

Make the following Section a part of the Standard Specifications:

**"SECTION 693 - QUADGUARD SYSTEM
TERMINAL IMPACT ATTENUATOR**

693.01 Description. This section is for furnishing and installing a Quadguard System terminal impact attenuators at the prepared sites according to the contract.

693.02 Materials. Materials shall conform to the following:

Concrete Structures 503.02

Reinforcing Steel 602.02

The Quadguard System terminal impact attenuator shall consist of crushable cartridge assemblies surrounded by a framework of steel Quad-beam guardrail which can telescope rearward during head-on impacts. The Quadguard System shall have a center monorail which resist lateral movement during side angle impacts. The nose shall consist of a formed plastic nose wrap.

Concrete shall conform to Section 601 - Structural Concrete. Compressive strength shall be 4000 psi at 28 days.

693.03 Construction Requirements.

(A) Equipment List and Drawings. Within 10 working days following the Award of Contract, submit to the Engineer for acceptance 6 copies of a list of materials and equipment to be incorporated in the work. The list shall include the name of the manufacturer, dimensions and catalog number of the unit, detailed scale drawings of special equipment, shop drawings for fabrication and proposed deviations.

(B) Site Preparation. Before installing the Quadguard System terminal impact attenuator, prepare the site as shown in the contract or specified by the Engineer. Excavate and backfill according to the Section 206 - Excavation and Backfill for Conduits and Structures. Exercise extreme care so as not to damage underground facilities. Repair damages by the Contractor immediately at no cost to the State.

The placing and curing of the concrete shall conform to Section 503 - Concrete Structures.

The placing of reinforcing steel shall conform to Section 602 - Reinforcing Steel and the manufacturer's recommendations.

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(C) Quadguard System Terminal Impact Attenuator. Install Quadguard System terminal impact attenuator according to the recommendations of the manufacturer. Provide training for the installation of the system in the field for a period not to exceed three hours. Also provide a minimum of 8 hours of training at the District Office for the installation and maintenance of the system. Furnish five copies of specially prepared manual on the installation and maintenance of the system.

693.04 Method of Measurement. The Engineer will measure Quadguard System terminal impact attenuator per each.

The Engineer will measure unassembled replacement cartridge cells per cell as specified in the proposal.

The Engineer will measure unassembled replacement nose section cover and cartridge cell per each.

693.05 Basis of Payment. The Engineer will pay for the accepted quadguard terminal impact attenuator at the contract unit price per each. The price includes full compensation for doing work necessary for installing the quadguard system terminal impact attenuator complete in place including site preparation, excavation, backfill, reinforced concrete foundation, and services for training and furnishing labor, materials, tools, and equipment, and incidentals necessary to complete the work.

The Engineer will make payment under:

Pay Item	Pay Unit
Quadguard System Terminal Impact Attenuator _____	Each"

END OF SECTION