ENGINEERING DESIGN STANDARDS FOR BID PACKAGE 4 – CIVIL WORKS

RFB 6000000898
C-43 WEST BASIN STORAGE RESERVOIR DESIGN UPDATE

CORRECTED FINAL/RTA

HENDRY COUNTY, FLORIDA
PROJECT ID#: 100088

TECHNICAL SPECIFICATIONS

Volume 1

(Division 0 – 1, Section 01 45 00.00 10, Appendix A)

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

BID PACKAGE 4 – CIVIL DESIGN
C-43 WEST BASIN STORAGE RESERVOIR DESIGN UPDATE
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C.T. Reinbold, P.E.
FL PE No. 68639

Carollo Engineers, Inc.
2056 Vista Parkway, Suite 400
West Palm Beach, Florida 33411
PHONE: (561) 868-6400 • FAX: (561) 868-6401
CA No. 8571

Mark N. Ludwigson, P.E.
FL PE No. 77833

Carollo Engineers, Inc.
2056 Vista Parkway, Suite 400
West Palm Beach, Florida 33411
PHONE: (561) 868-6400 • FAX: (561) 868-6401
CA No. 8571

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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Chad Green, P.E. FL PE No. 80131 Carollo Engineers, Inc., Inc. 2056 Vista Parkway, Suite 400 West Palm Beach, Florida 33411 PHONE: (561) 868-6400 • FAX: (561) 868-6401 CA 8571		Joel Smason, P.E. FL PE No. 58434 Carollo Engineers, Inc. 2056 Vista Parkway, Suite 400 West Palm Beach, Florida 33411 PHONE: (561) 868-6400 • FAX: (561) 868-6401 CA 8571

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Larry Smith, P.E.
FL PE No. 45997

Smith Engineering Consultants, Inc.
2161 Palm Beach Lakes Blvd., Ste. 312
West Palm Beach, Florida 33409
PHONE: (561) 616-3911 • FAX (561) 616-3912
CA No. 8228

Michael Penn, P.E.
FL PE No. 71160

Stanley Consultants, Inc.
1641 Worthington Road, Ste. 400
West Palm Beach, FL 33409
PHONE: (561) 584-8734 • FAX: (561) 689-3003
CA No: 1978

Kevin E. Aubry, P.E.
FL PE No. 38175

Terracon Consultants, Inc.
1225 Omar Road
West Palm Beach, Florida 33405
PHONE: (561) 494-7005 • FAX: (561) 689-5955
CA No. 8830

Eric Huskey, P.E.
FL PE No. 56593

Stanley Consultants, Inc.
1641 Worthington Road, Ste. 400
West Palm Beach, FL 33409
PHONE: (561) 584-8734 • FAX: (561) 689-3003
CA No. 1978

SECTION 00 31 46

PERMITS AND FEES

PART 1 GENERAL

1.1 SCOPE:

1.1.1 Summary of Work

Unless otherwise specified, the Contractor shall obtain and pay for all permits and licenses related to the Work as provided for in Section 00700 GENERAL TERMS AND CONDITIONS.

The Contractor will be issued copies of all permits obtained by the District at the pre-construction conference. A copy of the permits shall be posted on a bulletin board in the Contractor's trailer at all times during construction. The Contractor shall be responsible for familiarizing himself with the permits and shall abide by the permit conditions at all times. Refer to Article 6.08 of the Supplemental Conditions for the list of permits that District has obtained or is in the process of obtaining.

The Work shall be conducted and shall result in construction of the improvements of the Project, in full accordance with the conditions of the permits granted for the Project.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Document --

SECTION 00 71 02

DEFINITIONS AND STANDARDS

PART 1 GENERAL

1.1 SCOPE

1.1.1 Definitions

1. A substantial amount of the Technical Specification (specification) language constitutes definitions for terms found in other areas of the Contract Documents including the Drawings, which must be recognized as diagrammatic in nature and not completely descriptive of all requirements necessary.

2. Certain terms used in the Contract Documents are defined in Section 00700 GENERAL TERMS & CONDITIONS. Definitions and explanations are not necessarily either complete or exclusive but are general for the Work.

3. The term District, as defined in Section 00700 GENERAL TERMS & CONDITIONS and used in these specifications, is further defined as the District or District's authorized representative, which may include, but is not limited to, the Design Engineer, Project Manager, Site Manager, or Construction Manager.

1.1.2 General Requirements

General requirements are the provisions or requirements of Division 1 Sections which apply to the entire Work of the Contract.

1.2 FORMAT AND SPECIFICATION EXPLANATIONS

1.2.1 Format Explanation

The format of principal portions of these specifications can be described as follows, although other portions may not fully comply and no particular significance will be attached to such compliance or noncompliance.

1.2.1.1 Sections and Divisions

For convenience, the basic unit of the specification text is a "Section", each unit of which is named and numbered. These are organized into related families of sections, and various families of sections are organized into "Divisions", which are recognized as the present industry consensus on uniform organization and sequencing of specifications. The Section title is not intended to limit meaning or content of Section, nor to be fully descriptive of requirements specified therein, nor to be an integral part of the text.

1.2.1.2 Section Numbering

Used for identification and to facilitate cross-references in the Contract Documents. Sections are placed in numeric sequence; however, the numbering is not sequential, and listing of Sections in Table of Contents at the

beginning of the Technical Specifications must be consulted to determine numbers and names of specification Sections in these Contract Documents.

1.2.1.3 Page Numbering

Numbered independently for each Section. The Section number is shown with the page number at bottom of each page to facilitate location of the text.

1.2.1.4 Parts

Each Section of these specifications generally has been subdivided into three (3) basic parts for uniformity and convenience (Part 1 "General", Part 2 "Products", and Part 3 "Execution"). These parts do not limit the meaning of the text within. Some Sections may not contain all three parts when not applicable, or may contain more than three parts to add clarity to organization of the Section.

1.2.1.5 Imperative Language

Used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by the Contractor. For clarity of reading, at certain locations contrasting subjective language is used to describe responsibilities which must be fulfilled by the Contractor or, when so noted, by others.

1.2.1.6 Specialists Assignments

In certain instances, specification text requires that specific work be assigned to specialists or expert entities who must be engaged for performance of those units of work. These must be recognized as special requirements over which the Contractor has no choice or option. These assignments must not be confused with, and are not intended to interfere with, normal application of regulations, union jurisdictions and similar conventions. Nevertheless final responsibility for fulfillment of the entire set of requirements remains with the Contractor.

1.2.1.7 Trades

Except as otherwise specified or indicated, the use of titles such as "carpentry" in specification text, implies neither that the Work must be performed by an accredited or unionized tradesperson of corresponding generic name (such as "carpenter"), nor that the specified requirements apply exclusively to work by tradespersons of that corresponding generic name.

1.2.2 Specification Content

Because of methods by which this Project specification has been produced, certain general characteristics of contents and conventions in use of language are explained as follows.

1.2.2.1 Specifying Methods

The techniques or methods of specifying requirements varies throughout the text, and may include "prescriptive", "compliance with standards", "performance", "proprietary", or a combination of these. The method used

for specifying one unit of work has no bearing on requirements for another unit of work.

1.2.2.2 Overlapping and Conflicting Requirements

Where compliance with two (2) or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, notify the District for a decision, as specified in Section 00700 GENERAL TERMS & CONDITIONS.

1.2.2.3 Abbreviations

Throughout the Contract Documents are abbreviations implying words and meanings which will be appropriately interpreted. Specific abbreviations have been established, principally for lengthy technical terminology, and in conjunction with coordination of specification requirements, with notations on the Drawings and in schedules. These are normally defined at first instance of use. Organizational and association names and titles of general standards are also abbreviated.

1.3 DRAWING SYMBOLS

1.3.1 TITLE

Except as otherwise indicated, graphic symbols used on the Drawings are those symbols generally recognized in the construction industry for the purposes indicated. Refer instances of uncertainty to the District for clarification.

1.4 INDUSTRY STANDARDS - APPLICABILITY

Applicable standards of the construction industry have the same force and effect, and are made a part of the Contract Documents by reference, as if copied directly into the Contract Documents, or as if published copies were bound herewith. Referenced standards referenced directly in the Contract Documents or by governing regulations have precedence over non-referenced standards which are recognized in industry for applicability to work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Document --

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 SCOPE

Summary of Work: This Section summarizes the Work of the Project as covered in detail in the complete Contract Documents. This is a general summary and is not intended to be complete and all-inclusive of the required Work items.

1.2 SUBMITTALS

Submittals shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

SD-01 Preconstruction Submittals

Embankment Protection Plan

Working Construction Sequence and Surface Water Control Plan

1.3 PROJECT DESCRIPTION

1.3.1 Description of Project

The Caloosahatchee River (C-43) West Basin Storage Reservoir Project (C-43 WBSR) shall be located on approximately 10,500 acres of land located southwest of LaBelle, Florida, just south of SR80 in western Hendry County. The Civil Works portion of the C-43 WBSR project shall include a 2-celled aboveground reservoir, a Perimeter Canal, and multiple water control structures as follows:

1. A two-celled, earthen embankment dam containing internal seepage management features and soil cement armoring with reservoir height ranging from approximately 27.5 feet to 37.5 feet. The reservoir is designed to contain approximately 170,000 acre-feet of storage with a depth ranging from 15 feet to 25 feet.

2. 14.7 mile Perimeter Canal

3. Several water control structures including:

   a. Two gated reservoir discharge structures,

   b. One bi-directional, flow equalization structure,

   c. Two passive, uncontrolled emergency spillways,

   d. Six Perimeter Canal gated structures,

   e. One passive, uncontrolled weir,

   f. Two passive, uncontrolled ogee spillways,

g. and one irrigation pump station with a capacity of 125 cfs (three 42 cfs electric pumps).

4. Discharge piping and structures associated with Pump Station S-470 (pump station constructed in a previous contract).

5. Discharge piping and structures associated with Pump Station S-476 (pump station constructed in a previous contract).

6. Townsend Canal improvements including reshaping the east bank and stabilizing a portion the west bank using sheet piling;

7. Groundwater Pressure relief system;

8. Local Access Bridge;

9. Site Access Bridge;

10. Recreation features;

11. Security fencing;

12. Congen Road Improvements;

13. District Construction Compound additions

1.3.2 Hydrology and Climate

1. The water surface elevation in the Caloosahatchee River is generally near elevation 2.0 NAVD. The water elevation in the Townsend Canal is typically at 2.0 NAVD. Water surface water elevations in the Townsend Canal are subject to considerable fluctuation as a result of ongoing farming operations to the south, and the size of the drainage basin that drains through the Townsend Canal. The water elevation in the Townsend Canal varies within the anticipated maximum water surface elevation of 5.0 NAVD and the minimum water surface elevation of 1.0 NAVD and is dependent on frequent stormwater releases at the DUDA discharge structure at the Southwestern border of the project. Following the passage of hurricane Irma in September 2017, the Townsend Canal stage was estimated to be above elevation +8 feet NAVD. The Contractor shall regularly and intentionally coordinate work activities along the Townsend Canal with local farmers and land owners to limit the impact of potential high stages in the Townsend Canal that may affect the timing, progress, the need for removal of damaged work, and associated re-work. Additional temporary cofferdams may be required provided they do not impede flow in the Townsend Canal. The Contractor shall pay all additional costs for the required coordination and potential rework as necessary.

2. It shall be the contractor's responsibility to obtain information concerning rain and wind. Reference is made to the National Oceanic and Atmospheric Administration (NOAA) publication entitled Local Climatological Data - Monthly Summary, which contains climatological and meteorological observations and data, including wind, rain and temperature data for the project area. Subscription price and ordering information is available from the National Climatic Data Center, Federal Plaza, 151 Patton Avenue, Asheville, North Carolina 28801-5001.

NOAA also has an internet information page at: http://www.ncdc.noaa.gov/.

3. The climate in the project area is subtropical and humid. The project area is subject to tropical storms and hurricanes from June through November, and to windy and/or rainy weather during any time of the year. Temperatures below freezing are rare. May is generally a transitional month in which storms that typically occur in June through September may begin. The typical rainfall of October through May is associated with mid-latitude systems (fronts and low-pressure systems) and is distributed in a spatially uniform pattern. Typical June through September rainfall is closely associated with convective activity. These rainfall events are normally of short duration and amounts are quite variable spatially. Occasionally, daily rainfall during the typical rainfalls of October through May could be quite heavy as mid-latitude systems penetrate into Florida. Weather forecasts as well as actual rainfall Information from the National Weather Service Miami-South Florida forecast office can be accessed at: http://www.srh.noaa.gov/mfl/.

4. Adverse Weather. Refer to Supplemental Conditions.

1.3.3 Access

Primary access to the Site is by Congen Road off of State Road 80. Secondary access within the site is by the east-west and north-south Local Access Road and may only be utilized by written permission from the contractor at S-470 (P3 Contract) and the District. Contractor shall abide by easement requirements and special restrictions discussed in section titled Contractor's Use of Premise (discussed herein).

1.4 RELATED CONTRACT ACTIVITIES

The Contractor shall provide adequate bank protection and/or stabilization, guardrails, barriers, etc. to protect the general public as well as the Site. The Contractor shall revegetate embankments after grading as stipulated in Section 31 32 11 SOIL SURFACE EROSION CONTROL. The Contractor shall submit an Embankment Protection Plan for District approval.

1.5 WORK PERFORMED BY OTHERS

A. The Contractor is made aware that concurrent construction activities will be ongoing during performance of the Work. Coordination will be required between the concurrent contracts.

B. The S-476 Pump Station construction will be completed at the start of construction of the Work. However, coordination with installation of a portion of the discharge piping associated with the connection to the Perimeter Canal shall be required by the Contractor.

C. Construction of the Bid Package 3 (Pump Station S-470) will be ongoing during the construction of the Work.

D. Interior Access Roads Contract. Construction of access roads (by others) within the future reservoir footprint may be ongoing. The purpose of the Interior Access Roads Contract was to provide the Bid Package 4 contractor with improved accessibility within the reservoir footprint. The

District does not warrant the serviceability of said roads against damage due to weather, traffic, or other influences.

E. Clearing and Grubbing Contract. The District awarded a separate contract that generally includes a) grubbing of trees exceeding four feet in height in the interior area of the reservoir, and b) clearing and grubbing of all vegetation within a 2000-foot wide corridor along the dam footprint. The former work is anticipated to be complete in June 2019 and the latter in March 2019. The advanced clearing and grubbing contract was, in part, intended to reduce the potential for adverse impacts to bird nesting activities and resulting delays during Bid Package 4 work. The Bid Package 4 Contractor shall coordinate and cooperate with the clearing and grubbing contractor and is responsible for performing supplemental clearing, grubbing, and vegetation removal as required for the Bid Package 4 contract. All remaining felled trees, debris, and piping shall be removed from the reservoir footprint, as directed by the District.

1. The Contractor shall work with the District as needed to properly coordinate construction activities between the contracts to avoid conflicts and work with others as required to complete the work.

2. Coordination with installation of the discharge piping associated with the connections to Pump Station S-470 shall be required by the Contractor. Coordination of the connection of all Pump Station S-470 discharge piping is to be coordinated with the District.

3. Removal of the temporary bypass piping installed by others, shall be required by the Contractor.

F. Construction of access roads within the future reservoir footprint may be ongoing.

1.6 CONTRACTOR'S USE OF PREMISES

A. See Section 00700 GENERAL TERMS AND CONDITIONS, Article 6.11.

B. During construction activities, the Contractor shall be responsible for maintaining the existing Congen Road and the existing dirt access roads as indicated on the drawings not less than once per week. Road maintenance shall include, but not be limited to, grading the access road at least once per week and upgrading/improving the existing access dirt roads as indicated within the limits indicated. Once improved the existing dirt roads shall be maintained in good driving condition, to the satisfaction of the District and kept free of weeds and debris. The existing dirt roads shall be maintained in a condition that will accommodate construction and farming traffic, equipment, supplies, and material deliveries. Washouts shall be immediately repaired, see Section 00700 GENERAL TERMS AND CONDITIONS. Edges of all roads shall be mowed a minimum of 10 feet as needed and as directed by the District. The Contractor shall maintain the vegetation along both side of the access roads at a maximum height of 18 inches. The Contractor shall coordinate with and provide 24-hour access for any existing local traffic on surrounding access roads and utility companies working onsite.

C. The access and the haul roads are indicated on the drawings. Access to the east side of the Townsend Canal south of SR-80 and to the west side of the Townsend Canal south of SR-80 will be from within the FDOT right of way. Coordination is required with the Bid Package 3 contractor as that contract

includes improvements to Townsend Canal from the SR-80 Bridge north to the Caloosahatchee River.

D. The Contractor shall provide dust control as needed and directed by the District. Dust control may be required on a continuous basis during dry conditions throughout the duration of the Contract.

E. Access to the Townsend Canal Requirements - The Contractor shall construct any temporary construction access and haul roads, within the limits provided, necessary to complete the Townsend Canal improvements. The access/haul roads must remain within the existing easements as indicated on the Drawings. The Contractor shall restore all areas disturbed by the temporary access and haul activities to their existing conditions prior to construction of the Townsend Canal improvements. The Contractor is responsible for developing a Maintenance of Traffic Plan and obtaining approval from the FDOT prior to commencing any work along the Townsend Canal within the SR-80 right of way. Contractor shall continue to maintain access to the Townsend Canal after Notice of Assumption and up to the date of Substantial Completion.

1.7 DISTRICT'S USE OF PREMISES

Partial District Occupancy: The District reserves the right to occupy, employ additional contractor support, and to place and install equipment in areas of the Project, prior to Substantial Completion provided that such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the Work.

1.8 WORK SEQUENCE, COORDINATION ACTIVITIES AND SCHEDULED DATES

1.8.1 General

The Contractor shall coordinate its Work with other adjacent contractors, landowners and District activities, with specific attention to access and staging areas. Construction sequence shall be determined by Contractor subject to the following needs for continuous access and operation by others.

1. Constraints provided in the work sequence identified by the District and included in the contract.

2. Site Access.

3. Staging and storage of materials and equipment

4. Dewatering and stormwater management

5. Any other coordination that may be required during performance of the Work adjacent to work being performed by others.

1.8.2 Weather Delays

See Supplemental Conditions Article 12.02D.

1.8.3 Construction Sequence

A "Generalized Construction Sequencing and Surface Water Control Plan" is presented in Appendix A of this Section. The Generalized Construction Sequencing and Surface Water Control Plan presents one practical manner in which to construct the Project and meet the District's requirements and objectives. It is wholly the Contractor's responsibility to develop a refined and detailed Working Construction Sequence and Surface Water Control Plan to demonstrate the approach, sequence and timing to accomplish the work within the constraints provided in the Contract, and with consideration to normal and adverse weather conditions. The Plan shall contain sufficient detail and be consistent with the Contractor's proposed means and methods and project schedule. The Working Construction Sequence and Surface Water Control Plan shall be submitted to the District for review and approval before the start of construction and updated from time to time as needed and required and approved by the District.

1. A Generalized Construction Sequencing and Surface Water Control Plan" (Plan) is appended to these specifications. The intent of the Generalized Construction Sequencing and Surface Water Control Plan (Plan) is to define the minimum requirements for the Contractor's proposed construction sequence and surface water control measures for the Caloosahatchee River (C-43) West Basin Storage Reservoir, Bid Package 4 - Civil Works Project (Project).

2. This Generalized Plan is not a detailed work plan, rather a generalized overview of the construction sequence that is intended to aid bidders/Contractor with their detailed planning process. This Plan is also intended to identify surface water management features that are required during construction, to define the water supply requirements to meet the adjacent landowner needs and manage minor and major storm events. The Plan is not intended to dictate the Contractor's means and methods for surface water control.

3. The Plan illustrates existing conditions, constraints, and previously awarded contracts associated with the overall project, followed by several work steps associated with this contract. The work steps are not necessarily linear, i.e. completion of Work Step "x" in its entirety is not required prior to commencement of Work Step "y". It is understood that activities may overlap and/or take place concurrently, and that the relative sequence of certain activities is obvious. Many options and methods are available in the planning and execution of the Project covering multiple tasks in multiple locations. This Plan does not represent the only way of accomplishing the work, rather the Plan represents one way in which the Project can be accomplished in an efficient and timely manner.

4. During construction, it will be the responsibility of the Contractor to provide uninterrupted flow of irrigation water to the surrounding land owners. Irrigation water is currently supplied via the existing LaBelle Private Drainage District (LPDD) Pump Stations and LPDD Header Canal. The Contractor shall supply and operate, as required, standby pumps at existing Pump Stations LPDD 2 and 3. Note that the District will pay for the electric services required to power the pumps at existing Pump Stations LPDD 2 and 3. The Contractor shall be responsible for all other fuel costs to operate the existing LPDD Pump Stations. The Contractor shall maintain a log of the pumping

operations for each of the existing LPDD Pump Stations. For each LPDD Pump Station the log shall include the dates, the start and stop pumping operation times, the volume pumped, the fuel consumption and any remarkable events during the pumping operations. The Contractor shall notify the District immediately whenever there are issues with the pump operations at the existing LPDD Pump Stations. The Contractor shall include the pumping operations log with the invoices. Prior to demolishing the existing LPDD-2 and LPDD-3 pump stations and before redirecting the existing irrigation supply to the affected landowners (primarily citrus groves), the Contractor will be required to complete the construction of the S-476 connection; structures S-477, S-478, S-479, S-480, S-481A, S-481B and S-481C; as well as the portion of the Perimeter Canal between said structures and including that portion of the perimeter canal beginning with pump station S-476. The Plan illustrates the existing irrigation supply canals and ditches that require temporary and continuous operation. Staff gauges have been installed at LPDD2 and LPDD3. They are intended to be used by the Contractor to monitor the water surface elevations in the Header Canal. The District will operate the S-476 pump station to maintain Header Canal stages within a defined range prior to the perimeter canal entering into operation. Additionally, the Contractor will be required to install ground water monitoring wells along the southern boundary of the project adjacent to the Duda NE Rim ditch as indicated. The Contractor will also be required, on a daily basis, to monitor the groundwater monitoring wells. The intent during construction of the project is to maintain the groundwater elevations along the NE Rim ditch at 23.0 NAVD.

5. The Contractor is expected to limit dam "work-arounds", which refer to locations where there will be a temporary gap in the dam construction. These work-arounds will allow the Contractor to construct the control structures and provide openings for water to flow away from the Project site.

6. The Contractor shall be responsible for managing surface water on the entire construction site consistent with the applicable permits and capacities of receiving bodies of water. If not managed effectively, surface water control will impact schedule and quality of work. Therefore, due to the size and complexity of this construction project and the critical nature of the Project's schedule, this document is being put forth to alert the Contractor on to the importance of managing surface water, dewatering water, and drainage for the entire construction site. Surface water control and dewatering shall comply with permitting requirements as stated in Florida Department of Environmental Protection (DEP) Permit 0255243-009 and U.S. Army Corps of Engineers (USACE) Permit SAJ-2005-05958. The Contractor shall also be responsible for preventing cleared vegetation, trees and other debris from entering the Townsend Canal for the duration of the project. The Contractor shall be responsible for the removal and disposal of vegetation, trees and debris from the Townsend Canal at a minimum of once per week and as directed by the District for the duration of the project. Work performed in and adjacent to the Townsend Canal shall be done in a manner so that the flows are not impeded especially during pumping and discharge operations.

7. Significant quantities of off-site materials will be required to complete the Project. These materials include but are not limited to

concrete, cement, and admixtures; cement and admixtures for soil cement; FDOT 902-5 Filter Sand; soil bentonite; rock riprap; ~~and~~ pre-cast concrete wave wall segments; and sod. The Contractor is encouraged to haul and stockpile such materials in advance of their actual need to reduce the potential for on- and off-site traffic congestion and to reduce potential impacts resulting from sourcing issues.

8. It is anticipated that on-site sources of soil materials are adequate to meet the needs for Embankment Fill, Select Fill, and Clean Sand. Clean sand would be used as soil cement aggregate and some components of the dam drainage and soil cement slope protection underdrain systems. Clean Sand is also anticipated to qualify as Embankment Fill. These sources include pre-load mounds, excess acceptable fill from Perimeter Canal excavation, and interior borrow. Refer to the Geotechnical Site Characterization Report for further information on this subject. It may be prudent to select on-site material based on location and timing of the specific construction activity, and the need to vacate areas to receive subsequent construction, e.g. removal of pre-load mounds to allow for dam foundation preparation.

9. The clays found in the subsurface profile are somewhat over-consolidated, especially in the areas of the preload fills. The over-consolidated nature of the clays and the impacts of the preload fills on the clays is not readily apparent upon review of the subsurface profile data provided in the Geotechnical Site Characterization Report. The Contractor shall be cognizant of the over-consolidated nature of the clays in the development of excavation support designs, and in the selection of sheet piling installation equipment and methodologies.

1.8.4 Scheduled Events

Schedule the Work to conform to the ~~following events and~~ dates as identified in the Contract Documents, and to provide for coordination with the Work performed by others.

1.9 COPIES OF DOCUMENTS

See Section 00700 GENERAL TERMS AND CONDITIONS, Article 2.02.

1.10 LIST OF DRAWINGS

A. Drawings:

1. RFB ~~6000000XXX~~6000000898, South Florida Water Management District, Caloosahatchee River (C-43) West Basin Reservoir Project, Civil Works, Sheets 1-~~948~~959, inclusive.

B. Reference Materials:

1. Reference Materials are available (may be upon request): These materials are for reference only, are provided as-is, are not contract

documents, and do not replace the Contractor's due diligence in bid preparation. Refer to list in the SUPPLEMENTAL CONDITIONS.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

CALOOSAHATCHEE RIVER (C-43)
WEST BASIN STORAGE RESERVOIR DESIGN
BID PACKAGE 4 - CIVIL WORKS

GENERALIZED CONSTRUCTION SEQUENCING AND SURFACE WATER CONTROL PLAN

Corrected Final/RTA Submittal
December 2018

PROJECT I.D. No. 4600003016-WO11R2

Sealed by Martin J. Weber – FL PE No. 84933
Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409

MARTIN JOSEPH WEBER
LICENSE
No. 83944
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
Marty Weber
12.4.18

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Stanley Consultants INC.

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APPENDICES

A. 2018 LPDD Pump Stations 2 and 3 Surveys
B. Clearing and Grubbing Contract Drawing
C. Interior Access Roads Contract Drawing

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1. INTRODUCTION

a. General

The intent of the Generalized Construction Sequencing and Surface Water Control Plan (Plan) is to define the minimum requirements for the Contractor's proposed construction sequence and surface water control measures for the Caloosahatchee River (C-43) West Basin Storage Reservoir, Bid Package 4 - Civil Works Project (Project). The Generalized Construction Sequencing and Surface Water Control Plan presents one practical manner in which to construct the Project and meet the District's requirements and objectives. It is wholly the Contractor's responsibility to develop a refined and detailed Working Construction Sequence and Surface Water Control Plan to demonstrate the approach, sequence and timing to accomplish the work within the constraints provided in the Contract, and with consideration to normal and adverse weather conditions[1]. The Plan shall contain sufficient detail and be consistent with the Contractor's proposed means and methods and project schedule. The Working Construction Sequence and Surface Water Control Plan shall be submitted to the District for review and approval before the start of construction and updated from time to time as needed and required and approved by the District. Components of the Project include construction of approximately 19 miles of dam embankment, excavation of 15 miles of Perimeter Canal, and construction of multiple water control structures.

This Generalized Plan is not a detailed work plan, rather a generalized overview of the construction sequence that is intended to aid bidders/Contractor with their detailed planning process. This Plan is also intended to identify surface water management features that are required during construction, to define the water supply requirements to meet the adjacent landowner needs and manage minor and major storm events. The Plan is not intended to dictate the Contractor's means and methods for surface water control.

The previous statements notwithstanding, certain sequencing aspects of this Plan are required by the contract and are designated elsewhere in the Contract Documents and not necessarily shown or addressed in this document. The Contractor shall prepare its own detailed work plan for approval by the District. The Contractor developed plan shall consider rainy season operations associated with the project site (interior and at points of discharge) and other constraints as detailed by the District and defined in the contract.

The Plan illustrates existing conditions and previously awarded contracts associated with the overall project, followed by several work steps associated with this contract. The work steps are not necessarily linear, i.e. completion of Work Step "x" in its entirety is not required prior to commencement of Work Step "y". It is understood that activities may overlap and/or take place concurrently, and that the relative sequence of certain activities is obvious. Many options and methods are available in the planning and execution of the Project covering multiple tasks in multiple locations. This Plan does not represent the only way of accomplishing the work, rather the Plan represents one way in which the Project can be accomplished in an efficient and timely manner.

[1] See Contract Supplemental Condition 12.02D for further discussion of adverse weather conditions.

During construction, it shall be the responsibility of the Contractor to provide safe and efficient access to the interior of the reservoir without damaging or contaminating newly constructed features of the Project. The Contractor shall be required to maintain surface water control and irrigation supply for the project site and the adjacent land owners. During construction it shall be the responsibility of the Contractor to regularly coordinate with and provide uninterrupted flow of irrigation water to the surrounding land owners.

Irrigation water is currently supplied via the existing LaBelle Private Drainage District (LPDD) Pump Stations (LPDD-1, LPDD-2 and LPDD-3) and the LPDD Header Canal. A temporary bypass system will be installed (by others) connecting the newly constructed S-476 pump station to the LPDD Header Canal. Once the temporary bypass system is installed, the existing LPDD-1 pump station may be removed and water supply from the Townsend Canal will be provided by the S-476 pump station through the temporary bypass system. To the extent practical and to the extent that water is available, the District will operate and maintain S-476 to deliver water as needed. The Contractor shall be responsible for maintaining water supply (as delivered by the S-476 pump station) and the Contractor shall be responsible to maintain the existing S-476 bypass piping and canal systems until the Irrigation Bypass System[2] is complete. Contractor's refined and detailed Working Construction Sequence and Surface Water Control Plan shall include provisions for regular meetings with affected landowners and the District to establish the agreed upon logistics, schedule, and duration of the changeover from the temporary to permanent irrigation bypass system.

The Contractor shall operate and maintain existing pump stations LPDD-2 and LPDD-3 until the Irrigation Bypass System is complete and operational and shall repair or maintain standby capacity to provide uninterrupted water supply service to the adjacent landowners. The District will assume the electrical service to pump stations LPDD-2 and LPDD-3 and associated electrical charges will be paid by the District. The Contractor shall log operation of the LPDD-2 and LPDD-3 pump stations. The Contractor shall submit pump station operation reports and calibrated pump logs to the District with Contractor's payment applications. As part of its Working Plan, Contractor shall provide proposed format of operation reports and pump logs for District approval.

Prior to demolishing the existing LPDD-2 and LPDD-3 pump stations and before redirecting the existing irrigation supply to the affected landowners (primarily citrus groves), the Contractor will be required to complete the construction of the S-476 connection; structures S-477, S-478, S-479, S-480, S-481A, S-481B and S-481C; as well as the portion of the Perimeter Canal between said structures. Figure 1 illustrates the major existing irrigation supply canals associated with the Project. In addition, the Contractor is required to limit dam "work-arounds", which refer to locations where there will be a temporary gap in the dam construction. These work-arounds will allow the Contractor to construct the control structures and/or provide openings for water to flow off the site.

The Contractor shall be responsible for managing surface water on the entire construction site consistent with the applicable permits and capacities of receiving bodies of water. If not managed

[2] The Irrigation Bypass System is defined as the S-476 pump station (by others), and the following components being constructed under this contract: S-476 discharge system, Perimeter Canal from S-476 to S-481A, and water control structures S-477, S-478, S-479, S-480, S-481A, S-481B, and S-481C.

effectively, surface water control will impact schedule and quality of work. Therefore, due to the size and complexity of this construction project and the critical nature of the Project's schedule, this document is being put forth to alert and inform the Contractor as to the importance of managing surface water, dewatering water, and drainage for the entire construction site. Surface water control and dewatering shall comply with permitting requirements as stated in Florida Department of Environmental Protection (DEP) Permit 0255243-009 and U.S. Army Corps of Engineers (USACE) Permit SAJ-2005-05958[3]. Copies of these permits including conditions for Project construction are included elsewhere in the contract documents. Of significant note is DEP Permit Condition 9 which is repeated below.

9. ***Water Use Permits***. *For activities that require a water use permit from the State, such as, but not limited to, construction dewatering, industrial use of surface or ground water, and public water supply wells, the required application, fees and applicable site-specific information shall be submitted to the South Florida Water Management District (District) for review and verified by FDEP OEP in accordance with the requirements of Rules 40E-2, 40E-20, F.A.C. and Sections 373.026(7), 373.219(1), F.S. and as follows:*

    A. ***Water Supply Wells***. *For activities that require temporary use of a water supply well during construction (e.g. construction trailers), the Contractor(s) shall obtain all required permits. If the water supply well will serve permanent facilities (e.g., pump station), the District shall ensure that FDEP OEP has received a permit request and copies of the well permit for review and authorization by the Department under a separate action.*

    B. ***Industrial Use of Surface or Ground Water***. *For activities that require industrial use of surface or ground water within or adjacent to the project (e.g. soil-cement mixtures or equipment wash down), the Contractor(s) shall obtain all required permits. For larger or more complex facilities, the District shall ensure that, upon the Contractor(s) submission, a copy of the application and site-specific information is also provided to FDEP OEP.*

    C. ***Construction Dewatering***. *For activities that require removal of surface or ground water as part of construction, the Contractor(s) shall obtain all required permits. If the Contractor intends to commence dewatering activities under the conditions of the "No Notice" until a permit is issued, the District shall submit a notification to FDEP OEP. All dewatering authorizations or modifications to existing authorizations issued by the District for projects permitted by FDEP are subject to review and approval by the Department before that action is considered final and effective.*

Significant quantities of off-site materials will be required to complete the Project. These materials include but are not limited to concrete, cement, and admixtures; cement and admixtures for soil cement; FDOT 902-4 Filter Sand; riprap, bentonite, turf establishment materials, and pre-cast

[3] Said documents put forth general permitting requirements and as the lead regulatory agency, the District will issue site-specific permits (e.g. dewatering and consumptive use) following receipt of acceptable applications from the Contractor.

concrete wave wall segments. The Contractor is encouraged to haul and stockpile such materials in advance of their actual need to reduce the potential for on- and off-site traffic congestion and to reduce potential impacts resulting from sourcing issues. Provisions for primary material storage areas are shown on the construction drawings. The Contractor may construct local storage areas (e.g. near structures) at his convenience. Depending on how the Contractor plans on handling fuel and other controlled substances, Contractor shall prepare and conform to a Spill Prevention, Control, and Countermeasures Plan (SPCC) in accordance with EPA requirements.

Temporary power for construction of structures and other Project components shall be provided by the Contractor. Temporary power installations (overhead or otherwise) shall not interfere will embankment construction and construction traffic shall not pass beneath overhead installations. Temporary construction power facilities shall be approved by the District in advance of their implementation.

Due to the limited local sources of concrete batching[4], it may be prudent or required to construct a batch plant on site with associated silos, conveyors, material storage, etc.

It is anticipated that on-site sources of soil materials are adequate to meet the needs for Embankment Fill, Select Fill, and Clean Sand. Clean sand would be used as soil cement aggregate and some components of the dam drainage and soil cement slope protection underdrain systems. Clean Sand is also anticipated to qualify as Embankment Fill. These sources include pre-load mounds, excess acceptable fill from Perimeter Canal excavation, and interior borrow. Refer to the Geotechnical Site Characterization Report for further information on this subject. It may be prudent to select on-site material sources based on location and timing of the specific construction activity, and the need to vacate areas to receive subsequent construction, e.g. removal of pre-load mounds to allow for dam foundation preparation. As indicated in Specification Section 31 00 00, Contractor shall protect material stockpiles from contamination which may compromise the quality and fitness of the stockpiled material. The Contractor's "Borrow and Site Materials Management Plan" shall anticipate and address said measures relating to material stockpiling.

In the following narratives, locations of key features and construction activities are indicated by numerical call-outs (e.g. "**110**"). Refer to the figures within this document for locations of these features/activities. Salient predecessor activities are noted for some features/activities. Obvious predecessors (e.g. applicable permits, SWPPP, Contractor submittal approval, three-phase inspection activities, etc.) are not necessarily noted.

b. Fish and Wildlife Resource Protection

As indicated in Specification Section 01 35 40~~33 01 01~~, The Contractor is responsible for the prevention of environmental damage as the result of construction operations under this Contract. Contractor shall be aware that adverse impacts to species of concern may result in seasonal or daily timing restrictions on construction activities.

[4] ASTM C94 states that discharge of the concrete shall be completed within 90 minutes after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregates.

c. Existing Utilities

Much of the existing utilities within the reservoir footprint were removed by others, as part of Bid Package 1. The following utilities remain:

- Electrical (Florida Power & Light or FPL)
  - Two overhead power transmission lines running east-west adjacent to the north Project boundary. The north line is a 138 kV line and the south line is a 230 kV line.
  - Multiple 23 kV overhead distribution lines serving the remaining operational pump stations
- Communications
  - Underground fiber optic cable on south side of east-bound State Road 80.
  - Underground fiber optic cable and "T-1 Line" (digital circuit provided by the telephone company) facilities adjacent to Congen Road that feed the District's construction compound.
  - Overhead Comcast communications lines near Townsend Canal.
- Natural Gas
  - Underground natural gas line on south side of east-bound State Road 80. Peoples Gas, the utility owner, indicated that this is a six-inch diameter pipe.

FPL currently operates an overhead 25 kV primary and 161 kV transmission line within an existing (variable width) easement that runs east-west just north of the north Project Boundary. Existing overhead service to LPDD Pump Station 1 lies within a ten-foot north-south easement just east of Townsend Canal. LPDD Pump Stations 2 and 3 are fed by an overhead service that lies within a ten-foot east-west easement just south of the LPDD Header Canal.

FPL will bring in additional service within a new ten-foot wide easement located south of and immediately adjacent to their existing easement. Services for the Project will originate from this new line.

The District has been coordinating with FPL regarding removal of existing services and new services to feed the site's power needs. Of particular importance from a coordination standpoint, are the services to Pump Stations S-470 and S-476. An existing overhead line that parallels Townsend Canal will be replaced with a new underground service. Installation of this new service will be done in phases to facilitate construction of S-470 and S-476 (by others) as well as work by this contract. Directional drilling techniques will be used for the S-470 intake canal crossing. It is anticipated that FPL will temporarily re-route overhead lines to allow for demolition of the LPDD Pump Station 1, and subsequently install permanent underground service after the LPDD Header Canal is filled (by Contractor). Contractor shall perform demolition and backfill activities associated with LPDD Pump Station 1 early in the schedule to allow for consolidation of backfill and installation of permanent electrical service (by FPL) in this area. During LPDD1 Pump Station demolition activities, Contractor shall at all times, maintain safe and serviceable vehicle access across the LPDD Header Canal, for use by Contractor as well as adjacent landowners.

Once this is complete, the permanent underground service will be installed. It is the Contractor's responsibility to coordinate and cooperate with FPL during said installations as well as during installation of services to other structures in this contract. Further, and as stated in Specification 01 32 00, the Contractor's construction schedule shall include dates for when permanent electrical power supply is required at each individual structure/control building. Said dates shall be adjusted as necessary in the monthly schedule updates.

d. Other Construction

The overall project will be constructed via this contract plus five contracts that have previously been awarded. The Contractor shall coordinate and cooperate with these ongoing contracts as applicable. Specific requirements and expectations are described below[5]. Generalized sequencing with respect to these other contracts can be found later in subsequent sections of this report.

i. Bid Package 1 – Preload Mounds and Demolition

Bid Package 1 contract is complete, and the contractor is fully demobilized. The pre-load mounds and associated geotechnical instrumentation remain in place[6]. Note that surface conditions in the vicinity of the pre-load mounds have changed as a result of the presence of the pre-load mounds. Additional geotechnical (subsurface) investigations, if needed, shall be the responsibility of the Contractor. The majority of pre-load mound material is anticipated to be acceptable for use as Clean Sand or Embankment Fill for dam construction. Contractor is responsible for removing the pre-load mounds down to natural grade. For pre-load mounds near Structures S-471 and S-473, Contractor is also required to measure and record settlement plate and riser pipe elevations as the material removal process proceeds.

ii. Bid Package 2 – Pump Station S-476

The primary feature of this project is Structure S-476, an irrigation pumping station with a nominal capacity of 195 cfs with three nominal 65 cfs each vertical line shaft electric driven pumps. In addition to the pump station, the contract includes dewatering, site work, grading, paving, drainage, yard piping, and associated electrical work. Bid Package 2 also includes temporary bypass system works (72-inch steel pipe and channel) that will convey water to the LPPD Header Canal.

Several features were included in Bid Package 2 to allow the station to be functionally tested and commissioned. It is anticipated that this contract will be complete by January 2019. It is not anticipated that any direct coordination between the Bid Package 4 contractor and this contract will be required.

The District will operate S-476 to provide water to the temporary bypass system until the permanent Irrigation Bypass System is complete and operational. Contractor shall maintain the temporary bypass system (piping and channel) during this time to insure acceptable operation and irrigation water supply.

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[5] The intent of this document is to address significant requirements and expectations, but not every detail is included.

[6] Bid Package 3 contractor has removed~~relocated~~ the pre-load mound associated with Pump Station S-470.

In conjunction with the switchover from the temporary irrigation bypass system to the permanent irrigation bypass system, the Contractor shall remove the temporary bypass piping and install new piping and discharge structure to redirect flow to the Perimeter Canal.

iii. Bid Package 3 – Pump Station S-470

The primary feature of Bid Package 3 is Structure S-470, the reservoir pumping station with a nominal capacity of 1,500 cfs including four nominal 375 cfs vertical lineshaft, electric driven pumps. Other features include a microwave tower and control building, structure removal at the confluence of the Townsend Canal and C-43, Townsend Canal improvements at and north of State Road 80. The work also includes dewatering, site work, grading, paving, drainage, and associated electrical and communications systems.

Several features have been included in Bid Package 3 to allow the station to be functionally tested and commissioned. It is anticipated that this contract will be complete by May 2022.

The discharge system consists of four 84-inch steel pipes. Bid Package 3 responsibilities end just downstream of (four) 84-inch butterfly valves. Bid Package 4 Contractor is responsible for the balance of the discharge system including but not limited to restrained flexible couplings, 84-inch welded steel piping over the new dam embankment, pipe support systems, air relief assembly, and outfall assembly.

An existing manatee barrier is currently in place in Townsend Canal near its confluence with the Caloosahatchee River. The Bid Package 3 contractor will remove the existing manatee barrier upon conclusion of the Bid Package 3 Townsend Canal improvement activities. Bid Package 4 contract shall install a temporary manatee barrier in Townsend Canal, just south of the State Road 80 bridge prior to beginning any Townsend Canal work. Contractor shall maintain the barrier until construction activities no longer pose a threat to manatees, as determined by the District.

Bid Package 4 Contractor is responsible for taking over maintenance of the Local Access Road upon substantial completion of the Bid Package 3 contract.

iv. Clearing and Grubbing Contract

The District awarded a separate contract that generally includes a) grubbing of trees exceeding four feet in height in the interior area of the reservoir, and b) clearing and grubbing of all vegetation within a 2000-foot wide corridor along the dam footprint. The former work is anticipated to be complete in June 2019 and the latter in March 2019. A drawing depicting this work is included as Appendix B.

The advanced clearing and grubbing contract was, in part, intended to reduce the potential for adverse impacts to bird nesting activities and resulting delays during Bid Package 4 work.

The Bid Package 4 Contractor shall coordinate and cooperate with the clearing and grubbing contractor and is responsible for performing supplemental clearing, grubbing, and vegetation removal as required for the Bid Package 4 contract. All remaining felled trees, debris, and piping shall be removed from the reservoir footprint, as directed by the District.

v. Interior Access Roads Contract

The District awarded a separate contract that generally includes construction of access and haul roads within the reservoir footprint. Said contract also includes removal of a portion of the existing drainage features, and installation of new drainage features within the reservoir footprint. This work is anticipated to be complete in March 2019. A drawing depicting this work is included as Appendix C.

The purpose of the Interior Access Roads Contract was to provide the Bid Package 4 contractor with improved accessibility within the reservoir footprint. The District does not warrant the serviceability of said roads against damage due to weather, traffic, or other influences.

The Bid Package 4 Contractor shall coordinate and cooperate with the interior access roads contractor and is responsible for constructing supplemental access and haul roads and drainage features as required for the Bid Package 4 contract.

e. Bid Package 4 Construction

i. Reservoir

The reservoir is divided into Cell 1 (west) and Cell 2 (east) and will have a Normal Full Surface Level (NFSL) of 42.0 feet, and normal pool depths varying between approximately 15 feet at the southeast corner and 25 ft at the northwest corner. In total, the reservoir and Perimeter Dam will have an approximate 10,500-acre footprint.

The Perimeter and Separator Dam will form the reservoir cells and will be constructed largely from on-site soils, with water-side slopes protected by flat-plate soil cement and land-side slopes with grassing. The Perimeter Dam crest will feature a pre-cast wave wall to protect the land-side from overwash.

The Toe Ditch will serve as a seepage collection ditch for the Perimeter Dam. The Toe Road parallels the Toe Ditch. Access from the Toe Road to the Perimeter Dam crest is provided by a series of access ramps.

The dam embankments are expected to settle[7] during construction. The Contractor shall be responsible for providing additional embankment material to compensate for embankment settlement. The Contractor shall also allocate time to allow the embankments to settle. Anticipated settlement ranges and waiting periods are provided on the drawings. Detailed requirements related to settlement are provided in Specification Section 31 09 00.

ii. Perimeter Canal

A Perimeter Canal will be constructed along the south, east, and north sides of the reservoir. In addition to receiving seepage from the Toe Ditch, the Perimeter Canal will convey stormwater flows, environmental flows, and irrigation flows. Conveyance of irrigation flows

[7] In addition to settlement, the embankment foundation material may consolidate. The terms “settlement” and “consolidation” are used interchangeably in this document. Similarly, the terms “dam” and “embankment” are used interchangeably in this document.

is a critical function of the Perimeter Canal as the Project would otherwise interrupt existing canals and ditches that serve this purpose.

Townsend Canal, which parallels the west Perimeter Dam, generally serves as the Perimeter Canal in this area of the Project.

iii. Reservoir Water Control Structures

- S-471 and S-473 are gated reservoir structures are the primary structures used to release water from the reservoir. Each structure is comprised of two box culverts that pass through the dam and discharge into the Perimeter Canal. The inlets of each culvert are within an intake basin with selective withdrawal intake gates that fill the basin prior to discharge into either or both culverts during a release.

- S-472 and S-474 are emergency spillways that will discharge water from Cells 1 and 2 (respectively) into the Perimeter Canal. The purpose of these structures is to provide an uncontrolled outlet for managing reservoir levels above the NFSL and minimize the surcharge storage of the reservoir without exceeding the allowable discharge in the receiving channel.

- S-475 is a cell balancing structure designed to convey water from Cell 1 to Cell 2 or vice-versa (i.e. bi-directional flow). This will allow one cell to be isolated from service and dewatered for maintenance. This structure consists of a single roller gate.

iv. Perimeter Canal Water Control Structures

Perimeter Canal water control structures are described below and are in upstream to downstream order.

- S-476 is a pump station that will deliver water from Townsend Canal to the Perimeter Canal. It has a total capacity of 195 cfs and consists of three 65-cfs pumps. The majority of S-476 is being constructed under separate contract (Bid Package 2). Also as part of Bid Package 2, a temporary bypass system will be installed to allow conveyance of water from S-476 to the LPDD Header Canal. This system is expected to be installed and operational at the time of Package 4 construction start. P4 Contractor will be responsible to maintain the temporary bypass piping and canal system throughout the construction period. The District will operate and maintain the S476 pump station and provide water to the Contractor for delivery to the landowners. Construction of the final connection from S-476 to the Perimeter Canal is the responsibility of this contract (Bid Package 4).

- S-477 will convey flows for irrigation demands through the Perimeter Canal when Pump Station S-476 is pumping (during dry conditions). S-477 will also convey seepage and stormwater flows. This structure is also designed to maintain stage elevations upstream of the structure to protect the NE Rim Ditch. This structure consists of two slide gates.

- S-478 is an uncontrolled broad crested weir that controls the inflow into the Perimeter Canal from the Roberts Canal. The weir will pass stormwater into the Perimeter Canal and maintain the minimum dry season water surface elevation in the Roberts Canal.

- S-479 includes an agricultural pump station and gate structure located at the Header Canal and the Perimeter Canal junction. The pump station will convey water from the Perimeter Canal, east to the Header Canal (LPDD property). The capacity of the pump station is equal to the existing LPDD3 pump station that has a permitted capacity of 125 cfs. The gated portion of the structure will convey stormwater from the Header Canal west to the Perimeter Canal prior to major storm events and at the request of the landowner. Currently, riser boards located at the LPDD3 pump station may be removed to lower the water level in the Header Canal by 4-5 feet prior to large storm events. In the past, the landowner has directed stormwater to the north through the Crawford Canal. Once the Perimeter Canal is operational, S-479 will have the ability to release 50 cfs to the Perimeter Canal. This transfer of water to the Perimeter Canal requires District approval.

- S-480 includes a screw-hoist slide gate that conveys flow to the Berry Farms and Paul properties. A maximum of 60 cfs of water must be available through this structure to meet freeze protection requirements. It is estimated that 15-25 cfs will be required to meet normal irrigation demand. This structure is to be operated by the agricultural landowner upon completion of the Project.

- S-481C is a gated structure that contains two dual leaf gates to convey excess storm water from the Perimeter Canal to the Banana Branch.

- S-481B includes a dual leaf gate to convey flow to Berry Farms Ditch 3 that parallels the Banana Branch. The baseflow requirement is estimated to be 5 – 10 cfs and Structure S 481B is sized to convey approximately 25 cfs to downstream agricultural users. This is estimated to be the maximum demand to meet freeze protection requirements. This structure will typically be closed during storm events as it is assumed that there will be sufficient water available to crops during these events. During irrigation water supply, the underflow component of the leaf gate will be opened approximately 0.5 ft.

- S-481A is a gated structure that is utilized as a divide structure in the Perimeter Canal. It has been incorporated into the design to prevent water from flowing east during environmental releases, so that reservoir releases will not be used as a source of irrigation water. Thus, the structure will be normally closed. However, in the event of a large storm event, it may be necessary to open this gate (to allow water to flow east or west into the Townsend Canal) to minimize downstream impacts.

- S-482 is a fixed crest ogee weir structure designed to convey bypass flows in the Perimeter Canal and flows from Structures S-473 and S-474 and maintain desired the water surface elevation in the Perimeter Canal upstream of S-482.

- S-483 is a fixed crest ogee weir structure and is designed to convey flows from structures S-482 and S-471 and maintain the desired water surface elevation in the Perimeter Canal upstream of S-483.

v. Bridges

The Project includes the following bridges. Contractor shall be aware of the design loading of all bridges and shall access and/or limit construction activities loading accordingly.

- The Site Access Bridge is located just south of the recreational area; used as the main access to the dam components and reservoir structures.

- The Local Access Bridge is located at the northwest corner of the site and will be used to access PS S-476 and Duda Pump Station. It spans the intake channel that conveys flows form the Townsend Canal to the PS S-470.

- Structure S-478 includes a bridge that spans Roberts Canal.

- Structures S-471, S-472, S-473, S-474, and S-478 feature integral overpass bridges for the Toe Road or Perimeter Maintenance Road.

- Structures S-471, S-472, S-475, S-477, S-481A, S-481B, and S-481C feature service bridges.

vi. Recreation

The Project will include multiple trails for the public to utilize for walking, bicycling, and equestrian use; two public parking areas; an equestrian area that includes parking, horse paddock, and horse wash; reservoir boat launch areas; a canoe/kayak launch area; shelters; information kiosks; and restrooms.

f. Water Management

i. Permits

The following major channels will be affected by construction of the reservoir. The channels are shown in Figure 1 and include:

- Townsend Canal
- Fort Simmons Branch
- LPDD Header Canal
- Roberts Canal/Banana Branch
- North Rim Canal
- Jog Ditch
- Seepage Ditch

Although not directly included in this construction, the NE Rim Ditch (that parallels the south Project Boundary) is relatively close to the Project and is a privately managed irrigation supply canal. The NE Rim Ditch must be considered/protected from impacts during construction

operations. This Contract includes the installation of monitoring wells that will be observed to verify there are no impacts to the NE Rim Ditch.

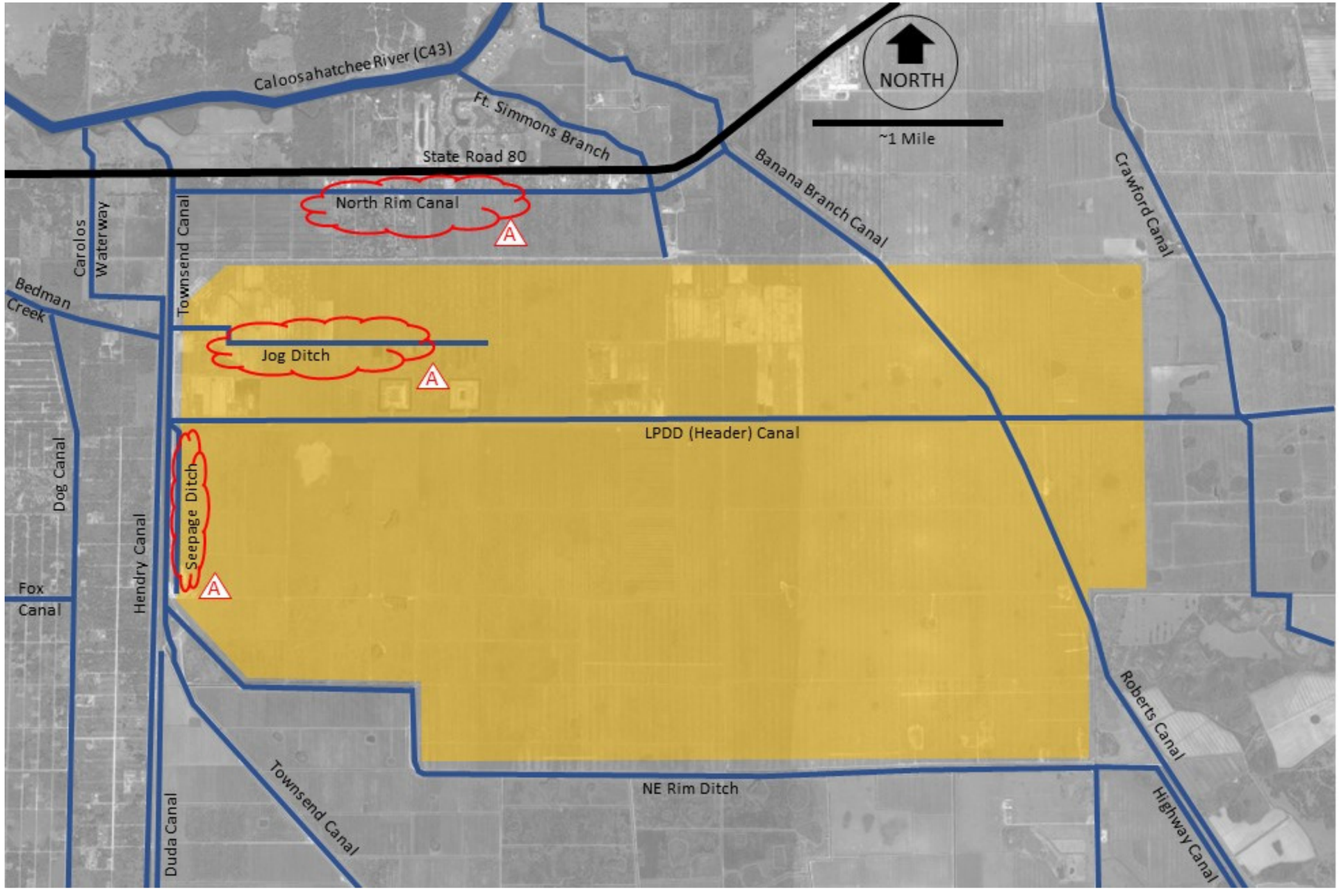

Figure 1- Major Existing Irrigation Canals

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Figure 2 shows the location of the various permits of interest near the project site, and Table 1 presents the permitted water allocations. An additional permit, for the Bob Paul Main Grove, is not explicitly shown, but overlaps the eastern portion of the permit area of the LaBelle Private Drainage District permit.

Table 1 - Permits and Permitted Allocation

Project Name	Permit No.	Monthly Maximum Withdrawal (MG)	Annual Maximum Withdrawal (MG)
Banana Branch Groves	26-00022-W	17	148
LaBelle Private Drainage District	26-00082-W	1,842	15,550
LaBelle Farm (Duda Farms)	26-00106-W	4,762	37,210
Bob Paul Main Grove	26-00265-W	749	3,928
New Hope Grove West	26-00286-W	17	96
Moore Grove – Banana Branch Grove	26-00406-W	8	39
Banana Branch Grove	26-00934-W	9	44

Each permit is further described below. Note that some of the permit descriptions include estimated discharges based on permitted monthly or annual volume allocations. These are provided for information only and not intended to represent or dictate an actual flow requirement.

- Banana Branch (Permits 26-00022-W, 26-00286-W, 26-00406-W, and 26-00934-W). The four Banana Branch permits have a combined monthly maximum allocation of approximately 60 million gallons. Normal stage is approximately 8.7 feet[8].

- Labelle Farm (Duda Farms) (Permit 26-00106-W). The monthly maximum allocation to Duda Farms is 4762 million gallons and the annual maximum allocation is 37,210 million gallons. Water is pumped (at the Duda Pump Station) south from the C-43 Canal via the Townsend Canal.

- The farm areas served by the branch labelled as Berry Ag Ditch 2 and the North Rim Canal receive water from the LPDD Header Canal and have a combined minimum irrigation flow requirement of approximately 15 – 20 cfs. Riser board structures in both branches stage water at different elevations to correspond with changes in the ground surface and limit flow. As an example, in the North Rim Canal, water is staged at approximate Elevation 15.0 near the Banana Branch and the water drops to approximate Elevation 8.0 near the Townsend Canal. The riser boards are each 4-feet wide and normally have approximately one inch of water flowing over the crest.

- LaBelle Private Irrigation District (Permit 26-00082-W).

    - The farm areas (Paul properties) in the LPDD permit area served by the Paul Canal receive water from the LPDD Header Canal and have an estimated flow requirement of approximately 20 – 25 cfs for irrigation purposes and maximum flow requirement of approximately 60 cfs for freeze protection.

[8] All stages/elevations in this document are based on the North American Vertical Datum of 1988 (NAVD88).

Riser board structures also exist in this branch to stage water for irrigation purposes Water is staged at an elevation of approximately 19.0 feet in the Header Canal and drops to an elevation of approximately 13.0 feet prior to discharging into the North Rim Canal.

- The area of the LPDD permit that is crossed by the LPDD Header Canal and Crawford Canal corresponds to the acreage of the Bob Paul Main Grove. The LPDD permit is the primary source of irrigation water for this area. Water is provided by the existing LPDD Pump Station 3 that has a capacity of 125 cfs as specified in the permit. This discharge rate at Pump Station 3 shall be maintained. It is estimated that an average flow of 50-60 cfs is required to meet the allocation in this area. The water level east of the existing LPDD Pump Station 3 is typically staged between 23.0 and 25.0 feet.

In the event of a Declared Water Shortage, the water allocations presented in Table 1 may be reduced by the District, in accordance with Chapter 40E-21 of the Florida Administrative Code (FAC).

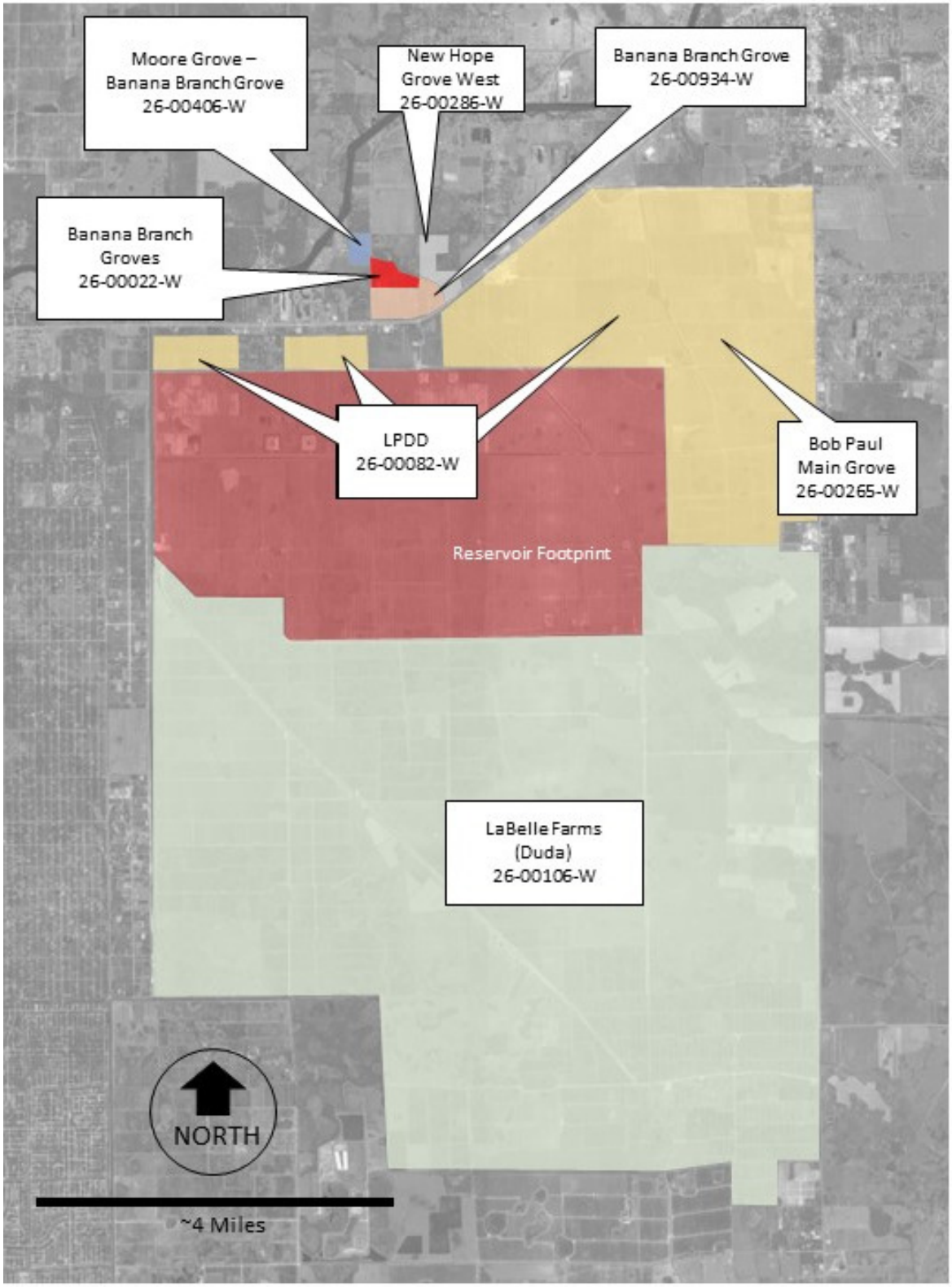

Figure 2 - Permits of Interest around the Reservoir Site

ii. Existing Water Supply Operations

See Figure 3 through 6 and the following discussion:

- Maintain the water surface at approximately 21.5 feet[9] between the LPDD1 and LPDD2 pump stations[10] located at the Townsend Canal/Header Canal Junction and east of the Townsend Canal within the Header Canal, respectively.

- Maintain the water surface at approximately 23.5 feet between the LPDD2 and LPDD3 pump stations (located east of LPDD2, within the Header Canal).

- Maintain the water surface at approximately 25.5 feet east of the LPDD3 pump station, within the Header Canal.

- The Banana Branch "Gated~~gated "Middle~~ Structure" is located ~~in the Banana Branch Canal~~ north of the reservoir and includes ten gates. This structure is located approximately 1.0 miles south of the SR80 bridge. These gates are fixed in place, with two of the ten gates fully open, four gates closed at the bottom, and four gates fully closed. Each gate is five feet wide and 10-feet high. The gates shall be removed as part of the Bid Package 4 demolition work activities.

- Water is gravity-fed to the north from or near the LPDD Header Canal through three primary ditch connections (Berry Ag Ditches 1 and 3 and the Banana Branch). These channels provide irrigation water to different groves served by the LPDD Water Use Permit.

- The east segment of the North Rim Canal serves as an equalization ditch that connects the Banana and Ft Simmons Branches. Three culverts are located on this branch and range in size from 24 to 48 inches. Currently, the water levels in this section are at an elevation of approximately 10.0 feet.

- The North Rim Canal extends to the west from Ft. Simmons Branch and connects to the Townsend Canal where flow discharges through a culvert (5-foot ± diameter). There is a ditch block that prevents water from flowing east into the Ft Simmons Branch. An approximate 5-foot diameter culvert discharges water from this ditch to the Townsend Canal. Currently, water levels in this segment of the North Rim Canal vary from an elevation of approximately 15.0 ft (NAVD88) to an elevation of approximately 8.0 ft (NAVD) near the Townsend Canal.

- The LPPD Seepage Canal is used to convey stormwater either west to the Townsend Canal (via culvert near LPDD Pump Station 1), or east to Roberts Branch Canal.

- Duda Control Structure controls flows into the NE Rim Ditch from Townsend Canal. Structure is operated and maintained by Duda Farms. Coordination with Duda Farms

[9] All elevations in this document are based on the North American Vertical Datum of 1988 (NAVD88).
[10] The District recent performed a survey of LPDD Pump Station 2 and installed upstream and downstream staff gages. See Appendix A.

to control water for Contractor's benefit is the responsibility of the Contractor. District cannot assure cooperation of Duda Farms for said water control.

iii. Existing Stormwater Management Operations

The following summarizes surface water management operations during high runoff events. This is intended to aid the Contractor in planning and executing surface water management during construction. Not all surface water management measures are indicated, and additional measure will be required.

In preparation for large storms, land managers will typically lower the water level in the canals and drainage ditches. This typically includes removing flashboards and allowing stored water to be released. However, the land managers also need to store water for irrigation purposes, so operations are constantly changing to balance the need for irrigation storage and the need to prevent flooding.

iv. Proposed Water Supply Operations

The following presents a summary of the requirements associated with the southern and eastern portions of the Perimeter Canal to meet irrigation needs for existing agricultural uses, including Berry Farms and the Paul property. This summary is based on a typical 30-day period late in the dry season when demand for irrigation water is typically at its peak.

- Pump Station S-476 operates based on the water level in the Perimeter Canal at the junction with the LPDD Header Canal. If the water level drops below 18.75 feet at the junction with the LPDD Header Canal, the station operates at the full capacity of 195 cfs and will continue until the water level is above 19.5 feet. Upon completion of the Perimeter Canal system to the S481 complex and system is ready for commissioning, Contractor shall remove the temporary irrigation bypass system and water will be delivered from S-476 to the perimeter canal. The District will maintain the S476 pump station and provide water to the Contractor. The Contractor shall maintain the perimeter canal throughout construction and provide water to the landowners.

- The gate at the S-477 structure operates based on the downstream water level in the Perimeter Canal. If the water level drops below 18.75 ft., the gate will open 2.25 feet and remain open until the water level is above 19.5 ft.

- Pump Station S-479 can pump continuously at 125 cfs. The size of this pump is equal to the existing LPDD 3 Pump Station.

- The S-480 gate is open 3.0 feet. This is the opening estimated to convey approximately 60 cfs of water in the Paul Canal. This is the maximum flow volume estimated to meet the freeze protection allocation requirements for the area of the farm served by this ditch.

- The S-481B gate is open 0.5 feet. This is the opening estimated to convey approximately 25 cfs of water to the portions of the Berry Grove served by this farm ditch. 25 cfs is the maximum flow volume estimated to meet the freeze protection allocation for the area of the farm served by this ditch.

- 481C is not operated for water supply. Water overtops this structure on a continuous basis to provide baseflow.

v. Proposed Stormwater Management Operations

The following tables present a summary of anticipated operations associated with the Perimeter Canal structures during storm events without producing adverse impacts to downstream resources. This operation information is based on mathematical modeling and actual operation may vary.

Table 2 - 25-yr/3-day Storm Operations

Parameter	**S-477**	**S-478**	**S-481B**	**S-481C**
Maximum Flow (cfs)	28.9	183.5	17.5	221.7
Number of Gates Open	1	-	-	1
US Stage @ Maximum Flow (ft.)	24.0	22.8	20.2	20.2
DS Stage @ Maximum Flow (ft.)	20.3	20.4	16.7	14.4
Sill Level	16	21.5	11	12
Gate Level @ Maximum Flow	16.2	-	12	14.4

Table 3 - 100-yr/3-day Storm Operations

	S-477	**S-478**	**S-481B**	**S-481C**
Maximum Flow (cfs)	52.9	217.7	20.6	268.1
Number of Gates Open	1	-	-	1
US Stage @ Maximum Flow (ft.)	24.3	23.0	20.4	20.4
DS Stage @ Maximum Flow (ft.)	20.5	20.6	17.2	14.9
Sill Level	16	21.5	12	10
Gate Level @ Maximum Flow	16.6	-	-	14.3

Contractor shall operate new water control structures to provide adjacent landowners with the same level of flood control/protection as exists pre-Project.

Figure 3 - Existing Water Control Features - Northwest

Figure 4 - Existing Water Control Features - Northeast

Figure 5 - Existing Water Control Features - Southwest

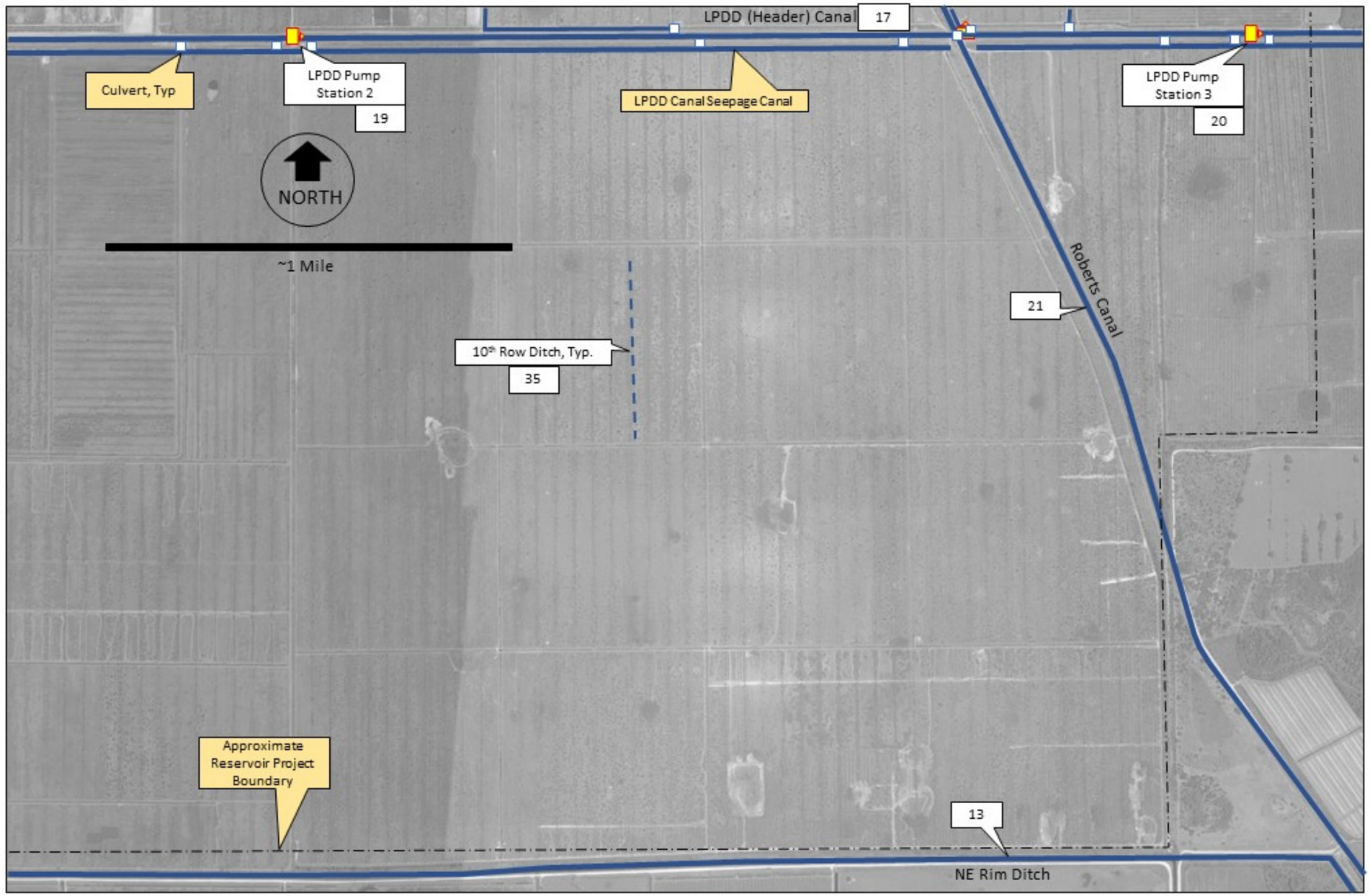

Figure 6 - Existing Water Control Features - Southeast

2. PROJECT FEATURES AFFECTING CONSTRUCTION

a. General

Existing features are presented on Figure 7. Figures 3 through 6 provide additional detail on existing ditches, canals, and water control structures.

Features considered for surface water management include the existing network of ditches and canals, discharge pipes, and agricultural pump stations. LPDD Pump Station 1 is located at the intersection of the Townsend Canal and the Header Canal and lifts surface water approximately twenty feet into the Header Canal. LPDD Pump Station 2 lifts surface water an additional four feet and LPDD Pump Station 3, located on the east end of the Header Canal, lifts surface water another four feet. The North Irrigation Pump Station draws water from the Header Canal to provide irrigation to the farmlands east of Banana Branch Canal. Details of the pump stations, their annual allocations and irrigation infrastructure are available in SFWMD Water-use Permit #26-00082-W.

Under the temporary bypass condition, Structure S-476 will be used to convey water from Townsend Canal to the LPDD Header Canal. This will allow for demolition of Pump Station LPDD 1 relatively early in the construction sequence.

1. **Congen Road**: Access to the site is via Congen Road which originates at State Road 80 (SR 80).

2. **Local Access Road**: Further access within the site is provided by the Local Access Road that is used by landowners for agricultural purposes. The Local Access Road originates at Congen Road extends west to near the S-470 Pump Station, then extends south to and past the S-476 Pump Station. The Local Access Road also provides access to the east, primarily for use by FPL.

   The Bid Package 3 contractor is responsible for the east-west portion of Local Access Road and for that portion of the north-south Local Access Road adjacent to Pump Station S-470. Bid Package 4 Contractor will not have access to these sections of the Local Access Road until the completion of the Bid Package 3 contract. The Bid Package 4 Contractor has access and maintenance responsibility to the north-south local access road south of pump station S470.

   The Local Access Road shall remain in service throughout construction and its maintenance is the responsibility of the Bid Package 4 Contractor upon substantial completion of Bid Package 3. It is anticipated that this will occur by approximately March 2022.

3. **Primary Interior Access & Haul Roads**: An earlier contract has been completed that involved construction of new primary interior access and haul roads, culverts/drain pipes, a Roberts/Banana Branch Canal crossing, removal of culverts and removal of earthen plugs. The extent of the new access roads and other aspects of this work are shown on

the drawing in Appendix C. Estimated completion date: March 2019. Additional interior roads may be added as required by the Bid Package 4 Contractor.

4. **FPL Overhead Power**: Existing Florida Power & Light overhead transmission and distribution lines, including recent supplemental line spanning east-west along the northern Project boundary. Lines within project footprint will be removed by FPL when no longer required to power pump stations.

EXISTING CONDITIONS:

1. Congen Road
2. Local Access Road
3. Primary Interior Access & Haul Roads
4. FPL Overhead Power
5. FPL Underground Power
6. Pre-load Mounds
7. Clearing & Grubbing
8. Tree Clearing
9. Townsend Canal
10. North Townsend Canal Improvements
11. Duda Pump Station
12. Duda Control Structure
13. Northeast Rim Ditch
14. S-476 Pump Station
15. S-476 Bypass System
16. S-470 Pump Station
17. LPDD Header Canal
18. LPDD Pump Station 1
19. LPDD Pump Station 2
20. LPDD Pump Station 3
21. Roberts Canal
22. Banana Branch Canal
23. Paul Canal
24. Ft. Simmons Branch
25. North Rim Canal
26. Berry Ag Ditch 1
27. Berry Ag Ditch 2
28. Berry Ag Ditch 3
29. Berry Ag Ditch 4
30. Berry Ag Ditch 5
31. Berry Ag Ditch 6
32. Seepage Canal
33. Jog Ditch
34. Double J Canal
35. 10th Row Ditch
36. Piezometer (Monitoring) Wells
37. LPDD Header Canal Seepage Canal

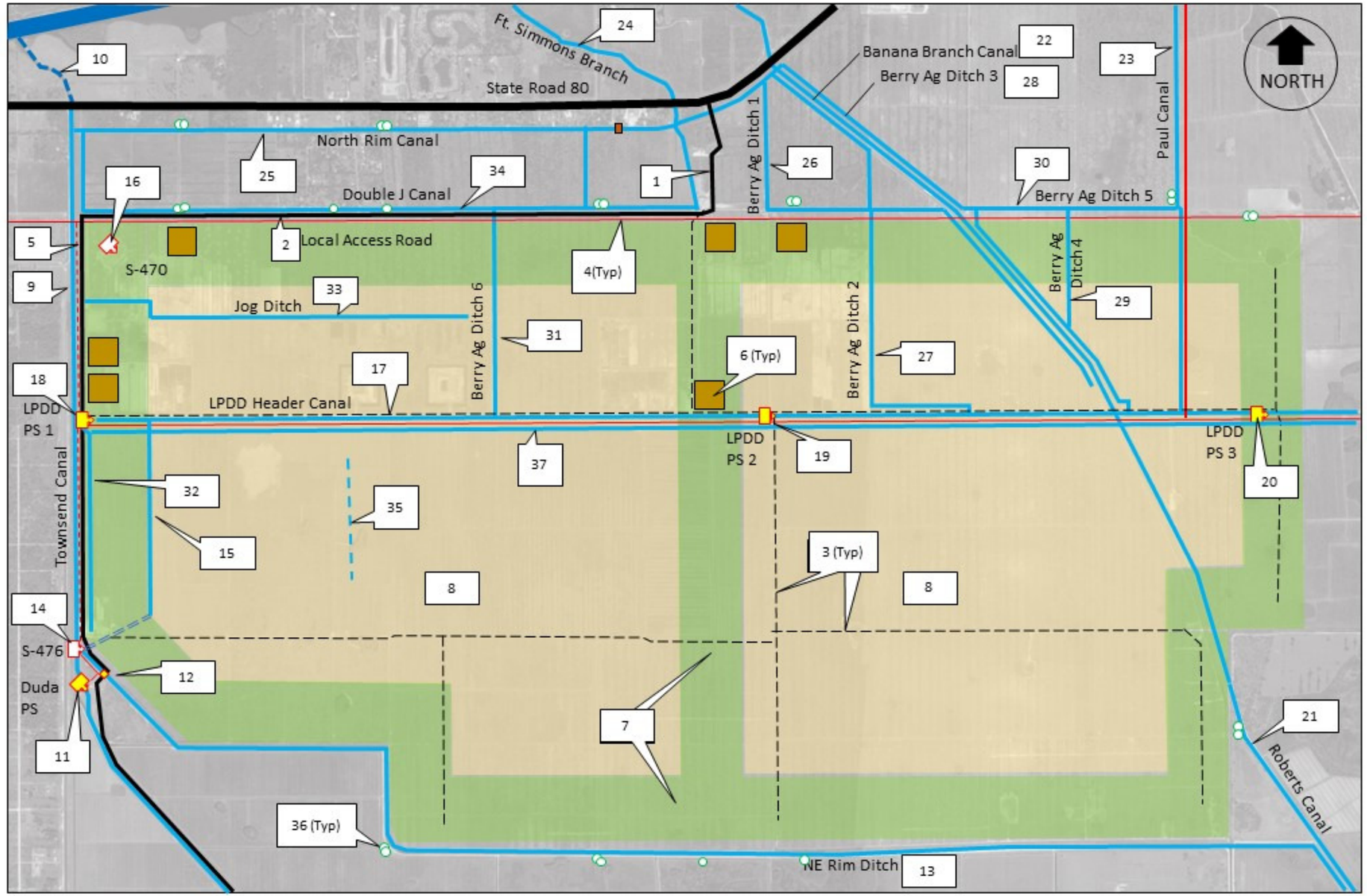

Figure 7 - Protect Features affecting Construction

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5. **FPL Underground Power**: Existing FPL underground conduit/cable feeding S-476 and Duda Pump Station, and points south.

6. **Pre-load Mounds**: Six soil mounds and associated instrumentation constructed as part of earlier contract.

7. **Clearing & Grubbing**: Approximate clearing and grubbing limits under separate contract. Additional detail is provided on the drawing in Appendix B. Estimated completion date: March 2019. Additional clearing and grubbing will be required as part of this (Bid Package 4) contract.

8. **Tree Clearing**: Approximate tree clearing limits under separate contract. Additional detail is provided on the drawing in Appendix C. Estimated completion date: June 2019. Supplemental tree clearing and tree/debris removal will be required for the Bid Package 4 Contract.

9. **Townsend Canal**: Originates at the Caloosahatchee River and forms the western border of the Project. Townsend Canal is one of the main sources of irrigation water for the area citrus groves and will eventually serve as the source and receiving body for reservoir supply and discharge. Townsend Canal is to remain in uninterrupted service throughout construction.

10. **North Townsend Canal Improvements**: Canal improvements under separate contract, including removal of existing manatee barrier in Townsend Canal near its confluence with the Caloosahatchee River. Estimated completion date: March 2022.

11. **Duda Pump Station**: Pump station within Townsend Canal and provides irrigation water to south citrus groves. Pump station shall remain in service throughout construction with no disruption in water quantity, quality or timing.

12. **Duda Control Structure**. Existing weir that controls water levels in Northeast Rim Ditch. Structure is owned and operated by others and is outside of the Project Construction Limits. Discharges from this structure are significant and shall not be limited as a result of Bid Package 4 construction.

13. **Northeast Rim Ditch**: Originates at Townsend Canal and supplies irrigation water to south and east citrus groves. Northeast Rim Ditch is to remain in service throughout construction and no impacts to Northeast Rim Ditch water stages resulting from construction activities are permitted. Note that stages in the Northeast Rim Ditch may influence ground water stages in the reservoir project footprint.

14. **S-476 Pump Station**: Pump station under separate contract (Bid Package 2) that will convey water into new Perimeter Canal. See Item 15 for additional information. Estimated completion date: January 2019.

15. **S-476 Bypass System**. Bypass system constructed as part of Bid Package 2. System includes temporary discharge pipe leading to improved existing ditch that leads to the LPDD Header Canal. Installation of Header Canal plug to isolate the unused (west) portion of the Header Canal is the responsibility of this (Bid Package 4) contract. The system intent is to make use of the S-476 Pump Station in advance of its primary purpose of maintaining flows in the Perimeter Canal. The system also allows early demolition of the existing LPDD Pump Station 1 and may reduce groundwater levels in this area of the Project. Contractor shall assume operation and maintenance of the temporary irrigation bypass system to provide water supply to LPDD2 and LPDD 3. The District will operate and maintain S476 to provide water to the Contractor.

16. **S-470 Pump Station**: Pump station under separate contract (Bid Package 3) that will convey water from Townsend Canal into Reservoir Cell 1. Estimated completion date: May 2022. Bid Package 4 Contractor shall be responsible to coordinate with the Bid Package 3 contractor for the installation of the discharge piping system and for work within adjacent construction limits.

17. **LPDD Header Canal**: Provides irrigation water to citrus groves east and north of site. Canal to remain in service until new facilities are operational and available to meet irrigation needs.

18. **LPDD Pump Station 1**: Pump station that formerly conveyed water from Townsend Canal into LPDD Header Canal. Operators formerly attempted to maintain the water surface at approximately 21.5 feet between the LPDD1 and LPDD2 pump stations located at the Townsend Canal/Header Canal junction and east of the Townsend Canal within the Header Canal, respectively. Pump station will become inactive once the S-476 bypass system is operational. See Item 15 for additional information.

19. **LPDD Pump Station 2**: Pump station within LPDD Header Canal. Currently, operators attempt to maintain the water surface at approximately 23.5 feet between the LPDD2 and LPDD3 pump stations (located east of LPDD2, within the Header Canal). Pump station to remain in service until new facilities are operational and available to meet irrigation needs.

20. **LPDD Pump Station 3**: Pump station within LPDD Header Canal. Currently, operators attempt to maintain the water surface at approximately 25.5 feet east of the LPDD3 pump station, within the Header Canal. Pump station to remain in service until new facilities are operational and available to meet irrigation needs.

21. **Roberts Canal**: Enters Project area from southeast and feeds into Banana Branch Canal.

22. **Banana Branch Canal**: Originates as Roberts Canal southeast of site and provides irrigation water to citrus groves north of site. Water is primarily controlled by "Middle Structure containing ten gates. Canal includes existing Canal to remain in service until new facilities are operational and available to provide stormwater conveyance and to meet irrigation needs.

23. **Paul Canal**: Receives water from the LPDD Header Canal and conveys to citrus groves north and east of Project.

24. **Ft. Simmons Branch**: Conveys excess irrigation water and stormwater to Caloosahatchee River. Includes existing concrete weir located near the Local Access Road. Canal to remain in service.

25. **North Rim Canal**: Originating at the Banana Branch Canal and flowing west, the North Rim Canal supplies irrigation water to citrus groves north of site. Currently, a ditch block exists west of Ft. Simmons Branch. Canal to remain in service for irrigation purposes until 5/31/2020. Canal to remain in service to maintain area groundwater levels after 5/31/2020.

26. **Berry Ag Ditch 1**: Originates at LPDD Header Canal and provides irrigation water via the North Rim Canal to citrus groves north of site. Ditch also feeds into Ft. Simmons Branch.

27. **Berry Ag Ditch 2**: Originates at LPDD Header Canal and provides irrigation water to citrus groves north of site. Constructed as part of Bid Package 1.

28. **Berry Ag Ditch 3**. Originates at LPDD Header Canal and feeds into North Rim Canal. Ditch to remain in service until new facilities are operational and available to meet irrigation needs to the north.

29. **Berry Ag Ditch 4**: Originates at LPDD Header Canal and provides irrigation water to citrus groves north of site. Ditch is normally fed through culvert and has irrigation pump that is used periodically for freeze protection. Ditch to remain in service until new facilities are operational and available to meet irrigation needs.

30. **Berry Ag Ditch 5**. Ditch that conveys water between Paul Canal and Berry Ditch 3. Ditch to remain in service until new facilities are operational and available to meet irrigation needs to the north.

31. **Berry Ag Ditch 6**. Ditch that conveys water from the LPDD Header Canal north to the Double J Canal. Ditch to remain in service until new facilities are operational and available to meet irrigation needs to the north.

32. **Seepage Canal**. Existing canal that conveys stormwater from near the S-476 site north to a culvert that discharges into Townsend Canal near LPDD Pump Station 1.

33. **Jog Ditch**. Existing ditch that conveys stormwater in the northwest portion of the site to Townsend Canal.

34. **Double J Canal**. Existing canal that supplies irrigation water to citrus groves northwest of the reservoir site.

35. **10th Row Ditch**. Existing ditches named for their former function to convey irrigation water at every tenth row of citrus trees. 10th Row Ditches are located throughout the reservoir site.

36. **Piezometer (Monitoring) Wells**. Existing piezometer (monitoring) wells and associated benchmarks located around the perimeter of the site. These well sites, which will be monitored by the District using SCADA, comprise a major portion of the FDEP permit-required groundwater monitoring network that will be used to assess any changes in groundwater levels and movement during construction. All well sites shall be protected throughout construction. Damaged piezometer wells shall be replaced at the Contractor's expense.

37. **LPDD Header Canal Seepage Canal**. Existing seepage canal that parallels the LPDD Header canal to the south. Currently, canal is used to discharge water from areas south of the LPDD Header Canal west to Townsend Canal and east to Roberts Canal, and points further east. Canal is hydraulically connected (i.e. culverts) to LPDD Header Canal in several locations.

3. CONSTRUCTION SEQUENCING

a. Work Step 1

i. General

Refer to Figure 8.

ii. Generalized Sequence

100. **Work Plans and Submittals**: Work Plans and submittals shall be completed and approved prior to the start of any construction. Notably these include the following, refer to the Contract documents for additional requirements.

- Schedule and Submittal Register
- Safety Plan
- Quality Control Plan
- Definable Features of Work (DFOW) List and Three Phase Inspection Plans at the appropriate activity level
- Permits
- Materials Management Plan
- Stormwater Management Plan
- Water Supply Plan
- Survey/Layout Plan
- Work-Around Plan
- Borrow and Site Materials Management Plan
- Surface Water Management Plan
- Dewatering Work Plan
- Cofferdam Work Plan

101. **MOT**: Install and maintain Maintenance of Traffic (MOT) as required by FDOT along State Road 80, Congen Road and the Local Access Road.

102. **Site Preparation & SWPPP**: Construct/install site preparation items including but not limited to staging & laydown area, Contractor compound expansion, fuel storage facility, maintenance facilities, quality control facility, borrow area preparation activities, roads (including additional access/haul roads as needed), clearing and grubbing, etc.

Install and maintain Storm Water Pollution Prevention Plan (SWPPP) measures, e.g. sediment and erosion BMPs, turbidity barriers, etc. SWPPP requirements included in drawings and specifications. Note that turbidity barriers are the only SWPPP measures shown on Figure 8 but other measures are required. Note that completion of SWPPP measures is predecessor to all subsequent ground disturbing activities.

Contractor is responsible to conduct and record the results of turbidity monitoring appropriate to the conditions and at the locations, times, and frequencies specified in Specification Section 33 03 00.

An existing manatee barrier is currently in place in Townsend Canal near its confluence with the Caloosahatchee River. The Bid Package 3 contractor will install a new temporary manatee barrier prior to removing the existing barrier. Bid Package 4 Contractor shall install a new temporary manatee barrier just north of the State Road 80 bridge. Bid Package 4 Contractor shall coordinate with the Bid Package 3 contractor and install the new barrier prior to Bid Package 3 contractor removes its barrier and not before Bid Package 3 Townsend Canal work is completed.~~remove the existing manatee barrier upon conclusion of the Bid Package 3 Townsend Canal improvement activities.~~ The Bid Package 4 barrier shall be installed~~contract shall install a temporary manatee barrier in Townsend Canal, just south of the State Road 80 bridge~~ prior to beginning any Townsend Canal work. Contractor shall maintain the barrier until construction activities no longer pose a threat to manatees, as determined by the District.

103. **Shallow Monitoring Wells**. Includes installation of twelve shallow monitoring wells that Contractor shall use to monitor the influence of the on-site dewatering on the Northeast Rim Ditch.

WORK STEP 1:

100. Work Plans & Submittals (not shown on figure)
101. MOT
102. Site Preparation & SWPPP (Turbidity barriers (102a) and temporary manatee barrier (102b) only shown on figure)
103. Shallow Monitoring Wells
104. Irrigation Improvements
105. Surface Water Control
106. South/East/Northeast Perimeter Canal
107. South Townsend Canal Improvements
108. Remove Pre-Load Mounds
109. Dam Proof of Concept
110. Dam Work-Arounds
111. Dam Foundation Preparation
112. Demolish Pump Station LPDD 1
113. Pressure Relief System Proof of Concept

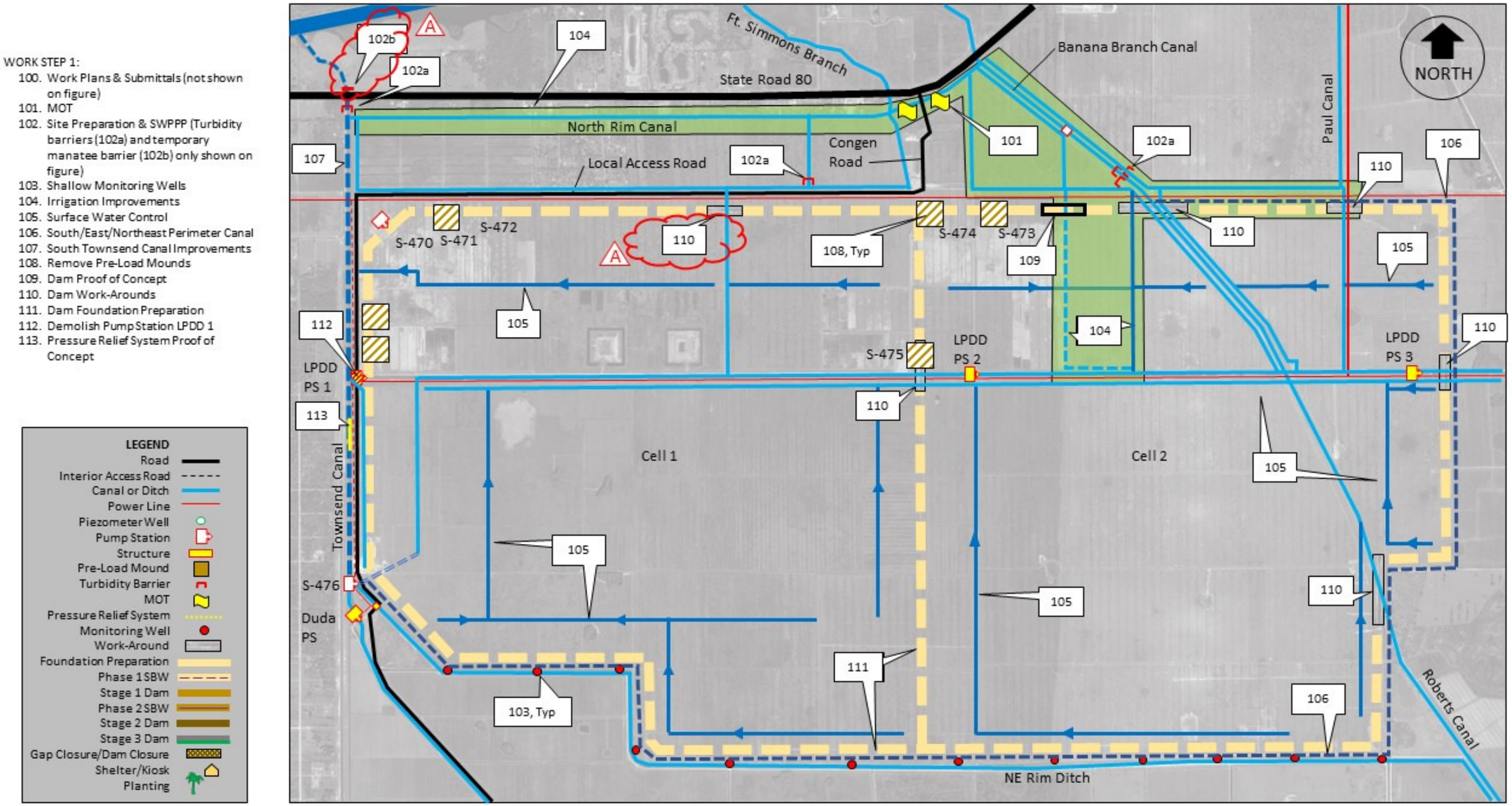

Figure 8 - Work Step 1

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104. Irrigation Improvements. Must be completed immediately following installation of SWPPP measures and shall be completed prior to beginning any dam construction activities. Refer to Drawing entitled "Irrigation Improvements Overall Site Plan" for details.

- Abandonment of current Berry Ag Ditch 2 and construction of new ditch to the east. This work results in reduction of required dam work-arounds.
- Replacement of existing culverts
- Removal of ditch block in North Rim Canal
- New ditch block in North Rim Canal
- New culvert riser structures in North Rim Canal

105. Surface Water Control. Includes improvements to existing, or creation of new canals/ditches and culverts for surface water control.

Predecessor: 103. Shallow Monitoring Wells.

106. South/East/Northeast Perimeter Canal. Includes following components from S-476 to S-481A: Perimeter Canal, Perimeter Maintenance Road, Toe Road, Toe Ditch, and Toe Ditch outfalls. Item is priority as it allows removal of LPDD Header Canal from irrigation service, lowering of LPDD Header Canal water levels, and thus lowering of site groundwater levels.

Predecessors:

- *103. Shallow Monitoring Wells.*
- *208. NE Rim Ditch Pressure Relief System (for portion of Perimeter Canal adjacent to NE Rim Ditch, may be coincident).*
- *FPL coordination and relocations as required.*

107. South Townsend Canal Improvements. Includes Townsend Canal improvements from State Road 80 Bridge to S-476. Townsend Canal improvements include removal of existing vegetation and spoil bank material, west bank sheet pile, east bank re-shaping, and riprap. Note requirements associated with pressure relief system. Note MOT (approved by Hendry County) may be required for west bank sheet pile work. Note also that access to this work area shall be via "McKernan Highway West" only (see Drawing C01109 (~~"~~General Site – Site Access Plan).~~" under separate cover~~.

Predecessors:

- *5. FPL Underground Power (by FPL).*

108. Remove Pre-Load Mounds. Includes removal of six existing pre-load mounds. The majority of pre-load mounds material is anticipated to be acceptable for use as Clean

Sand and Embankment Fill for dam construction. Removal of pre-load mounds to continue through subsequent work steps to provide required Clean Sand and Embankment Fill. Continued monitoring of pre-load mound instrumentation required at certain locations.

109. **Dam Proof of Concept**: Includes full construction of specified length section, in increments as each phase of construction is progressed, of Perimeter Dam, including but not limited to foundation preparation and geologic mapping, Phase 1 soil-bentonite wall, Embankment Fill (including consolidation periods), soil bentonite wall Phase 2, chimney drain, blanket drain, toe drain, soil-cement slope protection and underdrain system (water-side), turf slope protection (land-side), wave wall foundation (soil-cement), wave wall, and geotechnical instrumentation. Contractor shall provide proposed location of Dam Proof of Concept for District approval.

Predecessor: Each stage of dam proof of concept to be preceded by completion of respective earlier stages, interim submittals, and District approval of interim submittals

110. **Dam Work-Arounds**[11]. Includes work-arounds at the following locations required for stormwater management and to provide irrigation water to citrus groves north of the project. Similar efforts labeled as "gap closures" are required at the dam structures. See Item 600.

- LPDD Header Canal near Separator Dam[12]
- LPDD Header Canal near LPDD Pump Station 3
- Banana Branch Canal
- Temporary Irrigation Ditch 4/Paul Canal
- Roberts Canal
- Temporary Irrigation Ditch 1
- S-476 Bypass System

111. **Dam Foundation Preparation**: Includes but is not limited to stripping, pre-trenching, excavation and dewatering of existing agricultural ditches and canals[13], foundation preparation, and geologic mapping (by others but with support by Contractor), along Perimeter Dam and Separator Dam alignments. Also includes installation of temporary geotechnical instrumentation (see Instrumentation & Control Drawings). Dam foundation preparation as described above and in the plans and specifications, shall preceded any ditch filling or other embankment related work. See Figure 9 and Figure

[11] Contractor responsible for operating LPDD Pump Stations 1, 2, and 3; and maintaining on site irrigation canals and ditches in cooperation with citrus grove owners.
[12] Separator Dam work-around to include sacrificial embankment section. Sacrificial embankment section construction would require over-excavation of the canal, dam foundation preparation, and geologic mapping; followed by filling of excavation and construction of sacrificial embankment with compacted Embankment Fill. Once the feature is no longer required for surface water control, the temporary embankment and culvert would be removed and reconstructed per the design and per the dam closure requirements.
[13] See Figures 19 and 20 for canal/ditch filling generalized sequencing.

10 for generalized pre-trenching construction sequence and Figure 11 for generalized construction sequence for canal/ditch filling.

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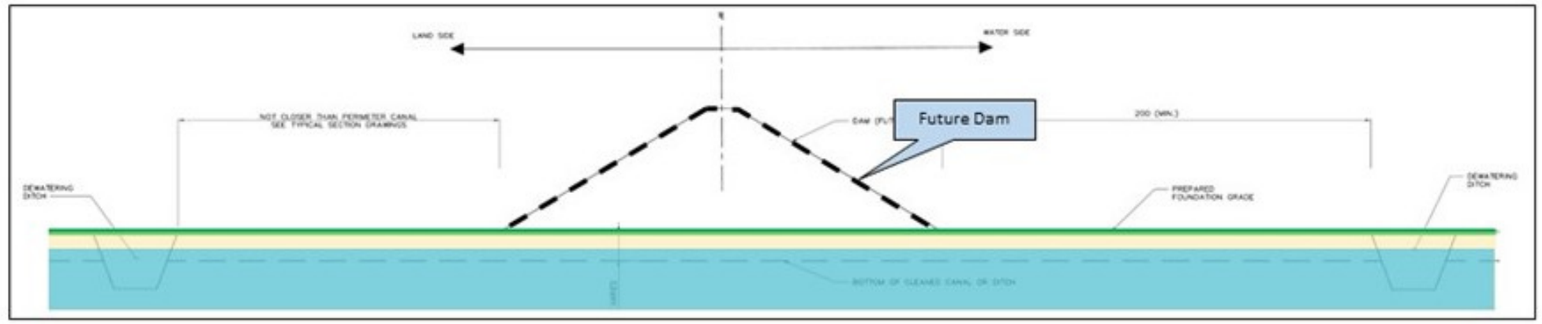
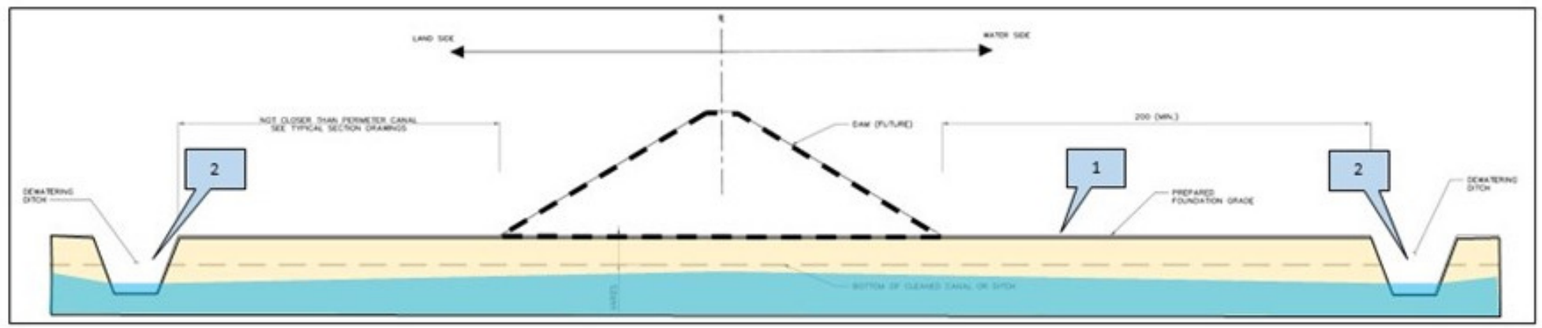
0. Existing Conditions



1. Stripping & Foundation Preparation
2. Excavate dewatering trenches and groundwater drawdown



3. Pre-trenching and backfill

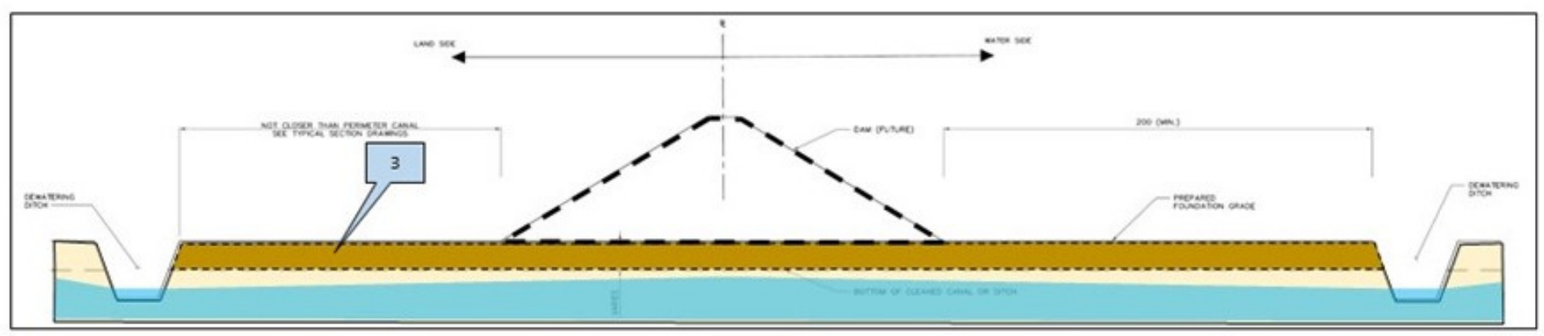


Figure 9 - Pre-trenching Generalized Construction Sequence

4. Backfill dewatering trenches

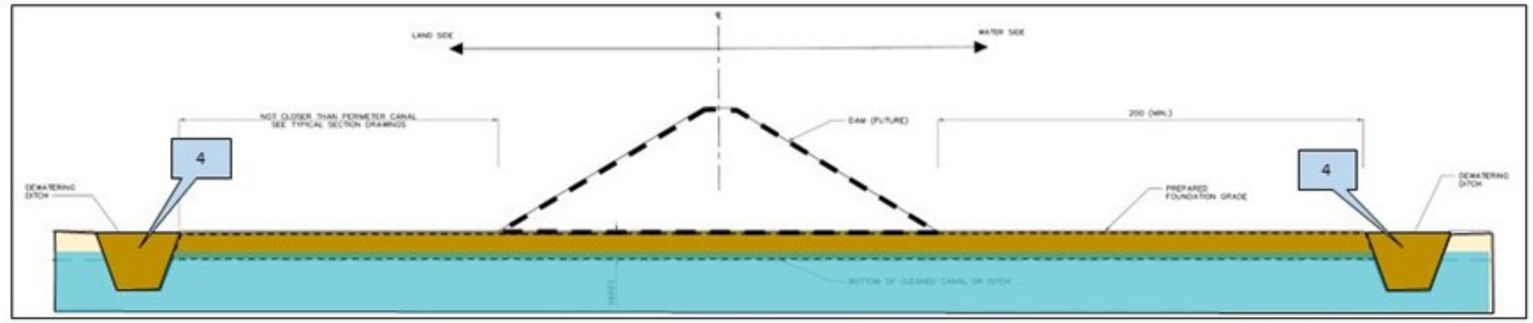
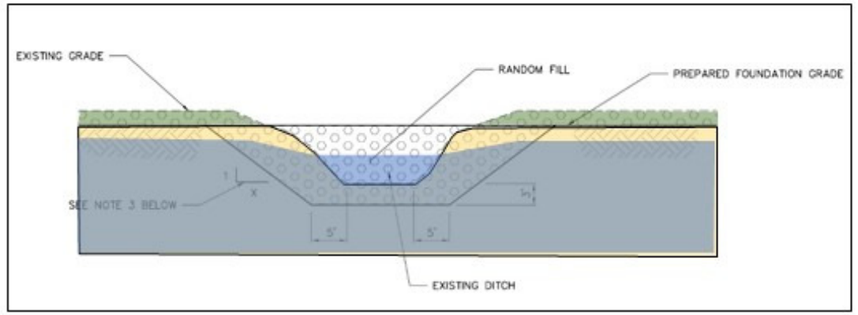
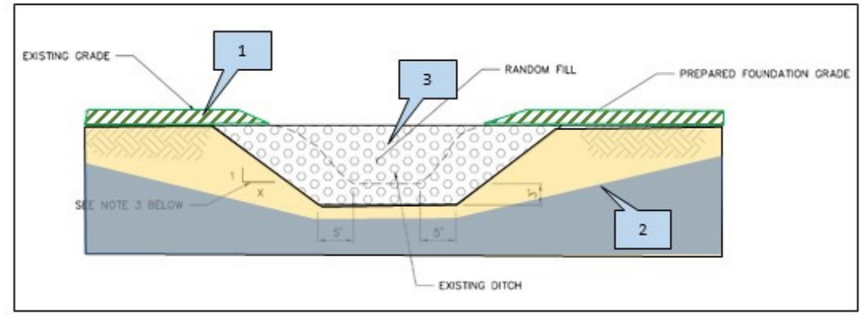


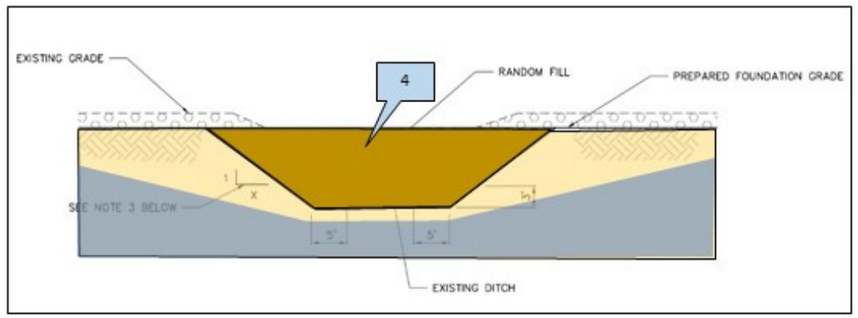
Figure 10 - Pre-trenching Generalized Construction Sequence 2 of 2



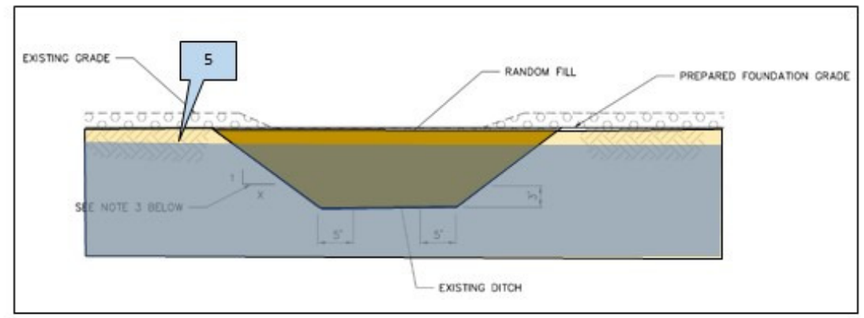
0. Existing Conditions



1. Stripping and Foundation Preparation
2. Drawdown Groundwater
3. Excavate Unsuitable Material



4. Backfill and Compact with Embankment Fill



5. Discontinue Dewatering

Figure 11 - Canal/Ditch Filling Generalized Construction Sequence

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112. **Demolish Pump Station LPDD 1.** Includes construction of plug and cofferdam in Header Canal, dewatering of Header Canal, demolition of pump station and filling of portion of the canal to facilitate dam construction. Contractor shall coordinate activities with FPL as they may install a temporary overhead "detour" to allow demolition of the pomp station. During LPDD1 Pump Station demolition activities, Contractor shall at all times, maintain safe and serviceable vehicle access across the LPDD Header Canal.

Predecessors:

- *Advanced coordination with FPL and completion of temporary re-route of FPL services (by FPL).*
- *300. Irrigation Bypass Complete.*
- *Re-route outfall from Seepage Canal to Townsend Canal.*
- *Construct vehicle access bypass.*

113. **Pressure Relief System Proof of Concept**. Includes full construction of specified length of relief system. Contractor shall provide proposed location of Pressure Relief System Proof of Concept for District approval.

Predecessor: Townsend Canal earthwork and grading.

iii. Irrigation Water Supply

During this work step, irrigation water will be provided by the following:

- The S-476 temporary irrigation bypass system that supplies the LPDD Header Canal. District will operate S-476 and Contractor shall maintain bypass conveyance (pipe and ditch).
- Contractor shall operate LPDD Pumps Stations 2 and 3 in cooperation with landowners and the District.
- Through the use of work-arounds and temporary bypasses, maintain uninterrupted flow in following channels: Banana Branch Canal, Roberts Canal, reconstructed/relocated Berry Ag Ditches 2, and Paul Canal.
- Utilize short-term work-around to maintain uninterrupted flow in Berry Ag Ditch 6, until irrigation improvements are complete.

iv. Surface Water Management

Consider managing excess surface water runoff and construction generated water (dewatering) from the work areas as follows and as illustrated on Figure 12.

Since the majority of west Perimeter Dam construction is to be deferred until the permanent irrigation bypass system is in operation, utilize the existing Seepage Canal and Jog Ditch to convey water to Townsend Canal. The Seepage Canal outfall will likely need to be relocated or reconstructed to facilitate demolition of LPDD Pump Station 1. Improve the existing ditches and canals within the site is to direct runoff to these existing outlets, as well as to the LPDD Header Canal, Banana Branch, Paul Canal, and Berry Ag Ditches 2 and 3. Cleaning and/or

deepening of the ditches and canals may be required to improve the conveyance of these existing drainage features.

A similar approach would be adopted to drain water from the work areas south of the Header Canal. Surface water in local work areas such as embankment construction zones would be pumped or drained to adjacent ditches which then drain to the arterial canals. Other options the Contractor could utilize include pumping excess water to the eastern portion of the Header

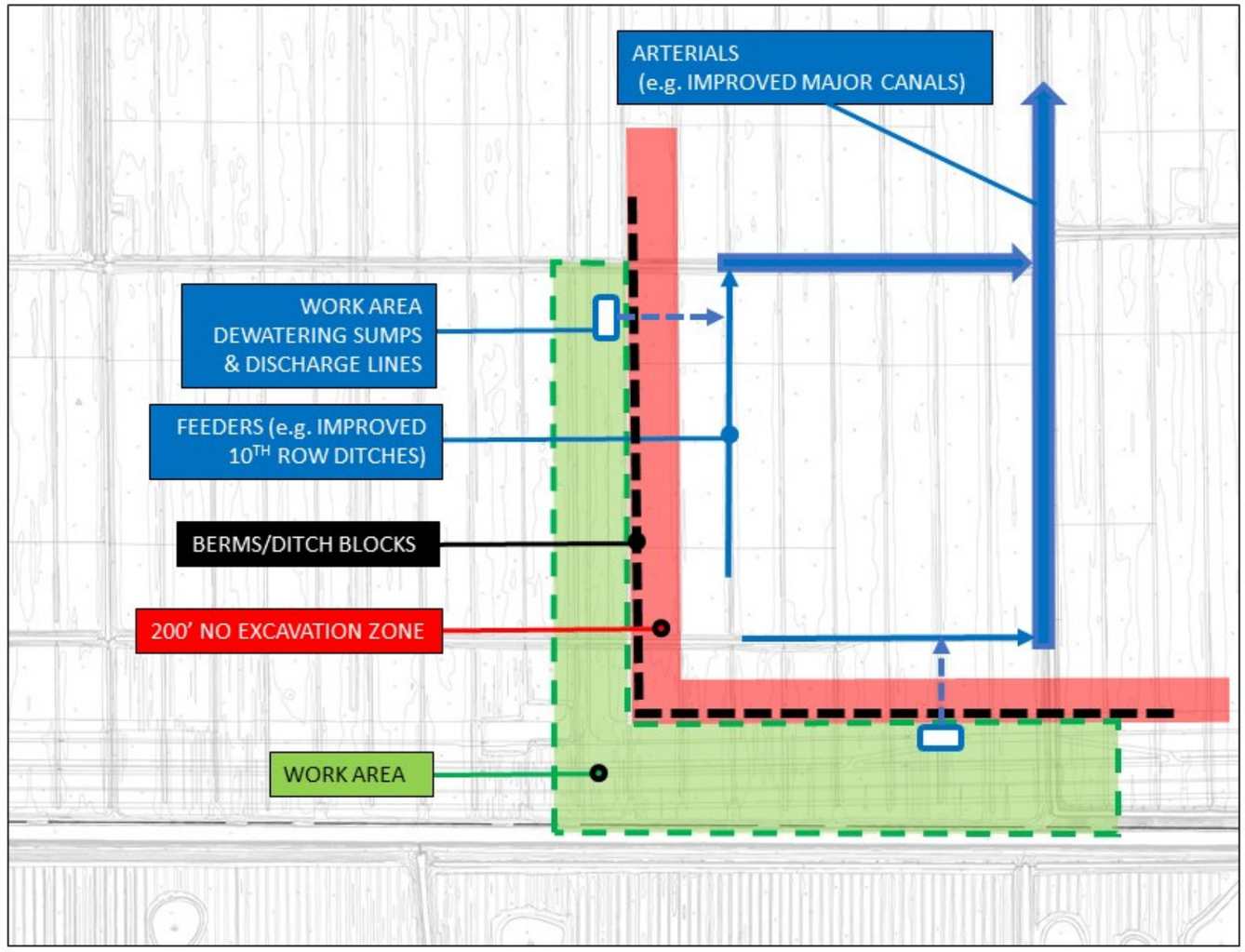

Figure 12 - Generalized Local Surface Water Control

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Canal and pumping water from work areas to existing adjacent ground depressions or borrow areas, or west over the newly constructed embankment areas into the Townsend Canal. To minimize the number of work-arounds, the Contractor should consider redirecting irrigation canals in the northeast quadrant of the site to the Banana Branch Canal to create a single work-around area. Note that pumping over the west embankment during construction of the embankment may be required.

Surface water control also includes construction of settlement ponds to treat water generated by excavation and other dewatering activities. Note following requirements from the Florida Department of Environmental Protection's NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities:

> *If you have 10 or more disturbed acres on your site, the following design requirements shall be met:*
>
> - *For drainage basins with 10 or more disturbed acres at one time, a temporary (or permanent) sediment or wet detention basin providing 3,600 cubic feet of storage per acre drained must be provided until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from off-site areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin.*
>
> - *For drainage basins with 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained is not attainable, a combination of smaller sediment basins, sediment traps, wet detention systems, or other best management practices must be used.*

iii. Special Considerations/Constraints

Special considerations and/or constraints associated with the work step include but are not limited to the following:

- Bid Package 4 Contractor shall not use the east – west Local Access Road (between Congen Road and the S-470 work limits) without written and specific authorization from the District. This constraint continues through all work steps.
- Contractor shall install system of shallow monitoring wells adjacent to the NE Rim Ditch prior to beginning any work that may affect water levels in the ditch, including but not limited to excavation of the Perimeter Canal.
- Irrigation improvements must be completed immediately following installation of SWPPP measures and shall be completed prior to beginning any dam construction activities.
- Construction of south/east/northeast Perimeter Canal is an integral part of the permanent irrigation bypass system which is time critical.
- MOT (approved by Hendry County) likely required for the Townsend Canal sheet pile work.

- Each component of dam construction must be preceded by a proof of concept and District approval. Same requirements for the pressure relief system.
- Dam work-arounds are required but shall be limited in number.
- Segments of completed dam foundation preparation are subject to District approval and time must be allocated for geologic mapping (by others).
- Includes construction of plug and cofferdam in Header Canal, dewatering of Header Canal, demolition of pump station and filling of portion of the canal to facilitate dam construction. Contractor shall coordinate activities with FPL as they may install a temporary overhead "detour" to allow demolition of the pomp station. During LPDD1 Pump Station demolition activities, Contractor shall at all times, maintain safe and serviceable vehicle access across the LPDD Header Canal.
- Surface water elevations in the Townsend Canal are subject to considerable fluctuation as a result of ongoing farming operations to the south, and the size of the drainage basin that drains through the Townsend Canal. Following the passage of Hurricane Irma in September 2017, the Townsend Canal stage was estimated to be above Elevation +8 feet NAVD. The Contractor shall regularly and intentionally coordinate work activities along the Townsend Canal with local farmers and land owners to limit the impact of potential high stages in the Townsend Canal that may affect the timing, progress, the need for removal of damaged work, and associated re-work. Additional temporary cofferdams may be required provided they do not impede flow in the Townsend Canal. The Contractor shall pay all additional costs for the required coordination and potential rework as necessary.

b. Work Step 2

i. General

Refer to Figure 13:

ii. Generalized Sequence

200. **S-477:** Includes S-477 structure complete[14].

201. **S-478**: Includes S-478 structure complete including integral bypass for Roberts Canal. See Figure 14 and Figure 15 for generalized construction sequence.

202. **S-479**: Includes S-479 structure complete and temporary bypass for LPDD Header Canal. See Figure 16 and Figure 17 for generalized construction sequence.

Predecessor: The generalized sequence shown on the figures indicates that the LPDD Header Canal bypass be completed coincident with south/east/northeast Perimeter Canal construction, and that S-479 structure construction begin after irrigation bypass is complete.

[14] Structure "complete" applies to all canal and reservoir structures. Activities (as applicable to given structure) include but are not limited to site preparation; excavation, excavation support, and dewatering; concrete (forming, reinforcement, placement, and curing); superstructure, major equipment procurement, installation, and commissioning; ancillary mechanical, electrical, and controls equipment; electrical service and FPL coordination; control building; instrumentation; site/civil work, and safety/debris barriers.

203. **S-480**: Includes S-480 structure complete and temporary bypass for Temporary Irrigation Ditch 4/Paul Canal. See Figure 18 and Figure 19 for generalized construction sequence.

204. **S-481A, S-481B, and S-481C**: Includes S-481A, S-481B, and S-481C structures complete. Structures are located to minimize~~avoid~~ need for temporary irrigation bypasses. See Figure 20 and Figure 21 for generalized construction sequence.

205. **S-476 Connection**: Includes removal of temporary bypass system and continuation of discharge pipe from S-476 and new energy dissipation structure.

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WORK STEP 2:

200. S-477
201. S-478
202. S-479
203. S-480
204. S-481A, S-481B & S-481C
205. S-476 Connection
206. North Perimeter Canal
207. Soil-Bentonite Wall Phase 1
208. Pressure Relief System
209. Electrical Service to S-477 & 479

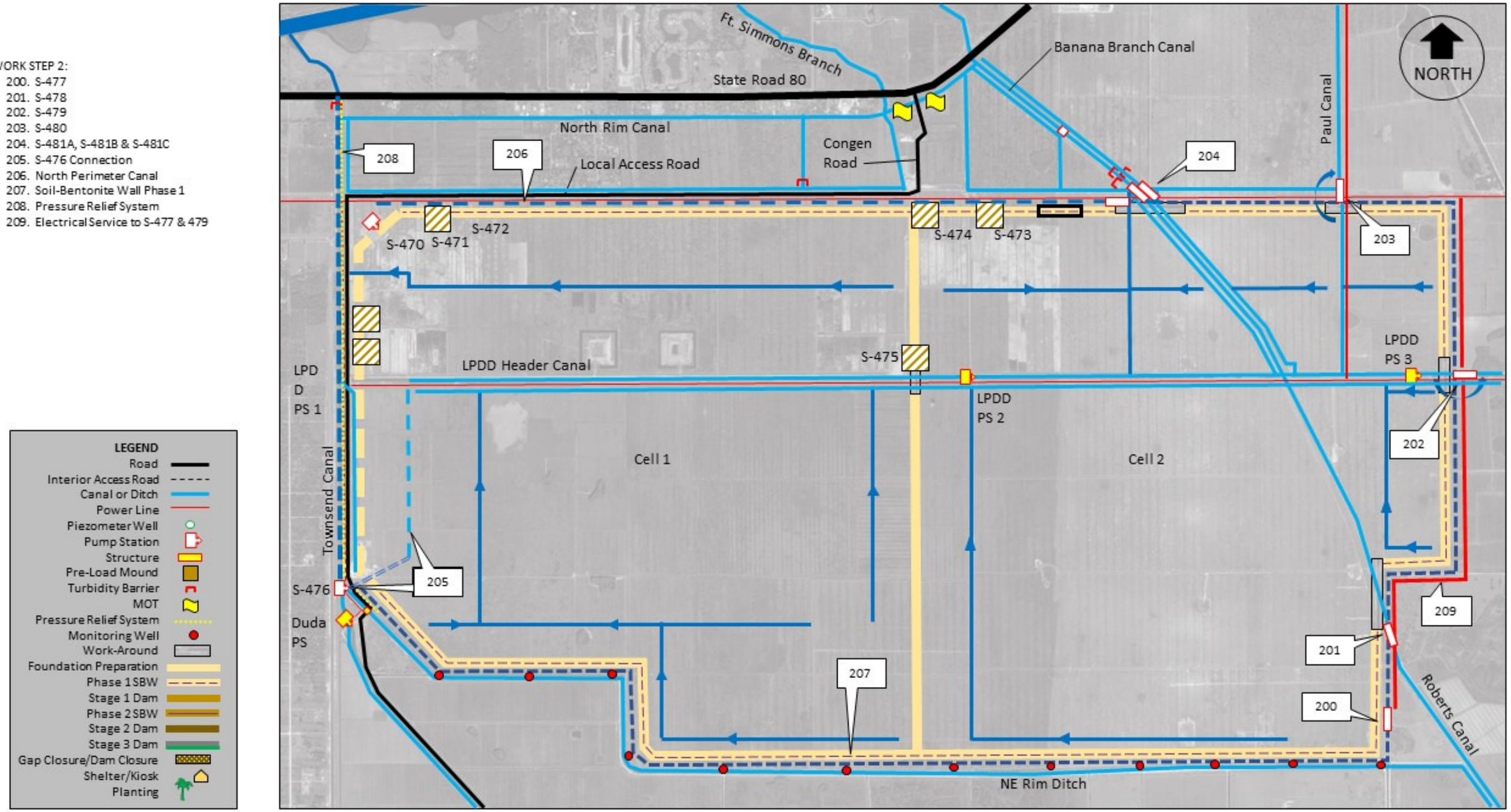
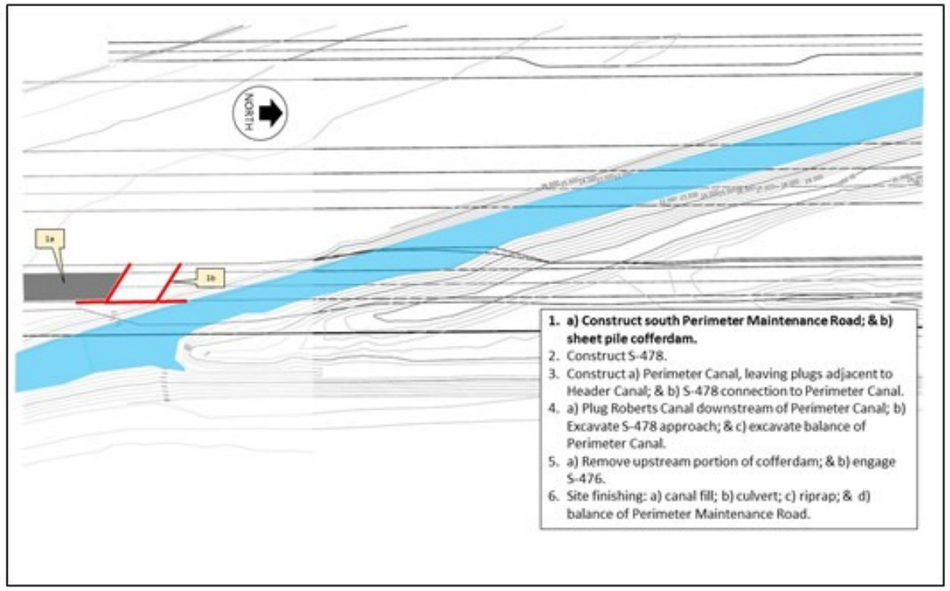
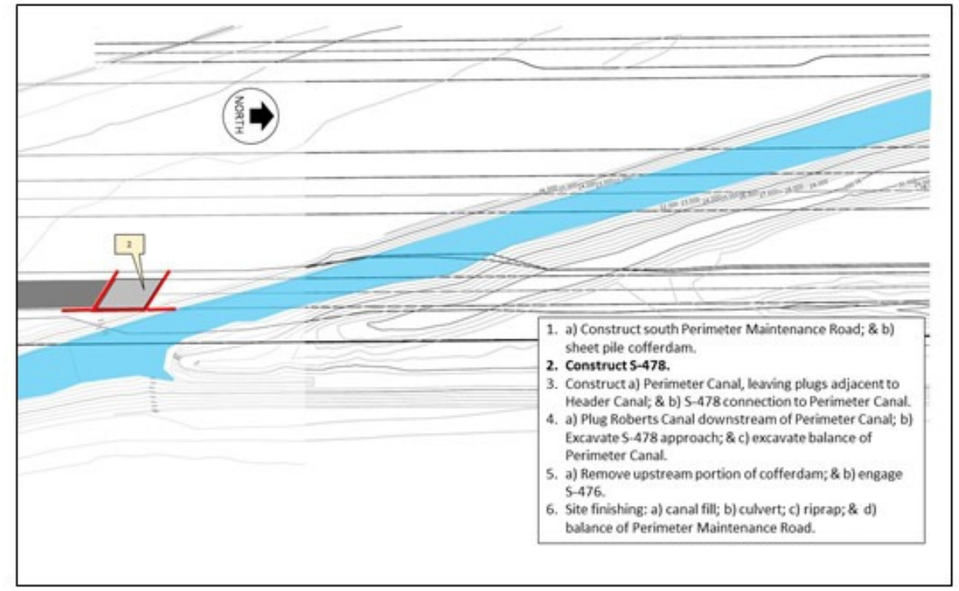
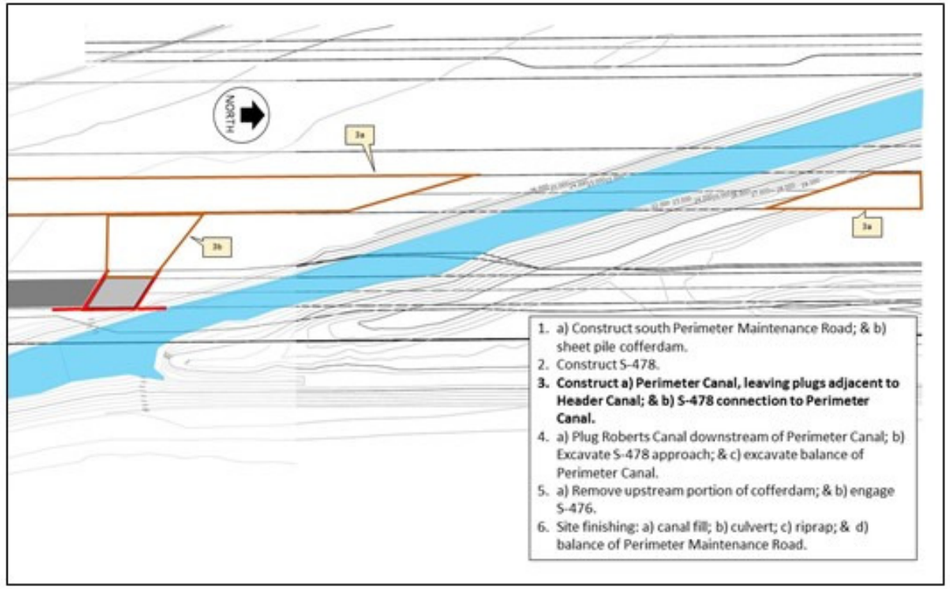


Figure 13 - Work Step 2







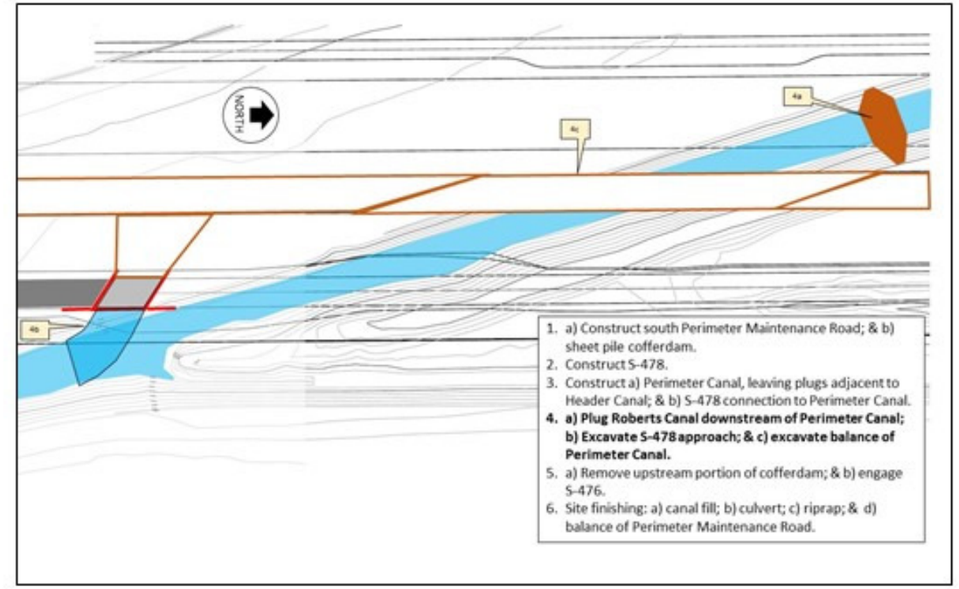
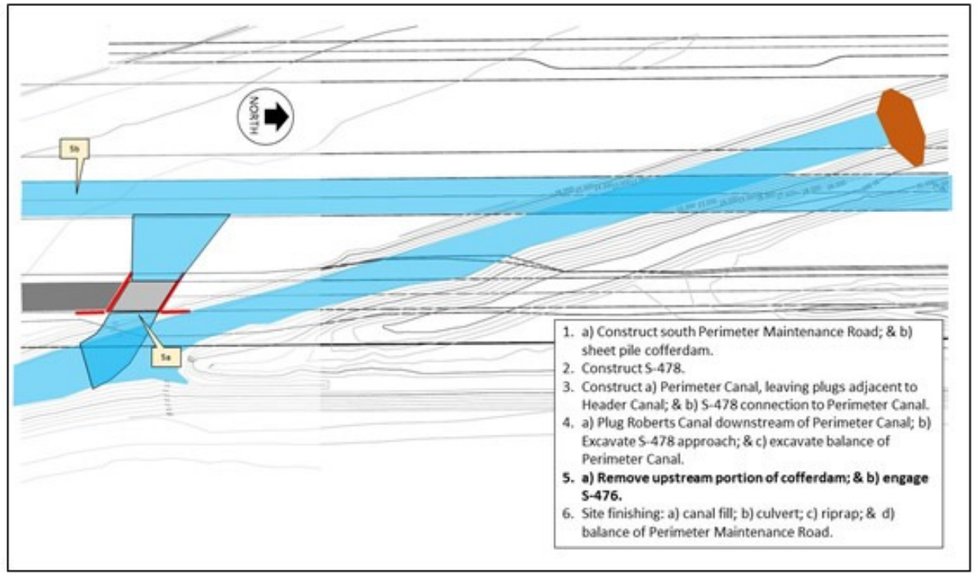


Figure 14 - S-478 Generalized Construction Sequence 1 of 2



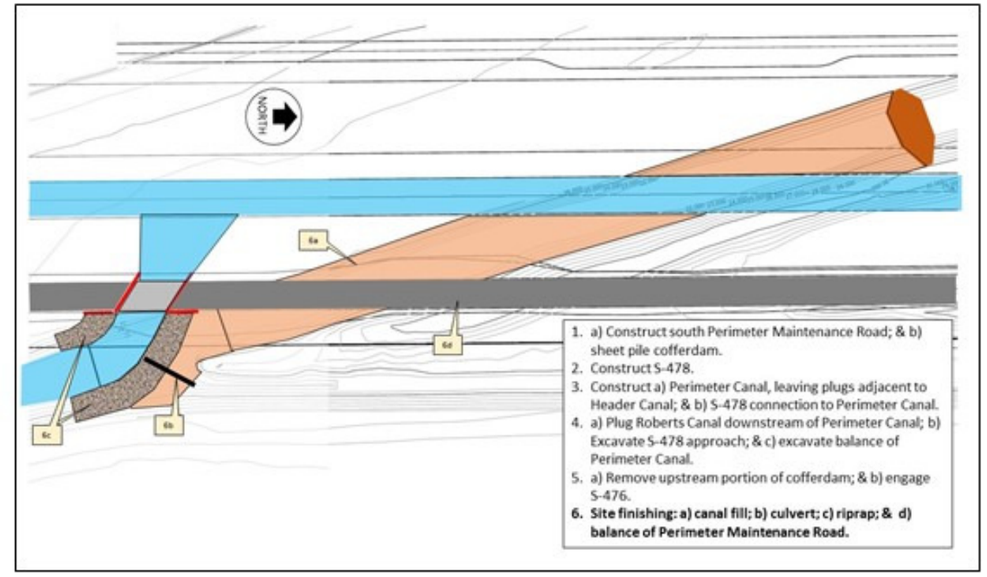


Figure 15 - S-478 Generalized Construction Sequence 2 of 2

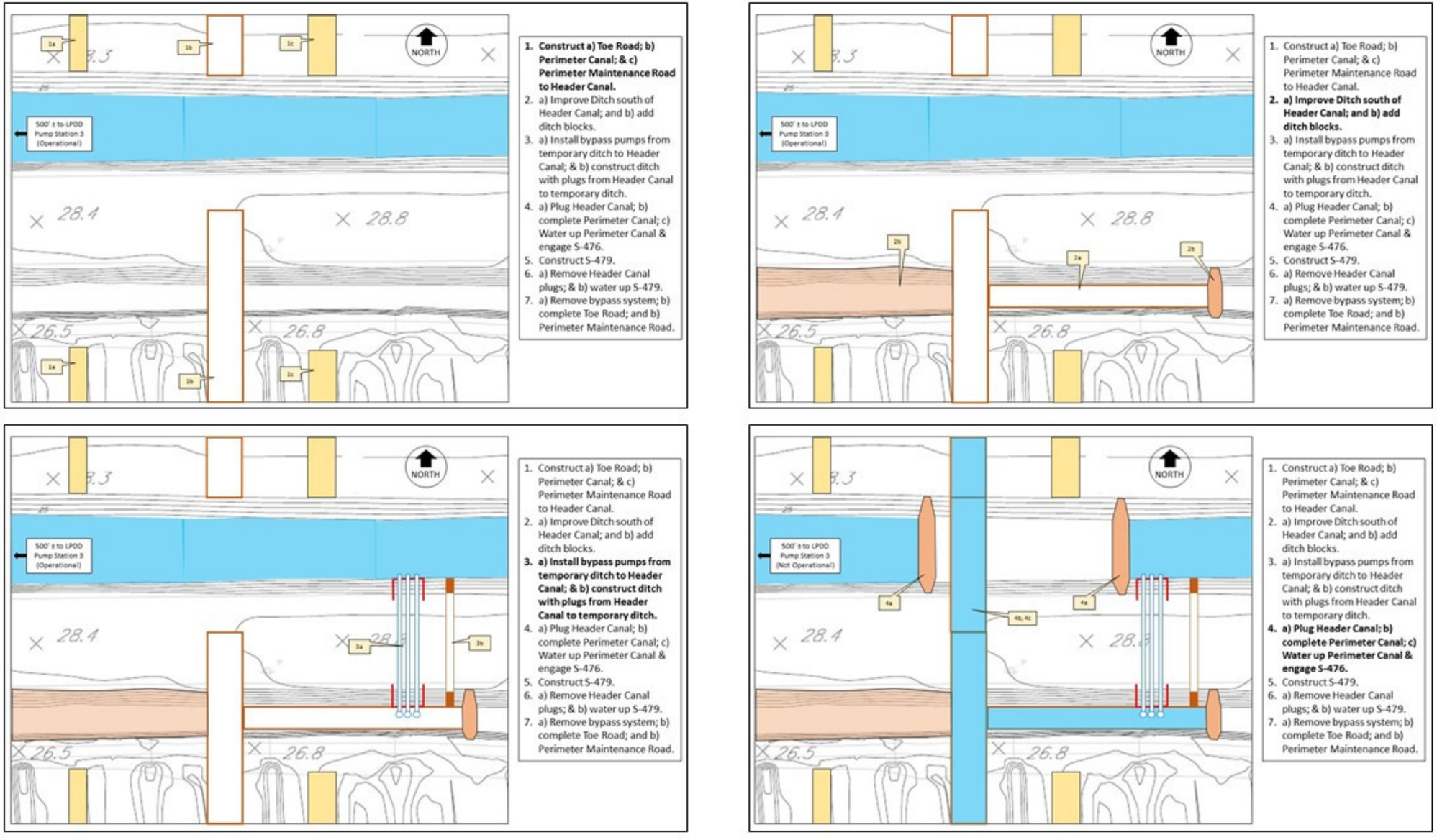
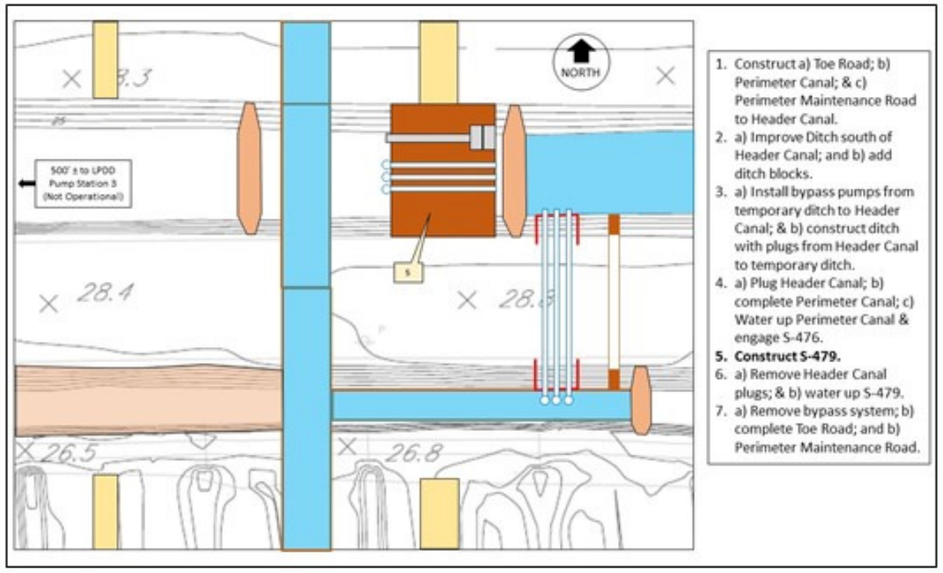
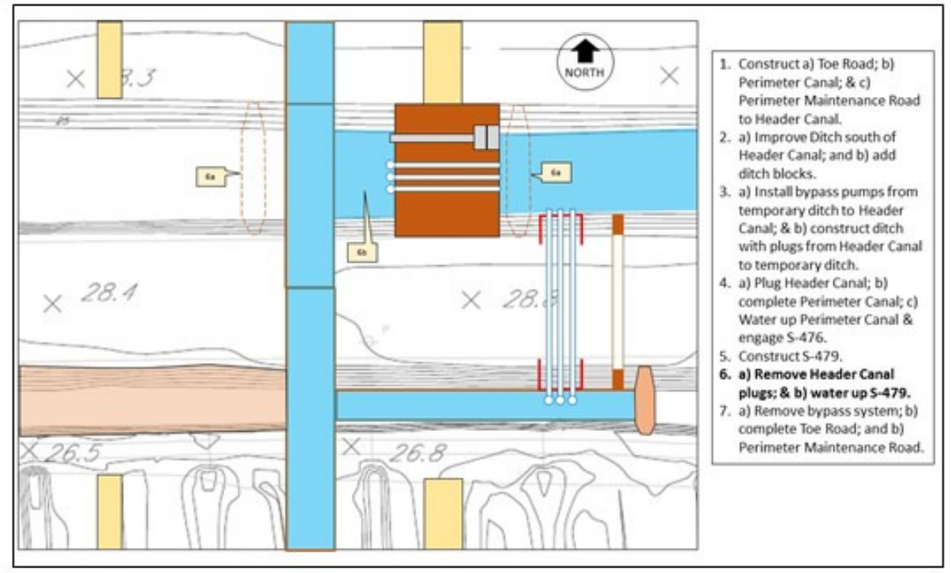


Figure 16 - S-479 Generalized Construction Sequence 1 of 2





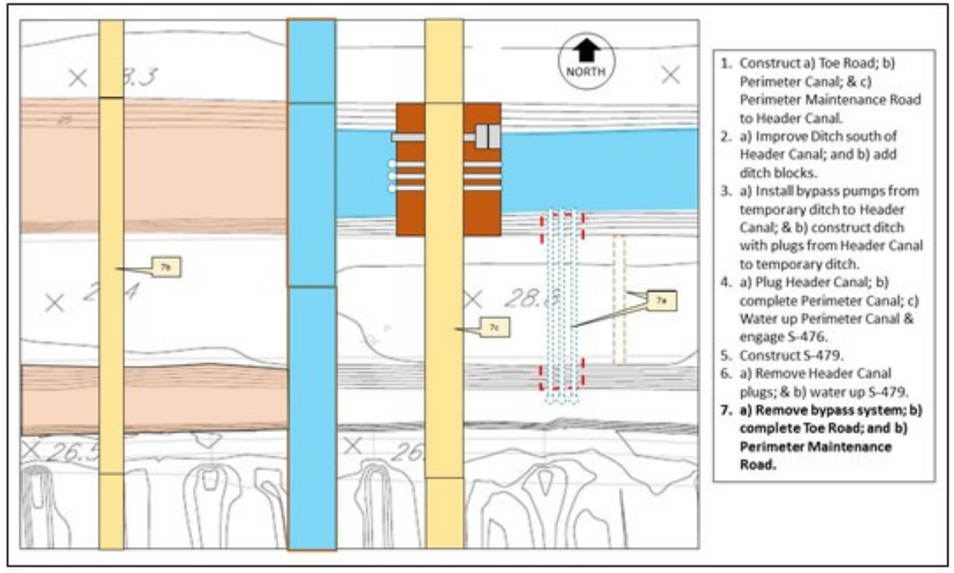


Figure 17 - S-479 Generalized Construction Sequence 2 of 2

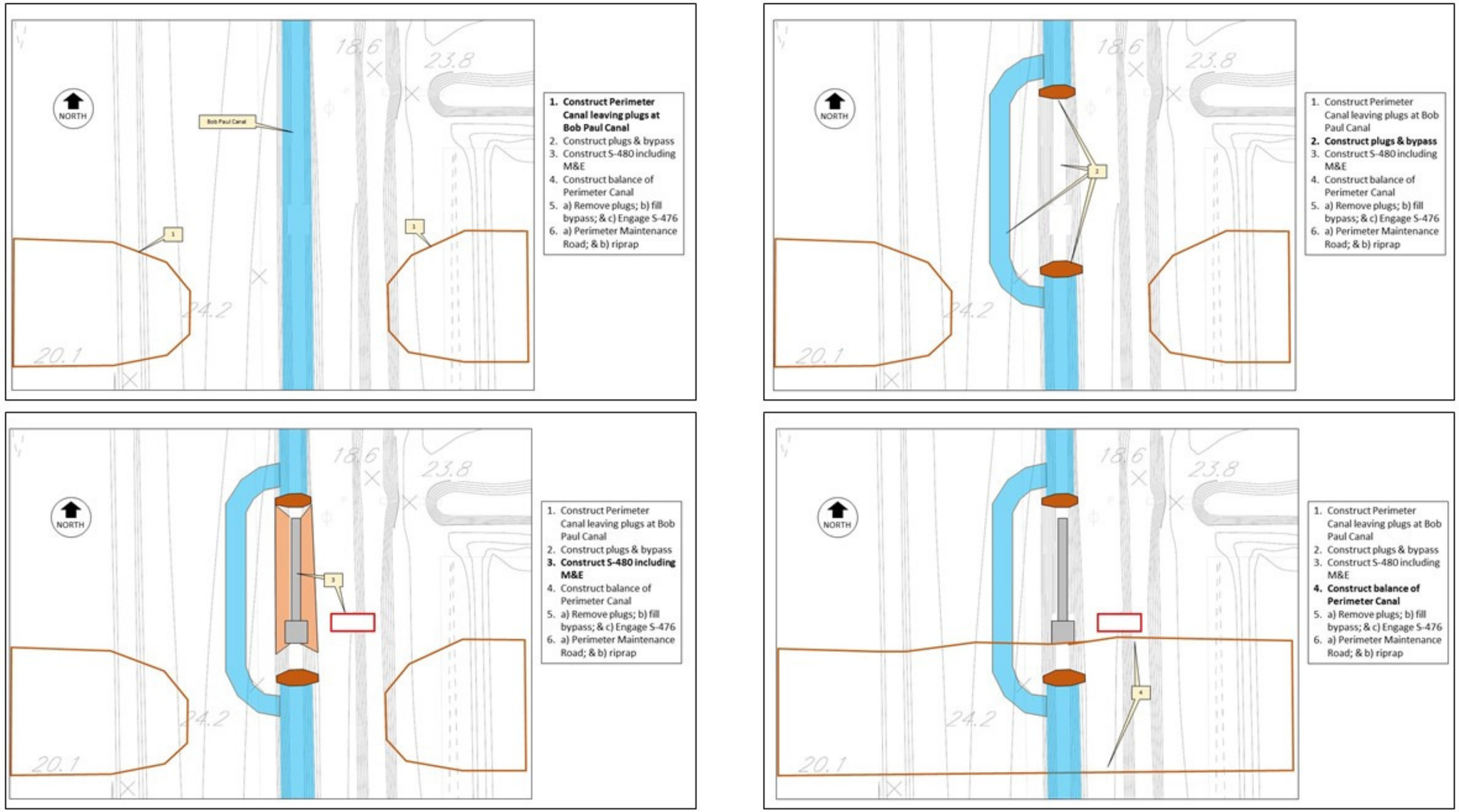
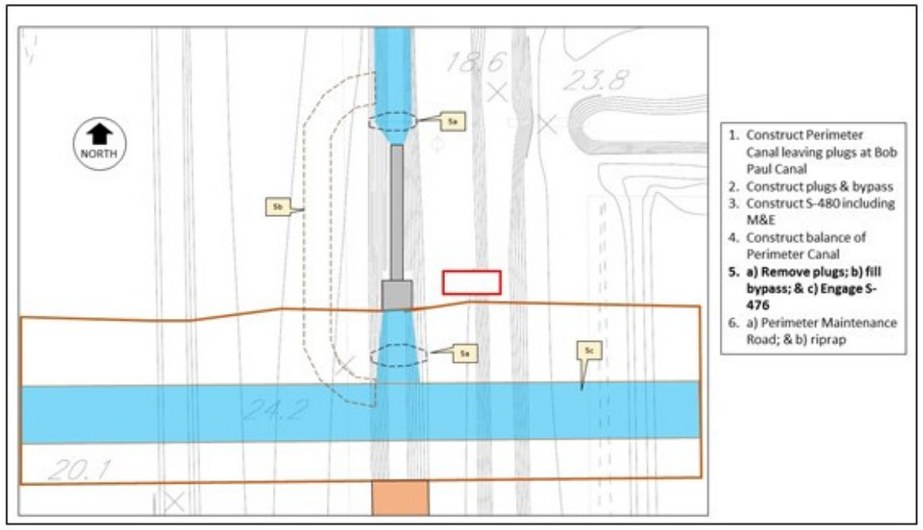


Figure 18 - S-480 Generalized Construction Sequence 1 of 2



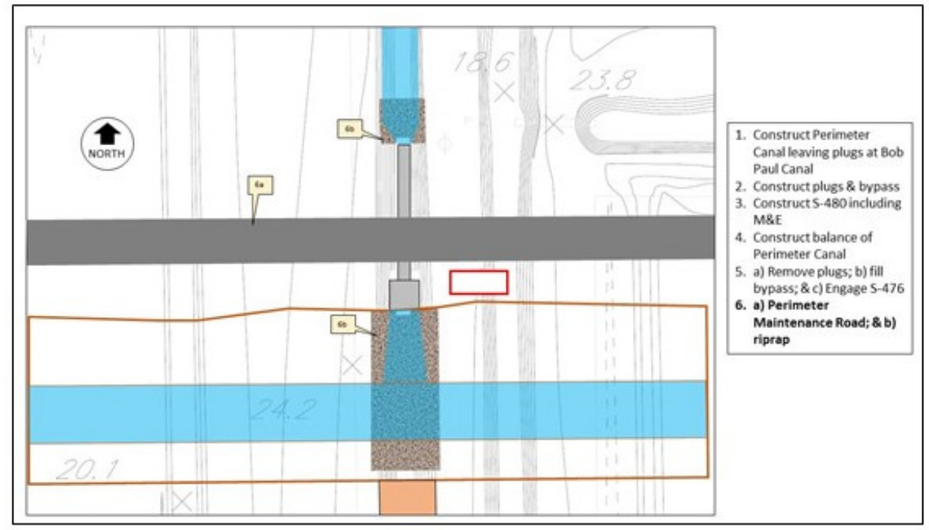
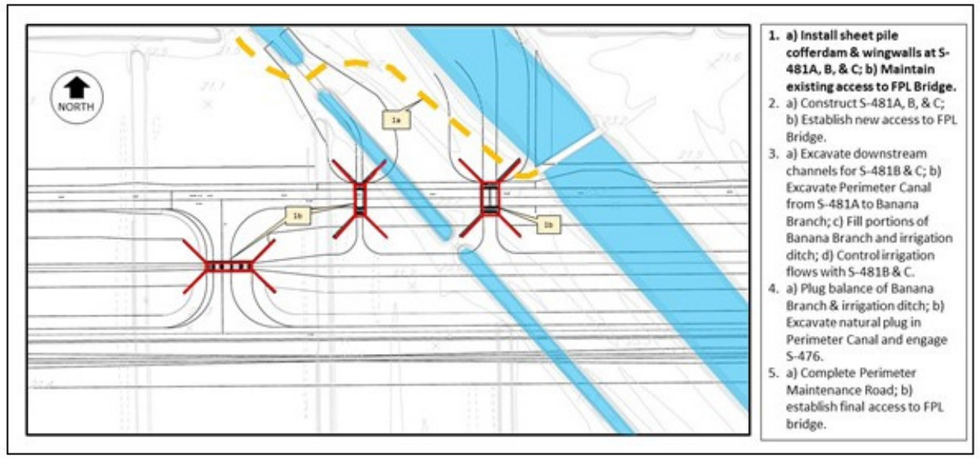
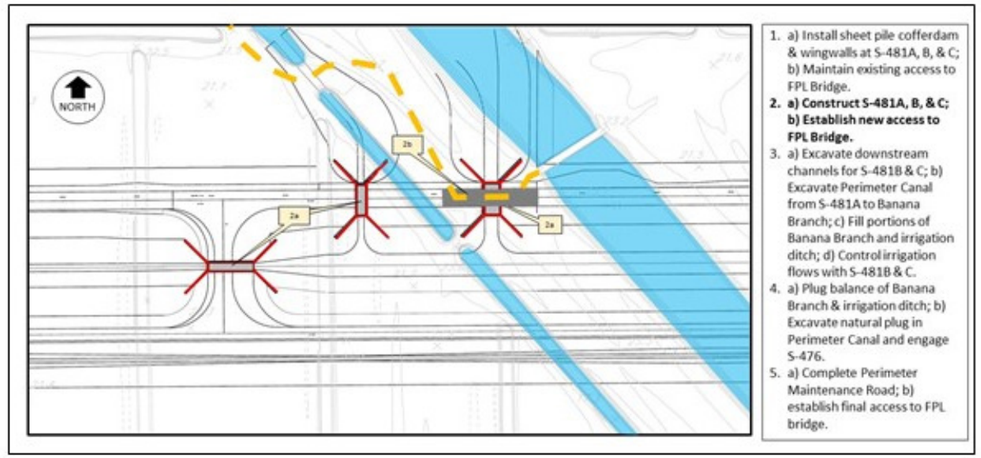


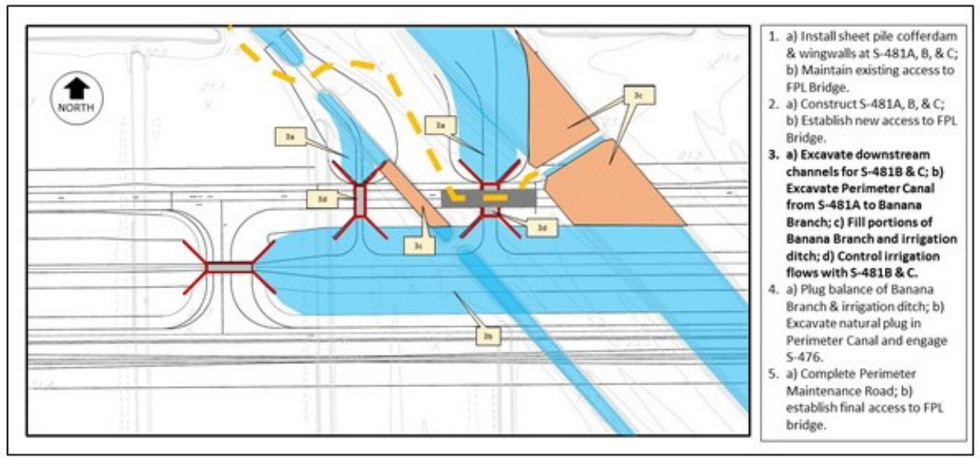
Figure 19 - S-480 Generalized Construction Sequence 2 of 2



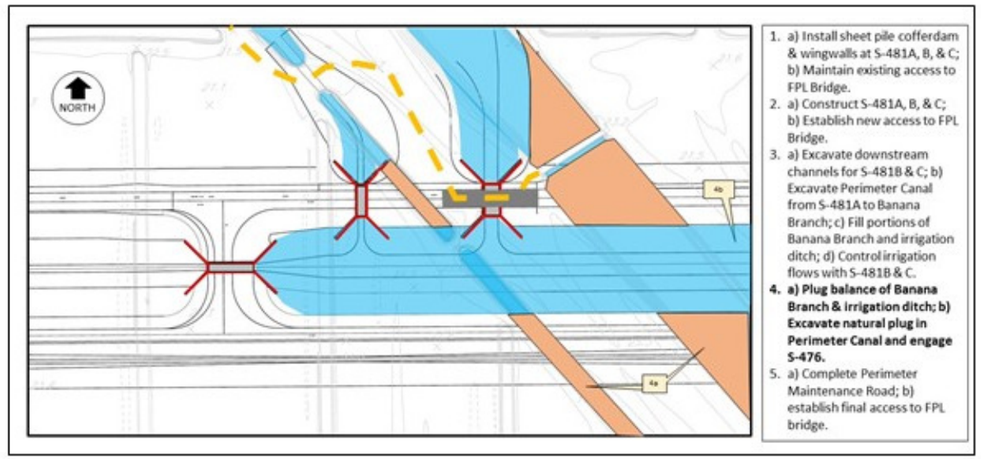
1. **a) Install sheet pile cofferdam & wingwalls at S-481A, B, & C; b) Maintain existing access to FPL Bridge.**
2. a) Construct S-481A, B, & C; b) Establish new access to FPL Bridge.
3. a) Excavate downstream channels for S-481B & C; b) Excavate Perimeter Canal from S-481A to Banana Branch; c) Fill portions of Banana Branch and irrigation ditch; d) Control irrigation flows with S-481B & C.
4. a) Plug balance of Banana Branch & irrigation ditch; b) Excavate natural plug in Perimeter Canal and engage S-476.
5. a) Complete Perimeter Maintenance Road; b) establish final access to FPL bridge.



1. a) Install sheet pile cofferdam & wingwalls at S-481A, B, & C; b) Maintain existing access to FPL Bridge.
2. **a) Construct S-481A, B, & C; b) Establish new access to FPL Bridge.**
3. a) Excavate downstream channels for S-481B & C; b) Excavate Perimeter Canal from S-481A to Banana Branch; c) Fill portions of Banana Branch and irrigation ditch; d) Control irrigation flows with S-481B & C.
4. a) Plug balance of Banana Branch & irrigation ditch; b) Excavate natural plug in Perimeter Canal and engage S-476.
5. a) Complete Perimeter Maintenance Road; b) establish final access to FPL bridge.



1. a) Install sheet pile cofferdam & wingwalls at S-481A, B, & C; b) Maintain existing access to FPL Bridge.
2. a) Construct S-481A, B, & C; b) Establish new access to FPL Bridge.
3. **a) Excavate downstream channels for S-481B & C; b) Excavate Perimeter Canal from S-481A to Banana Branch; c) Fill portions of Banana Branch and irrigation ditch; d) Control irrigation flows with S-481B & C.**
4. a) Plug balance of Banana Branch & irrigation ditch; b) Excavate natural plug in Perimeter Canal and engage S-476.
5. a) Complete Perimeter Maintenance Road; b) establish final access to FPL bridge.



1. a) Install sheet pile cofferdam & wingwalls at S-481A, B, & C; b) Maintain existing access to FPL Bridge.
2. a) Construct S-481A, B, & C; b) Establish new access to FPL Bridge.
3. a) Excavate downstream channels for S-481B & C; b) Excavate Perimeter Canal from S-481A to Banana Branch; c) Fill portions of Banana Branch and irrigation ditch; d) Control irrigation flows with S-481B & C.
4. **a) Plug balance of Banana Branch & irrigation ditch; b) Excavate natural plug in Perimeter Canal and engage S-476.**
5. a) Complete Perimeter Maintenance Road; b) establish final access to FPL bridge.

Figure 20 - S-481 A Complex Generalized Construction Sequence 1 of 2

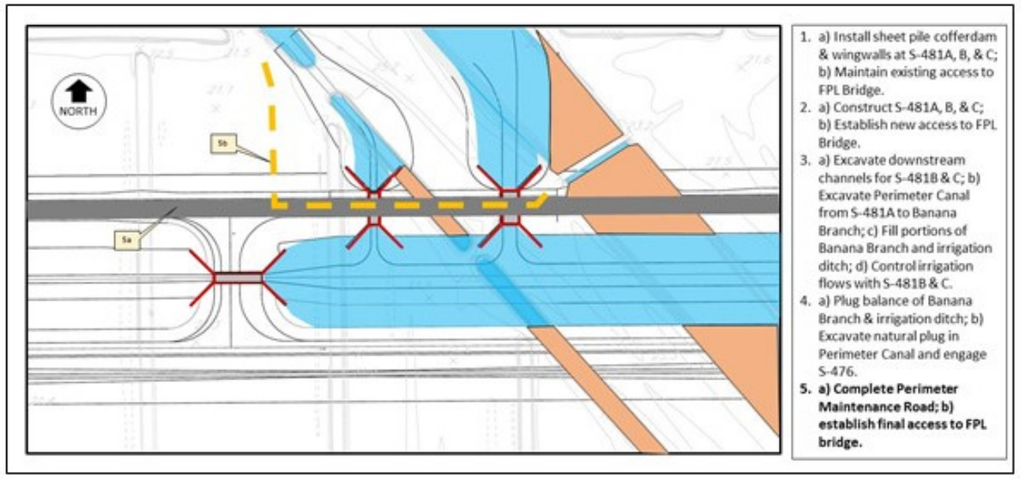


Figure 21 - S-481 A Complex Generalized Construction Sequence 2 of 2

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Predecessors:

- *Structure S-476 (majority by others) ready for use for water supply and stormwater management.*
- *Structures S-477, S-478, S-480, S-481A, S-481B, and S-481C substantially complete and operational.*

206. **North Perimeter Canal**. Includes following components from S-481A to S-483: Perimeter Canal, Perimeter Maintenance Road, Toe Road, Toe Ditch, and Toe Ditch outfalls.

Predecessors:

- *407. S-482 (may be coincident).*
- *408. S-483 (may be coincident).*

207. **Soil-Bentonite Wall Phase 1**: Includes select fill work pad, below-grade soil-bentonite wall, and embankment to top of work pad. Applies to north, east, and south Perimeter Dam, and excludes west Perimeter Dam. See Figure 22[15] for dam construction sequence.

Predecessors:

- *109. Dam Proof of Concept (sequential).*
- *111. Dam Foundation Preparation (sequential[16]).*

208. **Pressure Relief System**. Includes construction of sand relief column pressure relief system and backfilling along Townsend Canal, Intake Canal, and the NE Rim Ditch.

Predecessors:

- *113. Pressure Relief System Proof of Concept.*
- *106. North/East/West/Northeast Perimeter Canal (portion adjacent to NE Rim Ditch pressure relief system, may be coincident).*
- *107. South Townsend Canal Improvements (sequential).*

209. **Electrical Service to S-477 & S-479.** Includes new permanent electrical service to these structures (by FPL).

iii. Irrigation Water Supply

Upon completion of Work Step 1's irrigation improvements, water will be conveyed to the North Rim Canal via the Banana Branch Canal. The work-around associated with Berry Ag Ditch 6 can then be discontinued.

Otherwise, the irrigation operations described for Work Step 1 continue.

[15] Figure 13 illustrates generalized Perimeter Dam sequence; Separator Dam is similar.

[16] Term "sequential" indicates that predecessor must be complete for given length or extent of a feature that allows construction of the subsequent feature.

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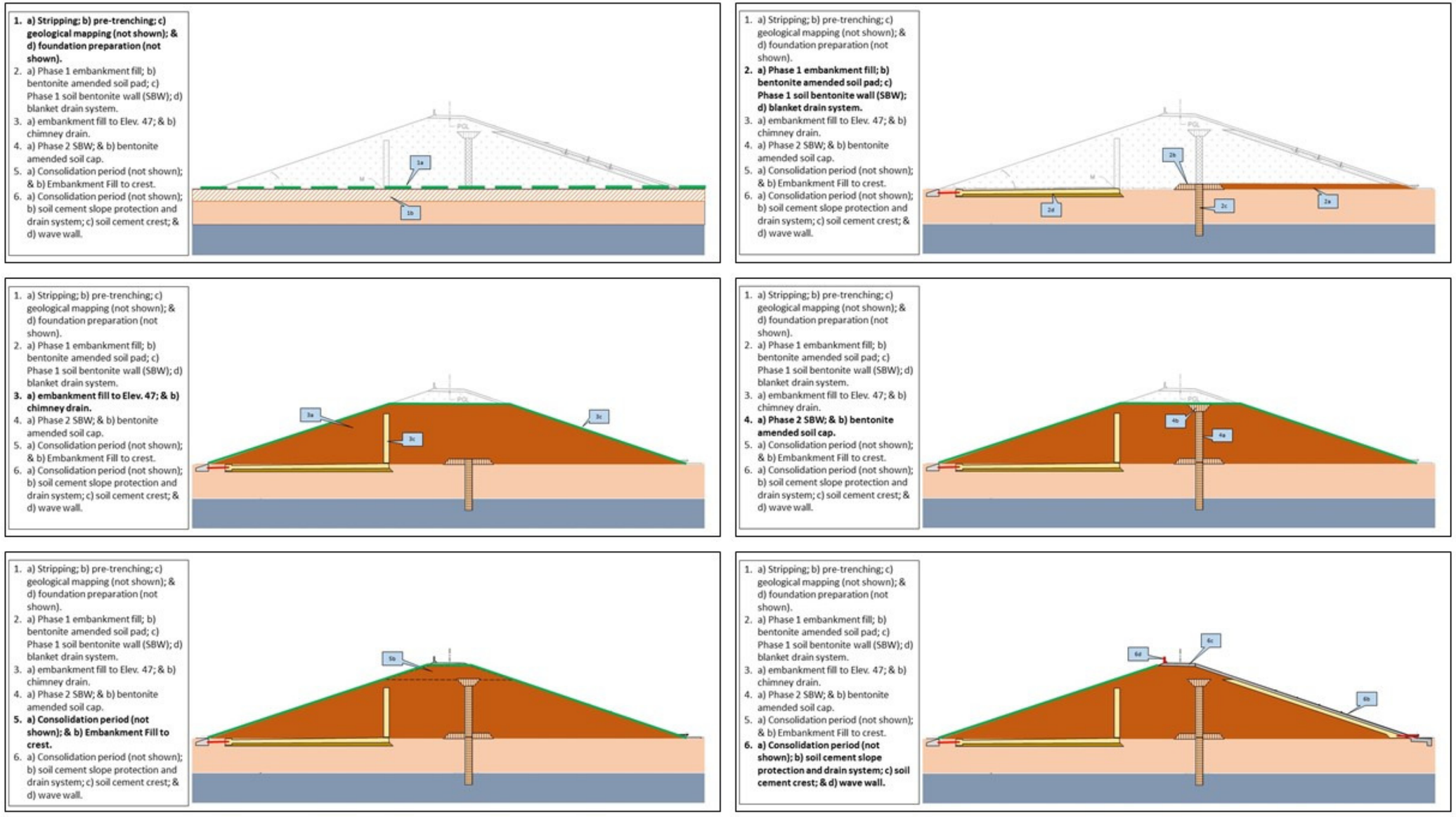

Figure 22 - Dam Construction Sequence

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iv. Surface Water Management

The permanent irrigation bypass system is not yet complete, therefore consider continued use of the existing Seepage Canal and Jog Ditch to convey water to Townsend Canal.

Otherwise, surface water management operations continue as described in Work Step 1.

v. Special Considerations/Constraints

Special considerations and/or constraints associated with the work step include but are not limited to the following:

- Work step includes construction of the Perimeter Canal structures and the permanent connection of the S-476 discharge to the Perimeter Canal. These activities ~~that~~ are integral to the permanent irrigation bypass system which is time critical. The final changeover from the temporary to permanent irrigation bypass shall be carefully coordinated with the affected landowners and the District. Contractor's refined and detailed Working Construction Sequence and Surface Water Control Plan shall include provisions for regular meetings with affected landowners and the District to establish the agreed upon logistics, schedule, and duration of the changeover from the temporary to permanent system.
- Construction of the northwest portion of the Perimeter Canal begins during this work step. Provide and maintain temporary earthen plug within canal to facilitate movement of heavy equipment to and from the reservoir interior.
- Structures S-478, S-481B, and S-481C were designed to minimize requirements for temporary bypasses for their associated channels.
- Structures S-478 and S-480 require construction of temporary conveyance bypasses.
- Construction of the Phase 1 soil bentonite wall begins except for the west Perimeter Dam, which must be deferred until the permanent irrigation bypass is operational.
- The transition from temporary to permanent irrigation bypass will require coordination of the S-476 switchover as well as Structures S-478, S-479, S-481B, and S-481C.
- Construction of the Townsend Canal pressure relief systems requires coordination with other aspects of Townsend Canal work.
- Construction of the NE Rim Ditch pressure relief system must precede or be coincident with construction of the adjacent portion of the Perimeter Canal.
- Contractor coordination required for FPL related work.

c. Work Step 3

i. General

Refer to Figure 23:

300. Irrigation Bypass System Complete. Item includes final transfer of irrigation and stormwater flows from existing canals and ditches to Perimeter Canal and associated structures. See Figure 24 for generalized final sequence for engaging S-476. Pump Station and putting the south/east/northeast Perimeter Canal into operation.

Predecessors:

- *104. Irrigation Improvements.*

- *106. South/East/Northeast Perimeter Canal (substantially complete).*
- *200, 201, 203, & 204. Canal Structures S-477, S-478, S-480, S-481A, S-481B, and S-481C (substantially complete).*
- *202. Structure S-479 (bypass system complete).*
- *205. S-476 Connection (including removal of temporary irrigation bypass system).*

WORK STEP 3:

300. Irrigation Bypass System Complete
301. Demolish Pump Stations
302. Remove Overhead Distribution Lines
303. West Perimeter Dam Work
304. Stage 1 Dam Construction
305. South Perimeter Fencing
306. East Perimeter Fencing
307. Surface Water Control

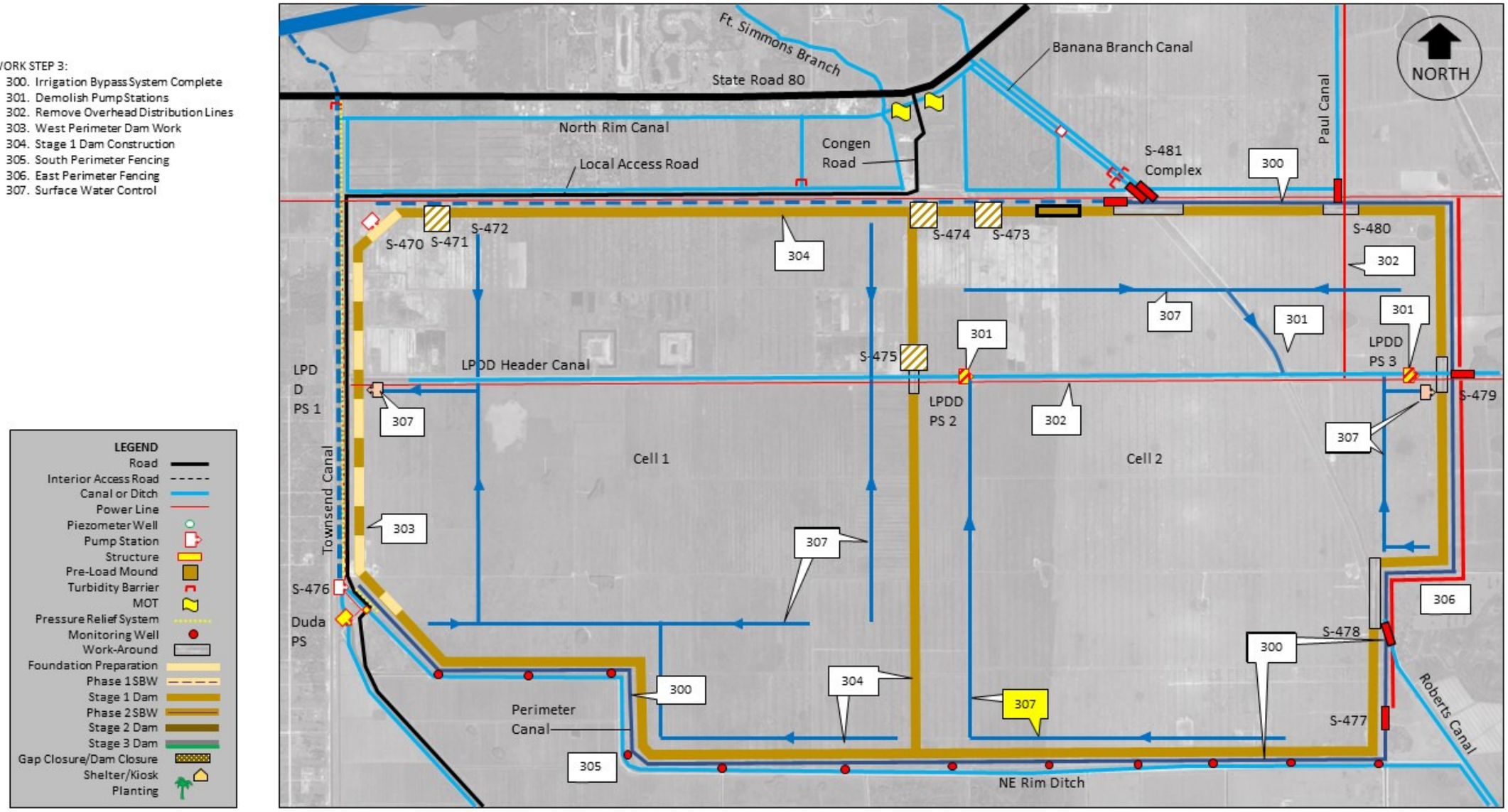
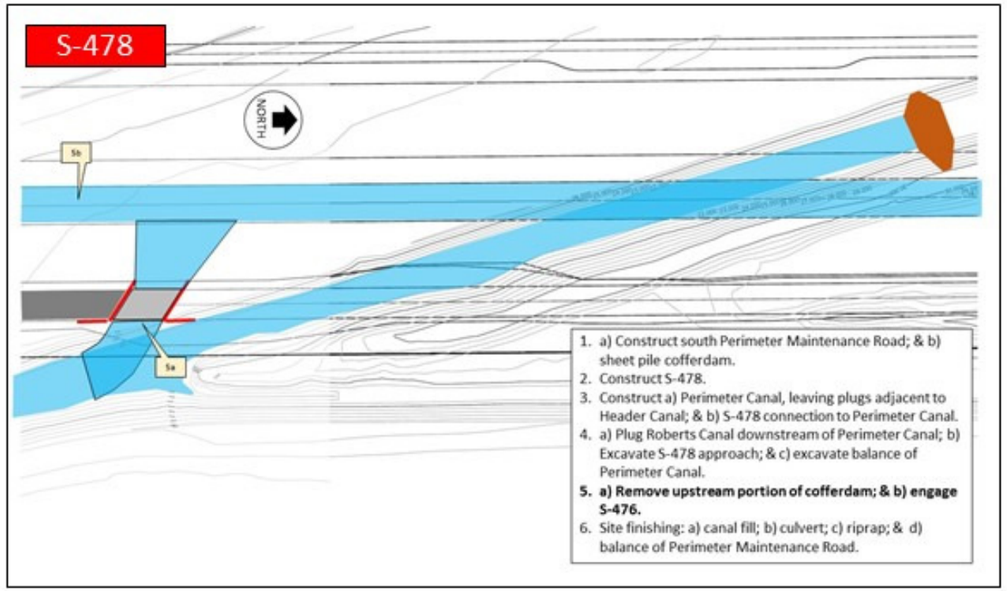
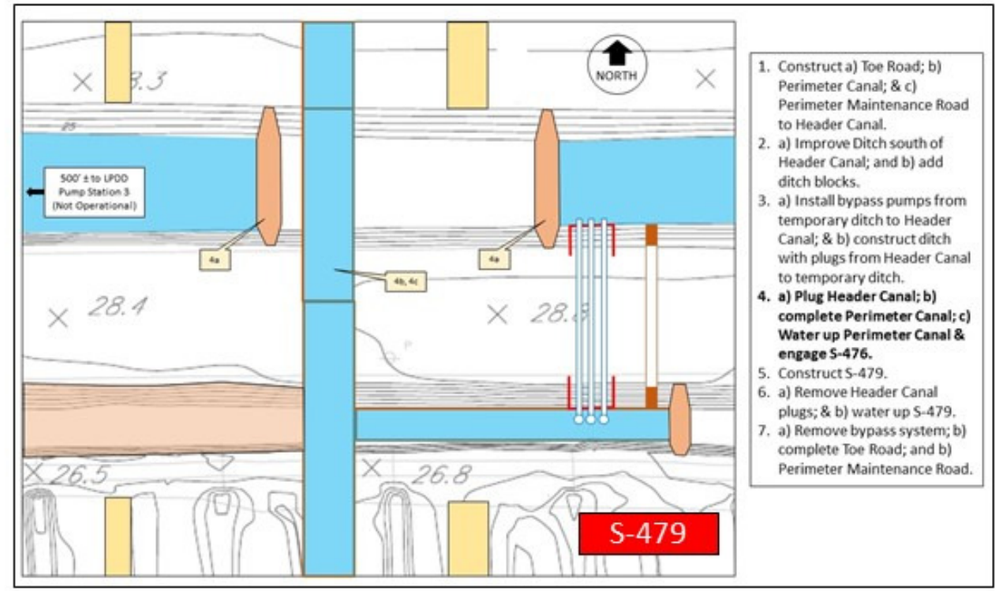
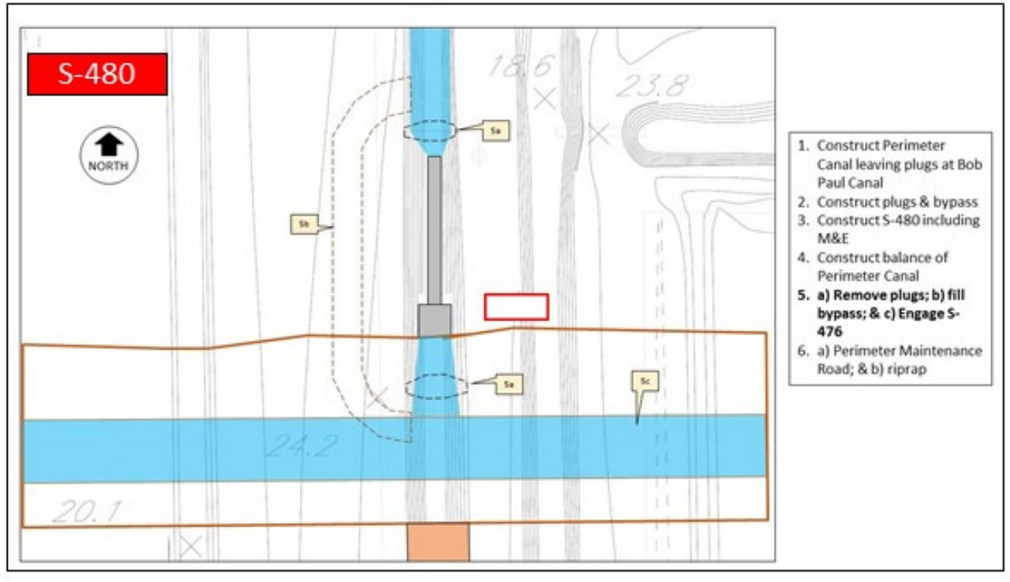


Figure 23 - Work Step 3







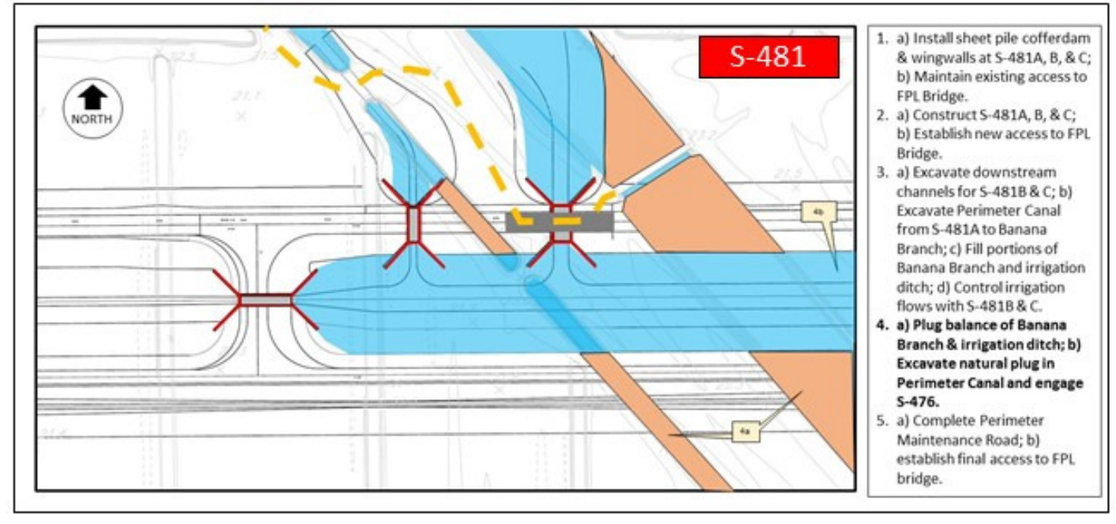


Figure 24 - Generalized Sequence for Engaging S-476

Contractor now assumes operation of new irrigation system (Perimeter Canal, S-477, S-479, S-480, S-481A, S-481B, and S-481C) in cooperation with citrus grove owners. The District will operate and maintain S-476 to deliver water as needed and requested by the Contractor. LPDD Header Canal (within project footprint) irrigation function ends. Submit certificate of survey for transfer of LPDD Header Canal maintenance easement to Perimeter Canal. Begin using LPDD Header Canal for surface water management.

301. Demolish Pump Stations. Includes demolition of LPDD Pump Stations 2 and 3; and ag pump that formerly fed Berry Ag Ditch 4.

Predecessor: 300. Irrigation Bypass Complete.

302. Remove Overhead Distribution Lines. By FPL and includes lines feeding former pump stations. Contractor shall coordinate construction operations with FPL.

Predecessor: 301. Demolish Pump Stations (certain segments may be removed earlier, and as soon as they are no longer required).

303. West Perimeter Dam Work.

a. Soil Bentonite Wall Phase 1. Includes bentonite amended soil pad and below-grade soil-bentonite wall.

Predecessors:

- *300. Irrigation Bypass System Complete.*
- *108. Remove two Pre-Load Mounds (along west Perimeter Dam alignment) (sequential.)*
- *111. Dam Foundation Preparation (sequential).*
- *112. Demolish Pump Station LPDD 1.*
- *Removal of discharge conduits from Seepage Canal and Jog Ditch to Townsend Canal.*

b. Stage 1 Dam Construction. Includes embankment to Elevation 47, chimney drain, blanket drain, blanket drain outfalls, and access ramps. Includes settlement monitoring of completed Stage 1 dam segments. Contractor shall not begin Stage 1 dam construction within 500 feet of the S-470 pump station until pump station construction has progressed to completion of the substructure to Elevation 25.

Predecessor: 303a. West Perimeter Dam Soil Bentonite Wall Phase 1 (sequential).

304. Stage 1 Dam Construction. Includes south, east, and north Perimeter Dam and Separator Dam. Includes embankment to Elevation 47, chimney drain, blanket drain, blanket drain outfalls, and access ramps. Includes settlement monitoring of completed

Stage 1 dam segments. Excludes dam work-around areas and gap closure areas. Continue to utilize pre-load mound material for Clean Sand and Embankment Fill. See Figure 22 for dam construction sequence.

Predecessor: 207. Soil-Bentonite Wall Phase 1 complete (sequential).

305. South Perimeter Fencing. Includes removal of existing barbed wire fencing along south boundary and installation of new barbed wire fencing. Item is not critical to schedule.

Predecessor: 300. Irrigation Bypass System Complete (sequential).

306. East Perimeter Fencing. Includes installation of new barbed wire fencing along east boundary. Item is not critical to schedule.

Predecessor: 300. Irrigation Bypass System Complete (sequential).

307. Surface Water Control. Includes use of existing channels, modification of existing channels, new channels, or temporary pump stations to collect, detain, stage, and convey excess stormwater from the site. Borrow areas may be used as additional storage/detention areas.

Predecessor: 300. Irrigation Bypass System Complete.

ii. Irrigation Water Supply

During this work step, the permanent irrigation bypass is complete. Contractor now assumes operation of new irrigation system (Perimeter Canal, S-477, S-479, S-480, S-481A, S-481B, and S-481C) in cooperation with adjacent landowners. The District will operate and maintain S-476 to deliver water as needed and requested by the Contractor. LPDD Header Canal (within project footprint) irrigation function ends.

iii. Surface Water Management

During this work step, the south, east, and northeast segments of the Perimeter Canal are complete and "channel" work-arounds can no longer be used to convey excess stormwater off site. Contractor to consider use of existing channels, modification of existing channels, construction of new channels, and temporary pump stations to collect, detain, stage, and convey excess stormwater from the site. Borrow areas may be used as additional storage/detention areas. Pumping of surface water over west embankment may be required during construction of embankment.

iv. Special Considerations/Constraints

Special considerations and/or constraints associated with the work step include but are not limited to the following:

- Contractor shall coordinate and cooperate with FPL relating to their removal of electrical service lines.

- Contractor assumes operation of new irrigation system (Perimeter Canal, S-477, S-479, S-480, S-481A, S-481B, and S-481C) in cooperation with citrus grove owners.
- Work may now begin on the west Perimeter Dam soil bentonite wall (Phase 1) and Stage 1 dam construction.

d. Work Step 4

i. General

Refer to Figure 25:

400. Culvert/Sacrificial Embankment Section. Includes new temporary culvert(s) and sacrificial embankment sections located on the LPDD Header Canal near the Separator Dam. This component is subject to Contractor discretion to use as a surface water control measure, but at the same time provide for consolidation of the soils beneath the dam footprint.

Predecessor: 301. Demolish Pump Stations.

401. **Soil-Bentonite Wall Phase 2.** Includes soil bentonite wall in Perimeter Dam from Stage 1 up to Elevation 47. See Figure 22 for dam construction sequence. Note Phase 2 soil bentonite wall construction can proceed immediately after acceptable Stage 1 dam construction, i.e. independent of embankment settlement waiting period.

Predecessor: 304. Stage 1 Dam Construction.

402. **S-471:** Includes S-471 structure complete.

Predecessors:

- *108. Remove Pre-Load Mound (associated with structure).*
- *207. Soil Bentonite Wall Phase 1 (beneath structure).*

403. **S-472:** Includes S-472 structure complete.

Predecessors:

- *207. Phase 1 soil-bentonite wall (beneath structure).*
- *500. Stage 2 Dam Construction + monitor settlement and excavate to structure foundation level.*

404. **S-473:** Includes S-473 structure complete.

Predecessors:

- *108. Remove Pre-Load Mound (associated with structure).*
- *207. Soil Bentonite Wall Phase 1 (beneath structure).*

405. S-474: Includes S-474 structure complete.

Predecessors:

- *108. Remove Pre-Load Mound (associated with structure).*
- *207. Phase 1 soil-bentonite wall (beneath structure).*
- *304. Stage 1 Dam Construction (as required to facilitate structure construction).*

WORK STEP 4:

400. Culverts/Sacrificial Embankment Section
401. Soil-Bentonite Wall Phase 2
402. S-471
403. S-472
404. S-473
405. S-474
406. S-475
407. S-482
408. S-483
409. Intake Canal
410. Local Access Bridge

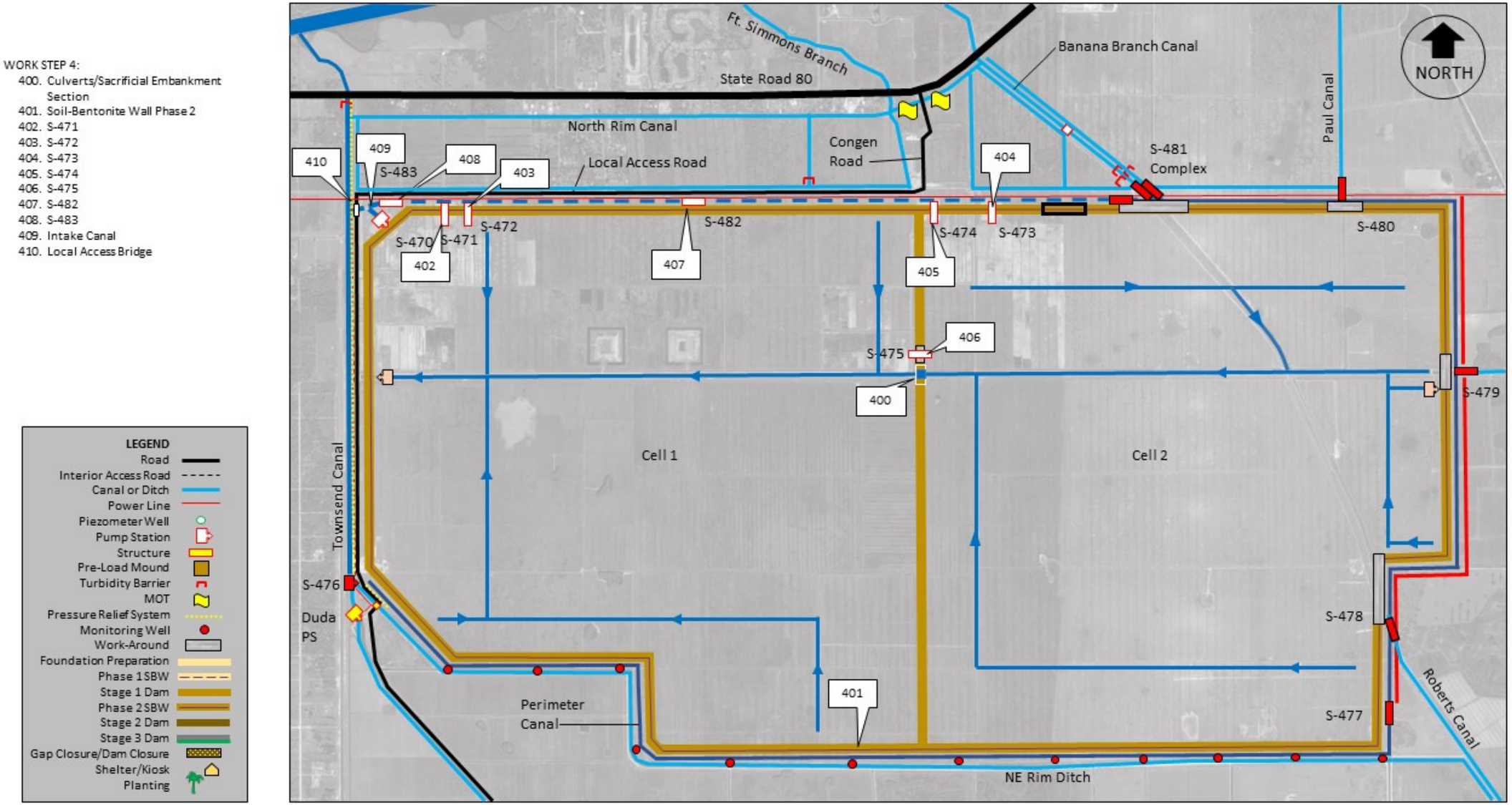


Figure 25 - Work Step 4

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406. **S-475:** Includes S-475 structure complete.

Predecessor: 108. Remove Pre-Load Mound (associated with structure).

407. **S-482:** Includes S-482 structure complete.

408. **S-483:** Includes S-483 structure complete.

409. **Intake Canal**: Includes completion of intake canal to S-470 and connection to S-483.

Predecessors:

- *Coordination with S-470 Contractor.*
- *Directional drilling of electrical service beneath intake canal (by FPL).*
- *208. Pressure Relief System (in Intake Canal).*

410. **Local Access Bridge**: Includes Local Access Bridge complete.

ii. Irrigation Water Supply

Contractor continues operation of new irrigation system (Perimeter Canal, S-477, S-479, S-480, S-481A, S-481B, and S-481C) in cooperation with adjacent landowners. The District will continue to operate and maintain S-476 to deliver water as needed and requested by the Contractor.

iii. Surface Water Management

Surface water management continues as in previous work step. Contractor to consider use of existing channels, modification of existing channels, construction of new channels, and temporary pump stations to collect, detain, stage, and convey excess stormwater from the site. Borrow areas may be used as additional storage/detention areas. At Contractor's discretion, temporary culvert(s) and sacrificial embankment sections may be used on the LPDD Header Canal near the Separator Dam as a surface water management measure.

iv. Special Considerations/Constraints

Special considerations and/or constraints associated with the work step include but are not limited to the following:

- Installation of the Phase 2 soil bentonite wall may begin as Stage 1 dam construction is complete and accepted by District, i.e. independent of embankment settlement waiting period.
- During construction of the Intake Canal and Local Access Bridge, Contract shall construct and maintain vehicular access (e.g. with earthen plug and road re-route) until permanent facilities are operational.

e. Work Step 5

i. General

Refer to Figure 26.

ii. Generalized Construction Sequence

500. Stage 2 Dam Construction. Includes embankment from Elevation 47 to crest, continuation of access ramps, and grassing of land-side slope, and extension of monitoring equipment. See Figure 22 for dam construction sequence.

WORK STEP 5:
500. Stage 2 Dam Construction
501. Site Access Bridge
502. S470 Discharge System

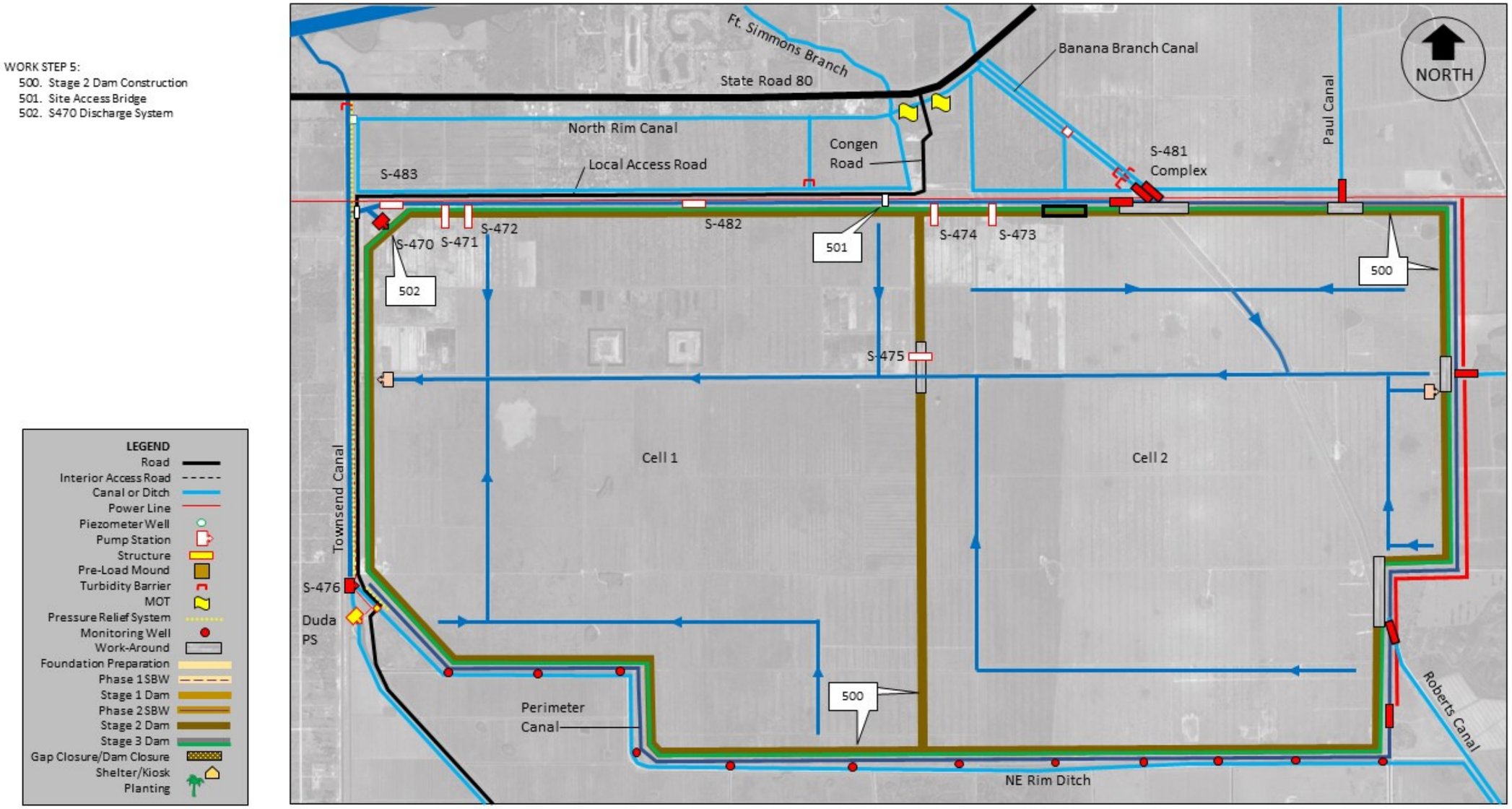

Figure 26 - Work Step 5

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Predecessors:

- *401. Soil-Bentonite Wall Phase 2 + specified consolidation waiting period.*
- *Placement of addition Embankment Fill to make up for consolidation.*

501. Site Access Bridge. Includes Site Access Bridge complete. Contractor may elect to construct temporary construction access berm to cross Perimeter Canal in lieu of using bridge.

Predecessor: 206. North Perimeter Canal.

502. S-470 Discharge System. Includes construction of the S-470 discharge assembly which generally includes the discharge manifold, the discharge piping installed from each pump and extended over the Perimeter Dam, syphon breaker/air relief system, and special embankment treatments.

Predecessors:

- *S-470 Substantial Completion (by others).*

iii. Irrigation Water Supply

Contractor continues operation of new irrigation system (Perimeter Canal, S-477, S-479, S-480, S-481A, S-481B, and S-481C) in cooperation with adjacent landowners. The District will continue to operate and maintain S-476 to deliver water as needed and requested by the Contractor.

iv. Surface Water Management

Surface water management continues as in previous work step. Contractor to consider use of existing channels, modification of existing channels, construction of new channels, and temporary pump stations to collect, detain, stage, and convey excess stormwater from the site. Borrow areas may be used as additional storage/detention areas. At Contractor's discretion, temporary culvert(s) and sacrificial embankment section may be used on the LPDD Header Canal near the Separator Dam as a surface water management measure.

v. Special Considerations/Constraints

Special considerations and/or constraints associated with the work step include but are not limited to the following:

- For each given segment of dam, Stage 2 dam construction shall not begin until Stage 1 dam construction has achieved acceptable settlement. Additional embankment fill may be required to make up for settlement.
- Coordinate S-470 discharge system construction with Bid Package 3 contractor.
- Construct Site Access Bridge prior to constructing Perimeter Canal. Excavate only for construction of bridge bent caps and approach slabs. Traffic on the adjacent Perimeter Maintenance Road shall be maintained at all times during construction. Shift traffic to the bridge once completed and before channel excavation.

f. Work Step 6

i. General

See Figure 27.

ii. Generalized Construction Sequence

600. Dam Closures/Gap Closures. Includes dam closures/gap closures at the following locations. Figure 28 and Figure 29 present the generalized construction sequence for a conduit-type structure gap closure. Figure 30 - Figure 32 present the generalized construction sequence for dam work-around closure.

- LPDD Header Canal near Separator Dam/S-475
- LPDD Header Canal near S-479
- Banana Branch Canal near S-481 complex
- Paul Canal near S-480
- Roberts Canal near S-478
- Structures S-471, S-472, S-473, and S-474

Predecessors:

- *Dam work-around closures associated with former canals/ditches: when canal/ditch is no longer required for conveyance.*
- *Gap Closures associated with new structures: when respective structural "shell" is complete and adequate to withstand embankment soil loading.*

601. Stage 3 Dam Construction. Includes soil-cement slope protection and underdrain system on water-side dam slope and dam crest, wave wall, completion of ramps and turnouts, and permanent instrumentation. Construction sequencing shall be established such that the soil-cement materials are placed immediately following preparation of the subgrade and drainage materials and placement of the filter fabric. See Figure 22 for dam construction sequence.

Predecessors:

- *500. Stage 2 Dam Construction + specified consolidation waiting period (sequential).*
- *Placement of addition Embankment Fill to make up for consolidation.*

602. Electrical Service to S-471, S-473, & S-475: Includes new permanent electrical services to these structures. (by FPL). Contractor shall coordinate construction operations with FPL.

Predecessor: 601. Stage 3 Dam Construction (Separator Dam from North Perimeter Dam to S-475 (coincident).

603. Utilize S-471 and S-473 to Discharge Excess Surface Water to Perimeter Canal/Townsend Canal. If acceptable to District and if discharge and conveyance features allow, discharge excess stormwater through S-471 and S-473.

WORK STEP 6:

600. Dam Closures/Gap Closures
601. Stage 3 Dam Construction
602. Electrical Service to S-471, S-473, & S-475
603. Utilize S-471 and S-473 to Discharge Excess Surface Water to Perimeter Canal/Townsend Canal

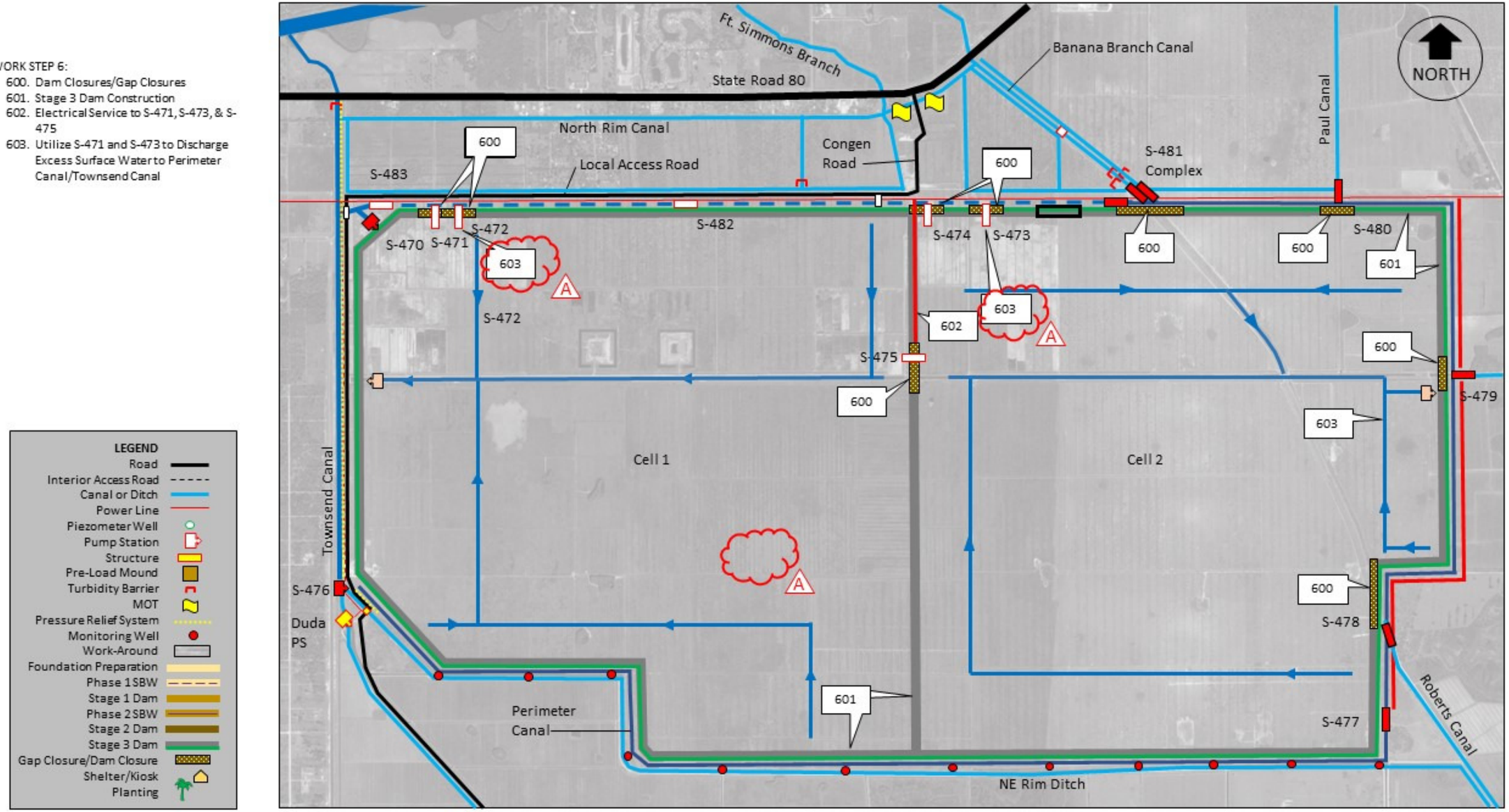
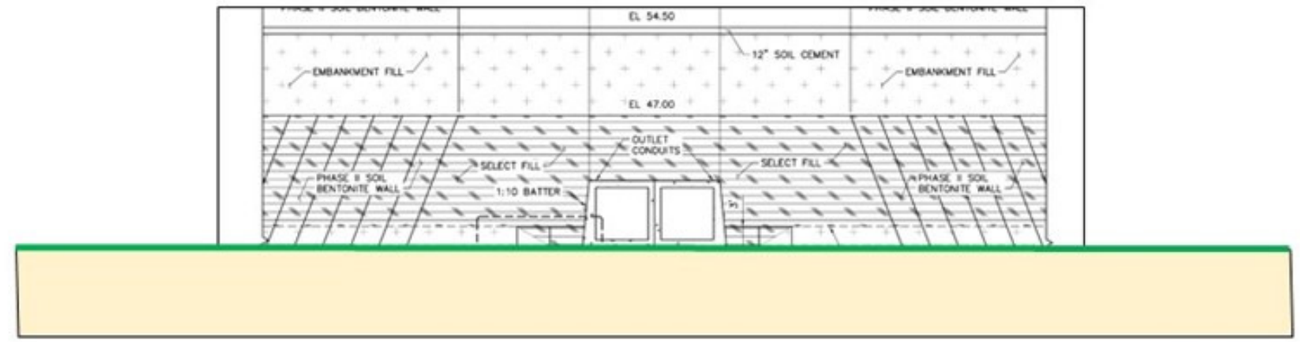
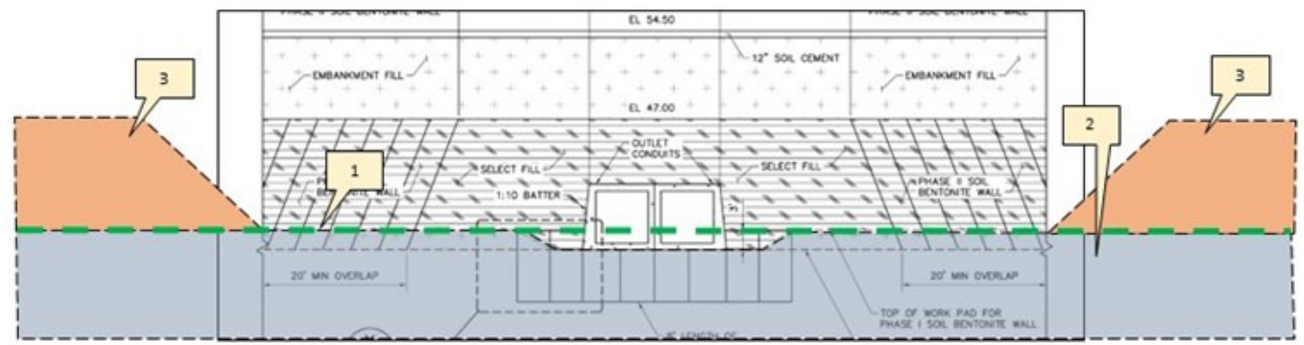


Figure 27 - Work Step 6

0. Existing Conditions



1. Stripping & Foundation Preparation
2. Phase 1 SBW
3. Dam Embankment to Elev. 47
4. Consolidation Period (not shown)



5. Sheet Pile Seepage Barrier
6. Construct Conduit Structure
7. Embankment Fill & Select Fill to Elev. 47
8. Consolidation Period (not shown)

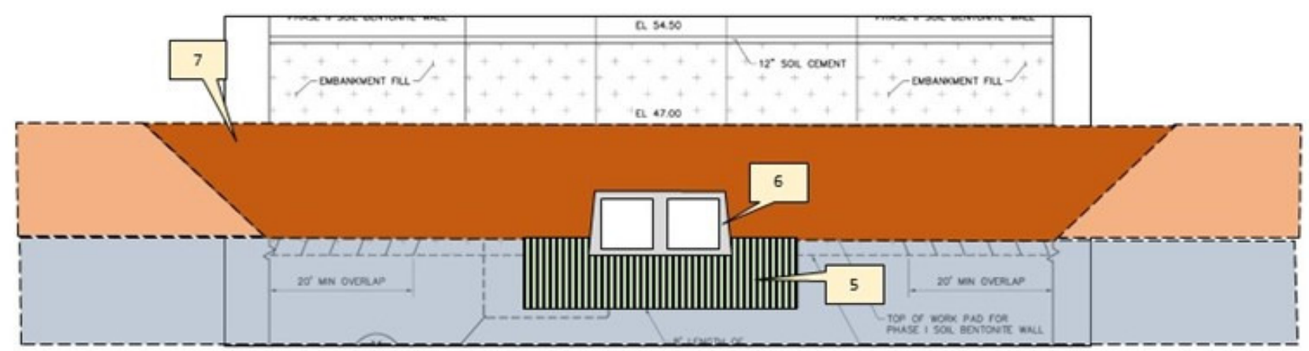
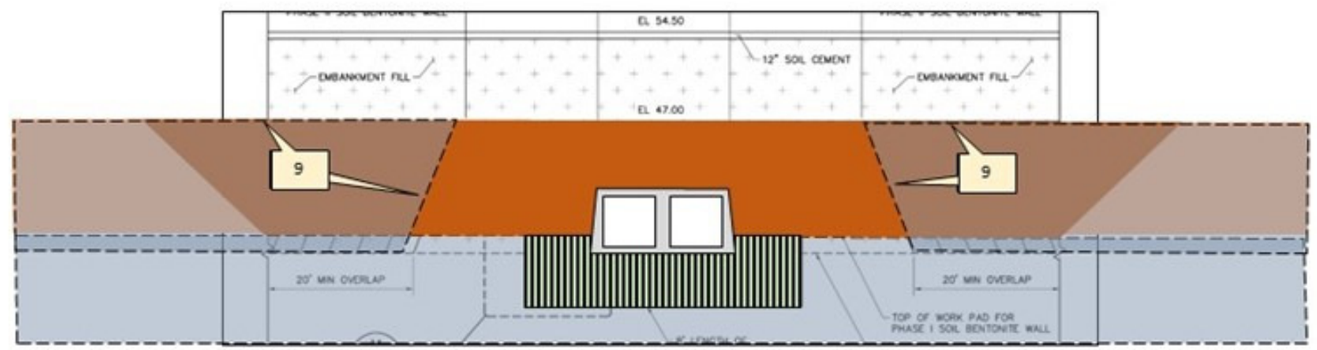
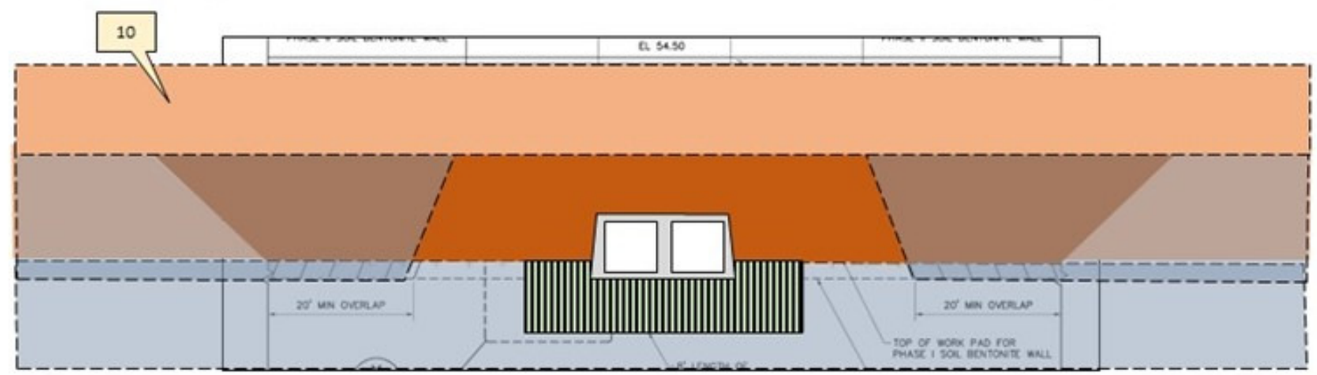


Figure 28 - Gap Closure Generalized Construction Sequence 1 of 2

9. Phase 2 SBW with overlap into Phase 1 SBW and into Select Fill



10.Dam Embankment to Crest
11.Consolidation Period (not shown)



12.Soil Cement Slope Protection & Crest

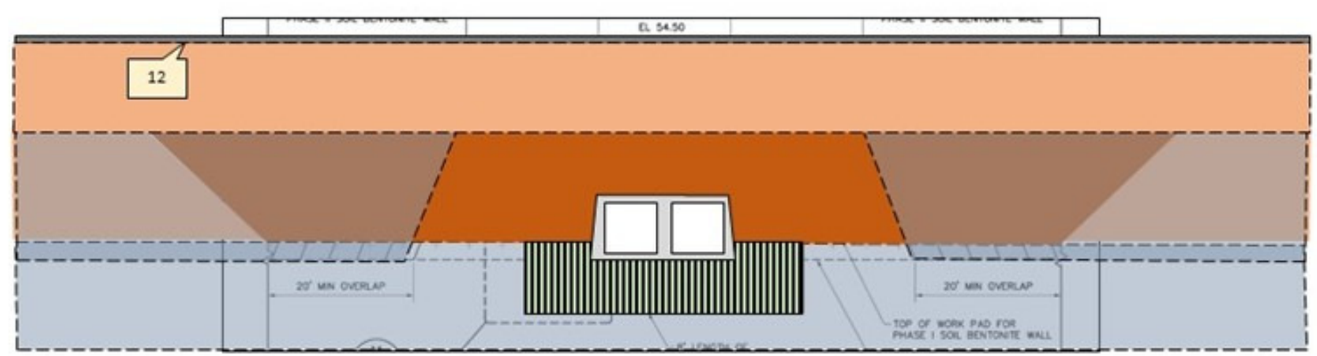
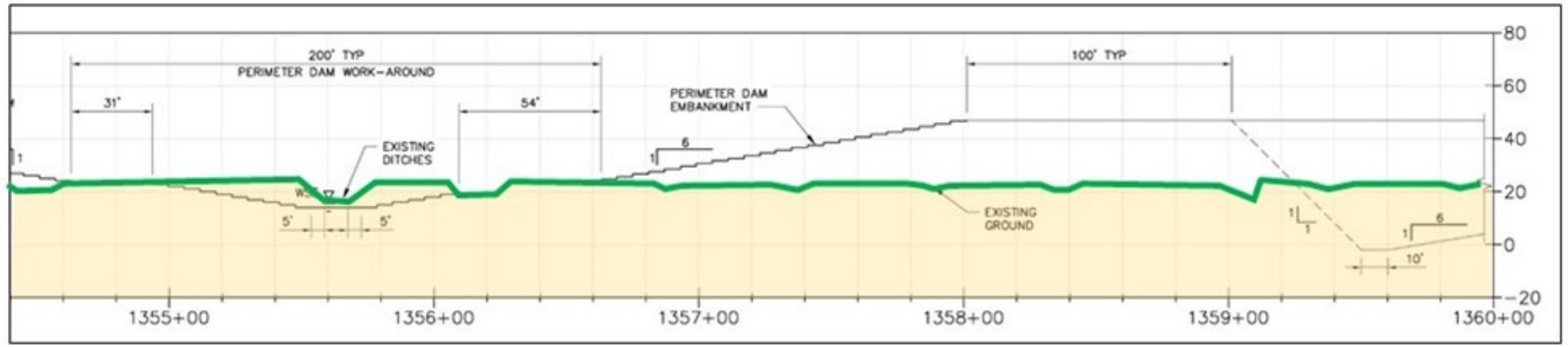
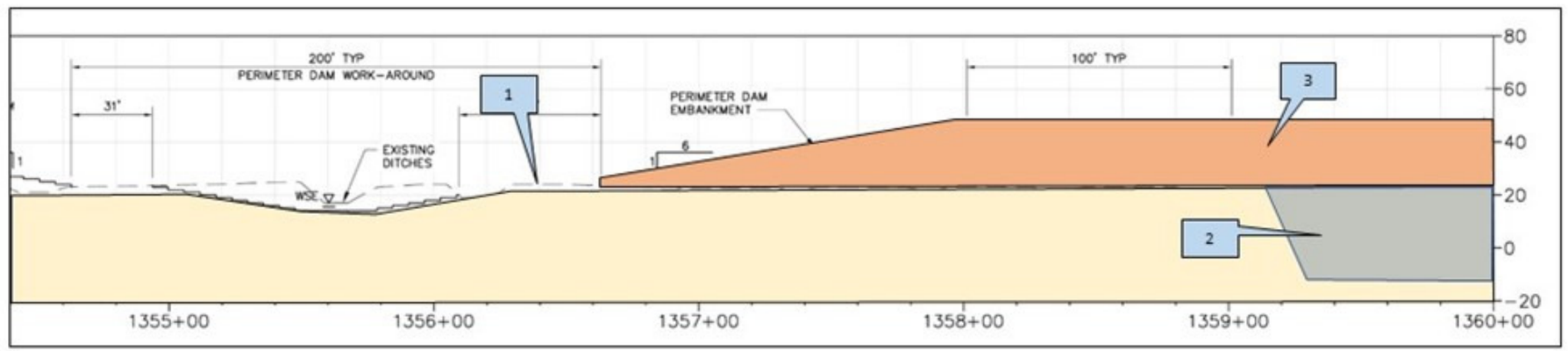


Figure 29 - Gap Closure Generalized Construction Sequence 2 of 2

0. Existing Conditions



1. Stripping & Foundation Preparation
2. Phase 1 SBW
3. Dam Embankment to Elev. 47
4. Consolidation Period (not shown)



5. Phase 2 SBW

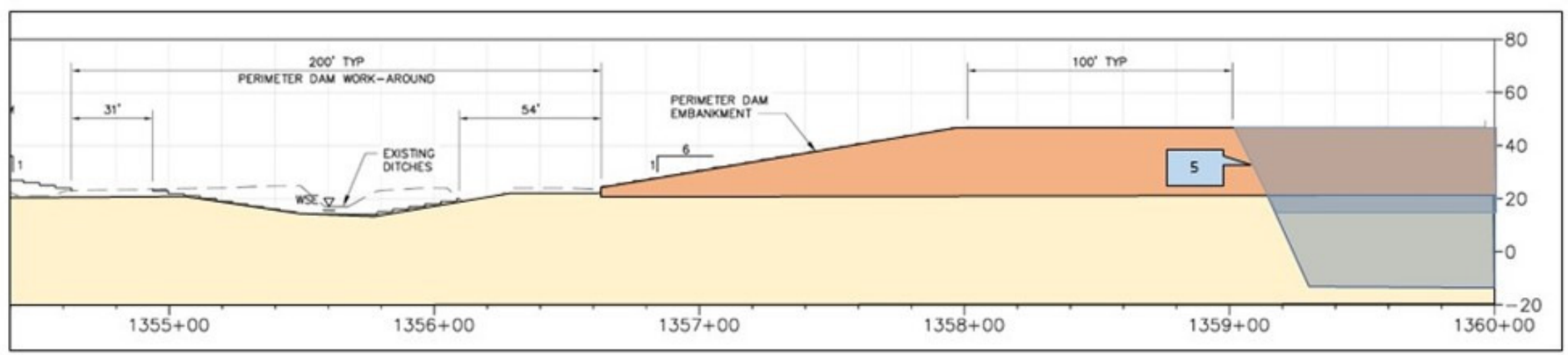
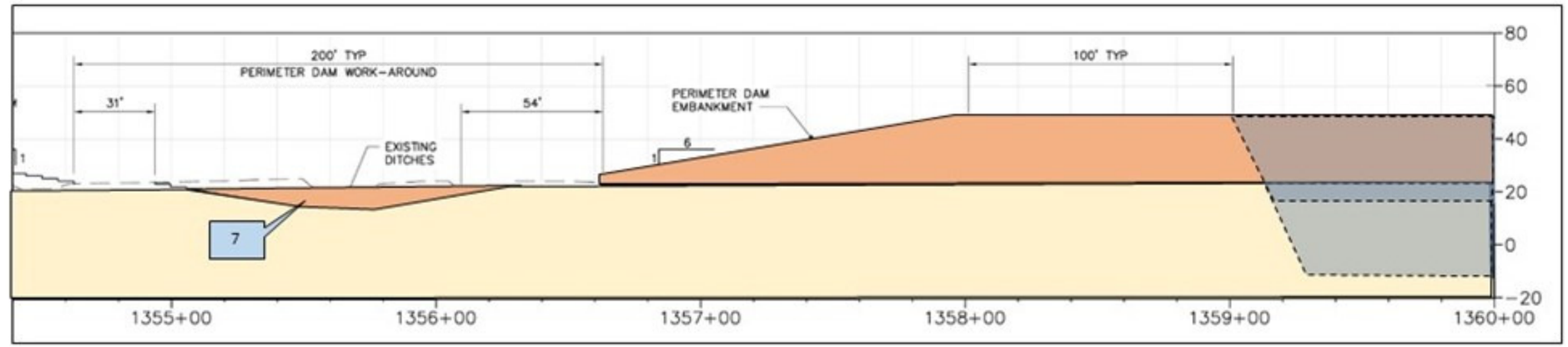
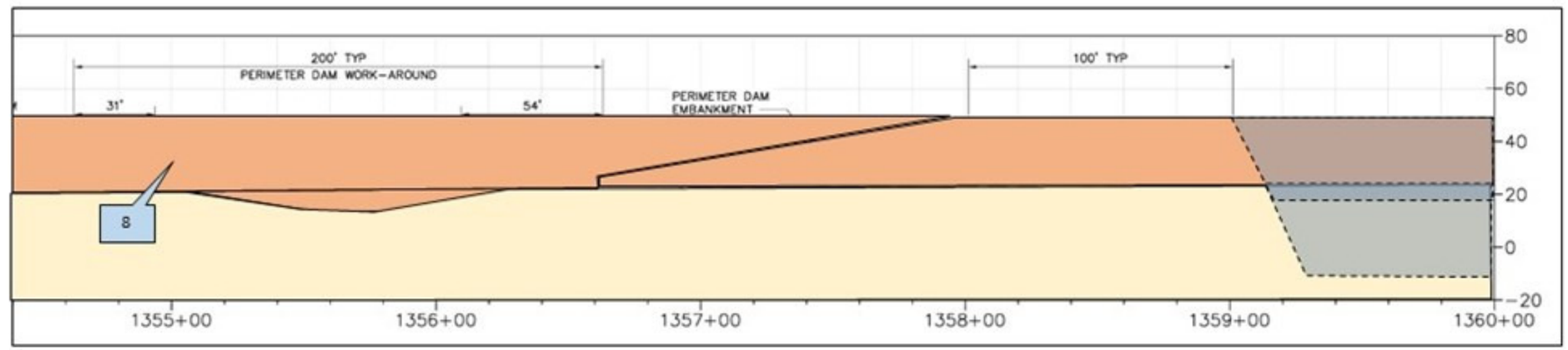


Figure 30 – Work-Around Closure Generalized Construction Sequence 1 of 3

6. Irrigation Bypass Complete (not shown)
7. Ditch Preparation and Backfill



8. Work Around Embankment to Elev. 47



9. Full-Height SBW to Elev. 47 with Overlap into Existing SBW
10. Consolidation Period (not shown)

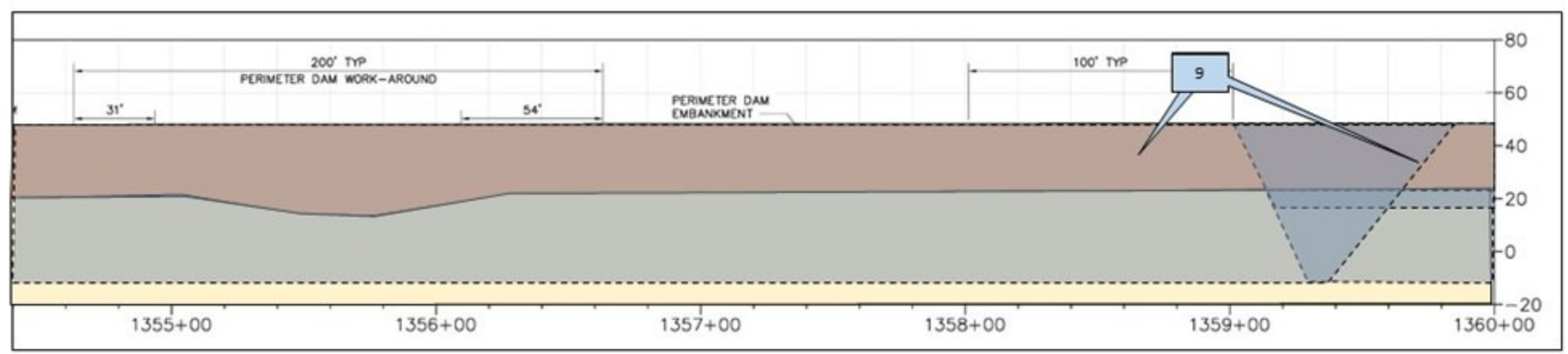
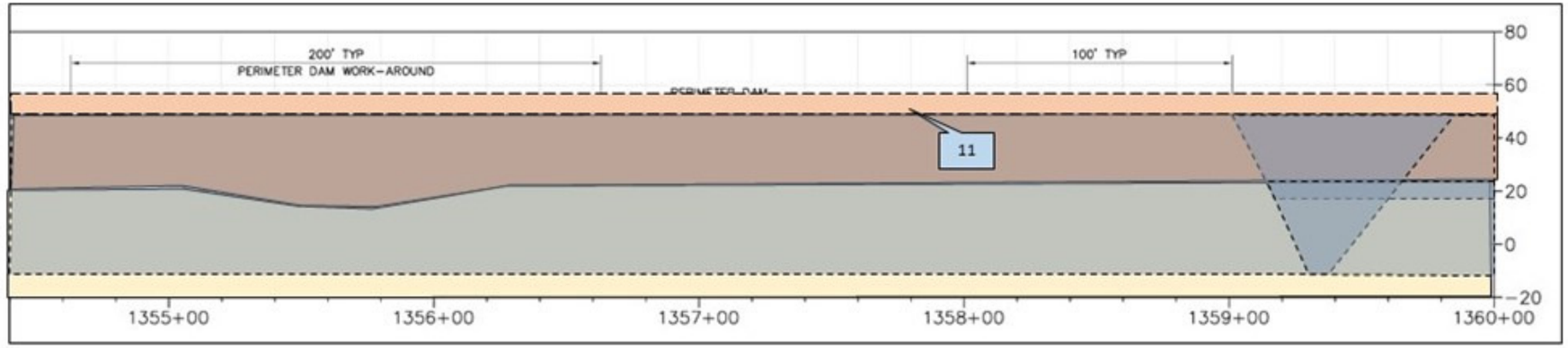


Figure 31 - Work-Around Closure Generalized Construction Sequence 2 of 3

11.Dam Embankment to Crest
12.Consolidation Period (not shown)



13.Soil Cement Slope Protection & Crest

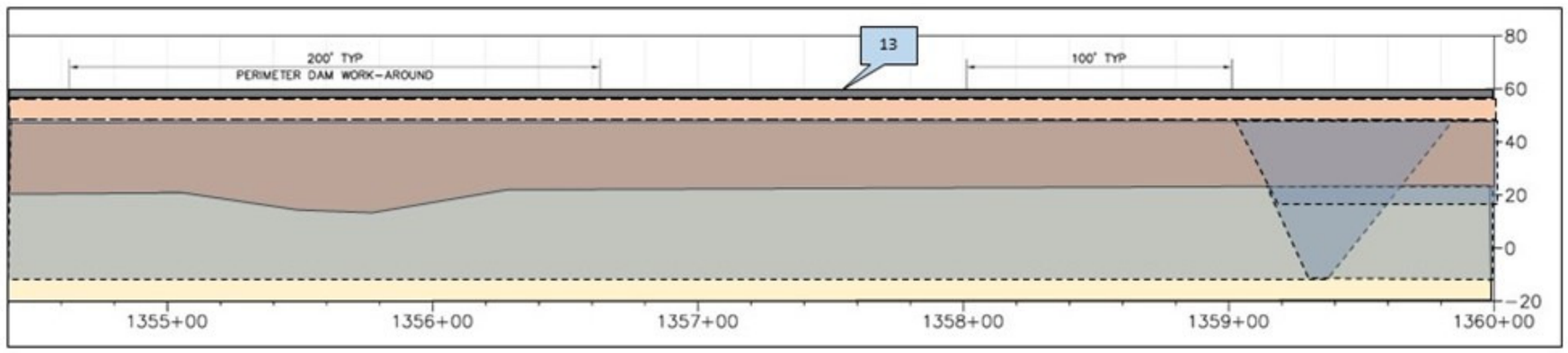


Figure 32 - Work-Around Closure Generalized Construction Sequence 3 of 3

iii. Irrigation Water Supply

Contractor continues operation of new irrigation system (Perimeter Canal, S-477, S-479, S-480, S-481A, S-481B, and S-481C) in cooperation with adjacent landowners. The District will continue to operate and maintain S-476 to deliver water as needed and requested by the Contractor.

iv. Surface Water Management

Surface water management continues as in previous work step with the following exceptions:

- If applicable, sacrificial embankment section on the LPDD Header Canal near the Separator Dam would be removed/filled and therefore the LPDD Header Canal would be separated into two separate canals.
- With approval from the District, excess stormwater may be conveyed through the new discharge structures S-471 and S-473.

v. Special Considerations/Constraints

Special considerations and/or constraints associated with the work step include but are not limited to the following:

- See drawings and specifications for detailed requirements for dam closures/gap closures.
- For each given segment of dam, Stage 3 dam construction shall not begin until Stage 2 dam construction has achieved acceptable settlement. Additional embankment fill may be required to make up for settlement.
- Construction sequencing shall be established such that the soil-cement materials are placed immediately following preparation of the subgrade and drainage materials and placement of the filter fabric.
- Contractor shall coordinate construction activities with FPL's work associated with S-471, S-473, and S-475.
- Substantial completion of the reservoir would occur during this work step. The dam embankment will reach its final elevation, all control structures will be completed and if applicable, the sacrificial embankment and temporary culvert(s) installed on the Header Canal will be removed and replaced with the permanent embankment and internal features.

g. Work Step 7

i. General

See Figure 33.

ii. Generalized Construction Sequence

700. Internal Collector Ditches. Includes construction of permanent channels to serve as toe ditches for the Separator Dam and convey water to S-471 and S-473 during drawdown periods.

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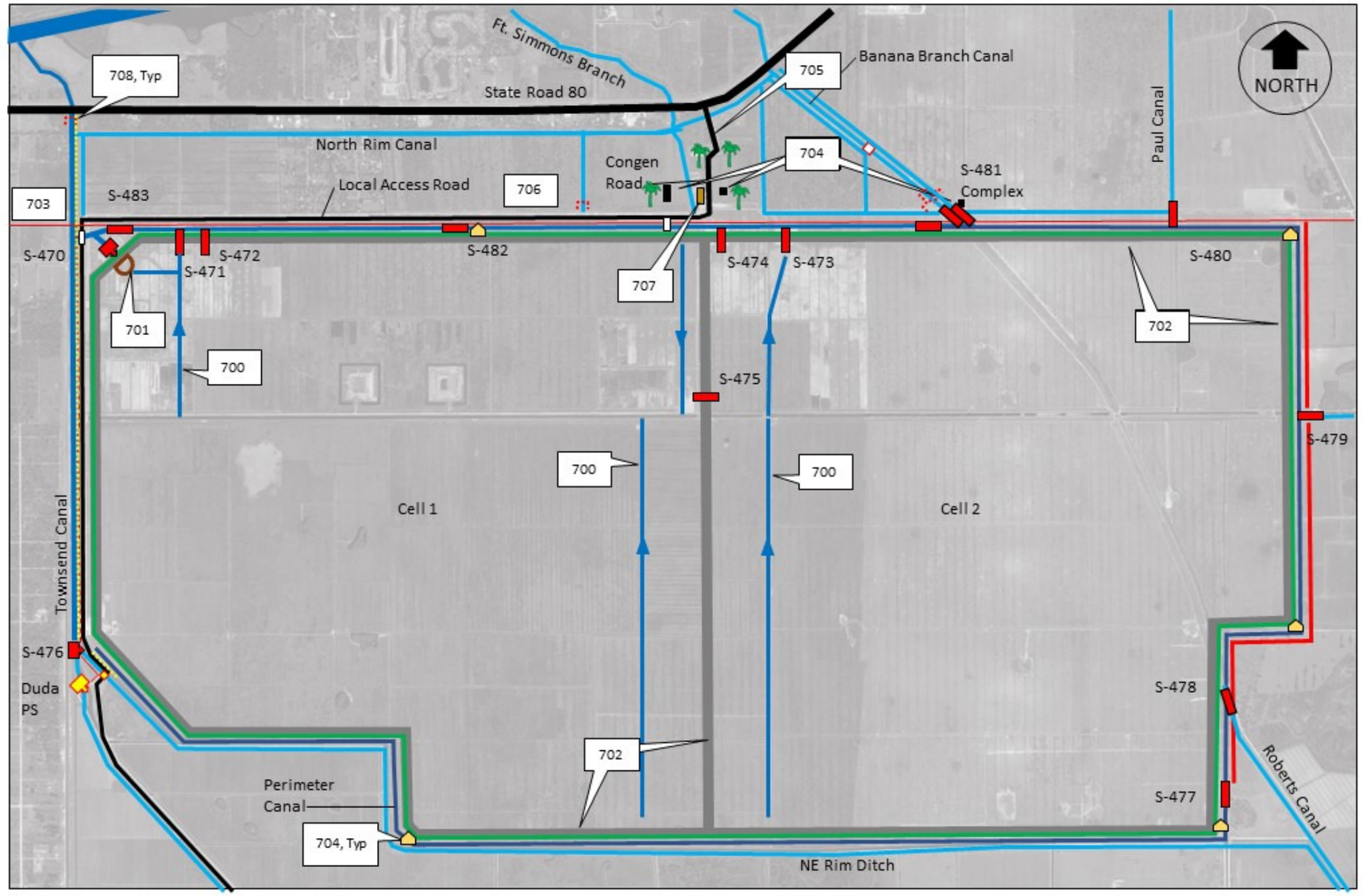
WORK STEP 7:

700. Internal Collector Ditches
701. S-470 Discharge Berm & Ditch
702. Dam Safety Monitoring
703. SCADA System Integration
704. Recreation Facilities
705. Congen Road Improvements
706. North Perimeter Fencing
707. Dam Material Storage Area
708. Remove SWPPP Measures (Turbidity Barriers Only Shown)



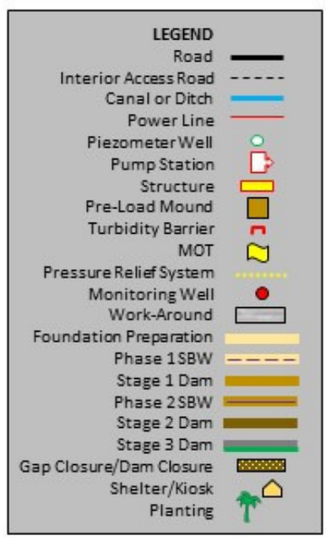


Figure 33 - Work Step 7

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701. S-470 Discharge Berm & Ditch. Includes construction of concrete weir to control discharge from S-470 and outfall ditch connecting to internal collector ditch system.

702. Dam Safety Monitoring. Includes but is not limited to permanent piezometers, settlement monuments, and stage recorders.

Predecessor: 601. Stage 3 Dam Construction (sequential).

703. SCADA System Integration. By District.

Predecessors:

- *402 – 408. S-471, S-472, S-473, S-474, S-475, S-482, and S-483 structures complete and accepted by District.*
- *206. North Perimeter Canal.*

704. Recreation Facilities. Includes public parking area, equestrian facilities, kayak/canoe facilities, shelters, restroom, signage, etc.

705. Congen Road Improvements. Includes reconstruction of Congen Road and associated drainage, signage, trees and plantings. Contractor shall coordinate utility relocations with associated utility companies.

Predecessor: Utility relocations (by utilities).

706. North Perimeter Fencing. Includes installation of new barbed wire fencing along north boundary.

Predecessor: 206. North Perimeter Canal (sequential).

707. Dam Material Storage Areas. Includes preparation of existing slabs and areas, placement of material stockpile, placement of separator barriers, and fencing/gates.

708. Remove SWPPP Measures. Includes removal of temporary SWPPP measures.

Predecessor: All disturbed areas provided with permanent and established surfacing established.

iii. Irrigation Water Supply

Contractor continues operation of new irrigation system (Perimeter Canal, S-477, S-479, S-480, S-481A, S-481B, and S-481C) in cooperation with adjacent landowners. The District will continue to operate and maintain S-476 to deliver water as needed and requested by the Contractor.

iv. Surface Water Management

Surface water management generally continues as in previous work step but requirements should be reduced since most of the reservoir interior work is complete. With approval from the District, excess stormwater may be conveyed through the new discharge structures S-471 and S-473.

v. Special Considerations/Constraints

Special considerations and/or constraints associated with the work step include but are not limited to the following:

- Contractor shall cooperate with District SCADA personnel who will be integrating the Project SCADA system with District operations.
- Contractor shall accommodate Hendry County Emergency Operations Center operations.
- Contractor shall not remove SWPPP measures until all disturbed areas have been provided with permanent and established surfacing.
- Contractor shall not leave stockpiled soil within the reservoir footprint, i.e. grade stockpile down to existing grade or below by filling borrow areas.

APPENDIX A

2018 LPDD PUMP STATIONS 2 AND 3 SURVEYS

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

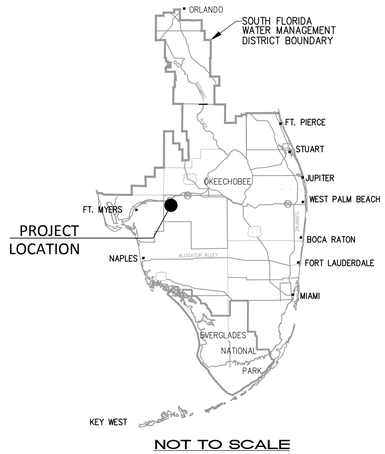
INFRASTRUCTURE MANAGEMENT BUREAU - SURVEY & MAPPING SECTION

TOPOGRAPHIC SURVEY

LPDD2

SECTION 34, TOWNSHIP 43 SOUTH, RANGE 28 EAST

HENDRY COUNTY, FLORIDA



NOT TO SCALE

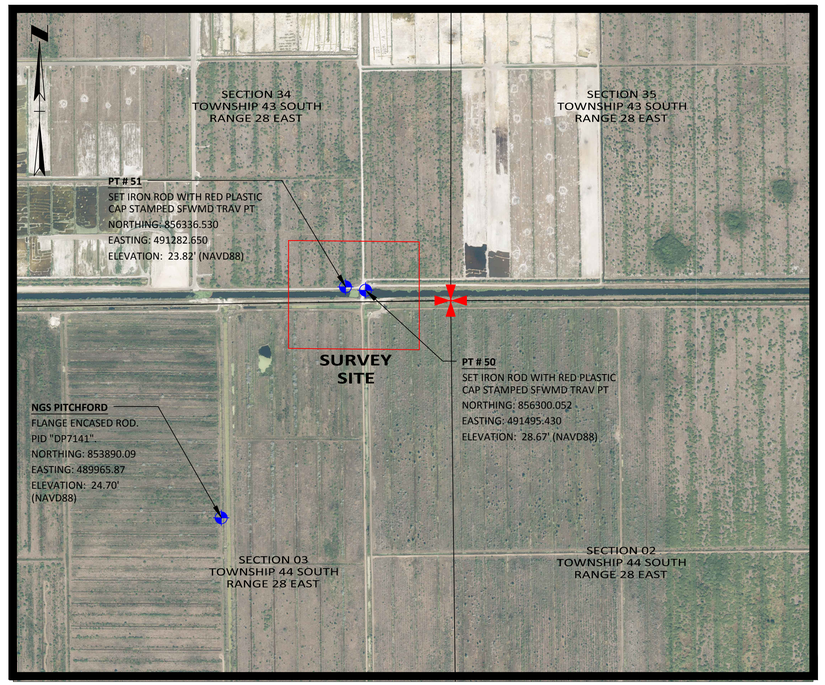
SURVEYOR'S NOTES

1. THE PURPOSE OF THIS TOPOGRAPHIC SURVEY IS TO ESTABLISH THE LOCATION OF THE FACE STRUCTURE LPDD2, TAKE THREE CROSS SECTIONS BOTH UPSTREAM AND DOWNSTREAM RESPECTIVELY, AND PLACE ONE STAFF GAUGE AT AFOREMENTIONED UPSTREAM AND DOWNSTREAM LOCATIONS.
2. ALL MEASUREMENTS ARE BASED ON THE UNITED STATES SURVEY FOOT (SHOWN IN FEET AND DECIMAL FORMAT) UNLESS OTHERWISE SPECIFIED.
3. THIS SURVEY MAP OR REPORT ARE NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
4. ADDITIONS OR DELETIONS TO THIS SURVEY DRAWING BY OTHER THAN THE SIGNING PARTY (OR PARTIES) IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY (OR PARTIES).
5. THE INFORMATION SHOWN HEREON DOES NOT NECESSARILY CONTAIN ALL OF THE INFORMATION OBTAINED OR DEVELOPED BY THE SFWMD IN ITS FIELD WORK, OFFICE WORK OR RESEARCH.
6. DATE OF LAST FIELD WORK: JULY 3, 2018
7. COORDINATES SHOWN HEREON ARE REFERENCED TO THE STATE PLANE COORDINATE SYSTEM, FLORIDA EAST ZONE, NORTH AMERICAN DATUM 1983.
8. ELEVATIONS SHOWN HEREON REFER TO NAVD88; TO CONVERT TO NGVD 29, ADD +1.27'. (BASED ON A CORPSCON VERSION 6.0.1 - A U.S. ARMY CORPS OF ENGINEERS ENGINEERING RESEARCH AND DEVELOPMENT CENTER TOPOGRAPHIC ENGINEERING CENTER ALEXANDRIA, VIRGINIA WINDOWS-BASED PROGRAM TO CONVERT COORDINATES AND ELEVATIONS BETWEEN DATUM'S USING VERTCON05.TXT AND VERTCON05.05 FILES SUPPLIED BY THE U.S. ARMY CORPS OF ENGINEERS SOUTH ATLANTIC DIVISION, JACKSONVILLE FL.).
9. TOPOGRAPHIC HORIZONTAL POSITIONS AND ELEVATIONS WERE MEASURED BY REAL TIME KINEMATIC (RTK) GLOBAL POSITIONING SYSTEM (GPS) METHODS USING A TOPCON HIPER V GPS RECEIVER AT BASE POINT "PT # 50" AND A TOPCON HIPER V GPS RECEIVER WITH A RANGER DATA COLLECTOR WITH SURVEY PRO SOFTWARE CHECKING POINT "PT # 51" REDUNDANTLY. ELEVATIONS AT CONTROL POINTS "PT # 50" AND "PT # 51" WERE ESTABLISHED USING CONVENTIONAL LEVELING METHODS FROM POINT "NGS PITCHFORD". THE LEVEL LINE CLOSURE MEETS OR EXCEEDS NGS 3RD ORDER STANDARDS.
10. THIS SURVEY UTILIZED THE FOLLOWING CONTROL POINTS:

    NGS "PITCHFORD"
    FOUND FLANGED ENCASED ROD.
    PID "DP7141".
    NORTHING: 853890.092
    EASTING: 260265.700
    PUBLISHED ELEVATION: 24.70' (NAVD88)

    PT # 50
    SET IRON ROD WITH RED PLASTIC CAP STAMPED SFWMD TRAV PT
    NORTHING: 856300.052
    EASTING: 491495.430
    ELEVATION: 28.67' (NAVD88)

    PT # 51
    SET IRON ROD WITH RED PLASTIC CAP STAMPED SFWMD TRAV PT
    NORTHING: 856336.530
    EASTING: 491282.650
    ELEVATION: 23.82' (NAVD88)
11. NO BOUNDARY SURVEY WAS PERFORMED AS PART OF THIS SURVEY. SECTION LINES SHOWN HEREON ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSE ONLY.
12. THE AERIAL PHOTOGRAPHY WAS RECORDED IN 2017 . IT IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND IS NOT PART OF THIS SURVEY.
13. NO BASIS OF BEARING WAS USED FOR THIS SURVEY. REFER TO NOTE 9 FOR COORDINATE ESTABLISHMENT.
14. THE PROFILE AND CROSS SECTION STATIONING SHOWN HEREON DOES NOT REFER TO ANY DRAWING OR PLANS AND IS FOR REFERENCE ONLY.
15. SFWMD DATA RECORDS ARE ON FILE AT THE DISTRICT'S HEADQUARTERS AT 3301 GUN CLUB ROAD, WEST PALM BEACH, FLORIDA 33406 (PHONE NUMBER 561-686-8800):
    - ELECTRONIC DATA FILES: DATA COLLECTOR FILE: C43RES.ASC AND C43RES.DAT
      MISCELLANEOUS PICTURE FILES
    - CONVENTIONAL REPORTING:
      FIELD BOOK: MISCELLANEOUS FIELD BOOK 6C, PAGES 51 THRU 59.



LOCATION MAP

INTENDED DISPLAY SCALE
1" = 200 FEET

LEGEND

C/L = CENTERLINE
DGPS = DIFFERENTIAL GLOBAL POSITIONING SYSTEM
FND = FOUND
ID = IDENTIFICATION
INC = INCORPORATED
IRC = IRON ROD AND CAP
MWS = MEAN WATER SURFACE
NAD83 = NORTH AMERICAN DATUM OF 1983
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
NGS = NATIONAL GEODETIC SURVEY
NGVD29 = NATIONAL GEODETIC VERTICAL DATUM OF 1929
PID = PERMANENT IDENTIFIER
SFWMD = SOUTH FLORIDA WATER MANAGEMENT DISTRICT
USACOE = UNITED STATES ARMY CORPS OF ENGINEERS
_____ = APPROXIMATE SECTION LINE

INDEX OF SHEETS

SHEET	1	COVER SHEET AND LOCATION MAP
SHEET	2	HEADWATER PLAN AND CROSS SECTIONS
SHEET	3	TAILWATER PLAN AND CROSS SECTIONS

THIS CERTIFICATION IS MADE TO THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT FOR THE SPECIFIC PURPOSE OF PROVIDING A TOPOGRAPHIC SURVEY TO ESTABLISH THE ELEVATIONS AT STRUCTURE LPDD2; AS REQUESTED BY JOSEPH ALBERS, PRINCIPAL ENGINEER FOR THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

NO RESPONSIBILITY OR LIABILITY IS ASSUMED BY THE UNDERSIGNED SURVEYOR AND MAPPER FOR USE OF THIS SURVEY FOR ANY PURPOSE OTHER THAN STATED ABOVE OR FOR ANY USE BY ANY PERSON OR ENTITY OTHER THAN THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

CERTIFICATION

I HEREBY CERTIFY THAT THIS TOPOGRAPHIC SURVEY WAS MADE UNDER MY RESPONSIBLE CHARGE AND MEETS THE APPLICABLE STANDARDS OF PRACTICE FOR SURVEYS AS SET FORTH BY THE FLORIDA BOARD OF LAND SURVEYORS AND MAPPERS IN CHAPTER 5J-17.051-053, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATE STATUES

_____

HOWARD J. EHMKE II
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATION NUMBER 4191

DRAWN	CHECKED	DATE	REVISIONS

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
INFRASTRUCTURE MANAGEMENT BUREAU
SURVEY AND MAPPING SECTION
3301 GUN CLUB ROAD
WEST PALM BEACH, FLORIDA 33416-4680

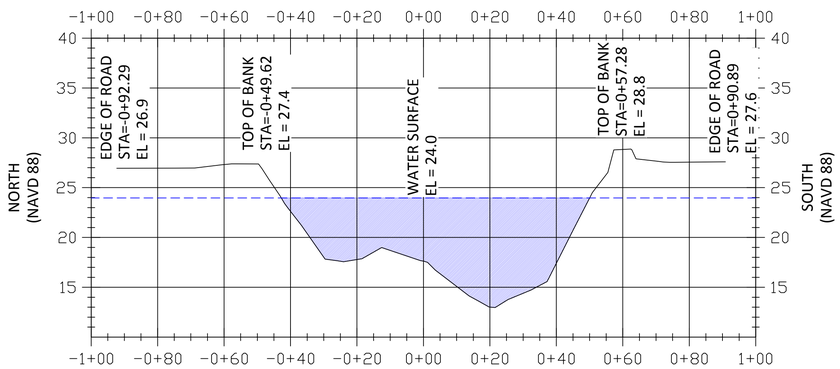
DRAWN: GOT | CHECKED: | DWG. DATE: | SCALE: AS SHOWN
FIELD PERSON(S): STROKLAND, WESF, & HUDSON
FIELD DATE(S): 06/18/2018 THROUGH 07/03/2018
FIELD BOOK(S): MISC. FB #6C
PAGE(S): 51-59
DATA COLLECTOR FILE(S): C43RES.job

LPDD2
TOPOGRAPHIC SURVEY
HENDRY COUNTY, FLORIDA
SECTION 34
TOWNSHIP 43 SOUTH
RANGE 28 EAST

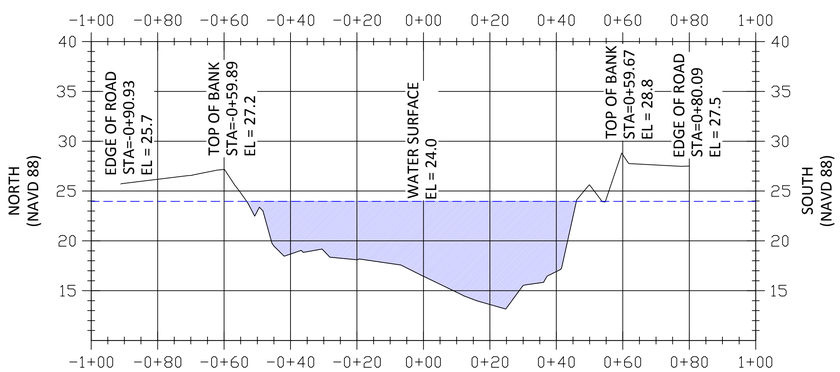
Hendry County
LPDD2

CADD File:
LPDD2 XSECS FINAL.dwg

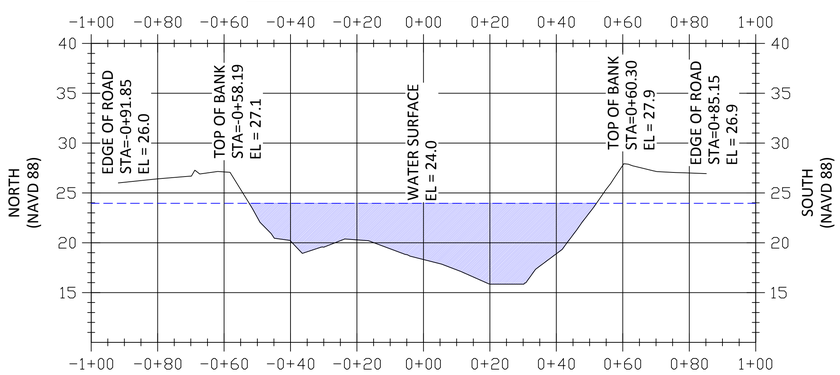
CROSS SECTION STATION LPDD2 TAILWATER 0+50

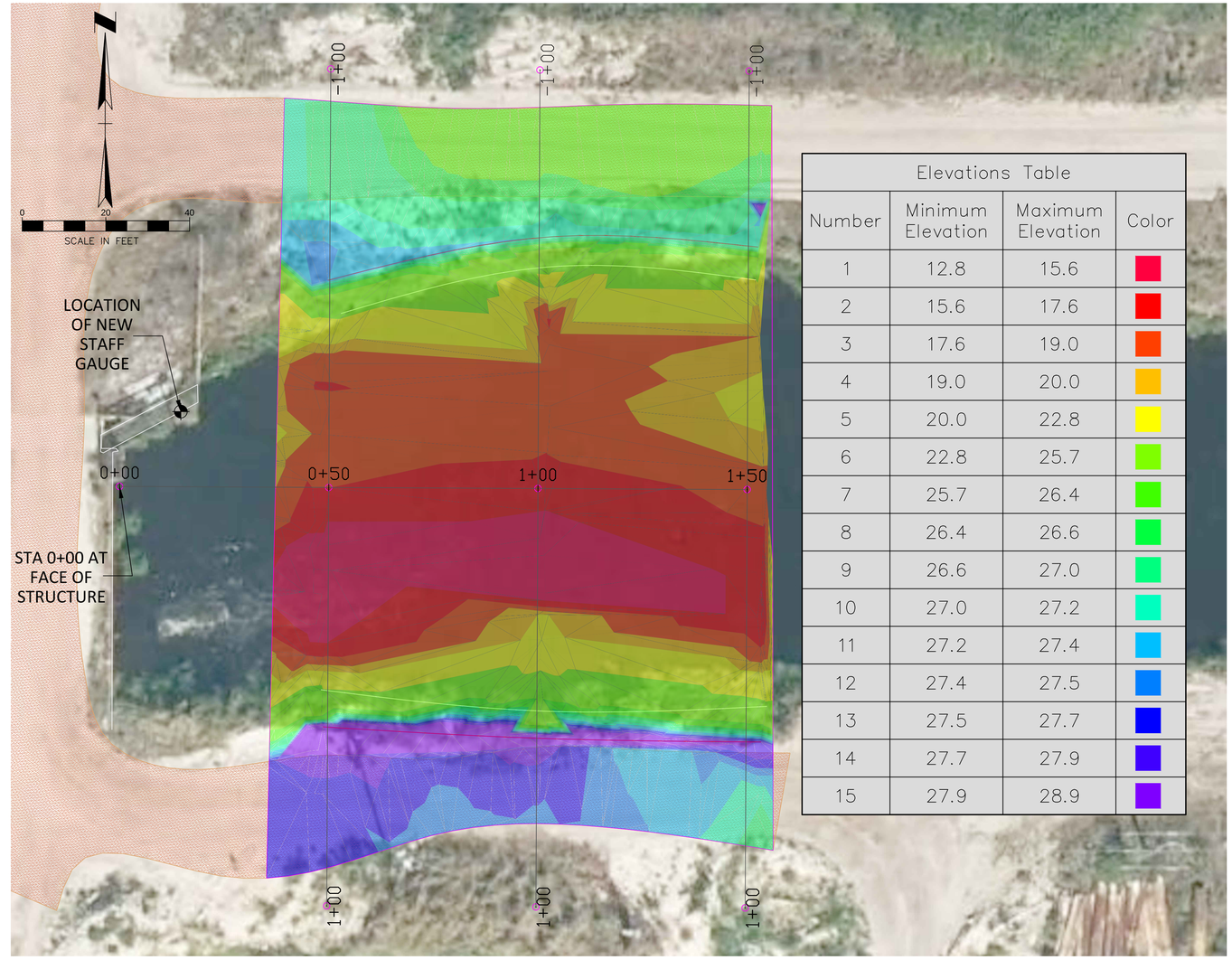


CROSS SECTION STATION LPDD2 TAILWATER 1+00

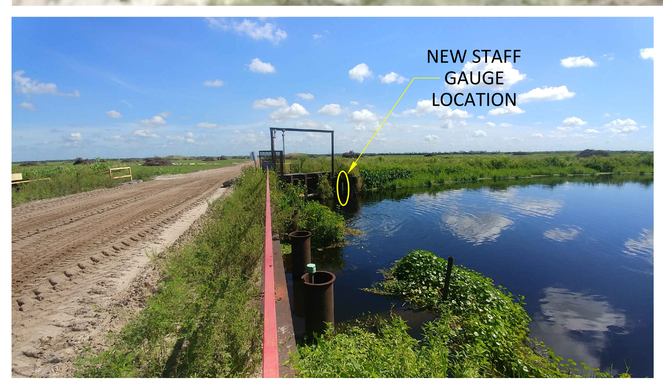


CROSS SECTION STATION LPDD2 TAILWATER 1+50



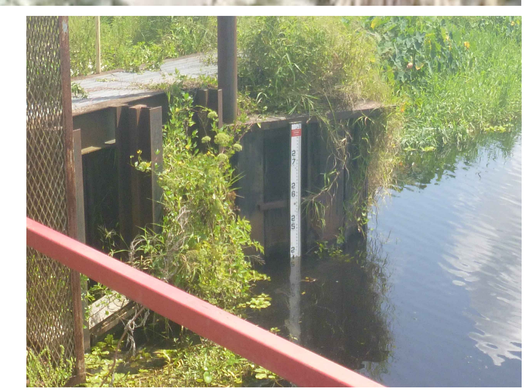


Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	12.8	15.6	
2	15.6	17.6	
3	17.6	19.0	
4	19.0	20.0	
5	20.0	22.8	
6	22.8	25.7	
7	25.7	26.4	
8	26.4	26.6	
9	26.6	27.0	
10	27.0	27.2	
11	27.2	27.4	
12	27.4	27.5	
13	27.5	27.7	
14	27.7	27.9	
15	27.9	28.9	



LOOKING NORTH

STAFF GAUGE CONSTRUCTED OF A 2x6 COMPOSITE BOARD ANCHORED TO SHEET PILE WALL



DOWNSTREAM STAFF GAUGE LOOKING NORTHEAST

LEGEND

- - - - - = WATER SURFACE ELEVATION 24.0' (07/03/18)

ALL ELEVATIONS SHOWN HEREON ARE IN NAVD88
TO CONVERT TO NGVD29 ADD 1.27'

REVISIONS | DATE | CHECKED | DRAWN

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
INFRASTRUCTURE MANAGEMENT BUREAU
SURVEY AND MAPPING SECTION
3301 GUN CLUB ROAD
WEST PALM BEACH, FLORIDA 33416-4680

DRAWN: GOT | CHECKED: | DWG. DATE: | SCALE: AS SHOWN
FIELD PERSON(S): STROUKLAND, MSE, & HUDSON
FIELD DATE(S): 06/18/2018 THROUGH 07/03/2018
FIELD BOOK(S): MSC FB #6C
PAGE(S): 51-59
DATA COLLECTOR FILE(S): CAPRES.job

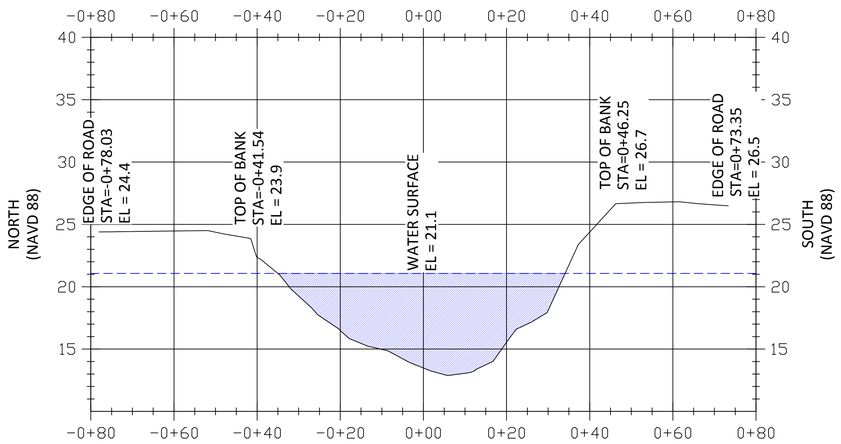
LPDD2 HEADWATER
TOPOGRAPHIC SURVEY
HENDRY COUNTY, FLORIDA
SECTION 34
TOWNSHIP 43 SOUTH
RANGE 29 EAST

Hendry County
LPDD2 HEADWATER

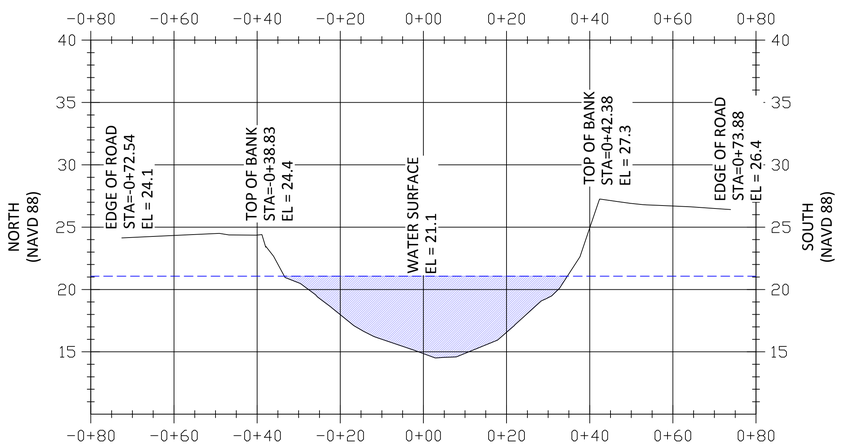
CADD File:
LPDD2 XSECS FINAL.dwg

SHEET 2 OF 3

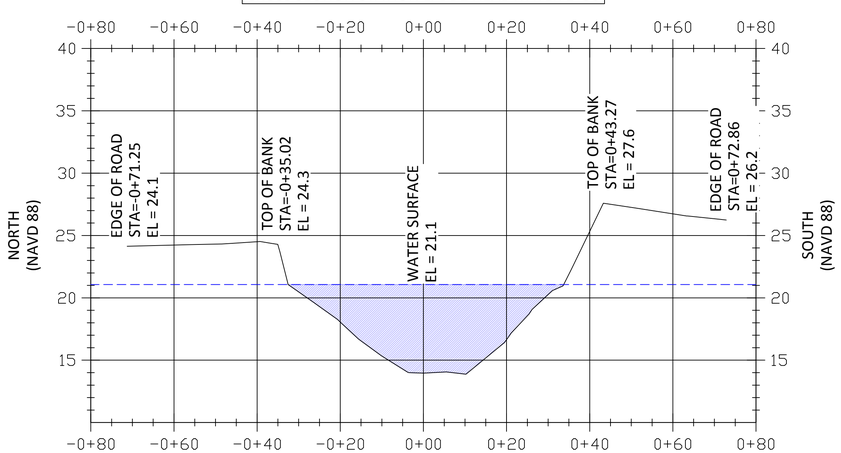
CROSS SECTION STATION LPDD2 HEADWATER 0+50

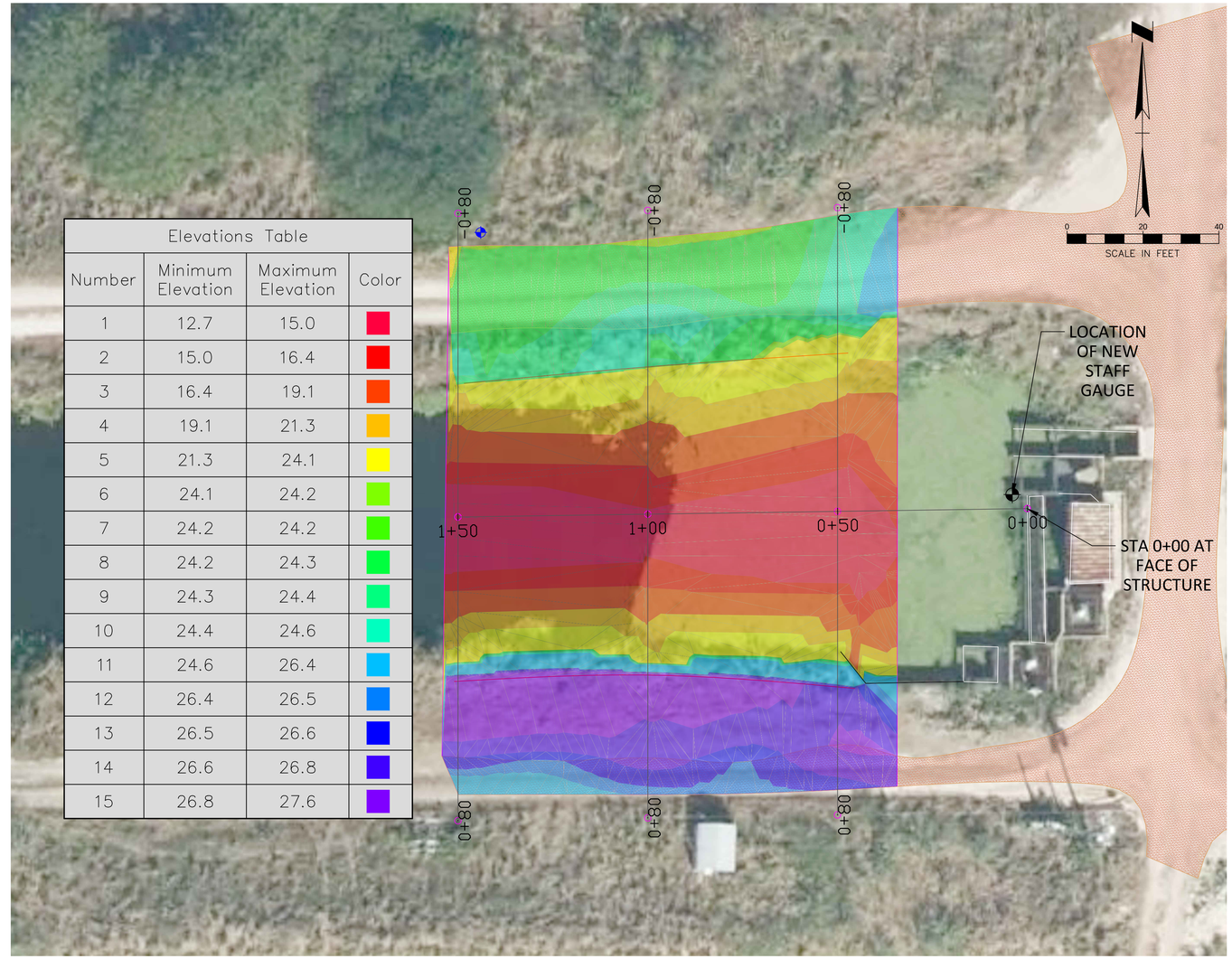


CROSS SECTION STATION LPDD2 HEADWATER 1+00



CROSS SECTION STATION LPDD2 HEADWATER 1+50





Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	12.7	15.0	
2	15.0	16.4	
3	16.4	19.1	
4	19.1	21.3	
5	21.3	24.1	
6	24.1	24.2	
7	24.2	24.2	
8	24.2	24.3	
9	24.3	24.4	
10	24.4	24.6	
11	24.6	26.4	
12	26.4	26.5	
13	26.5	26.6	
14	26.6	26.8	
15	26.8	27.6	

NEW STAFF GAUGE LOOKING NORTH
OBLIQUE NOT TO SCALE

NEW STAFF GAUGE LOOKING NORTHWEST
OBLIQUE NOT TO SCALE

LEGEND

- - - - - = WATER SURFACE ELEVATION 21.1' (07/03/18)

ALL ELEVATIONS SHOWN HEREON ARE IN NAVD88
TO CONVERT TO NGVD29 ADD 1.27'

DRAWN: GCT	CHECKED:	DWG. DATE:
FIELD PERSON(S): STROCKLAND, WISE, & HUDSON		SCALE: AS SHOWN
FIELD DATE(S): 06/18/2018 THROUGH 07/03/2018		
FIELD BOOK(S): MISC FB #6C		
PAGE(S): 51-59		
DATA COLLECTOR FILE(S): CASRES.job		

DRAWN	CHECKED	DATE	REVISIONS

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
INFRASTRUCTURE MANAGEMENT BUREAU
SURVEY AND MAPPING SECTION
3301 GUN CLUB ROAD
WEST PALM BEACH, FLORIDA 33416-4680

LPDD2 TAILWATER
TOPOGRAPHIC SURVEY
HENDRY COUNTY, FLORIDA
SECTION 34
TOWNSHIP 43 SOUTH
RANGE 28 EAST

Hendry County
LPDD2 TAILWATER

CADD File:
LPDD2 XSECS FINAL.dwg

SHEET 3 OF 3

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

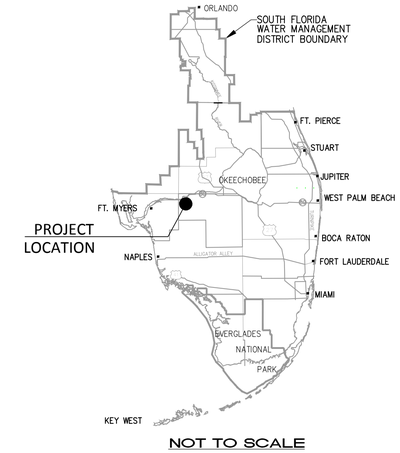
INFRASTRUCTURE MANAGEMENT BUREAU - SURVEY & MAPPING SECTION

TOPOGRAPHIC SURVEY

LPDD3

SECTION 31, TOWNSHIP 43 SOUTH, RANGE 29 EAST

HENDRY COUNTY, FLORIDA



NOT TO SCALE

SURVEYOR'S NOTES

1. THE PURPOSE OF THIS TOPOGRAPHIC SURVEY IS TO ESTABLISH THE LOCATION OF THE FACE STRUCTURE LPDD2, TAKE THREE CROSS SECTIONS BOTH UPSTREAM AND DOWNSTREAM RESPECTIVELY, AND PLACE ONE STAFF GAUGE AT AFOREMENTIONED UPSTREAM AND DOWNSTREAM LOCATIONS.
2. ALL MEASUREMENTS ARE BASED ON THE UNITED STATES SURVEY FOOT (SHOWN IN FEET AND DECIMAL FORMAT) UNLESS OTHERWISE SPECIFIED.
3. THIS SURVEY MAP OR REPORT ARE NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
4. ADDITIONS OR DELETIONS TO THIS SURVEY DRAWING BY OTHER THAN THE SIGNING PARTY (OR PARTIES) IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY (OR PARTIES).
5. THE INFORMATION SHOWN HEREON DOES NOT NECESSARILY CONTAIN ALL OF THE INFORMATION OBTAINED OR DEVELOPED BY THE SFWMD IN ITS FIELD WORK, OFFICE WORK OR RESEARCH.
6. DATE OF LAST FIELD WORK: JULY 3, 2018
7. COORDINATES SHOWN HEREON ARE REFERENCED TO THE STATE PLANE COORDINATE SYSTEM, FLORIDA EAST ZONE, NORTH AMERICAN DATUM 1983.
8. ELEVATIONS SHOWN HEREON REFER TO NAVD88; TO CONVERT TO NGVD 29, ADD +1.27'. (BASED ON A CORPSCON VERSION 6.0.1 - A U.S. ARMY CORPS OF ENGINEERS ENGINEERING RESEARCH AND DEVELOPMENT CENTER TOPOGRAPHIC ENGINEERING CENTER ALEXANDRIA, VIRGINIA WINDOWS-BASED PROGRAM TO CONVERT COORDINATES AND ELEVATIONS BETWEEN DATUM'S USING VERTCON05.TXT AND VERTCON05.05 FILES SUPPLIED BY THE U.S. ARMY CORPS OF ENGINEERS SOUTH ATLANTIC DIVISION, JACKSONVILLE FL.).
9. TOPOGRAPHIC HORIZONTAL POSITIONS AND ELEVATIONS WERE MEASURED BY REAL TIME KINEMATIC (RTK) GLOBAL POSITIONING SYSTEM (GPS) METHODS USING A TOPCON HIPER V GPS RECEIVER AT BASE POINT "PT # 52" AND A TOPCON HIPER V GPS RECEIVER WITH A RANGER DATA COLLECTOR WITH SURVEY PRO SOFTWARE CHECKING POINT "PZ 207" REDUNDANTLY.
10. ELEVATION AT CONTROL POINT "PT # 52" WAS ESTABLISHED USING CONVENTIONAL LEVELING METHODS FROM POINT "PZ 207". THE LEVEL LINE CLOSURE MEETS OR EXCEEDS NGS 3RD ORDER STANDARDS.
11. THIS SURVEY UTILIZED THE FOLLOWING CONTROL POINTS:

    NGS C 43 RES 2
    FOUND SURVEY DISK SET IN TOP OF CONCRETE MONUMENT.
    PID "DQ7940".
    NORTHING: 856445.210
    EASTING: 504891.73
    ELEVATION: 27.82' (NAVD88)

    PZ 207
    FOUND ALUMINUM DISK STAMPED "SFWMD PZ 207 LB 7975 2018"
    NORTHING: 856441.9
    EASTING: 504880.9
    ELEVATION: 28.28' (NAVD88)

    PT # 52
    SET IRON ROD WITH RED PLASTIC CAP STAMPED SFWMD TRAV PT
    NORTHING: 856383.671
    EASTING: 504237.959
    ELEVATION: 29.91' (NAVD88)
12. NO BOUNDARY SURVEY WAS PERFORMED AS PART OF THIS SURVEY. SECTION LINES SHOWN HEREON ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSE ONLY.
13. THE AERIAL PHOTOGRAPHY WAS RECORDED IN 2017 . IT IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND IS NOT PART OF THIS SURVEY.
14. NO BASIS OF BEARING WAS USED FOR THIS SURVEY. REFER TO NOTE 9 FOR COORDINATE ESTABLISHMENT.
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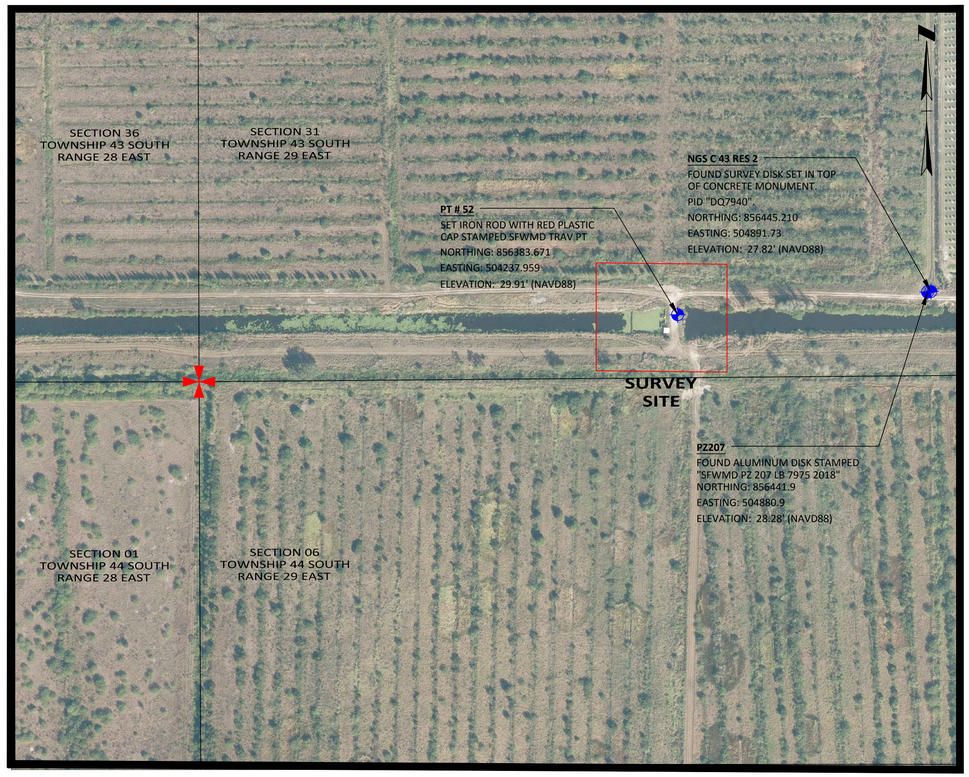
    - ELECTRONIC DATA FILES: DATA COLLECTOR FILE: C43RES.ASC AND C43RES.DAT
      MISCELLANEOUS PICTURE FILES
    - CONVENTIONAL REPORTING:
      FIELD BOOK: MISCELLANEOUS FIELD BOOK 6C, PAGES 51 THRU 59.



LOCATION MAP

INTENDED DISPLAY SCALE
1" = 200 FEET

LEGEND

C/L = CENTERLINE
DGPS = DIFFERENTIAL GLOBAL POSITIONING SYSTEM
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ID = IDENTIFICATION
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IRC = IRON ROD AND CAP
MWS = MEAN WATER SURFACE
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USACOE = UNITED STATES ARMY CORPS OF ENGINEERS
———— = APPROXIMATE SECTION LINE

INDEX OF SHEETS

SHEET	1	COVER SHEET AND LOCATION MAP
SHEET	2	HEADWATER PLAN AND CROSS SECTIONS
SHEET	3	TAILWATER PLAN AND CROSS SECTIONS

THIS CERTIFICATION IS MADE TO THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT FOR THE SPECIFIC PURPOSE OF PROVIDING A TOPOGRAPHIC SURVEY TO ESTABLISH THE ELEVATIONS AT STRUCTURE LPDD2; AS REQUESTED BY JOSEPH ALBERS, PRINCIPAL ENGINEER FOR THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

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CERTIFICATION

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HOWARD J. EHMKE II
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATION NUMBER 4191

REVISIONS	DATE	CHECKED	DRAWN

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
INFRASTRUCTURE MANAGEMENT BUREAU
SURVEY AND MAPPING SECTION
3301 GUN CLUB ROAD
WEST PALM BEACH, FLORIDA 33416-4680

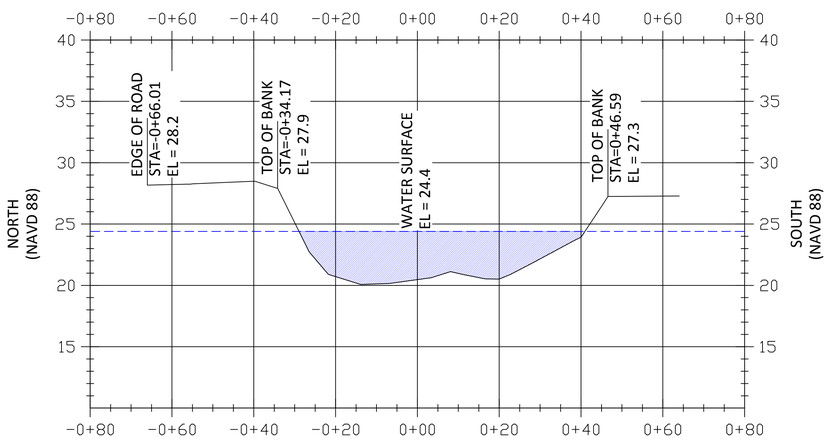
DRAWN: CGT | CHECKED: | DWG. DATE: | SCALE: AS SHOWN
FIELD PERSONNEL: STROCKLAND, WISE, & HUDSON
FIELD DATE(S): 06/18/2018 THROUGH 07/03/2018
FIELD BOOK(S): MISC FB #6C
PAGE(S): 51-59
DATA COLLECTOR FILE(S): C43RES.job

LPDD3
TOPOGRAPHIC SURVEY
HENDRY COUNTY, FLORIDA
SECTION 31
TOWNSHIP 43 SOUTH
RANGE 29 EAST

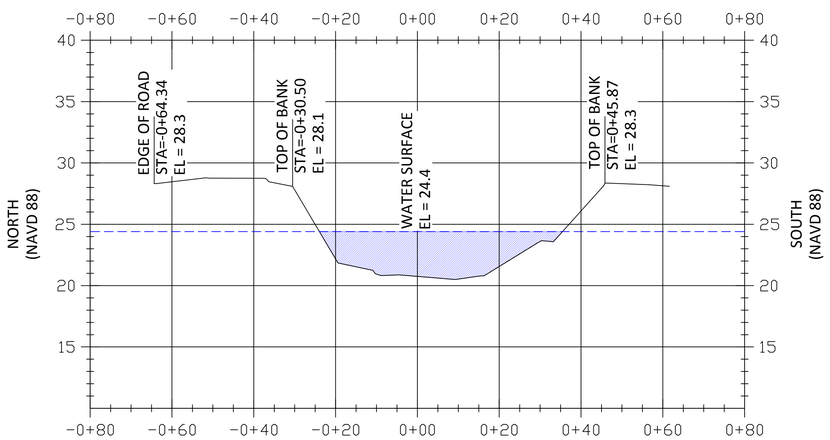
Hendry County
LPDD3

CADD File:
LPDD3 XSECS FINAL.dwg

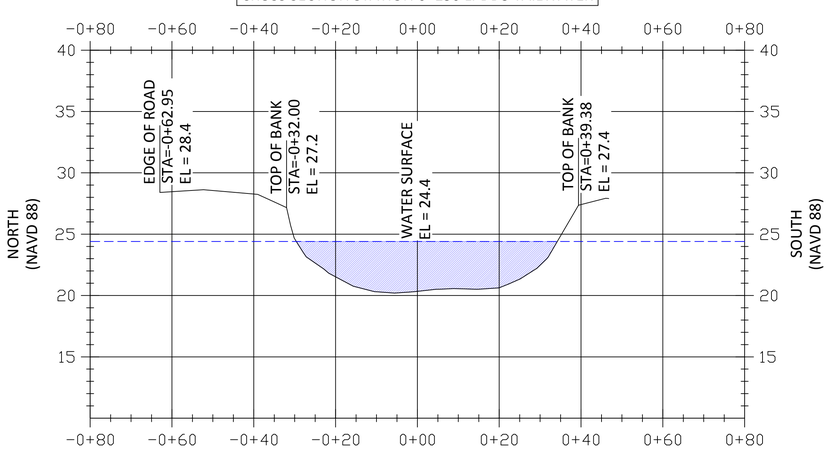
CROSS SECTION STATION 0+50 LPDD3 TAILWATER

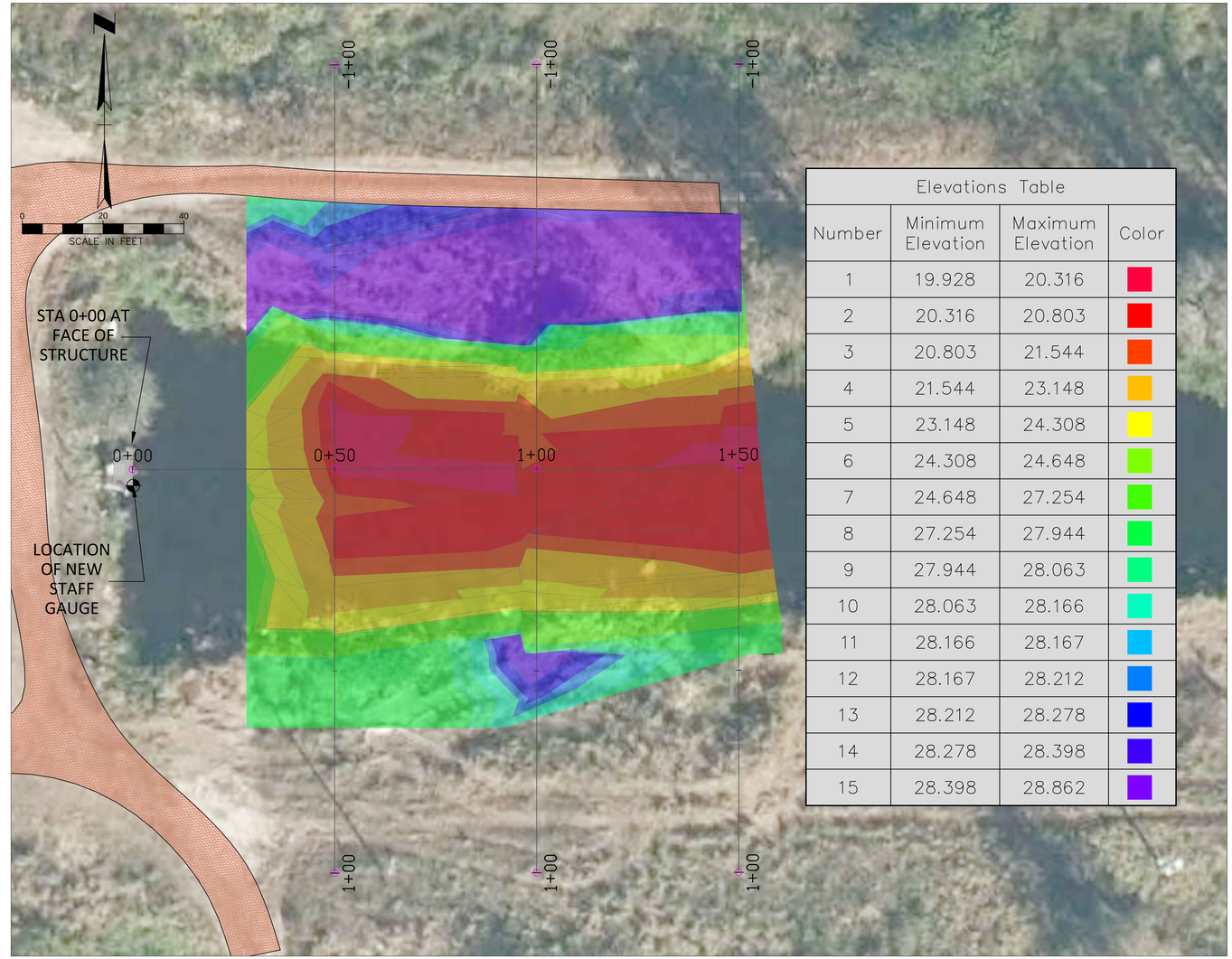


CROSS SECTION STATION 0+100 LPDD3 TAILWATER



CROSS SECTION STATION 0+150 LPDD3 TAILWATER





Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	19.928	20.316	
2	20.316	20.803	
3	20.803	21.544	
4	21.544	23.148	
5	23.148	24.308	
6	24.308	24.648	
7	24.648	27.254	
8	27.254	27.944	
9	27.944	28.063	
10	28.063	28.166	
11	28.166	28.167	
12	28.167	28.212	
13	28.212	28.278	
14	28.278	28.398	
15	28.398	28.862	

STAFF GAUGE CONSTRUCTED OF PRESSURE TREATED 2x6 ATTACHED TO CONCRETE STRUCTURE WITH MASONRY ANCHORS

NEW STAFF GAUGE LOOKING NORTHWEST
OBLIQUE NOT TO SCALE

ALL ELEVATIONS SHOWN HEREON ARE IN NAVD88
TO CONVERT TO NGVD29 ADD 1.27'

LEGEND

- - - - - = WATER SURFACE ELEVATION 24.4' (06/26/18)

REVISIONS | DATE | CHECKED | DRAWN

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
INFRASTRUCTURE MANAGEMENT BUREAU
SURVEY AND MAPPING SECTION
3301 GUN CLUB ROAD
WEST PALM BEACH, FLORIDA 33416-4680

DRAWN: GGT | CHECKED: | DWG. DATE:
FIELD PERSON(S): STROUKLAND, WISE, & HUDSON
FIELD DATE(S): 06/18/2018 THROUGH 07/03/2018
FIELD BOOK(S): MISC. FB #6C
PAGE(S): 51-59
DATA COLLECTOR FILE(S): CASRES.job
SCALE: AS SHOWN

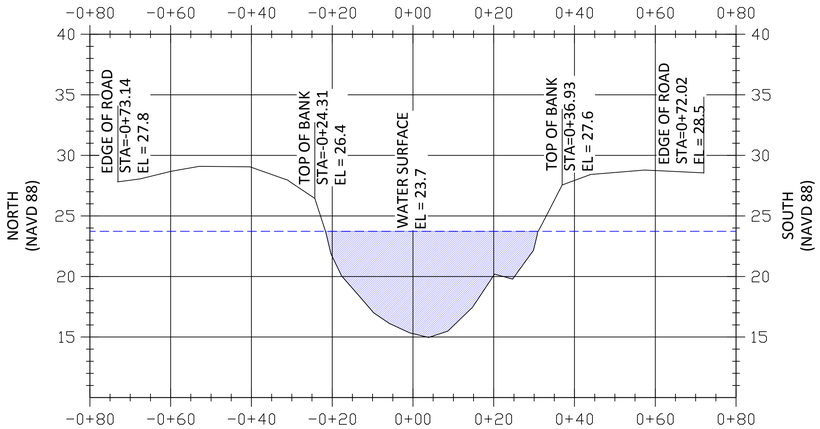
LPDD3 TAILWATER
TOPOGRAPHIC SURVEY
HENDRY COUNTY, FLORIDA
SECTION 31
TOWNSHIP 43 SOUTH
RANGE 29 EAST

Hendry County
LPDD3 TAILWATER

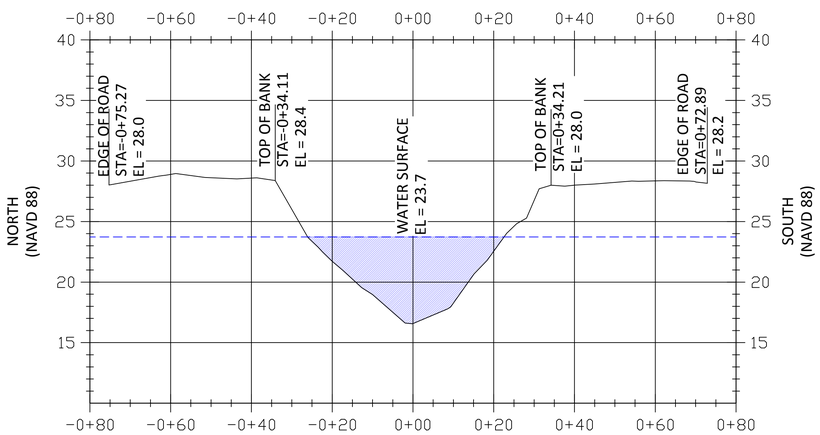
CADD File:
LPDD3 XSECS FINAL.dwg

SHEET 2 OF 3

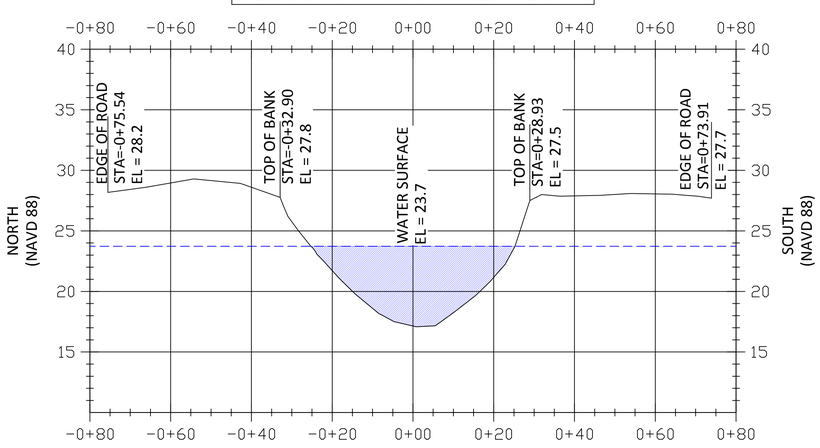
CROSS SECTION STATION 0+81 LPDD3 HEADWATER

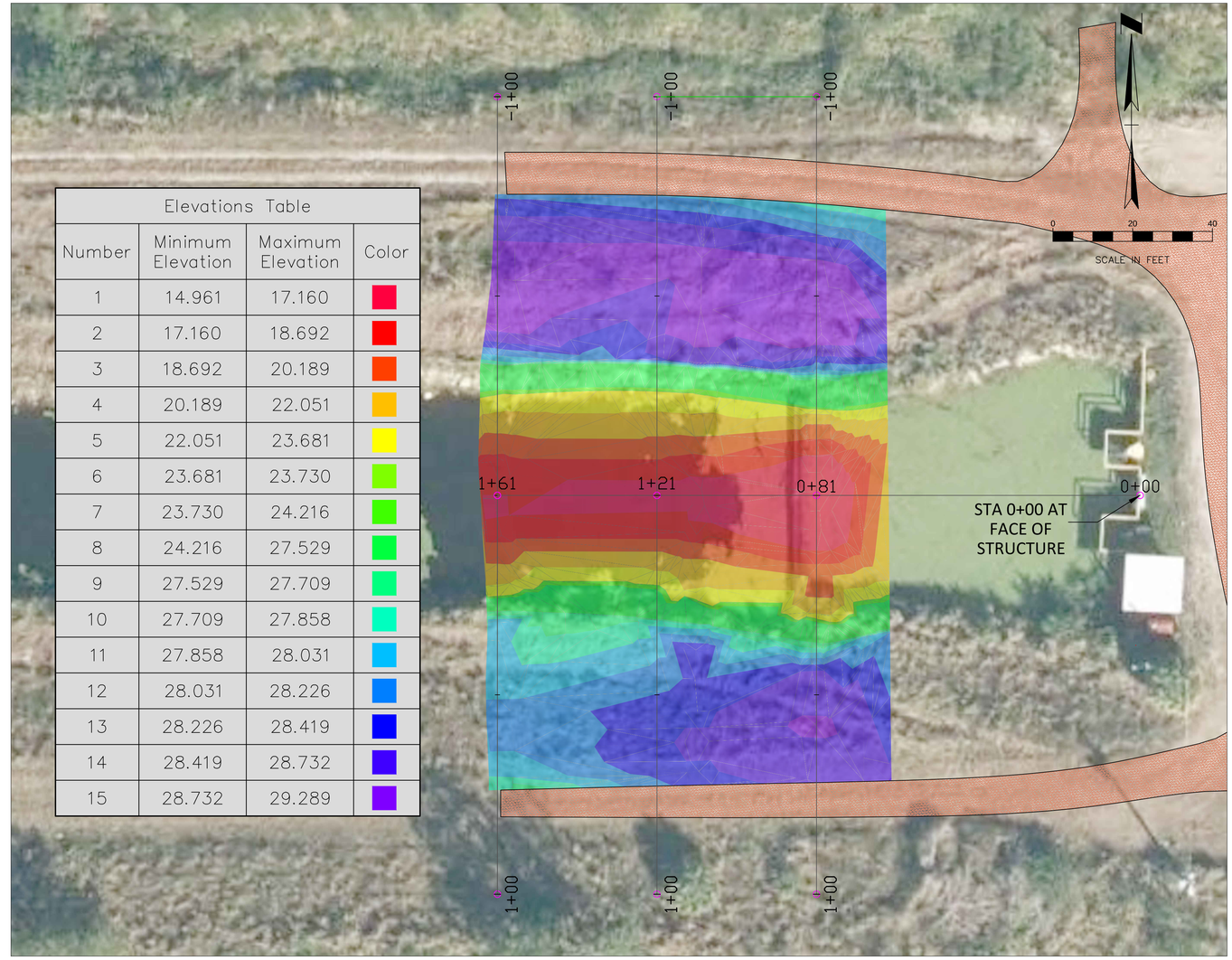


CROSS SECTION STATION 1+21 LPDD3 HEADWATER



CROSS SECTION STATION 1+61 LPDD3 HEADWATER





Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	14.961	17.160	
2	17.160	18.692	
3	18.692	20.189	
4	20.189	22.051	
5	22.051	23.681	
6	23.681	23.730	
7	23.730	24.216	
8	24.216	27.529	
9	27.529	27.709	
10	27.709	27.858	
11	27.858	28.031	
12	28.031	28.226	
13	28.226	28.419	
14	28.419	28.732	
15	28.732	29.289	

HEADWALL LOOKING WEST
OBLIQUE NOT TO SCALE

HEADWALL LOOKING EAST
OBLIQUE NOT TO SCALE

ALL ELEVATIONS SHOWN HEREON ARE IN NAVD88
TO CONVERT TO NGVD29 ADD 1.27'

LEGEND

-------- = WATER SURFACE ELEVATION 23.7' (06/18/18)

REVISIONS	DRAWN	CHECKED	DATE

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
INFRASTRUCTURE MANAGEMENT BUREAU
SURVEY AND MAPPING SECTION
3301 GUN CLUB ROAD
WEST PALM BEACH, FLORIDA 33416-4680

DRAWN: GGT | CHECKED: | DWG. DATE:
SCALE: AS SHOWN
FIELD PERSON(S): STROKLAND, WISE, & HUDSON
FIELD DATE(S): 06/18/2018 THROUGH 07/03/2018
FIELD BOOK(S): MISC FB #6C
PAGE(S): 51-59
DATA COLLECTOR FILE(S): CADRCS.job

LPDD3 HEADWATER
TOPOGRAPHIC SURVEY
HENDRY COUNTY, FLORIDA
SECTION 31
TOWNSHIP 43 SOUTH
RANGE 29 EAST

Hendry County
LPDD3 HEADWATER

CADD File:
LPDD3 XSECS FINAL.dwg

APPENDIX B

CLEARING AND GRUBBING CONTRACT DRAWING

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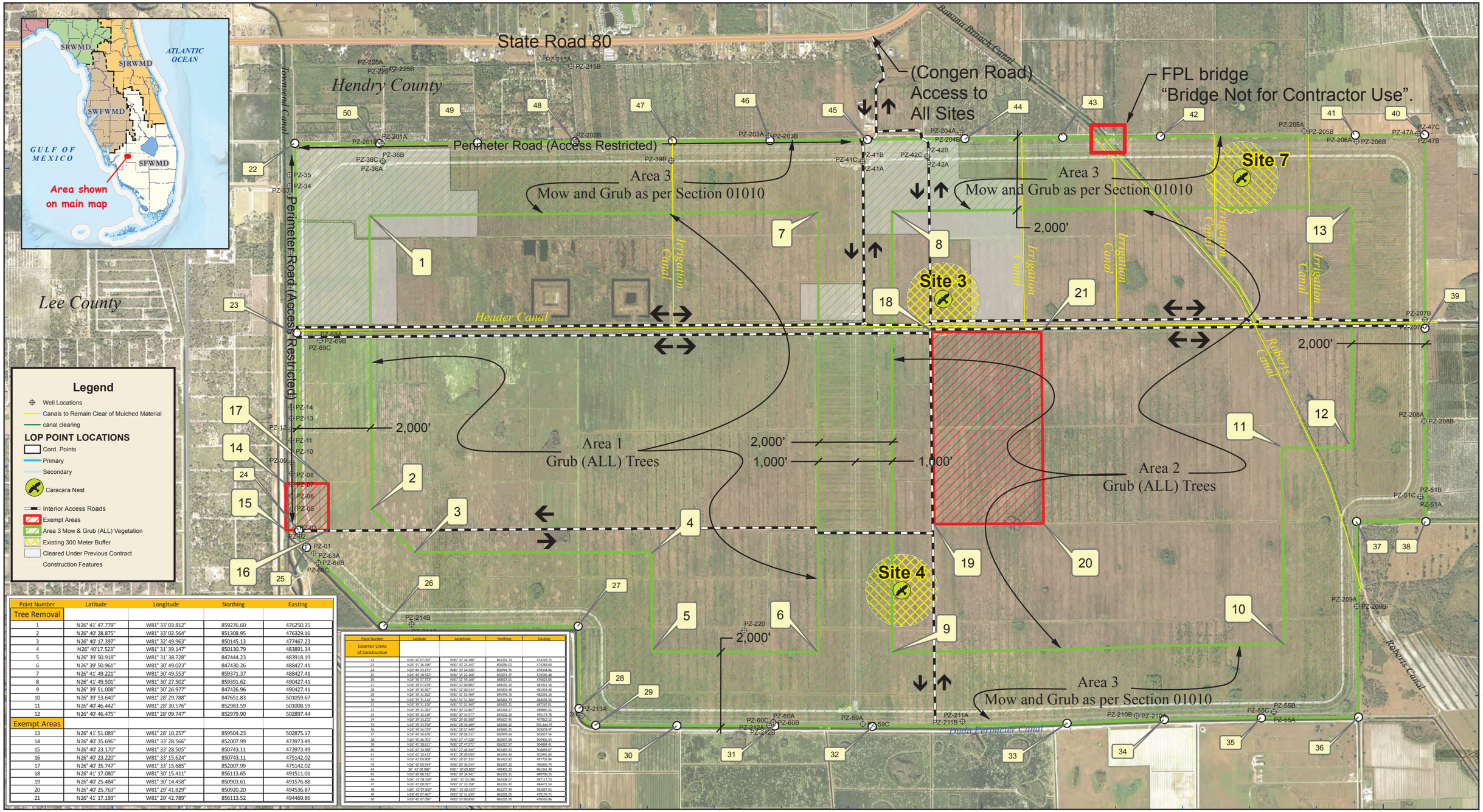

Point Number	Latitude	Longitude	Northing	Easting
Tree Removal				
1	N26° 41' 47.779"	W81° 33' 03.812"	859276.60	476250.35
2	N26° 40' 28.875"	W81° 33' 02.564"	851308.95	476329.16
3	N26° 40' 17.397"	W81° 32' 49.963"	850145.13	477467.23
4	N26° 40'17.523"	W81° 31' 39.147"	850130.79	483891.34
5	N26° 39' 50.918"	W81° 31' 38.728"	847444.23	483918.19
6	N26° 39' 50.961"	W81° 30' 49.023"	847430.26	488427.41
7	N26° 41' 49.221"	W81° 30' 49.553"	859371.37	488427.41
8	N26° 41' 49.501"	W81° 30' 27.502"	859391.62	490427.41
9	N26° 39' 51.008"	W81° 30' 26.977"	847426.96	490427.41
10	N26° 39' 53.640"	W81° 28' 29.788"	847651.83	501059.67
11	N26° 40' 46.442"	W81° 28' 30.576"	852983.59	501008.59
12	N26° 40' 46.475"	W81° 28' 09.747"	852979.90	502897.44
Exempt Areas				
13	N26° 41' 51.089"	W81° 28' 10.257"	859504.23	502875.17
14	N26° 40' 35.696"	W81° 33' 28.566"	852007.99	473973.49
15	N26° 40' 23.170"	W81° 33' 28.505"	850743.11	473973.49
16	N26° 40' 23.220"	W81° 33' 15.624"	850743.11	475142.02
17	N26° 40' 35.747"	W81° 33' 15.685"	852007.99	475142.02
18	N26° 41' 17.080"	W81° 30' 15.411"	856113.65	491511.01
19	N26° 40' 25.484"	W81° 30' 14.458"	850903.61	491576.88
20	N26° 40' 25.763"	W81° 29' 41.829"	850920.20	494536.87
21	N26° 41' 17.193"	W81° 29' 42.789"	856113.52	494469.86

Point Number	Latitude	Longitude	Northing	Easting
Exterior Limits of Construction				
22	N26° 42' 07.055"	W81° 33' 26.180"	861231.74	474229.73
23	N26° 41' 16.196"	W81° 33' 25.345"	856096.02	474283.60
24	N26° 40' 23.171"	W81° 33' 24.526"	850741.71	474334.46
25	N26° 40' 18.523"	W81° 33' 22.166"	850271.37	474546.48
26	N26° 36' 57.573"	W81° 32' 59.166"	848623.01	476623.83
27	N26° 39' 57.678"	W81° 32' 00.883"	848615.20	481911.18
28	N26° 39' 35.587"	W81° 32' 00.534"	845904.48	481933.48
29	N26° 39' 31.102"	W81° 32' 55.469"	845449.70	482391.30
30	N26° 39' 31.114"	W81° 31' 31.204"	845441.79	484592.56
31	N26° 39' 31.126"	W81° 31' 01.945"	845432.21	487247.01
32	N26° 39' 31.092"	W81° 30' 32.807"	845418.17	489890.56
33	N26° 39' 32.130"	W81° 29' 34.577"	845502.20	495171.78
34	N26° 39' 33.272"	W81° 29' 05.502"	845607.45	497812.12
35	N26° 39' 33.756"	W81° 28' 36.489"	845646.42	500.444.35
36	N26° 39' 34.079"	W81° 28' 07.449"	845669.35	503078.97
37	N26° 40' 26.670"	W81° 28' 08.231"	850979.64	503027.54
38	N26° 40' 26.701"	W81° 27' 47.528"	850975.98	504905.54
39	N26° 41' 18.611"	W81° 27' 47.971"	856217.57	504864.41
40	N26° 42' 10.588"	W81° 27' 48.344"	861465.90	504869.67
41	N26° 42' 10.413"	W81° 28' 09.050"	861454.94	502991.84
42	N26° 42' 09.908"	W81° 29' 07.335"	861423.82	497705.84
43	N26° 42' 09.544"	W81° 29' 36.544"	861397.23	495056.74
44	26° 42' 09.086"	W81° 30' 05.802"	492631.23	861361.40
45	N26° 42' 08.722"	W81° 30' 34.941"	861335.11	489704.55
46	N26° 42' 08.349"	W81° 31' 04.086"	861308.07	487117.23
47	N26° 42' 08.097"	W81° 31' 33.258"	861291.42	484471.54
48	N26° 42' 07.830"	W81° 32' 02.410"	861277.49	481827.61
49	N26° 42' 07.467"	W81° 32' 31.639"	861252.05	479176.71
50	N26° 42' 07.096"	W81° 33' 00.850"	861225.90	476526.86

BASE CREDITS:
State plane projection, Florida east zone, NAD 83, Florida East Zone, US feet.

South Florida Water Management District
3301 Gun Club Rd., West Palm Beach, Florida 33406
(561) 686-8800; www.sfwmd.gov

C-43 West Storage Reservoir Site Clearing

N W E S

0 2,500 5,000 10,000 Feet

0 1 2 Kilometers

IMPORTANT DISCLAIMER:
This map is a conceptual or planning tool only.The South Florida Water Management District does not guarantee or make any representation regarding the information contained herein. It is not self-executing or binding, and does not affect the interests of any persons or properties, including any present or future right or use of real property.

Map Date: June 2017

IT GEOSPATIAL SERVICES

User Name: rschaff

Remedy Ticket: 00045848

Map Produced on Date: 6/28/2017 1:49:46 PM

\\ad.sfwmd.gov\dfsroot\GS\GSElev\transition\drone_tests\C43_Nov16\ArcMap\C-43_BaseMap_BirdsBats\\C-43_FBB_Tree_Removal_Contract.mxd

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APPENDIX C

INTERIOR ACCESS ROADS CONTRACT DRAWING

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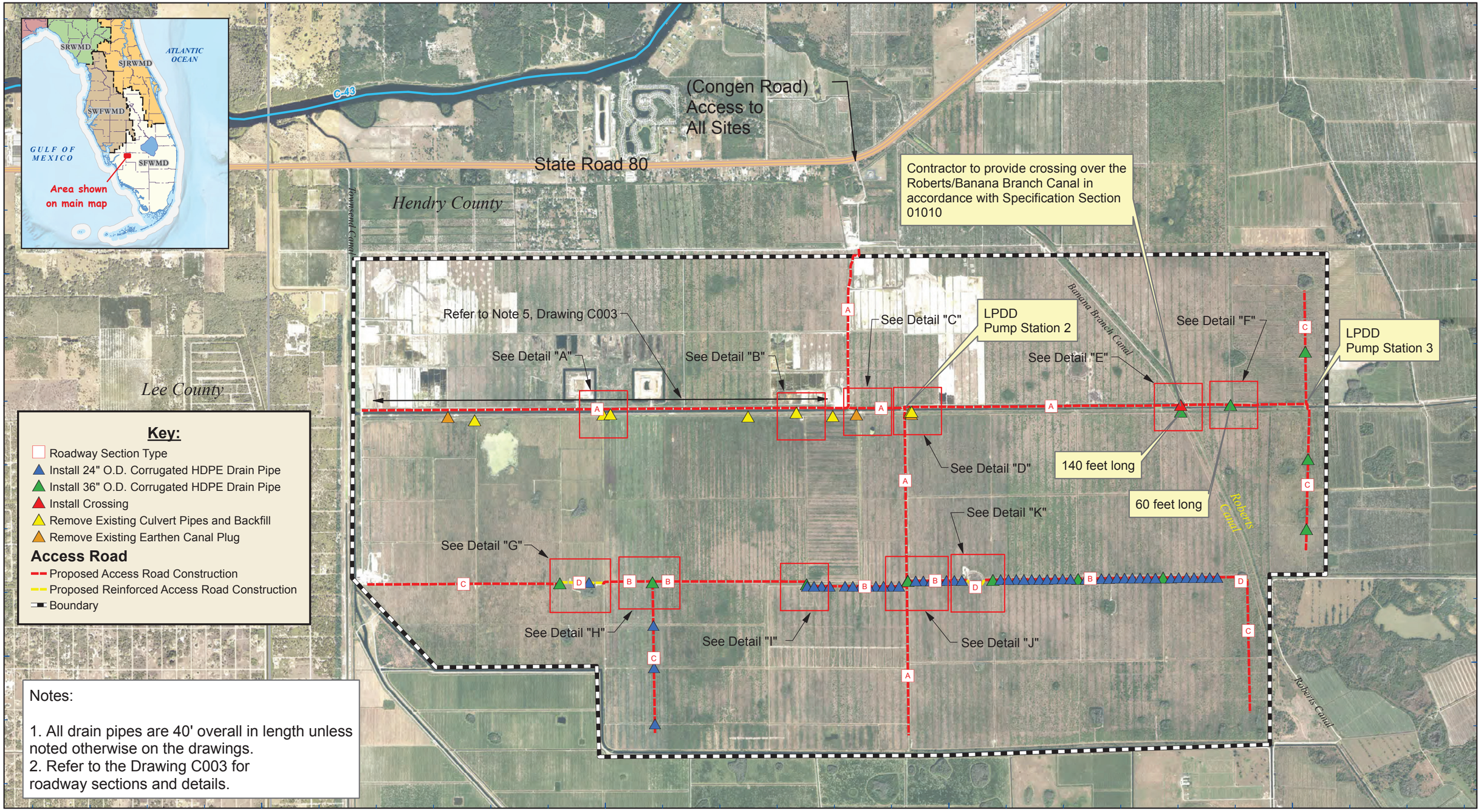

Notes:

1. All drain pipes are 40' overall in length unless noted otherwise on the drawings.
2. Refer to the Drawing C003 for roadway sections and details.

BASE CREDITS:
State plane projection, Florida east zone, NAD 83, Florida East Zone, US feet.

South Florida Water Management District
3301 Gun Club Rd., West Palm Beach, Florida 33406
(561) 686-8800; www.sfwmd.gov

C-43 West Storage Reservoir
Access Roads and Construction Features

N W E S

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

IMPORTANT DISCLAIMER:
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Map Date: February 2018

IT GEOSPATIAL SERVICES

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SECTION 01 22 02

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SCOPE

1.1.1 LUMP SUM CONTRACT

Unless indicated on the Contract Documents, all Work shown on the Contract Drawings and specified in the Bid Documents and Contract shall be included in the Contract Sum (Price) indicated on the Bid Form. The following is a description of the Work listed in the Bid Form and is not intended to be complete and all-inclusive of the required work items. The Work shall include all miscellaneous and ancillary items necessary to construct a complete and functional Project.

1.1.1.1 Bid Item A

Bid Item A. C-43 West Basin Storage Reservoir, Civil Works, - Total Project, Lump Sum.

1.1.2 Unit Price Work

For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated. As provided in paragraph 11.03-A of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities is to be made by the Contractor and verified by the District.

Discrepancies between the multiplication of quantities and unit prices will be resolved in favor of the unit price. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

The unit price shall include such amounts necessary for overhead and profit for each item.

Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
1B	Soil Bentonite Wall	SF	4,055,300	$	$
2C	Cement for Soil Cement Slope Protection (only)	Tons	118,000	$	$
D	Buried Pipe Removal and	LF	275,000	$	$

Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
	Backfill				

1.1.3 Measurement and Payment

1.1.3.1 General

Soil Bentonite Wall unit price item shall be paid based on actual quantities.

Unless noted otherwise, Soil Bentonite Wall quantity may be increased or decreased up to 25% from the amount shown on the ~~Response Form~~Schedule of Bid Prices with no change in unit price. If the quantity is increased or decreased by more than 25%, the unit price for Soil Bentonite Wall shall be renegotiated upon written request by the District or the Contractor.

The new negotiated unit price for the quantities over or under 25% of the amount shown above shall apply only to those quantities over or under the 25% of the original amount shown.

Cement unit price items shall be paid based on neat line (drawing) quantities indicated as shown in the table above. No additional quantity of cement used associated with over placement of soil cement will be considered.

Work items not included in the Bid Form but called for in the Specifications or on the drawings, shall be considered incidental to the Contract.

1.1.3.2 Measurement and Payment Items

A. (Not Used) Included in LS Contract Price

~~A.~~B Soil Bentonite Wall. Item includes following:

1. Furnishing all materials, equipment and labor required for construction of the soil bentonite wall (SB Wall), measured from El 47.0 to the bottom of the wall terminated into the clay layer as determined in the field during installation.

~~B.~~ Item excludes the following which are included in the Lump Sum Price:

1. Trench excavation, trench backfill, SB Wall overlap, both horizontally at Gap Closures as required for phased construction.

2. Construction of Phase 1 working pad.

3. Construction of SB Wall cap on either side of SB wall to El 47.0.

4. Activities incidental to the above.

5. Safety of work areas including during embankment settlement rest periods.

6. SPT exploratory borings.

7. Survey controls.

8. Design, submittals, and construction plans.

9. Summary report.

10. Mobilization of equipment and personnel.

11. SB Wall specialist.

12. Quality Control.

13. Scheduling and sequencing of the work.

~~C.~~ Item shall be measured by the longitudinal square foot of SB Wall according to the actual depth (from El. 47.0) times length of SB Wall. No payment shall be made for over-excavation performed for the convenience of Contractor or due to the equipment or methods utilized by Contractor. No payment shall be made for increases in width (perpendicular to dam baseline) from that shown in the contract documents.

~~D~~C. Cement for Soil Cement. Item includes following:

1. The initial design cement content is established at 11% by weight of the planned soil cement placement (neat line quantities indicated in the table above). Final cement quantities shall be determined by the test embankment sections included in the Contract. Adjustments to the Contract price shall be made based on the final cement quantity by weight of theoretical neat line volumes shown on the drawings. No additional payment shall be made for with over placement of soil cement for convenience of the Contractor or due to the equipment or methods utilized by the Contractor.

2. The costs for Soil Cement in the Lump Sum Contract Price shall include the costs for:

a. Furnishing all materials, equipment and labor required for construction of the Soil Cement slope protection.

b. Activities incidental to the above.

c. Safety of work areas.

d. Survey controls.

e. Design, submittals, and construction plans.

f. Summary report.

g. Mobilization of equipment and personnel.

h. Soil Cement specialist.

i. Quality Control.

j. Scheduling and sequencing of the work.

D. Buried Pipe Removal and Backfill

This item includes the following work.

1. ~~Item includes r~~Removal and backfill of buried pipes identified on Drawing C01137 Section ~~TBD~~D-E.
   a. Does not include pretrenching backfill - (this is included in the Lump Sum Contract Price for Bid Item A.)
2. Furnishing all materials, equipment and labor required for the removal of remnant conduits discovered during foundation preparation pre-trenching or other construction activities.
3. Removal and proper disposal of conduits.
   ~~Additional excavation and dewatering required to expose conduits beyond the limits of pre-trenching required by the contract documents.~~
   ~~Backfill and compaction of trench excavation required to expose conduits beyond the limits of pre-trenching required by the contract documents.~~
4. Identifying the conduit size and material.
5. Locating and surveying (coordinates, type, size and pipe invert elevation) the ends of the remaining conduit and recording this information on the as-built drawings.
6. Activities incidental to the above.

Commented [AEJ1]: This probably should not be in here.

1.1.3.3 Special items considered to be included in the Contract Lump Sum

This section identifies certain other items to be considered as also included in the Contract Lump Sum Price. Variations in quantities are possible in these items required to complete the work. There shall be no separate or additional payment for any variations in these quantities. These items are to be included in the Lump Sum Price for the Contract.

~~A. Remnant Piping Removal. Item includes following:~~

~~1. Furnishing all materials, equipment and labor required for the removal of remnant conduits discovered during foundation preparation pre-trenching or other construction activities.~~

~~2. Removal and proper disposal of conduits.~~

~~3. Additional excavation and dewatering required to expose conduits beyond the limits of pre-trenching required by the contract documents.~~

~~4. Backfill and compaction of trench excavation required to expose conduits beyond the limits of pre-trenching required by the contract documents.~~

~~5. Identifying the conduit size and material.~~

~~6. Locating and surveying (coordinates, type, size and pipe invert elevation) the ends of the remaining conduit and recording this information on the as-built drawings.~~

~~7. Activities incidental to the above.~~

~~8. Pre-trenching activities to determine the remnant pipe locations (including but not limited to excavation, dewatering, and compacted backfill).~~

AB. Removal of Additional Unsuitable Foundation Material. Unsuitable Foundation Material is defined as organic soils, roots and vegetative matter, uncontrolled and erratic man-placed fill, and/or soft or pumping soils that cannot be remedied even with appropriate dewatering methods. Item includes following:

1. Furnishing all materials, equipment and labor required for removal of unsuitable dam or structure foundation material beyond the limits shown in the contract documents.

2. Excavation, loading, hauling, and off-loading unsuitable material at on-site location of Contractor's selection, leveled at or below prevailing existing grade.

3. Replacement of unsuitable material with suitable material (Embankment Fill or Select Fill), including borrow, haul, placement, compaction, moisture control, maintenance, sampling and laboratory testing, and protection.

4. Over-excavation performed for the convenience of Contractor or due to the equipment or methods utilized by Contractor.

B. Removal of pipes required outside of the footprint of the Dam as identified in Drawing C01137.

1. All piping removed during all stripping, inclusive of stripping in the Dam footprint, is also included in the Contract Lump Sum Bid Price.

C. Townsend Canal Excavation. Item includes following:

1. Furnishing all materials, equipment and labor required for excavation of the Townsend Canal and adjacent land-side areas.

2. Installation and maintenance (including weed and vegetation buildup) of Temporary Manatee Barrier and removal of barrier upon completion of work.

3. Excavation, loading, hauling, and off-loading material at on-site location, and incidental activities.

4. Performance of pre-construction and post-construction survey.

5. Activities incidental to the above.

6. Submittals.

7. Clearing and grubbing.

8. Stripping.

9. Riprap system.

10. Topsoil and grassing.

11. Pressure relief system.

12. Drainage features.

13. Quality Control.

D. Additional Embankment Fill to Compensate for Settlement and/or Erosion. Item includes following:

1. Furnishing all materials, equipment and labor required to compensate for dam/embankment settlement and/or erosion as well as foundation consolidation.

2. Embankment Fill borrow, haul, placement, compaction, moisture control, maintenance, sampling and laboratory testing, protection, and temporary erosion control.

3. Activities incidental to the above.

4. Submittals.

5. Installation, maintenance and reporting of temporary geotechnical instrumentation.

6. Seepage control and conveyance systems.

7. Furnishing all materials, equipment and labor required to compensate for embankment erosion.

8. Topsoil and grassing.

E. Differences between Base Mapping and Actual Grades. Base mapping shown on the Drawings and used for the design was performed between 2004 and 2007. The aerial photogrammetric one-foot contour mapping was prepared using aerotriangulation and stereoplotting methods used in standard aerial photogrammetric techniques and/or Digital Terrain Mapping software. Areas that were obscured by heavy brush, tree cover or water were supplemented by ground surveys including canal cross sections. Some areas of the terrain may have been modified as a result of recent and/or ongoing construction. Contractor shall include in the project lump sum bid item all materials, equipment and labor required for spot checking and validating the ground contours prior to beginning ground disturbing activities. There will be no additional payment for differences in elevations for excavation or fill quantities, computed for the entire project.

All other items not specifically identified above shall be considered in the contract lump sum price.

1.2 BASIS FOR PAYMENTS

The above descriptions generally outline the scope of work required for those elements of the Work to be paid for under each lump sum item listed in the Bid Form. Those lump sum amounts shall be further distributed in accordance with subvalues identified in the approved Cost Loaded Schedule specified in Section 01 32 16 COST LOADED CONSTRUCTION SCHEDULES and the GENERAL TERMS & CONDITIONS.

1.3 PAYMENTS

Payments shall be in accordance with the provisions of the GENERAL TERMS & CONDITIONS, Article 14.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 25 02

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 GENERAL

1.1 SCOPE

A. This Section covers the District's review procedures for Contractor's requests of acceptable substitute items of material and equipment. All requests for substitution shall be made no earlier than the Effective Date of the Contract. See Article 22 of the Instructions to the Bidders of this Contract Document. A determination of acceptability or rejection of the substitution request will be made in accordance with paragraph 6.05 of Section 00700 - GENERAL TERMS AND CONDITIONS.

B. Requests received prior to the date established above will not be considered.

C. Substitutions may be approved at the District's sole discretion where one or more of the following conditions apply:

1. The substitution must be required for compliance with final interpretation of code requirements or regulations.

2. The substitution must be due to the unavailability of the specified products, through no fault of the Contractor.

3. The substitution may be requested when subsequent information discloses the inability of the specified products to perform properly or to fit in the designated space.

4. The substitution may be requested when in the judgment of the District a substitution would be substantially to the District's best interests in terms of cost, time or other considerations.

1.1.1 Related Work Specified Elsewhere

Section 01 33 00 SUBMITTAL PROCEDURES

1.2 SUBSTITUTION REQUEST

A. Submit as required in Section 01 33 00 SUBMITTAL PROCEDURES:

1. Complete data substantiating compliance of the proposed substitution with the Contract Document.

a. Product identification including Manufacturer's name and address

b. Manufacturers literature including product description, performance and test data, and reference standards

c. Name and address of similar projects on which product was used and dates of installation

2. Itemized comparison of proposed substitution with product or method specified

3. Data relating to changes in the construction schedule

4. Accurate cost data on proposed substitution in comparison with product or method specified

B. In submitting the request for substitution, the Contractor makes the following representations:

1. The Contractor has investigated the proposed product and has determined that it is equal or superior in all respects to that specified.

2. The Contractor will provide the same warranty or guarantee for the substitution as for the product specified.

3. The Contractor will coordinate installation of the accepted substitution into the Work, making such changes as may be required for the Work to be completed in all respects.

4. The Contractor waives all claims for additional costs related to substitution that subsequently becomes apparent.

5. Cost data is complete and includes all related costs under the Contract.

1.3 DISTRICT ENGINEER'S REVIEW

A. The District, in evaluating the request for substitution, will consider all variations of the proposed substitute from that specified to determine the acceptability of the proposal. The District may require the Contractor to furnish additional data about the proposed substitute necessary to make such a determination. The District will be the sole judge of acceptability, and no substitute will be ordered or installed without the District's prior written acceptance. The District may require the Contractor to furnish, at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute. Substitutions will not be considered if:

1. Substitutions are indicated or implied on Shop Drawings or product data submittals without a request submitted in accordance with this Section.

2. Acceptance will require substantial revision to the Contract Documents.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 32 16

COST LOADED CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.1 SCOPE

Cost Loaded Construction Schedule (Construction Schedule): The Work under this Contract shall be planned, scheduled, executed, and reported by the Contractor. The Contractor shall adhere to established technical standards for CPM (Critical Path Method) scheduling unless otherwise directed by the District. The Contractor is required to provide all Construction Schedules in electronic format.

The Contractor shall submit a detailed Cost Loaded Schedule showing all Work required under the Contract and scheduled within the time constraints set forth under the Contract. The District will review and comment on the Schedule submittal as per 2.3. Upon acceptance, the submitted detailed Cost Loaded Schedule becomes the Baseline Schedule. The Contractor shall not change the accepted Baseline Schedule, without prior concurrence of the District. The Baseline Schedule, shall be updated to show actual progress.

The Contractor shall be responsible for coordinating its own schedules (including subcontractors) as well as the construction activities of others as required to fully execute the Work.

1.2 SUBMITTALS

All submittals shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

SD-01 Preconstruction Submittals

Cost Loaded Schedule

1.3 SOFTWARE/INTERFACE REQUIREMENTS

The Contractor shall use the latest version of Oracle/Primavera P6 Professional Project Management (P6) for creating and updating all Construction Schedules and reports. No other scheduling software programs will be accepted.

To ensure compatibility for District asset accounting, the District will provide Activity Codes for all Asset and Non-asset Activities, and assist the Contractor in developing a Work Breakdown Structure (WBS) to be entered into the scheduling software as referenced in Section 2.2. The Construction Schedule (i.e. all Schedule Updates shall be used as the basis for payment).

1.4 FULL-TIME SCHEDULER

A full-time scheduler shall be located on the project site and shall maintain the schedule on a daily basis. The scheduler shall work with the District field project controls representative to monitor progress and production and recommend adjustments to the work processes in order to maintain schedule.

1.5 QUALITY REQUIREMENTS

The Contractor shall perform the Work covered by this Section with personnel having substantial experience in the use of the latest version of P6 scheduling software on construction projects which required the development and maintenance of the schedule throughout the Project duration.

It is the responsibility of the Contractor to work with each subcontractor and supplier to obtain information pertinent to the planning and updating of their respective activities in the overall Project Construction schedule.

It is the responsibility of the Contractor to work with the District's scheduler to resolve any related scheduling issues such as storing period performance, making sure the Primavera file (.xer) gets imported correctly, etc.

1.6 DEALING WITH SUBSTITUTES

All versions of the Contractor's Construction Schedule shall be based solely on the Work as awarded, and shall exclude any substitute proposals, even if the Contractor pursues a substitution in accordance with the provisions of the Contract.

The District's final determination on any proposed substitutions may not be made until after the Contractor's Construction Schedule is prepared and accepted. Accepted proposed substitutions shall be identified in the schedule as Change Orders.

1.7 USE OF FLOAT

Total Float is the amount of time a scheduled activity can be delayed without delaying the completion of the Work beyond the contractually required end date. Contract Float is the number of days between the Contractor's anticipated date for early completion of the Work, or specified part, and the corresponding Contract Time. Total Float and Contract Float belong to the Project and are not for the exclusive benefit of any party. Contract Float and Total Float shall be available to the District, consultants, or the Contractor to accommodate changes in the Work or to mitigate the effect of events which may delay performance or completion. The District will monitor and optimize the use of float for the benefit of the Project.

The Contractor shall adjust or remove any float suppression techniques (e.g., preferential sequencing, out-of-sequence activity relationships, crew movements, equipment use, form reuse, extended durations, imposed dates, lags, etc.) as a prerequisite to a request for an increase in Contract Price and/or Contract Time. Use of constraints or lags should be minimized and require approval by the District. The accepted Baseline Schedule must have a single longest path with zero Total Float. Multiple longest paths are not acceptable.

1.8 EARLY COMPLETION

An early completion schedule is one which anticipates completion of all or a specified part of the Work ahead of the corresponding Contract Time. Since Contract and Total Floats belong to the Project, the Contractor shall not be

entitled to any extension in Contract Time or recovery for any delay incurred because of extensions in an early completion date until all Contract Float is used or consumed and performance or completion of the Work extends beyond the Contract Time.

1.9 NONCOMPLIANCE

The District may refuse to recommend/authorize a progress payment in the event of the Contractor's failure, refusal or neglect to provide the required schedule information, since this will preclude the proper evaluation of the Contractor's progress. Remedies for the Contractor's failure, neglect or refusal to comply with the requirements of this Section are in addition, and not limited to, those provided under other sections of the Contract.

PART 2 PRODUCTS

2.1 GENERAL CRITERIA

All Construction Schedules shall be prepared by the Contractor and reflect the Contractor's plans, means and methods, techniques and sequences for performing of the Work.

The Construction Schedules shall break down the Work into distinct activities with interdependencies to the extent required to clearly depict the planned approach for completion of the Work and to effectively manage the execution of the Work.

1. The Construction Schedules shall divide the Work into manageable and logical segments and specify the progression from the Notice to Proceed (NTP) to Substantial Completion (SC) to Final Completion (FC) within Contract Time. SC and FC need to have the same total float.

2. The Construction Schedule is to include, at minimum, appropriate time allowances for submittals, procurement, coordination with others, construction, start-up/check-out (if applicable), operational and performance testing (if applicable), commissioning (if applicable), and Contract Close-Out.

3. Site related activities shall not reflect a combination of work located in separate structures, work corresponding to different divisions of the specifications, work performed by first and second tier subcontractors or rough-in and finish work of the same trade.

4. The NTP activity shall be the first activity in the schedule and shall be a Start Milestone, with an assigned 7-day, no holiday calendar. The SC and FC activities shall be Finish Milestones, with assigned "Finish on or Before" constraints, with the Contract SC and FC dates assigned to the constraints, with a 7-day, no holiday calendar.

5. Primavera Settings:

    a. Constraints - Mandatory Starts or Finishes, Start On or Finish On and As Late as Possible constraints cannot be used in the Construction Schedules.

b. Calculation Settings - Default settings must be used, except that Critical activities must be defined as Longest Path activities.

c. Activity Types - Resource Dependent, WBS Summary & Level of Effort activity types cannot be used except as directed by the District. Activity types will be set to Task Dependent.

d. Percent (%) Complete Type must be set to Duration.

e. Duration Type must be set to Fixed Duration & Units.

f. No Curve may be applied to an activity or its resources.

g. Late finish dates for milestones need to be the same as contractual dates. Contractual dates need to be incorporated into the corresponding activity name.

6. The Contractor's Construction Schedule shall include preparation, review and acceptance of Shop Drawings, material fabrication and material deliveries, start-up, function and acceptance tests, commissioning, and factory testing. The first submittal review and acceptance activity durations shall be fifteen (15) working days. Resubmittal review and acceptance cycles shall have activity durations of ten (10) working days. The Contractor shall include only the first submittal review and acceptance cycle for each submittal in the Construction schedule. If more than one cycle for a submittal occurs, the Contractor shall add that cycle to the schedule at the time it occurs. Additional submittal, review and acceptance cycles will require a revision to the Schedule.

The Contractor shall schedule any requirements (such as submittal reviews) of the District, the Design Consultant and others (performing Work for the District) indicated in, or required by the Contract Documents. The Construction Schedule shall incorporate appropriate activities and Work sequences based upon the Contract Documents.

7. The Contractor's Construction Schedule shall include dates for when permanent electrical power supply is required at each individual structure/control building. The District will use these dates to coordinate with Florida Power & Light (FPL).

2.2 RESOURCE AND COST LOADING

A. Each activity in the Contract Schedule shall be assigned a dollar value in accordance with the physical value of that work in relationship to the Activity Codes/WBS. The total budget value of all activities shall equal the Contract Price. The Contractor shall also indicate the planned duration for each construction activity.

B. The Major Categories for the Work being performed shall be broken down by the following activity codes. Items 1 to 4 in the following list are mandatory for all projects.

1. General (including mobilization, demobilization, bonds, insurance, survey, as builts)

2. Submittals

3. Submittals Review and Acceptance
4. Fabrication & Delivery/Factory Testing
5. SCADA Site:
    a. Platform(s)
    b. SCADA Equipment
6. Telemetry:
    a. Telemetry & SCADA equipment (Hardware, Software)
    b. Antenna(s)
7. Local Access Bridge
8. Site Access Bridge
9. Perimeter Canal
    a. Roads
    b. Land Improvements
        i. Fences
        ii. Gates
        iii. Signs
    c. Canal
        i. Erosion protection
    d. Water Control Structures (all gated structures):
        i. Control Building(s)
        ii. Generator(s)
        iii. Structure (includes control building, if applicable)
        iv. SCADA equipment (Hardware, Software)
    e. Weir
    f. SCADA Sites
        i. Platforms
        ii. SCADA equipment
    g. Bridge(s)

10. Reservoir:

    a. Roads

    b. Land Improvements

        i. Fences

        ii. Gates

        iii. Signs

    c. Turf Reinforcement

    d. Water Control Structures (All gated structures - Activity Codes from WCS above):

        i. Control Building(s)

        ii. Generators

        iii. Structure

        iv. SCADA Equipment (Hardware, Software)

    e. Pump Stations

        i. Discharge piping and appurtenances

        ii. SCADA equipment

    f. Spillways

    g. Bridges (Service)

    h. Wave wall

    i. Boat ramps

    j. SCADA Site(s) (Activity Codes from SCADA Site above)

        i. Platforms/Transducer Sites

        ii. SCADA Equipment

11. Townsend Canal

    a. Canal bank grading

    b. Pressure relief system

    c. Intake canal connection

    d. Intake canal boat ramp

    e. Erosion protection

f. Sheet Pile Installation

g. Manatee Barrier Maintenance

C. The WBS for the logical construction sequencing, at a minimum shall consist of the following:

1. General (e.g., NTP, SC, FC, General Conditions, Bonds, Insurance, Punchlist)

2. Submittal Preparation, Review and Acceptance - If there are engineering costs associated with a submittal, those costs must be approved by the District before they can be cost loaded in the Construction Schedule. No payment will be made for submittals until the review and acceptance process has been completed for that submittal.

3. Fabrication & Delivery - If there are costs associated with the Fabrication and Delivery, then a separate cost loaded Delivery Activity must be added with one (1) day duration, and assigned to its appropriate Activity Code/WBS. The District will only pay for materials once delivered and stored in a manner that complies with all the Contract Documents.

4. The WBS for the remaining construction related work shall be broken down in sufficient detail for conveying the sequence at which the Contractor intends to construct the Project.

5. The Contractor shall include all Owner Assigned Subcontractor work breakdown structure details into the Cost Loaded Schedule.

D. Schedules where activities are not assigned both an Activity Code and WBS will not be accepted.

E. Cost Resource Loading:

1. A single unique resource for the cost loading of all activities shall be created in the resource dictionary.

2. The resource type for costs shall be Nonlabor.

3. Cost loading of activities shall be lump sum loading of the Budgeted Cost field and Budgeted Units. Budgeted Cost needs to be same as Budgeted Unit.

4. All costs must be displayed to two (2) decimal places.

5. The Costs for Mobilization and Demobilization activities must be equal and cannot be zero and must represent actual cost to mobilize and demobilize.

F. Financial Periods and Stored Period Performance:

1. The Financial Periods must be set for the duration of the Project and start on the first day of the month and finish on the last day of the month.

2. "Stored Period Performance" must be used on a monthly basis in order for the "Actual This Period Nonlabor Cost" to be displayed correctly in the reports. Please refer to Appendix A within attached document for details, entitled: Monthly Updates After Pay App No. 1.

G. Stored Material - For those Construction Schedule activities of Work that will use Stored Materials, the material or equipment delivery activities related to the Work will be cost loaded with enough money to cover the stored material. The cost loading of activities related to the work-in-place will be reduced by the amount of the stored material costs loaded into the delivery activities. The Contractor must provide a list of materials and/or equipment that will be paid for under Stored Materials prior to acceptance of the Baseline Schedule so that the District can check for proper cost loading.

H. If the Work includes items covered by allowances, the Contractor shall ensure that Work is completed within the limits of the Contract Time. The Construction Schedule shall incorporate the Contractor's best estimate of the activities and logic associated with the allowances.

I. Contractor's P6 Settings need to be same as the District settings. Please refer to Appendix B within attached document for details, entitled Matching Your P6 Settings with SFWMD P6 Settings.

2.3 COST LOADED CONSTRUCTION SCHEDULE SUBMITTAL

A. The Construction Schedule submittal, which refers to both the Baseline Schedule and all Schedule Updates, are to consist of the following items:

1. An electronic file containing PDF formats of all required reports and graphics, including a written narrative.

2. An electronic backup of the Construction Schedule in Primavera P6 XER format.

3. For Schedule Updates, a copy of the payment application is required. The Period Ending date in the District Application for Payment must match the Data Date of the corresponding Schedule Update.

B. The Schedule Narrative Report for the Update Schedule shall consist of a written description of how the Work will be accomplished in accordance with the accepted Baseline Schedule. The Schedule Narrative accompanying each Schedule Update shall, at a minimum, compare current progress and cost performance to the last update for all milestones and activities, including longest path activities. If there are potential or actual delays, the narrative shall state the cause of the delay and impact to the Construction Schedule and define steps that have been taken or intend to be taken to mitigate delay impacts. The Contractor shall list any changes in activities duration and logic. The narrative shall provide sufficient detail to allow the District to verify the progress of the Work, compare actual versus planned activities, and identify assumptions made in scheduling work, including Change Order work. The Contractor shall direct specific attention, in writing, to adjustments or corrections made, either in response to the District's comments on the previous submittal or otherwise. A Schedule Narrative Report must be provided for all Baseline Schedules and Construction Schedule Updates.

1. Schedule Narrative Report (Baseline)

   a. The Schedule Narrative Report shall show the following sub-headings with detailed comments:

      i. Project Scope of Work

      ii. Assumptions and Exceptions

      iii. Proposed Work Sequence and Longest Path

      iv. Milestones

   b. It shall be an electronic color PDF - 8-1/2 x 11 portrait or as 11 x 17 (as requested by District)format file.

2. Schedule Narrative Report (Construction Updates)

   a. Schedule updates shall be provided to the District at least monthly with interim reports as needed throughout the length of the entire project.

   b. The Schedule Narrative Report shall show the following sub-headings with detailed comments:

      i. Progress, issues, delays, and claims

      ii. Delay reasons and at-fault party

      iii. Proposed recovery plan for next update

      iv. Schedule changes, including out-of-sequence work

      v. Milestones

      vi. Critical submittals and Procurement items

      vii. Response to District Review comments from previous submittal on an item by item basis.

C. It shall be an electronic color PDF - 8-1/2 x 11 portrait format file. Required Schedule Reports and Graphics - Bar Chart reports/P6 (plf) layouts will be provided by the District and imported for use by the Contractor.

1. Schedule/Leveling Report (Schedlog)

   a. The report shall indicate software settings and calculations generated by Primavera software.

   b. Shall be an electronic color PDF - 11 x 17 portrait format file.

2. WBS with Cash Flow Diagram (Grouped by WBS)

   a. Bar Chart shall indicate all activities grouped by WBS and sorted by Early Start, Early Finish and Total Float.

b. Cash Flow Diagram shall be shown at the end of the Bar Chart, which shows budget and actual monthly bars, and cumulative curves.

c. Shall be an electronic color PDF - 11 x 17 landscape format file.

3. Longest Path Bar Chart (No Grouping)

a. Bar Chart shall indicate all longest path activities without grouping and sorted by Early Start, Early Finish and Total Float.

b. Bar Chart shall be an electronic color PDF - 11 x 17 landscape format file.

4. Pay App - Expanded (Grouped by Activity Codes)

a. Bar Chart shall indicate all activities grouped by Activity Codes and sorted by Activity ID.

b. Bar Chart shall be an electronic color PDF - 11 x 17 landscape format file.

5. Pay App - Rollup (Grouped by Activity Codes)

a. Bar Chart shall indicate all activities grouped by Activity Codes rolled up per each Activity Code. The application for payment line items must match this layout.

b. Bar Chart shall be an electronic color PDF - 11 x 17 landscape format file.

6. Earned Value Report

a. The report shall show Earned Value information comparison between the accepted Baseline and the Current Schedule Update.

b. The report shall be an electronic color PDF - 11 x 17 landscape format file.

D. Draft Schedule Reports - The following reports are to be provided prior to the formal submission of the Schedule Update and application for payment for the purpose of agreeing upon the Duration % Complete and Cost % Complete of each activity.

1. WBS with Cash Flow Diagram

2. Pay App - Expanded

3. Longest Path

E. One (1) week prior to each Schedule Update submittal, the District and the Contractor will agree upon the physical progress of the Work (Duration % Complete of each activity), and the value (Cost % Complete) of the scheduled work in place. The Duration % Complete must match the Cost % Complete, or a specific reason must be given in the Schedule Narrative Report.

F. All documents shall show the Project ID and Name. The District's review shall not extend to the Contractor's means, methods, or techniques, the correctness of which shall remain the sole responsibility of the Contractor.

G. All schedules shall be in accordance with the Contract Time requirements of the Contract. Neither the District's review of the Construction Schedule, nor the District's statement of "Accepted As Submitted", will relieve the Contractor from responsibility for complying with Contract Time requirements, adhering to those sequences of work indicated in or required by the Contract Documents, or from completing any omitted Work within the Contract Time.

H. Acceptance by the District of the Baseline Schedule and Schedule Updates shall be a CONDITION PRECEDENT to the processing of Applications for Payment.

2.4 COST LOADED BASELINE SCHEDULE UPDATES

A. The Contractor shall submit their Initial Cost Loaded Construction Schedule to the District for review and acceptance not more than 30 calendar days after Contract Execution and prior to NTP. It will be reviewed for conformance to the requirements of the Contract Documents. If the schedule is not accepted and requires revisions, the Contractor will revise this Construction Schedule and resubmit it for review and acceptance within ten (10) calendar days of the rejection notice

B. Schedule Naming Structure: Once the Construction Schedule is accepted, it becomes the Contractor's Baseline Schedule Update 0 and is the basis for monitoring the Contractor's progress against milestones, Contract Time, and the evaluation and reconciliation of extensions in Contract Time. From then on, all activities, original durations, and their relationships may not be changed, added, or deleted without the prior approval of the District. Contract Time (including all contracted milestones) cannot be changed without a formal Change Order approved by the District.

Project Name - R0A-U0	1st Submission of Baseline Schedule.
Project Name - R0B-U0	2nd Submission of Baseline Schedule, which is accepted and designated as the Baseline Schedule.
Project Name - R0B-U1A	1st Submission of Update 1.
Project Name - R0B-U1B	2nd submission of Update 1, which is accepted.

C. Schedule updates shall accurately reflect all approved Change Orders including the exact duration and cost. They will be reviewed for conformance to the requirements of the Contract Documents as amended by Change Orders.

D. Schedule Activity ID s must not be changed or deleted.

2.5 CHANGE ORDERS

A. Upon execution of a Change Order, a new Activity Code and WBS for that Change Order must be created. All activities associated with that Change Order will be assigned to the new WBS and the new Activity Code will be assigned to those activities. Both the Application for Payment and the layout report, Pay App - Rollup, will have a line item indicating the new Change Order.

B. If a particular Scope of Work (SOW) has been deleted in a Change Order, the original activities associated with that SOW must remain. A new set of identical activities will be created under a new WBS and a new activity code (e.g. CO#1) with equivalent but negative value dollars.

C. If a new activity is added because of an executed Change Order both the Activity ID and the Activity Name must reflect the associated Change Order. (e.g. CO#01-A, Additional Silt Fence ***CO#01 Item A).

D. An executed Change Order may require multiple activities broken down in sufficient detail to convey the new SOW.

E. All activities related with change orders must have predecessors and successors and must tie back to the original scope's activity network logic.

F. Executed change orders can be reflected in the next schedule update.

PART 3 EXECUTION

3.1 MONTHLY UPDATE CYCLE

Schedule Update Submittals Are Due Every Month And Are To Be Attached To Each Application For Payment. The Schedule Update Total Actual Cost To Date Must Match The Application For Payment Work Completed And Stored To Date Amount. The District Will Advise The Contractor Of Any Change To The Due Dates. Additional updates may be required, continuous monitoring of production and progress may dictate schedule adjustments as directed by the District.

See Paragraph COST LOADED CONSTRUCTION SCHEDULE SUBMITTAL, Item D for the Draft Schedule Reports that are to be provided prior to the formal submission of the Schedule Update and application for payment.

The Contractor should include a two-week look ahead report from Primavera for each bi-weekly construction meeting. District will provide a primavera layout for this report. The report needs to be produced from the layout.

3.2 CHANGES

If the monthly update is behind schedule, the Contractor shall include details in the update narrative that identify the cause of the delay, at-fault parties and any actions required by the Contractor to recover the schedule and complete the project within Contract Time. The Contractor shall promptly undertake appropriate action, at no additional cost to the District, to recover the schedule whenever the current schedule shows that the Contractor did not or cannot achieve a milestone established in the Contract.

Appropriate recovery actions include, but are not limited to, assignment of additional labor, subcontractors, equipment, shift or overtime work,

expediting of submittal or deliveries, or any combination of thereof. Overlapping of activities or sequencing changes shall be deemed appropriate only if properly substantiated in the submittal. Recovery plans that are accepted by the District that add, delete, or change activities, activity relationships, durations or constraints and cost or resource loading must be submitted in the next schedule update.

The Contractor's refusal, failure or neglect to take appropriate recovery action or to submit a written recovery plan shall constitute reasonable evidence that the Contractor is not prosecuting the Work, or separable part, with the diligence that will ensure its completion within the Contract time. Such lack of action shall constitute sufficient basis for the District to recommend the withholding of some or all of any payment due and/or shall be considered grounds for termination of the contract by the District in accordance with article 15 of the General Terms & Conditions.

-- End of Section --

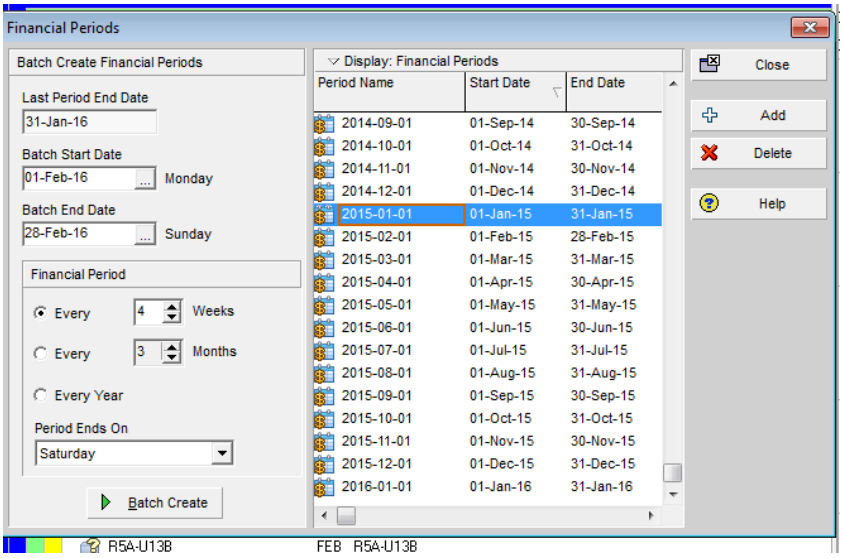
SECTION 01 32 16

APPENDIX A

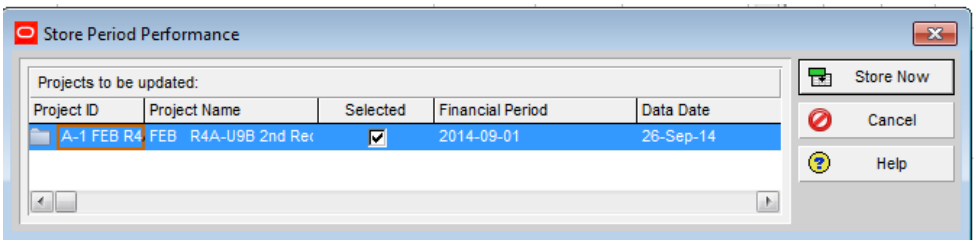
Appendix A: Monthly Updates After Pay App #1

After Pay App #1, the following steps need to be followed in order to let "This Period" show current month $ instead of up-to-date $. If these steps are not followed, "This Period" may not match your monthly invoice $ and may result the rejection of your pay app.

Step 1. Check Financial Period Settings. Go to Admin>Financial Period and make sure there are monthly periods that cover the duration of the project. Each period should start on the 1st day of the month and end on the last day of the month.



Step 2. Save Financial Period Performance. Make a copy of the P6 file of Pay App 1 and rename it "Pay App 2". Open the Pay App 2 file and before you do anything, go to Tools>Store Period Performance and choose the Financial Period that is the same month of the data date. Click "Store Now". This will clear the "This Period" column and get your file ready for updates.



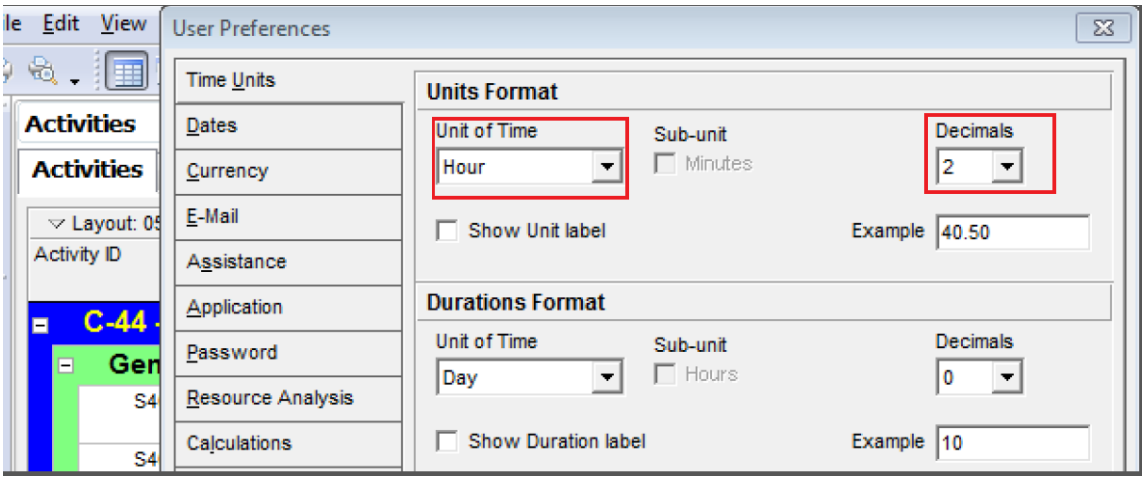
Step 3. Input updates. Type in your updates for Pay App #2, advance the data date, and generate reports. DO NOT CLICK "STORE NOW" until you are ready to make a copy of Pay App 2 to create Pay App 3. Repeat steps 2 & 3 for future updates.

SECTION 01 32 16

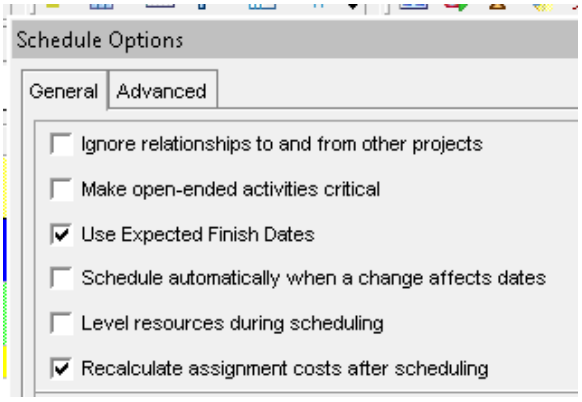
APPENDIX B

APPENDIX B: Matching your P6 settings with SFWMD P6 settings

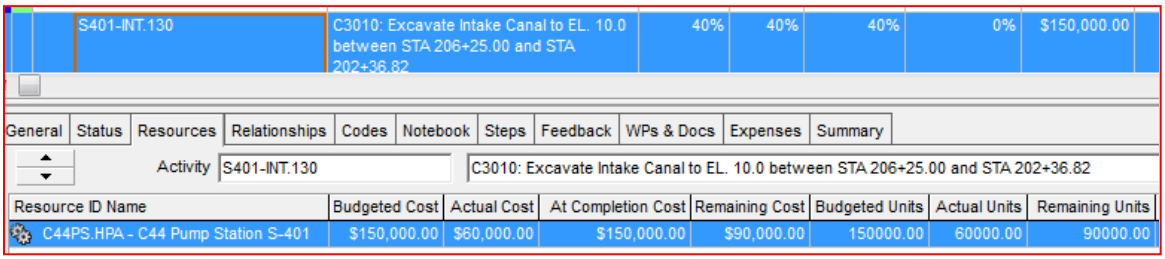
1. Go to the menu bar, click "Edit", then "User Preferences". In the pop-up window, choose "Unit of Time". Make sure the unit of time is "Hour". See the screenshot below.



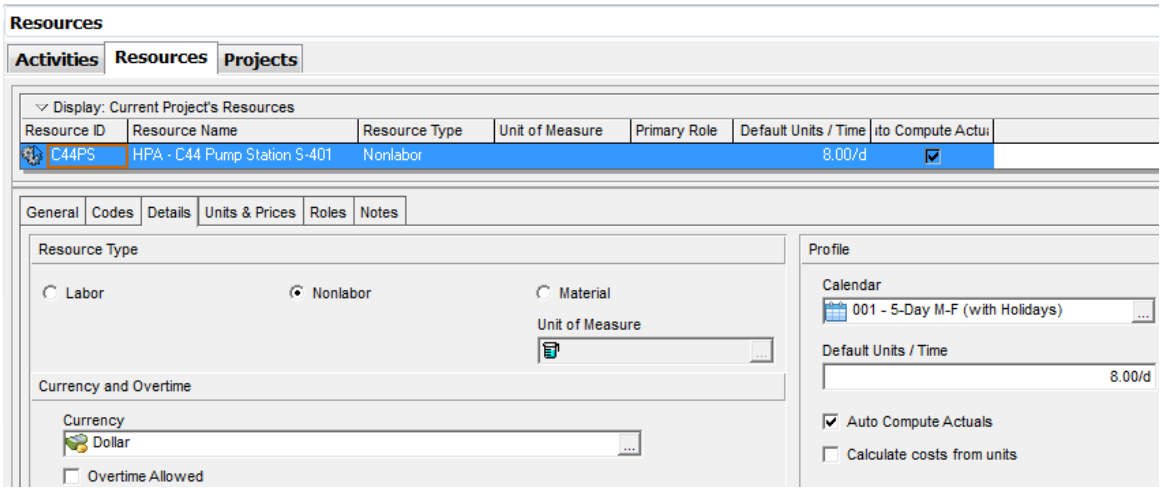
2. Click "F9", choose "Schedule Options" and make sure your options match the selections shown below.

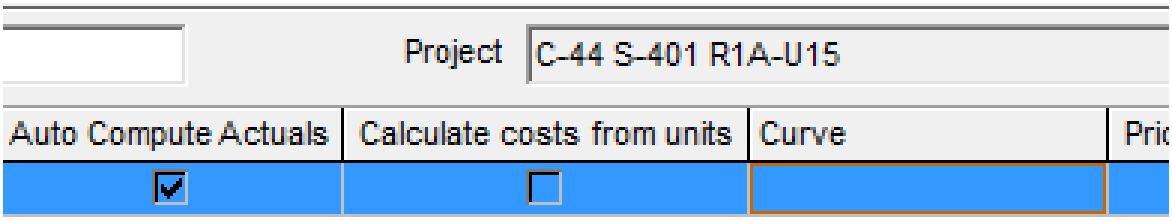


3. Go through each activity with $ (you can do this in the cash flow diagram layout) and make sure the "Budgeted Cost", "At Completion Cost" and "Budgeted Units" have the same number. See the screenshot below. You need to click "F9" or "schedule" the project to see if the number you entered will stay or not. If the number you entered disappears after clicking "F9", please follow step 4.



4. Go to the “Resources” tab and uncheck “Calculate costs from units”. Make sure the “Curve” field is empty. See the screenshot below.





SECTION 01 32 34

CONSTRUCTION VIDEO AND PHOTOGRAPHS

PART 1 GENERAL

1.1 SCOPE

A. Summary of Work: This Section specifies administrative and procedural requirements for construction photographs.

B. Related Work Specified Elsewhere:

1. Section 01 33 00 - Submittals Procedures

2. Section 01 45 08 - GIS Data Requirements - Quality Control and Quality Assurance Data.

1.2 SUBMITTALS

SD-01 Preconstruction Submittals

Video

Photographs

1.3 QUALITY REQUIREMENTS

Photographs and video shall be clear and sufficient to show significant detail, not blurred, or taken in shadow, nor too distant. The District may require that the photographs or video be retaken should the quality be insufficient. Costs for such re-takes are the Contractors responsibility at no extra cost to the District.

Drone photography shall be taken by FAA licensed pilot for Unmanned Aircraft Systems (UAS) and shall be coordinated with the District field staff.

PART 2 PRODUCTS

2.1 PHOTOGRAPHIC REQUIREMENTS

Specified in PART 3, this Section.

PART 3 EXECUTION

3.1 COLOR AUDIO VIDEO TAPING OF CONSTRUCTION AREA

A. Prior to beginning any construction, the Contractor shall prepare a color audio video recording of all the areas to be affected by construction.

B. The audio video recording shall be done within the two-week period prior to placement of materials or equipment on the construction area and furnished one week prior to the start of construction. The audio video recording shall be done with a District Representative present.

C. To preclude the possibility of tampering or editing in any manner, all video recordings shall, by electronic means, generate and display continuously and simultaneously on the screen digital information to include the date and time of recording. The time information shall consist of hours, minutes and seconds, separated by colons (i.e., 10:35:18).

D. The audio video recording shall consist of one video and one audio track which shall be recorded simultaneously. All tracks shall consist of original live recordings and thus shall not be copies of other audio and video recordings. The audio track shall contain the narrative commentary.

E. The rate of speed in the general direction of travel of the conveyance used during recording shall be controlled to provide a usable image. Panning rates and zoom-in, zoom-out rates shall be controlled sufficiently such that playback will produce clarity of the object viewed.

F. All recording shall be done during times of good visibility. No recording shall be done during periods of visible precipitation, unless otherwise authorized by the District.

G. The District shall have the authority to designate what areas may be omitted or added for audio video coverage.

H. When conventional wheeled vehicles are used, the distance from the camera lens to the ground shall not be less than eight feet to insure perspective.

I. In some instances, audio video coverage will be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance by the District.

J. Areas covered shall include offsite roadways that will be subjected to heavy usage such as for haul routes or delivery of heavy components or equipment.

3.2 PROGRESS SITE PHOTOGRAPHS

A. Submit photographs electronically as specified in Section 01 33 00 and in PART 3 of this Section.

B. The Contractor shall be responsible for photographs of the Site to show the existing and general progress of the Site Work. The Site Work referenced in paragraph 3.2.B., items 1 through 4, is defined as work that includes but is not limited to work associated with a Definable Feature of Work (DFOW) and work that begins in a location where construction has not begun. The District will advise as to which views are of interest. Photographs shall be taken of the following areas and at the following times.

1. Existing Site conditions before Site Work is started. Number of views shall be adequate to cover the Site.

2. Progress of the Site Work from beginning and throughout construction. Progress photos must be provided with each pay request. Pay requests will not be considered acceptable until photographs are provided. Number of views shall be adequate to cover the Site.

3. Finished Project after completion of Site Work. Number of views shall be adequate to show the finished Work.

4. If Project is not completed during the Contract Time, or authorized extensions, photographs shall continue to be taken at no increase in Contract Price.

C. Photographs shall be taken with twelve (12) megapixel minimum resolution.

D. Monthly progress photographs shall be taken from an aerial perspective on all Projects, except for indoor Projects.

E. Provide a CD containing all photographic images in JPG format. Label CD with the name and Contract number of Project, name of Contractor, description of view, and date photograph was taken.

F. Deliver CD to District with pay applications.

3.3 ADDITIONAL PHOTOGRAPHS/VIDEOS

A. From time to time the District may issue requests for additional photographs and videos, in addition to periodic photographs specified. Additional photographs shall be included in the Contract Price.

1. The District will give the photographer three (3) days' advance notice, where feasible.

2. In emergency situations, the photographer shall take additional photographs within 24 hours of the District's request.

3. Circumstances that could require additional photographs include, but are not limited to:

a. Substantial Completion of a major phase or component of Work.

b. Districts request for special publicity photographs.

c. Special events planned at Project Site.

d. Immediate follow-up when on-site events result in construction damage or losses.

e. Photographs to be taken at fabrication locations away from Project Site.

f. Extra record photographs at time of final acceptance.

-- End of Section --

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SCOPE

This Section includes definitions, descriptions, transmittal, and review of "Compliance" and "Miscellaneous" Submittals.

1.2 GENERAL INFORMATION

1.2.1 Definitions

1. Compliance Submittals include Shop Drawings, product data, and samples which are prepared by the Contractor, Subcontractor, Manufacturer, or Supplier and submitted by the Contractor to the District as a basis for approval of the use of Equipment and Materials proposed for incorporation in the Work or needed to describe installation, operation, maintenance, or technical properties.

    a. Shop Drawings include custom-prepared data of all types including drawings, diagrams, performance curves, material schedules, templates, instructions, and similar information not in standard printed form applicable to other projects.

    b. Product data includes standard printed information on materials, products and systems not custom-prepared for this Project, other than the designation of selections from available choices.

    c. Samples include both fabricated and unfabricated physical examples of materials, products, and Work; both as complete units and as smaller portions of units of Work; either for limited visual inspection or (where indicated) for more detailed testing and analysis. Mock-ups are a special form of samples which are too large to be handled in the specified manner for transmittal of sample Submittals.

2. Miscellaneous Submittals are those technical reports, administrative Submittals, certificates, and warranties not defined as Shop Drawings, product data, or samples.

    a. Request for Information, Change Orders, Work Change Directives, Field Orders, as defined in the Section 00700 GENERAL TERMS AND CONDITIONS.

    b. Application for Payment as per Section 01 32 16 COST LOAD CONSTRUCTION SCHEDULES.

    c. Technical reports include laboratory reports, tests, technical procedures, technical records, Contractor's design analysis and Contractor's survey field notes for construction staking, before cross-sections and after cross-sections, and similar type Submittals.

d. Administrative Submittals are those nontechnical Submittals required by the Contract Documents or deemed necessary for administrative records. These Submittals include maintenance agreements, workmanship bonds, Project photographs, physical work records, statements of applicability, copies of industry standards, as-constructed data, security/protection/safety data, and similar type Submittals.

e. Certificates and warranties are those Submittals on Equipment and Materials where a written certificate or guarantee from the Manufacturer or Supplier is called for in the Specifications.

f. Reports as required by Contract describing Contractor's means and methods for items such as dewatering, earth and water retaining, erosion/turbidity control, safety plans, and similar type Submittals.

3. Refer to ARTICLE 1.3 and 1.4 of this Part for detailed lists of documents and specific requirements.

1.2.2 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections, referenced FDOT Standard Specifications, and on the drawings. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to start of construction (Work) or issuance of contract notice to proceed, or commencing Work on site, or the start of the next major phase of the construction on a multi-phase contract, includes schedules, tabular list of data, or tabular list including location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the Work.

Certificates of Insurance

Surety Bonds

List of proposed Subcontractors

List of proposed products

Construction baseline schedule

FT Contractor Scheduler ~~Revisions~~Resume

Network Analysis Schedule (NAS)

Submittal register

Schedule of prices or Earned Value Report

Health and safety plan

Construction Sequence

Quality Control (QC) plan

Environmental protection plan

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the Work.

Diagrams and instructions from a Manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials, systems or equipment for some portion of the Work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Fabricated or unfabricated physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the Work can be judged.

Color samples from the Manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring Work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the Work.

SD-05 Design Data

Design calculations, mix designs, analyses or other data pertaining to a part of Work.

Design submittals, design substantiation submittals and extensions of design submittals.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. Unless specified in another section, testing must have been within three years of date of contract award for the project.

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the Work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of Work during or after installation.

Investigation reports.

Daily logs and checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the Manufacturer's letterhead and signed by responsible officials of Manufacturer of product, system or material attesting that the product, system, or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a Manufacturer, supplier, installer or Subcontractor through Contractor. The document purpose is to further promote the orderly progression of a portion of the Work by documenting procedures, acceptability of methods, or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and (MSDS) concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by Manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the Work, during or after installation, to confirm compliance with Manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and state the test results; and indicate whether the material, product, or system has passed or failed the test.

Factory test reports.

SD-10 Operation and Maintenance Data

Data that is furnished by the Manufacturer, or the system provider, to the equipment operating and maintenance personnel, including Manufacturer's help and product line documentation necessary to maintain and install equipment. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

This data is intended to be incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Submittals required for Guiding Principle Validation (GPV) or Third Party Certification (TPC).

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.2.3 Quality Requirements

1. Submittals such as Shop Drawings and product data shall be of the quality for legibility and reproduction purposes. Every line, character, and letter shall be clearly legible. Drawings such as reproducibles shall be useable for further reproduction to yield legible hard copy.

2. Documents submitted to the District that do not conform to these requirements shall be subject to rejection by the District, and upon request by District, Contractor shall resubmit conforming documents. If conforming Submittals cannot be obtained, such documents shall be retraced, redrawn, or photographically restored as may be necessary to meet such requirements. Contractor's (or his Subcontractor's) failure to initially satisfy the legibility quality requirements will not relieve Contractor (or his Subcontractors) from meeting the required schedule for Submittal of Shop Drawings and product data.

1.2.4 Language and Dimensions

1. All words and dimensional units shall be in the English language.

2. Metric dimensional unit equivalents may be stated in addition to the English units.

1.2.5 Submittal Completeness

1. Submittals shall be complete with respect to dimensions, design criteria, materials of construction, and other information specified to enable the District to review the information effectively.

2. Where standard drawings are furnished which cover a number of variations of the general class of equipment, each such drawing shall be individually annotated to describe exactly which parts of the drawing apply to the equipment being furnished. Use hatch marks to indicate variations that do not apply to the Submittal. The use of "highlighting" is not an acceptable means of annotating Submittals. Such annotation shall also include proper identification of the Submittal permanently attached to the drawing.

3. Reproduction or copies of Drawings or portions thereof will not be accepted as complete fabrication or erection drawings. The Contractor may use a reproduction of the District-prepared Drawings for erection

drawings such as to indicate information on erection or to identify detail drawing references. Where the Drawings are revised to show this additional Contractor information, the District's title block shall be replaced with a Contractor's title block and the District's professional seal shall be removed from the Drawing. The Contractor shall revise these erection drawings for subsequent District revisions to the Drawings.

4. The layout and installation drawings also need to clearly coordinate, at a minimum, the below listed items, to demonstrate that all potential conflicts have been avoided.

   a. Conduit Layout

   b. Bollards

   c. Sleeves

   d. Column base plates

   e. Pump bases and anchor bolts

   f. Motor cooling unit base

   g. Major electrical connections

   h. Electrical equipment cabinets

   i. Pipe support inserts

   j. Duct opening

   k. Stair opening

   l. Hand rail anchors

1.3 COMPLIANCE SUBMITTALS

A. Items shall include, but not be limited to, the following:

1. Manufacturer's specifications

2. Catalogs, or parts thereof, of manufactured equipment

3. Shop fabrication and erection drawings

4. General outline drawings of equipment showing overall dimensions, location of major components, weights, and location of required building openings and floor plates

5. Detailed equipment installation drawings, showing foundation details, anchor bolt sizes and locations, baseplate sizes, location of District's connections, and all clearances required for erection, operation, and disassembly for maintenance

6. Schematic diagrams for electrical items, showing external connections, terminal block numbers, internal wiring diagrams, and one-line diagrams

7. Bills of material and spare parts list

8. Instruction books and operating manuals

9. Material lists or schedules

10. Performance tests on equipment by Manufacturers

11. Concrete mix design information

12. Samples and color charts

13. All drawings, calculations, catalogs or parts thereof, Manufacturer's specifications and data, samples, instructions, and other information specified or necessary:

    a. For District to determine that the Equipment and Materials conform with the design concept and comply with the intent of the Contract Documents.

    b. For the proper erection, installation, operation and maintenance of the Equipment and Materials which the District will review for general content but not for substance.

    c. For the District to determine what supports, anchorages, structural details, connections, and services are required for the Equipment and Materials, and the effects on contiguous or related structures and Equipment and Materials.

B. Compliance Submittal Action Stamps:

1. The District's review action stamp or designation, appropriately completed, will appear on all Compliance Submittals of Contractor when returned by the District. Review status designations listed on District's action stamp are defined as follows:

    a. "ACCEPTED AS SUBMITTED": Signifies Equipment or Material represented by the Submittal conforms with the design concept and complies with the intent of the Contract Documents and is acceptable for incorporation in the Work. Contractor is to proceed with fabrication or procurement of the items and with related work. These submittals will be marked conformed upon final acceptance of the submittal.

    b. "ACCEPTED AS NOTED": Signifies Equipment and Material represented by the Submittal conforms with the design concept and complies with the intent of the Contract Documents and is acceptable for incorporation in the Work subject to the condition that as constructed it shall be in accordance with all notations and/or corrections indicated. Contractor is to proceed with fabrication or procurement of the items and with related WORK in accordance with District's notations, but shall issue a corrected final submittal that is marked conformed by the District.

    c. "RETURNED FOR REVISION": Means that deviations from the requirements of the Contract Documents exist in the Submittal.

Contractor is to resubmit revised information responsive to District's annotations on the returned Submittal or written in the letter of transmittal. Fabrication or procurement of items represented by the Submittal and related work is not to proceed until the Submittal is approved.

d. "NOT ACCEPTABLE (SUBMIT ANEW)": Signifies Equipment and Material represented by the Submittal does not conform with the design concept or comply with the intent of the Contract Documents and is disapproved for use in the Work. Contractor is to resubmit Compliance Submittals responsive to the Contract Documents.

e. "PRELIMINARY SUBMITTAL": Signifies Submittals of such preliminary nature that a determination of conformance with the design concept or compliance with the intent of the Contract Documents must be deferred until additional information is furnished. Contractor is to submit such additional information to permit layout and related activities to proceed.

f. "FOR REFERENCE ONLY": Signifies Submittals which are for supplementary information only; pamphlets, general information sheets, catalog cuts, standard sheets, bulletins and similar data, all of which are useful to the District in design, operation, or maintenance, but which by their nature do not constitute a basis for determining that items represented thereby conform with the design concept or comply with the intent of the Contract Documents. The District reviews such Submittals for general content but not for substance.

C. Schedule and Log of Compliance Submittals:

1. Prepare for the District, a schedule and log for submission of all Compliance Submittals specified or necessary for District's review of the use of Equipment and Materials proposed for incorporation in the Work or needed for proper installation, operation or maintenance. Submit the schedule and log with the procurement schedule and work progress schedule. Schedule submission of all Compliance Submittals to permit review, fabrication, and delivery in time so as to not cause a delay in the Work of Contractor or his Subcontractors or any other contractors as described herein.

2. In establishing schedule for Compliance Submittals, allow fifteen (15) working days in District's office for reviewing original Submittals and ten (10) working days for reviewing resubmittals.

3. The schedule shall indicate the anticipated dates of original submission, and shall be prepared in accordance with Section 01 32 16 COST LOADED CONSTRUCTION SCHEDULES.

4. Schedule all Compliance Submittals required prior to fabrication or manufacture for submission within 60 days of the Notice to Proceed. Schedule Compliance Submittals pertaining to storage, installation and operation at the Site for District's acceptance prior to delivery of the Equipment and Materials.

5. Resubmit Compliance Submittals the number of times required for District's "ACCEPTED AS SUBMITTED." However, any need for resubmittals

in excess of the number set forth in the accepted schedule, or any other delay in obtaining acceptance of Submittals, will not be grounds for extension of the Contract Time, provided the District completes its reviews within the times stated above.

D. Transmittal of Compliance Submittals:

1. All Compliance Submittals of Equipment and Materials furnished by Subcontractors, Manufacturers, and Suppliers shall be submitted to the District by Contractor in electronic PDF format as indicated below.

2. After checking and verifying all field measurements, transmit all Compliance Submittals to the District for acceptance as follows:

   a. Identify each Compliance Submittal by Submittal Number, Project name and number, Contract title and number, and the Specification Section and article number marked thereon or in the letter of transmittal. Unidentifiable Submittals will be returned for proper identification.

   b. Check and stamp Compliance Submittals of Subcontractors, Suppliers, and Manufacturers with Contractor's approval prior to transmitting them to the District. Contractor's stamp of approval shall constitute a representation to the District that Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, or he assumes full responsibility for doing so, and that he has coordinated each Compliance Submittal with the requirements of the Work and the Contract Documents.

   c. At the time of each submission, call to the attention of District in the letter of transmittal any deviations from the requirements of the Contract Documents.

   d. Provide all Submittals in electronic format, compatible with Adobe Professional, Version 8 (or higher), and submitted as a single file, using PDF bookmarks and/or chapters to identify divisions within the Submittal package.

   e. Make all modifications noted or indicated by District and return revised copies, or samples until accepted. Revised Submittals must be complete and conformed, including all pages/sheets with the required revisions and any additional or replacement pages/sheets. Direct specific attention in writing, or on revised Submittals, to changes other than the modifications called for by the District on previous Submittals. Subsequent review cycles for returned or revised Submittals shall replicate the process described in items d. through e. above.

   f. If the District s review action is ACCEPTED AS NOTED , the Submittal will be stamped as such, and electronically transmitted back to the Contractor. Upon receipt of this notification from the District, The Contractor shall resubmit one (1) conformed electronic copy in PDF file format to the District for final distribution which shall be marked "CONFORMED FOR CONSTRUCTION". If the Submittal is required to be signed and sealed by a Professional Engineer registered in the State of Florida, it shall

be signed and sealed at this time. Submittal will not be considered final until all copies have been received by the District. Submittal will be stamped Accepted Submittals transmitted for final distribution will not be further reviewed and are not to be revised. If errors are discovered during manufacture or fabrication, correct the Submittal and resubmit for review.

g. Following completion of the Work and prior to final payment, furnish those drawings necessary to indicate "AS CONSTRUCTED" conditions, including field modifications. Furnish additional copies for insertion in equipment instruction books as required. All such copies shall be clearly marked "AS BUILT DRAWING."

h. Work requiring a Compliance Submittal shall not be commenced or shipped until the Submittal has been stamped "ACCEPTED AS SUBMITTED" and "CONFORMED FOR CONSTRUCTION" by the District.

i. Keep a legible copy or sample of each Compliance Submittal at the Site.

3. Copies of the equipment Contractor's erection drawings and other Compliance Submittals required for the installation of equipment furnished by others under separate Contract for installation under this Contract will be transmitted to Contractor by the District in the final distribution of such Submittals.

4. Information to Manufacturer's District Office: Manufacturers and Suppliers of Equipment and Materials shall furnish copies of all agreements, drawings, specifications, operating instructions, correspondence, and other matters associated with this Contract to the Manufacturer's district office servicing the District. Insofar as practicable, all business matters relative to Equipment and Materials included in this Contract shall be conducted through such local district offices.

E. District's Review:

1. The District will review and return Compliance Submittals to Contractor with appropriate notations. Instruction books and similar Submittals will be reviewed by the District for general content but not for substance.

2. The District's acceptance of Compliance Submittals will not relieve Contractor from his responsibility as stated in the Section 00700 GENERAL TERMS AND CONDITIONS.

F. Instruction Books / Operation & Maintenance Manuals:

1. Equipment instruction books and manuals shall be prepared by the Manufacturer and shall include the following:

a. Index and tabs

b. Instructions for installation, start-up, operation, inspection, maintenance, parts lists and recommended spare parts, and data sheets showing model numbers

c. Applicable drawings

d. Name of contact person, phone number, and address of the nearest authorized service facility

e. Attached to the above shall be a notice of the exact warranty effective dates, beginning and ending.

f. All additional data specified

2. Information listed above shall be submitted electronically in a PDF file format.

a. Instruction Books/Operation & Maintenance Manuals shall contain the following:

i. Equipment name

ii. Manufacturer's name

iii. Project name

iv. Contract number

v. Reference to applicable Drawing No. & Technical Specifications Section

b. Format: The overall manual should be constructed around certain types of structures or equipment in the Project, and not merely assembled by technical specification section, so that all pertinent data needed by personnel to operate or maintain the equipment or structure is in one (1) manual (as far as is practical). The Contractor shall coordinate with the District as to how the manuals are to be assembled (Bookmarked).

G. Samples:

1. Office samples shall be of sufficient size and quantity to clearly illustrate the following:

a. Functional characteristics of the product, with integrally related parts and attachment devices

b. Full range of color, texture, and pattern

1.4 SUBMITTALS REQUIRED BY FDOT STANDARD SPECIFICATIONS REFERENCED IN THIS CONTRACT

a. Provide verification that the concrete has been produced in accordance with an FDOT Approved Design Mix in accordance with FDOT Specification Section 346-4.

b. Submit sufficient statistical data to establish production quality and uniformity of the subject Aggregates in accordance with FDOT Specification Section 346-2.4.

c. Submit statistical evidence supporting successful laboratory and field trial mixes with proposed Admixtures in accordance with FDOT Specification Section 346-2.5.

d. Ensure that an Electronic Delivery Ticket is furnished with each batch of Concrete before unloading at the placement site in accordance with FDOT Specification Section 346-6.3.

e. Provide Concrete Cylinders for testing in accordance with FDOT Specification Section 346-9.

f. Prior to using Stay-In-Place Metal Forms, submit detailed plans and calculations in accordance with FDOT Specification Section 400-5.7.

g. Submit a written certification for the Stay-In-Place Metal Forms in accordance with FDOT Specification Section 400-5.7.3.3.

h. If Post-Installed Anchors are used, provide results of Field Testing of Post-Installed Anchors in accordance with FDOT Specification Section 416-6.

i. Submit a Quality Control Plan in accordance with FDOT Specification Section 450-2.

j. Submit material testing requirements for Reinforcing, Welded Wire Reinforcement and Prestressing Steel for Pretensioning in accordance with FDOT Specification Section 450-4.

k. Submit shop drawings of all Pretensioned Precast Concrete products including Beams and Piles in accordance with FDOT Specification Section 450-5.

l. Supply pile driving Hammer criteria in accordance with FDOT Specification Section 455-5.3.

m. Submit a completed Pile Driving Installation Plan Form in accordance with FDOT Specification Section 455-10.

n. Upon completion of test pile program, submit results of the test pile with PDA, and recommendations for driving criteria and production pile lengths, in signed and sealed report in accordance with FDOT Specification Section 455-5.12.2.

o. Upon completion of pile driving operations, submit pile driving logs and Foundation Certification Packages for each bent.

p. Submit a certification letter from the manufacturer confirming that all guardrail materials meet the requirements in accordance with FDOT Specification Section 536-4.

q. Manufacturers of concrete Admixtures shall submit certified test results in accordance with FDOT Specification Section 924-2.2.

r. Provide manufacturer's certified mill analysis for Reinforcing Steel in accordance with FDOT Specification Section 931-1.1.5.

s. Provide manufacturer's certified mill analysis for Wire Reinforcement in accordance with FDOT Specification Section 931-1.2.3.

t. Provide certification for Bearing Pads in accordance with FDOT Specification Section 932-2.5.

u. Provide manufacturer's certified mill analysis for Prestressing Strands in accordance with FDOT Specification Section 933-5.

v. Manufacturers seeking evaluation/approval of their Approach Terminal Assemblies for guardrail must comply with the requirements of the FDOT Specification Section 967-3.12.

1.5 MISCELLANEOUS SUBMITTALS

A. Miscellaneous Submittals are comprised of Daily Reports, technical reports, administrative Submittals, and warranties which relate to the Work, but do not require District's approval prior to proceeding with the Work. Miscellaneous Submittals may include but are not limited to (at District's discretion):

1. Daily Reports: Contractor shall be responsible for entering Daily Reports in the Construction Document Management tool (eBuilder) for review and acceptance by the District. Daily Reports shall be entered within twenty-four hours of the date of the Daily Report. Daily Reports shall include, but need not be limited to (a) Date, (b) Weather conditions and any impact weather conditions caused to CONTRACTOR's ability to work, (c) Jobsite physical conditions, (d) Available or not-available resources, (e) Work performed and status, (f) Disruptions and delays, (g) Inventory changes including major material delivered or delayed (h) Potential risks and concerns of future delays, (i) Incidents that occurred, (j) Notes or comments of other relevant information related to the Project.

2. Welder qualification tests

3. Welding procedure qualification tests

4. X-ray and radiographic reports

5. Field test reports

6. Concrete cylinder test reports

7. Certification on Materials:

   a. Steel mill tests

   b. Paint lab tests

   c. Cement tests

8. Soil test reports

9. Temperature records

10. Shipping or packing lists

11. Job progress schedules

12. Equipment and Material delivery schedules

13. Progress photographs

14. Warranties

15. Fire protection and hydraulic calculations

16. Surveying field notes, preliminary and final Surveyor s Reports

17. Pump tests

18. Traffic control plan

19. Technical Reports

20. Written Certificates and Warranties

21. Others not listed in Compliance Submittals

B. Transmittal of Miscellaneous Submittals:

1. All Miscellaneous Submittals furnished by Subcontractors, Manufacturers, and Suppliers shall be submitted to District by Contractor in an electronic PDF file format, unless otherwise specified.

   a. Identify each miscellaneous Submittal by Project name and number, Contract title and number, and the specification section and article number marked thereon or in the letter of transmittal. Unidentifiable Submittals will be returned for proper identification.

   b. Check and stamp Miscellaneous Submittals of Subcontractors, Suppliers, and Manufacturers with Contractor's approval prior to transmitting them to the District. Contractor's stamp of approval shall constitute a representation to the District that Contractor has either determined and verified all information, or he assumes full responsibility for doing so, and that he has coordinated Miscellaneous Submittal with the requirements of the Work and the Contract Documents.

   c. At the time of each submission, call to the attention of the District in the letter of transmittal any deviations from the requirements of the Contract Documents.

   d. Make all modifications noted or indicated by District and return revised copies until accepted. Direct specific attention in writing, or on revised Submittals, to changes other than the modifications called for by the District on previous Submittals. After Submittals have been accepted, submit copies thereof for final distribution.

2. Test Reports:

a. Responsibilities of Contractor and District regarding tests and inspections of Equipment and Materials and completed Work are set forth elsewhere in these Contract Documents.

b. The party specified responsible for testing or inspection shall in each case, unless otherwise specified, arrange for the testing laboratory or reporting agency to distribute test reports in an electronic PDF file format to the following parties, unless otherwise specified:

i. District

ii. Resident Project Representative

iii. Contractor

iv. Manufacturer or supplier

C. District's Review:

1. District will review Miscellaneous Submittals for indications of Work or material deficiencies within fifteen (15) working days in District's office for original Submittals and ten (10) working days for reviewing resubmittals.

2. District will respond to Contractor on those Miscellaneous Submittals which indicate Work or material deficiency.

1.6 WEB BASED CONSTRUCTION DOCUMENT MANAGEMENT

1. The District, Engineers of Record, Construction Management Firms, and Contractor shall use the internet Web Based Project Construction Document Management tool (the Construction Document Management tool), e-Builder® ASP software, and protocols included in that software during this Project for submission of all documents specified in this Section and elsewhere in the Contract Documents. The use of Construction Document Management as herein described does not replace or change any contractual responsibilities of the Contractor.

2. An intent of using the Construction Document Management tool (i.e. e-Builder®) is to facilitate the Project work efforts by promoting timely communications and responses. This will also reduce the number of paper documents while providing improved record keeping by creation of electronic document files.

3. The Construction Document Management tool is available through e-Builder® in the form and manner required by the District.

4. The Construction Document Management tool is on-line and fully functional. User registration, electronic and computer equipment, and Internet connections are the responsibility of District, Engineer of Record and Contractor.

3. Contractor's Responsibility:

a. Contractor shall be responsible for the validity of information it places in Construction Document Management tool and for the abilities of its personnel.

b. Entry of information exchanged and transferred between the Contractor and its Subcontractors and suppliers on Construction Document Management tool shall be the responsibility of the Contractor.

c. Users shall be knowledgeable in the use of computers, including Internet Browsers, email programs, and Portable Document Format (PDF) software.

d. Contractor shall utilize the existing forms in Construction Document Management tool (i.e. e-Builder®) to the maximum extent possible. If a form does not exist in Construction Document Management tool, the Contractor must include a form of its own (subject to review and acceptance by District) or provided by District as an attachment to a submittal.

e. PDF documents shall be created through electronic conversion to be searchable, rather than optically scanned, whenever possible. Optically scanned documents shall be converted to searchable documents using Optical Character Recognition. Contractor is responsible for the training of its personnel in the use of the Construction Document Management tool (outside training that is provided by District) and the other programs indicated above as needed.

f. User Access Limitations:

i. Provide a list of Contractor's key Construction Document Management tool personnel for the District's acceptance. The District reserves the right to perform a security check on all potential users, and to rescind user authorization at any time. The Contractor may request to add additional Contractor's key Construction Document Management tool personnel, subject to the District's acceptance, as the Project progresses.

ii. The District will grant initial access to the Construction Document Management tool by creating user profiles to accepted Contractor personnel.

g. Authorized Users: The Contractor shall:

i. Request the User Application form from the District Project Manager.

ii. Submit completed User Application Form to the District's Construction Document Management tool (i.e. e-Builder®) Administrator.

iii. Requested users that are authorized by the District's Administrator will be notified and provided a username and password. The Contractor may request to add additional Contractor's key Construction Document Management tool personnel, subject to the District's acceptance, as the Project progresses.

iv. Authorized users shall be responsible for the proper use of their passwords and access to data as agents of the company in which they are employed.

v. Sharing usernames and passwords are strictly prohibited.

h. Training: Group training sessions will be scheduled by the District on as needed basis as determined by the District. Users are required to attend the scheduled training sessions they are assigned to.

i. Support: e-Builder® will provide on-going support through online help files. The second level of help will be to contact the District Construction Document Management tool Administrator with the help of District Project Manager.

j. Copyrights and Ownership: Nothing in this Specification or the subsequent communications supersedes the Contractor's obligations and rights for copyright or document ownership as established by the Contract Documents. The use of CAD files, processes or design information distributed in this system is intended only for the Project specified herein.

k. Communications functions are as follows:

i. Document Integrity and Revisions:

1. Documents, comments, drawings and other records posted on the Construction Document Management tool will remain for the Project record. The authorship time and date will be recorded for each document submitted to the system. Submitting a new document or record with a unique ID, authorship, and time stamp will be the method used to make modifications or corrections.

2. The Construction Document Management tool is intended to facilitate identification of documents versions; revised or superseded documents as well as their predecessors.

ii. Document Security: The Construction Document Management tool will provide a method for communication of documents. Users shall not post private and/or company confidential items in the database. All information on the Construction Document Management tool is considered a public record and subject to public disclosure, absent an applicable statutory exemption.

iii. Notifications and Distribution:

1. Document distribution to Project members shall be accomplished both within the Construction Document Management tool and via email as appropriate. Project document distribution to parties outside of the Construction Document Management tool shall be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.

2. Minimum Computing Requirements

i. Internet Connection: DSL, local cable company's Internet connection, or T1 connection is required.

ii. Operating Systems: Windows 7 or later & OS X v10.8 or later

iii. Supported Internet Browsers: Internet Explorer™ 11.0 or later, Google Chrome™ v 29.0.1 or later; Mozilla Firefox™ 35.0.1 or later, Safari™ 6.0.4 or later, Safari for iOS™ mobile v6.1 or later.

iv. Screen Resolution: The recommended screen resolution is 1280 x 1024 or higher. The minimum screen resolution required to support all e-Builder® features is 1024 x 768.

v. Verify the following internet browser settings: (1) Administrator Status; (2) Add e-Builder's websites as trusted sites; (3) Disable Pop-up Blocker(s); (4) ActiveX plugins must be installed (on the downloads page) to achieve full functionality in e-Builder and all ActiveX controls set to Enable or Prompt; (5) Download Plugins.

vi. See www.e-builder.net/support/optimization for additional information.

vii. Automated System Notification and Audit Log Tracking:

1. Review comments made (or lack thereof) by District on Contractor submitted documentation shall not relieve Contractor from compliance with requirements of the Contract Documents.

2. Contractor is responsible for managing, tracking, and documenting the Work to comply with the requirements of the Contract Documents. District's acceptance via the Construction Document Management tool notifications or audit logs extends only to the face value of the submitted documentation and does not constitute validation of the Contractor's submitted information.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 SUBMITTAL REGISTRY

Contractor shall maintain an accurate Submittal Registry and a Distribution List for the duration of the Work, showing current status of all Submittals and Distributees at all times in a form acceptable to the District. Contractor shall make the Submittal Registry available to the District for its review on request, and shall bring a copy of the Submittal Registry to all Progress Meetings. A submittal registry is appended to this section.

-- End of Section --

TITLE:	C-43 Bid Package 4 - Civil Works
JOB NAME:	
LOCATION:	
CONTRACT NO:	
CONTRACTOR:	

SUBMITTAL REGISTER

									CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					
	(a)	(b)	(c)	(d)			(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
Line	Activity #	Trans-mittal #	Specification Section	SD #	Submittal Description	Item Submitted	Paragraph #	Classification: GOVT or A/E Revwr	Submit	Approval Needed By	Material Needed By	Action Code	Date Of Action	Date FWD to APPR / Auth Date RCD From CONTR	Date FWD To Other Revwr	Date RCD From Other Revwr	Action Code	Date Of Action	Mailed To CONTR/ Date RCD From APPR Authority	Remarks
1			01 11 00	01	Preconstruction Submittals	Embankment Protection Plan	1.4													
2			01 11 00	01	Preconstruction Submittals	Working Construction Sequence and Surface Water Control Plan	1.8.3													
3			01 32 16	01	Preconstruction Submittals	Cost Loaded Schedule	1.1													
4			01 32 34	01	Preconstruction Submittals	Video	3.1													
5			01 32 34	01	Preconstruction Submittals	Photographs	3.2													
6			01 35 26	01	Preconstruction Submittals	Accident Prevention Plan (APP)	1.7													
7			01 35 26	01	Preconstruction Submittals	Safety Messages	1.9.3													
8			01 35 26	01	Preconstruction Submittals	Working Storm Preparedness Plan	1.19													
9			01 35 26	06	Test Reports	Notifications and Reports	1.12													
10			01 35 26	06	Test Reports	Near Miss Reports	1.12.2													
11			01 35 26	06	Test Reports	Accident Reports	1.12.2													
12			01 35 26	06	Test Reports	LHE Inspection Reports	1.12.3													
13			01 35 26	06	Test Reports	Training and Competent Person Matrix	1.6.1.5													
14			01 35 26	07	Certificates	Crane Operators/Riggers	1.6.1.7													
15			01 35 26	07	Certificates	Standard Lift Plan	1.7.2.2													
16			01 35 26	07	Certificates	Critical Lift Plan	1.7.2.3													
17			01 35 26	07	Certificates	Ground Disturbance Permits	1.7.2.8													
18			01 35 26	07	Certificates	Hazardous Energy Control Program (HECP)	1.7.2.7													
19			01 35 26	07	Certificates	Activity Hazard Analysis (AHA)	1.8													
20			01 35 26	07	Certificates	Confined Space Entry Permit	1.9.1													
21			01 35 26	07	Certificates	Hot Work Permit	1.9.1													
22			01 35 26	07	Certificates	License Certificates	1.14													
23			01 35 26	07	Certificates	Radiography Operation Planning Work Sheet	1.14.1													
24			01 35 26	07	Certificates	Portable Gauge Operations Planning Worksheet	1.14.1													
25			01 35 26	07	Certificates	Machinery & Mechanized Equipment Certification Form	3.6.3													
26			01 35 40	01	Preconstruction Submittals	Environmental Protection Plan	1.6													
27			01 35 40	01	Preconstruction Submittals	Environmental Protection Plan	1.6													
28			01 35 40	06	Test Reports	Summary Report	2.2													
29			01 35 40	06	Test Reports	Spill Event Report	3.5													
30			01 35 44	01	Preconstruction Submittals	Verification (Photos)	Part 3													
31			01 35 44	01	Preconstruction Submittals	Temporary Manatee Barrier Work and Maintenance Plan	Part 2													
32			01 35 44	02	Shop Drawings	Manatee Signs	Part 2													

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SUBMITTAL REGISTER

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33			01 35 44	02	Shop Drawings	Temporary Manatee Barrier	Part 2													
34			01 35 44	02	Shop Drawings	Boater Warning Signs	Part 2													
35			01 45 00.00 10	01	Preconstruction Submittals	Letter of Authority	3.2.1													
36			01 45 00.00 10	01	Preconstruction Submittals	Letters of Authority	3.2													
37			01 45 00.00 10	01	Preconstruction Submittals	Letters of Authority	3.2.1													
38			01 45 00.00 10	01	Preconstruction Submittals	Contractor Quality Control Systems Manager (CQCSM) Resume	3.2													
39			01 45 00.00 10	01	Preconstruction Submittals	Alternate Contractor Quality Control Systems Managers (ACQCSM) Resumes	3.2													
40			01 45 00.00 10	01	Preconstruction Submittals	Quality Control (CQC) Staff Resumes	3.2													
41			01 45 00.00 10	01	Preconstruction Submittals	Contractor's Organization Chart	3.2													
42			01 45 00.00 10	01	Preconstruction Submittals	Contractor's Quality Control Plan (CQCP)	3.2													
43			01 45 00.00 10	01	Preconstruction Submittals	Work Plans	3.6													
44			01 45 00.00 10	01	Preconstruction Submittals	Work Plan Log	3.6													
45			01 45 00.00 10	01	Preconstruction Submittals	Onsite Lab Detail Plan	3.8.3													
46			01 45 00.00 10	01	Preconstruction Submittals	Initial Definable Features of Work (DFOW) Schedule/Log	3.2.1													
47			01 45 00.00 10	01	Preconstruction Submittals	Inspection And Test Plan	3.2													
48			01 45 00.00 10	06	Test Reports	Forms	3.2													
49			01 45 08	01	Preconstruction Submittals	Data Management Plan	1.4													
50			01 45 08	05	Design Data	Daily Quality Control Data Uploaded to Sharepoint	1.1													
51			01 45 08	05	Design Data	Raw Data Files	2.3.2													
52			01 51 05	01	Preconstruction Submittals	Site Plan	1.5													
53			01 52 13	01	Preconstruction Submittals	Site Plan	1.5													
54			01 52 13	01	Preconstruction Submittals	Boat, Motor, Trailer and Accessories	1.5													
55			01 52 13	01	Preconstruction Submittals	RTV	1.5													
56			01 52 13	02	Shop Drawings	QA Laboratory Field Office Trailer	1.5													
57			01 52 13	02	Shop Drawings	QA Laboratory Field Office Trailer	1.5													
58			01 52 13	02	Shop Drawings	Site Grounding System	1.5													
59			01 52 13	03	Product Data	Portable Air Conditioner	1.5													
60			01 52 13	07	Certificates	Certificate of Occupancy	1.5													
61			01 52 13	11	Closeout Submittals	As-Built Survey	3.6													
62			01 53 00	01	Preconstruction Submittals	Site Plan	1.5													
63			01 53 00	01	Preconstruction Submittals	Site Access Control Plan	1.5													
64			01 53 00	02	Shop Drawings	Guard House	1.5													
65			01 53 00	02	Shop Drawings	Guard House	1.5													
66			01 53 00	02	Shop Drawings	Guard House	1.9													
67			01 53 00	02	Shop Drawings	Bulletin Board	1.5													
68			01 53 00	03	Product Data	Guard House	1.5													

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69			01 53 00	03	Product Data	Guard House	1.5													
70			01 53 00	03	Product Data	Guard House	1.9													
71			01 53 00	07	Certificates	Guard House	1.5													
72			01 53 00	07	Certificates	Guard House	1.5													
73			01 53 00	07	Certificates	Guard House	1.9													
74			01 53 00	07	Certificates	Security Personnel	1.9													
75			01 55 26	01	Preconstruction Submittals	Maintenance of Traffic (MOT) Plan	1.4													
76			01 56 05	01	Preconstruction Submittals	Traffic Control and Barrier Plan	1.5													
77			01 56 05	01	Preconstruction Submittals	Security Check In System	1.5													
78			01 56 05	01	Preconstruction Submittals	Dust Control System	1.5													
79			01 58 13	02	Shop Drawings	Project Sign	1.3													
80			01 71 23	03	Product Data	Scanning Methodology and Equipment	3.4.2													
81			01 71 23	03	Product Data	Bathymetric Survey Methodology and Equipment	3.4.3													
82			01 71 23	03	Product Data	Aerial Photographs	3.1.1													
83			01 71 23	03	Product Data	Drone	3.4													
84			01 71 23	05	Design Data	Shoring Systems	1.1													
85			01 71 23	05	Design Data	Earth and Water Retaining Systems	3.4													
86			01 71 23	05	Design Data	Temporary Erection Supports	3.4													
87			01 71 23	11	Closeout Submittals	As-built Conduit Layout	3.4.1													
88			01 71 23	11	Closeout Submittals	As-built Grounding System	3.4.1													
89			01 71 23	11	Closeout Submittals	As-built High Definition Laser Scans	3.4.2													
90			01 71 23	11	Closeout Submittals	As-built Survey	3.4.1													
91			01 71 23	11	Closeout Submittals	As-built Bathymetric Surveys	3.4.3													
92			01 71 23	11	Closeout Submittals	External Hard Drive	3.4.4													
93			01 71 23	11	Closeout Submittals	Final Surveyor's Report	3.4													
94			01 71 23	11	Closeout Submittals	Preliminary Surveyor's Report	3.4													
95			01 73 29	05	Design Data	Structural Details and Calculations	1.4													
96			01 73 29	05	Design Data	Cutting and Patching Procedures	1.4													
97			01 75 16	08	Manufacturer's Instructions	Equipment Start-up/Check-out Plan	1.2.1													
98			01 91 10	11	Closeout Submittals	Lesson Plans	2.3													
99			02 33 00	01	Preconstruction Submittals	Boring Log	3.2													
100			02 33 00	01	Preconstruction Submittals	Boring Log	3.2													
101			02 41 00	01	Preconstruction Submittals	Demolition Plan	1.5.6													
102			02 41 00	01	Preconstruction Submittals	Existing Condition Survey	1.12													
103			03 11 15.00 10	01	Preconstruction Submittals	Wave Wall Anchor Installation Plan	3.11													
104			03 11 15.00 10	02	Shop Drawings	Waterstops	1.6													
105			03 11 15.00 10	02	Shop Drawings	Waterstops	1.6													
106			03 11 15.00 10	02	Shop Drawings	Waterstops	1.7													

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107			03 11 15.00 10	02	Shop Drawings	Waterstops	1.9													
108			03 11 15.00 10	02	Shop Drawings	Formwork shop drawings	2.1													
109			03 11 15.00 10	02	Shop Drawings	Form Removal Schedule	3.7													
110			03 11 15.00 10	03	Product Data	Preformed Expansion Joint Fillers	1.6													
111			03 11 15.00 10	03	Product Data	Sealant	1.9													
112			03 11 15.00 10	03	Product Data	Sealant	2.5													
113			03 11 15.00 10	03	Product Data	Waterstops	1.6													
114			03 11 15.00 10	03	Product Data	Waterstops	1.6													
115			03 11 15.00 10	03	Product Data	Waterstops	1.7													
116			03 11 15.00 10	03	Product Data	Waterstops	1.9													
117			03 11 15.00 10	03	Product Data	Form Materials product data	2.1													
118			03 11 15.00 10	03	Product Data	Form Release Agent	1.6													
119			03 11 15.00 10	03	Product Data	Form Release Agent	2.3													
120			03 11 15.00 10	03	Product Data	Hydrophilic Waterstop	2.4													
121			03 11 15.00 10	03	Product Data	Bond Breaker	1.6													
122			03 11 15.00 10	03	Product Data	Bond Breaker	2.8													
123			03 11 15.00 10	04	Samples	Field-Molded Type	3.3													
124			03 11 15.00 10	04	Samples	Waterstops	1.6													
125			03 11 15.00 10	04	Samples	Waterstops	1.6													
126			03 11 15.00 10	04	Samples	Waterstops	1.7													
127			03 11 15.00 10	04	Samples	Waterstops	1.9													
128			03 11 15.00 10	04	Samples	Splicing Waterstops	3.3													
129			03 11 15.00 10	04	Samples	Sample Panels	1.11.1													
130			03 11 15.00 10	04	Samples	Backer Rods	2.7													
131			03 11 15.00 10	04	Samples	Neoprene Sponge	1.6													
132			03 11 15.00 10	04	Samples	Neoprene Sponge	2.6													
133			03 11 15.00 10	04	Samples	Bearing Pads	1.6													
134			03 11 15.00 10	04	Samples	Bearing Pads	2.6													
135			03 11 15.00 10	04	Samples	Joint Filler	2.6													
136			03 11 15.00 10	04	Samples	Mitered cross and a tee constructed of each size or shape of material	1.6													
137			03 11 15.00 10	05	Design Data	Calculations	1.6													
138			03 11 15.00 10	06	Test Reports	Wave Wall Type 1 Anchor Test Results	3.10													
139			03 11 15.00 10	06	Test Reports	Wave Wall Type 2 Anchor Test Results	3.10													
140			03 11 15.00 10	07	Certificates	Preformed Expansion Joint Fillers	1.6													
141			03 11 15.00 10	07	Certificates	Sealant	1.9													
142			03 11 15.00 10	07	Certificates	Sealant	2.5													

TITLE:	C-43 Bid Package 4 - Civil Works
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	(a)	(b)	(c)	(d)			(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
143			03 11 15.00 10	07	Certificates	Waterstops	1.6													
144			03 11 15.00 10	07	Certificates	Waterstops	1.6													
145			03 11 15.00 10	07	Certificates	Waterstops	1.7													
146			03 11 15.00 10	07	Certificates	Waterstops	1.9													
147			03 20 00.00 10	02	Shop Drawings	Reinforcement	2.3													
148			03 20 00.00 10	03	Product Data	Reinforcing Steel	1.6													
149			03 20 00.00 10	03	Product Data	Reinforcing Steel	2.1													
150			03 20 00.00 10	06	Test Reports	Mill Test Reports	1.6													
151			03 20 00.00 10	07	Certificates	Reinforcing Steel	1.6													
152			03 20 00.00 10	07	Certificates	Reinforcing Steel	2.1													
153			03 20 00.00 10	07	Certificates	Mill Certifications	2.1													
154			03 31 01.00 10	02	Shop Drawings	Locations of Construction Joints	3.1.4													
155			03 31 01.00 10	02	Shop Drawings	Sequencing Plan for Concrete Pours	3.1.4													
156			03 31 01.00 10	03	Product Data	Concrete Plant Standards	2.2.1													
157			03 31 01.00 10	03	Product Data	Concrete Mix Designs	1.2													
158			03 31 01.00 10	03	Product Data	Batch Plant	2.2													
159			03 31 01.00 10	03	Product Data	Concrete Mixers	2.2.5													
160			03 31 01.00 10	03	Product Data	Conveying Equipment	2.2.6													
161			03 31 01.00 10	03	Product Data	Placing Equipment	2.2													
162			03 31 01.00 10	03	Product Data	Construction Joint Treatment	3.1.4													
163			03 31 01.00 10	03	Product Data	Cold-Weather Requirements	3.2.1													
164			03 31 01.00 10	03	Product Data	Hot-Weather Requirements	3.2.2													
165			03 31 01.00 10	03	Product Data	Cementitious Materials, Admixtures, and Curing Compound	1.4.1													
166			03 31 01.00 10	03	Product Data	Nonshrink Grout	2.1.5													
167			03 31 01.00 10	03	Product Data	Mass Concrete Thermal Control Plan	1.2.8													
168			03 31 01.00 10	03	Product Data	Strain Gauges	2.1.9													
169			03 31 01.00 10	03	Product Data	Batch Plant Data	2.2													
170			03 31 01.00 10	06	Test Reports	Aggregates	2.1.2													
171			03 31 01.00 10	06	Test Reports	Mill Test	2.1													
172			03 31 01.00 10	06	Test Reports	Tests and Inspections	3.5													
173			03 31 01.00 10	06	Test Reports	Quality of Aggregates	3.5.2.3													
174			03 31 01.00 10	06	Test Reports	Mixer Uniformity	3.5.2.10													
175			03 31 01.00 10	06	Test Reports	Trial Batch tests	1.5.1													
176			03 31 01.00 10	06	Test Reports	Water	2.1.4													
177			03 31 01.00 10	06	Test Reports	Shrinkage Results	1.2.7													
178			03 31 01.00 10	06	Test Reports	Temperature monitoring data	1.2.8.3													
179			03 31 01.00 10	06	Test Reports	Tabular data of hourly concrete temperature for each temperature sensor	1.2.8													

TITLE:	C-43 Bid Package 4 - Civil Works
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180			03 31 01.00 10	06	Test Reports	Tabular data of hourly concrete temperature for each temperature sensor	2.2.8.1													
181			03 31 01.00 10	06	Test Reports	Tabular data for hourly concrete temperature differential for each temperature sensor	1.2.8													
182			03 31 01.00 10	06	Test Reports	Tabular data for hourly concrete temperature differential for each temperature sensor	2.2.8.1													
183			03 31 01.00 10	06	Test Reports	Plot of temperature and temperature differential for each temperature sensor	1.2.8													
184			03 31 01.00 10	06	Test Reports	Plot of temperature and temperature differential for each temperature sensor	2.2.8.1													
185			03 31 01.00 10	06	Test Reports	Heat removal plan	1.2.8													
186			03 31 01.00 10	06	Test Reports	Heat removal plan	2.2.8.1													
187			03 31 01.00 10	06	Test Reports	Chemical Analysis Of Water Used For Curing	3.2.5.3													
188			03 31 01.00 10	07	Certificates	Concrete Field Testing Technicians	1.4													
189			03 31 01.00 10	07	Certificates	Concrete Construction Inspector (CCI)	1.4													
190			03 31 01.00 10	07	Certificates	Cementitious Materials	1.4.1													
191			03 31 01.00 10	07	Certificates	Blended Hydraulic Cement	2.1.1.7													
192			03 31 01.00 10	07	Certificates	Fly Ash Certificate of Compliance	1.4.1													
193			03 31 01.00 10	08	Manufacturer's Instructions	Curing Compound	1.4.1													
194			03 31 27	03	Product Data	Mix Designs	1.3.2													
195			03 31 27	06	Test Reports	Certified Test Reports	2.1													
196			03 31 27	06	Test Reports	Permeability Test Results	2.1													
197			03 31 27	07	Certificates	Product Certificates	2.1													
198			03 31 27	08	Manufacturer's Instructions	Manufacturer's Installation Instructions	2.1													
199			03 31 27	09	Manufacturer's Field Reports	Manufacturer's Field Reports	3.6													
200			03 35 00.00 10	04	Samples	Field Test Panels	1.3.1													
201			03 35 00.00 10	04	Samples	Sample Wall Panels	1.3.1.1													
202			03 35 00.00 10	04	Samples	Slab Panels	1.3.1.2													
203			03 35 00.00 10	08	Manufacturer's Instructions	Dry Shake Finish	3.3.6													
204			03 39 00.00 10	03	Product Data	Curing Materials	2.1													
205			03 39 00.00 10	03	Product Data	Evaporation Retardant	2.1.1													
206			03 39 00.00 10	06	Test Reports	Testing and Inspection for CQC	3.2													
207			03 39 00.00 10	08	Manufacturer's Instructions	Curing Compound	2.1													
208			03 41 32	01	Preconstruction Submittals	Qualifications	1.5													
209			03 41 32	02	Shop Drawings	Erection Drawings	1.6													
210			03 41 32	02	Shop Drawings	Erection Drawings	1.6													
211			03 41 32	03	Product Data	Statement giving the nominal maximum aggregate size and proportions of all ingredients	1.6													
212			03 41 32	05	Design Data	Production drawings	1.6													

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213			03 41 32	05	Design Data	design calculations	1.6													
214			03 41 32	05	Design Data	concrete mix designs	1.6													
215			03 41 32	06	Test Reports	Copies of test reports including all test data and all test results	1.6													
216			03 41 32	07	Certificates	Certificates	1.5													
217			03 41 32	07	Certificates	Certification that all precast members are manufactured in accordance with the requirements of PCI MNL-116 and designed per ACI 318	1.7													
218			04 20 00	02	Shop Drawings	CMU Drawings	3.3.3													
219			04 20 00	02	Shop Drawings	Bar Splice Locations	3.4.1.1													
220			04 20 00	03	Product Data	Hot Weather Procedures	1.5.1													
221			04 20 00	03	Product Data	Cold Weather Procedures	1.5.2													
222			04 20 00	03	Product Data	Cement	2.2.2.1													
223			04 20 00	03	Product Data	Mortar Mix	2.5.1													
224			04 20 00	03	Product Data	Grout Mix	2.5.2													
225			04 20 00	03	Product Data	Cementitious Materials	2.4.1.1													
226			04 20 00	04	Samples	Mock-Up Panel	1.3.1.1													
227			04 20 00	04	Samples	Concrete Masonry Units (CMU)	2.2.2													
228			04 20 00	04	Samples	Admixtures for Masonry Mortar	2.4.1.3													
229			04 20 00	04	Samples	Anchors, Ties, and Bar Positioners	2.6.2													
230			04 20 00	04	Samples	Joint Reinforcement	2.6.3													
231			04 20 00	05	Design Data	Masonry Compressive Strength	2.1.2													
232			04 20 00	05	Design Data	Bracing Calculations	3.2.5													
233			04 20 00	06	Test Reports	Mortar Strength	2.1.2													
234			04 20 00	06	Test Reports	Grout Strength	2.5.2													
235			04 20 00	06	Test Reports	Field Testing of Mortar	3.6.1.1													
236			04 20 00	06	Test Reports	Field Testing of Grout	3.6.1.2													
237			04 20 00	07	Certificates	Concrete Masonry Units (CMU)	2.2.2													
238			04 20 00	07	Certificates	Precast Concrete Units	2.2.3													
239			04 20 00	07	Certificates	Cementitious Materials	2.4.1.1													
240			04 20 00	07	Certificates	Admixtures for Masonry Mortar	2.4.1.3													
241			04 20 00	07	Certificates	Admixtures for Grout	2.4.2.2													
242			04 20 00	07	Certificates	Anchors, Ties, and Bar Positioners	2.6.2													
243			04 20 00	07	Certificates	Joint Reinforcement	2.6.3													
244			04 20 00	07	Certificates	Specified Factory Certificates	2.2.3													
245			04 20 00	08	Manufacturer's Instructions	Admixtures for Masonry Mortar	2.4.1.3													
246			04 20 00	08	Manufacturer's Instructions	Admixtures for Grout	2.4.2.2													
247			04 20 00	10	Operation and Maintenance Data	Take-Back Program	3.8													
248			05 05 23.16	01	Preconstruction Submittals	Welding Quality Assurance Plan	3.2													

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249			05 05 23.16	03	Product Data	Welding Procedure Qualifications	1.3													
250			05 05 23.16	03	Product Data	Welder, Welding Operator, and Tacker Qualification	1.3.5													
251			05 05 23.16	03	Product Data	Previous Qualifications	1.3.2													
252			05 05 23.16	03	Product Data	Pre-Qualified Procedures	1.3.3													
253			05 05 23.16	03	Product Data	Welding Electrodes and Rods	2.2													
254			05 05 23.16	06	Test Reports	Nondestructive Testing	3.3													
255			05 05 23.16	07	Certificates	Certified Welding Procedure Specifications (WPS)	1.3.1													
256			05 05 23.16	07	Certificates	Certified Brazing Procedure Specifications (BPS)	1.3.1													
257			05 05 23.16	07	Certificates	Certified Procedure Qualification Records (PQR)	1.3.1													
258			05 05 23.16	07	Certificates	Certified Welder Performance Qualifications (WPQ)	1.3.1													
259			05 05 23.16	07	Certificates	Certified Brazer Performance Qualifications (BPQ)	1.3.1													
260			05 12 00	01	Preconstruction Submittals	Erection Drawings	1.4.1.1													
261			05 12 00	02	Shop Drawings	Fabrication Drawings	1.4.2													
262			05 12 00	03	Product Data	Shop Primer	2.6.2													
263			05 12 00	03	Product Data	Welding Electrodes and Rods	2.4.1													
264			05 12 00	03	Product Data	Direct Tension Indicator Washers	2.3.2.3													
265			05 12 00	03	Product Data	Non-Shrink Grout	2.4.2													
266			05 12 00	06	Test Reports	Class B Coating	2.6.2													
267			05 12 00	06	Test Reports	Bolts, Nuts, and Washers	2.3													
268			05 12 00	06	Test Reports	Weld Inspection Reports	3.7.1.2													
269			05 12 00	06	Test Reports	Direct Tension Indicator Washer Inspection Reports	3.7.2.1													
270			05 12 00	06	Test Reports	Bolt Testing Reports	3.7.3.1													
271			05 12 00	07	Certificates	Steel	2.2													
272			05 12 00	07	Certificates	Bolts, Nuts, and Washers	2.3													
273			05 12 00	07	Certificates	Galvanizing	2.5													
274			05 12 00	07	Certificates	AISC Fabrication Plant Quality Certification	1.3													
275			05 12 00	07	Certificates	AISC Erector Quality Certification	1.3													
276			05 12 00	07	Certificates	Welding Procedures and Qualifications	1.4.3.1													
277			05 12 00	07	Certificates	Welding Electrodes and Rods	2.4.1													
278			05 50 14	02	Shop Drawings	Detail Drawings	1.3.1													
279			05 50 14	02	Shop Drawings	Welding of Structural Steel	2.1.2.1													
280			05 50 14	02	Shop Drawings	Structural Steel Welding Repairs	2.2.4													
281			05 50 14	02	Shop Drawings	Castings	2.1.6													
282			05 50 14	03	Product Data	Filler Metal	2.1.2.1.3.1													
283			05 50 14	03	Product Data	Lubricant	2.1.8.3													

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284			05 50 14	06	Test Reports	Tests, Inspections, and Verifications	2.2													
285			05 50 14	07	Certificates	Welding Qualifications	1.3.2													
286			05 50 14	07	Certificates	Application Qualification for Steel Studs	2.1.2.3.1	G												
287			05 50 14	07	Certificates	Welding of Aluminum	2.1.2.4													
288			05 50 15	02	Shop Drawings	Miscellaneous Metals and Standard Metal Articles	2.1													
289			05 50 15	02	Shop Drawings	Shop Fabricated Metal Items	2.2													
290			05 50 15	02	Shop Drawings	Detail Drawings	2.1.11													
291			05 50 15	03	Product Data	Current Evaluation Report for the Anchor	2.1.5.1													
292			05 50 15	03	Product Data	Current Evaluation Report for the Anchor	2.1.5.2													
293			05 50 15	03	Product Data	Miscellaneous Metals and Standard Metal Articles	2.1													
294			05 50 15	03	Product Data	Shop Fabricated Metal Items	2.2													
295			05 50 15	03	Product Data	Adhesive Anchor ESR Reports	2.1.5.1													
296			05 50 15	03	Product Data	Expansion Anchor ESR Reports	2.1.5.2													
297			05 50 15	03	Product Data	Lists Of Materials, And Records	2.1.11													
298			05 50 15	03	Product Data	Vertical Crossover Ladder	2.2.7													
299			05 50 15	04	Samples	Miscellaneous Metals and Standard Metal Articles	2.1													
300			05 50 15	04	Samples	Shop Fabricated Metal Items	2.2													
301			05 50 15	04	Samples	Samples Of Standard Or Fabricated Items	2.1.11													
302			05 50 15	05	Design Data	Guard And Anchorage Calculations	2.2.1													
303			05 50 15	06	Test Reports	Miscellaneous Metals and Standard Metal Articles	2.1													
304			05 50 15	06	Test Reports	Shop Fabricated Metal Items	2.2													
305			05 50 15	06	Test Reports	Quality Control Testing	2.3.2													
306			05 50 15	11	Closeout Submittals	Evidence of Successful Completion of Adhesive Manufacturer's Installation Training Program	3.2.2.1													
307			05 50 15	11	Closeout Submittals	Certified Test Reports	2.1.11													
308			07 61 13	02	Shop Drawings	Roof System	1.5.1													
309			07 61 13	03	Product Data	Roof panels	1.5.1													
310			07 61 13	07	Certificates	Certificate of Compliance	1.5.1													
311			07 61 13	08	Manufacturer's Instructions	Installation instructions	1.5.1													
312			07 92 00	03	Product Data	Sealants	2.3													
313			07 92 00	03	Product Data	Primers	2.4													
314			07 92 00	03	Product Data	Bond Breakers	2.5													
315			07 92 00	03	Product Data	Backstops	2.6													
316			07 92 00	06	Test Reports	Field Adhesion	3.1													
317			07 92 00	07	Certificates	Indoor Air Quality	1.4.1													
318			07 92 00	11	Closeout Submittals	Indoor Air Quality For Interior Sealants	2.3.1													

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319			07 92 00	11	Closeout Submittals	Indoor Air Quality For Interior Floor Joint Sealants	2.3.3													
320			07 92 00	11	Closeout Submittals	Indoor Air Quality For Interior Acoustical Sealants	2.3.4													
321			07 92 00	11	Closeout Submittals	Indoor Air Quality For Interior Caulking	2.7													
322			08 11 13	02	Shop Drawings	Doors	2.1													
323			08 11 13	02	Shop Drawings	Doors	2.1													
324			08 11 13	02	Shop Drawings	Frames	2.6													
325			08 11 13	02	Shop Drawings	Frames	2.6													
326			08 11 13	02	Shop Drawings	Accessories	2.4													
327			08 11 13	02	Shop Drawings	Weatherstripping	2.7													
328			08 11 13	03	Product Data	Doors	2.1													
329			08 11 13	03	Product Data	Frames	2.6													
330			08 11 13	03	Product Data	Accessories	2.4													
331			08 11 13	03	Product Data	Florida Product Approval or Miami-Dade NOA	2.3													
332			08 11 13	03	Product Data	Weatherstripping	2.7													
333			08 71 00	02	Shop Drawings	Manufacturer's Detail Drawings	1.3													
334			08 71 00	02	Shop Drawings	Hardware Schedule	1.4													
335			08 71 00	02	Shop Drawings	Keying	2.3.6													
336			08 71 00	03	Product Data	Hardware Items	2.3													
337			08 71 00	08	Manufacturer's Instructions	Installation	3.1													
338			08 71 00	10	Operation and Maintenance Data	Hardware Schedule	1.4													
339			08 71 00	11	Closeout Submittals	Key Bitting														
340			08 91 00	02	Shop Drawings	Wall louvers	1.4													
341			08 91 00	02	Shop Drawings	Wall louvers	1.5													
342			08 91 00	03	Product Data	Metal Wall Louvers	2.2													
343			08 91 00	04	Samples	Wall louvers	1.4													
344			08 91 00	04	Samples	Wall louvers	1.5													
345			10 14 00.10	02	Shop Drawings	Detailed Drawings	1.7													
346			10 14 00.10	05	Design Data	Design Calculations	1.7													
347			10 14 00.10	10	Operation and Maintenance Data	Protection and Cleaning	3.2.1													
348			10 14 00.20	02	Shop Drawings	Detail Drawings	1.3.2													
349			10 14 00.20	03	Product Data	Installation	3.1													
350			10 14 00.20	03	Product Data	Warranty	1.5													
351			10 14 00.20	04	Samples	Interior Signage	1.3.1													
352			10 14 00.20	10	Operation and Maintenance Data	Approved Manufacturer's Instructions	3.1													
353			10 14 00.20	10	Operation and Maintenance Data	Protection and Cleaning	3.1.2													
354			10 18 00	02	Shop Drawings	Reinforced Concrete Slab	2.2													
355			10 18 00	02	Shop Drawings	Kiosk Structure	2.4													
356			10 18 00	02	Shop Drawings	Roof Framing System	2.6													

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357			10 18 00	02	Shop Drawings	Bench	2.5													
358			10 18 00	02	Shop Drawings	Information Sign Framing	2.4													
359			10 18 00	02	Shop Drawings	Steel Shapes and Plates	2.3													
360			10 18 00	03	Product Data	Steel Connection Plates	1.5													
361			10 18 00	03	Product Data	Steel Connection Plates	2.3													
362			10 18 00	03	Product Data	Composite Lumber	1.5													
363			10 18 00	03	Product Data	Composite Lumber	2.5													
364			10 18 00	03	Product Data	Composite Lumber	2.5													
365			10 18 00	04	Samples	Composite Lumber	1.5													
366			10 18 00	04	Samples	Composite Lumber	2.5													
367			10 18 00	04	Samples	Composite Lumber	2.5													
368			10 18 00	07	Certificates	Certificates of Compliance	1.5													
369			10 18 00	07	Certificates	Steel Connection Plates	1.5													
370			10 18 00	07	Certificates	Steel Connection Plates	2.3													
371			10 18 00	07	Certificates	Composite Lumber	1.5													
372			10 18 00	07	Certificates	Composite Lumber	2.5													
373			10 18 00	07	Certificates	Composite Lumber	2.5													
374			10 18 00	07	Certificates	Zinc Coating	1.5													
375			10 21 12	02	Shop Drawings	Detail Drawings	2.1													
376			10 21 12	02	Shop Drawings	Installation Plan	3.2.5													
377			10 21 12	03	Product Data	Wall Texture	3.1.3													
378			10 21 12	03	Product Data	Roof Texture	3.1.3													
379			10 21 12	06	Test Reports	Factory Testing	2.1.2.1													
380			10 21 12	07	Certificates	Manufacturer's Certification	3.2.4													
381			10 21 12	07	Certificates	Manufacturer's Certification	3.2.5													
382			10 21 12	09	Manufacturer’s Field Reports	Manufacturer's Field Report	3.2.5													
383			10 21 12	09	Manufacturer’s Field Reports	Manufacturer's Certification	3.2.4													
384			10 21 12	09	Manufacturer’s Field Reports	Manufacturer's Certification	3.2.5													
385			10 21 12	10	Operation and Maintenance Data	Manuals	3.2.6.1													
386			10 44 16	01	Preconstruction Submittals	Manufacturer's Data	2.1.1													
387			10 44 16	02	Shop Drawings	Fire Extinguishers	2.1.1													
388			10 44 16	02	Shop Drawings	Accessories	1.3.1													
389			10 44 16	02	Shop Drawings	Wall Brackets	1.3.1													
390			10 44 16	03	Product Data	Fire Extinguishers	2.1.1													
391			10 44 16	03	Product Data	Accessories	1.3.1													
392			10 44 16	03	Product Data	Wall Brackets	1.3.1													
393			10 44 16	03	Product Data	Replacement Parts List	3.2.1													

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394			10 44 16	04	Samples	Fire Extinguisher	1.3.1													
395			10 44 16	04	Samples	Wall Brackets	1.3.1													
396			10 44 16	04	Samples	Accessories	1.3.1													
397			10 44 16	07	Certificates	Fire Extinguishers	2.1.1													
398			10 44 16	07	Certificates	Manufacturer's Warranty with Inspection Tag	2.1.1													
399			13 34 23.10	01	Preconstruction Submittals	Experience verification	1.4													
400			13 34 23.10	02	Shop Drawings	Engineering drawings	1.4													
401			13 34 23.10	03	Product Data	Sealants	1.4													
402			13 34 23.10	03	Product Data	Proposed coatings	1.4													
403			13 34 23.10	03	Product Data	Equipment Manufacturer's catalog information	1.4													
404			13 34 23.10	03	Product Data	Liquid Applied Roofing System	1.4													
405			13 34 23.10	04	Samples	Standard color samples	1.4													
406			13 34 23.10	05	Design Data	Engineering calculations	1.4													
407			13 34 23.10	06	Test Reports	Miami-Dade Notice of Acceptance or Florida Product Approval	1.4													
408			13 34 23.10	07	Certificates	Sealed certification by a Professional Engineer	1.4													
409			13 34 23.10	07	Certificates	Certification by the Manufacturer	1.4													
410			13 34 23.10	07	Certificates	Installer Certification	1.4													
411			13 34 23.10	07	Certificates	Experience Verification	1.4													
412			23 00 00	02	Shop Drawings	Detail Drawings	1.4.5													
413			23 00 00	03	Product Data	Insulated Nonmetallic Flexible Duct Runouts	2.10.2													
414			23 00 00	03	Product Data	Metal Ductwork	2.10.1													
415			23 00 00	03	Product Data	Duct Connectors	2.10.1.1													
416			23 00 00	03	Product Data	Duct Access Doors	2.10.3													
417			23 00 00	03	Product Data	Manual Balancing Dampers	2.10.4													
418			23 00 00	03	Product Data	Backdraft Dampers	2.10.5													
419			23 00 00	03	Product Data	Screens														
420			23 00 00	03	Product Data	Sidewall Propeller Fans	2.11.1.1													
421			23 00 00	03	Product Data	Test Procedures	1.4.6													
422			23 00 00	03	Product Data	Diagrams	1.2.1.2													
423			23 00 00	06	Test Reports	Ductwork Leak Tests	3.9													
424			23 00 00	06	Test Reports	Testing, Adjusting, and Balancing	3.11													
425			23 00 00	06	Test Reports	Performance Tests	3.12													
426			23 00 00	06	Test Reports	Damper Acceptance Test	3.10													
427			23 00 00	07	Certificates	Bolts	1.4.1													
428			23 00 00	07	Certificates	Certification	1.4.1													
429			23 00 00	07	Certificates	Certification	1.4.3													

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430			23 00 00	07	Certificates	Ozone Depleting Substances	1.4.3													
431			23 00 00	07	Certificates	Ductwork Materials	2.10.1													
432			23 00 00	07	Certificates	Manual Balancing Dampers	2.10.4													
433			23 00 00	07	Certificates	Backdraft Dampers	2.10.5													
434			23 00 00	07	Certificates	Duct Connectors	2.10.1.1													
435			23 00 00	07	Certificates	Screens														
436			23 00 00	08	Manufacturer's Instructions	Manufacturer's Installation Instructions	3.2													
437			23 00 00	08	Manufacturer's Instructions	Operation and Maintenance Training	3.14.2													
438			23 00 00	10	Operation and Maintenance Data	Operation and Maintenance Manuals	3.14.1													
439			23 00 00	10	Operation and Maintenance Data	Manual Balancing Dampers	2.10.4													
440			23 00 00	10	Operation and Maintenance Data	Backdraft Dampers	2.10.5													
441			23 00 00	10	Operation and Maintenance Data	Sidewall Propeller Fans	2.11.1.1													
442			23 05 48.00 40	02	Shop Drawings	Installation Drawings	1.2													
443			23 05 48.00 40	02	Shop Drawings	Outline Drawings	1.2													
444			23 05 48.00 40	03	Product Data	Equipment and Performance Data	1.2													
445			23 05 48.00 40	06	Test Reports	Type of Isolator	2.4													
446			23 05 48.00 40	06	Test Reports	Type of Base	2.4													
447			23 05 48.00 40	06	Test Reports	Allowable Deflection	2.4													
448			23 05 48.00 40	06	Test Reports	Measured Deflection	2.4													
449			23 05 48.00 40	06	Test Reports	Tests and Reports	3.2.1													
450			23 05 93	01	Preconstruction Submittals	Records of Existing Conditions	1.3.2													
451			23 05 93	01	Preconstruction Submittals	Independent TAB Agency and Personnel Qualifications	1.5.1													
452			23 05 93	01	Preconstruction Submittals	TAB Design Review Report	1.6.2.1													
453			23 05 93	01	Preconstruction Submittals	TAB Firm	1.5.1.2													
454			23 05 93	01	Preconstruction Submittals	TAB Firm	3.6													
455			23 05 93	01	Preconstruction Submittals	Prerequisite HVAC Work Checkout List	1.5.2.3													
456			23 05 93	01	Preconstruction Submittals	Prerequisite HVAC Work Checkout List	1.5.3.1													
457			23 05 93	02	Shop Drawings	TAB Schematic Drawings and Report Forms	1.3.2													
458			23 05 93	03	Product Data	TAB Related HVAC Submittals	1.5.1.3													
459			23 05 93	03	Product Data	list of TAB related HVAC submittals	1.5.7.4													
460			23 05 93	03	Product Data	TAB Procedures	3.3													
461			23 05 93	03	Product Data	TAB Schematic Drawings and Report Forms	1.3.2													
462			23 05 93	03	Product Data	Calibration	1.5.6													
463			23 05 93	03	Product Data	Systems Readiness Check	1.3.2													
464			23 05 93	03	Product Data	TAB Execution	1.5.2													
465			23 05 93	03	Product Data	TAB Verification	1.5.2.3													
466			23 05 93	06	Test Reports	Completed Pre-Final DALT Report	3.2.5													
467			23 05 93	06	Test Reports	Certified Final DALT Report	1.5.2.3													

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468			23 05 93	06	Test Reports	Prerequisite HVAC Work Checkout List for Season 1	1.5.3.1													
469			23 05 93	06	Test Reports	Prerequisite HVAC Work Checkout List for Season 2	1.5.3.1													
470			23 05 93	06	Test Reports	TAB Design Review Report	1.6.2.1													
471			23 05 93	06	Test Reports	TAB Report for Season 1	1.5.8.2													
472			23 05 93	06	Test Reports	TAB Report for Season 2	1.5.8.2													
473			23 05 93	07	Certificates	Independent TAB Agency and Personnel Qualifications	1.5.1													
474			23 05 93	07	Certificates	DALT and TAB Submittal and Work Schedule	1.5.3.1													
475			23 05 93	07	Certificates	TAB Pre-Field Engineering Report	1.5.3.2													
476			23 05 93	07	Certificates	Instrument Calibration Certificates	1.5.4													
477			23 05 93	07	Certificates	DALT and TAB Procedures Summary	3.6													
478			23 05 93	07	Certificates	Completed Pre-Final DALT Work Checklist	3.6													
479			23 05 93	07	Certificates	Advance Notice of Pre-Final DALT Field Work	3.2.2													
480			23 05 93	07	Certificates	Advance Notice of TAB Field Work for Proportional Balancing	3.6													
481			23 05 93	07	Certificates	Advance Notice of TAB Field Work for Season 1	1.5.3.1													
482			23 05 93	07	Certificates	Advance Notice of TAB Field Work for Season 2	1.5.3.1													
483			23 05 93	07	Certificates	TAB Firm	1.5.1.2													
484			23 05 93	07	Certificates	TAB Firm	3.6													
485			23 05 93	07	Certificates	Design Review Report	1.5.3.1													
486			23 05 93	07	Certificates	Prerequisite HVAC Work Checkout List for Season 2	1.5.3.1													
487			23 09 13	02	Shop Drawings	Electrical Power and Control Diagrams	1.3													
488			23 09 13	03	Product Data	Thermostats	2.1													
489			23 09 13	08	Manufacturer's Instructions	Operation and Maintenance Training	3.4.2													
490			23 09 13	10	Operation and Maintenance Data	Operation And Maintenance Manuals	3.4.1													
491			23 09 13	11	Closeout Submittals	Manufacturer's Certificate of Source Testing	3.5													
492			23 09 13	11	Closeout Submittals	Manufacturer's Certificate of Installation and Functionality Compliance	3.5													
493			26 00 00.00 20	02	Shop Drawings	Materials and Equipment Schedules	3.1													
494			26 00 00.00 20	03	Product Data	Complete material lists stating manufacturer and brand name of each item or class of material	1.5.2.2													
495			26 00 00.00 20	03	Product Data	Front, side, rear elevations, and top views with dimensional data	2.2													
496			26 00 00.00 20	03	Product Data	Types of materials and finish	2.4.2													
497			26 00 00.00 20	03	Product Data	Nameplates	1.9													
498			26 00 00.00 20	03	Product Data	Grounding devices	1.13													
499			26 00 00.00 20	05	Design Data	Conduit layout plans	3.1													
500			26 00 00.00 20	05	Design Data	Locations of conduit entrances and access plates	3.1													
501			26 00 00.00 20	05	Design Data	Methods of anchoring	1.11													

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502			26 00 00.00 20	05	Design Data	Temperature limitations, as applicable	2.5.2													
503			26 00 00.00 20	06	Test Reports	Test reports	2.1													
504			26 05 19.10 10	03	Product Data	Wire and Cable	2.1.1													
505			26 05 19.10 10	03	Product Data	Conductors	2.1.3.1													
506			26 05 19.10 10	03	Product Data	Cable Manufacturing Data	3.1													
507			26 05 19.10 10	06	Test Reports	Test Report(s), Inspection Report(s), and Verification Report(s)	3.2													
508			26 05 71.00 40	01	Preconstruction Submittals	Connection Diagrams	2.1													
509			26 05 71.00 40	01	Preconstruction Submittals	Fabrication Drawings	2.1													
510			26 05 71.00 40	01	Preconstruction Submittals	Fuses	2.5													
511			26 05 71.00 40	02	Shop Drawings	Control Devices	3.1													
512			26 05 71.00 40	02	Shop Drawings	Protective Devices	3.1													
513			26 05 71.00 40	03	Product Data	Motor Control	2.2													
514			26 05 71.00 40	03	Product Data	Enclosures	2.3													
515			26 05 71.00 40	03	Product Data	Circuit Breakers	2.4													
516			26 05 71.00 40	03	Product Data	Control Devices	3.1													
517			26 05 71.00 40	03	Product Data	Indicating Lights	2.8													
518			26 05 71.00 40	06	Test Reports	Final Test Reports	3.2													
519			26 05 71.00 40	07	Certificates	Circuit Tests	2.7													
520			26 05 71.00 40	08	Manufacturer's Instructions	Control Devices	3.1													
521			26 05 71.00 40	08	Manufacturer's Instructions	Protective Devices	3.1													
522			26 05 71.00 40	10	Operation and Maintenance Data	Manual Motor Controllers	2.2.1													
523			26 05 71.00 40	10	Operation and Maintenance Data	Magnetic Motor Controllers	2.2.2													
524			26 05 71.00 40	10	Operation and Maintenance Data	Combination Motor Controllers	2.2.3													
525			26 05 71.00 40	10	Operation and Maintenance Data	Circuit Breakers	2.4													
526			26 08 50	06	Test Reports	Summary of Work	1.1													
527			26 08 50	06	Test Reports	Description of equipment tested	1.7													
528			26 08 50	06	Test Reports	Visual Equipment report	1.6													
529			26 08 50	06	Test Reports	Description of tests	1.8													
530			26 08 50	06	Test Reports	Test data	1.7													
531			26 08 50	06	Test Reports	Analysis and recommendations	1.7													
532			26 08 50	06	Test Reports	Appropriate test forms	1.6													
533			26 08 50	06	Test Reports	Identification of test equipment used and calibration dates	2.1													
534			26 14 00	03	Product Data	Fuel Detection Leak System	2.1													
535			26 14 00	03	Product Data	Monitoring System	2.2													
536			26 14 00	06	Test Reports	Performance Test	3.2													
537			26 14 00	10	Operation and Maintenance Data	Operation and Maintenance Manuals	3.3													
538			26 20 00	02	Shop Drawings	Panelboards	2.14													
539			26 20 00	02	Shop Drawings	Transformers	2.15													
540			26 20 00	02	Shop Drawings	Cable trays	2.4													

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541			26 20 00	02	Shop Drawings	Wireways	2.24													
542			26 20 00	02	Shop Drawings	Conduit Layout Plans	3.1.5.7													
543			26 20 00	03	Product Data	Receptacles	2.13													
544			26 20 00	03	Product Data	Circuit breakers	2.14.3													
545			26 20 00	03	Product Data	Switches	2.11													
546			26 20 00	03	Product Data	Transformers	2.15													
547			26 20 00	03	Product Data	Surge protective devices	2.25													
548			26 20 00	03	Product Data	Marking strips	3.1.10.1													
549			26 20 00	06	Test Reports	600-volt wiring tests	3.6.2													
550			26 20 00	06	Test Reports	Transformer tests	3.6.3													
551			26 20 00	06	Test Reports	Ground-fault receptacle test	3.6.4													
552			26 20 00	07	Certificates	Fuses	2.12													
553			26 20 00	10	Operation and Maintenance Data	Electrical Systems	1.5.1													
554			26 28 01.00 10	03	Product Data	Fault Current Analysis	2.1													
555			26 28 01.00 10	03	Product Data	Protective Device Coordination Study	2.1													
556			26 28 01.00 10	03	Product Data	Arc Flash Study	2.1.7													
557			26 28 01.00 10	03	Product Data	Coordination Study	2.1.5													
558			26 28 01.00 10	03	Product Data	Calibration, Testing	1.4.2													
559			26 28 01.00 10	03	Product Data	System Coordinator	1.4.1													
560			26 28 01.00 10	03	Product Data	Protective Relays	3.3.5													
561			26 28 01.00 10	03	Product Data	Installation	3.2													
562			26 28 01.00 10	06	Test Reports	Field Testing	3.3													
563			26 28 21.00 40	02	Shop Drawings	Connection Diagrams	2.1													
564			26 28 21.00 40	02	Shop Drawings	Fabrication Drawings	2.1													
565			26 28 21.00 40	02	Shop Drawings	Installation Drawings	2.1													
566			26 28 21.00 40	03	Product Data	Equipment and Performance Data	2.1													
567			26 28 21.00 40	03	Product Data	Contacts	2.2.1													
568			26 28 21.00 40	03	Product Data	Indicating Lights	2.2.2													
569			26 28 21.00 40	03	Product Data	Terminal Board	2.2.3													
570			26 28 21.00 40	03	Product Data	Enclosures	2.2.4													
571			26 28 21.00 40	06	Test Reports	Qualification Testing	1.3.1													
572			26 28 21.00 40	06	Test Reports	Operation Tests	1.3.1													
573			26 28 21.00 40	07	Certificates	Listing of Product Installations	3.1													
574			26 28 21.00 40	08	Manufacturer’s Instructions	Automatic Transfer Switch	2.2.2													
575			26 32 15	01	Preconstruction Submittals	Manufacturer's data	1.5													
576			26 32 15	02	Shop Drawings	Layout and Installation Drawings	1.5													
577			26 32 15	02	Shop Drawings	Piping Drawings	1.5													
578			26 32 15	03	Product Data	Catalog Data	1.5													

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579			26 32 15	03	Product Data	ASME Nameplate/Dataplate	1.5													
580			26 32 15	05	Design Data	Design Calculations	1.5													
581			26 32 15	06	Test Reports	Pressure and Leakage Tests	3.4													
582			26 32 15	07	Certificates	Certificates	1.5													
583			26 32 15	08	Manufacturer's Instructions	Operation and Maintenance Training	3.5.2													
584			26 32 15	10	Operation and Maintenance Data	Operation and Maintenance Manuals	3.5.1													
585			26 36 14	02	Shop Drawings	Connection Diagrams	2.11													
586			26 36 14	02	Shop Drawings	Fabrication Drawings	2.12													
587			26 36 14	02	Shop Drawings	Installation Drawings	2.13													
588			26 36 14	03	Product Data	Equipment and Performance Data	2.14													
589			26 36 14	03	Product Data	Specification and Data Sheets	2.15													
590			26 36 14	06	Test Reports	Factory Tests	3.1													
591			26 36 14	06	Test Reports	On Site Acceptance Test	3.2													
592			26 36 14	07	Certificates	Manufacturer's Certification of Prototype Testing	2.16													
593			26 36 14	08	Manufacturer's Instructions	Manufacturer's published warranty documents	1.4													
594			26 36 14	08	Manufacturer's Instructions	Operation and Maintenance Training	3.4													
595			26 36 14	10	Operation and Maintenance Data	Operation and Maintenance Manuals	3.3													
596			26 41 00	02	Shop Drawings	Overall Lightning Protection System	1.4.1.1													
597			26 41 00	02	Shop Drawings	Each Major Component	1.4.1.2													
598			26 41 00	06	Test Reports	Lightning Protection and Grounding System Test Plan	1.4.3													
599			26 41 00	06	Test Reports	Lightning Protection and Grounding System Test	3.5.1													
600			26 41 00	07	Certificates	Lightning Protection System Installers Documentation	1.2.3													
601			26 41 00	07	Certificates	Component UL Listed and Labeled	1.4.2													
602			26 41 00	07	Certificates	Lightning Protection System Inspection Certificate	1.4.4													
603			26 42 14.00 10	02	Shop Drawings	Drawings	1.3.6													
604			26 42 14.00 10	02	Shop Drawings	Contractor's Modifications	2.1.1													
605			26 42 14.00 10	03	Product Data	Equipment	2.1													
606			26 42 14.00 10	03	Product Data	Spare Parts	1.5													
607			26 42 14.00 10	06	Test Reports	Tests and Measurements	3.5													
608			26 42 14.00 10	06	Test Reports	Contractor's Modifications	2.1.1													
609			26 42 14.00 10	07	Certificates	Cathodic Protection System	2.1													
610			26 42 14.00 10	07	Certificates	Services of 'Corrosion Expert'	1.3.1													
611			26 42 14.00 10	10	Operation and Maintenance Data	Cathodic Protection System	2.1													
612			26 42 14.00 10	10	Operation and Maintenance Data	Training Course	3.6													
613			26 51 00.00 40	02	Shop Drawings	Lighting Fixtures	2.2.1													
614			26 51 00.00 40	02	Shop Drawings	Enclosed and Gasketed Vapor-Tight Fixtures	2.2.5													
615			26 51 00.00 40	03	Product Data	Lighting Fixtures	2.2.1													
616			26 51 00.00 40	03	Product Data	Time Switch	2.6													

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617			26 51 00.00 40	03	Product Data	Photocell Switch	2.7													
618			26 51 00.00 40	03	Product Data	Power Hook Fixture Hangers	2.3.2													
619			26 51 00.00 40	03	Product Data	Emergency Lighting Equipment	2.9													
620			26 51 00.00 40	03	Product Data	Local/Regional Materials Documentation	1.3.1													
621			26 51 00.00 40	03	Product Data	Environmental Data	1.3.1													
622			26 51 00.00 40	03	Product Data	Energy Efficiency Data	1.3.1													
623			26 51 00.00 40	03	Product Data	LED Luminaires	2.3.1.2													
624			26 51 00.00 40	04	Samples	LED Lighting Fixtures	1.5.1													
625			26 51 00.00 40	04	Samples	LED Lighting Fixtures	1.5.5													
626			26 51 00.00 40	06	Test Reports	Operating Tests	3.3													
627			26 51 00.00 40	07	Certificates	Energy Star Documentation	1.5.5													
628			26 51 00.00 40	10	Operation and Maintenance Data	Operational Service	1.3.1													
629			26 56 00	01	Preconstruction Submittals	Photometric Plan	1.6.2													
630			26 56 00	02	Shop Drawings	LED Luminaire drawings	1.6.1.1													
631			26 56 00	02	Shop Drawings	Poles	1.6.1.2													
632			26 56 00	03	Product Data	LED Luminaire Light Sources	2.2.2													
633			26 56 00	03	Product Data	LED Luminaire Drivers	2.2.3.1													
634			26 56 00	03	Product Data	Lighting contactor	2.4.3													
635			26 56 00	03	Product Data	Time switch	2.4.2													
636			26 56 00	03	Product Data	Motion Sensor	2.4.4													
637			26 56 00	03	Product Data	Photocell	2.4.1													
638			26 56 00	03	Product Data	Concrete poles	2.5.1													
639			26 56 00	03	Product Data	Aluminum poles	2.5.2													
640			26 56 00	03	Product Data	Brackets	2.6													
641			26 56 00	04	Samples	LED Luminaire Samples	1.5.1													
642			26 56 00	05	Design Data	Design Data for luminaires	1.6.3													
643			26 56 00	06	Test Reports	LED Luminaire - IES LM-79 Test Report	1.6.4													
644			26 56 00	06	Test Reports	LED Light Source - IES LM-80 Test Report	1.6.5													
645			26 56 00	06	Test Reports	Operating test	3.2													
646			26 56 00	07	Certificates	Luminaire Useful Life Certificate	1.8.1													
647			26 56 00	08	Manufacturer's Instructions	Concrete poles	2.5.1													
648			26 56 00	10	Operation and Maintenance Data	LED Luminaire Warranty	1.8.1													
649			26 60 13.00 40	01	Preconstruction Submittals	Sample Warranty	1.2.1													
650			26 60 13.00 40	01	Preconstruction Submittals	Equipment and Performance Data	1.2.1													
651			26 60 13.00 40	02	Shop Drawings	Informational Drawings	1.2.1													
652			26 60 13.00 40	03	Product Data	Motor Enclosures	2.2.2													
653			26 60 13.00 40	03	Product Data	Rotor Bars	1.2.1													

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654			26 60 13.00 40	03	Product Data	Stator Slots	1.2.1													
655			26 60 13.00 40	03	Product Data	Rotational Speed	1.2.1													
656			26 60 13.00 40	03	Product Data	Cooling Fan Blades	1.2.1													
657			26 60 13.00 40	03	Product Data	Bearing Manufacturer	1.2.1													
658			26 60 13.00 40	03	Product Data	Bearing Style	1.2.1													
659			26 60 13.00 40	03	Product Data	Bearing Type	1.2.1													
660			26 60 13.00 40	03	Product Data	Balls/Elements	1.2.1													
661			26 60 13.00 40	03	Product Data	Commutator Bars	1.2.1													
662			26 60 13.00 40	03	Product Data	Commutator Brushes	1.2.1													
663			26 60 13.00 40	03	Product Data	SCR Firing Frequencies	1.2.1													
664			26 60 13.00 40	06	Test Reports	Factory Test Results	2.3													
665			26 60 13.00 40	06	Test Reports	Field Test Results	3.2													
666			26 60 13.00 40	07	Certificates	Product Certificates	1.2.1													
667			26 60 13.00 40	08	Manufacturer’s Instructions	Manufacturer's Instructions	3.3.1													
668			26 60 13.00 40	10	Operation and Maintenance Data	Operating and Maintenance Manual	3.3.1													
669			26 60 13.00 40	11	Closeout Submittals	Warranty	3.3.2													
670			31 00 00	01	Preconstruction Submittals	Haul Road Plan	1.4.5													
671			31 00 00	01	Preconstruction Submittals	Surface Water Management Plan	3.2.3													
672			31 00 00	01	Preconstruction Submittals	Borrow and Site Materials Management Plan	Part 3													
673			31 00 00	01	Preconstruction Submittals	Summary of Proof of Concept	1.4.4													
674			31 00 00	01	Preconstruction Submittals	Qualifications of the Contractor's Corps Validated Testing Laboratory	Part 3													
675			31 00 00	01	Preconstruction Submittals	Settlement Monitoring Plan	3.8.1													
676			31 00 00	01	Preconstruction Submittals	Erosion Control Plan	3.12													
677			31 00 00	01	Preconstruction Submittals	Work-Around Plan	3.8.2													
678			31 00 00	01	Preconstruction Submittals	Qualifications of Dewatering Specialist	3.2													
679			31 00 00	01	Preconstruction Submittals	Qualifications of Civil/Geotechnical Engineer	1.3.16													
680			31 00 00	01	Preconstruction Submittals	Earthen Cofferdam Plan	1.3.21													
681			31 00 00	01	Preconstruction Submittals	Sheet Pile Cofferdam Plan	1.3.24													
682			31 00 00	01	Preconstruction Submittals	Dewatering Plan	1.3.22													
683			31 00 00	01	Preconstruction Submittals	LOT Testing Plan	3.2													
684			31 00 00	03	Product Data	Utilization of Excavated Materials	3.6													
685			31 00 00	03	Product Data	Filter Sand Quality Data	2.1													
686			31 00 00	06	Test Reports	Testing	3.10													
687			31 00 00	06	Test Reports	In-Place Density Test Results	3.10													
688			31 00 00	06	Test Reports	Laboratory Test Results	2.2													
689			31 00 00	06	Test Reports	Determination of Waiting Period Duration	3.8.1													
690			31 00 00	06	Test Reports	Foundation Inspection Checklist	3.2.6													

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691			31 00 00	11	Closeout Submittals	As-Built Surveys	3.15													
692			31 00 00	11	Closeout Submittals	Canal Cross Sections	3.15													
693			31 05 19	01	Preconstruction Submittals	Geotextile Layout Plan	1.4.1													
694			31 05 19	01	Preconstruction Submittals	Installation Plan	1.4.1.1													
695			31 05 19	03	Product Data	Thread	2.1.2													
696			31 05 19	03	Product Data	Manufacturer's Quality Control Manual	2.2													
697			31 05 19	04	Samples	Samples	3.1.1													
698			31 05 19	06	Test Reports	Manufacturer's Quality Control Tests	2.2													
699			31 05 19	06	Test Reports	Quality Control Test Results	3.1.2													
700			31 05 19	07	Certificates	Manufacturer's Certificate of Compliance	2.1													
701			31 05 19	07	Certificates	Geotextile	2.1													
702			31 09 00	01	Preconstruction Submittals	Temporary Piezometer Installation and Monitoring Plan	1.6.1													
703			31 09 00	01	Preconstruction Submittals	Settlement Plate Installation and Monitoring Plan	1.6.2													
704			31 09 00	01	Preconstruction Submittals	Permanent Piezometer Installation Plan	1.6.3													
705			31 09 00	01	Preconstruction Submittals	Survey Monument Installation Plan	1.6.4													
706			31 09 00	03	Product Data	Settlement Plates	1.6.6													
707			31 09 00	03	Product Data	Filter Sand Quality Data	2.1													
708			31 09 00	03	Product Data	Boring Logs	1.6.5													
709			31 09 00	03	Product Data	Piezometer Type	2.1													
710			31 09 00	06	Test Reports	Piezometer Completion Report	1.6.8													
711			31 09 00	11	Closeout Submittals	As-Built Surveys	3.7													
712			31 11 00	01	Preconstruction Submittals	Sequence Plan	1.4													
713			31 11 00	01	Preconstruction Submittals	Burn Permits	3.4													
714			31 23 13	01	Preconstruction Submittals	Prepared Foundation Grade Plan	1.6.1													
715			31 23 13	01	Preconstruction Submittals	Proof of Concept Plan	1.6.2													
716			31 23 13	01	Preconstruction Submittals	Dewatering Plan	1.6.4													
717			31 23 13	01	Preconstruction Submittals	Summary of Proof of Concept	1.6.6													
718			31 23 13	01	Preconstruction Submittals	Surveys for Mapping	1.6.5													
719			31 23 13	06	Test Reports	Prepared Foundation Grade Status Report	1.6.3													
720			31 23 13	06	Test Reports	Foundation Inspection Checklist	1.6.7													
721			31 23 23	03	Product Data	mix design	2.2													
722			31 23 23	06	Test Reports	Strength test data	2.2													
723			31 25 13	01	Preconstruction Submittals	Soil-Cement Placement Plan	1.5													
724			31 25 13	01	Preconstruction Submittals	Summary of Proof of Concept	1.5													
725			31 25 13	01	Preconstruction Submittals	Qualifications of the Contractor's USACE Validated Testing Laboratory	1.5													
726			31 25 13	01	Preconstruction Submittals	Erosion Control Plan	1.5													

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727			31 25 13	03	Product Data	Mill Certification for Cement	1.5.1													
728			31 25 13	03	Product Data	Mixing Plant Equipment Calibration Results	1.5													
729			31 25 13	03	Product Data	Soil-Cement Mix Design Results	1.5													
730			31 25 13	03	Product Data	Non-Woven Geotextile Data Sheets	1.5													
731			31 25 13	06	Test Reports	In-Place Density Test Results	1.5													
732			31 25 13	06	Test Reports	Laboratory Test Results	1.5													
733			31 25 13	06	Test Reports	Soil Cement Coring Results	3.15.3													
734			31 32 11	01	Preconstruction Submittals	Work Sequence Schedule	1.7													
735			31 32 11	01	Preconstruction Submittals	Erosion Control Plan	1.7													
736			31 32 11	01	Preconstruction Submittals	Equipment	1.5.4													
737			31 32 11	02	Shop Drawings	Erosion Control Measures Layout	3.3													
738			31 32 11	02	Shop Drawings	Silt Fence	2.2													
739			31 32 11	02	Shop Drawings	Silt Fence	2.2													
740			31 32 11	02	Shop Drawings	Soil Tracking Device	2.7													
741			31 32 11	02	Shop Drawings	Adjustments for Obstructions	3.5													
742			31 32 11	02	Shop Drawings	Sediment or Settling Ponds	3.6.2													
743			31 32 11	02	Shop Drawings	Maintenance Record	3.9													
744			31 32 11	03	Product Data	Wattles	3.6.4													
745			31 32 11	03	Product Data	Seed	2.5													
746			31 32 11	03	Product Data	Wood Hydraulic Mulch	2.4.4													
747			31 32 11	03	Product Data	Plastic Sheeting	2.4.4													
748			31 32 11	07	Certificates	Tier II FDEP Qualified Inspector	1.8													
749			31 32 11	07	Certificates	Mulch	2.4													
750			31 32 11	07	Certificates	Wood Hydraulic Mulch	2.4.4													
751			31 32 11	07	Certificates	Geotextile Fabrics	2.2													
752			31 32 11	07	Certificates	Installer's Qualification	1.5.1													
753			31 32 11	10	Operation and Maintenance Data	Maintenance Instructions	3.9.2													
754			31 41 16	02	Shop Drawings	Metal Sheet Piling	2.1													
755			31 41 16	02	Shop Drawings	Vinyl Sheet Piling	2.4.2													
756			31 41 16	02	Shop Drawings	Vinyl Sheet Piles Cross Sectional Data	2.4.2													
757			31 41 16	02	Shop Drawings	Pile With Interlocks	2.4.2													
758			31 41 16	03	Product Data	Driving	3.2.2.2													
759			31 41 16	03	Product Data	Pile Driving Equipment	3.2.1													
760			31 41 16	03	Product Data	Pulling and Redriving	3.2.5													
761			31 41 16	03	Product Data	Vinyl Sheet Piles Cross Sectional Data	2.4.2													
762			31 41 16	03	Product Data	Interlocks	2.4.2													
763			31 41 16	06	Test Reports	Materials Tests	2.3.1													
764			31 41 16	06	Test Reports	Vinyl Sheet Piles Certificate of Analysis														

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765			31 41 16	06	Test Reports	Certificate Of Analysis	2.4.3													
766			31 41 16	11	Closeout Submittals	Pile Driving Record	3.4													
767			31 41 16	11	Closeout Submittals	Vinyl Sheet Pile Warranty														
768			31 41 16	11	Closeout Submittals	manufacturer/OEM warranty	2.4.3													
769			31 52 10	01	Preconstruction Submittals	Dewatering Plan	1.5.1.1													
770			31 52 10	01	Preconstruction Submittals	Cofferdam Work Plan	1.5.1.2													
771			31 52 10	01	Preconstruction Submittals	Contingency Plan	1.7.4													
772			31 52 10	01	Preconstruction Submittals	Support of Excavation Submittals	1.5.1.3													
773			31 52 10	01	Preconstruction Submittals	Open Cut Excavation Stability Plan	1.5.1.4													
774			31 52 10	01	Preconstruction Submittals	Earthen Cofferdam Plan	1.5.1.5													
775			31 52 10	01	Preconstruction Submittals	Dewatering Schedule	1.5.1.6													
776			31 52 10	01	Preconstruction Submittals	Qualifications of Civil/Geotechnical Engineer	1.6.2													
777			31 52 10	01	Preconstruction Submittals	Surface Water Management Plan	1.5.1													
778			31 52 10	02	Shop Drawings	Proposed Modifications to Dewatering Systems During Construction	1.5.1.8													
779			31 52 10	03	Product Data	Filter Sand	2.2													
780			31 52 10	03	Product Data	Sheet Pile	2.4													
781			31 52 10	03	Product Data	Structural Steel	2.5													
782			31 52 10	05	Design Data	Design Criteria	1.5.1.9													
783			31 56 13.13	01	Preconstruction Submittals	Qualifications	1.5													
784			31 56 13.13	01	Preconstruction Submittals	Proof of Concept Plan	1.5													
785			31 56 13.13	01	Preconstruction Submittals	Exploration Plan	1.5													
786			31 56 13.13	01	Preconstruction Submittals	SB Backfill Design	1.5													
787			31 56 13.13	01	Preconstruction Submittals	Select Fill Design	1.5													
788			31 56 13.13	01	Preconstruction Submittals	Proof of Concept Summary Report	1.5													
789			31 56 13.13	01	Preconstruction Submittals	SB Wall Construction Plan	1.5													
790			31 56 13.13	01	Preconstruction Submittals	Quality Implementation Plan														
791			31 56 13.13	01	Preconstruction Submittals	Emergency Backfill Plan	1.5													
792			31 56 13.13	01	Preconstruction Submittals	Protection Plan for SB Wall and Chimney Drain														
793			31 56 13.13	03	Product Data	Bentonite Certificate of Compliance	1.5													
794			31 56 13.13	06	Test Reports	Field Test Results	1.6													
795			31 56 13.13	06	Test Reports	Field Soundings and Measurements	1.6													
796			31 56 13.13	06	Test Reports	Laboratory Test Results	1.6													
797			31 62 13.20	01	Preconstruction Submittals	Installation Procedures	1.4.3													
798			31 62 13.20	01	Preconstruction Submittals	Geotechnical Consultant Documentation	1.4.4													
799			31 62 13.20	01	Preconstruction Submittals	Wave Equation Analysis	3.2.1													
800			31 62 13.20	01	Preconstruction Submittals	Wave Equation Analysis	3.2.1													

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801			31 62 13.20	01	Preconstruction Submittals	Order List	3.2.2													
802			31 62 13.20	01	Preconstruction Submittals	quality requirement procedures	1.4.2													
803			31 62 13.20	01	Preconstruction Submittals	Pile Testing Procedures	3.2.1													
804			31 62 13.20	02	Shop Drawings	Piles	1.4.1													
805			31 62 13.20	03	Product Data	Pile Driving Equipment	3.1													
806			31 62 13.20	05	Design Data	Concrete mix design	1.4.5													
807			31 62 13.20	06	Test Reports	Aggregates	2.1.3													
808			31 62 13.20	06	Test Reports	Compressive Strength	2.4.4													
809			31 62 13.20	07	Certificates	Aggregates	2.1.3													
810			31 62 13.20	07	Certificates	Admixtures	2.1.4													
811			31 62 13.20	07	Certificates	Silica fume Manufacturer's representative	1.4.6													
812			31 62 13.20	07	Certificates	Prestressing steel	2.1.5													
813			31 62 13.20	07	Certificates	Cement	2.1.1.1													
814			31 62 13.20	07	Certificates	Fly ash and pozzolan	2.1.1.2													
815			31 62 13.20	07	Certificates	Ground Slag	1.4.5													
816			31 62 13.20	11	Closeout Submittals	Pile records	3.4.1													
817			31 62 19	01	Preconstruction Submittals	Safety Plan	1.5													
818			31 62 19	03	Product Data	Timber pile	1.5													
819			31 62 19	03	Product Data	Driving equipment	1.5													
820			31 62 19	03	Product Data	Cap or cushion block	1.5													
821			31 62 19	03	Product Data	Pile shoes	1.5													
822			31 62 19	06	Test Reports	Inspection report	1.6													
823			31 62 19	11	Closeout Submittals	Pile driving records	1.5													
824			32 11 23.10	06	Test Reports	Density Test Reports	1.8.1													
825			32 11 23.10	07	Certificates	Limerock Material	1.8.1													
826			32 11 39	06	Test Reports	Density test reports	1.5													
827			32 11 39	07	Certificates	Shell Rock	1.5													
828			32 12 13	06	Test Reports	Sampling and Testing	3.7													
829			32 12 13	07	Certificates	Asphalt materials	1.5													
830			32 12 16	01	Preconstruction Submittals	Quality Control Plan	3.9.1													
831			32 12 16	03	Product Data	Job Mix Formula	2.3.1													
832			32 12 16	06	Test Reports	Aggregate	2.2													
833			32 12 16	06	Test Reports	QC Test Results	3.9.1													
834			32 12 16	07	Certificates	Asphalt Cement Binder	2.3.1													
835			32 12 16	07	Certificates	Testing Laboratory	3.5													
836			32 16 23	06	Test Reports	Slump tests	1.5													
837			32 16 23	07	Certificates	Concrete mix designs	1.5													

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838			32 17 23	03	Product Data	Surface Preparation Equipment List	2.1.1													
839			32 17 23	03	Product Data	Application Equipment List	2.1.2													
840			32 17 23	03	Product Data	Material Safety Data Sheets (MSDS)	1.5.1													
841			32 17 23	03	Product Data	Reflective media for roads	2.2.3.1													
842			32 17 23	03	Product Data	Waterborne Paint	2.2.1													
843			32 17 23	03	Product Data	Solvent Borne Paint	2.2.2													
844			32 17 23	06	Test Reports	Reflective Media for Roads	2.2.3.1													
845			32 17 23	06	Test Reports	Waterborne Paint	2.2.1													
846			32 17 23	06	Test Reports	Solvent Borne Paint	2.2.2													
847			32 17 23	06	Test Reports	Test Reports	3.4.1													
848			32 17 23	07	Certificates	Qualifications	1.5.2													
849			32 17 23	07	Certificates	Reflective Media for Roads	2.2.3.1													
850			32 17 23	07	Certificates	Waterborne Paint	2.2.1													
851			32 17 23	07	Certificates	Solvent Borne Paint	2.2.2													
852			32 17 23	07	Certificates	Volatile Organic Compound	1.5.1													
853			32 17 23	08	Manufacturer's Instructions	Waterborne Paint	2.2.1													
854			32 17 23	08	Manufacturer's Instructions	Solvent Borne Paint	2.2.2													
855			32 31 13	02	Shop Drawings	Fence Assembly	2.1													
856			32 31 13	02	Shop Drawings	Fence Assembly	2.1													
857			32 31 13	02	Shop Drawings	Location of Gate(s), Corner, End, and Pull Posts	2.1													
858			32 31 13	02	Shop Drawings	Location of Gate(s), Corner, End, and Pull Posts	3.2.1.1													
859			32 31 13	02	Shop Drawings	Gate Assembly	2.1													
860			32 31 13	02	Shop Drawings	Gate Hardware and Accessories	2.2.14													
861			32 31 13	02	Shop Drawings	Erection/Installation Drawings	Part 3													
862			32 31 13	03	Product Data	Fabric	2.2.1													
863			32 31 13	03	Product Data	Line Posts	2.2.3													
864			32 31 13	03	Product Data	End, Corner and Pull Posts	2.2.4													
865			32 31 13	03	Product Data	Sleeves	2.2.5													
866			32 31 13	03	Product Data	Top Rail	2.2.6													
867			32 31 13	03	Product Data	Bottom Rail	2.2.7													
868			32 31 13	03	Product Data	Post-Brace Assembly	2.2.8													
869			32 31 13	03	Product Data	Stretcher Bars	2.2.9													
870			32 31 13	03	Product Data	Stretcher Bar Bands	2.2.10													
871			32 31 13	03	Product Data	Post Tops	2.2.11													
872			32 31 13	03	Product Data	Gate Posts	2.2.12													
873			32 31 13	03	Product Data	Gate Hardware and Accessories	2.2.14													
874			32 31 13	03	Product Data	Padlocks	2.2.17													

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875			32 31 13	03	Product Data	Barbed Wire and Supporting Arms	2.2.18													
876			32 31 13	03	Product Data	Zinc Coating	2.3.1													
877			32 31 13	03	Product Data	Fence Mounted Warning Signs	2.2.18													
878			32 31 13	03	Product Data	Concrete	2.3.3													
879			32 31 13	03	Product Data	Grout	2.3.4													
880			32 31 13	07	Certificates	Certificates of Compliance	1.5.1													
881			32 31 13	08	Manufacturer's Instructions	Fence Assembly	2.1													
882			32 31 13	08	Manufacturer's Instructions	Fence Assembly	2.1													
883			32 31 13	08	Manufacturer's Instructions	Gate Assembly	2.1													
884			32 31 13	08	Manufacturer's Instructions	Hardware Assembly	2.1													
885			32 31 13	08	Manufacturer's Instructions	Barbed Wire and Supporting Arms	2.2.18													
886			32 31 13	08	Manufacturer's Instructions	Accessories	2.1													
887			32 31 26	02	Shop Drawings	Gates	1.5.1													
888			32 31 26	02	Shop Drawings	Corner Post Assemblies	1.5.1													
889			32 31 26	02	Shop Drawings	Pull Post Assemblies	1.5.1													
890			32 31 26	02	Shop Drawings	Installation Drawings	1.5.2													
891			32 31 26	03	Product Data	Gate Assembly	1.5.3													
892			32 31 26	07	Certificates	Posts	1.5.4													
893			32 31 26	07	Certificates	Barbed Wire Fence	1.1													
894			32 31 26	07	Certificates	Barbed Wire Fence	1.5.4													
895			32 31 26	07	Certificates	Woven Wire Farm Fence	1.5.1													
896			32 31 26	07	Certificates	Woven Wire Farm Fence	1.5.4													
897			32 31 29	02	Shop Drawings	Fence System	1.5.1													
898			32 31 29	07	Certificates	Post and Rail	1.5.1													
899			32 31 53	02	Shop Drawings	Fabrication Drawings for Cattle Guard	1.6													
900			32 31 53	02	Shop Drawings	Fabrication Drawings for Cattle Guard Wings	1.6													
901			32 31 53	02	Shop Drawings	Concrete Foundation	1.6													
902			32 31 53	02	Shop Drawings	Drainage System	1.6													
903			32 31 53	06	Test Reports	Mill test reports	1.6													
904			32 31 53	06	Test Reports	Weld inspection and testing reports	3.8													
905			32 31 53	06	Test Reports	Bolted connection inspection and testing reports	3.8													
906			32 31 53	07	Certificates	Manufacturer's certificate	1.6													
907			32 31 53	07	Certificates	Welding Work	1.5													
908			32 31 53	07	Certificates	Filter fabric	1.6													
909			32 31 53	07	Certificates	Course aggregate	1.6													
910			32 31 53	08	Manufacturer's Instructions	Installation instructions	1.6													
911			32 90 00	01	Preconstruction Submittals	Sources or Suppliers	1.5													

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912			32 90 00	01	Preconstruction Submittals	Spraying, Dusting Materials or Insecticide Soaps	1.5													
913			32 90 00	02	Shop Drawings	Staking and Guying	1.5													
914			32 90 00	04	Samples	Soil Types	1.5													
915			32 90 00	04	Samples	Mulch	1.5													
916			32 90 00	04	Samples	Fertilizer	1.5													
917			32 90 00	04	Samples	Control Measures	1.5													
918			32 90 00	04	Samples	Personnel	1.7													
919			32 90 00	04	Samples	Plants	1.5													
920			32 92 19	03	Product Data	Wood Cellulose Fiber Mulch	2.6.3													
921			32 92 19	03	Product Data	Fertilizer	2.5													
922			32 92 19	06	Test Reports	Topsoil Composition Tests	2.2.3													
923			32 92 19	07	Certificates	Seed	2.1													
924			32 92 23	03	Product Data	Fertilizer	2.5													
925			32 92 23	06	Test Reports	Topsoil Composition Tests	2.2.3													
926			32 92 23	07	Certificates	State Certification and Approval for Sod	2.1.1													
927			33 03 00	01	Preconstruction Submittals	Site Plan	1.5													
928			33 03 00	02	Shop Drawings	Floating Turbidity Barrier	2.1													
929			33 03 00	02	Shop Drawings	Floating Turbidity Barrier	2.1													
930			33 03 00	03	Product Data	Floating Turbidity Barrier	2.1													
931			33 03 00	03	Product Data	Floating Turbidity Barrier	2.1													
932			33 03 00	06	Test Reports	Monitoring Data	3.2													
933			33 03 00	07	Certificates	Inspector Qualifications	1.6													
934			33 11 53	02	Shop Drawings	Installation Diagrams	3.8.2													
935			33 11 53	02	Shop Drawings	Survey Maps and Notes	3.8.5													
936			33 11 53	03	Product Data	Borehole Logs	3.8.1													
937			33 11 53	03	Product Data	Installation Diagrams	3.8.2													
938			33 11 53	03	Product Data	Well Development Records	3.8.3													
939			33 11 53	03	Product Data	Well Decommissioning/Abandonment Records	3.8.4													
940			33 11 53	03	Product Data	Qualifications	1.5.2													
941			33 11 53	03	Product Data	Permits	1.7													
942			33 11 53	03	Product Data	Monitoring Well Installation Plan	1.3.1													
943			33 11 53	03	Product Data	Monitoring Well Installation Plan	3.3.1													
944			33 11 53	03	Product Data	Documentation and Quality Control Reports	3.8													
945			33 11 53	06	Test Reports	Water Source	3.2.3													
946			33 11 53	06	Test Reports	Filter Pack	2.4													
947			33 11 53	06	Test Reports	Drilling Fluid Additive	3.3.1													

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948			33 30 20	03	Product Data	Weekly Progress Reports	1.5													
949			33 30 20	03	Product Data	Staff Gauges	2.1													
950			33 30 20	03	Product Data	Staff Gauges	3.2													
951			33 30 20	11	Closeout Submittals	Surveyor's Report	1.5													
952			33 40 00	02	Shop Drawings	Mitered End Sections	2.2.2.1													
953			33 40 00	02	Shop Drawings	Headwalls	3.5.2													
954			33 40 00	02	Shop Drawings	Flap Gate	1.5													
955			33 40 00	02	Shop Drawings	Flap Gate	1.5													
956			33 40 00	02	Shop Drawings	Flap Gate	1.5													
957			33 40 00	03	Product Data	Concrete Pipe	2.1.1													
958			33 40 00	03	Product Data	Flap Gate	1.5													
959			33 40 00	03	Product Data	Flap Gate	1.5													
960			33 40 00	03	Product Data	Flap Gate	1.5													
961			33 40 00	07	Certificates	Concrete Pipe	2.1.1													
962			33 40 00	07	Certificates	Oil Resistant Gasket	2.3.6.1													
963			33 40 00	07	Certificates	Hydrostatic Test on Watertight Joints	3.8.1.1													
964			33 40 00	07	Certificates	Determination of Density	3.8.1.3													
965			33 40 00	07	Certificates	Drainage Inlets	2.2.1													
966			33 40 00	07	Certificates	Frame and Cover for Gratings	2.3.5													
967			33 40 00	07	Certificates	Post-Installation Inspection Report	3.9.1.2													
968			33 40 00	07	Certificates	Pipeline Testing	3.9.3													
969			33 40 00	07	Certificates	Placing Pipe	1.5													
970			33 40 00	07	Certificates	Flap Gate	1.5													
971			33 40 00	07	Certificates	Flap Gate	1.5													
972			33 40 00	07	Certificates	Flap Gate	1.5													
973			33 42 14	02	Shop Drawings	Manufacturer's Shop Drawings	1.5													
974			33 42 14	02	Shop Drawings	Culvert Installation Plan	1.5													
975			33 42 14	06	Test Reports	Laboratory Test Results	1.5													
976			33 42 14	07	Certificates	Manufacturer's Certification	1.5													
977			33 42 14	11	Closeout Submittals	Field Measured Cross-sections	1.5													
978			33 46 13	01	Preconstruction Submittals	Drain Pipe Installation Plan	3.1.1													
979			33 46 13	01	Preconstruction Submittals	Summary of Proof of Concept	3.1.2													
980			33 46 13	03	Product Data	Pipe Materials	2.1													
981			33 46 13	03	Product Data	Filter Sand Quality Data	2.2													
982			33 46 13	03	Product Data	No. 89 Stone Quality Data	2.2													
983			33 46 13	07	Certificates	Pipe Materials	2.1													
984			33 71 02	03	Product Data	Conduit	2.1													

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985			33 71 02	03	Product Data	Conductors and cables	2.2													
986			33 71 02	03	Product Data	Handhole frames and covers	2.9.1													
987			33 71 02	03	Product Data	Composite/fiberglass handholes	2.9.2													
988			33 71 02	03	Product Data	Protective Devices and Coordination Study	2.10.2													
989			33 71 02	07	Certificates	Certificate of Conformance	1.5.1													
990			35 01 70.13	01	Preconstruction Submittals	Manufacturer's Qualifications	2.1													
991			35 01 70.13	01	Preconstruction Submittals	Supervisor's Qualifications	1.4													
992			35 01 70.13	02	Shop Drawings	End Terminations	2.1.11													
993			35 01 70.13	03	Product Data	Lubrication	2.2													
994			35 01 70.13	03	Product Data	Pre-Stretching	2.1.3													
995			35 01 70.13	06	Test Reports	Tension Testing	2.1.12													
996			35 01 70.13	06	Test Reports	Wire Strength and Ductility	2.1.4													
997			35 01 70.13	06	Test Reports	Pre-Forming	2.1.5													
998			35 01 70.13	06	Test Reports	Stress Relief '(Wrapping Test)'	2.1.6													
999			35 01 70.13	06	Test Reports	End Terminations	2.1.11													
1,000			35 01 70.13	07	Certificates	Warranty	1.7													
1,001			35 01 70.13	07	Certificates	Type of Wire Rope	2.1.2													
1,002			35 01 70.13	07	Certificates	Tension Testing Equipment	2.1.12													
1,003			35 20 14	02	Shop Drawings	Detail Drawings	2.6.1													
1,004			35 20 14	03	Product Data	Sequencing and Scheduling	2.6.3													
1,005			35 20 14	03	Product Data	Welding	2.6.3													
1,006			35 20 14	03	Product Data	Materials	2.2													
1,007			35 20 14	03	Product Data	Identification System	1.4.2													
1,008			35 20 14	05	Design Data	Design data and engineering calculations for stoplogs and bulkheads	2.1													
1,009			35 20 14	06	Test Reports	Tests, Inspections, and Verifications	2.7													
1,010			35 20 14	07	Certificates	Leakage Test Reports	2.7.3													
1,011			35 20 16.53	01	Preconstruction Submittals	Storage and handling detailed instructions	1.6													
1,012			35 20 16.53	01	Preconstruction Submittals	Installation instructions	1.6													
1,013			35 20 16.53	01	Preconstruction Submittals	Fracture Control Plan	1.6													
1,014			35 20 16.53	02	Shop Drawings	Signed and Sealed Shop Drawings	1.6													
1,015			35 20 16.53	03	Product Data	Materials	2.7													
1,016			35 20 16.53	03	Product Data	Parts list	1.6													
1,017			35 20 16.53	05	Design Data	Structural design calculations	1.6													
1,018			35 20 16.53	06	Test Reports	Shop and Field Test Results	1.6													
1,019			35 20 16.53	07	Certificates	Material specifications and mill test certificates	1.6													
1,020			35 20 16.53	07	Certificates	Welding qualifications	1.6													

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1,021			35 20 16.53	08	Manufacturer's Instructions	Storage and handling detailed instructions	1.6													
1,022			35 20 16.53	08	Manufacturer's Instructions	Installation Instructions	1.6													
1,023			35 20 16.53	08	Manufacturer's Instructions	Shop and Field Test Procedures	1.6													
1,024			35 20 16.53	10	Operation and Maintenance Data	Operating and maintenance instructions	1.6													
1,025			35 20 16.53	11	Closeout Submittals	AS-BUILT DRAWINGS	1.6													
1,026			35 20 16.54	01	Preconstruction Submittals	Storage and handling detailed instructions	1.6													
1,027			35 20 16.54	01	Preconstruction Submittals	Installation instructions	1.4													
1,028			35 20 16.54	02	Shop Drawings	Signed and Sealed Shop Drawings	1.4													
1,029			35 20 16.54	02	Shop Drawings	Detailed custom drawings	1.4													
1,030			35 20 16.54	03	Product Data	Catalog data and illustrations	1.4													
1,031			35 20 16.54	03	Product Data	Spare parts list	1.4													
1,032			35 20 16.54	03	Product Data	Protective coating system	1.4													
1,033			35 20 16.54	03	Product Data	Weights of gate assemblies	1.4													
1,034			35 20 16.54	05	Design Data	Calculations	1.4													
1,035			35 20 16.54	05	Design Data	Engineering calculations	1.4													
1,036			35 20 16.54	06	Test Reports	Test reports	1.4													
1,037			35 20 16.54	06	Test Reports	Leakage testing procedure	1.4													
1,038			35 20 16.54	07	Certificates	Certificates	1.4													
1,039			35 20 16.54	07	Certificates	Affidavits of compliance	1.4													
1,040			35 20 16.54	08	Manufacturer's Instructions	Assembly, disassembly and repair instructions and procedures	1.4													
1,041			35 20 16.54	08	Manufacturer's Instructions	Installation manuals	1.4													
1,042			35 20 16.54	10	Operation and Maintenance Data	Operation and maintenance manuals	1.4													
1,043			35 20 16.54	11	Closeout Submittals	AS-BUILT DRAWINGS	1.4													
1,044			35 20 20	02	Shop Drawings	Limit Switch	2.3													
1,045			35 20 20	02	Shop Drawings	Hoist Motor	2.1													
1,046			35 20 20	02	Shop Drawings	Control Panel	2.3													
1,047			35 20 20	02	Shop Drawings	Brake Enclosing Case	2.2.6													
1,048			35 20 20	03	Product Data	Hoist Motor	2.1													
1,049			35 20 20	03	Product Data	Brake	2.2													
1,050			35 20 20	03	Product Data	Limit Switch	2.3													
1,051			35 20 20	03	Product Data	Control Panel	2.3													
1,052			35 20 20	03	Product Data	Wiring and Conduit	2.4													
1,053			35 20 20	03	Product Data	Conductors	2.4.1													
1,054			35 20 20	03	Product Data	Terminal Leads	2.1.7													
1,055			35 20 20	03	Product Data	Motor nameplates	2.1.9													
1,056			35 20 20	06	Test Reports	Tests	2.6													

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1,057			35 22 55	02	Shop Drawings	General arrangement drawings	1.6													
1,058			35 22 55	02	Shop Drawings	Detailed shop drawings	1.6													
1,059			35 22 55	02	Shop Drawings	Arrangement of the local control cabinet (LCC)	1.6													
1,060			35 22 55	03	Product Data	Catalog information	1.6													
1,061			35 22 55	05	Design Data	Design Calculations	1.6													
1,062			35 22 55	05	Design Data	Design and location of anchor bolts, bolt size, load on each bolt	1.6													
1,063			35 22 55	05	Design Data	Full line electrical diagram	1.6													
1,064			35 22 55	05	Design Data	Description of electrical controls	1.6													
1,065			35 22 55	06	Test Reports	Gate operator	1.6													
1,066			35 22 55	06	Test Reports	Motor tests	1.6													
1,067			35 22 55	06	Test Reports	Brake tests	1.6													
1,068			35 22 55	06	Test Reports	Shop and Field Test Procedures	1.6													
1,069			35 22 55	06	Test Reports	Shop and Field Test Results	1.6													
1,070			35 22 55	08	Manufacturer's Instructions	Storage and Handling Instructions	1.6													
1,071			35 22 55	08	Manufacturer's Instructions	Installation Instructions	1.6													
1,072			35 22 55	10	Operation and Maintenance Data	Operation and Maintenance Manual	1.6													
1,073			35 22 55	11	Closeout Submittals	As built drawings	1.6													
1,074			35 31 18	02	Shop Drawings	Proposed layout, mattress dimensions, and quantities	1.4.1													
1,075			35 31 18	02	Shop Drawings	Fabrication of the marine mattresses including all connections	1.4.1													
1,076			35 31 18	04	Samples	Geogrid	1.4.2													
1,077			35 31 18	04	Samples	Braid	1.4.2													
1,078			35 31 18	04	Samples	Mechanical Connection Elements	1.4.2													
1,079			35 31 18	04	Samples	Filter fabric	1.4.2													
1,080			35 31 18	06	Test Reports	Dive Video	3.9													
1,081			35 31 18	06	Test Reports	Survey Report	3.9													
1,082			35 31 18	08	Manufacturer's Instructions	Proposed plan	1.4.3													
1,083			35 31 19	03	Product Data	Bedding Stone	1.6.2													
1,084			35 31 19	03	Product Data	Bedding Stone	2.2.1													
1,085			35 31 19	03	Product Data	Bedding Stone	2.2.1													
1,086			35 31 19	03	Product Data	Riprap	1.6.1													
1,087			35 31 19	03	Product Data	Riprap	1.6.1													
1,088			35 31 19	03	Product Data	Riprap	2.1													
1,089			35 31 19	04	Samples	Riprap Stone	1.5.1													
1,090			35 31 19	06	Test Reports	Riprap	1.6.1													
1,091			35 31 19	06	Test Reports	Riprap	1.6.1													
1,092			35 31 19	06	Test Reports	Riprap	2.1													

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1,093			35 31 19	06	Test Reports	Gradation Tests	1.6.1													
1,094			35 31 19	06	Test Reports	Evaluation Testing of Stone	2.1													
1,095			35 31 19	06	Test Reports	Bedding Stone	1.6.2													
1,096			35 31 19	06	Test Reports	Bedding Stone	2.2.1													
1,097			35 31 19	06	Test Reports	Bedding Stone	2.2.1													
1,098			35 31 19	06	Test Reports	Bulk Specific Gravity	1.6.1													
1,099			35 31 19	07	Certificates	Bedding Stone	1.6.2													
1,100			35 31 19	07	Certificates	Bedding Stone	2.2.1													
1,101			35 31 19	07	Certificates	Bedding Stone	2.2.1													
1,102			35 31 19	07	Certificates	State Licensed Professional Geologist	2.1													
1,103			35 31 19.20	02	Shop Drawings	Block Installation	1.6.1													
1,104			35 31 19.20	02	Shop Drawings	Block Installation	3.4													
1,105			35 31 19.20	02	Shop Drawings	Geotextile Installation	3.2.1													
1,106			35 31 19.20	03	Product Data	Blocks, cables, cable fittings, and geotextile	2.1.2													
1,107			35 31 19.20	04	Samples	Articulating Concrete Block	2.1													
1,108			35 31 19.20	06	Test Reports	Flume Test	2.1.3.1													
1,109			35 31 19.20	07	Certificates	Bedding Stone	2.4													
1,110			35 41 21	01	Preconstruction Submittals	Dewatering Plan	1.8													
1,111			35 41 21	01	Preconstruction Submittals	Summary of Proof of Concept	1.9													
1,112			35 41 21	01	Preconstruction Submittals	Outfall Excavation Plan	1.10													
1,113			35 41 21	03	Product Data	Handling and Placing Pipe	1.11													
1,114			35 41 21	03	Product Data	Deflection Measuring Device	1.12													
1,115			35 41 21	06	Test Reports	Laboratory Testing of Backfill	1.13													
1,116			35 41 21	07	Certificates	Manholes	1.16													
1,117			35 41 21	11	Closeout Submittals	As-Built Details of Installed Pressure Relief Systems	3.2.3													
1,118			35 41 21	11	Closeout Submittals	Video Logs	3.2.13													
1,119			35 42 34	01	Preconstruction Submittals	Grassing Work Plan	1.1													
1,120			35 42 34	02	Shop Drawings	Installation plan	1.6													
1,121			35 42 34	03	Product Data	HPTRM Manufacturer's Literature	1.6													
1,122			35 42 34	03	Product Data	Calculations	1.6													
1,123			35 42 34	04	Samples	HPTRM	1.6.3													
1,124			35 42 34	06	Test Reports	Anchor Pullout Tests	1.6.5													
1,125			35 42 34	07	Certificates	Certified Test Results	1.6.3													
1,126			35 42 34	07	Certificates	Certificate of Compliance	1.6.3													
1,127			35 45 02	01	Preconstruction Submittals	Manufacturer's Qualifications	1.5													
1,128			35 45 02	02	Shop Drawings	Mechanical Details and Drawings	1.5													
1,129			35 45 02	03	Product Data	Manufacturer's Standard (Catalog) Performance Curves	1.5													

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1,130			35 45 02	03	Product Data	Coating System Data	1.5													
1,131			35 45 02	05	Design Data	Pump Data	1.5													
1,132			35 45 02	06	Test Reports	Factory Performance Test Setup and Test Procedure	1.5													
1,133			35 45 02	06	Test Reports	Factory Test	1.5													
1,134			35 45 02	06	Test Reports	Component Balance Procedures and Acceptance Criteria	1.5													
1,135			35 45 02	06	Test Reports	Field Test Procedure	1.5													
1,136			35 45 02	06	Test Reports	Field Performance Test	1.5													
1,137			35 45 02	06	Test Reports	Pump Manufacturer's Certification of Equipment Installation	1.5													
1,138			35 45 02	07	Certificates	Manufacturer's Certification	1.5													
1,139			35 45 02	07	Certificates	Manufacturer's Certification	1.5													
1,140			35 45 02	08	Manufacturer’s Instructions	Erection and Installation Manual	1.5													
1,141			35 45 02	10	Operation and Maintenance Data	Operation and Maintenance Manual	1.5													
1,142			35 51 24	02	Shop Drawings	Trash Barrier	1.5													
1,143			35 51 24	02	Shop Drawings	Concrete Anchor System	1.5													
1,144			35 51 24	03	Product Data	Trash Barrier	1.5													
1,145			35 51 24	07	Certificates	Testing certificate	1.5													
1,146			40 05 13	01	Preconstruction Submittals	Waste Water Disposal	3.13													
1,147			40 05 13	02	Shop Drawings	Materials and Equipment	2.2													
1,148			40 05 13	03	Product Data	Qualifications	1.3													
1,149			40 05 13	03	Product Data	Manufacturer's Field Services	3.15													
1,150			40 05 13	03	Product Data	Delivery, Storage and Handling	1.4													
1,151			40 05 13	03	Product Data	Materials and Equipment	2.2													
1,152			40 05 13	03	Product Data	Installation	1.7.2													
1,153			40 05 13	03	Product Data	Pipe Schedule	2.2													
1,154			40 05 13	03	Product Data	Valve Schedule	2.8.2													
1,155			40 05 13	06	Test Reports	Pipe Leakage Tests	3.11.2													
1,156			40 05 13	06	Test Reports	Hydrostatic Tests	3.11.1													
1,157			40 05 13	06	Test Reports	Valve Testing	3.11.3													
1,158			40 05 13	07	Certificates	Welders	1.3.2													
1,159			40 05 13	07	Certificates	Plastic Piping System	2.5													
1,160			40 05 13	07	Certificates	Plastic Pipe Installation	3.3.9													
1,161			40 05 13	10	Operation and Maintenance Data	Piping and Appurtenances	3.3													
1,162			40 05 13.96	02	Shop Drawings	Pressure Piping	1.6													
1,163			40 05 13.96	03	Product Data	Welding Materials	2.1													
1,164			40 05 13.96	03	Product Data	Welding Operations	3.1													
1,165			40 05 13.96	07	Certificates	Qualifications	1.5													
1,166			40 05 22	03	Product Data	Technical Data	1.4													

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1,167			40 05 22	07	Certificates	Certificates and Affidavits	1.4.1													
1,168			40 05 57.23	02	Shop Drawings	Detailed layout	1.4													
1,169			40 05 57.23	02	Shop Drawings	Stem replacement detail	1.4													
1,170			40 05 57.23	02	Shop Drawings	Control schematic and wiring drawings	1.4													
1,171			40 05 57.23	03	Product Data	Catalog data or illustrations	1.4													
1,172			40 05 57.23	03	Product Data	Torque output catalog data														
1,173			40 05 57.23	03	Product Data	Spare parts list	1.4													
1,174			40 05 57.23	03	Product Data	Protective coating system	1.4													
1,175			40 05 57.23	05	Design Data	Actuator Motor	1.4													
1,176			40 05 57.23	07	Certificates	Actuator Certification	1.4													
1,177			40 05 57.23	08	Manufacturer's Instructions	Assembly and disassembly or repair instructions	1.4													
1,178			40 05 57.23	08	Manufacturer's Instructions	Testing procedures	1.4													
1,179			40 05 57.23	08	Manufacturer's Instructions	Manufacturer's recommendations	1.4													
1,180			40 05 57.23	11	Closeout Submittals	Equipment Tests														
1,181			40 17 30.00 40	03	Product Data	Welding Equipment	2.1.1													
1,182			40 17 30.00 40	03	Product Data	Welding Rods and Accessories	2.1.1													
1,183			40 17 30.00 40	04	Samples	Welder's Pre-Qualification Samples	1.3.1													
1,184			40 17 30.00 40	06	Test Reports	Radiographs	3.2.1.1													
1,185			40 17 30.00 40	07	Certificates	Certified Welding Procedure Specifications	1.3													
1,186			40 17 30.00 40	07	Certificates	Certified Brazing Procedure Specifications	1.3													
1,187			40 17 30.00 40	07	Certificates	Certified Procedure Qualification Records	1.3													
1,188			40 17 30.00 40	07	Certificates	Certified Welder Performance Qualifications	1.3													
1,189			40 17 30.00 40	07	Certificates	Certified Brazer Performance Qualifications	1.3													
1,190			40 17 30.00 40	07	Certificates	Certificates of Conformance	1.3.3.2													
1,191			40 95 00	02	Shop Drawings	Digital System Hardware and Software	1.5.1													
1,192			40 95 00	02	Shop Drawings	Geotech Server Hardware and Software	1.5.2													
1,193			40 95 00	02	Shop Drawings	Geotech PC Workstation Hardware and Software	1.5.3													
1,194			40 95 00	02	Shop Drawings	Communications Information flow schematics and drawings	3.5.5.2													
1,195			40 95 00	03	Product Data	product data for Digital System Hardware and Software	1.5.1													
1,196			40 95 00	03	Product Data	Geotech Embankment and Pressure Relief System Monitoring Server	2.1													
1,197			40 95 00	03	Product Data	Geotech Embankment and Pressure Relief System Monitoring PC Workstation	2.1.2													
1,198			40 95 00	04	Samples	Geotech Embankment and Pressure Relief system Design	1.5													
1,199			40 95 00	04	Samples	Server database design	1.3.1													
1,200			40 95 00	04	Samples	Server database design	1.3.1													

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1,201			40 95 00	04	Samples	User interface display and design	3.5.5.2													
1,202			40 95 00	04	Samples	Program design for RTUs	3.2													
1,203			40 95 00	04	Samples	Server and Database Backup design	1.5.3													
1,204			40 95 00	04	Samples	Interconnect and communications design	3.4.1													
1,205			40 95 00	04	Samples	Factory Acceptance and Test Plan Design	3.1.1													
1,206			40 95 00	06	Test Reports	Adjusting and Commissioning	3.4.1													
1,207			40 95 00	06	Test Reports	Performance Verification Test (PVT)	3.4.2													
1,208			40 95 00	06	Test Reports	Endurance Test	3.4.3													
1,209			40 95 00	06	Test Reports	SFWMD integration, configuration, and testing	3.5.5.2													
1,210			40 95 00	06	Test Reports	USACE integration, configuration, and testing	1.3.1													
1,211			40 95 00	06	Test Reports	PC Workstation installation, integration, testing, and acceptance	2.1.2													
1,212			40 95 00	06	Test Reports	WAN/LAN Server installation, integration, testing, and acceptance	2.3													
1,213			40 95 00	10	Operation and Maintenance Data	Operations and Maintenance Manuals	3.5.5													
1,214			40 95 00	10	Operation and Maintenance Data	RTU, Server, Workstation Instrumentation and Process Control System, and Calibration Sheets	3.5.5.4													

SECTION 01 34 19

PROJECT MEETINGS AND REPORTS

PART 1 GENERAL

1.1 SCOPE

A. Summary of Work: This Section includes the following administrative and procedural requirements:

1. Project Meetings:

   a. Preconstruction Site Condition Survey

   b. Preconstruction conference

   c. Progress meetings

   d. Regular project controls meeting weekly, as needed

2. Schedules and Reports:

   a. Initial coordination submittals

   b. Construction Schedules (See Section 01 32 16 COST LOADED CONSTRUCTION SCHEDULES)

   c. Special reports

B. Related Work Specified Elsewhere:

1. Section 01 33 00 SUBMITTAL PROCEDURES

2. Section 01 32 16 COST LOADED CONSTRUCTION SCHEDULE

1.2 SUBMITTALS

All submittals shall be made in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

1.3 PROJECT MEETINGS

A. Pre-construction Conference

1. The District will administer a pre-construction conference within ten (10) days after the Effective Date of the Agreement, to review items stated in the following agenda and to establish a working understanding between the parties as to their relationships during conduct of the Work.

2. The Preconstruction conference shall be attended by:

   a. The project controls (scheduler), the Contractor and his Project Manager, Project Superintendent, Quality Control Manager, and Safety Representative

   b. Representatives of principal Subcontractors and Suppliers

   c. Engineer and his Resident Project Representative if any

   d. The District or its representative

   e. Other affected parties determined by the District

3. Agenda:

   a. Projected Construction Schedules

   b. Critical Work sequencing and workplan discussion

   c. Designation of responsible personnel

   d. Project coordination

   e. Procedures and Processing of:

      i. Field decisions

      ii. Substitutions

      iii. Submittals

      iv. Change Orders

      v. Applications for payment

   f. Procedures for testing

   g. Procedures for maintaining record documents

   h. Use of Premises:

      i. Office, work and storage areas

      ii. The District's requirements

   i. Construction facilities, controls, and construction aids

   j. Temporary utilities

   k. Safety and first aid

   l. Security

   m. Requirements of any permits obtained by the District and/or the Contractor

n. Work Plan discussion

4. Location of Meeting: At the District construction trailer (Field Office)

B. Progress Meetings:

1. The District will administer a progress meeting a minimum of twice each month (every two (2) weeks) and at other times requested by the District. The Contractor, Engineer and all Subcontractors active on the Site shall be represented at each meeting. The Contractor may request attendance by representatives of his Suppliers and other Subcontractors, or other entities concerned with the Project or involved with the planning, coordination or performance of future Project activities. All participants in the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.

2. The Contractor and each Subcontractor shall be prepared to report on and discuss the current construction progress, any anticipated future changes to the Construction Schedule, and advise if their current progress, and anticipated future schedules are compatible with the Work.

3. If one Subcontractor is delaying another, the Contractor shall direct such changes as are necessary for those involved to mutually agree on the Construction Schedule changes in the best interest of construction progress.

4. Weekly meetings will be required for coordination between prime Contractors performing work for other contracts on the C-43 Site. Coordination will be required between the concurrent contracts.

5. Agenda

a. Review of construction progress since previous meeting

b. Field observations, interface requirements, conflicts

c. Issues which may impede the Construction Schedule

d. Off-site fabrication

e. Delivery schedules

f. Submittal schedules and status

g. Site utilization/EPP

h. Temporary facilities and services

i. Hours of Work

j. Hazards and risks

k. Housekeeping

l. Quality and Work standards

m. Change orders

n. Documentation of information for payment request

o. Corrective measures and procedures to regain projected schedule, if necessary

p. Revisions to the Construction Schedule

q. Progress and schedule during the succeeding Work period

r. Review proposed changes for:

i. Effect on the Construction Schedule and on the Completion Date

ii. Effect on the other contracts of the Project

s. Review progress against baseline schedule and production and propose necessary adjustments.

t. Status of water supply and stormwater management.

u. Safety

v. Other business

6. Location of Meetings: At mutually agreeable location by Contractor and District

7. Reporting: After each meeting, minutes of the meeting will be distributed by the District to each party present and to parties who should have been present.

C. Special Reports:

1. When an event of an unusual and/or significant nature occurs at the Site, a special report shall be prepared and submitted by the Contractor to the District. List the chain of events, persons participating, the response by Contractor's personnel, an evaluation of the results or effects, and similar pertinent information.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

SECTION 01 35 26

SAFETY REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z89.1	(2014) Industrial Head Protection
ANSI Z87.2	(2010) Standard for Industrial Safety Eyewear

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.22	(2007; R 2012) Safety Requirements for Rope-Guided and Non-Guided Workers' Hoists
ASSE/SAFE A10.34	(2001; R 2012) Protection of the Public on or Adjacent to Construction Sites
ASSE/SAFE A10.44	(2014) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
ASSE/SAFE Z244.1	(2003; R 2014) Control of Hazardous Energy Lockout/Tagout and Alternative Methods
ASSE/SAFE Z359.0	(2012) Definitions and Nomenclature Used for Fall Protection and Fall Arrest
ASSE/SAFE Z359.1	(2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ASSE/SAFE Z359.11	(2014) Safety Requirements for Full Body Harnesses
ASSE/SAFE Z359.12	(2009) Connecting Components for Personal Fall Arrest Systems
ASSE/SAFE Z359.13	(2013) Personal Energy Absorbers and Energy Absorbing Lanyards
ASSE/SAFE Z359.14	(2014) Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
ASSE/SAFE Z359.15	(2014) Safety Requirements for Single Anchor Lifelines and Fall Arresters for Personal Fall Arrest Systems

ASSE/SAFE Z359.2	(2007) Minimum Requirements for a Comprehensive Managed Fall Protection Program
ASSE/SAFE Z359.3	(2007) Safety Requirements for Positioning and Travel Restraint Systems
ASSE/SAFE Z359.4	(2013) Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
ASSE/SAFE Z359.6	(2009) Specifications and Design Requirements for Active Fall Protection Systems
ASSE/SAFE Z359.7	(2011) Qualification and Verification Testing of Fall Protection Products
ASSE/SAFE Z490.1	(2009) Criteria for Accepted Practices in Safety, Health, and Environmental Training

ASME INTERNATIONAL (ASME)

ASME B30.20	(2013; INT Oct 2010 - May 2012) Below-the-Hook Lifting Devices
ASME B30.22	(2016) Articulating Boom Cranes
ASME B30.23	(2011) Personnel Lifting Systems Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings
ASME B30.26	(2015; INT Jun 2010 - Jun 2014) Rigging Hardware
ASME B30.3	(2016) Tower Cranes
ASME B30.5	(2014) Mobile and Locomotive Cranes
ASME B30.7	(2011) Winches
ASME B30.8	(2015) Floating Cranes and Floating Derricks
ASME B30.9	(2014; INT Feb 2011 - Nov 2013) Slings

ASTM INTERNATIONAL (ASTM)

ASTM F855	(2015) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment
ASTM F2413	(2011) Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1048	(2003) Guide for Protective Grounding of Power Lines
IEEE C2	(2017; Errata 1 2017) National Electrical Safety Code

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NASA-STD 8719.12	(2011; Change 2) Safety Standard for Explosives, Propellants, and Pyrotechnics

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA Z535.2	(2011) Environmental and Facility Safety Signs

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2013) Standard for Portable Fire Extinguishers
NFPA 241	(2013; Errata 2015) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 306	(2014) Standard for Control of Gas Hazards on Vessels
NFPA 51B	(2014) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2017; ERTA 1-2 2017; TIA 17-1; TIA 17-2) National Electrical Code
NFPA 70E	(2015; ERTA 1 2015) Standard for Electrical Safety in the Workplace

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)

TIA-1019	(2012; R 2016) Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas
TIA-222	(2005G; Add 1 2007; Add 2 2009; Add 3 2014; Add 4 2014; R 2014; R 2016) Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 20	Standards for Protection Against Radiation

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1910.147	Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1910.333	Selection and Use of Work Practices
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1915.89	Control of Hazardous Energy (Lockout/Tags-Plus)
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.1400	Cranes and Derricks in Construction
29 CFR 1926.16	Rules of Construction
29 CFR 1926.450	Scaffolds
29 CFR 1926.500	Fall Protection
29 CFR 1926.502	Fall Protection Systems Criteria and Practices
29 CFR 1926.552	Material Hoists, Personal Hoists, and Elevators
29 CFR 1926.553	Base-Mounted Drum Hoists
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
CPL 02-01-056	(2014) Inspection Procedures for Accessing Communication Towers by Hoist
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

1.2 DEFINITIONS

1.2.1 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are dangerous to personnel, and who has authorization to take prompt corrective measures with regards to such hazards. Designated competent persons shall be approved of by the District. The District shall have the option, at its own discretion to have a member of the Contractor's

safety team, including Competent Person(s), and replaced as required with a suitable, District approved replacement CP(s).

1.2.2 Competent Person (CP) Trainer

A competent person trainer as defined in EM 385-1-1 Appendix Q, who is qualified in the material presented, and who possesses a working knowledge of applicable technical regulations, standards, equipment and systems related to the subject matter on which they are training Competent Persons. A competent person trainer must be familiar with the typical hazards and the equipment used in the industry they are instructing. The training provided by the competent person trainer must be appropriate to that specific industry. The competent person trainer must evaluate the knowledge and skills of the competent persons as part of the training process.

1.2.3 Competent Person, Confined Space

The CP, Confined Space, is a person meeting the competent person requirements as defined EM 385-1-1 Appendix Q, with thorough knowledge of OSHA's Confined Space Standard, 29 CFR 1910.146, and designated in writing to be responsible for the immediate supervision, implementation and monitoring of the confined space program, who through training, knowledge and experience in confined space entry is capable of identifying, evaluating and addressing existing and potential confined space hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.4 Competent Person, Cranes and Rigging

The CP, Cranes and Rigging, as defined in EM 385-1-1 Appendix Q, is a person meeting the competent person, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the Crane and Rigging Program, who through training, knowledge and experience in crane and rigging is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.5 Competent Person, Excavation/Trenching

A CP, Excavation/Trenching, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and 29 CFR 1926, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the excavation/trenching program, who through training, knowledge and experience in excavation/trenching is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.6 Competent Person, Fall Protection

The CP, Fall Protection, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and in accordance with ASSE/SAFE Z359.0, who has been designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the fall protection program, who through training, knowledge and experience in fall protection and rescue systems and equipment, is capable of identifying, evaluating and addressing existing and potential fall hazards and, who has

the authority to take prompt corrective measures with regard to such hazards.

1.2.7 Competent Person, Scaffolding

The CP, Scaffolding is a person meeting the competent person requirements in EM 385-1-1 Appendix Q, and designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the scaffolding program. The CP for Scaffolding has enough training, knowledge and experience in scaffolding to correctly identify, evaluate and address existing and potential hazards and also has the authority to take prompt corrective measures with regard to these hazards. CP qualifications must be documented and include experience on the specific scaffolding systems/types being used, assessment of the base material that the scaffold will be erected upon, load calculations for materials and personnel, and erection and dismantling. The CP for scaffolding must have a documented, minimum of 8-hours of scaffold training to include training on the specific type of scaffold being used (e.g. mast-climbing, adjustable, tubular frame), in accordance with EM 385-1-1 Section 22.B.02.

1.2.8 Lock Out Tag Out (LOTO)

The CP, Lockout Tagout (LOTO), is a person requirements as defined in EM 385-1-1 Appendix Q, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the LOTO activities, who through training, knowledge and experience in LOTO activities is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards. Several individuals with specific LOTO experience may fill this role.

1.2.9 High Risk Activities

High Risk Activities are activities that involve work at heights, crane and rigging, excavations and trenching, scaffolding, electrical work, LOTO, and confined space entry.

1.2.10 High Visibility Accident

A High Visibility Accident is any mishap which may generate publicity or high visibility. Accidents associated with work on SR80 shall be considered high visibility.

1.2.11 Load Handling Equipment (LHE)

LHE is a term used to describe cranes, hoists and all other hoisting equipment (hoisting equipment means equipment, including crane, derricks, hoists and power operated equipment used with rigging to raise, lower or horizontally move a load).

1.2.12 Medical Treatment

Medical Treatment is treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or registered personnel. The Contractor shall have on site a full

time licensed nurse or similarly qualified individual, EMT or paramedic to render first aid in the event of an injury.

1.2.13 Near Miss

A Near Miss is a mishap resulting in no personal injury and zero property damage, but given a shift in time or position, damage or injury may have occurred (e.g., a worker falls off a scaffold and is not injured; a crane swings around to move the load and narrowly misses a parked vehicle). A near miss shall be reported as soon as possible. A writen report shall be provided along with corrective actions for future activities within 48 hours of the incident.

1.2.14 Operating Envelope

The Operating Envelope is the area surrounding any crane or load handling equipment. Inside this "envelope" is the crane, the operator, riggers and crane walkers, other personnel involved in the operation, rigging gear between the hook, the load, the crane's supporting structure (i.e. ground or rail), the load's rigging path, the lift and rigging procedure.

1.2.15 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the Work, or the project.

1.2.16 Recordable Injuries or Illnesses

Recordable Injuries or Illnesses are any work-related injury or illness that results in:

a. Death, regardless of the time between the injury and death, or the length of the illness;

b. Days away from work (any time lost after day of injury/illness onset)

c. Restricted work;

d. Transfer to another job;

e. Medical treatment beyond first aid;

f. Loss of consciousness; or

g. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (a) through (f) above.

1.2.17 Load Handling Equipment (LHE) Accident or Load Handling Equipment Mishap

A LHE accident occurs when any one or more of the eight elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or

death; material or equipment damage; dropped load; derailment; two-blocking; overload; or collision, including unplanned contact between the load, crane, or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents, even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, or roll over).

1.3 SUBMITTALS

Submit the following in accordance with Section ~~01 33 00~~01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP)

Safety Messages

Working Storm Preparedness Plan

SD-06 ~~Test~~ Reports

Notifications and Reports

Weekly Safety Audit Reports

Near Miss Reports

Safety Inspection Report

Accident Reports

LHE Inspection Reports

Training and Competent Person Matrix (monthly)

SD-07 Certificates

Crane Operators/Riggers

Standard Lift Plan

Critical Lift Plan

Ground Disturbance Permits

Hazardous Energy Control Program (HECP)

Activity Hazard Analysis (AHA)

Confined Space Entry Permit

Hot Work Permit

License Certificates

Radiography Operation Planning Work Sheet

Portable Gauge Operations Planning Worksheet

Machinery & Mechanized Equipment Certification Form

1.4 GENERAL REQUIREMENTS

Contractor shall establish and implement an Environment, Health and Safety (HSE) Program and develop a written Accident Prevention Plan in Accordance with the requirements of the United Stated Army Corps of Engineers requirements detailed in the most current version of EM 385-1-1. In addition, the Contractor shall staff the project with a qualified Site Safety and Health Officer (SSHO) in accordance with the requirements of EM 385-1-1 Section 01.A.17 and the District Contractors Qualification System (for subcontractors) who are functionally responsible to a Contractor's senior project or corporate official, to assure that during all phases of the Work, all applicable plans, specifications, codes, standards, regulations and law are met. Prior to assigning an SSHO to the project, the Contractor shall submit the resume of their desired SSHO to the District for review and approval.

These requirements are applicable to all contractors performing Work at the C-43 Reservoir Project Site. District personnel may, jointly or separately at their discretion; perform periodic audits during the Work to ensure that the Work is being conducted in accordance with all required plans, specifications, codes, standards, regulations and law. Deficiencies noted will be reported to Contractor for immediate corrective action.

1.5 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, comply with the most recent edition of USACE EM 385-1-1, and the applicable federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting Work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.5.1 Subcontractor Safety Requirements

For this contract, neither Contractor nor any subcontractor may enter into contract with any subcontractor that fails to meet the following requirements. The term subcontractor in this and the following paragraphs means any entity holding a contract with the Contractor or with a subcontractor at any tier. The requirements of the District Contractors Qualification System (see attached) shall apply to this Section.

1.5.1.1 Experience Modification Rate (EMR)

Subcontractors on this contract must have an effective EMR less than or equal to 1.00, as computed by the National Council on Compensation Insurance (NCCI) or if not available, as computed by the state agency's rating bureau in the state where the subcontractor is registered, when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any

tier. The Prime Contractor may submit a written request for additional consideration to the District Construction Manager where the specified acceptable EMR range cannot be achieved. Relaxation of the EMR range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain the certified EMR ratings for all subcontractors on the project and make them available to the District Construction oversight team at the District request.

1.5.1.2 OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate

Subcontractors on this contract must have a DART rate, calculated from the most recent, complete calendar year, less than or equal to 3.4 when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any tier. The OSHA Dart Rate is calculated using the following formula:

(N/EH) x 200,000

where:

N = number of injuries and illnesses with days away, restricted work, or job transfer

EH = total hours worked by all employees during most recent, complete calendar year

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year)

The Prime Contractor may submit a written request for additional consideration to the District Construction Manager where the specified acceptable OSHA Dart rate range cannot be achieved for a particular subcontractor. Relaxation of the OSHA DART rate range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain self-certified OSHA DART rates for all subcontractors on the project and make them available to the District Construction oversight team at the District request.

1.5.1.3 Additional Consideration

If a subcontractor does not comply with the safety requirements mentioned above, then the prime contractor can request additional consideration. Additional consideration will be on case by case basis only and the District reserves the right to condition approval to, but not limited to, the quantities of SSHO, the level of experience of the SSHO, assessment of subcontractor's safety culture, etc.

1.6 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.6.1 Personnel Qualifications

1.6.1.1 Site Safety and Health Officer (SSHO)

Provide an SSHO lead that meets the requirements of EM 385-1-1 Section 1. Contractor shall submit all SSHO(s) personnel qualifications to the District

Safety for review and acceptance. The SSHO(s) must ensure that the requirements of 29 CFR 1926.16 are met for the project and have OSHA 40 hour training. In addition, the Contractor shall provide a Safety oversight team composed of a minimum of four (4) additional SSHOs as the work load dictates. The SSHO(s) are required to be a full-time position with no collateral duties. The additional SSHO shall have the same qualification requirements as the SSHO lead. The SSHO lead(s) or an equally-qualified Alternate SSHO must always be on the work site to implement and administer the Contractor's safety program and District-accepted Accident Prevention Plan. The SSHO and Alternate SSHO must have the required training, experience, and qualifications in accordance with EM 385-1-1 Section 01.A.17, and all associated sub-paragraphs.

If the SSHO is off-site for a period longer than 24 hours or there is a high hazard activity (critical lift, energized work, confined space, excavation, elevated work, LOTO, working over or near water, etc.), an equally-qualified alternate SSHO must be provided and must fulfill the same roles and responsibilities as the primary SSHO. When the SSHO is temporarily (up to 24 hours) off-site, a Designated Representative (DR), as identified in the AHA may be used in lieu of an Alternate SSHO and must be on the project site at all times when Work is being performed. Note that the DR is a collateral duty safety position, with safety duties in addition to their full-time occupation.

1.6.1.1.1 Additional Site Safety and Health Officer (SSHO) Requirements and Duties

Additional SSHO(s) personnel may be required. The additional SSHO requirement will be determine by:

1. Failure to keep the weekly safety audit score above 90% for 3 straight weeks, (please see attached the "Safety Inspection Report" form).
    a. Every line is worth 3 points.

    b. Total of points is approximately 310 points divided in 16 topics, i.e. fall protection, electrical, housekeeping etc.

    c. If a safety observation is made between 1 and 3 times 1 point is deducted from that line between 3 to 5 times during same audit 2 points are deducted and more than 5 all 3 points are deducted.

    d. Also, if an imminent danger is observed, 25% will be deducted of the total percentage.

2. SSHO shall submit Weekly Safety Audit Reports.

The SSHO(s) is to hold no other duties and shall not serve as the Quality Control Manager or Superintendent. The SSHO shall not serve as the Superintendent.

The SSHO(s) must have completed a 40-hour contract safety awareness course based on the content and principles of EM 385-1-1, and instructed in accordance with the guidelines of ASSE/SAFE Z490.1, by a trainer meeting the qualifications of paragraph QUALIFIED TRAINER REQUIREMENTS. If the SSHOs does not have a current certification, certification must be obtained within 60 days, maximum, of contract award. Certification shall be turned in to

the District Safety before SSHOs motivation to site for review and acceptance.

1.6.1.2 Contractor Quality Control (QC) Manager

The Contractor Quality Control Manager cannot be the SSHO on this project, even though the QC has safety inspection responsibilities as part of the QC duties.

1.6.1.3 Site Superintendent

The Contractor Site Superintendent cannot be the SSHO on this project, even though the Superintendent has safety responsibilities as part of his/her duties.

1.6.1.4 Competent Person Qualifications

Provide Competent Persons in accordance with EM 385-1-1, Appendix Q and herein. Competent Persons for high risk activities include confined space, cranes and rigging, excavation/trenching, fall protection, and electrical work. The CP for these activities must be designated in writing and meet the requirements for the specific activity (i.e. competent person, fall protection).

The Competent Person identified in the Contractor's Safety and Health Program and accepted Accident Prevention Plan, must be on-site at all times when the Work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the District Construction Manager for information in consultation with the Safety Office.

1.6.1.4.1 Competent Person for Confined Space Entry

Provide a Confined Space (CP) Competent Person who meets the requirements of EM 385-1-1, Appendix Q, and herein. The CP for Confined Space Entry must supervise the entry into each confined space in accordance with EM 385-1-1, Section 34.

Since this Work involves operations that handle combustible or hazardous materials, this person must have the ability to understand and follow through on the air sampling, Personal Protective Equipment (PPE), and instructions of a Marine Chemist, Coast Guard authorized persons, or Certified Industrial Hygienist. Confined space and enclosed space work must comply with NFPA 306, OSHA 29 CFR 1915, Subpart B, "Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment," or as applicable, 29 CFR 1910.147 for general industry.

1.6.1.4.2 Competent Person for Scaffolding

Provide a Competent Person for Scaffolding who meets the requirements of EM 385-1-1, Section 22.B.02 and herein.

1.6.1.4.3 Competent Person for Fall Protection

Provide a Competent Person for Fall Protection who meets the requirements of EM 385-1-1, Section 21.C.04 and herein.

1.6.1.4.4 Competent Person for Cranes and Rigging

Provide a Competent Person for Cranes and Rigging who meets the requirements of EM 385-1-1, Section 15.A.01 and herein.

1.6.1.4.5 Competent Person for Excavation/Trenching

Provide a Competent Person for excavation/trenching who meets the requirements of EM 385-1-1, Appendix Q and herein.

1.6.1.4.6 Competent Person for LOTO

Provide a Competent Person for LOTO who meets the requirements of EM 385-1-1, and herein.

1.6.1.5 Qualified Trainer Requirements

Individuals qualified to instruct the 40 hour contract safety awareness course, or portions thereof, must meet the definition of a Competent Person Trainer, and, at a minimum, possess a working knowledge of the following subject areas: EM 385-1-1, Electrical Standards, Lockout/Tagout, Fall Protection, Confined Space Entry for Construction; Excavation, Trenching and Soil Mechanics, and Scaffolds in accordance with 29 CFR 1926.450, Subpart L.

Instructors are required to:

a. Prepare class presentations that cover construction-related safety requirements and includes topics covered in the OSHA Construction Safety Hazard Awareness Course for Contractors.

b. Ensure that all attendees attend all sessions by using a class roster signed daily by each attendee. Maintain copies of the roster for at least five (5) years. This is a certification class and must be attended 100 percent. In cases of emergency where an attendee cannot make it to a session, the attendee can make it up in another class session for the same subject.

c. Update training course materials whenever an update of the EM 385-1-1 becomes available.

d. Provide a written exam. Students are required to answer 80 percent correctly to pass.

e. Request, review and incorporate student feedback into a continuous course improvement program.

f. Maintain the training and Competent Person Matrix (sample will be provided by District). Submit monthly updates to District.

1.6.1.6 Requirements for all Contractor Jobsite Personnel

All Personnel must complete OSHA 10 Hour Training. Provide a list of workers who have completed the training on the jobsite and have readily available upon request by the District Construction Manager. Maintain and update the list as additional workers are available. Include the name and qualifications of the qualified trainer(s) who provided the training. Personnel who have taken the 40 Hour Construction Safety Hazard Awareness

Training Course for Contractors or similar course that includes emphasis on EM 385-1-1 compliance, are not required to take the 16 hours of classroom training on the requirements of the latest version of the EM 385-1-1. The 16 hours classroom training may be provided by qualified trainers as outlined in paragraph QUALIFIED TRAINER REQUIREMENTS.

1.6.1.7 Crane Operators/Riggers

Provide Operators, Signal Persons, and Riggers meeting the requirements in EM 385-1-1, Section 15.B for Riggers and Section 16.B for Crane Operators and Signal Persons. Provide proof of current qualification.

1.6.2 Personnel Duties

1.6.2.1 Duties of the Site Safety and Health Officer (SSHO)

The SSHO must:

a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Attach safety and health inspection logs to the Contractors' daily production report.

b. Conduct mishap investigations and complete required accident reports. SSHO shall maintain written reports where mishaps or near misses occurred. SSHO shall submit reports within 24 hours for District review.

c. Use and maintain OSHA's Form 300 to log work-related injuries and illnesses occurring on the project site for Prime Contractors and subcontractors, and make available to the District Construction Manager upon request. Post and maintain the Form 300A on the site Safety Bulletin Board.

d. Maintain applicable safety reference material on the job site.

e. Attend the pre-construction conference, pre-work meetings including preparatory meetings, and periodic in-progress meetings.

f. Review the APP and AHAs for compliance with EM 385-1-1, and approve, sign, implement and enforce them.

g. Establish a Safety and Occupational Health (SOH) Deficiency Tracking System that lists and monitors outstanding deficiencies until resolution.

h. Ensure subcontractor compliance with safety and health requirements.

i. Maintain a list of hazardous chemicals on site and their material Safety Data Sheets (SDS).

j. Maintain a weekly list of high hazard activities involving energy, equipment, excavation, entry into confined space, and elevation, and be prepared to discuss details during QC Meetings.

k. Provide and keep a record of site safety orientation and indoctrination for Contractor employees, subcontractor employees, and site visitors.

l. Coordinate, interface and work with the Owner's on site safety representative(s) during the course of the project.

Superintendent, QC Manager, and SSHO are subject to dismissal if the above duties are not being effectively carried out. If Superintendent, QC Manager, or SSHO are dismissed, project Work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.6.3 Meetings

1.6.3.1 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction conference. This includes the project superintendent, Site Safety and Occupational Health officer, quality control manager, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the District Construction Manager as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and District review of AHAs to preclude project delays.

c. Deficiencies in the submitted APP, identified during the District Construction Manager's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin Work until an APP is established that is acceptable to the District Construction Manager.

1.6.3.2 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors on the project location. The SSHO, supervisors, foremen, or CDSOs must conduct meetings at least once a week for the trade workers. Conduct daily prework safety "toolbox" meetings. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the District Construction Manager on request. Coordinate ongoing activities with District Site Safety Representative and notify the District Construction Manager of all scheduled meetings 7 calendar days in advance. The District Management Team reserves the right to call interim meetings as needed during the Contract.

1.7 ACCIDENT PREVENTION PLAN (APP)

A qualified person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, Appendix A, and as supplemented herein. Cover all paragraph and subparagraph elements in EM 385-1-1, Appendix A. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and health program referenced in the APP in the applicable APP element, and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. The District considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the Work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP must be signed by an officer of the firm (Prime Contractor senior person), the individual preparing the APP, the on-site superintendent, the designated SSHO, the Contractor Quality Control Manager and resubmitted to the District for acceptance, and any designated Certified Safety Professional (CSP) or Certified Health Physicist (CIH). The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the District Construction Manager. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP to the District Construction Manager 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once reviewed and accepted by the District Construction Manager, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP is cause for stopping of Work, at the discretion of the District Construction Manager, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the contract. Changes to the accepted APP must be made with the knowledge and concurrence of the District Construction Manager, project superintendent, SSHO and Quality Control Manager. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e. imminent danger) become evident, stop Work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the District Construction Manager within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34), FDOT and the environment.

1.7.1 Names and Qualifications

Provide plans in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform Work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; rigging; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance.

1.7.2 Plans

Provide plans in the APP in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

1.7.2.1 Confined Space Entry Plan

Develop a confined or enclosed space entry plan in accordance with EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, OSHA Directive CPL 2.100, and any other federal, state and local regulatory requirements identified in this contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

1.7.2.2 Standard Lift Plan (SLP)

Plan lifts to avoid situations where the operator cannot maintain safe control of the lift. Prepare a written SLP in accordance with EM 385-1-1, Section 16.A.03, using Form 16-2 for every lift or series of lifts (if duty cycle or routine lifts are being performed). The SLP must be developed, reviewed and accepted by all personnel involved in the lift in conjunction with the associated AHA. Signature on the AHA constitutes acceptance of the plan. Maintain the SLP on the LHE for the current lift(s) being made. Maintain historical SLPs for a minimum of 3 months.

1.7.2.3 Critical Lift Plan - Crane or Load Handling Equipment

Provide a Critical Lift Plan as required by EM 385-1-1, Section 16.H.01, using Form 16-3. In addition, Critical Lift Plans are required for the following:

a. Lifts over 75 percent of the capacity of land based crane's hoist.

b. When working around energized power lines where the Work will get closer than the minimum clearance distance in EM 385-1-1 Table 16-1.

c. For lifts with anticipated binding conditions.

d. When erecting cranes.

e. Two or more cranes involved in a lift.

1.7.2.3.1 Critical Lift Plan Planning and Schedule

Critical lifts require detailed planning and additional or unusual safety precautions. Develop and submit a critical lift plan to the District Construction Manager 30 calendar days prior to critical lift. Comply with load testing requirements in accordance with EM 385-1-1, Section 16.F.03.

1.7.2.3.2 Lifts of Personnel

In addition to the requirements of EM 385-1-1, Section 16.H.02, for lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.1400 and EM 385-1-1, Section 16.T.

1.7.2.4 Multi-Purpose Machines, Material Handling Equipment, and Construction Equipment Lift Plan

Multi-purpose machines, material handling equipment, and construction equipment used to lift loads that are suspended by rigging gear, require proof of authorization from the machine OEM that the machine is capable of making lifts of loads suspended by rigging equipment. Written approval from a qualified registered professional engineer, after a safety analysis is performed, is allowed in lieu of the OEM's approval. Demonstrate that the operator is properly trained and that the equipment is properly configured to make such lifts and is equipped with a load chart.

1.7.2.5 Fall Protection and Prevention (FP&P) Plan

The plan must comply with the requirements of EM 385-1-1, Section 21.D and ASSE/SAFE Z359.2, be site specific, and address all fall hazards in the work place and during different phases of construction. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A competent person or qualified person for fall protection must prepare and sign the plan documentation. Include fall protection and prevention systems, equipment and methods employed for every phase of Work, roles and responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Review and revise, as necessary, the Fall Protection and Prevention Plan documentation as conditions change, but at a minimum every six months, for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Plan documentation at the job site for the duration of the project. Include the Fall Protection and Prevention Plan documentation in the Accident Prevention Plan (APP).

1.7.2.6 Rescue and Evacuation Plan

Provide a Rescue and Evacuation Plan in accordance with EM 385-1-1 Section 21.N and ASSE/SAFE Z359.2, and include in the FP&P Plan and as part of the APP. Include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility.

1.7.2.7 Hazardous Energy Control Program (HECP)

Develop a HECP in accordance with EM 385-1-1 Section 12, 29 CFR 1910.147, 29 CFR 1910.333, 29 CFR 1915.89, ASSE/SAFE Z244.1, and ASSE/SAFE A10.44. Submit this HECP as part of the Accident Prevention Plan (APP). Conduct a preparatory meeting and inspection with all effected personnel to coordinate all HECP activities. Document this meeting and inspection in accordance with EM 385-1-1, Section 12.A.02. Ensure that each employee is familiar with and complies with these procedures.

1.7.2.8 Excavation Plan

Identify the safety and health aspects of excavation, and provide and prepare the plan in accordance with EM 385-1-1, Section 25.A and Section ~~31 00 00~~31 00 00 EARTHWORK. The Contractor shall also submit any applicable Ground Disturbance Permits for review of work requiring such permit.

1.7.2.9 Site Demolition Plan

Identify the safety and health aspects, and prepare in accordance with Section ~~02 41 00~~02 41 00 DEMOLITION and referenced sources.

1.8 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the Work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the Work, and provided for Prime Contractor review and approval before submitting to the District Construction Manager. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the Work. Format the AHA in accordance with EM 385-1-1, Section 1 or as directed by the District Construction Manager. Submit the AHA for review at least 15 working days prior to the start of each activity task, or DFOW and include in the Work Plan for review (see Section 01 45 00.00 10 QUALITY CONTROL). The District reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, LOTO, and scaffolding.

1.8.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required safety and health controls for that work activity.

1.8.2 AHA Signature Log

Each employee performing Work as part of an activity, task or DFOW must review the AHA for that Work and sign a signature log specifically

maintained for that AHA prior to starting Work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.9 DISPLAY OF SAFETY INFORMATION

1.9.1 Safety Bulletin Board

Within one calendar day after commencement of Work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the District Construction Manager, that is accessible and includes all mandatory information for employee and visitor review, may be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, Section 01.A.07. Additional items required to be posted include:

a. Confined space entry permit.

b. Hot work permit.

1.9.2 Safety and Occupational Health (SOH) Deficiency Tracking System

Establish a SOH deficiency tracking system that lists and monitors the status of SOH deficiencies in chronological order. Use the tracking system to evaluate the effectiveness of the APP. A monthly evaluation of the data must be discussed in the QC or SOH meeting with everyone on the project. The list must be posted on the project bulletin board and updated daily, and provide the following information:

a. Date deficiency identified;

b. Description of deficiency;

c. Name of person responsible for correcting deficiency;

d. Projected resolution date;

e. Date actually resolved.

1.9.3 Safety Messages

Provide safety messages as required and indicated by the District. Provide a minimum of 20 informative safety message signs along the access route and on site (minimum 3 feet by 6 feet) with messages related to site safety and employee protections. Submit suggested messages and locations to District for approval. Messages shall be mounted/painted on wood backing and shall be updated on a yearly basis. Maintain messages in good condition.

1.10 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment Manufacturer's manuals.

1.11 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment. District has no responsibility to provide emergency medical treatment.

1.12 NOTIFICATIONS AND REPORTS

1.12.1 Mishap Notification

In general, it is anticipated that mishaps shall be immediately reported to 911 (as needed), Contractor Construction Manager, SSHO, and District Construction Manager.

Notify the District Construction Manager as soon as possible, but not later than 30 minutes after any mishaps, including recordable accidents, incidents, and near misses, as defined in EM 385-1-1 Appendix Q, any report of injury, illness, or any property damage. For LHE or rigging mishaps, notify the District Construction Manager as soon as practical but not more than 30 minutes after mishap. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. Immediate reporting is required for electrical mishaps, to include Arc Flash; shock; uncontrolled release of hazardous energy (includes electrical and non-electrical); load handling equipment or rigging; fall from height (any level other than same surface); and underwater diving. These mishaps must be investigated in depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the District investigation team arrives on-site and District investigation is conducted. Assist and cooperate fully with the District's investigation(s) of any mishap.

1.12.2 Accident Reports

a. Conduct an accident investigation for all injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. The District Construction Manager will provide copies of any required or special forms.

b. Near Misses: Near miss reports are considered positive and proactive Contractor safety management actions.

c. Conduct an accident investigation for any load handling equipment accident (including rigging accidents) to establish the root cause(s) of the accident. Complete the LHE Accident Report (Crane and Rigging Accident Report) form and provide the report to the District Construction Manager within 15 calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the District Construction Manager. The Construction Manager will provide a blank copy of the accident report form.

1.12.3 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

1.13 HOT WORK

1.13.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e., welding or cutting) or operating other flame-producing/spark producing devices, from the local Fire Marshall or authority having jurisdiction (AHJ). Provide at least two 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of one hour after completion of the task or as specified on the hot work permit.

When starting Work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency local Fire Marshall or authority having jurisdiction (AHJ) phone number. REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE LOCAL FIRE MARSHALL OR AUTHORITY HAVING JURISDICTION (AHJ) IMMEDIATELY.

1.13.2 Work Around Flammable Materials

Obtain permit approval from a NFPA Certified Marine Chemist for "HOT WORK" within or around flammable materials (such as fuel systems or welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, or vaults) that have the potential for flammable or explosive atmospheres.

Whenever these materials are encountered in indoor operations, local mechanical exhaust ventilation systems that are sufficient to reduce and maintain personal exposures to within acceptable limits must be used and maintained in accordance with Manufacturer's instruction and supplemented by exceptions noted in EM 385-1-1, Section 06.H

1.14 RADIATION SAFETY REQUIREMENTS

Submit License Certificates, employee training records, and Leak Test Reports for radiation materials and equipment to the District Construction Manager and Radiation Safety Office (RSO), and Contracting Oversight Technician (COT) for all specialized and licensed material and equipment proposed for use on the construction project (excludes portable machine sources of ionizing radiation including moisture density and X-Ray Fluorescence (XRF)). Maintain on-site records whenever licensed radiological materials or ionizing equipment are on District property.

Protect workers from radiation exposure in accordance with 10 CFR 20, ensuring any personnel exposures are maintained As Low As Reasonably Achievable.

1.14.1 Radiography Operation Planning Work Sheet

Submit a Gamma and X-Ray Radiography Operation Planning Work Sheet to District Construction Manager 14 days prior to commencement of operations involving radioactive materials or radiation generating devices. For portable machine sources of ionizing radiation, including moisture density and XRF, use and submit the Portable Gauge Operations Planning Worksheet instead. The District Construction Manager will review the submitted worksheet and provide questions and comments.

Contractors must use primary dosimeters process by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

1.14.2 Site Access and Security

Coordinate site access and security requirements with the District Construction Manager for all radiological materials and equipment containing ionizing radiation that are proposed for use on a District facility. For gamma radiography materials and equipment, a District escort is required for any travels on the Installation. The District authorized representative will meet the Contractor at a designated location outside the Installation, ensure safety of the materials being transported, and will escort the Contractor for gamma sources onto the Installation, to the job site, and off the Installation. For portable machine sources of ionizing radiation, including moisture density and XRF, the District authorized representative will meet the Contractor at the job site.

Provide a copy of all calibration records, and utilization records for radiological operations performed on the site.

1.14.3 Loss or Release and Unplanned Personnel Exposure

Loss or release of radioactive materials, and unplanned personnel exposures must be reported immediately to the District Construction Manager, Radiation Safety Officer (RSO), and District Safety Representative.

1.14.4 Site Demarcation and Barricade

Properly demark and barricade an area surrounding radiological operations to preclude personnel entrance, in accordance with EM 385-1-1, Nuclear Regulatory Commission, and Applicable State regulations and license requirements, and in accordance with requirements established in the accepted Radiography Operation Planning Work Sheet.

Do not close or obstruct streets, walks, and other facilities occupied and used by the District without written permission from the District Construction Manager.

1.14.5 Security of Material and Equipment

Properly secure the radiological material and ionizing radiation equipment at all times, including keeping the devices in a properly marked and locked container, and secondarily locking the container to a secure point in the Contractor's vehicle or other approved storage location during transportation and while not in use. While in use, maintain a continuous visual observation on the radiological material and ionizing radiation equipment. In instances where radiography is scheduled near or adjacent to

buildings or areas having limited access or one-way doors, make no assumptions as to building occupancy. Where necessary, the District Construction Manager will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, position a fully instructed employee inside the building or area to prevent exiting while external radiographic operations are in process.

1.14.6 Transportation of Material

Comply with 49 CFR 173 for Transportation of Regulated Amounts of Radioactive Material. Notify Local Fire authorities and the site Radiation Safety officer (RSO) of any Radioactive Material use.

1.14.7 Schedule for Exposure or Unshielding

Actual exposure of the radiographic film or unshielding the source must not be initiated until after 5 p.m. on weekdays.

1.14.8 Transmitter Requirements

Adhere to the base policy concerning the use of transmitters, such as radios and cell phones. Obey Emissions control (EMCON) restrictions.

1.15 CONFINED SPACE ENTRY REQUIREMENTS

Confined space entry must comply with Section 34 of EM 385-1-1, OSHA 29 CFR 1926, OSHA 29 CFR 1910, OSHA 29 CFR 1910.146, and OSHA Directive CPL 2.100. Any potential for a hazard in the confined space requires a permit system to be used.

1.15.1 Entry Procedures

Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. Comply with EM 385-1-1, Section 34 for entry procedures. Hazards pertaining to the space must be reviewed with each employee during review of the AHA.

1.15.2 Forced Air Ventilation

Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its action level.

1.15.3 Rescue Procedures and Coordination with Local Emergency Responders

Develop and implement an on-site rescue and recovery plan and procedures. The rescue plan must not rely on local emergency responders for rescue from a confined space.

1.16 GAS PROTECTION

At each area of construction requiring gas protection (each structure) provide one or more employees, properly trained and experienced in operation

and calibration of gas testing equipment and formally qualified as gas inspectors, on duty during times workers are in confined spaces. Their primary functions are to test for gas and operate testing equipment. Unless equipment of constant supervisory type with automatic alarm is employed, provide gas tests at least every 2 hours, or more often when character of ground or experience indicates gas may be encountered. After an idle period exceeding one-half hour, perform a gas test before permitting workers to enter the excavation. Continuous Air Monitoring will be required and as directed by the District.

1.16.1 Gas Test Readings Record

Permanently record readings daily; indicate the concentration of gas, point of test, and time of test. Submit copies of the gas test readings to the District Construction Manager at the request of the District.

1.16.2 Special Requirements

Special requirements, coordination, and precautions will apply to areas that contain a hazardous atmosphere or, by virtue of their use or physical character, may be oxygen deficient. A check by District is required prior to entering confined space. Surveillance and monitoring are required in these types of work spaces by both Contractor and District personnel.

1.17 HIGH NOISE LEVEL PROTECTION

Schedule operations that involve the use of equipment with output of high noise levels during the hours 8 a.m. to 5 p.m. Monday through Friday. Use of any such equipment must be approved in writing by the District Construction Manager prior to commencement of Work.

1.18 DIVE SAFETY REQUIREMENTS

Develop a Dive Operations Plan, AHA, emergency management plan, and personnel list that includes qualifications, for each separate diving operation. Submit these documents to the District Dive Coordinator (DDC) for review and acceptance at least 15 working days prior to commencement of diving operations. These documents must be at the diving location at all times. Provide each of these documents as a part of the project file.

1.19 STORM PREPAREDNESS PLAN

A "Generalized Storm Preparedness Plan" (Plan) has been prepared by the Design Engineer and is presented in Appendix A of this Section. the intent of the Generalized Storm Preparedness Plan (Plan) is to define the minimum requirements for the Contractor's proposed preparedness plan. The Contractor shall develop a refined and detailed Working Storm Preparedness Plan, specific for this project and specific to Contractor's work plan and corporate policy and procedures. The Contractor shall submit its Working Storm Preparedness Plan to the District Construction Manager 15 calendar days prior to the date of the preconstruction conference for District approval.

1.20 LIGHTNING PROTECTION

If lightning detected in the area then the EM 385-1-1 lightning procedure 01.E.01.d.4 must be followed~~. See~~as modified below;

"…(4) If lightning is observed, (either locally through visual observation or via a real time weather reporting application) all Load Handling Equipment (LHE), drill rigs, work on elevated platforms or scaffolding, roofing activities, tree trimming activities, pole climbing activities, or work in open areas shall stop and workers shall take cover in rubber tire vehicles or shelters. A determination shall be made by the Contractor and District as to the proximity to the operation being performed. Determination of distance shall be made via a real time weather reporting application. If lightning is 10-miles away or less from individual work areas, work should stop until 30 minutes after the last audible thunder or visible flash of lightning…"

Depending on circumstances in the field, rubber tired traffic may continue as long as operators remain in the vehicle(s).

PART 2 PRODUCTS

2.1 CONFINED SPACE SIGNAGE

Provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs for confined spaces must comply with NEMA Z535.2. Signs wording: "DANGER--PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" in bold letters a minimum of one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" must be red and readable from 5 feet.

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the Work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn at all times on each person, unless employee is completely enclosed in a vehicle or equipment. Mandatory PPE includes:

a. Hard Hat - ANSI Z89.1.

b. Safety glasses with side shields - ANSI Z87.2.

c. Shirt/blouse with at least 4 inch sleeves

d. Long pants/slacks.

e. Safety-toe footwear - ASTM F2413

f. High visibility clothing, lime-green tri-color is preferred.

1. ANSI/SEA Class 2 required for daytime operations.

2. ANSI/SEA Class 3 required for nighttime operations and is a best practice for all operations.

g. Gloves appropriate for the task

h. Hearing protection as necessary due to project requirements or the anticipated or actual noise level.

i. Personal flotation device is required when an employee works over or near water.

j. Sunblock

3.1.1 Worksite Communication

Employees shall not be permitted to work alone in a remote location or away from other workers. Provide an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of Work to verify that it effectively operates in the area/environment. An employee check-in/check-out communication procedure must be developed to ensure employee safety.

3.1.2 Hazardous Material Use

Each hazardous material must receive approval from the District or their designated representative prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material.

3.1.3 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The District Construction Manager, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further District Construction Manager approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.4 Unforeseen Hazardous Material

If material is not hazardous or poses no danger, the District will direct the Contractor to proceed without change.

3.2 PRE-OUTAGE COORDINATION MEETING

Apply for utility outages at least 3 days in advance. As a minimum, the request must include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Once approved, and prior to beginning Work on the utility system requiring shut down, attend a pre-outage coordination meeting with the District Construction Manager and the

Installation representative and Public Utilities representative to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1 Section 12, 29 CFR 1910.147, 29 CFR 1910.333, 29 CFR 1915.89, and paragraph HAZARDOUS ENERGY CONTROL PROGRAM (HECP).

In addition to the regulation mentioned in the paragraph above, the LOTO procedures will be performed by trade i.e., a competent or qualified electrician cannot perform a mechanical LOTO procedure or vice versa.

3.4 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with ASSE/SAFE Z359.2 and EM 385-1-1, Sections 21.A and 21.D.

3.4.1 Training

Institute a fall protection training program. As part of the Fall Protection Program, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection in accordance with EM 385-1-1, Section 21.C. Document training and practical application of the competent person in accordance with EM 385-1-1, Section 21.C.04 and ASSE/SAFE Z359.2 in the AHA.

3.4.2 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific Work activity in the Site Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 Section 21.I, 29 CFR 1926.500 Subpart M, ASSE/SAFE Z359.0, ASSE/SAFE Z359.1, ASSE/SAFE Z359.2, ASSE/SAFE Z359.3, ASSE/SAFE Z359.4, ASSE/SAFE Z359.6, ASSE/SAFE Z359.7, ASSE/SAFE Z359.11, ASSE/SAFE Z359.12, ASSE/SAFE Z359.13, ASSE/SAFE Z359.14, and ASSE/SAFE Z359.15.

3.4.2.1 Additional Personal Fall Protection

Contractor shall provide for prompt and effective onsite rescue capabilities when employees are required to wear active fall arrest equipment in accordance with the requirements of 29 CFR 1926.502(d)(20) - "the employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.

In addition to the required fall protection systems, other protection such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1, Sections 21.O through 21.O.06. Personal fall protection systems and equipment are required when working from an articulating or extendable boom, swing stages, or suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing Work.

3.4.2.2 Personal Fall Protection Harnesses

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Snap hooks and carabiners must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 3,600 lbs in all directions. Use webbing, straps, and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system. All full body harnesses must be equipped with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1, Section 21.I.06.

3.4.3 Fall Protection for Roofing Work

Implement fall protection controls based on the type of roof being constructed and Work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 6 feet of an edge, on a roof having a slope less than or equal to 4:12 (vertical to horizontal), protect personnel from falling by use of personal fall arrest/restraint systems, guardrails, or safety nets. A safety monitoring system is not adequate fall protection and is not authorized. Provide in accordance with 29 CFR 1926.500.

(2) For work greater than 6 feet from an edge, erect and install warning lines in accordance with 29 CFR 1926.500 and EM 385-1-1, Section L.

b. Steep-Sloped Roofs: Work on a roof having a slope greater than 4:12 (vertical to horizontal) requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also applies to residential or housing type construction.

3.4.4 Horizontal Lifelines (HLL)

Provide HLL in accordance with EM 385-1-1, Section 21.I.08.d.2. Commercially manufactured horizontal lifelines (HLL) must be designed, installed, certified and used, under the supervision of a qualified person, for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500). The competent person for fall protection may (if deemed appropriate by the qualified person) supervise the assembly, disassembly, use and inspection of the HLL system under the direction of the qualified person. Locally manufactured HLLs are not acceptable unless they are custom designed for limited or site-specific applications by a Registered Professional Engineer who is qualified in designing HLL systems.

3.4.5 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with EM 385-1-1, Section 21.F.01 and 29 CFR 1926 Subpart M.

3.4.6 Rescue and Evacuation Plan and Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue or assisted-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of Work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP). The plan must comply with the requirements of EM 385-1-1, ASSE/SAFE Z359.2, and ASSE/SAFE Z359.4.

3.5 WORK PLATFORMS

3.5.1 Scaffolding

Provide employees with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Comply with the following requirements:

a. Scaffold platforms greater than 20 feet in height must be accessed by use of a scaffold stair system.

b. Ladders commonly provided by scaffold system Manufacturers are prohibited for accessing scaffold platforms greater than 20 feet maximum in height.

c. An adequate gate is required.

d. Employees performing scaffold erection and dismantling must be qualified.

e. Scaffold must be capable of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan.

f. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward.

g. Special care must be given to ensure scaffold systems are not overloaded.

h. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited. The first tie-in must be at the height equal to 4 times the width of the smallest dimension of the scaffold base.

i. Scaffolding other than suspended types must bear on base plates upon wood mudsills (2 in x 10 in x 8 in minimum) or other adequate firm foundation.

j. Scaffold or work platform erectors must have fall protection during the erection and dismantling of scaffolding or work platforms that are more than 6 feet.

k. Delineate fall protection requirements when working above 6 feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of Work.

3.5.2 Elevated Aerial Work Platforms (AWPs)

Workers must be anchored to the basket or bucket in accordance with Manufacturer's specifications and instructions (anchoring to the boom may only be used when allowed by the Manufacturer and permitted by the CP). Lanyards used must be sufficiently short to prohibit worker from climbing out of basket. The climbing of rails is prohibited. Lanyards with built-in shock absorbers are acceptable. Self-retracting devices are not acceptable. Tying off to an adjacent pole or structure is not permitted unless a safe device for 100 percent tie-off is used for the transfer.

Use of AWPs must be operated, inspected, and maintained as specified in the operating manual for the equipment and delineated in the AHA. Operators of AWPs must be designated as qualified operators by the Prime Contractor. Maintain proof of qualifications on site for review and include in the AHA.

3.6 EQUIPMENT

3.6.1 Material Handling Equipment (MHE)

a. Material handling equipment such as forklifts must not be modified with work platform attachments for supporting employees unless specifically delineated in the Manufacturer's printed operating instructions. Material handling equipment fitted with personnel work platform attachments are prohibited from traveling or positioning while personnel are working on the platform.

b. The use of hooks on equipment for lifting of material must be in accordance with Manufacturer's printed instructions. Material Handling Equipment Operators must be trained in accordance with OSHA 29 CFR 1910, Subpart N.

c. Operators of forklifts or power industrial trucks must be licensed in accordance with OSHA.

3.6.2 Load Handling Equipment (LHE)

The following requirements apply. In exception, these requirements do not apply to commercial truck mounted and articulating boom cranes used solely to deliver material and supplies (not prefabricated components, structural steel, or components of a systems-engineered metal building) where the lift consists of moving materials and supplies from a truck or trailer to the ground; to cranes installed on mechanics trucks that are used solely in the repair of shore-based equipment; to crane that enter the activity but are not used for lifting; nor to other machines not used to lift loads suspended by rigging equipment. However, LHE accidents occurring during such operations must be reported.

a. Equip cranes and derricks as specified in EM 385-1-1, Section 16.

b. Notify the District Construction Manager 15 working days in advance of any LHE entering the activity, in accordance with EM 385-1-1, Section 16.A.02, so that necessary quality assurance spot checks can be coordinated. Prior to cranes entering District activities, a Crane Access Permit must be obtained from the District Construction Manager. A copy of the permitting process will be provided at the Preconstruction Conference. Contractor's operator must remain with the crane during the spot check. Rigging gear must comply with OSHA, ASME B30.9 Standards safety standards.

c. Comply with the LHE Manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the Work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the Manufacturer's recommended procedures.

d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, ASME B30.8 for floating cranes and floating derricks, ASME B30.9 for slings, ASME B30.20 for below the hook lifting devices and ASME B30.26 for rigging hardware.

e. When operating in the vicinity of overhead transmission lines, operators and riggers must be alert to this special hazard and follow the requirements of EM 385-1-1 Section 11, and ASME B30.5 or ASME B30.22 as applicable.

f. Do not use crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane. Additionally, submit a specific AHA for this Work to the District Construction Manager. Ensure the activity and AHA are thoroughly reviewed by all involved personnel.

g. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

h. All employees must keep clear of loads about to be lifted and of suspended loads, except for employees required to handle the load.

i. Use cribbing when performing lifts on outriggers.

j. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

k. A physical barricade must be positioned to prevent personnel access where accessible areas of the LHE's rotating superstructure poses a risk of striking, pinching or crushing personnel.

l. Maintain inspection records in accordance by EM 385-1-1, Section 16.D, including shift, monthly, and annual inspections, the signature of the person performing the inspection, and the serial number or other identifier of the LHE that was inspected. Records must be available for review by the District Construction Manager.

m. Maintain written reports of operational and load testing in accordance with EM 385-1-1, Section 16.F, listing the load test procedures used along with any repairs or alterations performed on the LHE. Reports must be available for review by the District Construction Manager.

n. Certify that all LHE operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

o. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. At wind speeds greater than 20 mph, the operator, rigger and lift supervisor must cease all crane operations, evaluate conditions and determine if the lift may proceed. Base the determination to proceed or not on wind calculations per the Manufacturer and a reduction in LHE rated capacity if applicable. Include this maximum wind speed determination as part of the activity hazard analysis plan for that operation.

p. On mobile cranes, lifts where the load weight is greater than 90 percent of the equipment's capacity are prohibited.

3.6.3 Machinery and Mechanized Equipment

a. Proof of qualifications for operator must be kept on the project site for review.

b. Manufacture specifications or owner's manual for the equipment must be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

c. Submit a Machinery & Mechanized Equipment Certification Form to the District Construction Manager prior to being placed into use.

3.6.4 Base Mounted Drum Hoists

a. Operation of base mounted drum hoists must comply with EM 385-1-1 and ASSE/SAFE A10.22.

b. Rigging gear must comply with applicable ASME/OSHA standards

c. When used on telecommunication towers, base mounted drum hoists must comply with TIA-1019, TIA-222, ASME B30.7, 29 CFR 1926.552, and 29 CFR 1926.553.

d. When used to hoist personnel, the AHA must include a written standard operating procedure. Operators must have a physical examination in accordance with EM 385-1-1 Section 16.B.05 and trained, at a minimum, in accordance with EM 385-1-1 Section 16.U and 16.T. The base mounted drum hoist must also comply with OSHA Instruction CPL 02-01-056 and ASME B30.23.

e. Material and personnel must not be hoisted simultaneously.

f. Personnel cage must be marked with the capacity (in number of persons) and load limit in pounds.

g. Construction equipment must not be used for hoisting material or personnel or with trolley/tag lines. Construction equipment may be used for towing and assisting with anchoring guy lines.

3.6.5 Use of Explosives

Explosives are not permitted for use on site. Explosives must not be used or brought to the project site without prior written approval from the Construction Manager. Such approval does not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations.

Storage of explosives, when permitted on District property, must be only where directed and in approved storage facilities. These facilities must be kept locked at all times except for inspection, delivery, and withdrawal of explosives. Perform explosive work in accordance with NASA-STD 8719.12. This document is available at:

http://www.hq.nasa.gov/office/codeq/doctree/871912.htm

3.7 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

3.7.1 Utility Locations

Provide a third party, independent, private utility locating company to positively identify underground utilities in the work area in addition to any station locating service and coordinated with the station utility department.

3.7.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within 3 feet of the underground system.

3.7.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever contract Work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company. The third party, independent, private locating company must locate utility depth by use of Ground Penetrating Radar (GPR), X-ray, bore scope, or ultrasound prior to the start of demolition and construction. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the Contractor from meeting this requirement.

3.8 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1, Appendix A, Sections 11 and 12.

3.8.1 Conduct of Electrical Work

As delineated in EM 385-1-1, electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the Work. In those cases obtain an energized work permit from the District Construction Manager. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. Underground electrical spaces must be certified safe for entry before entering to conduct Work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator is allowed in the space during the actual operation. Plan so that Work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers are permitted to enter. When Work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.147.

3.8.2 Qualifications

Electrical work must be performed by QP personnel with verifiable credentials who are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA.

Journeyman/Apprentice ratio must be in accordance with State, Local requirements applicable to where Work is being performed.

3.8.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

3.8.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with NFPA 70 and IEEE C2 to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

Check grounding circuits to ensure that the circuit between the ground and a grounded power conductor has a resistance low enough to permit sufficient current flow to allow the fuse or circuit breaker to interrupt the current.

3.8.5 Testing

Temporary electrical distribution systems and devices must be inspected, tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system and signed by the electrical CP or QP.

3.8.6 Lightning

Contractor is required to develop and implement and inclement weather procedure to include required actions that can be initiated quickly to react to fast moving inclement weather and/or lightning. Contractor shall comply with the requirements of EM 385-1-1. Procedure should detail how weather and lightning will be monitored and procedure must be submitted, reviewed and approved by Company and Owner.

3.8.6.1 Monitoring System

Contractor will be responsible to provide and manage a lightning warning system with the following capabilities:

1. Capable of monitoring the 10,000 + acres of site

2. System information shall be in real time

3. Capable of immediately sending warning message to a large group

4. System specification shall be submitted to the District for approval before purchasing or renting said system.

3.9 TRAFFIC PLAN

Plan shall comply with specifications of EM 385-1-1 01E.C.4.

Contractor shall provide a traffic plan to safely manage all their traffic. Plan shall include to include all lowers tiers and vendors. Plan also shall include proposed traffic patterns, coordination with other contractors if necessary, signs locations, any traffic control device if necessary, the dismantling or removal of signs or any other control device when not needed, the frequency of the traffic control plans updates, and any other traffic control related information. Plan shall be considered a live document and should be review at least one a month and submit to the district safety representative if any changes are made.

3.10 WORKING OVER OR NEAR WATER

Employees working over or near water (within 6 feet of the edge of the water), where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jacket or buoyant work vests that shall meet the EM 385-1-1 specifications. Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used. Ring buoys with at least 90 feet of line shall be provided and readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet. At least one lifesaving skiff shall be immediately available at locations where employees are working over or adjacent to water.

-- End of Section --

CALOOSAHATCHEE RIVER (C-43)
WEST BASIN STORAGE RESERVOIR DESIGN
BID PACKAGE 4 - CIVIL WORKS

GENERALIZED STORM PREPAREDNESS PLAN

Corrected Final/RTA Submittal
December 2018

PROJECT I.D. No. 4600003016-WO11R2

Sealed by Martin J. Weber – FL PE No. 83944
Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409

MARTIN JOSEPH WEBER
LICENSE
No. 83944
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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Stanley Consultants INC.

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1. INTRODUCTION

The intent of the Generalized Storm Preparedness Plan (Plan) is to define the minimum requirements for the Contractor's proposed preparedness plan for the Caloosahatchee River (C-43) West Basin Storage Reservoir, Bid Package 4 - Civil Works Project (Project). The Contractor shall develop a refined and detailed preparedness plan to demonstrate the advanced planning that will be performed to be prepared for and respond to a major storm event during construction of the Project. Although the term "hurricane" is used throughout this document, planning and execution activities may be applicable to other storm events as well.

Contractor shall prepare its own Storm Preparedness Plan, specific for this project and specific to Contractor's work plan and corporate policy and procedures. Contractor shall submit its Storm Preparedness Plan for District approval.

2. CHECKLISTS

a. Pre-Construction Checklist

- Establish a Person-in-Charge who will take control during an emergency, initiate the established plan and assign emergency responsibility roles. This person should also be responsible for ensuring all roles are filled and team members are trained regularly.
- Develop two teams: a Hurricane Response team (for the period before a storm event) and a Hurricane Recovery team (for the period following a storm event).
- Maintain an emergency phone list for all hurricane response and recovery personnel and key subcontractors. The phone list should be kept current and should include both work-related and personal home numbers, cell phone numbers and e-mail addresses.
- Establish back-up recovery role personnel in the event that members of the response or recovery teams are not able to return to work promptly because they have been personally impacted by the storm.
- Create a flow chart indicating the order of who is to be called.
- Maintain a landowner contact list, i.e. landowners that would need to be contacted if a storm impacts the ability to properly manage stormwater or irrigation water supply.
- During a weekly meeting, discuss the Storm Preparedness Plan and the team members' roles and responsibilities.
- Establish an off-site emergency communications control center in the event that an evacuation is required.
- Determine procedures for communication and a rally point, as well as when a return to the site is expected.

- Monitor the weather during the hurricane season in potentially affected areas. The Person-in-Charge will assign responsibility for monitoring the weather and tracking the storm once it reaches tropical storm strength and becomes a "named storm."
- If radios are used for onsite communication, establish dedicated communication channels.
- Consider establishing a company website or a toll-free phone number to provide information to employees in the event of hurricanes or any catastrophe.
- Make a list of names, addresses and phone numbers for vendors and contractors who can provide recovery services or supplies.
- Think of possible project-specific scenarios and specific courses of action for each.
- Make provisions for salvage and cleanup operations, particularly for vital or essential items.
- Make provisions for security measures.
- Develop an inspection and testing schedule for emergency equipment (generators, pumps, fuel, etc.).
- Establish treaties with contractors, subcontractors and suppliers. The treaty can offer priority assistance, labor and supplies in the event of a hurricane or other catastrophe. Additionally, because hurricanes are typically localized, treaties between a contractor's peers (competitors) can be developed in which, after a hurricane event, the impacted contractor is assisted by fellow contractors with resources, labor and expertise. These treaties often have no cost and can provide contractors with assurances of greatly expedited recovery following a catastrophic event.
- Establish contracts prior to hurricane season with pre-negotiated rates, ensuring fair pricing and greatly expedited recovery.
- Be aware of your location (i.e. proximity to ocean, lakes and rivers; adjacent properties; geographic elevation, etc.) and how transportation problems may slow or prevent evacuation.
- Determine project-specific measures required to minimize damage during a hurricane. If the facility is in a flood area, consider measures that would be taken to mitigate losses during construction.
- Develop a list of, and source for, hurricane preparation materials and equipment.
- Have an inventory of supplies and materials required for recovery operations. Note that the recovery team may need to be entirely self-sufficient for an extended period.
- Consider performing pre-planning with local authorities.
- Establish an emergency evacuation plan to ensure safe, complete and orderly evacuation.

- Establish procedures to follow in the event of exposed energized electrical wires, flammable or hazardous liquid leaks, leaking gas, structural damage and utility damage.

b. Tropical Storm Checklist

- Review your Storm Preparedness Plan and update if required.
- Activate the individual responsible for tracking the storm and advise the Person-in-Charge.
- Ensure that the hurricane response and recovery team information is up to date and accurate. The Person-in-Charge should have an updated, printed copy of the list for safe-keeping.
- Conduct a project meeting reviewing the members of the hurricane response/recovery team and their responsibilities. Review and confirm action items with the individuals responsible.
- Ensure that all hurricane planning items have been addressed.
- Monitor material deliveries and begin to consider the impact of material deliveries and the potential of stopping deliveries (especially for non-critical deliveries).
- Determine material requirements (plywood, netting, banding, plastic sheeting, trailer anchors and tie-downs, concrete anchor screws) for protecting the site in its current state of completion and determine the material source and availability.
- Prepare to secure the site (protect/secure materials and equipment, cover exterior openings, complete structures, brace equipment, clean site, etc.).
- Review what off-site company resources are available to assist with recovery.
- Contact the corporate safety director, human resources and information technology personnel, as needed.
- Consider updating the project schedule. This will be useful for reflecting the project's pre-storm status and later establishing delays caused by the storm, damages and subsequent repairs.

c. Hurricane Watch Checklist

- Schedule a meeting with staff to review the Storm Preparedness Plan, contingency plans and emergency roles and responsibilities and provide contact information.
- Have the storm tracker monitor the weather for changes and advise the Person-in-Charge every four hours.
- Stop all material deliveries.
- Have subcontractors move any uninstalled materials to a safe location.
- Discontinue work on projects that would be vulnerable to damage by the event.
- Complete work if it would minimize the impact of a storm event.

- Prepare to protect materials or equipment that cannot be moved.
- Obtain materials to cover exterior openings (such as doors, windows, roof openings, etc.).
- Obtain netting, banding materials and self-tapping concrete anchoring screws to secure and anchor materials that cannot be removed or securely stored.
- Close all doors and windows.
- Remove, secure, isolate or neutralize chemicals to prevent their release or their reaction together if disturbed.
- Ensure that construction trailers and shipping containers/storage boxes are properly anchored and tied down. If anchors are not available, use concrete filled drums with embedded reinforcing steel loops and tether at least at three locations for each trailer or storage container.
- Remove loose jobsite materials and debris that could become projectiles, and clean the jobsite daily.
- Have garbage in dumpsters and other containers consolidated and properly disposed. Prepare to remove dumpsters/garbage containers. If it's not possible to remove the containers, secure them with nets to prevent debris from becoming airborne.
- Move important documents and records to a safe location.
- To minimize damage, finish work on partially completed structures. For example, complete sheathing nailing to code requirements; secure decking; install hurricane straps and required tie straps; complete permanent connections to the extent possible; repair roof deficiencies (such as flashing, drains, gutters, scuppers, penetrations), etc.
- If completion of structures is not possible or new construction is not fully strengthened, install and fortify temporary bracing to the greatest extent possible.
- Brace/secure all roof-mounted equipment or any other equipment prone to movement by high winds.
- Band and bundle building materials that cannot be removed.
- Move materials that cannot be relocated or secured otherwise to shipping containers/storage boxes.
- Cover all materials that cannot be relocated and elevate them to at least 4 inches above the floor to reduce water damage exposure.
- Remove and secure formwork if it cannot be filled with concrete. In some situations, it may be possible to secure formwork using materials such as heavy structural steel components and banding.

- Consider preparations to prevent water damage to the structure, such as grading, sandbagging materials, ensuring roof is clear of debris that could block scuppers, arranging for dewatering pumps and generators if required, etc.

- If emergency personnel are remaining on site during the event, ensure that adequate supplies for their well-being and protection are available and that safety precautions have been taken.

- Remove scaffolds when possible. If removal of scaffolds is not feasible, remove and secure all boards from scaffolds. Secure all mobile scaffolds to columns or place in shipping (e.g., Conex) boxes.

- Keep evacuation routes open for all vehicles.

- Fully charge all devices and batteries.

- Consider flooding cofferdams, if prudent, to minimize the forces acting on them, such as wind and storm surge.

- For soil-bentonite wall construction, excavation should be discontinued. All slurry filled trenches should be backfilled with soil-bentonite, and surplus soil-bentonite materials should be stockpiled to 3 feet above the working grade of the wall installation. The bentonite slurry mixing ponds should be emptied.

- Soil cement placement should be discontinued. Subgrade areas that have been prepared for placement of soil cement should be covered with sacrificial soils or liner materials to limit the potential for erosion of the prepared subgrades.

- Active and/or finished earthwork construction surfaces should be compacted, graded to drain and covered with sacrificial soils to limit the potential for erosion. This is especially critical in areas of the chimney drain, blanket drain and toe drain, but also applies to embankment and select fill materials. Earthwork construction should otherwise be discontinued.

d. Hurricane Warning Checklist

- Secure all exterior building openings, doors and windows. Consider temporary bracing for large doors which are not designed for high wind loads.

- Install protective measures to minimize the infiltration of water into the building and excavations (e.g., grading, berms, sandbags, pipe caps, etc.). If necessary, protect trailers to minimize the infiltration of water.

- Deploy portable de-watering equipment. Note that municipal power may not be available.

- Address housekeeping items; Remove all debris from site and roof; Secure materials that cannot be moved by placing them in interior building locations or bind them to secure structures; Remove or safely store all hazardous and flammable materials; Make sure that all roof drains are operational, roof caps/strainers are in place and scuppers are free of obstructions.

- Back up all important critical computer data. Store data backup offsite.

- Unplug and move computers to as high an elevation as possible, in the middle of a room and away from windows.
- For items that cannot be relocated, cover all office equipment (computers, copiers, phones, filing cabinets, etc.) with plastic tarps and bags; move them to the most secure area possible.
- Move project drawings and specifications to a protected and secure location on- or off-site.
- De-energize power (especially temporary electrical service) at the circuit breakers, as close to the main power breaker as possible. Unplug all electrical equipment.
- Shut down all gas lines as far back to the main as is feasible to prevent a gas release or a fire.
- Shut down all water lines that are not used for fire protection as far back to the supply point as is feasible.
- Consider having cash available for recovery operations. If telephone and power are out, cash may be the only accepted form of payment. Cash may be required for food, materials, fuel, paying contractors or even paying employees.
- Secure/protect fuel tanks and drums to prevent movement and damage.
- Remove/secure portable toilets. Toilets can be banded together, anchored to the foundation, secured to walls or weighted down with concrete blocks or sand.
- All construction equipment mats should be tied together and anchored.
- All cranes should be removed from barges.
- Flood cofferdams, if determined to be the best option for damage reduction.
- Implement building code requirements governing hurricane and high-wind preparations for cranes and hoisting equipment.
- Contact the crane subcontractor regarding preparing the crane for adverse weather.
- Ensure hoisting equipment abides by all manufacturers' recommendations, including the placement and removal of advertisement banners and the use and/or removal of rigging.
- Remove portable equipment from the jobsite, or store it in shipping containers. For large portable equipment welding machines, compressors, etc., that cannot be placed in shipping containers or stored inside a structure, band the equipment together and protect/secure it as well as possible.
- All crane booms, buckets and blades should be lowered to the ground.
- Hydraulic cranes should have booms retracted and stored.
- Any counterweighted hoist should have the counterweight locked below the top tie-in.
- Inspect all crane counterweights and crane components to ensure they have the greatest likelihood to survive the storm.

- Generally, tower cranes should be allowed to weathervane (move with the wind to minimize the forces acting on the crane).
- Lubricate the tower crane turntable prior to the event.
- All power at the base of the tower should be disconnected.
- All rigging must be removed from the hoist block.
- Backfill excavations if feasible.
- Fuel all vehicles and emergency equipment (such as generators).
- Remove fence screening, signs, banners, etc.
- Secure essential traffic control devices using anchors, sandbags and "tie downs." Remove the devices only if their absence will not create unsafe driving conditions. Collect and remove nonessential barricades.
- Ensure fire protection systems are operational to the extent possible and that adequate fire extinguishers are available.
- Construction equipment should be moved to a location as far as possible from trees, structures or electrical wires, which could fall on them during a storm. Equipment, with brakes set, should also be relocated to as high an elevation as possible to reduce the likelihood of water damage and improve future access to equipment.
- In addition to monitoring the progress of the storm via the Internet, the use of lightning detection equipment can provide valuable information regarding the impending storm.
- Protect incomplete underground utilities, processes and drainage piping from flotation and the infiltration of sand and silt.
- Fill water coolers and place inside gang boxes for additional weight and for the water needs of recovery personnel. Water may not be available following a storm or municipal water may be contaminated.
- Make de-watering arrangements for meter pits and other in-ground vaults that contain electronic equipment.
- Inform employees and subcontractors about whom to contact regarding a resumption of site activities.
- If employees are to remain onsite to operate pumps or minimize damage, safety is critical.
- Consideration must be given to the security of the shelter taken during the storm from a structural, flooding, storm-surge and projectile-impact standpoint. Consult a structural engineer to verify that the shelter protection is adequate. Depending on the severity of the storm, onsite personnel must be self-sufficient (potentially for several weeks) and will require provisions.
- Make a video/photographic record of the jobsite and surrounding properties to document the project condition and status prior to the storm.

- Establish a meeting place, if possible, for key recovery members.
- Inform construction personnel regarding when to leave the project site and how to determine when to return.
- If treaties or agreements exist for recovery assistance by Contractors, contact them to plan recovery efforts.
- If authorities require evacuation, immediately vacate the site.
- Once the site is secure, instruct subcontractors and employees to vacate the jobsite and not to return until the danger has passed.
- Ensure that the criteria for earthwork construction, soil-bentonite wall construction and soil cement placement as described in the Hurricane Watch Checklist have been successfully implemented.

e. Hurricane Recovery Checklist

- Despite the disruptive nature of the event, before making repairs, ensure that all safety procedures have been implemented including the permitting of Hot Work, fall protection, lockout tag-out, smoking prohibitions (safe areas), etc.
- Always ensure that a safety manager is present prior to beginning a hurricane recovery operation.
- Determine if the site is safe to enter and what hazards are present. Also, determine what trades and personnel should return to the site.
- Determine what medical facilities are currently handling emergencies in the event of an injury. Some facilities may have been evacuated or heavily damaged in the storm.
- Recovery personnel must be equipped with appropriate personal protective equipment (PPE). This should include, but not be limited to, hardhats, steel-toed boots, eye protection, gloves, respirators, chemical protective suits, etc. (Enforce all typical work safety practices).
- Recovery workers should have proper immunization if they are working in areas where there is a potential for disease exposure. Contact your local medical provider or the Centers for Disease Control (CDC) for assistance.
- Provide adjacent landowners with a report regarding the status of water management capabilities.
- Maintain proper first aid equipment and clean water to aid in disinfection.
- Workers should take extra care when walking through standing water, as it can mask hidden hazards, such as depressions, sharp debris, tripping hazards, etc., and can contain chemicals and harbor disease.
- If you or your employees encounter hazardous materials, stay upwind, isolate and secure/guard the area, and notify local experts of the incident for proper remediation.

- Have insecticides to protect against insects, which can carry disease.
- Repair roads, as needed, to allow unencumbered site access.
- Evaluate structures before entering (if required, utilize a structural engineer). Repairs may be required to make the structure safe prior to entry.
- Use caution when removing damaged building components so as not to further compromise and possibly collapse the structure.
- Use caution regarding protruding materials that could injure employees.
- Barricade and clearly identify unsafe areas to prevent entry. If a barricade is not feasible, post a guard to prevent unauthorized entry until the hazard is eliminated.
- If tower cranes, hoists or scaffolds have been damaged, notify the appropriate subcontractors and engineers.
- Investigate the site for dangerous conditions, such as collapse, live wires, leaking gas, piping damage or situations that could start a fire.
- Be aware of displaced wildlife that can be a hazard to personnel following a storm event and carry disease.
- Documenting damage (before cleanup and repair):
    - Carefully inspect the construction project and determine the extent of storm- related damage.
    - Document damages in writing, using photos or videos if necessary. Involve subcontractors, owner's representatives, design professionals, electricians and other staff, as required.
    - Notify the owner and insurer before making repairs. However, make immediate reasonable repairs to minimize damage or prevent personal injury.
    - Submit damage reports to risk management personnel.
    - Consider the duration of repairs and their impact on the schedule critical path.
- Establish repair priorities. Identify critical hazards that must be abated prior to allowing the entire construction staff to resume construction.
- Repair damage to fire protection systems as quickly as possible and maintain permitting of hot work, smoking prohibitions and a clean project site to prevent potential fire.
- Salvage and protect the structure by securing breaches in the roof (tarp if needed) and building envelope (cover broken windows and exterior building damage). Remove materials from and/or pump out water as required. Clean roof drains and debris to prevent drainage problems.
- Have each Subcontractor prepare a damage assessment report in writing within 24-28 hours of returning to site and providing these reports to the General Contractor.

- Use care as electrical devices and conductors may be energized. Have qualified electricians inspect all electrical systems and ensure that they are safe to be energized.
- If power lines are down, consider them as energized "live" until verified to be de-energized. Beware of electrical lines in standing water.
- Extension cords should be in good condition and should not be submerged in standing water.
- Contact your insurance claims office if necessary.
- When operating fuel powered equipment such as, generators, pumps, compressors, etc., ensure that proper ventilation is provided.
- Remove water from structures as quickly as possible to minimize the potential for mold and fungus growth.
- Restore HVAC System to maintain or restore building interior environment.
- Prior to resuming soil-bentonite wall construction, remove covering materials, and assure that the new excavation and backfill results in an appropriate horizontal and vertical overlap as shown in the contract drawings and specifications.
- Upon resuming soil cement placement operations, remove cover materials to expose subgrade materials. Verify the nature, consistency and density conditions of the subgrade materials as required in the specifications. Ruts and/or gullies developed in the surface of the subgrade shall be repaired as required in the specification documents.
- Earthwork construction may resume after removal of the cover materials. Verify the nature, consistency and density conditions of the earthwork materials as required in the specifications. Ruts and/or gullies developed in the surface of the previously placed drain, embankment and/or select fill materials shall be repaired as required in the specification documents.

SECTION 01 35 40

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 SUMMARY

Summary of Work: The Contractor shall provide all labor, equipment and materials necessary for the prevention of environmental damage as the result of construction operations under this Contract and for those measures set forth in other requirements of the Technical Specifications.

1.2 RELATED WORK SPECIFIED ELSEWHERE

There are other specification sections that relate to this section that are not necessarily cited herein.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

1. Environmental Protection Agency (EPA)

    a. Clean Air Act (CAA)

    b. Clean Water Act (CWA)

    c. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

    d. Executive Orders and EPA requirements, as appropriate; and all general and specific Federal Permit Conditions as applicable.

    e. Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)

    f. National Environmental Laboratory Accreditation Conference (NELAC)

    g. National Environmental Policy Act (NEPA)

    h. National Pollution Discharge Elimination System (NPDES)

    i. Resource Conservation and Recovery Act (RCRA)

    j. Safe Drinking Water Act

    k. Toxic Substance Control Act (TSCA)

2. Code of Federal Regulations (CFR)

    a. 40 CFR - Parts 109, 261.10, 260-268, 273, 279

3. Florida Department of Transportation (FDOT) & Florida Department of Environmental Protection (FDEP)

    a. Erosion and Sediment Control Designer and Reviewer Manual

4. Florida Administrative Code (FAC)

    a. FAC62-770, 62-780

5. Florida Department of Transportation (FDOT)

    a. Standard Specification for Road and Bridge Construction

6. Florida Statutes

    a. Chapter 403

7. National Oceanic and Atmospheric Administration (NOAA)

    a. Coastal Zone Management Act (CZMA)

8. National Park Service (NPS)

    a. Native American Graves Protection and Repatriation Act (NAGPRA)

    b. National Historic Preservation Act (NHPA)

9. U.S. Army Corps of Engineer (USACE)

10. U.S. Fish & Wildlife Service (FWS)

    a. Endangered Species Act (ESA)

    b. Fish and Wildlife Coordination Act (FWCA)

    c. Migratory Bird Treaty Act (MBTA)

State and local codes, permits, regulations and ordinances as applicable.

1.4 DEFINITIONS

For the purpose of this Section, environmental damage is defined as the presence of hazardous, physical, or biological elements or agents which alter the physical, chemical or biological integrity of the environment in such a way that it represents an unacceptable risk to public health, safety or welfare; unfavorably alter ecological balances; affect other species, biological communities, or ecosystems; or degrade the quality of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental damage requires consideration of land, water, and air, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.

1.5 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan

SD-06 Test Reports

Summary Report

Spill Event Report

1.6 ENVIRONMENTAL PROTECTION PLAN

Within 30 calendar days after the Notice to Proceed (NTP), the Contractor shall submit an Environmental Protection Plan (Work Plan) for review and acceptance by the District in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. The Plan will also be reviewed and approved by FDEP. Approval of the Plan shall not relieve the Contractor of its responsibility for adequate and continuing control of pollutants and appropriate environmental protection measures. Approval of the Plan is conditional and predicated on satisfactory performance during construction. The District reserves the right to require the Contractor to modify the Plan at no additional cost if it is determined that environmental protection requirements are not being met. No physical Work at the Site shall begin prior to acceptance of the Plan. The Plan shall include, but not be limited to the following:

A. A list of the Federal, State and Local laws, regulation and permits concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed.

B. Methods for protection of features to be preserved within the authorized Work areas: The Contractor shall prepare a listing of methods to protect resources needing protection (trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil and historical, archeological and cultural resources).

C. Procedures to be implemented are to provide all necessary environmental protection and to comply with applicable laws and regulations: The Contractor shall provide written assurance that immediate corrective action will be taken to correct any environment damage due to accident, natural causes or failure to follow the procedures set out in accordance with the Plan.

D. Environmental monitoring plans, if applicable.

E. Traffic control plan, if applicable.

F. Drawings showing locations of proposed temporary activities, such as material storage areas or stockpiles of excess spoil or materials.

G. Erosion and sediment control methods, for protecting surface waters, wetlands, and groundwater during construction. All stormwater and erosion control methods shall be in accordance with the FDEP Florida Stormwater, Erosion and Sedimentation Control Inspector s Manual. The Contractor shall prevent and control erosion and water pollution as per FDOT Specification Sections 104-1, 2, 3, 4, 6 and 7 and all applicable FDEP regulations and permit conditions.

H. Spill Prevention Methods: The Contractor shall identify any hazardous or potentially hazardous substances to be used on the Site and indicate intended actions to prevent accidental or intentional introduction of these materials into the air, ground, water, wetlands or drainage areas. The Plan shall specify the actions that will be taken to meet the federal, state and local laws regarding labeling, storage, removal, transport and disposal of all hazardous or potentially hazardous substances.

I. Spill Prevention, Control, and Countermeasures Plan (SPCC) in accordance with the EPA.

J. A Work area plan, showing proposed activities and identifying areas of limited use or non-use, and including measures that will be taken for field identification of these areas.

K. Identification of the person who shall be responsible for implementation of the Plan. This person shall have authority to respond for the Contractor in all environmental protection matters.

L. A recycling and waste management plan. The Contractor shall include waste minimization efforts in the Plan.

M. Include manatee protection measures. See Section 01 35 44 MANATEE PROTECTION.

1.7 QUALIFICATIONS

The Contractor shall provide access to the Work for the District staff as requested for inspection. The Contractor shall provide at least 48 hours advance notice of its intention to begin new Work activities.

The Eastern Indigo Snake or the gopher tortoise are identified as a species of concern in the environmental permits. The Contractor shall supply qualified eastern indigo snake and gopher tortoise observers during ground clearing activities. Qualified Observers are defined as individuals who have been instructed by the District on proper techniques and protocols for protection of the Eastern Indigo Snake and the gopher tortoise during site activities. The observer's names and documentation showing completion of the District's instruction shall be provided to the District at least two (2) weeks prior to the commencement of ground clearing activities. A field biologist provided by the Contractor shall be on site to supervise observations of all site activities.

1.8 RESPONSIBILITIES

1.8.1 Quality Control:

The Contractor shall establish and maintain quality control for the environmental protection of all items set forth herein. Refer to Section 01 35 44 MANATEE PROTECTION for manatee protection requirements. The Contractor shall record on daily quality control reports or attachments thereto, any problems in complying with applicable laws, regulations and ordinances, and corrective action(s) taken.

1.8.2 Permits and Authorizations:

The Contractor shall apply for and obtain all necessary permits or licenses unless the District has already acquired them. The Contractor shall be responsible for implementing and complying with all terms, conditions and requirements of all permits issued for construction of the Project. The Contractor shall install speed limit signs for off-road and improved road travel for construction equipment and employee vehicles that identify speeds protective of wildlife. The Contractor shall also provide all necessary signage describing all Threatened and/or Endangered species which are identified in applicable environmental permits.

1.8.3 Training:

Prior to the onset of construction activities, the Contractor and all personnel shall be trained on how to identify and implement the Standard Protection Measures and Guidelines for the Threatened and Endangered Species and ground-nesting birds. The Standard Protection Measures for the Eastern Indigo Snake dated August 12, 2013, is attached in Appendix A. A training log shall be maintained throughout the contract.

1.9 CERTIFICATIONS AND TESTINGS

All physical, chemical, and biological measurements and analyses that are necessary to comply with the monitoring requirements in all applicable permits or in this Contract must be performed according to approved methods and procedures by a commercial laboratory that is certified to perform the required analyses according to the approved methods and procedures by the National Environmental Laboratory Accreditation Conference (NELAC).

1.10 INSPECTION COORDINATION

The Contractor shall provide access to the Work for the District as requested for inspection. The Contractor shall provide to the District at least 48 hours advance notice of its intention to begin new Work activities.

1.11 WARRANTY

The warranty shall meet the requirements specified in SECTION 01 61 03 EQUIPMENT AND MATERIALS.

PART 2 PRODUCT (ENVIRONMENTAL PROTECTION PLAN)

2.1 NOTIFICATION

In the event that the District notifies the Contractor of any non-compliance with federal, state or local laws, permits or other elements of the Contractor's Environmental Protection Plan, the Contractor shall without delay inform the District of the proposed correction action and take such action as approved.

The Contractor shall notify the District immediately of any warnings or notices of noncompliance, fines, citations or tickets issued directly to the Contractor by any federal, state, or local environmental protection, waste management, code enforcement, or fire, police, or public health agency.

If the Contractor fails to comply, the District may order all Work to cease until corrective action has been taken. No time extensions shall be granted or damages allowed for the suspension of Work under this circumstance.

A Notice of Termination (NOT) shall be sent to the applicable federal, state, and local permit-issuing authorities with a copy to the District within fourteen (14) days of final stabilization

2.2 SUMMARY

The Contractor shall submit a written summary report within 30 days of completion of the Project. This summary report shall delineate the absence, or occurrence, of reported or unreported environmental incidents during the course of the Project.

2.3 TRAINING

The Contractor shall train its personnel in relevant phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, and careful installation and monitoring of the Project to ensure continuous environmental pollution control. Provide updated training logs throughout the contract duration.

Due to the probability that wildlife species of concern, including but not limited to Threatened and/or Endangered species and Protected Migratory Bird species may be present within or adjacent to construction sites, prior to initiation of construction activities, the Contractor(s) will be trained by the District and/or U.S. Fish & Wildlife Service on how to identify and implement appropriate protection measures for each species.

PART 3 EXECUTION (PROTECTION OF ENVIRONMENTAL RESOURCES)

3.1 GENERAL

During the entire period of the Contract, the Contractor shall protect environmental resources within the Project boundaries and those affected outside the limits of construction. The Contractor shall confine its activities to the areas defined by the Drawings and specifications. Any deviations from the Drawings including, but not limited to borrow areas, disposal areas, staging areas, and alternate access routes will require additional review by the District to ensure compliance with applicable

environmental rules and regulations prior to implementation/or commencement of those deviations. Contractor shall be required to establish mandatory buffers and may be required to work around Threatened and Endangered species identified by the USFW and District as ~~required~~directed.

3.2 PROTECTION OF LAND RESOURCES

Prior to the beginning of any construction the Contractor shall delineate, install protection and be responsible for preservation of all land resources that are to be preserved or avoided within the Work area. The Contractor shall not remove, cut, deface, injure, or destroy any land resources (trees, shrubs, vines, grasses, topsoil, or land forms) unless indicated in the Drawings or specifically authorized by the District. All damaged areas shall be restored to original or better condition, to the satisfaction of the District.

3.3 DISTURBED AREAS

The Contractor shall effectively prevent erosion and control sedimentation through approved materials and methods as identified in the Environmental Protection Plan. Disturbed areas will include areas of ingress and egress, construction materials storage, staging, washdown areas, and toxic, hazardous, and solid materials/waste storage areas. Disturbed areas shall be temporarily stabilized within seven (7) days of cessation of phased construction activity and permanently stabilized within fourteen (14) days of cessation of all phases of construction activity. Temporary Best Management Practices (BMPs) shall remain in place and in effect until the final Site inspection is complete and Site is certified as stabilized.

3.4 PROTECTION OF WATER RESOURCES

The Contractor shall conduct all activities in a manner to avoid pollution of surface water, ground water and wetlands. The Contractor's construction methods shall protect wetland and surface water areas from damage due to mechanical grading, erosion, sedimentation and turbid discharges. No storage or stockpiling of equipment shall be allowed within any wetland area unless specifically authorized under a permit for the Project.

Water directly derived from construction activities shall not be allowed to directly discharge to water areas, but shall be collected in retention areas to allow settling of suspended materials. The Contractor shall monitor water quality of dewatering discharge into water bodies or leaving the Site in accordance with applicable environmental permits. All monitoring of any water areas that are affected by construction activities shall be the responsibility of the Contractor.

3.5 OIL, FUEL AND HAZARDOUS SUBSTANCE SPILL PREVENTION

The Contractor shall prepare a spill contingency plan in accordance with 40CFR, Part 109. The Contractor shall prevent oil, fuel or other hazardous substances from entering the air, ground, drainage, and local bodies of water or wetlands. In the event that a spill occurs, despite design and procedural controls, the Contractor shall take immediate action to contain and clean up the spill and immediately report the spill to the District and to other appropriate federal, state, and local agency contacts. Reportable quantities (greater than 25 gallons) of petroleum-based fluids must be reported within 1 hour to the National Response Center (800-424-8802) and

State Warning Point (800-320-0519) if it reaches the waters of the state or, if not, within 24 hrs to State Warning Point. Toxic and hazardous substance spills directly into waters of the state, in any quantity, must be reported immediately to the District and those federal and state points of contact listed above.

The Contractor shall submit a written spill event report to the District and to the State of Florida Bureau of Emergency Response providing certification of commitment of manpower, equipment and materials necessary to prevent the spread and effect expeditious cleanup and disposal. This report shall be submitted within 48 hours of the spill event.

3.6 MATERIALS AND WASTE MANAGEMENT

A. For sanitary waste management, the Contractor shall ensure that portable restrooms will be anchored on level ground with at least a 15-foot set-back from water bodies or banks or slopes thereto. For solid waste management, dumpster(s) will either be outfitted with a water-tight cover or be covered with a tarpaulin when not in use to minimize infiltration and leaching of rain with at least a 15-foot set-back from water bodies, conveyances thereto, or banks or slopes thereto. Hazardous materials storage areas and liquid refuse and hazardous waste collection and storage areas shall be denoted on the Plan.

B. The Contractor shall ensure toxic substances and hazardous materials are stored in a locked, blast-resistant shed anchored to a bermed concrete or asphalt pad on level ground with at least a 15-foot setback from any water bodies, conveyances thereto, or banks or slopes thereto.

C. For solid and/or hazardous waste disposal involving lead-based paint, the Contractor shall ensure containers with Toxicity Characteristic Leaching Procedure Tetraphenylborate (TCLP TPb) concentrations in excess of the Resource Conservation and Recovery Act (RCRA) action level will be transported by a licensed hazardous waste hauler to a licensed hazardous waste disposal facility within the time limit appropriate to the generation rate and accumulated volume of hazardous waste material. Containers with TCLP TPb concentrations less than the RCRA action level shall be transported by a licensed solid waste hauler to a licensed Class I solid waste disposal facility. In either case, the Contractor shall obtain and transmit signed and dated copies of the transport and disposal manifests to the District's for records retention.

D. The Contractor is prohibited from the on-site burning of hazardous wastes (aerosol cans, oil filters, etc.). All hazardous wastes shall be disposed of as required by law. Copies of relevant Material Safety Data Sheets (MSDSs) shall be appended to the Environmental Protection Plan, Safety Plan, Spill Prevention Plan, and Stormwater Pollution Prevention Plan (SWPPP).

E. The Contractor is responsible for the materials and processes where wastes may be generated under the contracted activities. The Contractor is responsible for providing the materials in order to implement the Contract and is responsible for operating and maintaining any processes from which waste material may be generated.

F. The Contractor is deemed to be the generator as defined in 40 CFR 261.10 for any hazardous wastes or spill residue that is generated during the

activities encompassed in this Contract. It is recognized that it is the Contractor's or a subcontractor of the Contractor whose act first causes a hazardous waste to become subject to regulation. The Contractor is a different legal entity from the owner/operator of the physical location/property where the contracted activities will be conducted. Contractor is a person within the meaning of Section 403.031(5), Florida Statutes.

G. The Contractor is responsible for compliance with applicable standards of 40 CFR 260-268 and 40 CFR 273 and 279 and state regulations which adopt or reference these federal standards.

H. The Contractor is responsible for the generation and retention of records associated with waste management practices and disposition. All records shall be maintained for a minimum of three (3) years from the date of generation. All records will be made available to the District or regulatory agencies upon request.

I. In the event of any chemical discharges associated with Contractor's or subcontractor's activities, CONTRACTOR shall be responsible for reporting, assessment and remediation of such discharges in accordance with applicable federal, state or local regulations and/or guidelines including, but not limited to, 40 CFR 264/265, Chapter 62-770, Florida Administrative Code (F.A.C.) and Chapter 62-780, F.A.C.

3.7 FISH AND WILDLIFE RESOURCE PROTECTION

The Contractor shall control and minimize interference with, disturbance to, and damage of fish and wildlife resources.

A. If adverse impacts occur to fish and wildlife species of concern, including but not limited to Threatened and/or Endangered Species and Protected Migratory Bird Species, the Contractor shall immediately notify the District and provide details of adverse impacts for determination of further action that may be required. Adverse impact is defined as any harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such activity. Threatened and/or Endangered Species that require specific protection measures as identified in the environmental permits shall be listed in the Environmental Protection Plan.

B. In the event that the District determines that an adverse impact to species of concern, including but not limited to Threatened and/or Endangered Species and Protected Migratory Bird Species (provide sample list - Least Terns, Black Neck Stilts, Rosiette Spoonbills, Wood Stork for example) occur as a result of the construction activities, the Contractor shall be aware that certain work restrictions may be imposed. In particular the nesting season for species previously encountered on site can generally occur from November to July. Work in the vicinity of the known nests will be limited during these approximate windows. The District shall notify the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service for determination of further action and possibly to determine if seasonal or daily timing restrictions on construction activities is needed.

The Standard Protection Measures for the Eastern Indigo Snake dated August 12, 2013, is attached in Appendix A, entitled 01 35 40 Appendix A. The Contractor shall be aware that the Florida Panther, Manatee, Crested

Caracara, Eastern Indigo Snake, and Gopher Tortoise, are known to inhabit the Project site.

C. The Contractor and all personnel shall be familiar with the Plan and shall be able to identify the threatened and endangered species listed in the Plan. Any activity observed by the Contractor that may result in adverse impact to threatened or endangered species shall be reported immediately to the District, who shall have sole authority for any Work stoppages, creation of a buffer area, or restart of construction activities.

D. Any Threatened and/or Endangered Species and species of concern observed at the Site will be recorded and logged. The logs shall be provided to the District on a bi-weekly basis. See attached Wildlife Sighting Log, Appendix B. If nesting activity is detected within and/or adjacent to the Site, the Contractor shall immediately contact the District for determination of further action and possibly to determine if seasonal or daily timing restrictions on construction activities is needed.

E. The Contractor shall keep construction activities under surveillance, management, and control to prevent impacts to migratory birds and their nests. The Contractor may be held responsible for harming or harassing the birds, their eggs or their nests as a result of the construction. Any nesting activity observed by the Contractor shall be reported immediately to the District's Construction Manager who shall have sole authority for any work stoppages, creation of the buffer area, or restart of construction activities.

3.8 ENVIRONMENTAL PROTECTION RETENTION RECORD RETENTION

The Contractor shall retain a copy of all required permits, the Plan, the SWPPP, the Spill Prevention Plan, required BMP's and all associated reports, records and documentation required by these permits or the Contract at the construction Site or an appropriate alternative location as specified in the Notice of Intent (NOI) from NTP through Notice of Termination (NOT). Such documentation includes but is not limited to soil disturbance and stabilization logs, inspection and corrective action logs, turbidity monitoring logs, wildlife observation logs and reports, TCLP and Synthetic Precipitation Leaching Procedure (SPLP) assay results, sanitary, solid, and hazardous waste transport and disposal manifests, spill event reports, material safety data sheets, and any warnings, citations or notices of noncompliance, or fees, levees, fines or penalties. A copy of all environmental protection records and documentation shall be submitted to the District at the time of Contract close-out.

3.9 PROTECTION OF AIR RESOURCES

The Contractor shall minimize pollution of air resources. All activities, equipment, processes and work operated or performed in accomplishing the specified construction shall be in strict accordance with the applicable air pollution standards of the State of Florida (F.S. Chapter 403 Environmental Control and F.A.C. Section 200 Recirculation Chiller) and all Federal emission and performance laws and standards as applicable. This includes, but is not limited to, control of particulates, dust generated by or incidental to construction activities, burning and odors. See Section 01 56 05 - TEMPORARY BARRIERS AND CONTROLS for dust control.

3.10 PRESERVATION AND RECOVERY OF HISTORIC, ARCHEOLOGICAL, AND CULTURAL RESOURCES

If applicable, known historic, archeological and cultural resources within the Contractor's Work area(s) will be designated as a Sensitive Environmental Area on the Drawings or other documents. If so designated, the Contractor shall install protection for these resources and shall be responsible for their preservation during the Contract's duration. The Contractor shall not distribute maps or other information on these resource locations except for distribution among the Contractor's staff with a "need to know" technical responsibility for protecting the resources.

3.10.1 Inadvertent Discoveries

If, during construction or other activities, the Contractor observes items that may have historic or archeological value, such observations shall be reported immediately to the District so that the appropriate staff may be notified and a determination made for what, if any, additional action is needed. Examples of historic, archeological and cultural resources are bones, remains, artifacts, shell, midden, charcoal or other deposits, rocks or coral, evidences of agricultural or other human activity, alignments, and constructed features. The Contractor shall cease all activities that may result in the destruction of these resources and shall prevent his employees from further removing, or otherwise damaging, such resources.

3.10.2 Claims for Downtime due to Inadvertent Discoveries

Upon discovery and subsequent reporting of a possible inadvertent discovery of cultural resources, the Contractor shall seek to continue Work well away from, or otherwise protectively avoiding, the area of interest, or in some other manner that strives to continue productive activities in keeping with the Contract. Should an Inadvertent Discovery be of the nature that substantial impact(s) to the Work schedule are evident; such impacts shall be immediately communicated to and coordinated with the District.

-- End of Section --

SECTION 01 35 40 - Appendix A
STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or "approval" from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or "approval" from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11" x 17" or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A <u>LIVE</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A <u>DEAD</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.

2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.

3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).

2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.

3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

SECTION 01 35 40 - ENVIRONMENTAL PROTECTION
Appendix A
STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

ATTENTION:
THREATENED EASTERN INDIGO SNAKES MAY BE PRESENT ON THIS SITE!!!

IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the eastern indigo snake sufficient time to move away from the site without interference.
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate U.S. Fish and Wildlife Service (USFWS) office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A DEAD EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:
North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

Killing, harming, or harassing indigo snakes is strictly prohibited and punishable under State and Federal Law.

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

SECTION 01 35 40 - ENVIRONMENTAL PROTECTION Appendix B

South Florida Water Management District Wildlife Sighting Log

If there are no sightings over a bi-weekly period, please note "no sightings" for that bi-weekly period and note specific dates and provide observer information.

☐ **Eastern Indigo Snake**	☐ **Wood Stork**	☐ **Florida Panther**
☐ **Crested Caracara**	☐ **Gopher Tortoise**	☐ **Everglade Snail Kite**
☐ **Bald Eagle**	☐ **Burrowing Owl**	☐ **Black Bear**
☐ **Least Tern**	☐ **Ground Nesting Birds**	☐ **Other_____**

Project Name	**C-43 Reservoir**
Date of Sighting	/ /
Time of Sighting	: ☐am or ☐pm
Temperature (°F)	°F
Wind Speed (mph) and Direction	____ mph from the _____
Weather Conditions (ex: note sky cover, raining, humid, cloudy, sunny, cool, hot, etc)	
Construction Activity Occurring	
Equipment Being Used	
Condition of Animal (ex: injured, unharmed, etc.)	
Behavior of Animal (ex: disoriented, aggressive, frightened, calm, etc.)	
Actions Taken After Sighting	
Size of Animal	
GPS Coordinates (in decimal degrees)	Lat: Long:
Description of Location (ex: intersection of LPDD and Robert's Canal)	
Pictures Taken (attach pictures if available)	☐**YES** ☐**NO**
Date this form was completed	/ /
Observers Company/Agency	
Observers Name	Print Name:
	Signature:
Observers Contact Info	**Office:**
	Cell:
	Email:

South Florida Water Management District
Wildlife Sighting Log

If there are no sightings over a bi-weekly period, please note "no sightings" for that bi-weekly period and note specific dates and provide observer information.

☐ **Eastern Indigo Snake**	☐ **Wood Stork**	☐ **Florida Panther**
☐ **Crested Caracara**	☐ **Gopher Tortoise**	☐ **Everglade Snail Kite**
☐ **Bald Eagle**	☐ **Burrowing Owl**	☒ **Black Bear**
☐ **Least Tern**	☐ **Ground Nesting Birds**	☐ **Other_____**

Project Name	**C-43 Reservoir**
Date of Sighting	Tuesday, 1/ 29 / 2008
Time of Sighting	09: 00 ☒am or ☐pm
Temperature (°F)	75°F
Wind Speed (mph) and Direction	5 mph from the north
Weather Conditions (ex: note sky cover, raining, humid, cloudy, sunny, cool, hot, etc)	Partial cloud/Sunny
Construction Activity Occurring	Demobilization of Construction Trailers, nothing near the area snakes were sighted
Equipment Being Used	n/a
Condition of Animal (ex: injured, unharmed, etc.)	Good
Behavior of Animal (ex: disoriented, aggressive, frightened, calm, etc.)	calm, under a door in an abandoned citrus office
Actions Taken After Sighting	Determined sex, took photos, estimated size
Size of Animal	
GPS Coordinates (in decimal degrees)	Lat: N 27 05 33.59 Long: W 80 26 59.90
Description of Location (ex: intersection of LPDD and Robert's Canal)	NE corner of Project along Eastern Levee
Pictures Taken (attach pictures if available)	☒**YES** ☐**NO**
Date this form was completed	Tuesday 2/ 5 / 2008
Observers Company/Agency	Land Clearing Inc.
Observers Name	Print Name:
	Signature:
Observers Contact Info	**Office:**
	Cell:
	Email:

EXAMPLE

SECTION 01 35 44

MANATEE PROTECTION

PART 1 GENERAL

1.1 SUMMARY

Summary of Work: The Contractor shall ensure that all personnel associated with the Project are aware of the potential presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The purpose of the temporary manatee barrier is to prevent manatees from entering the Townsend Canal work zone. All construction personnel are responsible for observing water-related activities for the presence of manatee(s).

1.2 RELATED WORK SPECIFIED ELSEWHERE

There are other specification sections that relate to this section that are not necessarily cited herein.

1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

NOAA MMPA	Marine Mammal Protection Act of 1972
NOAA ESA	Endangered Species Act of 1973

FLORIDA ADMINISTRATIVE CODE & FLORIDA ADMINISTRATIVE REGISTER (FAC)

FAC 68C-22	Florida Manatee Sanctuary Act of 1978

SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD)

SFWMD Guidelines	(2011) Manatee Conservation During Comprehensive Everglades Restoration Plan Implementation

U.S. FISH AND WILDLIFE SERVICE (FWS)

FWS Manatee Standard	(2011) Standard Manatee Conditions for In-Water Work

1.4 SUBMITTALS

Submit the following in accordance with section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Verification (Photos)

Temporary Manatee Barrier Work and Maintenance Plan

SD-02 Shop Drawings

Manatee Signs

Temporary Manatee Barrier

Boater Warning Signs

PART 2 PRODUCTS

The Contractor shall provide and install manatee signs. Refer to Attachment B. Provide manatee sign shop drawings for review and approval.

The Contractor shall provide and install a temporary manatee barrier. Provide for review and approval a temporary manatee barrier work and maintenance plan. At a minimum the work plan shall include the fabrication and placement sequencing, the access for installation and maintenance, the methods of inspection and repair, the regular maintenance program and the method for removal and disposal of vegetation and debris that will collect at the barrier. The temporary barrier shall be like the conceptual design and function as the barrier presented in Attachment C. Provide manatee barrier shop drawings for review and approval.

Commented [AJ1]: Submittal tag

Warning signs telling boaters of the construction work shall be placed on the banks of the Townsend Canal immediately north of the SR-80 bridges and inside the FDOT right-of-way. Provide two (2) signs, one on each side of the Townsend Canal facing north. The signs shall be a minimum of 4-feet by 8-feet, white background, 10-inch (minimum) red letters and ground mounted with two - 4-inch by 4-inch pressure treated posts. Submit boater warning signs shop drawings for review and approval.

PART 3 EXECUTION

General: Surface water elevations in the Townsend Canal are subject to considerable fluctuation as a result of ongoing farming operations to the south, and the size of the drainage basin that drains through the Townsend Canal. Following the passage of hurricane Irma in September 2017, the Townsend Canal stage was estimated to be above elevation +8 feet NAVD. The Contractor shall regularly and intentionally coordinate work activities along the Townsend Canal with local farmers and land owners to limit the impact of potential high stages in the Townsend Canal that may affect the timing, progress, the need for removal of damaged work, and associated re-work. Additional temporary cofferdams may be required provided they do not impede flow in the Townsend Canal. The Contractor shall pay all additional costs for the required coordination and potential rework as necessary.

The Contractor shall coordinate the installation of the temporary manatee barrier with the Bid Package 3 Contractor so that the Bid Package 3 construction in the vicinity of the Bid Package 4 temporary manatee barrier is complete prior to installing the barrier. Contractor shall coordinate the installation of the temporary manatee barrier with the Bid Package 3 Contractor removal of the bid package 3 temporary manatee barrier so that there is not a lapse in protecting against the manatees from entering the Townsend Canal until all construction associated with the Townsend Canal is complete and accepted.

A. Fabricate and install two (2) boater warning signs, one on each bank (east and west) of the mouth of the Townsend Canal immediately north of the SR-80 bridges and inside the FDOT right-of-way.

B. All personnel associated with the project shall be instructed about the presence of the manatees and the need to avoid injury to manatees. The Contractor shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Marine Mammal Protection Act of 1972 (NOAA MMPA), the Endangered Species Act of 1973 (NOAA ESA), and the Florida Manatee Sanctuary Act of 1978 (FAC 68C-22). The Contractor may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.

C. The Contractor shall comply with the "Standard Manatee Conditions for In-Water Work - 2011" (Attachment A).

D. The Contractor shall issue a Notice of Navigation through the Coast Guard for any work in the Townsend Canal at the Caloosahatchee River (if required).

~~D~~E. Prior to the initiation of any work authorized, the Contractor shall submit for approval shop drawings for the installation of a temporary manatee barrier consisting of anchored chain link that extends two feet above the surface of the water and all the way to the bottom. The manatee barrier shall be designed to withstand loading from vegetation and debris from upstream or downstream flows. The manatee barrier shall be supported by piles that are placed no more than 24 feet apart. The manatee barrier shall be maintained in a safe and functional condition until all work in the Townsend Canal has been completed and accepted. Maintenance of the manatee barrier shall include the removal and disposal of vegetation and debris that has accumulated against the barrier on a weekly basis, at a minimum, or as directed by the District. Maintenance of the manatee barrier shall be presented and described in the temporary manatee barrier work and maintenance plan. Prior to installation of this barrier, the Townsend Canal shall be surveyed by a qualified manatee observer to ensure that no manatee becomes trapped within the project area. Should any manatees be observed, immediately notify the District and the U.S. Fish and Wildlife Service. Immediately following installation of this barrier, a qualified manatee observer shall conduct another survey of the construction footprint to ensure that no manatees have become trapped within the project. An additional survey will be required 1 to 2 weeks after this inspection.

~~E~~F. Following installation of the temporary manatee barrier, floating siltation/turbidity barriers with weighted skirts that extend to within 1 foot of the bottom around all work areas that are in, or adjacent to, surface waters shall be installed inside of the temporary manatee barrier and shall be made of material in which manatees cannot become entangled (i.e., reinforced impermeable polycarbonate vinyl fabric), shall be properly secured, and shall be monitored regularly to avoid manatee entanglement or entrapment. Barriers shall not impede manatee movement or block manatee entry to or exit from essential habitat. Maintenance of the turbidity barrier shall include the removal and disposal of vegetation and debris that has accumulated against the barrier on a weekly basis, at a minimum, or as directed by the District. Barriers shall remain in place and be maintained until all work in the Townsend Canal has been completed and accepted and all

suspended and erodible materials have been stabilized. Barriers shall be removed upon stabilization of the work area.

~~F~~G. Neither structure nor material or the method of construction shall pose more than minimal risk of entrapping fish, marine turtles, or marine mammals. In-water lines must be industrial grade metal or heavy cables that do not readily loop and tangle. All in-water lines (rope and cable) must be rigid and cannot have excess line in the water. Lines may be enclosed in a plastic or rubber sleeve/tube to add rigidity.

~~G~~H. All vessels associated with the project shall operate at "No Wake/Idle" speeds at all times while in the immediate area and while in water where the draft of the vessel provides less than four feet clearance from the bottom. All vessels shall follow routes of deep water whenever possible.

~~H~~I. If a manatee is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the contractor to ensure protection of the manatee. All in-water operations, including vessels, must be shut down if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

~~I~~J. Any collision with and/or injury to a manatee shall be reported immediately to the District's representative and to the "Florida Fish and Wildlife Conservation Commission (FWC) Manatee Hotline" at 1-888-404-FWCC (1-888-404-3922). Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Punta Gorda, Charlotte County at (1-941-515-5768) or Lakeland, Polk County at (1-863-648-3200).

~~J~~K. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities, including construction/dredging activities. Awareness signs that have already been approved for this use by the FWC must be used. Samples of manatee signage are included at the end of this specification. All signs shall be removed by the Contractor upon completion of the project. One (1) sign measuring at least four(4) feet by eight (8) feet which reads "Caution Boaters: Watch for Manatees", shall be posted in a location where it is prominently visible to water related construction crews. A second sign shall be posted if vessels are associated with the construction and shall be placed in a location that is prominently visible to the vessel operator. The second sign shall be at least four (4) feet by eight (8) feet and read:

Caution: Manatee Habitat. Idle speed is required if operating a vessel in the construction area. All equipment must be shut down if a manatee comes within 50 feet of the operation. A collision with and/or injury to a manatee shall be reported immediately to the Florida Marine Patrol at 1-888-404-FWCC (1-888-404-3922) and the U. S. Fish and Wildlife Service at 1-941-515-5768 (Punta Gorda, Charlotte County) or at 1-863-648-3200 (Lakeland, Polk County).

~~K~~L. Submit verification (photos) that signs have been installed at designated locations, shall be provided to the FWS and the U.S. Army Corps of Engineers (USACE) before the docking facility begins operations.

Construction Warning Signs

Sign 1: Caution Manatee Area -Attachment B

Sign 2: Idle Speed/No Wake - Attachment B

-- End of Section --

ATTACHMENT A

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

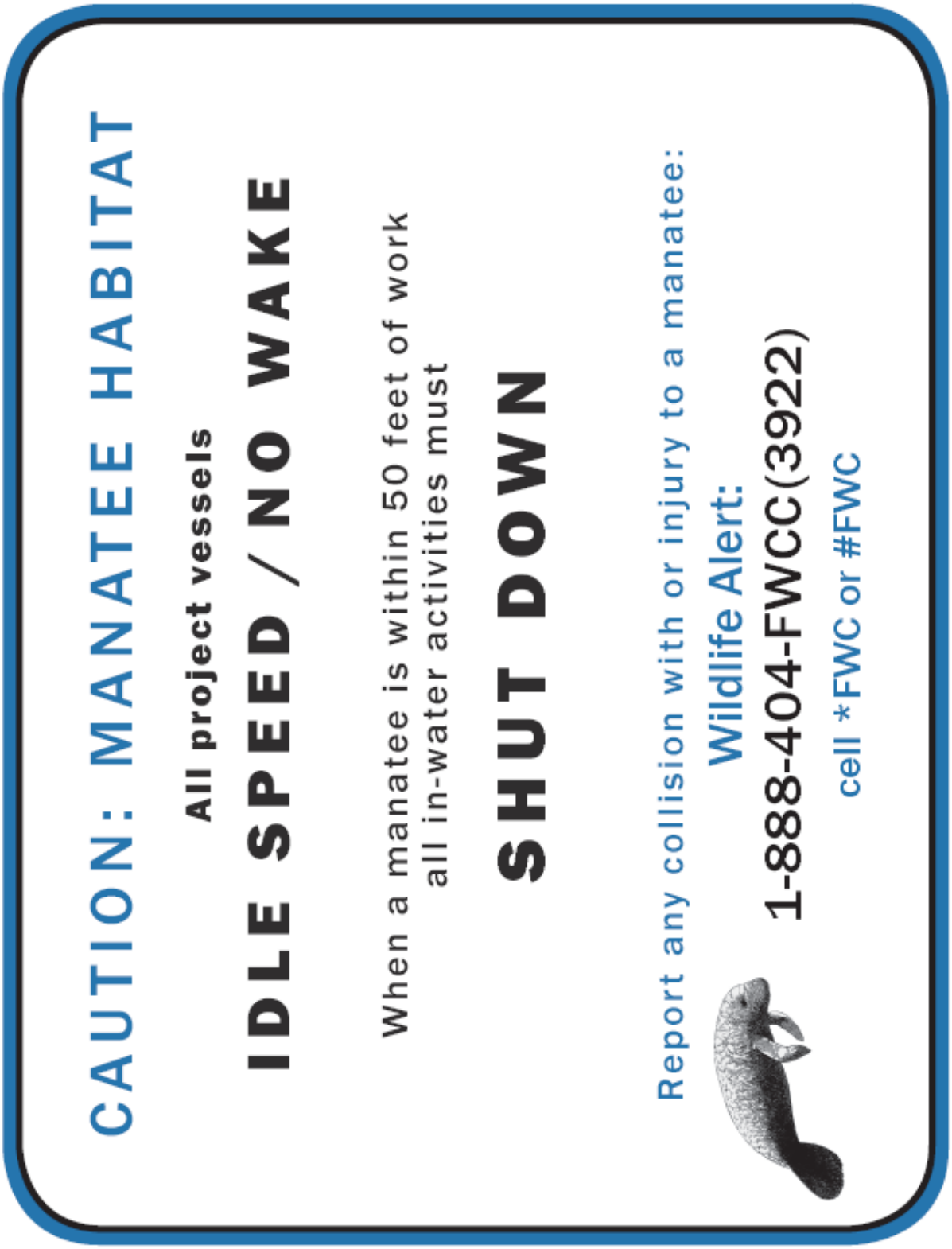
d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the FWC Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or Vero Beach (1-772-562-3909) for south Florida, and to FWC at ImperiledSpecies@myFWC.com

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the Florida Fish and Wildlife Conservation Commission (FWC) must be used (see MyFWC.com/manatee). See Sign 1 and Sign 2 included in the specification.

Sign 1: Caution Manatee Area

Sign 2: Idle Speed/No Wake



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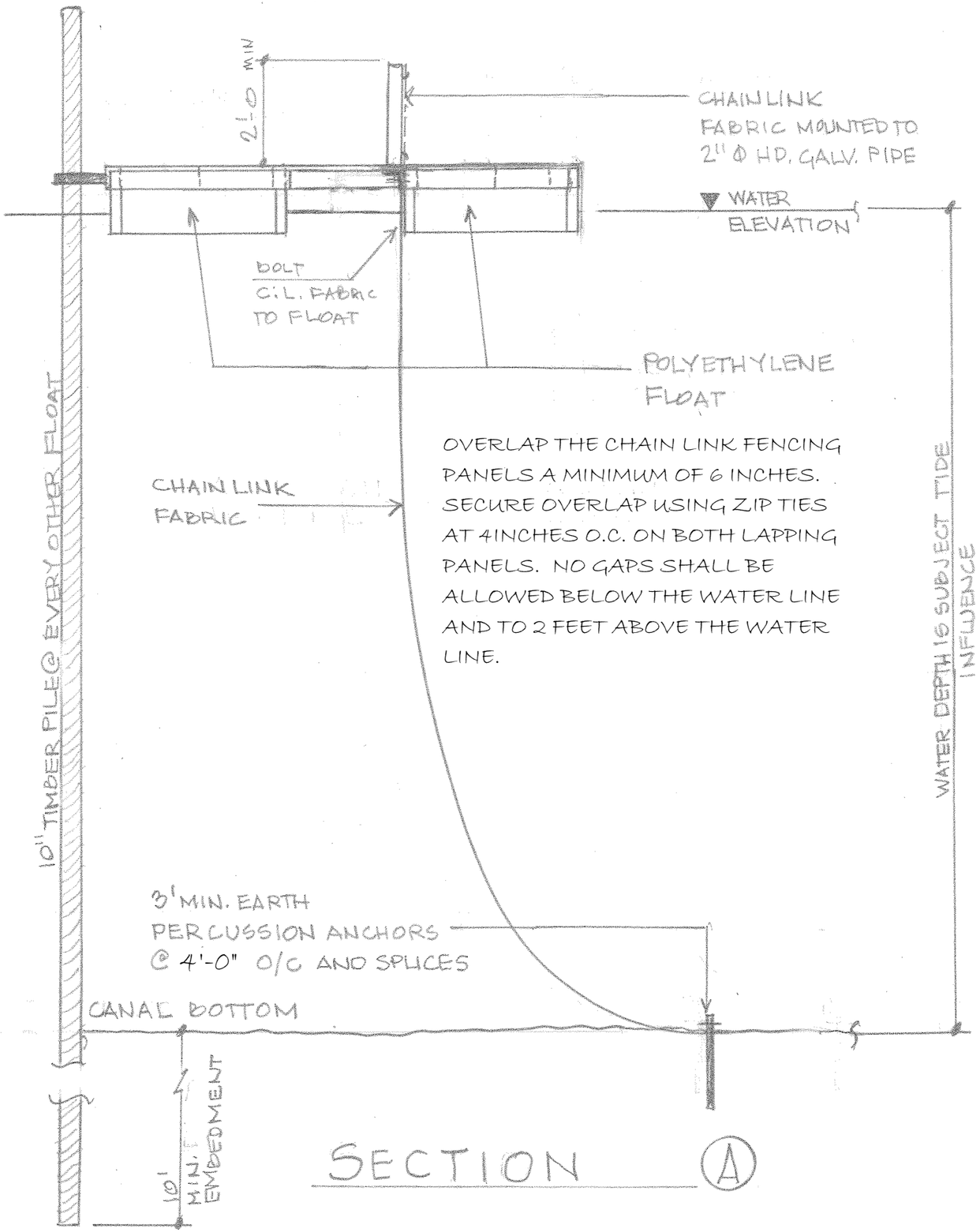

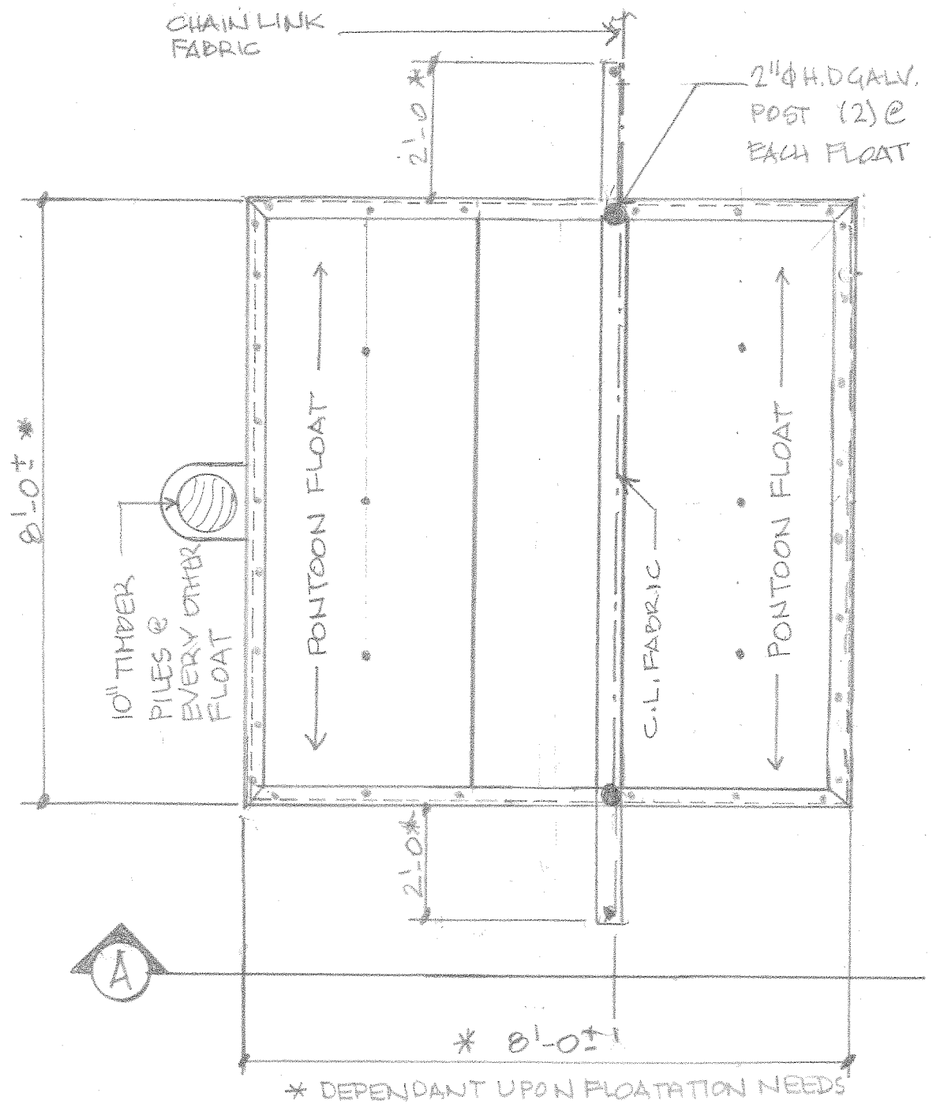

PLAN @ FLOAT

ATTACHMENT C

CONCEPTUAL MANATEE BARRIER DETAIL

BID PACKAGE NO.4 - RESERVOIR

C-43 RESERVOIR

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

DRAWING 1 OF 2

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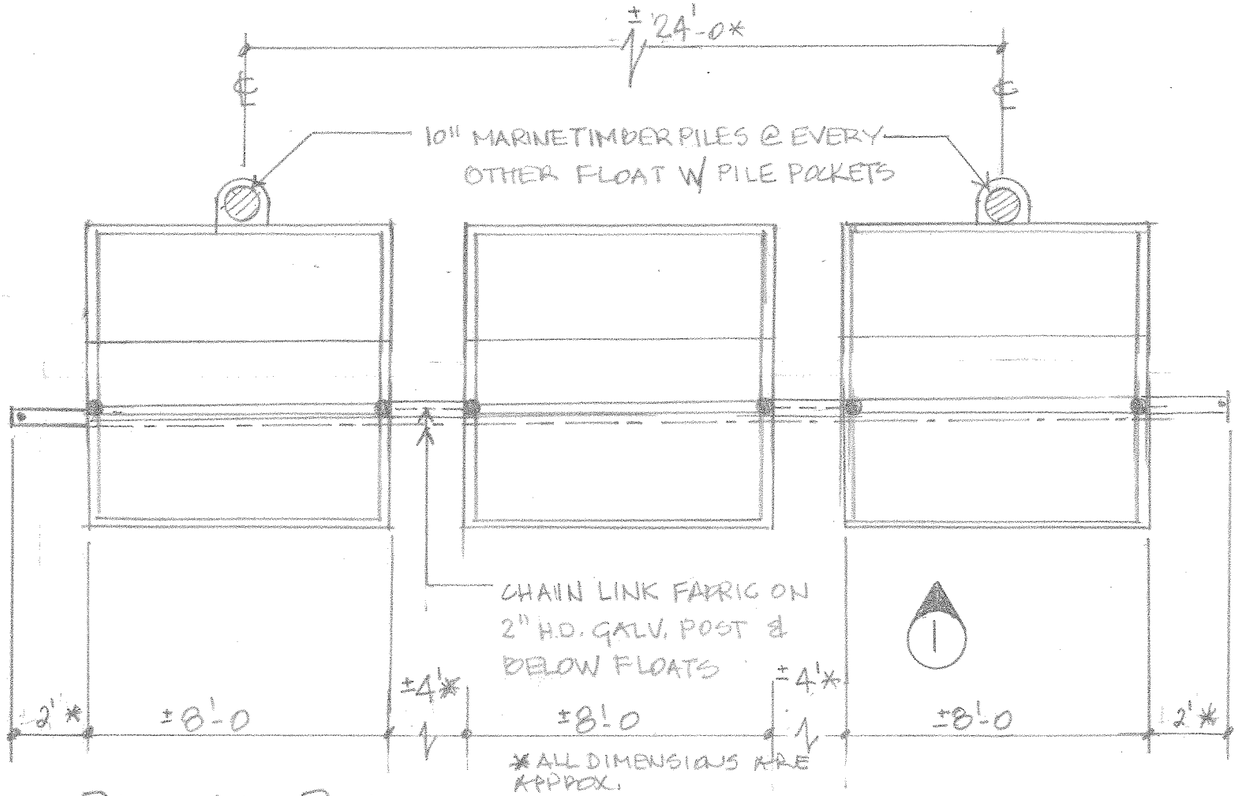
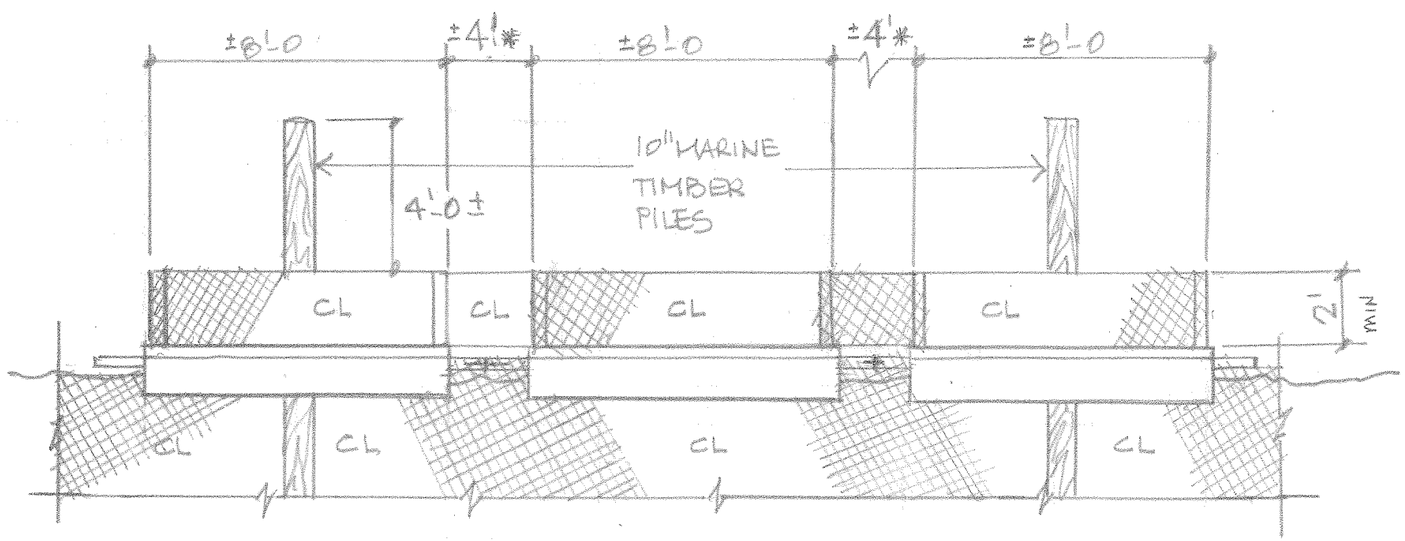


PARTIAL PLAN



CL = CHAIN LINK FABRIC

*ALL DIMENSIONS APPROX.

ELEVATION 1

NOTES:

1. All dimensions for floats and framing are subject to change based on the need for buoyancy and other factors.
2. Temporary piles to be placed at every other float to minimize articulation and pinch points.
3. Floats will be attached to piles with pile pockets or similar to allow barriers to move freely with the tide.
4. Barrier installation is intended to fully protect against manatees pushing through, under, or around the edges and bottom of barrier. Anchoring system as shown.
5. Connection points to be added as necessary to minimize gaps (determined by contractor).
6. Overall length of barrier is approximately 120 feet.
7. Water depth variation is estimated to be not greater than 10 feet.

ATTACHMENT C

CONCEPTUAL MANATEE BARRIER DETAIL

BID PACKAGE NO.4 - RESERVOIR

C-43 RESERVOIR

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

DRAWING 2 OF 2

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SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization (e.g. ASTM B564 Standard Specification for Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 REFERENCES TO FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT)

The publications listed below form a part of this specification to the Extent referenced. The publications are referred to in the text by basic Designation only.

Florida Department of Transportation (2018) Standard Specifications For Road and Bridge Construction

Where an FDOT standard, supplemental specification section, and/or special Provision(s) is cited that contains references to other FDOT sections, they Shall also form a part of this specification to the extent referenced. Copies of the 2018 FDOT standard specifications can be obtained from the Florida Department of Transportation Map & Publication Sales, 605 Suwannee Street, mail station 12 Tallahassee, Fl 32399-0450, or online at www.dot.state.fl.us/specificationsoffice.

Where reference is made to "Department" or "Engineer" in the FDOT Standard Specifications, Supplemental Specifications, or Special Provisions, it Shall mean "District" as defined in these contract Documents.

Where reference is made to "Responsible Party" in the FDOT Standard Specifications, Supplemental Specifications, or Special Provisions, it shall mean "Contractor" as defined in these contract documents.

The more stringent technical specifications between these contract documents and FDOT Standard Specifications shall control in the event of any conflict.

Contract administration, dispute resolution, and basis of payment shall be controlled by applicable federal law and Regulation and the terms of the agreement between the contractor and the District, which shall control over any conflicting Provisions in the FDOT Standard Specifications.

Technical specifications that references FDOT Standard Specifications include but are not limited to:

Section 01 53 00 TEMPORARY CONSTRUCTION

Section 01 55 26 TRAFFIC CONTROL

Section 02 41 00 DEMOLITION

Section 26 32 15 LPG FUEL SYSTEM FOR EMERGENCY GENERATOR

Section 31 00 00 EARTHWORK Kevin Aubry, P.E.

Section 31 32 11 SOIL SURFACE EROSION CONTROL

Section 32 11 23.10 LIMEROCK BASE

Section 32 11 39 SHELL BASE COURSE

Section 32 12 16 HOT-MIX-ASPHALT (HMA) FOR ROADS

Section 32 16 23 CONCRETE SIDEWALKS

Section 32 17 23 PAVEMENT MARKINGS

Section 32 31 53 CATTLE GUARDS

Section 32 92 19 SEEDING

Section 33 03 00 TURBIDITY CONTROL AND MONITORING

Section 33 03 01 ENVIRONMENTAL PROTECTION

Section 33 40 00 STORM DRAINAGE UTILITIES

Section 33 46 13 FOUNDATION DRAINAGE SYSTEM

Section 35 31 19 RIPRAP SYSTEM

SECTION 35 31 19.20 ARTICULATING CONCRETE BLOCK REVETMENTS

SECTION 35 41 21 PRESSURE RELIEF SYSTEM

1.3 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

AACE INTERNATIONAL (AACE)
1265 Suncrest Towne Centre Drive
Morgantown, WV 26505-1876 USA
Ph: 304-296-8444
Fax: 304-291-5728
E-mail: info@aacei.org
Internet: http://www.aacei.org

ACOUSTICAL SOCIETY OF AMERICA (ASA)
1305 Walt Whitman Road, Suite 300
Melville, NY 11747-4300
Ph: 516-576-2360
Fax: 631-923-2875
E-mail: asa@aip.org
Internet: http://asa.aip.org

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC. (AIA/NAS)
1000 Wilson Blvd, Suite 1700
Arlington, VA 22209
Ph: 703-358-1052
Fax: 703-358-1052
E-mail: chris.carnahan@aia-aerospace.org
Internet: http://www.aia-aerospace.org

AIR CONDITIONING CONTRACTORS OF AMERICA (ACCA)
2800 Shirlington Road, Suite 300
Arlington, VA 22206
Ph: 703-575-4477
E-mail: info@acca.org
Internet: http://www.acca.org

AIR DIFFUSION COUNCIL (ADC)
1901 N. Roselle Road, suite 800
Schaumburg, IL 60195
Ph: 847-706-6750
Fax: 847-706-6751
E-mail: info@flexibleduct.org
Internet: http://www.flexibleduct.org

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL (AMCA)
30 West University Drive
Arlington Heights, IL 60004-1893
Ph: 847-394-0150
Fax: 847-253-0088
E-mail: amca@amca.org
Internet: http://www.amca.org

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)
2111 Wilson Blvd, Suite 500
Arlington, VA 22201
Ph: 703-524-8800
Fax: 703-562-1942
Internet: http://www.ahrinet.org

ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS (ATIS)
1200 G Street, NW, Suite 500
Washington, D.C. 20005
Ph: 202-628-6380
Fax: 202-393-5453
E-mail: kconn@atis.org
Internet: http://www.atis.org

ALLOY CASTING INSTITUTE (ACI)
Cannot locate address

ALUMINUM ASSOCIATION (AA)
National Headquarters
1525 Wilson Boulevard, Suite 600
Arlington, VA 22209
Ph: 703-358-2960
E-Mail: info@aluminum.org
Internet: http://www.aluminum.org

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)
1827 Walden Office Square, Suite 550
Schaumburg, IL 60173-4268
Ph: 847-303-5664
Fax: 847-303-5774
E-mail: customerservice@aamanet.org
Internet: http://www.aamanet.org

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@aashto.org
Internet: http://www.aashto.org

AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)
1 Davis Drive
P.O. Box 12215
Research Triangle Park, NC 27709-2215
Ph: 919-549-8141
Fax: 919-549-8933
Internet: http://www.aatcc.org

AMERICAN BEARING MANUFACTURERS ASSOCIATION (ABMA)
2025 M Street, NW, Suite 800
Washington, DC 20036
Ph: 202-367-1155
E-mail: info@americanbearings.org
Internet: http://www.americanbearings.org

AMERICAN BOILER MANUFACTURERS ASSOCIATION (ABMA/BOIL)
8221 Old Courthouse Road, Suite 202
Vienna, VA 22182
Ph: 703-356-7172
Internet: http://www.abma.com

AMERICAN BUREAU OF SHIPPING (ABS)
16855 Northchase Drive
Houston, TX 77060 USA
Ph: 281-877-5800
Fax: 281-877-5803
E:Mail: ABS-WorldHQ@eagle.org
Internet: http://www.eagle.org

AMERICAN CONCRETE INSTITUTE INTERNATIONAL (ACI)
38800 Country Club Drive
Farmington Hills, MI 48331-3439
Ph: 248-848-3700
Fax: 248-848-3701
E-mail: bkstore@concrete.org
Internet: http://www.concrete.org

AMERICAN CONCRETE PIPE ASSOCIATION (ACPA)
8445 Freeport Parkway, Suite 350
Irving, TX 75063-2595
Ph: 972-506-7216
Fax: 972-506-7682
E-mail: info@concrete-pipe.org
Internet: http://www.concrete-pipe.org

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)
1330 Kemper Meadow Drive
Cincinnati, OH 45240
Ph: 513-742-2020 or 513-742-6163
Fax: 513-742-3355
E-mail: mail@acgih.org
Internet: http://www.acgih.org

AMERICAN FOREST AND PAPER ASSOCIATION (AF&PA)
American Wood Council
ATTN: Publications Department
1111 Nineteenth Street NW, Suite 800
Washington, DC 20036
Ph: 800-890-7732 or 202-463-2766
Fax: 202-463-2791
E-mail: awcpubs@afandpa.org
Internet: http://www.awc.org/

AMERICAN GAS ASSOCIATION (AGA)
400 North Capitol Street N.W.
Suite 450
Washington, D.C. 20001
Ph: 202-824-7000
Internet: http://www.aga.org

AMERICAN GEAR MANUFACTURERS ASSOCIATION (AGMA)
1001 N. Fairfax Street, Suite 500
Alexandria, VA 22314-1587
Ph: 703-684-0211
Fax: 703-684-0242
E-mail: tech@agma.org
Internet: http://www.agma.org

AMERICAN HARDBOARD ASSOCIATION (AHA)
1210 West Northwest Highway
Palatine, IL 60067
Ph: 847-934-8800
Fax: 847-934-8803
E-mail: aha@hardboard.org
Internet: http://domensino.com/AHA/

AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (AIHA)
3141 Fairview Park Dr, Suite 777
Falls Church, VA 22042
Tel: 703-849-8888
Fax: 703-207-3561
E-mail: infonet@aiha.org
Internet http://www.aiha.org

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
One East Wacker Drive, Suite 700
Chicago, IL 60601-1802
Ph: 312-670-2400
Fax: 312-670-5403
Bookstore: 800-644-2400
E-mail: aisc@ware-pak.com
Internet: http://www.aisc.org

AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)
7012 South Revere Parkway, Suite 140
Centennial, CO 80112
Ph: 503-639-0651
Fax: 503-684-8928
E-mail: info@aitc-glulam.org
Internet: http://www.aitc-glulam.org

AMERICAN IRON AND STEEL INSTITUTE (AISI)
25 Massachusetts Avenue, NW Suite 800
Washington, DC 20001
Ph: 202-452-7100
Internet: http://www.steel.org

AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE (AJCHN)
1923 Publication, Salem, Mass.
Internet:
https://www.biodiversitylibrary.org/item/67895#page/9/mode/1up

AMERICAN LADDER INSTITUTE (ALI)
2025 M St. NW
Washington, DC 20036
Ph: 202-367-1217
Fax: 202-973-8712
E-mail: info@americanladderinstitute.org
Internet: http://www.americanladderinstitute.org

AMERICAN LUMBER STANDARDS COMMITTEE (ALSC)
P.O. Box 210
Germantown, MD 20875-0210
Ph: 301-972-1700
Fax: 301-540-8004
E-mail: alsc@alsc.org
Internet: http://www.alsc.org

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1899 L Street, NW,11th Floor
Washington, DC 20036
Ph: 202-293-8020
Fax: 202-293-9287
E-mail: storemanager@ansi.org
Internet: http://www.ansi.org/

AMERICAN PETROLEUM INSTITUTE (API)
Internet: http://www.api.org

AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA)
4501 Forbes Blvd., Suite 130
Lanham, MD 20706
Ph: 301-459-3200
Fax: 301-459-8077
E-mail: bcaruso@arema.org
Internet: http://www.arema.org

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)
P.O. Box 28518
1711 Arlingate Lane
Columbus, OH 43228-0518
Ph: 800-222-2768; 614-274-6003
Fax: 614-274-6899
E-mail: tjones@asnt.org
Internet: http://www.asnt.org

AMERICAN SOCIETY FOR QUALITY (ASQ)
600 North Plankinton Avenue
Milwaukee, WI 53203
-or-
P.O. Box 3005
Milwaukee, WI 53201-3005
Ph: 800-248-1946; 414-272-8575
Fax: 414-272-1734
E-mail: help@asq.org
Internet: http://www.asq.org

AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
-or-
P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9555; 610-832-9585
Fax: 610-832-9666
Website: www.astm.org

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
1801 Alexander Bell Drive
Reston, VA 20191
Ph: 703-295-6300; 800-548-2723
E-mail: member@asce.org
Internet: http://www.asce.org

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)
1791 Tullie Circle, NE
Atlanta, GA 30329
Ph: 800-527-4723 or 404-636-8400
Fax: 404-321-5478
E-mail: ashrae@ashrae.org
Internet: http://www.ashrae.org

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)
1800 East Oakton Street
Des Plaines, IL 60018
Ph: 847-699-2929
Internet: http://www.asse.org

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE)
18927 Hickory Creek Drive, Suite 220
Mokena, IL 60448
Ph: 708-995-3019
Fax: 708-479-6139
E-mail: staffengineer@asse-plumbing.org
Internet: http://www.asse-plumbing.org

AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE (ASCII)
United States of America Standards Institute
10 East 40th Street
New York, NY 10016

AMERICAN STANDARD SAFETY CODE FOR ELEVATORS, DUMBWAITER AND ESCALATORS (ASE)
American National Standards Institue/ASME A17.1/CSA B44
1430 Broadway
New York, NY 10018

AMERICAN WATER WORKS ASSOCIATION (AWWA)
6666 West Quincy Avenue
Denver, CO 80235-3098
Ph: 303-794-7711
E-mail: distribution@awwa.org
Internet: http://www.awwa.org

AMERICAN WELDING SOCIETY (AWS)
13301 NW 47 Ave
Miami, FL 33054
Ph: 888-WELDING, 305-824-1177, 305-826-6192
Fax: 305-826-6195
E-mail: customer.service@awspubs.com
Internet: http://www.aws.org

AMERICAN WOOD COUNCIL (AWC)
222 Catoctin Circle SE, Suite 201
Leesburg, VA 20175
Ph: 800-890-7732
Fax: 412-741-0609
E-mail: publications@awc.org
Internet: http://www.awc.org

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)
P.O. Box 361784
Birmingham, AL 35236-1784
Ph: 205-733-4077
Fax: 205-733-4075
Internet: http://www.awpa.com

AMERICAN WOOD PRESERVERS BUREAU (AWPB)
7962 Conell Court
P.O. Box 5283
Lorton, VA 22079

AMERICAN WOOD PRESERVERS INSTITUTE (AWPI)
1945 Old Gallows Road, Suite 150
Vienna, VA 22182

AmericanHort (AH)
2130 Stella Court
Columbus, OH 43215 USA
Ph: 614-487-1117
Fax: 614-487-1216
E-mail: hello@AmericanHort.org
Internet: http://americanhort.org/AmericanHort/AmericanHort

APA - THE ENGINEERED WOOD ASSOCIATION (APA)
7011 South 19th St.
Tacoma, WA 98466-5333
Ph: 253-565-6600
Fax: 253-565-7265
Internet: http://www.apawood.org

ARCHITECTURAL WOODWORK INSTITUTE (AWI)
46179 Westlake Drive, Suite 120
Potomac Falls, VA 20165
Ph: 571-323-3636
Fax: 571-323-3630
E-mail: info@awinet.org
Internet: http://www.awinet.org

ARCNET TRADE ASSOCIATION (ATA)
E-mail: info@arcnet.com
Internet: http://www.arcnet.com/index.htm</URL

ASM INTERNATIONAL (ASM)
9639 Kinsman Road
Materials Park, OH 44073-0002
Ph: 440-338-5151, 800-336-5152
E-mail: memberservicecenter@asminternational.org
Internet:
http://asmcommunity.asminternational.org/portal/site/www/Home/

ASME INTERNATIONAL (ASME)
Two Park Avenue, M/S 10E
New York, NY 10016-5990
Ph: 800-843-2763
Fax: 973-882-1717
E-mail: customercare@asme.org
Internet: http://www.asme.org

ASPHALT INSTITUTE (AI)
2696 Research Park Drive
Lexington, KY 40511-8480
Ph: 859-288-4960
Fax: 859-288-4999
E-mail: info@asphaltinstitute.org
Internet: http://www.asphaltinstitute.org

ASPHALT ROOFING MANUFACTURER'S ASSOCIATION (ARMA)
750 National Press Building
529 14th Street, NW
Washington D.C. 20045
Ph: 202-591-2450
Fax: 202-591-2445
Internet: http://www.asphaltroofing.org

ASSOCIATED AIR BALANCE COUNCIL (AABC)
1518 K Street, NW
Washington, DC 20005
Ph: 202-737-0202
Fax: 202-638-4833
E-mail: info@aabc.com
Internet: http://www.aabc.com/

ASSOCIATION FOR IRON AND STEEL TECHNOLOGY (AIST)
186 Thorn Hill Road
Warrendale, PA 15086-7528
Ph: 724-814-3000
Fax: 724-814-3001
E-Mail: memberservices@aist.org
Internet: http://www.aist.org/publications

ASSOCIATION FOR THE ADVANCEMENT OF MEDICAL INSTRUMENTATION (AAMI)
4301 N. Fairfax Drive, Suite 301
Arlington, VA 22203-1633
Ph: 703-525-4890
Fax: 703-276-0793
E-mail: customerservice@aami.org
Internet: http://www.aami.org

ASSOCIATION OF EDISON ILLUMINATING COMPANIES (AEIC)
600 North 18th Street
P.O. Box 2641
Birmingham, AL 35291-0992
Ph: 205-257-3839
E-Mail: aeicdir@bellsouth.net
Internet: http://www.aeic.org

ASSOCIATION OF HOME APPLIANCE MANUFACTURERS (AHAM)
1111 19th Street NW, Suite 402
Washington, DC 20036
Ph: 202-872-5955
E-mail: info@aham.org
Internet: http://www.aham.org

ASSOCIATION OF POOL & SPA PROFESSIONALS (APSP)
2111 Eisenhower Ave.
Alexandria, VA 22314
Ph: 703.838.0083
Fax: 703.549.0493
E-mail: cdigiovanni@apsp.org
Internet: http://apsp.org/standards.aspx

ASSOCIATION OF THE WALL AND CEILING INDUSTRY (AWCI)

513 West Broad Street, Suite 210
Falls Church, VA 22046
Ph: 703-538-1600
Fax: 703-534-8307
E-mail: info@awci.org
Internet: http://www.awci.org

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 877-909-2786
Internet: http://www.astm.org

BAY AREA AIR QUALITY MANAGEMENT DISTRICT (Bay Area AQMD)
939 Ellis Street
San Francisco, CA 94109
Ph: 415-771-6000
Fax: 415-928-8560
E-Mail: publicrecords@baaqmd.gov
Internet: http://www.baaqmd.gov/

BACNET INTERNATIONAL (BTL)
BACnet Testing Laboratories
1827 Powers Ferry Road
Building 14, Suite 100
Atlanta, GA 30339
Ph: 770-971-6003
Fax: 678-229-2777
E-mail: btl-manager@bacnetinternational.org
Internet: http://www.bacnetlabs.org

BIFMA INTERNATIONAL (BIFMA)
678 Front Ave. NW, Suite 150
Grand Rapids, MI 49504-5368
Ph: 616-285-3963
Fax: 616-285-3765
E-mail: email@bifma.org
Internet: http://www.bifma.org

BIOCYCLE, JOURNAL OF COMPOSTING AND RECYCLING (BIOCYCLE)
Ph: 610-967-4135
Internet: http://www.biocycle.net

BRITISH STANDARDS INSTITUTE (BSI)
Ph: +44 845-086-9001
E-mail: cservices@bsigroup.com
Internet: http://www.bsigroup.com

BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA)
17926 Halstead
Homewood, IL 60430

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)
355 Lexington Avenue, 15th Floor
New York, NY 10017
Ph: 212-297-2122
Fax: 212-370-9047
Internet: http://www.buildershardware.com

BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL (BICSi)
TechStreet
3025 Boardwalk Drive, Suite 220
Ann Arbor, MI 48108
Ph: 1-855-999-9870
Internet: https://www.techstreet.com/standards/bicsi-telecommunications-distribution-methods-manual?sid=msn&utm_medium=cpc&utm_source=bing&product_id=1878802

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)
1615 Capitol Avenue
Sacramento, CA 95899-7420
Ph: 916-650-0369
Internet: http://www.cdph.ca.gov

CALIFORNIA ENERGY COMMISSION (CEC)
Media and Public Communications Office
1516 Ninth Street, MS-29
Sacramento, CA 95814-5512
Ph: 916-654-5106
E-mail: appliances@energy.ca.gov
Internet: http://www.energy.ca.gov/

CARPET AND RUG INSTITUTE (CRI)
P.O. Box 2048
Dalton, GA 30722-2048
Ph: 706-278-3176
Fax: 706-278-8835
Internet: http://www.carpet-rug.com

CAST IRON SOIL PIPE INSTITUTE (CISPI)
3008 Preston Station Drive
Hixson, TN 37343
Ph: 423-842-2122
Internet: http://www.cispi.org

CEILINGS AND INTERIOR SYSTEMS CONSTRUCTION ASSOCIATION (CISCA)
1010 Jorie Blvd, Suite 30
Oak Brook, IL 60523
Ph: 630-584-1919
Fax: 866-560-8537
E-mail: cisca@cisca.org
Internet: http://www.cisca.org

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)
1600 Clifton Road
Atlanta, GA 30333
Ph: 800-232-4636
TTY: 888-232-6348Internet: http://www.cdc.gov

CERTIFIED BALLAST MANUFACTURERS ASSOCIATION (CBMA)
2120 Keith Building
Cleveland, OH 44115

CHEMICAL FABRICS AND FILM ASSOCIATION (CFFA)
1300 Sumner Avenue
Cleveland OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: cffa@chemicalfabricsandfilm.com
Internet: http://www.chemicalfabricsandfilm.com/

CHLORINE INSTITUTE (CI)
1300 Wilson Boulevard, Suite 525
Arlington, VA 22209
Ph: 703-894-4140
Fax: 703-894-4130
E-mail: pubs@cl2.com
Internet: http://www.chlorineinstitute.org/

COMPOSITE PANEL ASSOCIATION (CPA)
19465 Deerfield Avenue, Suite 306
Leesburg, VA 20176
Ph: 703-724-1128
Fax: 703-724-1588
Internet: http://www.compositepanel.org/

COMPRESSED AIR AND GAS INSTITUTE (CAGI)
1300 Sumner Avenue
Cleveland OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: cagi@cagi.org
Internet: http://www.cagi.org/

COMPRESSED GAS ASSOCIATION (CGA)
14501 George Carter Way, Suite 103
Chantilly, VA 20151-1788
Ph: 703-788-2700
Fax: 703-961-1831
E-mail: cga@cganet.com
Internet: http://www.cganet.com

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
933 North Plum Grove Road
Schaumburg, IL 60173-4758
Ph: 847-517-1200
Fax: 847-517-1206
Internet: http://www.crsi.org/

CONCRETE SAWING AND DRILLING ASSOCIATION (CSDA)
100 2nd Ave South, Ste 402N
St. Petersburg, FL 33701
PH: 727-577-5004
E-mail: info@csda.org
Internet: http://www.csda.org

CONSUMER ELECTRONICS ASSOCIATION (CEA)
1919 South Eads St.
Arlington, VA 22202
Ph: 866-858-1555 or 703-907-7634
Fax: 866-858-2555 or 703-907-7693
E-mail: standards@CE.org
Internet: http://www.CE.org

CONSUMER PRODUCT SAFETY COMMISSION (CPSC)
4330 East-West Highway
Bethesda, MD 20814
Ph: 301-504-7923
Fax: 301-504-0124 or 301-504-0025
Internet: http://www.cpsc.gov

CONVEYOR EQUIPMENT MANUFACTURERS ASSOCIATION (CEMA)
5672 Strand Ct., Suite 2
Naples, Florida 34110
Ph: 239-514-3441
Fax: 239-514-3470
E-mail: karen@cemanet.org
Internet: http://www.cemanet.org

COOLING TECHNOLOGY INSTITUTE (CTI)
P.O. Box 73383
Houston, TX 77273-3383
Ph: 281-583-4087
Fax: 281-537-1721
E-mail: vmanser@cti.org
Internet: http://www.cti.org

COPPER DEVELOPMENT ASSOCIATION (CDA)
Internet: http://www.copper.org

CRANE MANUFACTURERS ASSOCIATION OF AMERICA (CMAA)
8720 Red Oak Boulevard, Suite 201
Charlotte, NC 28217-3992
Ph: 704-676-1190
Fax: 704-676-1199
Internet: http://www.mhi.org/cmaa

CSA GROUP (CSA)
178 Rexdale Blvd.
Toronto, ON, Canada M9W 1R3
Ph: 416-747-4044
Fax: 416-747-2510
E-mail: sales@csagroup.org
Internet: http://www.csagroup.org/us/en/home

DIESEL ENGINE MANUFACTURER'S ASSOCIATION (DEMA)
122 East 42nd Street
New York, NY 10017

DISTRICT OF COLUMBIA MUNICIPAL REGULATIONS (DCMR)
1350 Pennsylvania Avenue, NW, Suite 419
Washington DC 20004
Ph: 202-727-6306
Fax: 202-727-3582
TTY: 711
E-mail: secretary@dc.gov
Internet: http://os.dc.gov/service/publication-and-regulatory-services

DIVISION OF INDUSTRIAL SAFETY (DIS)
California Department of Industrial Relations
2422 Arden Way
Sacramento, CA 95825

DOOR AND ACCESS SYSTEM MANUFACTURERS ASSOCIATION (DASMA)
1300 Sumner Avenue
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
Internet: http://www.dasma.com

DOOR HARDWARE INSTITUTE (DHI)
14150 Newbrook Drive, Suite 200
Chantilly, VA 20151

DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA)
1322 Riverhaven Place
Birmingham, AL 35244
Ph: 205-402-8700
Internet: http://www.dipra.org

EDISON ELECTRIC INSTITUTE (EEI)
701 Pennsylvania Avenue, NW
Washington, DC 20004

ELECTRICAL GENERATING SYSTEMS ASSOCIATION (EGSA)
1650 South Dixie Highway, Suite 400
Boca Raton, FL 33432-7462
Ph: 561-750-5575
Fax: 561-395-8557
Internet: http://www.egsa.org

ELECTRICAL SAFETY ORDER (ESO)
California Administrative Code, Title 8, Chap. 4, Subarticle 5
Office of Procurement, Publications Section
P.O. Box 20191
8141 Elder Creek Road
Sacramento, CA 95820

ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION (ECIA)
2214 Rock Hill Rd., Suite 170
Herndon, VA 20170
Ph: 571-323-0294
Fax: 571-323-0245
E-mail: emikoski@ecaus.org
Internet: http://www.ecianow.org/

ELECTRONIC INDUSTRIES ALLIANCE (EIA)
EIA has become part of the ELECTRONIC COMPONENTS INDUSTRY ASSOCIATION (ECIA)

ELECTROSTATIC DISCHARGE ASSOCIATION (ESD)
7900 Turin Road, Building 3
Rome, NY 13440-2069
Ph: 315-339-6937
Fax: 315-339-6793
E-mail: info@esda.org
http://www.esda.org/

ENERGY INSTITUTE (EI)
Publications Team
Energy Institute
61 New Cavendish Street
London
W1G 7AR, UK
Ph: +44 (0)20 7467 7100
Fax: +44 (0)20 7255 1472
E-mail: pubs@energyinst.org.uk
Internet: http://www.energyinstpubs.org.uk/cgi-bin/open.cgi?page=index

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Ph: 888-DIRLIST (888-347-5478)
Internet: http://www.intertek.com/

EUROPEAN COMMITTEE FOR STANDARDIZATION (CEN/CENELEC)
CEN-CENELEC Management Centre
Avenue Marnix 17
B-1000 Brussels
Ph: 32-2-550-08-11
Fax: 32-2-550-08-19
Internet: http://www.cen.eu/Pages/default.aspx

EXPANSION JOINT MANUFACTURERS ASSOCIATION (EJMA)
25 North Broadway
Tarrytown, NY 10591
Fax: 914-332-1541
E-mail: inquiries@ejma.org
Internet: http://www.ejma.org

FEDERAL REMEDIATION TECHNOLOGIES ROUNDTABLE (FRTR)
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Internet: http://www.frtr.gov/

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Washington, DC 20407

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FLORIDA ADMINISTRATIVE CODE (FAC)
R.A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250
Ph: 850-245-6270
Fax: 850-488-9879
E-mail: administrativecode@dos.state.fl.us
Internet: https://www.flrules.org

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES (FDACS)
West Palm Beach Regional Office
400 N. Congress Ave., Ste. 140
West Palm Beach, FL 33401-2912
Ph: 561-681-2530
Fax: 561-681-2599
Internet: https://www.freshfromflorida.com/Divisions-Offices/Licensing/Regional-Offices/West-Palm-Beach-Regional-Office
FLORIDA DEPARTMENT OF TRANSPORATION (FDOT)
605 Suwannee Street
Tallahassee, FL 32399
Ph: 850-414-4255
Fax: 850-414-4955
Internet: http://www.fdot.gov

FLORIDA METHODS (FM)
Florida Department of Transportation
State Materials Office
5007 N.E. 39th Avenue
Gainesville, FL 32609
Ph: 352-955-6600
Fax: 352-955-6644
Internet:

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP)
South District
P.O. Box 2549
Fort Myers, FL 33902-2549
Ph: 239-344-5600
Fax: 850-412-0590
Internet: fttp://fdep.org

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (FWC)
1339 20th Street
Vero Beach, FL 32960
Ph: 772-562-3909
Manatee Hotline: 888-404-3922
Collision or Other Injury: Charlotte County 941-515-5768 or Polk County 863-648-3200

FLUID CONTROLS INSTITUTE (FCI)
1300 Sumner Avenue
Cleveland, OH 44115
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: fci@fluidcontrolsinstitute.org
Internet: www.fluidcontrolsinstitute.org

FLUID SEALING ASSOCIATION (FSA)
994 Old Eagle School Rd. #1019
Wayne, PA 19087-1866
Ph: 610-971-4850
Internet: www.fluidsealing.com

FM GLOBAL (FM)
270 Central Avenue
P.O. Box 7500
Johnston, RI 02919-4923
Ph: 877-364-6726
Fax: 401-275-3029
E-mail: servicedesk.myrisk@fmglobal.com
Internet: http://www.fmglobal.com

FOREST STEWARDSHIP COUNCIL (FSC)
212 Third Avenue North
Suite 445
Minneapolis, MN 55401
Ph: 612-353-4511
E-mail: info@us.fcs.org
Internet: https://us.fsc.org/

FORESTRY SUPPLIERS INC. (FSUP)
205 West Rankin Street
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Jackson, MS 39284-8397
Ph: 800-752-8460
Internet: http://www.forestry-suppliers.com

FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR)
University of South California
Research Annex 219
3716 South Hope Street
Los Angeles, CA 90089-7700
Ph: 213-740-2032 or 866-545-6340
Fax: 213-740-8399
E-mail: fccchr@usc.edu
Internet: http://www.usc.edu/dept/fccchr

GEOLOGICAL SOCIETY OF AMERICA (GeoSA)
P.O. Box 9140
Boulder, CO 80301-9140
Ph: 303-357-1000
Fax: 303-357-1070
E-mail: gsaservice@geosociety.org
Internet: http://www.geosociety.org

GEOSYNTHETIC INSTITUTE (GSI)
475 Kedron Avenue
Folsom, PA 19033-1208
Ph: 610-522-8440
Fax: 610-522-8441
Internet: http://www.geosynthetic-institute.org

GERMAN INSTITUTE FOR STANDARDIZATION (DIN)
Americas
Englewood, CO, US
Ph: +1 800-447-2273 (Toll Free), +1 303-736-3001 (US/Canada)
Internet:

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO)
5360 wouth Worman Mill Road
Whittier, CA 90601

GLASS ASSOCIATION OF NORTH AMERICA (GANA)
800 SW Jackson St., Suite 1500
Topeka, KS 66612-1200
Ph: 785-271-0208
E-mail: gana@glasswebsite.com
Internet: http://www.glasswebsite.com

GREEN BUILDING INITIATIVE (GBI)
5410 SW Macadam, Suite 150
Portland, Oregon 97239
Ph: 877-424-4241
Fax: 503.961.8991
Email: info@thegbi.org
Internet: http://www.thegbi.org/

GREEN SEAL (GS)
1001 Connecticut Avenue, NW
Suite 827
Washington, DC 20036-5525
Ph: 202-872-6400
Fax: 202-872-4324
Internet: http://www.greenseal.org

GYPSUM ASSOCIATION (GA)
6525 Belcrest Road, Suite 480
Hyattsville, MD 20782
Ph: 301-277-8686
Fax: 301-277-8747
E-mail: info@gypsum.org
Internet: http://www.gypsum.org

H.P. WHITE LABORATORY (HPW)
3114 Scarboro Road
Street, MD 21154
Ph: 410-838-6550
Fax: 410-838-2802
E-mail: info@hpwhite.com
Internet: http://www.hpwhite.com

HARDWOOD PLYWOOD AND VENEER ASSOCIATION (HPVA)
1825 Michael Faraday Dr.
Reston, VA 20190
Ph: 703-435-2900
Fax: 703-435-2537
E-mail: hpva@hpva.org
Internet: http://www.hpva.org

HEAT EXCHANGE INSTITUTE (HEI)
1300 Sumner Avenue
Cleveland, OH 44115
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: hei@heatexchange.org
Internet: http://www.heatexchange.org

HYDRAULIC INSTITUTE (HI)
6 Campus Drive, First Floor North
Parsippany, NJ 07054-4406
Ph: 973-267-9700
Fax: 973-267-9055
Internet: http://www.pumps.org

HYDRONICS INSTITUTE DIVISION OF AHRI (HYI)
35 Russo Place
P.O. Box 218
Berkeley Heights, NJ 07922-0218
Ph: 908-464-8200
Fax: 908-464-7818
Internet: http://www.ahrinet.org

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3060 Saturn Street, Suite 100
Brea, CA 92821
Ph: 800-423-6587 ext. 66546
Fax: 562-695-4694
E-mail: es@icc-es.org
Internet: http://www.icc-es.org

ILLUMINATING ENGINEERING SOCIETY (IES)
120 Wall Street, 17th Floor
New York, NY 10005-4001
Ph: 212-248-5000
Fax: 212-248-5018
E-mail: IES@IES.org
Internet: http://www.IES.org

INDUSTRIAL FASTENERS INSTITUTE (IFI)
6363 Oak Tree Boulevard
Independance, OH 44131
Ph: 216-241-1482
E-mail: IFI-orders@indfast.org
Internet: http://www.indfast.org/

INSTITUTE OF CLEAN AIR COMPANIES (ICAC)
3033 Wilson Blvd., Suite 700
Arlington, VA 22201
Ph: 571-858-3707
Fax: 703-243-8696
E-mail: icacinfo@icac.com
Internet: http://www.icac.com

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 and 501 Hoes Lane
Piscataway, NJ 08854-4141
Ph: 732-981-0060 or 800-701-4333
Fax: 732-562-9667
E-mail: onlinesupport@ieee.org
Internet: http://www.ieee.org

INSTITUTE OF ENVIRONMENTAL SCIENCES AND TECHNOLOGY (IEST)
2340 South Arlington Heights Rd. Suite 620
Arlington Heights, IL 60005-4510
Ph: 847-981-0100
Fax: 847-981-4130
E-mail: information@iest.org
Internet: http://www.iest.org

INSTITUTE OF INSPECTION, CLEANING, AND RESTORATION CERTIFICATION (IICRC)
IICRC Headquarters
4317 NE Thurston Way, Suite 200
Vancouver, WA 98662
Ph: 360-693-5675
Fax: 360-693-4858
E-mail: info@iicrc.org
Internet: http://www.iicrc.org/home

INSTITUTE OF TRANSPORTATION ENGINEERS (ITE)
1627 Eye Street, NW, Suite 600
Washington, DC 20006
Ph: 202-785-0060
Fax: 202-785-0609
E-mail: ite_staff@ite.org
Internet: http://www.ite.org

INSTRUCTIONS AND STANDARDS FOR NAVBASE GUANTANAMO BAY CUBA (COMNAVBASEGTMOINST)
Naval Station Guantanamo Bay
c/o Admin Department
PSC 1005 Box 25
FPO AE Guantanamo Bay, 09593
Ph: (011) 5399-4511
Internet: http://www.cnic.navy.mil/Guantanamo

INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)
P.O. Box 1568
Carrollton, GA 30112
E-mail: http://www.icea.net/Public_Pages/Contact/Email_Contact.html
Internet: http://www.icea.net

INSULATING GLASS MANUFACTURERS ALLIANCE (IGMA)
27 N. Wacker Dr. Suite 365
Chicago, IL 60606-2800
Ph: 613-233-1510
Fax: 613-482-9436
E-mail: enquiries@igmaonline.org
Internet: http://www.igmaonline.org

INTELLIGENCE COMMUNITY STANDARD (ICS)
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INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)
800 Place Victoria
PO Box 113
Montréal, Quebec, H4Z 1M1
Ph: 514-390-6726 or 800-716-6326
Fax: 514-874-9659
E-mail: custserv@iata.org
Internet: http://www.iata.org

INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO)
4755 E. Philadelphia St.
Ontario, CA 91761
Ph: 909-472-4100
Fax: 909-472-4150
E-mail: iapmo@iapmo.org
Internet: http://www.iapmo.org

INTERNATIONAL CODE COUNCIL (ICC)
500 New Jersey Avenue, NW
6th Floor, Washington, DC 20001
Ph: 800-786-4452 or 888-422-7233
E-mail: order@iccsafe.org
Internet: www.iccsafe.org

INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI)
10600 West Higgins Road, Suite 607
Rosemont, IL 60018
Ph: 847-827-0830
Fax: 847-827-0832
Internet: http://www.icri.org

INTERNATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
3050 Old Centre Ave. Suite 102
Portage, MI 49024
Ph: 269-488-6382
Internet: http://www.netaworld.org

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
3, rue de Varembe
P.O. Box 131
CH-1211 Geneva 20, Switzerland
Ph: 41-22-919-02-11
Fax: 41-22-919-03-00
Internet: http://www.iec.ch

INTERNATIONAL GROUND SOURCE HEAT PUMP ASSOCIATION (IGSHPA)
1201 S Innovation Way, Suite 400
Stillwater, OK 74074
Ph: 800-626-4747 or 405-744-5175
Fax: 405-744-5283
E-mail: igshpa@okstate.edu
Internet: http://www.igshpa.okstate.edu/

INTERNATIONAL INSTITUTE OF AMMONIA REFRIGERATION (IIAR)
1001 N. Fairfax Street, Suite 503
Alexandria, VA 22314
Ph: 703-312-4200
Fax: 703-312-0065
E-mail: iiar_request@iiar.org
Internet: http://www.iiar.org

INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION (IMSA)
597 Haverty Court, Suite 100
Rockledge, FL 32955
Ph: 321-392-0500 and 800-723-4672
Fax: 315-806-1400
E-mail: manuals@imsasafety.org
Internet: http://www.imsasafety.org/

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
1, ch. de la Voie-Creuse
Case Postale 56
CP 56 - CH-1211 Geneva 20
Switzerland
Ph: 41-22-749-01-11
Fax: 41-22-733-34-30
E-mail: central@iso.ch
Internet: http://www.iso.org

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)
1901 North Moore Street
Arlington, VA 22209-1762
Ph: 703-525-1695
Fax: 703-528-2148
Internet: http://www.safetyequipment.org/

INTERNATIONAL TELECOMMUNICATION UNION (ITU)
Place des Nations
CH-1211 Geneve 20 Switzerland
Ph: 41-22-730-6141
Fax: 41-22-730-5194
E-mail: sales@itu.int
Internet: http://www.itu.int/en/Pages/default.aspx

INTERNATIONAL WINDOW CLEANING ASSOCIATION (IWCA)
1100-H Brndywine Blvd.
Zanesville, OH 43701-7303
Ph: 800-875-4922
E-mail: info@iwca.org
Internet: http://www.iwca.org

IPC - ASSOCIATION CONNECTING ELECTRONICS INDUSTRIES (IPC)
3000 Lakeside Drive, 309 S
Bannockburn, IL 60015
Ph: 847-615-7100
Fax: 847-615-7105
E-mail: answers@ipc.org
Internet: http://www.ipc.org

INTERNATIONAL SOCIETY OF AUTOMATION (ISA)
--- District refers to it as Instrument Society of America
67 T.W. Alexander Drive
PO Box 12277
Research Triangle Park, NC 27709
Ph: 919-549-8411
Fax: 919-549-8288
E-mail: info@isa.org
Internet: http://www.isa.org

INTERNET ENGINEERING TASK FORCE (IETF)
c/o Association Management Solutions, LLC (AMS)
48377 Fremont Blvd., Suite 117
Fremont, California 94538
Ph: 510-492-4080
Fax: 510-492-4001
E-mail: ietf-info@ietf.org
Internet: http://www.ietf.org/

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JAPANESE STANDARDS ASSOCIATION (JSA)
c/o MITA MT Bldg.
3-13-12 Mita Minato-ku Tokyo 108-0073 JAPAN
Ph: 81-3-4231-8520
Fax: 81-3-4231-8655
Internet: http://www.jsa.or.jp/default_english.asp

JOINT INDUSTRIAL COUNCIL (JIC)
7901 Westpark Drive
McLean, VA 22101

KITCHEN CABINET MANUFACTURERS ASSOCIATION (KCMA)
1899 Preston White Drive
Reston, VA 20191-5435
Ph: 703-264-1690
Fax: 703-620-6530
Internet: http://www.kcma.org

L.H. BAILEY HORTORIUM (LHBH)
Dept of Plant Biology
c/o Cornell University
440 Mann Library Building
Ithaca, NY 14853
Ph: 607-255-1052
Fax: 607-254-5407
Internet: http://plantbio.cals.cornell.edu/hortorium

LONMARK INTERNATIONAL (LonMark)
550 Meridan Ave.
San Jose, CA 95126
Ph: 408-938-5266
Fax: 408-790-3838
Internet: http://www.lonmark.org

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Vienna, VA 22180-4602
Ph: 703-281-6613
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Internet: http://mss-hq.org/Store/index.cfm

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111 Deer Lake Road, Suite 100
Deerfield, IL 60015
Ph: 847-480-9138
Fax: 847-480-9282
E-mail: mfma@maplefloor.org
Internet: http://www.maplefloor.org

MARBLE INSTITUTE OF AMERICA (MIA)
380 E. Lorain Street
Oberlin, OH 44074
Ph: 440-250-9222
Fax: 440-774-9222
E-mail: miainfo@marble-institute.com
Internet: http://www.marble-institute.com

MASTER PAINTERS INSTITUTE (MPI)
2800 Ingleton Avenue
Burnaby, BC CANADA V5C 6G7
Ph: 1-888-674-8937
Fax: 1-888-211-8708
E-mail: info@paintinfo.com or techservices@mpi.net
Internet: http://www.mpi.net/

MATERIAL HANDLING INDUSTRY OF AMERICA (MHI)
8720 Red Oak Blvd., Suite 201
Charlotte, NC 28717-3992
Ph: 704-676-1190
Fax: 704-676-1199
Internet: http://www.mhi.org

METAL BUILDING MANUFACTURERS ASSOCIATION (MBMA)
1300 Sumner Avenue
Cleveland, OH 44115-2851
Ph: 216-241-7333
Fax: 216-241-0105
E-mail: mbma@mbma.com
Internet: http://www.mbma.com

METAL FRAMING MANUFACTURERS ASSOCIATION (MFMA)
401 Michigan Avenue
Chicago, IL 60611

MIDWEST INSULATION CONTRACTORS ASSOCIATION (MICA)
16712 Elm Circle
Omaha, NE 68130
Ph: 800-747-6422
Fax: 402-330-9702
Internet: http://www.micainsulation.org

MIDWEST ROOFING CONTRACTORS ASSOCIATION (MRCA)
8735 W Higgins Road
Suite 300
Chicago, IL 60631
Ph: 800-497-6722
Fax: 847-375-6473
E-mail: info@mrca.org
Internet: General Information: http://www.mrca.org

MILITARY SPECIFICATIONS (MILSPEC)
Naval Publications and Forms Center
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Philadelphia, PA 19120

MODBUS ORGANIZATION, INC (MODBUS)
PO Box 628
Hopkinton, MA 01748
Ph: 508-435-7170
Fax: 508-435-7172
Internet: http://www.modbus.org

MOTOROLA (MOTOROLA)
Auburn University
Auburn, Alabama 36849
Ph: 334-844-4000
Fax:
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Commander Naval Sea Systems Command
1333 Isaac Hull Ave., SE
Washington Navy Yard, DC 20376-1080
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Fax: 770-980-0072
E-mail: environment@ul.com
Intertet: http://www.ul.com/environment

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Camas, WA 98607-8542
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WATER QUALITY ASSOCIATION (WQA)
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Internet: http://www.wwpinstitute.org

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Ph: 503-224-3930
Fax: 503-224-3934
E-mail: info@wwpa.org
Internet: http://www.wwpa.org

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)
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Chicago, IL 60611
Ph: 312-321-6802
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Internet: http://www.wmmpa.com

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Sydney NSW 2000
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Sydney, NSW, Australia 2001
Ph: 61 2 8295 3100
Fax: 61 2 8295 4100
E-mail: feedback@wool.com
internet: http://www.woolmark.com

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 45 00.00 10

QUALITY CONTROL

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Contractor's Representative (Site Superintendent or Project Manager)

Highest level Contractor manager located onsite and responsible for site construction and related activities, including quality, safety, environmental protection and production.

1.1.2 Contractor Quality Management (CQM)

The performance of tasks, which ensures that construction is performed according to plans and specifications, on time, within a defined budget and in a safe environment. The two principle areas of CQM are Contractor's Quality Control and District's Quality Assurance.

1.1.3 Contractor Quality Control (CQC)

CQC is the Contractor's role to assure that the completed project meets all quality requirements of the contract. To guide the contractor in the task, a CQC Plan must be prepared to ensure that the required standards of quality construction are met.

1.1.4 District Quality Assurance (QA)

QA is the means by which the District protects its interest by assuring that CQC is working effectively and that the end product complies with the quality established by the contract.

1.1.5 Contractor Quality Control System (CQCS)

The Construction Contractor's system to manage, control and document that all work is being performed in accordance with the contract documents. The primary function of the CQCS is the successful execution of a realistic plan to ensure that the required standards of quality construction will be met.

1.1.6 Contractor Quality Control Plan (CQCP)

A plan developed by the contractor as a guide of procedures to ensure that the required standards of the contract are met. In CQCP, the Contractor defines procedures to manage and control its own activities, all subcontractor activities and all supplier activities so that the completed project complies with contract requirements.

1.1.7 CQC Systems Manager (CQCSM)

The CQCSM is a person assigned duties to manage Contractor's Quality Control (CQC) system. CQCSM shall have written delegated authority sufficient to stop non-conforming work. The CQCSM shall hold no other duties for this contract.

1.1.8 CQC Staff

Persons assigned CQC functions and performing CQC activities. CQC Staff members may be employees of Contractor, subcontractors, testing laboratories, product representatives; however, CQC Staff are working under direction of the CQCSM.

1.1.9 Definable Features of Work (DFOW)

Construction task separate and distinct from other tasks and having separate quality control requirements. A Definable Feature of Work (DFOW) may be identified by different trades or disciplines, or location, or it may be work by the same trade in a different environment. Multiple DFOWs will be required for linear features of work (dams, road, canals, etc.) broken down by locations as identified by the District. An example for Concrete Foundations would be: formwork, placement, finish, curing.

1.1.10 District/Project Quality Assurance Coordination Team (District/PQACT)

The District's Quality Assurance Team is established for the purpose of overseeing the effectiveness of the Contractor's Quality Control process, during the project construction period, to ensure that the project complies with the specifications and standards for operability, safety, efficiency and resilience.

1.1.11 Qualified Scheduler

Person assigned responsibility for the preparation of the schedule, all required schedule updates. The Scheduler (Project Controls) shall be assigned to the site as a full time team member and shall perform the functions as described in Section 01 32 16 COST CONTROL CONSTRUCTION SCHEDULES for requirements.

1.1.12 Site Safety and Health Officer (SSHO)

Person assigned responsibility for site safety management. The SSHO shall have no other duties. See Section 01 35 26 SAFETY REQUIREMENTS.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C1077	(2016) Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D3740	(2012a) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E329	(2014a) Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

U.S. ARMY CORPS OF ENGINEERS (USACE)

ER 1110-1-261	(1999) Quality Assurance of Laboratory Testing Procedures

Testing Procedures

Corps of Engineers publications Internet location site is: http://140.194.76.129/publications/.

Additional forms can be found at:

www.wbdg.org/ccb/NAVGRAPH

See individual specification sections of this Contract for complete list of QC references pertaining to this project.

1.3 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program. Include all associated costs in the applicable Lump Sum Bid.

The Contractor is responsible for all testing and inspection services required to achieve an effective CQC Plan and to ensure that the Work strictly complies with the Contract Documents. The Contractor shall pay all costs for such services. The Contractor shall also pay for any tests performed by the District which do not meet the requirements of the Technical Specifications and as described below.

1.4 SUBMITTALS

District approval is required for submittals with a "D" designation; submittals not having a "D" designation are for information only. When used, a designation following the "D" designation identifies the office that will review the submittal for the District. Submittals shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. Submit the following preconstruction submittal items no later than 30 calendar days after award or 5 calendar days after Notice to Proceed, whichever is later.

SD-01 Preconstruction Submittals

Letter of Authority

Letter to CQCSM signed by an authorized Contractor official which describes responsibilities and delegates sufficient authorities to perform functions of the, District approved, CQCSM, including authority to stop work not in compliance with contract.

Letters of Authority

The CQCSM shall submit Letters of Authority, as described in "Contents of CQC Plan", for Quality Staff members and approved by the District/PQACT to be supplemented to the CQC Plan.

Contractor Quality Control Systems Manager (CQCSM) Resume

Resume of proposed CQCSM to be submitted by the Contractor and approved by the District/PQACT to be incorporated, as a supplement to the CQCP.

Alternate Contractor Quality Control Systems Managers (ACQCSM) Resumes

Resume of proposed ACQCSMs to be submitted by the Contractor and approved by the District/PQACT to be incorporated, as a supplement to the CQCP.

Quality Control (CQC) Staff Resumes

Resumes of all proposed CQC Staff members to be submitted by the Contractor and approved by the District/PQACT to be incorporated, as a supplement, to the CQCP.

Contractor's Organization Chart

Organization Chart with lines of authority and reporting to be submitted by the Contractor and approved by the District/PQACT to be incorporated, as a supplement, to the CQCP.

Contractor's Quality Control Plan (CQCP)

Submit no later than 30 calendar days after the Mutual Understanding Meeting, the CQCP that includes requirements specified in this Section and meets the requirements of the Contract Clause titled "Warranty and Guarantees, Tests and Inspections, Correction, Removal or Acceptance of Defective Work".

Work Plans

The Contractor shall prepare and submit individual Work Plans for each DFOW. The Work Plans shall be submitted to and approved by the District before a DFOW Preparatory Phase Inspection may be performed associated with the Work Plan. Additional Work Plans may be required throughout the project when deemed necessary by the District/PQACT.

Work Plan Log

The Contractor shall complete and submit a proposed Work Plan Log to the District/PQACT for approval before work begins, listing the Work Plans proposed to be developed throughout the project.

Onsite Lab Detail Plan

The Contractor shall submit to the District/PQACT, for approval, an Onsite Lab Detailed Plan that shows the location of the lab in the construction compound, a detailed layout of the lab and equipment, a staffing/organization chart detailing certifications, educations and experience of each lab staff member and a QC documentation plan in accordance with the specifications of the contract.

Initial Definable Features of Work (DFOW) Schedule/Log

The Contractor shall submit to the District/PQACT, for approval, the Initial DFOW Log detailing the list of definable features of work and the Control Phase Inspection dates as to the expected dates (according to the baseline activity schedule). The log shall, also, have updated expected date and actual date columns.

Inspection And Test Plan

SD-06 Test Reports

Forms

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Establish and maintain an effective CQCS that fulfills the requirements of Article 13 "Warranty and Guarantee, Tests and Inspections, Correction, Removal or Acceptance of Defective Work" of the GENERAL TERMS & CONDITIONS. The CQCS consist of plans, procedures and organization necessary to produce an end product which complies with the Contract. The CQCS shall cover all construction operations, both onsite and offsite activities, and be keyed to DFOW, Construction~~,~~ Sequence and Baseline Schedule. The Project Manager, Superintendent and CQCSM are responsible for the Quality of the work and are subject to removal by District for non-compliance with contract quality requirements. The Project Manager and~~/or~~ Superintendent shall maintain a physical presence at the site at all times and is responsible for all construction related activities at the site, except as otherwise acceptable to the Project Quality Assurance Coordination Team (District/PQACT).

3.2 CONTRACTOR QUALITY CONTROL PLAN (CQCP)

The Contractor shall develop the Contractor's Quality Control Plan (CQCP) intended to implement the requirements of the Contract Clause titled "Warranty and Guarantee, Tests and Inspections, Correction, Removal or Acceptance of Defective Work". Contents of the CQCP shall include, as a minimum, the items specified below. A Draft CQCP (Appendix A) has been included with the minimum requirements listed below, along with other requirements to be incorporated in the CQCP, as needed. After the CQCP has been submitted by the Contractor and approved by the District/PQACT, any changes to the CQCP will be subject to approval by the District/PQACT. The CQCP shall be updated and submitted to the District/PQACT for approval at

any time changes to the plan are approved by the District/PQACT, including changes of any CQC Staff. If it is discovered that the approved CQCP does not meet the minimum specification requirements of the contract, the specifications of the contract shall rule over the CQCP.

Minimum requirements of the CQCP are included in Clause 3.2.1 of this Section. The Contractor shall include any additional requirements deemed necessary by the District/PQACT to satisfy the contract in order to demonstrate and document the quality of the Work installed by the Contractor and to the District.

The Contractor shall develop the Quality Staff Organization. A Contractor's Organization Chart shall be developed and submitted to the District/PQACT for approval to be supplemented to the CQCP. For CQC matters, CQCSM shall directly report to an authorized corporate official of the Company. The CQCSM shall not be directed by the Project Manager, the Site Superintendent nor anyone directly involved in the everyday operations of the project in order to avoid conflict of interest. The CQCSM shall work as a stand-alone entity.

The Contractor shall submit Contractor Quality Control Systems Manager (CQCSM) Resume.

The Contractor shall submit Alternate Contractor Quality Control Systems Managers (ACQCSM) Resumes.

The Contractor shall submit Quality Control (CQC) Staff Resumes for each member of the CQC Staff to the District/PQACT for approval to be supplemented to the CQCP. Any changes to the CQC Staff shall require resumes of the changes to be submitted and must be approved by the District/PQACT.

The Contractor shall submit Letters of Authority, as described in "Contents of CQCP", for Quality Staff members to be submitted and approved by the District/PQACT to be supplemented to the CQCP.

The Contractor shall submit an Inspection and Test Log, using the Inspection and Test Log provided (Appendix B). The Contractor shall list all tests to be performed throughout the project.

The Contractor shall submit Inspection and Test Plans (ITPs) using the ITP forms provided (Appendix B), as a minimum, for each Definable Feature of Work (DFOW). Additional ITPs may be required during the course of the work and shall be submitted by the Contractor, as needed or directed, and approved by the District/PQACT.

Appendices C and D provide two types of reporting forms. The first type of reporting forms (Appendix C) are the mandatory forms to be used during the construction by the Contractor. The mandatory forms will be identified by the District and Caloosahatchee River C-43 Reservoir logos in the headers. The mandatory reporting forms formats shall not be altered by the Contractor without approval by the District/PQACT. The second type of reporting form (Appendix D) will be sample forms containing the minimum requirements for each test report form to be used during construction by the Contractor. The Contractor shall submit all forms to be used during construction to the District/PQACT for approval during the development of the CQCP. Additional checklists may be developed, along with checklists may be amended for by the

District/PQACT to be incorporated in the project to record activities, as needed, and the forms shall be completed in accordance to its design by the Contractor and/or the District/PQACT for its intent at no additional cost to the District.

3.2.1 Content of the CQCP

The CQCP shall cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

a. Describe the Quality Control Organization: The Contractor shall submit a Contractor's Organization Chart with lines of authority and reporting to be approved by the District/PQACT to be incorporated, as a supplement, to the CQCP.

   The CQC Staff shall include a CQCSM. The CQCSM is a person assigned duties to manage the CQCS. CQCSM shall have written delegated authority sufficient to stop non-conforming work. The CQCSM shall not perform Work under this contract for the Contractor in the capacity of Project Manager, Superintendent, Safety Officer, Foreman or any other positions. For CQC matters, the CQCSM shall directly report to an authorized corporate official of the Company. The CQCSM shall not be directed by the Project Manager, the Site Superintendent nor anyone directly involved in the everyday operations of the project, in order to avoid conflict of interest.

b. Definable Features of Work (DFOW): Although each section of specifications may generally be considered as a DFOW, there are frequently more than one DFOW under a particular section and more than one section may cover a DFOW. A DFOW can have multiple assigned locations, requiring separate DFOW documentation at each location. A DFOW list will be finalized during the Mutual Understanding Meeting (MUM). The District/PQACT may change or add features to the list if the District/PQACT feels it is necessary for the success of the project. A listing of the minimum expected DFOW are provided in Section 3.11 of these specifications. The list is not all inclusive and shall be updated to reflect the Contractor's activities, means and methods and those determined to be required by the District at no additional cost to the District. The Contractor may suggest that a DFOW be removed from the list, but must convince the District as to the reason of the removal. The DFOW shall not be removed without approval from the District. After the MUM, the Contractor shall submit to the District/PQACT, for approval, the Initial Definable Features of Work (DFOW) Schedule/Log detailing the list of definable features and the Control Phase Inspection dates as to the expected dates (according to the baseline activity schedule), with a column for updated expected completion date and a column for the actual dates the inspections were performed. The DFOW Log shall be updated each week and shall be distributed for discussion at the Weekly Progress Meetings.

c. Quality Control Resumes: The Contractor shall submit Quality Control Resumes for each member of the CQC Staff to the District/PQACT for approval to be supplemented into the CQCP. Any changes to the CQC Staff shall require resumes of the changes to be submitted and must be approved by the District/PQACT.

d. Letters of Authority: The Contractor shall submit a copy of "Letter of Authority" to the CQCSM signed by a corporate official, other than a Superintendent or Project Manager, of the firm which describes the responsibilities and to delegate sufficient authority to stop work which is not in compliance with the Contract. Letters of Authority to all other various quality control representatives, including duties, authorization and responsibilities, shall be issued by the CQCSM. The Contractor shall submit copies of these letters to the District/PQACT for approval.

e. Table of Contents: Pages of the CQCP shall be numbered, including appendices. Table of contents shall be provided. Sections of the plan and all appendices shall be indexed in the table of contents.

f. Submittal Control: Procedures for scheduling, reviewing, certifying, and managing submittals, including submittal items from subcontractors, offsite fabricators, suppliers, and purchasing agents. Procedures shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

g. Testing: Control, verification, and acceptance testing procedures. The Contractor shall provide Inspection Test Plans (ITPs), DFOW plans containing the DFOW, activity descriptions, required inspections and tests (providing information including test type or testing standard), specification paragraph requiring inspections and tests, test frequency, required hold/witness points, and identify who (i.e., Contractor, subcontractor, Testing Laboratory) is responsible for each test (Laboratory facilities must be approved by the District and validated by the USACE). A listing of the minimum expected ITPs and samples are provided in Appendix B at the end of this section. Additional ITPs may be required during the course of the Work as required by the Contractor and District/PQACT. All ITPs, current and additional, shall be adhered to at no additional cost to the District.

The Contractor shall provide an ITP Log that lists all the ITPs, along with the DFOW each ITP is associated with.

All geotechnical testing and concrete testing shall be reported using a specific Control Certified Test number. The first test shall be numbered ~~CCT0001~~ CCT00001 or as directed. Each test shall include, but not limited to proctor test, nuclear density test, soil analytical test, sand cone test, permeability test, slump/temperature test, air content test, penetrometer test, etc. Do not use a CCT number for more than one individual test except when concrete is being poured, one number shall be used to group tests being performed on one truck (example: comprehensive strength, air content, slump and temperature of one truck shall have the same CCT number.) The test shall be documented on the appropriate forms used for the tests performed. The testing companies' test number does not take the place of the CCT number without prior approval by the District/PQACT.

h. Three-Phase Control: Procedures to implement three-phase quality control system. Procedures to plan and document preparatory, initial, and follow-up control phases.

i. Deficiency Tracking: Procedures for tracking construction deficiencies from identification through acceptable corrective action. Establish procedures that verify deficiencies have been corrected and document

correction. Provide a sample Deficiency Tracking form/log (a log is included Appendix C).

j. Reports and Forms: Reporting procedures, including required reporting formats and sample forms shall be furnished by the Contractor as a supplement to the CQCP {The District has provided many (not all) reports and forms in Appendix C}.

k. Inspection Checklists: Inspection Checklists shall be prepared by the Contractor and shall be provided for each DFOW. Inspection forms will be subject to approval by the District/PQACT prior to the execution of work {The District has provided many (not all) reports and forms in Appendix C}.

3.2.2 Additional Requirements for Design Quality Control (DQC) Plan

Not used

3.2.3 Acceptance of Plan

The District/PQACT has developed a draft version of the CQCP (Appendix A). The CQCP shall be finalized and submitted by the Contractor. The provided draft CQCP shall be considered the minimum requirements for the CQCP. Although the draft CQCP has been prepared, the Contractor shall develop Work Plans for all construction activities throughout the contract.

3.2.4 Notification of Changes

Proposed changes are subject to re-submittal and approval by the District/PQACT. At any time changes to the CQCP are approved by the District/PQACT, the Contractor is responsible to ensure that the changes are relayed to all parties concerned.

3.3 COORDINATION MEETINGS

3.3.1 Post-award Preconstruction Conference

The Post-award Preconstruction Conference is scheduled, convened and conducted, by the District, as soon as possible after contract award and prior to the commencement of any physical work. The objective of the Post-award Preconstruction Conference is to review the contract clauses to include accident prevention, administrative requirements, personnel requirements and procedural matters. This conference will assist in establishing the ground rules for administering the contract.

The CQCP will not be discussed in detail at the Preconstruction Conference as it is important enough to deserve special attention and the personnel attending the Preconstruction may not be involved in day-to-day on site activities.

Minutes of the meeting will be prepared by the District/PQACT, signed by both the Contractor and the District's Management and will become a part of the contract file.

3.3.2 Preconstruction Safety Conference

The Preconstruction Safety Conference shall be conducted after the initial receipt of the contractor's Accident Prevention Plan (APP). The Preconstruction Safety Conference is held to review and discuss the contractor's Safety Program and to achieve a mutual understanding between the Districts/PQACT and the contractor and the contractor's APP.

Minutes of the meeting will be prepared by the District, signed by both the Contractor and the District/PQACT and will become a part of the contract file.

3.3.3 Mutual Understanding Meeting (MUM)

After the Preconstruction Conference, and before start of construction, the District will schedule a Mutual Understanding Meeting where the Contractor, including the CQC Staff, and the District/PQACT will develop a mutual understanding of the proposed CQCP requirements. During the meeting, the CQCP will be discussed in detail, including the designed forms for recording CQC operations, control activities, administration of the system for both onsite and offsite work to develop a mutual understanding of the CQCS, and the interrelationship of Contractor's Management and control with the District/PQACT.

Minutes of the meeting will be prepared by the District, signed by both the Contractor and the District/PQACT and will become a part of the contract file.

There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQCS or procedures which can require corrective action by the Contractor.

3.3.4 District/Contractor Progress/Quality Meeting

The District/PQACT will conduct regularly scheduled Progress/Quality Meetings with the Contractor to discuss the progress and quality of the project. The District/PQACT Construction Manager or Quality Assurance Manager will host the meetings and distribute an agenda before the meeting, as well as record the meeting minutes. The attendees by the Contractor shall include the CQCSM, the SSHO and the Project Manager and/or Site Superintendent, as a minimum. The frequency of the Progress/Quality Meeting shall be discussed at the MUM and may be changed by the District/PQACT during the life of the project, as needed and determined by the District/PQACT.

The Contractor shall send (via e-mail) to the District/PQACT their updated Look Ahead Schedule, Deficiency Report, and Three Phase Inspection Log by the end of the previous business day of the meeting.

Minutes of the meeting will be prepared by the District and will become a part of the contract file.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

CQC Organization shall have a CQC System Manager (CQCSM), and sufficient number (as agreed by the District/PQACT) of additional qualified personnel to ensure contract quality control for workmanship and materials, including safety and environmental protection compliance. CQC Staff, personnel identified in other contract sections as requiring specialized skills to assure Work is performed properly, shall also be included as part of CQC Organization. Contractor's CQC Staff shall be present onsite during work and shall have authority and responsibility to ensure contract compliance. CQC Staff shall be subject to approval by the District/PQACT.

The Contractor shall provide office space, computers, filing systems and other resources as necessary to maintain an effective and functional CQC Organization.

The Contractor shall promptly complete and furnish all letters, materials submittals, shop drawings submittals, schedules and all other project documentation. The CQC Organization shall be responsible to maintain these documents and records onsite, unless otherwise approved by District.

3.4.2 CQC System Manager (CQCSM)

Identify as CQCSM an individual within the onsite work organization who is responsible for overall management of CQC program and has the authority to act in all CQC matters for the Contractor. The CQCSM must be a graduate engineer, and a State of Florida PE, with a minimum of 5 years construction experience on construction similar to this contract. The CQCSM must hold and produce a current and valid USACE Construction Quality Management for Contractors certificate. This CQCSM must be employed by the prime Contractor. The CQCSM must be assigned as CQCSM with a Letter of Authority by the Contractor. The CQCSM shall have only CQCSM duties and no other duties.

3.4.3 Alternate CQCSM

Identify Alternate CQCSMs to serve in the event of the CQCSM's absence. The requirements for the Alternate CQCSMs are the same as the CQCSM. The DISTRICT/PQACT shall be informed when the CQCSM will be absent. The contractor shall inform the District as to which Alternate CQCSM will be designated to replace the CQCSM during the CQCSM's absence. The Alternate CQCSM shall have only CQCSM duties and no other duties during the CQCSM's absence. The Alternate CQCSM shall maintain a physical presence at the site at all times.

3.4.4 CQC Specialist Personnel

In addition to CQC personnel specified elsewhere in the Contract, provide as part of the CQC organization, specialized discipline personnel to assist the CQCSM for the following areas: civil, environmental, geotechnical, concrete, pavement and soils, structural, mechanical, instrumentation and control, electrical and testing, adjusting and balancing. These individuals shall report to the prime contractor's CQCSM; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience

matrix listed herein. These individuals may not perform other duties. It is the Contractor's responsibility to ensure that the CQC Specialists are aware of their areas of responsibility, and are present during work on their areas of responsibility.

Each individual discipline requires adequate experience to qualify in a CQC Specialist role. Certain disciplines can be combined and covered by one individual and a single person may cover up to one area, indicated below, but no other collateral duties, provided that they are qualified to perform CQC activities in each designated and that workload allows. A single person may not cover more than one area, as described in the below matrix.

In the case that multiple fronts requiring any of the described disciplines, a discipline may cover up to two fronts during the same work shift, provided the two fronts are reasonably close together and with the approval of the District/PQACT.

Experience Matrix	
Area	**Qualifications**
Civil/Structural	Graduate Civil Engineer (with Structural Track or Focus) or Construction Manager with 3 years of experience or person 5 years of experience supervising civil and structural features of work in the field with a construction company
Mechanical	Graduate Mechanical Engineer with 2 years related experience or person with 5 years of experience supervising mechanical features of work in the field with a construction company
Electrical/ Instrumentation and Controls (I&C)	Graduate Electrical Engineer with 5 years related experience or person 10 years of experience supervising electrical and I&C features of work in the field with a construction company
Geotechnical Concrete, Pavements and Soils	Civil Engineer (with Geotechnical Track or Focus) or Construction Manager with 3 years of experience supervising structural features of work for the appropriate areas in the field with a construction company
Geologist	Graduate Geologist, registered in the State of Florida with 5 years of construction experience related to dams
Environmental/Field Biologist	Graduate Environmental Engineer with 3 years of Environmental and Field Biologist experience
Startup & Commissioning Specialist	Graduate Mechanical/Electrical Engineer with 10 years of startup experience in related fields

3.4.5 Additional Requirement

In addition to the above experience and education requirements, the CQCSM and Alternate CQCSM are required to have completed the "Construction Quality Management for Contractors" course. This course is periodically offered by the Naval Facilities Engineering Command and the Army Corps of Engineers.

The Construction Quality Management Training certificate expires after 5 years. Before the CQCSM's or the Alternate CQCSM's certificate has expired, retake the course to remain current. The Contractor shall provide the District/PQACT certifications of the renewed training.

3.4.6 Organizational Changes

Maintain the CQC Staff at full strength at all times. Any changes to the Quality Staff Organization Chart shall be submitted to the District/PQACT. Proposed changes are subject to District acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals must comply with the requirements in Section 01 33 00 SUBMITTAL Procedures. The CQC Organization is responsible for certifying that all submittals and deliverables are in compliance with the Contract requirements. Items delivered to District/PQACT shall be controlled, packaged, transported and stored in a manner to prevent damage or loss. Deliverables including QC documentation, invoices, correspondence shall be controlled to prevent loss or delays.

3.6 WORK PLANS

The Contractor shall prepare and submit individual Work Plans for each DFOW and when deemed necessary by the District/PQACT. The Contractor shall complete and submit a proposed Work Plan Log to the District/PQACT for approval before work begins, listing the Work Plans proposed to be developed throughout the project. Work Plan development shall be conducted in advance of the Preparatory Phase meeting and be in collaboration with the District/PQACT. A Work Plan is a separate document. The Work Plan shall be completed and provided to the District/PQACT for review, at least 7 calendar days before the Preparatory Phase is initiated. Work Plan elements will ultimately be incorporated into the Preparatory Phase Inspection documents. Documentation of its development and concurrence by the District/PQACT that the Work Plan is sufficiently detailed to move to the Preparatory Phase is required. The final Work Plan documentation shall be prepared by the Contractor and reviewed by the CQCSM. Below is a list of minimum requirements for work plan development.

Work Plan elements, as a minimum, shall include the following (a sample is provided in an Appendix to this specification).

Work Plan elements, as a minimum, shall include the following:

a. Scope including Contract Number, Author, Project Name, Specification Reference(s), Description, Schedule Activity ID, Location, Quantities, Schedule, Preceding Work Activities, Following Work Activities and Trades.

b. Discussion of the approach to the Work and proposed means and methods, subcontractor needs, etc.

c. Provide a schedule and sequence of the Work. Describe predecessor and successor activities related to the Work and resources required to complete the Work.

d. Activity Hazard Analysis development and review.

e. Approved shop drawings or submittals required to perform the Work.

f. Environmental, preconstruction biological surveys and Permitting Requirement.

g. Surveys required before, after and during the activity.

h. Equipment to be used to perform work.

i. Tools to be used to perform work.

j. Materials including Sources, Certification and Storage Requirements.

k. Quality Requirements.

l. Testing Requirements.

m. Production Reporting.

n. Other items germane to the scope of work.

3.7 CONTROL

Contractor QC is the means by which the Contractor ensures that the Contractor has planned and scheduled construction, to include subcontractors and suppliers, and complies with the requirements of the Contract. At least three phases of control must be conducted by the CQCSM for each definable feature of the construction work as follows:

3.7.1 Preparatory Control Phase Inspection

Following completion, submittal and approval of the Work Plan, this phase shall be performed prior to beginning work on each DFOW. The District/PQACT shall be notified, in writing and accompanied by the associated Preparatory Control Phase Inspection Meeting Checklist, along with the DFOW's approved Activity Hazard Analysis (AHA) at least 48 hours in advance of beginning the Preparatory Control Phase Inspection meeting. All notifications shall be in the form of an e-mail meeting invitation including the time and location of the meeting, along with the call-in telephone conference number/pass code dedicated for the meeting.

This phase shall include a meeting conducted by the CQCSM and attended by the District/PQACT CQC Staff, as well as the contractor's SSHO, the superintendent, the foremen and the subcontractor(s) responsible for the definable feature. If manufacturer(s) are vital to the work, it may be necessary for a representative to attend the meeting. Instruct applicable workers as to the acceptable level of workmanship required in order to meet Contract specifications.

Ensure that all proposed work plans, activity hazard analysis, standards, permits and submittals have been accepted and approved by the District/PQACT and that copies are at the site for use of the District/PQACT personnel and the contractor. Ensure that all submitted Request for Information (RFIs) concerning the definable feature have been answered and copies are at the work site.

The results of the Preparatory Phase actions shall be documented by separate minutes prepared by the CQCSM and attached to the Daily Quality Control Report (DQCR) for the day of the meeting. The minutes shall be legible and shall include attendees, records of discussion and any action required of the team. The minutes may be recorded on the agenda, but must be in different color print so that the minutes are distinguished from the original agenda. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. Make available for use by District/PQACT personnel and Contractor CQC Staff during the Preparatory Inspection copies of those sections of referenced codes and standards applicable to that portion of the Work to be accomplished in the field. Maintain copies available until final acceptance of the Work.

b. Review of the Contract drawings.

c. Review approved applicable specification submittal responses by the District/PQACT concerning the Definable Feature of Work.

d. Review applicable RFIs concerning the definable feature.

e. Review the development of the accepted and approved Work Plans, including any Sub-contractor plan(s).

f. Review preceding work required to be completed before the definable feature begins.

g. Review of provisions that have been made to provide required control inspection and testing.

h. Discuss the requirements of the ITPs associated with the DFOW(s) for the specific Preparatory meeting.

i. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and Workmanship standards for that Feature of work.

j. Review of the appropriate accepted and approved Activity Hazard Analysis (AHA).

k. Discuss other activities that are in progress and how to coordinate the activities without interfering with each other.

l. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the Contract.

m. Examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

n. Check to assure that all materials and/or equipment have been tested, submitted, and approved.

o. Discussion of the Initial Control Phase, deciding on a date and time, as well as expectations.

p. Discuss all checklist to be utilized during the DFOW activity.

q. Document the results of the Preparatory Phase actions by minutes prepared by the CQCSM and attached to the DQCR. Instruct all applicable workers as to the acceptable level of workmanship required to meet contract specifications. Minutes shall be concise yet record all of the discussions and decisions made at the meeting. Insufficient documentation of the meeting discussions will be returned to the Contractor for revision and resubmittal.

3.7.2 Initial Control Phase Inspection

The Initial Control Phase Inspection shall be performed after the beginning of physical work on all DFOWs and to where a sample of the work can be examined. The purpose of the Initial Control Phase Inspection is to verify that control for the work developed in the Preparatory Control Phase Inspection meeting is implemented and that the work is performed to the level of workmanship mutually agreed upon. The District/PQACT shall be notified, in writing accompanied by the associated Initial Control Phase Inspection Agenda including the location, date and time of the Initial Inspection, at least 48 hours in advance of beginning the Initial Inspection. The date of the Initial Control Phase Inspection should have been discussed and agreed upon during the Preparatory Control Phase Inspection meeting.

This phase shall include a meeting conducted by the CQCSM and attended by the District/PQACT, the CQC Staff, and the SSHO, the superintendent, foremen and the subcontractor responsible for the DFOW. The Initial Inspection results of actions shall be documented in the checklist along with meeting minutes prepared by CQCSM.

Document the results of the Initial Phase actions by minutes prepared by the CQCSM and attached to the DQCR. Instruct all applicable workers as to the acceptable level of workmanship required to meet contract specifications. Minutes shall be concise yet record all of the discussions and decisions made at the meeting. The exact location of the Initial Inspection for the definable feature shall be documented for future reference and comparison with Follow-Up Phases. Insufficient documentation of the meeting discussions will be returned to the Contractor for revision and resubmittal.

Minutes shall be attached to the DQCR. This phase shall include:

a. Check Work to ensure that it is in full compliance with contract requirements. Review plan minutes of the Preparatory Meeting.

b. Verify adequacy of controls to ensure full Contract compliance. Verify required control inspection and testing is in compliance with the Contract and adhering to the associated ITP(s).

c. Establish level of Workmanship and verify that it meets minimum acceptable Workmanship standards to the Contract. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and AHA. Review the AHA with workers.

f. The Initial Phase for DFOW should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.7.3 Follow-up Control Phase Inspection

Perform daily surveillance inspections to assure control activities, including control testing, are providing continued compliance with Contract requirements, until completion of the particular feature of Work. Record the Quality surveillance inspections in the DQCR.

Conduct final Follow-Up checks and correct all deficiencies prior to the start of additional features of Work which may be affected by the deficient work. Non-conforming work shall not be concealed nor build upon. Finalize all documentation in accordance with the ITPs.

3.7.4 Additional Preparatory and Initial Phases

Conduct additional Preparatory and/or Initial Phases on the same DFOW if:

a. The quality of on-going work is unacceptable.

b. If there are changes in the applicable CQC staff, onsite production supervision or work crew.

c. If work on a definable feature is resumed after 30 day period of inactivity for that particular DFOW.

d. If working on a new location for a DFOW (ie linear segments broken into multiple locations or reaches.

e. If other problems develop.

District/PQACT may direct additional Preparatory and/or Initial Phase meetings, as needed, to assure Contract compliance.

3.8 TESTS

3.8.1 Testing Procedure

Specific testing requirements are referenced in the individual specification sections of this contract. Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to Contract Documents. Upon request, furnish to the District/PQACT duplicate samples of test specimens for possible testing by the District/PQACT. Testing includes operation and/or acceptance tests when specified or as directed by the District/PQACT. Establish a Corps of Engineers (USACE) validated testing laboratory at the project site located in the Contractor Compound. Perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with Contract Documents.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

e. As indicated in the following Sections, QC data shall be provided in both the Quality Management System (QMS) requirements of Section 01 45 04 CONTRACTOR QUALITY MANAGEMENT and a Geospatial Reference System using SharePoint site set up for the project. Refer to Section 01 45 08 GEOGRAPHIC INFORMATION SYSTEM DATA REQUIREMENTS-QUALITY CONTROL AND QUALITY ASSURANCE DATA. This system shall be capable of storing and displaying collected digital records that are georeferenced by Northing and Easting, Lat/Long. The District will provide access to the Quality Management System, a web based quality management platform, for use in reporting, storing and documenting Quality Control Data generated in accordance with the contract. These records will include site photographs, quality control data and production data. Record results of all tests taken, both passing and failing on the appropriate forms and attach the form to the QMS as specified in Section 01 45 04 CONTRACTOR QUALITY MANAGEMENT SYSTEM. Include specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. Actual test reports shall be submitted as soon as available to the Contractor by the testing firm with reference to the test number and dates sampled and tested. Provide an information copy of tests performed by an offsite or commercial test facility directly to the District/PQACT, as directed. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this Contract.

f. Maintain a separate log of all test and results throughout the project. Submit the updated log to the District/PQACT on a timely basis decided by the District/PQACT.

g. The Contractor shall develop ITPs and requirements for Quality activities by the Contractor in order to meet requirements of the individual specification sections in this Contract. ITPs have been provided for use or template for Contractor forms. ITP forms are included in the CQCP as Appendix B. Additional ITPs, developed during the course of the work shall be attached as a supplement to the CQCP. It is intended this form be prepared specific to the CQC activities of this Work.

3.8.2 Testing Services Furnished By Contractor

Unless otherwise specified, and in conjunction with, all other specified testing requirements, the Contractor shall provide testing services including but not limited to the following:

a. Moisture-density (i.e. Proctor), grain size distribution, organic content and relative density (if appropriate) tests on engineered fill/backfill materials, dam embankment fill, select fill, bentonite amended soil and gap closures

b. In-place field density test on subgrade preparation,

c. Rip Rap / Bedding Stone

d. Soil cement testing

e. Soil bentonite wall testing

f. Filter Fabric

g. Anchors

h. Formwork

i. Reinforcement

j. Asphalt testing

k. Concrete materials and mix designs

l. Concrete testing

m. QC testing of all precast and/or pre-stressed concrete

n. Grout testing

o. Concrete Unit Masonry reinforcement and grout

p. Slump, air content tests, compression tests and other confirmation tests of cast-in-place concrete.

q. Testing of field-welded joints for steel pipe or pipe cylinders and fabricated specials.

r. All testing and inspection of welding work including, but not limited to, welding procedure qualifications, welder operator qualifications, all work performed by the certified welding inspector, all appropriate nondestructive testing of welds and all repair and retest of weld defects.

s. Monitor well monitoring

t. Piezometer monitoring

u. Roof installation

v. Doors, finish hardware and accessories

w. Coating systems

x. Holiday testing of pipeline and all other coatings systems applied to surfaces as required by the Engineer

y. Intake debris removal system field testing

z. Pump inspections, factory testing and field testing

aa. LP Gas (LPG) pressure and leakage testing

ab. Process/Mechanical/Drainage pipe pressure and leakage testing

ac. Cleaning and flushing of all process/mechanical piping

ad. Valve testing

ae. Equipment tests

af. Factory tests

ag. Field functional, operational, and performance tests

ah. Flow meter (installed) calibration/testing

ai. System acceptance testing

aj. HVAC Controls and Instrumentation testing

ak. HVAC Balance testing

al. Cathodic protection system testing

am. Electrical wiring and accessories

an. Factory and field test motors and starters

ao. Dry type transformer testing

ap. Surge suppressor testing

aq. All electrical appurtenance testing

ar. Lightning protection resistance testing

as. Factory test generator

at. Individual component calibration and testing

au. Calibration of fixed instruments

av. Other materials and equipment as specified herein

aw. All other tests and engineering data required for Engineer's review of materials and equipment proposed to be used in the Work

ax. The testing firm's laboratory shall perform all laboratory tests within a reasonable time consistent with the specified standards and will furnish a written report of each test.

ay. Contractor shall furnish all sample materials and cooperate in the testing activities, including sampling. Contractor shall interrupt the Work when necessary to allow testing, including sampling to be performed. Contractor shall have no claim for an increase in Contract Price or Contract Times due to such interruption. The Contractor shall be responsible for transporting all samples, except those taken by testing laboratory personnel, to the testing laboratory.

az. When testing activities, including sampling are performed in the field by the test firm's laboratory personnel, Contractor shall furnish required labor and facilities.

1. To provide safe access to work to be tested, including those taken by the District/PQACT

2. To obtain and handle samples at the site

3. To facilitate inspections and tests

4. Build or furnish a holding box for concrete cylinders or other samples as required by the laboratory.

3.8.3 Testing Laboratories

Materials Testing Labs: Provide an onsite material testing laboratories validated by Corps of Engineers Materials Testing Center in accordance with ER 1110-1-261. The lab shall meet criteria detailed in ASTM C1077, ASTM D3740, and ASTM E329 for testing soils, concrete, and steel. The lab shall be located within the contractor's compound.

The onsite laboratory shall meet inspection validation requirements. The District/PQACT reserves the right to use Contractor's onsite testing lab and equipment to make quality assurance tests, check Contractor's testing procedures, techniques, and test results at no additional cost to the District/PQACT.

The contractor shall submit to the District/PQACT for approval, an Onsite Lab Detail Plan that shows the location of the lab in the construction compound, a detailed layout of the lab and equipment and a QC documentation plan in accordance with the specifications of the contract.

Water Quality Labs: Water testing labs usually only require quality control record inspection to assure capability to perform contract tests in accordance with testing standards listed in Appendix A of ER 1110-1-261. The District/PQACT reserves right to inspect lab, equipment and personnel qualifications in proposed water quality labs for compliance with standards specified in contract specifications. An inspection will include checking lab technician's testing procedures and techniques. District will pay for first inspection; re-inspection costs will be deducted from Contract.

3.8.3.1 Capability Check

The District reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel is required to meet criteria detailed in ASTM D3740 and ASTM E329.

3.8.3.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of $1,000.00 to reimburse the District for each succeeding recheck of the laboratory or the checking of a subsequently

selected laboratory. Such costs will be deducted from the Contract amount due the Contractor.

3.8.4 Onsite Laboratory

Onsite laboratories shall meet inspection validation requirements outlined above. The District/PQACT reserves the right to use an independent testing lab and equipment to perform quality assurance tests, check Contractor's testing procedures, techniques and test results at no additional cost to the District.

3.9 COMPLETION INSPECTIONS

3.9.1 Punch-Out Inspection

Near the end of the project (but before Substantial Completion), or particular phase of Work established for beneficial occupancy, the Contractor shall conduct a "Punch-Out Inspection" jointly inspecting completed work with subcontractors. The Contractor shall develop a "punch list" of all work which does not conform to Contract. The Contractor shall provide the punch list to the District/PQACT. The punch list shall include an estimated date by which all deficiencies will be corrected. The Contractor shall make a second inspection to ensure all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the District/PQACT that the Work is ready for the District/PQACT Pre-Final Inspection.

3.9.2 Pre-Final Inspection

The District will schedule the Pre-Final Inspection within 48 working hours of receiving the notification. The District/PQACT will jointly perform a "Pre-Final Inspection" with the Contractor to verify the Work is complete and ready for acceptance or occupancy. New punch list items may be developed as a result of Pre-Final Inspection. The items on the Pre-Final punch list shall be corrected in a timely manner. The Contractor shall complete inspections and correct any deficiencies within construction period for completion of Work or for a particular phase of work when Contract has separate completion dates. The Contractor shall ensure all the items on this punch list have been corrected before notifying the District/PQACT to schedule a Final Inspection with the District.

3.9.3 Final Follow-up Control Phase Inspection

The Contractor shall notify the District/PQACT in writing as to when the Contractor will be ready for the Final Follow-up Control Phase Inspection and propose a date for the Final Follow-up Control Phase Inspection. The Contractor shall include a statement in the notification assuring the District/PQACT that all the deficiencies will be corrected and work will be acceptable by the proposed Final Inspection date.

Contractor's failure to correct deficiencies and have work complete for the Final Inspection will be cause for the District/PQACT to deduct from the Contractor for the District/PQACT's additional re-inspection cost from contract payment in accordance with the Contract clause titled "Inspection of Construction".

The District/PQACT will schedule a Final Inspection within 14 working days of the Contractor's notification. The Contractor's Project Manager/Superintendent and CQCSM shall attend the Final Follow-up Control Phase Inspection. The District/PQACT must be in attendance at the Final Follow-up Control Phase Inspection.

3.10 DOCUMENTATION

3.10.1 Quality Control Activities

The Contractor shall maintain current records providing factual evidence that required CQC activities and/or tests have been performed. Include in these records the work of subcontractors and suppliers on appropriate logs, forms, reports and checklists. All documentation shall be kept current, logged into QMS as specified in Section 01 45 04 CONTRACTOR QUALITY MANAGEMENT SYSTEM. All documentation shall be available for inspection at the discretion of the District/PQACT.

The District/PQACT developed drafts of some of the logs, forms, reports and checklists to be used for recording the activities, inspections and testing for the project. All logs, forms, reports and checklists shall be completed and submitted as dictated in these specifications and as directed and agreed upon by the District/PQACT.

RADISE Infrastructure Engineers and Software Designers (Radise) have created Quality Management System (QMS) for the project. All testing and inspections shall be documented in QMS. The Contractor will enter all geotechnical and concrete sampling, testing and inspections to the QMS database system. Some forms will be entered into eBuilders by either the District or the contractor, as directed by the District.

The District (through Radise) will provide training and demonstrations as needed to the Contractor. The Contractor shall utilize and operate this system at no additional cost to the Contract.

The table (Appendix C) specifies the frequency, who is to complete, e-mail distribution, the database to enter and what meetings the logs, forms, reports and checklists are to be utilized, unless otherwise instructed. The distribution of the documents may change at the discretion of the District/PQACT.

All logs, forms, reports and checklists shall be completed in a manner that details the results of the day's activity when performed and shall be legible and understandable. The reports shall be completed with a sizeable font acceptable by the District/PQACT.

Logs, forms, reports and checklists shall contain the District and Reservoir emblems in the headers. These are mandatory and shall not be altered by the contractor. Alterations to these logs, forms, reports and checklists may be requested to the District/PQACT, but only the District/PQACT may alter the documents. The District/PQACT may alter or add logs, forms, reports or checklists to obtain important information for the success of the project.

3.10.1.1 Contractors Quality Control Report/Daily Log of Construction (DQCR)

The DQCR will be entered into the eBuilders database electronically.

Major elements of information in the DQCR include, but are not limited to the following:

a. Contractor/Subcontractors and their area of responsibility.

b. Job safety evaluations stating what was checked, results and instructions or corrective actions.

c. Operating plant/equipment with hours worked, idle or down for repairs.

d. Work performed each day, giving location, description and by whom. When activity numbers are used, identify each phase of work performed each day by the activity number.

e. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial or Follow-up). List deficiencies noted along with corrective actions.

f. Quantity of materials received at the site with statement as to specifications/drawings specifications.

g. Off-site surveillance activities, including action taken.

h. Instructions given/received and conflicts in plans and/or specifications.

i. Attached CQC Specialists' Reports.

j. Contractor's verification statement.

When activities are completed, they must be so noted on the DQCR. Once the Contractor has verified the work is complete and satisfactory, the District/PQACT conducts a final follow-up inspection for completed activities.

The DQCR must present an accurate and complete picture of QC activities. DQCRs shall not concentrate only on work items that have been completed, but also must provide evidence of control activities. They shall be precise, factual, legible, objective as possible and emphasize QC actions.

If statements are discovered in the DQCR that are contrary to the District/PQACT's knowledge of the work, actions will be taken to resolve the differences. The contractor may be asked to submit a supplemental report containing corrections.

The DQCR shall be completed each day including non-working days. All DQCRs shall be dated and given a numerical order number, including the non-working days. The Contractor shall submit the report by the end of work of the following work day in which the report represents. Rolled up, weekly report filings are not acceptable. The non-working day reports shall state "No Work Performed Today" in the "Activities in Progress" Section. If dewatering systems or other non-manned activities are functioning throughout the day, this shall be listed, as well, in the "Activities in Progress" section. At any time during a non-working day, if workers are on site,

performing maintenance on equipment, this activity shall be documented on the DQCR in the "Activities in Progress".

The CQCSM shall sign the Contractor's Verification Statement of each DQCR before submitting to the District/PQACT.

3.10.1.2 Daily Site Safety Report

The Daily Site Safety Report is prepared by the SSSH/SSHO each work day throughout the project.

3.10.1.3 Submittal Register

The Contractor shall submit a completed submittal register according to the contract specifications. The submittal Register shall be maintained at all time during the life of the project.

3.10.1.4 Transmittal Form

The Contractor shall use transmittal forms to document submittals that are being submitted for approval to the District/PQACT. The transmittal shall be the cover sheet for any and all submittals.

3.10.1.5 Request for Information (RFI) Form

The Contractor shall complete and submit a Request for Information (RFI) form in cases where it is necessary to confirm the interpretation of a detail, specification, or note on the construction drawing, or to secure a documented directive or clarification from the engineer that is needed to continue work or to document a change request. The contractor shall complete the form electronically in the eBuilders database.

3.10.1.6 Inspection Test Plan (ITP) Form

ITP forms shall be used to document inspections and tests to be performed during each activity.

3.10.1.7 Preparatory Control Phase Inspection Meeting Checklist/MEETING MINUTES

As stated in paragraph PREPARATORY CONTROL PHASE INSPECTION, notification of each Preparatory Control Phase Inspection meetings shall be performed in writing (E-mail) 48 hours before each Preparatory Control Phase Inspection Meeting. A checklist shall be developed that will outline the itinerary of the meeting.

3.10.1.8 Initial Control Phase Inspection CHECKLIST/MEETING MINUTES

As stated in paragraph INITIAL CONTROL PHASE INSPECTION, notification of each Initial Control Phase Inspection meeting shall be performed in writing (E-mail) 48 hours before each Initial Control Phase Inspection Meeting. An agenda shall be developed that will outline the itinerary of the meeting. The agenda shall accompany the 48 hour notice of the meeting.

3.10.1.9 Final Follow-up Control Phase Inspection Checklist/MEETING MINUTES

Daily Follow-up Control Phase Inspections shall be recorded in the DQCR.

A checklist shall be completed during the Final Follow-up Control Phase Inspection to verify all deficiencies have been corrected prior to the start of additional features of Work which may be affected by the deficient work.

3.10.1.10 Punch-Out Inspection Form

The Punch-Out Inspection Form shall be used to document work which does not conform to the contract.

3.10.1.11 Pre-Final Punchlist Form

The Pre-Final Punchlist form shall be used to document work which does not conform to the contract.

3.10.1.12 Three Phase Inspection Schedule/Log

The Three Phase Control Inspection Schedule/Log shall be preliminarily completed by the Contractor as soon as the first Construction Schedules have been approved by the District/PQACT thru the submittal process. The schedule/log shall be prepared by including the following:

a. List of all Definable Features of Work

b. Original dates that the Preparatory Control Phase Inspections should be performed according to the original Construction Schedule.

c. Original dates that the Initial Control Phase Inspections should be performed according to the original Construction Schedule.

d. Original dates that the Final Follow-Up Control Phase Inspections should be performed according to the original Construction Schedule.

e. Actual dates that the Preparatory Control Phase Inspections were performed.

f. Actual dates that the Initial Control Phase Inspections were performed.

g. Actual dates that the Final Follow-Up Control Phase Inspections were performed.

h. Adjusted dates anticipated for the Preparatory Control Phase Inspection should be performed according to Construction Schedule changes.

i. Adjusted dates anticipated for the Initial Control Phase Inspection should be performed according to Construction Schedule changes.

j. Adjusted dates anticipated for the Final Follow-Up Control Phase Inspection should be performed according to Construction Schedule changes.

3.10.1.13 Three Week Look-Ahead Schedule

The Three Week Look-Ahead shall be created each week showing the past week's activities, the present week's activities and the following two week's planned activities. The Schedule shall include a bar chart and shall include

activity numbers, activities and dates. The schedule shall include all planned Three Control Phase Inspections.

3.10.1.14 Contractor's Deficiency/Rework Items Log

The Contractor shall maintain a Contractor's Deficiency Tracking/Rework Items Log. The Log shall be used to track and report all non-conforming work identified by the Contractor and/or the District/PQACT. The Log shall contain the following:

a. Deficiency tracking number

b. Description of the non-conforming work

c. The date the deficiency was identified

d. The date the deficiency was corrected verified by the CQCSM

e. Description of the Corrective Action taken to correct the deficiency

3.10.1.15 Wildlife Training/(SSHO) Log

The Wildlife Training Log is described in another section of the contract. See the Environmental Protection Plan

3.10.1.16 Wildlife Sighting Report

The Wildlife Sighting Report is described in another section of the contract. See the Environmental Protection Plan requirements of these specifications.

3.10.1.17 Actual Monthly Weather Conditions Report

An Actual Monthly Weather Conditions Weather Report shall be maintained throughout the life of the project. The Report shall consist of the following:

a. Month/Year

b. Date of the month

c. Weather condition

d. Hours lost due to weather (critical path activities)

e. Anticipated or actual delay (anticipated example: Hazardous weather forecasted to be present)

f. Activity delayed and Remarks

The report shall be completed for each day, including non-working days. Severe weather on a non-working day may cause delays for the following working day.

3.10.1.18 BMP Inspection Log

The BMP Inspection Log shall be used to document BMP controls along with the maintenance of the controls. The Report shall consist of the information needed to ensure all BMPs are working properly and shall be updated during each inspection (weekly or post rain event).

3.10.1.19 Surveyors Daily Log

A surveyor keeps a daily log book to log all his points, readings, etc. during his/her activities throughout the day while surveying. A copy of the daily log pages shall accompany the survey works checklist.

3.10.1.20 Dewatering Report

The Dewatering Report shall be used to determine the depth of ground water of the well point system, monitoring wells and/or piezometers while performing dewatering activities throughout the project.

3.10.1.21 Turbidity Monitoring Reports

The Turbidity Monitoring Reports shall adhere to the FDEP permit.

3.10.1.22 Settlement Monitoring Logs

Settlement Monitoring Logs shall be used during activities which require settlement to be monitored throughout the project.

3.10.1.23 Sheetpile Driving Records

Sheetpile Driving records shall be used to document that the Sheetpile Driving activities adhere to the project specifications and drawings.

3.10.1.24 Daily Sheetpile Deflection Reports

The Daily Sheetpile Deflection Report shall be used to record any deflection of the sheetpiles and the rate of any deflection.

3.10.1.25 Backfilling and Compaction Checklist

The Backfill and Compaction Checklist shall be used to document that the inspection of the compacted backfilling activities have been performed and that the width, length and height of the backfill are according to the specifications and drawings of the contract. The inspection must be performed by the Contractor and the District/PQACT.

3.10.1.26 Concrete Pre-placement Checklist

The Concrete Pre-placement Checklist is used to verify that all pre-concrete activities are complete and adhere to the specifications and drawings for the concrete pour including, but not limited to, submittal approvals, concrete mix, accessories and insulation.

3.10.1.27 Pre-Install Masonry Inspection Checklist

The Pre-Install Masonry Inspection Form is used to verify that all pre-masonry activities are complete and adhere to the specifications and

drawings for the masonry installation including, but not limited to, submittal approvals, mortar mix, accessories and insulation.

3.10.1.28 Certificate of Hydrostatic / Pneumatic Test Report

A Certificate of Hydrostatic/Pneumatic Test shall be completed at the completion of all successful hydrostatic/pneumatic pipe testing activities according to specification 40 05 13 PIPELINES, LIQUID PROCESS PIPING.

3.10.1.29 Drainage Pipe Water Line Inspection Form

The Drainage Pipe Water Line Pipe Inspection Form shall be used to document that the inspections of all drainage and waterline pipe installation have been completed and that the installations adhere to the project specifications.

3.10.1.30 Metal Door / Frame Checklist

The Metal Door/Frame Checklist shall be used to document the inspections of all door fabrication, door and/or window frame and door installations.

3.10.1.31 Pre-Engineered Components Checklist

The Pre-Engineered Components Checklist shall be used to document the inspections of delivered pre-engineered buildings, fabrications, wall panels, etc. during delivery, as well as pre-installation and installation.

3.10.1.32 Structural Steel Checklist

The Structural Steel Checklist shall be used to document the inspections of delivered materials, submittals, preparatory inspection meetings, initial inspections, as-builts drawings, safety, pre-structure erecting activities, and daily structure erecting activities, as well as to assure the next phase does not begin until all inspections are successful.

3.10.1.33 Welding Inspection Reports

The Contractor shall submit to the District/PQACT all weld testing reports by their certified weld testing company.

3.10.1.34 Thermistor Reading Log

The Contractor shall maintain a Thermistor Reading Log for each thermistor installed according to the Cast-in-Place specifications to monitor temperature of curing concrete during the lifetime of the thermistors.

3.10.1.35 Electrical Installation Inspection Form

The Contractor shall use the Electrical Inspection Form to document that all of the electrical inspections have been performed according to the contract specifications.

3.10.1.36 Soil Cement Slope Daily Checklist

The Contractor shall maintain a daily checklist each day during soil cement placement including materials sampling at the onsite plant before material

is produced thru the placement of the soil cement on the slope as specified in the work plans and drawings.

3.10.1.37 Soil Bentonite Wall Daily Checklist

The Contractor shall maintain a daily checklist each day during soil bentonite placement including materials sampling at the before material is produced thru the placement of the soil bentonite in the wall as specified in the work plans and drawings.

3.10.1.38 Foundation Acceptance Form

The Foundation Acceptance Form will be used as an approval from the District/PQACT to the Contractor that the foundation is acceptable for the Contractor to build upon, only in the areas in which the form indicates.

3.11 DEFINABLE FEATURES OF WORK (DFOW)

As a minimum, the anticipated Definable Features of Work for this project are as follows:

CIVIL

- Demolition
- Materials Management
- Environmental Protection
  - Manatee Protection
  - Wildlife Protection
- Maintenance of Traffic (MOT)
- Layout/Survey
- District Construction Compound
- Contractor Construction Compound
- Water Management
  - Water Supply
  - Surface Water Management
  - Staff Gauges
- Erosion and Sediment Control
- Clearing and Grubbing
- Ditch and Canal Filling
- Canal Excavation

Site Earth Work

Embankment

Drainage and Culverts

Paving

Access Road Improvements

Fencing and Gates

Timber Piles and Marine Barriers

Boat Ramps

Recreation Features

Site Utilities

Landscaping

Riprap

Revetment

Wave Wall

GEOTECHNICAL

Dewatering

Borrow Excavation

Structural Excavation

Dam Foundation Preparation and Mapping

Temporary Geotechnical Instrumentation

Dam Embankment Fill

Select Fill

Plugs

Bentonite Amended Soil

Gap Closure

Cofferdams

Pressure Relief System

Borings for Soil Bentonite Wall

Other Borings

Soil Bentonite Wall

Geotextiles

HPTRM

Fabrics

Membranes

Soil Cement Slope Protection

Dam Slope Protection

Blanket Drain

Chimney Drain

Toe Drain

Discharge Pipes

Slope Protection Underdrain

Permanent Geotechnical Instrumentation

Monitoring Wells

Grassing

STRUCTURAL

Bridges

Local Bridge

Site Bridge

S478

Service Bridges

Structural Instrumentation

Flowable Fill

Concrete

Subgrade Preparation

Forms and Reinforcement

Slabs on Grade

Walls

Foundation Mats

Columns/Beams

Miscellaneous Foundations

Precast Concrete

Pilings

Buildings

Wave Walls

Control Buildings

Roof System and Miscellaneous Roof Accessories

Doors and Appurtenance

Sheet Piles

Wing Walls

Vinyl

Hand Rails/Guards/Fall Protection

Misc. Metals

PAINTING AND COATING

Protective Coating

MECHANICAL

Louvers

Hoist and Lifting Mechanisms

Motor Operated Valves

Vertical Lift Gates

Roller Gates

Slide Gates

Dual Leaf Gates

Discharge Piping

Field Welding

Vertical Axial Flow Pump

Trash ~~Rakes System~~Rack Systems

LPG Tank and Appurtenance

Stop Logs

Bulkheads

Needles

HVAC Equipment System

ELECTRICAL

Insulated Wire and Cable

Low Voltage Overcurrent Device

Distribution System

Automatic Transfer Switch

Transformers

Standby Generator and LPG System

Lightning Protection

Cathodic Protection

Interior Lighting

Exterior Lighting

Low Voltage Motors

Underground Electric Distribution

Conduit Layout

INSTRUMENTATION AND CONTROLS

LPG Fuel Tank Monitoring

Radio Transmission System

Process and Control Systems

Water Level Systems

Strain Gauges and Instrumentation

Microwave Communications

Process Control/Operational Testing

Start-up

Functional

Commissioning

Training

Additional DFOW shall be prepared as needed to suit contractor's means and methods or as determined by the District/PQACT to be required for successful completion of the project, at no additional cost to the District.

3.12 AS-BUILT DRAWINGS

The CQCSM is required to ensure the as-built drawings, required by Section 01 77 10 CONTRACT CLOSEOUT. As-Builts shall be kept current on a daily basis and marked to show changes which have been made from the Contract drawings. Ensure each change has been identified with the appropriate modifying documentation (e.g. PC No., Modification No., RFI No., etc.) The CQCSM must initial each revision. Upon completion of work, the CQCSM will furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the District/PQACT.

3.13 PROJECT FORMS

Required forms (Appendix C) are forms that the District/PQACT have created to be incorporated. These forms are mandatory. These forms are not all inclusive and all additional forms shall be developed by the Contractor during the development of the CQCP. Additional forms may be required by the District/PQACT during the course of the work. The Contractor shall develop all required forms necessary to completely document the quality of the work, at no additional cost to the District. Appendix C contains the Logs, Forms and Reports Table for detailed information.

Appendix C contains the Logs, Forms and Reports to be used, described in Section 3.10, along with DFOW Checklist to be completed and signed by the CQCSM and the District/PQACT inspectors. When DFOWs are broken into different areas of the Project, a separate DFOW checklist will be used for each area. The contractor shall inform the inspector at any time he feels that a requirement of the checklist is complete and ready for the District/PQACT inspector's signature. If the inspector feels requirements of the checklists is complete, he/she may inform the contractor that the requirements of the checklist is ready for signatures. It is encouraged to not wait until the last minute to sign off on requirements, but to keep the checklists up to date.

Required sample forms with minimum requirements to be created and submitted by the Contractor (Appendix D), at no additional cost to the District. The Contractor may use the sample form or create similar form using the sample form as minimum requirements. The forms are required for documentation purposes for the project.

It is the intention of the District to have the forms of Appendix D, electronically completed in the QMS database.

3.14 NONCONFORMANCE NOTICE/DEFICIENCY AND CORRECTIVE ACTION

The District/PQACT will notify the Contractor of any detected noncompliance with the foregoing requirements. Take immediate corrective action after

receipt of such notice. Such notice, when delivered to the Contractor at the work site, will be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the District/PQACT can issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

During the course of construction activities, issues will arise that must be evaluated and resolved. The Contract documents provide the guidelines or criteria for reviewing and evaluating these issues. Typically these issues fall into one or more of the following categories: Nonconformance and a Deficiency. All nonconformance items and deficiencies and shall be logged and tracked through closure.

a. Nonconformance Notice

The District/PQACT uses a Nonconformance Notice (NCN) to identify and document work or materials not conforming to the specifications or contract requirements which has not been corrected by the Contractor in a timely manner.

As a minimum, the NCN captures the following information:

1. Details regarding the nonconforming condition

2. Recommend corrective action(s)

3. Verification as acceptable by the District/PQAC

The NCN shall remain open until the nonconforming condition has been satisfactorily resolved and verified as stated above.

A nonconformance may be identified at any time during the course of the prosecution of the work. When the issue or situation warrants such action, the District/PQACT develops the NCN then transmits the NCN to the Contractor.

NOTE: It is the intent that the District/PQACT and the Contractor work closely together to avoid the issuance of an NCN. The Contractor can issue an NCN to itself.

A Nonconformance issue is defined as follows:

1. An in-process noncompliance with the specification, drawing, requirements, or workmanship standards

2. An occurrence wherein defective work or work lacking some essential part has been covered or is otherwise left as incomplete

3. Products supplied to the site or incorporated into the work do not meet the conditions of the contract document

4. Inspection points or contract requirements affecting quality of the work have not been met

b. Deficiency is defined as follows:

The quality or condition of being deficient, incomplete or inadequate from the contract requirements and/or workmanship standards.

If the Contractor fails to respond in such reasonable time, determined by the District/PQACT, or if there is repeat occurrences of the issues without mitigation cause, a Nonconformance Notice may be issued.

c. Identification of Nonconformance/Deficiency Items

Items identified as nonconforming are documented on an NCN. Items identified as deficient are documented on a Deficiency Report. Each report will include the following information respectively:

1. Title of the Nonconformance Notice/Deficiency Report

2. Identification of the specification (specification number and specification language), drawing (drawing number and detail instruction) or RFI (RFI number and RFI answer) requirement that was not adhered to or not achieved

3. Detailed description of nonconformance item/activity or deficiency in violation of the requirement(s)

4. Cause of nonconformance or deficiency

5. Recommendation of disposition

6. Disposition and verification of corrective action of nonconformance or deficiency

d. Nonconformance/Deficiency

Each identified nonconformance and deficiency will be documented on the respective NCN Tracking Logs. Each logged item includes the following information:

1. NCN/deficiency number

2. Originating organization

3. Date NCN/deficiency identified/issued

4. Individual/organization assigned responsibility

5. Date of disposition

6. Corrective action and/or resolution verified and date

7. Date NCN/deficiency closed out

e. Resolution, Corrective Action and Verification

The Contractor is responsible for evaluating the cause of a nonconformance or deficiency and recommends solutions for correcting such items. The Contractor's PM coordinates with the CQCSM to review

the issue, develops propose remedial action to correct and implement the desired corrective action to resolve the nonconformance or deficiency. The disposition typically falls into one of the following categories:

1. Reworked to meet the original requirements

2. Repair accepted by the District

3. Use-as-is accepted by the District

4. Rejected or scrapped

The proposed disposition is proposed to the District/PQAC and reviewed for approval by the District/PQAC.

The CQCSM is responsible for verifying the implementation of proposed and approved actions impacting quality. All repaired or reworked items are re-inspected in the manner that identified the nonconformance or deficiency. The NCN and/or the deficiency report documents the results of the disposition actions and the results of re-inspection. No work may be performed to cover up any nonconformance work before the nonconformance work is completed, re-inspected and approved by the District/PQACT.

f. Stop Work

The District has the authority to stop the nonconforming conditions that affect the quality of the project, jeopardize safety, and/or cause an environmental hazard. The District conveys the reasons for the stop work notice to the Contractor. The stop work situation must be resolved and approved by the District before work can resume.

g. Conflict Resolution

All conflicts are resolved in accordance with the requirements specified in the contract documents. Any interpretation conflicts of the contract documents will be resolved by the District Construction Manager.

h. Preventive Action

The CQCSM conducts a trend analysis of the NCNs, deficiencies, and stop work orders to perform root cause analyses for all project-identified deficiencies if the deficiencies are repeated. The CQCSM and the Contractor's PM will analyze the trends developing and implements appropriate actions to prevent recurrence of the adverse trends. The CQCSM will verify implementation of the preventive actions and report the results to the District/PQAC.

-- End of Section --

Appendix A

C-43 Package 3 Quality Control Plan – Draft 1 in Progress

(Note: This Draft Quality Control Plan establishes the basis of the minimum requirements for the Contractor's Quality Control Process. The Contractor shall use this template to create the Contractor's Quality Control Plan in accordance with the Contract, Specifications and Section 01 45 00 Quality Control. Inspection Test Plans (ITPs) and Inspection forms included herein are provided for the Contractor's convenience and are not all inclusive. The Contractor, during the preparation of the Quality Control Plan, shall work with the District/PQACT and finalize ITPs and forms as required and agreed upon.)

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ACRONYMS AND ABBREVATIONS

Acronyms	Definitions
ACI	American Concrete Institute
AHA	Activity Hazard Analysis
BMP	Best Management Practice
CCT	Contractors Certified Test
CERP	Comprehensive Everglades Restoration Plan
CMU	Concrete Masonry Units
COC	Chain of Custody
CPM	Contractor Project Manager
CQC	Contractor Quality Control
CQCP	Contractor Quality Control Plan
DFOW	Definable Features of Work
District	South Florida Water Management District
DQCR	Daily Quality Control Report/Daily Activity Log
FDEP	Florida Department of Environmental Protection
eBuilder	Electronic data base system for storing documents
FSI	Formed Suction Intake
HVAC	High Volume Air Control
ITP	Inspection & Test Plan
LPG	Liquefied Petroleum Gas
LWO	Laboratory Work Order
M&TE	Measuring and Test Equipment
NCN	Nonconformance Notice
P3	Package 3
PQACT	Project Quality Assurance Coordination Team
QC	Quality Control
QMS	Quality Management System
RFI	Request for Information

SCADA	System Control and Data Acquisition
SFWMD	South Florida Water Management District
SR	State Road
SWPPP	Storm Water Pollution Prevention Plan
TBD	To be Determined
USACE	United States Army Corp of Engineer
WRRDA	Water Resources Reform Development Act

1. Introduction

1.1 Purpose

This Contractor Quality Control Plan (CQCP) describes procedures, guidelines and best practices for the control of equipment, materials and services to be used during the construction operations by the Contractor, performed under the South Florida Water Management District (District) Contract No. xxxxxxxxxxxx.

This document establishes a systematic program/approach of actions that will provide objective evidence of compliance with the contract requirements and specified requirements of the District and other agencies.

Quality Control (QC) for the project is established through a total quality performance concept. The total quality approach asserts the project managers and personnel are responsible for the quality and performance of their work in accordance with project procedures, specifications and other governing documents. The project team members are encouraged to work in an atmosphere where continuous quality improvements is the norm. QC requirements are defined and disseminated through orientation and training of all applicable personnel.

The goal of this CQCP is to provide a strategic, logical and disciplined approach to achieve the quality objectives of the project. This CQCP employs specific verification activities that are performed by qualified personnel assigned to monitor, report and prevent adverse conditions. The CQCP defines the QC organizational structure by identifying staff and their responsibilities with respect to quality, ensuring the prompt detection and correction of deviations that may be detrimental to quality, monitoring trends to detect problem areas for early correction, and generating documentation necessary to provide evidence of achievement of quality objectives during construction.

The objectives of the CQCP are as follows:

- Establish the highest possible standards for quality that can be achieved for all work performed during the preconstruction and construction phases.
- Conduct work activities in a safe and planned manner.
- Develop mechanisms and procedures to ensure the established standards are met.
- Establish requirements for qualification and training of QC personnel.
- Verify that all documents comply with QC standards, specification requirements and other applicable criteria.
- Evaluate the adequacy and effectiveness of the quality controls that have been imposed.

- Detect potential and real problems quickly and efficiently so that corrective actions can be taken to prevent further serious issues.

The CQCP provides technical direction to the Contractor Quality Control (CQC) Systems Manager, CQC staff and the CQC testing personnel throughout the project. The CQCP contains a systematic approach for implementing technical procedures and for performing tests and inspections during construction.

These procedures provide a checklist of activities and specific duties that Construction Supervisors will address in their daily duties. The CQCP provides the required CQC on all work performed, which includes the inspection, testing, monitoring, and documentation of construction activities in accordance with Contract specifications. The CQCP should not be construed as a change to the requirements of the technical specifications of the contract.

The CQCP is keyed to the construction sequence and responds to the five-phase inspection method for the following phases of control:

- Preparatory Inspection
- Initial Inspection
- Follow-up Inspection
- Pre-final Inspection
- Final Inspection

The five-phase inspection method is described in Section 5.

1.2 Scope

The Caloosahatchee River (C-43) West Basin Storage Reservoir is a component of the Comprehensive Everglades Restoration Plan (CERP).

CERP is the framework and guide to restore, protect and preserve the water resources of central and southern Florida, including the Everglades. It covers 16 counties over an 18,000-mi^2 area and centers on an update of central and southern Florida projects. CERP's goals include reviving the habitat for more than 60 threatened and endangered species of wildlife, restoring the natural water flows from Lake Okeechobee to Florida Bay and establishing a reliable environmental, urban and agricultural water supply while providing improved flood protection.

Some of CERP's design elements are to capture, store and redistribute fresh water previously lost to tide and to regulate the quality, quantity, timing and distribution of water flows.

The C-43 West Basin Storage Reservoir Project was authorized by the Water Resources Reform Development Act (WRRDA) of 2014. The project is designed to capture excess C-43 Basin runoff and regulatory releases from Lake Okeechobee during the wet seasons and releasing water from the reservoir during the dry seasons. The projects includes development of one above ground reservoir with a total storage capacity of approximately 170,000 acre-feet. The reservoir will be located in the C-43 Basin in Hendry County. The project will reduce the extreme salinity changes in the C-43 Estuary by proving a more consistent flow of water discharging in to the Caloosahatchee Estuary. The extreme fresh water fluctuations are due to fresh water flows from basin runoff and releases from Lake Okeechobee during the wet seasons and reduced flows during the dry seasons. The project will also provide water supply benefits and some flood attenuation.

Design Package 4: Civil Works

The Civil Works design package will include removal of the preload mounds constructed in Package 1, excavation of the perimeter canal, construction of the perimeter canal control structures, construction of the dam D-470 and all associated water control structures, pump station S-470 discharge works, and public recreation facilities. It will also include detailed construction phasing, access and sequencing for excavations and filling while maintaining irrigation supply and storm water management for the adjacent agricultural operations and landowners.

The overall goal of the CQCP is to ensure that proper construction techniques and procedures are used, verifying that the materials used meet the design specifications. The CQCP facilitates the identification of problems that may arise during construction and addresses corrective measures. The CQCP is to be considered a working document and part of the overall Project Manual. It is intended for use by the entire project team. The team's comprehension of the CQCP will help meet the CQC objectives of the work effort. Any conflict between the Contract and the CQCP shall be brought to the immediate attention of the Construction Management Team. The contract governs unless otherwise directed by written authorization of the District.

The CQCP is designed to be a user-friendly resource by assisting the PM and project contributors in identifying their quality-related requirements and responsibilities.

The CQCP aims to be the primary source of information related to CQC requirements for employees and subcontractors involved with the various construction phases of the project. More importantly, the CQCP assist individuals in determining their separate and collective CQC responsibilities and the means for fulling them. The quality management approach system of checks and balances, verifying that quality is present and that quality is built in as the work is completed. Effective implementation of the CQCP helps mitigate the Construction

Management's absolute effective efforts. The information included herein is intended to complement the Construction Management Project Delivery System (which includes quality) and not to replace it.

1.3 Supporting Documents

The project's supporting documents are as follows:

- Project Contract
- Project Specifications
- Project Drawings
- Project Work Plans
- Contractor and Subcontractor Plans
- Project Health and Safety Plan (including Accident Prevention Plan)
- Project Wildlife Protection Plan
- Project Environmental Protection Plan
- Project Inspection and Test Plans (ITPs) – include in CQCP
- Contractor Resumes
- Contractor Quality Control (CQC) Staff Organization Chart
- Testing Forms and Logs
- Misc. Check Lists
- Project Photographs

1.4 Definable Features of Work

A Definable Feature of Work (DFOW) is a task that is separate and distinct from other tasks and has separate control requirements. DFOW inspection and test procedures are defined in individual ITPs. DFOWs, along with their prospective Specifications and Drawings for this project are as follows:

CIVIL

- DEMOLITION
- MATERIALS MANAGEMENT
- ENVIRONMENTAL PROTECTION
  - MANATEE PROTECTION
  - WILDLIFE PROTECTION
- MAINTENANCE OF TRAFFIC (MOT)
- LAYOUT
- DISTRICT CONSTRUCTION COMPOUND
- CONTRACTOR CONSTRUCTION COMPOUND
- WATER MANAGEMENT
  - WATER SUPPLY
  - SURFACE WATER MANAGEMENT
  - STAFF GAUGES
- EROSION AND SEDIMENT CONTROL
- CLEARING AND GRUBBING
- DITCH AND CANAL FILLING
- CANAL EXCAVATION
- SITE EARTYWORK
- EMBANKMENT
- DRAINAGE AND CULVERTS

PAVING

ACCESS ROAD IMPROVEMENTS

FENCING AND GATES

TIMBER PILES AND MARINE BARRIERS

BOAT RAMPS

RECREATION FEATURES

SITE UTILITIES

LANDSCAPING

RIPRAP

REVETMENT

WAVE WALL

GEOTECHNICAL

DEWATERING

BORROW EXCAVATION

STRUCTURAL EXCAVATION

DAM FOUNDATION PREPARATION AND MAPPING

TEMPORARY GEOTECHNICAL INSTRUMENTATION

DAM EMBANKMENT FILL

SELECT FILL

PLUGS

BENTONITE AMENDED SOIL

GAP CLOSURES

COFFERDAMS

PRESSURE RELIEF SYSTEM

BORINGS FOR SOIL BENTONITE WALL

SOIL BENTONITE WALL

GEOTEXTILES

HPTRM

FABRICS

MEMBRANES

SOIL CEMENT SLOPE PROTECTION

DAM SLOPE PROTECTION

BLANKET DRAIN

CHIMNEY DRAIN

TOE DRAIN

DISCHARGE PIPES

SLOPE PROTECTION UNDERDRAIN

PERMANENT GEOTECHNICAL INSTRUMENTATION

MONITOR WELLS

GRASSING

STRUCTURAL

BRIDGES

LOCAL ACCESS BRIDGE

SITE ACCESS BRIDGE

S478

SERVICE BRIDGES

STRUCTURAL INSTRUMENTATION

FLOWABLE FILL

CONCRETE

SUBGRADE PREPARATION

FORMS AND REINFORCEMENT

SLABS ON GRADE

WALLS

FOUNDATION MATS

COLUMNS/BEAMS

MISCELLANEOUS FOUNDATIONS

PRECAST CONCRETE

PILINGS

BUILDINGS

WAVE WALLS

CONTROL BUILDINGS

ROOF SYSTEM AND MISCELLANEOUS ROOF ACCESSORIES

DOORS AND APPURTENANCE

SHEET PILES

WINGWALLS

VINYL

HAND RAILS/GUARDS/FALL PROTECTION

MISCELLANEOUS METALS

PAINTING AND COATING

PROTECTIVE COATING

MECHANICAL

LOUVERS

HOIST AND LIFTING MECHANISMS

MOTOR OPERATED VALVES

VERTICAL LIFT GATES

ROLLER GATES

SLIDE GATES

DUAL LEAF GATES

DISCHARGE PIPING

FIELD WELDING

VERTICAL AXIAL FLOW PUMP

TRASH RAKE SYSTEM

LPG TANK AND APPUTENANCE

STOP LOGS

BULKHEADS

NEEDLES

HVAC EQUIPMENT SYSTEM

ELECTRICAL

INSULATED WIRE AND CABLE

LOW VOLTAGE OVERCURRENT DEVICE

DISTRIBUTION SYSTEM

AUTOMATIC TRANSFER SWITCH

TRANSFORMERS

STANDBY GENERATOR AND LPG SYSTEM

LIGHTNING PROTECTION

CATHODIC PROTECTION

INTERIOR LIGHTING

EXTERIOR LIGHTING

LOW VOLTAGE MOTORS

UNDERGROUND ELECTRIC DISTRIBUTION

CONDUIT LAYOUT

INSTRUMENTATION AND CONTROLS

LPG FUEL TANK MONITORING

RADIO TRANSMISSION SYSTEM

PROCESS AND CONTROL SYSTEM

WATER LEVEL SYSTEMS

STRAIN GAUGES AND INSTRUMENTATION

MICROWAVE COMMUNICATIONS

PROCESS CONTROL/OPERATIONAL TESTING

START-UP

FUNCTIONAL

COMMISSIONING

TRAINING

Additional DFOW shall be prepared as needed to suit contractor's means and methods or as determined by the District/PQACT to be required for successful completion of the project, at no additional cost to the District.

DFOW Checklist, along with other checklists, shall be appropriately updated and entered into the QMS data system by the Contractor. IF needed, at the discretion of the PQACT Quality Manager, a weekly meeting shall be held to verify checklists are updated and entered into the QMS data system.

2. Organization and Responsibilities

2.1 Quality Control Organization

The CONTRACTOR project organization chart identifies the lines of authority and the reporting relationships of personnel performing quality-related activities.

2.1.1 Contractor Project Manager (CPM)

The Contractor Project Manager (CPM) is responsible for the overall management of the project. The CPM leads the project through its entire lifecycle; initiating, planning, executing,

monitoring, controlling and closing. The CPM is responsible to ensure overall construction Quality Control (QC), including providing management oversight of all QC activities performed by its subcontractors. During the execution of the project, the CPM is the primary point of contact between the District/Project Quality Assurance Coordination Team (PQACT) and the Contractor.

The CPM has the following, but not limited to, responsibilities:

- Organization, coordination and maintenance of resources in support of the project execution. The CPM reviews and approves all project plans and monitors the work to ensure compliance with the contract and performance within the cost and scheduling baselines.
- Overall administration and implementation of the CQCP at the construction site. The CQCP ensures that construction activities are performed in accordance with contract drawings, specifications, applicable codes, standards and contractual requirements.
- Overall management of construction activities on the project:
  - Provide leadership on the construction execution of the work and prepare the Construction Work Plan and supplement work plans as required by the contract.
  - Provide direction and management of the project staff.
  - Provide direction and management of the Contractor's subcontractors and vendors.
  - Implement and enforce the project health and safety requirements.
  - Implement and enforce the CQC requirements.
  - Implement and enforce environmental protection requirements.
  - Implement and enforce the wildlife endangerment requirements.

The CPM ensures that the work is performed in a safe protective manner, that quality conforms to the contract requirements and that work is performed on time, efficiently and within budget.

2.1.2 Contractor Quality Control (CQC) Systems Manager

Before the start of activities, the Contractor Quality Control (CQC) Systems Manager will be identified to the District and will meet with the District/PQACT to review the respective CQCP and activity inspection procedures and will discuss QC requirements including the CQC approach management, QC inspections, QC form development, use of forms, and the collaboration between the Contractor assigned CPM and District/PQACT inspections. The collaborative effort includes (but is not limited to) hold and witness points and timely notification to allow the District/PQACT to conduct tests and inspections for on and off-site construction activities. Hold and Witness point shall be included in the Contractor's Inspection and Test Plans.

The CQC Systems Manager reports directly to a corporate official of the company and under no circumstances reports to the PM or Superintendent of the project in order to avoid a conflict of interest concerning quality versus production/cost of the project. The CQC Systems Manager coordinates efforts with the District/PQACT, the Design Engineer (DE), subcontractors, and Contractor's management and onsite personnel, as necessary, for any and all issues or concerns relating to quality compliance. The CQC Systems Manager is responsible for the implementation of the CQCP and assisting the CPM in the implementation, enforcement, monitoring, and reporting of procedures delineated in the CQCP. The CQC Systems Manager will be at the jobsite full time. The CQC Systems Manager ensures that the work product complies with the project's QC requirements and provides the necessary documentation to demonstrate compliance.

The CQC Systems Manager establishes and employs a CQC staff including qualified CQC Technicians and a CQC Administrative Assistant as needed. The CQC Systems Manager delegates sufficient authority and organizational independence to verify that project activities comply with the contractual requirements, i.e., applicable specifications, plans, procedures, instructions, and drawings. This capacity includes "Stop Work" authority to direct the removal and/or replacement of noncompliant work or to prevent further activities that may adversely impact the quality of work. The CQC Systems Manager notifies the CPM of quality activities, problems, or concerns, as well as quality trends. The CQC Systems Manager collaborates with the District/PQACT on quality issues.

An Alternate CQC Systems Manager performs CQC Systems Manager duties during the second shift when double shifts are required or at any time the CQC Systems Manager is not on site. The Alternate CQC Systems Manager has the same authority as the CQC Systems Manager during the second shift.

Specific duties and responsibilities of the CQC Systems Manager and CQC staff, as directed by the CQC Systems Manager, include, (but are not limited to) the following:

- Implement applicable program requirements of the CQCP.
- Identify and report quality concerns, including nonconforming items, conditions, or activities.
- Immediately notify appropriate management personnel of conditions adverse to quality, including those that cannot be resolved at the project level.
- Monitor and verify operational activities for compliance with the contractual requirements.
- Monitor testing laboratory activities and review data for acceptance/approval.
- Monitor the performance of on-site subcontractors to ensure compliance with this CQCP.

- Perform QC inspections, including observation of test activities.
- Prepare quality status reports, as required.
- Review testing results and ensure the proper documentation of on- and off-site inspections and testing activities.
- Prepare and issue Non-Conformance Reports (NCRs); log and track NCRs.
- Verify the performance and effectiveness of all corrective actions.
- Prepare and submit required CQC reports.
- Maintain the project CQC records/files. Utilize CQC Data Management Systems as directed by the District/PQACT.

In addition, the CQC Systems Manager provides CQC training for staff and selected project subcontractor personnel. The CQC Systems Manager assists project personnel with the interpretation of CQC requirements and standards. The CQC Systems Manager is responsible for refining and communicating Definable Features of Work (DFOW) and associated requirements, including contract specifications and requirements. He or she is responsible for developing test plans and inspection test forms to monitor project quality.

The CQC Systems Manager prepares, reviews, approves project-specific quality-related procedures and delivers quality data in accordance with Contract specifications, including amendment or modification requests to the CQCP. The CQC Systems Manager reviews project-specific procurement documents for subcontractor technical items and services that can affect quality. The CQC Systems Manager serves as the "collection point" for proposed changes to project CQC requirements and notifies the CPM of any formal changes.

2.1.3 CQC Specialists

The CQC Specialists are responsible for enforcing the CQCP, performing inspection and test activities, and verifying and documenting compliance with applicable requirements. The CQC Specialists are under the direction of the CQC Systems Manager and adheres to the instructions given by the CQC Systems Manager, ensuring that quality work is being performed at all times. During construction, the CQC Specialists have the following responsibilities:

- Consult and educate Superintendents and Foremen to understand Work Schedules and activities in an effort to alleviate any CQC concerns.
- Assess the effectiveness of, and maintain, this CQCP and its referenced procedures.
- Review and communicate test reports from the Testing Lab Technicians to the Field Superintendent(s).

- Converse with the PQACT Inspectors at any and all times concerning QC issues or concerns, including answering questions concerning the work that the PQACT staff may question. The PQACT staff should be able to address the CQC Specialists on the project at any time concerning quality or safety issues.
- Inspect, verify, and document the required and accurate staking of the engineer controls.
- Observe self-performed and subcontracted work to ensure that materials are in accordance with approved submittals, required sampling and tests are performed as specified, and construction activities are performed in accordance with the drawings, specifications, procedures, and plans.
- Preparing and maintaining documentation for work performed and activities in his or her work area and to ensure the documentation is incorporated into the DQCR, produced by the CQC Systems Manager.
- Planning and conducting the performance of preparatory, initial, follow-up, pre-final, and final inspections, as well as all testing activities.
- Identify quality deficiencies and attempt resolution at the lowest level.
- Evaluate and verify corrective action measures.
- Complete Inspection Test forms.
- Ensure that requisite quality records are generated, maintained, and submitted in a timely manner as described in this CQCP and the contract.
- Verify that subcontracted testing laboratories have and operate under this CQCP and comply with the requirements of the contract.
- Coordinate and support the conduct of testing by the testing laboratory services.
- Exercising stop work procedures when necessary.
- To successfully enforce the CQCP, the CQC Systems Manager designates CQC Specialists for off- and on-site inspections, verification, and documentation of daily activities throughout the duration of the project.

2.1.4 Independent Sampling and Testing Subcontractor

Independent sampling and testing subcontractors are prequalified through an evaluation process based on the subcontractor's experience, qualifications, capabilities, and past performance. Sampling and testing will be performed by technicians with at least two projects that required the same type of experience. To execute the required conformance testing, as well as the testing of

the materials, the independent testing subcontractor performs numerous sampling activities. Tests to determine compliance with the Contract documents are performed by (TBD) on-site testing laboratory, which is United States Army Corp of Engineers (USACE) and or American Concrete Institute (ACI) certified, sufficiently equipped, and adequately staffed by fully qualified and experienced technicians to perform such tests. All permeability samples are tested at (TBD's) USACE certified laboratory located at (TBD), Florida. The independent sampling and testing laboratories will be authorized and approved by the District/PQACT before they perform any work.

The sampling and testing activities are dictated by the contract specifications and are monitored through the CQCP. The CQC Systems Manager and his/her designees (CQC Specialists) maintain constant contact with the sampling/testing subcontractors to observe that proper procedures are maintained, to ensure quality, and to obtain expeditious sampling, when required. Materials designated for testing will be delivered to the onsite laboratory. Once the results are available, they are verbally communicated to the CQC Systems Manager (or designee) and immediately followed by emailing a written account of the results to the CQC Systems Manager (or designee).

2.2 Personnel Qualifications, Indoctrination and Training

All personnel assigned to the project must possess the educational background, training, and experience appropriate to their assigned duties.

The project CQC staff members will be competent and capable to perform their assigned responsibilities and duties. This is accomplished through a review of the minimum qualifications necessary to perform the identified job assignments. The CQC Specialists shall have prior experience on at least two projects involving the criteria that they are monitoring for this project. The CQC Systems Manager reviews the CQC Specialists positions and evaluates which require specific licenses, certifications, or other forms of qualifications are necessary to perform the work. As applicants are reviewed and evaluated, the CQC Systems Manager documents the applicant's credentials, validating and ensuring that the applicant is qualified to perform tasks associated with the assigned job.

The personnel performing work on this project are trained in the CQCP and other site-specific plans and procedures required for performing their assigned work. This training is documented on the Training and Indoctrination Record is to be provided by the Contractor.

2.2.1 Personnel Indoctrination

The CQC Systems Manager is responsible to provide basic indoctrination of all project management, CQC staff, and key field personnel performing quality-related activities. The

indoctrination includes a review of the plan and related project planning procedures, work plans, regulatory requirements, and other project-specific documents necessary for performing project work. Indoctrination is documented and maintained on the individual's personnel forms or other suitable records. The Contractor shall provide samples of the forms before beginning of construction.

2.2.2 Subcontractor Qualifications

Subcontractors must demonstrate experience in a minimum of two projects that involve activities similar to those of the DFOW activities on which they are working.

All approved subcontractors working on the project are required to adhere to the CQCP and associated procedures.

2.2.3 Changes of QC Personnel

The Contractor maintains continuity of CQC personnel on the project. If personnel changes become necessary, the District/PQACT are notified of any proposed change in the CQC organization personnel and approved through the submittal approval system before that proposed change is made.

2.2.4 Contractor's Quality Control Organization Chart

Contractor to insert CQC Staff Organization Chart

2.2.5 Contractor's Quality Control Resumes

Contractor to insert CQC Staff Resumes

3. Project QC System

3.1. Contractor Quality Control Plan (CQCP) Review and Acceptance

The CQCP shall be prepared by the CQC Systems Manager. The CQCP shall be submitted to the District/PQACT for review and acceptance. Revisions to the CQCP shall be reviewed and approved in the same manner as the original issue.

3.2 Changes to the CQCP

The plan will be revised in sections or by the addition of supplements or addenda as the project progresses. Proposed changes are submitted to the District/PQACT, through the submittal process, for review and approval prior to implementation. The table of contents is revised each time any section of the plan is revised. Revised portions of the plan are indicated by RED

lettering. All accepted revisions of the plan are transmitted to plan holders. Each individual or organization designated as a plan holder is responsible for updating their copy of the plan. Copy holders are instructed to either return superseded sections to the CQC Systems Manager or destroy them once they have they updated section of the CQCP. The superseded section may be retained for information purposes as permitted, but it must be removed from its original position in the CQCP. If it is permissible to retain the superseded section, each page must be clearly marked "Information Only," and the section will not be used for the performance of CQC activities.

A list of plan holders will be developed through the combined efforts of the CQC Systems Manager and the DISTRICT/PQAC.

3.3 Control of the CQCP

The CQCP is a controlled document, and measures are included to maintain a current document and use the plan so that the CQC functions defined within are in accordance with the latest specified requirements. Distribution of the plan is controlled so that all revisions to the plan are issued to the plan holders and the superseded requirements revised accordingly in the existing plan. The issuance and distribution of controlled copies are directed and managed by the CQC Systems Manager. Furthermore, only controlled copies of the plan are issued. Each controlled copy is assigned a control number in a sequential order. The plan is transmitted to each plan holder, and the transmittal number references the controlled number assigned. The QCM Systems Manager maintains a log to indicate the control number, revision number, and the corresponding plan holder. Receipt of the plan is acknowledged and noted in the log. Controlled copies are placed in specific locations and are available to the individuals performing the work.

3.4 Testing

Tests are performed as required by the specifications and ITPs for each DFOW. The CQC Systems Manager and designees are responsible for monitoring the testing activities to verify conformance to the contract requirements. The monitoring includes project on-site activities, on-site laboratories, and off-site laboratories.

3.5 Documentation

Testing activities, as well as results of tests and monitoring activities, are included in the DQCR and are logged according to the contract. Test reports, calibration records, well monitoring records, engineer control records and other CQC forms used to document testing activities are maintained by the CQC Systems Manager. The DQCR, including any and all associated test documents, is submitted to the DISTRICT/PQACT within the following "close of business" day, in accordance with the project contract.

The Contractor shall maintain current records providing factual evidence that required CQC activities and/or tests have been performed. Include in these records the work of subcontractors and suppliers on appropriate forms as developed by the Contractor and approved by the District/PQACT. As samples, the District/PQACT has developed some of the reports, logs and forms to be used for recording the activities, inspections and testing for the project but they are preliminary and not all inclusive of the forms needed for the project. All reports, logs and forms shall be completed and submitted as dictated in these specifications for the individual report log or form, as well as in the Logs, Forms and Reports Table furnished in Appendix C of the project specification. All forms shall be completed in a manner that details the performances of the day and shall be legible and comprehensible. The reports shall be completed with a sizeable font to be acceptable by the District/PQACT. The following forms are mandatory. Once forms have been approved by the District/PQACT, they shall not be altered. Changes may be requested to the District/PQACT, but only the District/PQACT may alter the forms. The District/PQACT may alter or add forms in order to obtain important information for the success of the project.

3.5.1 Contractors Quality Control Report/Daily Log of Construction (DQCR)

Major elements of information in the DQCR include, but are not limited to the following:

- Contractor/Subcontractors and their area of responsibility.
- Operating plant/equipment with hours worked, idle or down for repairs.
- Work performed each day, giving location, description and by whom. When activity numbers are used, identify each phase of work performed each day by the activity number.
- Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial or Follow-up). List deficiencies noted along with corrective actions.
- Quantity of materials received at the site with statement as to specifications/drawings specifications.
- Submittals reviewed, with contract reference, by whom and action taken.
- Off-site surveillance activities, including action taken.
- Job safety evaluations stating what was checked, results and instructions or corrective actions.
- Instructions given/received and conflicts in plans and/or specifications.
- Attached CQC Specialists' and Design CQC System Manager Reports.

- Contractor's verification statement.

When activities are completed, they must be so noted on the DQCR. The District/PQACT conducts a final follow-up inspection for completed activities.

The DQCR must present an accurate and complete picture of QC activities. DQCRs shall not concentrate only on work items that have been completed, but also must provide evidence of control activities. They shall be precise, factual, legible, objective as possible and emphasize QC actions.

If statements are discovered in the DQCR that are contrary to the District/PQACT's knowledge of the work, actions will be taken to resolve the differences. The contractor may be asked to submit a supplemental report containing corrections.

Distribution of Report: Each report shall be electronically entered into the eBuilder data system each day. The report shall be distributed to the email list given to the Contractor by the District/PQACT, along with any updates of the email list.

Additional Comments: The CQC System Manager shall sign the Contractor's Verification Statement of each DQCR before submitting to the District/PQACT.

3.5.2 Daily Site Safety Report

The Daily Site Safety Report shall be completed each day in accordance with the Safety specifications of the project.

3.5.3 Submittal Register

The Contractor shall electronically submit a completed submittal register according to the contract specifications. The submittal Register shall be maintained at all time during the life of the project.

3.5.4 Transmittal Form

The Contractor shall electronically use transmittal forms to document submittals that are being submitted for approval to the District/PQACT. The transmittal shall be the cover sheet for any and all submittals.

3.5.5 Request for Information (RFI) Form

The Contractor shall electronically complete and submit a Request for Information (RFI) form in cases where it is necessary to confirm the interpretation of a detail, specification, or note on the

construction drawing, or to secure a documented directive or clarification from the engineer that is needed to continue work or to document a change request.

3.5.6 Not Used

3.5.7 Inspection Test Plan (ITP) Form

ITP forms shall be used to document inspections and tests to be performed during each activity.

3.5.8 Not Used

3.5.9 Preparatory Control Phase Inspection Meeting Checklist

As stated in paragraph 3.7.1, notification of each Preparatory Control Phase Inspection meetings shall be performed in writing (E-mail) 48 hours before each Preparatory Control Phase Inspection Meeting. A checklist shall be developed that will outline the itinerary of the meeting.

3.5.10 Initial Control Phase Inspection Agenda

As stated in paragraph 3.7.2, notification of each Initial Control Phase Inspection meeting shall be performed in writing (E-mail) 48 hours before each Initial Control Phase Inspection Meeting. An agenda shall be developed that will outline the itinerary of the meeting. The agenda shall accompany the 48 hour notice of the meeting.

3.5.11 Final Follow-up Control Phase Inspection Checklist

Daily Follow-up Control Phase Inspections shall be recorded in the DQCR.

3.5.12 Punch-Out Inspection Form

The Punch-Out Inspection Form shall be used to document work which does not conform to the contract.

3.5.13 Pre-Final Punchlist Form

The Pre-Final Punchlist form shall be used to document work which does not conform to the contract.

3.5.14 Three Phase Inspection Schedule/Log

The Three Phase Control Inspection Schedule/Log shall be partially completed by the Contractor as soon as the first Construction Schedules have been approved by the District/PQACT thru the submittal process. The schedule/log shall be prepared by including the following:

- List of all Definable Features of Work
- Original dates that the Preparatory Control Phase Inspections should be performed according to the original Construction Schedule.
- Original dates that the Initial Control Phase Inspections should be performed according to the original Construction Schedule.
- Original dates that the Final Follow-Up Control Phase Inspections should be performed according to the original Construction Schedule.
- Actual dates that the Preparatory Control Phase Inspections were performed.
- Actual dates that the Initial Control Phase Inspections were performed.
- Actual dates that the Final Follow-Up Control Phase Inspections were performed.
- Adjusted dates anticipated for the Preparatory Control Phase Inspection should be performed according to Construction Schedule changes.
- Adjusted dates anticipated for the Initial Control Phase Inspection should be performed according to Construction Schedule changes.
- Adjusted dates anticipated for the Final Follow-Up Control Phase Inspection should be performed according to Construction Schedule changes.

3.5.15 Three Week Look-Ahead Schedule

The Three Week Look-Ahead shall be created each week showing the past weeks activities, the present week's activities and the following two week's planned activities. The Schedule shall include a bar chart and shall include activity numbers, activities and dates. The schedule shall include all planned Three Control Phase Inspections.

3.5.16 Contractor's Deficiency/Rework Items Log

The Contractor shall maintain a Contractor's Deficiency Tracking/Rework Items Log. The Log shall be used to track and report all non-conforming work identified by the Contractor and/or the District/PQACT. The Log shall contain the following:

- Deficiency tracking number

- Description of the non-conforming work
- The date the deficiency was identified
- The date the deficiency was corrected
- The date the correction was verified by the CQSM
- Description of the Corrective Action taken to correct the deficiency

3.5.17 Wildlife Training/SSH Log

The Wildlife Training Log is described in another section of the contract. See the Environmental Protection Plan

3.5.18 Wildlife Sighting Report

The Wildlife Sighting Report is described in another section of the contract. See the Environmental Protection Plan.

Attachment of the Log to the DQCR: YES

3.5.19 Actual Monthly Weather Conditions Report

An Actual Monthly Weather Conditions Weather Report shall be maintained throughout the life of the project. The Report shall consist of the following:

- Month/Year
- Date of the month
- Weather condition
- Hours lost due to weather (critical path activities)
- Anticipated or actual delay (anticipated example: Hazardous weather forecasted to be present)
- Activity delayed and Remarks

The report shall be completed for each day, including non-working days. Severe weather on a non-working day may cause delays for the following working day.

3.5.20 BMP Inspection Log

The BMP Inspection Log shall be used to document BMP controls along with the maintenance of the controls. The Report shall consist of the information needed to ensure all BMPs are working properly and shall be updated during each inspection (weekly or post rain event).

3.5.21 Surveyors Daily Log

A surveyor keeps a daily log book to log all his points, readings, etc. during his/her activities throughout the day while surveying. A copy of the daily log pages shall accompany the survey works checklist.

3.5.22 Dewatering Report

The Dewatering Report shall be used to determine the depth of ground water of the well point system, monitor wells and/or piezometers while performing dewatering activities throughout the project.

3.5.23 Turbidity Monitoring Reports

The Turbidity Monitoring Reports shall adhere to the FDEP permit.

3.5.24 Settlement Monitoring Log

Settlement Monitoring Logs shall be used during activities which require settlement to be monitored throughout the project.

3.5.25 Sheetpile Driving Record

Sheetpile Driving records shall be used to document that the Sheetpile Driving activities adhere to the project specifications and drawings.

3.5.26 Sheetpile Deflection Monitoring Log

The Sheetpile Deflection Monitoring Log shall be used to detect any deflection of the sheetpiles and to determine the rate of the deflection.

3.5.27 Backfilling and Compaction Checklist

The Backfill and Compaction Checklist shall be used to document that the inspection of the compacted backfilling activities have been performed and that the width, length and height of the backfill are according to the specifications and drawings of the contract. The inspection must be performed by the Contractor and the District/PQACT.

3.5.28 Concrete Pre-placement Checklist

The Concrete Pre-placement Checklist is used to verify that all pre-concrete activities are complete and adhere to the specifications and drawings for the concrete pour including, but not limited to, submittal approvals, concrete mix, accessories and insulation.

3.5.29 Pre-Install Masonry Inspection Form

The Pre-Install Masonry Inspection Form is used to verify that all pre-masonry activities are complete and adhere to the specifications and drawings for the concrete pour including, but not limited to, submittal approvals, mortar mix, accessories and insulation.

3.5.30 Certificate of Hydrostatic / Pneumatic Test

A Certificate of Hydrostatic/Pneumatic Test shall be completed at the completion of all successful hydrostatic/pneumatic pipe testing activities according to specification 40 05 13.

3.5.31 Drainage Pipe Water Line Inspection Form

The Drainage Pipe Water Line Pipe Inspection Form shall be used to document that the inspections of all drainage and waterline pipe installation have been completed and that the installations adhere to the project specifications.

3.5.32 Steel Door, Widows and Frames Checklist

The Metal Door/Frame Checklist shall be used to document the inspections of all door fabrication, door and/or window frame and door installations.

3.5.33 Pre-Engineered Components Checklist

The Pre-Engineered Checklist shall be used to document the inspections of delivered pre-engineered buildings during delivery, as well as pre-installation and installation.

3.5.34 Structural Steel Checklist

The Structural Steel Checklist shall be used to document the inspections of delivered materials, submittals, preparatory inspection meetings, initial inspections, asbuilts drawings, safety, pre-structure erecting activities, and daily structure erecting activities, as well as to assure the next phase does not begin until all inspections are successful.

3.5.35 Welding Inspection Reports

The Contractor shall submit to the District/PQACT all weld testing reports by their certified weld testing company.

3.5.36 Thermistor Reading Log

The Contractor shall maintain a Thermistor Reading Log for each thermistor installed according to the Cast-in-Place specifications to monitor temperature of curing concrete during the lifetime of the thermistors.

3.5.37 Electrical Installation Inspection Form

The Contractor shall use the Electrical Inspection Form to document that all of the electrical inspections have been performed according to the contract specifications.

3.6 Interface and District Inspection

The CQC Systems Manager provides timely notification via email or other notification methods, decided upon by the contractor and District/PQACT to the District/PQACT to allow for witnessing inspections, testing, and/or other quality-related activities that may occur on and off site.

The contractor allows/provides District/PQACT access to the work. The contractor will notify the District/PQACT 48 hours in advance when it intends to begin new work activities.

3.7 Technical Review

The District/PQACT conducts weekly meetings, with the CQC Staff in attendance, to discuss concerns and issues, along with the progress, methods, and means of the activities. The meeting will serve as a forum to ask and answer questions concerning the subcontractor's testing means and methods. The project PQACT Design Engineer will be encouraged to attend and explain/remedy QC issues at hand.

3.8 Construction Photographs

The CQC staff takes construction photographs to provide a visual documentation of the work, as described in project specifications.

Throughout the project, the CQC Staff take daily photographs with digital cameras to verify the work performed. All CQC photos are entered into a photograph database and are logged into a daily photo log. The daily photo log includes the following information:

- Project Name
- Project Location
- Project Number
- Photo Number
- Date of Photo
- Time of Photo
- Task and Description of Photo
- Photo View Direction

4. Documentation and Reporting

The CQC Systems Manager will establish a document control system by providing measures for the issuance, distribution, storage, and maintenance of documents relating to quality. This function includes regulating and maintaining subcontractor documents. All documents are logged through the CQC Systems Manager's office.

To ensure that only approved and applicable documents are available at the location where the activity will be performed, the issuance and revision of documents affecting quality are controlled prior to commencing work. The CQC Systems Manager (or designee) reviews the documents to verify the inclusion of the contract requirements.

4.1 Daily Quality Control Report (DQCR) Check specifications for further comments

The CQC Systems Manager (or designee) completes a DQCR to document all project activities as required by the District/PQACT. The daily report incorporates the following information:

- All aspects of work performed that day.
- Identification and documentation of any deficiencies discovered.
- A statement of certification that all materials, supplies, and work comply with the contract requirements.
- A report of the results of any control tests and inspections conducted as required by the CQCP or the specifications.
- Follow-up on correction of deficiencies.

Although the CQC Systems Manager is ultimately responsible for providing and submitting the daily reports, the entire CQC staff collaborates in the preparation and endorsement of the information's accuracy. The CQC staff provides daily reports to the CQC Systems Manager (or designee) in an organized and timely manner. The CQC Systems Manager ensures that all information compiled from the staff and associates is included in the DQCR and is completed and submitted on schedule as identified in the contract. The CQC Specialists provide their daily construction activities, including any unforeseen problems, arising issues, or concerns and resolutions. The CPM (or designee) provides general comments, instructions received by the District/PQACT, and any other accounts that require documentation in the DQCR. The CQCSM compiles and reviews the CQC activities captured in the DQCR and submits them to the District/PQACT.

The CQC staff collaborative effort to report daily activities include the following activities:

- A CQC staff meeting before the start of work to provide the previous day's report.
- Each CQC Specialists discusses the activities planned for that day.
- The CQC Systems Manager provides the forms to be used for the DQCR.
- Additional documentation (e.g., test reports, subcontractor daily reports, NCNs, and other pertinent documentation) are included in the DQCR as attachments.

4.2 Control Phase System

The CQC Systems Manager documents the control phase activities. The Preparatory Inspection Report and Initial Inspection Report forms are used to document these control phase activities. The follow-up phase is documented in the DQCR. Copies of the completed forms are attached to the DQCR on the day that a control phase is completed.

4.3 Contract Document Control

The CQC Systems Manager maintains project records in a log form of the most up-to-date documents issued for construction and adjustments. No contract document will be replaced or revised without written receipt of an approved modification, direction from the District/PQACT.

The CQC staff produces the as-built drawings for the project and submits a copy to the CQC Systems Manager for review. As part of the document control function, copies of all as-built drawings are maintained in the CQC file and documented on an as-built drawing log. The District/PQACT will review the as-built drawings from time to time for accuracy and timely update.

Check specifications to see criteria and specs regarding submission before monthly payment.

4.4 Project Records

The project's CQC records are prepared to supply documented evidence that the design, construction, and operation activities, including test results, comply with the quality requirements of the contract. The original records are submitted to the District/PQACT for the project's records. An electronic copy of all reports will be generated. A copy is kept in the CQC file and is logged into the QMS.

4.5 Submittal Control

All submittal data shall be forwarded from respective Subcontractors, Manufacturers, and/or vendors to the Contractor CQC Team. The CQC Team shall verify each submittal is complete and in sufficient detail to allow ready determination of compliance with the Contract requirements. Once the submittal is deemed acceptable by the CQC Team, a transmittal will be generated, to include the CQC Team's signed stamp of approval. Submittals shall be transmitted to the District for review, with transmittal number recorded on the Submittal Register, included in this plan for reference.

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. The approved Submittal Register shall become the record keeping document and will be used to control and track submittal progress. The scheduling of all major submittals will be coordinated within the Project Construction Schedule.

All submittals will include a transmittal cover sheet to clearly identify the following:

- Contract Information and District Contact
- Submittal Number and Description
- Pertinent Plan Sheets and Specification Sections
- Contractors Stamp of Approval
- Related comments for submittal content, including deviations from or clarifications to specific Contract requirements

One electronic copy of each submittal will be transmitted to the District for initial review. If the submittal file is too large to successfully transmit via email, the CQC team will upload the submittal onto the Contractors FTP site to allow access for the reviewers. Once approved, and notification is received from the District, the Contractor will submit one (1) conformed hard copy and one (1) conformed PDF file to the District for distribution. If the submittal is required

to be signed and sealed, the hard copy transmitted will contain the original seal and signature for record.

5. QC Inspection

5.1 Introduction

The CQC Inspection Plan establishes the measures required to verify the quality of work performed and compliance to the specified requirements, including the inspection of materials and workmanship before, during, and after each DFOW. The plan is based upon a three-phase system that consists of the following inspections:

- Preparatory
- Initial
- Follow-up

Additional inspections are conducted as necessary to ensure compliance with the contract specifications.

5.2 Control of Measuring and Test Equipment Inspection

Control systems are established and implemented to ensure that tools, gauges, instruments, and other measuring and test equipment used are controlled, calibrated, and adjusted at specific intervals so that their accuracy is maintained. Scales and nuclear density moisture gauges are included in this category.

A calibration and control system is not required for rulers, tape measures, levels, or other devices, if normal commercial standards provide adequate accuracy. In addition, the control system may not apply to test equipment used for preliminary checks, or when data obtained will not be used to determine acceptability or be the basis for design or engineering evaluation.

Documented procedures are used for calibrating Measuring and Test Equipment (M&TE) and measurement reference standards. Procedures such as published standard practices, written instructions dictated in the contract or that accompany purchased equipment, or other nationally accepted instructions are maintained based on the risk and complexity of the item being tested.

The CQC Systems Manager is responsible for routinely inspecting the lab equipment for suitability and the MT&E for up-to-date calibration requirements.

5.3 Preparatory Inspection

A preparatory phase inspection/meeting is held before beginning work for each DFOW. This meeting occurs after all required plans, documents, submittals and materials are approved and accepted, along with all Request for Information RFIs that have been answered and available at the work site. The District/PQACT is notified of the preparatory meeting at least 48 (working day) hours in advance of the meeting as an invitation to attend the meeting. The CQC Systems Manager coordinates and facilitates the preparatory meeting. The meeting is attended by (but is not limited to) following staff:

- CQC Systems Manager
- Alternate CQC Systems Manager
- Contractor's CQC Staff assigned to the DFOW
- CQC Specialists for DFOW
- District/PQACT
- Contractor's Site Safety and Health Officer (SSHO)
- Contractor's PM
- Third Party Sampling/Testing Staff assigned to the DFOW
- Subcontractor Representative assigned to the DFOW.

Others that could or should be considered to attend a preparatory meeting:

- Design Engineer
- Manufacturer Representative of specialty items
- Materials Representative such as concrete or aggregate delivery scheduler

Meeting minutes are provided and are electronically transmitted for review by the attendees of the meeting. Any modifications to the original meeting minutes go through a second review process. If any discrepancies exist, a meeting is scheduled to amend/adjust the meeting minutes. The minutes are entered into the project's database and become a working document of the project.

The preparatory phase meeting/inspection includes the following agenda for the specific DFOW:

- Specification(s) Review
- Drawing(s) Review

- Submittal(s) Review
- RFI(s) Review
- ITP(s) Reviews
- Quality forms to be used to document quality activities
- Deficiency List that could affect the DFOW
- Minimum Worksite Expectation Review w/ Checklist (i.e., acceptance)
- Job Hazardous Analysis
- Communications
- Documentation

Every preparatory phase meeting/inspection is recorded on the Preparatory Phase Meeting/Inspection form and the Three-Phase Inspection Log. All documents are entered into the project database and become working documents.

Discussion of the scheduling of the initial control phase for the DFOW (which should be performed the very earliest opportunity after the start of the work, but when a sample of the work may be examined).

Some provisional activities to acknowledge are as follows:

- When the same DFOW is included at more than one area or in different shifts by different personnel, the preparatory meeting/inspection may cover all of the areas at one time, as long as the required personnel designated for all areas or shifts are present.
- If more than one DFOW are associated with each other and may cause more than one group of workers to be working next to each other a combined DFOW meeting/inspection may be performed if the District/PQACT feels it to be a legitimate quality/safety concern of the project. The request for a joint meeting will need to be submitted through an RFI and approved by the District/PQACT.

5.4 Initial Inspection

The initial phase inspection will be conducted soon after the beginning of a DFOW at the earliest opportunity after the start of the work when a sample of the work can be examined. The District/PQACT is notified at least 48 (working day) hours before the beginning of the initial phase inspection. The initial phase inspection includes the following tasks:

- Check preliminary work to ensure that the work complies with the contract.

- Review preparatory meeting minutes.
- Verify adequacy of controls to ensure full contract compliance.
- Verify required control inspection and testing.
- Establish level of workmanship and verify that it meets minimum acceptable workmanship standards.
- Check safety and verify compliance with approved safety plan and AHA.
- Review any and all deficiencies recorded associated with the DFOW or that could affect the DFOW.
- Review test results associated with the DFOW.
- Resolve all differences.

There are times when more than one initial inspection will be performed for the DFOW.

- Conduct a separate initial phase inspection for each new shift to work on the site.
- Conduct a separate initial phase inspection when acceptable quality standards are not being met.
- Conduct a separate initial phase inspection when DFOW is being performed at different areas by different crews.
- Record each initial phase inspection on the Initial Phase Meeting/Inspection form and the Three-Phase Inspection log. All documents are entered into the project database and become working documents.

Additional preparatory and initial phase meetings/inspections are conducted on the same DFOW if the following conditions arise:

1. The quality of ongoing work is unacceptable.
2. There are changes in the work crew Supervisor.
3. Work on a DFOW is resumed after a substantial period of inactivity.
4. Other problems develop.

5.5 Follow-up Inspection

Follow-up inspections provide continuous checks to ensure that all requirements of the contract have been and are continuously being met. Follow-up inspections are performed daily throughout the course of the DFOW. The Follow-up inspections are performed by the CQC

Systems Manager designated for the individual DFOWs, assigned by the CQC Systems Manager. The inspections are reported in the DQCR for each DFOW each day during the course of activity of the DFOW.

During the course of the DFOW, the District/PQACT may require a joint Follow-up inspection with the contractor. The frequency of the joint follow-up inspections depends on the extent of the work being performed, along with arising issues, concerns, and level of difficulty. The CQC Systems Manager will accompany the District/PQACT on any joint Follow-up inspections and the inspections will be documented on the DQCR.

Follow-up inspections are also performed on any completed work phase before starting subsequent phases. Nonconforming conditions identified are corrected in a timely manner or are placed on a punch list. Nonconforming conditions are corrected, re-inspected and approved by the CQC Systems Manager before performing any work that could conceal the nonconforming work. Follow-up inspections are reported on the DQCR, and the Three-Phase Inspection log. When performing Follow-up inspections, the CQC Systems Manager will document acceptable and non-acceptable work. All documents are entered into the project's database and become working documents.

5.6 Pre-final Inspection

When the Contractor considers all or part of an activity of a DFOW is completed that will be covered by a proceeding activity, the CQC staff will conduct a detailed inspection of the work. The CQC staff then uses the pre-final inspection report to develop an itemized punch list of every element that does not comply with the contract drawings and specifications. The pre-final inspection form includes a detailed account of the item's issue, reason/justification for noncompliance, and the anticipated date for corrections to be made. After the punch list items are corrected, the CQC Systems Manager notifies the District/PQACT that the work is complete (except for items listed by the CQC Systems Manager as incomplete), requesting that the District/PQACT schedule the District pre-final inspection.

The pre-final inspection is conducted by the District/PQACT, CPM (or designee), and CQCSM. At the pre-final inspection, the District/PQACT will develop a specified punch list of incomplete and/or unacceptable work performed under the contract and subsequently furnishes this list to Contractor for correction.

5.7 Final Inspection

After the CQC Systems Manager has determined and documented that all incomplete and/or unacceptable work, identified in the pre-final inspection, has been corrected, the CQC Systems Manager will request a final inspection with the District/PQACT. The final inspection is

coordinated and facilitated by the District/PQACT, the CPM (or designee), and the CQC Systems Manager. This inspection is documented in the Final Inspection Report.

Any punch list items generated during the final inspection must be corrected by the Contractor or the Contractor's subcontractor within the time allotted for that particular DFOW or activity of the DFOW. Upon completion of the punch list items, a follow-up final inspection is conducted by the District/PQACT, CPM (or designee), and CQC Systems Manager to verify that the completed work complies with the contract requirements. Final acceptance work is documented by the District in the Acceptance Inspection Report and is submitted to the Contractor upon completion and acceptance.

5.8 Inspection Documents

The CQC Systems Manager is responsible for maintaining the inspection records. Inspection records must meet the following requirements:

1. Be legible.
2. Clearly provide all information necessary to verify the items or activities inspected.
3. Conform to the specified requirements, or, in the case of nonconforming conditions, provide evidence that the conditions were brought into conformance or otherwise accepted by the District/PQACT.

The inspection documents are working documents and are incorporated electronically into the project's database.

The Contractor is responsible for maintaining and delivering project CQC records in hard copy and electronic format to the District/PQACT. All CQC records and test reports are made available for inspection and review by the District/PQACT.

6. Engineering Controls

When a Florida-licensed engineer is required, work is performed by Contractor's Florida-licensed subcontractor surveyor.

The Contractor is solely and completely responsible for the accuracy of the line and grade of all features of the work. Any errors or apparent discrepancies found in previous surveys, plans, or specifications are brought to the attention of the District/PQACT by the Contractor for corrections or interpretation before proceeding with the work.

Field notes are kept in standard, bound field notebooks in a clear, orderly, and neat manner consistent with standard practices.

The Contractor is responsible for the placement and preservation of adequate ties and references to all control points (whether they are established by the Contractor or found on the project) necessary for the accurate re-establishment of all base lines or center lines shown on the drawings.

All land ties (e.g., section corners, fractional section corners, and similar items) that may be lost or destroyed during construction will be carefully referenced and replaced.

The Contractor is responsible for supervising the construction engineering personnel.

7. Certifications and Testing

7.1 Confirmation Testing

To ensure compliance with the construction drawings and technical specifications, the testing and laboratory subcontractor performs conformance testing of materials under the direction of the CQC Systems Manager. If any testing reveals defective work, the Contractor will immediately either correct the defective work or remove it from the project site and replace it with conforming work.

7.2 QC Testing

The Contractor conducts CQC tests in accordance with the appropriate ITP to verify conformance with the requirements of the specifications. The tests include (but are not limited to) the following specifications:

- Material type
- Material quality
- Material gradation
- Material density
- Material moisture content
- Installation equipment
- Installation methods

Field CQC tests are performed by testing/laboratory subcontractors through samples collected from in-place materials and borrow source materials.

Samples for test are recorded on a Chain of Custody (COC) form.

Test results are submitted to the District/PQACT within 24 hour following completion of the field test (when applicable).

7.3 Testing Identification

To assist with the sample tracking efforts, the Contractor develops a specific test identification system for all testing throughout the project. Each type of test is assigned a unique identification number. The body of the number includes the location of test, lift, elevation of test, and numerical order of the test. The identification system is defined on the COC and is logged onto a Daily Sample/Test Log, which is maintained by the Contractor's testing and laboratory subcontractor and is submitted to the CQC Systems Manager (or designee) at the beginning of the following day of sampling.

7.4 Test Documentation/Records

The Contractor's testing and laboratory subcontractor submits test records of each test performed to the CQC Systems Manager. The test records are:

- Reviewed for determination of compliance.
- Matched with the appropriate COC and logged accordingly onto the Daily Sample Test Log.
- Copied for file.
- The Contractor submits the written reports of tests to the District/PQACT in accordance with project contract specifications.

8. Subcontractor QC

All subcontractors are required to adhere to the CQCP and contract documents at all times and are under the direction of and in full the responsibility of the Contractor.

9. Nonconformance Notice/Deficiency/Deviation and Corrective Action

During the course of construction activities, issues will arise that must be evaluated and resolved. The Contract documents provide the guidelines or criteria for reviewing and evaluating these issues. Typically these issues fall into one or more of the following categories: Nonconformance, a Deficiency or a Deviation. All nonconformance items, deficiencies and deviations will be logged and tracked through closure.

9.1 Nonconformance Notice

The District/PQACT uses a Nonconformance Notice (NCN) to identify and document work or materials not conforming to the specifications or contract requirements which is not corrected by the Contractor in a timely manner.

As a minimum, the NCN captures the following information:

1. Details regarding the nonconforming condition
2. Recommend corrective action(s)
3. Verification as acceptable by the District/PQACT

The NCN remains open until the nonconforming condition has been satisfactorily resolved and verified as stated above.

A nonconformance may be identified at any time during the course of the prosecution of the work. When the issue or situation warrants such action, the District/PQACT develops the NCN then transmits the NCN to the Contractor.

NOTE: It is the intent that the District/PQACT and the Contractor work closely together to avoid the issuance of an NCN.

A Nonconformance issue is defined as follows:

- An in-process noncompliance with the specification, drawing, requirements, or workmanship standards.
- An occurrence wherein defective work or work lacking some essential part has been covered or is otherwise left as incomplete.
- Products supplied to the site or incorporated into the work do not meet the conditions of the contract document.
- Inspection points or contract requirements affecting quality of the work have not been met.

NOTE: Minor defects of work for which construction is underway may not necessarily be considered a Nonconformance issue, but could be categorized as a deficiency, provided the defect is corrected in accordance with the contract documents before the work is completed. Deficiency and Deviation are defined as follows:

Deficiency: The quality or condition of being deficient, incomplete or inadequate from the contract requirements and/or workmanship standards.

Deviation: A change or alteration from the contract requirements and/or workmanship standards.

If the Contractor fails to respond in such reasonable time, determined by the District/PQACT, or if there is repeat occurrences of the issues without mitigation cause, a NCN may be issued.

9.2 Identification of Nonconformance/Deficiency/Deviation Items

Items identified as nonconforming are documented on an NCR. Items identified as deficient are documented on a Deficiency Report. Items identified as deviations are documented on a Deviation Report. Each report will include the following information respectively:

- Title of the Nonconformance Notice/Deficiency Notice/Deviation Notice
- Identification of the specification (specification number and specification language), drawing (drawing number and detail instruction) or RFI (RFI number and RFI answer) requirement that was not adhered to or not achieved
- Detailed description of nonconformance item/activity or deficiency in violation of the requirement(s)
- Description of the deviation
- Cause of nonconformance or deficiency
- Cause of the deviation
- Recommendation of disposition
- Disposition and verification of corrective action of nonconformance or deficiency

9.3 Nonconformance/Deficiency/Deviation Tracking Logs

Each identified nonconformance, deficiency and deviation will be documented on the respective NCN Tracking Logs. Each logged item includes the following information:

- NCN/deficiency/deviation number
- Originating organization
- Date NCN/deficiency/deviation identified/issued
- Individual/organization assigned responsibility
- Date of disposition
- Corrective action and/or resolution verified and date

- Date NCN/deficiency/deviation closed out

9.4 Resolution, Corrective Action and Verification

The District/PQACT is responsible for evaluating the cause of a nonconformance or deficiency and recommends solutions for correcting such items. The Contractor's PM coordinates with the CQC Systems Manager to review the issue, develops propose remedial action to correct and implement the desired corrective action to resolve the nonconformance or deficiency. The disposition typically falls into one of the following categories:

- Reworked to meet the original requirements
- Repair accepted by the District/PQACT
- Use-as-is accepted by the District/PQACT
- Rejected or scrapped

The proposed disposition is proposed to the District/PQACT and reviewed for approval by the District/PQACT.

The CQC Systems Manager is responsible for verifying the implementation of proposed and approved actions impacting quality. All repaired or reworked items are re-inspected in the manner that identified the nonconformance or deficiency. The NCN and/or the deficiency report documents the results of the disposition actions and the results of re-inspection. No work may be performed to cover up any nonconformance work before the nonconformance work is completed, re-inspected and approved by the District/PQACT.

9.5 Stop Work

The District/PQACT has the authority to stop the nonconforming conditions that affect the quality of the project, jeopardize safety, and/or cause an environmental hazard. A stop work notice can also be issued if insufficient corrective action has resulted in the correction of the nonconformance or recurrence of nonconforming work. The CQC Systems Manager conveys the reasons for the stop work notice to the Contractor's PM. The stop work situation must be resolved and approved by the CQC Systems Manager before work can resume.

9.6 Conflict Resolution

All conflicts are resolved in accordance with the requirements specified in the contract documents. Any interpretation conflicts of the contract documents will be resolved by the District Construction Manager.

9.7 Preventive Action

The CQC Systems Manager conducts a trend analysis of the NCNs, deficiencies, and stop work orders to perform root cause analyses for all project-identified deficiencies if the deficiencies are repeated. The CQC Systems Manager and the CPM will analyze the trends developing and implements appropriate actions to prevent recurrence of the adverse trends. The CQC Systems Manager will verify implementation of the preventive actions and report the results to the District/PQACT.

Problem or work deficiency meetings, the documented resolution of noted nonconformance issues and trends shall be included in the certification report following completion of work.