

## SECTION 65

### RIPRAP

#### 65.1 DESCRIPTION

##### A. General

This work consists of furnishing and placing approved material for the protection of piers, abutments, walls, embankments, and other plan-designated locations.

##### B. Related Work

Section 109 Riprap and Slope Materials  
Section 124 Fabric Formed Concrete Mat Material  
Section 125 Gabions

#### 65.2 MATERIALS

Riprap shall conform to the requirements of Section 109.

#### 65.3 CONSTRUCTION REQUIREMENTS

Slopes to be protected by riprap shall be free of brush, trees, stumps, and other objectionable material and shall be dressed to a smooth surface. Soft or spongy material shall be removed to the depth shown on the plans or as directed by the Engineer and replaced with approved material. Filled areas shall be thoroughly compacted. A trench at least one (1) foot deep and one (1) foot wide shall be cut along the toe of the slope to receive the first or bearing course of large riprap stone.

Protection for structure foundations shall be provided as early as the foundation construction permits. The area to be protected shall be cleaned of waste materials.

Riprap shall be placed in a manner, which will produce a reasonably well graded mass of stone with the minimum practicable percentage of voids. Riprap shall be placed to its full course thickness in one operation and in such a manner as to avoid displacing the underlying material. Placing of riprap in layers, or by dumping into chutes, or similar methods likely to cause segregation will not be permitted. The larger stones shall be well distributed, and the entire mass of stone shall conform to the gradation specified. Material going into riprap protection shall be placed and distributed so there will not be large accumulations of either the larger or the smaller size of stone.

To produce a compact riprap protection in which all sizes of material are placed in their proper proportions, hand placing or rearranging of individual stones by mechanical equipment may be required.

The riprap protection shall be placed in conjunction with the construction of the embankment. To prevent mixture of embankment and riprap, sufficient lag in construction of the riprap may be necessary. The Contractor shall maintain the riprap protection until accepted, and any material displaced by any cause shall be replaced at no additional cost to the Owner.

**65.4 METHOD OF MEASUREMENT**

Riprap will be measured to the nearest one-tenth (0.1) ton or one-tenth (0.1) cubic yard in accordance with the Bid Proposal.

**65.5 BASIS OF PAYMENT**

Riprap will be paid for at the contract price per ton or cubic yard of material furnished in accordance with the Bid Proposal.

Payment for this item will be full compensation for furnishing, loading, hauling, placing, spreading the stone, and for labor and equipment required for shaping, excavating and performing sub aqueous operations necessary.

**END OF SECTION**