

SECTION 2400 - RIPRAP AND GABIONS

PART 1 - GENERAL

1.01 SCOPE: This Section covers riprap-and rock-filled gabions for erosion protection and retaining structures. Topics included are materials; filter fabric; filter course; placement by dumping; hand placement; grouting of riprap; and gabion installation.

1.02 RELATED WORK: Refer to the following sections for related work:

Concrete Curing
Filter Fabric

Section 4000-Concrete Materials and Methods
Section 2000-Earthwork

PART 2 - PRODUCTS

2.01 STONE RIPRAP: Stone meeting the requirements of KDOT Standard Specifications Subsection 1116, stone for riprap. Unless indicated otherwise, the light 24-inch size shall be used (grading for light 24-inch: 50 percent of the mass consists of rock over 200 pounds and not more than 10 percent earth or rock less than 5 pounds). Concrete rubble is not acceptable.

2.02 FILTER COURSE FOR RIPRAP: Crushed stone or gravel meeting the requirements of KDOT Standard Specifications Subsection 1116, stone for filter course Type I, and meeting the following gradation:

<u>Sieve Size</u>	<u>Percent Retained</u>
5-inch	0
4-inch	0 - 5
2-inch	10 - 40
1-inch	25 - 60
3/8-inch	55 - 85
No. 4	70 - 95

2.03 GABIONS: PVC coated, wire gabions meeting the requirements of KDOT Standard Specifications Subsection 1711. Sizes shall be multiples of standard 3' x 3' x 3' cell. Minimum thickness of blanket gabions shall be 18 inches.

2.04 ROCK FOR GABIONS: Rock for gabions shall be hard dense rock, and shall have a maximum dimension of 8 inches and a minimum dimension of 4 inches. Recycled concrete of the proper dimension is allowed for gabion rock.

PART 3 - EXECUTION

3.01 RIPRAP: Unless otherwise specified, riprap shall receive a dumped treatment. Distribution of large and small stone shall be uniform throughout the mass.

- A. Toe Trench: A trench shall be excavated at the toe of slope to receive riprap. If dimensions not shown on drawings, trench depth and width shall equal specified riprap thickness.
- B. Filter Fabric: Filter fabric shall be placed only where called for in the Special Conditions or project drawings. Edges shall be lapped 12-inches minimum.
- C. Filter Course: Six-inch filter course layer shall be placed over the subgrade for all locations.
- D. Minimum Thickness: Thickness of riprap blanket shall be 150 percent of the dimension of the largest rock.
- E. Dumped Riprap: Stone shall be dumped by truck or bucket into its approximate final location. Handling and dumping shall not cause segregation of stone sizes. Individual stones shall be adjusted to eliminate high and low spots and provide uniform thickness.
- F. Hand Placed Riprap: Where hand placement is indicated, stones shall be laid on edge with ends and sides abutting. Large spaces between stones shall be filled with spalls and spalls rammed into place. The entire surface shall be rammed to obtain a tight even surface conforming to lines and grade.
- G. Grouting: When indicated on the drawings, the spaces between the stones shall be filled with grout. Grout shall be broomed into the voids until they are completely filled. Grout shall be cured as required for flatwork as referenced in Part 1, this Section.

3.02 GABIONS: The placing, wiring, filling, and closing of gabions shall conform to the requirements of KDOT Standard Specifications Subsection 836. Unless indicated otherwise in the Special Conditions or drawings, the standard foundation bedding shall be a 4-inch gravel cushion over filter fabric, and the standard back treatment shall be filter fabric between the gabions and the backfill material.

END OF SECTION 2400