| To: SUPERSEDED BY EB 06-057 EFFECTIVE 5/3/07 | | New York State Department of Transportation ENGINEERING INSTRUCTION | EI 03-017 |
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Title: **Revised Specifications for Galvanized and PVC-Coated Galvanized Gabions (712-15)**

Distribution:

- ☒ Manufacturers (18)
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Approved:

Robert L. Sack, Deputy Chief Engineer, Technical Services Division — Date: 12 JUNE 03

## ADMINISTRATIVE INFORMATION:

- This Engineering Instruction (EI) is effective with projects submitted for the letting of January 15, 2004.
- Superseded issuance(s): This EI does not supersede any previous issuances.
- Disposition of issued materials: The information transmitted by this issuance will reside in the Standard Specifications.

**PURPOSE:** The purpose of issuing this EI is to revise and update the Standard Specifications.

**TECHNICAL INFORMATION:** §712-15 in the Standard Specifications is deleted and replaced with the revised §712-15 transmitted by this issuance.

**TRANSMITTED MATERIALS:** Attached is the revised Standard Materials Specification §712-15.

**BACKGROUND:** §712-15 is being reissued to accommodate a few significant changes:

1. The existing specification contains the material requirements for gabions produced from twisted wire mesh. There is a need to provide appropriate material requirements for gabions produced from welded wire fabric. ASTM A 974 provides appropriate specifications for the materials and manufacture, mechanical and physical properties, dimensions and tolerances and appropriate test methods of welded wire gabions.
2. The existing specification contains material requirements for gabions produced from twisted wire mesh. The specification explains in detail various material requirements and describes in detail testing procedures. ASTM A 975 contains much of the same information, providing appropriate specifications for the materials and manufacture, mechanical and physical properties, dimensions and tolerances and appropriate test methods of twisted wire gabions.
3. The existing Materials Requirements for the Galvanized and PVC Coated Galvanized Gabions contains an error. The requirement states that the area of the mesh opening shall not exceed 5800 $mm^2$. A review of the standard hexagonal mesh opening size of 83 by 114 mm yields an area of 6308 $mm^2$.
4. The existing Materials Requirements for the PVC Coated Galvanized Gabions contains an error. The minimum tensile strength of the PVC coating is listed as 1800 MPa. This value was not converted to metric and is the english (psi) equivalent. The minimum tensile strength of the PVC coating should have been listed at 12.4 MPa.

**CONTACT:** Questions or comments regarding this issuance should be directed to Randy Romer of the Geotechnical Engineering Bureau at (518) 457-4714, rromer@dot.state.ny.us.

Make the following changes to the Standard Specifications of January 2, 2002.

Pages 7-134 through 7-136, under section 712-15 Gabions, remove the entire section and replace it with the following:

## 712-15 GABIONS

**SCOPE.** This specification covers the material and quality requirements for galvanized gabions and galvanized with polyvinyl chloride (PVC) gabions.

**GENERAL.** The materials used in fabricating and filling of gabions shall comply to specifications and tests set forth below.

**MATERIAL REQUIREMENTS.**

***Gabions.*** Gabions produced from twisted wire shall conform to the requirements of ASTM A 975. Gabions produced from welded wire shall conform to the requirements of ASTM A 974. The physical properties of the PVC coating shall conform to the requirements of ASTM A 975 or ASTM A 974, as appropriate.

***Tiewire or Lacing Wire.*** Tiewire or lacing wire shall conform to the requirements of ASTM A 975 or ASTM A 974, as appropriate.

***Stone Fill.*** The baskets shall be filled with approved stone of the following sizes:

| Basket Depth or Height | Minimum Stone Size | Maximum Stone Size |
|---|---|---|
| 300 mm | 100 mm | 200 mm |
| Greater than 300 mm | 100 mm | 300 mm |

The soundness of all stone used for gabions shall be approved on the basis of a geologic evaluation in accordance with the control procedure in effect on the date of advertisement for bids. Prior to the evaluation, the Contractor shall stockpile the material. Where the State elects to conduct tests, a material will be rejected if it fails to meet the following criteria:

A. **Freeze-Thaw Test.** A maximum 10 percent loss, by weight, after 25 cycles of freezing and thawing.

B. **Magnesium Sulfate Soundness Test.** A maximum 10 percent loss, by weight, after 10 cycles of the magnesium sulfate soundness test.

***Fabrication.*** Gabions shall be supplied, as specified, in various lengths and heights. The lengths shall be multiples (2, 3, or 4) of the horizontal width. The heights shall be fractions (1, ½,or 1/3) of the horizontal width. The horizontal width shall not be less than one meter. However, all gabions furnished by a manufacturer shall be uniform width. Dimensions for height, lengths and widths are subject to a tolerance limit of ±5% of manufacturer's stated sizes.

Gabions shall be fabricated in such a manner that the front, back, sides, ends, lid and diaphragms can be assembled at the construction site into a rectangular basket of the specified sizes. Gabions shall be of single-unit construction. The base, lid, ends, front and back shall be either woven into a single unit or one edge of these members connected to the base section of the gabion in such a manner that strength and flexibility at the point of connection is at least equal to that of the mesh. Where the length of the gabion exceeds its horizontal width, the gabion shall be equally divided by diaphragms of the same mesh and gage as the body of the gabion, forming cells such that the length does not exceed the horizontal width. The gabion shall be furnished with the necessary diaphragms secured in proper position on the base in such a manner that no additional tying at this juncture will be necessary. All perimeter edges of the mesh forming the gabion shall be securely selvedged so that the joints formed by tying the selvedges have at least the same strength

as the body of the mesh.

**BASIS OF ACCEPTANCE.** Each shipment of gabions to a job site shall be accompanied by a certification which states that the material conforms to the requirements of this specification. A shipment shall consist of all material arriving at the job site at substantially the same time. The certification shall be on company letterhead and shall be signed by an officer of the company having legal authority to bind the company.