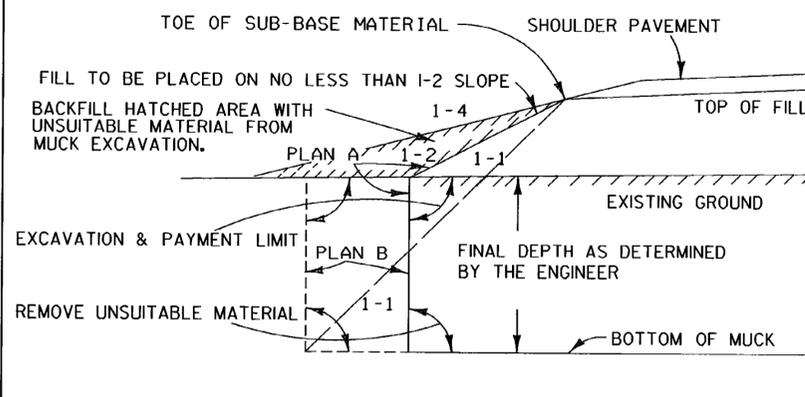
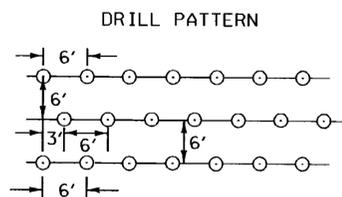
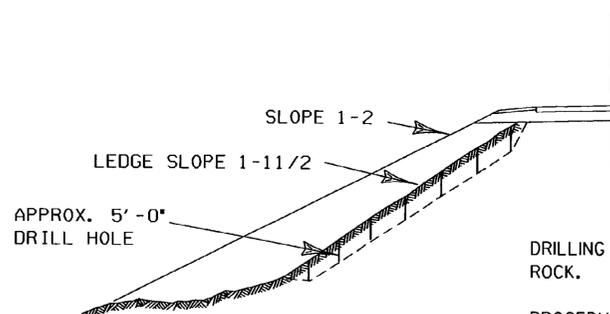


METHOD FOR CONSTRUCTING AN EMBANKMENT ON EARTH SLOPE



GENERAL NOTES:  
 THE MUCK OR UNSUITABLE MATERIAL SHALL BE EXCAVATED TO THE NEAT LINES SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER.  
 EXCAVATION AND PAYMENT LIMIT WILL BE DETERMINED FROM EITHER PLAN "A" OR PLAN "B", WHICHEVER PRODUCES THE GREATER WIDTH IN A GIVEN MUCK AREA.  
 BACKFILL MATERIAL MUST MEET THE REQUIREMENTS SET FORTH UNDER MUCK EXCAVATION, SECTION 203

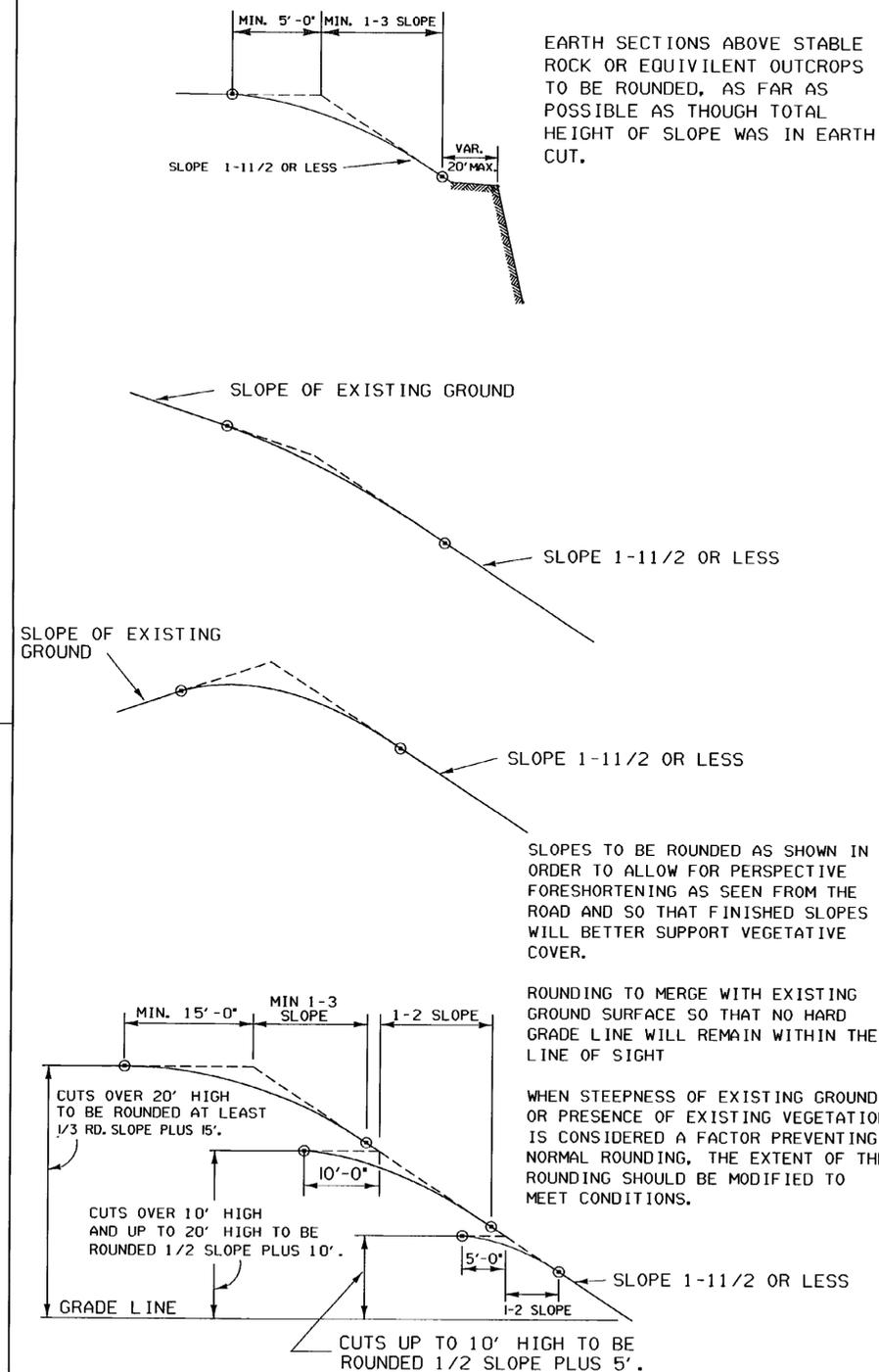
TYPICAL NEAT PAY LINES FOR MUCK EXCAVATION



DRILLING AND BLASTING OF SOLID ROCK.  
 PROCEDURE TO BE FOLLOWED WHEN LEDGE SLOPE ON OLD GROUND IS BETWEEN A 1-1 AND A 1-5 SLOPE.

ALL HOLES TO BE APPROXIMATELY 5'-0" DEEP. HOLES TO BE IN ROWS, SPACED AND STAGGERED AS SHOWN IN DRILL PATTERN, OR AS DIRECTED BY THE ENGINEER, SEE SECTION 205

A METHOD FOR PREPARING LEDGE SLOPE BEFORE CONSTRUCTING AN EMBANKMENT



TYPICAL SLOPE ROUNDING

REVISIONS AND CORRECTIONS

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

APPROVED

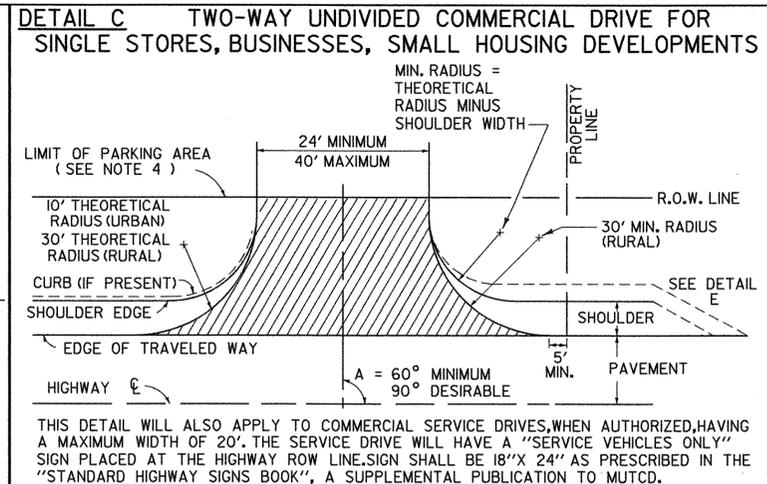
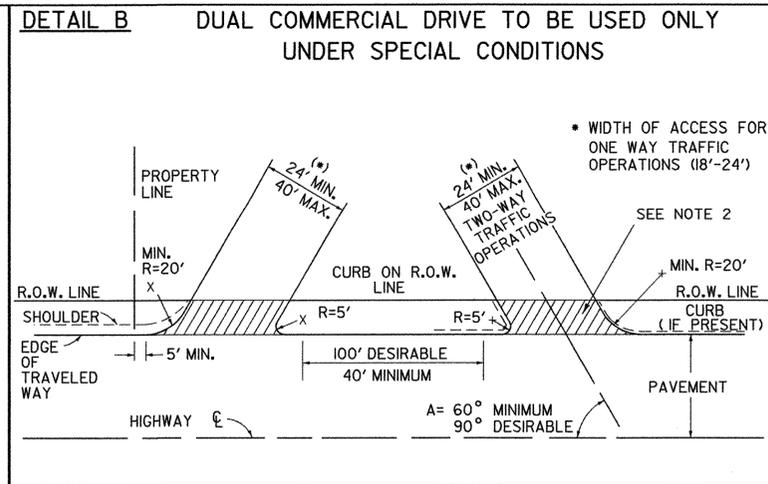
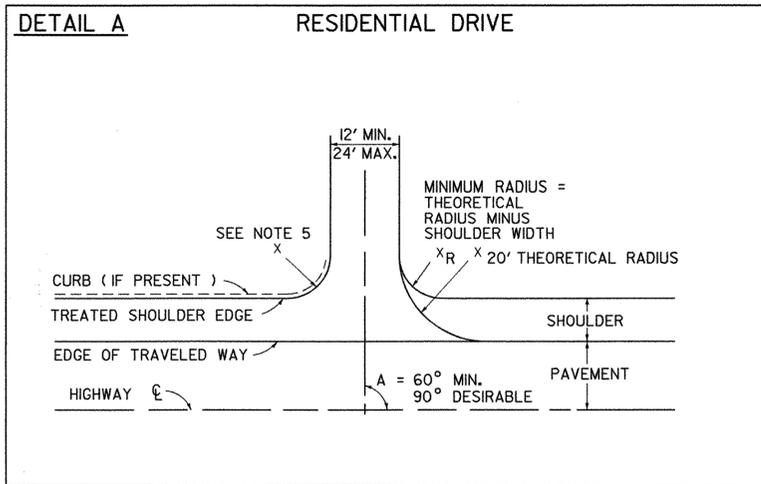
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

*Stephen D. MacArthur, P.E.*  
 DIRECTOR OF ENGINEERING  
*Robert Murphy, P.E.*  
 DESIGN ENGINEER

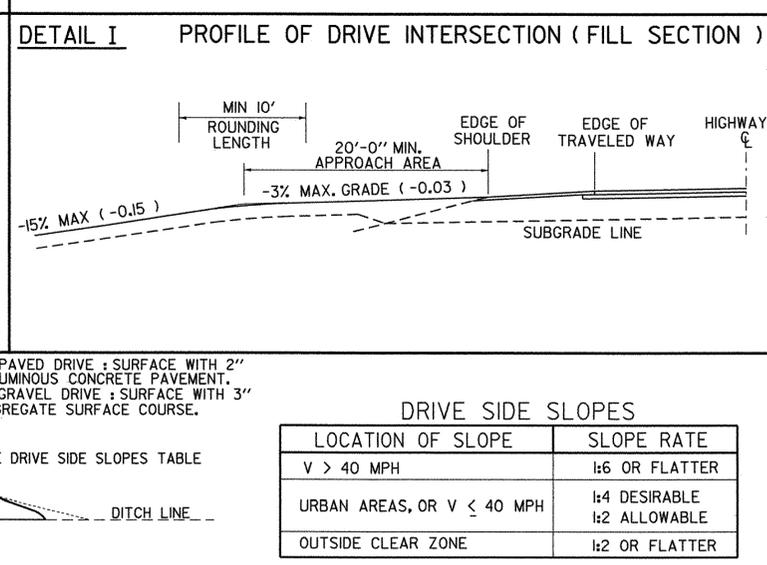
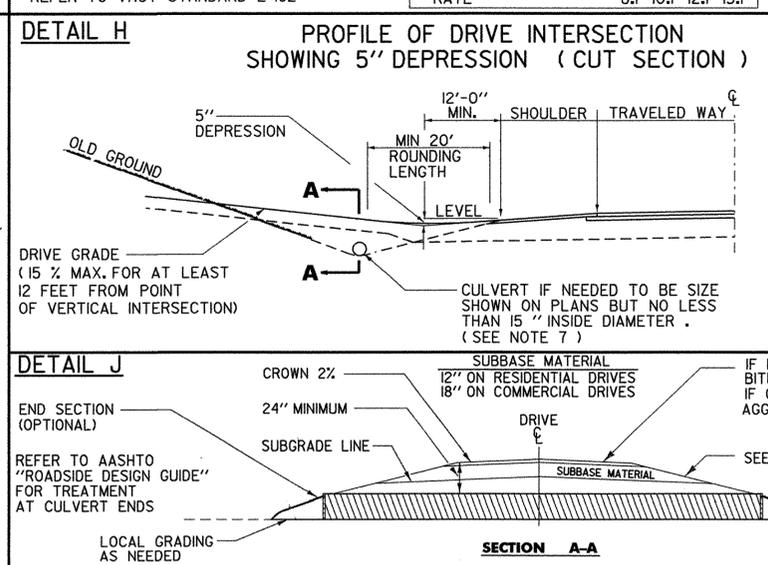
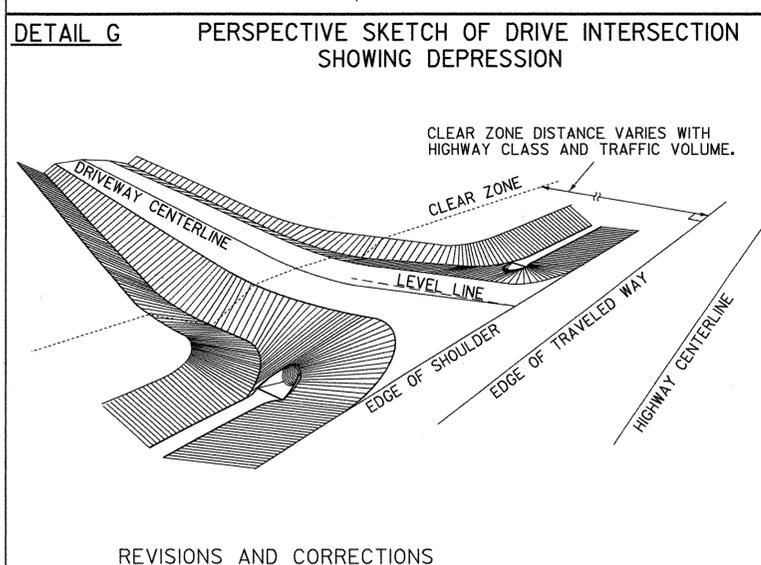
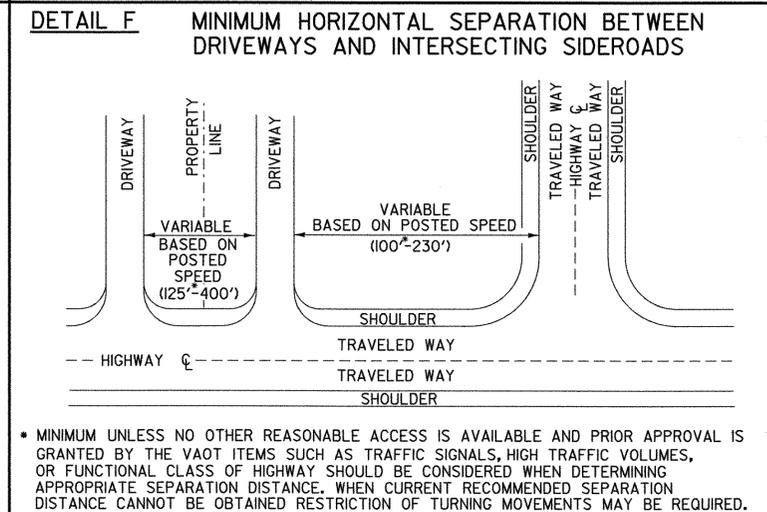
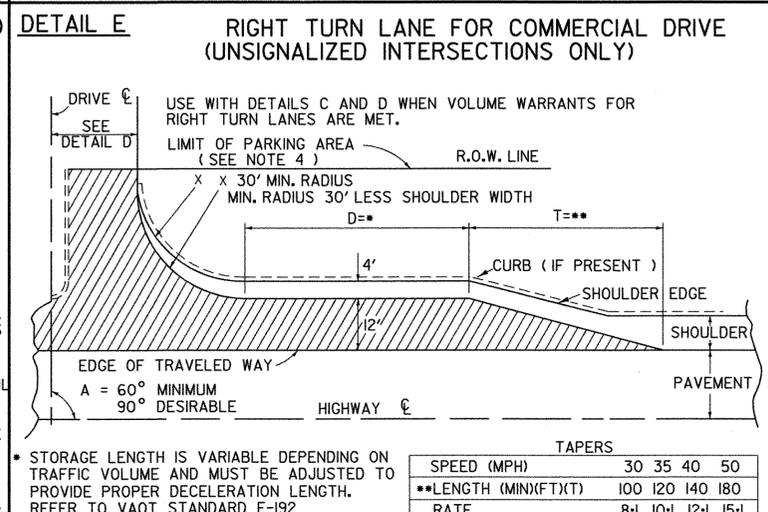
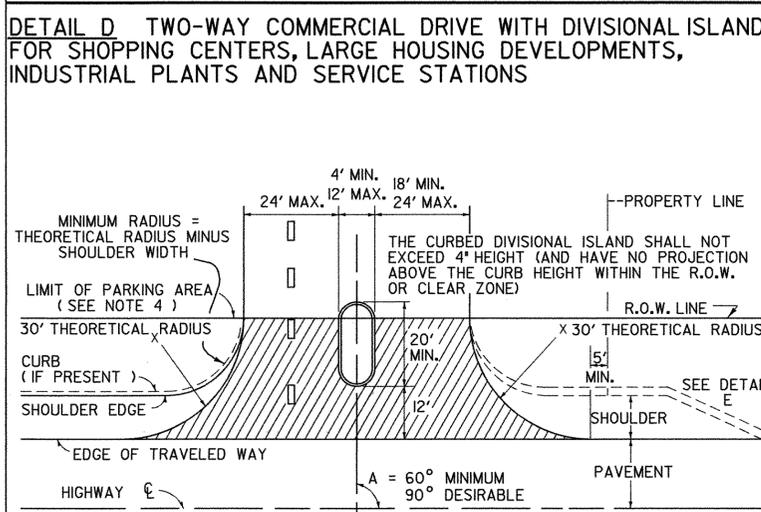
EMBANKMENT ON EARTH SLOPE  
 EMBANKMENT ON ROCK SLOPE  
 MUCK EXCAVATION  
 TYPICAL SLOPE ROUNDING



STANDARD  
 B-5



- NOTES:
- THIS SHEET IS INTENDED FOR USE BY DESIGNERS ON HIGHWAY PROJECTS AND IN CONJUNCTION WITH A PERMIT FOR WORK WITHIN HIGHWAY RIGHTS OF WAY (FORM TA 210). ALL CONSTRUCTION REQUIRED BY THE PERMIT AND INDICATED ON THIS SHEET SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND IS SUBJECT TO THE APPROVAL OF THE VT. AGENCY OF TRANSPORTATION. WHEN USED WITH THE PLANS FOR A HIGHWAY CONSTRUCTION PROJECT, THIS SHEET IS INTENDED TO BE A GUIDE FOR THE DESIGNER CONCERNING DRIVE WIDTHS, HORIZONTAL, VERTICAL AND GEOMETRIC CHARACTERISTICS.
  - ALL COMMERCIAL DRIVES SHALL BE PAVED FROM THE EDGE OF THE TRAVELED WAY TO THE HIGHWAY RIGHT-OF-WAY. TO THE FARTHEST POINT OF CURVATURE ON THE DRIVEWAY EDGE OR AS DIRECTED BY THE DISTRICT TRANSPORTATION ADMINISTRATOR. THIS PAVING IS INDICATED IN DETAILS (B THRU E) BY HATCHING.
  - DEPTH OF SUBBASE AND PAVEMENT TO BE THE SAME AS HIGHWAY OR AS SHOWN IN DETAIL J WITHIN THE LIMITS OF THE HIGHWAY RIGHT-OF-WAY.
  - VEHICULAR ACCESS FROM PARKING AREAS TO THE RIGHT-OF-WAY AT OTHER THAN APPROVED ACCESS POINTS WILL BE PREVENTED BY THE CONSTRUCTION OF CURBING OR OTHER SUITABLE PHYSICAL BARRIER.
  - IF CURB IS PRESENT, SEE APPROPRIATE CURB DETAIL STANDARD OR MATCH TOWN/CITY STANDARD CURB TREATMENT.
  - WHERE TRAFFIC VOLUME FOR A PROJECT IS SUBSTANTIAL THE AGENCY MAY REQUIRE SPECIAL LANES FOR TURNING, SIGNALS OR OTHER MODIFICATIONS. BASED ON TRAFFIC STUDIES THE AGENCY WILL DETERMINE SPECIFIC TREATMENT TO BE USED. ON DEVELOPER PROJECTS THE AGENCY WILL WORK WITH THE APPLICANT TO IMPLEMENT CHANGES TO THE STATE HIGHWAY.
  - CIRCULAR DRAINAGE CULVERTS UNDER DRIVES SHALL HAVE A MINIMUM INSIDE DIAMETER (I.D.) OF 15". PIPE ARCHES USED UNDER DRIVES SHALL HAVE A MINIMUM INSIDE CROSS-SECTIONAL AREA EQUIVALENT TO THAT PROVIDED BY A 15" CIRCULAR PIPE.
  - THE OFFSET BETWEEN THE PROPERTY LINE AND THE EDGE OF THE DRIVEWAY MAY BE GOVERNED BY LOCAL ZONING LAWS. DRIVEWAY WIDTH RESTRICTIONS SHOWN PERTAIN ONLY TO THE AREA WITHIN THE HIGHWAY R.O.W. OR THE END OF THE TURNING RADIUS WHICHEVER IS GREATEST.
  - DRIVEWAY GRADES STEEPER THAN THOSE SHOWN MAY BE ALLOWED AS LONG AS A 20' APPROACH AREA IS ACHIEVED FOR THE VEHICLE TO PAUSE BEFORE ENTERING THE HIGHWAY. (WHERE CURB & SIDEWALKS EXIST, SEE STANDARDS C-2A & C-2B)
  - INTERSECTION SIGHT DISTANCES, EQUAL TO OR GREATER THAN THOSE SHOWN BELOW, SHOULD BE PROVIDED IN BOTH DIRECTIONS FOR ALL DRIVES ENTERING ON PUBLIC HIGHWAYS, UNLESS OTHERWISE APPROVED BY THE AGENCY OF TRANSPORTATION. INTERSECTION SIGHT DISTANCE IS MEASURED FROM A POINT ON THE DRIVE AT LEAST 15 FEET FROM THE EDGE OF TRAVELED WAY OF THE ADJACENT ROADWAY AND MEASURED FROM A HEIGHT OF EYE OF 3.5 FEET ON THE DRIVE TO A HEIGHT OF 3.50 FEET ON THE ROADWAY.



### SIGHT DISTANCE CHART

POSTED SPEED OR DESIGN SPEED (M.P.H.)	MINIMUM STOPPING SIGHT DISTANCE (FT)	MINIMUM INTERSECTION SIGHT DISTANCE (FT)
25	155	280
30	200	335
35	250	390
40	305	445
45	360	500
50	425	555
55	495	610
60	570	665
65	645	720

THE ABOVE VALUES ARE TAKEN FROM THE 2004 AASHTO "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS & STREETS."

NOTE: ADVANCE WARNING SIGNS WILL BE REQUIRED IF OBTAINABLE INTERSECTION SIGHT DISTANCES ARE BELOW MINIMUM STOPPING SIGHT DISTANCES.

THE CHART IS ENTERED TO SELECT DESIGN VALUES BASED ON THE POSTED SPEED LIMIT IN MPH. VALUES FOR DESIGN ARE CALCULATED BASED ON THE DESIGN SPEED IN MPH.

\* ASSUMES A GAP OF 7.5 SECONDS IN THE TRAFFIC STREAM ON THE HIGHWAY MAINLINE BASED ON THE HIGHWAY DESIGN SPEED IN MPH. THIS ALLOWS A STOPPED PASSENGER VEHICLE TO ENTER THE MAINLINE FROM THE DRIVE WITHOUT UNDULY INTERFERING WITH THE HIGHWAY OPERATIONS.

REVISIONS AND CORRECTIONS

DEC. 11, 1992 - THIS STANDARD SUPERCEDES B-71 (7/23/80R), B-71A (3/12/90), AND B-13 (12/14/71).

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

MAR. 10, 1995 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

NOV. 16, 2000 - CHANGES MADE TO CONFORM WITH LANGUAGE AND DIMENSIONS IN ACCESS MANAGEMENT PROGRAM GUIDELINES.

FEB 1, 2004 - CHANGES MADE TO SIGHT DISTANCE CHART TO CONFORM WITH NEWEST AASHTO CRITERIA.

JULY 8, 2005 - CHANGE MADE TO OBJECT HEIGHT TO CONFORM WITH NEWEST AASHTO CRITERIA

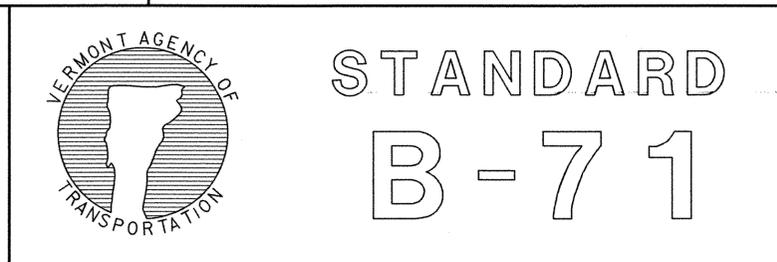
APPROVED

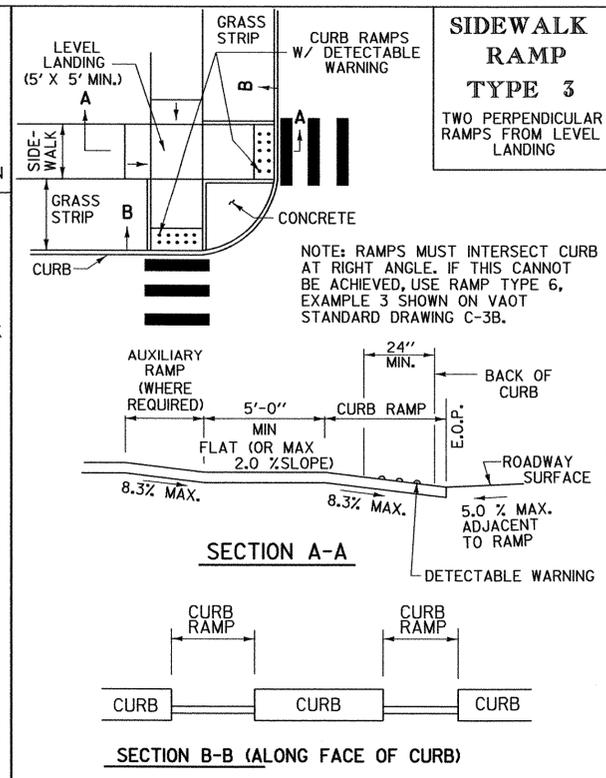
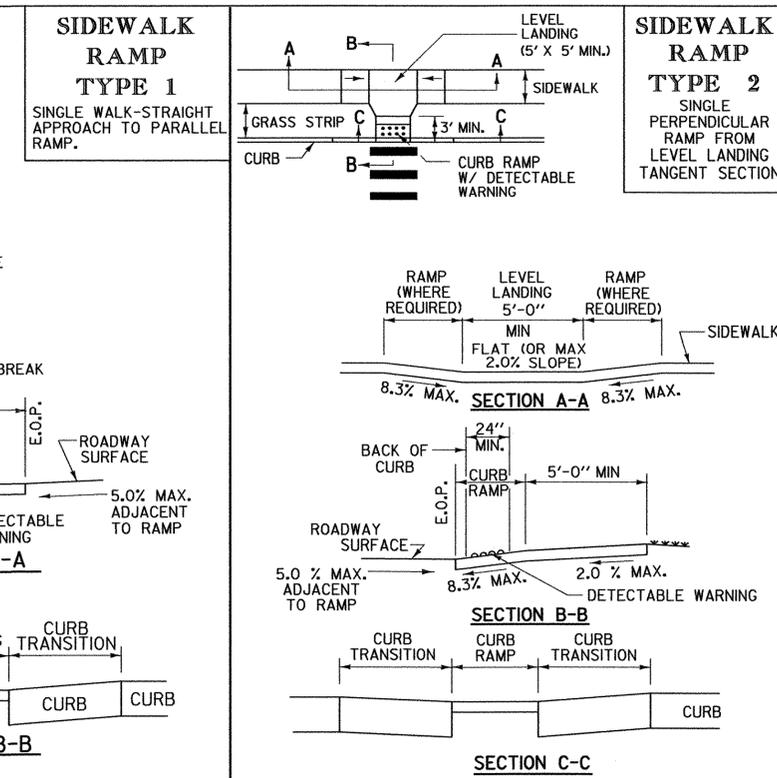
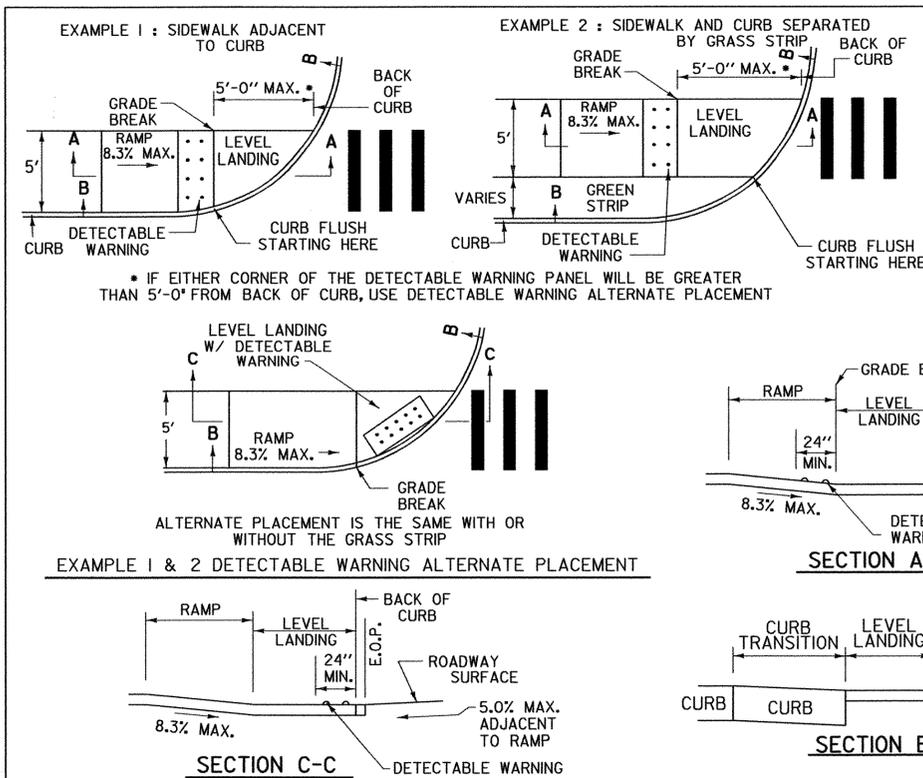
*Richard Fede*  
DIRECTOR OF PROGRAM DEVELOPMENT

*Wm S Kelly*  
CHIEF OF UTILITIES AND PERMITS

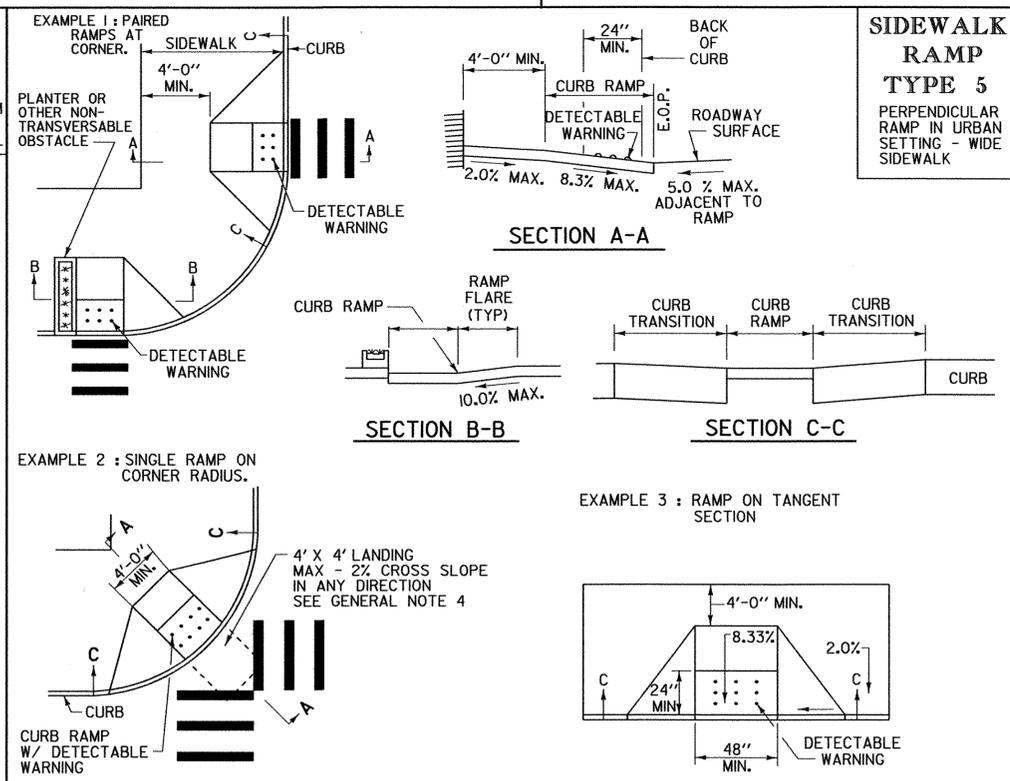
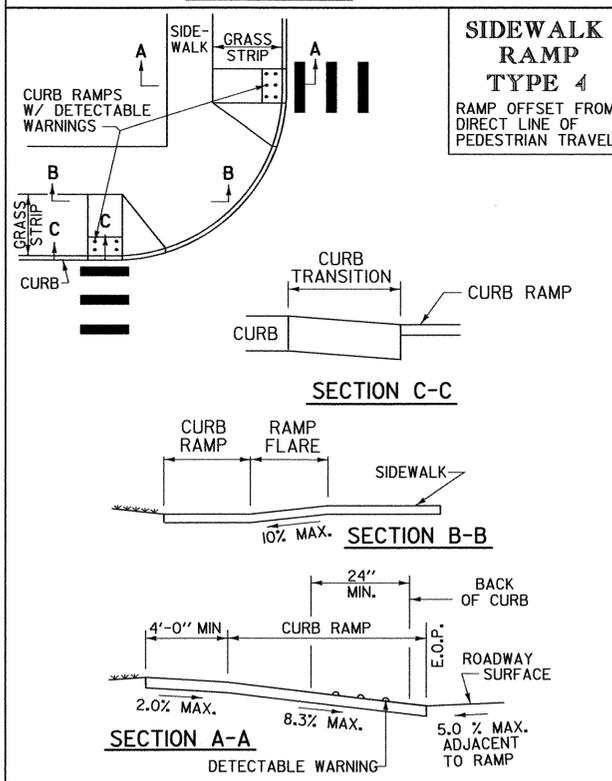
*Michael Conroy*  
FEDERAL HIGHWAY ADMINISTRATION

# STANDARDS FOR RESIDENTIAL AND COMMERCIAL DRIVES





- GENERAL NOTES:**
- THE DIMENSIONS AND GRADES SHOWN ON THIS STANDARD WILL BE ADHERED TO IN THE DESIGN AND THE CONSTRUCTION OF SIDEWALK RAMPS. WHERE SIDEWALKS RUN ADJACENT TO ROADWAYS ON STEEP (5% OR GREATER) GRADES, RAMP GRADES WILL BE AS FLAT AS POSSIBLE. (ON LOW SIDE OF DRIVES AND INTERSECTING SIDE STREETS, RAMPS SHALL SLOPE TOWARDS DRIVE OR SIDE STREET @ 2%.)
  - NOMINAL RAMP DIMENSIONS AND GRADES:  
RAMP WIDTH - 4'-0" MINIMUM  
RAMP SLOPE - 8.3% MAXIMUM  
FLARE SLOPE - 10% MAXIMUM  
RAMP CROSS SLOPE - 2.0% MAXIMUM
  - A LEVEL LANDING (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) SHALL BE PROVIDED AT THE TOP OF SIDEWALK RAMPS TO ALLOW FOR STOPPING AND MANEUVERING OF WHEELCHAIRS.
  - LEVEL LANDINGS (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) AT THE BOTTOM OF PERPENDICULAR RAMPS SHALL BE WHOLLY CONTAINED WITHIN MARKED CROSSWALKS.
  - DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) AT TOPS AND BOTTOMS OF RAMPS AND FLARES.
  - VERTICAL DROP-OFF EDGES TO RAMPS WILL NOT BE BUILT UNLESS THE RAMP ABUTS AN AREA WHICH WILL NOT BE USED BY PEDESTRIANS.
  - NO VERTICAL "LIP" OR "CURB REVEAL" WILL BE PROVIDED WHERE THE RAMP ADJOINS THE ROADWAY.
  - AT MARKED CROSSWALKS, THE FULL WIDTH OF THE RAMP OR LANDING SHALL BE CONTAINED WITHIN THE PAVEMENT MARKINGS.
  - WHERE POSSIBLE, RAMP FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
  - SIGNS, POLES, PLANTERS, MAILBOXES, ETC. SHALL NOT BE LOCATED WHERE THEY WILL INTERFERE WITH THE USE OF SIDEWALK RAMPS.
  - WHERE POSSIBLE, SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
  - CURB DRAINAGE SHOULD BE CONSTRUCTED SO AS TO PRECLUDE THE FLOW OF WATER PAST THE SIDEWALK RAMP.
  - WHEREVER FEASIBLE, TWO SIDEWALK RAMPS ARE RECOMMENDED IN PREFERENCE TO A SINGLE RAMP.
  - JOINTS WILL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT SIDEWALK SPECIFICATIONS, HOWEVER EXPANSION JOINTS WITHIN THE SIDEWALK RAMP AREA WILL BE AVOIDED WHEREVER POSSIBLE.
  - SIDEWALKS THAT ARE LESS THAN 5' WIDE REQUIRE 5' WIDE BY 5' LONG PASSING AREAS (NO GREATER THAN 2.0% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200 FEET.
  - E.O.P. = EDGE OF PAVEMENT
  - THE PUBLIC SIDEWALK CURB RAMP STANDARDS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS. DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF THIS SHEET TO THE MAXIMUM EXTENT FEASIBLE ON ALTERATION PROJECTS AND WHEN STRUCTURALLY PRACTICABLE ON NEW CONSTRUCTION PROJECTS AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.



- DETECTABLE WARNING NOTES:**
- DETECTABLE WARNING SURFACES SHALL BE PAID FOR AS SPECIFIED IN THE CONTRACT.
  - CONCRETE ADJACENT TO ALL DETECTABLE WARNINGS SHALL HAVE A BROOM FINISH.
  - THE COLOR OF THE DETECTABLE WARNING SHALL PROVIDE A VISUAL CONTRAST TO THE SURROUNDING SURFACE AND SHALL BE AS SPECIFIED IN THE CONTRACT.
  - WHERE FEASIBLE, TRUNCATED DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF PEDESTRIAN TRAVEL.
  - WHERE A RAMP OR LEVEL LANDING MEETS A CURB RADIUS, ALIGN THE EDGE OF THE DETECTABLE WARNING AREA PARALLEL TO THE CURB TO THE MAXIMUM EXTENT FEASIBLE.
  - FOR SURFACE APPLIED TRUNCATED DOME PRODUCTS, A MAXIMUM 0.25" VERTICAL CHANGE IN ELEVATION IS ALLOWED. FOR CHANGES IN ELEVATION BETWEEN 0.25" AND 0.50", A BEVEL WITH A MAXIMUM 1:2 SLOPE IS REQUIRED. CHANGES IN ELEVATION GREATER THAN 0.50" MUST BE TREATED AS A RAMP. 8.3% MAXIMUM SLOPE.

- OTHER STANDARDS REQUIRED:** C-2A, C-2B, C-3B AND C-10

**REVISIONS AND CORRECTIONS**

FEB. 2, 2004 - DATE OF ORIGINAL ISSUE

SEPT. 1, 2004 - MINOR REVISIONS TO COMPLY WITH ADAAG

MAR. 10, 2008 - MINOR REVISIONS TO COMPLY WITH ADA STANDARDS

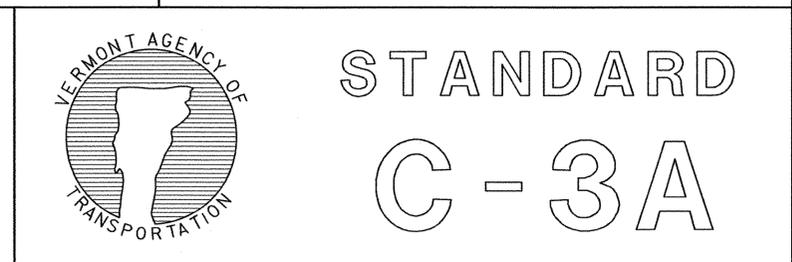
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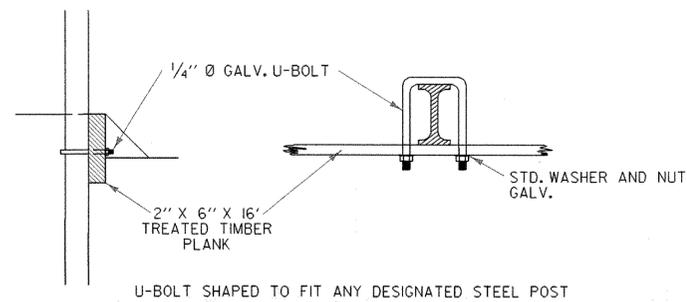
*Alan E. Newson*  
LOCAL TRANSPORTATION FACILITIES PROGRAM MANAGER

*Rudolf Fetscher*  
DIRECTOR OF PROGRAM DEVELOPMENT

*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

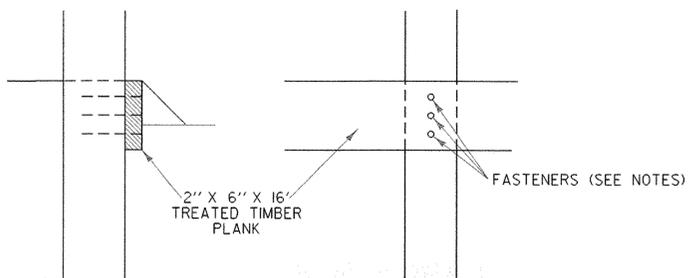
# SIDEWALK RAMPS



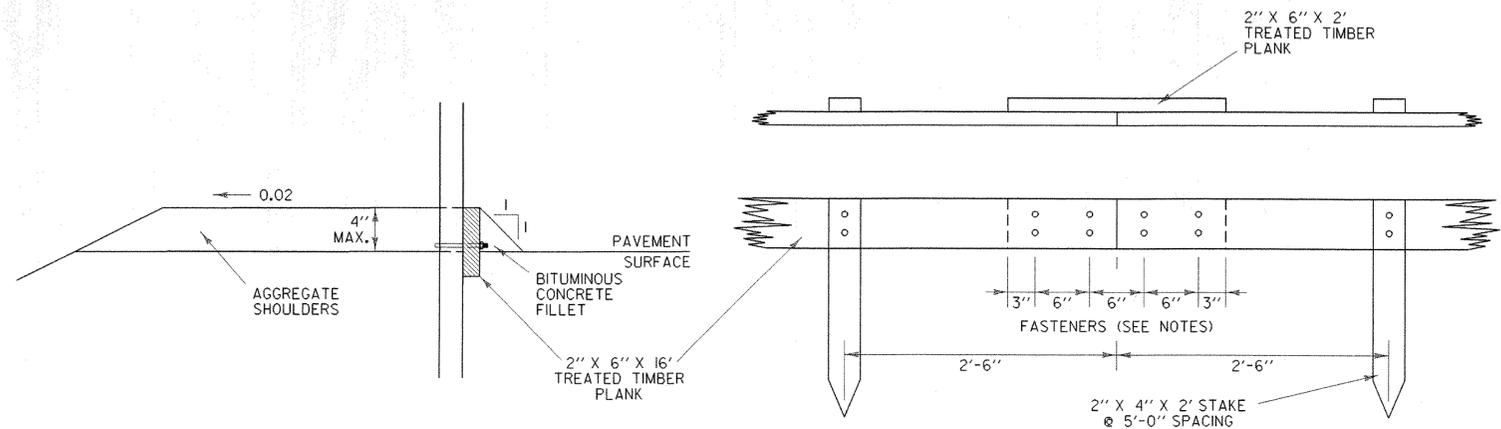


U-BOLT SHAPED TO FIT ANY DESIGNATED STEEL POST

WITH STEEL POSTS



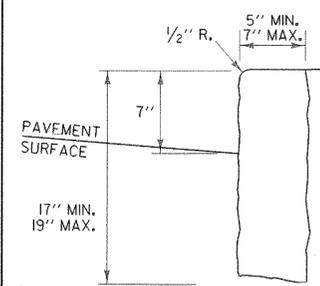
WITH WOOD POSTS (EXISTING CONDITION)



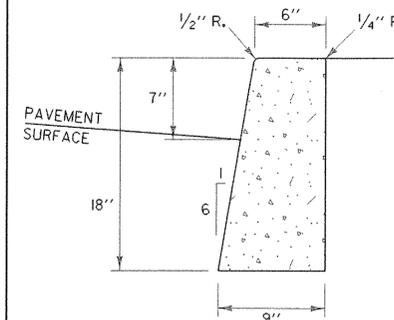
BITUMINOUS CONCRETE FILLET DETAIL

TREATED TIMBER CURB

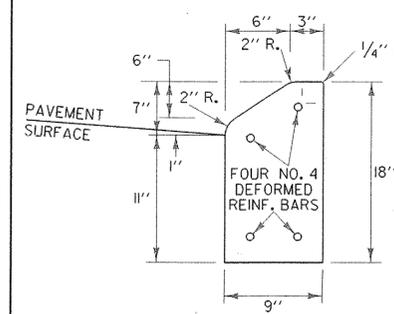
SPLICE DETAIL



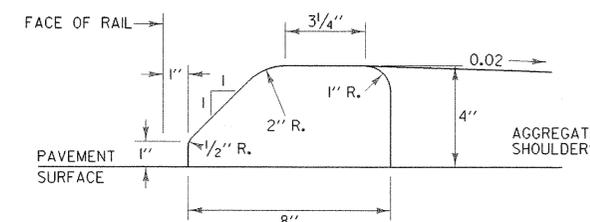
VERTICAL GRANITE CURB



CAST IN PLACE CONCRETE CURB, TYPE B

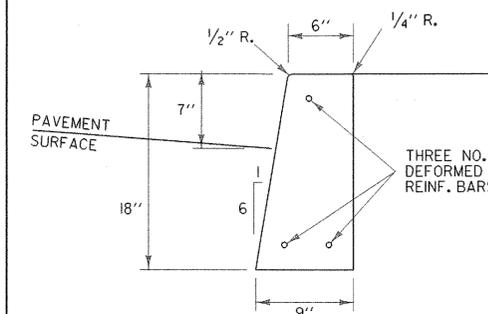


PRECAST REINFORCED CONCRETE CURB, TYPE A

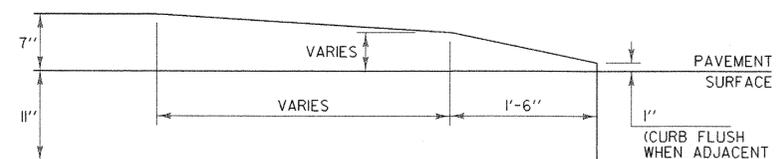


USE ONLY WITH STEEL BEAM GUARDRAIL

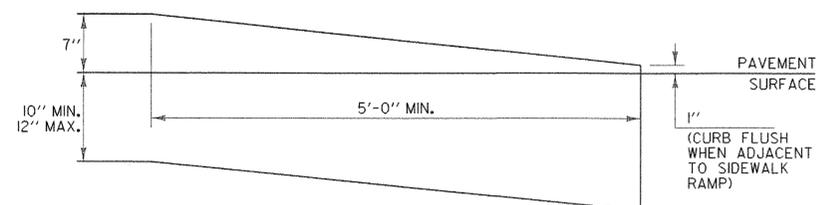
BITUMINOUS CONCRETE CURB, TYPE A



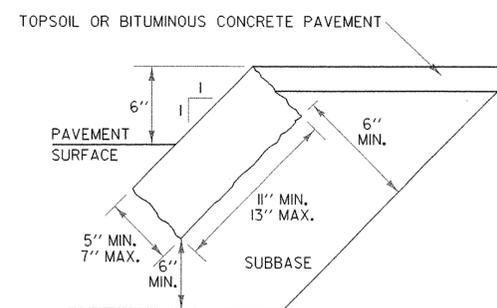
PRECAST REINFORCED CONCRETE CURB, TYPE B



CONCRETE CURB END



VERTICAL GRANITE CURB END



EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.

GRANITE SLOPE EDGING

**GENERAL NOTES:**

- HEIGHT OF REVEAL OF CURB SHALL NOT EXCEED FOUR INCHES WHERE DESIGN OR POSTED SPEED IS EQUAL TO OR GREATER THAN 40 MPH AND WHEN INSTALLED WITH GUARDRAIL (STANDARD SHAPE TO BE BURIED TO THIS DEPTH).
- WHEN CONCRETE SIDEWALK IS CONSTRUCTED ADJACENT TO CONCRETE OR VERTICAL GRANITE CURB, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDEWALK AND CURB FOR THE TOTAL DEPTH OF THE SIDEWALK.
- FASTENERS (20d NAILS OR SCREWS) SHALL BE CORROSION RESISTANT TO THE TREATED LUMBER.
- FOR SPECIFICATIONS FOR EXPANSION/CONTRACTION JOINTS AND LENGTHS OF SECTIONS, SEE SECTION 616.
- JOINTS BETWEEN CURB SECTIONS SHALL BE MORTARED IN CONFORMANCE WITH SECTION 616.
- BITUMINOUS CONCRETE AND TREATED TIMBER CURB SHALL BE IN CONFORMANCE WITH SECTION 616.
- TWO INCH MINIMUM CLEARANCE FROM FACE OF CONCRETE TO EDGE OF REINFORCING STEEL.

**OTHER STDS. REQUIRED: NONE**

REVISIONS AND CORRECTIONS  
FEB. II, 2008 - ORIGINAL APPROVAL DATE

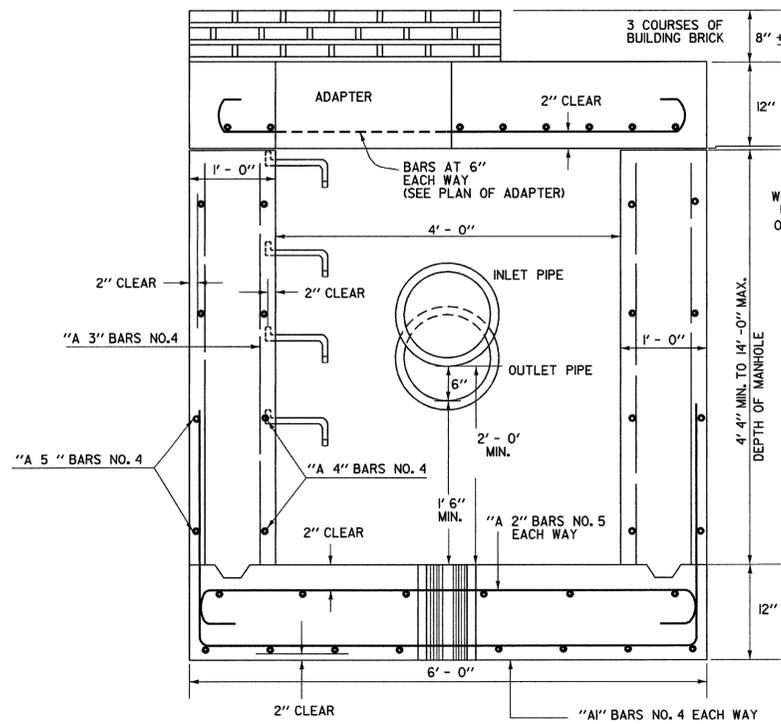
APPROVED  
*Kevin J. Marshie*  
ROADWAY, TRAFFIC & SAFETY ENGINEER  
*Richard Stearns*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*Mark D. Kuebler*  
FEDERAL HIGHWAY ADMINISTRATION

**CURBING**



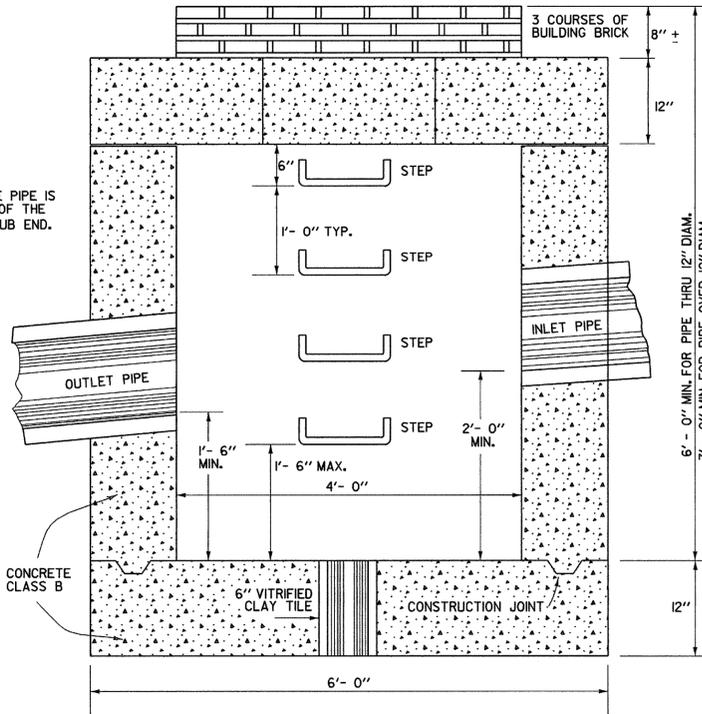
**STANDARD  
C-10**

ANY OF THE COMBINATIONS OF TOPS, CURBS AND GRATES FOUND ON SHEETS D-6, D-9, D-10, D-11, D-15, AND D-16 CAN BE ADAPTED FOR USE WITH THIS STRUCTURE.

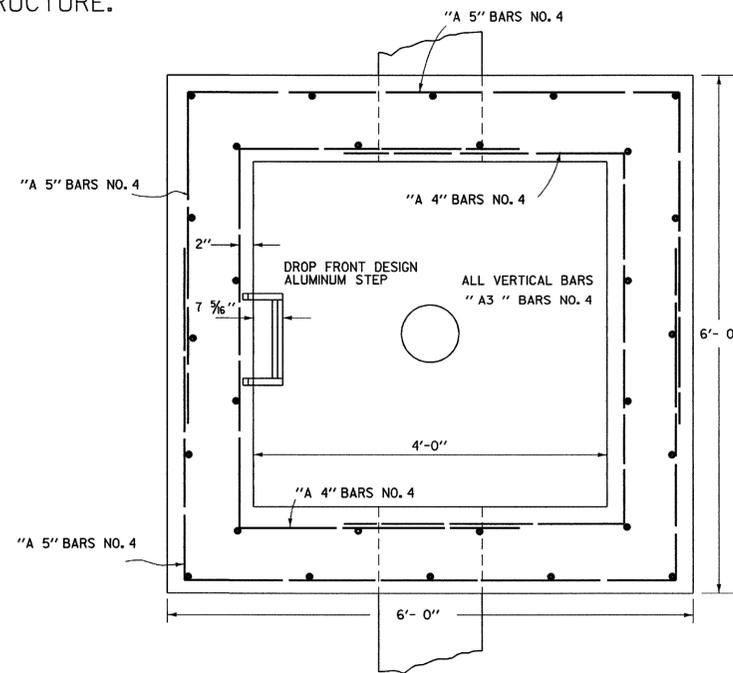


FRONT ELEVATION

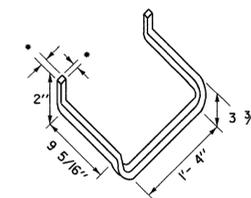
WHEN REINFORCED CONCRETE PIPE IS USED, THE FIRST SECTION OF THE OUTLET PIPE MAY BE A STUB END.



SIDE ELEVATION

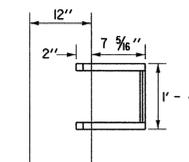


PLAN VIEW



ALUMINUM STEP (DROP FRONT)

• - INDIVIDUAL METAL RUNGS SHALL HAVE A MINIMUM DIMENSION OF 1\"/>

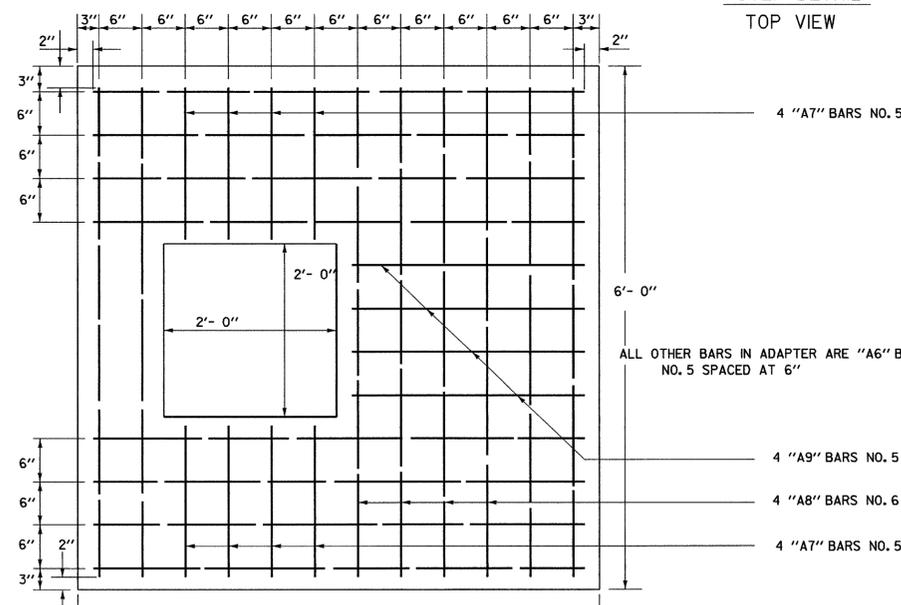


STEP DETAIL TOP VIEW

BAR	REINFORCING STEEL SCHEDULE FOR CATCH BASIN					
	HEIGHT					
	4'-4" MIN.	6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
A 1	16 BARS NO. 4 AT 9"	16	16	16	16	16
A 2	12 BARS NO. 5 AT 15"	14 NO. 5 AT 12"	14 NO. 5 AT 12"	16 NO. 5 AT 10"	18 NO. 5 AT 9"	18 NO. 5 AT 9"
A 3	28 BARS NO. 4 AT 18"	28	28	28	28	28
A 4	8 BARS NO. 4 AT 15"	10	14	18	20	24
A 5	8 BARS NO. 4 AT 15"	10	14	18	20	24
A 6	12 BARS NO. 5 AT 6"	12	12	12	12	12
A 7	8 BARS NO. 5 AT 6"	8	8	8	8	8
A 8	4 BARS NO. 6 AT 6"	4	4	4	4	4
A 9	4 BARS NO. 5 AT 6"	4	4	4	4	4
TOTAL WEIGHT(LBS)	576	654	756	873	954	1060

1. MORTAR TYPE II TO BE USED FOR JOINT FILLER AND LAYING OF BRICK.
2. THREE COURSES OF BUILDING BRICK TO BE PLACED ON TOP OF CONCRETE ADAPTER PRIOR TO PLACING CONCRETE SEAT TO FACILITATE CHANGING ELEVATION OF CATCH BASIN OR MANHOLE
3. ALL REINFORCING BARS SPACED AS SHOWN OR NOTED. FOR SIZE AND LENGTH, SEE SCHEDULE. ALL REINFORCING STEEL TO BE ROUND DEFORMED BARS.
4. THE ADAPTER SHALL BE PLACED ON THE CATCH BASIN SO AS TO PROVIDE DIRECT ACCESS TO STEPS.
5. A7 AND A9 BARS MAY BE CUT FROM A6 BARS IN ORDER TO REDUCE THE NUMBER OF DIFFERENT BAR MARKS.

A1 BARS NO. 4		A2 BARS NO. 5		A3 BARS NO. 4 STRAIGHT		A4 BARS NO. 4		A5 BARS NO. 4		A6 BARS NO. 5		A7 BARS NO. 5		A8 BARS NO. 6		A9 BARS NO. 5	
TOTAL LENGTH 11'- 3"	TOTAL LENGTH 6'- 10"	HEIGHT	LENGTH	TOTAL LENGTH 10'- 11"	TOTAL LENGTH 13'- 4"	TOTAL LENGTH 6'- 10"	TOTAL LENGTH 2'- 3"	TOTAL LENGTH 6'- 10"	TOTAL LENGTH 3'- 3"	TOTAL LENGTH 6'- 10"	TOTAL LENGTH 3'- 3"	TOTAL LENGTH 6'- 10"	TOTAL LENGTH 3'- 3"	TOTAL LENGTH 6'- 10"	TOTAL LENGTH 3'- 3"	TOTAL LENGTH 6'- 10"	TOTAL LENGTH 3'- 3"
		4'- 4"	4'- 2"	6'- 0"	5'- 10"	6'- 0"	5'- 10"	6'- 0"	5'- 10"	6'- 0"	5'- 10"	6'- 0"	5'- 10"	6'- 0"	5'- 10"	6'- 0"	5'- 10"
		8'- 0"	7'- 10"	8'- 0"	7'- 10"	8'- 0"	7'- 10"	8'- 0"	7'- 10"	8'- 0"	7'- 10"	8'- 0"	7'- 10"	8'- 0"	7'- 10"	8'- 0"	7'- 10"
		10'- 0"	9'- 10"	10'- 0"	9'- 10"	10'- 0"	9'- 10"	10'- 0"	9'- 10"	10'- 0"	9'- 10"	10'- 0"	9'- 10"	10'- 0"	9'- 10"	10'- 0"	9'- 10"
		12'- 0"	11'- 10"	12'- 0"	11'- 10"	12'- 0"	11'- 10"	12'- 0"	11'- 10"	12'- 0"	11'- 10"	12'- 0"	11'- 10"	12'- 0"	11'- 10"	12'- 0"	11'- 10"
		14'- 0"	13'- 10"	14'- 0"	13'- 10"	14'- 0"	13'- 10"	14'- 0"	13'- 10"	14'- 0"	13'- 10"	14'- 0"	13'- 10"	14'- 0"	13'- 10"	14'- 0"	13'- 10"



PLAN VIEW OF ADAPTER STEEL LAYOUT

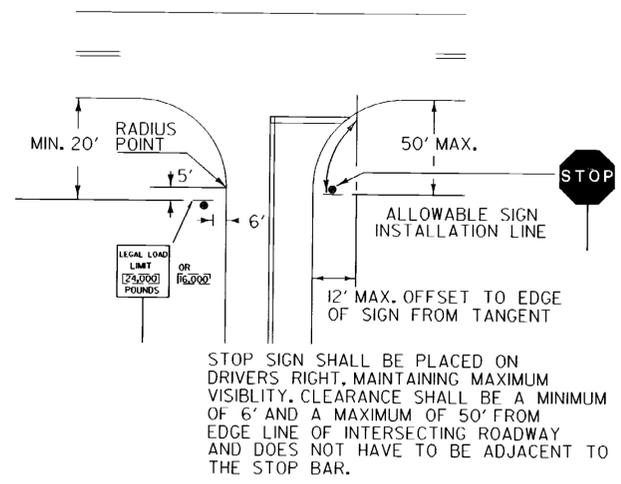
REVISIONS AND CORRECTIONS  
 DEC. 14, 1971 - ORIGINAL APPROVAL  
 AUG. 10, 1981 - REVISED STEP AND ADAPTER DESIGN  
 MAR. 23, 1994 - ADDED STEP DETAIL  
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.  
 JAN 3, 2000 - CORRECTED TITLE AND MINOR EDITORIAL CHANGES

APPROVED  
  
 DIRECTOR OF PROJECT DEVELOPMENT  
  
 ROADWAY AND TRAFFIC DESIGN ENGINEER

CONCRETE CATCH BASIN

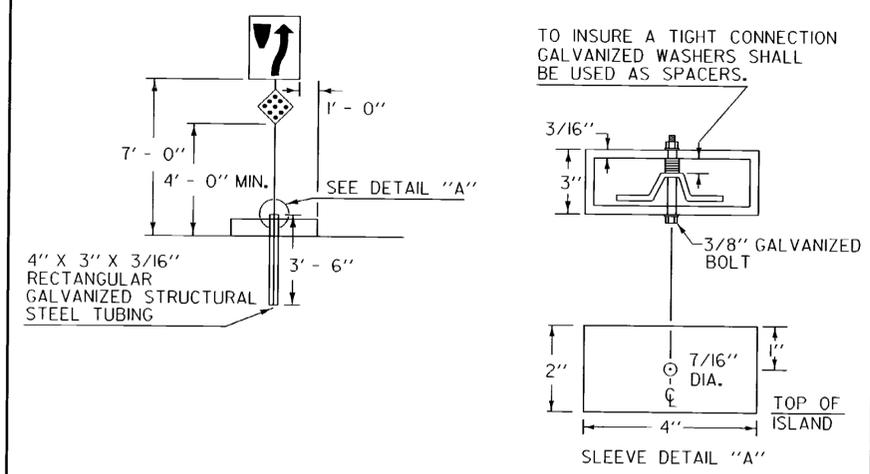
VERMONT AGENCY OF TRANSPORTATION  
 STANDARD  
 D-13





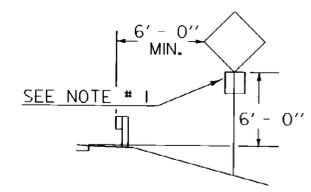
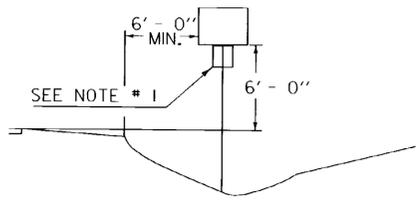
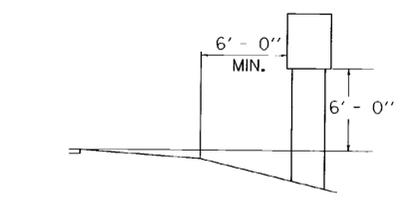
**LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS**

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

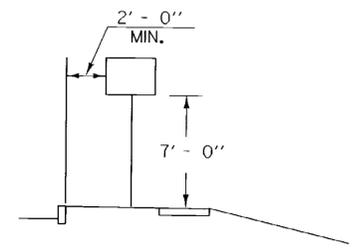
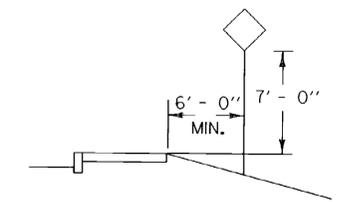


**SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC**

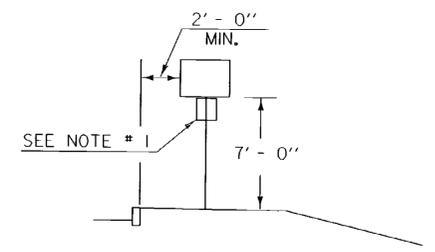
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY



**RURAL**



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



**URBAN**

**NOTES:**

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

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

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

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

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

**STANDARD SIGN PLACEMENT  
CONVENTIONAL ROAD**



**STANDARD  
E-121**

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

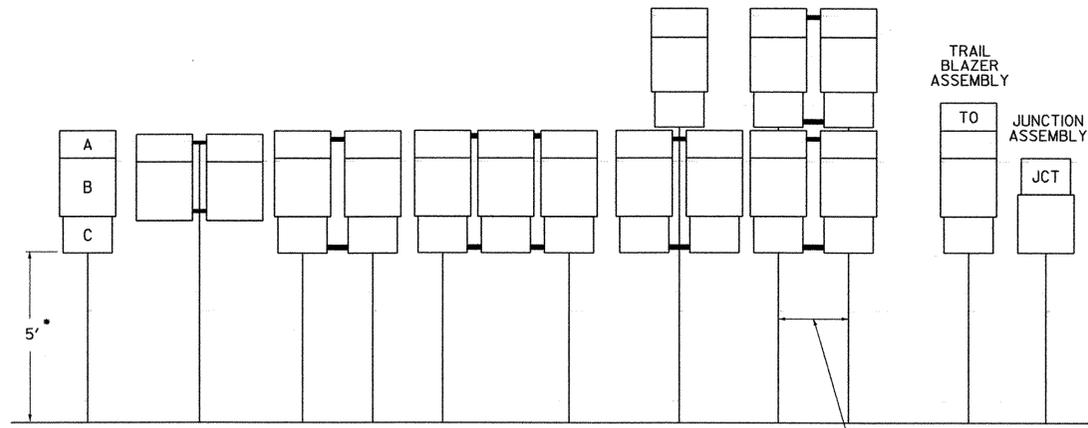
**DESIGN**  
LETTERS, DIGITS, ARROWS, SYMBOLS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION (FHWA).

**MATERIALS**  
THE SIGN BASE MATERIALS USED FOR THE STREET SIGNS MAY BE EITHER OF THE FOLLOWING: A - EXTRUDED ALUMINUM BLADES WITH RETROREFLECTIVE SHEETING B - FLAT ALUMINUM BLADES WITH RETROREFLECTIVE SHEETING THE MATERIAL FOR THE BLADES SHALL BE EITHER EXTRUDED ALUMINUM WITH A 0.25 INCH FLANGE THICKNESS AND A 0.090 INCH WEBB (MIN) OR FLAT SHEET ALUMINUM WITH A MINIMUM THICKNESS OF 0.125 INCH. THE PREFERRED MOUNTING METHOD FOR STREET SIGNS IS POST TOP MOUNTING BRACKETS, HARDWARE FOR MOUNTING SIGNS TO POST SHALL BE INCIDENTAL TO OTHER ITEMS. MOUNTING METHOD WILL BE AS SHOWN ON THE PLANS. MINIMUM VERTICAL CLEARANCE IS 8 FEET TO THE BOTTOM OF THE SIGN. FOR POST TOP MOUNTINGS SIGNS SHALL HAVE TEXT ON BOTH SIDES.

**COLORS**  
THE STREET SIGNS SHOWN ON THIS SHEET SHALL HAVE WHITE RETROREFLECTIVE ASTM TYPE III TEXT, ON A GREEN RETROREFLECTIVE ASTM TYPE III BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE FHWA.

**SPECIFICATIONS**  
STREET SIGNS SHALL MEET THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.  
STANDARD SIGNS - USE A 9 INCH HIGH BLADE WITH SERIES "B" LETTERING (MIN) WITH 6 INCH LETTERS FOR THE STREET NAME. 4 INCH LETTERS FOR OTHER TEXT. PVT. SIGNS - USE A 6 INCH HIGH BLADE WITH SERIES B LETTERING (MIN) WITH 4 INCH LETTERS FOR THE STREET NAME, 3 INCH LETTERS FOR OTHER TEXT. OVERHEAD SIGNS USE A 12 INCH HIGH BLADE WITH 8 INCH UPPER CASE AND 6 INCH LOWER CASE LETTERS. FOR ALL 6, 9, 12 INCH BLADES USE LENGTHS OF 24, 30, 36 OR 42 INCH.

**STREET NAME SIGNS NOTES**



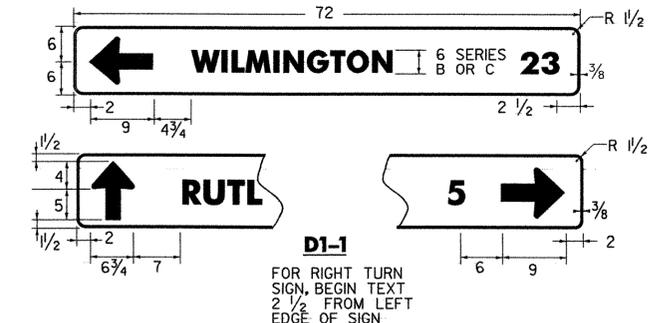
**STANDARD MOUNTING OF ROUTE MARKER ASSEMBLIES**

- A - CARDINAL DIRECTION MARKER
- B - ROUTE NUMBER
- C - ADVANCE TURN ARROW OR DIRECTIONAL ARROW

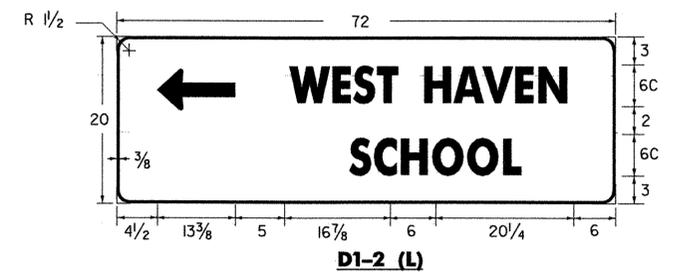
\* WHERE PARKING OR PEDESTRIAN TRAFFIC WILL OCCUR IN THE IMMEDIATE VICINITY OF THESE SIGNS MINIMUM VERTICAL CLEARANCE SHALL BE INCREASED TO 7'

**INSTALLATION SEQUENCE:**

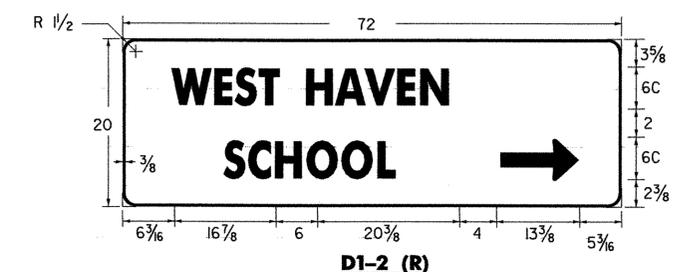
IN MULTIPLE HORIZONTAL MOUNTINGS PLACE A ROUTE MARKER ASSEMBLY INDICATING A LEFT TURN ON THE LEFT SIDE OF THE ASSEMBLY; RIGHT TURN ON THE RIGHT SIDE. FOR VERTICALLY STACKED MOUNTINGS PLACE THE STRAIGHT THROUGH MOVE INDICATION ON TOP, THE LEFT OR RIGHT TURNS AS APPROPRIATE BENEATH.



**D1-1**  
FOR RIGHT TURN SIGN, BEGIN TEXT 2 1/2" FROM LEFT EDGE OF SIGN

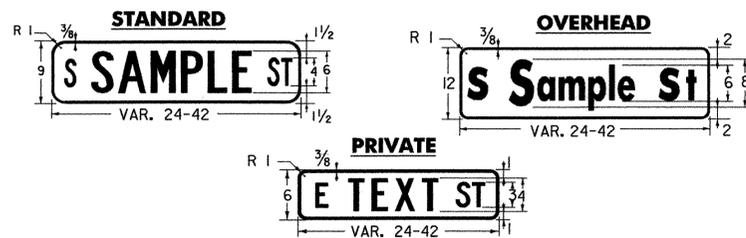


**D1-2 (L)**

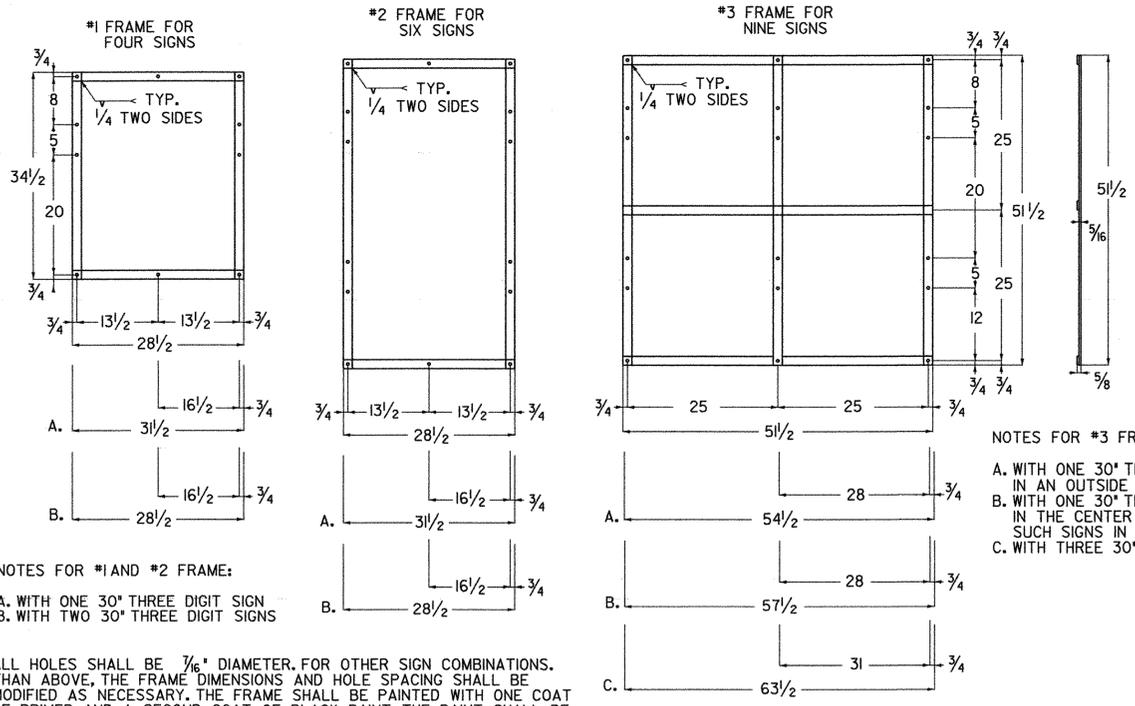


**D1-2 (R)**

**STANDARD DESTINATION SIGNS**

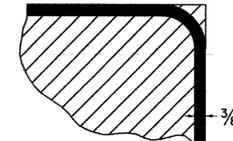


**STREET NAME SIGNS**

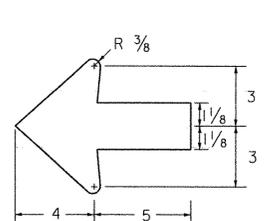


**ROUTE MARKER ASSEMBLY FRAMES**

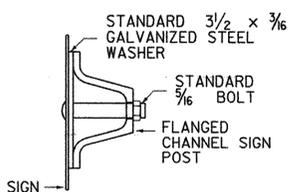
(ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED)



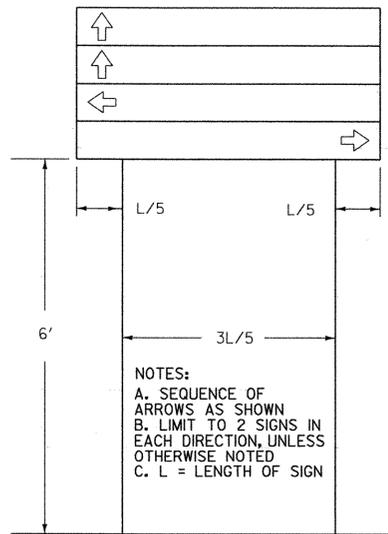
**BORDER DETAIL**



**STANDARD ARROW**



**INSTALLATION DETAIL**



**DESTINATION ASSEMBLY**

**STANDARD DESTINATION SIGN NOTES**

**DESIGN**  
LETTERS, DIGITS, ARROWS, SYMBOLS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION (FHWA).

**MATERIALS**  
THE SIGN BASE MATERIAL FOR STANDARD DESTINATION SIGNS SHALL BE HIGH DENSITY OVERLAYED PLYWOOD 3/8 INCH THICK OR FLAT SHEET ALUMINUM 1/8 INCH THICK.

**COLORS**  
THE DESTINATION SIGNS SHOWN ON THIS SHEET SHALL HAVE WHITE RETROREFLECTIVE ASTM TYPE III TEXT, ARROWS AND BORDERS ON A GREEN RETROREFLECTIVE ASTM TYPE III BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

**APPLICATION**  
MULTIPLE ASSEMBLIES SHALL USE THE SAME SIZE THROUGHOUT.

**SPECIFICATIONS**  
DESTINATION SIGNS SHALL MEET THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION "TRAFFIC SIGNS". ALL BORDERS ARE 3/8 INCH

**OTHER STDS. E-160, E-164 REQUIRED:**

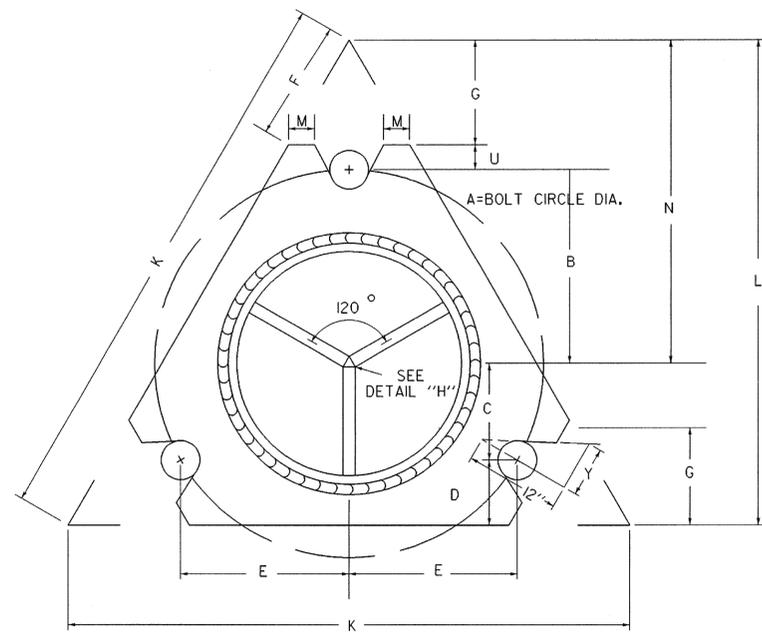
**REVISIONS AND CORRECTIONS**  
APR. 01, 1988 - DATE OF ORIGINAL ISSUE  
JAN. 23, 1989 - DELETED TOWN LINE INFO.  
AUG. 08, 1995 - REVISED DESTINATION SIGN DETAILS  
DETAILED SIGN LOCATION TYPICAL  
MARCH 16, 2004 - REVISED ROUTE MARKER ASSEMBLY  
FRAMES DETAIL CHANGED SIZE OF D-BOARDS

**APPROVED**  
DIRECTOR OF PROGRAM DEVELOPMENT  
TRAFFIC OPERATIONS ENGINEER  
FEDERAL HIGHWAY ADMINISTRATION

**GUIDE SIGN PLACEMENT  
MISCELLANEOUS DETAILS**



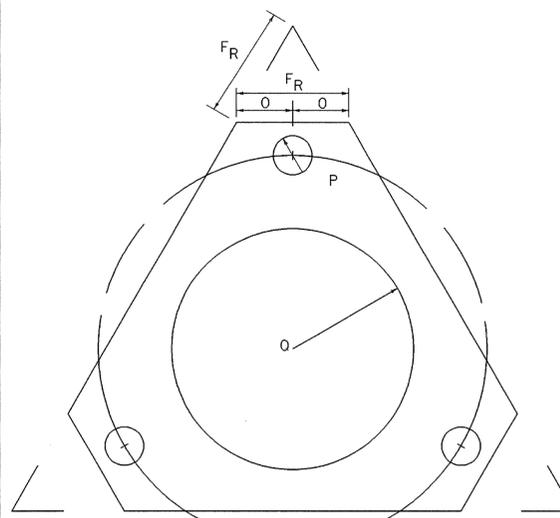
**STANDARD  
E-123**



**DETAILS OF MULTI-DIRECTIONAL SLIP BASE**

TABLE A

DIMENSIONS NOMINAL PIPE SIZES	BOLT SIZE & TORQUE	WELD SIZE	t	Y	A	B	C	D	E	F	G	K	L	M	U	N
3" DIA.	5/8"Øx3 1/4"	3/8"	5/8"	7"	7"	3 1/2"	1 3/4"	1 1/4"	3"	2 5/16"	2"	10 3/8"	9"	1/2"	1/2"	6"
3 1/2" DIA.	T=450" LBS.	3/8"	5/8"	7"	7"	3 1/2"	1 3/4"	1 1/4"	3"	2 5/16"	2"	10 3/8"	9"	1/2"	1/2"	6"
4" DIA.	3/4"Øx3 3/4"	7/16"	7/8"	8 9/16"	9"	4 1/2"	2 1/4"	1 1/2"	3 7/8"	2 7/8"	2 1/2"	13"	11 1/4"	5/8"	1/2"	7 1/2"
5" DIA.	T=750" LBS.	7/16"	7/8"	8 9/16"	9"	4 1/2"	2 1/4"	1 1/2"	3 7/8"	2 7/8"	2 1/2"	13"	11 1/4"	5/8"	1/2"	7 1/2"

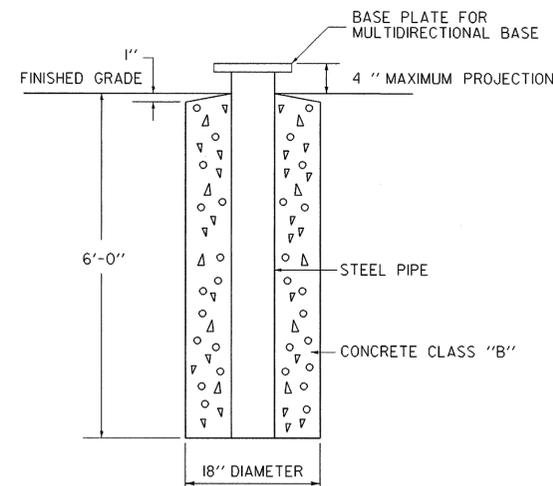


**BOLT RETAINER PLATE**

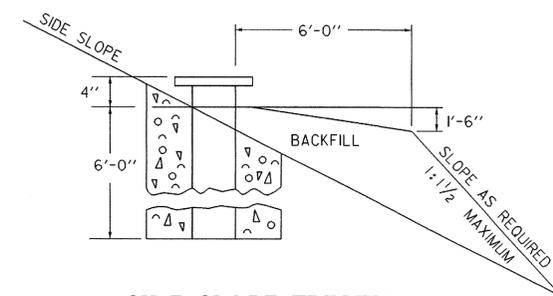
28 GAUGE (0.0187") GALVANIZED STEEL

BOLT RETAINER PLATE SIMILAR IN DETAIL TO THE BASE PLATES WITH THE FOLLOWING EXCEPTIONS

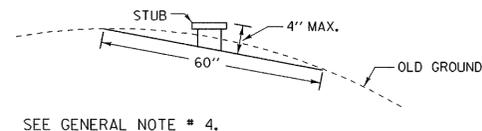
DIMENSIONS NOMINAL PIPE SIZES	FR	O	P	Q
3" DIA.	2 1/8"	1 1/16"	1 1/16"	2 1/2"
3 1/2" DIA.	2 1/8"	1 1/16"	1 1/16"	2 1/2"
4" DIA.	2 5/8"	1 5/16"	1 3/16"	2 7/8"
5" DIA.	2 5/8"	1 5/16"	1 3/16"	2 7/8"



**FOUNDATION DETAIL**



**SIDE SLOPE TREATMENT**

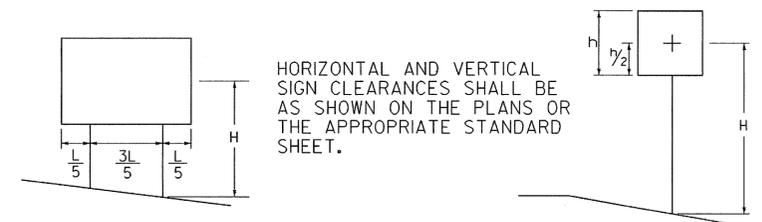


SEE GENERAL NOTE # 4.

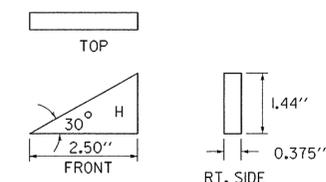
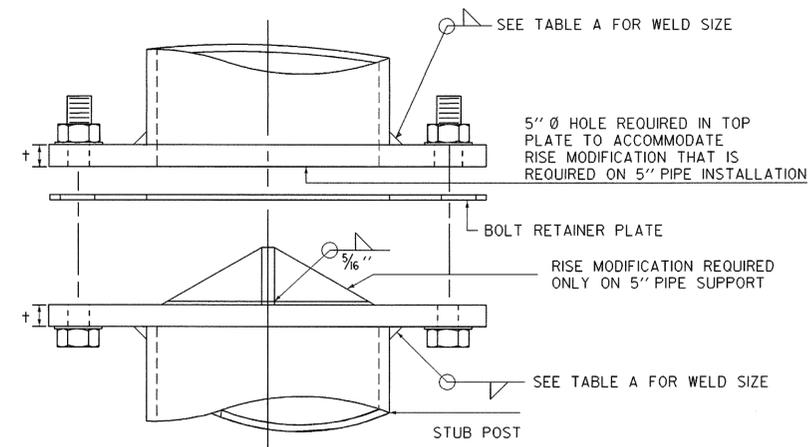
- GENERAL NOTES**
- THE STEEL PIPE SHALL BE MANUFACTURED TO ASTM A501 OR ASTM A-53, TYPES E OR S, GRADE B AND SHALL BE GALVANIZED AS PER ASTM A-153.
  - THE MATERIAL FOR THE MULTIDIRECTIONAL SLIP BASE ASSEMBLY SHALL CONFORM TO AASHTO M-270, GRADE 36 STEEL, AND BE GALVANIZED AS PER ASTM A-153.
  - THE BOLTS, NUTS AND CIRCULAR WASHERS SHALL CONFORM TO ASTM SECTION 15 A-325, "HIGH STRENGTH CARBON STEEL BOLTS FOR STRUCTURAL STEEL JOINTS". ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AS PER ASTM A-123.
  - ALL DIMENSIONS REFERRING TO STUB HEIGHT IN THE VARIOUS TABLES AND FOUNDATION DETAILS SHALL BE ADJUSTED AS REQUIRED TO RESULT IN A TOTAL STUB HEIGHT WHICH IS NOT MORE THAN FOUR INCHES ABOVE A 60-INCH CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT, WITHIN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON ONE SIDE OF THE SUPPORT TO A POINT ON THE GROUND SURFACE ON THE OTHER SIDE.

**CONSTRUCTION METHOD**

HOLES FOR POST FOOTINGS MAY BE AUGERED OR DUG, IF THE MATERIAL IS FIRM AND IF ALL DISTURBED SOIL AROUND THE CIRCUMFERENCE OF THE AUGERED HOLE IS REMOVED, THE HOLES MAY BE LEFT WITH EARTH SIDES. IF NOT, A SUITABLE FORM APPROVED BY THE ENGINEER SHALL BE USED. CORRUGATED METAL CULVERT PIPE OR PAPER FORMS, MANUFACTURED FOR USE AS CONCRETE COLUMN FORMS, WILL BE ACCEPTABLE. THE STUB SHALL BE EXTENDED TO THE BOTTOM OF THE HOLE AND SET ON A CONCRETE PAD FOOTING TO SUPPORT THE POST SO THE POST SHALL BE HELD SECURELY IN PLACE AT THE BOTTOM. THIS MAY BE DONE BY EMBEDDING THE POST AND CONCRETE BLOCK FOOTING IN WET CONCRETE, AND ALLOWING TO SET WITH THE POST SECURED IN POSITION; PLUMBED AND PROPERLY BRACED. THE REMAINDER OF THE FOOTING MAY THEN BE POURED. THE TIME BETWEEN POURS FOR THE CURING OF THE CONCRETE SHALL BE AS DETERMINED BY THE ENGINEER. THE FORM SHALL BE LEFT IN PLACE AND THE HOLE BACKFILLED AND COMPACTED AS DIRECTED BY THE ENGINEER. NO PART OF THE FORM SHALL SHOW ABOVE THE GROUND LINE WHEN THE WORK IS COMPLETED.

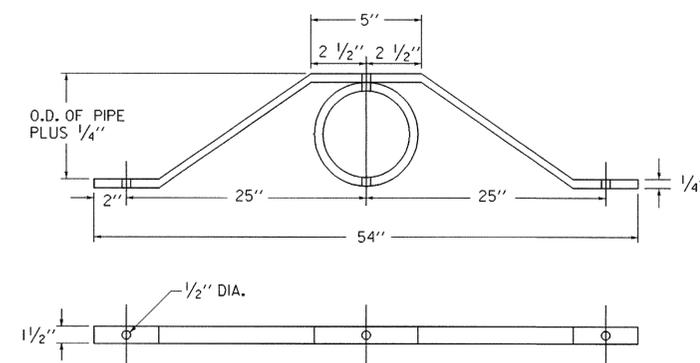


HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE AS SHOWN ON THE PLANS OR THE APPROPRIATE STANDARD SHEET.



**DETAIL "H"**

3 REQUIRED MOUNTED 120° APART  
RISE MODIFICATION REQUIRED ONLY FOR 5" PIPE SUPPORT



**SIGN SUPPORT BRACE**

(REQUIRED WHEN INSTALLING 3 ASSEMBLY FRAME AS SHOWN ON STANDARD E-123)

**POST SELECTION CHART DETAIL**

POST SELECTION CHART			
SIGN AREA (FT <sup>2</sup> ) × H (FT) ≤ SV (SELECTION VALUE)			
POST DIA. INCHS	WEIGHT LB/FT	Sv	DESIGN CRITERIA
3	7.6	318	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 15 PSF STEEL MIN YIELD Fy = 36,000 PSI ALLOWABLE STRESS = (1.4) 0.66 Fy
3 1/2	9.0	442	
4	10.8	593	
5	14.6	1007	

**OTHER STDS. REQUIRED:**

**REVISIONS AND CORRECTIONS**

SEPT. 26, 1987 - DATE OF ORIGINAL ISSUE  
AUG. 18, 1995 - REVISED TITLE BLOCK  
MAR. 11, 1996 - REVISED POST SELECTION CHART  
MAY 20, 1999 - LOST ORIGINAL NEEDED NEW SIGNATURE

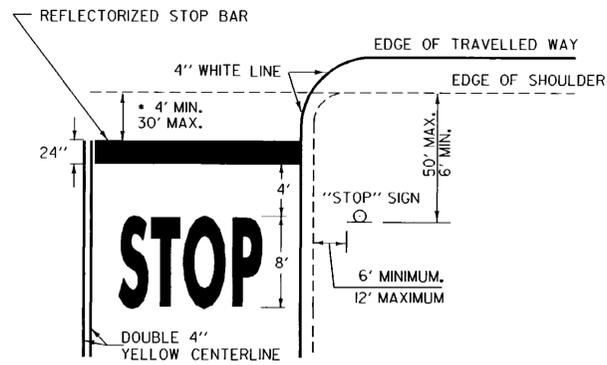
**APPROVED**

*[Signature]*  
DIRECTOR OF PROJECT DEVELOPMENT

**TUBULAR STEEL SIGN POST**

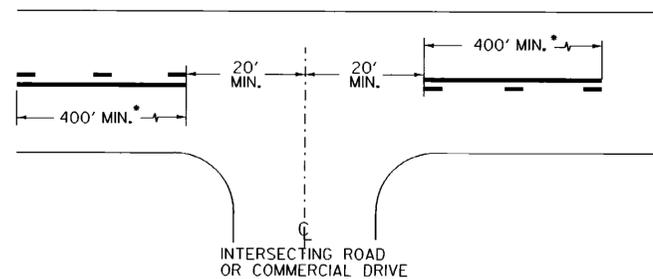


**STANDARD E-163**



\* THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC.

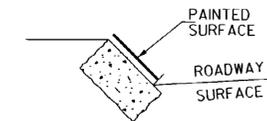
**STOP BAR LAYOUT**



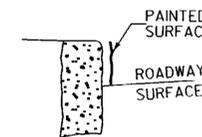
\* THE SOLID LINE SHALL BE PAIRED WITH EITHER A SOLID OR DASHED LINE DEPENDING ON SIGHT DISTANCE AVAILABILITY IN THE OPPOSING DIRECTION. ADJUSTMENTS TO THE 40 FOOT CENTERLINE OPENING MAY BE MADE TO ACCOMMODATE SKEWED INTERSECTIONS.

- CENTERLINE BREAKS:
- AT ALL STATE HIGHWAYS AND TOWN HIGHWAYS, INCLUDING CLASS 4 TH'S. THAT HAVE STOP AND LEGAL LOAD LIMIT SIGNS INSTALLED
  - COMMERCIAL DRIVES:
    - WHERE A SEPERATE TURN LANE EXISTS ON THE MAIN LINE (LT. OR RT.)
    - SIGNIFICANT TRAFFIC VOLUMES EXISTS.
    - IF MOTORISTS NEED ASSISTANCE TO DEFINE ENTRANCE POINTS.

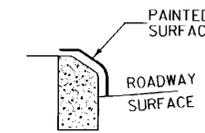
**CENTERLINE LAYOUT**



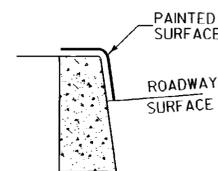
**GRANITE SLOPE EDGING**



**VERTICAL GRANITE CURB**

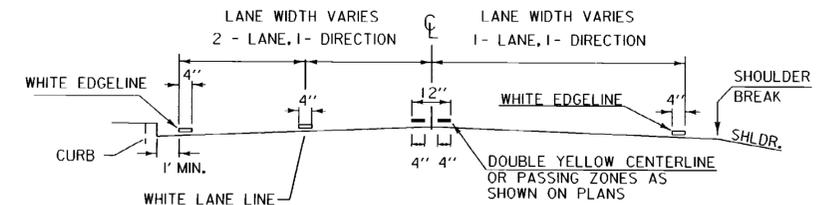


**TYPE A (CONCRETE)**

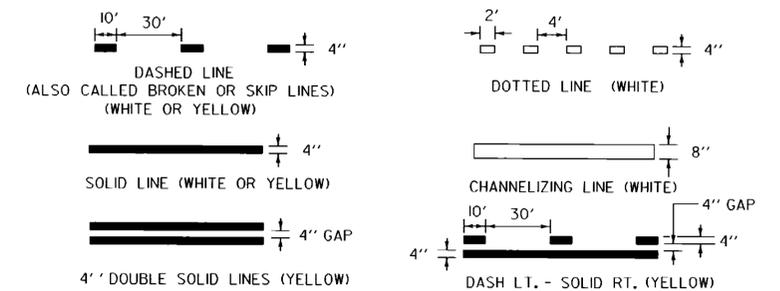


**TYPE B (CONCRETE)**

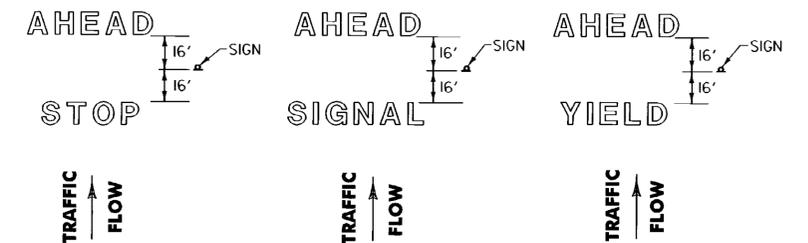
**PAINTED CURB**



**PAVEMENT MARKING PLACEMENT DETAIL**

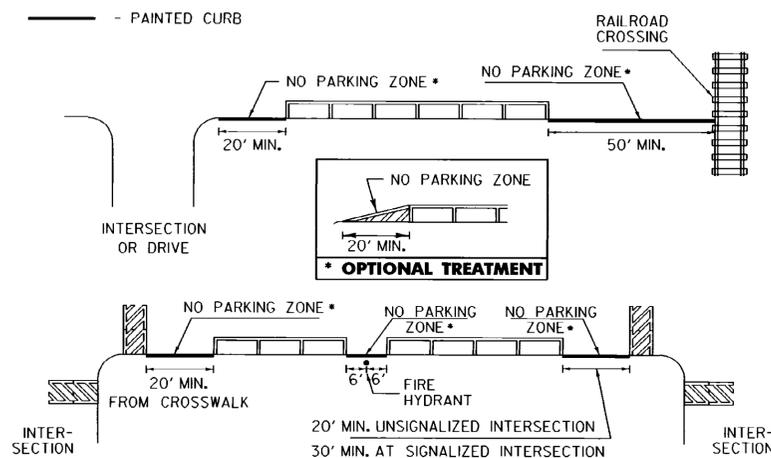


**PAVEMENT MARKING LINE DETAILS**

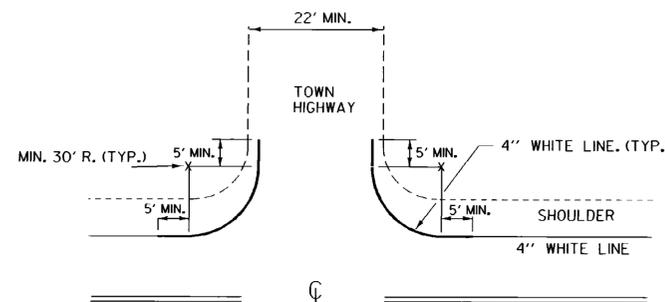


**LETTER IN WORD MARKING SPACING DETAIL**

**NOTE: SINGLE WORDS CENTERED ON SIGN ie: SCHOOL OR YIELD**



**NO PARKING LAYOUT DETAILS**

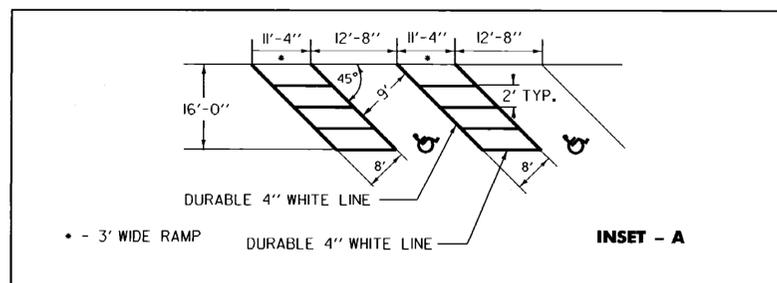


**EDGE LINE LAYOUTS**

EDGE LINES SHALL BE APPLIED TO ALL STATE HIGHWAYS AND SHOULD BE MAINTAINED AT A CONSTANT DISTANCE FROM THE CENTERLINE UNLESS PAVEMENT WIDTH INCREASES TO ALLOW WIDER LANES.

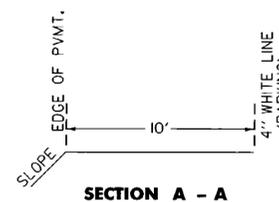
APPLY EDGE LINE AS DETAILED ON ALL PAVED CLASS 1 & CLASS 2 TOWN HIGHWAYS AND ANY CLASS 3 TOWN HIGHWAY 22 FEET OR MORE IN WIDTH.

IF MIN. 30 FOOT RADIUS CANNOT BE OBTAINED, OR THE TOWN HIGHWAY IS NOT PAVED, BREAK THE EDGE LINE USING AN 80 FOOT GAP AT INTERSECTION.

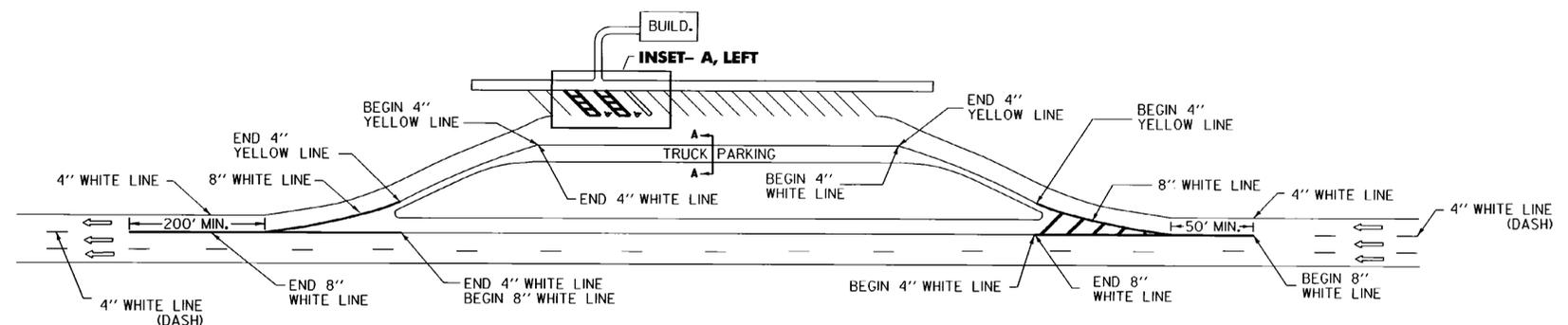


**INSET - A**

**NOTE:**  
SEE STANDARD SHEET E-191 FOR HANDICAP SYMBOL POSITIONING AND DETAIL.



**TRUCK PARKING DETAIL**



**REST AREA PARKING DETAILS**

**THIS SHEET IS NOT TO SCALE**

**OTHER STDS. E - 191, E - 192 REQUIRED**

**REVISIONS AND CORRECTIONS**

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

**APPROVED**

*Sandra S. McCutchen*  
DIRECTOR OF ENGINEERING

*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

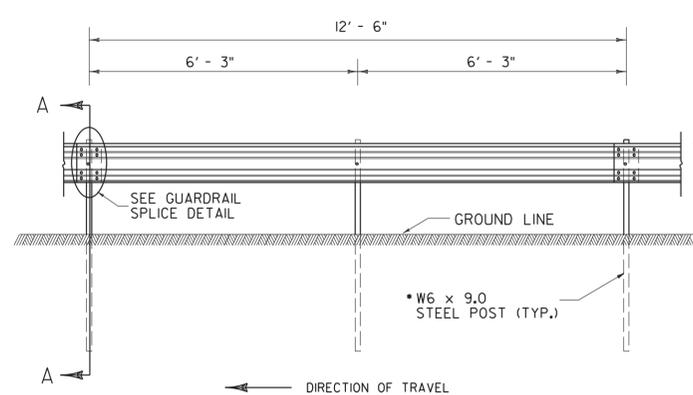
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**PAVEMENT MARKING DETAILS**

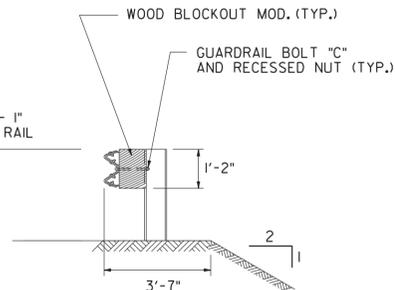


**STANDARD E-193**

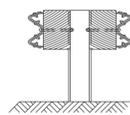
"W" BEAM GUARDRAIL WITH STEEL POSTS



ELEVATION FROM CL OF ROAD



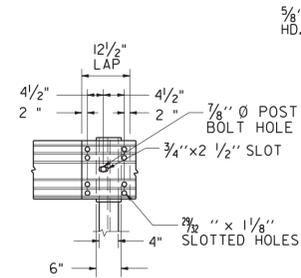
SINGLE - FACED BARRIER



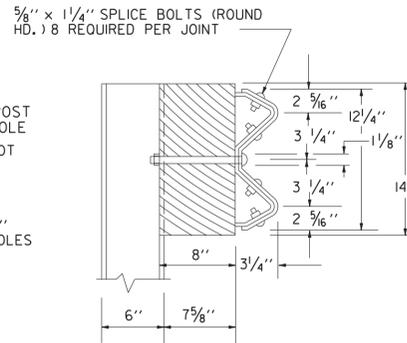
DOUBLE - FACED BARRIER

PLAN

SECTION A - A

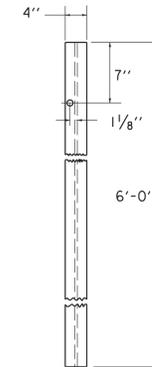


ELEVATION

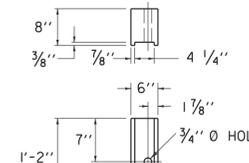


SECTION

GUARDRAIL SPLICE DETAIL



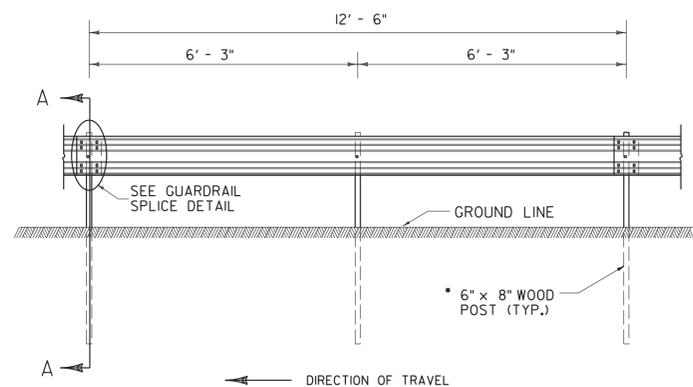
FRONT FACE STEEL POST



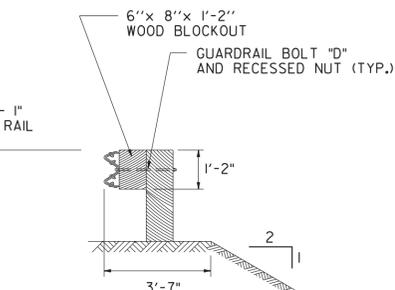
POST FACE  
MODIFIED WOOD KNOCKOUT - ROUTED  
6" x 8" x 1'-2"  
FOR USE W/ STEEL POSTS ONLY

- NOTES:
- BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- 1/4".
  - SUPPLY WOOD BLOCKS PER AASHTO M 168.
  - TREAT WITH PRESERVATIVE PER AASHTO M 133.
  - BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

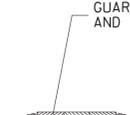
"W" BEAM GUARDRAIL WITH WOOD POSTS



ELEVATION FROM CL OF ROAD



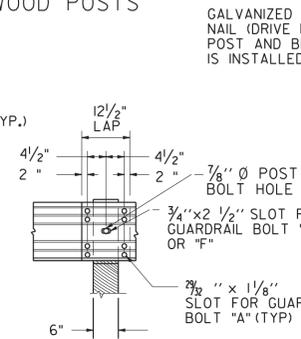
SINGLE - FACED BARRIER



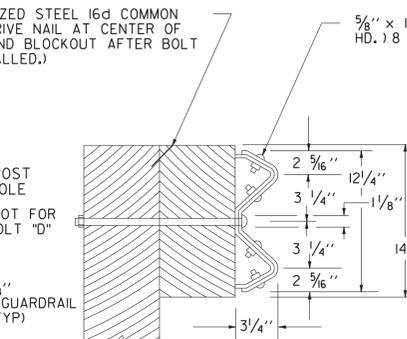
DOUBLE - FACED BARRIER

PLAN

SECTION A - A

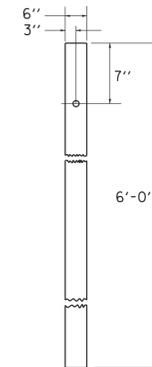


ELEVATION

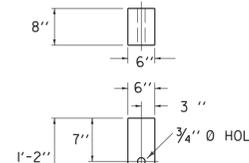


SECTION

GUARDRAIL SPLICE DETAIL



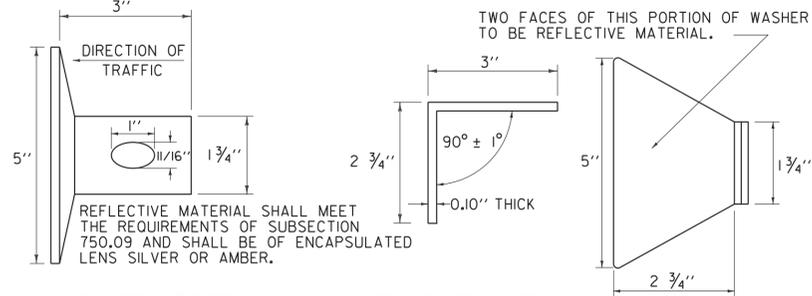
FRONT FACE WOOD POST



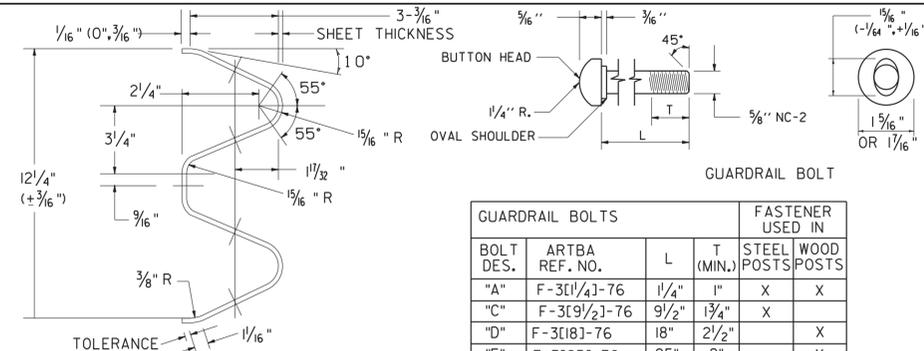
POST FACE  
WOOD KNOCKOUT  
6" x 8" x 1'-2"

- NOTES:
- BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- 1/4".
  - SUPPLY WOOD BLOCKS PER AASHTO M 168.
  - TREAT WITH PRESERVATIVE PER AASHTO M 133.
  - BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

GUARDRAIL DELINEATOR

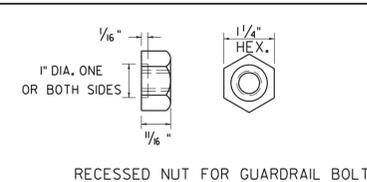


REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.09 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER.

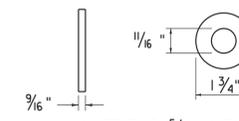


ARTBA RE-3[206]-3'-12"-6" CLASS A, TYPE 13-73  
TYPICAL GUARDRAIL SECTION

BOLT DES.	ARTBA REF. NO.	L	T (MIN.)	STEEL POSTS	WOOD POSTS
"A"	F-3[1/4]-76	1 1/4"	1"	X	X
"C"	F-3[9/2]-76	9/2"	1 3/4"	X	
"D"	F-3[18]-76	18"	2 1/2"		X
"F"	F-3[25]-76	25"	2"		X



RECESSED NUT FOR GUARDRAIL BOLT



WASHER FOR 5/8" BOLTS  
ARTBA F-13-73

NOTE: WASHER IS USED UNDER RECESSED NUT WHERE GUARDRAIL BOLT IS USED WITH WOOD POSTS.

- GENERAL NOTES:
- GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE 1, UNLESS OTHERWISE DESIGNATED.
  - GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED.
  - GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.
  - FOR DESCRIPTION AND SPECIFICATION OF PARTS IDENTIFIED BY (ARTBA ...) AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-ACC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
  - STANDARD STEEL BEAM TO BE 1/8" AND THE HEAVY DUTY TO BE 3/4" THICK.

**OTHER STANDARD REQUIRED: G-1d**

REVISIONS AND CORRECTIONS

- JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
- JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD. CHANGES
- FEB. 10, 2014 - UPDATED TO REFLECT GUARDRAIL HEIGHT OF 29"; AS NOTED IN FHWA LETTER DATED MAY 17, 2010

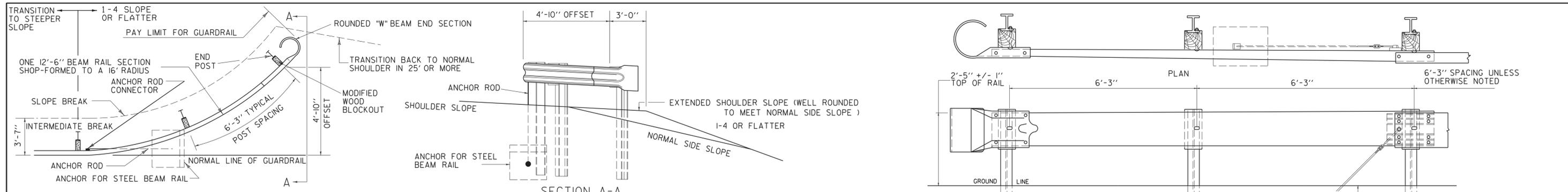
APPROVED

*Richard Thwait*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*Mark D. Richter*  
DIRECTOR OF PROGRAM DEVELOPMENT  
FEDERAL HIGHWAY ADMINISTRATION

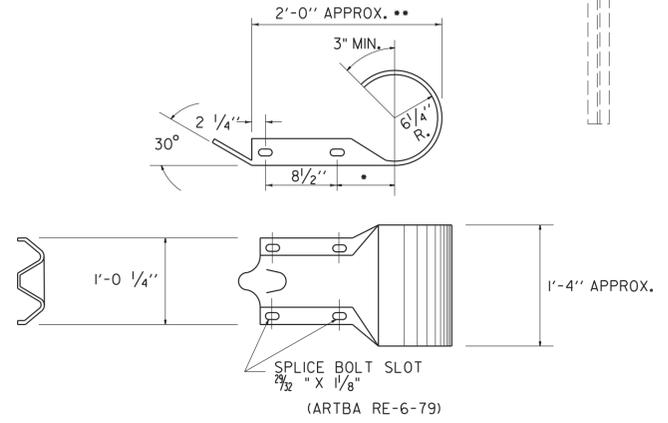
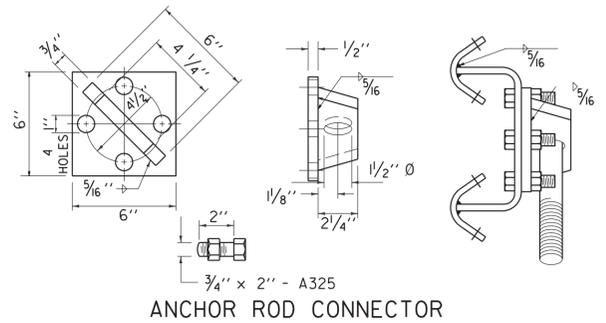
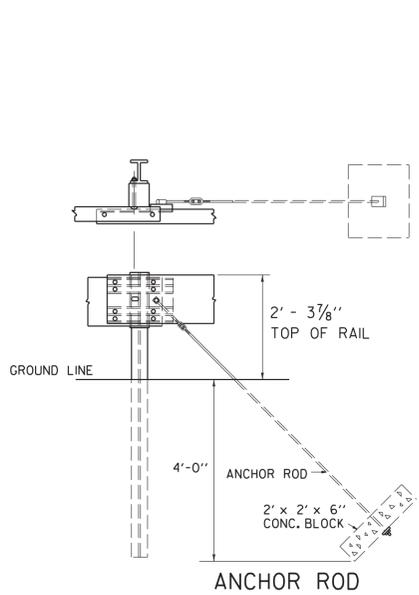
STEEL BEAM GUARDRAIL WITH STEEL POSTS  
STEEL BEAM GUARDRAIL WITH WOOD POSTS



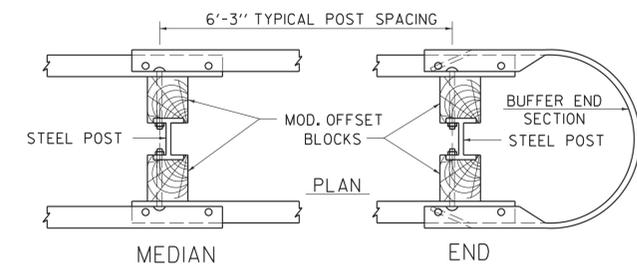
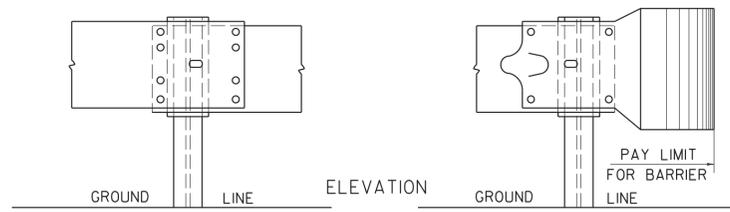
STANDARD  
G-1



**APPROACH END DETAIL**  
 NHS APPROVED FOR USE WHERE DESIGN SPEED IS 40 OR LESS MPH  
 NON-NHS APPROVED FOR USE WHERE DESIGN SPEED IS 50 OR LESS MPH



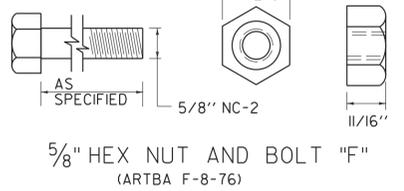
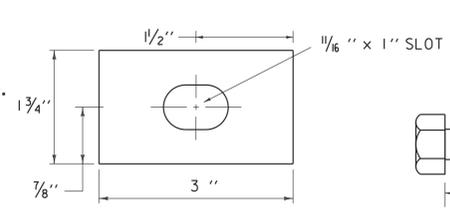
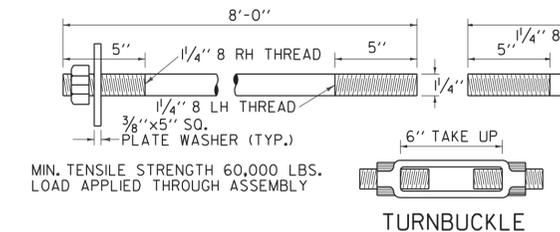
**ROUNDED "W" BEAM END SECTION**  
 • THIS DIMENSION IS 7 1/2" INRE-7-79. IF THE DIMENSION IS USED IN THIS PART, IT WILL GIVE AN ACCEPTABLE OVERALL LENGTH (\*\*) OF APPROXIMATELY 2'- 11/2."



**STEEL BEAM MEDIAN BARRIER**  
 NOTE: TO BE USED OUTSIDE CLEAR-ZONE ONLY.

**TRAILING END TERMINAL FOR USE ON ONE-WAY HIGHWAYS**

- GENERAL NOTES:**
1. ALL METAL PARTS SHALL BE GALVANIZED
  2. ALL WOOD POSTS SHALL BE GIVEN A PRESERVATIVE TREATMENT
  3. DETAILS PERTINENT TO THE STANDARD INSTALLATION OF "W" BEAM SECTIONS WILL BE FOUND ON STANDARD DRAWING G-1.
  4. FOR DESCRIPTION AND SPECIFICATIONS OF PARTS IDENTIFIED BY "ARTBA..." AND OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS AND RAIL ELEMENTS, SEE AASHTO-ACC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
  5. THE TRANSITION FROM THE APPROACH END TO THE STANDARD STEEL BEAM GUARDRAIL SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.
  6. WHEN STANDARD STEEL BEAM CONNECTS TO BRIDGE APPROACH RAIL OF A DIFFERENT HEIGHT THE LENGTH NEEDED TO TRANSITION THE HEIGHT OF STANDARD STEEL BEAM TO MATCH THE BRIDGE APPROACH RAIL SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.
  7. WHEN STANDARD STEEL BEAM CONNECTS TO A MANUFACTURED TERMINAL SECTION OF A DIFFERENT HEIGHT THE LENGTH NEEDED TO TRANSITION THE HEIGHT OF STANDARD STEEL BEAM TO MATCH THE MANUFACTURED TERMINAL SECTION SHALL BE 25'-0" UNLESS OTHERWISE SPECIFIED.



**FASTENER DETAILS**

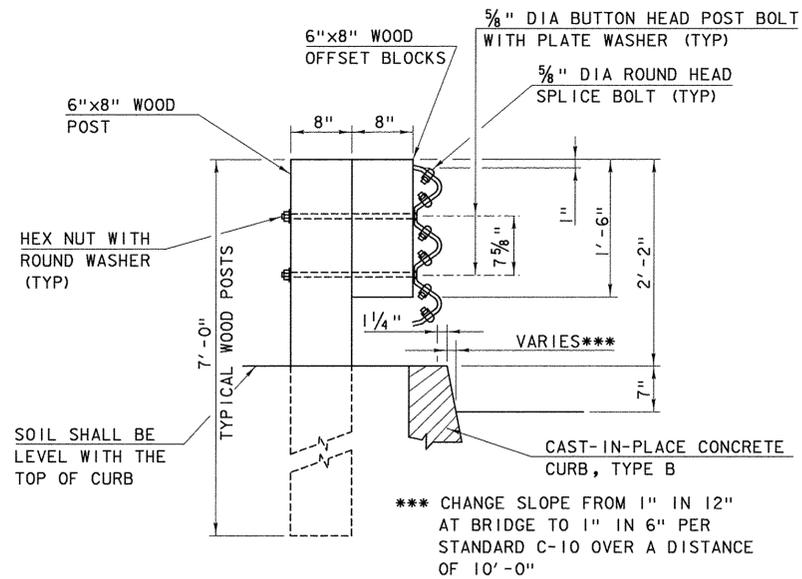
**REVISIONS AND CORRECTIONS**  
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.  
 JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD. CHANGES  
 FEB. 10, 2014 - UPDATED TO REFLECT GUARDRAIL HEIGHT OF 29"; AS NOTED IN FHWA LETTER DATED MAY 17, 2010

APPROVED  
*[Signature]*  
 HIGHWAY SAFETY & DESIGN ENGINEER  
*[Signature]*  
 DIRECTOR OF PROGRAM DEVELOPMENT  
*[Signature]*  
 FEDERAL HIGHWAY ADMINISTRATION

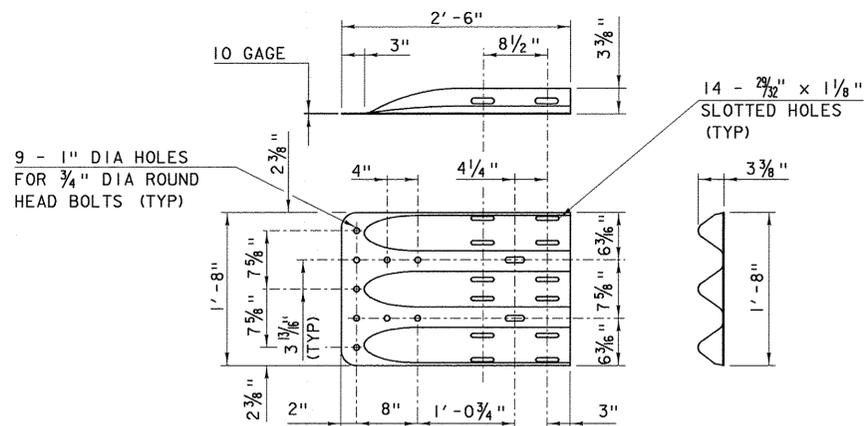
**STEEL BEAM GUARDRAIL APPROACH END TERMINAL**  
**STEEL BEAM GUARDRAIL TRAILING END TERMINAL**  
**ANCHOR FOR STEEL BEAM GUARDRAIL**  
**STEEL BEAM MEDIAN BARRIER**

**OTHER STANDARD REQUIRED: G-1**

**STANDARD G-1d**



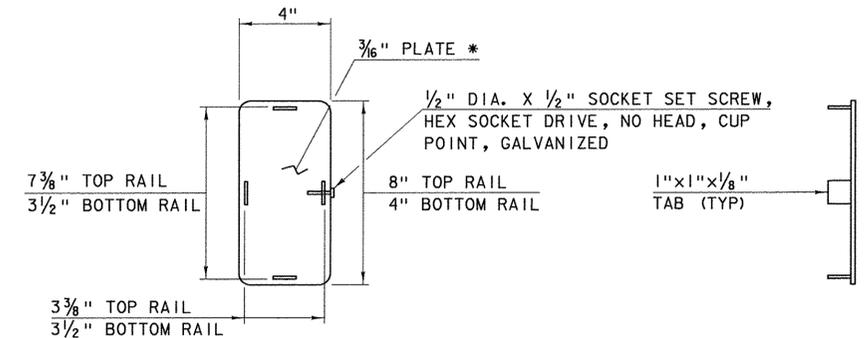
**WOOD POST AND THRIE-BEAM RAIL ASSEMBLY**



**THRIE-BEAM TERMINAL CONNECTOR (HM-TF-13/RE-67)**

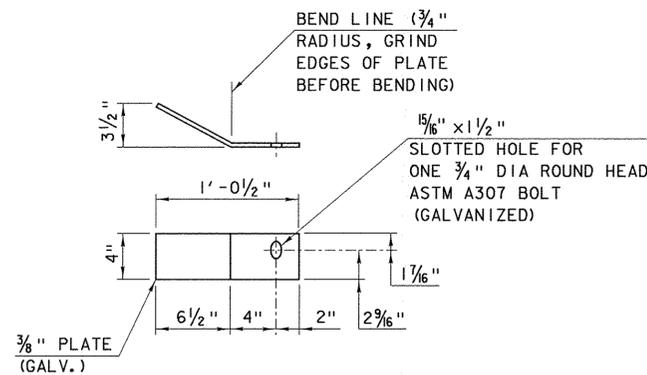
**NOTES**

1. DELINEATOR DEVICES SHALL BE INSTALLED PER BRIDGE RAIL AND OR GUARDRAIL STANDARD REQUIREMENTS.
2. ON BRIDGES WITH A SIDEWALK, DELINEATORS ARE NOT TO BE INSTALLED ON THE SIDEWALK SIDE OF THE BRIDGE.

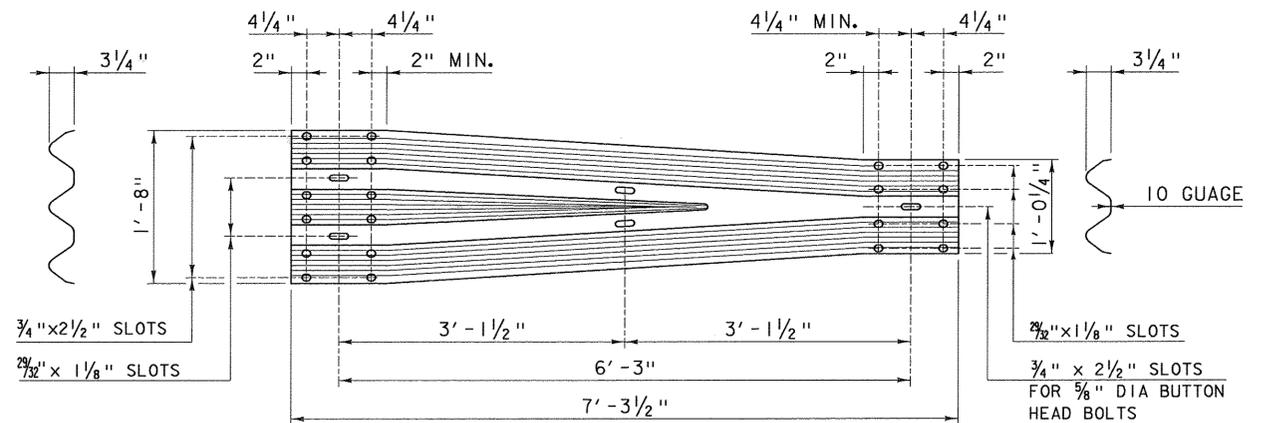


**END CAP DETAIL**

\* ROUND CORNERS 1/2" RADIUS (TYP)



**DEFLECTOR PLATE DETAIL**



**THRIE-BEAM TO STANDARD STEEL BEAM TRANSITION SECTION (HM-TF-13/RE-69)**

**REVISIONS AND CORRECTIONS**

DECEMBER 14, 2009 - ORIGINAL APPROVAL DATE  
APRIL 23, 2012 - GENERAL UPDATE 2012

**APPROVED**

*Dr. Michel Hedys*  
STRUCTURES ENGINEER

*Richard Schaub*  
DIRECTOR OF PROGRAM DEVELOPMENT

*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

**THRIE BEAM TO STANDARD STEEL BEAM TRANSITION SECTION**

**OTHER STDS. REQUIRED:**

**C-10**



**STANDARD S-363**

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) "STANDARD DRAWINGS" OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
2. CONSTRUCTION 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. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.
3. CONSTRUCTION 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.
4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. 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.
5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.
6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO 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 SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.
7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.
10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.
11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.
13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED  
*W.A.P.*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*Rubén J. Huante*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

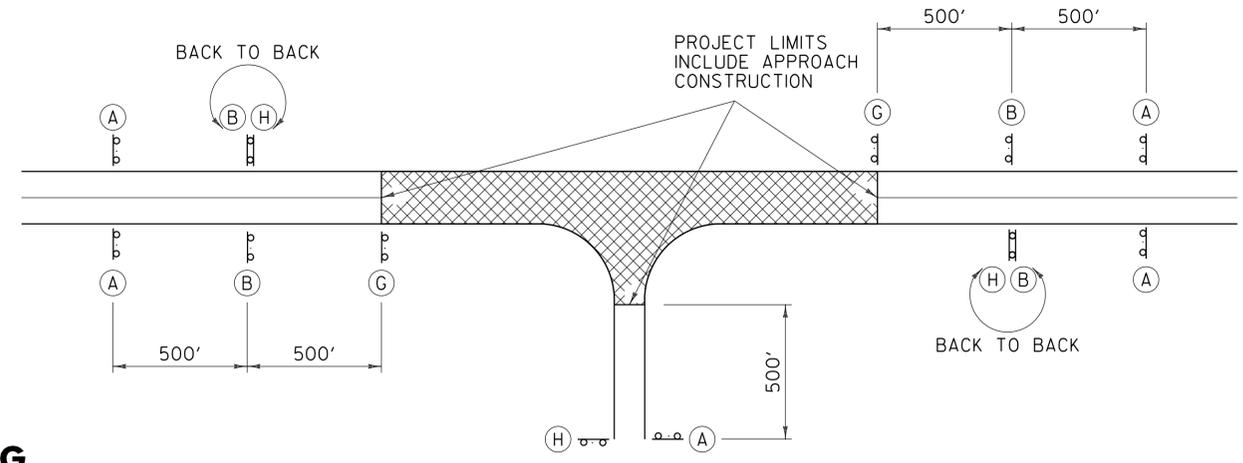
## TRAFFIC CONTROL GENERAL NOTES



STANDARD  
T-1

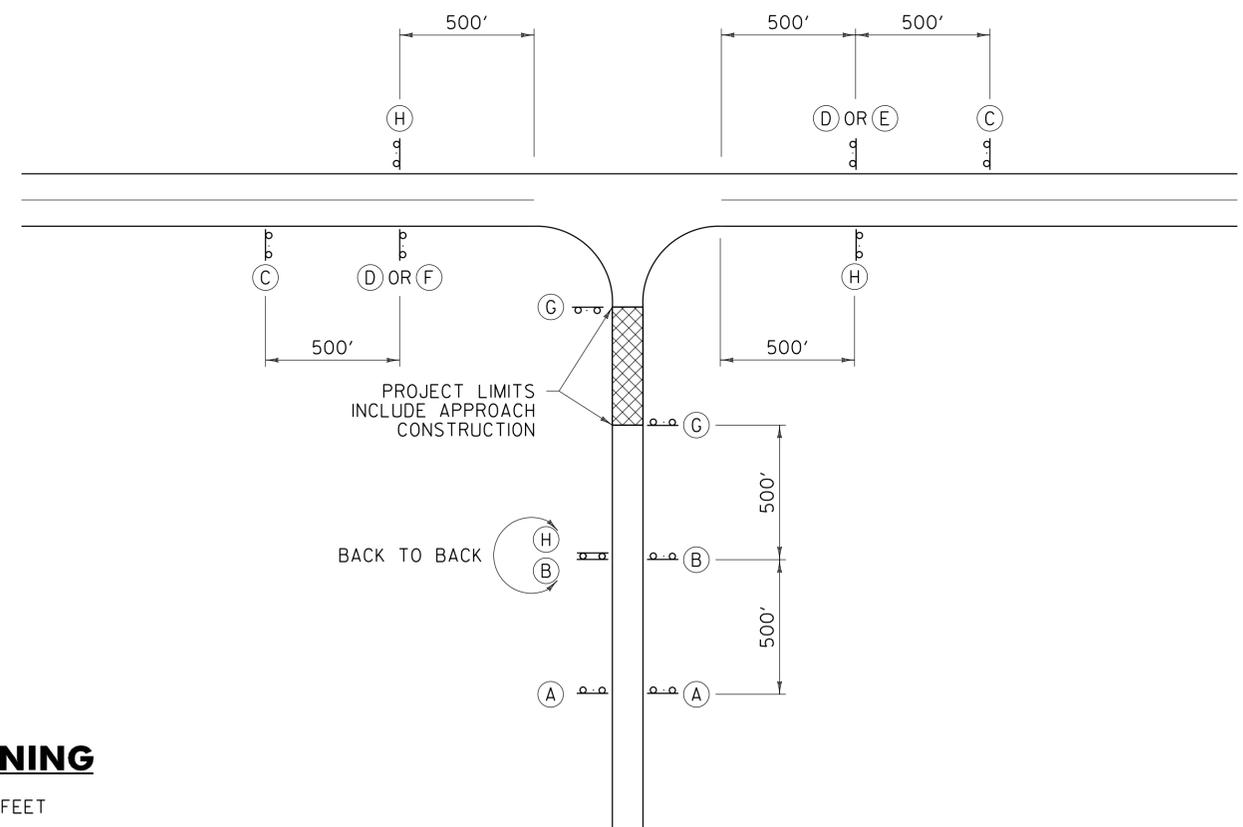
**LEGEND**

- (A)  ROAD WORK AHEAD  
W20-1
- (B)  ROAD WORK 500 FT  
W20-1
- (C)  SIDE ROAD WORK AHEAD  
VC-869
- (D)  SIDE ROAD WORK 500 FT  
VC-869
- (E)  SIDE ROAD WORK LEFT  
VC-869
- (F)  SIDE ROAD WORK RIGHT  
VC-869
- (G)  ROAD WORK NEXT XX MILES  
G20-1
- (H)  END ROAD WORK  
G20-2



**TYPICAL APPROACH SIGNING**

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



**SIDE ROAD APPROACH SIGNING**

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.

**GENERAL NOTES:**

1. 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.
2. THE "ROAD WORK NEXT XX MILES" SIGN (G20-1) SHALL BE INSTALLED IN ADVANCE OF TEMPORARY TRAFFIC CONTROL ZONES THAT ARE MORE THAN TWO MILES IN LENGTH OR AS DIRECTED BY THE ENGINEER. DISTANCES SHALL BE STATED TO THE NEAREST WHOLE MILE.
3. 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 ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

**OTHER STDS. REQUIRED: T-1, T-28**

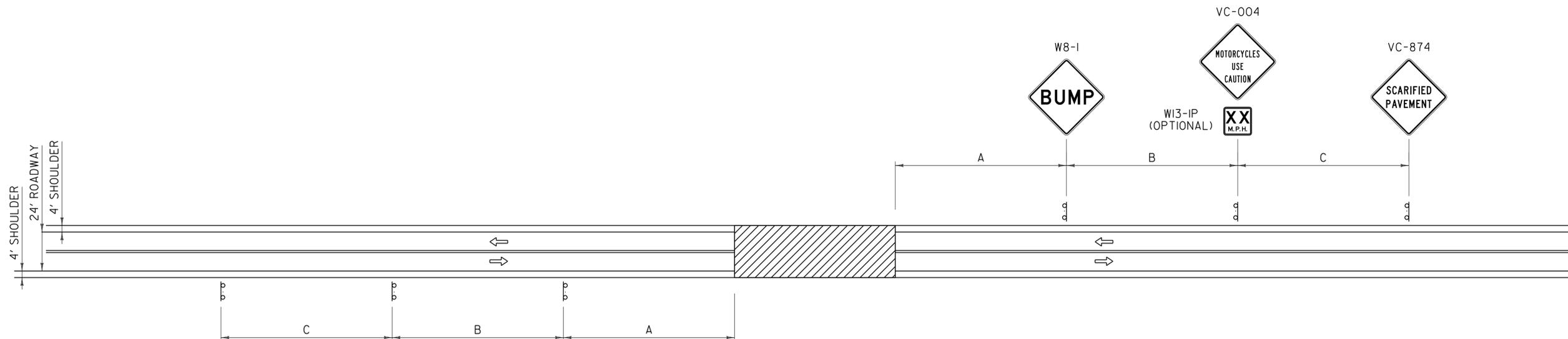
REVISIONS AND CORRECTIONS  
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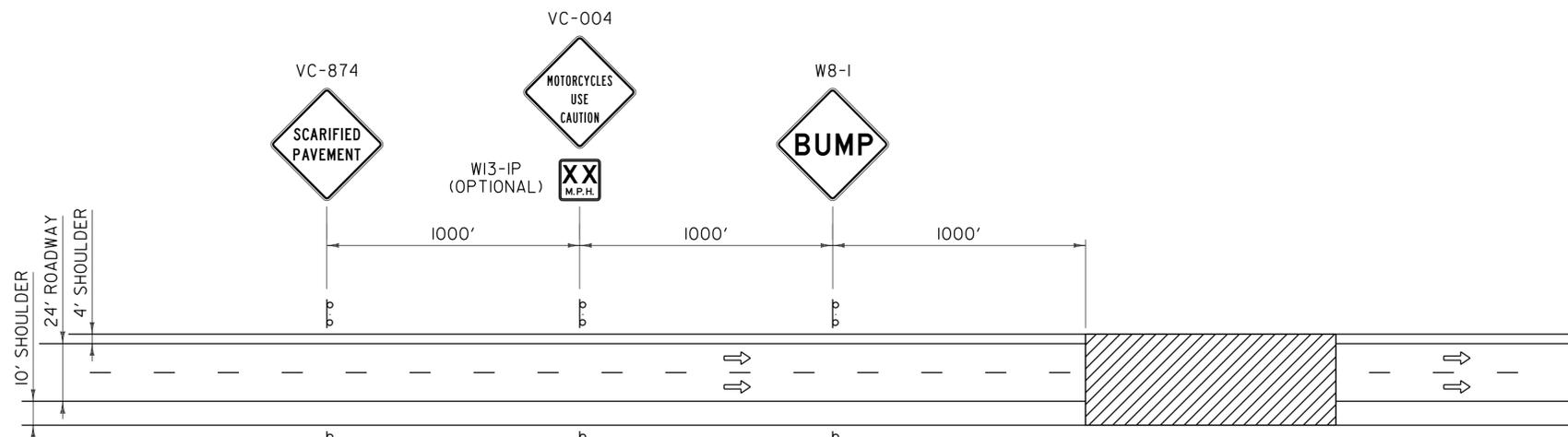
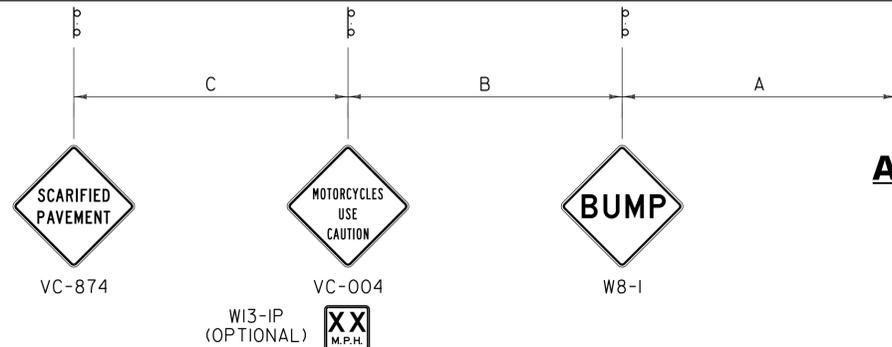
**CONVENTIONAL ROADS  
CONSTRUCTION APPROACH  
SIGNING**



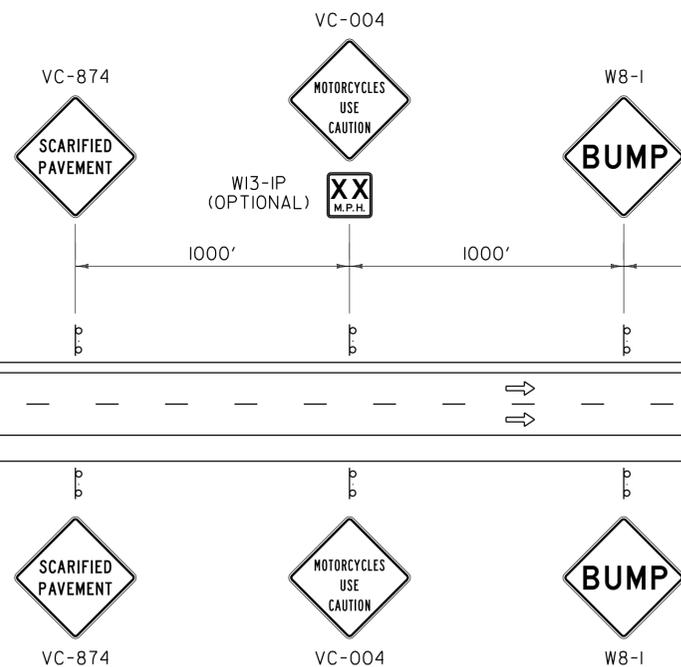
STANDARD  
T-10



**ADVANCE WARNING SIGN PACKAGE FOR  
COLD PLANED (SCARIFIED) SURFACES  
TWO LANE ROADWAY**



**ADVANCE WARNING SIGN PACKAGE FOR  
COLD PLANED (SCARIFIED) SURFACES  
DIVIDED HIGHWAY**



**LEGEND**

- FLOW OF TRAFFIC
- ▨ WORK AREA

**GENERAL NOTES:**

1. 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 THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) FOR ADDITIONAL INFORMATION.
2. GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE ENGINEER FOR TWO LANE ROADWAY WHEN PASSING, TURNING OR CLIMBING LANES LIMIT VISIBILITY.
3. FOR DIMENSIONS A, B AND C, REFER TO THE MUTCD, USE TABLE 6C-1 (RECOMMENDED ADVANCE WARNING SIGN MINIMUM SPACING), FOR SIGN SPACING.

**OTHER STDS. REQUIRED: T-1, T-28**

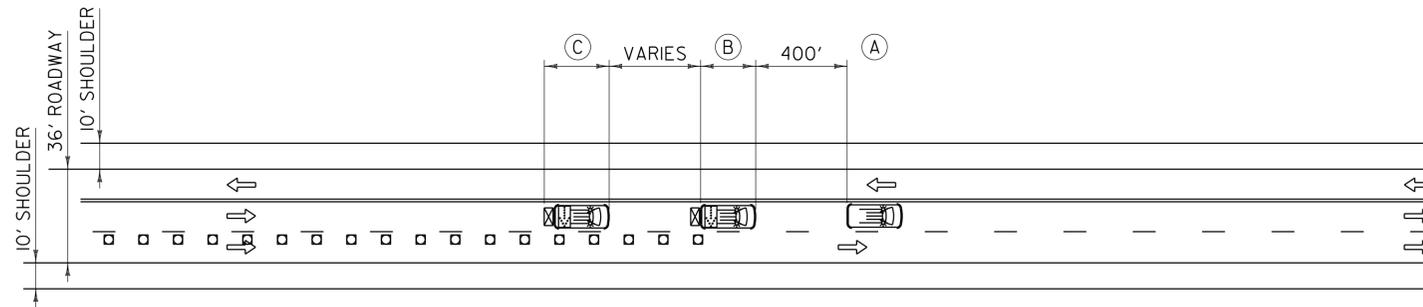
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TRAFFIC CONTROL  
MISCELLANEOUS DETAILS



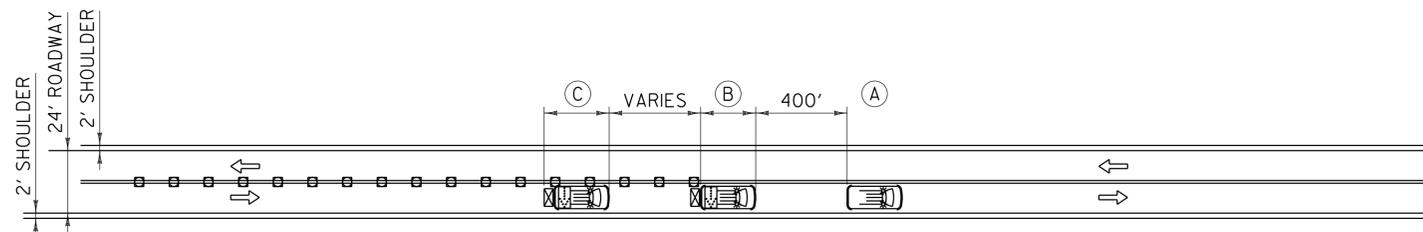
STANDARD  
T-17



**PAVEMENT MARKING OPERATION  
ON MULTI-LANE ROAD**

**NOTES:**

1. PAVEMENT MARKING OPERATION VEHICLE (C) SHOULD TRAVEL AT A VARYING DISTANCE FROM THE PAVEMENT MARKING OPERATION SO AS TO PROVIDE ADEQUATE SIGHT DISTANCE FOR TRAFFIC APPROACHING FROM THE REAR.
2. ON HIGH SPEED ROADWAYS, A THIRD PROTECTION VEHICLE SHOULD BE USED - THE FIRST PROTECTION VEHICLE ON THE SHOULDER (IF POSSIBLE), THE SECOND PROTECTION VEHICLE IN THE CLOSED LANE, AND THE THIRD PROTECTION VEHICLE IN THE CLOSED LANE.
3. ARROW PANELS SHALL BE AS A MINIMUM TYPE B, 60 INCHES BY 30 INCHES (MUTCD FIGURE 6F-6, SECTION 6F.6I).
4. WORK SHOULD BE PERFORMED DURING OFF-PEAK TRAFFIC HOURS WHEN PRACTICAL.



**PAVEMENT MARKING OPERATION  
ON TWO LANE ROAD**

**NOTES:**

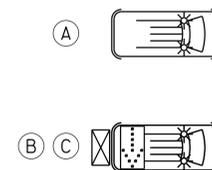
1. ALL PAVEMENT MARKING VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.
2. THE DISTANCE BETWEEN THE WORK AND PROTECTION VEHICLES MAY VARY ACCORDING TO TERRAIN AND OTHER FACTORS. PROTECTION VEHICLES ARE USED TO WARN TRAFFIC OF THE OPERATION AHEAD.
3. UNIFORMED TRAFFIC OFFICERS MAY BE USED TO CONTROL TRAFFIC AT INTERSECTIONS.
4. VEHICLE MOUNTED SIGNS SHALL BE MOUNTED WITH BOTTOM OF THE SIGN AT A MINIMUM HEIGHT OF ONE FOOT ABOVE THE PAVEMENT. SIGNS SHALL BE COVERED OR TURNED FROM VIEW WHEN WORK IS NOT IN PROGRESS.
5. ARROW PANELS ARE OPTIONAL; WHEN USED ARROW PANELS SHALL BE DISPLAYED IN CAUTION MODE.

- FLOW OF TRAFFIC
- ⚡ FLASHING ARROW PANEL
- ☒ TRUCK MOUNTED ATTENUATOR (TMA)
- CONE
- 🚚 PAVEMENT MARKING OPERATION VEHICLE
- Ⓐ PAVEMENT MARKING VEHICLE WITH FLASHING ARROW PANEL, "WET PAINT WITH LEFT ARROW" VC-886L, "WET PAINT WITH RIGHT ARROW" VC-886R SIGNS.
- Ⓑ PROTECTION VEHICLE WITH CONE CAPABILITIES AND TMA.
- Ⓒ PROTECTION VEHICLE WITH FLASHING ARROW PANEL, TMA, "WET PAINT" VC-885, "WET PAINT WITH LEFT ARROW" VC-886L, "WET PAINT WITH RIGHT ARROW" VC-886R SIGNS.

**GENERAL NOTES:**

1. ALL VEHICLES SHALL DISPLAY HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS IN ADDITION TO VEHICLE HAZARD LIGHTS.
2. PROTECTION VEHICLE SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
3. SIGNS LOCATED ON PAVEMENT MARKING OPERATION VEHICLES SHALL BE PLACED SO AS NOT TO OBSCURE OTHER SIGNS OR FLASHING ARROW PANELS.
4. REPEAT "WET PAINT" (VC-885) SIGN AS NEEDED AT SIDE ROADS
5. ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL SPACING OF THE VEHICLES.
6. CONE SPACING SHALL BE ADEQUATE SO THAT DRIVERS CAN ALWAYS SEE ONE CONE.

**OTHER STDS. REQUIRED: T-1, T-29**



**OPERATION VEHICLE  
SYMBOLGY**

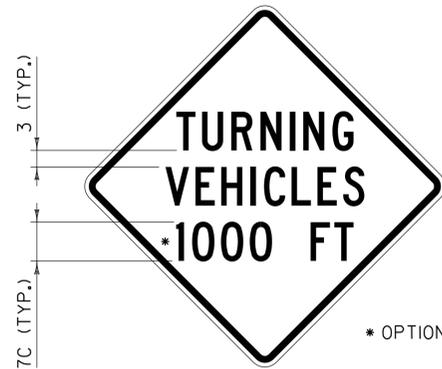
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AUG. 6, 2012 - ORIGINAL APPROVAL DATE

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TRAFFIC CONTROL FOR  
MAINTENANCE PAVEMENT  
MARKING OPERATION

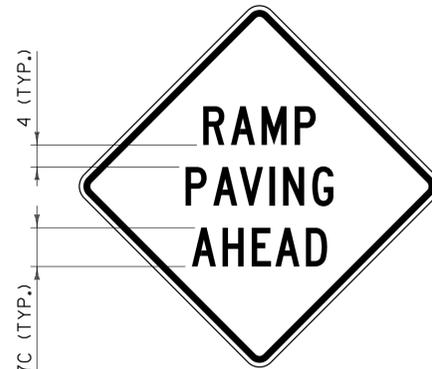


STANDARD  
T-24

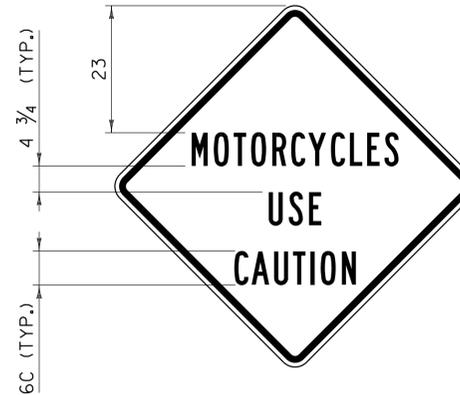


**VC-001**

\* OPTIONS { 500  
1500



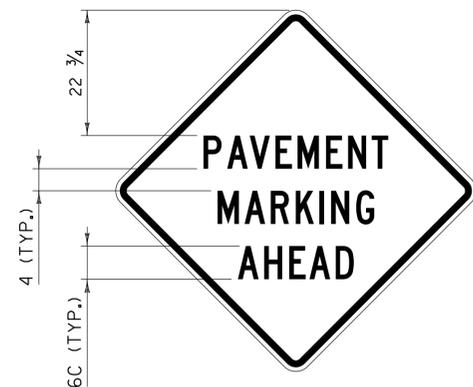
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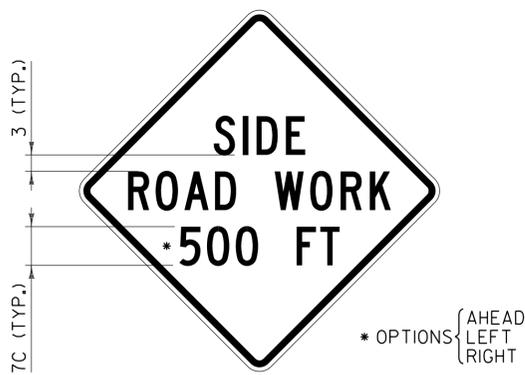
**VC-004**



**VC-008**



**VC-813**



**VC-869**



**VC-874**

**GENERAL NOTES:**

1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS.
3. SIGNS SHALL HAVE 1 1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED.
5. ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS. REQUIRED: T-1**

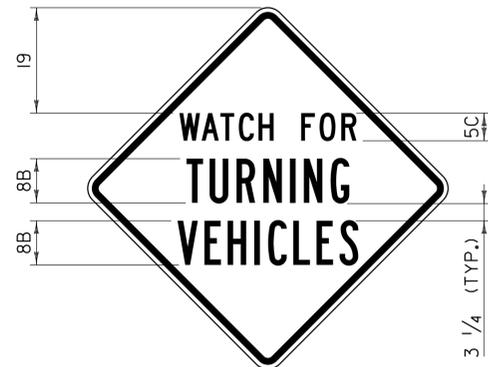
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CONSTRUCTION SIGN  
DETAILS



STANDARD  
T-28



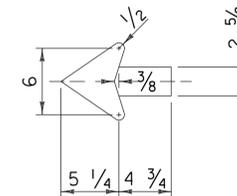
**VC-883**



**VC-885**



**VC-886L**



**VC-886R**

**NOTES:**

1. SIGNS SHALL BE 24 INCH BY 24 INCH. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A 1 1/2 INCH RADIUS.
2. SIGNS SHALL HAVE 5/8 INCH WIDE BORDERS THAT ARE INDENTED 3/8 INCH FROM THE EDGE OF THE SIGN.



**VC-887**

**GENERAL NOTES:**

1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH UNLESS OTHERWISE NOTED. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS UNLESS OTHERWISE NOTED.
3. SIGNS SHALL HAVE 1 1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN UNLESS OTHERWISE NOTED.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED.
5. ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS. REQUIRED: T-1**

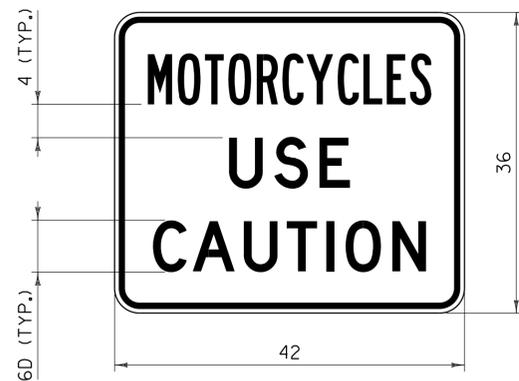
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FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN  
DETAILS



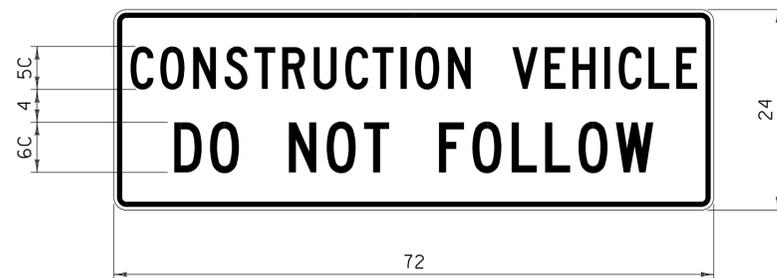
STANDARD  
T-29



**VC-004P**

**NOTES:**

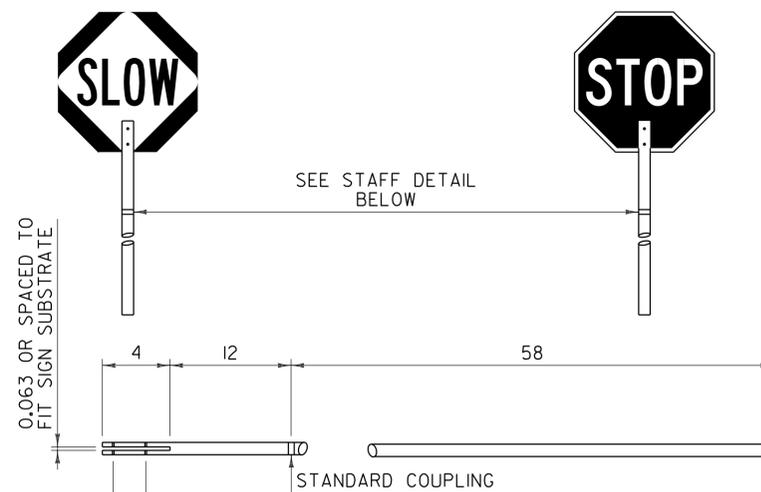
1. CORNERS SHALL BE ROUNDED TO A THREE INCH RADIUS.
2. THE BORDER SHALL BE 3/4 INCH WIDE WITH A 1/2 INCH INDENT FROM THE EDGE OF THE SIGN.
3. "MOTORCYCLES" SHALL HAVE A SPECIFIED WIDTH OF 34 INCHES.
4. "USE" SHALL HAVE A SPECIFIED WIDTH OF 14 1/2 INCHES.
5. "CAUTION" SHALL HAVE A SPECIFIED WIDTH OF 32 3/4 INCHES.
6. SIGN SHALL ONLY BE INSTALLED AS A SUPPLEMENTAL TO A PARENT WARNING SIGN AND SHALL NOT BE INSTALLED BY ITSELF.



**VC-007**

**NOTES:**

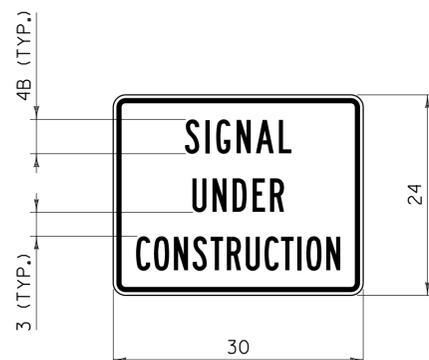
1. CORNERS SHALL BE ROUNDED TO A 1 1/2 INCH RADIUS.
2. THE BORDER SHALL BE 5/8 INCH WIDE WITH A 3/8 INCH INDENT FROM THE EDGE OF THE SIGN.
3. "CONSTRUCTION VEHICLE" SHALL HAVE A SPECIFIED WIDTH OF 68 INCHES.
4. "DO NOT FOLLOW" SHALL HAVE A SPECIFIED WIDTH OF 57 1/2 INCHES.
5. SIGN SHALL BE MOUNTED IN A CONSPICUOUS LOCATION ON THE REAR OF THE CONSTRUCTION VEHICLE.
6. THE SIGN SHALL BE MOUNTED AS NOT TO INTERFERE WITH THE VISIBILITY OF DIRECTIONAL SIGNALS OR TAIL LIGHTS AS REQUIRED BY LAW.
7. SIGN SHALL BE COVERED OR REMOVED WHEN NOT IN USE.



**STOP-SLOW PADDLE & STAFF DETAIL**

**NOTES:**

1. REFER TO THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) "TEMPORARY TRAFFIC CONTROL - WARNING SIGNS" FOR THE STOP-SLOW PADDLE DESIGN.
2. COLORS FOR THE SLOW SIDE OF THE PADDLE SHALL BE BLACK LEGEND AND BORDER ON A FLUORESCENT ORANGE DIAMOND WITH RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 [ASTM D 4956] TYPE VII, VIII OR IX REQUIREMENTS.
3. COLORS FOR THE STOP SIDE OF THE PADDLE SHALL BE WHITE RETROREFLECTIVE LEGEND AND BORDER ON A RED RETROREFLECTIVE OCTAGON. BOTH COLORS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 [ASTM D 4956] TYPE III.
4. SIGN SUBSTRATE MATERIALS SHALL BE ALUMINUM, ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC OR EQUIVALENT.
5. THE STAFF MAY BE RIGID ABS PLASTIC OR WOOD WITH A ONE TO 1 1/2 INCH DIAMETER.
6. 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.



**VC-820**

**NOTES:**

1. CORNERS SHALL BE ROUNDED TO A 1 1/2 INCH RADIUS.
2. THE BORDER SHALL BE 5/8 INCH WIDE WITH A 3/8 INCH INDENT FROM THE EDGE OF THE SIGN.
3. "SIGNAL" SHALL HAVE A SPECIFIED WIDTH OF 12 3/4 INCHES.
4. "UNDER" SHALL HAVE A SPECIFIED WIDTH OF 11 INCHES.
5. "CONSTRUCTION" SHALL HAVE A SPECIFIED WIDTH OF 24 1/2 INCHES.
6. SIGN SHALL ONLY BE INSTALLED AS A SUPPLEMENTAL TO A PARENT WARNING SIGN AND SHALL NOT BE INSTALLED BY ITSELF.

**GENERAL NOTES:**

1. ALL LEGEND SHALL BE CENTERED VERTICALLY AND HORIZONTALLY UNLESS OTHERWISE NOTED.
2. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS IN INCHES.

**OTHER STDS. REQUIRED: T-1**

REVISIONS AND CORRECTIONS  
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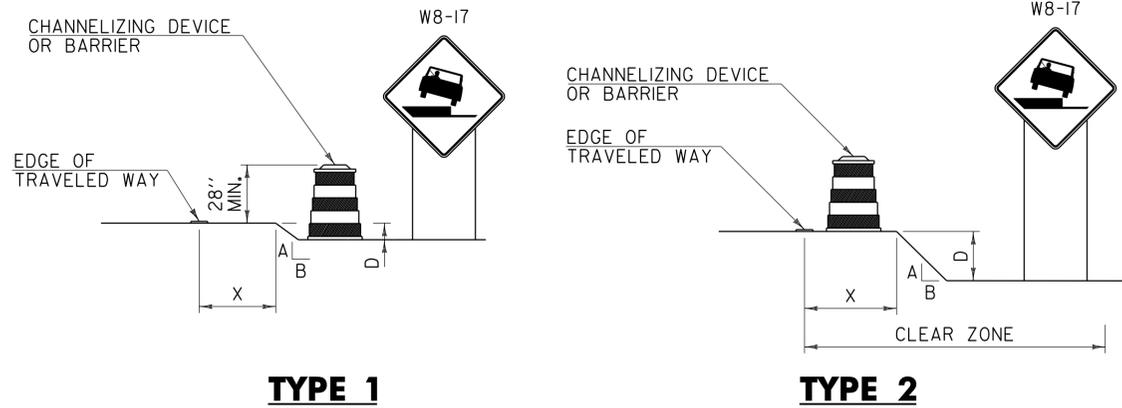
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**CONSTRUCTION SIGN  
DETAILS**



**STANDARD  
T-30**

**DROP-OFF ADJACENT TO TRAVELED WAY**



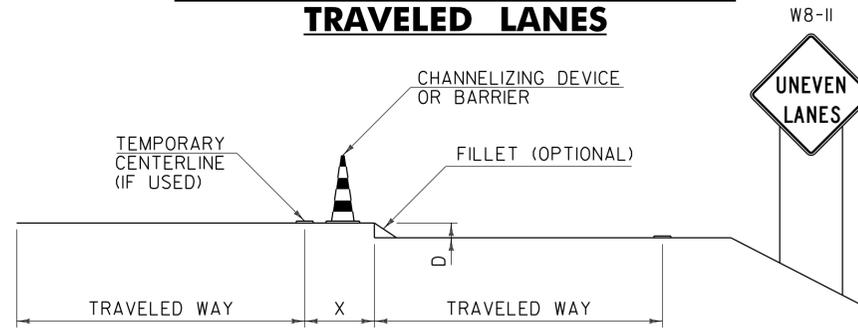
**TYPE 1**

**TYPE 2**

**NOTES:**

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
2. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN IN PLACE OVERNIGHT, THEN "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS SHOULD BE INSTALLED.

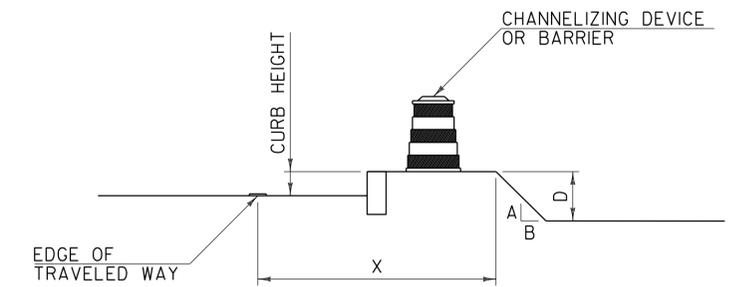
**DROP-OFF BETWEEN ADJACENT TRAVELED LANES**



**NOTES:**

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELED LANES IS TO BE LEFT OVERNIGHT, THEN "UNEVEN LANES" (W8-11) SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHOULD BE THOSE WHICH MAXIMIZE THE WIDTH OF THE TRAVELED LANE (I.E. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 1.5:1 SLOPE MAY BE USED IN PLACE OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" (W8-11) SIGNS SHOULD STILL BE INSTALLED.
4. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.

**DROP-OFF BEYOND SHOULDER OR CURB**



**NOTES:**

1. USE CHART "A" FOR VERTICAL CURBS UNDER SIX INCHES, MOUNTABLE CURBS OR ROADWAYS WITH A POSTED SPEED ABOVE 40 MPH.
2. USE CHART "B" FOR VERTICAL CURBS SIX INCHES OR GREATER.

**CHART "A"  
ALL SPEEDS WITH NO CURB  
OR MOUNTABLE CURB**

X (FEET)	DROP (D) (INCHES)	A:B SLOPE	RECOMMENDED DEVICE
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 6"	1:1.5 OR FLATTER	NONE
		STEEPER THAN 1:1.5	CHANNELIZING DEVICE
4' TO 10'	LESS THAN 6"	ANY	NONE
	6" TO 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER
10' TO CZ	LESS THAN OR EQUAL TO 12"	ANY	NONE
	GREATER THAN 12"	1:3 OR FLATTER	NONE
		STEEPER THAN 1:3	BARRIER

**NOTES:**

1. THE MINIMUM CLEAR ZONE FOR FREEWAYS IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE. ALL OTHER HIGHWAYS WILL BE DETERMINED PER THE CURRENT "VERMONT STATE STANDARDS" BOOK.
2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM OPERATIONS.
3. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

**CHART "B"  
40 MPH OR LESS WITH VERTICAL 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

**GENERAL NOTES:**

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:
  - A. VERTICAL PANEL
  - B. TYPE I OR TYPE II BARRICADE
  - C. PLASTIC DRUM
  - D. CONE - WHERE APPLICABLE
  - E. TUBULAR MARKERS

IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:
  - TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S" ("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

**OTHER STDS. REQUIRED: T-1**

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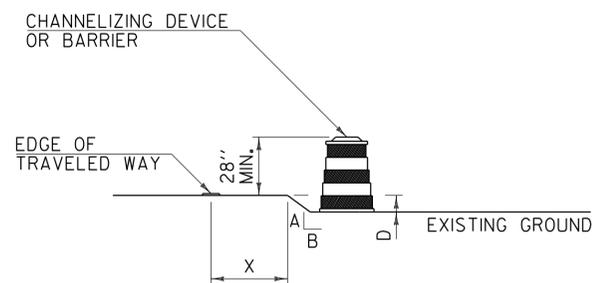
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**CONSTRUCTION ZONE  
LONGITUDINAL DROP-OFFS**



**STANDARD  
T-35**

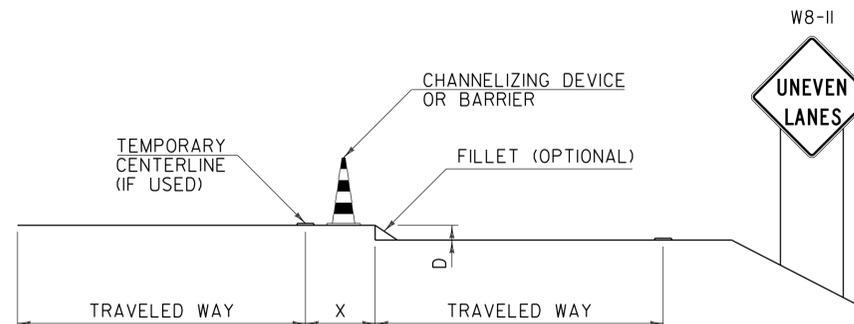
**DROP-OFF ADJACENT TO TRAVELED WAY**



**NOTES:**

1. CHANNELIZING DEVICES SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
2. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN IN PLACE OVERNIGHT, THEN "LOW SHOULDER" (W8-9) OR "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS SHOULD BE INSTALLED.

**DROP-OFF BETWEEN ADJACENT TRAVELED LANES**



**NOTES:**

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELED LANES IS TO BE LEFT OVERNIGHT, THEN "UNEVEN LANES" (W8-11) SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHALL BE THOSE WHICH MAXIMIZE THE WIDTH OF THE TRAVELED LANE (I.E. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 1.5:1 SLOPE MAY BE USED IN PLACE OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" (W8-11) SIGNS SHOULD STILL BE INSTALLED.
4. SEE CHART "A" FOR SPECIFIC REQUIREMENTS.

**CHART "A"  
ALL SPEEDS WITH NO CURB**

X (FEET)	DROP (D) (INCHES)	A:B SLOPE	DEVICE REQUIRED
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 6"	1:1.5 OR FLATTER STEEPER THAN 1:1.5	NONE CHANNELIZING DEVICE
	GREATER THAN 6"	1:3 OR FLATTER STEEPER THAN 1:3	NONE BARRIER
4' TO 10'	LESS THAN 6"	ANY	NONE
	6" TO 12"	1:3 OR FLATTER STEEPER THAN 1:3	NONE BARRIER

**NOTE:**

1. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

**GENERAL NOTES:**

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) COMPLIANT CHANNELIZING DEVICES:
  - A. VERTICAL PANEL
  - B. TYPE I OR TYPE II BARRICADE
  - C. PLASTIC DRUM
  - D. CONE - WHERE APPLICABLE
  - E. TUBULAR MARKERS

IF CHANNELIZING DEVICES ARE REQUIRED TO STAY IN PLACE DURING NIGHTTIME HOURS, THEY SHALL BE STABILIZED WHILE UNATTENDED IN ACCORDANCE WITH THE MUTCD.
3. WHERE BARRIER IS NECESSARY, THE BARRIER SHALL BE TAPERED BEYOND THE CLEAR ZONE. WHEN THE BARRIER CANNOT BE TAPERED BEYOND THE CLEAR ZONE, A MUTCD COMPLIANT END TREATMENT SHALL BE USED. BARRIER AND END TREATMENT SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:
  - TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S"
  - ("S" IS EQUAL TO THE POSTED SPEED LIMIT IN FEET) APART.
5. "LOW SHOULDER" (W8-9) AND "SHOULDER DROP-OFF SYMBOL" (W8-17) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

**OTHER STDS. REQUIRED: T-1**

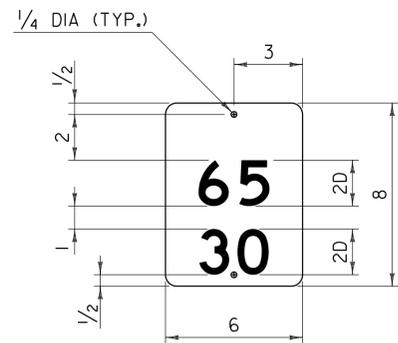
REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED  
*W. A. M.*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*Rickard Stewart*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

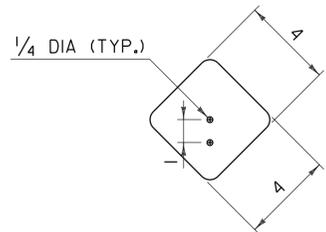
**CONSTRUCTION ZONE  
LONGITUDINAL DROP-OFFS  
FOR PAVING**



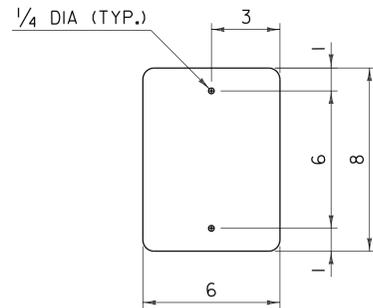
**STANDARD  
T-36**



**INTERSTATE MILEPOST PLAQUE**



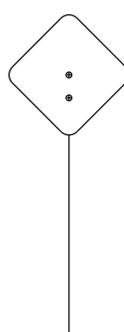
**TYPE I DELINEATOR**



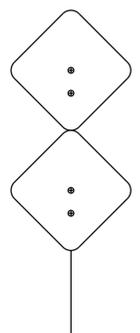
**TYPE II DELINEATOR**

**GENERAL NOTES:**

1. THE FIRST LINE OF TEXT ON INTERSTATE MILEPOST PLAQUES INDICATES THE WHOLE NUMBER MILEAGE FROM THE BEGINNING OF A ROUTE. MILEAGE IS ALWAYS MEASURED TRAVELING FROM THE SOUTH TO NORTH OR FROM THE WEST TO EAST. THE ROUTE DIRECTION IS ESTABLISHED USING THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ROUTE LOGS.
2. THE SECOND LINE OF TEXT ON INTERSTATE MILEPOST PLAQUES INDICATES THE ADDITIONAL MILEAGE, IN HUNDREDTHS, FROM THE BEGINNING OF A ROUTE. MILEAGE IS ALWAYS MEASURED TRAVELING FROM THE SOUTH TO NORTH OR FROM THE WEST TO EAST. THE ROUTE DIRECTION IS ESTABLISHED USING THE VAOT ROUTE LOGS.
3. THE INTERSTATE MILEPOST PLAQUE SHALL BE GREEN RETROREFLECTIVE LEGEND ON A WHITE RETROREFLECTIVE BACKGROUND AND SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE III.
4. ALL LINES OF TEXT SHALL BE CENTERED HORIZONTALLY AND SHALL BE AS IDENTIFIED IN THE PLANS.
5. THE INTERSTATE MILEPOST PLAQUE AND DELINEATOR BASE MATERIAL SHALL BE 0.063 INCH FLAT SHEET ALUMINUM.
6. CORNERS SHALL BE ROUNDED TO A 1/2 INCH RADIUS.
7. A TYPE III DELINEATOR CONSISTS OF A TYPE I DELINEATOR FACING THE NORMAL DIRECTION OF TRAVEL AND A SINGLE RED TYPE I DELINEATOR FACING THE OPPOSITE DIRECTION. THE WHITE DELINEATOR AND RED DELINEATOR COMBINATION IS PLACED ON THE DRIVER'S RIGHT AND THE AMBER DELINEATOR AND RED DELINEATOR COMBINATION ON THE DRIVER'S LEFT.
8. DELINEATORS SHALL HAVE WHITE, GREEN, OR BLUE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 ASTM D 4956 TYPE III, OR RED OR YELLOW RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 ASTM D 4956 TYPE VII, VIII, OR IX.
9. A SINGLE 14 GAGE, 1.75 INCH SQUARE STEEL POST AND 12 GAGE, TWO INCH SQUARE ANCHOR SHALL BE USED FOR INSTALLATION. THE ANCHOR SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
10. THE TOP OF POST SHALL BE ONE INCH ABOVE THE UPPER HOLE FOR ALL TYPE I DELINEATORS.
11. THE TOP OF POST SHALL BE FLUSH WITH THE TOP OF ALL TYPE II DELINEATORS.
12. ALL DIMENSIONS SHOWN IN INCHES.



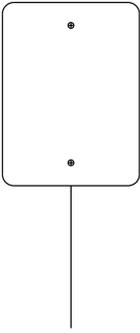
**TYPE I**



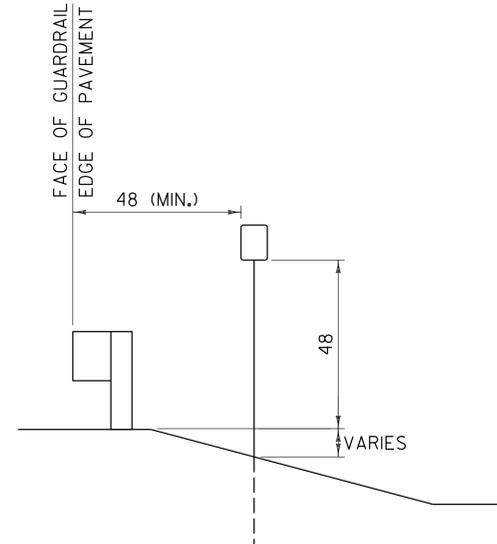
**TYPE I - U-TURNS**



**WHITE TYPE I WITH MILEPOST PLAQUE**



**TYPE II**



**INSTALLATION DETAIL\***

\* INSTALLATION DETAIL APPLICABLE TO ALL DELINEATOR ASSEMBLIES

**OTHER STDS. REQUIRED: T-45**

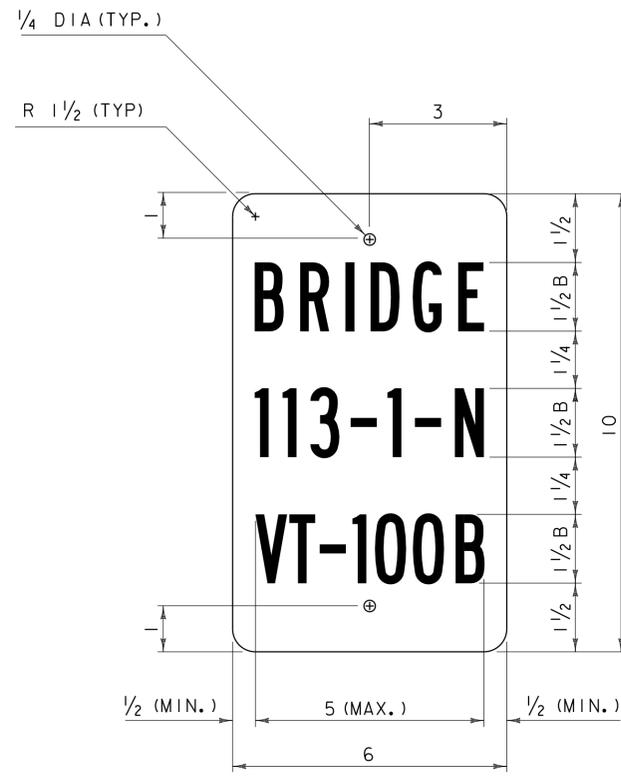
REVISIONS AND CORRECTIONS  
JAN. 2, 2013 - ORIGINAL APPROVAL DATE

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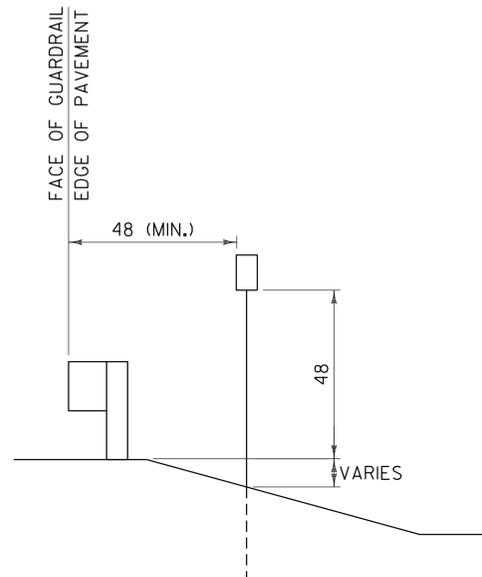
**DELINEATORS AND MILEPOSTS**



**STANDARD  
T-40**



**VD-701**



**VD-701 INSTALLATION DETAIL**

**GENERAL NOTES:**

- BRIDGE NUMBER PLAQUES ARE TO BE INSTALLED ALONG THE FEDERAL AID HIGHWAY SYSTEM INCLUDING ALL STATE HIGHWAYS AND TOWN HIGHWAYS ON THE FEDERAL AID HIGHWAY SYSTEM.
- BRIDGE NUMBER PLAQUES SHALL BE LOCATED ON BOTH BRIDGE APPROACHES AT THE NEAREST VISIBLE LOCATION.
- THE SIGN BASE MATERIAL SHALL BE 0.063 INCH FLAT SHEET ALUMINUM.
- THE SIGN SHALL BE WHITE RETROREFLECTIVE LEGEND ON A GREEN RETROREFLECTIVE BACKGROUND, BOTH SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE III.
- THE SECOND LINE OF TEXT INDICATES THE BRIDGE NUMBER. THE BRIDGE NUMBER CAN BE OBTAINED USING THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ROUTE LOGS OR BY CONSULTING WITH THE VAOT STRUCTURES SECTION.
- THE THIRD LINE OF TEXT INDICATES THE STATE ROUTE NUMBER. IN ALL CASES THIS WILL BE DEPICTED USING THE LETTER ABBREVIATION, FOLLOWED BY A HYPHEN, FOLLOWED BY THE ROUTE NUMBER. FOR EXAMPLE US ROUTE 2 WOULD BE IDENTIFIED USING US-2.
- THE SECOND AND THIRD LINES OF TEXT SHALL BE CENTERED HORIZONTALLY AND SHALL BE AS DEFINED IN THE PLANS.
- A SINGLE 14 GAGE, 1.75 INCH SQUARE STEEL POST AND 12 GAGE, TWO INCH SQUARE ANCHOR SHALL BE USED FOR INSTALLATION. THE ANCHOR SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
- ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS. REQUIRED: T-45**

REVISIONS AND CORRECTIONS  
APRIL 9, 2014 - ORIGINAL APPROVAL DATE

APPROVED  
*[Signature]*  
HIGHWAY SAFETY & DESIGN ENGINEER  
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*[Signature]*  
MARK D. RICHTER  
FEDERAL HIGHWAY ADMINISTRATION

**BRIDGE NUMBER PLAQUE**



STANDARD  
T-42

1 - ADDISON	2 - BENNINGTON	3 - CALEDONIA	4 - CHITTENDEN	5 - ESSEX	6 - FRANKLIN	7 - GRAND ISLE	8 - LAMOILLE
0101 ADDISON 0102 BRIDPORT 0103 BRISTOL 0104 CORNWALL 0105 FERRISBURGH 0106 GOSHEN 0107 GRANVILLE 0108 HANCOCK 0109 LEICESTER 0110 LINCOLN 0111 MIDDLEBURY 0112 MONKTON 0113 NEW HAVEN 0114 ORWELL 0115 PANTON 0116 RIPTON 0117 SALISBURY 0118 SHOREHAM 0119 STARKSBORO 0120 VERGENNES 0121 WALTHAM 0122 WEYBRIDGE 0123 WHITING	0201 ARLINGTON 0202 BENNINGTON 0203 DORSET 0204 GLASTENBURY 0205 LANDGROVE 0206 MANCHESTER 0207 PERU 0208 POWNAL 0209 READSBORO 0210 RUPERT 0211 SANDGATE 0212 SEARSBURG 0213 SHAFTSBURY 0214 STAMFORD 0215 SUNDERLAND 0216 WINHALL 0217 WOODFORD	0301 BARNET 0302 BURKE 0303 DANVILLE 0304 GROTON 0305 HARDWICK 0306 KIRBY 0307 LYNDON 0308 NEWARK 0309 PEACHAM 0310 RYEGATE 0311 ST JOHNSBURY 0312 SHEFFIELD 0313 STANNARD 0314 SUTTON 0315 WALDEN 0316 WATERFORD 0317 WHEELLOCK	0401 BOLTON 0402 BUELS GORE 0403 BURLINGTON 0404 CHARLOTTE 0405 COLCHESTER 0406 ESSEX 0407 HINESBURG 0408 HUNTINGTON 0409 JERICHO 0410 MILTON 0411 RICHMOND 0412 ST GEORGE 0413 SHELburne 0414 SO BURLINGTON 0415 UNDERHILL 0416 WESTFORD 0417 WILLISTON 0418 WINOOSKI	0501 AVERILL 0502 AVERYS GORE 0503 BLOOMFIELD 0504 BRIGHTON 0505 BRUNSWICK 0506 CANAAN 0507 CONCORD 0508 EAST HAVEN 0509 FERDINAND 0510 GRANBY 0511 GUILDHALL 0512 LEMINGTON 0513 LEWIS 0514 LUNENBURG 0515 MAIDSTONE 0516 NORTON 0517 VICTORY 0518 WARNERS GRANT 0519 WARREN GORE	0601 BAKERSFIELD 0602 BERKSHIRE 0603 ENOSBURG 0604 FAIRFAX 0605 FAIRFIELD 0606 FLETCHER 0607 FRANKLIN 0608 GEORGIA 0609 HIGHGATE 0610 MONTGOMERY 0611 RICHFORD 0612 ST ALBANS CITY 0613 ST ALBANS TOWN 0614 SHELDON 0615 SWANTON	0701 ALBURGH 0702 GRAND ISLE 0703 ISLE LA MOTTE 0704 NORTH HERO 0705 SOUTH HERO	0801 BELVIDERE 0802 CAMBRIDGE 0803 EDEN 0804 ELMORE 0805 HYDE PARK 0806 JOHNSON 0807 MORRISTOWN 0808 STOWE 0809 WATERVILLE 0810 WOLCOTT

9 - ORANGE	10 - ORLEANS	11 - RUTLAND	12 - WASHINGTON	13 - WINDHAM	14 - WINDSOR
0901 BRADFORD 0902 BRAINTREE 0903 BROOKFIELD 0904 CHELSEA 0905 CORINTH 0906 FAIRLEE 0907 NEWBURY 0908 ORANGE 0909 RANDOLPH 0910 STRAFFORD 0911 THETFORD 0912 TOPSHAM 0913 TUNBRIDGE 0914 VERSHIRE 0915 WASHINGTON 0916 WEST FAIRLEE 0917 WILLIAMSTOWN	1001 ALBANY 1002 BARTON 1003 BROWNINGTON 1004 CHARLESTON 1005 COVENTRY 1006 CRAFTSBURY 1007 DERBY 1008 GLOVER 1009 GREENSBORO 1010 HOLLAND 1011 IRASBURG 1012 JAY 1013 LOWELL 1014 MORGAN 1015 NEWPORT CITY 1016 NEWPORT TOWN 1017 TROY 1018 WESTFIELD 1019 WESTMORE	1101 BENSON 1102 BRANDON 1103 CASTLETON 1104 CHITTENDEN 1105 CLARENDON 1106 DANBY 1107 FAIR HAVEN 1108 HUBBARDTOWN 1109 IRA 1110 MENDON 1111 MIDDLETOWN SPRINGS 1112 MT HOLLY 1113 MT TABOR 1114 PAWLET 1115 PITTSFIELD 1116 PITTSFORD 1117 POULTNEY 1118 PROCTOR 1119 RUTLAND CITY 1120 RUTLAND TOWN 1121 KILLINGTON 1122 SHREWSBURY 1123 SUDBURY 1124 TINMOUTH 1125 WALLINGFORD 1126 WELLS 1127 WEST HAVEN 1128 WEST RUTLAND	1201 BARRE CITY 1202 BARRE TOWN 1203 BERLIN 1204 CABOT 1205 CALAIS 1206 DUXBURY 1207 E MONTPELIER 1208 FAYSTON 1209 MARSHFIELD 1210 MIDDLESEX 1211 MONTPELIER 1212 MORETOWN 1213 NORTHFIELD 1214 PLAINFIELD 1215 ROXBURY 1216 WAITSFIELD 1217 WARREN 1218 WATERBURY 1219 WOODBURY 1220 WORCESTER	1301 ATHENS 1302 BRATTLEBORO 1303 BROOKLINE 1304 DOVER 1305 DUMMERSTON 1306 GRAFTON 1307 GUILFORD 1308 HALIFAX 1309 JAMAICA 1310 LONDONDERRY 1311 MARLBORO 1312 NEWFANE 1313 PUTNEY 1314 ROCKINGHAM 1315 SOMERSET 1316 STRATTON 1317 TOWNSEND 1318 VERNON 1319 WARDSBORO 1320 WESTMINSTER 1321 WHITINGHAM 1322 WILMINGTON 1323 WINDHAM	1401 ANDOVER 1402 BALTIMORE 1403 BARNARD 1404 BETHEL 1405 BRIDGEWATER 1406 CAVENDISH 1407 CHESTER 1408 HARTFORD 1409 HARTLAND 1410 LUDLOW 1411 NORWICH 1412 PLYMOUTH 1413 POMFRET 1414 READING 1415 ROCHESTER 1416 ROYALTON 1417 SHARON 1418 SPRINGFIELD 1419 STOCKBRIDGE 1420 WEATHERSFIELD 1421 WESTON 1422 WEST WINDSOR 1423 WINDSOR 1424 WOODSTOCK

**COUNTY AND TOWN DESIGNATIONS**

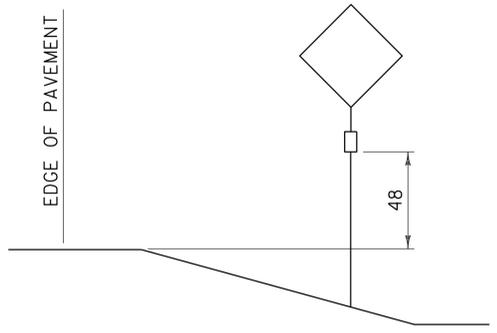
- 9020 BARNET STATE HIGHWAY  
9025 BENNINGTON NORTH STATE HIGHWAY  
9030 BERLIN STATE HIGHWAY  
9090 BRATTLEBORO STATE HIGHWAY  
9150 CASTLETON STATE HIGHWAY  
9180 COVENTRY STATE HIGHWAY  
9210 FAIR HAVEN STATE HIGHWAY  
9240 FAIRLEE STATE HIGHWAY  
9270 FERRISBURGH STATE HIGHWAY  
9330 MAIDSTONE STATE HIGHWAY  
9360 MIDDLESEX STATE HIGHWAY  
9390 MONTPELIER STATE HIGHWAY  
9420 MONTPELIER JUNCTION STATE HIGHWAY  
9430 NEWBURY STATE HIGHWAY  
9480 NORTON STATE HIGHWAY  
9540 NORWICH STATE HIGHWAY  
9600 PUTNEY STATE HIGHWAY  
9630 QUECHEE STATE HIGHWAY  
9720 ST ALBANS STATE HIGHWAY SOUTH  
9730 ST JOHNSBURY STATE HIGHWAY  
9750 SOUTH ALBURGH STATE HIGHWAY  
9840 WESTMINSTER STATE HIGHWAY  
9870 WILDER STATE HIGHWAY  
9900 WINHALL STATE HIGHWAY  
9990 WEST RUTLAND - RUTLAND (BUSINESS US-4)  
9991 BELLOWS FALLS S0117 (ROCK - WEST ST)  
9992 BELLOWS FALLS S0117 (BRIDGE ST)  
9993 BURLINGTON (ALTERNATE US-7)  
9994 DERBY (ALTERNATE US-5)  
9995 MONTPELIER (BUSINESS US-2)  
9996 NEWPORT (ALTERNATE US-5)  
9997 ST JOHNSBURY (ALTERNATE US-5)  
9998 SO BURLINGTON - KENNEDY DRIVE

**NAMED STATE AND TOWN HIGHWAYS ROUTE NUMBERS**

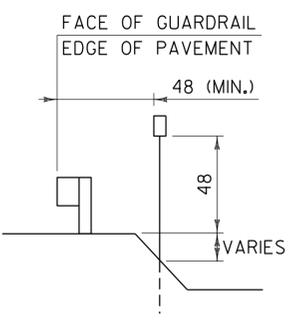
**GENERAL NOTES:**

- MILEMARKERS ARE TO BE INSTALLED ALONG THE FEDERAL AID HIGHWAY SYSTEM INCLUDING ALL STATE HIGHWAYS AND TOWN HIGHWAYS ON THE FEDERAL AID HIGHWAY SYSTEM.
- MILEMARKERS WILL NORMALLY BE INSTALLED AT EACH 0.20 MILE INTERVAL, ALTERNATING SIDES OF THE ROAD, RESULTING IN A SIGN FACING TRAFFIC EACH 0.40 MILES. A MILEMARKER WILL ALSO BE INSTALLED AT EACH INTERSECTION, ON THE SAME POST AS THE STOP SIGN (MILEMARKER TO BE PLACED PARALLEL TO MAINLINE TRAVELED WAY, VISIBLE TO TRAFFIC). ANY MILEMARKER LOCATION FALLING WITHIN 0.05 MILE OF AN INTERSECTION WILL BE OMITTED. WHEN THE NORMAL LOCATION OF A MILEMARKER IS UNDESIRABLE, SUCH AS ON A LAWN, DRIVEWAY, OR LEDGE, AN ATTEMPT WILL BE MADE TO LOCATE IT ON THE OPPOSITE SIDE OF THE ROAD. IF NO SUITABLE LOCATION CAN BE FOUND WITHIN 20 FEET OF THE NORMAL LOCATION, IT MAY BE OMITTED.
- ON CLASS I TOWN HIGHWAYS OR OTHER CONGESTED LOCATIONS MILEMARKERS WILL ONLY BE INSTALLED ON EXISTING SIGN POSTS AND WILL CARRY THE ACTUAL MILEAGE TO THAT LOCATION. A MILEMARKER LOCATED EVERY 0.10 MILES IS DESIRABLE THROUGH THESE LOCATIONS.
- THE FIRST LINE OF TEXT ON MILEMARKERS INDICATE THE STATE ROUTE NUMBER. THE FOURTH NUMERAL BEING THE CORRESPONDING ROUTE NUMBER LETTER DESIGNATION. FOR EXAMPLE US-2 (WHICH HAS NO LETTER DESIGNATION) WOULD BE IDENTIFIED USING 0020 AND VT-100B WOULD BE IDENTIFIED USING 1002. FOR ANY NAMED FEDERAL AID HIGHWAY SYSTEM HIGHWAYS, THE FOUR DIGIT ROUTE NUMBER (9000 SERIES) LISTED UNDER "NAMED STATE AND TOWN HIGHWAYS ROUTE NUMBERS" SHALL BE UTILIZED.
- THE SECOND LINE OF TEXT ON MILEMARKERS INDICATE THE COUNTY AND TOWN. THE COUNTY IS INDICATED IN THE FIRST AND SECOND NUMERALS AND THE TOWN IN THE THIRD AND FOURTH NUMERALS. THE APPROPRIATE FOUR DIGIT DESIGNATIONS ARE LISTED PER TOWN, UNDER "COUNTY AND TOWN DESIGNATIONS."
- THE THIRD LINE OF TEXT ON MILEMARKERS INDICATE THE MILEAGE, IN HUNDREDTHS, FROM THE TOWN LINE OR BEGINNING OF A ROUTE. MILEAGE IS ALWAYS MEASURED TRAVELING FROM THE SOUTH TO NORTH OR FROM THE WEST TO EAST. THE ROUTE DIRECTION IS ESTABLISHED USING THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ROUTE LOGS.
- THE SIGN BASE MATERIAL SHALL BE 0.063 INCH FLAT SHEET ALUMINUM.
- THE SIGN SHALL BE WHITE RETROREFLECTIVE LEGEND ON A GREEN RETROREFLECTIVE BACKGROUND, BOTH SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE III.
- CORNERS SHALL BE ROUNDED TO A 1/2 INCH RADIUS.
- ALL LINES OF TEXT SHALL BE CENTERED HORIZONTALLY AND SHALL BE AS IDENTIFIED IN THE PLANS. THE THREE LINES OF TEXT WILL EACH CONTAIN FOUR NUMERALS.
- WHEN INSTALLED ON ITS OWN POST, A SINGLE 14 GAGE, 1.75 INCH SQUARE STEEL POST AND 12 GAGE, 2 INCH SQUARE ANCHOR SHALL BE USED FOR INSTALLATION. THE ANCHOR SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
- ALL DIMENSIONS SHOWN IN INCHES.

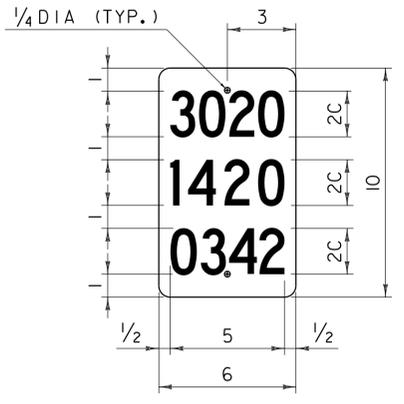
OTHER STDS. REQUIRED: **T-45**



**VD-700 INSTALLATION DETAIL SUPPLEMENTARY SIGN**



**VD-700 INSTALLATION DETAIL**



**VD-700**

REVISIONS AND CORRECTIONS  
APRIL 9, 2014 - ORIGINAL APPROVAL DATE

APPROVED  
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HIGHWAY SAFETY & DESIGN ENGINEER  
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DIRECTOR OF PROGRAM DEVELOPMENT  
*[Signature]*  
FEDERAL HIGHWAY ADMINISTRATION

**MILEMARKER DETAILS  
STATE AND TOWN  
HIGHWAYS**



**STANDARD  
T-44**

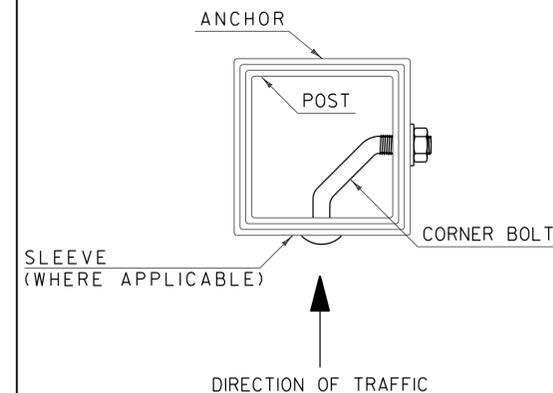
## POST AND ANCHOR SELECTION CHART

POST SIZE (IN.)	POST THICKNESS (IN.)	POST WEIGHT (LBS./FT.)	POST GAGE	SECTION MODULUS (IN. <sup>3</sup> )	ONE POST SV	TWO POST SV	THREE POST SV	POSTS PERMITTED IN 8' PATH	ANCHOR SIZE (IN.)	ANCHOR GAGE	MINIMUM ANCHOR LENGTH
1.75	.083	1.88	14	0.222	45	90	135	TWO	2.00	12	30
2.00	.109	2.42	12	0.393	80	160	240	TWO	2.25	12	48
2.50	.109	3.35	12	0.673	137	274	411	ONE	3.00	7	48

### NOTES:

- ALL SIGN POSTS SHALL HAVE  $\frac{7}{16}$  INCH HOLES EVERY ONE INCH ON CENTER (ALL FOUR SIDES).
- THE NUMBER OF SIGN POSTS PERMITTED WITHIN AN EIGHT FOOT PATH ASSUMES THAT THE SIGN ASSEMBLY IS NOT PROTECTED BY GUARDRAIL OR IS LOCATED WITHIN A GUARDRAIL'S DEFLECTION DISTANCE DETERMINED PER THE CURRENT "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) ROADSIDE DESIGN GUIDE. ADDITIONAL POSTS MAY BE INSTALLED USING SLIP BASES THAT MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
- TO USE THE SELECTION VALUE (SV) COLUMNS IN THE TABLE ABOVE, MULTIPLY A SIGN'S SURFACE AREA IN SQUARE FEET ( $H \times L$ ) BY THE SIGN'S HEIGHT IN FEET MEASURED FROM THE GROUND TO THE CENTROID OF THE SIGN ASSEMBLY ( $h$ ). THIS RESULT MUST BE LESS THAN OR EQUAL TO THE CORRESPONDING SELECTION VALUE. NOTE THAT FOR SIGNS WITH MULTIPLE POSTS, THE LARGEST HEIGHT DIMENSION SHALL BE USED TO CALCULATE THE POST SELECTION VALUE.
- THE DESIGN CRITERIA UTILIZED IN SIGN POST AND ANCHOR SELECTION IS AS FOLLOWS: WIND SPEED OF 70 MPH (10 YEAR MEAN RECURRENCE INTERVAL), WIND PRESSURE OF 19 PSF, STEEL MINIMUM YIELD OF 55,000 PSI, AND AN ALLOWABLE STRESS OF 1.4 (0.60 F<sub>y</sub>).

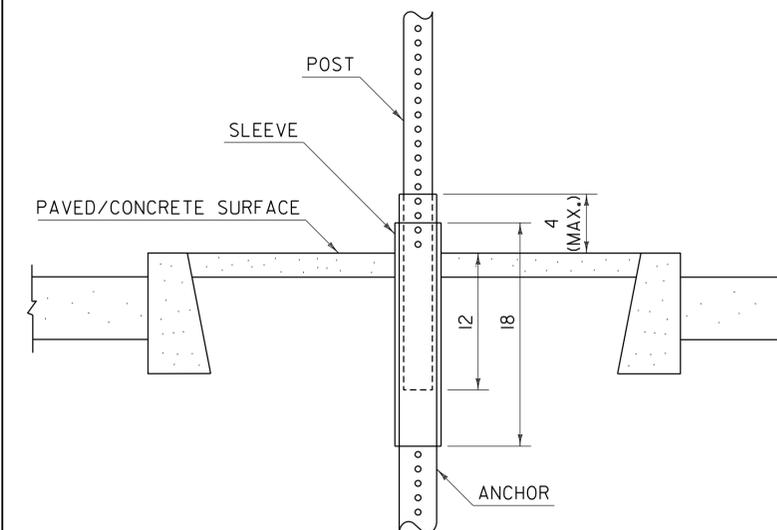
### CORNER BOLT INSTALLATION DETAIL



### NOTES:

- CORNER BOLTS SHALL BE  $\frac{5}{16}$  INCH DIAMETER WITH 18 THREADS PER INCH AND DIMENSIONS SHALL BE DETERMINED BASED ON THE OUTERMOST DIMENSION OF THE SLEEVE, ANCHOR OR POST. THREAD EXPOSURE MUST EXCEED THE CORRESPONDING NUT WIDTH. THE CORNER BOLT AND CORRESPONDING HARDWARE SHALL BE ZINC PLATED, MEETING OR EXCEEDING THE REQUIREMENTS OF THE "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) A307.

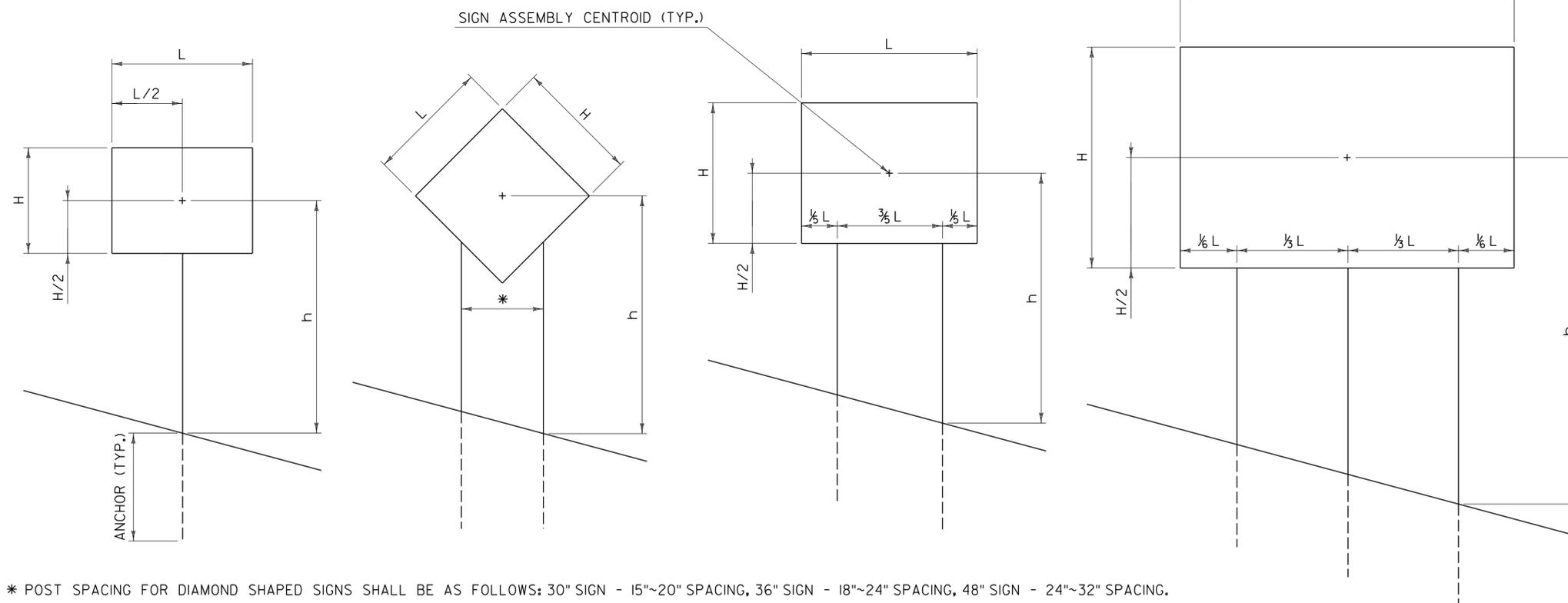
### SLEEVE /ANCHOR INSTALLATION DETAIL



### NOTES:

- A SLEEVE SHALL BE INSTALLED FOR SIGN INSTALLATIONS IN CONCRETE OR PAVEMENT.
- THE SLEEVE SHALL BE 18 INCHES MINIMUM IN LENGTH.
- THREE INCH SLEEVES THAT DO NOT HAVE HOLES WILL REQUIRE THAT  $\frac{7}{16}$  INCH HOLES ARE DRILLED TO FACILITATE CONNECTIONS.
- REFER TO CURRENT EDITION OF THE "VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION" FOR MATERIAL REQUIREMENTS.

### POST SPACING DETAILS



### GENERAL NOTES:

- ALL SQUARE TUBE STEEL POSTS AND ANCHORS SHALL BE FORMED INTO A SIZE AND SHAPE IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.
- ANCHORS MAY BE DRIVEN OR SET INTO A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION METHOD SHALL BE UTILIZED IN AREAS WITH POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER.
- THE TOPS OF SIGN POSTS SHALL BE AT OR NEAR THE TOP OF SIGN. THE POST SHALL NOT EXTEND ABOVE THE TOP OF SIGN.
- SIGN POSTS SHALL BE INSTALLED A MINIMUM OF ONE FOOT BELOW GROUND, INSIDE THE ANCHOR. THE LENGTH OF ANCHOR EXPOSED ABOVE GROUND SHALL NOT EXCEED FOUR INCHES.
- ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS. REQUIRED: NONE**

REVISIONS AND CORRECTIONS  
JAN. 2, 2013 - ORIGINAL APPROVAL DATE

APPROVED  
*[Signature]*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*[Signature]*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*[Signature]*  
MARK B. RICHTER  
FEDERAL HIGHWAY ADMINISTRATION

## SQUARE TUBE SIGN POST AND ANCHOR



# STANDARD T-45