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September 25, 2015

BY EMAIL AND U.S. MAIL

Richard Tyler McGrath, Esq.
Senior Assistant Attorney General
Chief, Construction Litigation Section
Office of the Attorney General
Commonwealth of Virginia
900 E. Main Street, 2nd Floor
Richmond, VA 23219

Re: VDOT Testing of the ET PLUS Tangent W-Beam Guardrail Terminal (GR-9)

Dear Richard:

I am writing to follow up on Trinity's inspection of the test articles and vehicle for **Test #3** at the KARCO test facility in Adelanto, California on September 24, 2015. Thank you for taking the time to meet with us and listen to Trinity's various concerns about the installation. Below is a summary of the issues raised by Trinity, and VDOT's response.

1. Trinity noted VDOT's method of mounting the accelerometer in the test vehicle could make the equipment susceptible to erroneous readings. VDOT responded that no adjustments would be made prior to testing.
2. Trinity noted that, based upon its field measurements, the projected angle of impact of the test vehicle into the test article appeared to be less than 15 degrees. VDOT responded that no adjustments would be made prior to testing.
3. Trinity noted that the first section of guardrail was not inserted all the way into the extruder head. VDOT responded that no adjustments would be made prior to testing.
4. Trinity noted that VDOT installed the guardrail posts in native soil rather than compacted NCHRP Report 350-standard soil. VDOT responded that no adjustments would be made prior to testing.
5. Trinity noted that VDOT appeared to be driving the posts into native soil, rather than augering a hole and back-filling the posts with compacted NCHRP Report 350-standard

soil. For this test, VDOT claimed that it was augering the post holes and did not make any adjustments to the post installations.

6. Trinity noted the presence of excess moisture around the posts, which could affect the soil compaction, and asked whether VDOT had used a soil probe to verify moisture content around the posts. VDOT responded that no adjustments would be made prior to testing.
7. Trinity noted that the projected impact point of the small car on the extruder head appeared to line up to the right of center (*i.e.*, towards the passenger side). VDOT responded that no adjustments would be made prior to testing.

Because Trinity's concerns were not fully addressed by VDOT, and the test did not conform to NCHRP Report 350 requirements, Trinity did not attend **Test #3**.

Twice last week, Trinity expressed concerns regarding the run-out area necessary for the 15 degree tests, and whether there is adequate space at the KARCO facility for the test vehicle to travel after impact in that test scenario. Trinity cautioned that a secondary impact with extraneous, other barriers, such as sand or concrete perimeter berms, that are close to the downstream end of the installation could make it difficult to separate damage caused by the impact with the end terminal system from damage caused by any secondary impact with perimeter berms. Based upon an inspection of the Test #3 vehicle this morning, my client understands that the small car test vehicle used in Test #3 may have experienced a secondary impact with a sand berm. Trinity remains concerned that the pickup truck set for Test #4 will also impact the sand berm, or worse, the block wall next to the sand berm. Please let me know what additional planning that VDOT has undertaken with KARCO to account for these run-out and braking issues.

Thank you.

Sincerely,

/s/ Matthew B. Kirsner

Matthew B. Kirsner

cc: Sarah R. Teachout, Esq.
Mr. Gregg Mitchell
Counsel of Record in Case No. CL13-698,
Circuit Court of the City of Richmond, VA