Visit us at IBC 2009

The Castle Group will be exhibiting at the 2009 IBC Trade Show in Pittsburgh, PA. Be sure to stop by our booth (#831).

And don't miss Bill Castle's presentation "Design/Build of Bridge for Interstate Storage and Pipeline" in the ***Accelerated Bridge Construction*** *Session on 6/17/09 from 1:30 PM – 3:45 PM*

did you *Know?*

The Castle Group offers the following integrated services?

- Non-destructive Testing (above and below water)
- Hydrographic Surveys
- Construction Management
- Structural & Marine Engineering, Including Inspections
- Underwater Inspections by Licensed Professional Engineers/Divers, including Scour Analysis
- Rehabilitation Design
- Value Engineering
- Complete Diving Services by Commercial Divers
- Submarine Cable Repairs and Installations
- Prefabricated Custom Bridges
- Prefabricated Small to Medium Sized Bridges
- Design/Build Capabilities for Marine and Other Structures

The Castle Group
Innovation in Action
Tynddol Building
1345 Route 38 West
Hainesport, NJ 08036

under the surface

MARINE ENGINEERING & CONSTRUCTION EXPERTS

The Castle Group
Innovation in action

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

Official Newsletter of The Castle Group: *Volume 1*

Roebling Bridge

Saving Money & Resources Through Structural Recycling

There has been a great deal of concern regarding the environmental impact of construction projects, and with good reason. The environmental impact generated by demolition from a construction project can be significant. For this reason, The Castle Group will always seek solutions in which existing infrastructure can be re-used to minimize the amount of waste created. As an additional bonus, "recycling" existing infrastructures can also bring about cost-savings compared to new construction. A great example of these principles in action is the recent work performed on the Roebling Bridge project.

The Roebling Steel Plant had an abandoned steel railroad bridge that was its only crossing of Crafts Creek. The client required this bridge to be converted into a roadway bridge able to support vehicles up to 110,000 lbs. WRS Infrastructure & Environment, Inc. contacted W.J. Castle in October 2008 to get an estimate for an entirely new bridge. After performing an in-depth inspection of the existing bridge, William J. Castle, P.E., company president and project manager, determined that by employing "green" engineering techniques, a new bridge could, in fact, be reconstructed using bridge members and components already in place. Not only did this proposed solution decrease the cost of the project versus new construction, it also prevented the waste of potentially useful components which would have otherwise been sent off to landfill.

Further inspection found the concrete substructure to be in good condition overall. The superstructure consists of six 37'-3" long steel 24Gx129 stringers which formerly supported the railroad above. The stringers were assumed to be ASTM A7 steel with a minimum yield strength of 30 KSI. The steel beams were in fair condition with section loss and some corrosion in the webs and

Continued page 3

Hydro-Marine is DBE & WBENC Certified

Hydro-Marine has been certified by NJ UCP as Disadvantaged Business Enterprise (DBE) as of Jan 16, 2009. Hydro-Marine is also certified as a National WBE company.

On January 16th 2009, the NJ Unified Certification Program (NJ UCP) declared Hydro-Marine a Disadvantaged Business Enterprise (DBE). The DBE program prevents discrimination in the award & administration of Department of Transportation-assisted contracts. The program goals are to remedy past and current discrimination against disadvantaged enterprises, ensure a level playing field in which these businesses can compete fairly for Department-assisted contracts, and reduce burdens on small businesses.

The Women's Business Enterprise National Council (WBENC) has certified Hydro-Marine as a Women's Business Enterprise (WBE). The WBENC is the nation's leading advocate of women-owned businesses & works to foster diversity with programs and policies designed to expand opportunities & eliminate barriers in the market for women business owners. WBENC requires that at least one or more women own and manage 51% of a company.

"We are thrilled the WBENC has officially named Hydro-Marine Construction a Women's Business Enterprise," said Janet Castle, President of Hydro-Marine. "We are grateful for the council's recognition of Castle Group, as it acknowledges the important contribution women have made to Castle Group & the marine engineering & construction field."

Canal Point, Pt. Pleasant, N.J.

Integrated Engineering And Construction Delivers Better Results

W.J. Castle, P.E. & Associates, P.C. was retained in February 2008 by the Canal Point Marina to perform an underwater inspection, rehabilitation design, and installation of a new bulkhead/wave breaker at their facilities. The original bulkhead was severely undermined and deteriorated preventing it from functioning appropriately.

Castle's repair design included installation of new composite sheeting in front of the existing timber bulkhead and installation of 21 additional 12" diameter timber piles to be placed between the existing deteriorated piles. Upon completion of design and details, Hydro-Marine Construction Co., Inc. was retained to perform the actual construction of the new bulkhead. Approximately 290' of new composite sheeting was installed with an additional 20 L.F. along the walkway. Twenty-one new timber piles were installed along the bulkhead and three additional 10" diameter timber piles were installed near the walkway as per the client's specification.

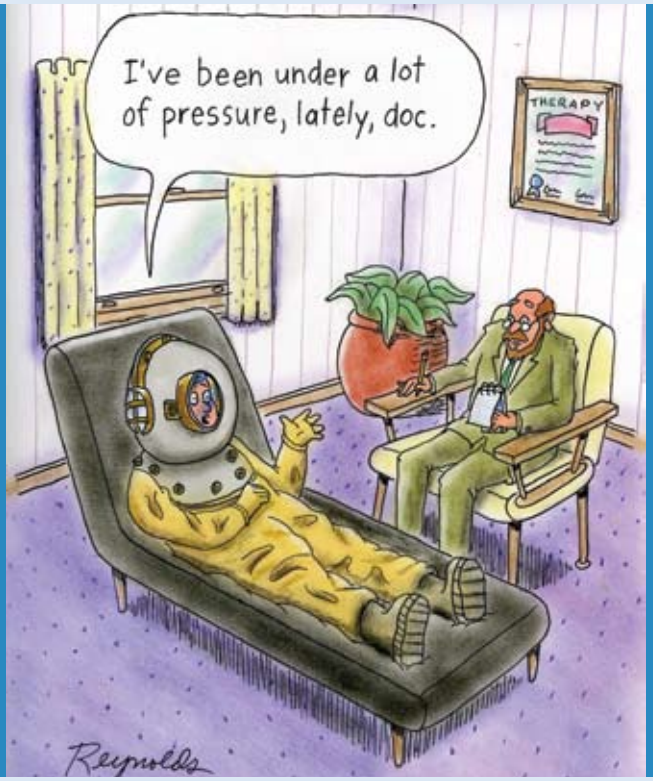
All work was completed by October 2008 at a cost of approximately $400,000.00

The Castle Group Wins ACEC Award

ACEC

American Council of Engineering Companies

The Castle Group was selected by the American Council of Engineering Companies as a winner in their ACEC 2009 Engineering Excellence Awards competition. The Castle Group will received a Distinguished Award for their work on the Pedestrian Bridge created for the Girl Scouts. The award will be presented at the 38th Annual Engineering Excellence Awards Banquet on March 19, 2009 at Rutgers University in New Brunswick.



Roebling Bridge

Continued from Cover

flanges within the end 6'-0"±. It was determined that both the steel stringers and the corroded bearing plates would need rehabilitation and repair prior to use. Additionally, a void located on the abutment would also have to be repaired. With these repairs, the structure was more than adequate for the re-design.

Roebling Bridge at the project start.

The original stringer configuration was tightly spaced at the center of the concrete abutments and measured approximately 8'-6" from center to center of the fascia beams. However, the client required a minimum of 13'-6" clearance to accommodate the trucks that would be using the bridge. To accomplish this, the stringer spacing was expanded, measuring approximately 13'-11" edge to edge of the fascia beams.

Next, the existing diaphragms were removed and the stringers set aside to be prepared for installation. The beams were cleaned and 3/8" thick by 6'-0" long steel bent plates were attached to each end on both sides to reinforce the deteriorated portions of the stringers. Channel studs were welded at 12" increments along the stringers. Due to the deteriorated condition of the existing bearing plate and the new spacing of the beams, a new bearing plate was installed along the length of the bridge seat and anchored into the concrete. When the stringers were set in their final position, the new C8x11.5 diaphragms and the 2" thick deck pans were installed as well as the 1/2" thick bent plate running along the top edges of the fascia beams. Steel guide rail posts were spaced at 6'-3"± and attached to the beams with a 1/2" thick base plate and to the bridge at the 1/2" thick bent plate along the edge of the fascia beams. All steel components of the bridge were covered in black epoxy shop paint with the exception of the galvanized guide rail. The 7" high composite reinforced concrete deck was poured in place in less than one day.

Hydro-Marine Construction performed all of the construction aspects of the project including repairs, removal of the existing structure, and installation of the new bridge. Removal of the existing structure began in November 2008, the deck was poured the first week of January 2009, and the bridge was open to traffic by January 23, 2009. The new Roebling Bridge will be a key component in the cleanup of the site, providing access to an area that had previously been much more difficult to reach.

Roebling Bridge at project completion.

The Castle Group's innovative approach to the Roebling Bridge project will be featured in the April 6th issue of "Constructioneer" magazine.

4 Questions WITH

Shivang Joshi, P.E.

Shivang Joshi, a structural engineer with W.J. Castle for the past 4 years, received his Connecticut P.E. license this year.

What influenced you to pursue a career in marine engineering?

I have always been interested in the soil engineering and marine engineering categories of civil engineering. After finishing my Masters of Civil Engineering Degree in May 2002, I wanted to work in civil engineering projects which relate structural engineering to soil mechanics. The reason I pursued a career in marine engineering is because it is the perfect mixture of these two civil engineering majors.

What in particular drew you to work at The Castle Group as opposed to another marine engineering firm?

The Castle Group is really the firm that does it all – marine, structural, bridge engineering, and construction. When I began my career search in the Southern New Jersey area, I learned quickly that Castle was the right fit for me.

How do you believe your recently awarded Professional Engineer's License will impact the work you do at The Castle Group?

Well, first of all, my PE license is the first of Castle's PE licenses from Connecticut, so it will allow us to expand into a new market. The additional PE license also adds value to the organization by increasing our staffing ability, allowing us handle larger projects.

When you are not at The Castle Group creating comprehensive design solutions for underwater structures, what do you enjoy doing in your free time?

When I get a chance, I research cost effective rehabilitation schemes of structurally deficient components of existing structures such as bulkheads, seawalls, and bridges. Yes, I am into my work. When I'm not submersed in research I enjoy playing tennis and cricket, and playing billiards with friends. I also love traveling with my family.