U.S. Department
Of Transportation
Federal Highway
Administration

400 Seventh St., S.W.
Washington, D.C. 20590

March 14, 1991

Refer to: HNG-14/SS-23

Mr. John G. Bestgen, Jr.
Regional Federal Highway Administrator (HEO-01)
Albany, New York

This is in response to your February 19 office memorandum to Mr. Thomas O. Willett, which transmitted a crash test report on the subject breakaway device. This office was requested to determine the acceptability of the device for use on Federal-aid highway projects.

The report dated January 1985 was prepared by the New Jersey Department of Transportation. Testing in accordance with the 1985 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals ("Support Specs") was done by the Southwest Research Institute. The enclosed "Figure 1" shows a drawing of the test article from the New Jersey report. The test vehicles were 1977 or 1978 Honda Civics. The test results are summarized here:

Test Number	**NJ-1**	**NJ-2**	**NJ-3**
Vehicle Weight (pounds)	1771	1812	1743
Impact Speed (m.p.h.)	20.8	59.9	61.4
Impact Angle (degree)	0	0	25
Offset to Vehicle Centerline (inches)	0	15	22
Change in Velocity (f.p.s.)			
Film	7.8	7.9	10.0
Accelerometer	7.2	8.8	10.7
Occupant	7.8	9.9	11.4

These results meet the change in velocity requirements of the AASHTO Support Specifications. Stub-height measurements were not available in this report, but it is evident that, as long as the base is installed low to the ground, it should be easy to meet the 4-inch stub-height requirement.

Thus, the New Jersey Breakaway Couplings are acceptable for use on Federal-aid highway projects within the range of conditions tested, if proposed by a State. This acceptance is limited to breakaway characteristics of the couplings and dos not cover

their structural features. Presumably, New Jersey has investigated the structural design limitations and has detailed installation requirements to ensure proper performance. The State should have assurance from the fabricator that production couplings have essentially the same chemistry, mechanical properties, and geometry as those used in the tests. The State should also be prepared to certify that supports with those bases will meet the FHWA breakaway requirements.

L.A. Staron, Chief
Federal-Aid and Design Division

Geometric and Roadside Design Acceptance Letter SS-23

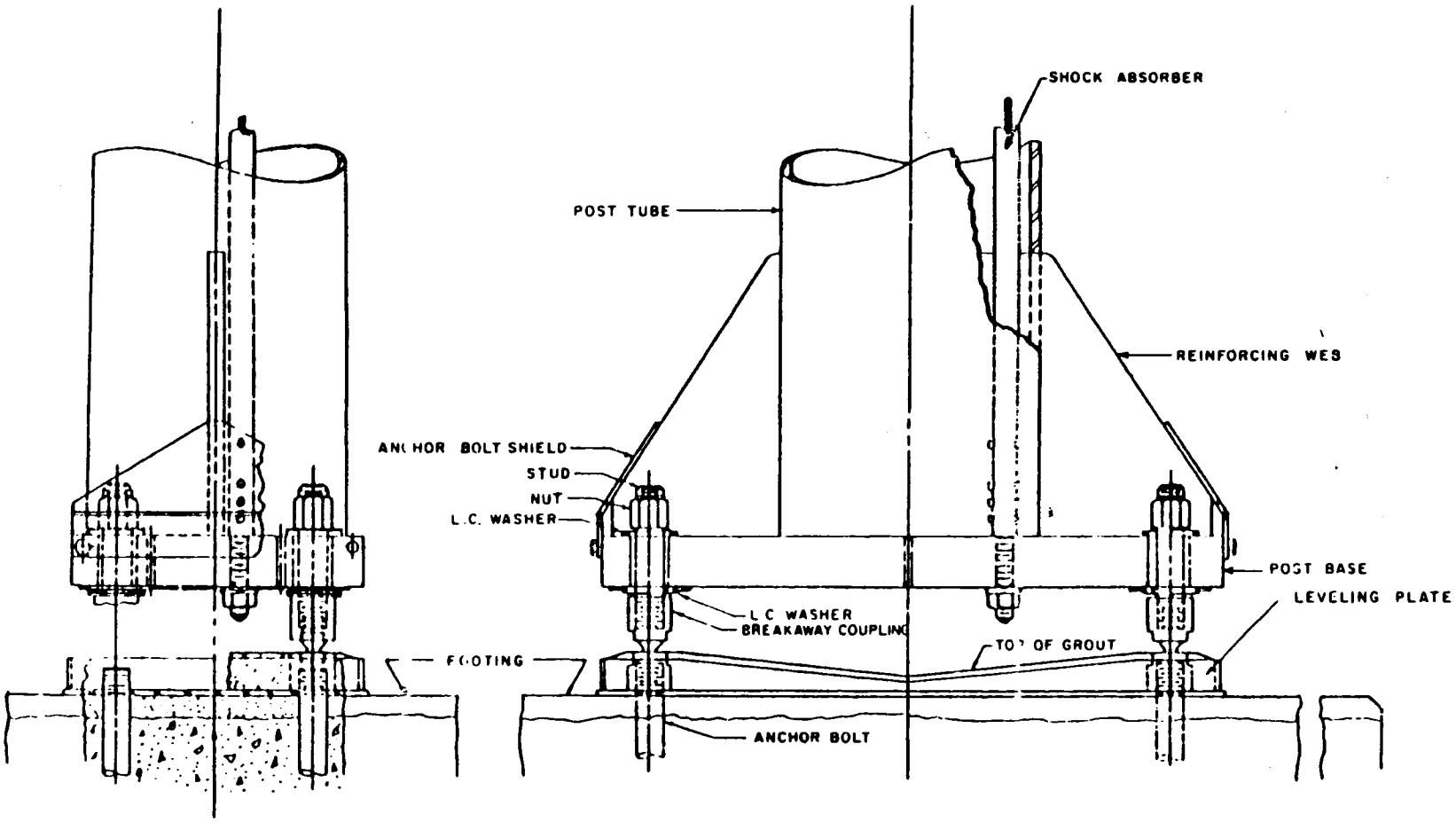

FIG. 1 - BREAKAWAY BASE DETAIL