

SECTION 617 GUARDRAIL

617.01 **DESCRIPTION** – Delete the text of this sub-section and substitute the following:

This work shall consist of the construction of metal guardrail in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or as established by the Contracting Officer. The guard rail system is G4, Blocked-out, "W" Beam, standard barrier guard rail, having steel posts and the use of new plastic blocks, designed for used with guardrails, having a sequential type terminal end system.

The construction of this system shall include the assembly and erection of all component parts and materials complete at the locations shown on the plans or as directed.

Details for the sequential type kinking terminal system and components shall be as per manufacturer's shop drawings, detailing the items indicated on the plans.

617.02 **MATERIAL** – Delete the text of this sub-section and substitute the following:

- a. Concrete. Concrete and material for concrete work shall conform to Section 601.
- b. Galvanized Steel Rail. Steel rail elements shall be corrugated sheet steel beams for highway guardrail conforming to the requirements of AASHTO M 180 for W-Beam shape indicated on the plans. Corrugated sheet steel beam shall be Class B with metal thickness of 0.135 inches, and Type I zinc coating of 1.80 ounces per square feet.
- c. Guardrail Line Post. Guardrail line post, other than required for sequential type kinking system, shall be W6x9 galvanized steel posts conforming to 2002 AASHTO-AGC-ARTBA, "A Guide to Standardized Highway Barrier Hardware". Zinc coating shall be 1.80 ounces per square feet.
- d. Guardrail Block. New or recycled plastic block from approved manufacturers for use on highway guardrails as accepted by the Federal Highway Administration meeting the test requirements of NCHRP Report 350, and the Department of Public Works, Commonwealth of the Northern Mariana Islands.
- e. Guardrail Hardware. Guardrail hardware to conform to the AASHTO-AGC-ARTBA, A Guide to Standardized Highway Barrier Hardware, 2002 Edition.
- f. Reflector Tabs. Galvanized steel sheet, 0.15 inch thick. Adhesive shall resist peeling from a minimum force of 5 pounds per inch of width. Use mildew resistant adhesive, which has no staining effect on the retroreflective sheeting.
- g. Wire Cable. Cable to be galvanized with zinc coating of 1.80 ounces per square feet and shall conform to AASHTO M30.

- h. Slotted Rail Terminal End System. The system shall be the SRT 350, consisting of steel breakaway posts that are typically reusable after NCHRP Report 350 criteria impacts. The SRT 350 system shall be from an approved manufacturer whose system has met the test requirements of NCHRP Report 350 and accepted by the Federal Highway Administration.

CONSTRUCTION REQUIREMENTS

Add the following text:

Construction shall conform to the requirement specified herein and to the latest edition of the Standards or directives issued by the Secretary, Department of Public Works, Commonwealth of the Northern Mariana Islands.

617.03 POSTS - Add the following text:

- a. Typical line posts (non-breakaway type) shall be set plumb in hand or mechanically dug holes, and held securely in place while casting the concrete foundation. Post excavated holes shall backfilled with acceptable material, placed in layers, and thoroughly compacted. When it is necessary to cut post holes in existing paving, all loose material shall be removed and the paving replaced in kind.
- b. Breakaway End and Line Posts. Install as specified by the manufacturer of the sequential end terminal system, SRT 350.

617.04 RAIL ELEMENTS - Add the following text:

- a. Steel Rail. Rail elements shall be erected according to plan details and in a manner resulting in a smooth, continuous installation with laps in the direction of traffic flow. All bolts, except adjustment bolts, shall be drawn tight. Bolts shall be sufficient length to extend beyond the nuts by more than one inch.

Where painting of railing components is specified, any damage to the shop coat of paint shall be corrected by an application of an approved rust-inhibitive primer prior to other painting. Non-galvanized surfaces inaccessible to painting after erection shall be field painted before erection. The railing components shall be given the specified number of coats of paint uniformly applied by through brushing or by approved pressure spray as specified.

Galvanized surfaces, which have been abraded so that the base metal is exposed, threaded portions of all fittings and fasteners and cut ends of bolts shall be painted with two coats of zinc-dust, zinc-oxide paint conforming with Federal Specification TT-P-641.

617.05 TERMINAL SECTIONS - Add the following text to this subsection:

Construct terminal sections at the locations shown. The terminal section shall be the ET 2000 Plus system consisting of breakaway end line posts, railing, cable anchorage assembly, soil tube anchors, impact head unit, and required hardware. The ET 2000 Plus system shall be from an approved manufacturer whose system has met the NCHRP report 350 test requirements and has been accepted by the Federal Highway Administration. Contractor to install this system, per manufacturer's requirements.

Contractor to submit for approval by the Contracting Officer the name of the manufacturer of the ET 2000 Plus system, their product data and specifications, the system's shop drawings, and a copy of the acceptance letter from FHA accepting the manufacturer's system for use as a terminal section in guardrails.

- 617.09** **ACCEPTANCE** - Add the following: Guardrail material will be accepted under Subsection 106.02 and 106.03.

Guardrail system construction will be evaluated under Subsections 106.02 and 106.04.

- 617.10** **MEASUREMENT** - Delete the text of this subsection and substitute the following:

- a. G4, W-Beam guard rail will be measured by the linear foot from center of end posts not including the SRT 350 terminal system including accessories and mow strip pad. Double faced rail attached to the same post will be measured as a single unit.
- b. Measure the end terminal section system set SRT 350, for G4 W-Beam Guardrail, by the each for the length indicated on the plans.
- c. End anchorages are to be included in the quantities for the guardrail system for their respective type and it will not be measured separately for payment.
- d. Concrete and related work are to be included in the quantities for the guard rail system and it will not be measured and paid for separately. It will be considered a subsidiary obligation of the Contractor.
- e. Excavation and Backfill per Section 209 are to be included in the quantities for the guard rail system and it will not be measured and paid for separately. It will be considered a subsidiary obligation of the Contractor.

- 617.11** **PAYMENT** - Delete the pay item and substitute the following:

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
61701	Guardrail System G4, W-Beam, Type I, Class B with plastic blocks (Including accessories and mow strip pad,	Linear Foot

Complete-in-place)

61702	End Terminal Section, Type SRT 350 Including accessories, complete-in-place	Each
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END OF SECTION 617