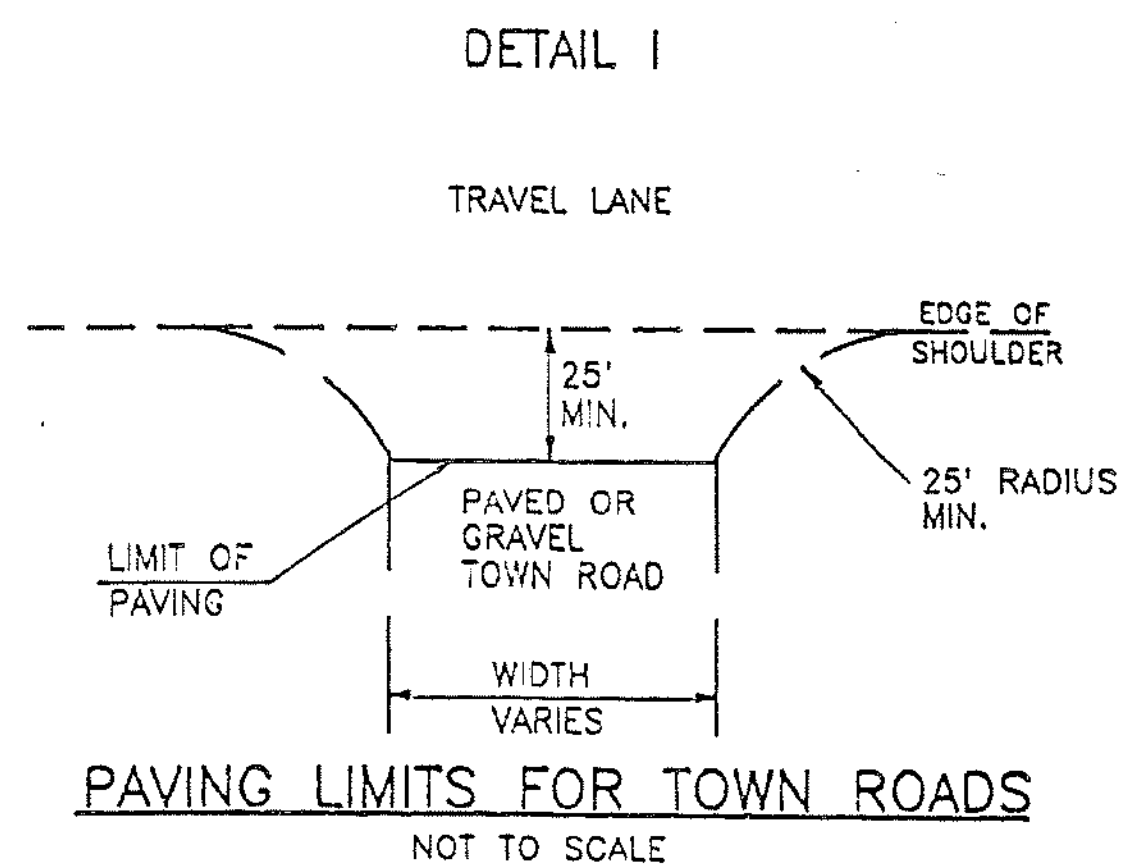
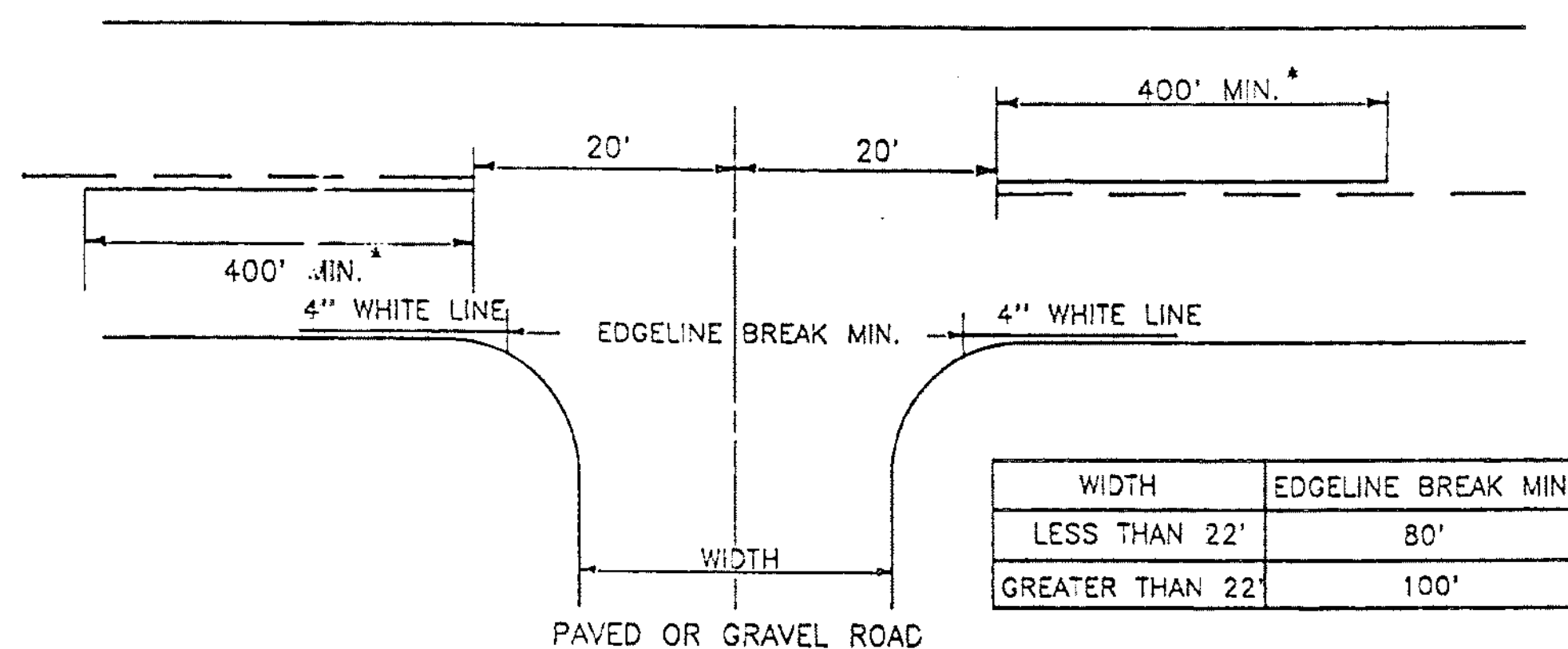


PAVEMENT MARKING PLACEMENT DETAIL TYPICAL



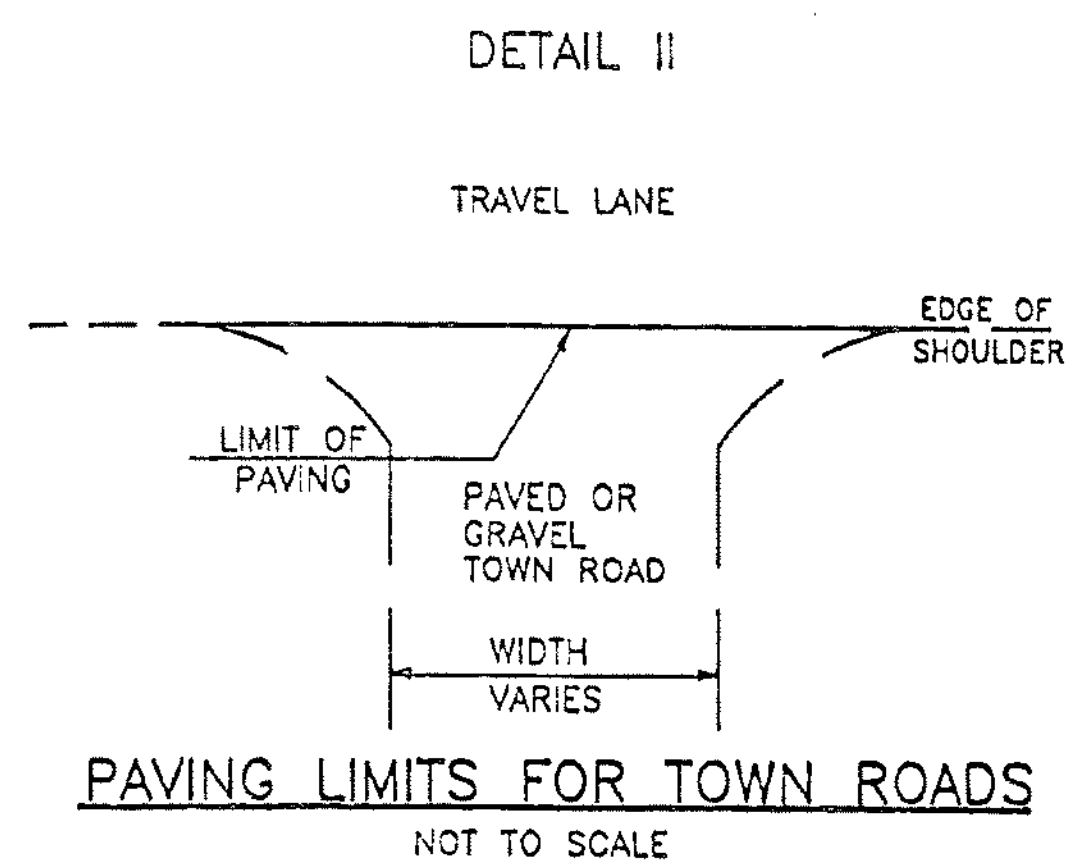
DETAIL I PAVING LIMITS FOR TOWN ROADS NOT TO SCALE



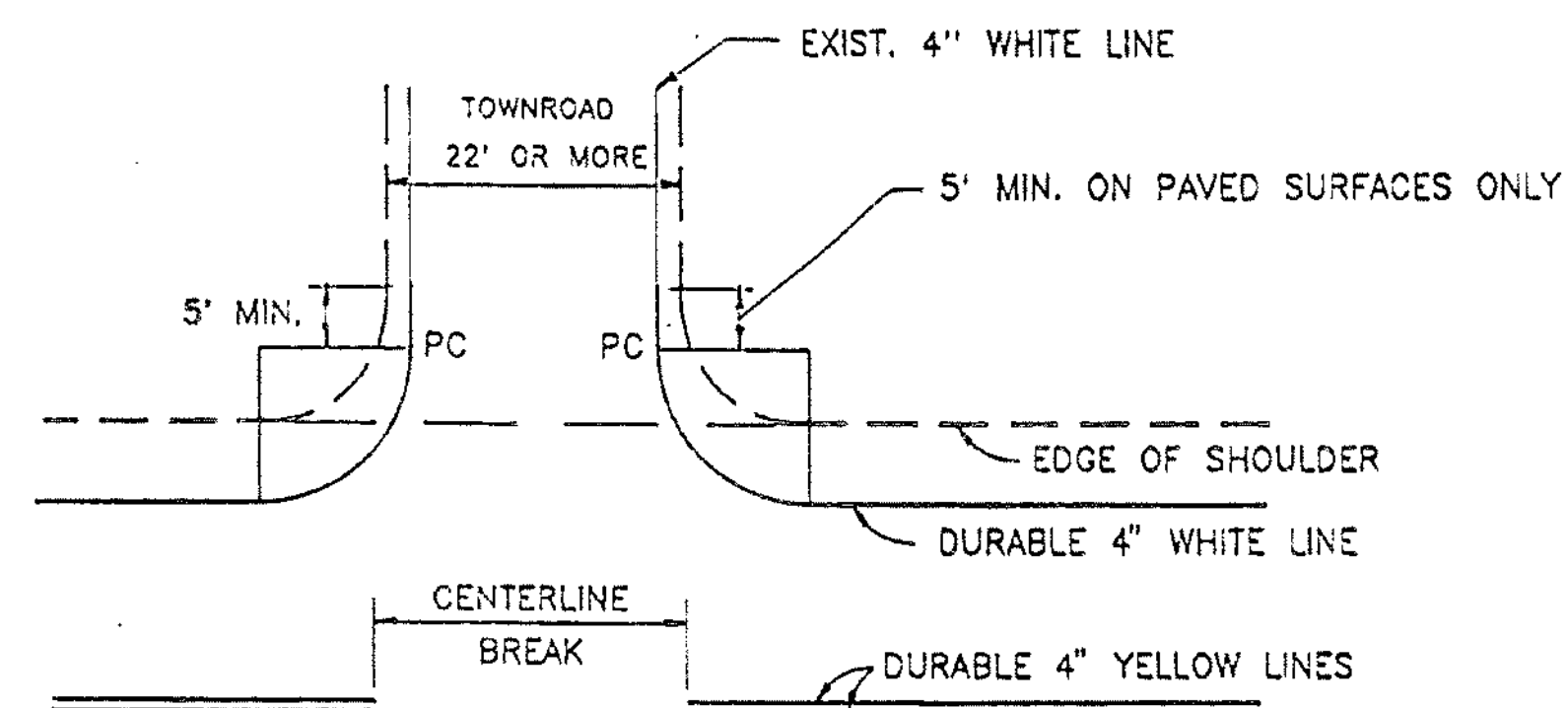
A SOLID LINE IN THE DIRECTION OF TRAVEL IS BEGUN AT A LOCATION 400 FEET IN ADVANCE OF THE INTERSECTION. THE DISTANCE IS MEASURED FROM A POINT 20 FEET IN ADVANCE OF THE CENTERLINE OF THE INTERSECTING ROADWAY.

\* CENTERLINE TREATMENT SHALL CONSIST OF A MINIMUM OF 400 FEET OF SOLID LINE IN ADVANCE OF THE INTERSECTION AND SHALL BE PAIRED WITH EITHER A SOLID OR DASHED LINE DEPENDING ON SIGHT DISTANCE AVAILABILITY IN THE OPPOSING LANE.

APPROACH TO A SIDE ROAD INTERSECTION TYPICAL

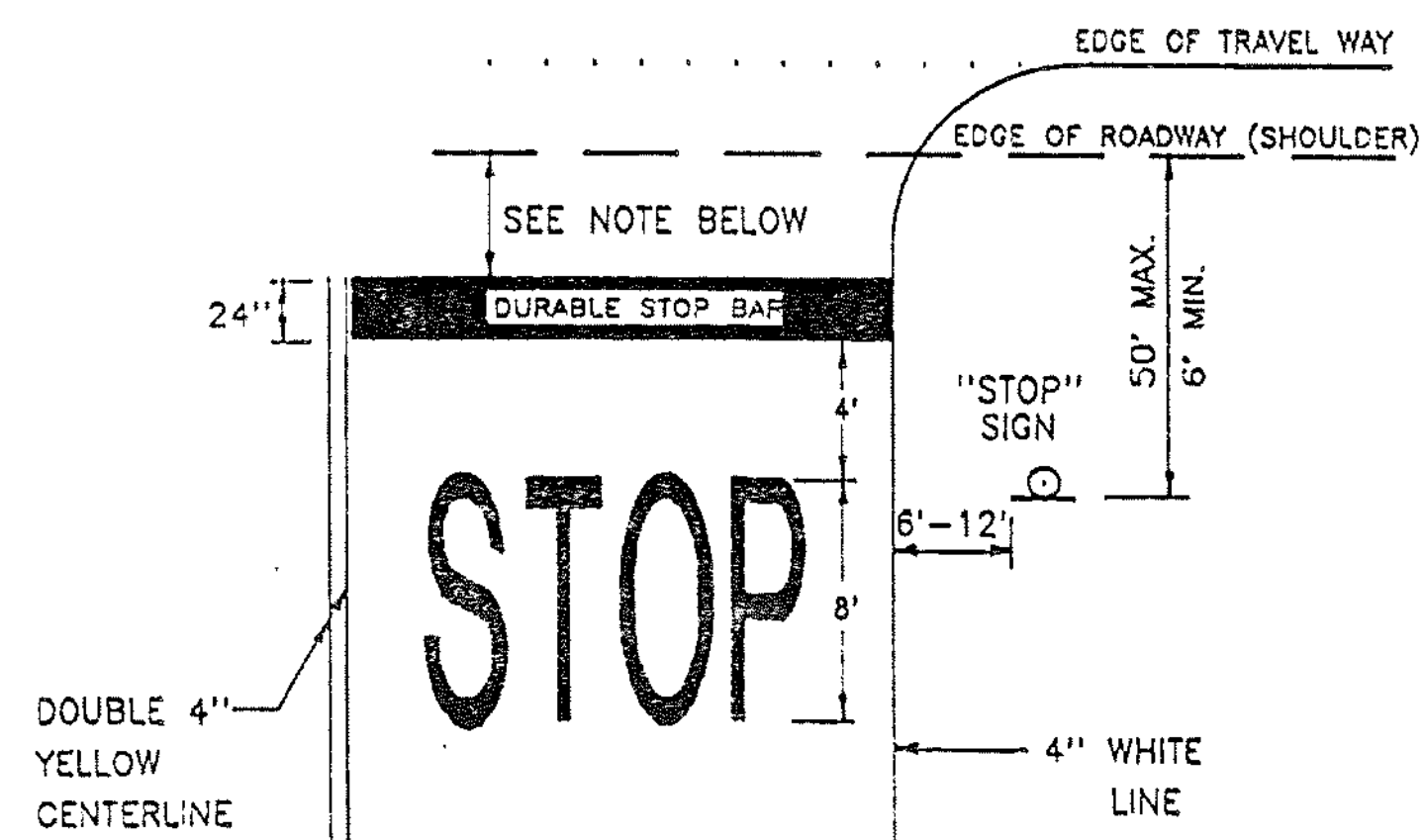


DETAIL II PAVING LIMITS FOR TOWN ROADS NOT TO SCALE



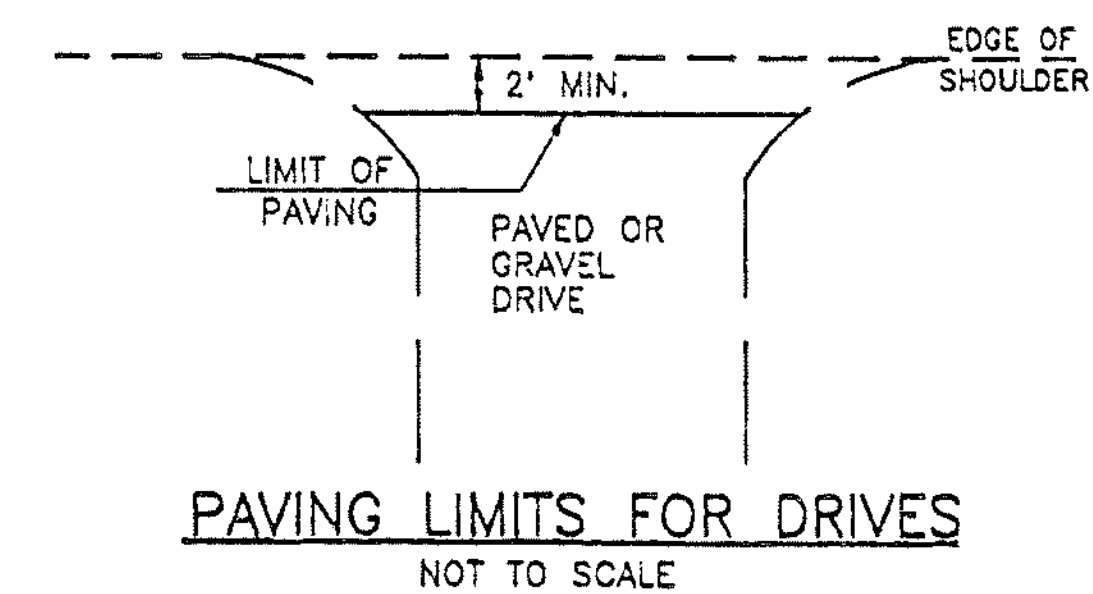
NOTE: IF A MINIMUM OF 30' RADIUS CANNOT BE OBTAINED, BREAK EDGELINE AS SHOWN ABOVE.

DURABLE EDGELINE RADIUS LAYOUT TYPICAL FOR TOWN ROADS



THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC, IN NO CASE MORE THAN 30 FEET OR LESS THAN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.

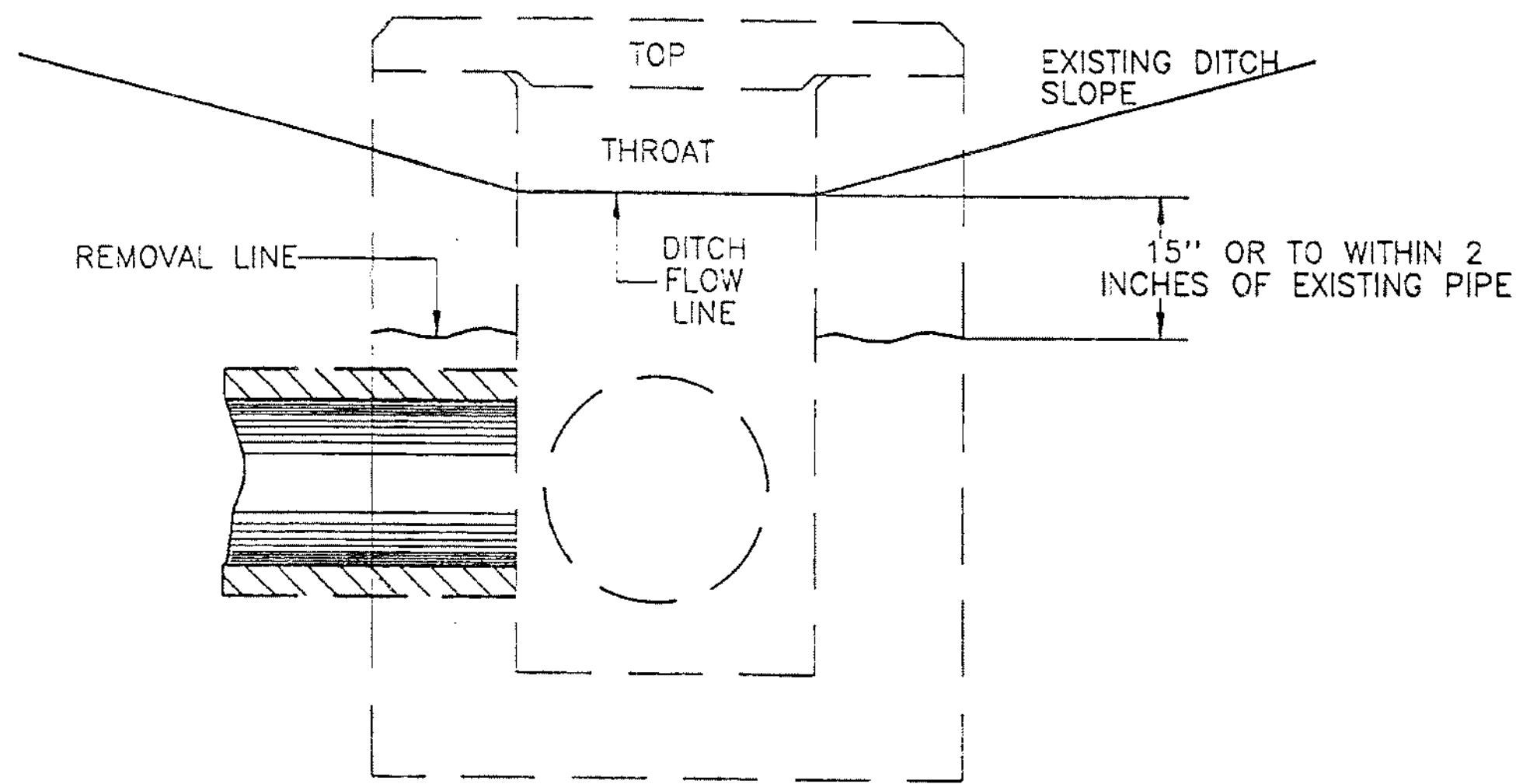
STOP BAR DETAIL



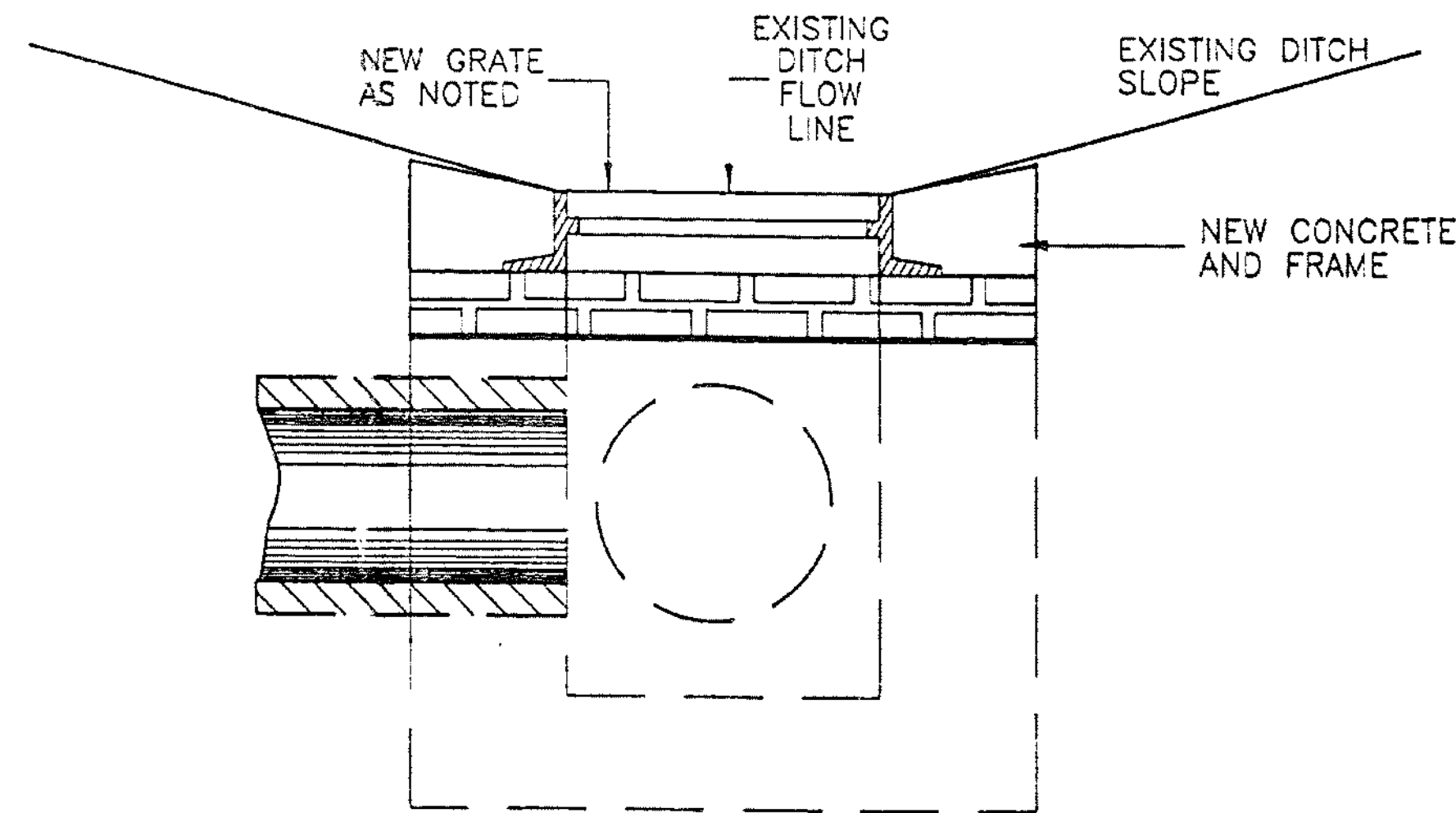
PAVING LIMITS FOR DRIVES NOT TO SCALE

PAVEMENT MARKING DETAIL SHEET

SURVEYED BY N/A DATE N/A  
 DRAWN BY WL DATE 03/93  
 SQUAD LEADER \_\_\_\_\_  
 DESIGN FILE NO. \_\_\_\_\_  
 IPARM FILE \_\_\_\_\_ DATE PLOTTED \_\_\_\_\_  
 PROJ. NAME SHEFFIELD-GLOVER, BROWNINGTON-CHARLESTON, & GLOVER  
 PROJ. NO. SP948(05), SP946(05), SP9435(05)  
 SHEET 04 OF 44 SHEETS

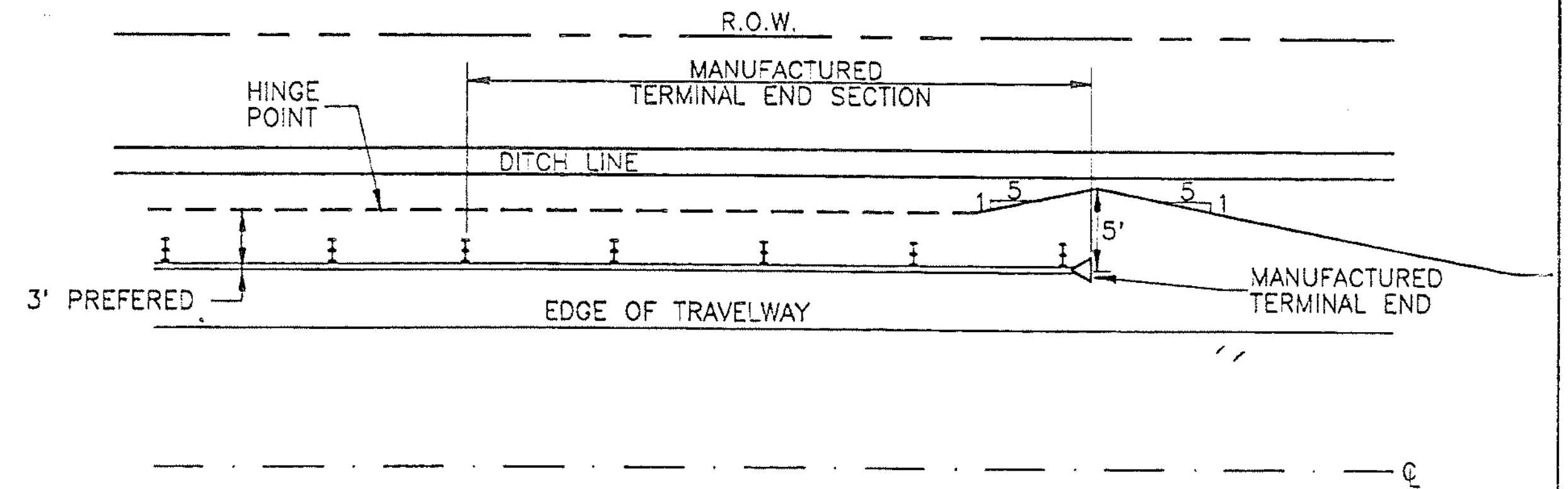
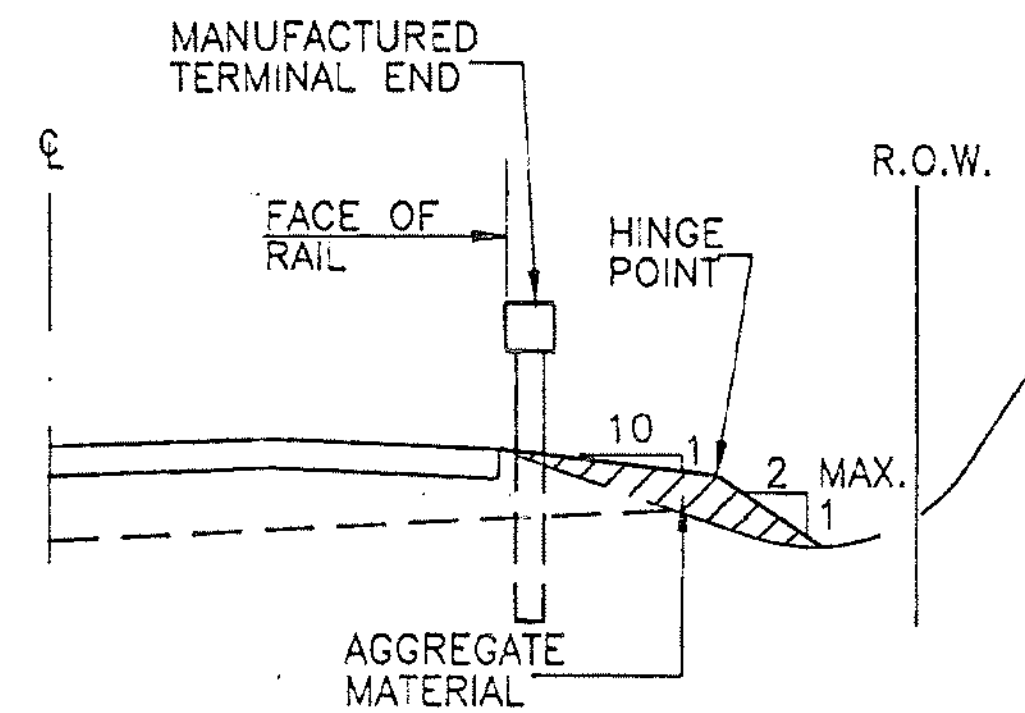


THROAT D.I. TOP REMOVAL

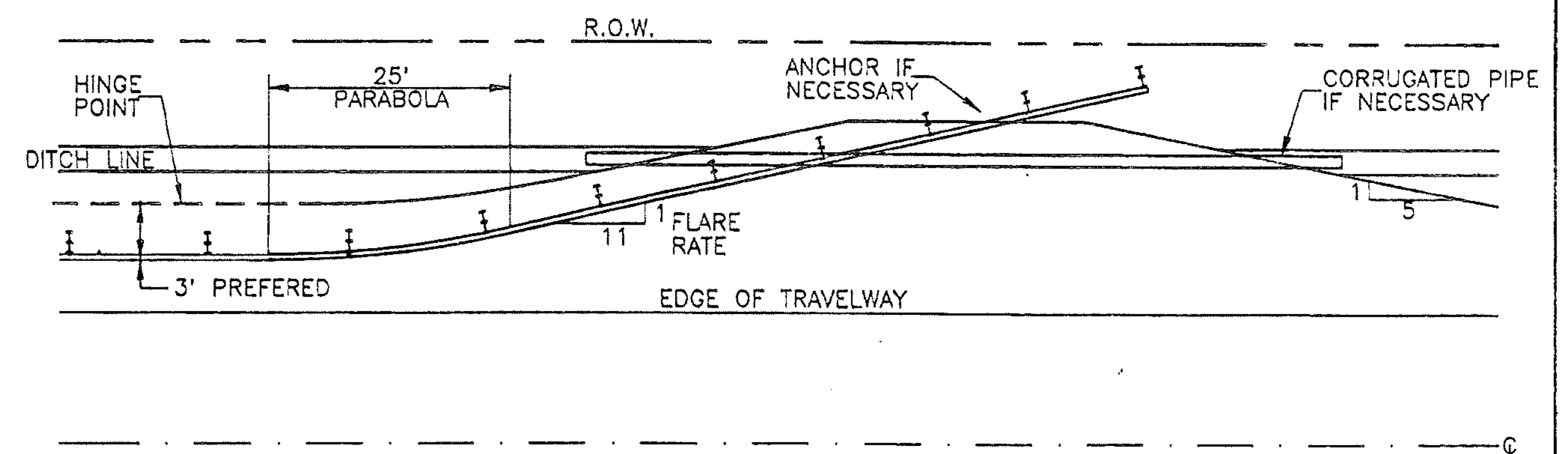
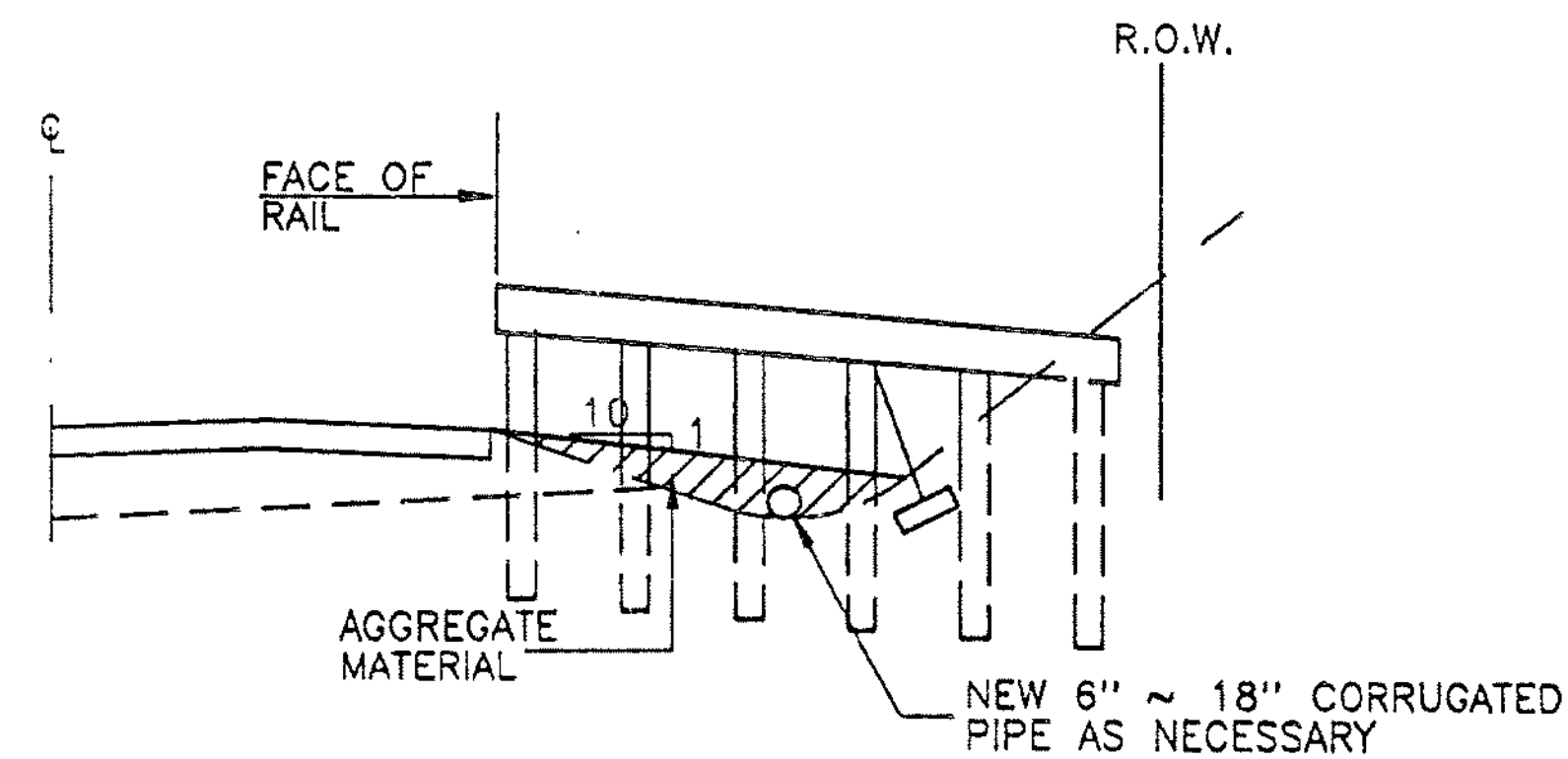


NEW D.I. TOP PLACEMENT

- NOTES: 1.) REMOVE THROAT DROP INLET TOPS, PEDESTALS AND DROP INLET WALLS TO ACCOMODATE NEW BRICKS, D.I. COVERS, FRAMES AND GRATES TO MAINTAIN EXISTING DITCH FLOW LINES (SEE STD. D-8 FOR EXISTING D.I. DETAILS).
- 2.) REDUCE BRICK COURSES AS NECESSARY TO MAINTAIN EXISTING DITCH FLOW LINE.
- 3.) SEE STANDARDS D-11, D-15 AND D-16 FOR GRATE DETAIL.
- 4.) ALL REMOVAL AND RECONSTRUCTION, INCLUDING ALL MATERIALS AND LABOR, SHALL BE PAID FOR UNDER ITEM 604.41.



GUARD RAIL END SECTION DETAIL



DETAIL FOR BURIED GUARD RAIL ENDS INTO BACKSLOPES

<p><b>D.I. AND GUARD RAIL END SECTION DETAILS</b></p>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	PRF FILE		DATE PLOTTED	
	SHEFFIELD-GLOVER, BROWNINGTON-			
PROJ. NAME CHARLESTON, & GLOVER				
PROJ. NO. SP418015, SP426015, SP435015				
HTA FILE: GLVDIGR		SHEET 05 OF 44 SHEETS		

STATE OF VERMONT  
AGENCY OF TRANSPORTATION



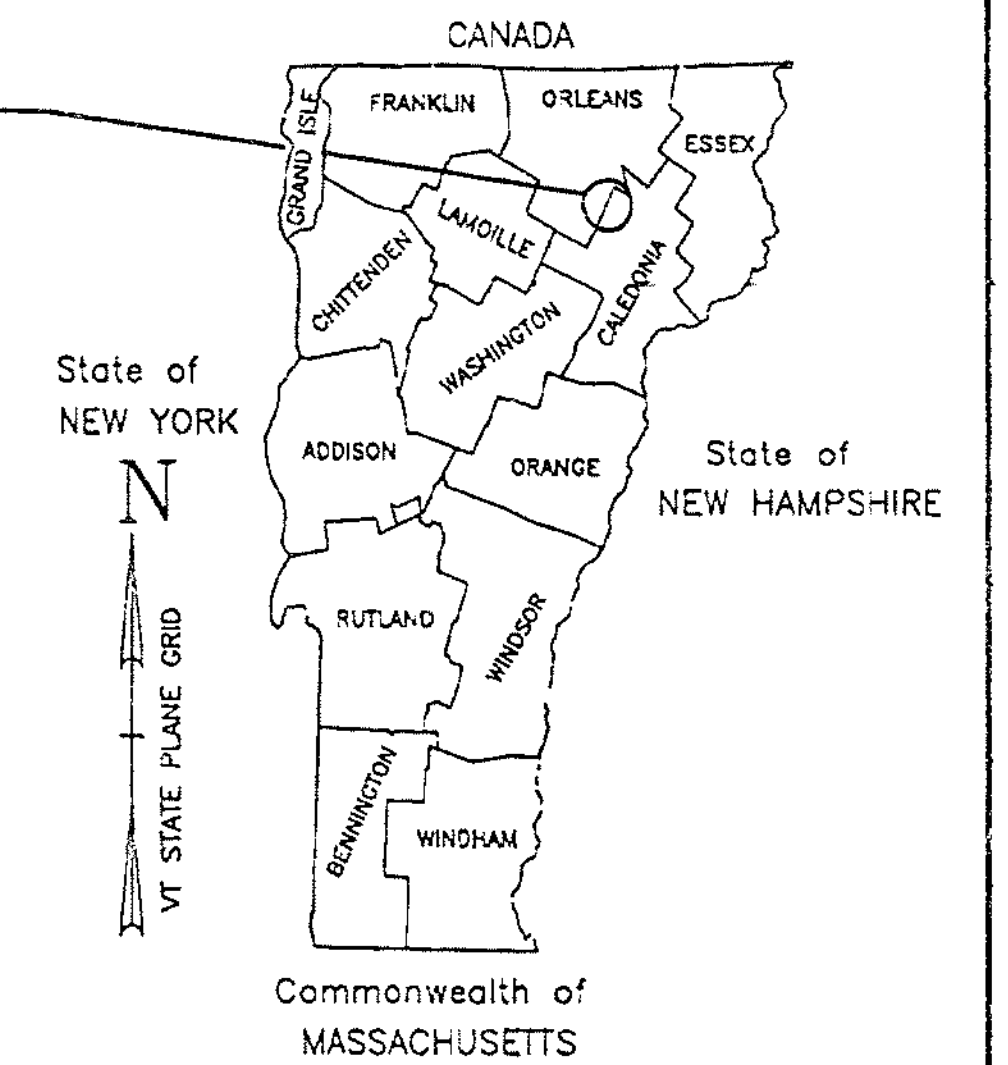
PROPOSED IMPROVEMENT  
TOWNS OF SHEFFIELD AND GLOVER  
COUNTIES OF CALEDONIA AND ORLEANS  
VT. RTE. 122 F.A.S.

BEGINNING IN SHEFFIELD, MILE MARKER 1.800 AND EXTENDING NORTHERLY ALONG VT. ROUTE 122  
FOR A DISTANCE OF 7.486 MILES TO THE INTERSECTION OF VT. ROUTE 16, MILE MARKER 1.559 IN GLOVER.

LENGTH OF ROADWAY 39526.08 FEET = 7.486 MILES  
LENGTH OF PROJECT 39526.08 FEET = 7.486 MILES

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE CONSTRUCTION  
OF A RECLAIMED STABILIZED BASE COURSE, BINDER COURSE, WEARING COURSE,  
SAFETY IMPROVEMENTS, ASSOCIATED PAVEMENT MARKINGS AND INCIDENTAL ITEMS.

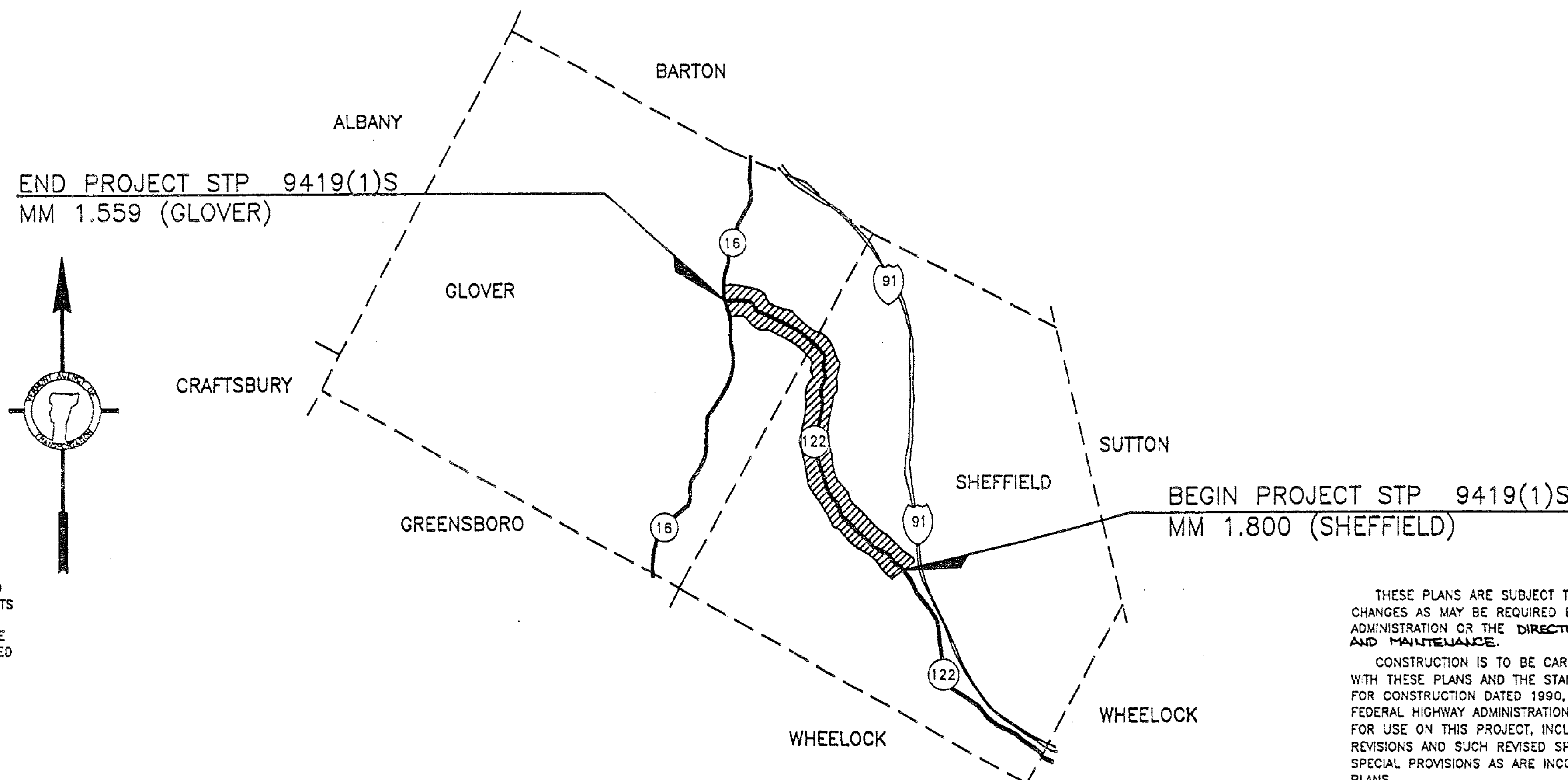
PROJECT LOCATION  
STP 9419(1)S



TRAFFIC DATA

1993 ADT = 1110  
1993 DHV = 155  
2003 ADT = 1370  
2003 DHV = 190

1993 - 2003  
CUMULATIVE ESAL'S = 254,000



**CONVENTIONAL SIGNS**

COUNTY LINE	---
TOWN LINE	- - - -
LIMITS OF ACCESS	○—○—○—○
POINT OF ACCESS	X
FENCE LINE	x—x—x—x
STONE WALL	o—o—o—o
TRAVELED WAY	—+—+—+—+—
GUARD RAIL	—+—+—+—+—
RAILROAD	—+—+—+—+—
SURVEY LINE	—+—+—+—+—
CULVERT	—+—+—+—+—
POWER POLE	⊕
TELEPHONE POLE	⊕
TREES	⊕
CONTROL OF ACCESS	///
PROPERTY LINE	---
R.O.W. TAKING LINE	—+—+—+—+—
SLOPE RIGHTS	○—SR—△
TOP OF CUT	△
TOE OF SLOPE	○

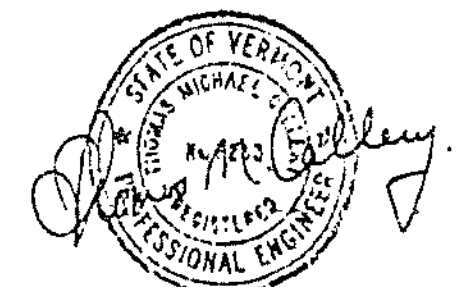
**NOTE:**  
RIGHT-OF-WAY LIMITS, IF APPLICABLE, ARE PROVIDED SOLELY FOR THE CONVENIENCE OF THE STATE AND ITS CONTRACTOR DURING THE COURSE OF THIS PAVING PROJECT. ANY REFERENCES TO OFFSETS ON THESE PLANS ARE APPROXIMATE AND SHOULD NOT BE RELIED UPON FOR ANY OTHER PURPOSES.

**DATUM**

VERTICAL	N/A
HORIZONTAL	N/A

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF CONSTRUCTION AND MAINTENANCE.

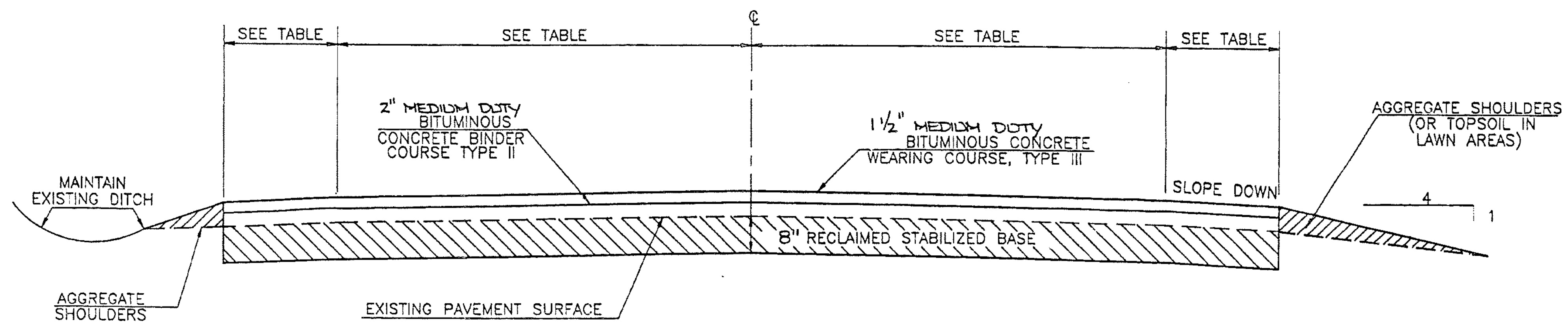
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.



APPROVED _____ DATE _____
DIRECTOR OF CONSTRUCTION & MAINTENANCE
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DATE _____
DIVISION ADMINISTRATOR
PROJECT SHEFFIELD-GLOVER STP 9419(1)S
SHEET 01 OF _____ SHEETS

### NOTES

1. THE PAVEMENT WEARING COURSE SHALL BE TYPE III, ITEM 406.27. THE BINDER COURSE SHALL BE TYPE II, ITEM 406.27.
2. COLD PLANING TO BE COMPLETED ACCORDING TO THE DETAILS SHOWN ON THE PROJECT DETAIL SHEET.
3. THREE FEET OF BACKING IS REQUIRED BEHIND THE FACE OF GUARD RAIL WITH 6' POSTS. IF THIS CAN NOT BE OBTAINED THEN 8' POSTS SHALL BE USED.
4. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL EXISTING SURFACES, ALL COLD PLANED SURFACES, AND BETWEEN ALL COURSES OF PAVEMENT AT THE RATE OF 0.015 GAL/SY OR AS DIRECTED BY THE RESIDENT ENGINEER.
5. BITUMINOUS CONCRETE PAVEMENT TOLERANCE = ±1/4". (TOTAL PAVEMENT THICKNESS)



### RECLAIMED TYPICAL SECTION

NOT TO SCALE

URBAN AREA - SEED MIXTURE

% WT.	LBS./ACRE	NAME	PUR%	GERM%
42.5	34.0	CREEPING RED FESCUE	98	85
10.0	8.0	PERENNIAL RYEGRASS	95	90
42.5	34.0	KENTUCKY BLUEGRASS	85	85
5.0	4.0	ANNUAL RYEGRASS	95	85
100.0	80.0			

SEED MIXTURE:  
SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS 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 500 LBS./ACRE. (HYDRO-SEEDERS MAY USE 15-15-15 FORMULA)

AGRICULTURAL LIMESTONE:  
TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH:  
TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

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

MARKER POSTS:  
TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

### PROJECT PAVING LIMITS

TOWN	BEGIN MILE MARKER	END MILE MARKER	LANE TYPICAL	WEARING DEPTH	BINDER DEPTH	NOTES
SHEFFIELD	1.800	7.727	2'-11"-11'-2"	1-1/2"	2"	
GLOVER	0.000	1.559	2'-11"-11'-2"	1-1/2"	2"	
NOTE: SHEFFIELD	2.308	2.312	-	-	-	BRIDGE NO. 16 - DO NOT PAVE
SHEFFIELD	2.947	2.953	6'-11"-11'-6"	1-1/4"	-	BRIDGE NO. 17 - COLD PLANE AND PAVE 1-1/4"

PROJECT TYPICAL SHEET

SURVEYED BY <u>N/A</u>	DATE <u>N/A</u>
DRAWN BY <u>WBL</u>	DATE <u>03/93</u>
SQUAD LEADER _____	
DESIGN FILE NO. _____	
IPARM FILE _____	DATE PLOTTED _____
PROJ. NAME <u>SHEFFIELD-GLOVER</u>	
PROJ. NO. <u>STP 9419(1)S</u>	
HTA FILE: <u>SHTYPXS</u>	SHEET <u>02</u> OF <u>44</u> SHEETS



# ITEM DETAIL SUMMARY SHEET

MILE MARKER	MILE MARKER	POS.	DROP INLET	LAT. DITCH	CLEAN INLET DITCH	CLEAN OUTLET DITCH	EARTH BORROW	TIMBER CURB	STONE FILL	NEW PIPE			CSPES			FLUSH PIPES 0-24' > 24'	6" UND.	CONC. CL B	REINF. STEEL	GRATE TYPE EA	CHAN ELEV EA	REHAB DI EA	MOD. GUARDRAIL ITEMS						REMARKS
										D	L	TH/CL	D	TH	QTY								621.20	621.21	621.21	621.50	621.60	621.80	
SHEFFIELD																													
2.293	2.317	LT.																						(SEE BRIDGE DETAIL SHEET NO. 1 FOR GUARDRAIL SUMMARY)					
2.293	2.327	RT.																						(SEE BRIDGE DETAIL SHEET NO. 1 FOR GUARDRAIL SUMMARY)					
2.558	2.596	RT.																				150	2		INSTALL A BCT AT MM 2.558 (SOUTH OF UTILITY POLE #182), 150 LF OF NEW STEEL BEAM GUARDRAIL WITH 8' STEEL POSTS AND A BCT AT MM 2.596, RT.				
2.942	2.963	LT.																							(SEE BRIDGE DETAIL SHEET NO. 1 FOR GUARDRAIL SUMMARY)				
2.937	2.963	RT.																							(SEE BRIDGE DETAIL SHEET NO. 1 FOR GUARDRAIL SUMMARY)				
3.274	3.286	RT.																					37.5	2	26	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A BCT AT MM 3.274 RT., 37.5 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 3.286 RT.			
3.227	3.312	LT.																					425	1	1	344	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A 16'R END TERMINAL AT MM 3.227 LT., 425 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 3.312, LT.		
3.328	3.442	LT.																					575	1	1	537	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A 16'R END TERMINAL AT MM 3.328, 575 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 3.442 LT.		
3.636	3.638	LT.																					37.5	2		INSTALL 37.5 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS, 16'R END TERMINAL AROUND TH 44. BUTT TERMINAL END SECTION TO EXISTING WOOD BRIDGE RAILING. FACE OF NEW RAIL SHALL BE SET FLUSH WITH OF EXISTING RAILING.			
3.642	3.689	LT.																					225	25	1	1	174	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL 225 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS, 25 LF OF HD STEEL BEAM GUARDRAIL WITH STEEL POSTS AT EXISTING CULVERT (BRIDGE NO. 18) AND A BCT AT MM 3.689. BUTT TERMINAL END SECTION TO EXISTING WOOD BRIDGE RAILING - FACE OF NEW RAILING SHALL BE SET FLUSH WITH FACE OF EXISTING RAILING.	
3.763	3.806	LT.																					175	2		144	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A BCT AT MM 3.763 LT., 175 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS, AND A BCT AT MM 3.806, LT.		
3.772	3.796	RT.							15"	40'	0.064												125		2	25	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, BURY APPROACH END INTO BACKSLOPE (AT MM 3.772) INSTALL 125 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POST, AND A 16'R END TERMINAL AT EXISTING DRIVE.		
4.012	4.154	RT.																					700	2		515	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A BCT AT MM 4.012, RT. (AT UTILITY POLE #213), 700 LF OF NEW BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 4.154, RT.		
4.243	4.271	RT.																					125	1	1	153	REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A BCT AT MM 4.243, 125 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A 16'R END TERMINAL AT MM 4.271.		
4.444	4.534	RT.																					425	2		478	REMOVE EXIST. 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A BCT AT MM 4.444, 425 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 4.534.		
4.615	4.757	RT.																					725	1	1	757	REMOVE EXIST. 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A BCT AT MM 4.615, 725 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A 16'R END TERMINAL AT MM 4.757.		
SHEET 04 TOTAL										15	40	0.064											3575	150	25	15	9	3153	-

<b>ITEM DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	DJ	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	SHEFFIELD-GLOVER		
PROJ. NO.	STP 9419(1)S			
SHEET	04	OF		SHEETS
SHEET 10 OF 44				



DURABLE 4" YELLOW LINE

MM 1.800 TO MM 2.000 (SOLID LT. & RT.)  
 MM 2.000 TO MM 2.077 (SOLID LT. & DASHED RT.)  
 MM 2.077 TO MM 2.160 (DASHED)  
 MM 2.160 TO MM 2.310 (DASHED LT. & SOLID RT.)  
 MM 2.310 TO MM 2.330 (SOLID LT. & RT.)  
 MM 2.330 TO MM 2.440 (SOLID LT. & DASHED RT.)  
 MM 2.440 TO MM 2.470 (DASHED)  
 MM 2.470 TO MM 2.610 (DASHED LT. & SOLID RT.)  
 MM 2.610 TO MM 3.678 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

DURABLE 4" WHITE LINE

MM 1.800 TO MM 3.678 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" YELLOW LINE

MM 1.800 TO MM 2.000 (SOLID LT. & RT.)  
 MM 2.000 TO MM 2.077 (SOLID LT. & DASHED RT.)  
 MM 2.077 TO MM 2.160 (DASHED)  
 MM 2.160 TO MM 2.310 (DASHED LT. & SOLID RT.)  
 MM 2.310 TO MM 2.330 (SOLID LT. & RT.)  
 MM 2.330 TO MM 2.440 (SOLID LT. & DASHED RT.)  
 MM 2.440 TO MM 2.470 (DASHED)  
 MM 2.470 TO MM 2.610 (DASHED LT. & SOLID RT.)  
 MM 2.610 TO MM 3.678 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" WHITE LINE

MM 1.800 TO MM 3.678 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

DURABLE CROSSWALK WITH DIAGONAL LINES

MM 1.672, 26 LF

DURABLE LETTER OR SYMBOL

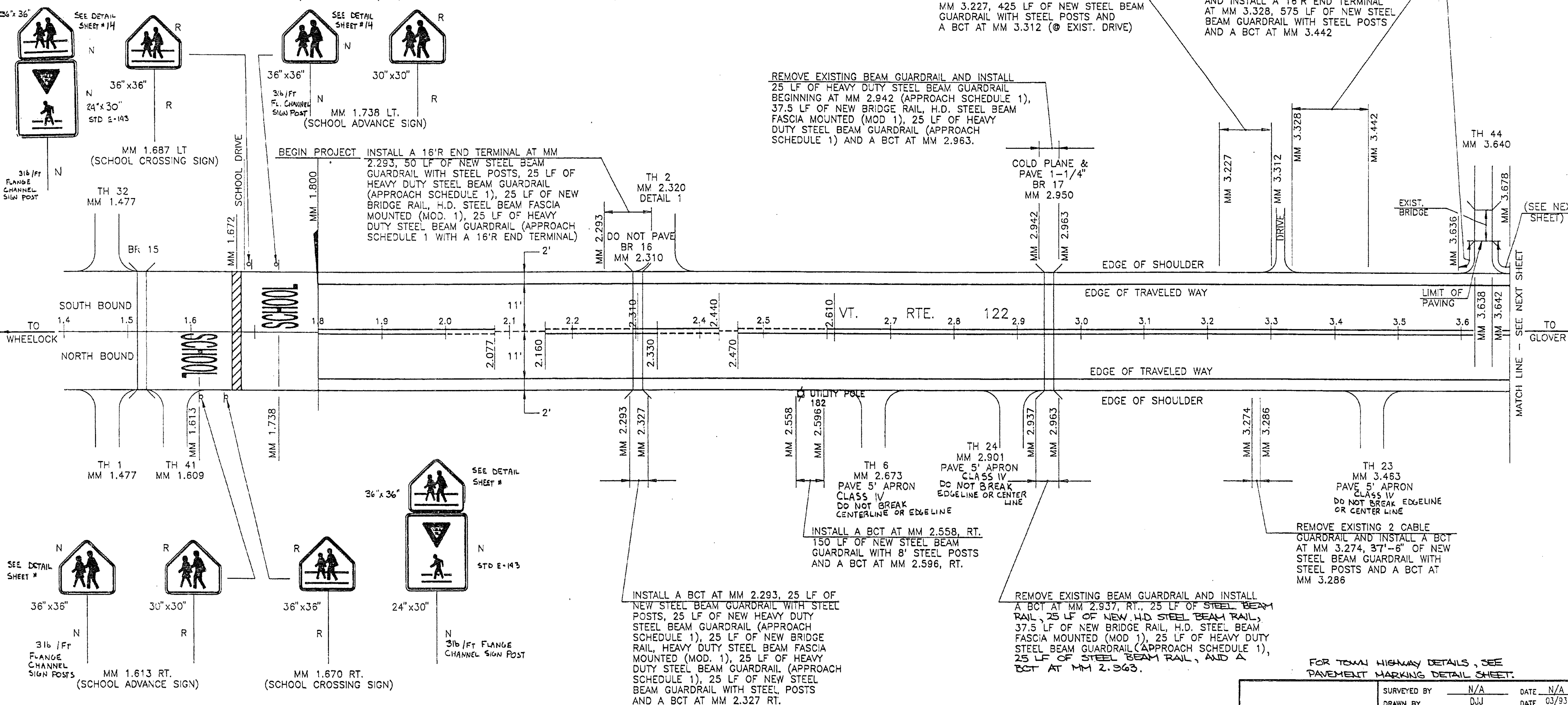
MM 1.613, RT. "SCHOOL"  
 MM 1.738, LT. "SCHOOL"

INSTALL 37.5 LF OF STEEL BEAM GUARDRAIL WITH STEEL POSTS, (16'R AROUND TH 44) - BUTT TO EXISTING WOOD BRIDGE RAIL (FACE OF NEW RAIL SHALL BE SET FLUSH TO FACE OF EXISTING RAIL) - SEE DETAIL ON SHEET 11.

REMOVE EXISTING 2 CABLE GUARDRAIL, INSTALL A 16'R END TERMINAL AT MM 3.227, 425 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 3.312 (@ EXIST. DRIVE)

REMOVE EXISTING 2 CABLE GUARDRAIL AND INSTALL A 16'R END TERMINAL AT MM 3.328, 575 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 3.442

REMOVE EXISTING BEAM GUARDRAIL AND INSTALL 25 LF OF HEAVY DUTY STEEL BEAM GUARDRAIL BEGINNING AT MM 2.942 (APPROACH SCHEDULE 1), 37.5 LF OF NEW BRIDGE RAIL, H.D. STEEL BEAM FASCIA MOUNTED (MOD. 1), 25 LF OF HEAVY DUTY STEEL BEAM GUARDRAIL (APPROACH SCHEDULE 1) AND A BCT AT MM 2.963.



DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

<h3>PAVING PROJECT LAYOUT</h3>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	DJJ	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
IPARM FILE		DATE PLOTTED		
PROJ. NAME SHEFFIELD-GLOVER				
PROJ. NO. STP 9419(1)S				
SHEET 08 OF SHEETS				
SHEET 12 OF 44				

DURABLE 4" YELLOW LINE

MM 3.678 TO MM 5.310 (SOLID LT & RT)  
MM 5.310 TO MM 5.394 (SOLID LT & DASHED RT)  
(WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" YELLOW LINE

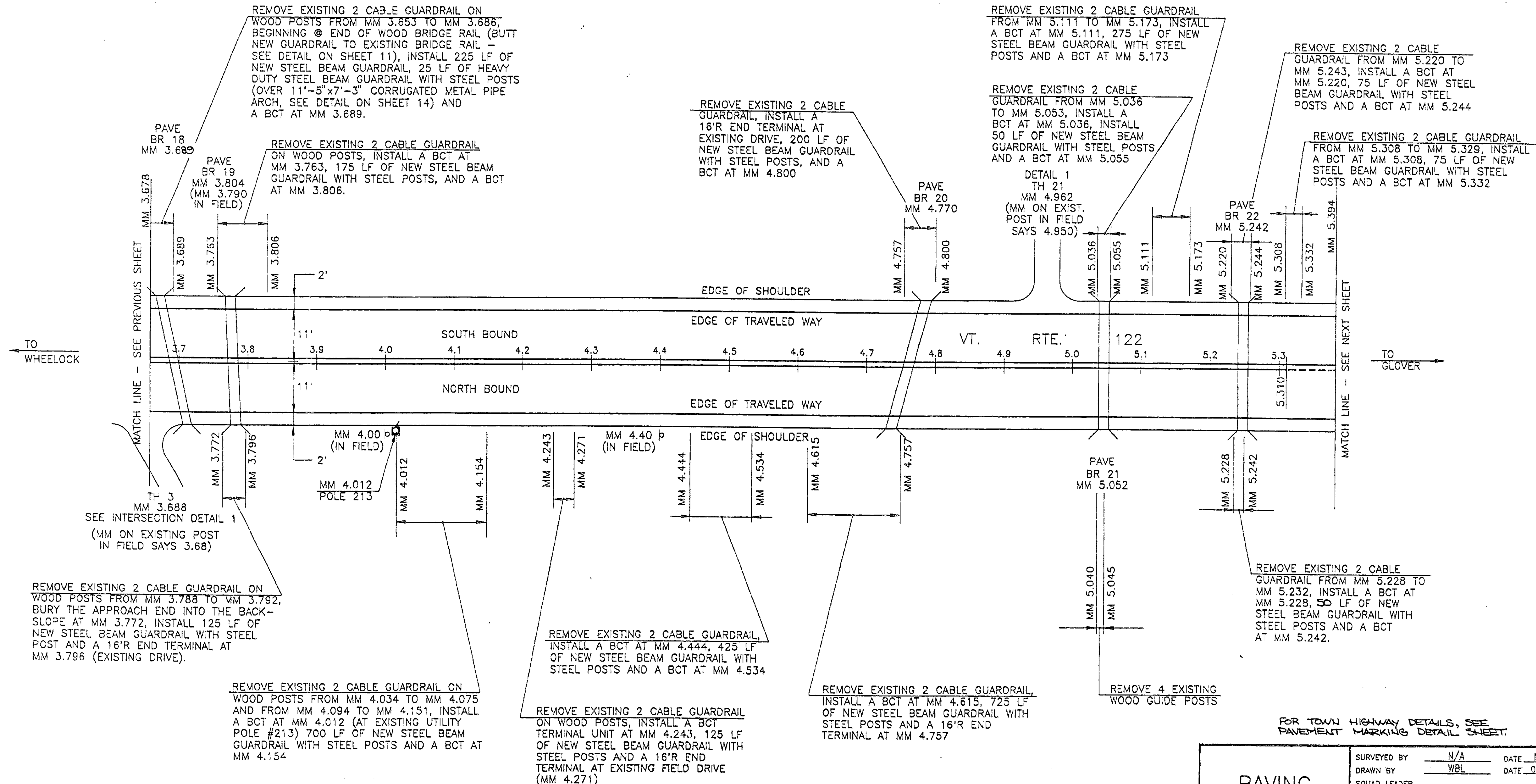
MM 3.678 TO MM 5.310 (SOLID LT & RT)  
MM 5.310 TO MM 5.394 (SOLID LT & DASHED RT)  
(WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

DURABLE 4" WHITE LINE

MM 3.678 TO MM 5.394 (SOLID LT & RT)  
(WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" WHITE LINE

MM 3.678 TO MM 5.394 (SOLID LT & RT)  
(WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)



REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS FROM MM 3.653 TO MM 3.686, BEGINNING @ END OF WOOD BRIDGE RAIL (BUTT NEW GUARDRAIL TO EXISTING BRIDGE RAIL - SEE DETAIL ON SHEET 11), INSTALL 225 LF OF NEW STEEL BEAM GUARDRAIL, 25 LF OF HEAVY DUTY STEEL BEAM GUARDRAIL WITH STEEL POSTS (OVER 11'-5"x7'-3" CORRUGATED METAL PIPE ARCH, SEE DETAIL ON SHEET 14) AND A BCT AT MM 3.689.

REMOVE EXISTING 2 CABLE GUARDRAIL, INSTALL A 16'R END TERMINAL AT EXISTING DRIVE, 200 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS, AND A BCT AT MM 4.800

REMOVE EXISTING 2 CABLE GUARDRAIL FROM MM 5.111 TO MM 5.173, INSTALL A BCT AT MM 5.111, 275 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 5.173

REMOVE EXISTING 2 CABLE GUARDRAIL FROM MM 5.220 TO MM 5.243, INSTALL A BCT AT MM 5.220, 75 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 5.244

REMOVE EXISTING 2 CABLE GUARDRAIL FROM MM 5.308 TO MM 5.329, INSTALL A BCT AT MM 5.308, 75 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 5.332

REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS FROM MM 3.788 TO MM 3.792, BURY THE APPROACH END INTO THE BACK-SLOPE AT MM 3.772, INSTALL 125 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POST AND A 16'R END TERMINAL AT MM 3.796 (EXISTING DRIVE).

REMOVE EXISTING 2 CABLE GUARDRAIL, INSTALL A BCT AT MM 4.444, 425 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 4.534

REMOVE EXISTING 2 CABLE GUARDRAIL, INSTALL A BCT AT MM 4.615, 725 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A 16'R END TERMINAL AT MM 4.757

REMOVE EXISTING 2 CABLE GUARDRAIL FROM MM 5.228 TO MM 5.232, INSTALL A BCT AT MM 5.228, 50 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 5.242.

REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS FROM MM 4.034 TO MM 4.075 AND FROM MM 4.094 TO MM 4.151, INSTALL A BCT AT MM 4.012 (AT EXISTING UTILITY POLE #213) 700 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 4.154

REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS, INSTALL A BCT TERMINAL UNIT AT MM 4.243, 125 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A 16'R END TERMINAL AT EXISTING FIELD DRIVE (MM 4.271)

REMOVE 4 EXISTING WOOD GUIDE POSTS

FOR TOWN HIGHWAY DETAILS, SEE PAVEMENT MARKING DETAIL SHEET.

DATUM	N/A
VERTICAL	N/A
HORIZONTAL	N/A

<b>PAVING PROJECT LAYOUT</b>		SURVEYED BY	N/A	DATE	N/A
		DRAWN BY	WBL	DATE	03/93
		SQUAD LEADER			
		DESIGN FILE NO.			
		IPARM		DATE	
		FILE		PLOTTED	
		PROJ. NAME	SHEFFIELD-GLOVER		
		PROJ. NO.	STP 9419(1)S		
HTA FILE: SHFPMK2		SHEET	07	OF	SHEETS

DURABLE 4" YELLOW LINE

MM 5.394 TO MM 5.430 (SOLID LT. & DASHED RT.)  
 MM 5.430 TO MM 5.445 (SOLID LT. & RT.)  
 MM 5.445 TO MM 5.572 (DASHED LT. & SOLID RT.)  
 MM 5.572 TO MM 6.532 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" YELLOW LINE

MM 5.394 TO MM 5.430 (SOLID LT. & DASHED RT.)  
 MM 5.430 TO MM 5.445 (SOLID LT. & RT.)  
 MM 5.445 TO MM 5.572 (DASHED LT. & SOLID RT.)  
 MM 5.572 TO MM 6.532 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

DURABLE 4" WHITE LINE

MM 5.394 TO MM 6.532 (SOLID LT. & RT.)  
 (WITH EDGELINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" WHITE LINE

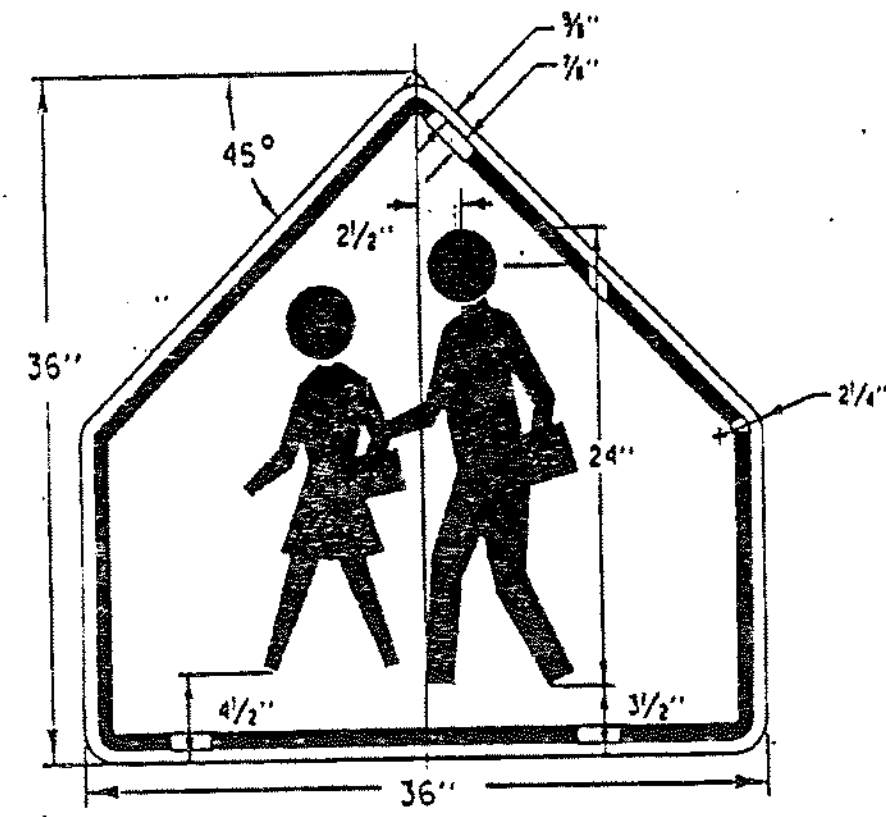
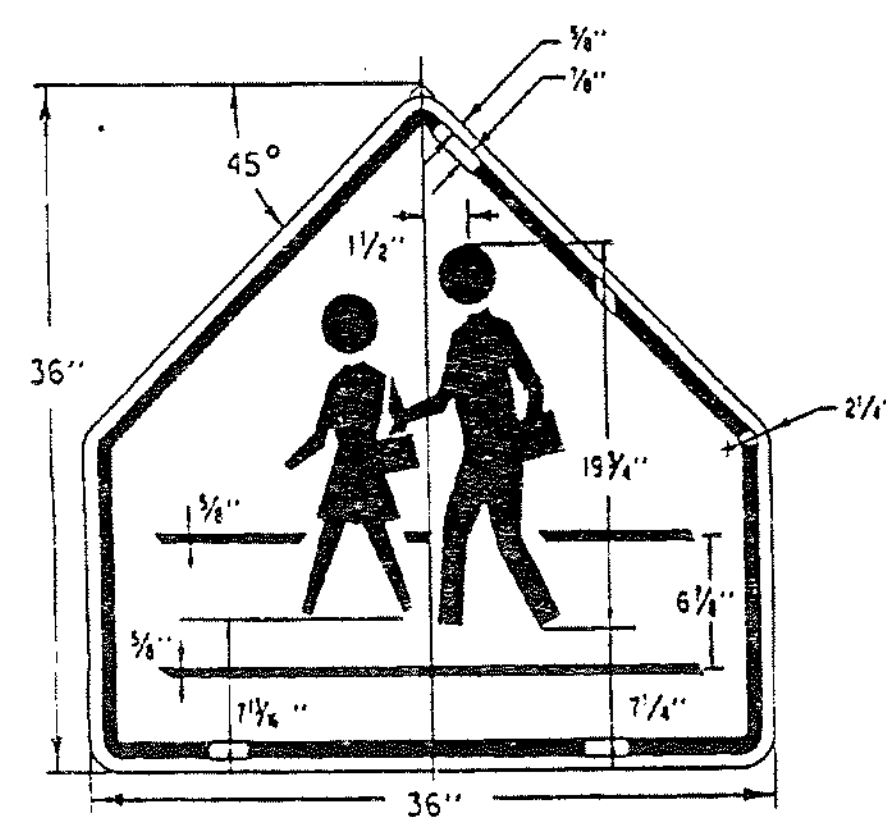
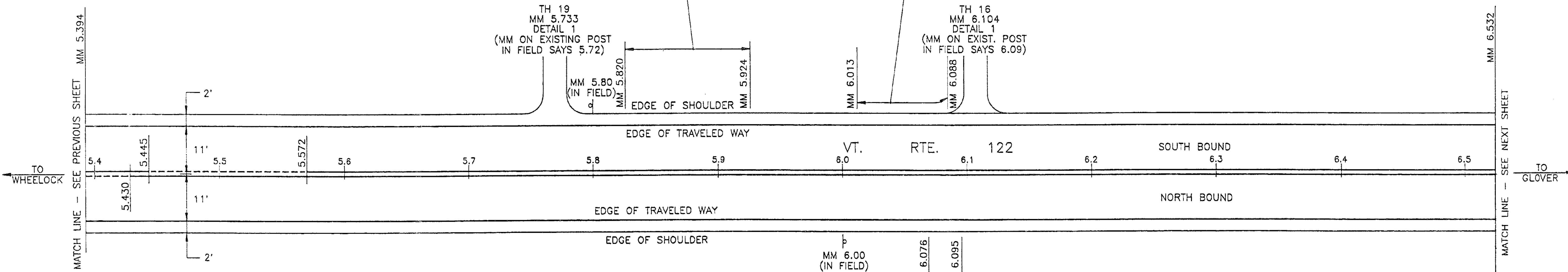
MM 5.394 TO MM 6.532 (SOLID LT. & RT.)  
 (WITH EDGELINE BREAKS FOR TOWN HIGHWAYS)

REMOVE EXISTING 2 CABLE GUARDRAIL  
 FROM MM 5.820 TO MM 5.915, INSTALL  
 A BCT AT MM 5.820, 500 LF OF NEW  
 STEEL BEAM GUARDRAIL WITH STEEL  
 POSTS AND A BCT AT MM 5.924

REMOVE EXISTING 2 CABLE GUARDRAIL  
 FROM MM 6.013 TO MM 6.077, INSTALL  
 A BCT AT MM 6.013, 375 LF OF NEW  
 STEEL BEAM GUARDRAIL WITH STEEL  
 POSTS AND A 16'R END TERMINAL  
 AT TH 16.

TH 19  
 MM 5.733  
 DETAIL 1  
 (MM ON EXISTING POST  
 IN FIELD SAYS 5.72)

TH 16  
 MM 6.104  
 DETAIL 1  
 (MM ON EXIST. POST  
 IN FIELD SAYS 6.09)



COLORS  
 LEGEND BLACK (NON-REFLECTIVE)  
 BACKGROUND YELLOW

COLORS  
 LEGEND BLACK (NON-REFLECTIVE)  
 BACKGROUND YELLOW

REFER TO  
 STANDARD E-150  
 FOR MATERIALS

REFER TO  
 STANDARD E-150  
 FOR MATERIALS

TRAFFIC SIGN DETAILS

NOT TO SCALE

REMOVE EXISTING 2 CABLE GUARDRAIL  
 FROM MM 6.076 TO MM 6.079, INSTALL  
 A BCT AT MM 6.076, 50 LF OF NEW  
 STEEL BEAM GUARDRAIL WITH STEEL  
 POSTS AND A BCT AT MM 6.095.

FOR TOWN HIGHWAY DETAILS, SEE  
 PAVEMENT MARKING DETAIL SHEET.

DATUM  
 VERTICAL N/A  
 HORIZONTAL N/A

<h3>PAVING PROJECT LAYOUT</h3>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	SHEFFIELD-GLOVER		
PROJ. NO.	STP 9419(1)S			
SHEET 08 OF		SHEETS		
SHEET 14 OF 44				

HTA FILE: SHFPMK3

DURABLE 4" YELLOW LINE

MM 6.532 TO MM 7.600 (SOLID LT. & RT.)  
 MM 7.600 TO MM 7.727 (SOLID LT. & DASHED RT.)  
 MM 0.000 TO MM 0.105 (GLOVER) (DASHED)  
 MM 0.105 TO MM 0.220 (DASHED LT. & SOLID RT.)  
 MM 0.220 TO MM 1.559 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" YELLOW LINE

MM 6.532 TO MM 7.600 (SOLID LT. & RT.)  
 MM 7.600 TO MM 7.727 (SOLID LT. & DASHED RT.)  
 MM 0.000 TO MM 0.105 (GLOVER) (DASHED)  
 MM 0.105 TO MM 0.220 (DASHED LT. & SOLID RT.)  
 MM 0.220 TO MM 1.559 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

DURABLE LETTER OR SYMBOL

MM 1.407 (GLOVER), VT. RTE. 122 RT: "STOP AHEAD"  
 CENTER ON CORRESPONDING EXISTING SIGN AS PER  
 STANDARD E-120.

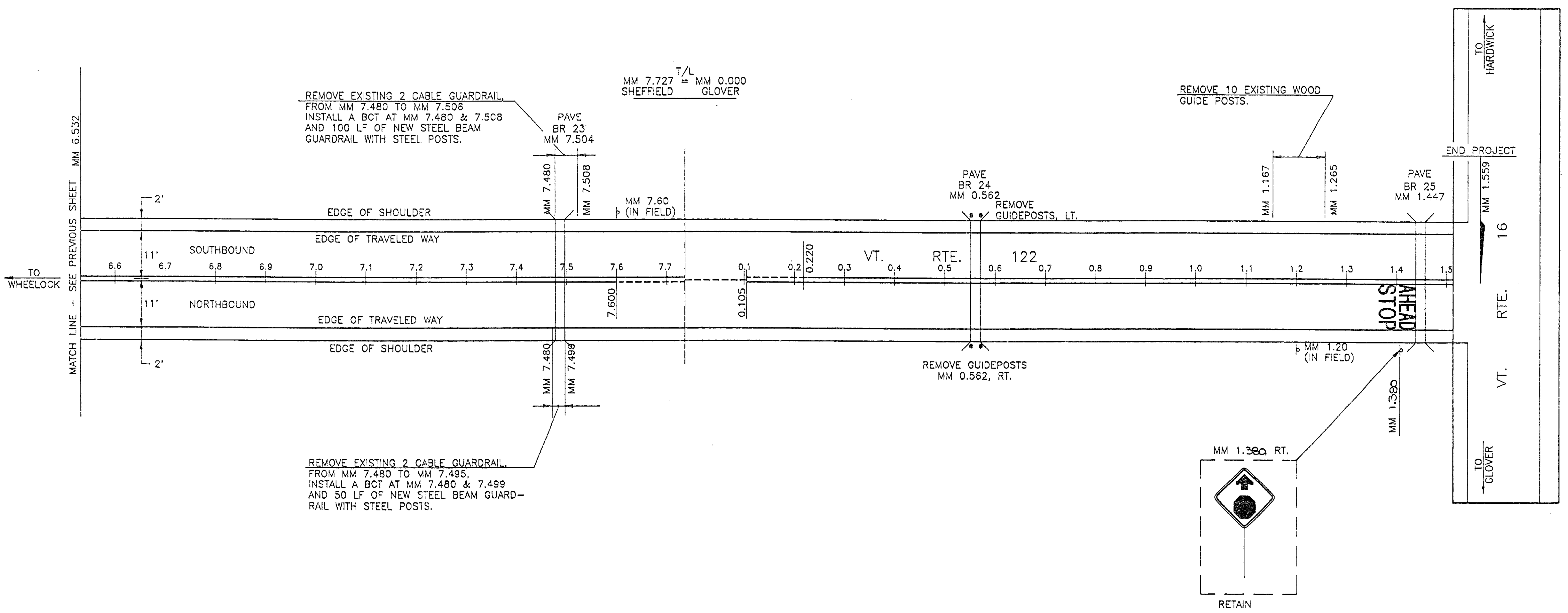
DURABLE 4" WHITE LINE

MM 6.532 TO MM 1.559 (SOLID LT. & RT.)  
 (WITH EDGELINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" WHITE LINE

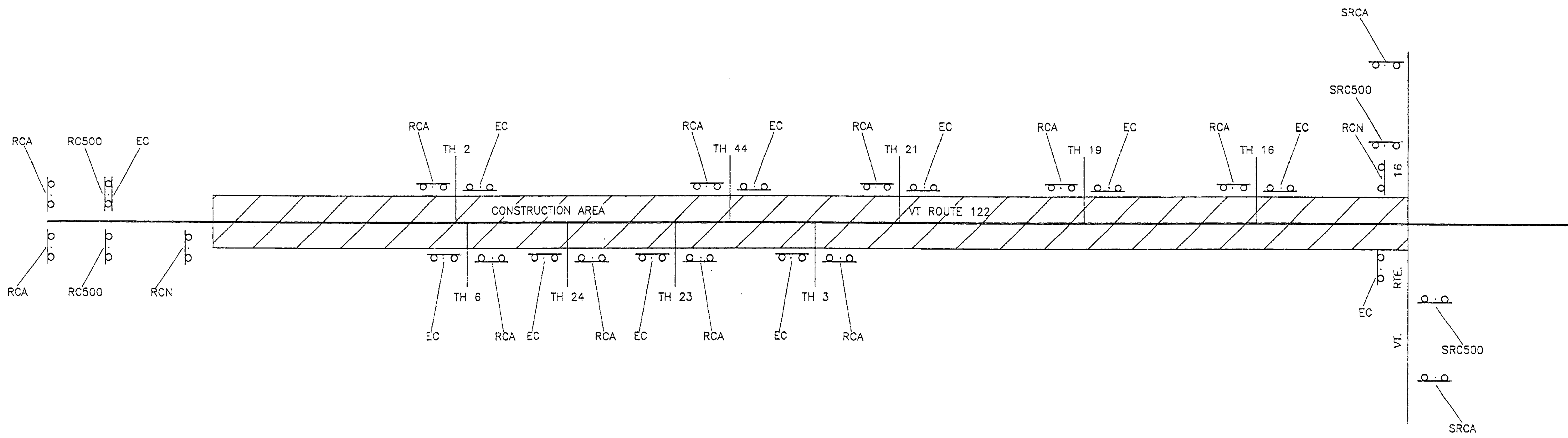
MM 6.532 TO MM 1.559 (SOLID LT. & RT.)  
 (WITH EDGELINE BREAKS FOR TOWN HIGHWAYS)

INTERSECTION DETAIL 2  
 MM 1.540 TO MM 1.559



DATUM	N/A
VERTICAL	N/A
HORIZONTAL	N/A

<h3>PAVING PROJECT LAYOUT</h3>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	SHEFFIELD-GLOVER		
PROJ. NO.	STP 94T9(1)S			
HTA FILE:	SHFPMK4	SHEET	09 OF	SHEETS



- LEGEND**
- RCA = ROAD CONSTRUCTION AHEAD
  - RC500 = ROAD CONSTRUCTION 500'
  - EC = END CONSTRUCTION
  - SRCA = SIDE ROAD CONSTRUCTION AHEAD
  - SRC500 = SIDE ROAD CONSTRUCTION 500'
  - RCN = ROAD CONSTRUCTION NEXT

### CONSTRUCTION APPROACH SIGNING

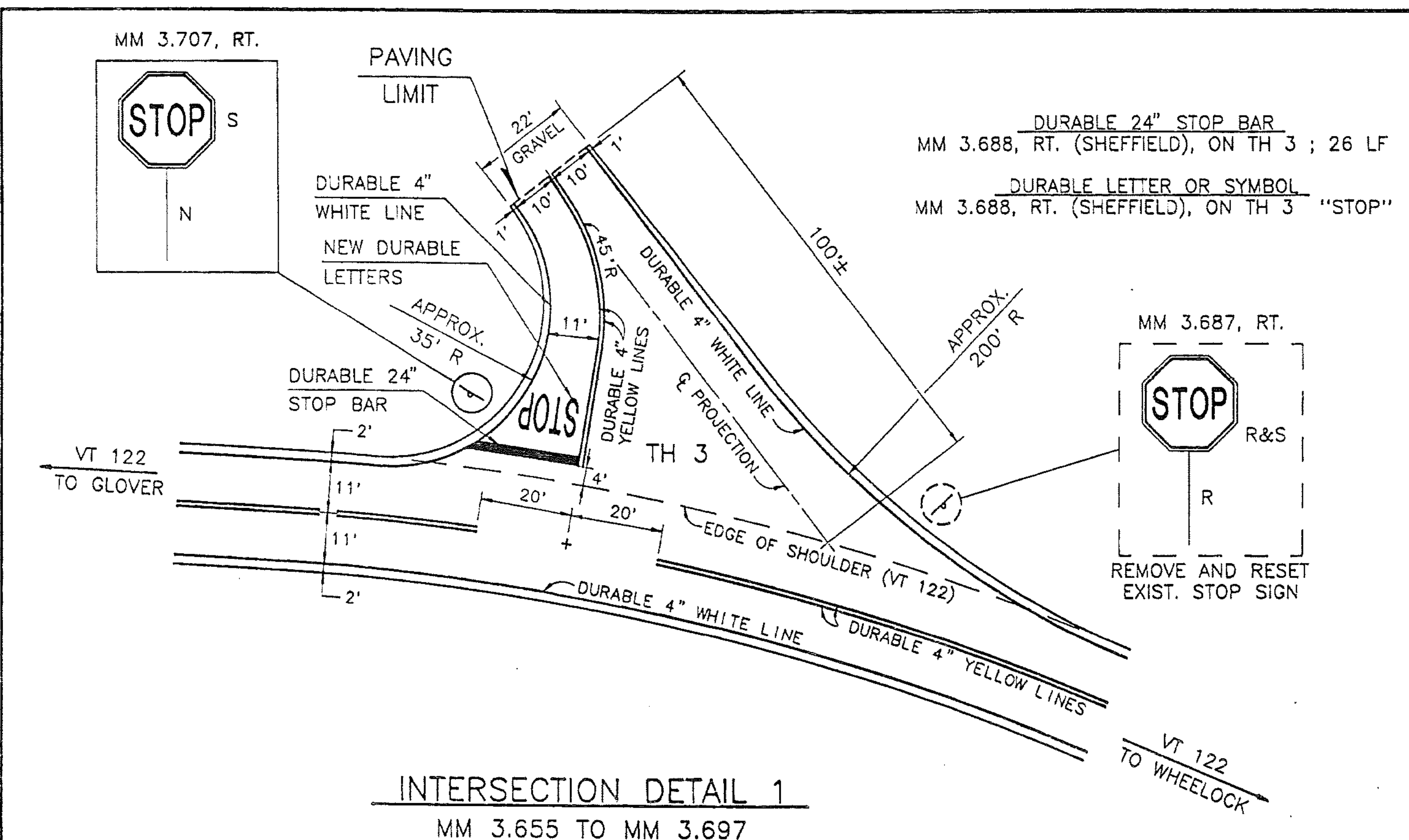
SEE STANDARD E-100 FOR SIGN PLACEMENT.

**LIST OF TOWN HIGHWAYS FOR CONSTRUCTION SIGNS**

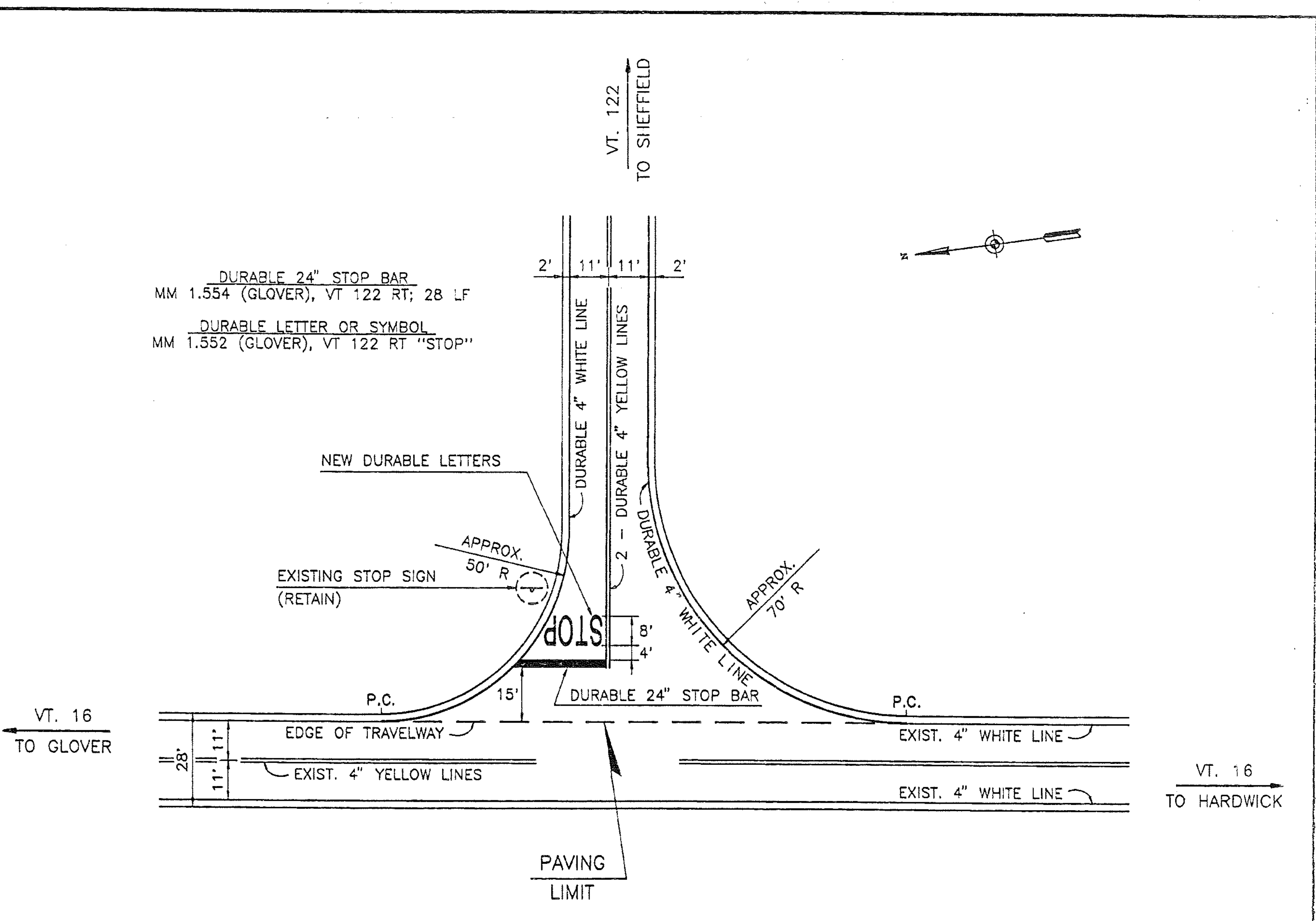
TOWN HIGHWAY NUMBER	ROAD CONST. AHEAD	END CONST.	OTHER
TH 2	1	1	-
TH 6	1	1	-
TH 24	1	1	-
TH 23	1	1	-
TH 44	1	1	-
TH 3	1	1	-
TH 21	1	1	-
TH 19	1	1	-
TH 16	1	1	-
<b>TOTAL</b>	<b>9</b>	<b>9</b>	<b>-</b>

<b>CONSTRUCTION SIGN DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	SHEFFIELD-GLOVER		
PROJ. NO.	STP 9419(1)S			
SHEET	10 OF	SHEETS		
HTA FILE: SHFSDTLS				

DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

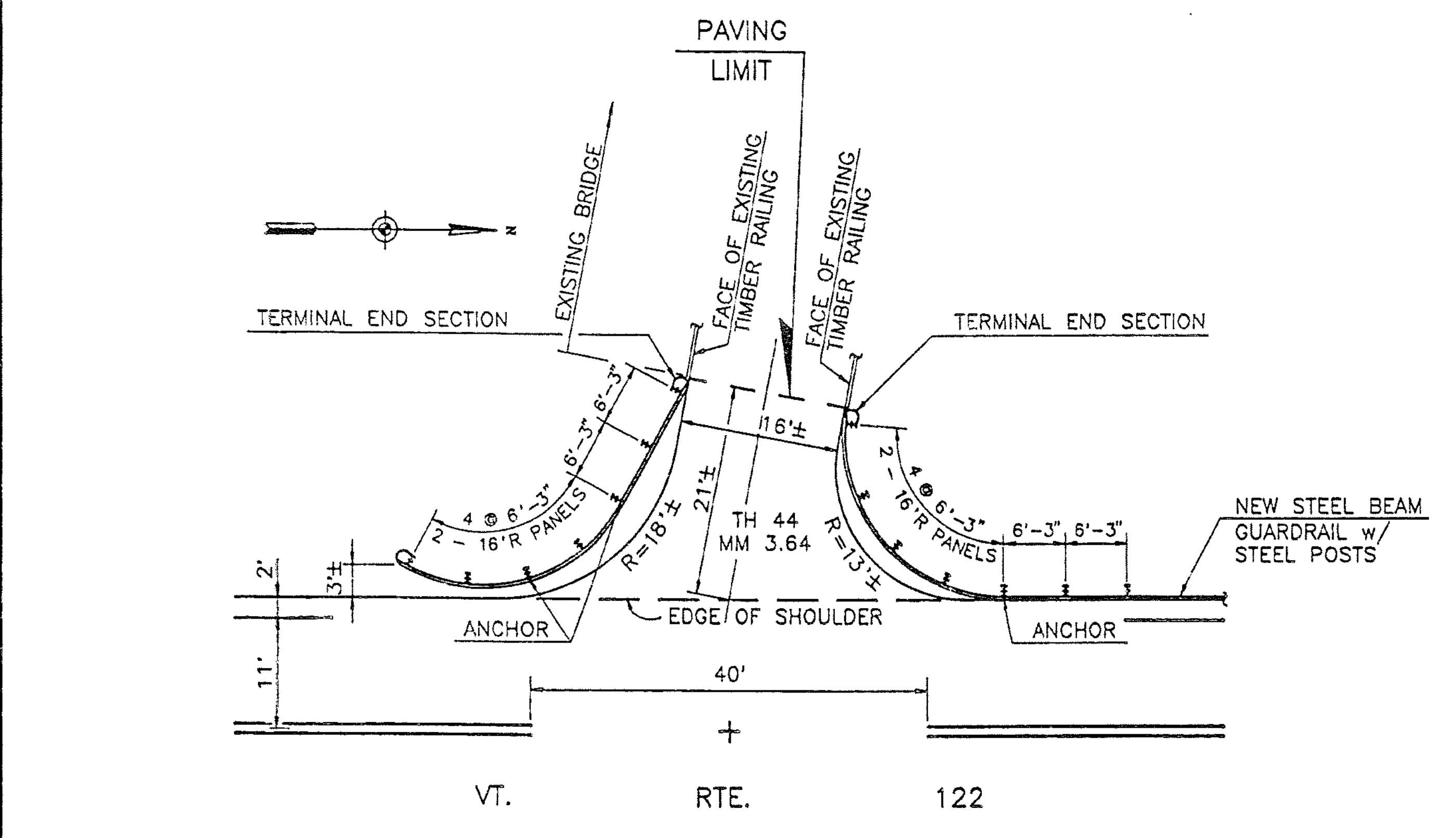


**INTERSECTION DETAIL 1**  
MM 3.655 TO MM 3.697  
SCALE: 1" = 20'



**INTERSECTION DETAIL 2**  
MM 1.540 TO MM 1.559  
SCALE: 1" = 20'

**LEGEND:**  
N = NEW  
R = REMOVE  
RET = RETAIN  
S = SALVAGE



**GUARDRAIL DETAIL AT INTERSECTION**  
TOWN HIGHWAY 44 - MM 3.64  
SCALE: 1" = 10'

DATUM	_____
VERTICAL	_____
HORIZONTAL	_____

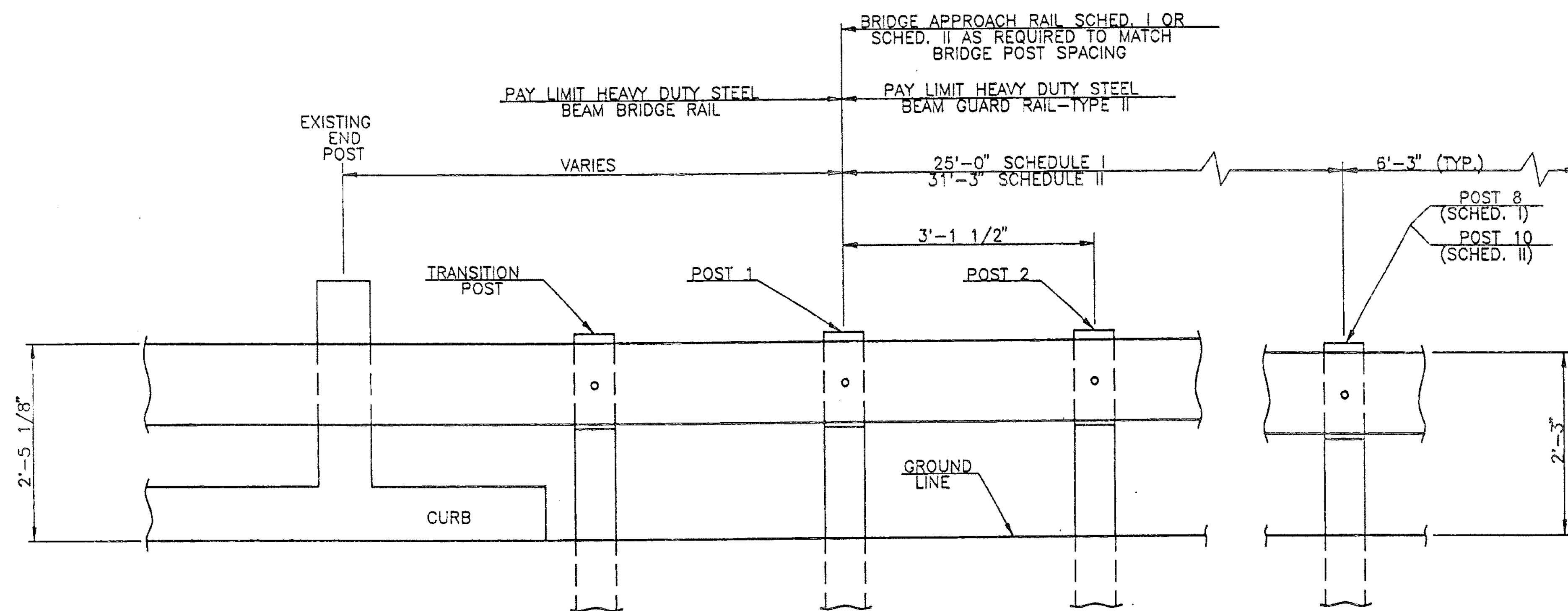
<b>INTERSECTION DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER	_____		
	DESIGN FILE NO.	_____		
	IPARM FILE	_____	DATE PLOTTED	_____
	PROJ. NAME	SHEFFIELD-GLOVER		
PROJ. NO.	STP 9419(1)S			
SHEET	11	OF	SHEETS	_____
HTA FILE: SHFINTS				

## BRIDGE QUANTITY SHEET

MILEMARKER	POS.	BRIDGE NO.	OFFSET BLOCK	525.41 MOD 1	525.40 MOD 2	621.20	621.21	621.50	621.60	525.10	621.81	REMARKS
2.293 - 2.317	LT.	16	W6x20	25		50	65		2	120		INSTALL A 16'R END TERMINAL AT MM 2.293 (NORTH OF EXISTING DRIVE), 50 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS, 25 LF OF H.D. STEEL BEAM GUARDRAIL, 25 LF OF NEW BRIDGE RAIL, HEAVY DUTY STEEL BEAM FASCIA MOUNTED (MOD. 1), AND A 16'R END TERMINAL AT TH 2. REMOVE EXISTING STEEL BEAM GUARDRAIL.
2.293 - 2.327	RT.	16	W6x20	25		50	65	2		155		INSTALL A BCT AT MM 2.293 RT., 25 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS, 25 LF OF NEW H.D. STEEL BEAM GUARDRAIL, 25 LF OF NEW BRIDGE RAIL, HEAVY DUTY STEEL BEAM FASCIA MOUNTED (MOD. 1), 25 LF OF NEW H.D. STEEL BEAM GUARDRAIL, 25 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 2.327 RT.. REMOVE EXIST. STEEL BEAM GUARDRAIL.
2.942 - 2.963	LT.	17	W6x20	37.5			65	1	1	77		INSTALL 25 LF OF HEAVY DUTY STEEL BEAM GUARDRAIL BEGINNING AT MM 2.942 LT., 37.5 LF OF NEW BRIDGE RAIL, HEAVY DUTY STEEL BEAM FASCIA MOUNTED (MOD. 1), 25 LF OF HEAVY DUTY STEEL BEAM GUARDRAIL AND A BCT AT MM 2.963 LT.. REMOVE EXISTING STEEL BEAM GUARDRAIL.
2.937 - 2.963	RT.	17	W6x20	37.5		50	65	2		88		INSTALL A BCT AT MM 2.937 RT., 25 LF OF STEEL BEAM RAIL, 25' H.D. RAIL, 37.5 LF OF NEW BRIDGE RAIL, HEAVY DUTY STEEL BEAM FASCIA MOUNTED (MOD. 1), 25 LF OF H.D. RAIL, 25 LF OF STEEL BEAM RAIL AND A BCT AT MM 2.963, RT.. REMOVE EXISTING STEEL BEAM GUARDRAIL.
SHEET 12 TOTAL				125		150	260	5	3	440		

## NOTES

1. BRIDGE RAIL SHALL BE HEAVY DUTY STEEL BEAM RAIL.
2. BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY RAIL HEIGHT IN 25 FEET.
3. 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.
4. SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
5. SEE STANDARD SHEET G-1 FOR DELINEATOR DETAILS AND PLACEMENT.
6. ERECT DELINEATORS ON EVERY FIFTH POST OR APPROXIMATELY 30 FEET APART. PAYMENT SHALL BE SUBSIDIARY TO THE APPROPRIATE RAIL ITEM.



BRIDGE APPROACH RAILING

### 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	3'-11 1/2"	1.4 x 12'-6"
2	3'-11 1/2"	
3	3'-11 1/2"	
4	3'-11 1/2"	
5	3'-11 1/2"	
6	4'-2"	1.2 x 12'-6"
7	4'-2"	
8	4'-2"	
9	6'-3" (TYP.)	1.0 (TYP.)

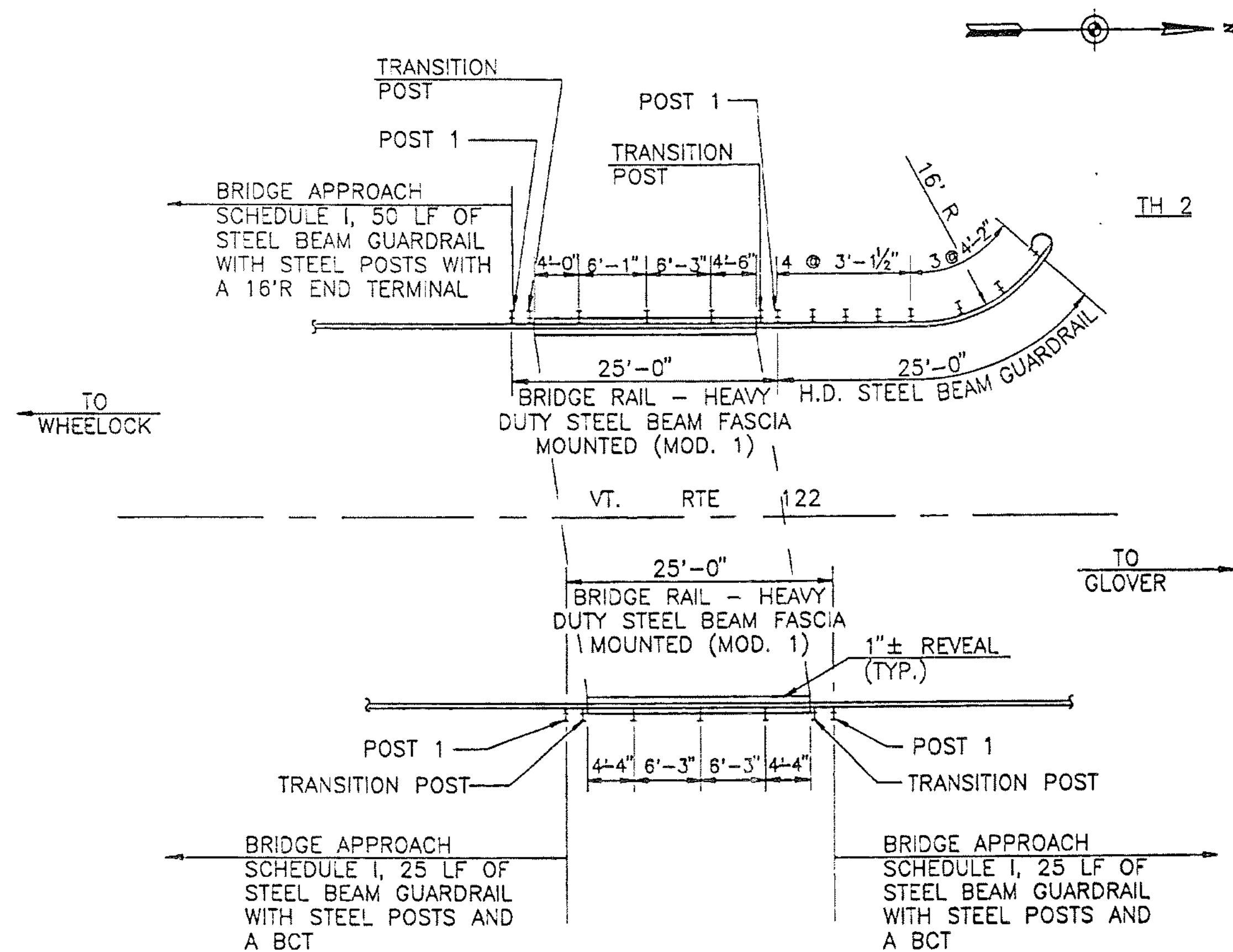
SCHEDULE II		
POST NO.	SPACING	PAYMENT FACTOR
1	3'-11 1/2"	1.4 x 18'-9"
2	3'-11 1/2"	
3	3'-11 1/2"	
4	3'-11 1/2"	
5	3'-11 1/2"	
6	3'-11 1/2"	1.2 x 12'-6"
7	4'-2"	
8	4'-2"	
9	4'-2"	1.0 (TYP.)
10	4'-2"	
11	6'-3" (TYP.)	

BRIDGE DETAIL  
SHEET #1

SURVEYED BY	N/A	DATE N/A
DRAWN BY	JC	DATE 03/93
SQUAD LEADER		
DESIGN FILE NO.		
FORM FILE		DATE PLOTTED
PROJ. NAME	SHEFFIELD-GLOVER	
PROJ. NO.	STP 9419(1)S	
SHEET 12 OF		SHEETS

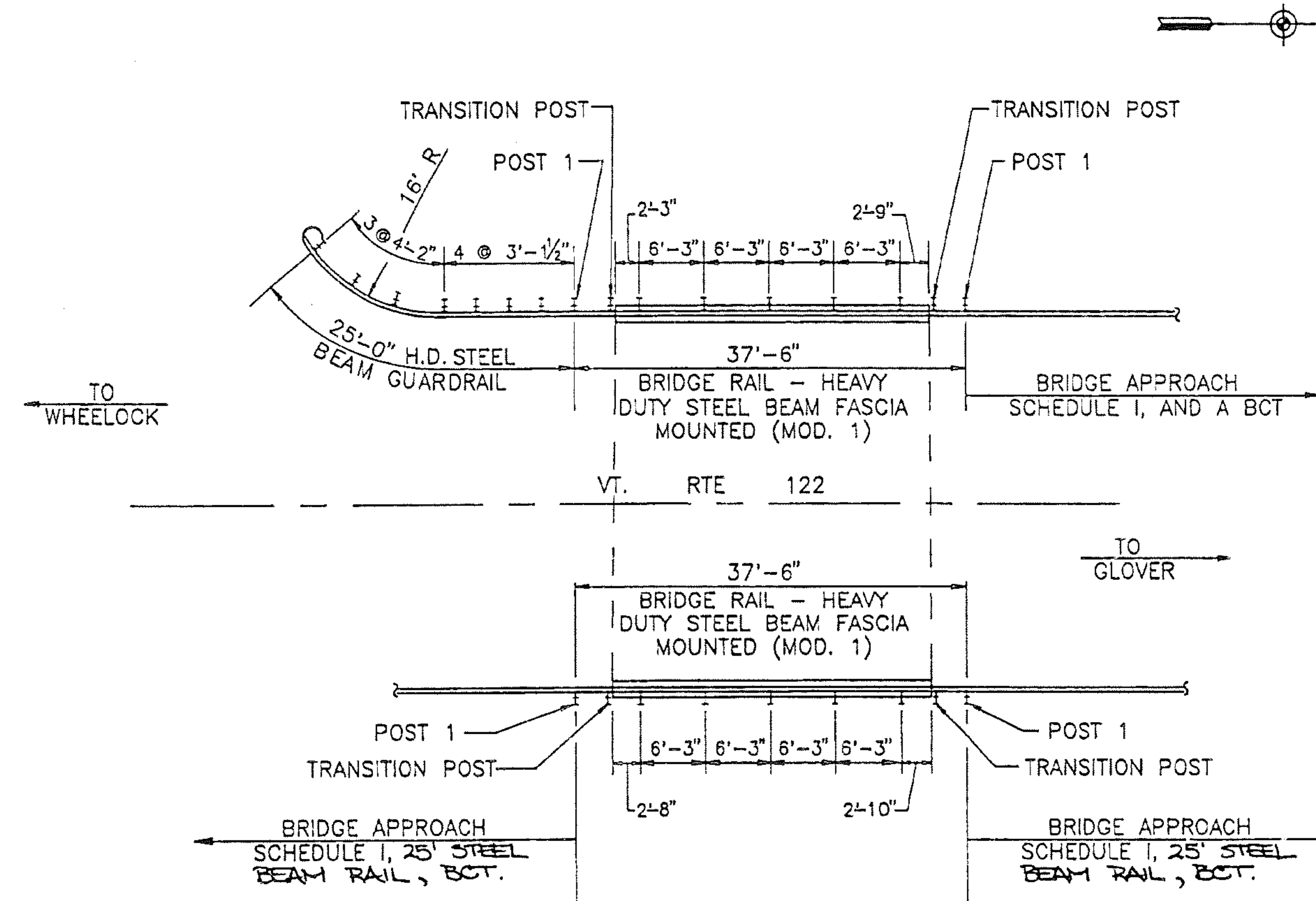
HTA FILE: SHFBRDTL

SHEET 18 OF 44



NOTE: EXISTING BRIDGE POSTS SHALL REMAIN. NEW 1'-2" W6x20 OFFSET BLOCKS SHALL BE PROVIDED WITH NEW BRIDGE RAIL.

BRIDGE NO. 16 @ MM 2.310  
SCALE: 1" = 10'

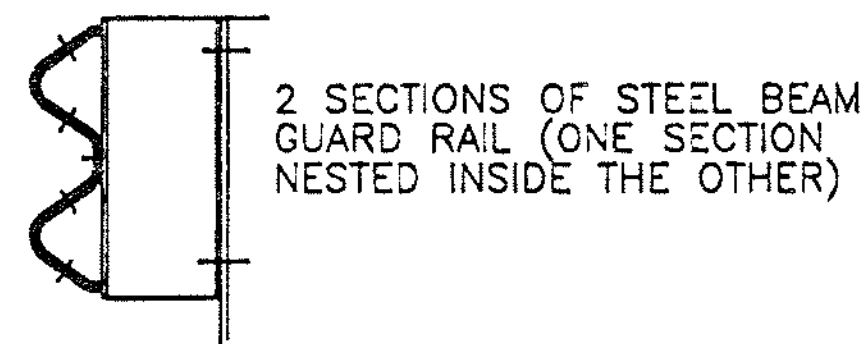


NOTE: EXISTING BRIDGE POSTS SHALL REMAIN. NEW 1'-2" W6x20 OFFSET BLOCKS SHALL BE PROVIDED WITH NEW BRIDGE RAIL.

BRIDGE NO. 17 @ MM 2.950  
SCALE: 1" = 10'

DATUM  
VERTICAL N/A  
HORIZONTAL N/A

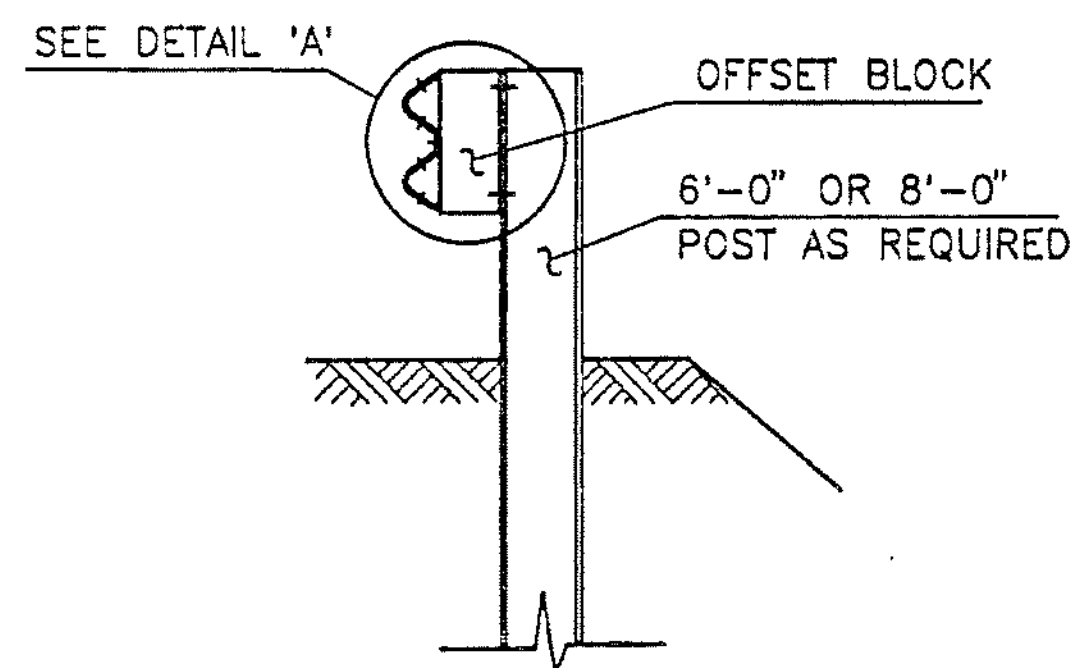
<b>BRIDGE DETAIL SHEET #2</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	CBB	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
IPARM FILE		DATE PLOTTED		
PROJ. NAME SHEFFIELD-GLOVER				
PROJ. NO. STP 9419(1)S				
SHEET 13 OF SHEETS				
HTA FILE: SHFBRDET				



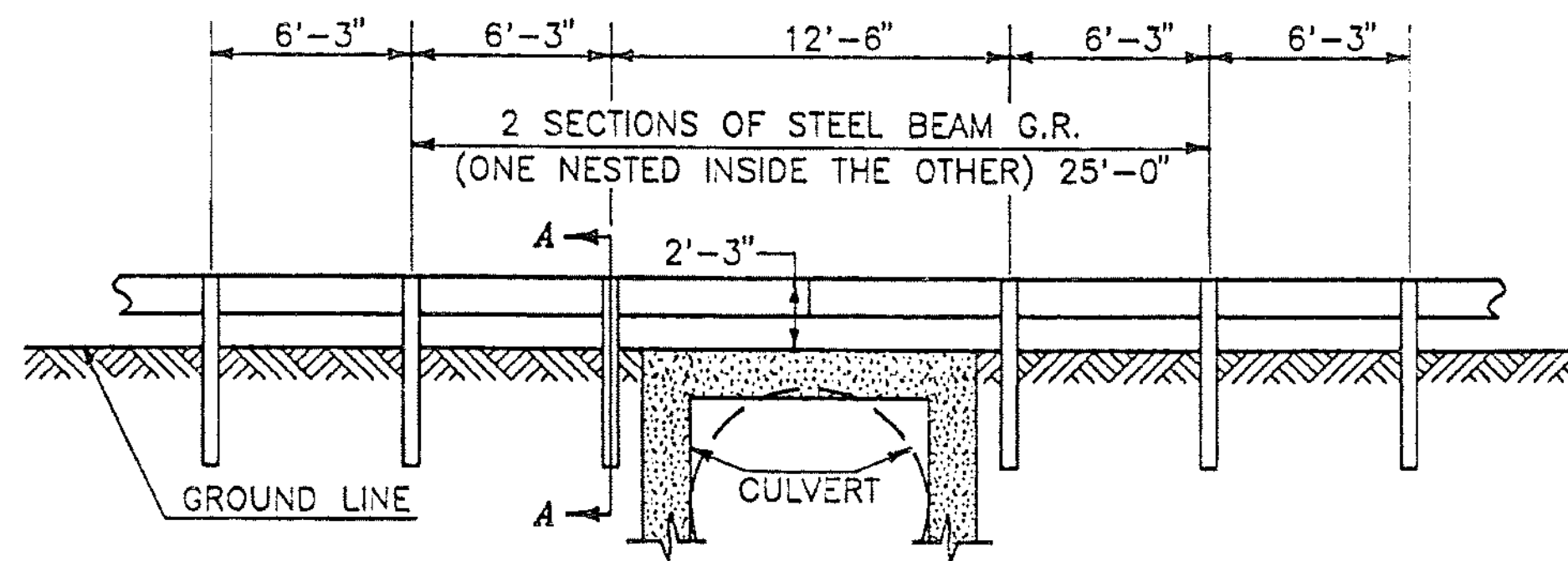
DETAIL A

NOTES:

1. SEE STANDARD G-1 & G-1D FOR STEEL BEAM GUARD RAIL DETAILS
2. THIS WORK SHALL BE PAID UNDER ITEM 621.21 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.



SECTION A-A

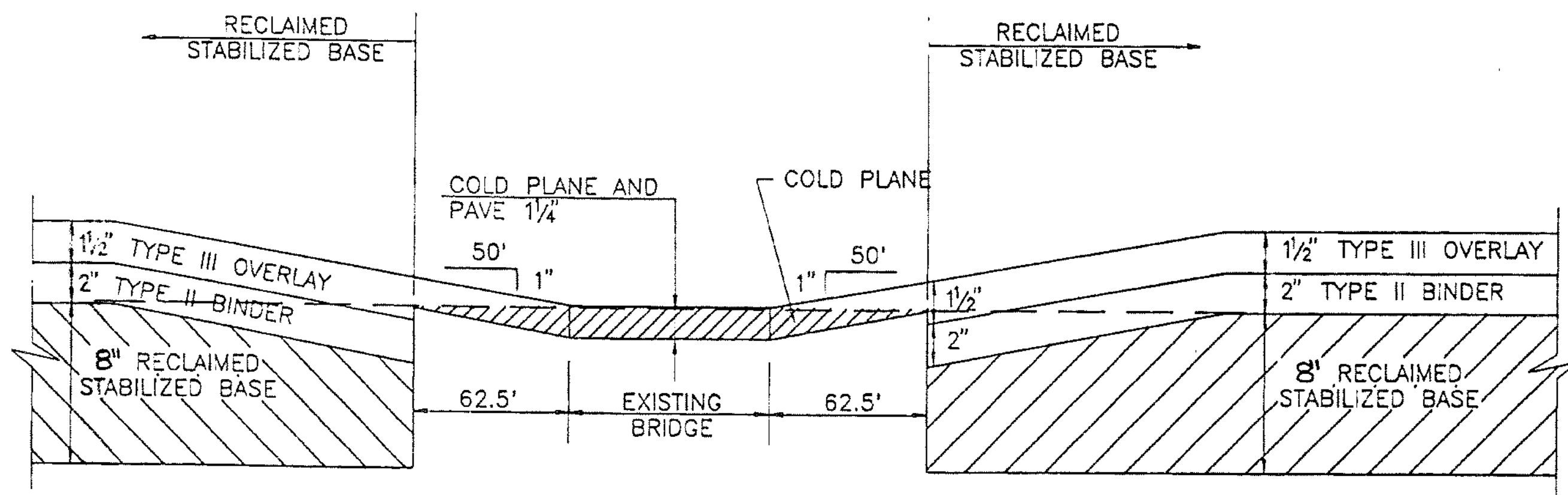


DETAIL OF STEEL BEAM GUARD RAIL AT LARGE CULVERTS

BRIDGE NO. 18  
MM 3.688

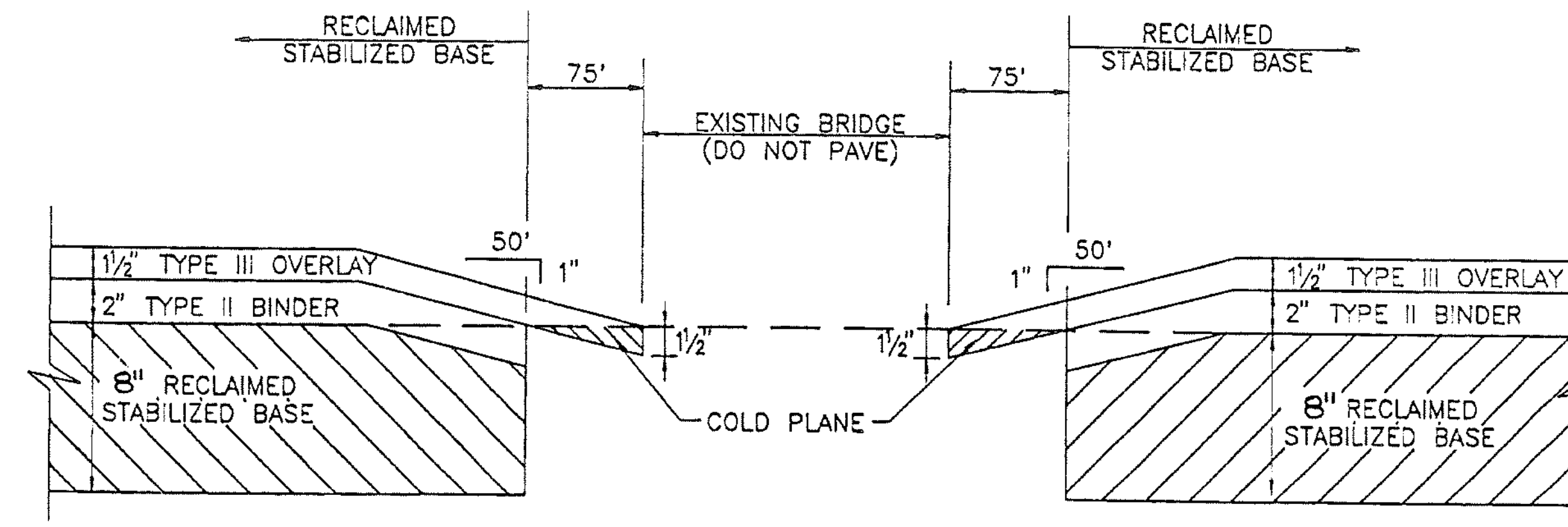
DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

<p>DETAIL OF STEEL BEAM GUARD RAIL AT LARGE CULVERTS</p>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	DJ	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	SHEFFIELD-GLOVER		
PROJ. NO.	STP 9419(1)S			
SHEET	14	OF	SHEETS	
HTA FILE: SHFGDRTL				



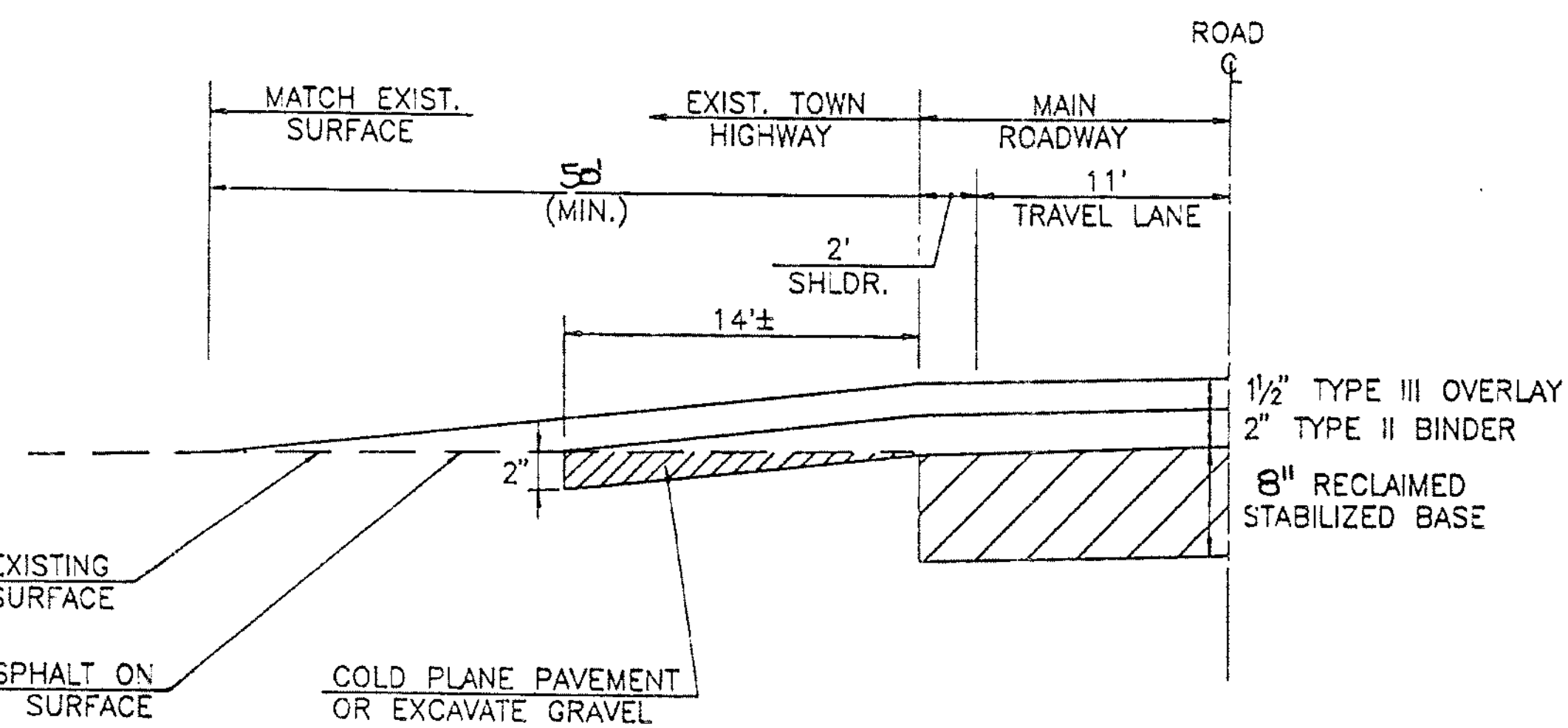
**RECLAIMED STABILIZED BASE  
TRANSITION AT BRIDGE**

BRIDGE NO. 17, MM 2.950

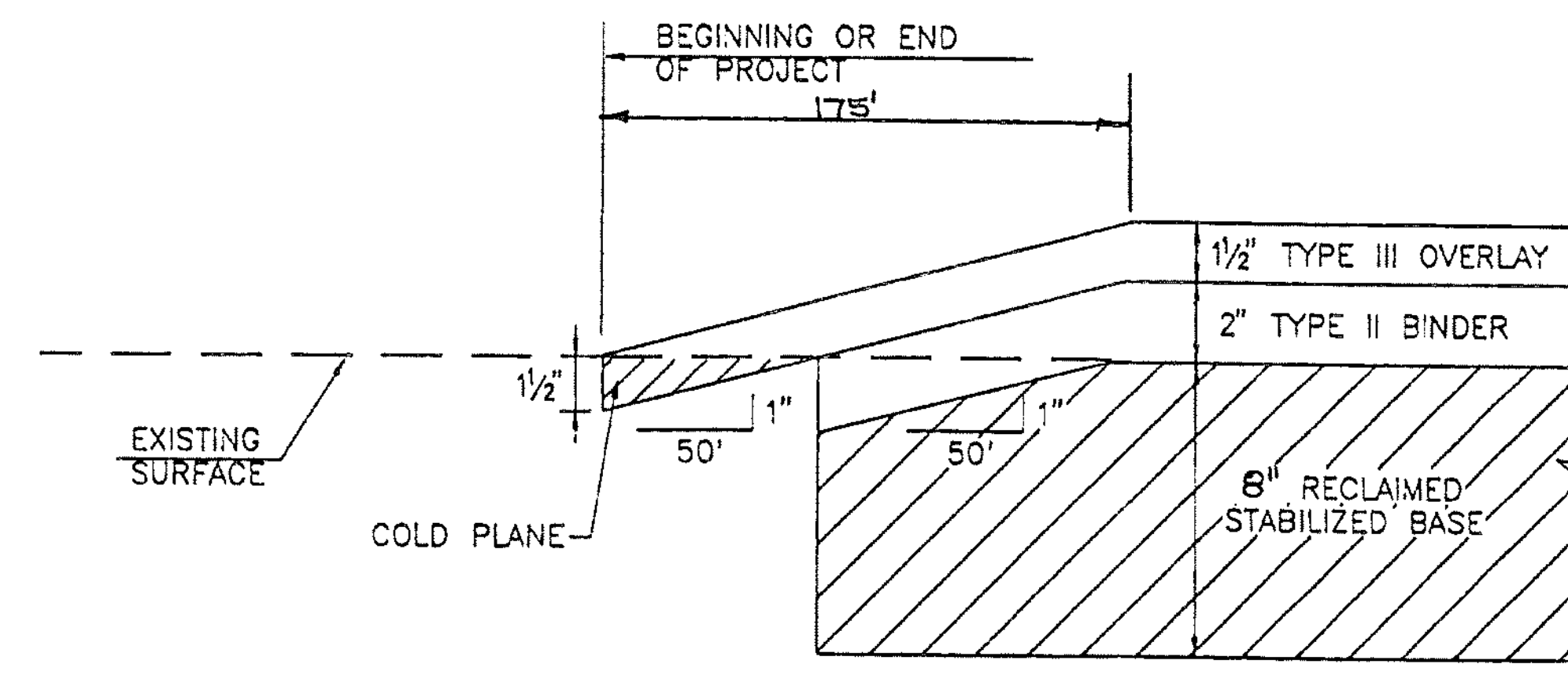


**RECLAIMED STABILIZED BASE  
TRANSITION AT BRIDGE**

BRIDGE NO. 16, MM 2.310



**RECLAIMED STABILIZED BASE TRANSITION  
AT TOWN HIGHWAYS RECEIVING  
DETAIL I TREATMENT**



**DETAIL FOR RECLAIMED STABILIZED BASE  
TRANSITION AT BEGINNING OR END OF PROJECT**

**PROJECT  
DETAIL  
SHEET**

SURVEYED BY N/A DATE N/A  
 DRAWN BY WL DATE 03/93  
 SQUAD LEADER \_\_\_\_\_  
 DESIGN FILE NO. \_\_\_\_\_  
 IPARM FILE \_\_\_\_\_ DATE PLOTTED \_\_\_\_\_  
 PROJ. NAME SHEFFIELD-GLOVER  
 PROJ. NO. STP 9419(1)S  
 SHEET 15 OF \_\_\_\_\_ SHEETS

HTA FILE: SHFDETL5

SHEET 21 OF 44

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



## NOTES

1. THE PAVEMENT WEARING COURSE SHALL BE TYPE III, ITEM 406.27. BINDER COURSE SHALL BE TYPE II, ITEM 406.27.
2. COLD PLANING TO BE COMPLETED ACCORDING TO THE DETAILS SHOWN ON THE PROJECT DETAIL SHEET.
3. THREE FEET OF BACKING IS REQUIRED BEHIND THE FACE OF GUARD RAIL WITH 6' POSTS. IF THIS CAN NOT BE OBTAINED THEN 8' POSTS SHALL BE USED.
4. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL EXISTING SURFACES, ALL COLD PLANED SURFACES, AND BETWEEN ALL COURSES OF PAVEMENT AT THE RATE OF 0.015 GAL/SY OR AS DIRECTED BY THE RESIDENT ENGINEER.
5. BITUMINOUS CONCRETE PAVEMENT TOLERANCE =  $\pm 1/4"$  (FOR TOTAL PAVEMENT THICKNESS)

### URBAN AREA - SEED MIXTURE

% WT.	LBS./ACRE	NAME	PUR%	GERM%
42.5	34.0	CREEPING RED FESCUE	98	85
10.0	8.0	PERENNIAL RYEGRASS	95	90
42.5	34.0	KENTUCKY BLUEGRASS	85	85
5.0	4.0	ANNUAL RYEGRASS	95	85
100.0	80.0			

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

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

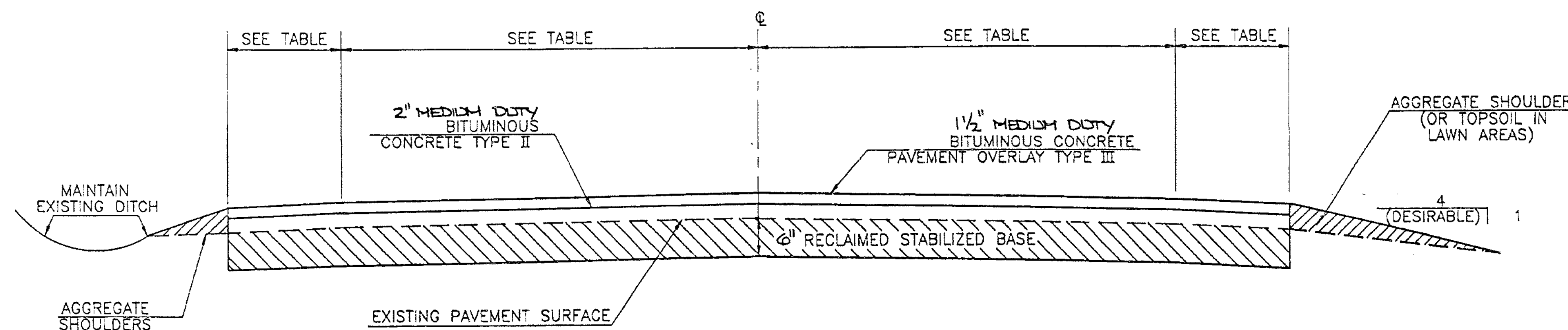
FERTILIZER:  
FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO-SEEDERS MAY USE 15-15-15 FORMULA)

AGRICULTURAL LIMESTONE:  
TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH:  
TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

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

MARKER POSTS:  
TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.



## RECLAIMED TYPICAL SECTION

### PROJECT PAVING LIMITS

TOWN	BEGIN MILE MARKER	END MILE MARKER	LANE TYPICAL	WEARING DEPTH	BINDER DEPTH	NOTES
BROWNINGTON	0.659	0.737	2'-11"-11'-2"	1-1/2 - III	-	COLD PLANE/OVERLAY AREA
BROWNINGTON	0.737	3.713	2'-11"-11'-2"	1-1/2 - III	2 - II	RECLAIMED AREA
CHARLESTON	0.000	3.815	2'-11"-11'-2"	1-1/2 - III	2 - II	RECLAIMED AREA
CHARLESTON	3.815	3.850	2'-11"-11'-2"	1-1/2 - III	-	COLD PLANE/OVERLAY AREA
						SEE DETAILS ON SHEET NOS. 09 & 10 FOR COLD PLANE/OVERLAY DETAILS

<b>PROJECT TYPICAL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	BROWNINGTON-CHARLESTON		
PROJ. NO.	STP 9426(1)S			
HTA FILE: BRNTYPXS	SHEET	02	OF	SHEETS
	SHEET 24 OF 44			





DURABLE 4" YELLOW LINE

BROWNINGTON

MM 0.659 TO MM 1.560 (SOLID LT. & RT.)  
 MM 1.560 TO MM 1.715 (SOLID LT. & DASHED RT.)  
 MM 1.715 TO MM 2.105 (SOLID LT. & RT.)  
 MM 2.105 TO MM 2.242 (SOLID LT. & DASHED RT.)  
 MM 2.242 TO MM 2.587 (DASHED)  
 MM 2.587 TO MM 2.723 (DASHED LT. & SOLID RT.)  
 MM 2.723 TO MM 2.865 (SOLID LT. & DASHED RT.)  
 MM 2.865 TO MM 3.020 (DASHED)  
 MM 3.020 TO MM 3.140 (DASHED LT. & SOLID RT.)  
 MM 3.140 TO MM 3.450 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

DURABLE 4" WHITE LINE

MM 0.659 TO MM 3.450 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

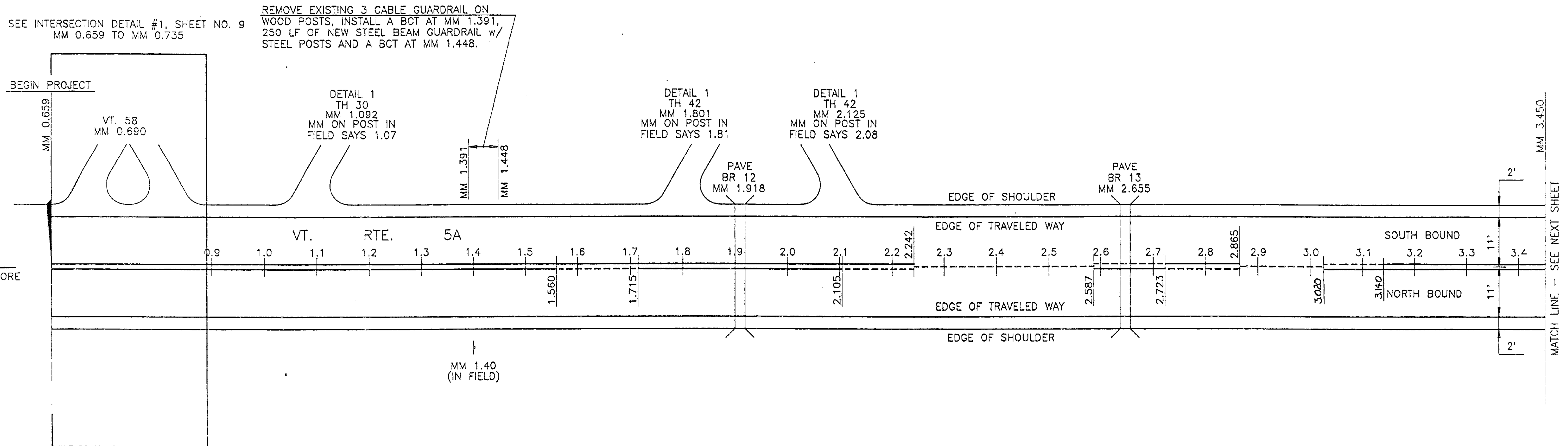
TEMPORARY 4" YELLOW LINE

BROWNINGTON

MM 0.659 TO MM 1.560 (SOLID LT. & RT.)  
 MM 1.560 TO MM 1.715 (SOLID LT. & DASHED RT.)  
 MM 1.715 TO MM 2.105 (SOLID LT. & RT.)  
 MM 2.105 TO MM 2.242 (SOLID LT. & DASHED RT.)  
 MM 2.242 TO MM 2.587 (DASHED)  
 MM 2.587 TO MM 2.723 (DASHED LT. & SOLID RT.)  
 MM 2.723 TO MM 2.865 (SOLID LT. & DASHED RT.)  
 MM 2.865 TO MM 3.020 (DASHED)  
 MM 3.020 TO MM 3.140 (DASHED LT. & SOLID RT.)  
 MM 3.140 TO MM 3.450 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" WHITE LINE

MM 0.659 TO MM 3.450 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)



SEE INTERSECTION DETAIL #1, SHEET NO. 9  
 MM 0.659 TO MM 0.735

REMOVE EXISTING 3 CABLE GUARDRAIL ON  
 WOOD POSTS, INSTALL A BCT AT MM 1.391,  
 250 LF OF NEW STEEL BEAM GUARDRAIL w/  
 STEEL POSTS AND A BCT AT MM 1.448.

TO  
 WESTMORE

MATCH LINE - SEE NEXT SHEET

FOR TOWN HIGHWAY DETAILS, SEE  
 PAVEMENT MARKING DETAIL SHEET.

DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

<h3>PAVING PROJECT LAYOUT</h3>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/03
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	BROWNINGTON-CHARLESTON		
	PROJ. NO.	STP 9426(1)S		
	SHEET	05 OF	SHEETS	

HTA FILE: BRNPMK1

SHEET 27 OF 44

DURABLE 4" YELLOW LINE

BROWNINGTON  
 MM 3.450 TO MM 3.550 (SOLID LT. & RT.)  
 MM 3.550 TO MM 3.622 (SOLID LT. & DASHED RT.)  
 MM 3.622 TO MM 3.713 (DASHED)

CHARLESTON  
 MM 0.000 TO MM 0.037 (DASHED)  
 MM 0.037 TO MM 0.153 (DASHED LT. & SOLID RT.)  
 MM 0.153 TO MM 0.167 (SOLID LT. & RT.)  
 MM 0.167 TO MM 0.305 (SOLID LT. & DASHED RT.)  
 MM 0.305 TO MM 0.343 (DASHED)  
 MM 0.343 TO MM 0.490 (DASHED LT. & SOLID RT.)  
 MM 0.490 TO MM 0.514 (SOLID LT. & RT.)  
 MM 0.514 TO MM 0.664 (SOLID LT. & DASHED RT.)  
 MM 0.664 TO MM 0.683 (DASHED)  
 MM 0.683 TO MM 0.795 (DASHED LT. & SOLID RT.)  
 MM 0.795 TO MM 0.853 (SOLID LT. & RT.)  
 MM 0.853 TO MM 0.965 (SOLID LT. & DASHED RT.)  
 MM 0.965 TO MM 1.119 (DASHED)  
 MM 1.119 TO MM 1.234 (DASHED LT. & SOLID RT.)  
 MM 1.234 TO MM 1.310 (SOLID LT. & RT.)  
 MM 1.310 TO MM 1.434 (SOLID LT. & DASHED RT.)  
 MM 1.434 TO MM 1.455 (SOLID LT. & RT.)  
 MM 1.455 TO MM 1.578 (DASHED LT. & SOLID RT.)  
 MM 1.578 TO MM 2.608 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)  
 MM 0.850, RT. ON TH 1 (100 LF)

DURABLE 4" WHITE LINE  
 MM 3.450 (BROWNINGTON) TO MM 2.608 (CHARLESTON)  
 (SOLID LT. & RT. WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" YELLOW LINE

BROWNINGTON  
 MM 3.450 TO MM 3.550 (SOLID LT. & RT.)  
 MM 3.550 TO MM 3.622 (SOLID LT. & DASHED RT.)  
 MM 3.622 TO MM 3.713 (DASHED)

CHARLESTON  
 MM 0.000 TO MM 0.037 (DASHED)  
 MM 0.037 TO MM 0.153 (DASHED LT. & SOLID RT.)  
 MM 0.153 TO MM 0.167 (SOLID LT. & RT.)  
 MM 0.167 TO MM 0.305 (SOLID LT. & DASHED RT.)  
 MM 0.305 TO MM 0.343 (DASHED)  
 MM 0.343 TO MM 0.490 (DASHED LT. & SOLID RT.)  
 MM 0.490 TO MM 0.514 (SOLID LT. & RT.)  
 MM 0.514 TO MM 0.664 (SOLID LT. & DASHED RT.)  
 MM 0.664 TO MM 0.683 (DASHED)  
 MM 0.683 TO MM 0.795 (DASHED LT. & SOLID RT.)  
 MM 0.795 TO MM 0.853 (SOLID LT. & RT.)  
 MM 0.853 TO MM 0.965 (SOLID LT. & DASHED RT.)  
 MM 0.965 TO MM 1.119 (DASHED)  
 MM 1.119 TO MM 1.234 (DASHED LT. & SOLID RT.)  
 MM 1.234 TO MM 1.310 (SOLID LT. & RT.)  
 MM 1.310 TO MM 1.434 (SOLID LT. & DASHED RT.)  
 MM 1.434 TO MM 1.455 (SOLID LT. & RT.)  
 MM 1.455 TO MM 1.578 (DASHED LT. & SOLID RT.)  
 MM 1.578 TO MM 2.608 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)  
 MM 0.850, RT. (ON TH 1), 100 LF

TEMPORARY 4" WHITE LINE  
 MM 3.450 (BROWNINGTON) TO MM 2.608 (CHARLESTON)  
 (SOLID LT. & RT. WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

DURABLE 24" STOP BAR

MM 0.850, RT. (ON TH 1), 11 LF

DURABLE LETTER OR SYMBOL

MM 0.850, RT. (ON TH 1), "STOP"

INSTALL A BCT AT MM's 3.579 & 3.598  
 AND 50 LF OF NEW STEEL BEAM GUARDRAIL

T/L  
 MM 3.713 = MM 0.000  
 BROWNINGTON CHARLESTON

DETAIL 1  
 TH 6  
 MM 3.508

DETAIL 1  
 TH 19  
 MM 0.805

DETAIL 1  
 TH 16  
 MM 1.260

REMOVE EXISTING PAVED CHANNEL, REGRADE &  
 RESHAPE CHANNEL AS REQUIRED. REPAVE WITH  
 2" OF TYPE IV BITUMINOUS CONCRETE PAVEMENT,  
 PLACED IN 2-1" LIFTS, 4' WIDE. PAYMENT  
 WILL BE UNDER ITEM 616.47.

MATCH LINE - SEE PREVIOUS SHEET

MATCH LINE - SEE NEXT SHEET

MM 3.579  
 MM 3.598  
 PAVE  
 BR 14  
 MM 3.613 (PER ROUTE LOG)  
 MM 3.588 (IN FIELD)

PAVE  
 BR 15  
 MM 1.088

MM 1.800  
 MM 1.900

EDGE OF SHOULDER

EDGE OF TRAVELED WAY

VT. RTE. 5A SOUTH BOUND

NORTH BOUND

EDGE OF TRAVELED WAY

EDGE OF SHOULDER

LIMIT  
 OF PAVING  
 TH 1  
 MM 0.843  
 MM ON POST IN  
 FIELD SAYS 0.85

TH 23  
 MM 1.242  
 DETAIL 1

MM 1.929  
 MM 2.038  
 TH 24  
 MM 2.046  
 DETAIL 1  
 MM ON POST IN  
 FIELD SAYS 2.04

REMOVE EXISTING 3 CABLE GUARDRAIL ON WOOD  
 POSTS AND INSTALL A BCT AT MM 1.929 RT.,  
 525 LF OF NEW STEEL BEAM GUARDRAIL WITH  
 STEEL POSTS AND A BCT AT MM 2.038.

FOR TOWN HIGHWAY DETAILS, SEE  
 PAVEMENT MARKING DETAIL SHEET.

PAVING  
 PROJECT  
 LAYOUT

SURVEYED BY N/A DATE N/A  
 DRAWN BY WBL DATE 03/93  
 SQUAD LEADER \_\_\_\_\_  
 DESIGN FILE NO. \_\_\_\_\_  
 IPARM FILE \_\_\_\_\_ DATE PLOTTED \_\_\_\_\_  
 PROJ. NAME BROWNINGTON-CHARLESTON  
 PROJ. NO. STP 9426(1)S  
 HTA FILE: BRNPMK2 SHEET 06 OF \_\_\_\_\_ SHEETS  
 SHEET 28 OF 44

DATUM  
 VERTICAL N/A  
 HORIZONTAL N/A

DURABLE 4" YELLOW LINE

CHARLESTON

MM 2.608 TO MM 3.413 (SOLID LT. & RT.)  
 MM 3.413 TO MM 3.546 (SOLID LT. & DASHED RT.)  
 MM 3.546 TO 3.596 (DASHED)  
 MM 3.596 TO MM 3.734 (DASHED LT. & SOLID RT.)  
 MM 3.734 TO MM 3.850 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

TEMPORARY 4" YELLOW LINE

MM 2.608 TO MM 3.413 (SOLID LT. & RT.)  
 MM 3.413 TO MM 3.546 (SOLID LT. & DASHED RT.)  
 MM 3.546 TO 3.596 (DASHED)  
 MM 3.596 TO MM 3.734 (DASHED LT. & SOLID RT.)  
 MM 3.734 TO MM 3.850 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)

DURABLE 4" WHITE LINE

MM 2.608 TO MM 3.850 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

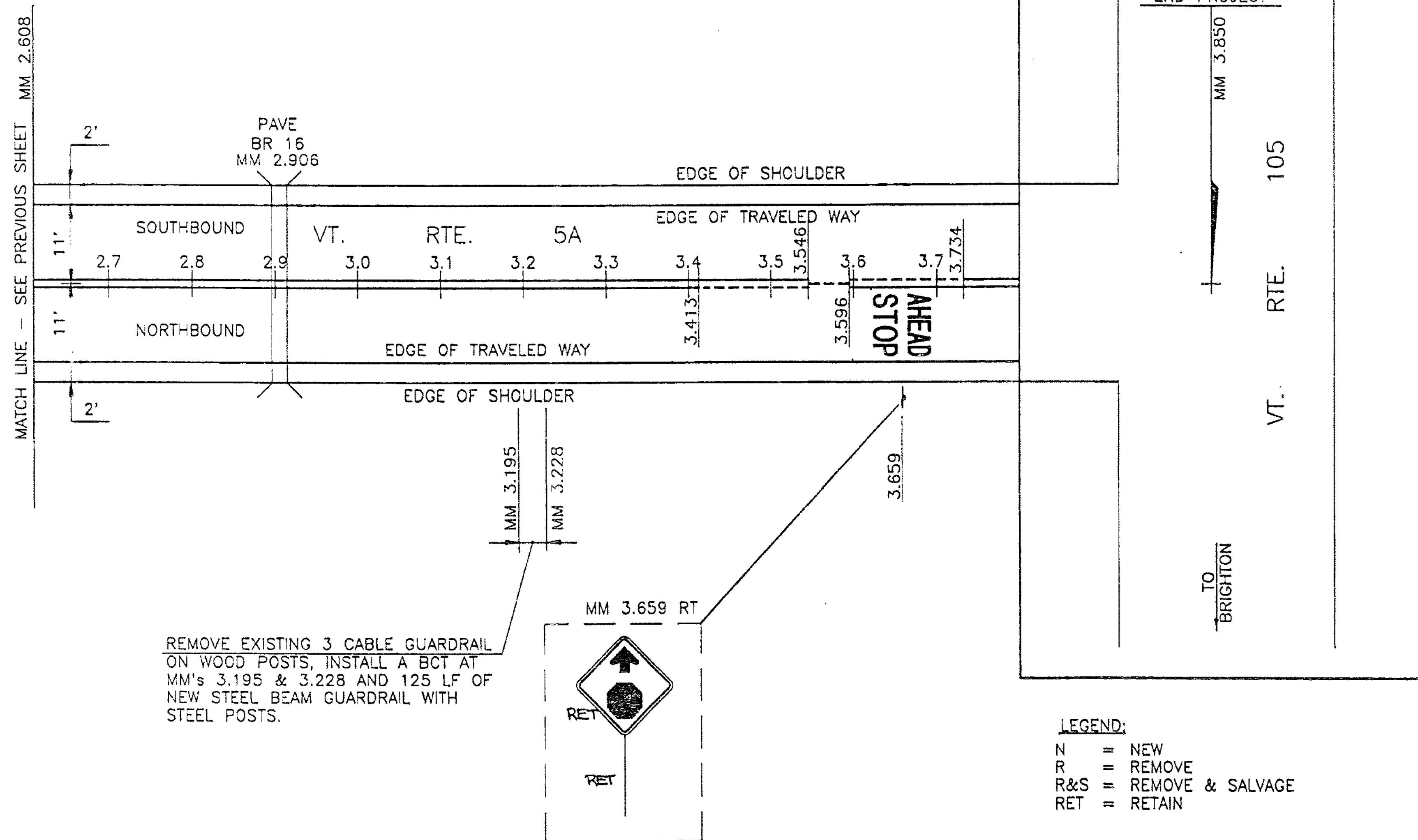
TEMPORARY 4" WHITE LINE

MM 2.608 TO MM 3.850 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

DURABLE LETTER OR SYMBOL

MM 3.659, RT. VT. RTE. 58 "STOP AHEAD"  
 CENTER ON CORRESPONDING SIGN AS  
 PER VAOT STANDARD E-120.

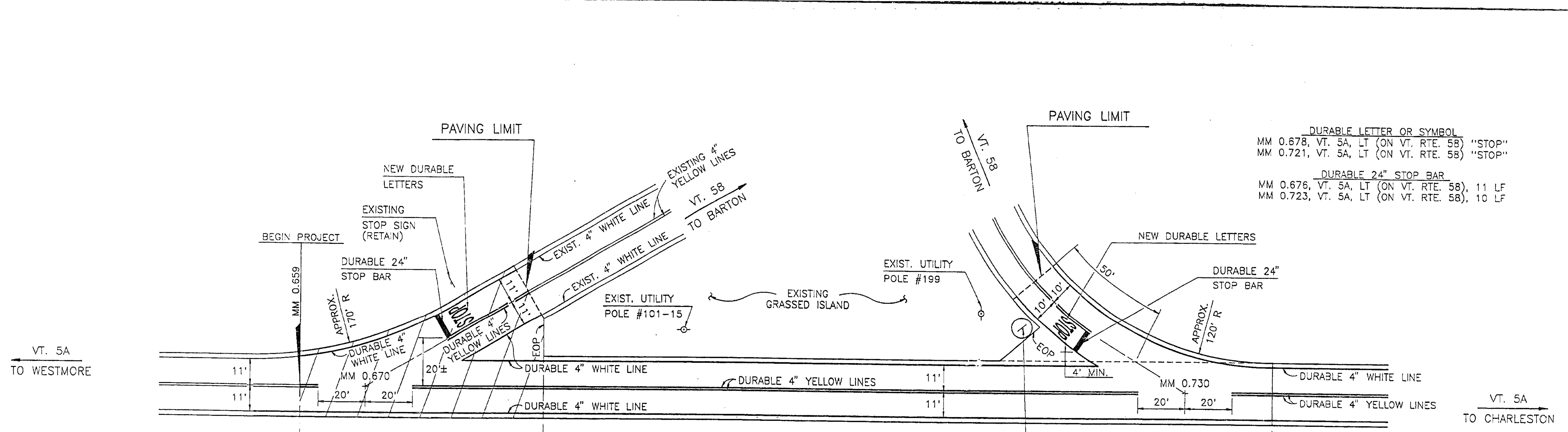
SEE INTERSECTION DETAIL #2, SHEET NO. 10  
 MM 3.812 TO MM 3.850



DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

<h3>PAVING PROJECT LAYOUT</h3>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	BROWNINGTON-CHARLESTON		
PROJ. NO.	STP 9426(1)S			
HTA FILE:	BRNPMK3	SHEET	07	OF SHEETS

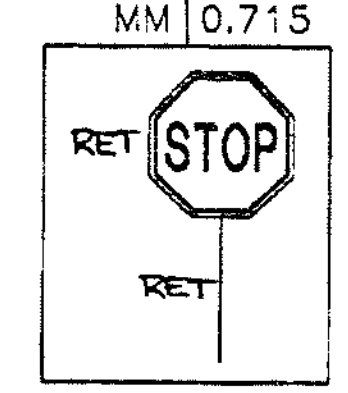




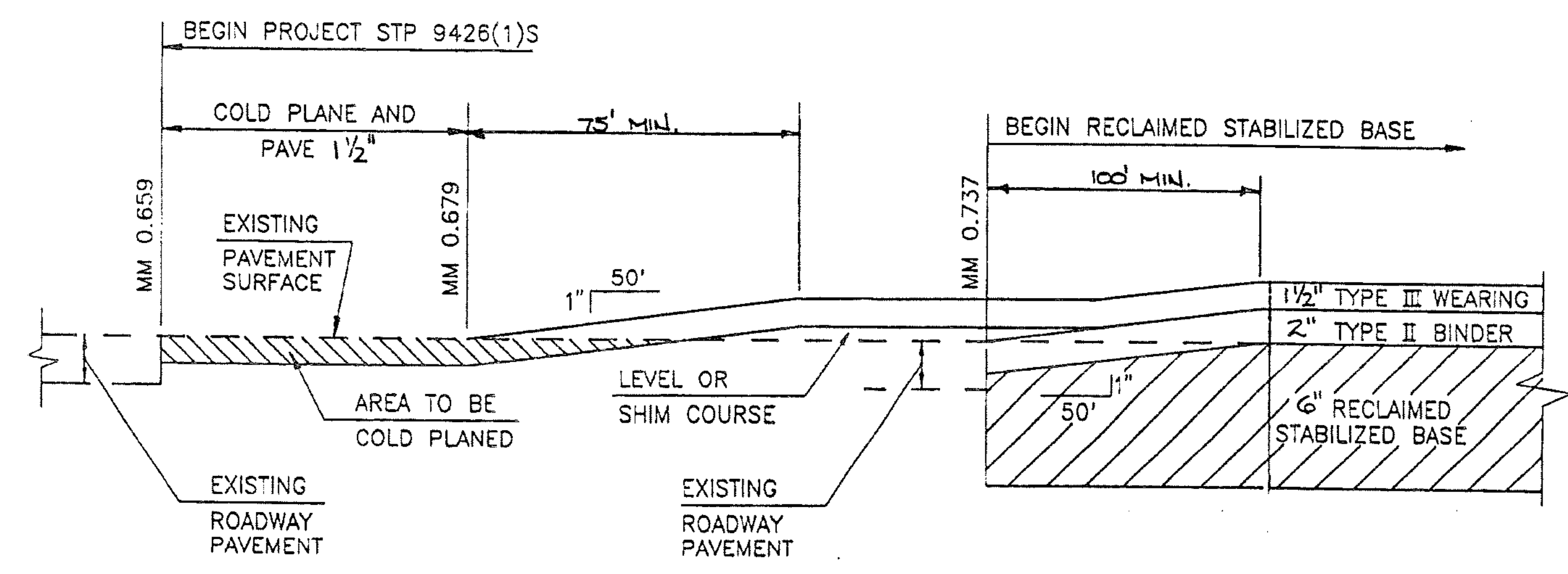
DURABLE LETTER OR SYMBOL  
 MM 0.678, VT. 5A, LT (ON VT. RTE. 58) "STOP"  
 MM 0.721, VT. 5A, LT (ON VT. RTE. 58) "STOP"

DURABLE 24" STOP BAR  
 MM 0.676, VT. 5A, LT (ON VT. RTE. 58), 11 LF  
 MM 0.723, VT. 5A, LT (ON VT. RTE. 58), 10 LF

**INTERSECTION DETAIL #1**  
 MM 0.659 TO MM 0.735  
 SCALE: 1" = 20'



- LEGEND:**
- R = REMOVE
  - N = NEW
  - R&S = REMOVE & SALVAGE
  - S = SALVAGE SIGN/POST
  - RET = RETAIN
  - = COLD PLANE AREA



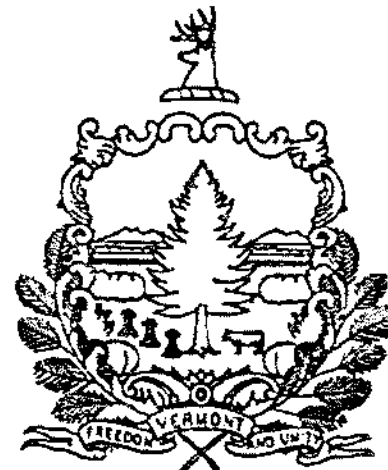
**RECLAIMED STABILIZED BASE TRANSITION DETAIL**  
 NOT TO SCALE

<b>INTERSECTION DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
PROJ. NAME BROWNINGTON-CHARLESTON				
PROJ. NO. STP 9426(1)S				
SHEET 09 OF SHEETS				
SHEET 31 OF 44				

DATUM	
VERTICAL	N/A
HORIZONTAL	N/A



STATE OF VERMONT  
 AGENCY OF TRANSPORTATION

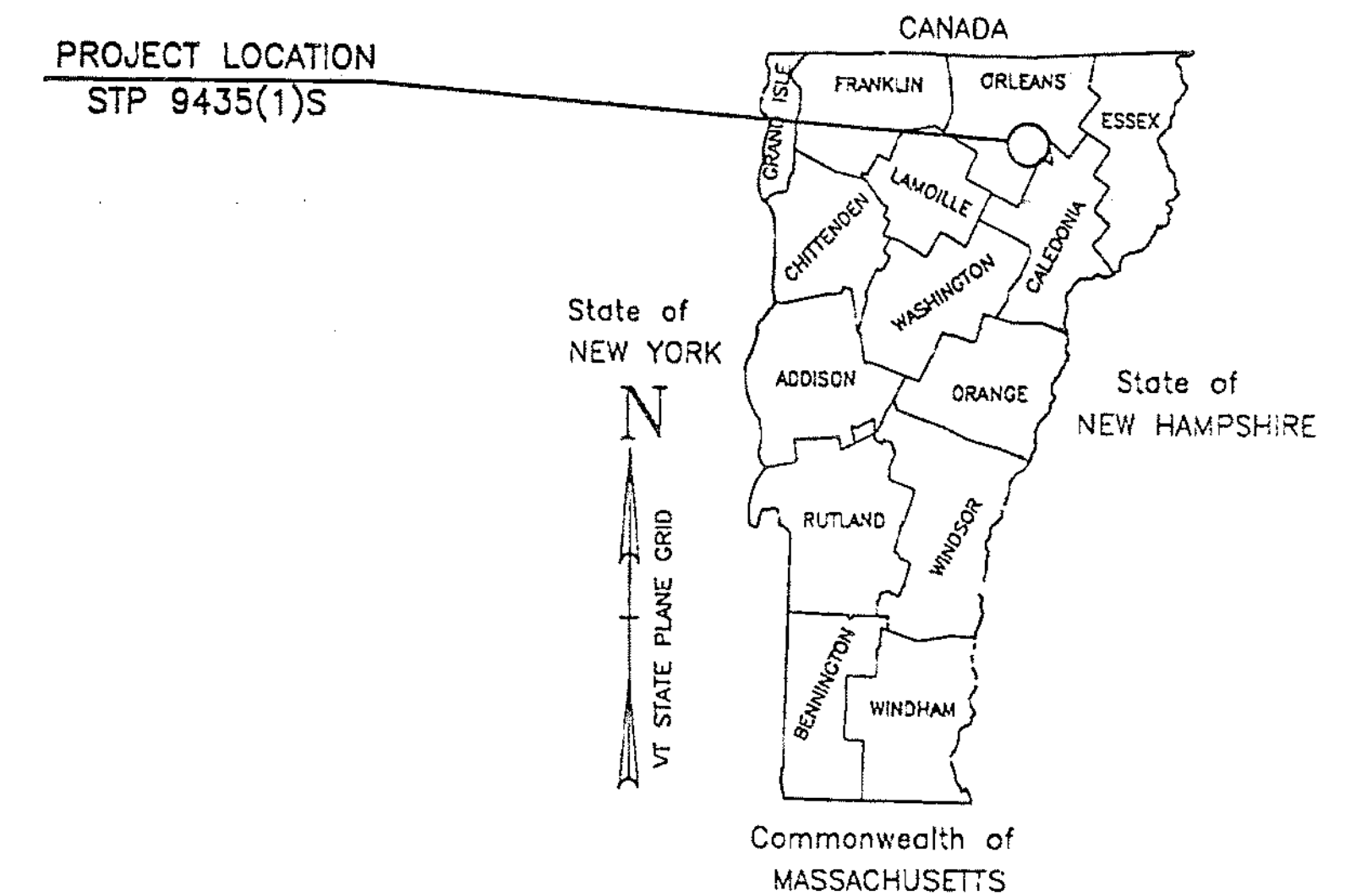


PROPOSED IMPROVEMENT  
 TOWN OF GLOVER  
 COUNTY OF ORLEANS  
 VT. RTE. 16, F.A.P.

BEGINNING IN GLOVER AT A POINT APPROXIMATELY 2.815 MILE NORTH OF THE GREENSBORO - GLOVER TOWN LINE AND EXTENDING NORTHERLY ALONG VT. ROUTE 16 FOR A DISTANCE OF 1.700 MILES TO THE INTERSECTION WITH VT. ROUTE 122, MILE MARKER 4.515 IN GLOVER.

LENGTH OF ROADWAY 8976.00 FEET = 1.700 MILES  
 LENGTH OF PROJECT 8976.00 FEET = 1.700 MILES

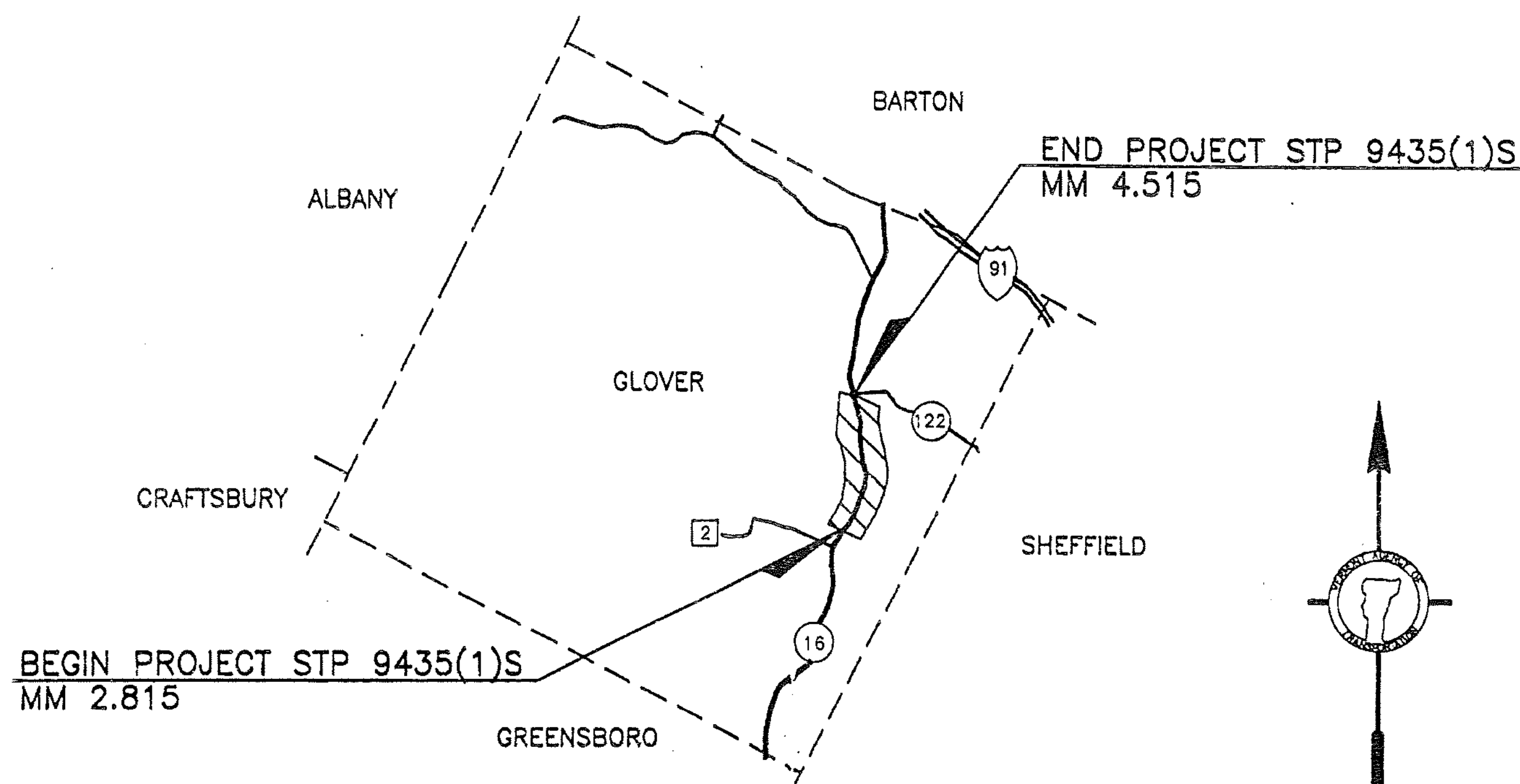
WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES RESURFACING OF THE EXISTING HIGHWAY WITH A SHIM/LEVELING COURSE, WEARING COURSE, SAFETY IMPROVEMENTS, ASSOCIATED PAVEMENT MARKINGS AND INCIDENTAL ITEMS



TRAFFIC DATA

1993 ADT = 1900  
 1993 DVH = 265  
 2003 ADT = 2270  
 2003 DHV = 315

1993 - 2003  
 CUMULATIVE ESAL'S = 659,000

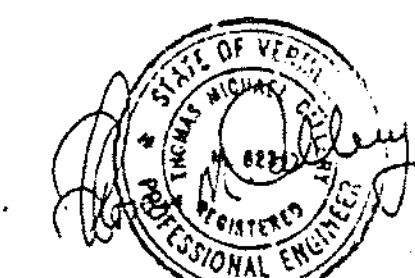


**CONVENTIONAL SIGNS**

COUNTY LINE	---
TOWN LINE	- - - -
LIMITS OF ACCESS	—o—o—o—
POINT OF ACCESS	X
FENCE LINE	-x-x-
STONE WALL	o-o-o-o-o-o
TRAVELED WAY	====
GUARD RAIL	o-o-o-o-o-o
RAILROAD	
SURVEY LINE	—+—+—+—
CULVERT	—x—x—x—
POWER POLE	⊕
TELEPHONE POLE	⊙
TREES	•
CONTROL OF ACCESS	///
PROPERTY LINE	—
R.O.W. TAKING LINE	—SR—
SLOPE RIGHTS	—o—o—o—
TOP OF CUT	—△—△—△—
TCE OF SLOPE	—o—o—o—

**NOTE:**  
 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.

DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

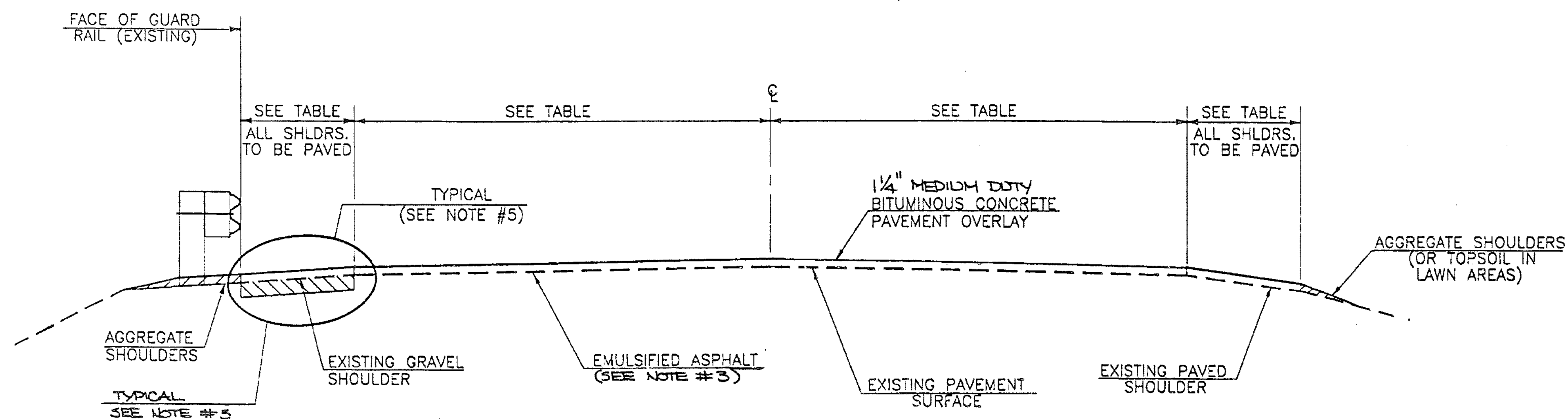


THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF CONSTRUCTION AND MAINTENANCE.  
 CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

APPROVED _____ DATE _____
DIRECTOR OF CONSTRUCTION & MAINTENANCE
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DATE _____
DIVISION ADMINISTRATOR
GLOVER
PROJECT STP 9435(1)S
SHEET 01 OF _____ SHEETS
SHEET 35 OF 44

## NOTES

1. THE PAVEMENT WEARING COURSE SHALL BE TYPE III, ITEM 406.27.
2. THE LEVELING COURSE SHALL BE TYPE III OR TYPE IV, ITEM 406.27, DIRECTED BY THE ENGINEER.
3. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL EXISTING SURFACES, ALL COLD PLANED SURFACES, AND BETWEEN ALL COURSES OF PAVEMENT AT THE RATE OF 0.05 GAL/SY OR AS DIRECTED.
4. BITUMINOUS CONCRETE PAVEMENT TOLERANCE =  $\pm 1/4"$  (FOR THE WEARING COURSE ONLY).
5. EXISTING SHOULDER MATERIAL DEEMED UNSUITABLE BY THE RESIDENT ENGINEER, SHALL BE EXCAVATED TO A DEPTH OF 3'  $\pm$  OR 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). EXCAVATED MATERIAL SHALL BE SPREAD ON THE ADJACENT SLOPES OR REMOVED FROM THE PROJECT, AS DIRECTED BY THE ENGINEER.
6. COLD PLANING TO BE COMPLETED ACCORDING TO THE DETAIL SHOWN ON THE PROJECT DETAIL SHEET.
7. THREE FEET OF BACKING IS REQUIRED BEHIND THE FACE OF GUARD RAIL WITH 6' POSTS. IF THIS CAN NOT BE OBTAINED THEN 8' POSTS SHALL BE USED.



### OVERLAY TYPICAL SECTION

#### URBAN AREA - SEED MIXTURE

% WT.	LBS./ACRE	NAME	PUR%	GERM%
42.5	34.0	CREEPING RED FESCUE	98	85
10.0	8.0	PERENNIAL RYE	95	90
42.5	34.0	KENTUCKY BLUEGRASS	85	85
5.0	4.0	ANNUAL RYEGRASS	95	85
100.0	80.0			

SEED MIXTURE:  
SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS 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 500 LBS./ACRE. (HYDRO-SEEDERS MAY USE 15-15-15 FORMULA.)

AGRICULTURAL LIMESTONE:  
TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH:  
TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

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

MARKER POSTS:  
TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

### PROJECT PAVING LIMITS

TOWN	BEGIN MILE MARKER	END MILE MARKER	LANE TYPICAL	WEARING DEPTH	LEVELING TONS/MILE	NOTES
GLOVER	2.815	3.895	3'-11"-11'-3'	1-1/4"	636	
GLOVER	3.895	3.913	SEE NOTE	-	-	BRIDGE NO. 15, DO NOT PAVE
GLOVER	3.913	4.515	3'-11"-11'-3'	1-1/4"	636	

## PROJECT TYPICAL SHEET

SURVEYED BY N/A DATE N/A  
DRAWN BY CBB DATE 03/93

SQUAD LEADER \_\_\_\_\_

DESIGN FILE NO. \_\_\_\_\_

IPARM FILE \_\_\_\_\_ DATE PLOTTED \_\_\_\_\_

PROJ. NAME GLOVER

PROJ. NO. STP 9435(1)S

HTA FILE: GLVTYPXS

SHEET 02 OF SHEETS

SHEET 2/2 OF 44



# ITEM DETAIL SUMMARY SHEET

MILE MARKER	MILE MARKER	POS.	DROP INLET	LAT. DITCH	CLEAN INLET DITCH	CLEAN OUTLET DITCH	EARTH BORROW	TIMBER CURB	STONE FILL	NEW PIPE			CSPES			FLUSH PIPES 0-24" > 24"	6" UND.	GRATE TYPE EA	CHAN ELEV EA	REHAB DI EA	MOD GUARDRAIL ITEMS						REMARKS							
										D	L	TH/CL	D	TH	QTY						621.20	621.20	621.21	621.50	621.60	621.80		621.81						
2.957	2.981	RT.																									INSTALL A 16' R END TERMINAL AT MM 2.957, RT. NORTH OF DRIVE TO BALLFIELD, 125 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 2.981, RT.							
2.957	2.976	LT.																									INSTALL A 16' R END TERMINAL AT MM 2.957 (NORTH OF EXISTING DRIVE), 75 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 2.976, LT.							
3.164	3.221	LT.																									INSTALL A BCT AT MM 3.164, LT., 250 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 3.221, LT.; REMOVE EXISTING WOOD GUIDE POSTS.							
3.282	3.306	RT.																									INSTALL A BCT AT MV 3.282 AND 3.306, 75 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS; REMOVE EXISTING 2 CABLE GUARDRAIL WITH WOOD POSTS.							
3.246	3.298	LT.								15"	40'	0.064															REMOVE EXISTING 2 CABLE GUARDRAIL ON WOOD POSTS. BURY NEW GUARDRAIL INTO BACKSLOPE AT MM 3.246, INSTALL 250 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND A BCT AT MM 3.298							
3.895	3.913	RT. & LT.																									(SEE BRIDGE DETAILS, SHEET NOS. 8 & 9).							
<b>SHEET 04 TOTAL</b>																																		
<b>SHEET 08 TOTAL</b>										15	40'	.064																						
<b>SUB TOTALS</b>										15	40'	.064																						
<b>ROUNDING</b>										-	-	-																						
<b>PROJECT TOTALS</b>										15	40'	.064																						

<b>ITEM DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	GLOVER		
PROJ. NO.	STP 9435(1)S			
SHEET 04 OF	SHEETS			
HTA FILE: GLVSUM1				

DURABLE 4" YELLOW LINE

MM 2.815 TO MM 3.192 (SOLID LT. & RT.)  
 MM 3.192 TO MM 3.306 (SOLID LT. & DASHED RT.)  
 MM 3.306 TO MM 3.431 (DASHED)  
 MM 3.431 TO MM 3.520 (DASHED LT. & SOLID RT.)  
 MM 3.520 TO MM 4.515 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)  
 MM 4.340, LT. (ON TH 37), 100 LF

TEMPORARY 4" YELLOW LINE

MM 2.815 TO MM 3.192 (SOLID LT. & RT.)  
 MM 3.192 TO MM 3.306 (SOLID LT. & DASHED RT.)  
 MM 3.306 TO MM 3.431 (DASHED)  
 MM 3.431 TO MM 3.520 (DASHED LT. & SOLID RT.)  
 MM 3.520 TO MM 4.515 (SOLID LT. & RT.)  
 (WITH CENTERLINE BREAKS FOR TOWN HIGHWAYS)  
 MM 4.340, LT. (ON TH 37), 100 LF

DURABLE 24" STOP BAR

MM 4.340, LT. (ON TH 37), 15 LF

TEMPORARY 24" STOP BAR

MM 4.340, LT. (ON TH 37), 15 LF

DURABLE LETTER OR SYMBOL

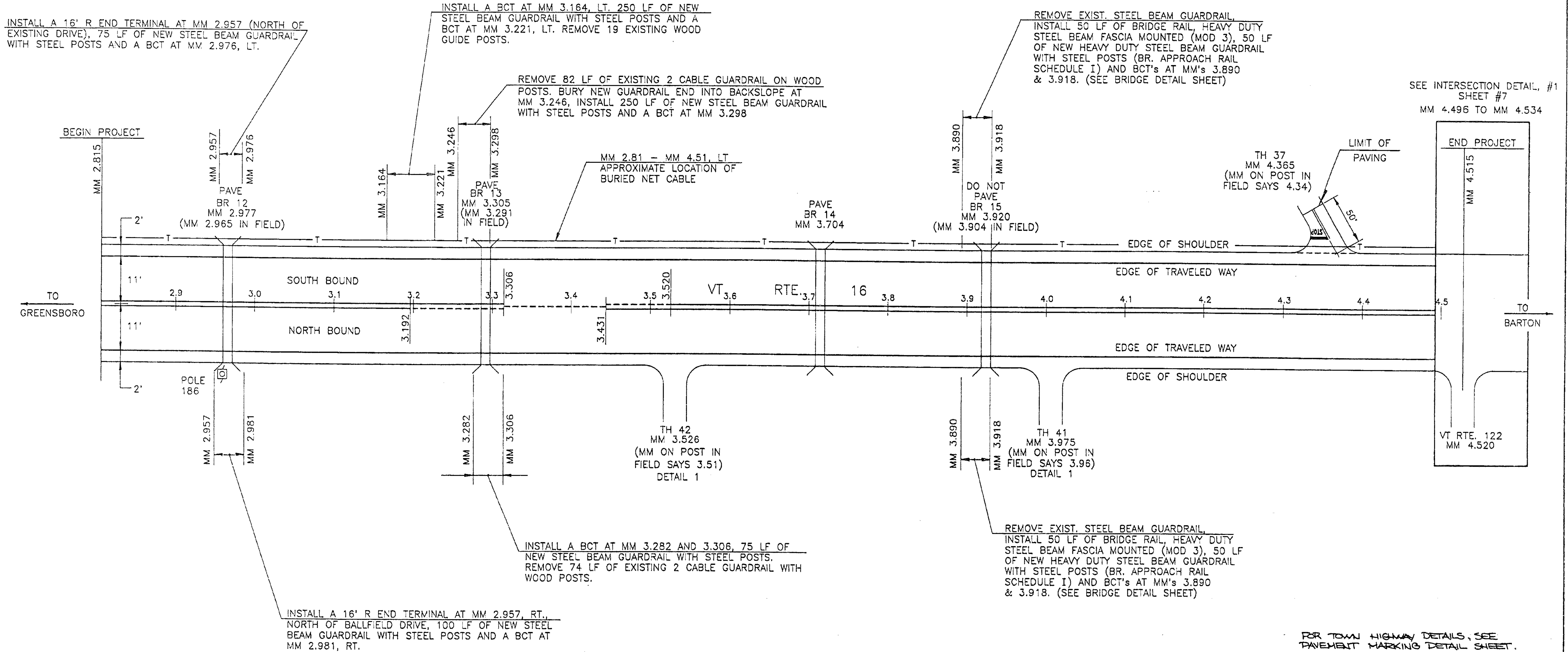
MM 4.340, LT. (ON TH 37), "STOP"

DURABLE 4" WHITE LINE

MM 2.815 TO MM 4.515 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)

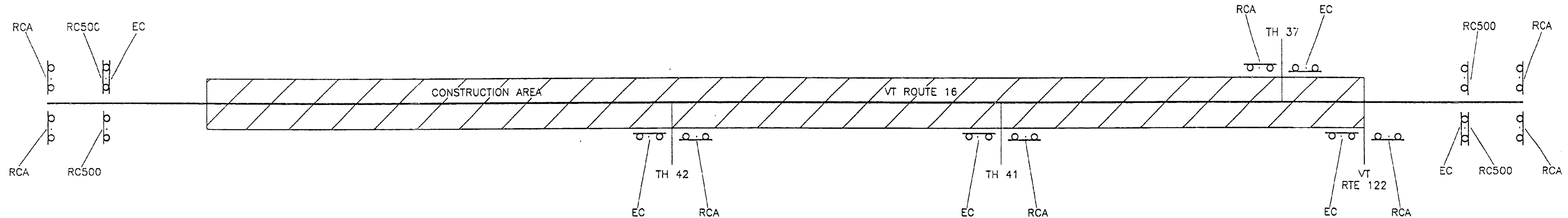
TEMPORARY 4" WHITE LINE

MM 2.815 TO MM 4.515 (SOLID LT. & RT.)  
 (WITH EDGE LINE BREAKS FOR TOWN HIGHWAYS)



DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

<h3>PAVING PROJECT LAYOUT</h3>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
PROJ. NAME		GLOVER		
PROJ. NO.		STP 9435(1)S		
HTA FILE:		GLVPMK1		
SHEET		05 OF 44 SHEETS		



**LEGEND**  
 RCA = ROAD CONSTRUCTION AHEAD  
 RC500 = ROAD CONSTRUCTION 500'  
 EC = END CONSTRUCTION

### CONSTRUCTION APPROACH SIGNING

SEE STANDARD E-100 FOR SIGN PLACEMENT.

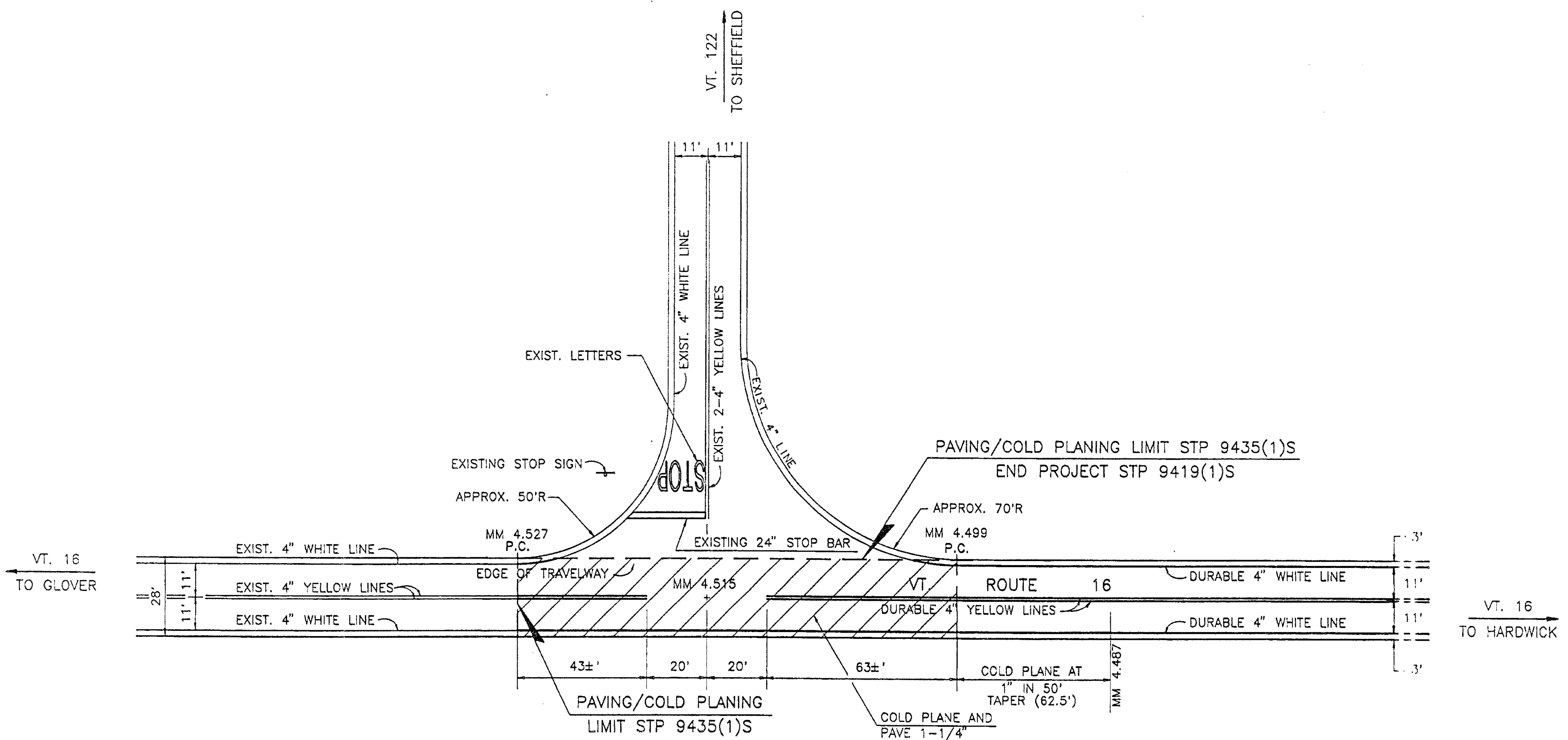
LIST OF TOWN HIGHWAYS FOR CONSTRUCTION SIGNS

TOWN HIGHWAY NUMBER	ROAD CONST. AHEAD	END CONST.	OTHER
TH 42	1	1	-
TH 41	1	1	-
TH 37	1	1	-
VT RTE 122	1	1	-
TOTAL	4	4	-

<b>CONSTRUCTION SIGN DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	GLOVER		
PROJ. NO.	STP 9435(1)S			
SHEET	06	OF	SHEETS	

HTA FILE: GLVSDTLS

DATUM  
 VERTICAL N/A  
 HORIZONTAL N/A



**INTERSECTION DETAIL #1**  
MM 4.496 TO MM 4.534  
SCALE: 1" = 20'

**NOTE:**  
THE CONTRACTOR SHALL COLD PLANE AND PAVE 1-1/4" FROM MM 4.527 TO MM 4.499. THE CONTRACTOR SHALL COLD PLANE AT A TAPER OF 1" IN 50' FROM MM 4.487 TO MM 4.499. (SEE DETAIL ON PROJECT DETAIL SHEET).

DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

<b>INTERSECTION DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	GLOVER		
PROJ. NO.	STP 9435(1)S			
HTA FILE:	GLVINTS	SHEET	07	OF 44 SHEETS

### BRIDGE QUANTITY SHEET

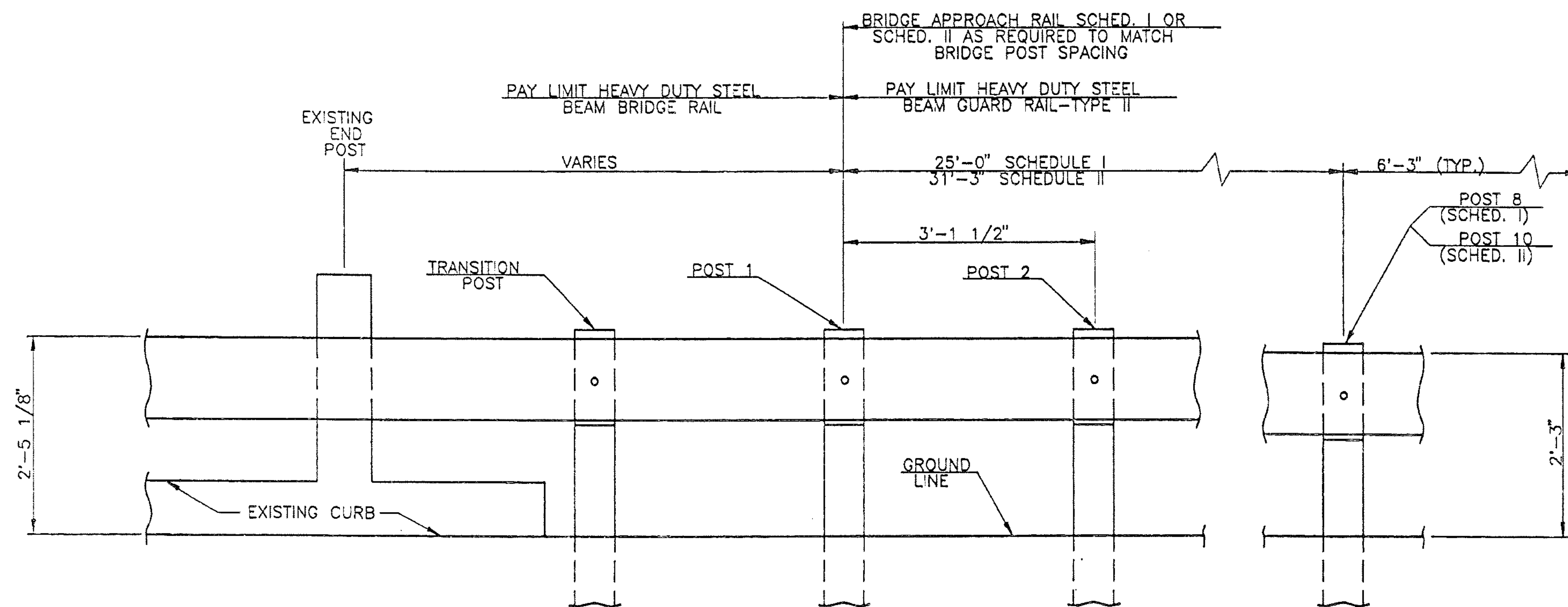
MILEMARKER	POS.	BRIDGE NO.	OFFSET BLOCK	525.41 MOD 3	621.20	621.21	621.50	621.60	525.10	REMARKS
3.890 - 3.918	LT.	15	W6x20	50'	25'	65	2		105	REMOVE EXIST. BEAM GUARD RAIL; INSTALL 50 LF OF BRIDGE RAIL, HEAVY DUTY STEEL BEAM FASCIA MOUNTED (MOD. 3), 50 LF OF NEW H.D. STEEL BEAM GUARD RAIL WITH STEEL POSTS (BR. APPROACH SCHEDULE I) 50 LF OF NEW STEEL BEAM GUARDRAIL WITH STEEL POSTS AND BCT'S AT MM'S 3.890 & 3.918.
3.890 - 3.918	RT.	15	W6x20	50'	25'	65	2		100	
SHEET TOTAL					100'	50'	130	4	205	

### NOTES

1. BRIDGE RAIL SHALL BE HEAVY DUTY STEEL BEAM RAIL.
2. BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY RAIL HEIGHT IN 25 FEET.
3. 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.
4. SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
5. SEE STANDARD SHEET G-1 FOR DELINEATOR DETAILS AND PLACEMENT.
6. ERECT DELINEATORS ON EVERY FIFTH POST OR APPROXIMATELY 30 FEET APART. PAYMENT SHALL BE SUBSIDIARY TO THE APPROPRIATE RAIL ITEM.

### 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.



BRIDGE APPROACH RAILING

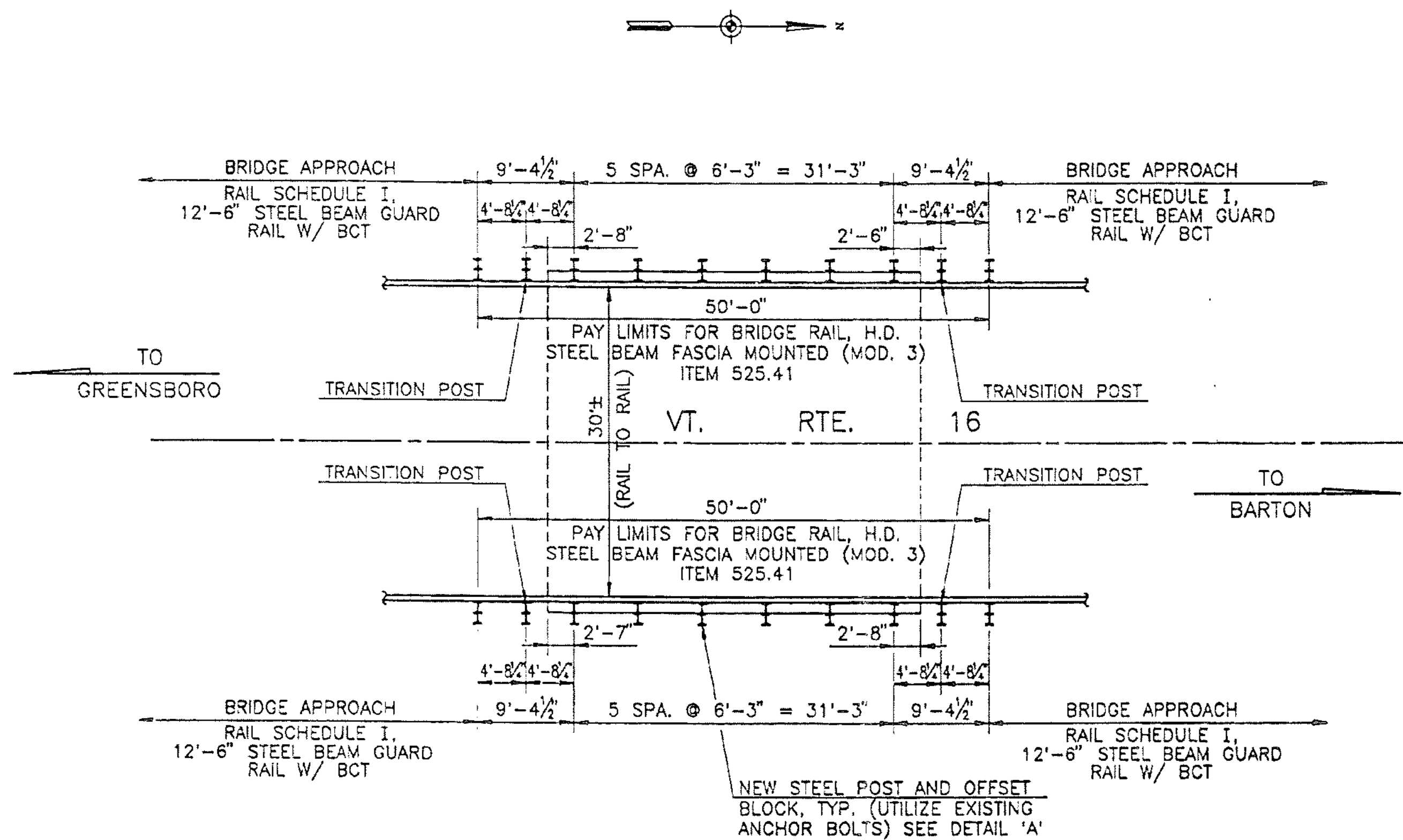
SCHEDULE I		
POST NO.	SPACING	PAYMENT FACTOR
1	3'-11/2"	1.4 x 12'-6"
2	3'-11/2"	
3	3'-11/2"	
4	3'-11/2"	
5	4'-2"	1.2 x 12'-6"
6	4'-2"	
7	4'-2"	
8	6'-3" (TYP.)	1.0 (TYP.)
9	6'-3" (TYP.)	

SCHEDULE II		
POST NO.	SPACING	PAYMENT FACTOR
1	3'-11/2"	1.4 x 18'-9"
2	3'-11/2"	
3	3'-11/2"	
4	3'-11/2"	
5	3'-11/2"	
6	4'-2"	1.2 x 12'-6"
7	4'-2"	
8	4'-2"	
9	4'-2"	
10	4'-2"	
11	6'-3" (TYP.)	1.0 (TYP.)

**BRIDGE DETAIL  
SHEET #1**

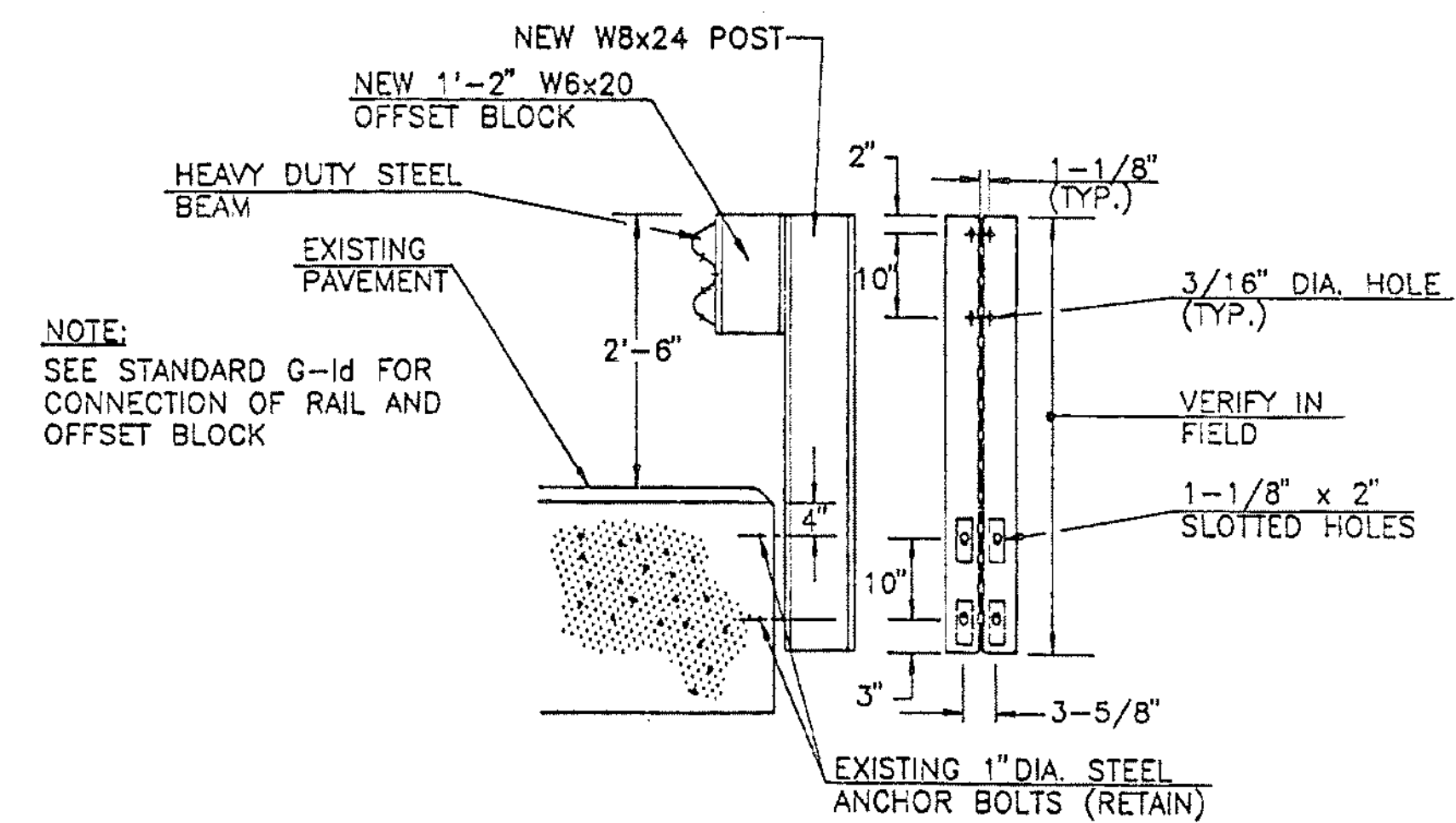
SURVEYED BY	N/A	DATE	N/A
DRAWN BY	JC	DATE	03/93
SQUAD LEADER			
DESIGN FILE NO.			
IPARM FILE		DATE PLOTTED	
PROJ. NAME	GLOVER		
PROJ. NO.	STP 9435(1)S		
SHEET	08 OF	SHEETS	

HTA FILE: GLVBRDTL



**BRIDGE NO. 15 @ MM 3.920 (3.904 IN FIELD)**

SCALE : 1" = 10'



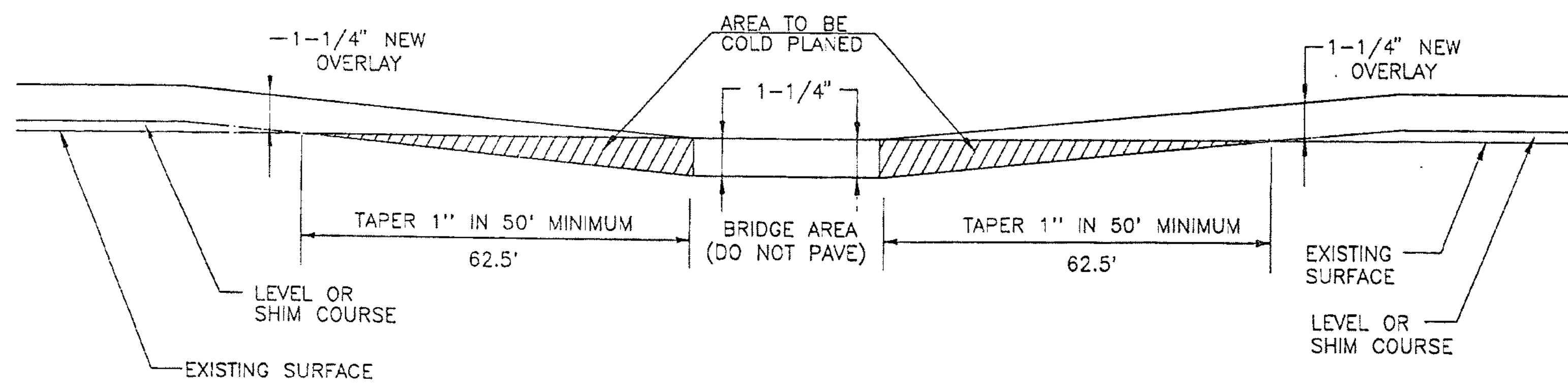
**FASCIA MOUNTED STEEL POST DETAIL  
DETAIL 'A'**  
N.T.S.

**NOTES**

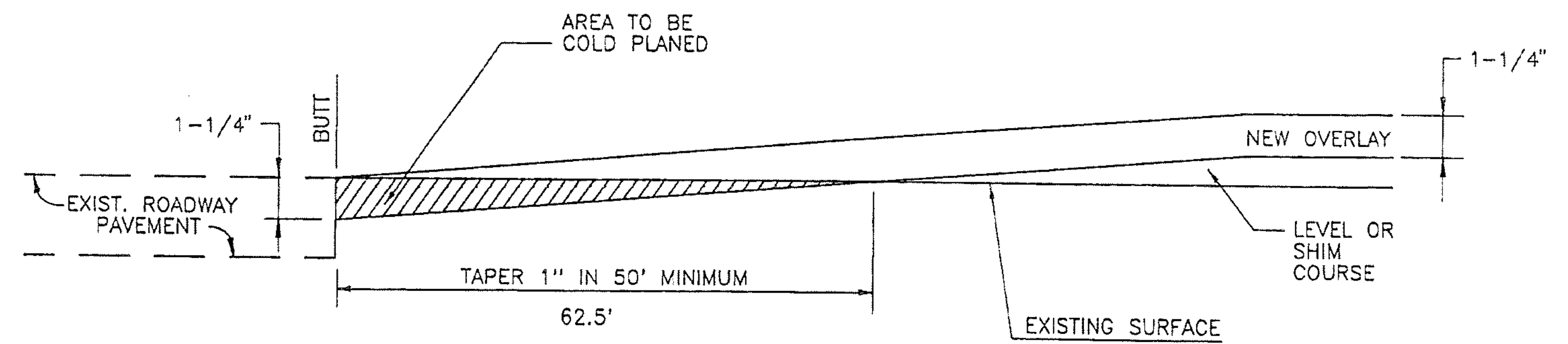
1. SEE STANDARD DRAWING G-1 & G-1d FOR ADDITIONAL DETAILS OF STEEL BEAM GUARD RAIL.
2. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND CONFORM TO SECTION 714.16.
3. HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M 180, CLASS B-TYPE 2. POSTS AND PLATE WASHERS SHALL BE ASTM A 36 STEEL. BOLTS SHALL BE ASTM A 307. ALL MATERIAL SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 728.
4. ALL BRIDGE POSTS, HEAVY DUTY STEEL BEAM BRIDGE RAIL, OFFSET BLOCKS AND RELATED HARDWARE SHALL BE PAID UNDER ITEM 525.41 (MOD. 3) BRIDGE RAIL, HEAVY DUTY STEEL BEAM FASCIA MOUNTED.
5. REMOVAL AND DISPOSAL OF EXISTING BRIDGE RAIL AND POSTS SHALL BE PAID UNDER ITEM 621.80 REMOVAL AND DISPOSAL OF GUARDRAIL.
6. ALL POSTS SHALL BE SET NORMAL TO GRADE.
7. BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY RAIL HEIGHT IN 25 FEET.
8. 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.
9. SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
10. SEE STANDARD SHEET G-1 FOR DELINEATOR DETAILS AND PLACEMENT.
11. ERECT DELINEATOR ON EVERY FIFTH POST OR APPROXIMATELY 30 FEET APART. PAYMENT SHALL BE SUBSIDIARY TO THE APPROPRIATE RAIL ITEM.

<b>BRIDGE DETAIL SHEET #2</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPRAM FILE		DATE PLOTTED	
	PROJ. NAME	GLOVER		
PROJ. NO.	STP 9435(1)S			
SHEET	09	OF	SHEETS	

HTA FILE: GLVBROT2



**BRIDGE DETAIL**  
 BRIDGE NO. 15, MM 3.920 (3.904 IN FIELD)

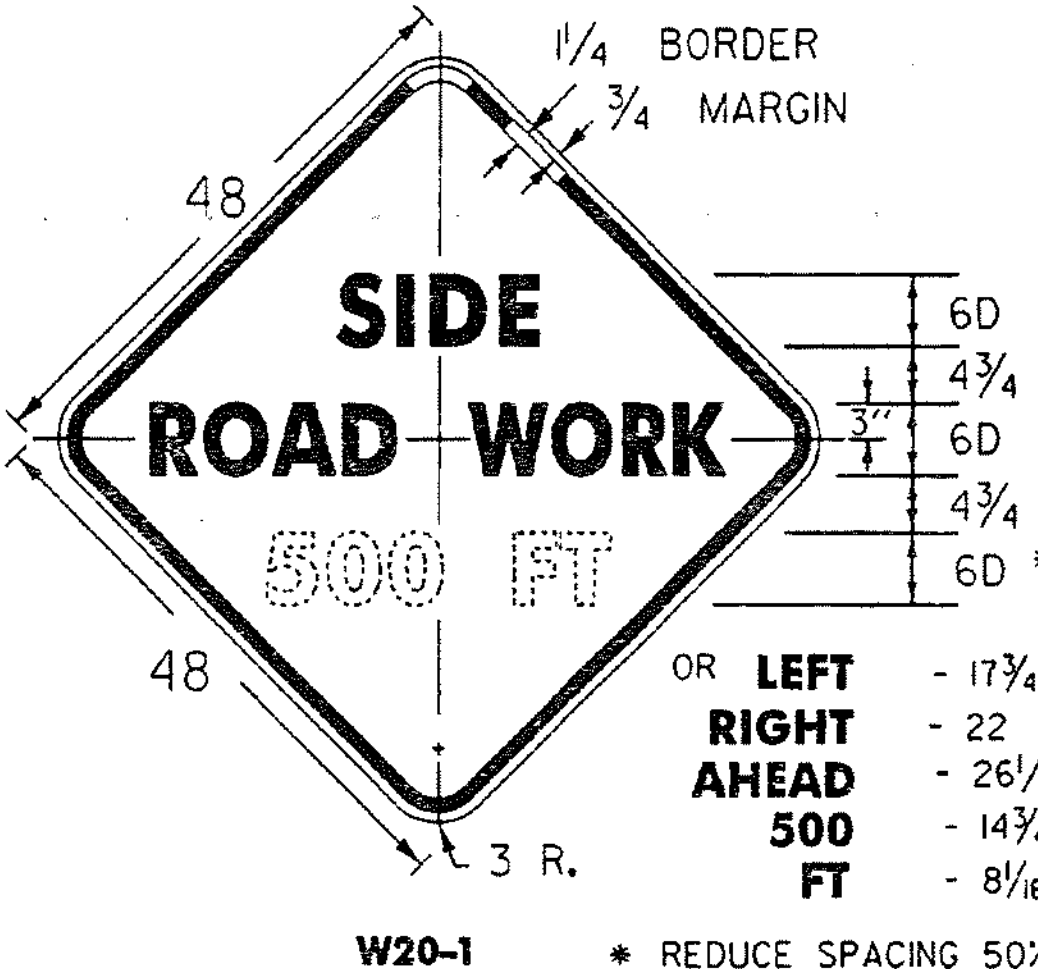
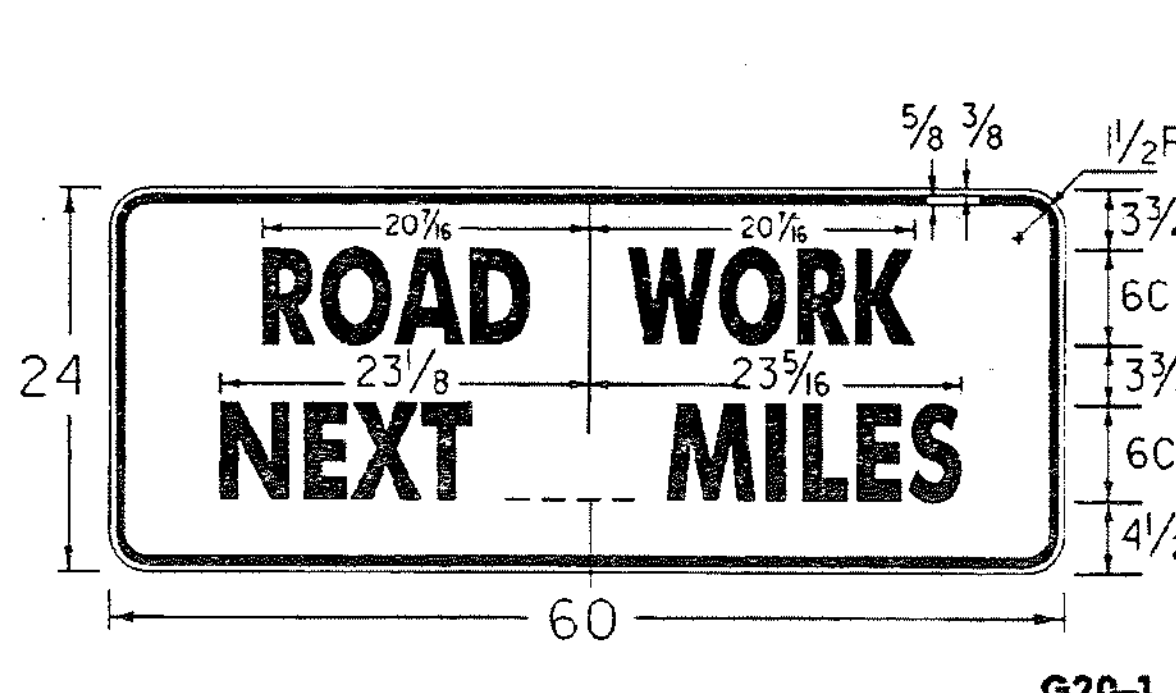
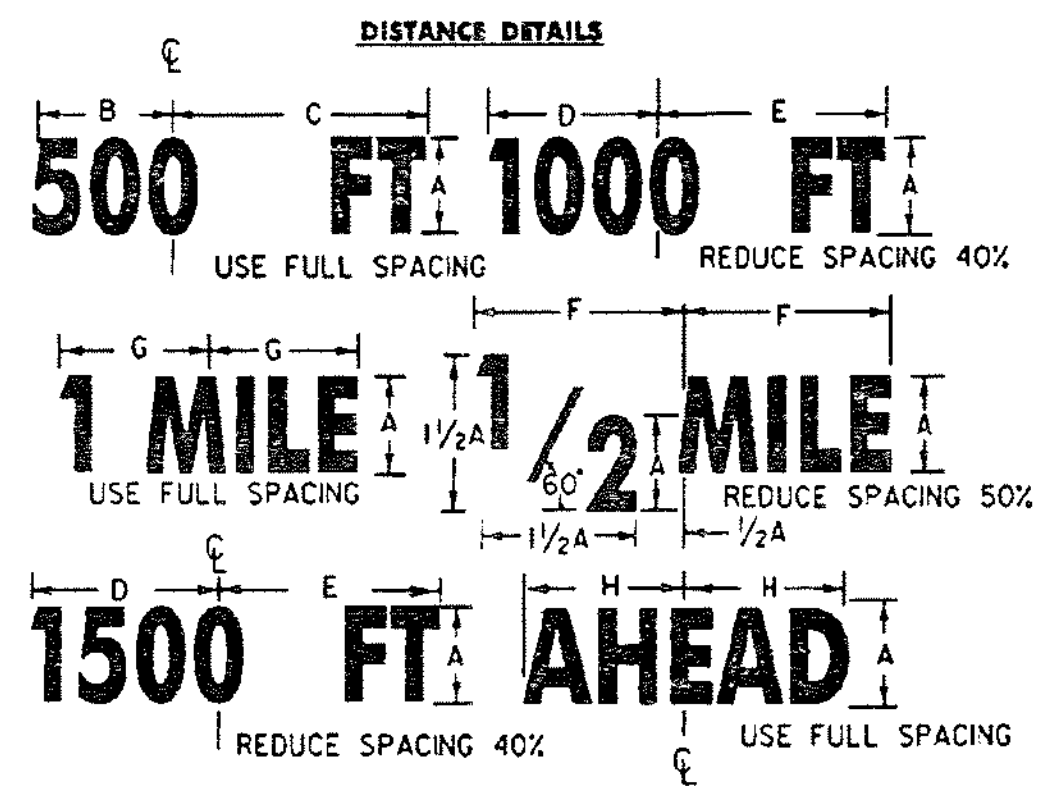
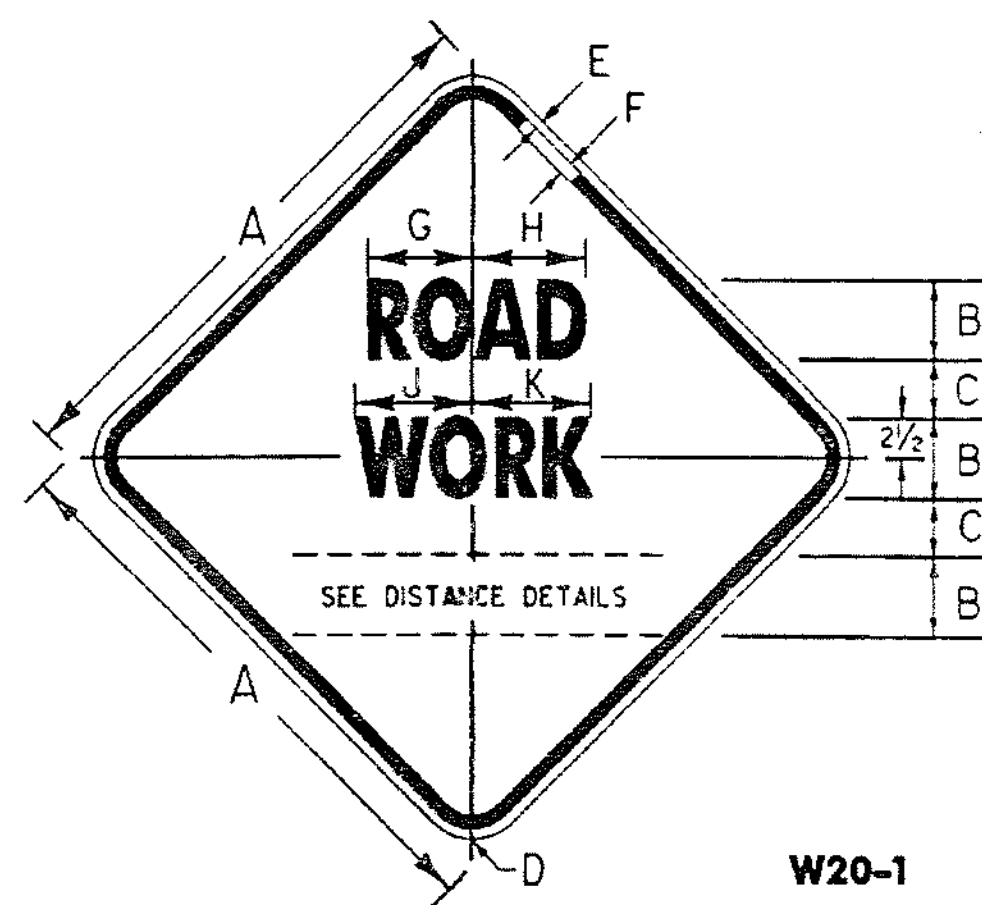


**APPROACH AREA DETAIL**  
 MM'S. 2.815 & 4.499

**COLD PLANING DETAILS**  
 (FULL ROADWAY WIDTH)  
 N.T.S.

DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

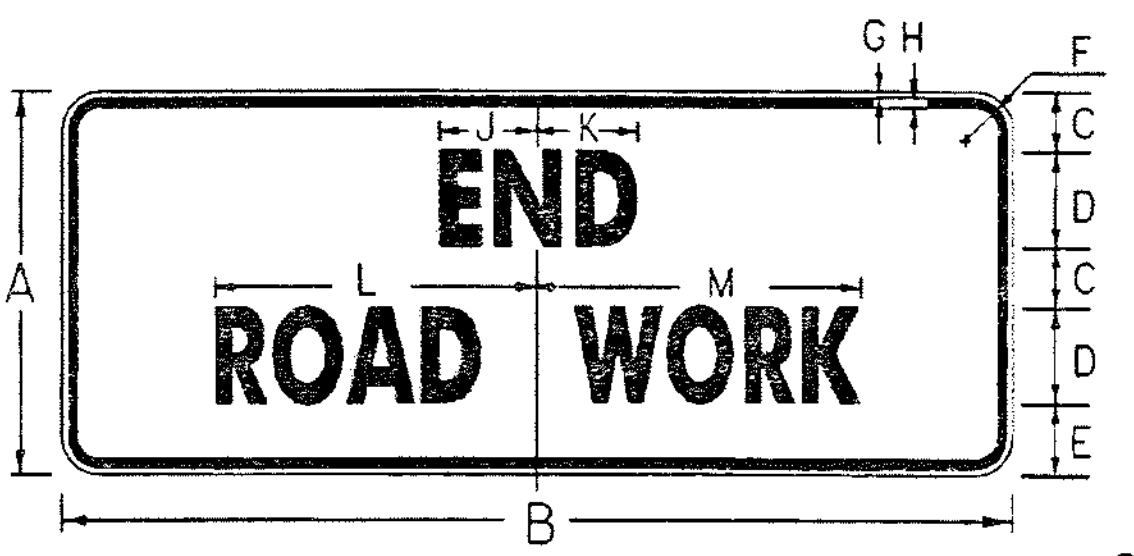
<b>PROJECT DETAIL SHEET</b>	SURVEYED BY	N/A	DATE	N/A
	DRAWN BY	WBL	DATE	03/93
	SQUAD LEADER			
	DESIGN FILE NO.			
	IPARM FILE		DATE PLOTTED	
	PROJ. NAME	GLOVER		
	PROJ. NO.	STP 9435(1)S		
	SHEET 10 OF		SHEETS	
	HTA FILE:	GLVDETLS		
		SHEET 44 OF 44		



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 3/8	10 1/2	10 3/8
URBAN		36	5C	3 3/8	2 1/4 R.	3/8	1 1/8	6 3/8	7 1/8	7 1/2	7 3/8

DIMENSIONS (INCHES)		A	B	C	D	E	F	G	H
5D		10 3/8	10 3/8	11 3/8	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	5/8	6 1/4	6 3/8	20 1/16	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)

**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 GAGE

**REFLECTORIZATION**

ALL REFLECTORIZED MATERIAL SHALL CONSIST OF TYPE 11B OR TYPE 111 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.

**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.

**NOTES CONT.**

**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 IN BENDING "FB" DESIGN VALUE NOT TO EXCEED 1400 PSI AND HORIZONTAL SHEAR "FV" 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:

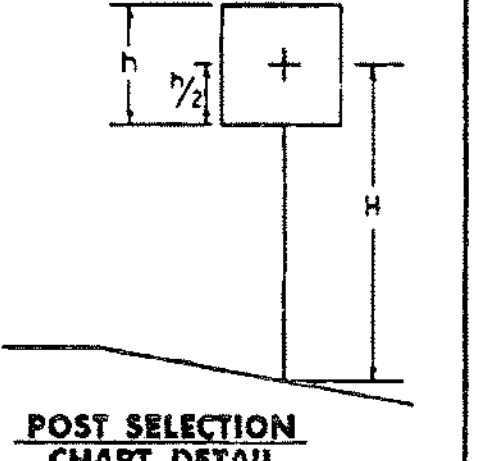
- 4' x 4' (ACTUAL DIMENSIONS ARE 3.5' x 3.5')
  - ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.
  - ACCEPTABLE FOR THREE POSTS (OR MORE) INSTALLATION ONLY WHEN THERE ARE NO MORE THAN TWO POSTS IN A 7 FOOT PATH.
- 4' x 6' (ACTUAL DIMENSIONS ARE 3.5' x 5.5')
  - ACCEPTABLE FOR 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.
  - 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')
  - 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.
  - 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')
  - 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.
  - 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	



**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

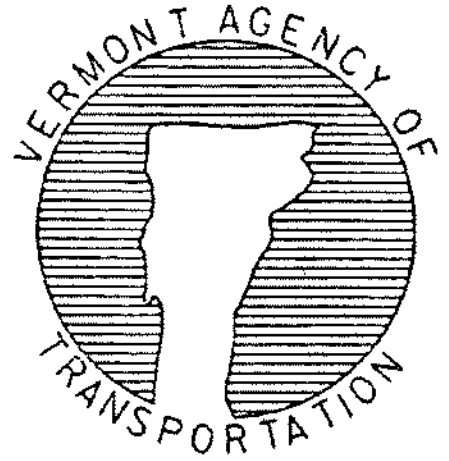
**APPROVED**

*Suzanne M. O'Brien*  
DIRECTOR OF ENGINEERING

*David A. Rose*  
TRAFFIC AND SAFETY ENGINEER

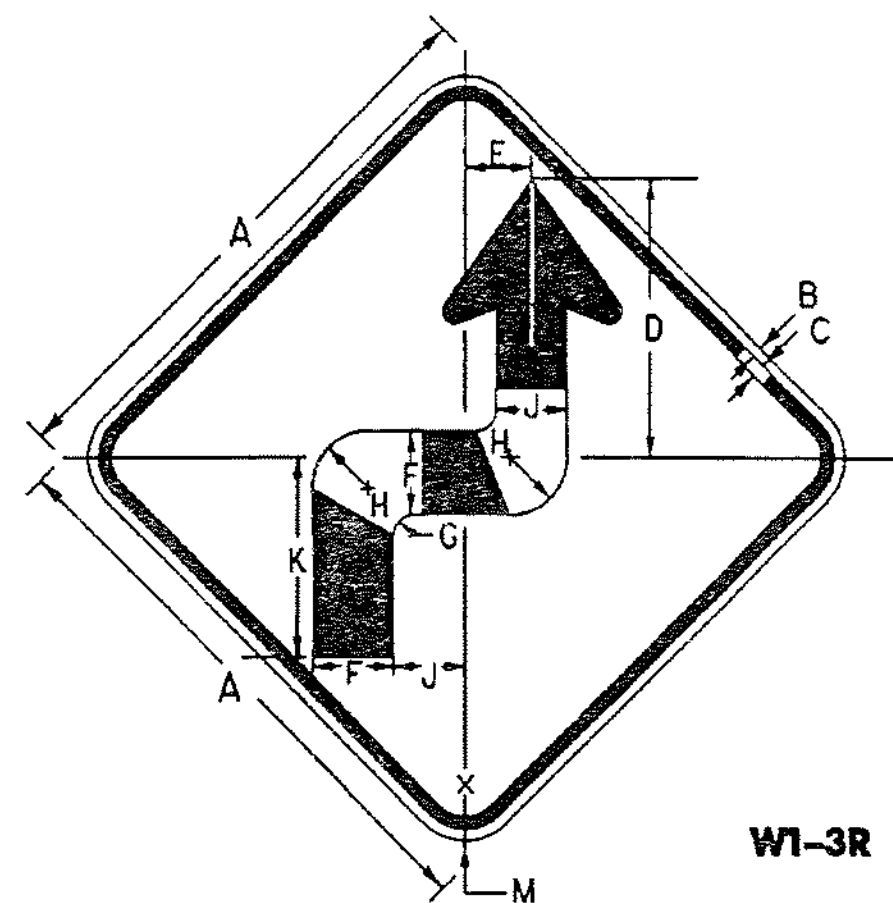
**CONSTRUCTION APPROACH SIGNS**

**OTHER STDS. REQUIRED:**

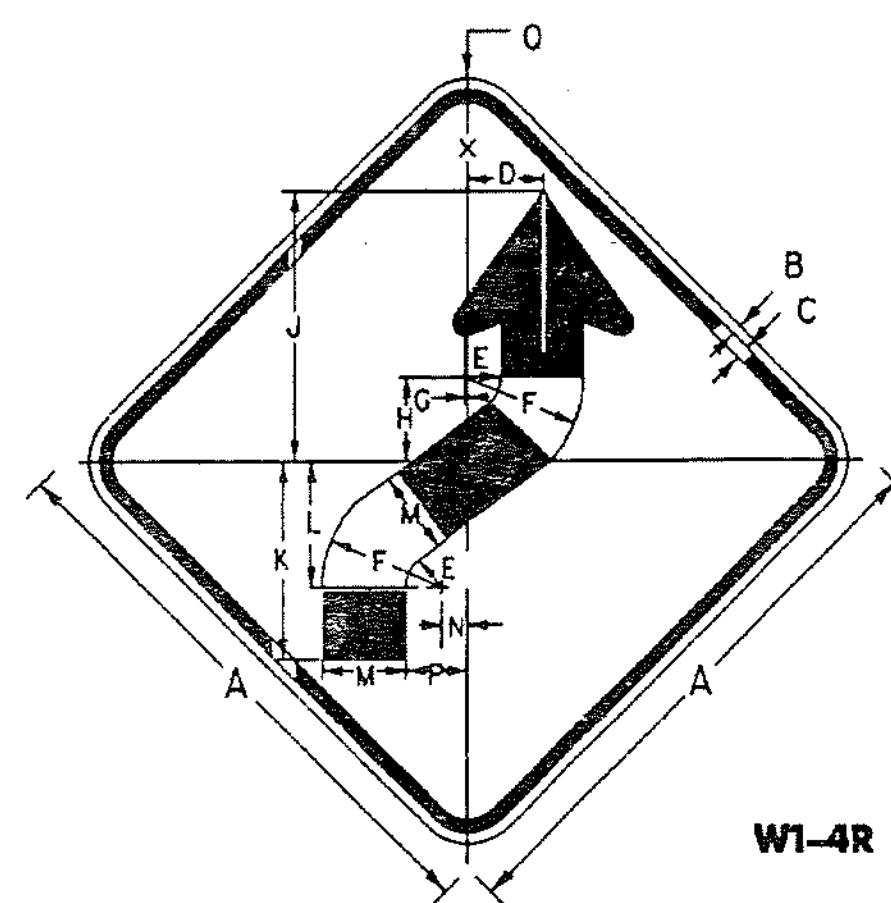


**STANDARD E-100**

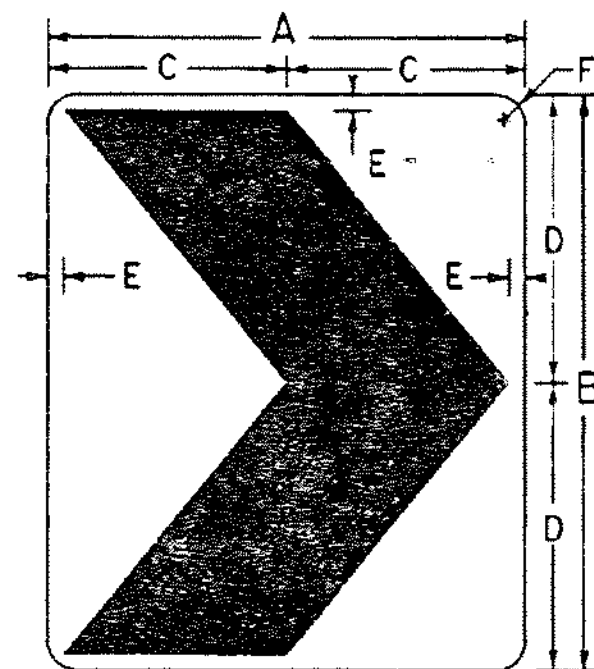
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



W1-3R

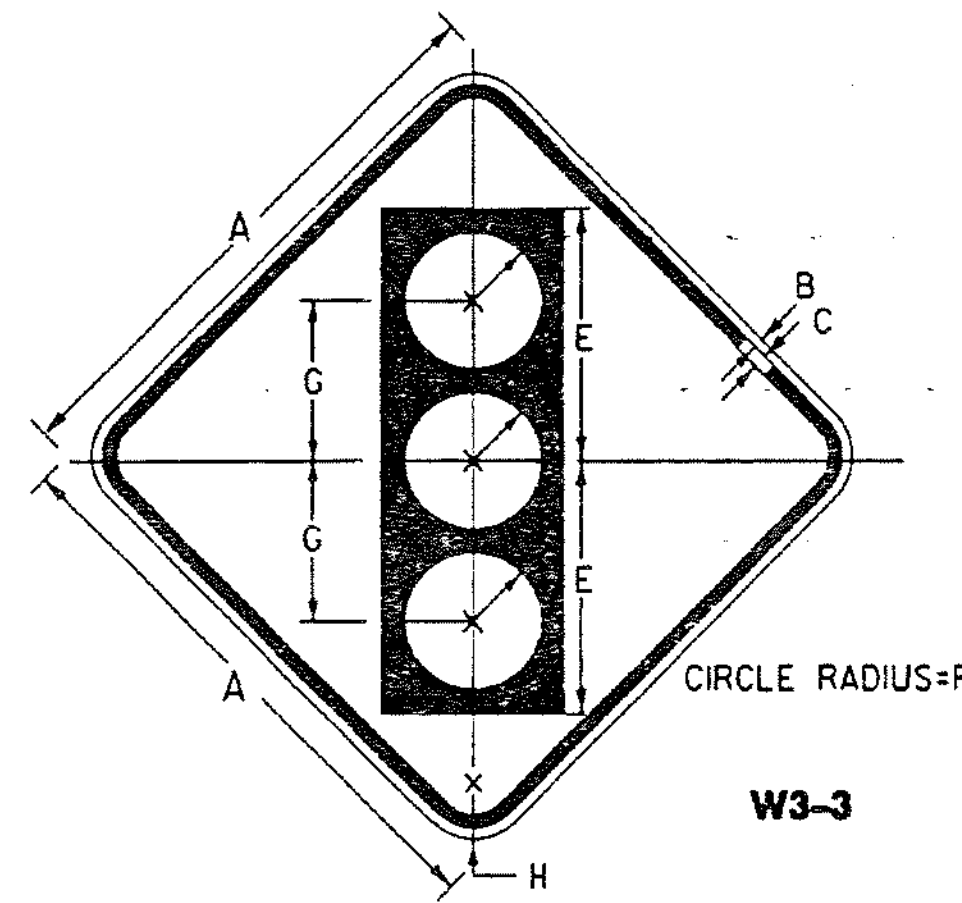


W1-4R



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	7/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FRWY.	36	48	18	24	1 1/8	2 1/4

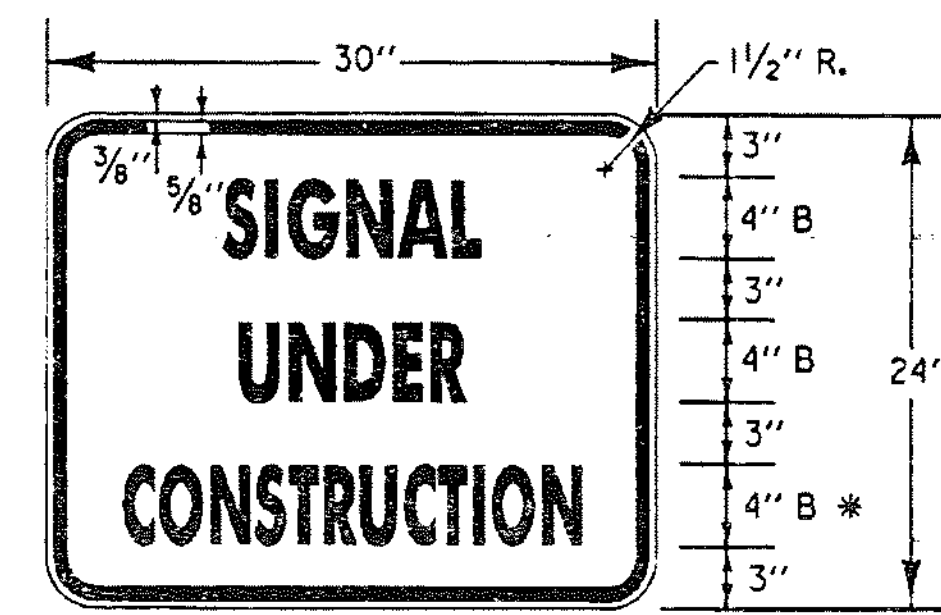


W3-3

SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
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

**COLORS**

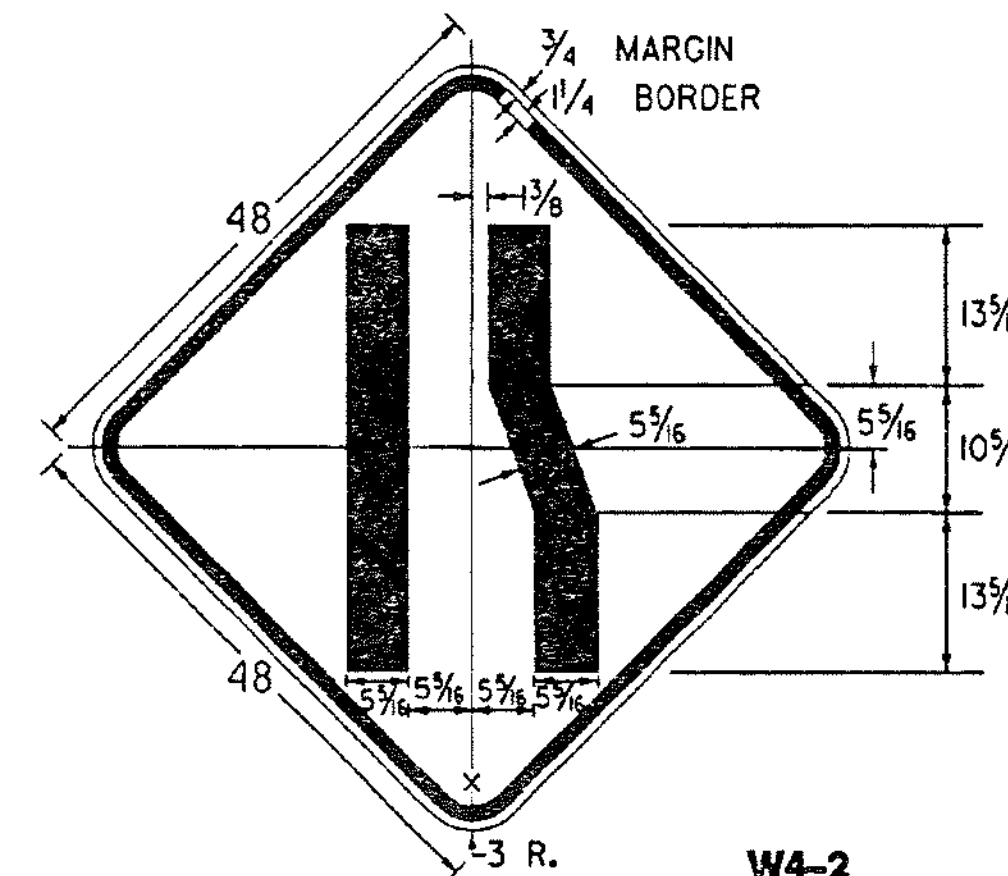
SYMBOL & LEGEND - BLACK (NON-REFL)  
 TOP CIRCLE RED (REFL)  
 MIDDLE CIRCLE YELLOW (REFL)  
 BOTTOM CIRCLE GREEN (REFL)  
 BACKGROUND - ORANGE (REFL)



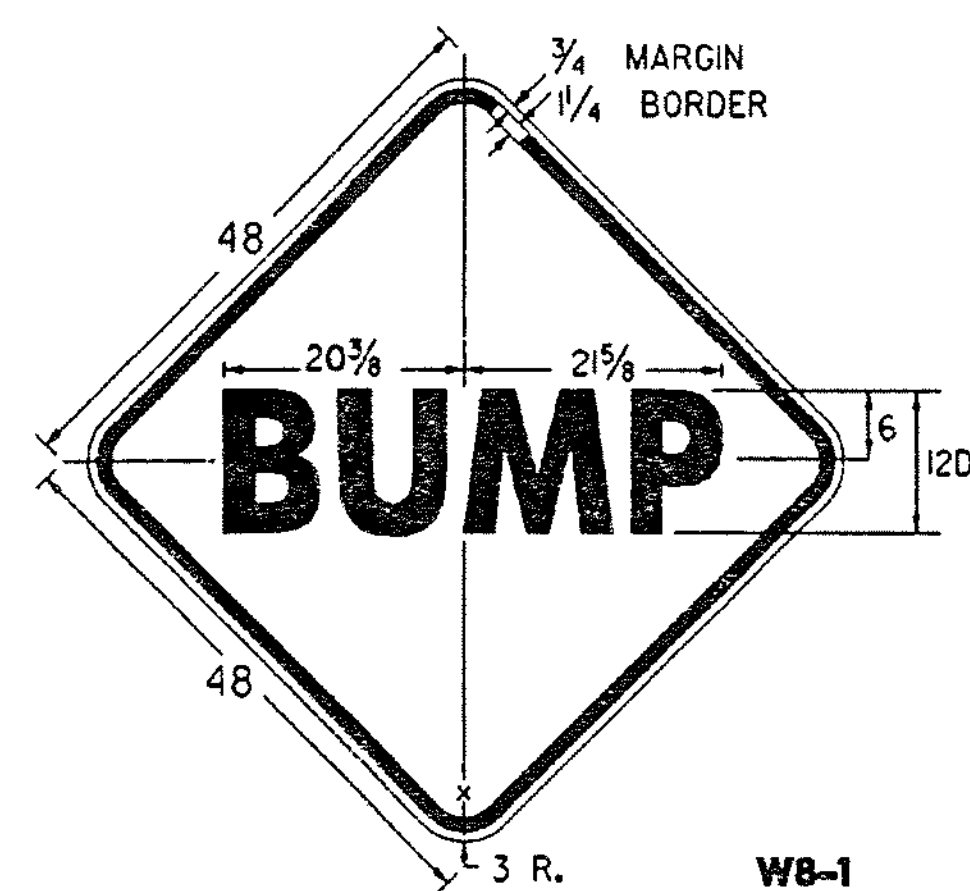
\* REDUCE SPACING 50%

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

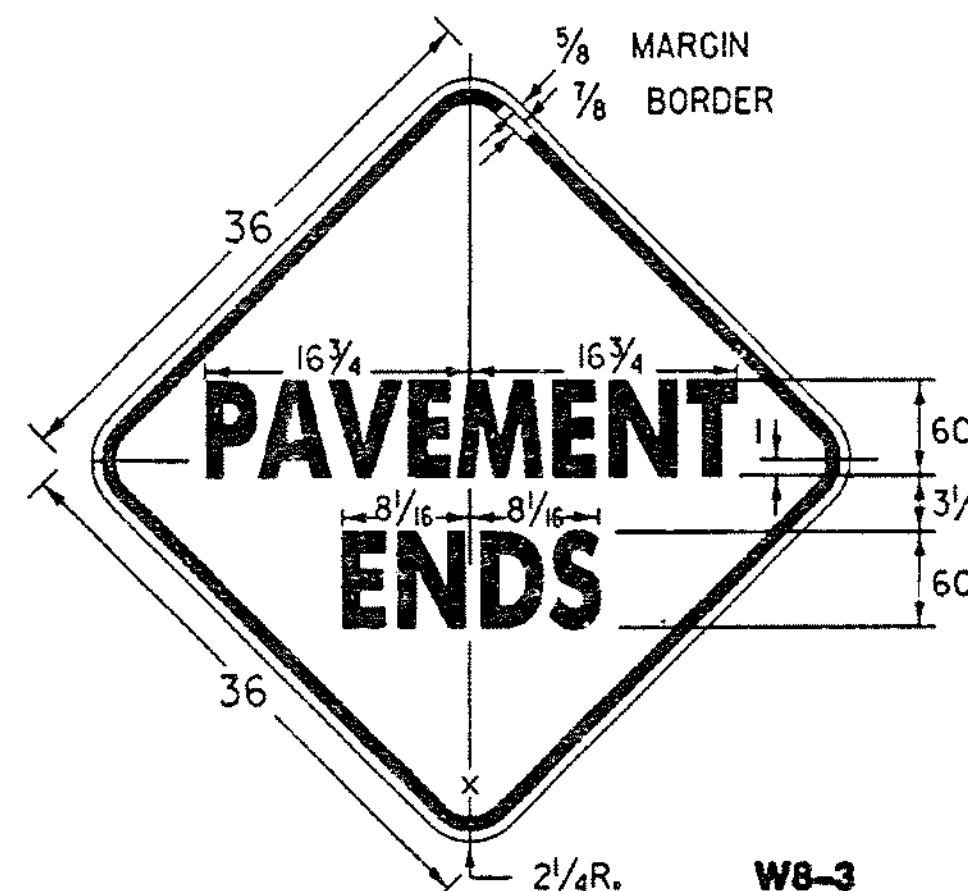
SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
STD. & MIN.	36	5/8	7/8	4 3/8	2 1/4	7 1/2	3/2	5 1/4	16 3/8	12 3/8	7 3/8	5 1/4	1 1/8	3 1/8	2 1/4
SPECIAL	48	3/4	1 1/4	6 5/8	3	10	3/8	7	22 1/2	16 1/2	10 1/2	7	2 1/4	5 1/4	3



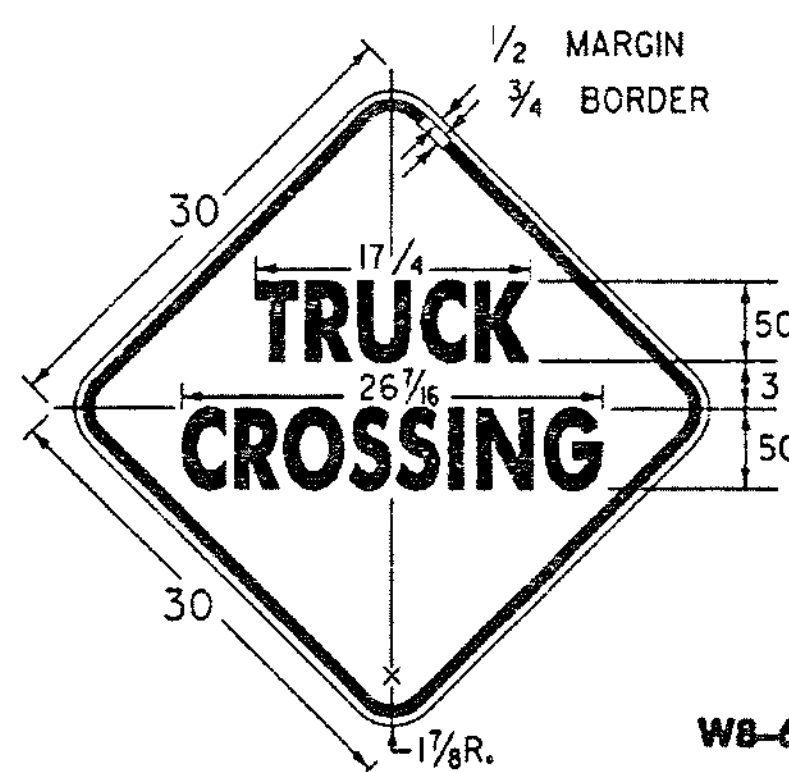
W4-2



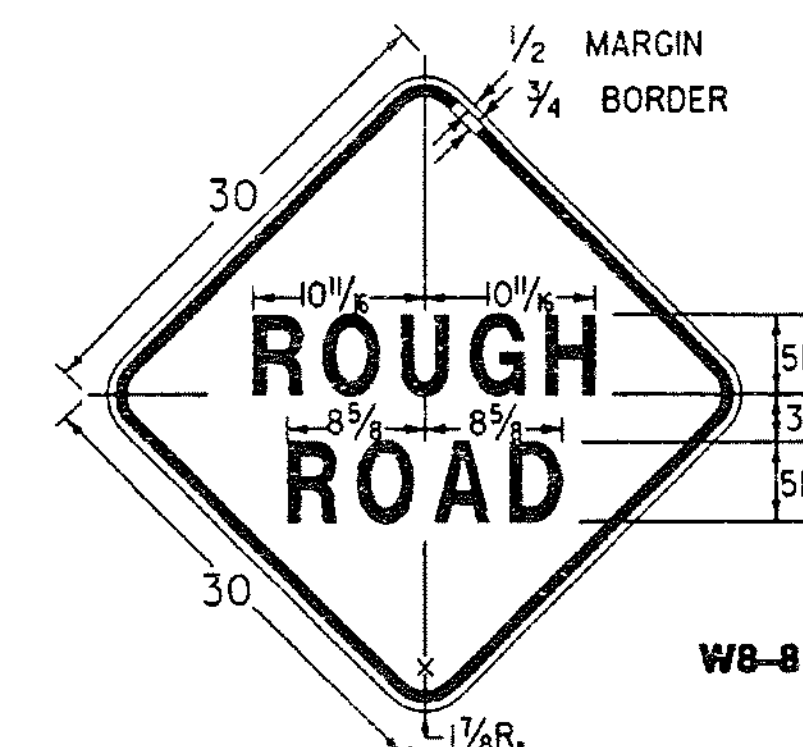
W8-1



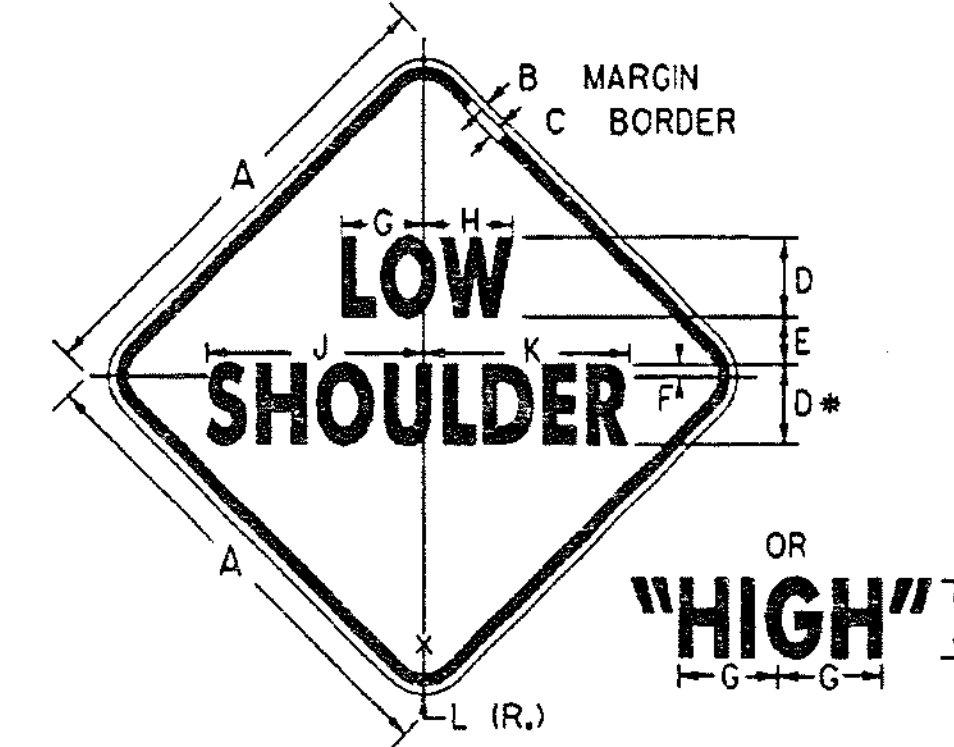
W8-3



W8-6



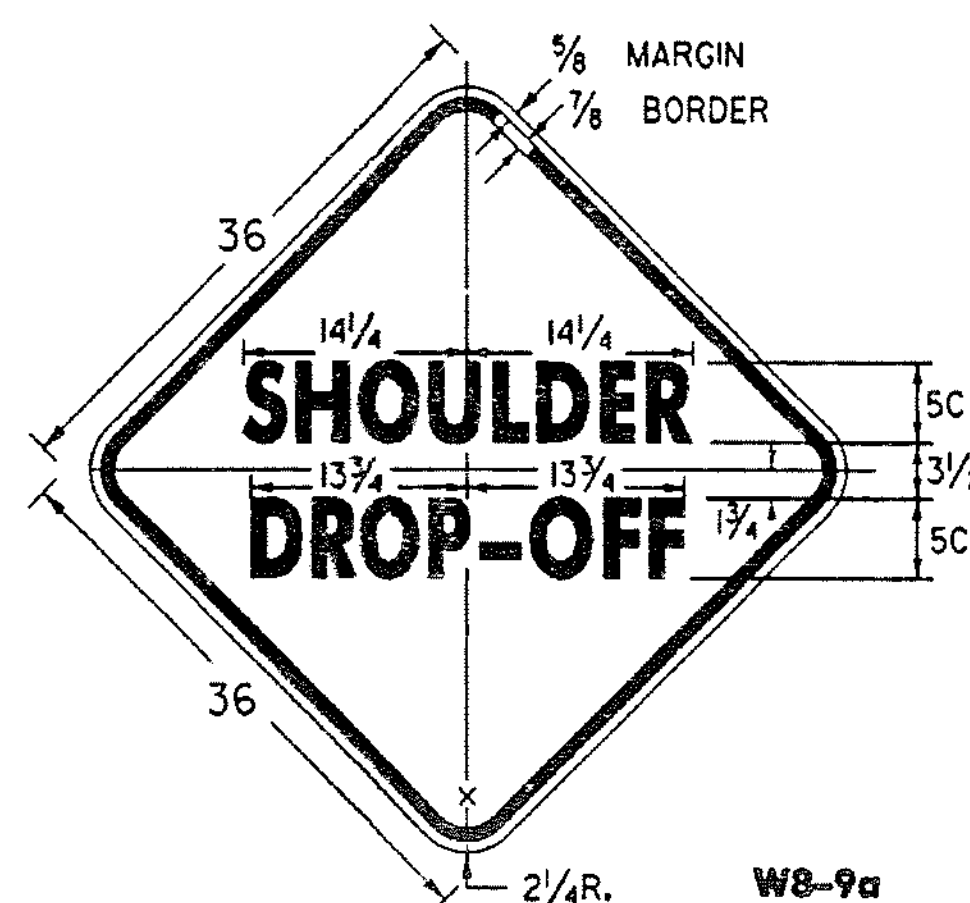
W8-8



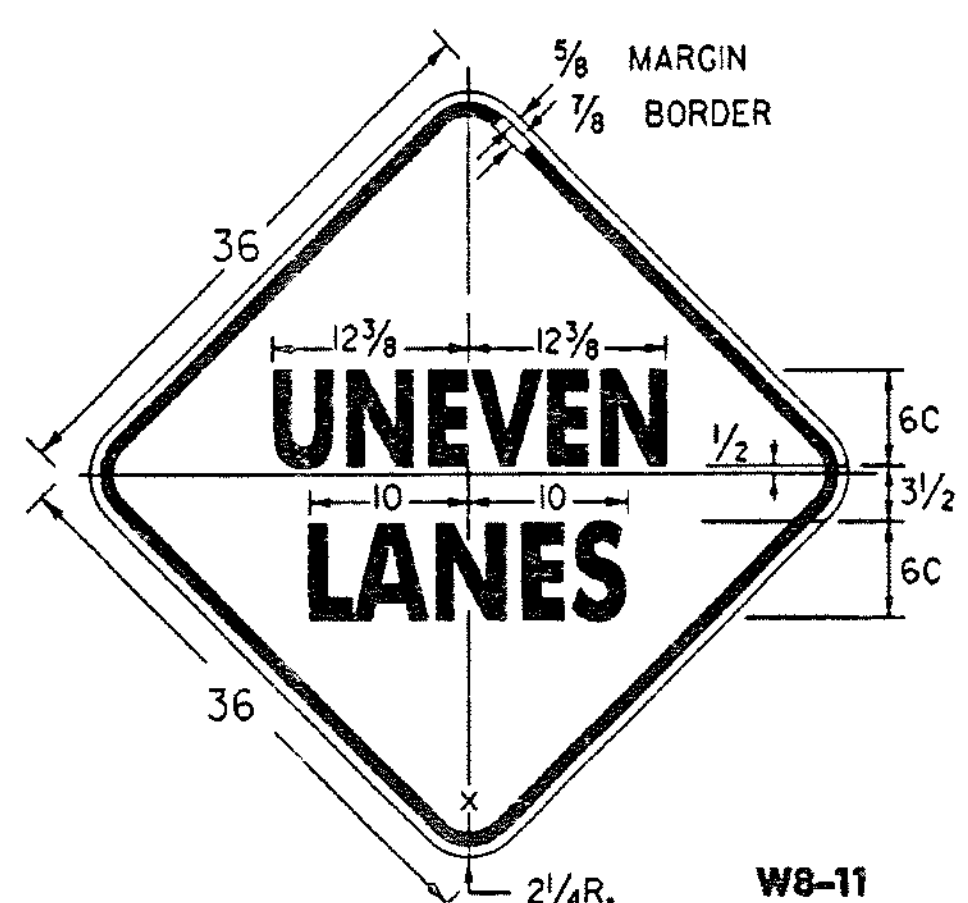
W8-9

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1 1/2	3/4	5C	3	3 1/4	5 3/8	5 5/8	13 3/8	13 3/8	1 3/4
FRWY.	48	3/4	1 1/4	8C	5	1 1/4	8 1/4	9	21 1/8	20 3/8	3

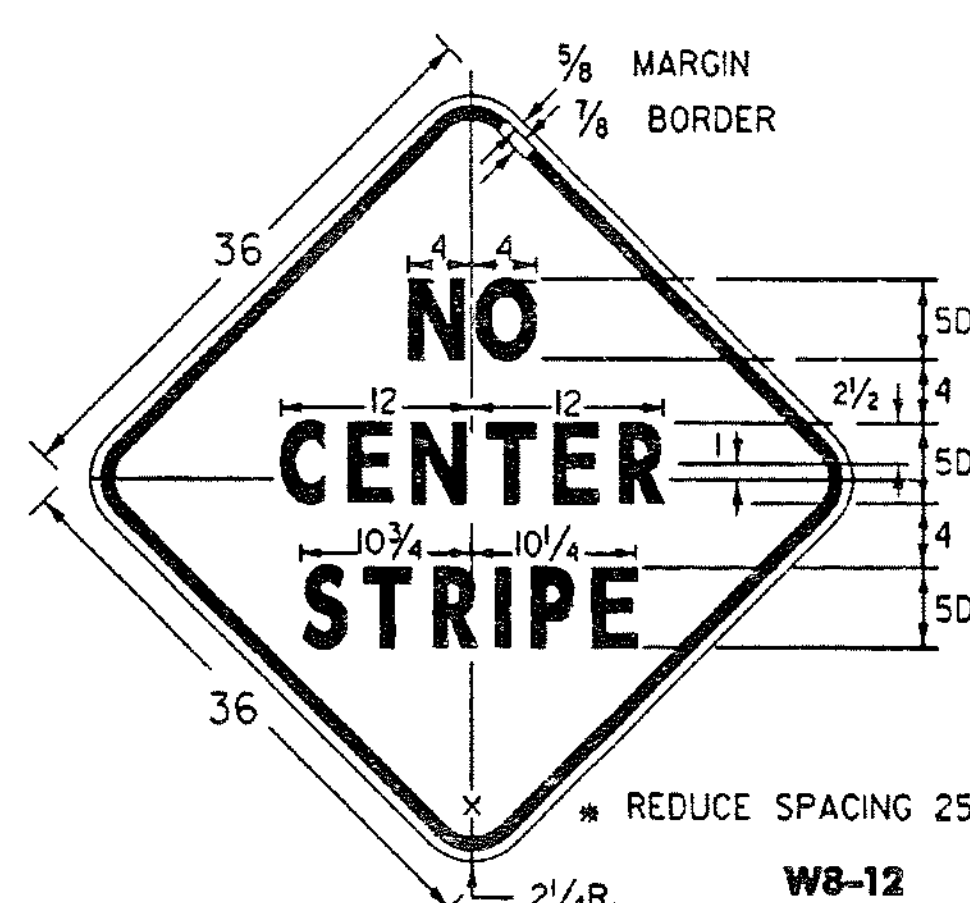
\* REDUCE SPACING 25%



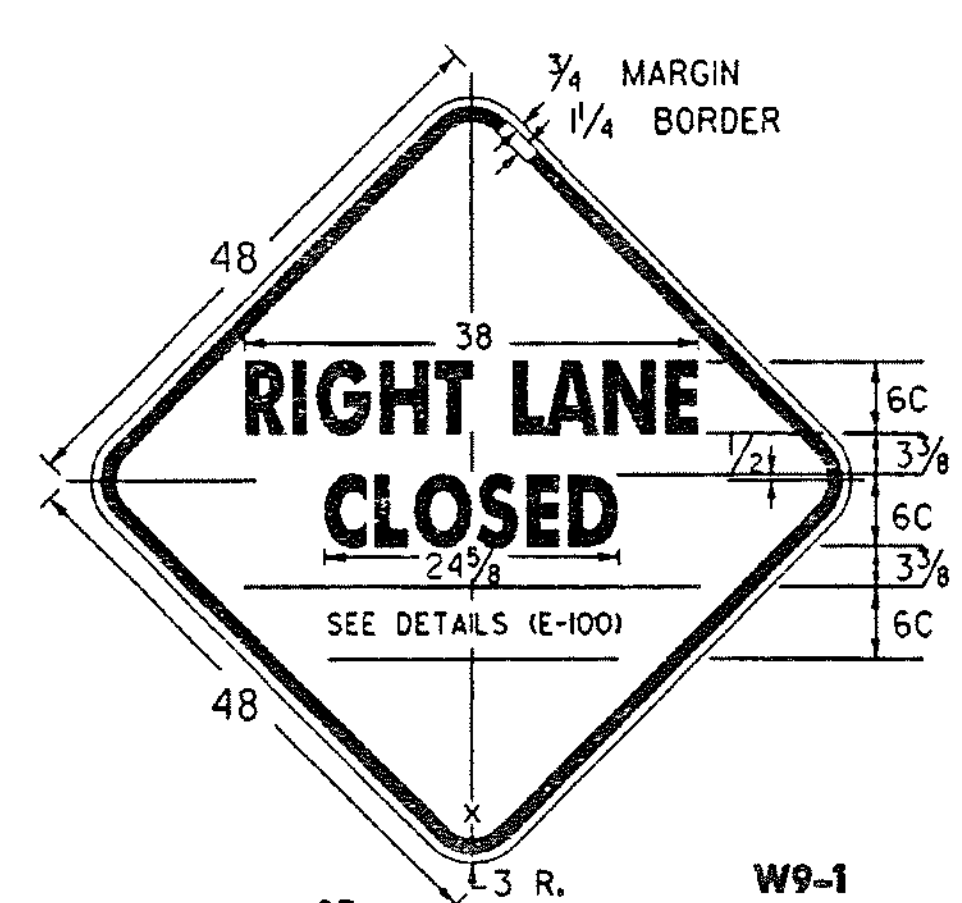
W8-9a



W8-11



W8-12



W9-1

(ALL DIMENSIONS SHOWN IN INCHES)

LEFT LANE

OTHER STDS. E-100 REQUIRED:

REVISIONS AND CORRECTIONS

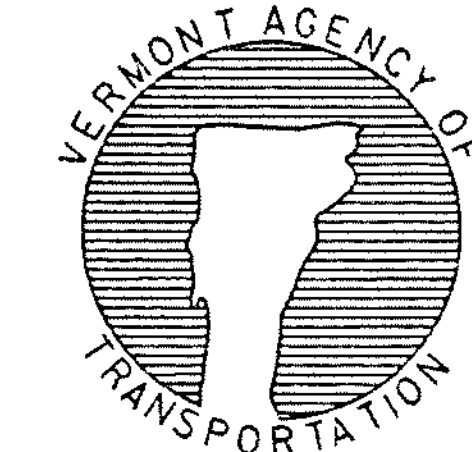
OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
 OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS, REVISED CHEVRON BACKGROUND TO ORANGE, & REVISED TITLE BLOCK  
 AUG. 08, 1995 - ADDED AND DELETED VARIOUS SIGN DETAILS

APPROVED

*Stephen D. MacArthur*  
 DIRECTOR OF ENGINEERING

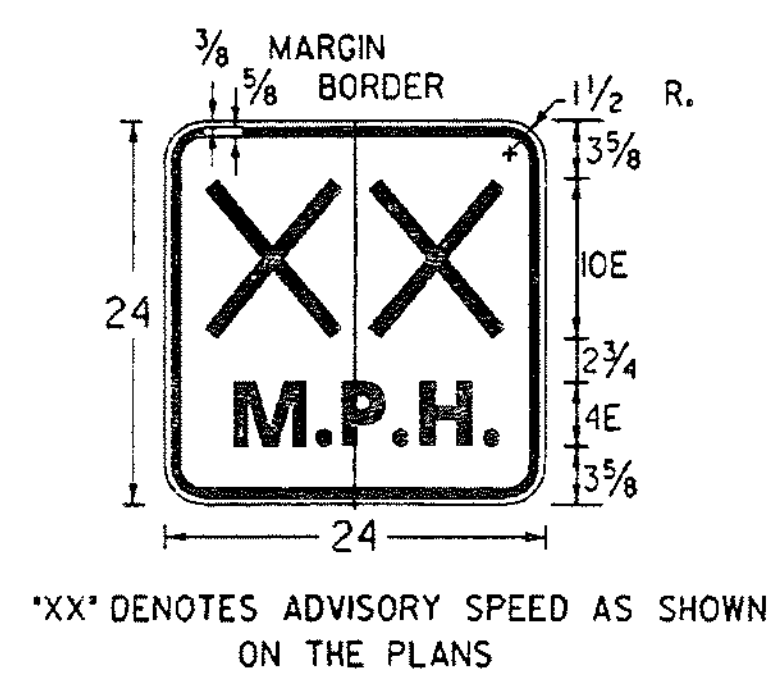
*Paul A. Ross*  
 TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN DETAILS

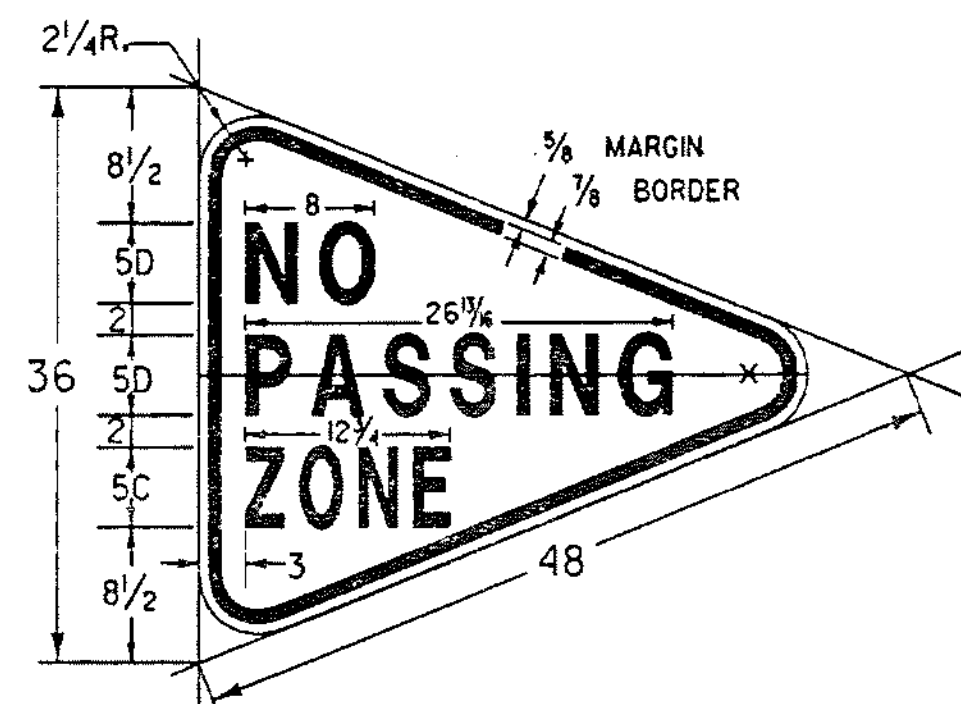


STANDARD E-101

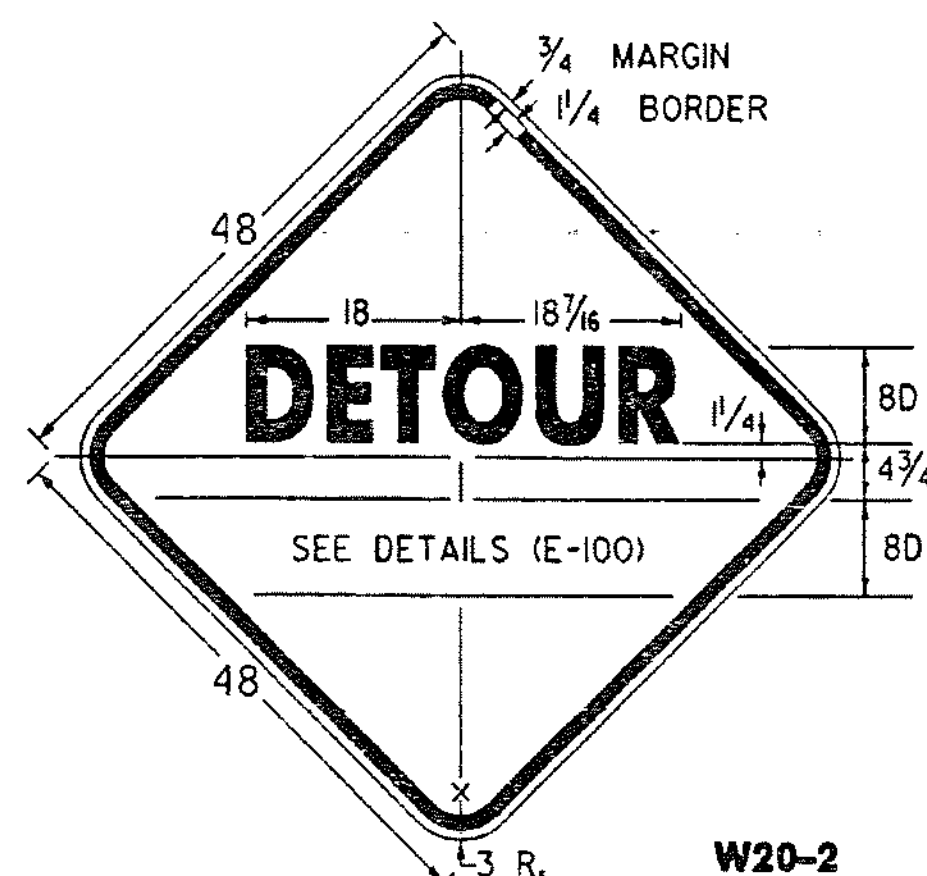
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



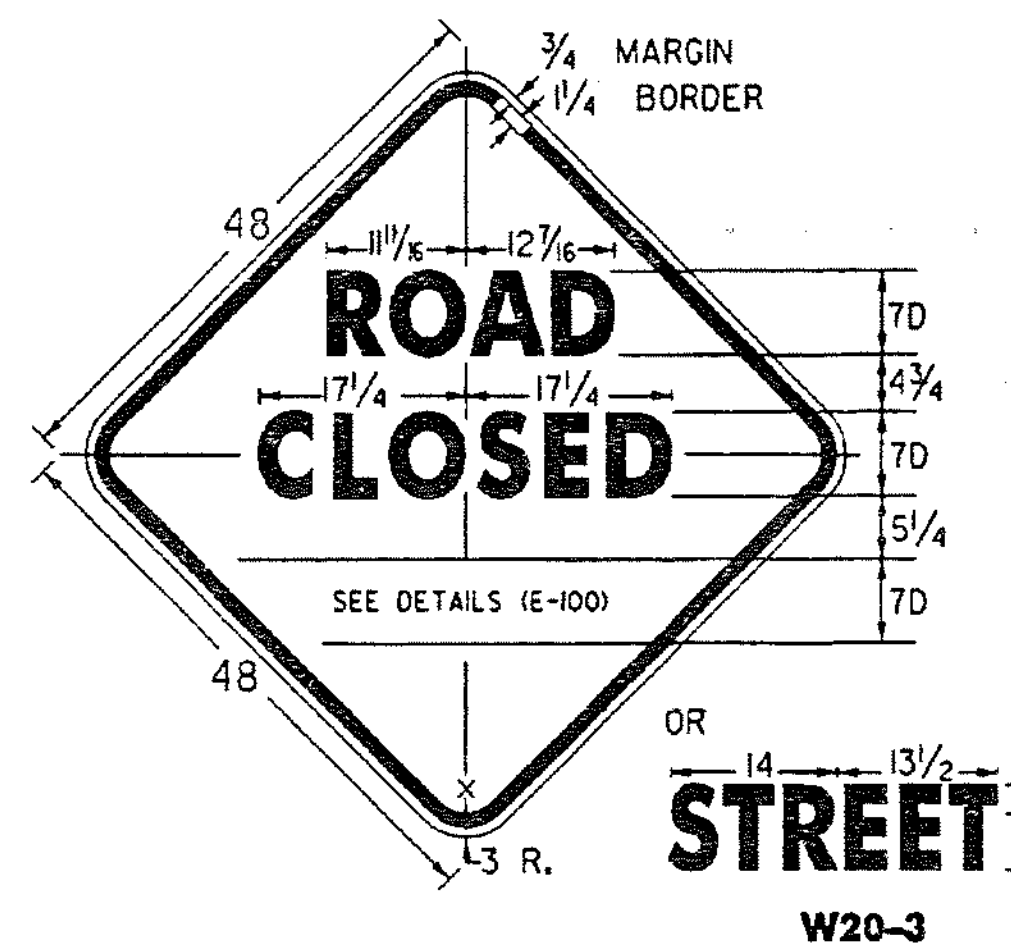
W13-1



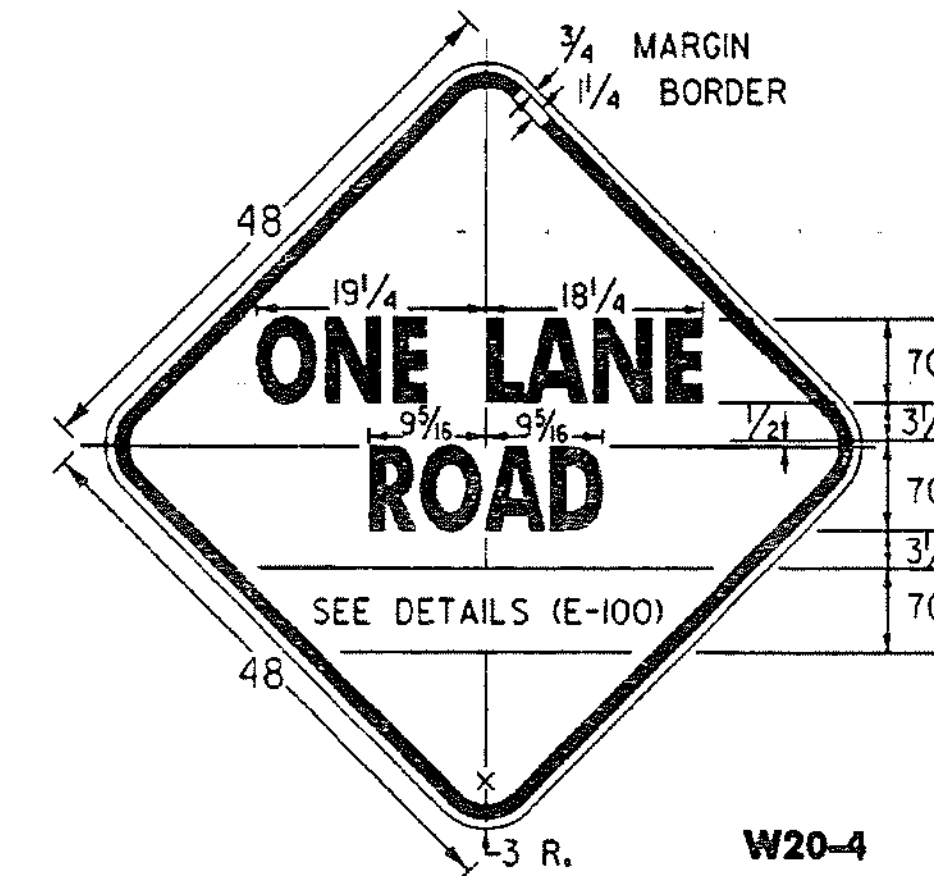
W14-3



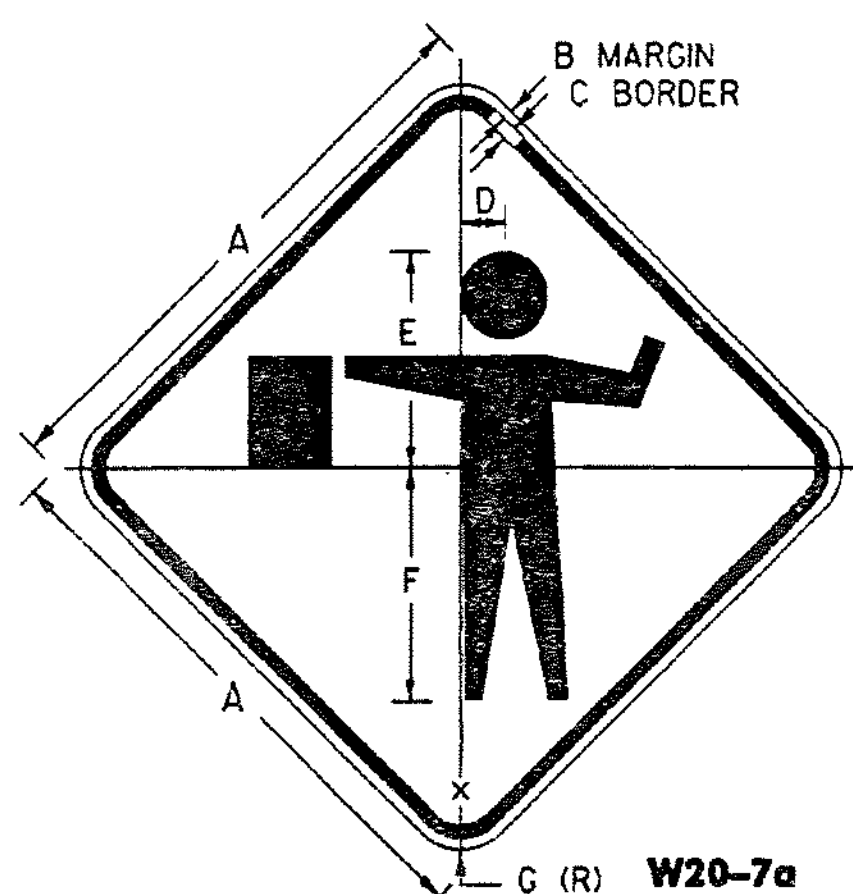
W20-2



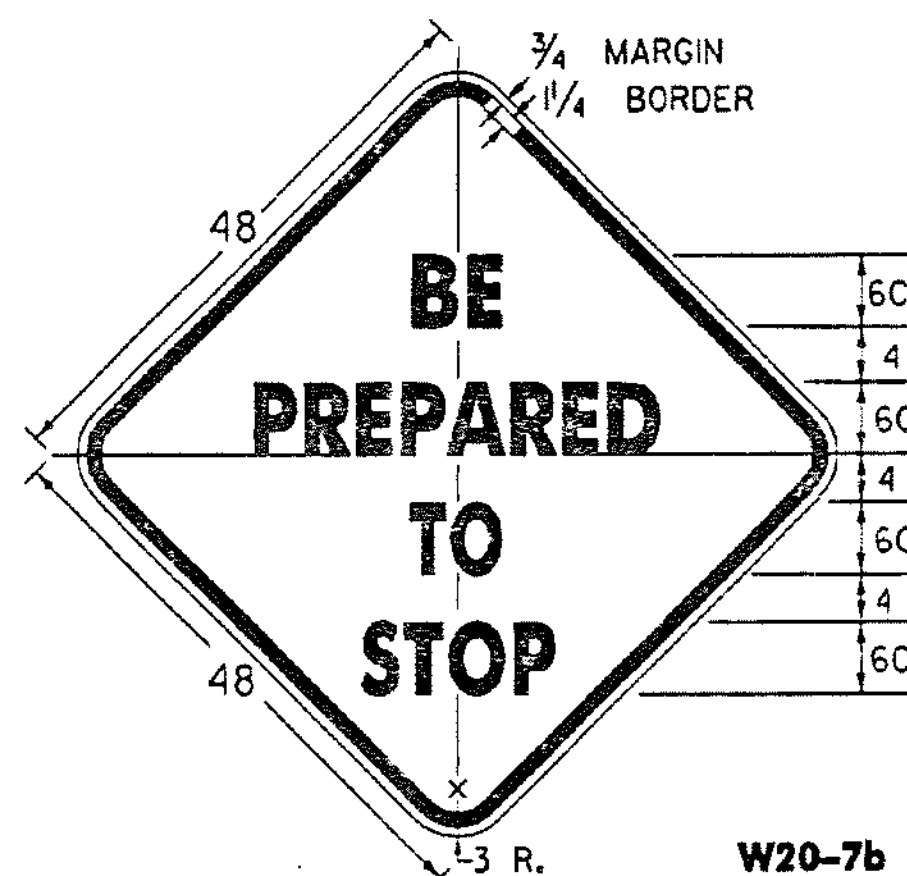
W20-3



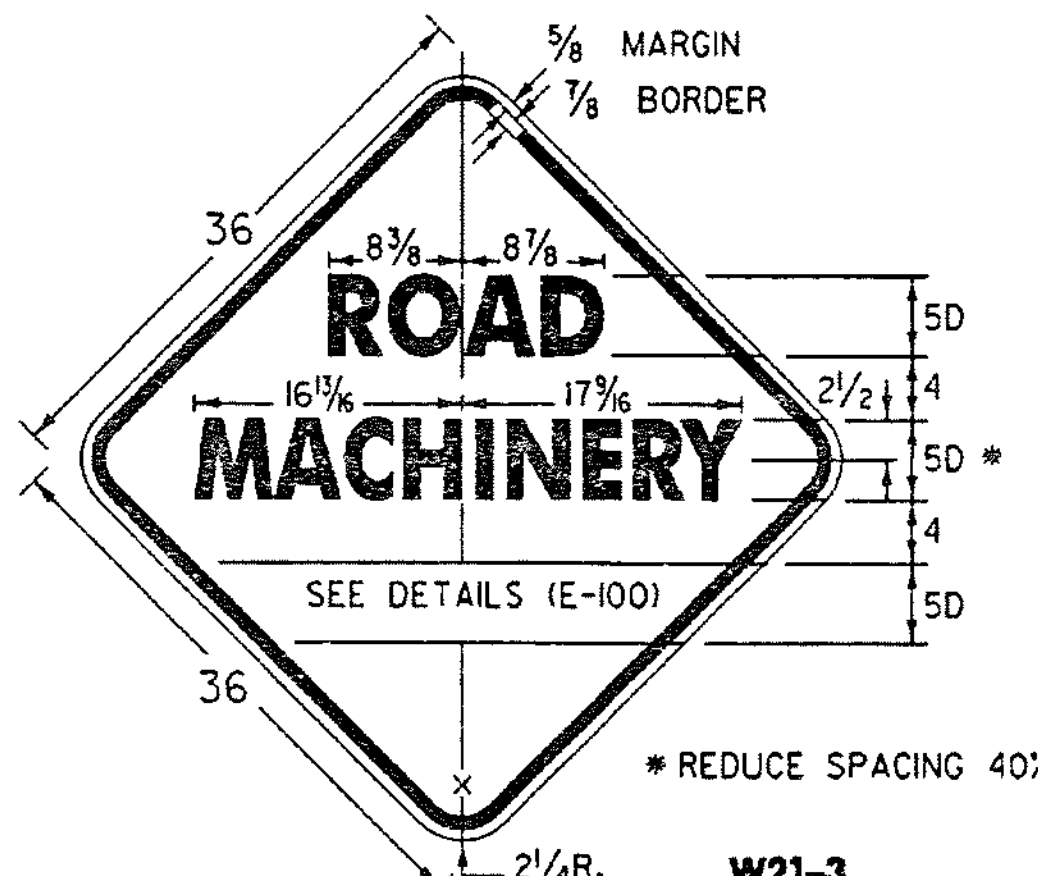
W20-4



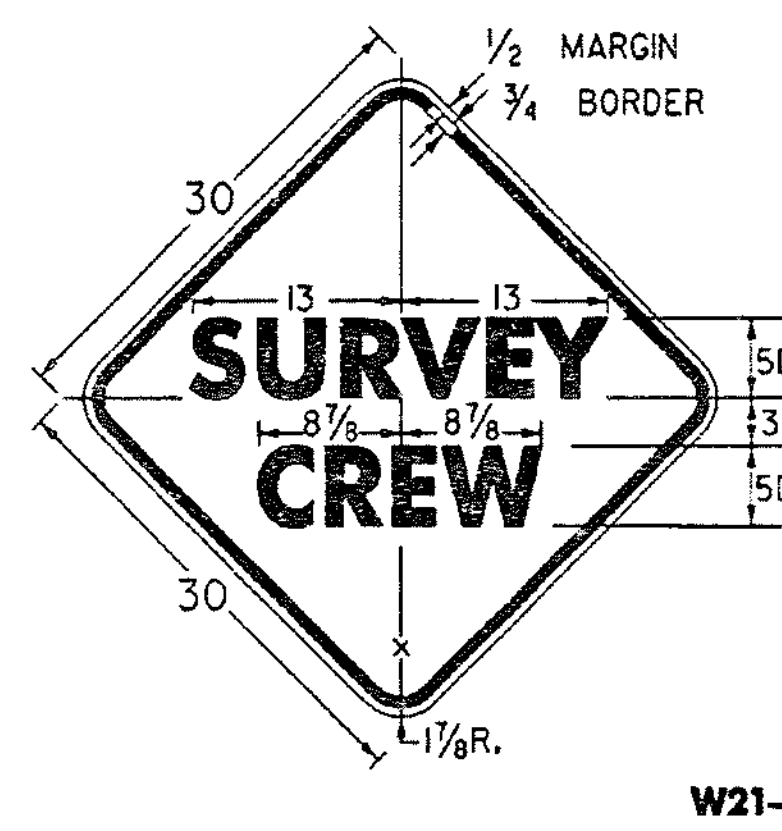
W20-7a



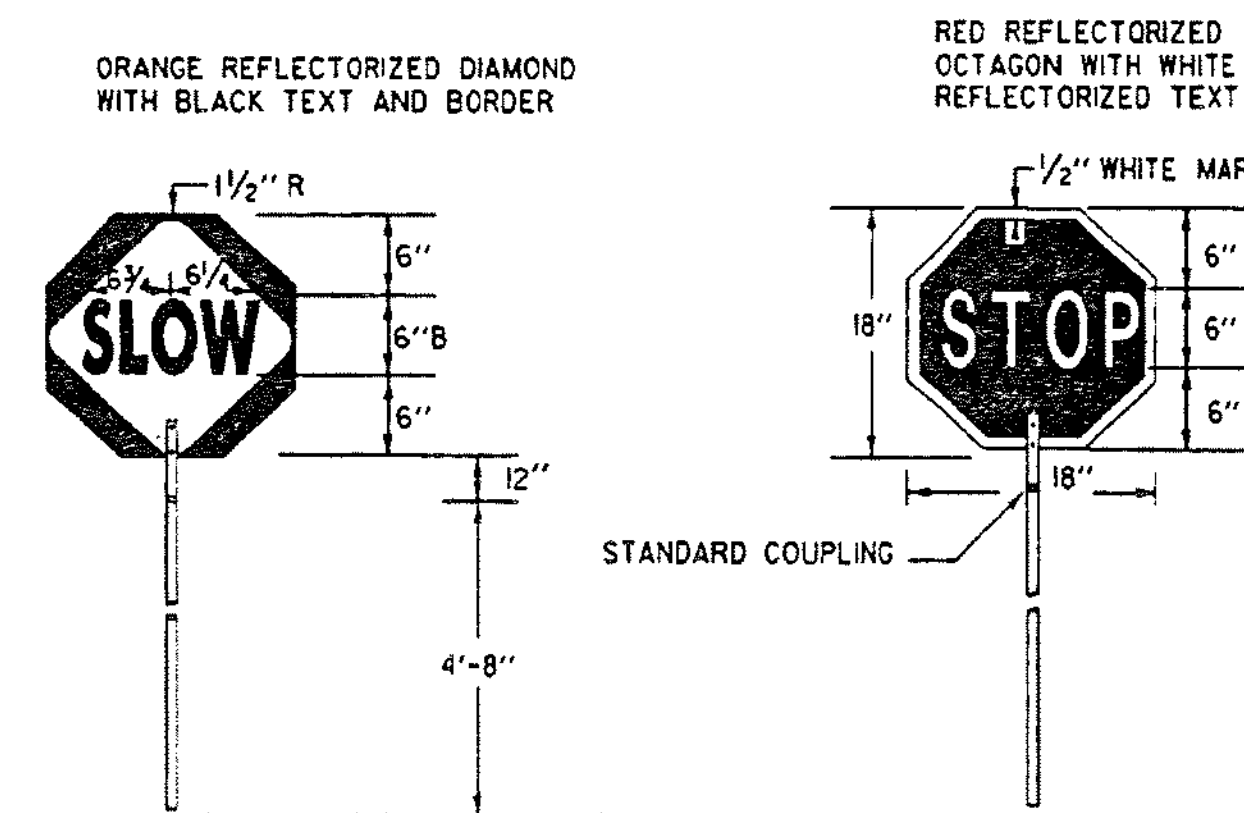
W20-7b



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 3/4" TO 1/4" DIAMETER RIGID ALUMINUM CONDUIT/TUBING WITH A WALL THICKNESS OF 0.125", OR 1" TO 1/2" DIAMETER RIGID PVC CONDUIT/TUBING WITH 0.125" WALL THICKNESS.

**MOUNTING**  
 THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/2" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

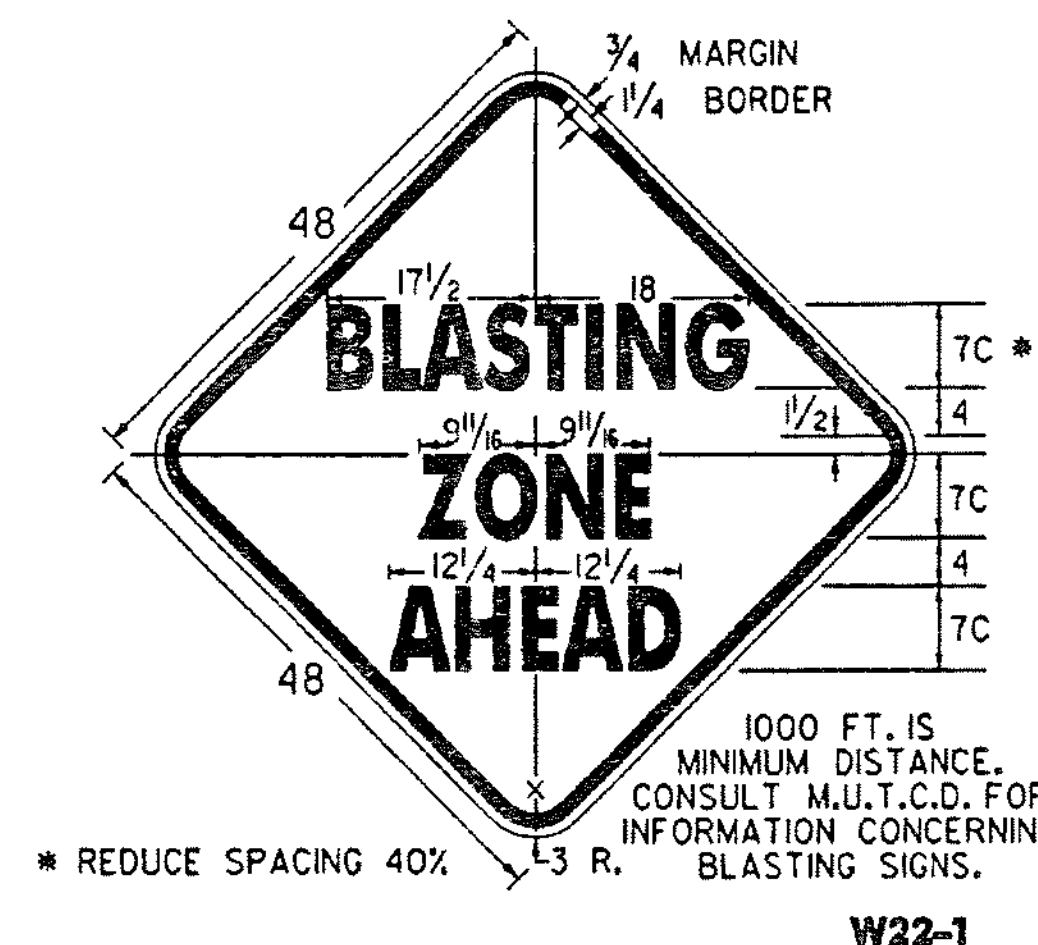
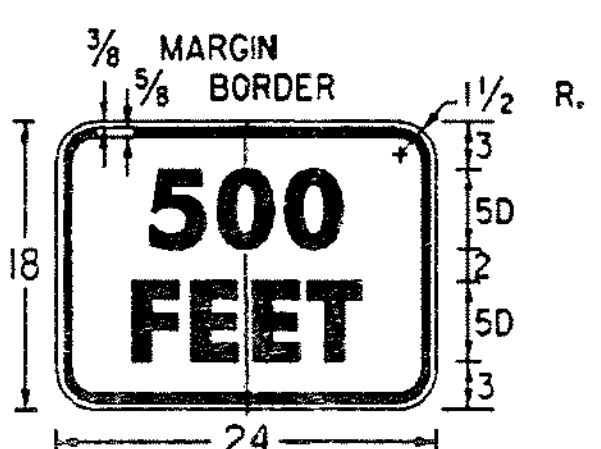
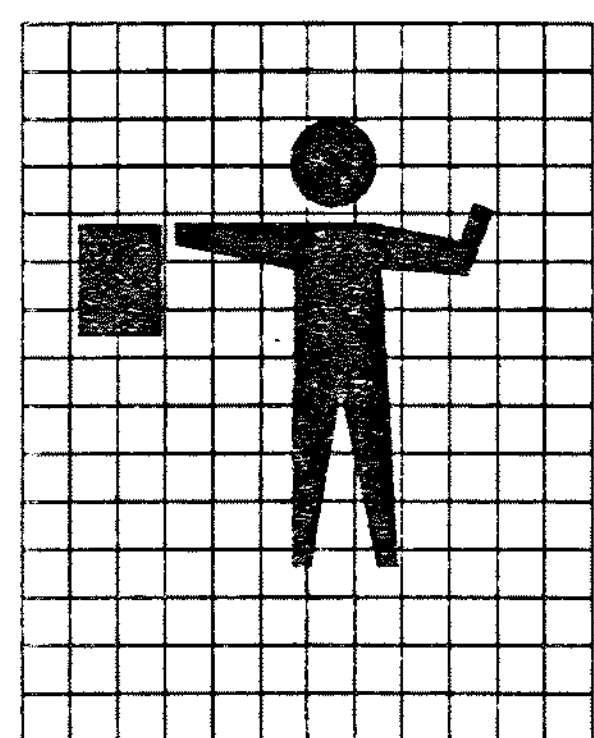
**SIGN PADDLE FOR FLAGPERSON**

**NOTES**

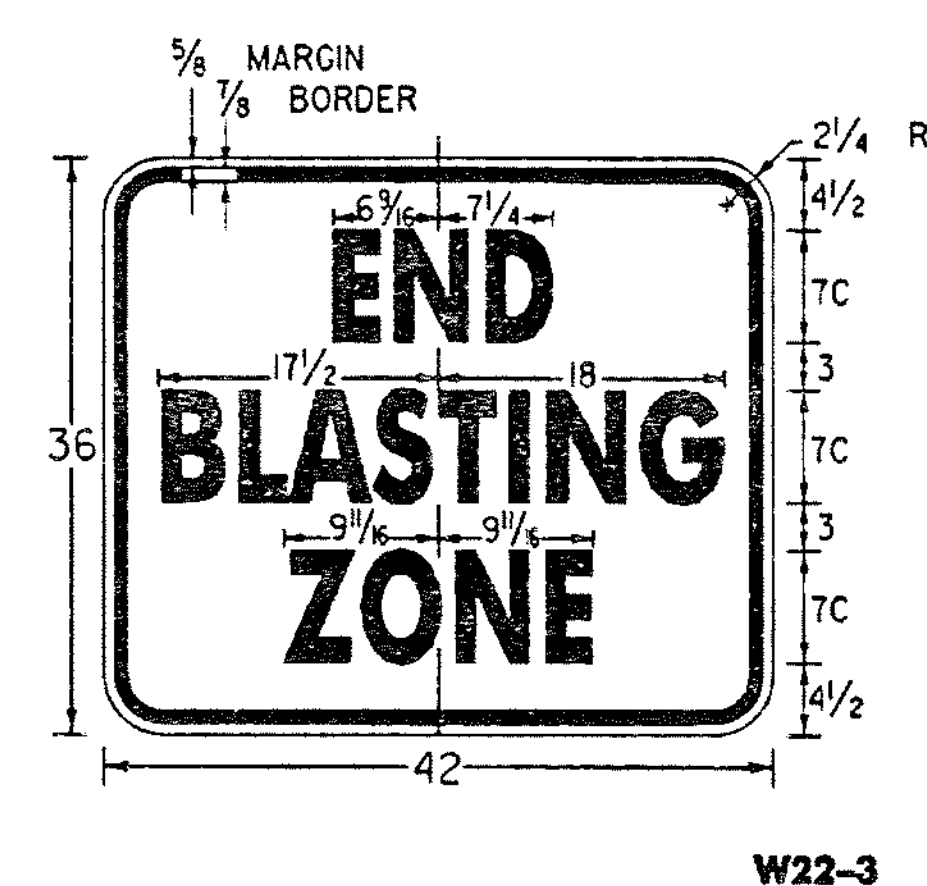
SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS. COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS SHALL BE ON A REFLECTORIZED ORANGE BACKGROUND OF TYPE IIB OR TYPE III REFLECTIVE SHEETING, UNLESS OTHERWISE NOTED. THE EXCEPTION IS THE PADDLE SIGN.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

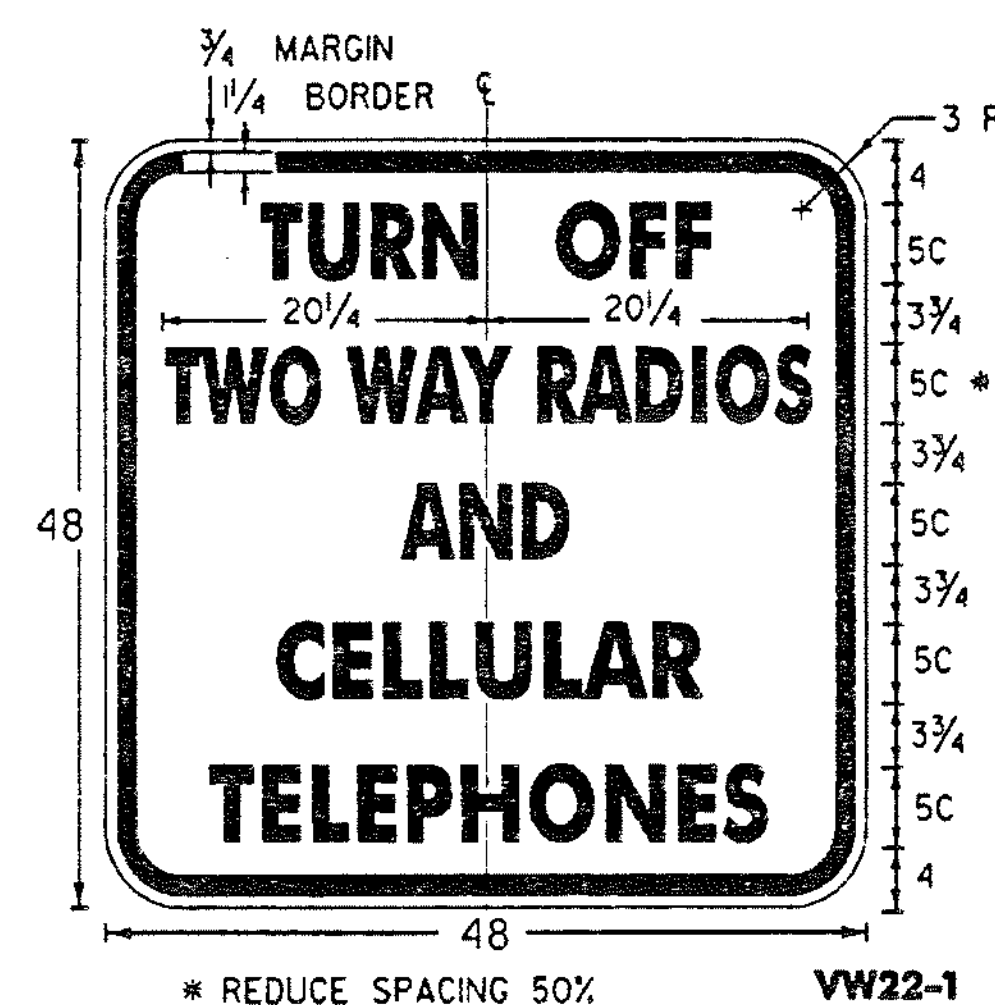
SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED, HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.



W22-1



W22-3



VW22-1

SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	F	G
STD.	36	3/4	1/4	2 3/4	13 1/2	14 3/8	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 J. MacArthur*  
 DIRECTOR OF ENGINEERING

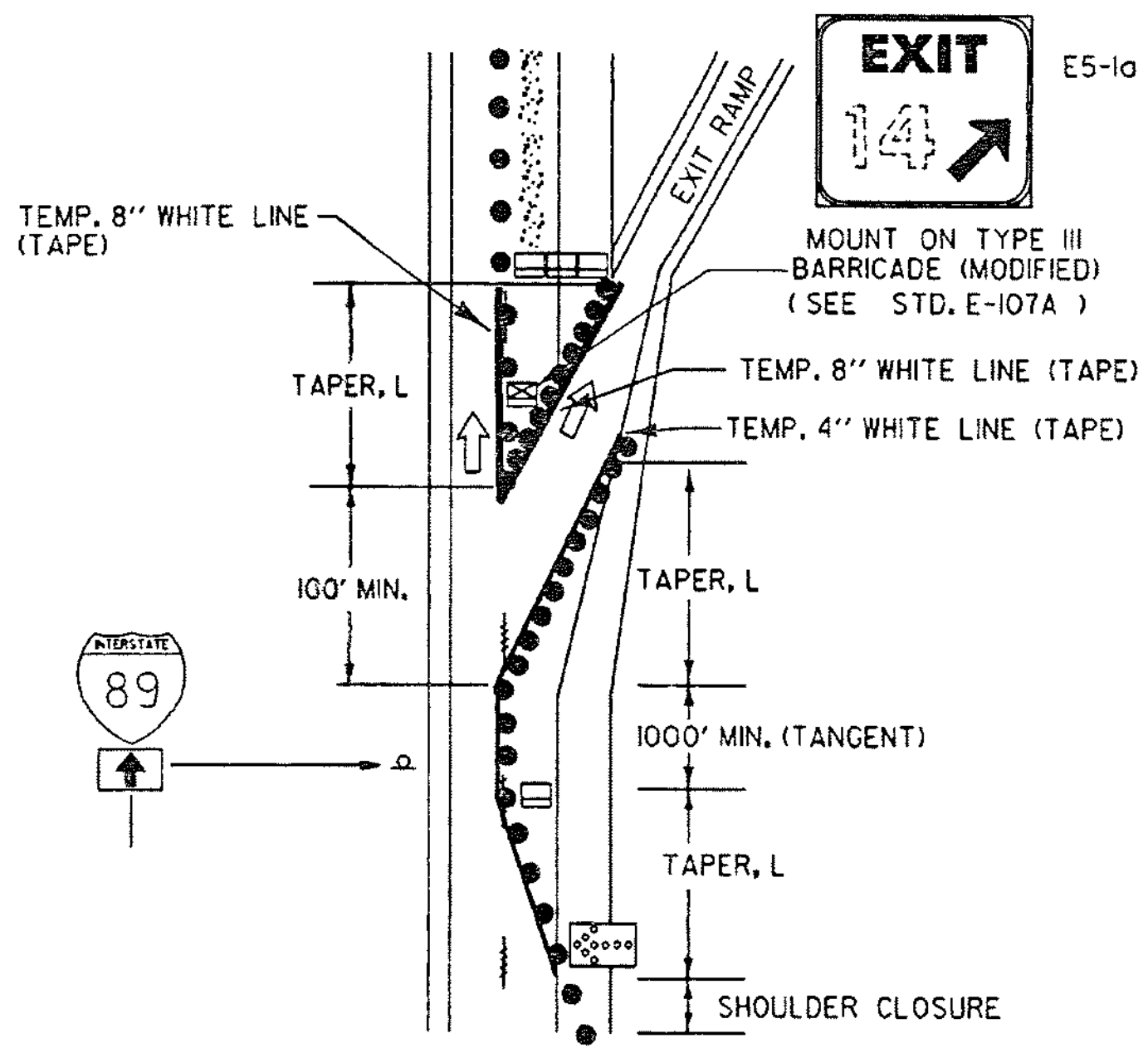
*David A. Reed*  
 TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION SIGN  
 DETAILS



STANDARD  
 E-102

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



NOT TO SCALE

MAINLINE LANE CLOSURE AT AN EXIT RAMP

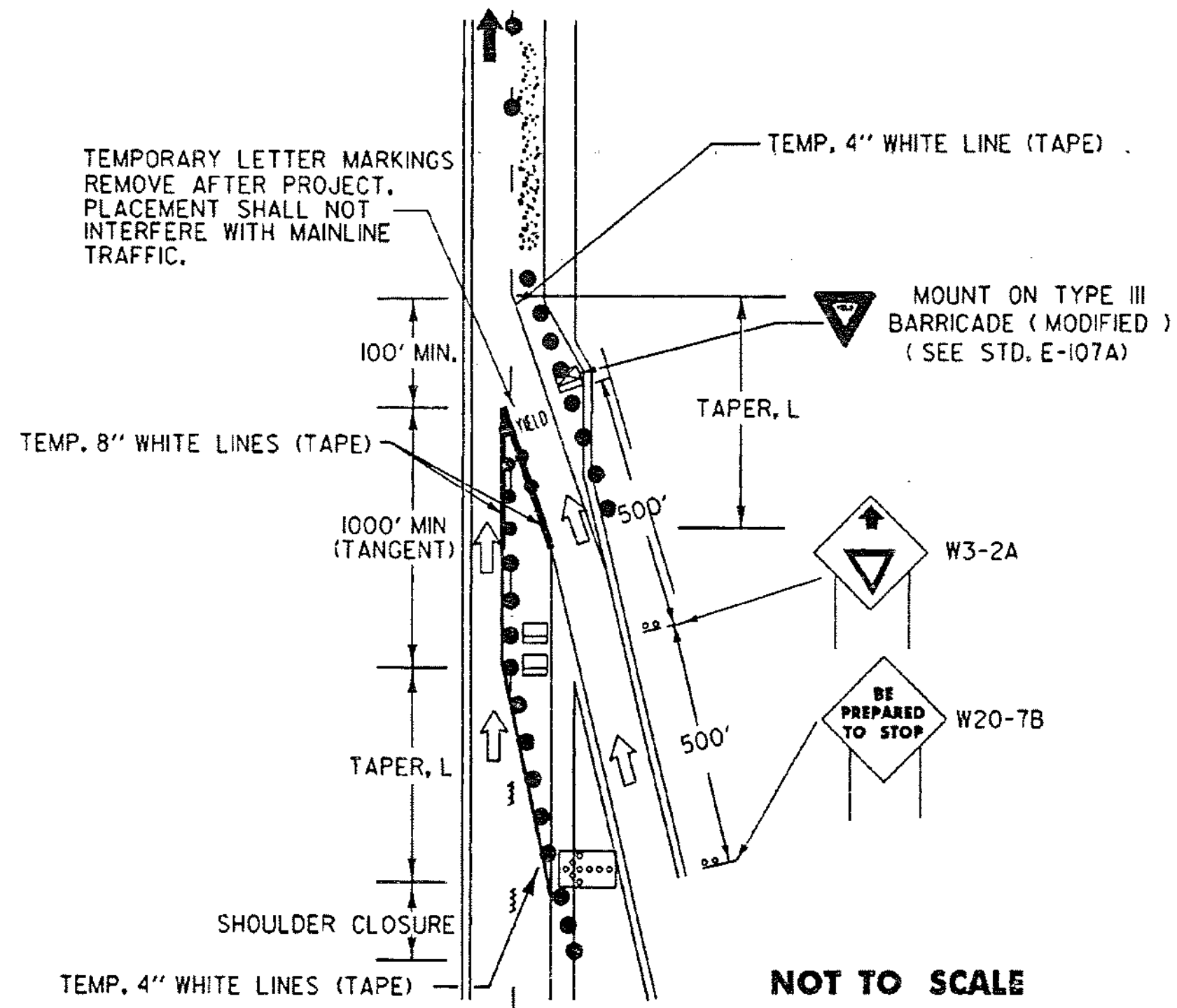
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

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.)

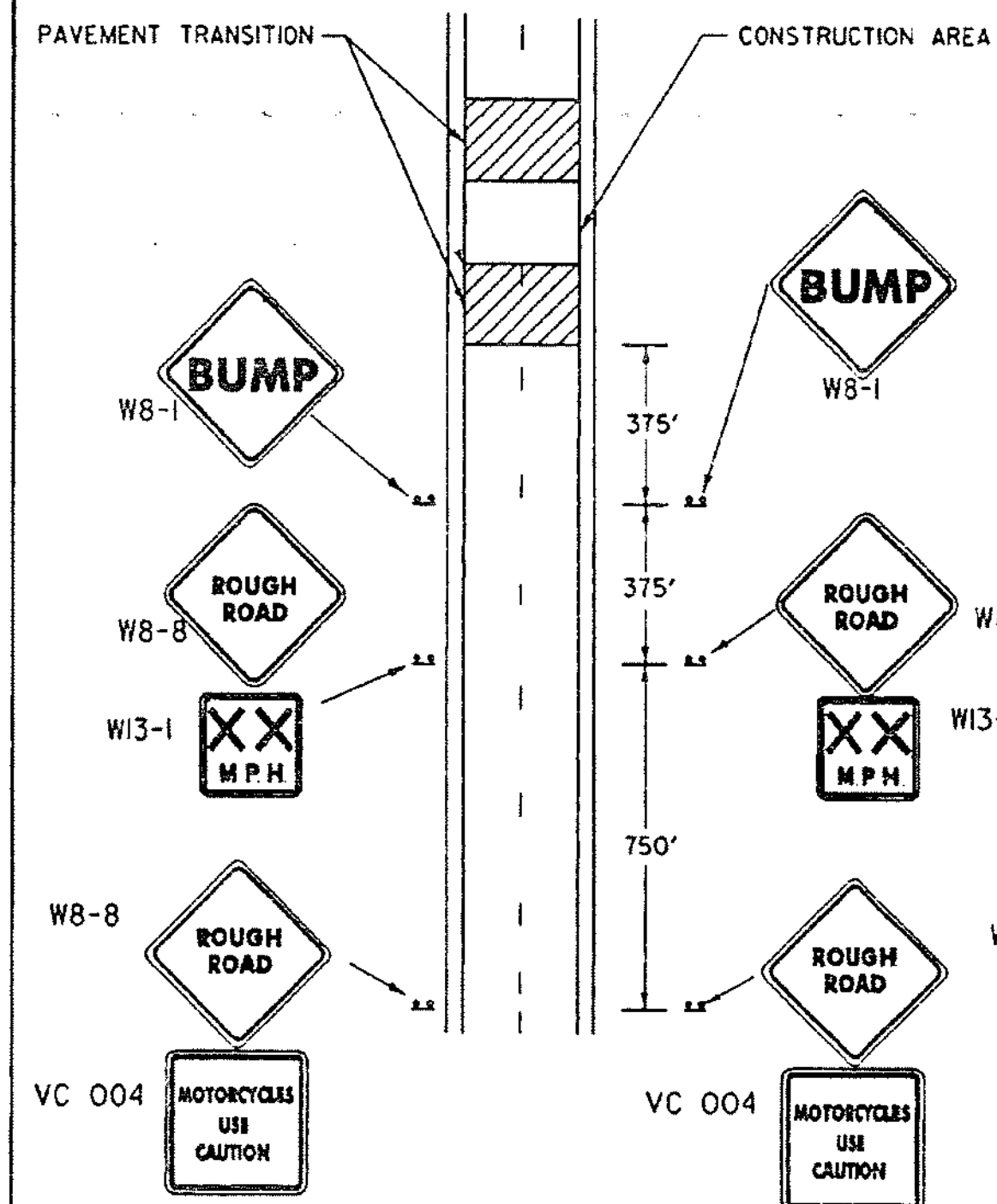


NOT TO SCALE

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.

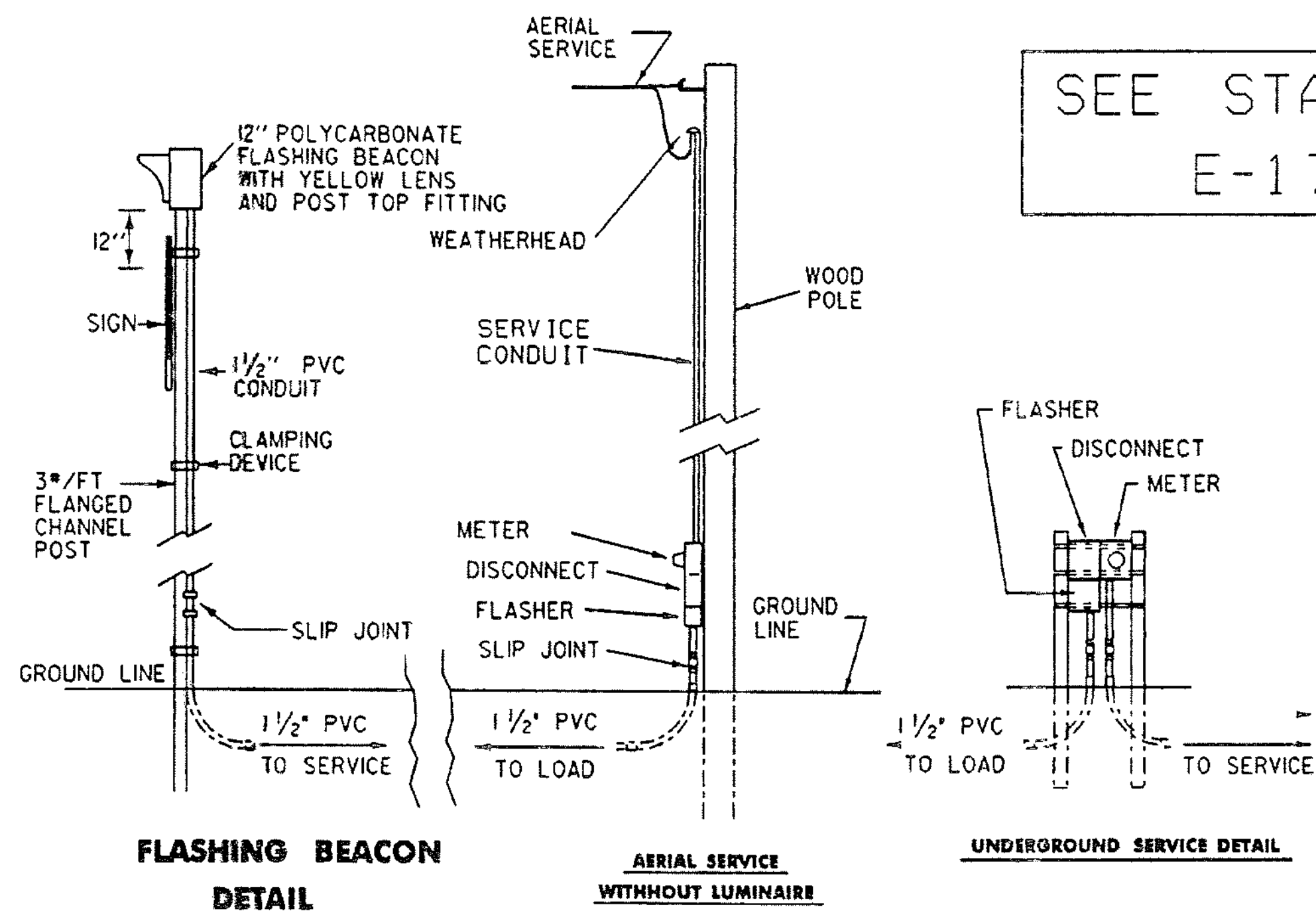


NOTES:

- 1) ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER (40 M.P.H. MINIMUM RECOMMENDED) (YIELDING TYPE)
- 2) SIGNS MOUNTED ON FIXED POSTS.
- 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.

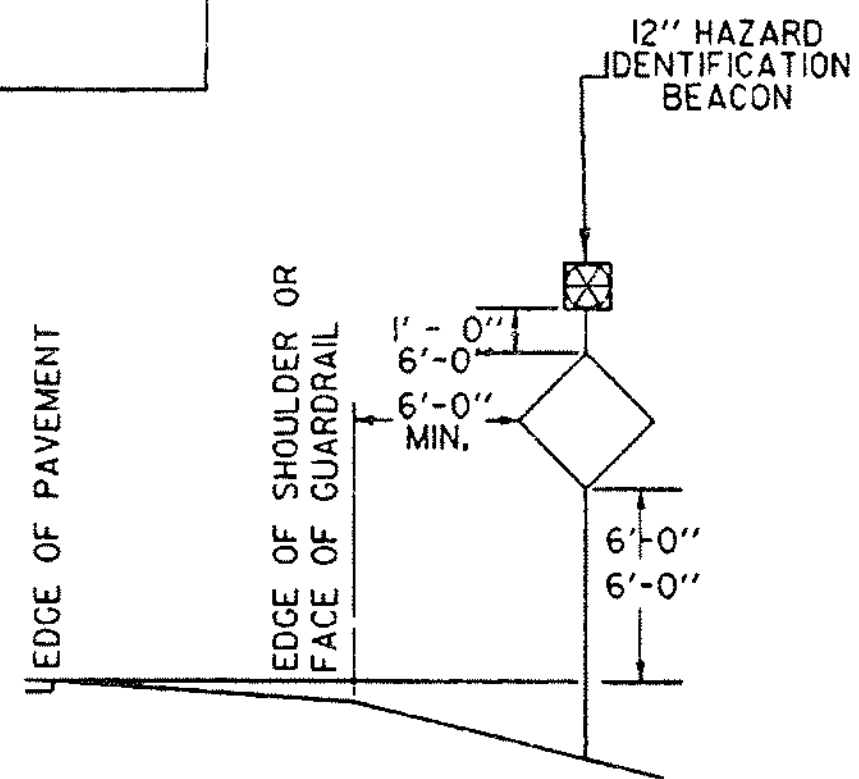


FLASHING BEACON DETAIL

AERIAL SERVICE WITHOUT LUMINAIRE

UNDERGROUND SERVICE DETAIL

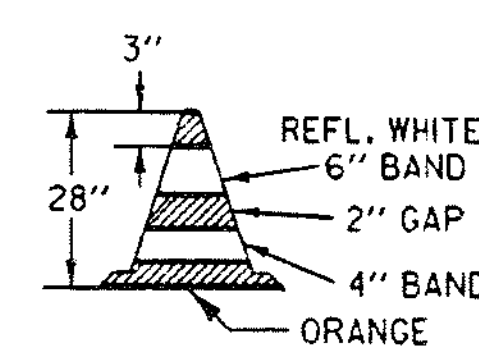
SEE STANDARD E-175



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.

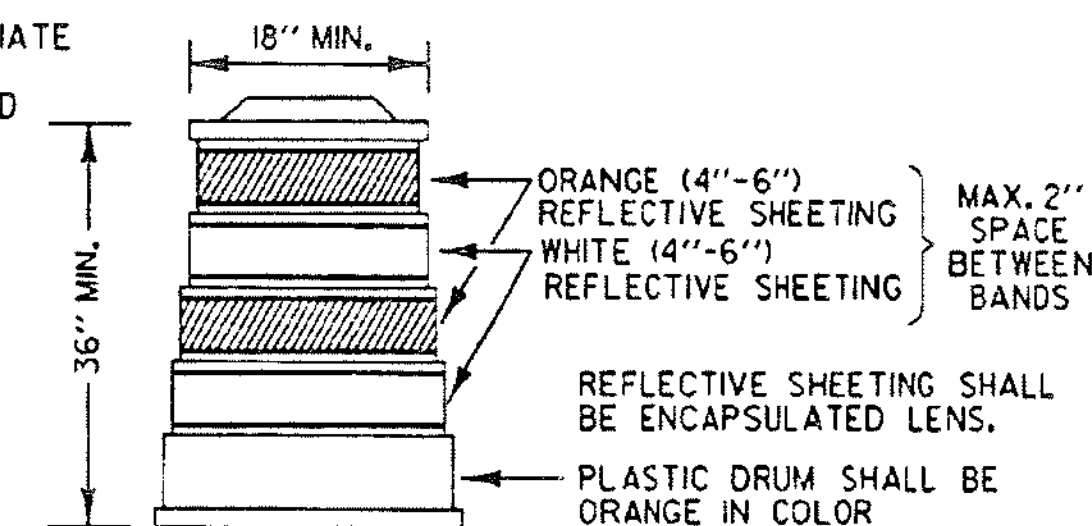


NOTES:

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

REVISIONS AND CORRECTIONS

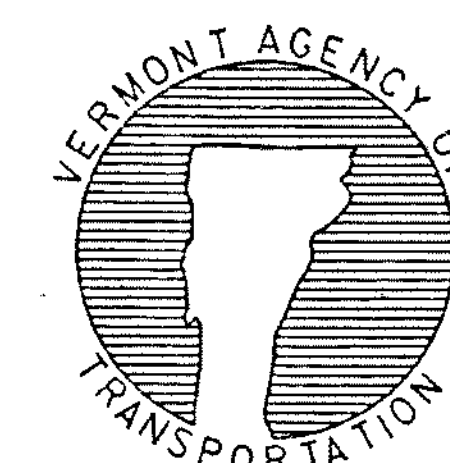
- APR 12, 1988 - DATE OF ORIGINAL ISSUE
- JAN 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER
- SEPT 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD) TO STD.E-107A
- AUG 08, 1995 - REVISED BEACON SIZE

APPROVED

*Stephen D. McArthur*  
DIRECTOR OF ENGINEERING

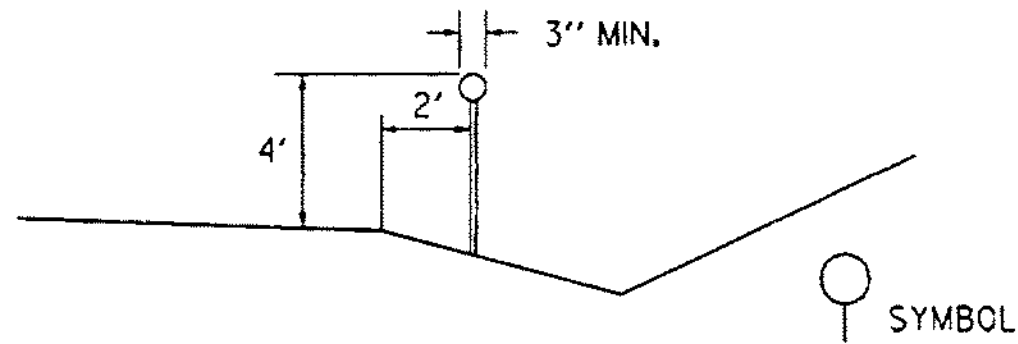
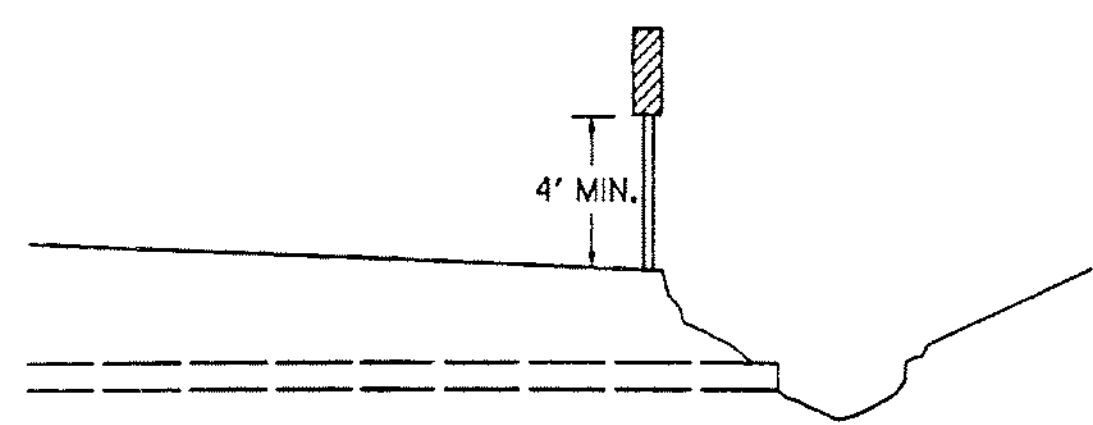
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

TRAFFIC CONTROL MISCELLANEOUS DETAILS



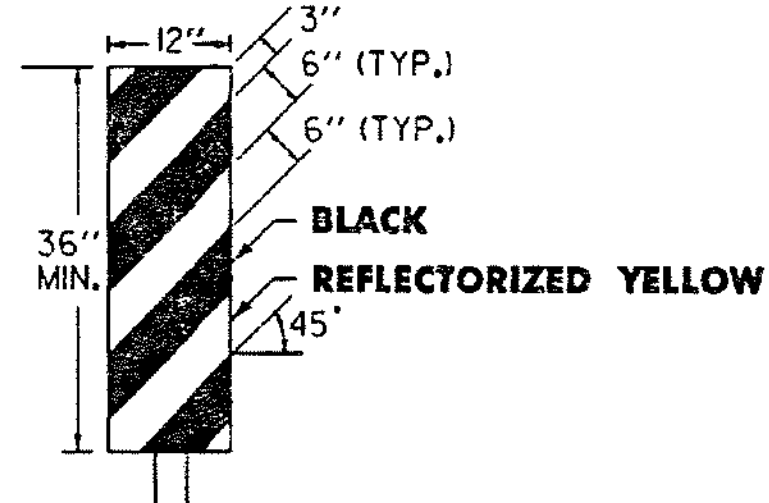
STANDARD E-106

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



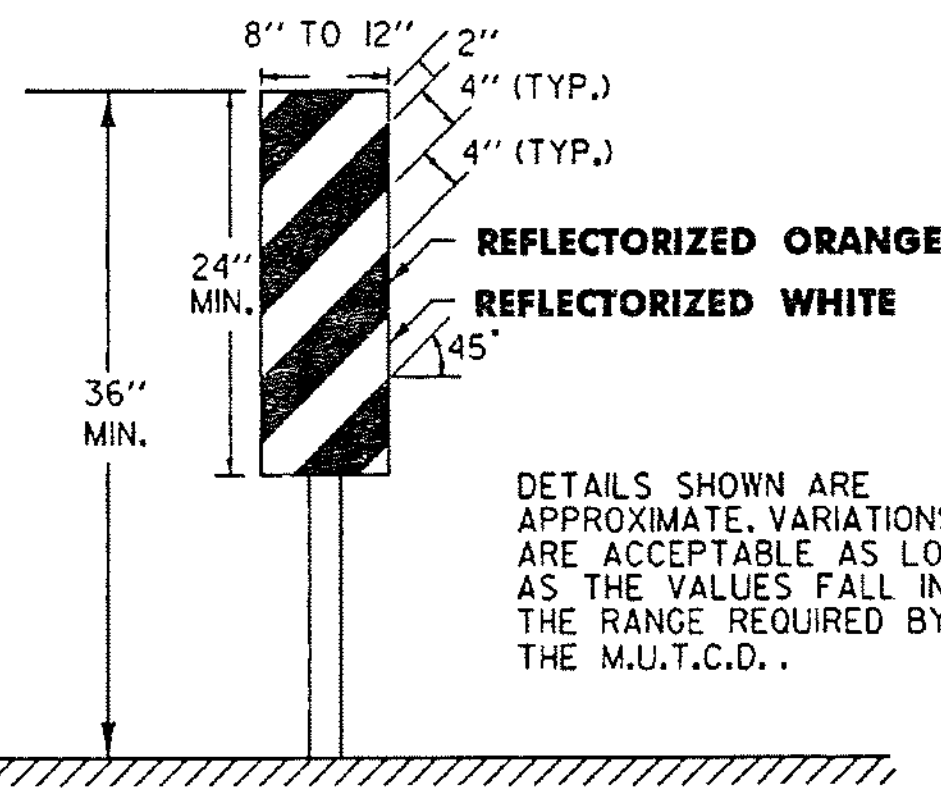
**DELINEATOR TYPICAL**

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).

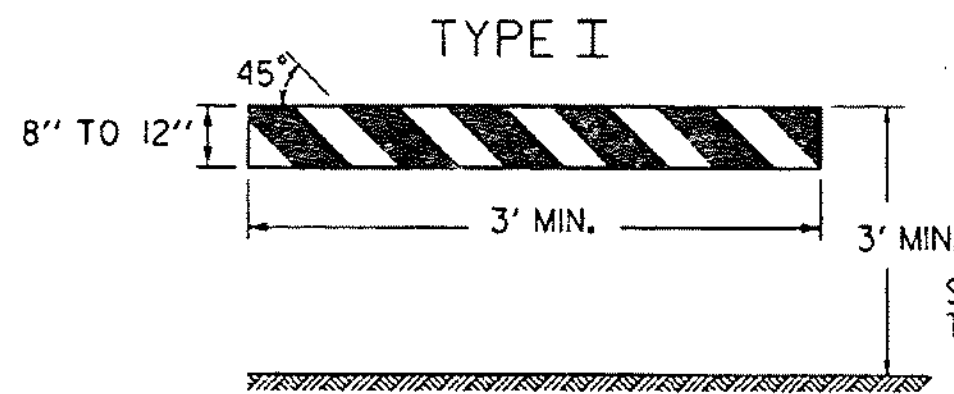


**VERTICAL PANEL**

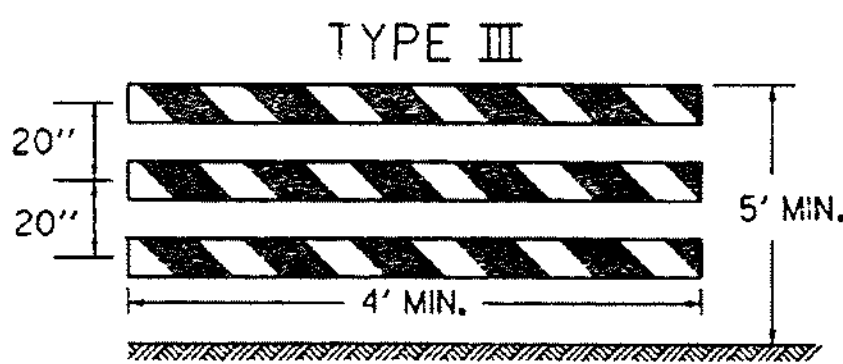
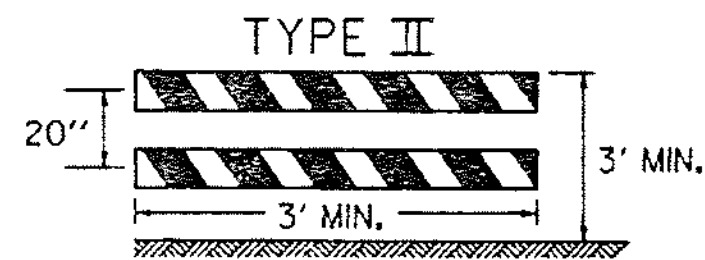
VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION, CHANNELIZING OR BARRICADING WHERE SPACE IS AT A MINIMUM.

**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.



STRIPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT.



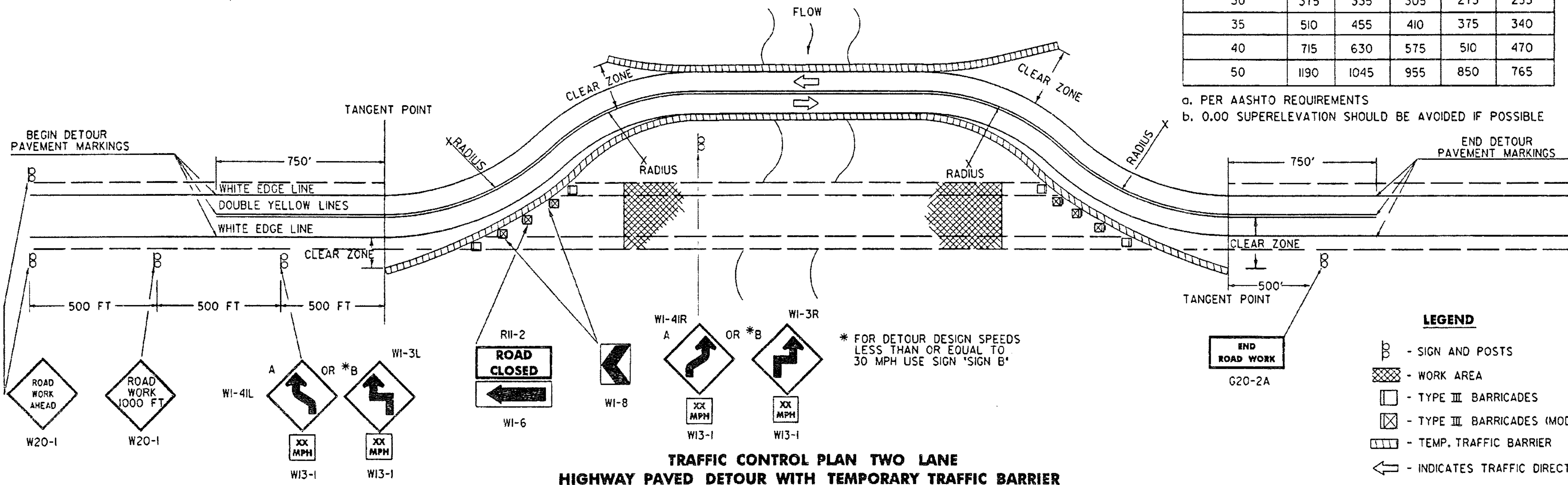
A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

**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

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



**TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER**

**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, DEFACE, 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

**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

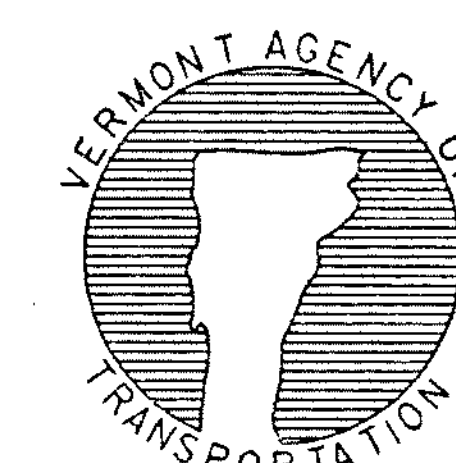
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**APPROVED**

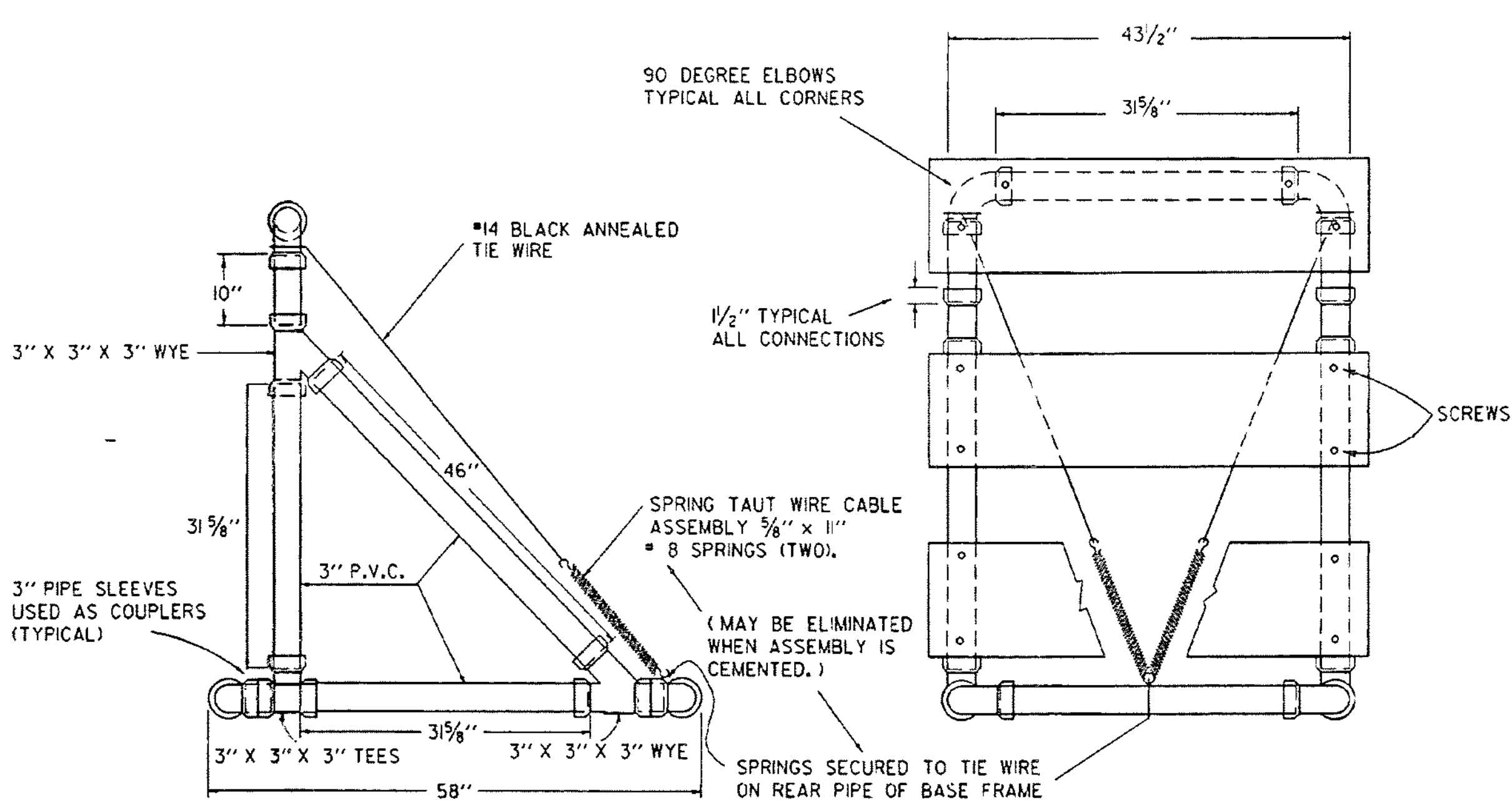
*Stephen D. MacArthur*  
DIRECTOR OF ENGINEERING

*David A. Pass*  
TRAFFIC AND SAFETY ENGINEER

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



**STANDARD E-107**

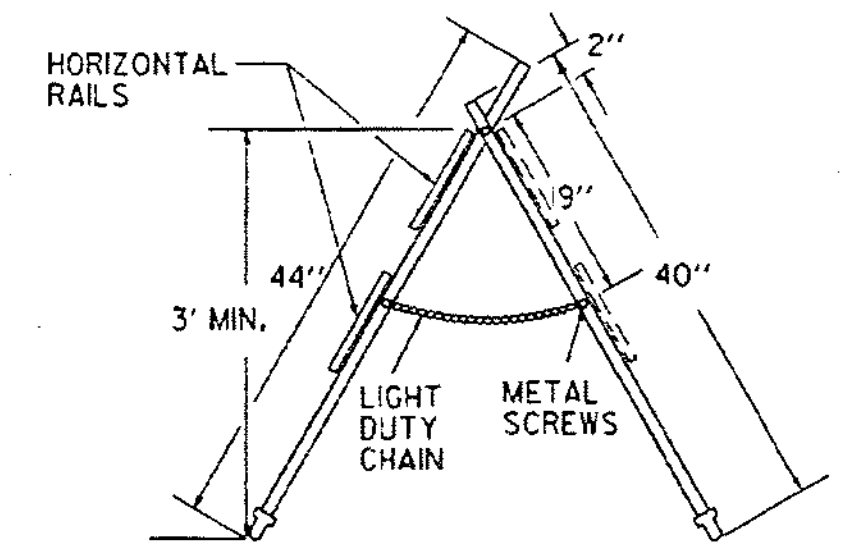


**SIDE VIEW  
TYPE III BARRICADE**

**FRONT VIEW  
TYPE III 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 - #14 BLACK ANNEALED TIE WIRE (IF ASSEMBLY IS NOT CEMENTED)

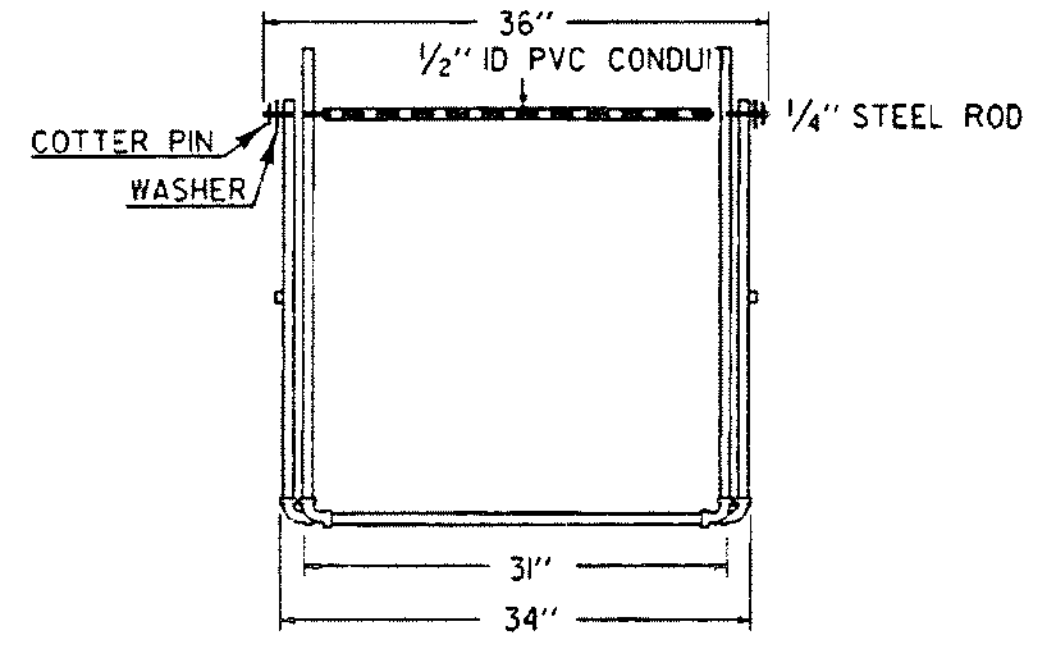


**MATERIALS**

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 I. 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.



**TYPE I AND TYPE II BARRICADE**

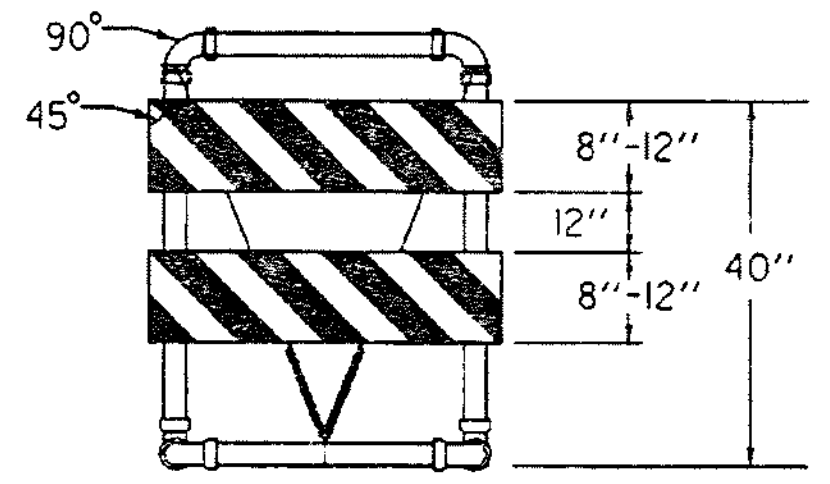
WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT, THESE SHALL BE PLACED ONLY ON THE FRONT AND REAR PIPES OF THE BASE FRAME BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE. GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

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 II BARRICADES (MODIFIED) SHALL CONSIST OF THE BREAKAWAY 3" PVC DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED ABOVE LEFT.

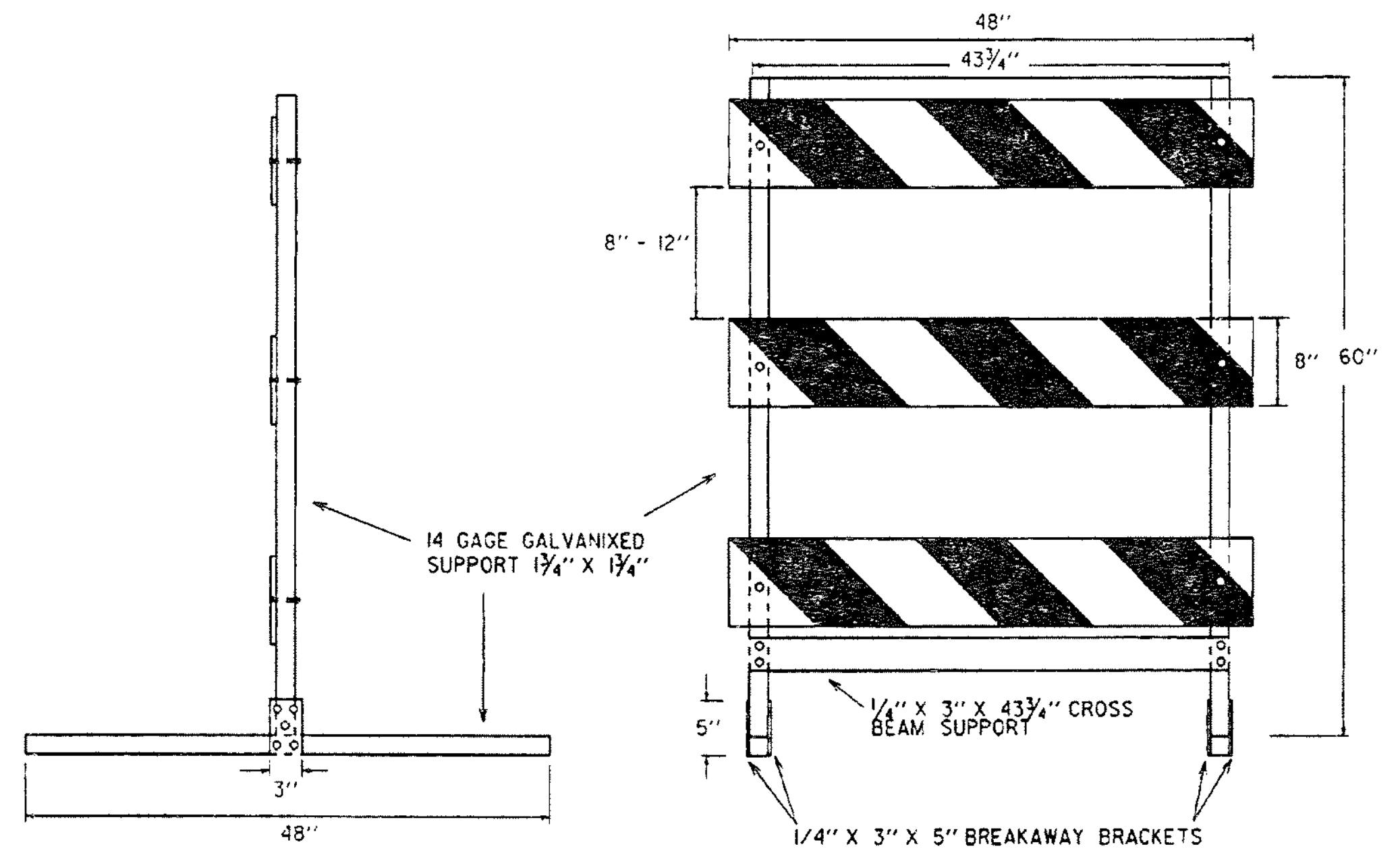
SEE STD E-107 FOR ADDITIONAL INFORMATION.



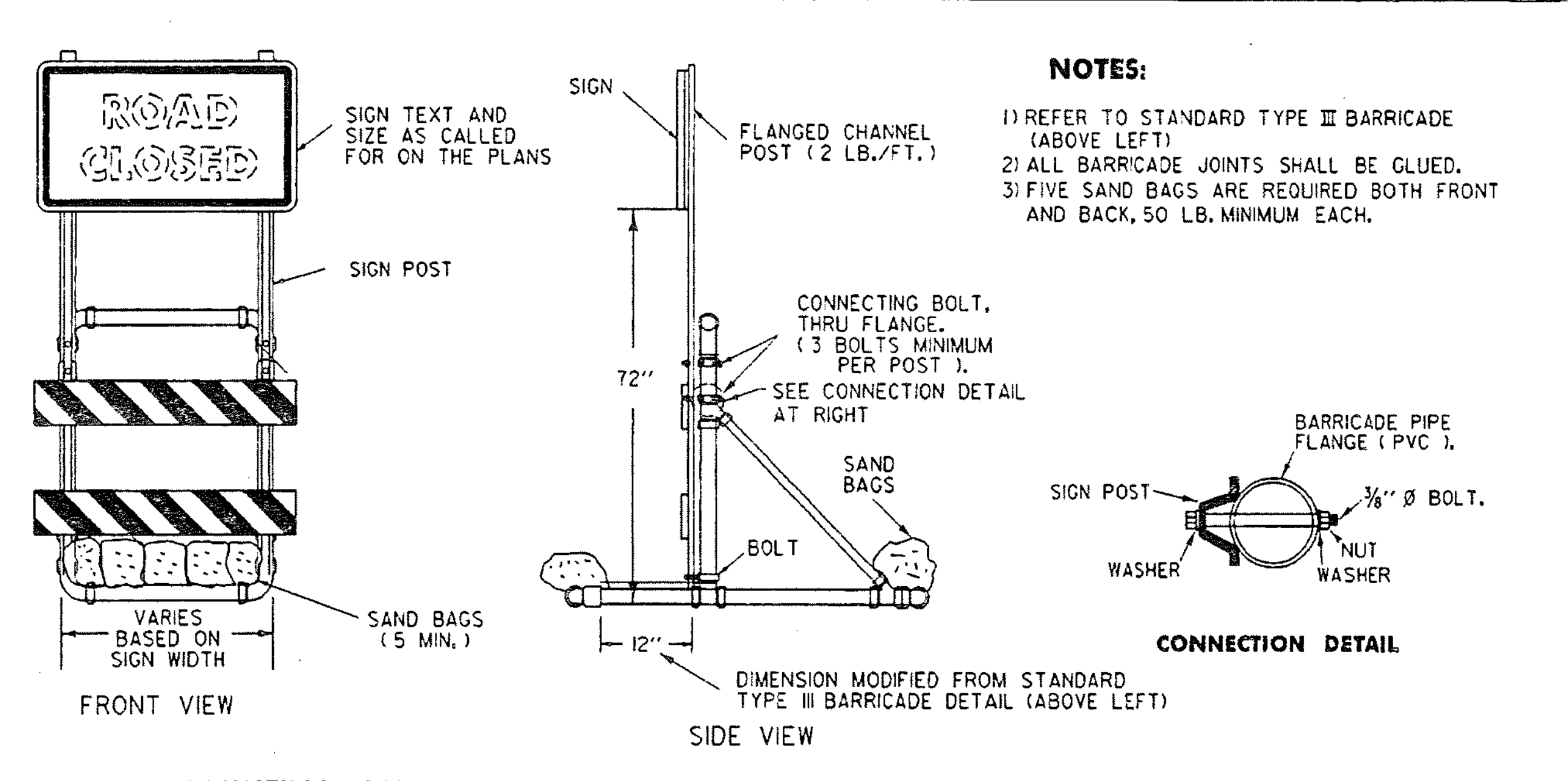
**TYPE III (MODIFIED) BARRICADE  
(STRIPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT.)**

**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.



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



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

**NOTES:**

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

**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

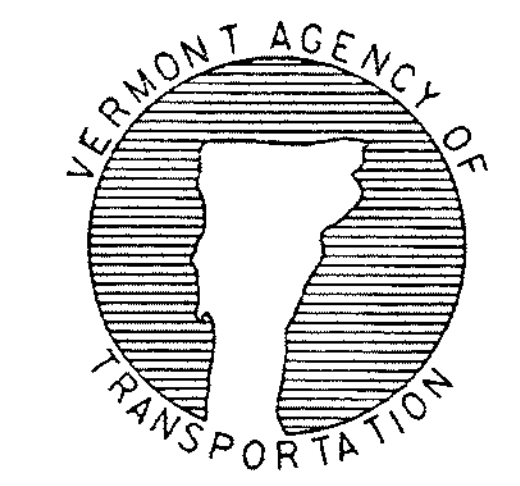
AUG. 08, 1995 - ADDED METAL TYPE III BARRICADE

**APPROVED**

*Stephen D. MacArthur*  
DIRECTOR OF ENGINEERING

*Dwight A. Ross*  
TRAFFIC AND SAFETY ENGINEER

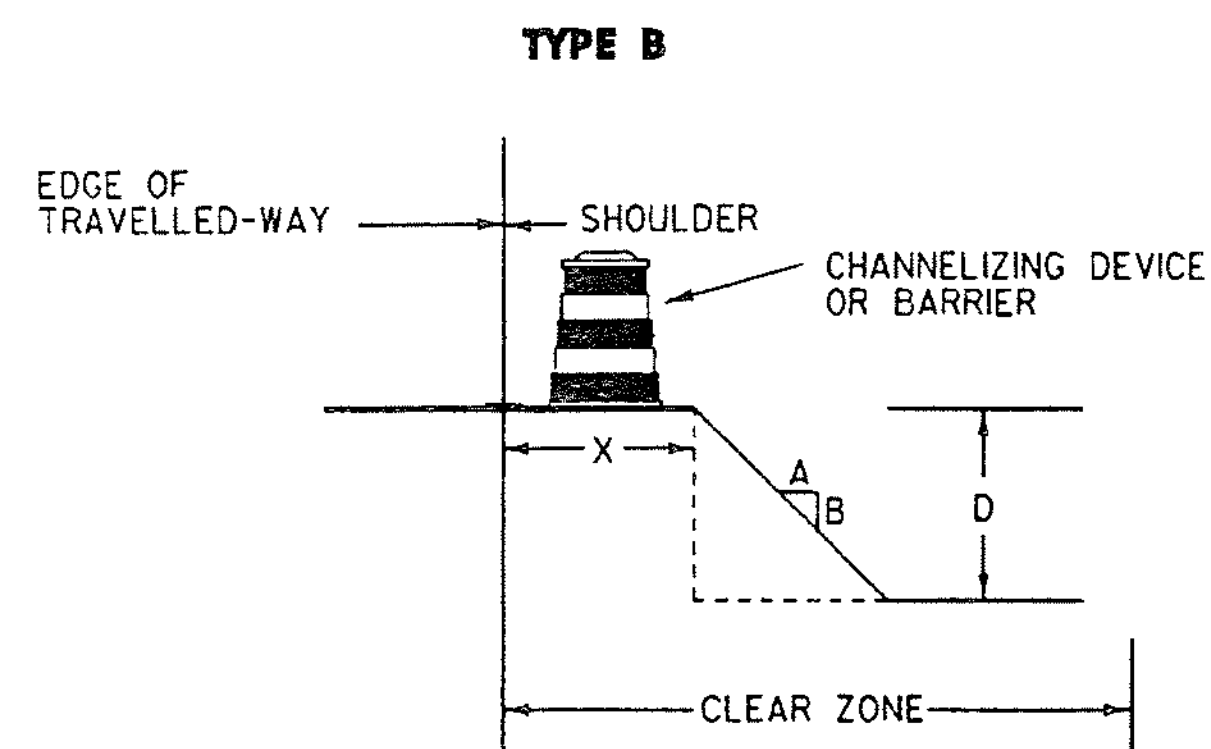
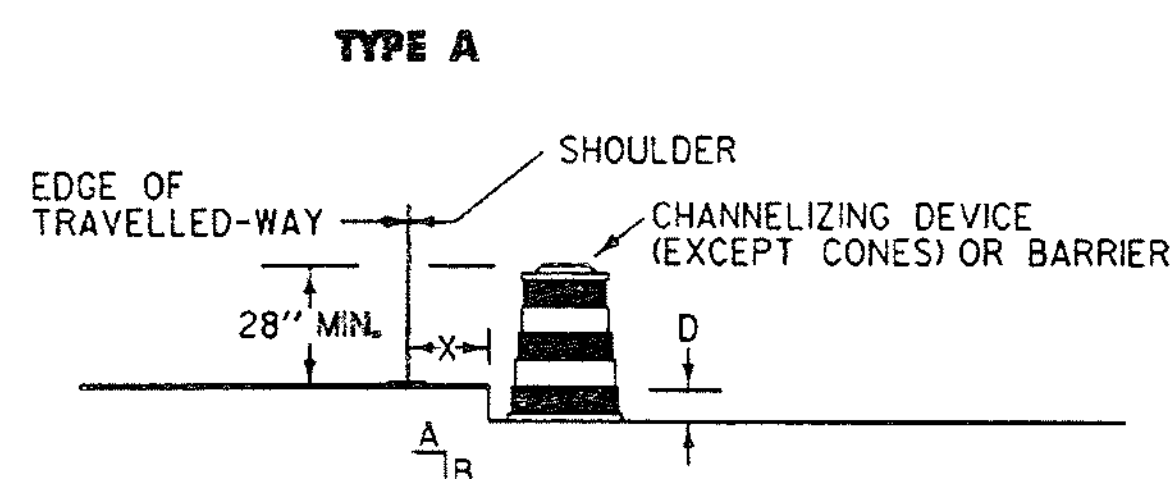
**BREAKAWAY BARRICADE  
DETAILS**



**STANDARD  
E-107 A**

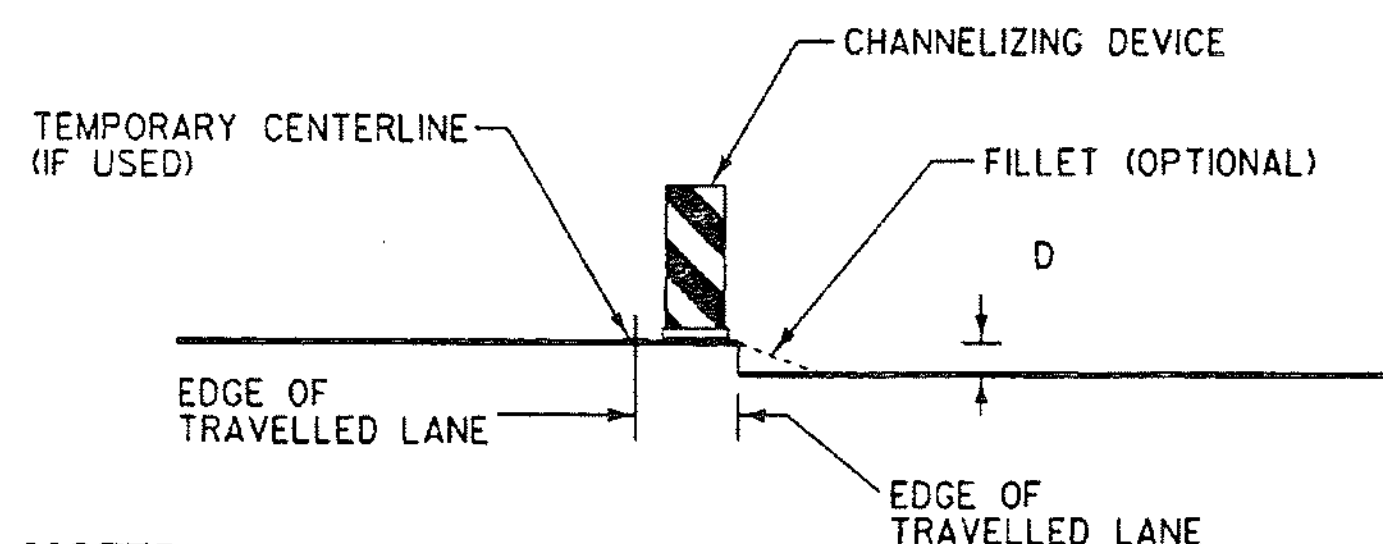
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**CONDITION 1  
DROP-OFF ADJACENT TO TRAVELLED-WAY**



- NOTES:**
- CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED-WAY.
  - FOR SPECIFIC REQUIREMENTS USE CHART "A".
  - IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN INPLACE OVERNIGHT THEN "LOW SHOULDER" OR "SHOULDER DROP OFF" SIGNS SHOULD BE INSTALLED.

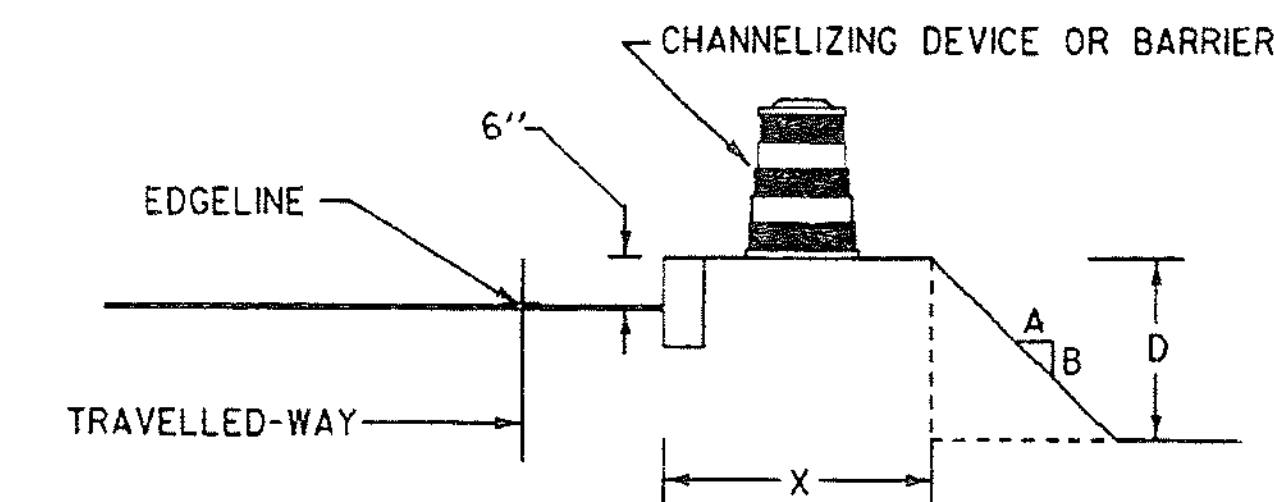
**CONDITION 2  
DROP-OFF BETWEEN ADJACENT TRAVELLED LANES**



**NOTES:**

- WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELLED-LANES IS TO BE LEFT OVERNIGHT THEN "UNEVEN LANES" SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
- IF REQUIRED, THE CHANNELIZING DEVICES USED SHOULD BE THOSE WHICH MAXIMIZE THE TRAVELLED LANE (IE. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
- A BITUMINOUS CONCRETE FILLET WITH A 3:1 SLOPE MAY BE USED IN LIEU OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" SIGNS SHOULD BE INSTALLED REGARDLESS.

**CONDITION 3  
DROP-OFF BEYOND SHOULDER OR CURB**



**NOTES:**

- CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELLED WAY.
- FOR SPECIFIC REQUIREMENTS USE CHART "A" OR "B" AS APPLICABLE.

**CHART A  
ALL SPEEDS  
NO CURB**

X (FEET)	DROP (D) (INCHES)	A/B SLOPE	DEVICE REQUIRED
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 5"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	CHANNELIZING DEVICE
4' TO 10'	LESS THAN 5"	ANY	NONE
	5" TO 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER
10' TO CZ	LESS THAN OR EQUAL TO 12"	ANY	NONE
	GREATER THAN 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER

- CLEAR ZONE (CZ) IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
- CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM (ONE-DAY) OPERATIONS.
- ON BORDERLINE CONDITIONS THE ENGINEER SHALL DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

**GENERAL NOTES**

- THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHALL BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
- THE FOLLOWING ARE ACCEPTABLE CHANNELIZING DEVICES: SEE STANDARD SHEETS E-106, E-107 AND E-107A FOR FURTHER DETAILS.
  - A. VERTICAL PANEL
  - B. TYPE I OR TYPE II BARRICADE
  - C. PLASTIC DRUM
  - \* D. CONE - WHERE APPLICABLE

\* CONES SHALL NOT BE USED WHEN THE CHANNELIZING DEVICE IS REQUIRED TO BE PLACED BELOW THE GRADE OF THE TRAVELLED-WAY. (SEE CONDITION 1, TYPE A)
- WHERE BARRIER IS CALLED FOR, EITHER CONCRETE BARRIER (JERSEY SHAPE), STEEL BEAM GUARDRAIL OR OTHER FHWA APPROVED BARRIER MAY BE USED.
  - BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROADWAY.
- CHANNELIZING DEVICE SPACING SHALL BE AS FOLLOWS:
  - TAPERS - CHANNELIZING DEVICES SHALL BE SPACED A MAXIMUM OF 'S' (THE SPEED LIMIT IN FEET, 65 MPH = 65 FT) CENTER TO CENTER.
  - TANGENT - CHANNELIZING DEVICES SHALL BE SPACED 'S' (THE SPEED LIMIT IN FEET, 65 MPH = 65 FT) TO A MAXIMUM OF '2S' CENTER TO CENTER.
- "LOW SHOULDER" OR "UNEVEN LANES" SIGNS, WHEN USED, SHALL BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

**CHART B  
40 MPH OR LESS  
WITH CURB**

X (FEET)	DROP (D) (INCHES)	DEVICE REQUIRED
0-10'	LESS THAN OR EQUAL TO 12"	NONE
0-10'	GREATER THAN 12"	CHANNELIZING DEVICE
GREATER THAN 10	ANY	NONE

**NOTES:**

- USE THIS CHART ONLY FOR CONDITION 3.
- USE THIS CHART FOR VERTICAL CURBS OF 6" OR GREATER FOR LOWER CURBS OR MOUNTABLE USE CHART A.
- FOR CURBED SECTIONS WITH POSTED SPEEDS ABOVE 40 MPH USE CHART A.

OTHER STDS. E-101 E-107  
REQUIRED: E-106 E-107A

REVISIONS AND CORRECTIONS

SEPT. 20, 1993 - DATE OF ORIGINAL ISSUE  
AUG. 18, 1995 - ADDED SHOULDER WARNING NOTE

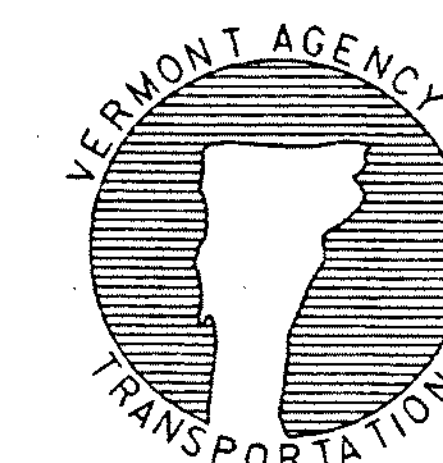
APPROVED FOR THIS PROJECT  
AND/OR DESIGN IMPLEMENTATION.  
FHWA FINAL APPROVAL PENDING.

APPROVED

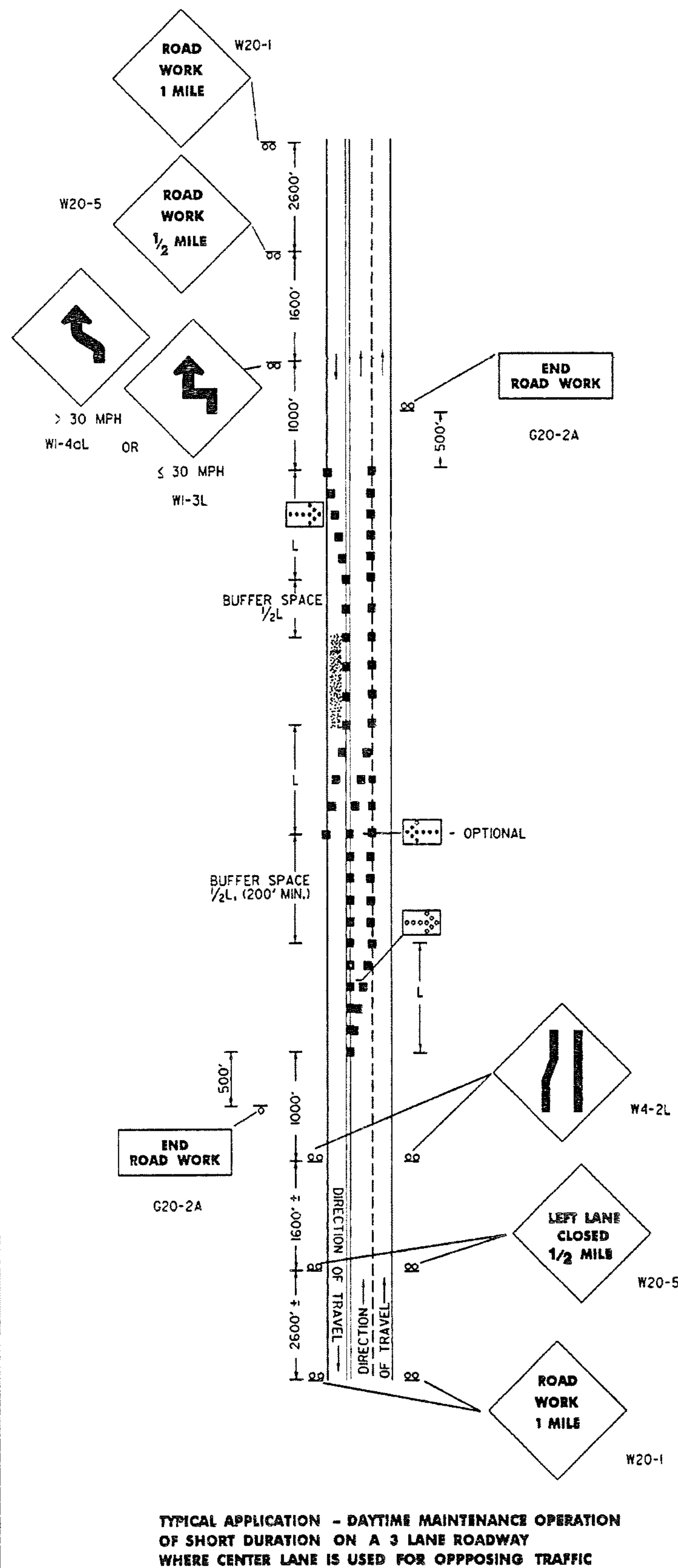
*Sandra M. Calkins*  
DIRECTOR OF ENGINEERING

*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION ZONE  
LONGITUDINAL DROP OFFS

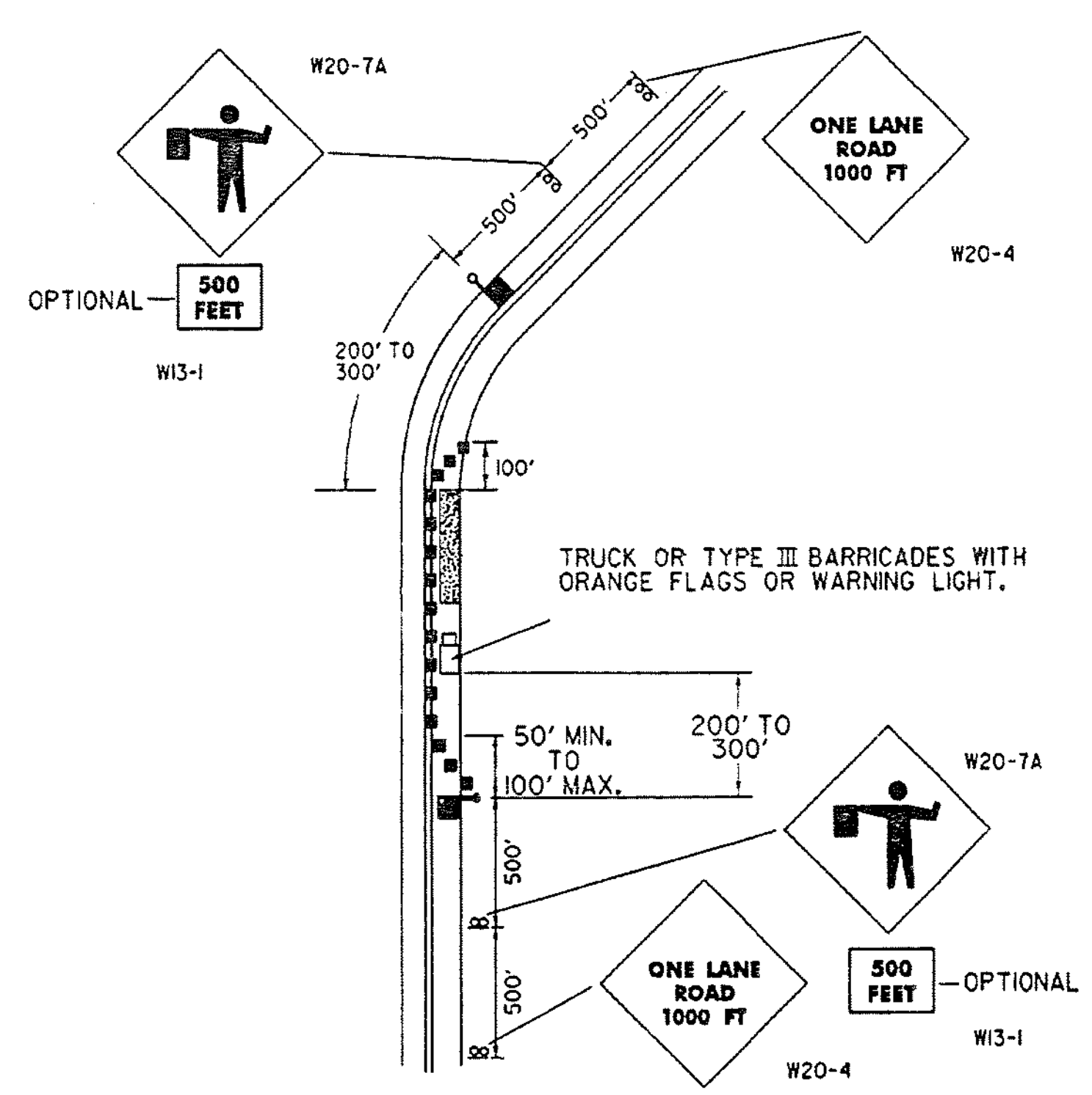


STANDARD  
E-108



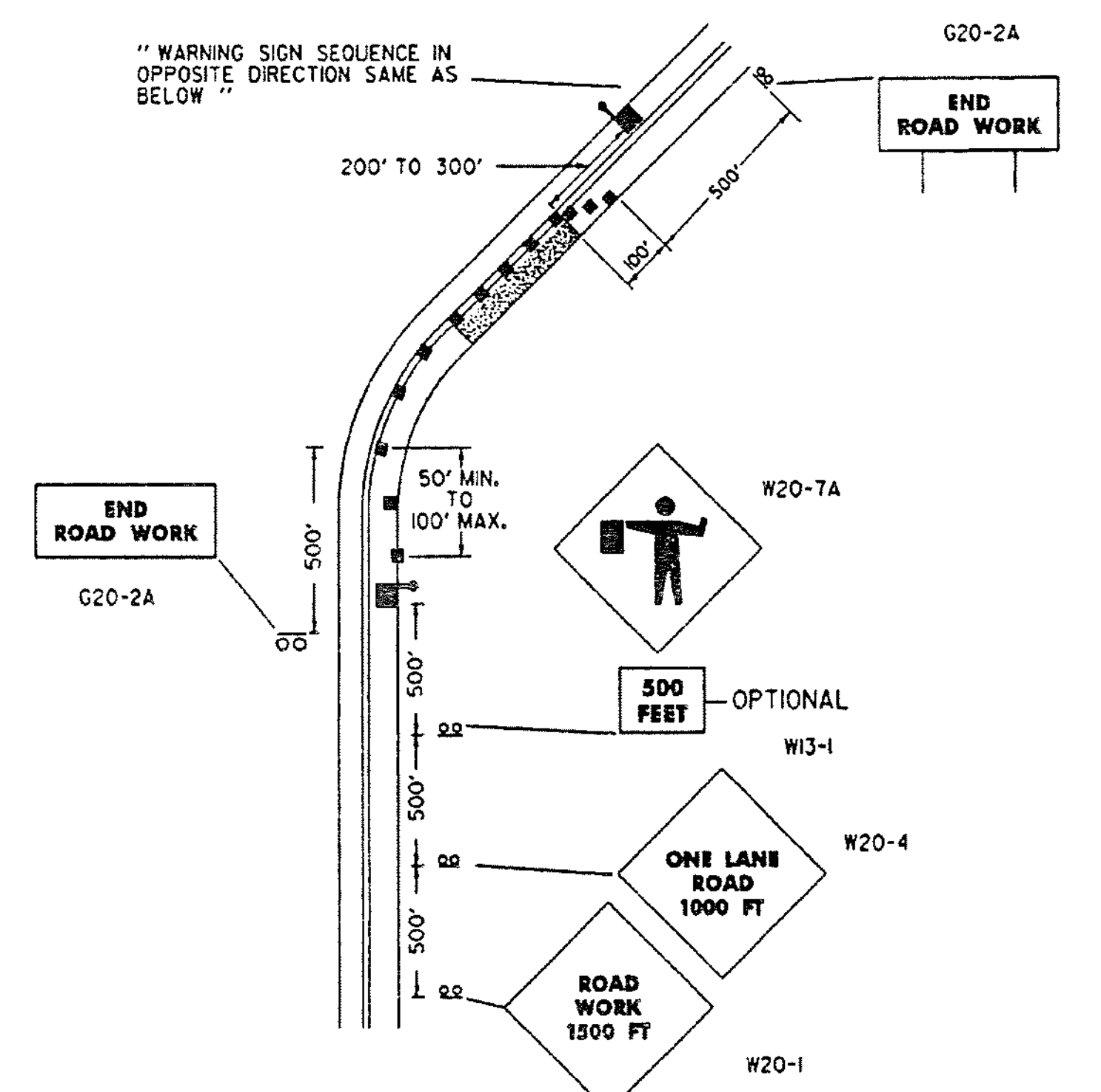
TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATION OF SHORT DURATION ON A 3 LANE ROADWAY WHERE CENTER LANE IS USED FOR OPPOSING TRAFFIC

NTS



TYPICAL APPLICATIONS - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 2-LANE ROADWAY WHERE FLAGGING IS PROVIDED

NTS



TYPICAL APPLICATIONS - TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

NTS

**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 PAINTED. 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 OVERLAYERED PLYWOOD 1/2, 5/8, OR 3/4 INCHES  
GALVANIZED SHEET STEEL 12 GAGE
- 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  
 $L = SXW$  FOR SPEEDS OF 45 OR MORE  
 $L = \frac{WS^2}{60}$  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:**

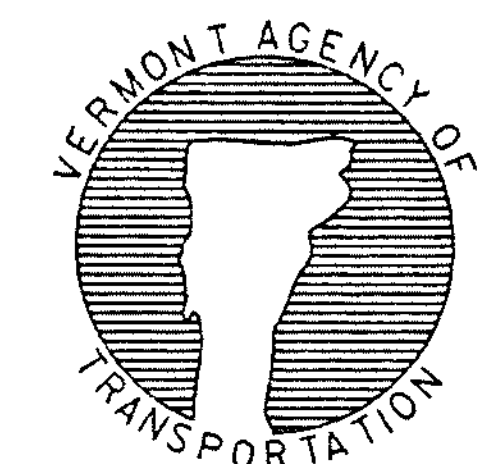
FLAGPERSON	WORK AREA
CHANNELIZING DEVICES (CONES OR DRUMS)	SIGN & POSTS
FLASHING ARROW PANEL	TYPE III BARRICADES

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

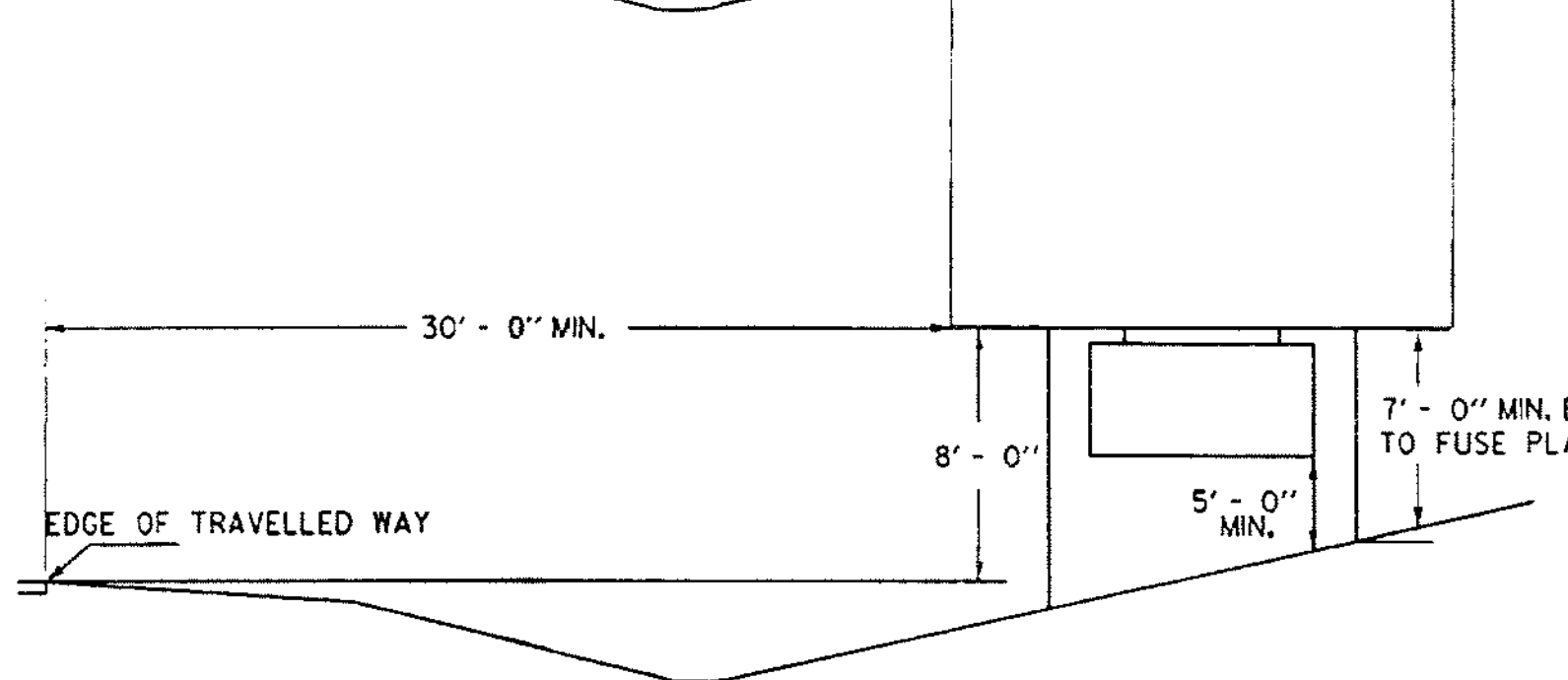
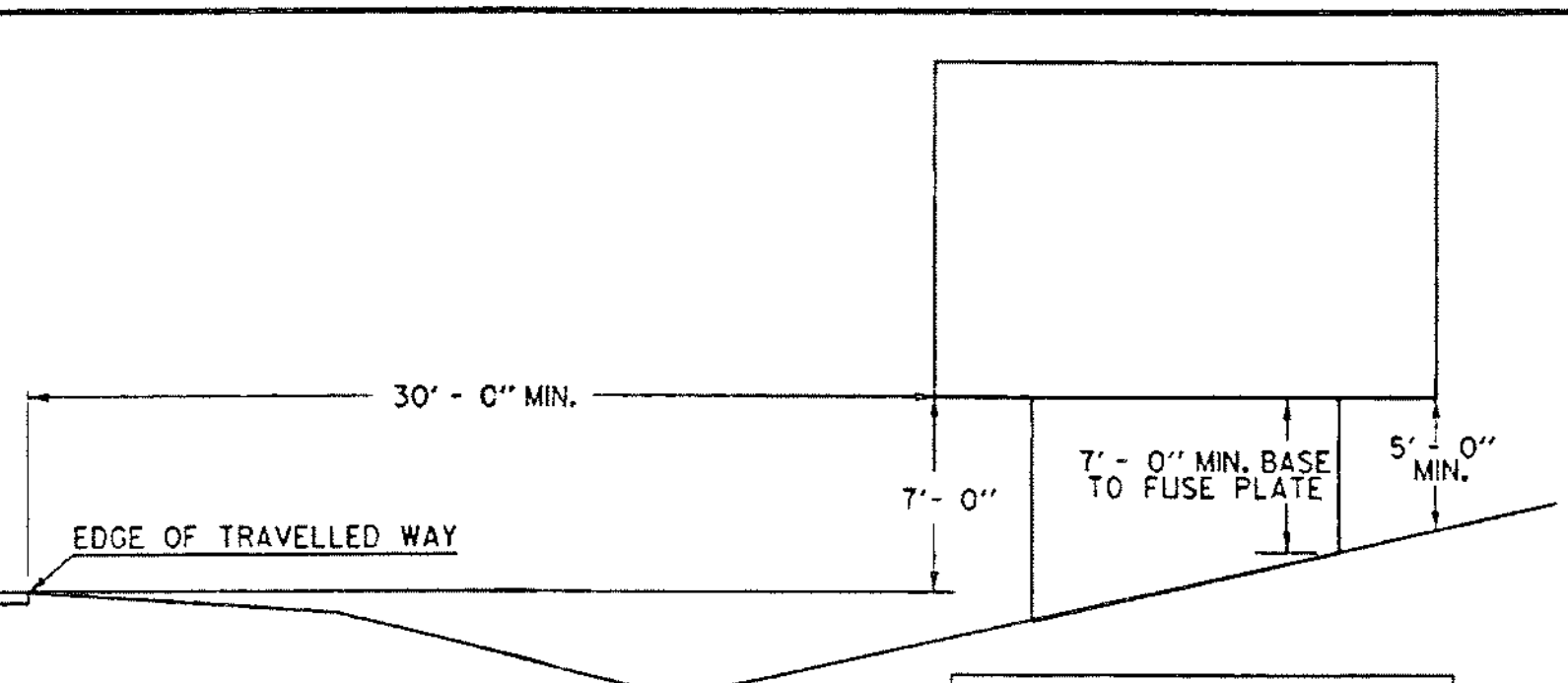
REVISIONS AND CORRECTIONS  
SEPT 10, 1987 - DATE OF ORIGINAL ISSUE  
MAR 01, 1988 - FHWA REVIEW COMMENTS  
SEP 20, 1993 - REVISED NOTES & MISC. DETAILS  
AUG 08, 1995 - DELETED SIGN DETAILS  
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

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

# MAJOR MAINTENANCE OPERATION LANE CLOSURE



STANDARD  
E-110



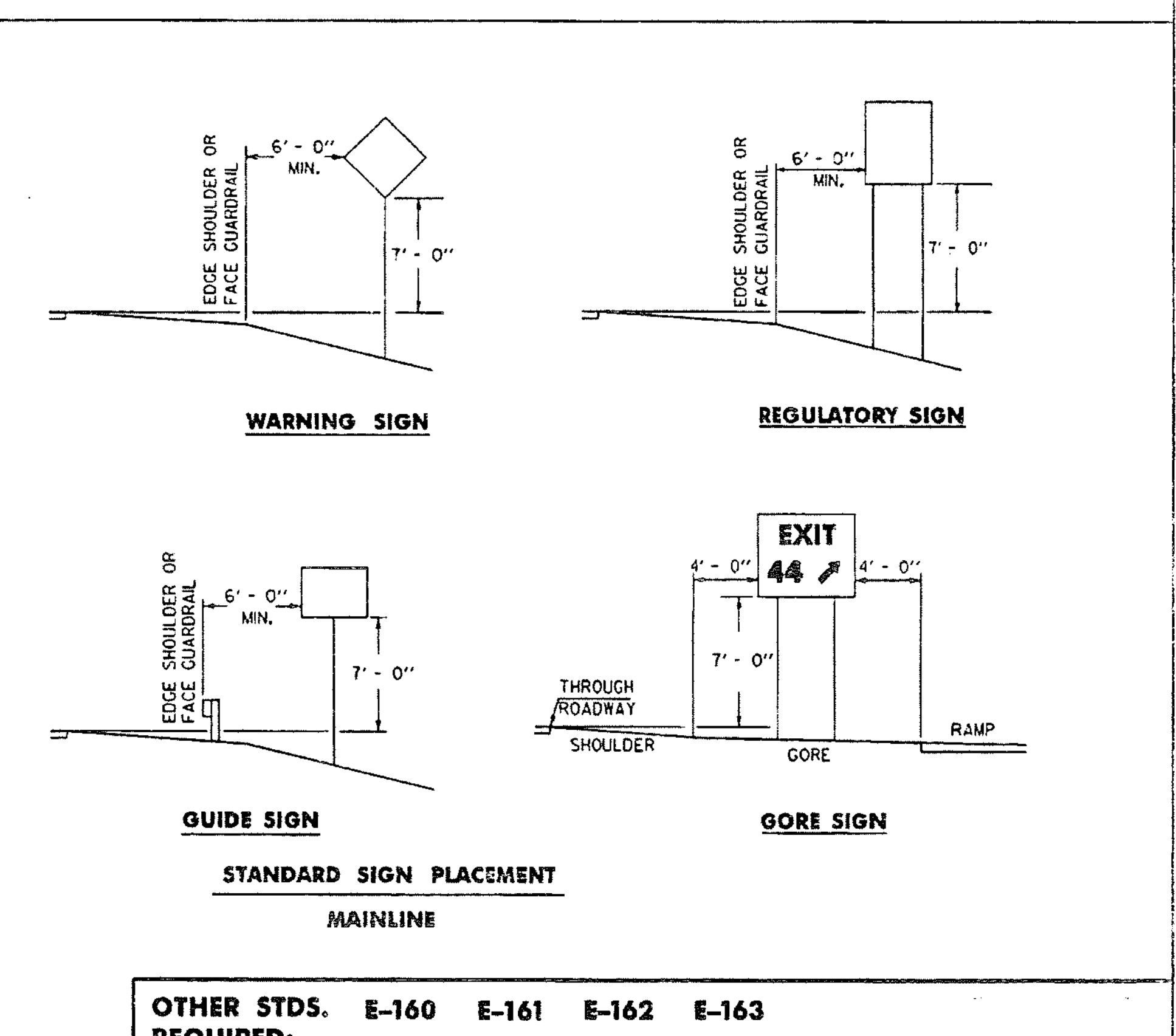
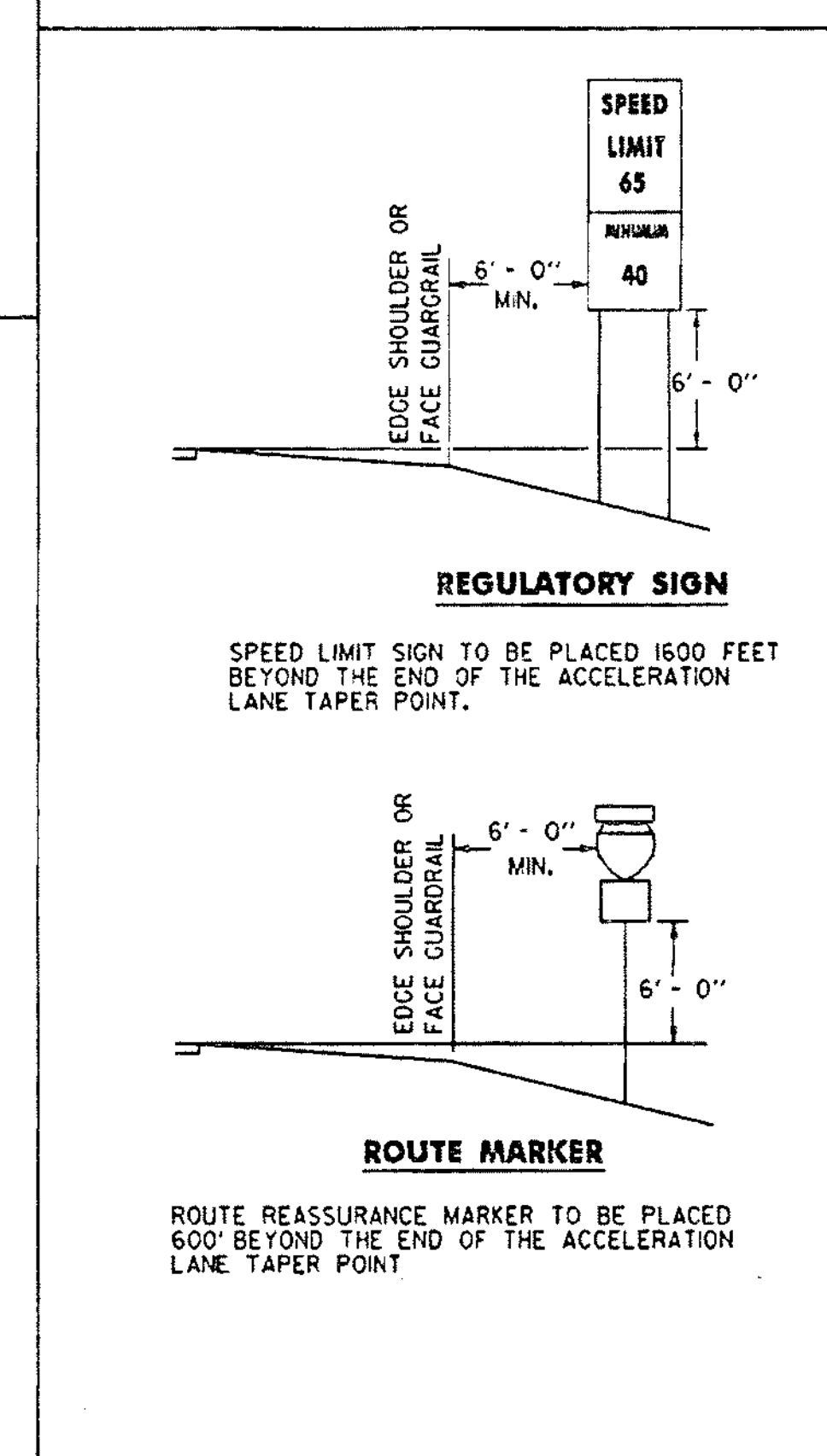
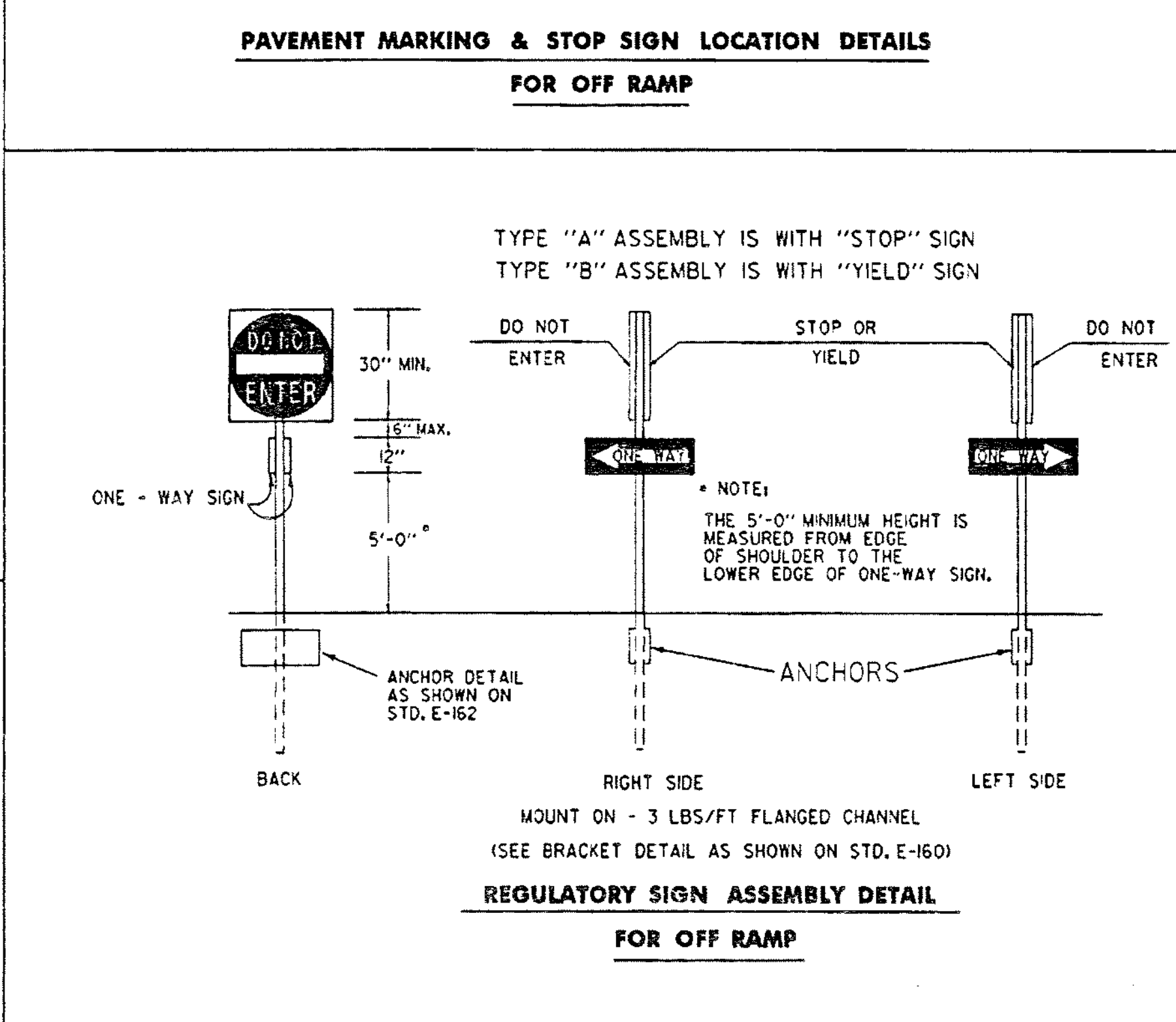
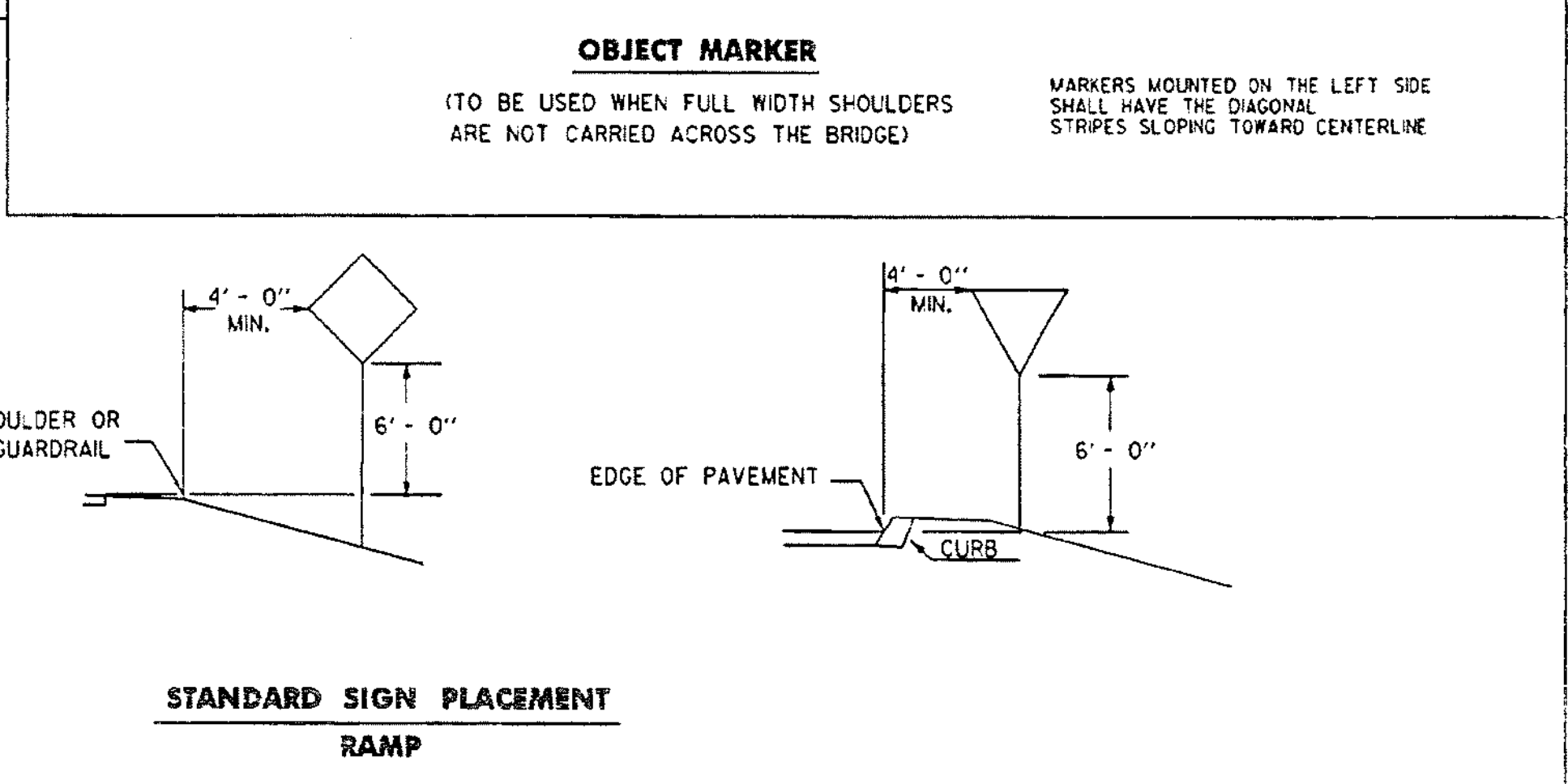
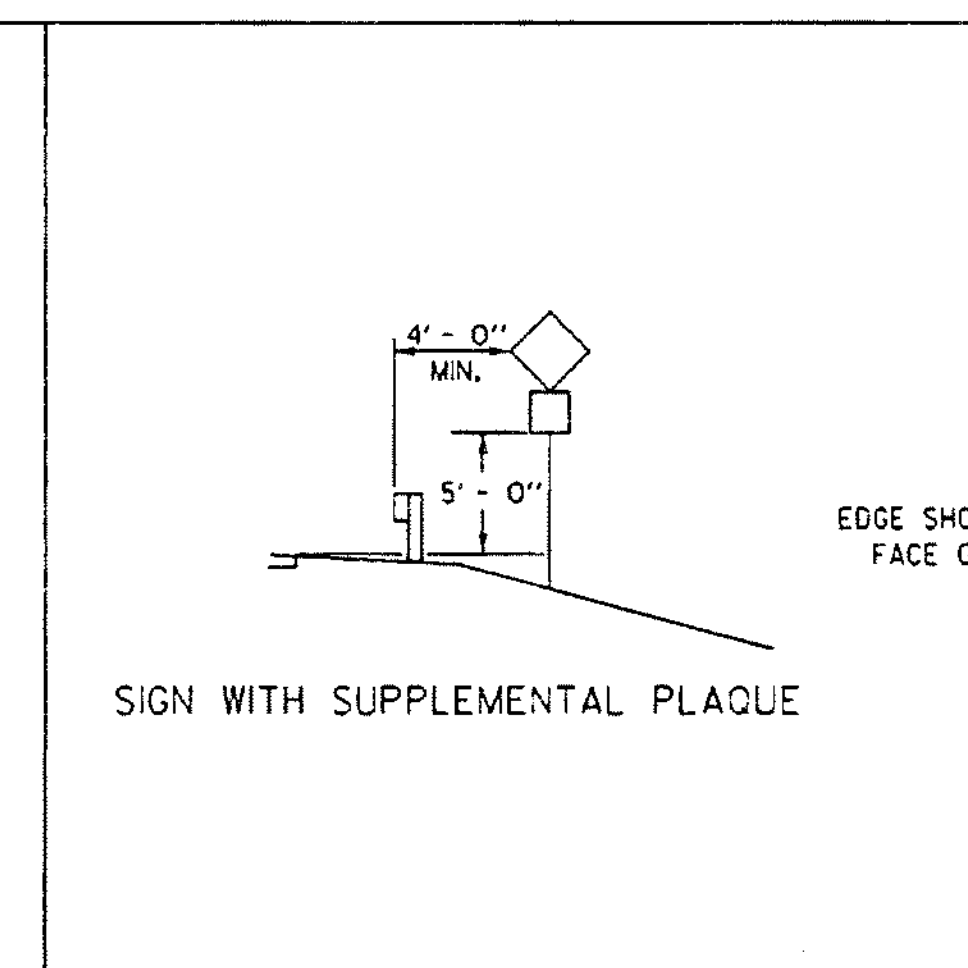
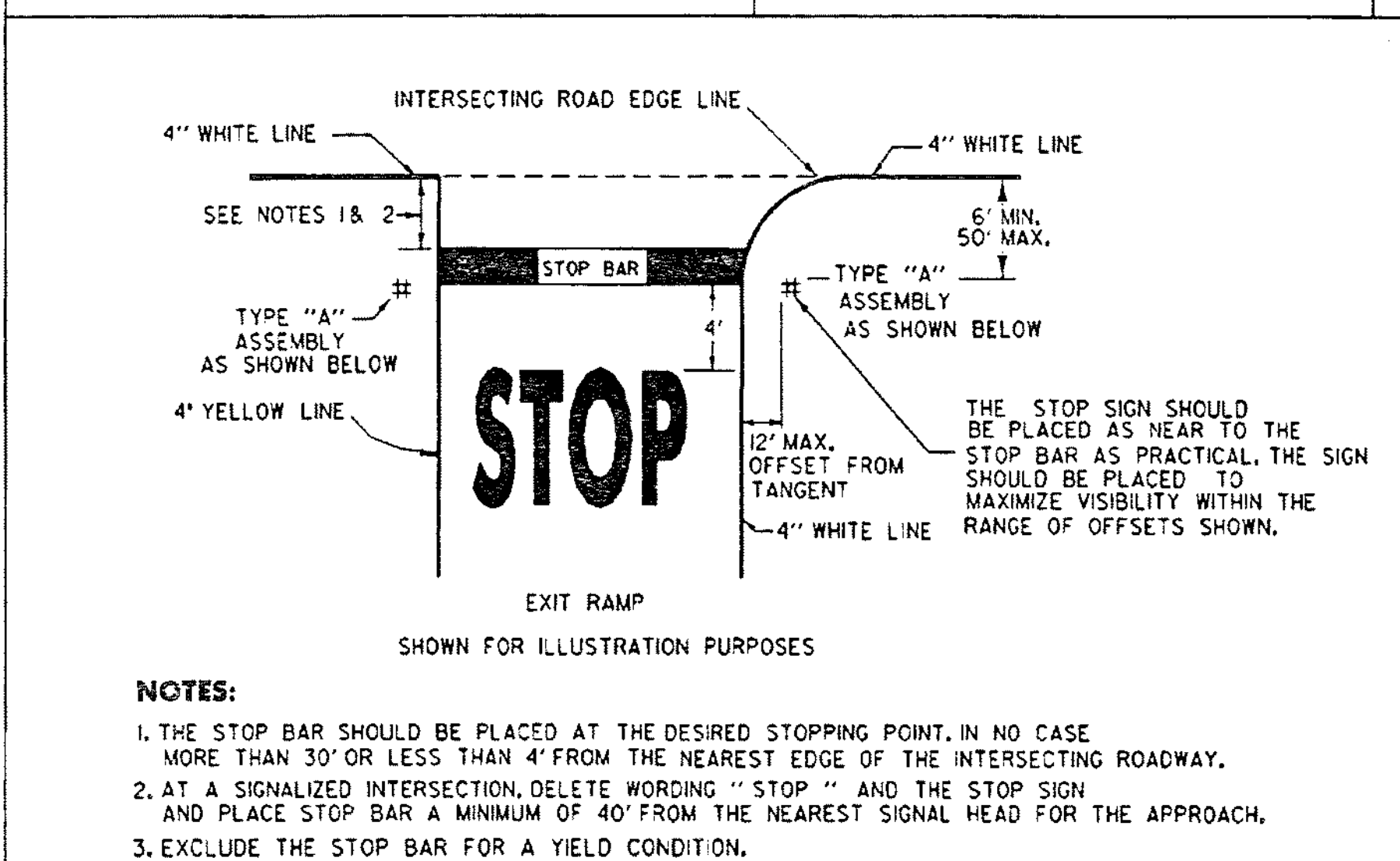
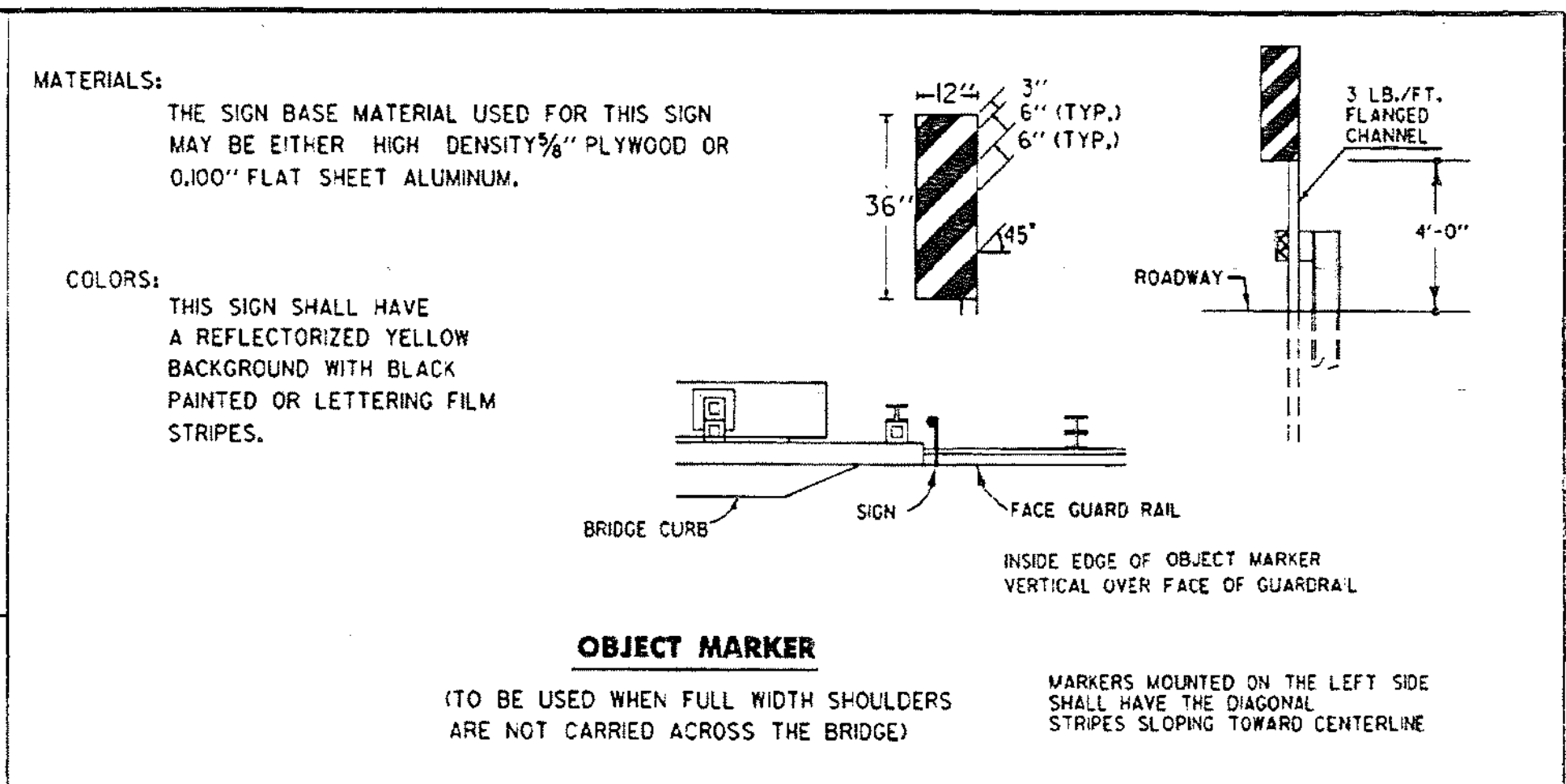
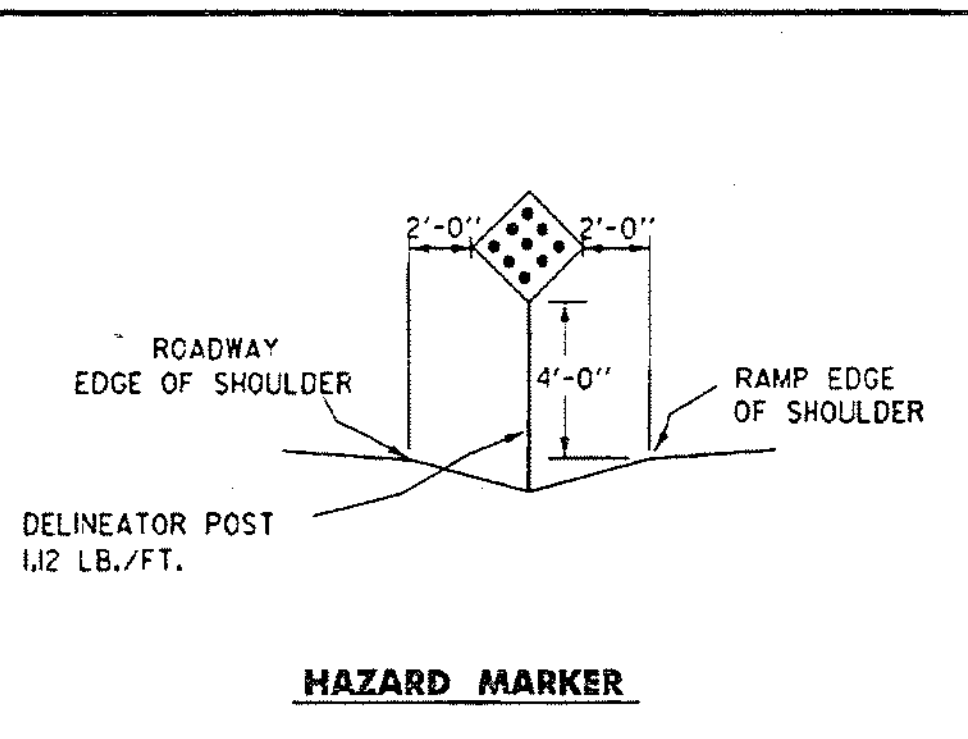
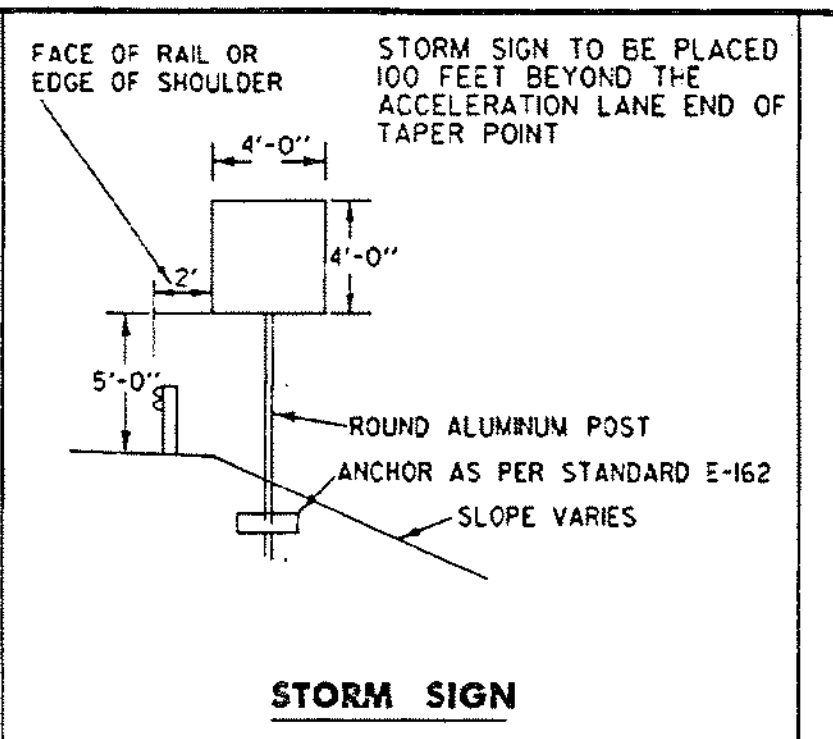
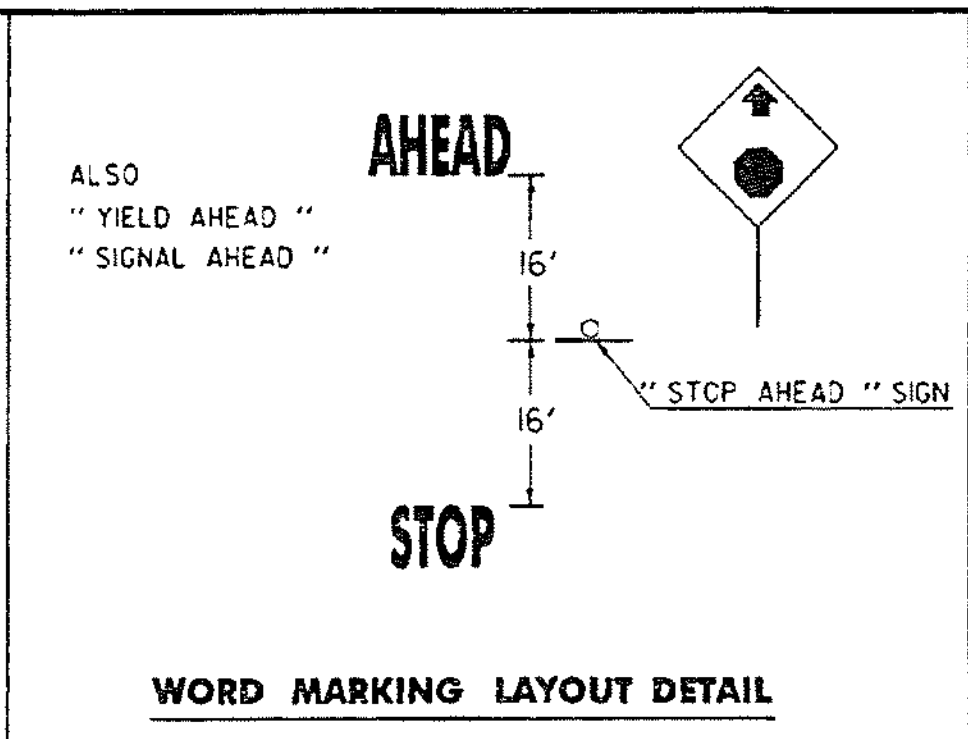
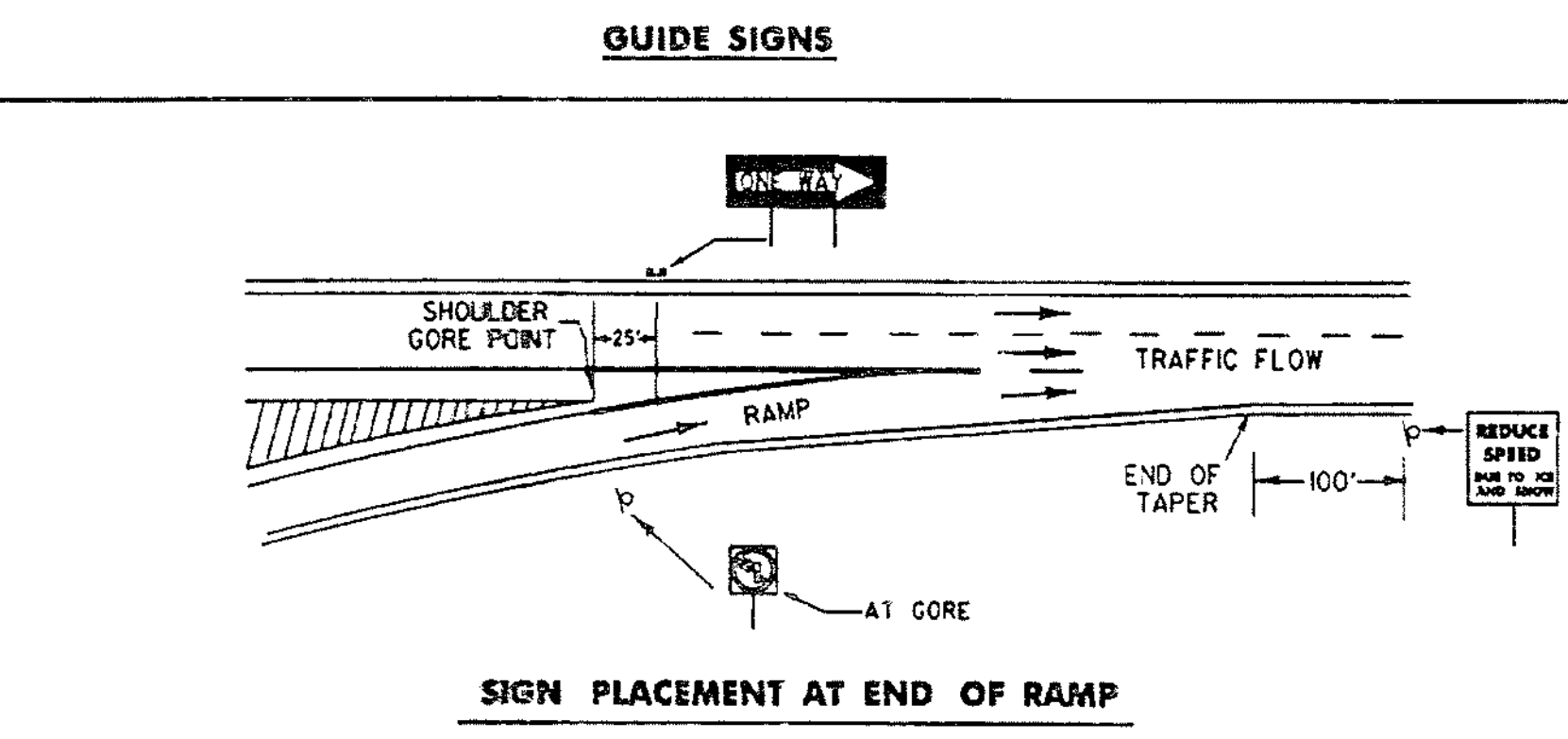
**GUARDRAIL DEFLECTION CHART**  
(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE	SPACING	DEFLEC.
Three Cable w/Steel Posts	16'-0"	12 ft.
w/Wooden Posts	12'-6"	12 ft.
w-Beam w/WEAK Posts	12'-6"	7 ft.
w/STRONG Posts	6'-3"	3 ft.
Box Beam	6'-0"	5 ft.
Thrie Beam w/Weak Posts	12'-6"	4 ft.
w/STRONG Posts	6'-3"	2 ft.

WHEN PLACED BEHIND GUARDRAIL AND BEYOND THE DEFLECTION DISTANCE FOR THAT PARTICULAR RAIL, SIGN POSTS DO NOT HAVE TO BE PLACED ON YIELDING SUPPORTS. SIGN POSTS SHALL BE PLACED ON YIELDING SUPPORTS WHEN THEY CAN BE STRUCK BY AN ERRANT VEHICLE LEAVING THE ROADWAY AT AN ENCRoACHMENT ANGLE OF APPROXIMATELY IS DEGREES OR LESS.

This chart lists the theoretical deflection distance upon impact of various guardrail with different type and post spacing.

**INSTALLATION DETAILS**  
NORMALLY SIGNS SHOULD BE MOUNTED AT 93° TO THE DIRECTION OF TRAFFIC, ON CURVED ALIGNMENT THE ANGLE OF PLACEMENT SHOULD BE DETERMINED BY THE PATH OF APPROACHING TRAFFIC RATHER THAN BY THE ROADSIDE EDGE AT THE POINT WHERE THE SIGN IS LOCATED. WHEN INSTALLING OVERHEAD SIGNS, CANT THE SIGN FROM THE TOP TOWARD APPROACHING TRAFFIC AT A THREE DEGREE TILT ANGLE.



**REVISIONS AND CORRECTIONS**  
APR. 01, 1988 - DATE OF ORIGINAL ISSUE  
JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE  
AUG. 08, 1995 - DELETED TWO RAIL ALUMINUM FROM DEFLECTION CHART AND MINOR NOTE REVISIONS

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

APPROVED

*Stephen D. MacCathran*  
DIRECTOR OF ENGINEERING

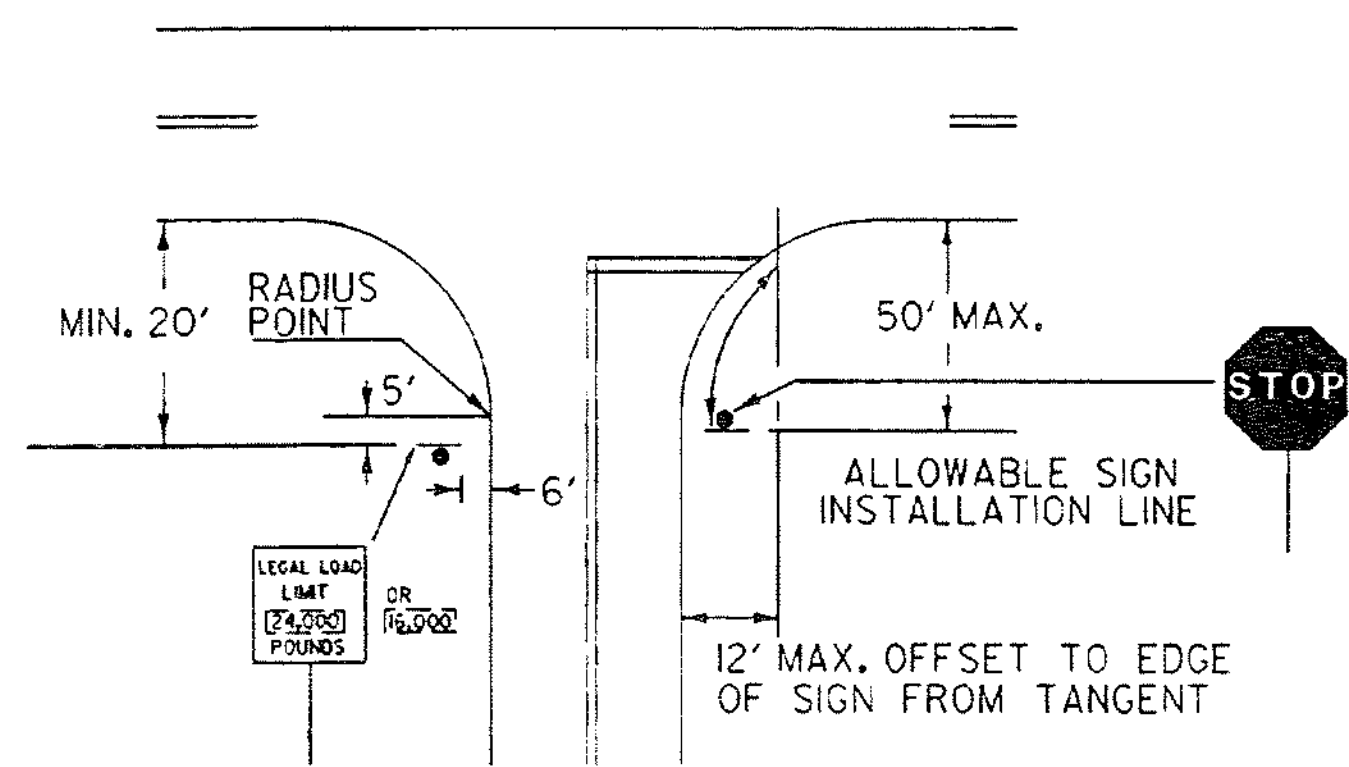
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

# STANDARD SIGN PLACEMENT EXPRESSWAY AND FREEWAY

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

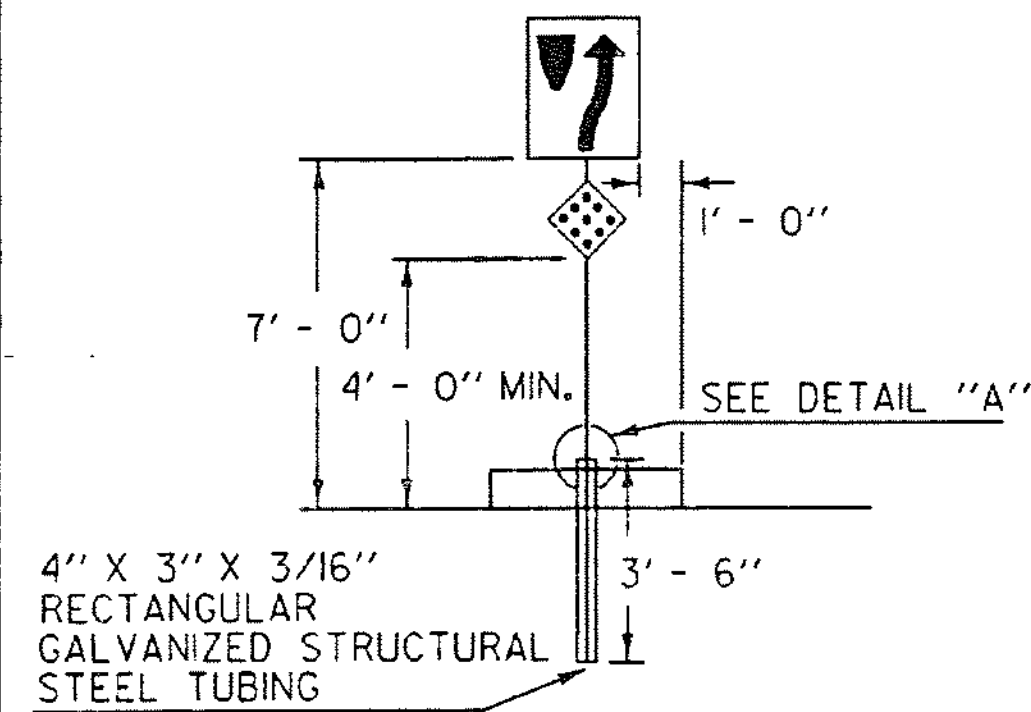
**STANDARD E-120**

/traf/std/stdel20.dgn ; stde120.i



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.

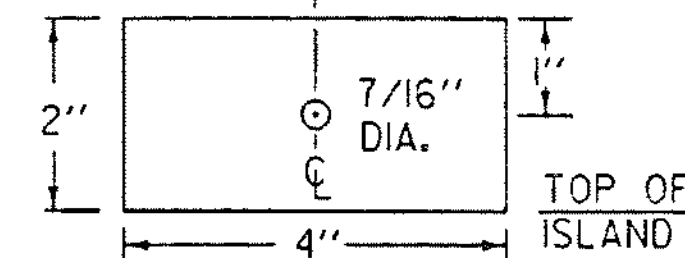
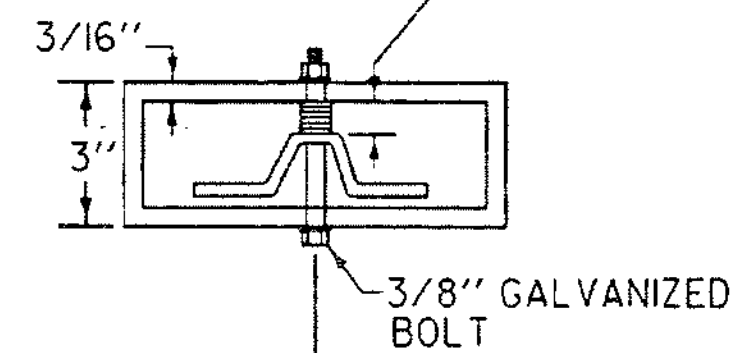
**LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS**



4" X 3" X 3/16" RECTANGULAR GALVANIZED STRUCTURAL STEEL TUBING

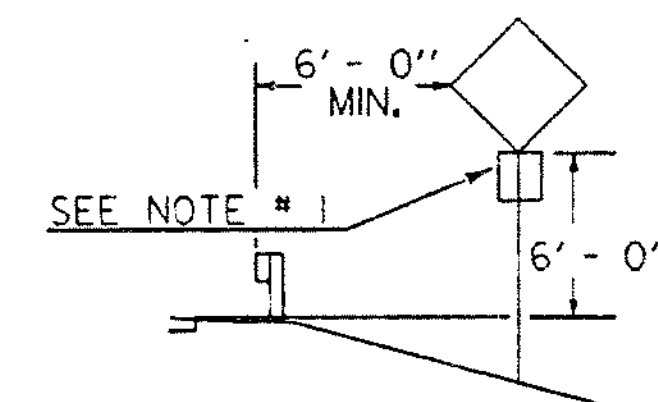
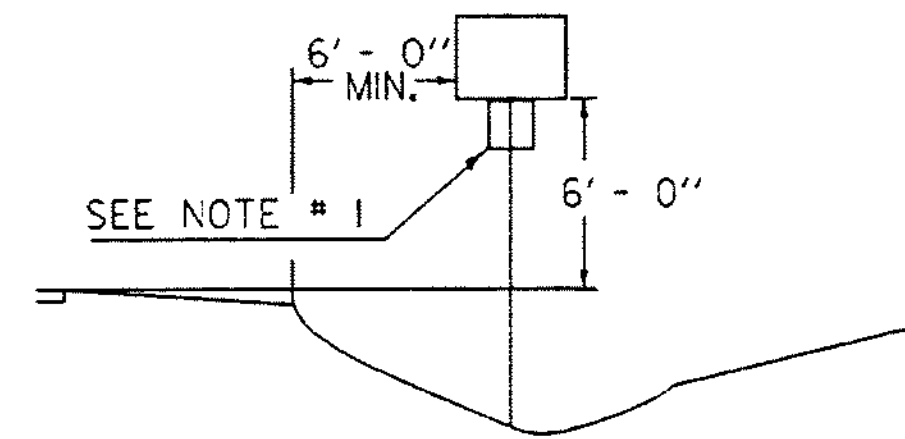
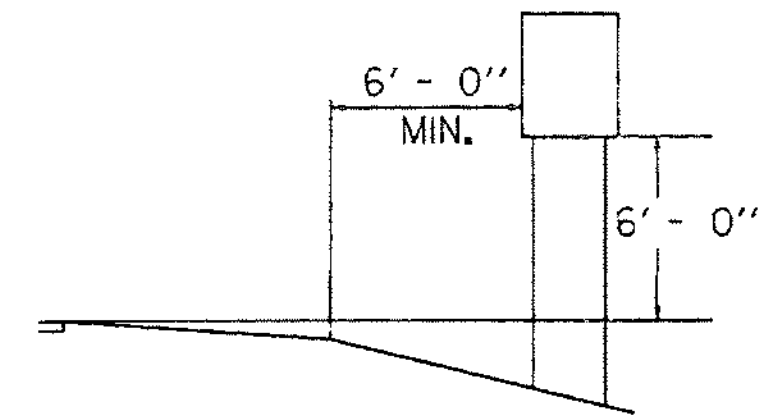
**SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC**

TO INSURE A TIGHT CONNECTION GALVANIZED WASHERS SHALL BE USED AS SPACERS.

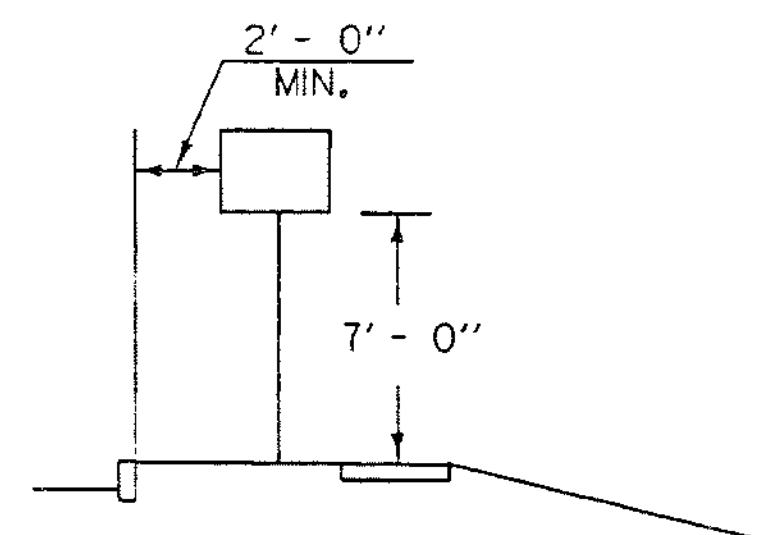
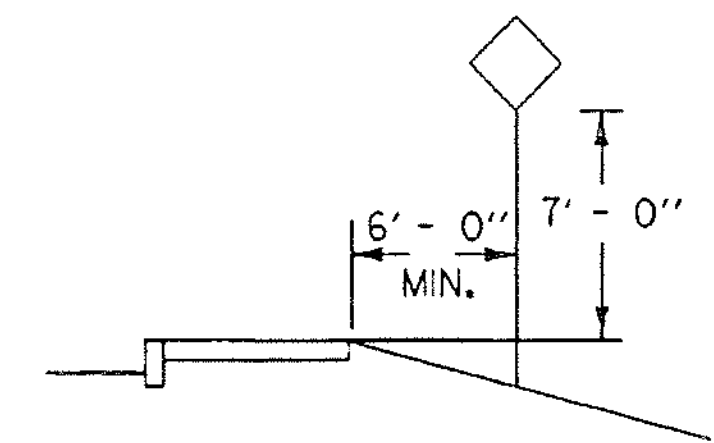


SLEEVE DETAIL "A"

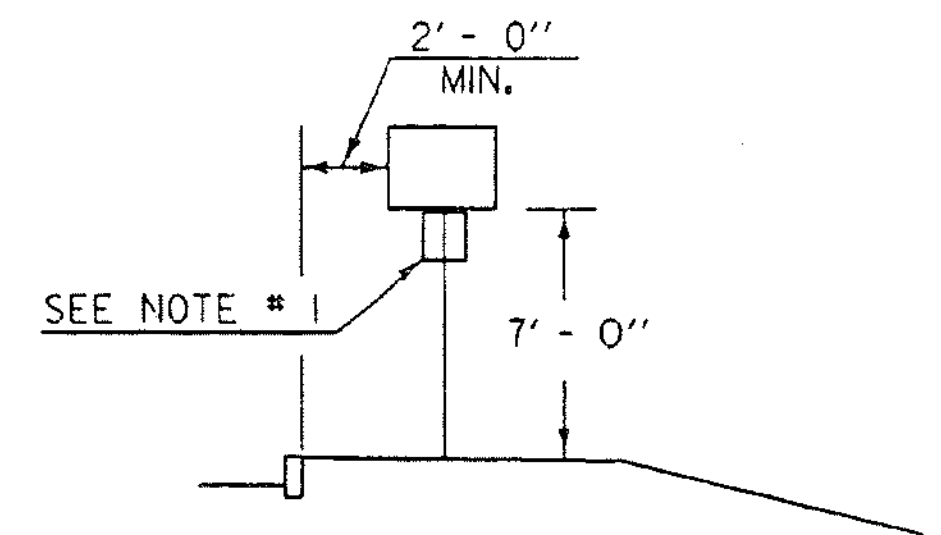
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY



**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**

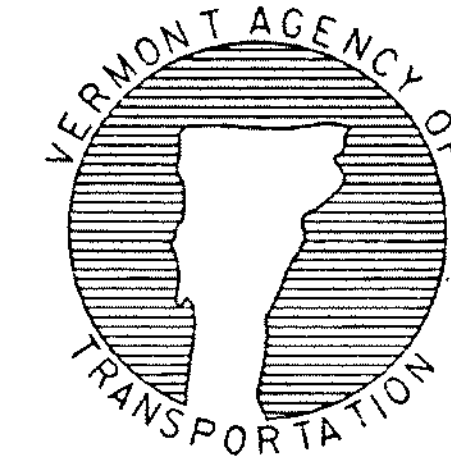
JAN. 23, 1995 - DATE OF ORIGINAL ISSUE  
AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

**APPROVED**

*Stephen J. McArthur*  
DIRECTOR OF ENGINEERING

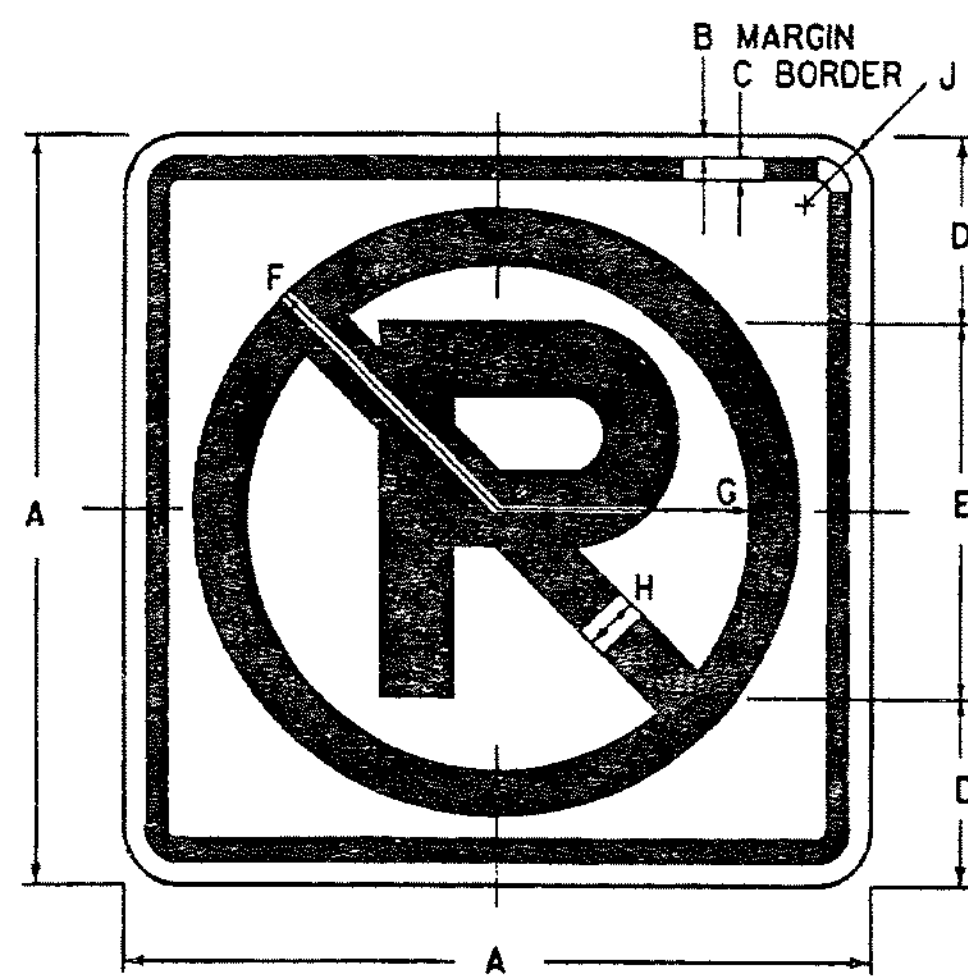
*David A. Bass*  
TRAFFIC AND SAFETY ENGINEER

**STANDARD SIGN PLACEMENT  
CONVENTIONAL ROAD**



**STANDARD  
E-121**

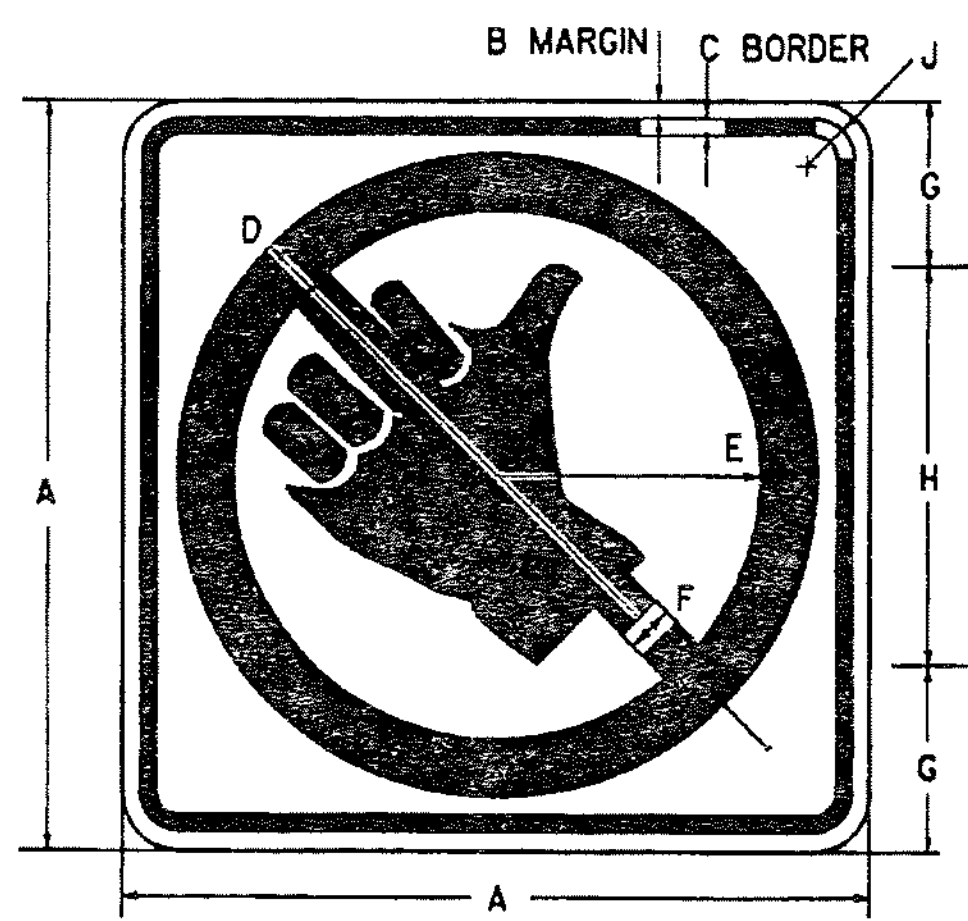
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



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

**R3-3A**

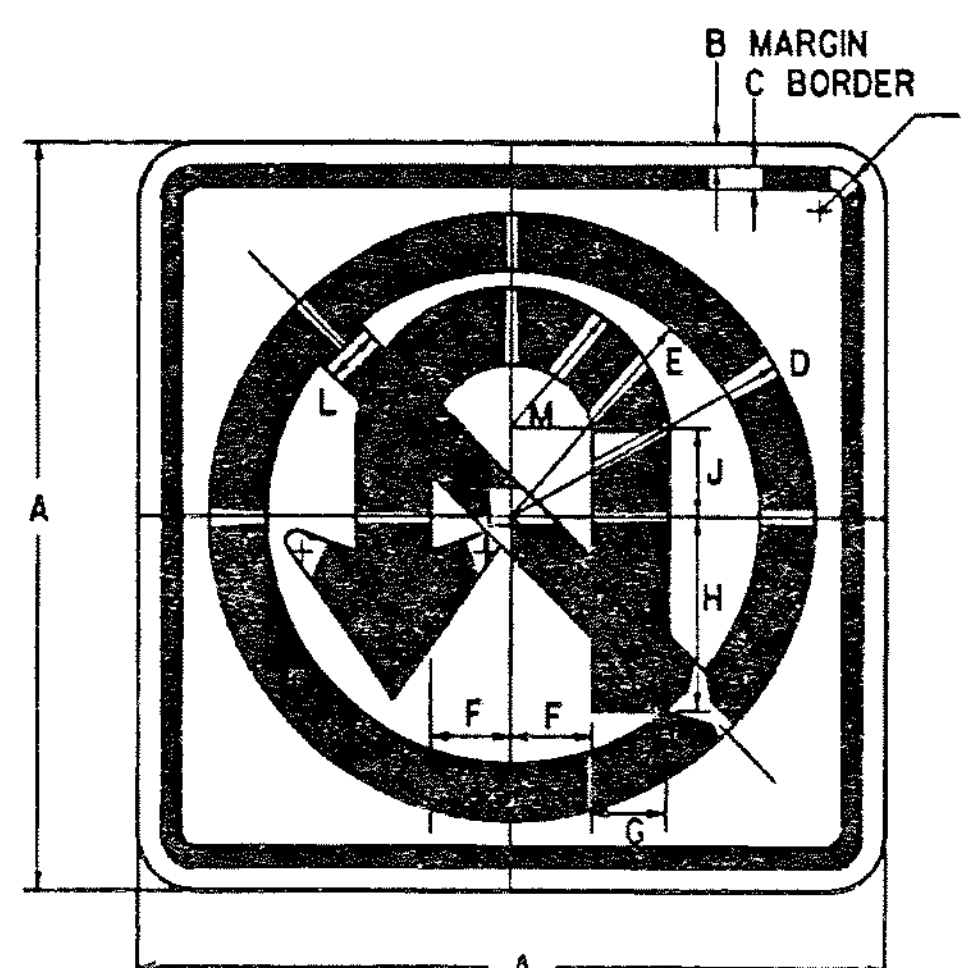
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
URBAN MIN. AND STD.	12	3/8	3/8	3	6E(M)	4 1/2	3 3/8	1	1 1/2	
RURAL MIN. AND STD.	24	3/8	5/8	6	12E(M)	10 1/2	8 1/2	2	1 1/2	
EXPWY.	36	5/8	1 1/8	9	18E(M)	15 3/4	12 3/4	3	2 1/4	
FWY.	48	3/4	1 1/4	12	24E(M)	21	17	4	3	



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

**R9-4A**

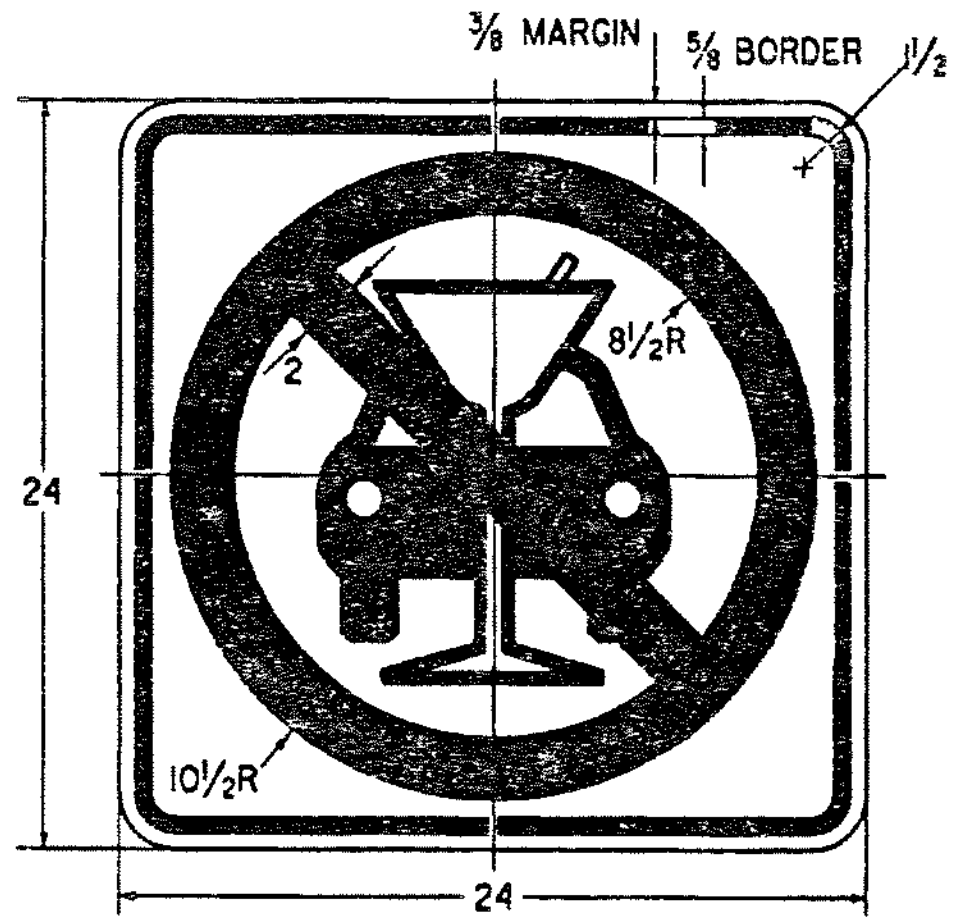
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
MIN.	18	3/8	5/8	7 1/8	6 3/8	1 1/2	3 3/4	10 1/2	1 1/2	
STD.	24	3/8	5/8	10 1/2	8 1/2	2	5	14	1 1/2	



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

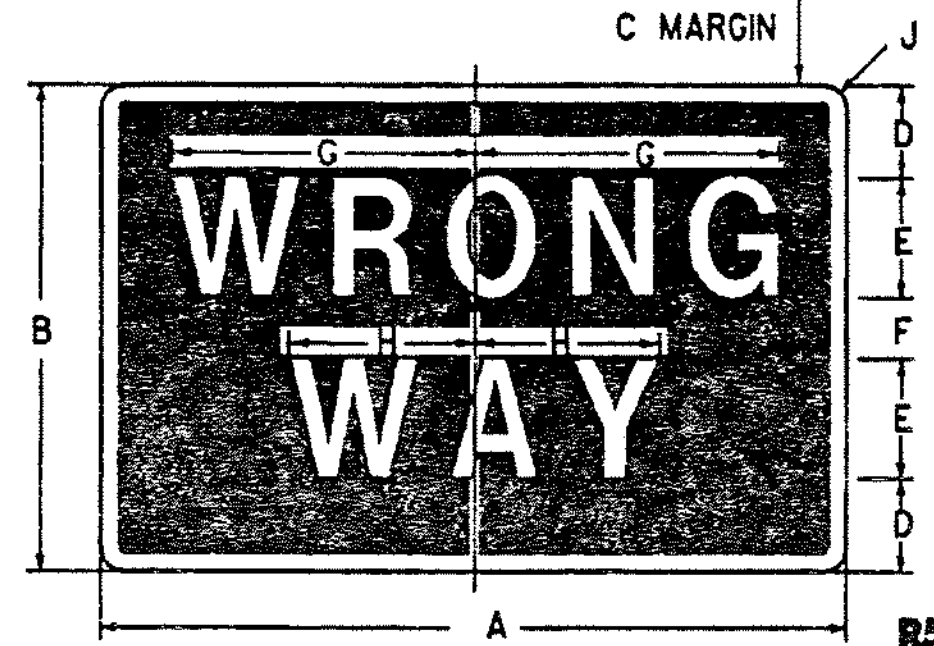
**R3-4**

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

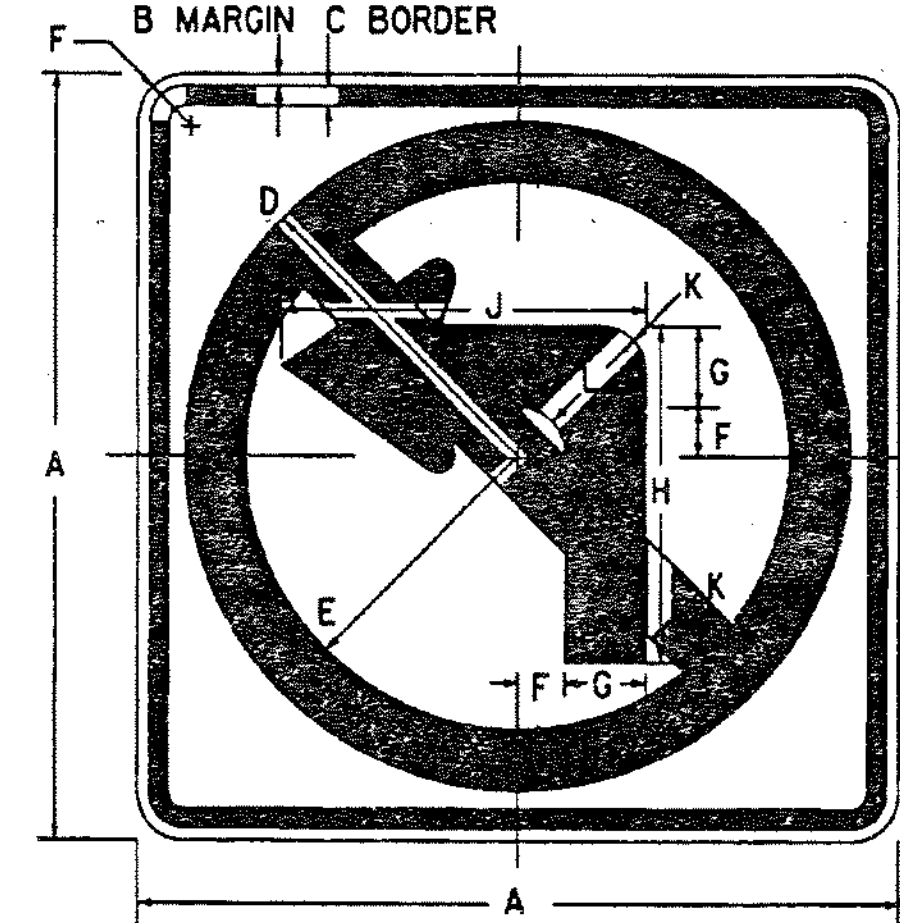
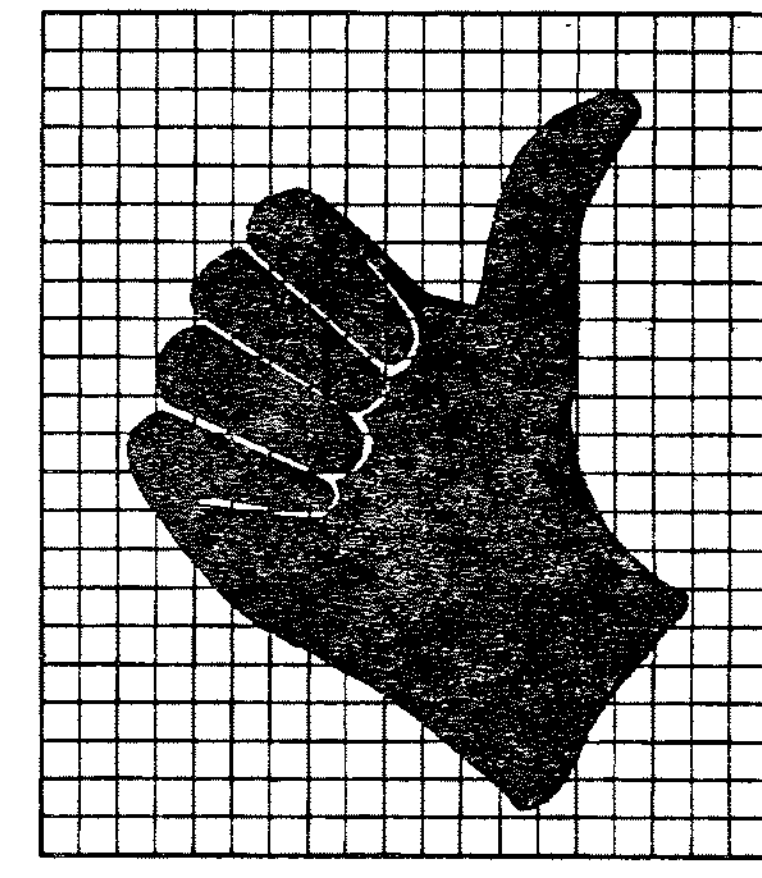
**VR-654**



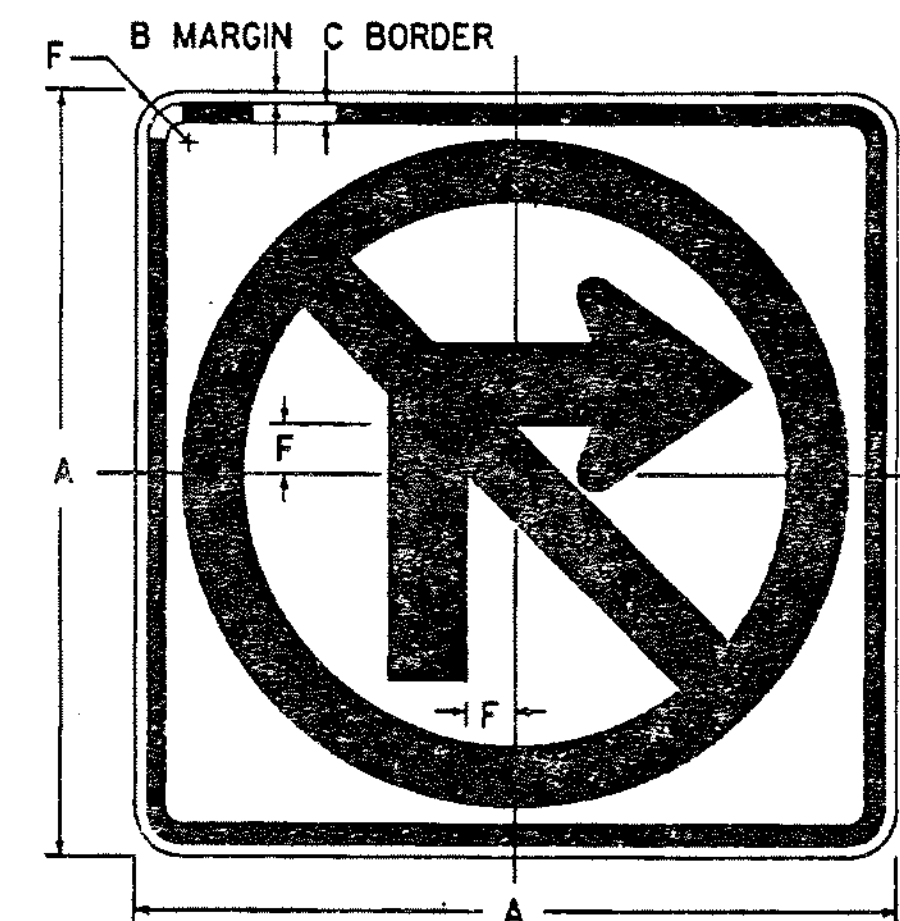
**"WRONG WAY"**  
**COLORS**  
 LEGEND - WHITE (REFL )  
 BACKGROUND - RED (REFL )  
 ENCAPSULATED LENS

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

**R5-1A**



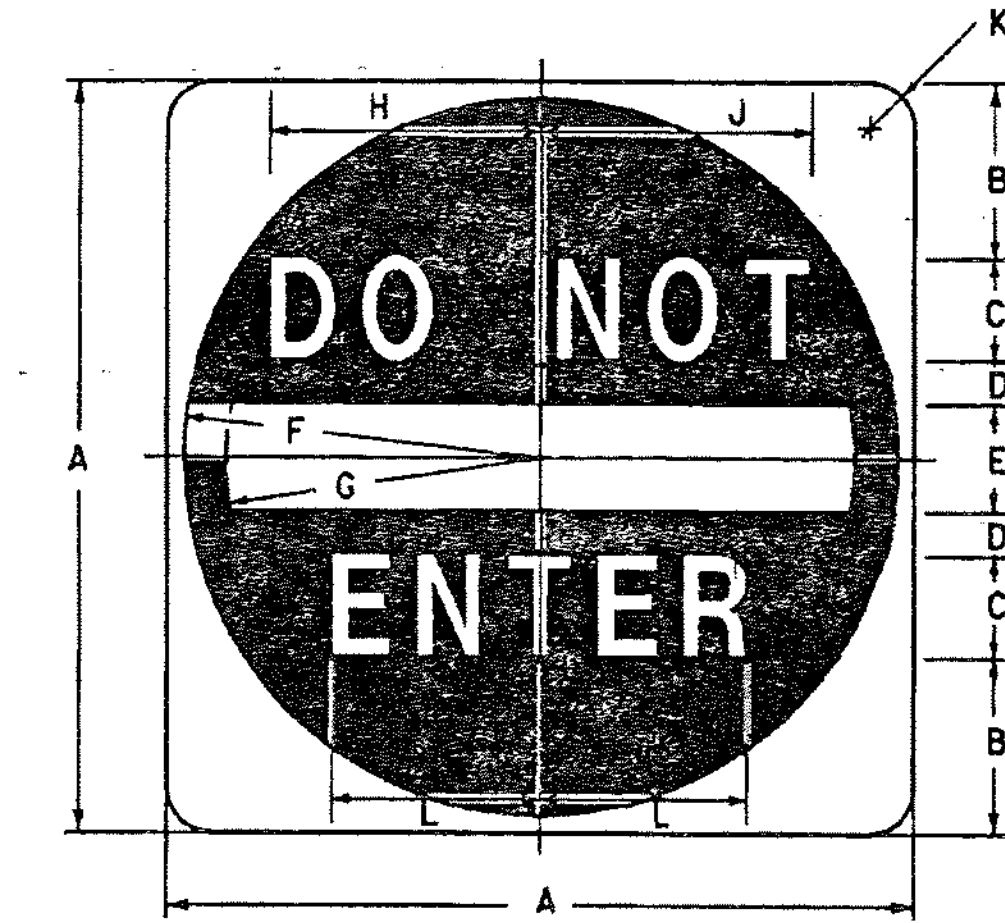
**R3-2**



**R3-1**

**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	5/8	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 1/8	10 3/8	1 3/8	3 3/8	13 1/8	1 1/2	2 1/2	3/8
EXPWY.	36	5/8	1 1/8	15 3/4	12 3/4	2 1/4	3 3/4	15 3/4	1 3/4	3	3/4
SPECIAL	48	3/4	1 1/4	21	17	3	5	21	2 3/4	4	1



**R5-1**

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

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 7/8	7 7/8
EXPWY.	36	7 1/2	5D	2 1/2	6	17 1/2	15	12	12 3/8	2 1/4	8 1/8
SPECIAL	48	11	6D	3	8	23 1/2	20	14 1/2	15	3	11 3/4

**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 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.

	12' X 12'	16' X 18'	24' X 24'	30' X 24'	30' X 18'	30' X 30'	36' X 24'	36' X 36'	42' X 30'	48' X 48'
FLAT SHEET ALUMINUM										
HIGH DENSITY OVERLAID PLYWOOD	0.060"		0.080"				0.100"			
GALVANIZED FLAT SHEET STEEL	18 GAGE		16 GAGE				14 GAGE			

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN, THE BLACK PORTIONS 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. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

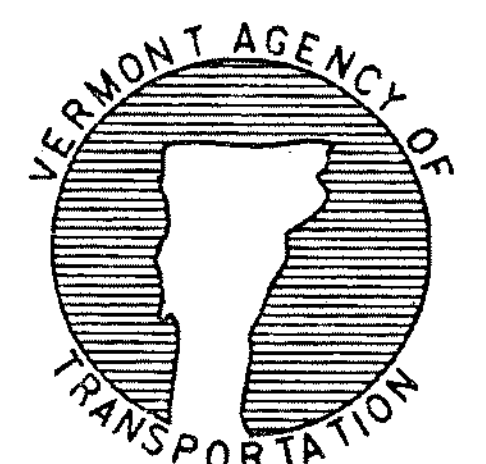
**SPECIFICATIONS:**

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-143**

**REVISIONS AND CORRECTIONS**

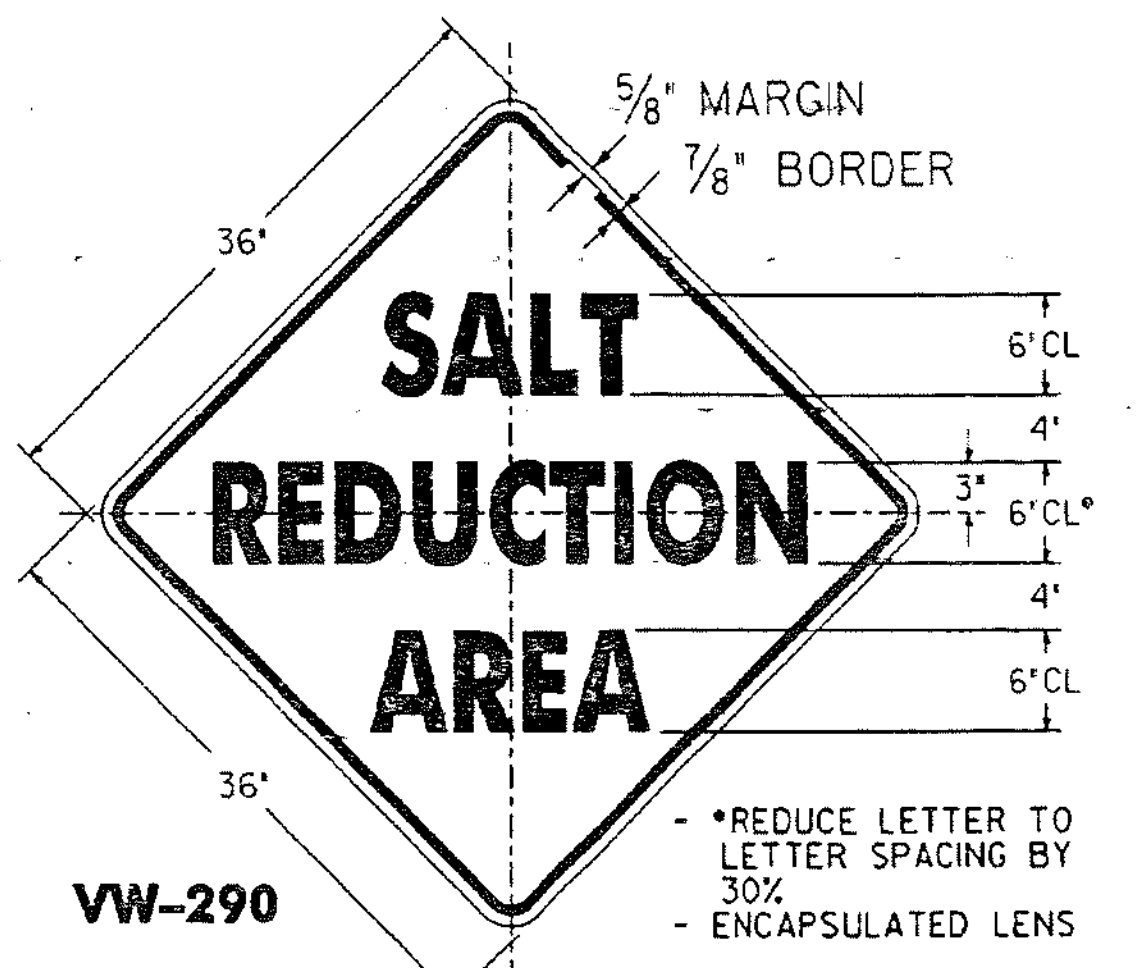
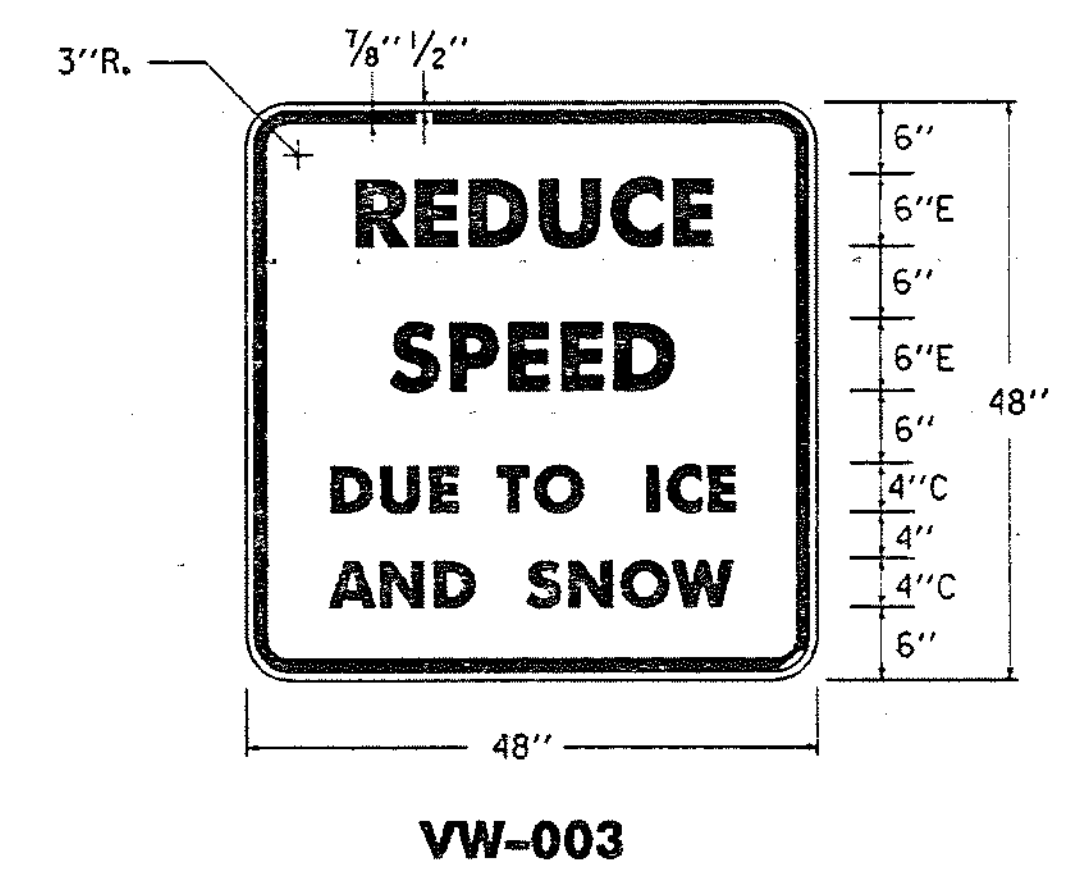
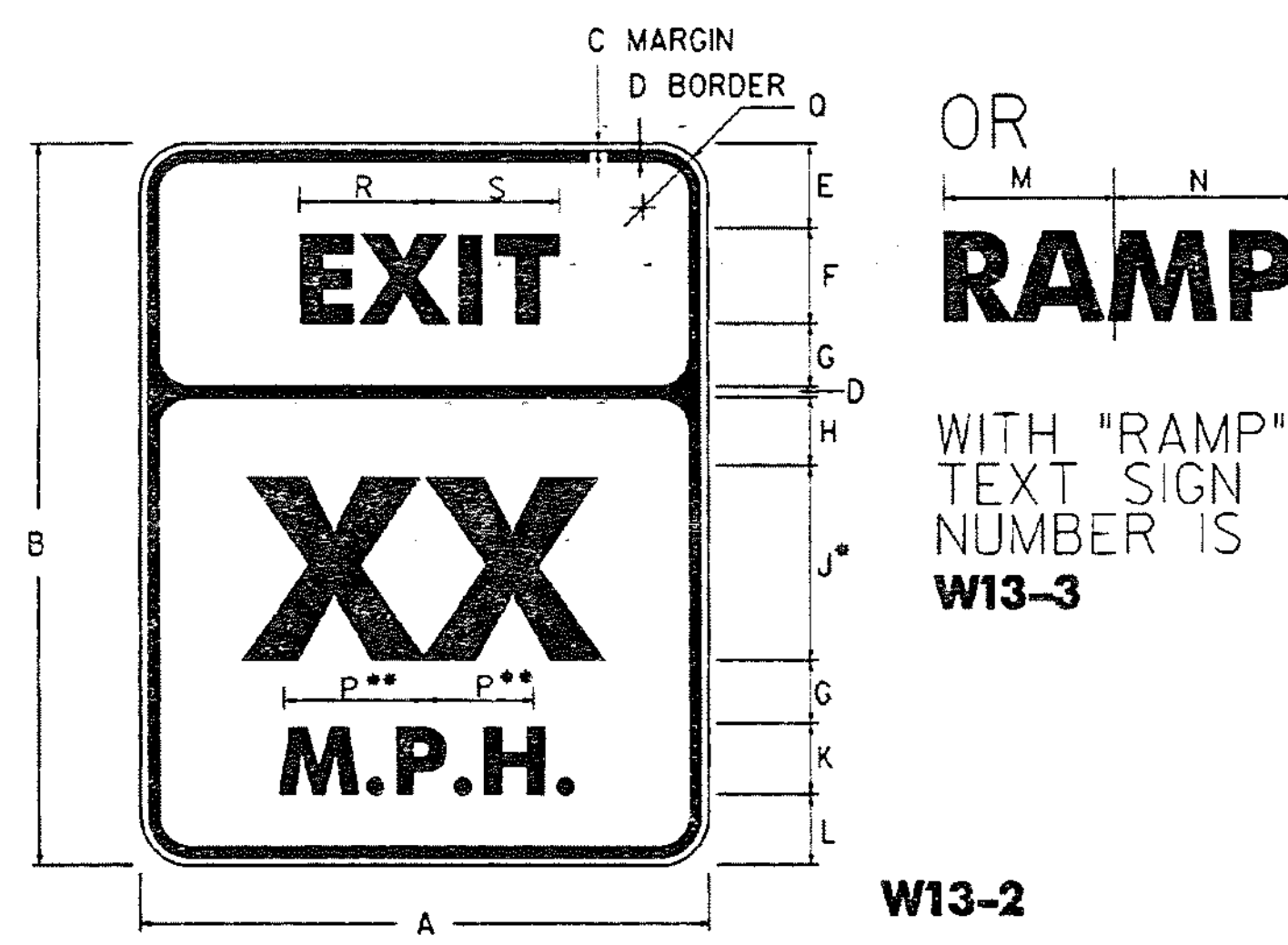
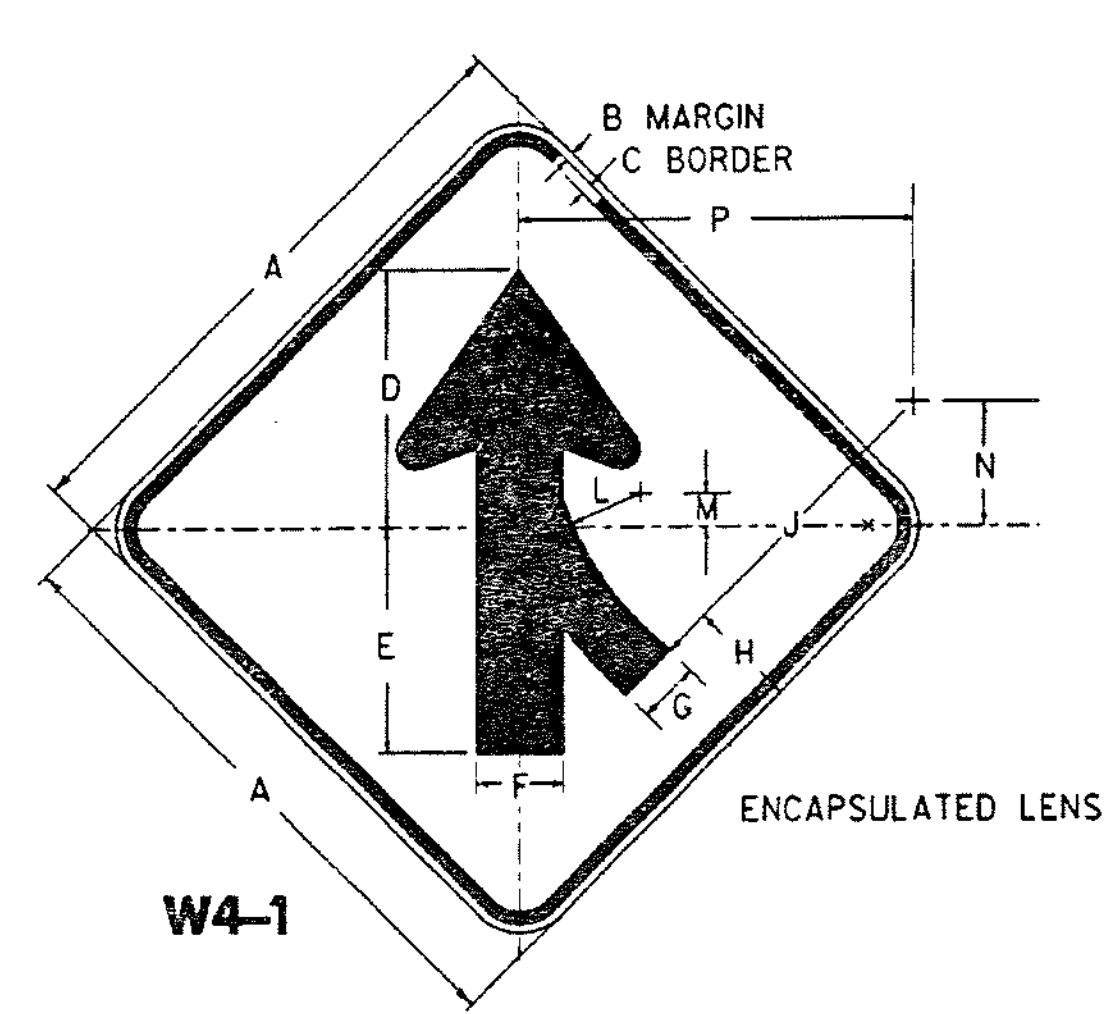
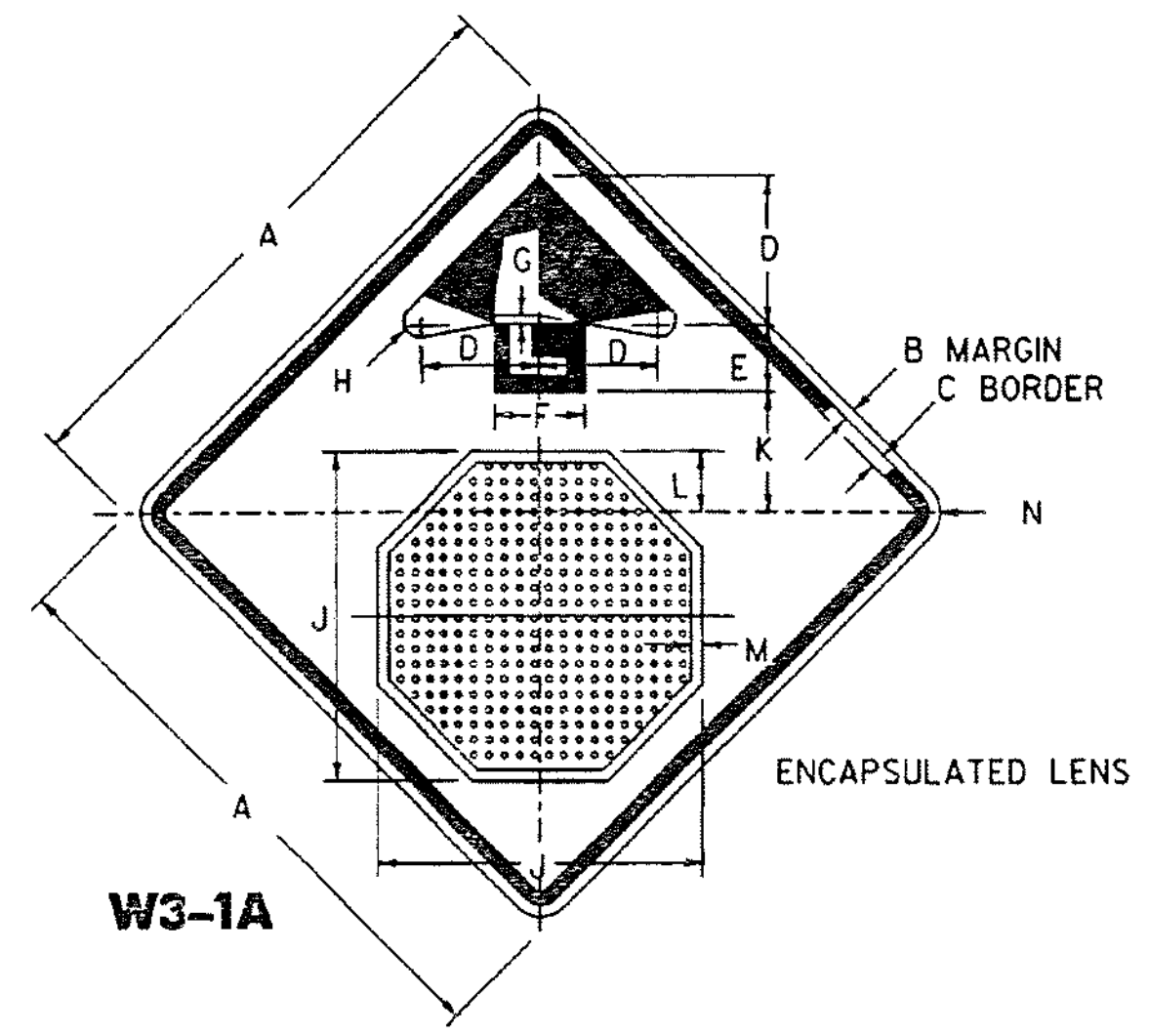
OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
 SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

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

**APPROVED**

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

**REGULATORY SIGN DETAILS**

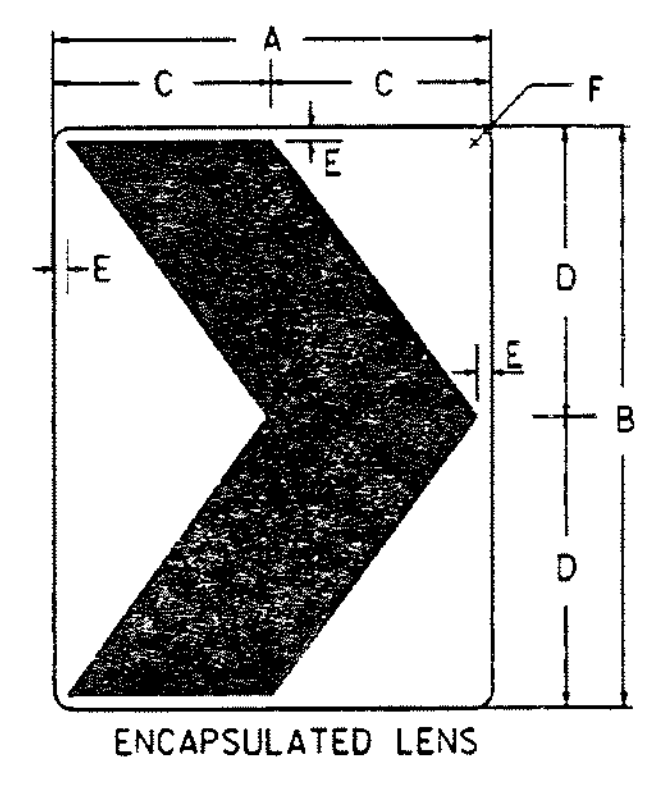
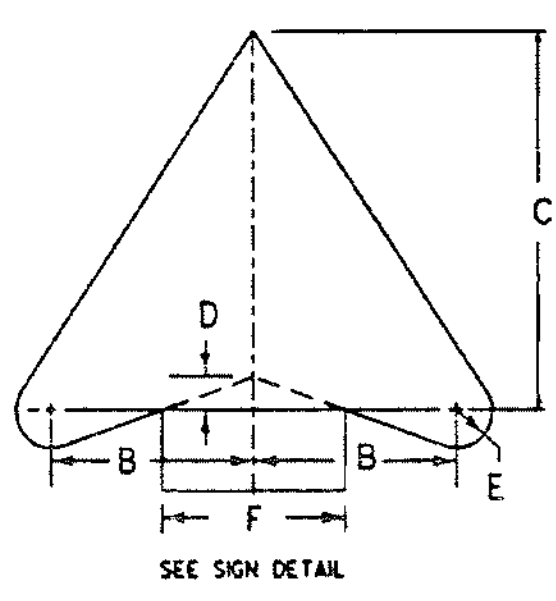
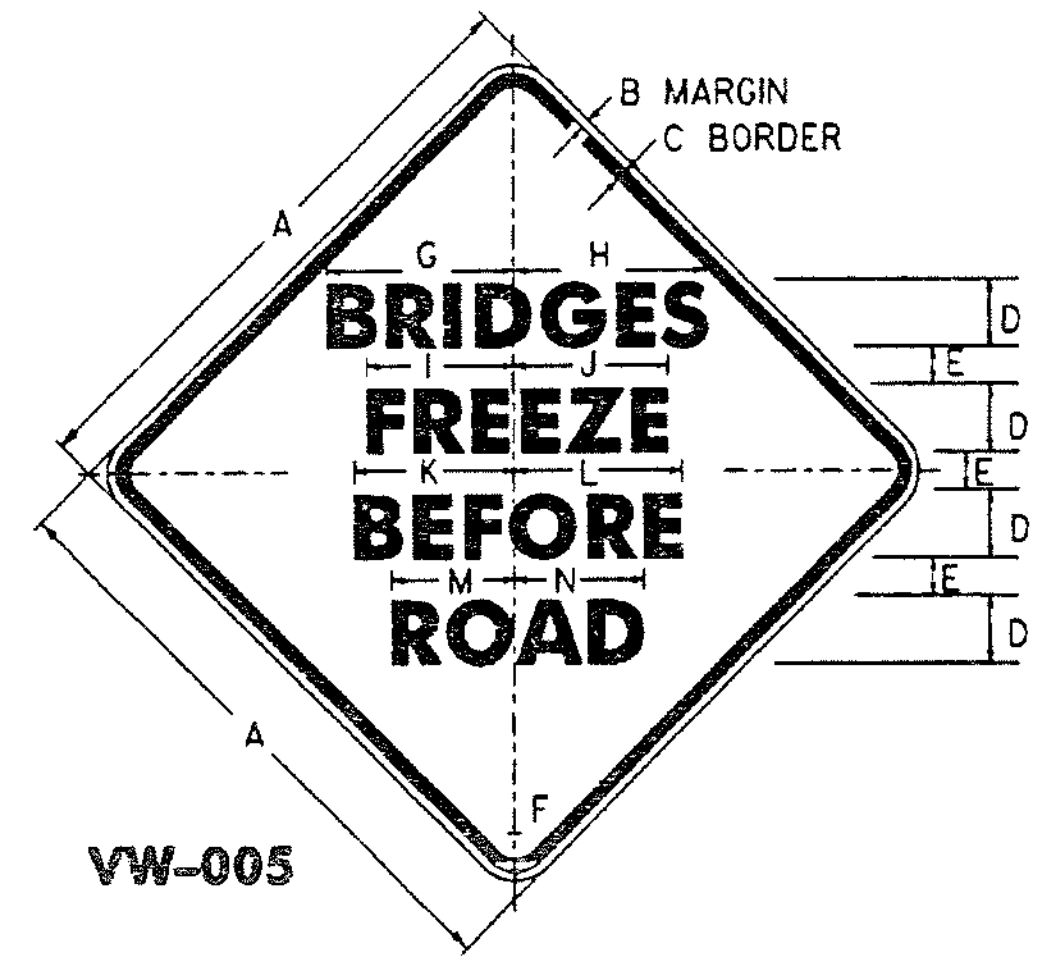
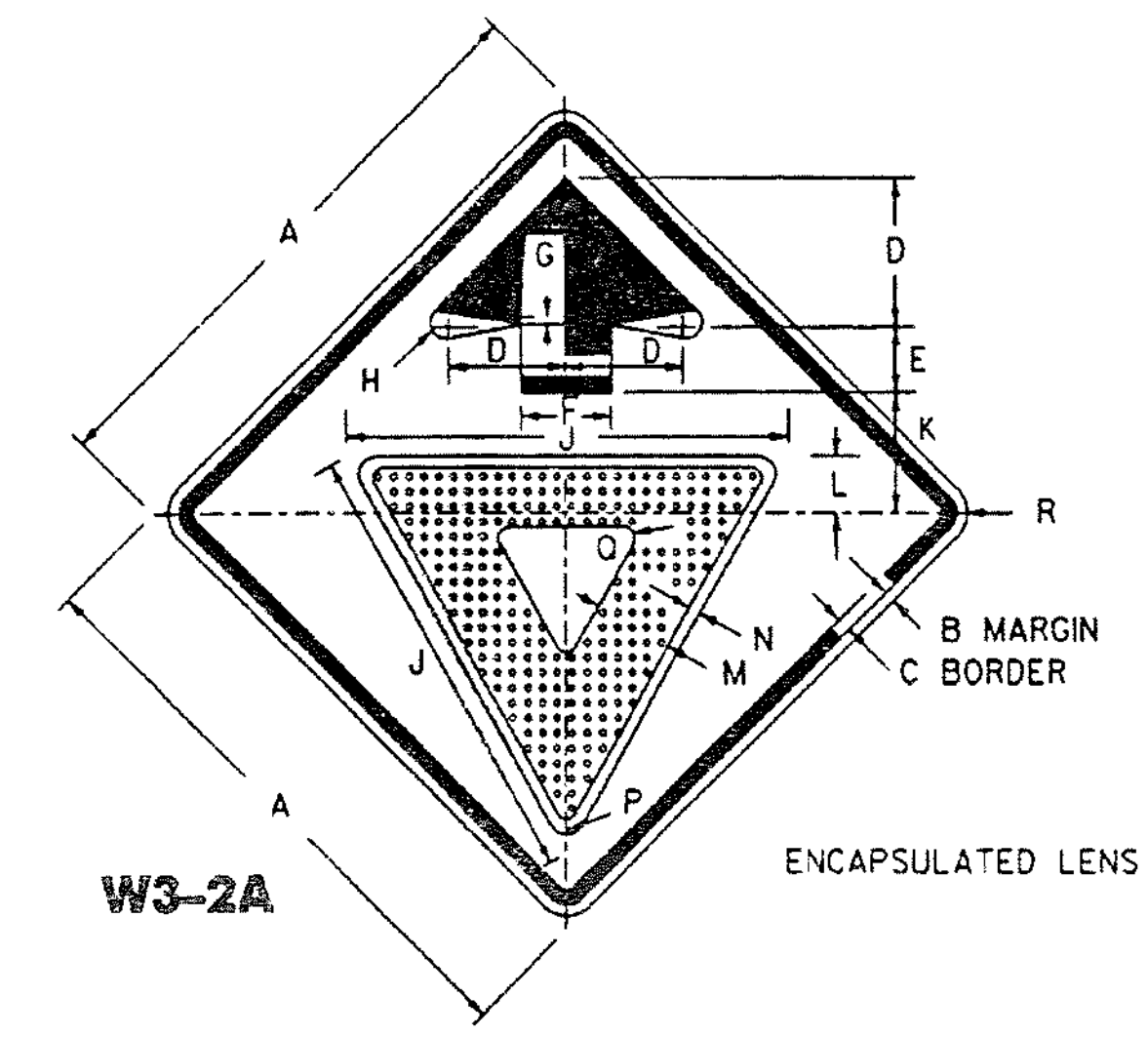
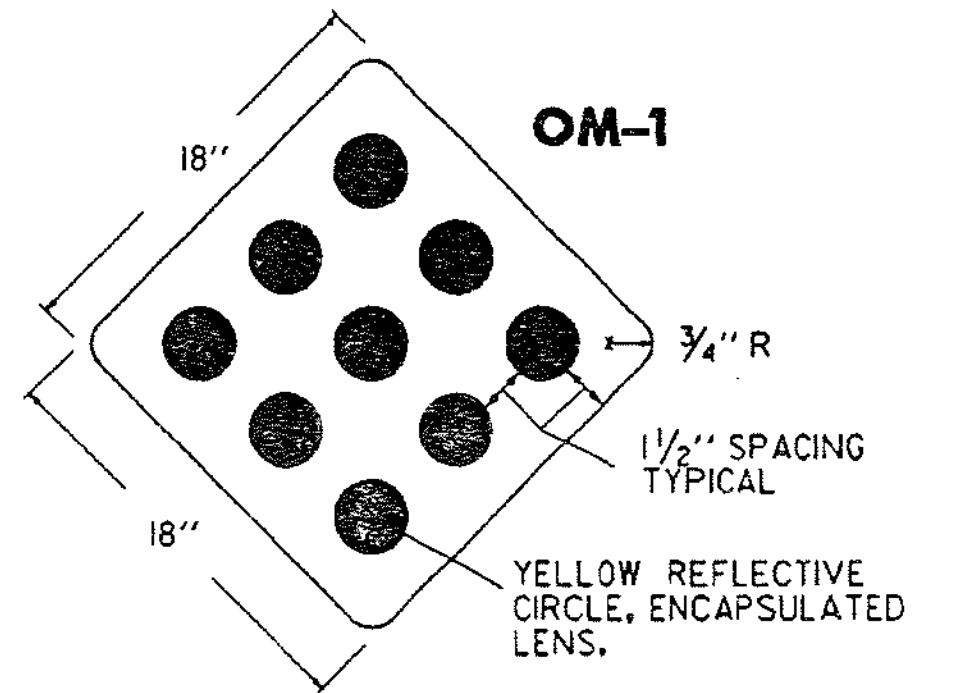
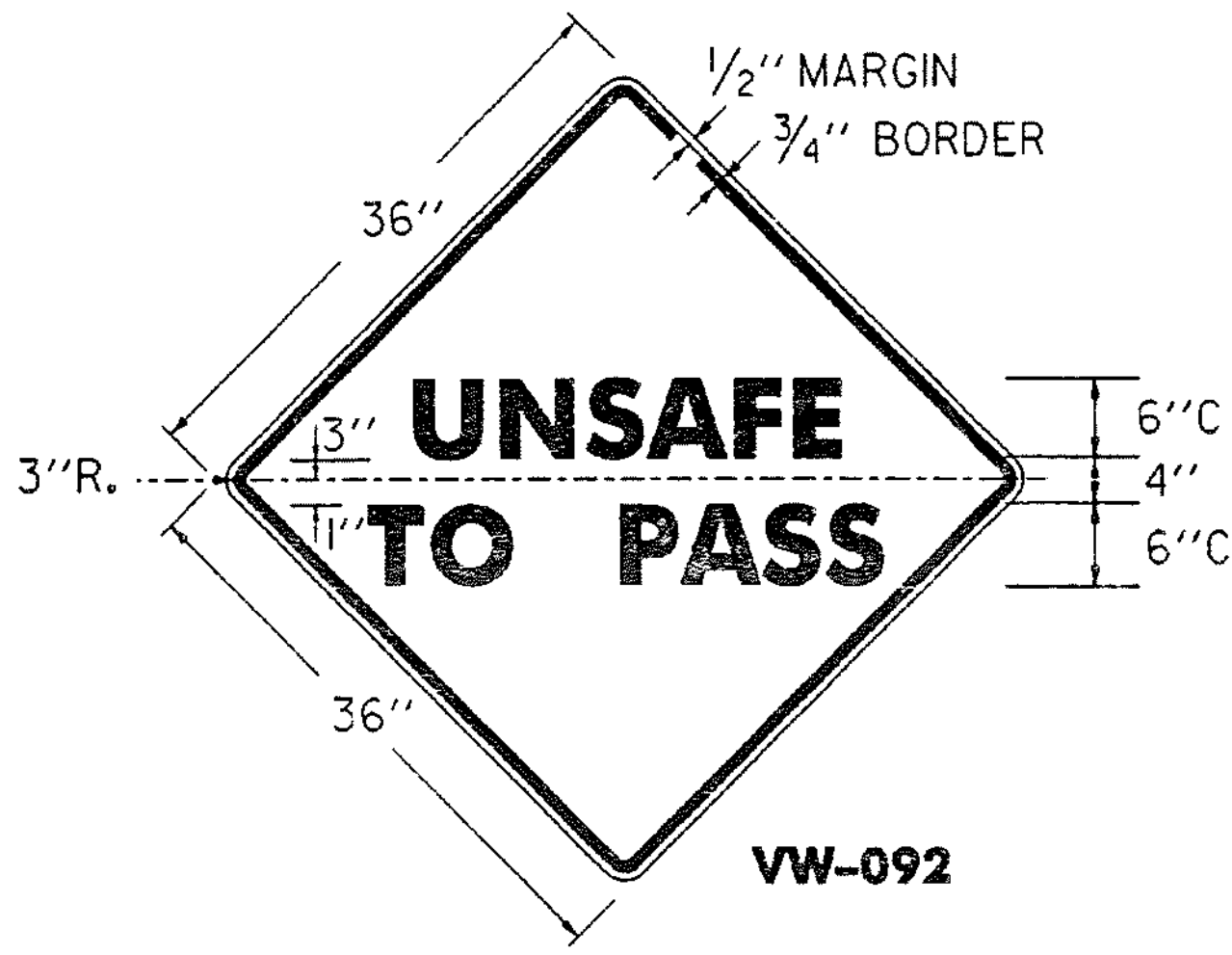


**COLORS**  
 BORDER AND ARROW - BLACK (NON-REFL)  
 SYMBOL - WHITE BORDER ON RED BACKGROUND (REFL)

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7/2	3 3/4	5	5/8	5/8	15 3/4	6 1/4	2 7/8	1/2	1 1/8
STD.	36	5/8	7/8	9	4 1/2	6	3/4	3/8	19	7 1/2	3 1/2	5/8	2 1/4
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	25 5/8	10	4 1/2	3/4	3

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	24	3/8	5/8	10 1/4	8 3/4	3 1/2	2 3/8	4 3/8	22 1/4	1 1/2	6 3/8	2 5/8	10 3/8
STD.	30	1/2	3/4	13	11	4 3/8	3	5/4	28	1 7/8	8	3	13
EXPWY.	36	5/8	7/8	15 3/4	13 1/4	5 1/4	3 3/8	6 3/8	33 3/4	2 1/4	9 3/8	4	15 3/8
FWY.	48	3/4	1 1/4	20 1/2	17 1/2	7	4 3/4	8 3/8	45	3	12 1/2	5 1/4	20 3/4

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN. & STD.	24	30	3/8	3/8	3 1/2	4E	2 1/2	2 7/8	8E	3E	3	8 1/4	8 1/2
EXPWY.	36	48	5/8	7/8	6	6E	4	5 1/8	12E	4E	6	12 3/8	12 3/4
FWY.	48	60	3/4	1 1/4	7	8E	5	5 3/4	16E	6E	6	16 1/2	17



**COLORS**  
 BORDER AND ARROW - BLACK (NON-REFL)  
 SYMBOL - RED BORDER ON WHITE BACKGROUND (REFL)

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
MIN.	30	1/2	3/4	7 1/2	3 3/4	5	5/8	5/8	25	6 1/4	3	3 3/8	1/2
STD.	36	5/8	7/8	9	4 1/2	6	3/4	3/8	28	7 1/2	3 3/8	3 3/4	5/8
SPECIAL	48	3/4	1 1/4	12	6	8	1	1/2	38	10	4 1/2	5	3/4

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	I	J	K	L	M
STD.	36	3/8	5/8	5C	2	2	11 1/2	11 1/2	9 3/8	9 7/8	10 1/4	10 1/4	6 7/8
FWY./EXP.	48	3/4	1 1/4	6C	3	3	13 1/2	13 1/2	11 3/8	11 3/8	12 1/4	12 3/8	8 3/8

ARROW HEAD	DIMENSIONS (INCHES)				
	SIZE	B	C	D	E
MIN. AND STD.	24x24	4	7 1/8	3/8	1 1/16
SPECIAL	30x30	5	8 3/8	1/2	7/8
EXPWY.	36x36	6	10 3/8	5/8	1 1/16
SPECIAL	48x48	8	14 3/8	1 1/16	1 3/8

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	12	18	6	9	1/2	1 1/2
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	5/8	1 1/2
EXPWY.	30	36	15	18	1	1 7/8
FWY.	36	48	18	24	1 1/8	2 1/4

**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.

12" x 18"	18" x 24"	24" x 24"	24" x 30"	36" x 36"	36" x 48"	48" x 48"	48" x 60"
0.060"	0.060"	0.080"	0.100"	0.125"	0.125"	0.125"	0.125"
1/2" GAGE	1/2" GAGE	1/2" GAGE	1/2" GAGE	1/2" GAGE	1/2" GAGE	1/2" GAGE	1/2" 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. 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.

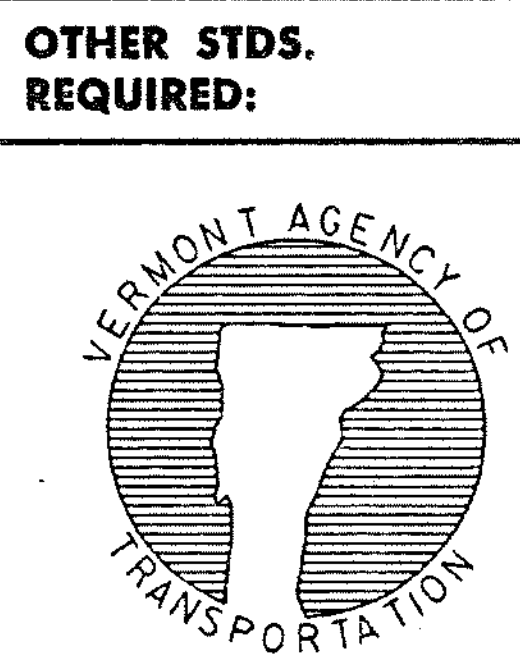
**SPECIFICATIONS**  
 WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

**REVISIONS AND CORRECTIONS**  
 OCT. 30, 1987 - DATE OF ORIGINAL ISSUE  
 AUG. 08, 1995 - ADDED SIGN DETAIL AND I.D. NUMBER FOR EACH DETAIL

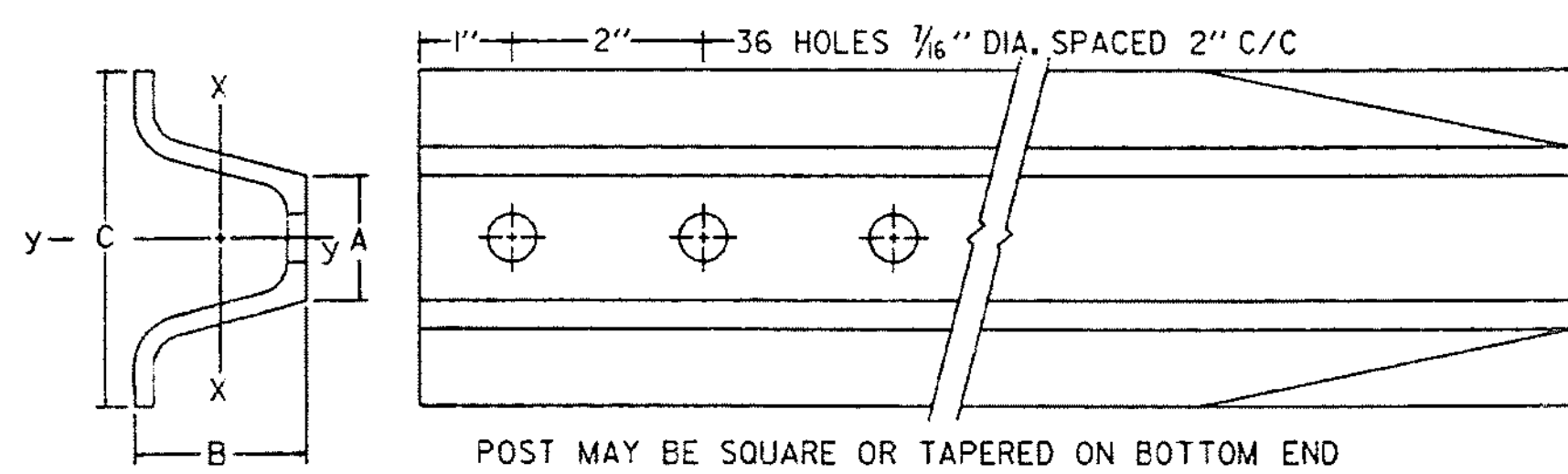
**APPROVED**  
*Stephen B. McArthur*  
 DIRECTOR OF ENGINEERING  
  
*David A. Ross*  
 TRAFFIC AND SAFETY ENGINEER

# WARNING SIGN DETAILS

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

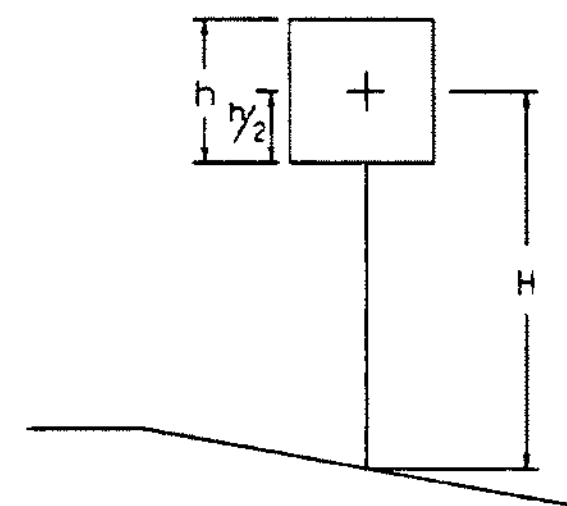


# STANDARD E-150



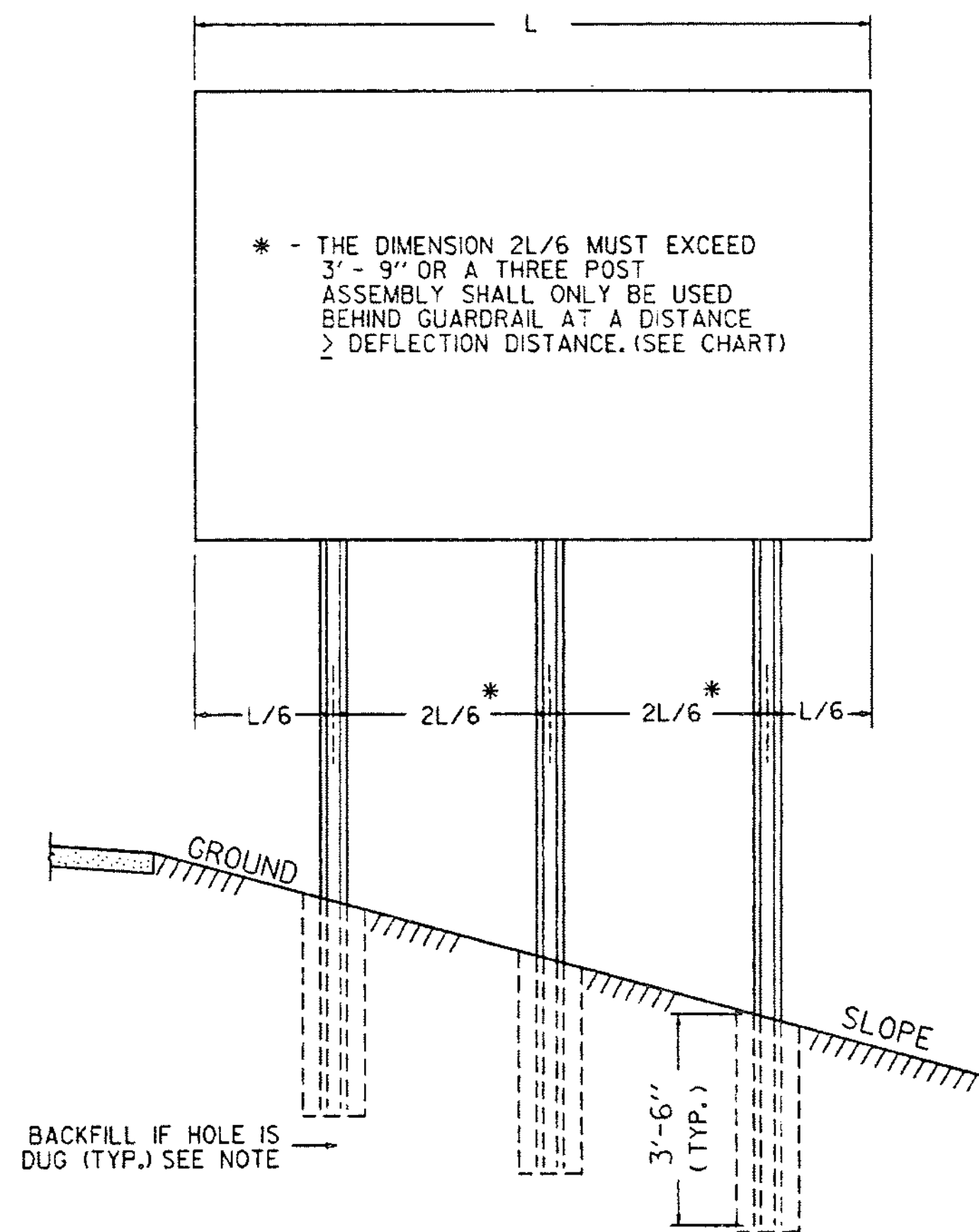
POST SIZE (LB./FT.)	DIMENSIONS			SECTION MODULUS, X-X
	A	B	C	
2	1 1/2"	1 3/4"	3 1/16"	0.225 IN. <sup>3</sup>
3	1 3/8"	1 7/8"	3 1/2"	0.403 IN. <sup>3</sup>

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>

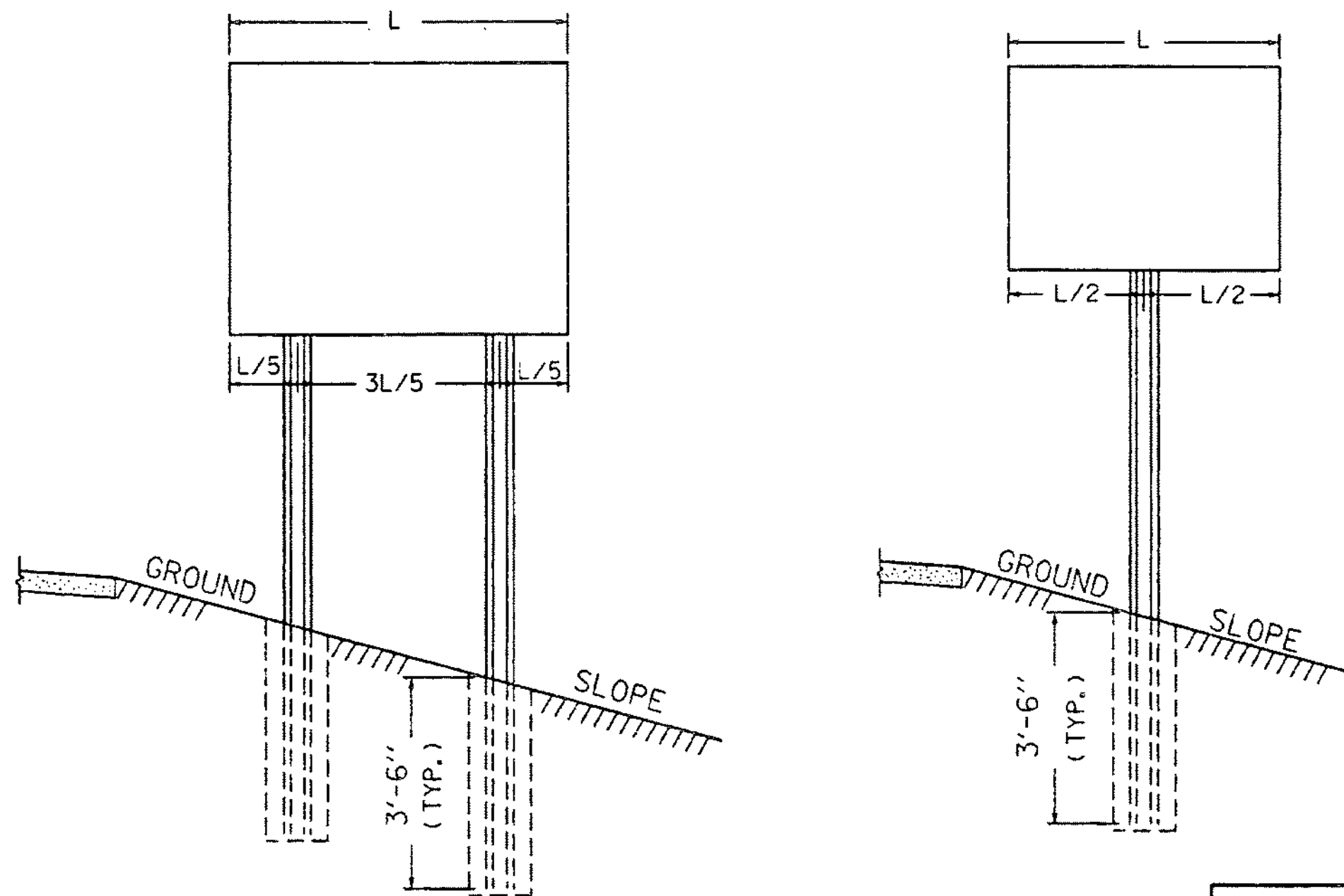
SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS.



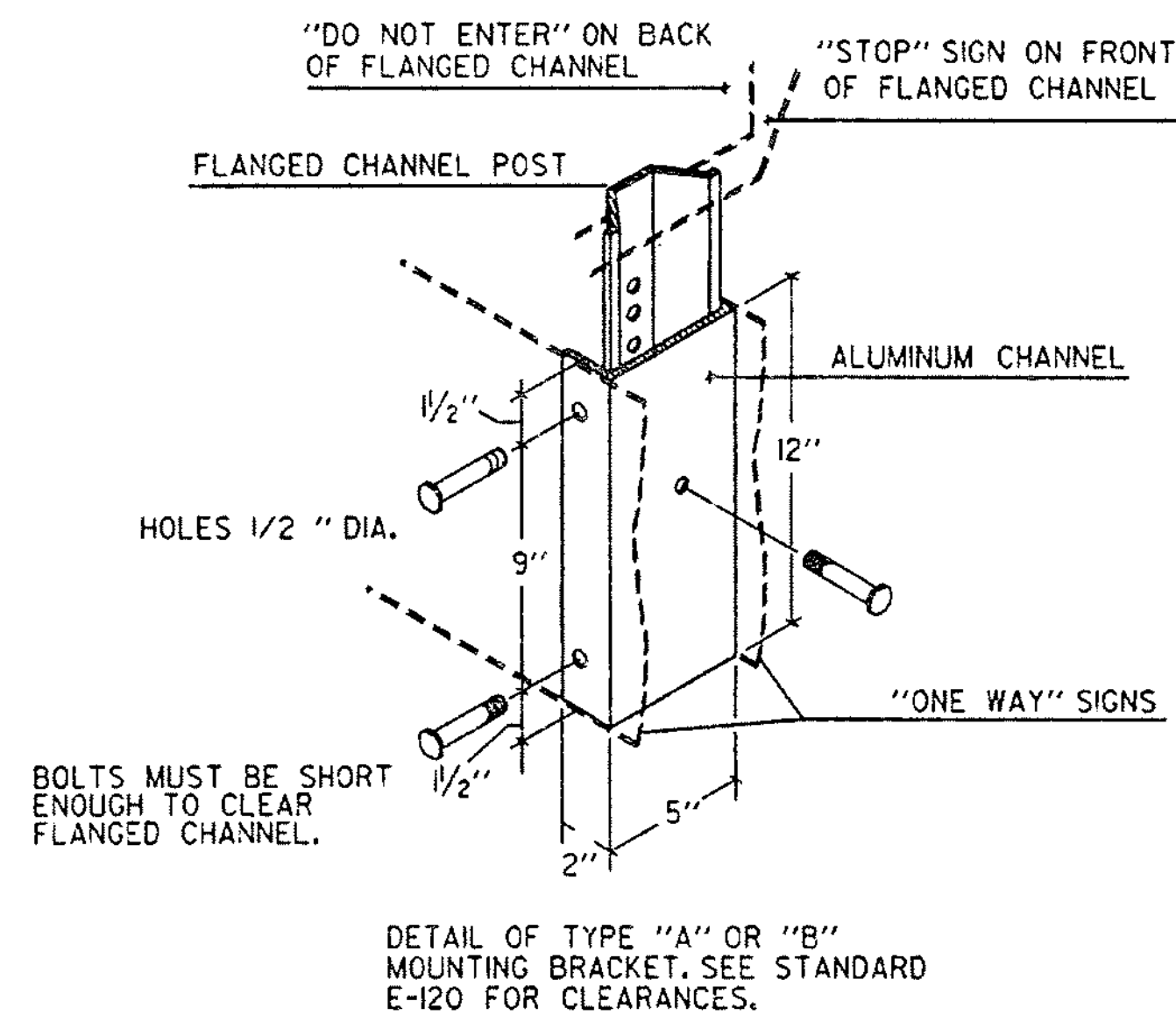
BACKFILL IF HOLE IS DUG (TYP.) SEE NOTE

### 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



DETAIL OF TYPE "A" OR "B" MOUNTING BRACKET, SEE STANDARD E-120 FOR CLEARANCES.

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.

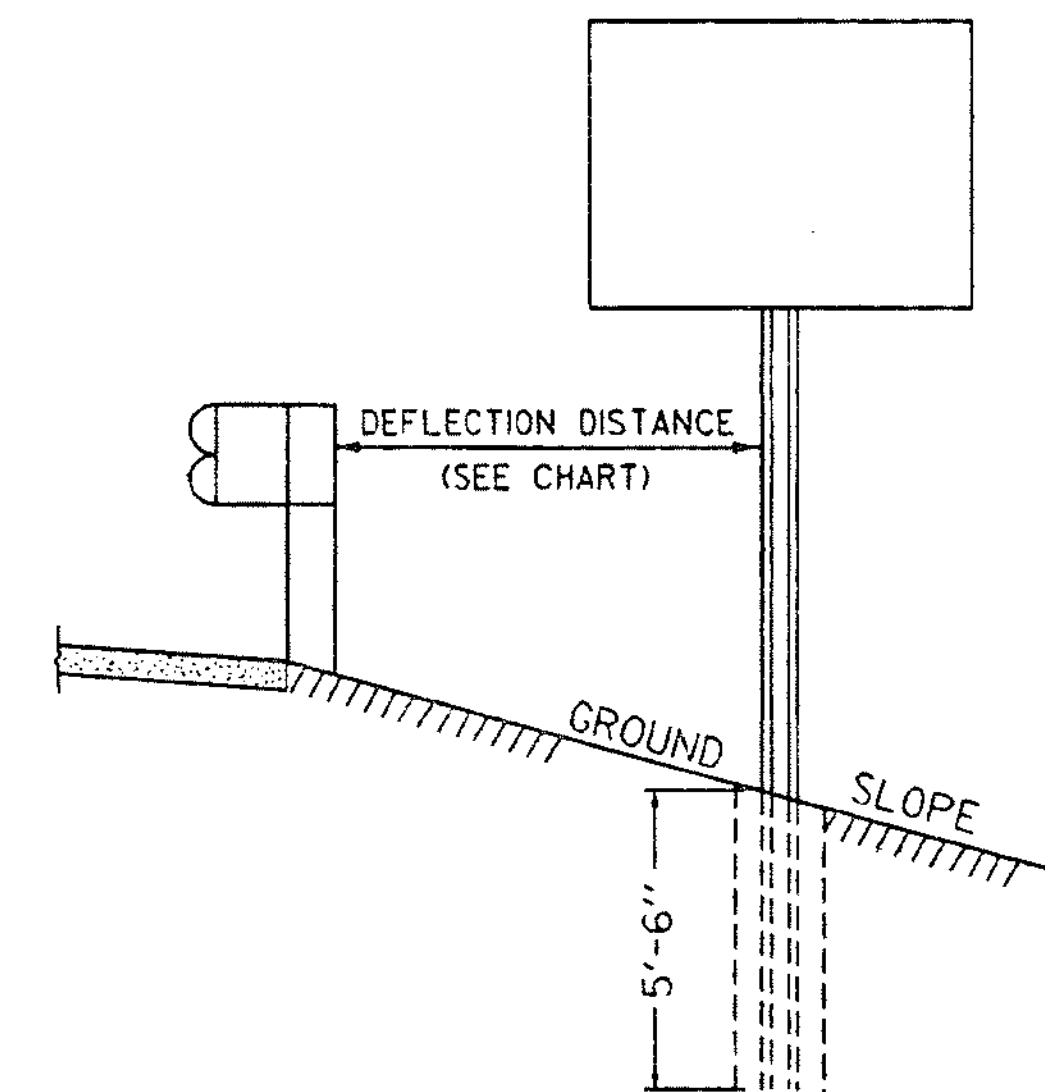
### GENERAL NOTES

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 (10N 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 #/FT. POST AND TWO-RAIL ALUMINUM, ADDED ADDITIONAL NOTE.

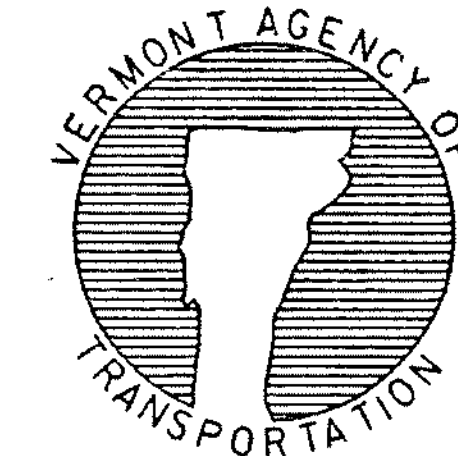
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

### APPROVED

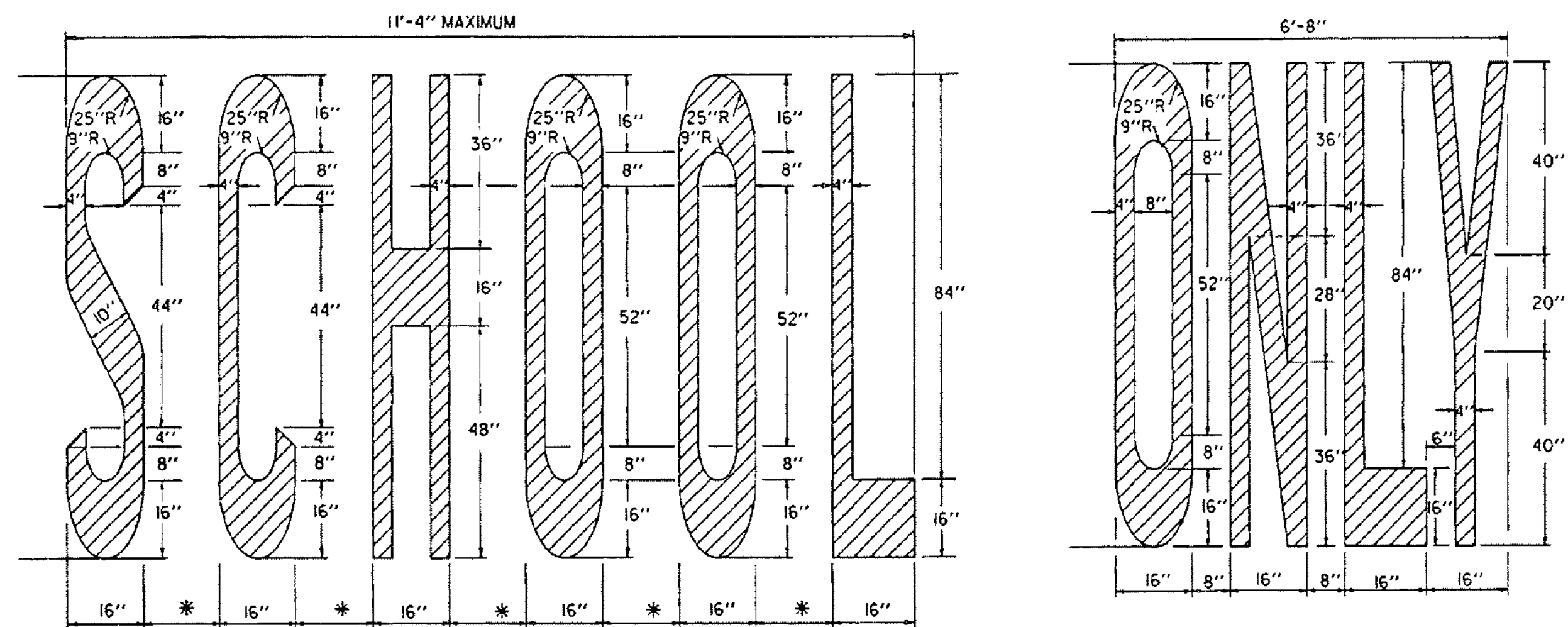
*Stephen P. MacArthur*  
DIRECTOR OF ENGINEERING

*David A. Deas*  
TRAFFIC AND SAFETY ENGINEER

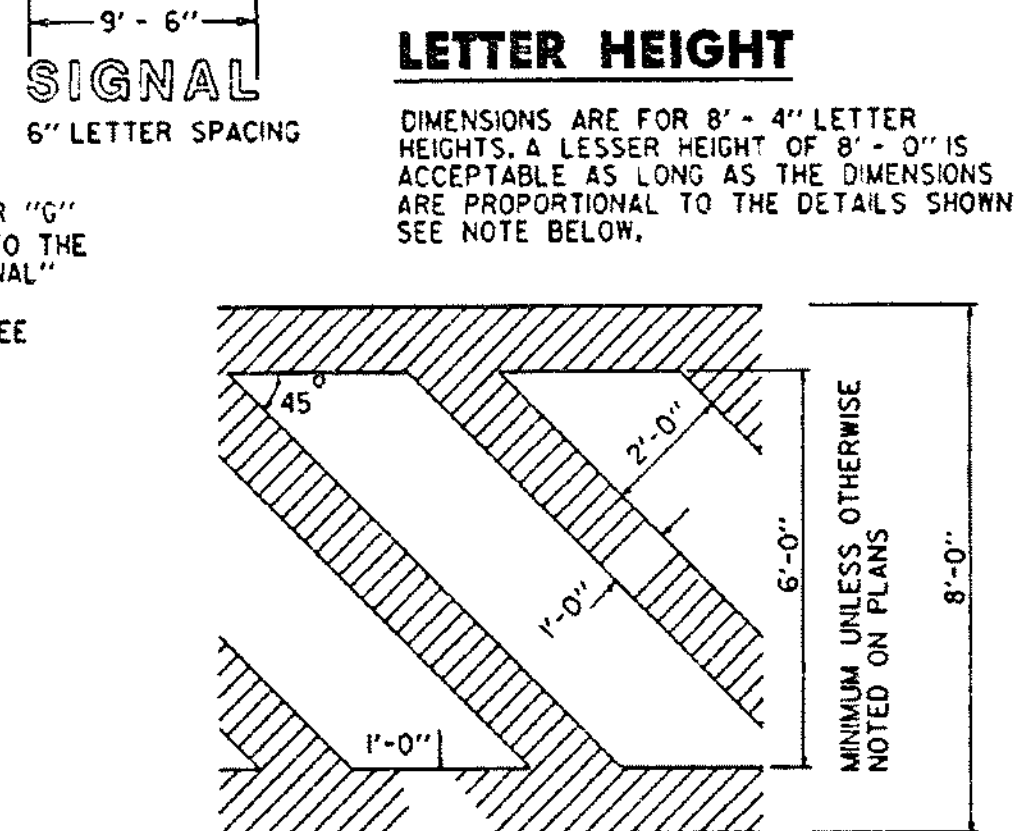
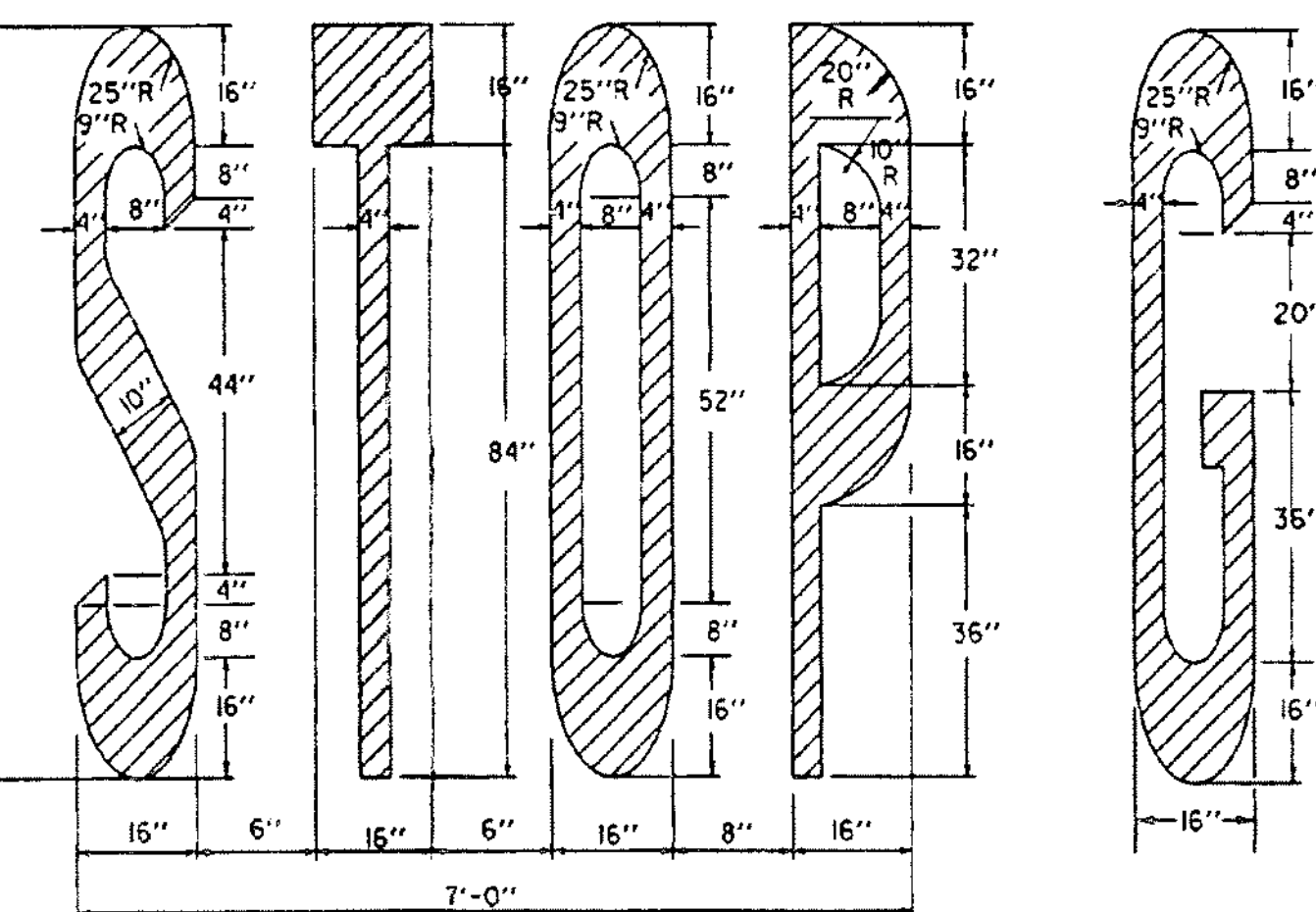
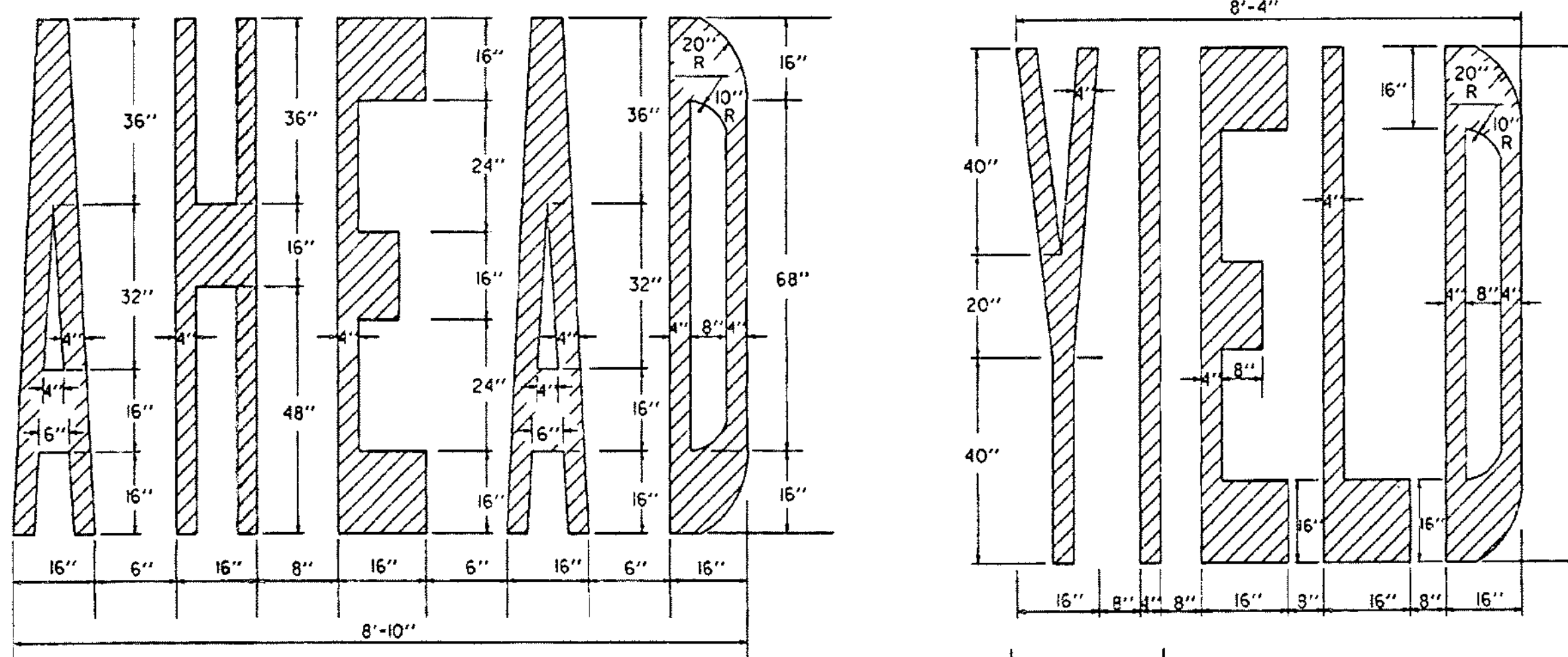
# FLANGED CHANNEL STEEL SIGN POST



# STANDARD E-160

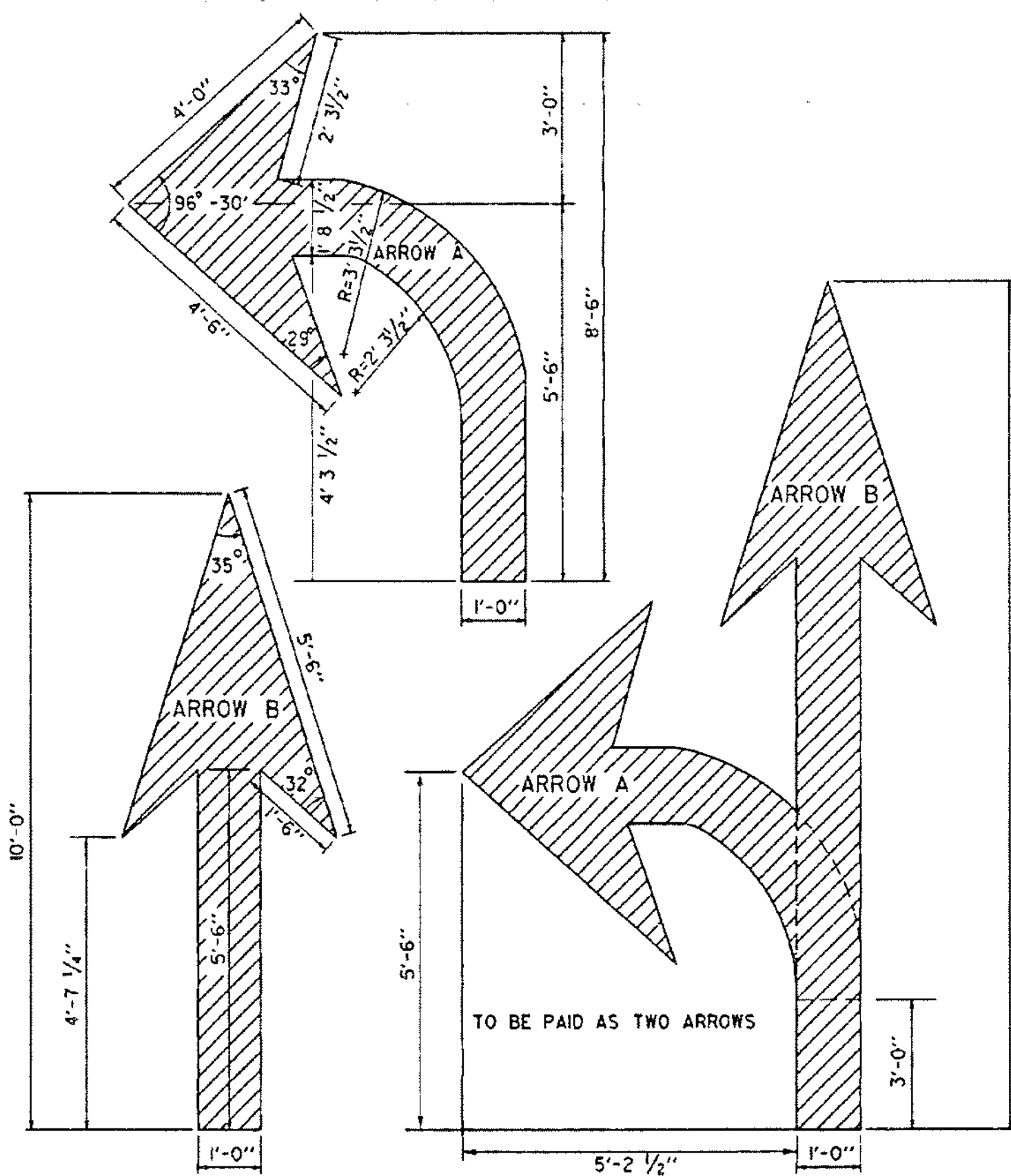


\* (4'-8") - ADJUST TO AVAILABLE PAVEMENT WIDTH

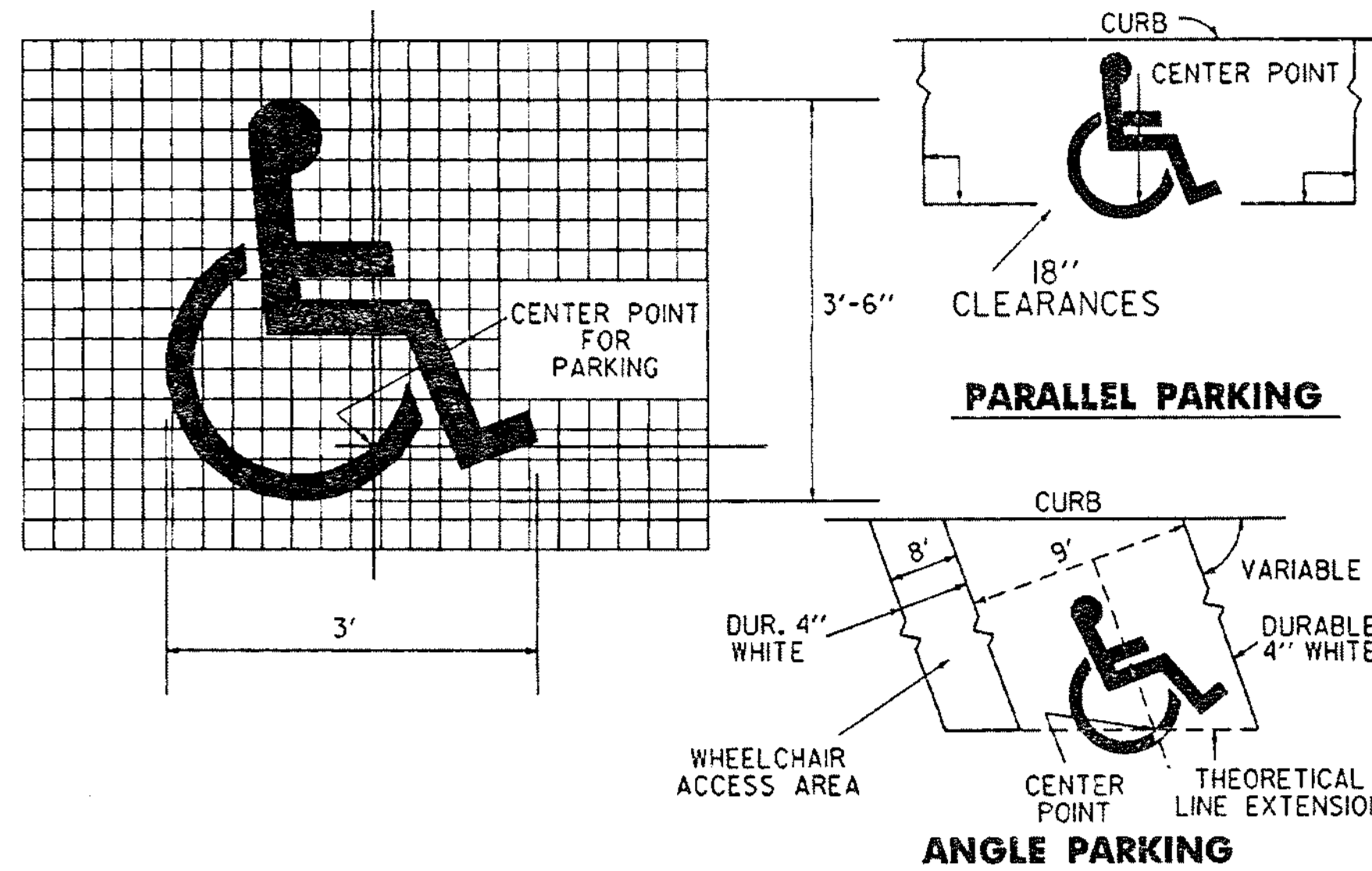


ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (CURRENT EDITION) PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

**LETTER IN WORD MARKING AND CROSSWALK DETAILS**

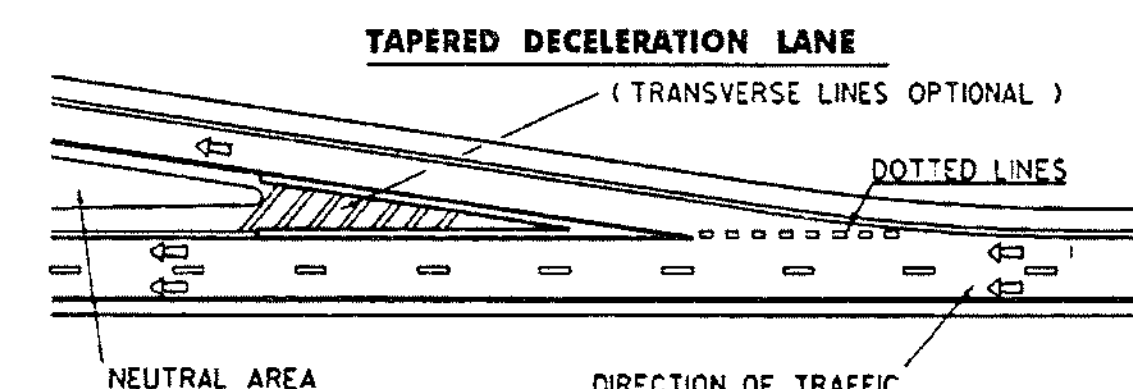
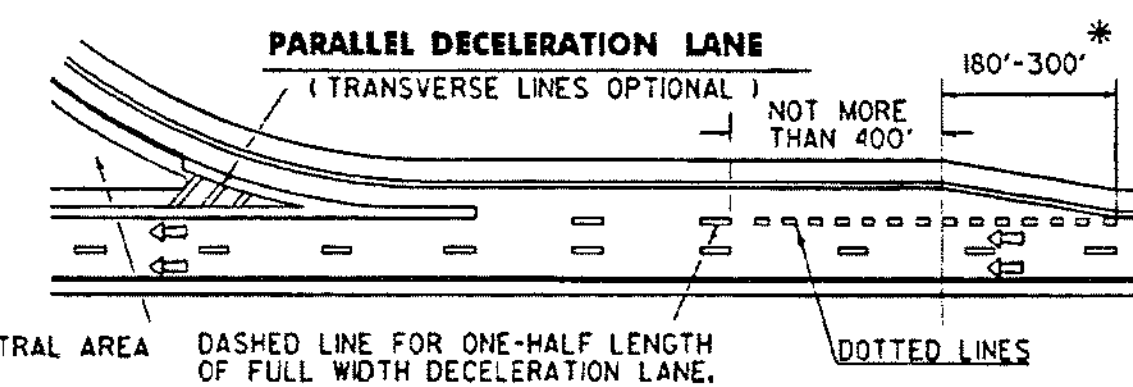
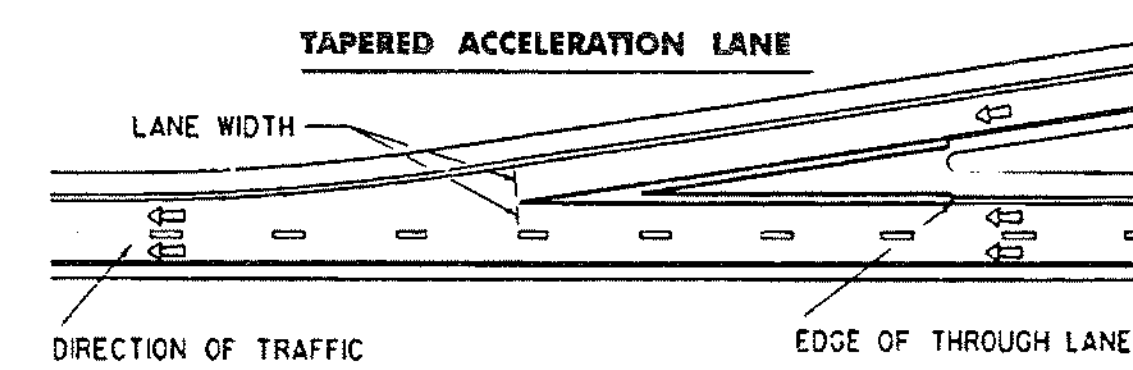
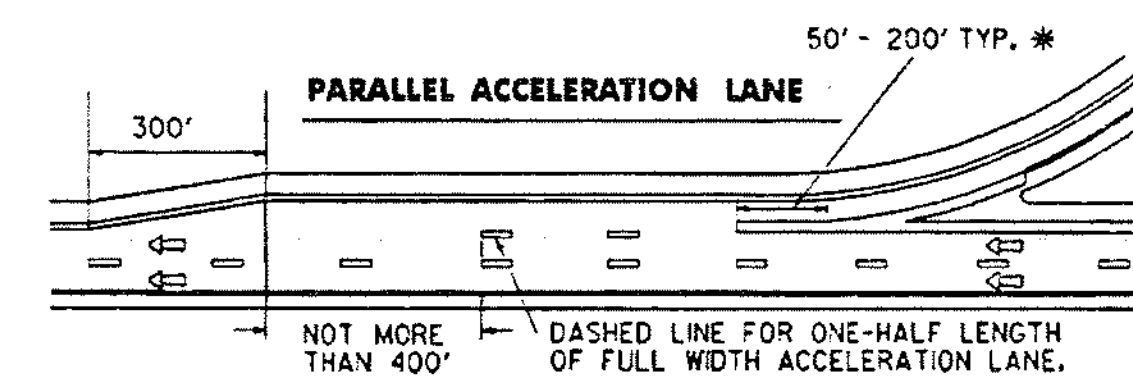


**ARROW DETAILS**



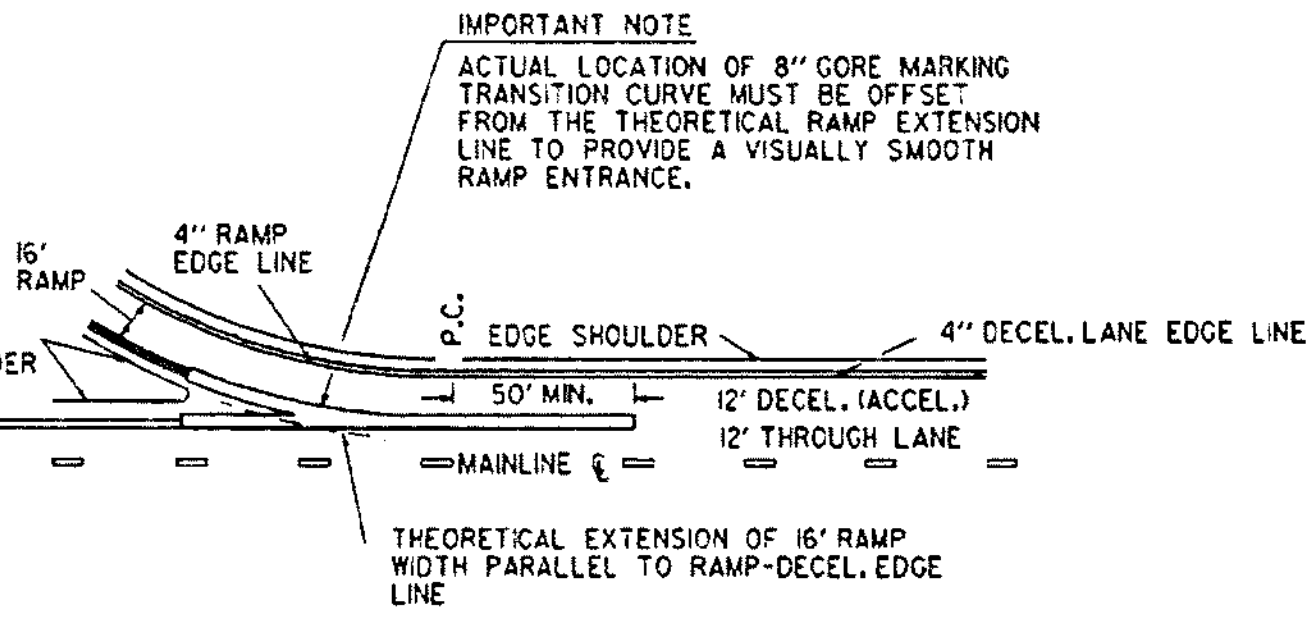
**HANDICAPPED PAVEMENT MARKING DETAILS**

THIS SHEET IS NOT TO SCALE



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.

- 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**

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

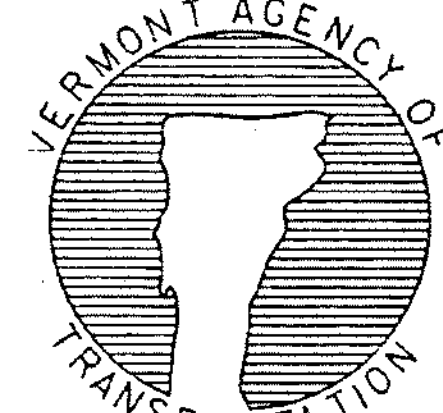
APPROVED

*Seamus P. McAllen*  
 DIRECTOR OF ENGINEERING

*John A. Barr*  
 TRAFFIC AND SAFETY ENGINEER

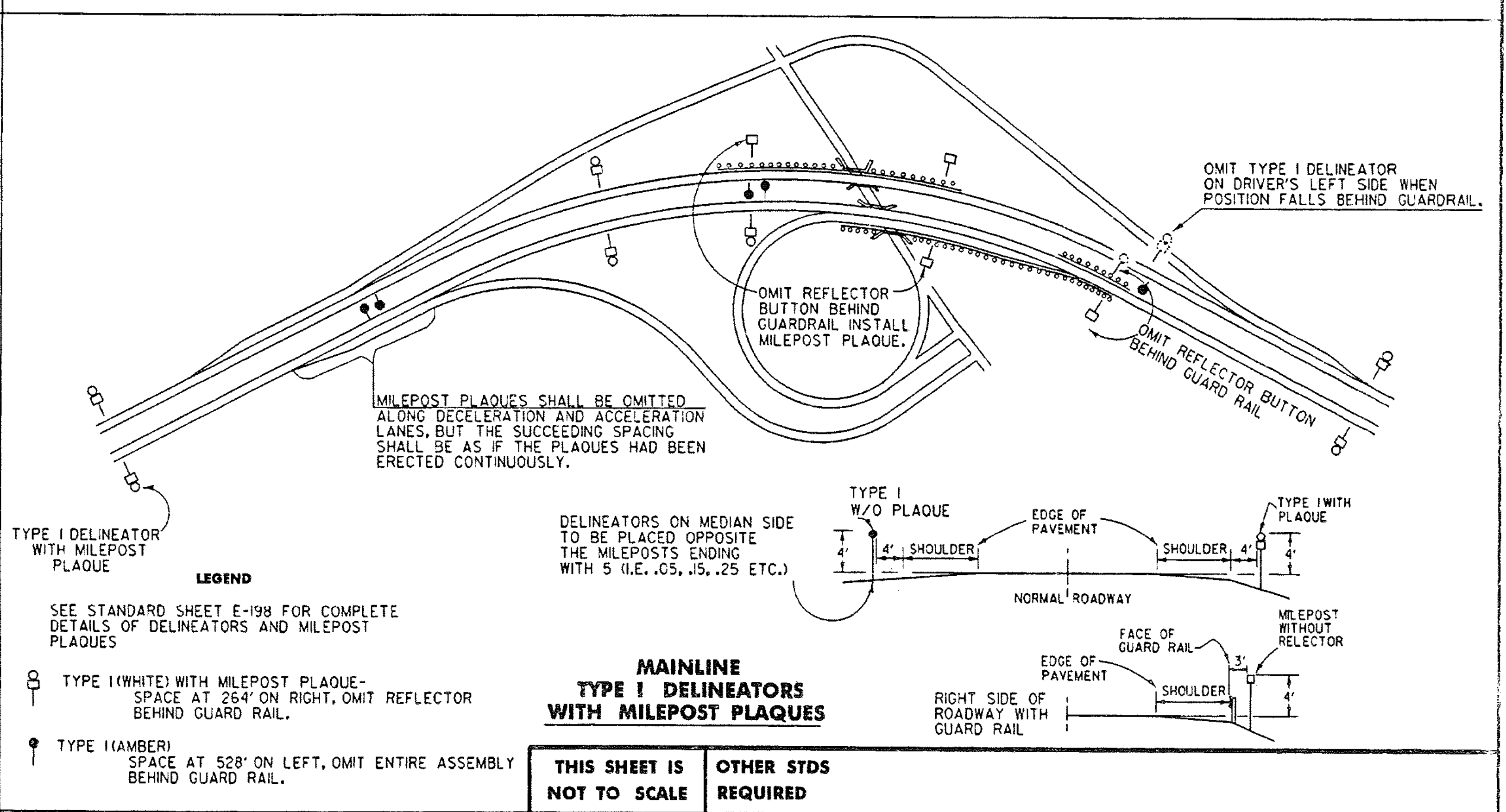
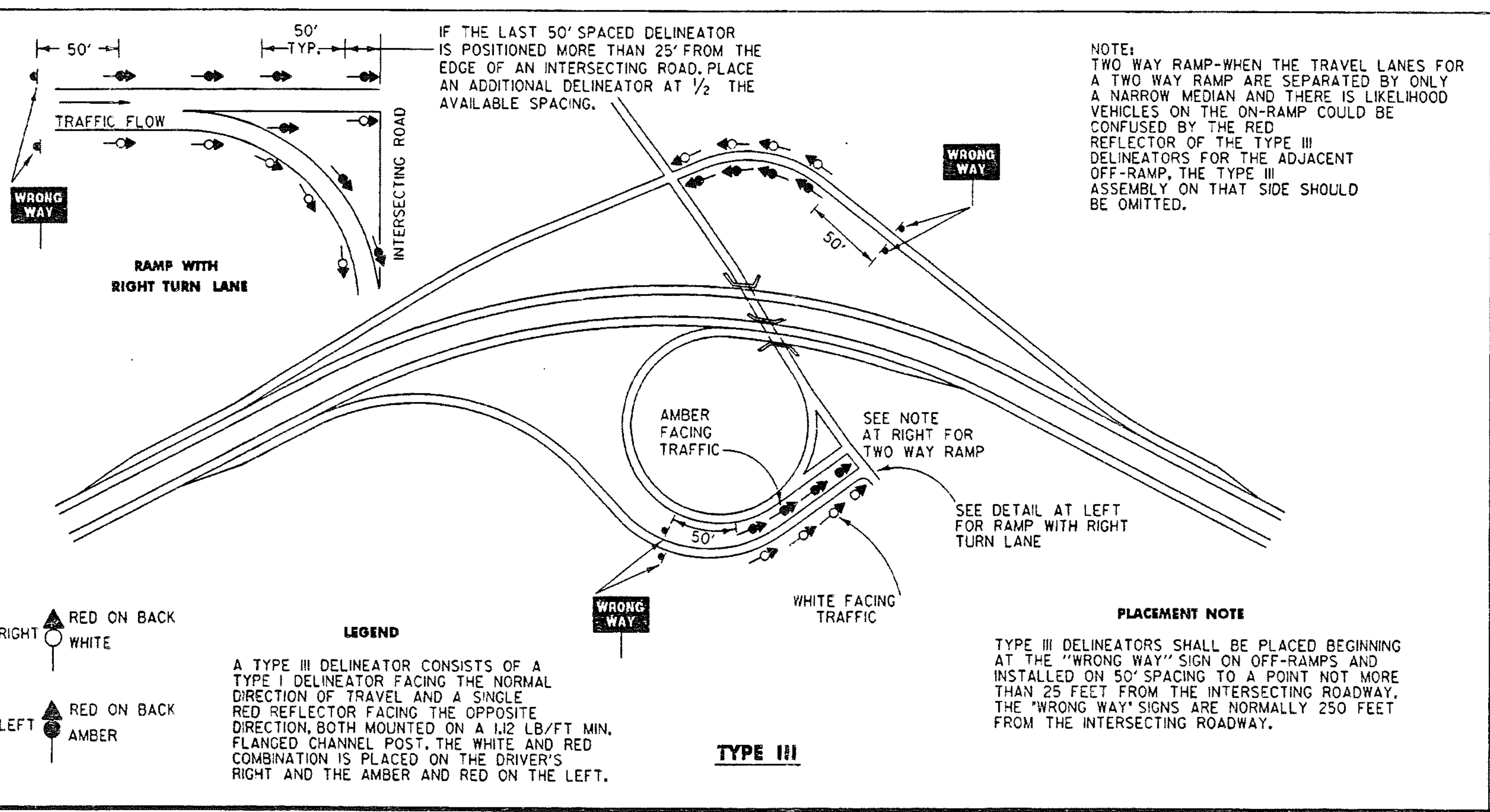
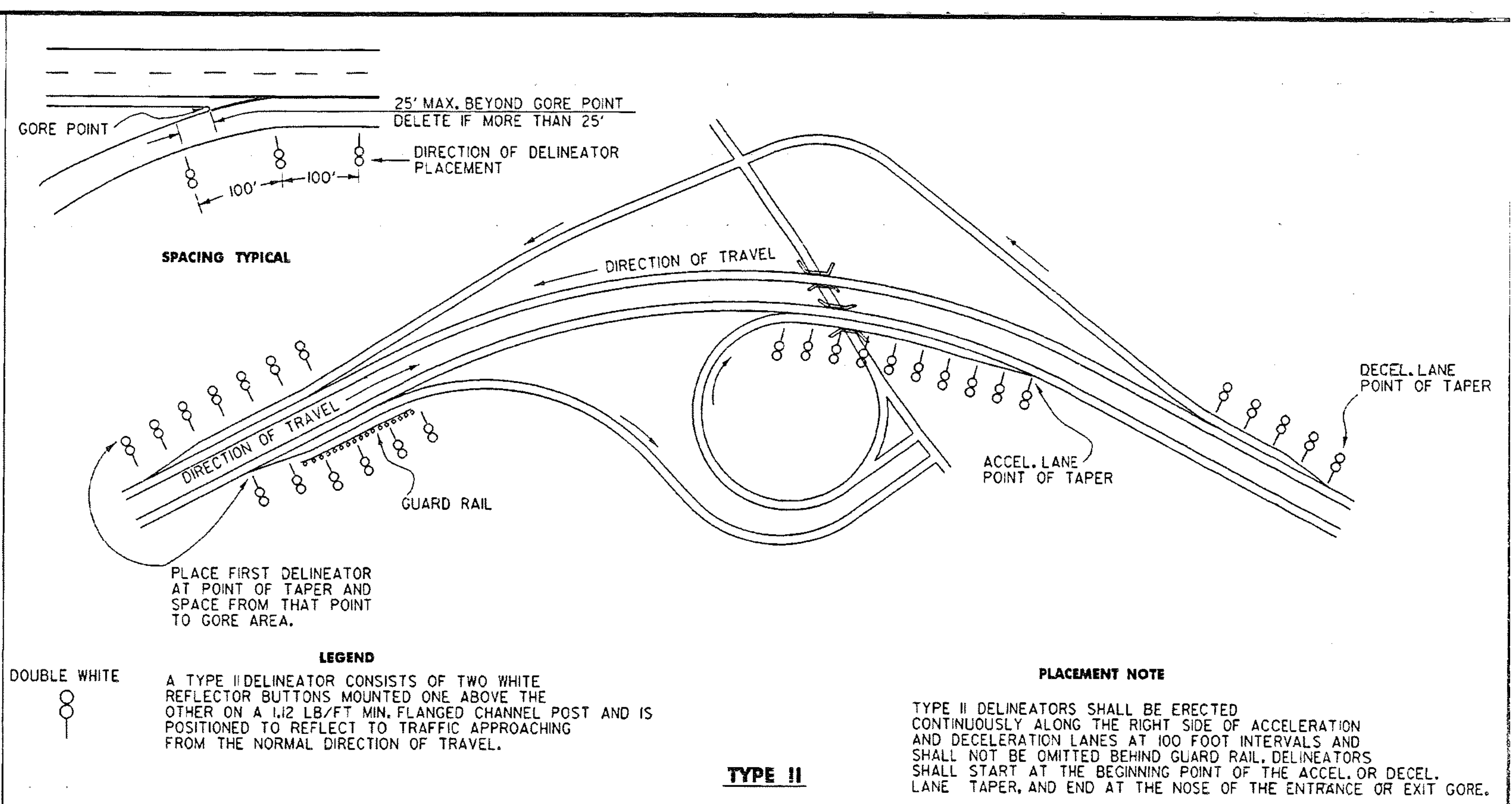
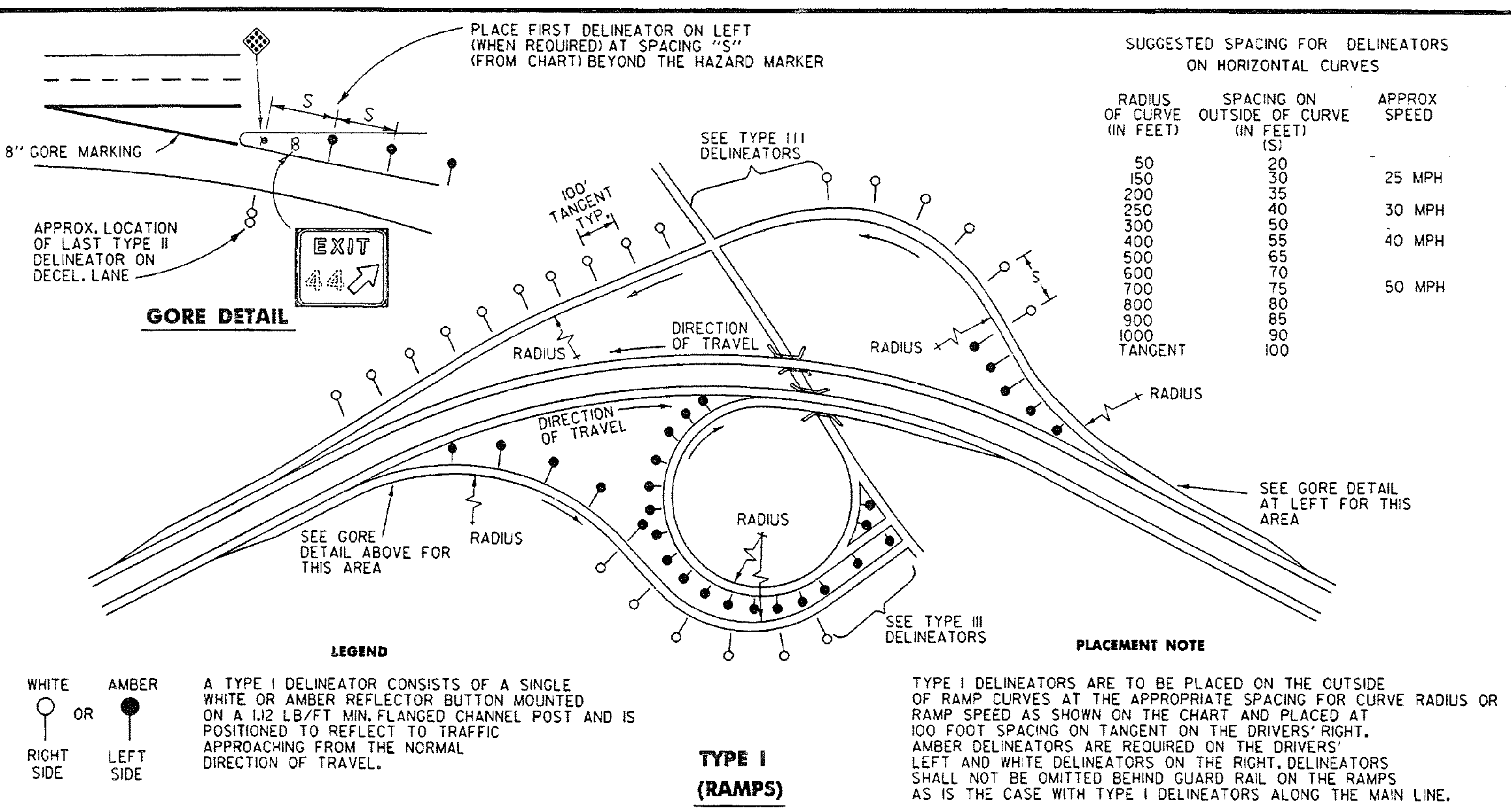
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

**PAVEMENT MARKING DETAILS**



**STANDARD E-191**

/traf/std/stdel91.dgn/stdel91.l



REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE

AUG. 18, 1995 - REVISED NOTES

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

APPROVED

*Sanford H. McArthur*  
DIRECTOR OF ENGINEERING

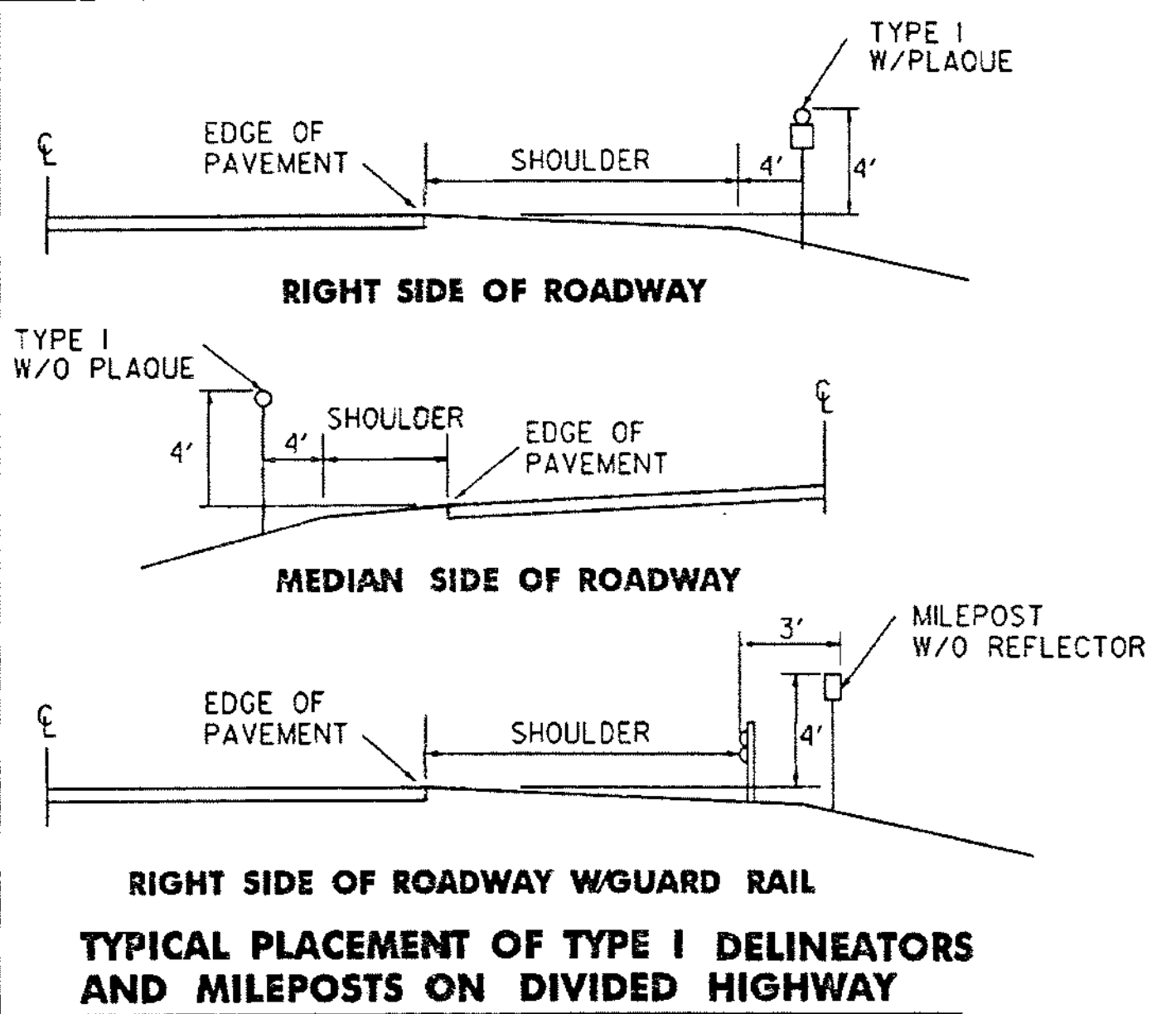
*Dale Ross*  
TRAFFIC AND SAFETY ENGINEER

# DELINEATOR PLACEMENT TYPICAL

/traf/std/stdel97.dgn/stdel97.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-197

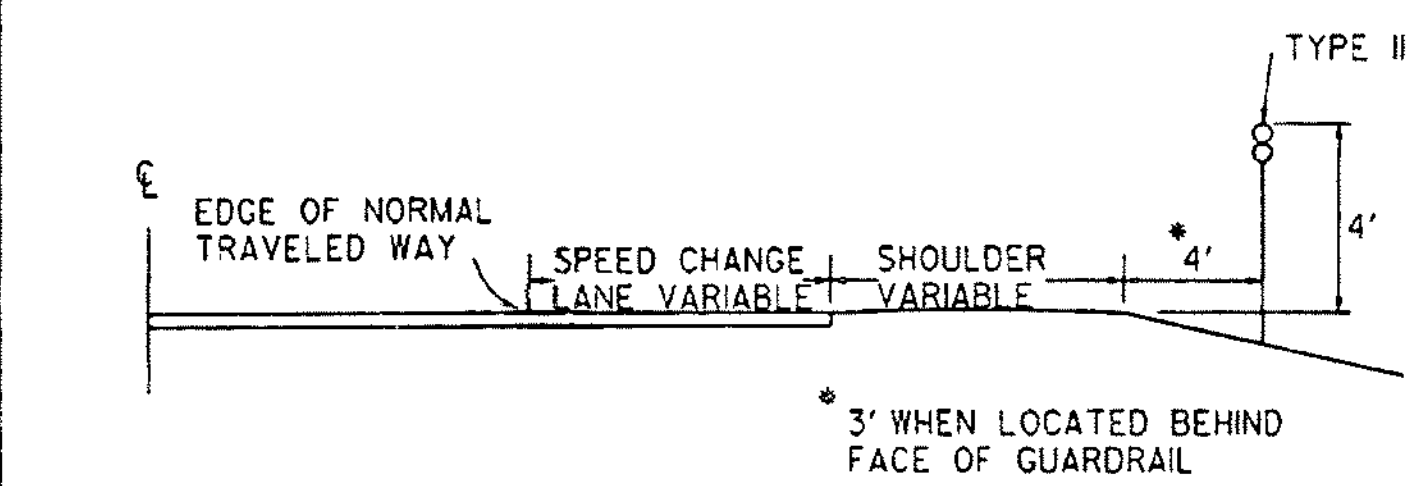


TYPE I DELINEATORS WITH WHITE REFLECTOR UNITS AND THE APPROPRIATE MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DIVIDED HIGHWAYS BETWEEN MILEMARKERS, EXCEPT THAT BEHIND GUARD RAIL MILEPOSTS WITHOUT REFLECTORS SHALL BE ERECTED.

THE TYPE I DELINEATORS WITH OR WITHOUT MILEPOST PLAQUES SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY AND SHALL BE SO INDICATED.

THE LOCATION OF TYPE I DELINEATORS AND MILEPOSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE AGENCY'S "POLICY ON LOCATION MARKING FOR VERMONT DIVIDED HIGHWAYS."

TYPE I AMBER DELINEATORS WITHOUT MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE ON THE DIVIDED HIGHWAYS EXCEPT BEHIND GUARD RAIL, AND CONTINUED AT APPROXIMATELY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT. TYPE I DELINEATORS WITHOUT MILEPOST PLAQUE SHALL BE INSTALLED ON INTERSTATE RAMP AS SHOWN ON THE PLANS.



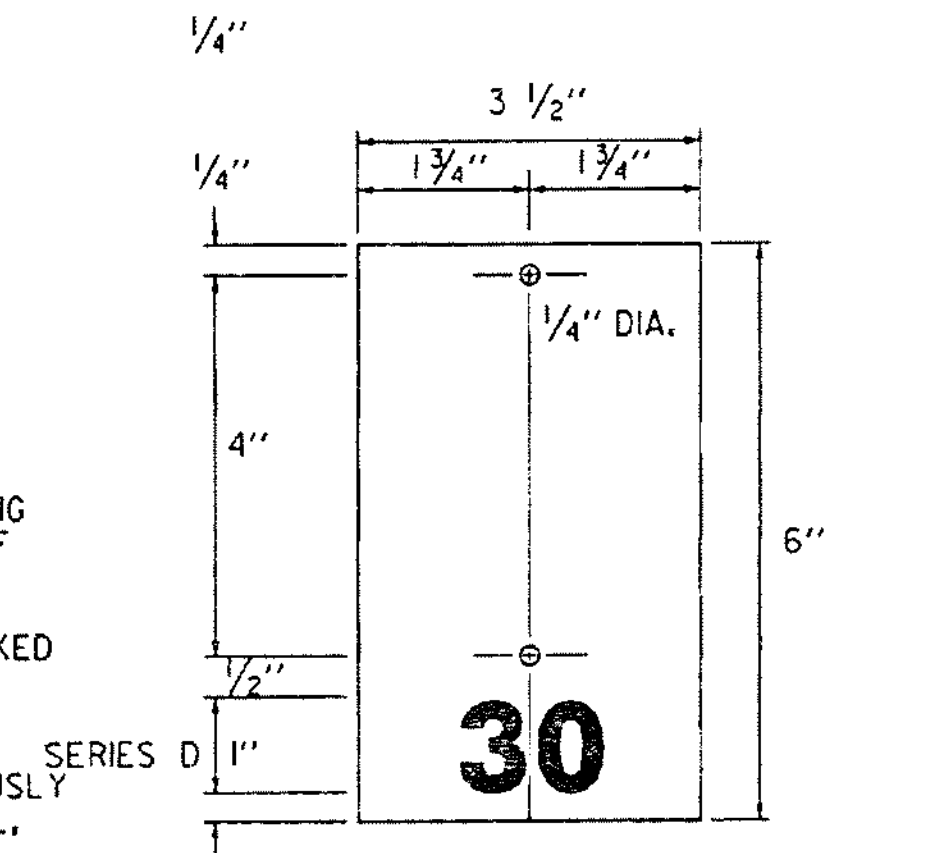
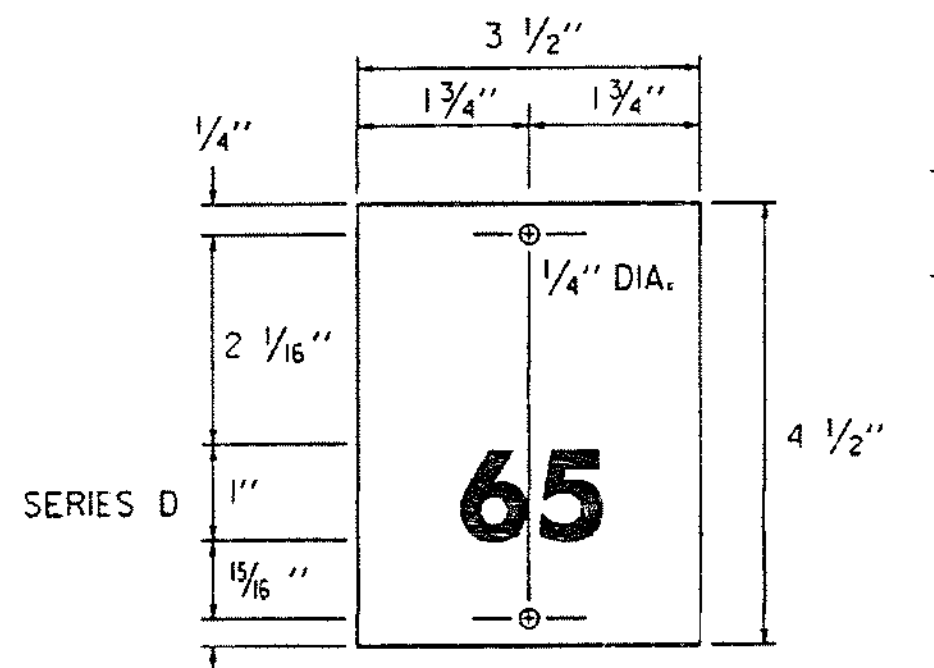
**TYPICAL PLACEMENT OF TYPE II DELINEATORS ON SPEED CHANGE LANES**

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DECELERATION AND ACCELERATION LANES AT 100' INTERVALS INCLUDING GUARDRAIL SECTIONS THE DELINEATORS SHALL START AT THE BEGINNING OF THE TAPER AND END AT THE NOSE OF THE EXIT OR ENTRANCE CORE. THEY SHALL HAVE WHITE REFLECTOR UNITS.

**TYPE III DELINEATORS - SEE NOTE # 1**

TYPE III DELINEATORS SHALL BEGIN 50' FROM WRONG WAY SIGNS AND EXTEND EVERY 50' TO A POINT NOT LESS THAN 25' FROM THE DIVIDED HIGHWAY AND BE MOUNTED ON BOTH SIDES OF THE ROAD AS SHOWN ON THE PLANS.

**MILEPOST PLAQUE "A"**  
(THE NUMERALS ON PART "A" INDICATE THE MILE.)

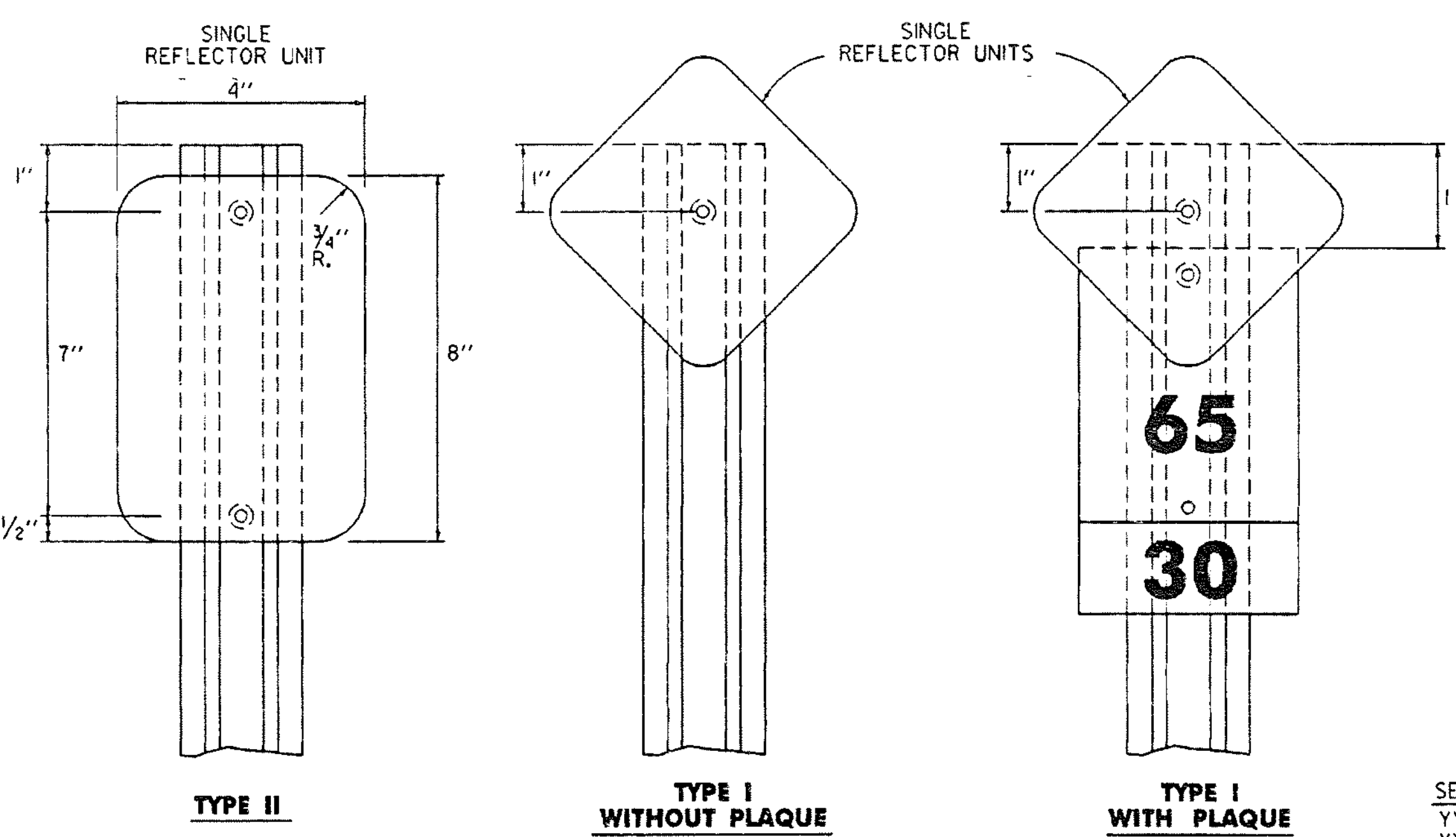
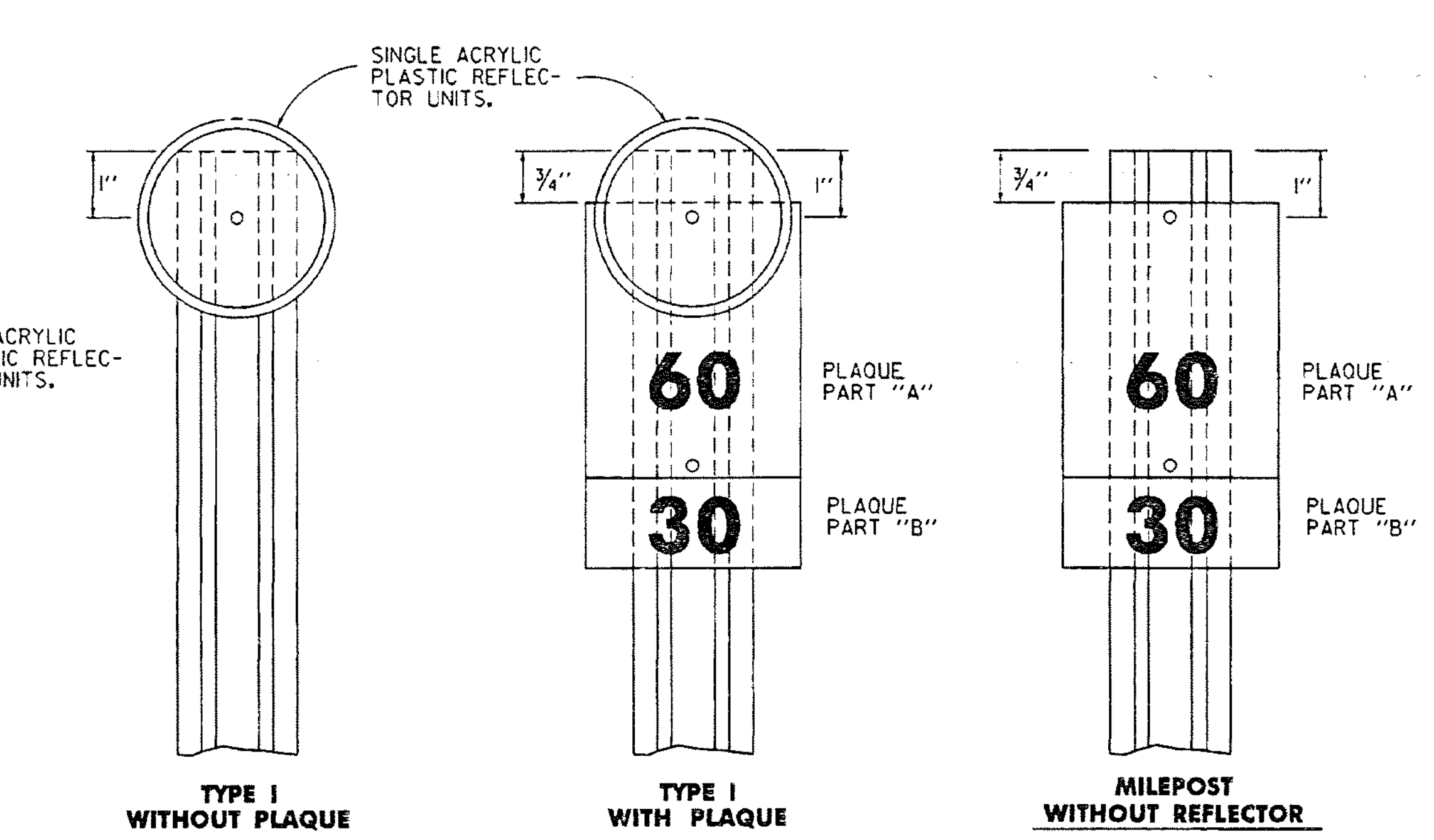


**MILEPOST PLAQUE PART "B"**  
(THE NUMERAL ON PART "B" INDICATES IN FIVE ONE-HUNDRETHS OF A MILE BETWEEN MILE INCREMENTS.)



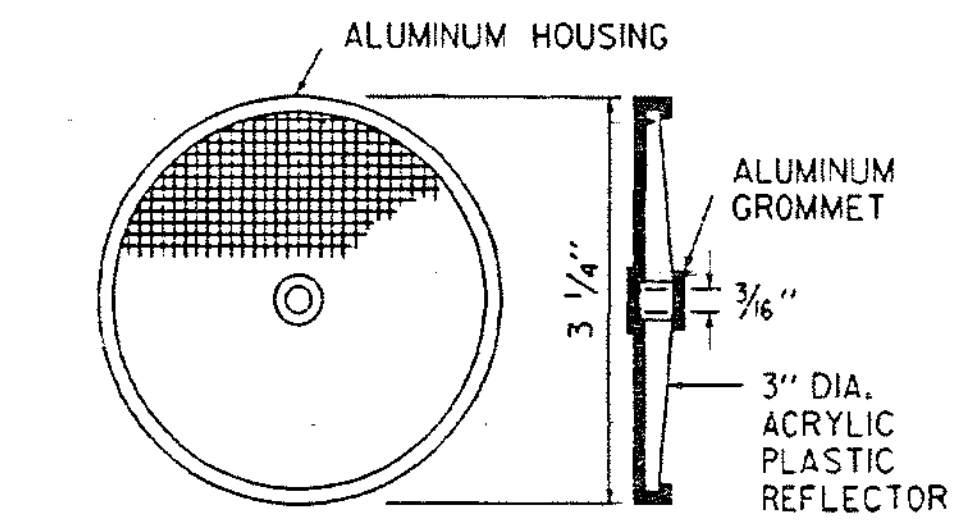
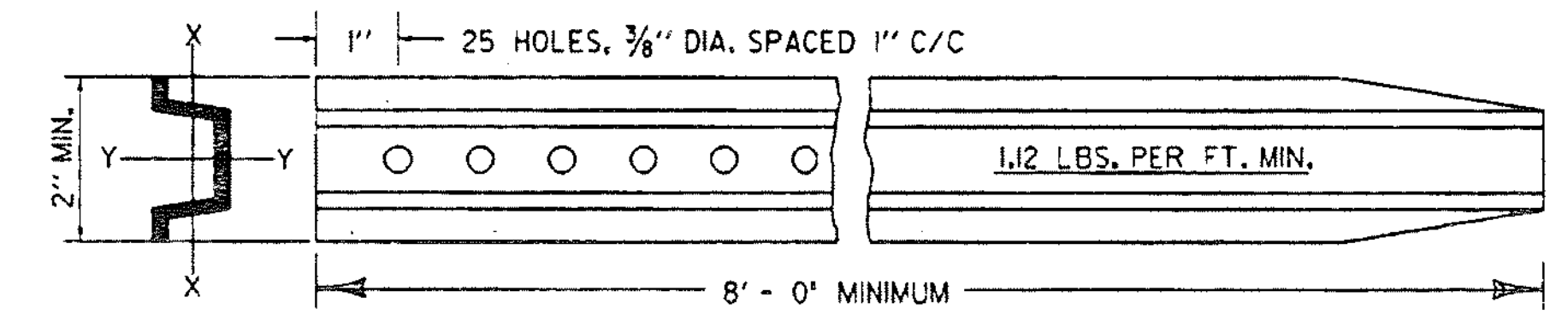
- NOTES**
- TYPE III DELINEATORS WILL BE TYPE I DELINEATORS WITH AN ADDITIONAL RED REFLECTIVE UNIT MOUNTED ON THE REVERSE SIDE. THEY SHALL BE ERECTED ON THE RIGHT AND LEFT SIDE OF THE RAMP AS INDICATED ON THE PLANS.
  - EACH UNIT COMPLETE IN PLACE OF DELINEATOR TYPE I WITH OR WITHOUT PLAQUE, DELINEATOR TYPE II, DELINEATOR TYPE III, OR MILEPOST WITHOUT REFLECTOR SHALL BE PAID FOR AS "DELINATOR."
  - FOR MOUNTING DELINEATORS AND MILEPOSTS ON BRIDGES, SEE STANDARD E-199.
  - DELINEATOR POSTS SHALL HAVE A MINIMUM EMBEDMENT OF 2' IN THE GROUND.

**DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS**

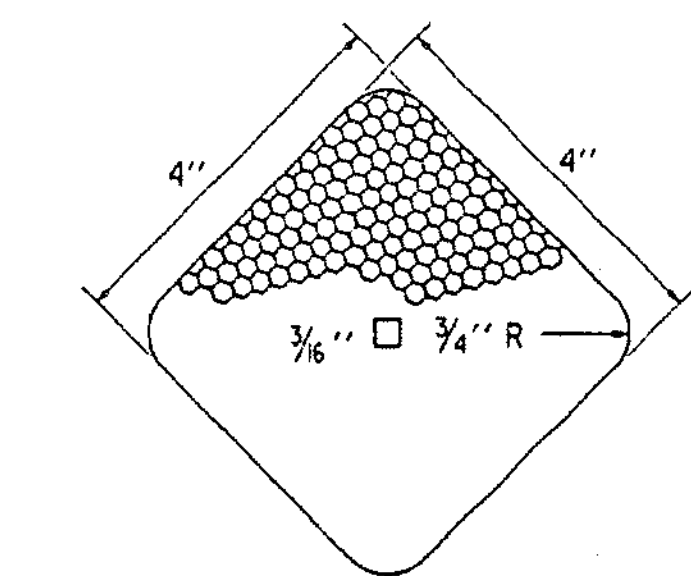


**DELINEATORS WITH REFLECTIVE SHEETING**

MILEPOST PLAQUES WITH OR A WITHOUT REFLECTOR UNIT SHALL BE MOUNTED ON THE POST WITH TWO OR THREE 3/8" DIA. BY 1 1/2" LONG ALUMINUM BOLTS WITH 1/2" DIA. ALUMINUM VANDAL RESISTANT NUTS, OR 3/8" DIA. BY 1 1/2" LONG VANDAL RESISTANT FASTENERS.



**DELINEATOR PLASTIC REFLECTOR UNIT**



**DELINEATOR REFLECTIVE SHEETING UNIT**  
MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINUM BACKING WITH A SILVER, AMBER OR RED HIGH INTENSITY REFLECTIVE SHEETING.

NOT TO SCALE OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS  
SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE  
AUG. 18, 1995 - MINOR NOTE REVISIONS

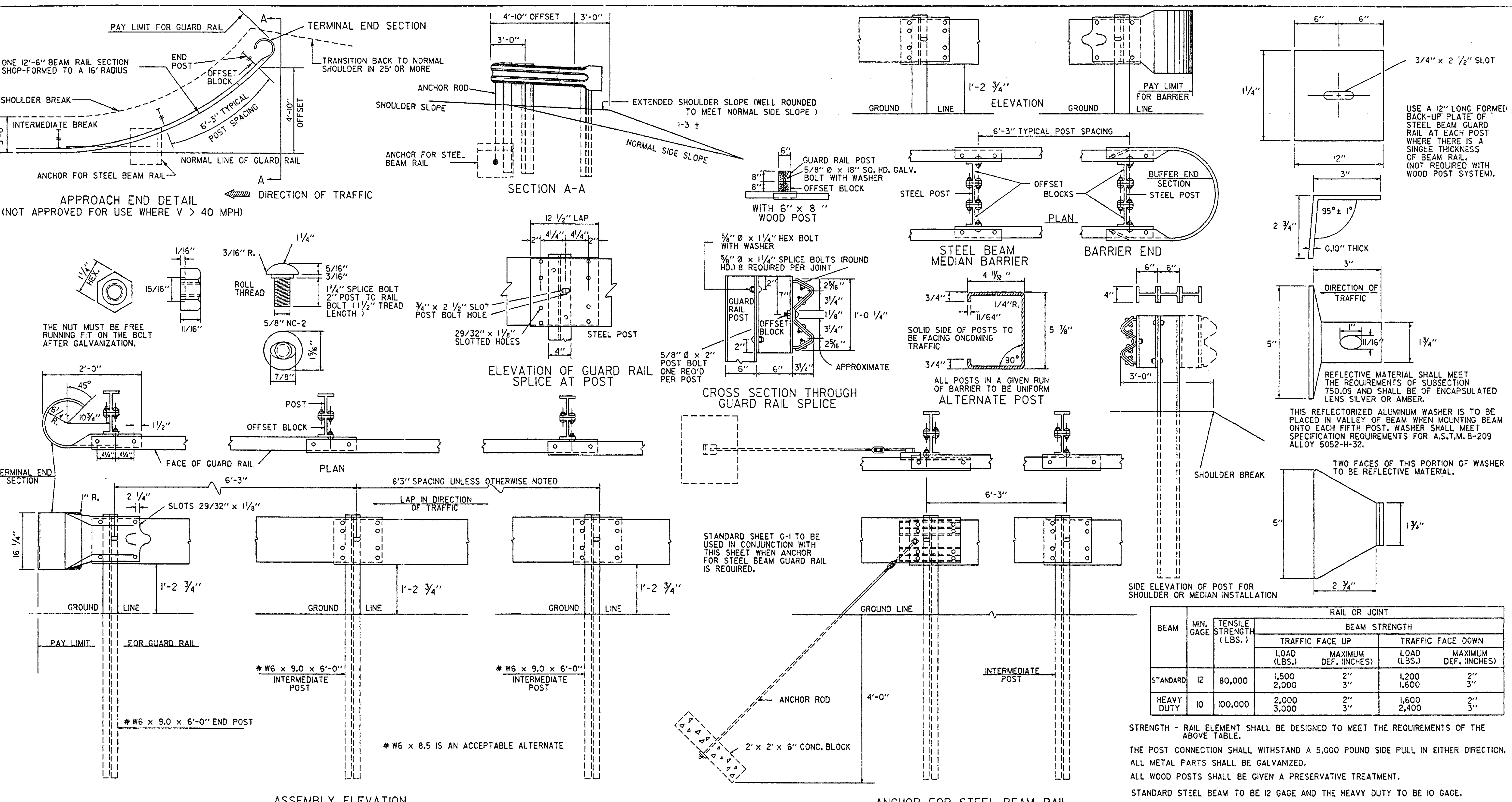
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED  
*Stephen D. McArthur*  
DIRECTOR OF ENGINEERING  
*David R. Pass*  
TRAFFIC AND SAFETY ENGINEER

**FREEWAY - EXPRESSWAY  
DELINEATORS AND MILEPOSTS**

VERMONT AGENCY OF TRANSPORTATION  
**STANDARD  
E-198**





USE A 12" LONG FORMED BACK-UP PLATE OF STEEL BEAM GUARD RAIL AT EACH POST WHERE THERE IS A SINGLE THICKNESS OF BEAM RAIL. (NOT REQUIRED WITH WOOD POST SYSTEM).

REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.09 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.

THIS REFLECTORIZED ALUMINUM WASHER IS TO BE PLACED IN VALLEY OF BEAM WHEN MOUNTING BEAM ONTO EACH FIFTH POST. WASHER SHALL MEET SPECIFICATION REQUIREMENTS FOR A.S.T.M. B-209 ALLOY 5052-H-32.

BEAM	MIN. GAGE	TENSILE STRENGTH (LBS.)	RAIL OR JOINT			
			BEAM STRENGTH		TRAFFIC FACE DOWN	
			TRAFFIC FACE UP	TRAFFIC FACE DOWN	LOAD (LBS.)	MAXIMUM DEF. (INCHES)
STANDARD	12	80,000	1,500 2,000	2" 3"	1,200 1,600	2" 3"
HEAVY DUTY	10	100,000	2,000 3,000	2" 3"	1,600 2,400	2" 3"

STRENGTH - RAIL ELEMENT SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE ABOVE TABLE.

THE POST CONNECTION SHALL WITHSTAND A 5,000 POUND SIDE PULL IN EITHER DIRECTION. ALL METAL PARTS SHALL BE GALVANIZED.

ALL WOOD POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT.

STANDARD STEEL BEAM TO BE 12 GAGE AND THE HEAVY DUTY TO BE 10 GAGE.

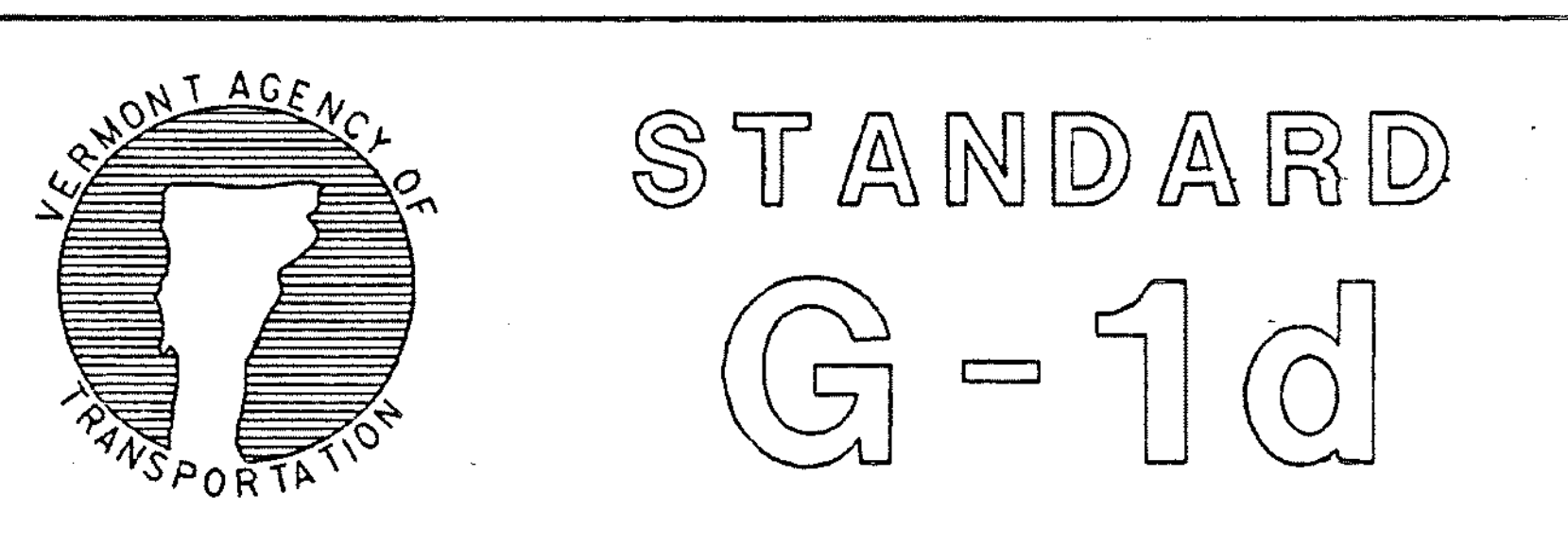
**REVISIONS AND CORRECTIONS**  
MAY 6, 1976 - ORIGINAL APPROVAL DATE  
SEP. 10, 1976 - MINIMUM LENGTH & ADVANCE OF NEED NOTES REMOVED  
MAR. 2, 1977 - ROUND WOOD POSTS REMOVED  
SEPT. 12, 1977 - REFERENCE TO ROUND WOOD POSTS REMOVED  
MAY 29, 1979 - NOTE ON REFLECTIVE MATERIAL CHANGED  
APRIL 28, 1980 - 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.

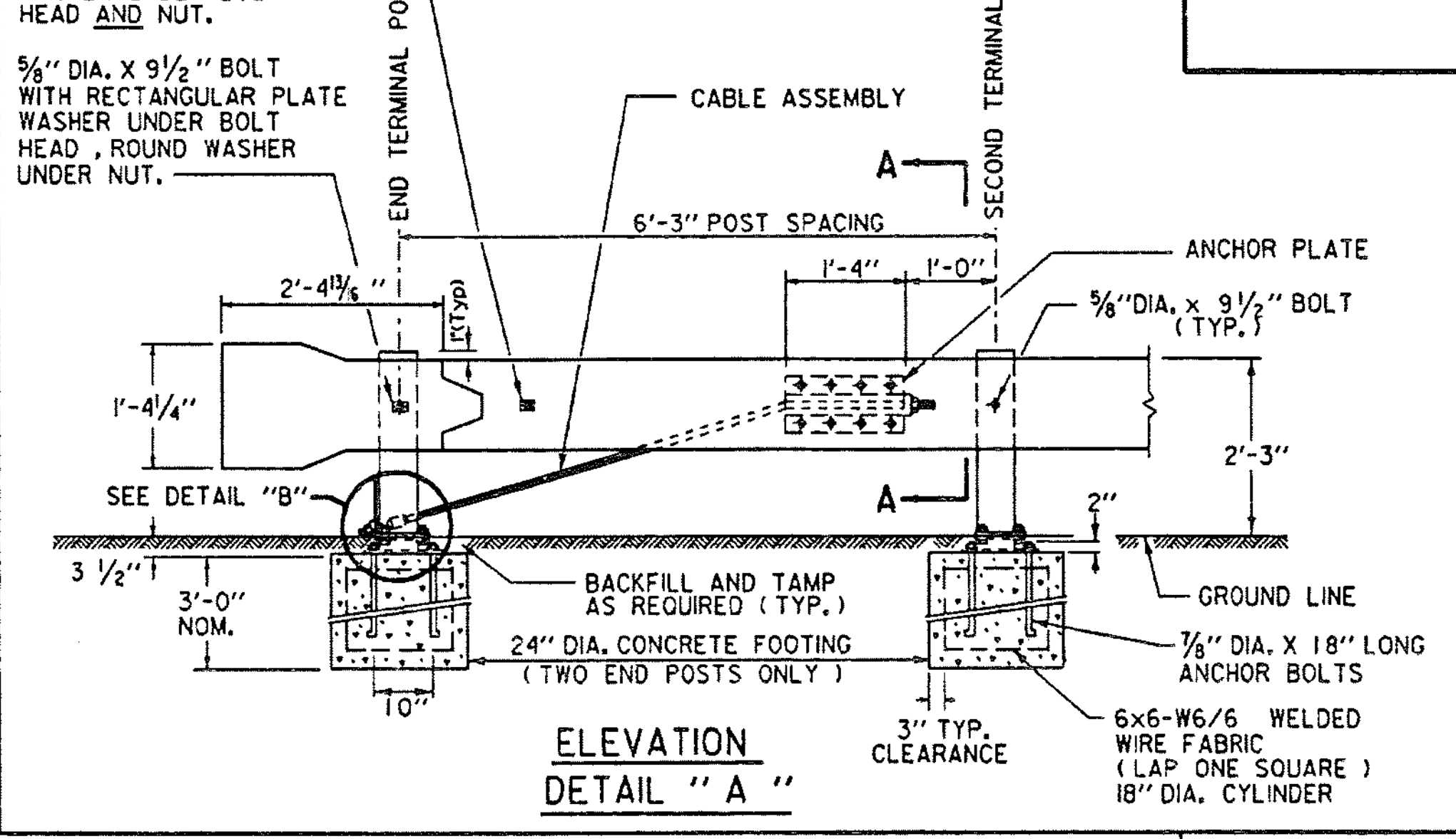
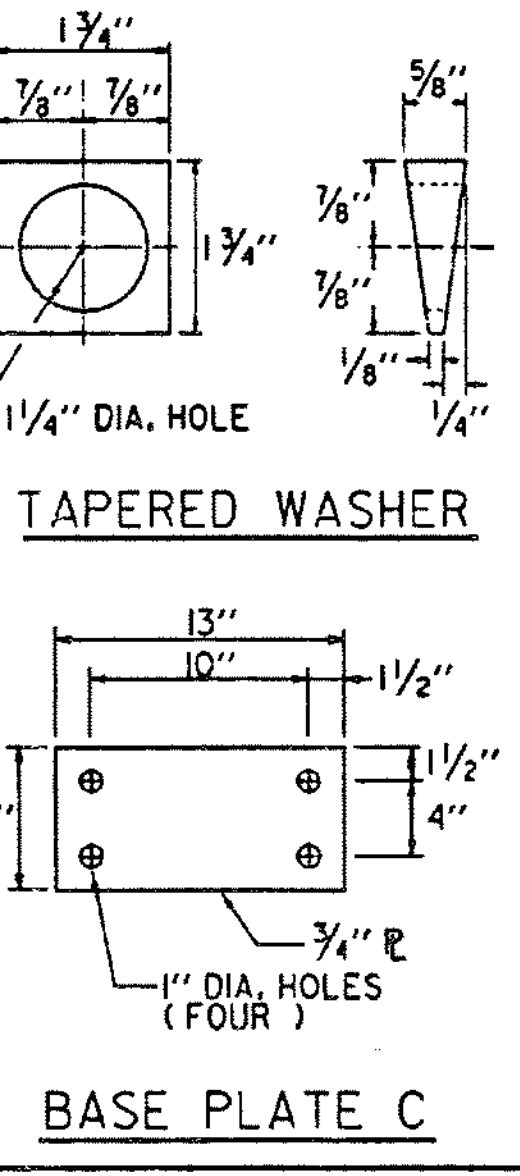
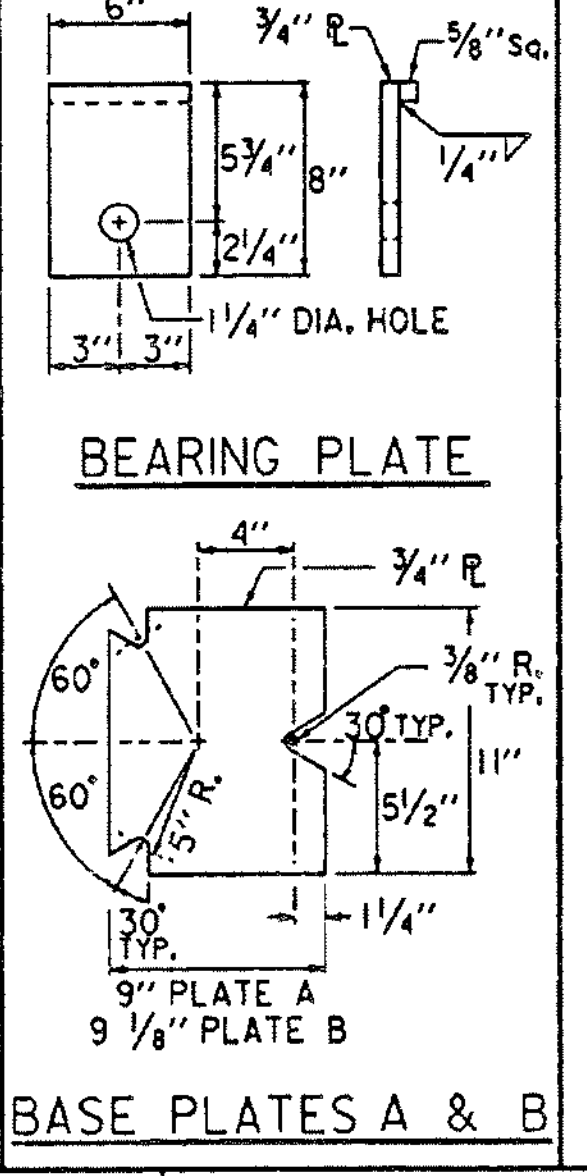
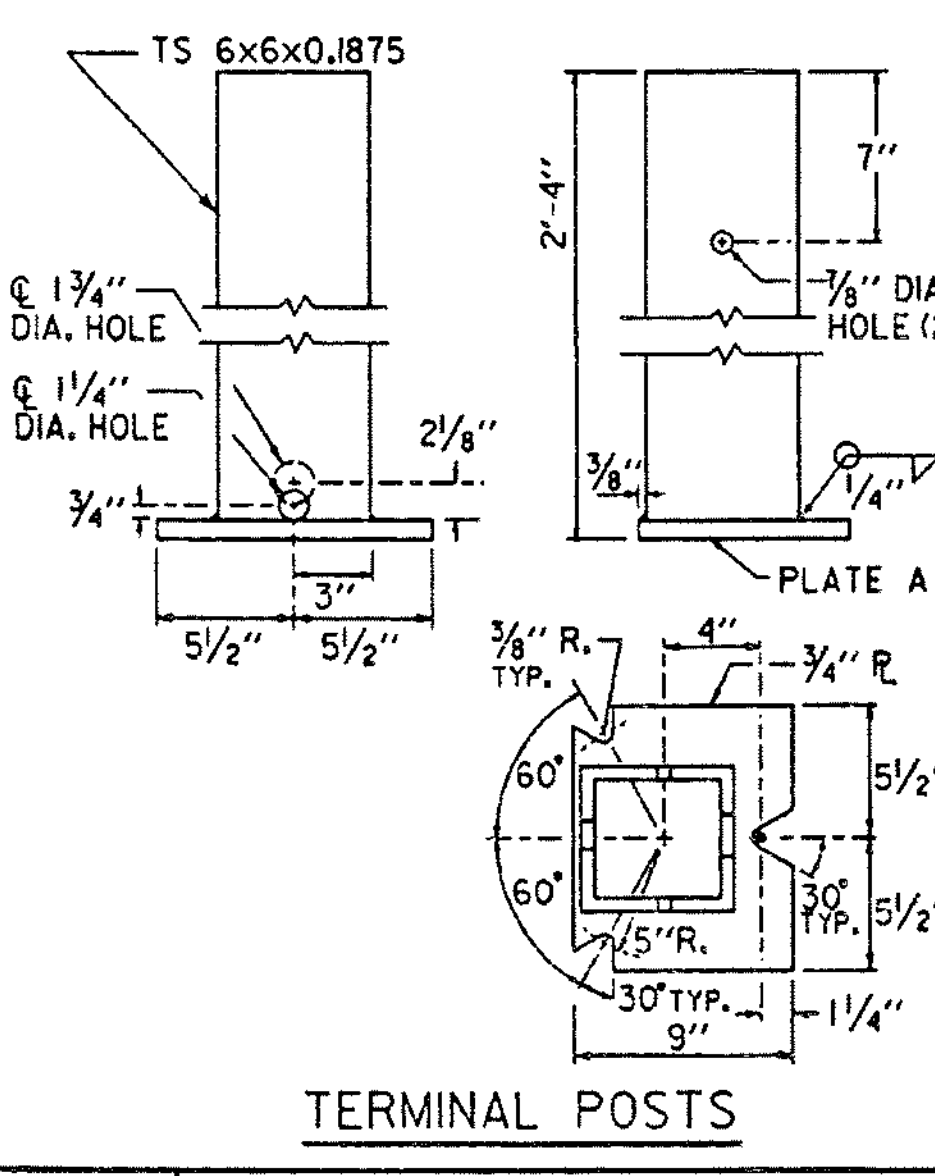
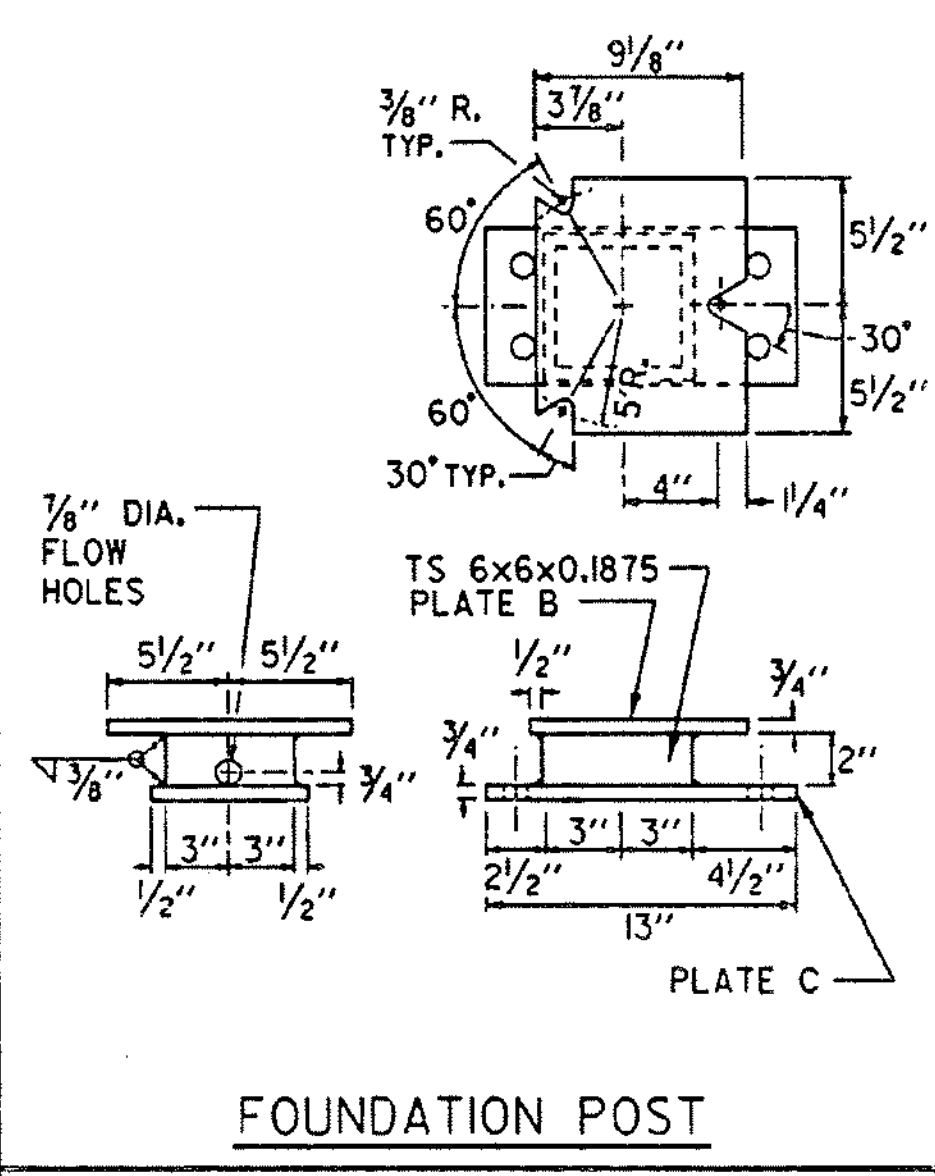
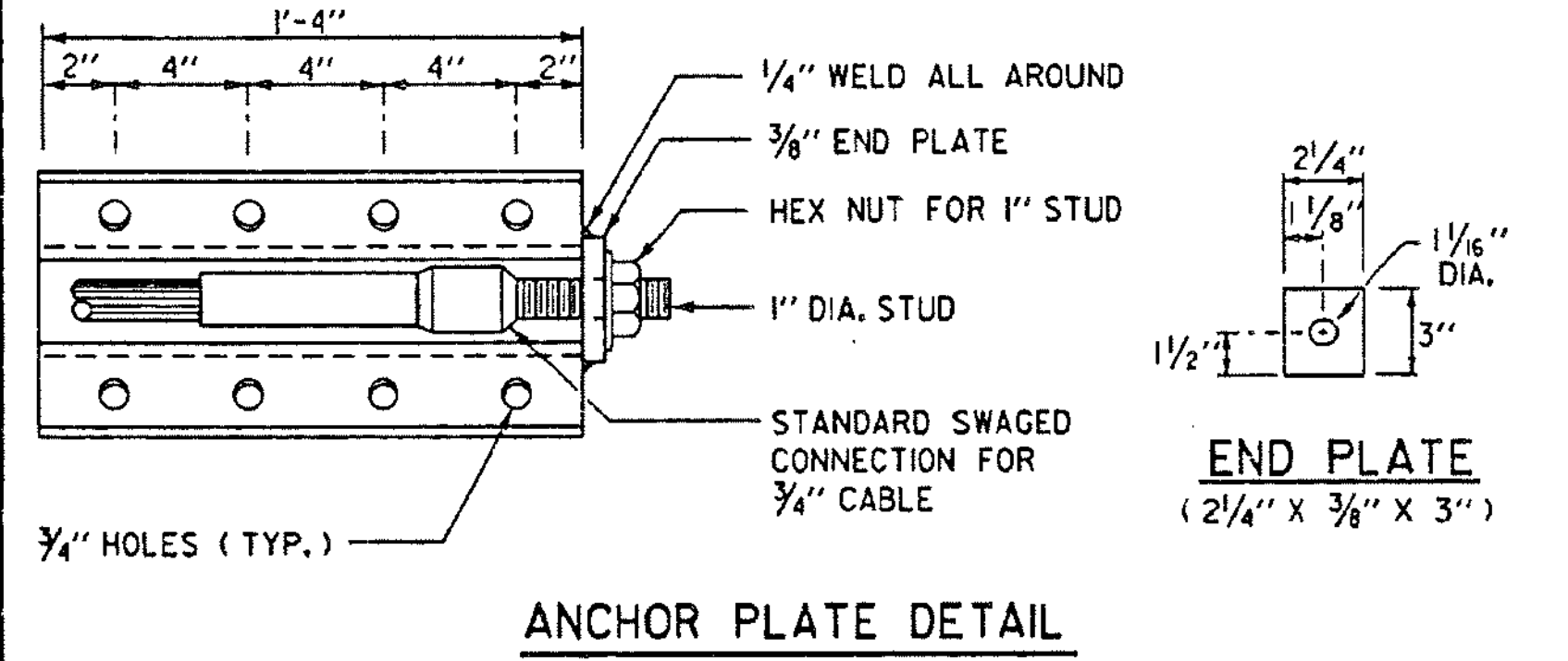
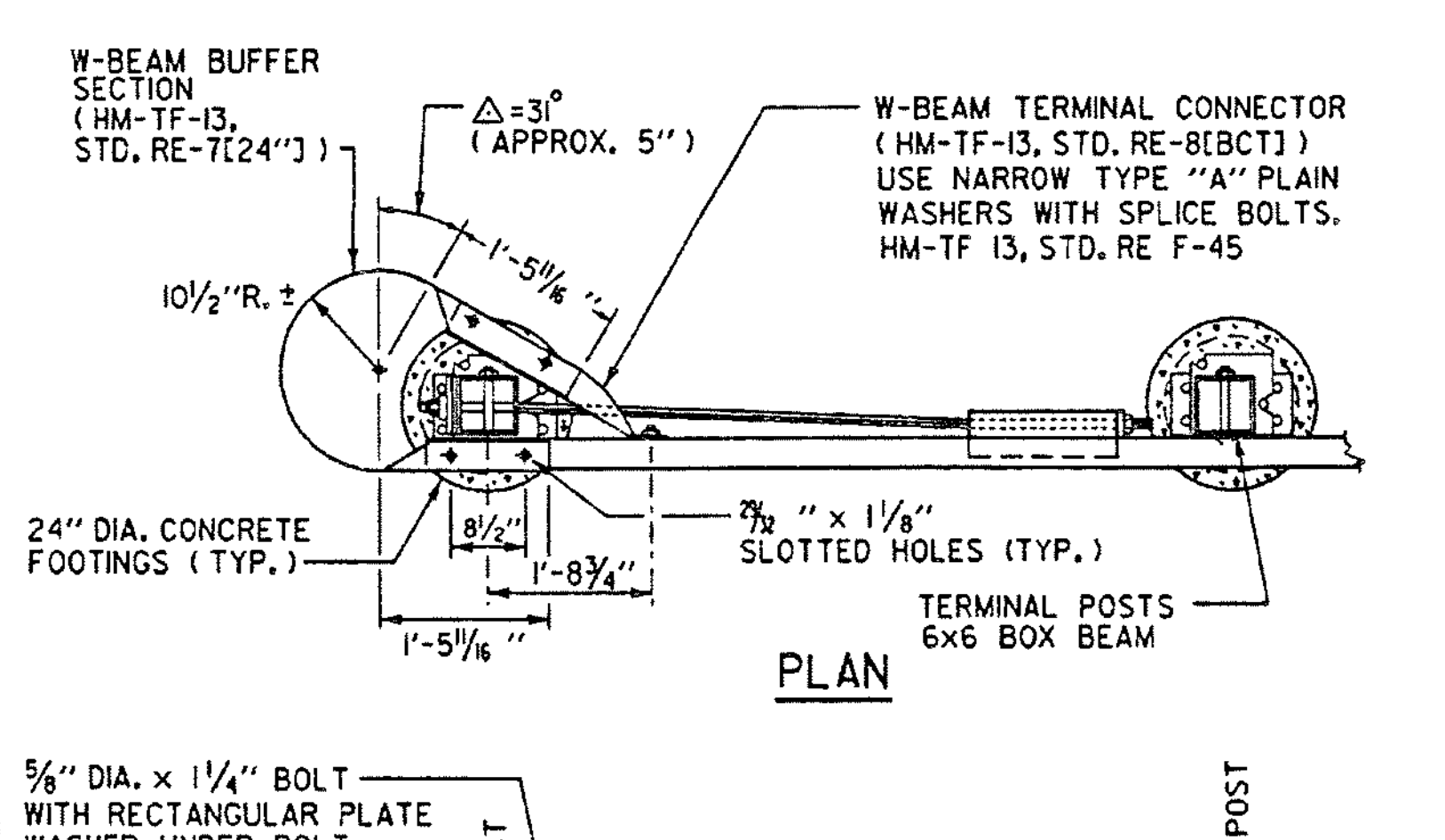
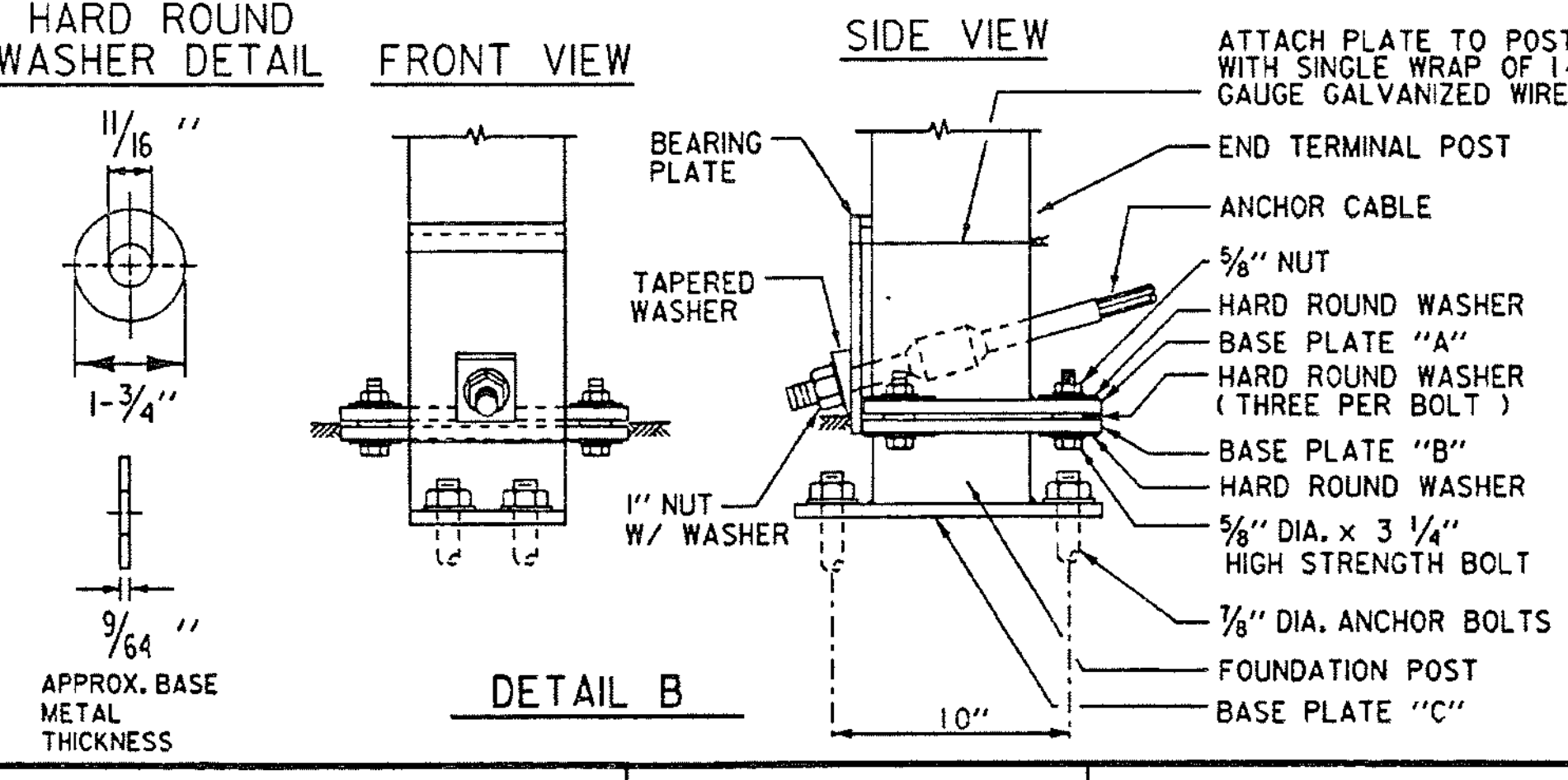
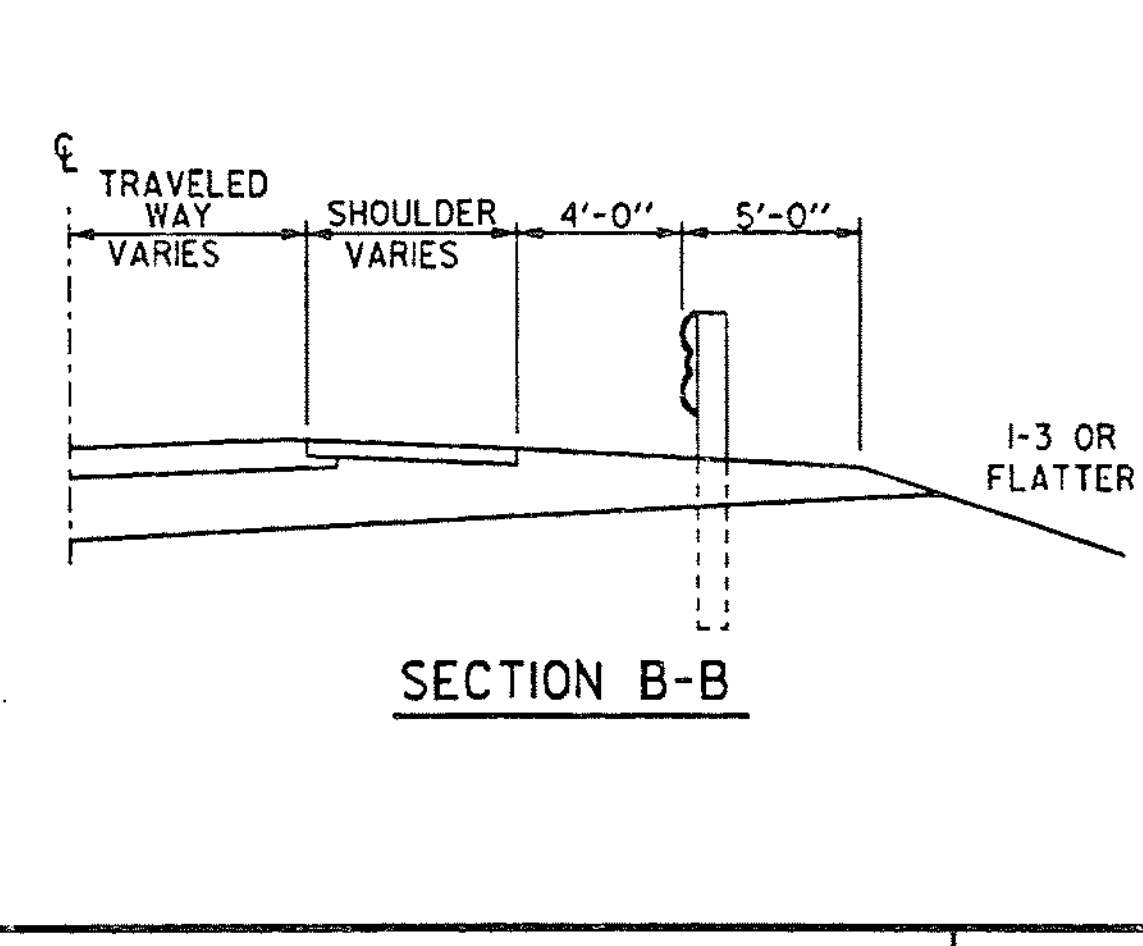
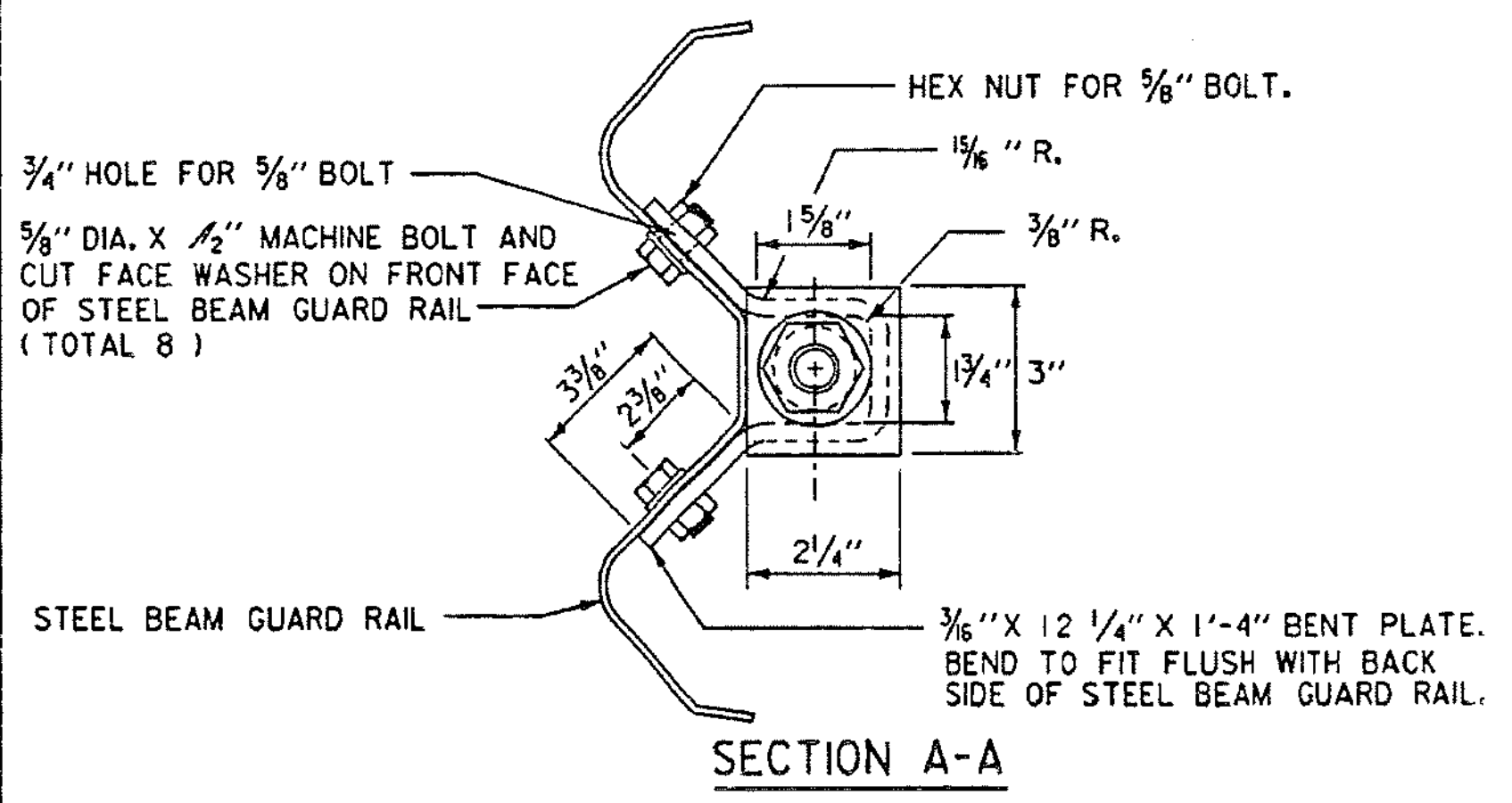
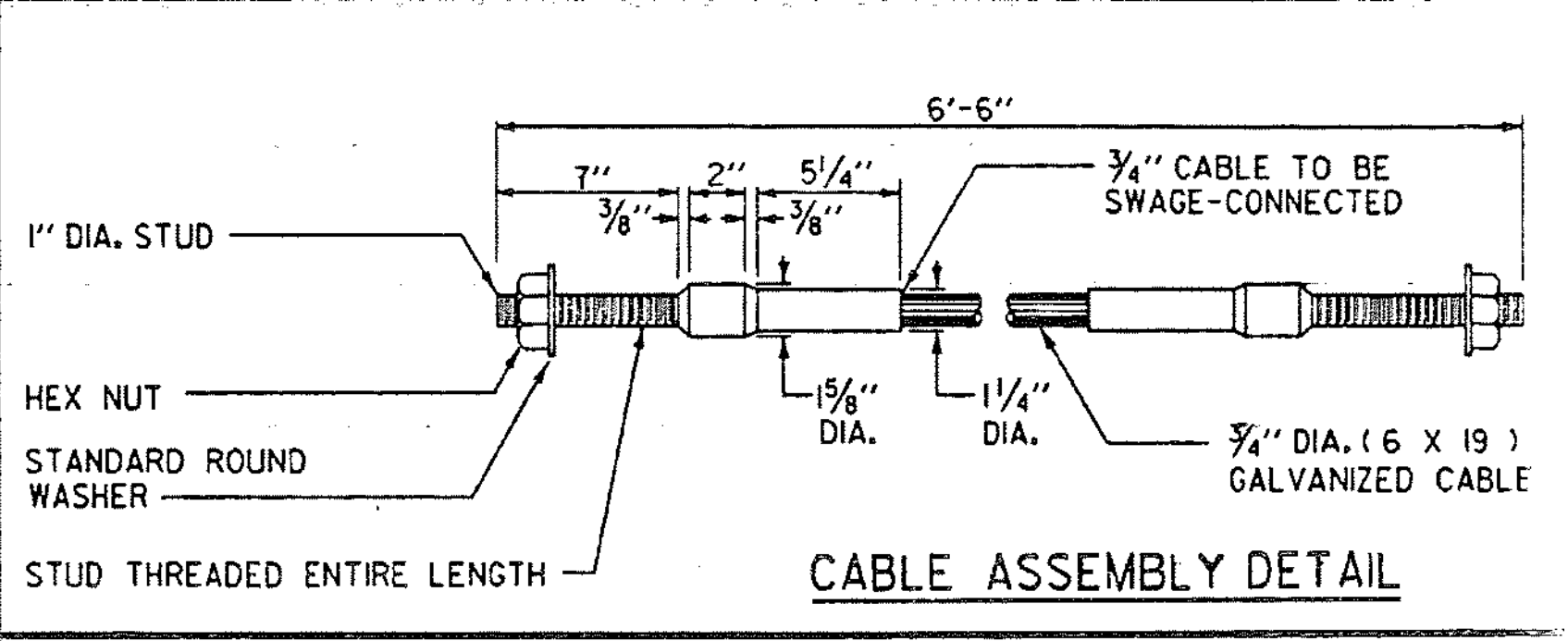
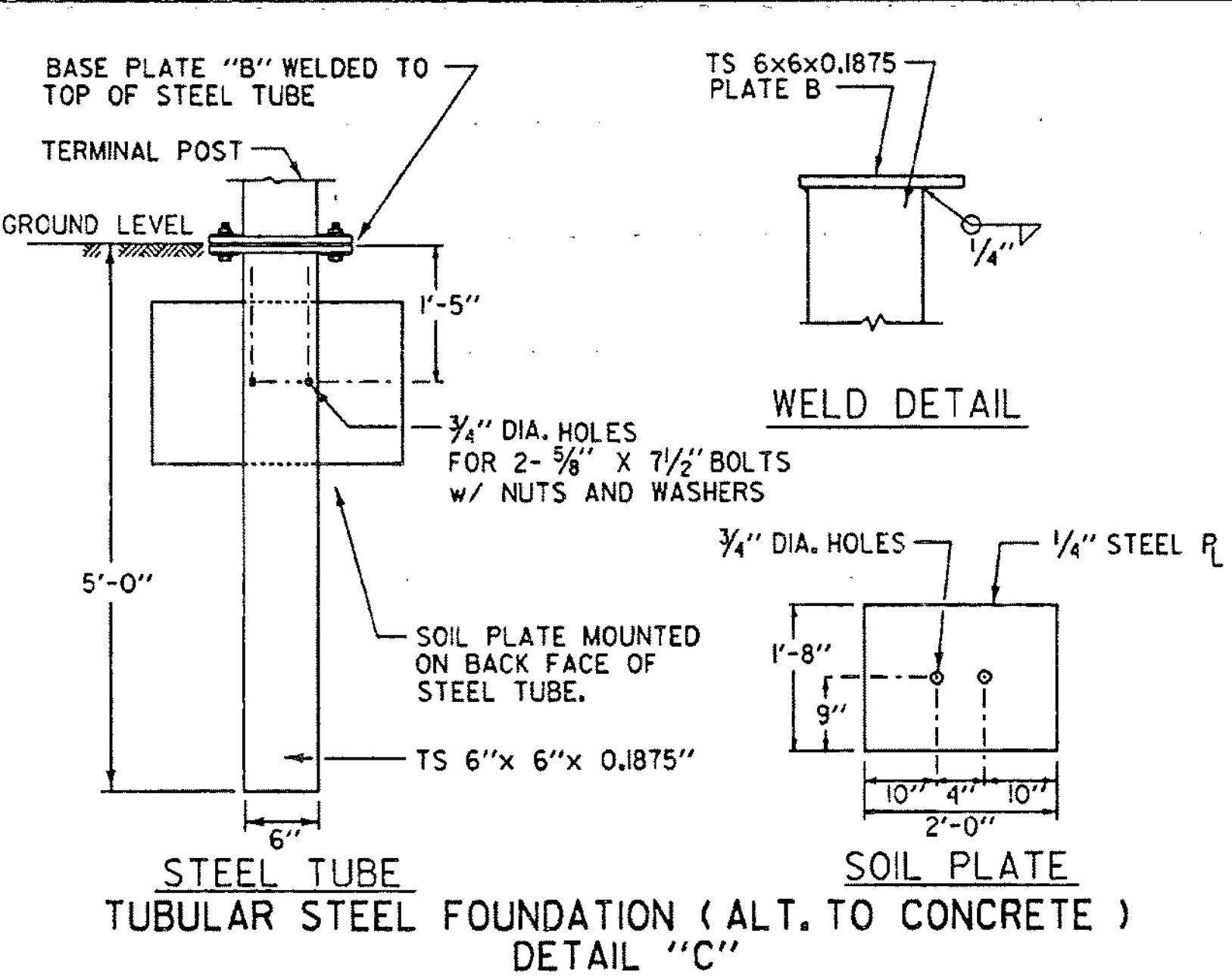
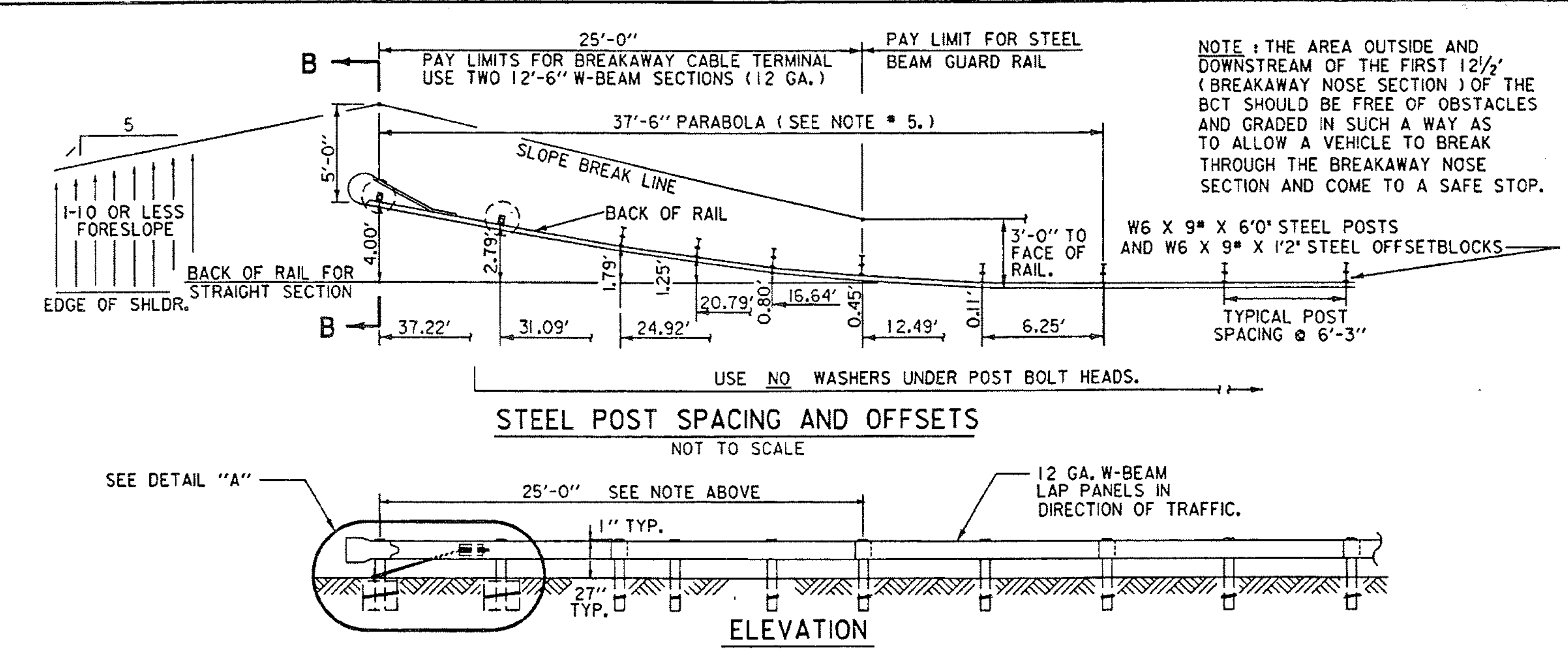
APPROVED

*George D. McCallum, P.E.*  
DIRECTOR OF ENGINEERING

*John W. Murphy, P.E.*  
DESIGN ENGINEER

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





- NOTES
- OTHER ANCHOR CABLE ASSEMBLIES MAY BE USED. MINIMUM BREAKING STRENGTH OF ASSEMBLY SHALL BE 40,000 LBS.
  - CONCRETE FOR FOOTINGS SHALL BE CLASS B. TUBULAR STEEL FOUNDATION MAY BE USED AS AN ALTERNATIVE TO CONCRETE FOOTINGS. (SEE DETAIL "C")
  - FOR CONCRETE FOOTINGS IN SANDY AREAS, CONSIDERATION FOR INCREASING THE SIZE OF THE FOOTING IS SUGGESTED.
  - THE SLIP BASE SHALL BE CONTROLLED BY THE USE OF NUTS WITH A BUILT-IN TORQUE OR BY A TORQUE WRENCH CAPABLE OF ESTABLISHING A TORQUE OF 155 TO 170 FT-LBS.
  - STANDARD SHEET G-1 WILL BE USED IN CONJUNCTION WITH THIS STANDARD.
  - USE 12" LONG W-BEAM BACK-UP PLATE AT POSTS WHERE W-BEAM SPLICE DOES NOT OCCUR.
  - FOR ADDITIONAL DETAILS ON HARDWARE, SEE THE LATEST EDITION OF AASHTO-AGC-ARTBA PUBLICATION "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE".

REVISIONS AND CORRECTIONS

JULY 15, 1976 - ORIGINAL APPROVAL DATE

NOV. 13, 1989 - REMOVED NOTE ABOUT FLAT PLATE WASHERS

APR. 4, 1990 - ADDED DETAIL FOR HARD ROUND WASHER

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

APPROVED

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

*George S. MacArthur, P.E.*  
DIRECTOR OF ENGINEERING

*Sheel M. Murphy, P.E.*  
DESIGN ENGINEER

NOT TO SCALE

# BREAKAWAY CABLE TERMINAL WITH STEEL POSTS