	36	48	3/8	7/8	7	8D	5	6 1/4	6 3/8	9 1/2	9 3/4	12 1/2	13	2 1/4		
FWY.	48	60	3/4	1 1/4	8	10D	7	7 3/4	8 3/8	11 3/8	12 1/4	15 3/8	16 1/4	3		

SIGN	DIMENSIONS ( INCHES )															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P		
STD.	24	30	3/8	3/8	3/2	6C	2 1/2	10 1/4	10 3/8	7 3/8	7 3/4	7 3/8	8	1 1/2		
EXPWY.	36	48	3/8	7/8	7	8C	5	13 3/8	13 3/8	10 3/8	10 3/8	10 3/8	10 3/8	2 1/4		
FWY.	48	60	3/4	1 1/4	8	10D	7	20 3/8	20 3/8	15 3/8	15 3/8	16 1/8	16 1/8	3		

**GENERAL:**

1. ALL DIMENSIONS IN INCHES.

**COLORS:**

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

**MATERIALS:**

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

24" X 18"	36" X 48"
24" X 24"	48" X 60"
24" X 30"	
30" X 30"	

FLAT SHEET ALUMINUM  
HIGH DENSITY OVERLAID PLYWOOD  
GALVANIZED FLAT SHEET STEEL

0.080"	0.100"
1/2"	5/8"
16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE III OR IIII WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

**SPECIFICATIONS:**

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

**TEXT DESIGN:**

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**REVISIONS AND CORRECTIONS**

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAIL,  
ADDED SIGN ID NUMBERS, MINOR NOTE  
REVISIONS.

APPROVED FOR THIS PROJECT  
AND/OR DESIGN IMPLEMENTATION.  
FHWA FINAL APPROVAL PENDING.

**APPROVED**

*Stephen D. McAllen*  
DIRECTOR OF ENGINEERING

*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

**REGULATORY SIGN  
DETAILS**

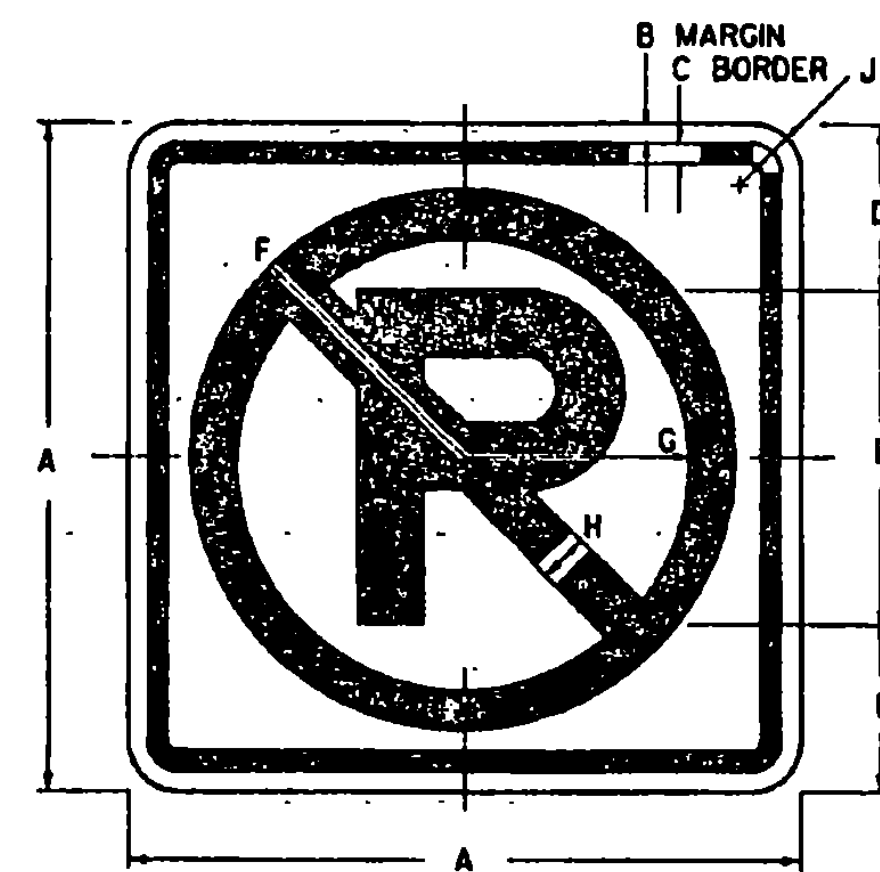
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**OTHER STDS.: NONE  
REQUIRED**



**STANDARD  
E-141**

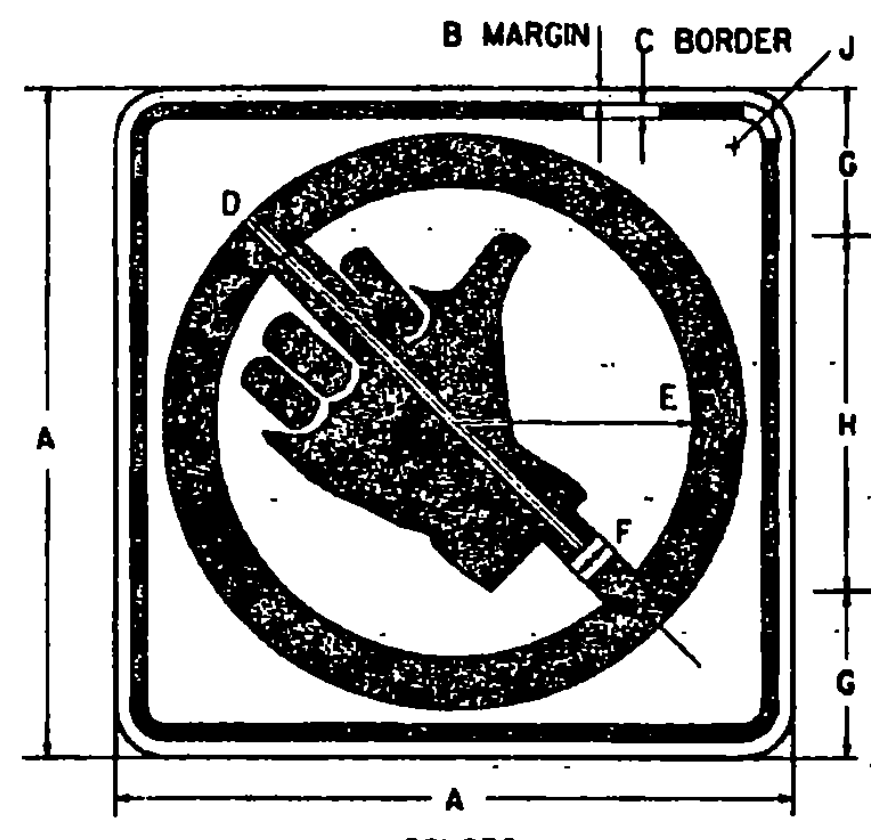




**COLORS**  
 CIRCLE AND DIAGONAL - RED (REFL - RURAL)  
 SYMBOL AND BORDER - BLACK (NON - REFL)  
 BACKGROUND - WHITE (REFL - RURAL)

**R2-3A**

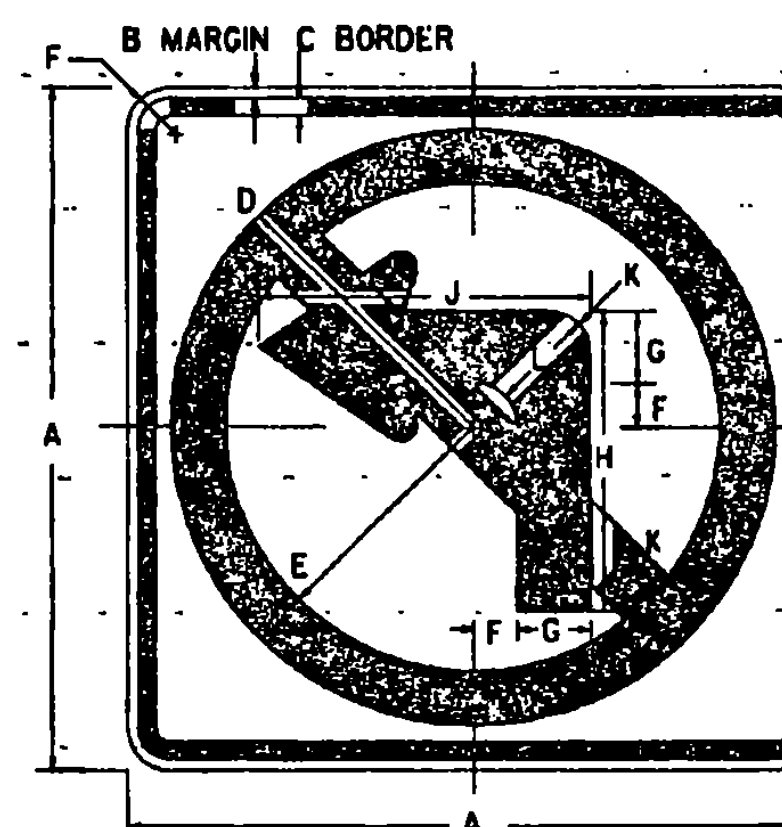
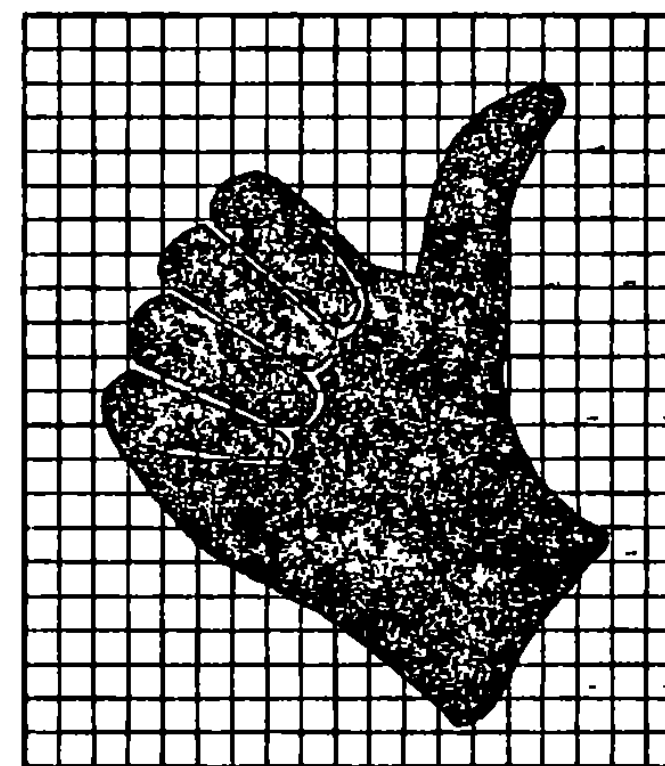
SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J		
URBAN MIN. AND STD.	12	3/8	3/8	3	6E(M)	4 1/2	3 1/2	1	1 1/2		
RURAL MIN. AND STD.	24	3/8	3/8	6	12E(M)	10 1/2	8 1/2	2	1 1/2		
EXPWY.	36	3/8	3/8	9	18E(M)	15 3/4	12 3/4	3	2 1/4		
FWY.	48	3/4	1/4	12	24E(M)	21	17	4	3		



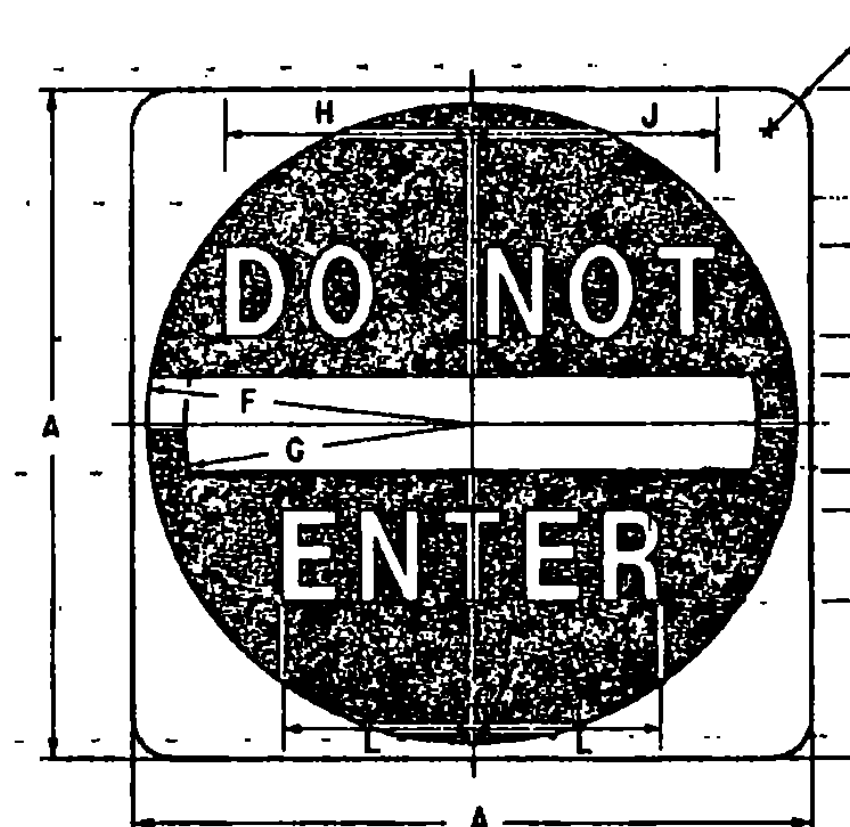
**COLORS**  
 CIRCLE AND DIAGONAL - RED (REFL)  
 SYMBOL AND BORDER - BLACK (NON - REFL)  
 BACKGROUND - WHITE (REFL)

**R2-4A**

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J		
MIN.	18	3/8	3/8	7 1/2	6 3/4	1 1/2	3 3/4	10 1/2	1 1/2		
STD.	24	3/8	3/8	10 1/2	8 1/2	2	5	14	1 1/2		



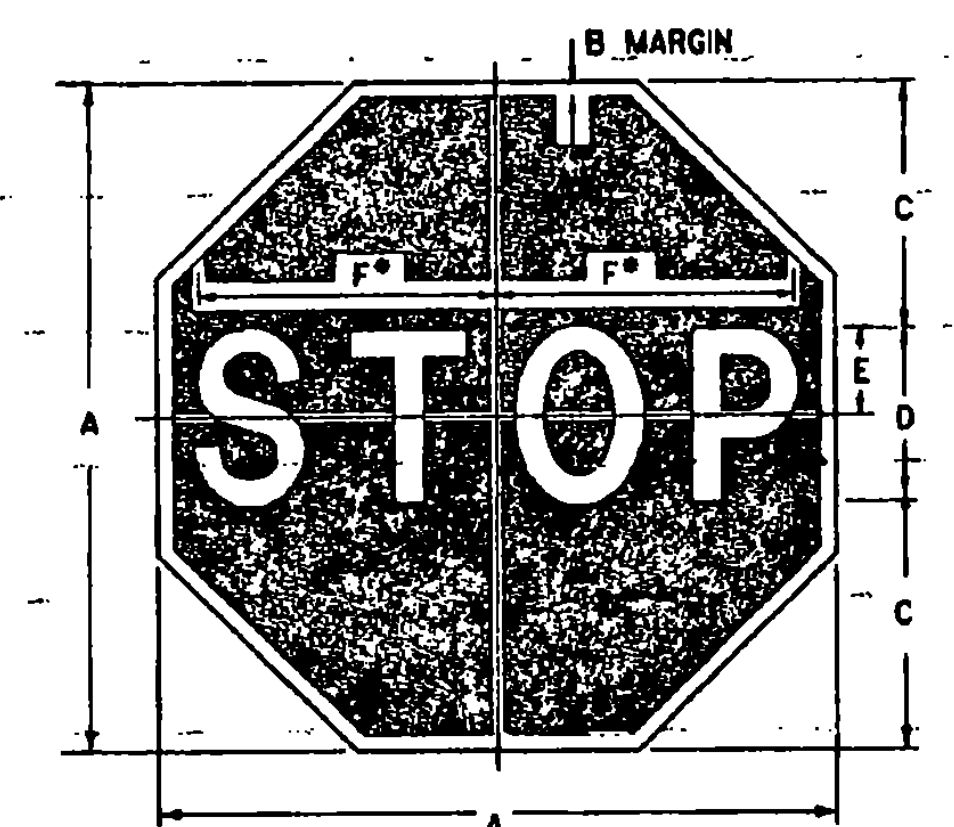
**R2-2**



**COLORS**  
 SYMBOL - RED (REFL)  
 LEGEND AND BACKGROUND - WHITE (REFL)  
 ENCAPSULATED LENS

**R2-1**

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
MIN. AND STD.	30	6 1/2	4D	2	5	14 1/2	12 1/2	9 3/4	10	1 1/2	7 1/2	
EXPWY.	36	7 1/2	5D	2 1/2	6	17 1/2	15	12	12 3/8	2 1/4	8 1/4	
SPECIAL	48	11	6D	3	8	23 1/2	20	14 1/2	15	3	11 1/4	

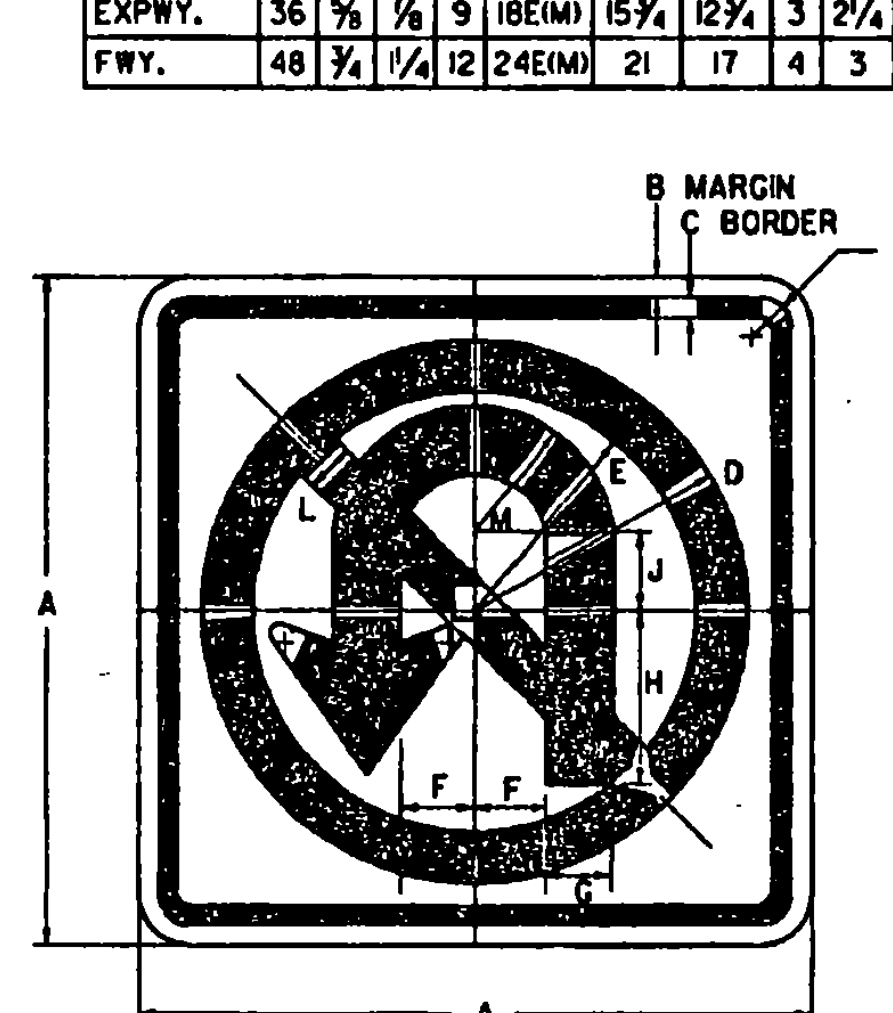


• REDUCE SPACING 40 X

**COLORS**  
 LEGEND - WHITE (REFL)  
 BACKGROUND - RED (REFL)  
 ENCAPSULATED LENS

**R1-1**

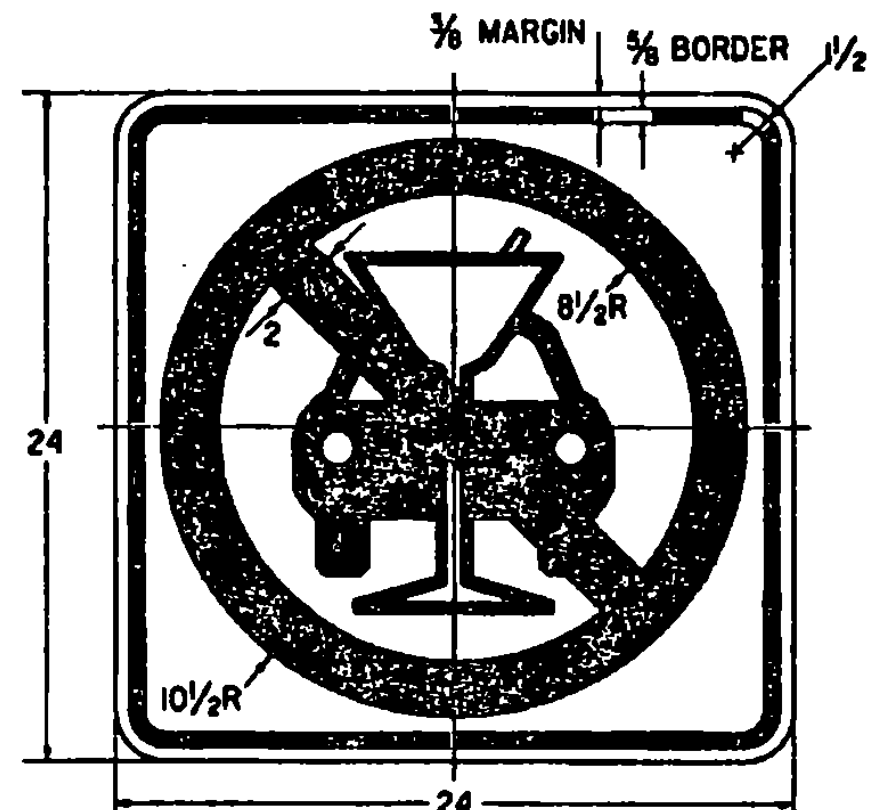
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
BIKE	18	3/4	6	6C	3	7 1/4
MIN.	24	3/4	8	8C	4	10
STD.	30	3/4	10	10C	5	12 1/4
EXPWY.	36	3/4	12	12C	6	15
SPECIAL	48	1 1/4	16	16C	8	20



**COLORS**  
 CIRCLE AND DIAGONAL - RED (REFL)  
 ARROW AND BORDER - BLACK (NON - REFL)  
 BACKGROUND - WHITE (REFL)

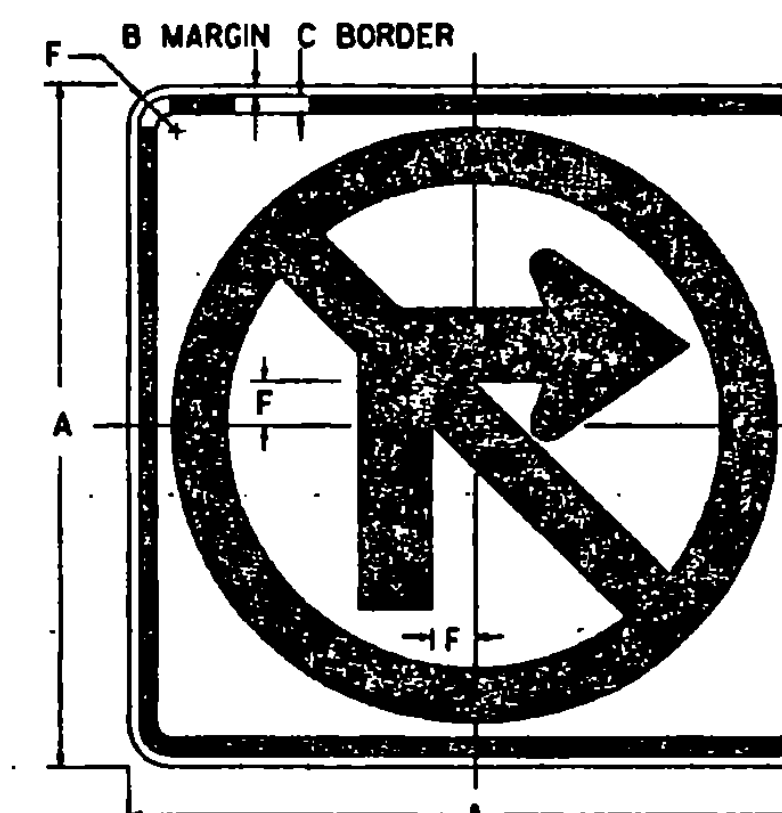
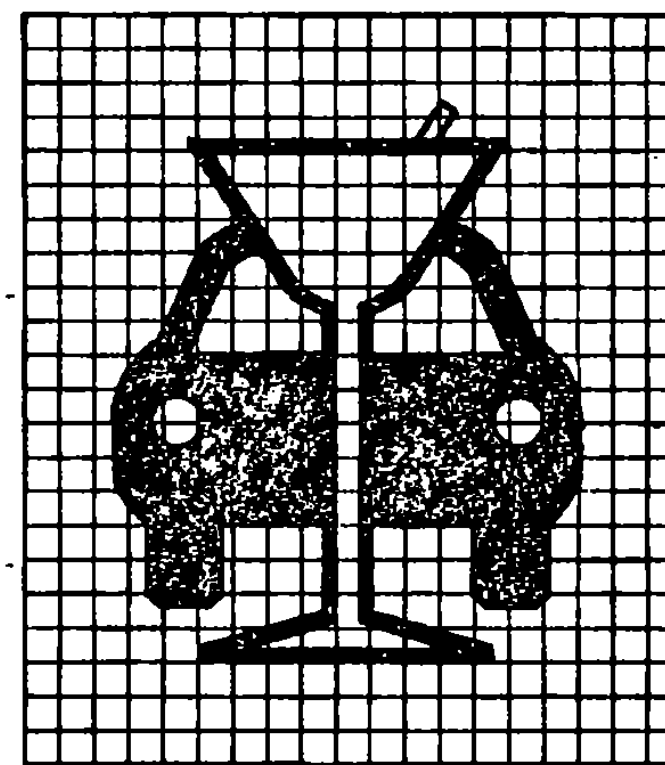
**R2-4**

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
MIN. AND STD.	24	3/8	3/8	10 1/2	8 1/2	2 1/2	2 1/2	6	2 1/4	1 1/2	2	5	
SPECIAL	30	1/2	3/4	13 1/4	10 3/4	3 1/8	3 1/8	7 1/2	2 3/8	1 3/4	2 1/4	6 1/4	
EXPWY.	36	3/8	3/8	15 3/4	12 3/4	3 3/4	3 3/4	9	3 3/8	2 1/4	3	7 1/2	
SPECIAL	48	3/4	1 1/4	21	17	5	5	12	4 1/2	3	4	10	



**COLORS**  
 CIRCLE AND DIAGONAL - RED (REFL)  
 SYMBOL AND BORDER - BLACK (NON - REFL)  
 BACKGROUND - WHITE (REFL)

**VR-654**



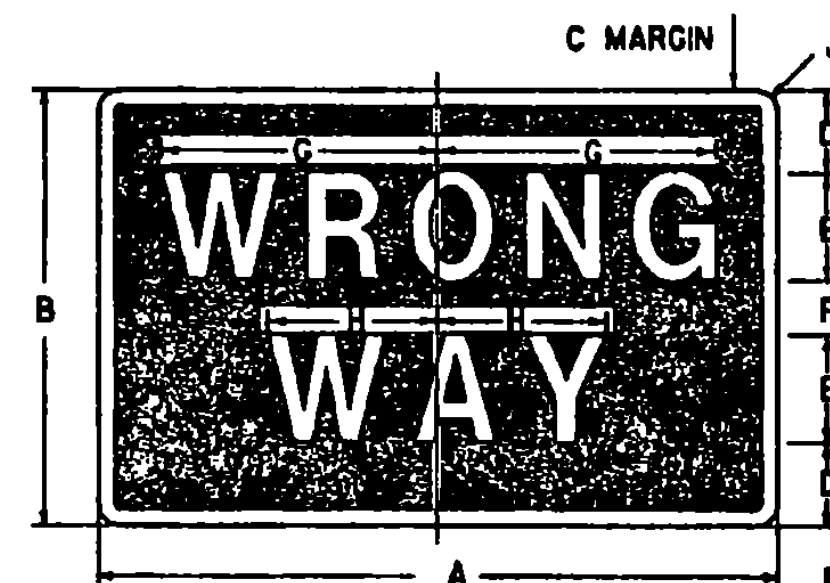
**R2-1**

NOTE:  
 USE SAME ARROW DETAIL FOR R3-1 AND R3-2

**COLORS**

CIRCLE AND DIAGONAL - RED (REFL)  
 ARROW AND BORDER - BLACK (NON - REFL)  
 BACKGROUND - WHITE (REFL)

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
MIN. AND STD.	24	3/8	3/8	10 1/2	8 1/2	1 1/2	2 1/2	10 1/2	1 1/2	2	1 1/2	
SPECIAL	30	1/2	3/4	13 1/4	10 3/4	1 1/4	3 1/4	13 1/4	1 1/4	2 1/4	3/4	
EXPWY.	36	3/8	3/8	15 3/4	12 3/4	2 1/4	3 3/4	15 3/4	1 1/4	3	3/4	
SPECIAL	48	3/4	1 1/4	21	17	3	5	21	2 3/4	4	1	



"WRONG WAY"

**COLORS**  
 LEGEND - WHITE (REFL)  
 BACKGROUND - RED (REFL)  
 ENCAPSULATED LENS

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
MIN.	30	18	3/8	3	5D	2	11 1/8	6 1/4	1 1/2	
STD.	36	24	3/4	4 1/2	6D	3	13 3/8	8 1/8	1 1/2	
SPECIAL	42	30	3/8	5	8D	4	17 3/4	10 3/4	1 1/2	

**R2-1A**

**REVISIONS AND CORRECTIONS**

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
 SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS,  
 ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT  
 AND/OR DESIGN IMPLEMENTATION,  
 FHWA FINAL APPROVAL PENDING.

**APPROVED**

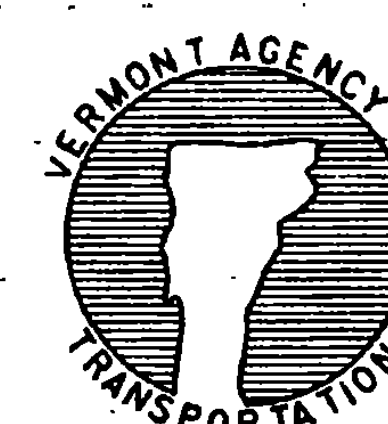
*Simon D. McArthur*  
 DIRECTOR OF ENGINEERING

*David J. San*  
 TRAFFIC AND SAFETY ENGINEER

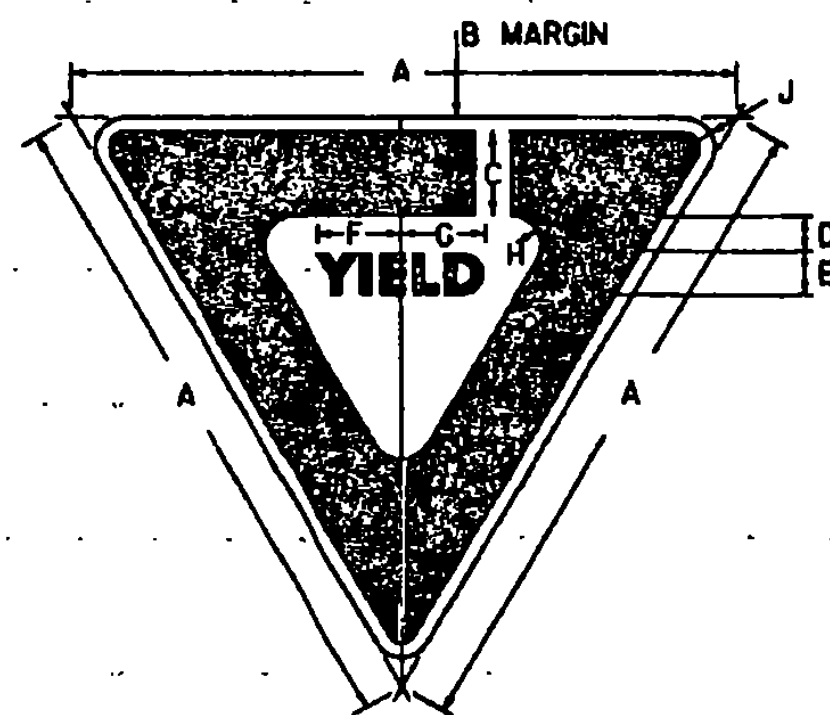
**REGULATORY SIGN  
 DETAILS**

/traf/std/stdel43.dgn :stdel43.1

**OTHER STDs: E-144  
 REQUIRED**



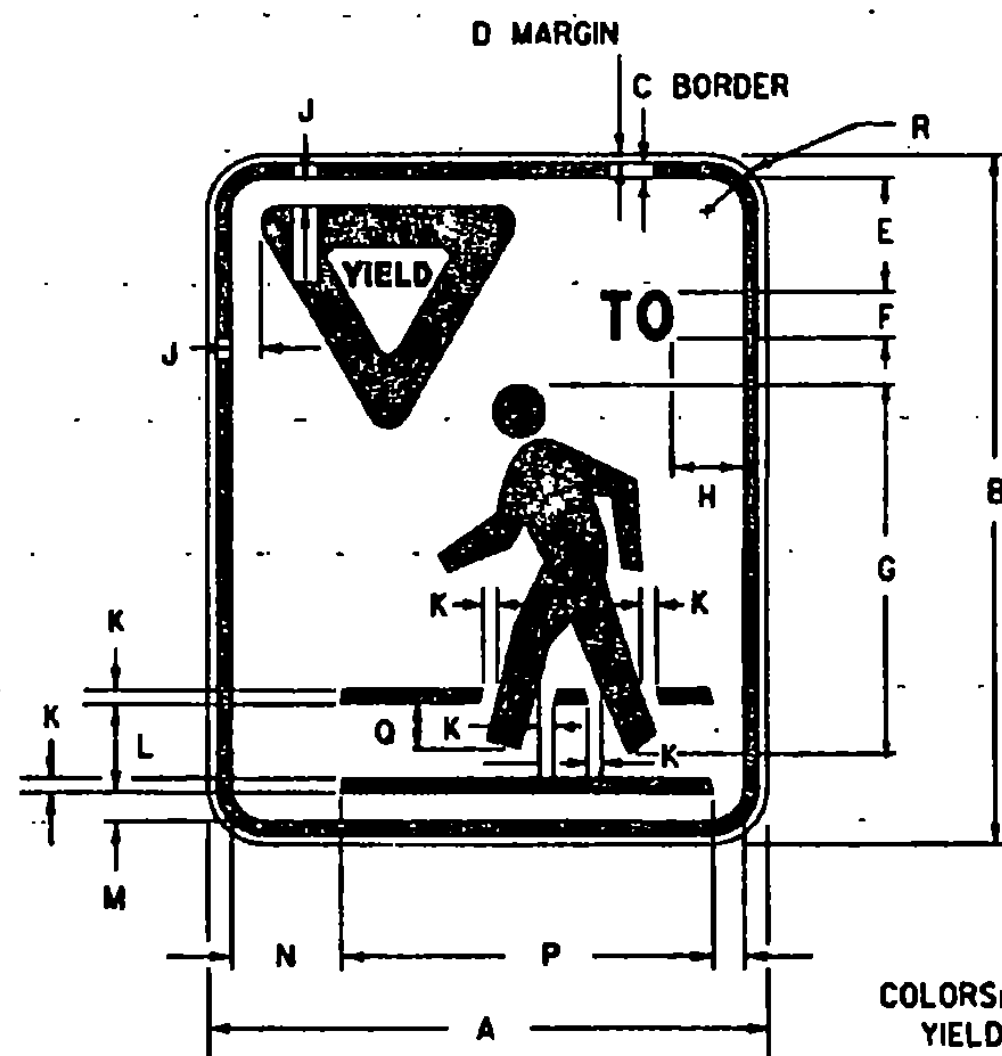
**STANDARD  
 E-143**



COLORS  
LEGEND AND BORDER - RED (REFL.)  
BACKGROUND - WHITE (REFL.)  
ENCAPSULATED LENS

R1-2

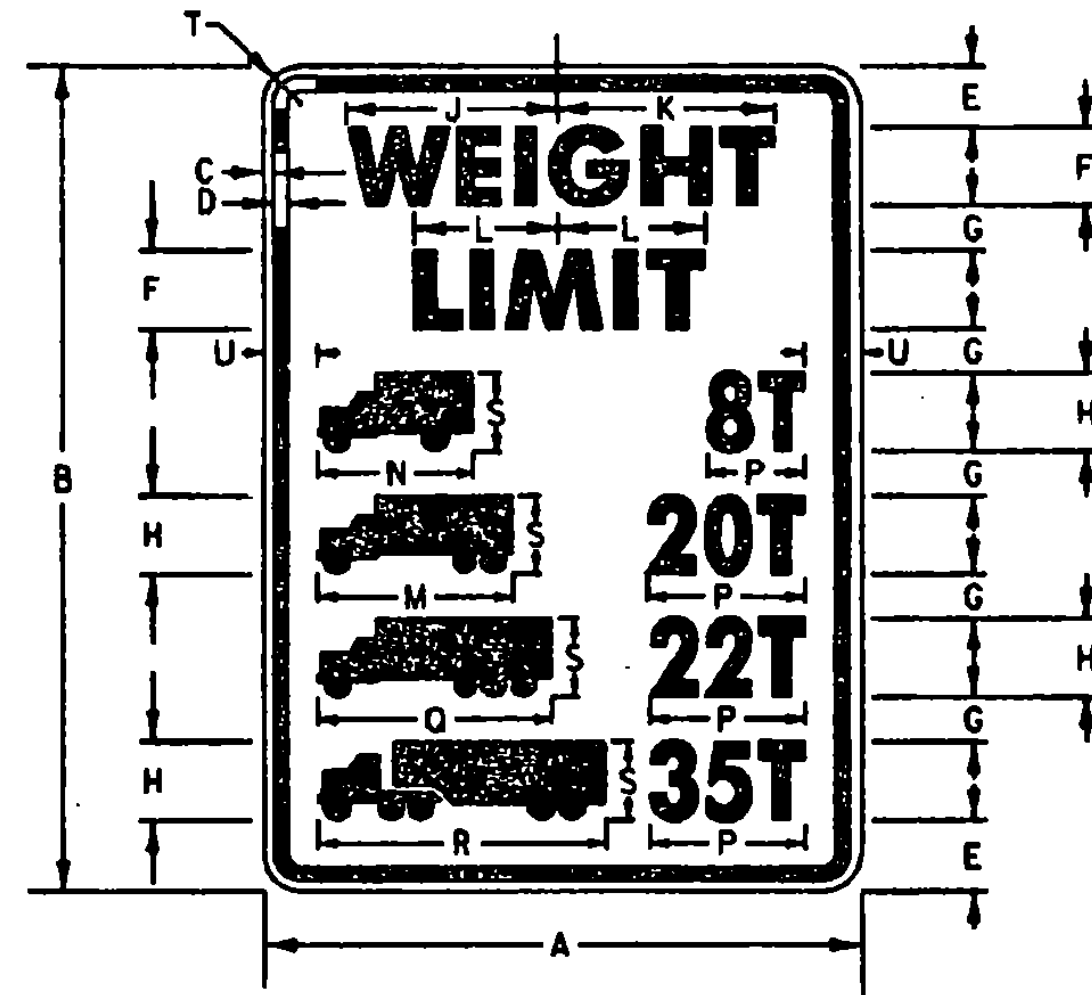
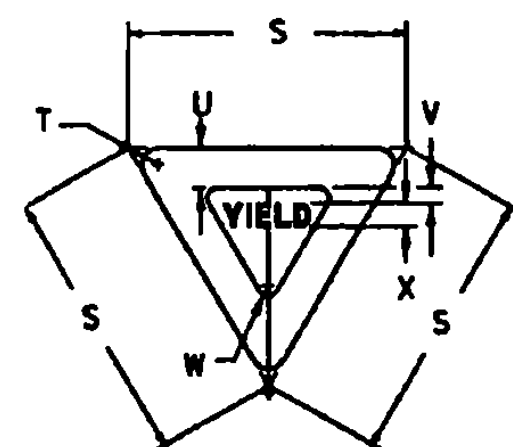
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
BIKE	24	36	3/8	3	1 1/4	2C	3/4	3	1/2	1/2				
MIN.	30	36	3/8	4	1 3/4	2 1/2 C	3 3/4	3 3/4	1/2	1/2				
STD.	36	36	3/4	5	2	3C	4 1/4	4 3/4	1/4	2				
EXPWY.	48	60	1	6	2 3/4	4C	6 1/4	5 3/4	2	3				
SPECIAL	60	72	1 1/4	8	3 1/2	5C	7 1/4	7 1/4	2 1/2	4				



VR-004A

COLORS  
YIELD TO PEDESTRIAN SIGNS HAVE A BLACK PEDESTRIAN SYMBOL, BLACK TEXT, A BLACK BORDER AND A REFLECTORIZED RED YIELD SYMBOL ON A REFLECTORIZED WHITE BACKGROUND

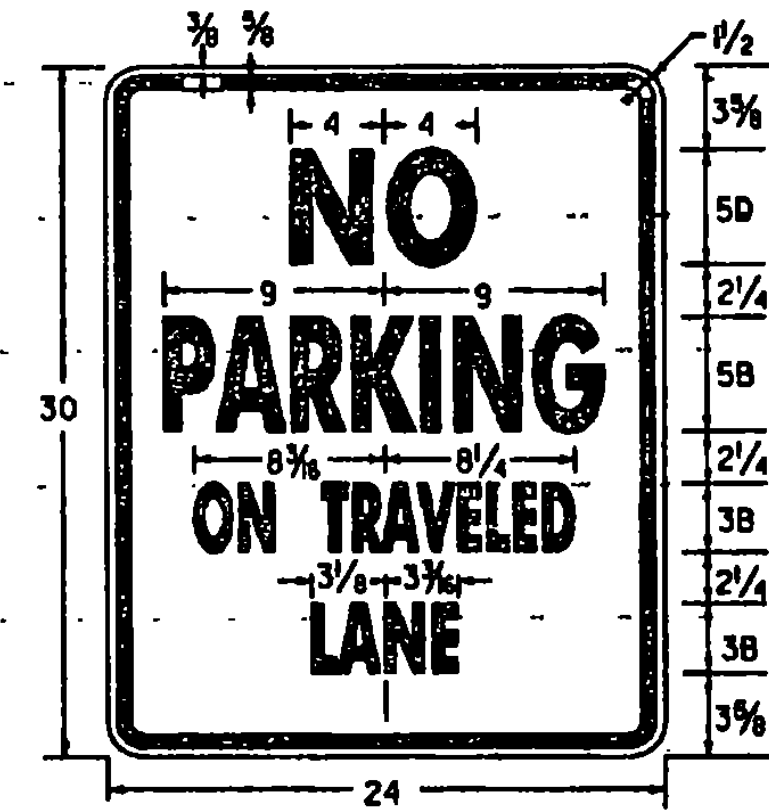
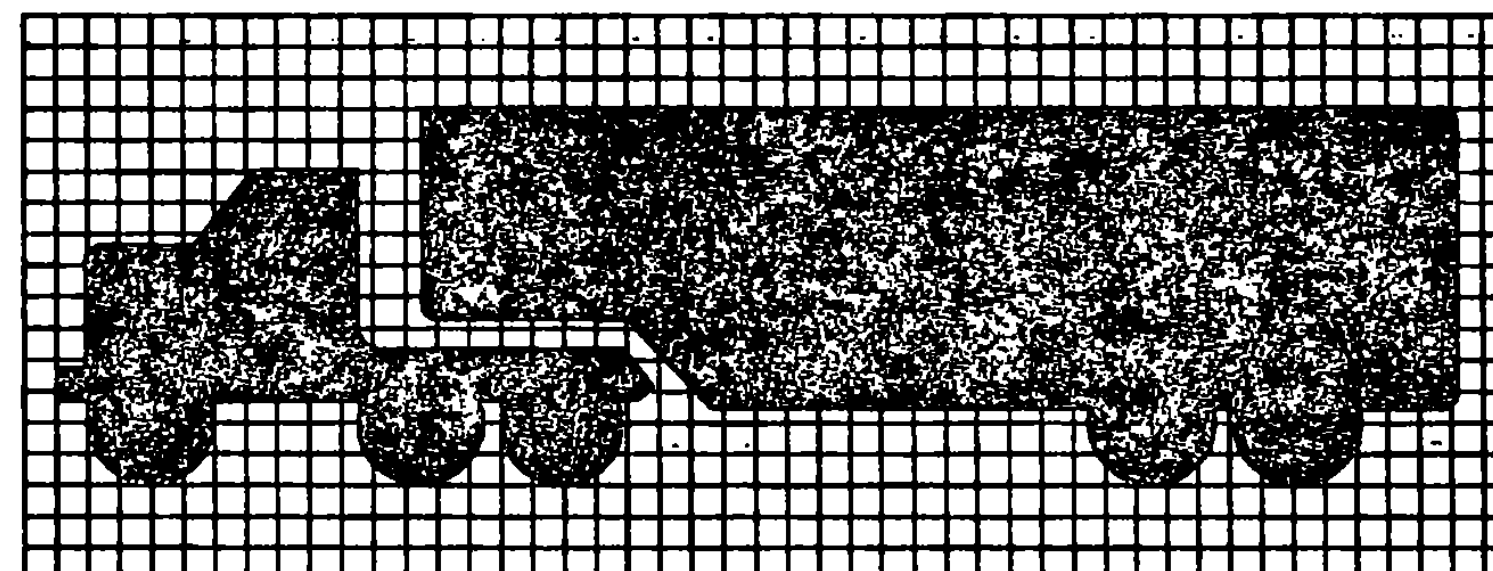
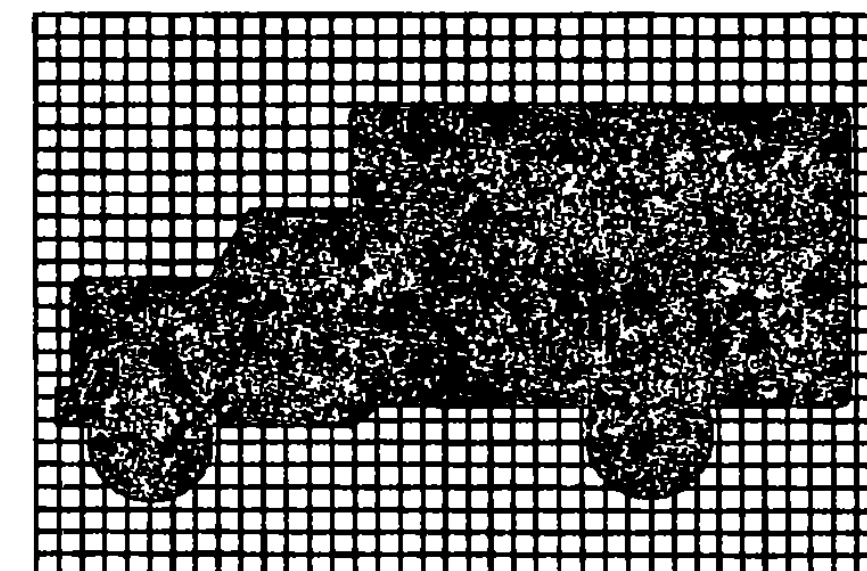
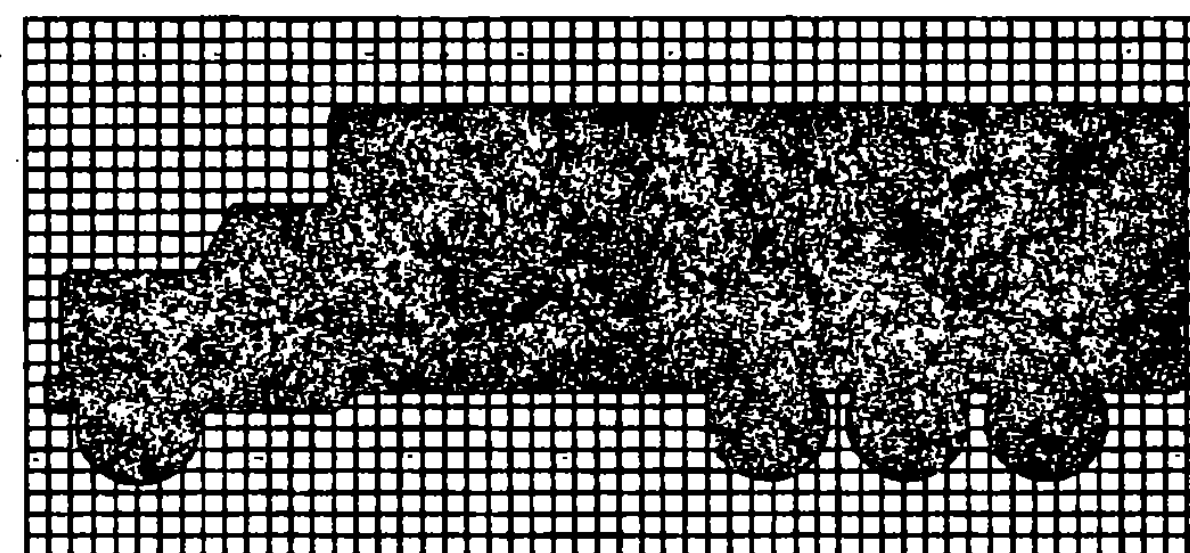
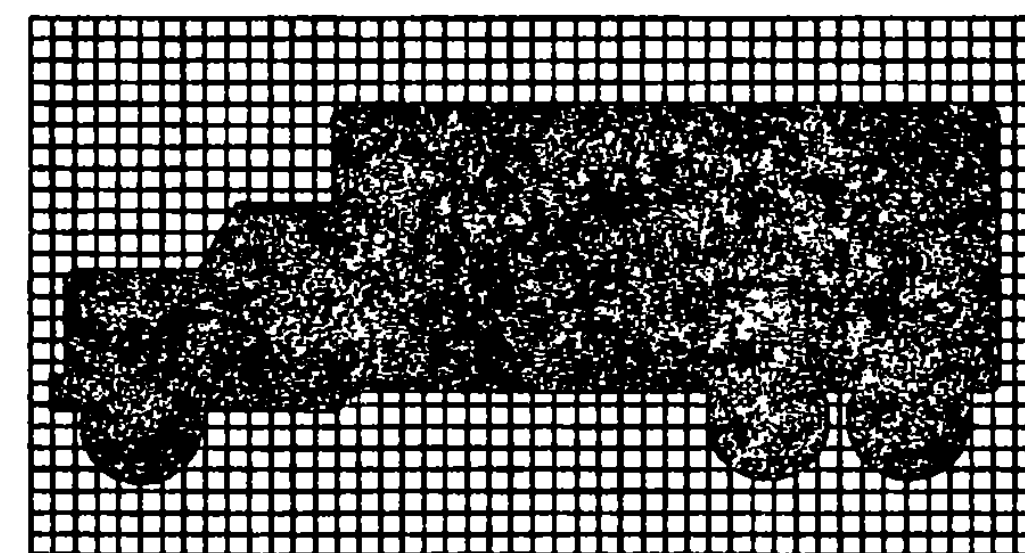
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	5/8	3/8	5	20	12	2 1/4	3/8	3/8	3/4			
SIGN	M	N	P	O	R	S	T	U	V	W	X			
STD.	1/4	4 3/4	16	2	1 1/2	12	3/4	1 1/4	1/2	1/2	1/2	1/2	1/2	1/2



COLORS  
LEGEND - BLACK (NON-REFL.)  
BACKGROUND - WHITE (REFL.)

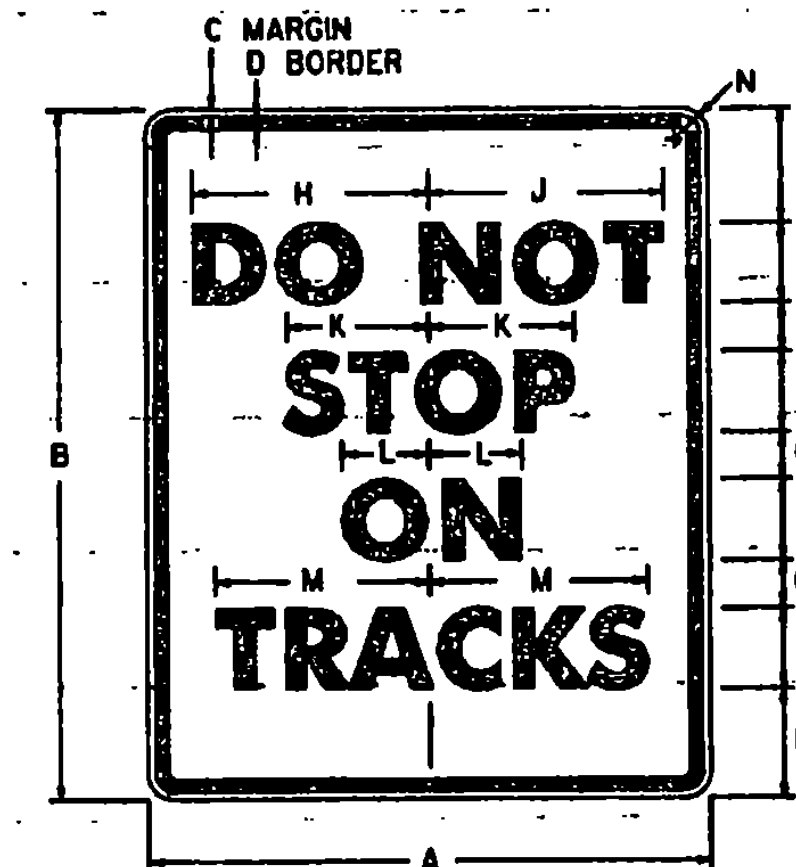
VR-015

SIGN	DIMENSIONS (INCHES)																			
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	
MIN.	24	36	3/8	3/8	2 3/4	3E	2 1/2	3C	7 3/8	8 3/8	5 3/4	7 1/4	6	var	9 1/2	11	3	1 1/2	2 1/2	
STD.	30	42	1/2	3/4	3 3/8	4E	2 1/4	4C	10 1/2	11 1/2	7 3/4	10	8	var	12	14 1/2	4	1 1/2	2 3/4	
EXPWY.	36	54	3/4	3/4	3 3/8	5E	3 1/4	5C	13 1/4	14	9 3/8	12 1/2	10	var	15	18 3/8	5	2 1/4	3	
FWY.	48	66	1 1/4	1 1/4	3 3/4	6E	4 1/2	6C	15 3/4	16 3/4	11 1/2	16	12	var	18	22	6	3	5	



COLORS  
LEGEND - RED (REFL.)  
BACKGROUND - WHITE (REFL.)

VR-020



R8-8

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	P
STD.	24	30	3/8	5/8	3 3/8	4D	2 1/4	9 1/4	9 3/8	6 3/8	3 1/2	10	1 1/2	
SPECIAL	36	48	5/8	7/8	6	6D	4	14	14 1/8	9 3/4	5 1/4	15	2 1/4	
SPECIAL	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	18 1/2	19 1/4	13 3/8	7	20	3	

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

24" x 30"	0.080"	36" x 48"	0.125"
30" x 36"	1/2"	36" x 54"	5/8"
24" x 36"	16 GAGE	48" x 60"	12 GAGE
30" x 42"	14 GAGE	48" x 66"	

FLAT SHEET ALUMINUM 0.080"  
HIGH DENSITY OVERLAIN PLYWOOD 1/2"  
GALVANIZED FLAT SHEET STEEL 16 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

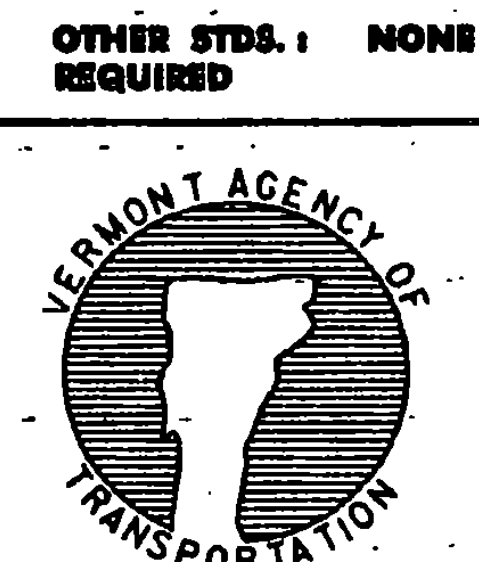
TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR 'TRAFFIC SIGNS.'

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE 'STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS' AND DESIGNS-PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.



STANDARD  
E-146

REVISIONS AND CORRECTIONS  
SEPT. 20, 1995 - DATE OF ORIGINAL ISSUE

APPROVED

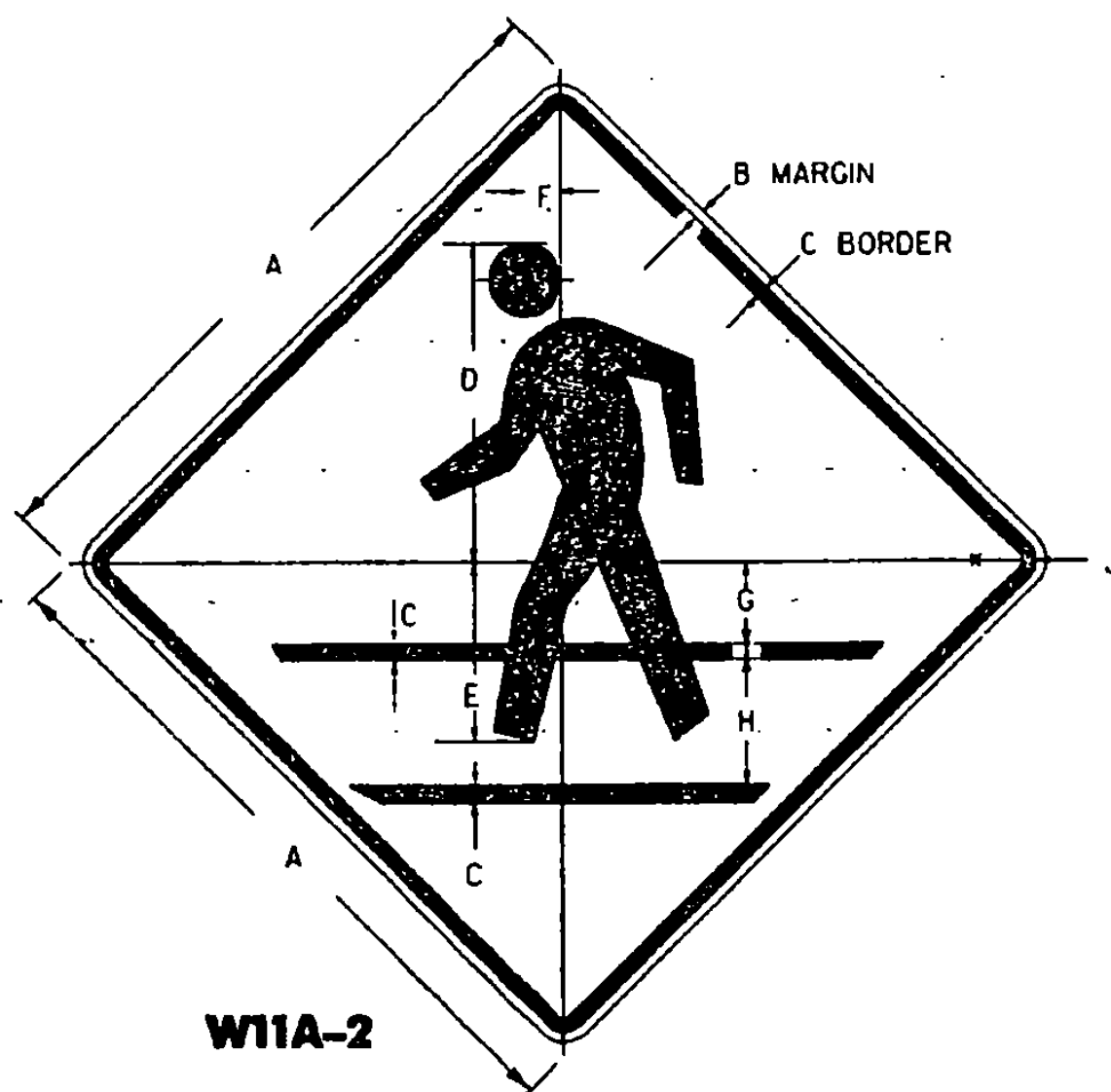
*Stephen D. MacArthur*  
DIRECTOR OF ENGINEERING

*David A. Ben*  
TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT  
AND/OR DESIGN IMPLEMENTATION.  
FHWA FINAL APPROVAL PENDING.

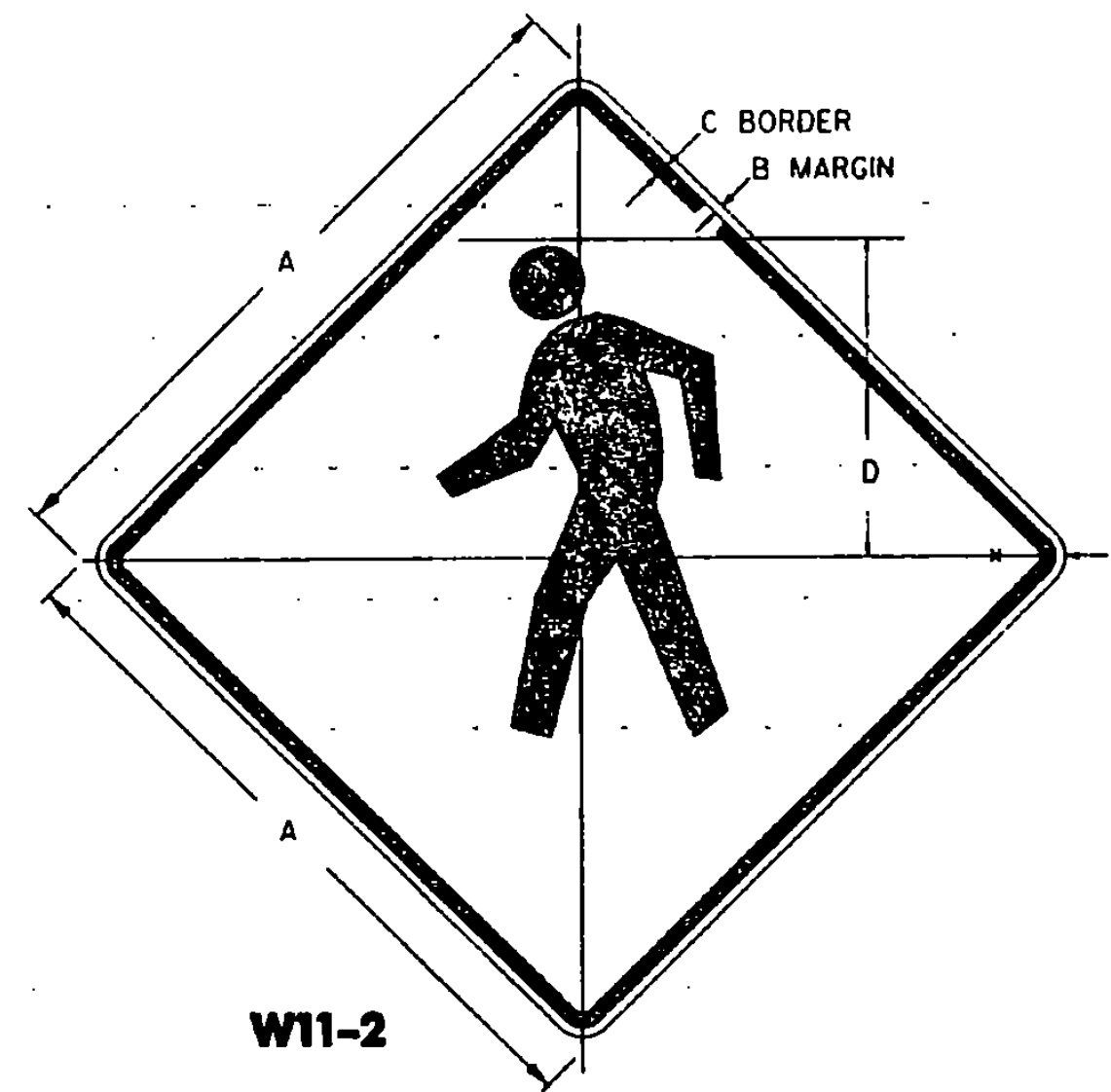
REGULATORY SIGN  
DETAILS

/traf/std/stdel46.dgn : stdel46.l



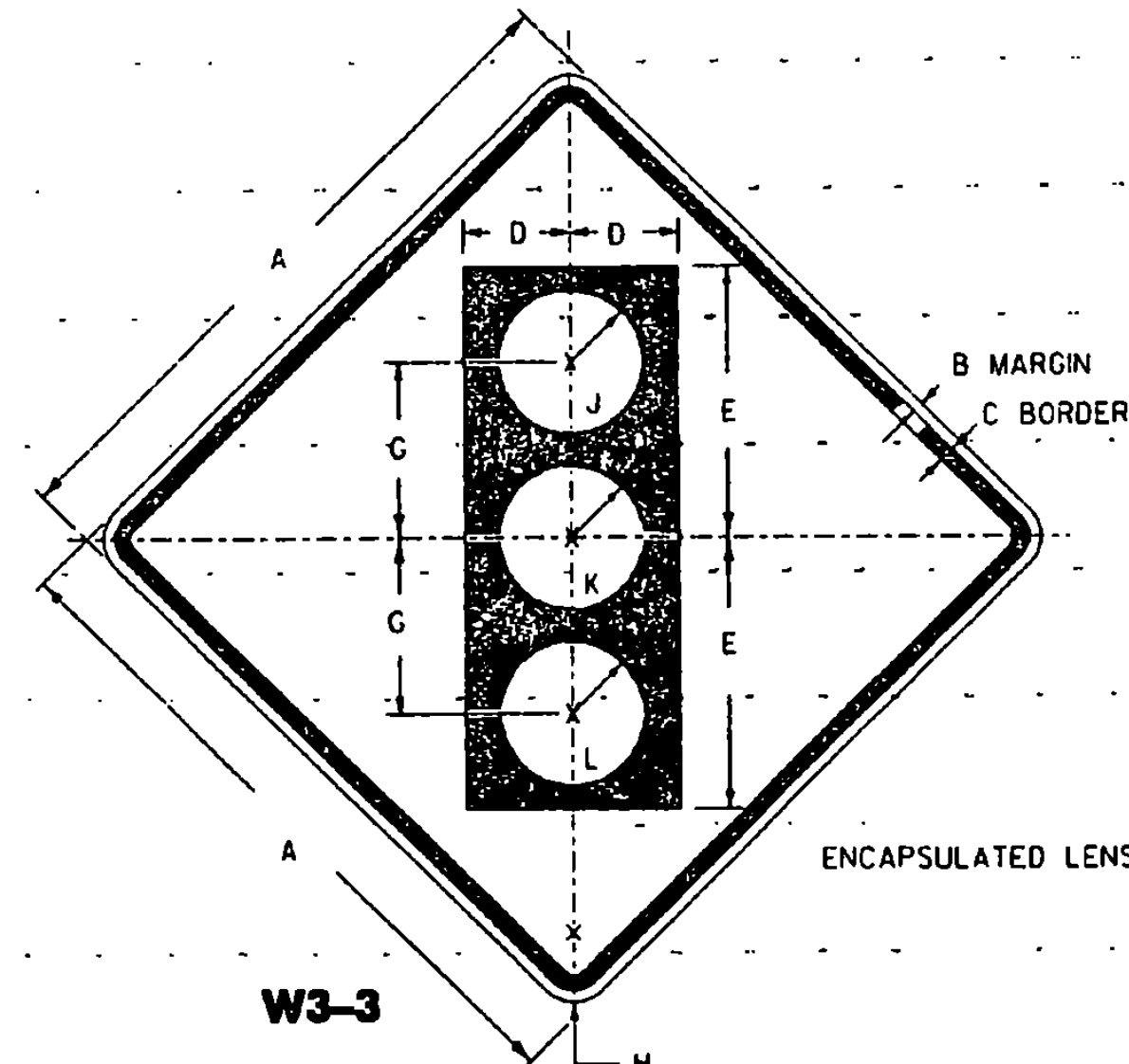
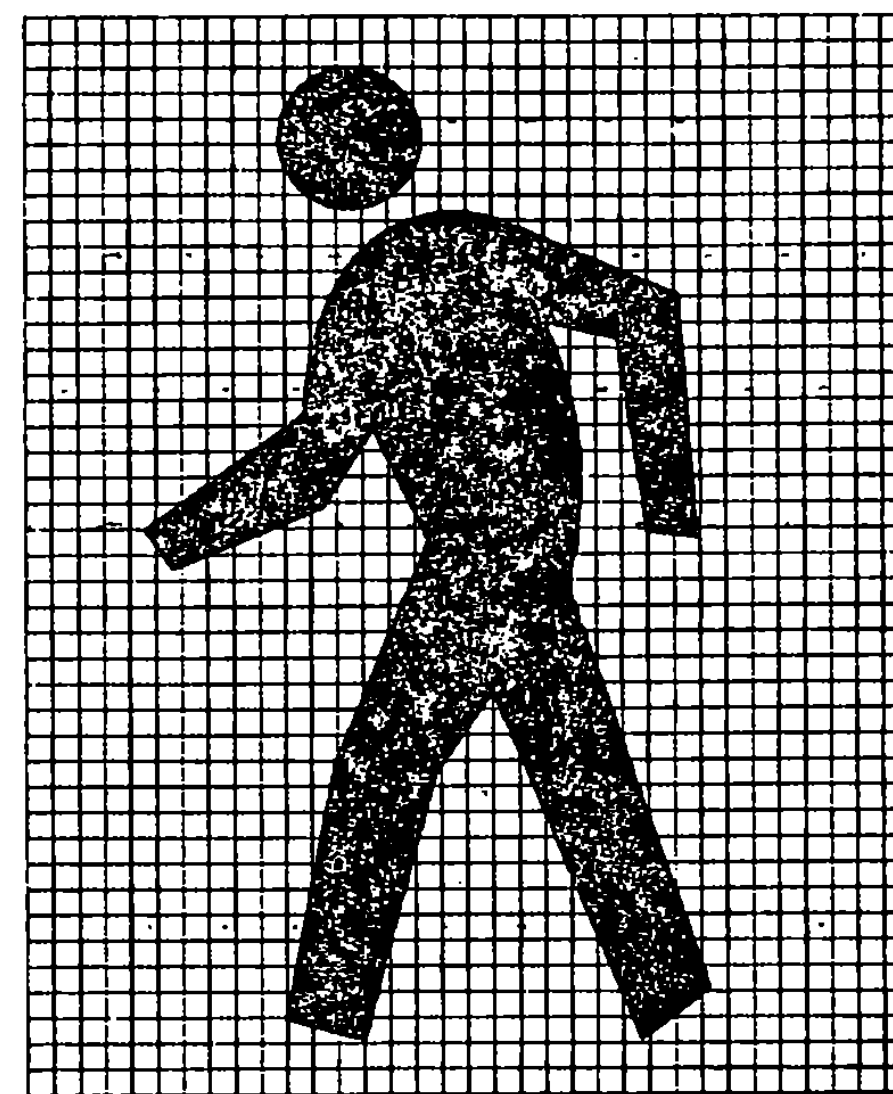
W11A-2

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
BIKE	18	3/8	3/8	8 3/8	4 3/4	3/4	2 3/8	3 5/8	1 1/2	
MIN.	24	3/8	3/8	11	6 3/8	1 1/8	3 1/8	4 3/4	1 1/2	
STD.	30	1/2	3/4	14	8	1 1/2	4	6	1 7/8	
EXPWY.	36	5/8	7/8	16 3/4	9 3/8	1 5/8	4 3/4	7 1/4	2 1/4	
SPECIAL	48	3/4	1 1/4	22	12 3/4	2 3/8	6 1/4	9 1/2	3	



W11-2

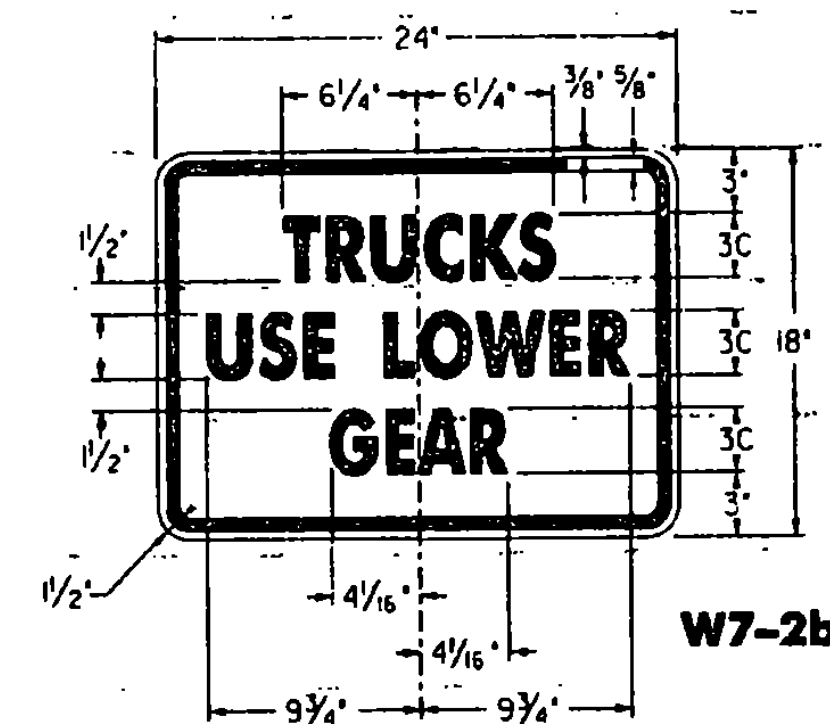
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN.	24	3/8	3/8	11	1 1/2
STD.	30	1/2	3/4	13 1/2	1 7/8
EXPWY.	36	5/8	7/8	16	2 1/4
SPECIAL	48	3/4	1 1/4	22	3



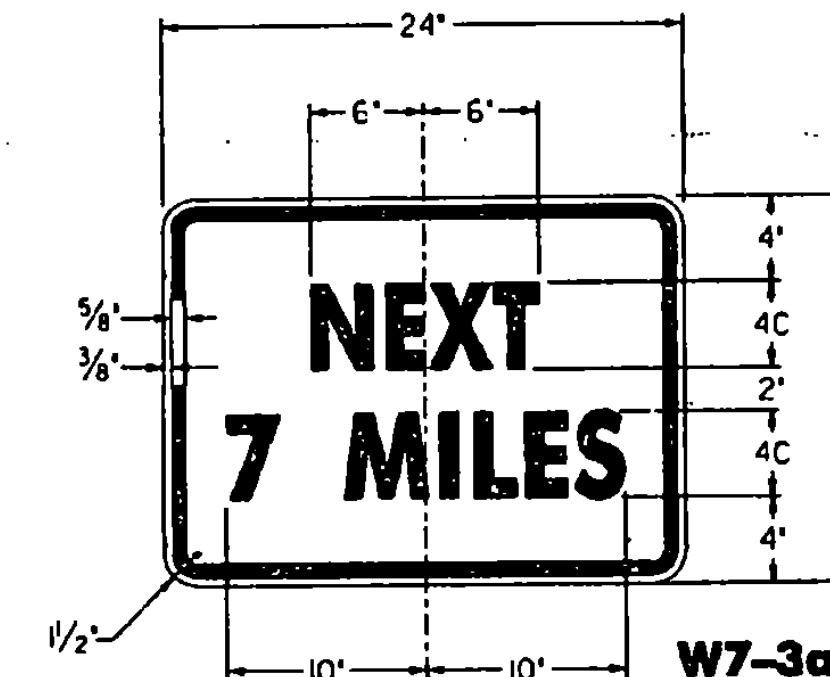
W3-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	18	3/8	3/8	3	8	2 1/4	5	1 1/2
MIN.	30	1/2	3/4	5	13 3/4	3 3/4	8 3/4	1 7/8
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

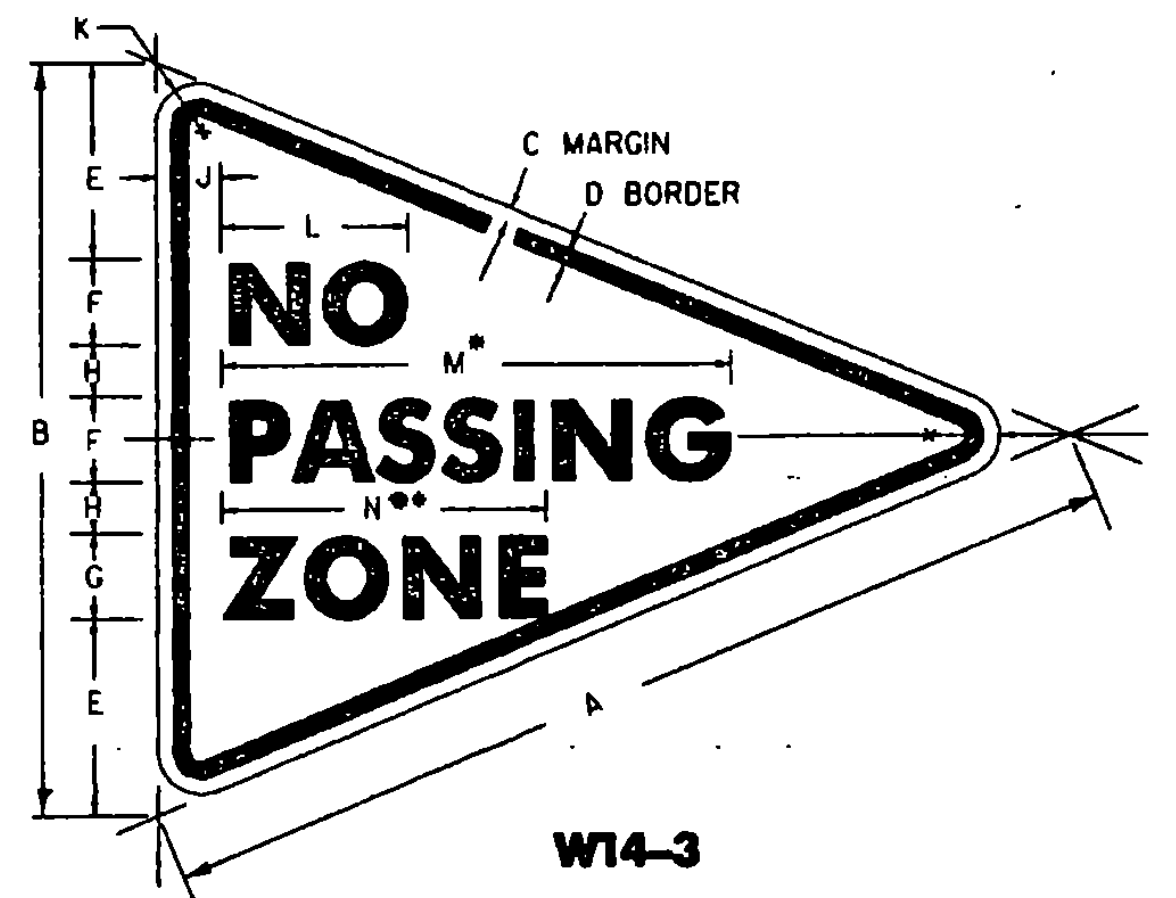
ADDITIONAL COLORS: J - REFL. RED  
K - REFL. YELLOW  
L - REFL. GREEN  
CIRCLE RADIUS = F



W7-2b



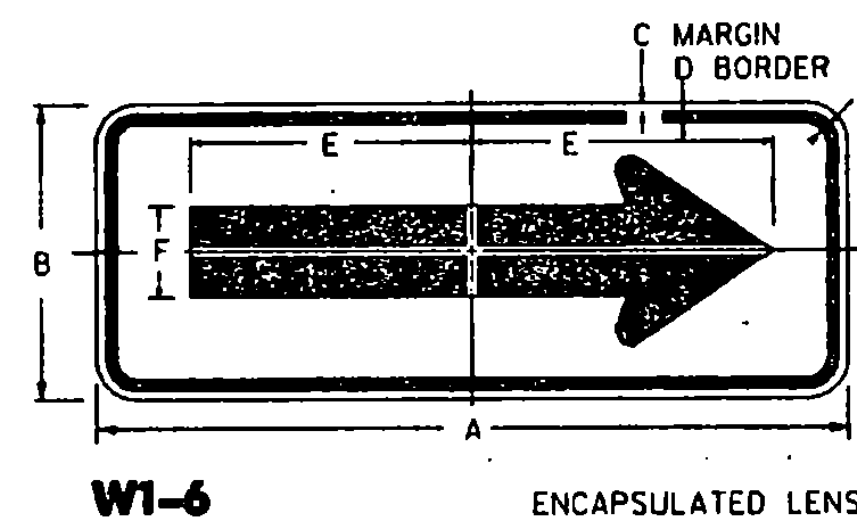
W7-3a



W14-3

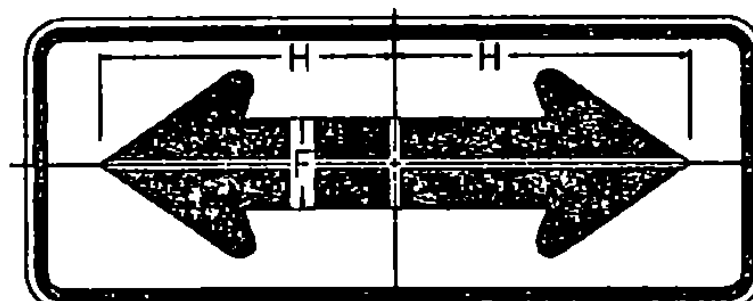
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	
MIN.	40	30	1/2	3/4	7 1/4	40	4C	1 3/4	2 1/2	1 1/8	6 1/2	22 3/8	11 1/8	
STD.	48	36	5/8	7/8	8 1/2	50	5C	2	3	2 1/4	8	26 3/8	12 3/4	
SPECIAL	64	48	3/4	1 1/4	12	60	6C	3	4	3	10 3/4	33 1/8	16 3/8	

\* FOR STD. SIZE REDUCE SPACING 35 %  
\* FOR STD. SIZE REDUCE SPACING 20 %



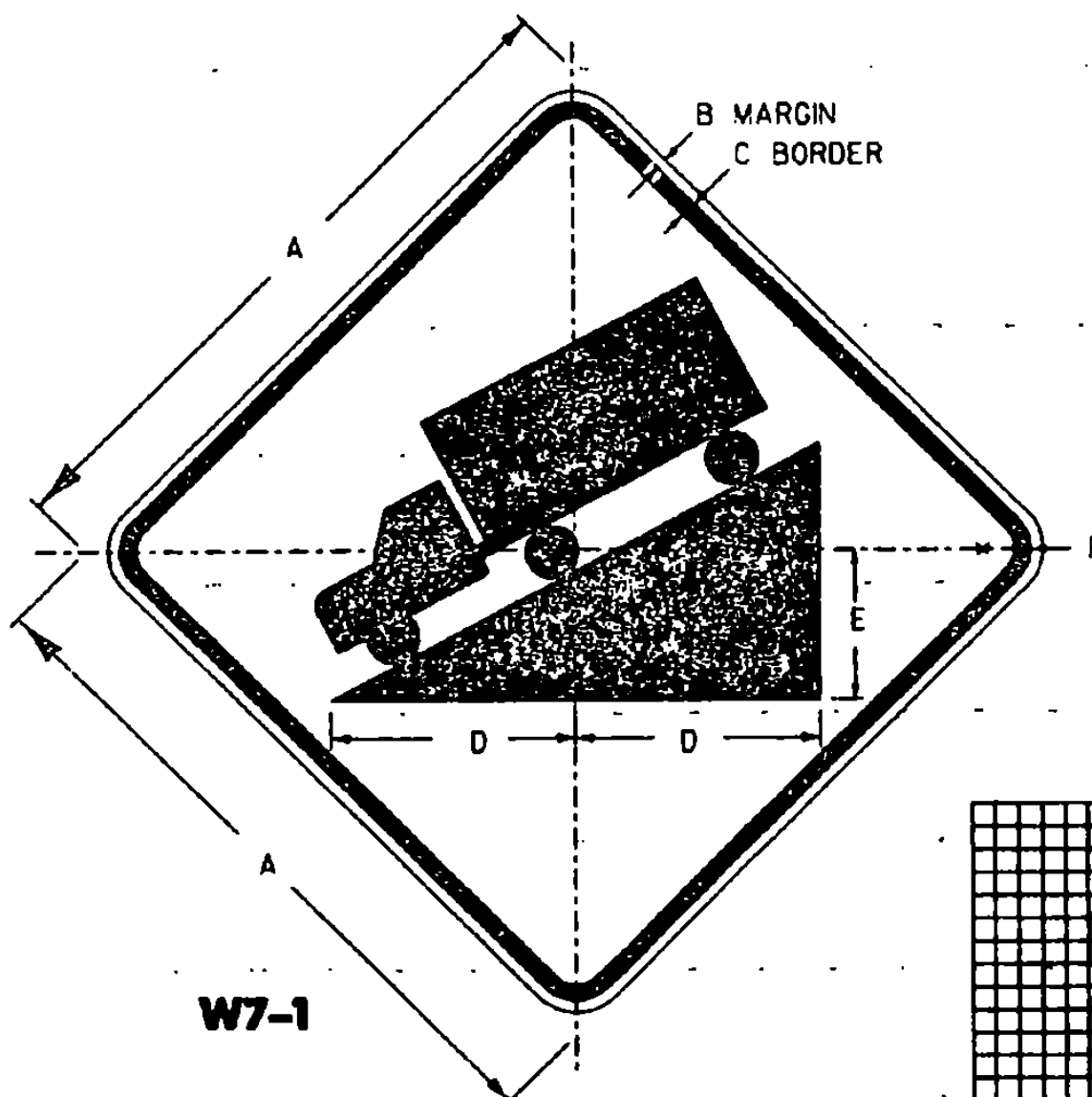
W1-6

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
BIKE	24	12	3/8	3/8	9 3/8	3 1/4	1 1/2	10 3/8
MIN.	36	18	3/8	3/8	14 3/8	5	1 1/2	15 3/8
STD.	48	24	1/2	3/4	19 1/2	6 1/2	1 7/8	20 1/2
SPECIAL	60	30	5/8	7/8	24 3/8	8	2 1/4	25 3/8



W1-7

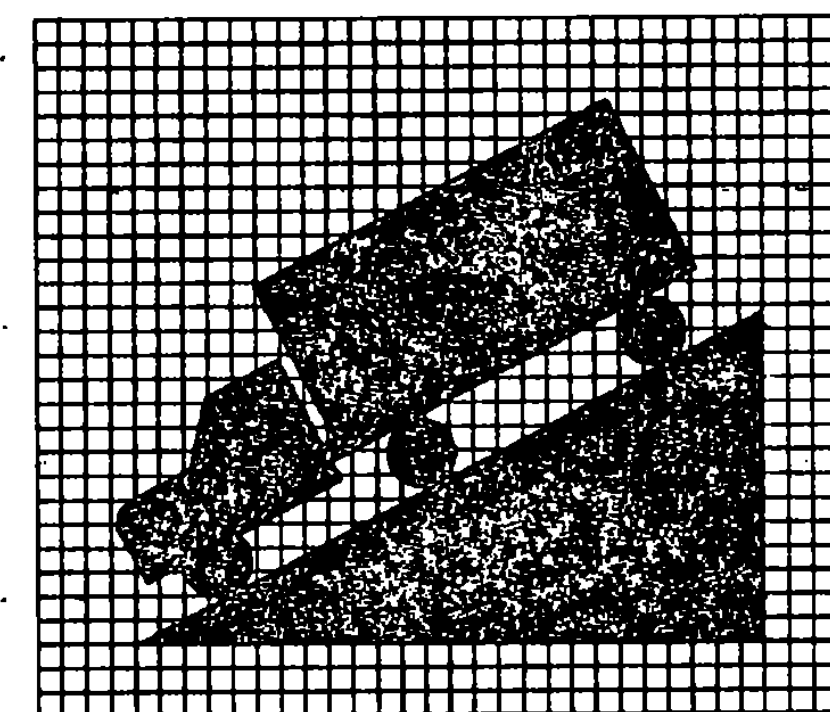
ENCAPSULATED LENS



W7-1

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	24	3/8	3/8	8 3/4	6	1 1/2
STD.	30	1/2	3/4	11	7 1/2	1 7/8
EXPWY.	36	5/8	7/8	13 1/4	9	2 1/4
FWY.	48	3/4	1 1/4	17 1/2	12	3

ENCAPSULATED LENS



COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

FLAT SHEET ALUMINUM	48" x 24"
HIGH DENSITY OVERLAID PLYWOOD	48" x 36"
GALVANIZED FLAT SHEET STEEL	48" x 48"
	60" x 30"
	64" x 48"
	24" x 12"
	36" x 18"
	48" x 36"
	60" x 30"
	64" x 48"
18" x 18"	0.060"
30" x 30"	0.080"
36" x 36"	0.100"
18 GAGE	16 GAGE
14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

OTHER STDS. E-150 REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
JANUARY 1991 - 4 X 2 ARROW ENCAPSULATED LENS & 40 X 30 ADDED  
OCT. 21, 1992 - PENNANT SIZE ADDED  
AUG. 08, 1995 - DELETED & ADDED SIGN DETAILS AND ADDED I.D. NUMBER TO EACH DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

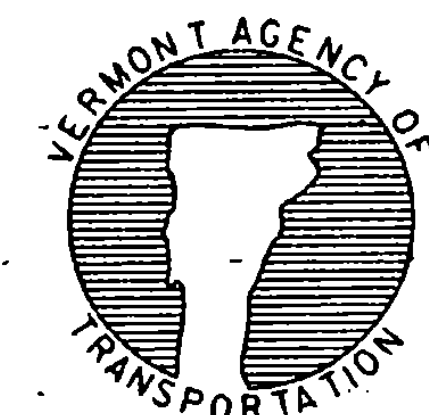
APPROVED

*Stephen J. McArthur*  
DIRECTOR OF ENGINEERING

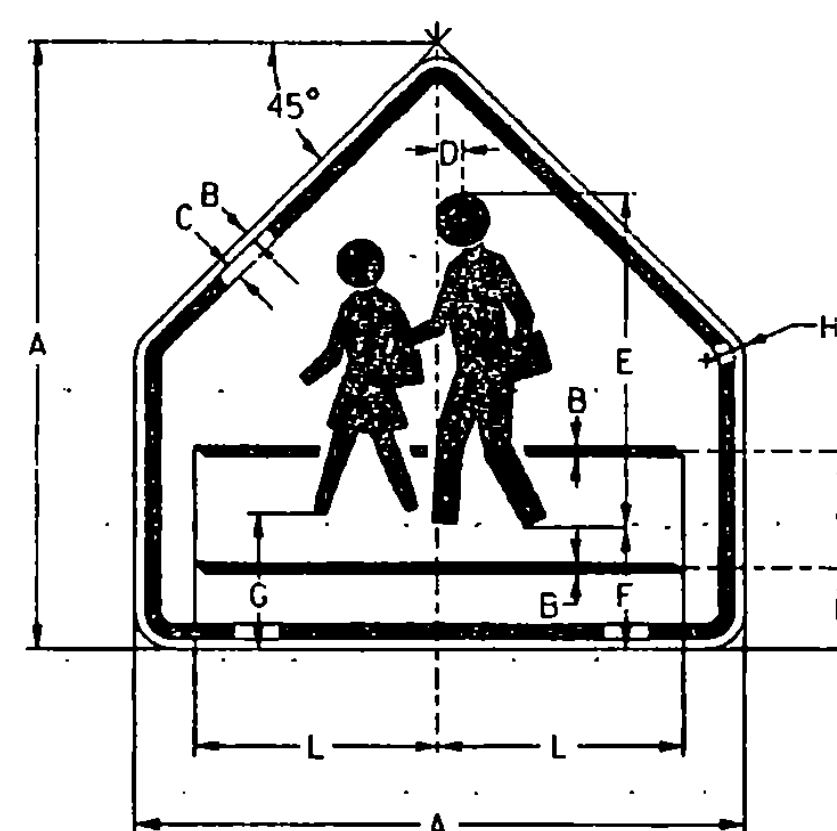
*Daniel A. Reed*  
TRAFFIC AND SAFETY ENGINEER

WARNING SIGN DETAILS

/traf/std/stdel52.dgn : stdel52.i

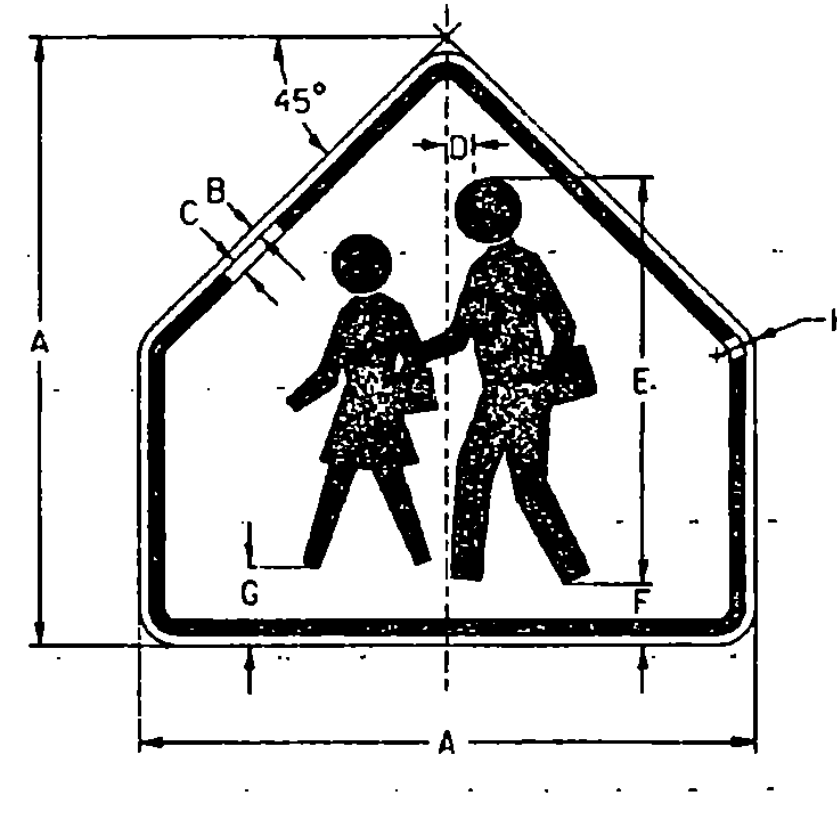


STANDARD E-152



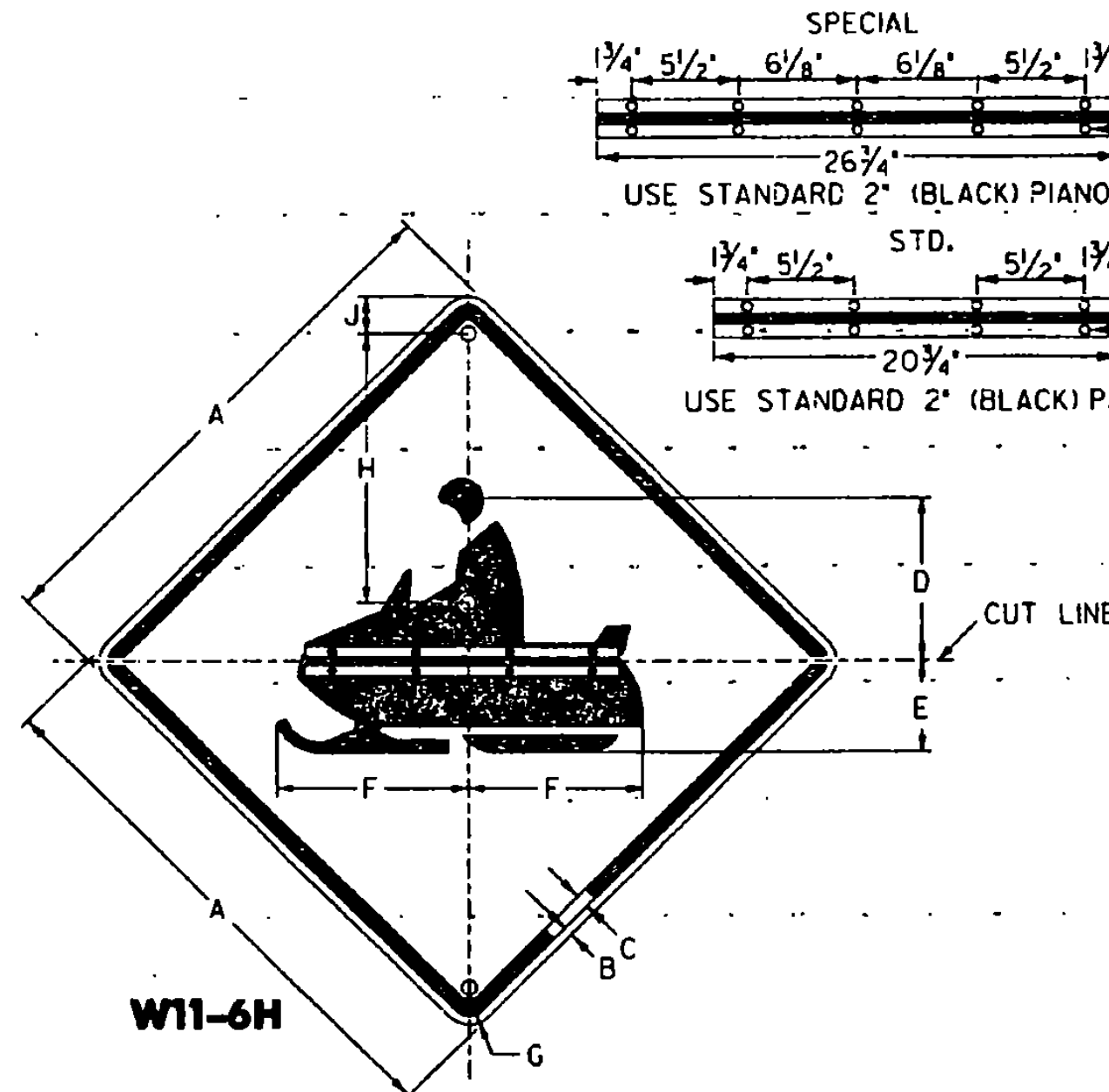
S2-1

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
MIN./STD.	30	1/2	3/4	1 1/4	16 1/2	6	6 1/2	1 7/8	5 3/4	4	12
EXPWY.	36	5/8	7/8	1 1/2	19 3/4	7 1/4	7 1/8	2 1/4	6 7/8	4 3/4	14 3/8
SPECIAL	48	3/4	1 1/4	2	26 1/2	9 1/2	10 3/8	3	9 1/4	6 1/2	19 1/4



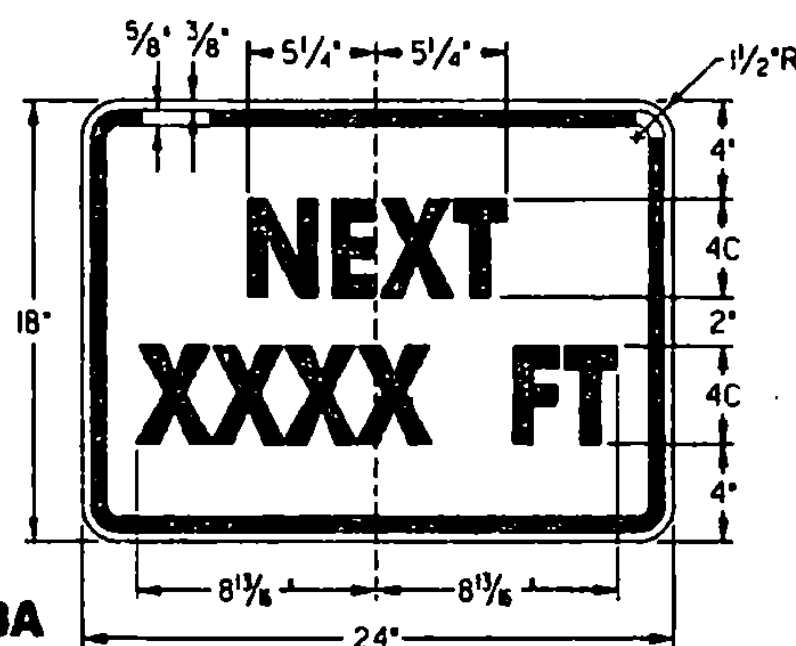
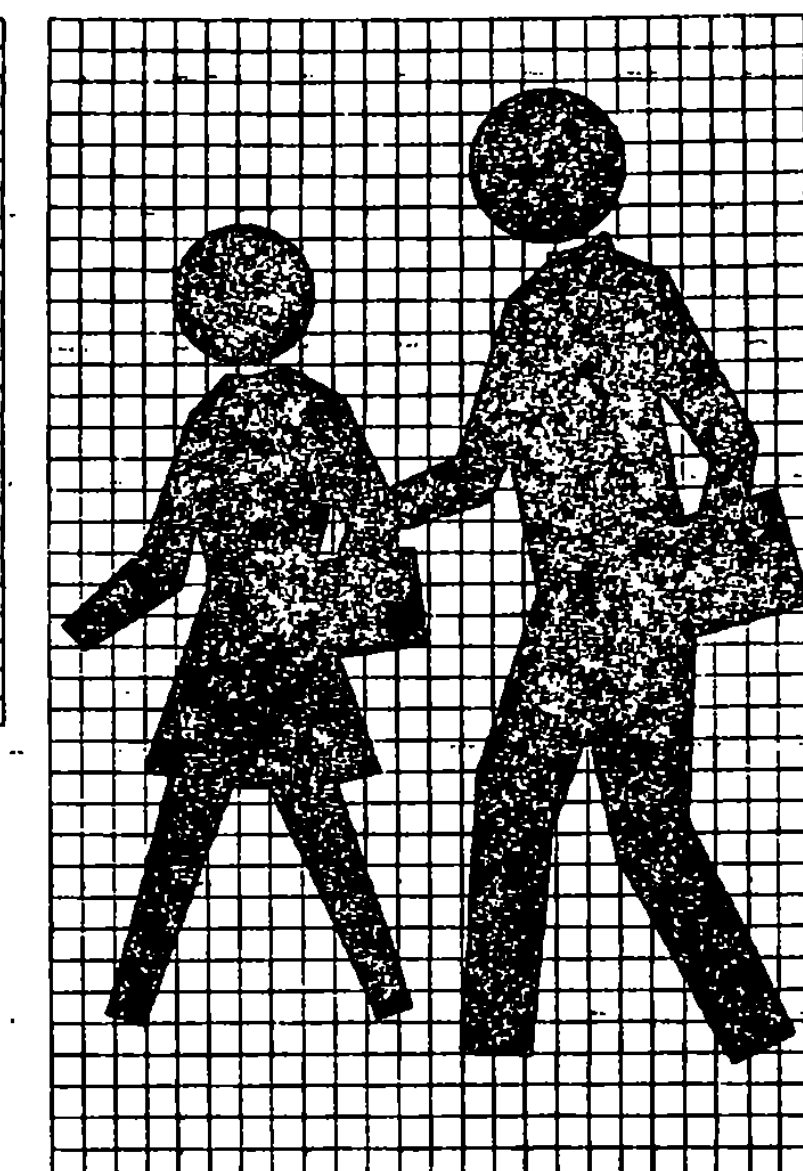
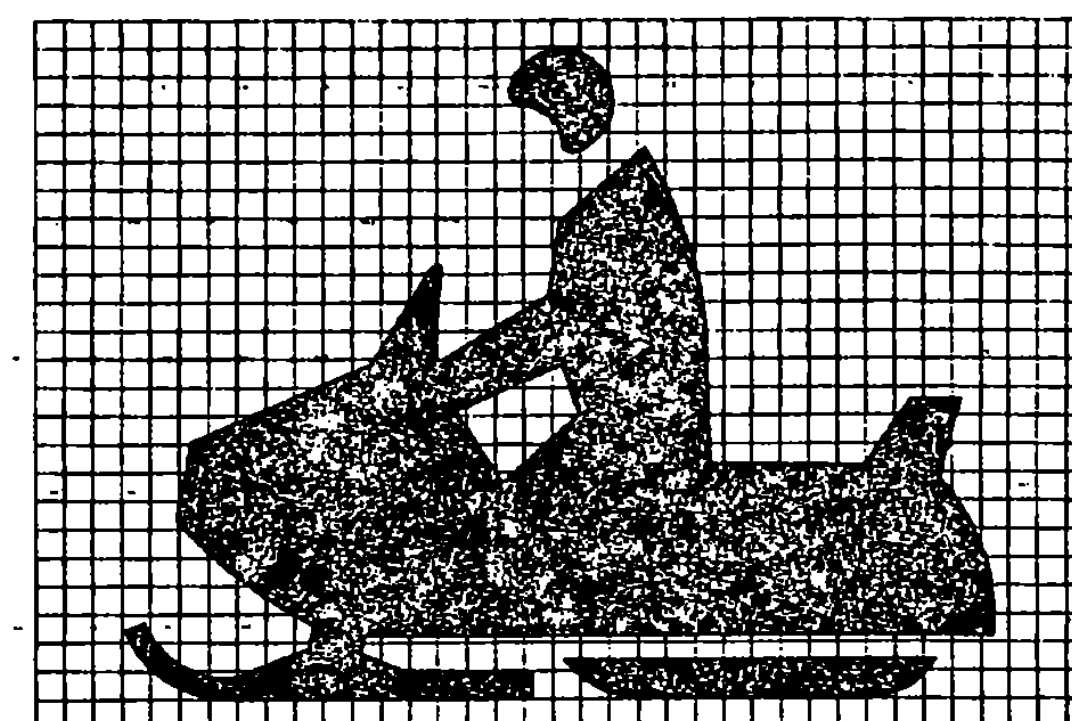
S1-1

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	H
MIN./STD.	30	1/2	3/4	2	20	3	3 3/4
EXPWY.	36	5/8	7/8	2 1/2	24	3 1/2	4 1/2
SPECIAL	48	3/4	1 1/4	3 1/4	32	5	6

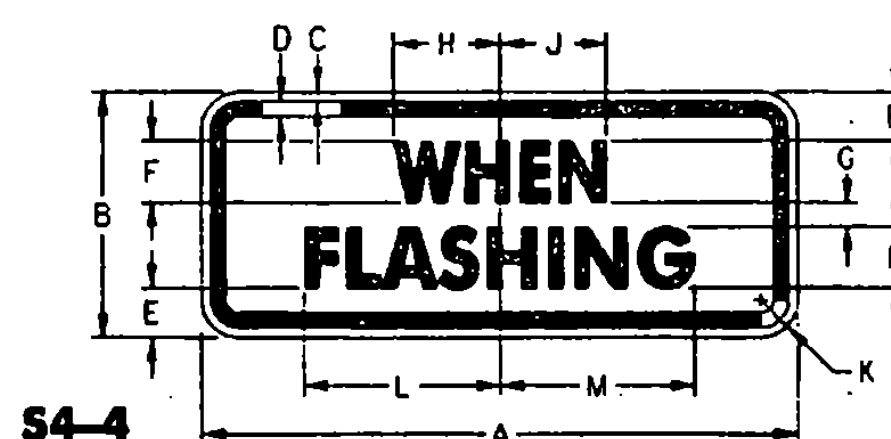


W11-6H

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
STD.	30	1/2	3/4	1 1/8	5 1/8	12 1/8	1 7/8	14	2 1/2	
SPECIAL	36	5/8	7/8	1 1/4	6 3/8	15 1/4	2 1/4	19	2 1/2	

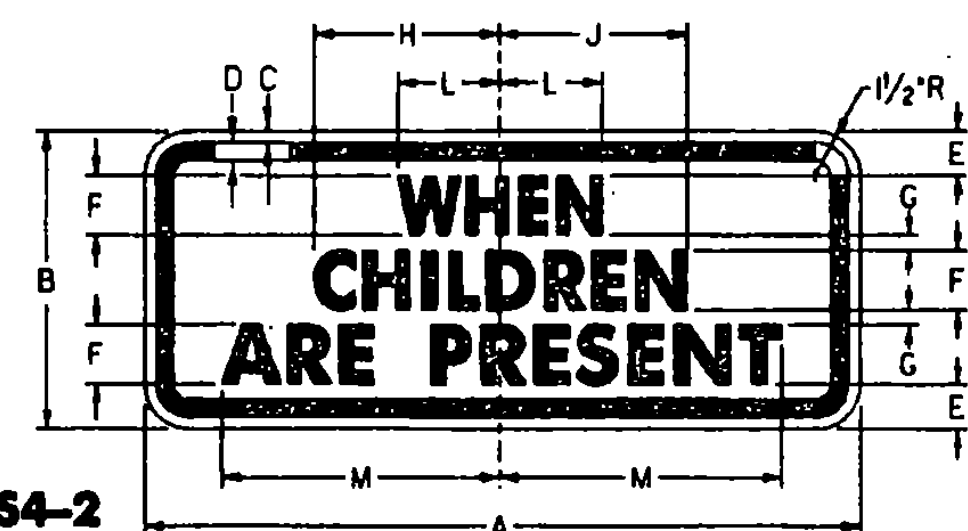


W7-3A



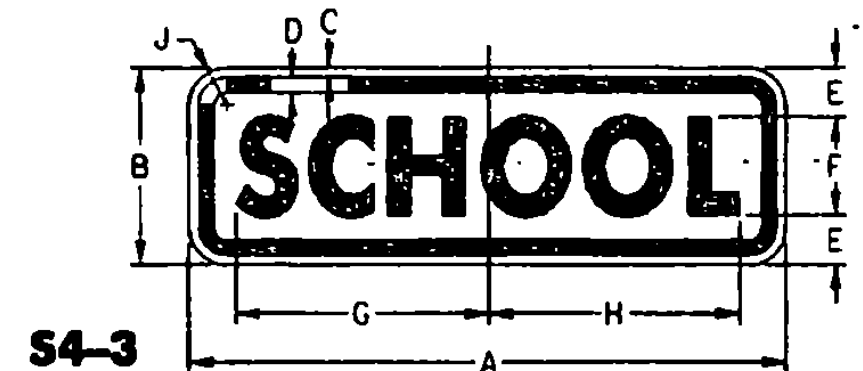
S4-4

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
MIN./STD.	24	10	3/8	5/8	2	2 1/2	1	4 3/8	4 1/4	1 1/2	7 5/8	8 1/8	
EXPWY.	36	15	5/8	7/8	2 3/4	4	1 1/2	6 1/8	6 1/4	2 1/4	12 3/8	12 1/8	
SPECIAL	48	20	3/4	1 1/4	4	5	2	8 3/4	8 1/2	3	15 1/4	16 1/8	



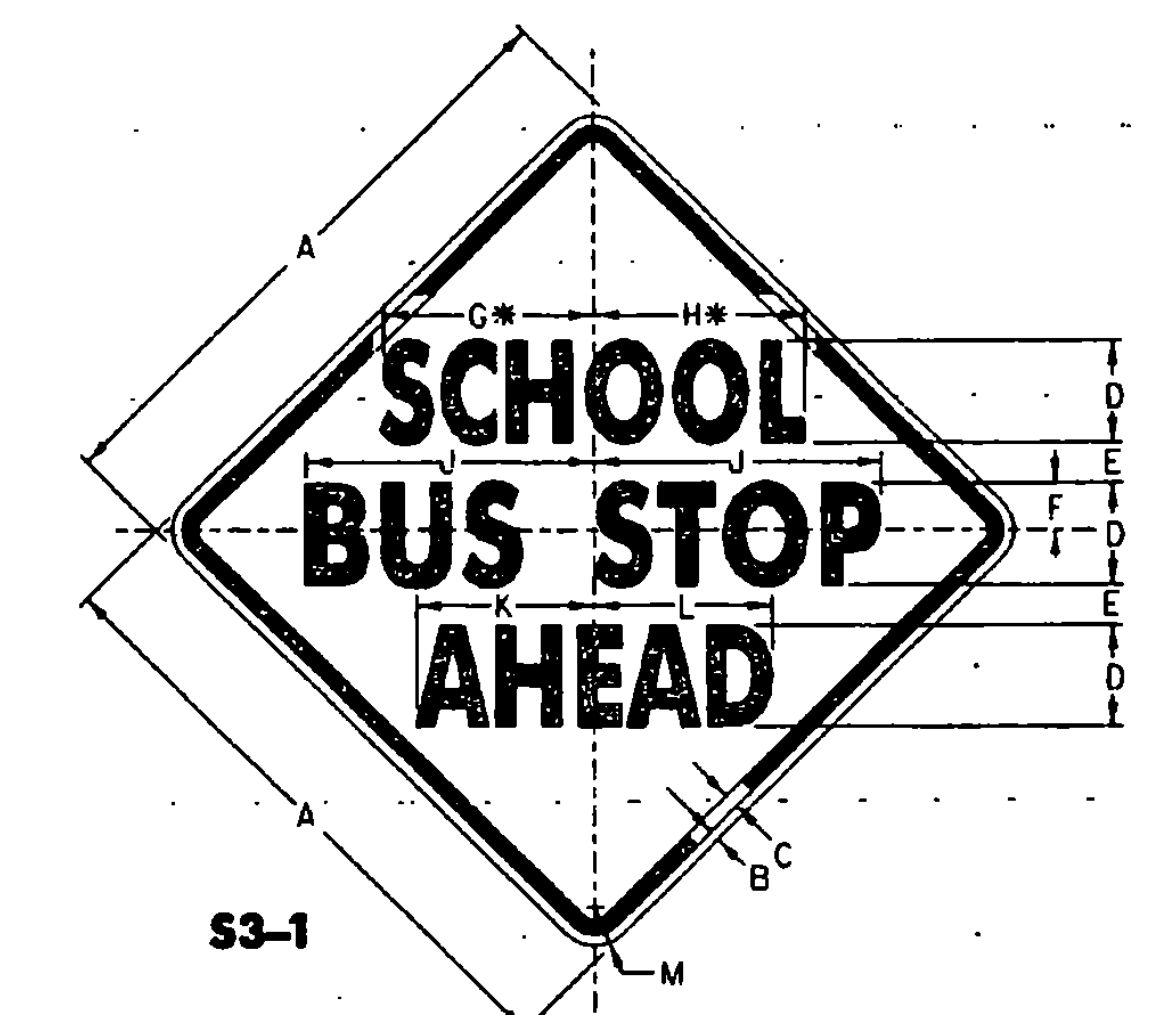
S4-2

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
MIN./STD.	24	10	3/8	5/8	1 1/2	2	3 1/2	3 3/8	1 1/2	6 1/4	9 5/8		
EXPWY.	36	15	5/8	7/8	2 1/4	3	4 3/8	5 1/8	2 1/4	9 3/8	14		
SPECIAL	48	20	3/4	1 1/4	3	4	5 1/2	6 5/8	3	12 1/2	18 5/8		



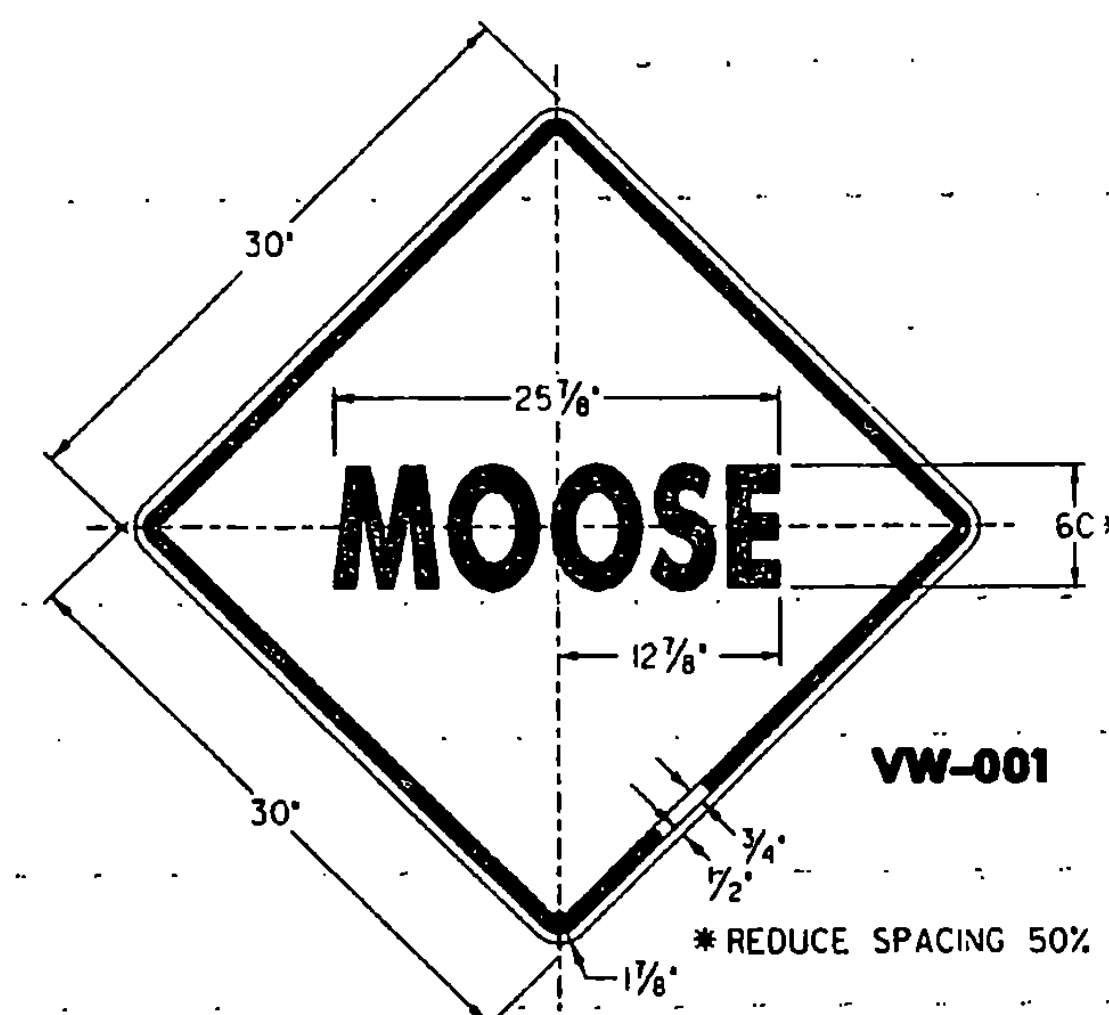
S4-3

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
MIN./STD.	24	8	3/8	5/8	2	4	10	10 1/4	1 1/2	
EXPWY.	36	12	5/8	7/8	3	6	15	15 3/8	2 1/4	
SPECIAL	48	16	3/4	1 1/4	4	8	20	20 1/2	3	

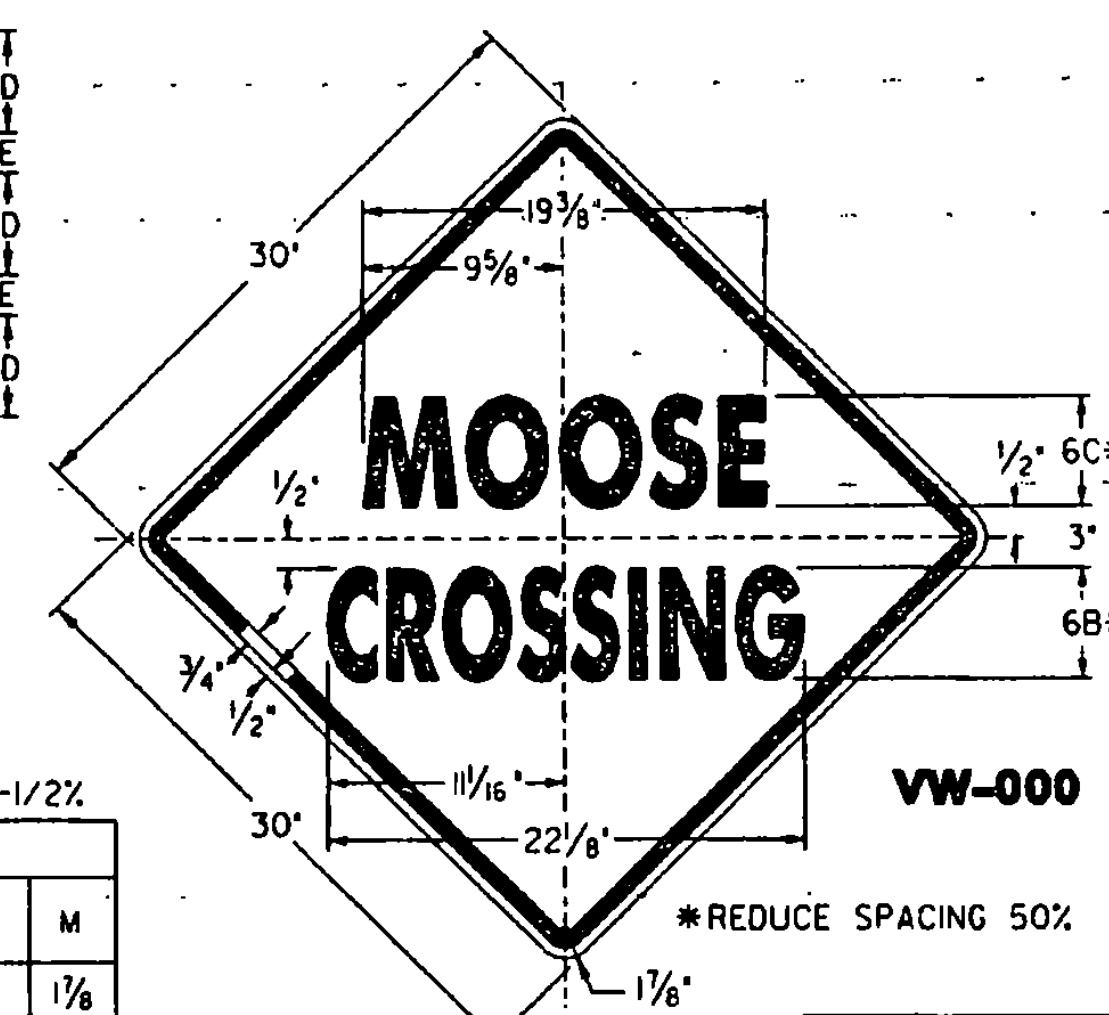


S3-1

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
MIN./STD.	30	1/2	3/4	5C	2	2 1/2	10	10 1/2	14	8 1/4	9	1 1/8	
SPECIAL	36	5/8	7/8	6C	3	3	11 3/4	12 3/4	17	10	11	2 1/4	



VW-001



VW-000

**COLORS**

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

**MATERIALS**

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

24" x 8"			
24" x 10"			
24" x 18"	36" x 12"		
24" x 24"	36" x 15"	48" x 16"	
30" x 30"	36" x 36"	48" x 20"	

FLAT SHEET ALUMINUM	0.080"	0.100"	0.125"
HIGH DENSITY OVERLAIN PLYWOOD	1/2"	5/8"	5/8"
GALVANIZED FLAT SHEET STEEL	16 GAGE	14 GAGE	12 GAGE

THE TEXT, BORDER AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED. THE HINGE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET ARE A STANDARD ALUMINUM 2" PIANO HINGE WITH BLACK ENAMEL PAINT, USE AN ALUMINUM 3/16" POP RIVET WITH STEEL SHANK.

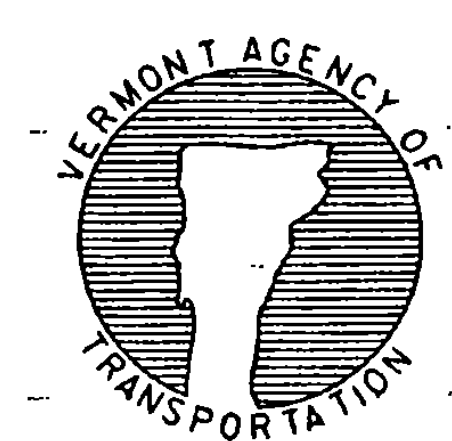
**TEXT DESIGN**

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**SPECIFICATIONS**

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR 'TRAFFIC SIGNS'.

**OTHER STDS. REQUIRED:**



STANDARD  
E-153

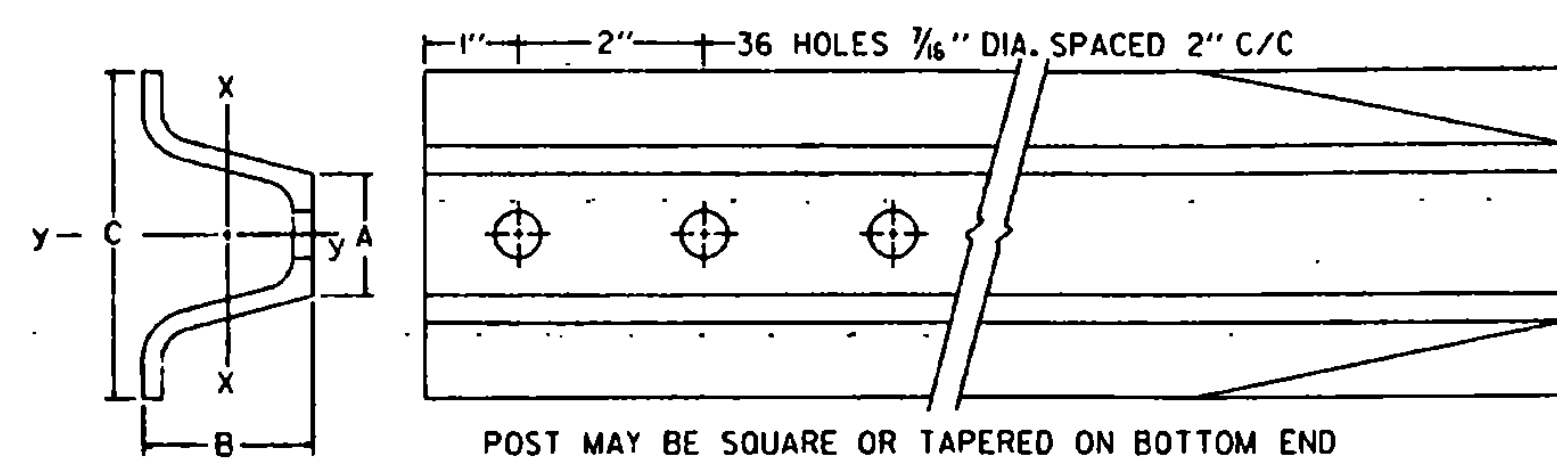
**REVISIONS AND CORRECTIONS**

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE  
JAN. 15, 1997 - ADDED HINGE DETAIL

**APPROVED**

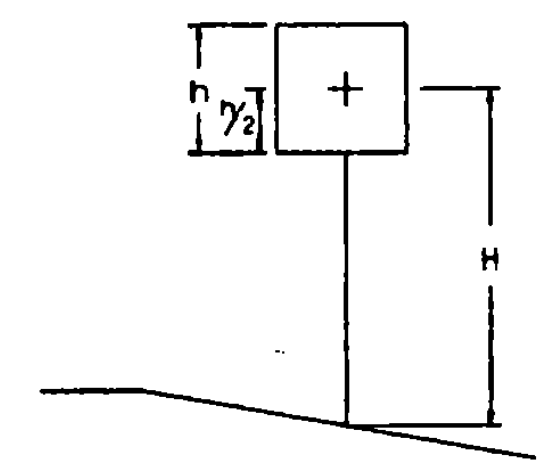
*John P. ...*  
DIRECTOR OF ENGINEERING  
*Stephen D. ...*  
DIRECTOR OF CONSTRUCTION & MAINTENANCE

WARNING SIGN  
DETAILS



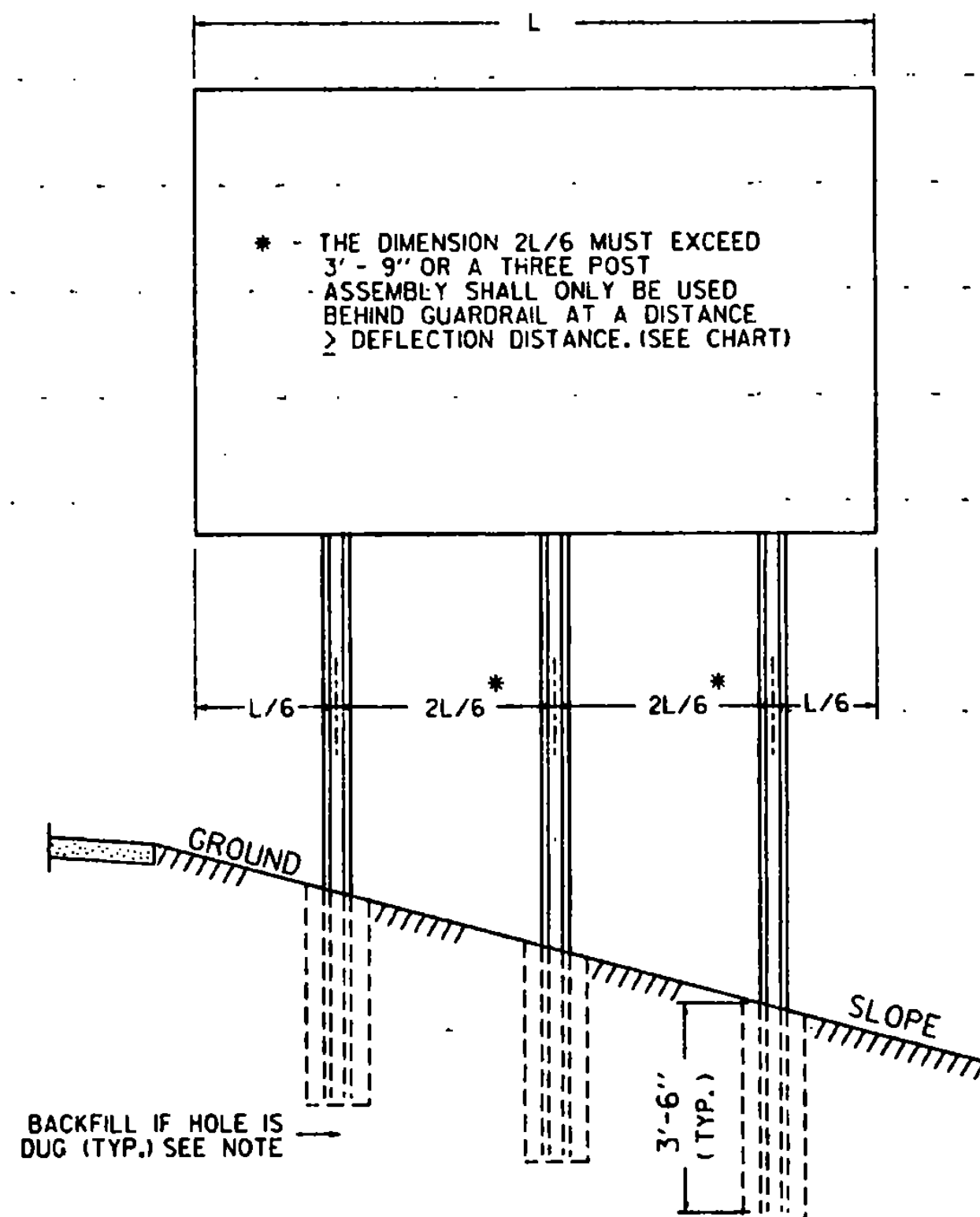
POST SIZE (LB./FT.)	DIMENSIONS			SECTION MODULUS, X-X
	A	B	C	
2	1 1/2"	1 3/4"	3 1/8"	0.225 IN. <sup>3</sup>
3	1 3/8"	1 7/8"	3 1/2"	0.403 IN. <sup>3</sup>

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.



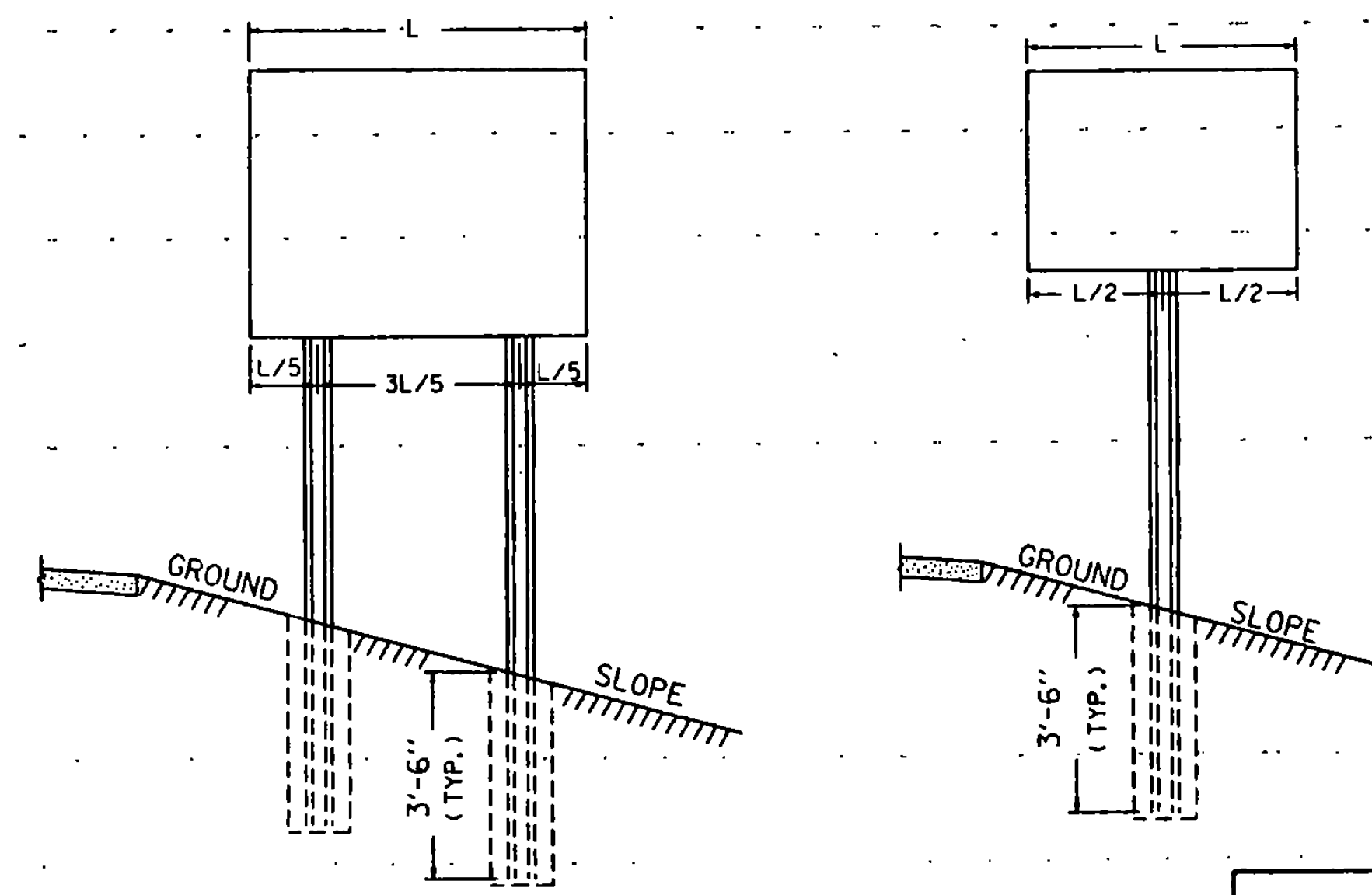
POST SELECTION CHART		
SIGN AREA (FT <sup>2</sup> ) x H (FT) ≤ SV (SELECTION VALUE)		
POST SIZE	Sv	DESIGN CRITERIA
2 LB./FT. (ONE POST INSTALLATION)	32	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL)
2 LB./FT. (TWO POST INSTALLATION)	62	WIND PRESSURE = 13 PSF
3 LB./FT.	107	STEEL MIN YIELD F <sub>y</sub> = 50,000 PSI ALLOWABLE STRESS = (1/4) 0.60 F <sub>y</sub>

SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS.

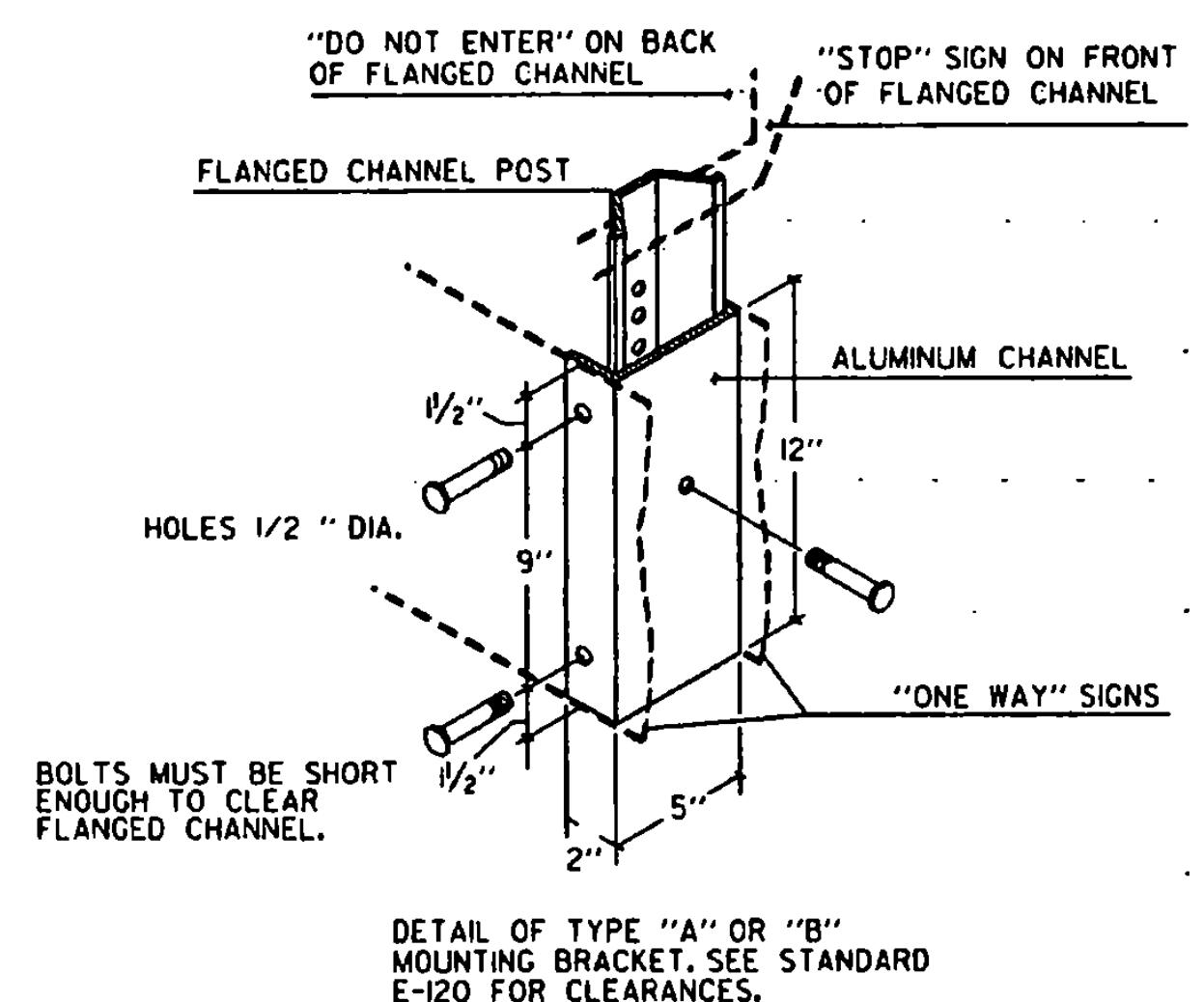


**MULTI-POST INSTALLATIONS**

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGETHER THE POSTS DO NOT CREATE A HAZARD, REFER TO V.A.O.T. SIGN POST DESIGN GUIDELINE FOR ADDITIONAL DETAILS.



**POST SPACING DETAILS**



GUARDRAIL DEFLECTION CHART (PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)		
TYPE	GR POST SPACING	DEFLECTION
THREE CABLE W/STEEL POSTS	16' - 0"	12'
W/WOODEN POSTS	12' - 6"	12'
W-BEAM W/WEAK POST	12' - 6"	7'
W/STRONG POST	6' - 3"	3'
BOX BEAM	6' - 0"	5'
THRIE BEAM W/WEAK POST	12' - 6"	4'
W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.

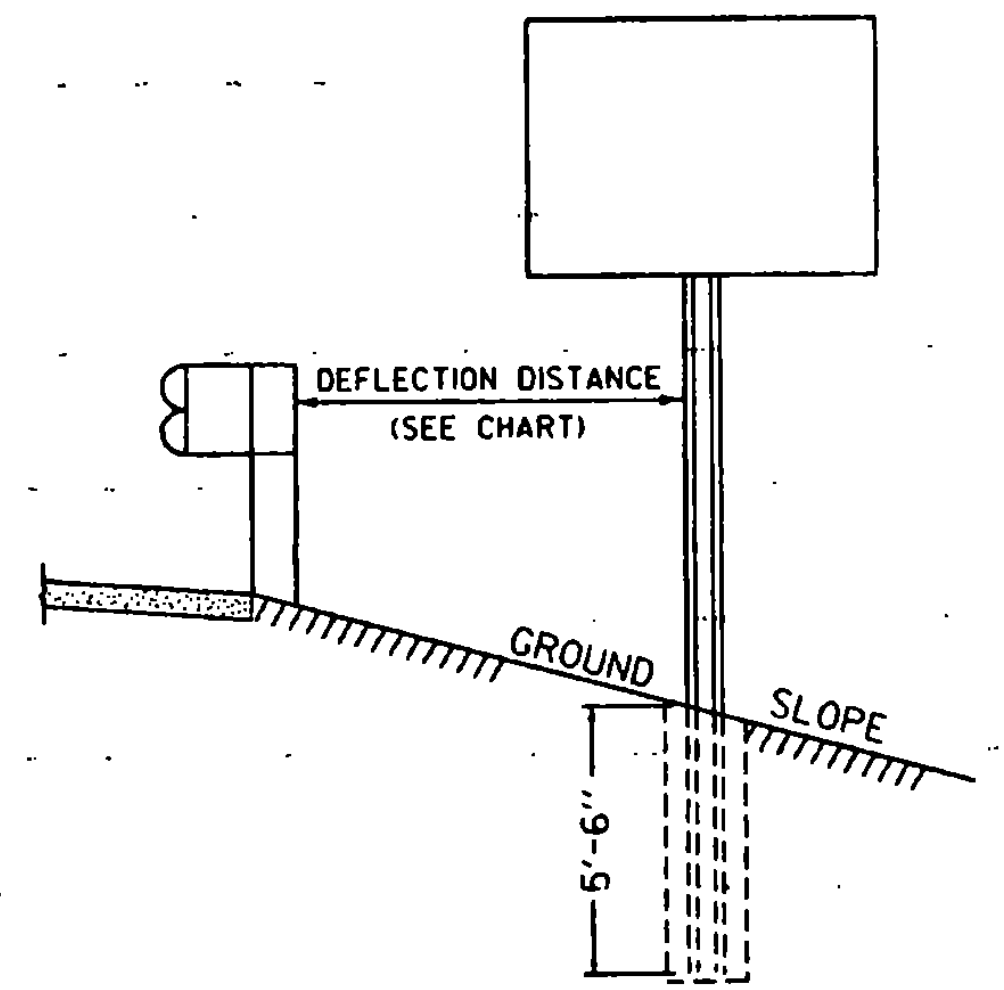
**GENERAL NOTES**

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLTION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED, POSTS WILL BE SET IN A HOLE WITH 2' CLEARANCE AND GROUTED WITH TYPE 4 MORTAR 24' BELOW THE SURFACE OF THE SOLID ROCK, UNLESS THE POSTS PENETRATE THE GROUND A MINIMUM OF 3'-6". THE PORTION OF THE POST IN CONTACT WITH THE MORTAR SHALL BE COATED WITH AN APPROVED COATING.

SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 12-1/2 SQ. FT. OR LESS.



WHEN USING FLANGED CHANNEL POSTS ON STEEP SLOPES (1 ON 2 OR STEEPER FILL SLOPES BEHIND GUARDRAIL), ADD 2' EMBEDMENT TO THE POST LENGTH TO GIVE THE ASSEMBLY MORE STABILITY. HOWEVER IF SIGN POST IS LOCATED INSIDE THE DEFLECTION DISTANCE, THE SIGN POST SHALL BE SET AT A DEPTH OF 3' - 6".

**OTHER STDS. REQUIRED:**

**REVISIONS AND CORRECTIONS**

- SEP. 10, 1987 - DATE OF ORIGINAL ISSUE
- MAR. 01, 1988 - FHWA REVIEW COMMENTS
- OCT. 21, 1992 - ADDED DETAILS, REVISED NOTES & REVISED TITLE BLOCK
- AUG. 18, 1995 - DELETION OF 2.5 LB./FT. POST AND TWO-RAIL ALUMINUM. ADDED ADDITIONAL NOTE.

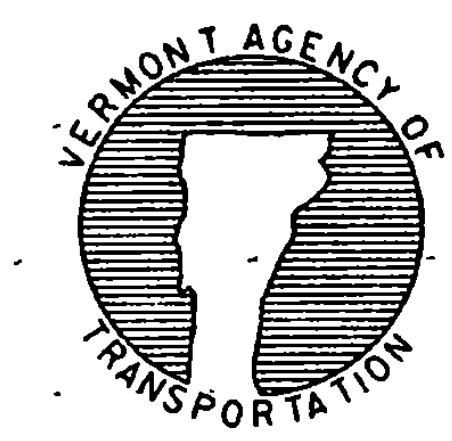
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**APPROVED**

*[Signature]*  
DIRECTOR OF ENGINEERING

*[Signature]*  
TRAFFIC AND SAFETY ENGINEER

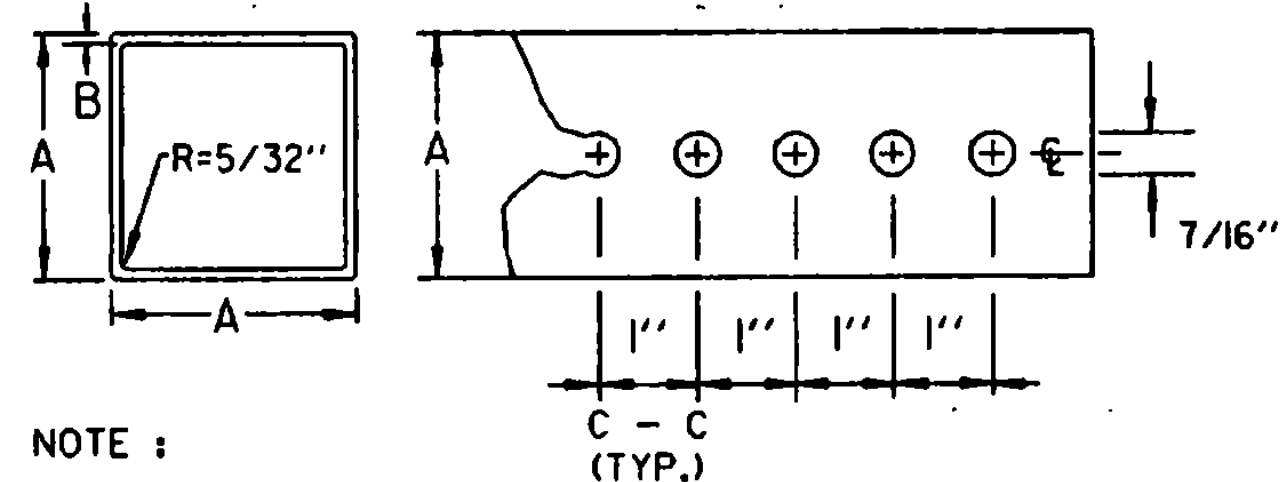
**FLANGED CHANNEL STEEL SIGN POST**



**STANDARD E-160**

GUARDRAIL DEFLECTION CHART (PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)		
TYPE	GR POST SPACING	DEFLECTION
THREE CABLE W/STEEL POSTS	16' - 0"	12'
W/WOODEN POSTS	12' - 6"	12'
W-BEAM		
W/WEAK POST	12' - 6"	7'
W/STRONG POST	6' - 3"	3'
BOX BEAM	6' - 0"	5'
THREE BEAM		
W/WEAK POST	12' - 6"	4'
W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.



NOTE :

THE POSTS SHALL BE CAREFULLY FORMED OF STEEL WITH A MINIMUM YIELD OF 55,000 PSI INTO A SIZE AND SHAPE WITH CORNERS INDUCTION WELDED IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.

- THE WALL THICKNESS TOLERANCES SHALL BE +.005 AND -.010 FOR THE 12 GAUGE.
- THE WALL THICKNESS TOLERANCES SHALL BE +.002" AND -.008" FOR THE 14 GAGE.

**DIMENSION DETAILS AND POST SELECTION CHART**

POST SELECTION CHART								
SIGN AREA (FT <sup>2</sup> ) X H (FT) ≤ SV (SELECTION VALUE)								
POST SIZE LBS/FT.	DIMENSIONS		GAUGE	SECTION MODULUS IN <sup>3</sup>	ONE POST SV	TWO POST SV	THREE POST SV	NUMBER PERMITTED IN 8' PATH
	A	B						
2.30	1-3/4"	.083	14	0.231	74	148	222	TWO
2.65	2"	.083	14	0.296	95	190	286	TWO
3.35	2-1/2"	.105	12	0.642	206	412	616	ONE

**DESIGN CRITERIA:**

WIND SPEED = 60 MPH (10 -YEAR MEAN RECURRENCE INTERVAL)  
 WIND PRESSURE = 13 PSF  
 STEEL MINIMUM YIELD = 55,000 PSI  
 ALLOWABLE STRESS = (1.4) 0.60 FY

**REVISIONS AND CORRECTIONS**

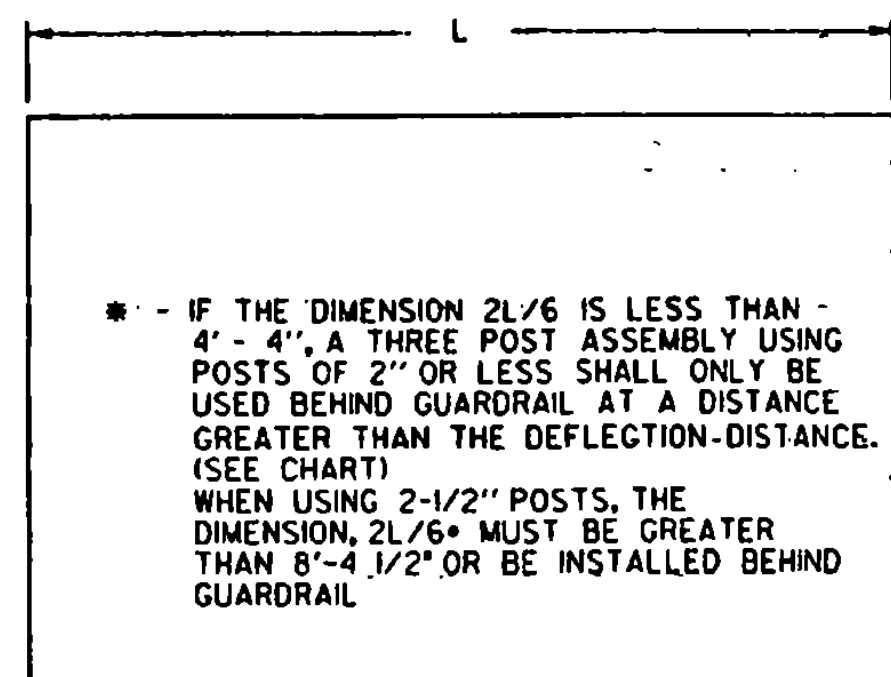
APR. 27, 1994 - DATE OF ORIGINAL ISSUE  
 JUL. 21, 1994 - REVISED POST GAUGES  
 AUG. 18, 1995 - ADDED TWO PIECE ANCHOR DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

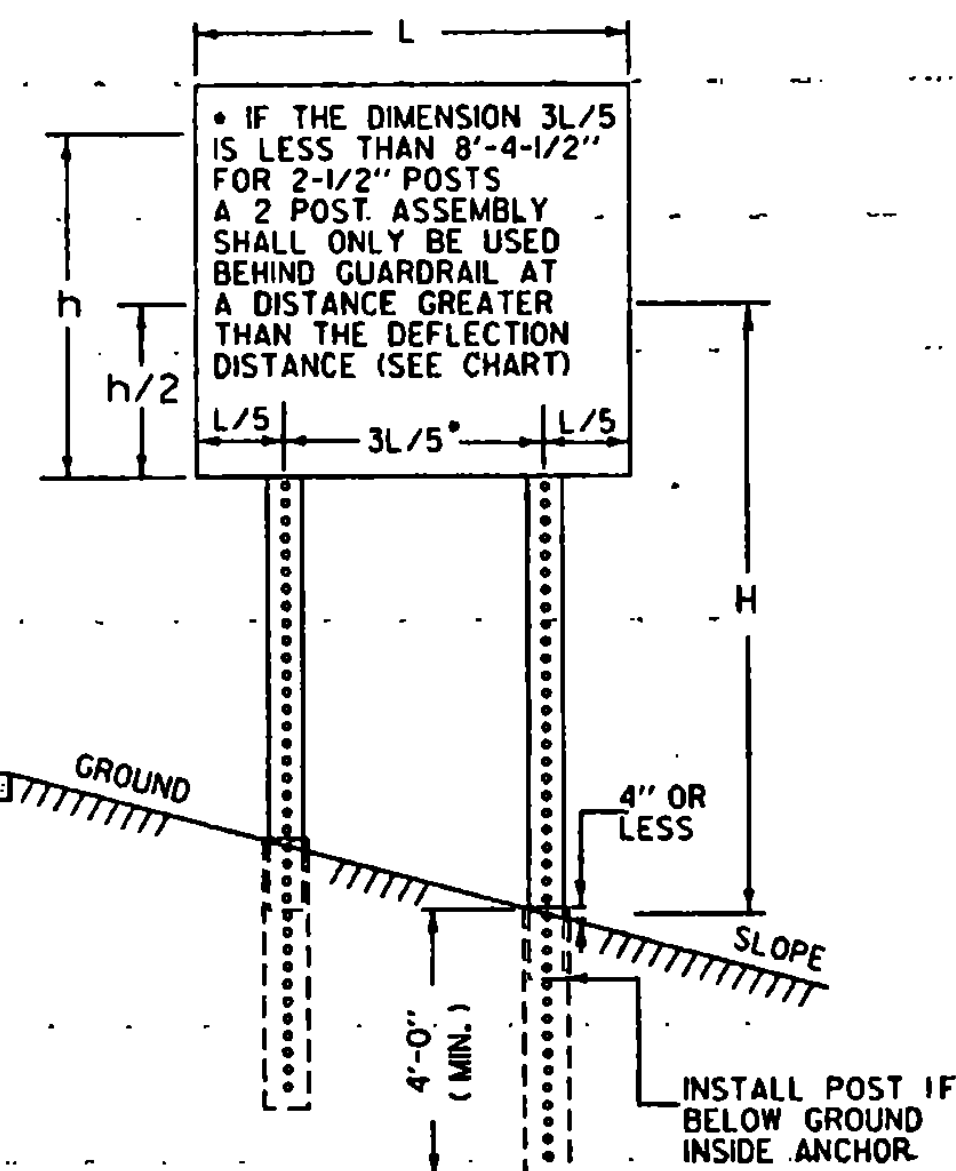
**APPROVED**

*Signature of Director of Engineering*  
 DIRECTOR OF ENGINEERING

*Signature of Traffic and Safety Engineer*  
 TRAFFIC AND SAFETY ENGINEER



**MULTI-POST INSTALLATIONS**



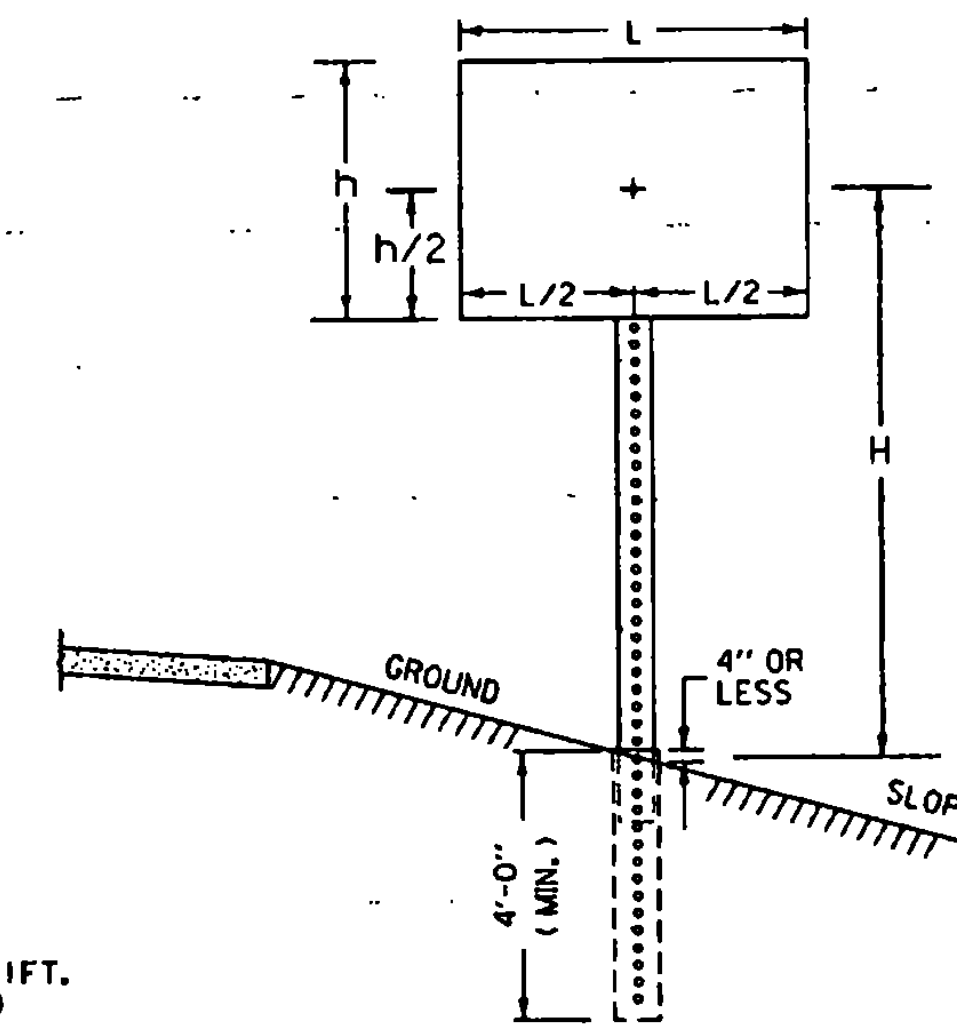
**POST SPACING DETAILS**

**GENERAL NOTES**

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED, IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

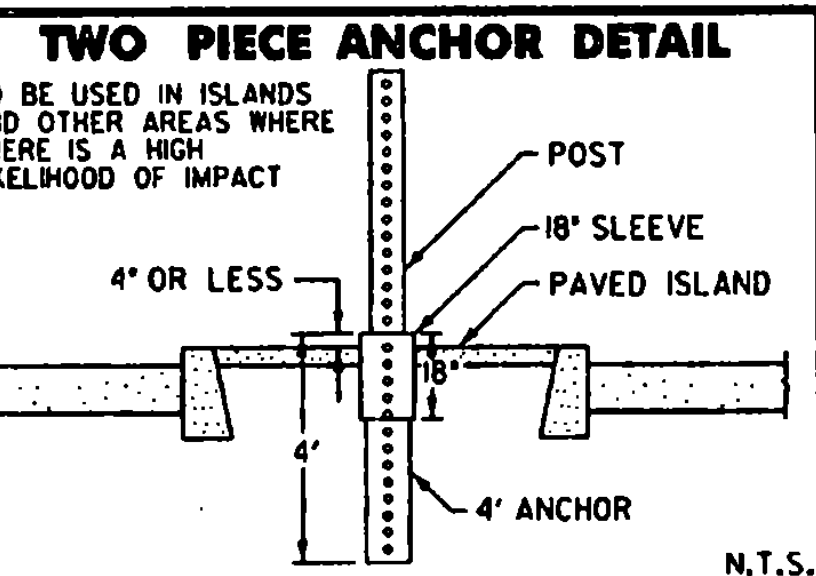
SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 20 SQ. FT. OR LESS

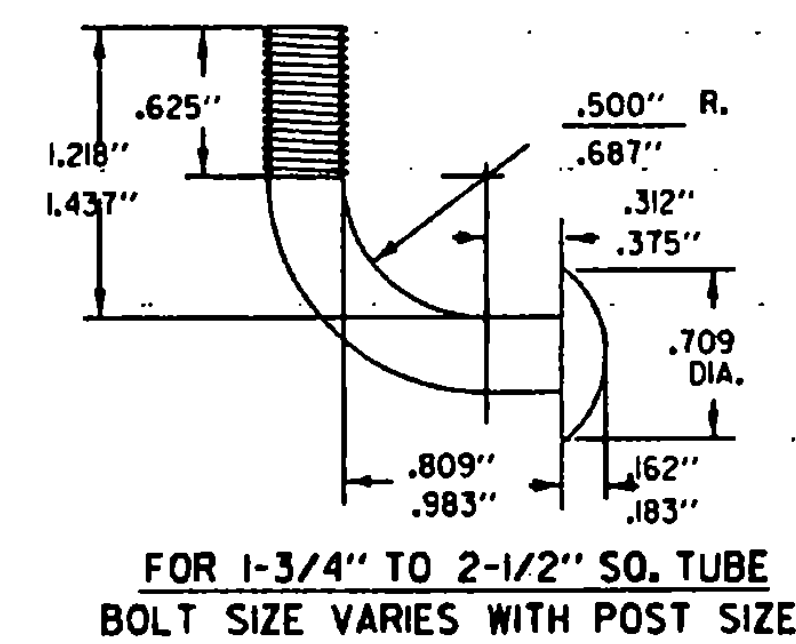
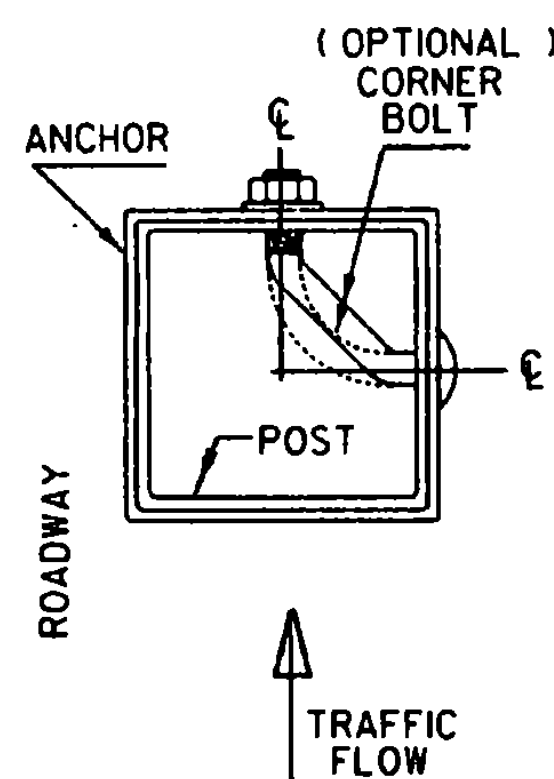


NOTE

WHEN USING SQUARE STEEL POSTS ON STEEP SLOPES (1 ON 2 OR STEEPER) ADD ONE FOOT EMBEDMENT FOR GREATER STABILITY.

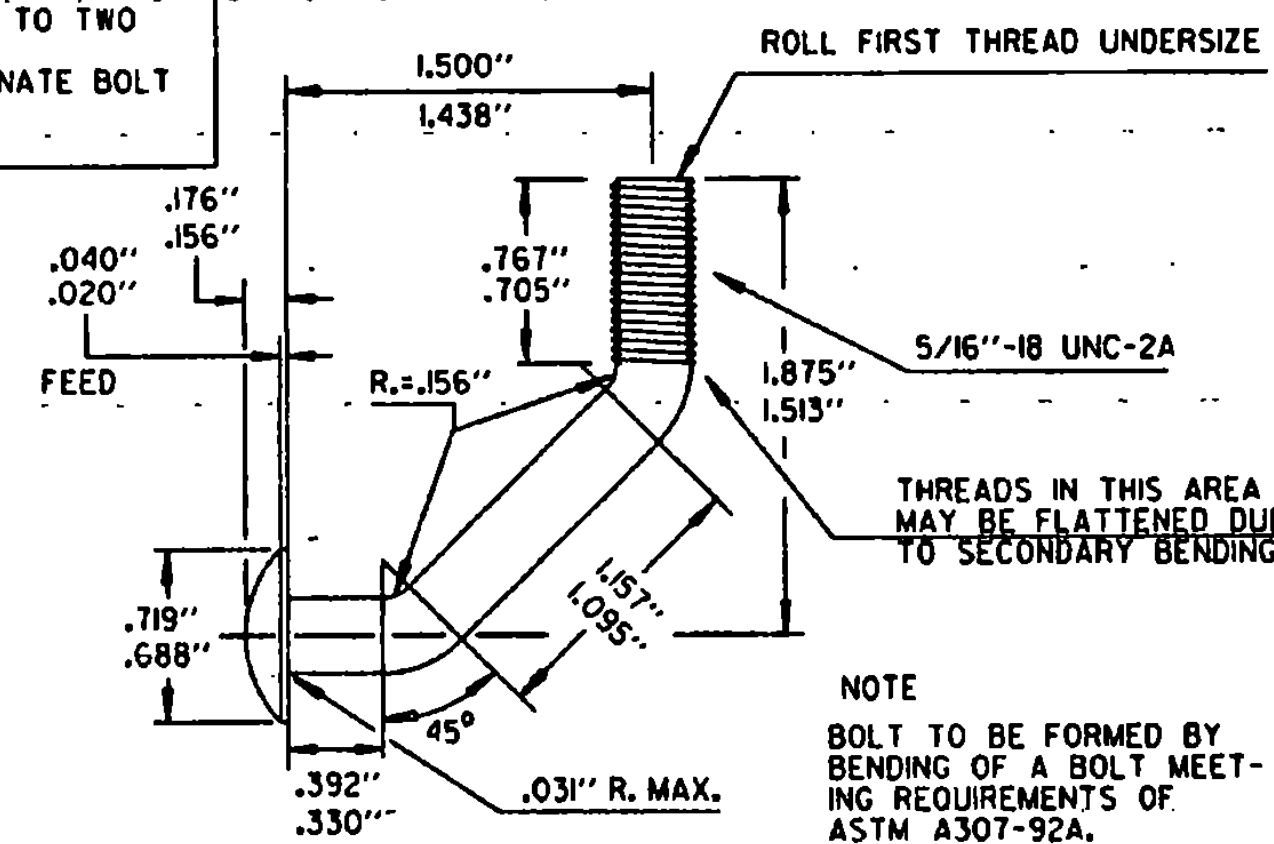


**TOP VIEW OF ANCHOR, POST AND BOLT**

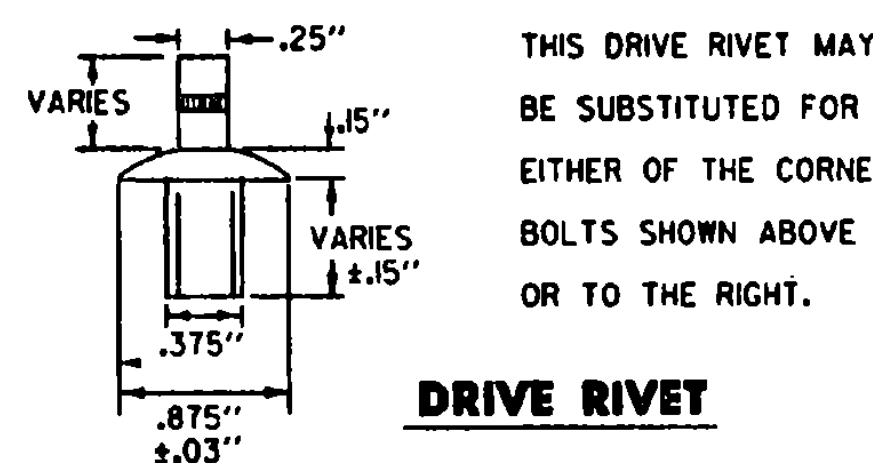


**OPTIONAL CORNER BOLT DETAILS**

DOUBLE DIMENSIONS REFER TO TWO ALTERNATE BOLT SIZES.



• DIMENSIONS VARY AS NEEDED FOR POST SIZE USED



**DRIVE RIVET**

**CONNECTION DETAIL**

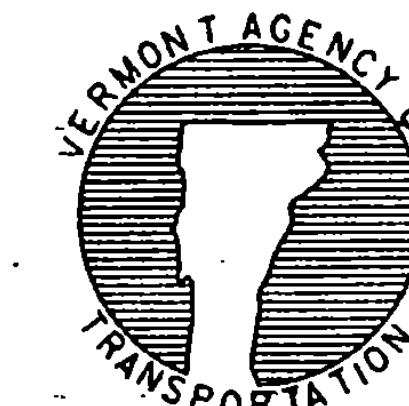


POST IS TO BE INSERTED INTO ANCHOR ONE FOOT BELOW GROUND LEVEL. ANCHOR IS TO BE 4'-0" MINIMUM LENGTH WITH NO MORE THAN 4" ABOVE GROUND. ANCHOR IS ONE SIZE (1/4") GREATER THAN THE POST AND ALL ANCHORS ARE TO BE 12-GAGE EXCEPT ANCHORS FOR 2-1/2" POSTS ARE TO BE 7 GAGE. CONNECTION IS TO BE MADE USING THE BOLT PROVIDED WITH THE SIGN SYSTEM (SEE DETAILS LEFT), AT THE TOP HOLE IN THE ANCHOR (APPROXIMATELY 3-1/2" ABOVE GROUND), THREE INCH ANCHORS WHICH DO NOT HAVE HOLES ON 1" CENTERS WILL REQUIRE DRILLING OF 7/16" HOLES FOR CONNECTIONS.

(SEE DETAIL LEFT FOR BOLT PLACEMENT)

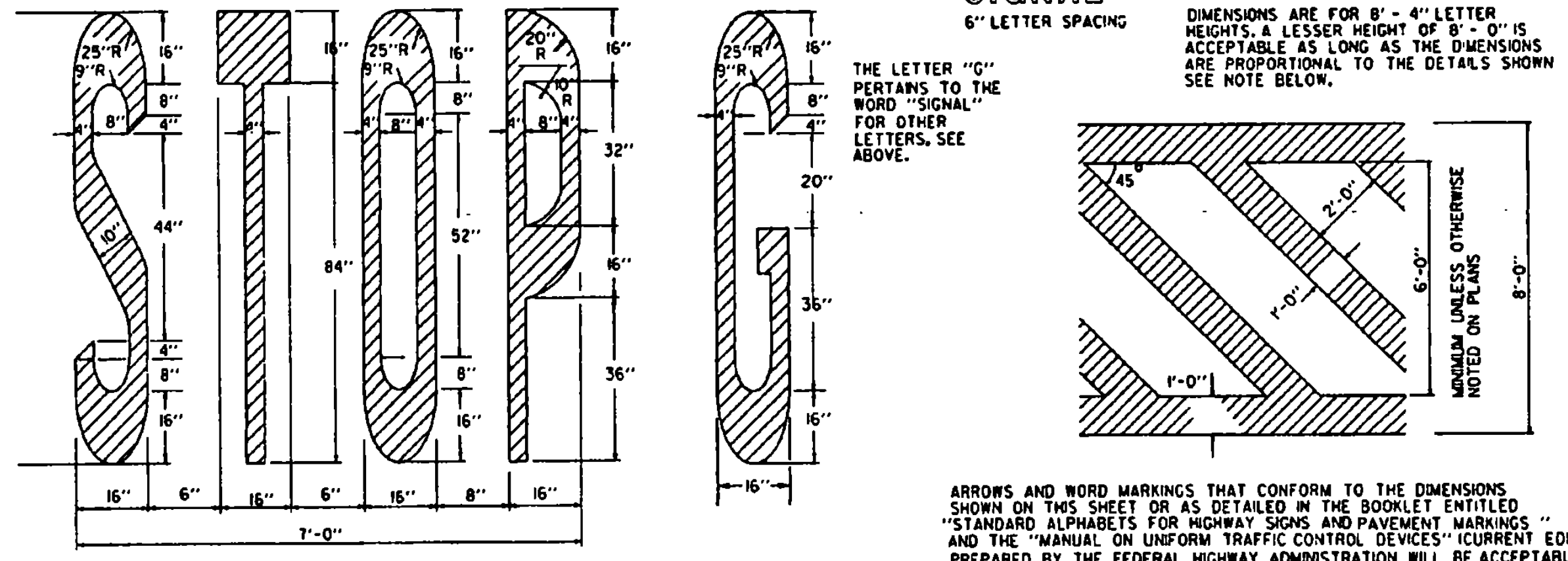
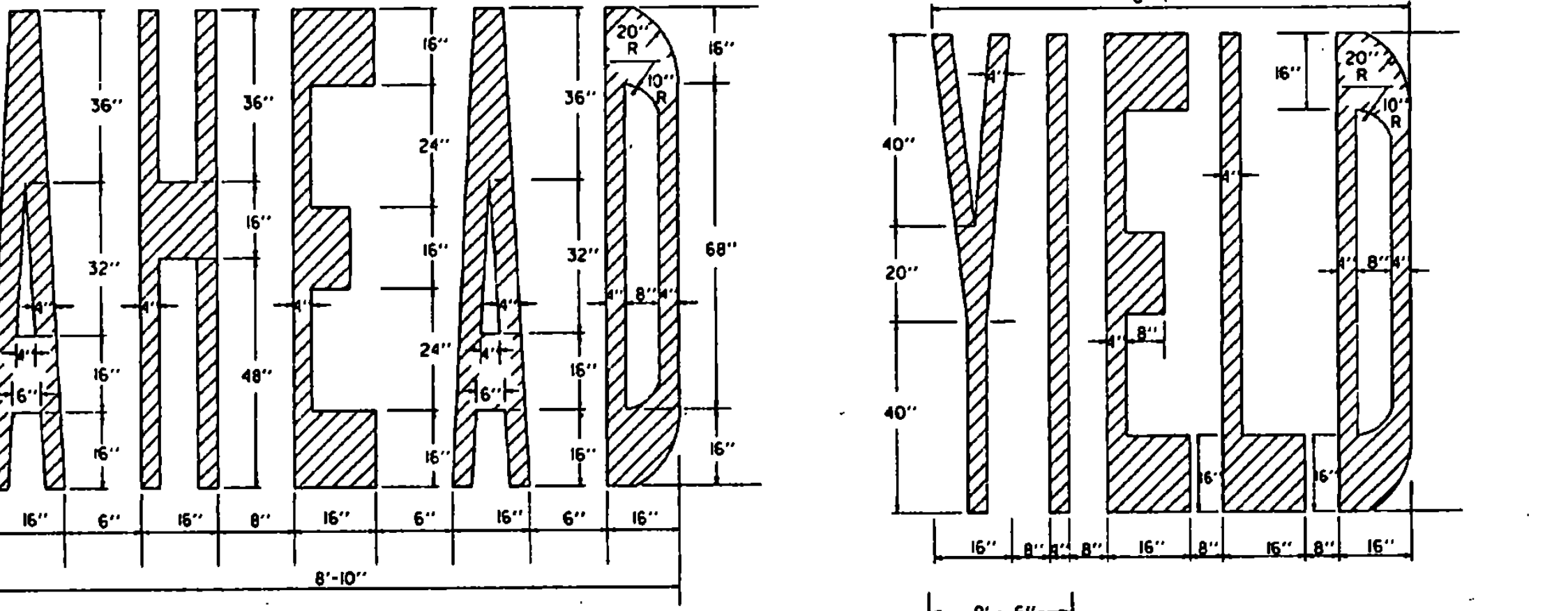
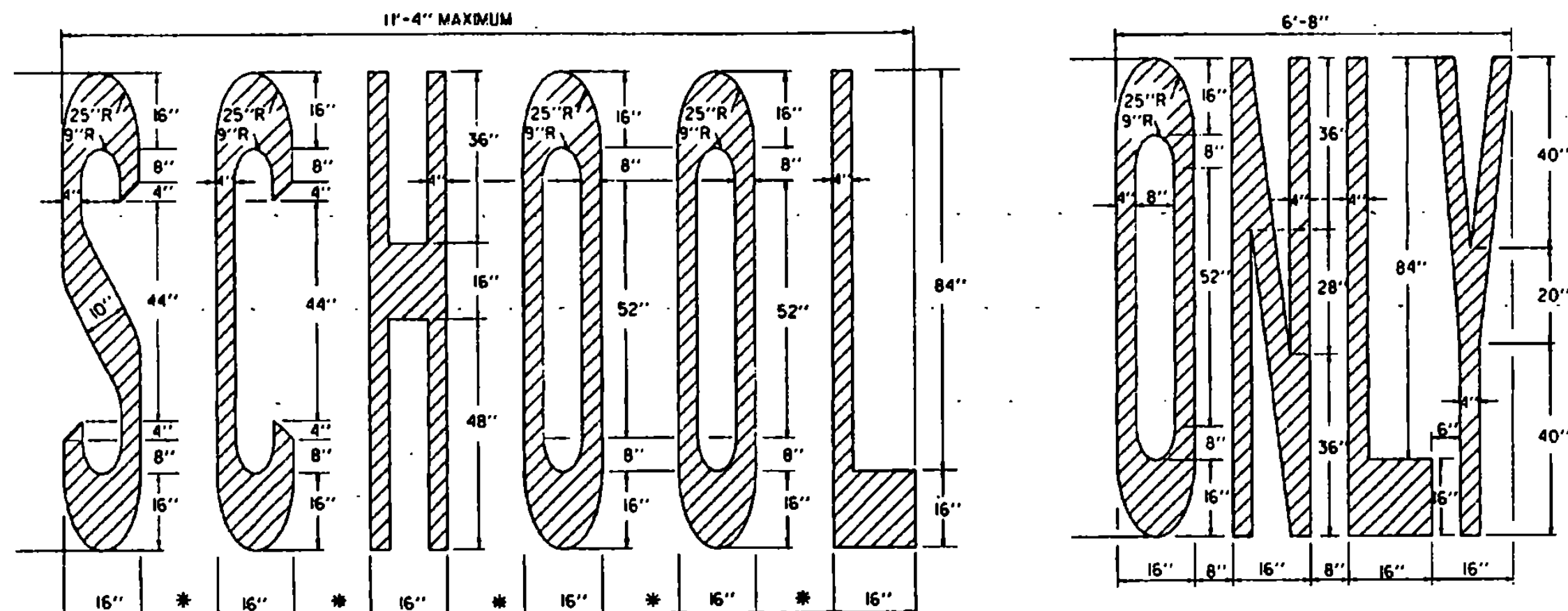
OTHER STDS. REQUIRED E-120, E-160

**PRELIMINARY SQUARE STEEL SIGN POST**

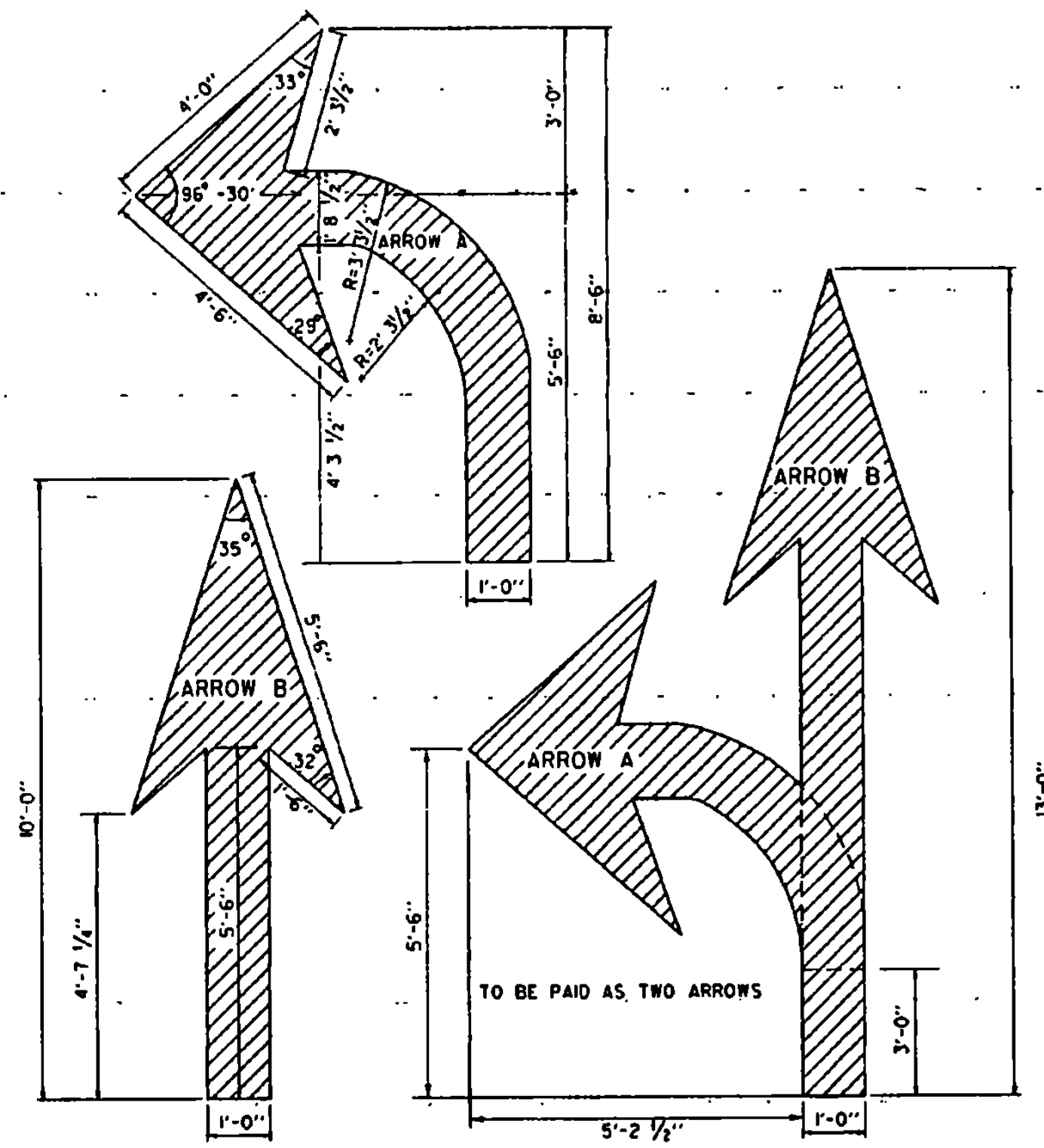


**STANDARD E-164**

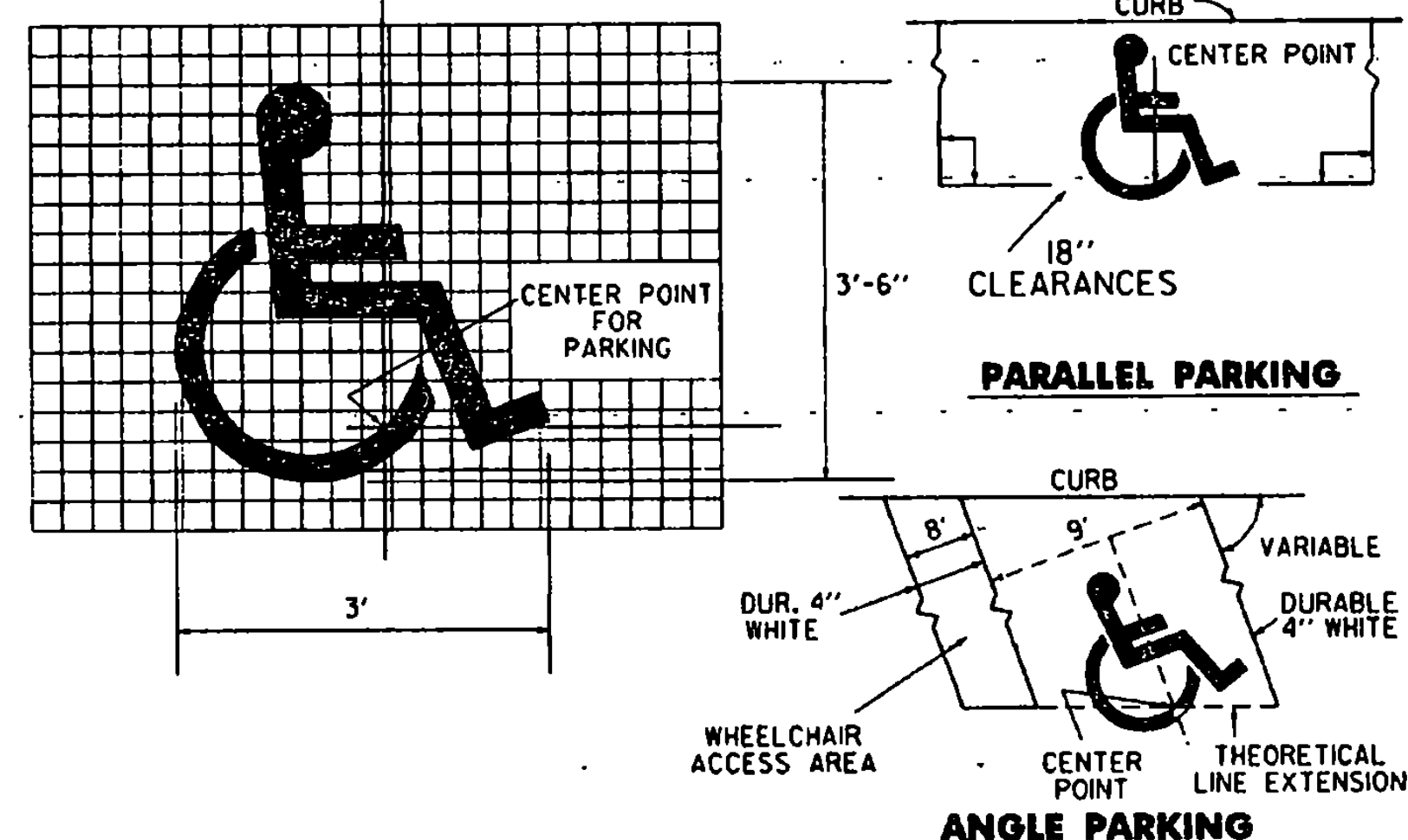
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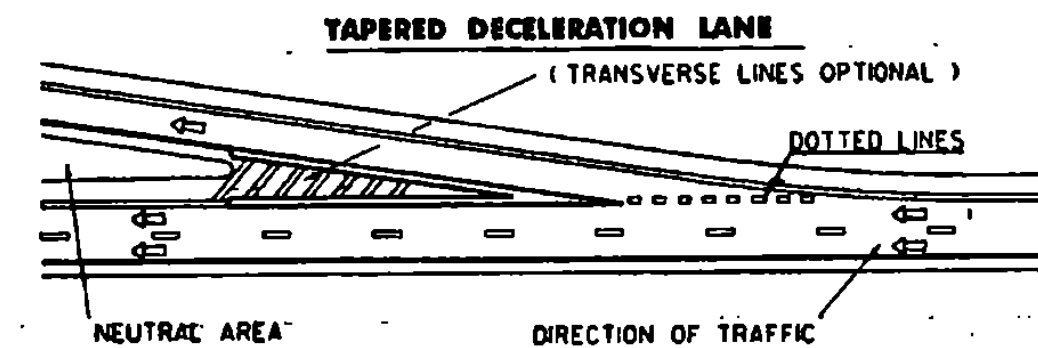
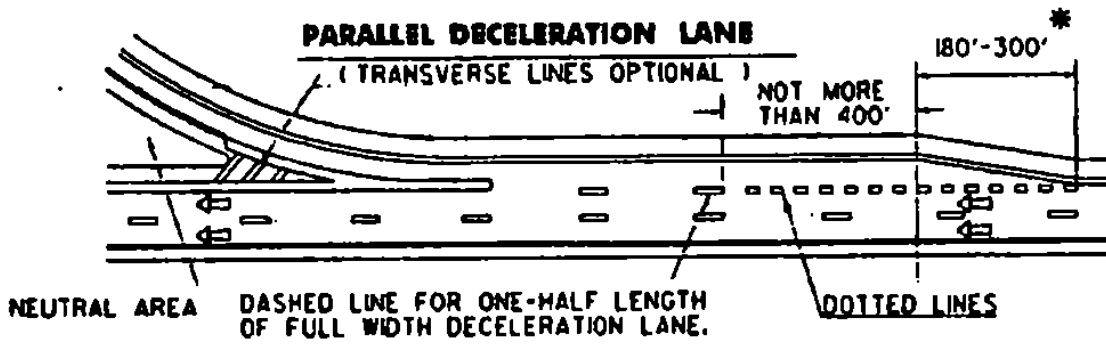
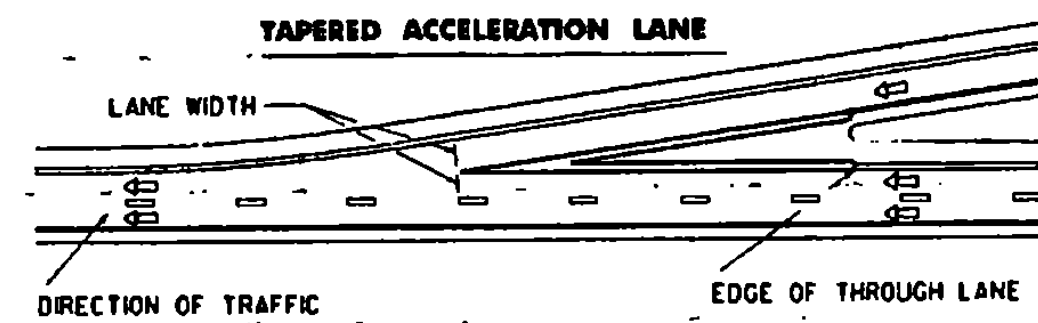
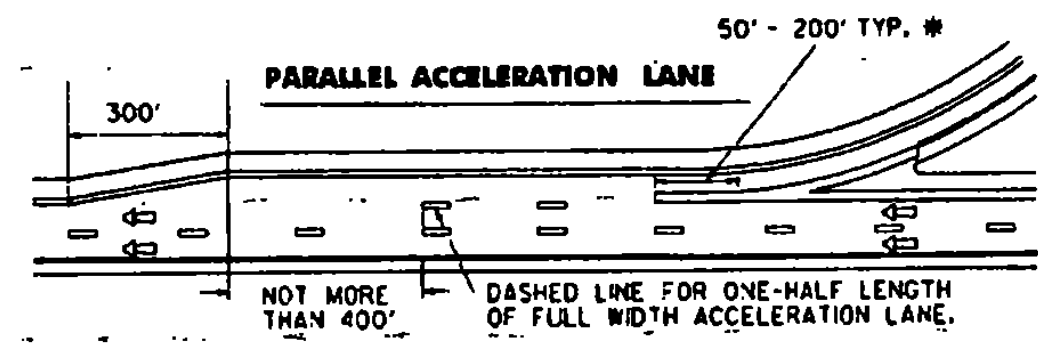
**LETTER IN WORD MARKING AND CROSSWALK DETAILS**



**ARROW DETAILS**



**HANDICAPPED PAVEMENT MARKING DETAILS**

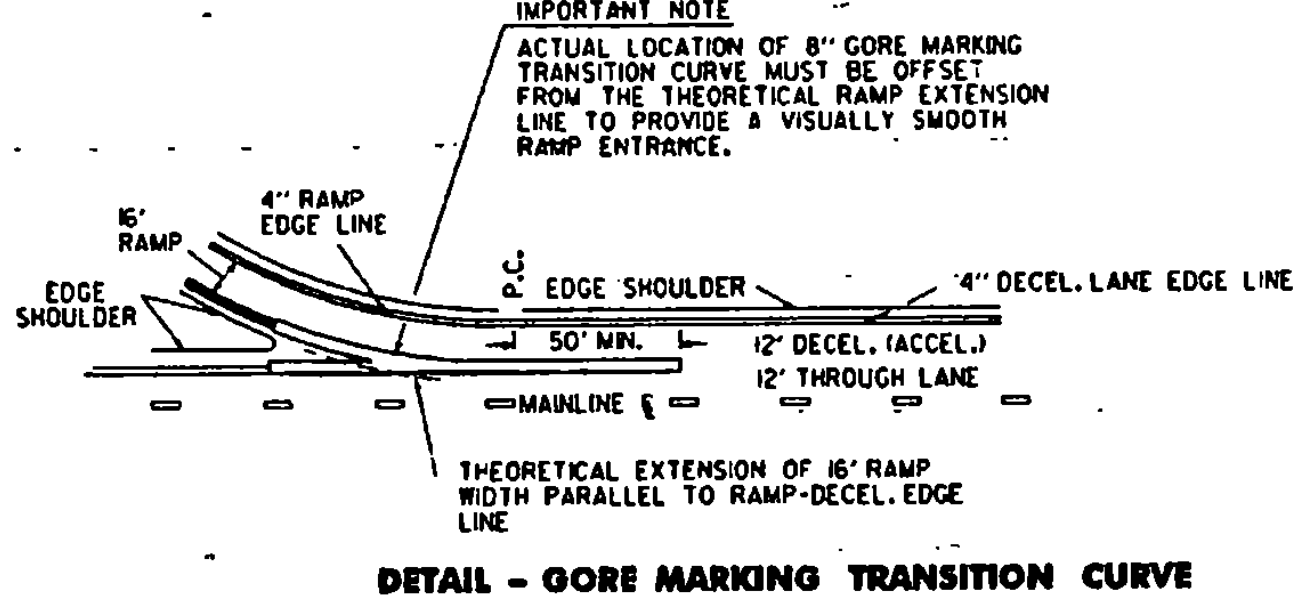


TRANSVERSE LINES SHALL CONSIST OF 8" WHITE LINES SPACED 5'-0" C-C AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT, AS DIRECTED BY THE RESIDENT ENGINEER.

USE LONGER LENGTH TO EMPHASIZE SITUATIONS WHERE THE CROSSING REQUIRES UNUSUAL CARE SUCH AS HIGH VOLUME MERGE AREAS.

SHORTER TAPERS GIVE A BETTER TARGET VALUE, HOWEVER ALIGNMENT MAY DICTATE A LONGER TAPER. RESIDENT ENGINEER SHALL ESTIMATE LENGTH.

- LEGEND**
- 4" WHITE LINES
  - 4" YELLOW LINES
  - 8" CHANNELIZATION WHITE LINES
  - ... 4" WHITE DOTTED LINES (2" SOLID - 4" GAP)
  - DIRECTION OF TRAFFIC FLOW



**DETAIL - GORE MARKING TRANSITION CURVE**

THIS SHEET IS NOT TO SCALE

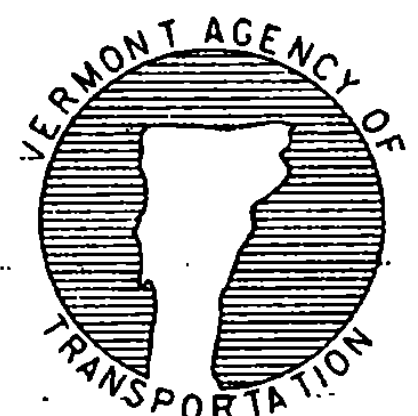
OTHER STDS. REQUIRED

**REVISIONS AND CORRECTIONS**  
 SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE  
 JAN. 23, 1989 - ADDED DOTTED LINES, "SIGNAL" DIMENSIONS, CLARIFIED LETTER HEIGHT.  
 AUG. 18, 1995 - MISC. NOTE CHANGES

**APPROVED**  
*Seamus P. McAllen*  
 DIRECTOR OF ENGINEERING  
*Steve Ray*  
 TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

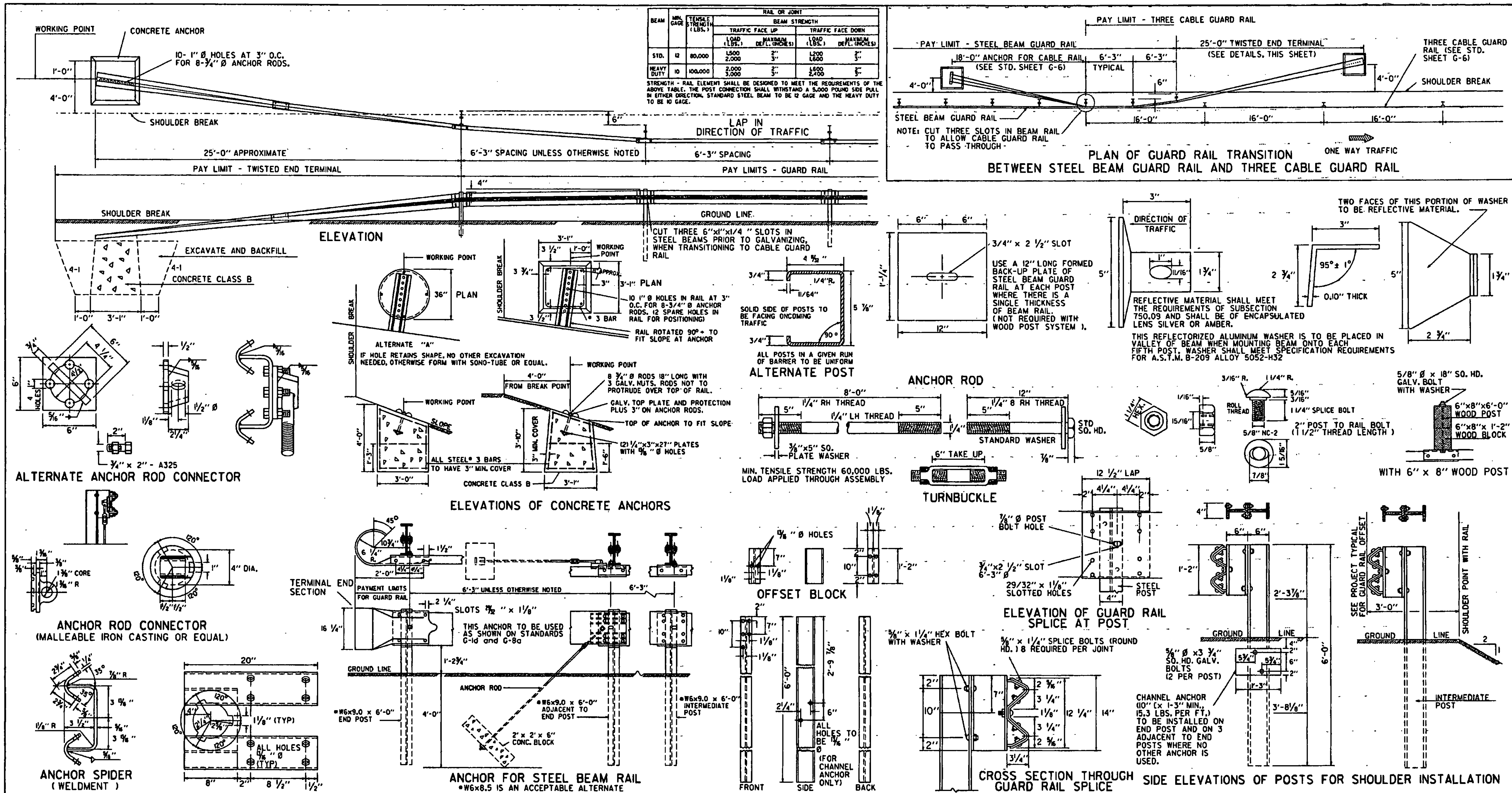
**PAVEMENT MARKING DETAILS**



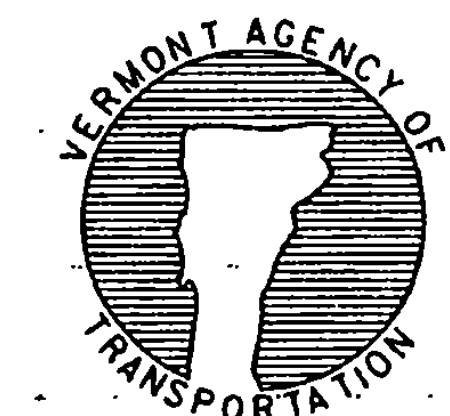
**STANDARD E-191**

/traf/std/stdel9l.dgn/stdel9l.1





**STEEL BEAM GUARD RAIL  
HEAVY DUTY STEEL BEAM GUARD RAIL  
TWISTED END TERMINAL  
ANCHOR FOR STEEL BEAM RAIL**

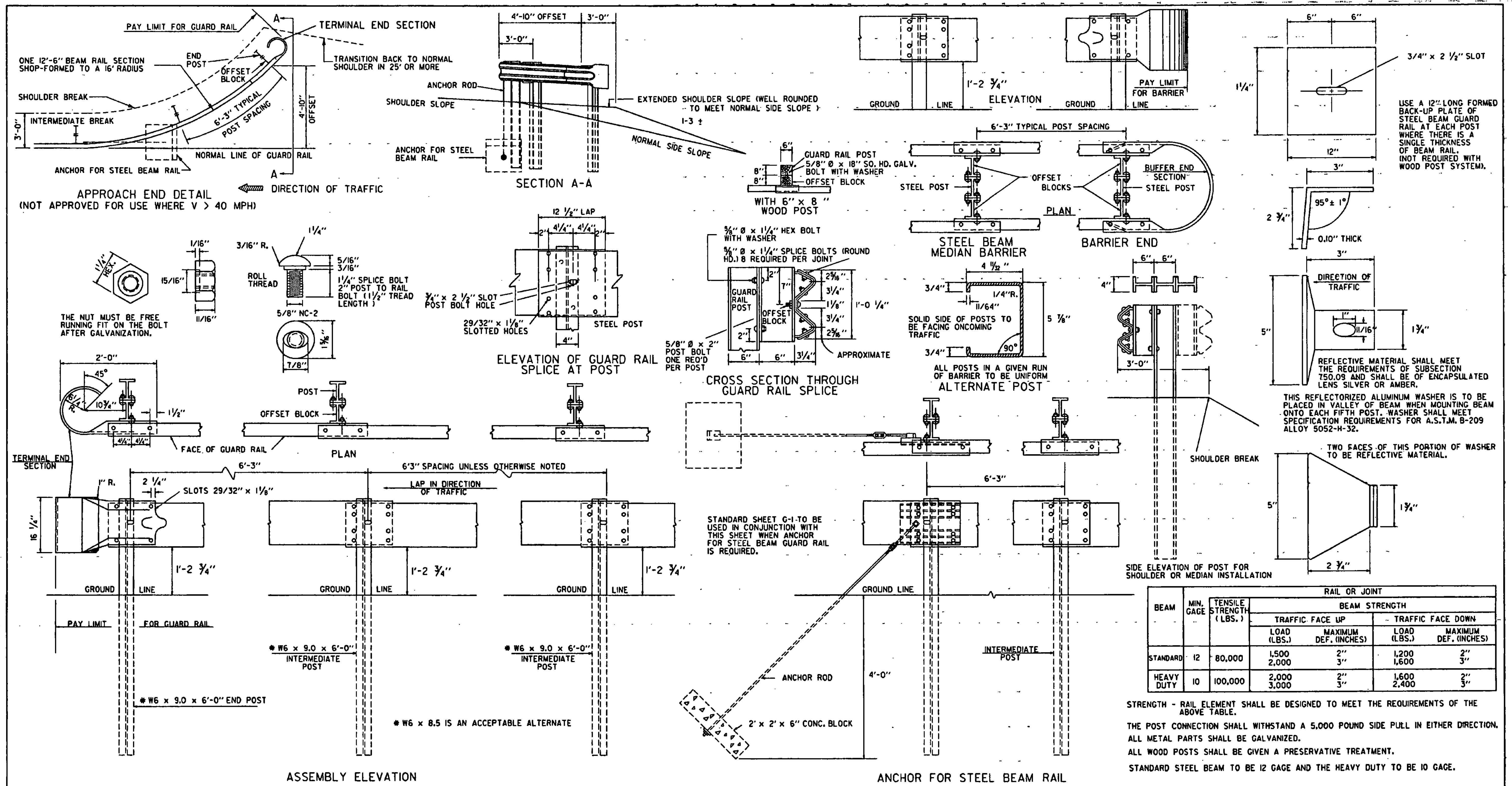


**STANDARD  
G-1**

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FWA FINAL APPROVAL PENDING.

*Scott D. McCallum, PE*  
DIRECTOR OF ENGINEERING

*John M. Murphy, PE*  
DESIGN ENGINEER



**REVISIONS AND CORRECTIONS**

MAY 6, 1976 - ORIGINAL APPROVAL DATE  
 SEP. 10, 1976 - MINIMUM LENGTH & ADVANCE OF NEED NOTES REMOVED  
 MAR. 2, 1977 - ROUND WOOD POSTS REMOVED  
 SEPT. 12, 1977 - REFERENCE TO ROUND WOOD POSTS REMOVED  
 MAY 29, 1979 - NOTE ON REFLECTIVE MATERIAL CHANGED  
 APRIL 28, 1980 - APPROACH END DETAILS REDRAWN  
 DEC. 16, 1980 - INCREASED SHOULDER WIDENING FOR GUARD RAIL  
 JUNE 5, 1984 - POST SIZE AND BACK UP PLATE NOTE CHANGED  
 DEC. 21, 1984 - REMOVED POST WASHER  
 OCT. 31, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS  
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FIRM FINAL APPROVAL PENDING.

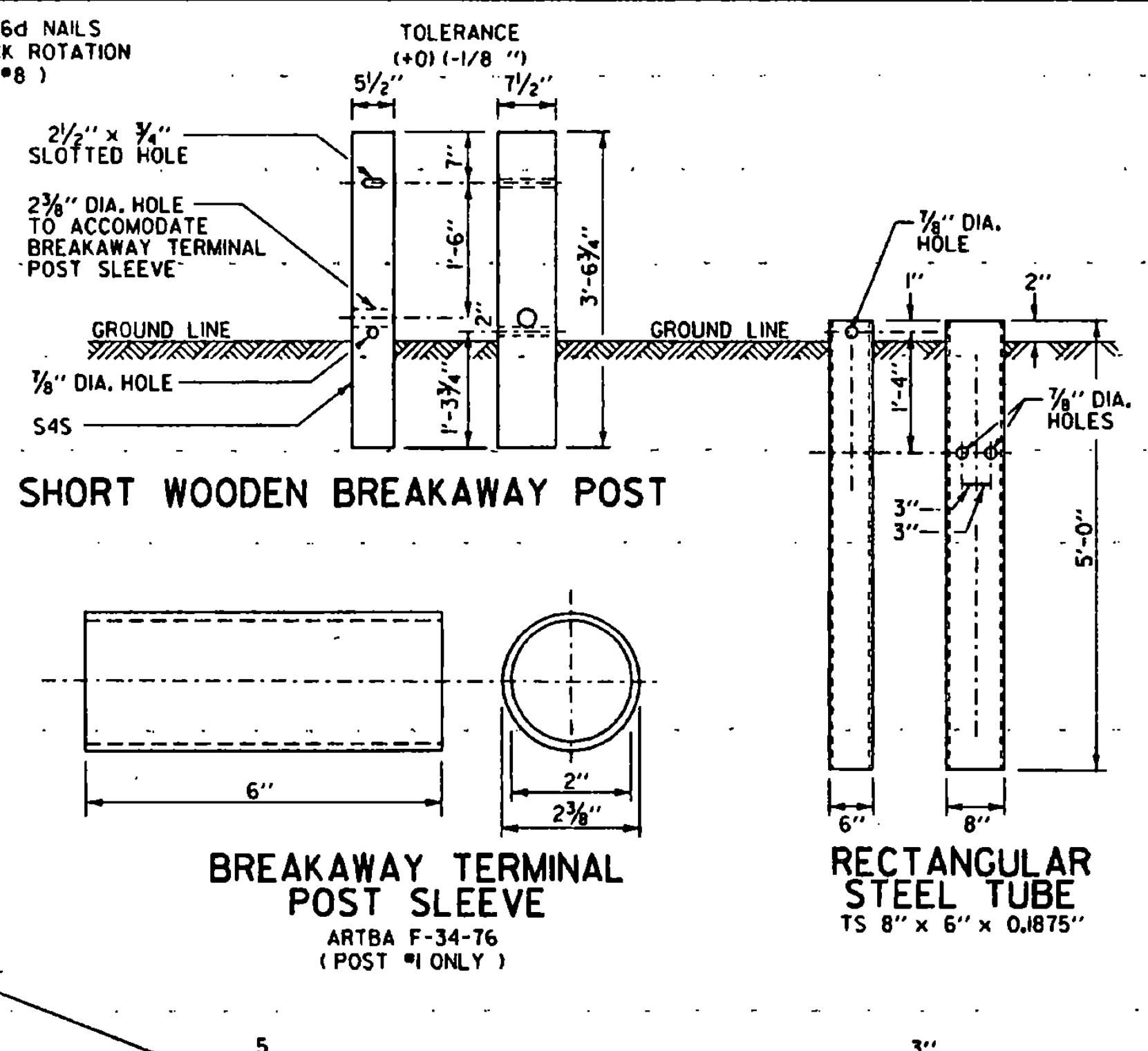
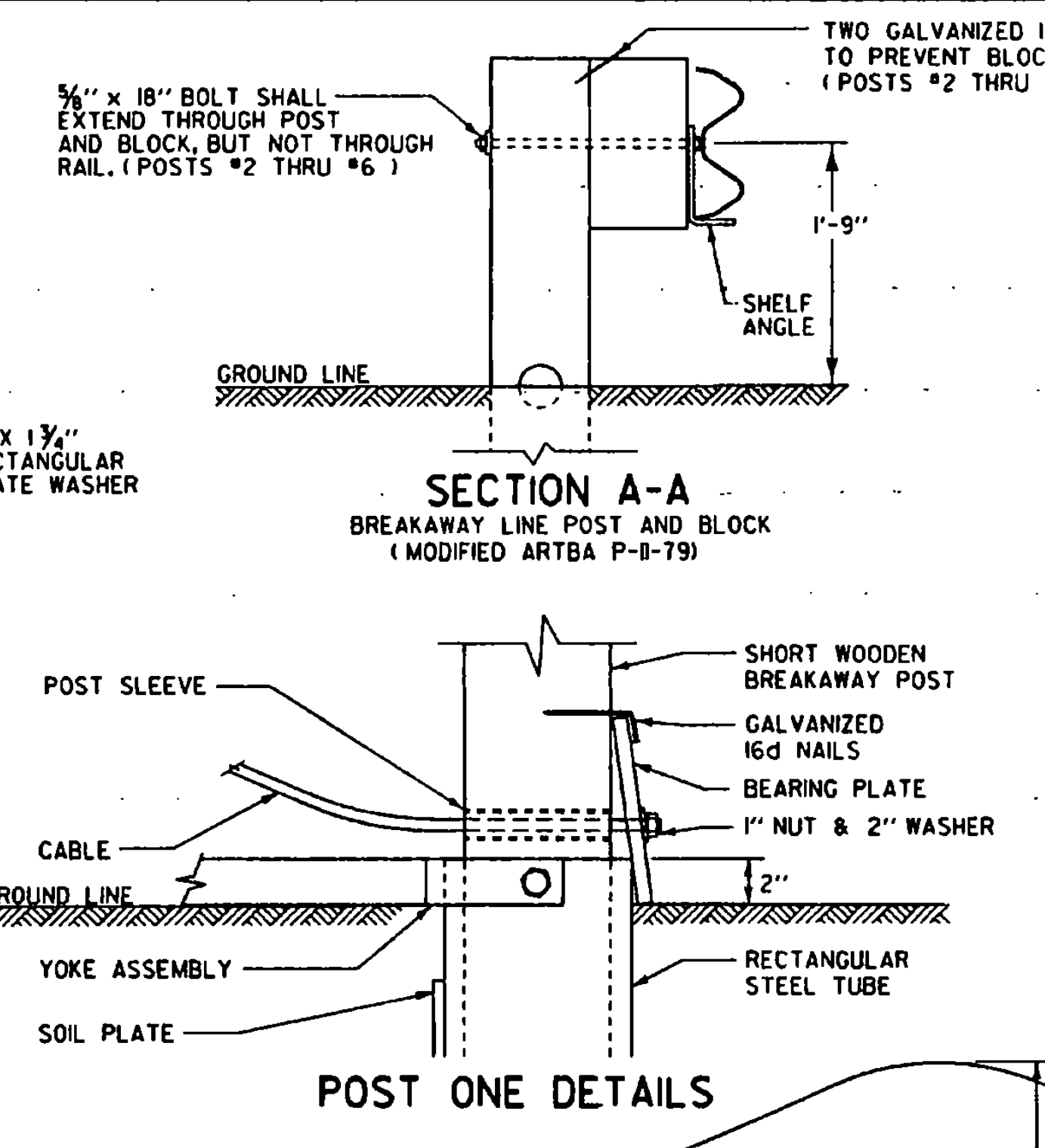
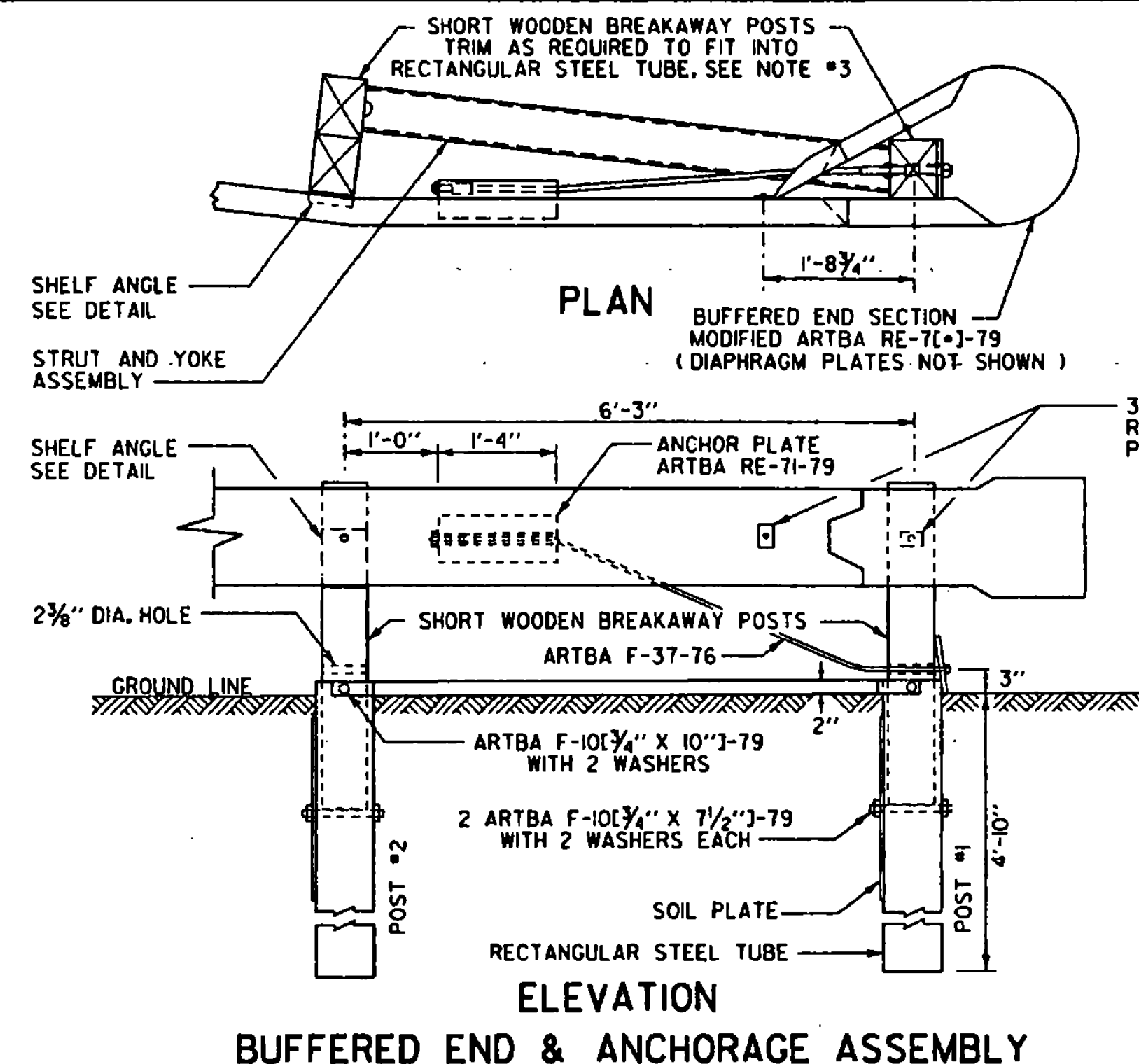
*Stephen D. McCallister, PE*  
DIRECTOR OF ENGINEERING

*John M. Murphy, PE*  
DESIGN ENGINEER

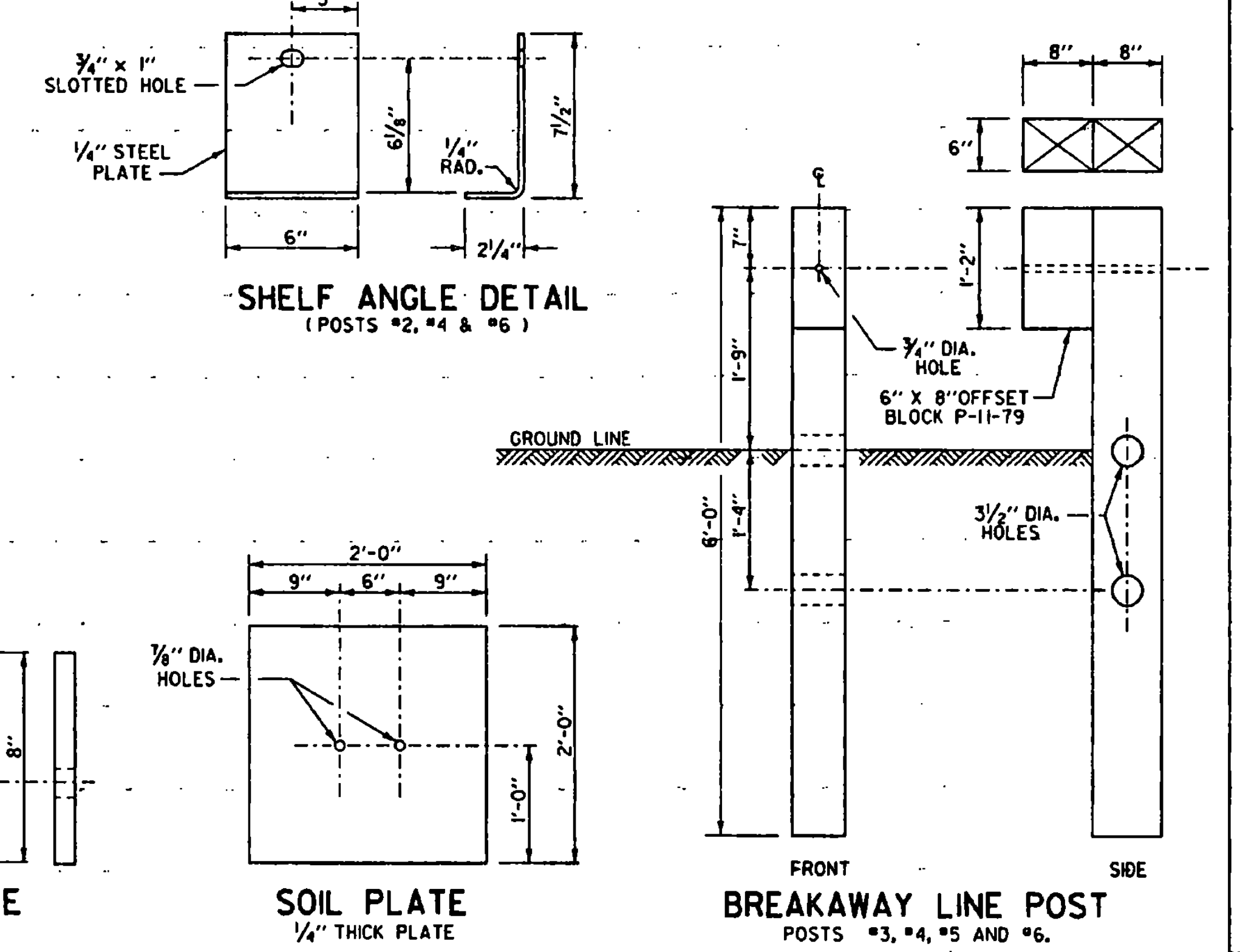
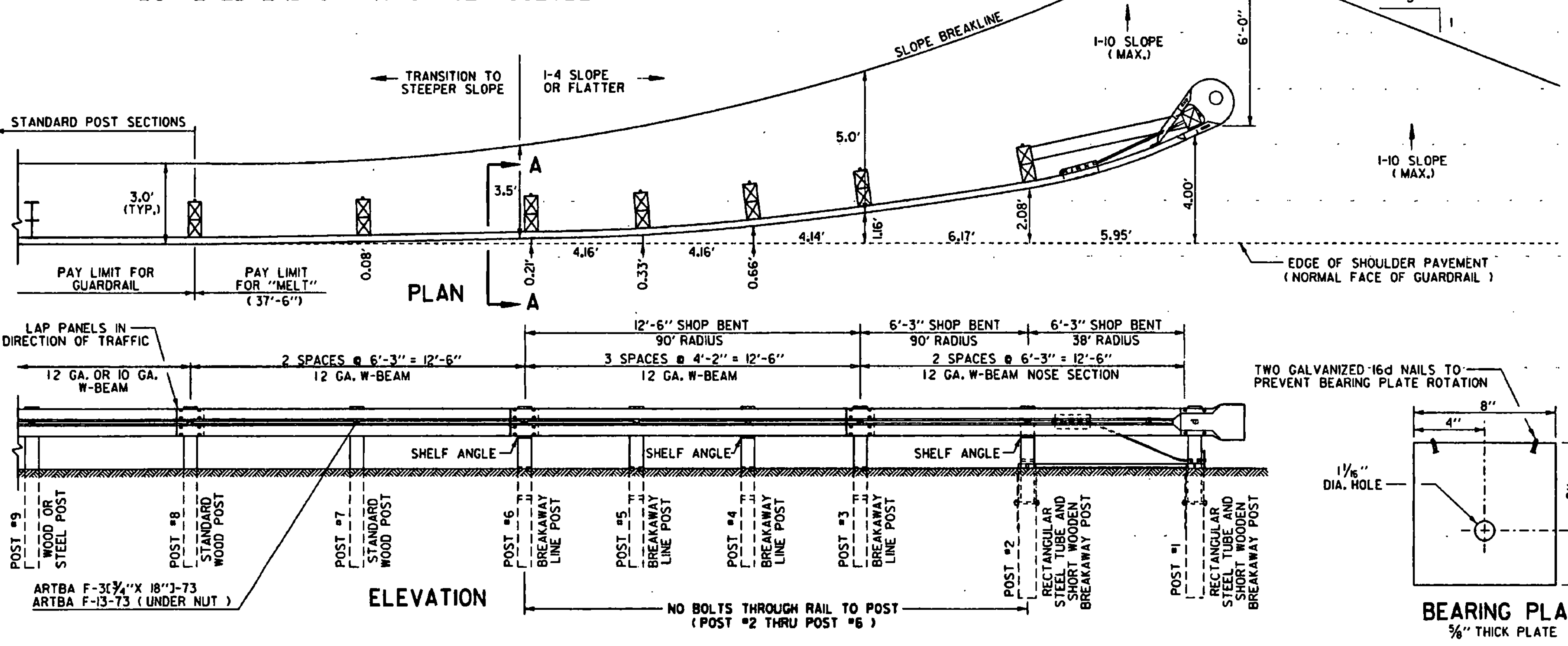
**STEEL BEAM GUARD RAIL**  
**HEAVY DUTY STEEL BEAM GUARD RAIL**  
**STEEL BEAM MEDIAN BARRIER**  
**ANCHOR FOR STEEL BEAM RAIL**

VERMONT AGENCY OF TRANSPORTATION

**STANDARD G-1d**



- GENERAL NOTES:**
1. FOR DESCRIPTION AND SPECIFICATION OF PART IDENTIFIED "ARTBA . . . ." SEE LATEST REPORT PREPARED AND APPROVED BY THE AASHTO-ACC-ARTBA JOINT COOPERATIVE COMMITTEE. "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE".
  2. ALL ANGLES, CHANNELS, PLATES, DIAPHRAGM PLATES AND RECTANGULAR STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF THE VAOT STANDARD SPECIFICATIONS, SUBSECTION 714.11. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE VAOT STANDARD SPECIFICATIONS, SUBSECTION 506.10. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH VAOT STANDARD SPECIFICATIONS, SECTION 714 - STRUCTURAL STEEL.
  3. SHORT WOODEN BREAKAWAY POSTS SHALL BE MADE OF S4S TIMBER WITH A BENDING STRESS GRADE OF 1200 PSI MINIMUM AND SHALL BE GRADE MARKED OR CERTIFIED BY A RECOGNIZED ASSOCIATION OR AGENCY WHICH IS CERTIFIED BY THE BOARD OF REVIEW, AMERICAN LUMBER STANDARDS COMMITTEE, TO GRADE THE SPECIES. THE POSTS SHALL RECEIVE A PRESERVATIVE TREATMENT, AFTER ANY TRIMMING OR DRILLING, IN ACCORDANCE WITH VAOT STANDARD SPECIFICATIONS, SUBSECTION 728.01.
  4. THE POST OFFSET DIMENSIONS ARE GIVEN TO THE FACE OF GUARDRAIL, THE POSTS ARE TO BE SET RADIAL TO THE RAILING AT EACH POST LOCATION.
  5. NOTE: THE AREA OUTSIDE AND DOWNSTREAM OF THE FIRST 12 1/2' (BREAKAWAY NOSE SECTION) OF THE MELT SHOULD BE FREE OF OBSTACLES AND GRADED IN SUCH A WAY AS TO ALLOW A VEHICLE TO BREAK THROUGH THE BREAKAWAY NOSE SECTION AND COME TO A SAFE STOP.

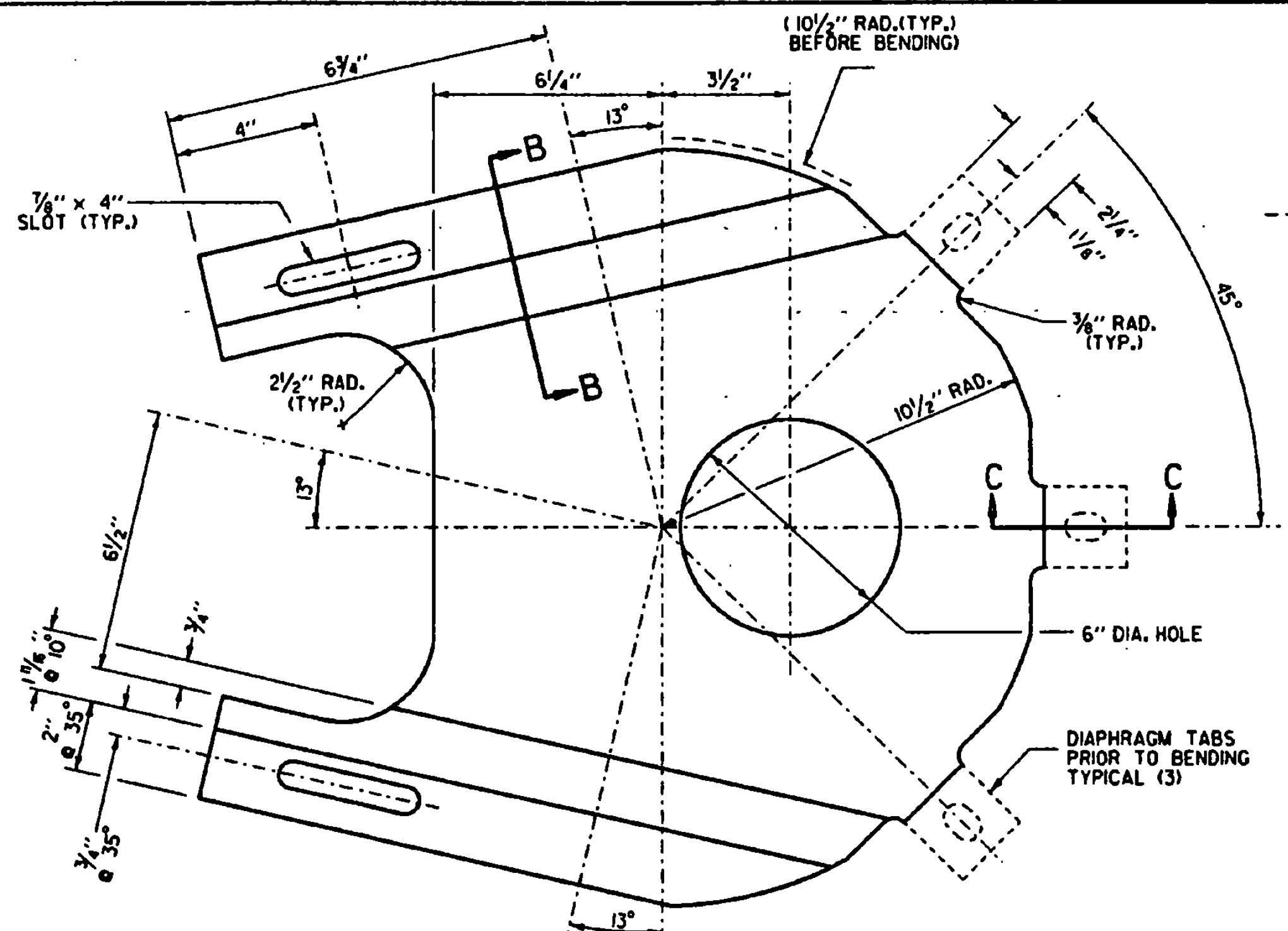


**REVISIONS AND CORRECTIONS**  
JUNE 30, 1995 ORIGINAL APPROVAL  
JANUARY 18, 1996 CHANGED DIAMETER AND LENGTH OF BOLT (SECTION A-A)

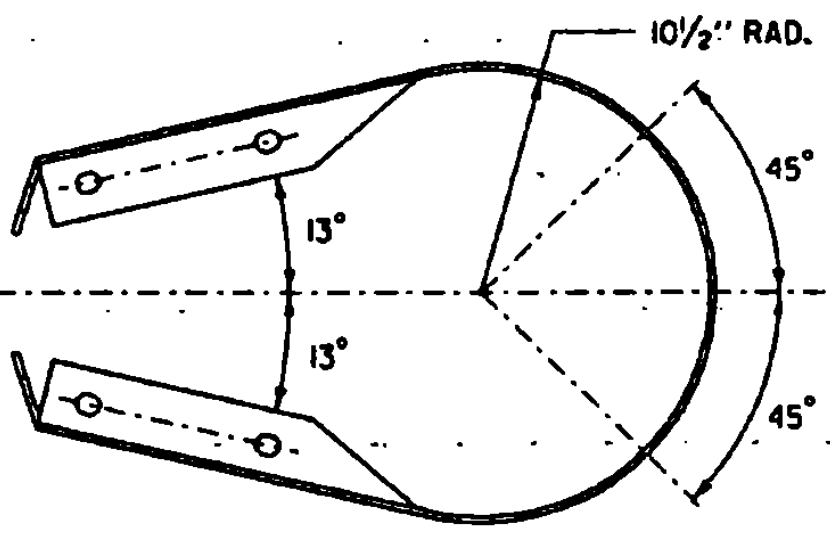
**APPROVED**  
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FIVE FINAL APPROVAL SIGNINGS.  
*John E. ...*  
DIRECTOR OF ENGINEERING  
*Michael ...*  
DESIGN ENGINEER

**MODIFIED ECCENTRIC LOADER TERMINAL WITH WOOD POSTS (MELT)**

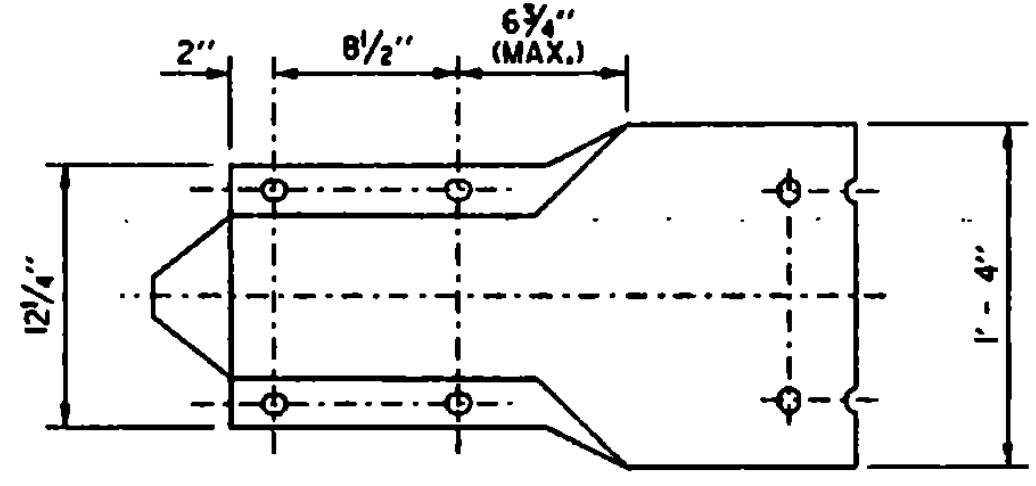
VERMONT AGENCY OF TRANSPORTATION  
**STANDARD G-17 a**



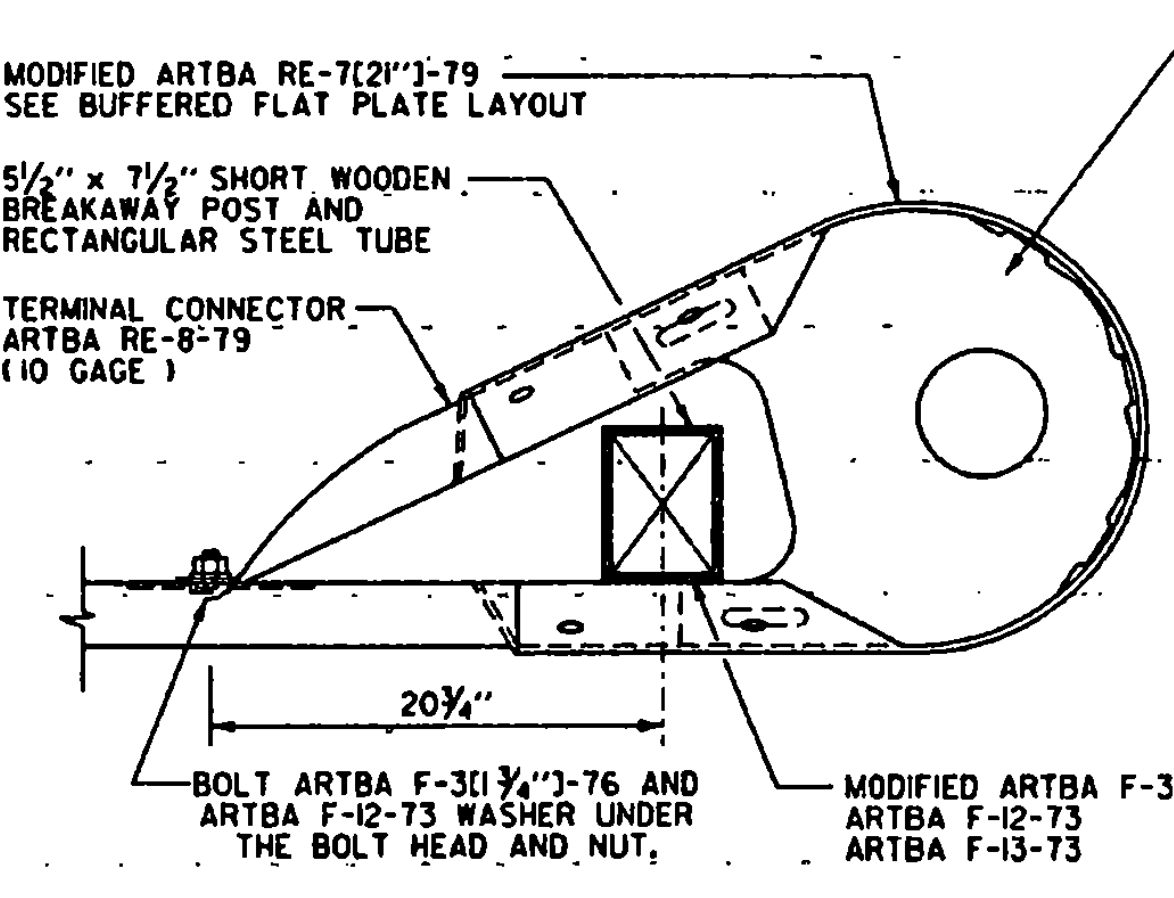
**DIAPHRAGM PLATE DETAIL**  
12 GAGE - (2 REQUIRED EACH TERMINAL)



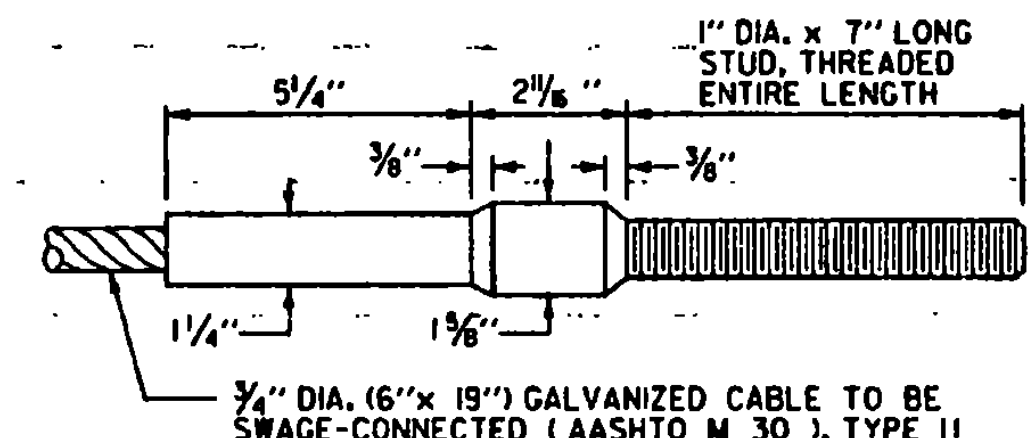
**BUFFERED END SECTION PLAN**



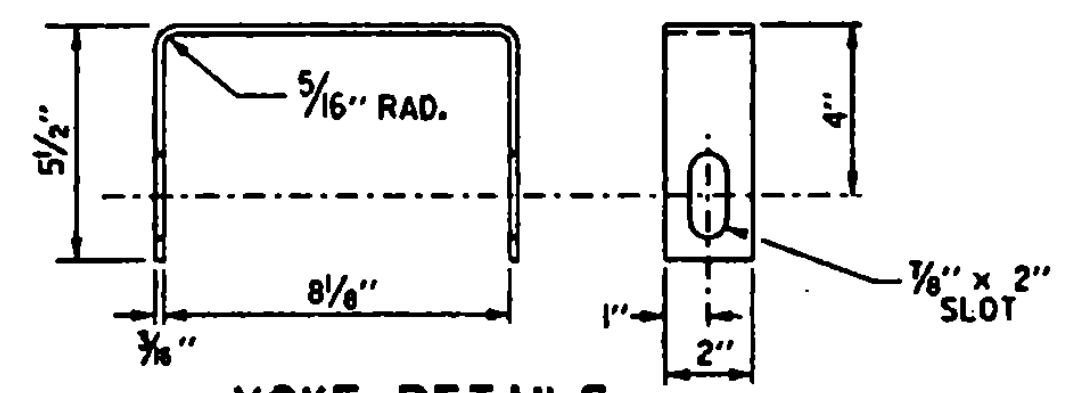
**BUFFERED END SECTION ELEVATION**



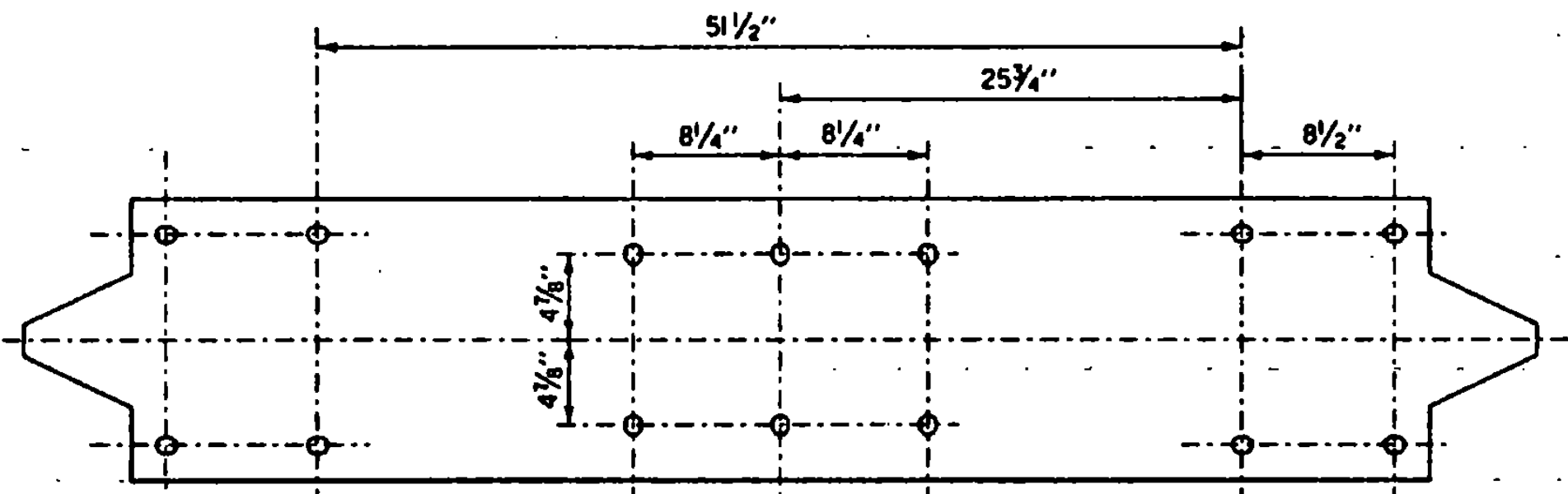
**BUFFERED END ASSEMBLY**



**STANDARD SWAGED FITTING AND STUD CABLE ASSEMBLY ARTBA F-37-76**

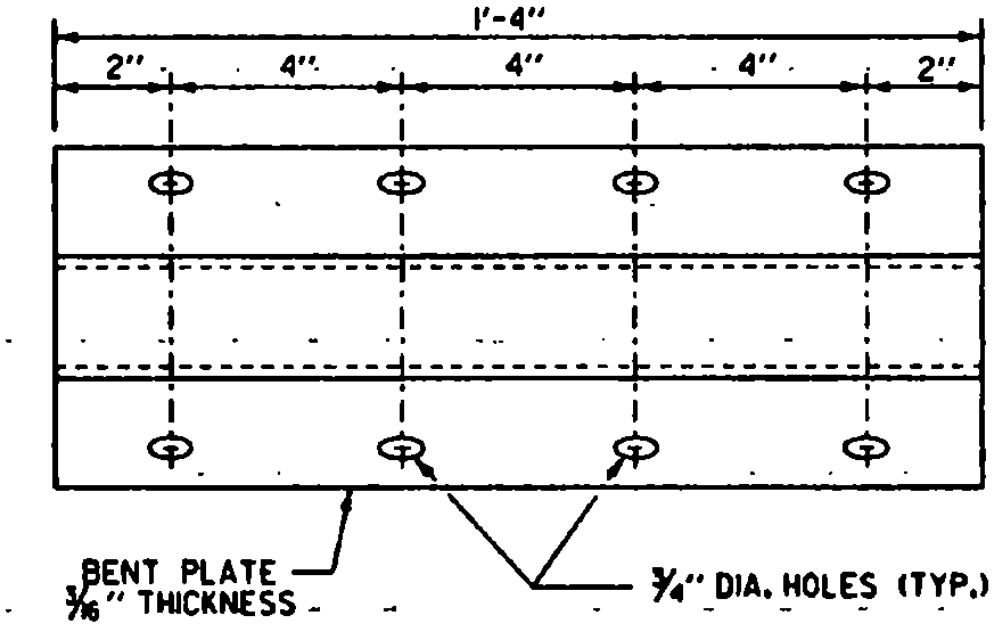


**YOKE DETAILS**

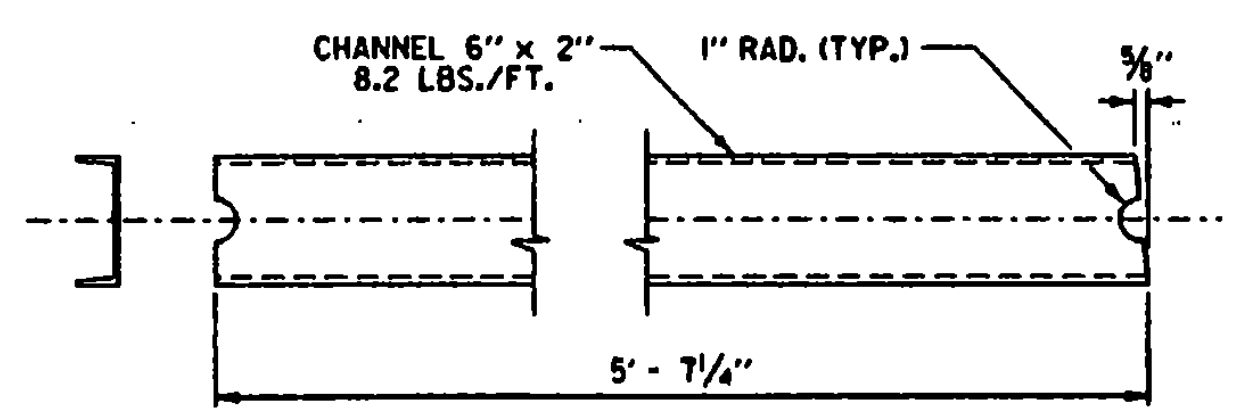
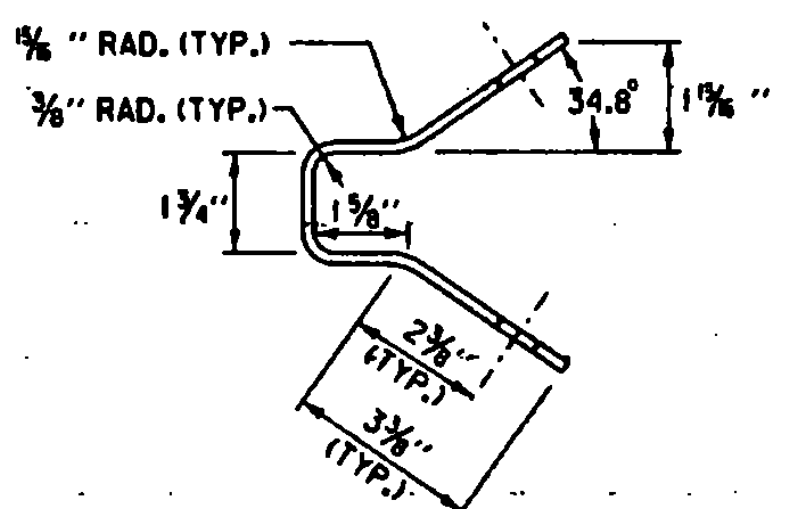


**BUFFERED END SECTION FLAT PLATE LAYOUT**  
(MODIFIED ARTBA RE-7(21")-79)

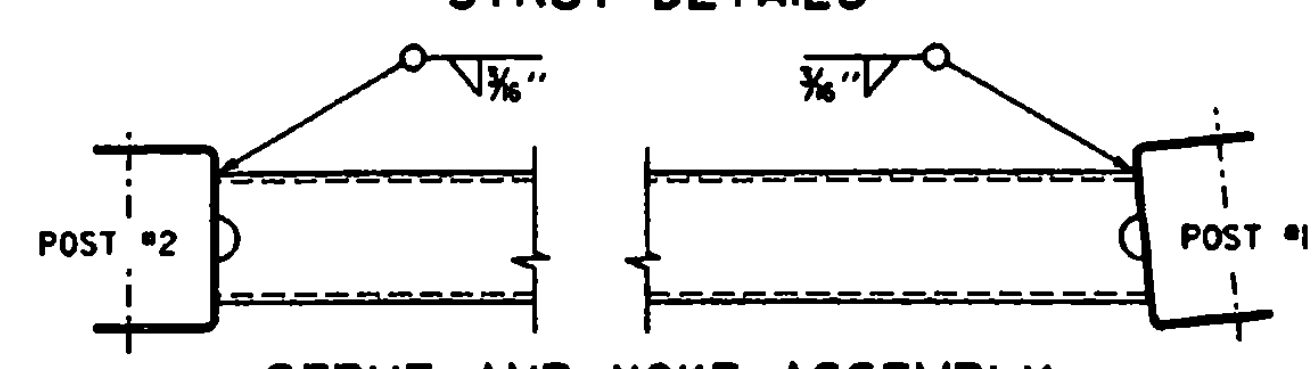
ALL SLOTS 2 1/2" x 1 1/8"  
ALL BOLTS ARTBA F-3(1 1/4")-76



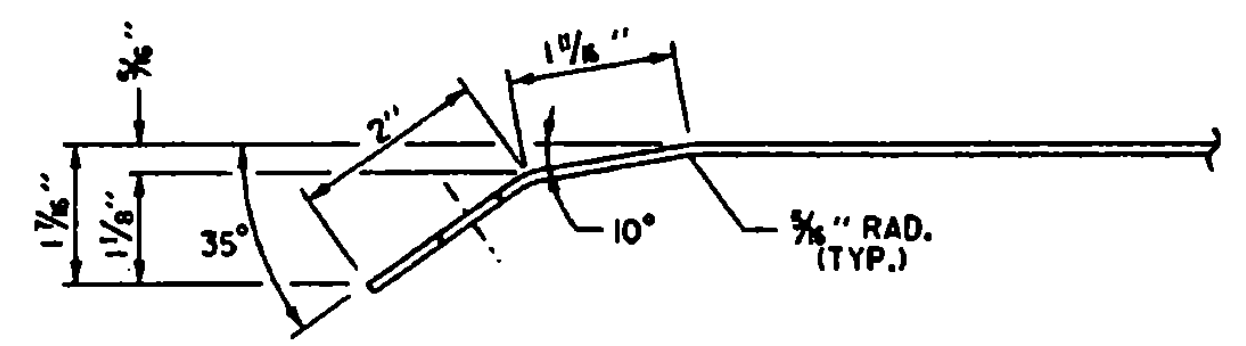
**ANCHOR PLATE ARTBA RE-71-79**



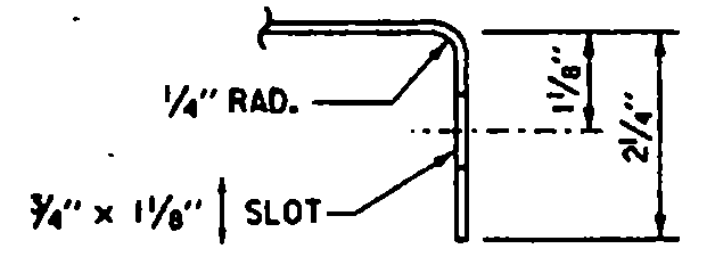
**STRUT DETAILS**



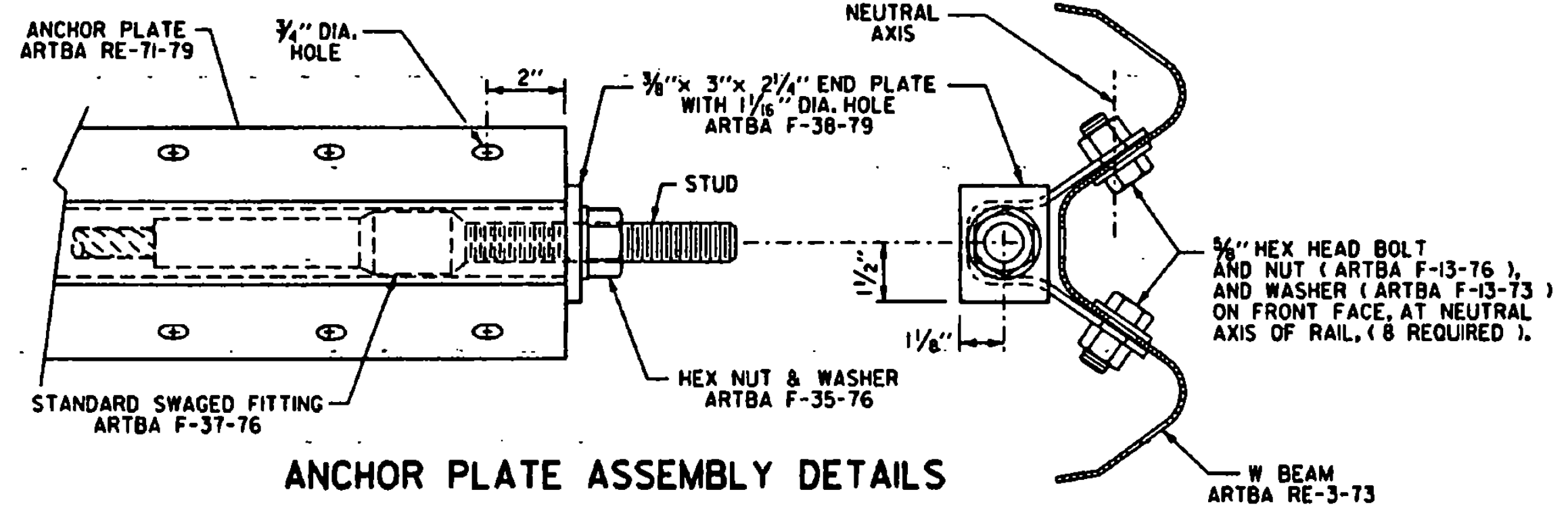
**STRUT AND YOKE ASSEMBLY**  
SHOWN LEGS DOWN, FOR OPPOSITE HAND, INSTALL LEGS UP



**DIAPHRAGM PLATE DETAIL SECTION B-B**



**DIAPHRAGM PLATE DETAIL SECTION C-C**

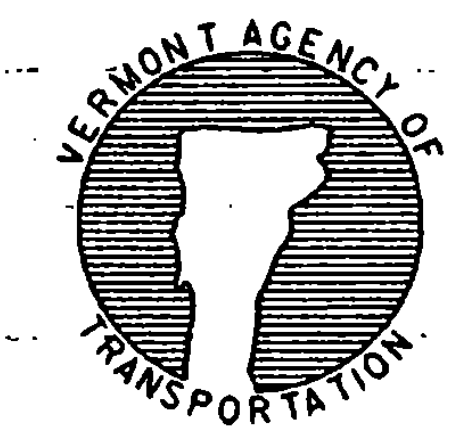


**ANCHOR PLATE ASSEMBLY DETAILS**

REVISIONS AND CORRECTIONS  
JUNE 30, 1995 ORIGINAL APPROVAL

APPROVED  
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.  
*Stephen J. MacArthur*  
DIRECTOR OF ENGINEERING  
*John M. Mung*  
DESIGN ENGINEER

**MODIFIED ECCENTRIC LOADER TERMINAL WITH WOOD POSTS (MELT)**



**STANDARD G-17 b**