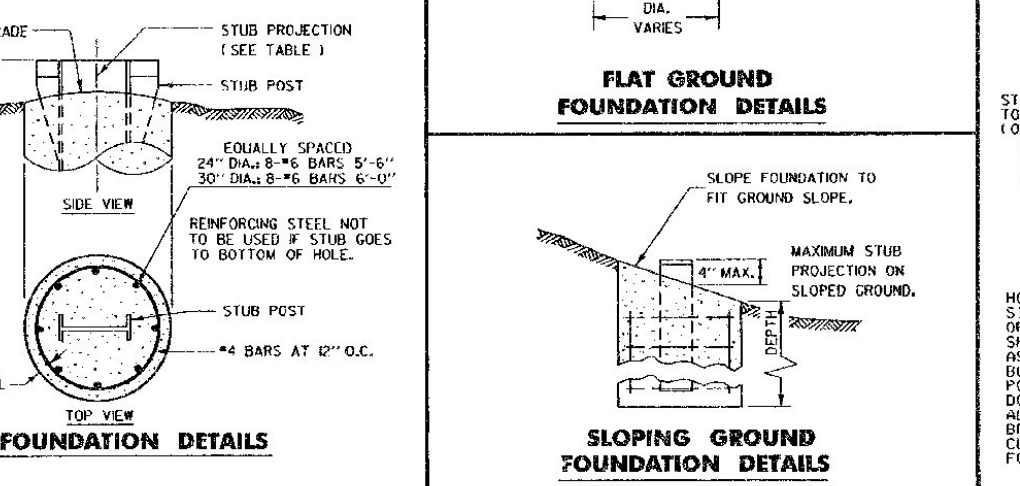
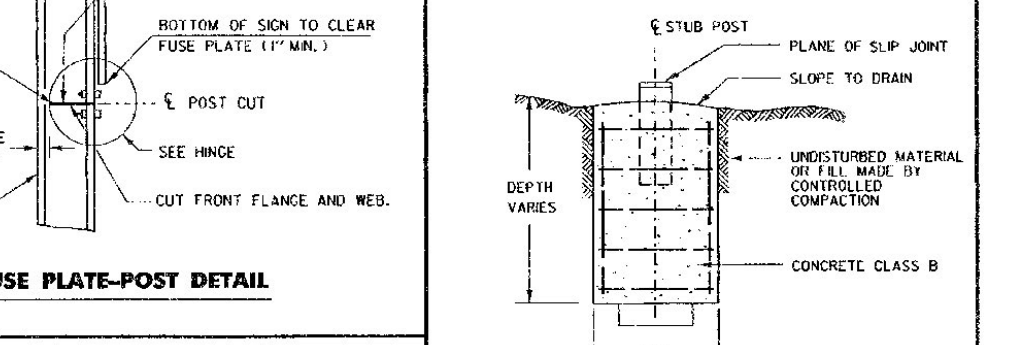
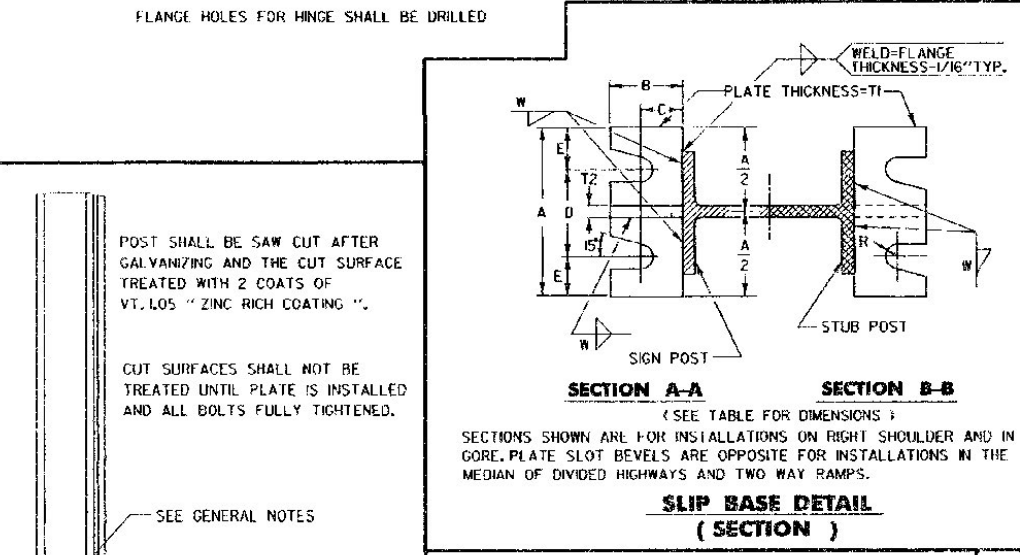
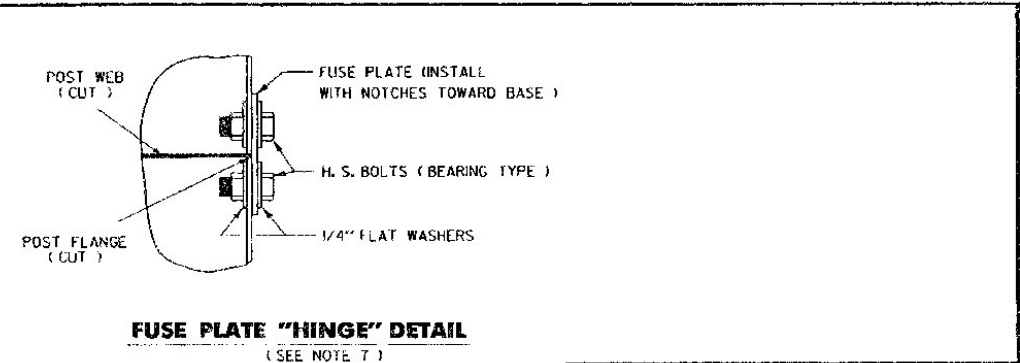


REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
 MAR. 21, 1988 - FHWA COMMENTS
 JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE
 OCT. 21, 1992 - REVISED NOTES AND POST SPACING REQUIREMENTS
 AUG. 18, 1995 - REVISED GENERAL NOTE 4

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



APPROVED

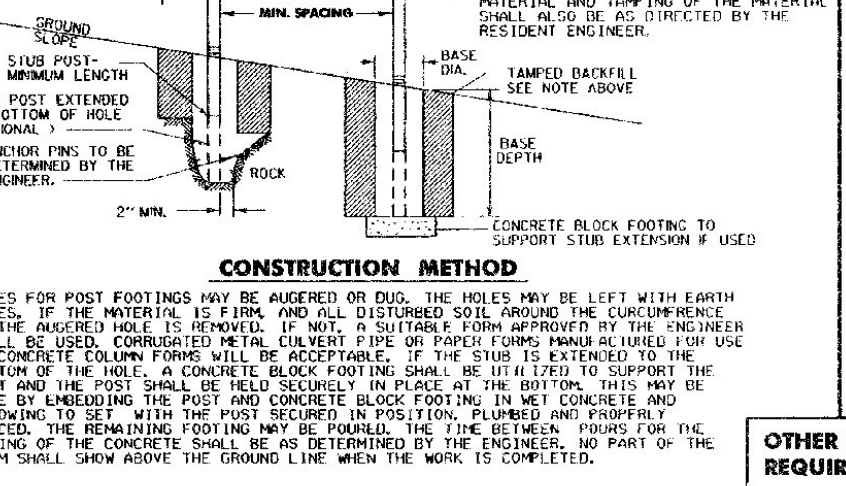
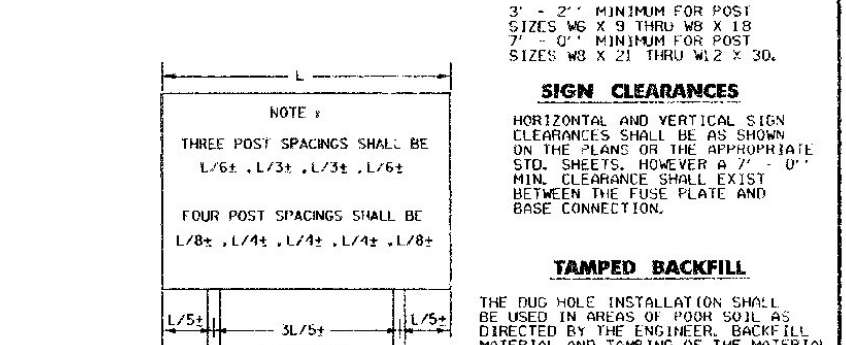
Sandra S. MacArthur
 DIRECTOR OF ENGINEERING

David O. Ross
 TRAFFIC AND SAFETY ENGINEER

POST SIZE	BASE CONNECTION DATA TABLE										FUSE PLATE DATA TABLE										FOUNDATION DATA					
	BOLT SIZE	A	B	C	D	E	T1	T2	W	R	F	G	H	J	K	L	N	DI	T3	BOLT DIA.	BASE DIA.	BASE DEPTH	MIN. STUB LENGTH	STUB PROJ.	VOLUME OF SINGLE BASE	
W6X9																										
W6X12	5/8" Ø x 3 1/2"	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	1/2"	3 3/8"	2"	1 1/8"	4"	2 1/4"	3/8"	1/2"	3/8"	1/4"	1/2"						
W6X15	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	24"	6'-0"	3'-0"	2 1/2"	0.70 C.Y.	
W8X18	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
W8X21	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
W10X22	3/4" Ø x 4 1/2"	6"	2 1/4"	3 3/8"	3 1/2"	1 1/4"	1"	3/4"	3/8"	1/2"	5 1/4"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	3/4"	1/2"	1/2"	30"	6'-6"	3'-0"	2 1/2"	1.2 C.Y.		
W10X26	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
W12X30	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	

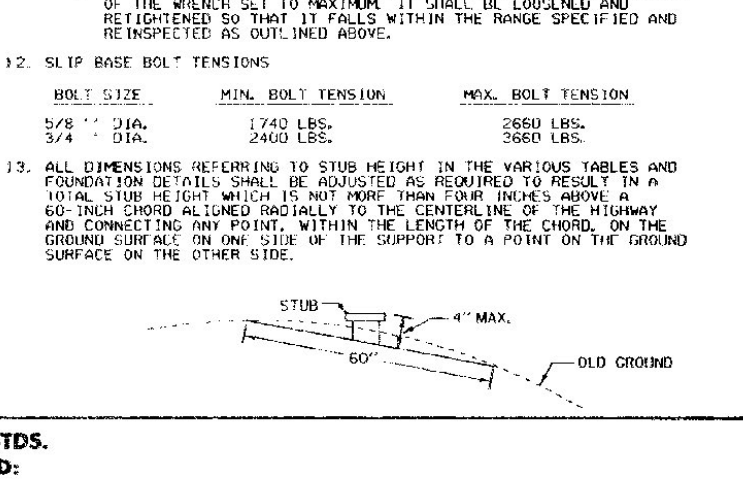
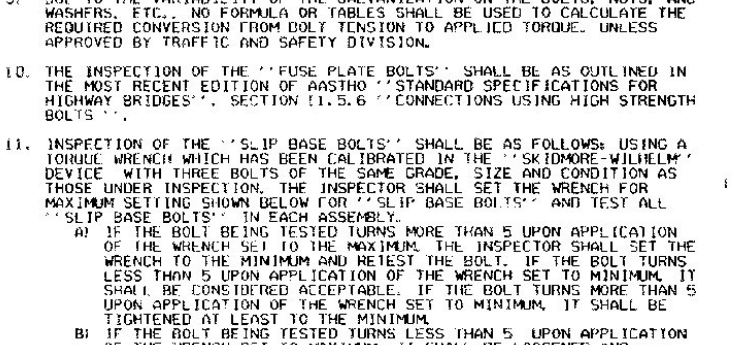
* 5/8" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 INCHES
 ** 3/4" BOLTS SHALL HAVE A MINIMUM THREAD LENGTH OF 2 1/4 INCHES. THESE BOLTS SHALL BE FURNISHED WITH TWO NUTS FOR EACH BOLT.

- PROCEDURE FOR ASSEMBLY OF BASE CONNECTION**
1. MAKE SURE ALL BOLTS ARE FROM THE SAME STOCK.
 2. TRY NUTS ON BOLT THREADS MAKING SURE THEY TURN EASILY.
 3. PLACE (3) BOLTS IN "SKIDMORE - WILHELM" DEVICE. TORQUE TO PROPER TENSION IN DEVICE. CALIBRATE TORQUE WRENCH BY CHECKING ON THESE THREE BOLTS WHEN UNDER PROPER TENSION IN DEVICE.
 4. USE THE AVERAGE OF THE THREE TORQUES ON SIMILAR BOLTS IN THE REAL SUPPORT.
 5. ASSEMBLE POSTS TO STUB WITH BOLTS AND WITH THREE 1/4" FLAT WASHERS. (ONE EACH UNDER HEAD OF BOLT, BETWEEN PLATES, AND UNDER NUT.)
 6. SHIM AS REQUIRED TO PLUMB POST.
 7. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH A 12" TO 15" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS. THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TENSION.
 8. THE BASE PLATE BOLTS WILL BE TORQUED TO PRESCRIBED BOLT TENSION SHOWN BELOW. AFTER THE INITIAL TORQUING USE A SECOND NUT TO INSURE THAT THE FIRST NUT WILL NOT BACK OFF. THE CONTRACTOR WITH THE AGENCY INSPECTOR WILL RETURN TO THE SIGN TWO MORE TIMES AT INTERVALS OF 30 DAYS FOR THE PURPOSE OF CHECKING AND RE-ESTABLISHING THE PRESCRIBED TORQUE. THE SECOND NUT SHALL REMAIN AS A LOCK NUT.
 9. THE "SKIDMORE - WILHELM" DEVICE IS AVAILABLE THROUGH THE V.A.O.T. CONSTRUCTION DIVISION.



- GENERAL NOTES**
1. DESIGN CONFORMS WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.
 2. MATERIAL AND FABRICATION SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS AND SPECIFICATIONS.
 3. THE POST CUT SHALL BE A SAW CUT ONLY. ALL OTHER CUTS EXCLUDING POST CUTS MAY BE FLAME CUT PROVIDED ALL EDGES ARE GROUND SMOOTH. METAL PROJECTING BEYOND THE PLATE FACE WILL NOT BE PERMITTED. ALL POST HOLES SHALL BE DRILLED.
 4. ALL SAW CUTS SHALL BE PAINTED WITH AN APPROVED COATING.
 5. EXTREME CARE SHOULD BE TAKEN TO KEEP THE SLIP JOINT FREE OF ANY FOREIGN MATERIAL, EITHER BY WRAPPING THE JOINT OR THOROUGH CLEANING IMMEDIATELY AFTER POURING OF CONCRETE.
 6. ALL FUSE PLATE BOLTS SHALL BE TIGHTENED BY THE FABRICATOR TO THE PRESCRIBED BOLT TENSION. THE CONTRACTOR WILL BE HELD RESPONSIBLE TO CHECK AND CERTIFY THAT THE REQUIRED RESIDUAL TENSIONS ARE OBTAINED.
 7. THE TOTAL WEIGHT OF TWO (2) POSTS WITH 3' - 2" SPACING OR A SINGLE POST OF A TWO (2) POSTS INSTALLATION WITH 7' - 0" SPACING SHALL NOT EXCEED 800 POUNDS BELOW THE FUSE PLATE.
 8. THE AMOUNT OF TORQUE NECESSARY TO ACHIEVE THE PROPER BOLT TENSION FOR BOTH THE "FUSE PLATE" AND THE "SLIP BASE" SHALL BE DETERMINED BY USE OF A SUITABLE TORQUE WRENCH CALIBRATED IN A "SKIDMORE-WILHELM" DEVICE. THE PROCEDURE FOR CALIBRATING THE WRENCH IS OUTLINED IN THE "PROCEDURE FOR ASSEMBLY OF BASE CONNECTION" ON THIS SHEET.
 9. DUE TO THE VARIABILITY OF THE GALVANIZATION ON THE BOLTS, NUTS, AND WASHERS, ETC., NO FORMULA OR TABLES SHALL BE USED TO CALCULATE THE REQUIRED CONVERSION FROM BOLT TENSION TO APPLIED TORQUE, UNLESS APPROVED BY TRAFFIC AND SAFETY DIVISION.
 10. THE INSPECTION OF THE "FUSE PLATE BOLTS" SHALL BE AS OUTLINED IN THE MOST RECENT EDITION OF AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", SECTION 11.5.6 "CONNECTIONS USING HIGH STRENGTH BOLTS".
 11. INSPECTION OF THE "SLIP BASE BOLTS" SHALL BE AS FOLLOWS: USING A TORQUE WRENCH WHICH HAS BEEN CALIBRATED IN THE "SKIDMORE-WILHELM" DEVICE WITH THREE BOLTS OF THE SAME GRADE, SIZE AND CONDITION AS THOSE UNDER INSPECTION. THE INSPECTOR SHALL SET THE WRENCH FOR MAXIMUM SETTING SHOWN BELOW FOR "SLIP BASE BOLTS" AND TEST ALL "SLIP BASE BOLTS" IN EACH ASSEMBLY.
 - A) IF THE BOLT BEING TESTED TURNS MORE THAN 5 UPON APPLICATION OF THE WRENCH SET TO THE MAXIMUM, THE INSPECTOR SHALL SET THE WRENCH TO THE MINIMUM AND RETEST THE BOLT. IF THE BOLT TURNS LESS THAN 5 UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE CONSIDERED ACCEPTABLE. IF THE BOLT TURNS MORE THAN 5 UPON APPLICATION OF THE WRENCH SET TO MINIMUM, IT SHALL BE TIGHTENED AT LEAST TO THE MINIMUM.
 - B) IF THE BOLT BEING TESTED TURNS LESS THAN 5 UPON APPLICATION OF THE WRENCH SET TO MAXIMUM, IT SHALL BE LOOSENED AND RETIGHTENED SO THAT IT FALLS WITHIN THE RANGE SPECIFIED AND REINSPECTED AS OUTLINED ABOVE.
 12. SLIP BASE BOLT TENSIONS

BOLT SIZE	MIN. BOLT TENSION	MAX. BOLT TENSION
5/8" DIA.	1740 LBS.	2660 LBS.
3/4" DIA.	2400 LBS.	3660 LBS.
 13. 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 RADIAL 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.



OTHER STDS. REQUIRED:

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-161

/traf/std/stdel6.dgn : sta016L