



# TECHNICAL SPECIFICATIONS FOR THE OKALOOSA COUNTY ARTIFICIAL REEF CONSTRUCTION PROJECT

## PART 1 - GENERAL

### 1.1 SUMMARY

- A. These specifications include requirements for the furnishing of all supervision, labor, materials, equipment and performing all operations in connection with artificial reef material handling, loading, transport, and deployment within permitted reef areas in the Gulf of Mexico as indicated on the Construction Drawings (Drawings) and specified herein.
- B. The Contractor is informed that Okaloosa County (County) has obtained Florida Department of Environmental Protection (FDEP) and U.S. Department of the Army (DOA) authorizations for placing clean, durable concrete materials within designated areas of the Gulf of Mexico. The Contractor shall familiarize themselves with the FDEP and DOA authorizations and general permitting requirements for artificial reef deployment as they relate to the proposed work. The Contractor shall be aware that additional regulatory authorizations or requirements beyond those obtained by the County or stated in these specifications may be required for the proposed work. The Contractor shall maintain any and all necessary permits, licenses, and authorizations for handling and transporting the materials from the existing stockpile areas to the offshore artificial reef sites as indicated on the Construction Drawings and specified herein.

### 1.2 SCOPE OF WORK

- A. Okaloosa County proposes to construct a large-scale artificial reef (patch reef) within two permitted artificial reef areas – Fish Haven #13 and Fish Haven #14. A single patch reef shall be constructed at the centroid of each of the two permitted reef areas. The Construction Drawings show the proposed overall reef areas and patch reef site locations. An approximately equal volume of material shall be placed at each patch reef and the total volume placed will be based on the winning lowest, qualified bid. The materials used to construct the two patch reefs shall consist of re-purposed concrete targets of various sizes from Eglin Air Force Base (AFB) and surplus concrete materials from Okaloosa County and Fort Walton Beach public works departments. The project requires loading and hauling the proposed concrete materials from existing stockpile areas to a proposed waterside loading area, transferring the material to an appropriate offshore conveyance (e.g. barge), offshore transport, and deployment within the specified artificial reef sites in accordance with the contract documents. Failure to comply with any of the contract documents and requirements or addendums may constitute immediate termination of this contract.

### 1.3 DEFINITIONS

- A. Contract Documents: Technical Specifications and its attachments, Permits and other regulatory authorizations, Construction Plans, Contract, General Conditions, Supplemental General Conditions, Bid Proposal, Written Amendments, Addenda, Change Orders, Work Orders, Work Supplements and any other required Contractor Submittals related to the work.



- B. Plans/Construction Plans: Any drawings as specified in the Contract Documents. The term “Plans” is synonymous with the term “Construction Plans” and the term “Construction Drawings” or “Drawings”.
- C. Artificial Reef Materials: For the purposes of this project, the term “artificial reef material” or “reef material” refers to approved clean concrete products previously reviewed and approved for deployment by the Owner, Engineer, and the Florida Fish and Wildlife Conservation Commission (FWC). Materials generally include re-purposed concrete target material from Eglin AFB and public works material (culverts, catch basins, etc.) from Okaloosa County and Fort Walton Beach. A general inventory of approved artificial reef materials is provided in Appendix A and B. Reef material may vary in size and weight in accordance with these Specifications and Contract Documents.
- D. Mobilization: The deployment by the Contractor of such equipment and material as is necessary to perform the work as detailed in the Contract Documents and in compliance with State, Federal and local laws and regulations.
- E. Demobilization: The removal of all equipment and material associated with this Contract from the staging location(s) and work areas and doing so in a manner which leaves the staging site(s) and work areas in the original condition or in a condition acceptable to the Owner.
- F. Artificial Reef Area: An area of seafloor for which the County holds a permit to place artificial reef materials. An Artificial Reef Area is typically referred on a NOAA nautical chart as a “Fish Haven.” An artificial reef area typically contains numerous individual artificial reef sites, patch reefs, or deployments. For the purpose of this project, the permitted artificial reef areas (Fish Haven #13 and #14) are ¼ mile square (1,320 feet x 1,320 feet).
- G. Artificial Reef Site: A region within a permitted artificial reef area where approved materials are deployed. An artificial reef site is typically referred to as a deployment site or “patch” reef. Numerous artificial reef sites typically occur within a permitted artificial reef area; however, the individual reef or deployment sites are typically spaced 150 – 500 feet from one another. For the purpose of this project, the proposed artificial reef sites are located at the centroid of the permitted Fish Haven #13 and #14 artificial reef areas. Specific coordinates of the centroids and boundaries of the artificial reef sites are provided within the construction drawings and these specifications.
- H. Environmental Damage and/or Pollution: The presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, historical and/or recreational purposes. The control of environmental pollution and damage requires consideration of air, water, land, biological, and cultural resources and includes management of construction activities, visual aesthetics, noise, solid waste, and radiant energy, as well as other pollutants. Pollutants include, but are not limited to, fuel and other hydrocarbons such as hydraulic fluid, paints and solvents; bilge water; solid wastes; and noise.
- I. Owner: The owner for this project is the Okaloosa County Board of County Commissioners. The term “County” is synonymous with the term Owner.
- J. Engineer: The Owner’s representative responsible for construction administration.



## 1.4 SUBMITTALS

The following shall be submitted to the Owner and Engineer:

- A. Letter of Understanding: The Contractor shall submit a letter of understanding confirming that they have read, understand, and will abide by all terms and conditions of the Contract and all of the permits, easements and any applicable ordinances, statutes, laws, rules, regulations and standards (i.e., OSHA, FDOT, USCG, etc.) which may affect the Work and that they shall take responsibility for ensuring that their subcontractors have the same understanding and agree to abide by the same terms and conditions. The letter of understanding shall also include a statement acknowledging that the Contractor, including all of its personnel and subcontractors, is responsible for environmental protection.
- B. Base Access and Scheduling Requirements: The Contractor shall submit the required information (background check forms and detailed construction schedule) as outlined in Section 2 for accessing Eglin AFB Range C-64ABC and the Okaloosa Count Wright Landfill where artificial reef materials are currently stockpiled.
- C. Permits, Licenses, Certifications, and Approvals: The Contractor shall submit to the Owner copies of any additional permits, licenses, certifications, and approvals required for the proposed work. (See Section 3)
- D. Environmental Protection Plan: Within ten (10) calendar days of receiving the Notice to Proceed, the Contractor shall submit an Environmental Protection Plan in accordance with the requirements outlined in Section 4 for review and acceptance by the Owner's Representative.
- E. Quality Control (QC) Plan: Within ten (10) calendar days of receiving the Notice of Award, the Contractor will submit the Contractor Quality Control (CQC) Plan for review and acceptance by the Owner's Representative. The plan shall identify personnel, procedures, control, instructions, and forms to be used (See Section 5).
- F. Safety Plan: The Contractor shall specify all safety and inspection procedures and designate personnel responsible for supervising accident prevention activities and insuring compliance with safety measures. The Contractor shall provide a Safety Plan detailing these procedures and overseeing personnel as well as a maintenance of traffic plan (See Section 6).
- G. Deployment Plan: As part of the bid package, the Contractor shall submit to the Owner and Engineer a detailed Deployment Plan for the artificial reef construction project. The plan shall include a detailed construction schedule (including all work from initial mobilization through demobilization); staging area and access requirements; a list of all work force and equipment (for handling, transport, and deployment operations); a detailed work plan describing how the materials will be loaded, transported and deployed (including proposed haul routes, equipment and maintenance of traffic and safety protocols); and the qualifications of supervisor(s). The qualifications shall provide a detailed description of the Contractor's experience and understanding of artificial reef deployments and include a list of artificial reef deployments within the last 5 years. The Contractor shall also provide with the deployment plan documentation of any additional required permits, licenses, authorizations, etc. that may be required for operating proposed upland handling/hauling or offshore transport equipment. (See Section 8)
- H. Notice of Commencement: The Contractor shall notify the Engineer at least 21 days before initiating the work, including mobilization, staging, and/or other field work.



- I. Pre-deployment Notifications: The Contractor shall notify the Engineer at least 7 days prior to project mobilization, commencement of material loading and transport, and commencement of material deployment offshore.
- J. Artificial Reef Cargo Manifest: The Contractor shall submit the required *Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification Form* to the U.S. Army Corps of Engineers (USACE), the FWC, and the Engineer at least 14 days prior to material transport or deployment as required by the Department of the Army permit (See Section 8 and DOA Permits – Appendix C).
- K. Notice of Completion: The Contractor shall notify the Engineer at least 5 days before the scheduled completion. The Contractor shall meet and accompany the Engineer onsite during the final work area observation.
- L. Post-Deployment Placement Report and As-Built Drawing: The Contractor shall submit the required *Florida Artificial Reef Materials Placement Report and Post-Deployment Notification Form* to the USACE, FWC, and the Engineer within 7 days of completing the individual reef site deployments. The Contractor shall also provide a certification letter and as-built drawings of the constructed artificial reef sites in accordance with Section 8).



## **PART 2 - EXECUTION**

### **2.1 GENERAL**

#### **A. Schedule**

The Contractor shall not commence work until receiving a written Notice to Proceed from the Owner or Engineer. The Contractor shall complete all construction activity (material loading, transport, and offshore deployment) and remove all equipment from the staging and work areas by October 1, 2015. Additionally, the Contractor shall complete all construction and demobilization activities within 60 calendar days of work commencement, or by October 1, 2015, whichever occurs first. Work is permitted seven (7) days a week during daylight hours only (sunrise to sunset) or as restricted by the specific staging areas.

#### **B. Notifications**

##### **1. Pre-Deployment Notifications**

The Contractor shall contact the Coast Guard Sector Mobile Waterways Management Branch, 1500 15<sup>th</sup> Street, Mobile, AL 36615 or by phone at 251-441-5684 to determine if a Notice to Mariners or other Notice is required for the proposed work.

The Contractor shall also provide the required Notice of Commencement and Pre-Deployment Notification as specified in Section 1 and Section 8.

The Contractor shall notify the Engineer at least 7 days prior to project mobilization, commencement of material loading and transport, and commencement of material deployment offshore.

##### **2. Post-Deployment Notifications and Certification**

The Contractor shall notify the Engineer at least 7 days prior to project completion and demobilization. The Contractor shall provide the Owner and Engineer with a post-construction certification letter and as-built drawings of the constructed artificial reef sites documenting the precise location of the reef (lateral extents and centroid) within 7 days following completion of deployment of the reef material. The Post-Deployment Notification and Certifications shall be in accordance with Section 8.

##### **3. Additional Notifications**

The Contractor shall notify the Owner and Engineer at least 48 hours prior to any suspension of work. The Contractor shall notify the Owner and Engineer immediately for any work stoppages resulting from environmental impacts (endangered species impacts, fuel spills, etc.), permit violations, property owner disputes, safety violations, etc.

#### **C. Work**

The Contractor shall load and transport approved artificial reef materials from the existing stockpile areas to the proposed waterside loading area, load the material on suitable approved offshore conveyance(s), and deploy the materials within the permitted reef areas at the deployment sites specified in the Construction Drawings, Specifications, and Contract Documents. The Contractor shall field-verify the specific locations of the work (both upland and offshore work) and obtain Owner or Engineer approval prior to the transport or deployment of artificial reef materials or any related work



components. The Owner and Engineer reserve the right to suspend the work at any time when the location, layout, or equipment utilized by the Contractor is not sufficient to perform the work. The Contractor shall utilize the construction documents to define features of the work and document completed work areas.

## 2.2 WORK AREAS AND ACCESS

### A. Stockpile Areas

The Contractor shall evaluate, load, and haul designated artificial reef material from the Eglin Air Force Base (AFB) Stockpile Area C-64ABC and the Okaloosa County Wright Landfill to the proposed waterside loading/staging area. The location of both stockpile areas as well as the proposed haul routes are shown in the Construction Drawings. The Contractor shall identify any proposed equipment haul routes, staging/storage areas, or any additional work areas not shown in the Construction Drawings in the Deployment Plan submitted to Owner and Engineer for approval (see Section 8).

### B. Eglin AFB Background Check

All Contractor personnel desiring access to Range C-64ABC must pass a background check performed by Eglin's 96 Security Forces Squadron. The background check must be initiated at least 1 week prior to the earliest date access is requested by submitting an affidavit (Eglin AFB Form 90) to the AFRL Artificial Reef Project Coordinator (see Appendix D for required forms).

### C. Eglin AFB Range C-64ABC Staging Area

Access to Eglin AFB Range C-64ABC shall be coordinated through the Engineer; the Eglin AFB Air Force Research Laboratory (AFRL) Artificial Reef Project Coordinator, John Yelverton, at 850-883-1542 or [john.yelverton@eglin.af.mil](mailto:john.yelverton@eglin.af.mil); and through the Eglin AFB 96th Test Wing (96TW) Fixed Targets Engineer, Chris Brunson, at 850-882-7043 or [christopher.brunson@us.af.mil](mailto:christopher.brunson@us.af.mil). The contractor must coordinate the desired range access schedule with the Eglin AFB AFRL Artificial Reef Project Coordinator and the Eglin AFB 96TW Fixed Targets Engineer at least 30 days prior to the work start date. The Contractor will only be able to access the Eglin AFB C-64ABC staging area during normal business hours (7:30am – 4:30pm) Monday through Friday, except legal/federal holidays, unless otherwise approved by the Eglin AFB AFRL Artificial Reef Project Coordinator and the Eglin AFB 96TW Fixed Targets Engineer. No Range schedule conflicts are anticipated Saturday – Monday, and Eglin AFRL has agreed to be flexible in their mission scheduling Tuesday – Friday to support the Contractor's material loading and transport activities. Access will not be provided on federal holidays. The Contractor's performance may be interrupted due to high-priority mission schedules. For each calendar day or portion of any calendar day the contractor is removed from the job site by Eglin AFB personnel, the Contractor's schedule will be adjusted one calendar day. Any work desired to be accomplished during other than normal working hours will require approval by the AFRL Artificial Reef Project Coordinator and the Eglin AFB 96TW Fixed Targets Engineer.

The Contractor will be required to notify the following everyday he is on site:

- a. Joint Test and Training Operations Control Center (JTTOCC) at (850) 882-5800. The Contractor shall obtain a "Z" clearance, which is a verbal approval to enter a closed access range area for a specific time, not to be given more than one hour prior to entering the area, IAW Eglin AFB OI 13-204. Contractor must provide:
  - 1) Exact clearance location



- 2) Reason clearance is needed
- 3) Proposed routes to access the location
- 4) Time on location
- 5) Number of Contractor personnel
- 6) Number of vehicles and equipment

b. C-64ABC Range Manager, Brenda Weekley (850) 882-6868. The Contractor will be required to call the C-64ABC Range Manager prior to arrival and additionally sign-in his personnel and equipment with the C-64ABC Range Manager each morning prior to construction and afternoon upon completion of the work day.

c. 96<sup>th</sup> TW Fixed Targets Engineer, Chris Brunson (850) 882-7043. Contractor must provide:

- 1) Time on location
- 2) Proposed transport routes

D. Eglin AFB Range C-64ABC Training

All personnel working on the C-64ABC range must have a range hazard familiarization briefing to include Unexploded Ordnance (UXO) hazards, IAW Eglin AFB OI 13-204 (Chapter 9), which the AFRL will provide to the Contractor prior to construction.

E. Okaloosa County Wright Landfill Access

Access to the Okaloosa County Wright Landfill shall be coordinated through the Okaloosa County Solid Waste Department, Scott Henson, 850-978-0009 and [shenson@co.okaloosa.fl.us](mailto:shenson@co.okaloosa.fl.us). The Contractor will only be able to access the Okaloosa County Wright Landfill staging area during normal business hours (7:30am – 4:30pm), Monday through Friday, except legal/federal holidays, unless otherwise approved by the Okaloosa County Solid Waste Department.

F. Waterside Loading Areas

The Contractor shall utilize a suitable waterside loading area for transferring stockpiled materials to an adequate and authorized offshore conveyance or deployment vessel. The Owner has preliminarily coordinated with Vulcan Materials (contact information below) and received conceptual approval for Contractor use of the proposed waterside loading area as shown on the construction drawings. The Contractor will be responsible for reviewing the site's suitability for the proposed work and, if acceptable, obtaining use agreements with the upland property owner for the proposed work. The contractor shall document the waterside loading area activities in the Deployment Plan submitted to the Owner and Engineer for approval prior to construction.

Vulcan Materials Company  
157 North John Sims Parkway, Valparaiso, FL 32580  
Site Manager, Terry McGraw: (850) 729-8830  
Area Manager, Phil Pfeiffer: (251) 583-9688

The Contractor may propose additional or alternative waterside loading areas for transferring the reef materials to the offshore conveyance. The contractor shall provide information necessary to accurately describe the proposed waterside staging area and related work (e.g., location, haul routes, use agreements, etc.) in the Deployment Plan for Engineer and Owner review and approval. The Engineer and Owner shall review the proposed waterside staging area and Deployment Plan prior to the commencement of any construction activities.



G. Stockpile and Staging Areas

The Contractor shall utilize only the stockpile and staging areas shown in the Drawings unless otherwise approved by the Owner and Engineer. The Contractor shall maintain the stockpile and staging areas in a neat and orderly fashion and minimize the area utilized for staging and/or equipment storage. The Contractor will be responsible for cleaning and restoring the staging areas to pre-construction conditions to the satisfaction of the Owner and Engineer prior to demobilization. The Contractor shall be responsible for any damage to existing vegetation, infrastructure, private and public property, and staging, work, and access areas. The Contractor shall repair any damage resulting from the Contractor's operations at no cost to the Owner or Engineer. The Contractor will not be permitted to store construction equipment or materials within the stockpile areas on Eglin AFB property or Okaloosa County property unless approved otherwise by the Owner and individual property owners. The Contractor is responsible for the collection and removal of any debris and litter associated with the work. The Deployment Plan submitted by the Contractor shall describe the proposed use of the staging areas including equipment/materials to be used, schedule, storage areas, haul/access routes, etc.

H. Access and Haul Routes

The Contractor shall utilize the stockpile access corridors and haul routes shown in the Drawings unless otherwise approved by the Owner and Engineer. The Contractor shall maintain all accesses in working order and shall not inhibit traffic or any other operations occurring at any of the stockpile, staging or loading areas (e.g., Eglin AFB, Wright Landfill, or proposed waterside loading area). The Contractor shall not enter, stockpile material, or do any work on private properties outside of the project areas shown in the Drawings unless specifically approved by the individual property owner. The Contractor's use of the access and haul routes shall be planned and executed to minimize potential impacts to traffic and other activities occurring on Eglin AFB, Okaloosa County Wright Landfill, and the proposed waterside staging area. Driving vehicles or equipment outside of designated access and haul routes without approval by the Owner and Engineer is prohibited. The Contractor shall be responsible for any damage to existing access and haul routes and shall repair any damage resulting from the Contractor's operations at no cost to the Owner or Engineer.

I. Work Area

The Contractor's active work area shall be minimized to the greatest extent practical to load and transport approved artificial reef material in a continuous, uniform and efficient manner. The Contractor shall maintain all work areas in a neat and orderly fashion.



## PART 3 - PERMITS, LICENSES, CERTIFICATIONS, AND APPROVALS

### 3.1 Regulatory Authorizations

- A. The proposed artificial reef deployment areas (Fish Haven #13 and #14) are permitted to Okaloosa County by the Florida Department of Environmental Protection (FDEP) and U.S. Department of the Army (DOA), Corps of Engineers (USACE). The table below documents the existing permit numbers and expiration dates. The FDEP and DOA permits and permit drawings are provided in Appendix C. As shown in the Drawings, the proposed artificial reefs (Reef Site #1 and #2) shall be constructed at the centroids of the permitted reef areas defined in these authorizations. Reef Site #1 shall be constructed at the centroid of Fish Haven #13 and Reef Site #2 shall be constructed at the centroid of Fish Haven #14. Additional construction detail is provided in the Construction Drawings and in Section 8 below.

Reef Area	FDEP Permit Number	FDEP Permit Expiration Date	DOA Permit Number	DOA Permit Expiration Date
Fish Haven #13	46-0309090-002-EG	March 8, 2017	SAJ-2011-03485 (SP-SWA)	March 10, 2024
Fish Haven #14	46-0309090-003-EG	March 8, 2017	SAJ-2013-02668 (SP-SWA)	March 10, 2024

### 3.2 Compliance

- A. The Contractor is responsible for obtaining all environmental, building and related permits not supplied by the Owner, obtaining access and use agreements for work areas not owned by the Owner, and maintaining all the required licenses, certifications and approvals required for the work. The Contractor is responsible for complying with all requirements of the environmental and building permits, access/use agreements, easements, licenses, certifications, and approvals obtained by the Contractor or the Owner, and all conditions of the Contract Documents. The Contractor will be responsible for all fines and fees associated with not obtaining the proper permits, authorizations, or licenses; not following the permit conditions; or improper documentation as required by permit authorities. The Contractor shall post copies of all permits conspicuously on the job site and maintain copies on the deployment and support vessel(s) at all times during construction. Any other licenses or approvals required for the execution of this work shall be secured and paid for by the Contractor. The Contractor shall be responsible for ensuring that all project personnel of the Contractor and their subcontractors are fully aware of and abide by all applicable requirements and conditions stated in the attached permits and any applicable ordinances, statutes, laws, rules or regulations which may affect this project or the Contractor's/subcontractor's work under this project, including but not limited to safety regulations and minimum wage regulations. The Contractor shall be solely responsible for ensuring their personnel and subcontractors are informed of any modifications to any such applicable permits, ordinances, statutes, laws, rules or regulations.

### 3.3 Non-Compliance

- A. The Contractor shall immediately notify the Owner and Engineer of any non-compliance with the permits, access/use agreements, easements, licenses or terms and conditions of this contract. Any non-compliance noted by the Owner or Engineer shall be brought to the attention of the Contractor and the appropriate regulatory agencies. The responsible regulatory agency will determine the action to be taken and the Owner or Engineer will notify the Contractor. Such actions may include temporarily discontinuing



construction of the project. The Contractor shall comply and require all subcontractors to comply with all applicable Federal, State, and local laws, regulations, permits, and easements and all elements of the Environmental Protection Plan. The Contractor shall be liable for any actions, delays and costs resulting from any violation or non-compliance with the conditions of the permits, easements, and terms of this contract attributable to their personnel or subcontractors.



## **PART 4 - ENVIRONMENTAL PROTECTION**

### **4.1 GENERAL**

The Contractor shall conduct all work related activities in a manner so as to prevent pollution and other environmental damage and minimize or avoid disturbance to the existing natural upland and offshore environment throughout construction operations. The Contractor shall fulfill these specifications at the Contractor's expense. All costs associated with these sections shall be included in the unit costs for the transport and deployment of artificial reef materials.

### **4.2 PERMITS AND AUTHORIZATIONS**

The Contractor shall comply with all environmental permits and authorizations obtained by the Contractor or the Owner. Specifically, the Contractor is responsible for complying with all threatened and endangered species protection requirements and all other environmental protection requirements specified in FDEP Permit No. 46-0309090-002-EG and 46-0309090-003-EG, DOA Permit No. SAJ-2011-03485 (SP-SWA) and SAJ-2013-02668 (SP-SWA), and all documents referenced in these permits; a copy of these FDEP and DOA permits is provided in Appendix C. The Contractor is also responsible for complying with all other permits and authorizations obtained by the Contractor. The regulations, requirements, and conditions of all Federal, State, and local environmental permits and authorizations, obtained by Owner or Contractor, are considered a part of the contract and shall be complied with by the Contractor and subcontractors. The Contractor shall be responsible for ensuring that all Contractor personnel and subcontractors are all familiar with these and any other applicable permits, including referenced documents, their potential impact on the proposed work, and the measures needed to maintain compliance with these permits and authorizations. The Contractor will be responsible for all fines and fees associated with not obtaining the proper permits or authorizations, not following the permit conditions, and improper documentation or reporting required by regulatory authorities.

### **4.3 QUALITY CONTROL**

The Contractor shall establish and maintain quality control for environmental protection for all items set forth herein. The Contractor shall record on Daily Quality Control reports any problems in complying with laws, regulations, ordinances, and project permits and any corrective action taken (See Section 5 for daily reporting requirements).

### **4.4 ENDANGERED SPECIES PROTECTION**

The Contractor shall not impact any protected marine species. Construction operations shall be limited to daylight hours only. The Contractor will instruct all personnel associated with the project of the potential presence of protected species (e.g. sea turtles, manatees, gulf sturgeon) in the waters adjacent to the project area, the need to avoid collisions with these protected species, and specific regulatory measures to protect these species. The Contractor and all personnel shall follow all species protection measures required by regulatory authorizations (e.g., Sea Turtle and Smalltooth Sawfish Construction Conditions, Standard Manatee Conditions for In-Water Work, and Vessel Strike Avoidance Measures and Reporting for Mariners). All construction personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing marine species that are protected under the Endangered Species Act of 1973. The Contractor will be held responsible for any protected, threatened or endangered species harmed, harassed, or killed as a result of construction activities.

Any collisions with a sea turtle, manatee or gulf sturgeon, or sighting of any injured or incapacitated animal will be reported immediately to the Owner, Engineer and all other organizations/individuals as



required by regulatory authorizations. The Contractor will be required to abide by and implement all safeguards, reporting criteria, special operating conditions, lighting requirements, and other measures required by State and Federal permits to protect endangered species potentially occurring within and adjacent to the project limits during the entire period of construction.

The Contractor shall maintain an Environmental Log detailing all incidents, including sightings, collisions with, injuries, or killing of sea turtles or other marine species occurring during the contract period. The log shall be recorded on a standardized form developed by the Contractor and approved by the Owner and Engineer; the form is to be entitled "Environmental and Endangered Species Reporting Log." Copies of the log and all supporting data in its original form shall be forwarded directly to the Owner and Engineer within 10 days of recording. Following project completion, the Contractor shall submit an Environmental Final Summary Report summarizing the above incidents and sightings to the Owner and Engineer.

#### **4.5 ENVIRONMENTAL PROTECTION PLAN**

Within ten (10) calendar days after Notice to Proceed, the Contractor will submit in writing an Environmental Protection Plan. The Owner's Representative may, at its discretion, consider an interim plan for the first 10 days of operations. However, the Contractor must furnish an acceptable final plan no later than 20 calendar days after receipt of Notice to Proceed. Acceptance of the Contractor's plan will not relieve the Contractor of its responsibility for adequate and continuing control of pollutants and other environmental protection measures. Acceptance of the plan is conditional and predicated on satisfactory performance during construction. The Owner and Engineer reserve the right to require the Contractor to make changes to the Environmental Protection Plan or operations if they determine that environmental protection requirements are not being met. No physical work at the site will begin prior to acceptance of the Contractor's Environmental Protection Plan or an interim plan covering the work to be performed. The Environmental Protection Plan must include but not be limited to the following:

- A. A list of federal, state, and local laws, regulations, and permits concerning environmental protection, pollution control, and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws, regulations, and permits.
- B. Methods for protection of features and resources to be preserved within authorized work areas. The Contractor will prepare a listing of methods to protect resources needing protection, such as trees, shrubs, grasses and ground cover; landscape features; air and water quality; fish and wildlife; soil; and historical, archeological, and cultural resources.
- C. Procedures to be implemented to provide the required environmental protection and to comply with the applicable laws and regulations. The Contractor will provide written assurance that immediate corrective action will be taken to correct pollution of the environment due to accident, natural causes, or failure to follow the procedure set out in accordance with the environmental protection plan.
- D. A permit or license for (if required) and the location of the solid waste disposal area.
- E. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.
- F. Methods for protection of both terrestrial and marine Threatened and Endangered Species.
- G. Methods for protection of Marine and Estuarine Resources including seagrasses, salt marsh and essential fish habitat such as existing artificial reefs.



- H. Spill prevention. The Contractor must specify all potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, ground, water, wetlands, or drainage areas. The plan must specify the Contractor's provisions to be taken to meet Federal, State, and local laws and regulations regarding labeling, storage, removal, transport, and disposal of potentially hazardous substances.
- I. Spill contingency plan for hazardous, toxic, or petroleum material
- J. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or non-use. Plan should include measures for marking the limits of use areas.
- K. A statement identifying the Contractor's personnel who will be responsible for implementation of the Environmental Protection Plan. The Contractor's personnel responsible will report directly to the Contractor's top management and will have the authority to act for the Contractor in all environmental protection matters.
- L. A Certification Letter signed by Contractor; clearly identifying and acknowledging receipt, review, and understanding of all environmental permits applicable to the project and the conditions in the permits. The Certification Letter shall also acknowledge that the Contractor, including all of the Contractor's personnel and subcontractors, is responsible for environmental protection. The Certification Letter must be attached to the Environmental Protection Plan.

#### **4.6 NOTIFICATION**

The Owner or Engineer will notify the Contractor in writing of any observed noncompliance with the aforementioned federal, state, or local laws, regulations, and permits and other elements of the Contractor's Environmental Protection Plan. The Contractor will, after receipt of such notice, inform the Owner and Engineer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Owner or Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted for any such suspension, and any additional costs incurred by the Contractor shall be paid by the Contractor at no additional cost to the Owner.

The Contractor will immediately notify the Owner and Engineer, in writing, of the occurrence of any environmental incidents or violations of the permit requirements or environmental protection laws.

#### **4.7 REEF MATERIAL PROTECTION**

The Owner, Engineer, and FWC have reviewed the proposed reef material for regulatory authorization compliance and confirmed the material is suitable for artificial reef deployment. Appendix A and B provides a draft inventory of the approved reef materials. The Contractor shall be responsible for ensuring the reef material remains suitable for deployment throughout the handling, loading and transport process. The Contractor shall ensure the materials remain free of soils, oils and greases, debris, litter, putrescible substances, and other pollutants as required by regulatory authorizations. Should the materials become contaminated during the handling, loading, and transport process, the Contractor shall be responsible for cleaning the material to the satisfaction of the Owner or disposing of and replacing any contaminated units.



## 4.8 PROTECTION OF ENVIRONMENTAL RESOURCES

### A. General

It is intended that the land and water resources within the project boundaries and outside the limits of permanent work performed under this Contract be preserved in the present condition or be restored, after completion of construction, to a condition that will appear to be natural and not detract from the appearance of the project. As much as possible, the Contractor will confine his construction activities to areas defined by the plans and specifications. Where vegetation must be impacted for purposes of accessing the stockpiled artificial reef material, the Contractor shall minimize the limits of impact to the greatest extent practical; mark areas for review and approval by the Owner, Engineer and property owner; and impact only those areas specifically approved for necessary work. Driving of vehicles and stockpiling or placement of equipment or materials outside the limit of approved work areas is specifically prohibited.

### B. Work Area Limits

1. The Contractor's field offices, staging and stockpile areas, and temporary facilities will be placed in areas approved by the Owner or described on the Drawings. Temporary movement or relocation of the Contractor facilities will be made only upon approval by the Owner.
2. Prior to any construction, the Contractor will mark the areas that are not required to accomplish all work to be performed under this contract. Isolated areas within the general work area that are to be saved and/or protected will also be marked or fenced. Markers must be clearly visible during all construction times and operations. The Contractor will convey to his personnel the purpose of marking and/or protection of all necessary objects.

### C. Disposal of Wastes

Solid wastes (excluding clearing debris) shall be placed in containers that are emptied on a regular schedule. All handling and disposal shall be conducted to prevent contamination. The Contractor shall transport all solid waste off the properties within the project limits and dispose of it in compliance with federal, state, and local requirements for solid waste disposal. Discarded materials other than those that can be handled in the solid waste category will be handled as directed by the Owner.

### D. Dispensing of Fuel

The Contractor shall take all responsible precautions to prevent fuel spills or contamination of the ground with fuel. Fuel dispensers shall have a 4-foot square, 16-gauge metal pan with borders banded up and welded at corners right below the bibb. Edges of the pans shall be 8-inch minimum in depth to ascertain that no contamination of the ground takes place. Pans shall be cleaned by an approved method immediately after every dispensing of fuel and wastes disposed of offsite in an approved area. Should any fuel spills occur, the Contractor shall immediately notify the Owner, Engineer, property owner, and any other required parties and immediately remove the contaminated ground and dispose of it offsite at an approved facility.

### E. Disposal of Chemical Wastes

Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local regulations.



F. Disposal of Discarded Materials

Discarded materials other than those that can be included in the solid waste category shall be handled as directed by the Owner or Engineer.

**4.9 PROTECTION OF WATER RESOURCES**

A. General

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. The Contractor shall conduct his operations in a manner to minimize run-off and erosion, and shall conform to all water quality standards as prescribed by Chapter 63-302 of the Florida Administrative Code. Special management techniques as set out below shall be implemented to control water pollution by the listed construction activities that are included in this contract.

B. Marine and Estuarine Resources

The Contractor shall avoid impacts to any protected species and marine resources such as existing artificial and natural reefs, seagrasses, and marsh habitat within Choctawhatchee Bay, the Gulf of Mexico and connected waterbodies. Construction shall be limited to daylight hours only. Care shall be taken to avoid impacts to reefs, oysters, seagrasses, marsh, and any other resources or habitat in shallow marine or estuarine waters. All personnel should be advised there are civil and criminal penalties for damaging natural resources.

C. Navigation

The Contractor's equipment shall remain within navigable water depths to avoid equipment groundings or impacts to submerged aquatic resources. The Contractor shall maintain current navigational charts of all work and transport areas at all times aboard the deployment and support vessels. The Contractor shall not obstruct navigation channels during material loading, transport or deployment operations. All vessels shall operate at minimum speeds necessary to maintain steerage while operating in shallow waters or channels where the draft of the vessel provides less than 3 feet clearance from the bottom. The Contractor shall immediately stop work and notify the Owner, Engineer, and Florida Fish & Wildlife Conservation Commission of any collision with or injury to submerged natural resources (e.g., reefs, seagrasses, etc.) or protected species (e.g., manatees, turtles, etc.).

D. Washing and Curing Water

Wastewaters directly derived from construction activities shall not be allowed to enter open surface waters or waters of the State. Any wastewater generated shall be collected or controlled through retention ponds or other environmental controls where suspended materials can settle out or the water evaporation can separate pollutants from the water.

E. Oil Spill Prevention

1. The Contractor shall prevent oil, fuel, or other hazardous substances from entering the ground, drainage system, or local bodies of water. Containment, diversionary structures, or equipment shall be implemented by the Contractor to prevent discharged oil from reaching a watercourse. Should a spill occur, the Contractor shall take immediate action to contain and clean up any spill of oily substances, petroleum products, or hazardous substances and immediately report such



spills to the Owner and Engineer. The Contractor shall supply oil spill containment materials such as oil booms and absorbent materials at each site and offshore conveyance where the potential for an oil spill may exist.

2. Section 13 of the River and Harbor Act of 1899 prohibits any pumping or discharging of bilge water containing oil or any other pollutants into navigable waters or into areas which would permit the flow of oil or other pollutants into such waters. Violation of this prohibition is subject to penalties provided under the referenced Act.
3. Liabilities: The Contractor shall be liable for the damage caused by oil or fuel spills when it can be shown that materials were discharged as a result of willful negligence or willful misconduct. The penalty for failure to report the discharge of oil shall be in accordance with state and federal laws.

F. Turbidity

The Contractor shall use whatever special equipment or methodology necessary to load the reef materials on the offshore conveyance and place the materials at the proposed artificial reef site(s) in a manner to avoid picking up quantities of sand or soil that might cause turbidity violations. The Contractor shall ensure that all employees involved in loading and placing material in the water understand the causes of turbidity and need to avoid water quality violations.

Contractor shall conduct his disposal operations in accordance with FDEP permits requiring that all artificial reef construction shall commence in a manner to minimize turbidity and shall conform to all water quality standards as prescribed by Chapter 62-302, Florida Administrative Code and as required by approved permits. If the Contractor violates any condition of any Permit or work is stopped by any public entity, any additional costs incurred by the Contractor, including any fines, shall be paid by the Contractor at no additional cost to the Owner.

**4.10 PROTECTION OF AIR RESOURCES**

A. General

The Contractor shall continuously monitor and manage all construction activities to comply with the following requirements for environmental pollution prevention.

B. Noise

The Contractor shall make all possible efforts to minimize noise pollution. The Contractor will keep construction activities under surveillance and control to minimize damage to the environment by noise and to comply with all federal, state, and local noise ordinances. All equipment shall be equipped with satisfactory mufflers or other noise abatement devices. The use of horns, bells or the use of whistle signals shall be held to a minimum necessary in order to ensure as safe and as quiet an operation as possible.

C. Air Pollution

The Contractor will keep construction activities under surveillance, management, and control to minimize pollution of air resources. All activities, equipment, processes and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the applicable



air pollution standards of the State of Florida (Florida Statue, Chapter 403 and others) and all Federal emission and performance laws and standards.

#### **4.11 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL**

The Contractor will train his personnel in all phases of environmental protection. The training will include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to ensure adequate and continuous environmental pollution control. Quality Control and supervisory personnel will be thoroughly trained in the proper use of monitoring devices and abatement equipment, and will be thoroughly knowledgeable of Federal, State, and local laws, regulations, and permits as listed in the Environmental Protection Plan submitted by the Contractor. Quality Control personnel will be identified in the Quality Control Plan submitted in accordance with Section 5.

#### **4.12 PRESERVATION AND RECOVERY OF HISTORIC, ARCHEOLOGICAL, AND CULTURAL RESOURCES**

If, during construction activities, the Contractor observes items that may have historic or archeological value, such observations shall be reported immediately to the Owner and Engineer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in the destruction of these resources and shall prevent his employees from trespassing on, removing, or otherwise damaging such resources.

#### **4.13 POST-CONSTRUCTION CLEANUP**

The Contractor will be responsible for cleaning and restoring all construction areas (material stockpile, staging, and access areas) to pre-construction conditions to the satisfaction of the Owner and Engineer prior to demobilization. Post-Construction Cleanup shall include removal of all Contractors' equipment and the removal and disposal of all waste generated during the construction process. The Contractor will not abandon any equipment or materials at any of the work areas, haul routes, etc. unless approved otherwise in writing by the Owner, Engineer and Property Owner. The Contractor shall be responsible for repairing any environmental damage to any of the work, stockpile, staging, loading, and access areas. The Contractor shall repair any damage resulting from the Contractor's operations at no cost to the Owner or Engineer.

#### **4.14 PRESERVATION AND RESTORATION OF LANDSCAPE AND MARINE RESOURCE DAMAGES**

The Contractor will restore all upland landscape features and marine resources (seagrass, reefs, etc.) damaged or destroyed during construction operations within and outside the limits of the approved work areas. The Contractor shall repair any damage resulting from the Contractor's operations at no cost to the Owner or Engineer.



## **PART 5 - QUALITY ASSURANCE AND QUALITY CONTROL**

### **5.1 GENERAL**

The Contractor shall be solely responsible for assuring the quality of all work conducted by the Contractor or its subcontractors in association with the contract for this project. The Contractor will establish and maintain an effective quality control system in compliance with the Contract Documents and General Conditions. The quality control system will consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system will cover all construction operations, both onsite and offsite, and will be keyed to the proposed construction sequence. The Contractor shall designate a Quality Assurance (QA) Officer for this contract to assume responsibility for compliance with all requirements of this contract including permit conditions, easements, statutes, laws and applicable regulations. The QA officer will be held responsible for the quality of work on the job and is subject to removal by the Owner or Engineer for non-compliance with quality requirements specified in the Contract and Specifications. The QA Officer in this context will mean the individual with the responsibility for the overall management of the project including quality and production.

### **5.2 QUALITY CONTROL PLAN**

The Contractor shall prepare a Quality Control Plan specifying quality control procedures for all critical components of the work. Within ten (10) calendar days of the Notice of Award, the Contractor will submit the Contractor Quality Control (CQC) Plan for review and acceptance by the Owner and Engineer. The Owner and Engineer will consider an interim plan for the first ten (10) days of operation. However, the Contractor will furnish, not later than twenty (20) calendar days after receipt of the Notice to Proceed, an acceptable final CQC Plan with which he proposes to implement the requirements of the applicable articles of the General Conditions.

The Contractor shall provide the Owner access to all QC procedures, data, and reports at any time at the request of the Owner. All costs related to activities associated with QA/QC shall be borne by the Contractor. The Contractor shall revise the CQC Plan at the discretion of the Owner and Engineer. Owner and Engineer approval of the CQC Plan shall be a required prerequisite to the start of construction.

The CQC Plan shall include but not be limited to the following:

- A. Letter of Appointment designating a QA Officer(s), describing responsibilities, providing qualifications and delineating the line of authority and organizational reporting requirements of the QA Officer.
- B. Personnel Training: Personnel responsible for initial training and dissemination of updated information throughout the term of the contract shall be specified as well as a comprehensive list of training issues covered. Training shall include review of all applicable Technical Specifications; permit conditions; licenses, easements, statutes, laws, and other regulations; environmental resource protection; methods of detecting and avoiding pollution; and statutory and contractual pollution standards. QA/QC and supervisory personnel shall be thoroughly trained in the proper use of pollution monitoring devices and abatement equipment and shall be thoroughly knowledgeable of applicable Federal, State, and local laws, regulations, permits, easements and other applicable requirements.
- C. Quality Control Methods: Methods shall include those requirements specified for environmental protection, equipment, verification of the barge position, and any other methods the Contractor proposes



to assure the quality of their work. These methods shall also be used for any and all work that will be performed by subcontractor(s).

- D. Reporting: Reporting requirements shall be specified in the CQC Plan. The Contractor is required to prepare and submit to the Owner and Engineer the Daily CQC Report. The daily reports shall include all work activity, weather and sea conditions, personnel, on-site materials and equipment list, and/or barge surveys for all barge loads from the first day of mobilization through the last day of work, including site restoration. Reports in electronic format shall be provided to the Owner or Engineer daily and signed hardcopies of the daily reports shall be submitted weekly. Each report shall describe each day's work and include a narrative describing the length and nature of any delays in work. The Contractor shall include in the CQC Plan a sample daily report for Engineer review and approval. The daily report shall include, at a minimum:
1. Project name
  2. Contractor's name and contact information
  3. Date of report
  4. Weather conditions
  5. Work performed
  6. On-site materials and equipment
  7. Quantity of materials loaded, transported, deployed, etc. (including barge displacement measurements and calculations)
  8. Problems/delays/issues
  9. Environmental compliance/Species sightings/Environmental issues (indicating whether all operations remain within compliance, species, sightings, etc.)
  10. Instructions given/received
  11. Deviations from the Drawings and/or Specifications
  12. Certification statement by the Contractor with the Contractor's signature verifying the reported information
- E. QA Inspections: All compliance inspections conducted by the Contractor, Owner or the Engineer shall be individually recorded on the daily CQC Report. The inspector shall also record the recommended corrective action to be taken and shall conduct a follow-up inspection within 24 hours to ensure compliance with the corrective action.
- F. QA/QC Deficiencies: The Contractor is responsible for implementing any corrective actions recommended by the Quality Assurance Officer, Owner or Engineer. Reported deficiencies shall require follow-up inspection within 24 hours by the Contractor and/or the Owner. Recurring deficiencies in an item or items may indicate inadequacies in the CQC Plan, and the Contractor may be required to revise the CQC Plan as directed by the Owner/Engineer and advise appropriate personnel of any modifications required.

### **5.3 FAILURE TO SUBMIT ACCEPTABLE CQC PLAN**

If the Contractor fails to submit an acceptable CQC Plan within twenty (20) days calendar days of the Notice of Award, construction WILL NOT start unless an acceptable interim plan is submitted. If an



acceptable final plan is not submitted within a reasonable time, as determined by the Owner or Engineer, the Contractor may be ordered to stop work until such time as an acceptable plan has been submitted. Any such stop work order will not be considered a suspension of work for an unreasonable period of time under the Contract and the General Conditions, and the Contractor will not be entitled to pay adjustments as a result of the stop work order. Failure to comply with the above requirements within the time prescribed will be considered a condition endangering the performance of the contract and may be considered ground for termination of the contract in accordance with the Contract and General Conditions.

#### **5.4 COORDINATION MEETING**

After award of the contract, but before physical work starts and before the acceptance by the Owner and Engineer of the CQC Plan, the Contractor will meet with the Owner and Engineer to discuss the Contractor's quality control system and general construction operations. Meeting topics shall include review of the daily CQC Report and administration of the system for both onsite and offsite work. There may also be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

#### **5.5 NOTIFICATION OF NONCOMPLIANCE**

The Owner or Engineer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor will take immediate corrective action after receipt of such notice. Such notices may be delivered to the Contractor at the work site or sent electronically and will be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Owner or Engineer 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 will be made the subject of claim for extension of time or for excess costs or damages by the Contractor.



## **PART 6 - SAFETY AND CONFLICTS**

### **6.1 GENERAL**

- A. The contractor shall at all times protect the safety of the general public and all personnel within and immediately adjacent to all active construction areas, including material stockpile, loading, staging, and access areas and haul routes. The contractor shall notify the Owner and Engineer immediately of any concerns or issues relating to potential safety conflicts between work activities and the general public and immediately following any accidents.

### **6.2 SAFETY PLAN**

- A. The Contractor shall specify all safety and inspection procedures and designate personnel responsible for supervising accident prevention activities and ensuring compliance with safety measures. The Contractor shall provide a Safety Plan which shall include but not be limited to the following:
  - 1. Letter of Appointment: Designating a Safety Officer(s), describing responsibilities, providing qualifications and delineating the line of authority and organizational reporting requirements of the Safety Officer.
  - 2. OSHA Standards: The Contractor shall review the latest U.S. Army Corps of Engineers Manual, General Safety Requirements EM 385-1-1, and the latest Occupational Safety and Hazard Agency (OSHA) standards, become fully knowledgeable of the personal protective equipment that must be provided workers, be familiar with the safety standards applicable to the prevention of accidents during the construction of this project, and comply with all applicable provisions.
  - 3. Medical Emergencies Plan: The criteria for designating a medical emergency and the procedures to be followed shall be specified by the Contractor. These procedures shall include local information relative to emergency treatment facilities and methods of transporting personnel if necessary.
  - 4. Weather Conditions: The Project Area may be affected by tropical storms and hurricanes and by windy and/or rainy weather, including severe electrical storms. The Contractor shall be responsible for obtaining information concerning conditions that could influence project operations prior to making a bid.
  - 5. Hurricanes and Severe Storms Plan: The Contractor shall monitor the NOAA marine weather broadcasts and other local commercial weather forecasting services throughout construction operations. The Contractor shall notify the Owner and Engineer at the time of any decision to move equipment in preparation for potential storms. The Contractor shall submit to the Owner and Engineer the following information in the Hurricane and Severe Storms Plan:
    - a. Prioritized Methods for Storm Preparations: The Contractor shall provide a schedule and prioritized list of actions to be taken in the event of an impending storm and assign personnel to each action. The Contractor shall specify how each piece of equipment will be secured in place or moved to a safe harbor including the details of all required equipment (e.g., tugs: size, capacity, number; work boats: size, capacity, number; storm anchors: type, size number; chain or line: size, lengths, etc.). The Contractor shall indicate action upon the following events:
      - 1) Action to be taken within 24 hours of a severe or tropical storm.



2) Action to be taken within 72, 48, and 24 hours of an impending hurricane.

6. Maintenance of Traffic Plan: The contractor shall submit a Maintenance of Traffic Plan including, at a minimum, designation of access and haul routes to and from stockpile and waterside staging areas and safety features such as FDOT-approved warning signs at all areas where heavy equipment and/or trucks will be entering major roadways. The plan shall also include a statement indicating all trucks and hauling equipment (e.g. trailers, etc.), as well as their operators, are approved by the FDOT and any other applicable regulatory agencies. Proper licenses, certifications, and/or authorizations shall be maintained with the vehicles, equipment, and/or operators at all times throughout construction.

### **6.3 ACCIDENTS**

- A. All accidents causing personal injury, death, or property damage shall be reported to the Owner and Engineer immediately. The Contractor shall provide such equipment and medical facilities and notify emergency medical personnel as necessary to supply first aid service to anyone who may be injured in connection with the performance of the work, on or adjacent to the site. The Contractor shall prepare an accident report providing full details of the accident including statements from witnesses.

### **6.4 TRAFFIC SAFETY**

- A. The proposed material transport routes are shown in the Construction Drawings. The Contractor shall adhere to these haul routes unless otherwise proposed in the Deployment Plan and approved by the Owner.
- B. The Contractor shall provide and maintain fencing, barricades, warning signs/signals, and/or a flag person in the project area to ensure public safety as required by local, State, or Federal regulations or as required by the plans or specifications.

### **6.5 FDOT REGULATIONS**

- A. All trucks and hauling equipment utilized by the Contractor, as well as the personnel operating the equipment, shall be approved by the Florida Department of Transportation as well as any other applicable regulatory authority, and proper licenses, certifications, and/or authorizations shall be maintained with the vehicles or equipment at all times throughout the work. The Contractor shall be familiar with the weight and specifications (height, width, etc.) of all equipment and materials and restrictions (height, weight, width, etc.) of all roadways and bridges that are necessary to perform the work. The Contractor is responsible for adhering to all weight and traffic regulations on all roadways. The Contractor shall adhere to the proposed haul route shown in the Construction Drawings unless otherwise documented in the Deployment Plan and approved by the Owner.
- B. The Contractor shall be liable for any damage caused by hauling or transport operations when it can be shown that damage resulted from willful negligence or willful misconduct. The Contractor shall repair any damage resulting from the Contractor's operations at no cost to the Owner or Engineer.

### **6.6 U.S. COAST GUARD REGULATIONS**

- A. All personnel and equipment necessary to load, transport, and deploy artificial reef materials offshore (barges, tugs, support vessels, cranes, etc.) shall be in compliance with U.S. Coast Guard standards



and any other applicable State or Federal regulations for safe offshore transport. All vessels and personnel shall be U.S. Coast Guard certified, and all ocean-going vessels (tugs, barges, etc.) shall be ABS certified with current certificates of inspection and be capable of working in at least two ft. seas and other such wind, weather, and sea conditions typical to the northern Gulf of Mexico.

**6.7 EXCLUSION OF THE PUBLIC**

- A. The contractor shall secure all working areas (stockpile, staging, loading, deployment, etc.) and exclude the public from the immediate work areas at all times during construction. If the Contractor is not able to keep and maintain the public at a safe distance from construction activity, the Contractor shall notify the Owner and Engineer immediately.

**6.8 CONFLICTS**

- A. The Contractor is advised that construction work by other contractors may be occurring at the same time as the proposed work. The Contractor shall direct all concerns or issues relating to potential work conflicts to the Owner and Engineer immediately upon discovery.



## **PART 7 - ARTIFICIAL REEF MATERIALS**

### **7.1 GENERAL**

All materials proposed for artificial reef deployment shall consist of clean, re-purposed concrete materials from the proposed locations provided in the Construction Drawings and these specifications. Per the regulatory authorizations, the materials shall be free of soils, oils and greases, debris, litter, putrescible substances, and other pollutants. The materials shall be solid and of sufficient weight to remain stable once deployed. The Contractor shall utilize only the approved materials described in these specifications and inventoried in Appendix A and B unless specifically authorized by the Owner or Engineer.

### **7.2 APPROVED REEF MATERIALS**

- A. The Owner, Engineer, and FWC have reviewed the proposed reef material for regulatory authorization compliance and confirmed the material is suitable for artificial reef deployment. The Contractor shall be responsible for ensuring the reef material remains suitable for deployment throughout the handling, loading and transport process. The Contractor shall ensure the materials remain free of soils, oils and greases, debris, litter, putrescible substances and other pollutants as required by regulatory authorizations. Should the materials become contaminated during the handling, loading, or transport process, the Contractor shall be responsible for cleaning the material to the satisfaction of the Owner or disposing of and replacing any contaminated units.
- B. The approved materials generally consist of large pre-cast concrete and concrete and steel military targets at Eglin AFB Range C-64ABC. Additional approved material currently stockpiled at the Okaloosa County Wright Landfill generally consists of pre-cast culverts, manholes, and junction boxes. Material from both locations includes both steel reinforced and non-reinforced concrete units.
- C. The contractor shall be responsible for ensuring the concrete meets the requirements of the FDEP and DOA regulatory authorizations. This shall include washing concrete to remove any loose dirt or debris; cutting off exposed rebar, metal or wire protruding from the concrete units to a maximum length of 1 – 2 inches; and any other work necessary to ensure the material meets regulatory authorization requirements and inspection by the Owner, Engineer, regulatory agencies or their commenting agencies (e.g. U.S. Coast Guard, FWC, NOAA, etc.).
- D. The Contractor shall cut or trim any exposed rebar, wire, or metal casing that extends beyond 2 inches from the surface of the concrete to prevent safety hazards to divers and potential snags by fishing gear. Large diameter rebar, with both ends encased in concrete, utilized for lifting lugs may be left in place. Any rebar not used as a lifting lug or with exposed ends shall be trimmed. Any rebar, wire, and/or metal casing shall be trimmed to a maximum length of 1 – 2 inches from the concrete surface, or as close as practical, to prevent line entanglement and safety hazards to divers.
- E. A preliminary list of approved materials is provided for Contractor review in Appendix A and B. All materials approved for offshore deployment have been field-labeled (spray painted with a red “R”) to assist the Contractor in field identification of approved reef materials. Questionable materials not listed on the inventory or not clearly labeled in the field shall be left in place unless otherwise directed by the Owner or Engineer.
- F. The Contractor is not permitted to load or deploy any materials not previously reviewed and approved by the Owner, Engineer, or FWC. The Contractor shall not deploy any materials not listed on the materials inventory without authorization from the Owner and Engineer. There shall be no “white goods”



(inoperative or discarded refrigerators, freezers, ranges, water heaters, washers and other similar domestic or commercial appliances), asphalt materials, tires, or other polluting materials used in construction of the reef.

### **7.3 APPROVED MATERIAL LOCATION**

All artificial reef materials shall originate from the Eglin Air Force Base – Range C-64ABC and the Okaloosa County Wright Landfill stockpile areas. The location of these stockpile areas is shown on the Construction Drawings. The Contractor shall not move, handle, load, or deploy any materials that do not originate from these locations or meet the approved material criteria above, unless specifically directed by the Owner or Engineer. Prior to the execution of the work, the Contractor, Owner and Engineer will meet at the existing stockpile areas to field review the existing materials and identify specific stockpiles and material to be utilized for the project.

### **7.4 MINIMUM WEIGHT**

At least 80% of the individual concrete materials loaded shall weigh in excess of 1,000 lbs. and no more than 20% of the reef materials at the time of placement on the vessel for deployment will consist of broken concrete rubble pieces or concrete units weighing between 500 and 1,000 lbs. At no time shall the contractor load, haul or deploy materials weighing less than 500 lbs.

### **7.5 MATERIAL COMPOSITON**

The majority of the concrete targets from Eglin AFB were used to conduct sub-scale testing of advanced penetrator weapons. These subscale penetrator tests use inert (non-explosive) projectiles made of steel, which are propelled at high velocity by a large gun into the concrete targets. A few of the targets were impacted by inert tungsten projectiles and are marked with elemental symbol "W". After the impact test, the projectiles are recovered from the concrete by coring out the area around the projectile if they do not pass through it completely or are not easily recovered by other means. No explosive containing projectiles were fired into the approved materials. However, because these targets were tested on an active explosives test range, Eglin AFB's Explosive Ordnance Disposal (EOD) office will certify the targets to be free of any explosive hazards prior to being removed from the test range as required by Eglin AFB's standard range procedures. The concrete targets at this site are clean, and do not contain any hazardous material that would result in contamination of the environment. The Contractor shall be provided with a copy of the certification from EOD for their records.

### **7.6 LIABILITY & RESPONSIBILITY FOR REEF MATERIALS**

Upon initiation of the handling and movement of the artificial reef materials, all liability, risk of loss, and responsibility for the safe handling, storage, transportation and deployment of the materials shall be borne by the Contractor. This liability, assumption of risk and responsibility shall remain with the Contractor until the materials are deployed at the permitted reef site(s) in accordance with the contract documents.



## **PART 8 - ARTIFICIAL REEF CONSTRUCTION**

### **8.1 DEPLOYMENT PLAN**

- A. The Contractor shall prepare a deployment plan for the artificial reef construction project. Within ten (10) calendar days of the Notice of Award, the Contractor will submit the Deployment Plan for review and acceptance by the Owner and Engineer. The plan shall include the construction schedule (including all work from initial mobilization through demobilization); staging area and access requirements; a list of all work force and equipment required for handling, transport, and deployment operations; deployment methodology describing how the materials will be loaded, transported and deployed; and the qualifications of supervisor(s). The qualifications shall provide a detailed description of the Contractor's experience, including a list of artificial reef deployments within the last 5 years, and understanding of artificial reef deployments. The Contractor's qualifications shall also reference specific experience with artificial reef construction (including loading, transport, and offshore deployment) utilizing repurposed concrete materials. The Contractor shall also provide with the deployment plan documentation of any additional required permits, licenses, authorizations, etc. that may be necessary to perform the work.
- B. The Deployment Plan will be reviewed and discussed at the Pre-Construction Conference. Owner and Engineer approval of the Deployment Plan shall be a required prerequisite to the start of construction. The Deployment Plan shall include the following:
1. **Work Progress Schedule:** A Work Progress Schedule shall be developed and provided to the Owner and Engineer showing the time allotted for each of the various tasks. The schedule shall show the various tasks of work in sufficient detail to demonstrate that the Contractor has a reasonable and workable plan to complete the Project within the Contract Period. The Schedule shall show the order and interdependence of tasks and the sequence in which the work is to be accomplished as planned by the Contractor. All activities shall be described so that the work is readily identifiable and the progress on each task can be readily measured. Each task shall show a beginning work date and duration. Tasks shall include procurement time for materials, plants and equipment, various tasks involved in mobilization/demobilization, and rate of operations (including anticipated daily volumes of material transported). Additional consideration shall be given to scheduling and coordination required to access the stockpile areas as well as potential weather delays. The list of tasks shall also include milestones when indicated by the Contract Documents.

If the Owner determines that the Schedule submitted by the Contractor is inadequate, the Owner shall return the schedule to the Contractor for correction. The Contractor shall have five (5) calendar days from the date of transmittal to submit a corrected schedule. Failure to provide the revised Schedule in the time specified shall result in withholding of all Contract Payments until the revised Schedule is approved. This item shall be performed at the expense of the Contractor. Approval of the Schedule shall be a required prerequisite to the start of construction. When approved, this original Schedule shall become part of the Contract Documents and shall constitute the baseline against which progress is measured.

2. Letter or Statement of Appointment designating a Project Construction Manager, describing responsibilities, and providing qualifications.
3. Proposed Equipment List including all equipment required to perform the work (loading, hauling, offshore transport, and deployment). The Contractor shall provide a statement clearly indicating all equipment utilized for the project is properly licensed, certified, approved, and insured in accordance with local, State and Federal law.



4. Proposed Construction Methodology including a description of proposed methods for accessing the staging site, material hauling, waterside loading, offshore deployment of materials at the reef sites (including pre-deployment inspections, anchoring plan, buoy markers, communications, production rates/haul capacity, etc.) and staging site restoration.
5. Exact quantity (tons) of concrete material proposed for artificial reef deployment.
6. Subcontractor list.

## **8.2 PRE-DEPLOYMENT NOTIFICATION**

- A. The Contractor shall prepare and submit the required Florida Artificial Reef Materials Cargo Manifest and Pre-Deployment Notification Form to the USACE, FWC, and Engineer at least 14 days prior to material loading or transport as required by the DOA permit (Appendix C). The Contractor shall not handle, load, transport or deploy materials until the end of the 14-day inspection period. The contractor is encouraged to submit the required forms earlier than 14 days prior to construction commencement to reduce the potential for construction delays.
- B. The Contractor shall not load, transport or deploy materials if notified by the USACE or FWC that the material is questionable. The Contractor shall only handle, load, transport and deploy materials deemed acceptable by the Owner, USACE and FWC, and only after the 14-day inspection period has expired.
- C. The Owner and Contractor agree to allow the FWC or its designee to conduct on-site inspections of all phases of this artificial reef project before, during, and after the deployment. The Contractor shall document the concrete material on the barge via written reports and photographs at the deployment site immediately before deployment.

## **8.3 LOADING & TRANSPORTATION**

- A. The Contractor shall provide all supervision, labor, and equipment necessary for loading reef construction materials from the current stockpile areas to the proposed waterside loading area, loading the material on a suitable offshore conveyance, transporting the materials offshore to the reef construction sites, and precise placement of the material to create artificial reefs. The Contractor shall maintain any and all necessary permits, licenses, and authorizations for transporting the materials from the existing staging area to the waterside loading area and to the offshore artificial reef site.
- B. The Contractor assumes all liability, risk of loss and responsibility for the safe handling, transportation, and storage of all artificial reef materials. The Contractor shall not drop, push or handle material in such a manner that may compromise the structural integrity of the material. The Contractor shall not load materials that appear (as observed by the Contractor) structurally compromised, do not meet the weight requirements, or do not meet any other requirements within these specifications (clean materials, etc.).
- C. The proposed material transport routes are shown in the Construction Drawings. The Contractor shall adhere to these haul routes unless otherwise proposed in the Deployment Plan and approved by the Owner.
- D. The proposed material loading, handling and hauling operations shall be performed in such a manner as to minimize the work area footprint, reduce damage to upland property, and reduce the potential deterioration of existing access and haul routes.



- E. The Contractor will provide sufficiently powered offshore conveyance (sea-worthy barge and towing vessel, etc.) personnel, and all necessary equipment to transport the material offshore and complete the deployment. The Contractor will allow the Owner or their designee to be onboard the material transport vessel or the Contractor shall provide a support vessel for the Owner or their designee during all offshore transport and deployment operations.
- F. All offshore conveyance equipment (barges, tugs, etc.), support vessels, and operators shall be licensed and approved by the U.S. Coast Guard and any other applicable regulatory authorities and maintain the necessary insurances for the work required.
- G. The Contractor shall only load and transport the volume of material that can be safely placed on the available offshore conveyance, unless the Engineer and waterside loading area property owner approve stockpiling of materials at the waterside loading area. This requirement is intended to reduce additional material handling and eliminate the need for additional waterside staging areas.
- H. Reef material loaded onto the upland and offshore transporting equipment (trucks, trailers, vessels, etc.) must be property secured in compliance with the Florida Department of Transportation, U.S. Coast Guard, and any other applicable regulatory agency standards and regulations to allow for safe transport to the artificial reef construction site. The Contractor shall be responsible for removing any materials accidentally dropped along upland or offshore transport routes or accidentally dropped or deployed in State Waters outside of the proposed deployment sites (Reef Sites #1 and #2). The Contractor will not be reimbursed for any materials dropped or deployed outside of the proposed reef site(s) and shall be responsible for any damages or costs (e.g., damage to private property or roadways) resulting from such occurrences.
- I. The Contractor shall complete and sign the FWC Artificial Reef Cargo Manifest and Pre-Deployment Notification Form (included within the DOA permit authorization) for each offshore deployment and submit the document(s) to the required regulatory agencies, the Owner, and Engineer a minimum of 14 days prior to offshore deployment. By signing the Pre-Deployment notification, the Contractor certifies that all materials are free from asphalt, petroleum, other hydrocarbons and toxic residues. The Cargo Manifest Form and copies of all regulatory authorizations shall be maintained onboard the vessel at all times during transport of materials, pursuant to Chapter 370.25, Florida Statutes.
- J. The Contractor shall estimate the tonnage of reef material on the barge for each deployment prior to departing the waterside staging area. The Contractor shall document the method for calculating the tonnage and perform the measurements and calculations (before and after barge draft calculations) in the presence of the Owner or Engineer in accordance with the proposed measurement procedures discussed in Section 10.
- K. During the loading of barges with artificial reef materials, the barge shall be sufficiently moored in protected waters approved for mooring/anchoring. The barges shall be made available to the Owner and Engineer while moored in protected waters to record the pre- or post-deployment waterline of the barge or inspect materials prior to deployment.

#### **8.4 OFFSHORE TRANSPORT AND SUPPORT VESSELS**

- A. All offshore work vessels (e.g., tug and/or transport vessel, support vessel(s), etc.) shall meet all U.S. Coast Guard certification and safety requirements, be ABS certified (if required), and be equipped with a working Differential Global Positioning System (DGPS) unit accurate within 1 meter and other marine electronics including a working VHF radio and depth sounder/fathometer accurate to within 1 ft. The



GPS system shall be capable of producing location data in both geographic coordinates and State Plane Coordinates, North American Datum of 1983 (NAD83), Adjustment of 2007 (NSRS2007), Florida North Zone.

- B. The Contractor shall provide a support vessel, captain and sufficient crew to assist in the reef construction effort. The support vessel shall be used to place marker buoys at each artificial reef location as a reference for reef material placement. The marker buoys shall be placed, at a minimum, at the four corners and the centroid of the reef, unless approved otherwise by the Owner or Engineer. The support vessel should be capable of accommodating its crew and three additional individuals — Owner representatives, FWC staff, and/or project sponsors — and their dive gear. After assisting in the construction effort, the support vessel and crew shall be made available to support a minimum of two reef monitoring dives to be performed by FWC agents. FWC will be required to coordinate for these dives with the Contractor prior to artificial reef deployment. The Owner's representative designated as an official observer shall remain on-site during the entire deployment phase of the operation to confirm all deployment operations.
- C. The support vessel shall be equipped with an electronic depth sounder accurate to within 1 ft. and a real-time Differential Global Positioning System (DGPS) accurate within 1 meter and capable of navigating to specific sites. The support vessel — accommodating the Owner representatives, FWC staff, and/or project sponsors — shall verify the maximum vertical relief and footprint of the reefs following construction as required by regulatory authorizations and these specifications. The verification shall occur following each load or partial load of material placed.

## **8.5 PRE-DEPLOYMENT BOTTOM SURVEY**

The USACE regulatory authorization requires a bottom survey within one year prior to artificial reef material deployment. The County performed a bottom survey of the two permitted fish havens (Fish Haven #13 and #14) on February 28, 2012; the report is included within Appendix E. The bottom survey included fathometer transect surveys and visual (scuba diver) observations at the centroids of both areas. The report concluded the bottom conditions within both Fish Haven #13 and #14 consisted of sand substrate with no indication of potential hard bottom. To meet USACE permitting requirements, the Contractor shall perform a second assessment of the bottom conditions prior to artificial reef deployment. The assessment shall be accomplished by diver surveys, submersible video camera, fathometer, depth/bottom sounder (e.g. "fish finder"), or side-scan sonar. The inspection may occur at the time of deployment but no more than one year prior to deployment. The Contractor shall notify the Owner and Engineer immediately if submerged natural resources (e.g. seagrass beds, hard bottom, corals, etc.) are observed. The Contractor shall notify the Owner, Engineer, and USACE immediately if evidence of cultural/archeological resources, such as sunken vessels or ballast, are found.

## **8.6 REGULATORY AUTHORIZATIONS AND CONDITIONS**

The Contractor shall maintain copies of all regulatory authorizations, attachments, and cargo manifests onboard the deployment vessel and support vessel(s) at all times. The Contractor shall comply with the Sea Turtle and Smalltooth Sawfish Construction Conditions throughout transport and deployment operations; these Construction Conditions shall also apply to the Gulf Sturgeon. The Contractor shall comply with the Standard Manatee Conditions for in-water work throughout transport and deployment operations. The Contractor shall comply with the Vessel Strike Avoidance Measures and Injured or Dead Protected Species Reporting guidance for marine turtles and marine mammals throughout transport and deployment operations. The Contractor shall be responsible for ensuring that all permit conditions are met.



## 8.7 ARTIFICIAL REEF DEPLOYMENT

- A. The Contractor shall have on-site current NOAA nautical charts of the deployment area, with the overall Fish Haven and individual deployment sites (#1 and #2) as well as any adjacent natural reef areas indicated on the chart. The proposed artificial reef coordinates for Reef Sites #1 and #2 (centroid and corner coordinates of the reef site) shall also be in possession of the Contractor when on site.
- B. Effective and reliable communications shall exist at all times between Contractor personnel— including all vessel captains, mates and crew members assisting in the deployment — and with the on-site Owner observer. A marine radio channel shall be designated, used and monitored throughout the offshore transport and deployment operations.
- C. Deployment operations will only be initiated when sea height in the project area(s) is no greater than three to four feet as forecast by the NOAA weather service supporting Destin area waters out 20 nautical miles. Both the Owner and the Engineer have the authority to suspend reef deployment operations if positioning and other deployment objectives, including safety of personnel and equipment, are not being met.
- D. During the deployment of the reef material, the transport/deployment vessel shall be sufficiently moored through double anchoring (minimum), be spudded down, or otherwise be held securely in place with minimal movement (+/-10 feet) to ensure accurate placement of the reef materials on the bottom in the designed configuration. In certain situations where spudding or anchoring is impossible due to depth or current conditions, the materials barge may be held in position by the tug for the deployment operation. In such cases, the Owner or Engineer will be in constant contact with the tug and the barge crew via telephone and/or radio to verify the Contractor is meeting positioning requirements. The Owner or Engineer may require the Contractor to stop offloading at any time to reposition the barge if reef positioning requirements are not being met.
- E. Winds and currents may change offshore conditions rapidly. The deployment of materials may be stopped at any time, as often as required by the Owner or Engineer, to confirm correct placement of the materials by means deemed suitable by the Owner under the prevailing conditions.
- F. The Contractor shall program the exact latitude/longitude coordinates (provided in the Construction Drawings) of each patch reef, as well as the overall artificial reef area, into the deployment vessel's GPS unit. GPS coordinate system for location data will be Geographic, National Geodetic Datum of 1983.
- G. The Contractor's Project Manager shall oversee the temporary marking of the reef deployment location in advance of reef material deployment in order to ensure proper placement of the reef material. The Contractor's proposed plan for marking the reef sites, mooring the barge, and deploying the material must receive Owner or Engineer approval prior to commencement of offshore transport. The Contractor shall place 5 temporary marker buoys, one at each of the artificial reef site's four corners (marking the deployment area) and one at the centroid. The markers shall be buoys 16 inches in diameter minimum – clearly visible to the transport vessel captain and sufficiently anchored to not drift during deployment activities and maintain reef location accurately. Precise GPS placement of marker buoys that do not shift position with time will also be required to ensure the reef is constructed as designed. The Owner's observer or Engineer may verify the location of these buoys prior to or throughout deployment operations. The Contractor may elect to use additional buoys for location or deployment control; however, any additional buoys shall be a separate color than the five required markers to easily distinguish the four corners and centroid.



- H. Under no circumstances shall materials be placed in the water without the on-site Owner's acceptance of the barge's final moored position. The Contractor shall receive a verbal authorization from the Owner or Engineer prior to off-loading any materials and shall remain on-site until released by the Owner or Engineer. Precise positioning of the barge is required in order to avoid any impacts from materials to existing artificial or natural reef structures. Offloading of materials may be stopped at any time by the Owner or Engineer in order to make an inspection dive to check placement of the materials or to require repositioning of the barge due to other factors.
- I. An approximately equal volume of material shall be placed at each artificial reef site. Each completed artificial reef site and the project overall shall contain approximately 80% materials sourced from Eglin AFB Range C-64ABC and approximately 20% materials sourced from the Okaloosa County Wright Landfill.
- J. Any machinery used to move and deploy the reef materials should be sufficiently powered/maneuverable and capably operated to ensure timely, effective and safe offloading of materials.
- K. Material shall be deployed in the configuration shown in the Construction Drawings to provide a long-term and stable marine resource with increased habitat complexity. As shown in the Construction Drawings, materials placed within artificial reef site #1 shall be tightly stacked and piled to achieve a vertical relief of 10 – 20 ft. with a rectangular footprint of approximately 50 ft. Materials placed within artificial reef site #2 shall be placed along the centerline of the proposed rectangle area to result in a linear reef approximately 30 – 50 ft. wide, 75 – 100 ft. long, and 5 – 10 ft. high.
- L. Any materials with a surface area greater than 50 square ft. on a single side shall be lowered into place with a crane to ensure accurate placement within the designed reef configuration. The contractor may propose, for approval by the Owner or Engineer, other placement methods that will ensure accurate placement and minimize the potential for material "drifting" during descent through the water column. The Owner or Engineer may require the Contractor to drop test materials prior to actual deployment to verify accurate placement. This procedure shall be repeated as necessary until it can be assured all materials will be placed within the approved areas as proposed.
- M. The Contractor shall initially place large concrete pieces as a base layer along the centroid/centerline of the reef to help stabilize the reef foundation and secondary materials. Following the initial deployment of the base/anchor materials, the Contractor shall survey the reef via underwater camera, fathometer, side scan sonar or divers to record the placement of base/anchor material. The Contractor shall determine if the site will require additional base material; if so, the Contractor shall mark the locations with buoys and GPS for subsequent deployments. Following the successful deployment of anchor/base materials, the Contractor shall deploy secondary material along the centerline and ends of the reef until the desired configuration and relief is achieved.
- N. The Contractor shall place the artificial reef materials to maximize the stacking and interlocking of individual pieces. The stacking and interlocking of large concrete materials shall create varying sized interspatial spaces or void space and provide shelter to target reef species.
- O. Individual reef materials should not be widely scattered.
- P. The Contractor shall document any deviations or variations from the Owner-approved Deployment Plan.



- Q. The minimum vertical clearance at Mean Lower Low Water above the highest point of the reef material shall not be less than 33 feet for Reef #1 (Fish Haven 13) and 38 feet for Reef #2 (Fish Haven 14) as specified in the DOA permit for the sites.
- R. Precise placement of all materials is critical to the success of the project and to ensure existing structures at the project site are not impacted. Visibility at the site may be limited and tidal currents can be strong, complicating construction. The Contractor shall provide any and all personnel and equipment and employ whatever methodology necessary and acceptable to the Owner and/or Engineer to construct the reef, as required, in a safe and environmentally sound manner.
- S. The Owner will not pay for materials placed outside the designated deployment locations. The Contractor will be responsible for removing any such materials and relocating them within the proposed reef sites.
- T. The Contractor shall not deploy any materials not included on the approved material inventory or cargo manifest. At no time shall the Contractor deploy or dispose of any unapproved, on-board materials not meeting the regulatory authorizations or contract documents. Any trash, refuse or materials deployed or accidentally dropped by the Contractor shall be removed from State waters at the Contractor's expense.

## **8.8 POST-DEPLOYMENT RECORDS**

The Contractor shall complete the Florida Artificial Reef Materials Placement Report and Post-Deployment Notification for each deployment location or date of deployment. The Contractor shall verify all material transported offshore was accurately placed within the proposed artificial reef construction site(s) and meets the specified deployment depth (relief of the reef) and final depth (clearance above the reef). Per the DOA permit, the Contractor will be required to submit a certified placement report indicating the exact latitude and longitude coordinates of the artificial reef construction site(s), accurate within 5 meters horizontal, and the reef height and water depth, verified utilizing a fathometer or depth sounder accurate to within 1 foot. The placement report shall also include information on the condition of the material at the time of deployment and shall include a statement verifying all material transported offshore was deployed within the proposed artificial reef site(s). The Contractor shall also include representative photographs of the material on the offshore conveyance prior to deployment and, if available, pictures and/or video of the material on the bottom. The Contractor shall attach to the report an as-built drawing that contains the approximate deployment configurations and the height of the material after placement. The report and drawings shall be limited to a few pages per deployment.



## **PART 9 - PROTECTION OF WORK**

### **9.1 RISK OF LOSS**

- A. All construction and associated activities specified in the Contract Documents for this project shall be performed at the sole risk and cost of the Contractor from commencement until final payment by the Owner. Any specific references, contained in the Contract Documents, regarding the Contractor's sole responsibility for risk and cost for the work or any part thereof are not intended to be, nor shall they be construed to be, an exclusive listing of the circumstances in which the Contractor bears the risk of loss. Rather, such specific references are intended only to be exemplary. All loss or damage caused by the nature of the work or work environment, acts of nature such as storms, unusual obstructions to the work, or any other natural or existing circumstances either known or unforeseen that may be encountered in the conduct of the work shall be sustained and borne by the Contractor at its own cost and expense. Notwithstanding any other provision of this Contract, the Contractor's obligation to accept the risk of loss shall exist without regard to the availability of any insurance, either of the Owner or the Contractor, to indemnify, hold harmless or reimburse the Contractor for the cost incurred in making such restoration.



## **PART 10 - MEASUREMENT AND PAYMENT**

### **10.1 MEASUREMENT AND PAYMENT**

This section describes how Line Items will be measured and paid for when making progress payments. Work to be measured is described below in sections listed specifically for each Line Item. Measurement procedures for payment, required quantity survey or procurement documentation and payment restrictions are described in applicable specification sections. The Contractor shall allocate costs for work not specifically mentioned in the Line Items to those line items most closely associated with work involved. Unless there is a specific Line Item for administrative costs, such as Quality Control and Safety, such costs shall be allocated proportionally across all Line Items.

Payment shall be in accordance with the unit prices specified for the work and shall be based on the total weight of concrete artificial reef materials deployed in accordance with these Specifications and the Contract Documents. The Contractor may submit partial payment requests upon completing artificial reef construction at an individual reef site.

### **10.2 UNIT PRICE PAYMENT ITEMS**

#### **A. Line Item No. 1.0, "Artificial Reef Construction":**

Payment for contract line item no. (CLIN) 1.0 will be made for costs associated with or incidental to loading, transport, and deployment of approved artificial reef materials within the proposed deployment sites. Associated and incidental costs may include: submittals; providing labor, materials, tools, equipment, and incidentals for the installation of all work components as listed herein and on the drawings; pollution control; and all other appropriate costs in connection therewith or incidental thereto. CLIN 1.0, "Artificial Reef Construction" shall also include all other items of cost required by these specifications for which a separate payment is not provided for herein.

Payment for CLIN 1.0 will be made only for approved artificial reef materials placed within the proposed reef sites. Payment quantities shall be determined by the Contractor and confirmed by the Owner using barge displacement measurements prior to and immediately following offshore transport. No payment will be made for rejected materials, materials that do not comply with applicable sections of these Specifications, and those materials that are defective or damaged during handling or placement. No payment will be made for materials placed outside of the designated reef sites or other activities required to conform to the provisions stipulated within these specifications or the contract documents (e.g., removal and relocation of material placed outside of the proposed sites, etc.).

Measurement: Barge displacement shall be utilized for measurement of material tonnages to determine payments made to the Contractor. The Contractor shall furnish the Owner and Engineer with barge displacement formulas not less than ten (10) work days prior to loading approved reef materials to any barge. The Owner and Engineer shall use methods of measuring and calculating mutually acceptable to the Owner and the Contractor to determine an accurate tonnage of approved reef material on each barge. The Owner or Engineer shall record the waterline length, width, and draft (to the nearest inch) of the barge at all four corners and at the midpoints to calculate the average displacement of water due to the weight of the artificial reef materials. The Owner or Engineer, together with the Contractor, will perform these measurements and calculations before each barge departs the staging area for material deployment and again when the barge returns to shore after the deployment has been completed. The Contractor will provide the measurements of each barge load to the Owner or Engineer for approval. The measurements may not be taken while the barge is moving or offshore at the deployment site. The



Contractor shall not be paid for quantities that have not been verified and approved by the Owner or Engineer. In certain situations, as determined by the Owner, truck weigh tickets may be acceptable for verification of tonnage.

Unit of Measure: U.S. Ton (2,000 pounds)

### **10.3 PAYMENT PROCEDURES**

#### **A. Monthly Progress Payment**

Monthly progress payments shall be based on the weight of artificial reef material placed in accordance with the Contract Documents and verified by the Contractor and Owner. The Contractor will be eligible for initial progress payment after the first load of material (minimum 400 tons) has been placed within the proposed reef site(s) and accepted by the Owner and Engineer. The Contractor shall submit to the Owner and Engineer for review, not more often than monthly, an Application for Progress Payment filled out and signed by the Contractor. The Application shall describe the Work completed and be accompanied by verified quantity measurements, the placement verification report, and additional supporting documentation as is required by the Contract Documents and also as may reasonably be required by the Owner and Engineer. The Post-deployment Verification Report shall verify that all material transported offshore was accurately placed within the designated artificial reef construction site(s) at the specified deployment depth (relief of the reef) and final depth (clearance above the reef). The Contractor will be required to submit a certified placement report indicating the exact latitude and longitude coordinates of the artificial reef construction site(s), accurate within 5 meters horizontal, and the reef height and water depth, verified utilizing a fathometer or depth sounder accurate to within 1 foot. The placement report shall also include information on the condition of the material at the time of deployment and shall include a statement verifying all material transported offshore was deployed within the proposed artificial reef site(s). The Contractor shall also include representative photographs of the material on the offshore conveyance prior to deployment and, if available, pictures and/or video of the material on the bottom. The Contractor shall attach to the report an as-built drawing that contains the approximate deployment configurations and the height of the material after placement. The report and drawings shall be limited to a few pages per deployment.

#### **B. Options and Modification CLINS**

When additional work is added by modification, existing CLINs funding amounts must be updated, or new CLINs for modification will be created. If contract has option CLINs not yet awarded, option CLINs will appear as zero dollar CLINs until option is awarded by modification. No payment may be requested for Options or Modification CLINs until contract modification has been funded and signed.

#### **C. Final Payment**

Upon written notice from Contractor that the Work is complete, the Owner and Engineer will observe the Work within five (5) days of the receipt of the written notice from the Contractor and, if required, will notify the Contractor in writing of all particulars in which the final inspection reveals that the Work is incomplete or defective. The Contractor shall immediately take such measures as are necessary to remedy such deficiencies.

After the Contractor has completed all such corrections to the satisfaction of the Owner and Engineer and provided any required quality control reports, post-construction verification reports, data requested



by the Engineer, guarantees, bonds, certificates of inspection, as-built or record documents, and all other documents as required by the Contract Documents or Owner, and after the Engineer has indicated that the Work is acceptable to the Owner, the Contractor may make application for final payment. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents and other data and schedules as the Owner may reasonably require, together with complete and legally effective releases or waivers (satisfactory to Owner) of all Liens arising out of, or filed in connection with, the Work.

Following receipt of the final Application for Payment as described above, the Engineer will review the submitted information and, if acceptable, submit to the Owner a recommendation for payment within seven days after receipt of the final Application for Payment. If the Engineer is not satisfied that the work is completed, the Engineer will return the application to the Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case the Contractor shall make the necessary corrections and resubmit the application.

**-- End of Section --**



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