



# Gateway Services Community Development District

## Lake Bank Restorations

Division 01-17 – Technical Specifications

PREPARED BY



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**TECHNICAL SPECIFICATIONS**

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## SECTION 01010

### SUMMARY OF PROJECT

#### PART 1 - GENERAL

##### 1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. These Contracts are for the restoration of the lake banks of Gateway Lakes 60, 61, 90, 110, 119, and 121 as specified herein. Restoration shall be accomplished by use of an anchor reinforced vegetation system (ARVS) or other repair cross section as shown on the Drawings. The Work consists of furnishing all labor, all equipment, and materials required for construction, consisting of but not limited to the following:

- i. Providing all surveying and field engineering services to establish vertical and horizontal datum and control. Staking residential lot lines, lake maintenance easement locations, and all other services necessary to complete the work as required by the contract documents.
- ii. All excavation, fill, and compaction required to establish a consistent slope along the lake as shown on the Drawings.
- iii. Installation of an ARVS along the perimeter of the lake as shown on the Drawings.

Note: All material for this Contract shall be furnished and installed by the Contractor. No material or equipment will be provided by the Owner.

##### 1.02 CONTRACTOR'S USE OF PREMISES

- A. The Contractor shall assume full responsibility for the protection and safekeeping of products and materials at the job site. If additional storage or work areas are required, they shall be obtained by the Contractor at no additional cost to the Owner.
- B. Staging areas, access points, parking areas, and locations for jobsite restrooms will be identified to the Contractor. These identified areas will be the only areas available to the Contractor and only these areas shall be used. If the Contractor wishes to use areas outside of these designated locations they shall submit a written request to the GSCDD identifying the alternative areas. This request will be reviewed and either approved or denied in writing.

##### 1.03 PROJECT SEQUENCE AND CONTRACT TIME

- A. The work shall be completed as follows:
- i. The total Contract Time from issuance of the Notice-to-Proceed to substantial completion will be 90 calendar days for each lake. An additional 30 days will be

provided to reach final completion. If more than one contract is issued to the same vendor, no additional time shall be supplied to complete the work (the contract time shall remain as stated above).

- ii. Contractor shall coordinate with GSCDD in notifying all residents affected by construction at least 15 days prior to the start of construction
- B. The Contractor shall establish his work sequence based on the use of crews to facilitate completion of construction and testing within the specified Contract Time.
- C. The Contractor shall be limited to working on no more than one thousand linear feet (1000') of shoreline at any given time and must complete restoration of this area prior to proceeding with the restoration of more shoreline. The installation of the ARVS (or other repair material), sod, and #57 stone must be complete in the one thousand foot (1000') section prior to proceeding with the subsequent section of shoreline.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01025

### MEASUREMENT AND PAYMENT

#### PART 1- GENERAL

##### 1.01 DESCRIPTION

- A. This section describes the method used to determine quantities of Work performed or materials supplied for which a price is given in the Bid. It establishes the basis upon which payment will be made for Payment Items.
- B. Subject to the provisions in General Conditions, all Work and payment for the Work is represented by Payment Items and associated unit prices.

##### 1.02 PAYMENT

- A. Subject to all other contract requirements, the Contractor shall be paid for "as-built" quantities of Work for which a price is given in the bid.
- B. Quantities on the Bid Form are for comparison in competitive bidding only and do not necessarily constitute the basis for payment or measurement of quantities.
- C. Quantities on the Bid Form are estimates based on best available data. Any overages in quantities must be pre-approved, in writing, by the owner prior to construction and payment.
- D. No separate payment will be made for one Payment Item as Work incidentally required to complete the Work of another.
- E. Payment for Work performed shall be made in accordance with the unit prices in the Bid. Retainage shall apply to all Contractor payments prior to final acceptance.

##### 1.03 MEASUREMENT FOR PAYMENT

- A. Methods of Measurement:
  - 1. Measurements of lengths, widths, slope angles, and depths or elevations shall be made to determine "as-built" quantities of lengths, and areas pertinent to Payment Items.
  - 2. The length of the lake bank restoration shall be made linearly along the slope at the point of the top anchor trench. The as-built survey shall be used to measure the length.
  - 3. Slope angles and elevations shall be measured using land surveying equipment.

## 1.04 PAYMENT ITEMS

- A. Separate payment will be made for the Unit Price and Lump Sum items listed on the Bid Form. Related work not specifically listed or identified below in 1.04 B and C, but evidently necessary for satisfactory completion of the Item shall be considered to be included.
- B. No separate payment will be made for the following Work, and its cost shall be included in the Bid Price of the Payment Item to which it is associated:
1. Erosion and sedimentation control, and turbidity screening.
  2. Compaction testing.
  3. Temporary construction fencing.
  4. Waste removal and disposal.
  5. Appurtenant work.
  6. Additional geotechnical borings deemed necessary by Contractor.
  7. Notifications to property owners of construction schedule.
  8. Preparation of submittals and shop drawings.
  9. Removal of rock.
  10. Sodding and restoration.
  11. Clean up.
- C. The Bid item numbers can be found in the Bid Form.

### **1. Mobilization/Demobilization**

Preparatory Work and operations in mobilizing for beginning work on the Project and demobilizing for ending work on the Project. The establishment of field offices, buildings, safety equipment, first aid supplies, sanitary and other facilities, as required by these Specifications, State and local laws and any other preconstruction expense necessary for the state of the Work; the cost of field engineering, including permits and fees, construction schedules, construction photographs, project signs, shop drawings, temporary facilities, lay down storage area, construction aids, work associated with Contractor support during Owner testing, reviews and inspection, re-inspection and any rework resulting from same, cleaning, surveyed project as-built documents, operating and maintenance data. The Contractor shall submit invoices substantiating the cost of mobilization with each pay request. Payment for mobilization / demobilization shall be as follows: 75% shall be paid at the time of first invoice after the Contractor has mobilized to the site and established field operations. The remaining 25% shall be paid at the completion of the project when the contractor has properly demobilized, cleaned the site, and completed all restoration.

### **2. General Requirements**

- a. Measurement of various items for General Requirements will not be made for payment and all items shall be included in the appropriate lump sum prices throughout the bid schedule.
- b. Payment for General Requirements shall include Insurance requirements costs, the costs of all bonds, and all administrative costs associated with acquiring and maintaining the necessary coverage as described in the Contract Documents.

**3. Surveying and As-Builts**

- a. No measurement will be made for this item.
- b. The cost of surveying and as-builts shall include field surveying of lots, easements, tracts, etc. as necessary and required to ensure that the project is constructed in accordance with the contract documents. Contractor shall at a minimum stake the location of the adjacent lot lines, lake maintenance easement, locations of top anchor trench and end terminus of matting, and all access easements to ensure that the proposed construction takes place in the proper areas. The contractor shall also provide surveyed as-builts signed and sealed by a licensed surveyor at the completion of the project which are to be submitted to the Gateway Services Community Development District.

**4. Lake Bank Restoration (TRM)**

- a. Measurement for the Lake Bank Restoration shall be made in linear feet (LF) horizontally along the lake slope at the point of the top anchor trench. Distances will be measured based on the as-built survey provided by the Contractor.
- b. The cost of Lake Bank restoration shall include all labor, materials, and equipment necessary to complete the work as required by the contract Drawings and Specifications. This item shall include all furnishing and installing all rock and earthwork (imported fill), grading, compaction, sodding, compaction testing, HPTRM, anchors, pins, and all other items necessary to complete the work as designed and specified herein.

**5. Lake Bank Restoration (Other)**

- a. Measurement for the Lake Bank Restoration shall be made in linear feet (LF) horizontally along the lake slope at the point of the top anchor trench. Distances will be measured based on the as-built survey provided by the Contractor.



- b. The cost of Lake Bank restoration shall include all labor necessary to complete the work as required by the contract Drawings and Specifications. This item shall include all furnishing and installation of rock and earthwork (imported fill), grading, compaction, sodding, compaction testing, non-woven geotextile fabric, pins, and all other items necessary to complete the work as designed and specified herein.

**6. Drain Boxes**

- a. Measurement for the drain boxes shall be for each drain box installed and accepted as designed and specified herein.
- b. The cost of the drain boxes shall be for each drain box installed, including the furnishing and installation of the actual drain box itself, the concrete required to secure the box in place, and the connection of the piping to the box as necessary for each box. This item will bid on a unit price basis and the actual field quantity of drain boxes will vary depending on the field conditions of each lake. The Contractor shall install the drain boxes as directed by the Owner and Engineer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01050

### FIELD ENGINEERING AND SURVEYING

#### PART 1 -- GENERAL

##### 1.1 THE REQUIREMENT

- A. The Contractor shall provide and pay for field engineering services required for the Project as follows.
  - 1. Survey work required in execution of Work.
  - 2. Civil, structural or other professional engineering services required to execute Contractor's construction methods.
- B. The Contractor shall retain the services of a Registered Land Surveyor licensed in the State of Florida to:
  - 1. Identify and verify existing horizontal and vertical control points, and property line corners and stakes indicated on the Drawings, as required. All surveys with elevation data will indicate either NGVD 1929 or NGVD 1988 and a description of the benchmark upon which the survey was based.
- C. The method of field staking for the construction of the Work shall be at the option of the Contractor.
- D. The accuracy of any method of staking shall be the responsibility of the Contractor. All engineering for vertical and horizontal control shall be the responsibility of the Contractor.
- E. The Contractor shall be held responsible for the preservation of all stakes and marks. If any stakes or marks are disturbed, the Contractor shall not proceed with any Work until he has reestablished such points, marks, lines and elevations as may be necessary for the prosecution of the Work.

##### 1.2 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Registered Professional Engineer or Land Surveyor of the discipline required for the specific service on the project, currently licensed in the State of Florida, in good standing.

##### 1.3 SURVEY REFERENCE POINTS

- A. Existing horizontal and vertical control points for the project are those designated on Drawings or provided by GSCDD.
- B. Locate, protect and verify horizontal and vertical control points prior to starting site work, and preserve all permanent reference points during construction. Contractor shall:

1. Make no changes or relocations without prior written notice to the GSCDD.
2. Report to the GSCDD when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
3. Require surveyor to correctly replace project control point that may be lost or destroyed. Establish replacements based on original survey control.

C. Safeguarding Marks

1. The Contractor shall safeguard all points, stakes, grade mark monuments and bench marks made or established on the Work, bear the cost of reestablishing them if disturbed, and bear the expense of rectifying Work improperly installed due to not maintaining, protecting, or removing without authorization such established points, stakes and marks.
2. The Contractor shall safeguard all existing and known property corners, monuments and marks adjacent to but not related to the Work and, shall bear the cost of reestablishing the corners, monuments and marks if disturbed or destroyed.
3. Public land survey corners and accessories destroyed during construction must be restored or replaced according to the provisions of the Florida Statutes, Chapter 177.507, Certification of Corners. Copies of all certified corner records filed with the Florida State Bureau of Surveying and Mapping pursuant to the provisions of Chapter 177.507 must be submitted to the GSCDD.

1.4 SUBMITTALS

- A. Submit name and address of registered land surveyor or professional engineer to the GSCDD.
- B. At the Substantial Completion date, submit certified drawings (signed and sealed by the registered land surveyor) of the items listed below. These drawings shall be included with, and made a part of, the Project Record Documents.
  1. Certified record survey showing the horizontal and vertical data of each benchmark and monument used for the construction of the project. The Certified Record Survey shall be at the same scale as the Engineer's line drawings and must comply with F.S. 472.027.
  2. Certified as-built drawings at the same scale providing the following:
    - Location and elevation of the top anchor trench
    - Location and elevation of the toe of slap (rip rap)
    - A minimum of four (4) points (horizontally and vertically) to establish cross sections along the slope at intervals not to exceed 100' along the lake bank
    - The beginning and termination of the repair at each lake
    - The location of all drain boxes installed

- The location and elevation of the rock line at intervals not to exceed 100' along the lake bank

D. All record drawings shall be in AutoCAD Civil 3D 2011 or later.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01065

PERMITS AND FEES

PART 1 - GENERAL

A. Permits by Contractor:

1. The Contractor shall obtain and pay for all permits including licenses related to his work except as otherwise provided herein.
2. The Contractor shall obtain a Right-Of-Way Usage Permit for all work performed within the public right of way. In addition, the Contractor must submit a maintenance of traffic (MOT) Plan when applying for the permit and prior to start of work.
3. The Contractor shall obtain any and all dewatering permits necessary for construction.
4. The Contractor shall obtain and pay for any and all stormwater discharge and NPDES permits necessary for construction.
5. Comply with all conditions specified in each of the permits and licenses.
6. A copy of the permits obtained by the Owner will be furnished to the Contractor.

B. Permits by Owner:

1. The following permits have been obtained or will be obtained by the Owner prior to construction:

None

END OF SECTION

## SECTION 01152

### APPLICATION FOR PAYMENT

#### PART 1 – GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to Engineer in accordance with the schedule established by Conditions of the Contract and herein.

##### 1.02 RELATED REQUIREMENTS

- A. Agreement between Owner and Contractor.
- B. Conditions of the Contract: Progress Payments, Retainage and Final Payment.
- C. Section 01153: Change Order Procedures.
- D. Section 01700: Contract Closeout.

##### 1.03 FORMAT AND DATA REQUIRED

- A. Submit applications in the form required by Owner, in accordance with the example which will be provided by the Engineer, with itemized data typed on 8-1/2-inch x 11-inch white paper continuation sheets.
- B. Provide itemized data on continuation sheet:
  - 1. Format, schedules, line items and values: Those of the Schedule of Values accepted by Engineer.

##### 1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
  - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
  - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
  - 3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets:
  - 1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.

2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
  - a. Round off values to nearest dollar, or as specified for Schedule of Values.
3. List each Change Order executed prior to date of submission at the end of the continuation sheets.
  - a. List by Change Order Number, and description, as for an original component item of work.

#### 1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:
  1. Project
  2. Application number and date.
  3. Detailed list of enclosures.
  4. For stored products:
    - a. Item number and identification as shown on application.
    - b. Description of specific material.
- B. Submit one copy of data and cover letter for each copy of application.

#### 1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700-Contract Closeout.

#### 1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to Engineer at the times stipulated.
- B. Number: 3 copies of each Application.
- C. When Engineer finds Application properly completed and correct, he will transmit certificate for payment to Owner, with copy to Contractor.

#### PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION



## SECTION 01153

### CHANGE ORDER PROCEDURES

#### PART 1 – GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. Promptly implement change order procedures.
  - 1. Provide full written data required to evaluate changes.
  - 2. Maintain detailed records of work done on a time and material/force account basis.
  - 3. Provide full documentation to Engineer on request.
- B. Designate in writing the member of Contractor's organization:
  - 1. Who is authorized to accept changes in the Work.
  - 2. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the Work.
- C. Owner will designate in writing the person who is authorized to execute change Orders.

##### 1.02 RELATED REQUIREMENTS

- A. Section 01152: Application for Payment.
- B. Section 01310: Construction Schedules.
- C. Section 01370: Schedule of Values.
- D. Section 01700: Contract Closeout.

##### 1.03 DEFINITIONS

- A. Change Order: See General Conditions.
- B. Construction Change Authorization: A written order to the Contractor, signed by Owner and Engineer, which amends the Contract Documents as described, and authorizes Contractor to proceed with a change which affects the Contract Sum or the Contract Time, for inclusion in a subsequent Change Order.
- C. Field Order: A written order, instructions, or interpretations, signed by Engineer making minor changes in the Work not involving a change in Contract Sum or Contract Time.

##### 1.04 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate changes by submitting a Proposal Request to Contractor. Request will include:
  - 1. Detailed description of the change, products, and location of the change in the Project.
  - 2. Supplementary or revised Drawings and Specifications.
  - 3. The projected time span for making the change, and a specific statement as to whether overtime work is, or is not, authorized.
  - 4. A specific period of time during which the requested price will be considered valid.
  - 5. Such request is for information only, and is not an instruction to execute the changes, nor to stop Work in progress.
- B. Contractor may initiate changes by submitting a written notice to Engineer, containing:
  - 1. Description of the proposed changes.
  - 2. Statement of the reason for making the changes.
  - 3. Statement of the effect on the Contract Sum and the Contract Time.
  - 4. Statement of the effect on the work of separate contractors.
  - 5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

#### 1.05 CONSTRUCTION-CHANGE AUTHORIZATION

- A. In lieu of Proposal Request, Engineer may issue a construction change authorization for Contractor to proceed with a change for subsequent inclusion in a Change Order.
- B. Authorization will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change, and will designate the method of determining any change in the Contract Sum and any change in Contract Time.
- C. Owner and Engineer will sign and date the Construction Change Authorization as authorization for the Contractor to proceed with the changes.
- D. Contractor shall sign and date the Construction Change Authorization to indicate agreement with the terms therein.

#### 1.06 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for lump-sum and/or unit price proposals, with sufficient substantiating data to allow Engineer to evaluate the quotation.
- B. On request provide additional data to support time and cost computations:

1. Labor required.
  2. Equipment required.
  3. Products required.
    - a. Recommended sources of purchase and unit cost.
    - b. Quantities required.
  4. Taxes, insurance and bonds.
  5. Credit for work deleted from Contract, similarly documented.
  6. Overhead and profit.
  7. Justification for any change in Contract Time.
- C. Support each claim for additional costs, and for work done on a time-and-material / force account basis, with documentation as required for a lump-sum proposal, plus additional information:
1. Name of Owner's authorized agent who ordered the work, and date of the order.
  2. Dates and times work was performed, and by whom.
  3. Time record, summary of hours worked, and hourly rates paid.
  4. Receipts and invoices for:
    - a. Equipment used, listing dates and times of use.
    - b. Products used, listing of quantities.
    - c. Subcontractors.
- D. Document requests for substitutions for Products as specified in Section 01630.

#### 1.07 PREPARATION OF CHANGE ORDERS

- A. Engineer will prepare each Change Order.
- B. Owner's Form, per example provided by the Engineer.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contact Time.

1.08 LUMP-SUM/FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
  - 1. Engineer's Proposal Request and Contractor's responsive Proposal as mutually agreed between Owner and Contractor.
  - 2. Contractor's Proposal for a change, as recommended by Engineer.
- B. Owner and Engineer will sign and date the Change Order as authorization for the Contractor to proceed with the changes.
- C. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.

1.09 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
  - 1. Engineer's definition of the scope of the required changes.
  - 2. Contractor's Proposal for a change, as recommended by engineer.
  - 3. Survey of complete work.
- B. The amounts of the unit prices to be:
  - 1. Those stated in the Agreement.
  - 2. Those mutually agreed upon between Owner and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
  - 1. Owner and Engineer will sign and date the Change Order as authorization for Contractor to proceed with the changes.
  - 2. Contractor shall sign and date the Change Order to indicate agreement with the terms herein.
- D. When quantities of the items cannot be determined prior to start of the work:
  - 1. Engineer or Owner will issue a construction change authorization directing Contractor to proceed with the change on the basis of unit prices, and will cite applicable unit prices.
  - 2. At completion of the change, Engineer will determine the cost of such work based on the unit prices and quantities used.
    - a. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.

3. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
4. Owner and Contractor will sign and date the Change Order to indicate their agreement with the terms therein.

1.10 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/CONSTRUCTION CHANGE AUTHORIZATION

- A. Engineer and Owner will issue a Construction Change Authorization directing Contractor to proceed with the changes.
- B. At completion of the change, Contractor shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- C. Engineer will determine the allowable cost of such work, as provided in General Conditions.
- D. Engineer will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- E. Owner and Contractor will sign and date the Change Order to indicate their agreement therewith.

1.11 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time.
  1. Revise subschedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The Contractor shall cooperate and coordinate with the Engineer to schedule and administer the preconstruction meeting, periodic progress meetings, and specifically called meetings throughout the progress of the Work. The Contractor shall:
  - a. Prepare agenda for meetings.
  - b. Make physical arrangements for meetings.
  - c. Preside at meetings.
  - d. Take and distribute meeting minutes.
2. Representatives of Contractor, subcontractors, and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
3. The Owner shall attend meetings to ascertain that the Work is expedited consistent with Contract Documents and construction schedules.
4. Copies of the minutes of each progress meeting shall be distributed, by the Contractor, to the attendants within five business days after the meeting.

B. Related Requirements Described Elsewhere:

1. Construction Progress Schedules: Section 01310.
2. Shop Drawings, Working Drawings, and Samples: Section 01340.
3. Project Record Documents: Section 01720.

## 1.02 PRECONSTRUCTION MEETING

- A. Engineer will schedule a preconstruction meeting no later than twenty (20) days after date of Notice to Proceed. The meeting shall be scheduled at the convenience of all parties.
- B. Location: A local site, convenient for all parties, designated by the Engineer.
- C. Attendance:
  - 1. Owner's representative.
  - 2. Engineer and his professional consultants.
  - 3. Resident project representative.
  - 4. Contractor and his superintendent.
  - 5. Major subcontractors.
  - 6. Representatives of major suppliers and manufacturers as appropriate.
  - 7. Governmental representatives as appropriate.
  - 8. Others as requested by the Contractor, Owner, and Engineer.
- D. The Engineer shall preside at the preconstruction meeting. The Contractor shall provide for keeping minutes and distribution of minutes to the Owner, Engineer and attendants. The purpose of the preconstruction meeting is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established.
- E. The suggested agenda for the preconstruction meeting would include the following:
  - 1. Distribution and discussion of:
    - a. List of major subcontractors and suppliers.
    - b. Projected schedules.
    - c. Schedule of Values.
  - 2. Critical work sequencing: Relationships and coordination with other contracts and/or work.
  - 3. Major equipment deliveries and priorities.

4. Project coordination: Designation and responsible personnel.
5. Procedures and processing of:
  - a. Field decisions.
  - b. Proposal requests.
  - c. Request for Information.
  - d. Submittals.
  - d. Change Orders.
  - f. Applications for Payment.
6. Submittal of Shop Drawings, project data and samples.
7. Adequacy of distribution of Contract Documents.
8. Procedures for maintaining Record Documents
9. Use of premises:
  - a. Office, work, and storage areas.
  - b. Owner's requirements.
  - c. Access and traffic control.
10. Construction facilities, controls, and construction aids.
11. Temporary utilities.
12. Safety and first aid procedures.
13. Check of required Bond and Insurance certifications.
14. Completion time for contract and liquidated damages.
15. Request for extension of Contract Time.
16. Procedures for periodic monthly (or whatever interval is deemed appropriate or necessary, however, a minimum of monthly meetings will be required) progress meetings, for all involved.
17. Security procedures.



18. Procedures for making partial payments.
19. Guarantees on completed work.
20. Equipment to be used.
21. Project layout and staking of work.
22. Project inspection.
23. Labor requirements.
24. Laboratory testing of material requirements.
25. Provisions for material stored on site and monthly inventory of materials stored.
26. Requirements of other organizations such as utilities, railroads, highway departments, building departments.
27. Rights-of-way and easements.
28. Housekeeping procedures.
29. Liquidated damages.
30. Posting of signs and installation of Project Sign.
31. Pay request submittal dates.
32. Equal opportunity requirements.

### 1.03 PROGRESS MEETINGS

- A. The Engineer shall schedule regular periodic meetings. The progress meetings will be held a minimum of once per week and at other times as required by the progress of the Work. The first meeting shall be held within thirty (30) days after the preconstruction meeting or thirty (30) days or less after the date of Notice to Proceed, but within 1 week of the commencement of construction.
- B. Hold called meetings as required by progress of the Work.
- C. Location of the meetings: To be determined by Owner/Engineer.
- D. Attendance:

1. Engineer and his professional Subconsultants as needed.
  2. Resident Project Representative.
  3. Contractor and his Superintendent.
  4. Owner's representatives.
  5. Subcontractors (active on the site, as appropriate to the agenda).
  6. Others as appropriate to the agenda (suppliers, manufacturers, other subcontractors, etc.).
- E. The Contractor shall preside at the meetings and provide for keeping minutes and distribution of the minutes to the Owner, Engineer, and others. The purpose of the meetings will be to review the progress of the Work.
- F. The suggested agenda for the progress meetings will include but not be limited to the following:
1. Review approval of minutes of previous meeting.
  2. Review of Work progress since previous meeting and Work scheduled (3-week look ahead schedule).
  3. Field observations, problems, conflicts.
  4. Problems which impede construction schedule.
  5. Review of off-site fabrication, delivery schedules.
  6. Corrective measures and procedures to regain projected schedule.
  7. Status of approved Construction Schedule and revisions to the Construction Schedule as appropriate.
  8. Progress schedule during succeeding work period.
  9. Coordination of schedules.
  10. Review status of submittals and submittal schedule, expedite as required.
  11. Maintenance of quality standards.
  12. Pending changes and substitutions.

13. Shop drawing problems.
  14. Review proposed changes for:
    - a. Effect on Construction Schedule and on completion date.
    - b. Effect on other contracts of the Project.
  15. Critical/long lead items.
  16. Other business.
- G. The Contractor is to attend progress meetings and is to study previous meeting minutes and current agenda items, and be prepared to discuss pertinent topics and provide specific information including but not limited to:
1. Status of all submittals and what specifically is being done to expedite them.
  2. Status of all activities behind schedule and what specifically will be done to regain the schedule.
  3. Status of all material deliveries, latest contact with equipment manufacturer, and specific actions taken to expedite materials.
  4. Status of open deficiencies and what is being done to correct the same.
- H. The Contractor is to provide a current submittal log at each progress meeting in accordance with Section 01340: Shop Drawings, Working Drawings, and Samples.

PART 2- PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01310

### CONSTRUCTION SCHEDULES

#### PART 1 – GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. Promptly after award of the Contract, prepare and submit to Engineer estimated construction progress schedules for the Work, with subschedules of related activities which are essential to its progress.
- B. Submit revised progress schedules to maintain proposed schedule within 30 days of work in place.

##### 1.02 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work.
- B. Section 01041: Project Coordination.
- C. Section 01200: Project Meetings.
- D. Section 01340: Shop Drawings, Product Data and Samples.

##### 1.03 FORM OF SCHEDULES

- A. Prepare schedules in the form of:
  - 1. Gant Chart.
  - 2. Network Analysis System.
  - 3. Other Method Accepted by Engineer.
- B. Format of Listings: The chronological order of the start of each item of work.

##### 1.04 CONTENT OF SCHEDULES

- A. Construction Progress Schedule:
  - 1. Show the complete sequence of construction by activity.

2. Show the dates for the beginning, and completion of each major element of construction.
- B. Submittals, Schedule for Shop Drawings, Product Data and Samples. Show:
1. The dates for Contractor's submittals.
  2. The dates reviewed submittals will be required from the Engineer.
  3. Provide subschedules to define critical portions of prime schedules.

#### 1.05 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission.
- B. Show changes occurring since previous submission of schedule:
1. Major change in scope.
  2. Activities modified since previous submission.
  3. Revised projections of progress and completion.
  4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
1. Problem areas, anticipated delays, and the impact on the schedule.
  2. Corrective action recommended, and its effect.
  3. The effect of changes on schedules of other prime contractors.

#### 1.06 SUBMISSIONS

- A. Submit initial schedules within 10 days after the effective date of the Agreement.
1. Engineer will review schedules and return review copy within 10 days after receipt.
  2. If required, resubmit within seven days after return of review copy.
- B. With each application for payment, submit progress schedule if revised since last payment request.

#### 1.07 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
1. Engineer – Two (2) copies

2. Job site file.
  3. Subcontractors.
  4. Other concerned parties.
- B. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 01340

### SHOP DRAWINGS, WORKING DRAWINGS, AND SAMPLES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

###### A. Scope of Work:

1. The Contractor shall submit to the Engineer for review and approval, such Shop Drawings, Test Reports, and Product Data on materials and equipment (hereinafter in this Section called Data), and material samples (hereinafter in this Section called Samples) as are required for the proper control of work, including but not limited to those Shop Drawings, Data, and Samples for materials and equipment specified elsewhere in the Specifications and in the Drawings. **All submittals shall be made electronically in PDF format.**
2. Within fourteen (14) calendar days after the Notice to Proceed, the Contractor shall submit to the Engineer a complete list of preliminary Data on items for which Shop Drawings are to be submitted. Included in this list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the Engineer shall in no way expressed or implied relieve the Contractor from submitting complete Shop Drawings and providing materials, equipment, etc., fully in accordance with the Contract Documents. This procedure is required in order to expedite final review of Shop Drawings.
3. The Contractor is to maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the Owner and the Engineer. This log should include the following items:
  - a. Submittal description and number assigned.
  - b. Date to Engineer.
  - c. Date returned to Contractor (from Engineer).
  - d. Status of submittal (Approved, Approved as Noted, Amend and Resubmit, and Rejected).
  - e. Date of resubmittal and return (as applicable).
  - f. Date material release (for fabrication).
  - g. Projected date of fabrication.

- h. Projected date of delivery to site.
- i. Status of O&M manuals submittal.
- j. Specification Section.
- k. Drawings sheet number.

## 1.02 CONTRACTOR'S RESPONSIBILITY

- A. It is the responsibility of the Contractor to check all drawings, data and samples prepared before submitting them to the Engineer for review. Each and every copy of the Drawings and data shall bear the Contractor's stamp showing that they have been so checked. Shop drawings submitted to the Engineer without the Contractor's stamp will be returned to the Contractor for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents. If the Contractor takes exception to the specifications, the Contractor shall note the exception in the letter of transmittal to the Engineer.
- B. Determine and verify:
  - 1. Field measurements.
  - 2. Field construction criteria
  - 3. Catalog numbers and similar data.
  - 4. Conformance with Specifications.
- C. The Contractor shall furnish the Engineer a schedule of Shop Drawing submittals fixing the respective dates for the submission of shop and working drawings, the beginning and ending of manufacture, testing, and installation of materials, supplies, and equipment. This schedule shall indicate those that are critical to the progress schedule.
- D. The Contractor shall not begin any of the work covered by a Shop Drawing, Data, or a Sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the Engineer, with approval.
- E. The Contractor shall submit to the Engineer all drawings and schedules sufficiently in advance of construction requirements to provide no less than thirty (30) calendar days for checking and appropriate action from the time the Engineer receives them.
- F. All submittals shall be accompanied with a transmittal letter containing the following information:
  - 1. Date.



2. Project Title and Number.
  3. Contractor's name and address.
  4. The number of each Shop Drawings, Project Data, and Sample submitted.
  5. Notification of Deviations from Contract Documents.
    - a. The Contractor shall indicate in **bold type** at the top of the cover sheet of submittal of shop drawing if there is a deviation from the Drawings, Specifications, or referenced specifications or codes.
    - b. The Contractor shall also list any deviations from the Drawings, Specifications, or referenced specifications or codes and identify in green ink prominently on the applicable Shop Drawings.
  6. Submittal Log Number conforming to Specification Section Number.
- G. The Contractor shall submit a PDF electronic copy to the Engineer for review and approval.
- H. The Contractor shall be responsible for and bear all costs of damages which may result from the ordering of any material or from proceeding with any part of Work prior to the completion of the review by the Engineer of the necessary Shop Drawings.
- I. The Contractor shall be fully responsible for observing the need for and making any changes in the arrangement of piping, connections, wiring, manner of installation, etc., which may be required by the materials/equipment he proposes to supply both as pertains to his own work and any work affected under other parts, headings, or divisions of the Drawings and Specifications.
- J. The Contractor shall not use Shop Drawings as a means of proposing alternate items to demonstrate compliance with the Drawings and Specifications.
- K. Each submittal will bear a stamp indicating that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal as illustrated below.

(OWNER'S NAME)	
(PROJECT NAME)	
(PROJECT NUMBER)	
SHOP DRAWING NO.:	_____
SPECIFICATION SECTION:	_____ DRAWING
NO.	_____

WITH RESPECT TO THIS SHOP DRAWING OR SAMPLE, I HAVE DETERMINED AND VERIFIED ALL QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS, AND SIMILAR DATA WITH RESPECT THERETO AND REVIEWED OR COORDINATED THIS SHOP DRAWING OR SAMPLE WITH OTHER SHOP DRAWINGS AND SAMPLES AND WITH THE REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS.

\_\_\_\_\_ NO VARIATION FROM CONTRACT DOCUMENTS

\_\_\_\_\_ VARIATION FROM CONTRACT DOCUMENTS AS SHOWN

(CONTRACTOR'S NAME)

(CONTRACTOR'S ADDRESS)

BY:

\_\_\_\_\_ D

ATE: \_\_\_\_\_

AUTHORIZED SIGNATURE

- L. Drawings and schedules shall be checked and coordinated with the work of all trades and sub-contractors involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the Contractor for resubmission.

### 1.03 ENGINEER'S REVIEW OF SHOP DRAWINGS

- A. The Engineer's review of Shop Drawings, Data, and Samples as submitted by the Contractor will be to determine if the items(s) generally conforms to the information in the Contract Documents and is compatible with the design concept. The Engineer's review and exceptions, if any, will not constitute an approval of dimensions, connections, quantities, and details of the material, equipment, device, or item shown.
- B. The review of drawings and schedules will be general, and shall not be construed:
1. As permitting any departure from the Contract Documents.
  2. As relieving the Contractor of responsibility for any errors, including details, dimensions, and materials.

3. As approving departures from details furnished by the Engineer, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations and show a departure from the Contract Documents which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or contract time, the Engineer may return the reviewed drawings without noting an exception.
  - D. "Approved As Noted" - Contractor shall incorporate Engineer's comments into the submittal before release to manufacturer. The Contractor shall send a letter to the Engineer acknowledging the comments and their incorporation into the Shop Drawing.
  - E. "Amend And Resubmit" - Contractor shall resubmit the Shop Drawing to the Engineer. The resubmittal shall incorporate the Engineer's comments highlighted on the Shop Drawing.
  - F. "Rejected" - Contractor shall correct, revise and resubmit Shop Drawing for review by Engineer.
  - G. Resubmittals will be handled in the same manner as first submittals. On resubmittals the Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than the corrections requested by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.
  - H. If the Contractor considers any correction indicated on the drawings to constitute a change to the Drawings or Specifications, the Contractor shall give written notice thereof to the Engineer.
  - I. When the Shop Drawings have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
  - J. No partial submittals will be reviewed. Submittals not deemed complete will be stamped "Rejected" and returned to the Contractor for resubmittal. Unless otherwise specifically permitted by the Engineer, make all submittals in groups containing all associated items for:
    1. Systems.
    2. Processes.
    3. As indicated in specific Specifications Sections.

All drawings, schematics, manufacturer's product Data, certifications, and other Shop Drawing submittals required by a system specification shall be submitted at one time as a package to facilitate interface review.

- K. Only the Engineer shall utilize the color "red" in marking Shop Drawing submittals.
- L. Shop drawing and submittal data shall be reviewed by the Engineer for each original submittal and first resubmittal; thereafter review time for subsequent resubmittals shall be charged to the Contractor and the Contractor shall reimburse the Owner for services rendered by the Engineer as specified in the Supplementary Conditions.

#### 1.04 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "Shop Drawing" shall be considered to mean Contractor's plans for materials and equipment which become an integral part of the Project. Shop Drawings shall be complete and detailed and shall consist of fabrication, erection, setting and schedule drawings, manufacturer's scale drawings, and wiring and control diagrams. Catalogs cuts, catalogs, pamphlets, descriptive literature, and performance and test data shall be considered only as supportive information to required Shop Drawings as defined above. As used herein, the term "manufactured" applies to standard units usually mass-produced; and "fabricated" means items specifically assembled or made out of selected materials to meet individual design requirements.
- B. Manufacturer's catalog sheets, brochures, diagrams, illustrations, and other standard descriptive data shall be clearly marked to identify pertinent materials, products, or models. Delete information which is not applicable to the Work by striking or cross-hatching.
- C. Each Shop Drawing shall be submitted with an 8-1/2" by 11" cover sheet which shall include a title block for the submittal. Each Shop Drawing cover sheet shall have a blank area 3-1/2 inches high by 4-1/2 inches wide, located adjacent to the title block. The title block/cover sheet shall display the following:
  - 1. Project Title and Number.
  - 2. Name of project building or structure.
  - 3. Number and title of the Shop Drawing.
  - 4. Date of Shop Drawing or revision.
  - 5. Name of Contractor and subcontractor submitting drawing.
  - 6. Supplier/manufacturer.
  - 7. Separate detailer when pertinent.
  - 8. Specification title and Section number.

9. Applicable Drawing number.

- D. Data on materials and equipment shall include, without limitation, materials and equipment lists, catalog data sheets, catalog cuts, performance curves, diagrams, verification of conformance with applicable standards or codes, materials of construction, and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish, and all other pertinent Data.
- E. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the Contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility for executing the Work in accordance with the Contract, even though such drawings have been reviewed.
- F. All manufacturers or equipment suppliers who propose to furnish equipment or products shall submit an installation list to the Engineer along with the required shop drawings. The installation list shall include at least five (5) installations where identical equipment has been installed and has been in operation for a period of at least two (2) years unless specified otherwise in the Specification Section applicable.

1.05 WORKING DRAWINGS

- A. When used in the Contract Documents, the term "Working Drawings" shall be considered to mean the Contractor's plan for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and falsework for underpinning, and for such other work as may be required for construction but does not become an integral part of the Project.
- B. Copies of working drawings as noted in paragraph 1.05 A. above, shall be submitted to the Engineer where required by the Contract Documents or requested by the Engineer, and shall be submitted at least thirty (30) calendar days (unless otherwise specified by the Engineer) in advance of their being required for the Work.
- C. Working Drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida, and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such work, working drawings must have been reviewed without specific exceptions by the Engineer, which review will be for general conformance and will not relieve the Contractor in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks to new or existing work are assumed by the Contractor; the Owner and Engineer shall have no responsibility therefor.

1.06 SAMPLES

- A. The Contractor shall furnish, for the approval of the Engineer, samples required by the Contract Documents or requested by the Engineer. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in the Work until approved by the Engineer.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
1. Functional characteristics of the product, with integrally related parts and attachment devices.
  2. Full range of color, texture, and pattern.
  3. A minimum of three (3) samples of each item shall be submitted.
- C. Each sample shall have a label indicating:
1. Name of Project.
  2. Name of Contractor and subcontractor.
  3. Material or equipment represented.
  4. Place of origin.
  5. Name of producer/supplier and brand (if any).
  6. Location in Project.
  7. Submittal and specification numbers.
- (Samples of finished materials shall have additional marking that will identify them under the finished schedules.)
- D. The Contractor shall prepare a transmittal letter and a description sheet for each shipment of samples. The description sheet shall contain the information required in Paragraphs 1.06B and C above. He shall enclose a copy of the letter and description sheet with the shipment and send a copy of the letter and description sheet to the Engineer. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Contract requirements.
- E. Approved samples not destroyed in testing shall be sent to the Engineer or stored at the site of the Work. Approved Samples of the hardware in good condition will be marked for identification and may be used in the Work. Materials and equipment incorporated in the Work shall match the approved Samples. Samples which failed testing or were

not approved will be returned to the Contractor at his expense, if so requested at time of submission.

PART 2 - PRODUCTS (NOT USED)  
PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01380

### COLOR DVD PRECONSTRUCTION RECORD

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: Prior to commencing work, the Contractor shall have a continuous color DVD recording taken along the entire length of the Project and at all proposed construction sites within the Project area to serve as a record of pre-construction conditions.

##### 1.02 QUALITY ASSURANCE

- A. The Contractor shall engage the services of a professional electrographer. The color DVD shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business or preconstruction color DVD documentation.
- B. The electrographer shall furnish to the Engineer a list of all equipment to be used for the DVD, i.e., manufacturer's name, model number, specifications and other pertinent information.
- C. Additional information to be furnished by the electrographer are the names and addresses of two references that the electrographer has performed color DVD for, on projects of a similar nature, within the last 12 months.
- D. Owner's Representative must be present during filming. Provide Owner forty-eight (48) hours notice prior to start of filming.
- E. No construction shall begin prior to review and approval of the DVD covering the construction area by the Owner and Engineer. The Engineer shall have the authority to reject all or any portion of a DVD not conforming to specifications and order that it be redone at no additional charge.
- F. The Contractor shall reschedule unacceptable coverage within five (5) days after being notified. The Engineer shall designate those areas, if any, to be omitted from or added to the DVD coverage.
- G. DVD shall not be made more than ninety (90) days prior to construction in any area. All DVDs and written records shall become property of Owner.

#### PART 2 - PRODUCTS

##### 2.01 DVD



- A. DVD shall be new. Reprocessed DVDs will not be acceptable.

### PART 3 - EXECUTION

#### 3.01 EQUIPMENT

- A. All equipment, accessories, materials and labor to perform this service shall be furnished by the Contractor.
- B. The total audio-video system shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume, clarity and be free from distortion and interruptions.
- C. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be more than ten (10) feet. In some instances, DVD coverage may be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance provided by the Contractor.
- D. The color video camera used in the recording system shall have a horizontal resolution of 350 lines at center, a luminance signal to noise ratio of 45 dB and a minimum illumination requirement of one (1) foot candle.

#### 3.02 RECORDED INFORMATION - AUDIO

- A. Each DVD shall begin with the current date, project name and municipality and be followed by the general location, i.e., viewing side and direction of progress. The audio track shall consist of an original live recording. The recording shall contain the narrative commentary of the electrographer, recorded simultaneously with his fixed elevation video record of the zone of influence of construction.
- B. The Owner and Engineer reserves the right to supplement the audio portion of the DVD as deemed necessary. A representative of the Owner or Engineer shall be selected to provide such narrative.

#### 3.03 RECORDED INFORMATION - VIDEO

- A. All video recordings shall, by electronic means, display on the screen the time of day, the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording.
- B. Each DVD shall have a log of that DVD's contents. The log shall describe the various segments of coverage contained on that DVD in terms of the names of streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers and the date.

#### 3.04 LIGHTING

- A. All video shall be done during time of good visibility. No recording shall be done during precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording and to produce bright, sharp video recordings of those subjects.

### 3.05 SPEED OF TRAVEL

- A. The rate of speed in the general direction of travel of the vehicle used during recording shall not exceed 44 feet per minute. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

### 3.06 AREA OF COVERAGE

- A. Video coverage shall include all surface features located within the zone of influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavements, ditches, mailboxes, landscaping, culverts, fences, signs, and headwalls within the area covered, all the way to the right-of-way line and include station points and addresses.

END OF SECTION

## SECTION 01400

### QUALITY CONTROL

#### PART 1 -- GENERAL

##### 1.1 DEFINITION

- A. Specific quality control requirements for the Work are indicated throughout the Specifications and Drawings. The requirements of this Section are primarily related to performance of the Work beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements performed by the Contractor. Quality Assurance refers to similar inspection and testing performed by the Owner to verify the quality control process.

##### 1.2 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, as applicable to the class and nature of the article or materials considered.
- B. The Owner reserves the right to make independent investigations and tests, and failure of any portion of the Work to meet any of the requirements of the Drawings or Specification, shall be reasonable cause for the Owner to require the removal or correction and reconstruction of any such work in accordance with the Contract Agreement.

##### 1.3 INSPECTION AND TESTING LABORATORY SERVICE

- A. Inspection and testing laboratory service shall comply with the following:
  - 1. Owner may appoint, employ, and pay for services of an Independent Testing Laboratory to perform inspection and testing or will perform inspection and testing itself as a part of the Quality Assurance testing program.
  - 2. The Owner or the Independent Testing Laboratory may, at the Owner's direction, perform inspections, testing, and other services specified in individual specification sections, even though the specification section specifically requires that the Contractor perform the test. This does not relieve the Contractor from their testing requirements.
  - 3. Reports from the testing laboratory will be provided to the Owner in support of NON COMPLIANCE NOTICES (NCN).
  - 4. All quality control data, test results and records will be submitted to the Owner as a part of the Project Closeout.

#### 1.4 CONTRACTOR SUBMITTALS

- A. Contractor shall submit a Quality Control Plan. Submittals shall be in accordance with Section 01340 – Shop Drawings.

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

#### PART 3 -- EXECUTION

- 3.1. Inspection: The Contractor shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation and reject damaged and defective items.
- 3.2. Measurements: The Contractor shall verify measurements and dimensions of the Work as an integral step of starting each installation.
- 3.3. Manufacturer's Instructions: Where installations include manufactured products, the Contractor shall comply with manufacturer's applicable instructions and recommendations for installation to whatever extent these are more explicit or more stringent than applicable requirements indicated in Drawings and Specifications.
- 3.4 Specialist Support: QA/QC Testing provided by Contractor is as follows:
  - A. Miscellaneous QA/QC testing not specified below as ordered by Owner.
  - B. Backfill Compaction Tests: Density tests at random intervals along the slope shall confirm compaction to the specified density as indicated in the Drawings. One compaction test location shall be required for each 200 linear feet of shoreline.

#### 3.5 CONTRACTOR QA/QC TESTING

Contractor shall provide any QA/QC testing not outlined in Paragraph 3.4 above as necessary to complete the Work in accordance with the Contract Documents.

END OF SECTION

SECTION 01505

MOBILIZATION

PART 1 -- GENERAL

1.1 GENERAL

- A. Mobilization shall include the obtaining of all permits; moving onto the site of all necessary equipment; furnishing and erecting temporary buildings and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of the Work. Mobilization shall include the following principal items:
1. Mobilize to the site of all Contractor's equipment, personnel, supplies, and incidentals required for first month's operations.
  2. On-site sanitary facilities, safety equipment, and first aid supplies.
  3. Mobilize full-time superintendent to the job site.
  4. Detailed approved schedule in accordance with Section 01310.
  5. Required submittals which allow the Contractor to commence Work.
  6. All required permits, insurance, bonds and licenses to commence Work.
  7. Post all OSHA, MSDS, SRF and NPDES required notices.
  8. Safety Plan.

PART 2 -- PRODUCTS (Not Used)

PART 3 -- EXECUTION (Not Used)

END OF SECTION

## SECTION 01530

### PROTECTION OF EXISTING FACILITIES

#### PART 1 – GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A. Where applicable furnish, install and maintain suitable barriers as required to prevent public entry, and to protect the Work, existing facilities, trees and plants from construction operations; remove when no longer needed, or at completion of Work.

##### 1.02 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work.

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS, GENERAL

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

##### 2.02 FENCING

- A. Minimum fence height six feet.
- B. Open-Mesh Fence:
  - 1. Galvanized steel posts; 1-1/2 inch line posts and two inch corner posts.

##### 2.03 BARRIERS

- A. Materials are Contractor's option, as appropriate to serve required purpose.

#### PART 3 – EXECUTION

##### 3.01 GENERAL

- A. Install facilities of a neat and reasonably uniform appearance, structurally adequate for the required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by the progress of construction.

##### 3.02 FENCES

- A. Provide and maintain fences necessary to assure security of the site during construction to keep unauthorized people and animals from the site when construction is not in progress.
- B. Gates shall have locks; and keys shall be furnished to the Owner.
- C. Provide additional security measures as deemed necessary and approved by the Engineer.

### 3.03 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site.
- B. Consult with the Engineer, and remove agreed-on roots and branches which interfere with construction.
  - 1. Employ qualified tree surgeon to remove branches and treat cuts.
- C. Provide temporary barriers to a height of six feet, around each, or around each group, of trees and plants.
- D. Protect root zones of trees and plants:
  - 1. Do not allow vehicular traffic or parking.
  - 2. Do not store materials or products.
  - 3. Prevent dumping of refuse or chemically injurious materials or liquids.
  - 4. Prevent puddling or continuous running water.
- E. Carefully supervise excavating, grading and filling, and other construction operations, to prevent damage.
- F. Replace, or suitably repair, trees and plants designated to remain which are damaged or destroyed due to construction operations.

### 3.04 REMOVAL

- A. Completely remove barricades, when construction has progressed to the point that they are no longer needed and when approved by Engineer.

END OF SECTION

## SECTION 01550

### SITE ACCESS AND STORAGE

#### PART 1 -- GENERAL

##### 1.1 HIGHWAY LIMITATIONS

- A. The Contractor shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the Work. It shall be the Contractor's responsibility to construct and maintain any haul roads required for its construction operations and repair any damage to public and private roads caused by the Contractor's construction operations.

##### 1.2 TEMPORARY CROSSINGS

- A. General: Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, hospitals and any other public facilities. Safe and adequate public transportation stops and pedestrian crossings on major roadways shall be maintained as determined by the Owner. The Contractor shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time.
- B. Temporary Bridges: Wherever necessary, the Contractor shall provide suitable temporary bridges or steel plates over unfilled excavations. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the Contractor shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.
- C. Street Use: Nothing herein shall be construed to entitle the Contractor to the exclusive use of any public street, alleyway, or parking area during the performance of the Work hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. No roadway shall be closed to the public using type III barricades and signage without first obtaining permission of the Owner. Permission must be obtained two (2) weeks prior to closure. Toe boards shall be provided to retain excavated material if required by the Owner or the agency having jurisdiction over the street or highway. Operating fire hydrants on or adjacent to the Work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to assure the use of sidewalks (unless posted with Sidewalk Closed signage) and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.
- D. Temporary Street Closure: If closure of any street is required during construction, the Contractor shall submit such requests in writing to the Owner. When the closure of a 4-lane road is allowed



by the Owner, a request must be submitted at least (4) weeks in advance of the required closure in order to coordinate with the Owner and any other jurisdictional agency. The traffic control plan indicating detours and emergency access to cul-de-sacs shall accompany any request. The Contractor shall provide placards reading "Road Closed Local Traffic Only" during the closure of any street.

### 1.3 TEMPORARY SOIL TRACKING PROTECTION MEASURES

- A. General: The Contractor shall provide temporary soil tracking protection measures at the entrance to central storage areas that affect paved roads. The temporary protection measures shall be in accordance with the 'Florida Erosion and Sediment Control Inspectors Manual.' Proposed details for the temporary construction entrance are shown in the contract drawings.
- B. Temporary Soil Tracking Protection Measures shall be constructed with FDOT No. 1 Coarse aggregate (1.5 - 3.5 in. stone) as indicated in FDOT Standard Specifications for Road and Bridge Construction. The thickness of the aggregate layer shall be a minimum of 6 inches and shall cover the full width of the vehicular ingress/egress area. The entrance shall be a minimum of 50 feet and accommodate a turning radius for large trucks. The temporary Soil Tracking Protection Measures shall follow the contour of the natural terrain. Slopes shall not exceed 10 percent. The road shall be stabilized with 2-inch stone to reduce erosion and degradation of the temporary roadbed.
- C. The area for the temporary Soil Tracking Protection Measures shall be cleared of all vegetation, roots and other unsuitable material. A geotextile shall be laid directly underneath the gravel layer.
- D. Soil Tracking Protection Measures shall be maintained in a condition which prevents tracks or flow of mud into the public right of way. The Contractor shall be responsible for the maintenance of Soil Tracking Protection Measures during the construction period.

### 1.4 CONTRACTOR'S WORK AND STORAGE AREAS

- A. The Contractor shall refer to the Drawings for specific locations approved for use of storage, site access, parking, and portable restroom areas. Only these locations shall be used unless prior written approval is granted from the Owner and Engineer.
- B. The Contractor shall make its own arrangements for all temporary storage, shop, or field office areas necessary for the proper execution of the Work and shall obtain prior written permission from any owner whose property is used for such purposes.
- C. The Contractor's temporary areas shall be kept in a clean and orderly fashion at all times. The areas will be sloped to drain off all storm runoff. The entrance to the storage areas shall be constructed in accordance with the drawings with a drainage pipe to protect the swale and an entrance driveway of 6 inches of crushed stone road base laid on suitable geotextile (filter fabric). Sediment control traps shall be positioned so as to ensure that downstream catch basins and drains are protected from runoff containing silt from the temporary areas. A sedimentation trap can be constructed by either excavating below grade or building an embankment across a swale and an open-channel spillway provided. Silt fence shall be provided around all central storage areas, limerock and central soil stockpiles.

Storage of materials and equipment on corners, intersections, or turn lanes shall not obstruct line of sight in intersection and shall be at least 6 feet off of the edge of pavement. All central storage sites shall be posted with "No Trespassing" signs every 100 feet around the site.

- D. The Contractor shall construct and use a separate storage area for hazardous materials used in constructing the Work and shall obtain written permission from any owner whose property is used for storage or shop areas.
1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are defined as all products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
  2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.
  3. The Contractor shall develop and provide to the Owner a plan for storing and disposing of the materials above.
  4. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials. Such authorities include the Florida Department of Environmental Protection.
  5. All hazardous materials that are delivered in containers shall be stored in the original containers until use. Hazardous materials that are delivered in bulk shall be stored in containers that meet the requirements of authorities having jurisdiction.
- E. The Contractor shall maintain the storage area while it is in use and restore it to its original condition at the completion of the Project. Restoration shall include removal of temporary culverts and driveways and establishing grass sodding disturbed construction and storage areas. All areas must be completely restored and have an established stand of grass. Downstream sediment traps shall be removed once the restoration is complete and the grass has stabilized the area from significant erosion.

PART 2 -- PRODUCTS (Not Used)

PART 3 -- EXECUTION (Not Used)

END OF SECTION

## SECTION 01700

### CONTRACT CLOSEOUT

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: Comply with requirement stated in Conditions of the Contract and in specifications for administrative procedures in closing out the Work.
- B. Related Requirements Described Elsewhere:
  - 1. Cleaning: Section 01710
  - 2. Project Record Documents: Section 01720
  - 3. Warranties and Bonds: Section 01740.

##### 1.02 SUBSTANTIAL COMPLETION

- A. The Work will not be substantially complete, and Contractor may not request substantial completion inspection unless the following submittals and work is completed:
  - 1. All lake banks are regraded, armored, and sodded.
  - 2. All restoration has been completed to the contractor's work areas, access areas, and storage areas.
  - 3. Project Record Documents have been submitted and reviewed to the requirements of Section 01720.
  - 4. All training of Owner's personnel completed.
  - 5. All areas to be used and occupied are safe, operable in automatic and complete.
  - 6. All deficiencies noted on inspection reports or nonconformances are corrected or the correction plan approved.
- B. When the conditions of paragraph 1.02 A. are met the Contractor shall submit to the Engineer:
  - 1. A written notice that he considers the Work, or portion thereof, is substantially complete, and requests an inspection.
  - 2. A punchlist of items to be corrected with a completion schedule.

- C. Within a reasonable time after receipt of such notice, the Engineer will make an inspection to determine the status of completion.
- D. Should the Engineer determine that the Work is not substantially complete:
  - 1. The Engineer will promptly notify the Contractor in writing, giving the reasons therefor.
  - 2. Contractor shall remedy the deficiencies in the Work and send another written notice of substantial completion to the Engineer.
- E. When the Engineer finds that the Work is substantially complete, he will:
  - 1. Schedule a walk-through of the facility to include the Owner, Engineer to determine the completeness of the punchlist and readiness of the facility for occupancy.
  - 2. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with the tentative punchlist of items to be completed or corrected before final inspection.
  - 3. After consideration of any objections made by the Owner, and when the Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected. Any incomplete work allowed on a punchlist must be reinspected upon completion and any deficiencies found will be added to the punchlist.

### 1.03 FINAL INSPECTION

- A. Prior to Contractors request for a final inspection the following submittals and work must be complete:
  - 1. Project Record Documents must be approved.
  - 2. All spare parts must be suitably delivered.
  - 3. Contractor to submit evidence of compliance with requirements of governing authorities.
- B. After satisfying the requirements of paragraph 1.03 A. and when Contractor considers the Work complete, he shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. Work has been inspected for compliance with Contract Documents.
  - 3. Equipment and systems have been tested in the presence of the Owner's representative and are operational.

4. All punchlist items have been corrected.
- C. The Engineer will, within reasonable time, make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
  - D. Should the Engineer consider that the Work is incomplete or defective:
    1. The Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
    2. Contractor shall take immediate steps to remedy the stated deficiencies, and send another written certification to the Engineer that the Work is complete.
    3. The Engineer will, within a reasonable amount of time, reinspect the Work and the Contractor shall be liable for reinspection fees as described in paragraph 1.04, herein.
  - E. When the Engineer finds that the Work is acceptable under the Contract Documents, the Contractor may make closeout submittals.

#### 1.04 REINSPECTION FEES

- A. Should the Engineer perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:
  1. Contractor will compensate the Owner for such additional services.
  2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

#### 1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS

- A. Warranties and Bonds: To requirements of Section 01740.
- B. Evidence of Payment and Release of Liens: To requirements of General and Supplementary Conditions.
- C. Certificate of Insurance for Products and Completed Operations.

#### 1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum:
  1. The original Contract Sum.
  2. Additions and deductions resulting from:

- a. Previous change orders or written amendment.
  - b. Allowances.
  - c. Unit prices.
  - d. Deductions for uncorrected work.
  - e. Deductions for liquidated damages.
  - f. Other adjustments.
3. Total Contract Sum, as adjusted.
  4. Previous payments.
  5. Sum remaining due.
- C. Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01710

### CLEANING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: Execute cleaning, during progress of the Work and at completion of the Work.

##### 1.02 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

#### PART 3 - EXECUTION

##### 3.01 DURING CONSTRUCTION

- A. Execute daily cleaning to keep the Work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations or personal activities.
- B. Provide on-site containers for the collection of waste materials, debris and rubbish.
- C. Remove waste materials, debris and rubbish from the site as needed and dispose of at legal disposal areas away from the site.



### 3.02 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until paint is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

### 3.03 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- C. Prior to final completion, or Owner occupancy, Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces and all work areas, to verify that the entire Work is clean.

END OF SECTION

## SECTION 01720

### PROJECT RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

A. Scope of Work: Maintain, for the Engineer, one (1) record copy of:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications of the Contract.
5. Engineer's Field Orders or written instructions.
6. Approved Shop Drawings, Working Drawings and Samples.
7. Field Test records.
8. Construction photographs.

B. Related Requirements Described Elsewhere:

1. Field Engineering: Section 01050.
2. Shop Drawings, Working Drawings and Samples: Section 01340.

##### 1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Store documents and samples apart from documents used for construction.

1. Provide files and racks for storage of documents.
2. Provide locked cabinet or secure storage space for storage of samples.

B. File documents and samples in accordance with CSI format with section numbers as provided herein.

C. Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.

- D. Make documents and samples available at all times for inspection by the Engineer.
- E. As a prerequisite for monthly Progress payments, the Contractor is to exhibit the currently updated "Record Documents" for review by the Engineer.

#### 1.03 MARKING DEVICES

- A. Provide felt tip making pens for recording information in the color code designated by the Engineer.

#### 1.02 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information concurrently with construction progress.
  - 1. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction:
  - 1. Field changes of dimension and detail.
  - 2. Changes made by Field Order or by Change Order.
  - 3. Details not on original Contract Drawings.
  - 4. Equipment and piping relocations.
- D. Specifications and Addenda: Legibly mark each section to record:
  - 1. Manufacturer, trade name, catalog number of Supplier of each product and item of equipment actually installed.
  - 2. Changes made by Field Order or by Change Order.
- E. Shop Drawings (after final review and approval): Provide five (5) sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

#### 1.04 SUBMITTAL

- A. At Contract closeout, deliver Record Documents to the Engineer for the Owner.
- B. Accompany submittal with transmittal letter in duplicate, containing:
  - 1. Date.
  - 2. Project title and number.

3. Contractor's name and address.
4. Title and number of each Record Document.
5. Signature of Contractor or his authorized representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 01740

### WARRANTIES AND BONDS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work:
  - 1. Compile specified warranties and bonds as specified in these Specifications.
- B. Related Work Described Elsewhere:
  - 1. Contract Closeout: Section 01700.

##### 1.02 SUBMITTAL REQUIREMENTS

- A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: Two (2) each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
  - 1. Product of work item.
  - 2. Firm, with name of principal, address and telephone number.
  - 3. Scope.
  - 4. Date of beginning of warranty, bond or service and maintenance contract.
  - 5. Duration of warranty, bond or service maintenance contract.
  - 6. Provide information for Owner's personnel:
    - a. Proper procedure in case of failure.
    - b. Instances which might affect the validity or warranty or bond.
  - 7. Contractor, name of responsible principal, address and telephone number.

##### 1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.

- B. Format:
1. Size 8 1/2 inches by 11 inches, punched sheets for standard three (3) ring binder.
    - a. Fold larger sheets to fit into binders.
  2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS." List:
    - a. Title of Project.
    - b. Name of Contractor.
- C. Binders: Commercial quality, three (3) D-ring type binders with durable and cleanable white plastic covers and maximum D-ring width of two (2) inches. Binders shall be presentation type with clear vinyl covers on front, back, and spine. Binders shall include two sheet lifters and two horizontal inside pockets.

#### 1.04 WARRANTY SUBMITTALS REQUIREMENTS

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. The manufacturer's warranty period shall be concurrent with the Contractor's for one (1) year, unless otherwise specified, commencing at the time of final acceptance by the Owner.
- B. The Contractor shall be responsible for obtaining certificates for equipment warranty for all major equipment specified under this contract. The Engineer reserves the right to request warranties for equipment not classified as major. The Contractor shall still warrant equipment not considered to be "major" in the Contractor's one-year warranty period even though certificates of warranty may not be required.
- C. In the event that the equipment manufacturer or supplier is unwilling to provide a one (1) year warranty commencing at the start of the Correction Period, the Contractor shall obtain from the manufacturer a two (2) year warranty commencing at the time of equipment delivery to the job site. This two (2) year warranty from the manufacturer shall not relieve the Contractor of the one (1) year warranty, starting at the time of Owner's acceptance of the equipment.
- D. The Owner shall incur no labor or equipment cost during the guarantee period.
- E. Guarantee shall cover all necessary labor, equipment, materials, and replacement parts resulting from faulty or inadequate equipment design, improper assembly or erection, defective workmanship and materials, leakage, breakage or other failure of all equipment and components furnished by the manufacturer or the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

## SECTION 02200

### EARTHWORK

#### PART I - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: The work included under this Section consists of dewatering, excavating, trenching, sheeting/shoring, filling, grading, backfilling, and compacting those soil materials required for the construction of the embankments, structures, piping, ditches, utility structures and appurtenances as shown on the Drawings and specified herein.
- B. Definitions
1. Maximum Density: Maximum weight in pounds per cubic foot of a specific material as determined by ASTM D1557.
  2. Optimum Moisture Content: The optimum moisture content shall be determined by ASTM D 1557 to determine the maximum dry density for relative compaction. Field moisture content shall be determined on the basis of the fraction passing the 3/4-inch sieve.
  3. Rock Excavation: Excavation of any hard natural substance which requires the use of explosives and/or special impact tools such as jack hammers, sledges, chisels or similar devices specifically designed for use in cutting or breaking rock, but exclusive of trench excavating machinery.
  4. Suitable: Suitable material shall be non-cohesive, non-plastic granular local sand that is free from vegetation, organic material, marl, silt or muck. The materials shall also meet detailed requirements specified herein. The Contractor shall furnish all additional fill material required.
  5. Unsuitable: Unsuitable materials are highly organic soil (peat or muck) classified as A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7, and A-8 in accordance with AASHTO Designation M 145.
- C. Plan for Earthwork
1. The Contractor shall be responsible for having determined to his satisfaction, prior to the submission of his bid, the conformation of the ground, the character and quality of the substrata, the types and quantities of materials to be encountered, the nature of the groundwater conditions, the prosecution of the work, the general and local conditions and all other matters which can in any way affect the work.



2. Prior to commencing the excavation, the Contractor shall submit a plan of his proposed operations to the Owner for review. The Contractor shall reflect the equipment and methods to be employed in the excavation, filling, and compaction. Prices established in the Proposal for the work to be done will reflect all costs pertaining to the work. No claims for extras based on substrata or groundwater table conditions will be allowed.
- D. Trench Safety Act: The Contractor shall comply with all of the requirements of the Florida Trench Safety Act (Chapter 90-96, CS/CB 2626, Laws of Florida). The Contractor shall acknowledge that included in various items of his bid proposal and in the total bid price are costs for complying with the provisions of the Act.
- E. Related Work Described Elsewhere
  1. Shop Drawings, Working Drawings, and Samples: Section 01340.

#### 1.02 APPLICABLE PUBLICATIONS

- A. All publications and standard specifications referred to herein are the latest or current issue of that publication or specification as of the specification date.

#### 1.03 QUALITY ASSURANCE

- A. NOT USED

#### 1.04 FEDERAL AND STATE REGULATORY REQUIREMENTS

- A. All trench excavations which exceed 5 feet in depth shall comply with the applicable trench safety standards as stated in the OSHA excavation safety standards 29 CFR S. 1926.650 Subpart P as regulated and administered by the Florida Department of Labor and Employment Security as the "Florida Trench Safety Act."

#### 1.05 JOB CONDITIONS

- A. If, in the opinion of the Owner, conditions encountered during construction warrant a change in the proposed elevations, or in the depth of removal of unsuitable material from that indicated in the soils report, an adjustment will be made in the contract price.

#### 1.06 SUBMITTALS

- A. Submit to the Owner for review the proposed methods of construction, including dewatering, excavation, bedding, filling, compaction and backfilling for the various portions of the work. Review shall be for information only. The Contractor shall remain responsible for the adequacy and safety of the methods. Where sheeting and bracing is required for construction, the design shall be performed by a Professional Geotechnical Engineer.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

#### A. General

1. All fill material from on and off-site sources shall be subject to the approval of the Owner and Engineer.
2. All fill material shall be unfrozen and free of organic material, trash, or other objectionable material. Excess or unsuitable material shall be removed from the job site by the Contractor.
3. Material excavated, pumped, or otherwise transferred out of the lakes shall not be permitted for use as fill for the lake bank repairs.

#### B. Common Fill Material

1. Common Fill shall be sand not containing stones, rock, concrete or other rubble larger than 2 inches in diameter. No more than 10% of the material, by weight, shall pass a 200 mesh sieve and organic matter in the material shall be less than 1% by weight.
2. The Owner shall direct the Contractor on the type of material allowed in certain sections of the earthwork operations.

## PART 3 - EXECUTION

### 3.01 PLACEMENT OF MATERIALS

#### A. Fills

1. Material placed in fill areas shall be deposited within the lines and to the grades shown on the Drawings making due allowance for settlement of the material. Fill shall be placed only on properly prepared surfaces which have been inspected and approved. If sufficient Common Fill material is not available from excavation on site, the Contractor shall provide borrow as required.
2. During the process of placing fill, all roots, debris and stones greater in size than specified herein shall be removed from the fill areas and the Contractor shall assign a sufficient number of employees to this work to insure satisfactory compliance with these requirements.
3. If the compacted surface of any layer of material is determined to be too smooth to bond properly with the succeeding layer, it shall be loosened by

harrowing or by another approved method before the succeeding layer is placed.

4. Prior to filling, the ground surface shall be prepared by removing vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials. Plow strip or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with the existing surface.
- C. All backfill shall be placed in uniform layers not exceeding 12 inches in depth. Backfill material shall be Common Fill meeting requirements set forth in Paragraph 2.01. All backfill shall be placed and compacted "in-the-dry."

### 3.02 COMPACTION

#### A. General

1. The Contractor shall control soil compaction during construction to provide the densities specified. It shall be the Contractor's responsibility to notify the Owner in writing that compaction tests can be performed. Written notice from the Contractor shall precede completion of compaction operations by at least two (2) working days.
2. Material which is too wet shall be spread over the fill area and permitted to dry, assisted by harrowing if necessary, until the moisture content is reduced to allowable limits. If added moisture is required, water shall be applied to provide satisfactory moisture content. If too much water is added, the area shall be permitted to dry before compaction is continued. The Contractor shall supply all hose, piping, valves, sprinklers, pumps, sprinkler tanks, hauling equipment and other materials and equipment necessary to place water in the fill in the manner specified.
3. When a trench or excavation bottom has a density less than that specified herein for the particular area classification, the Contractor shall compact the material to the required depth and percentage of maximum density.

#### B. Percentage of Maximum Density Requirements

1. All fill and backfill shall be densified to at least 95% of the maximum dry density as determined by ASTM D1557, unless specified otherwise.

### 3.03 FINAL GRADING

- A. After other earthwork work has been finished, and filling and backfilling operations are completed, all areas on the site of the work which are to be graded shall be brought to grade at the indicated elevations, slopes, and contours where seeding or sodding is not required or, where sodding is required, within three (3) inches of finished grade. Use of graders or other power equipment will be permitted for final grading and dressing of

slopes, provided the result is uniform and equivalent to hand work. All surfaces shall be graded to secure effective drainage. Unless otherwise shown, a slope of at least one percent shall be provided. Slopes that are designed as 4:1 shall be placed within a tolerance of 3.5:1 to 4.5:1. Slopes outside of this tolerance may be required to be corrected, at the Owner's and Engineer's discretion with no additional payment to the Contractor.

END OF SECTION

## SECTION 02934

### SOLID SODDING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Scope of Work: The work specified in this Section consists of establishing a stand of grass, within the areas indicated on the Drawings, by furnishing and placing grass sod. Also included are watering and maintenance as required to assure a healthy stand of grass. Solid sodding shall be placed where existing sod is removed or disturbed by Contractor's Operation, and where shown on the drawings.

##### 1.02 SUBMITTALS

- A. A certification of sod quality by the producer shall be delivered to the Owner ten (10) days prior to use.

#### PART 2 - PRODUCTS

##### 2.01 GRASS SOD

- A. Grass sod shall be Floratam St. Augustine grass to match existing turf. The sod shall be taken in rectangles, preferably 12 inches by 24 inches, shall be a minimum 2 inches in thickness and shall be live, fresh and uninjured at the time of planting.
- B. It shall be reasonably free of weeds and other grasses and shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. The sod shall be planted as soon as possible after being dug and shall be shaded and kept moist until it is planted.

##### 2.02 WATER FOR GRASSING

- A. The Contractor shall provide water used in the sodding operations.

#### PART 3 - EXECUTION

##### 3.01 PREPARATION OF GROUND

- A. The area over which the sod is to be placed shall be scarified or loosened to a depth and then raked smooth and free from debris. Where the soil is sufficiently loose and clean, the Owner, at his discretion, may authorize the elimination of ground preparation.

##### 3.02 PLACING SOD

- A. The sod shall be placed on the prepared surface, with edges in close contact and shall be firmly and smoothly embedded by light tamping with appropriate tools.
- B. The setting of the pieces shall be staggered so as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas, the offsets of individual strips shall not exceed 6 inches. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.
- C. On slopes greater than 2 to 1, the Contractor shall, if necessary, prevent the sod from sliding by means of wooden pegs driven through the sod blocks into firm earth, at suitable intervals.
- D. Sod which has been cut for more than 72 hours shall not be used unless specifically authorized by the Owner after his inspection thereof. Sod which is not planted within 24 hours after cutting shall be stacked in an approved manner and maintained and properly moistened. Any pieces of sod which, after placing, show an appearance of extreme dryness shall be removed and replaced by fresh, uninjured pieces.
- E. Sodding shall not be performed when weather and soil conditions are, in the Owner's opinion, unsuitable for proper results.

### 3.03 WATERING

- A. The areas on which the sod is to be placed shall contain sufficient moisture, as determined by the Owner, for optimum results. After being placed, the sod shall be kept in a moist condition to the full depth of the rooting zone for at least 2 weeks. Thereafter, the Contractor shall apply water as needed until the sod roots and starts to grow for a minimum of 60 days (or until final acceptance, whichever is latest).

### 3.04 MAINTENANCE

- A. The Contractor shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include repairing of any damaged areas and replacing areas in which the establishment of the grass stand does not appear to be developing satisfactorily.
- B. Replanting or repair necessary due to the Contractor's negligence, carelessness or failure to provide routine maintenance shall be at the Contractor's expense.

END OF SECTION

## SECTION 13200

### ANCHOR REINFORCED VEGETATION SYSTEM

#### PART 1- GENERAL

##### 1.1 SUMMARY

- A. The work for this section shall consist of furnishing all equipment and labor necessary for the installation of the Anchor Reinforced Vegetation System as a non-structural erosion control and/or slope protection solution.

##### 1.2 RELATED SECTIONS

- A. Earthwork: Section: 02200
- B. Solid Sodding: 02934

##### 1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  1. A 153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
  2. A 603-98e1 – Standard Specification for Zinc-Coated Steel Structural Wire Rope
  3. A 1023 – Standard Specification for Stranded Carbon Steel Wire Ropes for General Purposes
  4. B 85 – Standard Specification for Aluminum-Alloy Die Castings
  5. B 240-10 – Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloys in Ingot Form for Foundry and Die Castings
  6. D 570 - Standard Test Methods for Water Absorption of Plastics.
  7. D 6475 - Standard test Method for Measuring Mass Per Unit Area or Erosion Control Blankets.
  8. D 6524 – Standard Test Method for Stiffness of Geosynthetics Used as Turf Reinforcement Mats.
  9. D 6525 - Standard Test Method for Measuring Nominal Thickness of Permanent Erosion Control Products.
  10. D 6575 – Test Method for Stiffness of Geosynthetics Used as Turf Reinforcements Mats (TRM's)
  11. D 4354 - Practice for Sampling of Geosynthetics for Testing.
  12. D 4355 - Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).
  13. D 4439 - Terminology for Geotextiles.
  14. D 6818 - Test Method for Ultimate Tensile Properties of Turf Reinforcement Mats.
  15. D 4632 - Test Method for Grab Breaking Load and Elongation of Geotextiles.
  16. D 4759 - Practice for Determining the Specification Conformance of Geosynthetics.

17. D 4873 - Guide for Identification, Storage, and Handling of Geotextiles.
  18. D 6566 - Test Method for Measuring Mass Per Unit Area of Turf Reinforcement Mats.
- B. Geosynthetic Accreditation Institute - Laboratory Accreditation Program (GAI-LAP).
  - C. International Standards Organization (ISO) 9001:2000 - Quality System Certification.

#### 1.4 DEFINITIONS

- A. *Anchor Reinforced Vegetation System (ARVS)*: A soil protection system combining a High Performance Turf Reinforcement Mat (HPTRM,), Securing Pins, and Earth Percussion Anchors. The system protects soil surfaces from two failure mechanisms: surface erosion (non-structural applications) and shallow plane instability (structural applications).
- B. *Earth Percussion Anchor*: A device designed to permanently stabilize soil via a metal cleat, flexible or rigid tendon, and load bearing plate. The anchor is driven through the HPTRM to the specified depth, and then tensioned appropriately to load-lock for desired pull-out resistance.
- C. *High Performance Turf Reinforcement Mat (HPTRM)*: A long-term, non-degradable RECP composed of UV-stabilized, non-degradable, synthetic fibers, nettings and/or filaments processed into three-dimensional reinforcement matrices designed for permanent and critical hydraulic applications where design discharges exert velocities and shear stresses that exceed the limits of mature natural vegetation. HPTRMs provide sufficient thickness, strength and void space to permit soil filling and/or retention and the development of vegetation within the matrix. The HPTRM MARV tensile strength per ASTM D-6818 is 3000 lbs/ft in the weakest principle direction.
- D. *Rolled Erosion Control Product (RECP)*: A temporary degradable or long-term non-degradable material manufactured or fabricated into rolls designed to reduce soil erosion and assist in the growth, establishment and protection of vegetation.
- E. *Securing Pin*: A device designed to temporarily hold the HPTRM in place while either vegetation establishes, or the installation of the HPTRM occurs. The securing pin offers no long term value

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. RECP labeling, shipment and storage shall follow ASTM D 4873.
- B. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.
- C. Each shipping document shall include a notation certifying that the material is in accordance with the manufacturer's certificate.
- D. Each RECP roll shall be wrapped with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants. (This will be waived for HPTRMs having a 90% retention of strength after 6000 hours of exposure per ASTM D-4355.)
- E. The protective wrapping shall be maintained during periods of shipment and storage.
- F. During storage, RECP rolls shall be elevated off the ground and adequately covered to protect them from the following: Site construction damage, extended exposure to ultraviolet (UV) radiation, precipitation, chemicals that are strong acids or strong bases, flames, sparks, temperatures in excess of 71 deg C (160 deg F)m and any other environmental condition that might damage the RECP.



PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.0 PREPARATION

- A. Grade and compact areas to be treated with ARVS. Subgrade shall be uniform and smooth.
- B. Remove large rocks, soil clods, vegetation, and other sharp objects so that the installed mat will have direct contact with the soil surface. All existing sod and grasses shall be removed and soil shall be exposed prior to the placement of the matting. Placing the ARVS over top of existing sod and grass will not be permitted.
- A. Prepare the surface by loosening 50 to 75 mm (2 to 3 in) of soil above final grade. This may be accomplished with a rotary tiller on slopes 3H:1V or flatter.
- B. Select and apply soil amendments and fertilizer (in an amount equivalent to 50% of the total mixture required to be installed on the soil surface) in accordance with Section 02934: Solid Sodding, to scarified surface prior to installation of ARVS. Do not mulch areas where mat is to be placed.
- C. Keep areas moist as necessary to establish vegetation. If as a result of rain, prepared slope becomes crusted or eroded, or if eroded places, ruts, or depressions exist for any reason, rework soil until smooth and uniform.
- D. Excavate an initial anchor trench 300mm (12 in.) wide by 300mm (12 in.) deep, a minimum of 900mm (3 ft.) over the crest of one side of the bank slope.

3.1 INSTALLATION

- A. Install RECP at elevation and alignment indicated.
- B. The RECP shall be installed longitudinally along the lake slope as shown on the Drawings.
- C. Secure RECP with pinning devices and with earth percussion anchors in accordance with the pattern / frequency specified in the project drawings. Increased anchoring frequency may be required if site conditions are such that the Owner determines it necessary.
- D. RECP shall terminate at the elevation as shown on the Drawings.
- E. Alternate installation methods must be approved by Owner prior to execution.
- F. Installation of the RECP and ARVS shall not exceed 1000' at any given time without written pre-approval from the Owner and Engineer.
- G. Soil fill and sod the ARVS:
  - 1. Installed ARVS shall be sodded as required by the project documents.
  - 2. Rubber-tired vehicles must be used and sharp turns avoided. No heavy and/or tracked equipment or sharp turns are permitted on the installed HPTRM. Avoid ANY traffic over the HPTRM if loose or wet soil conditions exist.
  - 3. After the HPTRM has been installed, the surface shall be re-checked to ensure that it is uniform and smooth. The surface shall be re-leveled using top soil as necessary prior to sodding to ensure no divots, ruts, or depressions exist.

END OF SECTION