

**Project Title:** Guardrail on Box Culvert  
**State Technical Representative:** Mike Elle with MnDOT  
**TTI Project Manager:** William F. Williams, P.E.  
**Reporting Period:** 03/31/2007-06/30/2007

**Project Objective:**

Develop a guardrail design for typical box culverts that will meet TL-3 requirements of NCHRP Report 350. This design will also simplify contractor installation through the use of an epoxy adhesive anchor system to anchor the post anchor bolts to the concrete box culvert.

**Work Performed to Date:**

The final designs were approved for W6x9 and W8x21 guardrail posts.

**Results of Work Performed:**

The RE 500 Adhesive Epoxy anchoring system manufactured by Hilti Incorporated was approved for use in the designs. Posts (W6x9) have been fabricated and are ready for pendulum testing. Two simulated precast concrete deck designs have been constructed and are ready for testing. Hilti's RE 500 Adhesive anchoring System will be used to anchor the four 7/8-inch diameter high A193-B7 anchor bolts for each post.

**Work Remaining to be Completed:**

Pendulum testing is schedule for July, 2007. If the pendulum testing proves successful, a full scale installation will be constructed using the design for full scale crash testing. This full scale crash test will be performed after the pendulum testing.