



U.S. Department
Of Transportation
**Federal Highway
Administration**

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

December 27, 1991

Refer to: HNG-14/SS-13C

Mr. Rick Mauer
District Sales Manager
Marion Steel
58 Suzanne Drive
Portsmouth, New Hampshire 03801

Dear Mr. Mauer:

Thank you for your letter of December 13 transmitting two quarterly reports of research underway on small sign supports. The research is being conducted by the Texas Transportation Institute and is sponsored by the Florida Department of Transportation (FDOT). You requested that we review the reports and find Marion Steel Rib-Bak signposts with a breakaway lap splice at ground level acceptable for use with all soil types on Federal-aid highway projects. We had previously granted acceptance for your company's small sign support system in "strong" soil, only, on August 31, 1989. Up to three posts, each weighing up to 4.4 kg/m (three-pounds-per-foot), or two posts, each weighing 6.0 kg/m (four-pounds-per-foot), were included in that prior acceptance letter. The FDOT breakaway lap splice differs from the currently accepted support splice in that 9.5 mm (3/8-inch) grade A307 bolts spaced at 152 mm (6 inches) are used in the Florida Splice instead of the grade 9 bolts spaced at 100 mm (4 inches) used in the earlier Arizona-sponsored testing. Except that more care must be taken to select the proper fastener and limit the stub height to 100 mm (4 inches), the splices are sufficiently similar that we believe we can expect acceptable breakaway performance, at least for the single post configuration.

The correspondence you sent with your letter included only the summary page for each test, not the complete crash test reports that we need to fully analyze the performance of the test article. Therefore, we are unable to grant unconditional acceptance for use of this sign support system in "weak" soil until we have had the opportunity to review the complete crash test reports.

Because the test results (shown below) appeared so favorable, we contacted the principal investigator, Mr. Lance Bullard of the Texas Transportation Institute, and Mr. Marc Ansley of the FDOT to determine if they know of any reason why we should not use the preliminary results you sent us. They did not, thus on the basis of the information you

supplied, we can accept the use of Florida's single post, breakaway-lap-splice for Rib-Bak U-channel supports for use in all soil types on a project-by-project basis on Federal-aid highway projects if proposed by a highway agency. The test results, all for single-post supports, are as follows:

Test Number	7185-3	7185-4	7185-5	7185-6
Soil Type	Weak	Weak	Strong	Strong
Impact Speed, km/h (mph)	29.6 (18.4)	99.4 (61.8)	31.1 (19.3)	98.3 (61.1)
Veh. Delta V, n/s (fps)	3.1 (10.11)	0.86 (2.83)	1.8 (6.0)	1.7 (5.6)
Occupant Impact, m/s (fps)	0.3 (0.9)	1.3 (4.2)	N/a	N/a

Dual and triple post supports (that is, two or three breakaway posts within a 7-foot path) will not be considered until crash testing is completed under the pooled-fund study "Testing of Small and Large Sign Supports". A dual 6 kg/m (four pound-per-foot) spliced U-channel sign support is scheduled to be tested when work on the pooled-fund study resumes in January.

This letter is to be considered a supplement to our acceptance of August 31, 1989, a copy of which is enclosed for your information. With the exception of the soil type restriction, all other conditions in that letter continue to apply. Also, it should be noted that the 4-inch maximum stub height criteria must be met by placing the lower splice bolt below ground level.

Sincerely yours,

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

Enclosure

Federal Highway Administration
HNG-14:Nartimovich:gm:12-23-91:61331
Copies to:
HPD-1 HNG-1 HNG-10 HNG-14 Reader, 3212
Reader, 3128 Reader, 3206 File, 3128
RAs w/enclosure HHS-12, HSR-20
Marion Steel company Lance Bullard, TTI
Marc Ansley, FDOT

Supplement to Geometric and Roadside Design Acceptance letter SS-13