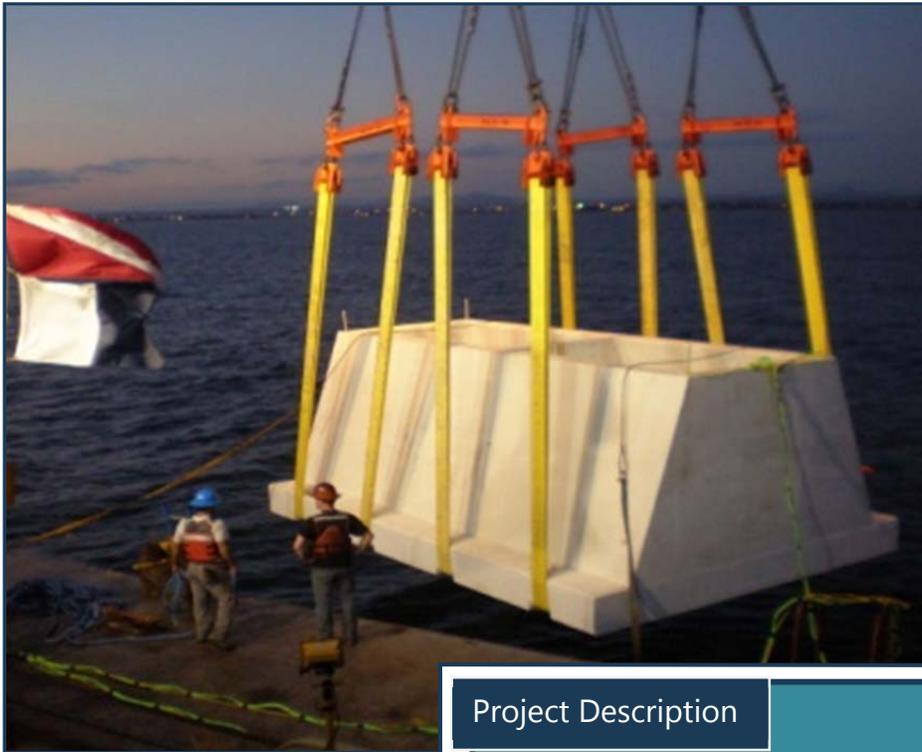


Corrective Design – Assessment and Identification of Mine Susceptibility Array

United States Navy



Project Description

The Assessment and Identification of Mine Susceptibility Array is the first facility of its kind to be located offshore in an unsheltered environment. The facility is located approximately one mile off the coast of San Diego, CA in 50 feet of water. The array was originally constructed in 2009; however, the facility did not meet the Navy's strict design criteria and required corrective repairs to be placed into service.

Appledore Marine Engineering, Inc. (AMEI) was tasked with designing corrective repairs to the facility, preparing bid documents, and providing technical oversight and quality assurance throughout construction. The corrective repairs were required to limit deflection of the arrays sensors attached to the originally constructed 8 fiberglass pipe piles. AMEI worked closely with multiple commands within the Navy to develop design alternatives and model the environmental loadings. The selected design alternative included constructing a 114' long x 20' wide x 16.5' tall precast concrete caisson, concrete caps, and concrete pipe sleeves which were placed over the existing pile array. Scour mats and fish habitat structures were placed around the caisson to limit undermining and provide environmental habitat mitigation. Due to the Navy's strict design criteria, all materials used within the structure were required to be nonmetallic and nonmagnetic. To achieve these requirements all reinforcing bars, connections, and securing hardware were fiberglass and all aggregate was sourced from specialty suppliers within the region.

The project was completed on time and met the Navy's aggressive schedule for design and construction in only 14 months. Following construction the structure was validated and successfully met the Navy's design criteria allowing the facility to become fully operational.

Project Type

Corrective
Design

Location

San Diego, CA

Estimated Construction Cost

\$6,000,000 USD

Date of Service

2010-2011



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Services Provided

- Structural Analysis
- Bid Document Preparation
- Design
- Construction Administration