STATEMENT OF QUALIFICATIONS

SEDIMENT REMEDIATION EXPERIENCE

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

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1.0 Introduction

Sediment restoration refers to the investigation, assessment, and actions taken to address sediments containing the products of industrial, urban, mining, or agricultural activities.

Hard Hat Services (HHS) is an organization with a strong experience base in sediment restoration. The experience base covers not only the investigation and assessment of sediments, but includes designing and implementing sediment restoration actions. HHS offers services in:

- *Implementing Turn-key Sediment Remediation*
- *Managing Remedial Dredging Projects*
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- *Evaluating Sediment Treatment Technologies*
- *Selecting Specialized Dredge Equipment*
- *Designing Armoring and In-Situ Caps*
- *Designing Dredge Water Treatment Facilities*
- *Siting and Designing Confined Disposal Facilities*
- *Engineered Enhancements for Natural Recovery*
- *Assessing Remedial Options*
- *Setting Reasonable, Mass-Based Remedial Action Objectives*
- *Assessment of Sediment Fate and Transport*
- *Preparation of Dredging Permits*
- *Sediment Testing (physical tests)*
- *Sediment Sampling*

In the early days sediment restoration meant dredging. Today sediment restoration is more likely to mean a combination of removal and other in-situ technologies, including engineered improvement of natural processes. HHS is on the leading edge of sediment restoration technology and brings a knowledge base to sediment issues that are unparalleled in the environmental services industry.

Environmental dredging requires constant attention to sediment control, water treatment, and removal objectives. All of these issues must be constantly monitored and controlled as conditions change in the operation. These management demands differ from production dredging where yards moved per hour is the predominant objective.

HHS knows the types of equipment available for sediment restoration projects. HHS understands the difference between sediment restoration work in small industrial lagoons and work in open bodies of water. HHS prepares cost estimates for sediment restoration based on estimates of the cost of input factors (labor, equipment, and expenses) to complete the work. Unit prices are not reliable in the estimating of environmental dredging as in more conventional earthwork or buildings.

2.0 Project Experience

Contaminated Sediment Dredging and Bank Restoration – Merrill, Wisconsin

Project Dates: June 2008 – September 2008 Project Contract: $800,000

In July of 2008 Hard Hat Services (HHS) acted as the General Contractor for a contaminated sediment removal project on the Wisconsin River. The project scope included removal of PAH contaminated sediment from the river, source removal activities on the river bank, sediment dewatering, water treatment, and river bottom and bank restoration.
HHS's scope included:

- Installation, maintenance, and removal of all turbidity and sediment migration control features.
- Construction and removal/restoration of a 50-ft. x 120-ft. sediment dewatering basin.
- Setup and operation of a water treatment facility, with final discharge back to the river. During completion of the work approximately 600,000 gals. of water was treated and discharged.
- Subaqueous sediment removal of approximately 3,500 tons of contaminated river sediment.
- Removal of approximately 800 tons of source material (from the river bank and adjacent shoreline).
- Dewatering (as necessary) of the removed sediments.
- Subaqueous sand capping in the removal areas – 6-inch sand layer of approximately 1,000 tons.
- Final river bank stabilization and restoration including installation of an activated carbon reactive core mat – approximately 320-lf.

This project was completed for the contracted amount, and was completed approximately 4 weeks ahead of schedule.

St. Louis River/Interlake/Duluth Tar Site – Duluth, Minnesota

Project Dates: April 2006 - Present Project Contract: $60 million (Construction) ($4 mil PM)

HHS was retained to provide project management services for this Response Action (RA) site is on the St. Louis River, approximately four river miles upstream of Lake Superior. The site includes approximately 255 acres of land and river embayments, wetlands, and shipping slips. The aquatic portion of the site is approximately 90 acres. Onsite sediments are contaminated with Polycyclic Aromatic Hydrocarbons (PAHs). The ROD requires a combination of dredging and in situ capping along with the construction of an underwater contained disposal facility. HHS is serving as the PRP representative on site during the RA, reporting directly to the Project Director, and coordinates efforts with other client project team members.

HHS is also responsible for all project construction management services, which includes constructability reviews, prequalification and bid-phase services for RA Contractors, and on-site construction administration and management during the Response Actions. As project Construction Manager, HHS prepares overall project cost budgets, schedules, and scope documents to ensure proper coordination with Regulatory Agencies and. During

RA activities, HHS is responsible for the daily oversight of the RA Contractors and reports on daily work progress. HHS also participates in construction management services as necessary during the Response Actions. The almost $60 million project is currently in the second year of a projected 4 year construction schedule (including restoration). As Project Managers, our objective is to control and mitigate our client's project-related risks and preserve their rights for cost recovery.

Lordship Gun Club – Bridgeport, Connecticut
Project Dates: July 1996 – July 2000 Project Contract: $500,000

The Remington Arms Company operated a rod and gun club on the shore of Long Island near their Bridgeport, Connecticut manufacturing facility. During the operation of the Rod and Gun Club from 1926 to 1986, approximately 1500 tons of lead shot was discharged to the shore and water at the club. The State of Connecticut required the owner to develop a sediment restoration program to protect the waterfowl that feed in the waters off the Gun Club.

HHS personnel prepared a work plans and designs for the dredging of sediment containing lead shot, the processing of the sediment to remove the shot, and the backfilling of the sediment to restore the near-shore beach area. The design includes a procedure for determining the mass removal of lead shot to a statistically acceptable goal. The dredging, sediment processing, and backfilling will be a continuous process. HHS has also supported the owner in obtaining permits and was on-site during the spring and fall of 2000 to oversee the dredging and sediment restoration.

Cassville Generating Station Coal Dredging – Cassville, Wisconsin
Project Dates: July 2006 – December 2006 Project Contract: $150,000

A generating station near Cassville, Wisconsin receives shipments of coal via Mississippi River hopper barges. During the movement from the barge to the hopper incidental amounts of coal may miss landing back in the hopper barge or in the conveyor hopper, falling in the water. This coal accumulated under the dock area so that full barges were unable to be staged against the dock mooring cell at the unloader. HHS dreded the area immediately under the clamshell to an elevation similar to the surrounding riverbed. The dredge area was about 150ft long along the bank by 100ft wide (from the loader to the channel).

The project area was located near a known historical mussel bed that supports a diverse community of species, including a federally endangered mussel and species listed as rare in Wisconsin. HHS communicated with the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources to determine that a mussel survey of the site should be performed to determine potential impacts to the freshwater mussel resources.

After the mussel study was completed, HHS coordinated the fieldwork activities in order to minimize the delays to the client's coal unloading process. A barge was spudded adjacent to the area to facili-

tate dredging. A silt curtain was draped around the project area to keep suspended sediment from affecting habitat conditions downstream. HHS also engineered a solution to control incidental coal fallback into the River during future unloading of coal barges, a flexible chute that deflects the fallback into the hopper barge.

Fox River Sediment Removal Project - Wisconsin
Project Dates: August 2004 – Present Project Contract: $350,000 to date

The Fox River between Lake Oshkosh and Green Bay Wisconsin contains several paper mills. The mills recycled carbonless copy paper in the 1950's and 1960's. Recycling of the paper resulted in the release of some Polychlorinated Biphenyl (PCB) into the river. As part of the continuing efforts between the State of Wisconsin and the Paper Mills, a demonstration of sediment removal by hydraulic dredging was undertaken in 1999 to measure the environmental impact versus benefit of sediment removal.

HHS was part of a team for the remedial design and remedial action bid package preparation for the Demonstration Project. The demonstration, performed by others, remove approximately 20,000 cubic yards of PCB-containing sediment from the Lower Fox River in Green Bay, Wisconsin. HHS's responsibilities included developing and implementing a sediment sampling and bench-scale testing program to obtain data for the remedial design, designing a sediment removal, dewatering, and disposal demonstration program, and preparing contractor bid packages.

Waukegan Harbor Superfund Site - Waukegan, Illinois

HHS personnel provided preliminary engineering and cost estimating services, supported negotiations with regulatory agencies, prepared the final design, and managed construction of a $21 million dollar remedy for the removal, treatment, and containment of sediments containing polychlorinated biphenyls (PCBs). Management and support of the project was continuous for 13 years through completion of the construction.

The tasks completed by Hard Hat Services personnel included:

- Preparation of preliminary designs for containment structures and dredging plans
- Preparation of cost estimates to support the preliminary designs
- Support the owner in negotiations with the United States Environmental Protection Agency and the Illinois Environmental Protection Agency
- Prepared cost estimates and pricing for completion of final design and construction of the negotiated remedy
- Managed implementation of the remedy that included the following components:
- Construction of a new marina slip to replace an existing slip used by a pleasure boating facility
- Construction of a double sheet pile cut-off wall across the slip
- Installed a soil-bentonite filled slurry wall around the closed slip
- Installed two soil-bentonite filled slurry walls on property north of the harbor
- Moved 5,000 cubic yards of sediment with more than 500 ppm PCBs to the north property from the closed slip

- Removed PCBs from 13,000 cubic yards of sediment with more than 500ppm PCBs using thermal desorption technology
- Dredged 35,000 cubic yards of sediment from the harbor into the closed slip
- Constructed RCRA caps on each of the three soil-bentonite enclosed containments
- Installed monitoring wells and a ground water extraction and treatment system at each containment

The HHS personnel were responsible for preparing or managing the preparation of all work plans, designs and documents required for the approval of the project. The final design and construction phase of the project occurred between 1988 and 1994.

Contaminated Sediment Removal from Grand Calumet River, US Steel – Gary, Indiana

The Grand Calumet River flows through a heavy industrial area in Northwest Indiana, and high concentrations of a large number of contaminants, including PCBS, metals, and volatile and semi-volatile organics have been detected in the river sediment. HHS personnel have completed a number of the sediment investigation, technology assessment, and sediment removal study activities required for the 5-mile stretch of contaminated river, including:

- Performed sediment sampling, bench-scale sediment settling and dewatering tests
- Provided sediment removal services
- Designed and constructed a unique test chamber to evaluate dredging air emissions
- Evaluated foundation conditions, earthwork requirements, and structural needs for river access ramps.

Heavy Metal-Contaminated Sediment Removal, Cannelton Industries – Sault Ste. Marie, Michigan

Heavy metals and aesthetically undesirable materials from a former tannery operation were found in the near shore sediments on Whitefish Bay just upstream of the Sault Ste. Marie ship locks. The initial planning by others was focused on sediment removal with landfilling on the former tannery site immediately adjacent to the town elementary school.

HHS personnel lead a successful effort to change the decision by the regulatory agencies from removal by dredging and placement in a confined disposal facility to an in-situ stabilization and capping remedy. The remedy included the partial removal of sediment, the placement of a clean capping layer, and stabilization of the area from the erosive forces of the St. Mary's river and ice flows.

Niagara River Sediment Removal, Glen Springs Holdings – Tonawanda, New York

The owners asked a contractor to remove the upper sediments in the Niagara River and place the sediments in the adjacent 102nd Street Landfill. The sediments were in a cove area with shallow water. However, the sediment below the shallow sediment was very soft and similar to the sediment requiring removal.

HHS personnel designed a soil cofferdam to separate the shallow water cove from the main channel of the Niagara River. The cofferdam was designed to allow for settlement of the underlying soft sediment without risking overtopping of the cofferdam. The area inside the cofferdam was dewatered and the sediment was excavated using conventional construction equipment. The earth cofferdam design was more cost effective than steel sheet piling. Because of HHS' expertise in soil mechanics, the owners saved considerable expense on the project.

Metal Plating Sludge Removal, PRP Group – Kalamazoo, Michigan

A former City of Kalamazoo power plant was converted to a metal plating waste treatment facility in about 1960. Cyanide metal plating wastes were pumped into the basement of the building and were neutralized by the addition of lime. The effluent was discharged to the Kalamazoo River through two subsurface intake and outlet tunnels that were originally the water intake and outlets for the power plant. The site's buildings, tanks, and the underground tunnels were contaminated with metal plating sludges.

HHS personnel designed and built a cofferdam to dewater the cooling water intake from the Kalamazoo River. After installing the cofferdam, sediments were removed from 200 feet of the intake pipe by vacuum suction. HHS also designed and installed reinforcing in the partially collapsed power plant to allow other contractors to safely enter and remove the aboveground contents of the building and tanks.

PCB-Impacted Sediment Removal from the Housatonic River, Confidential Client – Pittsfield, Massachusetts

Polychlorinated Biphenyl (PCB) were used from the 1920's to 1970's in the manufacturer of transformers in Pittsfield, Massachusetts. Some of the PCBs ended up in sediments of a 26-acre lake adjacent to the manufacturing facility and the Housatonic River flowing south from
Pittsfield. The river includes extensive backwaters and wetland areas and old mill pond dams which acted as sediment traps on the river. The State of Massachusetts required the manufacturer to perform a RCRA facility investigation and corrective action assessment for the manufacturing site, adjacent lake, and downstream river.

HHS provided services for the preliminary assessment of corrective action measures for sediments in the 26-acre lake and the Housatonic River. The preliminary assessment included evaluation of sediment removal technologies, evaluation of in-situ sediment restoration technologies, siting issues for confined disposal facilities, evaluation of sediment treatment technologies, and the preliminary design of sediment capping.

Asbestos Containment, WR Grace – Walpole, Massachusetts

Portions of this 21-acre site were used from 1915 to the mid-1930's for the manufacture of woven asbestos products. Some materials from the operation were deposited on the site and on the banks of the Neponset River in Walpole, Massachusetts.

HHS personnel supported the negotiation of a remedy to enclose a section of the Neponset River in a large diameter oval culvert to prevent the further erosion of the river bank soil containing asbestos. HHS personnel designed a pumping system to temporarily bypass the river during sediment removal and installation of the culvert. The remainder of the site was capped and wetland areas along the bank were restored to their pre-industrial condition.

PCB Sludge Study and Creek Diversion, Hansen Holdings – Kalamazoo, Michigan

The mill pond on Portage Creek in Kalamazoo, Michigan was filled with paper mill sludge in the 1950's and 1960's. The sludge contained PCBs from the recycling of carbonless copy paper at the adjacent Paper Mill. The site owner was proceeding towards a stream diversion with closure of the sediments in place under the authority of the Michigan Department of Natural Resources.

HHS personnel completed on-site field trials on the load support characteristics of the sediment for use in designing a cap. HHS personnel also provided an assessment of options for the diversion of the creek around the pond to allow for capping and closure of the sediments in-place. The creek diversion was complicated by the requirement to have the creek reenter its original channel at the mill pond dam.

PCB and Heavy Metal Remediation, GE – Fort Edward, New York

In 1973, the Fort Edward Dam on the Hudson River was removed by the dam's owner. The dam was installed in the 1820's to divert water into the Lake Champaign Canal. During the life of the dam, slab wood, sawdust, and sediment accumulated behind the dam. In the 1900's PCBs and heavy metals from upstream industries and sewer discharges accumulated in the sediment and sawdust behind the dam. On removal of the dam a part of the sediments were transported downstream and a large part of the sediment remained behind as remnant bank deposits. The site consisted of four separate remnant sediment deposits totaling approximately 50 acres.

HHS personnel supported the negotiations with the regulatory agencies to develop a remedial solution for the remnant deposits. The work included sampling and testing of the sediments to determine the storm flow suspension potential without remedial action. The testing also included the determination of the upper elevation limit for remedial action. Alternatives from no action to complete removal were examined and the risk of each assessed. The final remedy approved by the USEPA was capping with an armor protective layer to reduce the possibility of future suspension of the sediments during storm flow. HHS personnel were also involved in the management of the construction to install the cap and armor.