DREDGING WORK PLAN

GREAT LAKES NATIONAL PROGRAM OFFICE CLEANUP SERVICES (GLNPOCS)

Contract No. EP-R5-11-04
Task Order No. 0001
Sheboygan Harbor

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1. INTRODUCTION

This Work Plan is submitted to the U.S. Environmental Protection Agency, Great Lakes National Program Office (GLNPO), and the County of Sheboygan Wisconsin to mechanically dredge Sheboygan Harbor, located in Sheboygan, Wisconsin from the mouth of the Sheboygan River up to the Eighth Street Bridge (approximately 3,600 feet long). The project will involve the dredging and removal of PCB contaminated sediments from the Sheboygan River Harbor which will directly result in environmental, social, and economic enhancements of the Sheboygan River watershed and surrounding areas. PCB's in this stretch of the River are generally not higher than 10 ppm and average 1 ppm. The required dredging depths are 11.0' and 15.0' below Low Water Datum (LWD), as noted on the drawings submitted to bidders with Request for Task Order Proposal dated June 11, 2012. An estimated 170,000cy of shoaled material will be removed. The dredged material will be treated with a drying reagent prior to hauling the material in order to meet landfill disposal requirements. A local commercial landfill will be used for disposal. This dredging project will be jointly funded by GLNPO and the County of Sheboygan.

Environmental Quality Management, Inc. (EQ) will perform this project under two separate contracts: one with GLNPO and one with Sheboygan County. The two contracts are for administrative and funding placement purposes. The majority of the planned project work will be performed under the EPA Great Lakes National program Office Cleanup Services Contract (GLNPOCS). The County of Sheboygan WI will issue a separate contract to fund only landfill disposal of 163,402 tons of solidified sediment.

This Work Plan is based primarily on the engineering specifications and drawings provided with EPA GLNPO request for task order proposal dated June 11, 2012.

1.1 General Site Information

The site location is depicted on Figure 1-1 (Site Location Map, located in Appendix D with the rest of the figures). There will be 4 distinct locations where site activities will take

place, which are depicted in Figure 1-2 (Work Activity Locations). Site management and support will take place on a 0.87 acre parcel of land located between Illinois Avenue and Fisherman's Row and east of South Pier Drive. Project team offices and equipment storage will be located in this area. The second work area will be referred to as the transfer area located southwest of the 0.87 acre parcel bordered by South Pier Drive to the southeast, and the Sheboygan River to the northwest, the City fish cleaning station to the northeast, and a condominium complex to the southwest. Site operations in this area will include:

- Scow dewatering
- Waste water treatment
- Sediment solidification
- Sediment transfer (off-loading from scows)
- Solidified sediment drying and stockpiling
- Truck load out of solidified sediment

The remaining 2 work areas consist of two (2) sections in the river where mechanical dredging will take place. Dredging Area 1 is the upstream section where mechanical dredging will be completed to 11 feet below LWD. Dredge Area 1 extends approximately 1456'downstream from the Eight Street Bridge and covers a surface area of approximately 4.93 acres. Dredge Area 2 is the downstream section where mechanical dredging will be completed to 15' below LWD. Dredging Area 2 extends approximately 2151'downstream from the downstream end of Area 1 or approximately 3,607 feet downstream of the Eight Street Bridge and covers a surface area of approximately 10.70 acres.

The project team we proposed to use for the Sheboygan Harbor Dredge project will include personnel from both EQ and 2 of our team subcontractors, Sevenson Environmental Services, Inc. (SES) and AECOM. As the prime contractor, EQ will be responsible for all project and onsite management, reporting, CQC and Health & Safety, procurement, and cost and schedule control. EQ staff will also be directly involved in site preparation and staging area construction, solidification reagent and mixing, water treatment, and offsite transportation and disposal of all waste materials, including solidified dredge material. SES will be responsible primarily for dredging, dewatering, and sediment/reagent mixing operations. AECOM will provide staff from their local offices in Sheboygan, Milwaukee and Green Bay to assist in the areas of environmental controls and monitoring and site CQC. AECOM will also provide an

individual from their Sheboygan office who is a former City of Sheboygan employee to assist the EQ project management team with coordination with the City and other stakeholders.

1.2 Summary of Work

A basic outline of our proposed technical approach for major work tasks is presented below. Our comprehensive technical approach will include more detailed descriptions of our means, methods, and approach for these major work tasks. Other related ancillary tasks (surveying, environmental controls and monitoring, quality control, etc.) will also be described in detail in the subsequent technical approach section of this work plan. The equipment we propose to employ to execute the major project work tasks is described in Section 3.2 of this draft work plan.

1.2.1 Planning and Preconstruction

Planning and preconstruction activities will begin immediately following receipt of the NTP from EPA. Major planning and preconstruction activities that will be performed are listed below:

1. A preconstruction meeting will be held with EPA to discuss and plan all work activities, site logistics, resource requirements, permitting requirements, and the roles and requirements of all stakeholders. This preconstruction meeting will be the basis for preparation and submittal of a comprehensive work plan as well as other project required plans (QAPP, Solidification/ Stabilization work plan, SSHP, Environmental Protection and Monitoring Plan, etc.).
2. Meetings will also be held with the City and County and all other appropriate stakeholders to discuss their roles and specific needs and requirements to insure that our work is effectively coordinated with their respective activities and responsibilities.
3. All required project reports and permit applications will be prepared in accordance with the work specification. A detailed table will be prepared listing all required preconstruction reports, plans, and permits, and this table will identify responsibilities, submittal dates, and approval dates. No work will be performed prior to receiving EPA approval of all appropriate reports, and dredging will not begin until the necessary dredging and water treatment discharge permits are in place.
4. A written procurement plan will be prepared to ensure timely delivery of all required project materials and services. The plan will clearly document what material/service items are needed, when they will be required, and where the materials/services are to be delivered. Procurement managers will work closely with the EQ Project Manager at the beginning of the project and as work progresses to insure that materials and services are procured and delivered at the right time and in the right place so that these activities do not hold up site productivity or adversely impact the schedule.

1.2.2 Site Setup and Preparation

Site setup and preparation activities will include the following:

1. Establish command post and parking in 0.87 acre lot north side of Illinois Avenue
2. Create connecting roadway between Illinois Avenue and Fisherman's Row to allow for disposal truck staging on both Illinois Avenue and Fisherman's Row.
3. Develop Waste Transfer Area with the following features to include:
   a. Construct lined staging pad for sediment waste solidification, dewatering, staging and load out in compliance with the work specification
   b. Install environmental controls and monitoring devices/locations
   c. Construct temporary roadway on lot parallel to South Pier Drive, where offsite disposal trucks will be loaded. Trucks will proceed through the tire wash decontamination station and proceed back onto South Pier Drive in route to the disposal facility
   d. Install and operate waste water treatment area to include treatment equipment capable of processing 200 gpm of dredge water and water from the staging pad area.
   e. Install work barge extending into river configured to accept loaded scows, where decanting of water will take place, and subsequent mixing/solidification and transfer of sediment to staging and dewatering pad.
   f. Isolate access path on staging pad to accommodate delivery of fly ash material to a Pig storage silo that will be positioned on landside behind the working barge where scow dewatering and solidification reagent material addition and mixing will take place,
   g. Place timber mat work platform over the concrete promenade along the river to minimize impact or damage to the concrete surface from site operations.
   h. Install security fencing around perimeter of transfer area
   i. Temporary removal of walkway railing and other promenade features subject to damage by dredging operations
   j. Place Fly Ash storage Pig and Belgrade Silos for solidification and stabilization operations

1.2.3 Dredging Operations

Dredging operations will consist of the following:

1. Install environmental and marine navigation controls.
2. Perform pre-removal hydrographic survey and landside surveying.
3. Perform initial dredging along eastern shoreline of transfer area from landside to create adequate draft for loaded scows
4. Perform remaining dredging from 8th street progressing downstream towards entrance to harbor.
5. Weekly check surveys performed, and prepare progress schedule updates subsequent for data evaluation, quantity verification, and payment.

6. Dredge plant will consist of spud barge with Kamatsu PC 800 excavator and environmental bucket to perform sediment removal. Various sized conventional excavators buckets will be available for digging and potential "hard" sediment. Excavator will be equipped with RTK GPS system to guide and track dredging progress.

1.2.4 Dewatering and Solidification

Dewatering and solidification activities will consist of:

1. Transfer of loaded scows to transfer area for dewatering, and addition and mixing of solidification media in scows.
2. Solidification media (Class C Fly Ash) will be added to barges from the Belgrade Silos. Belgrade silos will be refilled as needed from 100 ton storage Pig silo.
3. A Komatsu PC 400 Long Front excavator will mix solidification media in barges from landside and from the sectional barge pier prior to offloading. Section 3 of this proposal provides more detail on the solidification material we propose to use for this project and our technical approach for mixing and stockpiling wastes.
4. Solidified material will be removed from the scows with a 110 ton crane and 4 cy clamshell bucket and placed onto the staging pad, where Komatsu WA 450 rubber tire loaders will consolidate the material into the load out stockpile(s).
5. Material will be allowed to cure and dewater for up to 12 hours prior to post treatment testing per specification requirements for offsite disposal. Curing time will be reduced if post treatment test results meet the specified criteria.
6. Cured materials will be loaded for off-site disposal. Solidified materials that fail the required post treatment tests will be reprocessed and allowed to cure further; retesting will be performed and materials that meet the test criteria will be loaded for offsite disposal.

1.2.5 Water Treatment

Water treating activities will include:

1. Free water removed from the scows and from the stock pile transfer area will be pumped to the onsite treatment system for processing and ultimate discharge back into the River in accordance with the permit testing and discharge requirements.
2. Treatment design will include settling, filtration, and polishing using Granular Activated Carbon (GAC) units. Latent water will be pumped to a settling weir tank and 3 Frac tanks located in the wastewater treatment plant area. Water will be processed mechanically and through chemical filter media to remove contaminated sediment particulates prior to discharge. Valves will be located between the Frac tanks to allow isolation of any Frac tank water from the treatment process. One Frac tank will be used for backwashing the system.
3. The treatment system will include a transfer pump to transfer water from the weir tank to the Frac tanks, and a diesel pump for transferring water from the Frac tanks to the treatment system. The treatment system will consist of a 2 stage sand filter followed by a four stage bag

filter and dual carbon adsorption units in series. Final effluent will be sampled and metered in accordance with the discharge permit.

1.2.6 Transport and Disposal

Transport and disposal will consist of the following:

1. Disposal trucks will be staged for loading on both Illinois Ave and Fisherman's Row before entering the site from South Pier Road.
2. Load-out operations will proceed along the working face of the sediment stockpile as trucks proceed down the access road in the transfer area along South Pier Road. Trucks will be loaded with either rubber tire loaders and/or excavators from a stockpile section that contains cured material that has passed the post treatment tests for the offsite disposal testing criteria.
3. Truck tires will be pressure washed prior to departing the site.
4. The landfill will provide a dedicated access road and a dedicated dump area with a convenient circular route or turn-around area. This will allow for fast, safe, expedited flow of truck traffic. A wheel wash station will also be provided.

1.2.7 Site Restoration and Demobilization

1. Remove all installed structures, items and materials (e.g., liner materials, temporary pads, roadways, environmental controls, fencing, etc.).
2. Replace asphalt structure and any other structures removed during the project.
3. Remove perimeter sediment and erosion controls and preform final restoration of all disturbed areas.
4. Conduct post installation inspections with EPA and other appropriate stakeholders (e.g., City and County of Sheboygan) and develop a punch list of any required corrective measures and close out items (NOTE: a preliminary checklist, description of planned closeout procedures and responsibilities, and a closeout schedule will be provided to EPA and stakeholders at least 30 days before actual closeout procedures begin to allow for a more organized, smooth, and timely execution of closeout activities).
5. Conduct any necessary environmental sampling and analysis to confirm that all disturbed areas are "clean" and have been returned to preconstruction conditions.
6. Demobe site equipment, materials, and facilities.
7. Execute final signoff of closeout with EPA and other appropriate stakeholders.
8. Demobe final site personnel.
9. Submit remaining post construction submittals.

2. TECHNICAL APPROACH

EQ's technical approach is presented in a format sequence that follows the EPA bid item schedule provided in the June 12, 2012 Request for Task Order Proposal (RTOP) and is based on information and specifications provided with the RTOP. However some tasks will be combined as the respective definable work activities are the same and are differentiated by unit rate quantities or definable work activities that are closely comingled between tasks.

2.1 Mobilization

2.1.1 Applicable Specification Reference

Our technical approach for mobilization and all related work subtasks will follow the applicable work specification requirements listed in Table 2-1.

Table 2-1. Work Elements To Meet Specifications Affecting Mobilization

Specification Reference	Specification Title	Work Element
01 32 01. 00 10	Project Schedule	Preconstruction Submittal
01 33 00	Submittal Procedures	Establishes preconstruction submittal requirements and procedures
01 35 13.101	Special Project Procedures	Requires preparation of a "Utility Locating Plan" and a "Report of Utility Location Findings"

2.1.2 Applicable Permit Requirements Wisconsin DNR Dredging Permit IP-SE-2012—60-0096, 1041-1045

Requirements that effect mobilization include:

1. A copy of the permit will be posted in a conspicuous location visible from the waterway 5 days prior to construction and remain 5 days after construction.
2. All equipment used for the project including, but not limited to tracked vehicles, barges, boats, silt or turbidity curtains, hoses, sheet pile and pumps will be decontaminated for invasive and exotic viruses and species prior to use and after use.

EQ will obtain a "City of Sheboygan" Storm Water Pollution Prevention Permit that will establish "Best Management Practices" (BMPs) to be utilized for land side operations in and around the Transfer Area and the 0.87 acre Parcel utilized for the site office trailers and support facilities.

2.1.3 Submittal Requirement Requirements

Preconstruction Submittals listed in Specification Section 01 33 00 will be prepared by EQ and submitted to EPA prior to mobilization of personnel and equipment. EQ may choose to mobilize some personnel and equipment prior to acceptance and approval of required submittals.

2.1.4 Definable Features of Work and Execution Method

Preconstruction Submittals—EQ and its team subcontractors will work collectively to prepare the preconstruction submittals required. Preconstruction submittal will initially be sent electronically to the EPA GLNPO Project Manager Heather Williams for distribution, review and subsequent approval. Electronic submittals will be provided by either EQ's Project Manager (Eric Bowman), or Program Manager (Jack Greber), or Construction Quality Assurance Manager (Jackie Doan). Each submittal will be accompanied by USACE Form 4025-R and a Submittal Stamp. EQ will provide hard copies of documents of finalized submittals in quantities as specified by the GLNPO PM.

Preconstruction Meetings—Key members of the EQ team attended a preconstruction conference in Sheboygan Wisconsin on Wednesday July 11, 2012. Project team members were introduced to key project stakeholders from EPA, State of Wisconsin, Sheboygan County and City of Sheboygan. Required permit application and related procedures and site logistic issues were discussed. A subsequent visit was made to the transfer site to identify space requirements for dredging along the transfer site, seawall, and the promenade.

Permits and Agreements—EPA has secured access agreements with the City of Sheboygan and the Sheboygan Redevelopment Authority for land parcels to be utilized to support dredging operations. These parcels are the staging area, which is also referred to as the transfer site along South Pier Drive, and the 0.87 Acre Parcel north of Illinois Avenue and the east of South Pier Drive to be utilized for site office trailers and the support storage area. In

addition EQ will construct a temporary roadway at the eastern end of the parcel to allow truck staging on Illinois Avenue and across to Fisherman's Row to access the transfer site from South Pier Drive.

EPA has also obtained dredging permits from USACE (2012-00538-ADJ) and the State of Wisconsin (IP-SE-2012-60—00096, 1041-1045).

Prior to the start of dredging EQ will obtain a "City of Sheboygan" Storm Water Pollution Prevention Permit and a Wastewater Wisconsin Pollution Discharge Elimination System permit.

Personnel and Equipment Mobilization—EQ and our approved subcontractors will mobilize required personnel, equipment, and materials to the site in an orderly and efficient manner on or about August, 6 2012. EQ personnel and equipment will be mobilized from our Cincinnati, Ohio office, and subcontractor resources will be mobilized from their regional offices. All required permits and licenses will be in place and available for review at the time of mobilization. Mobilization activities will be completed in a logical and "phased" approach over several days to ensure that all activities proceed in a well-coordinated, organized, and safe manner.

Control measures will be implemented during mobilization and work area setup to mitigate dusts, noise, and any other possible disturbances to the local residents and general public. We will communicate and coordinate closely with all local authorities concerning planned mobilization, site setup, and work activities to ensure the safety and protection of all individuals and property.

Preconstruction Precondition Survey Plan and Execution—A pre-condition survey will be conducted and will include the following:

1. Locate, identify, survey utilities within work area and prepare a Utility Findings Report in accordance with previously referenced specification in Table 2-1.
   a. Utility Locate Meetings and mapping will be coordinated locally by AECOM.
   b. A local staff member will be on-site to meet with utilities identifiers including Digger's Hot Line. The Wisconsin Diggers hotline may be accessed by calling 811, 800-242-8511, or emailing diggershotline.com.
2. Locate/survey/photograph and document vegetation, structures, and equipment within the work area. Land survey support for EQ and SES for site set-up and installation of control monuments.
3. Assessment of Pre and post construction haul route pavement conditions to include video and photograph documentation.

Marine Operations and Equipment Mobilization—EQ's team subcontractor SES will mobilize marine operations equipment overland and by water routes to the work site. The following steps will be taken to avoid transporting invasive and exotic species, and to the extent practicable equipment and gear used on infested waters shall not be used:

1. Inspect and remove aquatic plants, animals, and mud from equipment.
2. Drain all water from equipment that comes into contact with infested waters.
3. Properly dispose of aquatic plants, animals, and any other debris.
4. Wash equipment with hot (>104°F) and/or high pressure water or allow equipment to dry thoroughly for 5 days.

2.1.5Controls

A mobilization conference will be held during the week of August 6, 2012 to meet with EPA and local stakeholders (City and County officials and planners, environmental stakeholders, local and county police and fire protection personnel, US Coast Guard, etc.). A power point summary of the work plan will be presented and include discussion of details related to safety and traffic and marine controls. The EQ team intends to clearly demonstrate that our entire team will be committed to working safely and cooperatively with the local community. In addition site, project, and program contact information will be presented to establish effective communications with the stakeholders and community.

2.2 Site Preparation

2.2.1 Applicable Specification Reference

The specification references presented in Table 2-2 dictated the development of our definable features of work and our technical approach for site preparation.

Table 2-2. Work Elements To Meet Specifications For SITE PREPARATION

Specification Reference	Specification Title	Work Element
01 35 13.101	Special Project Procedures	Requires EQ to provide temporary haul roads, appropriate barricading, and signage
01 35 13.101	Special Project Procedures	Requires installation of temporary lights, signals, and buoys, and temporarily relocate existing as needed
01 35 13.101	Special Project Procedures	Requires accommodation for Inspectors
35 20 23 3.3.5.2	Dredging	Transfer site is located on a previously remediated site that is now capped and therefore excavation is prohibited, all site preparation construction will be from grade surface up
02 55 00	Solididifcation Stabilization of Material	Specifies the requirement of 40 mil geomembrane liner beneath staging area

2.2.2 Applicable Permit Requirements

"City of Sheboygan" Storm Water Pollution Prevention Permit—EQ will implement BMPs on site to comply with the permit. These BMPs may include:

- Placing filtration bag liners in storm sewer inlets along South Pier Drive along the border of the transfer site to 200' west of the truck exit from the transfer site
- Installing silt fence on the south side of the transfer site haul road
- Installing an 40 mil HDPE lined and asphalt covered staging pad with a 6" tall containment berm around perimeter
- Installing silt fence along both sides of the temporary haul road to be constructed between Illinois Avenue and Fisherman's Row
- Providing street sweeper for housekeeping of haul road and public roadways adjacent to site utilized by offsite disposal trucks
- Providing a tire wash within the containment of the staging pad/haul road for tire wash of offsite disposal vehicles
- Providing silos and pigs with bag houses for storage and handling of the fly ash used for sediment solidification
- Providing misting equipment as needed to maintain dust control during fly ash addition to scows for solidification
- Block and plug storm sewer collection inlets within the confines of the contained staging pad area

2.2.3 Submittal Requirement Requirements

The following submittals are directly related to mobilization:

- Report of Utility Location Finding
- Survey Technicians Qualifications

2.2.4 Definable Features of Work and Execution Method

EQ will implement a work area plan that ensures effective site logistics and efficient work operations. Our plan and site setup strategy will also ensure proper safety and environmental protection. Figure 2-1 (Work Area Installation Features) depicts the location and type of features to be subsequently described.

Clearing and Grubbing—The nature of the site does not dictate typical or extensive clearing and grubbing. To insure protection of the liner that was installed in this area as part of previous remedial actions, construction of site facilities will be from the ground surface up so there will be no stripping of vegetation and minimal if any excavation. There are site features that will require removal to facilitate construction of site facilities and site operations, and include:

- Removal of lamp posts along promenade over the expanse of the transfer site. Lamp posts will be removed and stored in a secure location for subsequent reinstallation during site restoration activities.
- Removal of guard rail sections along the promenade. These sections will be stored with lamp post and subsequently installed during restoration. Hot work permits will be obtained in accordance with the site safety plan requirements.

Installation of Environmental Controls—Environmental controls will be installed as described in Section 2.2.2 of this work plan either prior to or concurrent with other features and facilities described in this section. The primary environmental control features to be installed prior to/or with commencement of construction of site facilities are:

- Installation of silt fence along both perimeter sides of the temporary haul road between Illinois Avenue and Fisherman's Row
- Installation of silt fence along southwestern side of the containment pad location, between containment pad foot print and South Pier Drive
- Temporary (for only site set up activities) installation of silt fence along promenade pavement edge to be removed after containment pad construction
- Installation of storm sewer filter bags in storm sewer inlets around truck route from transfer area and 0.87 acre parcel

- Installation of storm sewer filter bags and plugs on storm sewer inlets on existing paved area in the transfer area

Office Trailers and Support Facilities—Care will be taken to minimize disturbance to the grass covered surface of the 0.87 acre parcel. We will only install features deemed immediately appropriate to site management and support operations. Additional infrastructure will be installed as necessary to facilitate protection of the environment and existing structures. Three office trailers will be installed for site management and support. The office trailers will be approximately 10' by 50' in size and will be stationed on the grass covered 0.87 acre parcel parallel to Illinois Avenue as depicted on the Site Layout Figure 2-1 (Work Area Installation Features). The trailers will be anchored into position with ground anchors provided by the trailer leasing company. Gravel walkways will be installed s as needed with geotextile and < 1" sized gravel to provide safe pathways between trailers and to Illinois Avenue. EQ will lay 5' wide geotextile strips on surface grade and cover the geotextile with a 1"-3" layer of gravel to provide a smooth and level walking surface.

Electrical power service will be provided to all 3 office trailers, as well as phone and internet service. Tables, chairs, appliances will also be provided in compliance with specifications. EQ will provide portable toilets and hand wash stations for all the 2 landside work areas and for the work barges performing dredging operations in the harbor. Adequate dumpster service will be provided to support all site activities and generated miscellaneous nonhazardous wastes. Receptacles will be provided in each office trailer for collection of recyclable materials such as paper and plastic discarded materials.

Additional gravel parking areas and Connex Storage Containers will be installed on the grass covered parcel as need dictates. It is our intent however, to park support vehicles along the north side of Illinois Avenue, while allowing the remainder of Illinois Avenue open for staging of offsite waste transfer trucks during dredging and waste load out operations.

Marine Traffic Controls—EQ's dredging contractor SES will be responsible for installing temporary lights, signals, and buoys as per specification identified in Table 2-2. They will coordinate with the Ninth Coast Guard District to obtain specific requirements by contacting the Commander at 216-522-2060 as required in the Specification Section 01 35 13. 10, Page 7, subsection 1.4.11 and follow guidelines established in subsequent subsections 1.4.12.1- 1.4.12.3.

Preconstruction Landside Surveying and Marine Surveying—EQ team subcontractor AECOM will perform landside surveying of the transfer area to establish grade elevations for construction of site facilities such as the containment pad and other facilities subsequently described in this section.

EQ understands that USACE will perform a pre-removal survey during a period concurrent with site preparation operations and share survey information with EQ as well as establish and provide information on survey control points for calibration survey equipment used to track progress during sediment removal operations.

Staging Pad Construction—A 40 mil HDPE lined and asphalt covered pad will be constructed from existing ground surface up with construction features depicted in Figure 2-2 (Typical Containment Pad Detail) over the majority of the parcel located between South Pier Drive and the Sheboygan River designated earlier as the transfer area. The pad will extend up to the existing concrete wall on the existing asphalt paved surface and eastern sides of the transfer site, and to within 5' of the concrete promenade and light post bases along the northern/western side of the transfer area. The pad will extend up to the limits of disturbance on the southwestern and northeastern sides of the transfer area. Slope angles on the perimeter containment berm will be adjusted at truck entry/exit points to facilitate transgression on and off of the pad while maintaining containment. This pad will contain the staged solidified sediment, and waste water treatment plant. An access way will be maintained with appropriate berms and barriers between the waste water treatment plant location and the staging area to allow fly ash delivery trucks and heavy equipment fuel delivery trucks to pigs, silos, and fuel storage tanks that will be positioned near the mixing barge area. Construction and operation of the pad in this manner will contain sediment, and water contaminants and protect against accidental spills of fuels and other materials from landside operations.

Truck Loading Pad—A truck loading pad will be constructed between the staging pad and the haul road. The pad will be constructed in a similar fashion as the staging pad, with the exception that it will not have an asphalt surface finish, however it will include an HDPE liner for containment. The 2 excavators used to load trucks will sit on this pad and reach over the concrete wall to remove solidified sediment and transfer the material into off-site disposal trucks.

Haul Road Construction—Two temporary haul roads will be constructed to facilitate site operations. The first haul road will be constructed on the 0.87 acre parcel to facilitate disposal truck traffic transgression from Illinois Avenue to Fisherman's Row, where trucks may be staged prior to load out to maintain normal traffic flow along South Pier Drive. This road will be constructed from surface grade up by placing geotextile fabric over the grass surface and installing a rock and gravel layer over the geotextile. The road will be 12'-15' wide with an extended apron toward the west along both Illinois Avenue and Fisherman's Row to accommodate truck turning radius. EQ will either cut concrete curbs or install asphalt ramps to accommodate the transition on to and off of the temporary road.

The second haul road will be constructed approximately 5' northwesterly from South Pier Drive in a parallel fashion. It will be constructed using geotextile underlayment and a stone pavement surface.

Tire Wash Station Construction—The tire station will be constructed at the west end of the haul road as depicted in Figure 2-1. Figure 2-3 (Typical Tire Wash Station Detail) depicts a typical construction detail view of the proposed tire wash station. The tire wash station will be operated as needed during load out activities once dredging has begun. The condition of the haul road will be monitored and the station will be utilized if and when sediment tracking from the haul road is determined to be an issue.

Waste Water Treatment Plant—A waste water treatment plant (WWTP) capable of treating up to 200 gpm will be provided and positioned the northwest end of the staging pad as depicted in Figure 2-4 (Sheboygan Dredging Site Water Treatment Process Flow Diagram). A detailed description of the system and its operation are included as Appendix A, Sheboygan WI River Cleanup Water Treatment System Design and Materials Balance.

The WWTP will be utilized to treat water collected from:

- Dewatering of scows prior to solidification
- Stormwater accumulations on staging pad
- Rinse water from tire wash station and other equipment decontamination efforts

Mixing/Stabilization Area Preparation—The mixing/stabilization area will be prepared by placing a work barge along the seawall parallel to the promenade in a position depicted in Figure 2-5 (Barge Layout Details). A work barge approximately 35' wide by 165' long will be

anchored into position using spuds deployed from the work barge. The work barge will hold 2 long reach excavators used to add and mix fly ash to solidify sediments contained within loaded scows. Silos and Pigs will be positioned on the promenade and containment pad to the southwest of the work barge. Silos and pigs will be of adequate size to support site operations, but specific information is not available at this time as these items are being currently procured.

Offloading Area Preparation—The off loading area will be located to the west of the mixing stabilization area as depicted in Figure 2-1. The offloading area will be prepared by installing timber crane mats over the concrete promenade where the crane utilized to off load scows will be positioned.

2.2.5 Controls

Site Security—EQ will provide pre-panelized chain link construction fencing to surround the perimeter of the transfer area from the seawall on each end up to South Pier Drive and along South Pier Drive on the southeastern side. Gate openings will be present in the southeast and southwest corners where trucks will egress and exit the site. Gates will remain open the majority of the time during site dredging operations as work is anticipated to be 24 hours per day, 7 days per week.

Environmental Controls—Required environmental controls will regularly be maintained and inspected on a weekly basis, and subsequent to every ½" rainfall.

Traffic Controls—Several traffic control measures will be established to protect site workers and motorists. A painted crosswalk will be placed on South Pier Drive between the trailers and the Transfer Area to promote safe access. In addition to the cross walk stop signs will be placed 50 feet on each side of the cross walk. "Stop Ahead" signs will be placed 200 feet on each side of the cross walk. EQ will also provide "Trucks Entering Roadway" signs 250-feet from each entrance to the staging area.

2.3 Dredging, First 100,000 CY and Additional CY

Bid items 3 and 4 are addressed collectively in this work plan because the technical approach will be the same for both tasks.

2.3.1 Applicable Specification Reference

The following specification references presented in Table 2-3 were followed to develop our definable features of work and our technical approach for execution of the dredging task.

Table 2-3. Work Elements To Meet Specifications For Dredging

Specification Reference	Specification Title	Work Element
35 20 23 3.2.1	Dredging	Coordinate with the City to have docks removed
35 20 23 3.2.6	Dredging	Contractor shall use closed top production bucket in good repair to minimize re-suspension of sediments
35 20 23 3.2.7	Dredging	Water accumulations will be pumped from hauling vessels, treated, and discharged under WPDES Permit

2.3.2 Applicable Permit Requirements

All dredging related activities will be performed in accordance with the following permits:

- USACE 2012-00538-ADJ
- WDNR IP-SE-2012-60-00096 1041-1045

2.3.3 Submittal Requirement Requirements

The following submittal requirements will be completed by EQ to maintain compliance with Specification Section 35 20 23, Dredging:

- Preconstruction Submittal Summary
  1. Sounding Equipment Description and Calibration Data
  2. DVD
  3. Dredging Placement and Placement Plan
  4. Dredging Placement Safety Plan
  5. Written Agreement with Landfill
  6. Notice of Start of Dredging

- Shop Drawings
  1. Soundings

- Testing Reports
  1. Daily Report of Dredging Operations

2.3.4 Definable Features of Work and Execution Method

Pre-Dredging Clearance of Debris and Obstructions—EQ and its dredging contractor SES will review the pre-condition bathometric survey data to determine if apparent debris and obstructions are present in the dredging area that might interfere with closed bucket operation during dredging activities. The dredging barge will be deployed to investigate suspected large submerged logs and debris using survey and GPS data and removed accordingly with a conventional digging bucket. Debris if any will be loaded either on to the work barge or scows and ferried back to the transfer area for offloading and processing into proper size proportions for offsite disposal.

Dredging—Dredging will be performed with a Komatsu PC 800 hydraulic excavator using a Young's 3 yd^3 hydraulic clam shell bucket. The product data sheets for a Young's 2 yd^3 bucket and Komatsu PC 800 are included as Appendix B (Dredging Equipment Information Data). Dredging will be performed using an IHC XPM System to guide and monitor dredging cuts. Dredging will be conducted from a work barge platform and placed into position with a tug boat and anchored in specific locations using spuds deployed from the work barge. Dredging will generally progress from upstream to downstream for both Dredge Areas 1 and 2.

Dredging will begin in Area 1, where removal will be performed to 11' below LWD. As previously mentioned Area 1 is approximately 4.9 acres in size. Sediment removal thicknesses will range from <1' to approximately 7'. The nature of the depositional environment of the river is such that the northern and western sides of the river are where the greatest thicknesses of sediment exists, while the southern and eastern sides of the dredging area have the least amount of material to be removed.

Dredging will progress to Area 2 where removal will be performed to 15' below LWD, subsequent to Area 1 completion. Area 2 is approximately 10.7 acres in size. Sediment removal thicknesses will range from approximately 3' to approximately 9'.The nature of the depositional environment of the river is such that the southern and eastern sides of the river contain the greatest thicknesses of sediment to be removed, while the northern and western side of the dredging area will have the least amount of material to be removed.

Conveyance to Mixing Area—A total of 3 scows will be utilized to contain and transfer the dredged sediments to the mixing area. Details concerning the scows are provided as Appendix B. Scows will only be filled to a capacity to allow addition of the fly ash solidification agent with enough free board to allow for mixing. Two sizes of scows will be utilized to convey dredged sediment:

- 42' by 167'
- 35' by 195'

After the filled scows have been secured to the mixing barge latent water will be pumped from the barge to the settling tank that leads into the water treatment system. Following removal of the water from the scow, solidification/stabilization operations will begin.

2.3.5 Controls

Progress Monitoring—Dredging will be monitored daily to track progress in 3 ways. The first method will involve the use of the IHC XPM system to monitor daily progress. An information package regarding the IHC XPM System is included in Appendix B. The software tracks the dredge bucket in real time and a computer screen displays the bucket depth and footprint during operation. A dredge template is also displayed showing the operator where to stop the dredge bucket. Each time the dredge bucket closes, the footprint of the bucket changes the screen color. Each day's work will be captured in a figure showing dredge progress to confirm sediment removal through a graphical display. Data generated will be included in daily work reports provided to EPA and/or their onsite representative

The second form of progress monitoring will be through weekly check surveys. EQ's subcontractor SES plans to use a single beam hydrographic survey system to perform weekly volume checks. The survey system on board the survey vessel will consist of an RTK DGS receiver, a fathometer and a PC computer running Hypack for data collection and post processing

Generally, lines will be run 50 feet perpendicular to the channel. Daily bar checks will be performed two times per day prior to and immediately following completion of each dredging day to eliminate speed of sound and transducer draft errors. Positional checks will be performed twice daily by checking water surface elevation with a tide staff on site for vertical calibration.

Horizontal calibration will be checked by pulling the boat alongside a pier/bulkhead with a known position. The antenna will be removed (with cable attached) and placed over the known point to check accuracy of the horizontal position. The data will be reviewed daily to ensure proper coverage and quality.

Upon completion of the weekly hydrographic survey all data will be edited and processed using HYPACK software utilities. During processing, corrections for vessel motion and tidal variation will be applied and errant soundings will be removed from the database. The output file will be an ASCII file that will be used for development of bathymetry maps and volumes.

Volume computations will be performed to determine the amount of material that lies within the template and/or to illustrate how much sediment has been removed to date. Further details regarding the implementation of the check survey procedure are provided in the Construction Quality Control Plan dated July 2012. Weekly survey data generated will be included in appropriate daily work reports subsequent to data evaluation and compilation and provided to EPA and/or their onsite representative

The final form of progress monitoring will involve monthly progress payment surveys performed by USACE. EQ and its team subcontractors will review data generated by USACE and will either concur or dispute survey data. In the event that data is disputed, EQ will prepare a dispute report with supporting data to resolve differences in monthly progress survey results. EQ and its subcontractors will work with EPA and USACE in a cooperative manner to resolve disputed quantities accordingly.

Environmental Monitoring—Details describing environmental monitoring are provided in Section 3.2 of the Environmental Protection Plan dated July 2012.

Coordination with City—EQ's Site Superintendent Bill Poma will be the primary point of contact (POC) with the City of Sheboygan for the purpose of relocating docks in advance of dredging. EQ's Virgil Clay will be the secondary POC and EQ's tertiary POC will be Project Manager Eric Bowman. EQ's Site Superintendent will communicate with David Biebel, Director of Public Works or as otherwise directed by the city. Contact information is listed below.

Name	Organization	Phone	Email
Bill Poma	EQ	513-659-5875	bpoma@eqm.com
Virgil Clay	EQ	601-529-0889	vclay@eqm.com
Eric Bowman	EQ	513-265-8875	ebowman@eqm.com

David Biebel	City POC	920-459-3366	dbiebel@ci.sheboygan.wi.us

EQ will also create a project website to post information regarding the project, such as contact information, progress updates, projected activity and schedule updates.

2.4 Drying Agent, First 13,000 Tons and Additional Drying Agent Quantity

Bid items 5 and 6 are addressed collectively in this work plan because the technical approach will be the same for both tasks. A copy of the information sheet for the Class C fly Ash to be provided by La Farge is included as Appendix C (Fly Ash Data Sheet).

2.4.1 Applicable Specification Reference

The development of our definable features of work and our technical approach for execution of this work task are based on the specification references presented in Table 2-4.1.

Table 2-4.1. Work Elements to Meet Specifications for Drying Agent Addition

Specification Reference	Specification Title	Work Element
02 55 00	Solidification Stabilization of Material	Specifies the performance of a Field Demonstration

2.4.2 Applicable Permit Requirements

The "City of Sheboygan" Storm Water Pollution Prevention Permit is assumed to have standards for dust monitoring and control and work under this task will comply with these requirements. Specific requirements were unavailable at the time of this work plan preparation.

2.4.3 Submittal Requirements

Submittal requirements for this task will include the following:

- SD-3 Product Data
- Work Plan
-
- Equipment
- Quality Control Tests
- Key Personnel and Qualifications
- Batch Proportions
- SD-06 Test Reports

- Post Treatment Test Results
- Field Demonstration Results
- SD-07 Certifications

2.4.4 Definable Features of Work and Execution Method

Field Demonstration—EQ will perform a field demonstration of the solidification stabilization mixing operation on approximately 500 yd^3 of sediment removed from the subject Sheboygan Harbor dredge area.

Solidification/Stabilization Mixing Operation—The solidification/stabilization mixing process will consist of the following steps:

1. The Class C fly ash will be added to the sediment contained in the scows using 2 long reach excavators that will operate from a work barge. The fly ash will be delivered to the site in pneumatic tanker trucks, and the material will be blown into a storage pig. . The storage pig will distribute fly ash to silo(s) placed on the promenade behind the mixing excavators. Fly ash will be deployed from the silos down a shoot to fill the excavator buckets. Misting equipment will be installed and utilized as needed to control dust emissions when adding and/or mixing fly ash into the sediment.
2. A barge displacement table will be developed for the sediment barges that are used to transport the material. The tables will show the draft of the barge and the relationship between the draft and the weight (tons) required to achieve the draft. The draft will be recorded at all four corners following decanting the free water in the barge. The average draft will be determined for the barge and the tons of sediment in the barge. The tons of sediment in the barge will be used to determine the quantity of fly ash to be added to the barge at the appropriate ratio. An example of a barge displacement table is presented as Table 2-4.2 below.

Table 2-4.2. Example Barge Displacement

Draft	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50
Tons	0	60	121	181	241	301	362	422	482	542	603

Draft	5.75	6.00	6.25	6.50	6.75	7.00	7.25	7.50	7.75	8.00
Tons	663	723	783	844	904	964	1,024	1,085	1,145	1,205

Example: Following decant, the average draft of the barge is six feet. Six feet of draft equals 783 tons of sediment (ex situ). The tons or fly ash required at a 10% mix ratio would be approximately 78 tons.

1. The appropriate tonnage will be added to the barge by dispensing fly ash into the bucket of an excavator. Weight per volume calculations will be performed at the onset of the operation to determine how much weight of fly ash is present for each excavator bucket used to solidify sediment material. This calculation will be done as follows:

a. Weight per cubic yard of the fly ash will be divided into the cubic yard capacity of excavator bucket to determine the weight per bucket.
b. The total tons required per barge will then be divided by the weight of fly ash per bucket to determine the number of buckets added to each barge.
c. Weight of fly ash material is 1.2 tons/yd^3

2. One excavator will be dedicated to adding the appropriate number of buckets of fly ash to the barge while the second excavator will be used for mixing. After proper addition amount of fly ash has been added the excavator used for adding fly ash will shift to assist in the mixing operation.
3. Mixing will continue until the admixture reaches the desired homogenous color and texture.
4. A tug boat will move the scow to the unloading location west of the mixing barge. The scow and sediments will be left in place to setup for a period of up to 12 hours to allow the fly ash to react with the residual water in the sediment before being off loaded.
5. The scow will then be offloaded and material staged for load out and disposal as previously described in Section 1.2 of this work plan.
6. QAQC samples will be collected and analyzed for specified parameters and at a frequency described on Page 7 of specification 02 55 00.
7. Material that meets the specified treatment and landfill criteria will be loaded for offsite transport and disposal.

2.4.5 Controls

Quality Control—Quality control procedures for stabilization/solidification of dredged material will consist of pre- and post- project initiation procedures. These quality control activities will include:

1) Securing Class "C" fly ash that meets the requirements set forth in ASTM C 618.
2) Providing a "Certificate of Analyses" for each shipment of fly ash, which will be attached to daily QC reports.
3) Periodic geotechnical testing of treated dredge material. Testing and reporting details are included in the Construction Quality Control Plan, Dated July 2012.

Environmental Controls—Dust generated from the handling of fly ash is the primary environmental concern for this operation. The following controls will be used to contain dust related with the mixing and stabilization operation:

1) The storage pigs will be equipped with a bag house to control emissions when receiving deliveries of solidification material. Pneumatic tankers will transfer material into the pig using air pressure to push material into pigs. As material is pushed into pig(s), exhaust air is

filtered through a filtration bag, thus keeping the easily aerosolized material in a contained and controlled environment.

2) Use of Silos with bag houses will control emissions as material is transferred from pigs to silos. The material will be fed by gravity into the excavator bucket through a flexible shoot minimizing contact with the outside environment thus limiting the opportunity for emissions. Dispersing rate to the bucket will be manually controlled and closely monitored through visual observations. This will allow for adjustments to the flow rate to be made when the bucket is filled to minimize emissions.

3) The excavator operator will release the fly ash on the surface of the sediment with a minimal amount of drop distance between the bucket and the sediment. Material will not be allowed to drop from the bucket thus not allowing wind to aerosolized the material as it falls to the sediment surface in the scow.

4) A misting system will be employed as needed to knock down dust emissions at the source area in the event any/or all of the first 3 control measures prove to be ineffective.

2.5 Dewatering and Water Treatment

Work activity for Bid Items 7 (Dewatering) and 10 (Water Treatment) will be discussed collectively in this section as these operations are tied closely together. Water to be treated will come from 3 separate sources:

- Water recovered from scows prior to solidification
- Water recovered from staging pad either from dewatering of sediments during drying process, or from rainwater accumulations in contact with the staging pad
- Water generated from the tire wash area.

2.5.1 Applicable Specification Reference

The work activities under these tasks will follow specification references presented below in Table 2-5

Table 2-5. Work Elements to Meet Specifications for Dewatering and Water Treatment

Specification Reference	Specification Title	Work Element
01 45 04.00 10 3.8	Contractor Quality Control	Requires documentation and maintenance of records of quality control activities and tests
01 57 20. 00 20 3.3.1 a.	Environmental Protection	Requires disposal of waste water meeting applicable regulations
02 55 00 3.1 b.	Solidification Stabilization	Requires leachate collection on staging pad and

		disposal meeting applicable regulations
35 20 23 3.2.7	Dredging	Specifies the collection and treatment of water accumulated in hauling vessels discharged under WPDES permit

2.5.2 Applicable Permit Requirements

The "City of Sheboygan" Storm Water Pollution Prevention Permit and the WPDES permit will regulate the execution of the work activities described in this section. Monitoring, sampling, and testing will be performed to meet compliance requirements of these 2 permits.

2.5.3 Submittal Requirement Requirements

Copies of the permits referenced in Section 2.5.2 will be submitted after they are issued. Testing reports will be submitted with daily work progress reports.

2.5.4 Definable Features of Work and Execution Method

Dewatering of Loaded Scows—As previously discussed latent water will be pumped from the loaded scows and transferred to settling and frac tanks in the waste water treatment plant area. Site water will initially be pumped to a single 18,000-gallon weir tank which acts as influent equalization and settling/flotation tank. Effluent from the weir tank will be pumped to three 21,000-gallon frac tanks. These tanks will act as both settling tanks and flow and load equalization tanks. Water will then be processed through the filtration system that is described in more detail in this section

Handling and Drying of Sediment—As sediment is offloaded from the scows it will be placed on the staging pad with rubber tire loaders to promote further dewatering and drying prior to load out for disposal. Material may be handled multiple times prior to being staged on the east side of the pad for ultimate load out. Ideally material will be spread out over the pad in thin lifts to maximize air contact and exposure to the sun to promote evaporation of residual water. Material will then be consolidated into taller stockpiles which in turn will promote further blending of fly ash with sediment and allow gravity to act on any free water remaining. Limited available space for this operation will require operational and logistical measures and flexibility to adjust to variations in sediment physical characteristics.

Treatment and Discharge of Water Generated from Sediment Handling

Following the settling tanks, water will be pumped to four bag filters in parallel, followed by two sand filters arranged in parallel to remove fine solids that may have escaped the settling tanks.

The flow from the sand filters will continue under pressure to two granular activated-carbon (GAC) vessels, designed to remove volatile and semi-volatile organic compounds. The 8-foot diameter GAC vessels will be arranged in series. Each GAC vessel will contain approximately 8 feet of GAC media, or a total of 16,000 pounds of GAC media contained in the two vessels.

The flow will continue under pressure to two 1-micron bag filters arranged in parallel to capture any carbon fines from the GAC process. Flow from the bag filters will continue to an effluent/backwash storage tank.

An effluent / backwash pump will be used to backwash the sand filters and GAC vessels and to pump effluent as required to the final discharge point. The flow rate from the effluent/backwash storage tank will be measured by a flow meter and totalizer before discharge.

A more detailed description of the treatment process and equipment is provided in Appendix A.

2.5.5 Controls

Quality Control—Quality Control measures for wastewater treatment will include the continuous monitoring of discharge rate, routine maintenance of equipment and treatment materials (e.g., dredge water pump and hose, activated carbon, sand filters), daily analytical monitoring in accordance with WPDES permit requirements, and weekly inspection by a Wisconsin certified waste water treatment plant (WWTP) operator. Further details are provided in the Construction Quality Control Pan dated July 2012.

Environmental Controls—The treatment plant discharge will be monitored for turbidity and effluent analyticals in accordance with the WPDES permit. The waste water treatment plant will be constructed and operated on the staging pad containment area to insure proper control of any potential spills or leaks from components of the treatment system.

2.6 Sediment Waste Transportation to Landfill

2.6.1 Applicable Specification Reference

Our definable features of work and our technical approach for transport of solidified sediment were developed in accordance with the specifications presented below in Table 2-6.

Table 2-6. Work Elements to Meet Specifications for Waste Transportation

Specification Reference	Specification Title	Work Element
01 57 20.00 20	Environmental Protection	All handling of waste materials conducted in a way to prevent spillage and contamination
01 45 04.00 10 3.8	Contractor Quality Control	Requires documentation and maintenance of records of quality control activities and tests
02 55 00 3.4.2	Solidification Stabilization	Material shall pass post treatment testing requirements of landfill and specification reference prior to shipment to landfill
35 20 23 3.3.3	Dredging	Waste shall be shipped in covered sealed gate transport vehicles

2.6.2 Applicable Permit Requirements

WDNR IP-SE-2012-60-00096 1041-1045 requires waste to be shipped in covered the transport vehicles equipped with sealed gates as described in specification reference in Table 2-6.

2.6.3 Submittal Requirement

Disposal waste manifest and load tickets will be submitted with daily work activity reports.

2.6.4 Definable Features of Work and Execution Method

Disposal Shipping—Wastes meeting testing requirements of specification reference 02 55 00 3.4.2 will be loaded out daily for landfill disposal. Load out crew work hours may be staggered from remaining crews work hours to load out daily shipments in one 12 hour shift. Shift start time and end time will be adjusted to accommodate both the drive time to the landfill and the landfill operating hours. EQ has obtained agreement from the landfill to extend daily operating hours including special weekend hours to sustain 7 days per week operations. Loading

will typically be performed between the hours of 5:00 AM and 5:00 PM. EQ anticipates approximately 138 loads will be shipped daily. EQ has procured 4 trucking subcontractors to provide non-hazardous waste disposal transportation services. EQ's primary disposal facility will be the Waste Management, Inc. (WM) Orchard Ridge Landfill in Menomonee Falls WI. EQ has also secured the WM Ridgeview Landfill facility located in Whitelaw WI as a backup and emergency facility. The transportation route to WM's Orchard Ridge Landfill is depicted in Figure 2-6, Orchard Ridge Landfill Route. The transportation route to WM's Ridgeview Landfill is depicted in Figure 2-7, Ridgeview Landfill Route.

The loading procedure will be as follows:

1. Trucks will approach the site from South Pier Drive, and drive past the transfer site and turn right onto Fisherman's Row. Trucks will transgress over the temporary haul road located on the eastern end of the 0.87 acre parcel onto Illinois Avenue.
2. Drivers will stage trucks on Illinois Avenue, and obtain signed manifests from the EQ Jobsite trailer, and appropriate copies will be made for submittal once all manifest signatures are in place. Drivers will be informed to inspect their trucks to make sure gates are secured before loading. Drivers will prepare their trucks for loading by removing tarps and covers from dump beds.
3. Flagmen in reflective vests will direct trucks from Illinois Avenue on to the Haul Road for loading.
4. Two excavators will be positioned between the haul road and the staging pad on an underlined rocked pad. They will reach onto the staging pad to obtain a bucket load of material. The operators will shake the bucket to slough off loose material before swinging their load into the truck bed. Operators will never swing a loaded bucket over the cab of a disposal truck.
5. Flagmen will inspect trucks for spillage prior to allowing them to advance towards the exit. Minor spills resultant of loading will be addressed by flagman with shovels to remove material from the haul road, if and when it occurs. Truck tires will be washed if needed before departing the site.
6. Loads will be covered with appropriate tarp before departing site.

2.6.5 Controls

Traffic and Safety—Signage installed around the site will alert motorists of truck traffic in the area as described in Section 2.2 of this Work Plan. Flagmen in high visibility safety vests equipped with radios for communication, and hand stop-n-go signs will be used to manage and direct traffic in and out of the transfer area.

Environmental—All disposal transport vehicles will be equipped with sealed gates and load covers. Spillages occurring during loading will be addressed by flagman prior to trucks being allowed to move. Larger spills may require heavy equipment assistance. A power broom street sweeper will be available onsite to perform housekeeping of roads as needed. Storm sewer inlet protective filter bags will be utilized on South Pier Drive and Illinois Avenue. Silt fence will be installed between the site haul road and South Pier Drive, and a tire wash station will be utilized as needed at the end of the site haul road prior to trucks departing the site.

Quality Control—Manifest and load tickets will be obtained and logged to track T&D activities. Inspections of trucks and environmental controls will be performed and documented in daily reports.

2.7 Disposal at Landfill

2.7.1 Applicable Specification Reference

The specification references presented on Table 2-7 provided the basis for the development of our definable features of work and our technical approach for this task.

Table 2-7. Work Elements to meet specifications for Waste Disposal

Specification Reference	Specification Title	Work Element
01 57 20.00 20 3.1.8.1	Environmental Protection	All handling of waste materials conducted in a way to prevent spillage and contamination
01 45 04.00 10 3.8	Contractor Quality Control	Requires documentation and maintenance of records of quality control activities and tests
01 57 20. 00 20 3.3.1 a.	Environmental Protection	Requires disposal of waste water meeting applicable regulations

2.7.2 Applicable Permit Requirements

WDNR IP-SE-2012-60-00096 1041-1045 requires waste to be disposed at an appropriate landfill.

2.7.3 Submittal Requirements

EQ will submit a written agreement with the landfill disposal facility, documentation of approval acceptance and subsequent documents described in Section 2.6.3.

2.7.4 Definable Features of Work and Execution Method

Secure Disposal Approval—EQ will secure disposal of the contaminated sediments by completing the following steps:

1. Collect sediment samples from various locations over dredge area, and create a composite sample for laboratory analyses. Analyze sample for landfill disposal parameters to include Full TCLP, reactivity, corrosivity, ignitability, and paint filter test.
2. Prepare waste profile package and obtain EPA Project Manager signature on profile and submit to Waste Management. for disposal acceptance and approval.

Landfill Disposal—EQ's primary disposal facility will be the Waste Management, Inc. (WM) Orchard Ridge Landfill in Menomonee Falls WI. EQ has also secured the WM Ridgeview Landfill located in Whitehall WI as a backup or secondary facility.

The WM Orchard Ridge landfill offers the following advantages to this project:

1. Seven day per week schedule
2. Approved to extend landfill operation hours up to 16 hours daily Monday thru Friday
3. Dedicated route, with solid road base, within landfill to expedite traffic flow
4. Dedicated dump area with designated circular route for dredging material, there are two reinforced dump pads
5. Capacity to dump ten loads or greater per hour
6. Washout station placed near dump area available on as needed basis
7. Time in landfill from weigh in to weigh out less than 15 minutes
8. Pre printed 3-part manifests
9. Daily Fastlane reports e-mailed to the Project Manager that details all load activity
10. Service agreement provides indemnification for all waste disposed at landfill

2.7.5 Controls

Schedule—Use of selected landfill offers a number schedule controls such extended operating hours, disposal facility access over 7 days per week, capacity to dump 10 loads per hour, and dedicated haul route within landfill.

Environmental—Wash station near dump pad allows for truck decontamination as needed to mitigate tracking issues

Quality—Daily disposal reports emailed to monitor to disposal activity

2.8 Site Restoration and Demobilization

2.8.1 Applicable Specification Reference

The specification references presented on Table 2-8 provided the basis for the development of our definable features of work and our technical approach for this task.

Table 2-8. Work Elements to Meet Specifications for Restoration and Demobilization

Specification Reference	Specification Title	Work Element
01 57 20.00 20 3.9	Environmental Protection	Remove temporary facilities and restore non-surfaced areas
02 55 00 1.3.1 f	Solidification Stabilization	Post treatment cleanup and sampling plan
35 20 23 3.3.5.3	Dredging	Specifies features removed from transfer site be restored and/or replaced
35 20 23 3.3.5.3	Dredging	Specifies restoration procedures for pre-existing asphaltic lot at transfer site

2.8.2 Applicable Permit Requirements
Wisconsin DNR Dredging Permit IP-SE-2012—60-0096, 1041-1045

Requirements that effect demobilization:

- All equipment used for the project including, but not limited to tracked vehicles, barges, boats, silt or turbidity curtains, hoses, sheet pile and pumps shall be decontaminated for invasive and exotic viruses and species prior to use and after use.

2.8.3 Submittal Requirements

Submittals will include a Cleanup and Sampling Plan for post removal of temporary facilities and analytical results from post removal sampling

2.8.4 Definable Features of Work and Execution Method

Removal of Nonessential Equipment—Equipment not required for removal of temporary facilities and site restoration will be decontaminated per WI dredging permit requirements and demobilized from the site. This equipment will include but not be limited to

scows, barges, tugs, waste water treatment plant, pigs, silos, cranes, and specific pieces of heavy equipment.

Removal of Temporary Constructed Facilities—Site features such as haul roads, staging pads, and the tire wash station will be removed subsequent to removal of nonessential equipment.

Cleanup and Sampling of Transfer Area—A sampling plan will be developed to address post construction sampling of the transfer area. This will include the collection of 4 soil samples from locations of key site features most subject to environmental impact from site operations. Sample location targets include:

1. Waste water treatment plant area
2. Staging pad area
3. Haul road used for disposal truck load out
4. Scow unloading/transfer area on the staging pad

Restoration of Transfer Site and 0.87 Acre Parcel—Anticipated restoration work will include:

1. Reinstalling removed features such as lamp posts and guard rails
2. Patching and resurfacing existing asphalt surfaces
3. Making repairs to damaged features resulting from site operations such as concrete promenade if needed
4. Restoring vegetation to disturbed areas to like and kind condition which will consist of backfilling ruts or depressions and subsequently seeding, fertilizing and mulching

Post Condition Survey—Conduct a post condition survey subsequent to completion of other demobilization and restoration activities to verify restoration to like and kind pre-existing conditions.

Demobilization of Remaining Personnel, Equipment and Facilities—Final personnel, equipment and facilities will be demobilized after completion of all restoration activities.

Removal of Environmental Controls-Removal of environmental controls will be completed in a phased manner as areas are restored. The projected schedule has restoration activities being completed in the late fall/early winter time frame and during related weather conditions, therefore it is anticipated that some environmental controls will not be able to be removed until the following spring after vegetation is reestablished.

3. STAFFING AND RESOURCE PLAN

3.1 Project Organization

EQ is the prime contractor for this task order and will be supported by our team subcontractors AECOM and SES. EQ will provide project management, site management, health and safety oversight, construction quality control management, and provide site management/support facilities/utilities and transportation and disposal coordination. SES will perform general construction activities, dredging, and related activities such as adding and mixing the solidification reagent and load out of solidified sediment. AECOM will provide various technical and site management support such as site construction quality control oversight, environmental monitoring and controls management.

EQ's Jack Greber, GLNPOCs Program Manager will work closely with EQ's Project Manager, Eric Bowman to manage and support this task order. EQ's Bill Poma will be the Site Superintendent and the primary point of contact at the dredging site. He will be supported by EQ's Virgil Clay, General Foreman (GF), Jackie Doan, Corporate Quality Assurance Manager (CQM), and Scott Berndt, Site Safety Officer (SSO). Mark Douglas,EQ Senior T&D Coordinator will be responsible for coordination of transportation and disposal activities. Mark will work closely with the site management team to coordinate and maintain transportation and disposal logistics.

The Project Manager for SES will be Pat Faessler and he will be supported by Fred Barnes as the SES Site Superintendent. The AECOM PM will be Kim Elias. Tom Holton of AECOM will be the site liaison with the City and community stakeholders. Both are located in AECOM's local Sheboygan office.

3.2 Staffing Plan

The primary personnel we will use for the Sheboygan Harbor Dredging project are presented on Table 3-1. The graphic presents the name, organization, contact information and the

primary location from where they will support the project. The project staff size and makeup are based on a 24 hour per day, seven days per week operation. Rotation and substitution of personnel will be managed to provide rest periods for site workers while preserving the continuity of site knowledge and understanding.

Table 3-1 Staffing Plan for Sheboygan Harbor Project

Name	Position/Role	Contact Information			Location	
		Office	Cell	email	Office	Site
Environmental Quality Management, Inc.						
Jack Greber	Program Manager	513-825-7500	513-659-2509	jgreber@eqm.com	✓	
Eric Bowman	Project Manager	513-825-7500	513-265-8875	ebowman @eqm.com	✓	✓
Bill Poma	SM	513-825-7500	513-659-5875	bpoma@eqm.com		✓
Jackie Doan	CQM	513-825-7500	513-673-4210	jdoan@eqm.com	✓	
Mark Douglas	T&D Cord.		513-309-3062	mdouglas @eqm.com	✓	
Scott Berndt	SSO					✓
Virgil Clay	GF		601-529-0889	vclay@eqm.com		✓
Robert Johns	Laborer			rjohns@eqm.com		✓
Khristine Beck	Field Clerk	513-825-7500	513-310-9189	kbeck@eqm.com		✓
Sevenson Environmental Services, Inc						
Pat Faesseler	PM		219-712-4179	pfaeseeler @sevenson.com		✓
Fred Barnes	SS days		518-322-3039	fbarnes @sevenson.com		✓
Randy Cambell	SS Nights					✓
Chris Bement	SO Days					✓
Jeff Wegan	CQC Engineer					✓
John Ortez	Mechanic					✓
John Pascon-Brew	Day Dredge Foreman					✓
Joe Admoson	Night Dredge Foreman					✓
Chris Smith	Day Stabilization Foreman					✓
Mike Perry	Night Stabilization Foreman					✓
Eric Wisner	Day PC 800 Operator					✓
Eddie Hayes	Night PC 800					✓

	Operator					
TBD	Day Laborer Dredge					✓
TBD	Night Laborer Dredge					✓
TBD	Day Tug Operator					✓
TBD	Night Tug Operator					✓
Union	Day Tub Boat Laborer					✓
Union	Night Tub Boat Laborer					✓
Stabilization						
Union	Day PC 400 Operator					✓
Union	Night PC400 Operator					✓
Union	Day PC 400 Operator					✓
Union	Night PC400 Operator					✓
Union	Day Laborer					✓
Union	Night Laborer					✓
Truck Loading						
Union	PC 300 Operator					✓
Union	PC 300 Operator					✓
Union	WA 450 Operator					✓
Union	WA 450 Operator					✓
Union	Decon Laborer					✓
Union	Flagman Laborer					✓
Waste Water Treatment Plant						
Jeff Dempie	Day Operator					✓
TBD	Night Operator					✓
		AECOM				
Kim Elias	PM	920-451-2814	920-377-1371	kim.elias @aecom.com	✓	✓
Staci Goetz	Program Lead		(920) 918-4473	staci.goetz @aecom.com	✓	
Thomas Holton		920-451-2731	920-912-0870	tom.holton @aecom.com	✓	✓
Brandon Weston	SSO/ Sampling Technician		(906) 204-5324	brandon.weston @aecom.com		✓
Julie Christiansen	SSO/ Sampling Technician		(906) 869-4735	julie.christiansen @aecom.com		✓
Gary Hanson	Certified WWTP	920) 451-2868	(920) 918-0402	gary.hanson @aecom.com	✓	✓

	Operator					
Mark Magee	QA Task Manager		(920) 655-3732	mark.magee @aecom.com		✓
Pre- & Post Site Surveying						
Ken Wolf	Certified Surveyor		(920) 980-0520	ken.wolf @aecom.com		✓
Mike Gonnering	Surveyor Technician		(920) 889-8167	mike.gonnering @aecom.com		✓
Non-Key Staff to fill-in for Sampling Technicians if needed:						
Robert Weseljak	Sampling Technician		TBD	robert.weseljak @aecom.com		✓
Sarah Majerus	Sampling Technician		(920) 912-0870	sarah.majerus @aecom.com		✓
Kurt Rubsam	H&S Manager		(920) 918-0021	kurt.rubsam @aecom.com		✓

3.3 Equipment

The primary equipment we will use for the Sheboygan Harbor Dredging project is presented on Table 3-2. The graphic presents a description of both the type and size of our proposed equipment. To be determined (TBD) items and quantities will be based in part on the specific size and models of equipment available from local rental vendors. . The type, size, and number of units of equipment we have selected will meet the overall necessary production rates and schedule requirements for this project. The average production rate for dredging will be 1,000 cy/shift, or 2,000 cy/day. The average production rate for offsite waste transport and disposal will be 2,800 tons/day. The work operations and associated equipment for reagent handling and mixing, dewatering and water treatment, and waste loading, transport and disposal have all been selected and designed to meet the aforementioned dredging production rates.

Table 3-2. Primary Equipment

Equipment Type and Description	Equipment Size	Quantity
Task 1. MOBILIZATION		
JCB 5440 All-Terrain Forklift	10,000 lbs.	1
75 HP Work Boat	17 ft., 75 HP	1
Tractors & Lowboy Trailers	30 ft. Trailers	2
Office Trailers	10 ft by 50 ft	3
Task 2. SITE PREPARATION/STAGING AREA CONSTRUCTION		
Komatsu D65 Bulldozer	42,000 lbs., 180 HP	1
Komatsu PC220 Excavator	40,000 lbs., 168 HP, 1.5 cy	1

Smooth Drum Roller	20-30 ton	1
Task 3 & 4. DREDGING		
Komatsu PC800 Dredge Excavator with Environmental bucket	160,000 lbs., 2-4 cy Buckets	1
Poseidon Sectional Barges and/or work barge	10 ft. x 40 ft. x 5 ft.	TBD
Tug Boats	600 HP	2
Material Scows		3
Task 5 & 6. DRYING AGENT DELIVERY, STORAGE, AND MIXING OPERATION		
Belgrade Storage Silos	35 tons each	2
Storage Pig	Size TBD	Quantity TBD
Komatsu WA450 Loaders	50,000 lbs., 270 HP, 5 cy	2
Komatsu PC300 Excavators	70,000 lbs., 260 HP, 2 cy	2
110 ton Crane with Clamshell bucket	110 ton, 3-4 cy clamshell	1
Task 7. DEWATERING		
3 Pumps and hoses	3 in. and 4 in.	
Task 8 TRUCKING TO LANDFILL		
Street Sweep		1
Misc Traffic Control Signs		4
Task 10. WATER TREATMENT		
18,000 gal. weir tank	18,000 gal.	1
2-200 gpm pump	200 gpm	2
21,000 gal. Frac Tank	21,000 gal.	3
2 POD Sand Filter	200 gpm	2
4 Stage Bag Filter	200 gpm	4
2 Steel GAC Adsorption Filter Units	75 psi rated, 200 gpm	2
Frac Tanks	20,000 gal	4
Task 11. SITE RESTORATION & DEMOBE		
Komatsu PC300 Excavator		1
Komatsu D65 Bulldozer	42,000 lbs., 180 HP, 5 cy	1
Smooth Drum Roller	20 – 30 tons	1

3.4 List of Subcontractors

The subcontractors we propose to use for the Sheboygan Harbor project are presented on Table 3-3. This list includes our team subcontractors, local specialty subs and vendors and the transportation and disposal subcontractor.

Table 3-3 Subcontractors

Subcontractor Name/Address	Contact Name	Contact Information		
		Office	Cell	email
Sevenson Environmental Services, Inc.				
Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls NY 14305	Mike Crystal	716-284-0431	716-998-8410	mdcrystal @sevenson.com
AECOM				
AECOM 1800 W. 17th St Bloomington, IN 47404	Leo Thorbecke	812-334-8313	812-322-0936	leo.thorbecke @aecom.com
Ridgeview Landfill Waste Management of WI, Inc. 6207 Hempton Lake Road, Whitelaw, WI 54247	Kurt Kietzer	920-732-4473	920-377-0356	
Orchard Ridge Landfill Waste Management of WI, Inc. W124 N9355 Boundary Road, Menomonee Falls, WI 53051	Jim Barnes	920-539-1167		
Gene Frederickson Trucking and Excavating, Inc 4450 Fieldcrest Drive, Kaukauna, WI 54130	Matt Gehl	920-458-1512	920-585-1551	
Lafarge North America 20408 Renwick Road Lockport, IL 60441	Mr. Brian Borowski	815-838-4671		brian.borowski @lafarge-na.com
Rams Contracting LTD 6045 N. 55th Street, Suite #101, Milwaukee, WI 53218	Tammy Ristow	414-930-4091	262-391-2930	
Spielvogel & Sons Excavating, Inc. 1801 North 44th Street, Sheboygan, WI 53083	Steve Spielvogel	920-458-1512		
Vetting Transport 12732 Robley Road, Valder, WI 54245	Chad Vetting		920-905-5943	
Altmeyer Electric 827 S 21st. St. Sheboygan WI 53081	Sherry	920-458-3406		

4. PROJECT SCHEDULE, PLAN FOR AVOIDING DELAYS, AND COORDINATION WITH STAKEHOLDERS

This section of our Work Plan presents our proposed project schedule, our plans for managing avoidable and unavoidable delays, and our plan and schedule of activities for coordinating with marine stakeholders and other stakeholders involved in this project.

EQ has selected an ideal project team, technical approach design, equipment resources, and specialty vendors (e.g., reagent supplier and landfill) that will meet all the GLNPO performance, quality, and schedule requirements for this project.

The EQ management team and support staff that have been assigned to the Sheboygan task order have all worked together on similar projects, including on past GLNPO sediment projects. They are a proven project team and they know how to design and implement complex, fast-tracked projects in a smooth, productive, and safe manner. EQ's GLNPOCS contract Program Manager and Senior Corporate Vice President, Mr. Jack Greber, and EQ's Senior Project Manager, Eric Bowman will be immediately available to the EPA CO, Contract PO, Task Order Manager/COTR, and Corps Onsite Representative to address any contract, technical, performance, or resource issues and to take any and all corrective measure actions that may be required to keep this fast track project on schedule

Key to the success of the Sheboygan project and meeting all schedule requirements will be the effective integration, control, and management of all the resources and services that will be provided from EQ, our team subs, and specialty subs and vendors. All members of our project team have a thorough understanding of their respective roles, responsibilities, and level of authority. All project members also have a similar familiarity with all project goals and objectives, work activities and sequencing, and the project schedule through their review and acceptance of the project Work Plan. Detailed task order agreements have been executed for our team subs, and purchased orders will be issued to specialty subs and vendors prior to beginning any work so that work responsibilities, related business terms, and schedule requirements are clearly understood.

4.1 Gantt Chart Schedule

Figure 4-1 presents EQ's proposed project schedule, which provides our start and completion dates for all major tasks. The project start date is July 7, 2012, and actual dredging work will begin on August 17. Based on these dates, and our planned production rates, our scheduled completion date for dredging is November 17, 2012, and all restoration work and demobe will be completed by December 7, 2012. In order to meet all the aforementioned dates we will be working 24/7, and it will be necessary to transport and dispose of wastes during extended operating hours and weekends.

In order to meet this aggressive schedule, EQ has initiated various strategic planning and logistics activities related to permitting, preplanning of work, procurement of essential materials and services, and site setup so that we can quickly start and complete these critical tasks and not delay the start date or continued execution of the dredging work.

Our proposed schedule and all schedule tracking and update activities will comply with Section 01 32 01.00 01 and Section 3.3 of the EPA work specification, with modifications as agreed to with the EPA Project Manager and COTR, Heather Williams. The schedule will be reviewed with EPA on a regular basis and updated as work progresses. Daily work order meetings will be held to review completed and ongoing work and to discuss short and long term planned work activity and sequencing. The schedule will also be discussed with EPA and other stakeholders during the weekly construction meetings. Any need for adjustments in work productivity, resource requirements, and/or schedule will be reviewed. Significant changes to any of the aforementioned, or the project SOW, particularly if the changes impact cost or schedule, will be thoroughly documented to insure clear understanding and agreement among all parties. Any necessary corrective measures required to properly address potential or actual schedule delays will be documented and quickly implemented. As appropriate and necessary, the schedule will be revised and updated and submitted to EPA for review and approval.

4.2 Plan for Addressing Avoidable and Unavoidable Schedule Slippages

This section presents our plan to address avoidable and unavoidable delays to this fast-paced, project. We recognize and fully appreciate that any large remediation and construction

project of this size, scope, and complexity inherently has a number of potential challenges that could interrupt or slowdown work, and even result in stoppage of all work activity. The fact that this project is getting started somewhat late in the construction season and will require a very aggressive, compressed schedule to meet EPA's desired completion date for field work (December 31, 2012), creates a higher degree of complexity and importance on anticipating and addressing avoidable and unavoidable delays. Other factors that may impact work productivity and schedule include: limited available work space for site set up and construction operations; other ongoing construction projects (including other dredging jobs on other sections of the Sheboygan River); crowed and congested roadways and harbor areas related to recreational, commercial, and construction activities; adverse weather conditions; and the possibility of a shortened work season due to the northern climate of the Sheboygan, WI area.

The EQ project team has extensive experience successfully completing large, complex remediation projects with aggressive schedule requirements, and we will employ tried and proven practices to insure schedule compliance. The key measures we will use to avoid project delays consist of the following:

- Assign a Senior Project Manager and Site Supervisor that have worked together before on projects with similar scope, size, complexity, and schedule requirements
- Assign work crews and foreman that have worked together previously on similar projects, and as such they have established working relationships with a high degree of trust and confidence to work together as an efficient and productive team
- Develop and implement a comprehensive Work Plan and related preconstruction reports that include careful and strategic sequencing of all work activity that will result in maximum site efficiencies and work productivity
- Design a site layout plan and site logistics plan that will: maximize the orderly flow of work; enhance the operation and movement of all equipment; and efficiently coordinate delivery, storage, and movement of all project materials (i.e., we will set up the work site in a manner that makes the site work for us rather than against us)
- Use of equipment that has the size, capacity, and working condition that will meet or exceed productivity requirements to meet all schedule demands
- Dedicated Schedule Manager who will closely monitor the schedule and review it frequently with the EQ project management team and GLNPO to anticipate potential schedule delays, catch delays quickly and implement corrective measures, and modify work forecasts and the schedule accordingly
- Build into the schedule an appropriate and realistic number of days for expected and unexpected delays

- Proactive plan for responding to avoidable and unavoidable delays with specific contingency plans and corrective measures that can be quickly and smoothly implemented to bring the project back on schedule
- Experienced procurement specialists that will be dedicated to procurement of materials and services so that expected items are available and on site when they are needed
- Experienced and dedicated staff to insure certain daily ancillary activities are planned and scheduled efficiently (T&D coordination, CQC testing, environmental sampling, analytical laboratory analyses, etc.) so that they do not hold up other major project operations (dredging, waste mixing, offsite waste removal and transport).
- Maintain effective communications between site management staff and key vendor/subcontractor contacts to coordinate operations with resource logistics
- Dynamic monitoring and evaluation of work operations and work sequencing for short and long term planning

Table 4-1 presents specific avoidable and unavoidable delays that could impact this project, and our proposed measures to anticipate and mitigate these potential delays. EQ's Project Manager, Site Superintendent, Senior Foreman, and Schedule Manager will meet with EPA on a frequent basis (at least weekly, and sometimes daily) to review, plan, and forecast work activities to keep the project on schedule. If circumstances or conditions create temporary delays, corrective measures will be quickly implemented to bring the work progress and schedule back into compliance. Table 4-1 will be reviewed and discussed closely with EPA and other stakeholders during preconstruction and planning activities and this Figure will be updated and reviewed as necessary.

Table 4-1. Management of Avoidable and Unavoidable Schedule Slippages

Potential Schedule Slippage Items and Impact to Schedule	Measures to Mitigate Potential Schedule Slippages
AVOIDABLE SCHEDULE SLIPPAGES	
1. **Damage to underground or underwater utilities** - Slow down work activity and production, or shut site down entirely for repairs	- Identify, Survey, and mark all utilities during preconstruction activities - Review utility location and markings with all appropriate stakeholders and knowledgeable individuals - Review utility locations and protective measures as part of daily work order/safety meetings
2. Interruption in delivery of solidification reagent – shut down solidification operation, which would shut down dredging and offsite waste T&D	- Execute formal agreement with solidification supplier, to include penalties for lack of delivery - Strategic logistics and work sequence planning to ensure timely delivery of reagent, to include some cushion for temporary slowdown of deliveries - Excess/backup silo storage capacity - Dedicated logistics & procurement manager to continuously monitor and plan delivery and shipment of all critical materials
3. Lack of available trucks for	- Procure agreements from multiple different trucking vendors (e.g., 3) to

Potential Schedule Slippage Items and Impact to Schedule	Measures to Mitigate Potential Schedule Slippages
offsite waste transport to landfill – Slowdown in load out and transport of solidified material, which would impact mixing and dredging activities	ensure a redundant or backup source of trucks - Continuous short term and long term schedule review, monitoring, and planning to adjust number of required trucks accordingly - Dedicated waste T&D Coordinator and onsite schedule manager who will properly plan truck scheduling and coordination - Potential delays related to truck availability built into overall project schedule
4. Interruption of operation or shut down of landfill – slow down or shut down offsite removal of solidified dredge material, which could slow down or shut down mixing and dredging operation	- Clearly defined formal agreement with landfill operator, with detailed description of required operating times and conditions - Penalties for landfill if they do not meet the agreed to operating terms - Formal agreement will be executed with a backup landfill
5. Unscheduled equipment downtime and routine maintenance – slow down certain work operations, which may adversely impact other work sequencing, site logistics, and/or productivity	- All equipment will be in good operating condition with appropriate operational hours when the equipment is delivered on site - Implement a rigorous routine maintenance program to keep equipment in good operating condition - assign a fulltime onsite mechanic to address both routine maintenance and unexpected equipment problems - Experienced equipment operators that have intimate knowledge of proper equipment operation, care, and maintenance
6. Movement of marine docks and other recreation and commercial marine activity – potentially impact dredging activity and production, which could adversely impact other work activity, work sequencing, and or site logistics	- Careful and continuous planning and coordination with all stakeholders, beginning with preconstructions meetings - Clear documentation of all daily marine activity and special events related to recreation and commercial marine traffic that our work will be properly planned with and sequenced with - Dedicated local project staff coordinator that is a former employee of the City of Sheboygan and has intimate familiarity with the stakeholders and their related activities - Daily discussion of regularly scheduled marine activities and special events during daily work order meetings
7. Union disputes or work stoppages – create bad morale onsite and bad PR with project, and potentially slow down work or result in project shutdown	- Implement a project specific agreement with local unions as appropriate/necessary
8. Failure of QA/QC testing of solidified material – reprocessing of material, which could slowdown offsite disposal, which in turn may adversely impact other site logistics, work activity, and productivity	- Develop and implement a comprehensive CQCM Plan - Conduct pilot test of reagent(s) from several vendors prior to start of work to identify potential supply stream quality issues - Require supplied Class C fly ash to meet ASTM C 618 standard - Effective testing and close scrutiny of solidification reagent material and mixing operations to minimize frequency of test failures
9. Environmental permit violations – Possible work slowdown or stoppage due to permit noncompliance	- Design and install systems, operations, and engineered controls that can realistic meet all permit requirements, and include in Pre-construction Environmental Protection Plans - Perform routine maintenance of wastewater treatment system by certified operator Implement best management practices -maintain properly calibrated monitoring equipment and service according

Potential Schedule Slippage Items and Impact to Schedule	Measures to Mitigate Potential Schedule Slippages
	to manufacturer specifications - Screen monitoring data daily and perform periodic testing of influent to identify potential issues prior to breakthrough - Develop and implement practices to address potential issues prior to reaching stop-work situations as part of Environmental Protection Plans
10. Safety/OSHA incidents – possible work slowdown to properly address the safety incident and implement corrective matters; possible site shut down if a serious OSHA violation occurs	- Develop and implement a comprehensive Site Safety Plan - Assign an experienced dedicated Site Safety Officer - Daily site safety tailgate meetings to discuss potential hazards related to planned work activities - proper postings around site and in break areas addressing specific hazards and emphasizing importance of safety - Awards system for staff for meeting safety requirements and goal of zero incidents
11. Permitting delays - Delay of work activities due to agency schedule constraints	- Develop permitting schedule, planning, and strategy for quick processing of permits before EPA NTP - Initiate application process immediately upon receipt of NTP - Communicate with agency and all related stakeholders regarding anticipated work schedule and potential monitoring requirements so the application is complete upon initial submittal
12. Lab analysis or reporting delays – Delay of monitoring reporting or permit violations due to unforeseen laboratory issues	- Provide clear schedule and required turnaround times, and require a specific plan from lab to meet these requirements - Communicate with lab frequently to anticipate possible delays, and have pre-established measures in place to mitigate problems (i.e., be proactive, not reactive) - Develop lab audit procedures in QAPP to ensure proper instrument calibration, housekeeping, and quality checks - have back up lab(s) in place with a proactive plan to shift to another vendor if necessary - Communicate frequently with GLNPO Project Manager concerning potential lab related delays and review plans to avoid and mitigate delays
UNADVOIDABLE SCHEDULE SLIPPAGES	
1. Adverse weather conditions – Slow down work activity and production, or shut down site entirely	- Track weather forecasts onsite on continuous basis and plan work sequencing and activity accordingly - Build adverse weather days into production plan and project schedule
2. Third Party accidents on transport roadways and/or Harbor – accident incidents may result in temporary or extended closure of roadways and/or Harbor, thus interrupting our work, productivity, and schedule	- Establish contingency plans and alternate routes and work activity strategies for reacting to such incidents to minimize impact to productivity and schedule - Establish communications program with local marine and landside emergency agencies and departments for quick notice of incidents that might impact our work, and monitor emergency communications channels
3. Large-scale sickness on onsite crew resulting from communicable viruses – Significant reduction in available crew personnel resulting in adverse impact to all onsite work activity and production	- Implement and maintain proper sanitary practices site wide and provide regular training - Quickly react to incidents and remove affected personnel immediately - Scheduled change out and rotation of personnel to avoid fatigue and reduction in immune systems - Develop proactive plan

4.3 Plan to Coordinate with Marine Vessel Traffic and Stakeholders

This section of our Work Plan describes our planned efforts to coordinate effectively with marine vessel traffic and related stakeholders to minimize impact to harbor operations (commercial fisherman, recreational vessels, etc.).

The EQ management team has already conducted preconstruction meetings and multiple conference calls with EPA and appropriate stakeholders and officials to develop an effective plan for managing marine traffic in the proposed Sheboygan Harbor work area. EQ and our various project team members (SES and AECOM) have worked with EPA on other GLNPO sediment remediation projects and we fully understand and appreciate the importance of coordinating our work activities with the activities of others. Accordingly we have developed tried and proven procedures to insure that we understand the roles, needs and desires of others (commercial fisherman, recreational population, county/city officials, USCG, USACE, etc.), and we will seamlessly coordinate their important activities with our work in a way that will not interfere with the stakeholders activities or adversely impact our production and schedule.

In addition to the preconstruction planning activities, we will continue to effectively communicate with all the stakeholders to minimize any potential inconvenience of this project by meeting with the correct people and officials to address their concerns and to develop specific plans to minimizing the impact to their livelihoods. Planned work activities and stakeholder meetings will be seamlessly coordinated with marine vessel traffic and related stakeholders to minimize impact to harbor operations and production. Following completion of the aforementioned awareness and planning meetings, EQ will modify our plan to effectively coordinate marine traffic (as written here in this Work Plan) to address all aspects of coordination with all appropriate stakeholders. Following EPA approval of this Work Plan, it will be distributed to all appropriate stakeholders so that they are aware of our plan and schedule for coordinating our work activities with their various respective activities. This plan will be updated as necessary to incorporate any changes or new developments related to stakeholder coordination.

A summary of the stakeholder coordination meetings we plan to conduct are as follows:

- **Preconstruction Meetings:** Will include all key stakeholders to discuss project activities, methods and schedule, stakeholder concerns, ground rules for communication and any foreseeable issues and means to mitigate these issues.
- **Weekly Project Meeting:** Will include the City Liaison, EPA, Contractors and other key EQ team members to compare our schedule and ongoing and planned work to the planned activities and schedules of others. If potential conflicts or problems are identified we will develop proactive measures to mitigate these.
- **Weekly Stakeholder Meeting:** Will include City Liaison, EPA, Stakeholders, key EQ team members and local government officials to review project activity, planned work, and any foreseeable impacts and related corrective measures. If potential conflicts or problems are identified, then we will develop proactive measures to mitigate any problems before they develop.
- **Daily site work meetings (tailgate work order and safety meetings):** During the daily work order meetings that we hold with our crew to discuss planned and ongoing work activity and safety maters, we will also discuss the activities of other stakeholders to insure that all of our work crews are well aware of and sensitive to the activities of others. Further, we will make certain that all of our project staff are well aware of the measures we have in place to insure seamless coordination of our work activities with others. Written documentation and instructions will be provided as appropriate, and key related information will be posted at appropriate areas around the work site. If any coordination problems have occurred or if any of the stakeholders have concerns or specific requests, these will also be discussed with our crew members.

EQ and our team subcontractor partner, AECOM have local staff with local knowledge who will work closely with stakeholders to effectively coordinate our work activities with the activities of others to insure that there are no surprises or adverse impacts to other river operations. Specifically, Mr. Tom Holtan, who is located in AECOM's Sheboygan office, has professional relationships with many of the stakeholders. Mr. Holtan worked as Director of Public Works and City Engineer for the City of Sheboygan for 28 years (through 2006) prior to joining AECOM. Mr. Holton's local knowledge and relationship with the City of Sheboygan make him a significant resource for communicating and coordinating with the various project stakeholders.

This relevant experience allows the EQ Team to thoroughly understand the City of Sheboygan's harbor operations and the stakeholders' needs. The relevant experience of Mr. Holtan and EQ's entire project management team provides us with extensive local and regional experience and a proven project delivery track record concerning effective stakeholder coordination. With our technical experience and past and current relationships with the City of

Sheboygan, our Team will sponsor corroboration and effective communication to coordinate our project activity with the important activities of others, including careful and timely movement and removal of docks when necessary. Several key characteristics of our proposed plan for effective stakeholder coordination and the unique qualifications of the personnel we have assigned to this important staff include the following:

- **Understanding the Project and related coordination process.** Assigned personnel will use their extensive local knowledge and experience working with local stakeholders (the City of Sheboygan and Sheboygan County staff, Sheboygan Common Council and County Board as well as their standing Committees on a variety of projects) to develop and implement an effective marine traffic coordination plan.
- **Personal commitment to the success of this project.** Several of our project team staff work and live within the City of Sheboygan and surrounding area, and therefore they have a vested interested in the success of this project.
- **Dedicated manpower with the experience to implement an effective coordination plan.** We have assigned a Stakeholder Coordination Manager to the task of implementing our marine traffic coordination plan (i.e., Mr. Tom Holtan), and he has been made immediately available for this important task and he will be dedicated to the successful implementation of all related activities.
- **Implementation of memorandums of understanding and corrective measures.** If any specific incidents occur resulting from a lack of effective marine traffic coordination or other stakeholder coordination, or if a stakeholder submits a concern, EQ's Project Manager and Stakeholder Coordination Manager will prepare a written report on the incident/concern, and include appropriate corrective measures. Following review and approval of the report, copies will be distributed to the appropriate parties for clear documentation and understanding on all related matters.