

PROJECT MANUAL

# Tigertail Beach Park Concession Repair & Enhancements

480 Hernando Drive, Marco Island, Florida 34145

March 10, 2025

## Bid Set

Prepared for: Collier County Parks & Recreation

Prepared by: Johnson Engineering, LLC

<b>Owner</b>	<b>Collier County Parks &amp; Recreation</b>
	Address: 15000 Livingston Road, Naples, FL 34109 Phone #: (239) 252 – 4000
<b>1.1 Civil Engineer</b>	<b>Johnson Engineering, LLC.</b>
	Contact Name: Jared Brown Address: 2350 Stanford Court, Naples, FL 34134 Phone #: (239) 922 – 0664 Email: jrb@johnsoneng.com
<b>1.2 Landscape Architect</b>	<b>Johnson Engineering, LLC.</b>
	Contact Name: Jeff Nagle Address: 2122 Johnson Street, Fort Myers, FL 33901 Phone #: (239) 461 – 3312 Email: jdn@johnsoneng.com
<b>1.3 Architect</b>	<b>Parker / Mudgett / Smith Architects, Inc.</b>
	Contact Name: W. Jeffrey Mudgett Address: 2136 McGregor Boulevard, Fort Myers, FL 33901 Phone #: (239) 332 – 1171 Email: wjm@pmsarch.com
<b>1.4 Structural Engineer</b>	<b>Select Structural</b>
	Contact Name: Esra Persellin Address: 12573 New Brittany Boulevard, Fort Myers, FL 33907 Phone #: (239) 210 – 5090 Email: esra.persellin@rtmec.com
<b>1.5 MEP Engineer</b>	<b>Florida Engineering, LLC</b>
	Contact Name: Craig E. Gunderson Address: 4456 Tamiami Trail, Suite B14, Port Charlotte, FL 33980 Phone #: (941) 391-5980 Email: michael@fleng.com

PROJECT MANUAL

**Tigertail Beach Park Concession  
Repair & Enhancements**

**Project No: 80348.1**

PREPARED FOR:

**COLLIER COUNTY PARKS & RECREATION**

Bid Documents

## **TIGERTAIL BEACH PARK CONCESSION REPAIR & ENHANCEMENTS**

### **PROJECT SPECIFICATIONS**

#### **TABLE OF CONTENTS**

DIVISION 1	GENERAL CONDITIONS AND REQUIREMENTS
	01 10 00 - CIVIL SUMMARY
	01 25 00 - SUBSTITUTION PROCEDURES
	01 29 00 - PAYMENT PROCEDURES
	01 31 00 - PROJECT MANAGEMENT AND COORDINATION
	01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION
	01 33 00 - SUBMITTAL PROCEDURES
	01 40 00 - QUALITY REQUIREMENTS
	01 57 13 - EROSION PREVENTION CONTROL
	01 73 00 - EXECUTION
	01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
	01 77 00 - CLOSEOUT PROCEDURES
	01 78 23 - OPERATION AND MAINTENANCE DATA
	01 78 39 - PROJECT RECORD DOCUMENTS
DIVISION 3	CONCRETE
	03 30 00 - CAST-IN-PLACE CONCRETE
	03 41 00 - PRECAST CONCRETE STRUCTURES
DIVISION 31	EARTHWORK
	31 10 00 - SITE DEMOLITION
	31 10 11 - SITE CLEARING
	31 20 00 - EARTH MOVING
	31 23 00 - TRENCHING, BACKFILLING, COMPACTING FOR UTILITIES
	31 23 16 - TRENCHING FOR UTILITY SYSTEMS
DIVISION 32	EXTERIOR IMPROVEMENTS
	32 12 16 - ASPHALT PAVING
	32 13 13 - CONCRETE PAVING, CONCRETE GUTTER, CURB ELEMENTS AND TRAFFIC SEPARATORS
	32 16 23 - CONCRETE SIDEWALKS
	32 17 23 - PAVEMENT MARKING
	32 80 20 - IRRIGATION
	32 90 00 - PLANTS AND LANDSCAPING
	32 92 23 - SODDING
DIVISION 33	UTILITIES
	33 41 00 - STORM UTILITY DRAINAGE PIPING
	33 42 13 - PIPE CULVERTS

**SECTION 01 10 00  
CIVIL SUMMARY**

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK:**

- A. Project Name: Tigertail Beach Park Concession Repair & Enhancements
- B. This project consists of, but is not limited to, the repair, renovation, and enhancement of an existing public park in southern Collier County. The improvements consist of renovating outdated public bathrooms, repairing of failing building slabs and wood shade structures, replacement of existing bar gate access, boardwalks and a failing pump system, and the addition of a new decorative beach front with water-efficient landscaping on a 1.2 acre site.

**1.02 COORDINATION WITH OTHER CONTRACTORS:**

- A. Contractor has the responsibility to coordinate his work with work being done by others around the site. Any shutdown of existing utilities will be coordinated with Owner, Collier County Utilities and contractors working on adjacent property.

**1.03 DEFINITIONS:**

- A. The term "Local Standards" as used herein means the standard of design and construction in Collier County. Seven days prior to any construction the Contractor shall contact Owner and Johnson Engineering, LLC.
- B. These plans and specifications have been approved by City of Marco Island Site and Building permit, Collier County Utilities, and Florida Department of Environmental Protection. Any requirements concerning testing and installation procedures required by these agencies shall be complied with by the Contractor.

**PART 2- EXECUTION**

**2.01 MOBILIZATION:**

- A. The work specified in this article will conform to the FDOT Specifications.

**2.02 MAINTENANCE OF EXISTING DRAINAGES:**

- A. Existing drainage shall be maintained at all times. At times when the Contractor is not on the job, drainage under construction shall be left open so as not to cause flooding due to blockage. Any damage to construction caused by this requirement shall be the responsibility of the Contractor.

**2.03 MAINTENANCE OF TRAFFIC:**

- A. The work specified in this article will conform to the FDOT Specifications unless condition exists where a custom MOT plan is necessary. If necessary, contractor shall obtain MOT plan from certified MOT designer or licensed professional engineer and shall implement plan until construction is completed.

**2.04 PERMITS:**

- A. Contractor will obtain the following permits:
  - a) SFWMD 10-2 Self Certification

b) City of Marco Island sitework permit (SIT)

The Contractor shall be responsible to secure all other necessary local, county, state, and federal permits, as applicable. A Stormwater Pollution Prevention Plan (SWP3) has been prepared and will be signed by the Owner and Contractor needs to provide their information to the Plan.

**2.05 INSPECTION AND TESTING:**

- A. Inspections shall be made following completion of each phase of the work and at other times as required. It is the responsibility of the Contractor to notify the Engineer and all other relevant agency inspection personnel when inspections will be necessary. It will be the Contractor's responsibility to secure approvals as necessary for acceptance of each phase of the project. It will be the Contractor's responsibility to furnish the necessary guarantees and warranties required by all agencies for the acceptance of construction. It will be the Contractor's responsibility to submit field test reports, including but not limited to, concrete and density tests of roadway fill, stabilized subgrade and base courses.

**2.06 PROTECTION OF EXISTING IMPROVEMENTS:**

This section describes the Contractor's responsibility for protection of existing improvements during construction activities.

A. Protection of Streets

1. The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits from the proper authorities. If any street or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be required in accordance with safety requirements of the Owner, Local Authority Having Jurisdiction, and Florida Department of Transportation (FDOT).
2. Streets, roads, private ways, and walks not closed shall be maintained passable by the Contractor at his expense and the Contractor shall assume full responsibility for the adequacy and safety of provisions made, including flagman, traffic control signs, and detour signs.
3. The Contractor shall, 72 hours in advance, notify the proper authorities in writing if the closure of a street is necessary. The Contractor shall then be responsible for maintaining proper notification and coordination with the Police Department, Sheriff's Department, Fire Department, and any other agency having jurisdiction and shall comply with all directed requirements.
4. Existing Improvements and Utilities. It is the responsibility of the Contractor to restore all existing streetlights, decorative lights, meter boxes, utilities, walks, curbs, plantings, etc., damaged during construction. Replacement or repair of any damaged item is the responsibility of and at the expense of the Contractor.

B. Protection of Existing Improvements

1. Prior to excavating any section of the work, the Contractor shall call the following utility companies and inform them that work on the specific section is about to commence and request that they field locate their underground utilities:

- |                                     |                |
|-------------------------------------|----------------|
| (a) Sunshine State One              | (800) 432-4770 |
| (b) Lee County Electric Cooperative | (239) 656-2300 |
| (c) Comcast Cable                   | (800) 934-6489 |
| (d) CenturyLink                     | (239) 336-2030 |

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

(e) Collier County Utilities

(239) 252-8836

(f) TECO Peoples Gas

(877) 832-6747

2. When proceeding with the work, the Contractor shall exercise caution to protect all underground and overhead utilities and existing structures from damage. Service must be maintained to the surrounding area and the project area, unless prior approval is received from the Owner and the utility. The Contractor shall repair, at his own expense and to the satisfaction of the Owner and utility company, any surface or subsurface improvement (including any existing utility not shown on the drawings) damaged during the course of the work (unless such improvement is shown to be abandoned or removed). Should any utilities be encountered that are not shown on the drawing, the Contractor shall immediately notify the Engineer and the Owner and shall take whatever caution necessary to protect the utility.

C. Chemicals

1. All chemicals used during project construction, or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

D. Maintenance of Existing Drainage

1. See Section 2.2 above.

**END OF SECTION 01 10 00**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 01 25 00  
SUBSTITUTION PROCEDURES**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

**1.03 DEFINITIONS**

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

**1.04 ACTION SUBMITTALS**

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Substitution Request Form: Use CSI Form 13.1A.
  - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Certificates and qualification data, where applicable or requested.
  - f. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - g. Cost information, including a proposal of change, if any, in the Contract Sum.
  - h. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within Insert number days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 5 days of receipt of request, or 3 days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
  - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

**1.05 QUALITY ASSURANCE**

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

**1.06 PROCEDURES**

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

## **PART 2 - PRODUCTS**

### **2.01 SUBSTITUTIONS**

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- b. Substitution request is fully documented and properly submitted.
- c. Requested substitution will not adversely affect Contractor's construction schedule.
- d. Requested substitution has received necessary approvals of authorities having jurisdiction.
- e. Requested substitution is compatible with other portions of the Work.
- f. Requested substitution has been coordinated with other portions of the Work.
- g. Requested substitution provides specified warranty.
- h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
- b. Requested substitution does not require extensive revisions to the Contract Documents.
- c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- d. Substitution request is fully documented and properly submitted.
- e. Requested substitution will not adversely affect Contractor's construction schedule.
- f. Requested substitution has received necessary approvals of authorities having jurisdiction.
- g. Requested substitution is compatible with other portions of the Work.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- h. Requested substitution has been coordinated with other portions of the Work.
- i. Requested substitution provides specified warranty.
- j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 25 00**

**SECTION 01 29 00  
PAYMENT PROCEDURES**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

**1.03 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.

**1.04 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 items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
  - 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
  - 5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract, as described in Section 011000 "Summary."
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
  - 1. Identification shall be compliance with Collier County Requirements.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

2. Arrange schedule of values consistent with format of AIA Document G703.
3. 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. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
    - 1) Labor.
    - 2) Materials.
    - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site.
6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
7. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.
8. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
9. Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
10. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
11. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

**1.05 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 Architect. Refer to Contract Documents.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement. Refer to Contract Documents.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment. Refer to Contract Documents.
  - 1. Other Application for Payment forms proposed by the Contractor shall be acceptable to Architect and Owner. Submit forms for approval with initial submittal of schedule of values.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 29 00**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 01 31 00  
PROJECT MANAGEMENT AND COORDINATION**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. RFIs.
  - 3. Digital project management procedures.
  - 4. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

**1.03 DEFINITIONS**

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

**1.04 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, telephone number, and email address of entity 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 starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. 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 project meeting room, in temporary field office, in web-based Project software directory, and in prominent location in built facility. Keep list current at all times.

#### **1.05 GENERAL COORDINATION PROCEDURES**

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations 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 adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall cooperate with Project coordinator who shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations 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 with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. 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.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Progress meetings.
4. Project closeout activities.

**1.06 REQUEST FOR INFORMATION (RFI)**

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
  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 Architect.
  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.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716.
1. Attachments shall be electronic files in PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect 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.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- 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 Architect's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
  3. Architect'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 Architect and Construction Manager in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Software log with not less than the following:
  1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.
  4. RFI number including RFIs that were returned without action or withdrawn.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.

**1.07 DIGITAL PROJECT MANAGEMENT PROCEDURES**

- A. Use of Architect's Digital Data Files: Digital data files of Architect's CAD drawings will be provided by Architect for Contractor's use during construction.
  1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.
  2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
  3. Digital Drawing Software Program: Contract Drawings are available in AutoCad .
  4. Contractor shall execute a data licensing agreement in the form of AIA Document C106 Digital Data Licensing Agreement.
    - a. Subcontractors, and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of AIA Document C106.
    - b. Insert name of digital data file.

**1.08 PROJECT MEETINGS**

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
  2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Progress Meetings: Conduct progress meetings at biweekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
  2. Attendees: In addition to representatives of Owner and Architect, 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. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. 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 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.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Sequence of operations.
      - 2) Access.
      - 3) Site use.
      - 4) Status of correction of deficient items.
      - 5) Field observations.
      - 6) Status of RFIs.
      - 7) Status of Proposal Requests.
      - 8) Pending changes.
      - 9) Status of Change Orders.
      - 10) Pending claims and disputes.
      - 11) Documentation of information for payment requests.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
  - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION 01 31 00**

**SECTION 01 32 00  
CONSTRUCTION PROGRESS DOCUMENTATION**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Startup construction schedule.
  - 2. Contractor's construction schedule.
  - 3. Construction schedule updating reports.
  - 4. Daily construction reports.
  - 5. Material location reports.
  - 6. Site condition reports.
- B. Related Requirements:
  - 1. Section 013300 "Submittal Procedures" for submitting schedules and reports.
  - 2. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.
- C. Refer to the SDLC "Standard Construction Manager Contract" including but not necessarily limited to Article 3 and 14 for additional requirements. Nothing included in this section shall be considered as altering this agreement. In instances where conflict occur the agreement shall take precedent.

**1.03 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. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.
- E. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time belongs to Owner.
  - 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.
- F. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

**1.04 INFORMATIONAL SUBMITTALS**

- A. Format for Submittals: Submit required submittals in the following format:
  - 1. Working electronic copy of schedule file, where indicated.
  - 2. PDF electronic file.
  - 3. Five paper copies.
- B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

**1.05 QUALITY ASSURANCE**

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
  - 1. Review software limitations and content and format for reports.
  - 2. Verify availability of qualified personnel needed to develop and update schedule.
  - 3. Discuss constraints, including interim milestones and partial Owner occupancy.
  - 4. Review delivery dates for Owner-furnished products.
  - 5. Review schedule for work of Owner's separate contracts.
  - 6. Review submittal requirements and procedures.
  - 7. Review time required for review of submittals and resubmittals.
  - 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
  - 9. Review time required for Project closeout and Owner startup procedures.
  - 10. Review and finalize list of construction activities to be included in schedule.
  - 11. Review procedures for updating schedule.

**1.06 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 network with other activities and schedule them in proper sequence.

**PART 2 - PRODUCTS**

**2.01 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL**

- A. Time Frame: Extend schedule from date established for commencement of the Work 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 story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
  - 1. Procurement Activities: Include procurement process activities for the following 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.
  - 2. 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.
  - 3. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
  - 4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect'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 schedule, and show how the sequence of the Work is affected.
  - 1. Phasing: Arrange list of activities on schedule by phase.
  - 2. Work under More Than One Contract: Include a separate activity for each contract.
  - 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  - 4. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

5. Work Restrictions: Show the effect of the following items on the schedule:
  - a. Coordination with existing construction.
  - b. Uninterruptible services.
  - c. Use of premises restrictions.
  
6. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
  - a. Submittals.
  - b. Mockups.
  - c. Deliveries.
  - d. Installation.
  - e. Tests and inspections.
  - f. Startup and placement into final use and operation.
  
- 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
  1. Temporary enclosure and space conditioning.
  
- E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
  1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.
  
- F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
  1. Unresolved issues.
  2. Unanswered Requests for Information.
  3. Rejected or unreturned submittals.
  4. Notations on returned submittals.
  5. Pending modifications affecting the Work and Contract Time.
  
- G. 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.
  
- H. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
  1. Use Microsoft Project, Primavera, Meridian Prolog, for Windows operating operating system.

**2.02     STARTUP CONSTRUCTION SCHEDULE**

- A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for commencement of the Work.
  
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

**2.03     CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)**

- A. General: Prepare network diagrams using AON (activity-on-node) format.
  
- B. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
  - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for commencement of the Work.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
  - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
  - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
  
- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.
  - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
    - a. Preparation and processing of submittals.
    - b. Mobilization and demobilization.
    - c. Purchase of materials.
    - d. Delivery.
    - e. Installation.
    - f. Work by Owner that may affect or be affected by Contractor's activities.
    - g. Punch list and final completion.
    - h. Activities occurring following final completion.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
  - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
  - a. Each activity cost shall reflect an appropriate value subject to approval by Architect.
  - b. Total cost assigned to activities shall equal the total Contract Sum.
- D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- E. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
  1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Main events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.
  8. Total float or slack time.
  9. Average size of workforce.
  10. Dollar value of activity (coordinated with the schedule of values).
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
  1. Identification of activities that have changed.
  2. Changes in early and late start dates.
  3. Changes in early and late finish dates.
  4. Changes in activity durations in workdays.
  5. Changes in the critical path.
  6. Changes in total float or slack time.
  7. Changes in the Contract Time.

- G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
  2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
  3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
  4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
    - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
    - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

## 2.04 REPORTS

- A. Daily Construction Reports: Prepare a daily 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 snow.
  6. Accidents.
  7. Meetings and significant decisions.
  8. Unusual events (see special reports).
  9. Stoppages, delays, shortages, and losses.
  10. Orders and requests of authorities having jurisdiction.
  11. Change Orders received and implemented.
  12. Construction Change Directives received and implemented.
  13. Equipment or system tests and startups.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
  2. Material stored prior to previous report and since removed from storage and installed.
  3. Material stored following previous report and remaining in storage.
- C. 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.

**PART 3 - EXECUTION**

**3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE**

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated 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 Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and 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 01 32 00**

**SECTION 01 33 00  
SUBMITTAL PROCEDURES**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

- A. 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 "Payment Procedures" 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 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 4. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 5. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.
- C. All project documents, record, drawings, schedules, RFIs, submittals, daily reports, photos, inspections, and other documents as required are to be uploaded by the Contractor into the ProCore system provided by the Owner.

**1.03 DEFINITIONS**

- A. Action Submittals: Written and graphic information and physical samples that require Architect'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 Architect'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."

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- 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.

**1.04 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 Architect and additional time for handling and reviewing submittals required by those corrections.
  - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. Final Submittal: 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.
  - 4. 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 Architect's final release or approval.
    - g. Scheduled date of fabrication.
    - h. Scheduled dates for purchasing.
    - i. Scheduled dates for installation.
    - j. Activity or event number.

**1.05 SUBMITTAL ADMINISTRATIVE REQUIREMENTS**

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Architect 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. Architect 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 Revit 2018 or Autocad Version 2018 as requested.
  - c. Contractor shall execute a data licensing agreement in the form of AIA Document C106, Digital Data Licensing Agreement.
  - d. Architect will not review submittal which are simply duplicated from Digital file provided by the Architect and without the coordination of the contractor/supplier.
  - e. Architect take no responsibility for the accuracy of the BIM Model provided by the Architect.
  - f. The following digital data files will by furnished for each appropriate discipline:
    - 1) Integrated BIM model in Revit 2018 Format.
- 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. 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 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 Five working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. 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 Five working days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 10 working days for initial review of each submittal.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow Five working days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- 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., BSHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., BSHS-061000.01.A).
  3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name of Contractor.
    - e. Name of firm or entity that prepared submittal.
    - f. Category and type of submittal.
    - g. Specification Section number and title.
    - h. Specification paragraph number or drawing designation and generic name for each of multiple items.
    - i. Drawing number and detail references, as appropriate.
    - j. Location(s) where product is to be installed, as appropriate.
    - k. Related physical samples submitted directly.
    - l. Indication of full or partial submittal.
    - m. Transmittal number[, numbered consecutively].
    - n. Submittal and transmittal distribution record.
    - o. Other necessary identification.
    - p. Remarks.
- E. Options: Identify options requiring selection by Architect.
- 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 Architect 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 and number of copies as initial submittal.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

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 Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, 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 Architect's and Construction Manager's action stamp.

## **PART 2 - PRODUCTS**

### **2.01 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. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  2. Submit electronic submittals via email as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
  4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
  5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
    - a. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- 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.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

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. Standard color charts.
    - c. Statement of compliance with specified referenced standards.
    - d. Testing by recognized testing agency.
    - e. Application of testing agency labels and seals.
    - f. Notation of coordination requirements.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams showing factory-installed wiring.
  5. Submit Product Data in the following format:
    - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.
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.
  4. BIM File Incorporation: Shop Drawing files into Building Information Model established for Project.
    - a. Prepare Shop Drawings in the following format: Same digital data software program, version, and operating system as the original Drawings.
    - b. Refer to Section 013100 "Project Management and Coordination" for requirements for coordination drawings.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- 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 Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit (3) three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Construction Manager, will return submittal with options selected.
  6. 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 sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
  - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- M. 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.
- N. 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.
- O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- Q. 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.
- R. 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.
- S. 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.

## **2.02 DELEGATED-DESIGN SERVICES**

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
  - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
- C. BIM File Incorporation: delegated-design drawing and data files into Building Information Model established for Project.
  - 1. Prepare delegated-design drawings in the following format: Same digital data software program, version, and operating system as the original Drawings.

## **PART 3 - EXECUTION**

### **3.01 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 Architect.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Project Closeout and Maintenance Material 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.

**3.02 ARCHITECT'S ACTION**

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action.

**END OF SECTION 01 33 00**

**SECTION 01 40 00  
QUALITY REQUIREMENTS**

**PART 1 - GENERAL**

**1.01 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.
- B. Refer to the SDLC "Standard Construction Manager Contract" including but not necessarily limited to Article 3 for additional requirements. Nothing included in this section shall be considered as altering this agreement. In instances where conflict occur the agreement shall take precedent.

**1.02 SUMMARY**

- A. 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. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.

**1.03 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 actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
  - 1. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
  - 2. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

**1.04 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 Architect 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 Architect for a decision before proceeding.

#### **1.05 ACTION SUBMITTALS**

- A. Shop Drawings: For integrated exterior mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
  - 1. Indicate manufacturer and model number of individual components.
  - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

#### **1.06 INFORMATIONAL SUBMITTALS**

- A. Qualification Data : For Contractor's quality-control personnel.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Identification of applicable standards.
  - 4. Identification of test and inspection methods.
  - 5. Time schedule or time span for tests and inspections.

#### **1.07 CONTRACTOR'S QUALITY-CONTROL PLAN**

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
  - 1. Project quality-control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
  3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

#### 1.08 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. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement that equipment complies with requirements.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  4. Statement whether conditions, products, and installation will affect warranty.
  5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner'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.

**1.09 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. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect Five working days in advance of dates and times when mockups will be constructed.
  3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
  4. Demonstrate the proposed range of aesthetic effects and workmanship.
  5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
    - a. Allow Five working days for initial review and each re-review of each mockup.
  6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  7. Demolish and remove mockups when directed unless otherwise indicated.

**1.10 QUALITY CONTROL**

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
  
- C. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
  
- D. 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.
  
- E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
  - 1. Access to the Work.
  - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
  - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  - 4. Facilities for storage and field curing of test samples.
  - 5. Delivery of samples to testing agencies.
  - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
  
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -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.
  
- G. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
  - 1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

**1.11 SPECIAL TESTS AND INSPECTIONS**

- A. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
  2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
  4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  6. Retesting and reinspecting corrected work.

**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 Architect.
  4. Identification of testing agency or special inspector 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 Architect'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.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- 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 01 40 00**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 01 57 13  
EROSION PREVENTION CONTROL**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS:**

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

**1.02 SUMMARY:**

- A. This section included procedures for erosion and water pollution control.

**PART 2 – EXECUTION**

**2.01 EROSION PREVENTION CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION:**

- A. Erosion control measures shall be installed based on the design intent of the construction plans. Contractor shall make slight modifications to erosion control measure plan locations to avoid existing or proposed improvements, with approval of engineer and/or owner. Erosion control measures shall be maintained for the entire duration of project until all surfaces are stabilized with hardscape or landscaping material.
- B. Additional temporary erosion control features will not be paid for separately but shall be included in the contract unit price for the item or items to which such costs are related. These items shall include, among other things, silt fence, slope drains, sediment basins, sediment checks, sediment basin cleanouts, baled hay and floating silt barriers. Any additional costs resulting from compliance with the requirements of this section, other than construction, routine maintenance and removal of temporary erosion features and mowing, shall be included in the contract unit price for the item or items to which such costs are related.
- C. The cost of constructing temporary earth berms along the edges of roadways to prevent erosion during grading and subsequent operations will not be paid for separately but shall be included in the contract prices for grading items.
- D. In case of repeated failure on the part of the Contractor to control erosion, pollution, or siltation the Owner and Engineer reserves the right to employ outside assistance. Any such costs incurred, including engineering costs, will be charged to the Contractor and appropriate deductions made for the monthly progress estimate.
- E. Floating silt screens acceptable to the Owner/Engineer will be installed in lake/creek/ditch areas as shown on the erosion control plan. These screens shall be incidental to the item of work requiring them and shall be included in the unit prices for that item.

**2.02 PERMITS:**

Contractor will obtain the following permits:

- a) SFWMD 10-2 Self Certification
- b) City of Marco Island sitework permit (SIT)

- A. Stormwater Pollution Prevention Plan (SWP3) shall be provided to contractor and signed by the Owner. Contractor shall provide their information to be include on the SWP3.

In addition, the contractor shall provide the following reports, information, plans and details as part of the NPDES permit requirements unless provided by the OWNER's representative:

1. Erosion Control Plan: The plan will clearly describe for each major activity identified in the permit application appropriate control measures and the timing during the construction process that the measures will be implemented. (For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed after final stabilization. All controls shall be consistent with the requirements set forth in the State Water Policy of Florida (Chapter 17-40, Florida Administrative Code), the applicable stormwater permitting requirements of the FDEP or appropriate Florida Water Management District, and the guidelines contained in the Florida Development Manual: A Guide to Sound Land and Water Management (FDER, 1988) and any subsequent amendments. The description and implementation of controls shall address the following minimum components.

a. Erosion and Sediment Controls

- (1) Stabilization Practices. A description of interim and permanent stabilization practices, including site specific scheduling of the implementation of the practices. Plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the plan. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.
- (2) Structural Practices. A description of structural practices to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site in accordance with the requirements set forth in Section 17-40, 420, F.A.C., and the applicable stormwater regulations of the FDEP or appropriate Florida Water Management District (FWMD). Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural practices shall be placed on upland soils unless a State of Florida wetland resource management permit issued pursuant to Chapters 373 or 403, F.S. and the applicable regulations of the FDEP or FWMD authorize otherwise. The installation of these devices may be subject to Section 404 of the Clean Water Act (CWA).

(a) For common drainage locations that serve an area with 10 or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from on-site areas that are either undisturbed or have undergone final

stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage locations which serve 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls are not attainable, smaller sediment basins and/or sediment traps should be used. At a minimum, silt fences, or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

(b) For drainage locations serving less than 10 acres, sediment basins and/or sediment traps should be used. At a minimum, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area unless a sediment basin providing storage for 3,600 cubic feet of storage per acre drained is provided.

- (3) Stormwater Management. The NPDES permit only addresses the installation of stormwater management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. The Contractor is only responsible for the installation and maintenance of stormwater management measures prior to final stabilization of the site, and are not responsible for maintenance after stormwater discharges associated with industrial activity have been eliminated from the site.

b. Other Controls

- (1) Waste Disposal. No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a Section 404 permit and by a State of Florida wetland resource management permit issued pursuant to Chapters 373 or 403, F.S., and the applicable regulations of the FDEP or FWMD.
- (2) Off-site vehicle tracking of sediments and the generation of dust shall be minimized.
- (3) The plans shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.
- (4) The plan shall address the proper application rates and methods for the use of fertilizers and pesticides at the construction site and set forth how these procedures will be implemented and enforced.

c. Approved State or Local Plans

- (1) Contractor who discharge stormwater associated with industrial activity from construction activities must include in their stormwater pollution prevention plan procedures and requirements specified in applicable sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by State or local officials. Permittees shall provide a certification in their stormwater pollution prevention plan that their stormwater pollution prevention plan reflects requirements applicable to protecting surface water resources in sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by State or local officials. Contractor shall comply with any such requirements during the term of the permit. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for the construction site.

- (2) Stormwater pollution prevention plans must be amended to reflect any change applicable to protecting surface water resources in sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by State or local officials for which the contractor receives written notice. Where the contractor received such written notice of a change, the contractor shall provide a recertification in the stormwater pollution plan that the stormwater pollution prevention plan has been modified to address such changes.
    - (3) Dischargers seeking alternative permit requirements shall submit an individual permit application in accordance with Part VI.L of the permit at the address indicated in Part V.C of this permit for the appropriate Regional Office, along with a description of why requirements in approved State or local plans or permits, or changes to such plans or permits, should not be applicable as a condition of an NPDES permit.
  2. Maintenance. A description of procedures to ensure the timely maintenance of vegetation, erosion and sediment control measures and other protective measures identified in the site plan in good and effective operating condition.
  3. Inspections. Qualified personnel (provided by the discharger) shall inspect all points of discharge into waters of the United States or to a municipal separate storm sewer system and all disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, storm water management systems, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater. Where sites have been finally stabilized, or during seasonal arid periods in arid areas with an average annual rainfall of 6 to 10 inches and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches) such inspection shall be conducted at least once every month.
    - a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for, pollutants entering the storm water management system. The stormwater management system and erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control and stormwater management measures are effective in meeting the performance standards set forth in State Water Policy (Chapter 17-40 F.A.C.) and the applicable stormwater permitting regulations of the FDEP or appropriate FWMD. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.
    - b. Based on the results of the inspection, the site description identified in the plan in accordance with paragraph IV.D.1 of this permit and pollution prevention measures identified in the plan in accordance with paragraph IV.D.2 of this permit shall be revised as appropriate but in no case later than 7 calendar days following the inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.
    - c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the stormwater pollution prevention plan and actions taken in accordance with paragraph IV.D.4b of the permit shall be made and retained as part of the stormwater pollution prevention plan for at least three years from the date

that the site is finally stabilized. Such reports shall identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the stormwater pollution prevention plan and this permit. The report shall be signed in accordance with Part VI.G of this permit.

4. Non-Stormwater Discharges: Except for flows from firefighting activities, sources of non-stormwater listed in Part III.A.2 of this permit that are combined with stormwater discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge

5. Contractors:

- a. The stormwater pollution prevention plan must clearly identify for each measure identified in the plan, the contractor(s) and/or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in Part IV.E.2 of this permit in accordance with Part VI.G of this permit. All certifications must be included in the stormwater pollution prevention plan.

- b. Certification Statement. All contractors and subcontractors identified in a stormwater pollution prevention plan in accordance with Part IV.E.1 of this permit shall sign a copy of the following certification statement before conducting any professional service identified in the stormwater pollution prevention plan:

"I certify under penalty of law that I understand the terms and conditions of the general National Pollution Discharge Elimination System (NPDES) permit that authorizes the stormwater discharges associated with industrial activity from the construction site identified as part of this certification."

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of this permit, the name, address and telephone number of the contracting firm, the address (or other identifying description) of the site, and the date the certification is made.

6. Retention of Records

- a. The contractor shall retain copies of stormwater pollution prevention plans and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by request of the Director at any time.

- b. The contractor shall retain a copy of the stormwater pollution prevention plan required by this permit at the construction site from the date of project initiation to the date of final stabilization.

- c. Addresses. Except for the submittal of NOIs (see Part II.C. of this permit), all written correspondence concerning discharges in any State, Indian land or from any Federal Facility covered under this permit and directed to the U.S. Environmental Protection Agency, including the submittal of individual permit applications, shall be sent to the address of the appropriate Regional Office listed below:

Florida Department of Environmental Protection  
2600 Blair Stone Road – MS#2510

Tallahassee, Florida 32399-2400

7. Standard Permit Conditions

a. Duty to Comply

(1) The contractor must comply with all conditions of the NPDES permit. Any permit non-compliance constitutes a violation of CWA and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification or for denial of a permit renewal application.

(2) Penalties for Violations of Permit Conditions

(a) Criminal

1) Negligent Violations. The Clean Water Act (CWA) provides that any person who negligently violates permit conditions implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year or both.

2) Knowing Violations. The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation or by imprisonment for not more than three years or both.

3) Knowing Endangerment. The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 303, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than \$250,000 or by imprisonment for not more than 15 years, or both.

4) False Statement. The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than \$20,000 per day of violation or by imprisonment of not more than four years, or by both. (See Section 309.c.4 of the Clean Water Act).

(b) Civil Penalties - The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$25,000 per day for each violation.

(c) Administrative Penalties - The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

- 1) Class I penalty. Not to exceed \$10,000 per violation nor shall the maximum amount exceed \$25,000.
  - 2) Class II penalty. Not to exceed \$10,000 per day for each day during which the violation continues nor shall the maximum amount exceed \$125,000.
- b. Continuation of the Expired General Permit: This permit expires in five years from publication date. However, an expired general permit continues in force and effect until a new general permit is issued. Permittees must submit a new NOI in accordance with the requirements of Part II of this permit, using a NOI form provided by the Director (or photocopy thereof) between August 1, 1997 and (insert date five years after publication date) to remain covered under the continued permit after within five years after publication date. Facilities that had not obtained coverage under the permit by (insert date five years after publication date) cannot become authorized to discharge under the continued permit.
- c. Need to halt or reduce activity not a defense. It shall not be a defense for a contractor in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- d. Duty of Mitigate. The contractor shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment.
- e. Duty to Provide Information. The contractor shall assist the Owner and/or Engineer with the collection and furnishing of any information which is requested to determine compliance with this permit.
- f. Other Information. If the Contractor becomes aware that he or she failed to submit any relevant facts or submitted incorrect information, he or she shall promptly notify and submit such facts or information to the Owner and Engineer.
- g. Signatory Requirements. All Notices of Intent, stormwater pollution prevention plans, reports, certifications or information either submitted to the Director or the operator of a large or medium municipal separate storm sewer system, or that this permit requires be maintained by the contractor, shall be signed as follows:
- (1) All Notices of Intent shall be signed as follows:
    - (a) For a corporation by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
    - (b) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively: or
    - (c) For a municipality, State, Federal, or other public Agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal Agency includes (1) the chief executive

officer of the Agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the Agency (e.g., Regional Administrators of EPA).

(2) All reports required by the permit and other information requested by the Director or authorized representative of the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(a) The authorization is made in writing by a person described above and submitted to the Director.

(b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

(c) Changes to authorization. If an authorization under paragraph II.B.3 is no longer accurate because a different operator has responsibility for the overall operation of the construction site, a new notice of intent satisfying the requirements of paragraph II.B must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(d) Certification. Any person signing documents under paragraph VI.G shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

h. Penalties for Falsification of Reports. Section 309(c)(4) of the Clean Water Act provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than 2 years, or by both.

i. Oil and Hazardous Substance Liability. Nothing in the permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the CWA or section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

j. Property Rights. The issuance of the permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

- k. Severability. The provisions of the permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.
  
- l. Inspection and Entry. The contractor shall allow the Director or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through a municipal separate storm sewer, an authorized representative of the municipal operator or the separate storm sewer receiving the discharge upon the presentation of credentials and other documents as may be required by law, to:
  - (1) Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of the permit;
  - (2) Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
  - (3) Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).
  - (4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, and substances or parameter at any location on the site.

**END OF SECTION 01 57 13**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 01 73 00  
EXECUTION**

**PART 1 - GENERAL**

**1.01 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.
- B. Refer to the SDLC "Standard Construction Manager Contract" including but not necessarily limited to Article 3 for additional requirements. Nothing included in this section shall be considered as altering this agreement. In instances where conflict occur the agreement shall take precedent.

**1.02 SUMMARY**

- A. 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. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Coordination of Owner-installed products.
  - 6. Progress cleaning.
  - 7. Starting and adjusting.
  - 8. Protection of installed construction.
  - 9. Correction of the Work.
- B. Related Requirements:
  - 1. Section 011000 "Summary" for limits on use of Project site.
  - 2. Section 013300 "Submittal Procedures" for submitting surveys.
  - 3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
  - 4. Section 024119 "Selective Structure Demolition" for demolition and removal of selected portions of the building.
  - 5. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

**1.03 DEFINITIONS**

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

**1.04 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For land surveyor.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
    - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by land surveyor.
- F. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

**1.05 QUALITY ASSURANCE**

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
    - a. Primary operational systems and equipment.
    - b. Fire separation assemblies.
    - c. Air or smoke barriers.
    - d. Fire-suppression systems.
    - e. Mechanical systems piping and ducts.
    - f. Control systems.
    - g. Communication systems.
    - h. Fire-detection and -alarm systems.
    - i. Conveying systems.
    - j. Electrical wiring systems.
    - k. Operating systems of special construction.
  3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
    - a. Water, moisture, or vapor barriers.
    - b. Membranes and flashings.
    - c. Exterior curtain-wall construction.
    - d. Sprayed fire-resistive material.
    - e. Equipment supports.
    - f. Piping, ductwork, vessels, and equipment.
    - g. Noise- and vibration-control elements and systems.
  4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

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

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Section 018113.13 "Sustainable Design Requirements - LEED for New Construction and Major Renovations," Section 018113.16 "Sustainable Design Requirements - LEED for Commercial Interiors," Section 018113.19 "Sustainable Design Requirements - LEED for Core and Shell Development," and Section 018113.23 "Sustainable Design Requirements - LEED for Schools."
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- 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 unacceptable installation tolerances.
  4. Recommended corrections.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

**3.02 PREPARATION**

- A. Existing Utility Information: Furnish information to local utility 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 Architect according to requirements in Section 013100 "Project Management and Coordination."

**3.03 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 Architect 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 at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish limits on use of Project site.
  - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 4. Inform installers of lines and levels to which they must comply.
  - 5. Check the location, level and plumb, of every major element as the Work progresses.
  - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
  - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. 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 Architect.

**3.04 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 Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

**3.05 INSTALLATION**

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

**3.06 CUTTING AND PATCHING**

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
  - b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### **3.07 OWNER-INSTALLED PRODUCTS**

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
  1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
  2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

### **3.08 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 deg F.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

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.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- 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.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- 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. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. 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 017419 "Construction Waste Management and Disposal."
- H. 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.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

**3.09 STARTING AND ADJUSTING**

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

**3.10 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.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

**END OF SECTION 01 73 00**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 01 74 19  
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section includes administrative and procedural requirements for the following:
  - 1. Recycling non-hazardous waste.
  - 2. Disposing of nonhazardous waste.

**1.02 DEFINITIONS**

- A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.
- C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

**1.03 ACTION SUBMITTALS**

- A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.

**1.04 INFORMATIONAL SUBMITTALS**

- A. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

**1.05 WASTE MANAGEMENT PLAN**

- A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition and site-clearing waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
  - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

**PART 2 - PRODUCTS**

**PART 3 - EXECUTION**

**3.01 PLAN IMPLEMENTATION**

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Distribute waste management plan to everyone concerned within three days of submittal return.
  2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
  2. Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.
- E. Waste Management in Historic Zones or Areas: Transportation equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches or more.

**3.02 RECYCLING WASTE, GENERAL**

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  4. Store components off the ground and protect from the weather.
  5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

**3.03 RECYCLING DEMOLITION WASTE**

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
  - 1. Pulverize concrete as indicated on Drawings.
- B. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
  - 1. Pulverize masonry as indicated on drawings.
  - 2. Clean and stack undamaged, whole masonry units on wood pallets.

**3.04 DISPOSAL OF WASTE**

- A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner's property.
- C. Burning: Do not burn waste materials.

**END OF SECTION 01 74 19**

**SECTION 01 77 00  
CLOSEOUT PROCEDURES**

**PART 1 - GENERAL**

**1.01 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.
- B. Refer to the SDLC "Standard Construction Manager Contract" including but not necessarily limited to Article 3 and 25 for additional requirements. Nothing included in this section shall be considered as altering this agreement. In instances where conflict occur the agreement shall take precedent.

**1.02 SUMMARY**

- A. 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. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 017300 "Execution" for progress cleaning of Project site.
  - 2. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Section 017900 "Demonstration and Training" for requirements for instructing Owner's personnel.

**1.03 ACTION SUBMITTALS**

- A. Product Data: For cleaning agents.

**1.04 MAINTENANCE MATERIAL SUBMITTALS**

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

**1.05 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 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
  - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Submit test/adjust/balance records.
  - 5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 3. Complete startup and testing of systems and equipment.
  - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
  - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
  - 6. Advise Owner of changeover in heat and other utilities.
  - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
  - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  - 9. Complete final cleaning requirements, including touchup painting.
  - 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
  
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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 Architect, that must be completed or corrected before certificate will be issued.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

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.

**1.06 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 "Payment Procedures."
  2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect 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.

**1.07 LIST OF INCOMPLETE ITEMS (PUNCH LIST)**

- A. Organization of List: Include name and identification of each space and 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. Use CSI Form 14.1A.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Page number.
  4. Submit list of incomplete items in the following format:

- a. MS Excel electronic file. Architect will return annotated file.

## **1.08 SUBMITTAL OF PROJECT WARRANTIES**

- A. Time of Submittal: Submit written warranties on request of Architect 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. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
  1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  4. 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.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
  1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

### **PART 3 - EXECUTION**

#### **3.01 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.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of 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. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - 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.
    - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - f. Sweep concrete floors broom clean in unoccupied spaces.
    - g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
    - h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - i. Remove labels that are not permanent.
    - j. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    - k. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
    - l. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
    - m. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
      - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

- n. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  - o. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

**3.02 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, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
- 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

**END OF SECTION 01 77 00**

**SECTION 01 78 23  
OPERATION AND MAINTENANCE DATA**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Product maintenance manuals.
  - 4. Systems and equipment maintenance manuals.
- B. Related Requirements:
  - 1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

**1.03 DEFINITIONS**

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

**1.04 CLOSEOUT SUBMITTALS**

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
  - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
  - b. Enable inserted reviewer comments on draft submittals.
- C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
  1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

## **PART 2 - PRODUCTS**

### **2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY**

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
  1. List of documents.
  2. List of systems.
  3. List of equipment.
  4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

**2.02 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE  
MANUALS**

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
  
- B. Title Page: Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name and contact information for Contractor.
  - 6. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
  - 7. Cross-reference to related systems in other operation and maintenance manuals.
  
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
  - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
  
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
  
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
  - 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
  - 2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

## **2.03 OPERATION MANUALS**

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
  2. Performance and design criteria if Contractor has delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.
  5. Operating characteristics.
  6. Limiting conditions.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## **2.04 PRODUCT MAINTENANCE MANUALS**

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Material and chemical composition.
  - 4. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
  - 1. Inspection procedures.
  - 2. Types of cleaning agents to be used and methods of cleaning.
  - 3. List of cleaning agents and methods of cleaning detrimental to product.
  - 4. Schedule for routine cleaning and maintenance.
  - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

**2.05 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS**

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

**PART 3 - EXECUTION**

**3.01 MANUAL PREPARATION**

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original project record documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared record Drawings in Section 017839 "Project Record Documents."
- F. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

**END OF SECTION 01 78 23**

**SECTION 01 78 39  
PROJECT RECORD DOCUMENTS**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SUMMARY**

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Section 017300 "Execution" for final property survey.
  - 2. Section 017700 "Closeout Procedures" for general closeout procedures.
  - 3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

**1.03 CLOSEOUT SUBMITTALS**

- A. Record Specifications: Submit of Project's Specifications, including addenda and contract modifications.
- B. Record Product Data: Submit of each submittal.
  - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- C. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit of each submittal.
- D. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

## **PART 2 - PRODUCTS**

### **2.01 RECORD DRAWINGS**

- A. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Revit, Version 2018, Microsoft Windows operating system.
  2. Format: Annotated PDF electronic file with comment function enabled.
  3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
  4. Refer instances of uncertainty to Architect for resolution.
  5. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
    - a. See Section 013300 "Submittal Procedures" for requirements related to use of Architect's digital data files.
    - b. Architect will provide data file layer information. Record markups in separate layers.
- B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Format: Annotated PDF electronic file with comment function enabled.
  2. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
  3. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

### **2.02 RECORD SPECIFICATIONS**

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
  5. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

**2.03 RECORD PRODUCT DATA**

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file .
1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

**2.04 MISCELLANEOUS RECORD SUBMITTALS**

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as PDF electronic file.
1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

**PART 3 - EXECUTION**

**3.01 RECORDING AND MAINTENANCE**

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

**END OF SECTION 01 78 39**

**SECTION 03 30 00  
CAST-IN-PLACE CONCRETE**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions, and Division 1 specification sections, apply to this section.

**1.02 DESCRIPTION**

A. SCOPE OF WORK

1. Provide all labor, materials, equipment and services necessary to complete all cast-in-place concrete work, including formwork, reinforcing steel and all related work as shown and specified, except as specifically excluded hereinafter.
2. In addition to construction of cast-in-place concrete work, the work includes the items listed below:
  - a. Setting anchor bolts, frames, and other items indicated to be embedded in concrete
  - b. Grouting of structural steel bearing on concrete
  - c. Concrete curbs
  - d. Dowels for masonry walls
  - e. Concrete walks
  - f. Concrete pavement
  - g. Laboratory field testing services
3. Cooperate with affected personnel or contractors in setting and/or fastening sleeves, piping, inserts, conduits, hangers, ties and similar items in the forms, where such items are to be furnished and installed under other subdivisions of these specifications.

B. RELATED WORK NOT SPECIFIED UNDER THIS SUBDIVISION

1. Foundations and pads not shown on architectural, civil or structural drawings.
2. Furnishing steel frames and grating.
3. Furnishing miscellaneous steel shapes and plates embedded in concrete.
4. Furnishing anchor bolts for structural steel.
5. Furnishing piping and conduit embedded in concrete.

**1.03 QUALITY ASSURANCE**

A. APPLICABLE STANDARDS

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Provide all materials and perform all work in accordance with the latest issue of ACI 301 "Standard Specifications for Structural Concrete AÓ and the reference specifications listed therein.
2. The applicable provisions of the latest issue of the following ACI and CRSI Standards are made a part of these specifications. Where the provisions of any reference specification conflict with those of ACI 301, the more stringent provisions govern.

<u>ACI NUMBER</u>	<u>TITLE</u>
302.1R	Guide for Concrete Floor and Slab Construction
304.R	Guide for Measuring, Mixing, Transporting and Placing Concrete
304.2R	Placing concrete by pumping methods.
305R	Hot Weather Concreting
306R	Cold Weather Concreting

- a. Standard Practice for Curing Concrete 309R Guide for Consolidation of Concrete
- b. Manual of Standard Practice for Detailing Reinforced Concrete Structures
- c. Building code requirements for reinforced concrete
- d. Recommended Practice for Concrete Formwork 70-56
- e. Guide for Use of Epoxy Compounds with Concrete Committee 503 Report 75-18
- f. Concrete committee 503 report.
- g. Cold weather concreting. CRSI NUMBER TITLE
- h. Recommended Practice for Placing Reinforcing Bars

**1.04 SUBMITTALS**

- A. Submit, not less than 21 days prior to placing of concrete, the following proposed concrete mix design data:
  1. Intended usage and location for each type
  2. Mix design for each type
  3. Cement content in pounds per cubic yard
  4. Coarse and fine aggregate in pounds per cubic yard
  5. Water-cement ratio by weight
  6. Cement type and manufacturer
  7. Slump range
  8. Air content range
  9. Admixture types and manufacturers
  10. Percent of admixtures by weight
  11. Strength test data required to establish mix design
- B. Submit complete detail and placing shop drawings for all reinforcing steel including accessories that have been reviewed and stamped by the General Contractor.

## **PART 2 - PRODUCTS**

### **2.01 CONCRETE MATERIALS**

- A. Portland Cement - ASTM C 150, Type I. Type III may be used where authorized by the Engineer.
- B. Air-Entraining Admixtures - ASTM C 260, Darax AEA, W. R. Grace & Company, SIKA AER, SIKA, MB-AE90, Master Builders, Air Mix, Euclid Chemical Corp.
- C. Water-Reducing Admixtures - ASTM C 494, Type D. WRDA-64, W.R. Grace & Company Plastiment, SIKA, Pozzoloth N, Master Builders.
- D. No accelerators, retarders or admixtures containing chlorides will be permitted.
- E. Use fresh, clean and drinkable water for concrete.
- F. For normal weight concrete use coarse and fine aggregate to conform to ASTM C33.
- G. Super Plasticizer ASTM C494 Type F or G where authorized by the Engineer.
- H. Fly-ash ASTM C618 Type C618. Maximum loss on ignition shall not exceed 3% by weight. The combined weight of fly-ash shall not exceed 20 percent of the total weight of cementitious material. The fly-ash present in blended cement conforming to ASTM C595 shall be included in the calculated percentage. Do not use for architectural concrete.
- I. Ground granulated blast-furnish slag ASTM C989. the combined weight of GGBFS shall not exceed 50 percent of the total weight of cementitious material. Slag used in blended hydraulic cement conforming to ASTM C595 shall be included in the calculated percentage.

### **2.02 PROPORTIONING**

- A. Concrete Strength Ó See structural drawings for minimum concrete compressive strength at 28 days.
- B. PROPERTIES
  - 1. Provide concrete having the general properties specified for each class of concrete with the following tables to provide workability and consistency so concrete can be worked readily into forms and around reinforcement without segregation or bleeding, and to provide an average compressive strength adequate to meet acceptance requirements of ACI 301.

### **2.03 PRODUCTION OF CONCRETE**

- A. Concrete must be batched, mixed and transported in accordance with specifications for ready-mixed concrete ASTM C 94.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Concrete shall be batched to produce a slump of 4" plus/minus 1". Refer to 2.2B unless noted otherwise.
  
- C. Provide at the site, delivery tickets for each batch of concrete showing the following:
  - 1. Batch number, volume and date
  - 2. Time of loading
  - 3. Design 28-day compressive strength
  - 4. Concrete type
  - 5. Cement content in pounds per cubic yard
  - 6. Water content in pounds per cubic yard
  - 7. Admixtures in amount per cubic yard
  - 8. Maximum amount of water that may be added at the job site.
  
- D. Restrict the addition of mix water at the job site. Do not add water without the approval of the general contractor and do not exceed slump limitations or total allowable water to cement ratio. Use cold water from the truck tank and remix to achieve consistency. The reports shall indicate how much water was added at the job site. Note on delivery ticket amount of water added and name of person authorizing.
  
- E. During hot weather, conform to the detailed recommendations of ACI 305.
  
- F. When air temperature is between 85 and 90 degrees F., reduce mixing and delivery time to 75 minutes. When air temperature is higher than 90 degrees, reduce mixing and delivery time to 60 minutes.
  
- G. Concrete should be deposited as nearly as practicable to its final position to avoid segregation of materials due to re-handling or flowing.
  
- H. Concreting should be carried on at such a rate that the concrete is at all times plastic and flows readily into spaces between reinforcement.
  
- I. The use of the following is prohibited:
  - 1. Partially hardened concrete
  - 2. Contaminated concrete
  - 3. Re-tempered concrete
  - 4. Concrete that has been re-mixed after it has taken its initial set.
  
- J. After concreting has been started, it should be carried on as a continuous operation until placing of a panel or section, as determined by its boundaries or joints, is completed.
  
- K. All concrete should be thoroughly consolidated by suitable means during placement and should be worked around reinforcement and embedded fixtures and into corners of forms.

**2.04 PLACING CONCRETE**

- A. GENERAL

Collier County Parks & Recreation  
 Tigertail Beach Park Concession Repair & Enhancements  
 Bid Documents

1. Inner surfaces of conveying equipment must be free of hardened concrete and foreign materials.
2. All reinforcing bars are to be tied in proper position prior to placing concrete.
3. Provide sufficient time for inspection of all preparatory work before proceeding with the placing of concrete.
4. Immediately prior to placing concrete, sprinkle semi-porous sub-grades sufficiently to eliminate suction and seal porous sub-grades, except where a vapor barrier is used.
5. Deposit concrete in forms in horizontal layers continuously, no deeper than 18 inches. Horizontal cold joints will not be permitted. Fill forms completely using methods to ensure even distribution of aggregate around reinforcement and into corners of forms.
6. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time to 75 minutes. When air temperature is higher than 90 degrees F, reduce mixing and delivery time to 60 minutes.
7. Concrete shall have a wet cure time of 7 days minimum at 50 degrees minimum temperature.
8. Concrete shall be deposited as nearly as practicable to its final position to avoid segregation of materials due to re-handling or flowing.
9. Concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into spaces between reinforcement.
10. The following conditions are prohibited:
  - a. Partially hardened concrete.
  - b. Contaminated concrete.
  - c. Re-tempered concrete.
  - d. Concrete that has been re-mixed after it has taken its initial set.
11. After concreting has been started, it shall be carried on as a continuous operation until placing of a panel or section, as determined by its boundaries or joints, is completed.

B. CONSOLIDATION

1. Consolidate concrete by vibration in accordance with the detailed recommendations of ACI 309.
2. Internal vibrators must be used in beams, girders and framed slabs and along bulkheads or slabs-on-grade to thoroughly consolidate the concrete. Do not use grossly oversized equipment.
3. Do not use vibrators to transport concrete within forms.

C. FINISHING

1. Finish concrete slabs in accordance with the finishes and tolerances as specified in ACI 301, and the detailed recommendations in ACI 302. Confirm all finishes with Architect.
2. Dusting of slabs with cement or other materials to absorb excess bleed water is strictly prohibited.

<u>TOLERANCE ITEM</u>	<u>CLASS</u>	<u>FINISH</u>
Exterior Pavement	B	Broom or belt
Exterior Walks/Curbs	B	Fine broom
Interior Slabs	A	Troweled
Exterior Steps	A	Nonslip

3. For flat, very flat and super flat floors, "F" numbers are required for defining flatness and levelness. Refer to ACI 301.1R, Fig. 8.15.1.1, for minimum required "F" numbers for type of slab use.

D. NONSLIP FINISH

1. Give surface a dry shake application as specified in ACI 301 using crushed selected abrasive aggregate of aluminum oxide. The rate of application of blended mixture should not be less than 25 pounds per 100 square feet of surface.
2. Acceptable products are:

<u>TYPE</u>	<u>MANUFACTURER</u>
Grip-It	L&M Construction Chemicals
Frictex N.S.	Sonneborn
Nonslip	Euclid Chemical Co.
Emag 20	Lambert Corp.

**2.05 REINFORCEMENT**

A. GENERAL

1. Details of concrete reinforcement and accessories not covered herein or shown on drawings to be in accordance with ACI 315.
2. Reinforcement is to be secured in proper position and thoroughly clean of loose rust, scale, grease or other coatings.

B. REINFORCING MATERIALS

1. Unless otherwise indicated, for all reinforcing shown provide deformed bars conforming to ASTM A 615, or a 616 Grade 60.
2. Smooth dowels - ASTM A 615 and A 616, plain bars having a minimum yield strength of 60,000 psi.
3. Welded wire fabric - ASTM A 185 plain wire fabric in flat sheets.
4. Plain wire to conform to ASTM A 82.
5. Accessories to conform to ACI 315.
6. Where reinforcing rods are used as supports, use rods no lighter than No. 5.
7. Where concrete surfaces are exposed, make those portions of all accessories in contact with the concrete surface or within 1/2 inch thereof, of plastic or stainless steel.
8. Reinforcing steel should be free of kinks and non-shop bends. Field bends should be only as approved by the architect.

C. FIBROUS REINFORCING (Synthetic)

1. Reinforcing fibers to be virgin 100% polypropylene fibers, per ASTM C1116, specifically manufactured for use in concrete, containing no reprocessed olefin materials, with the following minimum physical characteristics:
  - a. specific gravity: 0.91
  - b. modulus of elasticity: 500-700 KSI
  - c. tensile strength: 70-110 KSI
  - d. fiber length: multi-design gradation, 3/4" maximum.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

2. Reinforcing fibers to be supplied by the following approved manufacturers:
    - a. "FIBERSTRAND 100", Euclid Chemical Company
    - b. "FIBERMESH INFORCE e<sup>3</sup> or STEALTH e<sup>3</sup>", SI Concrete Systems
    - c. "FORTA SUPER-NET", Forta Corporation
    - d. "NYCON FIBERS", Nycon, Inc.
  3. Fibers to be added in manufacturer's approved amount with a minimum of 1.5 pounds per cubic yard for poly and 1.0 pounds per cubic yard for nylon.
  4. Concrete to be batched and mixed in accordance with fiber manufacturer's recommendations for uniform and complete dispersion of fiber bundles into single strands within concrete.
  5. Reinforcing fibers may be used in concrete slabs-on-grade in lieu of WWF with approval of the engineer.
  6. Submit product data for review and approval.
  7. For a "non-hairy" surface use a monofilament fiber. Collated fibrillated fibers wear away in a short period of time.
- D. FIBROUS REINFORCING (alternate to wwf on composite metal decks)
1. All fibers must meet the criteria in the Steel Deck Institute design manual (Publication No. 30).
  2. Cold drawn steel fibers meeting the criteria of ASTM A820, at a minimum addition rate of 25 lb/yd<sup>3</sup> (14.8 kg/m<sup>3</sup>) and possessing an average residual strength of at least 80 psi 550 kpa when tested ASTM C1399, may be used as a suitable alternative to the welded wire fabric specified for temperature and shrinkage reinforcement.
  3. Reinforcing fiber to be supplied by the following approved suppliers:
    - a. "NOVOMESH 850, or NOVOCON 1050" by SI Concrete Systems
    - b. "DRAMIX 65/60" by Bekaert
  4. Steel fibers do not replace rebar over girders, which are used to control negative moment.
  5. Steel fibers are to be added at the batch plant and in accordance with the manufacturer's recommendations for uniform and complete dispersion.

### **PART 3 - EXECUTION**

#### **3.01 PLACING**

##### **A. GENERAL**

1. Place reinforcing in conformance with the requirements of CRSI 63. Place reinforcement in proper position prior to placing concrete. Placing reinforcement during concrete placement will not be permitted.
2. Unless otherwise shown or indicated, provide minimum concrete protective covering for reinforcement as follows:
  - a. Concrete deposited against the ground, 3".

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- b. Formed surfaces exposed to weather or in contact with the ground, 2" for reinforcing bars No. 6 or larger, and 1-1/2" for reinforcing bars No. 5 or smaller.
  - c. Interior surfaces, 1-1/2" for beams, girders and columns, 3/4" for slabs, walls and joists.
  - d. See drawing for special conditions.
3. Support reinforcing for slabs-on-grade on staggered concrete bricks or metal or plastic bar chairs and spacers with metal plates.
  4. Unless specifically authorized, do not bend reinforcement partially embedded in hardened concrete.
  5. Support and fasten all dowels in the formwork prior to placing concrete. Do not place dowels after concrete is in place.

### **3.02 JOINTS**

#### **A. CONSTRUCTION JOINTS**

1. Construction joints not shown in the contract documents must be located and made to least impair the strength of the structure.
2. No horizontal construction joints will be permitted in beams, girders or slabs.
3. Location of any construction joint not shown is subject to review and acceptance by Engineer.
4. Reinforcing is continuous through all construction joints. Obtain bond by roughening surface of concrete in an acceptable manner which will expose aggregate uniformly and will not leave any laitance, loosened particles or aggregate or damaged concrete at surface.
5. Construction joints shall be cleaned, wetted, and standing water removed.
6. All concrete shall be thoroughly consolidated by suitable means during placement and should be worked around reinforcement and embedded fixtures and into corners of forms.
7. Concrete wet cure time to be 7 days minimum at 50 degrees minimum temperature.

#### **B. EXPANSION JOINTS**

1. Reinforcement or other embedded metal items bonded to the concrete (except dowels in floors bonded on only one side of joints) will not be permitted to extend continuously through any expansion joint.

#### **C. DOWELED SLIP JOINTS**

1. Use completely smooth round bars for dowels.
2. For construction joints, paint half of bar with red lead paint. When dry, coat painted end with satisfactory grease to insure against bond with concrete.
3. For control joints, paint and grease entire bar.
4. For expansion joints, paint, grease and provide a metal expansion cap for one end.
5. Place in forms to insure that bars are perpendicular to joint face. Stop reinforcement at doweled slip joints so that it will not extend through joint.

#### **D. JOINT MATERIALS**

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Expansion joint filler non-bituminous type - ASTM D 1752, resin impregnated fiberboard Homosote 300 or Thermosetting Polyurethane, W. R. Meadows' Rescor. Asphalt impregnated materials are unacceptable.
2. Polyethylene Film - ASTM D 2103 minimum 6 mil.
3. Horizontal Joint Sealer - 2-component self-leveling urethane conforming to Federal Specification TT-S-227E, Type 1, Class A. Color to match concrete. Acceptable products are :

<u>TYPE</u>	<u>MANUFACTURER</u>
Daraseal-U	A. C. Horn
Sonolastic SL2	Sonneborn
Pourthane	W. R. Meadows

4. Vertical Joint Sealer - 1-component Polyurethane conforming to Federal Specification TT-S-002306, Type II, Class A, color to match concrete. Acceptable products are:

<u>TYPE</u>	<u>MANUFACTURER</u>
SIKAFLEX IA	SIKA
SONOLASTIC NPI	Sonneborn

5. Epoxy Joint Sealer - semi-rigid epoxy, MM80 as manufactured by Metzger McGuire Co., master fill 300 by Master Builders.
6. Epoxy Bond - 2-component 100 percent solids epoxy resin, amine cured. Acceptable materials are Concesive Series by Master Builders, Sonneborn=s Epogrip and Epiweld 580 by Lambert Corp.
7. Epoxy Grout - Epoxy bond filled with suitable mineral filler, 100 percent passing the No. 100 sieve, in ratio to insure thixotropic action without impairment of adhesive properties.
8. Compressive Joint Material - expanded polystyrene having a compressive strength not less than 8 psi when the board is compressed to a deformation of 5 percent of its original thickness when tested in conformance with ASTM C 165, modified to change drying temperature to 150°F.
9. Felt - 30 pound asphalt or coal tar roofing felt ASTM D 226 or D 227.

E. PLACING DOWELS IN EXISTING CONCRETE

1. Use deformed reinforcing bars as dowels. Drill holes in existing concrete of size 1/2" larger in diameter than the dowel using power-driven drill with tungsten-carbide tipped bit ground to insure against oversize hole. Clean out holes with air thoroughly swab surfaces of hole and embedded portion of dowel with epoxy grout. Force dowel into place. Wipe off excess grout and let set for not less than 12 hours at a temperature above 60°F.

**3.03 FORMWORK**

A. GENERAL

1. Provide and construct formwork in accordance with ACI 301 and 347.
2. Form design by P.E. registered in the State of Florida.
3. Observe and check formwork continuously while concrete is being placed to determine that there are no evidences of changes of elevations, plumbness, or camber and adjust forms as necessary. If, during construction, any such evidence or other defect appears, stop the work, remove concrete placed, if necessary, and repair formwork or supports before proceeding.

4. Earth cuts may be used as forms for footing vertical surfaces increase size 2 inch.
5. Forms and shoring is the responsibility of General Contractor.

**B. FORMWORK MATERIALS**

1. Make forms of lumber, plywood, metal or other materials suitable to provide the strength and tolerances specified herein before and the surface finishes specified hereinafter.
2. Forming exposed surfaces use any of the following materials as suitable for the specified finish, and to produce smooth uniform surfaces, true-to-line, in order that surfaces produced will require little finishing:
  - a. New plastic-bonded natural plywood, American Plywood Association, HD Overlay Plyform Class I, Ext-APA, or equal.
3. For forming exposed surfaces use plywood, or other nonmetallic surfaces free from knots, warps, breaks, or other defects likely to cause irregular surfaces.
4. Provide commercial formulation form coating compounds with maximum VOC of 350 mg/1 that will not bond with stain or adversely affect concrete surfaces and will not impair subsequent surface treatments.

**C. REMOVAL OF FORMS**

1. Forms and shoring in the formwork supporting the weight of concrete, in beams, slabs and other structural elements are to remain in place until the concrete has reached its specified 28-day compressive strength.
2. Formwork and facing forms for members such as grade beams, foundation walls and spread footings not supporting the weight of concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from the removal operations.
3. Arrange shores and other vertical supports so that the non-load carrying form-facing material may be removed without loosening or disturbing the shores and supports.
4. Whenever the formwork is removed during the curing period, continue curing of both the unexposed and exposed concrete by one of the methods specified in section "Curing and Protection".

**D. REMOVAL STRENGTH**

1. Removal Strength - The concrete will be presumed to have reached its specified strength when additional test cylinders (paid for by contractor) are field cured along with the concrete they represent and have reached the strength specified.

**3.04 REPAIR OF SURFACE DEFECTS**

**A. GENERAL**

1. Patch all tie holes and repair all honeycombed and defective areas immediately after form removal.
2. For surfaces other than those to be backfilled against, use patching mortar.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

3. For surfaces to be backfilled against, use mastic damp-proofing compound, except that where reinforcing is exposed, use patching mortar.
4. Remove all honeycombed and defective concrete down to sound concrete prior to patching. Thoroughly clean the holes of dirt and debris.

**B. PATCHING MORTAR**

1. Cut edges of honeycombed and defective concrete to form dove-tail (undercut) joints. No feather edges will be permitted.
2. Apply a chemical bonding agent to voided surface. An acceptable product is L&M Construction chemicals Ó Everbond or equivalent.
3. Patch the cement mortar as specified in ACI 301, or with proprietary patching compounds, except that proprietary patching mixtures may be not used on exposed surfaces.
4. Acceptable proprietary patching mixtures are:
  - a. Euclid Chemical Corporation - Poly Patch
  - b. SIKA - Sikaset Mortar
  - c. Emaco R Series - Master Builders
  - d. Lambert Corp, Lambco Vinyl Patch
  - e. Sonneborn - Sonopatch

**C. MASTIC DAMP-PROOFING COMPOUND**

1. Patch full depth of hole and flush the surface with emulsified asphalt mastic heavy viscosity for trowel application. Prepare and place in accordance with manufacturer's directions. Acceptable products are:
  - a. W. R. Meadows - Sealmastic Trowel Mastic
  - b. Euclid Chemical Company - Damp-proofing Asphalt Coatings
  - c. Sonneborn - Hydrocide 700 Mastic
  - d. Lambert Corp Ó Waterban 60M

**3.05 FINISHING OF FORMED SURFACES - GENERAL**

- A. After removal of forms, give surfaces of concrete the following finishes as specified in ACI 301.

<u>SURFACE</u>	<u>FINISH</u>
Unexposed	Rough Form
Exposed	Smooth Form
Exposed to Public View	Smooth Rubbed

**3.06 CURING AND PROTECTION**

**A. GENERAL**

1. Conform to the applicable detailed recommendations of ACI 301 and 308.
2. Hot weather curing to be in accordance with applicable ACI Standard 305.
3. All cast-in-place concrete must be maintained with minimal moisture loss at a relatively constant temperature for a minimum of 7 days following the placing of the concrete by the use of a water spray, water saturated fabric, moisture retaining membrane or liquid curing compound.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

4. Full curing days will be determined by the cumulative number of days or fractions thereof during which the temperature of the air in contact with the concrete is above 50°F.
5. Cure slabs-on-grade for the first 72 hours by the use of:
  - a. fog spraying
  - b. ponding
  - c. sprinkling
  - d. continuously wet absorptive mats or fabric
  - e. continue curing by use of moisture retaining cover until concrete has obtained its specified 28 day compressive strength
  - f. or liquid curing compound after finishing process is completed.
  - g. concrete wet cure time to be 7 days minimum at 50 degrees minimum temperature.
6. Submit materials and method of curing for review.
7. Do not use moisture retaining curing compounds for curing surfaces to receive the following coverings, unless it has been demonstrated that such compounds will not prevent bond of:
  - a. Carpet
  - b. Flexible flooring
  - c. Ceramic tiled floors
  - d. Other specified floor systems

**B. MATERIALS**

1. Where moisture retaining membranes or curing compounds are used for curing, provide only materials conforming to the following requirements:
  - a. Polyethylene Film - ASTM C171, Type II
  - b. Waterproof Paper - ASTM C 171, Type I
  - c. Absorptive Cover - AASHTO M 182, Class 3, Burlap cloth made from Jute or Kenaf or ASTM C 440 cotton mats
  - d. ASTM C309 spray on at max.

**C. TEMPERATURE, WIND AND HUMIDITY**

1. Do not permit concrete not fully cured to be exposed to excessive temperature changes or high winds.

**3.07 EMBEDDED ITEMS**

**A. GENERAL**

1. Prior to concreting, place all embedded items to be provided under this subdivision or to be furnished under other subdivisions for installation under this subdivision.
2. Give all contractors whose work is related to the concrete or must be supported by it, ample notice and opportunity to introduce and/or furnish embedded items before the concrete is placed.
3. Make certain that all embedded items furnished and set in forms by them are secured in position, and exercise due care not to disturb or damage their work while placing concrete.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

4. Set anchor bolts for steel and equipment in accordance with setting drawings or templates which have been reviewed and found satisfactory.
5. Where holes in concrete for such purposes as recesses for railing posts, passageways for pipes, and the like are shown formed by sleeves, the contractor may, at his option, provide such holes by drilling with a acceptable diamond or tungsten carbide tipped drill bits. Fill with epoxy seal after railings are in place.

**B. EMBEDDED ITEMS TO BE PROVIDED UNDER THIS SUBDIVISION**

1. Dovetail anchor slots and dovetail brick anchors - DAS-G20 beehive dovetail anchor slot as manufactured by Gateway Building Products, together with DBA-G14 dovetail brick anchors. provide masonry trades with one anchor for each 16" of anchor slot or fraction thereof plus one additional anchor for each vertical section. Place anchor slots 1'-4" on center in beams and walls where masonry abuts and one slot in each face of each column faced with masonry. Furnish anchors to space 16" on center in slots.
2. Plastic reglets for above and below grade counter flashing. Make of Type A rigid polyvinyl chloride, 0.060" thick, as manufactured by Superior Concrete Accessories, Inc. or equal.
3. Sleeves - galvanized steel pipe ASTM A 120, or plastic pipe ASTM D 2661, ASTM D 2665 or ASTM D 2852, bituminized fiber pipe conforming to ASTM D 1861 or Wilson anchor bolt sleeve.
4. Column Anchor Bolts - ASTM F 1554. Furnish with one leveling nut plus one nut and one washer.
5. Anchor Bolts Ó ASTM A 307. As shown on drawings.
6. Cast Iron Frames and Grates - as manufactured by Neenah Foundry Company. Castings as manufactured by Flockhart Foundry Company or McKinley Iron Works may be acceptable, provided the dimensions and design are comparable in all respects.
7. Water stops locations as shown on drawings.

**3.08 VAPOR RETARDER**

1. Provide sub-grade under concrete slabs-on-grade with vapor retarder consisting of polyethylene film not thinner than 10 mils, conforming to ASTM E1745, or asphalt laminated reinforced Kraft paper with polyethylene coating on both sides. Moistop as manufactured by FortiFiber Building Systems Group.
2. Provide film in width and length not less than one foot larger than dimensions of slab sub-grade unless patently impracticable. Lap edges not less than 6" and tape continuously. Take care to avoid puncturing film. Immediately prior to placing concrete, tape-seal all tears, cuts and holes.

**3.09 GROUTING OF BASE PLATES**

1. Nonferrous grout acceptable products are:

<u>TYPE</u>	<u>MANUFACTURER</u>
Crystex	L&M Construction Chemicals
Five Star	U.S. Grout
SonogROUT	Sonneborn

Euco N.S.	Euclid Chemical Company
Construction Grout	Master Builders
Vibroprvf #11	Lambert Corp.

2. Mix and place in conformance with printed instructions of the manufacturer.

### 3.10 TESTING

#### A. GENERAL

1. The services of an independent testing laboratory shall be retained for obtaining test specimens and performing quality control work, routine testing of materials or proposed mix designs and of resulting concrete for compliance with technical requirements of specifications.
2. Testing of field-cured test cylinders, or testing required because of changes requested by contractor in materials or proportions of the mix, as well as any extra testing of concrete or materials occasioned by failure to meet specification requirements, to be at contractor's expense.
3. Failure of the testing laboratory to detect any defective work or materials is not in any way to prevent later rejection when such defect is discovered, nor is it to obligate the owner for final acceptance.
4. The testing agency and/or its representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the specifications, not to approve or accept any portion of the work, not to act as foreman or perform other duties for contractor.

#### B. SERVICES PROVIDED BY THE TESTING AGENCY

1. Field Sampling - Secure from different batches, on a truly random basis, composite samples for all field testing required below in accordance with ASTM C 172 where applicable. Take all samples at discharge end of conveying system. Clearly mark each test specimen master as to exact part of the structure represented, class of concrete curing conditions, temperature of concrete, and time and date of sample.
2. Compressive Strength Test - mold and cure test cylinders in accordance with ASTM C 31 and test each cylinder for strength in accordance with ASTM C 39. Take one "test set" consisting of three cylinders for each day's pour of 100 cubic yards, or fraction thereof. Test cylinders one at 7 and one 28 days, one hold.
3. Slump Tests - determine slump range for each "test set" in conformance with ASTM C 143.
4. Air Content Test - determine air content for each "test set" for air-entrained concrete in accordance with ASTM C 231.
5. Submit two copies of the results in each of the above tests and inspection to the contractor and the owner's representative and Engineer.
6. Should any of the test results fail to meet the requirements specified, make an immediate telephone report to the contractor and the owner's representative.
7. Furnish evaluation reports of compression tests as recommended by ACI 214 when any compression test fails to meet the specified strength.
  8. Criteria for acceptance of concrete cylinder tests: Every arithmetic average of any consecutive three tests equals or exceed  $f'_c$ , and
    - a. No individual strength test (average of two cylinders)  $< f'_c$  by more than 500 psi.

**3.11 ACCEPTANCE OF STRUCTURE**

A. GENERAL

1. Acceptance of structure will be made in conformance with ACI 301, except that contractor must pay all costs incurred for providing any additional testing or analysis required when strength of structure is considered potentially deficient.

B. CRACKS

1. The contractor will be required to restore without cost to the owner any concrete which develops cracks within a period of one year after placement which has not been caused by action of the owner or others in over stressing the concrete.
2. Repair the cracks by means that will restore the cracked members to their designed strength and appearance by acceptable methods which will not impair the appearance of the affected surfaces, if exposed. Such repairs must be performed by use of suitable epoxy cements employed by an organization having satisfactorily demonstrated ability in the techniques necessary to effect such repairs, or by other acceptable methods.

**END OF SECTION 03 30 00**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 03 41 00  
PRECAST CONCRETE STRUCTURES**

**PART 1 – GENERAL**

**1.01 RELATED DOCUMENTS:**

- A. Drawings and general provisions of the Contract, including General Requirements apply to the Section.

**1.02 SUMMARY:**

- A. The Contractor shall furnish all materials, labor, and equipment and construct manholes and accessory items, consisting of precast sections as shown on the Drawings and as specified herein.
- B. The forms, dimensions, concrete, and construction methods shall be approved by the Engineer in advance of construction.
- C. These specifications are intended to give a general description of what is required, but do not purport to cover all the structural design details which will vary in accordance with the requirements of the equipment as offered. It is, however, intended to cover the furnishing, shop testing, delivery, and complete installation of all precast structures whether specifically mentioned in these specifications or not.
- D. The supplier of the precast manholes and accessory items shall coordinate his work with that of the Contractor to the end that the unit will be delivered and installed in the excavation provided by the Contractor, in accordance with the Contractor's construction schedule.
- E. The Contractor will ensure coordination of the precast structures fabrication with the equipment supplied to achieve the proper structural top slab openings, spacings, and related dimensions for the selected equipment frames and covers.

**1.03 SUBMITTALS:**

- A. Submit to the Engineer the details of construction, reinforcing and joints.
- B. Shop Drawings
  - 1. Content
    - a. Dimensions and finishes
    - b. Estimated camber
    - c. Reinforcing and connection details
    - d. Anchors
    - e. Lifting and erection inserts
    - f. Other items cast into members
  - 2. Show location of unit by same identification mark placed on member.
  - 3. Include design calculations.
- C. Manufacturer's Literature: Manufacturer's recommended installation instructions.
- D. Manufacturer's certificates of material conformance with specifications.

- E. Test Reports: Submit field test reports of concrete and density tests of backfill, roadway fill, stabilized subgrade and base course.

#### **1.04 INSPECTION:**

- A. The quality of all materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representatives of the Owner. Such inspection may be made at the place of manufacture or at the site after delivery, or at both places, and the sections shall be subject to rejection at any time on account of failure to meet any of the Specification requirements; even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. All sections which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, entirely at the Contractor's expense.
- B. At the time of inspection, the sections will be carefully examined for compliance with FDOT Specifications, and with the approved manufacturer's drawings. All sections shall be inspected for general appearance, dimension, "scratch-strength", blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured.
- C. Imperfections may be repaired, subject to the approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at the end of 7 days and 5,000 psi at the end of 28 days, Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

### **PART 2 – PRODUCTS**

#### **2.01 INLETS, MANHOLES, JUNCTION BOXES AND OTHER CONCRETE STRUCTURES:**

- A. Manholes shall meet the requirements of ASTM C478, Specification for Pre-cast Reinforced Concrete Manhole Sections, with the exclusion of Section 10(a), except as modified herein. Cement shall meet the requirements of ASTM C150-74, Specification for Portland Cement, Type II. Minimum wall thickness shall be as allowed by FDOT or Collier County, whichever is greater. Rings shall be custom made with openings to meet indicated pipe alignment conditions and invert elevations. Submit shop drawings, consisting of manufacturers' standard details of various sections for approval prior to placing order for manholes. Drawings of individual manholes showing invert elevations, pipe sizes and similar details will not be required.
- B. The work specified in this section will confirm to the FDOT Specifications as referred below:  
Reference FDOT Specification 400 and 425.  
  
Class I concrete shall have a minimum 28-day strength of 3000 psi.  
Class II concrete shall have a minimum 28-day strength of 4000 psi
- C. Joints: Form the joint contact surfaces with machined castings. Surfaces shall be exactly parallel with a nominal 1/16-inch clearance and the tongue equipped with a proper recess for the installation of an O-ring rubber gasket (if used). Gaskets shall meet the requirements FDOT Specification Section 942.
- D. Manhole Adjustments:  
The Contractor shall make adjustments of all manholes and other like structures within the limits of construction. Adjustment of all other such facilities shall be by, and at the expense of, their respective owners in coordination with project construction

There are two methods of adjustment as directed below:

1. Raise the ring by a concrete collar using 4,000 psi Class A concrete.
2. By using an adjusting ring casting approved by the OWNER.

### **PART 3 – EXECUTION**

#### **3.01 INSTALLATION:**

- A. Earth excavation and backfill are specified under Section 31 20 00 – Earth Moving, is to be done as part of the work under this Section, including necessary sheeting and bracing. The Contractor shall be responsible for handling ground water (See SFWMD Water Use (Dewatering)) permit conditions to provide firm, dry subgrade for the structure, shall prevent water rising on new poured in place concrete or grouted joint sections within 24 hours after placing, and shall guard against flotation or other damage resulting from ground water or flooding.
- B. A minimum of a 12-inch layer of crushed stone or shell as specified shall be placed as a foundation for the concrete structures and storm, sanitary and water mains.
- C. Backfill material around the structures and above the pipe bedding shall be selected material as specified.
- D. Precast bases, conforming to all requirements of ASTM C478 and above listed requirements for pre-cast sections, may be used. The base shall be set in place on a thoroughly compacted crushed stone sub-base and adjusted in grade for the correct structure elevation.
- E. The base may be cast-in-place concrete, as specified in Division 3, placed on a thoroughly compacted crushed stone sub-base. The tops of the cast-in-place bases shall be shaped to mate with the pre-cast barrel section, and shall be adjusted in grade so that the top slab section is at the approximately correct elevation.
- F. Pre-cast concrete structure sections shall be set so as to be vertical and with sections in true alignment with a 3-inch maximum tolerance to be allowed. The outside and inside joint shall be filled with a non-shrink grout and finished flush with the adjoining surfaces. Allows joints to set for 24 hours before backfilling. Backfilling shall be done in a careful manner, bringing the fill up evenly on all sides. If leaks appear in the structures, the inside joints shall be caulked with lead wool or approved equal, to the satisfaction of the Engineer. The Contractor shall install the pre-cast sections in a manner that will result in a watertight joint.
- G. Holes in the concrete sections required for handling or other purposes shall be plugged with a non-shrinking grout or by grout in combination with concrete plugs.
- H. Where holes must be cut in the pre-cast sections to accommodate pipes, cutting shall be done prior to setting them in place to prevent any subsequent jarring, which may loosen the mortar joints.

**END OF SECTION 03 41 00**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 31 10 00  
SITE DEMOLITION**

**PART 1 – GENERAL**

**1.01 WORK SPECIFIED HEREIN:**

- A. All labor, materials, equipment, transportation, and services to complete the site demolition and excavation work shown on the Drawings.
- B. The demolition work shall include, but not be limited to, the following items:
1. Removal of the existing vegetation and any abandoned utilities that may be on the site, haul-off and trucking of removed items of work, all applicable dump fees, removal of existing trees and root balls. Removal of any existing communications and power conduits, boxes, and wiring once determined they are no longer in use.
  2. The excavation work shall include, but not be limited to, the following items:
    - a. Removal of soil and rock to grades shown on the construction plans for the proposed ponds and detention areas.
    - b. Removal of soil and rock to subgrade elevations indicated explicitly or implicitly on the grading and sub-drainage plans.
    - c. Removal of soil and rock to the appropriate subgrade elevation, as determined by the plans and details, in all areas below concrete slabs, footings, and other structures.
- C. Installation of temporary security fencing and gates around and at access points to work areas.
- D. Construct temporary construction access roads and/or ramps, if necessary.
- E. The contractor shall strictly adhere to the following regulations during demolition, excavation and grading, as well as the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions:
- |                    |   |
|--------------------|---|
| Title 8 CCR 1532.1 | Lead in Construction                              |
| Title 8 CCR 1529   | Asbestos  |
| Title 8 CCR 5194   | Hazard Communication                              |
| Title 8 CCR 5155   | Airborne Contaminants                             |
| Title 8 CCR 5192   | Hazardous Waste Operations and Emergency Response |
- F. The Contractor will be responsible to dump and spread the material as directed by the Owner's Representative.

**1.02 SUBMITTALS:**

- A. Demolition procedures, items to salvage and operational sequence for review and acceptance by Collier County.

**1.03 PROJECT CONDITIONS:**

- A. Existing Conditions: Verify existing conditions before starting work.

B. Protection

1. Do not interfere with use of adjacent buildings or developments. Maintain free and safe passage to the project site.

C. Existing Services

1. Follow the procedures outlined in the General Conditions for utility disconnects and interruptions, if applicable.
2. Place markers to indicate location of disconnected services. Identify service lines and capping locations on Project Record Documents.

**PART 2 – PRODUCTS**

**2.01 MATERIALS:**

- A. Excess or unsuitable material, broken asphaltic concrete, broken Portland cement concrete, pipes, etc., shall be disposed of by the Contractor. All materials shall be disposed of at an approved disposal site. The Contractor shall, prior to commencement of the work, submit a letter to the Owner stating the location of disposal site(s) for all excess material and certifying that he has obtained the property owner's permission for the disposal of all surplus materials.

**PART 3 – EXECUTION**

**3.01 PREPARATION:**

- A. Provide protection at project entrances, which are to be kept open during normal working hours.
- B. Post clearly visible warning signs.
- C. Perform demolition work to cause the least inconvenience to adjacent occupied developed areas.

**3.02 METHODS:**

- A. The Contractor shall be responsible for determining the means and method or methods used to accomplish the removals and excavations indicated on the plans, except that blasting will not be allowed.
- B. The Contractor shall assume all responsibility to protect existing structures and facilities during all phases of the work and shall repair or replace any structures or facilities damaged by him or his subcontractors at his expense.
- C. The Contractor shall demolish in an orderly and careful manner items required to accommodate new Work.
- D. Remove existing walks, curbs, gutters, and paving as indicated. Sawcut concrete and/or asphaltic pavement to provide a straight line at edges of existing pavement that will remain.
- E. Debris:
  1. Remove excess debris as it accumulates, except as otherwise specified. Do not store or permit debris to accumulate on site. If Contractor fails to remove excess debris promptly, Owner

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

reserves right to cause same to be removed at Contractor's expense.

2. Materials requiring removal and demolition to be removed completely from site, unless approved otherwise.
  3. If Contractor encounters unforeseen items during clearing and demolition work, he is to notify the Owner prior to removal or demolition.
- F. Perform demolition in accordance with applicable authorities having jurisdiction.
- G. Repair demolition performed in excess of that required, at no cost to Owner.
- H. Burning of materials onsite is not permitted.
- I. Remove demolished materials. Remove tools and equipment from site upon completion of Work.
- J. The Owner may identify specific items for the Contractor to salvage and be delivered to Owner for future use.
- K. The Contractor shall provide sufficient watering to abate dust.

**END OF SECTION 01 11 00**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 31 10 11  
SITE CLEARING**

**PART 1 – GENERAL**

**1.01 SUMMARY:**

- A. Section Includes: Requirements for clearing and grubbing.

**1.02 DEFINITIONS:**

- A. Clearing: Cutting, removal, and proper disposal of trees, stumps, brush, shrubs, rubbish, and other material as required to construct improvements shown and specified.
- B. Grubbing: Removal and disposal of stumps larger than 1-1/2-inch in diameter and other similar items to a depth of not less than 12 inches below finish grade.

**1.03 SYSTEM DESCRIPTION:**

- A. Clear and grub project site as shown on the Drawings and specified in this Section as required to complete the project.

**PART 2 – PRODUCTS**

**NOT USED**

**PART 3 – EXECUTION**

**3.01 CLEARING AND GRUBBING:**

- A. Clear and grub areas to be occupied by facilities or to be constructed, including areas to be excavated, filled, paved, or planted as shown on the Drawings.
- B. Clear and grub right-of-way as required to complete project. Clear and grub easements as required to complete project. Do not clear or grub more than required to complete project.

**3.02 PROTECTION OF ADJACENT AREA:**

- A. Protect areas shown on the Drawings or designated by the Owner/Architect/Engineer to remain protected from damage by construction operations by erecting suitable barriers or other acceptable means.
- B. Areas outside limits of construction as shown on the Drawings shall be protected and no equipment or materials shall be stored on these areas or allowed to damage these areas.

**3.03 DISPOSAL:**

- A. Remove roots, vegetation, and other debris from the site. Dispose of roots, vegetation, and other debris removed from the site.
- B. Do not burn any material on the site or other areas where burning is not permitted.

**END OF SECTION 31 10 11**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 31 20 00  
EARTH MOVING**

**PART 1 – GENERAL**

**1.01 SUMMARY:**

- A. Section Includes: Requirements for excavation, filling, and grading of the following:
  - 1. Swales, ditches, and other areas not specified in other Sections.
  - 2. Embankments, berms, and other earth structures not specified in other Sections
  - 3. Site areas to be landscaped, paved, or restored.
- B. Related Sections
  - 1. Section 31 23 00 Trenching, Backfilling, and Compact for Utility
  - 2. Section 31 23 16 Trenching for Utility System.

**1.02 REFERENCES:**

- A. General: References to standards, specifications, manuals, or codes of any technical society, organization or association, or to the Laws or Regulations of any government authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
- B. ANSI/ASTM Standards
  - 1. ANSI/ASTM D698 Test Method for Laboratory Compaction Characteristics of Soil (AASHTO T-99) Using Standard Effort (12,400 ft.-lbf/ft<sup>3</sup>)(600 kN-m/m<sup>3</sup>)
  - 2. ANSI/ASTM D1557 Test Method for Laboratory Compaction Characteristics of Soil (AASHTO T-180) Using Modified Effort (56,000 ft.-lbf/ft<sup>3</sup>)(2,700 kN-m/m<sup>3</sup>)
- C. ASTM Standards
  - 1. ASTM D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- D. Florida Department of Transportation (FDOT) Standards
  - 1. Standard Specifications for Road and Bridge Construction

**1.03 DEFINITIONS:**

- A. General: Soil classifications presented in this Article are applicable to natural soils and processed materials.
- B. ASTM D2487 Unified Soil Classification System (USCS)
  - 1. Class I: Angular, one-quarter inch (1/4") to one and one-half inch (1-1/2") graded stone, including a number of fill materials that have regional significance such as coral, slag, cinders, crushed shells and crushed stone.
  - 2. Class II: Coarse sands and gravels with maximum particle size of one and one-half inches (1-1/2"), including variously graded sands and gravels containing small percentages of

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

finer, generally granular and non-cohesive, either wet or dry. The following soil types are included in this class:

- a. GW (well-graded gravel)
  - b. GP (pea gravel or crushed stone mixed with sand)
  - c. SW (well-graded sand)
  - d. SP (poorly graded sands and gravelly sands with little or no fines)
3. Class III: Fine sand and clayey (clay filled) gravels, including fine sands, sand-clay mixture and gravel-clay mixtures. The following soil types are included in this class:
- a. GM (silty gravels)
  - b. GC (clayey gravels)
  - c. SM (silty sands)
  - d. SC (clayey sands)
4. Class IV: Silt, silty clays and clays, including inorganic clays and silts of medium to high plasticity and liquid limits. The following soil types are included in this class:
- a. CH (Inorganic clays of high plasticity)
  - b. CL (Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays)
  - c. MH (inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts)
  - d. ML (Inorganic silts, very fine sands, rock flour, silty or clayey fine sands)
5. Class V: This class includes the following organic soils as well as soils containing frozen earth, debris, rocks larger than one and one-half inches (1-1/2") in diameter and other foreign materials:
- a. OL (Organic silts and organic silty clays of low plasticity)
  - b. OH (Organic clays of medium to high plasticity)
  - c. PT (Peat, muck, and other highly organic soils)
- C. Maximum Density: Maximum weight in pounds per cubic foot of a specific material.
- D. Optimum Moisture: Percentage of water in a specific material at maximum density.
- E. Rock: A natural aggregate of mineral particles connected by strong and permanent cohesive forces. Rock includes:
1. Limestone, lime rock, sandstone, dolomite, granite marble, lava, and coral.
  2. Boulders 1/3 cubic yard or more in volume.
  3. Material which by actual demonstration cannot, in the Engineer's opinion, be reasonably excavated with a backhoe or 3/4 cubic yard capacity power shovel equipped with two rippers, or similarly approved equipment and which is, in fact, systematically drilled and blasted or broken by power operated hand tools. The Engineer may waive demonstration requirement if material encountered is well-defined rock.
- F. Deleterious Materials: Household and construction debris, organic debris, peat and organic soils,

**1.03 SYSTEM DESCRIPTION:**

- A. Perform excavation required to
1. Construct swales and ditches to lines and grades shown on the Drawings.
  2. Construct drives and parking area to finish grades shown on the Drawings.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

3. Construct site to finish grades shown on the Drawings.
  4. Restore site to existing grades where no change in finish grade is indicated.
- B. Provide, place, and compact fill required to:
1. Construct embankments, berms, and other earth structures shown on the Drawings.
  2. Construct drives and parking area to finish grades shown on the Drawings.
  3. Construct site to finish grades shown on the Drawings.
  4. Restore site to existing grades where no change in finish grade is indicated.
- C. Place, compact, and test fill as specified in this Section.
- D. Dispose of unsuitable and excess excavated material as specified in this Section.
- E. Grade site to elevations, lines, slopes, depths and cross-sections shown on the Drawings. Grade those areas of site where no change in finish grade is indicated to elevations, lines, slopes, depths and cross-sections that existed prior to start of construction.

**1.04 QUALITY ASSURANCE:**

- A. General: Earthwork shall be performed by company with not less than five years of documented experience in earthwork construction.

**1.05 DELIVERY, STORAGE, AND HANDLING:**

- A. Contractor shall be responsible for delivery, storage, and handling of fill material from off-site sources.
- B. Comply with requirements of Federal, State, and County authorities regulating shipment of products.
- C. Contractor shall be responsible for storage and handling of on-site excavated suitable fill material.
- D. Do not allow fill material from off-site sources or on-site excavated suitable fill material to be mixed with unsuitable material.
- E. Protect stored fill materials so that the composition of materials is not altered and materials are not otherwise degraded or contaminated.

**1.06 PROJECT/SITE CONDITIONS:**

- A. Regulatory Requirements
1. Conform to Federal and State regulatory requirements for excavations.
  2. Obtain excavation permit prior to starting trenching and backfilling. Conform to requirements of excavation permit.
  3. Provide barricades, warning signs, and lights as required by law, regulation, or law and regulation.
- B. Protection of Benchmarks, Monuments, and Other Reference Points
1. Maintain benchmarks, monuments, and other reference points.
  2. Retain a Registered Land Surveyor who shall establish, for any benchmarks, monuments, and other reference points that might be disturbed by structural earthwork, references that will not be disturbed.

3. Registered Land Surveyor shall replace benchmarks, monuments, and other reference points removed or otherwise disturbed.

C. Unanticipated Conditions

1. Notify Owner/Architect/Engineer of unexpected subsurface conditions and discontinue work in affected area until notified by Engineer to resume work.
2. Take emergency measures as required to protect persons and improvements.

**PART 2 – PRODUCTS**

**2.01 MATERIALS:**

A. Suitable Fill Material

1. Suitable fill material shall be non-cohesive, non-plastic, granular mixture of local sand and limerock, free from vegetation, organic material or muck.
2. Suitable fill material shall contain not more than 8% material by weight passing No. 200 sieve.
3. Suitable fill material containing limerock shall have sufficient sand to fill voids in limerock. Suitable fill material shall contain not more than 20% rock. Maximum rock size shall not exceed the following:
  - a. Maximum Rock Size in Upper 4" of Fill: 2"
  - b. Maximum Rock Size below Upper 4" of Fill: 6"

B. Unsuitable Material

1. Topsoil from ground surface to a depth of 12 inches or as determined by Geotechnical Engineer and/or Civil Engineer;
2. Class IV soils and Class V soils as defined in this Section.
3. Peat and other highly organic soils.
4. Broken Portland cement, asphaltic concrete, and debris.

**PART 3 – EXECUTION**

**3.01 INSPECTION:**

- A. Verify site conditions and note irregularities affecting work of this Section.
- B. Beginning work of this Section means acceptance of existing conditions.

**3.02 EXCAVATION:**

- A. Dewater excavations as specified in SFWMD Dewatering Permit.
- B. Perform excavation work in accordance with Section 120 of FDOT Standard Specifications, in locations shown on the Drawings.
- C. Strip existing surfaces to be excavated to a depth of six inches minimum, unless otherwise directed by Engineer, to remove grass, roots and other vegetation. Stripped material is considered unsuitable for general fill purposes. Use stripped material only as topsoil.
- D. Locate underground structures and utilities in areas of work to avoid conflicts with existing facilities. Where conflicts are unavoidable, perform work so that interference with service rendered or facility disturbed is minimized. Repair facilities or structures damaged during

prosecution of Work immediately. Repair facilities or structures damaged during prosecution of Work to pre-construction condition.

- E. Use suitable materials removed from excavation areas as far as practicable in the formation of embankments. Stockpile topsoil and other suitable materials in areas as directed by Engineer.
- F. Remove unsuitable material and excess excavated suitable material from the Project. Dispose of unsuitable material and excess excavated suitable material from the Project.

**3.03 ROCK EXCAVATION:**

- A. Use non-explosive methods for rock removal.
- B. Maximum dimension of rock removed shall not exceed three feet.
- C. Remove rock from site unless other arrangements are made to the Owners satisfaction.

**3.04 FILL:**

- A. Provide fill material from on-site excavated suitable fill or from off-site sources.
  - 1. If there is not sufficient on-site excavated suitable fill required to complete Work, provide suitable fill from off site at no additional cost to the Owner.
  - 2. Borrow areas or other sources of off-site material shall be accessible to examination by the Engineer prior to, and during, use of off-site of material.
- B. Use only suitable material in formation of embankments.
- C. Place fill material in lifts not to exceed eight inches. Compact fill material to density not less than 95% of Modified Proctor Maximum Dry density (ASTM D1557).
- D. Perform filling work in accordance with Section 120 of FDOT Standard Specifications, in locations shown on the Drawings.

**3.05 COMPACTION:**

- A. Compaction Equipment
  - 1. Compaction shall be accomplished by use of appropriate compaction equipment.
  - 2. Compact each lift by repeated passes of appropriate compaction equipment.
  - 3. Select and operate compaction equipment so that pipe and structures are not damaged by compaction operation.
- B. Moisture Control
  - 1. Control moisture content of soil during compaction as required to achieve specified compaction.
  - 2. Moisture content of fill and backfill material shall be within plus or minus 2% of optimum moisture content during compaction of fill and backfill material.
  - 3. If necessary, add water or allow material to dry until the proper moisture content for the specified compaction is obtained.
- C. Compaction Testing
  - 1. Test compaction of fill as specified in this Section.
  - 2. Test each compacted soil layer, in place, prior to placement of succeeding layers.

**3.06 TESTING:**

- A. Retain a laboratory approved by Owner and Engineer to make field density tests and Proctor Tests as specified below.
  - 1. Contractor shall pay the cost of initial density test(s).
  - 2. Contractor shall pay cost for any additional testing required as a result of failure of any initial test.
- B. Perform one Proctor Test, according to ASTM D1557, for each source of fill used on the Project. If material from excavation is used as backfill material, take a test proctor from the best available location as determined by the testing lab.
- C. Determine Optimum moisture content of fill, subgrade, and backfill material by Modified Proctor Method (ASTM D1557).
- D. Test the density of each compacted fill layer in place. Field density tests shall meet the requirements of ASTM D1556, ASTM D2922, or ASTM D2937.
  - 1. Fill/Backfill for 1 test per layer for each 500 feet of roadway Roadways (minimum 1 test per day)
  - 2. Fill for Embankments 1 test per layer for each 1,000 square feet of embankment (minimum 1 test per day)
  - 3. Fill/Backfill for Lawns: 1 test for each 1,000 square feet of fill and Landscaped Areas.
- E. Perform additional field density tests as follows:
  - 1. If test density of compacted backfill or fill is less than specified density, make additional tests at locations directed by Engineer.
  - 2. Make additional field density tests at no additional cost to the Owner.
- G. Allow for inspection of import fill by Engineer at the source before delivery to site.
- H. Allow for inspection and cross-sectioning of excavation and fill areas by Engineer as required to determine conformance of the final earthwork with the Drawings.

**3.06 FINE GRADING:**

- A. Fine grade disturbed areas of site after structures, bases, and pavements are completed, yard piping trenches are backfilled, and excavations are backfilled.
- B. Remove construction debris in areas to be fine graded prior to fine grading.
- C. Shape and slope completed surface to drain away from structures. Completed surface shall be within 0.1 foot of finish elevations, contours, or elevations and contours shown on the Drawings, but not above the edges of adjacent walks, drives, aprons, or pads.

**END OF SECTION 31 20 00**

**SECTION 31 23 00**  
**TRENCHING, BACKFILLING AND COMPACTING FOR UTILITY SYSTEMS**

**PART 1 - GENERAL**

**1.01 SUMMARY:**

- A. The Work included under this Section consists of clearing, excavating, grading and backfilling as required for the construction of the utility systems consisting of piping and appurtenances as shown on the Drawings and specified herein.

**PART 2 - PRODUCTS**

**2.01 BEDDING MATERIAL:**

- A. Bedding material will be required to meet FDOT Specifications (latest edition).

**PART 3 - EXECUTION**

**3.01 PREPARATION:**

- A. Clearing: The Contractor shall perform all clearing necessary for the proper installation of all piping and appurtenances in the locations shown on the Drawings. Plantings, shrubbery, trees, utility poles or structures subject to damage resulting from the excavation shall be transplanted, relocated, braced, shored, or otherwise protected and preserved unless otherwise directed by the Owner/Architect/Engineer.

**3.02 PERFORMANCE:**

- A. Excavation:
  - 1. The Contractor shall perform all excavation of every description and of whatever substances encountered, to the dimensions and depth shown on the Drawings, or as directed by the Architect/Engineer. All excavations shall be made by open cut, unless otherwise specified on the Drawings. All existing utilities such as pipes, poles and structures shall be carefully supported and protected from injury, and in case of damage, they shall be restored or replaced at the Contractor's expense.
  - 2. Trench walls shall be kept vertical, and, if required to protect the safety of workmen, the general public or adjacent property, this or other work or structures, or to maintain trench widths within the limits hereinafter specified shall be properly sheeted and braced. Where wood sheeting or certain designs of steel sheeting are used, the sheeting shall be cut off at a level (2') two feet above the top of the installed pipe and that portion below that level shall be left in place. If interlocking steel sheeting is used, it may be removed providing removal can be accomplished without disturbing the bedding, pipe or alignment of the pipe. Any damage to the pipe bedding, pipe or alignment of the constructed utility caused by removal of sheeting shall be cause for rejection of the affected portion of the work. Not more than (100') one hundred feet of trench shall be opened ahead of pipe laying operations at one time unless a greater length of open trench is approved by the Architect/Engineer.
  - 3. In areas where trench widths are not limited by right-of-way, and/or easement widths, property line restrictions, existing adjacent improvements, including pavements, structures and other utilities, and maintenance of traffic, the trench sides may be sloped to a stable angle of repose of the excavated material. A substantially and safely constructed movable shield, "box" or "mole" may be used in place of sheeting when the trench is opened

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

immediately ahead of the shield and closed immediately behind the shield as pipe laying proceeds inside the shield.

4. Ladders or steps shall be provided for and used by workmen to enter and leave trenches.
5. Pipe trenches for utility lines shall be excavated to a width within the limits of the top of the pipe and the trench bottom so as to provide a clearance on each side of the pipe barrel, measured to the face of the excavation or sheeting, if used, of (8") eight inches to (12") twelve inches. Where the pipe size exceeds (12") twelve inches, the clearance shall be from (12") twelve inches to (18") eighteen inches. All pipe trenches shall be excavated to a level (8") eight inches below the outside bottom of the proposed pipe barrel.
6. Excavation for appurtenances shall be sufficient to provide a clearance between their outer surfaces and the face of the excavation or sheeting, if used, of not less than (12") twelve inches. Manhole excavations shall be carried to sufficient depth to permit their construction on the undisturbed bottom of the excavation.
7. Materials removed from the trenches shall be stored and disposed of in such a manner that they will not interfere unduly with traffic on public streets and sidewalks and they shall not be placed on private property. In congested areas, such materials as cannot be stored adjacent to the trench or used immediately as backfill shall be removed to convenient places of storage.
8. All materials suitable for use as backfill shall be hauled to and used in areas where not enough suitable material is available from the excavation.
9. All excess suitable or unsuitable material shall be disposed of as directed by the Architect/Engineer. Material disposed of within the limits of the project shall be finish graded upon completion of the work. Material to be removed from the project shall be hauled away and disposed of at the Contractor's expense.

B. Removal of Water:

1. It is a basic requirement of these specifications that excavations shall be free from water before pipe or structures are installed.
2. Once a Dewatering Permit is obtained, the Contractor shall provide all necessary pumps, underdrains, well-point systems, and other means for removing water from trenches and other parts of the work. The Contractor shall continue dewatering operations until the backfill has progressed to a sufficient depth over the pipe to prevent flotation or movement of the pipe in the trench and so that it is above the natural water table.
3. Water from the trenches and excavation shall be disposed of in such a manner as will not cause injury to public health, to public or private property, to the work completed or in progress, to the surface of the streets, or cause any interference with the use of the same by the public. The contractor shall submit his proposed methods of handling trench water and locations at which the water will be disposed of per the SFWMD Dewatering Permit to SFWMD staff and to the Owner/Architect/Engineer for approval and shall receive approval before starting the excavation.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

C. Trench Stabilization:

1. No claim for extras, or additional payments will be considered for cost incurred in the stabilization of trench bottoms which are rendered soft or unstable as a result of construction methods, such as improper or inadequate sheeting, dewatering or other causes. In no event shall pipe be installed when such conditions exist and the Contractor shall correct such conditions so as to provide proper bedding or foundations for the proposed installations at no additional cost to the Owner.

F. Trench Excavations:

1. Contractor shall conform to OSHA Excavation Safety Standards 29, CFR part 1926.650 Subpart P incorporated under the Florida Trench Safety Act (90-96, Laws of Florida) effective October 1, 1990.
2. The Contractor shall provide written assurance of compliance with this law.
3. Trench safety system shall be the responsibility of the Contractor.

G. Backfill:

1. Backfilling of utility trenches will not be allowed until the work has been approved by the Architect/Engineer, and the Architect/Engineer indicates that backfilling may proceed. Any work which is covered or concealed without the knowledge and consent of the Architect/Engineer shall be uncovered or exposed for inspection at no cost to the Owner. Partial backfill may be made to restrain the pipe during pressure testing.
2. Backfill material shall be non-cohesive, non-plastic material free of all debris, organic material, lumps, clods and broken paving. Backfill material placed within (1') one foot of piping and appurtenances shall not contain any stones or rocks larger than (2") two inches in diameter ((1") one inch for PVC pipe) and no stones or rocks larger than (4") four inches in diameter will be permitted in any backfill.
3. If a sufficient quantity of suitable backfill material is not available from the trench or other excavations within the site of the work, the Contractor shall provide additional material suitable for this purpose. The additional material shall be installed as specified herein.
4. Selected backfill material containing no stone or rocks larger than (2") two inches shall be placed in (6") six-inch layers and thoroughly tamped to a depth of (12") twelve inches over the top of the pipe. Particular attention and care shall be exercised in obtaining thorough support for the branch of all service connection fittings and compaction of the fill under the haunches of the pipe. Care shall be taken to preserve the alignment and gradient of the installed pipe.
5. After the backfill has been placed to a level (12") twelve inches over the pipe, the remainder of the backfill shall be placed in layers, not to exceed (6") six inches, and compacted with mechanical vibrators or other suitable equipment to obtain a density of the backfilled material of not less than (95%) ninety five percent of its maximum density as hereinafter defined.
6. Within paved areas of trench excavation, the base and surfacing shall be constructed as specified in the FDOT Specifications.
7. No more than (800') eight hundred feet of trench with pipe in place shall be partially backfilled at any time.

H. Additional Excavation and Backfill:

1. Where organic material, such as roots, mulch, other vegetable matter, or other material which, in the opinion of the Architect/Engineer, will result in unsatisfactory foundation conditions, is encountered below the level of the proposed pipe bedding material, it shall be wholly or partially removed as directed by the Architect/Engineer and wasted. Sheeting shall be installed if necessary to maintain pipe trenches within the specified limits. The resulting excavation shall be backfilled with suitable backfill material, placed in (6") six-inch layers, tamped and compacted up to the level of the bottom of the proposed pipe bedding material. Sufficient compaction of this material shall be performed to protect the proposed pipe against settlement. Construction shall then proceed in accordance with the provisions of Article 3.2, C - Pipe Bedding, above.
  2. Additional excavation shall be performed only when ordered by the Architect/Engineer. Where organic or other unsuitable material is encountered in the excavation, the Contractor shall bring the condition to the attention of the Architect/Engineer and obtain his determination as to whether or not the material will require removal, prior to preparing the pipe bedding.
- I. Restoration of Existing Surfaces: Paved and grassed areas disturbed by the operations required under this Section shall be restored as indicated on the Drawings and/or specified herein.

### **3.03 COMPACTION AND DENSITIES:**

- A. Methods of control and testing of backfill construction to be employed in this work are:
1. Maximum density of the material in trenches shall be determined by ASTM D3017 (Nuclear Method) or ASTM D1557 Method A, or AASHTO Designation T-180-74, where called for on the drawings.
  2. Field density of the backfill material in place shall be determined by ASTM D2922 (Nuclear Method), ASTM D-1556 (Sand Cone Method) or AASHTO Designation T 238-79.
- B. Laboratory and field density tests will be conducted at the Contractor's expense. Tests will be made at depths and locations selected by the Architect/Engineer.
- C. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and re-compacted until the required compaction is secured, at no additional cost to the Owner. The costs for retesting such work shall be paid for by the Contractor.

**END OF SECTION 31 23 00**

**SECTION 31 23 16  
TRENCHING FOR UTILITY SYSTEMS**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SECTION INCLUDES:**

- A. Excavating trenches for on-site utilities with connection at utility mains.
- B. Compacted fill from top of utility bedding to subgrade elevations.
- C. Backfilling and compaction.

**1.03 RELATED SECTIONS:**

- A. Section 331100 – Water Utility Distribution Piping
- B. Section 333100 – Sanitary Utility Sewerage Piping.
- C. Section 334100 – Storm Utility Drainage Piping

**1.04 REGULATORY REQUIREMENTS:**

- A. Collier County Standard Specifications and Standard Details, if applicable, or applicable requirements of the associated utility company; and all applicable requirements of the Florida Department of Environmental Protection latest editions.

**1.05 DEFINITIONS:**

- A. Utility: Any buried pipe, duct, conduit, or cable.

**1.06 FIELD MEASUREMENTS:**

- A. Verify that survey benchmark, control point, and intended elevations for the Work are as shown on drawings.

**1.07 COORDINATION:**

- A. Verify work associated with lower elevation utilities is complete before placing higher elevation utilities.

**PART 2 – PRODUCTS**

**2.01 FILL MATERIALS:**

- A. Fill Type shall be in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Structural Fill Type shall be in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.
- C. Concrete shall be in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

**PART 3 – EXECUTION**

**3.01 PREPARATION:**

- A. Identify required lines, levels, contours, and datum locations.
- B. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs, that are existing and are labeled to remain, from excavating equipment and vehicular traffic.
- C. Maintain and protect above and below grade utilities which are to remain.
- D. Select fill material to be in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions, and to the project geotechnical report.

**3.02 EXCAVATING:**

- A. Excavate subsoil required for utilities in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions, and to the project geotechnical report.
- B. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- C. Hand trim for bell and spigot pipe joints. Remove loose matter.
- D. Stockpile excavated material in area designated on site and remove excess material not being used, from site.

**3.03 BACKFILLING:**

- A. Backfill trenches in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions, and to the project geotechnical report.

**3.04 TOLERANCES:**

- D. Top Surface of Backfilling Up to Existing Grade:
- E. Top Surface of General Backfilling: Elevation plus or minus 0.1 feet from existing elevations.

**3.05 FIELD QUALITY CONTROL:**

- A. Compaction testing will be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

County Standards, Specifications and Details, latest editions; and to the project geotechnical report.

- B. If tests indicate Work does not meet specified requirements remove Work, replace, compact, and retest.
- C. Frequency of Tests: In accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions; and to the project geotechnical report.
- D. In all lake areas where lake slopes are being created from fill operations, the Contractor shall provide signed and sealed test reports from a geotechnical engineer certifying that the embankment was placed and compacted to its full thickness to obtain a minimum of (95%) ninety five percent of the maximum dry density (modified Proctor) for embankments that will support structures, and (90%) ninety percent of maximum dry density (modified Proctor) for other embankments in accord with ASTM D1557 [see §10-329(d)(4) of the LCLDC].

**END OF SECTION 31 23 16**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**SECTION 32 12 16  
ASPHALT PAVING**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS:**

- A. Drawings and general provisions of the Contract, including General Requirements and Division 31 Specification Sections, apply to the Section.

**1.02 SUMMARY:**

- A. This section describes the Contractor's responsibility for all roadway, driveway and parking lot construction. The work includes all the construction necessary to give a completed facility and to maintain local traffic during construction. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the plans, specifications and terms of the Contract.
- B. Refer to Section 321723 – Pavement Marking information.

**PART 2 - MATERIALS AND EXECUTION**

**2.01 STABILIZING :**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:

Reference FDOT Section 160.

If stabilizing material is required, on-site materials may be used if satisfactory. The volume of material used will not be deducted from the excavation measurement.

**2.02 LIMEROCK BASE:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:

Reference FDOT Section 200.

**2.03 PRIME AND TACK COATS FOR BASE COURSES :**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:

Reference FDOT Section 300 with the following exception:

No asphalt escalator will be allowed.

**2.04 HOT BITUMINOUS MIXTURES - PLANT, METHODS & EQUIPMENT:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:

Reference FDOT Section 320.

The plant producing asphalt does not have to be approved by the FDOT. However, if the Engineer elects, the plant must be capable of meeting any or all the requirements set forth in FDOT Section 320.

**2.05 HOT BITUMINOUS MIXTURES GENERAL CONSTRUCTION REQUIREMENTS:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:

Reference FDOT Section 330 with the following exceptions:

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

Sub-article 330-15.2. Any deficiency over 1/4" shall be corrected in accordance with the requirements of a 3/8" deficiency.

Sub-article 330-16.1: Change 200 to 400 in the second sentence. No extra will be paid for thickness over that specified.

**2.06 TYPE SP ASPHALTIC CONCRETE:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 334 with the following exception.  
No asphalt escalator will be allowed.

**2.07 PLASTIC FILTER BLANKET (GEOTEXTILE):**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 514.

**2.08 ROADWAY SIGNING AND MARKING:**

- A. The work specified in this article will conform to Section 321723- Pavement Markings and the FDOT Specifications as referenced below:  
Reference FDOT Sections 700, 705, 706, and 710.

**END OF SECTION 32 12 16**

**SECTION 32 13 13**  
**CONCRETE PAVING, CONCRETE GUTTER, CURB ELEMENTS AND TRAFFIC SEPARATORS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS:**

- A. Drawings and general provisions of the Contract, including General Requirements and Division 31 Specification Sections, apply to the Section.

**1.02 SUMMARY:**

- A. This section describes the Contractor's responsibility for concrete paving, curbing and concrete separators construction. The work includes all the construction necessary to give a completed facility and to maintain local traffic during construction. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the plans, specifications and terms of the Contract.
- B. Refer to Section 321723 – Pavement Marking information.

**PART 2 - MATERIALS AND EXECUTION**

**2.01 STABILIZING :**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 160.  
If stabilizing material is required, on-site materials may be used if satisfactory. The volume of material used will not be deducted from the excavation measurement.

**2.02 PORTLAND CEMENT CONCRETE:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 346.  
Class I concrete shall have a minimum 28-day strength of 3000 psi.  
Class II concrete shall have a minimum 28-day strength of 4000 psi.

**2.03 CEMENT CONCRETE PAVEMENT:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 350.

**2.04 PLASTIC FILTER BLANKET (GEOTEXTILE):**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 514.

**2.05 REINFORCING STEEL:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 415

**2.06 CONCRETE GUTTER AND CURB ELEMENTS AND TRAFFIC SEPARATOR:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 520.

**2.07 ROADWAY SIGNING AND MARKING:**

- A. The work specified in this article will conform to Section 321723- Pavement Markings and the FDOT Specifications as referenced below:  
Reference FDOT Sections 700, 705, 706, and 710.

**END OF SECTION 32 13 13**

**SECTION 32 16 23  
CONCRETE SIDEWALKS**

**PART 1 - GENERAL**

**1.01 SUMMARY:**

- A. Section Includes: Requirements for concrete sidewalks.

**1.02 SYSTEM DESCRIPTION:**

- A. Furnish and install Portland cement concrete sidewalks as shown on the Drawings and specified in this Section.
- B. Furnish and install Portland cement concrete sidewalks in accordance with lines, grades and dimensions as indicated on the Drawings.

**1.03 SUBMITTALS:**

- A. General: As specified in:
  - 1. Division 1;
  - 2. This Section.
- B. Submit product data and shop drawings for the following prior to starting concrete sidewalks:
  - 1. Joint material; and
  - 2. Mix designs.

**1.04 DELIVERY, STORAGE, AND HANDLING:**

- A. Delivery: As specified in Division 1.
- B. Storage And Handling: As specified in Division 1.

**PART 2 - PRODUCTS**

**2.01 CONCRETE:**

- A. Concrete shall be Class B, as specified in Section 03 30 00 Cast-In-Place Concrete, unless otherwise shown or specified.

**2.02 REINFORCING AND WELDED WIRE FABRIC:**

- A. Joint reinforcing and welded wire fabric shall meet the requirements of Section 03 30 00 Cast-In-Place Concrete, unless otherwise shown or specified.

**2.03 PREFORMED JOINT FILLER:**

- A. Preformed joint filler shall be sponge rubber and conform to the requirements of AASHTO Designated M148, Type 1.

**PART 3 - EXECUTION**

**3.01 SUBGRADE CONDITION:**

- A. Maintain finished subgrade in a smooth, compact condition, and restore any areas which are disturbed, prior to placing of the concrete, at the no additional cost to the Owner. Subgrade shall be moist when concrete is placed. If the subgrade cannot be maintained in the required moist condition, provide a vapor barrier sheet between the subgrade and the concrete.
- B. Accurately trim subgrade to the required elevation with a 1/4-inch tolerance. Trim high areas to proper elevation. Low areas may be filled with suitable material and compacted to the specified density or filled with concrete integrally placed with concrete sidewalk.

**3.02 SETTING FORMS:**

- A. Forms shall be accurately set to line and grade and so that forms rest firmly upon compacted subgrade surface throughout entire length of forms.
- B. Forms shall be joined neatly and tightly and braced to resist pressure of wet concrete and finishing operations.
- C. Alignment and grade of forms shall be approved before and immediately prior to the placing of concrete.

**3.03 CONCRETE MIXING AND DELIVERY:**

- A. Concrete mixing and delivery shall meet the requirements of Section 03 30 00 Cast-In-Place Concrete.

**3.04 PLACING CONCRETE:**

- A. Distribute concrete on subgrade to such depth, that, when concrete is consolidated and finished, slab thickness shown on the Drawings will be obtained at all points and surface of concrete will at no point be below grade specified for finished surface, after application of the allowable tolerance. Deposit concrete on subgrade in a manner which will require as little rehandling of concrete as possible.
- B. Place fabric reinforcement at mid slab depth and maintain fabric at mid slab depth during placing and finishing of concrete.
- C. Thoroughly consolidate concrete against and along faces of forms, by means of hand-operated, spud-type vibrators. Do not allow vibrators to come in contact with the subgrade or a side form. Do not continue vibration at any one location so long as to produce puddling or accumulation of excessive grout on surface. In no case shall vibrator be operated longer than 15 seconds in any one location.

**3.05 STRIKING-OFF, CONSOLIDATING AND FINISHING CONCRETE:**

- A. Immediately after placing concrete, strike-off concrete, consolidate concrete, and finish concrete, to produce finished sidewalk conforming to cross section and width
- B. Surface finishing sequence shall be as follows:
  - 1. Strike-off;
  - 2. Vibratory consolidation;
  - 3. Screeding;
  - 4. Floating;
  - 5. Removal of laitance; and

6. Final surface finish.

### **3.06 FINAL FINISH:**

- A. As soon as water sheen has disappeared from surface of the concrete and just before concrete becomes non-plastic, give surface a light broom finish.

### **3.07 EDGING:**

- A. After final finish has been applied, but before concrete has become non-plastic, carefully round edges of sidewalk to 1/4-inch radius along each side of strip being placed, on each side of construction joints and along any structure extending into sidewalk, unless otherwise shown on the Drawings. Produce a well defined and continuous radius and obtain a smooth, dense mortar finish.
- B. Remove any concrete from the top of joint filler.

### **3.08 JOINTS:**

- A. Construction Joints: Locate construction joints as shown on the Drawings.
- B. Expansion Joints
  1. Form transverse expansion joints by placing premolded expansion joint material at 50 feet intervals, and as indicated on the Drawings.
  2. Form expansion joints around structures by placing premolded expansion joint material along structures and features projecting through, into or against sidewalk.
  3. Unless otherwise indicated, expansion joints shall be 1/2-inch in width.
  4. After the sidewalk has been finished, edge expansion joints with a tool having a 1/2-inch radius.
- C. Scored Joints
  1. Scored joints shall be either formed or sawed at 5 foot intervals.
  2. Scored joints shall extend to a depth of at least one fourth of the sidewalk slab thickness.

### **3.09 CURING:**

- A. After the finishing operations have been completed and as soon as the concrete has hardened sufficiently that marring of the surface will not occur, cover entire surface and edges of newly placed concrete and cured concrete with membrane curing compound.
- B. Uniformly apply curing compound to surfaces to be cured, in a single coat, continuous film, at rate of one gallon to not more than 200 square feet. Apply curing compound with a mechanical sprayer.
- C. Do not apply curing compound during periods of rainfall. Do not apply curing compound to inside faces of joints to be sealed.
- D. Should curing film become damaged from any cause within required curing period, immediately repair damaged portions with additional compound.
- E. Upon removal of side forms immediately coat sides of slabs exposes to provide a curing treatment equal to that provided for the surface.

**END OF SECTION 32 16 23**

**THE REMAINDER OF THIS PAGE IS INTENSIONALLY LEFT BLANK.**

**SECTION 32 17 23  
PAVEMENT MARKING**

**PART 1 - GENERAL**

**1.01 SCOPE:**

- A. This section specifies the pavement traffic painting, marking, striping, and signing shown on the plans or called for in the test of the specifications.

**1.02 GENERAL:**

- A. In general, all pavement traffic painting, marking, striping, and signing shall comply with the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 1991, latest revision, hereafter referenced "FDOTSPEC" and the Manual of Uniform Traffic Control Devices, U.S. Department of Transportation Federal Highway Administration, 1971 or latest revision, hereafter referenced as "MUTCD."

**1.03 SIGN PANELS AND POSTS:**

- A. Sign panels shall be aluminum unless otherwise detailed on the construction plan set. All sign posts shall be frangible aluminum and shall have a standard extruded aluminum sign bracket clamped to the post 12 inches below grade. Bracket size shall match post diameter.

**1.04 SIGN BLANKS AND FACES:**

- A. Regulatory and Warning signs as defined in the MUTCD shall be "High Intensity" reflectorized grade.
- B. Street Name and Guide signs as defined in the MUTCD shall be "Standard reflectorized grade."
- C. The Contractor shall submit documentation from the sign supplier which identifies the reflector grade of each sign. All materials shall meet the requirements of FDOT SPEC.

**1.05 SIGN HARDWARE:**

- A. The signs shall be attached to the posts with vandal-resistant nuts and carriage bolts with washers. Vandal-resistant nuts shall be Tufnut, Tamper-Pruf, Vandal-Pruf, or approved equal. The nuts and bolts shall be manufactured from high strength aluminum. Button head bolts shall not be used.

**1.06 PAVEMENT STRIPING AND PAINTING:**

- A. Painting Traffic Stripes. Painted pavement striping shall conform to FDOT SPEC, Section 710. (For use on-site)
- B. Thermoplastic Striping & Marking. Thermoplastic pavement striping shall be reflective and shall conform to FDOT SPEC, Section 711. (For use within the rights-of-way)

**1.07 REFLECTIVE PAVEMENT MARKERS:**

- A. Reflective pavement markers and their installation shall conform to FDOT SPEC, Section 706.

**1.08 BASIS OF PAYMENT:**

- A. Payment for pavement marking, striping, and signing shall be on a unit price basis in accordance

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

with the accepted proposal. Such payment shall constitute full compensation for furnishing all labor, materials, and equipment necessary to complete the construction in accordance with the plans and specifications. The Owner reserves the right to add to or deduct from the scope of the work, and such additions or deductions will be made at the unit price established in the proposal. The said additions or deductions shall not exceed twenty-five percent (25%) of the base bid of the successful bidder or bidders unless otherwise noted.

**END OF SECTION 32 17 23**

**SECTION 32 80 20**  
**IRRIGATION**

1.00 GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all other parts of the project manual, apply to the work of this section.

1.02 Scope

- A. The work covered by this specification shall include the furnishing of all labor, materials, tools and equipment necessary to perform and complete the installation of an automatic irrigation system as specified herein and as shown on the drawings and any incidental work not shown or specified which can reasonably be determined to be part of the work and necessary to provide a complete and functional system.
- B. Work covered by this specification includes all local, state and federal permits (such as electrical, well, SFWMD, directional boring, water, fencing, etc.) federal, state and local taxes and all other costs, both foreseeable and unforeseeable at the time of construction. Contractor shall obtain a Collier County Right-of-Way Construction Permit prior to beginning work.
- C. No deviation from these specifications, the accompanying drawings, or agreement is authorized or shall be made without prior written authorization signed by Collier County or duly appointed representative.

1.03 Quality Assurance

- A. Installer Qualifications: A firm specialized in irrigation work with not less than five (5) years of experience in installing irrigation systems similar to those required for this project.
- B. Coordination: Coordinate and cooperate with other Contractors to enable the work to proceed as rapidly and efficiently as possible.
- C. Inspection of Site: The Contractor shall acquaint themselves with all site conditions, including underground utilities before construction is to begin. Contractor shall coordinate placement of underground materials with Contractors previously working underground in the vicinity or those scheduled to do underground work in the vicinity. Contractor is responsible for minor adjustments in the layout of the work to accommodate existing facilities.
- D. Protection of Existing Plants and Site Conditions: The Contractor shall take

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

necessary precautions to protect Existing vegetation. Contact Collier County's Representative if minor adjustments are not sufficient to protect Existing site conditions. All existing grades shall be maintained and restored to their previously Existing condition immediately following installation and testing.

- E. Protection of Work and Property: The Contractor shall be liable for and shall take the following actions as required with regard to damage to any of Collier County's property:
1. Any Existing Elements: building, equipment, piping, pipe coverings, electrical systems, sewers, sidewalks, roads, grounds, landscaping or structure or any kind (including without limitation, damage from leaks in the piping system being installed or having been installed by Contractor) damaged by the Contractor, or by his agents, employees, or subcontractors, during the course of his work, whether through negligence or otherwise, shall be replaced or repaired by Contractor at his own expense in a manner satisfactory to Collier County, which repair or replacement shall be a condition precedent to Collier County's obligation to make final payment under the Contract.
  2. Contractor shall also be responsible for damage to any work covered by these specifications before final acceptance of the work. Contractor shall securely cover all openings into the systems and cover all apparatus, equipment and appliances, both before and after being set in place to prevent obstructions on the pipes and the breakage, misuse or disfigurement of the apparatus, equipment or appliance.
  3. All trenching or other work under the leaf canopy of any existing trees shall be done by hand or by other methods acceptable to Collier County's Representative, so that no branches or major roots are damage in any way.
  4. Trenching around existing plant material shall be done by hand to minimize root disturbance or in a manner acceptable to Collier County's Representative.
  5. Buildings, walls, and other property shall be protected from damage. Open ditches left exposed shall be flagged and barricaded by the Contractor by approved means. The Contractor shall restore disturbed areas to their original condition.
  6. The Contractor shall be responsible for requesting the proper utility company to stake the exact location of any underground und lines including but not limited to electric, gas, telephone service, water, and cable.
  7. The Contractor shall take whatever precautions are necessary to protect these underground lines from damage. In the event damage does occur all damage shall be completely repaired to its original condition, at no additional cost to Collier County.
  8. The Contractor shall request Collier County, in writing, to locate any private utilities (i.e., electrical service to street lighting, traffic signals, signal loops, etc.) before proceeding with any excavation. If, after such requests and necessary

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

installations, private utilities, which were not staked, are encountered and damaged by the Contractor, they shall be repaired by Collier County at no cost to the Contractor. If the Contractor damages staked or located utilities, they shall be repaired at the Contractor's expense.

- F. Codes and Inspections: The entire installation shall comply fully with all local and state laws and ordinances and with all established codes applicable thereto. The Contractor shall take out all required permits, arrange for all necessary inspections and shall pay all fees and expenses in connection with same, as part of the work under this contract. Upon completion of the work the contractor shall furnish to Collier County all inspection certificates customarily issued during and in connection with the class of work involved.
- G. The Contractor shall keep on their work during its progress, a competent English-speaking superintendent and any necessary assistants, all satisfactory to Collier County, or City's representative.
- H. The superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor.
- I. Collier County's Representative shall have full authority to approve or reject work performed by the Contractor. Collier County's Authorized Representative shall also have full authority to make field changes that are deemed necessary.
- J. Any necessary re-excavation or changes to the system needed because of failure of the Contractor to allow the required observations, shall be performed at the Contractor's expense.
- K. Final Completion: Final completion of the work may be obtained from Collier County upon the satisfactory completion of all work. Acceptance by Collier County in no way removes the Contractor of his responsibility to make further repairs, corrections and adjustments to eliminate any deficiencies which may later be discovered.
- L. Guarantee: All work shall be guaranteed for one year from the date of Substantial Completion against all defects in material, equipment, and workmanship to the satisfaction of Collier County. Repairs, if required, shall be done promptly at no cost to Collier County.
  - 1. The guarantee shall also cover repair of damage to any part of the premises resulting from leaks or workmanship to the satisfaction of Collier County. The Contractor shall not be responsible for work damaged by others. Repairs, if required, shall be done promptly. The guarantee shall state the name of Collier County provide full guarantee terms, effective and termination date, name and license number of Contractor providing guarantee, address, and telephone number. It shall be signed by the Contractor's chief executive officer. Such warranties shall only supplement the guarantee.
  - 2. If, within forty eight (48) hours after receipt of written notice by Collier County to the Contractor requesting repairs or replacement resulting from a breach of

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

warranty, the Contractor shall neglect to make or undertake with due diligence to make the same, Collier County may make such repairs at the Contractor's expense provided however, that in the case of emergency where, in the judgment of Collier County, delay would cause serious loss or damage, repairs or replacement may be made without notice being sent to the Contractor, and Contractor shall pay the cost thereof.

- M. The Contractor shall provide full coverage in all irrigated areas and shall be responsible for additional heads and components as required, installed at his own cost.
- N. Onsite Observation: At any time during the installation of the irrigation system by the Contractor, Collier County's Representative may visit the site to observe work underway. Upon request, the Contractor shall be required to uncover specified work as directed by Collier County or material, workmanship or method of installation not meet the standards specified herein, the Contractor shall replace the work at his own expense.
- O. Workmanship: All work shall be installed by qualified, skilled personnel, proficient in the trades required, in a neat, orderly, and responsible manner with recognized standards of workmanship. The Contractor shall have had considerable experience and demonstrated ability in the installation of sprinkler irrigation systems of this type.

#### 1.04 Submittals

- A. All materials shall be those specified and or approved by Collier County's Representative.
- B. Product Data: After the award of the contract and prior to beginning work the Contractor shall submit to Collier County's Representative, three copies of the complete list of materials, manufacturer's technical data, and installation instructions which he proposes to install for approval.
- C. Commence no work before approval of material list and descriptive material by Collier County's Representative.
- D. Operations and Maintenance Manuals: The Contractor shall prepare and deliver to Collier County or his designated representative within ten (10) calendar days prior to completion of construction, a hard cover binder with three rings containing the following information:
  - 1. Index sheet stating the Contractors address and business telephone number, list of equipment with name(s) and address(es) of local manufacturer's representative(s).
  - 2. Catalog and parts sheets on every material and equipment installed under this Contract.
  - 3. Complete operating and maintenance instruction on all major equipment.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

4. Demonstrate and provide Collier County's maintenance personnel with instructions for equipment operation and maintenance, and show evidence in writing to Collier County, or his designated representative at the conclusion of the project that this service has been rendered.

1.05 Explanation of Drawings

- A. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings and sleeves which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of the work and plan his work accordingly, furnishing such offsets, fitting sand sleeves as may be required to meet such conditions.
- B. The drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and architectural features. Deviations shall be brought to the attention of the County's Representative.
- C. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.
- D. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been known in engineering. Such obstructions or differences should be brought to the attention of the County's Representative. In the event that notification is not performed, the Contractor shall assume full responsibility for any revision necessary.
3. If, in the opinion of the County's Representative, the lab or furnished by the Contractor is incompetent, unskilled, or unreliable, his equipment inadequate, improper or unsafe, or if the Contractor shall fail to continuously and diligently prosecute the construction, the County's Representative or County shall, in writing, instruct the Contractor to remove all such causes of noncompliance and the Contractor shall promptly comply.
- F. The Contractor shall be responsible for full and complete coverage of all irrigation areas. The County's Representative shall be notified of any necessary adjustments at no additional cost to the County. Any revisions to the irrigation system must be submitted and answered in written form, along with any change in Contract price. Layout may be modified, if necessary, to obtain coverage. Spacing not to exceed 5' of the diameter.

2.00 PRODUCTS

2.01 Materials

- A. All products shall be as specified on the plans and herein these specifications. The materials chosen for the design of the irrigation system have been specifically referred to by the manufacturer to enable Collier County's Representative to establish the level of quality and performance required by the system design.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

Equipment by other manufacturers may be used only if submittal of manufacturer's technical data and installation instructions are reviewed and approved by Collier County's Representative.

- B. Material and equipment shall be supplied by the Contractor. No substitutions shall be allowed without the prior written approval of Collier County's Representative. The Contractor shall inspect all materials and equipment before installation, and defective materials shall be replaced with the proper materials and equipment. Those items used in the installation found to be defective, improperly installed or not as specified, shall be removed and the proper materials and equipment installed in the proper manner, as interpreted by Collier County's Representative. The Contractor shall remove all damaged and defective pipe and equipment from the site.
- C. Storage and Handling: Use care in handling, loading, storing and assembling components to avoid damage. Store plastic pipe and fittings under cover and protect from sunlight before using. Discolored plastic pipe and fittings shall be rejected.
- D. All metallic pipe and fittings shall be handled, stored, loaded, and assembled with the same care used for plastic components. Metallic components shall be stored in an enclosure to prevent rusting and general deterioration.
- E. Polyvinyl Chloride Pipe (PVC):
1. All PVC pipe shall be new and perfect in condition, homogeneous throughout, free from visible cracks; holes and foreign materials. The pipe shall be free from blisters, dents, ripples, extrusion die and heat marks.
  2. All pipe shall be pantone purple 522C in color.
  3. All PVC pipe shall be continuously and permanently marked with the manufacturer's name or trademark (IPS) of pipe, material, and manufacturer's lot number, schedule, class or type and the NSF seal of approval, date of extrusion.
  4. Pipe tensile strength shall be in accordance with ASTM-D 638.
  5. Polyvinyl Chloride Pipe (PVC) Bell End Gasket Type - Pipe 3" and larger shall be used on irrigation main line and any other line under constant pressure and shall be:
    - a. Class 200, Bell End Gasket Type in accordance with the latest revision of the following specifications:

American Society for Testing Materials  
ASTM-D 1784 ASTM-D 2241 ASTM-D  
Department of Commerce, PS 22-70  
National Sanitation Foundation Testing Laboratories
    - b. Provide written certification from manufacturer that polyvinyl chloride pipe

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

has successfully passed all tests per ASTM-D 2241.

6. Polyvinyl Chloride Pipe (PVC) Solvent Weld Type - Pipe 2 1/2" inches and smaller shall be used for lateral piping and any piping not under constant pressure and shall be:
  - a. PVC 1120/1 220, Class 200, SDR-26 solvent weld joint in accordance with the latest revision of the following specifications:

American Society for Testing Materials  
ASTM-D 1784 ASTM-D 2241  
Department of Commerce, PS 22-70  
National Sanitation Foundation Testing Laboratories
  - b. Provide written certification from manufacturer that polyvinyl chloride pipe has successfully passed all tests per ASTM-D 2241.
7. All mainline pipe for use under Existing pavement without sleeving shall be high density polyethylene pipe (HDPE) SDR 11, unless specified otherwise on the plans.

F. PVC Pipe Fittings:

1. Molded solvent weld socket fittings shall be PVC Schedule 40, Type I/II in accordance with ASTM-D 2466. Sockets shall be tapered conforming to the outside diameter of the pipe, as recommended by the pipe manufacturer. All fittings must conform to the twenty (20) minute acetone test as for pipe and shall be approved.
2. Molded threaded fittings shall be PVC Schedule 80 in accordance with ASTM-2464. All fittings shall withstand the twenty (20) minute acetone test and be approved.
3. All molded fittings shall be marked with manufacturer's name and/or trademark type PVC, schedule, and NSF seal of approval. Extruded couplings shall be from NSF rated raw materials and meet ASTM standards. Supplier shall provide certification on extruded couplings when requested.
4. Schedule 80 threaded male/female adapters shall be used in connecting to threaded joints.
5. All changes in depth or direction of mainline pipe shall be made using 45-degree fittings.
6. All threaded PVC to metallic connections shall be made in accordance with the PVC fitting manufacturer's recommendations. Any sealant used shall be of the non-hardening, non-petroleum base type, and shall not adversely affect PVC pipe or fittings.

G. PVC Solvent Cement: PVC solvent cement and primer/cleaner shall be compatible

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

with the specifications and type of PVC pipe and fittings, of proper consistency in accordance with the pipe manufacturer's recommendations.

- H. Rubber Rings and Gasket Joint Lubricant: Rubber rings shall conform to ASTM-D 1869 and F 477. Contractor shall only use pipe joint lubricant supplied by or recommended by the pipe manufacturer. Lubricant shall be water-soluble, non-toxic, an inhibitor to bacterial growth, and shall be non-detrimental to the electrometric seal and pipe. Mineral oil, petroleum jelly, hydrogenated vegetable fat (i.e. Crisco (RR), petroleum products, cooking oil, grease, etc.) shall not be used.
- I. Automatic Field Controller: The irrigation controller shall be as specified on the plans. All field controllers shall be equipped with all available electrical surge/lightning protection devices for all circuits. Protection shall be factory supplied and installed whenever possible. Protection devices not supplied by the Manufacturer shall be as recommended by Manufacturer to provide a maximum degree of protection.
- J. Low Voltage Valve Control Wire (24 Volt): All 24-volt control wire shall be Hunter ID-2 wire. Blue for north or west directions and orange for south or east directions.
  - 1. Appropriate grounding rods for soil type and location with Hit Products Model L-SPD-F. Lightning/Surge Protection device per manufacturer's recommendations.
  - 2. All field splices shall be made using Hit Products DBC-BR connector seal in pack. Each individual wire splice requires one connector sealing pack.
- K. Using appropriate grounding parameters for soil and location type, install a grounding rod and Surge Protection device per manufacturer's recommendations. All grounding rods shall have a value 25 ohms or less after installation. An additional rod may be added within six feet (6') to obtain the correct ohm values.
- L. Control Valves: The remote-control valves shall be as specified on the plans and shall perform to the manufacturer's specifications.
- M. Gate Valves: Up to 2 1/2" shall be Series 206 bronze threaded end gate valves manufactured by "Red-White"; gate valves 3" and larger shall be A-2360 Series Resilient Wedge gate valves mechanical joint (M.J) x M.J, manufactured by Mueller Co., unless specified otherwise on the plans or bid schedule.
- N. Quick Coupling Valve: All quick coupling valves shall be solid bronze as specified on the plans and shall perform to the manufacturer's specifications.
- O. Valve Boxes: All valve boxes for control valves, isolation valves, gate valves, disc filters, surge protectors, mainline air release valves, blow off valves and quick coupling valves shall be CDR Fiber glass/Concrete Polymer Valve Boxes. Boxes shall be sufficiently sized to allow easy operation and maintenance of components. Where possible, gate valves shall be installed with disc filters in the same control valve box and control valves shall be installed with a pressure reducing valve. Jumbo Box with cover shall be used where applicable, a pair of standard rectangle

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

valve boxes shall be used when space will not adequately accommodate all the components for operation and maintenance. All valve box lids/covers shall be bolt-down, Pantone purple 522C color, and clearly stamped with the words "LCDOT Irrigation". Boxes and extensions shall be constructed of high strength fiber glass/concrete polymers.

- P. Pop-Up Mist Head to PVC Pipe Fittings: All pop-up mist sprinkler heads are to be connected to barbed x threaded adapters and an 18" minimum length of thick-walled polyethylene tubing. All tubing ends shall be cut square to the outside diameter of the pipe.
- Q. Rotor Sprinkler to PVC Pipe Fittings: All stream rotor sprinklers are to be connected to PVC lateral lines using swing joints. Swing joints shall be the same sizing (IPS) as the inlet sizing of the sprinklers, unless otherwise indicated on the installation details. All swing joints shall be capable of 360 degrees of freedom.
1. Prefabricated swing joints (triple spring) shall be used wherever possible. Swing joints created from individual nipples and fittings shall be assembled from PVC Schedule 80 or better.
  2. Any threaded connection using Teflon tapes as an anti-seize device shall avoid excessive use of Teflon tape. Apply Teflon tape only in accordance with fitting sand/or component manufacturer's recommendations.
- R. Pop-Up Mist Spray Heads: The type specified in the plans and shall perform to the manufacturer's specifications. Spacing shall not exceed that which is graphically depicted on the plans or the manufacturer's maximum recommendations.
- S. Rotor Sprinklers: All stream rotor sprinklers are to be of the type specified on the plans. The sprinklers are to be to manufacturer's specifications concerning the diameter of throw and given pressures. Sprinkler spacing shall not exceed the manufacturer's maximum recommendation.
1. Matched precipitation between full and part circle sprinklers will be required on all sprinklers operating on the same 2" line.
- T. The backflow prevention device shall be as specified on the plans and shall be installed and perform to the manufacturer's specifications. If backflow prevention device is required by local or state laws or ordinances, it shall be considered part of the contract whether or not is specified on the accompanying plans.
- U. The moisture sensor device shall be as specified on the plans and shall be installed and performed to the manufacturer's specifications. The fiberglass enclosure of the pump station shall be lockable.
- V. Pump Station: The pump station shall be a pre-manufactured unit that has a protective enclosure with an integrated lock. The contractor shall submit shop drawings of pump station for Collier County review and approval. The pump station shall contain the following minimum equipment:

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- Fiberglass cover (Dark Green) covering pump, filters, and pump controls, lockable flip top lid.
- Disconnect switch with appropriate current limiting fuses.
- Transient surge protection.
- Discharge manifold.
- Hydro-pneumatic pressure tank.
- Pump horsepower to be determined by contractor.
- Hydrometer with photo diode output and normally closed solenoid shut off valve.
- Discharge filter with fully automatic backwash controls.
- Isolation valve at station discharge.
- Brass check valve.
- Irrigation controller mounted in pump station.
- Concrete pump station pad

W. Drip Irrigation Components: The drip irrigation system and components shall be as specified on the plans and shall perform to the manufacturer's specifications. Spacing shall not exceed that which is graphically depicted on the plans or the manufacturer's maximum recommendations.

X. Directional Bore:

1. The Contractor shall install irrigation system pipe and wire sleeves conforming to the following:
  - a. All directional bores shall extend a minimum of 50' beyond the edges of pavement, unless specified otherwise on the plans.
  - b. All directional bore pipe shall be used as irrigation conveyance.
  - c. All directional bore pipe shall be HDPE PE 3408 DR 11, unless otherwise specified.
  - d. Contractor to install Harco HDPE to PVC mechanical joint coupling with transitional gaskets or interconnecting fittings for connecting HDPE PE 3408 DR 11 to CL 315 PVC mainline.
  - e. Contractor shall coordinate all HDPE pipe locations and depths before initiating installation of the irrigation system.

Y. Pipe and Wire Sleeves:

1. Sleeves to be installed:
  - a. The Contractor shall install irrigation system pipe and wire sleeves conforming to the following:
    - i. All pipe sleeves shall extend a minimum of 5' beyond the edges of

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

pavement, unless specified otherwise on the plans.

- ii. All pipe sleeves to be installed beneath future road surfaces shall be PVC pipe Schedule 40 directional bore pipe as per FOOT specifications, and as shown on plans. All pipe sleeves to be installed under Existing pavement shall be high density polyethylene pipe (HDPE) HDPE PE 3608/3408 DR 11, unless specified otherwise.
- iii. All irrigation system wires should be sleeved separate from all main or lateral lines in SCH 40 PVC or HDPE PE 3608/3408 DR 11. In cases where the wire must be installed within the pipe sleeve, it must be housed within a SCH 80 PVC sleeve.
- iv. All pipe sleeves shall be installed at the minimum depth specified for main lines, lateral lines and electric wire.
- v. Contractor shall coordinate all pipe sleeve locations and depths before initiating installation of the irrigation system.

Z. Miscellaneous Materials:

1. Drainage Backfill: Cleaned gravel or crushed stone, graded from 1" maximum to 3/4" minimum.
2. Metal Underground Tape: The detectable, under round utility marking tape shall consist of a minimum: 5 mil (0.005") overall thickness; five-ply composition; ultra- high molecular weight, 100 virgin polyethylene; acid, alkaline and corrosion resistant; with no less than 150 pounds of tensile break strength per 6" width; color-code impregnated with color stable, lead-free, or any pigments suitable for direct burial. Tapes using reprocessed plastics or resins shall not be acceptable. The detectable, underground utility marking tape shall have a 35-gauge (0.0035") solid aluminum foil, core encapsulated within a 2.55 mil (0.00255") polyethylene backing and a 0.6 mil (0.006") PET cover coating. The laminate on each side shall consist of a 0.75 mil (0.00075") layer of hot LPDE, poly-fusing the "sandwich" without use of adhesives.
3. Drip Line and Integral Drip Line Components: The drip line shall be Techline CV or Techline pressure compensating drip line as manufactured by Netafim Irrigation, Inc. Dripper flow rate and spacing shall be as indicated on drawings.
  - a. Techline CV/Techline: All Techline CV/Techline connections shall be made with approved Tech line CV/Techline insert fittings.
  - b. Soil Staples (TLS6): All on-surface /under mulch Techline CV/Techline installations shall be held in place with Techline Soil Staples placed evenly every 3' - 5' on center, and with two staples on each change of location.
  - c. Line Flushin Valves: All Techline/Techlite systems shall be installed with Netafim Automatic Line Flushing Valves as indicated on drawings. Techline

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

CV 2" or less do not require an automatic line flushing valve but must have a manual flushing port(s) in the position that an automatic flush valve would be positioned.

- d. Air/Vacuum Relief Valves: Each independent Techline subsurface irrigation 2 or less shall be installed with an Air/Vacuum Relief Valve at the 2" line's highest point(s). Techline CV 2" lines do not require an Air/Vacuum Relief Valve.
- e. Pressure Regulator: A pressure regulator shall be installed at each 2" line valve or on the main line to ensure operating pressures do not exceed system requirements. The pressure regulator shall be a Netafim Pressure Regulator. Model number as indicated on drawings.
- f. Disc Filter: A disc filter shall be installed at each 2" line valve or on the main line to ensure proper filtration. The filter shall be a Netafim Disc Filter. Model number and mesh as indicated on drawings.

### 3.00 EXECUTION

#### 3.01 System Design

- A. Design Pressures: Main line pressure at the source location shall be as required to operate the irrigation heads at the design pressures as specified on the plans. Pressure shall not exceed manufacturer's specifications. Pressure at the last irrigation head on the circuit shall not be less than 25 PSI for spray heads, 45 PSI for short to midrange rotor heads and 60 PSI for long range rotor heads.
- B. Location of Irrigation Components: Irrigation plans are diagrammatic and approximate. All piping, wires, field controllers, etc. shall be installed within the project boundaries. Final location of piping and wiring shall be done following Contractor ascertaining location of existing under round utilities.
- C. Sprinkler spacing are maximums. Do not exceed spacing shown or noted on the plans. Sprinkler SDI tubing spacing may be adjusted to accommodate changes in terrain, proposed planting locations, and existing site conditions, only if approved before installation by Collier County's Representative.
- D. Minimum Water Coverage: In turf planting areas 100 coverage shall be provided. Layout may be modified if necessary and approved by Collier County's Representative, to obtain coverage. To suit manufacturer's specifications do not decrease number of heads specified unless otherwise approved.
- E. Codes and Inspections: The entire installation shall comply fully with local and state laws and ordinances and with all established codes applicable thereto. The Contractor shall take out all required permits, including well and electrical permits, arrange for all necessary inspections, and shall pay all fees and expenses in connection with same, as part of the work. Upon completion of the work Contractor shall furnish to Collier County all inspection certificates customarily issued in connection with the class of work involved.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

3.02 Excavation and Trenching

- A. Perform all excavations as required for the installation of the work as defined and described on the installation plans, in accordance with the contract documents and under this section of specifications.
- B. All construction shall be done in a neat and workmanlike manner in strict accordance with manufacturer's recommendations. No sand or foreign material shall be allowed to enter the pipe. Ends shall be suitably plugged when pipe laying is not in progress.
- C. Main Lateral Line Trenching: Mainlines shall be installed in accordance with the installation details and by trenching, laying pipe, backfilling, compacting soil, and restoring grades. Restore all disturbed areas. Seed areas with "Argentine" Bahai grass that are less than 12" wide at the rate of 10 lbs. per 1,000 sq. ft. Sod areas 12" or wider with "Argentine" Bahia grass sod. Provide a smooth transition between the repaired disturbed areas and the undisturbed areas.
1. Mainline trenches shall be of the necessary width for the proper laying of pipe, fittings, wire and conduits and the banks shall be as vertical as possible. Trenches shall be wide enough to allow six inches between parallel pipelines. Trench width shall not be greater than is necessary to permit satisfactory jointing and other installation procedures.
  2. Mainline trench depths shall be as noted on the installation details. Use 45-degree fittings for all changes in depth or direction of mainline pipe.
  3. Trench bottoms shall be sufficiently graded to provide uniform bearing and support for each section of pipe at every point along its entire length. Trench bottom shall be free of rocks, gravel, and other extraneous debris.
- D. Safety: Maintain all warning signs, shoring, barricades, flares and red lanterns as required by the Safety Orders of the Industrial Safety and any applicable Federal, State and local ordinances.
- E. Trench Depth: Trenches shall be made wide enough to allow a minimum of 6 inches between parallel pipelines. Trenches for pipelines shall be made of sufficient depths to provide the minimum cover from finish grade as follows:
- 36" minimum cover over main lines.  
24" minimum cover over lateral lines to heads.
1. Metallic identification tape shall be buried approximately 12 inches below finish grade. Tape width shall be three-inch minimum. Tape color shall be blue. Imprints shall be "Non- Potable Irrigation Water Line Buried Below".
- F. All irrigation pipe 2" and larger shall be thrust blocked as shown on the details on accompanying plans.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- G. Sleeves: All sleeves shall be installed as indicated on the plans. All sleeving under pavement shall be at least 36" below the pavement surface.

3.03 Backfill and Compacting

- A. After testing of system has occurred and inspections have been made, backfill excavations and trenches with clean soil, free of stones, sticks, construction debris and rubbish.
- B. Contractor shall not backfill over fittings, valves, and couplings until pressure tests have been successfully completed.
- C. Backfill for all trenches, regardless of the type of pipe covered, shall be clean soil compacted to minimum 90 density. Compact trenches in areas to be planted by thoroughly flooding the backfill. Settling process shall be used when necessary in those areas.
- D. Dress off all areas to finish grades and restore to condition previous to irrigation installation.
- E. Clean Up: Remove from the site all debris resulting from work of this section. Clean up shall be conducted continuously throughout the installation process to keep extraneous materials off the work site.

3.04 Installation

- A. Remote Control Valves: Install remote control valves where shown and group to ether where practical; place no closer than 12 inches (12") to curbs, edge of pavement, wall edges, buildings, and walls.
- B. Valve Boxes: Install all valve boxes to avoid direct contact with PVC irrigation piping. Following valve box installation place gravel or sand as specified in the plan detail.
- C. PVC Pipe and Fittings: Plastic pipe and fittings shall be solvent welded us in solvents and methods as recommended by manufacturer of the pipe, and as indicated elsewhere in these specifications, except where screwed connections are required. Pipe and fittings shall be thoroughly cleaned of dirt, dust, and moisture before applying solvent with a non-synthetic bristle brush. All screwed connections shall be thoroughly cleaned and wrapped with Teflon tape as specified in these specifications.
- D. The pipe manufacturer's installation manual shall be followed for the installation practices.
- E. Use only a color tinted cleaner/primer to prepare the outside diameter of the pipe and the inside diameter of the fitting socket. Cleaner/primer and solvent cement shall be compatible with the specific sizes and types of PVC pipe and fittings being used.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- F. Use only those applicator devices approved or recommended by the pipe and fitting manufacturer to apply the cleaner/primer and the solvent cement. Applications shall also be approved by the manufacturer of the cleaner/primer and solvent cement.
- G. Make all joints immediately after applying the solvent cement. Check all fittings for correct position, hold joint steady so that pipe does not push out from fitting, use a clean rag to remove any excess solvent from completed joint area.
- H. All joints shall remain completely undisturbed for at least 15 minutes before any movement.
- I. Above Ground Piping: All pipe and fittings permanently installed above ground shall be galvanized iron Schedule 40 pipe, unless specified otherwise on the plans. Piping shall be painted prevent rusting. Paint color shall be approved by Collier County.
  - 1. All pipe fittings intended for temporary use and installed above ground shall be UV resistant PVC Schedule 80.
- J. Pipe Sizes: All lateral and mainline pipe sizes are as indicated on the Irrigation Plans.
- K. Manual Gate Valves: Make all connections between PVC pipe and metal valves or steel pipe with threaded fittings using PVC male adapters. All threads shall be thoroughly cleaned of dirt, dust, and moisture before wrapping with Teflon tape.
- L. Sprinkler Head Installation: Locate all sprinkler heads a minimum distance of 18" from walks, pavement, and back of curbs.
- M. Pop-Up Mist Spray Heads: in sodded areas shall be installed to be flush ( $\pm 1/2$ " tolerance) with finished sod elevations. In mulched and planted areas, all heads are to be flush with finish mulch elevations or shall be installed as detailed on the plans.
- N. Rotor Heads: shall be installed to be flush (+ 1/2" tolerance) with finish sod elevations except those rotor heads specifically designed to be mounted below grade.
- O. Bubblers: Two or three per tree, see drawing detail.
- P. Automatic Field Controllers: Onsite location of the automatic controllers shall be approved by Collier County's Representative following stakeout in the field by the Contractor. Contractor shall be responsible for monitoring the integrity.
  - 1. Controllers shall be installed in accordance with the plan details and manufacturer's instruction.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

2. Contractor shall provide controller rounding in accordance with the manufacturer's requirements and/or recommendations. If specified round resistance cannot be obtained consult manufacturer for prescribed methods.
  3. Connect remote control valve to controller in the sequence shown on the plans. If plan is not labeled then connect remote control valves to controller in a clockwise sequence to correspond with station setting beginning with Stations 1, 2, 3, etc.
- Q. Pump Station and Submersible Pump: The contractor, Collier County's Representative and Pump Station Manufacturer shall meet onsite to adjust, synchronize, and balance the pump station and its operation with the irrigation system. This shall include the determination of GPM of flow through the mainline; the balancing of the irrigation zones for optimum flow based on the flow volume and any watering window restrictions for the proposed system as well as future landscape development. The well driller shall be responsible for determining the proper depth necessary to function in accordance to the water demands based on the parameters established by the contractor and pump station manufacturer. The well driller shall make adjustments necessary based on actual site and ecological conditions not known at the time of design. The contractor, well driller, and pump station manufacturer will coordinate to determine and establish the necessary depth of the well. The contractor shall be responsible for providing electrical service suitable for pump station operation in accordance with manufacturer's specifications. The contractor shall be responsible for locating and providing dedicated electrical service from power supply poles or sources suitable to provide power in accordance to manufacturer's specifications. The electrical service shall include all hardware, labor, and other elements necessary for adequate installation and connection. Contractor for all necessary permits.
- R. Drip Irrigation System: The drip irrigation system and components shall be installed as specified on the plans and in accordance with the manufacturer's specifications.
1. Install all dripper line as indicated on drawings. Use only Teflon tape on all threaded connections.
  2. Clamp Techline/Techlite fittings with Oetiker clamps when operating pressure exceeds specific dripperline fitting requirements.
  3. When installing Tech line CV or Techline dripperlines on-surface, install soil staples as listed below:
    - a. Sandy Soil: One staple every three feet (3') and two (2) staples on each change of direction (tee, elbow, or cross).
    - b. Loam Soil: One staple every four feet (4') and two (2) staples on each change of direction (tee, elbow, or cross).
    - c. Clay Soil: One staple every five feet (5') and two (2) staples on each change of direction (tee, elbow, or cross).

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

4. Cap or plug all openings as soon as lines have been installed to prevent the intrusion of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.
  5. Thoroughly flush all water lines before installing valves and other hydrants.
- S. Adjustment and Coverage of System: Coordinate pressure testing with adjustments and coverage test of system so both may occur at the same time. The Contractor shall balance and adjust the various components of the system so that the overall operation of the system is most efficient. This includes a synchronization of the controllers, adjustments to pressure regulators, pressure relief valves, part circle sprinkler heads, and individual station adjustments on the controllers.

3.05 Closing of Pipe and Flushing Lines

- A. Cap or plug all openings as soon as lines have been installed to prevent the entrance of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.
- B. Thoroughly flush out all water lines before installing bubblers, heads, valves and other hydrants.
- C. Test in accordance with paragraph on Hydrostatic Tests.
- D. Testing: Request the presence of Collier County's Representative in writing or by telephone at least 48 hours in advance of testing. All testing is to be accomplished at the expense of the Contractor and in the presence of Collier County's Representative.
- E. Hydrostatic Mainline Test: Center load piping with small amount of backfill to prevent arching or slipping under pressure. A continuous and static water pressure of 120 psi. shall be applied for a period of not less than two (2) hours. Repair all leaks resulting from pressure test. Expel air from system after testing, flush all lines.
  1. Tests shall be made between valves and as far as practicable in sections of approximately one thousand (1,000) feet as long as approved by Collier County's Representative. Potable water from an Existing water distribution system shall be used if available. The test pressure shall be 120 PSI and the pressure shall be maintained for a period of not less than two (2) hours. Pressure shall not vary more than two pounds from the above during the two-hour testing period. Allowable leakage shall be computed on the basis of table 3, Section 13.7 AWWA Standard C600-64, on the applicable formula for other than 18-foot lengths. All leaks evident at the surface shall be uncovered and repair regardless of the total leakage as indicated by the test, and all pipes, valves, fittings and other materials found defective under the test shall be removed and replaced at Contractors expense. Tests shall be repeated until leakage has been corrected.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- F. Operational Testing: Perform operations testing after hydrostatic testing is completed, backfill is in place, and sprinkler heads adjusted to final position.
- G. Demonstration: Demonstrate to Collier County's Representative that the system meets coverage requirements, and that automatic controls function properly. Coverage requirements are based on operation of one circuit at a time.
- H. Upon completion of the testing, the Contractor shall complete assembly and adjust sprinkler heads for proper distribution as indicated elsewhere in these specifications.

3.06 Electrical

- A. Irrigation Contractor shall be responsible for the placement of the required service for the pump station and 110-volt AC service necessary for the operation of electric controller as specified on the plans and in accordance with the manufacturer's specifications and local codes.
- B. Electric control lines (24 Volt) from controller to automatic valves shall be direct burial wires of a different color than the 110-volt service to controllers. One 24-volt wire shall be white and the other red of one continual color. The wires shall be different in color from the other 24-volt lines and the 110-volt service. All 110-volt AC wiring shall be installed in accordance with Federal, State, and local electric requirements.
- C. All 24-volt wire shall be placed in their own sleeves when extending under roadways, parking lots, sidewalks, or other paved surfaces as shown on the plans.
- D. All 24-volt wire shall be installed in accordance with the latest provisions of the National Electrical Code and all prevailing local codes.
- E. All above round low voltage wiring shall be installed in UL listed plastic conduit and connectors in accordance with prevailing local codes.
- F. Install all 24-volt valve control wires under the irrigation main and to one side of the mainline trench. Installation depth shall conform to the depth of the mainline as indicated elsewhere in these specifications.
- G. Install all 24-volt wires in mainline trench except for distance between controller and mainline pipe location.
- H. All field splices shall be made using specified connector sealing packs. Each individual wire splice requires one connector sealing pack.
- I. All 24-volt electrical wire splice connections shall be per manufacturer's recommendations.
- J. All in the field low voltage wire splices shall be made in a valve box as described within these specifications or in the pedestal of the field controller.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- K. When more than one wire is placed in the same open trench wires shall be bundled and taped to either using black electrical tape.
- L. Provide an expansion coil of 8' to 10' of wire or cable at each change in direction along the wire routing, where wire is direct buried in a trench. Provide an expansion coil of 4' to 6' of wire every 1000' of straight wire run. Coil diameter to be 24" to 30". Do not tape restrain the wire coil. Lay the wire coil flat in the trench.
- M. Provide an expansion coil of 8' to 10' of wire or cable at each side of a road crossing. Coil diameters to be 24" to 30". Do not tape restrain the wire coil. Lay the wire coil flat in the trench.
- N. All wire passing under Existing or future paving, or construction, shall be encased in conduit extending at least 36" beyond edges of paving or construction as indicated on the irrigation plans or elsewhere in these specifications.
  - 1. The 24 VAC low voltage wiring system between field controller (FC) and remote-control valves shall be properly rounded per manufacturer's instructions.
  - 2. Using appropriate grounding parameters for soil and location type, install a grounding rod and the proper surge protection device every 300' and at each end of the two-wire path.

### 3.07 Substantial Completion

- A. Substantial Completion: The Contractor shall complete all construction and shall repair or replace all defective work before observation by Collier County's Representative. On completion and upon request of the Contractor, Collier County's Representative shall inspect all irrigation for substantial completion. The request shall be received from the Contractor at least two days before the anticipated inspection.

### 3.08 Final Acceptance

- A. Final Acceptance: Final acceptance shall be done in accordance with General Requirements, Contract closeout (when applicable to this contract).
- B. "Record" Irrigation Drawings: Record drawings shall be delivered to Collier County's Representative before final acceptance of work.

### 3.09 Warranty

- A. The Contractor shall fully warrant the landscape irrigation system and well production for a period of one (1) year after the Substantial Completion and will receive a written confirmation from Collier County's Representative that the warranty period is in effect.
- B. During the warranty period, the Contractor will enforce all manufacturer and supplier's warranties as if made by the Contractor himself. Any malfunctions,

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

deficiencies, breaks, damages, disrepair, or other disorder due to materials, workmanship, or installation by the Contractor and his suppliers shall be immediately and properly corrected to the proper order as directed by Collier County's Representative.

- C. Any damages caused by system malfunction shall be the responsibility of the Contractor who shall make full and immediate restoration for said damages.
- D. Collier County retains the right to make emergency repairs without relieving the Contractor's guaranty obligation. In the event the Contractor does not respond to Collier County's request for repair work under their guaranty-warranty within a period of forty-eight (48) hours, Collier County may make such repairs as they deem necessary, at the full expense of the Contractor.
- E. Any settling of backfilled trenches which may occur during the guaranty-warranty period shall be repaired by the Contractor at no additional expense to Collier County, including the complete restoration of all damaged planting, sod, paving or other improvement of any kind.
- F. Instruction: After completion and testing of the system, the Contractor will instruct Collier County's personnel in the proper operation and maintenance of the system.

**END OF SECTION**

**SECTION 32 90 00  
PLANTS AND LANDSCAPING**

1.0 GENERAL

**PLANTS**

The scope of work includes all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of plant (also known as "landscaping") complete as shown on the drawings and as specified herein. Upon receipt of the Notice-to-Proceed from the Collier County, the Contractor shall prepare to begin work by site mobilization. Site mobilization includes the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, sanitary and other facilities, as required by State and local laws and regulations. Scope includes the cost of bonds, insurance, and any other preconstruction expenses necessary for the start of the work, excluding the cost of construction materials. All costs for construction, overhead and profit, and all plants and materials shall be excluded. Contractor shall be responsible for coordinating Maintenance of Traffic (MOT).

The scope of work in this section includes, but is not limited to, the following:

- A. Locate, purchase, deliver and install all specified plants.
- B. Water all specified plants.
- C. Mulch, fertilize, stake, and prune all specified plants.
- D. Maintenance of all specified plants until the beginning of the warranty period.
- E. Plant warranty.
- F. Clean up and disposal of all excess and surplus material.
- G. Maintenance of all specified plants during the warranty period.

**Contract Documents**

Shall consist of specifications and general conditions and the construction drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

**Related Documents and References**

Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section.

Related Specification Sections  
Section 32 80 20 - Irrigation

References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail or as determined by the Collier County Representative.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- A. ANSI Z60.1 American Standard for Nursery Stock, most current edition.
- B. ANSI A 300 – Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current edition and parts.
- C. Florida Grades and Standards for Nursery Stock, current edition (Florida Department of Agriculture, Tallahassee FL).
- D. Interpretation of plant names and descriptions shall reference the following documents. Where the names or plant descriptions disagree between the several documents, the most current document shall prevail.
  - USDA - The Germplasm Resources Information Network ([GRIN](http://www.ars-grin.gov/npgs/searchgrin.html))  
<http://www.ars-grin.gov/npgs/searchgrin.html>
  - Manual of Woody Landscape Plants; Michael Dirr; Stipes Publishing, Champaign, Illinois; Most Current Edition.
- E. Pruning practices shall conform to recommendations “Structural Pruning: A Guide For the Green Industry” most current edition; published by Urban Tree Foundation, Visalia, California.
- F. Collier County Utility Standards and Land Development Code.

**Verification**

All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform Collier County or its Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Collier County Representative.

In the case of a discrepancy in the plant quantities between the plan drawings and the plant call outs, list or plant schedule, the number of plants or square footage of the planting bed actually drawn on the plan drawings shall be deemed correct and prevail.

**Definitions**

All terms in this specification shall be as defined in the “Glossary of Arboricultural Terms” or as modified below.

- A. Container plant: Plants that are grown in and/or are currently in a container including boxed trees.
- B. Defective plant: Any plant that fails to meet the plant quality requirement of this specification.
- C. End of Warranty Final Acceptance: The date when the Collier County accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrent with each other.
- D. Field grown trees (B&B): Trees growing in field soil for at least 12 months prior to harvest.
- E. Healthy: Plants that are growing in a condition that expresses leaf size, crown density, color; and with annual growth rates typical of the species and cultivar’s horticultural description, adjusted for the planting site soil, drainage and weather conditions.
- F. Kinked root: A root within the root package that bends more than 90 degrees.
- G. Maintenance: Actions that preserve the health of plants after installation and as defined in this specification.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- H. Maintenance period: The time period, as defined in this specification, which the Contractor is to provide maintenance.
- I. Normal: the prevailing protocol of industry standard(s).
- J. Collier County Representative: The person appointed by the Collier County to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Collier County may appoint other persons to review and approve any aspects of the work.
- K. Reasonable and reasonably: When used in this specification relative to plant quality, it is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that it is not possible to produce plants free of all defects, but that some accepted industry protocols and standards result in plants unacceptable to this project.  

When reasonable or reasonably is used in relation to other issues such as weeds, diseased, insects, it shall mean at levels low enough that no treatment would be required when applying recognized Integrated Plant Management practices.

This specification recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinion, the Collier County Representative's expert shall determine when conditions are judged as reasonable.
- L. Root ball: The mass of roots including any soil or substrate that is shipped with the tree within the root ball package.
- M. Root ball package: The material that surrounds the root ball during shipping. The root package may include the material in which the plant was grown, or new packaging placed around the root ball for shipping.
- N. Root collar (root crown, root flare, trunk flare, flare): The region at the base of the trunk where the majority of the structural roots join the plant stem, usually at or near ground level.
- O. Shrub: Woody plants with mature height approximately less than 15 feet.
- P. Spade harvested and transplanted: Field grown trees that are mechanically harvested and immediately transplanted to the final growing site without being removed from the digging machine.
- Q. Stem: The trunk of the tree.
- R. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Collier County accepts that all work in these sections is complete and the Warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project.
- S. Stem girdling root: Any root more than ¼ inch diameter currently touching the trunk, or with the potential to touch the trunk, above the root collar approximately tangent to the trunk circumference or circling the trunk. Roots shall be considered as Stem Girdling that have, or are likely to have in the future, root to trunk bark contact.
- T. Structural root: One of the largest roots emerging from the root collar.
- U. Tree: Single and multi-stemmed plants with mature height approximately greater than 15 feet.

### **Submittals**

See contract general conditions for policy and procedure related to submittals.

- A. Submit all product submittals 8 weeks prior to installation of plantings.
- B. Product data: Submit manufacturer product data and literature describing all products required by this section to Collier County or its Representative for approval. Provide submittal eight weeks before the installation of plants.
- C. Plant growers' certificates: Submit plant growers' certificates for all plants indicating that each meets the requirements of the specification, including the requirements of tree quality, to Collier County or its Representative for approval. Provide submittal eight weeks before the installation of plants.
- D. Samples: Submit samples of each product and material where required by the specification to Collier County or its Representative for approval. Label samples to indicate product, characteristics, and locations in the work. Samples will be reviewed for appearance only. Compliance with all other requirements is the exclusive responsibility of the Contractor.
- E. Plant sources: Submit sources of all plants as required by Article – "Selection of Plants" to Collier County or its Representative for approval.
- F. Close out submittals: Submit to the Collier County for approval.
  - 1. Landscape Maintenance Manual: Plant maintenance data, schedule and requirements.
- G. Warranty period site visit record: If there is no maintenance during the warranty period, after each site visit during the warranty period, by the Contractor, as required by this specification, submit a written record of the visit, including any problems, potential problems, and any recommended corrective action to Collier County or its Representative for approval.

### **Observation of the Work**

Collier County or its Representative may observe the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

Collier County or its Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. Collier County or its Representative shall be afforded sufficient time to schedule visit to the site. Failure of Collier County or its Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

- H. SITE CONDITIONS PRIOR TO THE START OF PLANTING: review the soil and drainage conditions.
- I. COMPLETION OF THE PLANT LAYOUT STAKING: Review of the plant layout.
- J. PLANT QUALITY: Review of plant quality at the time of delivery and prior to installation. Review tree quality prior to unloading where possible, but in all cases prior to planting.

K. COMPLETION OF THE PLANTING: Review the completed planting.

### **Quality Assurance**

Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty period:

- L. Once the Contractor completes the installation of all items in this section, Collier County or its Representative will observe all work for Substantial Completion Acceptance upon written request of the Contractor. The request shall be received at least ten (10) calendar days before the anticipated date of the observation.
- M. Substantial Completion Acceptance by Collier County or its Representative shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.
- N. Any plants that are deemed defective as defined under the provisions below shall not be accepted.

Collier County or its Representative will provide the Contractor with written acknowledgment of the date of Substantial Completion Acceptance and the beginning of the warranty period and plant maintenance period (if plant maintenance is included).

Contractor's Quality Assurance Responsibilities: The Contractor is solely responsible for quality control of the work.

### **Plant Warranty**

The Contractor agrees to replace defective work and defective plants. Collier County or its Representative shall make the final determination if plants meet these specifications or that plants are defective.

Plants warranty shall begin on the date of Substantial Completion Acceptance and continue for the following periods, classed by plant type:

- O. Trees – 1 Year(s).
- P. Shrubs – 1 Year(s).
- Q. Ground cover and perennial flower plants – 1 Year(s).

When the work is accepted in parts, the warranty periods shall extend from each of the partial Substantial Completion Acceptances to the terminal date of the last warranty period. Thus, all warranty periods for each class of plant warranty, shall terminate at one time.

All plants shall be warrantied to meet all the requirements for plant quality at installation in this specification. Defective plants shall be defined as plants not meeting these requirements. Collier County or its Representative shall make the final determination that plants are defective.

Plants determined to be defective shall be removed immediately upon notification by Collier County or its Representative and replaced without cost to the Collier County, as soon as weather conditions permit and within the specified planting period.

Any work required by this specification or Collier County or its Representative during the progress of the work, to correct plant defects including the removal of roots or branches, or planting plants that have been bare rooted during installation to observe for or correct root defects shall not be considered as grounds to void any conditions of the warranty. In the event that the Contractor decides that such remediation work may compromise the future health of the plant, the plant or plants in question shall be rejected and replaced with plants that do not contain defects that require remediation or correction.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

The Contractor is exempt from replacing plants, after Substantial Completion Acceptance and during the warranty period, that are removed by others, lost or damaged due to occupancy of project, lost or damaged by a third party, vandalism, or any natural disaster.

Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Collier County.

The warranty of all replacement plants shall extend for an additional one-year period from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended warranty period, Collier County or its Representative may elect one more replacement items or credit for each item. These tertiary replacement items are not protected under a warranty period.

During and by the end of the warranty period, remove all tree wrap, ties, and guying unless agreed to by Collier County or its Representative to remain in place. All trees that do not have sufficient caliper to remain upright, or those requiring additional anchorage in windy locations, shall be staked or remain staked, if required by the Collier County Representative.

End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period.

- R. At the end of the warranty period, Collier County or its Representative shall observe all warranted work, upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date for final observation.
- S. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been met.

**1.1 Selection and Observation of Plants**

- A. Collier County or its Representative may review all plants subject to approval of size, health, quality, character, etc. Review or approval of any plant during the process of selection, delivery, installation and establishment period shall not prevent that plant from later rejection in the event that the plant quality changes or previously existing defects become apparent that were not observed.
- B. Plant Selection: Collier County or its Representative reserves the right to select and observe all plants at the nursery prior to delivery and to reject plants that do not meet specifications as set forth in this specification. If a particular defect or substandard element can be corrected at the nursery, as determined by the Collier County Representative, the agreed upon remedy may be applied by the nursery or the Contractor provided that the correction allows the plant to meet the requirements set forth in this specification. Any work to correct plant defects shall be at the contractor's expense.
  - 1. Collier County or its Representative may make invasive observation of the plant's root system in the area of the root collar and the top of the root ball in general in order to determine that the plant meets the quality requirements for depth of the root collar and presence of roots above the root collar. Such observations will not harm the plant.
  - 2. Corrections are to be undertaken at the nursery prior to shipping.
- C. The Contractor shall bear all cost related to plant corrections.
- D. All plants that are rejected shall be immediately removed from the site and acceptable replacement plants provided at no cost to the Collier County.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- E. Submit to the Collier County Representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Observe all nursery materials to determine that the materials meet the requirements of this section.
- F. Trees shall be purchased from the growing nursery. Re-wholesale plant suppliers shall not be used as sources unless the Contractor can certify that the required trees are not directly available from a growing nursery. When Re-wholesale suppliers are utilized, the Contractor shall submit the name and location of the growing nursery from where the trees were obtained by the re-wholesale seller. The re-wholesale nursery shall be responsible for any required plant quality certifications.
- G. The Contractor shall require the grower or re-wholesale supplier to permit Collier County or its Representative to observe the root system of all plants at the nursery or job site prior to planting including random removal of soil or substrate around the base of the plant. Observation may be as frequent and as extensive as needed to verify that the plants meet the requirements of the specifications and conform to requirements.
- H. Each tree shall have a numbered seal applied by the Contractor. The seal shall be placed on a lateral branch on the north side of the tree. The seal shall be a tamper proof plastic seal bearing the Contractors name and a unique seven-digit number embossed on the seal.
  - 1. Do not place seals on branches that are so large that there is not sufficient room for the branch growth over the period of the warranty.
- I. Collier County or its Representative may choose to attach their seal to each plant, or a representative sample. Viewing and/or sealing of plants by Collier County or its Representative at the nursery does not preclude the Collier County Representative's right to reject material while on site. The Contractor is responsible for paying any up charge for Collier County or its Representative to attach their seal to specific plants.
- J. Where requested by the Collier County Representative, submit photographs of plants or representative samples of plants. Photographs shall be legible and clearly depict the plant specimen. Each submitted image shall contain a height reference, such as a measuring stick. The approval of plants by Collier County or its Representative via photograph does not preclude the Collier County Representative's right to reject material while on site.

**1.2 Plant Substitutions for Plants Not Available**

- A. Submit all requests for substitutions of plant species, or size to the Collier County Representative, for approval, prior to purchasing the proposed substitution. Request for substitution shall be accompanied with a list of nurseries contacted in the search for the required plant and a record of other attempts to locate the required material. Requests shall also include sources of plants found that may be of a smaller or larger size, or a different shape or habit than specified, or plants of the same genus and species but different cultivar origin, or which may otherwise not meet the requirements of the specifications, but which may be available for substitution.

**1.3 Site Conditions**

- A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Collier County Representative, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.

1. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify Collier County or its Representative in writing, stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify Collier County or its Representative of such conditions, he/she shall remain responsible for plant material under the warranty clause of the specifications.
- B. It is the responsibility of the Contractor to be familiar with the local growing conditions, and if any specified plants will be in conflict with these conditions. Report any potential conflicts, in writing, to the Collier County Representative.
- C. This specification requires that all Planting Soil and Irrigation (if applicable) work be completed and accepted prior to the installation of any plants.
  1. Planting operations shall not begin until such time that the irrigation system is completely operational for the area(s) to be planted, and the irrigation system for that area has been preliminarily observed and approved by the Collier County Representative.
- D. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practices.
  1. Do not install plants into saturated or frozen soils. Do not install plants during inclement weather, such as rain or snow or during extremely hot, cold or windy conditions.

#### **1.4 Planting Around Utilities**

- A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.
- B. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.
- C. Notification of *Local Utility Locator Service (Sunshine State One Call of Florida, 811)*, is required for all planting areas: The Contractor is responsible for knowing the location and avoiding utilities that are not covered by the *Local Utility Locator Service*.

## **PRODUCTS**

### **PLANTS: GENERAL**

Standards and measurement: Provide plants of quantity, size, genus, species, and variety or cultivars as shown and scheduled in contract documents. All plant and container sizes as shown on the plant list/schedule shall be considered minimum sizes.

- A. All plants including the root ball dimensions or container size to trunk caliper ratio shall conform to ANSI Z60.1 "American Standard for Nursery Stock" latest edition, unless modified by provisions in this specification. When there is a conflict between this specification and ANSI Z60.1, this specification section shall be considered correct.
- B. Plants larger than specified may be used if acceptable to the Collier County Representative. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be in accordance with ANSI Z-60.1. Larger plants may not be acceptable if the resulting root ball cannot be fit into the required planting space.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- C. If a range of size is given, no plant shall be less than the minimum size and not less than 50 percent of the plants shall be as large as the maximum size specified. The measurements specified are the minimum and maximum size acceptable and are the measurements after pruning, where pruning is required.
- D. Proper Identification: All trees shall be true to name as ordered or shown on planting plans and shall be labeled individually or in groups by genus, species, variety and cultivar.
- E. Compliance: All trees shall comply with federal and state laws and regulations requiring observation for plant disease, pests, and weeds. Observation certificates required by law shall accompany each shipment of plants.
- F. Plant Quality: **General:** Provide healthy stock, grown in a nursery and reasonably free of die-back, disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have a root system, stem, and branch form that will not restrict normal growth, stability and health for the expected life of the plant.
  - a. **Plant quality above the soil line:** Plants shall be healthy with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified. Tree quality above the soil line shall comply with Florida Grades and Standards, tree grade Florida Fancy or Florida #1 and the following:

**Crown:** The form and density of the crown shall be typical for a young specimen of the species or cultivar pruned to a central and dominant leader. Crown specifications do not apply to plants that have been specifically trained in the nursery as topiary, espalier, multi-stem, clump, or unique selections such as contorted or weeping cultivars.

**Leaves:** The size, color, and appearance of leaves shall be typical for the time of year and stage of growth of the species or cultivar. Trees shall not show signs of prolonged moisture stress or over watering as indicated by wilted, shriveled, or dead leaves.

**Branches:** Shoot growth (length and diameter) throughout the crown should be appropriate for the age and size of the species or cultivar. Trees shall not have dead, diseased, broken, distorted, or otherwise injured branches. Main branches shall be distributed along the central leader not clustered together. They shall form a balanced crown appropriate for the cultivar/species. Branch diameter shall be no larger than two-thirds (one-half is preferred) the diameter of the central leader measured 1 inch above the branch union. The attachment of the largest branches (scaffold branches) shall be free of included bark.

**Trunk:** The tree trunk shall be relatively straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable and are not considered wounds), sunburned areas, conks (fungal fruiting bodies), wood cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury).

- Trees shall have one central leader. If the leader was headed, a new leader (with a live terminal bud) at least one-half the diameter of the pruning cut shall be present.

- All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings.
- All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.
- Trunk caliper and taper shall be sufficient so that the lower five feet of the trunk remains vertical without a stake. Auxiliary stake may be used to maintain a straight leader in the upper half of the tree.

1. **Plant quality at or below the soil line:** Plant roots shall be normal to the plant type specified. Root observations shall take place without impacting tree health. Root quality at or below the soil line shall comply with the following:

The roots shall be reasonably free of scrapes, broken or split wood.

The root system shall be reasonably free of injury from biotic (e.g., insects and pathogens) and abiotic (e.g., herbicide toxicity and salt injury) agents. Wounds resulting from root pruning used to produce a high quality root system are not considered injuries.

A minimum of three structural roots reasonably distributed around the trunk (not clustered on one side) shall be found in each plant. Root distribution shall be uniform throughout the root ball, and growth shall be appropriate for the species.

Plants with structural roots on only one side of the trunk (J roots) shall be rejected.

The root collar shall be within the upper 2 inches of the substrate/soil. Two structural roots shall reach the side of the root ball near the top surface of the root ball. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removes all stem girdling roots above the structural roots across the top of the root ball.

The root system shall be reasonably free of stem girdling roots over the root collar or kinked roots from nursery production practices.

Plant Grower Certification: The final plant grower shall be responsible to have determined that the plants have been root pruned at each step in the plant production process to remove stem girdling roots and kinked roots, or that the previous production system used practices that produce a root system throughout the root ball that meets these specifications. Regardless of the work of previous growers, the plant's root system shall be modified at the final production stage, if needed, to produce the required plant root quality. The final grower shall certify in writing that all plants are reasonably free of stem girdling and kinked roots as defined in this specification, and that the tree has been grown and harvested to produce a plant that meets these specifications.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.
- G. Submittals: Submit for approval the required plant quality certifications from the grower where plants are to be purchased, for each plant type. The certification must state that each plant meets all the above plant quality requirements.
1. The grower's certification of plant quality does not prohibit Collier County or its Representative from observing any plant or rejecting the plant if it is found to not meet the specification requirements.
- H. Balled and Burlapped Plants
1. All Balled and Burlapped Plants shall be field grown, and the root ball packaged in a burlap and twine and/or burlap and wire basket package.
  2. Plants shall be harvested with the following modifications to standard nursery practices.
  3. Prior to digging any tree that fails to meet the requirement for maximum soil and roots above the root collar, carefully removed the soil from the top of the root ball of each plant, using hand tools, water or an air spade, to locate the root collar and attain the soil depth over the structural roots requirements. Remove all stem girdling roots above the root collar. Care must be exercised not to damage the surface of the root collar and the top of the structural roots.
  4. Trees shall be dug for a minimum of 4 weeks and a maximum of 52 weeks prior to shipping. Trees dug 4 to 52 weeks prior to shipping are defined as hardened-off. Digging is defined as cutting all roots and lifting the tree out of the ground and either moving it to a new location in the nursery or placing it back into the same hole. Trees that are stored out of the ground shall be placed in a holding area protected from extremes of wind and sun with the root ball protected by covering with mulch or straw and irrigated sufficiently to keep moisture in the root ball above wilt point and below saturation.
  5. If wire baskets are used to support the root ball, a "low profile" basket shall be used. A low profile basket is defined as having the top of the highest loops on the basket no less than 4 inches and no greater than 8 inches below the shoulder of the root ball package.
    - At nurseries where sandy soils prevent the use of "low profile baskets", baskets that support the entire root ball, including the top, are allowable. In this instance the top 1/3 of the wire basket shall be cut and completely removed from the planting pit after the tree is stabilized in the planting pit.
  6. Twine and burlap used for wrapping the root ball package shall be natural, biodegradable material. If the burlap decomposes after digging the tree then the root ball shall be re-wrapped prior to shipping if roots have not yet grown to keep root ball intact during shipping.
  7. Oak tree species when harvested at a size greater than 4 inches in caliper shall be root-pruned a minimum of 4 months before digging in the nursery. All root pruning and hardening off procedures shall be accomplished utilizing accepted horticultural practices.
- I. Container Plants
1. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Collier County Representative.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

2. Provide plants shall be established and well rooted in removable containers.
3. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.

J. Palms

1. Except as modified below or where the requirements are not appropriate to the specification of palms, palms shall meet all the requirements of the plant quality section above.
2. Defronding, tying, and hedging:  
In preparing palm trees for relocation, all dead fronds shall be removed.  
All remaining fronds above horizontal shall be lifted up and tied together around the crown in an upright position. Up to 2/3 of the oldest live fronds can be removed; all fronds can be removed on Sabal palms. Do not tie too tightly, bind or injure the bud. Jute binder twine shall be used in tying up the fronds; wire will not be permitted. Fronds shall be untied immediately after planting.
3. Digging the root ball:
  - When digging out the root ball, no excavation shall be done closer than 36 Inches to the trunk at ground level and the excavation shall extend below the major root system to a minimum depth of 3.5 feet. The bottom of the root ball shall be cut off square and perpendicular to the trunk below the major root system.
4. The Contractor shall not free-fall, drag, roll or abuse the tree or put a strain on the crown (bud area) at any time. A protective device shall be used around the trunk of the tree while lifting and relocating so as not to injure the bud, or scar or skin the trunk in any way.

K. Planting Soil: Planting Soil as used in this specification means the soil at the planting site, or the soil at the planting site within the planting hole. It should be noted that the curbing project preceding this landscaping project provides the appropriate planting soil within the medians, however it is the contractors responsibility to ensure that all planting pits receive the appropriate soil amendments to meet the planting requirements below.

1. Planting Soil shall consist of a course Loamy sand, friable, and containing no more than 4% organics. Sand shall be well drained native sand.
2. When unsuitable Planting Soils are found, the contractor shall amend the Planting Soil at the planting pit prior to installation.
3. Soil testing for Imported and Existing Topsoil, existing site soil to be modified as Planting Soil and Planting Soil Mixes.
4. Existing site planting soil testing: Submit soil test analysis report for up to 5 locations equally distributed throughout the project site as directed by the Collier County from an approved soil-testing laboratory and where indicated in Part 2 of the specification as follows:
  - Submit existing Planting Soil for testing at least 8 weeks before scheduled installation of Planting.
  - If tests fail to meet the specifications, the contractor shall submit recommended soil amendment necessary to provide a suitable Planting Soil for Collier Countys review and acceptance. Any necessary Planting Soil amendments shall be implemented by the contractor at no cost to the Collier County.
  - All soil testing will be at the expense of the Contractor.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

5. Provide a particle size analysis (% dry weight) and USDA soil texture analysis. Soil testing of Planting Soil Mixes shall also include USDA gradation (percentage) of gravel, coarse sand, medium sand, and fine sand in addition to silt and clay.
6. Provide the following other soil properties:
  - pH and buffer pH.
  - Percent organic content by oven dried weight.
  - Nutrient levels by parts per million including: phosphorus, potassium, magnesium, manganese, iron, zinc and calcium. Nutrient test shall include the testing laboratory recommendations for supplemental additions to the soil for optimum growth of the plantings specified.
  - Soluble salt by electrical conductivity of a 1:2 soil water sample measured in Milliohm per cm.
  - Cation Exchange Capacity (CEC).

L. Mulch

1. Mulch as specified on the plans shall be "Walk on" grade, coarse, ground, from tree and woody brush sources. The size range shall be a minimum (less than 25% or less of volume) fine particles 3/8 inch or less in size, and a maximum size of individual pieces (largest 20% or less of volume) shall be approximately 1 to 1-1/2 inch in diameter and maximum length approximately 4 to 6 inches. Pieces larger than 6 inches long that are visible on the surface of the mulch after installation shall be removed.
2. It is understood that mulch quality will vary significantly from supplier to supplier and region to region. The above requirements may be modified to conform to the source material from locally reliable suppliers as approved by the Collier County Representative.
3. Submit supplier's product specification data sheet and a one cubic foot sample for approval.

M. Tree Staking and Guying Material

1. Tree guying to be flat woven polypropylene material, 3/4-inch-wide, and 900 lb. break strength. Color to be Green. Product to be ArborTie manufactured by Deep Root Partners, L.P. or approved equal.
2. Stakes shall be lodge pole stakes free of knots and of diameters and lengths appropriate to the size of plant as required to adequately support the plant.
3. Below ground anchorage systems to be submitted for review and subject to Collier County approval.

N. Watering Bags

1. Plastic tree watering bags holding a minimum of 15 gallons of water and with a slow drip hole(s) water release system, specifically designed to water establishing trees. Water should release over a several day period, not within a few hours
2. Watering bags shall only be considered as a temporary means of irrigation if irrigation system or zones are not functional at time of installation. Watering bag systems to be submitted for review and subject to Collier County approval.

O. CHEMICAL or biological ADDITIVES

**Refer to Planting Specification Notes on landscape plans for requirements.**

**PART 2 – EXECUTION**

**2.1 Site Examination**

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- A. Examine the surface grades and soil conditions to confirm that the requirements of the Specification Section – Planting Soil - and the soil and drainage modifications indicated on the Planting Soil Plan and Details (if applicable) have been completed. Notify Collier County or its Representative in writing of any unsatisfactory conditions. Refer to Planting Soil specifications for additional existing soil information.

**2.2** Delivery, Storage And Handling

- A. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind or extremes of heat and cold temperatures. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.
  - 1. All plant materials must be available for observation prior to planting.
  - 2. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered. Volumetric soil moisture shall be maintained above wilting point and below field capacity for the root ball substrate or soil.
- B. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote staging area for plants and other supplies.
  - 1. Collier County or its Representative or Contractor shall approve the duration, method and location of storage of plants.
- C. Provide protective covering over all plants during transporting.

**2.3** Planting Season

- A. Planting shall only be performed when weather and soil conditions are suitable for planting the materials specified in accordance with locally accepted practice. Install plants during the planting time as described below unless otherwise approved in writing by the Collier County Representative. In the event that the Contractor request planting outside the dates of the planting season, approval of the request does not change the requirements of the warranty.

**2.4** Adverse Weather Conditions

- A. No planting shall take place during extremely hot, dry, windy or freezing weather.

**2.5** Coordination with Project Work

- A. The Contractor shall coordinate with all other work that may impact the completion of the work.
- B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.
- C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify Collier County or its Representative of any conflicts encountered.

**2.6** Layout and Planting Sequence

- A. Relative positions of all plants and trees are subject to approval of the Collier County Representative.

Collier County Parks & Recreation  
 Tigertail Beach Park Concession Repair & Enhancements  
 Bid Documents

- B. Notify the Collier County Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with paint for the Collier County Representative's approval. Secure the Collier County Representative's acceptance before digging and start of planting work.
- C. When applicable, plant trees before other plants are installed.
- D. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by Collier County or its Representative including relocating previously installed plants.

**2.7 Soil Protection During Plant Delivery and Installation**

- A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.
  - 1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and tilling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.

**2.8 Soil Moisture**

- A. Volumetric soil moisture level, in both the planting soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilting point and below field capacity for each type of soil texture within the following ranges.

<b>Soil type</b>	<b>Permanent wilting point</b>	<b>Field capacity</b>
Sand, Loamy sand, Sandy loam	5-8%	12-18%
Loam, Sandy clay, Sandy clay loam	14-25%	27-36%
Clay loam, Silt loam	11-22%	31-36%
Silty clay, Silty clay loam	22-27%	38-41%

- 1. Volumetric soil moisture shall be measured with a digital moisture meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent.
- B. The Contractor shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend planting operations until the soil moisture drains to below field capacity.

**2.9 Installation of Plants: General**

- A. Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify Collier County or its Representative of any condition observed.
- B. No more plants shall be distributed about the planting bed area than can be planted and watered on the same day.
- C. The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting to confirm that the roots meet the

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- requirements for plant root quality in Products: Plants General: Plant Quality. The Contractor shall undertake at the time of planting, all modifications to the root system required by Collier County or its Representative to meet these quality standards.
1. Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that Collier County or its Representative may choose to reject the plant rather than permitting the modification.
  2. Any modifications required by Collier County or its Representative to make the root system conform to the plant quality standards outlined in Products: Plants General: Quality, or other requirements related to the permitted root ball package, shall not be considered as grounds to modify or void the plant warranty.
  3. The resulting root ball may need additional staking and water after planting. Collier County or its Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty
  4. The Contractor remains responsible to confirm that the grower has made all required root modifications noted during any nursery observations.
- D. Container and Boxed Root Ball Shaving: The outer surfaces of ALL plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing reasonably radial to the trunk.
- E. Exposed Stem Tissue after Modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping with a white filter fabric. Secure the fabric with biodegradable masking tape. DO NOT USE string, twine, green nursery ties or any other material that may girdle the trunk if not removed.
- F. Excavation of the Planting Space: Using hand tools or tracked mini-excavator, excavate the planting hole into the Planting Soil to the depth of the root ball measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing or as noted below.
1. For trees and shrubs planted in soil areas that are NOT tilled or otherwise modified to a depth of at least 12 inches over a distance of more than 10 feet radius from each tree, or 5 feet radius from each shrub, the soil around the root ball shall be loosened as defined below or as indicated on the drawings.
    - The area of loosening shall be a minimum of 3 times the diameter of the root ball at the surface sloping to 2 times the diameter of the root ball at the depth of the root ball.
    - Loosening is defined as digging into the soil and turning the soil to reduce the compaction. The soil does not have to be removed from the hole, just dug, lifted and turned. Lifting and turning may be accomplished with a tracked mini excavator, or hand shovels.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

2. If an auger is used to dig the initial planting hole, the soil around the auger hole shall be loosened as defined above for trees and shrubs planted in soil areas that are NOT tilled or otherwise modified.
  3. The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.
  4. If motorized equipment is used to deliver plants to the planting area over exposed planting beds, or used to loosen the soil or dig the planting holes, all soil that has been driven over shall be tilled to a depth of 6 inches.
- G. For trees to be planted in prepared Planting Soil that is deeper than the root ball depth, compact the soil under the root ball using a mechanical tamper to assure a firm bedding for the root ball. If there is more than 12 inches of planting soil under the root ball excavate and tamp the planting soil in lifts not to exceed 12 inches.
- H. Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.
- I. Collier County or its Representative may request that plants orientation be rotated when planted based on the form of the plant.
- J. Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space. See Specification Section Planting Soil, for requirements to modify the soil within the planting bed.
- K. Brace root ball by tamping Planting Soil around the lower portion of the root ball. Place additional Planting Soil around base and sides of ball in six-inch (6") lifts. Lightly tamp each lift using foot pressure or hand tools to settle backfill, support the tree and eliminate voids. DO NOT over compact the backfill or use mechanical or pneumatic tamping equipment. Over compaction shall be defined as greater than 85% of maximum dry density, standard proctor or greater than 250 psi as measured by a cone penetrometer when the volumetric soil moisture is lower than field capacity.
1. When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. If the soil is above field capacity, allow the soil to drain to below field capacity before finishing the planting. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.
- L. Where indicated on the drawings, build a 4-inch-high, level berm of Planting Soil around the outside of the root ball to retain water. Tamp the berm to reduce leaking and erosion of the saucer.
- M. Thoroughly water the Planting Soil and root ball immediately after planting.
- N. Remove all nursery plant identification tags and ribbons as per Collier County or its Representative instructions. The Collier County Representative's seals are to remain on plants until the end of the warranty period.
- O. Remove corrugated cardboard trunk protection after planting.
- P. Follow additional requirements for the permitted root ball packages.

**2.10 Permitted Root Ball Packages and Special Planting Requirements**

- A. The following are permitted root ball packages and special planting requirements that shall be followed during the planting process in addition to the above General planting requirements.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

B. Balled and Burlapped Plants

1. After the root ball has been backfilled, remove all twine and burlap from the top of the root ball. Cut the burlap away; do not fold down onto the Planting Soil.
2. If the plant is shipped with a wire basket that does not meet the requirements of a "Low Rise" basket, remove the top 6 - 8 inches of the basket wires just before the final backfilling of the tree.
3. Earth root balls shall be kept intact except for any modifications required by Collier County or its Representative to make root package comply with the requirement in Part 2 Products.

C. Container Plants

1. This specification assumes that most container plants have significant stem girdling and circling roots, and that the root collar is too low in the root ball.
2. Remove the container.
3. Perform root ball shaving as defined in Installation of Plants: General above.
4. Remove all roots and substrate above the root collar and the main structural roots according to root correction details so root system conforms to root observations detail.
5. Remove all substrate at the bottom of the root ball that does not contain roots.
6. Using a hose, power washer or air excavation device, wash out the substrate from around the trunk and top of the remaining root ball and find and remove all stem girdling roots within the root ball above the top of the structural roots.

**2.11** Ground Cover, Perennial and Annual Plants

- A. Assure that soil moisture is within the required levels prior to planting. Irrigation, if required, shall be applied at least 12 hours prior to planting to avoid planting in muddy soils.
- B. Assure that soil grades in the beds are smooth and as shown on the plans.
- C. Plants shall be planted in even, triangularly spaced rows, at the intervals called out for on the drawings, unless otherwise noted. The first row of Annual flower plants shall be 6 inches from the bed edge unless otherwise directed.
- D. Dig planting holes sufficiently large enough to insert the root system without deforming the roots. Set the top of the root system at the grade of the soil.
- E. Schedule the planting to occur prior to application of the mulch. If the bed is already mulched, pull the mulch from around the hole and plant into the soil. Do not plant the root system in the mulch. Pull mulch back so it is not on the root ball surface.
- F. Press soil to bring the root system in contact with the soil.
- G. Spread any excess soil around in the spaces between plants.
- H. Apply mulch to the bed being sure not to cover the tops of the plants with or the tops of the root ball with mulch.
- I. Water each planting area as soon as the planting is completed. Apply additional water to keep the soil moisture at the required levels. Do not over water.

**2.12** Palm Planting

- A. Palm trees shall be placed at grade making sure not to plant the tree any deeper in the ground than the palm trees originally stood.
- B. The trees shall be placed with their vertical axis in a plumb position.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- C. All backfill shall be native soil except in cases where planting in rock. Water-settle the back fill.
- D. Do not cover root ball with mulch or topsoil.
- E. Provide a watering berm at each palm. Berms shall extend a minimum of 18 inches out from the trunk all around and shall be a minimum of (6) inches high.
- F. Remove twine which ties fronds together after placing palm in planting hole and securing it in the upright position.

**2.13 Staking and Guying**

- A. Collier County or its Representative shall have the authority to waive tree staking or approve an alternative tree stabilization system as submitted by the contractor.
- B. Trees that required heavily modified root balls to meet the root quality standards may become unstable. Collier County or its Representative may choose to reject these trees rather than utilize staking to temporarily support the tree.
- C. Trees that are guyed shall have their guys and stakes removed after one full growing season or at other times as required by the Collier County Representative.
- D. Tree guying shall utilize the tree staking and guying materials specified. Guying to be tied in such a manner as to create a minimum 12-inch loop to prevent girdling. Refer to manufacturer's recommendations and the planting detail for installation.
  - 1. Plants shall stand plumb after staking or guying.
  - 2. Stakes shall be driven to sufficient depth to hold the tree rigid.

**2.14 Straightening Plants**

- A. Maintain all plants in a plumb position throughout the warranty period. Straighten all trees that move out of plumb including those not staked. Plants to be straightened shall be excavated and the root ball moved to a plumb position, and then re-backfilled.
- B. Do not straighten plants by pulling the trunk with guys.

**2.15 Installation of Fertilizer and Other Chemical Additives**

- A. Do not apply any soluble fertilizer to plantings during the first year after transplanting unless soil test determines that fertilizer or other chemical additives is required. Apply chemical additives only upon the approval of the Collier County Representative.
- B. Controlled release fertilizers shall be applied according to the manufacturer's instructions and standard horticultural practices. Refer to Planting Specification Notes on the plans for additional specifications.

**2.16 Pruning of Trees and Shrubs**

- A. Prune plants as directed by the Collier County Representative. Pruning trees shall be limited to addressing structural defects as shown in details; follow recommendations in "Structural Pruning: A Guide for The Green Industry" published by Urban Tree Foundation, Visalia CA.
- B. All pruning shall be performed by a person experienced in structural tree pruning.
- C. Except for plants specified as multi-stemmed or as otherwise instructed by the Collier County Representative, preserve or create a central leader.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- D. Pruning of large trees shall be done using pole pruners or if needed, from a ladder or hydraulic lift to gain access to the top of the tree. Do not climb in newly planted trees. Small trees can be structurally pruned by laying them over before planting. Pruning may also be performed at the nursery prior to shipping.
- E. Remove and replace excessively pruned or malformed stock resulting from improper pruning that occurred in the nursery or after.
- F. Pruning shall be done with clean, sharp tools.
- G. No tree paint or sealants shall be used.

**2.17** Mulching of Plants

- A. Apply 3 inches of mulch before settlement, covering the entire planting bed area. Install no more than 1 inch of mulch over the top of the root balls of all plants. Taper to 2 inches when abutting pavement.
- B. For trees planted in lawn areas the mulch shall extend to a 5-foot radius around the tree or to the extent indicated on the plans.
- C. Lift all leaves, low hanging stems and other green portions of small plants out of the mulch if covered.

**2.18** Planting Bed Finishing

- A. After planting, smooth out all grades between plants before mulching.

**2.19** Watering

- A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of Substantial Completion Acceptance. The Contractor shall adjust the automatic irrigation system, if available, and apply additional or adjust for less water using hoses as required.
- B. Hand water root balls of all plants to assure that the root balls have moisture above wilt point and below field capacity. Test the moisture content in each root ball and the soil outside the root ball to determine the water content.
- C. The Contractor shall install watering bag, if approved by Collier County for each tree to be maintained for temporary tree watering during the establishment period only if the irrigation system is not functional at time of planting.

**2.20** Clean-Up

- A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
  - 1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.
- B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Collier County Representative's seals are to remain on the trees and removed at the end of the warranty period.
- C. Make all repairs to grades, ruts, and damage by the plant installer to the work or other work at the site.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- D. Remove and dispose of all excess planting soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

**2.21 Protection During Construction**

- A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers. Maintain protection during installation until Substantial Completion Acceptance. Treat, repair or replace damaged work immediately.
- B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Collier County. Collier County or its Representative shall determine when such cleaning, replacement or repair is satisfactory.

**2.22 Plant Maintenance Prior to Substantial Completion Acceptance**

- A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.
- B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.

**2.23 Substantial Completion Acceptance**

- A. Upon written notice from the Contractor, the Collier Countys Representative shall review the work and make a determination if the work is substantially complete.
  - 1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.
- B. The date of substantial completion of the planting shall be the date when Collier County or its Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.
- C. The Plant Warranty period begins at date of written notification of substantial completion from the Collier County Representative. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

**2.24 Maintenance During the Warranty Period by The Plant Installer**

- A. After Substantial Completion Acceptance, the Contractor shall make sufficient site visits to observe the Collier County maintenance and become aware of problems with the maintenance in time to request changes, until the date of End of Warranty Final Acceptance.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

1. Notify Collier County or its Representative in writing if maintenance, including watering, is not sufficient to maintain plants in a healthy condition. Such notification must be made in a timely period so that Collier County or its Representative may take corrective action.
  - Notification must define the maintenance needs and describe any corrective action required.
2. In the event that the Contractor fails to visit the site and or notify, in writing, Collier County or its Representative of maintenance needs, lack of maintenance shall not be used as grounds for voiding or modifying the provisions of the warranty.

**2.25 Maintenance During the Warranty Period by Others**

- A. During the warranty period, provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.
- B. General requirements:
  1. All work shall be undertaken by trained planting crews under the supervision of a foreman with a minimum of 5 years' experience supervising commercial plant maintenance crews.
  2. All chemical and fertilizer applications shall be made by licensed applicators for the type of chemicals to be used. All work and chemical use shall comply with all applicable local, provincial and federal requirements.
  3. Assure that hoses and watering equipment and other maintenance equipment does not block paths or be placed in a manner that may create tripping hazards. Use standard safety warning barriers and other procedures to maintain the site in a safe manner for visitors at all times.
  4. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.
  5. The Contractor shall not store maintenance equipment at the site at times when they are not in use unless authorized in writing by the Collier County Representative.
  6. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the Collier County Representative's written permission.
  7. Maintain a detailed log of all maintenance activities including types of tasks, date of task, types and quantities of materials and products used, watering times and amounts, and number of each crew. Periodically review the logs with the Collier County Representative and submit a copy of the logs at the end of each year of the maintenance agreement.
  8. Meet with Collier County or its Representative at the end of the warranty period attend a hand over meeting to formally transfer the responsibilities of maintenance to the Collier County Representative. Provide all information on past maintenance activities and provide a list of critical tasks that will be needed over the next 12 months. Provide all maintenance logs and soil test data. Make the Contractor's supervisor available for a minimum of one year after the end of the warranty period to answer questions about past maintenance.
- C. Provide the following maintenance tasks:
  1. Watering; Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.
    - Maintain all watering systems and equipment and keep them operational.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture with a soil moisture meter on a regular basis and record moisture readings. Do not over water.
2. Soil nutrient levels: Take a minimum of 4 soil samples from around the site in the spring and fall and have them tested by an accredited agricultural soil testing lab for chemical composition of plant required nutrients, pH, salt and % organic matter. Test results shall include laboratory recommendations for nutrient applications. Apply fertilizers at rates recommended by the soil test.
    - Make any other soil test and/or plant tissue test that may be indicated by plant conditions that may not be related to soil nutrient levels such as soil contaminated by other chemicals or lack of chemical uptake by the plant.
  3. Plant pruning: Remove cross over branching, shorten or remove developing co dominant leaders, dead wood and winter-damaged branches. Unless directed by the Collier County Representative, do not shear plants or make heading cuts.
  4. Restore plants: Reset any plants that have settled or are leaning as soon as the condition is noticed.
  5. Guying and staking: Maintain plant guys in a taught position. Remove tree guys and staking after the first full growing season unless directed by Collier County Representative.
  6. Weed control: Keep all beds free of weeds. Hand-remove all weeds and any plants that do not appear on the planting plan. Chemical weed control is permitted only with the approval of the Collier County Representative.
  7. Trash removal: Remove all trash and debris from all planting beds and maintain the beds in a neat and tidy appearance.
  8. Plant pest control: Maintain disease, insects and other pests at manageable levels. Manageable levels shall be defined as damage to plants that may be noticeable to a professional but not to the average person. Use least invasive methods to control plant disease and insect outbreaks.

**Collier County or its Representative must approve in advance the use of all chemical pesticide applications.**

9. Plant replacement: Replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting as outlined in above sections. Plants that become defective during the maintenance period shall be covered and replaced under the warranty provisions.
10. Mulch: Refresh mulch once a year to maintain complete coverage but do not over mulch. At no time shall the overall mulch thickness be greater than 3 inches. Do not apply mulch within 6 inches of the trunks or stems of any plants. Replacement mulch shall meet the requirements of the original approved material. Mulch shall be no more than one inch on top of the root ball surface.
11. Bed edging: Check and maintain edges between mulch and median edge of pavement in smooth neat lines as originally shown on the drawings.
12. Leaf, fruit and other plant debris removal: Remove fall leaf, spent flowers, fruit and plant part accumulations from beds and paved surfaces. Maintain all surface water drains free of debris. Debris removal shall be undertaken at each visit to weed or pick up trash in beds.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

13. Damage from site use: Repair of damage by site visitors and events, beyond normal wear, are not part of this maintenance. Collier County or its Representative may request that the Contractor repair damage beds or plantings for an additional cost. All additional work shall be approved in advance by the Collier County Representative.

**2.26** End of Warranty Final Acceptance / Maintenance Observation

- A. At the end of the Warranty and Maintenance period Collier County or its Representative shall observe the work and establish that all provisions of the contract are complete and the work is satisfactory.
  1. If the work is satisfactory, the maintenance period will end on the date of the final observation.
  2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Collier County until the work has been completed, observed, and approved by the Collier County Representative.
  3. Turnover "Landscape Maintenance Manual" to Collier County or its Representative who will assume responsibility for the operations and maintenance of the landscaping. The Landscape Maintenance Manual shall specify all necessary plant maintenance to be performed and schedule for performance for one year to provide continuous plant health and growing vigor
- B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Collier County for additional observations may be charged to the Contractor, as determined by the Collier County, at the prevailing hourly rate of the Collier County Representative.

**END OF SECTION**

**THIS PAGE IS INTENTIONALLY LEFT BLANK.**

**SECTION 32 92 23**  
**SODDING**

**PART 1 - GENERAL**

1.01 SCOPE

- A. The Scope of Work includes all sod, material, equipment and labor necessary for installation of sod indicated on the drawings and/or in the Specifications herein.
- B. Grades: It shall be the responsibility of the Contractor to finish (fine) grade (Top 4") all sod areas, eliminating all bumps, depressions, sticks, stones and other debris to the satisfaction of the Landscape Architect, prior to the application of sod. If supplemental topsoil is to be spread, no sod shall be laid until the depth of this soil has been approved. Any sod installed in areas not approved prior by the Landscape Architect may be removed, regraded and re-installed at the Contractor's expense.

1.02 GENERAL

- A. Description: Provide sodded lawn areas as shown and specified. Work under this Section shall comply with all Division 1 Requirements and Special Provisions. Furnish all labor, materials, and equipment to conduct the following.
  - 1. Soil Preparation
  - 2. Fine Grading
  - 3. Sodding
  - 4. Maintenance
- B. Related Work:
  - 1. Section 02950: Plants and Landscaping
  - 2. All other site work related provisions, Sections, and specifications.
- C. Quality Assurance:
  - 1. Sod: Comply with American Sod Producers Association (ASPA) classes of sod materials.
- D. Submittals:
  - 1. Submit sod growers certification of grass species. Identify source location.
  - 2. Upon sodded lawn acceptance, submit written maintenance instructions recommending procedures for maintenance of sodded lawns.
- E. Delivery, Storage, and Handling:
  - 1. Cut, deliver, and install sod within a 24 - hour period.
  - 2. Do not harvest or transport sod when moisture content may adversely affect sod survival.
  - 3. Protect sod from sun, wind, and dehydration prior to installation.
  - 4. Do not tear, stretch, shake, or drop sod during handling and installation.

F. Project Conditions:

1. Work Notification: Notify Owners Representative at least seven (7) days prior to start of sodding operations.
2. Protect existing utilities, irrigation, paving, and other facilities from damage that may be caused by sodding operations.
3. Perform sodding work only after planting and other work affecting ground surface has been completed.
4. Restrict traffic from lawn areas until grass is established. Erect signs and barricades as necessary.
5. Provide hose and lawn watering equipment as necessary to maintain sod survival. No exceptions will be made for sod survival due to irrigation failure during the warranty period or until final acceptance.
6. Sodded areas of the site without irrigation shall be watered to provide establishment.
7. The irrigation system shall be installed prior to sodding. Locate, protect, and maintain the irrigation system during sodding operations. Repairs to irrigation system components damaged by sodding operations will be at the Contractor's expense.

G. Warranty:

Provide a uniform stand of grass by watering, mowing, and maintaining lawn areas until final acceptance. Resod areas, with specified materials, which fail to provide a uniform stand of grass until all affected areas are accepted by the Owners Representative.

1.03 INSPECTION

- A. The Landscape Architect will examine finished surfaces, grades, topsoil quality and depth. Do not start sodding work until satisfactory conditions have been approved by the Owners Representative or until unsatisfactory conditions are corrected.

1.04 PREPARATION

- A. Limit preparation to areas which will be immediately sodded.
- B. Loosen soil of lawn areas to minimum depth of 4". Remove stones over 1" in any dimension and sticks, roots, rubbish, and extraneous matter.
- C. Grade lawn areas to smooth, free draining and even surface with a loose, uniformly fine texture. Roll and rake; remove ridges and fill depressions as required to drain.
- D. Dampen dry soil prior to sodding.
- E. Restore prepared areas to the specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to sodding.

**PART 2 -PRODUCTS**

2.01 PRODUCTS

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- A. Soils within sodded or seeded areas shall be free from debris and well draining from local sources. Soils with excessive stones, or base rock shall not be used within the top 12" of finished grade.
- B. The sod shall be as indicated on the plant list. Sod shall be nursery field grown grass of firm tough texture, having a compact growth with good root development, and shall contain no weeds or any other objectionable vegetation. Sod shall not contain Tropical Soda Apple. Sod shall be a minimum of 3" thick at time of installation. The soil embedded in the sod shall be good earth, free of stones and debris and all sod shall be free from fungus, vermin and other diseases.
- C. Provide well-rooted, healthy sod free of diseases, nematodes, chinch bugs and other soil borne insects. Provide sod uniform in color, leaf texture and density, capable of vigorous growth and development when planted.
- D. Before being cut and lifted, the sod shall have been mowed at least three times with a lawn mower, with the final mowing not more than five (5) days before the sod is cut. The sod shall be carefully cut into uniform dimensions, not more than two (2) days prior to final installation on site.
- E. Solid sod shall be laid with closely even abutting joints with a tamped or rolled, even surface. It shall be the responsibility of the Contractor to bring the sod edge in a neat, clean manner to the edge of all paving and shrub areas, keeping a minimum of 24" back from shrub foliage area flush with all paving surfaces. If, in the opinion of the Owners' Representative, top-dressing is necessary after rolling, clean sand will be evenly applied over the entire surface and thoroughly washed in at the Contractor's expense.
- F. Quantities: All quantities indicated on the plant list are intended as a guide for bidding purposes and does not relieve the Contractor of his responsibility to do a comprehensive material take off. The amount of sod to cover the limits defined on the drawings will be applied.
- G. All sod shall be healthy, green and exhibit a habit of growth that is normal for the species and shall be free of insects. All sod shall meet satisfactory approval at the time of final acceptance. Sod that is not accepted shall be replaced at the Contractor's expense.

### **PART 3- EXECUTION**

#### **3.01 EXECUTION**

- A. Layout: Outline of areas to be sodded shall be smooth and uniform as indicated on the drawings. Where changes have been made in the construction, necessary adjustments must be approved by the Owners Representative.
- B. Peg sod on slopes greater than 4:1 to prevent slippage at a rate of two stakes per square yard (staggered). Pegs are to be removed when sod is established.
- C. Contractor shall repair all washouts that occur during construction and within the warranty period at no additional cost to the Owner.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- D. Sod in specified area as shown on the drawings shall be fertilized using approved fertilizer and at the manufacturer's recommended rate and in compliance with local ordinances. Fertilizer will only be applied after the irrigation system is installed, and properly working and approved by the Landscape Architect or thoroughly watered in at the time of installation by the Contractor.
- E. Lay sod to form a solid mass with tightly-fitted joints. Butt ends and sides of sod strips. Do not overlay edges. Stagger strips to offset joints in adjacent courses. Remove excess sod to avoid smothering adjacent grass. Provide sod pad top flush with adjacent curbs, sidewalks, drains, and seeded areas.
- F. Do not lay dormant sod or install sod on saturated soil.
- G. Install initial row of sod in a straight line, beginning at bottom of slopes, perpendicular to direction of the sloped area. Place subsequent rows parallel to and lightly against previously installed row.
- H. Water sod thoroughly with a fine spray immediately after laying.
- I. Roll with a lawn roller to ensure contact with sub-grade and providing for a smooth grade.
- J. Sod or seed areas adjoining contract limits disturbed as a result of construction operations.

1.07 MAINTENANCE

- A. Maintain sodded lawns until completion and final acceptance of the entire project as issued by the Owners Representative.
- B. Maintain sodded lawn areas, including watering, spot weeding, mowing, application of herbicides, fungicides, insecticides and resodding until a full, uniform stand of grass free of weed, undesirable grass species, disease, and insects is achieved and accepted by the Landscape Architect. Mowing operations shall not create excess grass clippings
- C. Repair, rework, and resod all areas that have washed out or are eroded. Replace undesirable or dead areas with new sod.
- D. Apply herbicides as required to control weed growth or undesirable grass species.
- E. Apply fungicides and insecticides as required to control diseases and insects.
- F. Maintain sod at regular mowing intervals throughout the construction period.
- G. Sod shall be mowed a minimum of 5 days prior to final acceptance by the Owner.

1.08 ACCEPTANCE

- A. Inspection to determine acceptance of sodded lawns will be made by the Landscape Architect prior to Final Acceptance. Provide notification at least 10 working days before requested inspection date.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Sodded areas will be acceptable provided all requirements, including maintenance, have been complied with, and a healthy, even colored viable lawn is established, free of weeds, undesirable grass species, disease, and insects.
- C. Upon final acceptance, the Owner will assume lawn maintenance notwithstanding those tasks herein imposed upon the Contractor.

1.09 CLEANING

- A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from sodding operations.

1.10 GUARANTEE AND REPLACEMENT

- A. Guarantee: The Contractor, as part of his Contract, shall furnish a written guarantee warranting all materials, workmanship and sod, for a period of sixty days from the time of final acceptance. All sod shall be alive and in satisfactory condition at the end of the guarantee period. There shall be an additional 60-day warranty on all replaced areas of sod. Where vandalism is agreed by the Owners Representative as the cause for replacement, the Contractor shall not be responsible for replacement without compensation.

1.11 QUALIFICATIONS

- A. Drawings and general provisions of the contract, including General, Supplementary Second Special Conditions and Division 1, General Requirements of the Specifications, applies to the work of this Section.
- B. Subcontractor shall be a firm with not less than 5-years experience in the type of work specified in this Section, or provide satisfactory substitute evidence that the Owner, at its sole discretion, may accept.

**END OF SECTION 32 92 23**

THIS PAGE INTENTIONALLY LEFT BLANK

**SECTION 33 16 00  
SIDEWALKS, CURBS & GUTTERS**

**PART 1 - GENERAL**

**1.01 WORK INCLUDED:** This section covers all formed concrete work reinforced and non-reinforced as required by the Project indicated on the plans or specified by the Engineer. The Contractor is responsible for all site work and construction supervision required to meet ADAAG/ADA specifications.

**1.02 SUBMITTALS DURING CONSTRUCTION:**

A. Submittal during construction shall be made as required in General Requirements.

**1.03 SUBMITTALS REQUIRED FOR:**

- A. Concrete - Submit data sheets
- B. Granular fill - Submit data sheets
- C. Expansion joint fillers - Submit data sheets
- D. Traffic paint - Submit data sheets
- E. Detectable Warnings System:- submit data sheets

**PART 2 - PRODUCTS**

**2.01 FORMS:**

- A. Materials for sidewalk forms shall be 2-inch dressed lumber straight and free from defects or fiberglass or standard metal forms may be used. Where short radius forms are required, 1-inch dressed lumber is required to hold forms securely in place.

**2.02 GRANULAR FILL:**

- A. Natural sand not having any piece of material larger than 1-inch, free from dirt, clay balls, or organic material, well graded from coarse to fine, containing sufficient finer material for proper compaction and less than ten (10) percent by weight passing the No. 200 sieve. Payment shall incidental to the concrete unit Price bid.

**2.03 EARTH FILL:**

- A. Earth must be free from rocks 2-inches or larger and other foreign materials. Earth fill is incidental to contract Prices. Payment shall incidental to the concrete unit Price bid.

**2.04 EXPANSION JOINT FILLERS:**

- A. Expansion joint fillers shall conform to F.D.O.T. Standard Specifications for Road and Bridge Construction 2004. Submit complete information regarding joint fillers for approval by the Engineer. Payment shall incidental to the concrete unit Price bid.

**2.05 CONCRETE:**

- A. Concrete shall be ready-mixed conforming to ASTM C 94 and shall have a compressive strength of 3,000 psi at 28 days. All exposed aggregate concrete applications shall be comprised of 3 MM Ó 5 MM maximum size aggregate. Limerock aggregate is acceptable for all other concrete applications. Submit complete information regarding mix to the Engineer for review in accordance with the requirements of the referenced ASTM Specification.

**2.06 DETECTABLE WARNING SYSTEM:**

- A. Detectable Warning Systems on walking surfaces shall be ÓEndicott Handicap Detectable Warning Paver or equal with raised truncated domes and specified color and must meet federal ADAAG guidelines.

**2.07 TRAFFIC MARKING PAINT:**

- A. Traffic marking paint shall conform to F.D.O.T. Specifications Section 971. Paint for curbs shall be Pride Baker Paint brand traffic marking paint or approved equal. Paint and labor shall be incidental to contract price for replacement markings and the unit price bid for new markings.

**2.08 ACCEPTANCE OF MATERIALS:**

- A. All materials shall be subject to inspection for suitability, as the Engineer may elect, Prior to or during incorporation into the work.

**PART 3 - EXECUTION**

**3.01 EXCAVATION AND BACKFILL:**

- A. Cut the existing sidewalk regardless of the thickness, with an approved pavement saw or approved pavement cutter wherever sidewalk edges do not follow straight lines. Saw cutting of concrete shall be wet down to reduce air borne contamination. Remove and dispose of sidewalk at the Contractor's expense.

- B. Prior to excavation of the sidewalk the Contractor's superintendent and the Owner's Engineer or designee shall, together, walk the length of the site marking the limits of the excavation and marking any other pertinent information. Paint shall be supplied by the Contractor, incidental to the cost of the Contract.
- C. As directed by the Engineer remove any unsuitable material to such a depth that the addition of the sub grade and granular fill can be placed and compacted. Unsuitable material shall consist of and not be limited to top soil, wood, root matter, stumps, trunks, roots or root systems. Excavation that cannot be accomplished without endangering present structures shall be performed with hand tools.

**3.02 PREPARATION OF SUBGRADE:**

- A. Bring the areas on which curbs and sidewalks are to be constructed to required grade and compact to 95 percent ASTM D 1557 by sprinkling and rolling or mechanical tamping. As depressions occur, refill with approved material and recompact until the surface is at the proper grade.

**3.03 PLACING GRANULAR FILL:**

- A. After the sub grade for sidewalks and curbs is compacted and at the Proper grade, spread 4-inches or more of granular fill. Sprinkle with water and compact to 95 percent ASTM D 1557 by rolling or other method. Top of the compacted fill shall be at the proper level to receive the concrete. Granular fill shall be used, when needed, to raise the level of grade to allow for proper thickness of concrete. After spreading fill, compact to 95 per cent.

**3.04 SETTING FORMS:**

- A. Construct forms to the shape, lines, grades, and dimensions as required for proper installation or as called for on the drawings or as directed by the Engineer. Stake wood or steel forms securely in place, true to line and grade.
- B. Forms on the face of the curb shall not have any horizontal joints within seven (7) inches of the top of the curb. Brace forms to prevent change of shape or movement in any direction resulting from the weight of the concrete during placement. Construct short-radius forms to exact radius. Tops of forms shall not depart from grade line more than 1/8-inch when checked with a ten-foot straightedge. Alignment of straight sections shall not vary more than 1/8-inch in ten (10) feet.

**3.05 CURB/GUTTER CONSTRUCTION:**

- A. Handicap ramps shall be constructed at locations shown on the drawings or as directed by the Engineer and in conformance with legal requirements.

**3.06 SIDEWALK CONSTRUCTION:**

- A. Sidewalks shall be four-inches and driveways shall be 6 inches thick.

Collier County Parks & Recreation  
Tigertail Beach Park Concession Repair & Enhancements  
Bid Documents

- B. Place preformed expansion joints as in the adjacent curb, where the sidewalk ends at a curb, around posts, poles, concrete buildings or walls or other objects protruding through the sidewalk, and at locations shown on the Drawings.
- C. Provide dummy joints transversely to the walks at locations opposite the contraction joints in the curb and at intervals not exceeding five (5) feet. These joints shall be 1/4-inch by 1-inch weakened plane joints. They shall be straight and at right angles to the surface of the walk.
- D. Place, process, finish, and cure concrete in conformance with the applicable requirements of ACI 614 and this Specification. Where the requirements differ, the higher shall govern.
- E. Surface finish shall be as depicted on the Landscape Drawings.
- F. Sidewalks shall be placed to slope towards the street at a maximum slope of 2% or as otherwise directed by the Engineer.
- G. Where sidewalks or curbs which were painted for legal traffic markings (i.e., loading zone, driveways, no parking zones) are removed and replaced with new curb or sidewalk or repaired, the Contractor shall be responsible to paint the new portions of the curbs or sidewalks.
- H. Upon completion of the curing period fill with asphalt, any street side holes or ruts in the asphalt paving that were created by the installation of the curbs or sidewalks.

**END OF SECTION 33 16 00**

**SECTION 33 41 00  
STORM UTILITY DRAINAGE PIPING**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS:**

- A. Drawings and general provisions of the Contract, including General Requirements and Division 31 apply to the Section.

**1.02 SUMMARY :**

- A. The Contractor shall furnish all materials, labor, and equipment and construct storm sewer piping as shown on the Drawings and as specified herein.
- B. These specifications are intended to give a general description of what is required, but do not intend to cover all of the structural design details which will vary in accordance with the requirements of the equipment as offered. It is, however, intended to cover the furnishing, shop testing, delivery, and complete installation of the storm sewer piping.

**1.03 SUBMITTALS:**

- A. Submit to the Engineer the details of construction and shop drawings for Storm Sewer piping.
- B. Manufacturer's Literature: Manufacturer's recommended installation instructions.
- C. Manufacturer's certificates of material conformance with specifications.

**1.04 INSPECTION:**

- A. The quality of all materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representatives of the Owner. Such inspection may be made at the place of manufacture, or at the site after delivery, or at both places, and the sections shall be subject to rejection at any time on account of failure to meet any of the Specification requirements; even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. All sections which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, entirely at the Contractor's expense.
- B. At the time of inspection, the sections will be carefully examined for compliance with FDOT Specifications, and with the approved manufacturer's drawings. All sections shall be inspected for general appearance, dimension, "scratch-strength", blisters, cracks, roughness, soundness, etc. The surface shall be dense and close-textured.
- C. Imperfections may be repaired, subject to the approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs shall be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at the end of 7 days and 5,000 psi at the end of 28 days, Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

**PART 2 - PRODUCTS**

**2.01 PIPE CULVERTS AND STORM SEWERS:**

- A. The work specified in this section will conform to the FDOT Specifications as referred below:  
Reference FDOT Specification 430.

**2.02 PLASTIC FILTER BLANKET:**

- A. The work specified in this article will conform to the FDOT Specifications as referenced below:  
Reference FDOT Section 514.

**PART 3 - EXECUTION**

**3.01 INSTALLATION:**

- A. Earth excavation and backfill are specified in Section 31 20 00 – Earth Moving, but are to be done as part of the work under this Section, including necessary sheeting and bracing. The Contractor shall be responsible for handling groundwater (See SFWMD Water Use (Dewatering) permit conditions to provide firm, dry subgrade for the structure, shall prevent water rising on new poured in place concrete or grouted joint sections within 24 hours after placing, and shall guard against flotation or other damage resulting from ground water or flooding.
- B. Backfill material above the pipe bedding shall be selected material as specified.

**END OF SECTION 33 41 00**

**SECTION 33 42 13  
PIPE CULVERTS**

**PART 1 - GENERAL**

**1.01 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.

**1.02 SECTION INCLUDES:**

- A. Concrete pipe and High Density Polyethylene perforated pipe, including joints and accessories.
- B. Bedding and slope protection at pipe end.

**1.03 REFERENCES:**

- A. Florida Department of Transportation's Standard Specifications and Standard Details, and Collier County Standards, Specifications and Details, latest editions.

**1.04 SUBMITTALS FOR REVIEW:**

- A. Submit shop drawings for all materials pertaining to this section.

**1.05 SUBMITTALS AT PROJECT CLOSEOUT:**

- A. Accurately record on record drawings, actual locations of pipe runs, connections, and invert elevations, certified by a licensed Florida Land Surveyor.

**1.06 REGULATORY REQUIREMENTS:**

- A. All work pertaining to this section for Work to be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

**PART 2 - PRODUCTS**

**2.01 CULVERT PIPE:**

- A. Reinforced Concrete Pipe: All work pertaining to this section for Work to be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.
- B. High Density Polyethylene Perforated Pipe: All work pertaining to this section for Work to be performed in accordance in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

**2.02 BEDDING AND COVER MATERIALS:**

- A. Bedding: All work pertaining to this section for Work to be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

- B. Cover: All work pertaining to this section for Work to be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

**2.03 ACCESSORIES:**

- A. Filter Fabric: All work pertaining to this section for Work to be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

**PART 3 - EXECUTION**

**3.01 EXAMINATION:**

- A. Verify that trench cut and excavation base is ready to receive work and excavations, dimensions, and elevations are as indicated on drawings.

**3.02 PREPARATION:**

- A. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

**3.03 INSTALLATION – PIPE:**

- A. Install pipe and accessories in accordance with manufacturer's instructions.
- B. All work pertaining to this section for Work to be performed in accordance in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.
- C. Lift or roll pipe into position. Do not drop or drag pipe over prepared bedding.
- D. Shore pipe to required position; retain in place until after compaction of adjacent fills. Ensure pipe remains in correct position and to required slope.
- E. Install culvert end gratings.
- F. Do not displace or damage pipe when compacting.

**3.04 PIPE ENDS:**

- A. Install pipe end treatment per the approved construction plans. All work pertaining to this section for Work to be performed in accordance in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.

**3.05 INSTALLATION TOLERANCES:**

- A. Lay pipe to alignment and slope gradients noted on approved construction drawings, with a maximum variation from intended elevation of culvert invert 1/2 inch or in accordance in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions, whichever is most restrictive.
- B. Maximum Offset of Pipe From True Alignment: 1 inch.

**3.06 FIELD QUALITY CONTROL:**

- A. Field Inspection and Testing: All work pertaining to this section for Work to be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.
- B. Compaction Testing: All work pertaining to this section for Work to be performed on-site and within the rights-of-way, alley, etc. shall be performed in accordance with the applicable Florida Department of Transportation's Standard Specifications and Standard Details, and to the applicable Collier County Standards, Specifications and Details, latest editions.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

**3.07 PROTECTION:**

- A. Protect pipe and bedding from damage or displacement until backfilling operation is in progress.

**END OF SECTION 33 42 13**

THIS PAGE IS INTENTIONALLY LEFT BLANK