Dear Dr. Sicking:

In your July 24 letter to Mr. Richard Powers of my staff, you requested formal acceptance of a two-piece bolted breakaway post for use with the SKT and FLEAT w-beam guardrail terminals. The breakaway posts originally tested and accepted for use with these terminals used a one-piece post with a plug welded breakaway design. You presented both static analyses of the bolted design vs. the original plug welded design as well as the results of low-speed bogie tests on individual posts. The layout of the SKT terminal using the modified posts is shown on Enclosure 1. Details for posts 1 and 2 and for the line posts (posts 3-8) are shown on Enclosure 2.

Although your analyses and component testing showed comparable strong- and weak-axis performance of individual posts, I remain concerned about the posts’ equivalency in a redirective impact into the side of the system where the posts are not hit at right angles to either axis and the bolts may not be loaded equally or uniformly. Consequently, I will allow conditional use of the bolted post design with the SKT terminal, but will withhold acceptance of its use with the FLEAT (with its greater flare angle) until successful completion of NCHRP Report 350 test 3-35 on a FLEAT with its full 4-foot offset. I understand you plan to conduct this test in early 2003. In the interim, the field performance of any SKT terminals using the bolted post design should be monitored to verify acceptable crash performance.

Sincerely yours,

(original signed by Harry W. Taylor)

for:
Carol H. Jacoby, P.E.
Director, Office of Safety Design

2 Enclosures
GENERAL NOTES:
1. Breakaway posts are required with the Sequential Kinking Terminal.
2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
3. When the Sequential Kinking Terminal is selected as the end treatment for MBGF installation, the SKT can be flared at a rate of 25:1 to prevent the impact head from encroaching on the shoulder. The flare is not required and may be decreased or eliminated for specific installations.
4. The lower sections of the posts shall not protrude more than 100 mm above the ground (measured along a 1,500 mm cord). Site grading may be necessary to meet this requirement.
5. The lower section of Post #1 should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
6. When rock is encountered, a 200 mm Ø post hole, 500 mm into the rock surface may be used if approved by the engineer. Granular material will be placed in the bottom of the hole, approximately 65 mm deep to provide drainage. The first two posts can be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
7. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.
8. A special site evaluation should be considered prior to using the SKT where there is less than 7.6 m between the outlet side of the terminal and any adjacent driving lane.