Mr. Michael S. Griffith’s April 9, 2003, memorandum (acceptance letter B-64D) identified several crash tested aesthetic roadside/median barriers and bridge railings that were developed in conjunction with Federal Lands Highway and the National Park Service. Since then, additional designs have been developed and successfully tested under NCHRP Report 350 guidelines or are similar to tested designs and considered to be equivalent. Information on the designs listed below was compiled by Cathy Satterfield, Safety Engineer, Central Federal Lands Highway Division, and was submitted for formal acceptance. Each design is acceptable for use on the NHS and is considered to meet NCHRP Report 350 evaluation criteria at the test levels indicated:

- Tubular Steel-Backed Timber (TSBT) Bridge Rail and Transition – TL-3 (Attachments 1 and 2)
- Steel-Backed Timber Guardrail Transition to Straight Stone Masonry Guardwall Parapet – TL-3 (Attachment 3) *
- Steel-backed Timber Round Log Rail – TL-2 (Attachment 4)
- Steel-Backed Timber Guardrail Transition to Straight Stone Masonry Guardwall Parapet – TL-2 (Attachment 5)
- Steel-Backed Timber Guardrail Transition to Curved Stone Masonry Guardwall Parapet – TL-2 (Attachment 6)

* Note that this transition is a modified version of the crash-tested design which was considered unacceptable due to occupant compartment intrusion resulting from wheel interaction with the timber rail/rubrail. The added curb creates a vertical transition profile that is similar to that of the successfully tested transition design for the Merritt Parkway aesthetic guiderail. The curb is expected to prevent the wheel from folding under the rail elements, reducing snagging to an acceptable level, and resulting in acceptable performance.
Additional drawings and specifications for the designs listed above will be posted at [http://efl.fhwa.dot.gov/techdev](http://efl.fhwa.dot.gov/techdev) under Aesthetic Barriers. In the meantime, anyone seeking detailed plans and specifications for any of these features, including CADD files (Microstation format only), should contact Ms. Cathy Satterfield via telephone at (303) 716-2035 or via e-mail at Cathy.Satterfield@fhwa.dot.gov.

6 Attachments
RAIL NOTES:

GENERAL: This rail is fabricated from the Texas Department of Transportation Traffic Rail Type T10 standard drawing dated December 2001.

MATERIALS: Steel for rail parts, base plates, chins, splice sleeves, and anchor assembly plates shall conform to ASTM A36. Structural tubing for rails shall conform to ASTM A500, Grade B. All metal components of the bridge rail except post base shoes, anchor assemblies, and rail splice sleeves shall be painted. Post base shoes, anchor assemblies, and rail splice sleeves shall be galvanized. Hex bolts shall conform to A307C, WSH WSH 80425. Hex coupling nuts shall conform to ASTM A194. Structural tubing for rails shall conform to ASTM A500. For painting see Special Contract Requirements.

FABRICATION: Structural steel shall be shop fabricated. Submittal shop drawings to the CD for approval prior to fabrication. Provide drawings showing rail section lengths, splice locations, rail post spacing, and fastener lengths. Rail rails shall conform to ANSI/AASHTO A585.3, shall be by a certified welder. All steel shall be fabricated before being galvanized or painted.

RAIL SPACES: Spacing of sections of TS 102 x 102 rails shall be continuous over a minimum of three posts.

NECK CEMENT DOWEL: Provide neat cement dowel consisting of a mixture of cement and water mixed to a smooth viscous paste.

ELECTION: Erect the rail parallel to grade.

TIMBER: Conform to Subsection 10.01 of the FP-96.

W52 round head square neck bolt with standard washer, lock washer, and hex nut, (except for rail splice), all rail splice bolts tightened to snug position and provided standard washer with hex nut and hex lock nut.

ANCHOR ASSEMBLY:

1. 5/8" x 20 mm lag screw (Type II)
2. 3/4" bolts
3. 3/4" washer and hardened washer
4. 20 mm #8 holes in tubes (Type II)
5. Double hex bolt
6. 20 mm #8 holes in tubes (Type II)
7. 3/4" holes in tubes (Type II)
8. 1 1/4" post in tubes (Type II)
9. 1 1/4" post in tube (Type II)
10. 3/4" holes in tubes (Type II)

PLAN VIEW @ POST

SECTION C-C

SECTION D-D

SECTION E-E
1. Dimensions not labeled are in millimeters.
2. For details of the wood block-out, post notch, and general notes for Steel-Backed Log Guardrail See Standard M67-B.
3. Furnish hardware in the metric sizes shown. Equivalent imperial sizes may be used when metric sizes are not available.
See DET 677-65B for Sections A/A through C/C, steel rail layouts, and other details. See DET 677-65C for rubber details, spacer blocks, and parapet connection details.

2. Use weathering steel for all structural steel and fastener hardware.