

ITEM 10564.9621 M - FENDER SYSTEM - REPLACEMENT OF ANCHOR RODS

ITEM 10564.9622 M - FENDER SYSTEM - REPLACEMENT OF CLIP ANGLES

ITEM 10564.9623 M - FENDER SYSTEM - REPLACEMENT OF STEEL POST SOCKETS

ITEM 10564.9624 M - FENDER SYSTEM - REPLACEMENT OF STRAP PLATES

### **DESCRIPTION**

The work shall consist of replacing new anchor rods, strap plates, steel sockets and clip angles when necessary to anchor the new fender system as shown on the Plans and as directed by the Engineer.

If at the direction of the Engineer, the existing; clip angles, strap plates, steel post sockets and/or anchor rods require replacement, their removal will be paid for under another item.

### **MATERIALS**

The strap plates and steel sockets shall be Type 316 stainless steel conforming to the requirements of ASTM A240.

The clip angles shall be Type 316 stainless steel conforming to the requirements of ASTM A276.

The threaded anchor rods shall be stainless steel and conform to the requirements of ASTM F593 and have a 98.9 kN tensile strength. The stainless steel nuts and washers shall conform to the requirements of ASTM F594 and ANSI B18.322.1, Type A plain respectively.

The grout shall conform to the requirements of Subsection 701-07. The following manufacturers' produce underwater grout:

<u>Manufacturer</u>	<u>Product</u>
Hilti, Inc. 5400 S. 122nd E. Ave. Tulsa, OK 74146 (800) 879-8000	Hilti HIT C100 or HY150 HVA or HEA capsules
Fosroc Inc. Construction Division 150 Carley Court Georgetown, KY 40324 (800) 645-1258	Nitrobond Hi-mod Gel
Sika Corp. P. O. Box 297	Sikadur 36,

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Lyndhurst, NJ 07071  
(201) 933-8800

Or equal as approved by the engineer.

### **CONSTRUCTION DETAILS**

The structural steel work required for the clip angles, strap plates and steel post socket shall conform to the requirements of Subsection 564-3.

The mixing instructions, cure time and expiration date of the underwater grouting material shall appear on each container. The Contractor shall submit the Technical data sheets for the proposed grout to the Engineer for approval.

The following instructions are general guidelines for anchor rod installations. The Contractor shall strictly follow the manufacturer's recommended instructions regarding mixing, application and installation of the anchoring grout and rod.

1. The hole size required for the installation of the anchor rods shall strictly follow the manufacturers recommendations for the anchor rod specified. The embedment depth of the anchor rods and locations are as shown on the plans or as directed by the Engineer.
2. Clean the hole with an air pistol.
3. Fill the hole starting from the bottom to approximately halfway so that the water at the bottom of the hole is displaced.
4. If the manufacturer recommends that the anchor rod be coated with the grout prior to insertion into the hole, only those anchor rods that can be installed within the pot life of the grout shall be coated. The anchor rods shall be coated with the grout above water and then protected with a watertight container for transport and storage underwater until ready to use.
5. The threaded anchor rod shall be twisted slowly during insertion into the hole in order to remove trapped air and water. A air driven drill or screw gun may be allowed to help aid in the installation of the anchor rods.
6. Allow the adhesive to cure for the proper time as per the Manufacturer's

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recommended time while taking into account the temperature of water.

7. The anchor nuts shall be tightened as per the manufacturer's recommended procedures and torque.

### **METHOD OF MEASUREMENT**

The work of these Items shall be measured as the number of each anchor rod, clip angle, steel post socket and/or strap plate replaced.

### **BASIS OF PAYMENT**

The unit price bid of "Fender System - Replacement of Anchor Rods" shall include all labor, materials, tools, equipment and all incidentals necessary to install the anchor rods as shown on the Plans. The work shall include drilling and cleaning the hole, furnishing and installing the anchor rod and furnishing and applying the grout.

The unit price bid of "Fender System - Replacement of Clip Angles" and "Fender System - Replacement of Steel Post Sockets" Items shall include all labor, materials, tools, equipment and all incidentals necessary to install the Clip Angles and Steel Post Sockets as shown on the Plans. If the anchor rods used to mount the clip angles and steel post sockets require replacement, the cost shall be included in ITEM 10553.9621 M.

The unit price bid of "Fender System - Replacement of Strap Plates" shall include all labor, materials, tools, equipment and all incidentals necessary to install the Strap Plates as shown on the Plans. The cost of installing the anchor rods used to mount the Strap Plates shall be included as part of this item, 10553.9624 M.