

TECHNICAL SPECIFICATIONS

| <u>Section</u> | <u>Pages</u> |
|---|----------------------------|
| 01100 Measurement & Payment | 01100-1 to 01100-6 |
| 01300 Submittals | 01300-1 to 01300-7 |
| 01500 Temporary Facilities | 01500-1 to 01500-2 |
| 01600 Environmental Protection | 01600-1 to 01600-5 |
| 01700 General Safety Requirements | 01700-1 to 01700-5 |
| 02000 Site Preparation and Restoration | 02000-1 to 02000-4 |
| 02405 Mechanical Dredging and Disposal | 02405-1 to 02405-21 |

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**SECTION 01100
MEASUREMENT & PAYMENT**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including Supplemental General and Special Conditions and Technical Specification sections, apply to work of this section.

1.02 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets Submittals Schedule and Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Towns at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Sub schedules: Where the Work is separated into phases requiring separately phased payments, provide sub schedules showing values correlated with each phase of payment.

- B. Format and Content: Provide at least one line item for each Schedule of Values.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - 2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 - 3. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 - 4. For unit-price items, payment shall be based on the actual amount of work accepted and for the actual amount of materials in place, as shown by the final measurements.
 - a. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and interpreted by the Towns' Engineer.
 - b. At the end of each day's work, or as required by the Towns or Town's Engineer, the Contractor's Superintendent or other authorized representative of the Contractor shall meet with the Towns' Resident

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- Project Representative and determine the quantities of unit price work accomplished and/or completed during the work day.
- c. The Contractor will then prepare a “Daily Progress Report” which shall be collected and submitted at the end of each week for signature by both the Resident Project Representative and the Contractor’s Representative.
 - d. Once each month the Resident Project Representative will prepare two “Monthly Progress Summation” forms from the month’s accumulation of “Daily Progress Reports” which shall also be signed by both the Resident Project Representative and the Contractor’s Representative.
 - e. These completed forms will provide the basis of the Towns’ Engineer’s monthly quantity estimate upon which payment shall be made. Items not appearing on both the Daily Progress Reports and Monthly Progress Summation will not be included for payment. Items appearing on forms not properly signed by the Contractor will not be included for payment.
 - f. After the work is completed and before final payment is made therefore, the Towns’ Engineer will make final measurements to determine the quantities of various items of work accepted as the basis for final settlement.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
 9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum

1.03 EXTENT OF WORK

- A. BID ITEM 02000-1 Timber Pile Removal/Re-installation: This item includes all of the necessary work required to remove, temporarily store and re-install individual timber pilings at the Eastham Town Marina Facility and the Orleans Town Marina Facility located within/in close proximity to the dredge footprint

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- and as identified on the Contract Drawings. This item includes transport of piles removed from Eastham to and from temporary storage the Eastham Boat Ramp parking lot and the piles removed from Orleans in the Orleans boat ramp parking lot adjacent to the dredge site. This item includes all necessary coordination with the Harbormasters' offices, survey, tagging/labeling and other incidentals as required to ensure proper handling, temporary storage and re-installation of timber pilings.
- B. BID ITEM 02000-2 Timber Pile Replacement:** This item includes furnishing timber replacement piles at the Eastham and Orleans Town Marina Facilities. The determination of which piles are to be replaced will be made by the Towns based on their observation of the piles removed.
- C. BID ITEM 02405-1 Mechanical Dredge Mobilization and Demobilization:** This item includes all work associated with project preparations, procurement and assembly of all equipment, temporary facilities if needed, materials, supplies and labor, movement of equipment, accomplishing the work required by the Permits with respect to the protection of the environment, and bonds required for the mechanical dredging, transport and disposal of sediments and prosecution of work not otherwise included in other bid items and upon completion of work as specified and/or directed, and the removal of all equipment, materials and supplies from the work area upon project completion.
- D. BID ITEM 02405-2 Mechanical Dredging of the Channel (Area 1) and Basin (Area 2) with Unconfined Offshore Disposal at Cape Cod Bay Disposal Site (CCBDS):** This item includes all material dredged by mechanical methods, tracking and logging of dump scows, federal inspectors (as required), transportation and disposal offshore at the Cape Cod Bay Disposal Site (CCBDS). The Contractor shall dredge, by use of a conventional clamshell bucket, within the areas shown on the plan or as laid out to the approval of the Town in the field to the depths indicated on the plans. It is noted that the use of an environmental dredge bucket, as manufactured by CableArm, Inc. (or approved equal) and the installation, use and maintenance of a floating boom silt curtain may be required to minimize turbidity impacts during dredging operations and these two items are included as Mechanical Dredge Bid Alternates 1 and 2, respectively, to this contract.
- E. BID ITEM 02405-3 DEBRIS DISPOSAL:** This item includes the proper disposal of all stone, concrete, timbers, fishing gear/lines and miscellaneous debris encountered in sediments to be placed at approved upland location(s).
- F. BID ITEM 02405-4 SPECIAL DEBRIS DISPOSAL:** This item includes the proper disposal of all creosote-treated timber encountered in sediments to be placed at approved upland location(s).
- 1.04 MEASUREMENT
- A. BID ITEM 02000-1 Timber Pile Removal/Re-installation:** All timber pilings removed from, and re-installed at the Eastham and Orleans Town Marina

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

Facilities located within/in close proximity to the dredge footprint and identified on the Contract Drawings. The piles from Eastham will be moved by the Contractor for temporary storage at the Town of Eastham boat ramp parking lot and the piles from Orleans will be moved by the Contractor for temporary storage at the Town of Orleans boat ramp parking lot. Payment shall be per EACH pile removed, transported, temporarily stored and re-installed complete, in-place.

- B. BID ITEM 02000-2 Timber Pile Replacement:** All timber replacement pilings at the Eastham and Orleans Town Marina Facilities shall be measured per EACH pile replaced. Piles removed and not replaced shall remain at either the Town of Eastham boat ramp parking lot or the Town of Orleans boat ramp parking lot. Measurement and payment for pile installation shall per EACH pile.
- C. BID ITEM 02405-1 Mechanical Dredge Mobilization and Demobilization:**
1. All costs in connection to all preparatory work for the project including materials, temporary facilities if required and equipment to the project site, coordination and submittals as required, but not limited to obtaining any necessary permits and approvals for the work specified in accordance with the Contract; full reimbursement for the premiums actually paid for the payment and performance bonds and any other work that is necessary in advance of the actual construction operations. Complete mobilization to the project site by the Contractor and all equipment necessary to complete the scheduled work as outlined in the plans and specifications to the satisfaction of the Towns. Upon completion of the said work, demobilization shall include the complete removal of all equipment, plant and excess materials and clean-up of the site. It shall also include any restoration of structures damaged by the Contractor's operations to the satisfaction of the Towns. All work performed under this bid item will be measured as a LUMP SUM unit cost.
 2. There will only be one mobilization and one demobilization paid. If for any other reason, the Contractor must shut down and remove his plant from the site, then re-mobilize, Towns will not be responsible for payment of any additional costs associated with such work. If in the sole opinion of the Towns' Engineer, the Contractor's bid price for Mobilization appears unbalanced, the Towns may request that the Contractor provide a detailed breakdown of all mobilization costs. If the Contractor cannot justify his mobilization costs based on standard cost accounting procedures, the Towns will only be obligated to make a mobilization payment equal to the accepted detailed costs, plus an amount of 20% for the Contractor's overhead and profit, with the remaining costs being paid at the conclusion of the project. The maximum allowable payment for mobilization shall be 60% of the Contractor's accepted Bid Item for Mobilization/Demobilization or as substantiated by accounting data as set forth herein. The remaining 40% or any remaining contract fund owing under the Contractor Bid Item for Mobilization/Demobilization shall be paid for Demobilization, and shall be

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

paid upon complete demobilization from the site, which shall include all cleanup and restoration as set forth herein and in accordance with the Contract Documents.

D. BID ITEM 02405-2 Mechanical Dredging/Unconfined Offshore Disposal at Cape Cod Bay Disposal Site (CCBDS):

1. Material dredged by mechanical method and dewatered on-site shall be measured by the CUBIC YARD (CY) in place by computing the volume between the bottom surface shown by soundings of the Pre-Dredge Survey made before dredging, and the bottom surface shown by soundings of the Post-Dredge Survey made as soon as practicable after the entire work specified has been completed within the limits of the project grade, less any deductions that may be required for misplaced materials described in Section 02405 3.06 MISPLACED MATERIALS and dredging below the allowable overdredge depth described in Section 02405 3.08 OVERDREDGE AND SIDESPLOPES. Payment surveys will be performed by the Towns' Engineer using automated survey positioning systems, and standards established by the Corps of Towns' Engineers for "Special Order" Hydrographic Survey as specified in Appendix B of the Hydrographic Surveys Manual EM-1110-2-1003 from November 2013.
 - a. Depth measurement will be obtained with an Odom Echotrak single frequency 200 kHz transducer, with a beam width not exceeding three degrees, calibrated by the standard "bar check" method. In areas where water depths are insufficient to allow fathometer soundings, readings will be taken using a standard sounding disc.
 - b. The Pre-Dredge Survey will be provided by the Towns. Determination of quantities removed and the deductions made therefrom to determine quantities by place measurement to be paid in the area specified, after having once been made, will not be reopened except on evidence of collusion, fraud, or obvious error.

E. BID ITEM 02405-3 DEBRIS DISPOSAL: All labor, equipment and materials necessary for proper offsite disposal of any stone, concrete, timber, fishing gear and miscellaneous debris encountered in sediments to be placed at an approved upland location(s) shall be measured per TON disposed as per certified weight slips.

F. BID ITEM 02405-4 SPECIAL DEBRIS DISPOSAL: All labor, equipment and materials necessary for proper offsite disposal of any creosote-treated timber, encountered in sediments to be placed at an approved upland location(s) shall be measured per TON disposed as per certified weight slips.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

1.05 WORK NOT PAID FOR SEPARATELY

- A.** Bonds: Payment for bonds as required by the Contract is to be included in the various items of work in the bid, and no separate payment will be made by the Towns for any bonds.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

*****END OF SECTION*****

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**SECTION 01300
SUBMITTALS**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of this Contract, including Supplemental General and Special Conditions, apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;

1.03 SUBMITTALS

- A. **Submit the following reports directly to the Towns' Engineer:**
 - 1. **Submittal Schedule**
 - 2. **Request for Information (RFI)**
 - 3. **Project Schedule**
 - 4. **Verification of Underground Utilities**
 - 5. **Substitutions**
 - 6. **Project Layout Plan**
 - 7. **Contractor's Equipment List and Specifications**
 - 8. **All applicable inspections and certifications for equipment**
 - 9. **Environmental Protection/Hazardous Material Contingency Plan**
 - 10. **Accident Prevention Program (01700 3.04 D)/Emergency Procedures Plan**
 - 11. **Contractor's Quality Control Plan**
 - 12. **Daily Construction Reports (to be submitted weekly)**
 - 13. **List of all Subcontractors**
 - 14. **Re-fueling and Materials Control Plan/ Fuel Consumption Report**
 - 15. **Project Tide Board Layout & Survey Data**
 - 16. **Notification of Work**
 - 17. **Notice to Mariners & Coast Guard**
 - 18. **Dredge Positioning System & resume of individual who will be responsible for its setup, operation and maintenance.**

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- 19. Scow Tracking System**
- 20. Utility Crossing Plan**
- 21. Solid Debris Management Plan**
- 22. Mechanical Dredging and Disposal Plan**
- 23. Mechanical Dredge Plant**
- 24. Pile Location Plan**
- 25. Pre-Construction Photographs**
- 26. CCBDS Disposal Coordinates**
- 27. Silt Curtain (as required)**
- 28. Itemized Breakdown of LUMP SUM items**

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 SUBMITTAL PROCEDURES

- A. Coordination:** Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with any fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Towns reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittal Preparation:** Place a permanent label or title block on each Submittal for identification. Indicate the name of the entity that prepared each Submittal on the label or title block.
 - 1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
 - 2. Include the following information on the label for processing and recording action taken.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- a. Project name.
 - b. Date.
 - c. Name and address of Towns.
 - d. Name and address of Contractor.
 - e. Name and address of Sub-Contractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Towns using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

3.02 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Prepare a fully developed, bar type Contractor's construction schedule. Submit within seven (7) days of the date established for "Commencement of the Work". Contractor's schedule shall be capable of electronic transmission and shall be in a format substantially similar to project management software such as Microsoft Project® or other acceptable electronic media capable of providing the Towns with electronic copies of any and all submitted schedules.
1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
 2. Within each time bar indicate estimated completion percentage in twenty (20) percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

5. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.
 6. Indicate completion in advance of the date established for substantial Completion. Indicate substantial Completion on the schedule to allow time for the Towns' procedures necessary for certification of substantial Completion.
- B. Phasing:** Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit work by separate Contractors.
- C. Work Stages:** Indicate important stages of construction for each major portion of the Work, including testing and installation.
- D. Cost Correlation:** At the head of the schedule, provide a two item cost correlation line, indicating "pre-calculated" and "actual" costs. On the line show dollar-volume of Work performed as of the dates used for preparation of payment requests.
- E. Distribution:** Following response to the initial submittal, print and distribute copies to the Towns, Sub-Contractors, and other parties required to comply with scheduled dates. Post copies in the temporary field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- F. Schedule Updating:** Revise the schedule after each meeting or activity, where revisions have been recognized or made or milestones are reached in the project. Issue the updated schedule within three (3) days of such event, but in no circumstance less than weekly.

3.03 DREDGING & DISPOSAL OPERATIONS PLAN

- A.** Within seven (7) days after receipt of Notice to Proceed, the Contractor shall furnish his plan for the mechanical dredging and disposal of mechanically dredged sediment to the Towns' Engineer for review and approval. This plan shall include a description of all proposed dredging and land-based equipment to be utilized in performance of the contract work. No dredging will be permitted to commence until this plan, is approved by the Towns' Engineer

3.04 SUBMITTAL SCHEDULE

- A.** After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within seven (7) days of the date required for establishment of the Contractor's construction schedule.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

1. Prepare the schedule in chronological order; include submittals required during construction. Provide the following information:
 - a. Scheduled date for the first submittal.
 - b. Submittal category.
 - c. Name of Sub-Contractor.
 - d. Description of the part of the Work covered.
 - e. Scheduled date for re-submittal
 - f. Scheduled date the Towns' final release or approval.
- B.** Distribution: Following response to initial submittal, print and distribute copies to the Towns, Sub-Contractors, and other parties required to comply with submittal dates indicated.
 1. When revisions are made, distribute to the same parties. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.

3.05 DAILY CONSTRUCTION REPORTS

- A.** The Contractor shall prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Towns at weekly intervals or as requested by the Towns:
 1. List of Sub-Contractors at the site.
 2. Approximate count of personnel at the site.
 3. High and low temperatures, general weather conditions.
 4. Accidents and unusual events.
 5. Meetings and significant decisions.
 6. Stoppages, delays, shortages, losses.
 7. Daily plan of areas worked.
 8. Emergency procedures.
 9. Any Orders and or requests of governing authorities.
 10. Change Orders received and implemented.
 11. Substantial Completions authorized.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

12. Digital photographs of project site prior to and following the completion of construction on CD.

3.06 SHOP DRAWINGS

- A. The Contractor shall submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. The Contractor shall submit shop drawings, which include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. The following information must be included:
 1. Dimensions.
 2. Identification of products and materials included.
 3. Compliance with specified standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
 6. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 36" x 48".
 7. Initial submittal: Submit one reproducible print for the Towns' review.
 8. Final submittal: Submit three (3) black-line prints; Submit five (5) prints where required for maintenance manuals. Two (2) prints will be retained; the remainder will be returned.
 - a. One of the prints returned shall be marked-up and maintained as a "Record Document".
 9. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

3.07 TOWNS' ENGINEER'S ACTION

- A. Except for submittals for the record, information or similar purposes, where action and return is required or requested, the Towns' Engineer will review each submittal, mark to indicate action taken, and return promptly.
- B. Action Stamp: The Towns will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. Final Unrestricted Release: Where submittals are marked "No Exception Taken," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
 - 2. Final-But-Restricted Release: When submittals are marked "Approved as Noted," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 - 3. Returned for Re-submittal: When a submittal is marked "Revise and Resubmit," do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. The Contractor is to revise or prepare a new submittal in accordance with the notations; resubmit without delay to the Towns. The Contractor shall repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
 - 4. Other Action: When a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned to the Contractor, marked "Action Not Required".

*****END OF SECTION*****

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**SECTION 01500
TEMPORARY FACILITIES**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including Supplemental General and Special Conditions and other Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection. Temporary facilities may be located at the Town of Eastham boat ramp parking lot and the Town of Orleans dirt parking lot.
- B. Temporary utilities may be required and include but are not limited to:
 - 1. Small trailer, including at a minimum, (1) desk and chair, (1) two-drawer file cabinet, calendar and erasable marker board/markers.
 - 2. Portable electric power and light.
 - 3. Cellular Telephone service.
- C. Temporary construction and support facilities may be required and the Contractor is notified that there are only limited Staging Areas and/or Temporary Support Facilities available on the project site. The Contractor shall perform all dredging using water-based equipment.
 - 1. Sanitary facilities, including drinking water.
 - 2. Temporary enclosures.
 - 3. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities required include but are not limited to:
 - 1. Environmental protection.
 - 2. Emergency Spill Response Kit.

1.03 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
 - 1. Building Code requirements.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, Fire Department and Rescue Squad rules.
 - 5. Environmental protection regulations.

1.04 PROJECT CONDITIONS

- A. Conditions of Use: The Contractor shall keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 INSTALLATION

- A. The Contractor shall use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. The Contractor shall relocate and modify facilities as required.
- B. The Contractor shall provide each facility ready for use when needed to avoid delay. The Contractor shall maintain and modify as required. The Contractor shall not remove any facility until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

- A. The Contractor shall locate any field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.
- B. The Contractor shall maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Towns.
- C. The Contractor shall install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
- D. The Contractor shall provide containerized tap-dispenser bottled-water type drinking water units, including paper supply.

3.03 PERMITS AND CODES

- A. Comply with all applicable codes, ordinances, rules, regulations and laws of all local, municipal, and state authorities having jurisdiction over the work, without additional cost to the Towns.

*****END OF SECTION*****

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**SECTION 01600
ENVIRONMENTAL PROTECTION**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including Supplemental General and Special Conditions and other Specification Sections, apply to this Section.
- B. The Contractor must fully adhere to the provisions set forth in all permits (to be provided as soon as available) and shall hold the Towns harmless for any failure to adhere to a permit condition. Permits that will be issued for this project include: U.S. Army Corps of Engineers Category II Programmatic General Permit, MA DEP 401 Water Quality Certification, MA DEP Chapter 91 Dredge Permit and Orders of Conditions from both the Town of Eastham and the Town of Orleans. Once issued, these permits shall be fully integrated into the performance and the work set forth herein.

1.02 SUMMARY

- A. This Section specifies requirements for environmental protection.

1.03 SUBCONTRACTORS

- A. Assurance of compliance with this specification by Sub-Contractors will be the responsibility of the Contractor.

1.04 NOTIFICATION

- B. The Towns/Towns' Engineer shall notify the Contractor in writing of any observed noncompliance with the Federal, State or local laws or regulations, permits and other elements of the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the Towns of proposed corrective actions and take such actions as may be approved. If the Contractor fails to comply promptly, the Towns may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted, nor costs or damages allowed to the Contractor for any such suspension.
- C. It is the responsibility of the Contractor to notify and request the exact coordinates for the disposal of the dredged materials from the U.S. Army Corps of Towns' Engineers at least ten (10) days prior to the start of the project. One (1) copy as a pdf of said request and the information from the U.S. Army Corps of Towns' Engineers shall be submitted to the Towns' Engineer prior to proceeding with the dredging and offshore disposal activities.

1.05 FINES AND PENALTIES

- A. The Contractor shall be solely responsible for any and all permit violations and fines levied thereto as a result of their construction or operations. The Contractor indemnifies the Towns and Towns' Engineer from any fines or penalties levied and

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

shall defend said fines or penalties as its sole cost with the Towns' cost relating to any defense of said fines or penalties to be assessed to the Contractor.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 GENERAL

- A.** The Commonwealth of Massachusetts along with other Municipal and Federal Agencies have issued permits, orders of conditions and strict regulations for construction in environmentally sensitive areas. In addition to any orders, the following restrictions apply:
1. Under no circumstance shall any equipment will be allowed to operate (including grounding of vessels and storage of materials) in or on any of the adjoining grass beds, salt marshes, or mudflats. In addition no equipment will be operated in such a manner as to cause damage to these areas.
 2. Absolutely no release is allowed into any waterway of any petroleum product, epoxies, resins, admixtures, touch-up coatings, concrete, waste water of any kind, any foreign particular which is associated with any of the activities, or the like of the Contractor. Accidental releases shall be reported to the appropriate authority, Harbormaster, and, if applicable, the Coast Guard. The Contractor assumes all responsibilities for fines or penalties levied and agrees to fully indemnify the Towns and Towns' Engineer for any accidental, negligent or intention discharge of any foreign material into any waterway associated with the work prescribed herein.
 3. Prior to beginning any work the Contractor shall submit, in writing, a contingency plan, subject to approval by the Towns, which will set forth the procedures to be followed in the event of an accidental release. This plan will require, as a minimum, that the Contractor have on-site, sufficient sorbent pads and booms to contain an accidental spill. Absolutely no work shall begin on the project until this plan has been approved by the Towns and or the Towns' Engineer.
 4. Debris from construction operations is to be cleaned up on a regular basis and disposed of offsite at a properly designated facility at the Contractor's expense. Any floating debris and cuttings shall be contained in the work area by floating booms and shall not be allowed to drift about any waterway. Organic debris (epoxies, etc.) are considered releases and shall be cleaned up immediately in accordance with the approved plan.
 5. In the event that wetland areas are destroyed in conjunction with the construction, it shall be replaced, at no cost to the Towns, by a firm experienced in restoration of such areas.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

6. Any materials stored or stockpiled on the site will be assessed for its potential to create a run off problem. Such materials shall be stored and/or protected in such a way that run off from the stockpiles will not create a nuisance or damage down gradient resource areas. Any and all property located at or used in conjunction with this project shall be returned to pre-construction conditions prior to completion of project and release of demobilization retainage.
7. Clean, fill soils may be stockpiled on site provided that erosion controls are used to prevent erosion and sedimentation.

3.02 PROTECTION OF ENVIRONMENTAL RESOURCES

- A.** The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications.
- B.** Work and Staging Area Limits: Prior to any construction the Contractor shall mark the areas that are required to accomplish all work to be performed under this contract. Monuments and markers shall be protected before construction operations commence. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.
- C.** Best Management Practices (BMPs) shall be deployed to minimize turbidity. Dredging will be carried out using a conventional bucket unless otherwise directed by regulatory permit conditions. It is noted that the use of an environmental dredge bucket, as manufactured by CableArm, Inc. (or approved equal) may be required to minimize turbidity impacts during dredging operations. This item is included as Mechanical Dredge Bid Alternate 1. It is likely a water quality monitoring plan shall be required by the 401 Water Quality Certification. Such monitoring plan shall be prepared and implemented by the Towns. A bottom-weighted silt curtain may be required to be used if indicated by the water quality monitoring plan. The silt curtain shall be of suitable material/grade appropriate with the velocity of the current at the site and be placed at a location that does not bottom out during low tide. The use of a silt curtain is included as Mechanical Dredge Bid Alternate 2.
- D.** Disposal of Solid Waste by Removal from the Work Site: The Contractor shall transport all uncontaminated solid waste off of the work site and dispose of it in compliance with Federal, State and local requirements for solid waste disposal.
- E.** Disposal of Discarded Materials: Discarded materials other than those which can be included in the solid waste category will be handled as directed by the Towns' Superintendents of Public Works. The Contractor shall comply with Title 40 CFR, Part 260-265.
- F.** Protection of Water Resources: The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Special management techniques shall be implemented to control

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

water pollution resulting from the construction activities, which are included in this contract.

- G. Protection of Fish and Wildlife Resources:** The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to, and damage of fish and wildlife.
- H. Protection of Air Resources:** The Contractor shall 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 Commonwealth of Massachusetts and all Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency, specifically as they apply in the Commonwealth of Massachusetts shall be maintained for all construction operations and activities.
- I. Particulates:** Dust particles, aerosols, and gaseous by-products from all construction activities, processing and preparation of materials shall be controlled at all times, including weekends, holidays and hours when work is not in progress.
- J. Hydrocarbons and Carbon Monoxide:** Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and Massachusetts allowable limits at all times.
- K. Odors:** Odors shall be controlled at all times for all construction activities, processing and preparation of materials.
- L. Protection of Sound Intrusions:** The Contractor shall keep construction activities under surveillance, and control to minimize damage to the environment by noise. The Contractor shall use methods and devices to control noise emitted by equipment.
- M. Ownership of any fuel on the project site at all times will be under the control of the Contractor.** The Contractor will contact, coordinate and comply with any local, county, state or federally mandated regulations, codes or rules set forth regarding the storage, use and or disposition of any petroleum products. Under no circumstances are any permanent fuel facilities to be constructed on the project site. Any fuel spills shall be the sole responsibility of the Contractor.
- N. Environmental Window:** Contractor shall adhere to all environmental windows according to permits. Dredging activities are anticipated to be prohibited from February 1st to June 30th of any year. Offshore disposal activities at the CCBDS are prohibited from January 1st to May 15th of any year.

3.03 POST CONSTRUCTION CLEAN UP

- A.** The Contractor shall clean up all areas affected by construction to pre-construction conditions prior to completion of project.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

3.04 RESTORATION OF LANDSCAPE DAMAGE

- A. The Contractor shall restore all landscape features of staging, storing or other areas damaged or destroyed during construction operations outside the limits of the approved work areas. Such restorations shall be in accordance with the plan submitted for the approval of the Towns. This work will be accomplished at the Contractor's expense.

3.05 MAINTENANCE OF POLLUTION CONTROL FACILITIES

- A. The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutants.

3.06 TRAINING OF CONTRACTOR PERSONNEL

- A. The Contractor shall train his personnel in all phases of environmental protection. The training shall 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.

***** END OF SECTION *****

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**SECTION 01700
GENERAL SAFETY REQUIREMENTS**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including Supplemental General and Special Conditions and Specification sections, apply to work of this section.

1.02 SUMMARY

- A. The work covered in this section consists of furnishing all plant, labor, equipment and appliances in performing all operations in connection with safety of persons and property during construction. The safety requirements specified in this section are in addition to those contained in the sections pertaining to the specific items of work involved or indicated on the drawings. Where there is a conflict between the requirements of this section and sections pertaining to the specific items of work, the requirements of this section shall govern. Specific requirements of this section include:

- The Contractor shall comply with all aspects of the Towns' Safety and Environmental Policies for each facility.
- The Contractor shall provide safety controls for protection of persons and property in compliance with all applicable Federal, State and Municipal statutes and/or regulations.
- The Contractor shall maintain accurate records and report to the Towns' exposure data and all accidents.
- The Contractor shall promptly correct noncompliance with safety provisions where they are observed or when notified.
- The Contractor shall develop a safety program and submit plans for effective accident prevention.
- The Contractor shall attend project meetings relative to administration of the overall safety program.

1.03 REFERENCES

- A. The following publications listed below form a part of this specification to the extent referenced.
1. U.S. Army Corps of Engineers Engineer Manual (EM): Safety and Health Requirements Manual, EM 385-1-1, 2013 Edition
 2. ASME International B30.5 (2004) Mobile Crane
 3. ASME International B30.22 (2003) Articulating Boom Cranes
 4. U.S. National Archives and Records Administration (NARA) 29 CFR 1910.94 Ventilation

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

5. U.S. National Archives and Records Administration (NARA) 29 CFR 1910.120 Hazardous Operations and Emergency Response
6. U.S. National Archives and Records Administration (NARA) 29 CFR 1926.65 Hazardous Operations and Emergency Response
7. U.S. National Archives and Records Administration (NARA) 29 CFR 1926.502 (f) Warning Line Systems
8. National Fire Protection Association (NFPA) 10 (1995) Portable Fire Extinguishers
9. NFPA 241 (1996) Safeguarding Construction, Alteration, and Demolition Operations
10. Occupational Safety and Health Act (OSHA)

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 GENERAL SAFETY REQUIREMENTS - U.S. ARMY CORPS OF TOWNS'S ENGINEERS MANUAL

- A. The Contractor shall comply with all pertinent provisions of the Corps of Engineers Manual, EM 385-1-1, 2013 edition.
- B. The Contractor shall submit crane inspection reports as required in accordance with EM 385-1-1 with Daily Reports.

3.02 HOT WORK

- A. No Hot Work (burning, welding, chipping, grinding, and electrical power tools) is allowed within 350 feet of a transfer operation involving flammable fluids or vapors.

3.03 ACCIDENT PREVENTION

- A. The Contractor shall comply with the Massachusetts Occupational Safety and Health Act, and will also take, or cause to be taken, such additional measures as may be necessary for the prevention of accidents.
- B. Prior to commencement of Work the Contractor shall (1) submit plans in writing for effectuating provisions for accident prevention, and (2) meet in conference with the Towns to discuss and develop mutual understandings relative to administration of an overall safety program.
- C. During the performance of Work under the Contract, the Contractor shall institute controls and procedures for the control and safety of persons visiting the job site.
- D. The Contractor shall maintain an accurate record of, and shall report to the Towns in writing, exposure data and all accidents resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment incident to Work performed under the Contract.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- E.** The Towns will notify the Contractor of any noncompliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. If the Contractor fails or refuses to comply immediately, the matter will be referred to the proper authority. No part of the time lost due to any stop order issued by proper authority shall be made the subject or claim for extension of time or for extra costs or damages by the Contractor.
- F.** Compliance with the provisions of this Part by Subcontractors will be the responsibility of the Contractor.

3.04 CONTRACTOR'S SAFETY PROGRAM

- A.** The Contractor shall have a written safety program in place for this project. At a minimum, it shall include a drug and alcohol policy, accident reporting criteria and example forms along with an agenda for daily safety meetings safe operations practices for all trades associated in this project.
- B.** A safety officer shall as appointed by an officer of the Contractor's Corporation shall be named and charged with any and all safety activities relating the this project.
- C.** The Towns and the Towns' Engineer shall not be responsible for implementing and/or providing any safety training and/or direction regarding the Contractor's operations as they relate to the project's safety.
- D.** Accident Prevention Program: Within five (5) calendar days after receipt of Notice to Proceed the Contractor shall furnish his Accident Prevention Program and three copies thereof to the Towns or their authorized representative for review and approval. The program shall be prepared in the following format:
 - 1. Administrative Plan
 - 2. Job Hazard Analysis
 - 3. A copy of company policy statement of accident prevention and any other guidance statements normally provided new employees.
 - 4. When marine plant and equipment are in use the Contractor shall assure that oil transfer operations to or from his plant comply with all Federal, State, county, and Municipal laws, codes and regulations. Particular attention is invited to 33 CFR Subchapter 0, Pollution. The Contractor shall incorporate in his accident prevention program, sufficient information to demonstrate that all fuel transfers will be made in accordance with 33 CFR 156 and any other applicable laws, codes and regulations. (CENABEN 1984 APR)
 - 5. The Contractor shall not commence physical work at the project site until the program has been received and acknowledged by the Towns or his authorized representative. As an additional measure to implementation of the Accident Prevention Program, the Contractor shall meet with representatives of the Towns as soon as practicable after receipt of Notice to Proceed and before start of work to discuss and develop a mutual understanding relative to administration of the overall safety program. Minutes of the meeting shall be prepared, signed by the Contractor and the Towns or his authorized

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

representative. At the Towns' discretion, the Contractor may submit his Job Hazard Analysis only for the phases of construction. All remaining phases shall be submitted and accepted prior to the beginning of work in each phase. EM 385-1-1, Section 1.

3.05 ACCIDENT INVESTIGATION AND REPORTING

- A. Accidents shall be investigated by immediate supervisor of the employee(s) involved and reported to the Towns or the Towns' inspector within one working day after the accident. Paragraph 01.D, EM 385-1-1.
- B. The Contractor shall insure that all accidents which involve loss of life, occupational disease of the employee, injury incapacitating any person for normal work beyond the day of injury, or damage to property, materials, supplies, or equipment, of \$1,000.00 or more, and which relate to the dredge, any attendant plant, the dredge working area, dewatering and disposal areas, shall be recorded, investigated, and reported to the Towns or his authorized representative.
- C. Each accident shall be verbally reported to the Towns' inspector at the earliest practicable time, but within 24 hours. Each accident involving loss of life or traumatic injury to any person shall be reported to the Towns' inspector verbally, telephonically, or by radio immediately.
- D. The Contractor shall promptly investigate each accident and submit a written, signed report on ENG Form 3394 to the Towns' inspector within 48 hours.
- E. A factual record of each accident shall be entered in the Contractor's official daily log book.

3.06 DAILY INSPECTIONS

- A. The Contractor shall institute a daily inspection program to assure all safety requirements are being fulfilled. Reports of daily inspections shall be maintained in the Contractor's official daily log book. The reports shall be records of the daily inspections and resulting actions. Each report shall include, as a minimum, the following:
 - 1. Phase(s) of construction underway during the inspection.
 - 2. Locations of areas inspections were made.
 - 3. Results of inspection, including nature of deficiencies observed and corrective actions taken, or to be taken, date, and signature of the person responsible for its contents.

3.07 MEANS OF ESCAPE FOR PERSONNEL QUARTERED OR WORKING ON FLOATING PLANT

- A. Two means of escape shall be provided for assembly, sleeping, and messing areas on floating plants. For areas involving 10 or more persons, both means of egress shall be through standard size doors opening to different exit routes. Where 9 or fewer persons are involved, one of the means of escape may be a window

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

(minimum dimensions 24-inch by 36-inch), which leads to a different exit route. EM 385-1-1, Section 19.

3.08 CERTIFICATE OF COMPLIANCE

- A. Contractor shall submit copies of all applicable inspections and certifications for all floating plant and equipment.

3.09 EMERGENCY ALARMS AND SIGNALS

- A. Alarms. Emergency alarms shall be installed and maintained on all floating plant requiring a crew where it is possible for either a passenger or crewman to be out of sight or hearing from any other person. The alarm system shall be operated from the primary electrical system with standby batteries on trickle charge that will automatically furnish the required energy during an electrical-system failure.

B. Signals

1. Fire Alarm Signals: The general fire alarm signal shall be in accordance with paragraph 97.13-15b of the Coast Guard Rules and Regulations for Cargo and Miscellaneous Vessels, Subchapter I, 1 Sep 77 (CG 257)
2. Abandon Ship Signals: The signal for abandon ship shall be in accordance with paragraph 97.13-15c of referenced cited in (a) above.
3. Man-Overboard Signal: Hail and pass the word to the bridge. All personnel and vessels capable of rendering assistance shall respond.
4. Mooring Lines: Eye loops on mooring lines shall be equipped with brackets or handling ropes to protect the hands of deckhands.

***** END OF SECTION *****

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**SECTION 02000
SITE PREPARATION AND RESTORATION**

PART 1: GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including Supplemental General and Special Conditions, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Timber pile removal.
 - 2. Timber pile re-installation
 - 3. Timber pile replacement
- B. Related Sections include the following:
 - Section 02405, Mechanical Dredging and Disposal

1.03 MATERIAL OWNERSHIP

- A. Except for materials indicated to remain Towns' property, materials shall become Contractor's property and shall be removed from Project site.

1.04 SUBMITTALS

- A. Pile Plan – This plan shall provide accurate location (using DGPS), cataloging of all pilings to be removed prior to removal and start of dredge operations. The plan of the piles in Orleans has been prepared and will be provided by the Town of Orleans. The plan of the piles in Eastham are to be prepared by the Contractor.

1.05 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site preparation, use and restoration operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Towns and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Salvable Materials: Carefully remove all materials to be re-installed and store on Towns' premises as directed.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site preparation.
- D. Do not commence dredging operations until temporary sedimentation control measures are in place to the satisfaction of the Towns/Towns' Engineer.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

PART 2: PRODUCTS

2.01 REPLACEMENT PILINGS

- A. Replacement piles installed at the Town Marina Facilities and shall consist of Greenheart timber in Eastham and Oak in Orleans as follows:
 - 1. Minimum diameters for piles: 12 inches at 3 feet from butt and 8 inches at the tip.
 - 2. Minimum pile length of 45 feet.
 - 3. ASTM Standard D25 "Standard Specifications for Round Timber Piles," latest edition.

PART 3: EXECUTION

3.01 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect area prepared for staging and sediment transfer from damage during construction.
 - 1. Restore any/all damaged areas to their original condition, as acceptable to Towns.

1.06 TEMPORARY SEDIMENTATION CONTROL

- A. The Contractor shall prevent sediment run-off into any existing catch basins located within the vicinity of the project area. The Town will perform pre- and post-construction inspection of catch basins to determine if sedimentation run-off has occurred as a result of sediment handling operations. The Contractor will be responsible for cleaning out catch basins should the Town's inspection prove it necessary.
- B. Inspect, repair, and maintain sedimentation control measures during construction.
- C. Remove sedimentation controls and restore all areas disturbed during construction.

1.07 SITE PREPARATION AND RESTORATION

- A. Staging and Sediment Transfer Area:
 - 1. Protect and restore existing walkway, pavement, existing drainage/utilities and any/all other areas impacted by staging and sediment dewatering operations. Install required barriers/signage as required to clearly identify work area.
 - 2. Provide any/all traffic control as required.
- B. Removal, Storage and Re-installation of Pilings:
 - 1. In conjunction with the dredging of Rock Harbor and prior to commencing dredging operations, the Contractor shall remove the existing pilings located

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

at the Town Marina Facilities that are within the dredge footprint to facilitate the Contractor's operations.

2. All work shall be coordinated with the Towns. Floats and gangways at the Town Facilities will be removed by the Towns as soon as possible to allow for the pre-dredge survey to be conducted by the Towns' Engineer, likely not to occur prior to October 31, 2014. The Towns will be responsible for any necessary removal/re-installation of existing water/electrical lines at the marinas. All existing pilings removed shall be transported and stored at the Town of Eastham and Town of Orleans boat ramp parking lots. All replacement pilings shall be re-installed at the Rock Harbor Town Marina Facilities by no later than April 15, 2015.
5. The Contractor will be provided with a general conditions plan that identifies pilings to be removed/re-installed at the Rock Harbor Town Marina Facilities. The Contractor shall confirm inventory and document pile locations prior to removal to establish an as-built condition plan for both sites. All piles shall be located using DGPS. Once dredging is complete, the Contractor will be responsible for re-installing all pilings which have been removed, in compliance with the general conditions plan and to the approval of the Harbormasters. The Contractor will be required to submit a re-installation plan to confirm that all components have been installed in compliance with the general conditions plan.
6. At the discretion of the Towns, timber pilings removed from Town Marina Facilities may be replaced with new pilings. New pilings shall be installed having a minimum embedment depth of 18 feet. All piles shall have a final top cut-off elevation at the approximate elevation of the pile it replaces.
7. The Contractor shall take pre-construction photographs of all pilings, bulkheads, storage areas and surrounding structures adjacent to and within the dredge footprint to document pre-existing conditions. Digital photographs shall be submitted to the Towns prior to removal. Any damage resulting to bulkheads or surrounding structures or storage area(s) will be the responsibility of the Contractor and at his own expense. All areas shall be restored to pre-construction conditions upon completion of work.
8. At the time of completion of work by the Contractor, the Town shall inspect all re-installed pilings to determine whether the work is acceptable. Notification of acceptance of work will be provided to the Contractor in writing by the Town, stating that the guarantee period of one (1) year begins from that date. During the guarantee period, any piling(s) reset under this Contract, which had been placed not at its proper location shall be immediately reset at no additional cost to the Town. At the end of the guarantee period, inspection will be made again and any piling(s) reset under

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

this Contract that is unsatisfactorily placed shall be reset. All items shall be reset immediately for one (1) boating season, April 2015 through October 2015 after project completion.

1.08 DISPOSAL

- A.** Disposal: Remove surplus materials, pavement, demolished materials, and waste materials including trash and debris, and legally dispose of them off Towns' property.
- B.** Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

***** END OF SECTION *****

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**SECTION 02405
MECHANICAL DREDGING AND UNCONFINED OFFSHORE DISPOSAL**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A.** Drawings and general provisions of Contract, including Supplemental General and Special Conditions and Specification sections, apply to work of this section.

1.02 SUMMARY OF WORK

- A.** The work includes labor, materials, equipment and services required for completion of the work under this Section; all as shown on the drawings and as specified herein.
1. Mobilize dredge equipment to the project site.
 2. Perform mechanical dredging of Channel (Area 1) and Basin (Area 2), loading to dump scows and offshore disposal at the CCBDS.
 3. All disposal operations at the CCBDS must be completed before December 31, 2014.
 4. Demobilize from site.
- B.** This Section includes all water control, manpower, fueling, maintenance, operation, positioning systems, progress surveys, environmental protection, and all other work incidental to the dredging and disposal operations.
- C.** The material to be removed to establish the depth within the limits shown on the Contract Drawings consists of maintenance dredging within the Rock Harbor Channel (Area 1) and Basin (Area 2). Materials are expected to consist of primarily of poorly graded sand in the Channel and of silty sand in the Basin. Minor variations in the subsurface materials are to be expected and, if encountered, shall not be considered as being materially different. Bidders are expected to examine the site of the work along with the sediment data provided in Attachment B and decide for themselves the character of the materials.
- D.** The depths that are sought within Rock Harbor will require a dredge depth of three feet below Mean Low Water (-3.0 feet MLW) and a one (1) foot allowable over dredge (-4.0 feet MLW) as noted on the Contract Drawings. It is estimated that a total of ±38,600 CY of sediment will be dredged mechanically, including the allowable overdredge depth and side slopes. No payment will be made for any material removed from a depth greater than -4.0 feet MLW as stated above in these areas or beyond the slopes shown on the Contract Drawings.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

E. The work to be performed under the Contract will consist of the which includes the mechanical dredging, towing of dump scows and offshore disposal of the following:

- Mechanical dredging and unconfined offshore disposal of an estimated $\pm 38,600$ CY at the Cape Cod Bay Disposal Site (CCBDS).

F. The above stated quantities shall only be considered an estimate. The actual amount removed will be dependent on the amount of material the Contractor removes to the payment limit from within the established dredge areas as shown on the Contract Drawings.

1.03 QUALITY ASSURANCE - CONTRACTOR QUALITY CONTROL

A. Contractor Quality Control is the means by which the Contractor verifies that his construction/dredging work complies with the requirements of the contract specifications. Contractor Quality Control shall be adequate to cover all dredging and disposal operations.

B. General: The Contractor shall provide and maintain an effective quality control program. The Contractor's Quality Control Program through inspection, testing, equipment/system operation, and reporting shall demonstrate and document the extent of compliance of all work with the standards and quality established by the contract documents. Inspection and test reports shall make reference to specific drawing and/or specification requirements and shall state inspection/test procedures with both expected and actual results. The burden-of-proof of contract compliance is placed on the Contractor and not assumed by the Towns' Engineer. The Contractor's Quality Control will not be accepted without question.

C. Quality Control Plan: Within 7 calendar days after receipt of Notice to Proceed the Contractor shall furnish one (1) pdf of his Quality Control Plan to the Towns' Engineer or his authorized representative for review and approval. The plan shall cover in detail each feature of the project including dredging and disposal operations. Copies of the Quality Control Plan shall be made available on the dredge plant and any temporary office. The Quality Control Plan the Contractor proposes to implement shall identify the personnel, procedures, instructions, records, and forms, and as a minimum, shall include:

1. A description of the quality management organization.
2. The number, classifications, qualifications, duties, responsibilities and authorities of personnel. A copy of the letter signed by an authorized official of the firm, which describes the responsibilities and delegates the authorities of the system manager, shall be furnished.
3. Procedures for processing reports, samples and other submittals.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

4. Quality control activities to be performed, including those of subcontractors.
 5. Compliance inspections recorded on a Daily Quality Control Report and the Dredging Report. Construction or dredging will be permitted to begin only after approval of the Quality Control Plan, or approval of that portion of the plan applicable to the particular feature of work to be started. As an additional measure to the implementation of the Quality Control Plan, the Contractor shall meet with representatives of the Towns as soon as practicable after receipt of Notice to Proceed and before start of construction or dredging to discuss the Contractor's quality control system. The meeting shall develop a mutual understanding relative to details of his Quality Control Program including the forms for recording the quality control operations; control activities, testing, administration of the system for both onsite and offsite, and the interrelationship of Contractor and Towns' Engineer's control and surveillance. Minutes of the meeting shall be prepared, signed by both the Contractor and the Towns or their authorized representative and shall become a part of the contract file. There may also be occasions when subsequent conferences will be called to reconfirm understandings.
- D. Notification of Changes:** After approval of the Quality Control Plan, the Contractor shall notify the Towns or their authorized representative in writing of any proposed change.
- E. Work Deficiencies:** The Contractor shall not build upon or conceal any work containing uncorrected defects. If deficiencies indicate that the Contractor's quality control system is not adequate or does not produce the desired results, corrective actions in both the quality control system and the work shall be taken by the Contractor. If the Contractor does not promptly make the necessary corrections, the Towns may issue an order stopping all or any part of the work until satisfactory corrective action has been taken. Payment for deficient work will be withheld until work has been satisfactorily corrected. If the above does not obtain effective improvement in the Contractor's quality control system, the Towns' Engineer or their authorized representative may direct changes be made in the quality control system and/or organization, including but not limited to the removal and replacement of unsatisfactory quality control representatives at any level or the addition of quality control personnel or services. Any additional cost to the Towns for providing quality control services that are not satisfactorily performed by the Contractor, will be deducted from payment due the Contractor. If recurring deficiencies in an item or items indicate that the quality control system is not adequate, such corrective actions shall be taken as directed by the Towns' Engineer or their authorized representative.
- F. Quality Control Organization:**
1. System Manager: The Contractor shall identify an individual within his organization at the site of the work, who shall be responsible for overall

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

management and have the authority to act in all Contractor quality control matters for the Contractor.

2. Personnel: Staff shall be maintained under the direction of the system manager to perform all quality control activities. The actual strength of the staff during any specific work period may vary to cover work phase needs, shifts, and rates of dredging. At least one full-time Contractor quality control person fully alert and awake shall be present on the disposal area at all times pumping operations are in progress. The personnel of this staff shall be fully qualified by experience and technically trained to perform their assigned responsibilities.

G. Control: The Contractor's quality control system shall include at least the following three phases of control and management for definable features of work:

1. Preparatory: Twenty-four (24) hours in advance of beginning any definable features of work, the Contractor's quality control manager shall review with the Towns' Engineer's inspector(s) the applicable provisions of the specifications and Quality Control Plan and confirm the methods to assure compliance.
2. Initial: This phase of control must be accomplished at the time of arrival to the disposal area and dredging personnel on site to accomplish a definable feature of work and at any time new workmen or crews arrive for assignment to the work. The Contractor's control system must permit the transfer of information on quality requirements specified in this contract to each workman before he starts, demonstration from each workman that he can provide the specified quality of work, and motivate him to continue. It is also during this phase that control testing to prove the adequacy of the Contractor's control procedures shall be initiated and verified. The Towns' Engineer or their authorized representative shall be notified at least 24 hours in advance of each initial activity.
3. Follow-up: The follow-up phase shall be performed continuously to verify that control procedures are providing an end product which complied with contract requirements. Adjustments to control procedures may be required based upon the results of this phase and compliance inspections.

H. Completion: At the completion of the work, the Contractor's quality control representative shall conduct a joint completion review with the Towns' Engineer's inspector(s). During this review the work shall be examined, quality control shall be reviewed, and a list shall be developed of work not properly completed or not conforming to plans and specifications. This list shall be included in the quality control documentation with an estimated date for correction of each deficiency. The Contractor shall make sure that deficiencies have been corrected prior to the specified completion date. Payment will be withheld for defective or deficient features until they are satisfactorily corrected.

I. Quality Control Records: The Contractor shall maintain current records, on an appropriate approved form, of quality control operations, activities, and tests

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

performed including the work of suppliers and subcontractors. These records shall include factual evidence that the required activities or tests have been performed, including but not limited to the following:

1. Type and number of control activities and compliance inspections.
2. Results of control activities or inspections.
3. Nature of defects, causes for rejection, etc.
4. Proposed remedial action.
5. Corrective actions taken.

These records shall cover both conforming and defective or deficient features and shall include a statement that supplies and materials incorporated in the work comply with the contract. The Contractor shall submit legible, daily quality control reports to the Towns' Engineer's inspector on the day following the report period. The records shall cover disposal activities and dredging performed during the time period for which the records are furnished. These records shall be verified by person so designated by the Contractor. Failure to follow these procedures will be considered a breach of the Quality Control Program and portions of the progress payment may be withheld until it is demonstrated by the Contractor that the construction activities covered by the delinquent reports meet the requirements of the plans and specifications.

1.04 PROJECT CONDITIONS

- A.** Information and data furnished or referred to below are furnished for information only and it is expressly understood that the Towns will not be responsible for any interpretations or conclusions drawn therefore by the Contractor.
- B.** Weather Conditions: Complete weather records and reports may be obtained from the U.S. Weather Bureau. The Contractor shall satisfy himself as to the hazards likely to arise from weather conditions during the dredging period. A portion of the site of work is exposed, and suspension of work may at times be necessary during extreme storm periods. Tidal currents are not expected to have an adverse effect on dredging operations.
- C.** Conditions of Dredge Areas: The best information available as to the present conditions of the project site is shown on the Contract Drawings, described by the specifications provided herein and based upon sediment sampling data provided in Attachment B. The Contractor shall coordinate with the local utility companies for locations of under water utility cables, which will obstruct dredging operation.
- D.** Anticipated Debris/Obstructions within Dredge Areas: The Contractor shall assume that miscellaneous debris may also be encountered as this site supports

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

marina/marine service operations. The Contractor shall report any possible obstructions to the Towns' Engineer for instruction prior to starting work.

- E.** The proposed dredging material encountered is believed to consist primarily of poorly graded sand and of silty sand. Some of the dredging within previously dredged areas may be "similar to new dredging" as this can occur when previous dredging projects missed areas, caused irregular shapes on the bottom, used an inadequate survey for project limits or other such causes. Minor variations in subsurface materials are to be expected and, if encountered, shall not be considered as being materially different. Bidders are expected to examine the site of the work and decide for themselves the character of the material. The Contractor is required to remove all materials within the areas shown on the Contract Drawings.
- F.** Hours of Operation: The Contractor will be allowed to perform dredging operations on a 24-hour per day, seven days per week basis, including holidays for the entire performance period.
- G.** Vessel Traffic: The project site is an active working waterfront. The Contractor shall be responsible for coordinating with the Towns to determine access to the site relative to uses/daily needs and shall be responsible for moving dredge plant and barge from site if so required. In addition, the areas are also subject to traffic from commercial boats, recreational craft, etc. and may cause minor delays to the dredging operations. No additional compensation shall be made for any required moves or minor delays.
- H.** Obstruction of Channel: The Towns will not undertake to keep the channel free from vessels or other obstructions, except to the extent of such regulations, if any, as may be prescribed by the Secretary of the Army, in accordance with the provisions of Section 7 of the River and Harbor Act approved 8 August 1917. The Contractor shall be required to conduct the work in such manner as to obstruct navigation as little as possible, and in case the Contractor's plant so obstructs the channel as to make difficult or endanger the passage of vessels, said plant shall be promptly moved on the approach of any vessels to such an extent as may be necessary to afford a safe practicable passage. Upon completion of the work the Contractor shall promptly remove his plant, including ranges, buoys, piles, and other marks placed by him under the contract in navigable waters or on shore.
- I.** Navigation Aids: The Contractor shall not relocate or move any aids to navigation that have been established by the U.S. Coast Guard (USCG). If it becomes necessary to have any aid to navigation moved by the Contractor in order to complete dredging operations under this contract, the Contractor shall notify the Commander AON, Office of Aids to Navigation, in writing with a copy to the Towns or his authorized representative not less than 30 days prior to such need for movement. The Contractor shall notify the USCGS of the approximate time the navigation aid may be relocated to its original position.
- J.** Notice To Mariners: Should the Contractor, during dredging operations, encounter any objects on the channel bottom which could be a hazard to navigation, he shall

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

immediately notify the Towns' Engineer or his authorized representative as to the location of said object and any other pertinent information necessary for the Towns' Engineer or his authorized representative to put out a Notice to Mariners.

- K. Bridge-to-Bridge Radio Communication:** The Contractor is required to monitor both channels 13 and 16.

Channel 13: The master, operator, or designated pilot of the vessel must maintain a listening watch on the designated bridge-to-bridge frequency while underway on the navigable waters of the United States. The designated frequency is VHF-FM Channel 13. The person maintaining the watch also must be able to communicate in English.

Channel 16: In addition to the Channel 13 watch, vessels must keep a continuous watch on VHF-FM Channel 16 (International Distress and Calling Channel) while underway, except when transmitting or receiving traffic on other VHF-FM channels (e.g., vessels may switch to other channels to pass traffic, listen to weather reports, etc.) or when participating in and monitoring a VTS channel. While not required to have a VHF-FM radio onboard (Voluntary Ship Stations), vessels not subject to the bridge-to-bridge regulations must maintain a watch on Channel 16 whenever the radio, if onboard, is operating (i.e., energized) and is not being used to communicate on other channels.

- L. Notification of the USCG:** Prior to commencement of work on this contract, the Contractor shall notify the Commander, Fifth USCG of his intended operations to dredge and request that it be published in the Local Notice to Mariners. This notification must be given in sufficient time so that it appears in the Notice to Mariners at least one week prior to the commencement of this dredging operation.

1.05 SURVEY BENCH MARKS, LINES AND GRADES

- A.** The Contractor shall employ, with the Contract Price, a competent Professional Engineer or Surveyor licensed in Massachusetts and may also be an A.C.S.M. Certified Hydrographer who has a minimum of 5-years of experience in hydrographic survey to perform work. In addition, Quality Control surveys, and dredge positioning system installation and setup shall be performed by an individual with at least five years of experience in automated hydrographic surveys and dredge positioning.
- B.** The Contractor shall be responsible for the layout of his work. The Towns' Engineer will furnish the coordinates of the dredge footprint. The Towns' Engineer will furnish the coordinates and the monument descriptions of the existing horizontal and vertical control within the project area. Should existing control not be deemed adequate by the Contractor to perform operations, he/she shall be responsible for establishing additional control at his/her own expense. This work shall be performed by a Professional Land Surveyor (PLS) licensed in the Commonwealth of Massachusetts and having a minimum of 5 years of experience. The Contractor shall be responsible, by utilizing this data, to dredge within the dredging prisms that are shown on the contract drawings. The Contractor shall maintain, preserve, repair or replace, at his own expense, any gages or location

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

markers that are lost, damaged or destroyed for any reason subsequent to their initial establishment until authorized to remove them. The Contractor may, at his option, establish offset stakes, back-up stakes, and gages to be utilized in re-establishing any baseline, ranges and gages that are lost, damaged or destroyed. The contract completion time will not be increased due to work delays that result from the failure of the Contractor to maintain, repair or replace the established baselines, ranges and gages.

- C. Datum and Bench Marks:** The plane of reference Mean Lower Water (MLW) shall be used in these specifications for dredging operations. The Contractor shall be responsible for the placement and maintenance of tidal reference points for their tide boards (or electronic gauges) at such a frequency that there will be an available tidal reference within 500' of the dredging until all dredging has been accepted as complete.
- D. Horizontal Control:** All dredge control and positioning for this project shall be accomplished by means of dredge mounted GPS controlled positioning systems. The Dredge Positioning shall consist of, as a minimum, a Differential GPS positioning system, an onboard computer with MS Windows 98 or higher, an azimuth determination system (electronic compass), a depth sensing device for the bucket, and positioning system software. The operator shall have a full "heads up" computer monitor display within easy view for control of his work. The software shall be "Dredge Pack" package as manufactured by Hypack, "WinOps" as manufactured by Lyman Burke Associates, or approved equal. Positioning systems shall be Differential GPS with sub-meter accuracy, and one second or less update capability. The Operator's display shall have an outline of the project area and the limits of dredging areas. The dredging areas shall be sectioned into individual cuts which represent the real swing width of the dredge, and shall be stationed at a minimum of 50 foot increments along the direction of dredge travel. The true horizontal position of the dredge bucket shall be visible in real time on the display, and the depth of the bucket shall also be displayed. The on-board computer shall have the ability to store real-time dredge positions – this data shall be made available to the Towns' Engineer from time to time on CD ROM format as he/she may request from time to time. Horizontal control data will be provided to the Contractor on request, by the Towns' Engineer for purposes of preparing his/her layout. The Contractor shall have an individual on site at least four hours per day, who has at least five years of experience in the set-up, operation, calibration and maintenance of on-board marine electronic position systems. This individual shall have a working knowledge of electronic positioning systems, and accepted survey procedures and practices. Prior to the commencement of work, the Contractor shall submit details of his/her proposed dredge positioning system, and the resume of the individual who will be in responsible charge of its setup, operation and maintenance. No dredging work will be allowed to commence until the Contractor's dredge positioning system is approved by the Towns' Engineer, operational, calibrated and properly functioning. Prior to the commencement of dredging, the Contractor shall demonstrate to the Towns' Engineer that the

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

positioning system has been properly calibrated, and shall proof all azimuth and offsets by checking against the stationary position of the dredge utilizing conventional land survey methods. Mean horizontal deviation shall be one meter or less, maximum vertical deviation shall be 0.20 feet. If during dredging operations, the system should malfunction, dredging operations shall cease until such a time that the system is repaired and back in proper operation.

1.06 CODES

- A. Comply with all applicable permits, codes, ordinances, rules, regulations and laws of all local, municipal, and state authorities having jurisdiction over the work, without additional cost to the Towns.

1.07 CONTRACTOR'S RESPONSIBILITY

- A. The Contractor shall be responsible that his employees strictly comply with all Federal, State, and municipal laws that may apply to operations under the contract; and it is understood and agreed that the Contractor assumes full responsibility for the safety of his employees, plant, and materials, and for any damage or injury done by or to them from any source or cause, except damage caused to the plant or equipment by acts of the Towns, its officers, agents or employees, in which event such damages will be the responsibility of the Towns in accordance with applicable Federal laws. For the purpose of this clause, the terms "officers, agents or employees" of the Towns shall not include persons who are employed by the Contractor and whose services have been furnished to the Towns pursuant to this or any other contract. The Towns will not be responsible for the dredge and attendant plant, any Towns' property aboard the dredge and attendant plant, or any accidental damage thereto during the period of the contract. The Contractor shall release the Towns and its officers and agents from all responsibility for damages to dock facilities, submerged and aerial crossings, bridges, moored vessels, or other damages ordinarily covered by fire and marine insurance.
 - 1. Delays: If the Contractor refuses or fails to make delivery of the project within the time specified or any extension thereof, as provided in specifications, or to maintain the property in serviceable condition and diligently and competently to conduct the specified operations, the Towns may, by written notice terminate the right of the Contractor to proceed with delivery or with further performance under the contract or such parts or parts thereof affected by the contract or otherwise and the Contractor shall be liable to the Towns for any excess cost occasioned thereby.
 - 2. Disclaimer: The Contractor shall hold and save harmless the Towns, their officers and employees, from all claims that may arise resulting from the Contractor's negligence in connection with the work to be performed under the contract, or from noncompliance by the Contractor with the provisions of the contract, contract drawings, and specifications and/or the instructions of the Towns' Engineer or his authorized representative.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

PART 2 PRODUCTS

2.01 MECHANICAL DREDGE

- A.** It is anticipated that the permits will require that the dredge shall be equipped with a conventional bucket unless otherwise directed by regulatory permit conditions. It is noted that the use of an environmental dredge bucket, as manufactured by CableArm, Inc. (or approved equal) may be required to minimize turbidity impacts during dredging operations. This item is included as Mechanical Dredge Bid Alternate 1.
- B.** A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the dredge.
- C.** A substantial and durable rating chart containing legible letters and figures shall be provided with each dredge and securely mounted onto the dredge cab in a location allowing easy reading by the operator while seated in the control station.
- D.** Certification records, which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the dredge that was inspected shall always be available for review by Contracting Officer personnel.
- E.** Written reports listing the load test procedures used along with any repairs or alterations performed on the dredge shall be available for review by Contracting Officer personnel.
- F.** The Contractor shall certify that all dredge operators have been trained in proper use of all safety devices.

2.02 DREDGING PLANT

- A.** It is anticipated that all dredging under this contract shall be performed using a mechanical type dredge with a conventional bucket unless otherwise directed by regulatory permit conditions. It is noted that the use of an environmental dredge bucket, as manufactured by CableArm, Inc. (or approved equal) may be required to minimize turbidity impacts during dredging operations. This item is included as Mechanical Dredge Bid Alternate 1. In addition it is anticipated the permits may require a bottom-weighted silt curtain to be used when dredging Area 2 located within the Rock Harbor Basin and defined by the limits shown on the Contract Drawings. The silt curtain shall be of suitable material/grade appropriate with the velocity of the current at the site and be placed at a location that does not bottom out during low tide. The use of silt curtain is included as Mechanical Dredge Bid Alternate 2.
- B.** Contractor shall demonstrate that the dredge operator has sufficient control over bucket depth in the water and bucket closure so that sediment re-suspension from bucket contact with the bottom and due to bucket over-filling can be minimized.
- C.** The plant and equipment list submitted with the Contractor's Proposal shall be the minimum which the Contractor shall place and keep on the job unless otherwise

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

determined by the Towns/Towns' Engineer. The listing of plant and equipment is not to be construed as an agreement on the part of the Towns that the equipment is adequate to perform the work.

- D.** Plant and equipment employed on the work shall be in satisfactory operating condition and capable of safely and efficiently performing the work under exposed environmental conditions and as set forth in the specification and shall be subject to inspection by the Towns' Engineer at all times. No reduction in the capacity of the plant employed on the work shall be made except by written permission of the Towns' Engineer. The measure of the "Capacity of Plant" shall be its actual performance on the work to which these specifications apply.

2.03 CRANES

- A.** If used by the Contractor, cranes must be equipped with:
1. Load indicating devices (LIDs) and a boom angle or radius indicator, or load moment indicating devices (LMIs).
 2. Anti-two block prevention devices.
 3. Boom hoist hydraulic relief valve, disconnect, or shutoff (stops hoist when boom reaches a predetermined high angle).
 4. Boom length indicator (for telescoping booms).
 5. Device to prevent uncontrolled lowering of a telescoping hydraulic boom.
 6. Device to prevent uncontrolled retraction of a telescoping hydraulic boom.
- B.** The Contractor shall notify the Eastham Superintendent of Public Works 15 days in advance of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated. Contractor's operator shall remain with the crane during the spot check.
- C.** The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.
- D.** The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes and ASME B30.8 for floating cranes and floating derricks.
- E.** The presence of Towns' or Government personnel does not relieve the Contractor of an obligation to comply with all applicable safety regulations. The Government will investigate all complaints of unsafe or unhealthful working conditions received in writing from contractor employees, federal civilian employees, or military personnel.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- F.** Each load shall be rigged/attached independently to the hook/master-link in such a fashion that the load cannot slide or otherwise become detached. Christmas-tree lifting (multiple rigged materials) is not allowed.
- G.** Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.
- H.** When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 section 11 and ASME B30.5 or ASME B30.22 as applicable.
- I.** Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.
- J.** A fire extinguisher having a minimum rating of 10BC and a minimum nominal capacity of 5lb of extinguishing agent shall be available at all operator stations or crane cabs. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.
- K.** All employees shall be kept clear of loads about to be lifted and of suspended loads.
- L.** A weight handling equipment operator shall not leave his position at the controls while a load is suspended.
- M.** Only Contractor crane operators who have met the requirements of 29 CFR 1910.94, 29 CFR 1910.120, 29 CFR 1926.65, 29 CFR 1926.500, USACE EM 385-1-1, ASME B30.5, and ASME B30.22 and other local and state requirements shall be authorized to operate the crane.
- N.** The Contractor shall use cribbing when performing lifts on outriggers.
- O.** The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.
- P.** A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.
- Q.** A substantial and durable rating chart containing legible letters and figures shall be provided with each crane and securely mounted onto the crane cab in a location allowing easy reading by the operator while seated in the control station.
- R.** Certification records, which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- S. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.
- T. The Contractor shall certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

2.04 SCOWS

- A. Water and dredged material shall not be permitted to overflow or spill out of scows. Failure to repair leaks or change the method of operation which is resulting in overflow or spillage will result in suspension of dredging operations and require prompt repair or change of operation to prevent overflow or spillage as a prerequisite to the resumption of dredging.
- B. Scow tracking shall be provided in accordance with U.S. Army Corps of Engineers (USACE) permit requirements for disposal at the Cape Cod Bay Disposal Site (CCBDS).
 - 1. The (USACE) has issued policies requiring all open sea disposal operations to adhere to the USACE and the National Marine Fisheries Service (NMFS) requirements for endangered and threatened water mammals and other marine life. The USACE and NMFS, in an effort of reduce the potential for vessel collisions with threatened and endangered species, including right whales, have developed conditions within their standard permit programs that will assist in their goal. The following requirements are in effect:
 - a. The USGS, Sector Southeastern New England, Waterways Management Division, (401) 435-2351, shall be notified, at least ten working days in advance of the intended start date, of the location and estimated duration of the dredging and disposal operations. An alternate contact is the Coast Guard Command Center, Woods Hole, (508) 457-3211.
 - b. Disposal of dredged material at the CCBDS shall not occur between January 1 and May 15, of any year, in order to protect right whales.
 - c. It is anticipated that the permits will require that a marine mammal/turtle observer approved by National Marine Fisheries Service (NMFS) shall be present on the towing vessel for all disposal activities.
 - d. In the event that marine mammals or turtles are sighted within 1,500 feet of the specified disposal location, the tug captain and observer shall abide by the following applicable disposal procedures:
 - e. If the animals are sighted within 1,500 feet of the specified disposal location, note species, number of animals, direction of travel, and behavior (feeding, in transit, etc.).
 - f. If the animals are within 1,500 feet of the specified disposal location and appear to be moving away from it, wait until they have cleared the

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

specified disposal location by 1,500 feet and then proceed with disposal at the specified disposal location.

- g. If the animals are within 1,500 feet of the specified disposal location and appear to be remaining stationary, or are outside 1,500 feet but appear to be moving towards the specified disposal location, proceed to the alternate disposal location, as specified in the Corps letter authorizing the initiation or continuation of open-water disposal.
- h. If the disposal occurs in darkness or otherwise limited visibility, the tug shall employ its searchlight for the benefit of the observer beginning 2,000 feet from the disposal location.
- i. Under no circumstances shall disposal occur within 1,500 feet of a sighted marine mammal or turtle.
- j. The observer shall document each trip using the sighting log form that the Corps will supply when disposal coordinates are specified. The permittee must ensure that these sighting log forms are fully completed and submitted to the Corps within one week of the trip date. The Contractor shall provide the log forms to the Towns as the permittee.

PART 3 EXECUTION

3.01 SIGNAL LIGHTS

- A. The Contractor shall display lights and conduct his operations in accordance with the General Regulations of the USACE and USCG governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65-feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant USGS Instruction M16672.2, Navigation Rules: International-Inland (Comdtinst M16672.2), or 33 CFR 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable. (DAEN-PRP-1984 JUL).

3.02 ENVIRONMENTAL LITIGATION: (1974 NOV OCE)

- A. If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Towns' Engineer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Towns' Engineer in the administration of this contract under the terms of the "Suspension Of Work". The period of such

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

- B.** The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Towns has not duly considered, either substantively or procedurally, the effect of the work on the environment.

3.03 LICENSE REQUIREMENTS

- A.** Each vessel exceeding twenty six feet in length, excluding sheer, which is used for pushing, hauling alongside, or any other method of towing, and not required by law to have a valid Certificate of Inspection by the USCGS, shall be under the actual direction and control of a person licensed for towing in the geographic area of the work by the USGS. Licensed persons shall not perform command or other duties in excess of twelve hours in any consecutive twenty-four hour period except in an emergency.

3.04 RADIO COMMUNICATIONS

- A.** The Contractor is responsible and required to provide any and all equipment necessary to maintain 24-hour oral communication between the dredge operator, Quality Control System Manager, and the USACE inspector on site. For this purpose, the Contractor shall provide and maintain at his expense a marine band walkie-talkie radio for use by the Towns' Engineer inspector(s). The Contractor is responsible for any and all circumstances not conforming to the plans and specifications resulting from the inadequate operation of the equipment.

3.05 CONTINUITY OF WORK

- A.** No payment will be made for work done in any area designated by the Towns' Engineer until the full depth required under the contract is secured in the whole of such area, unless prevented by ledge rock, nor will payment be made for excavation in any area not adjacent to and in prolongation of areas where full depth has been secured except by decision of the Towns' Engineer. Should any such nonadjacent area be excavated to full depth during the operations carried on under the contract, payment for all work therein may be deferred until the required depth has been made in the area intervening.

3.06 MISPLACED MATERIAL

- A.** Should the Contractor during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant machinery, or appliance, which in the opinion of the Towns' Engineer may be dangerous to or obstruct navigation, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Towns' Engineer or inspector, and when required shall mark or buoy such obstructions until the same are removed. Should he refuse, neglect, or

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

delay compliance with the above requirements, such obstructions may be removed by the Towns' Engineer, and the cost of such removal may be deducted from any money due or to become due to the Contractor, or may be recovered under his bond. The liability of the Contractor of the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Section 15, 19, and 20 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 410 et seq.).

3.07 SHOALING

- A. If, before the contract is completed, shoaling occurs in any section previously accepted, including shoaling in the finished dredge area, because of the natural lowering of the side slopes, re-dredging at contract price, within the limit of available funds, may be done if agreeable to both the Contractor and the Towns.

3.08 OVERDEPTH AND SIDE SLOPES

- A. Overdepth: The Contractor shall control and monitor his dredging operations carefully to limit any excess dredging and to ensure compliance with environmental permits. A one (1) foot allowable overdredge depth is authorized for this project. No payment will be made for any material removed from a depth greater than -4.0 feet MLW in these areas or beyond the slopes shown on the Contract Drawings. To ensure the integrity of existing shoreline the Contractor will be penalized for any dredging performed below the allowable 1-foot over dredge (-4.0 feet MLW) as identified by the post-dredge survey to be conducted by the Towns' Engineer. The total dredge quantity removed below -4.0 feet MLW will be calculated and multiplied by the Contractor's unit bid price for dredging and offshore disposal and be deducted from the total payment quantity.
- B. Side slopes: Material actually removed, within limits approved by the Towns' Engineer, to provide for final side slopes not flatter than 1 vertical on 3 horizontal, but not in excess of the amount originally lying above this limiting side slope will be estimated and paid for, whether dredged in original position or by dredging space below the pay slope plane at the bottom of the slope for upslope material capable of falling into the cut. A defined interface that separates sediments from the dredged Area 1 from the dredged Area 2 as shown on the Contract Drawings is assumed to be vertical (no side slope). In the event Area 1 is dredged first, any material slumping into Area 1 from Area 2 will be dredged but the volume of slumped material will not be included in the post dredge survey volume determination. Alternately if Area 2 is dredged first, any material slumping into Area 2 from Area 1 will be dredged but the volume of slumped material will not be included in the post dredge survey volume determination.
- C. Excessive dredging: Material taken from beyond the limits as extended in the provisions of paragraphs A and B above will be deducted from the total amount dredged as excessive overdepth dredging, or excessive side slope dredging for which payment will not be made. Nothing herein shall be construed to prevent payment for the removal of shoals performed in accordance with the applicable

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

provisions of Section 3.08 SHOALING and Section 3.20 FINAL EXAMINATION AND ACCEPTANCE.

3.09 PRE- AND POST-DREDGE SURVEY

- A. Prior to the start of dredging and at the completion of work (or any section thereof), the Towns' Engineer shall conduct pre- and post-dredge surveys, respectively. These surveys will be used to determine the final payment volume removed by the Contractor. Dredge volumes will be determined based upon crosssections at 25-foot intervals and calculated using Average-End-Method.
- B. Pre- and Post Dredge surveys shall be performed using precision equipment accurate to 0.10 feet.

3.10 WORK IN THE VICINITY OF PROTECTED HABITAT, STRUCTURES AND UTILITY CROSSINGS

- A. The Contractor shall exercise caution when working in the vicinity of protected habitat, structures and utility crossings or adjacent to the channel or disposal areas. The Contractor shall constantly monitor operations, and the position of the dredge cut, as well as the natural caving of side slopes. Repair of any damage resulting from excessive or improper excavation in the bottom or side slopes of the dredge cut shall be the responsibility of the Contractor. Where dredging to the required elevation might endanger any structure, the Towns' Engineer or his authorized representative may reduce the required excavation in the vicinity of such structure. The Contractor is required to maintain a minimum 5-foot offset from structures located within the project area, including but not limited to, the existing steel bulkhead, timber fender piles, jetties and riprap revetments.
- B. The Contractor is required to confirm the location of the existing bulkhead along the east side of the Rock Harbor Basin (Area 2) prior to dredging and maintain a 5-foot offset as shown on the Contract Drawings. Any conflict between the boat ramp and the dredge template shall be reported to the Town of Eastham prior to dredging in that area.
- C. The Contractor shall confirm the location, conditions and bottom elevation of the existing Town of Eastham Boat Ramp prior to commencing dredging of the Basin (Area 2). Any conflict with the location of the ramp and dredge template shall be reported to the Town's Engineer.
- D. The Contractor shall provide dimensions over all utility crossings. The Contractor shall submit for approval by the Towns' Engineer or his authorized representative a detailed plan of operation at each pipeline or utility crossing. The plan shall contain emergency measures to be taken in the event of an accident. The Contractor shall notify the Towns of pipelines or utilities at least three calendar days prior to operating within 150 feet of a pipeline or utility. The Towns will not be responsible for any damage to structure or utilities due to the Contractor's deviation from the approved plan.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- E.** Any unidentified pipelines or structures, which may be found within the limits of work shall not be disturbed nor shall dredging or the disposal of dredged material be performed at these locations unless, and until, approved by the Towns' Engineer.
- F.** The Contractor shall be prepared to conduct work around any existing guide piles and/or floats located within/close proximity of the dredge areas that will not have been removed. Any damage to existing structures will be at the sole expense of the Contractor.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

3.11 WATER QUALITY

- A. The Contractor is solely responsible for meeting all water quality standards and requirements stated in the pending permits issued for the project and in accordance with all local, state and federal regulations throughout the duration of dredging.
- B. If in the opinion of the Towns' Engineer, should turbidity levels exceed acceptable standards or conditions, the Contractor shall be required to implement corrective measures at his/her own expense.

3.12 UNCONFINED OFFSHORE DISPOSAL

- A. Material from areas as shown as the Channel (Area 1) and the Basin (Area 2) on the Contract Drawings shall be disposed of at the Cape Cod Bay Disposal Site (CCBDS). The Contractor shall be required to coordinate with all required agencies for this disposal and verify compliance with permit requirements.
- B. The material to be excavated shall be transported and disposed of at the CCBDS in USACE Permit and in accordance with the Suitability Determination issued for the project. The exact coordinates for the disposal at the CCBDS shall be verified by the Contractor as determined by the USACE Permit prior to the commencement of offshore disposal operations.
- C. It is the responsibility of the Contractor to notify and request the exact coordinates for the disposal of the dredged materials from the U.S. Army Corps of Engineers at least ten (10) days prior to the start of the project. One (1) pdf copy of said request and the information from the U.S. Army Corps of Engineers shall be submitted to the Towns' Engineer prior to proceeding with the dredging.
- D. The Contractor will be required to notify fishermen, via radio communication of the route being taken to the disposal area, the time of dumping and the LORAN-C coordinates of the disposal site so that interference with the fishing activities will be reduced as much as possible. VHF Channel 13 and or any other channel required by the USACE, USCG and the Harbormaster shall be used for these broadcasts.
- E. The material will be hauled in scows and dumped at a point identified by the USACE within the open sea disposal site. The Contractor will be required to use LORAN-C navigation equipment (or other equipment approved by the USCG and the USACE) to insure proper positioning of the scows at the point of disposal.
- F. A buoy will be set at the point by the agency in charge of the disposal site to serve as an aid to the Contractor. During each tow, the Contractor will be required to take and record a fix on the buoy to facilitate maintenance of its correct position.
- G. A fix shall also be taken and recorded for each dump and shall be furnished along with the buoy location to the Towns. If the buoy cannot be located or if it has moved off station, no dumping will be allowed and the Contractor will immediately notify the USCG or the local agency in charge of the disposal site so that arrangements can be made to replace the buoy. The equipment to be used must be accurate to within 100 feet and must be calibrated according to manufacturer's

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

specifications. The equipment to be used shall meet the standards and approval of the USCG and the USACE.

3.13 MISPLACED EXCAVATED MATERIAL

- A. Any material that is deposited elsewhere other than in places designated or approved by the Towns' Engineer or his authorized representative will not be paid for and the Contractor may be required to remove such misplaced material and deposit it where directed at his expense. Misplaced excavated material may constitute a violation of applicable Federal, State, and Local statutes and the Contractor shall be liable for any civil and/or criminal penalties imposed by these statutes.

3.14 RESTORATION OF LANDSCAPE DAMAGE

- A. Any tree, grassed area or other landscape scarred or damaged by the Contractor's equipment shall be restored as nearly as possible to its original condition at the Contractor's expense. The Towns' Engineer shall determine the methods of restoration to be used.

3.15 NON-COMPLIANCE

- A. The Towns' Engineer or his authorized representative will notify the Contractor in writing of any noncompliance with the foregoing provisions. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. Within 24 hours after the receipt of such notice, the Contractor shall mail, or personally deliver to the Towns' Engineer or his authorized representative, a complete proposal of the prompt correction of the noncompliance. The Towns' Engineer or his authorized representative will review the proposal and return it to the Contractor approved, subject to such changes or conditions as he finds necessary to assure correction of noncompliance. Immediately upon receipt of such approval, the Contractor shall begin the corrective work and shall carry it to completion. If the Contractor fails or refuses to submit his proposal or to proceed with the corrective work, the Towns' Engineer or his authorized representative may suspend all or any part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such suspension shall be made the subject of a claim for extension of time, nor for excess costs or damages by the Contractor. If he so elects, the Towns' Engineer or his authorized representative may cause the corrective work to be accomplished by others, in which event the cost thereof shall be chargeable against any monies otherwise due the Contractor from the Towns.

3.16 INSPECTION

- A. Inspection: The work subject to inspection by Towns' Engineer to insure strict compliance with the specifications. The Towns' Engineer's inspector(s) will direct the maintenance of the navigation system, gages, ranges, location marks, and limit marks in proper order. Portable lighting shall be provided upon request of the Towns' Engineer's inspector(s) for more detailed inspection of potential trouble areas.

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

- B.** The Towns' Engineer's inspector(s) will direct suspension of operations at any unit of work where the Contractor upon request does not correct:
1. A safety hazard, which is so grave as to endanger life, limb, or property or cause serious damage to the work. This includes but is not limited to a failure on the part of the Contractor (1) to have a full-time quality control person present and fully alert and awake on the disposal area at all times dredging/disposal operations are in progress or (2) provide and maintain the required marine band radio for use by Towns' Engineer's inspector(s) at all times while dredging/disposal operations are in progress and/or (3) provide and maintain the approved lighting on the disposal area for safe night operations are all basis for Towns' Engineer's inspector direct suspension of work.
- C.** The Towns' Engineer's inspector(s) will direct the maintenance of the gauges, ranges, location marks and limit marks in proper order and position; but the presence of the Towns' Engineer's inspector(s) shall not relieve the Contractor of responsibility for the proper execution of the work in accordance with the specifications. The Contractor shall be required:
1. To furnish, on the request of the Towns' Engineer, any Towns' Engineer's inspector, or authorized representative, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the dredging plant as may be reasonably necessary in inspecting and supervising the work. However, the Contractor will not be required to furnish such facilities for the surveys prescribed.
 2. To furnish, on the request of the Towns' Engineer, any Towns' Engineer's inspector, or authorized representative, suitable transportation from all points on shore designated by the Towns' Engineer to and from the various pieces of plant, and to and from the disposal site.
 3. Should the Contractor refuse, neglect, or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Towns' Engineer, and the cost thereof will be deducted from any amounts due or to become due the Contractor.
- D.** As part of the Contractor's daily Quality Control Plan, he/she shall take daily sounding checks behind the dredge to ascertain the accuracy of their dredging operations. Sounding lines shall be made parallel to the direction of the dredge cut at 25 foot offsets, for the width of the dredge cut. The Contractor shall employ a competent Professional Engineer or Surveyor licensed in Massachusetts who may also be an A.C.S.M. Certified Hydrographer and has a minimum of 5-years of experience in hydrographic survey. Surveys shall be performed by an individual with at least five years experience in hydrographic surveying, in a vessel properly outfitted for hydrographic surveying. Minimal equipment shall include Differential GPS – sub meter positioning system, on-board computer, digital survey grade fathometer with 200 kHz transducer, and survey software such as Hypack, Trimble, or Winops. Charts and shoal plots shall be reviewed by the Contractor as part of his Quality Control Plan, and he shall adjust his/her operations as necessary to achieve

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

the proper dredging tolerances specified herein. Within three days of performing these surveys, the surveys shall be submitted to the Towns' Engineer for review, along with a plan and schedule for correcting any unsatisfactory work. The submittal package shall include as a minimum, copies of the fathometer charts, a plot of the soundings, and all digital data reduced to ASCII format.

- E.** Each month, or at other times when deemed necessary, the Contractor shall also perform surveys of the work as it progresses for purposes of monitoring quality control and to determine payment. Surveys shall be "Special Order" Hydrographic Survey as specified in Appendix B of the Hydrographic Surveys Manual EM-1110-2-1003 from Nov 2013. Within three days of performing these surveys, the surveys shall be submitted to the Towns' Engineer for review, along with a plan and schedule for correcting any unsatisfactory work. The submittal package shall include as a minimum, copies of the fathometer charts, a plot of the soundings, and all digital data reduced to ASCII format. Final grades for payment purposes shall be determined by comparing the pre-dredge survey and post dredge surveys performed by the Towns' Engineer, utilizing a 200 kHz transducer for determination of depth.

3.17 FINAL EXAMINATION AND ACCEPTANCE

- A.** As soon as practicable after the completion of the entire work or any section thereof (if the work is divided into sections) as in the opinion of the Towns' Engineer or his authorized representative, such work will be thoroughly examined at the cost and expense of the Towns by sounding or by sweeping, or both, as determined by the Towns' Engineer or his authorized representative by performing a final post dredge hydrographic survey. Prior to the Town's Engineer conducting the final survey, the Contractor shall conduct a verification survey and provide the results to the Town's Engineer for review and for his/her concurrence that the site has been adequately cleared. Should any shoals, lumps, or other lack of contract depth be disclosed by this examination, the Contractor shall be required to remove same by dredging at no additional cost to the Towns, but if the bottom is soft and the shoal areas are small and form no material obstruction to navigation, the removal of such shoal may be waived by the discretion of the Towns' Engineer or his authorized representative. The Contractor or his authorized representative will be notified when soundings and/or sweepings are to be made, and will be permitted to accompany the survey party. When the area is found to be in a satisfactory condition, it will be accepted finally. Should more than one (1) sounding or sweeping operations by the Towns' Engineer over an area be necessary by reason of work for the removal of shoals disclosed at a prior sounding or sweeping, the cost of such third and any subsequent sounding or sweeping operations will be charged against the Contractor at the rate of Four Thousand dollars (\$4,00.00) per day for each day in which the Towns' Engineer's plant is engaged in sounding or sweeping and/ or is enroute to or from the site or held at or near the said site for such operations.
- B.** The Contractor shall allow sufficient time for the confirmation of dredging by the Towns' Engineer and for any associated clean-up of areas to be performed within

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

the established windows for dredging and unconfined offshore disposal activities. If it is determined that the Contractor has not satisfactorily performed dredging to the required limits/depth and the established dredge and disposal windows close, the Contractor will be responsible for returning the following season to complete all required dredging, at his own expense.

- C. Final acceptance of the whole or a part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error, and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

*****END OF SECTION*****

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

PERMITS

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**Order of Conditions;
DEP File No. SE-
PENDING ISSUANCE**

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**Department of the Army;
Permit No. NAE-
PENDING ISSUANCE**

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**MA DEP Water Quality Certification
Transmittal #
PENDING ISSUANCE**

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

**MA DEP Chapter 91 Permit
Transmittal No.
PENDING ISSUANCE**

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

ATTACHMENT A

CONTRACT DRAWINGS

**“ROCK HARBOR DREDGING AND DISPOSAL,
TOWNS OF EASTHAM AND ORLEANS”
PREPARED BY CLE ENGINEERING, INC.
DATED 03/10/14
STAMPED BY JEFFREY W. OAKES, P.E.
SHEET 1 OF 1**

**ROCK HARBOR DREDGING PROJECT
EASTHAM, MASSACHUSETTS
ORLEANS, MASSACHUSETTS**

ATTACHMENT B

Sediment Sample Grain Size Data