



The Castle Group
Innovation in Action™

W.J. Castle P.E. & Associates
Hydro-Marine Construction
Simplified Bridge Systems

Sets the Standard for

Structural & Marine Engineering, Construction, & Design/Build Services

BRIDGE DESIGN/BUILD



Project: Rehabilitation of Steel Railroad Bridge

Location: Roebling, New Jersey

Description: The abandoned steel railroad bridge at the Roebling Steel Plant crossing Crafts Creek in Roebling, New Jersey needed to be converted into a roadway bridge able to support construction vehicles up to 110,000 lbs. *W.J. Castle P.E. & Associates P.C.* was retained by WRS Infrastructure & Environment, Inc. in October 2008 to perform an in-depth inspection of the existing bridge. Once the analysis was complete, *CASTLE* designed the new bridge utilizing the existing main steel beams and the concrete substructure with modifications and repairs. *Hydro-Marine Construction Co., Inc.* performed the actual construction of the bridge.

Following cleaning of the existing beams, deteriorated portions of the beams were reinforced by attaching steel bent plates (6 foot long) to both sides at each end. Existing bearing plates were also deteriorated and replaced to accommodate the new spacing of the steel beams. In order to save labor cost, a single continuous bearing plate was used at each abutment. New stringers, diaphragms, deck pans, and edge plates were installed as well as new steel guiderail and posts. The composite reinforced concrete bridge deck was built utilizing angle sections attached to the main steel beams. The concrete deck was poured in place in less than one day.

Hydro-Marine performed all of the construction aspects of the project including all repairs, removal of the existing structure, and installation of the new bridge structure. Removal of the existing structure began in November 2008, the deck was poured the first week in January 2009, and the bridge was open to traffic by January 23, 2009.

Main Office

Tynddol Building
1345 Route 38 West
Hainesport, NJ 08036

Regional Office

Philadelphia, PA

1-800-644-4713

www.wjcastlegroup.com