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FINAL WORK PLAN SITE 21 NSWC INDIAN HEAD, MD  
6/1/2012  
SHAW ENVIRONMENTAL, INC.



*FINAL*  
WORK PLAN

SITE 21 – BRONSON ROAD LANDFILL  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NO. N62470-08-D-1007

*Prepared for:*

**Department of the Navy**  
Naval Facilities Engineering Command, Washington  
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TASK ORDER JU49  
SHAW PROJECT NO. 142879

**JUNE 2012**

## WORK PLAN

Site 21 – Bronson Road Landfill  
Naval Support Facility, Indian Head  
Indian Head, Maryland

## SIGNATURE PAGE

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Patricia M. Gamble, P.E.  
Project Engineer

06/13/12

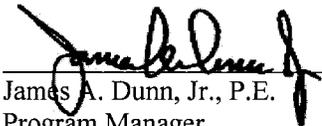
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Steve Carriere, PMP  
Project Manager

06/13/12

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James A. Dunn, Jr., P.E.  
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*LIST OF ACRONYMS AND ABBREVIATIONS*

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APP	Accident Prevention Plan
CTO	Contract Task Order
DRO	Diesel Range Organic
E&S	Erosion and Sediment
FEAD	Facilities Engineering and Acquisition Division
GRO	Gasoline Range Organic
HDPE	High Density Polyethylene
LUC	Land Use Control
MDE	Maryland Department of the Environment
NAVFAC	Naval Facilities Engineering Command
NSF-IH	Naval Support Facility, Indian Head
PBA	Project Business Administrator
PCBs	Polychlorinated Biphenyls
PQCP	Program Quality Control Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RPM	Remedial Project Manager
Shaw	Shaw Environmental & Infrastructure, Inc.
SSHO	Site Safety and Health Officer
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons

## *1.0 INTRODUCTION*

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This Work Plan is being submitted in final form. The comments received on the Draft Work Plan and responses to those comments are provided in **Appendix A**.

### 1.1 PURPOSE

Shaw Environmental & Infrastructure, Inc. (Shaw) has been retained by the Naval Facilities Engineering Command (NAVFAC) Washington, under Contract Task Order (CTO) JU49 to perform the remedial action at Site 21 Bronson Road Landfill, Naval Support Facility, Indian Head (NSF-IH), Maryland.

The scope of work for the remedial action to be performed under CTO JU49 is summarized as follows:

- Pre-construction submittals, plans, and meeting;
- Mobilization of equipment and site set up;
- Clean fill sampling;
- Installation of erosion and sediment controls;
- Clearing and grubbing;
- Redistribution and regrading of existing soil cover (grading fill);
- Installation of permanent stormwater conveyance pipes, inlets, and riprap;
- Placement of new soil cap;
- Site restoration;
- Transportation and disposal;
- Project demobilization; and
- Final report preparation and review.

Additionally, several documents and plans have been prepared in support of the Work Plan and are presented in the following Appendices:

- Appendix B - Program Quality Control Plan (PQCP) Addendum,

- Appendix C - Accident Prevention Plan (APP),
- Appendix D - Project Schedule,
- Appendix E - 100% Design Drawings by CH2MHill, January 2012,
- Appendix F - 100% Design Specifications by CH2MHill, January 2012, and
- Appendix G – Post Construction Survey Specification.

## 1.2 SITE DESCRIPTION

The NSF-IH is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC as shown in the Vicinity Map on Drawing G-0 (**Appendix E**). The NSF-IH is a Navy facility, consisting of the Main Installation of the Cornwallis Neck Peninsula and the Stump Neck Annex on the Stump Neck peninsula. The Main Installation contains approximately 2,500 acres and is bounded by the Potomac River to the northwest, west, and south; Mattawoman Creek to the south and east; and the town of Indian Head to the northeast. Included as part of the Main Installation are Marsh Island and Thoroughfare Island, which are in Mattawoman Creek. The Stump Neck Annex covers approximately 1,084 acres and is bounded by Mattawoman Creek to the northeast, the Potomac River to the northwest, and Chicamuxen Creek to the south-southwest. The NSF-IH provides services in energetics, ordnance devices and components, and other related ordnance engineering standards, including chemicals, propellants, and their propulsion systems, explosives, pyrotechnics, warheads, and simulators.

Site 21, is located on the Main Installation as shown in the Location Map on Drawing G-0 (**Appendix E**). Site 21 is located between South Bronson Road and Building 602. It extends from Building 478 on the north to Building 480 on the south. An unpaved road runs along the eastern side of the site.

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## ***2.0 RESOURCES AND PROJECT ORGANIZATION***

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This section details the equipment and materials Shaw anticipates using during work at Site 21.

### **2.1 MANPOWER REQUIREMENTS**

Shaw will mobilize operational personnel to perform on-site activities based upon nearest available resources. Field administrative support for CTO JU49 will be performed from Shaw's construction trailer. Project management, scheduling, and technical support will be performed at various Shaw offices. A project organization chart in the PQCP Addendum (**Appendix B**) presents the key Shaw personnel to be involved in the successful completion of this project.

### **2.2 PROJECT MANAGEMENT AND FIELD SUPERVISION**

The Shaw project management approach is to work closely with the client to accomplish all project objectives and ensure continuous client satisfaction with the project. Therefore, the Project Manager will have overall responsibility for project schedule, costs, and resources. A Site Superintendent will be assigned to the project with responsibility for accomplishing all fieldwork. The Site Superintendent will report directly to the Project Manager and supervise all day-to-day activities in the field.

The Project Manager and Site Superintendent will jointly develop project schedules and budgets throughout the project. Resource requirements will be addressed with the full support of the Shaw resource manager prior to mobilization and on a regular basis during the course of work.

A Project Business Administrator (PBA) will be assigned to the project to assist with daily cost tracking and equipment/materials procurement. The PBA will work closely with the Project Manager and Site Superintendent with regard to project costs and planning.

### **2.3 PERSONNEL – DUTIES AND RESPONSIBILITIES**

#### ***2.3.1 Shaw Responsibilities***

Shaw will accomplish the following:

- Perform the scope of work described in the Work Plan as required by CTO JU49.
- Attend a preconstruction meeting with the NAVFAC Washington Remedial Project Manager (RPM) and Facilities Engineering and Acquisition Division (FEAD) representative, as well as security, the Fire Department, and environmental representatives.

- Prepare monthly performance reports.
- Prepare and submit a monthly progress report to the Navy documenting percent completion, unresolved delays (encountered or anticipated) that may affect scheduling and a description of efforts made to mitigate those delays, revisions to the construction schedule, listing of activities scheduled for the next month; and other information relating to progress of construction.
- Initiate and maintain a thorough and proactive safety program during the entire project.
- If a conflict, error, or discrepancy is found in contract documents, obtain a written interpretation or clarification from the FEAD representative before proceeding with the task(s) in question.
- Notify the RPM in writing of any change to site conditions.
- Implement the PQCP Addendum (**Appendix B**) and establish a chain-of-command.
- Maintain at the site two record copies of all as-built drawings; and one copy of specifications, addenda, written amendments, change orders, work directive changes, field test records, field orders, and written interpretations and clarifications.
- Manage all resources to meet the project schedule in a cost-effective manner.
- Effectively communicate project-related information with the FEAD representative and RPM.

### ***2.3.2 Responsibilities of Shaw's Project Management Team***

The Project Manager will have day-to-day responsibility for all technical, schedule, and budget issues. The Site Superintendent, Site Safety and Health Officer (SSHO), PBA, and other support personnel will support the Project Manager in the field (as needed). Responsibilities and authority of the Project Manager and supporting field personnel are discussed in the following sections.

### ***2.3.3 Project Manager – Steve Carriere***

The Project Manager is the person in charge of the overall project and has full authority for project coordination and direction. The Project Manager will communicate directly with the RPM. Specific responsibilities assigned to the Project Manager will include:

- Interpret and plan overall work effort.
- Review and approve all submittals.
- Define resource needs and secure staff and equipment commitments.

- Monitor subcontractor performance, schedules, budgets, and invoices.
- Develop, review, and meet work schedule and budget objectives.
- Ensure technical adequacy of field, laboratory, data management, and construction activities.
- Attend meetings with the Navy, as required.
- Document the need for required contract modifications.

To carry out these functions, the Project Manager will have the authority to:

- Determine staff and subcontractor priorities.
- Allocate additional personnel as needed.
- Establish work budgets and schedules with milestones.
- Approve subcontractor work and invoices.
- Communicate with the Site Superintendent regarding site activities and identify potential concerns.
- Review and approve invoices.

#### ***2.3.4 Site Superintendent – Bryan Guzzardo***

The Site Superintendent is the Shaw site contact and is responsible for the performance of all remediation activities in accordance with the Work Plan and other project plans and specifications. The Site Superintendent’s responsibilities include:

- Implement day-to-day aspects of the APP (**Appendix C**) and Work Plan.
- Coordinate engineering activities at the site, as directed by the Project Manager.
- Manage day-to-day administrative and procurement activities at the site.
- Monitor work progress and schedule, and advise Project Manager of variances.
- Comply with governing state and federal regulations pertinent to the work.
- Assist in preparation of work progress schedules, project reports, and as-built drawings.
- Submit the contractor production reports to the FEAD representative and Project Manager on a daily basis.

- Attend work progress meetings.
- Timely report any proposed significant project changes to the Project Manager to allow review and approval prior to incorporating the changed condition.

### ***2.3.5 Project Quality Control Manager – Patti Gamble***

The Project Quality Control (QC) Manager will be responsible for performing inspection activities as per the PQCP Addendum (**Appendix B**). The Project QC Manager will be supported in the field by a sample technician and geotechnician, if needed. The Project QC Manager and technicians will monitor site activities on a periodic basis. Results of the inspections and testing will be documented in a report describing site operations performed each day. The Project QC Manager will also be responsible to

- Manage the site specific QC requirements in accordance with the PQCP Addendum (**Appendix B**).
- Attend the coordination and mutual understanding meeting.
- Conduct QC Meetings.
- Perform the three phases of control.
- Perform submittal review.
- Perform submittal approval except for submittals designated for Contracting Officer or designated representative approval.
- Ensure testing is performed as required.
- Prepare QC certifications and documentation required.
- Verify that objective evidence has been provided to document satisfactory performance of the work (i.e. daily reporting and photo documentation).
- Exercise authority to stop work or direct removal and replacement of non-conforming work.
- Review results of on-site verification testing and inspection reports.
- Maintain the latest drawings and specifications with amendments and/or approved modifications at the site and ensure they are used for shop drawings, fabrication, construction, inspections, and testing.
- Maintain as-built drawings at the site, available for review by the Navy at all times.

- Establish and maintain a Rework Item List of work that does not conform to specifications. Track and monitor these items to assure that the rework inspection and testing activities and frequencies are in accordance with contract requirements.
- Attend and assist the government at the pre-final inspection and the final acceptance inspection.
- Confirm the quality and quantity of materials delivered to the site as referenced by project specifications and/or design drawings.
- Submit the QC reports to the FEAD representative and Project Manager on a daily basis.

### ***2.3.6 Site Safety and Health Officer – Burney Chance***

The SSHO is responsible for implementing the APP to satisfy federal, state, and local regulations and is consistent with site conditions. The SSHO may take actions independent of the project group to stop the project, if required, to address safety concerns. The Site Superintendent is responsible for conformance of all site work with requirements and procedures identified in the APP. The SSHO will oversee the day-to-day implementation of the APP as follows:

- Direct entrance and exit medical physical requirements, as required.
- Approve of personal protective equipment and safety procedures specified in the APP (**Appendix C**).
- Oversee the maintenance and use of field monitoring equipment.
- Designate appropriate personnel protection levels, including upgrades.
- Provide guidance to the project staff to maintain compliance of all site work with federal and state regulations.
- Conduct daily safety “tailgate” briefings.

### ***2.3.7 Project Business Associate – Joe Gaietto***

The responsibilities of the PBA will be:

- Accrue daily costs into the accounting system VISION/Insite.
- Assist the Project Manager with preparation of schedules, budgets, and invoices.
- Use VISION to track costs and budget variances.
- Provide weekly progress reports on budget and schedule status to the Project Manager.

- Prepare daily report deliverables.
- Audit weekly postings of charges to work budgets.
- Assist Site Superintendent with procurement activities.
- Finalize costs for invoices to the government.
- Perform site administrative duties.

### ***2.3.8 Equipment Operators and Field Technicians***

The responsibilities of the equipment operators and field technicians will be:

- Perform all sampling activities in accordance with Navy and Shaw procedures.
- Conduct and record the results of all QC inspections and testing.
- Operate construction equipment.
- Remediate the site in accordance with Site Superintendent's directives.

### ***3.0 REMOVAL ACTIVITIES***

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This section discusses the major field activities associated with the removal activities at Site 21. The activities below are discussed in sequential order, however field conditions, weather or client direction may alter the sequencing of activities.

#### **3.1 PRE-MOBILIZATION ACTIVITIES**

Shaw has prepared the following documents for review and approval by the Navy in accordance with *Specification Section 01 33 00 Submittal Procedures, Section 01 35 29 Safety and Occupational Health Requirements, and Section 01 45 00.00 20 Construction Quality Control (Appendix F)*:

- Work Plan,
- PQCP Addendum (**Appendix B**),
- APP (**Appendix C**), and
- Project Schedule (**Appendix D**).

##### ***3.1.1 Pre-Construction Meeting***

Prior to mobilization, Shaw will coordinate the scheduling of a pre-construction meeting with the FEAD representative, RPM, NSF-IH Natural Resources Program, Safety and Fire Departments, and CH2MHill in accordance with *Specification Section 01 30 00 Administrative Requirements (Appendix F)*. Shaw will use the meeting to present in detail the steps of construction activities. Lines of communication between Shaw, FEAD representative, RPM, NSF-IH personnel, and CH2MHill will be confirmed during the meeting.

#### **3.2 MOBILIZATION AND SITE PREPARATION**

Shaw will schedule a mobilization date upon receiving Work Plan approval, issuance of completed Base Work Approval/Safety Permits, and notice to proceed from the FEAD representative. Remedial action activities at Site 21 are estimated to begin on July 9, 2012. Shaw personnel, equipment, and materials will be allocated from other project sites. Rental equipment will be mobilized from local vendors based upon lowest qualified bidder. A project support area will be established at the site for staging of construction equipment, vehicles, and supplies in accordance with *Specification Section 01 50 00 Temporary Construction Facilities and Controls (Appendix F)*. A list of contact personnel for Shaw and subcontractors will be

submitted and updated in accordance with *Specification Section 01 14 00 Work Restrictions (Appendix F)*. A project identification sign will be installed at Site 21 in accordance with *Specification Section 01 58 00 Project Identification (Appendix F)*.

### **3.2.1 Utility Markout**

Shaw will contract a private utility locator to perform a utility markout at Site 21 prior to beginning removal activities. The findings of the utility markout will be submitted to the FEAD representative by the Shaw Project QC Manager.

A field inspection to verify the locations of the utilities, if present, will be conducted prior to removal activities. Any underground utilities that are impacted by soil and sediment removal will be protected. The utility markout activities will be in accordance with *Specification Section 01 11 00 Summary of Work (Appendix F)*, as applicable.

### **3.2.2 Environmental Conditions Report**

Prior to performing the removal action, the Project QC Manager will document the existing site conditions at Site 21 in accordance with *Specification Section 01 57 19.00 20 Temporary Environmental Controls (Appendix F)*. The existing site conditions will be summarized with photographs and descriptions in an Environmental Conditions Report. The Environmental Conditions Report will be submitted to the FEAD representative and included in the Construction Completion Report.

Progress and completion photographs of construction activities will be taken in accordance with *Specification Section 01 30 00 Administrative Requirements (Appendix F)*.

### **3.2.3 Surveying**

Shaw will subcontract a Professional Land Surveyor licensed in the state of Maryland to survey and certify the top of the grading fill layer and the top of the soil cap (final grade). Additional surveying activities will be performed by Shaw. Survey information will be submitted in accordance with the specification provided in **Appendix G**.

## **3.3 CLEAN FILL VERIFICATION AND GEOTECHNICAL SAMPLING**

Clean fill verification and geotechnical samples will be collected to identify clean fill sources needed for the landfill cap materials. It is expected that one source of grading fill, one source of cover soil, and one source of topsoil will be needed.

Three verification samples (grading fill, cover soil, and topsoil) will be analyzed for volatiles, semivolatiles, pesticides, polychlorinated biphenyls (PCBs), metals, cyanide, total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO), oil and grease, and Toxicity Characteristic Leachate Procedure (TCLP) eight Resource Conservation and Recovery Act (RCRA) metals. The analytical results will be submitted to the RPM and FEAD representative to determine if they are suitable for use at the site. The chemical testing will meet the requirements of *Specification Section 31 00 00 Earthwork (Appendix F)*. Additional discussion of sampling activities is provided in **Section 4.0**.

The grading fill (onsite and offsite materials) and cover soil samples will be collected and tested to meet the material requirements of *Specification Section 31 00 00 Earthwork (Appendix F)*. In addition, the grading fill (onsite and offsite materials) and the cover soil will be tested to meet the compaction requirements of *Specification Section 31 00 00 Earthwork (Appendix F)*. It is estimated that 11 samples of grading fill (1 onsite and 10 offsite) and 10 samples of cover soil will be needed to meet the one sample per 1,000 cubic yards per source requirement. Additional discussion of sampling activities is provided in **Section 4.0**.

One topsoil sample per source will be collected and sent to a State Certified Laboratory or Agency for agricultural soil testing to determine the requirements for nutrients, fertilizer, and lime in accordance with *Specification Section 31 32 11 Soil Surface Erosion Control (Appendix F)*.

### 3.4 INSTALLATION OF INITIAL PHASE EROSION AND SEDIMENT CONTROLS

The initial phase erosion and sediment (E&S) control measures will be installed at the locations shown on Drawing EC-3 (**Appendix E**) and in accordance with the E&S Control Plan Notes on Drawing EC-1 (**Appendix E**) and *Specification Section 31 32 11 Soil Surface Erosion Control (Appendix F)*.

#### 3.4.1 *Stabilized Construction Entrance*

The stabilized construction entrance will be installed at the location shown on Drawing EC-3 (**Appendix E**). The stabilized construction entrance will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail B-1 on Drawing EC-5 (**Appendix E**).

#### 3.4.2 *At Grade Inlet Protection*

At grade inlet protection will be installed over the one drainage grate located along the south perimeter of Site 21 at the location shown on Drawing EC-3 (**Appendix E**). The at grade inlet

protection will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail E-8-2 on Drawing EC-6 (**Appendix E**).

### **3.4.3 Silt Fence**

Silt fence will be installed downhill of the areas of the sediment traps to protect from sediment migration during the interval while the sediment traps are being constructed. The silt fence is not shown on Drawing EC-3, however specified within the sequence of construction on Drawing EC-1 (**Appendix E**). The silt fencing will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail E-1 (not provided on the drawings).

### **3.4.4 Super Silt Fence**

Super silt fence will be installed along the south perimeter of Site 21 at the location shown on Drawing EC-3 (**Appendix E**). The super silt fencing will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail E-3 on Drawing EC-6 (**Appendix E**).

### **3.4.5 Sediment Traps**

Two pipe outlet sediment traps, Sediment Trap North and Sediment Trap South, will be installed at the locations shown on Drawing EC-3 (**Appendix E**). The sediment traps and accessory items will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Details provided on Drawings EC-7 and EC-8 (**Appendix E**) and the erosion control design summary provided on Drawing EC-3 (**Appendix E**).

Any waste that is encountered during excavation of the sediment traps will be reburied on-site as discussed in **Section 3.6**. The sediment traps will remain operational until the uphill areas are stabilized. The soil stockpiles will be maintained with sufficient clean fill and topsoil to complete backfilling of the sediment traps to final grade.

### **3.4.6 Rock Outlet Protection**

Rock outlet protection II will be installed at two locations, Sediment Trap North and Sediment Trap South, as shown on Drawing EC-3 (**Appendix E**). Class 1 riprap will be the material used at both locations and the dimensions of the rock placement are provided on Drawing EC-3 (**Appendix E**). The rock outlet protection will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail D-4-1-B on Drawing EC-6 (**Appendix E**).

### ***3.4.7 Riprap Inflow Protection***

Riprap inflow protection will be installed at the four locations shown on Drawing EC-3 (**Appendix E**). The riprap inflow protections allow water to flow into the sediment traps from the temporary earth dike, temporary swales, and existing channel. The riprap inflow protection will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail D-3-1 on Drawing EC-6 (**Appendix E**).

### ***3.4.8 Temporary Pipe***

A temporary, 12-inch corrugated metal pipe will be installed directly north of the stabilized construction entrance to carry water across the site access road from the outlet of the temporary earth dike to the inlet of the south sediment trap as shown on Drawing EC-3 (**Appendix E**).

### ***3.4.9 Temporary Earth Dike***

The temporary earth dike will be installed along the south perimeter of Site 21 at the location shown on Drawing EC-3 (**Appendix E**). The temporary earth dike will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail C-1 on Drawing EC-5 (**Appendix E**) and the erosion control design summary provided on Drawing EC-3 (**Appendix E**).

### ***3.4.10 Temporary Swales***

Two existing roadside swales along the west perimeter of Site 21 will be re-directed to flow into the riprap inflow protections entering the sediment traps as shown on Drawing EC-3 (**Appendix E**). The temporary swales will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail C-2 on Drawing EC-5 (**Appendix E**) and the erosion control design summary provided on Drawing EC-3 (**Appendix E**).

### ***3.4.11 Soil Stabilization Matting***

Temporary soil stabilization matting will be placed to secure the seeding on the southern temporary swale. The temporary soil stabilization matting will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail B-4-5-A on Drawing EC-5 (**Appendix E**).

## **3.5 CLEARING AND GRUBBING**

The majority of clearing activities at Site 21 will be completed following the installation of E&S controls. However, minimal clearing will be done prior to installation of the E&S controls to

accommodate the installation of the E&S controls described in **Section 3.4**. Clearing will consist of the removal of trees, shrubs, and debris from the existing soil cover in accordance with Drawing C-2 (**Appendix E**). Grubbing will only be completed in areas where excavation will occur. Grubbing will consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the excavation areas. The trees, shrubs, stumps, and roots will be disposed of at an offsite waste disposal area designated by the FEAD. The debris will be redistributed within the landfill as discussed in **Section 3.6**. The clearing and grubbing activities will be conducted in accordance with *Specification Section 31 11 00 Clearing (Appendix F)*.

### 3.6 REDISTRIBUTION AND REGRADING OF EXISTING SOIL COVER (GRADING FILL)

Regrading of the existing surface of the landfill is required to provide smooth uniform slopes and erosion control benches to protect the long-term integrity of the new soil cap and will be performed in accordance with Notes 3, 4, and 5 on Drawing C-2 (**Appendix E**). There are four locations shown hatched that will be excavated in order to provide the proper cover and grade. The excavated material and the surface debris found during clearing activities will be redistributed within the landfill in locations where a minimum of 4 feet of material (2 feet of grading fill and 2 feet of new soil cover) will be between the redistributed material and the final design grade. The locations for redistribution of landfill material/debris and regrading of existing soil cover (grading fill) will be determined by comparing the existing grades with the final grades using AutoCAD. The existing soil cover will be redistributed so that there is a minimum of 2 feet of existing soil cover (grading fill) over the landfill material. A geotechnical engineer or technician will be on site during construction to determine what is existing soil cover and what is existing landfill material. Approximately 9,450 cubic yards of material will be imported to complete the grading fill layer. The grading fill will be placed in 10-inch maximum loose lifts and compacted to meet a minimum 90% relative compaction by ASTM D 698. One field compaction test per 10,000 square feet or 1 test per lift per day, whichever is greater, will be conducted in accordance with *Specification Section 31 00 00 Earthwork (Appendix F)*.

The control benches shown on Drawing C-3 (**Appendix E**) will be constructed during the regrading activities in accordance with Detail 2 on Drawing C-6 (**Appendix E**). The roadside swales shown on Drawing C-3 (**Appendix E**) will be constructed during the regrading activities in accordance with Detail 4 on Drawing C-6 (**Appendix E**). In addition, cross sections A, B, and C on Drawings C-4 and C-5 (**Appendix E**) will be referenced during regrading activities.

### 3.7 PLACEMENT OF NEW SOIL CAP

The new soil cap will be graded in accordance with Drawing C-3 (**Appendix E**). The new soil cap will be placed over the grading fill layer which has a minimum thickness of 2 feet. The new soil cap will be a minimum of 2 feet consisting of 18 inches of clean cover soil and 6 inches of topsoil in accordance with Detail 1 on Drawing C-6 (**Appendix E**). The cover soil will be placed in 9-inch maximum loose lifts and compacted to meet a minimum 90% relative compaction by ASTM D 698. One field compaction test per 10,000 square feet or 1 test per lift per day, whichever is greater, will be conducted in accordance with *Specification Section 31 00 00 Earthwork* (**Appendix F**). A minimum slope of 4 percent will be met for the final grade. Cross sections A, B, and C on Drawings C-4 and C-5 (**Appendix E**) will be referenced for placement of the new soil cap.

### 3.8 INSTALLATION OF PERMANENT STORMWATER CONVEYANCE PIPES, INLETS, AND RIPRAP

Drainage piping will be installed at the locations shown on Drawing C-3 (**Appendix E**) and in accordance with *Specification Section 33 40 00 Storm Drainage Utilities* (**Appendix F**) to carry water collected from the upper control benches to the lower control bench. An 18-inch high density polyethylene (HDPE) inlet will be installed at the low point of the upper control benches. The HDPE inlet will be installed in accordance with Detail 6 on Drawing C-6 (**Appendix E**). The 18-inch HDPE inlet will connect to a 12-inch HDPE drainage pipe. The 12-inch HDPE pipe will be installed in accordance with Drainage Profile A on Drawing C-5 (**Appendix E**) and Detail 5 on Drawing C-6 (**Appendix E**). An 18-inch HDPE manhole will be installed to allow for a change in slope and the connection of another 12-inch HDPE pipe with a flared end section. The HDPE manhole will be installed in accordance with Drainage Profile A on Drawing C-5 (**Appendix E**). The flared 12-inch HDPE pipe will be installed in accordance with Drainage Profile A on Drawing C-5 (**Appendix E**) and Detail 5 on Drawing C-6 (**Appendix E**). The flared HDPE pipe will convey water into riprap protection within the lower control bench. The riprap protection will be installed in accordance with Drawing EC-4 (**Appendix E**).

### 3.9 SITE RESTORATION

Site restoration will include the installation of sod, seed mix, permanent soil stabilization matting, concrete, riprap inlet protection, riprap outlet protection, and signs, rerouting of the roadside swales, and backfilling of the sediment traps.

### 3.9.1 Landfill Cap Slopes

Staked sod will be installed on designated slopes steeper than 3 horizontal to 1 vertical (3H:1V) as shown on Drawing EC-4 (**Appendix E**). The majority of the landfill cap that is at final grade will have permanent seed, fertilizer, lime, and straw applied to reestablish vegetation in accordance with the vegetation stabilization methods and materials provided on Drawing EC-2 (**Appendix E**). Type 1 permanent soil stabilization matting will be installed on the designated slopes shown on Drawing EC-4 (**Appendix E**). The Type 1 permanent soil stabilization matting will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail B-4-5-D on Drawing EC-5 (**Appendix E**) and *Specification Section 31 32 11 Soil Surface Erosion Control* (**Appendix F**).

### 3.9.2 Control Benches and Upper Swale

The upper swale on the east side of the landfill cap and the control benches will be seeded then covered with Type 2 permanent soil stabilization matting as shown on Drawing EC-4 (**Appendix E**). The Type 2 permanent soil stabilization matting will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail B-4-5-C on Drawing EC-5 (**Appendix E**) and *Specification Section 31 32 11 Soil Surface Erosion Control* (**Appendix F**). Concrete will be installed around the HDPE inlet in accordance with Detail 6 on Drawing C-6 (**Appendix E**). Additional riprap inflow protection will be installed at the end of the lower control bench to tie into the riprap inflow protection leading to the north sediment trap as shown on Drawing EC-4 (**Appendix E**). The riprap inflow protection will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail D-3-1 on Drawing EC-6 (**Appendix E**) and *Specification Section 31 00 00 Earthwork* (**Appendix F**).

### 3.9.3 Roadside Swales

Once final grading of the site (except for small soil stockpiles for fill for sediment traps) is completed, stabilization of the uphill areas is completed, and permission is received from the inspector responsible for E&S controls, the roadside swales will be rerouted around the sediment traps. Sod will be installed within the roadside swales along the western perimeter of Site 21. Rock outlet protection III will be installed at the end of each roadside swale as shown on Drawing EC-4 (**Appendix E**). Class 1 riprap will be the material used at both locations and the dimensions of the rock placement are provided on Drawing EC-4 (**Appendix E**). The rock outlet protection will be installed in accordance with the Maryland Standards and Specifications for

Soil Erosion and Sediment Control, Detail D-4-1-C on Drawing EC-6 (**Appendix E**) and *Specification Section 31 00 00 Earthwork (Appendix F)*.

#### **3.9.4 Sediment Traps**

After the roadside swales have been rerouted around the sediment traps, the baffles, pipe risers, and outlets will be removed. The sediment traps will be backfilled with clean cover soil and 6-inches of topsoil to meet the grades shown on Drawing C-3 (**Appendix E**). The sediment trap areas, former stockpile areas, equipment travelways, and any remaining portions of the site will have permanent seed, fertilizer, lime, and straw applied over them to reestablish vegetation in accordance with the vegetation stabilization methods and materials provided on Drawing EC-2 (**Appendix E**).

Riprap inflow protection will be installed to extend the riprap channel to meet the broad swale graded during backfilling of the north sediment trap as shown on Drawing EC-4 (**Appendix E**). The riprap inflow protection will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail D-3-1 on Drawing EC-6 (**Appendix E**) and *Specification Section 31 00 00 Earthwork (Appendix F)*.

The broad swale will be seeded then covered with Type 2 permanent soil stabilization matting as shown on Drawing EC-4 (**Appendix E**). The Type 2 permanent soil stabilization matting will be installed in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control, Detail B-4-5-C on Drawing EC-5 (**Appendix E**) and *Specification Section 31 32 11 Soil Surface Erosion Control (Appendix F)*.

#### **3.9.5 Signs**

A total of eight land use control (LUC) signs will be installed around the limits of Site 21 in the locations shown on Drawing C-3 (**Appendix E**). The LUC signs will be installed in accordance with Detail 3 on Drawing C-6 (**Appendix E**).

### **3.10 TRANSPORTATION AND DISPOSAL**

A dumpster or rolloff box will be kept on site for general trash collected during construction activities. At the completion of the project, the container will be picked up and the trash disposed of at a Navy-approved facility.

### 3.11 DEMOBILIZATION

After completing site restoration and upon receipt of Navy approval and acceptance of site conditions, Shaw will begin demobilization activities. Demobilization will include:

- Final site cleanup and equipment decontamination;
- Removal of all temporary structures;
- Removal of all disposable items, dumpsters, and port-a-johns; and
- Demobilization of construction equipment.

The final demobilization will be implemented when it is determined by the Project Manager to be most practical and cost effective. Any equipment or material that was used will be thoroughly decontaminated prior to demobilization. The E&S controls may be left onsite for removal at a later date once vegetation becomes established.

## ***4.0 SAMPLING AND ANALYSIS SUMMARY***

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This section presents sample analytical methods, procedures for soil sample collection, and data analysis methods to be implemented at Site 21. All chemical analyses will be performed at an accredited offsite laboratory.

### **4.1 CLEAN FILL TESTING**

All material to be brought onsite and used as clean fill will be analyzed prior to placement. One composite soil sample will be collected from each type of fill material (i.e. grading fill, cover soil and topsoil) from each material source. Fill material samples will be analyzed for volatiles, semivolatiles, pesticides, PCBs, metals, cyanide, TPH DRO/GRO, oil and grease, and TCLP eight RCRA metals. The most recent Residential Regional Screening Levels will be used to evaluate the fill material. In addition, for TPH DRO/GRO a maximum acceptable concentration of 100 mg/kg will be used as the criteria for use of the fill material. The results of the clean fill samples will be submitted to the Navy RPM and FEAD representative for review and approval prior to placement.

### **4.2 GEOTECHNICAL TESTING**

The grading fill (offsite and onsite) and cover soil materials will be tested in accordance with ASTM C 136 for conformance with ASTM D 2487 gradation limits, ASTM D 1140 for material finer than the No. 200 sieve, and ASTM D 4318 for liquid limit and plastic limit. A minimum of one test per soil type per source for every 1,000 cubic yards delivered to the site. The grading fill and cover soil sample results will be reviewed and approved to meet the material requirements of *Specification Section 31 00 00 Earthwork (Appendix F)*.

### **4.3 SAMPLE CUSTODY AND DOCUMENTATION**

As part of appropriate documentation, all sample bottles will be adequately labeled. The label will present sample identification and collection information. It will be pre-printed from the sample tracking system or completed with indelible ink. At a minimum, all sample labels will include the following sample information:

- Field sample location and unique sample identifier;
- Project name and number;
- Analysis requested for each bottle;

- Method of preservation for each bottle;
- Date and time of collection; and
- Initials of sample technician.

A sample numbering system will be utilized in the field to uniquely identify each sample collected. The sample number will be traceable to the site, location, and depth (where applicable). The sample identification and description will be recorded by the Site Superintendent or Project QC Manager in a sample collection log. The sample designations will be as follows:

***NSFIHSITE21 – 142879 – DD – NNN***

Where:

NSFIHSITE21 = Naval Support Facility Indian Head Site 21

142879 = Shaw Project Number

DD = Matrix identifier and/or QC identifier

e.g. GF = Grading Fill Material

CS = Cover Soil Material

TS = Topsoil Material

TB = Trip Blank

NNN = Sequential number starting at 001.

## 5.0 REPORTING

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### 5.1 DATA MANAGEMENT REPORTING

To ensure the integrity of sample analytical data from the time of collection in the field to the tabulation of results, data documentation protocols will be implemented. This will include providing sample labels, chain of custody records, field information forms, and data collection records to document field information; and comparing laboratory analysis reports with tabular displays and graphic displays to evaluate the accuracy of data transfer. A report will be prepared summarizing the data collection and the analytical results for each sampling event.

### 5.2 CONSTRUCTION COMPLETION REPORT PREPARATION AND REVIEW

Upon completion of all field activities, Shaw will prepare a Construction Completion Report documenting site activities and reporting all data in accordance with *Specification Section 01 78 00 Closeout Submittals (Appendix F)*. This report will include all daily notes from field activities, a description of each project task, any problems encountered along with corrective measures, project photographic documentation, as-built drawings, disposal documentation, and all pertinent analytical data/reports. Shaw will submit a draft report to the NAVFAC RPM, FEAD representative, the MDE, and the Environmental Protection Agency for review and comment. Upon receiving review comments, Shaw will incorporate all comments and will submit the report as the final version. Upon publication of the final version, a hard copy and electronic copy will additionally be distributed to CH2MHill for inclusion into Naval Installation Restoration Information Solution.

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## ***6.0 ENVIRONMENTAL PROTECTION PLAN***

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### **6.1 PURPOSE**

This plan presents environmental protection and pollution measures to be employed during site activities in accordance with *Specification Section 01 35 40.00 20 Environmental Management and Specification Section 01 57 19.00 20 Temporary Environmental Controls (Appendix F)*, as applicable. Shaw will implement procedures and supply materials necessary for environmental protection for activities associated with the remedial action activities at Site 21. Principle concerns include small spills and E&S control. Additional information may be found in the APP (**Appendix C**) and installation of E&S controls (**Section 3.4**).

### **6.2 EMERGENCY AND DECONTAMINATION EQUIPMENT**

#### ***6.2.1 Small-Scale Emergency Equipment***

Small scale emergency equipment will include dry chemical, ABC-rated fire extinguishers; spill control equipment; absorbent materials; decontamination equipment; and various hand tools. This equipment will be accessible to all onsite workers.

#### ***6.2.2 Large-Scale Emergency Equipment***

Large-scale emergency equipment will be utilized if equipment of such size and power is necessary. Other emergency support equipment may be supplied by the NSF-IH Fire Department depending upon the type of emergency and equipment needs.

#### ***6.2.3 Decontamination of Equipment***

Equipment necessary for decontamination activities will be provided, installed, and verified in working order prior to any site operations. Equipment for the decontamination area includes but is not limited to the following items:

- Clean water supply,
- Detergent solution,
- Brushes,
- Waste containers,
- Pressure washer.

### 6.3 EQUIPMENT MAINTENANCE

Construction equipment will be properly maintained to ensure safe operation. All equipment will be regularly inspected and maintained (and documented in the inspection/maintenance log) in such manner as to minimize spillage or leakage which may occur during on-site transportation operations.

### 6.4 HOUSEKEEPING PROGRAM

Shaw's housekeeping program includes many items such as neat and orderly storage of materials, proper truck and tank placards, prompt removal of spillage, refuse pickup and disposal, maintenance of roads and surfaces, and provisions for the storage of material. A daily departure inspection will be performed by the Site Superintendent.

Small spills may include solid or liquid materials being mishandled, dumped, leaked, knocked over, etc. Any material spillage will be immediately contained and collected for subsequent disposal. Excavation will be performed such that exposed source materials remain within the limits of excavation. Any spilled liquids will be contained and collected by absorbent materials. Spilled fuel and impacted soil will be collected and staged for later disposal.

### 6.5 PROTECTION OF NATURAL RESOURCES

Shaw will preserve the natural resources within the project boundaries and outside the limits of disturbance, except as is necessary to implement required work. The work site will be restored to satisfactory or improved condition upon project completion. Shaw will document existing environmental conditions in and adjacent to the site in an Environmental Conditions Report which will be included in project closeout documentation as discussed in **Section 3.2.2**. Shaw will also conform to NSF-IH requirements with respect to the protection of natural resources. At the completion of site activities, Shaw will remove obvious traces of construction such as stockpiles and barricades. Certain E&S control features may remain onsite after Shaw has demobilized from the project until the areas of disturbance are stabilized. Shaw will return to the site and remove the remaining E&S controls upon direction from the NSF-IH Natural Resources office.

### 6.6 PETROLEUM WASTES

Shaw will implement all reasonable precautions to prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Equipment and storage vessels containing oils and fuels will be visually inspected prior to site entry and daily thereafter

for leakage, drips, or other preventable releases. Any equipment or vessel damage will be immediately repaired or removed from the site. Petroleum releases will be acted-on upon observation and impacted materials disposed of appropriately. Shaw will immediately notify NAVFAC and NSF-IH of any spills.

The site will be equipped with a spill kit, sufficient to contain and clean up on-site quantities of petroleum products. In the event of a spill, Shaw will notify the NSF-IH Emergency Services (x4333).

#### 6.7 WASTE HANDLING

Contaminated soil will be temporarily stockpiled in a staging area at Site 21, if needed. Once the soil material is appropriately characterized for disposal or recycling it will be loaded into dump trucks for transportation and disposal. The transportation and disposal activities will be performed in accordance with local, state, and federal regulations as well as NAVFAC and NSF-IH contract requirements.

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## *7.0 REFERENCES*

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NAVFAC Washington (May 2011). *Statement of Work for Site 21 Remedial Action, Naval Support Facility, Indian Head.* Washington Navy Yard, DC.

CH2MHill (January 2012). *100 Percent Basis of Design Report, Site 21 – Bronson Road Landfill, Naval Support Facility Indian Head, Indian Head, Maryland.*

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# APPENDIX A

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## *RESPONSE TO COMMENTS*

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**Responses to Comments dated June 6, 2012**  
**Draft Work Plan**  
**Site 21 – Bronson Road Landfill**  
**Naval Support Facility**  
**Indian Head, Maryland**

**NAVFAC (Joe Rail) Comments:**

**Comment No. 1**

Page 3-5, section 3.4.6, first sentence- Is "outlet protection II" a typo? If so, please make correction.

*Response: This is not a typo, no correction has been made.*

**Comment No. 2**

Page 3-8, section 3.9.3, first sentence- The E&S plan was approved by MDE but doesn't require an actual permit since the work is on a CERCLA site. Therefore, an MDE inspector won't be present. Change the second part of the sentence to "...and permission is received from the inspector responsible for E&S controls, the roadside swales will be rerouted around the sediment traps." Cathy or Nick would be able to give you the name of the inspector for this project, if you need it.

*Response: The sentence has been revised accordingly.*

**Comment No. 3**

page 3-9, section 3.9.5, first sentence- Reference to Drawing EC-3 is incorrect; it should be Drawing C-3.

*Response: The drawing reference has been revised accordingly.*

**Comment No. 4**

Appendix C, page 5-2, Table 5-1- Update subcontractor names and addresses in this table once they are known.

*Response: The subcontractor names and addresses are currently unknown for the Final Work Plan document submittal. The subcontractor information will be documented in the Construction Completion Report.*

**Comment No. 5**

Appendix C, page 9-11, Table 9-2- Following the text "Department of the Navy", change "Atlantic Division" to "NAVFAC Washington."

*Response: The table has been revised accordingly.*

**Comment No. 6**

Appendix C, pages 9-13 and 9-15, Figures 9-2A and 9-2B- Change "NSWC Main Gate" to "NSF-IH Main Gate."

*Response: The figures have been revised accordingly*

RE: *Response to Comments dated April and May 2012  
Draft Work Plan, Site 21 Bronson Road Landfill, Naval Support Facility, Indian Head, Maryland  
Task Order JU49, Shaw Project 142879, Contract No. N62470-08-D-1007*

**Comment No. 7**

Appendix C, Hurricane Preparedness Plan, Attachment B Emergency Phone Numbers- Following the text "Department of the Navy", change "Atlantic Division" to "NAVFAC Washington."

*Response: The text has been revised accordingly.*

**NAVFAC Washington Environmental (Nick Carros) Comments:**

**Comment No. 1**

3.2.1 first paragraph: this section says that you will request a utility markout. As we all know the Navy will not do that.

*Response: The first paragraph of Section 3.2.1 has been removed.*

**Comment No. 2**

6.5 end of paragraph: please add that Shaw will return and remove the remaining E&S controls after the NSF-IH Environmental office informs that that they may.

*Response: The following sentence has been added to the end of Section 6.5. "Shaw will return to the site and remove the remaining E&S controls upon direction from the NSF-IH Natural Resources office."*

**Comment No. 3**

6.6 last sentence: remove "oil". It is implied for any petroleum products.

*Response: The word "oil" has been removed from the last sentence of the first paragraph.*

**Comment No. 4**

6.6 notify emergency services not natural resources.

*Response: The last sentence within Section 6.6 has been revised to state "In the event of a spill, Shaw will notify the NSF-IH Emergency Services (x4333)."*

**Comment No. 5**

Appendix D: please make sure this is updated.

*Response: The project schedule in Appendix D has been updated in the Final Work Plan.*

**NAVFAC Washington (Cathy Gardner) Comments:**

**Comment No. 1**

Please add the attached GIS spec to the workplan. We need to always add spec to all projects on Indian Head Base.

*Response: Appendix G has been added to the report for the GIS specification. The following sentence has been added to the end of the paragraph in Section 3.2.3 Surveying. "Survey information will be submitted in accordance with the specification provided in Appendix G."*

RE: *Response to Comments dated April and May 2012*  
*Draft Work Plan, Site 21 Bronson Road Landfill, Naval Support Facility, Indian Head, Maryland*  
*Task Order JU49, Shaw Project 142879, Contract No. N62470-08-D-1007*

**MDE (Curtis DeTore) Comments:**

**General Comment**

The Federal Facilities Division of the Maryland Department of the Environment's Land Restoration Program has no further comment on the Draft Work Plan Site 21 – Bronson Road Landfill document. This document was subjected to an onboard review during the Indian Head Installation Restoration Team meeting held on May 9<sup>th</sup> and 10<sup>th</sup>, 2012.

*Response: Comment noted.*

**EPA Region III (Dennis Orenshaw) Comments:**

**General Comment**

No comments.

*Response: Comment noted.*

**CH2MHILL (Marie Chiller and Randy Underwood) Comments:**

**General Comment**

Our design engineer, Randy Underwood, reviewed the Shaw work plan for Indian Head Site 21 construction per our discussion below. The primary emphasis of his review was the technical section, schedule, and any exceptions Shaw had taken to the drawings and specifications.

Randy noted that Shaw's description, which included references to specific design drawings, details, spec sections indicate that they understand the design pretty well. They have a 3-month (+/-) schedule extending from early June to the end of August, which should coincide with the start of fall seeding season. That is good.

The only possible exception we found was that their construction schedule did not take into account the delay in closing the large sediment basins until after vegetation on the surface of the remainder of the work had stabilized. This is not a major issue since MDE must approve acceptability of the up-slope stabilization measures and the removal of these ponds whether at the end of planned construction or during the post-construction maintenance period.

Randy briefly looked at the remainder of the work plan but did not review it in detail. Overall, the plan looked to be complete and well staffed with qualified folks whom we've worked with in the past.

*Response: Comment noted.*

## APPENDIX B

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### *PROGRAM QUALITY CONTROL PLAN ADDENDUM*

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*FINAL*  
PROGRAM QUALITY CONTROL PLAN  
ADDENDUM  
SITE 21 – BRONSON ROAD LANDFILL  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NO. N62470-08-D-1007

Prepared for:

**Department of the Navy**

**Naval Facilities Engineering Command Washington**

1314 Harwood Street, S.E.

Washington Navy Yard, DC 20374

Prepared by:

**Shaw Environmental and Infrastructure, Inc.**

500 East Main Street, Suite 1630

Norfolk, Virginia 23510

TASK ORDER JU49  
SHAW PROJECT NO. 142879

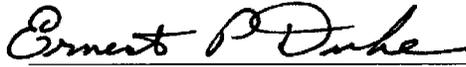
**JUNE 2012**

## PROGRAM QUALITY CONTROL PLAN ADDENDUM

Site 21 – Bronson Road Landfill  
Naval Support Facility Indian Head  
Indian Head, Maryland

### SIGNATURE PAGE

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Ernest P. Duke, P.G.  
Program QC Manager

06/13/2012

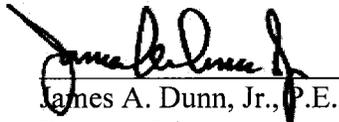
Date



Steve Carriere, PMP  
Project Manager

06/13/2012

Date



James A. Dunn, Jr., P.E.  
Program Manager

06/13/2012

Date

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## ***STATEMENT OF QC PROGRAM***

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This Addendum to the Program Quality Control Plan (PQCP) is prepared and submitted for the Site 21 – Bronson Road Landfill at Naval Support Facility Indian Head (NSF-IH), located in Indian Head, Maryland. This plan incorporates methods and procedures from the PQCP approved by the Naval Facilities Engineering Command (NAVFAC), Atlantic. The PQCP was developed specifically to be responsive to the Contract Specification, Contract No N62470-08-D-1007, NAVFAC Atlantic. Shaw Environmental and Infrastructure, Inc. (Shaw) will perform the inspections and tests required to ensure that materials, workmanship, and construction conform to drawings, specifications, and contract requirements.

### **Note to Employees – Concept of Quality Control**

Quality control (QC) should not be considered a person or an organization of personnel, but a concept to perform in such a manner that the end product of our efforts provides a quality product and customer satisfaction. The QC individual or group cannot inspect quality into the final product, but only inspect and document the results of our efforts. The only people that can build quality into the product are the individuals performing the task of producing the end product.

It should be noted by all employees that the documentation requirements of Shaw procedures, plans, and the Task Order Specifications are considered equally as important as the end product itself. When it is stated that the documentation will be approved prior to the start of work, this is exactly what is intended. To eliminate problems in this area requires careful planning and execution by everyone.

We would do well to remember that our livelihood depends on how well we satisfy our customer. To accomplish this requires teamwork and attention to detail by all employees and contractors.

## **I. QUALITY CONTROL ORGANIZATION**

The Project QC Manager will have the authority to implement and manage this Addendum to the PQCP, the three phases of QC and the authority to stop work, which is not in compliance with the contract.

Patricia (Patti) Gamble will be the Project QC Manager for this Task Order. She maintains current US Army Corps of Engineers (USACE) Construction Quality Management for Contractors certification and has quality assurance (QA)/QC experience and is capable of performing the QC functions for this task order.

Ms. Gamble, Project QC Manager will work closely with both the Project Manager, Steve Carriere, and the Site Superintendent, Bryan Guzzardo, to address any QC related issues, but will report directly to Mr. Ernest Duke, Shaw Program QC Manager regarding QC related issues at the site.

Mr. Duke, Program QC Manager, will serve to resolve any QC related issues, which need his involvement. The Project QC Manager will have a direct line of communication to the Program QC Manager on QC issues.

An Alternate QC Specialist may be assigned to assist the Project QC Manager during site construction. The resume of this person and appointment letter will be submitted for approval if determined necessary.

The independent relationship between the QC Organization, and Production Personnel of the task order, is presented in the Organizational Chart, Figure I-1.

## **II. IDENTIFICATION OF PERSONNEL ASSIGNED TO THE QC ORGANIZATION**

The resume of the Project QC Manager will be submitted as Figure II-1 for approval prior to the commencement of work.

## **III. APPOINTMENT LETTERS**

The Project QC Manager Appointment letter is provided as Figure III-1.

## **IV. OUTSIDE ORGANIZATIONS**

A list of outside organizations such as subcontractors employed by Shaw for work under this task order is provided in Exhibit IV-1. This list provides each firm's name and address and a description of the services each firm will provide. This list will be maintained current and will be available for review.

## **V. INITIAL SUBMITTAL REGISTER & REVIEWER**

### **V.1 Submittal Register**

The Initial Submittal Register is provided as Exhibit V-1. The status of each submittal will be recorded as changes occur.

### **V.2 Personnel Authorized to Review and Certify Submittals**

Personnel authorized to review and certify submittals are identified on Exhibit V-2. Any additional personnel assigned to perform submittal review and certification must be approved by the Contracting Officer prior to performance.

## **VI. TESTING LABORATORY ACCREDITATION**

Testing laboratory accreditation will be verified prior to procuring laboratory analytical services.

## **VII. TESTING PLAN AND LOG PREPARATION**

A Testing Plan and Log has been prepared for this task order and is provided as Exhibit VII-1.

## **VIII. REWORK ITEMS**

Rework items will be documented on the Daily Contractor QC Report and on the Rework Items List. This list will be used to report and track rework items. The Rework Items List is provided as Exhibit VIII-1.

## **IX. DOCUMENTATION PROCEDURES**

The Daily Contractor Production Report form and the Daily Contractor QC Report form will be used to document daily activities at the site. These forms are provided as Exhibits IX-1 and IX-2, respectively.

## **X. QUALITY CONTROL INSPECTION PLAN**

The QC Inspection Plan, Exhibit X-1, lists the task order Work Plan section and definable feature of work with provisions for recording the corresponding checklist/report for each phase of the three-phase control process. As each control phase is satisfactorily performed, the Project QC Manager will record the corresponding report number and date.

This list has been prepared to correspond to the scheduled activities of the task order. It will be maintained as provided in Section 1, Part 4.4 of the PQCP.

## **XI. PERSONNEL MATRIX**

The personnel matrix, Exhibit XI-1, shows each section of the task order Specification or Work Plan with identification of who will review and certify submittals, who will perform and

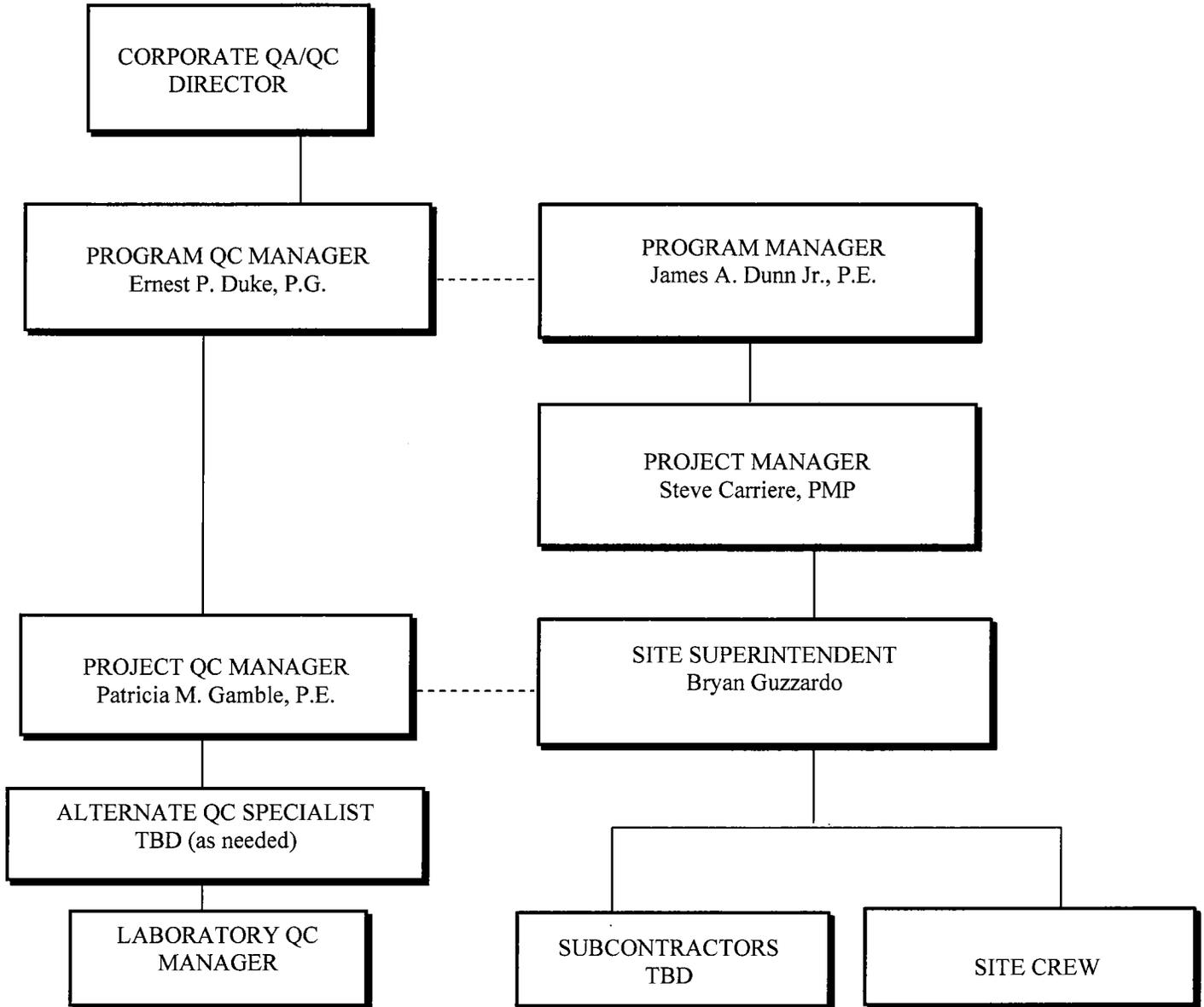
document the three phases of control, and who will perform and document testing. This matrix should be completed as much as possible prior to and during site mobilization.

# FIGURES

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**FIGURE I-1**  
**QC ORGANIZATIONAL RELATIONSHIP WITH PRODUCTION PERSONNEL**  
**SHAW ENVIRONMENTAL AND INFRASTRUCTURE, INC.**  
**TASK ORDER NO. JU49**



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**FIGURE II-1  
PROJECT QC MANAGER – RESUME**

*Last Updated: 12 June 2012*

**Patricia M. Gamble**

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**Professional Qualifications**

Ms. Gamble has 14 years of experience in the field of civil engineering including the areas of environmental remediation, surface water management, engineering design, plans and specifications, field investigations, quality assurance/quality control (QA/QC), and construction monitoring. She has completed residual waste and municipal waste landfill cap designs and remediation design and construction projects. She has performed site engineering, construction oversight and QA/QC for several construction projects.

Ms. Gamble has extensive experience in both the design and implementation of erosion and sediment controls. She has experience with erosion and sediment controls in the states of Maryland, Pennsylvania and West Virginia. In addition, Ms. Gamble has Responsible Personnel Certification for Erosion and Sediment Control from the Maryland Department of the Environment.

**Education**

Bachelor of Science, Civil Engineering, Pennsylvania State University, University Park, Pennsylvania, 1998

**Additional Training/Continuing Education**

Construction Quality Management for Contractors - Corps of Engineers Training Course, Towson, MD, 2012

8-Hour HAZWOPER Refresher, Online, 2012

Defensive Driving Small Vehicle, Shaw Online, 2010

The Smith System Five Keys to Safe Driving Small Vehicle Backing and Forward Motion, Online, 2009

Radworker Training, Washington, PA, 2008

The Smith System Advanced on Road Defensive Driving Course, Washington, PA, 2007

First Aid/CPR, Washington, PA, 2006

HAZMAT Re-Certification for Troxler Nuclear Gauge, Pittsburgh, PA, 2005

MDE Responsible Personnel Certification Program for Erosion and Sediment Control, MD, 2004

40-Hour OSHA Training, Harmarville, PA, 1998

Troxler Nuclear Gauge Safety Training, Monroeville, PA, 1998

**Registrations/Certifications/Licenses**

Professional Engineer, Civil, 2003, PE062414, Inactive, Pennsylvania, 09/2011

**Experience and Background**

***09/2009 - Present***

***Project Engineer 3, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia***

Develop and review various technical documents for Navy construction projects. The technical documents developed and reviewed include erosion and sediment control plans, work plans, completion reports, accident prevention plans, safety and health plans, quality assurance plans, storm water pollution prevention plans, explosive safety submission plans, environmental protection plans,

waste management plans, and sampling and analysis plans.

**10/2008 - 09/2009**

***Project Engineer 3, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia***

Acted as the Technical Manager for Navy projects and oversaw approximately 12 engineers and scientists within the Norfolk, Virginia office. Responsibilities included the coordination and review of all technical documents and assigning technical staff to various projects.

**05/2006 - 10/2008**

***Construction Engineer Manager II, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania***

Job Description: Responsibilities include providing civil engineering support to client construction and design projects.

Recent assignments have included:

Field Engineer, Molycorp Washington Remediation Project, 117916, Molycorp, Washington, Pennsylvania, 05/2006 - Present

The project consists of the excavation, transportation and disposal of low-level radioactive materials and Manufactured Gas Plant (MGP) tar materials.

Responsibilities include excavation and fill quantity tracking, quantity takeoffs for material procurement, overseeing of GPS activities, daily field report submittal to the client, implementation of the design drawings and specifications, and inspection and implementation of erosion and sediment controls. Assist project manager with monthly status reports. Developed and implemented the Erosion and Sediment Control Plan for the offsite borrow source.

**05/2002 - 05/2006**

***Civil Engineer III, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania***

Civil Engineer, Site 57 TCE Cleanup, 120359, U.S. Navy, Indian Head, Maryland, 04/2006 - 05/2006

The project consisted of the excavation of three areas that contained TCE and arsenic concentrations that exceeded the regulatory limits for industrial/residential criteria. Materials were excavated to groundwater and stored on a poly lined berm holding cell where waste characterization samples were taken to coordinate appropriate disposal. The areas were backfilled with soil and restored to original conditions consisting of vegetative and asphalt covers.

Responsibilities included the development of the Work Plan for the construction activities based on the cost estimate and scope of work, and the development of the Erosion and Sediment Control Plan.

Site Engineer and Site QC Manager, Olsen Road Landfill, 115273, U.S. Navy, Indian Head, Maryland, 03/2005 - 05/2006

The project consisted of installing a 1.5 acre 40-mil linear low density polyethylene (LLDPE) liner with a two-foot soil cover over the existing landfill to comply with a RCRA closure. The project encountered several material potentially presenting an explosive hazard (MPPEH) items during excavation and regrading of the landfill.

Responsibilities included the development of the Work Plan for the construction activities based on the cost estimate, scope of work, design drawings and specifications, resolving construction/design

issues with the design company and the client, providing survey control throughout construction of the landfill cap, inspecting of erosion and sediment controls weekly and following major rain events, implementing quality control of the construction with respect to the design drawings, conducting biweekly production and QC meetings, and developing the contractor closeout report to document the project construction activities.

Site Engineer and Site QC Manager, Site 17, 115273, U.S. Navy, Indian Head, Maryland, 03/2005 - 05/2006

The project consisted of shallow drum and soil removal from an area approximately one acre in size. The excavated areas were sampled and then backfilled with soil and restored to existing conditions.

Responsibilities included the development of the Work Plan for the construction activities based on the cost estimate and scope of work, providing survey control throughout the construction, inspecting of erosion and sediment controls weekly and following major rain events, conducting biweekly production and QC meetings, and developing the contractor closeout report to document the project construction activities.

Civil Engineer, Keystone Raeger Mountain, 115994, Keystone Renewable Energy, LCC, East Wheatfield and Jackson Townships, Pennsylvania, 06/2005 - 08/2006

The project consisted of a proposed two-mile pipeline construction that traveled through East Wheatfield Township and Jackson Township in Pennsylvania.

Responsibilities included preparing two General Permit No. 5 Utility Line Stream Crossings, two General Permits No. 8 Temporary Road Crossings, two Erosion and Sediment Control Plans, and a Preparedness, Prevention, and Contingency Plan for the proposed pipeline construction project.

Site Engineer, Patuxent River, 843844, U.S. Navy, Patuxent River, Maryland, 12/2003 - 12/2004

The project consisted of the excavation and disposal of 85,000 tons of nonhazardous waste. During excavation, over 1,000 munitions and explosives of concern (MEC) items were encountered. A Site Approval was obtained from DDESB for the siting of a temporary magazine on site for storing MEC items that may have contained explosives. A remote drill was designed and built by Shaw in order to access the cavities of the MEC items from a safe distance of 300 feet.

Responsibilities included the tracking of excavation and transportation and disposal quantities, surveying of construction activities, implementing of the erosion and sediment control plan, and developing the contractor closeout report to document the project construction activities.

Civil Engineer, Various Projects, Monroeville, Pennsylvania, 05/2002 - 11/2003

Preparing erosion and sediment control plans, including calculations, text and drawings, for projects in Maryland, Pennsylvania and West Virginia.

Performing environmental compliance audits for construction sites in Pennsylvania and Ohio. Preparing manuals for the sites to use as guidance throughout the course of their projects.

Designing a soil cap and preparing closure plan documents for the closure of a foundry sand pile located in eastern Pennsylvania.

Preparing drawings, specifications, and calculations for the closure design of a residual waste landfill in central Pennsylvania. Preparing an erosion and sediment control plan for the construction of the cap. Performing construction management and QA/QC activities for the closure. Inspecting erosion

and sediment controls weekly and after major rain events. Preparing construction certification documents and as-built drawings.

Preparing specifications, quality control plans, and design calculations for municipal waste landfill closure designs in West Virginia. The designs included gas management, leachate collection, and storm water management systems.

Preparing a storm water pollution prevention plan. Duties included storm water modeling utilizing SEDCAD 4.0 and design of storm water conveyance channels.

**05/1998 - 05/2002**

***Civil Engineer, IT Corporation (The Shaw Group, Inc., acquired substantially all of the operating assets of the IT Group Inc., on May 23, 2002), Monroeville, Pennsylvania***

Performing QA/QC activities for cell construction and capping of municipal waste landfills in western Pennsylvania, and preparing the construction certification documents and as-built drawings.

Performing California Bearing Ratio in-place bearing capacity testing and on-site peel and shear testing for high-density polyethylene geomembrane seaming operations.

Preparing specifications, design calculations, and drawings for the excavation, relocation, and capping of metals-impacted soil.

Preparing design analysis reports, design calculations, and construction drawings for the closure design of municipal waste landfills in Michigan and Wisconsin.

Coordinating equipment, materials, utilities, and other services for mobilization at a PCB contaminated site and assisting in the preparation of close-out reports for sampling performed at the site.

**05/1997 - 08/1997**

***Engineer Intern, Leader Environmental, Inc., Pittsburgh, Pennsylvania***

Developed a database for permit consolidations.

Researched various federal and state regulations.

Investigated the benefits of using computer models for air dispersion analysis.

**08/1995 - 12/1995**

***Co-op Engineer, Pennsylvania Department of Transportation, Clearfield, Pennsylvania***

Assisted Highway Safety Engineer with evaluation and remediation of high risk locations.

### **Professional Affiliations**

Society of Women Engineers, Inactive 2011, President Pittsburgh Section 2007, Membership Chair Pgh Section 2006, 1993

Society of Women Engineers, Inactive 2011, Regional Student Activity Coordinator 2000, Treasurer Pgh Section 2003, Secretary Pgh Section 2001, 1993

**FIGURE III-1**  
**PROJECT QC MANAGER – LETTER OF APPOINTMENT**

June 13, 2012

Shaw Environmental and Infrastructure, Inc.  
500 E. Main Street, Suite 1630  
Norfolk, VA 23510

RE: Project QC Manager  
Contract N62470-08-D-1007  
Task Order No. JU49

Dear Ms. Gamble:

This letter will serve as your appointment as the Project Quality Control Manager on the referenced project and will also clarify your duties and authority in this position. In this position, you will be authorized to use available resources to satisfy all applicable requirements of the Program and Task Order Quality Control Plans.

This authorization specifically gives you the authority to direct removal and replacement or correction of nonconforming materials or work and stop work authority when continuation would be unsafe to personnel, harmful to the environment, or result in a significant degradation of quality.

You will be expected to work closely with the Project Manager and other project personnel, but you will not be directly responsible to anyone but me for resolution of quality issues when working in the capacity of Project Quality Control Manager.

If you have any question in this matter, please contact me at (412) 601-1086 or at [Ernie.Duke@Shawgrp.com](mailto:Ernie.Duke@Shawgrp.com).

Respectfully,



Ernest P. Duke  
Program QC Manager  
NAVFAC RAC Program

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# EXHIBITS

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**EXHIBIT IV-1**

<b>APPROVED CONSULTANT AND SUBCONTRACTOR LIST</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Site 21 - Bronson Road Landfill</b> <b>Task Order No. JU49</b>	
COMPANY NAME AND ADDRESS	DESCRIPTION OF SERVICES PROVIDED
TBD	Utility Locator
Accutest Orlando	Analytical Testing Services
TBD	MD Licensed Surveyor
TBD	Geotechnical Testing
TBD	Transportation and Disposal Services

**EXHIBIT V-1**  
**SUBMITTAL REGISTER**

Task Order No. JU49 N62470-08-D-1007		Contract No.		Project No. 142879 Project Title: Site 21 - Bronson Road Landfill Indian Head, MD				Revision No. 01 Shaw Environmental and Infrastructure, Inc.							
Spec. Sect.	SD Number and Submittal Description	Spec Paragraph Number	Approving Authority	Other Reviewers	Transmittal Control No.	Planned Submittal Date	Contractor Action			Approving Authority			Date Rcvd from Appx Auth	Remarks	
							Action Code	Date of Action	Date Forwarded to App. Auth/ from Contr	Date Forward to Other Reviewer	Date Rcvd from Other Reviewer	Action Code			Date of Action
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
	<b>SD-01 Preconstruction</b>														
01 33 00	Work Plan	1.1.1	G												
01 33 00	List of Proposed Products (WP)	1.1.1	G												
01 33 00	Construction Progress Schedule (WP)	1.1.1	G												
01 14 00	List of Contact Personnel (WP)	1.2.1.1	G												
01 50 00	Construction Site Plan (WP)	1.4	G												
01 50 00	Traffic Control Plan (WP)	2.2	G												
01 35 29	Accident Prevention Plan	1.6	G	A											
01 35 29	Activity Hazard Analysis (APP)	1.7	G	A											
01 57 19	Solid Waste Management Plan (WP)	3.4	G												
01 57 19	Environmental Protection Plan (WP) including Stormwater and Dust Control	3.1	G												
01 57 19	Hazardous Material Inventory Log	3.6	G												
01 57 19	Regulatory Notification	1.5.2	G												
01 57 19	Preconstruction Survey	1.5.1	G												
01 33 00, 01 45 00	Program Quality Control Plan Addendum	(01 33) 1.1.1 (01 45) 1.6.1	G												
01 33 00	List of Proposed Subcontractors (QC)	1.1.1	G												
01 33 00	Submittal Register (QC)	1.2	G												
01 33 00	Environmental Protection Plan	1.1.1	G												
01 30 00	View Location Map	1.2	G												
01 30 00	Progress and Completion Pictures	1.3	G												
	<b>SD 03 Product Data</b>														
01 78 00	Warranty Information	1.1													
31 00 00	Imported Materials	1.4, 2.1	G	A											
31 11 00	Nonsaleable Materials	3.5.1	G												
31 32 11	Erosion Control Matting	2.5	G												

FINAL PROGRAM QUALITY CONTROL PLAN ADDENDUM  
 SITE 21 – BRONSON ROAD LANDFILL  
 NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND  
 PROJECT NO. 142879

Task Order No. JU49 N62470-08-D-1007		Contract No.		Project No. 142879 Project Title: Site 21 - Bronson Road Landfill Indian Head, MD							Revision No. 01 Shaw Environmental and Infrastructure, Inc.				
Spec. Sect	SD Number and Submittal Description	Spec Paragraph Number	Approving Authority	Other Reviewers	Transmittal Control No.	Planned Submittal Date	Contractor Action			Approving Authority			Date Rcvd from Appx Auth	Remarks	
							Action Code	Date of Action	Date Forwarded to App. Auth/ from Contr	Date Forwarded to Other Reviewer	Date Rcvd from Other Reviewer	Action Code			Date of Action
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
	<b>SD 06 Reports</b>														
01 35 29	Incident and Accident Reports (APP)	1.11.1	G	A											
01 35 40	Field QC Reports	3.2													
01 57 19	Laboratory Analysis	3.13.2.2													
01 57 19	Erosion and Sediment Control Inspection Rpts	3.2.2													
01 57 19	Solid Waste Management Rpt	3.4.1	G												
	<b>SD 07 Certificates</b>														
01 35 40	Environmental Regulatory Requirements	1.6													
31 32 11	Mulch	2.4													
31 32 11	Lime and Fertilizer	2.4													
31 32 11	Seed	2.4													
	<b>SD-08 Manufacturer's Instructions</b>														
01 35 40	Material Safety Data Sheets	1.7.1													
	<b>SD 11 Closeout Submittals</b>														
01 35 40	Protection of Natural Resources Orientation	1.4, 3.1													
01 57 19	Waste Determination Documentation	3.5	G												
01 57 19	Disposal Documentation	3.6.1													
01 57 19	Disposal Facility Permit	3.4	G												
01 57 19	Solid Waste Management Report	3.4.1													
01 57 19	Hazardous Material Inventory Log	3.6													
01 57 19	Hazardous Waste/ Debris Management	3.13.2													
01 57 19	Regulatory Notification	1.5.2													
01 78 00	Record Drawings	1.2.1													

Notes:  
 Approved By:  
 G: Government  
 Blank: QC Manager  
 Reference: QMP-16.2 Submittal Management Process

ACTION CODES  
 A: Approved  
 AN: Approved as Noted  
 NR: Not Reviewed  
 RR: Disapproved; Revise and Resubmit

**EXHIBIT V-2**

<b>LIST OF PERSONNEL AUTHORIZED TO REVIEW AND CERTIFY SUBMITTALS</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Site 21 - Bronson Road Landfill</b> <b>Task Order No. JU49</b>		
	SUBMITTAL TYPE:	AUTHORIZED PERSONNEL:
Work Plan Submittals	Preconstruction	Project Manager
Construction	All Types	Project QC Manager, Program QC Manager, Site Engineer, Project Manager (1)

(1) Note: Submittals requiring Government approval - Project QC Manager shall perform the final review and certification.  
 Submittals requiring Contractor approval - Project QC Manager shall perform the final review and approval.

EXHIBIT VII-1

TESTING PLAN AND LOG

Shaw Environmental and Infrastructure, Inc.  
 Site 21 - Bronson Road Landfill  
 Task Order No. JU49

CONTRACT NUMBER		PROJECT TITLE: Site 21 - Bronson Road Landfill									
N62470-08-D-1007		LOCATION: Indian Head, MD									
WORK PLAN SECTION	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			
3.3 & App F Spec Sect 31 00 00	Grading Fill, Cover Soil and Topsoil Chemical Analysis	Volatiles, Semivolatiles, pesticides, PCBs, metals, cyanide, TPH DRO/GRO, Oil and Grease with silica gel scrub, 8 TCLP RCRA Metals									*Analytical results to be submitted to the RPM and FEAD for approval. *Chemical testing to meet the requirements of Spec Sect 31 00 00 in App F.
3.3 App F Spec Sect 31 00 00, 3.7.2.1	Fill and Backfill Material Geotechnical Laboratory Testing	ASTM C 136 for conformance to ASTM D 2487, ASTM C 1140 for material finer than No. 200 sieve; and ASTM D 4318 for liquid and plastic limit									*One set of tests for every 1,000 CY or grading fill and cover soil delivered, per source.
App F Spec Sect 31 00 00, 3.3.2 and 3.5.1	Grading Fill and Cover Soil Laboratory Compaction Testing	Compaction Testing by ASTM 698									*One compaction test per ASTM D 698 for every 1,000 CY of soil grading and cover materials delivered, per source.
App F Spec Sect 31 00 00, 3.7.2.3	Grading Fill and Cover Soil Field Compaction Testing	Field Compaction Testing for in place field density and moisture content by any one or combination, of ASTM D 1556, ASTM D 2216, ASTM D 2922 and ASTM D 3017.									*One moisture-density determination for every 10,000 sq ft or a minimum of one test per lift per day, whichever is greater, of cover soil placed *90% relative compaction as determined by ASTM 698

FINAL PROGRAM QUALITY CONTROL PLAN ADDENDUM  
 SITE 21 – BRONSON ROAD LANDFILL  
 NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND  
 PROJECT NO. 142879

CONTRACT NUMBER		PROJECT TITLE: Site 21 - Bronson Road Landfill									
N62470-08-D-1007		LOCATION: Indian Head, MD									
WORK PLAN SECTION	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			
App F, 31 00 00 & App E, Drawing EC-2	Topsoil Agronomic Analysis	ASTM 2487 for Soil Classification, pH, organic content, and soluble salts									*pH shall be between 6.0 and 7.5; organic content shall be no less than 1.5%; soluble salts shall be below 500 ppm; soil classification shall be loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate authority.
App F Spec Sect 31 00 00, 2.7.2	Pipe Bedding, Pipe Zone and Structural Backfill	ASTM D 2487									*Sand or Silty Sand classified as SP or SM in accordance with ASTM D 2487 *Structural backfill material classified as SW, SP, SM, SW-SM or SP-SM
4.2 & App. F	Waste Disposal Characterization (if required)	Full TCLP and RCRA characteristics, PCBs by SW-846 and DRO/GRO									*One 5-point composite sample per designated waste characterization group and/or one per 500 tons (or as required by disposal facility).





**EXHIBIT IX-2**

<b>CONTRACTOR QUALITY CONTROL REPORT</b>				Report No.		
<b>Shaw E &amp; I, Inc.</b>			<b>CONTRACT: N62470-08-D-1007 TO JU49</b>			
PHASE	(BLANK - NOT APPLICABLE)	YES	NO	IDENTIFY DEFINABLE FEATURE OF WORK, SPECIFICATION SECTION, LOCATION AND LIST PERSONNEL PRESENT		
<b>PREPARATORY</b>	PLANS AND SPECS HAVE BEEN REVIEWED	<input type="checkbox"/>	<input type="checkbox"/>	Definable feature/s of work (see continuation page)		
	THE SUBMITTALS HAVE BEEN APPROVED.	<input type="checkbox"/>	<input type="checkbox"/>			
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	<input type="checkbox"/>	<input type="checkbox"/>			
	MATERIALS STORED PROPERLY.	<input type="checkbox"/>	<input type="checkbox"/>			
	PRELIMINARY WORK WAS DONE CORRECTLY.	<input type="checkbox"/>	<input type="checkbox"/>			
	TESTING PLAN HAS BEEN REVIEWED.	<input type="checkbox"/>	<input type="checkbox"/>			
	WORK METHOD AND SCHEDULE DISCUSSED.	<input type="checkbox"/>	<input type="checkbox"/>			
	JOB SAFETY / HAZARD ANALYSIS ADDRESSED	<input type="checkbox"/>	<input type="checkbox"/>			
	<b>INITIAL</b>	PRELIMINARY WORK WAS DONE CORRECTLY	<input type="checkbox"/>			<input type="checkbox"/>
SAMPLE HAS BEEN PREPARED/APPROVED		<input type="checkbox"/>	<input type="checkbox"/>	TESTING PERFORMED & WHO PERFORMED TEST		
WORKMANSHIP IS SATISFACTORY		<input type="checkbox"/>	<input type="checkbox"/>			
TEST RESULTS ARE ACCEPTABLE.		<input type="checkbox"/>	<input type="checkbox"/>			
WORK IS IN COMPLIANCE WITH THE CONTRACT.		<input type="checkbox"/>	<input type="checkbox"/>			
WORK COMPLIES WITH SAFETY REQUIREMENTS		<input type="checkbox"/>	<input type="checkbox"/>			
<b>FOLLOW-UP</b>	WORK COMPLIES WITH CONTRACT AS APPROVED INITIAL PHASE	<input type="checkbox"/>	<input type="checkbox"/>	Definable feature/s of work (see continuation page)		
	WORK COMPLIES WITH SAFETY REQUIREMENTS	<input type="checkbox"/>	<input type="checkbox"/>			TESTING PERFORMED & WHO PERFORMED TEST
REWORK ITEMS IDENTIFIED TODAY (NOT CORRECTED BY CLOSE OF BUSINESS)			REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)			
REMARKS:						
On behalf of the contractor, I certify that this report is completed and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.						
PROJECT QC MANAGER				DATE		
<b>GOVERNMENT QUALITY ASSURANCE REPORT</b>				DATE		
QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT						
GOVERNMENT QUALITY ASSURANCE MANAGER				DATE		

EXHIBIT X-1

QUALITY CONTROL INSPECTION PLAN  
 Shaw Environmental and Infrastructure, Inc.  
 Site 21 - Bronson Road Landfill  
 Task Order No. JU49

Specification or Work Plan Section	Definable Feature of Work	Subtasks	Quality Objectives to be Verified	Control Check Verification				
				Date	Preparatory Phase Checklist/Report No.	Date	Initial Phase Checklist/Report No.	Follow-up Phase Checklist/Report No.
	Mobilization and Site Preparation							
WP 3.2.1		Utility Markout	*Verify utility mark-out has been completed prior to intrusive activities					
WP 3.2.2		Environmental Conditions Report	*Document existing site conditions prior to any disturbances with photographs and written descriptions					
WP 3.2.3		Construction Survey Support	MD licensed surveyor to perform staged surveys of the landfill to document achievement of cover requirements					
WP 3.3		Clean Fill Verification and Geotechnical Sampling	*See Sampling and Analysis below.					
WP 3.4 App. E, App. F	Installation of Initial Erosion and Sediment Controls							
WP 3.4		Installation of Initial Erosion and Sediment Controls	*Verify the E&S control measures are installed at the locations shown on Drawing EC-3 *Ensure proper installation of E&S control devices as shown on the approved E&S Control Plan, (Appendix E and Specification Section 31 32 11 in Appendix F), *Perform and document regular inspections.					
WP 3.4.1		Stabilized Construction Entrance	*Stabilized Construction Entrances to be installed at the locations shown on ES-05 and per Detail 1 on ES-06					
WP 3.4.2		At-Grade Inlet Protection	*Verify inlet protection has been installed at the drainage grate identified on Drawing EC-3.					
WP 3.4.3		Silt Fence	*Installed at the locations shown on EC-3 and according to Detail E-8-2 on Drawing EC-6.					
WP 3.4.4		Super Silt Fence	*Super silt fence to be installed along the south perimeter of Site 21 as shown on Drawing EC-3, *To be installed in accordance with Detail E-3 on Drawing EC-6.					

Specification or Work Plan Section	Definable Feature of Work	Subtasks	Quality Objectives to be Verified	Control Check Verification					
				Date	Preparatory Phase Checklist/Report No.	Date	Initial Phase Checklist/Report No.		Follow-up Phase Checklist/Report No.
WP 3.4.5		Sediment Traps	*Two pipe outlet sediment traps to be installed at the locations shown on Drawing EC-3, *Installed according to the details on EC-7 and EC-8, *Waste encountered during excavation of the sediment traps will be reburied on-site. *Sediment traps to remain operational until upslope areas are stabilized, *Sediment traps to be backfilled to final grade when not required.						
WP 3.4.6		Rock Outlet Protection	*Rock outlet protection to be installed at two locations per Drawing EC-3, *Class 1 riprap to be placed to the dimensions as shown on Drawing EC-3, *To be installed per Detail D-4-1-B on Drawing EC-6.						
WP 3.4.7		Riprap Inflow Protection	*Riprap inflow protection to be installed at four locations as shown on Drawing EC-3, *To be installed per Detail D-3-1 on Drawing EC-6.						
WP 3.4.8		Temporary Pipe	*A temporary 12-inch corrugated metal pipe to be installed north of the SCE to carry water across the site access road for the outlet of the temporary earth dike to the inlet to the south sediment trap as shown on Drawing EC-3.						
WP 3.4.9		Temporary Earth Dike	*Temporary earth dike to be installed along the south perimeter of Site 21 as shown on EC-3. *Installed per Detail C-1 on Drawing EC-5 and the erosion control design summary on Drawing EC-3.						
WP 3.4.10		Temporary Swales	*Two existing roadside swales along the west perimeter of Site 21 will be re-directed into the riprap inflow protections entering the sediment traps as shown on Drawing EC-3, *Installed per the design summary on Drawing EC-3						
WP 3.4.11		Soil Stabilization Matting	*Temporary soil stabilization matting to be placed to secure the seeding on the southern temporary swale, *Matting to be installed per Detail B-4-5-A on Drawing EC-5						

Specification or Work Plan Section	Definable Feature of Work	Subtasks	Quality Objectives to be Verified	Control Check Verification						
				Preparatory Phase		Initial Phase		Follow-up Phase		
				Date	Checklist/Report No.	Date	Checklist/Report No.		Checklist/Report No.	
WP 3.5 App F	Clearing and Grubbing									
		Clearing and Grubbing	*Minimal clearing to be completed initially to accommodate the installation of the E&S controls, *Trees, shrubs and debris is to be removed from the existing soil cover as shown on Drawing C-2, *Grubbing to occur only after E&S controls are installed for a particular area, *Grubbing only to be performed in areas to be excavated, *Clearing and grubbing to follow Specification Section 31 11 00.							
WP 3.6 App F	Redistribution and Regrading of Existing Soil Cover									
		Redistribution and Regrading of Existing Soil Cover as Grading Fill	*Existing landfill surface to be regraded to provide smooth uniform slopes and erosion control benches in accordance with Notes 3, 4 and 5 on Drawing C-2. *Minimum 2-ft of cover required over the landfill area, *Four locations are identified on Drawing C-2 that require excavation and relocation. Debris and landfill material removed is to be placed where a minimum of 4-feet of cover can be spread over it while following the Grading Plan, *A geotechnical engineer or technician is to be onsite to determine what is existing cover soil vs landfill material, *Grading fill is to be placed according to Spec Sect. 31 00 00. *Grading fill to be placed in 10" maximum loose lifts and compacted to 90% relative compaction by ASTM D 698, *Control benches and roadside swales are to be constructed during the regrading activities as shown on Drawings C-3, C-4, C-5 and C-6.							

Specification or Work Plan Section	Definable Feature of Work	Subtasks	Quality Objectives to be Verified	Control Check Verification					
					Preparatory Phase		Initial Phase		Follow-up Phase
				Date	Checklist/Report No.	Date	Checklist/Report No.		Checklist/Report No.
WP 3.7 App E & App F	Placement of New Soil Cap								
WP 3.7 App E & App F	Placement of New Soil Cap	Placement of New Soil Cap	*Verify 2-feet of grading fill covers all landfill material prior to starting the clean soil cap, *Verify that a thickness control technique (i.e. marked grade stakes) has been established and a pre-cap survey has been completed for documentation, prior to placing clean soil, *Soil cap to be 18" of clean cover soil and 6" of clean topsoil per Detail 1 on Drawing C-6, *Cover soil to be placed in 9-inc loose lifts and compacted to a minimum 90% relative density per ASTM 698, *One field compaction test per 10,000 sq ft or 1 test per lift per day, whichever is greater per Spec Sect 31 00 00, *A minimum slope of 4 percent to be met for the final grade. *Topsoil to achieve the requirements of Drawing EC-2 and be placed in one even 6" lift. *Verify and document 24" thickness using a comparison of pre and post soil cap surveys.						
WP 3.8 App E & App F	Installation of Permanent Stormwater Conveyance Pipes, Inlets and Riprap								
		Installation of Permanent Stormwater Conveyance Pipes, Inlets and Riprap	*Drainage piping will be installed at the locations shown on Drawing C-3 and in accordance with Spec Sec. 33 40 00 to carry water collected from the upper control benches to the lower control bench. *Drainage pipes to be installed as shown in the details of Drawing C-6, and profiles on Drawing C-5, *Riprap to be installed per Drawing EC-4						

Specification or Work Plan Section	Definable Feature of Work	Subtasks	Quality Objectives to be Verified	Control Check Verification						
				Preparatory Phase		Initial Phase		Follow-up Phase		
				Date	Checklist/Report No.	Date	Checklist/Report No.	Date	Checklist/Report No.	
WP 3.9 App E & App F	Site Restoration									
WP 3.9.1		Landfill Cap Slopes	*The majority of the landfill will have permanent seed, fertilizer, lime and straw applied to reestablish vegetation as provided on Drawing EC-2, *Type 1 permanent soil stabilization matting will be installed on the designated slopes shown on Drawing EC-4 and per Detail B-4-5-D on Drawing EC-5 and Spec Sect 31 32 11. *Staked sod will be installed on designated slopes steeper than 3 horizontal to 1 vertical (3H:1V) as shown on Drawing EC-4							
WP 3.9.2		Control Benches and Upper Swale	*The upper swale on the east side of the landfill cap and the control benches will be seeded then covered with Type 2 permanent soil stabilization matting as shown on Drawing EC-4, and per Detail B-4-5-C and Spec Sect 31 32 11, *Concrete will be installed around the HDPE inlet per Detail 6 on Drawing C-6, *Additional riprap inflow protection will be installed at the end of the lower control bench to tie into the riprap inflow protection as shown on Drawing EC-4, and per Detail D-3-1 on Drawing EC-6 and Spec Sect 31 00 00.							
WP 3.9.3		Roadside Swales	*Upon stabilization of the uphill areas and permission received from MDE, the roadside swales to be rerouted around the sediment traps, *Sod to be installed within the roadside swales along the western perimeter of Site 21, *Rock outlet protection III will be installed at the end of each roadside swale as shown on Drawing EC-4, *Class 1 riprap will be the material used at both locations and the dimensions of the rock placement are provided on Drawing EC-4, *The rock outlet protection will be installed per Detail D-4-1-C on Drawing EC-6 and Spec Sect 31 00 00							

Specification or Work Plan Section	Definable Feature of Work	Subtasks	Quality Objectives to be Verified	Control Check Verification					
				Date	Preparatory Phase	Date	Initial Phase	Follow-up Phase	
					Checklist/Report No.		Checklist/Report No.		Checklist/Report No.
WP 3.9.4		Sediment Traps	*After the roadside swales have been rerouted around the sediment traps, the baffles, pipe risers, and outlets will be removed, The sediment traps will be backfilled with clean cover soil and 6-inches of topsoil to meet the grades shown on Drawing C-3, *The sediment trap areas, former stockpile areas, equipment travelways, and any remaining portions of the site will have permanent seed, fertilizer, lime, and straw applied over them to reestablish vegetation as provided on Drawing EC-2, *Riprap inflow protection will be installed during backfilling of the north sediment trap as shown on Drawing EC-4, *The riprap inflow protection will be installed per Detail D-3-1 on Drawing EC-6 and Spec Sect 31 00 00. *The broad swale will be seeded then covered with Type 2 permanent soil stabilization matting as shown on Drawing EC-4, *The Type 2 permanent soil stabilization matting will be installed per Detail B-4-5-C on Drawing EC-5 and Spec Sect 31 32 11.						
WP 3.9.5		Signs	*Eight LUC signs will be installed around the limits of Site 21 in the locations shown on Drawing EC-3, *The LUC signs will be installed per Detail 3 on Drawing C-6.						
WP 3.11	Demobilization								
		Demobilization	*Final site cleanup and equipment decontamination; *Removal of all temporary structures; *Removal of all disposable items, dumpsters, and port-a-johns; and *Demobilization of construction equipment.						
WP 4.0 & 3.3	Sampling and Analysis								
WP 4.1		Clean Fill Verification and Geotechnical Sampling	*Verify samples are collected in accordance with Exhibit VII-1 *Collect samples from each source (onsite and offsite)						
WP 4.2		Geotechnical Testing	*Geotechnical testing to be performed of the grading fill and cover soil to meet the required landfill compaction *Agronomic testing to be performed on the topsoil to determine the required nutrients						

Specification or Work Plan Section	Definable Feature of Work	Subtasks	Quality Objectives to be Verified	Control Check Verification					
				Date	Preparatory Phase Checklist/Report No.	Date	Initial Phase Checklist/Report No.	Date	Follow-up Phase Checklist/Report No.
WP 4.3		Sample Custody and Documentation	*Sample custody and documentation is to be performed as detailed in Section 4.3 of the WP.						
WP 6.0 Spec Sect 01 35 40	Environmental Protection Plan								
Spec Sect 01 35 40		Environmental Orientation	*Ensure the Protection of Natural Resources section of the Work Plan is reviewed and acknowledged.						
Spec Sect 01 35 40		Environmental Requirements for Products	*Verify the MSDS sheets are available for review.						
WP 6.5		Protection of Natural Resources	*Verify equipment and materials are in-place to prevent the spill of oil, fuel or other hazardous substances, *Verify equipment and materials are in-place for decontamination, *Verify stormwater controls are in-place and functional (E&S Controls), *Verify measures are in-place to minimize dust from the site and prevent the spread of mud or dirt onto the roads of the Base.						
WP 6.6		Petroleum Wastes	*Implement all reasonable precautions to prevent oily or hazardous substances from entering the ground, drainage areas or local bodies of water.						
WP 6.7		Waste Handling	*T&D of waste materials will be in accordance with local, state, and federal regulations as well as NAVFAC and NSF-IH contract requirements.						

**EXHIBIT XI-1**

<b>PERSONNEL MATRIX</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Site 21 - Bronson Road Landfill</b> <b>Task Order No. JU49</b>			
SPECIFICATION SECTION	SUBMITTALS TO BE REVIEWED BY:	THREE PHASE TO BE PERFORMED BY:	TESTING TO BE VERIFIED BY:
All Sections	Project QC Manager (1), Program QC Manager, or Project Manager	Project QC Manager	Project QC Manager

(1) Note: Submittals requiring Government approval - Project QC Manager shall perform the final review and certification.  
 Submittals requiring Contractor approval - Project QC Manager shall perform the final review and approval.

# APPENDIX C

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## *ACCIDENT PREVENTION PLAN*

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*FINAL*  
ACCIDENT PREVENTION PLAN

SITE 21 – BRONSON ROAD LANDFILL  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT NO. N62470-08-D-1007

*Prepared for:*

**Department of the Navy**

Naval Facilities Engineering Command, Washington

1314 Harwood Street, Bldg. 212

Washington Navy Yard,

Washington, DC 20374

*Prepared by:*

**Shaw Environmental and Infrastructure, Inc.**

500 East Main Street, Suite 1630

Norfolk, Virginia 23510

TASK ORDER JU49  
SHAW PROJECT NO. 142879

JUNE 2012

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*ACCIDENT PREVENTION PLAN DISCLAIMER*

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This Accident Prevention Plan (APP) has been designed for the methods presently contemplated by Shaw Environmental and Infrastructure, Inc. (herein referred to as Shaw) for execution of proposed work and to be used in conjunction with the Site Safety and Health Plan (SSHP), included as **Attachment 2** of this APP. Therefore, the APP may not be appropriate if the work is not performed by or using the methods presently contemplated by Shaw. In addition, as the work is performed, conditions different from those anticipated may be encountered and the APP may have to be modified. Therefore, Shaw only makes representations of warranties as to the adequacy of the APP for currently anticipated activities and conditions.

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Attachment 3	Safety Personnel Resumes and Proof of Training and Competency
Attachment 4	Guidelines for Standard Safety Disciplinary Actions
Attachment 5	Incident Notification, Reporting, and Management Procedure
Attachment 6	Accident Reporting Information

*LIST OF ACRONYMS AND ABBREVIATIONS*

°F	degrees Fahrenheit
AHA	Activity Hazard Analysis
ANSI	American National Standards Institute
APP	Accident Prevention Plan
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
COR	Contracting Officer's Representative
CPR	Cardiopulmonary Resuscitation
CSP	Certified Safety Professional
CTO	Contract Task Order
EHS	environmental, health, and safety
EM-385	USACE Safety and Health Requirements Manual, EM 385-1-1
EMS	Emergency Medical Services
EZ	exclusion zone
FEAD	Facilities Engineering and Acquisition Division
H&S	health and safety
HARP	Hazard Assessment Resolution Process
HERO	Hazards of Electromagnetic Radiation to Ordnance
HSM	Health and Safety Manager
JSA	Job Safety Analysis
mph	miles per hour
MSDS	Material Safety Data Sheet
NAVFAC	Naval Facilities Engineering Command
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NSF-IH	Naval Support Facility Indian Head
OSHA	Occupational Safety and Health Administration
PM	Project Manager
PPE	personal protective equipment
QA	quality assurance
QC	quality control
Shaw	Shaw Environmental and Infrastructure, Inc.
SSHP	Site Safety and Health Plan
SOW	statement of work
SS	Site Superintendent
SSHO	Site Safety and Health Officer
TLV	Threshold Limit Value

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*LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)*

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USACE      United States Army Corps of Engineers  
W/m<sup>2</sup>      Watts per square meter

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**1.0 SIGNATURE SHEET**

---

Prepared by: Kym Edelman Date 06/13/2012  
Kym Edelman, CSP  
Program Health and Safety Manager  
(Qualified Person)

Approved by: Steve Carriere Date 06/13/2012  
Steve Carriere, PMP  
Project Manager

James A. Dunn, Jr. Date 06/13/2012  
James A. Dunn, Jr., PE  
Program Manager

Concurred by: David Mummert Date 06/13/2012  
David Mummert, CIH  
Program Certified Industrial Hygienist

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## *2.0 BACKGROUND INFORMATION*

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Shaw Environmental and Infrastructure, Inc. (Shaw), has been retained by the Naval Facilities Engineering Command (NAVFAC) Washington, under Contract Task Order (CTO) JU49 to perform the remedial action at Site 21 Bronson Road Landfill, Naval Support Facility, Indian Head (NSF-IH), Maryland.

The statement of work (SOW) for the remedial action to be performed under CTO JU49 is summarized as follows:

- Mobilization of equipment and site set up;
- Clean fill verification sampling;
- Installation of erosion and sediment controls;
- Clearing;
- Re-grading;
- Placement of new soil cap;
- Installation of permanent storm-water conveyance pipes, inlets, and riprap;
- Site restoration;
- Transportation and disposal;
- Project demobilization.

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### 3.0 POLICY STATEMENT

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This section presents the corporate safety policy, as well as safety program and accident experience goals.

#### 3.1 CORPORATE SAFETY POLICY

Shaw expects all of our employees, clients, and partners to uphold the highest environmental, health, and safety (EHS) standards to promote a positive and proactive safety attitude and to exhibit a heightened awareness of their surroundings both on and off the job. We must identify risks and hazards and implement appropriate controls in order to provide an injury-free work environment where people, equipment, and the environment are not placed at unreasonable threat of injury or damage. We will continually strive to be good citizens in our own community, as well as in every community in which we operate.

The EHS Program and the components of our Occupational Health & Safety Management System have been developed to guide us in our daily activities. We also commit ourselves to continual improvement in EHS management. Further, we ask that you include our EHS process in all aspects of your work, assist in the maintenance of our process, and communicate this policy to all persons working for or on behalf of Shaw with the intent that they are made aware of their individual EHS obligations.

Through compliance with this policy, we will all actively participate in this process and advocate this philosophy. Together, we can accomplish our goals and exceed the minimum requirements provided by applicable laws and regulations, thus resulting in all stakeholders being proud to be a part of a team that truly values the importance of health, safety, and respect for the environment. Accordingly, we will maintain the position as a recognized leader in all of our business endeavors through a stewardship-based approach for our fellow employees, the environment, and the communities in which we live and work.

We are committed to the spirit and intent of this EHS policy statement and the laws, rules, and regulations to which we subscribe at its foundation.

George Bevan  
President  
Shaw Environmental and Infrastructure, Inc.

---

### 3.2 SAFETY PROGRAM GOALS, OBJECTIVES, AND ACCIDENT EXPERIENCE GOALS

Shaw considers safety the highest priority during work at a site containing potentially hazardous materials and has established a goal of **zero incidents** for all projects. All projects will be conducted in a manner that minimizes the probability of near misses, equipment/property damage, or injury. Shaw will establish programs to recognize people and projects that demonstrate excellence in safety performance. Shaw will use safety observation programs to identify and correct unsafe acts and conditions. Safety awareness programs will be used to provide continuous training and development of good safety practices. Shaw site supervision will investigate all incidents to determine root causes and institute corrective actions to prevent recurrence. Shaw will provide and enforce safety rules to protect employees, subcontractors, clients, and the public.

## 4.0 RESPONSIBILITIES AND LINES OF AUTHORITIES

Shaw is ultimately responsible for the implementation of the health and safety program.

### 4.1 EMPLOYER ULTIMATE RESPONSIBILITIES

Managers must conduct their businesses in compliance with governmental safety regulations and company procedures. All applicable Shaw Health and Safety (H&S) procedures are presented in the Shaw Health and Safety Policies and Procedures Manual (Shaw, 2011) and will be implemented for conducting this project. Shaw procedures will be applied to all Shaw subcontractor organization's personnel as well.

**Table 4-1**, "Shaw's Individuals Responsible for Site Health and Safety," presents the individuals that share responsibility for health and safety at the site

*TABLE 4-1 SHAW'S INDIVIDUALS RESPONSIBLE FOR SITE HEALTH AND SAFETY*

Title	Name and Telephone Number
Project Manager (PM)	Steve Carriere, PMP (609) 234-6361 (cellular)
Site Superintendent (SS)	Bryan Guzzardo (985) 969-5172 (cellular)
Site Safety and Health Officer (SSHO)	Burney Chance (601) 310-7229 (cellular)
Project Quality Control (QC) Manager	Patti Gamble (412) 680-3540 (cellular)
Program Certified Industrial Hygienist (CIH)	Dave Mummert, CIH (419) 425-6129 (office) (419) 348-1544 (cellular)
Program Health and Safety Manager (HSM)	Kym Edelman, CSP (757) 640-6978 (office) (757) 472-9104 (cellular)
Program Manager	Jim Dunn, PE (757) 640-6932 (office) (757) 373-9117 (cellular)
Deputy Program Manager	Bill Hughes, PG (757) 640-6937 (office) (757) 438-8498 (cellular)

## 4.2 PERSONNEL IDENTIFICATION AND ACCOUNTABILITY

The Shaw PM, SS, SSSHO, and Program HSM are responsible for implementing this APP and enforcing the health and safety requirements. **Table 4-1** identifies the individuals that share responsibility for H&S at the site.

### 4.2.1 *On-site Personnel*

All on-site personnel are responsible for continuous adherence to safety and health procedures during the performance of assigned work. In no case may work be performed in a manner that conflicts with the inherent safety and environmental precautions outlined in this APP. After due warning personnel violating safety procedures will be dismissed from the site and possibly terminated from further work.

Any person who observes unsafe acts or conditions or other safety problems has “Stop Work Authority” and shall immediately report the deficiency to supervisory personnel. If there is any dispute with regard to safety and health, on-site staff will attempt to resolve the issue and if the issue cannot be resolved on site, they will consult off-site technical staff and supervisors for assistance. The specific task or operation in question shall remain discontinued until the issue is resolved.

### 4.2.2 *Project Manager*

The Shaw PM has the overall responsibility for this project and will assure that the requirements of the contract are performed in a manner consistent with this APP and other contract-specific requirements. The PM is the focal point of contact with NAVFAC regarding the project. The PM has ultimate authority and responsibility for the establishment and maintenance of project administration control procedures. The PM issues communications to the NAVFAC on the project status. Specifically, the PM is ultimately responsible for the development, implementation, and enforcement of the comprehensive Safety and Health Program.

### 4.2.3 *Project Engineer/Project Quality Control Manager*

The Shaw Project Engineer/Project QC Manager will be responsible for the management of the technical quality of the contract, including the QC/Quality Assurance (QA) Program. The Project Engineer/Project QC Manager will direct the development and implementation of the QC/QA Program and ensure the H&S Program is adequately implemented. The Project Engineer/Project QC Manager is experienced and knowledgeable in the field of environmental investigation and remediation and shall be the primary point of contact for technical coordination of project requirements.

#### 4.2.4 *Site Safety and Health Officer*

The Shaw SSHO assures operations are conducted in accordance with this APP, NAVFAC requirements, and Occupational Safety and Health Administration (OSHA) regulations. The SSHO has the authority to suspend operations at the project due to noncompliance. An Alternate SSHO must be assigned for the project when the SSHO is not physically present at the project site. The SSHO has the overall responsibility to conduct exposure monitoring and/or air sampling and to select and/or adjust personal protective equipment (PPE) use. The SSHO shall have the authority and is responsible for the following actions:

- Be present during operations to implement this APP,
- Inspect site activities to identify safety and occupational health deficiencies and correct them,
- Coordinate changes/modifications to this APP with the Shaw HSM and PM,
- Conduct project-specific training, and

Inspections completed by the SSHO will also be used to determine if operations are being conducted in accordance with this APP, NAVFAC requirements, and OSHA regulations. These inspections shall be documented – deficiencies to be corrected shall be noted as an action item list and provided to the HSM for follow-up. Daily safety inspections shall be documented on the Daily Safety Inspection Report (Appendix E of the SSHP, **Attachment 2**). Copies of the inspections will be provided to the NAVFAC, if requested.

Other SSHO responsibilities include the following:

- General Safety and Health Program administration,
- On-site contact for regulatory agencies on matters of safety and health,
- Establish employee exposure monitoring notification programs,
- Investigate significant accidents and illnesses and implement corrective action plans,
- Implement all safety procedures and operations on site,
- Observe work party members for symptoms of on-site exposure or stress,
- Arrange for the availability of on-site emergency medical care and first aid, as necessary,
- Determine evacuation routes, verify that an effective means of emergency communication is always available while workers are on site, establish and post local emergency telephone numbers, and arrange emergency transportation,
- Establish work zones,

- Present tailgate safety meetings and maintaining attendance logs and records,
- Verifying that the respiratory protection program is implemented, when necessary,
- Verifying that decontamination procedures meet established criteria, when necessary, and
- Monitoring employee work hours and limit those work hours that are excessive.

At a minimum, the SSHO must have completed the 30-hour OSHA construction safety class or as an equivalent, five years of construction industry safety experience or three years if he possesses a Certified Safety Professional (CSP) or safety and health degree, 30 hours of formal construction safety and health training covering the subjects of the OSHA 30-hour course applicable to the work to be performed and given by qualified instructors. A resume for the SSHO is included as **Attachment 3**, “Safety Personnel Resumes and Proof of Training and Competency.”

#### ***4.2.5 Program Health and Safety Manager***

The HSM is responsible for the following actions:

- Develop, maintain, and oversee implementation of this APP,
- Visit the project as needed to audit the effectiveness of this APP,
- Remain available for project emergencies,
- Develop modifications to this APP as needed,
- Evaluate occupational exposure monitoring/air sampling data and adjust APP requirements as necessary, and
- Approve the APP by signature.

A resume for the HSM is included as **Attachment 3**, “Safety Personnel Resumes and Proof of Training and Competency.”

### **4.3 COMPETENT PERSONS QUALIFICATIONS**

Mr. Burney Chance is responsible for serving as Shaw’s Competent Person functioning as the SSHO for this project as defined by EM 385-1-1, Safety and Health Requirements Manual (EM-385) (United States Army Corps of Engineers (USACE), 2008a). When the SSHO/Competent Person is not on-site, an alternate Competent Person will be used for this project.

Mr. Chance is responsible for serving as Shaw’s Competent Person(s) for this project as defined by 29 Code of Federal Regulations (CFR) 1926.32(f). His resume lists the training required for any additional competent person(s) qualifications.

The names of the competent/qualified person(s) required for a particular activity (i.e., excavation, diving, etc.), as specified by OSHA, will be identified and included in the Activity Hazard Analyses (AHAs). Those listed will be competent/ qualified for the type of work involved and familiar with current site safety issues. If a new competent/qualified person (not on the original list) is added, the list will be updated (this is an administrative action not requiring an updated AHA). The new person will acknowledge in writing that he/she has reviewed the AHA and is familiar with current site safety issues.

Currently, there are no requirements for additional competent and/or qualified persons to complete this SOW. In the event that a task becomes necessary to complete with a competent and/or qualified person requirement (e.g. confined space entry), then the names of these persons will be identified and proof of their competency/qualifications will be provided.

#### 4.4 COMPETENT PERSON REQUIREMENTS

No work will be performed unless the Competent Person or the designated alternate Competent Person is present on the job site.



#### 4.5 PRE-TASK SAFETY AND HEALTH ANALYSIS

The AHAs identify potential safety, health, and environmental hazards associated with specific tasks and provide protective measures for personnel, the community, and the environment. Copies of the AHAs for this project are included as Appendix B of the SSHP (**Attachment 2**).

The AHAs will be developed for all major tasks performed for the project and included in the APP. The AHAs will be reviewed and modified by the SSHO (with input from field employees and subcontractors). An AHA will also be prepared when new tasks are added, the job situation changes, or when it becomes necessary to alter safety requirements. Work will not proceed on a particular task/phase until the AHA has been reviewed with the work crews. Additions or changes to the AHAs, which are less conservative or allow for a downgrade in PPE requirements, must have written approval from Shaw's HSM.

The names of the competent/qualified person(s) required for a particular activity (*i.e.*, excavations, scaffolding, fall protection, and other activities) will be identified and included in the AHA.

The AHAs will be reviewed and modified throughout the workday, as necessary, to address changing site conditions, operations, or changes of competent/qualified person(s). AHAs will also be reviewed and modified during the daily tailgate safety and JSA meetings. Modifications will be handwritten in ink on the specific AHA. If more than one competent/qualified person will be used on the AHA, a list of names will be included as an attachment to the AHA. Those listed will be competent / qualified for the type of work involved and familiar with current site safety issues. If a new competent/qualified person (not on the original list) is added, the list will be updated (this is an administrative action not requiring an updated AHA). The new person will acknowledge, in writing, that he/she has reviewed the AHA and is familiar with current site safety issues.

##### **4.5.1 Job Safety Analysis**

Job Safety Analyses (JSAs) must be completed by the crews each day for each task that will be accomplished, as required by Shaw Procedure No. HS045, "*Job Safety Analysis*" (current rev.). The JSA shall be revised, as necessary, when unforeseen circumstances arise or work-site conditions change. Any revisions shall be immediately communicated with the affected site workers. If the need to complete an unplanned task becomes necessary at any point throughout the day, then a new JSA shall be prepared to cover that task. JSAs shall be completed using the

JSA Checklist Form and JSA Worksheet Form. Copies of all safety forms are included as Appendix E of the SSHP (**Attachment 2**).

#### ***4.5.2 Hazard Assessment Resolution Process***

The Hazard Assessment Resolution Process (HARP) is a brief, paperless, general risk assessment made by employees in each work area. The objective of HARP is to identify and eliminate or control potential real-time workplace hazards that could lead to an accident.

The HARP requires workers to continuously be aware of the immediate work environment so as to detect conditions unanticipated by initial work planning. This involves a three-step process:

- Assess the hazard(s) and risk(s) to identify what could go wrong and what is the worst thing that could happen.
- Analyze the situation to determine how to reduce the risks. Evaluate each identified risk and implement the appropriate safeguards to control the hazards.
- Act to ensure safe operations:
  - Take the necessary steps to complete the job safely.
  - Follow written standards and procedures (APP, AHAs, JSAs, *etc.*).
  - Do not proceed until the work environment is safe.

In performing the HARP, focus attention on surroundings, equipment, tools, PPE, and critical steps prior to focusing on the task; consider the chemical, physical, and environmental hazards associated with the task.

Risk reduction is a critical component of HARP. The following risks shall be avoided:

- Hurrying,
- Presuming the job is routine or simple,
- Believing that nothing bad can happen,
- Not talking about precautions with co-workers,
- Not raising a “gut feel.”

The appropriate hazard resolution and corrective actions must take place before proceeding with the task:

- Communicate hazards and precautions to take with co-workers and supervisor.
- Eliminate or control the hazards. The implementation of administrative controls is sometimes effective, *i.e.*, marking the hazard with warning tape, signs, or tags.
- If the risk is unacceptable or if a hazard cannot be satisfactorily controlled, then stop work and contact the SSHO or HSM.

#### 4.6 SAFETY OBSERVATION PROGRAM

Safety observations are behavior-based and provide a systematic feedback process between line personnel and supervisors to proactively identify opportunities for safety improvement in work areas.

Employees engaged in work activities are often the most knowledgeable about the hazards of their work and can provide valuable feedback on unsafe conditions and unsafe practices, which may require corrective action.

The Safety Observation Program is a tool for employees to provide information on actual or potential safety hazards that they observe in their work place, which if left unreported, may result in an accident and or injury. This program also provides a mechanism for recommending corrective actions.

Key benefits of the Shaw Safety Observation Program include the following:

- Identifies practices that could cause accidents, injuries, or damage.
- Identifies specific needs for coaching and training.
- Checks the adequacy of the SSHP, AHAs, JSAs, and compliance with general site rules and other procedures.
- Monitors the effectiveness of training.

The SSHO must develop a schedule for conducting safety observations. A general guideline for the number of observations in a week is one observation per 100 work hours on the project. The schedule for observation(s) shall be communicated to site personnel.

The volunteer conducting the safety observation shall record their findings on the Safety Observation Reporting Card, as required by Shaw Procedure No. HS026, "Safety Observation

Program” (current rev.). Tasks or items that require follow-up because of serious risk potential must be addressed immediately by the SS. Items with lesser risk should be discussed in the next tailgate safety meeting. The action items and corrective actions, including dates and responsible person(s), shall be documented on the Safety and Occupational Health Deficiency Tracking Log and be maintained and available for inspection.

#### 4.7 NONCOMPLIANCE WITH SAFETY REQUIREMENTS

To protect the health and safety of all personnel, employees that knowingly disregard safety policies/procedures may be subject to disciplinary actions up to and including termination. A mechanism is necessary to apply disciplinary action consistently to employees who jeopardize the safety of themselves and their coworkers by not following the established plans, policies, and procedures. Therefore, Shaw Environmental and Infrastructure, Inc., Guide – 004, “Guidelines for Standard Safety Disciplinary Actions” (Shaw, 2009) is applicable and in effect for this project. A copy of these guidelines and the acknowledgement form are included as **Attachment 4**, “Guidelines for Standard Safety Disciplinary Actions and Acknowledgment” of this APP.

#### 4.8 CONTRACTOR EMPLOYEE SAFETY RESPONSIBILITY REQUIREMENTS

A successful safety program is achieved by the following:

- Assigning qualified personnel,
- Providing the necessary training and orientation,
- Adequately planning for the work and following the plans,
- Adhering to the policies and procedures,
- Reinforcing positive behavior,
- Rewarding safe performance.

##### **4.8.1 Management Safety Accountability**

The Shaw safety policy specially states: “Shaw expects all of our employees, clients, and partners to uphold the highest EHS standards to promote a positive and proactive safety attitude and to exhibit a heightened awareness of their surroundings both on and off the job.”

All Contractor employees have the right and the duty to stop work when unsafe conditions exist. Shaw Procedure No. HS040, “*Stop Work Authority*” (current rev.) details these responsibilities.

Among the many Shaw safety programs, Shaw senior managers are required to perform Leadership Safety Assessments. These assessments provide safety accountability for Shaw Managers.

#### **4.8.2 Contractor Safety Incentive Programs**

The Contractor has developed a NAVFAC Safety Incentive Award Program per Shaw Procedure No. HS023, “*Accident Prevention Program: Safety Incentive Award Program*” (current rev.). Project personnel are eligible for monthly safety awards contingent upon successful completion of safety meetings and inspections (leading safety indicators) and no OSHA recordable or vehicle accidents during the project.

#### **4.9 SAFETY AND HEALTH BULLETIN BOARD**

A safety and health bulletin board or suitable alternative shall be maintained in an area commonly accessed by workers at the project site. The bulletin board shall be maintained current, in clear view of on-site workers, and protected against the elements and unauthorized removal. The SSHO shall evaluate the content of the bulletin board each week, at a minimum, and update if necessary. It shall contain at least the following safety and health information:

- Map denoting the route to the nearest emergency care facility.
- Emergency telephone numbers.
- A copy of the most up-to-date SSHP and APP shall be mounted on or adjacent to the bulletin board or state the location, which will be accessible on the site by all workers.
- A copy of current AHAs shall be mounted on or adjacent to the bulletin board or state the location, which will be accessible on the site by all workers.
- Copy of Safety and Occupational Health Deficiency Tracking Log shall be mounted on or adjacent to the bulletin board or state the location where it will be accessible by all workers upon request.
- Safety and health promotional posters.
- Date of last lost workday injury.

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## 5.0 SUBCONTRACTORS AND SUPPLIERS

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This section of the APP outlines general requirements for subcontractors including adoption of the Shaw APP and SSHP, correction of safety violations, and other general requirements. Each subcontractor working on the project site will be required to adhere to the APP and SSHP and the requirements presented in the following sections.

### 5.1 SUBCONTRACTOR/SUPPLIER COORDINATION AND CONTROL

Shaw has identified its subcontractors in the Project Management Plan. The HSM will screen the subcontractors for safety performance. Shaw's subcontractors will comply with the requirements for site safety as outlined in Shaw Procedure No. HS011, "Health & Safety Rules for Contractors" (current rev.). A list of Shaw Health and Safety Procedures are presented in Appendix D of the SSHP (**Attachment 2**). Copies (electronic or paper) of all Shaw Health and Safety Procedures will be available at the project site at all times.

Subcontractors are required to read and sign the SSHP and comply with all requirements of this APP. Subcontractors not in compliance will be immediately dismissed from the site.

Shaw's PM and SS will be responsible for the conduct and control of Shaw's subcontractor. Shaw's HSM will review and accept any subcontractor safety plans, submittals, procedures, and programs.

### 5.2 SUBCONTRACTOR/SUPPLIER SAFETY RESPONSIBILITIES

Both Shaw and subcontractors share the responsibility for the safety and health of their employees. The following are some of the requirements that apply to subcontractors:

- All subcontractors under the direction of Shaw will report to the SS and PM.
- An assigned safety representative for each subcontractor shall be present on any day that work is being performed. The name of the assigned safety representative shall be conveyed to the SSHO.
- Subcontractors shall submit all training documents to Shaw prior to mobilization.
- Planned operations for the day shall be verbally conveyed to the SS at the beginning of each day.
- All subcontractor employees working on-site shall sign the Work-Site Entry Log at the beginning and end of each workday.
- All subcontractor personnel shall attend a project safety orientation prior to beginning work on-site.

- All subcontractor personnel shall attend the morning tailgate safety meeting and prepare JSAs. If scheduling precludes attendance, then subcontractors shall hold and document their own safety meeting. Safety meeting documentation, using the Safety Meeting Log form is to be submitted to the SSHO.
- All accidents, fires, injuries, illnesses, and spills shall be immediately reported to the SSHO.
- Heavy equipment is to be inspected prior to use at the project site by a competent mechanic. Heavy equipment shall be inspected daily by the equipment operator using the Shaw Heavy Equipment Safety Inspection Checklist form. Inspection documentation is to be submitted to the SSHO.
- Vehicles, such as trucks, vans, and automobiles are to be inspected once per week by the individual driving using the Shaw Vehicle Inspection form. Inspection documentation is to be turned into the SSHO.
- Subcontractors are required to frequently inspect work sites for safety deficiencies and correct all deficiencies. Documentation of these inspections, as well as the corrective actions implemented, is to be submitted to the SSHO every Monday morning. The Project Safety Inspection Report, Daily Safety Inspection Report, or equivalent shall be used.

Subcontractors identified to work on this project consist of the following:

*TABLE 5-1 SUBCONTRACTORS*

Subcontractor Name and Address	Services Provided
To be updated upon contract award	Private Utility Locator
To be updated upon contract award	Maryland Surveyor
Accutest Orlando	Analytical Testing Services
To be updated upon contract award	Geotechnical Testing Services
To be updated upon contract award	Transportation and Disposal Services

All subcontractors, visitors, and other on-site personnel shall check in with the SS in order to verify that all appropriate entry requirements are met. All visitors will be briefed by the SSHO, SS or designee, on the hazards to be expected on the site and the safety and health controls required (such as, hard hat, foot protection, etc.). The SS will verify that all visitors entering the work-area are properly protected and are wearing or provided with the appropriate PPE. A stock of common PPE (such as hard hats, eye protection, ear plugs, reflective vests, etc.) shall be maintained at the work-area for use by visitors. The SSHO, SS, or designee will provide an escort for all visitors while on site. Each visitor must enter his or her name, arrival time at the site, and departure time from the work-area on the sign-in log (Site Entry Log).

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## 6.0 TRAINING

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This section describes general training, SSHO minimum training requirements, hazardous waste operations training, safety meetings, site-specific training, hazard communication, first aid and cardiopulmonary resuscitation (CPR), and other additional training, certification, and licenses needed to work on the project site.

### 6.1 GENERAL TRAINING

The SSHO is responsible for informing all site personnel and all visitors of the contents of this APP, including all Appendices, and verifying that each person signs the APP Acknowledgment Form (**Attachment 1**) and Training Acknowledgment Form (Appendix E of SSHP, **Attachment 2**) prior to working on the project site. Documentation of certification of training requirements will be reviewed by the SSHO, filed on site, and submitted to NAVFAC (when requested).

### 6.2 SITE SAFETY AND HEALTH OFFICER MINIMUM TRAINING

The project SSHO shall meet the minimum requirements for safety training in accordance with EM 385-1-1, Section 01.A.17 (USACE, 2008) which indicates:

- Completion of the 30-hr OSHA Construction Safety course, or as an equivalent, 30 hrs of formal construction safety and health training covering the subjects of the OSHA 30-hour course.
- The SSHO is also required to have five (5) years of construction industry safety experience or three (3) years if they possess a CSP or safety and health degree.

### 6.3 HAZARDOUS WASTE OPERATIONS TRAINING

All site personnel working in regulated areas at the project site shall meet the minimum training requirements as specified in 29 CFR 1926.65 and 29 CFR 1910.120. Regulated areas for this project shall be delineated upon project mobilization.

The following criteria are used to determine the level of training required:

- Personnel engaged in hazardous substance removal or other activities, which expose or potentially expose them to hazardous substances and health hazards, shall receive a minimum of 40 hours of instruction off site and 3 days of supervised field experience.
- Personnel who perform limited activities (*e.g.*, surveying) at the site and are not potentially exposed to contaminant levels above the permissible exposure limit shall

receive a minimum of 24 hours of instruction off site and 1 day of supervised field experience.

### **6.3.1 40-Hour Training**

The following is a general list of topics covered in the 40-hour course:

- General site safety,
- Chemical, physical, and environmental hazards,
- Key management positions responsible for site safety and health,
- Safety, health, and other hazards (including noise),
- PPE,
- Work practices by which employees can minimize risks from hazards,
- Safe use of engineering controls and equipment on site,
- Medical surveillance requirements including recognition of signs and symptoms of exposure,
- Hazard communication (Worker Right-to-Know),
- Components of the site Safety and Health Program,
- Decontamination practices for personnel and equipment,
- Confined space entry procedures, and
- Emergency response procedures.

### **6.3.2 Supervisory Training**

Site management personnel, including the SS and SSHO, will receive 8 additional hours of specialized training. The following topics are discussed:

- Overall Safety and Health Program,
- PPE Program,
- Spill containment Program, and
- Health hazard monitoring procedures and techniques.

### **6.3.3 Refresher Training**

Personnel covered by Section 6.3.1, “40-Hour Training,” are required to complete 8 hours of refresher training annually on the following topics:

- Safe work practices,
- Chemical hazard awareness,
- Hearing conservation,
- Hazard communication,
- Respirator use, and
- Confined space entry procedures.

### **6.3.4 Visitor Training**

Site access by personnel making deliveries or performing repairs to utilities, public or government officials, visitors, or local residents will be limited to support areas only. These persons will not be required to comply with the medical and training requirements as previously defined. Support zone access will be limited to designated work, delivery, or observation areas to minimize any potential exposure to site contaminants. Site observation areas will be located upwind from the exclusion zone (EZ). Weather conditions or other site activities may restrict access to these areas. Authorization for limited site access will be determined on a case-by-case basis by the SSHO in consultation with the HSM, PM, and the Navy. These personnel will be escorted on site and will be strictly prohibited from entering the EZ or the contamination reduction zone.

## **6.4 SAFETY MEETINGS**

Employees shall be provided continuing safety and health training to enable them to perform their work in a safe manner.

### **6.4.1 Daily Safety Meetings**

The SS and/or SSHO (or designee) shall conduct a safety meeting at the beginning of each shift. The topics discussed at this daily “tailgate” safety meeting shall include safety and health considerations for the day’s activities, pertinent aspects of AHAs, necessary PPE, problems encountered, and new operations. The JSAs may be prepared as a component of the morning safety meeting. Attendance records and meeting notes shall be documented on the Safety

Meeting Log (Appendix E of the SSHP, **Attachment 2**) and are maintained with the project files and submitted to the Navy, if requested. At the conclusion of each shift, a debriefing for site employees will be held, if necessary.

## 6.5 SITE-SPECIFIC TRAINING

All personnel working at the project site, including subcontractors, shall attend a site-specific orientation covering the following topics:

- Purpose of this SSHP and review of pertinent sections including emergency response procedures as outlined in Section 9.2, “Emergency Response Plans” of this APP.
- Pertinent provisions for safety and health contained in EM-385 (USACE, 2008).
- Review of applicable AHAs.
- Provisions for medical care and facilities and the names of CPR- and first aid-trained personnel assigned to the project.
- Safety and health hazards on site and the means to control/eliminate those hazards.
- JSA preparation training.
- Procedures for reporting and correcting unsafe conditions or practices.
- Responsibilities for reporting all accidents and illnesses.
- PPE (use and care).
- Location of safety equipment (*i.e.*, fire extinguishers, first aid kits, eye-wash stations, *etc.*).
- Standard operating procedures, safety rules, and safe work practices for the project.
- Work zones and site control measures.
- Excavation operations and underground / overhead utility clearance.
- Lock-out/tag-out procedures.
- Fall protection.
- Fire prevention.
- Housekeeping.

## 6.6 HAZARD COMMUNICATION

All personnel performing field activities involving hazardous operational chemicals shall receive basic hazard communication training, which involves a review of the Contractor written hazard communication program, Material Safety Data Sheets (MSDSs) (Appendix C of the SSHP, **Attachment 2**), container labeling, chemical health hazards, and chemical hazard control procedures. Personnel shall be notified of the hazards of chemical contamination on site (if present) by reviewing Section 4.2, “Chemical Hazards” of the SSHP (**Attachment 2**). The MSDSs for additional materials brought to the site will be reviewed with personnel prior to its use.

## 6.7 FIRST AID AND CARDIOPULMONARY RESUSCITATION

There shall be at least two persons trained and certified in both American Red Cross first aid techniques and CPR (or equivalent) on the project site. These employees will meet both the training and vaccination requirements of Shaw Procedure No. HS512, “Handling of Blood or Other Potentially Infectious Material” (current rev.).

## 6.8 EMERGENCY RESPONSE TRAINING

All Shaw personnel who have completed the Shaw 40-hour Hazardous Waste Operations and Emergency Response Training are qualified as emergency responders per 29 CFR 1910.120/1926.65(e)(3)(iv). Site Specific Emergency Response Procedures will be reviewed with all site personnel as a part of site indoctrination.

## 6.9 SUPERVISORY AND EMPLOYEE SAFETY MEETINGS

The Shaw SSSHO will conduct daily safety meetings at the start of each work shift for on-site personnel and will require subcontractors to follow similar meeting procedures or participate in the Shaw daily safety meetings. Daily safety meetings will comply with Shaw Procedure No. HS051, “*Tailgate Safety Meetings*” (current rev.).

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## 7.0 SAFETY AND HEALTH INSPECTIONS

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### 7.1 SAFETY INSPECTIONS

Shaw's PM, Steve Carriere, will conduct periodic inspections of the project site in accordance with Shaw Procedure No. HS021, "*Accident Prevention Program: Management Safety Inspections*" (current rev.). The SSHO will conduct daily safety inspections of work processes, site conditions, and equipment conditions. The HSM will discuss any necessary corrective actions with the SSHO. The SSHO will document all safety deficiencies and corrective actions in a written log (a copy of this log is included in Appendix E of the SSHP, **Attachment 2**), which will be posted at the project safety and health bulletin board. The log will include the following:

- Date deficiency is identified,
- Description of deficiency,
- Name of person responsible for correcting deficiency,
- Projected resolution date,
- Date resolved.

### 7.2 MECHANICAL EQUIPMENT INSPECTIONS

Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested in accordance with the manufacturer's recommendations and requirements of EM-385 (USACE, 2008) and shall be certified in writing by a competent person to meet the manufacturer's recommendations and requirements of the manual. Subsequent re-inspections will be conducted at least annually thereafter. These inspections shall be documented on the USACE Safety Inspection Checklist for Construction Equipment (Appendix E of the SSHP, **Attachment 2**). All safety deficiencies noted during the inspection shall be corrected prior to the equipment being placed in service at the project. If at any time the machinery or mechanized equipment is removed and subsequently returned to the project (other than equipment removed for routine off-site operations as part of the project), it shall be re-inspected and re-certified prior to use. All heavy equipment shall be inspected by each operator prior to use on the project and shall then be inspected on a daily basis. Daily inspections shall be documented on the Daily Equipment Inspection form (Appendix E of the SSHP, **Attachment 2**). Deficiencies in the equipment shall be noted on the form. All inspection documentation shall be submitted to the SS prior to using

the equipment if safety deficiencies are observed and at the end of the day if no safety deficiencies are observed.

The SS shall immediately evaluate the inspection forms and determine if the equipment is in need of immediate repairs and if it should be “red tagged” and taken out of service. If the equipment is taken out of service, then the equipment shall not be used until the SS is satisfied that the necessary repairs have been made. For minor deficiencies that do not compromise the safe operation of the equipment, repairs shall be made at the discretion of the equipment owner. All inspection records are to be kept on file in Shaw’s field office.

### 7.3 EXTERNAL INSPECTIONS/CERTIFICATIONS

Shaw does not anticipate, but may consider, the use of outside sources to provide safety inspections, as necessary.

As required, safety equipment will comply with appropriate regulations of OSHA, the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), ASTM International, the United States Coast Guard, or other recognized certification organizations.

## ***8.0 ACCIDENT REPORTING***

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### **8.1 EXPOSURE DATA (MAN-HOURS WORKED)**

The Health and Safety Loss Control Manager for Shaw, tracks and maintains incident records for federal reporting requirements. Reporting requirements are included in Shaw Procedure No. HS020, “*Accident Prevention Program: Reporting, Prevention and Review*” (current rev.). NAVFAC program incident rates are reported monthly by the Program HSM.

### **8.2 ACCIDENT INVESTIGATIONS, REPORTS, AND LOGS**

Project personnel are required to report all near misses, injuries, illnesses, and accidents to their immediate supervisor. The SSHO will immediately arrange appropriate medical care as required. Once immediate medical care for the injured personnel or other critical emergency procedures has been accomplished, the SSHO shall follow the Incident Notification, Reporting, and Management Procedure included in this APP as **Attachment 5**, “*Incident Notification, Reporting, and Management Procedure*.” In the event that an accident results in an employee sent to a doctor, the Return-to-Work Examination Form (Appendix E of the SSHP, **Attachment 2**) will be completed by the attending physician on the date of treatment and will state one of the following conditions:

- Employee may return to full duty work.
- Employee may return to limited duty (with type of limitations).
- Employee is unable to return to work.

A copy of this release will accompany the accident report.

For injuries and vehicle accidents, secure the scene to prevent additional injury/incident, administer on-site first aid, and arrange for emergency assistance prior to making any other notifications. After immediate emergency attention has been given, report all incidents to the PM and HSM. All accidents shall be reported as soon as possible but not more than 24 hours afterwards to the Contracting Officer’s Representative (COR). The following require immediate accident notification to the COR:

- A fatal injury,
- A permanent total disability,

- A permanent partial disability,
- The hospitalization of three or more people resulting from a single occurrence,
- Property damage of \$200,000 or more.

The SSHO will immediately investigate all near misses, injuries, illnesses, and accidents to determine the causal factors. The SSHO will document any unsafe acts or conditions that occurred or existed at the time of the accident. The SSHO shall submit the appropriate reports within 24 hours to the Shaw Safety Department in Baton Rouge, Louisiana in accordance with Shaw Procedure No. HS020, “*Accident Prevention Program: Reporting, Investigation, and Review*” (*current rev.*). The appropriate form(s) (Appendix E of the SSHP, **Attachment 2**) to be completed include the following:

- Supervisor’s Employee Injury/Illness Report Form,
- Vehicle Accident Report,
- Equipment, Property Damage and General Liability Loss Report,
- Incident Investigation Report,
- Injured Employee Statement,
- Employee Witness Statement, and
- Accident Review Board.

Corrective actions will be determined and implemented to prevent the recurrence of the accident; and responsibility for implementation of corrective actions will be assigned. The final report and required forms will be submitted to the HSM within five (5) days of the incident. The PM shall submit the findings of the investigation along with appropriate corrective actions to the Contracting Officer’s Technical Representative in the prescribed format as soon as possible but no later than five (5) working days following the accident. Corrective actions shall be implemented as soon as reasonably possible. A log of OSHA-recordable injuries/illnesses will be maintained. (Appendix G of SSHP, **Attachment 2**).

### 8.3 IMMEDIATE NOTIFICATION OF MAJOR INCIDENTS

The SSHO will report all lost time injuries to the client within 24 hours of the injury. All accidents, independent of costs, will be reported immediately to the client.

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## 9.0 PLANS REQUIRED BY THE SAFETY MANUAL

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### 9.1 LAYOUT PLANS

Work zones are defined in **Section 5.0** of the SSHP (**Attachment 2**).

### 9.2 EMERGENCY RESPONSE PLANS

An emergency is defined as a sudden, generally unexpected occurrence demanding immediate action. Emergencies at the project site include accidents, injuries requiring medical care, fires, explosions, spills and significant releases of hazardous substances into the environment, and extreme weather events. Upon mobilization to the project, the SS shall provide a means for effective emergency communications (landline telephone, cellular phone, satellite phone, or two-way radio) prior to commencing site activities.

In the event that an emergency arises, the appropriate immediate response must be taken by the first person to recognize the situation. The field crew shall immediately notify the site management of the incident, and the appropriate emergency service organization shall be contacted. A list of emergency contacts is provided in **Table 9-2**. A copy of the emergency telephone numbers and directions to the nearest selected urgent care facility – emergency medical services (EMS) shall transport injured personnel to the hospital – shall be posted at the project site.

The PM, HSM, and the client shall be notified of any accident, injury, or illness.

In the case of injury or illness, a trained person will render the proper emergency first-aid care. First-aid equipment shall be available at the area of fieldwork. Personnel will be notified as to the locations of first-aid equipment during the initial safety briefing session.

If the injury or illness is from exposure to a hazardous substance, rapid identification of that substance should be attempted. This information shall be provided to the medical personnel. The MSDS details first-aid procedures to follow in the event an exposure occurs.

Unless the emergency event is extreme and obvious, the decision to cease all field activities and evacuate the site shall be made by the SS. Field personnel will report to the pre-designated area, if possible. Base authorities (*i.e.*, police, fire department, and civil defense) will decide if the emergency requires evacuation of the surrounding community. Responsibility for community evacuations will be with the base authority in charge of the emergency.

### **9.2.1 Personnel Roles/Lines of Authority**

The roles and responsibilities of Shaw’s personnel for response to emergencies at the project site will be clearly defined and coordinated with Shaw, subcontractors, the client, and emergency service personnel. The responsibilities of specific project individuals and the coordination of emergency service personnel are defined in the following subsections.

### **9.2.2 Site Superintendent**

At all times during scheduled work activities, a SS, or designee, will be present on site. This individual will be responsible for implementing these procedures and determining appropriate response actions. Specific responsibilities for the SS include the following:

- Evaluating and assessing emergency incidents or situations.
- Assigning personnel and coordinating response activities on site.
- Informing field personnel of the potential hazards associated with the site.
- Summoning emergency response personnel.
- Notifying the PM and HSM of an emergency situation.
- Verifying that all emergency equipment is routinely inspected and functional.
- Working with the SSHO regarding the correction of any work practices or conditions that may result in injury to personnel or exposure to hazardous substances.
- Informing the appropriate emergency response agencies of the provisions made herein.
- Evaluating the safety of site personnel in the event of an emergency and providing evacuation coordination if necessary.

The SS will direct all emergency response activities conducted or managed by Shaw and is ultimately responsible for field implementation and enforcement of the APP.

### **9.2.3 Site Safety and Health Officer**

The SSHO is responsible for assisting the SS in implementing, communicating, and enforcing safety and health policies and procedures during the course of the project. The SSHO will also assist in evaluating safety and health concerns with respect to environmental releases and emergency response actions.

#### **9.2.4 Project Manager**

The PM will provide support to emergency responders and dedicate appropriate project resources to the response effort. If required, the PM will mobilize additional personnel and equipment to the site. The PM will notify and provide the client with recommendations concerning any additional action(s) to be taken.

#### **9.2.5 List of Emergency Contacts and Notification**

The base fire department shall be contacted prior to initiating any new activities. They shall be frequently advised and notified about upcoming site activities and potential emergencies. This shall be done to ascertain response capabilities and to obtain a response commitment.

The PM, HSM, and SS will be notified immediately in the event of an emergency. The SS will immediately evaluate the incident and, if necessary, notify emergency response personnel. If not previously notified, the client will be advised of the situation. Telephone numbers for emergency contact personnel are listed in **Table 9-2**. The list will be maintained with current contacts and telephone numbers, and shall be posted at all Shaw-controlled telephones.

The information provided to the emergency contact should include the nature of the incident and the exact location. Specifically, the information should include the following:

- Name and telephone number of the individual reporting the incident,
- Location and type of incident,
- Nature of the incident (*i.e.*, fire, explosion, spill, or release) and substances involved (if any),
- Number and nature of medical injuries,
- Potential for additional risks or dangers,
- Potential off-site risks or dangers,
- Movement or direction of spill/vapor/smoke,
- Response actions currently in progress,
- Estimate of quantity of any released materials,
- Status of incident, and
- Other pertinent information.

### **9.2.6 Medical Emergency Response**

Minor injuries will be treated on site by qualified first aid/CPR providers. Injuries and illnesses that do not require immediate medical care will also be treated at the hospital as shown on **Table 9-2**. The EMS shall be summoned in the event of moderate to severe physical injury, which requires immediate emergency care. In all cases, the SS shall accompany the injured worker to the hospital.

### **9.2.7 Personal Exposure or Injury**

The following procedures will be implemented in the event of a personal injury (other than first aid only).

#### **9.2.7.1 Serious Exposures or Injuries Requiring Transport by Ambulance**

The SS will provide support to emergency responders and dedicate appropriate project resources to the response effort. If required, the PM will mobilize additional personnel and equipment to the project site.

Upon the realization that an individual(s) needs medical care with transport by ambulance, the following procedure will be used when applicable:

- Administer first aid and contact the SS to arrange for dispatch of the EMS.
- When the situation has been stabilized, decontaminate the injured person (if necessary). Do not perform decontamination if it interferes with emergency treatment, such as in a life-threatening situation.
- Notify the Project HSM.
- Move the person to a support area if there is no risk of further injury.
- Assign an individual to meet the EMS at the project site entrance to minimize time in locating the injured worker(s).
- Wait for emergency care, document the event, and maintain communication with the SS.

The SS shall determine where the injured person is being transported and will then go to that medical facility. Universal precautions shall be exercised by all personnel who are rendering first aid care or assisting injured or ill persons. If bodily fluids need to be cleaned-up, then the Blood-borne Pathogens Exposure Control Plan (Section 13 of the SSHP, **Attachment 2**) shall be implemented.

In the event of a chemical exposure, the following procedures shall be followed after summoning the EMS:

- Skin Contact:
  - Flush with water
  - Remove clothing, flush skin
  - Obtain prompt medical attention, as necessary.
  
- Inhalation:
  - Remove the person from the area
  - Administer first aid/CPR, as needed
  - Obtain immediate medical attention.
  
- Ingestion:
  - Contact the Poison Control Center for immediate treatment, then obtain immediate medical attention
  
  - Inducing vomiting may cause further injury to the victim; follow instructions from the MSDS and/or Poison Control Center.
  
- Eye Contact:
  - Flush eyes immediately with water for a minimum of 15 minutes
  - Obtain immediate medical attention.

### **9.2.8 Spill Prevention and Control**

This spill prevention and control section sets forth the procedures for the coordination of and response to potential spills/discharges of hazardous materials or wastes.

#### **9.2.8.1 Pre-emptive Measures**

The following measures shall be taken to minimize the possibility of spills/discharges:

- Site controls are to be maintained so that only authorized personnel have access to work areas.
  
- Site personnel will be advised of appropriate spill/discharge control measures.

- Appropriate secondary containment structures will be used for storage of hazardous materials and wastes on site.
- Storage containment shall be examined daily.

#### 9.2.8.2 Spill Response

If a hazardous material or waste release is observed at the site, the SS will be immediately notified. An assessment will be made of the magnitude and potential impact of the release. If it is safe to do so, site personnel will attempt to locate the source of the release, prevent further release, and contain the spilled and/or affected materials as follows:

- The spill or release area will be approached from upwind.
- Hazards will be identified based on available information from witnesses or material identification documents (*i.e.*, placards, MSDSs, and logbooks). The potential hazards will be evaluated to determine the proper personal protection levels, methods, and equipment necessary for response.
- If necessary, the release area will be evacuated, isolated, and secured.
- Work zones shall be set up.
- If possible, spill containment will initially be made without entering the immediate hazard area.
- Entry to the release area will be made by personnel with the PPE, training, methods, and equipment necessary to perform the work. Hazardous spill containment and collection will be performed as follows:
  - Contain the spill with absorbent socks, booms, granules, or construction of temporary dikes.
  - Control the spill at the source by plugging leaks, up righting containers, over packing containers, or transferring contents of a leaking container.
  - Collect the spilled material with shovels, pumps, or heavy equipment as necessary.
- Store the spilled material for treatment or disposal. Treatment and/or disposal options of the material will depend on the amount and type of material.

If site personnel cannot safely respond to an environmental release, evacuation of the area may be warranted. The base fire department shall be notified in the event of a significant spill. Upon their arrival at the site, the SS will brief emergency responders of the status and any potential hazards.

### 9.2.8.3 Site Evacuation Procedures

In the event that site evacuation is required, a continuous, uninterrupted air horn shall be sounded. Air horns will be located near each active work area where there is potential for an evacuation to become necessary. Hazards of Electromagnetic Radiation to Ordnance (HERO) certified radio or cellular telephone communication may also be used to alert site workers and provide special instructions.

Personnel shall evacuate to a designated safe, upwind location and perform a “head count.” The SS is to remain in frequent contact for proper execution of the evacuation procedures.

Situations requiring evacuation may include unusually severe weather conditions, fires, or significant chemical spills or releases. In the event of project evacuation, other than weather-related events, the local fire department will be notified immediately. A site emergency map that delineates evacuation routes, emergency air horn locations, first aid kit locations, rally point(s), and exclusion zone perimeters (if any) will be prepared once the SS has physically evaluated the site. Exact locations of emergency equipment may be modified by the SS. In the event that changes are made, the site emergency map will be updated by the SS in the field and project personnel will be notified.

### 9.2.8.4 Emergency Equipment

At a minimum, the following emergency equipment shall be maintained at the project site:

- Fire extinguishers,
- First-aid kits,
- Blood-borne pathogen control supplies or kit,
- Emergency eyewash,
- Communication devices.

This equipment is to be inspected by the SS on a weekly basis to verify that they are in good condition, ready to use, and easily accessible. Note: a seal may be maintained on first-aid kits to indicate if the kit has been accessed within the preceding week. The weekly inspection of the first aid kit will only be necessary if the seal has been broken.

#### 9.2.8.5 Critique and Follow-up of Emergency Procedures

The client shall be verbally notified immediately and receive a written notification within 24 hours of all accidents or incidents including releases of toxic chemicals, fires, or explosions.

The report shall include the following items:

- Name, organization, telephone number, and location of Shaw.
- Name and title of the person(s) reporting.
- Date and time of accident/incident.
- Location of accident/incident (*i.e.*, site location and facility name).
- Brief summary of accident/incident including pertinent details, such as type of operation ongoing at time of accident.
- Cause of accident/incident, if known.
- Casualties (*i.e.*, fatalities and disabling injuries).
- Details of any existing chemical hazard or contamination.
- Estimated property damage, if applicable.
- Nature of damage and effect on contract schedule.
- Action taken by Shaw to maximize safety and security.
- Other damage or injuries sustained (public or private).

The SS and Project HSM will investigate the cause of the incident to prevent its reoccurrence. The investigation should begin as soon as practical after the incident is under control but not later than the first workday after the incident. Investigations will follow the procedures described below:

- Interview witnesses and participants as soon as possible or practical.
- Determine the chronological sequence of events (opinions as to cause should not be solicited at this time).
- Note any movement, sounds, noises, or other sensory perceptions experienced by the participants or witnesses.
- Obtain weather data.
- Ascertain the location and position of all switches, controls, *etc.*

- Verify the condition of all safeguards.
- Determine if a revision to emergency procedures is warranted.

After the facts have been collected, causal factors should be identified and controlled/eliminated.

### ***9.2.9 Fire Control***

A 2-A:10-B:C fire extinguisher will be kept at each active work area, at a minimum. A 5-B:C fire extinguisher shall be mounted on all heavy equipment. In the event of a fire or explosion at the site, the following actions shall be implemented:

- Evacuate all personnel to a safe location upwind or crosswind of the incident. Contact the SS.
- Concurrently with the above, contact the base fire department as appropriate.
- If personnel who have had training in the use of fire extinguishers are present, use available fire extinguishers to extinguish small fires if the fire can be safely extinguished.
- Alert the local hospital about the possibility of fire victims, as appropriate.
- Document the incident in the field logbook and follow the procedures for incident reporting in **Section 8.0**, “Accident Reporting.”

### ***9.2.10 Posting of Emergency Telephone Numbers***

**Table 9-2** provides the emergency contact information and will be posted onsite.

### ***9.2.11 Man Overboard/Abandon Ship***

A man overboard/abandon ship plan is not required based on the current SOW.

### ***9.2.12 Medical Support***

The Contractor will use the services of an Occupational Medicine physician for the medical surveillance requirements. Dr. William Nassetta reviews all of the Contractor’s medical examinations and is available for medical consultation on an “as-needed” basis.

**Dr. William Nassetta, MD, MPH**  
**CORE Health Services**  
**12091 Bricksome Avenue, Suite B**  
**Baton Rouge, Louisiana, 70816**  
**1-877-EHS SHAW (1-877-347-7429)**  
**225-614-9561 (office) 225-295-4846 (fax)**

Subcontractors should also use the services of an Occupational Medicine physician of their choice to meet any special medical surveillance requirements.

#### 9.2.12.1 On-Site Medical Support

The following addresses first aid and medical facilities:

- Effective emergency communication devices must always be available while personnel are present at the site.
- Employees working alone in a remote location or away from other workers will be provided an effective means of emergency communications (*i.e.*, cellular phone, two-way radios, hard-line telephones, or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. An employee check-in/check-out communication procedure will be developed to assure employee safety.
- Emergency telephone numbers will be posted at all Shaw-controlled telephones.
- An appropriate size first-aid kit will be provided and maintained at the project. The first-aid kit will be inspected weekly by the SS. A seal may be placed on first-aid kits to allow for less frequent inspections (*i.e.*, if the seal is not broken, then an inspection is not required). There will be a small first-aid kit available in all project vehicles. First-aid kits located in project vehicles do not need to be inspected if the factory plastic wrapping is intact. First-aid kits will be inspected using the First-Aid Kit Inspection Log (Appendix E of the SSHP, **Attachment 2**).
- The SS will determine the local clinic for emergency and non-emergency medical services at the time of project mobilization. Before commencement of any work at the project sites, the SS will post a map with a route from each project site to the local medical clinic.

At a minimum, two on-site employees will be certified in CPR and first aid during site activities. First-aid and CPR training/certification must be performed by a reputable provider, such as the American Red Cross or American Heart Association.

9.2.12.2 Off-Site Medical Support

In the case of medical emergency or non-emergency work-related injuries, the nearest hospital is Civista Medical Center. A list of emergency contacts and the clinic information is provided in **Table 9-2**, “Emergency Information.” **Figure 9-2A** shows the hospital route map. **Figure 9-2B** shows the CORE Health Services Clinic route map.

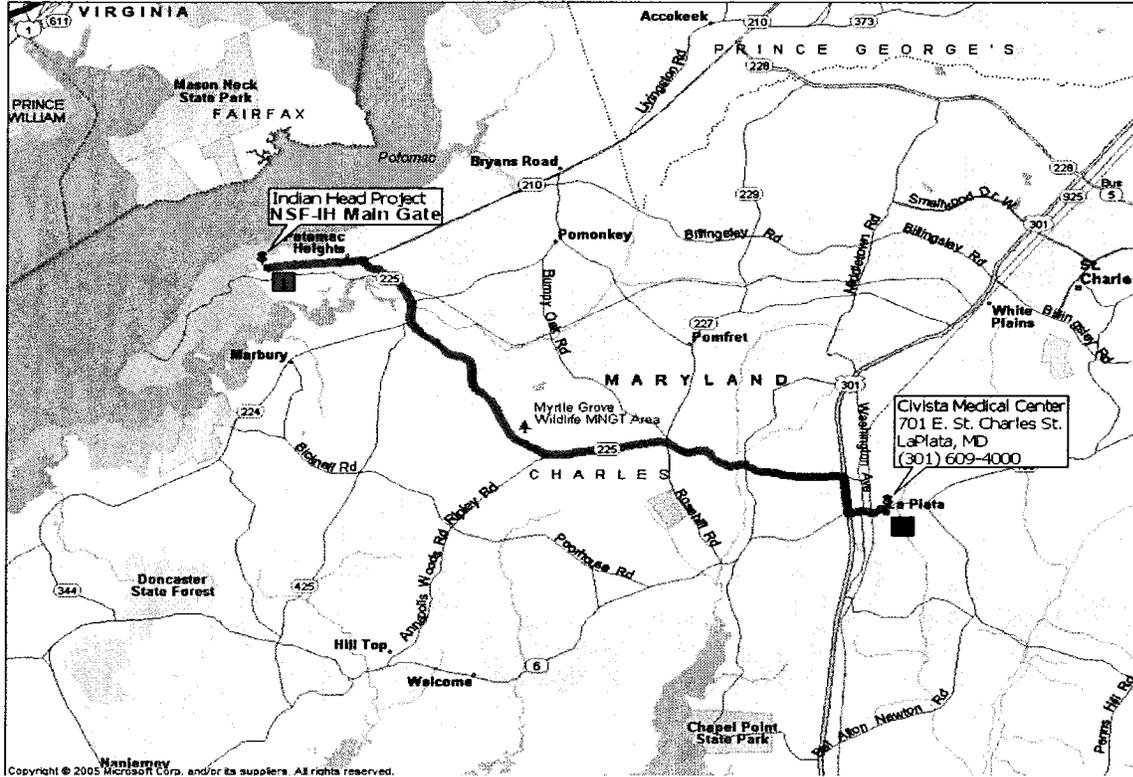
TABLE 9-2 EMERGENCY INFORMATION

CONTACT	TELEPHONE
<b>Local Agencies</b> Base Fire Protection Division Ambulance Fire Security Dispatch LEPC	(301) 744-4333 (301) 744-4333 (301) 744-4333 (301) 744-4333 (301) 744-4381 Will be notified by Fire/Dispatch
Hospital Civista Medical Center 701 E. St. Charles Street LaPlata, MD  CORE Health Services Clinic Convenient Health Care 12090 Old Line Center Waldorf, MD 20602	(301) 609-4000       (301) 645-8550
See Figures 9-2A and 9-2B for directions to the hospital and clinic.	
National Capital Poison Center	(800) 222-1222
<b>Federal Agencies</b> Center for Disease Control National Response Center	(404) 639-3311 (800) 424-8802
Department of the Navy, NAVFAC Washington Remedial Project Manager – Joseph Rail Facilities Engineering and Acquisition Division (FEAD) – Cathy Gardner FEAD Inspector – William Lindsay	(202) 685-3105 (office) (301) 744-2181 (office) (301) 744-2182 (office)
<b>Shaw Personnel</b> Project Manager – Steve Carriere Site Superintendent – Bryan Guzzardo Site Safety and Health Officer – Burney Chance Program Health and Safety Manager - Kym Edelman Program CIH – Dave Mummert Shaw E & I (24 hour)	(609) 234-6361 (cellular) (985) 969-5172 (cellular) (601) 310-7229 (cellular) (757) 640-6978 (office) (419) 425-6129 (office) (866) 299-3445

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Figure 9-2A Hospital Route Map

**Route to Hospital:**  
**Civista Medical Center 701 E. St. Charles Street, LaPlata, MD**  
**(301) 609-4000**



Mile	Instruction	For
0.0	Depart Indian Head on SR-210 [Indian Head Hwy] (East)	1.6 mi
1.6	Turn RIGHT (South) onto SR-225 [Hawthorne Rd]	1.2 mi
2.8	Bear RIGHT (South) onto SR-224 [SR-225]	0.4 mi
3.2	Bear LEFT (South-East) onto SR-225 [Hawthorne Rd]	8.6 mi
11.8	Keep STRAIGHT onto SR-225 [W Hawthorne Rd]	0.4 mi
12.2	Turn RIGHT (South) onto SR-301 [Blue Star Memorial Hwy]	0.7 mi
12.9	Turn LEFT (East) onto SR-6	21 yds
12.9	Keep STRAIGHT onto SR-6 [Charles St]	0.6 mi
13.5	Turn RIGHT (South) onto Garrett Ave	131 yds
13.6	Arrive La Plata	

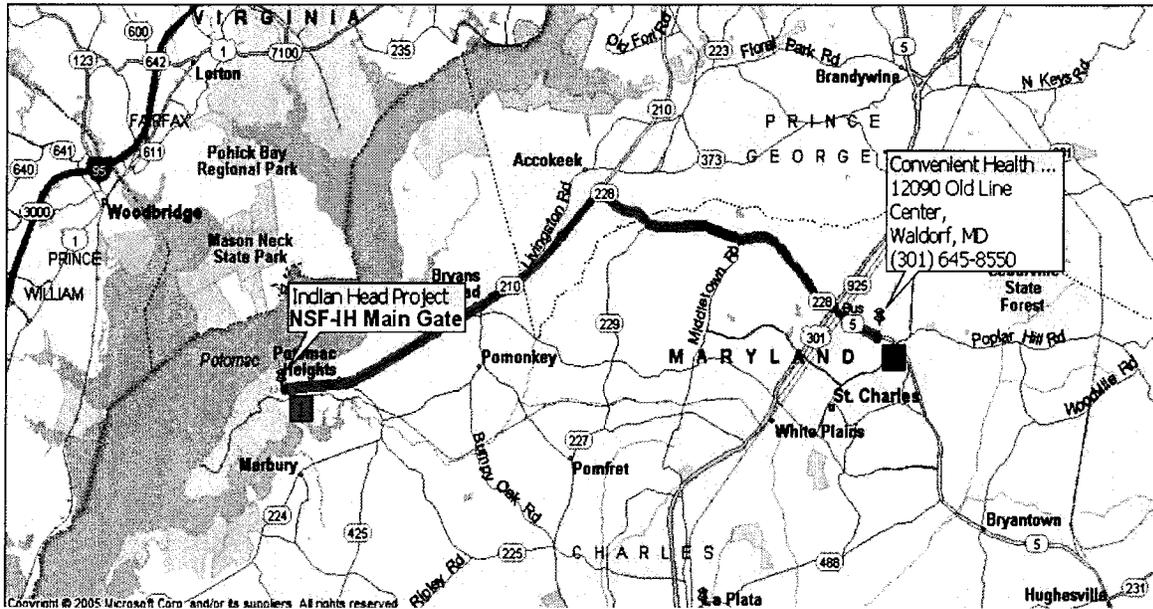
**SUMMARY**

Driving distance: 13.6 miles  
 Trip duration: 21 minutes Driving time: 21 minutes

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**Figure 9-2B CORE Health Services Clinic Map**

**Route to CORE Health Services Clinic  
 Convenient Health Care  
 12090 Old Line Center  
 Waldorf, MD 20602  
 (301) 645-8550**



Mile	Instruction	For
0.0	Depart Indian Head on SR-210 [Indian Head Hwy] (East)	9.3 mi
9.3	Keep RIGHT onto Local road(s)	153 yds
9.4	Keep STRAIGHT onto SR-228 [Berry Rd]	6.7 mi
16.1	Bear RIGHT (South-East) onto SR-5 Bus	1.3 mi
17.4	Turn RIGHT (South) onto Old Line Center	98 yds
17.5	Arrive 12090 Old Line Center, Waldorf, MD 20602	

**SUMMARY**

Driving distance: 17.5 miles  
 Trip duration: 24 minutes  
 Driving time: 24 minutes

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### 9.3 ALCOHOL AND DRUG ABUSE PLAN

Shaw is firmly committed to providing employees a safe and healthful workplace, and to providing clients and the public safe and efficient services. Employee involvement with the use, possession, or sale of alcohol, illegal drugs, or any substance represented as a controlled substance creates an impediment toward meeting these commitments and is prohibited.

At no time while on duty may employees use or be under the influence of alcohol, narcotics, intoxicants, or similar mind-altering substances. Employees found under the influence of or consuming such substances will be immediately removed from the job site, as specified in the Section 01.C.02 of EM-385 (USACE, 2008).

All employees of Shaw and its subcontractors are subject to drug and alcohol testing as described in Shaw Procedure No. HS101, “*Drug and Alcohol Testing*” (current rev.). Post accident drug and alcohol testing is a requirement of Shaw when not prohibited by State or Local law.

### 9.4 SITE SANITATION PLAN

The following provisions shall be made to address sanitation:

- Portable toilets shall be provided, as necessary, at convenient locations at the project. Arrangements shall be made for the routine servicing and cleaning of these units.
- Under temporary field conditions, provisions shall be made to assure that at least one toilet facility is available.
- Toilets shall be provided in accordance with Table 2-1, Section 02.E.01, EM 385-1-1 (USACE, 2008). When toilet rooms may be occupied by no more than one person at a time, can be locked from the inside, and contain at least one toilet seat, separate toilet rooms for each sex need not be provided.
- Safe drinking water is to be provided at each project and provisions shall be made as necessary to provide safe drinking water at individual field locations. One-serving size individual bottle of water or disposable sanitary cups shall be provided along with receptacles for their disposal. All outlets dispensing non-potable water (under Shaw control) shall be posted with appropriate warning signs. Systems furnishing non-potable water and systems furnishing potable water shall be constructed to remain completely independent of each other.
- Portable washing facilities shall be provided as necessary at project sites. Portable washing facilities shall consist of, at a minimum, soap, water, and paper towels. When it is not feasible to use soap and water, such as during freezing weather, Handi-wipes or equivalent shall be made available.

## 9.5 ACCESS AND HAUL ROAD PLAN

An access and haul road plan is not required based on the current SOW. Current access roads shall be used.

## 9.6 RESPIRATORY PROTECTION PLAN

The primary objective of respiratory protection is to prevent employee exposure to atmospheric contamination. When engineering measures to control contamination and respirable hazards are not feasible, or while they are being implemented, personal respiratory protective devices will be used. Shaw's respiratory protection requirements are specified in Shaw Procedure No. HS601, "*Respiratory Protection Program*" (current rev.).

The criteria for determining respirator need have been evaluated based on the site contaminants. Air monitoring will be conducted to confirm that respiratory protection levels are adequate. All respirator users will be OSHA trained in proper respirator use and maintenance. The SSHO will observe workers during respirator use for signs of stress. The SSHO, HSM, and CIH will also evaluate the implementation of the SSHP, periodically, to determine its continued effectiveness with regard to respiratory protection. All persons assigned to use respirators will have medical clearance to do so.

## 9.7 HEALTH HAZARD CONTROL PLAN

The AHAs presented in Appendix B of the SSHP (**Attachment 2**) address the hazards for proposed site activities. The AHAs will serve as the initial certification of hazard assessment. An AHA is an ongoing process from initiation of the SSHP to implementation and completion of fieldwork.

## 9.8 HAZARD COMMUNICATION PROGRAM

MSDSs for chemicals that may be required during site operations will be available on site, and will be updated by the SSHO as new chemicals are procured. Shaw Procedure No. HS060, "*Hazard Communication Program*" (current rev.), will be implemented on site if necessary; however, hazardous materials are not anticipated to be brought on site during the execution of this SOW. Employee records will be maintained on site by the HSM. Employee records are also available through the Shaw Records Training Department via secure intranet access.

## 9.9 PROCESS SAFETY MANAGEMENT PLAN

A process safety management plan is not required based on the current SOW.

## 9.10 LEAD ABATEMENT PLAN

A lead abatement plan is not required based on the current SOW.

## 9.11 ASBESTOS ABATEMENT PLAN

An asbestos abatement plan is not required based on the current SOW.

## 9.12 RADIATION PROTECTION PROGRAM

A radiation protection program is not required based on the current SOW.

## 9.13 ABRASIVE BLASTING PLAN

An abrasive blasting plan is not required based on the current SOW.

## 9.14 HEAT / COLD STRESS MONITORING PLANS

### **9.14.1 Heat Stress**

Heat stress is of concern for worker safety during the summer months or when working in areas containing steam lines or other heat-generating equipment. Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, PPE, workload, and individual characteristics. Heat stress can cause physical discomfort, loss of efficiency, or personal illness/injury. Shaw's heat stress program is specified in Shaw Procedure No. HS400, "*Heat Stress*" (current rev.).

Individuals vary in their susceptibility to heat stress. Factors that may predispose individuals to heat stress include the following:

- Lack of physical fitness and/or obesity,
- Insufficient acclimation,
- Age,
- Dehydration,
- Alcohol and/or drug use,
- Infection,
- Sunburn,
- Diarrhea,
- Chronic disease,

- Medical conditions and/or the use of some medications, such as beta-blockers for high blood pressure.

The amount and type of PPE worn directly influences reduced work tolerance and the increased risk of heat stress. PPE adds weight and bulk reduces the body's capability for physiological thermoregulation (*i.e.*, evaporation, convection, and radiation), and increases energy expenditure.

#### 9.14.1.1 Signs and Symptoms of Heat Stress

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur – ranging from mild to fatal.

These physical reactions to excessive heat include the following:

- Heat rash is caused by continuous exposure to heat and humidity, and is aggravated by chafing clothes. Heat rash decreases the body's ability to tolerate heat in addition to being a nuisance.
- Heat cramps are caused by profuse perspiration with inadequate electrolytic fluid replacement. Heat cramps cause painful muscle spasms and pain in the extremities and abdomen.
- Heat exhaustion is caused by increased stress on various organs to meet increased demand to cool the body. Heat exhaustion causes shallow breathing; pale, cool, moist skin; profuse sweating; and dizziness.
- Heat stroke is the most severe form of heat stress. Heat stroke symptoms include hot, dry skin; no perspiration; nausea; dizziness; confusion; strong, rapid pulse; coma; and sometimes death. Heat stroke is a serious medical emergency. The affected person shall be cooled down rapidly, and medical attention must be given immediately (Section 9.14.1.4, "Heat Stroke Treatment").

An individual may be at greater risk of heat stress if the following occurs:

- Profuse sweating is sustained over hours.
- Weight loss over a shift is greater than 1.5 percent of body weight
- 24-hour urinary sodium excretion is less than 50 millimoles (American Conference of Governmental Industrial Hygienists, 2011).

#### 9.14.1.2 Heat Stress Prevention

The following practices will help prevent heat stress:

- Acclimatize workers to hot working conditions.

- Provide plenty of liquids to replace the body fluids lost by perspiration. Fluid intake should be forced because under conditions of heat stress, the normal thirst mechanism is not adequate to bring about a voluntary replacement of lost fluids.
- Provide personal cooling devices.
- Conduct strenuous field operations in the early morning and provide shade when possible.
- Train personnel to recognize the signs and symptoms of heat stress, its prevention, and treatment.
- Rotate personnel to various job duties and establish adequate work/rest cycles.
- Provide shade or shelter during rest periods.

#### 9.14.1.3 Heat Stress Treatment

Workers expressing the symptoms of heat stress shall notify the SS immediately. At the onset of heat-related illness, activities must be halted and treatment initiated. Early detection and treatment of heat stress helps to prevent further serious illness or injury. Individuals that have experienced heat-related illness could become more sensitive and predisposed to additional future heat stress-related problems.

Heat exhaustion can be alleviated by having the affected person rest in a cool, shaded location and have them drink cool water. To cool down the affected person's body, perform the following:

- Remove impermeable PPE.
- Remove worker from direct sunshine.
- Apply copious amounts of cool (not cold) water on them.
- Encourage them to drink cool water, not cold, if conscious.

#### 9.14.1.4 Heat Stroke Treatment

Heat stroke is a true medical emergency. In a heat stroke situation, the body must be cooled immediately to prevent severe injury or death – medical attention must be immediately obtained. The following shall be performed if heat stroke is suspected:

- Transportation of the victim to a medical facility must not be delayed – seek immediate medical attention.

- Apply cold packs, if available; place under the arms, around the neck, or any other place where they can cool large surface blood vessels.
- If transportation to a medical facility is delayed, reduce body temperature by immersing victim in a cool water bath (however, be careful not to over-chill the victim once body temperature is reduced below 102°F). If this is not possible, continuously douse victim with cool water and fan for evaporative cooling.

#### 9.14.1.5 Acclimatization

Physiologically adjusting or acclimatizing personnel to hot conditions is extremely important. Supervisors shall provide the necessary time for adequate worker acclimatization due to each individual's physical condition and his or her ability to work in hot and humid environments.

#### 9.14.1.6 Physiological Monitoring

Adequate work/rest periods shall be implemented as necessary to prevent heat stress on personnel. However, since individuals vary in their susceptibility to heat stress, the Contractor will also use physiological monitoring to aid in measuring each individual's response to heat stress. The initiation of physiological monitoring will be required when employees are working in environments exceeding 90°F ambient air temperatures. Physiological monitoring is also required when ambient temperatures exceed 70°F and impermeable garments are worn. Ambient air temperatures shall be recorded on the Ambient Air Temperature Log (Appendix E of the SSHP, **Attachment 2**) when ambient temperatures exceed 70°F. Shaw Procedure No. HS400, "Heat Stress" (current rev.) establishes the two physiological parameters that each individual will monitor are as follows:

- Heart Rate – Each individual will count his/her radial (wrist) pulse as early as possible during each rest period. If the heart rate of any individual exceeds 110 beats per minute at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same.
- Body Temperature – Each individual will measure his/her body temperature with an intra-aural (ear) thermometer, as directed by the thermometer manufacturer's instructions, as early as possible in the first rest period. If the temperature exceeds 99.6°F at the beginning of the rest period, then the work cycle shall be decreased by one-third. The rest period will remain the same.

An individual is not permitted to return to work if his/her temperature exceeds 100.4°F. Physiological monitoring data will be recorded on the Employee Physiological Monitoring Record for Heat Stress (Appendix E of the SSHP, **Attachment 2**).

#### 9.14.1.7 Training

Personnel who may be exposed to hot working environments shall be trained in the following topics:

- Employees:
  - Sources of heat stress, influence of protective clothing, and importance of acclimatization.
  - How the body handles heat.
  - Heat-related illnesses and their recognition (signs and symptoms).
  - Preventive/corrective measures.
  - Individual factors, such as age, weight, gender, level of acclimatization, *etc.*, that may predispose some workers to heat stress.
  - Medical conditions and use of prescription drugs, such as beta blockers, that may modify a worker's ability to adapt physiologically to heat stress.
  - Physiological monitoring, record keeping of oral temperature/pulse, and establishment of work-rest regimes.
  - First-aid procedures.
  
- Supervisors:
  - Physiological monitoring, record keeping of oral temperature/pulse, and establishment of work-rest regimes.
  - First-aid procedures.

#### 9.14.2 Cold Stress

As with high temperatures, outdoor work in low temperatures can result in risks to the health of employees exposed without adequate preparation. The combined temperature/wind chill affect is shown in **Table 9-14A**, "Wind Chill." To minimize impacts from cold stress, the information and precautions given below shall be observed. If cooler conditions than expected are encountered (e.g., 45°F) during work hours, the requirements established in Shaw Procedure HS 401, "Cold Stress" (current rev.) will be followed.

TABLE 9-14A WIND CHILL

COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS EQUIVALENT TEMPERATURE												
Estimated Wind Speed (in mph)	Actual Temperature Reading (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (°F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect)	<b>LITTLE DANGER</b> In <hr with dry skin. Maximum danger of false sense of security.			<b>INCREASING DANGER</b> Danger from freezing of Exposed flesh within One minute.				<b>GREAT DANGER</b> Flesh may freeze within 30 seconds.				
Trench foot and immersion foot may occur at any point on this chart.												

Cold-related worker fatalities have resulted from failure to escape low environmental air temperatures, or from immersion in low temperature water. Most hypothermia cases develop in air temperatures between 30 and 50°F. The single most important aspect of life-threatening hypothermia is a fall in the deep core temperature of the body. Lower body temperature will very likely result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences.

Persons working outdoors in temperatures at or below freezing may be frostbitten. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death. Areas of the body that have high surface-area-to-volume ratio such as fingers, toes, and ears are the most susceptible.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- **Frost Nip or Initial Frostbite:** Characterized by sudden blanching or whitening of skin.
- **Superficial Frostbite:** Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- **Deep Frostbite:** Tissues are cold, pale, and solid; extremely serious injury.

- Systemic Hypothermia: This condition is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages: 1) shivering; 2) apathy, listlessness, sleepiness, and sometimes rapid cooling of the body to less than 95°F; 3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate; 4) freezing of the extremities; and finally 5) death.

Treatment of cold stress includes bringing the body core temperature back to its normal temperature of 98.6°F. Personnel exhibiting symptoms of cold stress should be brought in to a warm area and allowed to rest and warm up. Warm, non-alcoholic, decaffeinated drinks (not coffee) or soup should be given to increase body temperature, and re-warming should be gradual.

For frostbite emergency treatment, the victim should be sheltered from the wind and cold and given warm drinks. If superficial, the frozen area should be covered with extra clothing or warmed against the body. Do not use direct heat and do not pour hot water over or rub the affected area. Warming should be gentle and gradual. If the frostbite is deep (area is frozen and hard to the touch), immediate medical attention should be obtained.

For hypothermia emergency treatment, all stages are treated by either passive or active re-warming. This is accomplished by better conservation of the patient's body heat. It is important to note that if a victim is found in a remote area, despite the death-like appearance, the person may be saved. All attempts should be made to revive the victim. Active re-warming means heat is applied to the victim by an external source, either to the skin surface and/or through the core. Treatment includes:

- Preventing further heat loss. Remove the victim to a warm, dry place.
- Remove wet clothing piece-by-piece and dry underlying skin.
- Dress in several layers of warm, dry clothing, giving preference to the central body core rather than the extremities.
- Cover the victims head, then wrap the victim in blankets.
- If the victim is conscious, help him/her to drink hot fluids.
- Monitor oral body temperature every 15 minutes. If the body temperature falls below 98.6°F, the team member should not be allowed outside until the body temperature returns to normal.
- In more severe cases of hypothermia, implement the above actions, but also institute some type of active re-warming, including:
  - Electric pads or blankets,
  - Hot-air blowers or heaters,

- Heated blankets or clothes,
- Use of human body heat.
- It is important to watch for signs of return of the normal thermoregulatory mechanisms (shivering, teeth chattering, etc.) and to monitor mental status.
- The victim should be transferred to a medical facility after the emergency care steps have been initiated and should not be allowed to return to work for at least 48 hours.
- Perform CPR if the victim does not exhibit a pulse or not breathing.
- Avoidance of cold stress emergencies can be performed by the general practices state below:
  - Wear layered clothing, including a water-repellent outer layer.
  - Wear gloves, socks, and a hat that are synthetic or wool insulated.
  - Remove outer layers of clothing during breaks to prevent inner layer from getting wet from perspiration.
  - Eat well balance meals and maintain an adequate intake of fluids.
  - Seek shelter in a warm protected area when signs and symptoms of cold stress become evident.

**Table 9-14B**, “Threshold Limit Values Work/Warm-Up Schedule for 4-Hour Shift,” provides a work/warm-up schedule for a 4-hour shift as it relates to temperature and wind speed. This schedule will be applied during all field work.

TABLE 9-14B THRESHOLD LIMIT VALUES WORK/WARM-UP SCHEDULE FOR 4-HOUR SHIFT\*

AIR TEMP-(APPROX.) SUNNY SKY		NO WIND		5 MPH WIND		10 MPH WIND		15 MPH WIND		20 MPH WIND	
°C	°F	MAX. WORK PERIOD	NO. OF BREAKS	MAX. WORK PERIOD	NO. OF BREAKS						
-26° to -28°	-15° to -19°	Normal	1	Normal	1	75 min.	2	55 min.	3	40 min.	4
-29° to -31°	-20° to -24°	Normal	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
-32° to -34°	-25° to -29°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-38° to -39°	-35° to -39°	40 min.	4	30 min.	5	Non-emergency work should cease					
-40° to -42°	-40° to -44°	30 min.	5	Non-emergency work should cease							
-43° and Below	45° and Below	Non-emergency work should cease	Non-emergency work should cease								

- Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at -35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).
  - The following is suggested as a guide for estimating wind velocity if accurate information is not available:
    - 5 miles per hour (mph): light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow.
  - If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be:
    - Special warm-up breaks should be initiated at a wind chill cooling rate of about 1,750 W/m<sup>2</sup>; 2) all non-emergency work should have ceased at or before a wind chill of 2,250 W/m<sup>2</sup>. In general, the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly over-compensates for the actual temperatures in the colder ranges because windy conditions rarely prevail at extremely low temperatures.
  - Threshold limit values (TLVs) apply only for workers in dry clothing.
- \* Adapted from the "1995-1996 Threshold Limit Values and Biological Exposure Indices," American Conference of Governmental Industrial Hygienist. Cincinnati, OH.

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#### 9.15 CRYSTALLINE SILICA MONITORING PLAN

A crystalline silica monitoring plan is not required based on the current SOW.

#### 9.16 NIGHT OPERATIONS LIGHTING PLAN

Night operations are not anticipated for the project. Adequate lighting shall be provided to perform all activities in a safe manner. When work is performed before sunrise, after sunset, inside buildings, or within other structures, the minimum lighting requirements specified in Table 7-1 of EM-385 (USACE, 2008) shall be provided.

#### 9.17 FIRE PREVENTION AND PROTECTION PLAN

This section details fire prevention and protection procedures/resources to be used at the project.

##### ***9.17.1 Workplace Fire Hazards***

The primary fire hazards at the project consist of fueling operations, storage of fuels, and other flammable liquids at the project site.

##### ***9.17.2 Potential Ignition Sources***

The significant ignition sources at the project include smoking materials, welding/cutting equipment, vehicle/equipment exhaust, catalytic converters, and engine block surfaces. Personnel shall also be alert for other ignition sources such as static electricity, lightning, and electrical equipment.

##### ***9.17.3 Fire-Control Systems, Equipment, and Procedures***

Depending on the nature and extent of any fire, the following fire-control systems and equipment shall be evaluated or provided for at the project:

- The base fire department shall be contacted prior to beginning new operations at the project site. The Base Fire department shall also be contacted at the conclusion of operations.
- Fire extinguishers shall be provided at selected locations in Contractor-controlled facilities and work areas. Project vehicles and heavy equipment shall also be equipped with fire extinguishers.
- Hudson sprayers filled with potable water shall be available when performing work at remote locations where dry grass exists.

- A Contractor Hot Work Permit is required before a flame- or spark-producing activity is to commence. Hot work permits will be performed in accordance with Shaw Procedure No. HS314, “*Hot Work in Hazardous Locations*” (current rev.). Hot Work Permits must be obtained from the base fire department. In addition, before any hot work commences on the fuel storage systems, including tanks and ancillary piping, a certified Marine Chemist will provide written guidance on safe hot work procedures.
- Flammable and oxidizing materials shall be stored in marked (No Smoking, Matches, or Open Flame) flammable materials storage areas with fire extinguishers available.
- Smoking shall only be permitted in designated areas. Personnel shall never discard cigarette butts into the environment while working at the project site.
- Project personnel are only permitted to extinguish small fires in their incipient stages.
- Fighting fires is prohibited by project personnel and shall only be performed by the base or local fire department.

#### **9.17.4 Fire-Control Equipment Maintenance Responsibilities**

The SS is responsible for the monthly inspections and annual service of all fire extinguishers provided at Contractor-provided facilities and work areas. Vehicle and heavy equipment operators are responsible for the inspection and service of fire extinguishers on vehicles/equipment.

#### **9.18 WILD LAND FIRE PREVENTION PLAN**

A wild land fire management plan is not required based on the project location and current SOW.

#### **9.19 HAZARDOUS ENERGY CONTROL PLAN**

All hazardous energy shall be controlled in accordance with Shaw Procedure No. HS315, “*Control of Hazardous Energy Sources*” (current rev.). Applicable regulations include the OSHA standard for electrical power, 29 CFR §1926, Subpart K, and Sections 11 and 12 of EM-385 (USACE, 2008).

Only qualified electricians may work on electrical circuits. Qualified personnel shall be trained with the proper use of the special precautionary techniques, PPE, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

Live parts to which an employee might be exposed shall be put into an electrically safe work condition (de-energized) before an employee works on or near them, unless it can be demonstrated that de-energizing introduces additional or increased hazards or is infeasible due to

equipment design or operational limitations. This rule applies to all electrical work, including changing a light bulb.

Where work is performed in locations containing un-insulated energized overhead lines that are not guarded or isolated, precautions shall be taken to prevent employees from contacting such lines directly with any unguarded parts of their body or indirectly through conductive materials, tools, or equipment. Refer to **Table 9-19, *Minimum Clearance from Energized Overhead Electric Lines***, when working near overhead power lines. Where the work to be performed is such that contact with un-insulated energized overhead lines is possible, the lines shall be de-energized and visibly grounded at the point of work, or suitably guarded.

Employees working in areas where electrical hazards are present shall be provided with, and shall use, PPE that is designed and constructed for the specific part of the body to be protected and for the work to be performed, as required by Section 130.7 of National Fire Protection Association (NFPA) 70 E, Standard for Electrical Safety in the Workplace (NFPA, 2009).

Employees shall use insulated tools and/or handling equipment when working inside the Limited Approach Boundary of exposed live parts where tools or handling equipment might make accidental contact. Insulated tools shall be protected from damage to the insulating material.

Before starting each electrical job, the qualified employee in charge shall conduct a job briefing with the employees involved. The briefing shall cover such subjects as hazards associated with the job, work procedures involved, special precautions, energy source controls, and PPE requirements.

Only hard or extra-hard usage extension cords shall be used. Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.

The handling of compressed gas cylinders shall comply with the requirements established in Shaw Procedure No. HS304, "*Compressed Gas Cylinders*" (current rev.). All pressure vessels shall be designed, inspected, and tested in accordance with ASTM International standards. All air compressors and hoses shall be inspected before use, operated, and maintained by designated, qualified personnel. All air compressors shall be equipped with a pressure gauge and relief-valve, and only be operated at design pressures. Chicago fittings shall be secured together with tie-wire or equivalent and secured with safety lashings.

Lock-out/tag-out procedures are to be implemented during servicing or maintenance of machines and equipment to preclude the unexpected release of stored energy or inadvertent energizing of

the machines or equipment. These procedures are contained in Shaw Procedure No. HS315, “Control of Hazardous Energy Sources” (current rev.) and comply with the requirements established in 29 CFR 1926.417.

Subcontractors may implement their own lock-out/tag-out procedure if the SS has approved its use and verifies that it is no less protective than the Shaw Procedure No. HS315.

*TABLE 9-19 MINIMUM CLEARANCE FROM ENERGIZED OVERHEAD ELECTRIC LINES*

NOMINAL SYSTEM VOLTAGE	MINIMUM REQUIRED CLEARANCE
0 to 50 kilovolts	3 meters (10 feet)
51 to 200 kilovolts	4.5 meters (15 feet)
201 to 300 kilovolts	6 meters (20 feet)
301 to 500 kilovolts	7.5 meters (25 feet)
501 to 750 kilovolts	10.5 meters (35 feet)
751 to 1,000 kilovolts	13.5 meters (45 feet)

**9.19.1 Portable Generator Use**

Refer to the generator manufacturer’s instructions for safe operation. Never use a generator in enclosed or partially enclosed spaces due to the quick build-up of high levels of carbon monoxide. The concentration of carbon monoxide shall be monitored when using generators in areas of poor ventilation. The concentration of carbon monoxide in the work area shall not be allowed to exceed 25 parts per million.

Keep the generator dry and do not use in rain or wet conditions. To protect from moisture, operate it on a dry surface under an open, canopy-like structure. Dry your hands, if wet, before touching the generator. Use a heavy duty, outdoor-rated extension cord that is rated (in watts or amps) at least equal to the sum of the connected appliance loads. Check that the entire cord is free of cuts or tears and that the plug has all three prongs, especially a grounding pin. If recommended by the manufacturer, ground generators by using a hand-inserted ground-rod.

Before refueling the generator, turn it off and let it cool down. Gasoline spilled on hot engine parts could ignite. A 2-A:20-B:C fire extinguisher shall be readily available in locations where a generator is being used.

Use hearing protection when working near a generator.

## 9.20 CRITICAL LIFT PLAN

Critical lift operations will be conducted in accordance with the requirements of Shaw Procedure Nos. HS822 “*Crane Operations*” and HS823 “*Rigging and Lifting*” and EM 385-1-1 Section 16.H (USACE, 2008).

Prior to conducting a critical lift, a qualified person will prepare a critical lift plan. Critical lifts will not proceed until all individuals involved in the lift, the SS, SSHO, Navy representative, and engineer (lifts in excess of 25 tons) have reviewed and approved the plan. Approval will be documented as required by Shaw Procedure No. HS823.

## 9.21 CONTINGENCY PLAN FOR SEVERE WEATHER

Personnel should be aware of the possibility for the occurrence of severe weather such as lightning, thunderstorms, heavy rains, or hurricanes. Necessary precautions or response, directed by the SS, will be taken in the event of severe weather. Local weather broadcasts will be monitored by the SS or designee when the likelihood for severe weather exists. Generally, cellular telephone communication will be used to alert crews to threatening weather.

### 9.21.1 *Lightning Safety*

Outdoor activities will be suspended when the potential for lightning occurs. The following measures, offered by the National Lightning Safety Institute of Louisville, Colorado, shall be taken to minimize the possibility of injury to personnel by lightning:

- The SS is responsible for monitoring weather conditions.
- Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (*i.e.*, inside vehicles or buildings). When clouds with dark bases and wind speeds pick up, anticipate thunderstorms.
- The SS will continue to monitor weather conditions.
- Outdoor activities may resume 30 minutes after the last bolt of lightning was observed and the last clap of thunder was heard.

People who have been struck by lightning do not carry an electrical charge and are safe to handle. Apply first aid immediately if you are qualified to do so. Get emergency help promptly.

#### SAFE AREAS INCLUDE:

- Fully enclosed metal-topped vehicles with windows up.
- Substantial and permanent buildings.

UNSAFE AREAS INCLUDE:

- Small structures including huts and rain shelters.
- Nearby metallic objects like fences, gates, instrumentation and electrical equipment, wires, and power poles.

The following shall also be avoided when lightning is in the area:

- Trees,
- Water,
- Open fields, and
- Using hard-wired telephones and headsets.

If hopelessly isolated from shelter during close-in lightning, adopt a low crouching position with feet together (up on toes, if possible) and hands on ears. If hair stands on end or rises on back of neck, a lightning strike is imminent.

Remember the warning phrase from the National Lightning Safety Institute: “If you can see it (lightning), flee it; if you can hear it (thunder), clear it.”

### **9.21.2 Hurricanes**

In the event of a hurricane approaching the area, implement the measures outlined in the “Hurricane Preparedness Plan”, included as Appendix F of the SSHP (**Attachment 2**).

## **9.22 FLOAT PLAN**

A float plan is not required based on the current SOW.

## **9.23 FALL PROTECTION PLAN**

### **9.23.1 Purpose**

The purpose of this site-specific Fall Protection Plan is to identify the fall protection requirements during project activities. This plan will be updated to include any additional fall hazards, as part of project activities.

### **9.23.2 Required Fall Protection/Fall Protection Systems**

Personal Fall Arrest Systems: Personnel involved in work in excess of 6 feet from a lower level without the proper guardrail systems may require the use of a personal fall arrest system.

Personal fall arrest systems will consist of full-body harnesses, lanyards with locking snap hooks, and secure anchorage points. Lanyards and anchorage points (fixed objects or 3/8-inch cable lines) will be rated at a minimum of 5,000 pounds. Fall arrest systems will be checked daily for signs of debris, rust, or corrosion. Under no circumstances will personnel on ladders use their ladder as an anchorage point. They will find an anchorage point near the ladder and above their mid body to secure their lanyard.

### **9.23.3 Training Requirements**

Site personnel who might be exposed to fall hazards will receive initial training by a competent person qualified in the safe use of access ways, fall protection systems, and the recognition of hazards associated with their use, including:

- Nature of access and the fall hazards in the work areas.
- Correct procedures for erecting, maintaining, using, disassembling, and inspecting the fall protection systems and access ways.
- Use and operation of fall arrest systems.
- Maximum load-carrying capacities of fall protection systems and access ways.
- Limitations on the use of mechanical equipment.
- Correct procedures for handling and storage of equipment and materials.

#### **9.23.3.1 Training Documentation**

Training shall be documented and maintained at the project site in the form of a written training certification record with the name of the employee trained, date of training, and the signature of the trainer.

#### **9.23.3.2 Re-training**

Re-training will be required whenever site conditions or types of fall protection change.

### **9.23.4 References**

- Title 29, CFR, Part 1926, Subpart M – Sample Fall Protection Plan –Non-Mandatory Guidelines for Complying with 1926.503(k) 1926 Subpart M App E.
- EM-385, Section 21 (USACE, 2008).
- Shaw Procedure No. HS 301, “Fall Protection” (current rev.).

#### 9.24 DEMOLITION PLAN

A demolition plan is not required based on the current SOW.

#### 9.25 EXCAVATION/ TRENCHING PLAN

The excavation plan is included in Section 4.5.13 of the SSHP (**Attachment 2**).

#### 9.26 EMERGENCY RESCUE (TUNNELING)

Tunneling is not anticipated based on the current SOW.

#### 9.27 UNDERGROUND CONSTRUCTION FIRE PREVENTION AND PROTECTION PLAN

An underground construction fire prevention and protection plan is not required based on the current SOW.

#### 9.28 COMPRESSED AIR PLAN

A compressed air plan is not required based on the current SOW.

#### 9.29 FORM WORK AND SHORING ERECTION AND REMOVAL PLANS

Formwork and shoring erection and removal plans are not required based on the current SOW.

#### 9.30 PRECAST CONCRETE PLAN

A precast concrete plan is not required based on the current SOW.

#### 9.31 LIFT SLAB PLAN

A lift slab plan is not required based on the current SOW.

#### 9.32 STEEL ERECTION PLAN

A steel erection plan is not required based on the current SOW.

#### 9.33 SITE SAFETY AND HEALTH PLAN

The SSHP included as **Attachment 2** of this APP fulfills the requirements for the Site Safety and Health Plan under EM-385 (USACE, 2008).

#### 9.34 BLASTING PLAN

A blasting safety plan is not required based on the current SOW.

### 9.35 DIVING PLAN

A diving plan is not required based on the current SOW.

### 9.36 CONFINED SPACE PROGRAM

A confined space is defined as a space large enough and configured so that an employee can bodily enter and perform assigned work, has limited means for entry or exit, and is not designed for continuous employee occupancy. Confined space work may pose additional hazards such as chemical exposures, flammable/explosive atmospheres, electrocution, oxygen deficiency, *etc.* The Contractor has detailed training for confined space entry: only properly trained personnel shall supervise and participate in confined space entry procedures or serve as standby attendants.

Confined space entry is not required based on the current SOW. In the event the SOW changes, Shaw and subcontractors will perform all confined space entry in accordance with Shaw Procedure No. HS300, "*Confined Spaces*" (current rev.).

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*10.0 CONTRACTOR INFORMATION ASSOCIATED WITH THE MAJOR REQUIREMENTS OF USACE SAFETY AND HEALTH REQUIREMENTS MANUAL, ENGINEERING MANUAL 385-1-1*

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In addition to this APP, Shaw has prepared a SSHP (**Attachment 2**) to meet the major requirements of EM-385 (USACE, 2008). Additional procedures for major requirements are provided in the Shaw Health and Safety Procedures Manual HS001-999 [a list is included in Appendix D of the SSHP (**Attachment 2**); paper or electronic copies to be onsite at all times].

THE SHAW GROUP	CONTRACTOR INFORMATION ASSOCIATED WITH THE MAJOR REQUIREMENTS OF USACE SAFETY AND HEALTH REQUIREMENTS MANUAL, ENGINEERING MANUAL 385-1-1	10-1
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# ATTACHMENT 1

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## *ACCIDENT PREVENTION PLAN ACKNOWLEDGEMENT FORM*

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## ATTACHMENT 2

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### *SITE SAFETY AND HEALTH PLAN*

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*FINAL*  
SITE SAFETY AND HEALTH PLAN

SITE 21 – BRONSON ROAD LANDFILL  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND

CONTRACT No. N62470-08-D-1007

*Prepared for:*

**Department of the Navy**  
Naval Facilities Engineering Command, Washington  
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TASK ORDER JU49  
SHAW PROJECT NO. 142879

**JUNE 2012**

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## SITE SAFETY AND HEALTH PLAN

Site 21 – Bronson Road Landfill  
Naval Support Facility Indian Head  
Indian Head, Maryland

### SIGNATURE PAGE

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 Appendix F Hurricane Preparedness Plan  
 Appendix G OSHA 300 Log

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*LIST OF ACRONYMS AND ABBREVIATIONS*

ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
AIDS	Acquired Immunodeficiency Syndrome
ANSI	American National Standards Institute
APP	Accident Prevention Plan
CFR	Code of Federal Regulations
COC	Constituent of Concern
COR	Contracting Officer's Representative
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
CTO	Contract Task Order
dBA	A-Weighted Decibel
DEET	N, N-diethyl-meta-toluamide
EM-385	USACE Safety and Health Requirements Manual, EM-385-1-1
EMS	Emergency Medical Service
EOD	Explosive Ordnance Detachment
ERA	Environmental Risk Assessment
EZ	Exclusion Zone
GDA	Government Designated Authority
H&S	Health and Safety
HAZWOPER	Hazardous Waste Operations and Emergency Response
HBV	hepatitis B virus
HERO	Hazards of Electromagnetic Radiation to Ordnance
HHRA	Human Health Risk Assessment
HIV	Human immunodeficiency virus
HSM	Health and Safety Manager
JSA	Job Safety Analysis
LEL	lower explosive limit
MEC	Munitions and Explosives of Concern
mg/kg	milligrams per kilogram
mg/m <sup>3</sup>	milligrams per cubic meter
MSDS	Material Safety Data Sheet
NAVFAC	Naval Facilities Engineering Command

*LIST OF ACRONYMS AND ABBREVIATIONS*

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DEET	N, N-diethyl-meta-toluamide
EM-385	USACE Safety and Health Requirements Manual, EM-385-1-1
EMS	Emergency Medical Service
EOD	Explosive Ordnance Detachment
ERA	Environmental Risk Assessment
EZ	Exclusion Zone
GDA	Government Designated Authority
H&S	Health and Safety
HAZWOPER	Hazardous Waste Operations and Emergency Response
HBV	hepatitis B virus
HERO	Hazards of Electromagnetic Radiation to Ordnance
HHRA	Human Health Risk Assessment
HIV	Human immunodeficiency virus
HSM	Health and Safety Manager
JSA	Job Safety Analysis
LEL	lower explosive limit
MEC	Munitions and Explosives of Concern
mg/kg	milligrams per kilogram
mg/m <sup>3</sup>	milligrams per cubic meter
MSDS	Material Safety Data Sheet
NAVFAC	Naval Facilities Engineering Command

*LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)*

NIOSH	National Institute for Occupational Safety and Health
NSF-IH	Naval Support Facility Indian Head
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure limit
PFD	personal flotation device
PM	Project Manager
PPE	Personal Protective Equipment
PVC	polyvinyl chloride
Shaw	Shaw Environmental and Infrastructure, Inc.
SOW	Statement of Work
SS	Site Superintendent
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
STEL	short-term exposure limit
SVOC	Semivolatile Organic Compound
SZ	Support Zone
TLV	Threshold Limit Value
TWA	Time-Weighted Average
µg/L	micrograms per liter
USACE	United States Army Corps of Engineers
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WP	Work Plan

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## *1.0 INTRODUCTION*

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This Site Safety and Health Plan (SSHP) describes the health and safety guidelines developed to protect onsite personnel, visitors, and the public from physical harm and exposure to hazardous materials and incidents during removal activities at the site. The procedures and guidelines contained herein are based upon the best available information at the time of the SSHP's preparation. Specific requirements may be revised if new information is received or site conditions change. Any amendments to this SSHP will be made with the knowledge and concurrence of both Shaw Environmental and Infrastructure, Inc. (Shaw) and Naval Facilities Engineering Command (NAVFAC). Where appropriate, specific Occupational Safety and Health Administration (OSHA) standards, United States Army Corps of Engineers (USACE) standards, or other guidance documents will be cited and applied.

This SSHP will be used in conjunction with the Shaw Health and Safety (H&S) Policies and Procedures Manual and will supplement the project Accident Prevention Plan (APP) and the Work Plan.

This SSHP has been designed for the methods presently contemplated by Shaw for execution of the proposed work to be conducted on these task orders. This SSHP may not be appropriate if the work is not performed by Shaw or does not employ the methods presently contemplated by Shaw. Additionally, this SSHP will require amendment if the statement of work (SOW) is modified by the Navy. Revisions to this SSHP will be included as a SSHP Amendment and appended to this SSHP in **Appendix A**, "Site Safety and Health Plan Amendment Documentation". This SSHP applies to Shaw employees and subcontractors under the direct supervision of Shaw. Each person working on this project must sign the APP Acknowledgement Form (APP, Attachment 1).

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## *2.0 SITE HISTORY/SCOPE OF WORK*

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### **2.1 BACKGROUND**

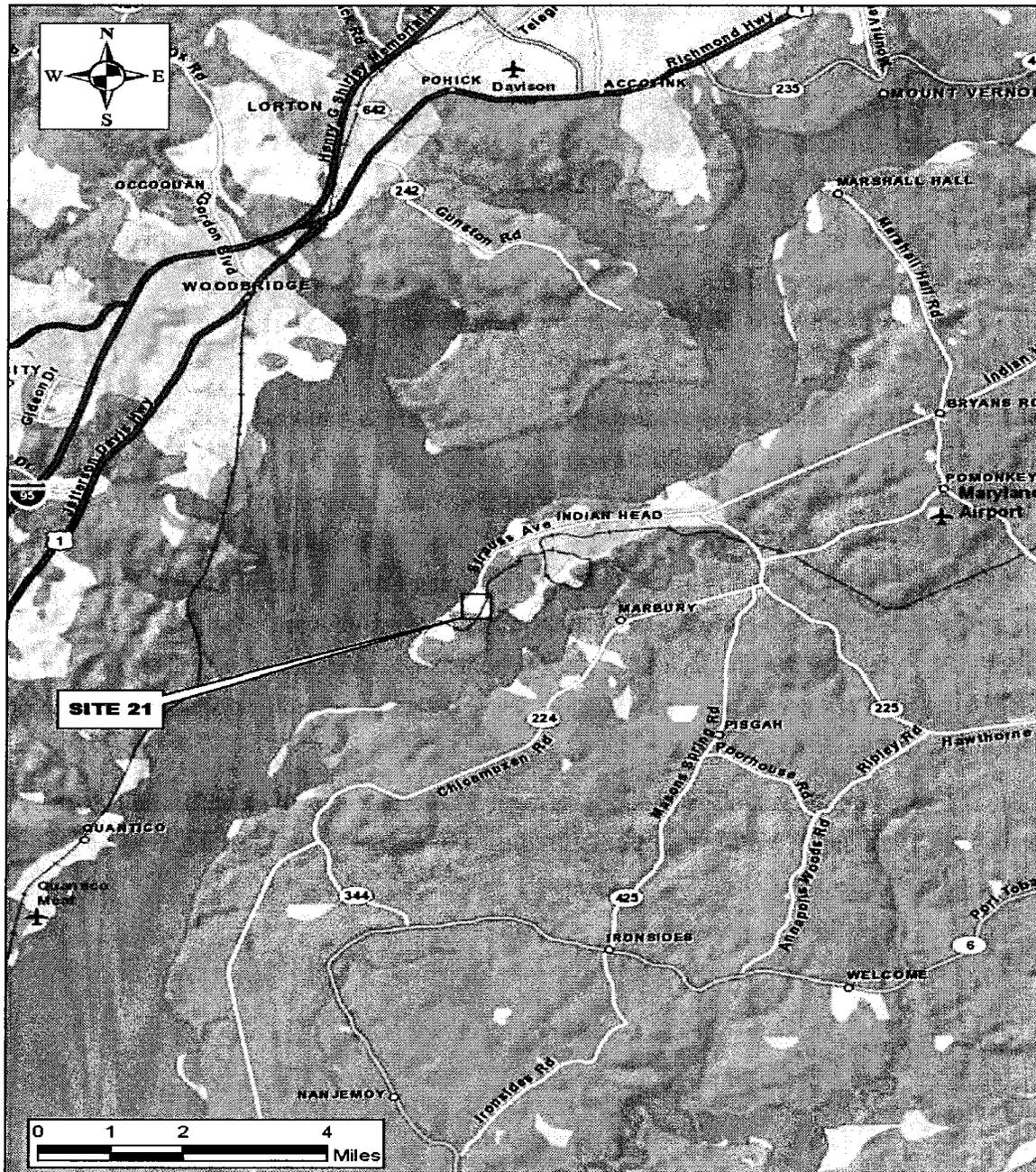
Additional project background information is provided in Section 1.0 of the Work Plan (WP). The project site is located at the Naval Support Facility Indian Head (NSF-IH), Indian Head, Maryland; as shown on Figure 2-1, Project Location Map.

The NSF-IH is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC. The NSF-IH is a Navy facility, consisting of the Main Installation of the Cornwallis Neck Peninsula and the Stump Neck Annex on the Stump Neck Peninsula.

The Main Installation contains approximately 2,500 acres and is bounded by the Potomac River to the northwest, west, and south; Mattawoman Creek to the south and east; and the town of Indian Head to the northeast. Included as part of the Main Installation are Marsh Island and Thoroughfare Island, which are in Mattawoman Creek. The Stump Neck Annex covers approximately 1,084 acres and is bounded by Mattawoman Creek to the northeast, the Potomac River to the northwest, and Chicamuxen Creek to the south-southwest. The NSF-IH provides services in energetics, ordnance devices and components, and other related ordnance engineering standards, including chemicals, propellants, and their propulsion systems, explosives, pyrotechnics, warheads, and simulators.

Site 21, is located on the Main Installation, between South Bronson Road and Building 602. It extends from Building 478 on the north to Building 480 on the south. An unpaved road runs along the eastern side of the site.

Figure 2-1 Project Location Map



## 2.2 SCOPE OF WORK

Shaw has been retained by the NAVFAC Washington, under Contract Task Order (CTO) JU49 to perform the remedial action at Site 21 Bronson Road Landfill, NSF-IH, Maryland.

The SOW for the remedial action to be performed under CTO JU49 is summarized as follows:

- Mobilization of equipment and site set up;
- Clean fill verification sampling;
- Installation of erosion and sediment controls;
- Clearing;
- Re-grading;
- Placement of new soil cap;
- Installation of permanent storm-water conveyance pipes, inlets, and riprap;
- Site restoration;
- Transportation and disposal;
- Project demobilization.

These site activities have been analyzed for potential hazards for which control measures are provided in **Appendix B**, “Activity Hazard Analyses” of this SSHP.

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### *3.0 KEY PERSONNEL AND MANAGEMENT*

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There will be numerous personnel required to complete this project. The necessary personnel will be offsite project team members, onsite Shaw project personnel, and various subcontractors. All project personnel share the responsibility for safely completing project activities. Detailed information regarding key personnel and Management is contained in **Section 4.0** of the APP.

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## 4.0 HAZARD/RISK ANALYSIS

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There are potential chemical, physical and environmental hazards, present at the project site. The anticipated hazards at the project site and the recommended control measures are presented in this section.

### 4.1 ACTIVITY HAZARD ANALYSES

Task specific activity hazard analyses (AHAs) have been developed for all major tasks to be performed for this project and are provided in **Appendix B**.

### 4.2 CHEMICAL HAZARDS

The nature and extent of contamination is described in detail in Section 7.4 of the Remedial Investigation Report (CH2M HILL, 2004) and the Final Feasibility Study Report (CH2M HILL, 2006). This information is summarized below.

#### Surface Soil

Volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and explosives were detected at low concentrations. Metals were detected in all samples, with the highest concentrations and most detections in the eastern and northern parts of the site. Arsenic (constituent of concern [COC] requiring remediation) was detected in all surface soil samples, at concentrations ranging from 3.4 milligrams per kilogram (mg/kg) to 51.8 mg/kg; the mean concentration of 14.6 mg/kg was above the background concentration of 2.2 mg/kg. Additionally, every sample contained concentrations greater than the background 95 percent upper confidence limit of 2.6 mg/kg. Based on exceedances of site arsenic concentrations compared to background concentrations, arsenic appears to be site-related. Although other metals were detected, they were not considered to be site related.

#### Groundwater

VOCs were detected at low concentrations at two locations, but no SVOCs were detected. Very low concentrations of explosives were detected in the monitoring wells. Of particular note, perchlorate was detected in the background monitoring well IS21MW04, but subsequent investigations indicated that it was not site related. Several inorganics were detected in total and dissolved groundwater samples; most were detected at concentrations above the facility-wide background 95 percent upper confidence limit. The highest concentrations of both total and dissolved metals were detected in downgradient wells IS21MW02 and IS21MW03, with most of the maximum values detected in well IS21MW02. Manganese (COC requiring remediation) was detected at elevated concentrations in groundwater. Based on results from the individual wells and the average concentration for each event, the overall trend for total manganese in

groundwater decreased from the first two events (September 2000 and July 2002) to the last event (November 2008). The average total manganese concentration for each sampling event, ranging from 655 to 6,119 micrograms per liter (ug/L), typically has been above both the background concentration (824 ug/L) and the regional screening level for tap water (880 ug/L), with the exception of June 2006 concentration (655 ug/L). Soil samples collected from the soil borings completed within the landfill material indicated that the landfill material is not enriched in manganese and is not considered to be a source of the manganese in the groundwater.

Manganese is naturally occurring, and the reduction/oxidation conditions in the subsurface beneath the landfill are mobilizing the manganese, resulting in increased concentrations of manganese in groundwater. Active remediation is not proposed for groundwater because the manganese study and geochemical assessment indicated that elevated manganese concentrations are not related to the presence of landfill material.

Based on the Environmental Risk Assessment (ERA) findings, surface soil poses minimal risks to ecological receptors. Based on the Human Health Risk Assessment (HHRA) findings, under current site use conditions, surface soil does not pose an unacceptable human health risk (both non-cancer and cancer). Under future site use conditions (e.g. residential), surface soil would pose a risk to the child resident. For groundwater, under future site use conditions, shallow groundwater poses an unacceptable human health non-cancer risk.

Therefore, the COCs requiring remediation are:

- Arsenic in surface soil (for future child resident)
- Manganese in shallow groundwater (for future child and adult resident and construction worker)

***Table 4-2A Levels of Site Contaminants***

Contaminant	Concentration
Arsenic	51.8 mg/kg
Manganese	6,119 ug/l

A brief summary of contaminants identified (**Table 4-2A**) during previous sampling activities, in soils, are provided in **Table 4-2B**.

**Table 4-2B Summary of Site Contaminants**

Chemical	Exposure Route	PEL/TLV	Health Hazards/Physical Hazards
Arsenic	inhalation, skin and/or eye contact, ingestion	0.01 milligrams per cubic meter (mg/m3)	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]  Strong oxidizers, bromine azide [Note: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]
Manganese	Inhalation Ingestion	0.2 mg/m3	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage  Oxidizers [Note: Will react with water or steam to produce hydrogen.]

The following general symptoms may indicate exposure to a hazardous chemical. Personnel will be removed from the work site and provided immediate medical attention if the following symptoms occur:

- Loss of appetite,
- Weakness in wrists or ankles,
- Dizziness or stupor,
- Nausea, headaches, or cramps,
- Irritation of the eyes, nose, or throat,
- Chest pains and coughing, and/or
- Rashes or burns.

A brief description of the exposure limits used in this section is provided below:

- Threshold Limit Value (TLV) - Time-Weighted Average (TWA) - Airborne concentrations of substances; generally expressed as an 8-hour TWA and representing conditions under which it is believed that nearly all workers may be repeatedly exposed day after day for a 40-hour work week without adverse health effects. TLVs are guidelines for occupational exposures established by the American Conference of Governmental Industrial Hygienists (ACGIH) (current rev.).
- TLV - Short Term Exposure Limit (STEL) - The 15-minute TWA airborne concentrations of substances that should not be exceeded at any time during a

workday, even if the 8-hour TWA is within the TLV-TWA. TLVs are guidelines for occupational exposures established by the ACGIH (current rev.).

- Permissible Exposure Limit (PEL) - The 8-hour TWA, short-term exposure limit, or ceiling concentration above which workers cannot be exposed. PELs are enforceable by OSHA.

#### 4.3 MUNITIONS AND EXPLOSIVES OF CONCERN

Munitions and explosives of concern (MEC) are defined as ammunition; ammunition components; chemical or biological warfare material; or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried, or fired. Unexploded ordnance (UXO) is defined as military munitions that have been primed, fused, armed, or otherwise prepared for action and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to the operations, installations, personnel, or material, and remain unexploded either by malfunction, design, or any other cause..

Handling of MEC is not expected to be part of this scope. However, if MEC is encountered all MEC activities will be conducted in accordance with the general guidance contained in Explosives - Safety and Health Requirements Manual (USACE, 2008b), Basic Safety Concepts and Considerations for Munitions and Explosives of Concern (MEC) Response Action Operations (USACE, 2004a).

If a suspected MEC item is encountered:

- DO NOT TOUCH, DO NOT DISTURB.
- Note the item's features such as: location (Accuracy is essential to ensure the item can be located again.) size, shape, color, any markings.
- Take a photograph.
- Retreat the way you came in, or take the safest path.
- Warn people in the area and evacuate everyone within 300 meters of the MEC.
- Notify Base security, Project Manager (PM), Site Safety and Health Officer (SSHO) and Navy representative.
- Assist the UXO/Explosive Ordnance Detachment (EOD) team in locating the MEC and follow their instructions for safe evacuation, distance and other precautions.

#### 4.4 OPERATIONAL CHEMICALS/HAZARD COMMUNICATION

Hazardous chemicals will be brought to project sites for use in activities supporting the planned work. These chemicals may be used as fuels, construction materials, solvents, cements, cleaning solutions, paints, etc. The use of operational chemicals is regulated by OSHA under the Hazard

Communication Standard (29 Code of Federal Regulations (CFR) 1910.1200). The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at this field project site are communicated to all onsite personnel and subcontractors.

Hazard communication will include container labeling, material safety data sheets (MSDSs), and employee information and training. The following written hazard communication program has been established in accordance with Shaw Procedure No. HS060, “*Hazard Communication Program*” (current rev.) provided in **Appendix D**.

#### ***4.4.1 Container Labeling***

Shaw personnel will ensure that all containers are labeled according to contents. These containers will include those from manufacturers and those produced onsite by operations, such as gasoline and diesel safety cans. All incoming and outgoing labels shall be checked for identity, hazard warning, and name and address of responsible party.

#### ***4.4.2 Material Safety Data Sheets***

There will be an MSDS located onsite for each hazardous chemical known to be used onsite. MSDSs are located in **Appendix C**.

#### ***4.4.3 Employee Information and Training***

Training employees on chemical hazards is accomplished through an ongoing corporate training program. All site employees shall maintain their Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard training, in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. Chemical hazards are communicated to employees during the initial site orientation program. Additionally, morning safety meetings will be held and the hazardous materials used onsite will be discussed. Attendance at the morning safety meeting is mandatory for all onsite employees.

At a minimum, Shaw and related subcontractor employees will be instructed on the following:

- OSHA regulated chemicals and their hazards in the work area,
- How to prevent exposure to these hazardous chemicals,
- What the company has done to prevent workers' exposure to these chemicals,
- Procedures to follow if they are exposed to these chemicals,
- How to read and interpret labels and MSDSs for hazardous substances found on Shaw sites,
- Emergency spill procedures, and
- Proper storage and labeling.

Before any new chemical is introduced onsite, each Shaw and related subcontractor employee will be given information in the same manner as during the safety class. The SSHO will be responsible for ensuring that the MSDS on a new chemical is available for review by onsite personnel. The information pertinent to the chemical hazards will be communicated to all project personnel.

The written hazard communication program will be available at the project site for personnel review and provides requirements for the safe use of operational chemicals. Air monitoring may be performed as needed to assess and control exposure resulting from the use of operational chemicals. Both an inventory list of the operational chemicals (Hazardous Chemical Inventory list) used and the associated MSDS shall be made available at the project site (**Appendix C**).

#### **4.5 PHYSICAL HAZARDS**

There will be numerous physical hazards associated with site operations that require consideration. Some of these physical hazards are as follows:

- Noise and hearing conservation,
- Slips, trips, and falls,
- Fires, explosions, and hot work,
- Use of ladders,
- Use of small tools,
- Use of cutting tools,
- Use of heavy and mechanized equipment,
- Operation of motor vehicles,
- Operation of utility vehicles,
- Material handling,
- Hazardous energies (*i.e.*, electrical, mechanical, and pressure),
- Intrusive activities,
- Excavation,
- Dust,
- Use of pressure washers or steam washers, and/or
- Excessive work hours.

Physical hazards must be controlled by engineering, administration, or the use of personal protective equipment (PPE). The specific physical hazards anticipated for this project and associated control measures are found in the following sections and in task-specific AHAs (**Appendix B**). The AHAs identify potential safety, health, and environmental hazards and measures to protect personnel, the community, and the environment. The AHAs describe the

sequence of work, specific hazards anticipated, and control measures that will be used to minimize or eliminate each hazard.

#### 4.5.1 Noise and Hearing Conservation

Many sources of noise will be present at the project site. Noise may be generated from the use of heavy equipment and tools, or may be from existing operations. Hearing loss resulting from occupational exposure to noise can be prevented. Shaw Procedure No. HS402, “*Hearing Conservation Program*” (current rev.), shall be implemented at the project site whenever there are employee noise exposures equal to or exceeding an 8-hour TWA of 85 decibels, A-scale (dBA). As part of the criteria for a hearing conservation program, audiometric testing of personnel must be conducted annually. The SSHO or Health and Safety Manager (HSM) shall conduct noise surveys as necessary to determine if engineering controls should be implemented and/or if hearing protection is adequate. Personnel shall wear hearing protection when working with or around heavy equipment, power tools, as noise monitoring indicates, or in areas posted as such. Warning signs shall be posted in areas where noise (greater than 85 dBA) necessitates the use of hearing protection as indicated in **Table 4-5** below.

**Table 4-5**                      **Noise Levels and Hearing Protection**

Instrument	Measurement	Action
Type I or Type II Sound Level Meter or Dosimeter	>80 dBA → 85 dBA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	>85 dBA → 90 dBA	Hearing protection required. Limit work duration to 8-hour shifts.
	>90 dBA → 115 dBA	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8-hour shifts.
	>115 dBA	Stop work. Consult Program HSM.

#### 4.5.2 Slips, Trips, and Falls

Fall hazards represent one of the greatest risks to worker safety on the project. It is not anticipated that project personnel will be working near steep drop-offs, leading edges, and on steep slopes. In the event a fall hazard of 6 feet or greater is present Shaw Procedure No. HS301, “*Fall Protection*” (current rev.), shall be followed. In any event, the following general protection procedures shall be followed.

##### 4.5.2.1 Fall Protection

Before start-up of any work where fall hazards exist, personnel onsite shall employ one or more of the following fall protection methods:

- Guardrails,
- Personal fall arrest system (full-body harness, lanyard, life line, and anchorage point),
- Access control.

Fall protection methods may change during project work. The SSHO will assist project personnel with selection, installation, and maintenance of the fall protection equipment. In addition, all site personnel will receive fall protection training before exposure to fall hazards.

#### **4.5.2.2 General Fall Protection Guidance**

The following list details the procedures to prevent slips, trips, and falls:

- Personnel shall keep working areas clean and orderly. Tools, equipment, and materials shall be used and stored in a fashion to minimize tripping hazards.
- Small, loose items such as equipment, tools, and debris shall not be allowed to accumulate, particularly in areas where personnel walk.
- Walkways and grating shall be kept free of obstacles. Openings in walkways and grating shall be repaired immediately, if possible. If not immediately repaired, the section shall be roped off or closed until repairs can be made.
- Access points or holes in gratings shall be covered or surrounded by an adequate guardrail.
- Personnel shall take extra precautions such as establishing firm handholds, wearing suitable footwear, and walking slowly when walking on surfaces during wet weather.
- Personnel shall not jump from elevated places or equipment.
- Personnel using hand and mechanical tools shall position themselves properly and consider the repercussions if a tool slips or suddenly moves.
- Personnel shall not walk or climb on piping, valves, fittings, or any other equipment not designed as walking surfaces.
- Stairways, walkovers, or ramps shall be installed where personnel must walk or step over equipment in the course of their normal duties.
- Electrical extension cords and electrical wiring shall be kept clear of walking and working areas and/or covered, buried, or otherwise secured.
- Walking and working surfaces shall be properly maintained during inclement weather.
- Running is prohibited on job sites unless under emergency conditions.
- Employees exposed to fall hazards shall be protected by standard guardrails, catch platforms, temporary floors, safety nets, personal fall protection devices, or the

equivalent. No employee may be exposed to a fall of over 6 feet without being adequately protected.

#### 4.5.3 Fires, Explosions, Hot Work

Although, not anticipated to be conducted under the statement of work (SOW), hot work (e.g., welding, burning, and cutting) conducted onsite shall comply with the following requirements:

- Shaw Procedure No. HS314, “Hot Work in Hazardous Locations” (current rev.), shall be followed whenever there are spark- and/or ignition-producing activities in progress at the project site.
- Hot Work Permits shall be obtained from the base fire department.
- The SSHO shall establish areas approved for welding, cutting, and other hot work.
- The SSHO is responsible for authorizing welding, cutting, and other hot work in areas not specifically designed or approved for such operations.
- All personnel shall be protected from welding radiation, flashes, sparks, molten metal, and slag.
- All welding, burning, and cutting equipment shall be inspected daily by the operator. Defective equipment shall be tagged and removed from service, replaced or repaired, and re-inspected before again being placed in service.
- All welders, cutters, and their supervisors shall be properly trained in the safe operation of their equipment, safe welding/cutting practices, and welding/cutting respiratory and fire protection.
- The handling of compressed gas cylinders shall comply with the requirements established in Shaw Procedure No. HS304, “Compressed Gas Cylinders” (current rev.).
- Cutting, welding, or other hot work shall be permitted only in areas that are or have been made fire-safe.
- Compressed gas cylinders shall be safely handled as follows:
  - All torch valves and gas supply shall be shut off when work is suspended.
  - The valve wrench or wheel shall be in operating position when cylinder is in use.
  - Cylinders shall be stored in well-ventilated locations.
  - Oxygen cylinders in storage and fuel gases shall be separated by a fire resistive wall or by a distance of 20 feet.
  - Oxygen shall not be used to blow dust out of clothes, hair, or to cool off.
  - "No Smoking" signs shall be posted around cylinder storage area.
  - The pressure on the working side of the acetylene regulator should not be greater than 15 pounds per square inch gravity.
  - Compressed gas cylinders shall be separated from flammable or combustible material by at least 40 feet.
  - All oxygen-fuel gas cutting or welding shall be equipped with reverse-flow check valves between torch & hoses.

- In any area where combustible gas indicator readings are in excess of 10 percent of the lower explosive limit (LEL).
- Cutting, welding, or other hot work shall be permitted only in areas that are or have been made fire safe.
- Cutting or welding shall NOT be permitted in the following situations:
  - In areas not authorized by the SSHO.
  - In the presence of explosive atmospheres (i.e., mixtures of flammable gases, vapors, liquids, or dusts with air) or explosive atmospheres that may develop inside un-cleaned or improperly prepared drums, tanks, or other containers, and equipment that has previously contained such materials.
  - In any area where combustible gas indicator readings are in excess of 10 percent of the LEL.
  - On in-service storage or process vessels or lines that contain flammable or combustible liquids, gases, vapors, or solids.
- Before any welding, cutting, or other hot work is permitted, the area shall be inspected by the SSHO to verify that the following requirements have been met:
  - Cutting and welding equipment to be used shall be in safe operating condition and in good repair.
  - Where practical, all combustible material shall be relocated at least 50 feet away from the hot work site. Where relocation is impractical, combustibles shall be protected with flame-proof covers or otherwise shielded.
  - At a minimum, two fully charged and operable fire extinguishers appropriate for the type of possible fire (2-A: 20: B: C) shall be available at the work area.
  - A fire watch shall be required whenever hot work is performed in hazardous locations.
  - Combustible gas indicator readings shall be taken to verify the work area is free of combustible gases and vapors.
  - The work area is free of toxic contaminants at concentrations in excess of established PELs or all personnel who will work in the area have been provided respiratory protection and protective apparel appropriate for the degree of exposure.
  - When hot work is to be performed on tanks or other vessels that contain or have contained flammable or combustible liquids, the vessel shall be properly isolated, purged, cleaned, or made inert as appropriate to reduce the concentrations of flammable/combustible vapors to safe levels.
  - A Hot Work Permit form (**Appendix E**) shall be completed by the SSHO, reviewed with personnel who will perform the hot work, and posted near the job site. An additional Hot Work Permit form may be required by Base authorities.
  - Hot Work Permits are good only for the date issued and is valid only for the 8-hour shift for which it is issued. If the work area is completely vacated by personnel, such as during lunch, a new permit may need to be issued.
  - If at any time during the hot work operation a change in conditions at the work site is suspected, such as a release of flammable gases or vapors in the work area, work shall be stopped immediately and the SSHO shall be notified. Such

work stoppage invalidates the Hot Work Permit, and a new permit shall be completed after inspections and tests have been performed by the SSHO.

- No erasures or changes of dates on Hot Work Permits shall be permitted.

#### **4.5.4 Use of Ladders**

The use of ladders at the project shall comply with Shaw Procedure No. HS302, “*Ladder Safety*” (current rev.); and Section 24.B of the USACE Safety and Health Requirements Manual, EM-385-1-1 (EM-385).

#### **4.5.5 Use of Small Tools**

Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer’s instructions and recommendations and will be used only for the purpose for which designed. A copy of the manufacturer’s instructions and recommendations will be maintained at the project site. The following are the requirements to which personnel shall adhere:

- Tools designed to accommodate guards will be equipped with such guards when in use.
- Tools shall be inspected to ascertain safe operating conditions and are to be kept clean and free of accumulated dirt.
- Electric power tools and extension cords shall be used with ground fault circuit interrupters.
- Portable power cords will be designated as hard usage or extra-hard usage and shall not be used if damaged, patched, oil-soaked, worn, or frayed.
- Hand tools that may be used by field and drill crews, such as hammers and chisels, shall be inspected and dressed if necessary to remove mushroomed heads, which may separate and become projectile hazards.
- Connections on pneumatic lines shall be secured with a safety lashing.
- Explosive-actuated tools will meet the design requirements of American National Standards Institute (ANSI) A10.3 and only be operated by a qualified operator.
- Explosive-actuated tools and charges shall be secured at all times to prevent unauthorized possession or use.
- Explosive-actuated tools shall not be loaded until just prior to the intended firing time; neither loaded nor empty tools are to be pointed at any employees, and hands shall be kept clear of the open barrel end.

#### **4.5.6 Use of Cutting Tools**

Proper cutting tools, such as scissors, snips, side cutters, *etc.*, are to be used when possible in lieu of box cutters. Furthermore, if box cutters are determined to be the appropriate tool for the job, the only type that should be used is the design that has a self-retracting blade capability. Employees must use appropriate PPE (leather gloves) to allow for further protection. Many

cutting-tool manufacturers offer a variety of safety knives that are available for all types of cutting. The SSHO shall evaluate each cutting task to determine that the safest and most appropriate cutting tool is used. The SSHO shall also provide training in the proper use of the selected cutting tool. The following evaluation shall be made for each cutting task:

- Determine that knives are actually the most practical tool for the task. Where possible, use the safest cutting tool for the job (*e.g.*, scissors, snips, or wire strippers).
- If a knife is the correct tool, keep the knife sharp and clean. A dull blade can cause accidents because more force is needed to cut an object. However, a knife or any other unprotected blade tool must be the last resort when choosing a cutting tool.
- Maintain a supply of either replacement knives and/or blades and make them readily available.
- Cut away from yourself, ending the knife stroke away from your body. Hold the item you are cutting firmly, and do not cut downwards and towards your body. Cut into the air or onto hard surface.
- Confirm that appropriate PPE (*e.g.*, gloves) specific to the task is available to employees and used when the possibility of injury exists.
- Personal knives (*e.g.*, pocket knives) shall not be considered as a tool for any type of work-related cutting. Employees are required to ask for a cutting tool from their supervisor or SSHO, thereby resulting in an additional review of using the right cutting tool for the job.
- The SSHO is to inspect all material-cutting activities to verify that leather gloves are being used to protect hands.

#### ***4.5.7 Use of Heavy and Mechanized Equipment***

Excavators, front-end loaders, and other types of specialized heavy equipment may be used to accomplish the work at the site. The use of heavy equipment can be dangerous. Extra care shall be exercised in its use and while working in the vicinity of this equipment.

##### **4.5.7.1 Heavy Construction Equipment**

There are various types of heavy construction equipment that will be used during the project. All operators of this equipment shall be familiar with the requirements for inspection and operation of the equipment that they will be using. Before equipment is placed into use and on a daily basis, the operator is to inspect and verify that it is in safe operating condition, as described in **Section 7.0** of the APP.

The following guidelines shall be used while operating heavy construction equipment:

- Equipment shall not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
- Getting on or off any equipment while it is in motion is prohibited.

- Equipment shall be operated in accordance with the manufacturer’s instructions and recommendations.
- Determinations of road conditions and structures shall be made in advance to verify that clearances and load capacities are safe for the passage of equipment.
- All machinery or equipment shall be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done. Equipment designed to be serviced while running is exempt from this requirement.
- Buckets, blades, dump bodies, and similar equipment will be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position with the engines stopped and brakes set unless work being performed on the machine requires otherwise, per manufacturer recommendations.
- No guard, safety appliance, or device shall be removed from machinery or equipment, or made ineffective except for making immediate repairs, lubrications, or adjustments, and then only after the power has been shut off. All guards and devices will be replaced immediately after completion of repairs and adjustments and before power is turned on.
- Mechanized equipment shall be shut down prior to and during fueling operations. Diesel-powered equipment left running may be fueled using closed systems with automatic shut-off, which prevent spillage if connections are broken.
- Each piece of heavy equipment and other similar equipment shall be equipped with at least one dry chemical or carbon dioxide fire extinguisher with a minimum rating of 10-B:C.
- Personnel shall not work, pass under, or ride in the buckets or booms of loaders in operation.
- All self-propelled construction equipment, whether moving alone or in combination, shall be equipped with a reverse signal alarm.
- Seat-belt use is required while operating equipment.

Spotters for the operator shall be the only personnel allowed in the vicinity of the heavy equipment. Spotters shall stay out of the boom radius area. Personnel needing to approach heavy equipment while in operation shall observe the following protocols:

- Wear Class 2 high visibility vests meeting ANSI specifications.
- Make eye contact with the operator (and spotter).
- Signal the operator to cease heavy equipment activity.
- Approach the equipment only after the operator has given signal to do so.

#### **4.5.7.2 Mechanized Equipment – Use of Quick Connect/Disconnect Systems**

The manufacturer’s specifications and operating manuals for hydraulic equipment and attachments using quick connect/disconnect systems shall be followed. After completing a switch in attachments, the equipment operator shall take the actions necessary to verify the quick

connect/disconnect system is positively engaged.

#### **4.5.7.3 Hydraulic Excavators, Wheel Loaders, Track Loaders, and Backhoe/Loaders Used to Transport or Hoist Loads with Rigging**

When hydraulic-excavating equipment is to be used to transport or hoist loads using hooks, eyes, slings, chains, or other rigging, the following requirements shall apply:

- Operations involving the use of hydraulic-excavating equipment and rigging to transport or hoist loads require different operator skills and considerations than the standard excavating operations routinely performed with hydraulic-excavating equipment. An AHA specific to the transporting or hoisting operation shall be prepared. The AHA shall include, but is not limited to, the following:
  - Written proof of qualifications of equipment operators, riggers, and others involved in the transporting and hoisting operations.
  - Performance of the operational test described in Section 16.F of EM-385 (USACE, 2008).
  - Proper operating procedures in accordance with the equipment manufacturer's operating manual.
  - Proper use and onsite availability of manufacturer's load-rating capacities or charts.
  - Proper use of rigging, including positive latching devices to secure the load and rigging.
  - Inspection of rigging.
  - Use of tag lines to control the load.
  - Communications.
  - Establishment of a sufficient swing radius (equipment, rigging, and load).
  - Stability of surfaces beneath the hydraulic-excavating equipment.
- An operational test with the selected hydraulic-excavating equipment will be performed. The operational test shall consist of a demonstration that the test load and selected rigging can be safely lifted, maneuvered, controlled, stopped, and landed. The operational test shall be representative of the complete cycle of the proposed transporting or hoisting operation, including configuration, orientation, and positioning of the excavating equipment and the use of identical rigging. The test load shall be equivalent to the maximum anticipated load, but shall not exceed 100 percent of the manufacturer's load-rating capacity for the excavating equipment as configured. Written documentation of the performance of the operational test outlining test procedures and results shall be maintained at the onsite project office.
- All rigging and rigging operations shall comply with the requirements of Section 15 of EM-385 (USACE, 2008). Hooks, eyes, slings, chains, or other rigging shall

not be attached to or hung from the teeth of a bucket during the transporting or hoisting of a load by hydraulic-excavating equipment.

- After the completion and acceptance of an operational test described in Section 16.F of EM-385 (USACE, 2008), if repairs, major maintenance, or reconfiguration are required to be performed on the hydraulic-excavating equipment or attachments, another operational test as described in Section 16.F shall be performed to demonstrate that the completed repairs are satisfactory and that the test load and selected rigging can be safely lifted, maneuvered, controlled, stopped, and landed.
- Loads shall be lifted the minimum height necessary to clear the ground or other obstacles and carried as low as possible when the equipment is traveling.
- Loads shall not be lifted over personnel.
- Adequate clearances shall be maintained from electrical sources.
- Hydraulic-excavating equipment shall not be used to hoist personnel. The riding of personnel on loads, hooks, hammers, buckets, or any other hydraulic-excavating equipment attachment is prohibited. .

#### **4.5.8 Operation of Motor Vehicles**

All Contractor-owned, -leased, or -rented vehicle operations shall comply with the requirements of Shaw Procedure No. HS800, “*Motor Vehicle Operation: General Requirements*” and Shaw Procedure No. HS810, “*Commercial Motor Vehicle Operation and Maintenance*” (current rev.). Contractor vehicles shall be inspected on a daily basis. Additionally, all Contractor vehicles shall be inspected prior to any trip that is 50 miles or greater. Vehicle inspections shall be documented on the Vehicle Inspection form (**Appendix E**).

Subcontractors operating motor vehicles at projects shall comply with all federal, state, local, and base traffic regulations. Subcontractors shall only use vehicles that are in good condition and safe to operate. Subcontractors shall inspect vehicles used at project sites on a daily basis and submit the inspection documentation to the SSHO. Vehicle inspections shall be documented on the Vehicle Inspection form (**Appendix E**).

All personnel must observe the maximum-posted speed limits on roadways and parking lots. Vehicles must not be parked closer than 15 feet from working fire hydrants. All personnel shall drive defensively and wear seat belts while vehicles are in motion. All employees of the Contractor are required to attend a defensive driving training course biannually.

Vehicle operators working at the project site may only use hazards of electromagnetic radiation to ordnance (HERO) cellular telephones with hands-free devices while the vehicle is in motion. Prior to using a hand-held cellular telephone, drivers shall find a safe place to bring their vehicle to a stop. The use of headphones and earphones for music or radio are prohibited while operating a motor vehicle.

Since backing accidents at these types of projects are frequent, the following guidelines shall be observed:

- Backing of vehicles shall be avoided when possible.
- Extra care shall be taken to back vehicles when unavoidable.
- Back-up slowly and back-up the shortest distance necessary to accomplish the maneuver.
- When parking vehicles, vehicles shall be backed into the space whenever possible.
- Before entering a vehicle, which has been parked, the driver should first physically perform a 360-degree walk around the vehicle to observe all areas and especially the area behind the vehicle.
- Spotters shall be used to back vehicles whenever possible or necessary.

#### **4.5.9 Operation of Utility Vehicles**

The use of utility vehicles (e.g., RTV 900's, Rangers, Gators, Mules, etc.) must comply with Section 18.J of the EM-385. All operators of utility vehicles shall be familiar with the requirements for inspection and operation of the equipment that they will be using. Before equipment is placed into use and on a daily basis, the operator is to inspect and verify that it is in safe operating condition and document the inspection on the Utility Vehicle Inspection Checklist form (**Appendix E**).

Utility vehicle operators shall be trained as follows:

- Operators must be familiar with the use of all controls and understand proper moving, stopping, turning, and other operating characteristics of the vehicle.
- Operators must review all training materials provided by the manufacturer for the specific vehicles, and training should be in accordance with appropriate manufacturer recommendations.
- At a minimum, training shall be documented and shall address:
  - Basic riding tips from the manufacturer's published literature for each vehicle,
  - Reading terrain,
  - Climbing hilly terrain,
  - Descending a hill,
  - Traversing a slope,
  - Riding through water,
  - Cargo carriers and accessories,
  - Loading and unloading,
  - Troubleshooting, and

- Proper preventative maintenance, such as, oil levels, tire pressure requirements and scheduled maintenance requirements according to the manufacturer's guidelines.

Additionally, the following requirements are applicable for the use of utility vehicles on this project:

- A copy of the operator's manual shall be kept on the vehicle at all times and protected from the elements.
- Utility vehicles shall be equipped with:
  - An adequate audible warning device (horn), in operable condition, at the operator's station.
  - Brake lights in operable condition regardless of light conditions. Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition, a yellow flashing light or equivalent.
  - Windshield.
  - Rollover protective structure.
  - Falling object protective structures.
  - Seat belts and anchorages installed by the manufacturer.
  - Small first aid kit.
  - One dry chemical or carbon dioxide fire extinguisher with a minimum rating of 10-B:C.
- Seat belts shall be worn by operators and passengers at all times while the utility vehicle is in motion.
- Equipment shall be operated in accordance with the manufacturer's instructions and recommendations.
- Utility vehicles shall not be driven on public roadways except to cross the roadway, and will only be driven on a public roadway at designated crossing points or with a road guard.
- Occupancy in utility vehicles is limited to manufacturer designated seating that has built-in seatbelts. Passengers may not ride in the vehicles back cargo area unless the vehicle is otherwise equipped by the manufacturer.
- The manufacturer's recommended load carrying capacity, personnel capacity, or maximum safe vehicle speed shall not be exceeded at any time.
- Cargo items will be secured as necessary to prevent movement/tipping. All loads over 50 pounds must be securely strapped to cargo tie-downs in the rear and to the cargo shelf in the front.
- Manufacturer-installed safety equipment will be maintained in working order and used in accordance with manufacturer's recommendations.

#### **4.5.10 Material Handling**

Various materials and equipment may be handled manually during project operations. Care should be taken when lifting and handling heavy or bulky items to avoid back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- Size, shape, and weight of the object to be lifted shall first be considered. No individual employee is permitted to lift any object that weighs over 60 pounds. Multiple employees or the use of mechanical lifting devices are required for objects over the 60-pound limit.
- Anticipated path to be taken by the lifter should be inspected for the presence of slip, trip, and fall hazards.
- Feet shall be placed far enough apart for good balance and stability (typically shoulder width).
- Worker shall get as close to the load as possible. Legs shall be bent at the knees.
- Back shall be kept as straight as possible and abdominal muscles should be tightened.
- Twisting motions should be avoided when performing manual lifts.
- To lift the object, the legs are straightened from their bending position.
- Take small turning steps without twisting the knees or the back if it is necessary to turn with the load.
- A worker shall never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered.

When two or more workers are required to handle the same object, coordination is essential to equally share the weight between the individuals carrying the load and making a uniform lift. When carrying the object, each worker, if possible, shall face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines shall be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves shall be used if necessary.
- Hands and the object shall be free of oil, grease, and water, which might prevent a firm grip. Fingers shall be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- Items shall be inspected for metal slivers, sharp or jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

#### **4.5.11 Hazardous Energies**

**Section 9.19** of the APP presents the Hazardous Energy Control Plan for this project.

#### 4.5.12 Intrusive Activities

Intrusive activities are defined as any activity that produces a man-made cut, cavity, trench, or depression into the earth's surface formed by earth removal or any activity that results in an object placed into the earth below the surface. These activities include excavating, drilling, auguring, boring, shoveling, fence-post driving, driving stakes, *etc.* Intrusive activities can be dangerous and can result in severe personal injury or death. Intrusive activities can also cause significant property damage to both utilities/structures and operational equipment. Breaching underground utilities can result in electrocution from damaged electrical lines, fires from broken fuel/gas lines, and disruption of telephone service. All intrusive activities must comply with Shaw Procedure No. HS308, "*Underground/Overhead Utility Contact Prevention*" (current rev.).

Before any intrusive activity begins, positive steps shall be taken to determine if the area contains underground utilities or overhead hazards. It is important to understand that underground utilities have been found in areas that have been properly investigated and thought not to have utilities present. Personnel shall always be alert for marking tape, wires, pipes, previously disturbed soil, crushed stone or sand bedding/backfill, containers, discolored soil, MEC, or anything else unusual.

The Intrusive Activities Clearance Procedure shall be followed. The procedure is designed to identify and protect underground installations or to indicate that none exists. Intrusive activity shall not begin until the Site Superintendent (SS) (or designee) and the SSHO have signed off on the appropriate permits as required by HS 308.

##### 4.5.12.1 Intrusive Activities Clearance Procedure

The SSHO or SS (or designee) will perform the following tasks:

- Prepare a map indicating the area(s) where intrusive activity is planned to occur.
- Perform the necessary reviews.
- Prepare and complete the Base Utility Permit.
- Contact Miss Utility and the Navy to locate and mark the locations of the underground installations and, if they so desire, direct or assist with protecting the underground installations.
- Verify that all underground installations have been located, physically marked, and then noted on the map.
- Mark all overhead utilities with kilovolts rating on the map. Refer to **Table 9-19** of the APP, when working near overhead power lines.
- Complete the Utility Mark-Out Documentation form (**Appendix E**).

A safety meeting shall be held and a Job Safety Analysis (JSA) shall be completed by all personnel involved in the intrusive activities prior to initiating work.

#### 4.5.13 Excavations

Excavations less than 5 feet in depth in which a competent person, as defined in 29 CFR 1926.650, examines and determines there to be no potential for cave-in, do not require protective systems. For excavations less than 5 feet deep, refer to the AHA covering excavation activities. If an anomaly is identified and it is determined that an excavation greater than 5 feet deep will be necessary for recovery, then an Excavation/Trenching Plan IAW EM-385-1-1 25.A.01 will be prepared, submitted, and accepted by the Government Designated Authority (GDA).

The limits of disturbance will be clearly marked on the ground, and the project work area will be surveyed for utilities to ensure the locations of all utilities in/around the site are known. Measures will be taken to avoid disruption should these utilities require relocation during this remedial action. Shaw will request a utility mark out from a private utility locator. All utilities will be adequately marked and protected before the commencement of any earth disturbing activities.

When performing excavation activities, Shaw Procedure Nos. HS307, “*Excavation and Trenching*,” (current rev.) and HS308, “*Underground/Overhead Utility Contact Prevention*” (current rev.) shall be followed. Any excavation five feet deep or greater into which persons will enter and perform work shall be shored, sloped, or otherwise made safe for entry. Excavations less than five feet in depth in which a competent person, as defined in 29 CFR 1926.650, examines and determines there to be no potential for cave-in, do not require protective systems.

Daily inspections of the excavation shall be made by a competent person as defined in 29 CFR 1926.650. All excavated materials shall be placed at least two feet from the edge of the excavation. Perimeter protection shall be provided for unattended excavations as specified in Section 25.B of EM-385 (USACE, 2008). The SS and the SSHO shall evaluate the exposure of the excavation to employees, the public, vehicles, and equipment. This evaluation shall be used in determining the class of perimeter protection.

All project personnel shall participate in the site-specific training session and be instructed on the following requirements:

- Before starting intrusive activities such as excavating, drilling, *etc.*, the existence and location of underground pipes, electrical equipment, communication lines, gas lines, *etc.* shall be determined and documented. Only hand digging is permitted within three feet of underground high voltage, product, or gas lines. Once the line is exposed, heavy equipment can be used but must remain at least three feet from the exposed line.
- Operations shall be suspended, ignition sources eliminated, and the area shall be ventilated if the concentration of flammable/combustible vapors reach or exceed

10% of the LEL. A combustible gas indicator shall be used to make this determination.

- If excavating equipment is being operated in the vicinity of overhead power lines, Table 9-19 of the APP will be used to determine safe working distances.
- Personnel entry into any excavation five feet deep or greater is only permitted if the necessary protective systems are in place. Employees shall wear a harness with a lifeline securely attached to it when entering excavations classified as confined spaces or that otherwise present the potential for emergency rescue.
- Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. If water is controlled or prevented from accumulating by the use of water-removal equipment, the process shall be monitored by a competent person to ensure proper operation.
- Excavations greater than four feet in depth in which personnel are required to enter shall have sufficient means of entry and egress (*e.g.*, stairs, ladders, and ramps). Ladders will be provided and secured as necessary. Ladders shall extend at least three feet above grade. Means of entry/egress shall not require personnel to travel laterally more than 25 feet.

#### **4.5.14 Confined Space Entry**

A confined space is defined as a space large enough and configured so that an employee can bodily enter and perform assigned work, has limited means for entry or exit, and is not designed for continuous employee occupancy. Confined space work may pose additional hazards such as chemical exposures, flammable/explosive atmospheres, electrocution, oxygen deficiency, *etc.* The Contractor has detailed training for confined space entry: only properly trained personnel shall supervise and participate in confined space entry procedures or serve as standby attendants.

Confined space entry is not required based on the current SOW. In the event the scope changes and confined space entry becomes necessary, the entry shall be delayed until a site specific confined space entry program has been prepared and approved.

#### **4.5.15 Dust**

The generation of dust and fugitive emissions shall be prevented when possible and controlled when necessary. Work practices shall be adjusted in a manner to minimize dust generation, such as lowering excavation rates, not letting soil free-fall from equipment buckets, and traveling slowly on dirt roads. Personnel shall avoid working in dust by positioning themselves upwind of dust-generating activities. Excessive dust shall be controlled by suppression with water. Dust that is not controlled may necessitate the use of respiratory protection.

#### **4.5.16 Use of Pressure Washers or Steam Washers**

The use of steam/pressure washers shall comply with Shaw Procedure No. HS303, “*Pressurized Water Cleaning and Cutting Equipment*” (current rev.). All personnel using steam/pressure washers shall wear Level D modified PPE at a minimum, which is consistent with the contamination being removed. Requirements for Level D – Modified PPE are specified in **Section 6.0** of this SSHP. Additionally, eye, face, and shin/metatarsal protection is mandatory.

The pressure/steam washer shall be inspected before each use. The manufacturer’s instruction manual shall be used to guide the inspection process.

Personnel shall be trained in the use of the washing equipment. All personnel working in the equipment decontamination area shall be trained in the emergency shut-off procedures for the equipment being used. The minimum amount of steam/pressure that will complete the job should be used. Pressure washers exceeding 3,000 pounds per square inch shall not be used without the approval of the HSM.

The spray from such equipment shall only be directed at surfaces to be cleaned and never at body parts or other personnel because high-pressure water can cause injury. Personnel working in the immediate area shall also use eye, face, and shin/metatarsal protection.

Personnel shall keep a firm grip on the wand and not point it at anything that is not being washed. Pressure-washer operators must maintain good footing. The trigger on the wand shall never be wired/fixed open. Operators are to take adequate breaks to avoid fatigue.

Hot surfaces shall be avoided. Pressure or steam-washing equipment shall be shut off and allowed to cool prior to re-fueling.

#### **4.5.17 Excessive Work Hours**

The following workday duration limitations for hours worked on the projects are in effect:

- All personnel performing munitions response activities that present an explosive risk will be limited to a 50-hour workweek, with no individual workday exceeding 10 hours total, unless specifically authorized by the Contracting Officer’s Representative (COR).
- Personnel working on projects, including those who are operating hoisting equipment or mobile construction equipment, may work up to 12 hours at the site, which includes travel time to housing, but excludes non-compensated time. This workday duration is subject to reduction by the other requirements and factors described below. The 12-hour limit is primarily due to motor vehicle driving restrictions.
- Personnel shall not operate motor vehicles after being in a duty status (regardless of their role or function) for more than 12 hours during any 24-hour period without at least eight consecutive hours of rest. A minimum of eight consecutive hours shall be provided for rest in each 24-hour period.

- No employee may drive continuously for more than 10 hours in any single on-duty period. (Continuous period of more than 10 hours in any 24-hour period without at least eight consecutive hours of rest.)

For each project effort, the SSHO is responsible for adjusting the workday duration within the limits set above.

The following factors will be considered by the SSHO for adjusting the workday duration:

- Time of year (e.g., reduce workday duration because there is less daylight in winter).
- Temperature/weather (e.g., reduce workday duration when the temperature is very cold, very hot, or very windy).
- Type of work (e.g., reduce workday duration for personnel involved in physically demanding phases of work).
- Individual personnel limitations (e.g., reduce workday duration for personnel with minor head colds or suffering from temporary effects of allergies).

For any questions regarding the implementation of this policy, contact the HSM.

#### **4.6 ENVIRONMENTAL HAZARDS**

In addition to chemical and physical hazards, there are environmental/biological hazards that may pose a hazard when performing outdoor tasks associated with this project. For the purposes of this SSHP, the biological hazards are comprised of heat/cold stress, sunburn, poisonous plants, spiders, flying insects, snakes, ticks, chiggers, and viruses. Since some people are more sensitive or allergic to various biological hazards, the Allergy/Sensitivity Questionnaire (**Appendix E**) may be voluntarily completed by personnel during site orientation training. This form is used to alert the SSHO of these sensitivities so that additional precautions may be taken.

##### **4.6.1 Heat Stress / Cold Stress**

The heat stress / cold stress monitoring plans for project personnel are presented in **Section 9.14** of the APP.

##### **4.6.2 Sunburn**

Personnel working in direct sunlight are encouraged to apply sunscreen to all unprotected skin surfaces. The benefits of preventing sunburn and skin cancer are self-evident. Sunscreen will be provided for use by project personnel while working onsite.

##### **4.6.3 Poisonous Plants**

Poison Ivy (*Rhus Radicans*) may be found at the site. It is highly recommended that all personnel entering into an area with poison ivy wear a minimum of a Tyvek® coverall, to avoid skin contact.

The majority of skin reactions following contact with offending plants are allergic in nature and characterized by:

- General symptoms of headache and fever,
- Itching,
- Redness, and/or
- A rash.

Some of the most common and most severe allergic reactions result from contact with plants of the poison ivy group, including poison oak and poison sumac. Such plants produce severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim may develop a high fever and feel very ill. Ordinarily, the rash begins within a few hours after exposure, but may be delayed 24 to 48 hours.

A barrier cream (e.g., Ivy Block, 1-800-991-DERM or [info@hylands.com](mailto:info@hylands.com)) should be applied to the exposed skin before entering and working in areas with possible poisonous plants.

**Distinguishing Features of Poison Ivy Group Plants:** The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. Both plants have greenish-white flowers and berries that grow in clusters. See **Figure 4-7** for photos and descriptions.

**First Aid:**

- Remove contaminated clothing; wash all exposed areas thoroughly with soap and water, followed by rubbing alcohol. A one percent hydrocortisone cream (over-the-counter) will aid in healing and reducing itch.
- Apply calamine or other soothing lotion if rash is mild.
- Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity.

**Contaminated Clothing:** The irritating substances emitted by poison ivy group plants will remain on clothing for prolonged periods of time - up to weeks or months, if not washed thoroughly. It may be necessary to wash contaminated clothing separately and more than once before reusing.

**Figure 4-7 Poisonous Plants**

**COMMON POISON IVY (*RHUS RADICANS*)**

- Grows as a small plant, vine, and shrub.
- Grows everywhere in the United States except California and parts of adjacent states. Eastern oak leaf poison ivy is one of its varieties.
- Leaves always consist of three glossy leaflets.
- Also known as three-leaf ivy, poison, creeper, climbing sumac, poison oak, markweed, picry, and mercury.



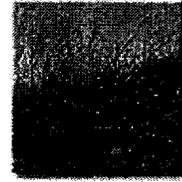
Spring



Summer



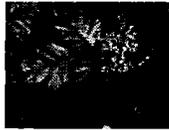
Fall



Winter

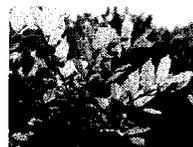
**WESTERN POISON OAK (*RHUS DIVERSILOBA*)**

- Grows in shrub and sometimes vine form.
- Grows in California and parts of adjacent states.
- Sometimes called poison ivy or years.
- Leaves always consist of three leaflets.



**POISON SUMAC (*RHUS VERNIX*)**

- Grows as woody shrub or small tree from 5 to 25 feet tall.
- Grows in most of eastern third of United States.
- Also known as swamp sumac, poison elder, poison ash, poison dogwood, and thunderwood.



#### **4.6.4 Spiders**

Personnel shall be alert to the potential for spider bites. Spiders, such as the Brown Recluse, sometimes establish residence in dark places, stored clothing, and PPE. It is advisable for personnel to inspect clothing and PPE for spiders prior to donning.

Facts and precautions to remember are as follows:

- Spiders are primarily nocturnal, and retreat to dark areas.
- Spiders can be venomous; however, they rarely bite humans. Even so, those that may bite, can cause a painful injury, and in rare cases, hospitalization or death.
- Two types of spiders that are poisonous and can pose a risk to humans are the black widow and brown recluse.
- Sudden light will help to chase spiders to hiding areas and avoid contact with you.
- Use a broom or stick to “sweep” the areas and remove webs prior to entering the area.
- Always wear gloves and utilize Tyvek<sup>®</sup> if necessary for extra protection.
- Eliminate or shield outdoor lights or indoor lights that attract flying insects, the spider’s food source.
- Seal openings and install screens and door sweeps to prevent spiders from moving indoors.
- Use a vacuum to remove webs, spiders, and egg sacs.
- The use of insecticide sprays is not recommended. These sprays contain chemicals that are also toxic to humans, and if used in a confined area, present a greater exposure hazard. Additionally, insecticides can cross contaminate samples, treatment systems and in some cases, actually cause contamination to be spread into the well and the groundwater source being monitored.

Remember, spiders avoid humans. However, they will bite when they are threatened or disturbed. Avoid contact and prevent bites. If a spider bite is sustained, personnel shall immediately report it to the SSHO.

#### **4.6.5 Flying Insects**

Flying insects such as mosquitoes, wasps, hornets, and bees may be encountered while working at the project site. Mosquito bites can be effectively prevented by the use of insect repellants containing N, N-diethyl-meta-toluamide (DEET). Insect repellant containing DEET shall be available to personnel while working onsite. Additionally, special insecticide preparations, such as Repel Permanone, shall be available for treating worker’s clothing. Commercially prepared ointments for treatment of insect bites and bee stings shall be available onsite. All personnel shall immediately report any bee stings to the SS and the SSHO.

#### **4.6.6 Snakes**

Snakes could be encountered on the site. Snake venom is complex and includes proteins, some of which have enzymatic activity. The effects produced by venom include neurotoxic effects, with sensory, motor, cardiac, and respiratory difficulties; cytotoxic effects on red blood cells, blood vessels, heart muscle, kidney, and lungs; defects in coagulation; and effects from local release of substances by enzymatic actions. Other noticeable effects of venomous snakebites include swelling, edema, and pain around the bite and the development of ecchymosis (the escape of blood into tissues from ruptured blood vessels).

To minimize the threat of snake bites and insect hazards, all personnel walking through vegetated areas will be made aware of (during training) the potential for encountering snakes and will avoid actions such as turning over logs, *etc.*, that could increase the potential. Additional caution will be exercised around preferred snake habitat. The victim should be kept still and transported to the nearest hospital as soon as possible. First aid consists of applying a constriction band and washing the area around the wound to remove any unabsorbed venom. No cutting and sucking should be performed.

#### **4.6.7 Ticks and Tick-Borne Diseases**

Heavily vegetated areas of a site may have ticks. It is highly recommended that all personnel wear a minimum of a Tyvek® and latex boot covers when walking through such areas. The ticks will stand out against the light colors. A tick repellent or insect repellent containing DEET is also recommended.

Ticks can transmit several diseases, including Rocky Mountain spotted fever, a disease that occurs in the eastern portion of the United States as well as the western portion, and Lyme disease. Ticks adhere tenaciously to the skin or scalp. There is some evidence that the longer an infected tick remains attached, the greater is the chance that it will transmit disease.

If you have been bitten, place the tick in a jar labeled with the date, location of the bite, and the location acquired. If any symptom appears, such as an expanding red rash, contact a physician immediately.

#### **First Aid**

- Carefully (slowly and gently) remove the tick with tweezers, taking care that all parts are removed.
- With soap and water, thoroughly, but gently, scrub the area from which the tick has been removed, because disease germs may be present on the skin; also wipe the bite area with an antiseptic.

**Lyme Disease:** Lyme disease may cause a number of medical conditions, including arthritis that can be treated if you recognize the symptoms early and see your doctor. Early signs may include a flu-like illness, an expanding skin rash and joint pain. If left untreated, Lyme disease can cause serious nerve and heart problems as well as a disabling type of arthritis.

You are more likely to spot early signs of Lyme disease rather than see the tick or its bite. This is because the tick is so small (about the size of the head of a common pin or a period on this page and a little larger after they fill with blood), you may miss it or signs of a bite. However, it is also easy to miss the early symptoms of Lyme disease.

In its early stage, Lyme disease may be a mild illness with symptoms like the flu. It can include a stiff neck, chills, fever, sore throat, headache, fatigue, and joint pain. But this flu-like illness is usually out of season, commonly happening between May and November when ticks bite.

Most people develop a large, expanding skin rash around the area of the bite. Some people may get more than one rash. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand in size. It's easy to miss the rash and the connection between the rash and the tick bite. The rash develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

Joint or muscle pain may be another early sign of Lyme disease. These aches and pains may be easy to confuse with the pain that comes from other types of arthritis. However, unlike many other types of arthritis, this pain seems to move or travel from joint to joint. In later stages, Lyme disease may be confused with other medical problems. These problems can develop months to years after the first tick bite.

Early treatment of Lyme disease symptoms with antibiotics can prevent the more serious medical problems of later stages. If you suspect that you have symptoms of Lyme disease, report it to your SSHO and/or SS and seek medical attention.

Lyme disease can cause problems with the nervous system that look like other diseases. These include symptoms of stiff neck, severe headache, and fatigue usually linked to meningitis. They may also include pain and drooping of the muscles on the face, called Bell's Palsy. Lyme disease can also mimic symptoms of multiple sclerosis or other types of paralysis.

Lyme disease can also cause serious but reversible heart problems, such as irregular heartbeat. Finally, Lyme disease can result in a disabling, chronic type of arthritis that most often affects the knees. Treatment is more difficult and less successful in later stages. Researchers think these more serious problems may be linked to how the body's defense or immune system responds to the infection.

#### **4.6.8 Chiggers**

Chiggers may be a problem while working at project locations. Chiggers, also known as “red-bugs” or “harvest mites,” are the immature stages of a tiny red mite. They inhabit areas of tall grass, associated with low, wet spots, ponds and stream banks, wild berry patches, and forest underbrush. The larvae attach themselves to the clothing of people or to the fur of passing animals. Before settling down to feed, chiggers move to a constriction, such as sock tops, waistbands, or armpits. Feeding chiggers inject a salivary fluid, which dissolves the host’s cells, and then they suck up the liquefied tissue. Within a few hours, small, reddish, intensely itching welts appear. These bites may continue to itch for several days up to two weeks after the chigger is dislodged. Following are suggestions that should provide some protection from chiggers:

- Stay out of areas where chiggers are likely to be present including wood lots, pastures, roadside ditches, or other areas with tall grasses and weeds. Chiggers are especially common in moist low-lying areas.
- Wear loose-fitting clothing (if possible) when working outdoors. Vehicles should be frequently vacuumed to reduce the number of chiggers that may have been deposited.
- Apply a repellent containing DEET to shoes, socks, and trousers before entering chigger-infested areas. Caution: some individuals may be sensitive to DEET – always read and follow label directions.
- Immediately after possible exposure to chiggers, take a bath, thoroughly scrubbing the body with hot soapy water. This will kill or dislodge many of the chiggers. The clothes that were worn when the bite(s) occurred should be placed in a plastic bag for temporary storage until they can be laundered.

When bites begin to itch, one course of treatment is to apply rubbing alcohol, followed by one of the nonprescription local anesthetics. A baking soda paste, calamine lotion, or product such as “After-Bite” or “Chigarid” also will help reduce discomfort. Avoid scratching bites since this only increases irritation and may lead to a secondary infection of the bite.

#### **4.6.9 West Nile Virus and West Nile Encephalitis**

The following sections discuss West Nile Virus/West Nile Encephalitis. Additional information on West Nile Virus can be found at the following Internet sites:

- <http://chppm-www.apgea.army.mil/ento/FACTS/WNVFact9-01.pdf>
- <http://chppm-www.apgea.army.mil/westnilevirus/>
- <http://chppm-www.apgea.army.mil/WESTNILEVIRUS/>
- <http://www.cdc.gov/ncidod/dvbid/westnile/>
- <http://www.cdc.gov/NCIDOD/DVBID/WESTNILE/>
- <http://www.geis.ha.osd.mil/>

#### **4.6.9.1 Background Information on West Nile Virus and West Nile Encephalitis**

West Nile Virus/West Nile Encephalitis is rapidly becoming a significant health issue in the United States. West Nile Virus was first identified in the New York area in 1999, and is closely related to the St. Louis Encephalitis Virus, which is routinely found in the United States. Both of these viruses belong to the genus *Flavivirus* and causes diseases that are similar to one another. “Encephalitis” means an inflammation of the brain and it can be caused by viral and bacterial infections. West Nile Encephalitis can be a serious or even fatal illness.

#### **4.6.9.2 Transmission of the Disease**

West Nile Encephalitis is a viral infection of the brain transmitted through the bite of a mosquito, which has previously fed on birds and/or horses that were infected with West Nile Virus. Dead birds in an area may mean that West Nile Virus is circulating between the birds and the mosquitoes in that area. West Nile Virus is not transmitted from one person to another. Human illness from West Nile Virus is relatively rare, even in areas where the virus has been reported.

#### **4.6.9.3 Symptoms of Exposure**

Most people who become infected with West Nile Virus will have either no symptoms or only mild ones. Symptoms of West Nile Encephalitis include high fever, headache, confusion, muscle aches and weakness, seizures, or paralysis. At its most serious, the infection can result in coma, permanent neurological damage, and death. Symptoms usually occur 5 to 15 days following the bite of an infected mosquito. Because West Nile Encephalitis is a viral infection, antibiotics are not effective and there is no specific treatment available other than general support therapy.

#### **4.6.9.4 Protective Measures at Projects**

There is no vaccine to protect humans against West Nile Virus. Individuals at project sites can reduce their risk from being infected with West Nile Virus by taking the following actions to protect against mosquito bites:

- Review the hazards of West Nile Virus periodically in morning safety meetings.
- Increase protective measures when working at dawn, dusk, and in the early evening.
- Reduce the area of exposed skin when working outdoors. Long-sleeved shirts with sleeves rolled down are recommended. Understand that mosquitoes may bite through thin clothing, so personnel should evaluate the actual Level D clothing worn, e.g., heavy long sleeve work shirts and heavy jeans may be indicated. Also, the risk or threat of mosquito bites is reduced for those activities that require the use of disposable coveralls.
- For activities where only Level D PPE is specified, consider using disposable coveralls when working in wooded, highly vegetated, or swampy areas.

- Use an insect repellent containing approximately 25% DEET. DEET in concentrations greater than 25% provides no additional protection but repel insects longer. However, at some point there is no direct correlation between concentration and repellency. For example, 50% DEET provides about four hours of protection against mosquitoes, but increasing the concentration to 100% provides only one additional hour of protection. Use the repellent according to the manufacturer's directions provided on the container. Use just enough repellent to cover exposed skin and clothing. Do not treat unexposed skin. Frequent re-application is unnecessary for effectiveness. Avoid prolonged and excessive use of DEET.
- When additional protection against mosquitoes is necessary, commercially prepared "clothing and gear" insect repellants containing 0.5 percent permethrin may be used. These repellants, such as Repel Permanone™ are available in the sporting goods departments at major retailers. Clothing and gear insect repellants are not for use on skin. Use the repellent according to the manufacturer's recommendations provided on the container.
- After returning from outdoor field activities, wash treated skin with soap and water.
- Personnel should report flu-like symptoms to the SS or SSHO.

DEET is considered generally safe for site personnel. You should avoid applying it to open wounds and irritated skin as it may further irritate the skin or cause discomfort.

Sweating, perspiration and getting wet may wash away the repellent and may require that DEET containing repellent be re-applied.

To remove the breeding places on a project, the following precautions will be followed as practical:

- Cut tall grass and weeds,
- Drain accumulated water in such items as drums, buckets, pools and plastic containers,
- Repair holes in door and window screens,
- Eliminate stagnate water puddles as practical, and
- Limit outdoor activities at dawn, dusk and early evening, when mosquitoes are most active, as practical.

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## 5.0 WORK AND SUPPORT AREAS

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The purpose of site control is to minimize chemical exposures to workers, protect the public from hazards due to site activities, and prevent vandalism. The work areas that pose chemical and physical hazards to personnel may be regarded as regulated or restricted. To prevent both exposures to unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas known to contain contamination will be clearly identified.

Shaw will designate work zones at the project as suggested in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (National Institute for Occupational Safety and Health (NIOSH) et al., 1985). Regulated work areas are divided into the following three zones:

- Support Zone (SZ),
- Contamination Reduction Zone (CRZ),
- Exclusion Zone (EZ).

### 5.1 SUPPORT ZONE

The uncontaminated SZ or clean zone will be located upwind, in an area outside the EZ and CRZ and within the geographic perimeters of the site. The area is used for material staging, vehicle parking, office facilities, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the EZ. All personnel arriving in the SZ will, upon arrival, report to the SSHO and sign the site visitor log. Eating, drinking, and smoking will only be allowed in this area.

### 5.2 CONTAMINATION REDUCTION ZONE

Personnel and equipment decontamination will be performed in the CRZ that is adjacent to the EZ. All personnel entering or leaving the EZ will pass through this area to prevent any cross-contamination and for the purpose of accountability. Personal protective outer garments and respiratory protection will be removed in the CRZ and properly labeled. All water generated from equipment and personal decontamination will be contained onsite and disposed of at an applicable Navy approved offsite disposal facility.

### 5.3 EXCLUSION ZONE

The EZ will be the area around the excavation activities and the waste staging areas. These areas have the highest potential for exposure to contamination by contact, ingestion, or inhalation. All employees will use proper PPE when working in these areas. The location of the EZ will be identified by fencing or other appropriate means primarily around the excavation / drilling and

waste storage areas. A daily entry log will be maintained recording the time of entry and exit from the EZ for each person. Unauthorized personnel will not be allowed in any EZ.

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## 6.0 PERSONAL PROTECTIVE EQUIPMENT

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This section describes the PPE required for each type of task for this project. All personnel must wear appropriate protective equipment when activities involve exposure to hazards that cannot be adequately or feasibly controlled by engineering or administrative controls.

### 6.1 SITE-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT PROGRAM

The primary objective of the PPE program is to ensure employee protection and to prevent employee exposure to site contaminants during site operations. The SSHO will be responsible for monitoring all aspects of the PPE program. This includes donning and doffing, temperature-related stress monitoring, inspection, and decontamination. The SSHO, in consultation with the HSM, will direct changes in PPE based on changing conditions. This SSHP will serve as written certification that the workplace was evaluated concerning PPE requirements. Shaw Procedure No. HS600, “*Personal Protective Equipment*” (current rev.), provides additional requirements for the use of PPE.

Hard hats shall be worn by all operators at all times while operating machinery. A stock of common PPE required for this site will be provided for use by visitors where appropriate.

### 6.2 ACTIVITY-SPECIFIC LEVELS OF PROTECTION

The required level of personal protection is specific to the activity being conducted. **Table 6-6**, “Anticipated Protection Levels,” outlines the proper PPE levels for project tasks.

**Table 6-6 Anticipated Protection Levels**

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
Mobilization/demobilization of equipment and site set-up	Level D	None	Leather work gloves	None	Hard hat, steel-toed boots, safety glasses, hearing protection (>85 dBA), warning vests, and leather work gloves.  Utilize mesh face shield and chaps for all work involving chain saws
Clearing	Level D	None	Leather work gloves	None	
Installation of erosion and sediment controls	Level D	None	Leather work gloves	None	
Re-grading;  Installation of Permanent Storm-water Conveyance Pipes, Inlets, and Rip-Rap;  Placement of New Soil Cap	Level D	Modified Level D	Leather work gloves for Level D;  Modified Level D, including nitrile gloves and rubber or polyvinyl chloride (PVC) booties is required for hand digging operations or when direct contact with contaminated soil will occur	None	
Transportation and disposal	Level D	Modified Level D	Leather work gloves;  Modified Level D, including nitrile gloves and rubber or PVC booties is required for hand digging operations or when direct contact with contaminated soil will occur	None	
Site restoration	Level D	None	Leather work gloves; hip boots as needed or rubber overboots	None	
Clean Fill Verification Sampling	Modified Level D	None	Modified Level D, including nitrile gloves and rubber or PVC booties is required for hand digging operations or when direct contact with contaminated soil will occur	None	

### 6.3 WRITTEN CERTIFICATIONS FOR PERSONAL PROTECTIVE EQUIPMENT

During the site safety orientation training, the SSHO will address the PPE requirements, including:

- When PPE is required.
- The proper PPE for the job tasks.
- How to properly don, doff, adjust, and wear PPE.
- The limitations of the PPE.
- The care, inspection, testing, maintenance, useful life, and disposal of PPE.

The SS or SSHO will discuss PPE in the daily safety meeting. The PPE use and selection will be documented on the daily JSA Form and Checklist (**Appendix E**). The SS or SSHO will perform PPE re-training of project personnel, as necessary.

### 6.4 PERSONAL PROTECTION LEVELS DESCRIPTIONS

This section lists the minimum requirements for each protection level. Modification to these requirements may have been noted above. SZ activities will be completed in Level D PPE. EZ activities are expected to be completed in modified Level D and Modified D protective equipment.

#### 6.4.1 Level D – Modified Protection

Additional PPE is required for specific tasks. Level D – modified protection generally consists of the following PPE:

- Safety glasses with side shields meeting ANSI Z87.1 specifications.
- Work clothing as prescribed by weather.
- Safety toe work boots that meet ANSI Z41 specifications.
- Nitrile surgical gloves (inner).
- Nitrile gloves (outer).
- Hearing protection (if necessary or required).
- Hard hat meeting ANSI Z89.1 specifications.
- High visibility vests (when working near mobile construction equipment or vehicular traffic).
- Tyvek<sup>®</sup> coveralls with hoods, elastic wrists, and ankles (as necessary).
- Face shield (when pressure washing).
- Vinyl Raingear (when pressure washing).
- Shin/Metatarsal Protection (when pressure washing).

- Inherently buoyant Type III or Type V work vest, or better United States Coast Guard approved personal flotation device (PFD) whenever a drowning hazard exists.
- Work gloves, such as leather, cotton, or other material that provides cut/abrasion resistance (as necessary).

#### **6.4.2 Level D Protection**

Level D protection is the minimum level of protection that will be used at the site. Level D PPE shall, at a minimum, consist of the following:

- Work clothing as prescribed by weather.
- Hard hat meeting ANSI Z89.1 specifications (when working near overhead hazards, during construction activity, or in posted areas).
- Safety glasses with side shields meeting ANSI Z87.1 specifications.
- Safety-toed boots meeting ANSI Z41 specifications.
- Hearing protection (if necessary or required).
- Splash shield (if necessary).
- Work gloves such as leather, cotton, or other material that provides cut/abrasion resistance (as necessary).

#### **6.5 RESPIRATORY PROTECTION**

Respiratory protection equipment shall be NIOSH-approved, and respirator use will conform to ANSI Z88.2 and OSHA 29 CFR §1910.134 requirements. Although respiratory protection is not anticipated for this project; Shaw Procedure No HS601, “*Respiratory Protection Program*” (current rev.) will be followed if the scope changes.

## 7.0 DECONTAMINATION PROCEDURES

Decontamination of equipment and personnel will be performed to limit the migration of contaminants offsite and between work zones. Decontamination will generally occur at the edge of the EZ. Additional, temporary decontamination stations may be established as project activities and needs warrant. This section describes the necessary procedures for personnel and equipment decontamination. In general, everything that enters the EZ at the site shall either be decontaminated or properly discarded upon exit from the EZ. All personnel shall enter and exit the EZ through a CRZ.

### 7.1 PERSONNEL DECONTAMINATION

Personnel decontamination consists of discarding disposable PPE, cleaning reusable PPE, and washing hands and face.

#### 7.1.1 Decontamination Procedures for Modified Level D Personal Protective Equipment

In general, the personnel decontamination procedure for activities conducted in Modified Level D consists of personnel discarding disposable PPE, washing reusable PPE, and washing hands and face. Disposable wet napkins may be used in the field to wash hands and face until personnel have access to potable water.

##### 7.1.1.1 Suspected Contamination

Decontamination procedures will ensure that material which workers may have contacted in the EZ does not result in personal exposure and is not spread to clean areas of the site. This sequence describes the general decontamination procedures for Level D-Modified. The specific stages will vary depending on the site, the task, the protection level, *etc.* Dry decontamination may be used if approved by the HSM, SS, and SSHO who will ensure that the decontamination procedures are adequate.

##### 7.1.1.2 Modified Level D decontamination:

- Go to end of EZ,
- Wash outer boots and stage to let dry,
- Remove and discard latex booties,
- Remove outer gloves and discard,
- Cross into CRZ,
- Remove protective coverall,
- Remove inner sample gloves and discard,
- Wash face and hands.

## 7.2 PROCEDURES FOR EQUIPMENT AND VEHICLE DECONTAMINATION

Equipment and vehicle decontamination procedures consist of cleaning with a low-volume, high-pressure (or steam) washer. Small equipment may be pressure-washed or scrubbed/wiped with soap and water. All wash water will be collected for treatment or disposal. All equipment requiring maintenance or repair will be decontaminated prior to servicing. Reusable sampling equipment and any other tools used for intrusive work will be decontaminated between sampling locations.

Equipment decontamination will be conducted at an established decontamination station. The procedure for decontaminating large equipment is as follows:

- Scrape off excess solids, including mud.
- High-pressure wash all outside surfaces.
- Vacuum and wipe down interior surfaces (if applicable).

At the conclusion of work at the project, all equipment shall be thoroughly cleaned using the method previously described. The SSHO or SS (or designee) will inspect all equipment leaving the site for adequacy of decontamination (visually clean unless otherwise specified).

## 7.3 DECONTAMINATION EQUIPMENT AND SUPPLIES

Prior to excavation activities, a lay down pad will be constructed for equipment storage and will be placed near the office trailer, if needed. Additionally, Shaw will construct and utilize a temporary decontamination pad. Equipment will be decontaminated before leaving the site. A visual inspection of the frame and tires of all vehicles and equipment leaving an EZ will be completed. In order for a vehicle or equipment to pass inspection, it must be in a broom-clean condition and free of loose dirt or sludge material on tailgates, axles, wheels, buckets, *etc.* A pressure washer will be onsite so that any vehicles or equipment can be pressure washed if necessary.

Plastic sheeting will be placed to minimize contamination transport and the decontamination pads may be moved around the site as necessary to minimize the potential for contamination migration.

Decontamination equipment and supplies consist of, but are not limited to, the following:

- Potable water,
- Washtubs,
- Non-phosphate detergent, such as Simple Green<sup>®</sup> or Alconox<sup>®</sup>,
- Brushes, hand sprayers,
- Plastic sheeting,
- 5-gallon buckets with lids,

- Garbage bags,
- 55-gallon drums or similar container for collection of decontamination fluids,
- Labels or paint sticks for marking contents of containers.

#### **7.4 PROCEDURES FOR EMERGENCY DECONTAMINATION**

In an emergency, the primary concern is to prevent the loss of life or personal injury. If immediate medical treatment is required to save a life, decontamination should be delayed until the victim is stabilized. Decontamination should be performed if it can be done without interfering with essential life-saving techniques or first aid. If a worker has been exposed to corrosive materials, decontamination must be performed immediately. If an emergency due to a heat-related illness develops, protective clothing should be removed from the victim as soon as possible to reduce further stress. During an emergency, provisions must be made for protecting rescue, first aid, or medical personnel from hazardous materials and for disposing contaminated clothing and equipment. In the event that corrosive materials, such as battery acid, gets in the eyes, first aid personnel should begin to administer a 15-minute eye irrigation with water while Emergency Medical Service (EMS) personnel are responding to the incident. Similarly, if corrosive material is on an injured employee's skin, first aid personnel should flush the material off of the skin in conjunction with other first aid procedures being administered. EMS personnel should always be summoned as quickly as possible so as not to delay professional medical treatment.

If decontamination can be performed, wash, rinse, and/or remove protective clothing and equipment.

If decontamination cannot be performed, complete the following actions:

- Alert medical personnel to potential contamination and instruct them about specific decontamination procedures, if necessary.
- Provide site personnel familiar with the incident at the medical facility.

#### **7.5 DISPOSAL**

All decontamination liquids and disposable clothing will be treated as contaminated waste unless determined otherwise by accepted testing methods. Waste water and materials will be disposed according to state and federal regulation.

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## 8.0 AIR MONITORING

Air monitoring will be conducted to ensure dust levels are maintained below established action levels defined in Section 8.1, below.

### 8.1 SITE-SPECIFIC ACTION LEVELS

Marlowe’s calculation was utilized to determine the levels of airborne dust that would need to be generated to approach exposure limits for arsenic. Manganese has been found in groundwater only, and is not expected to pose a risk via inhalation of contaminated dust. Based on the highest concentration of arsenic found in soil samples, with a safety factor of 4, levels of dust would have to reach 48.3 mg/m<sup>3</sup> before reaching the TLV. Therefore, a limit of 2.5 mg/m<sup>3</sup> is conservative, and is expected to protect employees from airborne contamination exceeding the TLV.

*Table 8-1 Air Monitoring Information*

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
Mini Ram (total dust)	EZ work area and breathing zone of workers	Periodically at the discretion of the SSHO	<2.50 mg/m <sup>3</sup> * >2.50 mg/m <sup>3</sup> *	Level D; implement dust control measures  Stop work and evaluate

\* Sustained levels above background for five (5) minutes.

### 8.2 INSTRUMENTATION

The following is a description of the air monitoring equipment that may be used at this site should air monitoring be required.

#### 8.2.1 Real-Time Aerosol Monitor

The personal data-logging real-time aerosol monitor or Mini-RAM is a high sensitivity photometric monitor whose light scattering sensing configuration has been optimized for the measurement of the respirable fraction of airborne dust, smoke, fumes, and mists. It will be used for real-time monitoring of airborne dust concentrations.

Real-time monitoring for dust will be performed in the work areas where the potential for the highest concentrations of lead are expected during activities that may have the potential for creating a dust hazard, such as clearing, excavation, loading and unloading trucks, and

stockpiling. A Mini-RAM will be used to monitor for dust in the work area and on the downwind boundary of the site.

**8.2.1.1 Calibration Methods/Frequencies**

The Mini-RAM is calibrated by the Shaw Electronics Group in Findlay, Ohio. There is no practical procedure for field calibration of the Mini-RAM. Before each day's use, the zero will be checked against a filtered air sample according to the manufacturer's recommendations. A log will be kept detailing date, time, and name of person performing the check.

**8.2.1.2 Preventative Maintenance**

The Shaw Electronics Group in Findlay, Ohio maintains the Mini-RAMs, including replacement of filters and desiccant; battery replacement; and cleaning of optical detection assemblies.

**8.3 AIR MONITORING RESULTS**

Air monitoring results will be available for workers' inspection and will be discussed during morning safety meetings. All air monitoring activities will be documented and provided in the completion report. Records will be archived in the project files.

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## ***9.0 STANDARD OPERATING SAFETY PROCEDURES, ENGINEERING CONTROLS, AND WORK PRACTICES***

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This section briefly outlines the engineering controls and general acceptable work practices that will be followed by all site personnel to eliminate or reduce the risk of exposure to the anticipated site hazards. These controls are presented as a guide for site personnel and do not cover all compliance issues. The SS and SSHO shall ensure full compliance with applicable regulatory requirements. An OSHA 300 form is provided in **Attachment 7**, ‘OSHA 300 Form’.

### **9.1 ENGINEERING CONTROLS**

Hazards shall be eliminated when possible and feasible. If a hazard cannot be eliminated, then the use of engineering controls is the preferred method of control.

### **9.2 GENERAL WORK RULES**

While all the procedures outlined in this SSHP are required, the following list presents general work rules that must be strictly enforced by the SS:

- At least one copy of this plan will be available at the project site, in a location readily available to all personnel, including visitors.
- Posted danger and warning signs indicating special hazards are to be obeyed at all times.
- Changes in work practices or work rules will be implemented only after a written safety plan amendment has been prepared and authorized. Changes will be communicated to all site personnel.
- Personnel are not allowed onsite without the prior knowledge and consent of the SS.
- Unauthorized removal of materials from the project is prohibited.
- Administrative hazard control will be practiced for all site areas by restricting entrance to EZs to essential personnel who qualified by training and physical exam.
- Loose or torn clothing ties or long hair is not permitted on or near equipment with moving parts.
- Cosmetics will not be applied within the exclusion or contamination reduction zones.
- Possession of controlled substances and prohibited items, such as alcohol, illicit drugs, firearms, and weapons while working onsite is strictly prohibited.
- Anyone reporting to work under the influence of alcohol and/or illegal drugs will be subject to disciplinary action. Any employee under a physician’s care and/or taking prescribed medication must notify the SSHO.

- Smoking will not be permitted in any area where hazardous chemicals or materials are in use or stored. Smoking is only permitted in designated areas.
- Employees will generally be responsible for cleaning and maintaining the protective equipment issued to them. Any noted defects in protective equipment will be reported immediately to the SSHO. Damaged PPE shall be immediately repaired or replaced, as appropriate.
- Personnel will be aware of prevailing weather conditions. Personnel shall routinely note the wind direction and remain upwind whenever possible during onsite activities.
- Legible and understandable precautionary labels that comply with the hazard communication standard will be affixed prominently to all containers of contaminated scrap, waste, debris, and clothing.
- Practice contamination avoidance. Never sit or kneel on potential contaminated ground, never lay equipment on the ground, avoid obvious sources of contamination such as puddles, and avoid unnecessary contact with onsite objects.
- Never climb over or under refuse or debris.
- Hands and face should be thoroughly washed before eating, drinking, etc.
- No food or beverages will be present or consumed in the EZ or CRZ.
- Ensure that no one is required to lift more than 60 pounds.
- Be alert to any unusual changes in your own condition; never ignore warning signs. Notify the SSHO about suspected exposures or accidents.
- Personnel must report all injuries and/or illnesses to the SS. This includes minor injuries and near misses.
- An emergency eyewash unit shall be located immediately adjacent to employees who handle hazardous or corrosive materials, such as battery acid, *etc.* All operations involving the potential for eye injury, splash, *etc.*, shall have eyewash units locally available and capable of delivering at least 0.4 gallons per minute for at least 15 minutes.
- A vehicle will be readily available for emergency use. All personnel at the site will be familiar with the most direct route to the nearest hospital.
- If onsite activities continue later than dusk, adequate lighting shall be provided.
- Permits are required for intrusive activities, entering excavations greater than four feet deep, confined space entry, line breaking, and hot work.
- Operations involving the potential for fire hazards shall be conducted in a manner as to minimize the risk of fire.
- Overhead and underground utility hazards shall be identified and/or located prior to conducting operations.
- Field activities shall be suspended during severe weather such as typhoons, thunderstorms, lightning, and earthquakes. If work is stopped due to

thunderstorms and lightning, work will not continue until 30 minutes after the last lightning strike is observed or thunder clap is heard.

- All crew personnel onsite will use the buddy system (working in pairs or teams) Maintain line-of-sight with a worker during activities that could involve potentially hazardous substances.
- If protective equipment or noise levels impair communications, then prearranged hand signals will be used for communication. Visual contact will be maintained between crew members at all times, and crew members must observe each other for signs of toxic exposure. Indication of adverse effects include, but are not limited to:
  - Changes in complexion and skin coloration.
  - Changes in coordination.
  - Changes in demeanor.
  - Excessive salivation and papillary response.
  - Changes in speech pattern.
- Employees will inform their partners or fellow team members of non-visible effects of overexposure to toxic materials. The symptoms of such overexposure may include:
  - Headaches.
  - Dizziness.
  - Nausea.
  - Blurred vision.
  - Cramps.
  - Irritation of eyes, skin, or respiratory tract.
  - Personnel shall thoroughly wash their hands and face before eating, smoking, or drinking.

### **9.3 BUDDY SYSTEM**

The “buddy system” will be used at all times while working onsite. This requires that personnel maintain visual, voice, cellular telephone, or radio communication.

#### **9.3.1 Lone Worker Procedure**

Occasionally, only one worker may be present at the project to perform routine operations such as performing paperwork in the office. During these routine operations, there will be no “buddy” present onsite. Even though there will be no buddy present onsite at these times, communications must still be maintained. The lone field worker shall carry a cellular telephone or two-way radio on their person, at all times, while working at the project site (a landline telephone will suffice if the worker is in an office). Arrangements shall be made by the lone field workers, with at least one other person (monitor), to affect hourly communications. This hourly communication shall convey the following information:

- Present location.

- Present status.
- Anticipated activities and location of anticipated activities (include routes of expected travel).
- Estimated duration of anticipated activities.
- Identify other anticipated activities, projected travel routes, and activity locations if the lone field worker will complete the initial task prior to making the next scheduled contact with the other employee.

The lone field worker should initiate the hourly communication to the monitor at a pre-designated time (for example, the top of the hour). If the monitor does not receive the status call at the pre-designated time, then the monitor shall try to establish communications with the lone employee. If the lone field employee answers, then the update shall be made and the schedule of calls shall continue. If the lone field employee does not answer, the monitor shall try again in 5 minutes. If contact is not made on the second try, then the monitor shall notify the local emergency services, such as police or security force. All information provided from the last communication (see above) shall be provided to the emergency services. Additionally, the telephone number of the monitor (or other means of contact) shall be provided to the emergency services.

Upon mobilization to the project, the SS shall verify that emergency communications are established for all activities.

***Important:*** This procedure applies to routine tasks only. Non-routine tasks require the buddy system to be in effect.

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## *10.0 EMERGENCY RESPONSE*

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### **10.1 EMERGENCY RESPONSE PLANS**

If an emergency occurs, employees will be evacuated from the danger area and professional emergency responders such as firefighters or EMS will be summoned. Therefore, this emergency action plan has been prepared pursuant to Title 29 CFR 1910.38. The SSHO may be contacted for further information or explanation of duties under the plan.

### **10.2 RESPONSIBILITIES**

Prior to engaging in construction/remediation activities at the site, the SS will plan for possible emergencies such as medical emergencies, fire, and hazardous weather conditions. The SS is responsible for establishing emergency communication with potential emergency response organizations.

The primary emergency coordinator will be the SSHO. If an emergency occurs and the SSHO is not onsite, the SS will serve as the emergency coordinator until he arrives. Immediately after being notified of an emergency incident, the emergency coordinator or his designee will evaluate the situation to determine the appropriate action.

The onsite emergency coordinator is responsible for implementing and directing the emergency procedures. Specific duties are as follows:

- Identify the source and character of the incident. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- Discontinue operations in the vicinity of the incident if necessary.
- Signal the evacuation of the work area if necessary. Both the SS and the SSHO have the authority to order the evacuation of the work area.
- Notify the Client Representative and local Emergency Response Teams if their help is necessary to control the incident. **Table 9-2** of the APP provides telephone numbers for emergency assistance.
- If the incident may threaten human health or the environment outside of the site, notify the local Police Department and the Office of Emergency Management.

### **10.3 EVACUATION SIGNALS AND ALARM SYSTEM**

If site evacuation is required, a continuous, uninterrupted air horn or vehicle horn (backup) will be sounded for approximately 10 seconds. Voice and personal contact may also be used to initiate evacuation if practical.

Primary communication with emergency responders will be accomplished using commercial telephone services.

#### **10.4 EVACUATION ROUTES AND PROCEDURES**

Evacuation routes will be posted in each outside work area. Signs inside trailers will be posted on walls or other structural elements of a trailer. During an emergency, the evacuation routes noted on the map will be followed. If conditions such as wind direction or physical hazards do not allow access to the prescribed evacuation routes, the safest route available will be used. As work progresses, the emergency coordinator may alter these assembly areas depending onsite and weather conditions. The site-specific evacuation procedures will be discussed in detail at the daily safety tailgate meeting and workers will be given the opportunity to practice the evacuation drill which will be critiqued for lessons learned.

In the event evacuation is necessary, the following actions will be taken:

- The emergency signal will be activated.
- No further entry of visitors, contractors, or trucks will be permitted. Vehicle traffic within the site will cease in order to allow safe exit of personnel and movement of emergency equipment.
- All project machinery and processes will be shut down if safe to do so.
- All onsite personnel, visitors, and contractors in the SZ will evacuate to the designated muster point location.
- The emergency coordinator will assign a worker to direct emergency responders to the site of the emergency.
- Re-entry into the site will be made only after clearance is given by the emergency coordinator. At his direction, a signal or other notification will be given for re-entry into the facility.

#### **10.5 PROCEDURES TO ACCOUNT FOR SITE WORKERS AFTER EVACUATION**

- The emergency coordinator will maintain possession of the EZ log in sheet and tailgate safety meeting form containing onsite workers' names.
- No one is to leave the site without notifying the emergency coordinator.
- All persons will be accounted for by their immediate crew leaders (e.g., foreman).
- Upon completion of the head count, the crew leader will provide the information to the emergency coordinator.

A final tally of persons will be made by the emergency coordinator or designee. No attempt to find persons not accounted for will involve endangering lives of Shaw or other employees by re-entry into emergency areas.

In all questions of accountability, immediate crew leaders will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors and truck drivers are the responsibility of the SS.

## **10.6 MEDICAL EMERGENCIES**

At least two personnel, trained and certified in adult first aid and cardiopulmonary resuscitation (CPR) will be onsite at all times work is being performed.

For purposes of this section, personal injuries and illnesses are roughly categorized as life threatening or non life threatening. Guidance is presented below on handling both.

### ***10.6.1 Life-Threatening Injury or illness***

If an apparent life-threatening conditions exists, such as severe lacerations, profuse bleeding, severe burns, loss of consciousness, heat stroke, heart attack, or respiratory failure or severe allergic reaction, the emergency coordinator will:

- Immediately call local EMS. The telephone number is presented in **Table 9-2** of the APP.
- Administer (or cause to have administered) first aid or cardiopulmonary resuscitation if appropriate.
- Appoint a crew member to meet and guide the EMS to the injured worker.
- Have the injured worker decontaminated if necessary.
- Notify Shaw's consulting occupational medical service, which will become Shaw's liaison with the treating medical facility. (See **Table 9-2** of the APP for telephone number.)

The EMS will then transport the injured worker to their associated hospital emergency room.

### ***10.6.2 Non Life-Threatening Injury or illness***

If the injury is not life threatening, the emergency coordinator will:

- Direct the injured person through decontamination procedures (see Section 10.6) if needed.
- Administer (or cause to have administered) onsite first aid if appropriate.
- If professional medical care is deemed appropriate, Shaw's consulting occupational medical service will be contacted for advice and to serve as Shaw's liaison with the treating medical facility.
- The injured person will be transported by his or her supervisor to the nearest occupational medical facility that has been approved by Shaw's consulting occupational medical professionals. The site route map to this facility is shown on **Figure 9-2B** of the APP.

### **10.6.3 Reporting, Investigation and Review**

All injuries, no matter how small, will be reported to the SS or SSHO. All occupational injuries or illnesses must be reported, investigated, and reviewed in accordance with Shaw Procedure No. HS020“*Accident Reporting, Investigation, and Review*” (current rev.).

### **10.7 EMERGENCY DECONTAMINATION**

The decision to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. Decontamination will be performed if warranted, if it does not interfere with essential treatment, and if doing so does not endanger the life of the injured person or otherwise aggravate the injury. Personnel will not enter the area to attempt a rescue if their own lives would be threatened.

If decontamination must be delayed, observe the following procedures:

- Wrap the victim in blankets or plastic to reduce contamination of other personnel.
- Alert emergency and off-site medical personnel to potential contamination; instruct them about specific decontamination procedures.
- Send site personnel familiar with the incident and chemical safety information, with the affected person, to the treating medical facility.

### **10.8 FIRE EMERGENCIES**

Shaw personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator by radio and vacate the structure or area. The emergency coordinator will immediately notify the local Fire Department.

The following procedures will be used in the event of a fire:

- Anyone who sees a fire will notify the SSHO, who will activate the emergency notifications and contact the Base Fire Department.
- When the emergency notification is made, workers will disconnect potentially affected electrical equipment, if possible.
- Workers will evacuate as described in Sections 10.2, 10.3, and 10.4.
- If a small fire is extinguished by a site worker, the emergency coordinator will be notified, and the incident will be investigated.

## 10.9 ADVERSE WEATHER CONDITIONS/NATURAL DISASTERS

Adverse weather such as thunder and lightning storms, hail, dust storms, heavy rains, high winds, hurricanes and tornados can increase the risk of injury from slip, trip and fall hazards, the release of hazardous materials to the environment, structure failure, fires and other hazards.

The best protection against most severe weather episodes and natural disasters is to avoid them. The emergency coordinator will be responsible for assessing hazardous weather conditions and notifying personnel of specific contingency measures. Operations will not be started or continued when the hazardous weather conditions are present such as lightning.

The emergency coordinator will determine when it is necessary to shut down project operations to prevent damage, evacuate personnel to off-site locations, and will coordinate efforts with fire, police and other agencies. In the event of a hurricane approaching the area, implement the measures outlined in the “Hurricane Preparedness Plan”, included as **Appendix F** of this APP.

The Contingency Plan for severe weather for this project is presented in **Section 9.21** of the APP.

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## *11.0 TRAINING REQUIREMENTS*

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Refer to **Section 6.0** of the APP.

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## *12.0 MEDICAL SURVEILLANCE PROGRAM*

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All Shaw personnel participate in a medical and health monitoring program. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis. A listing of Shaw's worker medical profile is shown below. This program was developed in conjunction with a consultant toxicologist and Shaw's occupational health physician. Other medical consultants are retained when additional expertise is required.

All field personnel performing activities in a designated EZ or CRZ shall within the past 12 months, or as dictated by Shaw's medical surveillance program, have completed a comprehensive medical examination. The periodic medical includes the following elements:

- Medical and occupational history questionnaire,
- Physical examination,
- Complete blood count, with differential,
- Liver enzyme profile,
- Chest x-ray, once every three years, for non-asbestos workers,
- Pulmonary function test,
- Audiogram,
- Electrocardiogram for persons older than 35 years of age, or if indicated during the physical examination,
- Visual acuity, and
- Follow-up examinations, at the discretion of the examining physician or the corporate medical director.

The medical surveillance program meets the requirements of the OSHA Standard 29 CFR 1910.120/1926.65(f).

The HSM will be immediately notified of any suspected exposures to hazardous materials/wastes.

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## 13.0 BLOOD-BORNE PATHOGENS EXPOSURE CONTROL PLAN

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Blood-borne pathogens are microorganisms (*i.e.*, bacteria, virus) sometimes present in blood and certain body fluids, which are capable of causing human disease or death. These pathogens can also be present on objects and surfaces that have had contact with infected blood or certain bodily fluids. Blood-borne pathogens are also capable of causing human disease or death to unprotected people who are exposed to infected blood or bodily fluids. Diseases caused by blood-borne pathogens include, but are not limited to, hepatitis A, hepatitis B, hepatitis C, malaria, acquired immunodeficiency syndrome (AIDS), and other sexually transmitted diseases. The most significant of these and of greatest concern are hepatitis B and AIDS.

Hepatitis B is a serious disease caused by the hepatitis B virus (HBV), which attacks the liver. The virus can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. Exposure symptoms include fever, fatigue, nausea, vomiting, muscle aches, loss of appetite, and jaundice (yellowing of the eyes or skin). Hepatitis diagnosis is difficult because some symptoms are similar to the flu and may remain mild for an extended period. The HBV can remain infectious for up to 10 days, even in dried blood. Hepatitis B vaccine is available for all age groups to prevent HBV infection.

Human immunodeficiency virus (HIV) is the virus that causes AIDS. People with HIV have what is called HIV infection. Some of these people will develop AIDS because of their HIV infection. Humans may be infected with HIV for many years without experiencing any symptoms. Upon development of AIDS, symptoms may include weight loss, skin lesions, dry cough, fever, fatigue, diarrhea, swelling of the lymph glands, and death. Presently, no cure exists for HIV or AIDS, and no vaccination is currently available.

A hazard exists for blood and other bodily fluids to be infected with dangerous, infectious pathogens. Employees could become infected if they are exposed to these blood-borne pathogens.

The purpose of this Blood-Borne Pathogens Exposure Control Plan is to provide the information, procedures, and requirements necessary to prevent employee exposure to blood-borne pathogens.

### 13.1 REGULATORY, REQUIREMENT, AND POLICY COMPLIANCE

This Blood-Borne Pathogens Exposure Control Plan has been prepared in compliance with the following sources:

- 29 CFR §1910.1030, “Blood-Borne Pathogens”.
- EM 385 (USACE, 2008), Section A.03.06.
- Shaw Procedure No. HS512, “*Handling of Blood or Other Potentially Infectious*”

*Material*” (current rev.).

### 13.2 EXPOSURE DETERMINATION

OSHA requires employers to perform an exposure determination, identifying employees who may incur occupational exposure to blood or other potentially infectious materials. The exposure determination is made without regard to the use of PPE. For exposure determination purposes, employees are considered to be exposed, even if they wear PPE.

In general, it is anticipated that project activities will not present a high risk of employee exposure to blood or other bodily fluids. An exception to this would be under circumstances when personnel administer first aid care or CPR to injured workers, and when personnel clean up areas and equipment that may have been exposed to blood from the incident. In these cases, there is reasonable potential for employee skin, eye, mucous membrane contact with blood or other bodily fluids.

OSHA requires a listing of job classifications that identify tasks performed in which some employees may have potential for occupational exposure. This requirement is for employees to clearly understand that tasks they may perform have a potential for occupational exposure to infectious materials. The job classifications and associated tasks with an exposure potential are as follows:

- SS—Administer first aid or CPR, decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.
- SSHO—Administer first aid or CPR, decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.
- Laborer—Administer first aid or CPR, decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.

These employees have potential for exposure to blood-borne pathogens when administering first aid or CPR and when performing post-accident clean-up operations due to the following:

- Contact or absorption of blood or blood-contaminated objects through open or broken skin (*i.e.*, cuts, scratches, and rashes).
- Blood splashes to their eyes, nose, or mouth, or other mucous membranes.
- Punctures through the skin with a contaminated sharp object (*i.e.*, scissors).

Workers can reduce their risk of contacting blood-borne pathogens by implementing the recommended work practices (outlined in this plan) before, during, and after responding to emergency medical incidents primarily involving personal injuries.

### 13.3 SCHEDULE OF IMPLEMENTATION

The procedures in this Blood-Borne Pathogen Exposure Control Plan are to be implemented immediately. Implementation includes the following:

- Verifying personnel who are available to voluntarily provide first aid care and CPR hold a valid training certificate from a reputable training provider (American Red Cross or American Heart Association). The SSHO is responsible for verifying that an appropriate number of personnel have been trained in and hold valid certification to perform first aid and CPR.
- Verifying that personnel voluntarily providing first aid care, CPR, post-accident clean-up operations, and biohazard waste handling have received the specialized training that meets the requirements of 29 CFR §1910.1030; EM 385 (USACE, 2008), Section A.03.06; and Shaw Procedure No. HS512, “*Handling of Blood or Other Potentially Infectious Material*” (current rev.). This training is required for applicable personnel prior to the start-up of work and at least annually thereafter. This training shall cover the following elements:
  - Explanation of the contents of 29 CFR §1910.1030 and its procedure.
  - General explanation of the epidemiology and symptoms of blood-borne diseases.
  - Explanation of the modes of transmission of blood-borne pathogens.
  - Explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
  - Explanation of the use and limitations of practices that will prevent or reduce exposure, including appropriate engineering controls, work practices, and PPE.
  - Information on the types, proper use, location, removal, handling, decontamination, and/or disposal of PPE.
  - Explanation of the basis for selection of PPE.
  - Information on the hepatitis B vaccine, including information on its efficacy, safety, and the benefits of being vaccinated.
  - Information on the appropriate actions to take and persons to contact in an emergency.
  - Explanation of the procedure to follow if an exposure incident occurs, including the method of reporting an incident and the medical follow-up that will be made available.
  - Information on medical counseling that is provided for exposed individuals.
  - Explanation of required signs and labels.

The SSHO is responsible for verifying that this blood-borne pathogen training has occurred.

- Verifying that engineering controls are readily available at the project for use in an emergency. Engineering controls for this project include the following:
  - Red bags for temporary storage of contaminated PPE and cleaning materials.
  - Appropriately labeled, 30-gallon hard-plastic container for the temporary storage of red-bagged waste.
  - Whiskbroom and dust pan for cleaning up contaminated broken glass.
  - Gallon container of household bleach.
  - Large utility sponge.
  - Rolls of paper towels.
  - Container of liquid disinfectant hand soap.
  - “Biohazard” warning labels.
  - Individually packaged disinfectant towelettes.
  - CPR barriers.

The SSHO is responsible for verifying that this inventory of engineering controls is readily available at the project site for emergency use.

PPE is necessary to prevent employee exposures to infectious materials. The necessary PPE, which shall be maintained separately for use in an emergency, includes the following:

- P-100 particulate filtering face-piece respirator (3-M 8293 or equivalent).
- Face shields with ratcheting head-suspension.
- Safety glasses with clear lens.
- Disposable nitrile examination gloves.
- Monkey Grip work gloves.
- Poly-coated or Saran™-coated disposable Tyvek® coveralls with attached hood.
- Vinyl or latex disposable boot covers.
- Fluid-resistant surgical hoods.

The SSHO is responsible for verifying that the above inventory of PPE is readily available at the project site for emergency use.

#### **13.4 WORK-PRACTICE CONTROLS**

Work-practice controls reduce the likelihood of exposure by altering the manner in which a task is performed. The work-practice controls outlined in this section are applicable to the

administration of first aid and the subsequent clean-up operations.

Work-practice controls shall be instituted whenever there is potential for employee contact with blood and bodily fluid. Situational examples where these controls are to be implemented include, but are not limited to the following:

- Voluntary administration of first aid care, such as application of bandages to minor or major cuts and abrasions of another person. This care may allow for contact with sores, wounds, broken skin, blood, or other bodily fluids.
- Voluntary administration of first aid care such as providing CPR.
- Clean-up activities involving handling soiled articles (e.g., gauze, bandages, compresses, etc.) and decontaminating or disinfecting surfaces and articles that have contacted potentially infectious materials such as blood or other bodily fluids.
- Preparation of biohazard waste for temporary storage and subsequent disposal.

Based upon professional judgment, an employee may choose to temporarily forego the use of PPE if the employee determines that the use of the PPE will further jeopardize his/her well-being or that of the injured worker. This limited application must be carefully evaluated and considered by the employee. If this situation does occur, the Contractor will investigate and document the circumstances in an effort to provide alternative means to avoid further occurrence.

The following are specific work-practice controls that shall be implemented in the above-noted situations or whenever an employee determines that the implementation of these work practices is prudent or necessary:

- Appropriate PPE shall be donned prior to engaging in any activities that have the potential for employee contact with potentially infectious materials such as blood or other bodily fluids.
- Hands and face will be washed as soon as possible after engaging in any activities that have the potential for employee contact with potentially infectious materials such as blood or other bodily fluids. If wash facilities are not readily available, individually packaged disinfectant towelettes may be used in the interim.
- Eating, drinking, or smoking is not allowed in any work area where a potential exists for occupational exposure to blood-borne pathogens.
- Open wounds or cuts shall be promptly bandaged.
- Work surfaces and areas shall be cleaned and disinfected immediately after being contacted by potentially infectious materials. A 10 percent bleach solution (one part bleach added to nine parts water) shall be applied and allowed to have a contact time of 15 minutes. Non-disposable articles, equipment, or materials contaminated with potentially infectious materials shall be similarly cleaned/disinfected prior to reuse.
- All bins, pails, cans, and similar receptacles intended for reuse, which have become contaminated with blood or other potentially infectious materials, shall be cleaned and disinfected immediately after use.

- Broken glassware, which may be contaminated, shall not be picked up directly by hand. Broken glass shall be picked up using mechanical means such as by using a whiskbroom and dustpan.
- All PPE shall be immediately removed upon leaving the potentially contaminated work area, or as soon as possible if visibly contaminated. Contaminated PPE shall be placed in a labeled “red bag” and then placed in the 30-gallon container for temporary storage and subsequent disposal.
- Any clothing that has contacted blood or other potentially infectious fluids shall be removed as soon as possible and placed in a labeled “red bag” and then placed in the 30-gallon container for temporary storage and subsequent disposal.

#### ***13.4.1 Universal Precautions***

Universal precautions is a method of infection control, which operates on the assumption that all human blood and bodily fluids are to be treated as if they are known to be infectious for HIV, HBV, or other blood-borne pathogens. Universal precautions shall be observed to prevent contact with blood or other potentially infectious materials. Universal precautions consist of the following practices:

- All workers shall routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure when contact with blood or other bodily fluids is anticipated. Gloves should be worn for touching blood and bodily fluids, mucous membranes, or non-intact skin, and for handling items or surfaces contaminated with blood or bodily fluids. Masks and protective eyewear or face shields shall be worn during procedures that are likely to generate droplets of blood or other bodily fluids to prevent exposure of mucous membranes of the mouth, nose, and eyes. Protective suits shall be worn during procedures that are likely to generate splashes of blood or other bodily fluids.
- Hands and other skin surfaces shall be washed immediately and thoroughly if contaminated with blood or other bodily fluids. Hands shall be washed immediately after gloves are removed using a disinfectant soap.
- CPR barriers or other ventilation devices should be available for use in areas in which the need for resuscitation is foreseeable.
- Workers who have exudative lesions or weeping dermatitis shall be excluded from handling potentially infectious materials until the condition resolves.
- Pregnant workers should be especially familiar with and strictly adhere to precautions to minimize the risk of transmission.

#### ***13.4.2 Personal Protective Equipment***

The proper use of PPE is an effective work-practice control. The following requirements for PPE are mandatory whenever there is potential for employee contact with blood and bodily fluid:

- Inspect PPE prior to use to verify it is in good working order and without defects.
- Disposable (single-use) gloves such as surgical or examination gloves shall be replaced when visibly soiled, torn, punctured, or when their ability to function as a

barrier is compromised. Gloves should be changed as soon as possible after contact with blood or bodily fluids. After use, remove gloves from top to bottom inside out, not allowing unprotected skin to contact the exterior of the gloves. Hands and other skin surfaces shall be washed with disinfectant soap immediately after care has been rendered or cleanup has been completed. Gloves reduce the incidence of blood contamination of hands, but they cannot prevent penetrating injuries caused by sharp objects. Do not reuse gloves once removed.

- A CPR barrier shall be used when administering CPR.
- Protection for the eyes, face, hands, body, feet, and against inhalation hazards shall be provided as appropriate for each job.
- Gloves shall be worn when employees have the potential for direct skin contact with or when handling items or surfaces soiled with blood, other potentially infectious materials, mucous membranes, and non-intact skin.
- PVC work gloves may be disinfected for immediate reuse if the integrity of the glove is not compromised; however, gloves must be discarded if they are cracked, peeling, discolored, torn, punctured, or exhibit other signs of deterioration. All gloves shall be discarded at the conclusion of the activity or at the end of the shift – whichever comes first.
- Masks and eye protection or chin-length face shields shall be worn whenever splashes, spray, splatter, droplets, or aerosols of blood or other potentially infectious materials may be generated and there is a potential for eye, nose, or mouth contamination.
- Fluid-resistant clothing (e.g., coated Tyvek® suits) shall be worn if there is a potential for splashing or spraying of blood or potentially infectious materials. Coated Tyvek® coveralls shall also be worn during clean-up activities involving decontaminating or disinfecting surfaces and articles that have contacted potentially infectious materials, and when preparing biohazard waste for temporary storage and subsequent disposal.
- Fluid-resistant clothing (e.g., coated Tyvek® suits) shall be worn if there is a potential for clothing to become soaked with blood or other potentially infectious materials.
- Surgical caps or hoods shall be worn if there is a potential for splashing or splattering of blood or potentially infectious materials on the head.
- Fluid-proof coverings shall be worn if there is a potential for shoes or boots to contact blood or other potentially infectious materials.
- Disposable nitrile or vinyl gloves shall be worn when touching blood and bodily fluids involving universal precautions, mucous membranes, or non-intact skin, and for handling items or surfaces soiled with blood or bodily fluids to which universal precautions apply.

### ***13.4.3 Waste Handling***

All wastes generated because of administering emergency first aid care and the subsequent clean-up activities shall be placed in red bags, labeled as a biohazard, and kept separately from

other trash. Wastes used in medical emergency treatment (*i.e.*, gloves, towels, and gauze) shall also be bagged and stored in an identical manner. Red-bagged, biohazard waste shall be placed in the 30-gallon collection container, labeled, and secured for temporary storage and disposal. Additional containers shall be obtained as needed, and containers shall not be overfilled.

### **13.5 BIOHAZARD WASTE DISPOSAL**

The Contractor's Waste Transportation and Disposal Coordinator shall be contacted to arrange for proper disposal of biohazard wastes. The waste shall remain secured onsite in labeled container(s) until disposal arrangements have been made at an approved disposal facility. Disposal of the infectious waste container(s) shall be in accordance with applicable local, state, and federal regulations.

### **13.6 MEDICAL REQUIREMENTS**

Employees receive medical evaluations in accordance with Shaw Procedure No. HS100, "*Medical Policies and Procedures*" (current rev.). The medical requirements of this Blood-Borne Pathogens Exposure Control Plan include provisions for vaccinations to all exposed employees as well as for post-exposure procedures and evaluations. All employees with potential for occupational exposure to blood-borne pathogens shall receive the hepatitis B vaccination and tetanus vaccination prior to workplace exposure, unless they read and sign the Hepatitis B and Tetanus Vaccination Declination form (**Appendix E**).

#### ***13.6.1 Hepatitis B Vaccination***

All potentially exposed employees will have made available to them, at no cost, a hepatitis B vaccination. Recombivax or Accelerated Recombivax vaccines shall be used. If the employee has previously received the hepatitis B vaccination and/or antibody testing reveals that the employee is immune, a new vaccination is not required. Employees may be subjected to occupational exposure immediately after receiving the first shot in the hepatitis B vaccination series. Antibody testing shall be performed 30 days after completing the hepatitis B vaccination series. Employees unable to develop immunity shall be precluded from further occupational exposure. If a physician recommends a booster dose(s), the dose(s) shall be provided according to standard recommendations for medical practice. The employee will also receive training as to the vaccine's efficacy, safety, benefits, and consequences prior to administration. The vaccination series may also be initiated within 24 hours of an incident with exposure potential.

#### ***13.6.2 Tetanus Vaccination***

All employees subject to this policy shall maintain current status documentation of their tetanus vaccination (current status for tetanus vaccination is within 5 years). All potentially exposed employees shall be offered a tetanus vaccination at no cost.

### ***13.6.3 Post-Exposure Procedures and Evaluation***

All exposure incidents shall be reported as required by Shaw Procedure No. HS020, “*Accident Prevention Program: Reporting, Prevention, and Review*” (current rev.). The occupational medicine physician shall be advised in addition to standard notification procedures.

Following a report of an exposure incident, each involved employee shall be offered a confidential medical evaluation and follow-up, which includes at least the following elements:

- Documentation of the route(s) of exposure.
- The HBV and HIV antibody status of the source patient(s) (if known), and how the exposure occurred.
- The medical confidentiality rights of the source patient shall be preserved at all times.
- If the source patient can be determined and permission is obtained, collection of and testing of the source patient’s blood to determine the presence of HIV or HBV infection shall be conducted under the direction of the attending physician.
- Collection of blood from the exposed employee as soon as possible after the exposure incident for the determination of HIV and/or HBV status. Actual core antibody and surface antigen testing of the blood or serum sample may be done at that time or later if the employee so requests. If the test is deferred, arrangements shall be made through the attending physician to properly archive the specimen.
- Follow-up of the exposed employee including antibody and antigen testing, counseling, illness reporting, and safe and effective post-exposure prophylaxis, according to standard recommendations for medical practice as defined by the occupational medicine physician.

Where applicable laws require employee consent, documented consent shall be obtained prior to testing. If an employee refuses the blood test, documentation of the refusal will be made. Documentation of the test results shall be made available to the exposed employee(s). All test results shall be kept confidential.

### ***13.6.4 Physician Information***

The following information shall be provided to the evaluating physician:

- Copy of 29 CFR §1910.1030, “Bloodborne Pathogens” and its appendices.
- Description of the affected employee’s duties as they relate to the employee’s occupational exposure.

### ***13.6.5 Physician Opinion***

For each potentially exposed employee evaluation, the employee shall receive a copy of the evaluating physician’s written opinion within 15 working days of completion of the evaluation. The written opinion shall be limited to the following information:

- The physician’s recommended limitations upon the employee’s ability to receive the hepatitis B vaccination.
- A statement that the employee has been informed of the results of the medical evaluation and that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials that require further evaluation or treatment.
- Specific findings or diagnoses that are related to the employee’s ability to receive the hepatitis B vaccination. Any other findings and diagnoses shall remain confidential.

### **13.7 HAZARD COMMUNICATION**

There are regulatory requirements for labels, signs, and training. The provisions and exceptions for these are contained in the subsections below.

#### ***13.7.1 Warning Labels***

Containers used for disposal of blood-contaminated supplies and waste will be labeled in accordance with the word “biohazard.” The following symbol shall be an integral part of the label:



#### ***13.7.2 Warning Signs***

There will be no designated areas for medical treatment on the project site because first aid is provided on an emergency basis only; therefore, warning signs are not applicable. In cases of potential exposure, observers and non-essential personnel should be verbally warned to keep a safe distance from injured personnel.

#### ***13.7.3 Employee Training Program***

All employees who are first aid/CPR-trained and may provide assistance shall be trained in the requirements for voluntary providers as described in Shaw Procedure No. HS512, “*Handling of Blood or Other Potentially Infectious Material*” (current rev.), this SSHP and its addenda, and the general provisions of this procedure.

### **13.8 RECORD KEEPING**

There are federal record-keeping requirements for training, medical, and incident-reporting documentation. The provisions for keeping these records are contained in the subsections below.

### ***13.8.1 Training Records***

All employees covered under this Blood-Borne Pathogens Exposure Control Plan shall be trained as required. A record of the training shall be appropriately generated. The training record will contain the date of the training session(s), the contents or a summary of the training session(s), the names of persons conducting the training, and the names of all persons attending the training sessions.

The training records will be maintained by the Contractor Training Department for at least 5 years from the training date.

### ***13.8.2 Medical Records***

Medical records necessary for employees of the Contractor will include documentation of HBV vaccination status, medical follow-up, post-exposure testing, and a medical professional's written evaluation.

The employee medical records will be forwarded to and maintained by CORE Health Networks, 12091 Bricksome Avenue, Suite B, Baton Rouge, Louisiana, 70816 for inclusion in the employee's medical file. Confidentiality of all medical records shall be maintained.

The Contractor maintains employee medical records for the duration of the employee's employment plus 30 years thereafter. If, for whatever reason, the Contractor no longer does business and no successor exists, the Contractor will notify the director of NIOSH in writing 3 months prior to the disposal of records. If so directed, the records shall be transferred to the director of NIOSH.

### ***13.8.3 Incident Recording***

An incident that occurs because of rendering emergency medical care will be recorded on the OSHA 300 Log (**Appendix G**) as OSHA defines work-related injuries and illnesses. All injuries involving the release of blood or bodily fluids must be immediately reported to the HSM for proper reporting and follow-up.

## **13.9 PLAN REVIEW AND UPDATE**

This Blood-borne Pathogens Exposure Control Plan shall be reviewed and updated on an annual basis.

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## 14.0 REFERENCES

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American Conference of Governmental Industrial Hygienist, 2011, *Threshold Limit Values and Biological Expose Indices*, Cincinnati, Ohio.

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Code of Federal Regulations, Title 29, Part 1910, *Safety and Health Regulations for General Industry*, U.S. Government Printing Office, Washington, D.C.,  
<<http://www.access.gpo.gov/nara/cfr/index.html>>.

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<<http://www.access.gpo.gov/nara/cfr/index.html>>.

Shaw Environmental & Infrastructure, Inc., 2011, *Health and Safety Policies and Procedures*,  
<<http://shawnetv2.shawgrp.com/sites/govern/pp/ei/EHS%20Procedures/Forms/AllItems.aspx>>

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## APPENDIX A

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*SITE SAFETY AND HEALTH PLAN AMENDMENT DOCUMENTATION  
(RESERVED FOR FUTURE CHANGES)*

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## Site Safety and Health Plan Amendment Documentation

**Project Name:**

**Project No.**

**Amendment No.**

**Date:**

**The Amendment Addresses the Following Sections:**

**Task(s) Amendment Affects:**

**Reason for Amendment:**

**Amendment:**

**Completed by:**

**Approved by:**

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## APPENDIX B

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### *ACTIVITY HAZARD ANALYSES*

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## Activity Hazard Analysis (AHA) 1.0

<b>Activity/Work Task:</b> Mobilization of Equipment and Site Set-up (and Demobilization)	<b>Overall Risk Assessment Code (Use highest code)</b>	<b>M</b>																				
<b>Project Location:</b> Site 21, Indian Head MD	<b>Risk Assessment Code (RAC) Matrix</b>																					
<b>Contract Number:</b> N62470-08-D-1007 <b>Task Order:</b> JU49	<b>Hazard Severity</b>	<b>Hazard Probability</b>																				
<b>Date Prepared:</b> 2/23/12		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Frequent level A</td> <td style="width: 15%;">Likely level B</td> <td style="width: 15%;">Occasional level C</td> <td style="width: 15%;">Seldom level D</td> <td style="width: 15%;">Unlikely level E</td> </tr> </table>	Frequent level A	Likely level B	Occasional level C	Seldom level D	Unlikely level E															
Frequent level A	Likely level B	Occasional level C	Seldom level D	Unlikely level E																		
<b>Prepared by (Name/Title):</b> Kym Edelman CSP	Catastrophic (I) – death, system loss, or severe environmental damage	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">M</td> </tr> <tr> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%;"></td> </tr> <tr> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> </table>			H	H	M		H	H	M		H	M	M			M				
			H	H	M																	
	H	H	M																			
H	M	M																				
M																						
<b>Reviewed by (Name/Title):</b> David Mummert, CIH	Marginal (III) – recordable injury, minor system or environmental damage																					
	Negligible (IV) – first aid, minor system impairment																					
<b>Notes:</b> (Field Notes, Review Comments, etc.)	Step 1: Review each “ <b>Hazard</b> ” with identified safety “ <b>Controls</b> ” and determine RAC (See above)																					
	“ <b>Probability</b> ” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	<b>RAC Chart</b>																				
	“ <b>Severity</b> ” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	<b>H = High Risk</b>																				
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.	<b>M = Moderate Risk</b>																				
		<b>L = Low Risk</b>																				

Principle Step	Hazards	Controls	RAC
Arrival of new personnel on site			
	Untrained personnel.	<ul style="list-style-type: none"> <li>• All personnel working on hazardous, toxic, and radioactive waste (HTRW) shall submit HAZWOPER training certificates (40-hour, 8-hour (if applicable), and supervisor (if applicable) to a Site Safety and Health Officer (SSHO).</li> <li>• All personnel shall attend a site safety orientation.</li> <li>• Other training certifications shall also be made available on site.</li> </ul>	<b>M</b>
	Medical qualifications.	<ul style="list-style-type: none"> <li>• All personnel shall submit current physician's certificate stating that employee is participating in an appropriate medical surveillance program meeting 29 Code of Federal Regulation (CFR) 1910.120</li> </ul>	<b>L</b>
	Allergies.	<ul style="list-style-type: none"> <li>• All personnel should complete the Known Allergies Questionnaire (voluntary only).</li> </ul>	<b>L</b>
	Unfamiliarity with: site, general (chemical, physical, environmental) site hazards, project safety rules and hazard control procedures, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>• All personnel shall attend the site orientation training.</li> <li>• The site orientation shall include a review of the phone locations, evacuation routes, and any special requests from the manager of the facility.</li> <li>• After personnel are trained in the contents of the Accident Prevention Plan (APP), APP Addenda, and they shall sign the APP Acknowledgment Form.</li> <li>• All pertinent AHAs shall be reviewed with personnel (as applicable).</li> <li>• Post all hazard warning signs, emergency maps, and emergency phone numbers.</li> </ul>	<b>M</b>

PRINCIPLE STEP	HAZARDS	RECOMMENDED CONTROLS	RAC
Unload Equipment/Prepare Site	Failure to properly plan daily activities.	<ul style="list-style-type: none"> <li>A Job Safety Analysis (JSA), as required by Shaw Environmental &amp; Infrastructure, Inc. Procedure No. HS045, "Job Safety Analysis (JSA)," shall be prepared by the crew prior to commencing daily activities. The JSA may be used as a component of the morning Tailgate Safety Meeting. The JSA shall be revised at any time throughout the workday when new tasks are initiated, unforeseen circumstances arise, or if working conditions change. Personnel shall implement Hazard Assessment Resolution Program.</li> </ul>	<b>M</b>

PRINCIPLE STEP	HAZARDS	RECOMMENDED CONTROLS	RAC
	Heavy lifting, strains, and sprains.	<ul style="list-style-type: none"> <li>• No individual employee is permitted to lift any object that weighs over 60 pounds.</li> <li>• Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> </ul>	<b>M</b>
	Use of mechanical equipment.	<ul style="list-style-type: none"> <li>• Only qualified personnel shall be permitted to operate equipment.</li> <li>• Mechanical equipment shall be inspected daily.</li> <li>• Deficiencies in equipment shall be noted on the inspection form.</li> <li>• Equipment found to be unsafe shall not be used.</li> <li>• All equipment shall be operated at safe speeds and in a safe manner.</li> <li>• Equipment operators shall wear safety belts and hearing protection.</li> <li>• Ground personnel shall not position themselves between equipment and stationary objects.</li> <li>• Personnel are only permitted to approach equipment after a signal from the operator</li> </ul>	<b>M</b>
	Hand injuries.	<ul style="list-style-type: none"> <li>• Items to be handled shall be inspected for sharp edges prior to being handled.</li> <li>• Personnel shall wear leather gloves when handling sharp materials.</li> <li>• Personnel shall be aware of and avoid pinch point hazards.</li> </ul>	<b>L</b>
	Electrical.	<ul style="list-style-type: none"> <li>• Ground-fault circuit interrupters shall be used on all power tools and extension cords.</li> <li>• Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.</li> <li>• Keep extension cords off of roads.</li> </ul>	<b>M</b>

PRINCIPLE STEP	HAZARDS	RECOMMENDED CONTROLS	RAC
	Fire.	<ul style="list-style-type: none"> <li>• Fire extinguishers shall be placed in work areas.</li> <li>• The SSHO shall establish smoking areas in compliance with the facility policy.</li> <li>• Engines shall be shut off before refueling. A 40-B:C fire extinguisher shall be available at refueling areas.</li> <li>• Smoking shall not be permitted near fueling areas.</li> <li>• Use caution with vehicle exhaust systems in grassy areas.</li> </ul>	L
	Chemical hazards.	<ul style="list-style-type: none"> <li>• The Exclusion Zones and Contamination Reduction Zones shall be set-up and appropriately marked with signage.</li> <li>• The Emergency Eyewash station shall be inspected, cleaned, filled, and then placed in service.</li> <li>• Notify all personnel of the emergency eyewash station location.</li> </ul>	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel Name(s)	Inspection Requirements
Personal Protective Equipment - Level D:  Equipment: Hand and Power Tools Fire Extinguishers Emergency Eyewash First Aid Kit Deep-Woods Off or Ultrathon Repel Permanone Weather radio or AM/FM radio	Competent Person (CP) / Qualified Person (QP):  CP/SSHO: Burney Chance  Alternate CP _____  QP/First Aid and CPR _____  QP/First Aid and CPR _____  QP/Heavy Equipment Operator _____  CP/Heavy Equipment Inspector _____  <b>Training Requirements:</b> Site Safety Orientation Applicable AHAs	<b>Daily site safety inspection</b>  Check Known Allergies Questionnaire, training, and medical certifications against personnel roster Mechanized equipment ( <i>U.S. Army Corps of Engineers form prior to use</i> ) Mechanized Equipment ( <i>daily</i> ) Overhead and Underground Utilities Housekeeping ( <i>daily</i> ) Fire extinguisher ( <i>weekly</i> ) Vehicle Inspection ( <i>daily</i> ) Equipment and tools inspection ( <i>Daily and Before Use</i> ) Survey areas for poisonous plants, insects, and animals Check body for ticks

	<p>HAZWOPER 40-Hour Qualified Equipment Operators Lifting/Back Safety Fire Extinguisher Use Emergency Procedures Biological Hazard Identification And Control Tornado Shelter Locations National Lightning Safety Institute Lightning Safety Procedures</p>	<p>Verify Tornado Shelter Availability</p>
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## Activity Hazard Analysis (AHA) 2.0

Activity/Work Task: Waste Characterization and Clean Fill Verification Sampling		Overall Risk Assessment Code (RAC) (Use highest code)				<b>M</b>	
Project Location: Site 21, Indian Head MD		<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order: JU49		<b>Severity</b>	<b>Probability</b>				
Date Prepared: 1/27/12			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Kym Edelman, CSP		Catastrophic				<b>M</b>	
Reviewed by (Name/Title): David Mummert, CIH		Critical				<b>M</b>	
		Marginal	<b>M</b>	<b>M</b>			
Notes: (Field Notes, Review Comments, etc.)		Negligible	<b>M</b>				
		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.			<b>RAC Chart</b>		
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.			<b>M = Moderate Risk</b>		
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>				<b>RAC</b>	
Arrival of new personnel at site	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>All personnel shall attend the site orientation training. Document training at site prior to commencement of work.</li> </ul>				<b>M</b>	
Sampling.	Poor planning.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw Procedure No. HS045, "Job Safety Analysis (JSA)."</li> <li>Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>				<b>M</b>	
	Use, sampling equipment, and hand tools.	<ul style="list-style-type: none"> <li>Inspect hand tools and equipment daily and before each use.</li> <li>Remove damaged tools and equipment from service immediately.</li> <li>Work in a manner and pace to reduce strains and overexertion.</li> </ul>				<b>L</b>	

	Use of acidic preservatives (if required).	<ul style="list-style-type: none"> <li>• A portable eye wash station shall be readily available in the area where acids are being used.</li> <li>• Acids will be used in areas with adequate ventilation.</li> <li>• All containers shall be properly labeled.</li> <li>• Personnel who sustain skin contact shall immediately wash the affected area with soap and water (eyes should be irrigated for 15 minutes with potable water) and report the incident to the Site Safety and Health Officer (SSHO).</li> </ul>	<b>L</b>
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>• Keep work areas clear and maintain housekeeping.</li> <li>• Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain.</li> </ul>	<b>M</b>

Job Steps	Hazards	Controls	RAC
	Use of portable generators.	<ul style="list-style-type: none"> <li>• Refer to the manufacturer's instructions for safe operation. Never use a generator in enclosed or partially enclosed spaces. Keep the generator dry and do not use in rain or wet conditions.</li> <li>• Use a heavy-duty, outdoor rated extension cord that is rated at least equal to the sum of the connected pump loads. Check that the entire cord is free of cuts or tears and the plug has three prongs, including a grounding pin. Check operator's manual for grounding requirements, if any.</li> <li>• Use proper lifting techniques when moving portable generators. Use hearing protection when working near a generator</li> <li>• A 20-B:C fire extinguisher shall be readily available in locations where a generator is being used. Before refueling, turn off generator and allow to cool. Gasoline spilled on hot engine parts could ignite</li> </ul>	<b>M</b>
	Hand injuries.	<ul style="list-style-type: none"> <li>• Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall be aware of and avoid pinch point hazards. Wear leather gloves when handling sharp materials.</li> </ul>	<b>L</b>
	Insect bites/West Nile Virus.	<ul style="list-style-type: none"> <li>• Wear PPE and tape joints to keep insects away from the skin. Use protective insect repellents containing N,N-Diethyl-m-toluamide, such as, 3M Ultrathon or equivalent and clothing insecticide preparations containing permethrins (Repel Permanone or equivalent) to prevent insect bites. Check limbs/body for insects/insect bites before showering. Notify SSHO of flu-like symptoms.</li> </ul>	<b>L</b>
	Contact dermatitis and poison ivy.	<ul style="list-style-type: none"> <li>• Check around work areas to identify if poison ivy is present. Wear long-sleeve shirts/trousers or Tyvek® coveralls to avoid skin contact with plants or other skin irritants. Learn to identify poisonous plants.</li> <li>• Avoid unnecessary clearing of plant/vegetation areas.</li> <li>• Cover vegetation with plastic (visqueen) where sampling position raises exposure potential. Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions. Identify workers who are known to contract poison ivy.</li> </ul>	<b>L</b>
	Severe weather.	<ul style="list-style-type: none"> <li>• The SSHO will monitor weather conditions each day in order to plan and prepare for hazardous conditions. The SSHO will identify a suitable tornado shelter at each work location. Work activities will be suspended prior to weather conditions becoming hazardous so that workers have ample time to seek shelter. Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (inside vehicles, buildings, or tornado shelters as appropriate). Follow procedures in the APP.</li> </ul>	<b>L</b>
	Heat stress and cold stress.	<ul style="list-style-type: none"> <li>• Follow procedures outlined in the SSHP.</li> </ul>	<b>M</b>

Job Steps	Hazards	Controls	RAC
	Hazardous atmospheres.	<ul style="list-style-type: none"> <li>Perform air monitoring as specified in the SHSP.</li> <li>Apply engineering controls as necessary to limit exposures.</li> <li>Upgrade level of PPE based upon air monitoring action limits specified in the SSHP.</li> <li>Personnel shall immediately notify the HSM if odors are detected.</li> </ul>	L
	Noise	<ul style="list-style-type: none"> <li>Wear hearing protection when working near pressure washers, compressors, or generators to reduce noise exposure to below OSHA limits.</li> </ul>	L
	Fire.	<ul style="list-style-type: none"> <li>Smoking shall be permitted in designated areas. Vehicles shall not be parked in tall dry grass.</li> <li>Provide 20-B:C fire extinguishers at sampling locations.</li> <li>Do not start gas-powered equipment in fueling area (at least 10 feet away).</li> <li>Store gasoline in safety cans with flash arrestors and spring loaded vents.</li> </ul>	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Personal Protective Equipment – Mod Level D:  Equipment: Sampling Equipment Fire Extinguishers Emergency Eyewash First Aid Kit Deep-Woods Off or Ultrathon Repel Permanone Weather radio or AM/FM radio	Competent Person (CP) / Qualified Person (QP):  CP/SSHO: Burney Chance  Alternate CP _____  QP/First Aid and CPR _____  QP/First Aid and CPR _____  QP/Heavy Equipment Operator _____  CP/Heavy Equipment Inspector _____  <b>Training Requirements:</b> Site Safety Orientation Applicable AHAs HAZWOPER 40-Hour Qualified Equipment Operators Lifting/Back Safety Fire Extinguisher Use Emergency Procedures Biological Hazard Identification And Control Tornado Shelter Locations	<b>Daily site safety inspection</b>  Check Known Allergies Questionnaire, training, and medical certifications against personnel roster Mechanized equipment ( <i>U.S. Army Corps of Engineers form prior to use</i> ) Mechanized Equipment ( <i>daily</i> ) Overhead and Underground Utilities Housekeeping ( <i>daily</i> ) Fire extinguisher ( <i>weekly</i> ) Vehicle Inspection ( <i>daily</i> ) Equipment and tools inspection ( <i>Daily and Before Use</i> ) Survey areas for poisonous plants, insects, and animals Check body for ticks Verify Tornado Shelter Availability

	National Lightning Safety Institute Lightning Safety Procedures	
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## Activity Hazard Analysis (AHA) 3.0

Activity/Work Task: Installation of Erosion and Sediment Controls	Overall Risk Assessment Code (RAC) (Use highest code)	<b>L</b>				
Project Location: Site 21, Indian Head MD	<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order: JU49	<b>Severity</b>	<b>Probability</b>				
Date Prepared: 2/23/12		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Kym Edelman, CSP		Catastrophic				<b>M</b>
Reviewed by (Name/Title): David Mummert, CIH		Critical				<b>M</b>
		Marginal	<b>M</b>	<b>M</b>		
Notes: (Field Notes, Review Comments, etc.)	Negligible	<b>M</b>				
Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)						
"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.		<b>RAC Chart</b>				
"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible						
Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.		<b>M = Moderate Risk</b>				
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>			<b>RAC</b>	
Silt fence hay bale installation	Slips, Trips, Falls,	<ul style="list-style-type: none"> <li>Clear walkway, work areas of equipment tools and debris.</li> <li>Mark identifies or barricades other obstructions.</li> <li>Stay on established pathways and maintain housekeeping</li> </ul>			<b>L</b>	
	Handling heavy objects	<ul style="list-style-type: none"> <li>Observe proper lifting techniques.</li> <li>No more than 60 lbs person</li> <li>Use mechanical lifting devise as need ( hand carts trucks) to move large awkward loads</li> </ul>			<b>L</b>	
	Struck by /Flying Debris	<ul style="list-style-type: none"> <li>Hold stakes in places with tongs, vise pliers or other remote grasping tools. Wear goggles when using sledge hammer.</li> </ul>			<b>L</b>	
	Sharp objects	<ul style="list-style-type: none"> <li>Wear leather gloves when the possibility of laceration or other injury may be caused by sharp edges or objects.</li> <li>Maintain all hand tool and power tools in a safe</li> </ul>			<b>L</b>	
THE SHAW GROUP	APPENDIX B – ACTIVITY HAZARD ANALYSIS – EROSION AND SEDIMENT CONTROL				1 of 2	

		<ul style="list-style-type: none"> <li>condition.</li> <li>Keep all guards in place during use</li> </ul>	
	Allergic Reaction	<ul style="list-style-type: none"> <li>Identify and review poisonous plants with workers</li> <li>Provide workers proper skin protection to prevent skin allergic reaction from exposure to hay , contaminated soil, or other skin irritants ( plants)</li> </ul>	<b>L</b>
Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements	
Personal Protective Equipment - Level D/Mod D:  Equipment: Hand Tools Silt Fence Hay Bales Wooden Stakes Fire Extinguishers Emergency Eyewash First Aid Kit Deep-Woods Off or Ultrathon Repel Permanone Weather radio or AM/FM radio	Competent Person (CP) / Qualified Person (QP):  CP/SSHO: Burney Chance  Alternate CP _____  QP/First Aid and CPR _____  QP/First Aid and CPR _____  QP/Heavy Equipment Operator _____  CP/Heavy Equipment Inspector _____  <b>Training Requirements:</b> Site Safety Orientation Applicable AHAs HAZWOPER 40-Hour Qualified Equipment Operators Lifting/Back Safety Fire Extinguisher Use Emergency Procedures Biological Hazard Identification And Control Tornado Shelter Locations National Lightning Safety Institute Lightning Safety Procedures	<b>Daily site safety inspection</b>  Check Known Allergies Questionnaire, training, and medical certifications against personnel roster Mechanized Equipment ( <i>daily</i> ) Overhead and Underground Utilities Housekeeping ( <i>daily</i> ) Fire extinguisher ( <i>weekly</i> ) Vehicle Inspection ( <i>daily</i> ) Equipment and tools inspection ( <i>Daily and Before Use</i> ) Survey areas for poisonous plants, insects, and animals Check body for ticks Verify Tornado Shelter Availability	

## Activity Hazard Analysis (AHA) 4.0

<b>Activity/Work Task:</b> Clearing	<b>Overall Risk Assessment Code (Use highest code)</b>	<b>M</b>																				
<b>Project Location:</b> Site 21, Indian Head MD	<b>Risk Assessment Code (RAC) Matrix</b>																					
<b>Contract Number:</b> N62470-08-D-1007 <b>Task Order:</b> JU49	<b>Hazard Severity</b>	<b>Hazard Probability</b>																				
<b>Date Prepared:</b> 2/23/12		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Frequent level A</td> <td style="width: 15%;">Likely level B</td> <td style="width: 15%;">Occasional level C</td> <td style="width: 15%;">Seldom level D</td> <td style="width: 15%;">Unlikely level E</td> </tr> </table>	Frequent level A	Likely level B	Occasional level C	Seldom level D	Unlikely level E															
Frequent level A	Likely level B	Occasional level C	Seldom level D	Unlikely level E																		
<b>Prepared by (Name/Title):</b> Kym Edelman, CSP	Catastrophic (I) – death, system loss, or severe environmental damage	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">M</td> </tr> <tr> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%;"></td> </tr> <tr> <td style="width: 15%; text-align: center;">H</td> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td style="width: 15%; text-align: center;">M</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> </table>			H	H	M		H	H	M		H	M	M			M				
			H	H	M																	
	H	H	M																			
H	M	M																				
M																						
<b>Reviewed by (Name/Title):</b> David Mummert, CIH	Marginal (III) – recordable injury, minor system or environmental damage																					
	Negligible (IV) – first aid, minor system impairment																					
<b>Notes:</b> (Field Notes, Review Comments, etc.)	Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)																					
	“ <b>Probability</b> ” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.	<b>RAC Chart</b>																				
	“ <b>Severity</b> ” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible	H = High Risk																				
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.	<b>M = Moderate Risk</b> <b>L = Low Risk</b>																				

Principal Steps	Hazards	Recommended Controls	RAC
Mobilizing all vegetation removal equipment to site	Vehicle/equipment accidents.	<ul style="list-style-type: none"> <li>• Inspect area around equipment before backing.</li> <li>• Survey route to work locations. Inform crew of hazards.</li> <li>• Stay off roadways and watch for vehicle in the area.</li> <li>• Use flashers when needed.</li> <li>• Wear reflective vest when exposed to heavy equipment or traffic.</li> </ul>	L
	Carrying heavy materials and equipment.	<ul style="list-style-type: none"> <li>• Observe maximum manual lifting limit of 60 lbs.</li> <li>• Get help for loads greater than 60 lbs.</li> <li>• Train for proper lifting techniques.</li> <li>• Keep manual loads close to the body while carrying.</li> <li>• Use lifting, carrying aids, such as carts or dollies to move heavy objects.</li> </ul>	L

Principal Steps	Hazards	Recommended Controls	RAC
All Exclusion Zone Activities.	Contact/Inhalation/Ingestion of contaminated soil	<ul style="list-style-type: none"> <li>• Avoid activities that generate airborne dust.</li> <li>• Control dust by applying water if necessary.</li> <li>• Wash soil from hands prior to eating or drinking.</li> <li>• Utilize PPE as required in the SSHP</li> </ul>	L

Principal Steps	Hazards	Recommended Controls	RAC
Preparing For Vegetation Removal	Poisonous Insects, bees, wasps, snakes, spiders, and scorpions.	<ul style="list-style-type: none"> <li>• Wear leather or cotton gloves.</li> <li>• Wear long pants, long sleeved shirts preferred.</li> <li>• Instruction in recognition and identification of poisonous insects, snakes known to be in the area.</li> <li>• Do not assign hypersensitive employee (e.g., someone with a bee sting allergy) to duties having high risk of exposure.</li> <li>• Be cautious where you put your hands, feet and body. Inspect area for hazards.</li> </ul>	<b>M</b>
	Exposure to severe inclement weather, sun, heat, rain and wind.	<ul style="list-style-type: none"> <li>• Protect skin from ultraviolet rays by wearing your hard hat, long pants, long sleeved shirts, and sunscreen lotion.</li> <li>• Wear clothing / PPE suitable for weather and working conditions.</li> <li>• Keep an eye on your working buddy for signs of heat or cold stress.</li> <li>• Drink fluids and rest when needed.</li> <li>• Monitor Heat/Cold Stress per SEI Procedure HS400/HS401.</li> </ul>	<b>L</b>
	Working alone.	<ul style="list-style-type: none"> <li>• Practice buddy system at all times.</li> </ul>	<b>L</b>

Principal Steps	Hazards	Recommended Controls	RAC
Fueling Chain Saw.	Burns from flammable liquids and hot surfaces while fueling chain saw.	<ul style="list-style-type: none"> <li>• Instruction in proper handling, storage and disposal of flammable liquids.</li> <li>• Equipment will be shut down during fueling and servicing activities.</li> <li>• An operable fire extinguisher shall be on site and available during refueling.</li> <li>• Allow engine to cool down before refueling.</li> <li>• Use a funnel or flexible hose fitting to the container when fueling saws.</li> <li>• Clear the area around fueling site of flammable material before fueling.</li> <li>• Do not start the saw within a 10 foot radius of the fuel container.</li> <li>• Wipe/remove fuel residue from chain saw exterior</li> </ul>	<b>M</b>

Principal Steps	Hazards	Recommended Controls	RAC
Operating Chain Saw	Injury from flying debris.	<ul style="list-style-type: none"> <li>• Operator to wear proper PPE including mesh face shields, safety glasses, hard hats, leather gloves, leather chaps, steel toed boots and long sleeved shirts. If the proper PPE is not available, do not proceed with task.</li> <li>• Inspect work area for hazardous conditions and debris before starting task. Remove all loose items not intended to be cut.</li> <li>• Do not allow other personnel in area without proper PPE.</li> <li>• All safe guards will remain installed and properly used.</li> </ul>	<b>M</b>
	Excessive noise.	<ul style="list-style-type: none"> <li>• Use ear plugs or muffs while operating chain saw.</li> <li>• Ensure a functional muffler is fitted to the saw.</li> </ul>	<b>L</b>

Principal Steps	Hazards	Recommended Controls	RAC
	Unsafe terrain	<ul style="list-style-type: none"> <li>• Properly support material on ground for cutting or use saw bucks.</li> <li>• Keep engine free of saw dust.</li> <li>• Keep cutting speed under control to avoid cutting too deep or at an improper angle.</li> <li>• Stop the saw when doubtful about safety.</li> <li>• Prior to chain saw work all slopes and work areas will be thoroughly inspected for washes, potholes, or other surface irregularities that could cause you to slip, trip or fall.</li> <li>• Prior to chain saw work areas will be cleared of brush, rocks, fencing, and other obstacles which might hinder movement.</li> </ul>	<b>M</b>
	Slip, trip, fall hazards.	<ul style="list-style-type: none"> <li>• Always establish good footing.</li> <li>• Keep personnel clear from areas of falling trees or rolling logs.</li> <li>• Be alert for nails, wire, metal taps, in trees.</li> <li>• When moving with a saw, it should be grasped firmly in one hand and carried at the side with the bar pointing backwards. Special caution is necessary when the engine is running. Chain break should be engaged during transport.</li> <li>• Look to the side before turning around. Face and hearing protection and engine noise will limit the operator's ability to know if someone is close.</li> <li>• Secure racks, boxes, bar holsters or sheathing, or other means shall be used for transporting chain saw.</li> <li>• Maintain good housekeeping; keep walkways clear of tools, material, and debris.</li> </ul>	<b>L</b>

Principal Steps	Hazards	Recommended Controls	RAC
Preparing to operate weed eater.	Equipment failure.	<ul style="list-style-type: none"> <li>• Competent person to inspect equipment prior to use. No equipment will be placed in service until all deficiencies are corrected.</li> <li>• Have repairs made by a qualified repairperson.</li> <li>• Know your equipment and follow the manufacturer's operating manual instructions.</li> </ul>	L

Principal Steps	Hazards	Recommended Controls	RAC
Fueling weed eater.	Burns from flammable liquids and hot surfaces while fueling weed eater.	<ul style="list-style-type: none"> <li>• Instruction in proper handling, storage and disposal of flammable liquids.</li> <li>• Equipment will be shut down during fueling and servicing activities.</li> <li>• An operable fire extinguisher shall be on site and available during refueling.</li> <li>• Allow engine to cool down before refueling.</li> </ul>	L

Principal Steps	Hazards	Recommended Controls	RAC
Replacing cutting line in weed eater.	Cuts, abrasions while replacing weed eater cutting line.	<ul style="list-style-type: none"> <li>• Turn the power switch off to the equipment before replacing the cutting line.</li> <li>• Make sure cutting line is installed according to manufacturer's instruction.</li> </ul>	L

Operating weed eater.	Injury from flying debris.	<ul style="list-style-type: none"> <li>Operator to wear proper PPE, including face shields, safety glasses hard hats, leather gloves, steel toed boots and long sleeved shirts, and ear protectors.</li> <li>Inspect work area for hazardous conditions and debris before starting task. Remove all loose items not intended to be cut.</li> <li>Do not allow other personnel in area without proper PPE.</li> <li>All safe guards will remain installed and properly used.</li> </ul>	<b>M</b>
	Excessive noise.	<ul style="list-style-type: none"> <li>Use ear plugs or muffs while operating weed eater.</li> </ul>	<b>L</b>
	Cuts and abrasions from moving parts.	<ul style="list-style-type: none"> <li>Never put your hands, feet or other body parts in the path of the moving parts.</li> <li>Do not point the cutting end at anyone.</li> <li>Keep the cutting edge pointed down at all times.</li> <li>All safe guards will remain installed and properly used.</li> <li>Beware of your surroundings at all times watch what you are cutting.</li> </ul>	<b>L</b>
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>Inspect work areas for washes, potholes, or other surface irregularities that could cause slips, trips or falls.</li> <li>Prior to chain saw work areas will be cleared of brush, rocks, fencing, and other obstacles which might hinder movement.</li> <li>Always establish good footing.</li> <li>Keep personnel clear from areas of falling trees or rolling logs.</li> <li>Be alert for nails, wire, metal taps, in trees.</li> </ul>	<b>M</b>

Preparing to operate mower with tractor.	Faulty mower, tractor.	<ul style="list-style-type: none"> <li>Inspect equipment prior to use. No equipment will be placed in service until all deficiencies are corrected.</li> <li>Have repairs made by a qualified repairperson.</li> <li>Know your equipment, follow the manufacture operating manual.</li> </ul>	<b>L</b>
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Fueling tractor.	Burns from flammable liquids and hot surfaces while fueling tractor.	<ul style="list-style-type: none"> <li>• Instruction in proper handling, storage and disposal of flammable liquids.</li> <li>• Equipment will be shut down during fueling and servicing activities.</li> <li>• An operable fire extinguisher shall be on site and available during refueling.</li> <li>• Allow engine to cool down before refueling.</li> </ul>	<b>L</b>
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Operating mower with tractor.	Falling from tractor.	<ul style="list-style-type: none"> <li>• Wear seat belt at all times.</li> <li>• Do not attempt to get off the equipment until it has come to a complete stop and motor is shut off and the brake set.</li> <li>• Do not allow passengers at any time.</li> <li>• All safe guards will remain installed and properly used.</li> <li>• Use three point contact system when getting on and off the equipment.</li> <li>• Keep steps and decks free of mud, oil and grease.</li> </ul>	<b>M</b>
	Sharp objects, lacerations, cut or abrasions.	<ul style="list-style-type: none"> <li>• Wear cut resistant work gloves.</li> <li>• Inspect work area and equipment for hazardous conditions and correct before continuing work.</li> <li>• Wear hard hats, steel toed boots, eye protection, long sleeved shirts and pants, and abrasion resistant gloves.</li> <li>• Keep guards in place during use. Stay clear of moving parts.</li> </ul>	<b>L</b>
	Excessive noise.	<ul style="list-style-type: none"> <li>• Use ear plugs or muffs while operating mower.</li> </ul>	<b>L</b>
	Struck by/against, protruding objects.	<ul style="list-style-type: none"> <li>• Do not approach equipment while in operation.</li> <li>• Require backup alarms on all heavy equipment.</li> <li>• Make eye contact with operators before approaching equipment.</li> <li>• Understand and review hand signals.</li> </ul>	<b>M</b>
	Unsafe terrain.	<ul style="list-style-type: none"> <li>• Prior to mowing, all slopes and work areas will be thoroughly inspected for washes, potholes, or other surface irregularities that could cause the mower to overturn.</li> <li>• Prior to mowing work areas will be checked for debris. Items will be removed or their location flagged. Do not attempt mow over debris.</li> </ul>	<b>L</b>

	Fire hazards near dry vegetation.	<ul style="list-style-type: none"> <li>• Keep fire extinguisher nearby and be prepared to use it.</li> </ul>	<b>M</b>
Changed or unanticipated conditions.	Safety or health hazards that may be derived from changed or unanticipated conditions.	<ul style="list-style-type: none"> <li>• Modify the AHA as often as necessary to address new or unanticipated hazards.</li> <li>• Use SEI procedure HS045 “Job Safety Analysis” to facilitate field documentation.</li> </ul>	<b>L</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
<p><b>Personal Protective Equipment – Level D/Mod D</b></p> <p><b>Equipment:</b>            Chain saw            Chaps for chain saw operators            Tractor/mower            Weed eater            Fire extinguisher            Safety Can for Fuel</p>	<p>Competent Person (CP) / Qualified Person (QP):</p> <p>CP/SSHO: Burney Chance</p> <p>Alternate CP _____</p> <p>QP/First Aid and CPR _____</p> <p>QP/First Aid and CPR _____</p> <p>QP/Heavy Equipment Operator _____</p> <p>CP/Heavy Equipment Inspector _____</p> <p><b>Training Requirements:</b>            Site Safety Orientation            Applicable AHAs            HAZWOPER 40-Hour            Qualified Equipment Operators            Lifting/Back Safety            Fire Extinguisher Use            Emergency Procedures            Biological Hazard Identification And Control            Tornado Shelter Locations            National Lightning Safety Institute            Lightning Safety Procedures</p>	<p><b>Daily site safety inspection</b></p> <p>Check Known Allergies Questionnaire, training, and medical certifications against personnel roster</p> <p>Mechanized equipment (<i>U.S. Army Corps of Engineers form prior to use</i>)</p> <p>Mechanized Equipment (<i>daily</i>)</p> <p>Overhead and Underground Utilities</p> <p>Housekeeping (<i>daily</i>)</p> <p>Fire extinguisher (<i>weekly</i>)</p> <p>Vehicle Inspection (<i>daily</i>)</p> <p>Equipment and tools inspection (<i>Daily and Before Use</i>)</p> <p>Survey areas for poisonous plants, insects, and animals</p> <p>Check body for ticks</p> <p>Verify Tornado Shelter Availability</p>

## Activity Hazard Analysis #5.0

Activity/Work Task: Re-grading and Placement of New Soil Cap		Overall Risk Assessment Code (RAC) (Use highest code)			<b>M</b>		
Project Location: Site 21, Indian Head MD		<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order: JU49		<b>Severity</b>	<b>Probability</b>				
Date Prepared: 2/27/12			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Kym Edelman CSP		Catastrophic				<b>M</b>	
Reviewed by (Name/Title): David Mummert, CIH		Critical				<b>M</b>	
		Marginal	<b>M</b>	<b>M</b>			
		Negligible	<b>M</b>				
Notes: (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.			<b>RAC Chart</b>		
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.			<b>M = Moderate Risk</b>		
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>			<b>RAC</b>		
Arrival of new personnel at site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>All personnel shall attend the site orientation training.</li> <li>Review AHA, APP, SSHP, and Emergency Procedures, etc.</li> </ul>			<b>M</b>		
Soil grading and placement of new soil cap	Poor planning.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw Environmental &amp; Infrastructure, Inc. Procedure No. HS045, "Job Safety Analysis (JSA)." Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>			<b>M</b>		
	Heavy lifting, strains, and sprains.	<ul style="list-style-type: none"> <li>No individual employee is permitted to lift any object that weighs over 60 pounds.</li> <li>Proper lifting techniques shall be used.</li> <li>Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> </ul>			<b>M</b>		
	Intrusive activities and underground utilities.	<ul style="list-style-type: none"> <li>Follow procedure for Intrusive Activities Permit in Accident Prevention Plan (APP) prior to commencing excavation activities.</li> <li>Shaw E &amp; I Procedure No. HS308, "Underground/Overhead Utility Contact Prevention," shall be followed.</li> <li>Miss Utility shall be contacted prior to any intrusive activities.</li> </ul>			<b>M</b>		

Job Steps	Hazards	Controls	RAC
	Overhead hazards/utilities.	<ul style="list-style-type: none"> <li>• Overhead hazards shall be evaluated prior to moving equipment on the project site.</li> <li>• Overhead power lines shall be shut-off and locked-out.</li> <li>• Areas with overhead hazards shall be barricaded with caution tape to prevent contact</li> <li>• In areas where it is not feasible to use barricades, spotters shall be provided; however, the minimum distances from electrical lines must be observed.</li> </ul>	<b>M</b>
	Chemical contamination.	<ul style="list-style-type: none"> <li>• Set up work zones in accordance with SSHP</li> <li>• Personal protective equipment (PPE) shall be worn as required.</li> <li>• Perform air monitoring as specified in the Site Safety and Health Plan (SSHP).</li> <li>• Personnel shall wash hands and face before eating, drinking, smoking, or chewing.</li> </ul>	<b>L</b>
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>• Keep work areas clear and maintain housekeeping.</li> <li>• Personnel shall not jump from elevated surfaces.</li> <li>• Personnel shall use caution when walking on rocky, slippery, or uneven terrain.</li> </ul>	<b>M</b>
	Hand injuries.	<ul style="list-style-type: none"> <li>• Items to be handled shall be inspected for sharp edges prior to being handled.</li> <li>• Personnel shall wear leather gloves when handling sharp materials.</li> <li>• Personnel shall be aware of and avoid pinch point hazards.</li> </ul>	<b>L</b>
	Insect bites/West Nile Virus.	<ul style="list-style-type: none"> <li>• Wear PPE and tape joints to keep insects away from the skin.</li> <li>• Use protective insect repellents containing N,N-Diethyl-m-toluamide, such as, 3M Ultrathon or equivalent and clothing insecticide preparations containing permethrins (Repel Permanone or equivalent) to prevent insect bites.</li> <li>• Check limbs/body for insects/insect bites before showering.</li> <li>• Notify Site Safety and Health Officer (SSHO) of flu-like symptoms.</li> </ul>	<b>L</b>

Job Steps	Hazards	Controls	RAC
	Use of heavy equipment	<ul style="list-style-type: none"> <li>• Only qualified personnel shall be permitted to operate equipment.</li> <li>• Heavy equipment shall be inspected daily after the initial U.S. Army Corps of Engineers inspection (and documented.) Do not use unsafe equipment.</li> <li>• All equipment shall have backing alarms.</li> <li>• All equipment shall be operated at safe speeds and in a safe manner.</li> <li>• Equipment operators shall wear safety belts.</li> <li>• Personnel are only permitted to approach equipment after a signal from the operator.</li> <li>• Ground personnel, working near heavy equipment, shall wear high visibility conspicuity vests.</li> <li>• Ground personnel shall not enter the swing radius of equipment or position themselves between equipment and stationary objects.</li> <li>• Personnel shall verify all mechanical guards are in place and functioning properly.</li> <li>• All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply. Only qualified mechanics shall work on or repair heavy equipment.</li> </ul>	<b>M</b>
	Contact dermatitis and poison ivy	<ul style="list-style-type: none"> <li>• Check around work areas to identify if poison ivy is present. Wear long-sleeve shirts/trousers or Tyvek® coveralls to avoid skin contact with plants or other skin irritants. Learn to identify poisonous plants.</li> <li>• Avoid unnecessary clearing of plant/vegetation areas.</li> <li>• Cover vegetation with plastic (visqueen) where sampling position raises exposure potential. Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions. Identify workers who are known to contract poison ivy.</li> </ul>	<b>L</b>
	Severe weather	<ul style="list-style-type: none"> <li>• The SSHO will monitor weather conditions each day in order to plan and prepare for hazardous conditions.</li> <li>• The SSHO will identify a suitable tornado shelter at each work location.</li> <li>• Work activities will be suspended prior to weather conditions becoming hazardous so that workers have ample time to seek shelter.</li> <li>• Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (inside vehicles, buildings, or tornado shelters as appropriate). Follow procedures outlined in the APP.</li> </ul>	<b>L</b>
	Heat stress and cold stress	<ul style="list-style-type: none"> <li>• Follow procedures outlined in the SSHP.</li> </ul>	<b>L</b>
	Dust.	<ul style="list-style-type: none"> <li>• Dust shall be monitored and controlled.</li> <li>• Respiratory protection may be required if dust cannot be adequately controlled.</li> </ul>	<b>M</b>

Job Steps	Hazards	Controls	RAC
	Fire	<ul style="list-style-type: none"> <li>• Smoking shall be permitted in designated areas only.</li> <li>• Vehicles shall not be parked in tall dry grass.</li> <li>• Engines shall be shut off before refueling.</li> <li>• A 20-B:C fire extinguisher shall be available when refueling.</li> <li>• Smoking shall not be permitted near fueling areas.</li> <li>• Gasoline shall be stored in safety cans with flash arrestors and spring-loaded vents.</li> </ul>	L
Transporting Soil	Dump truck operations	<ul style="list-style-type: none"> <li>• Dump trucks shall be inspected and found to be in safe condition prior to being placed in service at site.</li> <li>• Overhead hazards shall be re-evaluated prior to allowing dump trucks onto the project site.</li> <li>• Areas with overhead hazards shall be barricaded with caution tape to prevent dump bed from contacting.</li> <li>• In areas where it is not feasible to use barricades, then spotters shall be provided: however, the minimum distances from electrical lines must be observed (see SSHP).</li> <li>• Dump trucks shall not be allowed to contact contaminated materials within Site unless proper decontamination will be performed.</li> <li>• Dump truck operators shall remain in the truck cab with the windows up while on the project site, unless truck is not equipped with Falling Object Protective Structures.</li> <li>• Operators shall wear seat belts while trucks are in motion at the project site.</li> <li>• Spotters shall assist trucks when backing is necessary.</li> <li>• Trucks transporting material between work locations over base and public roadways shall have all loose material cleaned from the tailgate and side boards prior to transporting material.</li> <li>• Roadways shall be kept clean and free of soil.</li> <li>• All trucks shall obey posted speed limits on base and public roadways.</li> </ul>	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
<p>Personal Protective Equipment - Level D</p> <p>Equipment:            Heavy Equipment            Dump Trucks            Fire Extinguishers            Emergency Eyewash            First Aid Kit            Deep-Woods Off or Ultrathon            Repel Permanone            Weather radio or AM/FM radio            Hand tools            Heavy equipment</p>	<p>Competent Person (CP) / Qualified Person (QP):</p> <p>CP/SSHO: Burney Chance</p> <p>Alternate CP _____</p> <p>QP/First Aid and CPR _____</p> <p>QP/First Aid and CPR _____</p> <p>QP/Heavy Equipment Operator _____</p> <p>CP/Heavy Equipment Inspector _____</p> <p><b>Training Requirements:</b>            Site Safety Orientation            Applicable AHAs            HAZWOPER 40-Hour            Qualified Equipment Operators            Lifting/Back Safety            Fire Extinguisher Use            Emergency Procedures            Biological Hazard Identification And Control            Tornado Shelter Locations            National Lightning Safety Institute            Lightning Safety Procedures</p>	<p><b>Daily site safety inspection</b></p> <p>Check Known Allergies Questionnaire, training, and medical certifications against personnel roster            Mechanized equipment (<i>U.S. Army Corps of Engineers form prior to use</i>)            Mechanized Equipment (<i>daily</i>)            Overhead and Underground Utilities            Housekeeping (<i>daily</i>)            Fire extinguisher (<i>weekly</i>)            Vehicle Inspection (<i>daily</i>)            Equipment and tools inspection (<i>Daily and Before Use</i>)            Survey areas for poisonous plants, insects, and animals            Check body for ticks            Verify Tornado Shelter Availability</p>

## ACTIVITY HAZARD ANALYSIS (AHA) #6

<b>Activity/Work Task:</b> Installation of Permanent Stormwater Conveyance Pipes, Inlets, and Rip-Rap	<b>Overall Risk Assessment Code (Use highest code)</b>	<b>M</b>				
<b>Project Location:</b> Site 21, Indian Head, Maryland	<b>Risk Assessment Code (RAC) Matrix</b>					
<b>Contract Number:</b> N62470-08-D-1007 <b>TO:</b> JU49	<b>Hazard Severity</b>	<b>Hazard Probability</b>				
<b>Date Prepared:</b> 02/27/12		Frequent	Likely	Occasional	Seldom	Unlikely
<b>Prepared by (Name/Title):</b> Kym Edelman CSP	Catastrophic (I) – death, system loss, or severe environmental damage			H	H	M
	Critical (II) – disabling injury, major system or environmental damage		H	H	M	
<b>Reviewed by (Name/Title):</b> David Mummert, CIH	Marginal (III) – recordable injury, minor system or environmental damage	H	M	M		
	Negligible (IV) – first aid, minor system impairment	M				
<b>Notes:</b> (Field Notes, Review Comments, etc.)	Step 1: Review each “Hazard” with identified safety “Controls” and determine RAC (See above)					
	“Probability” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				<b>RAC Chart</b>	
	“Severity” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				H = High Risk	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.				M = Moderate Risk	

PRINCIPLE STEP	HAZARD	CONTROLS	RAC																		
Excavation/Install Piping/Inlets/Rip-Rap	Overhead utilities	<ul style="list-style-type: none"> <li>• Maintain required overhead clearances from power lines:  <table border="1" style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Nominal System Voltage</u></th> <th style="text-align: left;"><u>Minimum Required Clearances</u></th> </tr> </thead> <tbody> <tr> <td>0.6 - 50 kV</td> <td>10 feet</td> </tr> <tr> <td>over 50 - 75 kV</td> <td>11 feet</td> </tr> <tr> <td>over 75 - 125 kV</td> <td>13 feet</td> </tr> <tr> <td>over 125 - 175 kV</td> <td>15 feet</td> </tr> <tr> <td>over 175 - 250 kV</td> <td>17 feet</td> </tr> <tr> <td>over 250 - 370 kV</td> <td>21 feet</td> </tr> <tr> <td>over 370 - 550 kV</td> <td>27 feet</td> </tr> <tr> <td>over 550 - 1000 kV</td> <td>42 feet</td> </tr> </tbody> </table> </li> </ul>	<u>Nominal System Voltage</u>	<u>Minimum Required Clearances</u>	0.6 - 50 kV	10 feet	over 50 - 75 kV	11 feet	over 75 - 125 kV	13 feet	over 125 - 175 kV	15 feet	over 175 - 250 kV	17 feet	over 250 - 370 kV	21 feet	over 370 - 550 kV	27 feet	over 550 - 1000 kV	42 feet	L
	<u>Nominal System Voltage</u>	<u>Minimum Required Clearances</u>																			
	0.6 - 50 kV	10 feet																			
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over 175 - 250 kV	17 feet																				
over 250 - 370 kV	21 feet																				
over 370 - 550 kV	27 feet																				
over 550 - 1000 kV	42 feet																				
Underground utilities	<ul style="list-style-type: none"> <li>• Follow Shaw HS 308.</li> <li>• Heed mark-outs and dig manually within 3 feet of underground utilities</li> </ul>	M																			
Exposure to contaminants	<ul style="list-style-type: none"> <li>• Use PPE in accordance with SSHSP</li> <li>• Apply water for dust control.</li> <li>• Stop operations in high winds.</li> <li>• Avoid inhalation, ingestion, contact with potentially contaminated soils;</li> <li>• Conduct air monitoring as required by the SSHSP.</li> </ul>	L																			

PRINCIPLE STEP	HAZARD	CONTROLS	RAC
	Struck by/against heavy equipment	<ul style="list-style-type: none"> <li>• Only qualified operators shall operate heavy equipment.</li> <li>• Only qualified personnel shall be permitted to operate equipment.</li> <li>• Heavy equipment shall be inspected daily after the initial inspection.</li> <li>• Do not use unsafe equipment.</li> <li>• All equipment shall have backing alarms.</li> <li>• All equipment shall be operated at safe speeds and in a safe manner. Equipment operators shall wear safety belts.</li> <li>• Personnel are only permitted to approach equipment after a signal from the operator.</li> <li>• Ground personnel, working near heavy equipment, shall wear high visibility conspicuity vests.</li> <li>• Ground personnel shall not enter the swing radius of equipment.</li> <li>• Ground personnel shall not position themselves between equipment and stationary objects.</li> <li>• Personnel shall verify all mechanical guards are in place and functioning properly.</li> <li>• Moving equipment shall be equipped with a back-up alarm.</li> <li>• All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply.</li> <li>• Only qualified mechanics shall work on or repair heavy equipment..</li> </ul>	<b>M</b>
	Suspended Loads/Use of Rigging	<ul style="list-style-type: none"> <li>• Ensure weights of materials to be lifted are known as well as capacities of lifting devices, equipment, rigging</li> <li>• Inspect all lifting devices and rigging in accordance with manufacturer's requirements, EM 385, and OSHA</li> <li>• Rigging and lifting shall be conducted in accordance with applicable sections of HS 823</li> <li>• Stay clear of all suspended loads and strike zones in the event of load failure</li> <li>• Ensure spotters are utilized</li> </ul>	<b>M</b>

PRINCIPLE STEP	HAZARD	CONTROLS	RAC
	Handling heavy objects	<ul style="list-style-type: none"> <li>• Observe proper lifting techniques.</li> <li>• Obey sensible lifting limits (60 lb. maximum per person manual lifting).</li> <li>• Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads.</li> </ul>	<b>M</b>
	Slips, trips, and falls	<ul style="list-style-type: none"> <li>• Clear walkways, work areas of equipment, vegetation, excavated material, tools, and debris.</li> <li>• Mark, identify, or barricade other obstructions.</li> <li>• Avoid walking across open trenches and through excavated materials</li> <li>• Barricade sides of open trench and ensure proper access/egress into trench</li> <li>• Use caution when walking through areas where piping has been installed</li> </ul>	<b>L</b>
	Caught in/between moving parts	<ul style="list-style-type: none"> <li>• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar injuries.</li> <li>• Assure guards are in place to protect from these parts of equipment during operation.</li> <li>• Provide and use proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects.</li> <li>• Maintain all equipment in a safe condition.</li> <li>• Keep all guards in place during use.</li> <li>• De-energize and lock-out machinery before maintenance or service.</li> </ul>	<b>M</b>
	Sharp objects	<ul style="list-style-type: none"> <li>• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects.</li> <li>• Maintain all hand and power tools in a safe condition.</li> <li>• Keep guards in place during use.</li> </ul>	<b>L</b>

PRINCIPLE STEP	HAZARD	CONTROLS	RAC
	High noise levels	<ul style="list-style-type: none"> <li>• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period).</li> <li>• Assess noise level with sound level meter if possibility exists that level may exceed 85 dBA TWA.</li> </ul>	<b>L</b>
	High ambient temperature	<ul style="list-style-type: none"> <li>• Protect skin from ultraviolet rays by wearing your hard hat, long pants, long sleeved shirts, and sunscreen lotion.</li> <li>• Wear clothing / PPE suitable for weather and working conditions.</li> <li>• Keep an eye on your working buddy for signs of heat stress.</li> <li>• Drink fluids and rest when needed.</li> <li>• Monitor for heat stress.</li> </ul>	<b>L</b>
	Caught in/between moving parts	<ul style="list-style-type: none"> <li>• Identify and understand parts of equipment which may cause crushing, pinching, rotating or similar injuries.</li> <li>• Assure guards are in place to protect from these parts of equipment during operation.</li> <li>• Provide and use proper work gloves when the possibility of crush, pinch, or other injury may be caused by moving/stationary edges or objects.</li> <li>• Maintain all equipment in a safe condition.</li> <li>• Keep all guards in place during use.</li> <li>• De-energize and lock-out machinery before maintenance or service.</li> </ul>	<b>M</b>
	Sharp objects	<ul style="list-style-type: none"> <li>• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects.</li> <li>• Maintain all hand and power tools in a safe condition.</li> <li>• Keep guards in place during use.</li> </ul>	<b>L</b>
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PRINCIPLE STEP	HAZARD	CONTROLS	RAC
	High ambient temperature	<ul style="list-style-type: none"> <li>• Protect skin from ultraviolet rays by wearing your hard hat, long pants, long sleeved shirts, and sunscreen lotion.</li> <li>• Wear clothing / PPE suitable for weather and working conditions.</li> <li>• Keep an eye on your working buddy for signs of heat stress.</li> <li>• Drink fluids and rest when needed.</li> <li>• Monitor for heat stress.</li> </ul>	L

4

EQUIPMENT TO BE USED	TRAINING REQUIREMENTS/COMPETENT OR QUALIFIED PERSONNEL NAME(S)	INSPECTION REQUIREMENTS
<p><b>Personal Protective Equipment – Modified Level D:</b></p> <p><b>Equipment:</b>            Excavator, loader, or backhoe            Dump trucks            Lifting/Rigging Equipment            Piping            Air monitoring equipment            Fire Extinguishers            Emergency Eyewash            First Aid Kit            Deep-Woods Off or Ultrathon            Repel Permanone            Weather radio or AM/FM radio            Air sampling instruments</p>	<p>Competent Person (CP) / Qualified Person (QP):</p> <p>CP/SSHO: Burney Chance</p> <p>Alternate CP _____</p> <p>QP/First Aid and CPR _____</p> <p>QP/First Aid and CPR _____</p> <p>QP/Heavy Equipment Operator _____</p> <p>CP/Heavy Equipment Inspector _____</p> <p><b>Training Requirements:</b>            Site Safety Orientation            Applicable AHAs            HAZWOPER 40-Hour            Qualified Equipment Operators            Lifting/Back Safety            Fire Extinguisher Use            Emergency Procedures            Biological Hazard Identification And Control            Tornado Shelter Locations            National Lightning Safety Institute            Lightning Safety Procedures</p>	<p><b>Daily site safety inspection</b></p> <p>Check Known Allergies Questionnaire, training, and medical certifications against personnel roster            Mechanized equipment (<i>U.S. Army Corps of Engineers form prior to use</i>)            Mechanized Equipment (<i>daily</i>)            Overhead and Underground Utilities            Housekeeping (<i>daily</i>)            Fire extinguisher (<i>weekly</i>)            Vehicle Inspection (<i>daily</i>)            Equipment and tools inspection (<i>Daily and Before Use</i>)            Survey areas for poisonous plants, insects, and animals            Check body for ticks            Verify Tornado Shelter Availability</p>

## Activity Hazard Analysis (AHA) 7.0

Activity/Work Task: Site Restoration		Overall Risk Assessment Code (RAC) (Use highest code)				<b>M</b>
Project Location: Site 21, Indian Head MD		<b>Risk Assessment Code (RAC) Matrix</b>				
Contract Number: N62470-08-D-1007 Task Order JU49		<b>Severity</b>	<b>Probability</b>			
Date Prepared: 2/27/12			Frequent	Likely	Occasional	Seldom
Prepared by (Name/Title): Kym Edelman, CSP		Catastrophic				<b>M</b>
Reviewed by (Name/Title): David Mummert, CIH		Critical				<b>M</b>
		Marginal	<b>M</b>	<b>M</b>		
Notes: (Field Notes, Review Comments, etc.)		Negligible	<b>M</b>			
		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)				
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.			<b>RAC Chart</b>	
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.			<b>M = Moderate Risk</b>	
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>				<b>RAC</b>
Arrival of new personnel at site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>All personnel shall attend the site orientation training.</li> </ul>				<b>M</b>
Restore site.	Poor planning.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw Procedure No. HS045, "Job Safety Analysis (JSA)."</li> <li>Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>				<b>M</b>
	Heavy lifting, strains, and sprains.	<ul style="list-style-type: none"> <li>No individual employee is permitted to lift any object that weighs over 60 pounds.</li> <li>Proper lifting techniques shall be used.</li> <li>Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> </ul>				<b>M</b>
	Intrusive activities and underground utilities.	<ul style="list-style-type: none"> <li>Follow procedure for Intrusive Activities Permit in Accident Prevention Plan (APP) prior to commencing excavation activities.</li> <li>Shaw Procedure No. HS308, "Underground/Overhead Utility Contact Prevention," shall be followed. Miss Utility shall be contacted prior to any intrusive activities.</li> </ul>				<b>M</b>

	Overhead hazards/utilities.	<ul style="list-style-type: none"> <li>Overhead hazards shall be evaluated prior to moving equipment on the project site.</li> <li>Overhead power lines shall be shut-off and locked-out.</li> <li>Areas with overhead hazards shall be barricaded with caution tape to prevent contact</li> <li>In areas where it is not feasible to use barricades, spotters shall be provided; however, the minimum distances from electrical lines must be observed.</li> </ul>	<b>M</b>
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>	<b>RAC</b>
Restore site (continued).	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>Keep work areas clear and maintain housekeeping. Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain.</li> </ul>	<b>M</b>
	Hand injuries.	<ul style="list-style-type: none"> <li>Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.</li> </ul>	<b>L</b>
	Use of heavy equipment.	<ul style="list-style-type: none"> <li>Only qualified personnel shall be permitted to operate equipment.</li> <li>Heavy equipment shall be inspected daily after the initial inspection.</li> <li>Do not use unsafe equipment.</li> <li>All equipment shall have backing alarms.</li> <li>All equipment shall be operated at safe speeds and in a safe manner. Equipment operators shall wear safety belts.</li> <li>Personnel are only permitted to approach equipment after a signal from the operator.</li> <li>Ground personnel, working near heavy equipment, shall wear high visibility conspicuity vests.</li> <li>Ground personnel shall not enter the swing radius of equipment.</li> <li>Ground personnel shall not position themselves between equipment and stationary objects.</li> <li>Personnel shall verify all mechanical guards are in place and functioning properly. Moving equipment shall be equipped with a back-up alarm.</li> <li>All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply.</li> <li>Only qualified mechanics shall work on or repair heavy equipment.</li> </ul>	<b>M</b>
	Insect bites/West Nile Virus.	<ul style="list-style-type: none"> <li>Wear PPE and tape joints to keep insects away from the skin.</li> <li>Use protective insect repellents containing N,N-Diethyl-m-toluamide, such as, 3M Ultrathon or equivalent and clothing insecticide preparations containing permethrins (Repel Permanone or equivalent) to prevent insect bites.</li> <li>Check limbs/body for insects/insect bites before showering.</li> <li>Notify Site Safety and Health Officer (SSHO) of flu-like symptoms.</li> </ul>	<b>L</b>
	Contact dermatitis and poison ivy.	<ul style="list-style-type: none"> <li>Check around work areas to identify if poison ivy is present. Wear long-sleeve</li> </ul>	<b>L</b>

Job Steps	Hazards	Controls	RAC
		shirts/trousers or Tyvek® coveralls to avoid skin contact with plants or other skin irritants. <ul style="list-style-type: none"> <li>• Learn to identify poisonous plants.</li> <li>• Avoid unnecessary clearing of plant/vegetation areas.</li> <li>• Cover vegetation with plastic (visqueen) where work task raises exposure potential.</li> <li>• Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions. Identify workers who are known to contract poison ivy.</li> </ul>	
	Severe weather.	<ul style="list-style-type: none"> <li>• The SSHO/SS will monitor weather conditions each day in order to plan and prepare for hazardous conditions.</li> <li>• The SSHO/SS will identify a suitable tornado shelter at each work location.</li> <li>• Work activities will be suspended prior to weather conditions becoming hazardous so that workers have ample time to seek shelter.</li> <li>• Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (inside vehicles, buildings, or tornado shelters as appropriate).</li> <li>• Follow procedures outlined in the APP.</li> </ul>	<b>L</b>
	Heat stress and cold stress.	<ul style="list-style-type: none"> <li>• Follow procedures outlined in the Site Safety and Health Plan (SSHP).</li> </ul>	<b>M</b>
	Dust.	<ul style="list-style-type: none"> <li>• Dust shall be monitored and controlled.</li> </ul>	<b>L</b>
Restore site (continued).	Fire.	<ul style="list-style-type: none"> <li>• Smoking shall be permitted in designated areas. Vehicles shall not be parked in tall dry grass.</li> <li>• Engines shall be shut off before refueling.</li> <li>• A 40-B:C fire extinguisher shall be available when refueling.</li> <li>• Smoking shall not be permitted near fueling areas.</li> <li>• Gasoline shall be stored in safety cans with flash arrestors and spring-loaded vents.</li> </ul>	<b>M</b>
	Use of fertilizers.	<ul style="list-style-type: none"> <li>• The material safety data sheet for fertilizers shall be read and understood. Personnel shall avoid contact with fertilizer.</li> </ul>	<b>L</b>
	Electrocution.	<ul style="list-style-type: none"> <li>• Only qualified electricians shall perform electrical disconnection activities.</li> </ul>	<b>M</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Personal Protective Equipment - Level D:  Equipment: Heavy Equipment Power and Hand Tools Fire Extinguishers Emergency Eyewash First Aid Kit Deep-Woods Off or Ultrathon Repel Permanone NOAA Weather radio	Competent Person (CP) / Qualified Person (QP):  CP/SSHO: Burney Chance  Alternate CP _____  QP/First Aid and CPR _____  QP/First Aid and CPR _____  QP/Heavy Equipment Operator _____  CP/Heavy Equipment Inspector _____  <b>Training Requirements:</b> Site Safety Orientation Applicable AHAs HAZWOPER 40-Hour Qualified Equipment Operators Lifting/Back Safety Fire Extinguisher Use Emergency Procedures Biological Hazard Identification And Control Tornado Shelter Locations National Lightning Safety Institute Lightning Safety Procedures	<b>Daily site safety inspection</b>  Check Known Allergies Questionnaire, training, and medical certifications against personnel roster Mechanized equipment ( <i>U.S. Army Corps of Engineers form prior to use</i> ) Mechanized Equipment ( <i>daily</i> ) Overhead and Underground Utilities Housekeeping ( <i>daily</i> ) Fire extinguisher ( <i>weekly</i> ) Vehicle Inspection ( <i>daily</i> ) Equipment and tools inspection ( <i>Daily and Before Use</i> ) Survey areas for poisonous plants, insects, and animals Check body for ticks Verify Tornado Shelter Availability

## Activity Hazard Analysis (AHA) 8.0

<b>Activity/Work Task:</b> Transportation and Disposal		Overall Risk Assessment Code (RAC) (Use highest code)			<b>M</b>	
<b>Project Location:</b> Site 21, Indian Head MD		<b>Risk Assessment Code (RAC) Matrix</b>				
<b>Contract Number:</b> N62470-08-D-1007 <b>Task Order</b> JU50		<b>Severity</b>	<b>Probability</b>			
<b>Date Prepared:</b> 2/27/12			Frequent	Likely	Occasional	Seldom
<b>Prepared by (Name/Title):</b> Kym Edelman, CSP		Catastrophic				<b>M</b>
<b>Reviewed by (Name/Title):</b> David Mummert, CIH		Critical				<b>M</b>
		Marginal	<b>M</b>		<b>M</b>	
<b>Notes:</b> (Field Notes, Review Comments, etc.)		Negligible	<b>M</b>			
		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)				
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.			<b>RAC Chart</b>	
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.			<b>M = Moderate Risk</b>	
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>			<b>RAC</b>	
Arrival of new personnel at site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>All personnel shall attend the site orientation training.</li> </ul>			<b>M</b>	
Excavation and load-out of soil	Poor planning.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw Environmental &amp; Infrastructure, Inc. Procedure No. HS045, "Job Safety Analysis (JSA)."</li> <li>Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>			<b>M</b>	
	Heavy lifting, strains, and sprains.	<ul style="list-style-type: none"> <li>No individual employee is permitted to lift any object that weighs over 60 pounds.</li> <li>Proper lifting techniques shall be used.</li> <li>Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> </ul>			<b>M</b>	
	Intrusive activities and underground utilities.	<ul style="list-style-type: none"> <li>Follow procedure for Intrusive Activities Permit in Accident Prevention Plan (APP) prior to commencing excavation activities.</li> <li>Shaw E &amp; I Procedure No. HS308, "Underground/Overhead</li> </ul>			<b>M</b>	

Job Steps	Hazards	Controls	RAC
		Utility Contact Prevention," shall be followed. The Ohio Utilities Protection Service shall be contacted prior to any intrusive activities.	
	Overhead hazards/utilities.	<ul style="list-style-type: none"> <li>• Overhead hazards shall be evaluated prior to moving equipment on the project site.</li> <li>• Overhead power lines shall be shut-off and locked-out.</li> <li>• Areas with overhead hazards shall be barricaded with caution tape to prevent contact</li> <li>• In areas where it is not feasible to use barricades, spotters shall be provided: however, the minimum distances from electrical lines must be observed.</li> </ul>	<b>M</b>
	Chemical contamination.	<ul style="list-style-type: none"> <li>• Set up work zones and personnel washing facilities.</li> <li>• Personal protective equipment (PPE) shall be worn as required.</li> <li>• Perform air monitoring as specified in the Site Safety and Health Plan (SSHP).</li> <li>• Personnel shall wash hands and face before eating, drinking, smoking, or chewing.</li> </ul>	<b>L</b>
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>• Keep work areas clear and maintain housekeeping. Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain.</li> </ul>	<b>M</b>
	Hand injuries.	<ul style="list-style-type: none"> <li>• Items to be handled shall be inspected for sharp edges prior to being handled.</li> <li>• Personnel shall wear leather gloves when handling sharp materials.</li> <li>• Personnel shall be aware of and avoid pinch point hazards.</li> </ul>	<b>L</b>
	Use of heavy equipment.	<ul style="list-style-type: none"> <li>• Only qualified personnel shall be permitted to operate equipment.</li> <li>• Heavy equipment shall be inspected daily after the initial U.S. Army Corps of Engineers inspection (and documented.) Do not use unsafe equipment.</li> <li>• All equipment shall have backing alarms.</li> <li>• All equipment shall be operated at safe speeds and in a safe manner.</li> <li>• Equipment operators shall wear safety belts.</li> <li>• Personnel are only permitted to approach equipment after a signal from the operator.</li> <li>• Ground personnel, working near heavy equipment, shall wear</li> </ul>	<b>M</b>

Job Steps	Hazards	Controls		RAC
		<ul style="list-style-type: none"> <li>high visibility conspicuity vests.</li> <li>• Ground personnel shall not enter the swing radius of equipment. Ground personnel shall not position themselves between equipment and stationary objects.</li> <li>• Personnel shall verify all mechanical guards are in place and functioning properly.</li> <li>• Moving equipment shall be equipped with a back-up alarm.</li> <li>• All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply.</li> <li>• Only qualified mechanics shall work on or repair heavy equipment.</li> </ul>		
	Severe weather.	<ul style="list-style-type: none"> <li>• The SSHO/SS will monitor weather conditions each day in order to plan and prepare for hazardous conditions.</li> <li>• The SSHO/SS will identify a suitable tornado shelter at each work location.</li> <li>• Work activities will be suspended prior to weather conditions becoming hazardous so that workers have ample time to seek shelter.</li> <li>• Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (inside vehicles, buildings, or tornado shelters as appropriate).</li> <li>• Follow procedures outlined in the APP.</li> </ul>		<b>L</b>
	Heat stress and cold stress.	<ul style="list-style-type: none"> <li>• Follow procedures outlined in the SSHP as well as Shaw HS 400 and 401.</li> </ul>		<b>M</b>
	Dust.	<ul style="list-style-type: none"> <li>• Dust shall be monitored and controlled.</li> <li>• Respiratory protection may be required if dust cannot be adequately controlled.</li> </ul>		<b>L</b>
	Fire.	<ul style="list-style-type: none"> <li>• Smoking shall be permitted in designated areas. Vehicles shall not be parked in tall dry grass.</li> <li>• Engines shall be shut off before refueling. A 40-B:C fire extinguisher shall be available when refueling. Smoking shall not be permitted near fueling areas. Gasoline shall be stored in safety cans with flash arrestors and spring-loaded vents.</li> </ul>		<b>L</b>

Job Steps	Hazards	Controls	RAC
	Dump truck operations.	<ul style="list-style-type: none"> <li>• Dump trucks shall be inspected and found to be in safe condition prior to being placed in service at site.</li> <li>• Overhead hazards shall be re-evaluated prior to allowing dump trucks onto the project site.</li> <li>• Areas with overhead hazards shall be barricaded with caution tape to prevent dump bed from contacting.</li> <li>• In areas where it is not feasible to use barricades, then spotters shall be provided; however, the minimum distances from electrical lines must be observed (see SSHP).</li> <li>• Dump trucks shall not be allowed to contact contaminated materials unless proper decontamination will be performed.</li> <li>• Dump truck operators shall remain in the truck cab with the windows up while on the project site, unless truck is not equipped with Falling Object Protective Structures.</li> <li>• Operators shall wear seat belts while trucks are in motion at the project site.</li> <li>• Spotters shall assist trucks when backing is necessary.</li> </ul>	<b>M</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Personal Protective Equipment - Level D  Equipment: Fire Extinguishers Emergency Eyewash First Aid Kit Deep-Woods Off or Ultrathon Repel Permanone Weather radio or AM/FM radio Hand tools Heavy equipment Level D; Class 2 Reflective vests	Competent Person (CP) / Qualified Person (QP):  CP/SSHO: Burney Chance  Alternate CP _____  QP/First Aid and CPR _____  QP/First Aid and CPR _____  QP/Heavy Equipment Operator _____  CP/Heavy Equipment Inspector _____  <b>Training Requirements:</b> Site Safety Orientation Applicable AHAs HAZWOPER 40-Hour Qualified Equipment Operators	<b>Daily site safety inspection</b>  Check Known Allergies Questionnaire, training, and medical certifications against personnel roster Mechanized equipment ( <i>U.S. Army Corps of Engineers form prior to use</i> ) Mechanized Equipment ( <i>daily</i> ) Overhead and Underground Utilities Housekeeping ( <i>daily</i> ) Fire extinguisher ( <i>weekly</i> ) Vehicle Inspection ( <i>daily</i> ) Equipment and tools inspection ( <i>Daily and Before Use</i> ) Survey areas for poisonous plants, insects, and animals Check body for ticks Verify Tornado Shelter Availability

	<p>Lifting/Back Safety Fire Extinguisher Use Emergency Procedures Biological Hazard Identification And Control Tornado Shelter Locations National Lightning Safety Institute Lightning Safety Procedures</p>	
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## APPENDIX C

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### *HAZARDOUS CHEMICAL INVENTORY LIST AND MATERIAL SAFETY DATA SHEETS*

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***NOTE: MSDSs for all materials are included on CD in this Work Plan and a paper copy provided in the field copy of this SSHP maintained onsite.***

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## APPENDIX D

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### *SHAW HEALTH AND SAFETY PROCEDURES*

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***The following Shaw Health and Safety procedures are included on CD in this Work Plan and a paper copy will be provided in the field copy of this SSHP maintained onsite.***

<b>Policy Number</b>	<b><i>Shaw Environmental &amp; Infrastructure Standard Operating Procedures</i></b>
HS001	<i>Environmental Health &amp; Safety Policy</i>
HS002	<i>Occupational Health and Safety Management System (SMS)</i>
HS003	<i>Philosophy for Procedures</i>
HS009	<i>New Employee Health and Safety Orientation Requirements</i>
HS010	<i>Employee Health and Safety Manual</i>
HS011	<i>Health &amp; Safety Rules for Contractors</i>
HS012	<i>Chemical Hygiene Plan</i>
HS013	<i>Health and Safety Procedure Variance</i>
HS014	<i>Severe Weather Policy and Procedures</i>
HS018	<i>Safety Councils</i>
HS019	<i>Injury and Illness Prevention Program</i>
HS020	<i>Accident Prevention Program: Reporting, Investigation, and Review</i>
HS021.a	<i>Accident Prevention Program: Tier 1, Sr. Management, Leadership Safety Assessments</i>
HS021.b	<i>Accident Prevention Program: Tier 2 Management Safety Inspections</i>
HS021.c	<i>Accident Prevention Program: Management Safety Inspections</i>
HS022	<i>Accident Prevention Program: Review of New Proposals, Projects, Operations, Construction, and Jobs by Health and Safety</i>
HS023	<i>Accident Prevention Program: Employee Safety Incentives &amp; Team Safety Award Program</i>
HS024	<i>Prevention of Repetitive Motion Injuries (Applies to California Only)</i>
HS025	<i>Workplace Anti-Violence Policy</i>
HS026	<i>Safety Observation Program</i>
HS040	<i>Stop Work Authority</i>
HS041	<i>Embryo-Fetus Protection Program</i>
HS045	<i>Job Safety Analysis (JSA)</i>
HS050	<i>Employee and Subcontractor Training Requirements</i>
HS051	<i>Tailgate Safety Meetings</i>
HS052	<i>Health and Safety Plans</i>
HS060	<i>Hazard Communication Program</i>
HS062	<i>Hazardous Waste Operations (RCRA)</i>
HS090	<i>Occupational Safety and Health Administration (OSHA) Regulatory Inspections</i>
HS091	<i>Reporting of Fatality or Multiple Hospitalization Incidents</i>
HS100	<i>Medical Policies and Procedures</i>
HS101	<i>Drug and Alcohol Testing</i>
HS102	<i>Management of Employee Exposure and Medical Records</i>

<b>Policy Number</b>	<b><i>Shaw Environmental &amp; Infrastructure Standard Operating Procedures</i></b>
HS104	<i>Employee Notification of Industrial Hygiene Monitoring Results</i>
HS106	<i>Medical Services &amp; First Aid</i>
HS300	<i>Confined Spaces</i>
HS301	<i>Fall Protection</i>
HS302	<i>Portable Ladder Safety</i>
HS303	<i>Pressurized Water Cleaning and Cutting Equipment</i>
HS304	<i>Compressed Gas Cylinders</i>
HS306	<i>Handling Compressed Gas Cylinders with Unknown Contents</i>
HS307	<i>Excavation and Trenching</i>
HS308	<i>Underground/Overhead Utility Contact Prevention 2/20/2006</i>
HS309	<i>Underground Storage Tank Removal</i>
HS312	<i>Electrical Safety</i>
HS313	<i>Fire Protection</i>
HS314	<i>Hot Work</i>
HS315	<i>Control of Hazardous Energy and Hazardous Material Sources (Lockout/Tagout)</i>
HS316	<i>Drill Rig Operations</i>
HS317	<i>Munitions and Explosives of Concern (MEC)</i>
HS400	<i>Heat Stress</i>
HS401	<i>Cold Stress</i>
HS402	<i>Hearing Conservation Program</i>
HS403	<i>Fatigue Management</i>
HS500	<i>OSHA Regulated Toxic and Hazardous Substances</i>
HS501	<i>Cadmium Compliance Plan</i>
HS502	<i>Lead Compliance Plan</i>
HS503	<i>Benzene Compliance Plan</i>
HS504	<i>Asbestos Compliance Plan</i>
HS505	<i>Hexavalent Chromium Protection</i>
HS512	<i>Handling of Blood or Other Potentially Infectious Material</i>
HS600	<i>Personal Protective Equipment</i>
HS601	<i>Respiratory Protection Program</i>
HS700	<i>Policy &amp; Guidance For Developing Radiation Protection Plans</i>
HS800	<i>Motor Vehicle Operation: General Requirements</i>
HS810	<i>Commercial Motor Vehicle Regulations and DOT Compliance</i>
HS811	<i>Compliance Requirements for DOT's Emergency Response Information Telephone Number</i>
HS820	<i>Forklift Operation</i>
HS822	<i>Crane Operations</i>
HS823	<i>Rigging &amp; Lifting</i>

APPENDIX E  
*SHAW HEALTH AND SAFETY FORMS*

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## APPENDIX F

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### *HURRICANE PREPAREDNESS PLAN*

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## HURRICANE PREPAREDNESS PLAN

### SITE 21 – BRONSON ROAD LANDFILL NAVAL SUPPORT FACILITY INDIAN HEAD INDIAN HEAD, MARYLAND

CONTRACT NO. N62470-08-D-1007

*Prepared for:*

**Department of the Navy**

Naval Facilities Engineering Command, Washington

1314 Harwood Street, Bldg. 212

Washington Navy Yard,

Washington, DC 20374

*Prepared by:*

**Shaw Environmental and Infrastructure, Inc.**

500 East Main Street, Suite 1630

Norfolk, Virginia 23510

TASK ORDER JU49  
SHAW PROJECT NO. 142879

**JUNE 2012**

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Attachment D       Hurricane Tracking Map

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*LIST OF ACRONYMS AND ABBREVIATIONS*

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COR	Condition of Readiness
FEMA	Federal Emergency Management Administration
HPP	Hurricane Preparedness Plan
KO	Contracting Officer
km/hr	Kilometers per Hour
mph	Miles per Hour
Navy	U.S. Department of the Navy
NOAA	National Oceanic and Atmospheric Administration
PPE	Personal Protective Equipment
PM	Project Manager
SSHO	Site Safety and Health Officer
SS	Site Superintendent

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## 1.0 INTRODUCTION

### 1.1 PURPOSE

This Hurricane Preparedness Plan (HPP) outlines the general responsibilities and actions to be taken in preparation for and response to a hurricane or hurricane warnings at Naval Support Facility, Indian Head, Maryland. All personnel should understand that predicting the occurrence and path of a hurricane is difficult, however the risk can be minimized and controlled by following the procedures in this plan. The information provided in the HPP was developed in accordance with updated information provided by the U.S. Department of the Navy (Navy) in a Memorandum titled, *2010 Hurricane Season Preparation* (Navy, 2010).

### 1.2 SCOPE

This procedure is applicable to all site personnel, including subcontractors; temporary construction facilities; and remediation equipment present at the project site.

### 1.3 DISCUSSION

This procedure provides information on how to protect personnel and property in the event of a hurricane. In the Indian Head, Maryland area, attention must be paid to all hurricanes, since there is no way to determine with 100 percent accuracy whether a hurricane will actually hit the area until a few hours before landfall.

The following table demonstrates that the accuracy of forecasting where a hurricane landfall will occur is very low more than 24 hours in advance of a storm.

**Table 1.3 Hurricane Forecasting Probability**

HOURS BEFORE LANDFALL	MAXIMUM PROBABILITY VALUES
72 Hours	10 Percent
48 Hours	13-18 Percent
36 Hours	20-25 Percent
24 Hours	35-45 Percent
12 Hours	60-70 Percent

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## 2.0 DEFINITIONS

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The following definitions apply to various terms used in this document.

### Conditions of Readiness (COR):

**Condition FOUR** - Destructive winds are possible at the project site within 72 hours (Sustained winds of 93 kilometers per hour (km/hr) 50 knots or greater expected within 72 hours): Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove all debris, trash, or objects that could become missile hazards. Contact Contracting Officer (KO) for updates and completion of required actions

**Condition THREE-** Destructive winds are possible at the site within 48 hours (Sustained winds of 93 km/hr 50 knots or greater expected within 48 hours): Maintain Condition FOUR requirements and commence securing operations necessary for Condition ONE which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Commence securing and stow all gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to Condition TWO and continue action as necessary to attain Condition THREE readiness. Contact the KO for weather and COR updates and completion of required actions

**Condition TWO** - Destructive winds are anticipated at the site within 24 hours (Sustained winds of 93 km/hr 50 knots or greater expected within 24 hours): Curtail or cease routine activities until securing operation is complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear all missile hazards and loose equipment from general base areas. Contact KO for weather and COR updates and completion of required actions.

**Condition ONE** - Destructive winds are anticipated at the site within 12 hours. Secure the jobsite, and leave Government premises (Sustained winds of 93 km/hr 50 knots or greater expected within 12 hours).

Rule of thumb: If two men can load it and carry it away, have your workers do so.

**Destructive Winds** - Generally winds reaching or exceeding the force of a tropical storm (> 39 miles per hour [mph] or 34 knots). Winds from any storm system (tropical or otherwise) that are determined to have the potential to cause property damage or personal injury that would warrant a Condition FOUR alert.

**Gale** - Non-tropical windstorm with winds 38 to 63 mph (33 to 55 knots).

**Hurricane Watch** - An announcement for specific areas where a hurricane or an incipient hurricane poses a possible threat to a coastal area, generally within 36 hours.

**Hurricane Warning** - A warning that sustained winds of 74 mph (64 knots) or higher, associated with a hurricane are expected in a specified coastal area in 24 hours or less.

**Hurricane** - A tropical cyclone in which the maximum sustained surface wind is 74 mph (64 knots) or greater.

**Missile Hazard** – A missile hazard is any object which might become airborne in high winds. For example, while concrete jersey barriers will stay in place in all but the most brutal winds, plastic jersey barriers will need to be either removed or filled with sand or water. Barrel barricades will also need to be filled with either water or sand or removed.

**Severe Weather** - Any storm of tropical or non-tropical origin that has the capacity to produce destructive winds.

**Small Area Storms** – Thunderstorms or tornadoes.

**Small Area Storms Condition ONE** - Destructive winds, heavy rain, lightening and hail are imminent within 1-hour.

**Small Area Storms Condition TWO** - Destructive winds, heavy rain, lightening and hail are expected within 6-hours.

**Storm** - Non-tropical windstorm with winds 38 to 63 mph (33 to 55 knots).

**Storm Surge** - An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the storm.

**Storm Tide** - The actual sea level resulting from the astronomical tide combined with the storm surge. This term is used interchangeably with "Hurricane Tide."

**Tornado** - Violent rotating columns of air with winds 115 to 288 mph (100 to 250 knots).

**Tropical Depression** - A tropical cyclone with winds up to 38 mph (33 knots) or less.

**Tropical Storm** - A tropical cyclone in which the maximum surface wind ranges from 39 to 73 mph (34 to 63 knots) inclusive. This is the strength at which the National Hurricane Center applies a name to the storm.

**Tropical Storm Watch** - Tropical storm conditions pose a threat to a coastal area generally within 36 hours.

**Tropical Storm Warning** - A warning for tropical storm conditions with sustained winds within the range of 39 to 73 mph (34 to 63 knots) that are expected in a specified coastal area within 24 hours or less.

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### *3.0 RESPONSIBILITIES*

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#### 3.1 PROJECT MANAGER – STEVE CARRIERE

The Project Manager (PM) is responsible for ensuring that all adequate measures have been taken to prepare for hurricanes and to protect site personnel and property in the event of a hurricane. The PM will ensure that ample resources are available to implement this plan and record on the Hurricane Preparedness Plan Acknowledgement (**Attachment A**) that all personnel are aware of this plan and their responsibilities.

#### 3.2 SITE SUPERINTENDENT- BRYAN GUZZARDO

The Site Superintendent (SS) will communicate all hurricane information to site personnel and keep the site personnel continually informed of the measures to be taken. The SS is responsible for the coordination and direction of site equipment shut down and will oversee the preparation of site facilities for any imminent storm. The SS will oversee the coordination of both pre and post storm operations and will ensure that the proper material, equipment, and supplies are utilized to implement this procedure.

#### 3.3 SITE SAFETY AND HEALTH OFFICER- BURNEY CHANCE

The Site Safety and Health Officer (SSHO) will monitor weather information, including the National Weather Service probability values for landfall. A Hurricane Tracking Map is provided in **Attachment D**. The SSHO will maintain the necessary emergency supplies, and will periodically tour the site to ensure that proper steps are being taken to protect site personnel and property. The SSHO will develop the emergency contact list and it will be maintained in a site dedicated vehicle.

Note: When personnel identified in **Section 3.0** leave the site, they are responsible for notifying the SS or a designated back up person. The back up person will be instructed in their responsibilities in the event of a hurricane.

#### 3.4 EMERGENCY CONTACT INFORMATION

The list of emergency telephone numbers is included as **Attachment B**, Emergency Telephone Numbers.

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## 4.0 EMERGENCY OPERATING PROCEDURES

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### Condition FOUR - (Destructive winds are possible within 72 Hours)

This COR starts when severe weather is within 72 hours of posing a threat to the project location. The SSHO will ensure that the following steps are taken:

- Monitor the storm and inform the PM of its progress.
- Check Personal Protective Equipment (PPE) supplies and equipment to determine if any shipments are required or if pending shipments should be advanced or postponed.

During Condition FOUR, the progress of the storm will be continuously monitored and tracked. The SS will instruct site personnel to begin general cleanup of all loose materials that may pose a hazard during high winds or rain. This will include removal of all debris, trash, and other items that may become missile hazards. All lumber will be stacked in neat piles less than four feet high. The PM will be contacted at least twice daily for COR Requirement updates and to be informed of completion of required actions for Condition FOUR.

The SS will keep all site personnel advised of the status of the storm and site preparation activities. Due to the urgency and amount of work involved in preparing for a threatening storm, all construction operations that might interfere with securing operations, such as starting a major excavation, will cease.

The SS will ensure that the following steps are taken:

- Fill fuel tanks in all equipment on site,
- Secure stockpiled material on site,
- Review requirements for Condition TWO with all site personnel, and
- Maintain Condition FOUR requirements.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition FOUR.

### Condition THREE - Tropical Storm Warning (Destructive winds are possible within 48 Hours)

This COR starts when severe weather places the project site under a tropical storm warning. Condition THREE activities will also start if a threatening tropical storm is upgraded to a hurricane, or a severe storm approaching the site has generated destructive winds in other

locations. The PM, SS and SSHO will determine when to cease all operations based upon current weather conditions and/or as directed by the Navy. If the storm or COR is downgraded, the PM and SS will meet with the Program Manager and Navy to decide if a downgrade of the COR is appropriate. Actions for Condition THREE will be maintained and the following shall also be completed:

- Machinery, tools, equipment, and materials will be secured or removed from the site and
- Take actions to secure job-site necessary for Condition TWO that cannot be completed within 18 hours.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition THREE.

**Condition TWO – (Destructive Winds are possible within 24 hours or a Small Area Storm is possible within 6 hours).**

Condition TWO begins when destructive winds are anticipated within 24 hours, a small area storm within 6 hours, and/or as directed by the NAVY. The PM and SS will determine when to demobilize from the site based upon weather conditions. During this phase the SS will direct the following actions:

- Secure machinery, tools, equipment and materials or remove them from the job-site,
- Conduct a roll call of personnel on site and inform the SSHO,
- Notify personnel on leave of schedule changes,
- Personnel needing to leave the project to attend to personal matters will notify their SS immediately,
- Heavy equipment will be secured according to the manufacturer's recommendations,
- All small field equipment will be secured,
- All stockpiles will be covered and secured,
- All visitors from the site are evacuated,
- Make a final site walk through to determine that the site is secure and clear all missile hazards from the job-site, and
- Inform the PM that all personnel are being released from the site.

If the storm or COR is downgraded, the PM and SS will meet to decide if a downgrade of the phase is necessary.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition TWO.

**Condition ONE - (Destructive winds are anticipated within 12 hours or a Small Area Storm is imminent within 1 hour)**

- Complete all remaining actions required for lower conditions of readiness and
- Secure job-site access and evacuate to safe refuge.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition ONE.

**Resume Site Operations**

The PM will contact the Program Manager to determine when site operations will resume. Although the hurricane/severe weather has passed, hazards may still exist because of water damage, other hazardous conditions, dangers from electric shock, poisonous snakes, etc.

The SS and SSHO will conduct a damage survey with the PM. Photographs of the storm damage at the site will be taken by the SS or SSHO. They will develop a prioritized recovery plan from the survey findings. Subsequently, all site personnel will be notified when it is safe to return to work. Required personnel and subcontractor expertise will be mobilized to the site to repair any damaged equipment.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Resume Site Operations.

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## *5.0 DEBRIEFING*

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Following the return to work of site personnel, the SS will conduct a debriefing with site personnel. The debriefing will accomplish the following objectives:

- Finalize a recovery plan,
- Review the HPP for effectiveness,
- Suggest and agree on improvements to the plan, and
- Incorporate plan changes.

When completed, the PM and SS will meet with site personnel to discuss any corrective actions or changes in this plan.

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## 6.0 REFERENCES

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The following references and sources of information may be consulted for additional guidance on hurricane preparedness and response.

- Federal Emergency Management Administration (FEMA), Protecting Your Property or Business from Disaster <http://www.fema.gov/plan/prevent/howto/index.shtm>
- National Oceanic and Atmospheric Administration (NOAA), National Hurricane Center <http://www.nhc.noaa.gov/>
- Naval Facilities Engineering Command, 2010, *Memorandum: 2010 Hurricane Season Preparation*.
- US Army Corps of Engineers, 2008, *Safety and Health Requirements Manual, EM 385-1-1*, Washington, D.C., September 15.
- [www.stormpulse.com/pacific](http://www.stormpulse.com/pacific)

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# ATTACHMENT A

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## *HURRICANE PREPAREDNESS PLAN ACKNOWLEDGEMENT*

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# ATTACHMENT B

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## *EMERGENCY PHONE NUMBERS*

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***Hurricane Preparedness Plan***  
**Remedial Actions at Site 21 Bronson Road Landfill**  
**Naval Support Facility Indian Head, Indian Head, MD.**

**Emergency Contact Numbers**

<b>CONTACT</b>	<b>TELEPHONE</b>
<b>Local Agencies</b> Base Fire Protection Division Ambulance Fire Security Dispatch LEPC	(301) 744-4333 (301) 744-4333 (301) 744-4333 (301) 744-4333 (301) 744-4381 Will be notified by Fire/Dispatch
Hospital Civista Medical Center 701 E. St. Charles Street LaPlata, MD  Core Clinic Convenient Health Care 12090 Old Line Center Waldorf, MD 20602	(301) 609-4000     (301) 645-8550
See Figures 9-2A and 9-2B of the APP for directions to the hospital and clinic.	
National Capital Poison Center	(800) 222-1222
<b>Federal Agencies</b> Center for Disease Control National Response Center	(404) 639-3311 (800) 424-8802
Department of the Navy, NAVFAC Washington Remedial Project Manager – Joe Rail Facilities Engineering and Acquisition Division (FEAD) – Cathy Gardner FEAD Inspector – William Lindsay	(202) 685-3105 (office) (301) 744-2181 (office) (301) 744-2182 (office)
<b>Shaw Personnel</b> Project Manager – Steve Carriere Site Superintendent – Bryan Guzzardo Site Safety and Health Officer – Burney Chance Program Health and Safety Manager- Kym Edelman Program CIH – Dave Mummert Shaw E & I (24 hour)	(609) 234-6361 (cellular) (985) 969-5172 (cellular) (601) 310-7229 (cellular) (757) 640-6978 (office) (419) 425-6129 (office) (866) 299-3445

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# ATTACHMENT C

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## *HURRICANE PREPAREDNESS RESPONSIBILITY CHECKLISTS*

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**Condition FIVE  
(Early Preparedness)**

**Date/Time Entered Condition FIVE:** \_\_\_\_\_

Severe Weather/Tropical Storm: \_\_\_\_\_

**Action Items:**

- Notify Project Manager
- Track of Storm Poses No Threat
- Storm or Condition is Downgraded
- Upgrade to Condition FOUR

**Storm Location**

Date/Time: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Location/Coordinates: \_\_\_\_\_

Location/Coordinates: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Date/Time: \_\_\_\_\_

Location/Coordinates: \_\_\_\_\_

Location/Coordinates: \_\_\_\_\_

**Condition V Action Items Complete:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Condition FOUR**  
**(Destructive Winds are possible within 72 hours)**

**Date/Time Entered Condition FOUR:** \_\_\_\_\_

**Action Items:**

- Notify Project Manager.
- Notify Site Personnel.
- Assemble shift personnel to begin preparation.
- Track storm on hurricane tracking map (**Attachment C**) (if applicable).
- Secure all heavy equipment located at the site in accordance with manufacturer's specifications. All equipment will be moved to a secured site location.
- All equipment fuel tanks will be filled.
- All subcontractors with equipment or supplies on-site will be notified to begin removal procedures.

**Condition FOUR Action Items Complete:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Condition THREE**  
**(Destructive Winds are possible within 48 hours)**

**Date/Time Entered Condition THREE:** \_\_\_\_\_

**Action Items:**

- Provide the status of the storm to site personnel on an hourly basis.
- Take actions to secure job-site necessary for Condition ONE that cannot be accomplished in 18 hours.
- Recheck all items on checklist FOUR to ensure they are complete (i.e. gas tanks are still filled).

See itemized equipment checklist (itemized list of equipment to be secured/removed and COR for action)

**Condition THREE Action Items Complete:** \_\_\_\_\_  
**Date:** \_\_\_\_\_



**Condition TWO**  
**Destructive Winds are possible within 24 hours or**  
**a Small Area Storm is possible within 6 hours)**

**Date/Time Entered Condition TWO:** \_\_\_\_\_

**Action Items:**

- Evacuate all visitors from the site.
- Conduct a role call of site personnel and inform the Project Manager.
- Check the status all incoming shipments of supplies and equipment.
- Remove all unnecessary vehicles from the site.
- Secure heavy equipment in accordance with manufacturer's specification.
- Ensure that stockpiles are covered and secure.
- Secure all valuable records and equipment.
- Release personnel from the site.
- Recheck all items on checklist FOUR and THREE to ensure they are complete (i.e.: gas tanks are still filled).

**Condition TWO Action Items Complete:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Condition ONE**  
**(Destructive Winds are possible within 12 hours or**  
**a Small Area Storm is imminent within 1 hour)**

**Date/Time Entered Condition ONE:** \_\_\_\_\_

**Action Items:**

- Complete all action items for lower conditions of readiness.
- Secure job-site access and evacuate to safe refuge.

**Condition ONE Action Items Complete:** \_\_\_\_\_

**Date:** \_\_\_\_\_

## Resume Site Operations

**Date/Time Resume Site Operations:** \_\_\_\_\_

**Action Items:**

- Conduct a damage survey.
- Notify all site personnel when to return to work.
- Develop a prioritized recovery plan.
- Inspect electrical equipment before re-energizing to detect and repair damage.
- Provide bottled water for drinking until normal drinking water is deemed safe to drink.
- Remove storm debris from site.
- Notify Program Manager of the resumption of site activities.

**Resume Site Operations Action Items Complete:** \_\_\_\_\_ **Date:** \_\_\_\_\_

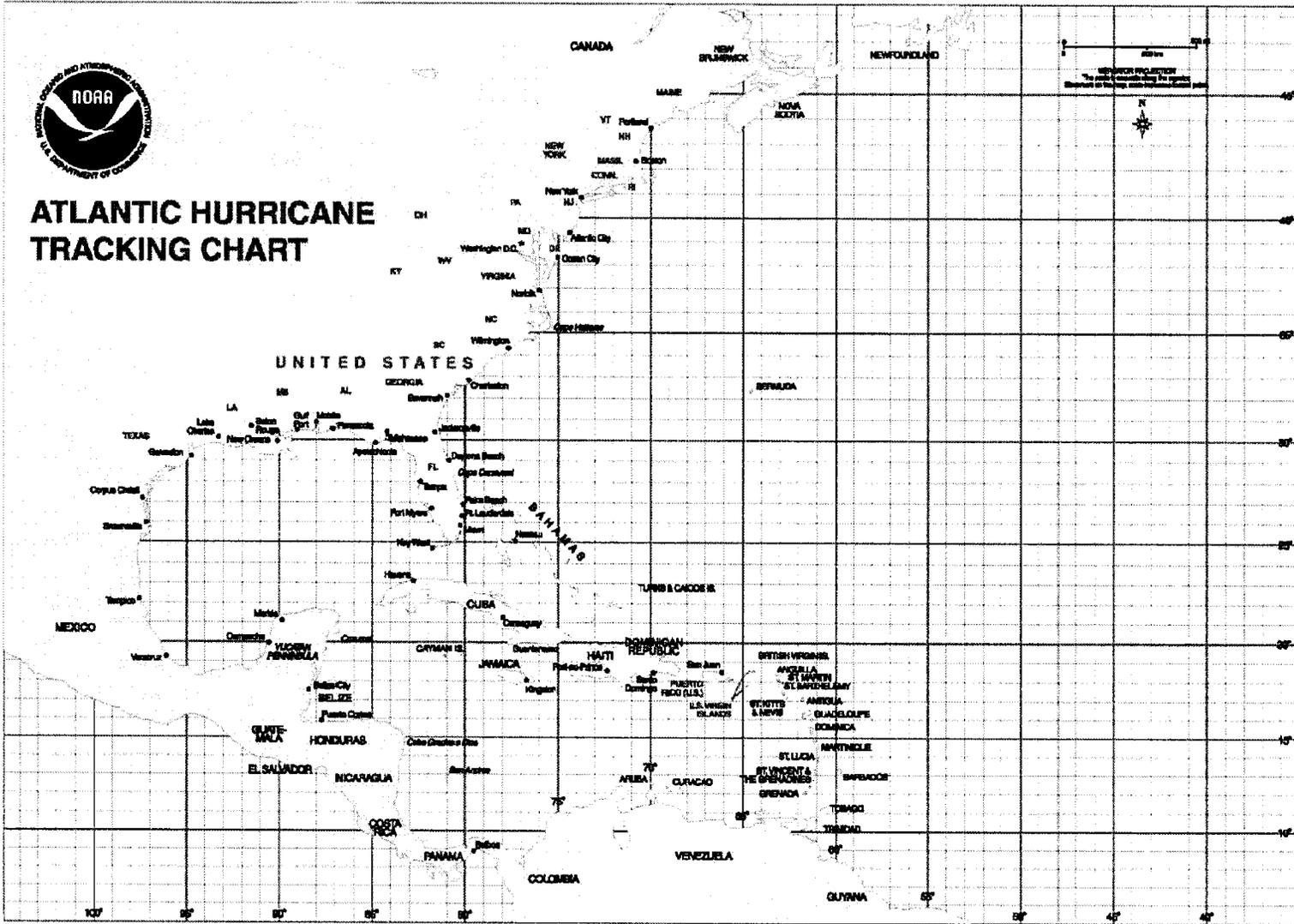
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# ATTACHMENT D

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## *HURRICANE TRACKING MAP*

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**APPENDIX G**  
*OSHA 300 LOG*

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# OSHA's Form 301

## Injuries and Illnesses Incident Report

**Attention:** This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



U.S. Department of Labor  
Occupational Safety and Health Administration  
Form approved OMB no. 1218-0176

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by _____
Title _____
Phone _____ Date _____

### Information about the employee

- 1) Full Name \_\_\_\_\_
- 2) Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_
- 3) Date of birth \_\_\_\_\_
- 4) Date hired \_\_\_\_\_
- 5)  Male  
 Female

### Information about the physician or other health care professional

- 6) Name of physician or other health care professional  
\_\_\_\_\_
- 7) If treatment was given away from the worksite, where was it given?  
Facility \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

- 8) Was employee treated in an emergency room?  
 Yes  
 No
- 9) Was employee hospitalized overnight as an in-patient?  
 Yes  
 No

### Information about the case

- 10) Case number from the Log \_\_\_\_\_ *(Transfer the case number from the Log after you record the case.)*
- 11) Date of injury or illness \_\_\_\_\_
- 12) Time employee began work \_\_\_\_\_ AM/PM
- 13) Time of event \_\_\_\_\_ AM/PM  Check if time cannot be determined
- 14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
- 15) **What happened?** Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
- 16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
- 17) **What object or substance directly harmed the employee?** Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
- 18) **If the employee died, when did death occur?** Date of death \_\_\_\_\_

## ATTACHMENT 3

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### *SAFETY PERSONNEL RESUMES AND PROOF OF TRAINING AND COMPETENCY*

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# James A. Dunn Jr

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## **Professional Qualifications**

Mr. Dunn joined the company in 1994 with over 25 years experience in civil, structural, and environmental engineering design, estimating, supervision, and management. He has served as program and project manager, operations manager and construction manager for both government and private clients on projects involving solid and hazardous waste management, remedial investigations and risk assessments, environmental and geotechnical soils and groundwater investigations; construction of Subtitle D solid waste landfill facilities; construction and operation of groundwater treatment plants; implementation/construction of remedial activities at hazardous waste sites; and implementation of closure activities for RCRA hazardous waste facilities. In addition, Mr. Dunn has provided construction engineering and management services for natural gas, oil, and product pipelines (on land and offshore), pumping stations, compression facilities, and tugs and barges on an international, intrastate, and interstate basis.

As Director, Environmental Operations for Navy East Programs, Jim has the overall responsibility for the profitable execution of all Shaw E & I Navy contracts, fixed price and cost reimbursable worldwide. Reporting to Jim are various program managers throughout Shaw. Jim's duties include reviewing all Navy environmental projects on a monthly basis to ensure adherence to budgets and schedules and to implement any corrective actions to ensure projects meet their goals.

As Program Manager for both the NAVFAC Atlantic Remedial Action Contracts and the Camp Peary AFETA Program, the Rhea Program and the Tikigaaq program, Mr. Dunn is responsible for the overall management of all task orders assigned to the Programs. His duties include monitoring and controlling project costs, assignment of personnel consistent with contract requirements, understanding and assuring compliance with CERCLA, RCRA, TSCA and SWDA regulations and their state counterparts and performing as Shaw's chief representative. Mr. Dunn is responsible for reviewing all proposals and estimates for activities on the Program, participating in all proposal negotiations, maintaining cost and schedule tracking and control for the program, providing support and mentoring for all Project Managers and Supervisors, problem solving and resource management for the Programs.

## **Education**

Bachelor of Science, Civil Engineering, University of Texas at Arlington, Arlington, Texas, 1968

## **Additional Training/Continuing Education**

OSHA 8-Hour Refresher Training, Shaw E & I, 2010  
Florida PE and Contractor's Review, State of Florida, 2010  
RITS Seminar, Norfolk, VA, 2010  
AMA The Voice of Leadership, AMA Offices, New York, NY, 2007  
Project Manager Training, Shaw E & I, 2006  
Karrass Negotiating Skills, Baton Rouge, LA, 2004  
Navy IR Conference, U.S. Navy, 2002  
Total Environmental Restoration Contract Training, U.S. Army Corps of Engineers, 2001  
OSHA 40-Hour Health and Safety Training, Ensco Environmental Services, 1987

## **Registrations/Certifications/Licenses**

General Contractor, 1994, CG-C053638, Active, Florida, 08/2012  
Pollutant Storage System Contractor, 1991, PC-C049511, Active, Florida, 08/2012

Professional Engineer, Civil, 1976, 15901, Active, Louisiana, 03/2011  
Professional Engineer, Civil, 2001, 58417, Active, Florida, 02/2011  
General Contractor, 1996, G13440A, Active, South Carolina, 12/2010  
General Contractor, Civil, 1996, 52824, Active, North Carolina, 12/2010  
General Contractor, 1995, 21710, Active, Tennessee, 12/2010  
General Contractor, 1992, 2705-075374A, Active, Virginia, 12/2010  
General Contractor, 1991, 084635, Active, Arizona, 12/2010  
Professional Engineer, Civil, 1991, 70647, Active, Texas, 09/2010

## **Experience and Background**

***03/2008 - Present***

***Director, Environmental Operations, Navy Programs, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia***

Mr. Dunn, as Director, is responsible for all Navy Environmental Programs including two \$125M Remedial Action Contracts, cost plus award fee, for NAVFAC Atlantic, one \$25 fixed price contract with Camp Peary AFETA, one \$10M fixed price contract with Rhea Engineers, one \$5M fixed price contract with Tikigaq, and one proposed \$300M contract with Advent Environmental.

***03/2005 - Present***

***Program Manager, Shaw Environmental & Infrastructure, Inc., DoD Federal, Norfolk, Virginia***

Mr. Dunn, as Program Manager, is responsible for the overall management of a program valued at \$125 million. His duties include management of all task orders, assignment of Project Managers, Superintendents and support personnel for each individual task order matching qualifications with project needs, maintaining compliance with all small business utilization goals for the contract, assuring compliance with all applicable federal, state and local regulations, monitoring and assuring budget compliance and maintaining client satisfaction through meetings and frequent correspondence and discussions. In addition, Mr. Dunn is deeply involved in mentoring his staff and maintaining succession planning.

***01/2003 - Present***

***Program Manager, Shaw Environmental & Infrastructure, Inc., DoD Federal, Norfolk, Virginia***

As Program Manager, Mr. Dunn's responsibilities include overall management of a program valued in excess of \$30 million. Mr. Dunn is responsible for the overall management of all task orders assigned to the Program. His duties include assignment of Project Managers, Superintendents and support personnel for individual task orders whose qualifications are best suited to the project type, maintaining compliance with SB/SDB/WOSB utilization requirements for the contract, understanding and assuring compliance with all applicable regulations, monitoring and assuring adherence to all project budgets, and maintaining client satisfaction through frequent discussions.

***The following is a summary of key projects:***

**Program Manager, LANTDIV RAC IV, 842391, Naval Facilities Engineering Command Atlantic, Virginia Beach, VA, \$125,000,000.00, 03/2005 - Present**

As Program Manager for the LANTDIV RAC IV Contract, Mr. Dunn is responsible for the overall management of all task orders assigned to the Program. His duties include supervising a cadre of nine Project Managers performing construction and environmental services throughout the LANTDIV AOR. Monitoring and controlling project and program costs and assignment of personnel consistent with the contract requirements, understanding and assuring compliance with CERCLA, RCRA, TSCA, SWDA

and OSHA regulations and their state counterparts are further duties assigned to Mr. Dunn as Shaw's chief representative on the contract.

**Accomplishments:**

Award fees on this cost plus award fee contract have exceed 96% for the past two reporting periods.

Project Manager, LANTDIV RAC IV, TO #18, Reverse Osmosis Treatment System Upgrades, 100385, Naval Facilities Engineering Command (NAVFAC), Manama, Bahrain, \$450,000.00, 09/2003 - 03/2005  
Navy RO plant had been experiencing premature element failures and suffers from non-automation of systems. Shaw engineers re-evaluated the system and suggested changes to the proposed revisions which resulted in lower operating costs of the treatment system. Automation was performed by a Shaw local team partner, A. A. Nass, with staff in Manama. Instrumentation upgrades and automation were also performed by another Nass company which supplied the hardware and software from in-country sources. Project was implemented during the winter months when demand was at its lowest during the year.

Project Manager, Soil and UST Removal, Please provide Client Name, San Juan, Puerto Rico, 05/2003 - 12/2003

Project involved selective excavation of lead contaminated soils from an area of one city block in Old San Juan within blocks of the governmental offices. Archaeological artifacts and large, native trees were items of concern to both the property owners and the regulators. Field sampling and testing techniques were employed and Jim was instrumental in gaining regulatory approval to use on-island landfill facilities for waste disposal with a resultant cost savings in excess of 25% of the total project costs.

**Accomplishments:**

Field sampling and testing techniques employed was instrumental in gaining regulatory approval to use on-island landfill facilities for waste disposal with a resultant cost savings in excess of 25% of the total project costs.

***05/2002 - 02/2005***

***Deputy Program Manager, Shaw Environmental & Infrastructure, Inc., Virginia Beach, Virginia***

Mr. Dunn was responsible for all activities conducted in support of project executions for the LANTDIV program. His duties included mentoring and supporting all Project Managers and Supervisors in the fulfillment of their duties, assuring adequate staffing for all projects, maintaining client satisfaction through frequent dialogue, electronic mail and meetings, assuring consistent project reporting through standardized reporting procedures and formats and serving as the Program Manager when necessary.

***The following is a summary of key projects:***

Deputy Program Manager, LANTDIV RAC, 842392, Naval Facilities Engineering Command Atlantic, Virginia Beach, VA, \$125,000,000.00, 04/2002 - Present

As Deputy Program Manager, Mr. Dunn reviewed all proposals and estimates for activities on the LANTDIV Program, participated in all proposal negotiations, maintained cost and schedule tracking and control for the program, provided support and mentoring for all Project Managers and technical support staff in the Virginia Beach Office. Additional duties included resource management and problem solving for all projects conducted in support of the Program.

***10/1994 - 05/2002***

***Senior Project Manager, IT Corporation (The Shaw Group, Inc., acquired substantially all of the***

*operating assets of The IT Group, Inc., on May 23, 2002), Alpharetta, Georgia*

Mr. Dunn was responsible for all aspects of hazardous and toxic waste remediation projects as well as communicating and coordinating with the customer. His duties included assuring a safe and healthy work environment, fulfilling regulatory requirements and coordinating subcontractor activities. He utilized Shaw's Contract Management System to track and modify remedial activities and monitor project costs. He prepared daily status reports which provide justification for all project costs and ensures that all project milestones are met. He also assumed the responsibilities of the QC Manager on select projects and ensured that all project milestones are met. He also took on the responsibilities of the Site QC Manager on select projects and ensured that all aspects of hazardous waste site remediation adhere to the quality control program specifications, the USACE Three Step Quality Process, and engineering requirements.

***The following is a summary of key projects:***

Project Manager, LANTDIV RAC III, TO #50, Thermal Desorption, 803011, Naval Facilities Engineering Command, MCB Camp Lejeune, North Carolina, \$3,865,000.00, 12/1999 - 06/2002

Managed the remedial action design and removal action at Site 89, Camp Geiger Defense Reutilization and Marketing Office at Camp Lejeune, North Carolina. Project involved low-temperature thermal desorption (LTTD) of 36,000 tons of soils contaminated with perchloroethane. Managed extensive site preparation, including engineered containment pads for the fuel source and the LTTD units storage bins for excavated and treated soils, and the establishment of an on-site laboratory to provide real time analytical data. Other activities included relocating, extending, and repairing fencing around the site to eliminate contact with potentially contaminated surface waters, and adding two floating fountain aerators to enhance to degradation of any organic contaminants present in the surface water. Through prudent negotiation of the cleanup levels with the regulators and pricing with the thermal desorption vendor, significant cost savings (~50%, \$3M) were realized over the government cost estimate.

**Accomplishments:**

Through prudent negotiation of the cleanup levels with the regulators and pricing with the thermal desorption vendor, significant cost savings (@50%, \$3M) were realized over the government cost estimate.

Project Manager, Aggressive Fluid Vapor Recovery, Naval Facilities Engineering Command, MCB Camp Lejeune and MCAS Cherry Point, North Carolina, 06/1998 - 04/2002

Implementation of an innovative technology for the removal of free phase product from groundwater. Process involves utilization of a vacuum truck and specialized wellhead assemblies coupled with a portable stack assembly to effect free product recovery. To date, two of eight sites have been rendered product free, four are approaching clean and two continue to produce product. Recovery rates vary from less than 100 pounds to in excess of forty thousand pounds.

Project Manager, LANTDIV TO #14, Air Sparging/Soil Vapor Extraction/Bio-Sparging System Implementation, Hadnot Point Fuel Farm, 920764, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, \$3,093,063.00, 05/1998 - 04/2002

Directed the constructing of air and bio-sparging system coupled with a soil vapor extraction system dedicated extraction wells and aggressive fluid vapor recovery activities to remediate petroleum contamination at the Hadnot Point Industrial Area at Camp Lejeune, North Carolina. After operation of the systems had been underway for over a year and free product had been discovered at depths of over 100 feet, initiated a geophysical investigation to delineate the subsurface conditions at the site, a former fuel farm at the Hadnot Point Industrial Area. This ongoing investigation had already revealed the presence of subsurface voids at the site. Innovative design of additional components to the remedial system will follow completion of the investigation. Preliminary findings of the geophysical investigation

will be presented at the 2002 IR Conference in February 2002.

Project Manager, LANTDIV RAC I, TO #15, Groundwater Treatment Plant Construction and Operation, 18040, Naval Facilities Engineering Command, MCB Camp Lejeune, North Carolina, 10/1994 - 04/2002  
Construction of a 500 gpm groundwater treatment plant. Major cost savings implemented by optimization of design including splitting flow from deep and shallow aquifers to reduce iron removal requirements. During the operational phase of the project, Mr. Dunn has implemented trend analyses to monitor the progress of the treatment system and to monitor the decrease in contaminant levels within the groundwater plume. These analyses have resulted in optimization of the pumping system and led to placement of additional extraction points to enhance contaminant recovery rates.

Project Manager, Petroleum-Contaminated Groundwater Remediation, Naval Facilities Engineering Command (NAVFAC), MCAS Cherry Point, North Carolina, 04/1997 - 11/2000

At the site of a former service station, a contaminated groundwater plume, approximately three acres in size required remediation. A series of vertical injection wells coupled with horizontal vent wells was employed. The equipment compound was located to utilize existing landscaping as a buffer and a fence with architectural slats surrounded the compound. Due to the proximity of the general Base populace, carbon cells were employed to reduce the possibility of airborne emissions of the off-gases.

Project Manager, Petroleum-Contaminated Groundwater Remediation, Four Sites, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 12/1996 - 06/1999

Installed air sparging and SVE systems at four sites to remediate petroleum contaminated groundwater and soils. Within the first six months, two of the sites cleaned-up completely and the remaining two sites showed drastically reduced levels of contamination. Systems design was unitized to enable reuse at other sites within the Base.

Project Manager, Pesticide-Contaminated Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 11/1995 - 12/1998

At Mr. Dunn's suggestion, project activities were revised to include field screening to determine limits of excavation prior to mobilization of the entire remediation crew. An on-site gas chromatograph was used to fully delineate areas to be excavated. Upon completion of excavation, confirmation sampling was conducted to verify that action levels had been met. Excavated materials were routed for disposal via chemical oxidation and stabilization at permitted off-site hazardous waste facilities.

Project Manager, LANTDIV RAC I, TO #94, Biocell Construction and Operation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 08/1995 - 06/1998

Supervised the design, permitting, construction and operation of a 1,000 cubic yard biocell for the treatment of petroleum-contaminated soils. Cell was located adjacent to groundwater treatment plant to facilitate handling of excess liquids.

Project Manager, Facilities Demolition and Cap Construction, PS488, SoGreen Site Generators Group, Tifton, Georgia, 06/1996 - 07/1997

Demolition of buildings and associated process equipment at a former fertilizer formulation facility. Activities involved decontamination by pressure washing, cleanliness verification and recycling of metals. Non-intrusive surveying methods were employed to evaluate subsurface site conditions. Successfully negotiated with Georgia Environmental Protection Division concerning a modification to the cap design to permit the use of geosynthetic material in lieu of clay resulting in favorable cost and schedule variances.

Project Manager, TPH Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Geiger, Jacksonville, North Carolina, 10/1994 - 06/1997

Project involved utilization of immunoassay field screening methods to determine levels of contamination in each truckload of excavated soils. Prior to initiation of construction, various immunoassay kits were evaluated to determine the most cost-effective, reliable test kit. Project doubled in size from the engineer's original estimate. All TPH-contaminated materials were routed to recycling recovery.

Project Manager, Solvent-Contaminated Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 10/1995 - 05/1997

Approximately 17,500 cubic yards of soil in Area of Concern 1 were remediated by construction and operation of a soil vapor extraction system consisting of eight vertical extraction wells spaced around one horizontal injection well. This enhanced method resulted in the removal of in excess of 15,000 pounds of volatile organic constituents in less than five months of operation.

Project Manager, LANTDIV RAC I, TO #110, PCB-Contaminated Soils Remediation at Ranges A, B and D, Harvey Point Defense Testing Activity, 18641, Naval Facilities Engineering Command (NAVFAC), Hertford, North Carolina, \$898,559.00, 03/1996 - 11/1996

Unique project performed in two phases to accommodate schematic of testing ranges. Phase II involved the testing, loadout, transportation and disposal of stockpiled TSCA regulated and TSCA non-regulated soils from Range A. Product was performed during a weekend shutdown. Phase II involved the excavation, loading, transportation, and disposal of TSCA regulated and TSCA non-regulated soils from three testing ranges. Field confirmatory analyses utilizing immunoassay methods were employed to provide quick results to determine if action levels had been met. Major savings to transportation and disposal costs were achieved through prudent negotiations with vendors.

Project Manager, Utilities Provision, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 06/1995 - 08/1996

Siting, permitting, and construction of approximately 1-1/2 miles of 1,247 KVA overhead power line through five wetland areas to provide power for an in-well aeration treatability study. Wetland issues were discussed and negotiated with the U.S. Army Corps of Engineers, Wilmington, North Carolina District. Project also involved improvements to site access via 2-1/2 miles of unimproved roadways/trails and provision of temporary power for a 30-day period. Secondary power service to the test area utilized flexible conduit with coated conductors from the OHM supplied distribution center.

Project Manager, Underground Storage Tank (UST) Removal, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 05/1995 - 03/1996

The objective of the remedial action undertaken by OHM at Building 25 was to locate and remove any USTs, excavate soils in the area that exceeded the cleanup goals provided in the project specifications, and dispose of soils and USTs off-site. Ancillary work items included the investigation of the surficial aquifer to determine if contaminants were present and the relocation of air compressor shed. Thorough evaluation of disposal alternatives resulted in substantial cost savings by utilizing chemical oxidation followed by stabilization instead of incineration.

Project Manager, PCB and Pesticide Contaminated Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 10/1994 - 12/1995

Due to the relatively high cost of incineration disposal, initial project activities were revised to include a complete field screening of each of four sites to more precisely delineate the extent of contamination. To effect this activity in the most cost-effective manner, a gas chromatograph equipped with dual columns and an auto-sampler was installed in the field offices. Areas of concern were sampled utilizing a 10 feet by 10 feet grid pattern. Analytical results were utilized to expand the grids when necessary. Results of this prescreening process reduced the quantities of material excavated and routed to disposal. Additionally, Mr. Dunn was influential in negotiations with the regulatory agencies which resulted in an order of magnitude modification of the action levels for PCB-contaminated soils.

**10/1990 - 10/1994**

***Project Director, Roy F. Weston, Inc., Norcross, Georgia***

Mr. Dunn was responsible for all aspects of hazardous and toxic waste remediation projects as well as communicating and coordinating with the customer.

***The following is a summary of key projects:***

Project Manager, Groundwater Remediation, Cabot Carbon Superfund Site, Cabot Corporation, Gainesville, Florida, 06/1992 - 10/1994

Initial activities included development of Remedial Design Plan, review of Record of Decision and Consent Decree, subsurface explorations and preparation of Field Sampling Plan, Quality Assurance Project Plan, and Health and Safety Plan. Subsequent tasks included evaluation of necessity for treatability studies, preparation of project schedule, groundwater flow modeling, remedial design including cleanup goals and ARARs, complete engineering drawings, equipment specifications, assistance with regulatory reviews, bid solicitation for remedial design implementation, oversight of construction, and operation and maintenance oversight of the completed treatment system.

Project Director, Subtitle D Landfill Construction and Closure, Nassau County, Florida, Nassau County, Florida, 06/1991 - 08/1994

Independent third party oversight of construction of a state-of-the-art solid waste facility and closure of three existing unpermitted sites. Assumed duties of Interim County Solid Waste Director for a one-year term.

Landfill construction included provision of quality assurance services for a slurry wall system, the composite liner system including natural and synthetic materials and installation of dewatering ponds. Negotiated permit variances with the state agency to allow inclusion of a major industrial wastestream into the municipal landfill facility. Siting, permitting, design and construction of a mulching composting facility for yard wastes.

Project Director, Underground Storage Tank Assessment and Remediation, Batson Cook, Various Locations, Georgia, 12/1992 - 08/1993

Contamination evaluation for four sites involving soils and groundwater contamination. Initial activities included soil sample procurement and analyses, monitoring well installations, groundwater sampling and analyses, aquifer slug and specific capacitance testing, generation of plume maps and performance of risk assessment. Initial site characterization reports were prepared and submitted to Georgia EPD, followed by preparation and submission of Corrective Action Plans. Subsequent activities included design and implementation of groundwater remediation systems and remediation of contaminated soils.

Project Director, Remediation of Power Plant Site, City of Austin, Austin, Texas, 10/1990 - 11/1991

Cleanup activities at the site of a former power plant included formulation of work plan, health and safety plans and design specifications and implementation of remedial methods for PCB and asbestos contaminated soils and debris. Closure of a large diameter wet well included contaminated debris removal and water treatment and excavation and demobilization of underground storage tanks.

Project Director, LCH Reclamation, Conoco, Inc., Lake Charles, Louisiana, 10/1990 - 08/1991

Installation of pumping facilities, loading pad, and fixed air monitoring stations to permit pumping, transportation, and recycle/reclamation of more than 1.6 million gallons of product, while maintaining a water blanket for odor suppression. Follow-up activities included the removal, transportation and incineration disposal of pumpable sludges while continuing to maintain water blanket. Subsequent activities will include soil treatment (stabilization, fixation and/or removal) and design and

implementation of a groundwater remedy.

***04/1989 - 09/1990***

***Operations Manager, Encor, Baton Rouge, Louisiana***

Responsible for the operations of four 100 cubic-foot dewatering presses and three environmental drilling rigs. Duties included bidding, planning and scheduling, start-up, project execution, and demobilization and closure.

***07/1988 - 03/1989***

***Vice President, Operations, TSD Remedial Services, Baton Rouge, Louisiana***

Responsible for all business development, bidding, and client contact activities for remedial construction.

***11/1987 - 06/1988***

***Project Manager/Estimator, Ensco Environmental Services, Baton Rouge, Louisiana***

Responsible for estimating and directing all remedial project activities.

***The following is a summary of key projects:***

***Project Director, PCB Remediation, Enron Gas Producing Company, Houston, Texas, 01/1988 - 06/1988***

Site investigations soil sampling and analyses, work plan development, removal of contaminated soils and debris, transport and disposal and site restoration for three facilities in Texas. Activities at one site involved decontamination and demolition of a gas conditioning/compression plant which included removal and disposal of asbestos pipe and vessel insulation. Project guidance activities included client liaison at head office and on-site participation in negotiating transportation and disposal subcontracts and assistance in scheduling of personnel.

***Project Director, Closure of Wood Treating Facility, Cavenham Forest Products, Salisaw, Oklahoma,***

***11/1987 - 06/1988***

Project Director during the closure of a wood products treatment facility in Oklahoma. Overall project direction and guidance for decontamination and demolition of process equipment and attendant structures, chemical fixation of various sludges contained within lagoon.

***04/1986 - 10/1987***

***President, Dunn Pipeline Company, Lafayette, Louisiana***

Owned and operated Dunn Pipeline Company

***01/1979 - 04/1986***

***Vice President of Offshore Operations, Ingram Marine Construction, Lafayette, Louisiana***

Responsible for all operations of three offshore pipelaying/jetting barges and associated marine equipment and personnel. Provided estimating, program management, and customer relations services throughout the Gulf of Mexico region.

***01/1979 - 12/1979***

***Assistant Chief Estimator, Morrison Knudsen, New London, Connecticut***

Performed estimates for marine work throughout the East Coast of the United States and the Caribbean. Supervised two engineers and two staff estimators.

**01/1971 - 01/1979**

***Project Manager, Santa Fe International, Orange, California***

Coordinated efforts for the construction of two offshore barges, one in Hamburg, Germany and one in Amsterdam, Holland. both vessels were constructed within budget and on-time. As operations manager in Houma, Louisiana, directed a staff of three project managers and oversaw the operations of three offshore pipelaying and jetting barges.

**01/1970 - 12/1971**

***Field Office Engineer, Carter & Burgess, Ft. Worth, Texas***

Performed quantity takeoffs and checked storm sewer construction for the Dallas Fort Worth regional airport. Checked contractor's earthmoving quantities by field surveying of cut and fill areas.

***The following is a summary of key projects:***

**Field Engineer, DFW Regional Airport Construction, DFW Airport Authority, Euless, TX, 06/1970 - 01/1971**

Initial grading and drainage for construction of DFW Airport

Accomplishments:

Performed reinforced concrete stormwater pipe inspections and testings; performed takeoffs on spine road construction; verified daily earthwork totals for two general contractors

**01/1968 - 12/1970**

***Offshore Engineer, J. Ray McDermott, New Orleans, Louisiana***

Provided field engineering services for various derrick and pipelaying barges operating in the Gulf of Mexico and offshore Gabon, Africa.

### **Professional Affiliations**

Virginia Society of Professional Engineers, Member, 2002

Society of American Military Engineers, Member, 2002

Project Management Institute, Member, 2000

American Society of Testing and Materials, Member, Committee E-50, 1991

American Welding Society, Member, 1976

Louisiana Engineering Society, Member, 1976

American Society of Civil Engineers, Member, 1968

National Society of Professional Engineers, Member, 1968

### **Publications/Presentations**

Dunn, Jr., J. A. and Lori P. Reuther, "Downward Migration of LNAPL at the Hadnot Point Industrial Area, Marine Corps Base, Camp Lejeune, North Carolina", presented at UMass Soils, Sediments and Water Conference, Massachusetts, 2002

Dunn, Jr., J. A., "A Guide to UST Regulations", Acadiana Safety Association, Lafayette, Louisiana, 1990

Dunn, Jr., J. A., "An Offshore Pipeline", presented at American Welding Society Chapter Meeting,

Lafayette, Louisiana, 1985

Dunn, Jr., J. A., "Riser Installation", presented at the Offshore Pipeline Contractors Association Conference, Lafayette, Louisiana, 1984

# David L. Mummert

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## Professional Qualifications

Safety and health professional with over 25 years experience on large, complex hazardous materials remediation projects involving chemical, biological, radiological, and shock sensitive/explosive materials for commercial, DOE and DOD clients. As a Manager of Health and Safety assigned to the Emergency Response Group, responsibilities include developing, initiating, and managing health, safety, and industrial hygiene programs for complex emergency response remedial action and projects. Additionally, he is assigned other large project health and safety management responsibilities.

Mr. Mummert develops and administers industrial hygiene monitoring programs, develops and initiates safety programs, selects respiratory and dermal protection, conducts on-site audits, provides field and client safety consultations, and directs junior industrial hygienists and site safety officers at multiple remedial actions and emergency responses.

He also developed, organized, and conducted table top spill drills and other focused, specific training. Example of these courses include client specific emergency response training, oil spill response training, and the Shaw 45-hour Site Safety Officer course.

## Education

Master of Science, Environmental Health, University of Cincinnati, Cincinnati, Ohio, 1984  
Bachelor of Science, Biology, University of Cincinnati, Cincinnati, Ohio, 1976

## Additional Training/Continuing Education

American Red Cross CPR and First Aid, Findlay, OH, 2005  
OSHA 40-hour HAZWOPER Refresher, Findlay, OH, 2005  
Defensive Driving, Findlay, OH, 2004  
Railroad On-Track Worker , Jacksonville, FL, 2004  
Railroad On-Track Worker Trainer, Jacksonville, FL, 2004  
American Red Cross CPR and First Aid - Trainer, Findlay, OH, 2001  
Trenching/Shoring Competent Person, Findlay, OH, 2000  
Air Shipping Dangerous Goods by IATA, Findlay, OH , 1999  
Level A PPE Training, Trenton, NJ, 1997  
Forklift Operator, Findlay, OH , 1995  
Job Safety Analysis and Hazard Assessment, Findlay, OH, 1995  
OSHA HAZWOPER Supervisor, Findlay, OH, 1989  
OSHA 40-hour HAZWOPER , Findlay, OH, 1987  
Supervisory Skills, Findlay, OH , 1987

## Registrations/Certifications/Licenses

Certified Industrial Hygienist (CIH), 1984, 3303, Active, Nationwide, 11/2008

## **Experience and Background**

***05/2002 - Present***

***Manager, Health and Safety, Shaw Environmental & Infrastructure, Inc., Findlay, Ohio***

Responsibilities include providing health and safety support to the Emergency Response Group, various high hazard projects, and geographically located large projects. Also supply program CIH support to various government projects.

***The following is a summary of key projects:***

Health and Safety Manager and Onsite SSO, City of Austin, 101201 and 108658, City of Austin, Austin, TX, 11/2004 - 05/2005

Involved with a project to identify and remediate soils contaminated with benzyol peroxide materials. Developed Health, Safety and Emergency Response contingency plans for handling potentially explosive materials which included establishing minimum distances, personal protective equipment program, coordination with local emergency responders, and air monitoring. Assisted with the onsite training program. Mobilized to the site and was part of the initial investigation team.

Accomplishments:

Accomplished project with a triple zero record.

Project CIH and Onsite Safety Officer, Tin Products, U.S. EPA, Lexington, SC, 11/2002 - 03/2002

Involved with a project to access fire damaged aluminum alkyls tanks and transfer contents to portable containers. Developed Health, Safety and Emergency Response contingency plans, air monitoring program, personal protective equipment program for the pyrophoric material. Assisted with the onsite training program. Mobilized to the site and was part of the transfer team during product recovery and tank cleaning operations.

Accomplishments:

Completed transfer operations with a triple zero record.

***07/1998 - 04/2002***

***Director, Health and Safety, IT Corporation (The Shaw Group Inc. acquired substantially all of the operating assets of The IT Group, Inc., on May 23, 2002), Findlay, Ohio***

Responsibilities included provide health and safety support to the Speciality Services and Emergency Response Group.

***The following is a summary of key projects:***

Health and Safety Manager and Site Safety Officer, Anthrax Remediation Projects, USPS, Various Locations, 10/2001 - 02/2002

Developed Health and Safety plans and responded to three separate facilities which were contaminated with anthrax through bio-terrorism activities. Conducted site-specific employee training, administered respirator fit-testing, coordinated antibiotic prescriptions, supervised decontamination operations, and provided health and safety management.

Project CIH and Onsite Safety Officer, Minot Ammonia Derailment, Canadian Pacific Railroad, Minot, ND, 01/2002 - 01/2002

Part of the initial response team to a derailment involving railroad cars of anhydrous ammonia. Conducted site hazard assessment, developed a health and safety plan, and conducted employee briefings for personnel which successfully transferred 7 ammonia cars, some of which were leaking.

Accomplishments:

Completed project with a triple zero record.

Health and Safety Manager and Site Safety Officer, Mercury Remediation Projects, Various Clients, Various Locations, 09/2000 - 04/2001

Responded to three separate mercury related contamination events; the first involved surveying 13 residential homes where mercury containing gas regulators were spilled, the second involved a classroom where a child released approximately one fluid ounce of mercury, and the third was remediation of an act of mercury vandalism in a high school library facility. Provided onsite health and safety management, developed and conducted air monitoring during the remediation and final clean-up air monitoring using both direct reading and fixed media air sampling methods, and interacted with State EPA and local health officials.

Health and Safety Manager and Site Safety Officer, Okmulgee Refinery Hydrogen Fluoride (HF) Project, Phillips Petroleum Company, Okmulgee, OK, 08/1999 - 01/2000

Developed the health and safety plan and emergency response and contingency plan to cold tap, remove, and neutralize product in a HF Alkylation unit. Project required extensive emergency planning and coordination with local responders, careful selection of respiratory and dermal protection, develop both a personal and perimeter air monitoring program, and development of initial treatment for HF contact. Conducted initial HF briefings for project personnel and Level A use and decontamination procedures. Served as the site safety officer during the project.

Project CIH, Drake Chemical Incineration Project, USACE, Lockhaven, PA, 07/1998 - 10/1999

Project Certified Industrial Hygienist for a multi-year project involving the excavation and incineration of chemically impacted soils and debris. Responsibilities included selection and use of respiratory and dermal protection, industrial hygiene air monitoring program, and modification to the site health and safety plan. Developed work and health and safety plans for opening unknown stainless steel drums. Conducted annual refresher training for local emergency responders.

Health and Safety Manager and Site Safety Officer, North Carolina Disaster Relief Project, FEMA, Various Areas of North Carolina, 07/1999 - 08/1999

Responded to North Carolina following Hurricane Floyd to recover and dispose of large animals and poultry killed by flood waters. Developed health and safety plan, coordinated vaccinations, and supervised health and safety for over 100 employees engaged in this operation.

Health and Safety Manager and Site Safety Officer, Concept Science, State of Pennsylvania, Allentown, PA, 03/1999 - 03/1999

Responded to an explosion at a chemical manufacturing facility that produces hydroxylamine. Developed a health and safety plan which included elements of a demolition plan and project air monitoring requirements. Developed job safety analysis for all the key phases of this disaster remediation and demolition. Following one week as the SSO, returned to the project safety and health management function.

**03/1985 - 06/1998**

***Director, Health and Safety, OHM Remediation Services Inc., Findlay, Ohio***

Progressive experience and responsibilities from Industrial Hygienist to Director, Health and Safety. Experience and responsibilities included establishing industrial hygiene monitoring programs, training, development of site specific health and safety plans, and management of safety functions.

***The following is a summary of key projects:***

Health and Safety Manager and Site Safety Officer, Shell Belpre, Shell Chemical Company, Belpre, OH, 05/1994 - 12/1994

Responded to initial emergency and remedial activities at a major chemical plant explosion and fire. Performed the initial hazard assessment for multiple chemicals and physical situations and developed the health and safety plan (HASP) for on-site activities. Responsible for the health and safety of approximately 100 employees involving project specific training, development of job safety analyses, and air monitoring. Directed activities of up to six site safety officers.

Project CIH, Weldon Spring Quarry and Building Packages, US DOE, Weldon Springs, MO, 03/1993 - 08/1993

Performed the initial safety and health planning and document preparation for commencement of these two mixed waste remediation projects. These activities included preparation of job safety analyses for each task, coordination of project specific medical surveillance programs, development of project specific personal protective equipment programs, including sourcing and selection of specialty items, project specific emergency response planning, and establishment of project specific industrial hygiene monitoring programs.

Health and Safety Manager and Site Safety Officer, Goose Bay Incineration Project, Canadian Department of National Defense, Happy Valley-Goose Bay, Labrador., 08/1989 - 04/1990

For this 12-month thermal incineration project, Mr. Mummert was responsible for providing 3-hour training sessions on health, safety, and emergency response activities involving PCBs and PCB combustion products for the CDND, base firefighters, and crew members; coordinating site-specific PCB medical monitoring; developing the site safety plan; conducting surface and air monitoring; assisting with coordination of an emergency drill which simulated an aircraft crash into the facility; conducting routine safety audits of the thermal incinerator and feed preparation area; and serving as administrative industrial hygienist and safety manager.

Health and Safety Manager and Site Safety Officer, Moundsville Chemical Plant Decontamination, Olin Corporation, Moundsville, WV, 06/1988 - 10/1989

He was responsible for safety training and supervision for 90-man crew during the decontamination of facility and asbestos removal; developed site safety plan and prepared and implemented air monitoring program; contaminants included toluene diisocyanate, dichlorobenzene, toluene diamine, phosgene, sulfuric acid, dinitrotoluene, formaldehyde, corrosive organic liquids and solids, mercury, and other chemicals.

Health and Safety Manager, TNT Remediation Project, USATHAMA, Point Pleasant, WV, 04/1987 - 08/1987

Developed site safety plan and provided on-site monitoring of excavation and TNT removal from sewer lines; also developed safety procedures for TNT handling and remote burning of explosive compounds.

Health and Safety Manager, Lagoon Closure Project, Major Chemical Manufacturer, Kansas City, MO, 06/1986 - 10/1986

Mr. Mummert was responsible for health and safety management involving the closure of two lagoons contaminated with lead, arsenic, chrome, cadmium, cyanides, and chlorinated solvents and the demolition of concrete structures (project activities included dewatering and stabilization of remaining sludges and earthmoving of soils); developing site safety plan and air monitoring program for personnel, perimeter, and confined space situations; performing project safety audits; and presenting review of results.

Health and Safety Manager, Explosives Excavation, Major Chemical Manufacturer, Magna, UT, 07/1986

-09/1986

Mr. Mummert developed site safety plan and provided on-site safety training to, and supervision of, field operations personnel tasked with removal of buried explosives.

Health and Safety Manager, M-Basin Closure, DOE Savannah River Site, Savannah, GA, 05/1986 - 08/1986

Managed health and safety, including radiation safety, on RCRA closure at a DOE facility encompassing an unlined settling basin that received mixed waste effluent from the fuels and target fabrication facility at Savannah River. The M-Basin contained approximately seven million gallons of water and two million gallons of contaminated sludge. SHAW removed, treated, and discharged the free liquids; recovered and stabilized contaminated sludges; consolidated 50,000 cubic yards of metals- and solvents-contaminated sludges from another area to the M-Basin; constructed a cap over the stabilized sludges within the M-Basin; and restored the site.

*10/1981 - 02/1985*

*Industrial Hygienist, Versar New York, Inc., Binghamton, New York*

As senior safety officer for Versar New York, Inc., primary projects involved the decontamination of two buildings contaminated by PCB related fires. Responsibilities included directing industrial hygiene monitoring programs, enforcing site safety plan requirements, and implementing complete personal protective equipment programs. Regular duties also included direction of safety programs focusing on fall protection, demolition, and hot work; assistance with medical surveillance programs; and conducting new employee health and safety training sessions.

*01/1979 - 03/1981*

*Health and Safety Representative, United Union of Roofers, Waterproofers, and Allied Workers AFL-CIO, Washington, DC*

As the industrial hygienist for the United Union of Roofers, Waterproofers, and Allied Workers the primary responsibilities was to conduct comprehensive industrial hygiene surveys on roofing/waterproofing projects throughout the United States. Additional duties included serving as technical liaison with OSHA, NIOSH, and other professional groups, and the development and presentation of multimedia educational materials for workers.

### **Professional Affiliations**

AIHA Engineering Industry Special Interest Group, Co-Chair and Chair, 1993  
American Board of Industrial Hygiene, CIH, 1985  
American Industrial Hygiene Association, Full Member, 1979  
Academy of Kettering Fellows, Full Member, 1978

### **Publications/Presentations**

David L. Mummert, Application of A Risk Matrix Model to Safety Considerations During Disaster Recovery Operations, Ohio Spill Prevention, Planning and Emergency Response Association Conference, Cincinnati, OH, 2005

David L. Mummert, Reader, Impact of Revised Airborne Exposure Limits on Non- Stockpile Chemical Material Program Activities, National Academies of Science, Washington, DC, 2005

David L. Mummert and James Joice, Recognition, Evaluation, and Cleanup Techniques for Mercury Releases in Nonoccupational Environments, American Industrial Hygiene Conference, Dallas, TX, 2002

David L. Mummert, Application of Hazardous Waste Site Methodology to Large Scale Dead Poultry and Farm Animal Recovery Operations, American Industrial Hygiene Conference, New Orleans, LA, 2001

David L. Mummert, Mercury Release Evaluation and Remediation, 10th Annual Business & Industry Environmental Symposium, Manufacturers' Education Council, Cincinnati, OH, 2001

## **Kym Y. Edelman**

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### **Professional Qualifications**

Ms. Edelman has over 16 years of experience working in the field of health and safety and environmental management. Ms. Edelman is a Certified Safety Professional and Associated Safety Professional with 16 years of Construction Related H&S on site and management experience. She provides oversight, review, reporting, training and control of employee H&S processes on multiple construction project sites. In addition to program management, she has extensive experience managing on-site health and safety programs on construction sites as well as environmental sites. She has a comprehensive knowledge of the regulatory requirements under USACE, OSHA, CERCLA, RCRA, USACE, EPA and other federal and state regulatory programs. Ms. Edelman has experience in worker's compensation, accident investigation, and training. Additionally, Ms. Edelman possesses hands-on experience in compliance monitoring, development and implementation of policies and procedures. She has managed programs such as the Navy's Global Contingency Construction Contract and the Navy RAC Program.

### **Education**

Bachelor of Science, Environmental Health, Old Dominion University, Norfolk, Virginia, 1989

### **Additional Training/Continuing Education**

Lean Six Sigma Overview, Norfolk, Virginia, 2007  
Safety Management I, Virginia Beach, VA, 2007  
Safety Management II, Virginia Beach, VA, 2007  
Cause Analysis, Albany, NY, 2007  
Confined Space Supervisor, Virginia, 2004  
OSHA 10 hr and 30 hr. Construction Safety, Findlay, 2004  
USACOE Construction Quality Management, Williamsburg, VA, 2004  
Cranes and Rigging, Tonawanda, NY, 2003  
Excavation Competent Person, Virginia, 2003  
ISO 14001 Internal Auditor Training, Parsippany, NJ, 2002  
40-Hour Hazardous Waste Site Worker, Maryland, 1989

### **Registrations/Certifications/Licenses**

Certified Safety Professional (CSP), 2006, 19423, Active, Nationwide, 12/2011  
Associate Safety Professional (ASP), 2006, A12937, Active, Nationwide, 03/2009

### **Experience and Background**

#### ***10/2005 - Present***

***Program Safety Manager, Shaw Environmental & Infrastructure, Inc., Federal Business Line, Norfolk, Virginia***

Overall responsibility for the H&S Program and resource management in relation to the Inner Harbor Navigational Canal Construction Project (IHNC), the Atlantic Division Naval Facilities Engineering Command RAC III, IV and Global Contingency Construction Contracts. As lead for the Global Contingency Construction Contract, responsible for the overall development of the safety program for this newly created LLC. As lead for NAVFAC Programs, responsible for developing H&S plans and senior oversight of all Midlant Navy projects. Responsible for monitoring and implementing corporate policies and procedures on project sites as well as assisting the Northeast Regional Manager in maintaining safety programs throughout the region. Provides safety support and consultation to Shaw management, as well

**Kym Y. Edelman**

as client companies and governmental entities. Continually assists in improving Shaw's health and safety performance as to minimize losses throughout the region.

***The following is a summary of key projects:***

Program Safety Manager, Inner Harbor Navigational Canal, 132013, USACE, New Orleans, LA, \$1,000,000,000.00, 04/2008 – 8/2011

This project involves design and construction of the New Orleans Hurricane and Storm Damage Risk Reduction System consisting of the installation of a protective barrier traversing approximately 2 miles from the Mississippi River Gulf Outlet to the North Shore of the Gulf Intercoastal Waterway. The massive structure was created via the installation of concrete and steel piles, flood gates, T-Walls, and associated structures. This work was completed almost entirely from the water on barges utilizing crane mounted barges. Additionally, 3 coffer cells were constructed to allow for the construction and installation of the gate structures to control water flow.

**Accomplishments:**

Ms. Edelman is responsible for the initial implementation and establishment of the project safety programs and continued implementation of the safety program including project staffing, the development of the USACE's project safety initiatives, the organization of the Accident Prevention and Hurricane Preparedness Plans, coordination of training, subcontractor review, overall technical consultant regarding project safety issues, and compliance monitoring of the overall safety process. Construction hazards associated with this work include hazards associated with pile driving, cranes and rigging, concrete, steel, coffer dam construction, flood gate construction, work from elevated areas, work on and near water, work on barges, marine vessels and associated traffic, work in navigable waterways, severe weather, biological hazards, and heavy equipment operations.

Program Safety Manager, Repair and Construction Projects, , Camp Lemonier Djibouti ACC, LLC, Camp Lemonier, \$20,000,000.00, 11/2007 - Present

This project consists of the construction of several buildings, upgrades to the electrical distribution system, upgrades to the water system, and repairs to the HESCO security wall.

Site Safety Coordinator, UXO 32 Scrap Yard, 831866, U.S. Navy, Indian Head, Maryland, \$921,000.00, 07/2005 - Present

This project includes removal of all stored UXO located at the Scrap Yard location at the Indian Head Naval Base. Shaw has performed and will perform additional demilling of all inert rounds to be conducted in accordance with U.S. Navy standards for UXO scrap and will include the set up of a remote water cutting operation that will allow all MPPEH's to be opened remotely and have the contents sampled to determine if MPPEH's contain explosives.

Site Safety Coordinator/Program Safety Manager, Building 383, Bunker 154Y & Bunker 163 RCRA Closures RAC III, TO 0083, U.S. Navy, LANTDIV RAC, Portsmouth, Virginia, 02/2004 - 07/2006

This project requires completion of the necessary remedial actions as defined by the approved closure plans for each site in an effort to demonstrate that these specified remedial actions were sufficient to achieve a "Clean" Closure of the site as agreed upon by the U.S. Navy and approved by the Virginia Department of Environmental Quality. Specifically, remedial actions for this site include demolition and removal of a 30,000 square foot (sf) concrete foundation slab and two bunkers totaling approximately 3,000 tons of concrete, removal and disposal of approximately 6,000 tons of soil, replacement of 250 lf of storm sewer pipe, confirmation soil sampling and analysis, and restoration activities.

**Kym Y. Edelman**

Site Safety Coordinator, FSSI-14 Camp Peary Site 60, Camp Pearl, Williamsburg, Virginia, 05/2005 - 12/2005

The removal action involved the removal of soil and debris inside two concrete pools. In addition, the lead-based coating applied to the interior surface of the pools was scarified to remove the lead. Lead containing waste material was stabilized on site, prior to shipment to the disposal facility.

Site Safety Coordinator, WPNSTA Yorktown, Site Safety Coordinator/Program Safety Manager, Yorktown, Virginia, 01/2005 - 12/2005

This project consisted of the demolition of a former Storage Magazine and the subsequent excavation and disposal of soil and debris in conjunction with a RCRA facility closure.

Site Safety Coordinator, F-18 Aircraft Crash Site Remediation RAC 4 Task Order 0027, U.S. Navy LANTDIV RAC, Morrisville, North Carolina, 04/2004 - 05/2005

This politically-charged cost-reimbursable project involves the successful remediation and restoration of the crash site impacted areas of the RDU Airport to pre-crash conditions as directed by the Navy and approved by the RDU Airport Authority and North Carolina Department of Environmental and Natural Resources. Specific activities included maintaining absorbent boom along the fuel impacted drainage basin, cleaning approximately 900 linear feet (lf) of affected storm sewer, removal of approximately 1,000 tons of fuel-impacted soil at the crash site and in an open storm-water drainage channel, cleaning of charred/stained surfaces on the roadways, confirmation and investigative sampling activities, and backfilling and seeding of the excavated and disturbed areas.

Site Safety Coordinator, Phases IIa, IIb and IIC Expansion Navy Standard/Special Fuel Oil, U.S. Navy, Yorktown, Virginia, 12/2003 - 02/2005

This project consisted of the installation of approximately 5,300 linear feet of interceptor trench using a one-pass trenching method. The trenches were installed to a depth of 35 feet. In addition to the trenches, 46 recovery wells and approximately 9,000 linear feet of conveyance piping was also installed. Construction of upgrades to fuel farm treatment facility.

Site Safety Coordinator, Hampton Roads O&M RAC 4 TO 0021, U.S. Navy LANTDIV RAC, Norfolk, Virginia, 02/2004 - 01/2005

This cost-reimbursable project involved the O&M of three groundwater remediation systems. These systems include one pump and treat and two air sparging / soil vapor extraction (SVE) systems. The systems all treat groundwater contaminated with volatile organic compounds (VOCs) such as vinyl chloride, tri-chloroethylene, and di-chloroethylene. Air stripping, metals precipitation via pH adjustment and an inclined plate clarifier, and mechanical filtration via sand and granular activated carbon vessels are some of the treatment technologies used.

Site Safety Coordinator, Site 6 Bioremediation of Explosive-Contaminated Soils, LANTDIV NAVFAC ENCOM, Yorktown, Virginia, 01/2003 - 01/2005

This project consisted of the excavation of 2,000 tons of explosive- and VOCs-contaminated soil from a tidally-influenced marsh and transporting the material to a biocell for bioremediation.

Site Safety Coordinator, RCRA Closure Building 402, 840174, LANTDIV NAVFAC ENCOM, Yorktown, Virginia, 07/2004 - 12/2004

This project consisted of the demolition of a former Storage Magazine and the subsequent excavation and disposal of soil and debris in conjunction with a RCRA facility closure.

Site Safety Coordinator, Site 4 Removal Action, WPNSTA Yorktown LANTDIV NAVFAC ENCOM, Yigo, Guam, 01/2003 - 10/2004

This project consisted of the excavation and transportation of approximately 85,000 tons of contaminated soil and debris from a former burn area. Originally, the scope was to remove 2,000 tons of contaminated

**Kym Y. Edelman**

soil; however, it was discovered that the site was a former dumping area of municipal waste, debris, and munitions of concern (MEC). Following the discovery of MEC, unexploded ordnance (UXO) support was mobilized to the site to observe the excavation activities..

Due to the large volume of waste excavated from the site, Shaw convinced the Navy to regrade the site instead of transporting 40,000 cubic yards (cy) of fill to the site to restore it to its original condition. This decision saved the Navy approximately \$100,000.

Site Safety Coordinator, Colonie FUSRAP, U.S. Army Corps of Engineers, Colonie, New York, 03/2004 - 05/2004

USACE's Colonie FUSRAP Site, a \$71,000,000 environmental remediation in New York. The work is ongoing and is being continued under Delivery Order 02 of the KC PRAC contract vehicle. Previously the work was conducted under Task Orders 22 (\$350,000), 24 (\$20,801,000) & 40 (\$11,611,000) of the BTERC. The site has excavated over 137,000 cu.yds. of mixed RCRA and Radiological wastes, performed on-site stabilization & treatment of over 112,000 tons of RCRA D-008 soils, packaged and shipped over 180,000 tons of waste materials, performed on-site wastewater treatment of 32,000,000 gallons of contaminated surface/groundwater.

**08/2002 - 10/2005**

***H&S Coordinator, Shaw Environmental & Infrastructure, Inc., Federal BL, Virginia Beach, Virginia***

Responsible for providing company and client consultation for identification, recognition, and control of industrial hygiene and safety hazards. Served as site health and safety officer to ensure health and safety compliance on projects or provide support to various business lines/project services group. Conducted health and safety inspections of job sites to ensure safe work practices; provided health and safety training to employees; conducted accident investigations and completed reporting requirements. Additionally, assisted in conducting site inspections and obtaining documentation for Quality Control (QC) in relation to the Shaw QC program.

***The following is a summary of key projects:***

Site Safety Coordinator, NYSSYI/AWI Site 9, U.S. Navy LANTDIV RAC, Portsmouth, Virginia, 12/2002 - 08/2003

Key elements of this project included in-situ stabilization and removal of >21,000 cy of calcium hydroxide that extended to depths of 15 feet below grade directly adjacent to the Elizabeth River, installation and operation of a water treatment system that treated over five million gallons of excavation water, installation of a nearly two-acre tidal wetlands, and the unique fact that the project was co-funded by Atlantic Wood Industries (AWI) and the U.S. Navy.

Field Health and Safety Technician, Remedial Investigation, U.S. Army Corps of Engineers, Ft. McClellan, Anniston, Alabama, 10/2002 - 12/2002

Project involved the installation of groundwater monitoring wells for remedial investigation for the removal of 3X scrap at previous chemical training area. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE Compliance.

Site Safety Coordinator, Mitigation of Contamination and the Reconstruction of a Wetlands, Naval Facilities Engineering Command (LANTDIV) ATLANTIC Division, Dahlgren, Virginia, 08/2002 - 12/2002

The project consisted of the mitigation of contamination and the reconstruction of a wetlands area.

**Kym Y. Edelman**

Site Safety Coordinator, St. Juliens Creek Annex site 3, 6, & 7, U.S. Navy LANTDIV RAC, Chesapeake, Virginia, 08/2002 - 09/2002

This project involved the removal of approximately 4,500 tons of contaminated soil utilizing UXO avoidance methods and XRF technology to guide the excavation.

***10/2000 - 04/2002***

***Environmental Health and Safety Manager, Flextronics Enclosures, Kingston, Pennsylvania***

Responsible for the development, implementation and monitoring of Flextronics Enclosures, Inc.'s, new Environmental, Health and Safety Program. Conducted initial audits and assessments to determine environmental and safety compliance issues. Developed plans and procedures necessary to attain compliance with water permitting, waste disposal, safety, and industrial hygiene issues. Developed programs to lower accident and incident rates. Conducted training sessions for managers and technicians to ensure understanding and compliance with new company safety program. Monitored effectiveness of new Environmental Health and Safety (EHS) Program and continually improved upon programs implemented. Developed and implemented an Environmental Management System to be compliant with ISO-14001.

***08/1994 - 04/1997***

***Environmental Scientist/Manager of Health and Safety, Maxim Technologies, Denver, Colorado***

Assigned to U.S. Environmental Protection Agency (EPA) Superfund Technical Assistance and Response Team contracted to work as a subcontractor for primary contractor to the EPA. Conducted hazardous waste emergency response operations including delineation of contamination, site control, and contamination monitoring and reporting. Provided on-site technical support to the EPA and oversight of contractors for the EPA. Provided assistance to the EPA regarding sampling, management and disposal of hazardous wastes. Conducted preliminary site investigations to determine presence and extent of contamination on site. Developed work plans and provided assistance to the EPA for subsequent remediation of contaminated sites and abandoned industrial facilities. Conducted hazardous materials training as required by Occupational Safety and Health Administration (OSHA) for hazardous waste site work and emergency response, as well as the hazard communication standard. Assisted the EPA in conducting public information meetings pertaining to remedial sites.

Responsible for the overall management of Maxim's regional health and safety program. Developed and implemented corporate health and safety procedures throughout the Northwest Region. Responsible for compliance, documentation, and disposal of hazardous materials generated by the regional offices. Assisted environmental groups in conducting Phase I site assessments. Conducted training for Hazardous Waste Site Work, Hazard Communication, Asbestos Awareness, Instrumentation, and Air Monitoring. Conducted accident investigations and management of worker's compensation claims. Developed site-specific health and safety plans for hazardous waste site work. Provided technical support in the areas of industrial hygiene and health and safety

***10/1992 - 06/1994***

***Site Safety Supervisor, OHM Corporation, Findlay, Ohio***

Responsible for the development, implementation, and management of site-specific environmental, industrial hygiene, and health and safety programs. Conducted initial site hazard assessments. Performed compliance documentation and tracking of hazardous wastes in regard to Resource Conservation and Recovery Act (RCRA). Ensured compliance of site operations with respect to OSHA, EPA, and state regulations, such as RCRA, Toxic Substances Control Act (TSCA), Asbestos Hazard Emergency Response Act (AHERA), Hazardous Waste Operations and Emergency Response (HAZWOPER), and Hazard Communication (HAZCOM). Developed and implemented appropriate means to control

## **Kym Y. Edelman**

hazardous materials exposure. Monitored the effectiveness of on-site industrial hygiene and safety programs. Initiated safety awareness programs. Conducted training as required by 29 CFR 1910.120 and the Hazard Communication Standard. Liaison between client representatives and OHM in regard to environmental, industrial hygiene, and health and safety issues.

*10/1989 - 10/1992*

*Division Safety Coordinator, MAECORP Incorporated, Midwest, Columbus, Ohio*

Responsible for the implementation and compliance monitoring of company safety policies in addition to Federal and State OSHA and EPA regulations. Conducted site safety audits and prepared appropriate reports. Conducted air monitoring for personal exposure in addition to environmental air sampling. Conducted annual refresher training for hazardous waste site operation. Developed site health and safety plans. Conducted building inspections for asbestos. Maintained appropriate documentation in regard to medical monitoring requirements, training certificates, and hazard communication. Conducted accident investigations.

### **Professional Affiliations**

American Society of Safety Engineers, Associate, 2003

# Steve M. Carriere

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## **Professional Qualifications**

Mr. Carriere has over 18 years of experience in the environmental remediation industry involving project management, project supervision, health and safety, and on-site implementation. Mr. Carriere has managed several cost reimbursable and fixed price contracts for federal and commercial programs. Mr. Carriere is currently assigned as a Project Manager for the U.S. Navy's Atlantic Division Naval Facilities Engineering Command (LANTDIV) Program. Mr. Carriere has recently received his Project Manager Professional (PMP) credentials by passing the Project Management Institute (PMI) PMP certification exam. He is an active member of PMI and attends the monthly meetings.

Mr. Carriere has extensive construction knowledge in landfill cap remediation, above and below ground tank remediation, site surveys, sheeting and shoring implementation, soil excavation, structure and building demolition, water treatment installations, and transportation and disposal (T&D) coordination. In addition, he has been involved in extensive unexploded ordnance (UXO) remediation projects for several Naval Bases within the LANTDIV Program. His working knowledge of the UXO industry has provided a solid base for the future of all UXO projects within the program.

Mr. Carriere has also proudly served four years in the U.S. Military. His extensive training on the hazardous conditions of nuclear, biological, and chemical atmospheres provides a good basic knowledge for the hazardous waste industry.

## **Additional Training/Continuing Education**

8 hr Refresher Certification, Yorktown, VA, 2008  
8 Hr Refresher Certification, Norfolk, VA, 2007  
8 Hr Refresher Certification, Virginia Beach, VA, 2006  
8 Hour Refresher Certification, Virginia Beach, VA, 2005  
10 Hour Construction Supervisor Course, Virginia Beach, VA, 2004  
Corps Of Engineers QC Management Course, Virginia Beach, VA, 2004  
Hazmat Emergency Response Training, Trenton, NJ, 1997  
Supervisory Skills Workshop Part 1 and Part 2, Trenton, NJ, 1997  
4 Hour HM 181/126 DOT Training, Trenton, NJ, 1995  
CWM Environmental Sampling Course , South Plainfield, NJ, 1991  
8 Hour Environmental Management Course, Newark, NJ, 1990  
40 Hour Site Safety Officer Course, Newark, NJ, 1990  
40 Hour OSHA 1910.120 Training, Delaware, 1989  
US Army (NBC) Training, Ft. Benning, GA, 1986

## **Registrations/Certifications/Licenses**

Certified Project Management Professional (PMI), 2005, 240576, Active, Nationwide, 12/2011

## Experience and Background

*05/2002 - Present*

*Project Manager, Shaw Environmental & Infrastructure, Inc., Trenton, New Jersey*

Background includes project management, project coordination, health and safety plan preparation, and on-site implementation. Served four years in the U.S. Military with extensive training with hazardous conditions of nuclear, biological, and chemical atmospheres. Mr. Supervises on-site Shaw multidisciplinary personnel and subcontractors. Directs the utilization of heavy equipment field construction activities at chemical and hazardous waste remediation sites. Responsible for preparation of and adherence to the remedial site plan documentation, including financial documentation, cost tracking, work plans, spill prevention plans, and health and safety plans. Also ensures that work is conducted in accordance with applicable quality assurance/quality control (QA/QC), U. S. Department of Transportation (DOT), and Resource Conservation and Recovery Act (RCRA) / Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements. Also takes on the responsibilities of the site QC manager on select projects and ensures that all aspects of hazardous waste site remediation adhere to the QC program specifications, the U.S. Army Corps of Engineers (USACE) Three-Step Quality Process, and engineering requirements.

Project management duties included extensive above and below ground tank remediation, site surveys, sheeting and shoring implementation, soil excavation, structure and building demolition, water treatment installations, and T&D coordination. Also has participated in bid preparations, to include sitewalks, project scheduling and budgeting, and cost estimation.

*The following is a summary of key projects:*

Project Manager, Site 28 Soil Removal Action, 126566, LANTRDIV-NAVY, Indian Head, MD, \$1,202,878.00, 09/2007 - Present

Soil removal action for Site 28 located at Indian Head, MD. Project consist of removing approximately 2400 cubic yards of metal contaminated soils for off site disposal. The site has to be backfilled and restored to promote vegetation and wetland species.

Other Comments:

The site contained single base propellant grains which prompted Shaw to develop an Explosive Safety Submission for NOSSA review and approval before work could be completed.

Project Manager, Scrap Yard, 119340, LANTRDIV - Navy, Indian Head, MD, \$748,565.00, 11/2006 - Present

Develop ESS for explosive operations within the scrap yard. Coordinate an onsite blast chamber that would enable Shaw to handle items with less than 6.5 lbs of Net explosive weight. Also responsible for the mechanical screening of soil piles to verify that all soils shipped off site contain no MEC's. Project includes PCB soil excavation and disposal.

Project Manager, Tire Shop (Pax River), 123000, LANTRDIV - NAVY, Pax River, MD, \$114,677.00, 09/2006 - Present

Project includes a soil removal action that will require excavation and disposal of 216 in place cubic yards of TPH contaminated soils. E & S features will be installed, as well as minimal clearing and grubbing activities. Site restoration will consist of installing common fill and top soil back to original grade and hydroseeding for vegetation.

Other Comments:

Project is scheduled to mobilize in early spring of 2007.

Project Manager, Interim Removal Action for East Range Landfill, 123001, LANTDIV - NAVY, Solomons, MD, \$2,509,454.00, 09/2006 - Present

Project includes removal of miscellaneous debris and anomalies that are within the east range landfill. Care will be taken throughout the excavation process to identify all MPPEH materials and possible MEC items. Approximately 13,500 tons of material is estimated to be excavated and disposed of off site. UXO technicians will be on site to identify any munitions of concern.

Other Comments:

Project scheduled for May 2007 mobilization.

Project Manager, UST/AST Upgrades, 123206, LANTDIV - NAVY, Pax River, Solomons, St. Inigoes, MD, \$274,560.00, 09/2006 - present

Remove, install and up grade UST/AST's located within the Pax River Naval Air Station area. Three surrounding facilities require tank upgrades for fuel oil, gas, and diesel tanks.

Other Comments:

Project schedule for mobilization April, 2007.

Project manager, Site 32, ST. Inigoes, 123344, LANTDIV NAVY, St. Inigoes, MD, \$523,496.00, 09/2006 - present

Excavate and dispose of subsurface debris and soil approx 7000 tons. Materials show low TPH contamination and is mainly construction debris removal. UXO technicians will be on site to monitor all excavation activities due to previous finds of explosive relative items.

Other Comments:

Mobilization scheduled for May 2007.

Project Manager, UXO 32 Scrap Yard, 831866, U.S. Navy, Indian Head, Maryland, \$921,000.00, 07/2005 - Present

Assigned to a UXO remediation project at the Indian Head Naval Base. Job includes removing all stored UXO located at the Scrap Yard location. Will oversee the Explosive Safety Submission Plan, Work Plan, and SOPs for handling MPPEH's that must be approved by Naval Ordnance Safety & Security Activity (NOSSA), and will coordinate the set up of a remote water cutting operation that will allow all MPPEH's to be opened remotely and have the contents sampled to determine if MPPEH's contain explosives. Shaw will perform demilling of all inert rounds to be conducted in accordance with U.S. Navy standards for UXO scrap.

Other Comments:

All MPPEH items will be PELAN scanned prior to be cut with the water cutting operation. The PELAN scanning device has a 99.9% effective ration of determining if the item has less than 1 lb of explosive material inside.

Project Manager, Indian Head Lab Area, 115529, U.S. Navy, Indian Head, Maryland, 04/2005 - Present

Project Manager for Navy Task Order 51. Responsible for review of 35% design of an environmental remediation report. Will provide a constructibility and implementability report two weeks after 35% design is received.

Project Manager, Olsen Road Landfill, 115273, U.S. Navy, Indian Head, Maryland, \$3,200,000.00, 01/2005 - Present

Assigned as Project Manager to the Olsen Road Landfill Cap Construction. Estimated a firm fixed price project for the Navy. Was responsible for the initial site walk and the estimate package for the landfill project located at Indian Head, Maryland.

The project consisted of installing a 1.5 acre 40 mil LLDPE liner and a 2 foot soil cover over the existing landfill to comply with a RCRA closure. The project was completed with cost a savings 8% higher profit margin than originally forecasted. The Olsen Road Landfill project required a Site Approval from NOSSA because it was located within existing explosive arcs from base facilities. The project was only allowed to conduct work on Friday, Saturday and Sunday.

Accomplishments:

Completed project under budget on schedule with several challenges during the project. The client was very satisfied with the project deliverables.

Other Comments:

Project encountered several Material Potentially Presenting an Explosive Hazard (MPPEH) items. The project was equipped with 2 UXO certified technicians on site for all intrusive and soil screening activities. Most MPPEH items were deemed as inert and safe to move, they were stored in a lockable container for demilling. Two items were required Navy EOD response. These items were taken by the EOD Dahlgren detachment team.

Project Manager, NAPR Landfill Closure, 110050, LANTDIV - NAVY, Ceiba, Puerto Rico, \$7,213,913.00, 08/2004 - Present

Conduct landfill closure on a 50 plus acre landfill located on NAPR, in Ceiba, Puerto Rico. Landfill cover includes installation of 18 inch clay cap with an additional 6 inch vegetative cover material on top of clay cap system. Installation of Monitoring wells and gas vents are also included in landfill closure.

Other Comments:

Project was awarded in 2004, however did not mobilize until 9/2007 due to lack of permits required through PR.

Project Manager, Bainbridge Landfill Repairs, 128201, LANTDIV-Navy, Port Deposit, MD, \$108,912.00, 08/2007 - 02/2008

Replace 33 gas vent piping with new HDPE pipe and provide insect and bird screens on each. Repair 4 vent pipes that were damaged below the 40 mil. HDPE liner, and repair liner in accordance with manufacturer's recommendations. Install 30 inch HDPE pipe protectors over the newly installed vents and fill the void space with sand and a concrete cover to prevent damage to vent pipes.

Accomplishments:

Project completed with zero incidents or accidents.

Project Manager, Site 57 TCE Cleanup, 120359, US Navy, Indian Head, Maryland, \$800,000.00, 06/2006 - 07/2006

Project consisted of excavation of 3 areas that contained TCE, and Arsenic concentrations that exceeded the regulatory limits for industrial/residential criteria. Materials were excavated to ground water and stored on a poly lined berm holding cell where waste characterization samples were taken to coordinate appropriate disposal. The areas were restored to their original condition, i.e., vegetative cover and asphalt cover.

Accomplishments:

Project was completed under budget and had NO accidents or incidents during the project.

Site Manager, Patuxent River, 843844, Patuxent River, Patuxent River, Maryland, \$7,241,000.00, 06/2003 - 12/2004

Was responsible for day-to-day management of all on-site construction activities for the removal of 85,000 tons of municipal waste. Responsibilities included cost tracking, project scheduling, subcontractor management, procurement of materials and equipment. The project included the design and use of a remote drilling operation that enabled the cavity of Munitions of Concern to be accessed from a safe distance while observing from a remote camera. The project recorded over 23,000 works hours with no accidents or incidents.

Accomplishments:

Performed T&D for 85,000 tons of nonhazardous material of municipal waste. Regraded site and disposed of UXO scrap after demilling. Project also developed a remote drill that was designed and built by Shaw. The remote drill operation allowed Shaw to access the cavity of the Munitions of Concern with personnel at a safe 300 feet distance away.

Awards/Client Commendations:

Project received safety award for recording over 20,000 man hour work with no incidents or accidents.

Other Comments:

During the project over 1,000 MEC items were encountered. A Site Approval had to be issued by DDESB for the siting of a Temporary magazine for storing MEC items that may have contained explosives.

Site Manager, Towngut Landfill, 809401, U.S. Navy, Indian Head, Maryland, 07/2002 - 02/2003

Project was a five-acre landfill closure soil cap. Regraded subsurface area and brought in common fill to meet subsurface grade. Off-site select fill and top soil was brought in to complete two foot cover over landfill.

Accomplishments:

Saved the Navy money by decontaminating scrap metal and recycling, and brought in concrete crusher to reduce size of large concrete to allow placing of small concrete in landfill waste grade. Off-site disposal was not needed for the concrete.

Awards/Client Commendations:

Project received 98% award fee and had no accidents or incidents.

Site Manager, Bethesda Medical Center, U.S. Navy, Bethesda, Maryland, 04/2002 - 06/2002

Removed all drain pipe in three individual buildings that were contaminated with mercury. Project personnel worked six days a week 24 hours a day to meet the Navy's schedule. Two crews recorded over 10,000 work manhours with no injury or accident.

Accomplishments:

Project was completed under budget and on schedule.

***10/1989 - 05/2002***

***Site Manager, IT Corporation (The Shaw Group Inc. acquired substantially all of the operating assets of The IT Group, Inc. on May 23, 2002), Trenton, New Jersey***

Please see job description above.

***The following is a summary of key projects:***

**Site Manager, Anacostia Navy Yard Anthrax, U.S. Navy, Washington, D.C., 10/2001 - 12/2001**

Set up one of the first mail screening facilities for anthrax. Supervised the containment area erection and internal facility for allowing the bio-hazard screening process.

**Other Comments:**

Facility was installed and running within four weeks after notice to proceed.

**Site Manager, Fishing Point Landfill, U.S. Navy, Patuxent River, Maryland, 03/2000 - 10/2001**

Performed closure of a 38-acre municipal landfill. Soil cap landfill included three phases of an 18-month project. Established a 12-acre borrow pit on site to help the Navy with cost of importing material. Conducted beach line restoration, gas vent installation, and parking lot development.

**Awards/Client Commendations:**

Project received company award for working over 40,000 hours with no accidents or incidents. Received 95% award fee from Navy.

**Site Manager, Patuxent River, , U.S. Navy, Patuxent River, Maryland, \$1,915,000.00, 10/1999 - 03/2000**

Coordinated joint efforts with base environmental and base construction teams at Patuxent River by placing soil cap over geotextile fabrics above a low volatile contaminated area of approximately eight acres. When cap was complete, concrete parking lot was installed for jet fuel tankers. The parking lot was designed with a drain system that leads to an oil water separator to prevent ground contamination for any fuel truck.

**Awards/Client Commendations:**

Project received a commendation from the base Occupational Safety and Health Administration (OSHA) safety officer.

**Site Manager, Dahlgren, 777105, U.S. Navy, Dahlgren, Virginia, \$2,391,000.00, 02/1999 - 10/1999**

Project was a RCRA closure of a six-acre landfill using multi-layer composite cap on land and geotextile cap over three-acre marsh area. Gas vents were installed, as well as haul road for cap inspections.

**Awards/Client Commendations:**

Received 97% award fee from Navy. Project was completed under budget.

**Site Manager, Port Deposit, , U.S. Navy, Port Deposit, Maryland, \$875,000.00, 03/1998 - 12/1998**

Conducted various repairs to an existing landfill. Repairs included stripping of existing cover material placed over multi-layer composites without damaging composites. Installed drainage berm on landfill to redirect sheet flow to a controlled area drop box, to eliminate erosion on cap. Installed two such berms around cap and two drop boxes. New drainage features (sediments traps) were also installed to handle the concentrated flow of water.

**Site Manager, Dahlgren SMU, U.S. Navy, Dahlgren, Virginia, 06/1997 - 10/1997**

Excavated and disposed of soils at several sites around buildings. Used sheet piling and shoring for several buildings to prevent damage. Also removed and reinstalled metal overhead canopy for concrete decontamination pad.

Superintendent, Russell Road Landfill, , U.S. Navy, Quantico, Virginia, \$14,104,000.00, 06/1996 - 04/1997

Supervised the first RCRA landfill closure in the Commonwealth of Virginia. The project consisted of construction of a multi-layer composite over the 28-acre landfill, installation of sediment control structures to protect adjacent waterways and wetlands from 60 acres of open excavation, and the installation of a 6,000 linear foot (lf) leachate collection system. The project developed an on-site borrow source that saved the Navy significant money by eliminating the amount of off-site fill that was needed for the cap installation.

Accomplishments:

This was the first RCRA closure in the Commonwealth of Virginia. Saved the Navy money by developing a 15 acre on-site borrow pit to greatly reduce the amount of cost needed for purchased off site backfill material.

Project Superintendent, Groton Soil Vapor Extraction (SVE) Systems, U.S. Navy, Groton, Connecticut, 02/1996 - 06/1996

Installed and operated two soil vacuum groundwater systems. The SVE systems included 81 sparge wells, 35 vacuum extraction wells, and 16 horizontal vacuum extraction laterals. Each system had a small water treatment system that was incorporated into the design to provide final treatment for the water collected in the SVE systems prior to release to the sanitary sewer.

Awards/Client Commendations:

Project received 98% award fee from Navy. Project completed on-budget and on-schedule.

Project Superintendent, Brunswick SVE System, , U.S. Navy, Brunswick, Maryland, \$743,000.00, 11/1995 - 02/1996

Installed air sparging/SVE system and treatment facility for the removal of hydrocarbons (jet fuel) from the vadose zone and groundwater. Small water treatment system also installed to treat water from the SVE system prior to release of water to sanitary sewer.

Awards/Client Commendations:

Received 100% award fee for project and had no accidents or incidents.

Project Superintendent, Groton OT-5, U.S. Navy, Groton, Connecticut, 07/1995 - 11/1995

Completed a RCRA/Toxic Substances Control Act (TSCA) below ground tank closure of a 750,000-gallon underground storage tank (UST). The waste oil UST had to be dewatered prior to remediation. Recommended and received approval for the installation of an on-site water treatment system to handle the oily waste.

Accomplishments:

Saved the Navy \$85,000 of T&D cost by installing the water treatment system, instead of off-site disposal.

Awards/Client Commendations:

Received a 95% award fee from the Navy.

Project Manager, Wyeth Lagoon Closure, , Wyeth Averst Laboratory, Chazy, New York, \$122,000.00, 06/1994 - 08/1994

Conducted a lagoon closure including solidification of sludge and performed T&D.

Accomplishments:

Project completed on budget and on schedule. No accidents or incidents happened on project.

Project Manager, Al Tech Steel, Al Tech, Waterliet, New York, 03/1994 - 06/1994

Helped design and set up a screening plant with crusher to pull out 300 series stainless steel metal from other metals, rock, and debris.

Accomplishments:

Completed project under budget and on schedule.

Project Manager, Remington Arms, DuPont Remington Arms, Ilion, New York, 01/1994 - 03/1994

Cleaned and demolished a 5,000-gallon caustic dipping tank inside of active building.

Accomplishments:

Completed work without any interruptions with ongoing plant activities.

Project Manager, Harmony Grove Landfill, , Waste Management, Dover Township, PA, \$383,000.00, 08/1993 - 11/1993

Installed water collection and treatment system around existing landfill. Trenched 2,400 lf, installed dope pipe and electrical lines, and conducted site restoration. Supervised the water treatment building erection and installation of building accessories.

Accomplishments:

Project was completed under budget and on schedule.

Awards/Client Commendations:

Received letter of commendation from the client.

Project Manager, Ortho ECRA, , Ortho Company, Robbinsville, New Jersey, \$1,100,000.00, 04/1993 - 08/1993

Performed Environmental Cleanup Response-Liability Act (ECRA)-guided cleanup for pesticide remediation. Performed T&D of solids for landfill and incineration.

Project Manager, Texas Eastern Little Ferry, , Texas Eastern, Little Ferry, Texas, \$950,000.00, 07/1992 - 12/1992

Removed 5,200 tons of polychlorinated biphenyl (PCB)-contaminated waste around buildings and high voltage lines. Coordinated T&D.

Accomplishments:

Job was completed with no accidents or incidents and finished project on schedule and on budget.

Other Comments:

Shoring of buildings was required for excavation.

Health and Safety Officer, Texas Eastern Boston Harbor Tunnel, Texas Eastern, Various Locations, 04/1990 - 05/1992

Filled roles as Site Safety Officer (SSO) and project coordinator. Project coordinator was responsible for field crew day-to-day supervision.

**05/1989 - 10/1989**

***Recovery Technician, Guardian Environmental, Bear, Delaware***

Experience included extensive above and below ground tank remediation, drum overpacking and handling, sampling and waste characterization of unknown waste streams, confined space entry in hazardous environments, and decontamination of hazardous waste material.

**Professional Affiliations**

PMI (Project Management Institute), 2005

## **Cano R. Hernandez Jr**

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### **Professional Qualifications**

Mr. Hernandez has more than 25 years of experience in the petrochemical, civil, and pipeline construction industry. His years of construction experience have been in the environmental industry and have included the following positions: acting project supervisor, project coordinator, equipment supervisor, and lead equipment operator. His supervisory duties have included site management of multimillion dollar projects consisting of contaminated soil excavation, monitoring well removal, installation, drum removal (Level "B"), thermal desorption of soils (Level "B"), soil solidification (long stick operator), slurry wall installation (long stick operator), grading, rerouting of water channels in the Florida Everglades, EOD and non-EOD landfill construction.

Additionally, he has participated in bid preparation, on-site evaluation, project scheduling, budgeting, and cost estimating.

### **Education**

Diploma, General, Sheridan High School, Sheridan, Texas, 1969

### **Additional Training/Continuing Education**

Red Vector - Communication & Leadership, Shaw E&I, 2008  
Red Vector - Communicating with International Contractors, Shaw E&I, 2008  
Red Vector - Understanding the Hispanic Worker, Shaw E&I, 2008  
Red Vector - 7 Steps to Mastering Time, Shaw E&I, 2008  
Red Vector - 8 Hours Erosion & Sediment Control, Shaw E&I, 2008  
Red Vector - Heavy Construction Equipment Basics, Earthmoving & Excavating, Shaw E&I, 2008  
Red Vector - Role of the New Supervisor, Shaw E&I, 2008  
Red Vector - A Manager's Guide to Performance Appraisals, Shaw E&I, 2008  
Red Vector - Business Communications: Effective Meetings, Shaw E&I, 2008  
Red Vector - The Art & Science of Delegation, Shaw E&I, 2008  
Red Vector - Rewards, Recognition & Motivation, Shaw E&I, 2008  
Red Vector - Understanding Organization Change, Part 1, Shaw E&I, 2008  
Red Vector - Understanding Organization Change, Part II, Shaw E&I, 2008  
Red Vector - Team Building I: Team Member Roles, Shaw E&I, 2008  
Red Vector - Team Member II : Stages of Team Development, Shaw E&I, 2008  
Red Vector - Team Building III : Role of the Team Leader, Shaw E&I, 2008  
Red Vector V: Training: Icebreakers & Wrap-Up, Shaw E&I, 2008  
Red Victor - Team Building IV: Conflict Management, Shaw E&I, 2008  
Red Vector- Leadership Challenge Part I: What Leaders Do, Shaw E&I, 2008  
Red Vector - Leadership Challenge Part 2 Model the Way, Shaw E&I, 2008  
Red Vector - Leadership Challenge Part 3: Inspire a Shared Vision, Shaw E&I, 2008  
Red Vector - Leadership Challenge Part 4: Challenge the Process, Shaw E&I, 2008

Red Vector - Leadership Challenge Part 5 Enable Others to Act, Shaw E&I, 2008  
Red Vector - Leadership Challenge Part 6: Encourage the Heart, Shaw E&I, 2008  
Red Vector - Construction Claims: Acceleration, Shaw E&I, 2008  
Red Vector - Construction Paperwork, Shaw E&I, 2008  
Red Vector - Cost Estimating: Fundamentals, Shaw E&I, 2008  
Red Vector - Project Management Basics, Shaw E&I, 2008  
Red Vector Construction Project Management & Finance Certificate, Shaw E&I, 2008  
Red Vector - Leadership for Supervisors and Managers, Shaw E&I, 2008  
8-Hour OSHA Refresher Certification, Shaw E&I, 2006  
First-Aid/CPR, Shaw E&I, 2005  
Electrical Safety Course Level 1, Shaw E&I, 2004  
OSHA 10 Hour Construction Safety, Shaw E&I, 2004  
Excavation Competent Training, Shaw E&I, 2003  
Confined Space Supervisor, Shaw E&I, 2002  
CFR 192.285 #14 Butt Fusion Weld, IT Corporation, 2000  
8-Hour Training in Supervision of Hazardous Waste Operations - OSHA 29 CFR 1910.120, IT Corporation, 1992  
Hazardous Materials Emergency Response Training, IT Corporation, 1991  
40-Hour OSHA 1910.120 Training, IT Corporation, 1991

### **Registrations/Certifications/Licenses**

USACE Construction Quality Control Manager, 2004, CENAO-04-098, Active, Nationwide, 03/2014

### **Security Clearance**

RAPIDGate, US Department of Defense, 2011, Active, 09/2016

### **Experience and Background**

*05/2002 - Present*

*Various Positions, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia*

Supervises on-site Shaw personnel and site subcontractors performing multiple tasks. Directs the operation of heavy equipment and field operational activities at hazardous waste, chemical waste, and nonhazardous remediation sites. Responsible for the daily completion of and adherence to remedial site plan documentation including cost tracking, work plans, spill prevention plans, and health and safety plans. Assists the project superintendent in ensuring that all aspects of site operations are conducted in compliance with quality control program specifications.

*The following is a summary of key projects:*

Site Superintendent / QC / H&S, Site 7 Removal Action, 143071, NAVFAC, Navy, Davisville, RI, 09/2011 - 10/2011

Supervised Shaw personnel performing excavation, sampling, site restoration, and T&D activities of nonhazardous soil. The excavation and load out was performed in Level B.

Accomplishments:

The project was completed on time and under budget.

Site Superintendent, Chapel Parking Lot LID, 115312, NAVFAC, Navy, Indian Head, MD, 09/2011 - 09/2011

Excavated and installed features to allow for drainage off Chapel Parking Lot. Installed a bio-retention pond.

Site Superintendent, Quantico Pistol Range and Berm Clearance, 143079, NAVFAC - Navy, Quantico, VA, 06/2011 - 09/2011

Supervised on-site Shaw personnel performing excavation and screening operations at night. Scheduled the night activities with Range Control on a daily basis.

Accomplishments:

No one was injured and there were no first aid cases during the activities.

Site Superintendent, Paradise Creek - Landfill, 134886, NAVFAC - Navy, Portsmouth, VA, 05/2011 - 06/2011

Supervised Shaw personnel on site restoration and maintenance.

Site Superintendent, MCB-2 Landfill Repairs, 135443, NAVFAC - Quantico Marine Corps, Quantico, VA, 12/2010 - 05/2011

Supervised a small Shaw liner crew. Removed soil from damaged HDPE liner. Supervised the removal and installation of HDPE liner. Reported daily progress to Shaw Project Manager on a daily basis.

Accomplishments:

No accidents or first aid cases were reported.

Site Superintendent /H&S /QC, Fire Debris Removal, 137166, US Army, Fort Gordon, GA, 01/2011 - 02/2011

Supervised on-site Shaw personnel performing various tasks during the demolition, T&D, and site restoration process. The nonhazardous debris was taken to the base landfill for daily disposal.

Accomplishments:

There were no first aid or accidents.

Site Superintendent, Paradise Creek - Landfill, 134886, NAVFAC - Navy, Portsmouth, VA, 02/2010 - 11/2010

Supervised on-site Shaw personnel performing multiple tasks. Directed the operation of heavy equipment and field operation activities.

Site Superintendent, Paradise Creek Landfill, 134886, NAVFAC, Navy, Portsmouth, VA, 01/2010 - 01/2010

Capped existing landfill, installed drainage control features, installed chain link fence around perimeter of landfill, supervised subcontractors on site.

Construction Field Manager, Operation & Maintenance Project, Camp Lejeune, Camp Lejeune, NC, 12/2008 - 01/2009

Construction Field Manager on project involving supervising, scheduling, coordinating work activities, ensuring punch list items were completed and ready for final inspection by the Client. Activities included the coordination of transportation and disposal of nonhazardous soils from the base drying beds to an approved landfill for disposal. Performed various site inspections.

Site Superintendent, Interim Removal Action at Site 57 - Building 292 Trichloroethylene (TCE) Contamination, U.S. Navy, Indian Head, MD, 05/2006 - 12/2008

Was in charge of all daily activities, including enforcing Policy HS-308, scheduling excavation, backfill, and T&D activities. Tracked manhours for the project. Was responsible for site restoration.

**Accomplishments:**

Despite heavy rains, project was completed on schedule and within budget. The project had a safe work record and there were no first aid cases, no near misses, and no injuries.

Construction Field Manager, Lead Cleanup and Site Restoration, Hangar 4, LANTDIV RAC, Lakehurst, NJ, 10/2008 - 10/2008

Removed soils with concentration of total lead exceeding 800mg/kg at the grounds of Hangar 4, located at NAES Lakehurst, NJ. The total lead cleanup was based on New Jersey Department of Environmental Protection(NJEDP) cleanup criteria for an industrial site.

Cleanup of lead was mainly achieved by a VAC system, and other cleanup was performed by hand or with a mini excavator. All Sampling was performed by Shaw and sent to a lab for a 24-hour turnaround. T&D was coordinated by Shaw. Site restoration was completed on all excavated areas.

Construction Field Manager, Site 5 Golf Course Landfill, LANTDIV RAC, Mechanicsburg, PA, 08/2008 - 10/2008

Excavated soil and performed direct load out on a daily basis to an approved nonhazardous landfill. Scheduled off site surveyors to check excavations throughout the project duration, also scheduled them to perform a final TOPO after the site restoration was performed. Worked with the Shaw Project Manager and Project Engineer to keep the project on schedule.

Construction Field Manager, Remedial Action, U.S. Naval Academy, Norfolk, VA, 07/2008 - 08/2008

Excavated two small retention ponds mostly with hand work because of the unknown utilities. The excavated soils were stockpiled and later sent to an approved nonhazardous landfill. Cells 1 and 2 overflow inlets were installed with steel grating tops. A pre-mixed soil was installed in each of the cells to allow runoff water from the parking lot to filter through the soil mixture to piping that was tied in the concrete structures.

At Cell 2 parking entrance there were Decorative Pavers installed at the entrance road to allow run off water from the parking lot area to filter down through the pavers as a filtering system down to piping also connected to a concrete structure.

The difficulty with this small project was work stoppage for ceremonies, parades, weddings and Special Events. Heavy traffic also posed a problem on a daily basis.

Construction Field Manager, Service Welcome Center, Fish and Wildlife Services, Vieques, Puerto Rico, 06/2008 - 07/2008

Met with Shaw-Atlantic Contingency Constructors, LLC team in San Juan, Puerto Rico, to schedule and coordinate transportation to the Island of Vieques, Puerto Rico, both by car and air. Also assisted Project Administrator to make contact with possible vendors for the new Fish & Wildlife Service Welcome Center to be designed by the Shaw team.

Construction Field Manager, SWMU 477 Concrete Crushing and Removal, Camp Lejeune, Camp Lejeune, NC, 04/2008 - 06/2008

Supervised a Shaw team of operators to break concrete into small manageable pieces to be fed through an on-site Portable Concrete Crusher. Managed concrete subcontractor and held daily Safety Meetings. Attended weekly production meetings with the Client.

Accomplishments:

Project was completed with no Safety incidents.

Construction Field Manager, Interim Removal Action at Site 57 - Building 292 Trichloroethylene (TCE) Contamination, LANTDIV RAC, Indian Head, MD, 03/2008 - 04/2008

Assisted Field Manager as an equipment operator.

Construction Field Manager, Excavation Project, Quarters U, Washington Navy Yard, Washington, DC, 02/2008 - 02/2008

Excavated soils with low lead at Quarters U, T&D, managed heavy traffic control on a daily basis and performed site restoration.

Construction Field Manager, Concrete Repair, Building 1112, LANTDIV RAC, Oceana, VA, 02/2008 - 02/2008

Documented Quality Control and held daily safety meetings with the subcontractor and inspected rebar before each concrete placement.

Construction Field Manager, Miscellaneous Site Preparation, LANTDIV RAC, Ceiba, Puerto Rico, 08/2006 - 12/2007

Performed clearing and grubbing, inspected existing monitoring wells, installed erosion and sediment control features, general filling and grading. Constructed/recompacted low permeability clay cap, placed vegetative cover(topsoil), seeded with native grasses and installed erosion control matting on steep slope and other critical areas.

This project posed some difficulty because it was positioned on a peninsula bounded by Ensenda Honda to the west and Puerca to the south and east. Duties included but not limited to:

Managed a predominate Spanish speaking Puerto Rican subcontractor

Ensured Shaw Health and Safety Policies were adhered to on a daily basis, including conducting dump truck inspections, issue truck driver entry passes to Roosevelt Roads Landfill, photo documentation, daily reports, daily spreadsheet on all incoming fill material, scheduled monthly calibration of base scales, attended weekly QAQC Meetings with the client and communicated to the Shaw Project Manager located in Norfolk, VA, on a daily basis.

Site Superintendent, Building 383, Southgate Annex Resource Conservation & Recovery Act (RCRA) Closure, Norfolk Naval Shipyard, Portsmouth, VA, 04/2006 - 05/2006

Was in charge of all daily activities, QA/QC, and daily reporting. Answered to the RIOCC on a daily basis, scheduled and maintained contact with the trucking company and the disposal facility. Scheduled for the signature on the manifest from the client on a daily basis. Was responsible for site restoration and dispatch of all outside and Shaw E&I equipment.

Accomplishments:

Despite heavy rains, the project was completed on schedule and within budget. The project had a safe work record.

Site Superintendent, Septic System Installation at Former Camp Garcia, Fish and Wildlife Services, Vieques, Puerto Rico, 02/2006 - 04/2006

The work included clearing and grubbing, excavation, installing 8-, 10-, and 12-inch polyvinyl chloride (PVC) sewer lines, installation of 10,000-gallon septic tank, installation of a leachate field, installation of a distribution box, and site restoration. Duties included QA/QC reports, daily reports, daily photo documentation, daily communication with the RIOCC, scheduling biweekly RIOCC meetings, managing Puerto Rican subcontractor, and reporting to Shaw Project Manager in Virginia Beach VA. Held daily tailgate meetings in Spanish with the Puerto Rican employees. Was the only Shaw E&I employee on site.

Site Superintendent, Camp LeJeune Marine Corps Base, Task Order 42, U.S. Marine Corps, Jacksonville, NC, 11/2005 - 02/2006

Task Order 42 involved the removal and installation of aboveground storage tanks (AST) and underground storage tanks (UST), and the installation of fuel loading and unloading pads. Was in charge of all daily activities including work schedules, quality assurance/quality control (QAQC) reports, daily reports, and attending biweekly meetings with the RIOCC office. Scheduled the signatures of manifests for transportation and disposal (T&D) of hazardous and nonhazardous material for off-site shipment.

Accomplishments:

The project was able to win new contracts with the military and continues to operate and maintain two groundwater plants.

Awards/Client Commendations:

Received The President's Award

Site Supervisor/Health and Safety Officer, Mitigation of Contamination and the Reconstruction of a Wetlands, Remedial Action Contract (RAC), Naval Facilities Engineering Command, Atlantic Division (LANTDIV), Naval Surface Warfare/Weapons Center, Dahlgren, VA, 07/2002 - 12/2003

The project consisted of the mitigation of contamination and the reconstruction of a wetlands area. Maintained daily contact with the subcontractors and base personnel.

***01/1990 - 05/2002***

***Various Positions, IT Corporation (The Shaw Group Inc., acquired substantially all of the operating assets of The IT Group Inc., in May 2002), Houston, Texas***

Please see Job Description under Shaw E&I above.

***The following is a summary of key projects:***

Site Foreman/Lead Operator, Mitigation of Contamination and the Reconstruction of Two Adjacent Wetland Areas, LANTDIV RAC, Dahlgren, VA, \$2,400,000.00, 07/2001 - 01/2002

The project consisted of the mitigation of contamination and the reconstruction of two adjacent wetland areas, and the installation of a concrete box culvert to maintain appropriate water levels. Activities were conducted simultaneously, and in close coordination with base range control, that allowed for the successful completion of this project without interference of explosive testing. The \$2.4 million project was completed within budget and received a 98% award fee. Maintained the daily contact with subcontractors and base personnel to allow efficient movement of resources.

Site Foreman/Lead Operator, Demolition of Failing Drainage Channel and the Reconstruction of the Channel, LANTDIV RAC, Bainbridge Training Facility, Port Deposit, MD, 12/2000 - 07/2001

Project was the demolition of failing drainage channel and the reconstruction of the channel. Project was completed on time, within budget, and received a 100% award fee.

Site Foreman/Lead Operator, Consolidation and Relocation of Approximately 16,000 Cubic Yards of Solid Waste, LANTDIV RAC, Dahlgren, VA, \$2,200,000.00, 04/2000 - 12/2000

This project consisted of the consolidation and relocation of approximately 16,000 cubic yards (cy) of solid waste. The project incorporated phytoremediation as a means of long-term remedial action to remove mercury and heavy metals from underlying materials. Created a one-acre wetland which included the planting of more than 40,000 trees and the installation of an irrigation system to ensure vegetative survivability. This \$2.2 million project was completed on time, \$300,000 under budget, with a 98% award fee.

Senior Operator, Installation of 300 Linear Feet of Slurry Wall, LANTDIV RAC, Dahlgren, VA, \$3,300,000.00, 01/1999 - 12/1999

Senior Operator of various equipment on a daily field operation for the construction of a multilayered composite cap over a 5.5-acre sanitary landfill. Completion of the project included the installation of 300 linear feet (lf) of slurry wall. During the excavation of the landfill area, approximately 900 unexploded ordnances (UXO) were removed from the landfill. This was a \$3.3 million project, completed at \$200,000 under budget.

Feed Preparation Supervisor/Operator, Incinerator Project, Texas Water Commission, Crosby, Texas, 01/1998 - 12/1998

This was a fast paced incineration project that operated seven days a week, 24 hours a day. Supervised three, three-man crews on rotation; two shifts on and one shift off. This was a Level "B" project which meant that there was a 30-foot fresh air trailer hooked to the crew's breathing system at all times. A crew continuously operated a Komatsu Wheel Loader inside the feed preparation building while on supplied air with ten minute escape packs. Managed the operation and maintenance (O&M) in temperatures on summer days of 120 degrees in the enclosed buildings of the radial stacker, power screen equipment and mass flow feeder while on supplied air. Feed was supplied to the kiln 24 hours a day.

Senior Operator, U.S. Navy Contract at Pointe Malotie, Bayer, Port of Seattle, Various Locations in Seattle, 01/1994 - 12/1997

Was in charge of slurry wall activities, such as moving high density polyethylene (HDPE) pipe to slurry wall for transfer of slurry to the ditch, and checking height in slurry wall to prevent wall from collapsing. Other activities included preparing bentonite mixture for backfill of trench. Also operated the long stick excavator when it was necessary. Traveled for four years with the IT Slurry Wall Group across country to various cities such as Point Malotie, California; Port of Seattle, Washington; Philadelphia, Pennsylvania; Syracuse; and New York. Also operated hydraulic and mechanical cranes up to 140 tons to load and unload slurry wall equipment.

Field Supervisor/Lead Operator, Lake Apopka, Private Sector, Florida, 06/1993 - 12/1993

Was in charge of all new excavation work and haul road maintenance, as well as maintenance of all the off-road equipment. This was very critical to the operation because of the high water levels that were encountered on a daily basis in the Everglades. Was in charge of all equipment maintenance and service records for all equipment.

*01/1986 - 01/1990*

*President/Owner, Hernandez Concrete Pavers, LaPorte, Texas*

Successfully operated a business for four years in and around the Houston Metro, Clear Lake area. Installed sidewalks for theme parks such as Astro World in Houston and also pool decks, driveways, and sidewalks for private sector clients in and around the Houston area.

## **Cano R. Hernandez Jr**

### **Other Information**

#### **Languages**

##### **Language: Speak Read Write**

Spanish: Slight, Slight, Slight

#### **Years of Experience**

Previous Employers: 6.00

Shaw: 19

Total of 25.00 year(s) experience

#### **Experience in EPA Regions**

Region 1 (CT MA ME NH RI VT)

Region 2 (NJ NY Puerto Rico Virgin Islands)

Region 3 (DC DE MD PA VA WV)

Region 4 (AL FL GA KY MS NC SC TN)

Region 6 (AR LA NM OK TX)

Region 9 (AZ CA HI NV American Samoa, Guam, TT)

Region 10 (AK ID OR WA)

#### **Industry Experience**

Automobile

Environmental

Petrochemical

#### **Passport Information**

**Do you have a valid Passport?** Yes

**Country:** United States

**Expiration Date:** 12/2016

#### **Military Experience**

US Army, Sergeant, 1970 - 1976



*This certificate is awarded to*

**Cano Hernandez Jr**

*for the successful completion of the course:*

**8-Hour HAZWOPER Refresher**

Hours: 8 hours 0 min Credits: 0



Session Date: 2/23/2011  
For instructor-led course (if applicable):

Completion Date: 2/23/2011  
For online course (if applicable):

*[Signature]*  
Monique S. York, Sr. Director, HR Centralized Services  
Human Resources Department

*[Signature]*  
Kevin Scott, Vice President  
Environmental Health & Safety

PEEL  
HERE

American Heart  
Association   
*Learn and Live*

Heartsaver® First Aid  
**CANO HERNANDEZ**

This card certifies that the above individual has successfully completed the objectives and skills evaluations in accordance with the curriculum of the AHA for Heartsaver First Aid Program.

Modules Completed:  A  B  C  D  E

4/27/2011

Issue Date

4/2013

Recommended Renewal Date

Training Center Tidewater Center for Life Support

TC Address TCLS 757-446-5926  
Contact Info

Course Location 855 W. Brambleton Ave, Norfolk, VA

Instructor Deana Kilber, Regional Faculty

Holder's Signature *Cano Hernandez*

© 2008 American Heart Association Tampering with this card will alter its appearance. 80-1202

Fill in the circles of the modules *NOT* completed. This card contains unique security features to protect against forgery.

80-1202 R3/08

OSHA Occupational Safety and Health

15-500540240

This card acknowledges that the recipient has successfully completed a 30-hour Occupational Safety and Health training course in Construction Safety and Health.

*Carlos Hernandez*

*Dominick A. Ciccone 10/1/10*  
(Trainer name and/or type) (Course end date)



*This certificate is awarded to*

**Cano Hernandez Jr**

*for the successful completion of the course*

**8 Hour HAZWOPER Refresher ONLINE**

*By Shaw Environmental Health & Safety - EH&S*

**Date: 12/10/2009**

A handwritten signature in black ink, appearing to read 'Cano Hernandez Jr', is located in the lower right quadrant of the certificate.



The Shaw Group Inc.

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# CERTIFICATE *of* COMPLETION

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Presented To

**Cano R. Hernandez Jr**

In Recognition of Having Successfully Completed the Prescribed Course of Study For

**8-Hour HAZWOPER Refresher (Online)**

OSHA 29 CFR 1910

Effective Date: **11/20/2008**

I certify that the above trainee has completed this training course as given by The Shaw Group Inc. or one of its subsidiaries.

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Edward Wick  
Director, Shaw Training & Development

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Don L. Unruh, CIH, CSP  
Director, Environmental Health & Safety Training



**Shaw**<sup>®</sup> Shaw Environmental & Infrastructure, Inc.

# CERTIFICATE *of* COMPLETION

Presented To

**Cano R. Hernandez Jr**

In Recognition of Having Successfully Completed the Prescribed Course of Study For

**Defensive Driving - Online: 2004 - 2006**

**02/01/2005**

EFFECTIVE DATE

I certify that the above trainee has completed this training course as given by Shaw E&I or one of its subsidiaries.

DON L. UNRUH, CIH, CSP  
Manager, Internal Training Group



**Shaw**<sup>®</sup> Shaw Environmental & Infrastructure, Inc.

# CERTIFICATE *of* COMPLETION

Presented To

**Cano R. Hernandez Jr**

In Recognition of Having Successfully Completed the Prescribed Course of Study For

**Excavation Competent Person Training**

OSHA 29 CFR 1926-Subpart P

I certify that the above trainee has completed this training course as given by Shaw E&I or one of its subsidiaries.

DON L. UNRUH, CIH, CSP  
Manager, Internal Training Group

**03/13/2003**

EFFECTIVE DATE



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# CERTIFICATE *of* COMPLETION

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Presented To

**Cano R. Hernandez Jr**

In Recognition of Having Successfully Completed the Prescribed Course of Study for

**Waste Operations Training**

I certify that the above trainee has completed this training course as given by The IT Group or one of its subsidiaries.

A handwritten signature in cursive script, reading "Don L. Unruh".

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DON L. UNRUH, CIH, CSP  
Manager, Internal Training Group

**11/01/1991**

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EFFECTIVE DATE



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# CERTIFICATE *of* COMPLETION

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Presented To

**Cano R. Hernandez Jr**

In Recognition of Having Successfully Completed the Prescribed Course of Study for

**Hazards And Protection**

**10/29/1991**

EFFECTIVE DATE

I certify that the above trainee has completed this training course as given by The IT Group or one of its subsidiaries.

A handwritten signature in cursive script that reads "Don L. Unruh".

DON L. UNRUH, CIH, CSP  
Manager, Internal Training Group

# **Burney D. Chance**

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## **Professional Qualifications**

Mr. Chance has over 13 years of experience in multiple aspects of the environmental remediation industry and over 28 years of experience in environmental and oil field related work. Mr. Chance has expertise in monitoring, sampling, and removing chemical contaminants, including dioxin, polychlorinated biphenyls (PCBs), chromium, carbon disulfide, explosives, asbestos, mercury, and hydrocarbons. He is also experienced in the removal and disposal of underground storage tanks (USTs). In addition, he is experienced in contaminated soil removal and restoration activities. He is knowledgeable in site dewatering, trenching, excavation, and earthmoving. As a Site Safety Officer, he is responsible for on-site oversight of personnel and equipment, procurement of equipment and materials, and project health and safety compliance. He has experience in the remediation of petroleum-contaminated sites and his duties include construction, sampling, and maintenance of remediation systems.

## **Education**

Associate of Science, Please provide discipline, Pearl River Community College, Poplarville, Mississippi, 1970

High School Diploma, General Studies, Bunker Hill School, Marion County, Mississippi, 1968

## **Additional Training/Continuing Education**

OSHA 8-Hour Hazardous Waste Training, Shaw E&I, 2005

Asbestos Awareness, 2005

OSHA 30-Hour Construction Training, 2005

CPR, 2005

First Aid, 2004

U.S. Corps of Engineers Construction Quality Management for Contractors Training, 2003

Railcar Transfer Training, 1997

OSHA Supervisor Safety Training, 1996

OSHA Safety Officer's Training, 1994

OSHA 40-Hour Hazardous Waste Training, 1993

OSHA 40-Hour Health and Safety Training, Shaw E&I, 1993

Qualified Persons Training,

## **Experience and Background**

*01/2008 - present*

*Safety, Shaw Environmental & Infrastructure, Inc., Federal, Lorida, Florida*

Safety over sight for Canal Improvements, Spoil Mound removal, weir demolition and building a boat park.

*07/2006 - Present*

*Field Health and Safety Technician, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania*

Responsible for on-site oversight of personnel and equipment, procurement of equipment and materials, and project health and safety compliance.

*The following is a summary of key projects:*

Field Health and Safety Technician, Shaw AFB, U.S. Army Corps of Engineers, Sumter, South Carolina, 07/2006 - 08/2006

Project involved safety audit and oversight of groundwater remediation, in particular, KMn04 injections, systems O&M, and subcontractor oversight.

Field Health and Safety Technician, Hurricane Katrina Cleanup, U.S. Army Corps of Engineers, Biloxi, Mississippi, 01/2006 - 07/2006

Project involved building reconstruction and storm damage cleanup from Hurricane Katrina. Duties included safety oversight monitoring, maintaining daily logs, and assuring proper Personal Protection Equipment (PPE) compliance.

Field Health and Safety Technician, Bring New Orleans Back Project, Task 4, U.S. Army Corps of Engineers, New Orleans, Louisiana, 10/2005 - 01/2006

Provided emergency protective measures at a meat packing plant and recovery of city-owned facilities required as a result of Hurricanes Katrina and Rita. Duties included safety oversight monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Evacuee Center Readiness and Operations & Management, U.S. Army Corps of Engineers, Ft. McClellan, Anniston, Alabama, 09/2005 - 10/2005

Project involved making housing available for Hurricane Katrina evacuees. Was responsible for safety oversight, maintenance of daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Fire Debris Release Cleanup, Need Client Name, Need Site Location, 07/2005 - 09/2005

Following an explosion at a cylinder fill plant, project involved fire debris release cleanup. Responsible for safety oversight, monitoring, and assuring PPE compliance.

Field Health and Safety Technician, Hanlin Allied Site, AlliedSignal, Moundsville, West Virginia, 04/2005 - 04/2005

Responsibilities included safety oversight, monitoring, maintaining daily logs, and PPE compliance.

Field Health and Safety Technician, Remedial Action, BP/ARCO, Merryville, Louisiana, 11/2004 - 02/2005

Project involved demolition of buildings, pipe removal, metal removal, excavation for concrete burial site and removal of contaminated soil and liquids, leveling and grading site. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Former Amarillo AFB, Texas, 08/2004 - 11/2004

Project involved demolition of 5 jet engine test cells, removal of debris, leveling, grading, and seeding of the site. Responsibilities included safety oversight, monitoring, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Pine Bluff

Arsenal, Arkansas, 03/2004 - 08/2004

Project involved remediation, consolidation and capping of three former landfills. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Investigation, U.S. Army Corps of Engineers, Ft. McClellan, Anniston, Alabama, 11/2000 - 03/2004

Project involved the installation of groundwater monitoring wells for remedial investigation for the removal of 3X scrap at previous chemical training area. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE Compliance.

*09/2007 - 12/2007*

***Safety, Shaw Environmental & Infrastructure, Inc., federal, York Haven, Pennsylvania***

Safety over site for the Burnner Island, Fuel Gas Desulphuration system project. For Pennsylvania Power and Light

*07/2007 - 08/2007*

***Safety, Shaw Environmental & Infrastructure, Inc., Federal, Detroit, Algeria***

Safety oversite for clean up after a fire at the detroit Dam, for the USACE.

*07/2007 - 07/2007*

***Safety, Shaw Environmental & Infrastructure, Inc., Federal, Sumter, South Carolina***

Safety over site for sampel wells being drilled, at Shaw AfB.

*01/2007 - 07/2007*

***Safety, Shaw Environmental & Infrastructure, Inc., Federal, Iorida, Florida***

Safety over sight for Canal Improvements, Spoil mound removal, Weir removal, and building a boat park.

*01/1993 - 07/2005*

***Field Health and Safety Technician, IT Corporation (The Shaw Group Inc., acquired substantially all of the operating assets of The IT Group Inc., in May 2002), Monroeville, Pennsylvania***

Please see above description of duties.

***The following is a summary of key projects:***

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Jacksonville, Florida, 07/2000 - 11/2000

Project involved thermal desorption unit, pentachlorophenal and dioxin removal. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Washington, DC, 05/2000 - 06/2000

Project involved asbestos abatement at Washington, DC, public schools. Responsibilities included safety oversight, monitoring, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Keesler AFB, Biloxi, Mississippi, 08/1999 - 06/2000

Project involved the installation of a stormwater drain and restoration of wetlands area. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, MacDill AFB, Tampa, Florida, 03/2000 - 05/2000

Project involved remediation of contaminated soil. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Ft. McClellan, Anniston, Alabama, 01/2000 - 03/2000

Project involved exploratory trenching of landfills. Responsibilities included safety oversight, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, Ag Street, U.S. Army Corps of Engineers, New Orleans, Louisiana, 05/1999 - 08/1999

Project involved remediation and restoration of lead and arsenic contaminated landfill at a housing project. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, Need client name, Charleston, South Carolina, 01/1999 - 05/1999

Project involved wet and dry decontamination of lead and chromium at a landfill. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPR compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Keesler AFB, Biloxi, Mississippi, 10/1997 - 01/1999

Project involved construction of a sheetpile wall and installation of a storm drain and backfilling the existing channels for physical containment of a landfill. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Removal Action, , U.S. Army Corps of Engineers, Columbus AFB, Columbus, Mississippi, \$280,000.00, 06/1997 - 10/1997

Project involved the removal of underground storage tanks. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, , Sangamo/Wesson, Pickens, South Carolina, \$18,200,000.00, 09/1995 - 06/1997

Project involved thermal desorption unit, polychlorinated biphenyls (PCB) cleanup. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, , Cleve Reber Group, Sorento, Louisiana, \$35,000,000.00, 12/1993 - 09/1995

Project involved thermal destruction unit for remediation of soil containing hydrocarbons and toluene. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

***01/1977 - 01/1993***

***Oilfield Technician, Texaco, Inc., Venice, Louisiana***

Held various positions in oilfield related work, including roustabout, paraffin scraper, and relief pumper. Was also safety chairman for ten years, a first aid and CPR instructor for 12 years, and the United Way Campaign coordinator for four years.

***01/1971 - 12/1976***

***Oilfield Technician, AWI, Inc., Harvey, Louisiana***

Work involved oilfield related activities, working on derricks and on a work-over rig.

**Years of Experience**

Total of 21.00 year(s) experience

**Experience in EPA Regions**

Region 4 (AL FL GA KY MS NC SC TN)

Region 6 (AR LA NM OK TX)

**Industry Experience**

Environmental

Petroleum

*Last Updated: 12 June 2012*

## **Patricia M. Gamble**

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### **Professional Qualifications**

Ms. Gamble has 14 years of experience in the field of civil engineering including the areas of environmental remediation, surface water management, engineering design, plans and specifications, field investigations, quality assurance/quality control (QA/QC), and construction monitoring. She has completed residual waste and municipal waste landfill cap designs and remediation design and construction projects. She has performed site engineering, construction oversight and QA/QC for several construction projects.

Ms. Gamble has extensive experience in both the design and implementation of erosion and sediment controls. She has experience with erosion and sediment controls in the states of Maryland, Pennsylvania and West Virginia. In addition, Ms. Gamble has Responsible Personnel Certification for Erosion and Sediment Control from the Maryland Department of the Environment.

### **Education**

Bachelor of Science, Civil Engineering, Pennsylvania State University, University Park, Pennsylvania, 1998

### **Additional Training/Continuing Education**

Construction Quality Management for Contractors - Corps of Engineers Training Course, Towson, MD, 2012  
8-Hour HAZWOPER Refresher, Online, 2012  
Defensive Driving Small Vehicle, Shaw Online, 2010  
The Smith System Five Keys to Safe Driving Small Vehicle Backing and Forward Motion, Online, 2009  
Radworker Training, Washington, PA, 2008  
The Smith System Advanced on Road Defensive Driving Course, Washington, PA, 2007  
First Aid/CPR, Washington, PA, 2006  
HAZMAT Re-Certification for Troxler Nuclear Gauge, Pittsburgh, PA, 2005  
MDE Responsible Personnel Certification Program for Erosion and Sediment Control, MD, 2004  
40-Hour OSHA Training, Harmorville, PA, 1998  
Troxler Nuclear Gauge Safety Training, Monroeville, PA, 1998

### **Registrations/Certifications/Licenses**

Professional Engineer, Civil, 2003, PE062414, Inactive, Pennsylvania, 09/2011

### **Experience and Background**

*09/2009 - Present*

*Project Engineer 3, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia*

Develop and review various technical documents for Navy construction projects. The technical documents developed and reviewed include erosion and sediment control plans, work plans, completion reports, accident prevention plans, safety and health plans, quality assurance plans, storm water pollution prevention plans, explosive safety submission plans, environmental protection plans, waste management plans, and sampling and analysis plans.

**10/2008 - 09/2009**

***Project Engineer 3, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia***

Acted as the Technical Manager for Navy projects and oversaw approximately 12 engineers and scientists within the Norfolk, Virginia office. Responsibilities included the coordination and review of all technical documents and assigning technical staff to various projects.

**05/2006 - 10/2008**

***Construction Engineer Manager II, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania***

Job Description: Responsibilities include providing civil engineering support to client construction and design projects.

Recent assignments have included:

Field Engineer, Molycorp Washington Remediation Project, 117916, Molycorp, Washington, Pennsylvania, 05/2006 - Present

The project consists of the excavation, transportation and disposal of low-level radioactive materials and Manufactured Gas Plant (MGP) tar materials.

Responsibilities include excavation and fill quantity tracking, quantity takeoffs for material procurement, overseeing of GPS activities, daily field report submittal to the client, implementation of the design drawings and specifications, and inspection and implementation of erosion and sediment controls. Assist project manager with monthly status reports. Developed and implemented the Erosion and Sediment Control Plan for the offsite borrow source.

**05/2002 - 05/2006**

***Civil Engineer III, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania***

Civil Engineer, Site 57 TCE Cleanup, 120359, U.S. Navy, Indian Head, Maryland, 04/2006 - 05/2006

The project consisted of the excavation of three areas that contained TCE and arsenic concentrations that exceeded the regulatory limits for industrial/residential criteria. Materials were excavated to groundwater and stored on a poly lined berm holding cell where waste characterization samples were taken to coordinate appropriate disposal. The areas were backfilled with soil and restored to original conditions consisting of vegetative and asphalt covers.

Responsibilities included the development of the Work Plan for the construction activities based on the cost estimate and scope of work, and the development of the Erosion and Sediment Control Plan.

Site Engineer and Site QC Manager, Olsen Road Landfill, 115273, U.S. Navy, Indian Head,

Maryland, 03/2005 - 05/2006

The project consisted of installing a 1.5 acre 40-mil linear low density polyethylene (LLDPE) liner with a two-foot soil cover over the existing landfill to comply with a RCRA closure. The project encountered several material potentially presenting an explosive hazard (MPPEH) items during excavation and regrading of the landfill.

Responsibilities included the development of the Work Plan for the construction activities based on the cost estimate, scope of work, design drawings and specifications, resolving construction/design issues with the design company and the client, providing survey control throughout construction of the landfill cap, inspecting of erosion and sediment controls weekly and following major rain events, implementing quality control of the construction with respect to the design drawings, conducting biweekly production and QC meetings, and developing the contractor closeout report to document the project construction activities.

Site Engineer and Site QC Manager, Site 17, 115273, U.S. Navy, Indian Head, Maryland, 03/2005 - 05/2006

The project consisted of shallow drum and soil removal from an area approximately one acre in size. The excavated areas were sampled and then backfilled with soil and restored to existing conditions.

Responsibilities included the development of the Work Plan for the construction activities based on the cost estimate and scope of work, providing survey control throughout the construction, inspecting of erosion and sediment controls weekly and following major rain events, conducting biweekly production and QC meetings, and developing the contractor closeout report to document the project construction activities.

Civil Engineer, Keystone Raeger Mountain, 115994, Keystone Renewable Energy, LCC, East Wheatfield and Jackson Townships, Pennsylvania, 06/2005 - 08/2006

The project consisted of a proposed two-mile pipeline construction that traveled through East Wheatfield Township and Jackson Township in Pennsylvania.

Responsibilities included preparing two General Permit No. 5 Utility Line Stream Crossings, two General Permits No. 8 Temporary Road Crossings, two Erosion and Sediment Control Plans, and a Preparedness, Prevention, and Contingency Plan for the proposed pipeline construction project.

Site Engineer, Patuxent River, 843844, U.S. Navy, Patuxent River, Maryland, 12/2003 - 12/2004

The project consisted of the excavation and disposal of 85,000 tons of nonhazardous waste. During excavation, over 1,000 munitions and explosives of concern (MEC) items were encountered. A Site Approval was obtained from DDESB for the siting of a temporary magazine on site for storing MEC items that may have contained explosives. A remote drill was designed and built by Shaw in order to access the cavities of the MEC items from a safe distance of 300 feet.

Responsibilities included the tracking of excavation and transportation and disposal quantities, surveying of construction activities, implementing of the erosion and sediment control plan, and developing the contractor closeout report to document the project construction activities.

Civil Engineer, Various Projects, Monroeville, Pennsylvania, 05/2002 - 11/2003

Preparing erosion and sediment control plans, including calculations, text and drawings, for projects in Maryland, Pennsylvania and West Virginia.

Performing environmental compliance audits for construction sites in Pennsylvania and Ohio. Preparing manuals for the sites to use as guidance throughout the course of their projects.

Designing a soil cap and preparing closure plan documents for the closure of a foundry sand pile located in eastern Pennsylvania.

Preparing drawings, specifications, and calculations for the closure design of a residual waste landfill in central Pennsylvania. Preparing an erosion and sediment control plan for the construction of the cap. Performing construction management and QA/QC activities for the closure. Inspecting erosion and sediment controls weekly and after major rain events. Preparing construction certification documents and as-built drawings.

Preparing specifications, quality control plans, and design calculations for municipal waste landfill closure designs in West Virginia. The designs included gas management, leachate collection, and storm water management systems.

Preparing a storm water pollution prevention plan. Duties included storm water modeling utilizing SEDCAD 4.0 and design of storm water conveyance channels.

**05/1998 - 05/2002**

***Civil Engineer, IT Corporation (The Shaw Group, Inc., acquired substantially all of the operating assets of the IT Group Inc., on May 23, 2002)., Monroeville, Pennsylvania***

Performing QA/QC activities for cell construction and capping of municipal waste landfills in western Pennsylvania, and preparing the construction certification documents and as-built drawings.

Performing California Bearing Ratio in-place bearing capacity testing and on-site peel and shear testing for high-density polyethylene geomembrane seaming operations.

Preparing specifications, design calculations, and drawings for the excavation, relocation, and capping of metals-impacted soil.

Preparing design analysis reports, design calculations, and construction drawings for the closure design of municipal waste landfills in Michigan and Wisconsin.

Coordinating equipment, materials, utilities, and other services for mobilization at a PCB contaminated site and assisting in the preparation of close-out reports for sampling performed at the site.

**05/1997 - 08/1997**

***Engineer Intern, Leader Environmental, Inc., Pittsburgh, Pennsylvania***

Developed a database for permit consolidations.

Researched various federal and state regulations.

Investigated the benefits of using computer models for air dispersion analysis.

*08/1995 - 12/1995*

*Co-op Engineer, Pennsylvania Department of Transportation, Clearfield, Pennsylvania*

Assisted Highway Safety Engineer with evaluation and remediation of high risk locations.

**Professional Affiliations**

Society of Women Engineers, Inactive 2011, President Pittsburgh Section 2007, Membership Chair Pgh Section 2006, 1993

Society of Women Engineers, Inactive 2011, Regional Student Activity Coordinator 2000, Treasurer Pgh Section 2003, Secretary Pgh Section 2001, 1993

## **Burney D. Chance**

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### **Professional Qualifications**

Mr. Chance has over 13 years of experience in multiple aspects of the environmental remediation industry and over 28 years of experience in environmental and oil field related work. Mr. Chance has expertise in monitoring, sampling, and removing chemical contaminants, including dioxin, polychlorinated biphenyls (PCBs), chromium, carbon disulfide, explosives, asbestos, mercury, and hydrocarbons. He is also experienced in the removal and disposal of underground storage tanks (USTs). In addition, he is experienced in contaminated soil removal and restoration activities. He is knowledgeable in site dewatering, trenching, excavation, and earthmoving. As a Site Safety Officer, he is responsible for on-site oversight of personnel and equipment, procurement of equipment and materials, and project health and safety compliance. He has experience in the remediation of petroleum-contaminated sites and his duties include construction, sampling, and maintenance of remediation systems.

### **Education**

Associate of Science, Please provide discipline, Pearl River Community College, Poplarville, Mississippi, 1970  
High School Diploma, General Studies, Bunker Hill School, Marion County, Mississippi, 1968

### **Additional Training/Continuing Education**

OSHA 8-Hour Hazardous Waste Training, Shaw E&I, 2005  
Asbestos Awareness, 2005  
OSHA 30-Hour Construction Training, 2005  
CPR, 2005  
First Aid, 2004  
U.S. Corps of Engineers Construction Quality Management for Contractors Training, 2003  
Railcar Transfer Training, 1997  
OSHA Supervisor Safety Training, 1996  
OSHA Safety Officer's Training, 1994  
OSHA 40-Hour Hazardous Waste Training, 1993  
OSHA 40-Hour Health and Safety Training, Shaw E&I, 1993  
Qualified Persons Training,

### **Experience and Background**

*01/2008 - present*

*Safety, Shaw Environmental & Infrastructure, Inc., Federal, Lorida, Florida*

Safety over sight for Canal Improvements, Spoil Mound removal, weir demolition and building a boat park.

*07/2006 - Present*

*Field Health and Safety Technician, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania*

Responsible for on-site oversight of personnel and equipment, procurement of equipment and materials, and project health and safety compliance.

*The following is a summary of key projects:*

Field Health and Safety Technician, Shaw AFB, U.S. Army Corps of Engineers, Sumter, South Carolina, 07/2006 - 08/2006

Project involved safety audit and oversight of groundwater remediation, in particular, KMnO<sub>4</sub> injections, systems O&M, and subcontractor oversight.

Field Health and Safety Technician, Hurricane Katrina Cleanup, U.S. Army Corps of Engineers, Biloxi, Mississippi,

01/2006 - 07/2006

Project involved building reconstruction and storm damage cleanup from Hurricane Katrina. Duties included safety oversight monitoring, maintaining daily logs, and assuring proper Personal Protection Equipment (PPE) compliance.

Field Health and Safety Technician, Bring New Orleans Back Project, Task 4, U.S. Army Corps of Engineers, New Orleans, Louisiana, 10/2005 - 01/2006

Provided emergency protective measures at a meat packing plant and recovery of city-owned facilities required as a result of Hurricanes Katrina and Rita. Duties included safety oversight monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Evacuee Center Readiness and Operations & Management, U.S. Army Corps of Engineers, Ft. McClellan, Anniston, Alabama, 09/2005 - 10/2005

Project involved making housing available for Hurricane Katrina evacuees. Was responsible for safety oversight, maintenance of daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Fire Debris Release Cleanup, Need Client Name, Need Site Location, 07/2005 - 09/2005

Following an explosion at a cylinder fill plant, project involved fire debris release cleanup. Responsible for safety oversight, monitoring, and assuring PPE compliance.

Field Health and Safety Technician, Hanlin Allied Site, AlliedSignal, Moundsville, West Virginia, 04/2005 - 04/2005

Responsibilities included safety oversight, monitoring, maintaining daily logs, and PPE compliance.

Field Health and Safety Technician, Remedial Action, BP/ARCO, Merryville, Louisiana, 11/2004 - 02/2005

Project involved demolition of buildings, pipe removal, metal removal, excavation for concrete burial site and removal of contaminated soil and liquids, leveling and grading site. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Former Amarillo AFB, Texas, 08/2004 - 11/2004

Project involved demolition of 5 jet engine test cells, removal of debris, leveling, grading, and seeding of the site. Responsibilities included safety oversight, monitoring, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Pine Bluff Arsenal, Arkansas, 03/2004 - 08/2004

Project involved remediation, consolidation and capping of three former landfills. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Investigation, U.S. Army Corps of Engineers, Ft. McClellan, Anniston, Alabama, 11/2000 - 03/2004

Project involved the installation of groundwater monitoring wells for remedial investigation for the removal of 3X scrap at previous chemical training area. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE Compliance.

***09/2007 - 12/2007***

***Safety, Shaw Environmental & Infrastructure, Inc., federal, York Haven, Pennsylvania***

Safety over site for the Burnner Island, Fuel Gas Desulphuration system project. For Pennsylvania Power and Light

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Safety over sight for Canal Improvements, Spoil mound removal, Weir removal, and building a boat park.

**01/1993 - 07/2005**

***Field Health and Safety Technician, IT Corporation (The Shaw Group Inc., acquired substantially all of the operating assets of The IT Group Inc., in May 2002), Monroeville, Pennsylvania***

Please see above description of duties.

***The following is a summary of key projects:***

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Jacksonville, Florida, 07/2000 - 11/2000

Project involved thermal desorption unit, pentachlorophenal and dioxin removal. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Washington, DC, 05/2000 - 06/2000

Project involved asbestos abatement at Washington, DC, public schools. Responsibilities included safety oversight, monitoring, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Keesler AFB, Biloxi, Mississippi, 08/1999 - 06/2000

Project involved the installation of a stormwater drain and restoration of wetlands area. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, MacDill AFB, Tampa, Florida, 03/2000 - 05/2000

Project involved remediation of contaminated soil. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Ft. McClellan, Anniston, Alabama, 01/2000 - 03/2000

Project involved exploratory trenching of landfills. Responsibilities included safety oversight, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, Ag Street, U.S. Army Corps of Engineers, New Orleans, Louisiana, 05/1999 - 08/1999

Project involved remediation and restoration of lead and arsenic contaminated landfill at a housing project. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, Need client name, Charleston, South Carolina, 01/1999 - 05/1999

Project involved wet and dry decontamination of lead and chromium at a landfill. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPR compliance.

Field Health and Safety Technician, Remedial Action, U.S. Army Corps of Engineers, Keesler AFB, Biloxi, Mississippi, 10/1997 - 01/1999

Project involved construction of a sheetpile wall and installation of a storm drain and backfilling the existing channels for physical containment of a landfill. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Removal Action, , U.S. Army Corps of Engineers, Columbus AFB, Columbus,

Mississippi, \$280,000.00, 06/1997 - 10/1997

Project involved the removal of underground storage tanks. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, , Sangamo/Wesson, Pickens, South Carolina, \$18,200,000.00, 09/1995 - 06/1997

Project involved thermal desorption unit, polychlorinated biphenyls (PCB) cleanup. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

Field Health and Safety Technician, Remedial Action, , Cleve Reber Group, Sorento, Louisiana, \$35,000,000.00, 12/1993 - 09/1995

Project involved thermal destruction unit for remediation of soil containing hydrocarbons and toluene. Responsibilities included safety oversight, monitoring, maintaining daily logs, and assuring proper PPE compliance.

***01/1977 - 01/1993***

***Oilfield Technician, Texaco, Inc., Venice, Louisiana***

Held various positions in oilfield related work, including roustabout, paraffin scraper, and relief pumper. Was also safety chairman for ten years, a first aid and CPR instructor for 12 years, and the United Way Campaign coordinator for four years.

***01/1971 - 12/1976***

***Oilfield Technician, AWI, Inc., Harvey, Louisiana***

Work involved oilfield related activities, working on derricks and on a work-over rig.

## ATTACHMENT 4

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### *GUIDELINES FOR STANDARD SAFETY DISCIPLINARY ACTIONS*

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**Shaw Environmental and Infrastructure, Inc.  
Guidelines for Standard Safety Disciplinary Actions**

**SEI-GUIDE-004**

This document is for the purpose of providing information about the types of conduct, including but not limited to those that constitute just cause for disciplinary actions that may be taken by Shaw.

This guideline is applicable for all projects under the management of Shaw Environmental & Infrastructure, Inc.

Approved By

George Bevan, President

Bill Winkler – President, Federal Business Line

Jeff Jenkins – President, CS&L Business Line

Scott Waguespack, Executive Director of Human Resources

Troy Allen, Executive Director of Health & Safety

September 24, 2009

Effective Date

## Guidelines for Standard Safety Disciplinary Actions

### 1.0 PURPOSE

This guideline has been developed to provide a more consistent approach to disciplinary action when safety violations occur within Shaw E&I. The disciplinary actions imposed may include verbal and written warnings, suspension, or termination as defined in HR207 “Employee Discipline”.

This document is for the purpose of providing information about the types of conduct, including but not limited to those that constitute just cause for disciplinary actions and possible disciplinary actions that may be taken by Shaw. This guideline does not require Shaw to impose any particular discipline or progressive discipline, and does not limit Shaw’s rights to discipline, suspend, or discharge any employee within Shaw’s discretion. Employee’s that are part of an active Collective Bargaining Agreement (CBA) will be subject to the disciplinary action guidelines as specified in the CBA under which they are covered.

The employee’s direct supervisor and/or functional manager are responsible for ensuring that violations of health and safety policies, procedures, and regulations are dealt with in an appropriate and consistent manner. The following guidance should be utilized to determine disciplinary actions for safety violations.

### 2.0 TYPES OF VIOLATIONS

Safety violations are typically categorized as minor, moderate, or serious. Additionally, concerning second or repeat violations, it should be understood that a violation should not be compounded or considered repeat / second violation if the previous violation occurred more than 3 years prior. The following provides the disciplinary procedures to be used for the specific class of violation.

2.1 For a **Minor** safety violation, (see examples below), the employee’s direct site supervisor or functional manager will meet with the employee(s) and discuss the nature of the safety violation. The recommended corrective action should be selected to prevent future violations.

2.1.1 Should a second, Minor safety violation occur to the same employee, the direct site supervisor and functional manager will meet with the employee and issue a written warning to the employee. The direct supervisor must use the Disciplinary Action Form (Attachment 1). A copy of the Disciplinary Action Form must be submitted to the employee’s designated Human Resources representative for review prior to issuing the written warning. A further minor violation either being of the same safety issue by the same employee or a different offense may result in another written warning, suspension from work without pay (non-exempt) for a reasonable period of time, or the direct supervisor may recommend a Discharge Termination. These further violations provide

for indicators of continued unacceptable behavior and should be accounted for when determining a disciplinary action. The designated Human Resources representative must be consulted prior to suspension or termination.

NOTE: Under the Fair Labor Standards Act (FLSA), an exempt employee can only be suspended for disciplinary reasons with a reduction in salary, for a violation of a serious safety rule. Exempt employees can be reassigned or instructed not to report to work pending the supervisor's decision whether to recommend termination. However, they must continue to be paid their regular salary.

2.2 A **Moderate** (see examples in section 3.0) safety violation will require the direct supervisor and functional manager to document a verbal or prepare a written warning (using the Disciplinary Action Form) for the safety violation. A copy of the Disciplinary Action Form must be submitted to the Human Resources representative for review prior to issuing the written warning.

In event of a repeat Moderate safety violation by the same employee(s), another written warning may be issued to the employee(s) and the designated Human Resources representative should be contacted to determine if suspension or termination is warranted.

2.3 If a **Serious** safety violation occurs, it will require that, in most cases, the direct supervisor or person observing the violation had to immediately intervene and/or stop the activity. The employee's direct supervisor and functional manager will complete the Disciplinary Action Form for the safety violation that was observed. The designated Human Resources representative shall then be contacted to determine the next course of action, such as suspension or termination (as warranted).

2.3 If a **Terminable** safety violation occurs, it will require that, in most cases, the direct supervisor or person observing the violation had to immediately intervene and/or stop the activity. The employee's direct supervisor and functional manager will complete the Disciplinary Action Form for the safety violation that was observed. The designated Human Resources representative shall then be contacted to determine the appropriate course of action in accordance with requirements set forth in the Human Resources termination process.

Type of Violation	Recommended Action
Minor	Verbal warning (but always documented in field notes)
Moderate	Documented verbal or written warning
Serious	Written disciplinary action; suspension or termination
Terminable	Termination

### **3.0 EXAMPLES OF SAFETY VIOLATIONS**

The following provides typical examples for each class of safety violation. The employee's direct supervisor is responsible for recommending the classification of the violation to the Human Resources representative. The Human Resources representative shall make the final classification of the violation, after consultation with a Health and Safety Manager.

#### **3.1 Minor Safety Violation**

- Failure to wear specified personal protective equipment, e.g., safety glasses, gloves, safety shoes/boots, etc.
- Failure to perform daily heavy equipment or vehicle inspections
- Performing unsafe work practices
- Horseplay, which doesn't result in an accident or injury
- Failure to attend a scheduled safety meeting
- Improperly dismounting heavy equipment

#### **3.2 Moderate Safety Violation**

- Repeat of Minor safety violation
- Failure to report a minor first aid injury within a day of the incident, e.g., small cut on finger requiring a band-aid, bee sting, dust particle in eye
- Failure to immediately report an accident or injury, including any equipment or property damage
- Failure to wear specialized PPE, e.g. face shield, respiratory protection, etc.
- Performing unsafe work practices after being corrected
- Horseplay, which didn't but could have resulted in an accident or injury
- Abuse of safety equipment
- Violation of company 60-pound lifting limit or lifting limit of less than 60 pounds designated by a medical professional
- Failure to follow restricted activity guidelines directed by a medical professional
- Neglect in care of company or client vehicles (example GSA)

#### **3.3 Serious Safety Violation**

- Repeat of Moderate violation
- Knowingly performing unsafe work practices, which could have or did result in serious injury to the employee or other personnel
- Possession/use of drugs (without a prescription) or alcohol on company projects/premises
- Positive drug or alcohol test
- Unauthorized use of company or client vehicles
- Citation for reckless driving or open alcohol container while on company business
- Leaving the scene of an automobile accident without contacting the police, regardless of fault
- Not immediately reporting a work related auto accident, regardless of fault
- Not immediately reporting a work related driving under the influence citation
- Not immediately reporting a work related open alcohol container citation

- Not immediately reporting a work related hit and run citation
- Horseplay that results in employee injury
- Destroying or damaging company, client or another employee's property
- Tampering with safety equipment
- Direct refusal to wear the designated PPE for a task
- Direct refusal to follow established company Health and Safety Policy

#### 3.4 **Terminable** Safety Violation

- Failure to wear fall protection or not being tied to an anchor point when required
- Disregard for a required lockout / tag out
- Upon conviction or upon pleading no contest to a DUI/DWI while driving on company business

#### 4.0 REFERENCES

HR207 "Employee Discipline"

**ATTACHMENT 1 - DISCIPLINARY ACTION FORM**

\_\_\_\_\_  
Employee Name                      Employee Number                      Position

\_\_\_\_\_  
Date of Hire                      Resource Manager                      Supervisor Imposing Discipline

**I – PERFORMANCE PROBLEM OR MISCONDUCT**

The supervisor should complete the applicable provisions of this section.

Most recent date and time of Performance Problem or Misconduct: \_\_\_\_\_

Location of Incident or Problem: \_\_\_\_\_

Describe Problem or Misconduct: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe Explanation Offered by the Employee: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**II – PRIOR RECORD OF COUNSELING**

Has employee received any prior warning?                       Yes                       No

If yes, was the prior warning for the same or a similar problem/offense?    Yes                       No

Briefly explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If the prior warning was for a different problem or type of misconduct, explain: \_\_\_\_\_

---

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Was the prior warning verbal or written?       Verbal       Written       Both

Date(s) or prior counseling and by whom: \_\_\_\_\_

**III – PRIOR DISCIPLINARY ACTION TAKEN**

- Verbal Warning       Written Suspension       Demotion
- Written Warning       Transfer       Suspension
- Extension of Probation
- Loss of Privileges (Explain): \_\_\_\_\_
- Termination       Other \_\_\_\_\_

**IV – CURRENT DISCIPLINARY ACTION TAKEN**

- Verbal Warning       Written Suspension       Demotion
- Written Warning       Transfer       Suspension
- Extension of Probation
- Loss of Privileges (Explain): \_\_\_\_\_
- Termination       Other \_\_\_\_\_

**V – REQUIRED CORRECTIVE ACTION PLAN**

The employee must address and correct the problem:

- Immediately       Within \_\_\_\_\_ Days

Corrective steps to be taken by employee: \_\_\_\_\_

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**ACKNOWLEDGMENTS**

Prepared by (Print & Sign):  _____	Position / Job Location:	Date:
------------------------------------------	--------------------------	-------

**Human Resources Department Review**

Reviewed by (Print & Sign):  _____	Position / Office Location:	Date:
------------------------------------------	-----------------------------	-------

I certify that I have read this disciplinary action form and fully understand it.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

**A copy of this form shall be placed in the employee file.**

Note: Additional page(s) can be added, as required, making reference to relevant Section(s) where additional space is required to accurately and completely clarify any Section.

## ATTACHMENT 5

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### *INCIDENT NOTIFICATION, REPORTING, AND MANAGEMENT PROCEDURE*

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## **Incident Notification, Reporting, and Management Procedure – Site 21 – Bronson Road Landfill Naval Support Facility Indian Head, Indian Head, Maryland**

### Directions, Notes, and Reminders

- Follow this procedure step-by-step for all incidents.
- This procedure has limited application to subcontractors. Assist subcontractors with medical emergencies (as applicable) and then immediately notify the Program Health and Safety (H&S) Manager for guidance.
- Periodically review this procedure in order to be familiar with the steps - prior to an incident occurring.
- For injuries and vehicle accidents, secure the scene to prevent additional injury/incident, administer on-site first aid, and arrange for emergency assistance prior to making any other notifications. Do not disturb serious accident scenes and then obtain photographs prior to completing investigation.
- The Field Team Leader or Site Safety and Health Officer (SSHO) is responsible for making notifications to:
  - 911 as necessary
  - CORE Health Networks (while employee is en route to medical care facility): 877-EHS-Shaw (or 877-347-7429)
  - To the Program H&S Manager or Alternate H&S Manager by telephone prior to making any other notifications (other than calling 911 as necessary and CORE).
  - Project Manager (Steve Carriere, 609-234-6361)
  - Help Desk / Hot Line: 866-299-3445
  - Marcia Musgrave: 419-425-6160.
- The Project Manager is responsible for making notifications to the Program Manager by telephone no later than two hours after the incident for all incidents requiring Help Desk notification and all first aid cases with potential for aggravation.
- The Field Team Leader or his delegate (SSHO or Alternate SSHO) shall accompany all injured personnel to the CORE clinic or to the hospital emergency room.
- All incident reports shall be completed by typing (when feasible and applicable).
- All incident reports shall be submitted (email or fax) to the Program H&S Manager or Alternate H&S Manager for review and distribution.
- Complete all the blanks on the INCIDENT NOTIFICATION AND COMMUNICATION CONTACT LIST (page 6) and post near all site telephones.

## Incident Notification, Reporting, and Management Procedure – Site 21 – Bronson Road Landfill Naval Support Facility Indian Head, Indian Head, Maryland

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
1. <b>Notify Field Team Leader or SSHO for all incidents (no matter how minor)</b>	Injured person, first person recognizing incident, driver/passenger, or employee causing damage <i>Immediately</i>	<b>All incidents no matter how minor (including minor cuts, scratches, minor strains/sprains, and insect bites)</b>	In person or by telephone	Field Team Leader to make note of very minor incidents (such as band-aid over scratch) in field log and in weekly reporting
2. <b>For life-threatening injuries / illnesses - make scene safe, contact local emergency personnel</b>  <b>For non life-threatening injuries / illnesses - make scene safe, transport injured person to doctor at an occupational medical facility</b>  <b>For vehicle accidents – make scene safe, notify police, aid injured parties</b>  <b>For equipment / property damage - make scene safe, prevent further damage or injuries</b>	Field Team Leader or SSHO <i>Immediately (concurrently with next step if injury or illness)</i>  Field Team Leader or SSHO <i>Immediately (concurrently with next step if injury or illness)</i>  Driver/passenger <i>Immediately</i>  Employee causing damage <i>Immediately</i>	In case of serious injury or illness requiring off-site medical care	Via ambulance  Via vehicle	SSHO or his delegate must immediately go to emergency care facility. Follow HS101 post accident alcohol and drug testing procedure.  Field Team Leader or SSHO must transport and stay with injured person until released from care.  Make medical personnel aware of Shaw's "restricted work will be provided" and "no prescriptions if possible" policies.  CORE clinics are the preferred urgent care facilities when possible, unless injury is severe and victim is transported by ambulance.

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
3. <b>Notify CORE (for injuries / illnesses to Shaw employees only)</b>	Field Team Leader or SSHO <i>Immediately, prior to transporting the injured employee, unless injuries are life threatening</i>	<ul style="list-style-type: none"> <li>• Serious injury requiring off-site medical care</li> <li>• If employee states that he/she has been exposed to any chemical or biological substance</li> <li>• If illness is work related</li> </ul>	CORE Medical 877-347-7429  Note: Outside Continental US call: 225-614-9561	<p>Not required for temporary agency and subcontractor labor</p> <p>Provide name of injured employee, name and phone # of treating medical facility, description of the incident</p> <p>CORE will help with medical facility coordination and follow-up care</p>
4. <b>Notify Program H&amp;S Manager</b>  <b>Notify Alternate H&amp;S Manager if Program H&amp;S Manager cannot be contacted.</b>	Field Team Leader or SSHO <i>Immediately (concurrently with providing transportation to occupational medical facility or EMS transport to hospital)</i>	All incidents except on-site first aid cases	See Incident Notification and Communication Contact List (attached)	Program H&S Manager will notify H&S Manager Federal ER&C, as appropriate

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
<p><b>5. Notify Shaw Notification Hotline / Help Desk</b></p>	<p>Field Team Leader/SSHO  <i>As soon as practical, but not longer than one hour after occurrence.</i></p> <p><i>Prior to sending an individual for medical treatment</i></p>	<ul style="list-style-type: none"> <li>• Illness and/or injury (doctors cases and above)</li> <li>• Any utility damage</li> <li>• Property damage (damage &gt; \$2,500.00)</li> <li>• Vehicle accidents (All)</li> <li>• Criminal activity (i.e. bomb threat, theft)</li> <li>• Natural disaster (all)</li> <li>• Explosion and/or fires (damage &gt; \$2,500.00 or result in injury)</li> <li>• Environmental spills/releases (incidents that requires regulatory notification or have an offsite impact)</li> <li>• Regulatory agency visit</li> <li>• Fatalities</li> </ul>	<p><b>Shaw Notification Hotline / Help Desk Phone Number: 866-299-3445</b></p> <p><b>Note - Outside the Continental US call: 225-215-5056</b></p>	<p>Request name of Hotline / Help Desk operator for future reference and note date/time of notification</p> <p>Project Manager will verbally report incident (including first aid cases with potential for future aggravation) to Program Manager  <i>As soon as reasonably possible, but not longer than two hours after occurrence</i></p>

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
<p>6. Complete forms:  <b>Injuries and illnesses:</b></p> <ul style="list-style-type: none"> <li>• Authorization for Release of Protected Medical Information</li> <li>• Authorization for Treatment of Occupational Injury/Illness</li> <li>• Return-To-Work Examination Form</li> </ul> <p><u>and</u> fax to CORE  <u>and</u> email or fax to Program H&amp;S Manager</p>	<p>Injured employee and medical facility personnel (Project Manager or Field Team Leader is responsible for verifying forms are completed)</p> <p><i>Prior to leaving medical facility</i></p>	<ul style="list-style-type: none"> <li>• Serious injury requiring off-site medical care</li> <li>• If employee states that he/she has been exposed to any chemical or biological substance</li> </ul>	<p>Fax to CORE: 225-295-4846</p> <p>Email or fax to Program H&amp;S Manager</p>	<p>Field Team Leader or SSHO must take these forms with him/her to occupational medical facility or hospital (Contained in HS 020)</p> <p>Contact Program H&amp;S Manager for blank electronic forms or obtain forms from:  <a href="http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8">http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8</a></p>
<p>7. Notify Marcia Musgrave</p>	<p>Field Team Leader</p>	<p>All incidents involving personnel (injuries, illnesses, vehicle accidents)</p>	<p>419-425-6160</p>	
<p>8. Call back Program H&amp;S Manager to report on status of injured / ill employee</p>	<p>Field Team Leader or SSHO</p> <p>Prior to employee leaving medical facility</p>	<p>All injuries and illnesses requiring off-site medical care</p>	<p>See Incident Notification and Communication Contact List (att.)</p>	
<p>9. Complete forms (typed electronically):</p> <p><b>OSHA Recordable Cases</b></p> <ul style="list-style-type: none"> <li>• Supervisor's Employee Injury/Illness Report Form</li> <li>• Injured Employee Statement</li> <li>• Witness Statement Form(s)</li> <li>• USACE ENG 3394 form</li> </ul> <p><b>First Aid Cases (Doctor's)</b></p> <ul style="list-style-type: none"> <li>• Supervisor's Employee Injury/Illness Report</li> <li>• Injured Employee Statement</li> <li>• Witness Statement Form(s)</li> </ul> <p>Email or Fax completed forms to Program H&amp;S Manager and CORE</p>	<ul style="list-style-type: none"> <li>• Field Team Leader</li> <li>• Witnesses</li> </ul> <p>As soon as possible – no later than 24 hours</p>	<p>All injuries, illnesses, and first aid cases</p>	<p>Email or fax to Program H&amp;S Manager</p> <hr/> <p>See Incident Notification and Communication Contact List (attached)</p> <hr/> <p>Fax to CORE: 225-295-4846</p>	<p>Field Team Leader or SSHO should have these forms with him/her at all times (Contained in HS 020)</p> <p>Contact Program H&amp;S Manager for blank electronic forms or obtain forms from:  <a href="http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8">http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8</a></p>

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
<p>10. Complete forms (typed electronically):</p> <p><b>Chargeable Vehicle Accidents</b></p> <ul style="list-style-type: none"> <li>• Vehicle Accident Report</li> <li>• Witness Statement Form(s)</li> <li>• Driving Record Certification (Procedure HS800)</li> <li>• USACE ENG 3394 form</li> </ul> <p><b>Non-Chargeable Vehicle Accidents</b></p> <ul style="list-style-type: none"> <li>• Vehicle Accident Report</li> <li>• Witness Statement Form(s)</li> <li>• USACE ENG 3394 form</li> </ul> <p><b>Equipment, Property Damage and General Liability Incidents</b></p> <ul style="list-style-type: none"> <li>• Equipment, Property Damage and General Liability Loss Report</li> <li>• Witness Statement Form(s)</li> <li>• USACE ENG 3394 form</li> </ul> <p>Email or Fax completed forms to Program H&amp;S Manager;</p>	<ul style="list-style-type: none"> <li>• Field Team Leader</li> <li>• Witnesses</li> </ul> <p>As soon as possible – no later than 24 hours</p>	<p>All vehicle accidents and /or all property damage</p>	<p>Email or fax to Program H&amp;S Manager</p> <hr/> <p>Health</p> <hr/> <p>See Incident Notification and Communication Contact List (attached)</p>	<p>Field Team Leader or SSHO should have these forms with him/her at all times (Contained in HS 020)</p> <p>Contact Program H&amp;S Manager for blank electronic forms or obtain forms from:  <a href="http://shawnet3.shawgrp.com/sites/eih/federal/Lists/Announcements/DispForm.aspx?ID=8">http://shawnet3.shawgrp.com/sites/eih/federal/Lists/Announcements/DispForm.aspx?ID=8</a></p>



<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
<p>12. Perform "Accident Review Board" (ARB) as required by HS020 - Coordinate through Program H&amp;S Manager</p> <p>Perform "Incident Review Board" (IRB) to extract lessons learned - Coordinate through Program H&amp;S Manager</p>	<p>Program H&amp;S Manager</p> <p>Within 10 days of incident</p>	<p>OSHA Recordable Cases</p> <p>Chargeable Vehicle Accidents</p> <p>Doctor's First Aid Cases</p> <p>Utility damage or significant property damage</p>		<p>An IRB is outside of the HS020 requirements for an ARB.</p>

### Incident Notification and Communication Contact List

Project Number: 142879

Project Name / Location: TO JU49, Site 21 – Bronson Road Landfill, Indian Head, MD

Name	Phone Number(s)	Fax Number	E-mail
<b>Shaw Notification Hotline/Helpdesk</b>	866-299-3445 <b>225-215-5056 (Outside Continental US)</b>	N/A	N/A
<b>CORE Medical Services</b> (Must be notified prior to or during transport to medical treatment center)	<b>877-EHS-Shaw (877-347-7429)</b>	<b>225-295-4846</b>	
Marcia Musgrave	<b>419-425-6160 (office)</b> <b>419-957-7142 (cell)</b>	<b>419-425-6039</b>	marcia.musgrave@shawgrp.com
Program H&S Manager Kym Edelman	757-640-6978 (office) 757-472-9104 (cell)	757-640-6201	kym.edelman@shawgrp.com
Site Safety and Health Officer Burney Chance	601-310-7229 (cell)	N/A	burney.chance@shawgrp.com
Alternate HSM Kym Edelman	757-640-6978 (office) 757-472-9104 (cell)	757-640-6201	kym.edelman@shawgrp.com
Site Superintendent Bryan Guzzardo	985-969-5172 (cell)	757-640-6201	bryan.guzzardo@shawgrp.com
Project Manager Steve Carriere	609-234-6361 (cell)	757-640-6201	steve.carriere@shawgrp.com
<b>Program Manager</b> Jim Dunn	757-640-6932 (office) 757-373-9117 (cell)	757-640-6201	james.dunn@shawgrp.com
<b>Federal ERC; CSL West H&amp;S Manager</b> Dave Mummert	419-425-6129 (office) 419-348-1544 (cell)	419-425-6039	david.mummert@shawgrp.com
E&I H&S Director	225-932-2579 (office) 225-229-1759 (cell)	225-987-3454	troy.allen@shawgrp.com

**Note:** Incident reports shall be faxed or emailed only to the Program H&S Manager (or Alternate H&S Manager) for review and proper distribution.

**Bold lettering** denotes phone notifications that need to be made by the Project Manager

Revised June 6, 2012

## ATTACHMENT 6

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### *ACCIDENT REPORTING INFORMATION*

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- Initial Report  
 Follow-up Report  
 Final Report

## Contractor Significant Incident Report (CSIR)

<b>1. General Information</b>		
Contracting Activity/ROICC Office:		
Accident Classification:		
<input type="checkbox"/> Injury <input type="checkbox"/> Fatality <input type="checkbox"/> Environment <input type="checkbox"/> Procedural Issues <input type="checkbox"/> Lessons Learned <input type="checkbox"/> Illness <input type="checkbox"/> Property Damage <input type="checkbox"/> Other _____		
Involving:		
<input type="checkbox"/> Confined Space <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Heavy Construction Equip.) <input type="checkbox"/> Hazardous Material <input type="checkbox"/> Crane and Rigging <input type="checkbox"/> Equip/Mrt Ver/Mat Handling(Material Handling) <input type="checkbox"/> Trenching/Excavation <input type="checkbox"/> Diving <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Man-Lift/Elevated Platform) <input type="checkbox"/> Waterfront/Marine <input type="checkbox"/> Demolition/Renovation <input type="checkbox"/> Fall from Ladder <input type="checkbox"/> Fall from Scaffold <input type="checkbox"/> Other _____  <input type="checkbox"/> Fall from Roof <input type="checkbox"/> Fire Electrical		
<b>2. Personal Information</b>		
Name (Last, First, MI):		Age:
		Sex:
Job Title/Description		Employed By:
Supervisor Name (Last, First, MI) & Title:		Was the person trained to perform this activity/task? <input type="checkbox"/> Yes <input type="checkbox"/> No
What type of training was received (OJT, classroom, etc.)?		Date of the most recent formal training and topics discussed?
<b>3. Witness Information</b>		
Witness #1: Name (Last, First, MI):		Job Title/Description
Employed By:		Supervisor Name (Last, First, MI):
Witness #2: Name (Last, First, MI):		Job Title/Description:
Employed By:		Supervisor Name (Last, First, MI):
Additional Witnesses: <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(List any additional witnesses on a separate sheet and attach.)</i>		

<b>4. Contract Information</b>		
<b>Type of Contract:</b>		
<input type="checkbox"/> A/E <input type="checkbox"/> BOS <input type="checkbox"/> CLEAN <input type="checkbox"/> Construction <input type="checkbox"/> Design Build <input type="checkbox"/> FSCC <input type="checkbox"/> FSSC <input type="checkbox"/> JOC <input type="checkbox"/> RAC <input type="checkbox"/> Service <input type="checkbox"/> Other _____		
<b>Contract Number &amp; Title:</b>	<b>Industrial Group &amp; Industrial Type:</b>	
<b>Prime Contractor Name/Address/Phone &amp; Fax No:</b>	<b>Subcontractor Name/Address/Phone &amp; Fax No:</b>	
<b>Safety Manager (Last, First, MI):</b>	<b>Safety Manager (Last, First, MI):</b>	
<b>Insurance Carrier:</b>	<b>Insurance Carrier:</b>	
<b>5. Accident Description</b>		
<b>Date of Accident:</b>	<b>Time of Accident:</b>	<b>Exact Location of Accident:</b>
Describe the accident in detail in your words: (Use the back of page if you need additional space)		
<b>Direct Cause(s) of Accident:</b>		

Indirect Cause (s) of Accident:	
Action(s) taken to prevent re-occurrence or provide ongoing corrective actions:	
Corrective Action Beginning Date:	Anticipated Completion Date:
Personal Protective Equipment: <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span><input type="checkbox"/> Available and used</span> <span><input type="checkbox"/> Available and not used</span> <span><input type="checkbox"/> Not Required</span> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <span><input type="checkbox"/> Not related to Mishap</span> <span><input type="checkbox"/> Wrong PPE for job</span> </div> <p style="margin-top: 10px;"><b>List PPE Used:</b></p>	
Type of Construction Equipment (Make, Model, Serial #, VIN#) Involved:	
Was Hazardous Material Spilled/Released? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span> <i>Please List Hazardous Material(s) Involved:</i>	
Who provided first aid or cleanup of mishap site?	
Any blood-borne pathogen exposure, other than EMTs? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span> <i>Who?</i>	
List OSHA and EM-385-1-1 standards that were violated:	
Was site secured and witness statements taken immediately? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span> <i>By Whom?</i>	

### 6. Injury Illness/Fatality Information

**Severity of Injury/Illness:**

- |                                                       |                                                                            |                                                    |
|-------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> Fatality                     | <input type="checkbox"/> Lost Workday Case Involving Days Away From Work   |                                                    |
| <input type="checkbox"/> Temporary Disability         | <input type="checkbox"/> Recordable Workday Case Involving Restricted Duty |                                                    |
| <input type="checkbox"/> Permanent Total Disability   | <input type="checkbox"/> Other Recordable Cases                            | <input type="checkbox"/> Recordable First Aid Case |
| <input type="checkbox"/> Permanent Partial Disability | <input type="checkbox"/> Non-Recordable Case                               | <input type="checkbox"/> No Injury                 |

<b>Estimated Days Lost:</b>	<b>Estimated Days Hospitalized:</b>	<b>Estimated Days Restricted Duty:</b>
-----------------------------	-------------------------------------	----------------------------------------

<b>List Primary Body Part Affected:</b>	<b>List Other Body Part(s) Affected:</b>
-----------------------------------------	------------------------------------------

**Nature of Injury/Illness for Primary Body Part (Examples: Amputation, Burn, Hernia):**

**Type of Accident (Examples: Fall same level, Lifting, Bitten, Exerted):**

**Source of Accident (Examples: Crane, Carbon Monoxide, Ladder, Welding Equipment):**

### 7. Causal Factors (Explain answers on supplementary sheet)

• Design – Design of facility, workplace, or equipment was a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Inspection/Maintenance – Inspection & Maintenance procedures were a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Persons Physical Condition – In your opinion, the physical condition of the person was a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Operation Procedures – Operating procedures were a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Job Practices – One or more job safety/health practices not being followed when the accident occurred contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Human Factors – One or more human factors, such as a person's size or strength contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Environmental Factors – Heat, cold dust, sun, glare, etc., contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Chemical and Physical Agent Factors – Exposure to chemical agents, such as dust, fumes, mist, vapors, or physical agents such as noise, radiation, etc., contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Office Factors – Office setting such as lifting office furniture, carrying, stooping, contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Support Factors – Inappropriate tools/resources were provided to perform the task?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• PPE – Improper selection, use or maintenance of PPE contributed to the accident?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Drugs/Alcohol – In your opinion, were drugs or alcohol a factor?	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Job Hazard Analysis – The lack of an adequate (IAW-EM-385-1-1 Sec. 01.A) activity hazard analysis was a contributing factor.	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Job Hazard Analysis – JHA was not site specific and/or did not address the type of work/operations performed when the mishap occurred.	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Management – A lack of adequate supervision contributed to the accident.	<input type="checkbox"/> Yes <input type="checkbox"/> No
• Management – Inadequate information was provided at pre-con meeting.	<input type="checkbox"/> Yes <input type="checkbox"/> No

<b>8. OSHA Information</b>			
Date OSHA was notified:	Date(s) of Investigation	Date of Citation: <i>(Attach Copy)</i>	Dollar Amount of Penalties:
<b>9. Report Preparer</b>			
Name (Last, First, MI):		Date of Report:	
Title:		Signature:	
Employer:			
Phone #:			

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# APPENDIX D

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## *PROJECT SCHEDULE*

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Activity ID	Activity Name	Start	Finish	Q1 2012		Q2 2012			Q3 2012			Q4 2012		
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep

**Pre-construction**

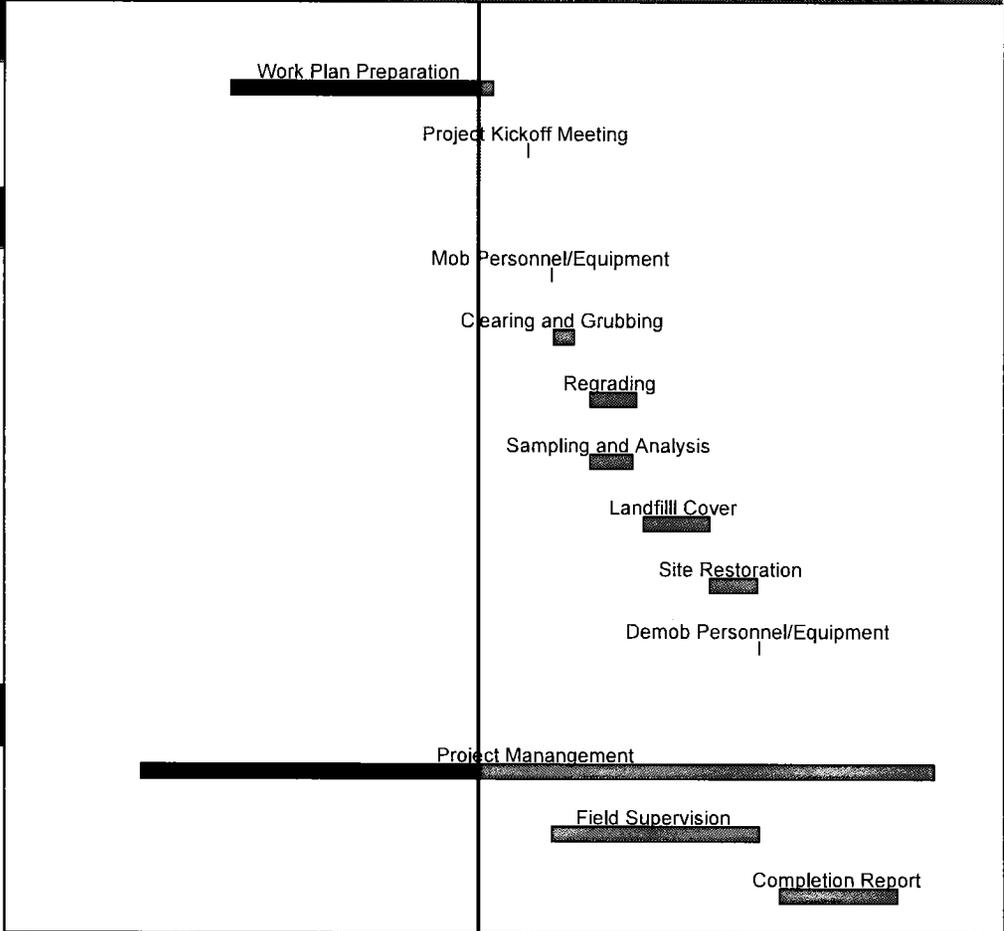
01009100	Work Plan Preparation	13-Feb-12 A	12-Jun-12
01009110	Project Kickoff Meeting	28-Jun-12*	28-Jun-12

**Site 21 Field Activities**

20001000	Mob Personnel/Equipment	09-Jul-12	09-Jul-12
30001000	Clearing and Grubbing	10-Jul-12	19-Jul-12
30002000	Regrading	27-Jul-12	17-Aug-12
40004000	Sampling and Analysis	27-Jul-12	15-Aug-12
30003000	Landfill Cover	20-Aug-12	19-Sep-12
80001000	Site Restoration	20-Sep-12	11-Oct-12
80002000	Demob Personnel/Equipment	12-Oct-12	12-Oct-12

**Administrative & Indirects**

90003000	Project Manangement	03-Jan-12 A	31-Dec-12
90001000	Field Supervision	09-Jul-12	12-Oct-12
90009100	Completion Report	22-Oct-12	14-Dec-12



- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Indian Head Site 21  
 Bronson Road Landfill  
 Work Plan Schedule  
 June 12, 2012



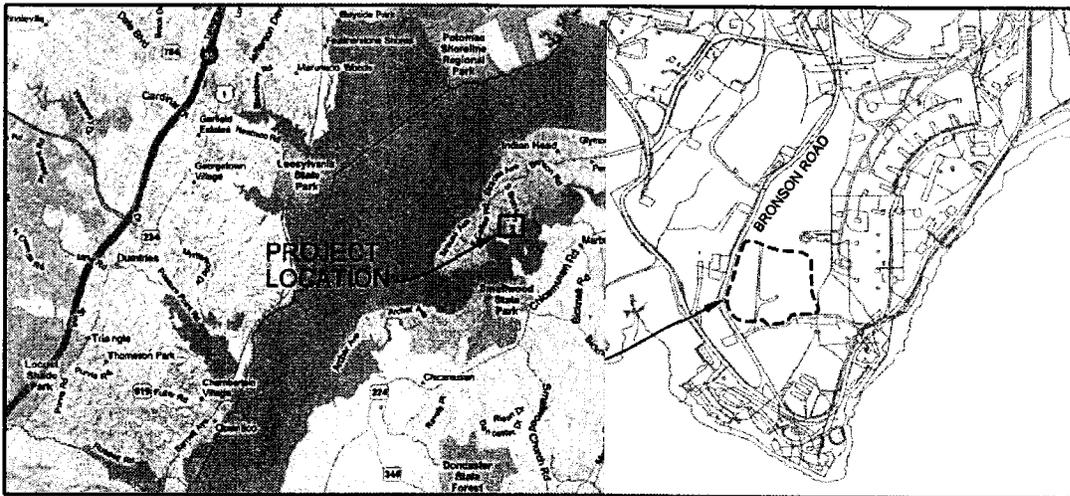
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## APPENDIX E

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*100% DESIGN DRAWINGS BY CH2MHILL, JANUARY 2012*

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VICINITY MAP  
NTS

LOCATION MAP  
NTS

CESS COORDINATION 

ROUGH SECURITY TO ENTER THE BASE. THE BRONSON ROAD LANDFILL IS IN ESCORT BY AUTHORIZED PERSONNEL IS REQUIRED TO VISIT THE SITE. ALL IN THE FACILITY ENVIRONMENTAL DEPARTMENT.

MIL

For information regarding this project, contact:  
**MARIE CHILLER**  
**CH2M HILL**  
**ONE SOUTH MAIN STREET**  
**SUITE 1100**  
**DAYTON, OH 45402**  
**(937) 220-2956**

MDE File No. 12-WM-0001  
 CH2M Hill Project No. 358174  
 SEPT 2011

CERTIFICATE OF THE STATE OF MARYLAND  
 I HEREBY CERTIFY THAT THE ABOVE DRAWING WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 Signature: *Andrew...*  
 EXPIRATION DATE: 30 JULY 2013

REVISION PER MDE & NAVY	DATE	APPROVED
Δ	9/8/11	ERU
SYMBOL	DESCRIPTION	DATE

**CH2MHILL**

DESIGNED BY: T. MALONE	QA	DATE
DRAWN BY: C. BRESS	QA	DATE
CHECKED BY: W. CHANG	E.I.C.	DATE
FUNCTIONAL APPROVAL:	400	DATE
APPROVED:	402	DATE
FOR CONSTRUCTION:	REVIEWED BY	DATE

ATLANTIC  
 SITE 21 REMEDIAL DESIGN  
 NAVAL SUPPORT FACILITY, INDIAN HEAD  
 COVER SHEET/INDEX

CODE ID. NO.  
 DRAWING SIZE: 0  
 CONST. CONT. NO.:  
 SPEC.  
 NAVFAC DRAWING NO.:  
 SHEET 1 OF 16  
 G-0

# GENERAL SITE NOTES:

- SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS ARE BASE MAPS PROVIDED DATES 1/11/2011. EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THE PLANS. VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO CONSTRUCTION.
- EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENER-LINED. PROPOSED GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
- HORIZONTAL DATUM: MARYLAND COORDINATE SYSTEM NAD 83/91
- VERTICAL DATUM: NAVD 88
- MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL AS SHOWN. MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
- PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY.
- ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
- SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
- EROSION CONTROL IS IN ACCORDANCE WITH THE EROSION CONTROL PLANS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND EROSION CONTROL PLANS VOLUMES I & II AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT EROSION CONTROL AND STORMWATER MANAGEMENT REGULATIONS.

# DESIGNATIONS

ON DRAWING WHERE SECTION OR DETAIL IS TAKEN:

DRAWING NUMBER WHERE SHOWN

1  
A-10010A1

## SECTION

ON DRAWING WHERE SECTION IS SHOWN:

DRAWING NUMBER(S) WHERE TAKEN

## TAIL

ON DRAWING WHERE DETAIL IS SHOWN:

DRAWING NUMBER(S) WHERE TAKEN

# ABBREVIATIONS

AC	ACRE	MIN	E	ON DRAWING WHERE ONLY A TITLE IS REQUIRED WITH NO REFERENCE (eg: ELEVATIONS)
BLDG	BUILDING	N		
BOT	BOTTOM	NAVFA		
CF	CUBIC FEET			
CFS	CUBIC FEET PER SECOND	NO.		
DIA	DIAMETER	NTS	B	SECTION CALLOUT WHERE SECTION IS ON THE SAME SHEET AND CUT EXTENDS TO A FIXED LIMIT
DWG	DRAWING	OC		
EL	ELEVATION	%		
FEAD	FACILITY ENGINEERING & ACQUISITION DIVISION	PRKG		
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY	SB		
FLOOD PLAIN	FLOOD PLAIN	SF		
FPS	FEET PER SECOND	SPECS	B	SECTION CALLOUT WHERE SECTION IS ON ANOTHER SHEET AND CUT EXTENDS THROUGHOUT ENTIRE SHEET
FT	FEET	STD		
HDPE	HIGH DENSITY POLYETHYLENE	STRM	S-1002	
IN	INCHES	TBD		
LB	POUND	TYP		
MAX	MAXIMUM	W/		
MD	MARYLAND	YR		
MDOT	MARYLAND DEPARTMENT OF TRANSPORTATION	#		GRID LINE INDICATOR

# EROSION AND SEDIMENT CONTROL STANDARD SYMBOLS

STABILIZED CONSTRUCTION ENTRANCE	
EARTH DIKE	
TEMPORARY SWALE	
ROCK OUTLET PROTECTION II	
RIPRAP INFLOW PROTECTION	
SILT FENCE	
AT GRADE INLET PROTECTION	
SOIL STABILIZATION MATTING	
PIPE OUTLET SEDIMENT TRAP	
LIMIT OF DISTURBANCE	
EXISTING CONTOURS	
PROPOSED CONTOURS	
DRAINAGE BOUNDARIES	
HAY BALE	

NORTH ARROW; CAN BE MODIFIED TO INCLUDE MAGNETIC NORTH ALONG WITH PROJECT NORTH

KEYNOTE NUMBER

REVISION / ADDENDA NUMBER

# GENERAL NOTE:

- THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

CH2MHILL

DESIGNED BY: T. MALONE	CDA	DATE	REVIEWED BY	DATE
DRAWN BY: C. CHLOESS	CA		FLUNDERWOOD	
CHECKED BY: KR. CHANG	E.L.C.		FOR CONSUMER NAVFA	
FUNCTIONAL APPROVAL	401			
DATE	402			
DATE				

ATLANTIC

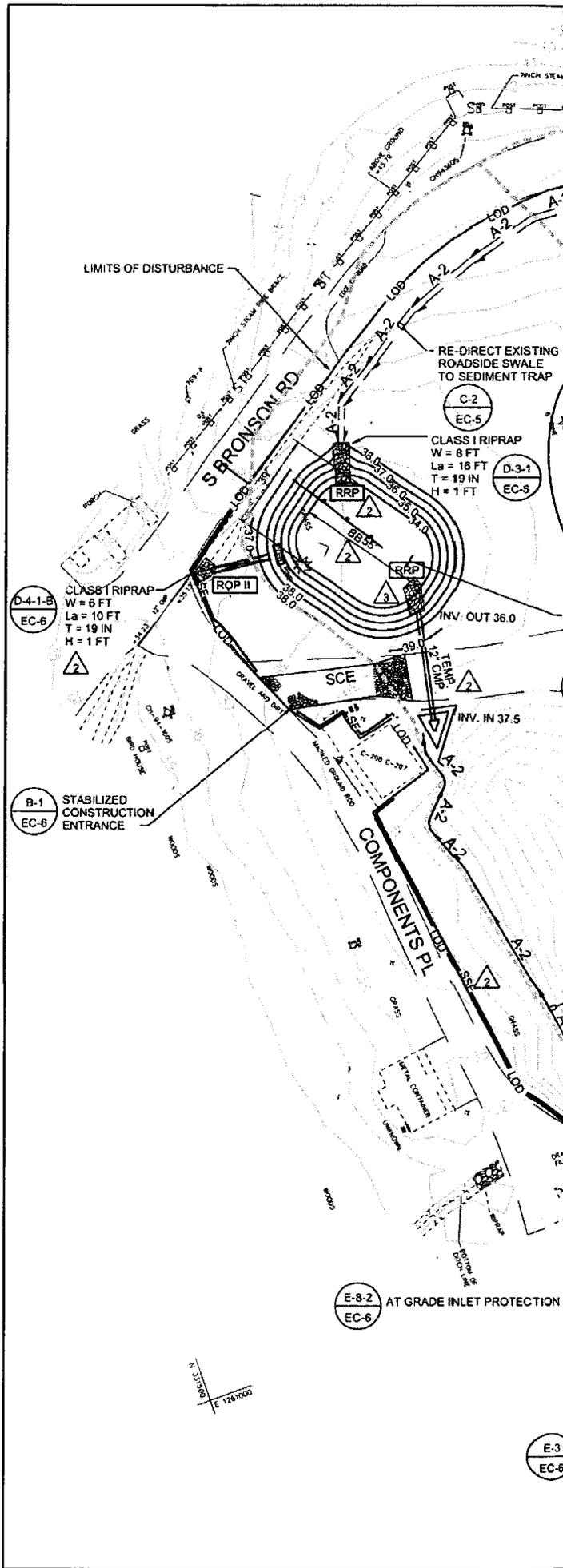
SITE 21 REMEDIAL DESIGN  
NAVAL SUPPORT FACILITY, INDIAN HEAD

LEGEND AND NOTES

CODE I.D. NO.  
DRAWING SIZE: D  
CONST. CONT. NO.:  
SPEC.  
NAVFA DRAWING NO.:  
SHEET 2 OF 16  
G-1







**EROSION CONTROL DESIGN SUMMARY**

C-1 PERIMETER EARTH DIKE	
DRAINAGE AREA	0.56 ACRES
FLOW SLOPE	1%
LINING	SEED & MULCH

C-2 PERIMETER SWALE	
DRAINAGE AREA	NORTH: 0.21 ACRES SOUTH: 0.08 ACRES
FLOW SLOPE	NORTH: 1% - 2% SOUTH: 4% - 5%
LINING	NORTH: SEED & MULCH SOUTH: SEED & EC MATTING

ST-1 SEDIMENT TRAP NORTH	
PROPOSED DRAINAGE AREA	3.6 ACRES
EXISTING DRAINAGE AREA	2.95 ACRES
REQUIRED STORAGE	12,960 CF
TRAP BOTTOM EL	33.5
TRAP BOTTOM DIMENSION	3,760 SF
STORAGE PROVIDED	14,900 CF (TO EL 36.0) <sup>2</sup>
TOTAL STORAGE WITH FREEBOARD	18,000 CF (TO EL 37.0) <sup>2</sup>
RISER CREST (DRY STORAGE) EL	36.0
OUTLET (WET STORAGE) EL	34.5
CLEANOUT EL	34.0
EMBANKMENT HEIGHT EL	37.0 <sup>2</sup>
SIDE SLOPE	3:1 CUT, 2:1 FILL <sup>2</sup>
DRY STORAGE ZONE EL	34.5 TO 36.0 <sup>2</sup>
WET STORAGE ZONE EL	33.5 TO 34.5
RISER INVERT EL	33.5
RISER DIAMETER	24 INCH
DISCHARGE BARREL PIPE DIAMETER	21 INCH <sup>2</sup>
BARREL LENGTH @ SLOPE	24' @ 0.4%, IN 33.5, OUT 33.4 <sup>2</sup>
ANTI-SEEP COLLAR	(1) 4.5 FT, 9 FT FROM RISER <sup>2</sup>
RIPRAP DIMENSION, CLASS I	10' x 4' x 19" THICK
DETAIL	DETAIL G-1-1

ST-1 SEDIMENT TRAP SOUTH	
PROPOSED DRAINAGE AREA	0.77 ACRES
EXISTING DRAINAGE AREA	2.21 ACRES
REQUIRED STORAGE	7,956 CF
TRAP BOTTOM EL	34.0 <sup>2</sup>
TRAP BOTTOM DIMENSION	1,944 SF
STORAGE PROVIDED	8,2578 CF (TO EL 37.0)
TOTAL STORAGE WITH FREEBOARD	12,359 CF (TO EL 38.0)
RISER CREST (DRY STORAGE) EL	37.0
OUTLET (WET STORAGE) EL	36.0
CLEANOUT EL	35.5
EMBANKMENT HEIGHT EL	38.0
SIDE SLOPE	3:1
DRY STORAGE ZONE EL	36.50 TO 37.0
WET STORAGE ZONE EL	35.5 TO 36.5
RISER INVERT EL	34.0
RISER DIAMETER	21 INCH
DISCHARGE BARREL PIPE DIAMETER	18 INCH
BARREL LENGTH @ SLOPE	30' @ 0.3%, IN 35.25, OUT 35.15 <sup>2</sup>
ANTI-SEEP COLLAR	(1) 4 FT, 6 FT FROM RISER <sup>2</sup>
RIPRAP DIMENSION	10' x 4' x 19" THICK
DETAIL	DETAIL G-1-1

**CH2MHILL**

DESIGNED BY: F. MALONE	DATE: 04	REVISIONS PER MDE REVIEW	DATE	APPROVED
DRAWN BY: C. CHALDRON	E.L.C.	REVISIONS PER MDE REVIEW	DATE	APPROVED
CHECKED BY: M. CHANG	DATE	REVISIONS PER MDE REVIEW	DATE	APPROVED
FUNCTIONAL APPROVAL	DATE	REVISIONS PER MDE REVIEW	DATE	APPROVED
APPROVED	DATE	REVISIONS PER MDE REVIEW	DATE	APPROVED
PLANNING	DATE	REVISIONS PER MDE REVIEW	DATE	APPROVED
FOR THE COMMANDER, NAVFAC	DATE	REVISIONS PER MDE REVIEW	DATE	APPROVED

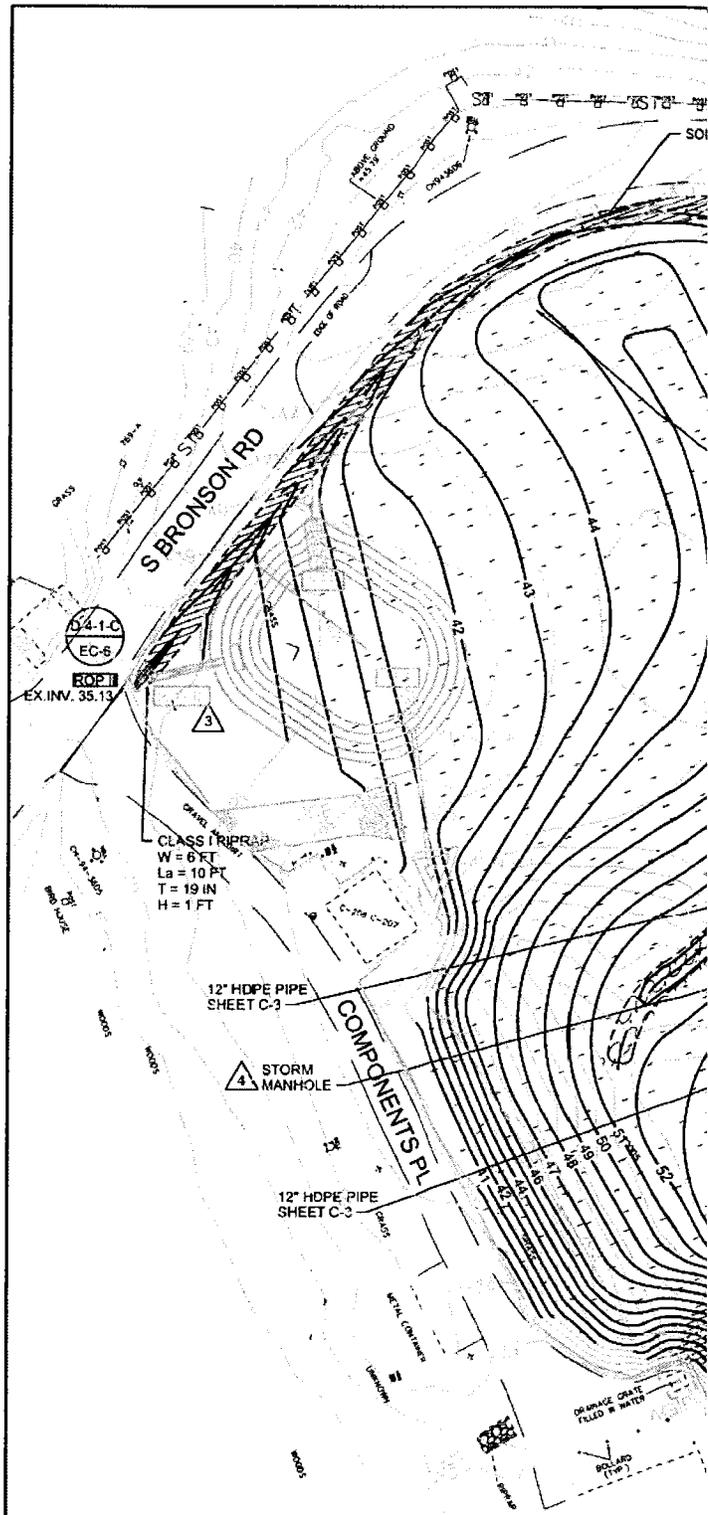
**ATLANTIC**

SITE 21 REMEDIAL DESIGN  
NAVAL SUPPORT FACILITY, INDIAN HEAD

EROSION CONTROL PLAN

INITIAL

CODE ID NO.	
DRAWING SIZE: D	
CONST. CONT. NO.:	
SPEC.	
NAVFAC DRAWING NO.:	
SHEET 5 OF 16	
EC-3	



2 NOTE:  
INITIAL PHASE EROSION CONTROL MEASURES  
AND SEDIMENT TRAP CONTOURS ARE SHOWN  
SCREENED ON THIS SHEET.

3 PHASING NOTE:  
PROVIDE INCREMENTAL STABILIZATION ON THE STEEP SLOPES,  
INCLUDING DAILY TEMPORARY BERMS AT THE TOP OF SLOPE  
AND TEMPORARY MULCH WHEN 15 VERTICAL FEET OR MORE  
OF BARE SLOPE IS EXPOSED.

3

- REMOVAL OF SEDIMENT TRAPS:
1. FINAL GRADING OF THE REMAINDER OF THE SITE (EXCEPT FOR SMALL SOIL STOCKPILES FOR FILL FOR SEDIMENT TRAPS), STABILIZATION OF UPHILL AREAS AND PERMISSION FROM THE MDE INSPECTOR ARE REQUIRED PRIOR TO REMOVAL OF SEDIMENT TRAPS.
  2. SEDIMENT TRAPS ARE REMOVED BY THE REROUTING THE ROADSIDE DITCHES AROUND THE TRAPS, REMOVAL OF BAFFLES, PIPE RISERS AND OUTLETS, BERMS, AND PROVIDING FINAL GRADING.
  3. SEDIMENT TRAP SOUTH GRADING CONSISTS OF FILLING THE ENTIRE TRAP TO PROVIDE SHEET FLOW TO THE EXISTING CULVERT.
  4. SEDIMENT TRAP SOUTH GRADING CONSISTS OF REMOVAL OF THE BERM, AND FILLING THE FLAT BOTTOM OF THE TRAP TO FORM THE BROAD SWALE SHOWN ON THIS SHEET, FROM ELEVATION 35.0 AT THE RIPRAP CHANNEL TO ELEVATION 34 IN THE ROADSIDE DITCH. REPLACE RIPRAP FOR THE FIRST 10 FEET OF THE NEW CHANNEL AND LINE THE REST OF THE CHANNEL WITH TYPE 2 PERMANENT SOIL STABILIZATION MATTING.
  5. PROVIDE TOPSOIL, SOIL AMENDMENTS, PERMANENT SEED, MULCH AND MAINTENANCE TO THE SEDIMENT TRAP RESTORATION AREAS INCLUDING THE FORMER SOIL STOCKPILE LOCATIONS FOR THE MATERIAL USED TO FILL IN THE TRAPS.

REVISION PER NAVFAC	DATE	APPROVED
1	10/11/11	ERU
2	08/11/11	ERU
3	07/26/11	ERU

**CH2MHILL**

DESIGNED BY	DRAWN BY	CHECKED BY	FUNCTIONAL APPROVAL	APPROVED	DATE	REVIEWED BY	DATE
T. MALONE	C. CHADRESS	K. CHANG	AD1	FLUNDERWOOD			

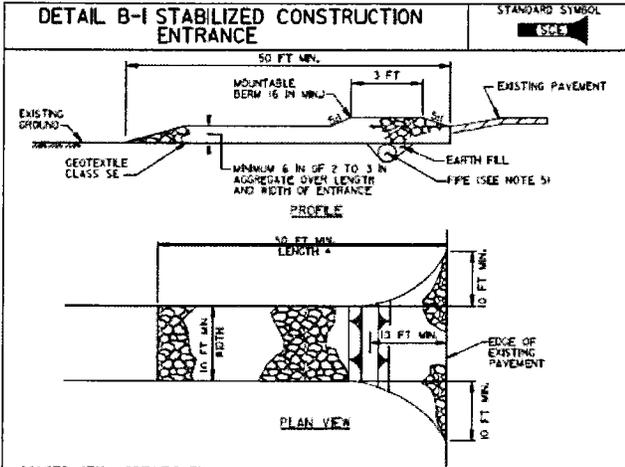
ATLANTIC

NAVY FACILITIES ENGINEERING DIVISION  
 WASHINGTON, VIRGINIA

**SITE 21 REMEDIAL DESIGN  
 NAVAL SUPPORT FACILITY, INDIAN HEAD**

**EROSION CONTROL PLAN  
 FINAL**

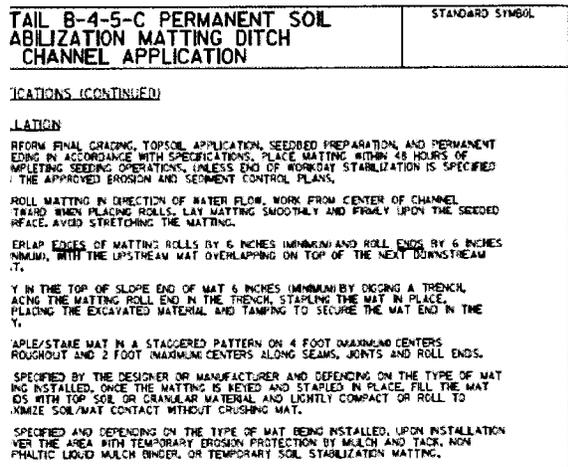
CODE ID. NO.
DRAWING SIZE: D
CONST. CONT. NO.: 4
SPEC.
NAVFAC DRAWING NO.:
SHEET 6 OF 16
EC-4



- #### CONSTRUCTION SPECIFICATION
- MINIMUM LENGTH OF 50 FEET (100 FEET FOR SINGLE RESIDENCE LOT).
  - MINIMUM WIDTH OF 10 FEET. FLARE SIDE 10 FEET MINIMUM AT THE EXISTING PAVEMENT TO PROVIDE A TURNING RADIUS.
  - PLACE GEOTEXTILE CLASS SE OVER THE EXISTING GROUND PRIOR TO PLACING STONE. (THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCE TO USE GEOTEXTILE.)
  - PLACE CRUSHED AGGREGATE 1/2 TO 3 INCHES IN SIZE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
  - PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. WHEN THE SCE IS LOCATED AT A HIGH SPOT ON THE LIMIT OF DISTURBANCE (LOD) AND HAS NO DRAINAGE TO CONVEY, A PIPE WILL NOT BE NECESSARY. SIZE PIPE (3/4 INCH MINIMUM DIAMETER) TO CONVEY THE RUNOFF GENERATED BY A 2-YEAR FREQUENCY STORM. A MOUNTABLE BERM IS REQUIRED ON ALL SCEs NOT LOCATED AT A HIGH SPOT.
  - LOCATE SCE AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. THE ORIENTATION OF THE SCE MAY VARY FROM A STRAIGHT LINE AND BE CURVED OR "Y" SHAPED, DEPENDING ON THE TOPOGRAPHY AND RIGHT OF WAY. AVOID LOCATING ENTRANCES ALONG THE LOW POINT OF THE WORK AREA WHERE POSSIBLE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

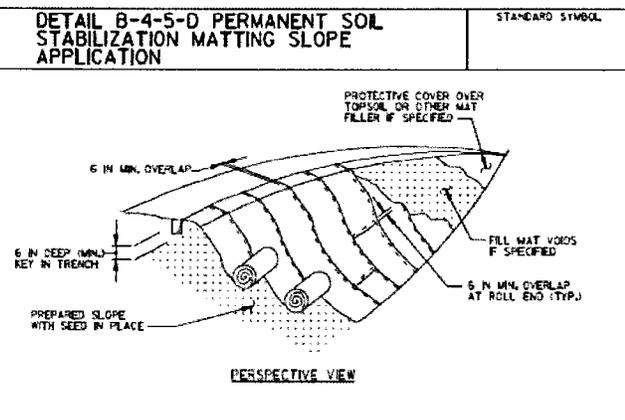
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



- #### CONSTRUCTIONS (CONTINUED)
- ##### APPLICATION
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT EROSION PROTECTION IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF ROADWAY STABILIZATION IS SPECIFIED IN THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- ROLL MATTING IN DIRECTION OF WATER FLOW. WORK FROM CENTER OF CHANNEL TOWARD SIDES PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDBED SURFACE. AVOID STRETCHING THE MATTING.
- OVERLAP EDGES OF MATTING ROLLS BY 6 INCHES (MINIMUM) AND ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- MAKE A TRENCH IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH ALONG THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE. FILLING THE EXCAVATED MATERIAL AND TAMPING TO SECURE THE MAT END IN THE TRENCH.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS ROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS AND ROLL ENDS.
- SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MATTING INSTALLED, ONCE THE MATTING IS KEPT AND STAPLED IN PLACE, FILL THE MAT BEDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
- SPECIFIED AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, UPON INSTALLATION COVER THE AREA WITH TEMPORARY EROSION PROTECTION BY MULCH AND TACK, NON PHALIC LIQUID MULCH BINDER, OR TEMPORARY SOIL STABILIZATION MATTING.
- ##### APPLICATION - OTHER APPLICATIONS
- MATTING PER MANUFACTURERS RECOMMENDATIONS WHERE DITCH OR CHANNEL APPLICATION INSTRUCTIONS ARE NOT APPROPRIATE FOR THE SITE CONDITIONS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

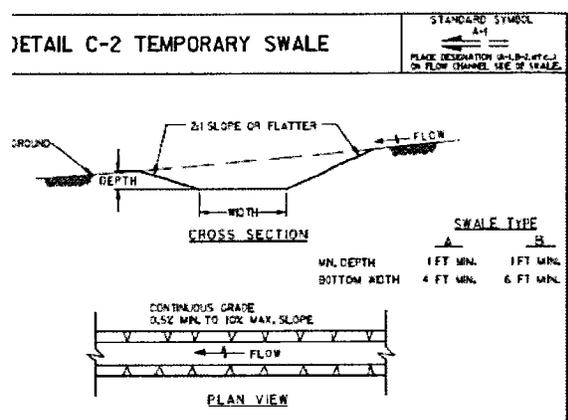
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



- #### SPECIFICATIONS:
- ##### MATERIALS
- PERMANENT SOIL STABILIZATION MATTING IS AN OPEN WEAVE SYNTHETIC MACHINE PRODUCED MAT CONSISTING OF SYNTHETIC NON DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION OF WEAVE THROUGHOUT. ANY CHEMICALS USED SHALL BE NON LEACHING, NON TOXIC TO VEGETATION AND SEED GERMINATION, AND NON INJURIOUS TO THE SKIN. IF PRESENT, NETTING SHALL BE EXTRUDED PLASTIC HAVING A MAXIMUM MESH OPENING SIZE OF 3/4 INCH, SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG THE LONGITUDINAL AXIS OF THE MATTING TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL FOR THE LIFE OF THE PRODUCT.
- STAPLES SHALL BE STEEL 1/8 OR 1/4" SHAPED STEEL WIRE HAVING MINIMUM GAUGES OF NO. 10 (3.061 MM) AND NO. 8 (4.753 MM) RESPECTIVELY OR WOOD IN A WEDGE SHAPE. THE "J" SHAPED STAPLES SHALL AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES SHALL HAVE AN 8 INCH MAIN LEG, A 1 INCH SECONDARY LEG AND 4 INCH HEAD. THE WOOD STAPLES SHALL BE ROUGH SAWN HARDWOOD, WEDGE SHAPED, 1 1/2 INCHES AT THE TOP, AND 1/2 TO 3/4 INCHES IN LENGTH.
- NOTE - ONCE IN PLACE, AREAS WHERE SOME TYPES OF PERMANENT SOIL STABILIZATION MATTING HAVE BEEN INSTALLED MUST BE TEMPORARILY PROTECTED FROM SURFACE EROSION BY MEANS OF NON ASPHALTIC LIQUID MULCH BINDER, STRAW MULCH AND TACK, OR TEMPORARY STABILIZATION MATTING UNLESS THE SPECIFIED PERMANENT SOIL STABILIZATION MAT FILLER IS GRANULAR FOR THE PURPOSE OF IMITATING NATURAL STREAM BED, STRAW OR WOOD CELLULOSE FIBER MULCH AND TACK, AND SOME LIQUID MULCH BINDER ARE UNACCEPTABLE FOR AREAS RECEIVING CONCENTRATED FLOW. CHECK WITH MANUFACTURER FOR LIQUID MULCH BINDER APPLICATION IN CONCENTRATED FLOW AREAS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



- #### ANNEAL STABILIZATION
- SEED WITH STRAW MULCH AND TACK.
- SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOIL.
- 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL FLUSH WITH GROUND 7 INCHES MINIMUM.
- #### INSTALLATION SPECIFICATIONS
- INSTALL TEMPORARY SWALE ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE DEPTH DUE TO FIELD CONDITIONS NECESSARY FOR POSITIVE DRAINAGE.
- PROTECT SWALE AS REQUIRED ON PLAN.
- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER NON DESIRABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF SWALE.
- INSTALL SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK TRANS OR OTHER IRREGULARITIES THAT IMPIDE FLOW ARE NOT ALLOWED.
- INSTALL SWALE WITHIN THREE DAYS OF INSTALLATION. STABILIZE SURFACES IN CONTACT WITH WATER WITHIN 24 HOURS.
- MAINTAIN AND PROVIDE NECESSARY MAINTENANCE PERIODICALLY AND AFTER EACH RAIN EVENT.
- REMOVE SWALE, GRADE AREA FLUSH WITH EXISTING GROUND AND STABILIZE BED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED WITHIN 24 HOURS OF SAID DATE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION | U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

# CH2MHILL

DATE	04	DATE	04	DATE	04	DATE	04
DESIGNED BY:	T.MALONE	DESIGNED BY:	C. CHADRESS	DESIGNED BY:	REWORKING	DESIGNED BY:	REWORKING
DRAWN BY:	C. CHADRESS	DRAWN BY:	REWORKING	DRAWN BY:	REWORKING	DRAWN BY:	REWORKING
CHECKED BY:	REWORKING	CHECKED BY:	REWORKING	CHECKED BY:	REWORKING	CHECKED BY:	REWORKING
APPROVED:	REWORKING	APPROVED:	REWORKING	APPROVED:	REWORKING	APPROVED:	REWORKING
DATE:	04/02	DATE:	04/02	DATE:	04/02	DATE:	04/02
BY:	REWORKING	BY:	REWORKING	BY:	REWORKING	BY:	REWORKING

ATLANTIC

EROSION CONTROL DETAILS

SITE 21 REMEDIAL DESIGN

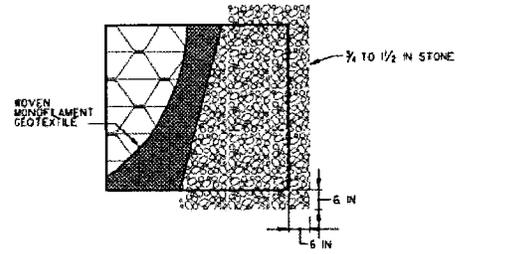
NAVAL SUPPORT FACILITY, INDIAN HEAD

CODE ID NO.	
DRAWING SIZE:	D
CONST. CONT. NO.:	
SPEC.	
NAVCAC DRAWING NO.:	
SHEET 7 OF 16	
EC-5	

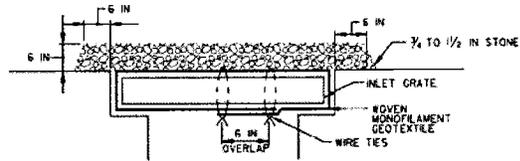
**INLET E-8-2 AT-GRADE INLET SECTION**

STANDARD SYMBOL  


MAXIMUM DRAINAGE AREA = 1 ACRE



PLAN / CUT AWAY VIEW



CROSS SECTION

**CONSTRUCTION SPECIFICATIONS**

GRATE AND WRAP WITH WOVEN MONOFILAMENT GEOTEXTILE TO COMPLETELY FILL ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.  
 3/4 TO 1/2 INCH STONE 6 INCHES THICK ON THE GRATE.  
 WOVEN MONOFILAMENT GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.  
 MAINTAIN AND PROVIDE NECESSARY MAINTENANCE PERIODICALLY AND AFTER EACH EVENT.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES CONSERVATION SERVICE      MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES WATER MANAGEMENT ADMINISTRATION

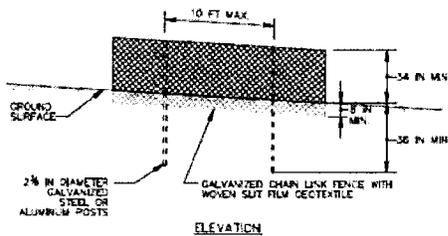
10/25/11	ERU	REVISION PER MDE COMMENT	SYMBOL	DATE	APPROVED
9/8/11	ERU	REVISION PER MDE COMMENT	SYMBOL	DATE	APPROVED
7/28/11	ERU	REVISION PER REVIEW	SYMBOL	DATE	APPROVED

**CH2MHILL**

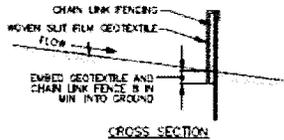
DESIGNED BY: T. MALONE	DATE
DRAWN BY: C. CALDWELL	DATE
CHECKED BY: RS CHUNG	DATE
FUNCTIONAL APPROVAL	DATE
APPROVED	DATE
REVIEWED BY	DATE

**DETAIL E-3 SUPER SILT FENCE**

STANDARD SYMBOL  

ELEVATION



CROSS SECTION

**CONSTRUCTION SPECIFICATIONS**

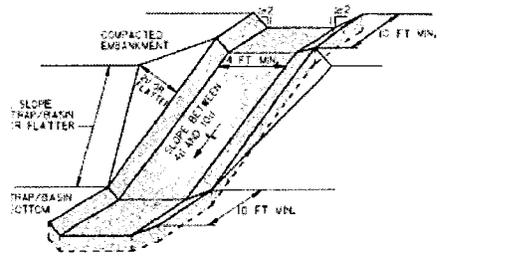
- INSTALL 3/4 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN 8 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR RING RINGS.
- FASTEN WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 3 INCHES INTO THE GROUND.
- WHILE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BUILDUPS DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 20% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES CONSERVATION SERVICE      MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES WATER MANAGEMENT ADMINISTRATION

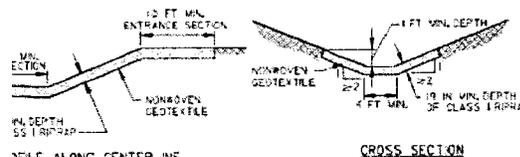
E-7

**-3-1 RIPRAP INFLOW PROTECTION**

STANDARD SYMBOL  

PERSPECTIVE VIEW



PROFILE ALONG CENTER LINE

CROSS SECTION

**CONSTRUCTION SPECIFICATIONS**

INLET INFLOW CHANNEL WITH CLASS 1 RIPRAP LINING TO A MINIMUM DEPTH OF D<sub>50</sub> 42 INCHES AND A 1 FOOT FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL USE A TRANSVERSAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A MINIMUM BOTTOM WIDTH.  
 NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER ALL RIPRAP. ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.  
 SHOULD BLEND INTO EXISTING GROUND.  
 MAINTAIN AND PROVIDE NECESSARY MAINTENANCE PERIODICALLY AND AFTER EACH RAIN EVENT.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES CONSERVATION SERVICE      MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES WATER MANAGEMENT ADMINISTRATION

D-10

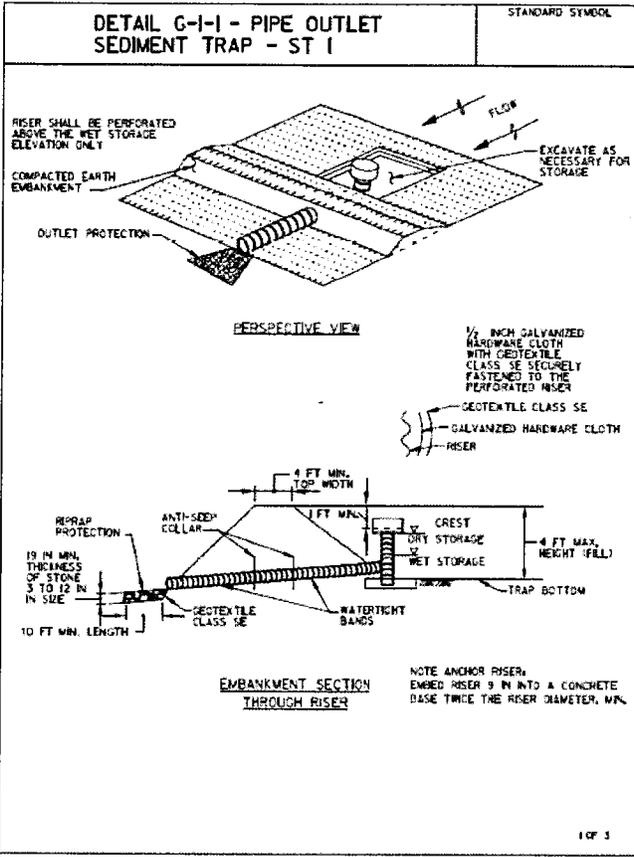
DESIGNED BY: T. MALONE	DATE
DRAWN BY: C. CALDWELL	DATE
CHECKED BY: RS CHUNG	DATE
FUNCTIONAL APPROVAL	DATE
APPROVED	DATE
REVIEWED BY	DATE

ATLANTIC	EROSION CONTROL
DETAILS	
SITE 21 REMEDIAL DESIGN	
NAVAL SUPPORT FACILITY, INDIAN HEAD	

CODE I.D. NO.	12-WM-0001
DRAWING SIZE:	D
CONST. CONT. NO.:	
SPEC.	
NAVY AC DRAWING NO.:	
SHEET 8 OF 16	
EC-6	

NOTE: DETAILS ARE FROM THE AUG 2010 DRAFT OF THE 2010 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. DETAIL E-3 IS FROM THE MAY 2011 VERSION OF THE STANDARDS AND SPECIFICATIONS.

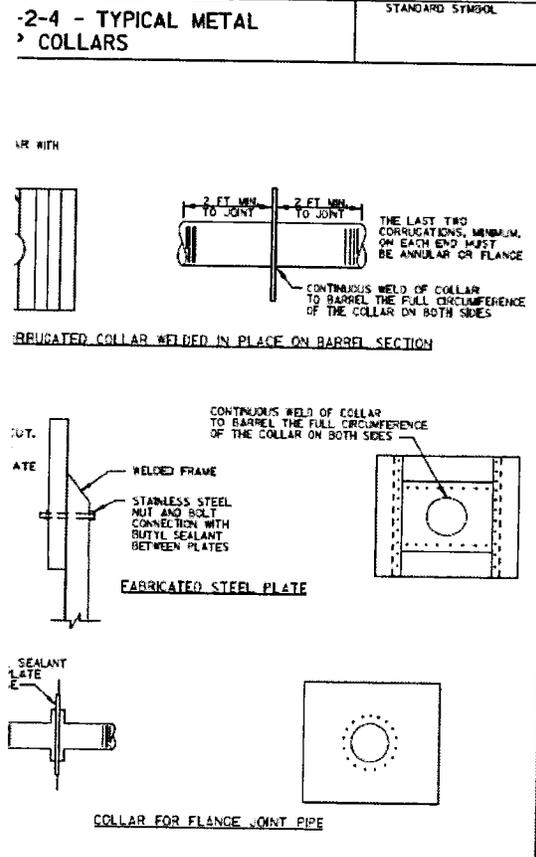




MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

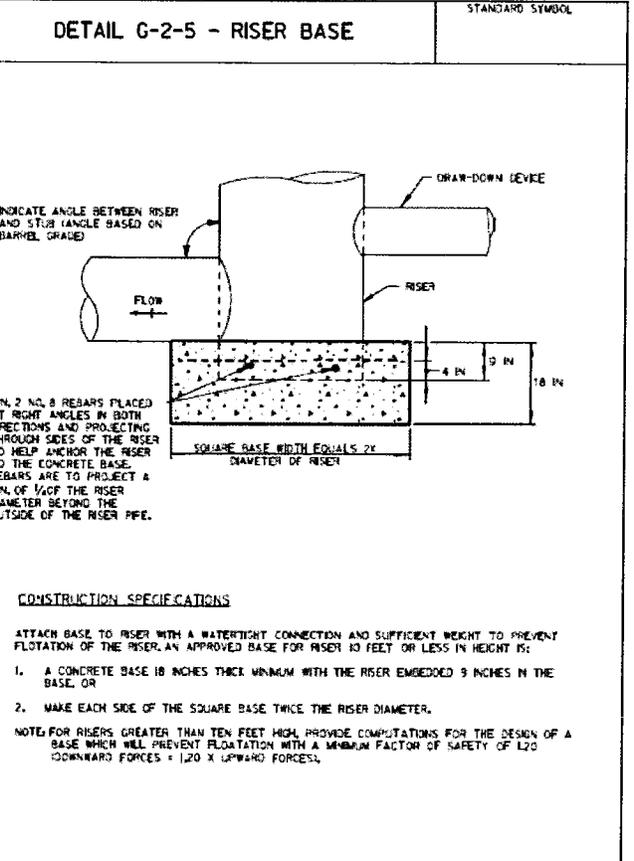
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

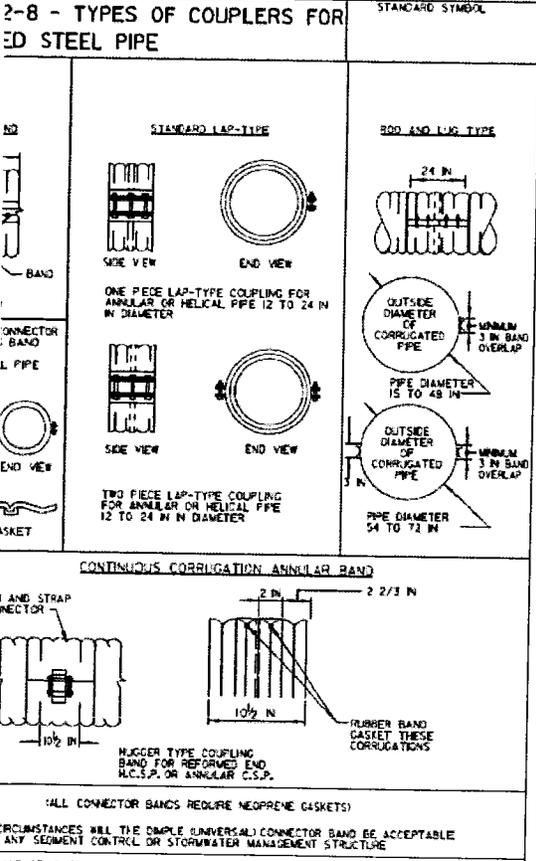
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

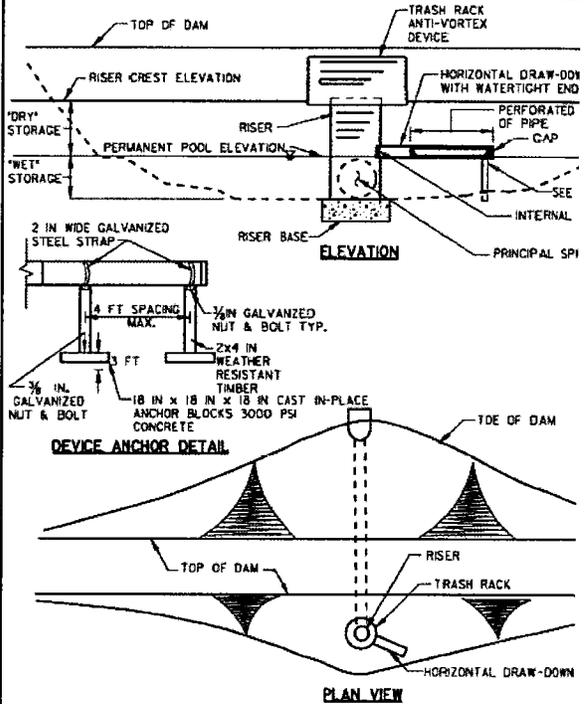


MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

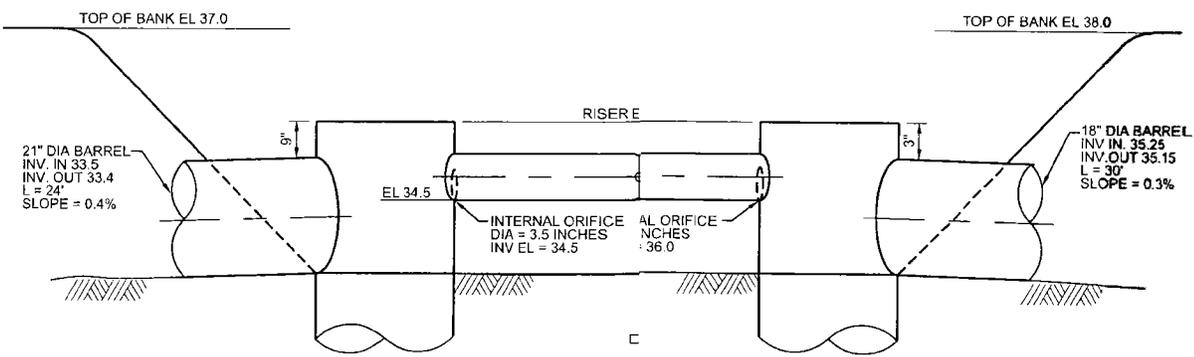
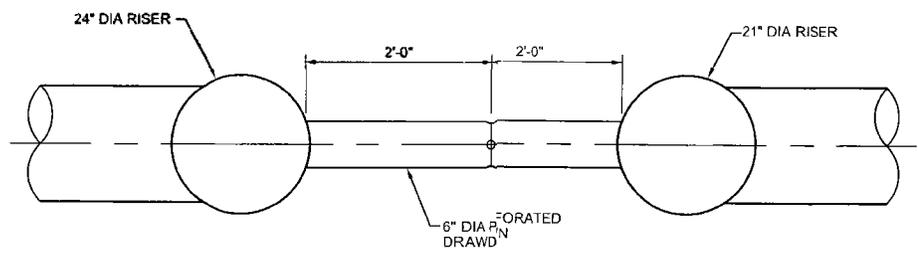
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**DETAIL G-2-9 - SEDIMENT BASIN SCHEMATIC  
HORIZONTAL DRAW-DOWN DEVICE**



- CONSTRUCTION SPECIFICATIONS**
- DESIGN THE TOTAL AREA OF THE PERFORATIONS TO BE GREATER THAN 4 TIMES THE INTERNAL ORIFICE.
  - WRAP THE PERFORATED PORTION OF THE DRAW DOWN DEVICE FIRST WITH 1/2 INCH GALV HARDWARE CLOTH, THEN GEOTEXTILE CLASS SE.
  - AN ACCEPTABLE DESIGN IS TO STAKE THE DRAW DOWN DEVICE WITH 2X4 INCH PRESSURE TIMBER ATTACHED TO THE DRAW DOWN DEVICE BY A 2 INCH WIDE GALVANIZED STEEL STRAP SHALL BE ATTACHED TO A CONCRETE FOUNDATION BLOCK CAST INTO THE BOTTOM OF THE BASIN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL  
 U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE  
 MARYLAND DEPARTMENT OF WATER MANAGEMENT  
 DRAFT 01



**HORIZONTAL W-DOWN DEVICE  
SEDIMENT TRSOUTH**

NTS

CH2MHILL

DESIGNED BY: T MALONE	ORA	DATE	REVISION PER WIDE COMMENT	DATE	APPROVED
DRAWN BY: C CALDWELL	CA				
CHECKED BY: KR CHANG	E.L.C.				
FUNCTIONAL APPROVAL	401				
APPROVED	402				
BY: UNDERWOOD					
FOR: COMMANDER, NAVY					

EROSION CONTROL DETAILS

SITE 21 REMEDIAL DESIGN  
NAVAL SUPPORT FACILITY, INDIAN HEAD

ATLANTIC

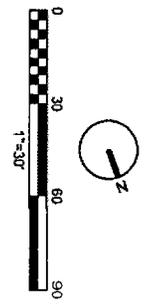
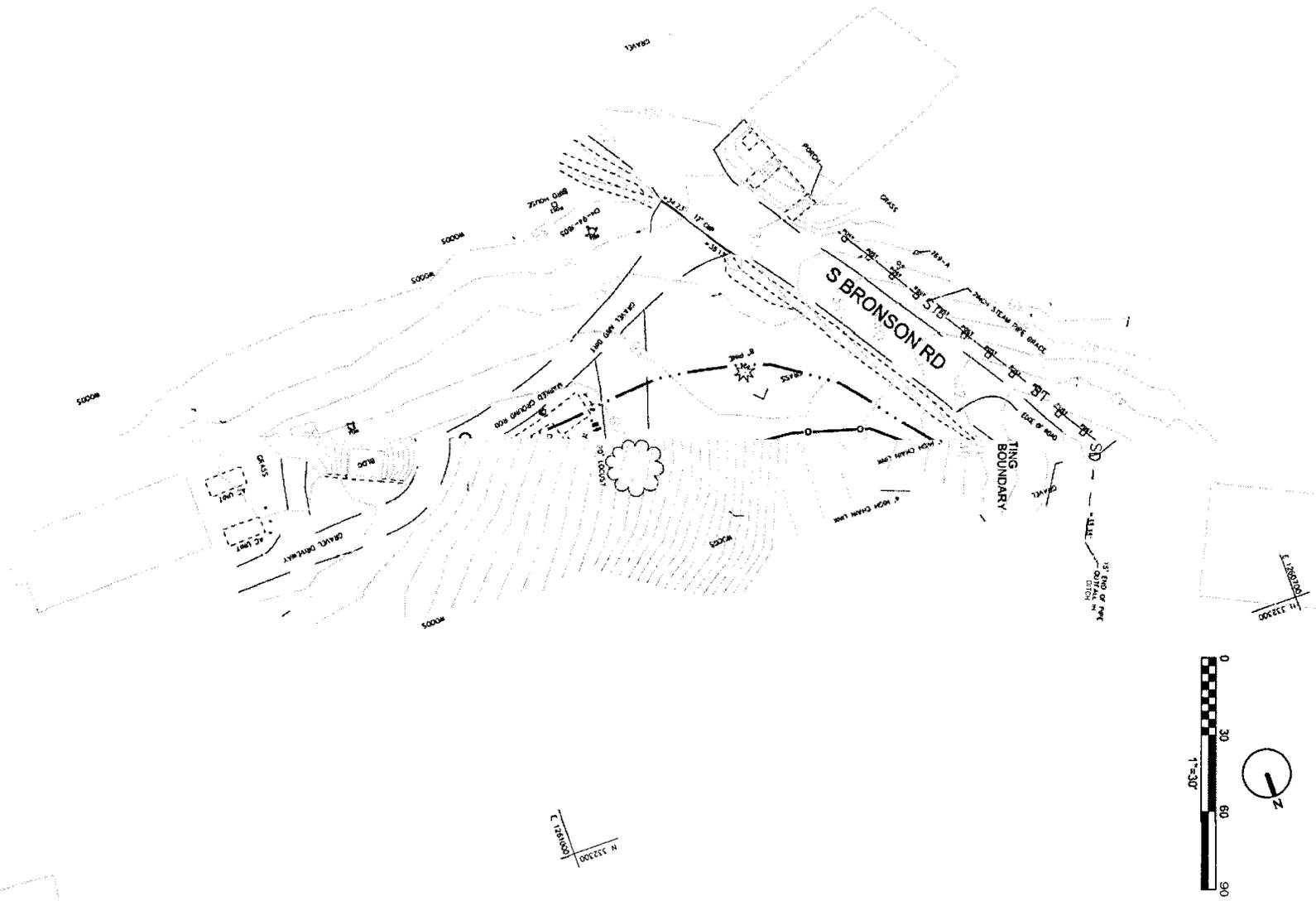
NAVAL SUPPORT FACILITY, INDIAN HEAD

CODE I.D. NO.
DRAWING SIZE: D
CONST. CONT. NO.:
SPEC
NAVFAC DRAWING NO.:

SHEET 10 OF 16  
EC-8

MDE File No. 12-WM-0001

1:10000  
 11 10000  
 11 10000



1/18/2012 005-C-401\_358174.dgn 358174

ATLANTIC  
 NAVAL STATION NORFOLK  
 NORFOLK, VIRGINIA  
 SITE 21 REMEDIAL DESIGN  
 NAVAL SUPPORT FACILITY, INDIAN HEAD  
 EXISTING CONDITIONS

DESIGNED BY: T MALONE	09A
DRAWN BY: C CHILDRESS	04
CHECKED BY: KR CHANG	E.A.C.
FUNCTIONAL APPROVAL DATE	401
APPROVED DATE	402
R UNDERWOOD	REVIEWED BY DATE
EYD FOR COMMANDER, NAVFAC	

SYMBOL	DESCRIPTION	DATE	APPROVED

**CH2MHILL**









## APPENDIX F

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*100% DESIGN SPECIFICATIONS BY CH2MHILL,  
JANUARY 2012*

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100% DESIGN SPECIFICATIONS

**SITE 21 REMEDIAL DESIGN  
INDIAN HEAD NAVAL SUPPORT FACILITY  
INDIAN HEAD, MARYLAND**

PREPARED FOR

**NAVAL FACILITIES ENGINEERING COMMAND  
(NAVFAC)  
WASHINGTON, DC**

For information regarding this  
project contact:

MARIE CHILLER  
CH2M HILL  
ONE SOUTH MAIN STREET  
SUITE 1100  
DAYTON, OH 45402  
(937) 220-2956

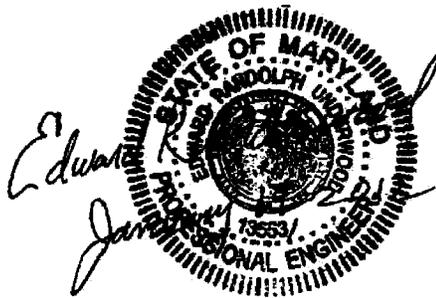
**CH2M HILL**

CH2M HILL Project No. 358174  
JANUARY 2012

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## Professional Certification

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.



License No. 13553

Expiration Date 7/30/2013

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**PROJECT TABLE OF CONTENTS****DIVISION 01 - GENERAL REQUIREMENTS**

01 11 00	SUMMARY OF WORK
01 14 00	WORK RESTRICTIONS Attachment A
01 20 00.00 20	PRICE AND PAYMENT PROCEDURES
01 30 00	ADMINISTRATIVE REQUIREMENTS
01 33 00	SUBMITTAL PROCEDURES
01 35 29	SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS
01 35 40.00 20	ENVIRONMENTAL MANAGEMENT
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01 45 00.00 20	CONSTRUCTION QUALITY CONTROL
01 50 00	TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
01 57 19.00 20	TEMPORARY ENVIRONMENTAL CONTROLS
01 58 00	PROJECT IDENTIFICATION Appendix A
01 78 00	CLOSEOUT SUBMITTALS

**DIVISION 31 - EARTHWORK**

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31 11 00	CLEARING
31 32 11	SOIL SURFACE EROSION CONTROL

**DIVISION 33 - UTILITIES**

33 40 00	STORM DRAINAGE UTILITIES
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-- End of Project Table of Contents --

## SECTION 01 11 00

SUMMARY OF WORK  
01/08

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## ASTM INTERNATIONAL (ASTM)

ASTM E 2114 (2006a) Standard Terminology for Sustainability Relative to the Performance of Buildings

## 1.2 DEFINITIONS

Definitions pertaining to sustainable development are as defined in ASTM E 2114, Section 01 35 40.00 20 ENVIRONMENTAL MANAGEMENT, Section 01 57 19.00 20 TEMPORARY ENVIRONMENTAL CONTROLS, and as specified.

- a. "Environmentally preferable products" have a lesser or reduced effect on the environment in comparison to conventional products and services. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product.
- b. "Operational performance" is the functional behavior of the project as a whole or of the project components.
- c. "Sustainability" is the balance of environmental, economic, and societal considerations.

## 1.3 WORK COVERED BY CONTRACT DOCUMENTS

## 1.3.1 Project Description

The work includes site preparation, erosion and sediment controls, clearing, site grading, placement of grading soil, cover soil, and topsoil, installation of riprap, area drains and manholes, installation of down drain pipes, and installation of seed and mulch and erosion control mat.

## 1.3.2 Location

The work site is to be located at Site 21, Bronson Road Landfill, at the Naval Support Facility, Indian Head (NSF-IH), Indian Head, Maryland. The site is located at the northeast quadrant of the intersection of South Bronson Road and Components Place.

## 1.4 PROJECT ENVIRONMENTAL GOALS

The overall goal for design, construction, and operation is to produce a project that meets the functional program needs and incorporates the principles of sustainability. Specifically:

- a. Preserve and restore the site ecosystem and biodiversity; avoid site degradation and erosion. Minimize offsite environmental impact.
- b. Use the minimum amount of energy, water, and materials feasible to meet the design intent.
- c. Use environmentally preferable products and decrease toxicity level of materials used.
- d. Use, to the extent possible, renewable energy and material resources.
- e. No negative environmental impacts on environmental quality.
- f. Reduce construction waste through reuse, recycling, and supplier take-back.

#### 1.5 OCCUPANCY OF PREMISES

Building(s) adjacent to the work area will be occupied during performance of work under this Contract.

Before work is started, the Contractor shall arrange with the Contracting Officer points of contact, procedures, means of access, space for storage of materials and equipment, and use of approaches and roadways in a manner that will minimize impacts on normal site operations within NSF-IH.

#### 1.6 EXISTING WORK

In addition to "FAR 52.236-9, Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements":

- a. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.
- b. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work shall be in a condition equal to or better than that which existed before new work started.

#### 1.7 LOCATION OF UNDERGROUND FACILITIES

Obtain required digging permits prior to start of excavation or removal of existing materials or debris in the work area. Scan the construction site with electromagnetic or sonic equipment and mark the surface of the ground where existing underground utilities are discovered. Verify the locations and elevations of existing piping, utilities, and any type of underground or encased obstruction within all areas where work is to be conducted.

##### 1.7.1 Notification Prior to Excavation

Notify the Contracting Officer at least 30 days prior to starting work requiring disturbance or excavation of existing materials or debris at the site. Miss Utility shall be contacted at least 48 hours prior to excavating. Contractor is responsible for marking all utilities not marked by Miss Utility.

1.8 GOVERNMENT-FURNISHED MATERIAL AND EQUIPMENT

None.

1.9 GOVERNMENT-INSTALLED WORK

None.

1.10 SALVAGE MATERIAL AND EQUIPMENT (NOT USED)

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

## SECTION 01 14 00

## WORK RESTRICTIONS

07/07

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

## List of Contact Personnel; G

## 1.2 CONTRACTOR ACCESS AND USE OF PREMISES

## 1.2.1 Activity Regulations

Ensure that Contractor personnel employed on the Activity become familiar with and obey Activity regulations including safety, fire, traffic and security regulations. Keep within the limits of the work and avenues of ingress and egress. To minimize traffic congestion, delivery of materials shall be outside of peak traffic hours (6:30 to 8:00 a.m. and 3:30 to 5:00 p.m.) unless otherwise approved by the Contracting Officer. Wear hard hats in designated areas. Do not enter any restricted areas unless required to do so and until cleared for such entry. The Contractor's equipment shall be conspicuously marked for identification.

## 1.2.1.1 Subcontractors and Personnel Contacts

Furnish a list of contact personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

## 1.2.1.2 Identification Badges

Identification badges, if required, will be furnished without charge. Application for and use of badges will be as directed. Furnish a completed EMPLOYMENT ELIGIBILITY VERIFICATION (DHS FORM I-9) form for all personnel requesting badges. This form is available at [http://www.uscis.gov/files/form/I-9\\_IFR\\_02-02-09.pdf](http://www.uscis.gov/files/form/I-9_IFR_02-02-09.pdf). Immediately report instances of lost or stolen badges to the Contracting Officer.

## 1.2.1.3 No Smoking Policy

Smoking is prohibited within and outside of all buildings on installations under the cognizance of NAVFAC Washington except in designated smoking areas. This applies to existing buildings, buildings under construction and buildings under renovation. Discarding tobacco materials other than into designated tobacco receptacles is considered littering and is subject to fines. The Contracting Officer will identify designated smoking areas.

### 1.2.2 Working Hours

Regular working hours shall consist of an 8-1/2 hour period established by the Contractor Officer, between 7:30 a.m. and 4:30 p.m., Monday through Friday, excluding Government holidays.

### 1.2.3 Work Outside Regular Hours

Work outside regular working hours requires Contracting Officer approval. Make application 15 calendar days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress, giving the specific dates, hours, location, type of work to be performed, contract number and project title. Based on the justification provided, the Contracting Officer may approve work outside regular hours. During periods of darkness, the different parts of the work shall be lighted in a manner approved by the Contracting Officer.

### 1.2.4 Occupied and Existing Buildings

The Contractor shall be working around existing buildings which are occupied. Do not enter the buildings without prior approval of the Contracting Officer.

## 1.3 SECURITY REQUIREMENTS

Contract Clause "FAR 52.204-2, Security Requirements and Alternate II," and "FAC 5252.236-9301, Special Working Conditions and Entry to Work Area," apply.

### 1.3.1 NSF-IH, Indian Head, MD

No employee or representative of the Contractor will be admitted to the work site unless he furnishes satisfactory proof that he is a citizen of the United States or is specifically authorized admittance by the NSASP.

- a. Identification Badges - A list of all employees to be engaged in the performance of work shall be furnished to the Security Department. In the event employees are hired or discharged, a corrected list of employees shall be furnished reflecting the change in personnel. Identification badges for the Contractor and his employees shall be furnished by the Security Department, Indian Head Division, NSF-IH, Indian Head, MD. Immediately report instances of lost or stolen badges to the Contracting Officer. Upon completion of the contract and/or termination of the service of any employee, the Contractor shall return the badges to the Security Pass Office. Compliance with this requirement is mandatory and certification thereof to the Contracting Officer is required prior to submitting final invoices. Failure to return badges will hold up Contractor's final payment.
- b. Vehicles and Equipment - In addition to other conditions and requirements set forth hereinbefore, attention is invited to the fact that vehicles and equipment admitted to the Indian Head Division, NSF-IH, Indian Head, MD will be required to meet standards established by the Station Safety Department. The vehicular and/or equipment conditions shall satisfactorily meet the following provisions:
  1. Steering mechanism must be satisfactory and safe condition.
  2. Horns and warning devices must be operable.

3. Windshield wipers must be satisfactory in place, clean and unbroken.
4. Rearview mirrors must be satisfactory in place, clean and unbroken.
5. General body conditions: Body must be satisfactory tight including fenders, bumpers, doors and latches thereto, and other parts which might become dislocated during travel.
6. Lights: All lights required by the type of vehicle/equipment in use shall be functional with satisfactory bulbs and lenses.
7. Exhaust Systems: Exhaust systems shall be completely functional with no leaks.
8. Fuel system must be free of leaks and show no evidence of loss of fuel and/or fumes.
9. Brakes: All brakes shall be functional and give evidence of the ability to halt the loaded vehicles within safe distances.
10. Tires need not be new but shall contain sufficient tread to indicate safety at operating speed with vehicle loaded.
11. Electric Wiring: All wiring shall be completed insulated as required and in cases considered appropriate waterproofing of wiring shall be required.
12. Motors shall be reasonably clean from excess grease, dust, and dirt, and if required shall be steam cleaned to the satisfaction of the inspection personnel.
13. Where applicable, inspection will include other such items as gauges, thermometers, controls, relief valves, piping, mechanical locks, limit switches, connectors, and other safety related devices associated with vehicles and equipment admitted to the Station.

#### 1.4 SITE ACCESS

Effective 1 June, 2011, Naval Support Activity South Potomac will be making significant changes to access control. Contractor could enroll in RAPID Gate Program to facilitate the site access. Detailed information and enrollment forms are presented in Attachment A at the end of this section.

#### PART 2 PRODUCTS

Not Used

#### PART 3 EXECUTION

Not Used

-- End of Section --



**DEPARTMENT OF THE NAVY**  
NAVAL SUPPORT ACTIVITY  
SOUTH POTOMAC  
6509 SAMPSON ROAD  
DAHLGREN, VIRGINIA 22448-5106

5530  
Ser N00/002  
FEB 03 2011

From: Commanding Officer, Naval Support Activity South Potomac  
To: NSASP Facility Managers and Supported Commands

Subj: ACCESS CONTROL CHANGES EFFECTIVE 1 JUNE 2011

Ref: (a) CNICNOTE 5530 N3AT of 12 Jul 2010

Encl: (1) *RAPIDGate* Program Enrollment Information

1. Effective 1 June 2011, Naval Support Activity South Potomac (NSASP) will be making significant changes to access control procedures in efforts to enhance the security posture of its installations. In accordance with reference (a), impending changes are being directed by Commander, Naval Installations Command. NSASP will be aligning procedures to ensure compliance with these requirements. These new procedures will directly impact vendors, contractors, sub-contractors and service providers who regularly access our installations that are not currently enrolled in the *RAPIDGate* Program. Our priority is to maintain a safe and secure installation while offering a solution that will facilitate streamlined access onto the installations.

2. Due to safety and security requirements, access may be delayed for persons using a NSASP Temporary Paper Pass. A piece of the increase in security requirements will necessitate additional screenings that will occur during each visit. To gain streamlined access onto the installations, it is strongly encouraged that the benefits of the *RAPIDGate* Program are reviewed and considered. The table below details changes and how to gain streamlined access onto the installations through the *RAPIDGate* Program.

a. Access Privilege Management:

Category	<i>RAPIDGate</i> Participant	NSA South Potomac Paper Pass	Day Pass
Inspection Requirements	Random	Frequently with higher scrutiny	Frequently with higher scrutiny
Days Credential is valid	1 year	Valid until June 1 <sup>st</sup> , 2011	1 day

Subj: ACCESS CONTROL CHANGES EFFECTIVE 1 JUNE 2011

Gate Access	All Gates that size allows	Indianhead - Main Gate or Dahlgren B Gate	Indianhead - Main Gate or Dahlgren B Gate
Wait time	Streamlined access	Expect significant delays at Pass and ID Offices	Expect significant delays at and Pass and ID Offices

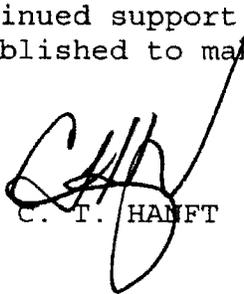
b. Companies who choose to participate in the *RAPIDGate* Program will have streamlined access onto the installations, will only be subject to random vehicle inspections and will be able to access the installations via all entry control points size permitting. Access will be granted during the hours needed to perform business on the installations. The *RAPIDGate* credential will be the only means for long term installation access.

c. After June 1, 2011, NSASP will only issue one day Temporary Paper Passes and all previously issued passes will expire. Personnel that are currently accessing the installation with a NSASP three year photo badge may continue to use it for access until further notice, however, restrictions on those credentials are expected in the near future as well.

d. The *RAPIDGate* Program provides all personnel background checks required for access and in most cases is a time/cost savings benefit to companies desiring to conduct business on NSASP installations.

3. Enclosure (1) is the *RAPIDGate* Program Enrollment Information that provides guidance on enrollment for companies that wish to participate. Questions about the program should be addressed to [info@rapidgate.com](mailto:info@rapidgate.com) with the subject line RE: *RAPIDGate* Program.

4. NSASP appreciates your continued support of our efforts to comply with the directives established to make our installations safer and more secure.

  
C. T. HANFT

Distribution:  
NSASP All Hands  
NSASP Supported Commands

## **RAPIDGate Program Enrollment Information**

### **1. Enroll your company by calling 1-877-RAPIDGate (1-877-727-4342).**

To enroll your company in the *RAPIDGate* Program, call Eid Passport at 1-877-*RAPIDGate* (1-877-727-4342). A Customer Service Representative will give you all the necessary information regarding the *RAPIDGate* Program and send you the necessary enrollment forms. On the enrollment forms you will need to provide your Installation Name (NSA South Potomac) and sponsor point of contact, including a name, phone number, and e-mail address. NSA South Potomac must authorize your request to participate in the *RAPIDGate* Program. The minimum elapsed time from company enrollment to an employee receiving his or her *RAPIDGate* Credential is approximately two weeks. **Enroll today to ensure your employees have their *RAPIDGate* Credentials by the Program effective date of June 1<sup>st</sup>, 2011.**

If your company is already enrolled in the *RAPIDGate* Program at another installation, you may request access to this installation by calling 1-877-*RAPIDGate* (1-877-727-4342). Once your company is approved by NSA South Potomac, your employees who already hold *RAPIDGate* Credentials will be able to use the same Credentials at our installations.

### **2. Employees register at onsite Registration Stations.**

Once your company has been approved for enrollment and paid the enrollment fee, instruct your employees who need access to NSA South Potomac to register at the self-service registration station located at the Pass and ID Office at both Indian Head and Dahlgren. Each employee should be ready to provide your company's *RAPIDGate* company code, his or her address, phone number, date of birth, and social security number. The registration station will capture the employee's photograph for badging and fingerprints for identity verification.

**Assisted registration at your company's location may be available if you have 50 or more employees to register.** Call 1-877-*RAPIDGate* (1-877-727-4342) for details.

### **3. The *RAPIDGate* Program performs background screening and credentialing.**

Once your company has approved each employee for participation and paid the registration fee, the *RAPIDGate* Program performs identity authentication and background screening. Your company will be notified when qualified employees may pick up their personalized *RAPIDGate* Credentials at the Dahlgren or Indian Head Pass and ID Office. To retrieve a Credential, each employee must show proof of identity by presenting one form of identification from List A (next page), or two forms of identification from List B.

After activating their *RAPIDGate* Credentials, employees present them to the officer at the entry control point to request entry to NSA South Potomac installations. Participants must wear and display their Credential at all times while on the installations. Questions about the NSA South Potomac *RAPIDGate* Program should be addressed to [info@rapidgate.com](mailto:info@rapidgate.com) with the subject line RE: *RAPIDGate* Program.

**Forms of Acceptable Identification for picking up your credential:**

**List A – One Needed**

- U.S. Passport (unexpired)
- Permanent Resident Card or Alien Registration Receipt Card (Form I-551)
- Unexpired foreign passport, with I-551 stamp or attached Form I-94 indicating unexpired employment authorization
- Unexpired Employment Authorization Document that contains a photograph (Form I-766, I-688, I688A, I-688B)

**List B – Two Needed**

- Driver's license or ID card issued by a state
- ID Card issued by federal, state or local government agencies or entities
- School ID card with a photograph
- Voter's registration card
- U.S. Military card or draft record
- Military Dependent's ID card
- U.S. Coast Guard Merchant Mariner Card
- Native American tribal document
- Driver's license issued by a Canadian government authority
- U.S. Social Security card issued by the Social Security Administration
- Certification of Birth Abroad issued by the Department of State (Form FS-545 or Form DS-1350)
- Original or certified copy of a birth certificate issued by a state, county, municipal authority or outlying possession of the United States bearing an official seal
- U.S. Citizen ID Card (Form I-197)
- ID Card for use of Resident Citizen in the United States (Form I-179)
- Unexpired employment authorization document issued by DHS (other than those listed under List A)



DEPARTMENT OF THE NAVY  
COMMANDER, NAVY INSTALLATIONS COMMAND  
716 SICARD STREET, SE, SUITE 1000  
WASHINGTON NAVY YARD, DC 20374-5140

Canc frp: Jun 11  
CNICNOTE 5530  
N3AT

JUL 12 2010

CNIC NOTICE 5530

From: Commander, Navy Installations Command

Subj: *RAPIDGATE* IMPLEMENTATION FOR NON-COMMON ACCESS CARD (CAC)  
CONTRACTORS/VENDORS PROGRAM WITHIN CONUS REGIONS, NAVY  
REGION HAWAII AND JOINT REGION MARIANAS

Ref: (a) OPNAVINST 5530.14E  
(b) *RAPIDGate* Standard Operating Procedure (SOP)  
(c) SECNAV 5210.1 Navy Records Management Manual

1. Purpose

a. To implement the *RAPIDGate* Program for Navy Regions in the Continental United States (CONUS), Hawaii and Guam.

b. The *RAPIDGate* Program is the standard identity management and perimeter installation access control solution for the access management of vendors, contractors, suppliers and service providers who are not authorized a Common Access Card (CAC).

2. Background and Concept of Operations

a. Reference (a) provides over-arching Navy policy, guidance, information, procedures and responsibilities for the Navy Physical Security and Law Enforcement Program. The *RAPIDGate* Program is an operational application of Navy security and law enforcement policy. It operates on the principle of driver, rather than cargo, verification with each access request.

b. The *RAPIDGate* Program has been tested and implemented in Navy Region Southwest and three installations within Naval District Washington. To date there are 38 Department of Defense installations operating with the *RAPIDGate* Program in CONUS and Hawaii.

c. The *RAPIDGate* identity management and perimeter installation access control solution is specifically designed to manage recurring vendors, contractors, suppliers and other service providers who are not authorized a CAC. It uses the following concept of operations:

(1) A *RAPIDGate* credential is issued and base access granted once the enrollee passes vetting and National background checks conducted by *RAPIDGate* systems maintained by the vendor at the installation.

(2) Participants that successfully enroll into *RAPIDGate* and subsequently approved for access by the installation are not required to obtain a new pass from the Base Pass and Identification Office for each visit and are not subjected to mandatory commercial vehicle inspection unless during higher Force Protection Condition Operations or required by a periodic Random Access Control Measure. Access authorization can be controlled and monitored by base security personnel and restricted to specific days and time periods.

(3) Government costs to implement *RAPIDGate* system are minimal and consist of providing electrical power, analog phone lines and space for registration station kiosks at the Pass and Identification Offices.

(4) The majority of the *RAPIDGate* costs are borne by the commercial vendors/contractors who require access to the installation and participate in the program, through fees to the *RAPIDGate* vender.

(5) Costs to Vendor participants are recaptured through increased productivity of their employees due to the reduction of waiting times at the Pass and Identification Offices and Entry Control Points (ECP).

### 3. *RAPIDGate* Objectives

a. Standardize the process across Commander, Navy Installations Command (CNIC)Region/Installation to enroll, vet, credential and electronically control access privileges of non-CAC vendors/contractors requesting to access an installation.

b. Improve efficiency and effectiveness at Pass and Identification Offices through a reduction in the issuance of routine business passes and other locally produced credentials.

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#### 4. Responsibilities

a. Each Region will establish a *RAPIDGate* Point of Contact to the CNIC N61 Regional Support to CNIC N3 at (202) 433-2845 or via email to Sharon.gibson@navy.mil.

b. Each Installation will establish a *RAPIDGate* Standard operating Procedure (SOP) and Post Orders, using the CNIC *RAPIDGate* SOP as a template.

c. Installations will maintain a daily Visitor Pass program for those non-CAC vendors/contractors who choose not to enroll in the *RAPIDGate* Program, although it is expected that this service may be reduced in scope due to significantly lower requirements.

d. To remain eligible to support Navy Installations the *RAPIDGate* Program will:

(1) comply with best security practices and Defense Information Assurance Certification and Accreditation Process (DIACAP) information assurance controls and prohibits the storage of Personally Identifiable Information on mobile devices.

(2) ensure perimeter installation access control management in near real time: by individual (with biometric authentication of identity) and company; privileges by time of day, day of week and by installation (one or more as authorized).

(3) Remain responsible for program enrollment and Background screening.

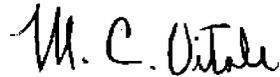
5. Records Management. Records created as a result of this notice, regardless of media and format, shall be managed in accordance with Navy's records management manual, reference (c).

#### 6. Forms and Reports

a. The *RAPIDGate* Program produces a Monthly Activity Report for each installation which provides an overview of active companies, participants, ingresses by ECP and other useful

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information for purposes of managing the program.



M. C. VITALE  
Vice Admiral, U.S. Navy

Distribution:

Electronic only, via CNIC Gateway

<https://cnicgateway.cnic.navy.mil/HQ/N00/CAPM/DIRPR/Directives/Forms/AllItems.aspx>

**NSA SOUTH POTOMAC PERSONAL INFORMATION FOR ACCESS VETTING**

NSASP 5512-17P ( 04-11)

**INSTRUCTIONS:** Fill out form completely (print/type – Must be legible)  
 Submit by email to Pass & ID Office for  
 Dahlgren: [PassID.NSASP-DLGR.fcm@navy.mil](mailto:PassID.NSASP-DLGR.fcm@navy.mil) or  
 Indian Head: [PassID.NSASP-INHD.fcm@navy.mil](mailto:PassID.NSASP-INHD.fcm@navy.mil)

**ALL REQUESTS MUST BE SUBMITTED AT LEAST 5 WORKING DAYS PRIOR TO VISIT**

COMPANY NAME/ADDRESS

NAME (LAST NAME, FIRST NAME, MIDDLE INITIAL)	SSN (XXX-XX-XXXX)	DATE OF BIRTH (MM/DD/YYYY)	IS THIS PERSON A U. S. CITIZEN? IF NO PLEASE PROVIDE PLACE OF BIRTH	DRIVERS LICENSE OR STATE ISSUED ID (STATE ISSUED, PHOTO ID NUMBER, AND EXPIRATION DATE)
GOV'T SPONSOR'S NAME (PRINTED)	COMMAND/CODE		PHONE	DATE

**NOTE: ALL PERSONS ENTERING NSASP MUST HAVE PHOTO IDENTIFICATION IN THEIR POSSESSION.**

PRIVACY ACT: AUTHORITY: OPNAVINST 5530.14E, OPNAVINST 1752.3, CNIC NOTE 5530 PRINCIPAL PURPOSE: Information will be used by Naval Support Activity South Potomac to comply with vetting requirements for individuals requesting access to the installation. ROUTINE USE: NONE. Information will be destroyed once verified. DISCLOSURE: VOLUNTARY. Non-compliance will result in denial of access to Naval Support Activity South Potomac.

Data subject to protection under the provisions of the Privacy Act of 1974 – For Official Use Only – Privacy Sensitive - Any Misuse or Unauthorized Disclosure May Result in Both Civil and Criminal Penalties



## SECTION 01 20 00.00 20

PRICE AND PAYMENT PROCEDURES  
07/06

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## U.S. ARMY CORPS OF ENGINEERS (USACE)

EP-1110-1-8 (2005) Construction Equipment Ownership and Operating Expense Schedule, Vo1 1-12

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

Schedule of prices; G

## 1.3 SCHEDULE OF PRICES

## 1.3.1 Data Required

Within 15 calendar days of notice of award, prepare and deliver to the Contracting Officer a schedule of prices (construction contract) on the forms furnished by the Government. Provide a detailed breakdown of the contract price, giving quantities for each of the various kinds of work, unit prices, and extended prices therefor.

## 1.4 CONTRACT MODIFICATIONS

In conjunction with the Contract Clause "DFARS 252.236-7000, Modification Proposals-Price Breakdown," and where actual ownership and operating costs of construction equipment cannot be determined from Contractor accounting records, equipment use rates shall be based upon the applicable provisions of the EP-1110-1-8.

## 1.5 CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT

## 1.5.1 Content of Invoice

Requests for payment will be processed in accordance with the Contract Clause "FAR 52.232-27, Prompt Payment Construction Contracts."

- a. The Contractor's invoice certified by QC, on the form furnished by the Government for this purpose, showing in summary form, the basis for arriving at the amount of the invoice. Submit original

and five copies.

- b. The Construction Contract No. "N62470-08-D-1007, CTO JU49" shall be included in the invoice.
- c. The Contract Performance Statement on the form furnished by the Government for this purpose, showing in detail, the estimated cost, percentage of completion, and value of completed performance. Submit original and two copies.
- d. Final invoice shall be accompanied by Final Release Form.

#### 1.5.2 Mailing of Invoices

- a. All invoices shall be forwarded with specific marking on the envelope. This marking shall be in the front lower left hand corner, in large letters, "INVOICES - ENCLOSED."
- b. Invoices not completed in accordance with contract requirements will be returned to the Contractor for correction of the deficiencies.
- c. Final invoices not accompanied by Final Release Form will be considered incomplete and will be returned to the Contractor.

### 1.6 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests by the Contractor which comply with the requirements of this section, and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

#### 1.6.1 Obligation of Government Payments

The obligation of the Government to make payments required under the provisions of this contract will, at the discretion of the Contracting Officer, be subject to reductions and/or suspensions permitted under the FAR and agency regulations including the following in accordance with "FAR 32.503-6:

- a. Reasonable deductions due to defects in material or workmanship;
- b. Claims which the Government may have against the Contractor under or in connection with this contract;
- c. Unless otherwise adjusted, repayment to the Government upon demand for overpayments made to the Contractor; and
- d. Failure to provide up to date record drawings not current as stated in Contract Clause "FAC 5252.236-9310, Record Drawings."

#### 1.6.2 Payment for Materials Offsite

Payments may be made to the Contractor for materials stored off construction sites under the following conditions:

- a. Conditions described in the paragraph entitled "Payments to the Contractor";

- b. Material within a distance of 50 miles by streets and roads to the construction site;
- c. Materials adequately insured and protected from theft and exposure;
- d. Materials not susceptible to deterioration or physical damage in storage or in transit to the job site are acceptable for progress payments.
- e. Materials in transit to the job site or storage site are not acceptable for payment; and
- f. Conditions specified in "FAR 52.232-5(b) Payments Under Fixed Price Construction Contracts."

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

## SECTION 01 30 00

## ADMINISTRATIVE REQUIREMENTS

08/08

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

View location map; G

Progress and completion pictures; G

## 1.2 VIEW LOCATION MAP

Submit to the Contracting Officer, prior to or with the first digital photograph submittals, a sketch or drawing indicating the required photographic locations. Update as required if the locations are moved.

## 1.3 PROGRESS AND COMPLETION PICTURES

Photographically document site conditions prior to start of construction operations. Provide monthly, and within 1 month of the completion of work, digital photographs, 1600 x 1200 x 24 bit true color 150 to 300 dpi resolution in JPEG file format showing the sequence and progress of work. Take a minimum of 20 digital photographs each week throughout the entire project from a minimum of ten views from points located by the Contracting Officer. Submit a view location sketch indicating points of view. Submit with the monthly invoice two sets of digital photographs, each set on a separate CD-R, cumulative of all photos to date. Indicate photographs demonstrating environmental procedures. Photographs for each month shall be in a separate monthly directory and each file shall be named to indicate its location on the view location sketch. The view location sketch shall also be provided on the CD as digital file. All file names shall include a date designator. Cross reference submittals in the appropriate daily report. Photographs shall be provided for unrestricted use by the Government. Contractor shall obtain a camera pass in accordance with applicable Base procedures.

## 1.4 MINIMUM INSURANCE REQUIREMENTS

Procure and maintain during the entire period of performance under this contract the following minimum insurance coverage:

- a. Comprehensive general liability: \$500,000 per occurrence.
- b. Automobile liability: \$200,000 per person, \$500,000 per occurrence for bodily injury, \$20,000 per occurrence for property damage.
- c. Workmen's compensation as required by Federal and State workers'

compensation and occupational disease laws.

- d. Employer's liability coverage of \$100,000, except in states where workers compensation may not be written by private carriers.
- e. Others as required by state Law.

#### 1.5 SUPERVISION

Provide at least one qualified Project Manager and one on-site Project Superintendent. The Project Manager must have a minimum 10 years experience as a Project Manager or Superintendent on projects like this contract or similar in size and complexity. The Project Superintendent must have a minimum of 5 years experience as a Superintendent on projects similar in size and complexity.

The Project Manager in this context shall mean the individual with the responsibility for the overall management of the project and the Project Superintendent shall mean the individual with the responsibility for quality and production. Both the Project Manager and Project Superintendent are subject to removal by the Contracting Officer for non-compliance with requirements specified in the contract and for failure to manage the project to insure timely completion. Furthermore, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time for excess costs or damages by the Contractor.

Approval of Project Manager and on-site Project Superintendent is required prior to start of construction. Provide resumes for the proposed Project Manager and on-site Project Superintendent describing their experience with references and qualifications to the Contracting Officer for approval. The Contracting Officer reserves the right to interview the proposed Project Manager and on-site Project Superintendent at any time in order to verify the submitted qualifications.

#### 1.6 PRECONSTRUCTION CONFERENCE

After award of the contract but prior to commencement of any work at the site, meet with the Contracting Officer to discuss and develop a mutual understanding relative to the administration of the value engineering and safety program, base procedures and hazard control briefing requirements, preparation of the schedule prices, shop drawings, and other submittals, scheduling programming, and prosecution of the work. Major subcontractors who will engage in the work shall also attend.

#### 1.7 AVAILABILITY OF CADD DRAWING FILES

After award and upon request, the electronic "Computer-Aided Drafting and Design (CADD)" drawing files will only be made available to the Contractor for use in preparation of construction data related to the referenced contract subject to the following terms and conditions.

Data contained on these electronic files shall not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse shall be at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor shall make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the

Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor shall, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CADD drawing files are not construction documents. Differences may exist between the CADD files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic CADD files, nor does it make representation to the compatibility of these files with the Contractors hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished CADD files, the signed and sealed construction documents shall govern. The Contractor is responsible for determining if any conflict exists. Use of these CADD files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project.

If the Contractor uses, duplicates and/or modifies these electronic CADD files for use in producing construction data related to this contract, all previous indicia of ownership (seals, logos, signatures, initials and dates) shall be removed.

#### 1.8 ELECTRONIC MAIL (E-MAIL) ADDRESS

The Contractor shall establish and maintain electronic mail (e-mail) capability along with the capability to open various electronic attachments in Microsoft, Adobe Acrobat, and other similar formats. Within 10 days after contract award, the Contractor shall provide the Contracting Officer a single (only one) e-mail address for electronic communications from the Contracting Officer related to this contract including, but not limited to contract documents, invoice information, request for proposals, and other correspondence. The Contracting Officer may also use e-mail to notify the Contractor of base access conditions when emergency conditions warrant, such as hurricanes, terrorist threats, etc. Multiple e-mail addresses will not be allowed.

It is the Contractor's responsibility to make timely distribution of all Contracting Officer initiated e-mail with its own organization including field office(s). The Contractor shall promptly notify the Contracting Officer, in writing, of any changes to this e-mail address.

#### PART 2 PRODUCTS

Not Used

#### PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 33 00  
SUBMITTAL PROCEDURES  
02/09

PART 1 GENERAL

The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.

Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Contractor's Quality Control (CQC) System Manager and the Designer of Record, if applicable, to check and approve all items prior to submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

Submittals requiring Government approval are to be scheduled and made prior to the acquisition of the material or equipment covered thereby.

1.1 DEFINITIONS

1.1.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to a notice to proceed commencing work on site. Submittals required prior to the start of the next major phase of the construction on a multi-phase contract. Schedules or tabular list of data or tabular list including location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work, submitted prior to contract notice to proceed or next major phase of construction.

- Certificates of insurance
- Surety bonds
- List of proposed subcontractors
- List of proposed products
- Construction Progress Schedule
- Network Analysis Schedule (NAS)
- Submittal register
- Schedule of prices
- Health and safety plan
- Work plan

Quality control(QC) plan  
Environmental protection plan

#### SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

#### SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily logs and checklists.

Final acceptance test and operational test procedure.

#### SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a manufacturer, supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Text of posted operating instructions.

#### SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

#### SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

#### 1.1.2 Approving Authority

Office or designated person authorized to approve submittal.

#### 1.1.3 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

### 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with this section.

#### SD-01 Preconstruction Submittals

Submittal register; G

### 1.3 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

#### 1.3.1 Government Approved

Government approval is required for extensions of design, critical materials, deviations, work elements requiring special safety considerations, and other items as designated by the Contracting Officer. Government approval is required for any deviations from the Solicitation or Accepted Proposal and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

#### 1.3.2 Designer of Record Approved/Government Conformance Review (DA/CR)

##### 1.3.2.1 Deviations to the Accepted Design

Designer of Record approval and the Government's concurrence are required for any proposed deviation from the accepted design which still complies with the contract before the Contractor is authorized to proceed with material acquisition or installation. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings." If necessary to facilitate the project schedule, the Contractor and the DOR may discuss a submittal proposing a deviation with the Contracting Officer's Representative prior to officially submitting it to the Government. However, the Government reserves the right to review the submittal before providing an opinion, if deemed

necessary. In any case, the Government will not formally agree to or provide a preliminary opinion on any deviation without the DOR's approval or recommended approval. The Government reserves the right to non-concur with any deviation from the design that may impact operations decisions that were made on the basis of the reviewed and concurred design.

#### 1.3.2.2 Substitutions

Unless prohibited or provided for otherwise elsewhere in the Contract, where the accepted contract proposal named products, systems, materials or equipment by manufacturer, brand name and/or by model number or other specific identification, and the Contractor desires to substitute manufacturer or model after award, submit a requested substitution for Government concurrence. Include substantiation, identifying information and the DOR's approval, as meeting the contract requirements and that it is equal in function, performance, quality and salient features to that in the accepted contract proposal.

#### 1.3.3 Information Only

Submittals not requiring Government approval will be for information only. For Design-build construction all submittals not requiring Designer of Record or Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

### 1.4 FORWARDING SUBMITTALS REQUIRING GOVERNMENT APPROVAL

#### 1.4.1 Submittals Required from the Contractor

As soon as practicable after award of contract, and before procurement of fabrication, forward to the Commander, NAVFAC Washington, 1414 Harwood Street, SE, Washington, DC 20374-5018, Attention: Joe Rail: submittals required in the technical sections of this specification, including shop drawings, product data and samples. One copy of the transmittal form for all submittals shall be forwarded to the Resident Officer in Charge of Construction.

NAVFAC Washington will review and approve for the Contracting Officer those submittals reserved for Contracting Officer approval to verify submittals comply with the contract requirements.

### 1.5 PREPARATION

#### 1.5.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels to office of approving authority. Transmit submittals with transmittal form prescribed by Contracting Officer and standard for project. On the transmittal form identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding samples.

Use the attached sample transmittal form (ENG Form 4025) for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise

special care to ensure proper listing of the specification paragraph and sheet number of the contract drawings pertinent to the data submitted for each item.

#### 1.5.2 Identifying Submittals

When submittals are provided by a Subcontractor, the Prime Contractor is to prepare, review and stamp with Contractor's approval all specified submittals prior to submitting for Government approval.

Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

- a. Project title and location.
- b. Construction contract number.
- c. Date of the drawings and revisions.
- d. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other subcontractor associated with the submittal.
- e. Section number of the specification section by which submittal is required.
- f. Submittal description (SD) number of each component of submittal.
- g. When a resubmission, add alphabetic suffix on submittal description, for example, submittal 18 would become 18A, to indicate resubmission.
- h. Product identification and location in project.

#### 1.5.3 Format for SD-02 Shop Drawings

- a. Shop drawings are not to be less than 8-1/2 by 11 inches nor more than 30 by 42 inches, except for full size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless other form is required. Drawings are to be suitable for reproduction and be of a quality to produce clear, distinct lines and letters with dark lines on a white background.
- b. Present A4 8-1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.
- c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."
- d. Number drawings in a logical sequence. Contractors may use their own number system. Each drawing is to bear the number of the submittal in a uniform location adjacent to the title block. Place the Government contract number in the margin, immediately below the title block, for each drawing.
- e. Reserve a blank space, no smaller than 3 inches on the right hand side of each sheet for the Government disposition stamp.

- f. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.
- g. Include the nameplate data, size and capacity on drawings. Also include applicable federal, military, industry and technical society publication references.

#### 1.5.4 Format of SD-03 Product Data and SD-08 Manufacturer's Instructions

- a. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.
- b. Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.
- c. Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of SD-07 Certificates.
- d. Provide product data in metric dimensions. Where product data are included in preprinted catalogs with English units only, submit metric dimensions on separate sheet.
- e. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry and technical society publication references. Should manufacturer's data require supplemental information for clarification, submit as specified for SD-07 Certificates.
- f. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Contracting Officer. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.
- g. Collect required data submittals for each specific material, product, unit of work, or system into a single submittal and marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will not be accepted for expedition of construction effort.
- h. Submit manufacturer's instructions prior to installation.

#### 1.5.5 Format of SD-04 Samples

- a. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:
  - 1. Sample of Materials Less Than 2 by 3 inches: Built up to A4 8-1/2 by 11 inches.
  - 2. Sample of Materials Exceeding A4 8-1/2 by 11 inches: Cut down to A4 8-1/2 by 11 inches and adequate to indicate color, texture, and material variations.
  - 3. Sample of Linear Devices or Materials: 10-inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.
  - 4. Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.
  - 5. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.
  - 6. Sample Panel: 4 by 4 feet.
  - 7. Sample Installation: 100 square feet.
- b. Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.
- c. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at time of use.
- d. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.
- e. When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

#### 1.5.6 Format of SD-05 Design Data and SD-07 Certificates

Provide design data and certificates on 8-1/2- by 11-inch paper.  
Provide a bound volume for submittals containing numerous pages.

#### 1.5.7 Format of SD-06 Test Reports and SD-09 Manufacturer's Field Reports

- a. Provide reports on 8-1/2- by 11-inch paper in a complete bound volume.
- b. Indicate by prominent notation, each report in the submittal. Indicate specification number and paragraph number to which it pertains.

### 1.5.8 Format of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

- a. When submittal includes a document which is to be used in project or become part of project record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.
- b. Provide all dimensions in administrative submittals in metric. Where data are included in preprinted material with English units only, submit metric dimensions on separate sheet.

## 1.6 QUANTITY OF SUBMITTALS

### 1.6.1 Number of Copies of SD-02 Shop Drawings

Submit four copies of submittals of shop drawings requiring review and approval only by QC organization and five copies of shop drawings requiring review and approval by Contracting Officer.

### 1.6.2 Number of Copies of SD-03 Product Data and SD-08 Manufacturer's Instructions

Submit in compliance with quantity requirements specified for shop drawings.

### 1.6.3 Number of Samples SD-04 Samples

- a. Submit two samples, or two sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to Contractor.
- b. Submit one sample panel or provide one sample installation where directed. Include components listed in technical section or as directed.
- c. Submit one sample installation, where directed.
- d. Submit one sample of non-solid materials.

### 1.6.4 Number of Copies SD-05 Design Data and SD-07 Certificates

Submit in compliance with quantity requirements specified for shop drawings.

### 1.6.5 Number of Copies SD-06 Test Reports and SD-09 Manufacturer's Field Reports

Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that will be submitted with QC reports.

### 1.6.6 Number of Copies of SD-10 Operation and Maintenance Data

Submit three copies of O&M Data to the Contracting Officer for review and approval.

#### 1.6.7 Number of Copies of SD-01 Preconstruction Submittals and SD-11 Closeout Submittals

Unless otherwise specified, submit two sets of administrative submittals.

#### 1.7 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. For design-build construction the Government will retain two copies of information only submittals.

#### 1.8 VARIATIONS / SUBSTITUTION REQUESTS

Variations from contract requirements require Government approval pursuant to contract Clause FAR 52.236-21 and will be considered where advantageous to Government.

##### 1.8.1 Considering Variations

Discussion with Contracting Officer prior to submission, will help ensure functional and quality requirements are met and minimize rejections and re-submittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

Specifically point out variations from contract requirements in transmittal letters. Failure to point out deviations may result in the Government requiring rejection and removal of such work at no additional cost to the Government.

##### 1.8.2 Proposing Variations

When proposing variation, deliver written request to the Contracting Officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

Check the column "variation" of ENG Form 4025 for submittals which include proposed deviations requested by the Contractor. Set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

##### 1.8.3 Warranting That Variations Are Compatible

When delivering a variation for approval, Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

#### 1.8.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

#### 1.9 SUBMITTAL REGISTER

Prepare and maintain submittal register, as the work progresses. Do not change data which is output in columns (c), (d), (e), and (f) as delivered by Government; retain data which is output in columns (a), (g), (h), and (i) as approved. A submittal register showing items of equipment and materials for which submittals are required by the specifications is provided as an attachment. This list may not be all inclusive and additional submittals may be required. The Government will provide the initial submittal register with the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g., SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Column (f): Indicate approving authority for each submittal.

The database and submittal management program will be furnished to Contractor on a Writable Compact Disk (CD-R), for operation on Windows based personal computer.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are received and returned by the Government.

The Designer of Record shall develop a complete list of submittals during design and identify required submittals in the specifications, and use the list to prepare the Submittal Register. The list may not be all inclusive and additional submittals may be required by other parts of the contract. The Contractor is required to complete the submittal register and submit it to the Contracting Officer for approval within 30 calendar days after Notice to Proceed. The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period. Coordinate the submit dates and need dates with dates in the Contractor prepared progress schedule. Submit monthly or until all submittals have been satisfactorily completed, updates to the submittal register showing the Contractor action codes and actual dates with Government action codes.

##### 1.9.1 Use of Submittal Register

Submit submittal register. Submit with QC plan and project schedule. Verify that all submittals required for project are listed and add missing submittals. Coordinate and complete the following fields on the register

submitted with the QC plan and the project schedule:

Column (g) Contractor Submit Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date Contractor needs approval of submittal.

Column (i) Contractor Material: Date that Contractor needs material delivered to Contractor control.

#### 1.9.2 Contractor Use of Submittal Register

Update the following fields with each submittal throughout contract.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record Contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.

#### 1.9.3 Approving Authority Use of Submittal Register

Update the following fields.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (l) List date of submittal receipt.

Column (m) through (p) List Date related to review actions.

Column (q) List date returned to Contractor.

#### 1.9.4 Contractor Action Code and Action Code

Entries for columns (j) and (o), are to be used are as follows (others may be prescribed by Transmittal Form):

NR - Not Received

AN - Approved as noted

A - Approved

RR - Disapproved, Revise, and Resubmit

#### 1.9.5 Copies Delivered to the Government

Deliver one copy of submittal register updated by Contractor to Government with each invoice request.

#### 1.10 SCHEDULING

Schedule and submit concurrently submittals covering component items

forming a system or items that are interrelated. Include certifications to be submitted with the pertinent drawings at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

- a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential resubmittal of requirements.
- b. Submittals called for by the contract documents will be listed on the register. If a submittal is called for but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Contracting Officer does not relieve the Contractor of supplying submittals required by the contract documents but which have been omitted from the register or marked "N/A".
- c. Re-submit register and annotate monthly by the Contractor with actual submission and approval dates. When all items on the register have been fully approved, no further re-submittal is required.
- d. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."
- e. Except as specified otherwise, allow review period, beginning with receipt by approving authority, that includes at least 15 working days for submittals for QC Manager approval and 20 working days for submittals for Contracting Officer approval. Period of review for submittals with Contracting Officer approval begins when Government receives submittal from QC organization.
- f. For submittals requiring review by Base engineering or safety personnel, allow review period, beginning when Government receives submittal from QC organization, of 30 working days for return of submittal to the Contractor.
- g. Period of review for each resubmittal is the same as for initial submittal.

Within 15 calendar days of notice to proceed, provide, for approval by the Contracting Officer, the following schedule of submittals:

- a. A schedule of shop drawings and technical submittals required by the specifications and drawings. Indicate the specification or drawing reference requiring the submittal; the material, item, or process for which the submittal is required; the "SD" number and identifying title of the submittal; the Contractor's anticipated submission date and the approval need date.
- b. A separate schedule of other submittals required under the contract but not listed in the specifications or drawings. Schedule will indicate the contract requirement reference; the type or title of the submittal; the Contractor's anticipated submission date and the approved need date (if approval is required).

#### 1.10.1 Reviewing, Certifying, Approving Authority

The QC organization is responsible for reviewing and certifying that submittals are in compliance with contract requirements. Approving

authority on submittals is QC Manager unless otherwise specified for specific submittal. At each "Submittal" paragraph in individual specification sections, a notation "G," following a submittal item, indicates Contracting Officer is approving authority for that submittal item.

#### 1.10.2 Constraints

- a. Conform to provisions of this section, unless explicitly stated otherwise for submittals listed or specified in this contract.
- b. Submit complete submittals for each definable feature of work. Submit at the same time components of definable feature interrelated as a system.
- c. When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review. Ensure that all required predecessor submittals have been submitted prior to, or with where appropriate, any submittals whose approval is dependent upon conditions or data in such predecessor submittals.
- d. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

#### 1.10.3 QC Organization Responsibilities

- a. Note date on which submittal was received from Contractor on each submittal.
- b. Review each submittal; and check and coordinate each submittal with requirements of work and contract documents.
- c. Review submittals for conformance with project design concepts and compliance with contract documents.
- d. Act on submittals, determining appropriate action based on QC organization's review of submittal.
  1. When QC Manager is approving authority, take appropriate action on submittal from the possible actions defined in paragraph entitled, "Actions Possible."
  2. When Contracting Officer is approving authority or when variation has been proposed, forward submittal to Government with certifying statement or return submittal marked "not reviewed" or "revise and resubmit" as appropriate. The QC organization's review of submittal determines appropriate action.
- e. Ensure that material is clearly legible.
- f. Stamp each sheet of each submittal with QC certifying statement or approving statement, except that data submitted in bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.
  1. When approving authority is Contracting Officer, QC organization will certify submittals forwarded to Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with contract Number \_\_\_\_\_, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval.

Certified by Submittal Reviewer \_\_\_\_\_, Date \_\_\_\_\_  
(Signature when applicable)

Certified by QC Manager \_\_\_\_\_, Date \_\_\_\_\_"  
(Signature)

2. When approving authority is QC Manager, QC Manager will use the following approval statement when returning submittals to Contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with contract Number \_\_\_\_\_, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is approved for use.

Certified by Submittal Reviewer \_\_\_\_\_, Date \_\_\_\_\_  
(Signature when applicable)

Approved by QC Manager \_\_\_\_\_, Date \_\_\_\_\_"  
(Signature)

- g. Sign certifying statement or approval statement. The QC organization member designated in the approved QC plan is the person signing certifying statements. The use of original ink for signatures is required. Stamped signatures are not acceptable.
- h. Update submittal register as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by Contracting Officer.
- i. Retain a copy of approved submittals at project site, including Contractor's copy of approved samples.

#### 1.11 GOVERNMENT APPROVING AUTHORITY

When approving authority is Contracting Officer, the Government will:

- a. Note date on which submittal was received from QC Manager.
- b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts, performance criteria, and compliance with contract documents.
- c. Identify returned submittals with one of the actions defined in paragraph entitled "Review Notations" and with markings appropriate for action indicated.

Upon completion of review of submittals requiring Government approval, stamp and date approved submittals. Two copies of the approved submittal will be retained by the Contracting Officer and two copies of the submittal will be returned to the Contractor. If the Government performs a

conformance review of other Designer of Record approved submittals, the submittals will be so identified and returned, as described above.

#### 1.11.1 Review Notations

Contracting Officer reviews will be completed within 15 calendar days after date of submission, except for submittals requiring review by outside Navy-designated technical reviewers, which will be completed within 30 calendar days. Submittals will be returned to the Contractor with the following notations:

- a. Submittals marked "approved" or "accepted" authorize the Contractor to proceed with the work covered.
- b. Submittals marked "approved as noted" "or approved except as noted, resubmittal not required," authorize the Contractor to proceed with the work covered provided he takes no exception to the corrections.
- c. Submittals marked "not approved" or "disapproved," or "revise and resubmit," indicate noncompliance with the contract requirements or design concept, or that submittal is incomplete. Resubmit with appropriate changes. No work shall proceed for this item until resubmittal is approved.
- d. Submittals marked "not reviewed" will indicate submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

#### 1.12 DISAPPROVED OR REJECTED SUBMITTALS

Contractor shall make corrections required by the Contracting Officer. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications; notice as required under the clause entitled, "Changes" is to be given to the Contracting Officer. Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the Government requiring rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

#### 1.13 APPROVED/ACCEPTED SUBMITTALS

The Contracting Officer's approval or acceptance of submittals is not to be construed as a complete check, and indicates only that the proposed methods, materials, detailing, and other information are satisfactory and appear to meet the Solicitation and Accepted Proposal. Approval or acceptance will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved or accepted

by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

#### 1.14 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for Materials and equipment incorporated in the work. If requested, approved samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not approved will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. Government reserves the right to disapproved any material or equipment which previously has proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals. Contractor shall replace such materials or equipment to meet contract requirements.

Approval of the Contractor's samples by the Contracting Officer does not relieve the Contractor of his responsibilities under the contract.

#### 1.15 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.No payment for materials incorporated in the work will be made if all required Designer of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

#### 1.16 PROGRESS SCHEDULE

##### 1.16.1 Bar Chart

- a. Submit the progress chart, for approval by the Contracting Officer, at the Preconstruction Conference in one reproducible and 4 copies.
- b. Prepare the progress chart in the form of a bar chart utilizing form "Construction Progress Chart" or comparable format acceptable to the Contracting Officer.
- c. Include no less than the following information on the progress chart:
  1. Break out by major headings for primary work activity.

2. A line item break out under each major heading sufficient to track the progress of the work.
  3. A line item showing contract finalization task which includes punch list, clean-up and demolition, and final construction drawings.
  4. Separate line items for mobilization and drawing submittal and approval. (These items are to show no associated costs.)
- d. Update the progress schedule in one reproduction and 4 copies every 30 calendar days throughout the contract performance period.

#### 1.17 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements is to be similar to the following:

<p>CONTRACTOR</p> <p>(Firm Name)</p> <p>_____ Approved</p> <p>_____ Approved with corrections as noted on submittal data and/or attached sheets(s)</p> <p>SIGNATURE: _____</p> <p>TITLE: _____</p> <p>DATE: _____</p>
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

For design-build construction, both the Contractor Quality Control System Manager and the Designer of Record are to stamp and sign to certify that the submittal meets contract requirements.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

## SECTION 01 35 29

SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS  
01/08

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241 (2004) Safeguarding  
Construction, Alteration, and Demolition  
Operations

## U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety -- Safety and Health  
Requirements

## U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926 Safety and Health Regulations for  
Construction

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

Government acceptance is required for submittals with a "G, A" designation.

## SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G, A

Activity Hazard Analysis (AHA); G, A

## SD-06 Test Reports

## Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

## Accident Reports

## 1.3 DEFINITIONS

- a. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

- b. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.
- c. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:
  - 1. Death, regardless of the time between the injury and death, or the length of the illness;
  - 2. Days away from work (any time lost after day of injury/illness onset);
  - 3. Restricted work;
  - 4. Transfer to another job;
  - 5. Medical treatment beyond first aid;
  - 6. Loss of consciousness; or
  - 7. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in 1 through 6 above.
- d. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

#### 1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, and the following federal, state, and local, laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

#### 1.5 SITE QUALIFICATIONS, DUTIES AND MEETINGS

##### 1.5.1 Personnel Qualifications

##### 1.5.1.1 Site Safety and Health Officer (SSHO)

- a. Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. The Contractor Quality Control (QC) person can be the SSHO on this project.
- b. The SSHO must have the following qualifications:
  - 1. A minimum of 2 years experience in implementing safety and health programs at hazardous waste sites where Level C personal protective equipment was required.

2. Documented experience in construction techniques and construction safety procedures.
3. Working knowledge of federal and state occupational safety and health (OSHA) regulations.
4. Specific training in personal and respiratory protective equipment, confined space entry and in the proper use of air monitoring instruments and air sampling methods.

#### 1.5.2 Personnel Duties

##### 1.5.2.1 Site Safety and Health Officer (SSHO)/Superintendent

- a. Conduct daily safety and health inspections and maintain a written deficiency tracking log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily quality control report and posted at the site.
- b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.
- c. Maintain applicable safety reference material on the job site.
- d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
- e. Implement and enforce accepted Accident Prevention Plans (APPs) and Accident Hazard Analyses (AHAs).
- f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.
- g. Ensure sub-contractor compliance with safety and health requirements.

Failure to perform the above duties will result in dismissal of the superintendent and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

#### 1.5.3 Meetings

##### 1.5.3.1 Preconstruction Conference

- a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP, including the AHAs and special plans, programs, and procedures associated with it.
- b. The Contractor shall be prepared to summarize the APP and to address related questions.
- c. Any deficiencies in the submitted APP should be brought to the

attention of the Contractor prior to, or at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

- d. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

#### 1.5.3.2 Safety Meetings

Shall be conducted and documented as required by EM 385-1-1. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

#### 1.6 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan." Specific requirements for some of the APP elements are described below. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated CSP and/or CIH.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Copies of the accepted plan will be maintained at the Contracting Officer's office and at the job site.

The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

### 1.6.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of USACE EM 385-1-1, the following is required:

- a. Names and qualifications (resumes including education, training, experience and certifications) of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified personnel to be used such as CSPs, CIHs, STSs, CHSTs. The duties of each position shall be specified.
- b. Qualifications of competent and of qualified persons. As a minimum, competent persons shall be designated and qualifications submitted for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; personal protective equipment and clothing to include selection, use and maintenance.
- c. Site Safety and Health Plan. The safety and health aspects prepared in accordance with Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES.

### 1.7 ACTIVITY HAZARD ANALYSIS (AHA)

The AHA format shall be in accordance with USACE EM 385-1-1. Submit the AHA for review at least 15 calendar days prior to the start of each phase. Prepare and format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

The activity hazard analyses shall be developed using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the Contracting Officer.

### 1.8 DISPLAY OF SAFETY INFORMATION

Within 1 calendar day after commencement of work, erect a safety bulletin board at the job site. The safety bulletin board shall include information and be maintained as required by EM 385-1-1, section 01.A.06.

### 1.9 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

### 1.10 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

## 1.11 REPORTS

### 1.11.1 Accident Reports

- a. For recordable injuries and illnesses, and property damage accidents resulting in at least \$2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the Navy Contractor Significant Incident Report (CSIR) form and provide the report to the Contracting Officer within 5 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

### 1.11.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000, or any weight handling equipment accident. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

## 1.12 HOT WORK (NOT USED)

## PART 2 PRODUCTS

### 2.1 CONFINED SPACE SIGNAGE (NOT USED)

### 2.2 FALL PROTECTION ANCHORAGE (NOT USED)

## PART 3 EXECUTION

### 3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, Federal and/or State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard shall prevail.

#### 3.1.1 Hazardous Material Use

Each hazardous material must receive approval prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material.

#### 3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury

or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

### 3.1.3 Unforeseen Hazardous Material

The design does not require the excavation or disturbance of potentially-hazardous materials, including potential waste or munitions and explosives of concern (MEC) that may exist below the surface. If materials that may be hazardous to human health upon disturbance during construction operations are encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions." Contractor shall then modify its APP, including the AHAs and applicable controls and procedures, in accordance with applicable regulations and requirements.

### 3.2 PRE-OUTAGE COORDINATION MEETING (NOT USED)

### 3.3 FALL HAZARD PROTECTION AND PREVENTION PROGRAM (NOT USED)

### 3.4 EQUIPMENT

#### 3.4.1 Equipment and Mechanized Equipment

- a. Proof of qualifications for operator shall be kept on the project site for review.
- b. Manufacture specifications or owner's manual for the equipment shall be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Such additional safety precautions or requirements shall be incorporated into the AHAs.

### 3.5 EXCAVATIONS

The competent person shall perform soil classification in accordance with 29 CFR 1926.

#### 3.5.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

#### 3.5.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within 0.061 m (2 feet) of a known utility must not be

performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

### 3.5.3 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

### 3.5.4 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

## 3.6 UTILITIES WITHIN CONCRETE SLABS

Utilities located within concrete slabs and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with station utility departments in addition to a private locating service. Outages to isolate utility systems shall be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

### 3.7 ELECTRICAL (NOT USED)

### 3.8 WORK IN CONFINED SPACES (NOT USED)

-- End of Section --

SECTION 01 35 40.00 20  
ENVIRONMENTAL MANAGEMENT  
07/06

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z400.1 (2004) Hazardous Industrial Chemicals -  
Material Safety Data Sheets - Preparation

ASTM INTERNATIONAL (ASTM)

ASTM D 4840 (1999; R 2004) Sampling Chain-Of-Custody  
Procedures

ASTM E 2114 (2006a) Standard Terminology for  
Sustainability Relative to the Performance  
of Buildings

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

NPDES (1972; R 2005) National Pollutant  
Discharge Elimination System

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 261 Identification and Listing of Hazardous  
Waste

1.2 DEFINITIONS

Definitions pertaining to sustainable development are as defined in ASTM E 2114 and as specified.

- a. "Biobased content" is calculated as the weight of the biobased material divided by the total weight of the product, and is expressed as a percentage by weight.
- b. "Chain-of-custody" is a process whereby a product or material is maintained under the physical possession or control during its entire life cycle.
- c. "Pollution and environmental damage" is caused by the presence of chemical, physical, or biological elements or agents. Human health or welfare is adversely affected; ecological balances are unfavorably altered; the utility of the environment for aesthetic, cultural, or historical purposes degrades.

### 1.3 PRECONSTRUCTION MEETING

After award of Contract and prior to commencement of the work, the Contractor shall schedule and conduct a meeting with the Contracting Officer to discuss the proposed Environmental Protection Plan and to develop a mutual understanding relative to the details of environmental protection. The requirements for this meeting may be fulfilled during the coordination and mutual understanding meeting as specified in Section 01 45 00.00 20 CONSTRUCTION QUALITY CONTROL.

### 1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Field Quality Control Reports

SD-07 Certificates

Environmental Regulatory Requirements

For Government's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with environmental regulations bearing on performance of the work.

SD-08 Manufacturer's Instructions

Material Safety Data Sheets

SD-11 Closeout Submittals

Submit two copies of environmental orientation documentation, including a schedule of dates, times, length of orientation, instructors' names, learning objective, and outline of the content of the orientation, and signatures of attendees.

Protection of Natural Resources

### 1.5 CONTRACTOR'S ENVIRONMENTAL MANAGER

Designate an on-site Environmental Manager responsible for overseeing the environmental goals for the project and implementing procedures for environmental protection.

#### 1.5.1 Duties

The Environmental Manager shall be responsible for the following:

- a. Compliance with applicable federal, state, and local environmental regulations, including maintaining required documentation.

- b. Implementation of the environmental plans specified in Section 01 57 19.00 20, TEMPORARY ENVIRONMENTAL CONTROLS.
- c. Implementation of the Air Quality Management Plan.
- d. Implementation of the Environmental Protection Plan.
- e. Environmental training and orientation for Contractor personnel in accordance with their position requirements.
- f. Monitoring and documentation of environmental procedures.

#### 1.5.2 Qualifications

Minimum 5 years construction experience on projects of similar size and scope; minimum 2 years experience with environmental procedures similar to those of this project; familiarity with Environmental Management Systems (EMSs); familiarity with environmental regulations applicable to construction operations.

#### 1.6 ENVIRONMENTAL REGULATORY REQUIREMENTS

The Contractor shall be responsible for knowing federal, state, and local regulatory requirements pertaining to legal disposal of all construction and demolition waste materials. Comply with all applicable regulations and maintain records of permits, licenses, certificates, and other environmental regulatory requirement correspondences.

#### 1.7 ENVIRONMENTAL REQUIREMENTS FOR PRODUCTS

##### 1.7.1 Material Safety Data Sheets (MSDS)

Submit an MSDS for each product specified in other sections or required by OSHA to have an MSDS. MSDS shall be prepared no earlier than June 1998. Include information for MSDS Sections 1 through 16 in accordance with ANSI Z400.1 and as follows:

- a. Section 11: Include data used to determine the hazards cited in Section 3. Identify acute data, carcinogenicity, reproductive effects, and target organ effects. Provide written description of the process used in evaluating chemical hazards relative to preparation of the MSDS.
- b. Section 12: Include data regarding environmental impacts during raw materials acquisition, manufacture, and use. Include data regarding environmental impacts in the event of an accidental release.
- c. Section 13: Include data regarding the proper disposal of the chemical. Include information regarding recycling and reuse. Indicate whether or not the product is considered to be "hazardous waste" according to 40 CFR 261.
- d. Section 14: Identify hazard class for shipping.
- e. Section 15: Identify federal, state, and local regulations applicable to the material.
- f. Section 16: Include additional information relative to recycled content, biobased content, and other information regarding environmental and health impacts. Identify the date MSDS was prepared.

## 1.8 ENVIRONMENTAL PROTECTION PLAN

As specified in Section 01 57 19.00 20, TEMPORARY ENVIRONMENTAL CONTROLS.

## 1.9 ENVIRONMENTAL ORIENTATION

Contractor shall provide an environmental orientation for all workers performing work at the site. This orientation shall include a summary of the environmental concerns on the project, details of the Contractor's Environmental Protection Plan, and notification and action requirements in event that the workers observe a condition that could result in environmental damage or a release.

## PART 2 PRODUCTS

### 2.1 ENVIRONMENTALLY PREFERABLE PRODUCTS

Consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, and disposal of products, and provide products and materials with the least effect on the environment, determined by LCA analysis, released toxins, and other methods.

#### 2.1.1 Prohibited Materials

The use of the following materials is prohibited:

- a. Products containing asbestos.
- b. Products containing urea formaldehyde.
- c. Products containing polychlorinated biphenyls.
- d. Products containing chlorinated fluorocarbons.
- e. Solder or flux containing more than 0.2 percent lead and domestic water pipe or pipe fittings containing more than 8 percent lead.
- f. Paint containing more than 0.06 percent lead.

#### 2.1.2 Substitutions

Notify the Contracting Officer when Contractor is aware of materials, equipment, or products that meet the aesthetic and programmatic intent of Contract Documents, but which are more environmentally responsible than materials, equipment, or products specified or indicated in the Contract Documents. Submit the following for initial review by the Contracting Officer:

- a. Product data including manufacturer's name, address, and phone number.
- b. Description of environmental advantages of proposed substitution over specified product.

## PART 3 EXECUTION

### 3.1 PROTECTION OF NATURAL RESOURCES

Comply with applicable regulations and these specifications. Preserve the

natural resources within the project boundaries and outside the limits of permanent work performed under this Contract in their existing condition or restore to an equivalent or improved condition as approved by the Contracting Officer. Where violation of environmental procedures or requirements will irreversibly damage the site, documentation of progress at weekly intervals shall be required.

### 3.1.1 Water Resources

Comply with requirements of the NPDES and the applicable State Pollutant Discharge Elimination System (SPDES). Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Store and service construction equipment at areas designated for collection of oil wastes. Prevent ponding of stagnant water conducive to mosquito breeding habitat. Prevent run-off from site during demolition and construction operations. Equipment will be permitted to ford live streams if temporary culverts or bridges are constructed for the purpose. Remove temporary culverts and bridges upon completion of work and repair the area to its original condition, unless otherwise accepted in writing by the Contracting Officer.

### 3.1.2 Land Resources

Prior to construction, identify land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and landforms without permission from the Contracting Officer.

#### 3.1.2.1 Erodible Soils

Plan and conduct earthwork to minimize the duration of exposure of unprotected soils, except where the constructed feature obscures borrow areas, quarries, and waste material areas. Clear areas in reasonably sized increments only as needed to use the areas developed. Form earthwork to final grade as shown. Immediately protect side slopes and back slopes upon completion of rough grading.

#### 3.1.2.2 Erosion and Sedimentation Control Devices

Construct or install temporary and permanent erosion and sedimentation control features as required.

#### 3.1.2.3 Tree and Plant Protection

Protect trees as specified Section 31 11 00 CLEARING.

### 3.1.3 Air Resources

Plan and conduct the work in a manner than minimizes the generation of air pollution, including the following:

- a. Prevent creation of dust, air pollution, and odors.
- b. Sequence construction to avoid unnecessary disturbance to site.
- c. Use mulch, water sprinkling, temporary enclosures, and other appropriate methods as needed to limit dust and dirt rising and scattering in air. Do not use water when it may create hazardous or other adverse conditions such as flooding and pollution.

d. Store volatile liquids, including fuels and solvents, in closed containers. Do not store with materials that have a high capacity to adsorb VOC emissions or in occupied spaces.

e. Properly maintain equipment to reduce gaseous pollutant emissions.

#### 3.1.4 Fish and Wildlife Resources

Manage and control construction activities to minimize interference with and damage to fish and wildlife. Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat related to the project and critical to the survival of fish and wildlife, except as indicated or specified.

#### 3.2 FIELD QUALITY CONTROL

Comply with requirements of agencies having jurisdiction and as specified herein. Provide field practices, shipping, and handling of samples in accordance with ASTM D 4840. Provide Field Quality Control Reports in accordance with approved Environmental Protection Plan.

-- End of Section --

## SECTION 01 42 00

## SOURCES FOR REFERENCE PUBLICATIONS

05/09

## PART 1 GENERAL

## 1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

## 1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)  
1819 L Street, NW, 6th Floor  
Washington, DC 20036  
Ph: 202-293-8020  
Fax: 202-293-9287  
E-mail: [info@ansi.org](mailto:info@ansi.org)  
Internet: <http://www.ansi.org/>

AMERICAN WATER WORKS ASSOCIATION (AWWA)  
6666 West Quincy Avenue  
Denver, CO 80235  
Ph: 800-926-7337  
Fax: 303-347-0804  
Internet: <http://www.awwa.org>

ASTM INTERNATIONAL (ASTM)  
100 Barr Harbor Drive, P.O. Box C700  
West Conshohocken, PA 19428-2959  
Ph: 610-832-9500  
Fax: 610-832-9555  
E-mail: [service@astm.org](mailto:service@astm.org)  
Internet: <http://www.astm.org>

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH  
(FCCCHR)  
University of South California  
Kaprielian Hall 200  
Los Angeles, CA 90089-2531  
Ph: 213-740-2032 or 800-545-6340  
Fax: 213-740-8399

E-mail: [fccchr@usc.edu](mailto:fccchr@usc.edu)  
Internet: <http://www.usc.edu/dept/fccchr>

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)  
1 Batterymarch Park  
Quincy, MA 02169-7471  
Ph: 617-770-3000  
Fax: 617-770-0700  
E-mail: [webmaster@nfpa.org](mailto:webmaster@nfpa.org)  
Internet: <http://www.nfpa.org>

U.S. ARMY CORPS OF ENGINEERS (USACE)  
Order CRD-C DOCUMENTS from:  
U.S. Army Engineer Waterways Experiment Station  
ATTN: Technical Report Distribution Section, Services  
Branch, TIC  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199  
Ph: 601-634-2664  
Fax: 601-634-2388  
E-mail: [mtc-info@erdc.usace.army.mil](mailto:mtc-info@erdc.usace.army.mil)  
Internet: <http://www.wes.army.mil/SL/MTC/handbook.htm>

Order Other Documents from:  
USACE Publications Depot  
Attn: CEHEC-IM-PD  
2803 52nd Avenue  
Hyattsville, MD 20781-1102  
Ph: 301-394-0081  
Fax: 301-394-0084  
E-mail: [pubs-army@usace.army.mil](mailto:pubs-army@usace.army.mil)  
Internet: <http://www.usace.army.mil/publications>  
or <http://www.hnd.usace.army.mil/techinfo/engpubs.htm>

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460  
Ph: 202-272-0167  
Internet: <http://www.epa.gov>

--- Some EPA documents are available only from:  
National Technical Information Service (NTIS)  
5285 Port Royal Road  
Springfield, VA 22161  
Ph: 703-605-6585  
Fax: 703-605-6900  
E-mail: [info@ntis.gov](mailto:info@ntis.gov)  
Internet: <http://www.ntis.gov>

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)  
Office of Highway Safety (HHS-31)  
400 Seventh Street, SW  
Washington, DC 20590-0001  
Ph: 202-366-0411  
Fax: 202-366-2249  
Internet: <http://www.fhwa.dot.gov>  
Order from:

Superintendent of Documents  
U. S. Government Printing Office (GPO)  
732 North Capitol Street, NW  
Washington, DC 20401  
Ph: 202-512-1800  
Fax: 202-512-2104  
E-mail: [contactcenter@gpo.gov](mailto:contactcenter@gpo.gov)  
Internet: <http://www.gpoaccess.gov>

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)  
8601 Adelphi Road  
College Park, MD 20740-6001  
Ph: 866-272-6272  
Fax: 301-837-0483  
Internet: <http://www.archives.gov>

Order documents from:  
Superintendent of Documents  
U.S. Government Printing Office (GPO)  
732 North Capitol Street, NW  
Washington, DC 20401  
Ph: 202-512-1800  
Fax: 202-512-2104  
E-mail: [contactcenter@gpo.gov](mailto:contactcenter@gpo.gov)  
Internet: <http://www.gpoaccess.gov>

-- End of Section --

SECTION 01 45 00.00 20  
CONSTRUCTION QUALITY CONTROL  
01/07

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2003) Safety -- Safety and Health Requirements

1.2 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Quality Control (QC) Plan; G

Submit a Construction QC Plan prior to start of construction.

1.3 INFORMATION FOR THE CONTRACTING OFFICER

Prior to commencing work on construction, the Contractor can obtain a single copy set of the current report forms from the Contracting Officer. The report forms will consist of the Contractor Production Report, Contractor Production Report (Continuation Sheet), Contractor Quality Control (CQC) Report, (CQC) Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Rework Items List, and Testing Plan and Log.

Deliver the following to the Contracting Officer during Construction:

- a. CQC Report: Prepare and submit in accordance with the Facility Engineering and Acquisition Division (FEAD) requirements. Coordinate these requirements with the FEAD at the Preconstruction Conference.
- b. Contractor Production Report: Prepare and submit in accordance with FEAD requirements. Coordinate these requirements with the FEAD at the Preconstruction Conference.
- c. Preparatory Phase Checklist: Original attached to the original CQC Report and one copy attached to each QC Report copy.
- d. Initial Phase Checklist: Original attached to the original CQC Report and one copy attached to each QC Report copy.
- e. Field Test Reports: Mail or hand-carry the original within two working days after the test is performed, attached to the original CQC Report and one copy attached to each QC Report copy.

- f. Monthly Summary Report of Tests: Mail or hand-carry the original attached to the last QC Report of the month.
- g. Testing Plan and Log: Mail or hand-carry the original attached to the last CQC Report of each month and one copy attached to each CQC Report copy. A copy of the final Testing Plan and Log shall be provided to the OMSI preparer for inclusion into the OMSI documentation.
- h. Rework Items List: Mail or hand-carry the original attached to the last CQC Report of each month and one copy attached to each CQC Report copy.
- i. CQC Meeting Minutes: Prepare and submit in accordance with the project FEAD requirements. Coordinate these requirements with the FEAD at the Preconstruction Conference.
- j. QC Certifications: As required by the paragraph entitled "QC Certifications."

#### 1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. This QC program is a key element in meeting the objectives of NAVFAC Commissioning. The QC program consists of a QC Organization, QC Plan, QC Plan Meeting(s), a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No construction work or testing may be performed unless the QC Manager is on the work site. The QC Manager shall report to an officer of the firm and shall not be subordinate to the Project Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the QC Manager is the primary individual responsible for quality control, all individuals will be held responsible for the quality of work on the job.

#### 1.5 QC ORGANIZATION

##### 1.5.1 QC Manager

##### 1.5.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC Manager may perform the duties of Project Superintendent. The QC Manager shall not be designated as the safety competent person as defined by EM 385-1-1. The QC Manager is required to attend the partnering meetings, QC Plan Meetings, Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control except for those phases of control designated to be performed by QC Specialists, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this Contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by the QC Specialists, testing laboratory personnel and any other inspection and testing personnel required by this Contract. The QC Manager is the manager of all QC activities.

### 1.5.1.2 Qualifications

An individual with a minimum of 5 years combined experience in the following positions: Project Superintendent, QC Manager, Project Manager, Project Engineer or Construction Manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual shall have at least two years experience as a QC Manager. The individual must be familiar with the requirements of EM 385-1-1, and have experience in the areas of hazard identification, safety compliance, and sustainability.

### 1.5.2 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager shall have completed the course entitled "Construction Quality Management (CQM) for Contractors." If the QC Manager does not have a current certification, they shall obtain the CQM for Contractors course certification within 90 days of award. This course is periodically offered by the Naval Facilities Engineering Command and the Army Corps of Engineers. Contact the Contracting Officer for information on the next scheduled class.

## 1.6 QUALITY CONTROL (QC) PLAN

### 1.6.1 Construction Quality Control (QC) Plan

#### 1.6.1.1 Requirements

Provide, for acceptance by the Contracting Officer, a Construction QC Plan submitted in a three-ring binder that includes a table of contents, with major sections identified with tabs, with pages numbered sequentially, and that documents the proposed methods and responsibilities for accomplishing commissioning activities during the construction of the project:

I. QC ORGANIZATION: A chart showing the QC organizational structure.

II. NAMES AND QUALIFICATIONS: Names and qualifications, in resume format, for each person in the QC organization. Include the CQM for Contractors course certifications for the QC Manager and Alternate QC Manager as required by the paragraphs entitled "Construction Quality Management Training" and "Alternate QC Manager Duties and Qualifications".

III. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL: Duties, responsibilities, and authorities of each person in the QC organization.

IV. OUTSIDE ORGANIZATIONS: A listing of outside organizations, such as architectural and consulting engineering firms, that will be employed by the Contractor and a description of the services these firms will provide.

V. APPOINTMENT LETTERS: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager and stating that they are responsible for implementing and managing the QC program as described in this Contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of control, and their authority to stop work which is not in compliance with the Contract. The QC Manager shall issue letters of

direction to the Assistant QC Manager and all other QC Specialists outlining their duties, authorities, and responsibilities. Copies of the letters shall be included in the QC Plan.

VI. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving, and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in section 01 33 00 SUBMITTAL PROCEDURES.

VII. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraphs entitled "Accreditation Requirements", as applicable.

VIII. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test. Use Government forms to log and track tests.

IX. PROCEDURES TO COMPLETE REWORK ITEMS: Procedures to identify, record, track, and complete rework items. Use Government forms to record and track rework items.

X. DOCUMENTATION PROCEDURES: Use Government form.

XI. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task. A DFOW is identified by different trades or disciplines and is an item or activity on the construction schedule. The list of DFOWs shall include, but not be limited to, all critical path activities on the NAS. Include all activities for which this specification requires QC Specialists or specialty inspection personnel. Each design development stage and submittal package shall have separate DFOWs in the Network Analysis Schedule.

XII. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL: Identify procedures you will use to ensure the three phases of control are used to manage the quality on this project. For each DFOW, a Preparatory and Initial phase checklist will be filled out during the Preparatory and Initial phase meetings. The Preparatory and Initial Phases and meetings shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems for each DFOW.

#### 1.7 QC PLAN MEETINGS

Prior to submission of the QC Plan, the QC Manager will meet with the Contracting Officer to discuss the QC Plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QC Plan requirements prior to plan development and submission and to agree on the Contractor's list of DFOWs.

#### 1.8 COORDINATION AND MUTUAL UNDERSTANDING MEETING

After submission of the QC Plan, and prior to the start of construction, the QC Manager will meet with the Contracting Officer to present the QC program required by this Contract. When a new QC Manager is appointed, the

coordination and mutual understanding meeting shall be repeated.

#### 1.8.1 Purpose

The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, design intent, environmental requirements and procedures, coordination of activities to be performed, and the coordination of the Contractor's management, production, and QC personnel. At the meeting, the Contractor will be required to explain in detail how three phases of control will be implemented for each DFOW, as well as how each DFOW will be affected by each management plan or requirement as listed below:

- a. Procedures for noise management.
- b. Environmental Protection Plan.
- c. Environmental regulatory requirements.

#### 1.8.2 Coordination of Activities

Activities included in various sections shall be coordinated to assure efficient and orderly installation of each component. Coordinate operations included under different sections that are dependent on each other for proper installation and operation.

#### 1.8.3 Attendees

As a minimum, the Contractor's personnel required to attend shall include an officer of the firm, the Project Manager, Project Superintendent, QC Manager, A/E, Environmental Manager, and subcontractor representatives. Each subcontractor who will be assigned QC responsibilities shall have a principal of the firm at the meeting. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor and the Contracting Officer. The Contractor shall provide a copy of the signed minutes to all attendees.

#### 1.9 QC MEETINGS

After the start of construction, the QC Manager shall conduct weekly QC meetings at the work site with the Project Superintendent and the foremen who are performing the work of the DFOWs. The QC Manager shall prepare the minutes of the meeting and provide a copy to the Contracting Officer within two working days after the meeting. The Contracting Officer may attend these meetings. As a minimum, the following shall be accomplished at each meeting:

- a. Review the minutes of the previous meeting;
- b. Review the schedule and the status of work and rework;
- c. Review the status of submittals;
- d. Review the work to be accomplished in the next two weeks and documentation required;
- e. Resolve QC and production problems (RFI, etc.);
- f. Address items that may require revising the QC Plan;

- g. Review Accident Prevention Plan (APP);
- h. Review environmental requirements and procedures;
- i. Review Environmental Protection Plan.

#### 1.10 THREE PHASES OF CONTROL

The Three Phases of Control shall adequately cover both on-site and off-site work and shall include the following for each DFOW.

##### 1.10.1 Preparatory Phase

Notify the Contracting Officer at least two work days in advance of each preparatory phase meeting. The meeting shall be conducted by the QC Manager and attended by the Project Superintendent and the foreman responsible for the DFOW. When the DFOW will be accomplished by a subcontractor, that subcontractor's foreman shall attend the preparatory phase meeting. Document the results of the preparatory phase actions in the Preparatory Phase Checklist. Perform the following prior to beginning work on each DFOW:

- a. Review each paragraph of the applicable specification sections;
- b. Review the Contract drawings;
- c. Verify that field measurements are as indicated on construction and/or shop drawings before confirming product orders, in order to minimize waste due to excessive materials;
- d. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;
- e. Review the testing plan and ensure that provisions have been made to provide the required QC testing;
- f. Examine the work area to ensure that the required preliminary work has been completed;
- g. Coordinate the schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials;
- h. Arrange for the return of shipping/packaging materials, such as wood pallets, where economically feasible;
- i. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;
- j. Discuss construction methods, construction tolerances, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW;
- k. Review the APP and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required Material

Safety Data Sheets (MSDS) are submitted; and

#### 1.10.2 Initial Phase

Notify the Contracting Officer at least two work days in advance of each initial phase. When construction crews are ready to start work on a DFW, conduct the initial phase with the Project Superintendent and the foreman responsible for that DFW. Observe the initial segment of the DFW to ensure that the work complies with Contract requirements. Document the results of the initial phase in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each DFW:

- a. Establish the quality of workmanship required;
- b. Resolve conflicts;
- c. Ensure that testing is performed by the approved laboratory;
- d. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met; and

#### 1.10.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary, until the completion of each DFW and document in the daily CQC Report:

- a. Ensure the work is in compliance with Contract requirements;
- b. Maintain the quality of workmanship required;
- c. Ensure that testing is performed by the approved laboratory;
- d. Ensure that rework items are being corrected; and
- e. Perform safety inspections.

#### 1.10.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same DFW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFW is resumed after substantial period of inactivity, or if other problems develop.

#### 1.10.5 Notification of Three Phases of Control for Off-Site Work

Notify the Contracting Officer at least two weeks prior to the start of the preparatory and initial phases.

#### 1.11 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in Section 01 33 00 SUBMITTAL PROCEDURES.

## 1.12 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this Contract.

### 1.12.1 Accreditation Requirements

Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

### 1.12.2 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at <http://ts.nist.gov/ts/htdocs/210/214/214.htm>, the American Association of State Highway and Transportation Officials (AASHTO) program at <http://www.transportation.org/aashto/home.nsf/frontpage>, International Accreditation Services, Inc. (IAS) at <http://www.iasonline.org>, U. S. Army Corps of Engineers Materials Testing Center (MTC) at <http://www.wes.army.mil/SL/MTC/>, the American Association for Laboratory Accreditation (A2LA) program at <http://www.a2la.org/>.

### 1.12.3 Capability Check

The Contracting Officer retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

### 1.12.4 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify the Contracting Officer immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month, per the paragraph entitled "INFORMATION FOR THE CONTRACTING OFFICER."

### 1.12.5 Test Reports and Monthly Summary Report of Tests

The QC Manager shall furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the Contracting Officer. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month. A copy of the signed test reports and certifications shall be provided to the OMSI preparer for inclusion

into the OMSI documentation.

### 1.13 QC CERTIFICATIONS

#### 1.13.1 CQC Report Certification

Each CQC Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

#### 1.13.2 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the Contract." A copy of this final QC Certification for completion shall be provided to the OMSI preparer for inclusion into the OMSI documentation.

### 1.14 COMPLETION INSPECTIONS

#### 1.14.1 Punch-Out Inspection

Near the completion of all work or any increment thereof, established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager and the CA shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings, specifications and Contract. Include in the punch list any remaining items on the "Rework Items List", which were not corrected prior to the Punch-Out Inspection. The punch list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch list shall be provided to the Contracting Officer. The QC Manager, or staff, shall make follow-on inspections to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government "Pre-Final Inspection".

#### 1.14.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" may be developed as a result of this inspection. The QC Manager shall ensure that all items on this list are corrected prior to notifying the Government that a "Final" inspection with the Client can be scheduled. Any items noted on the "Pre-Final" inspection shall be corrected in a timely manner and shall be accomplished before the contract completion date for the work, or any particular increment thereof, if the project is divided into increments by separate completion dates.

#### 1.14.3 Final Acceptance Inspection

The Contractor shall notify the Contracting Officer at least 14 calendar days prior to the date a final acceptance inspection can be held. The notice shall state that all items previously identified on the pre-final punch list will be corrected and acceptable, along with any other unfinished Contract work, by the date of the final acceptance inspection. The Contractor shall be represented by the QC Manager, the Project

Superintendent, and others deemed necessary. Attendees for the Government will include the Contracting Officer, other FEAD personnel, and personnel representing the Client. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction."

#### 1.15 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

##### 1.15.1 Construction Documentation

Reports are required for each day that work is performed and shall be attached to the Contractor Quality Control Report prepared for the same day. Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph "INFORMATION FOR THE CONTRACTING OFFICER" shall be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the Contract. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The Project Superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. The reporting of work shall be identified by terminology consistent with the construction schedule. In the "remarks" sections of the reports, enter pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site, quality control problem areas, deviations from the QC Plan, construction deficiencies encountered, meetings held. For each entry in the report(s), identify the Schedule Activity No. that is associated with the entered remark.

##### 1.15.2 Quality Control Validation

Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the Contracting Officer during all business hours.

- a. All completed Preparatory and Initial Phase Checklists, arranged by specification section.
- b. All milestone inspections, arranged by Activity Number.
- c. An up-to-date copy of the Testing Plan and Log with supporting field test reports, arranged by specification section.
- d. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
- e. An up-to-date copy of the Rework Items List.
- f. Maintain up-to-date copies of all punch lists issued by the QC staff to the Contractor and Sub-Contractors and all punch lists issued by the Government.

g. Commissioning documentation including schedules, tests, and reports.

#### 1.15.3 Testing Plan and Log

As tests are performed, the QC Manager shall record on the "Testing Plan and Log" the date the test was performed and the date the test results were forwarded to the Contracting Officer. Attach a copy of the updated "Testing Plan and Log" to the last daily CQC Report of each month, per the paragraph "INFORMATION FOR THE CONTRACTING OFFICER". A copy of the final "Testing Plan and Log" shall be provided to the OMSI preparer for inclusion into the OMSI documentation.

#### 1.15.4 Rework Items List

The QC Manager shall maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily CQC Report of each month. The Contractor shall be responsible for including those items identified by the Contracting Officer.

#### 1.15.5 As-Built Drawings

The QC Manager is required to ensure the record drawings, required by Section 01 78 00 CLOSEOUT SUBMITTALS are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g., PC No., Modification No., Request for Information No., etc.). The QC Manager shall initial each revision. Upon completion of work, the QC Manager shall furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

### 1.16 NOTIFICATION ON NON-COMPLIANCE

The Contracting Officer will notify the Contractor of any detected non-compliance with the Contract. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time for excess costs or damages by the Contractor.

## PART 2 PRODUCTS

Not used.

## PART 3 EXECUTION

### 3.1 PREPARATION

Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep materials, products, and accessories

covered and off the ground, and store in a dry, secure area. Prevent contact with material that may cause corrosion, discoloration, or staining. Protect all materials and installations from damage by the activities of other trades.

-- End of Section --

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

10/07

PART 1 GENERAL

1.1 SUMMARY

Requirements of this Section apply to, and are a component of, each section of the specifications.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C511 (1997e1) Standard for Reduced-Pressure Principle Backflow Prevention Assembly

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR)

FCCCHR List (continuously updated) List of Approved Backflow Prevention Assemblies

FCCCHR Manual (1988e9) Manual of Cross-Connection Control

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241 (2004) Safeguarding Construction, Alteration, and Demolition Operations

NFPA 70 (2007) National Electrical Code - 2008 Edition

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

MUTCD (2000) Manual of Uniform Traffic Control Devices

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction site plan; G  
Traffic control plan; G

#### 1.4 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area, and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

### PART 2 PRODUCTS

#### 2.1 TEMPORARY SIGNAGE

##### 2.1.1 Bulletin Board

Immediately upon beginning of work, provide a bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer.

##### 2.1.2 Project and Safety Signs

Construct a project/identification sign with a face sheet of 4- by 8-foot exterior grade plywood, 1/2-inch thick, mounted on a substantial frame of treated lumber. The sign shall conform to the design specified in Section 01 58 00, PROJECT IDENTIFICATION. Provide one coat of lead-free alkyd primer paint and two coats of exterior type white enamel to frame and sign. Erect signs within 15 days after receipt of the notice to proceed. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals. Maintain signs throughout construction and remove upon completion of the work.

#### 2.2 TEMPORARY TRAFFIC CONTROL

##### 2.2.1 Haul Roads

At contractor's expense construct access and haul roads necessary for proper prosecution of the work under this contract. Construct with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic are to be avoided. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, must be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads are subject to approval by the Contracting Officer. Lighting must be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations.

##### 2.2.2 Barricades

Erect and maintain temporary barricades to limit unauthorized access to hazardous areas. Whenever safe access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic barricades will be required. Securely place barricades clearly

visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

### 2.2.3 Temporary Wiring

Provide temporary wiring, if necessary, in accordance with NFPA 241 and NFPA 70, Article 305-6(b), Assured Equipment Grounding Conductor Program. Include frequent inspection of all equipment and apparatus.

### 2.2.4 Backflow Preventers

Backflow preventers shall be reduced pressure principle type conforming to the applicable requirements AWWA C511. Provide backflow preventers complete with 150 pound flanged cast iron, mounted gate valve and strainer, stainless steel or bronze, internal parts. The particular make, model/design, and size of backflow preventers to be installed must be included in the latest edition of the List of Approved Backflow Prevention Assemblies issued by the Foundation of Cross-Connection Control and Hydraulic Research (FCCCHR List) and be accompanied by a Certificate of Full Approval from FCCCHR List. After installation conduct Backflow Preventer Tests and provide test reports verifying that the installation meets the FCCCHR Manual Standards.

## PART 3 EXECUTION

### 3.1 EMPLOYEE PARKING

Contractor employees will park privately owned vehicles in an area designated by the Contracting Officer. Contractor employee parking must not interfere with existing and established parking requirements of the government installation.

### 3.2 AVAILABILITY AND USE OF UTILITY SERVICES

#### 3.2.1 Temporary Utilities

Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions, and not violate applicable codes and standards.

#### 3.2.2 Payment for Utility Services

- a. The Government will make all reasonably required utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed will be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. Carefully conserve any utilities furnished without charge.
- b. Reasonable amounts of the following utilities will be made available to the Contractor at prevailing rates.

Electricity  
Potable Water

- c. The point at which the Government will deliver such utilities or services and the quantity available will be designated by the

Contracting Officer. Pay all costs incurred in connecting, converting, and transferring the utilities to the work. Make connections, including providing backflow-preventing devices on connections to domestic water lines; and providing transformer; and make disconnections.

### 3.2.3 Meters and Temporary Connections

At the Contractor's expenses and in a manner satisfactory to the Contracting Officer, provide and maintain necessary temporary connections, distribution lines, and meter bases (Government will provide meters) required to measure the amount of each utility used for the purpose of determining charges. Notify the Contracting Officer, in writing, 5 working days before final electrical connection is desired so that a utilities contract can be established. The Government will provide a meter and make the final hot connection after inspection and approval of the Contractor's temporary wiring installation. The Contractor will not make the final electrical connection.

### 3.2.4 Advance Deposit

An advance deposit for utilities consisting of an estimated month's usage or a minimum of \$50.00 will be required. The last monthly bills for the fiscal year will normally be offset by the deposit and adjustments will be billed or returned as appropriate. Services to be rendered for the next fiscal year, beginning 1 October, will require a new deposit. Notification of the due date for this deposit will be mailed to the Contractor prior to the end of the current fiscal year.

### 3.2.5 Final Meter Reading

Before completion of the work and final acceptance of the work by the Government, notify the Contracting Officer, in writing, 5 working days before termination is desired. The Government will take a final meter reading, disconnect service, and remove the meters. Then remove all the temporary distribution lines, meter bases, and associated paraphernalia. Pay all outstanding utility bills before final acceptance of the work by the Government.

### 3.2.6 Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer and periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Obtain approval from the system owner prior to discharge into any municipal, district, or commercial sanitary sewer system. Any penalties and / or fines associated with improper discharge will be the responsibility of the Contractor. Coordinate with the Contracting Officer and follow station regulations and procedures when discharging into the station sanitary sewer system. Maintain these conveniences at all times without nuisance. Include provisions for pest control and elimination of odors. Government toilet facilities will not be available to Contractor's personnel.

### 3.2.7 Telephone

Make arrangements and pay all costs for telephone facilities desired.

### 3.2.8 Fire Protection

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials weekly to minimize potential hazards.

## 3.3 TRAFFIC PROVISIONS

### 3.3.1 Maintenance of Traffic

- a. Conduct operations in a manner that will not close any thoroughfare or interfere in any way with traffic on railways or highways except with written permission of the Contracting Officer at least 15 calendar days prior to the proposed modification date, and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval. The plan must be in accordance with State and local regulations and the MUTCD, Part VI. Make all notifications and obtain any permits required for modification to traffic movements outside Station's jurisdiction. Contractor may move oversized and slow-moving vehicles to the worksite provided requirements of the highway authority have been met.
- b. Conduct work so as to minimize obstruction of traffic, and maintain traffic on at least half of the roadway width at all times. Obtain approval from the Contracting Officer prior to starting any activity that will obstruct traffic.
- c. Provide, erect, and maintain, at contractors expense, lights, barriers, signals, passageways, detours, and other items, that may be required by the Life Safety Signage, overhead protection authority having jurisdiction.

### 3.3.2 Protection of Traffic

Maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment the work, and the erection and maintenance of adequate warning, danger, and direction signs, will be as required by the State and local authorities having jurisdiction. Protect the traveling public from damage to person and property. Minimize the interference with public traffic on roads selected for hauling material to and from the site. Investigate the adequacy of existing roads and their allowable load limit. Contractor is responsible for the repair of any damage to roads caused by construction operations.

### 3.3.3 Rush Hour Restrictions

Do not interfere with the peak traffic flows preceding and during normal operations without notification to and approval by the Contracting Officer.

### 3.3.4 Dust Control

Dust control methods and procedures must be approved by the Contracting Officer. Treat dust abatement on access roads with applications of calcium chloride, water sprinklers, or similar methods or treatment.

### 3.4 CONTRACTOR'S TEMPORARY FACILITIES

#### 3.4.1 Safety

Protect the integrity of any installed safety systems or personnel safety devices. If entrance into systems serving safety devices is required, the Contractor must obtain prior approval from the Contracting Officer. If it is temporarily necessary to remove or disable personnel safety devices in order to accomplish contract requirements, provide alternative means of protection prior to removing or disabling any permanently installed safety devices or equipment and obtain approval from the Contracting Officer.

#### 3.4.2 Administrative Field Offices

Provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

#### 3.4.3 Storage Area

Place or store trailers, materials, or equipment within a fenced or otherwise secured area unless security measures are otherwise taken to prevent theft, vandalism, or other damage. Trailers, equipment, or materials must not be open to public view with the exception of those items which are in support of ongoing work on any given day.

#### 3.4.4 Supplemental Storage Area

Upon Contractor's request, the Contracting Officer will designate another or supplemental area for the Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but will be within the installation boundaries. Fencing of materials or equipment will not be required at this site; however, the Contractor is responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

#### 3.4.5 Appearance of Trailers

- a. Trailers utilized by the Contractor for administrative or material storage purposes must present a clean and neat exterior appearance and be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on installation property.
- b. Paint using suitable paint and maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal.

### 3.5 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing at the work site. The safety fencing must be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10-foot centers, constructed at the approved location. Maintain the safety fencing during the life of the contract and, upon completion and acceptance of the work, will become the property of the Contractor and be removed from the work site.

### 3.6 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store within the fenced area described above or at the supplemental storage area any materials resulting from demolition activities which are salvageable. Neatly stack stored materials not in trailers, whether new or salvaged.

### 3.7 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haul roads, and any other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence that will become the property of the Contractor. Restore to the original or better condition, areas used by the Contractor for the storage of equipment or material, or other use. Gravel used to traverse grassed areas must be removed and the area restored to its original condition, including topsoil and seeding as necessary.

-- End of Section --

## SECTION 01 57 19.00 20

TEMPORARY ENVIRONMENTAL CONTROLS  
02/09

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

- |                  |                                                                                                                           |
|------------------|---------------------------------------------------------------------------------------------------------------------------|
| EPA 530/F-93/004 | (1993; Rev 0; Updates I, II, IIA, IIB, and III) Test Methods for Evaluating Solid Waste (Vol IA, IB, IC, and II) (SW-846) |
| EPA 833-R-060-04 | (2000) Developing Your Storm Water Pollution Prevention Plan, a Guide for Construction Sites                              |

## U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

- |                 |                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------|
| 29 CFR 1910.120 | Hazardous Waste Operations and Emergency Response                                                   |
| 40 CFR 112      | Oil Pollution Prevention                                                                            |
| 40 CFR 122.26   | Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)                     |
| 40 CFR 241      | Guidelines for Disposal of Solid Waste                                                              |
| 40 CFR 243      | Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste |
| 40 CFR 258      | Subtitle D Landfill Requirements                                                                    |
| 40 CFR 260      | Hazardous Waste Management System: General                                                          |
| 40 CFR 261      | Identification and Listing of Hazardous Waste                                                       |
| 40 CFR 262      | Standards Applicable to Generators of Hazardous Waste                                               |
| 40 CFR 263      | Standards Applicable to Transporters of Hazardous Waste                                             |
| 40 CFR 264      | Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities   |
| 40 CFR 265      | Interim Status Standards for Owners and Operators of Hazardous Waste Treatment,                     |

	Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 271	Requirements for Authorization of State Hazardous Waste Programs
40 CFR 272	Approved State Hazardous Waste Management Programs
40 CFR 273	Standards For Universal Waste Management
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 355	Emergency Planning and Notification
40 CFR 372-SUBPART D	Specific Toxic Chemical Listings
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings
1.2	DEFINITIONS
1.2.1	Sediment
	Soil and other debris that have eroded and have been transported by runoff water or wind.
1.2.2	Solid Waste
	Garbage, refuse, debris, sludge, or other discharged material, including

solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations. Types of solid waste typically generated at construction sites may include:

- a. Green waste: The vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.
- b. Surplus soil: Existing soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars and paving. Contaminated soil meeting the definition of hazardous material or hazardous waste is not included.
- c. Debris: Non-hazardous solid material generated during the construction, demolition, or renovation of a structure which exceeds 2.5 inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g., cobbles and boulders), broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may be reinforced with or contain ferrous wire, rods, accessories and weldments. A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.
- d. Wood: Dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated and/or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included.
- e. Scrap metal: Scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.
- f. Paint cans: Metal cans that are empty of paints, solvents, thinners and adhesives. If permitted by the paint can label, a thin dry film may remain in the can.
- g. Recyclables: Materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable. Metal meeting the definition of lead contaminated or lead based paint contaminated may not be included as recyclable if sold to a scrap metal company. Paint cans may not be included as recyclable if sold to a scrap metal company.
- h. Hazardous Waste: By definition, to be a hazardous waste a material must first meet the definition of a solid waste. Hazardous waste and hazardous debris are special cases of solid waste. They have additional regulatory controls and must be handled separately. They are thus defined separately in this document.

Material not regulated as solid waste are: nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or irrigation return flows, or other regulated point source discharges; regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

### 1.2.3 Hazardous Debris

As defined in Solid Waste paragraph, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) per 40 CFR 261; or debris that exhibits a characteristic of hazardous waste per 40 CFR 261.

### 1.2.4 Chemical Wastes

This includes salts, acids, alkalizes, herbicides, pesticides, and organic chemicals.

### 1.2.5 Garbage

Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

### 1.2.6 Hazardous Waste

Any discarded material, liquid, solid, or gas, which meets the definition of hazardous material or is designated hazardous waste by the Environmental Protection Agency or State Hazardous Control Authority as defined in 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 271, 40 CFR 272, 40 CFR 273, 40 CFR 279, and 40 CFR 280.

### 1.2.7 Hazardous Materials

Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172.

Hazardous material is any material that:

- a. Is regulated as a hazardous material per 49 CFR 173, or
- b. Requires a Material Safety Data Sheet (MSDS) per 29 CFR 1910.120, or
- c. During end use, treatment, handling, packaging, storage, transpiration, or disposal meets or has components that meet or have potential to meet the definition of a hazardous waste as defined by 40 CFR 261 Subparts A, B, C, or D.

Designation of a material by this definition, when separately regulated or controlled by other instructions or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this instruction for "control" purposes. Such material include ammunition, weapons, explosive actuated devices, propellants, pyrotechnics, chemical and biological warfare materials, medical and pharmaceutical supplies, medical waste and infectious materials, bulk fuels, radioactive materials, and other materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs). Nonetheless, the exposure may occur incident to manufacture, storage, use and demilitarization of these items.

### 1.2.8 Waste Hazardous Material (WHM)

Any waste material which because of its quantity, concentration, or physical, chemical, or infectious characteristics may pose a substantial hazard to human health or the environment and which has been so designated. Used oil not containing any hazardous waste, as defined above, falls under this definition.

### 1.2.9 Oily Waste

Those materials which are, or were, mixed with used oil and have become separated from that used oil. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, used oil and may be appropriately tested and discarded in a manner which is in compliance with other state and local requirements.

This definition includes materials such as oily rags, "kitty litter" sorbent clay and organic sorbent material. These materials may be land filled provided that:

- a. It is not prohibited in other state Regulations or local ordinances
- b. The amount generated is "de minimus" (a small amount)
- c. It is the result of minor leaks or spills resulting from normal process operations
- d. All free-flowing oil has been removed to the practical extent possible

Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, a hazardous waste determination must be performed prior to disposal. As this can be an expensive process, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

### 1.2.10 Regulated Waste

Those solid waste that have specific additional Federal, state, or local controls for handling, storage, or disposal.

## 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

#### SD-01 Preconstruction Submittals (As Applicable)

Preconstruction Survey; G

Solid Waste Management Plan; G

Regulatory Notifications; G

Environmental Protection Plan; G

Storm Water Pollution Prevention Plan; G

Storm Water Notice of Intent (for NPDES coverage under the general permit for construction activities); G

Dirt and Dust Control Plan

Contractor Hazardous Material Inventory Log; G

SD-06 Test Reports (As Applicable)

Laboratory Analysis

Erosion and Sediment Control Inspection Reports

Storm Water Inspection Reports for General Permit

Solid Waste Management Report; G

SD-11 Closeout Submittals (As Applicable)

Some of the records listed below are also required as part of other submittals. For the "Records" submittal, maintain on-site a separate three-ring Environmental Records binder and submit at the completion of the project. Make separate parts to the binder corresponding to each of the applicable sub items listed below.

Storm Water Pollution Prevention Plan compliance notebook; G

Waste Determination Documentation

Disposal Documentation for Hazardous and Regulated Waste

Solid Waste Management Permit

Solid Waste Management Report

Contractor Hazardous Material Inventory Log; G

Hazardous Waste/Debris Management

Regulatory Notifications

#### 1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with federal, state, and local Regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

The Contractor may be required to promptly conduct tests and procedures for the purpose of assessing whether construction operations are in compliance with Applicable Environmental Laws. Analytical work shall be done by qualified laboratories; and where required by law, the laboratories shall be certified.

## 1.5 QUALITY ASSURANCE

### 1.5.1 Preconstruction Survey

Perform a Preconstruction Survey of the project site with the Contracting Officer, and take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record.

### 1.5.2 Regulatory Notifications

The Contractor is responsible for all regulatory notification requirements in accordance with federal, state and local Regulations. In cases where the Navy must also provide public notification (such as stormwater permitting), the Contractor must coordinate with the Contracting Officer. The Contractor shall submit copies of all regulatory notifications to the Contracting Officer prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all inclusive): demolition, renovation, NPDES defined site work, remediation of controlled substances (asbestos, hazardous waste, lead paint).

### 1.5.3 Environmental Brief

Attend an environmental brief to be included in the preconstruction meeting. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the activity; types and quantities of wastes/wastewater that may be generated during the contract. Discuss the results of the Preconstruction Survey at this time.

Prior to initiating any work on site, meet with the Contracting Officer and activity environmental staff to discuss the proposed Environmental Management Plan. Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, required permits, permit requirements, and other measures to be taken.

### 1.5.4 Environmental Manager

Appoint in writing an Environmental Manager for the project site. The Environmental Manager shall have the qualifications outlined in Section 01 35 40.00.20 ENVIRONMENTAL MANAGEMENT and will be directly responsible for coordinating contractor compliance with federal, state, local, and station requirements. The Environmental Manager will implement the Environmental Protection Plan; ensure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Storm Water Program Management requirements; and ensure compliance with Hazardous Materials (storage, handling, and reporting) requirements, if required. This can be a collateral position; however the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all Contractor personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out.

## PART 2 PRODUCTS

Not Used

## PART 3 EXECUTION

## 3.1 ENVIRONMENTAL PROTECTION PLAN

Prior to initiating any work on site, the Contractor will meet with the Contracting Officer to discuss the proposed Environmental Protection Plan and develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, and other measures to be taken. The Contractor's Environmental Protection Plan shall incorporate construction related objectives and targets from the installation's Environmental Management System. The Environmental Protection Plan will be submitted in the following format and shall include the elements specified below.

## a. Description of the Environmental Protection Plan

## 1. General overview and purpose

- a) A brief description of each specific plan required by environmental permit or elsewhere in this contract.
- b) The duties and level of authority assigned to the person(s) on the job site that oversee environmental compliance.
- c) A copy of any standard or project specific operating procedures that will be used to effectively manage and protect the environment on the project site.
- d) Communication and training procedures that will be used to convey environmental management requirements to contractor employees and subcontractors.
- e) Emergency contact information contact information (office phone number, cell phone number, and e-mail address).

## 2. General site information

3. A letter signed by an officer of the firm appointing the Environmental Manager and stating that he/she is responsible for managing and implementing the Environmental Program as described in this contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of non-conforming work.

## b. Protection of Natural Resources

1. Land resources
2. Tree protection
3. Replacement of damaged landscape features
4. Temporary construction
5. Stream crossings

6. Fish and wildlife resources
7. Wetland areas
- c. Protection of Historical and Archaeological Resources
  1. Objectives
  2. Methods
- d. Storm Water Management and Control
  1. Ground cover
  2. Erodible soils
  3. Temporary measures
    - a) Mechanical retardation and control of runoff
    - b) Vegetation and mulch
  4. Effective selection, implementation and maintenance of Best Management Practices (BMPs).
- e. Protection of the Environment from Waste Derived from Contractor Operations
  1. Control and disposal of solid and sanitary waste. If Section 01 74 19.05 20 is included in the contract, submit the plan required by that section as part of the Environmental Management Plan.
  2. Control and disposal of hazardous waste (Hazardous Waste Management Section)

This item will consist of the management procedures for all hazardous waste to be generated. The elements of those procedures will coincide with the Activity Hazardous Waste Management Plan. A copy of the Activity Hazardous Waste Management Plan will be provided by the Contracting Officer. As a minimum, include the following:

    - a) Procedures to be employed to ensure a written waste determination is made for appropriate wastes which are to be generated;
    - b) Sampling/analysis plan;
    - c) Methods of hazardous waste accumulation/storage (i.e., in tanks and/or containers);
    - d) Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted);
    - e) Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal

Restrictions (40 CFR 268);

- f) Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and the like;
- g) Used oil management procedures in accordance with 40 CFR 279;
- h) Pollution prevention\hazardous waste minimization procedures;
- i) Plans for the disposal of hazardous waste by permitted facilities;
- j) Procedures to be employed to ensure all required employee training records are maintained.

f. Prevention of Releases to the Environment

- 1. Procedures to prevent releases to the environment
- 2. Notifications in the event of a release to the environment

g. Regulatory Notification and Permits

- 1. List what notifications and permit applications must be made. Demonstrate that those permits have been obtained by including copies of all applicable, environmental permits.

3.1.1 Licenses and Permits

Obtain licenses and permits pursuant to the "Permits and Responsibilities" FAR Clause 52.236-7, if any permits are required.

No permits will be obtained by the Contracting Officer.

Where required by the state regulatory authority, the inspections and certifications will be provided through the services of a Professional Engineer (PE), registered in the state where the work is being performed. Where a PE is not required, the individual must be otherwise qualified by other current state licensure, specific training and prior experience (minimum 5 years). As a part of the quality control plan, which is required to be submitted for approval by the quality control section, provide a sub-item containing the name, appropriate professional registration or license number, address, and telephone number of the professionals or other qualified persons who will be performing the inspections and certifications for each permit.

3.2 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified. If the work is near streams, lakes, or other waterways, conform to the national permitting requirements of the Clean Water Act.

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Contractor will be responsible for any resultant damage.

Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed. Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain Contracting Officer's approval before replacement.

The Contracting Officer's approval is required before any equipment will be permitted to ford live streams. In areas where frequent crossings are required, install temporary culverts or bridges. Obtain Contracting Officer's approval prior to installation. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition unless otherwise required by the Contracting Officer.

### 3.2.1 Erosion and Sediment Control Measures

#### 3.2.1.1 Burnoff

Burnoff of the ground cover is not permitted.

#### 3.2.1.2 Protection of Erodible Soils

Immediately finish the earthwork brought to a final grade, as indicated or specified. Immediately protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

#### 3.2.1.3 Temporary Protection of Erodible Soils

Use the following methods to prevent erosion and control sedimentation:

##### a. Mechanical Retardation and Control of Runoff

1. Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches, berms, and use of silt fences and straw bales to retard and divert runoff to protected drainage courses.

##### b. Sediment Basins

1. Trap sediment in temporary sediment basins as provided in the approved erosion and sediment control plan. Operate, maintain, and remove in accordance with the approved erosion and sediment control plan.
2. Install, inspect, and maintain best management practices (BMPs) as required by the general construction permit. Prepare BMP Inspection Reports as required by the general permit. If required by the permit, include those inspection reports.

c. Vegetation and Mulch

1. Provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.
2. Seeding: Provide new seeding where ground is disturbed. Include topsoil or nutriment during the seeding operation necessary to establish or reestablish a suitable stand of grass. The seeding operation will be as specified in the approved erosion and sediment control plan.

3.2.2 Erosion and Sediment Control Inspection Reports

Submit applicable "Erosion and Sediment Control Inspection Reports" and Storm Water Inspection Reports for General Permit to the Contracting Officer once every 7 calendar days and within 24 hours of a storm event that produces 0.5 inch or more of rain.

Note erosion control inspection reports may be compiled as part of a stormwater pollution prevention plan inspection reports if applicable.

3.2.2.1 Storm Water Notice of Intent for Construction Activities and Storm Water Pollution Prevention Plan

The Contractor shall submit a Storm Water Notice of Intent (for NPDES coverage under the general permit for construction activities) and a Storm Water Pollution Prevention Plan (SWPPP) for the project to the Contracting Officer prior and gain approval prior to the commencement of work. The SWPPP will meet the requirements of the EPA or state general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intent, and Notice of Termination, via the Contracting Officer, to the appropriate federal or state agency for approval, a minimum of 30 calendar days prior to the start of any land disturbing activities. The Contractor shall maintain an approved copy of the SWPPP at the construction on-site office, and continually update as regulations require, reflecting current site conditions.

Under the terms and conditions of the approved plan, the Contractor may be required to install, inspect, maintain best management practices (BMPs), and submit storm water BMP inspection reports and storm water pollution prevention plan inspection reports. The Contractor shall ensure construction operations and management are constantly in compliance with the terms and conditions of the general permit for storm water discharges from construction activities.

a. The SWPPP shall:

1. Identify potential sources of pollution which may be reasonably expected to affect the quality of storm water discharge from the site.
2. Describe and ensure implementation of practices which will be used to reduce the pollutants in storm water discharge from the site.

3. Ensure compliance with terms of the EPA or state general permit for storm water discharge.
4. Select applicable best management practices from EPA 833-R-060-04.
5. Include a completed copy of the Registration Statement, BMP Inspection Report Template and Notice of Termination except for the effective date.
6. Storm Water Pollution Prevention Measures and Notice of Intent 40 CFR 122.26, EPA 833-R-060-04. Provide a "Storm Water Pollution Prevention Plan" (SWPPP) for the project. The SWPPP will meet the requirements of the EPA or state general permit for storm water discharges from construction sites. Submit the SWPPP along with any required Notice of Intent, Notice of Termination, and appropriate permit fees, via the Contracting Officer, to the appropriate federal or state agency for approval, a minimum of 14 calendar days prior to the start of construction. A copy of the approved SWPPP will be kept at the construction on-site office, and continually updated as regulations require reflecting current site conditions.

#### 3.2.2.2 Storm Water Pollution Prevention Plan Compliance Notebook

The contractor shall create and maintain a three binder of documents that demonstrate compliance with the Stormwater Construction Activity permit. The binder shall include a copy of the permit Registration Statement, proof of permit fee payment, SWPPP and SWPPP update amendments, inspection reports, copies of correspondence with the Maryland Department of the Environment and a copy of the permit Notice of Termination. At the completion of the project the folder shall become the property of the Government. The compliance notebook shall be provided to Contracting Officer. An advance copy of the Registration Statement shall be provided to the Contracting Officer immediately after the form is presented to the permitting agency.

#### 3.2.3 Stormwater Drainage and Construction Dewatering

There will be no discharge of excavation ground water to the sanitary sewer, storm drains, or to the river without prior specific authorization of the Environmental Division in writing. Discharge of hazardous substances will not be permitted under any circumstances.

Construction site runoff will be prevented from entering any storm drain or the river directly by the use of straw bales or other method suitable to the Environmental Division. Contractor will provide erosion protection of the surrounding soils.

Construction Dewatering shall not be discharged to the sanitary sewer. If the construction dewatering is noted or suspected of being contaminated, it may only be released to the storm drain system if the discharge is specifically permitted. Authorization for any contaminated groundwater release shall be obtained in advance from the base Environmental Officer. Discharge of hazardous substances will not be permitted under any circumstances.

### 3.3 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the Contracting Officer historical and archaeological items or human skeletal remains discovered in the course of work. Upon discovery, notify the Contracting Officer. Stop work in the immediate area of the discovery until directed by the Contracting Officer to resume work. The Government retains ownership and control over historical and archaeological resources.

### 3.4 SOLID WASTE MANAGEMENT PLAN

Provide to the contracting officer written notification of the quantity of solid waste/debris that is anticipated to be generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance or as applicable, submit one copy of a state and local Solid Waste Management Permit or license showing such agency's approval of the proposed disposal facilities before transporting wastes off Government property.

#### 3.4.1 Solid Waste Management Report

Monthly, submit a solid waste disposal report to the Contracting Officer. For each waste, the report will state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste.

The Contractor will include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, the Contractor may submit a statement indicating the disposal location for the solid waste which is signed by an officer of the Contractor firm authorized to legally obligate or bind the firm. The sales documentation or Contractor certification will include the receiver's tax identification number and business, EPA or state registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained by the Contractor for his own use, the Contractor will submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received will not be reported to the Contracting Officer unless required by other provisions or specifications of this Contract or public law.

#### 3.4.2 Control and Management of Solid Wastes

Pick up solid wastes, and place in covered containers which are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Recycling is encouraged and can be coordinated with the Contracting Officer and the activity recycling coordinator. Remove all solid waste (including non-hazardous debris) from Government property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with most stringent local, state, and federal requirements including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

Manage spent hazardous material used in construction, including but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and used rags, as per environmental law.

### 3.4.2.1 Dumpsters

Equip dumpsters with a secure cover and paint the standard base color. Keep cover closed at all times, except when being loaded with trash and debris. Locate dumpsters behind the construction fence or out of the public view. Empty site dumpsters at least once a week, or as needed to keep the site free of debris and trash. If necessary, provide 55 gallon trash containers painted the darker base color to collect debris in the construction site area. Locate the trash containers behind the construction fence or out of the public view. Empty trash containers whenever they become full, or once a week, whichever is more frequent. For large demolitions, large dumpsters without lids are acceptable but should not have debris higher than the sides before emptying.

### 3.5 WASTE DETERMINATION DOCUMENTATION

Complete a Waste Determination form (provided at the pre-construction conference) for all contractor derived wastes to be generated. Base the waste determination upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data, or laboratory analysis (Material Safety Data Sheets (MSDS) by themselves are not adequate). Attach all support documentation to the Waste Determination form. As a minimum, a Waste Determination form must be provided for the following wastes (this listing is not all inclusive): oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials.

### 3.6 CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG

Submit the "Contractor Hazardous Material Inventory Log" (found at: <http://www.wbdg.org/ccb/NAVGRAPH/graphdoc.pdf>), which provides information required by (EPCRA Sections 312 and 313) along with corresponding Material Safety Data Sheets (MSDS) to the Contracting Officer at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the contract. Documentation for any spills/releases, environmental reports or off-site transfers may be requested by the Contracting Officer.

#### 3.6.1 Disposal Documentation for Hazardous and Regulated Waste

Manifest, pack, ship and dispose of hazardous or toxic waste and universal waste that is generated as a result of construction in accordance with the generating facilities generator status under the Resource Conservation and Recovery Act. Contact the Contracting Officer for the facility RCRA identification number that is to be used on each manifest.

Submit a copy of the applicable EPA and or state permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities. Hazardous or toxic waste manifest must be reviewed, signed, and approved by the Navy before the Contractor may ship waste. To obtain specific disposal instructions the Contractor must coordinate with the Activity environmental office.

### 3.7 POLLUTION PREVENTION/HAZARDOUS WASTE MINIMIZATION

Minimize the use of hazardous materials and the generation of hazardous waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the Environmental

Management Plan. Consult with the activity Environmental Office for suggestions and to obtain a copy of the installation's pollution prevention/hazardous waste minimization plan for reference material when preparing this part of the plan. If no written plan exists, obtain information by contacting the Contracting Officer. Describe the types of the hazardous materials expected to be used in the construction when requesting information.

### 3.8 WHM/HW MATERIALS PROHIBITION

No waste hazardous material or hazardous waste shall be disposed of on government property. No hazardous material shall be brought onto government property that does not directly relate to requirements for the performance of this contract. The government is not responsible for disposal of Contractor's waste material brought on the job site and not required in the performance of this contract. The intent of this provision is to dispose of that waste identified as waste hazardous material/hazardous waste as defined herein that was generated as part of this contract and existed within the boundary of the Contract limits and not brought in from offsite by the Contractor. Incidental materials used to support the contract including, but not limited to aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, etc. are the responsibility of the Contractor. The list is illustrative rather than inclusive. The Contractor is not authorized to discharge any materials to sanitary sewer, storm drain, or to the river or conduct waste treatment or disposal on government property without written approval of the Contracting Officer.

### 3.9 HAZARDOUS MATERIAL MANAGEMENT

No hazardous material shall be brought onto government property that does not directly relate to requirements for the performance of this contract.

Include hazardous material control procedures in the Safety Plan. Address procedures and proper handling of hazardous materials, including the appropriate transportation requirements. Submit a MSDS and estimated quantities to be used for each hazardous material to the Contracting Officer prior to bringing the material on base. Typical materials requiring MSDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. At the end of the project, provide the Contracting Officer with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used. Ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated. Ensure that all containers of hazardous materials have NFPA labels or their equivalent. Keep copies of the MSDS for hazardous materials on site at all times and provide them to the Contracting Officer at the end of the project. Certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261.

### 3.10 PETROLEUM PRODUCTS AND REFUELING

Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation. Manage all used oil generated on site in accordance with 40 CFR 279. Determine if any used oil generated while on-site exhibits a characteristic of hazardous waste. Used

oil containing 1000 parts per million of solvents will be considered a hazardous waste and disposed of at Contractor's expense. Used oil mixed with a hazardous waste will also be considered a hazardous waste.

### 3.10.1 Oily and Hazardous Substances

Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm will be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.

### 3.10.2 Inadvertent Discovery of Petroleum Contaminated Soil or Hazardous Wastes

If petroleum contaminated soil or suspected hazardous waste is found during construction that was not identified in the contract documents, the contractor shall immediately notify the contracting officer. The contractor shall not disturb this material until authorized by the contracting officer.

### 3.11 FUEL TANKS

Petroleum products and lubricants required to sustain up to 30 days of construction activity may be kept on site. Storage and refilling practices shall comply with 40 CFR Part 112. Secondary containment shall be provided and be no less than 110 percent of the tank volume plus five inches of free-board. If a secondary berm is used for containment then the berm shall be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Drips pans are required and the tanks must be covered during inclement weather.

### 3.12 RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES

Exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated by environmental law. Maintain spill cleanup equipment and materials at the work site. In the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Base or Activity Fire Department, the activity's Command Duty Officer, and the Contracting Officer. If the contractor's response is inadequate, the Navy may respond. If this should occur, the contractor will be required to reimburse the government for spill response assistance and analysis.

The Contractor is responsible for verbal and written notifications as required by the federal 40 CFR 355, state, local Regulations and Navy Instructions. Spill response will be in accordance with 40 CFR 300 and applicable state and local Regulations. Contain and clean up these spills without cost to the Government. If Government assistance is requested or required, the Contractor will reimburse the Government for such assistance. Provide copies of the written notification and documentation

that a verbal notification was made within 20 days.

Maintain spill cleanup equipment and materials at the work site. Clean up all hazardous and non-hazardous (WHM) waste spills. The Contractor shall reimburse the government for all material, equipment, and clothing generated during any spill cleanup. The Contractor shall reimburse the government for all costs incurred including sample analysis materials, equipment, and labor if the government must initiate its own spill cleanup procedures, for Contractor responsible spills, when:

- a. The Contractor has not begun spill cleanup procedure within one hour of spill discovery/occurrence, or
- b. If, in the government's judgment, the Contractor's spill cleanup is not adequately abating life threatening situation and/or is a threat to any body of water or environmentally sensitive areas.

### 3.13 CONTROL AND MANAGEMENT OF HAZARDOUS WASTES

#### 3.13.1 Facility Hazardous Waste Generator Status

Naval Support Facility - Indian Head (NSF-IH) is designated as a Large Quantity Generator. All work conducted within the boundaries of this activity must meet the regulatory requirements of this generator designation. The Contractor will comply with all provisions of federal, state and local regulatory requirements applicable to this generator status regarding training and storage, handling, and disposal of all construction derived wastes.

#### 3.13.2 Hazardous Waste/Debris Management

Identify all construction activities which will generate hazardous waste/debris. Provide a documented waste determination for all resultant waste streams. Hazardous waste/debris will be identified, labeled, handled, stored, and disposed of in accordance with all federal, state, and local Regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268.

Hazardous waste will also be managed in accordance with the approved Hazardous Waste Management Section of the Environmental Protection Plan. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities will be identified as being generated by the Government.

Prior to removal of any hazardous waste from Government property, all hazardous waste manifests must be signed by activity personnel from the Station Environmental Office. No hazardous waste will be brought onto Government property. Provide to the Contracting Officer a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D. For hazardous wastes spills, verbally notify the Contracting Officer immediately.

##### 3.13.2.1 Regulated Waste Storage/Satellite Accumulation/90 Day Storage Areas

If the work requires the temporary storage/collection of regulated or hazardous wastes, the Contractor will request the establishment of a Regulated Waste Storage Area, a Satellite Accumulation Area, or a 90 Day

Storage Area at the point of generation. The Contractor must submit a request in writing to the Contracting Officer providing the following information:

<u>Contract Number</u>	_____	<u>Contractor</u>	_____
<u>Haz/Waste or Regulated Waste POC</u>	_____	<u>Phone Number</u>	_____
<u>Type of Waste</u>	_____	<u>Source of Waste</u>	_____
<u>Emergency POC</u>	_____	<u>Phone Number</u>	_____

Location of the Site: \_\_\_\_\_  
(Attach Site Plan to the Request)

Attach a waste determination form. Allow ten working days for processing this request. The designated area where waste is being stored shall be barricaded and a sign identifying as follows:

"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

### 3.13.2.2 Sampling and Analysis of HW

#### a. Waste Sampling

Sample waste in accordance with EPA 530/F-93/004. Each sampled drum or container will be clearly marked with the Contractor's identification number and cross referenced to the chemical analysis performed.

#### b. Laboratory Analysis

Follow the analytical procedure and methods in accordance with the 40 CFR 261. The Contractor will provide all analytical results and reports performed to the Contracting Officer.

#### c. Analysis Type

Identify waste hazardous material/hazardous waste by analyzing for the following properties as a minimum: ignitability, corrosiveness, total chlorides, PCBs, TCLP for heavy metals, and cyanide.

### 3.13.2.3 Hazardous Waste Disposal

No hazardous, toxic, or universal waste shall be disposed or hazardous material abandoned on government property. And unless otherwise otherwise noted in this contract, the government is not responsible for disposal of Contractor generated waste material. The disposal of incidental materials used to accomplish the work including, but not limited to aerosol cans, waste paint, cleaning solvents, contaminated brushes, rags, clothing, etc. are the responsibility of the Contractor. The list is illustrative rather than inclusive.

The Contractor is not authorized to discharge any materials to sanitary sewer, storm drain, or water way or conduct waste treatment or disposal on government property without written approval of the Contracting Officer.

Control of stored waste, packaging, sampling, analysis, and disposal will be determined by the details in the contract. The requirements for jobs in

the following paragraphs will be used as the guidelines for disposal of any hazardous waste generated.

a. Responsibilities for Contractor's Disposal

Contractor responsibilities include any generation of WHM/HW requiring Contractor disposal of solid waste or liquid.

1. The Contractor agrees to provide all service necessary for the final treatment/disposal of the hazardous material/waste in accordance with all local, state and federal Laws and Regulations, and the terms and conditions of the contract within 60 days after the materials have been generated. These services will include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation, including manifesting or completing waste profile sheets, equipment, and the compilation of all documentation is required).
2. Contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, and 40 CFR 761, as applicable to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) action.
3. Obtaining a representative sample of the material generated for each job done to provide waste stream determination.
4. Analyzing for each sample taken and providing analytical results to the Contracting Officer. Provide two copies of the results.
5. Determine the DOT proper shipping names for all waste (each container requiring disposal) and will demonstrate how this determination is developed and supported by the sampling and analysis requirements contained herein to the Contracting Officer.

Contractor Disposal Turn-In Requirements

For any waste hazardous materials or hazardous waste generated which requires the Contractor to dispose of, the following conditions must be complied with in order to be acceptable for disposal:

1. Drums compatible with waste contents and drums meet DOT requirements for 49 CFR 173 for transportation of materials.
2. Drums banded to wooden pallets. No more than three (3) 55 gallon drums to a pallet, or two (2) 85 gallon over packs.
3. Band using 1-1/4 inch minimum band on upper third of drum.
4. Recovery materials label (provided by Code 106.321) located in middle of drum, filled out to indicate actual volume of material, name of material manufacturer, other vendor information as available.
5. Always have 3 to 5 inches of empty space above volume of material. This space is called 'outage.'

### 3.14 DUST AND AIR POLLUTION CONTROL

Prevent the creation of dust, air pollution, and odors at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Store liquids, including fuels and solvents, in closed or covered containers and cover waste, whether in containers or in the ground, with appropriate cover materials to prevent release of constituents into the air. Properly maintain equipment to reduce gaseous pollutant emissions.

#### 3.14.1 Dirt and Dust Control Plan

Submit truck and material haul routes along with a plan for controlling dirt, debris, and dust on base roadways. As a minimum, identify in the plan the subcontractor and equipment for cleaning along the haul route and measures to reduce dirt, dust, and debris from roadways.

### 3.15 NOISE

Make the maximum use of low-noise emission products, as certified by the EPA. Blasting or use of explosives will not be permitted without written permission from the Contracting Officer, and then only during the designated times. Confine pile-driving operations to the period between 8 a.m. and 4 p.m., Monday through Friday, exclusive of holidays, unless otherwise specified.

-- End of Section --

SECTION 01 58 00

PROJECT IDENTIFICATION  
08/08

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

1.2 PROJECT SIGN

Prior to initiating any work on site, provide one project identification sign at the location designated. Maintain sign throughout the life of the project. Upon completion of the project, remove the sign from the site.

1.2.1 Project Identification Signboard (Navy)

The design and information required for the identification sign are included in Appendix A.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

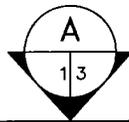
Not used.

-- End of Section --

VERIFY W/ CONTRACTING OFFICER IF PROJECT IS AN ARRA PROJECT. FOR ARRA PROJECTS, ADD SIGNAGE AT TOP OF SIGN. SEE PLATES 8 AND 9 FOR SIGNAGE AND DETAILS.

4'-0" [1220mm]

2.5" [64mm] LETTERING CENTERED



9.5"x11.25"[240mmX286mm]  
NAVFAC LOGO AVAIL: [https://portal.navfac.navy.mil/portal/page?\\_pageid=181,3465071&\\_dad=portal&\\_schema=PORTAL](https://portal.navfac.navy.mil/portal/page?_pageid=181,3465071&_dad=portal&_schema=PORTAL)

MITERED CORNER  
4"x4" [89mmx89mm]  
PRESSURE TREATED POST;  
COLOR: 'DARK BLUE', TYP.

11.25 [286mm] DIAMETER  
CNIC LOGO AVAIL: [https://portal.navfac.navy.mil/portal/page?\\_pageid=181,3465071&\\_dad=portal&\\_schema=PORTAL](https://portal.navfac.navy.mil/portal/page?_pageid=181,3465071&_dad=portal&_schema=PORTAL)

2" [50mm] LETTERING  
CENTERED (ITALICIZED)

PAINTED FIELD; COLOR,  
'WHITE'

3" [75mm] LETTERING  
CENTERED

2" [50mm] LETTERING  
CENTERED

2.5" [64mm] LETTERING  
CENTERED (ITALICIZED)

2" [50mm] LETTERING  
CENTERED

2" [50mm] LETTERING  
CENTERED

PAINTED 3.5" [89mm]  
STRIPE; COLOR, 'DARK  
BLUE'

**NOTES:**

1. PAINT ALL OTHER WOOD SURFACES WITH ONE COAT EXT. PRIMER AND TWO COATS GLOSS WHITE ENAMEL.

2. ALL LETTERING SHALL BE EVENLY SPACED.

3. LETTER STYLE, 'ARIAL', COLOR 'DARK BLUE'. TYPICAL FOR ALL LETTERING.

\*-ABBREVIATE STATE

\*\*-CONFIRM USE WITH CONTRACTING OFFICER

†-VERIFY NAME WITH CONTRACTING OFFICER.



CNIC  
&  
NAVFAC



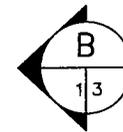
Partners In Support of Navy Vision 2035

2" [50mm] LETTERING  
CENTERED

NAME OF PROJECT  
2ND LINE

PAINTED 3.5" [89mm]  
STRIPE; COLOR, 'DARK  
BLUE'

LOCATION (BASE)  
CITY AND STATE \*



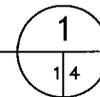
COMING IN SUMMER 2008 \*\*

PAINTED 3.5" [89mm]  
STRIPE; COLOR, 'DARK  
BLUE'

NAVAL FACILITIES ENGINEERING COMMAND  
COMPONENT NAME (i.e. MID-ATLANTIC) \*\*\*

PAINTED FIELD; COLOR,  
'WHITE'

COST: \$10,000,000 \*\*



ARCHITECT  
NAME OF A/E FIRM  
CITY AND STATE \*

2.5" [64mm] LETTERING  
CENTERED

CONTRACTOR  
CONTRACTOR FIRM  
CITY AND STATE \*

4x4 [89mmx89mm]  
PRESSURE TREATED POST  
BEYOND; COLOR: 'WHITE'

GROUND LEVEL

1'-0" [300mm]

3'-0" [915mm]

2'-7" [790mm]

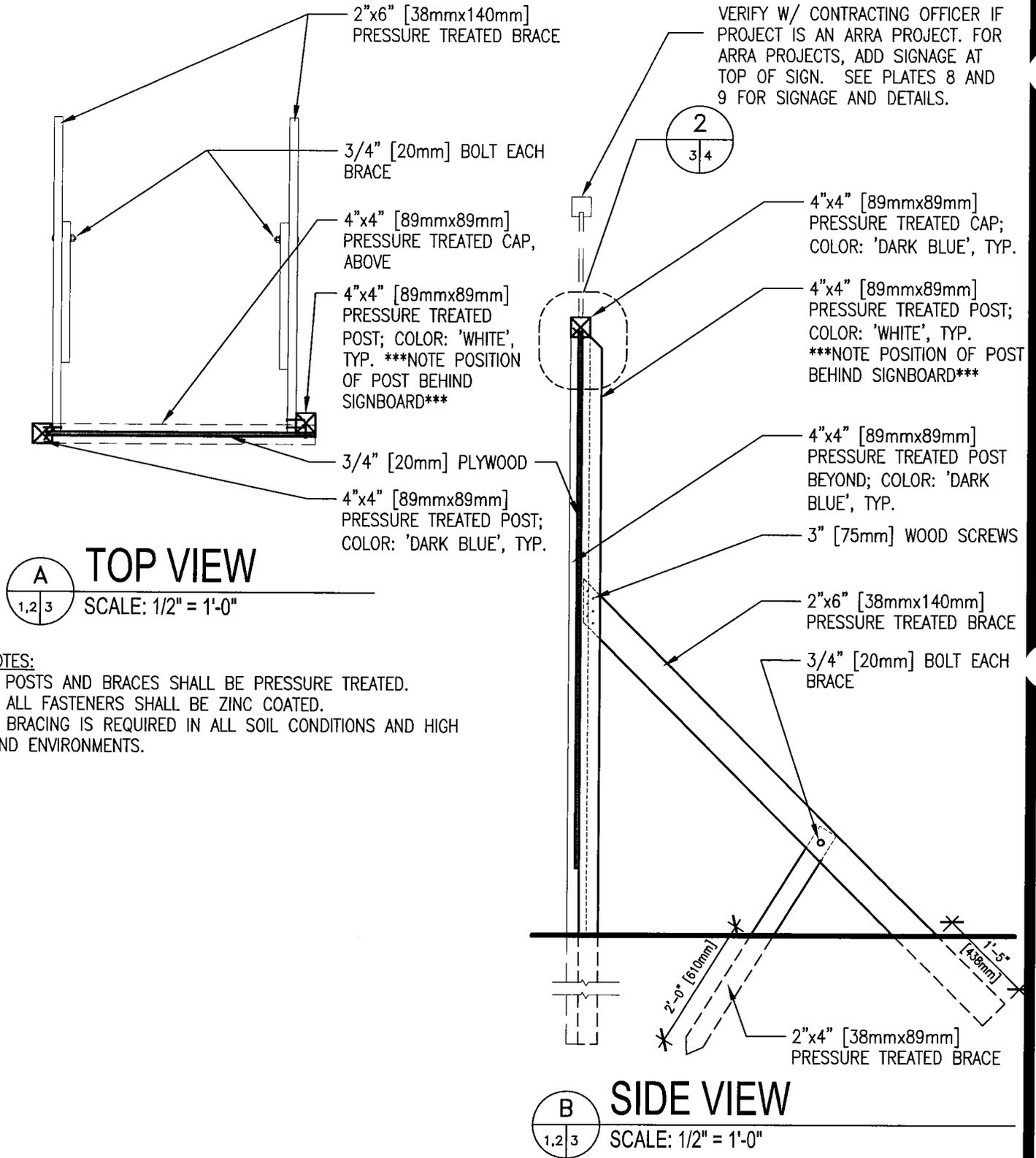
8'-0" [2440mm]

2'-9 1/2" [850mm]

# PROJECT IDENTIFICATION SIGNBOARD

SCALE: 3/4" = 1'-0"

PLATE 1



- NOTES:**
1. POSTS AND BRACES SHALL BE PRESSURE TREATED.
  2. ALL FASTENERS SHALL BE ZINC COATED.
  3. BRACING IS REQUIRED IN ALL SOIL CONDITIONS AND HIGH WIND ENVIRONMENTS.

# PROJECT IDENTIFICATION SIGNBOARD SUPPORT DETAILS

## SECTION 01 78 00

## CLOSEOUT SUBMITTALS

05/09

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

## SD-03 Product Data

One set of the warranty management plan containing information relevant to the warranty of materials and completed components incorporated into the construction project, including the starting date of warranty of construction.

## SD-11 Closeout Submittals

## Record Drawings

Drawings showing final as-built conditions of the project. The final CADD record drawings must consist of one set of electronic CADD drawing files in the specified format, 2 sets of blue-line prints, and one set of the approved working Record drawings.

## 1.2 PROJECT RECORD DOCUMENTS

## 1.2.1 Record Drawings

This paragraph covers record drawings complete, as a requirement of the contract. The terms "drawings," "contract drawings," "drawing files," "working record drawings" and "final record drawings" refer to contract drawings which are revised to be used for final record drawings showing as-built conditions.

## 1.2.1.1 Government Furnished Materials

One set of electronic CADD files in the specified software and format revised to reflect all bid amendments will be provided by the Government at the preconstruction conference for projects requiring CADD file record drawings.

## 1.2.1.2 Working Record and Final Record Drawings

Revise 2 sets of paper drawings by red-line process to show the as-built conditions during the prosecution of the project. Keep these working as-built marked drawings current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they occur by means of details and notes. Prepare final record

(as-built) drawings after the completion of each definable feature of work as listed in the Contractor Quality Control Plan (Base Grade, Soil Cover, Permanent Drainage Structures, etc., as appropriate for the project). The working as-built marked prints and final record (as-built) drawings will be jointly reviewed for accuracy and completeness by the Contracting Officer and the Contractor prior to submission of each monthly pay estimate. If the Contractor fails to maintain the working and final record drawings as specified herein, the Contracting Officer will deduct from the monthly progress payment an amount representing the estimated cost of maintaining the record drawings. This monthly deduction will continue until an agreement can be reached between the Contracting Officer and the Contractor regarding the accuracy and completeness of updated drawings. Show on the working and final record drawings, but not limited to, the following information:

- a. The actual location, kinds and sizes of all sub-surface structures and features. In order that the location of these structures and features may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction in the record drawings. Locate inlets, manholes, and similar appurtenances by dimensioning from a reference point. Also record the average depth below the surface.
- b. The location and dimensions of any changes in the limits of construction of the cover system(s) and drainage structures.
- c. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.
- d. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor; including but not limited to fabrication, installation plans and placing details, pipe sizes, etc.
- e. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.
- f. Changes or modifications which result from the final inspection.
- g. Where contract drawings or specifications present options, show only the option selected for construction on the final as-built prints.
- h. Modifications (include within change order price the cost to change working and final record drawings to reflect modifications) and compliance with the following procedures.
  1. Follow directions in the modification for posting descriptive changes.
  2. Place a Modification Circle at the location of each deletion.
  3. For new details or sections which are added to a drawing, place a Modification Circle by the detail or section title.
  4. For minor changes, place a Modification Circle by the area changed on the drawing (each location).

5. For major changes to a drawing, place a Modification Circle by the title of the affected plan, section, or detail at each location.
6. For changes to schedules or drawings, place a Modification Circle either by the schedule heading or by the change in the schedule.
7. The Modification Circle size shall be 1/2 inch diameter unless the area where the circle is to be placed is crowded. Smaller size circle shall be used for crowded areas.

#### 1.2.1.3 Drawing Preparation

Modify the record drawings as may be necessary to correctly show the features of the project as it has been constructed by bringing the contract set into agreement with approved working as-built prints, and adding such additional drawings as may be necessary. These working as-built marked prints must be neat, legible and accurate. These drawings are part of the permanent records of this project and must be returned to the Contracting Officer after approval by the Government. Any drawings damaged or lost by the Contractor must be satisfactorily replaced by the Contractor at no expense to the Government.

#### 1.2.1.4 Computer Aided Design and Drafting (CADD) Drawings

Only employ personnel proficient in the preparation of CADD drawings to modify the contract drawings or prepare additional new drawings. Additions and corrections to the contract drawings must be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols must be the same as the original line colors, line weights, lettering, layering conventions, and symbols. If additional drawings are required, prepare them using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings. Accomplish additions and corrections to the contract drawings using CADD files. The Contractor will be furnished "as-designed" drawings in 2008i Microstation XM format compatible with a Windows XP operating system. The electronic files will be supplied on compact disc, read-only memory (CD-ROM). Provide all program files and hardware necessary to prepare final record drawings. The Contracting Officer will review final record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

- a. Provide CADD "base" colors of red, green, and blue. Color code for changes as follows:
  1. Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.
  2. Additions (Green) - Added items, lettering in notes and leaders.
  3. Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.
- b. Rename the Contract Drawing files in a manner related to the contract number (i.e., 98-C-10.DGN) as instructed in the Pre-Construction conference. Use only those renamed files for the Marked-up changes. All changes shall be made on the layer/level as the original item.

- c. When final revisions have been completed, show the wording "RECORD DRAWINGS / AS-BUILT CONDITIONS" followed by the name of the Contractor in letters at least 3/16 inch high on the cover sheet drawing. Mark all other contract drawings either "Record" drawing denoting no revisions on the sheet or "Revised Record" denoting one or more revisions. Date original contract drawings in the revision block.

Include Construction Contract No. "N62470-08-D-1007, CTO JU49" in all drawings.

- d. Within 30 days for contracts less than \$5 million of substantial completion of all phases of work, submit the final record drawing package for the entire project. Submit one set of electronic files on compact disc, read-only memory (CD-ROM), two sets of blue-line prints, and one set of the approved working record drawings. They must be complete in all details and identical in form and function to the contract drawing files supplied by the Government. Any transactions or adjustments necessary to accomplish this are the responsibility of the Contractor. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CADD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final record drawing files and marked prints as specified will be cause for withholding any payment due the Contractor under this contract. Approval and acceptance of final record drawings must be accomplished before final payment is made to the Contractor.

### 1.3 PERFORMANCE BOND

The Contractor's Performance Bond must remain effective throughout the construction period.

- a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.
- b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.
- c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Contracting Officer to proceed against the Contractor.

### 1.4 CLEANUP

Leave premises "broom clean." Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site. Recycle, salvage, and return construction and demolition waste from project in accordance with the Waste Management Plan. Promptly and legally transport and dispose of any trash. Do not burn, bury, or otherwise dispose of trash on the project site.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

## SECTION 31 00 00

## EARTHWORK

**08/08**

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## ASTM INTERNATIONAL (ASTM)

ASTM C 136	(2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 1140	(2000; R 2006) Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve
ASTM D 1556	(2007) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 2216	(2005) Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D 2487	(2006e1) Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(2005) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(2005) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 422	(1963; R 2007) Particle-Size Analysis of Soils
ASTM D 4318	(2005) Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D 698	(2007e1) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

## U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2003) Safety -- Safety and Health Requirements
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## 1.2 DEFINITIONS

### 1.2.1 Satisfactory Materials

Satisfactory materials comprise any materials classified by ASTM D 2487 as SW, SP, SM, SW-SM, SP-SM, ML, CL-ML. Satisfactory materials for grading comprise stones less than 4 inches, except for fill material for pavements which comprise stones less than 3 inches in any dimension.

### 1.2.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. Notify the Contracting Officer when encountering any contaminated materials.

### 1.2.3 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are non-plastic. Perform testing, required for classifying materials, in accordance with ASTM D 4318, ASTM C 136, ASTM D 422, and ASTM D 1140.

### 1.2.4 Topsoil

Material suitable for topsoil obtained from offsite areas is defined as: Natural, friable soil representative of productive, well-drained soils in the area, free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material detrimental to plant growth. Amend topsoil pH range to obtain a pH of 5.5 to 7.

### 1.2.5 Unstable Material

Unstable materials are materials that are too wet to properly support the utility pipe, conduit, or appurtenant structure.

### 1.2.6 Maryland Department of Transportation (MDOT) Specifications

Standard Specifications for Construction and Materials, Maryland Department of Transportation, State Highway Administration, July 2008.

## 1.3 SYSTEM DESCRIPTION

### 1.3.1 Shoring

If workers must enter an excavation, it shall be evaluated, shored, sloped, or braced as required by EM 385-1-1 and OSHA Regulations 29 CFR 1926 Section 650.

### 1.3.2 Classification of Excavation

No consideration will be given to the nature of the materials, and all excavation will be designated as unclassified excavation.

#### 1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

##### SD-03 Product Data

Imported Materials; G, AE

Proposed source and required product or test information of borrow material and products.

#### PART 2 PRODUCTS

##### 2.1 REQUIREMENTS FOR OFFSITE SOILS

Offsite soils brought in for use as fill and backfill shall be tested for the following Soil Quality Constituents and analytical methods:

1. Gasoline Range Organics (Method 5030 sample prep with Modified 8015).
2. Diesel Range Organics (Method 5030 and 3550 sample prep with Modified 8015).
3. Oil and Grease with Silica Gel Scrub (US Environmental Protection Agency (EPA) Method 9071).
4. RCRA Metals (Toxicity Characteristic Leaching Procedure) (EPA Method SW-846 1311).

Copies of the analytical results for the imported fill and backfill material for these Soil Quality Constituents shall be provided to the Navy prior to the placement of the materials.

Materials from off-site borrow sources with greater than 100 parts per million (ppm) of TPH; greater than 1 ppm of the sum of Benzene, Toluene, Ethylbenzene, and Xylene (BTEX); or inorganic or TCL organic constituent concentrations exceeding US EPA Region 3 Regional Screening Levels (RSLs) for industrial soil.

The analytical results for the Soil Quality Constituents within the backfill will be non-detect or detected below the corresponding acceptable criteria. Backfill containing any Soil Quality Constituents with detected concentrations at or above the acceptable criteria will require Navy approval prior to backfill placement.

##### 2.2 GRADING FILL

Satisfactory materials as defined in Article DEFINITIONS.

##### 2.3 COVER SOIL

Clean, imported satisfactory materials as defined in Article DEFINITIONS. Materials from onsite excavations shall not be used as Cover Soil materials.

## 2.4 TOPSOIL

Topsoil as defined in Article DEFINITIONS.

## 2.5 GRAVEL FILL

No. 57 crushed aggregate as specified in Section 901.01 (Table 901A) of the MD DOT specifications.

## 2.6 MATERIAL FOR RIP-RAP

Provide filter fabric and rock conforming to MDE and/or MDOT Standards for construction indicated.

### 2.6.1 Rock

Provide rock fragments sufficiently durable to ensure permanence in the structure and the environment in which it is to be used. Use rock fragments free from cracks, seams, and other defects that would increase the risk of deterioration from natural causes. Provide rock with a minimum specific gravity of 2.50. Do not permit the inclusion of more than trace quantities of dirt, sand, clay, and rock fines.

### 2.6.2 Gradation Requirements

Provide rock meeting the gradation requirements in Section 901.02 of the MD DOT specifications for the Class of Riprap shown on the drawings.

### 2.6.3 Bedding Geotextile for Rip-rap

Type 2 geotextile as specified in Section 31 32 11, SOIL SURFACE EROSION CONTROL.

## 2.7 PIPE AND STRUCTURAL BACKFILL MATERIALS

### 2.7.1 Trench Stabilization Stone

Clean, hard, durable 3-inch minus crushed stone, gravel, or pit run stone free from clay balls, organic materials, or debris. Trench stabilization stone shall be uniformly graded from coarse to fine with less than 8 percent passing a No. 4 (1/4-inch) standard sieve.

### 2.7.2 Pipe Bedding, Pipe Zone, and Structural Backfill Materials

Sand or silty sand classified as SP or SM in accordance with ASTM D 2487.

### 2.7.3 Backfill Above Pipe Zone

Grading fill as previously specified in this section.

## 2.8 STRUCTURAL BACKFILL MATERIAL

Granular material classified as SW, SP, SM, SW-SM, or SP-SM in accordance with the Unified Soil Classification System (ASTM D 2487).

## PART 3 EXECUTION

### 3.1 GENERAL EXCAVATION

Except where specifically shown on the drawings or approved in writing, excavation of existing materials within the limits of Site 11 is prohibited. Where excavation is permitted, perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Perform the grading in accordance with the typical sections shown and the tolerances specified in paragraph FINISHING. Transport satisfactory excavated materials and place in fill or embankment in accordance with Article GRADING FILL PLACEMENT. Dispose unsatisfactory materials removing from excavations into designated waste disposal or spoil areas.

#### 3.1.1 Ditches, Gutters, and Channel Changes

Finish excavation of ditches, gutters, and channel changes by cutting accurately to the cross sections, grades, and elevations shown on the final grading plan. Do not excavate ditches and gutters below grades shown.

#### 3.1.2 Drainage Structures

Make excavations to the lines, grades, and elevations shown, or as directed.

#### 3.1.3 Drainage

Provide for the collection and disposal of surface and subsurface water encountered during construction. Completely drain construction site during periods of construction to keep soil materials sufficiently dry. Construct storm drainage features (ponds/basins) at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and/or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. It is the responsibility of the Contractor to assess the soil and ground water conditions presented by the plans and specifications and to employ necessary measures to support construction equipment, stabilize the surface, and permit construction to proceed.

#### 3.1.4 Dewatering

Control groundwater flowing toward or into excavations to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. Take control measures by the time the excavation reaches the water level in order to maintain the integrity of the in situ material.

### 3.2 SURFACE PREPARATION

#### 3.2.1 Clearing

Clear and prepare the work area in accordance with Section 31 11 00, CLEARING.

### 3.3 GRADING FILL PLACEMENT

Grading fill shall be installed to establish the base grades for the 2-foot-minimum final cover system (e.g., 18 inches of soil cover and 6

inches of topsoil). A minimum of 2 feet of grading fill shall be placed over redistributed landfill material.

### 3.3.1 Site Grading

Cut the existing grade to allow for a minimum of 2 feet of grading fill under 18 inches of imported suitable soil and 6 inches of topsoil. Place the excavated material at the low areas of the landfill. Imported additional suitable material to grade the surface to the final grade with a minimum of 2 feet of clean base fill under 18 inches suitable soil and 6 inches of topsoil.

### 3.3.2 Grading Fill Placement

Spread grading fill in 10-inch maximum loose lifts, adjust moisture content as necessary to facilitate compaction, and compact with spreading and haulage equipment, or as otherwise necessary, to at least 90 percent relative compaction as determined by ASTM D 698. Do not place materials that are frozen or contain frost and do not place materials on surfaces that are muddy, frozen, or contain frost. Upon completion, trim the top of the grading fill to the required base grade for the final soil cover system.

## 3.4 DRAINAGE STRUCTURE AND PIPE

### 3.4.1 Trench Stabilization Stone

Where foundation materials are too wet or unstable for proper drainage structure or pipe installation, over-excavate the area as necessary to form a stable pad, but not less than 6 inches, and install trench stabilization stone in the excavated area. Compact the stone to form a firm and stable pad for subsequent construction.

### 3.4.2 Structural Backfill

Place structural backfill materials below and around drainage structures to the limits shown. Structural backfill shall be placed in horizontal lifts not exceeding 8 inches in thickness before compaction, and shall be compacted to a firm and unyielding condition. Use only hand-operated equipment within 3 feet of the structure to prevent damage or displacement.

### 3.4.3 Pipe Bedding

Place pipe bedding in the bottom of the trench to the limits shown on the drawings. Compact the bedding materials to a firm and stable condition, grade the surface to the proper grade, and shape the surface as necessary to conform to the pipe and joints.

### 3.4.4 Pipe Zone Backfill

Place pipe zone materials around and over the drainage pipe to the configuration shown in horizontal lifts not to exceed 6 inches in thickness before compaction. Thoroughly tamp and supplement by "walking in" the materials firmly against the entire pipe surface during placement and compaction. Take particular care to prevent movement or displacement of the pipe during the backfill and tamping process.

### 3.4.5 Backfill Above the Pipe Zone

Backfill above the pipe zone using grading fill materials hereinbefore

specified. Place backfill materials in horizontal lifts not to exceed 8 inches prior to compaction and thoroughly compact to a firm, stable, and unyielding condition equivalent to the compaction specified in Article COVER PLACEMENT.

### 3.5 FINAL COVER SYSTEM PLACEMENT

The final landfill cover system, consisting of a minimum of 18 inches of compacted cover soil materials and 6 inches of topsoil must be installed within the limits shown.

#### 3.5.1 Soil Cap Placement

Spread cover soil in maximum 9-inch loose lifts, adjust moisture to the range necessary to meet the required permeability value, and compact to at least 90 percent relative compaction as determined by ASTM D 698. Scarify the surface of each completed lift before installing the subsequent lift. Once the full thickness, and/or the final configuration of the cover soil component have been achieved, trim to the final grades making allowance for the thickness of topsoil. Nowhere within the limits of final cover system placement shall the final cover soil layer thickness be less than 18 inches. At the end of each day, and upon reaching final grading fill grade, shape and grade the fill at the end of each day to drain and compact the surface with rubber tired or smooth wheeled equipment to seal it from infiltration of rainfall. Trim and grade the final cover soil surface to the required thickness, and grade and compact.

#### 3.5.2 Topsoil Placement

Prepare the compacted soil cover layer to a 2-inch depth for bonding of topsoil with the soil cover layer. Spread topsoil evenly to a thickness of 6 inches and grade to the elevations and slopes shown. Do not spread topsoil when frozen or excessively wet or dry. Obtain material required for topsoil in excess of that produced by excavation within the grading limits from offsite areas.

### 3.6 FINISHING

Finish the surface of excavations, embankments, and subgrades to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown. Provide the degree of finish for graded areas within 0.1 foot of the grades and elevations indicated except that the thicknesses of the soil cover and topsoil layers shall be at least the minimum thicknesses specified. Finish gutters and ditches in a manner that will result in effective drainage. Finish the surface of areas to be turfed from settlement or washing to a smoothness suitable for the application of turfing materials. Repair graded, topsoiled, or backfilled areas prior to acceptance of the work, and re-established grades to the required elevations and slopes.

### 3.7 TESTING

#### 3.7.1 Chemical Testing

A minimum of one battery of chemical tests shall be provided for each type (e.g., grading fill, soil cover, topsoil, etc.) and source of imported materials delivered to the site. Each battery of tests shall be for the constituents listed under Article REQUIREMENTS FOR OFF-SITE SOILS.

### 3.7.2 Soil Testing

#### 3.7.2.1 Fill and Backfill Material Testing

Perform a minimum of one test in accordance with ASTM C 136 for conformance with ASTM D 2487 gradation limits; ASTM D 1140 for material finer than the No. 200 sieve; and ASTM D 4318 for liquid limit and for plastic limit for every 1,000 cubic yards of grading fill and cover soil delivered, per source. Additional tests may be required if field observations suggest a change in delivered materials.

#### 3.7.2.2 Compaction Testing

Perform a minimum of 1 compaction test per ASTM D 698 for every 1,000 cubic yards of soil cover materials delivered, per source. Additional tests may be required if field compaction testing and observations suggest changes in materials.

#### 3.7.2.3 Field Compaction Testing

Perform in-place field density and moisture content by any one, or a combination, of ASTM D 1556, ASTM D 2216, ASTM D 2922, and ASTM D 3017 at minimum rate of one moisture-density determination for every 10,000 square feet or a minimum of one test per lift per day, whichever is greater, of cover soil placed.

### 3.8 DISPOSITION OF SURPLUS MATERIAL (NOT USED)

-- End of Section --

SECTION 31 11 00

CLEARING

**08/08**

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Nonsaleable Materials; G

Written permission to dispose of such products on private property shall be filed with the Contracting Officer.

1.2 DELIVERY, STORAGE, AND HANDLING

Deliver materials to store at the site, and handle in a manner which will maintain the materials in their original manufactured or fabricated condition until ready for use.

PART 2 PRODUCTS

2.1 TREE WOUND PAINT

Bituminous based paint of standard manufacture specially formulated for tree wounds.

PART 3 EXECUTION

3.1 PROTECTION

3.1.1 Roads and Walks

Keep roads and walks free of dirt and debris at all times.

3.1.2 Trees, Shrubs, and Existing Facilities

Protection shall be in accordance with MDE Standards and details shown on Drawings. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require.

3.1.3 Utility Lines

Protect existing utility lines that are indicated to remain from damage. Notify the Contracting Officer immediately of damage to or an encounter with an unknown existing utility line. The Contractor shall be responsible for the repairs of damage to existing utility lines that are indicated or made known to the Contractor prior to start of clearing operations. When utility lines which are to be removed are encountered within the area of

operations, notify the Contracting Officer in ample time to minimize interruption of the service. Refer to Section 01 30 00, ADMINISTRATIVE REQUIREMENTS and Section 01 57 19.00 20, TEMPORARY ENVIRONMENTAL CONTROLS for additional utility protection.

### 3.2 CLEARING

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas to be cleared. Clearing shall also include the removal and disposal of structures that obstruct, encroach upon, or otherwise obstruct the work. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter and shall be trimmed of all branches the heights indicated or directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 1-1/2 inches in diameter shall be painted with an approved tree-wound paint.

### 3.3 MOWING

Grass within the work area shall be mowed to a height of no more than 3 inches of the ground surface immediately prior to the start of fill placement. Cut grass shall be removed from the work area. Stripping shall not be performed.

### 3.4 GRUBBING

Grubbing shall not be performed, except in areas where excavation is authorized in writing. Grubbing, where allowed, shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform to the original adjacent surface of the ground.

### 3.5 DISPOSAL OF MATERIALS

#### 3.5.1 Nonsaleable Materials

Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing, grubbing, and mowing operations, shall be disposed of in the offsite waste disposal area approved by the Government, except when otherwise directed in writing. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed.

-- End of Section --

## SECTION 31 32 11

## SOIL SURFACE EROSION CONTROL

08/08

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## ASTM INTERNATIONAL (ASTM)

ASTM D 3786/D 3786M	(2009) Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method
ASTM D 4355	(2007) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D 4491	(1999a; R 2004e1) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(2004) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 2003) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(2004) Determining Apparent Opening Size of a Geotextile
ASTM D 4833	(2000e1) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 5261	(1992; R 2003) Measuring Mass Per Unit Area of Geotextiles

## Maryland Department of the Environment (MDE)

MDE SESC	(2010) Standards and Specifications for Soil Erosion and Sediment Control
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## 1.2 SYSTEM DESCRIPTION

The work consists of furnishing and installing temporary and permanent soil surface erosion control materials to prevent the pollution of air, water, and land, including fine grading, blanketing, stapling, mulching, vegetative measures, structural measures, and miscellaneous related work, within project limits and in areas outside the project limits where the soil surface is disturbed from work under this contract at the designated locations. This work includes all necessary materials, labor, supervision

and equipment for installation of a complete system. Coordinate this section with the requirements of Section 31 00 00 EARTHWORK.

### 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

#### SD-03 Product Data

##### Erosion Control Matting; G

Product data showing that the proposed materials conform to the minimum requirements specified.

#### SD-07 Certificates

##### Mulch

##### Lime and Fertilizer, and other Additives

Prior to delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include the following.

##### Seed

Classification, botanical name, common name, percent pure live seed, minimum percent germination and hard seed, maximum percent weed seed content, and date tested.

Composition, source, and particle size. Products shall be free from toxic chemicals or hazardous material.

### 1.4 DELIVERY, STORAGE, AND HANDLING

Store materials in designated areas in accordance with methods recommended by the manufacturer. Protect from the elements, direct exposure, and damage. Do not drop containers from trucks. Material shall be free of defects that would void required performance or warranty. Deliver materials in the manufacturer's original sealed containers and stored in a secure area.

- a. Furnish erosion control matting and geotextile fabric in rolls with suitable wrapping to protect against moisture and extended ultraviolet exposure prior to placement. Label erosion control matting and geotextile fabric rolls to provide identification sufficient for inventory and quality control purposes.
- b. Inspect seed upon arrival at the jobsite for conformity to species and quality. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected.

### 1.5 SCHEDULING

Submit a construction work sequence schedule, with the state or local government approved erosion control plan, a minimum of 30 days prior to

start of construction. The work schedule shall coordinate the timing of land disturbing activities with the provision of erosion control measures to reduce on-site erosion and off-site sedimentation. Coordinate installation of temporary erosion control features with the construction of permanent erosion control features to assure effective and continuous control of erosion, pollution, and sediment deposition. Include a vegetative plan with planting and seeding dates and fertilizer, lime, and mulching rates. Distribute copies of the work schedule and erosion control plan to site subcontractors.

## 1.6 WARRANTY

Erosion control material shall have a warranty for use and durable condition for project specific installations. Temporary erosion control materials shall carry a minimum 18-month warranty. Permanent erosion control materials shall carry a minimum 3-year warranty.

## PART 2 PRODUCTS

All products shall meet the standards of MDE SESC at a minimum.

### 2.1 SILT FENCE / SUPER SILT FENCE

#### 2.1.1 State Standard Silt Fence

MDE SESC Standard E-1, Silt Fence, and MDE SESC Standard E-3, Super Silt Fence. Standard silt fence shall be double staked or have lattice strips as required by the Navy.

### 2.2 EARTH DIKE

MDE SESC Standard C-1.

### 2.3 CONSTRUCTION ENTRANCE

#### 2.3.1 MDE SESC Stabilized Construction Entrance B-1.

##### 2.3.1.1 Aggregate

MDE SESC Standard H-1.

##### 2.3.1.2 Geotextile

Nonwoven Polypropylene, nylon, or polyester geotextile materials containing stabilizers and/or inhibitors to make the fabric resistant to deterioration from ultraviolet. Geotextile Class C or better, in accordance with MDE SESC Standard H-1, or as otherwise specified below:

- a. The products shall have the following minimum average roll values (MRVs) for the properties stated below:

#### Type 1 (Drainage) Geotextile

Unit weight	ASTM D 5261	6 oz/sq yd
Grab tensile strength	ASTM D 4632	205 lbs
CBR Puncture resistance	ASTM D 4833	110 lbs
Trapezoidal tear resistance	ASTM D 4533	80 lbs
Apparent opening size	ASTM D 4751	80 to 100 std sieve
Permittivity	ASTM D 4491	90 gal/min/sq ft

UV resistance	ASTM D 4355	70 percent minimum at 500 hours
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### Type 2 (Bedding) Geotextile

Unit weight	ASTM D 5261	12 oz/sq yd
Grab tensile strength	ASTM D 4632	300 lbs
Mullen burst strength	ASTM D 3786/D 3786M	550 psi
Puncture resistance	ASTM D 4833	145 lbs
Trapezoidal tear resistance	ASTM D 4533	115 lbs
Apparent opening size	ASTM D 4751	70 to 100 std sieve
Permittivity	ASTM D 4491	60 gal/min/sq ft
UV resistance	ASTM D 4355	70 percent minimum

## 2.4 TEMPORARY AND PERMANENT SEEDING

Provide soil preparation, seeding, mulching, matting, or sod in accordance with Sheet EC-2 of design drawings.

### 2.4.1 State Standard Temporary Seeding

Provide seed, lime and fertilizer as indicated on the drawings, in accordance with MDE SESC Standard B-4-4, Temporary Stabilization, and as determined by agricultural soil tests conducted on topsoil materials.

## 2.5 EROSION CONTROL MATTING

MDE SESC Standard B-4-6, Soil Stabilization Matting, and the following provisions:

### 2.5.1 Type 1 Permanent Soil Stabilization Matting (Slope Application)

Erosion mat consisting of 100 percent coir fiber matting designed specifically to prevent erosion and support the root system until a firm stand of vegetation and root system has been established. Minimum expected functional life shall be 3 years. Product shall be BioD-Mat manufactured by RoLanka International, Inc. or equal. Mat materials shall not be bleached or dyed. Provide matting in widths of at least 4 feet. Provide staples for anchoring the mat.

### 2.5.2 Type 2 Permanent Soil Stabilization Matting (Channel and Control Bench Application)

Permanent soil stabilization matting for ditch or channel application shall be a three-dimensional, woven polypropylene geotextile Pyramat manufactured by Propex Operating Company, LLC, or equal. Minimum expected functional life shall be 10 years.

### 2.5.3 Securing Pins and Staples

As recommended by the erosion control matting supplier.

## 2.6 TURBIDITY CURTAIN (NOT USED)

## PART 3 EXECUTION

### 3.1 EROSION AND SEDIMENT CONTROLS

#### 3.1.1 Installation of Temporary Erosion and Sediment Controls

Install temporary erosion and sediment controls in accordance with the approved erosion and sediment control plan prior to clearing or other surface disturbing activities required beyond those that are absolutely necessary to install the erosion and sediment control measures. Maintain and repair as necessary throughout construction in accordance with plan requirements.

#### 3.1.2 Installation of Permanent Erosion and Sediment Controls

Install permanent erosion and sediment controls (e.g., permanent seeding, mulching, rip-rap, etc.) in accordance with the sequence and requirements of the permanent erosion and sediment control plan. Permanent controls shall be installed as soon as possible after final grades are established, but no later than 14 days after the grades are established. If the 14-day period is exceeded, temporary seeding or other MDE-approved temporary measures must be applied.

#### 3.1.3 Weather Conditions

Perform erosion control operations under favorable weather conditions; when excessive moisture, frozen ground or other unsatisfactory conditions prevail, the work shall be stopped as directed. When special conditions warrant a variance to earthwork operations, submit a revised construction schedule for approval. Do not apply erosion control materials in adverse weather conditions which could affect their performance.

### 3.2 PERMANENT SEEDING

#### 3.2.1 Agricultural Soil Test

Perform agricultural soil tests on topsoil materials to determine requirements for nutrients, fertilizer, and lime. Tests shall be conducted by a State-certified laboratory or agency.

#### 3.2.2 Finished Grade Verification

Verify that finished grades are as indicated on the drawings; complete finish grading and compaction in accordance with Section 31 00 00 EARTHWORK, prior to the commencement of the work. Verify and mark the location of underground utilities and facilities in the area of the work. Repair damage to underground utilities and facilities at the Contractor's expense.

#### 3.2.3 Surface Preparation

Add nutrients, fertilizer, lime, etc., and prepare a seed bed in the area to be seeded in accordance with procedures specified in MDE SESC Standard B-4, Vegetative Stabilization, except for the following provisions:

- a. Add soil amendments as necessary to bring phosphorous and potassium up to medium levels as determined by the soil test.
- b. Do not apply nitrogen to the soil before or during planting to avoid

the stimulation of weed growth.

#### 3.2.4 Permanent Seeding and Mulching

Conduct permanent seeding and mulching activities in accordance with the approved erosion and sediment control plan and in accordance with MDE SESC Standard 20.0, Vegetative Stabilization. Perform shallow planting with a seed drill set at 1/4-inch depth, or broadcast seed and apply 1/4- to 1/2-inch of moist compost on top of the seeds.

### 3.3 EROSION CONTROL MATTING

#### 3.3.1 Surface Preparation

Before placing the erosion control matting, ensure the subgrade has been graded smooth; has no depressed, void areas; is free from obstructions, such as tree roots, projecting stones or other foreign matter. Verify that mesh does not include invasive species. Vehicles will not be permitted directly on the blankets.

#### 3.3.2 Installation

Install and secure erosion control matting on seeded areas at locations and to the configuration shown on the drawings. Perform work in accordance with the approved erosion control plan, details on the drawings, matting manufacturer recommendations, and applicable provisions of MDE SESC Standard B-4-6, Soil Stabilization Matting.

### 3.4 CLEAN-UP AND PROTECTION OF SEEDED AREAS

Dispose of excess material, debris, and waste materials offsite at an approved off-site disposal facility. Immediately upon completion of the installation in an area, protect the area against traffic or other construction activities.

### 3.5 WATERING SEED

Start watering immediately after installing erosion control matting. Periodically water as necessary to supplement rainfall until vegetation is established. Water at a sufficient rate to ensure moist soil conditions to a minimum 1-inch depth. Prevent run-off and puddling. Do not drive watering trucks over erosion control matting areas, unless otherwise directed. Water hoses and pole mounted spray nozzles shall be used to ensure even coverage without creating puddling.

### 3.6 MAINTENANCE RECORD

Furnish a record describing the maintenance work performed, record of measurements and findings for product failure, recommendations for repair, and products replaced. Furnish a record of local rainfall weekly rainfall and dates and quantity of supplemental watering provided.

#### 3.6.1 Maintenance

##### 3.6.1.1 Mowing

Mowing to control weed growth and establish native grasses shall include following:

- a. First Year after Planting (Warranty Period): Mow with a sickle bar, tractor rotary brush cutter or similar device with the blade set at 7 inches whenever weeds reach a height of 12 inches or more.
- b. Second Year After Planting: Mow early in the growing season with a blade set at 10 inches.
- c. Subsequent Years: Mow half of the site every other year with a blade set at 10 inches, alternating mowing so that half of the site is mowed every year. Avoid mowing during bird nesting season (April 15 through July 30) after native grasses have established.
- d. Collect and remove grass cuttings as necessary to avoid smothering of new growth.

Maintenance shall include eradicating weeds; protecting embankments and ditches from surface erosion; maintaining the performance of the erosion control materials and mulch; protecting installed areas from traffic.

### 3.6.2 Erosion Control Matting Patching and Replacement

Unless otherwise directed, material shall be placed, seamed or patched as recommended by the manufacturer. Remove material not meeting the required performance as a result of placement, seaming, or patching, from the site. Replace the unacceptable material at no additional cost to the Government.

### 3.6.3 Maintenance Instructions

Furnish written instructions containing drawings and other necessary information, describing the care of the installed material; including, when and where maintenance should occur after the first year after planting, and the procedures for material replacement.

## 3.7 SATISFACTORY STAND OF GRASS PLANTS

1. No bare spots larger than 3 square feet.
2. Not more than 10 percent of total area with bare spots larger than 1 square foot.
3. Not more than 15 percent of total area with bare spots larger than 6 square inches.

-- End of Section --

## SECTION 33 40 00

## STORM DRAINAGE UTILITIES

01/08

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## ASTM INTERNATIONAL (ASTM)

ASTM D 2321	(2005) Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D 4101	(2009) Standard Specification for Polypropylene Injection and Extrusion Materials
ASTM F 477	(2008) Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

## 1.2 DELIVERY, STORAGE, AND HANDLING

## 1.2.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. Before, during, and after installation, plastic pipe and fittings shall be protected from any environment that would result in damage or deterioration to the material. Keep a copy of the manufacturer's instructions available at the construction site at all times and follow these instructions unless directed otherwise by the Contracting Officer. Solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe shall be stored in accordance with the manufacturer's recommendations and shall be discarded if the storage period exceeds the recommended shelf life. Solvents in use shall be discarded when the recommended pot life is exceeded.

## 1.2.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

## PART 2 PRODUCTS

## 2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe for culverts and storm drains shall be of the sizes indicated and shall conform to the requirements specified.

### 2.1.1 HDPE Pipe

HDPE pipe shall be manufactured in accordance with ASTM D 4101. Associated gaskets shall be manufactured in accordance with ASTM F 477. Installation shall be in accordance with ASTM D 2321 and manufacturer's recommendation.

## 2.2 DRAINAGE STRUCTURES

### 2.2.1 Flared End Sections

HDPE Flare end section shall be MSHA Standard Category 300.

## 2.3 MISCELLANEOUS MATERIALS

### 2.3.1 Temporary Erosion Control Infrastructure

All temporary erosion control infrastructure shown on the erosion control plans shall be in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control. Infrastructure as indicated, but not limited to, includes the following: trash rack, anti-vortex device, anti-seep pipe collar, and corrugated metal riser.

## 2.4 EROSION CONTROL RIPRAP

Shall be as defined in Section 31 00 00 EARTHWORK.

## PART 3 EXECUTION

### 3.1 EXCAVATION FOR PIPE CULVERTS, STORM DRAINS, AND DRAINAGE STRUCTURES

Excavation of trenches and for appurtenances and backfilling for culverts and storm drains, shall be in accordance with the applicable portions of Section 31 00 00 EARTHWORK and the requirements specified below.

#### 3.1.1 Trenching

The width of trenches at any point below the top of the pipe shall be not greater than the outside diameter of the pipe plus 24 inches to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheeting and bracing, where required, shall be placed within the trench width as specified, without any over-excavation. Where trench widths are exceeded, redesign with a resultant increase in cost of stronger pipe or special installation procedures will be necessary. Cost of this redesign and increased cost of pipe or installation shall be borne by the Contractor without additional cost to the Government.

#### 3.1.2 Removal of Unstable Material

Where wet or otherwise unstable soil incapable of properly supporting the pipe, as determined by the Contracting Officer, is unexpectedly encountered in the bottom of a trench, such material shall be removed to the depth required and replaced to the proper grade with select granular material, compacted as provided in paragraph BACKFILLING. When removal of unstable material is due to the fault or neglect of the Contractor while performing specified or incidental work, such as removal and replacement shall be performed at no additional cost to the Government.

### 3.2 DRAINAGE STRUCTURE AND BEDDING INSTALLATION

As specified in Section 31 00 00 EARTHWORK.

### 3.3 DRAINAGE STRUCTURE INSTALLATION

Install drainage structures on the prepared foundation as shown on the drawings. Ensure that the base is level and fully stable before proceeding. Once the base has been set and checked, install the risers, joints, frames, and other requirements in accordance with the details shown on the drawings. Connect the pipes to the manhole structure and connect with resilient connectors specified for this purpose or mortared to produce a watertight joint. Install in accordance with the MDSA Standard Specifications for Construction and Materials, Category 300.

### 3.4 PIPE INSTALLATION

#### 3.4.1 Preparation

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Proper facilities shall be provided for lowering sections of pipe into trenches. Lifting lugs in vertically elongated metal pipe shall be placed in the same vertical plane as the major axis of the pipe. Pipe shall not be laid in water, and pipe shall not be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary.

#### 3.4.2 Laying Pipe

Laying shall proceed upgrade with spigot ends of bell-and-spigot pipe and tongue ends of tongue-and-groove pipe pointing in the direction of the flow.

#### 3.4.3 Pipe Joints

##### 3.4.3.1 Construction

Gaskets and jointing materials shall be as recommended by the particular manufacturer in regard to use of lubricants, cements, adhesives, and other special installation requirements. Surfaces to receive lubricants, cements, or adhesives shall be clean and dry. Gaskets and jointing materials shall be affixed to the pipe not more than 24 hours prior to the installation of the pipe, and shall be protected from the sun, blowing dust, and other deleterious agents at all times. Gaskets and jointing materials shall be inspected before installing the pipe; any loose or improperly affixed gaskets and jointing materials shall be removed and replaced. The pipe shall be aligned with the previously installed pipe, and the joint pushed home. If, while the joint is being made the gasket becomes visibly dislocated the pipe shall be removed and the joint remade.

#### 3.4.4 Flared End, Headwall, and Inlet Installation

Install in accordance with the MDSA Standard Specifications for Construction and Materials, Category 300.

### 3.5 TEMPORARY EROSION CONTROL INSTALLATION

Install in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control.

### 3.6 BACKFILLING

Backfill drainage structure and installed pipe in accordance with backfill materials and placement requirements specified in Section 31 00 00, EARTHWORK.

### 3.7 RIPRAP PLACEMENT

Place riprap at the end of the flared end section in accordance with riprap materials and placement requirements specified in Section 31 00 00, EARTHWORK.

-- End of Section --



# APPENDIX G

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## *POST CONSTRUCTION SURVEY SPECIFICATION*

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\*\*\*\*\*  
 DEPARTMENT OF THE NAVY NAVFAC-02224 (JUNE 2004)  
 NAVFAC WASHINGTON, DETACHMENT WEST  
 GUIDE SPECIFICATION  
 \*\*\*\*\*

SECTION 02224  
 GEOGRAPHIC INFORMATION SYSTEM (GIS)  
 GRADE-B POST-CONSTRUCTION LOCATION

06/04

\*\*\*\*\*  
 NOTE: This guide specification is issued by the NAVFAC Washington,  
 Detachment West and approved by the same.  
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 NOTE: This guide specification is required for all projects that enact  
 GRADE-B GIS Coordinate Accuracy. The designer shall check the NAVFAC  
 Washington, Detachment West GIS COORDINATE ACCURACY STANDARDS to  
 determine if this project meets the requirements for GRADE-B GIS  
 Coordinate Accuracy. Use specification SECTION 02223 for projects that  
 require GRADE-A GIS Coordinate Accuracy.

NOTE: The designer shall include the following note in the GENERAL NOTES  
 or in the GENERAL CIVIL NOTES on the contract drawings:

THIS PROJECT REQUIRES GRADE-B GEOGRAPHIC INFORMATION SYSTEM (GIS)  
 COORDINATE ACCURACY. THE CONTRACTOR SHALL PERFORM A POST-CONSTRUCTION  
 SURVEY OF ALL NEW AND/OR ALTERED EXISTING ITEMS PROVIDED AS A RESULT OF  
 THIS CONTRACT. SEE SPECIFICATION SECTION 02224 - GEOGRAPHIC INFORMATION  
 SYSTEM GRADE-B POST-CONSTRUCTION LOCATION.

NOTE: The designer shall show at least two of the primary or secondary  
 combined control points to be used in the post-construction survey on  
 each Site Plan and give their Northing, Easting coordinates, and  
 Elevation in the U.S. Foot. The coordinates shall be shown to the  
 nearest 0.001' and the elevations to the nearest 0.01'. Contact James R.  
 Wheeler at (301) 744-2166 for control point information.  
 \*\*\*\*\*

PART 1 GENERAL

1.1 References

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 \*  
 NOTE: The NAVFAC Washington, Detachment West Drafting Guidelines can be  
 obtained from James R. Wheeler at (301) 744-2166 and shall be included as  
 Appendix A at the end of this specification section in the contract  
 specifications. It is important to verify the use of the latest revision.  
 \*\*\*\*\*

The publication listed below forms a part of this specification to the  
 extent referenced. The publication is referenced to the text by the basic  
 designation only. This publication is Appendix A at the end of this

specification section.

NAVFAC WASHINGTON, DETACHMENT WEST

NAVWASHDETWST-GIS-DG Geographic Information System, Drafting Guidelines

1.2 SYSTEM DESCRIPTION

Provide a survey to locate all new and/or altered surface and sub-surface items, including buried utilities, as required by this contract including all addendums, change orders, and modifications. Using the data from this GIS survey, provide a CADD file and an F-size mylar reproducible and print which shows these new items including buried utilities. The work required by this specification is a separate item required by the contract. It can be used to help update the construction AS-BUILTS drawings, but is not to be considered as such.

\*\*\*\*\*  
NOTE: All submittals shall be reviewed and approved by NAVFAC Washington, Detachment West.  
\*\*\*\*\*

1.3 SUBMITTALS

Submit the following in accordance with Section 01300, "Submittals".

SD-11, Closeout submittals

- Buried Utility Location Plan; G
- Survey Report; G
- GIS CADD file(s) with Field Data; G
- F-Size plot of the CADD file(s); G

PART 2 PRODUCTS

2.1 BURIED UTILITY LOCATION PLAN

2.1.1 Description

The plan shall indicate the method that the contractor and his surveyor will use to horizontally and vertically locate all new buried utilities and lines provided as a result of this contract including all change orders, addendums, and modifications. This shall include, but not be limited to, fresh and river water pipelines, sanitary and storm sewer pipelines, electrical conduits and lines, grounding rods and cables, telephone lines, cable TV and fiber optic lines, various process pipelines, etc. The plan shall be composed on 8 1/2" x 11" sheets only. No legal sheets are allowed.

2.1.2 Contents

The plan shall contain as a minimum:

- A cover sheet with the contract title and contract number.
- The company name, address, and phone number of the Prime construction contractor and Project Manager as well as a point of contact for this GIS work.

- The company name, address, and phone number of the firm performing the survey with the names of the personnel performing the survey.
- A full description of the method to be used for locating all new buried utilities for the GIS survey.
- The typed or neatly printed name and signature of the Prime contractors Project Manager and the Registered Land Surveyor who will be stamping the GIS work.

## 2.2 SURVEY REPORT

### 2.2.1 Physical Description

The report shall describe the companies and persons involved with the GIS work required by this specification section as well as providing information on what equipment was used to perform the survey. The report shall be compiled such that it is in one bound unit that may be filed in a standard file cabinet. The report shall be composed on 8 1/2" x 11" sheets only. No legal sheets are allowed.

### 2.2.2 Contents

The report shall include as a minimum:

- A cover sheet with the contract title and contract number.
- The company name, address, and phone number of the firm performing the survey with the names of the personnel performing the GIS survey.
- The company name, address, and phone number of the firm performing the survey with the names of the personnel performing the GIS survey.
- The date(s) that the GIS survey was performed.
- The make and model of the hardware used to perform the survey.
- The method of data collection with the name and version of the data collection software.
- A hard copy of the field data.
- The company name, address, and phone number of the firm providing the CADD file with the names of persons creating the file.
- A copy of the Buried Utility Location Plan.

## 2.3 GIS CADD FILE

### 2.3.1 Drafting Standards

All CADD files shall be prepared in accordance with NAVFAC Washington, Detachment West GIS DRAFTING GUIDELINES.

### 2.3.2 Media

The CADD file(s) shall be submitted on CD. The CDs shall become the property of the government at each submission.

### 2.3.3 Format

The CADD files shall be provided in the AutoCad (.DWG) R-14 or AutoCad 2002 version format only. The files shall be read and utilized without conversion or reprocessing with the exception of Archiving.

### 2.3.4 Archiving

The CADD files may be archived for convenience and for space limitations. The files shall be archived using PKZIP software, and shall be able to be un-archived using PKUNZIP. No other means of archival is allowed. A copy of the same version of PKZIP and PKUNZIP used to zip the files shall be included with the zipped files.

### 2.3.5 Scale

The CADD files shall all be done at FULL scale. The scale is 1.0 (1'-0" = 1'-0").

### 2.3.6 Orientation

Each CADD file shall be oriented such that all items are located at their true SPCS coordinates. The coordinates shall be in the U.S. Foot measurement using Northing and Easting Coordinates consistent with the State Plane Coordinate System (SPCS) for the State of Maryland (NAD 83). The files shall be oriented such that North is at the top of the screen.

### 2.3.7 Vector Graphics

The CADD files shall be in vector form only. The files shall be created using vector entities. The use of scanned or digitized files is not allowed. The use of files that have been vectorized from hand drawn, scanned, or digitized drawings is not allowed.

### 2.3.8 Plot Files

The use of plot files is not allowed.

### 2.3.9 Multiple Sites

If the project has multiple sites, a separate CADD file shall be made for each site.

### 2.3.10 Drawing Border and Title Block

The border and title block will be provided by the government on a 3 1/2" diskette.

### 2.3.11 Field Data

Each CADD file shall include all electronic field data on a frozen layer for future reference.

## 2.4 F-SIZE PLOT

### 2.4.1 Description

The contractor shall provide one mylar reproducible hard copy F-Size plot and four (4) blueprint copies of all new and/or altered existing items as a result of this project including all addendums, change orders, and modifications. The plot shall be oriented such that North is at the top of the sheet. All copies required by submittal shall be made from the mylar reproducible from the same submission.

### 2.4.2 Items Required on the Plot

The following items shall be included on the plan in addition to the GIS plan:

- The border and title block as provided by the government.
- The contract number and title.
- The date the CADD file was plotted.
- The scale of the plot and a Graphic Scale of the scale used to plot the drawing.
- A North arrow.
- A legend of items indicated on the GIS plan.
- The control points used for the survey and their Northing and Easting coordinates and elevations (each point shall be located at its true SPCS location).
- Building numbers and road names.
- The name and address of the Prime Contractor's firm.
- The name and address of the firm performing the Post-Construction survey.
- The name and address of the firm producing the GIS CADD file.
- The name and signature of the person preparing the CADD file and plot.
- The stamp and signature of the Registered Land Surveyor (physical imprint on the mylar reproducible only).

### 2.4.3 Multiple Sites

If the project has multiple sites, a separate F-size sheet shall be made for each site.

PART 3 EXECUTION

3.1 BURIED UTILITY LOCATION PLAN

3.1.1 Procedure

The buried utility location plan shall be prepared by the Prime Contractor with input from the Prime Contractor's surveyor. The Prime Contractor shall prepare and submit the Buried Utility Location Plan prior to performing any construction work.

3.2 GIS SURVEY

3.2.1 Description

A survey shall be performed by the contractor to horizontally and vertically locate all new and/or altered existing surface and subsurface items installed as a result of this contract. The contractor shall locate all items required by all disciplines of the contract and as required by all change orders, addendums, and/or modifications. This includes all new underground utilities including, but not limited to, fresh and river water pipelines, sanitary and storm sewer pipelines, electrical conduits and lines, grounding rods and cables, telephone lines, cable TV and fiber optic lines, and various process pipelines, etc.

3.2.2 Procedure

The survey shall be performed with a Total Station. The survey shall initiate at any primary or secondary combined (horizontal and vertical) control point near the construction site and backsight one other primary or secondary combined control point in order to provide the correct coordinates, elevations, and orientation. Available control points in the area will be indicated to the surveyor prior to the survey. Should additional turning points be required to complete the survey, a set-up on any other secondary combined control point may be used, or single turning points may be set from these primary or secondary control points. Any number of single turning points, that have been established from a primary or secondary combined control point, may be used to complete the survey. Should it be necessary to set additional turning points due to inaccessible areas, an open end traverse and level run shall be performed that extends from one existing primary or secondary control point to another with a minimum error of closure of 1/5000. Documentation of the open-end traverse and level run shall be included in the survey report.

3.2.3 Horizontal Location Standards

3.2.3.1 Surface and Subsurface Items

Horizontally locate all new and/or altered existing surface and subsurface items to 0.10' of their true SPCS coordinates.

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**NOTE: All submittals shall be reviewed and approved by NAVFAC Washington, Detachment West. Depending on the size of the survey required, the EIC shall indicate the time allowed for the creation of the CADD file. Consult with James R. Wheeler at (301)**

744-2166 for the approximate time required.

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3.2.4 Typical Horizontal Items

The survey shall include, but not be limited to:

3.2.4.1 Corners and Edges

Buildings, pads, dikes, tanks, structures, pavements, roads, parking areas, walks, woodlines, piers, walls, ponds, marshes, rivers, exposed portions of footings. Buildings shall be located at the corners of the building, not the corners of rooflines. Items indicated with edges such as woodlines, roads, ponds, and shorelines, shall be surveyed such that they provide a reasonable degree of accuracy to meet the intent of this specification. Woodlines shall be surveyed at the tree-dripline. When shorelines subject to tidal action are required to be surveyed, the shoreline shall be indicated at the Mean High Water (MHW) elevation of 1.42'.

3.2.4.2 Lines and Centerlines

Utility lines and pipelines, ditches, fences, overhead transmission lines, steam and air lines, cable trays.

3.2.4.3 Point Entities

Identify the following using symbols: valves, hydrants, poles, ground test pockets, stanchions, signs, trees.

3.2.5 Vertical Location Standards

The survey shall include, but not be limited to:

3.2.5.1 Elevated Items

The elevation of platform decks, top of masts, top of roofs, top of exhaust stacks. The elevation of overhead transmission lines, steam and air lines, and cable trays is not required.

3.2.5.2 Surface Items

The contractor shall indicate the elevation of all new and/or altered surface items to 0.10' of their true elevation as determined from the NAVFAC Washington, Detachment West Vertical Control. Indicate the top and invert elevations of all manholes, catch basins, headwalls, finished floor(s) of buildings, top of slabs, top of curbs, invert of dikes, etc.

3.2.5.3 Sub-Surface Items

The contractor shall indicate the elevation of all new and/or altered surface items to 0.50' of their true elevation as determined from the NAVFAC Washington, Detachment West Vertical Control. Indicate the elevation of the top of buried lines at a maximum of 50' intervals. Indicate the elevations at all connections to existing utilities, thrust blocks, reducers, changes in direction both horizontally and vertically, and terminations.

3.2.6 Topography

The survey shall be performed such that the contours can be indicated in one foot increments with no more than one half contour error at any location. Indicate high and low points with spot elevations.

3.2.7 Submerged Items

The bottom of new ponds shall be surveyed near the conclusion of the project such that they provide adequate topographic contours at the bottom of the pond. Simply indicating the design contours and elevations is not acceptable.

3.2.8 Utility Material and Sizes

The line size and material type of all new sub-surface piped utilities shall be indicated on the CADD file and on the F-size Plot according to the NAVFAC Washington, Detachment West GIS DRAFTING GUIDELINES.

3.3 GIS CADD FILE

At the completion of the survey the CADD file(s) for each site shall be created. The survey points shall be input into the file at their true SPCS coordinates and all items shall be drawn in at their true SPCS horizontal coordinates. All drafting shall be done according to the NAVFAC Washington, Detachment West GIS DRAFTING GUIDELINES.

3.4 F-SIZE PLOT

Upon completion of the CADD file, a mylar reproducible F-size plot shall be made to show the contents of each site. The file shall be plotted at FULL scale 1"=1" (scale = 1.0). Each site may be shown at any of the following scales: 1" = 10', 20', 30', 40', 50', 100', 200', 300', 400', 1000', 2000'. The plot shall be made such that the GIS plan occupies as much of the page as possible. If extensive GIS plans are required the use of match lines may be used while maintaining true SPCS coordinates.

\*\*\*\*\*  
NOTE: All submittals shall be reviewed and approved by NAVFAC Washington, Detachment West. Depending on the size of the survey required, the EIC shall indicate the time allowed for the creation of the CADD file. Consult with James R. Wheeler at (301) 744-2166 for the approximate time required.  
\*\*\*\*\*

3.5 SUBMISSIONS

3.5.1 Buried Utility Location Plan

The Prime Contractor shall prepare and submit four (4) copies of the Buried Utility Location Plan prior to performing any construction work. The plan shall not be considered as an acceptable means of location until approved by the Contracting Officer.

3.5.2 CADD Files and F-Size Plot

3.5.2.1 First Submission

Prepare and submit four (4) copies of the CADD files and F-size plots. Only one mylar reproducible is required per submission. The contractor shall make the required submission within 2 weeks after the completion of the post-construction survey.

3.5.2.2 Government Review

The government shall have two (2) weeks to perform a review of the GIS submissions for compliance with this specification and the NAVFAC Washington, Detachment West GIS DRAFTING GUIDELINES. At the end of two weeks the contractor shall receive a set of comments detailing the modifications required to be made to the GIS submittals.

3.5.2.3 Government Accuracy Testing

The government may elect to perform tests to check the accuracy of the post-construction location plan. If the contractor's plan does not produce results within the indicated accuracy requirements, the contractor shall perform another survey, correct all errors, and/or make all changes necessary to reflect the true locations of the individual items at no cost to the government.

3.5.2.4 Following Submissions

The contractor shall address all comments indicated by the government. the review process indicated above shall continue until all GIS, Grade-A Post Construction Location submittals are approved by the government. Only when the government approves the GIS submittals shall authorization be made for final payment of the construction contract, notwithstanding other items required by the construction contract.

\*\*\*\*\*  
NOTE: Include a copy of the NAVFAC Washington,  
Detachment West Drafting Guidelines at the end of  
this specification section as Appendix A.  
\*\*\*\*\*

-- End of Section --

--END OF SECTION--