

An aerial photograph showing a large ship being lifted by a barge in a canal. The ship is being moved from a dry dock area into the water. The water is a deep blue-green color. The barge is a large, flat, rectangular platform. The ship is a large, multi-deck vessel. The canal is a narrow waterway. The background shows a city skyline.

# MARITIME, WATERFRONT, & NEAR OFFSHORE CATHODIC PROTECTION

Leading the industry in engineering and construction to strengthen  
and sustain the integrity of waterfront infrastructure



A HENKELS & MCCOY Group Company





With decades of combined experience, our professionals at HMI Services are authorities in engineering, design, installation, testing, and inspection services for maritime, waterfront, and near offshore infrastructure. Working for a variety of clients across the country, HMI is the contractor of choice for marinas, municipalities, and port facilities as well as the government sector, including the US Navy. We provide solutions that help clients maintain uninterrupted operations, maximize asset life, reduce expenses, improve safety, and preserve the environment.

## **Maritime, Waterfront, & Near Offshore Cathodic Protection Engineering & Design Services**

The engineering team at HMI offers a full spectrum of cathodic protection (CP) services from upfront consultation and design through installation, testing, and commissioning. Our highly qualified and agile staff can develop solutions tailored for every project because of their extensive experience specific to cathodic protection design in maritime and waterfront environments. HMI provides cost-effective, results-driven galvanic (sacrificial) and Impressed Current Cathodic Protection (ICCP) designs that perform to customer specifications and needs.

Our services include:

- Protection of piers, docks, quay walls, and other waterfront structures
- Engineering consultations, analysis, and system design
- Inspection, maintenance, and troubleshooting services
- CP system installation, testing, commissioning, and as-built services
- Compliance testing and reporting

Waterfront structures and facilities are critical to naval and maritime transportation operations. The risk of deterioration and failure due to corrosion requires the cathodic protection expertise of HMI engineering professionals. A few of our latest projects and services are depicted below.

### **Cathodic Protection System for a Terminal**

Creating a cathodic protection system for a commerce terminal was deemed critical for submerged sections of a 1,060-foot-long cellular bulkhead, 77 24- and 30-inch pipe piles, and a 390-foot z-pile bulkhead. A galvanic system was designed and included a continuity survey, design of test anodes and other monitoring points, and inspection services. HMI also provided as-built drawings and final test reports on the system operation.

### **Galvanic Cathodic Protection System on a Bridge**

After a preliminary corrosion investigation, which included the evaluation of continuity, pile coating integrity, potential profiling, and an evaluation for Microbial Induced Corrosion (MIC) on the piles, there was evidence of the damaging effects of MIC conditions. Because of the MIC detection, our analysis focused heavily on the applied current density to determine the design basis for the pile. Additional testing was then done with E Log I for verification of current requirements and stray current testing for Dynamic and Static voltage activity. The final design included 328 individual piles, each with their own cathodic protection system, and a test pile on each bridge pier for evaluating anode life. The project was completed on time and on budget.

### **Cathodic Protection System for a Major Shipyard**

Evaluation and consultation at a shipyard determined a need for cathodic protection of two bulkhead systems covering two berths, for which ICCP and galvanic system design concepts were created. The final design included a galvanic system for the new bulkhead segments spaced at intervals along each of the berths.

### **Cathodic Protection System for Steel Bulkhead**

HMI designed and built a complex ICCP system for a 1,100-foot-long steel sheet pile bulkhead. Extreme levels of pollution required the system to be designed for little or no maintenance and high reliability since it could not be repaired or inspected. This system consisted of one rectifier serving three junction boxes that distributed current to 30 mixed metal oxide (MMO) anodes installed in custom anode-mounting assemblies to enable protection in a low clearance berthing area. MMO anodes were chosen because they are very reliable and have a high current capacity. In addition, they work in fresh, brackish, and salt water applications, and are extremely lightweight so installation is quick and easy.





## Commitment to Safety

HMI extends safety to every aspect of work. Safety drives the development of impeccable work practices and is at the core of the way behavior is observed, communicated, and investigated. HMI follows a daily safety management system of leading and lagging indicators, including coaching observation trends, work site audits, good catch and near miss reports, corrective action follow-ups, total recordable incident rates, days away, and restricted duty and transfers. With these indicators, HMI performs trend analysis and program validation of safety performance. This vigilant evaluation and implementation of company and industry-wide best practices ensures HMI maintains the absolute highest safety standards to protect our workers, our clients, and our communities. HMI's daily mission is to ensure "Nobody Gets Hurt!"

## About

HMI is a multi-discipline, privately held firm that designs, builds, and maintains the critical infrastructure of the country. HMI brings extensive industry knowledge, technical excellence, and an integrated approach to engineering, planning, construction, project management, and turnkey delivery solutions for the power, oil & gas, communications, and maritime industries. HMI works closely with clients to assess each situation and achieve high-quality outcomes on projects of all sizes and complexity.



To learn more about our service offerings and HMI's commitment to safety, quality, and performance, please contact us or visit our website.

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[www.hmiservices.com](http://www.hmiservices.com)  
[marketing@hmiservices.com](mailto:marketing@hmiservices.com)

**Contact us at 484-344-2161**



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