

SECTION 7.04 GABIONS

7.04.01--Description: This work shall consist of furnishing, assembling, tying and filling with approved aggregate, open wire mesh baskets in conformity with the line, grade and dimensions shown on the plans.

7.04.02--Materials: The materials for this work shall conform to the following requirements:

1. Wire Baskets:

(a) **Wire:** The wire mesh shall be made of galvanized steel wire having a minimum size of no less than No. 11 gage. A selvedge wire, running through the edges of the basket shall be made of galvanized steel wire having a minimum size of No. 9 gage. The lacing wire necessary for assembling and lacing the basket units and the connecting wires shall be made of galvanized steel wire having a minimum size of No. 13.5 gage. All wire shall be zinc coated with not less than 0.24 kg/m^2 of uncoated wire, and complying with FS QQ-W-461g, Class 3. The maximum dimension of the mesh opening shall not exceed 115 mm and the area of the mesh opening shall not exceed 9500 mm^2 . The wire mesh shall be fabricated in such a manner as to be non-raveling.

Wire for polyvinyl chloride coated gabions:

The wire mesh shall have a galvanized steel wire core having a minimum size of no less than No. 12 gage. The selvedge wire shall have a steel wire core having a minimum size of no less than No. 10.5 gage. The lacing wire shall have a galvanized wire core having a minimum size of no less than No. 13.5 gage. The mass of the zinc coating for galvanized wire with extruded PVC coating shall be 0.24 kg/m^2 and shall comply with FS QQ-W-461g.

The mass of the zinc coating per galvanized wire with bonded PVC coating shall be 0.03 kg/m^2 .

The minimum PVC coating thickness shall be 0.4 mm. The color of the polyvinyl chloride shall be black unless noted otherwise on the plans.

(b) **Dimensions:** The baskets shall be constructed to the details shown on the plans or as directed. All baskets furnished by the manufacturer shall be of uniform width. All basket units shall be subdivided into equal compartments and separated by diaphragms of the same mesh and gage as the basket body. Each compartment length shall not exceed the compartment's width. The height of the gabion shall not exceed its width.

(c) **Fabrication:** The baskets shall be fabricated in such a manner that the sides, ends, lid and diaphragms can be assembled at the construction site into rectangular baskets of the specified sizes. The baskets shall be of single unit construction. The front, base, back and lid shall be woven into a single unit. The ends shall be factory connected to the base section of the basket in such a manner that strength and flexibility at the point of connection is at least equal to that of the mesh. All perimeter edges of the mesh forming the baskets shall be securely selvedged so that the joints obtained have at least the same strength as the wire mesh itself. Lacing wire shall be supplied in sufficient quantity for securely fastening all edges of the baskets and diaphragms and to provide for the necessary internal connecting wires in each cell.

There shall be four cross connecting wires in each cell whose height is $1/3$ or $1/2$ the width of the gabion and 8 connecting wires in each cell whose height equals the width of the gabion.

(d) **Tests:** (1) Tensile strength of all wire used for manufacturing the baskets and lacing wire shall not be less than 400 MPa in accordance with FS QQW-461g, Class 3. (2) Load and elongation tests shall be conducted in accordance with FS QQ-W-461g, Class 3.

(e) **Certification:** (1) The Contractor shall furnish Certified Test Reports and/or Material Certificates with the requirements set forth in the specifications. (2) The aggregate for this work shall conform to the requirements of Article M.12.02. Each side of the aggregate shall not be less than 100 mm and not more than 330 mm or

7/10 of the basket's smallest dimension, whichever is less. It shall be reasonably well graded between the limiting sizes.

7.04.03--Construction Methods: Each basket unit shall be assembled by binding together all vertical edges with lacing wire on 125 mm spacing or by a continuous piece of lacing wire looped around the vertical edges with a coil every 125 mm. Empty baskets shall be set to line and grade as shown on the plans. All adjoining empty basket units must be laced along the perimeter of their contact surfaces in the same manner as described previously for assembling. The empty upper baskets, that form the upper tier, shall also be laced to the top of the lower ones. A standard fence stretcher or other approved device shall be used to remove any kinks from the mesh and hold alignment of the units. The aggregate shall be carefully placed to assure alignment and avoid bulges with a minimum of voids. After the aggregate is placed to the level at which the connecting wires are to be installed, two connecting wires are placed perpendicular to each other, then looped and tied around 2 meshes of each gabion wall. Filling is then resumed until the level of the next connecting wires or the top of the gabion is reached. After a gabion has been filled, the lid shall be stretched tightly over the filling until the lid meets the perimeter edges of the front and end panels. The lid shall then be tightly laced along all edges, ends and diaphragms in the same manner as described for assembling. Shop drawings detailing the layout of the gabions shall be furnished to the Department by the Contractor at least two weeks prior to their installation.

7.04.04--Method of Measurement: This work will be measured for payment by the number of cubic meters of Gabions or Polyvinyl Chloride Coated Gabions, measured in place within the lines as shown on the plans or as directed by the Engineer. Excavation will be measured for payment under Section 2.02, Roadway Excavation.

7.04.05--Basis of Payment: This work will be paid for at the contract unit price per cubic meter for "Gabions" or "Polyvinyl Chloride Coated Gabions," complete in place, including all materials, equipment, tools and labor incidental thereto.

Excavation will be paid for at the contract unit price for the appropriate Roadway Excavation item.

Pay Item	Pay Unit
Gabions	m ³
Polyvinyl Chloride Coated Gabions	m ³