

APALACHEE REGIONAL PLANNING COUNCIL

**FRANKLIN-98
LIVING SHORELINE PROJECT
TECHNICAL SPECIFICATIONS**

CONTRACT NO.

FRANKLIN COUNTY, FLORIDA

Revised September 20, 2022

SECTION 000107 – SEALS PAGE

PART 1 - GENERAL

A. ENGINEER’S SEAL OF TECHNICAL SPECIFICATIONS

1. Primary Design Firm Seal

- a. The seal below is for the Technical Specifications consisting of Divisions 01 through 35 (WSP USA).

END OF SECTION 000107

Franklin-98 Living Shoreline Project

Technical Specifications

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DIVISION 35 – Waterway and Marine Construction

354800	Waterway Habitat Structures
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(ATTACH TO BID FORM)
UNIT PRICE SCHEDULE

**Project: Franklin-98 Living Shoreline Project
Franklin County, Florida**

ITEM #	DESCRIPTION	SPECIFICATION SECTION NUMBER	UNITS	UNIT COST	ESTIMATED QUANTITY	AMOUNT
LS-1	Site Preparation, Mobilization and Demobilization	012200, 015000, 017700	LS	\$	1	\$
UC-1	Temporary Facilities and Controls	012200, 013100, 013200, 013300, 014000, 015000, 017300, 017700	Day	\$	125	\$
UC-2	Rock Sills	012200, 354800	Tons	\$	4,438	\$
UC-3	Manufactured Reef Units	012200, 354800	EA	\$	40	\$
UC-4	Rock Beds	012200, 354800	Tons	\$	770	\$
UC-5	Seeding and Restoration of Disturbed Areas	012200, 015000	MSF	\$	20	\$
UC-6	Waterway Markers	012200, 101400	EA	\$	17	\$

SCHEDULE
TOTAL

_____ Schedule Total in Words Here

_____ \$ _____ Schedule Total in Numbers Here

SECTION 011000 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Project information.
- 2. Work covered by Contract Documents.
- 3. Work by Owner.
- 4. Access to site.
- 5. Coordination with occupants.
- 6. Work restrictions.
- 7. Specification and drawing conventions.

- B. Related Requirements:

- 1. Section 015000 “Temporary Facilities and Controls” for limitations and procedures governing temporary use of Owner’s facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Franklin-98 Living Shoreline Project, Contract No.

- 1. Project Location: Franklin County, Florida.

- B. Owner: Apalachee Regional Planning Council (ARPC).

- 1. Owner’s Contact: Josh Adams, 2507 Callaway Rd, Suite 200, Tallahassee, FL 32303.
Email: JAdams @arpc.org. Ph. No. (850) 488-6211 ext. 104.

- C. Engineer/Owner’s Representative Contact: Stephen H. Blair, P.E., 3801 PGA Blvd, Suite 900, Palm Beach Gardens, FL 33410. Email: steve.blair@wsp.com. Ph. No: (516) 793-3849.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of the Project is defined by the Contract Documents and consists of, but is not limited to, the following:

1. Installation of rock sill structure, manufactured reef units and rock beds along approximately 3.5 miles of the Apalachicola Bay shoreline in Eastpoint, Franklin County, Florida.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 SUBMITTALS

A. Action Submittals

1. Work Plan

- a. Description: The habitat restoration work plan shall be consistent with the requirements of the Contract Documents and must provide, at a minimum, sections on waste handling, site work controls, quality assurance/quality control (QA/QC) protocols, temporary soil erosion and sedimentation controls, equipment description including safety devices to be utilized for the Work, a detailed schedule of all tasks required to fulfill the Work of the Project, and a work sequencing for the site.
- b. Work sequencing shall describe procedures to be utilized for the Work at the site. Include procedures for completing all restoration features as shown on the Contract Drawings.
- c. Site Work controls shall include provisions for fugitive emissions to the air and dust control near the staging area, dewatering and water management, if necessary, and navigational controls or markings as needed.

2. Contractor's Project Phasing Plan

- a. The Contractor shall break up the project area into manageable units/phases to be completed sequentially.
- b. Incorporate project phasing into the project.
- c. Provide map depicting the limits of each proposed project phase.

3. Site Access Plan

- a. Description: The site access plan shall be completed prior to any Work on-site and shall be consistent with the requirements of the Contract Documents. The plan shall include the identification of required permits and copies of obtained permits, and the staging/site area layout.
- b. Staging/site area layout, if applicable, shall include, at a minimum, the following items:
 - 1) Areas to be used for staging of equipment and materials, and areas to be restored upon completion.
 - 2) Equipment and material staging areas.
 - 3) Equipment maintenance and fueling areas.
 - 4) Any site trailers.
 - 5) Access roads and haul routes, including any on-water hauling, access points or any trans-load operations.

- 6) Any temporary fencing or other security measures.
 - 7) Materials staging areas.
 - 8) Personal vehicle parking areas.
 - 9) Traffic control to maintain required public access.
4. Operations Plan
- a. Description: The operations plan shall include details of equipment and material offloading, excavation, and material placement. A schedule indicating start and completion dates for the work shall be included. The Contractor's Operations Plan shall include, but is not limited to, the following:
 - 1) A description and list of operations that will be performed in connection with the transportation, removal, and placement of material.
 - 2) A description of trucks and/or other equipment that will be utilized in the transport, removal, placement, and offloading of material, with pertinent details for each piece of equipment (e.g., dimensions, horsepower, bucket size and type, and crew).
 - 3) A description of the proposed site access, excavation if required, materials delivery, and materials placement strategy/sequence, including drawings showing the width, length, and location of such operations.
 - 4) Barge movement procedure and frequency for equipment and material movement/placement.
 - 5) Proposed staging areas for materials and equipment storage.
 - 6) Information on the horizontal and vertical positioning systems for equipment to be utilized.
 - 7) Means to control and accurately document position of placed material.
 - 8) Means to minimize effect of wind and waves on construction operations.
 - 9) Means to be employed to minimize resuspension of sediment during barge transport or equipment movement.
 - 10) Number, relative location, and design details of turbidity curtains deployed to control sediment resuspended during excavation and material placement activities.
 - 11) Means to maintain and inspect turbidity curtains.
 - 12) Proposed approach for deployment of equipment, including mobilization of barges and other ancillary equipment to the Project Site and daily deployment of personnel and vessels.
 - 13) A detailed schedule of Work as specified in Section 013200 "Construction Progress Documentation".
 - 14) Proposed work hours and workdays per week.
 - 15) Management approach.
 - 16) Communication Plan.
5. Stormwater Pollution Protection Plan (SWPPP) associated permits
- a. Description: The SWPPP and associated State and local permits will be prepared by the Contractor. The SWPPP will specify the methods used to minimize erosion and control any surface water on the staging area and access roads, as well as along any land surface impacted during construction. The Contractor is responsible for the Project's compliance with the SWPPP and associated permit conditions.
6. Shop drawings and required manufacturers and supplier's information.

- a. Description: All manufacturers and supplier's information regarding all installed features and all products to be used during construction shall be submitted prior to the product use on-site.
- b. Submittal requirements for each product are listed in each product specification section.

1.6 REPRESENTATION OF FIELD CONDITIONS

- A. It is strongly recommended that the Contractor visit the site before bidding on this contract so as to become familiar with the existing field conditions and to judge the extent and nature of the work to be done under this contract. No extra compensation will be allowed to the Contractor because of its failure to include all items and materials that it is reasonable to anticipate for the work and the field conditions that exist.
- B. Notify the Owner in writing, of any conditions that vary from those shown or reasonably expected from those indicated on the drawings. The Contractor's work shall not vary from that shown on the drawings without the express approval of the Engineer and Owner.

1.7 WORK BY OWNER

- A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.8 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project Site for construction operations as indicated on Drawings by the work limit line and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project Site to areas within the work limits indicated. Do not disturb portions of Project Site beyond areas in which the Work is indicated.
 1. Driveways, Walkways and Entrances: Keep public access roads and parking areas serving the site clear and available to Owner, Owner's employees, and public and emergency vehicles at all times.
 - a. Schedule deliveries to minimize use of maintenance road by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Access Restrictions: Access to the site shall comply with permit conditions. The Contractor shall apply for and comply with any access permits obtained for accessing the project area. The Contractor will be responsible for the repair of any damage, as a result of the Contractor's activities during the performance of this contract.
- D. Site Access Plan: Following the requirements stated above and in consideration of Contractor's means and methods, prepare a site access plan.

1. Submit the plan to the Owner, Construction Manager, and obtain approval of the plan from the Owner, Construction Manager, prior to any site access for purposes of construction. A walk-over of the site to obtain information for developing the plan is permitted prior to plan approval.
2. The plan should consider and address equipment access to all work sites of the Project while staying within the work limits.
3. Obtain permits from FDOT for use of right of way and temporary driveways as required.

1.9 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
 2. Comply with habitat restrictions, identified in the permit conditions.
- B. On-Site Work Hours: Limit work to those proposed and approved within the Work Plan. Work hours outside those proposed and approved will be allowed with a minimum of two days notification and approval by Owner.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Imperative mood and streamlined language are generally used in the Specifications. The words “shall,” “shall be,” or “shall comply with,” depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 1. Terminology: Materials and products may be identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products may be identified by abbreviations or symbols.

1.11 SEVERE WEATHER PREPAREDNESS PLAN

- A. Within 30 days of Notice to Proceed, provide Hurricane Preparedness Plan. The plan should outline the necessary measures which Contractor proposes to perform at no cost to Owner in the

case of a severe weather warning. Such measures shall be in accordance with State and local requirements.

- B. In the case of inclement weather, Contractor will and will cause subcontractors to protect work and materials against damage or injury from the weather. If in the opinion of the Owner, any portion of the work damaged by reason of the Contractors or subcontractor's failure to take reasonable steps to protect the work, the work will be replaced at no cost to the Owner.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012200 – UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Bid Items.
- B. Related Requirements:
 - 1. Section 012600 “Contract Modification Procedures” for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. “Bid Item” is an amount incorporated in the Agreement, applicable during the duration of the Work as a unit cost or lump sum for materials, equipment, or services.

1.4 PROCEDURES

- A. Bid Items include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: This Section covers the methods and procedures that the Owner and Construction Manager will use to measure the Contractor’s work and to provide payment. This general outline of the Measurement and Payment features will not, in any way, limit the responsibility of the Contractor for making a thorough investigation of the Contract Documents to determine the scope of the work included in each Bid Item.
- C. Payment will be made to the Contractor in accordance with the specified methods of measurement and the Bid Items stipulated in the accepted bid. Payment will constitute complete compensation for all work required by the Contract Documents including all costs of accepting the general risks, liabilities, and obligations, expressed or implied. No other payment will be made.
- D. No payment shall be made for work performed by the Contractor to replace defective work, work which is not required by the Contract Documents, work outside the limits of the Contract, or additional work necessary due to actions of the Contractor, unless ordered by the Owner in writing.
- E. For Bid Items with a unit of “lump sum”, the Contractor will be paid on the basis of actual work accepted until the work item is completed. Upon completion of the item, 100 percent of the lump

sum price may be paid, subject to the terms of the Agreement. The pay items listed below describe the measurement of and payment for the Work to be done under the respective items listed in the Bid as outlined in the approved schedule of values.

- F. Except for the items designated hereunder for Measurement and Payment, the costs of items necessary to complete the work as specified are considered incidental to the items specified for Measurement and Payment. The costs of incidental items shall be included in the prices of items specified for Measurement and Payment.
- G. List of Bid Items: A schedule of Bid Items is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each element. The unit prices described in Part 3 shall together include all work set forth in the Contract Documents or required to properly complete the work. Any necessary work that is not described shall be considered included in the item to which it properly belongs.

PART 2 - PRODUCTS

2.1 LUMP SUM (LS) UNITS

- A. Measurement of all lump sum items will be on a total job basis.
 - 1. The quantities of work performed under lump sum items will not be measured except to determine reasonable interim payments. Interim payments will be made in accordance with the estimated value of work performed and found acceptable as determined by the Owner or Construction Manager, or as specified in this Section.
 - 2. Where indicated for a lump sum item, the Contractor shall provide a schedule of values. The schedule of values shall include a breakdown of major cost items included within the lump sum in sufficient detail to document specific costs of all items included in the lump sum item. The schedule of values shall be provided to the Owner and Construction Manager prior to initiation of work.
 - 3. Measurement for Progress Payments of all lump sum items will be on a percent complete basis until work is complete.

2.2 UNIT COST (UC) UNITS

- A. Measurement of all unit cost items will be on a unit basis, as specified for each item.
 - 1. Where items are specified to be measured on an area basis, the area will be measured as the actual surface area within the specified limits based on a plan view. If a specified width of an item is indicated, the area will be determined by the actual length along the centerline multiplied by the specified width. No adjustments will be made for the required overlap of materials.
 - 2. Where items are specified to be measured on a weight basis, the weight will be measured based on certified weigh-scale tickets obtained from a weigh-scale certified by the County Office of Weights and Measures and approved by the Owner. The measured tonnage for barge or truck must be measured and recorded on certified weigh-scale tickets and provided to the Construction Manager and Owner at the end of each work day.
 - 3. Where items are specified on an each basis, the quantity shall be measured by the number of units installed and accepted by Owner.

PART 3 - EXECUTION

3.1 SCHEDULE OF BID ITEMS

A. LS-1: Site Preparation, Mobilization, and Demobilization

1. Description: All labor, materials, equipment, and incidentals to completely and properly mobilize to and prepare the site for the Work and at the completion of the Work to completely and properly demobilize from the site. Also, all work necessary for complete and proper installation of all Work not included in another Bid Item. Work items shall include the following:
 - a. Mobilization of equipment, personnel, and Project facilities.
 - b. Preparation, submission and obtaining Owner's approval of project planning documents identified in Section 11000.
 - c. Obtaining any required permits.
 - d. Establishment of staging area, support areas, and fencing.
 - e. Establishment of environmental protection measures as required by the approved Storm Water Pollution Prevention Plan (SWPPP). Maintenance of the protection is part of UC-1.
 - f. Demobilization of equipment, personnel, and Project facilities.
 - g. Removal of physical components establishing the staging and support areas, access roads and fencing.
 - h. Restoration of the staging area, support, and access road areas.
 - i. Removal of environmental protection measures.
 - j. Final general site cleanup.
 - k. Pre-construction and post-construction site survey.
 - l. Permit fees and taxes applicable to the work.
2. Unit of Measurement: Lump sum. Contractor shall submit a breakdown that shows the individual costs to complete this item as part of the schedule of values.
3. Measurement for payment will be based upon the satisfactory completion of each individual item listed in the schedule of values and payment will be at the value assigned to each item. The Contractor may invoice for up to 70 percent of this item upon successful installation of the work and the remaining 30 percent at substantial completion. Payment shall be lump sum bid for each individual item described above, including mobilization, demobilization, and miscellaneous items as submitted in the Contractor's bid breakdown.

B. UC-1: Temporary Facilities and Controls

1. Description: All labor, materials, equipment, and incidentals necessary for each calendar day for temporary facilities and controls and for proper execution of the Contract as delineated below. This item includes maintenance of environmental controls required of the approved SWPPP.
 - a. Site offices including utility services to and supplies for the offices if necessary.
 - b. Conductance of progress meetings.

- c. Maintenance of staging area, access roads, fencing, and environmental controls required of the approved SWPPP.
 - d. Maintenance of stake-out system and grade checking during work.
 - e. Photographic documentation of the Project work.
 - f. Pre- and post-construction surveys and related documentation.
 - g. Project management and coordination.
 - h. Construction progress documentation.
 - i. Quality Assurance/Quality Control
 - j. All other work not specifically included under other items.
2. Unit of Measurement: Unit cost, by day. Contractor shall submit a breakdown that shows the individual costs to complete this item as part of the schedule of values.
 3. Measurement for payment shall be based on each calendar day the facilities and controls are provided, beginning after satisfactory installation of site facilities and ending at substantial completion of the project. Payment shall be unit price bid for each individual item described above as submitted in the Contractor's bid breakdown. A 100 percent reduction in payment shall occur for each calendar day that operation and/or maintenance of any item included in this Bid Item was unsatisfactory or unused as determined by and Owner.
- C. UC-2: Rock Sills
1. Description: All labor, materials, equipment, and incidentals necessary to install the rock sills as shown on the drawings.
 2. Unit of Measurement: Unit cost, each ton of rock material placed for the construction of the rock sill. Contractor shall submit a breakdown that shows the individual costs to complete this item as part of the schedule of values.
 3. Measurement for payment will be based upon the satisfactory installation of the rock sills detailed in the Contract Drawings and approved by the Construction Manager and Owner.
- D. UC-3: Manufactured Reef Units
1. Description: All labor, materials, equipment, and incidentals necessary to install the single manufactured reef unit.
 2. Unit of Measurement: Unit price, manufactured reef unit. Contractor shall submit a breakdown that shows the individual costs to complete this item as part of the schedule of values.
 3. Measurement for payment will be based upon the satisfactory construction and installation of the manufactured reef unit detailed in the Contract Drawings and approved by the Construction Manager and Owner.
- E. UC-4: Rock Beds
1. Description: All labor, materials, equipment, and incidentals necessary to install the rock beds.
 2. Unit of Measurement: Unit cost, each ton of rock material placed for the construction of the rock bed. Contractor shall submit a breakdown that shows the individual costs to complete this item as part of the schedule of values.
 3. Measurement for payment will be based upon the satisfactory installation of the rock beds detailed in the Contract Drawings and approved by the Construction Manager and Owner.

F. UC-5: Restoration of Disturbed Areas

1. Description: All labor, materials, equipment, and incidentals necessary to completely restore, seed/sod, and plant the disturbed areas of the Project. This item shall include any necessary soil preparation, fertilizer, seed, mulch, and watering in accordance with the Contract Documents. Areas shall be estimated by the Contractor in the Work Plan.
2. Unit of Measurement: Unit cost, by area (thousand square feet (MSF)). Contractor shall submit a breakdown that shows the individual costs to complete this item as part of the schedule of values.
3. Measurement for payment shall be based on the restoration of the disturbed areas as marked on the Post-Construction Survey and verified by the Construction Manager and or Owner's Representative.

G. UC-6: Waterway Markers

1. Description: All labor, materials, equipment, and incidentals necessary to install the Waterway Markers at the locations shown on the drawings. This shall include any necessary preparation for pile installation, any necessary bolting or supports, the construction of the Waterway markers as per Owner requirements, and proper installation of the waterway markers.
2. Unit of Measurement: Unit cost, each waterway marker. Contractor shall submit a breakdown that shows the individual costs to complete this item as part of the schedule of values.
3. Measurement for payment shall be based on the satisfactory installation of the waterway markers as detailed in the Contract Drawings and approved by the Construction Manager and Owner.

END OF SECTION 012200

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. Engineer/Owner will issue a Field Order authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.4 WORK CHANGE PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Engineer/Owner will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by the Engineer/Owner are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days after receipt of Proposal Request, when not otherwise specified, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
 - e. Supply evidence of Contractor's proposed value of the change.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to the Engineer and Owner.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Supply evidence of Contractor's proposed value of the change.
6. Proposal Request Form: Use form acceptable to Engineer and Owner.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Unit-Price Adjustment: At the conclusion of the project, an Administrative Order on Contract to adjust the price based on the final measured units of the unit price items will be prepared by the Engineer for Owner approval. Once approved, it must be issued to the Contractor before the Contractor may issue the final application for payment. See Section 012200 for the measurement of each unit price item.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request or Work Change Directive, Engineer will issue an Order on Contract (Change Order) for signatures of Owner and Contractor.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Engineer may issue a Work Change Directive on form included in contract documents after discussion with the Owner. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive if this is the basis designated in the Work Change Directive for determination of the cost.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

Franklin-98 Living Shoreline Project

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 – APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements necessary to prepare and process Contractor's Applications for Payment. Refer to additional information related to payments as per the Contract Submittals Checklist included within the "Sample Forms" section of the Project Manual.
- B. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Contractor's Construction Schedule
 - b. Application for Payment forms, including continuation sheets
 - c. Contractor's schedule of submittals
 - 2. Submit the schedule of values to the Owner at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Application for Payment.
- B. Format and Content: Use the bid form as a guide to establish line items for the schedule of values. Also refer to the additional information identified in the Contract Submittals Checklist within the "Sample Forms" section of the contract documents. Provide at least one line item for each bid item.

1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Owner.
 - c. Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.

2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Change Orders (numbers) that affect value.
 - d. Dollar value:
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the bid form. Provide multiple line items for those items indicated to require such in the item description in Section 012200 "Unit Prices."
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. 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.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by the Construction Manager and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

- B. Payment Application Times: The date for each progress payment is the final day of each month. The period covered by each Application for Payment starts on the first day of the month and ends on the last day of that month for each progress payment.
 1. Submit draft copy of Application for Payment two days prior to due date for review by Construction Manager.

- C. Application for Payment Forms: Use forms provided by the Owner for Applications for Payment.

- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. The Construction Manager will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether payment has been received. Include only amounts for work completed in the time period covered by the Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by the application.
- E. Transmittal: Submit three signed and notarized original copies of each Application for Payment to the Construction Manager by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments when required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Construction Manager.
- F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Submittal schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. Copies of permits.
 7. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 8. Certificates of insurance and insurance policies.
 9. Performance and payment bonds.
- G. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 3. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Application for reduction of retainage and consent of surety.
 - b. List of Incomplete Work recognized as exceptions to Engineer's Certificate of Substantial Completion.
- H. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to, the following:
1. Evidence of completion of Project closeout requirements.
 2. Evidence of completion of items on incomplete Work list at time of substantial completion.

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3. Proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. Evidence that claims have been settled.
6. Removal of temporary facilities and services.
7. Final cleanup of Project Site.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Requests for Information (RFIs).
 - 3. Project meetings.
- B. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request for Information from Contractor seeking information required or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entities performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 15 days of the notice to proceed, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project Site. List addresses and telephone numbers, including home, office, and cellular telephone numbers.

Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in the project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordinate construction operations included in various Sections of these Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, which are included in different Sections, that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI.
 1. Owner and Construction Manager will return RFIs submitted to the Owner and Construction Manager by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Owner.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, product data, shop drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. Owner and Construction Manager's Action: Owner and Construction Manager will review each RFI, determine action required, and respond. Allow seven working days for Owner and Construction Manager's response for each RFI. RFIs received by Owner and Construction Manager after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Owner and Construction Manager's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Owner and Construction Manager's action may include a request for additional information, in which case Owner and Construction Manager's time for response will date from time of receipt of additional information.
 3. Owner and Construction Manager's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Owner and Construction Manager in writing within 10 days of receipt of the RFI response.
- D. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log upon request of Owner and Construction Manager. Log to include the following:

1. Project name.
 2. Name of Contractor.
 3. Name of Owner and Construction Manager.
 4. RFI number, including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Owner and Construction Manager's response was received.
- E. On receipt of Owner and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner and Construction Manager within 10 days if Contractor disagrees with response.
1. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

- A. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner, Construction Manager, Contractor, and Engineer, but no later than 15 days after execution of the Agreement. Hold the conference at the Project Site or another convenient location.
1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Owner, Construction Manager, Engineer, Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Critical work sequencing and long-lead items.
 - c. Designation of key personnel and their duties.
 - d. Lines of communications.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. Preparation of Record Documents.
 - l. Use of the premises.
 - m. Work restrictions.
 - n. Working hours.
 - o. Responsibility for temporary facilities and controls.
 - p. Parking availability.
 - q. Site layout.
 - r. Equipment deliveries and priorities.
 - s. First aid.
 - t. Security.
 - u. Housekeeping.

4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- B. Progress Meetings: Construction Manager will conduct progress meetings at weekly intervals while construction activities take place.
1. Attendees: In addition to representatives of Owner, Design Engineer, and Construction Manager, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. Participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of the Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Housekeeping.
 - 10) Quality and work standards.
 - 11) Status of RFIs.
 - 12) Status of proposal requests.
 - 13) Pending changes.
 - 14) Status of Change Orders.
 - 15) Documentation of information for payment requests.
 3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present within three days of the meeting and to parties requiring information.
 - a. Schedule Updating: Contractor shall revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule within three days of the meeting.
- C. Coordination Meetings: Conduct Project coordination meetings as needed. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings.

1. Attendees: Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved. Owner, Construction Manager, and Design Engineer representatives shall be requested to attend all such meetings.
2. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Construction schedule updating reports.
 - 3. Progress reports.
 - 4. Site condition reports.
 - 5. Special reports.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting schedules and reports and submitting a schedule of submittals.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

1.4 INFORMATIONAL SUBMITTALS

- A. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a PDF electronic file of schedule and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- B. Construction Schedule Updating Reports: Submit with Applications for Payment.
- C. Progress Reports: Submit at weekly intervals.
- D. Site Condition Reports: Submit at time of discovery of differing conditions.
- E. Special Reports: Submit at time of unusual event.

1.5 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the schedule with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each construction phase of this project area as a separate numbered activity for each main element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Owner.
 - 2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.

4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Owner's administrative procedures necessary for certification of Substantial Completion.
 5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.
- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and, as follows, in the schedule and show how the sequence of the Work is affected.
1. Other Constraints: Work area constraints to limit impact on seagrass.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- E. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance and date by which recovery will be accomplished.
- F. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
1. Use Microsoft Project for Windows 8 or 10 operating system.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 20 days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.3 REPORTS

- A. Progress Reports: Prepare a weekly construction report recording the following information concerning events at Project Site:
 1. List of subcontractors at Project Site.
 2. Approximate count of personnel at Project Site.
 3. Equipment at Project Site.
 4. Material deliveries.
 5. High and low temperatures and general weather conditions, including presence of rain or inclement weather.
 6. Accidents.
 7. Meetings and significant decisions.
 8. Unusual events (see special reports).
 9. Stoppages, delays, shortages, and losses.
 10. Emergency procedures invoked.

11. Orders and requests of authorities having jurisdiction.
12. Change Orders received and implemented.
13. Work Change Directives received and implemented.
14. Services connected and disconnected.
15. Substantial Completions authorized.

- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.4 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner, with copy to Construction Manager, within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project Site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updates: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule concurrent with Application for Payment.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue revised schedule concurrently with the report of each such meeting.
 2. Include a report with revised schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate final completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Construction Manager, Owner, subcontractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting room of temporary field offices.
 2. When revisions are made, distribute updated schedules 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 performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
 - 1. Section 012900 “Applications for Payment” for submitting Applications for Payment and the schedule of values.
 - 2. Section 013200 “Construction Progress Documentation” for submitting schedules and reports, including Contractor’s construction schedule.
 - 3. Section 017700 “Closeout Procedures” for submitting Project Record Documents.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical Samples that require Owner/Construction Manager’s responsive action. Action submittals are those submittals indicated in individual Specification Sections as “action submittals.”
- B. Informational Submittals: Written and graphic information and physical Samples that do not require Owner/Construction Manager’s responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as “informational submittals.”
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing,

fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Owner and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, schedule of values, and Contractor's construction schedule.
2. Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
3. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Owner's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Corresponding activity or task number on construction schedule.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Engineer's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Engineer for Contractor's use in preparing submittals.
 1. Engineer will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project Record Drawings.
 - a. Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: The Contract Drawings are available in AutoCad 2018/Civil 3d 2018 or later format.
 - c. Contractor shall execute a data licensing agreement that will be provided by Engineer just prior to transfer of the drawing files.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Owner/Construction Manager reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner/Construction Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner/Construction Manager will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 10 days for review of each resubmittal.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., RHWEIF-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., RHWEIF-061000.01.A).
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner/Construction Manager.
 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner/Construction Manager, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name of Owner.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Names of subcontractor, manufacturer, and supplier.
 - g. Category and type of submittal.
 - h. Submittal purpose and description.
 - i. Specification Section number and title.
 - j. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - k. Drawing number and detail references, as appropriate.
 - l. Related physical Samples submitted directly.
 - m. Indication of full or partial submittal.

- n. Transmittal number, numbered consecutively.
 - o. Submittal and transmittal distribution record.
 - p. Other necessary identification.
 - q. Remarks.
- E. Options: Identify options requiring selection by Owner/Construction Manager.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner/Construction Manager on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form as initial submittal.
- 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Owner/Construction Manager.
- H. Distribution: Furnish copies of approved submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project Site. Use only final action submittals that are marked with approval notation from Owner/Construction Manager.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
- 1. Submit electronic submittals via email as PDF electronic files.
 - a. Owner will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
- 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.

- c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. Submit Product Data before or concurrent with Samples.
 5. Submit Product Data in the following format:
 - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer, if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project Site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

- a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit two sets of Samples. Owner/Construction Manager will retain one Sample set; remainder will be returned.
- E. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- F. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Applications for Payment."
- G. Closeout Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- H. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of designers and owners, and other information specified.
- I. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- J. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- K. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- L. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- M. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

- N. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- O. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner/Construction Manager.
- B. Project Closeout Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 OWNER'S ACTION

- A. Action Submittals: Owner/Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. Owner will mark to indicate action taken, and return.
 - 1. Compliance with specified characteristics is the Contractor's responsibility. If deviations from the specified characteristics are not identified by Contractor, Owner/Construction Manager's action does not apply to such non-identified deviations.
 - 2. Action Stamp: Owner will stamp each submittal with a uniform action stamp. The Owner/Construction Manager will mark the stamp appropriately to indicate the action taken, as follows:
 - a. Approved: Work covered by submittal may proceed in compliance with the Contract Documents.
 - b. Approved as Noted: Work covered by submittal may proceed in compliance with the notations and corrections on the submittal and with the Contract Documents.

- c. Revise and Resubmit: Work covered by the submittal may not proceed. Revise or prepare a new submittal according to notations; resubmit without delay.
 - d. Not Approved: Work covered by the submittal may not proceed. Prepare a new submittal as the original is so out of compliance it does not warrant notation, resubmit without delay.
 - e. Other: Where a submittal is for information or record purposes or special processing or other activity, the Owner/Construction Manager will return the submittal mark "Other" and note the action appropriately (e.g., Informational submittal acknowledged, Action Not Required).
- B. Informational Submittals: Owner/Construction Manager will review each submittal and will return the transmittal acknowledging receipt or will return the submittal if it does not comply with requirements. Owner/Construction Manager will forward each submittal to appropriate party.
- C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents may be returned by the Owner /Construction Manager without action.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that the actual product incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Owner/Construction Manager.
- C. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- D. Testing Agency: An entity engaged to perform specific tests, inspections, or both.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Owner/Construction Manager for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as

appropriate, for the context of requirements. Refer uncertainties to Owner/Construction Manager for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Testing Agency Qualifications: For testing agencies specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Permits, Licenses, and Certificates: For Owner/Construction Manager’s records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Testing Agency Qualifications:** An independent agency with the experience and capability to conduct testing and inspecting indicated and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. **Testing Agency Responsibilities:** Submit a certified written report of each test, inspection, and similar quality-assurance service to Owner/Construction Manager with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.8 QUALITY CONTROL

- A. **Contractor Responsibilities:** Tests and inspections not explicitly assigned to Owner/Construction Manager are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 - 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- C. **Testing Agency Responsibilities:** Cooperate with Owner/Construction Manager, Authority having jurisdiction, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Owner/Construction Manager, Authority having jurisdiction, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- D. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Owner/Construction Manager.
 4. Identification of testing agency conducting test or inspection.
- B. Maintain log at Project Site. Post changes and revisions as they occur. Provide access to test and inspection log for Construction Manager and Owner's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey the Owner/Construction Manager's action on Contractor's submittals, applications, and requests, "approved" is limited to Owner/Construction Manager's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by the Owner/Construction Manager. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project Site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project Site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ABMA - American Boiler Manufacturers Association; www.abma.com.
 - 8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org
 - 9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
 - 10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
 - 11. AF&PA - American Forest & Paper Association; www.afandpa.org.
 - 12. AGA - American Gas Association; www.aga.org.
 - 13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
 - 14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
 - 15. AI - Asphalt Institute; www.asphaltinstitute.org.
 - 16. AIA - American Institute of Architects (The); www.aia.org.
 - 17. AISC - American Institute of Steel Construction; www.aisc.org.
 - 18. AISI - American Iron and Steel Institute; www.steel.org.
 - 19. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
 - 20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
 - 21. ANSI - American National Standards Institute; www.ansi.org.
 - 22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
 - 23. APA - APA - The Engineered Wood Association; www.apawood.org.
 - 24. APA - Architectural Precast Association; www.archprecast.org.
 - 25. API - American Petroleum Institute; www.api.org.
 - 26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).

27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (see ASCE).
31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Safety Engineers (The); www.asse.org.
34. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AWEA - American Wind Energy Association; www.awea.org.
38. AWI - Architectural Woodwork Institute; www.awinet.org.
39. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
40. AWPA - American Wood Protection Association; www.awpa.com.
41. AWS - American Welding Society; www.aws.org.
42. AWWA - American Water Works Association; www.awwa.org.
43. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
44. BIA - Brick Industry Association (The); www.gobrick.com.
45. BICSI - BICSI, Inc.; www.bicsi.org.
46. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
47. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
48. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
49. CDA - Copper Development Association; www.copper.org.
50. CE - Conformance Europeenne; <http://ec.europa.eu/growth/single-market/ce-marking/>
51. CEA - Canadian Electricity Association; www.electricity.ca.
52. CEA - Consumer Electronics Association; www.ce.org.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.pbmdf.com.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csa.ca.
65. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
66. CSI - Construction Specifications Institute (The); www.csinet.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
69. CWC - Composite Wood Council; (See CPA).
70. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.

71. DHI - Door and Hardware Institute; www.dhi.org.
72. ECA - Electronic Components Association; (See ECIA).
73. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
74. ECIA - Electronic Components Industry Association; www.eciaonline.org.
75. EIA - Electronic Industries Alliance; (See TIA).
76. EIMA - EIFS Industry Members Association; www.eima.com.
77. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
78. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
79. ESTA - Entertainment Services and Technology Association; (See PLASA).
80. ETL - Intertek (See Intertek); www.intertek.com.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsintstitute.org.
83. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
84. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
85. FM Approvals - FM Approvals LLC; www.fmglobal.com.
86. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
87. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarroof.com.
88. FSA - Fluid Sealing Association; www.fluidsealing.com.
89. FSC - Forest Stewardship Council U.S.; www.fscus.org.
90. GA - Gypsum Association; www.gypsum.org.
91. GANA - Glass Association of North America; www.glasswebsite.com.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
95. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
96. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
97. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
98. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
99. IAS - International Accreditation Service; www.iasonline.org.
100. IAS - International Approval Services; (See CSA).
101. ICBO - International Conference of Building Officials; (See ICC).
102. ICC - International Code Council; www.iccsafe.org.
103. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
104. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
105. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
106. IEC - International Electrotechnical Commission; www.iec.ch.
107. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
108. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
109. IESNA - Illuminating Engineering Society of North America; (See IES).
110. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
111. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
112. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
113. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
114. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
115. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.

116. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
117. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
118. ISO - International Organization for Standardization; www.iso.org.
119. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
120. ITU - International Telecommunication Union; www.itu.int/home.
121. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
122. LMA - Laminating Materials Association; (See CPA).
123. LPI - Lightning Protection Institute; www.lightning.org.
124. MBMA - Metal Building Manufacturers Association; www.mbma.com.
125. MCA - Metal Construction Association; www.metalconstruction.org.
126. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
127. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
128. MHIA - Material Handling Industry of America; www.mhia.org.
129. MIA - Marble Institute of America; www.marble-institute.com.
130. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
131. MPI - Master Painters Institute; www.paintinfo.com.
132. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
133. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
134. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
135. NADCA - National Air Duct Cleaners Association; www.nadca.com.
136. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
137. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
138. NBI - New Buildings Institute; www.newbuildings.org.
139. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
140. NCMA - National Concrete Masonry Association; www.ncma.org.
141. NEBB - National Environmental Balancing Bureau; www.nebb.org.
142. NECA - National Electrical Contractors Association; www.necanet.org.
143. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
144. NEMA - National Electrical Manufacturers Association; www.nema.org.
145. NETA - InterNational Electrical Testing Association; www.netaworld.org.
146. NFHS - National Federation of State High School Associations; www.nfhs.org.
147. NFPA - National Fire Protection Association; www.nfpa.org.
148. NFPA - NFPA International; (See NFPA).
149. NFRC - National Fenestration Rating Council; www.nfrc.org.
150. NHLA - National Hardwood Lumber Association; www.nhla.com.
151. NLGA - National Lumber Grades Authority; www.nlga.org.
152. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
153. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
154. NRCA - National Roofing Contractors Association; www.nrca.net.
155. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
156. NSF - NSF International; www.nsf.org.
157. NSPE - National Society of Professional Engineers; www.nspe.org.
158. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
159. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
160. NWFA - National Wood Flooring Association; www.nwfa.org.
161. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
162. PDI - Plumbing & Drainage Institute; www.pdionline.org.

163. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); <http://www.plasa.org>.
164. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
165. RFCI - Resilient Floor Covering Institute; www.rfci.com.
166. RIS - Redwood Inspection Service; www.redwoodinspection.com.
167. SAE - SAE International; www.sae.org.
168. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
169. SDI - Steel Deck Institute; www.sdi.org.
170. SDI - Steel Door Institute; www.steeldoor.org.
171. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
172. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
173. SIA - Security Industry Association; www.siaonline.org.
174. SJI - Steel Joist Institute; www.steeljoist.org.
175. SMA - Screen Manufacturers Association; www.smainfo.org.
176. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
177. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
178. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
179. SPIB - Southern Pine Inspection Bureau; www.spib.org.
180. SPRI - Single Ply Roofing Industry; www.spri.org.
181. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
182. SSINA - Specialty Steel Industry of North America; www.ssina.com.
183. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
184. STI - Steel Tank Institute; www.steeltank.com.
185. SWI - Steel Window Institute; www.steelwindows.com.
186. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
187. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
188. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
189. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
190. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
191. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
192. TMS - The Masonry Society; www.masonrysociety.org.
193. TPI - Truss Plate Institute; www.tpinst.org.
194. TPI - Turfgrass Producers International; www.turfgrasssod.org.
195. TRI - Tile Roofing Institute; www.tilerroofing.org.
196. UL - Underwriters Laboratories Inc.; <http://www.ul.com>.
197. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
198. USAV - USA Volleyball; www.usavolleyball.org.
199. USGBC - U.S. Green Building Council; www.usgbc.org.
200. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
201. WA - Wallcoverings Association; www.wallcoverings.org.
202. WASTEC - Waste Equipment Technology Association; www.wastec.org.
203. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
204. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
205. WDMA - Window & Door Manufacturers Association; www.wdma.com.
206. WI - Woodwork Institute; www.wicnet.org.
207. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.

208. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut für Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is believed to be up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. IJC - International Joint Commission; <https://www.ijc.org/en>
12. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
13. OSHA - Occupational Safety & Health Administration; www.osha.gov.
14. SD - Department of State; www.state.gov.
15. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
16. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
17. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
18. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
19. USFWS - U.S. Fish and Wildlife Service; <https://www.fws.gov>
20. USP - U.S. Pharmacopeial Convention; www.usp.org.
21. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.

2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
 3. DSCC - Defense Supply Center Columbus; (See FS).
 4. FED-STD - Federal Standard; (See FS).
 5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
 6. MILSPEC - Military Specification and Standards; (See DOD).
 7. USAB - United States Access Board; www.access-board.gov.
 8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).
- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. [FDOT; Florida Department of Transportation; https://www.fdot.gov](https://www.fdot.gov)
 2. [FDEP; Florida Department of Environmental Protection; https://www.floridadep.gov](https://www.floridadep.gov)

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 TEMPORARY FIELD OFFICE AND UTILITY INSTALLATION

- A. Temporary field offices and any associated temporary utilities required for Contractors use are the responsibility of the Contractor.

1.4 MOBILIZATION

- A. Mobilization includes but is not limited to the following:
 1. Obtaining all required permits.
 2. Providing field office if needed.
 3. Installing temporary power and lighting if needed.
 4. Installing telephone and internet service if needed.
 5. Providing on site sanitary facilities.
 6. Arranging for and erection of staging areas.
 7. Posting OSHA required notices and establishing safety programs and procedures.
- B. Provide lands and access to lands for use by Contractor for the duration of the Project.

1.5 USE CHARGES

- A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated.

1.6 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show contractor's temporary facilities, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

- B. Implementation and Termination Schedule: Within **30** days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility if needed.
- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, tpestyles, graphic elements, and message content.
- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- E. Public Nuisance: Indicate activities that may disturb nearby individuals. Provide:
 - 1. Noise Control Plan
 - 2. Dust Control Plan
- F. Provide Waste Disposal Plan detailing the waste-collection efforts and containers that would be provided to handle waste from the construction operations.

PART 2 - PRODUCTS

2.1 PROJECT SIGN

- A. Provide and maintain one, 8-foot wide by 4-foot-high sign constructed of $\frac{3}{4}$ inch high density overlaid plywood. Sign shall bear the name of Project, Owner, Contractor, Engineer and other participating agencies. Lettering shall be blue applied on white background by an experienced sign painter. Include Owner's, Project's and agency's logos in full color. Provide exterior type enamel paint. Information to be included on the sign and logo graphic will be provided by Engineer.

PART 3 - EXECUTION

3.1 TEMPORARY FIELD OFFICE AND UTILITY INSTALLATION

- A. General: Temporary utilities for Contractor's use are the responsibility of the Contractor.

3.2 SUPPORT FACILITIES INSTALLATION

- A. Comply with the following:
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
 - 1. Provide dust-control treatment that is non-polluting and non-tracking. Reapply treatment as required to minimize dust.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Provide temporary parking areas for construction personnel.
- E. Storage and Staging: Provide temporary for storage and staging needs.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

3.3 PROTECTION OF WORK AND NEARBY PROPERTIES

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Utilities: Locate and mark all utilities within the project limits prior to starting Work. Notify property Owners and utility offices that may be affected by construction operations at least 2 days in advance of the operation.
- D. Archeological Finds: Should finds of an archeological or paleontological nature be made within the Site limits, immediately stop work in the area and notify the Owner and Engineer. Continue work in other areas without interruption. Protect area of archeological find with fencing and cover with plastic film. Owner may order work to be stopped in other areas if the archeological find is more extensive than may appear from the uncovered material.
- E. Threatened and Endangered Species
1. Take precautions necessary and prudent to protect sensitive endangered species and threatened flora and fauna.
 2. Notify Engineer of construction activities that might threaten endangered and threatened species or their habitats
 3. Engineer's representative will be on site to provide direction of avoidance of threatened species. Follow direction of Engineer's Representative.
- F. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways.
1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.

2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- G. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- H. Air Pollution:
1. Minimize air pollution from the Project.
 2. Burning of waste materials, rubbish or other debris will not be permitted on or adjacent to the Site.
 3. Conduct operations of dumping, loading and transporting of rock in a manner that minimizes dust generation. Use dust preventative treatment such as periodically watering access roads as necessary.
- I. Noise Control
1. Noise control plan: Propose plan to mitigate construction noise and to comply with noise ordinances, including method of construction, equipment to be used and acoustical treatments.
- J. Site Security:
1. Provide and maintain temporary security fencing as necessary to protect the Work and Contractor furnished products not yet installed.
 2. Provide barricades as necessary to prevent unauthorized entry to construction areas as required to protect public safety and safety of Contractor's employees and others who may be effected by the Work.
 3. Provide to protect existing facilities and adjacent properties from potential damage.
 4. Locate to enable access to the Site by property owners.
- 3.4 ENGINEER'S ACCESS TO PROJECT SITE
- A. Contractor shall facilitate project site access for the Engineer's field representative for periodic inspections.
 - B. Contractor shall provide Engineer's field representative with access to a construction boat or separate boat and operator as requested.
- 3.5 VEHICULAR TRAFFIC
- A. Conduct the work to interfere as little as possible with public travel, whether vehicular or pedestrian.
 - B. Comply with Laws and Regulations regarding closing or restricting use of public streets or highways.

- C. Whenever it is necessary to cross, close or obstruct roads, driveways and walks, whether public or private, provide and maintain suitable safe detours or other temporary expedients for accommodation of public and private travel.
- D. Road Closures: Maintain satisfactory means of exit for all persons residing or having occasion to transact business along routes of Work. If it is necessary to close off roadway or alley providing sole vehicular access to property for periods greater than 2 hours, provide written notice to each owner affected, 3 days prior to such closing. Notify fire and police department of any road closures and comply with requirements.
- E. When flaggers are required by regulation or when deemed necessary for safety, furnish them with approved orange wearing apparel and other regulation traffic control devices.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Pilot Demonstration.
4. Installation of the Work.
5. Progress cleaning.
6. Protection of installed construction.

- B. Related Requirements:

1. Section 011000 "Summary of Work" for limits on use of Project Site.
2. Section 013300 "Submittal Procedures" for submitting surveys.
3. Section 017700 "Closeout Procedures" for submitting final topographic survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Surveyor:

1. The surveyor shall be a Florida State-licensed land surveyor.

- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

1.4 ACTION SUBMITTALS

- A. Preconstruction Survey: Submit two paper copies and two electronic copies (one Adobe Acrobat Reader 7 PDF and one AutoCad 2018/Civil 3d 2018 or later file) signed by land surveyor.

- B. Post-construction Survey: Submit three paper copies and two electronic copies (one Adobe Acrobat Reader 7 PDF and one AutoCad 2018/Civil 3d 2018 or later file) showing the Work performed and record survey data. All copies shall be signed by land surveyor.

1.5 QUALITY ASSURANCE

- A. Land and Bathymetry Surveyor Qualifications: A professional land and bathymetry surveyor who is legally qualified to practice in Florida and who is experienced in providing land- and bathymetry-surveying services of the kind indicated.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.

PART 3 - EXECUTION

3.1 GENERAL

- A. It shall be Contractor's obligation and responsibility to employ methods and equipment that will accomplish the satisfactory completion of the Work without delay.
- B. It is the Contractor's responsibility to have work areas in compliance with applicable Occupational Safety and Health Administration regulations at all times to protect the Contractor's employees, subcontractor employees, and authorized Owner, Construction Manager, and Design Engineer personnel, as well as to prevent unauthorized entry of the general public.
- C. The limits of work shown on the Contract Drawings are based on the property boundary information provided on Tax lot maps. The Contractor shall verify and confirm the limits of work in the field.

3.2 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Contractor shall fully document pre-construction site conditions via photos or video and submit for approval by Engineer.
 - 2. Contractor shall note and areas of concern or areas of pre-existing damage.

- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of area of existing damage.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.3 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Owner/Construction Manager according to requirements in Section 013100 "Project Management and Coordination."

3.4 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Owner/Construction Manager promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels as needed to locate each element of Project.
 - 2. Inform installers of lines and levels to which they must comply.
 - 3. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and

duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Owner and Construction Manager.

3.5 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Owner/Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Preconstruction Survey: Prior to construction, prepare a certified survey showing dimensions, locations, and angles of areas where construction will take place.
 - 1. The Contractor must indicate locations of significant physical features on the site, including but not limited to property boundaries, utilities, roadways, manholes, utility poles, fences, gates, permanent benchmarks, and trees with diameter at breast height values greater than 6 inches. The survey shall include all access roads, the staging area, and the Project area.
 - 2. The Record Drawings must be stamped by a Florida State-licensed Land Surveyor (LLS).
 - 3. Mapping must conform to the United States National Map Accuracy Specifications from the U.S. Geological Survey, revised 6/17/1947, and must bear the seal of a Florida State LSM. Maps must contain a title block with the name and address of the Contractor and the seal and signature of the LLS.
- C. Survey Control: Install and maintain for the duration of the project temporary monuments spaced no more than 100 feet apart along the project length.
 - 1. Record Northing, Easting, Elevation, Station and offset from project baseline of each monument and submit to Engineer.
 - 2. Assign and label each monument with a unique identification number. Flag or otherwise render the monument visible.
 - 3. Replace damaged or disturbed monuments as needed.
 - 4. Establish Limit of Disturbance of Project Site.
- D. Final Location of The Work
 - 1. The location of the features to be constructed or installed shown on the drawings is to be considered approximate.
 - 2. Locations of features will be marked in the field by Engineer's representative.
 - 3. Engineer's representative will review the location of site features with Contractor prior to the beginning the work.
 - 4. Contractor shall coordinate closely with Engineer's representative based on expected progress to ensure sufficient areas have been marked in the field so as not to impede progress. Failure to coordinate with Engineer's representative resulting in impeding work progress will not be the basis of adjustment in Contract time or price.

5. Immediately inform engineer if work areas are not clear or markers have become damaged or removed.
 6. Contract will remove at no cost, materials placed outside the designated areas.
- E. Post-construction Survey: Engage a land surveyor to prepare a post-construction survey showing significant features for the Project and the bathymetry of the project area. Include on the survey a certification, signed by a Florida State LSM, that principal project features, lines, and levels of the Project are accurately positioned as shown on the survey.
1. The post-construction survey shall include but not be limited to the following items: site improvements, utilities, roadways, manholes, utility poles, fences, gates, permanent benchmarks, the distance and bearing from a site control point to the existing permanent benchmarks, latitude and longitude of each reef module center as well as the bottom and top elevation of the reef module. The survey shall include all access roads, the staging area, and the Project area.
 2. Mapping must conform to the United States National Map Accuracy Specifications from the U.S. Geological Survey, revised 6/17/1947, and must bear the seal of a Florida State LSM. Maps must contain a title block with the name and address of the Contractor and the seal and signature of the LSM. Drawings must include labeled contour lines, horizontal grid systems, and cross sections. One-foot contours and a 1-inch to 50-foot scale are required.

3.6 SEQUENCE OF WORK

- A. Provide and install temporary facilities, if necessary.
- B. Establish survey control.
- C. Install silt fence, turbidity curtains and perform other erosion control activities for the work phase to be completed.
- D. Coordinate with Engineer's representative and identify work areas that require final locating a minimum of 5 days in advance of the time when work is expected to be performed.
- E. Meet with Engineer's representative to review locations of site feature construction and deployment.
- F. Construct/install in the areas designated by the Engineers representative.
- G. Survey the elevation locations at the toe and crest of constructed features. At maximum 100-foot spacings, at significant changes in direction or as directed by Engineer's representative.
- H. Verify constructed features comply with the contract documents.
- I. Complete any required restoration required for the work phase.
- J. Repeat steps C through J for next phase of work.

3.7 PILOT DEMONSTRATION

- A. Prior to approval of the CQC plan and beginning work, Contractor shall perform a pilot demonstration of their intended means and methods at a location to be identified by Engineer. The intent of the pilot demonstration is to demonstrate that the intended means and methods are adequate to construct the work in accordance with the Contract documents. Lessons learned and any corrective actions taken will be incorporated into Contractors Work Plan and CQC. The Pilot Demonstration will include sill construction and reef material deployment of sufficient size to judge adequacy of the proposed means and methods.

3.8 PROGRESS CLEANING

- A. General: Clean Project Site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 °F (27 °C).
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
- B. Site: Maintain Project Site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Waste Disposal: Do not bury or burn waste materials on site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
- F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final Completion procedures.
 - 3. Warranties.
 - 4. Project Record Documents.
 - 5. Final cleaning.
 - 6. Repair of the Work.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for progress cleaning of Project Site.

1.3 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of five days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Submit closeout submittals specified in other Division 01 Sections and Project Record Documents as required in this Section.
 - 2. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number where applicable.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of five days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Complete final cleaning requirements, including restoration planting and protection.
 2. Touch up and otherwise repair and any damages to structures near the access roads and staging area.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of five days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Owner and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner and Construction Manager will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner and Construction Manager, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.5 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Applications for Payment."
 2. Certified List of Incomplete Items: Submit certified copy of Owner's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner and Construction Manager. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
- B. Procedures Prior to Final Completion: Complete the following a minimum of five days prior to requesting inspection for determining date of Final Completion.
1. Terminate and remove temporary facilities from Project Site, along with mockups, construction tools, and similar elements.
- C. Inspection: Submit a written request for final inspection to determine acceptance and establish the date of physical completions as defined in the General Conditions a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Owner will either proceed with inspection on date requested or notify Contractor of unfulfilled requirements. Owner will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Organize items by area, including categories for ferry slip, pond area, rock reefs, habitat features (i.e., rock sills, cabled logs and porcupine cribs), and construction-related areas (i.e., access roads and staging areas).
 2. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Owner.
 - d. Name of Contractor.
 - e. Page number.
 3. Submit list of incomplete items in the following format:
 - a. MS Excel electronic file. Owner or Construction Manager will return annotated file.

1.7 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Owner for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 1. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1.8 PROJECT RECORD DOCUMENTS

- A. Maintain on site, two sets of the following Record Documents; record actual revisions to the Work:
 1. Contract Documents
 2. Addenda.
 3. Change Orders and other modifications to the Contract.
 4. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.

- C. Record information concurrent with construction progress.
- D. Contract Documents: Legibly mark and record in Part 2 of each Section of the Specifications, a description of the actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by addenda and modifications.
- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Dimensional changes to drawings.
 - 2. Revision to details shown on drawings.
 - 3. Changes made by Change Order or Work Change Directive.
 - 4. Changes made following Owner's written orders.
 - 5. Measured horizontal locations of permanent surface improvements.
 - 6. Field changes of dimension and detail.
 - 7. Details not on original Contract Drawings.
- F. Upon completion of Work, turn over the Project Record Documents in AutoCAD format to the Owner.
- G. Format for Record Drawings: Identify and date each Record Drawing; including the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Identification: As Follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Owner.
 - e. Name of Contractor.
- H. Applications for progress payments will not be approved if the Record Documents are not kept current. Application for final payment will not be approved until the Project Record documents are delivered to the Owner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal and local environmental and antipollution regulations.

Leave the premises in a neat, unobstructed condition, the work areas broom or rake clean, and everything in perfect repair and adjustment.

B. Cleaning:

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project:
 - a. Clean Project Site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project Site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, and touching up with matching materials. Where damaged or worn items cannot be repaired or restored, provide replacements. Restore damaged construction and permanent facilities used during construction to specified conditions.

END OF SECTION 017700

SECTION 101400 – WATERWAY MARKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 1. A52/A53M, standard Specification for Pipe, Steel, Black and Hot Dipped Welded and Seamless
 2. D709, Standard Specification for Laminated Thermosetting Materials.
- B. Florida Fish and Wildlife Conservation Commission Guidelines for Uniform Waterway Markers in Florida's Waterways.

1.3 SUBMITTALS

- A. Submit under provisions of Section 013100 "Project Management and Coordination".
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for signage. Submit manufacturers and processor's technical data and installation instructions.
- C. Shop Drawings: Containing plans, elevations, sections, and details for all work in this section, and indicating location of signs, finishes and method of attachment.
- D. Samples: Provide one full size nameplate sign and label specified.
- E. Information: Manufacturer's installation instructions.

1.4 WARRANTIES

- A. All materials utilized shall be able to withstand the elements under outdoor marine environments for a period not less than 5 years.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

- B. Materials shall be delivered to the location in unopened, labeled factory containers. Upon delivery, materials shall be inspected for damage. Deficient materials shall not be used.

PART 2 - PRODUCTS

2.1 WATERWAY MARKER SIGN

- A. Material: Aluminum waterway marker sign panel
- B. Size: 3 feet by 4 feet and minimum 1/8 inch thick
- C. Sheeting Type:
 - 1. Background: 3M 3990
 - 2. Border: 3M 3994 Orange
 - 3. Legend: 3M 7725.22
- D. Fasteners: Type 304 stainless steel 3/4 inch through bolts and Type 304 stainless steel hex nut, stainless steel lock washer and stainless-steel flat washers.

2.2 TREATED WOOD TIMBER PILES

- A. Standard wood treated timber piles shall be at least 12-inches in diameter.
 - 1. Timber piles shall be pressure treated with Chromated Copper Arsenate.
- B. Piles shall be carefully handled with no sudden dropping, breaking of outer fibers, bruising or penetration of the surface with tools.
- C. Bolt holes shall be 1/8 inch larger than the diameter of the bolt.
- D. Markings: Prior to moving the piles from staging area to waterway, the piles shall be marked as
 - 1. Mark lines not to exceed 6 inches long by 1 inch wide along the circumference of the pile.
 - 2. Lines shall be placed neatly every 5 feet, starting from the embedment tip.
 - 3. Label each mark with 0 feet, 5 feet, 10 feet, etcetera with 4-inch-high numerals.
 - 4. Marks shall be made with indelible ink or waterproof paint.
- E. Pile Caps: All piles shall be capped with plastic pointed black caps attached with a minimum of (4) #10 x 1.5" stainless steel screws and be even with the top edge of the sign to (+/- 6"). The cap shall fit the piling naturally without having to modify the pile cap in any fashion to forcefully fit the pile diameter (e.g. splitting a cap to fit a larger diameter piling than the pile cap was designed to fit).
- F. Reflective Tape: The Contractor shall supply two 6" single-bands of 3M High Intensity (#3870) White Reflective Tape that are to be placed around each piling, with a minimum of a 1" lap (the entire 6" width of the tape) with the first band being placed 6" from the bottom of the sign, and the second band being placed 8" from the bottom of the first band. If the tape becomes delaminated, cracked, checked, weathered, or abraded to have a brittle or roughened surface

within the warranty period, it must be replaced. If any tape is to be applied to existing piles, the old tape shall be completely removed and appropriately disposed of before applying the replacement reflective tape. In addition, all tape shall be adequately secured with a minimum of 4 stainless steel staples or otherwise in accordance with the manufacturer's recommendations.

2.3 ANCILARY MATERIALS:

- A. Fasteners: Stainless steel screws or bolts of the appropriate size.
- B. Bird Deterrent Devices: Bird roost inhibitors, such as polycarbonate or stainless-steel bird spikes, may be secured using nails screws or adhesive to the top of the sign.

PART 3 - EXECUTION

3.1 PILE INSTALLATION

- A. Any piles which require excessive bending in order to frame properly shall be withdrawn and reinstalled to the proper batter.
- B. Piles shall not be installed and then pulled into position. Minor adjustment (less than 3 inches to vertical) is allowed after pile installation; however, Contractor is fully responsible to ensure soil has settled around the pile so that no listing will occur.
- C. Piles damaged, not located in the proper location, or driven out of alignment shall be withdrawn and replaced by new piles or shall be cut off at the mudline and additional piles installed as directed, all without additional cost to the Owner/Engineer.
- D. When installing more than one piling per marker installation, the pile tops shall be cut to equal height (+/- 1 inch).
- E. Pile Driving Equipment: Pile driving equipment shall be of a size and type to deliver consistent effective dynamic energy suitable for the type and capacity of piles to be driven and the material into which they are to be driven. If using composite piles, installation shall be in accordance with manufacturers specifications.

3.2 Pile Driving

- A. Signs must be installed as indicated on the waterway marker plans with pilings to be shortened as dictated by the normal mean high watermark in the area of installation. The bottom of all signage must be a minimum of 6 feet above the mean high-water level and not exceed 9 feet above the mean high-water level. Pilings shall not be connected or joined together to lengthen.
- B. Pilings shall penetrate at least 8 feet of sand and/or shell, or at least 10 feet or more of mud, as appropriate to support the marker. If rock is encountered, pre-drilling of the pile hole and /or a pile shoe may be required at no additional cost to the Owner. If an augering or punching method is deemed necessary to install piling into rock or hard substrate, the method must first be

approved by the Engineer. If these methods require grouting, the materials and methodology must also be approved by the Engineer.

- C. Sign or pile assemblies not completed at the end of each workday must be marked and made visible for day and nighttime waterway traffic. However, no more than two (2) pile assemblies (single or double) may be left unfinished at the end of each workday.

3.3 Sign Installation

- A. Signs shall be drilled and fastened by penetration of the posts by two Type 304 stainless steel $\frac{3}{4}$ inch through bolts, which must not exceed more than 1 inch or less than $\frac{1}{2}$ inch beyond the Type 304 stainless steel hex-nut, stainless steel lock washer and stainless-steel flat washer.
- B. A nylon flat washer shall be placed between stainless steel fasteners and aluminum signs to prevent bi metallic corrosion.
- C. All fasteners shall be vandalism proof.
- D. Timber 2-inch by 4-inch crossbeam shall be installed at the top and bottom of the back of all signs and 4-inch by 4-inch timber spacers at the top of the sign so that the sign will be slanted out at the top.

3.4 RECORDS

- A. Contractor shall maintain records of each marker installation and maintenance site work under this contract. For each marker records shall include, work performed including number of piles installed, date of installation, size and length of piles, the depth of penetration and any other work.
- B. Contractor shall provide to Owner the coordinates in degrees and decimal minutes for all markers installed. These positions must be accurate within two meters resolution. The Contractor shall provide digital photographs of each marker installed.

3.5 Supplements

- A. The supplement listed below, following of End of Section is a part of this specification.
 - 1. FWC Uniform Waterway Marker Detail: 3 feet by 4 feet single Pile with bird deterrent Sign Detail.

END OF SECTION 101400

SECTION 354800– WATERWAY HABITAT STRUCTURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section specifies requirements for installation of manufactured reef units, rock bed, and rock sills, at the locations shown on the Drawings to be finalized at the time of construction.

1.2 RELATED SECTIONS

- A. Section 011100 – Summary of Work

1.3 INFORMATIONAL SUBMITTALS

- A. Submit the name and location of each proposed source of rip rap to be used in restoration features described in this section.
- B. Quarry Certificate of Conformance and supporting documentation showing proposed riprap meets standard specification gradation and material requirements for the Class or Type specified.
- C. Certified Quality Assurance Test Results:
 - 1. Riprap
 - a. Gradation
 - b. Abrasion Resistance
 - c. Bulk Density
- D. Submit the name and location of the manufacturer of the various manufactured reef units to be used as restoration features at the site.

1.4 ACTION SUBMITTALS

- A. Demonstration of work experience:
 - 1. Description and location of three projects where proposed materials have been successfully used for a minimum of 3 years duration under similar service conditions.
 - a. Similar service conditions may include near shore revetment installations and near and offshore breakwater installations.
 - b. Successful installation shall be defined as those in which the installed materials provided the client with the intended desired outcome such as shoreline stabilization without alteration of the initial installation for a period of 3 years.
 - c. Demonstration of successful projects may be provided in the following manners:
 - 1) Photographs or the site pre- and post-installation
 - 2) Pre-installation testing results and photographs of the in-situ conditions 3 years post-installation.

1.5 PROJECT CONDITIONS

- A. Do not commence feature placement activities until protection (no equipment use) areas, as marked on the Contract Drawings, are identified and SWPPP-required protections are in place.
- B. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Excavation or other digging unless otherwise indicated.

PART 2 - PRODUCTS

2.1 STONE MATERIAL QUALITY

- A. Use stone of a quality that will ensure permanence of the structure in the climate in which it is to be used. Provide the Contracting Officer with Stone Material Compliance Testing Results performed within the last five years by an independent laboratory for the following tests: ASTM C131/C131M, ASTM D5312/D5312M, and ASTM D5313/D5313M. Use stone that is durable, sound, free from detrimental blast-induced hairline cracks, seams, and other defects that tend to increase deterioration from natural causes or cause breakage during handling and/or placing. Use stone that is highly resistant to weathering and disintegration under freezing and thawing and wetting and drying conditions and does not contain amorphous chert. No dirt, sand, or clay will be permitted.
- B. Acceptability of stone material will be determined by the Construction Manager based on visual inspection at the source location and upon delivery. Inclusion of objectionable quantities of dirt, sand, clay, chert, and rock fines or other deleterious material will not be permitted. Selected limestone, dolomite, and dolomitic limestone will generally meet the requirements of these specifications if controlled blasting and handling techniques are utilized.

2.2 MANUFACTURED REEF UNIT

- A. Hollow, Dome shaped manufactured reef units made with a marine grade, pH reduced concrete having a rough surface texture such as the Reef Balls manufactured by Reef Ball Foundation and the Oyster Reef Domes manufactured by Tallahassee Community College's Wakulla Environmental Institute (WEI) or approved equal.
- B. The Manufactured Reef Units shall have the following dimensions:

Structure	Base Diameter [ft]	Height [ft]	Approx. weight [lbs]
Type 1	3	2	750
Type 2	4	2.75	2200

- C. Manufactured Reef Units of lesser weight may be substituted provided a suitable anchoring system is provided. Submit to Engineer manufacturer recommendations, anchor system details, material list, installation instructions and stability calculations demonstrating the proposed system will remain stability under extreme weather conditions. Engineer will review and make a determination whether the substitute is acceptable or request additional information.

2.3 RIPRAP

- A. Stone rip rap shall be used for rock sill and rock bed construction.
- B. Furnish stone for riprap that is sound, durable and angular in shape. The riprap material shall be in conformance with Federal Highway Administration (FHWA) Class 3 Riprap material requirements and should be provided by a FHWA certified pit.
- C. Material shall be free from cracks, seams, non-mineralized or other defects that would tend to increase its deterioration from natural causes. Riprap shall consist of dense, natural rock fragments. Stones shall be resistant to weathering and to water action; free from overburden, spoil, shale and organic material; Shale and stones with shale seams are not acceptable.
- D. Stone rip rap delivered to the site will be inspected by the owner or their designated representative for approval for use. Obtain approval of stone rip rap material prior to placement.

2.4 ALTERNATIVE REEF MATERIALS

- A. Up to 5% of the reef area may be constructed using alternative reef materials (instead of the rocks or dome-shaped manufactured concrete reef modules listed above). Upon request, provide to engineer manufacturers recommendations and data, installation instructions and details, plan for installation and cost estimate and schedule for completion. Upon approval by engineer, provide and install materials in accordance with the approved installation plan.

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation of manufactured reef units, rock sills and rock beds shall be implemented to enhance aquatic habitat and add erosion protection for the shoreline.
- B. The Construction Manager must be present during the placement of all Manufactured reef units, rock sills and rock beds to direct the specific placement.

3.2 PLACING RIPRAP

- A. Place riprap for rock sills and rock beds over sea floor to uniform thickness shown.
- B. No mechanical compaction of riprap is required; however, work riprap bedding as necessary to distribute it and to eliminate detrimental voids.
- C. Place and grade riprap in a manner that minimizes surrounding substrate disturbance.

3.3 PLACING MANUFACTURED REEF UNITS

- A. Place manufactured reef units at the locations shown on the drawings.
- B. The manufactured reef units shall be installed in a single layer. The reef units shall not be stacked.
- C. Work manufactured reef units into place as necessary to achieve the required spacing. Placed units shall be oriented such that unit bottoms are in full contact with substrate. Minimize adjustments after placement. Broken, cracked or damaged units shall be replaced at no cost.

END OF SECTION 354800